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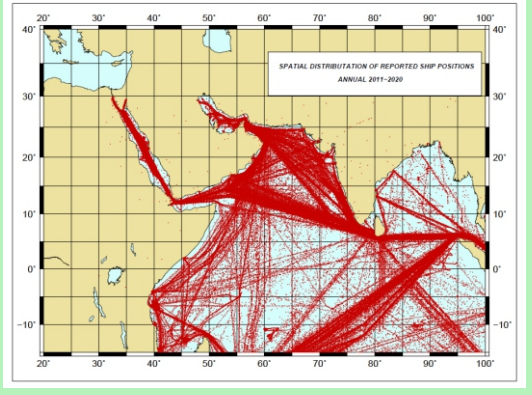
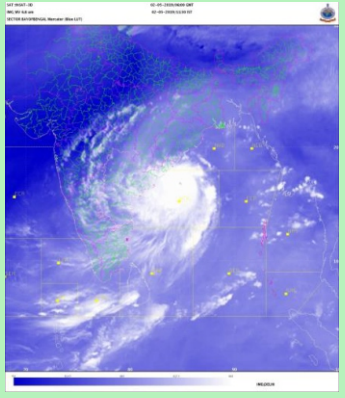
GOVERNMENT OF INDIA
पृथ्वी विज्ञान मंत्रालय
MINISTRY OF EARTH SCIENCES
भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT

Years of Service to the Nation
राष्ट्र सेवा के 150 वर्ष

Marine Climatological Summary (2001-2010)





OFFICE OF THE HEAD, CLIMATE RESEARCH & SERVICES
INDIA METEOROLOGICAL DEPARTMENT
PUNE - 411 005

CREDITS

Marine Climatological Summary Charts

2001-2010

COMPILATION & EDITING: Climate Monitoring and Prediction Group

OFFICE OF THE
CLIMATE RESEARCH AND SERVICES
INDIA METEOROLOGICAL DEPARTMENT,
SHIVAJINAGAR, PUNE 411 005

PREFACE

One of the major obstacles that continue to be faced by the meteorological community in developing dynamical models for the weather and climate forecasting is the scarcity of data particularly from the vast areas of the global oceans. Knowledge of weather conditions over the oceans is also essential for operational planning for maritime activities, the design of vessels and coastal and offshore facilities, the exploitation of marine and sea-bed resources, the response to oil spills at sea, climate research etc. The valuable observations collected by the World Meteorological Organization (WMO)'s Voluntary Observing Ships (VOS) have been therefore vital for these important activities. The VOS Scheme is a cost effective international programme comprising member countries of the World Meteorological Organization (WMO). Under the aegis of WMO, India Meteorological Department has enlisted a Voluntary Observing Fleet (VOF) that are regularly visiting Indian shores to take marine meteorological observations and transmit them to shore at no cost to the ship. The VOF consists of merchant ships of Indian registry, some foreign merchant vessels and a few ships of the Indian Navy. The ships provide observations free of charge in return for the instrumentation and the forecasting and warning services.

Following the WMO recommendation, the decadal marine climatological summary is published in the chart form and while preparing the summary all available observations from that particular month for all years during the period of the summary is considered. This publication presents the Charts of Marine Climatological Summary over the Indian region prepared based on marine observations recorded during the decade 2001-2010.

India Meteorological Department acknowledges deep appreciation for the excellent efforts of the officers and staff of all the ships involved in the recording of marine data used in the preparation of this climatological summary.

Dr. O. P. Sreejith, Sc. F developed the software for the computation, plotting and supervised the entire work. Smt. Bharati Sabade Met. B and Shri. Sunil Narke, Met. A. provided assistance in the various stages of this publication. The DTP unit of DTP unit helped in the designing, typesetting and preparation of electronic copy of this publication.

I express my sincere appreciation to their efforts and overall guidance of Shri K. S. Hosalikar, Head, CRS Pune.

New Delhi
February, 2024

Dr. M. Mohapatra
Director General of Meteorology

INTRODUCTION

India is one of the eight responsible members (RMs) of Marine Climatological Summaries Scheme (MCSS) established by the WMO Commission for Marine Meteorology (CMM) in 1963. The objective of MCSS was to develop and maintain a joint effort of all maritime nations in the collection of marine data and production of climatological statistics. Each of the eight RMs was assigned a specific area of responsibility. Area of responsibility assigned to India was north of latitude 15^0 S and between longitude 20^0 E and 100^0 E of Indian Ocean. Following the revision of the MCSS, in line with Rec. 11, CMM-XI and Resolution 10, EC-XLV 1993, two Global Climate Centers (GCCs) for marine climatological data were established in 1994 at Germany and United Kingdom. GCCs collect Voluntary Observing Fleet (VOF) data from member countries of MCSS quarterly and after ensuring that these data meet the Minimum Quality Control Standards (MQCS) re-distribute the data to the RMs. The marine data regularly received from GCCs are archived at National Data Center (NDC), India Meteorological Department (IMD), Pune. As per the present practice, the decadal summaries are prepared in the chart form. IMD published first chart form of decadal marine climatological summary for the period 1971-80 in 1999. Subsequently, in 2002, a marine climate atlas based on the data of 1961-1990 was published. This volume of the decadal marine climatological summary was prepared using the data for the period 2001-2010.

At the end of climatological summary charts for each month and that for the annual, the spatial distribution of the ship positions from where the observations were recorded is presented. For the annual, the bar diagrams showing the country wise and year wise distribution of the number of observations contributed by the member countries of MCSS is given.

Data Sources & Computation of the Statistics

For the preparation of these climatological summary charts, all the data for the period 2001-2010 available in the data archive of NDC were used.

The statistics was computed at each spatial grid boxes of 5^oX5^o, latitude X longitude over the Indian Oceanic region under Indian responsibility. There were 96 such grid boxes. The computations were done using FORTRAN programs developed in house. For the computation of the statistics the following points were considered.

$5^{o}X5^{o}$, latitude X longitude over the Indian Oceanic region under Indian responsibility. There were 96 such grid boxes. The computations were done using FORTRAN programs developed in house. For the computation of the statistics the following points were considered.

1. The formula for calculating standard deviation (σ) is

$$\sigma = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}}$$

Where, x is the value of an individual observation and n is the number of observations.

2. Steadiness = (vector average) / (scalar average)
Calm winds were rejected in calculating the steadiness; wind speed of variable directions was taken as 0 in calculating the vector average but retained in calculating the scalar average. The steadiness is expressed in percentage.

3. The prevailing wind direction is the direction in which the number of occurrence is the greatest, irrespective of the associated wind speed. Winds of variable directions were rejected in the calculation.

4. When the sea and swell waves were reported simultaneously, only the group with the greatest height (or with the greatest period if the heights were equal) was included in the calculation.

Presentation of the Climatological Summary Charts

For the presentation of climatological data, a chart with spatial domain bounded between $15^{o}S$-$40^{o}N$ and $20^{o}E$-$100^{o}E$ has been used. The charts were prepared using Generic Mapping Tools (GMT). In each of the summary chart, 3 different statistical values of the eighteen elements as specified in the Table-A were plotted on each of the $5^{o}X5^{o}$ grid boxes. The charts are arranged in the order of month and annual charts are given in the end.

TABLE - A

Chart	Parameter	Details
I	1	Mean Air Temperature (0.1^0C)
	2	Standard deviation of air temperature (0.1^0C)
	3	Number of observation of air temperature
II	1	Mean Sea surface Temperature (0.1^0C)
	2	Standard deviation of sea surface temperature (0.1^0C)
	3	Number of observation of sea surface temperature
III	1	Mean dew point temperature (0.1^0C)
	2	Standard deviation of dew point temperature (0.1^0C)
	3	Number of observation of dew point temperature
IV	1	Mean air-sea temperature difference (0.1^0C)
	2	Standard deviation of air-sea temperature difference (0.1^0C)
	3	Number of observation of air-sea temperature difference
V	1	Median wind speed (f_{50}, 0.1m/s)
	2	Standard deviation of wind speed (0.1m/s)
	3	Steadiness of wind (0.1%)
VI	1	Prevailing wind direction (to the nearest 10 degrees)
	2	Number of total wind speed observations
	3	Number of measured wind speed observations
VII	1	Percentage of light winds ($\leq$ 3 m/s) (0.1%)
	2	Percentage of strong winds ($\geq$ 11 m/s) (0.1%)
	3	Prevailing direction of strong winds (to the nearest 10 degree)
VIII	1	Percentage of gales ($\geq$17 m/s) (0.1%)
	2	Prevailing direction of gales (to the nearest 10 degree)
	3	Maximum wind (direction in tens of degree, speed in m/s)
IX	1	Median wave height (to the nearest 0.5m)
	2	Standard deviation of wave height (0.1%)
	3	Number of observations
X	1	Percentage of wave $\leq$ 1.5 m (0.1%)
	2	Percentage of wave $\geq$ 4.0m (0.1%)
	3	Percentage of wave $\geq$ 6.0m (0.1%)
XI	1	Percentage of wave periods $\geq$ 6s (0.1%)
	2	Prevailing swell direction (to the nearest 10 degrees)
	3	Number of observations of swell
XII	1	Mean wave period (1s)
	2	Maximum wave height (0.5m)
	3	Period of highest wave (1s)
XIII	1	Mean sea-level pressure (0.1hpa)
	2	Standard deviation of mean-sea level pressure (0.1hpa)
	3	Number of observation of sea-level pressure
XIV	1	Percentage of observation with rain or drizzle (0.1%)
	2	Percentage of observation with other forms of precipitation (0.1%)
	3	Number of observation of present weather
XV	1	Percentage of observations with total cloud amount $\leq$ 2/8 (0.1%)
	2	Percentage of observations with total cloud amount $\geq$ 6/8 (0.1%)
	3	Number of observations of total cloud amount
XVI	1	Percentage of observation with visibility < 1km (0.1%)
	2	Percentage of observation with visibility $\geq$ 10km (0.1%)
	3	Number of observations of visibility
XVII	1	Mean latitude of observations (0.1degree)
	2	Mean Longitude of observations (0.1degree)
	3	Total number of observations
XVIII	1	Standard deviation of latitude of observations (0.1degree)
	2	Standard deviation of longitude of observations (0.1degree)
	3	Number of ship reports containing both wind speed and air temperature

N O T E

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The copies of the publication can be purchased from the office of the Climate Research and Services, India Meteorological Department, Pune – 411 005.

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Marine Climatological Summary Charts 2001-2010

CHARTS OF JANUARY 2001-2010

Marine Climatological Summary Charts 2001-2010

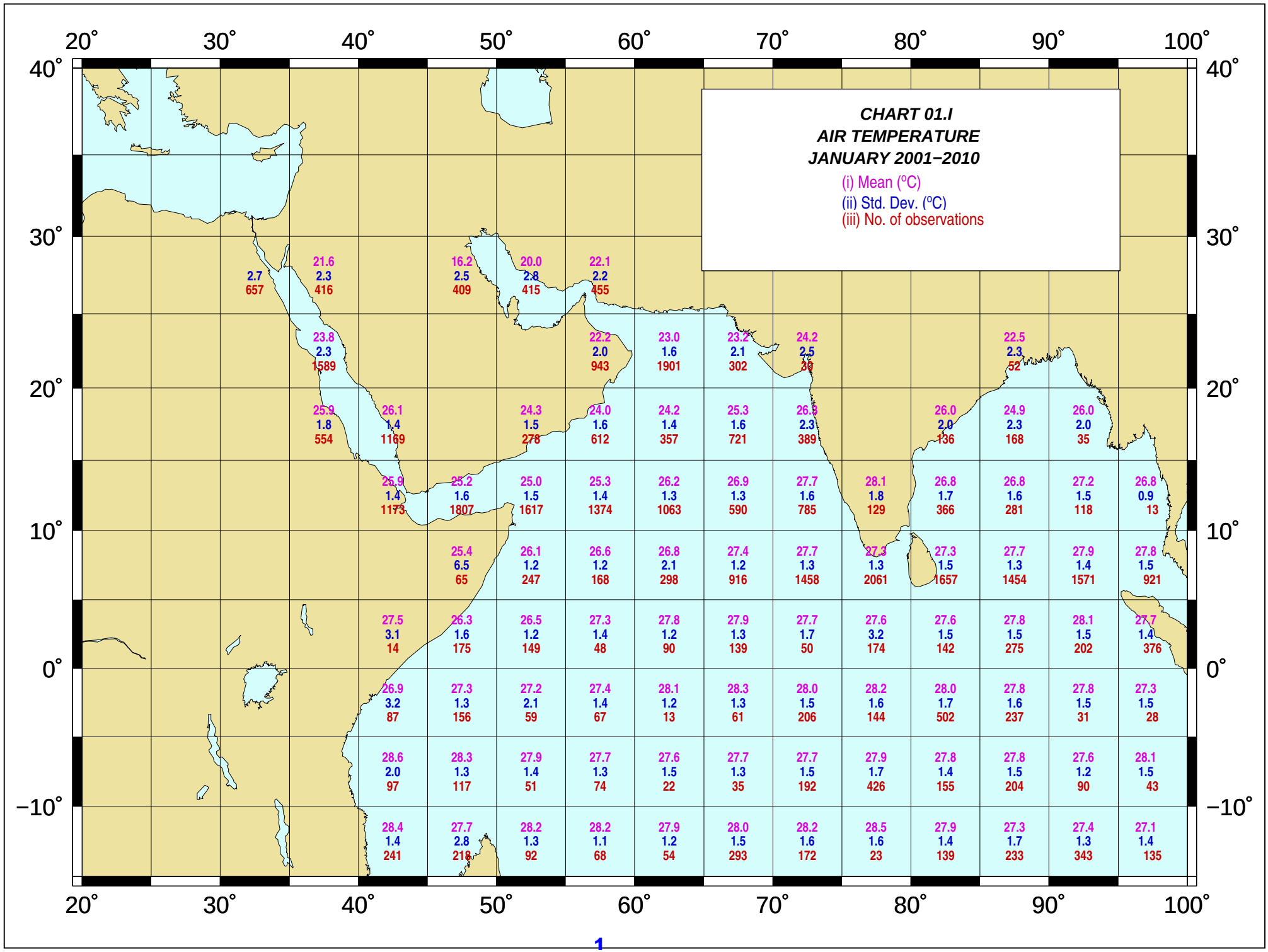


CHART 01.I
AIR TEMPERATURE
JANUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.7 657
21.6 2.3 416
16.2 2.5 409
20.0 2.8 415
22.1 2.2 455
23.8 2.3 1589
22.2 2.0 943
23.0 1.6 1901
23.2 2.1 302
24.2 2.5 30
22.5 2.3 52
25.9 1.8 554
26.1 1.4 1169
24.3 1.5 278
24.0 1.6 612
24.2 1.4 357
25.3 1.6 721
26.3 2.3 389
26.0 2.0 136
24.9 2.3 168
26.0 2.0 35
25.9 1.4 1173
25.2 1.6 1807
25.0 1.5 1617
25.3 1.4 1374
26.2 1.3 1063
26.9 1.3 590
27.7 1.6 785
28.1 1.8 129
26.8 1.7 366
26.8 1.6 281
27.2 1.5 118
26.8 0.9 13
25.4 6.5 65
26.1 1.2 247
26.6 1.2 168
26.8 2.1 298
27.4 1.2 916
27.7 1.3 1458
27.9 1.3 2061
27.3 1.5 1657
27.7 1.3 1454
27.9 1.4 1571
27.8 1.5 921
27.5 3.1 14
26.3 1.6 175
26.5 1.2 149
27.3 1.4 48
27.8 1.2 90
27.9 1.3 139
27.7 1.7 50
27.6 3.2 174
27.6 1.5 142
27.8 1.5 275
28.1 1.5 202
27.7 1.4 376
26.9 3.2 87
27.3 1.3 156
27.2 2.1 59
27.4 1.4 67
28.1 1.2 13
28.3 1.3 61
28.0 1.5 206
28.2 1.6 144
28.0 1.7 502
27.8 1.6 237
27.8 1.5 31
27.3 1.5 28
28.6 2.0 97
28.3 1.3 117
27.9 1.4 51
27.7 1.3 74
27.6 1.5 22
27.7 1.3 35
27.7 1.5 192
27.9 1.7 426
27.8 1.4 155
27.8 1.5 204
27.6 1.2 90
28.1 1.5 43
28.4 1.4 241
27.7 2.8 218
28.2 1.3 92
28.2 1.1 68
27.9 1.2 54
28.0 1.5 293
28.2 1.6 172
28.5 1.6 23
27.9 1.4 139
27.3 1.7 233
27.4 1.3 343
27.1 1.4 135

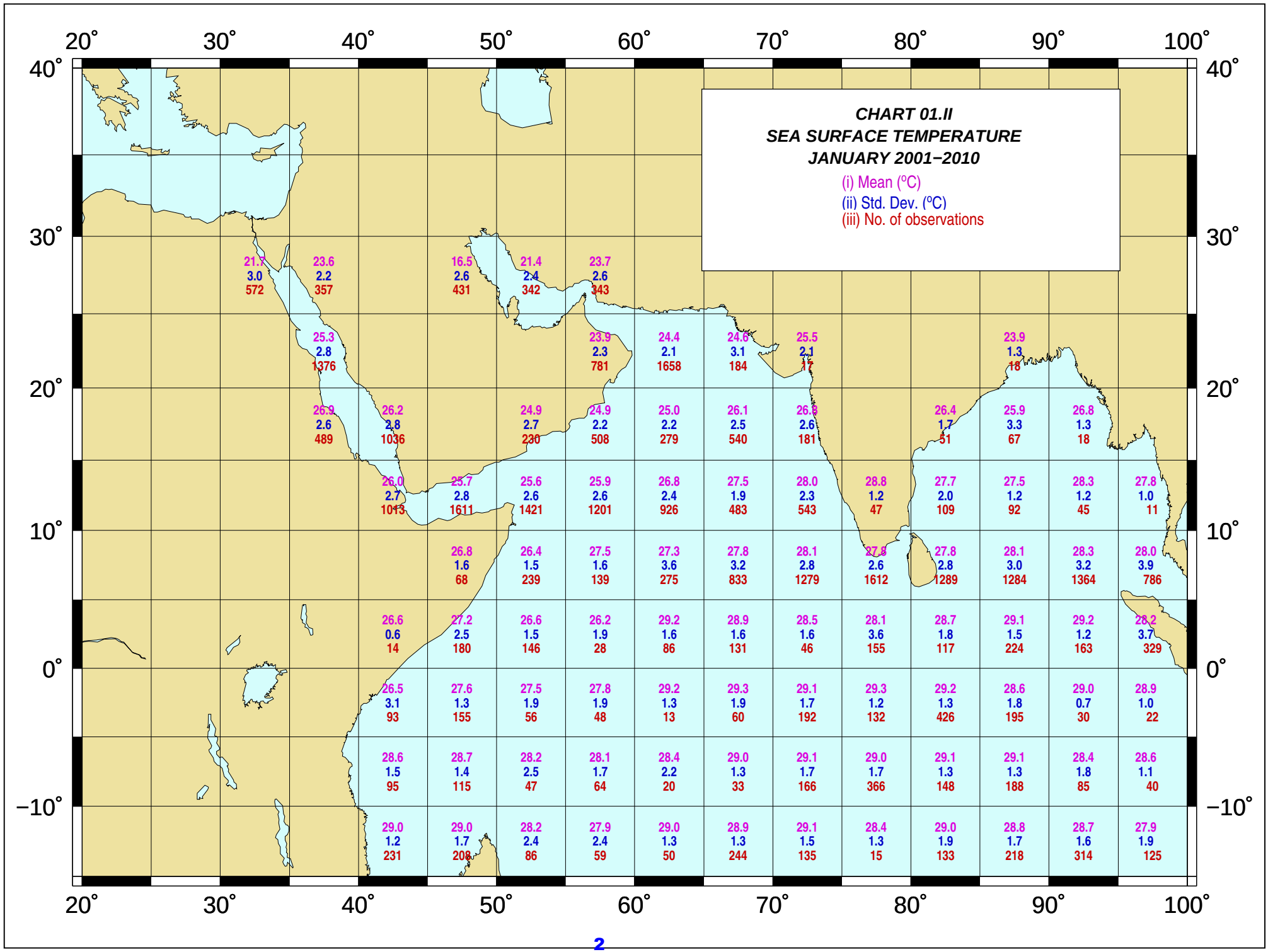


CHART 01.II
SEA SURFACE TEMPERATURE
JANUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
21.7 3.0 572
23.6 2.2 357
16.5 2.6 431
21.4 2.4 342
23.7 2.6 343
25.3 2.8 1376
23.9 2.3 781
24.4 2.1 1658
24.6 3.1 184
25.5 2.1 17
23.9 1.3 18
26.9 2.6 489
26.2 2.8 1036
24.9 2.7 230
24.9 2.2 508
25.0 2.2 279
26.1 2.5 540
26.9 2.6 181
26.4 1.7 31
25.9 3.3 67
26.8 1.3 18
26.0 2.7 1013
25.7 2.8 1611
25.6 2.6 1421
25.9 2.6 1201
26.8 2.4 926
27.5 1.9 483
28.0 2.3 543
28.8 1.2 47
27.7 2.0 109
27.5 1.2 92
28.3 1.2 45
27.8 1.0 11
26.8 1.6 68
26.4 1.5 239
27.5 1.6 139
27.3 3.6 275
27.8 3.2 833
28.1 2.8 1279
27.9 2.6 1612
27.8 2.8 1289
28.1 3.0 1284
28.3 3.2 1364
28.0 3.9 786
26.6 0.6 14
27.2 2.5 180
26.6 1.5 146
26.2 1.9 28
29.2 1.6 86
28.9 1.6 131
28.5 1.6 46
28.1 3.6 155
28.7 1.8 117
29.1 1.5 224
29.2 1.2 163
28.2 3.7 329
26.5 3.1 93
27.6 1.3 155
27.5 1.9 56
27.8 1.9 48
29.2 1.3 13
29.3 1.9 60
29.1 1.7 192
29.3 1.2 132
29.2 1.3 426
28.6 1.8 195
29.0 0.7 30
28.9 1.0 22
28.6 1.5 95
28.7 1.4 115
28.2 2.5 47
28.1 1.7 64
28.4 2.2 20
29.0 1.3 33
29.1 1.7 166
29.0 1.7 366
29.1 1.3 148
29.1 1.3 188
28.4 1.8 85
28.6 1.1 40
29.0 1.2 231
29.0 1.7 208
28.2 2.4 86
27.9 2.4 59
29.0 1.3 50
28.9 1.3 244
29.1 1.5 135
28.4 1.3 15
29.0 1.9 133
28.8 1.7 218
28.7 1.6 314
27.9 1.9 125

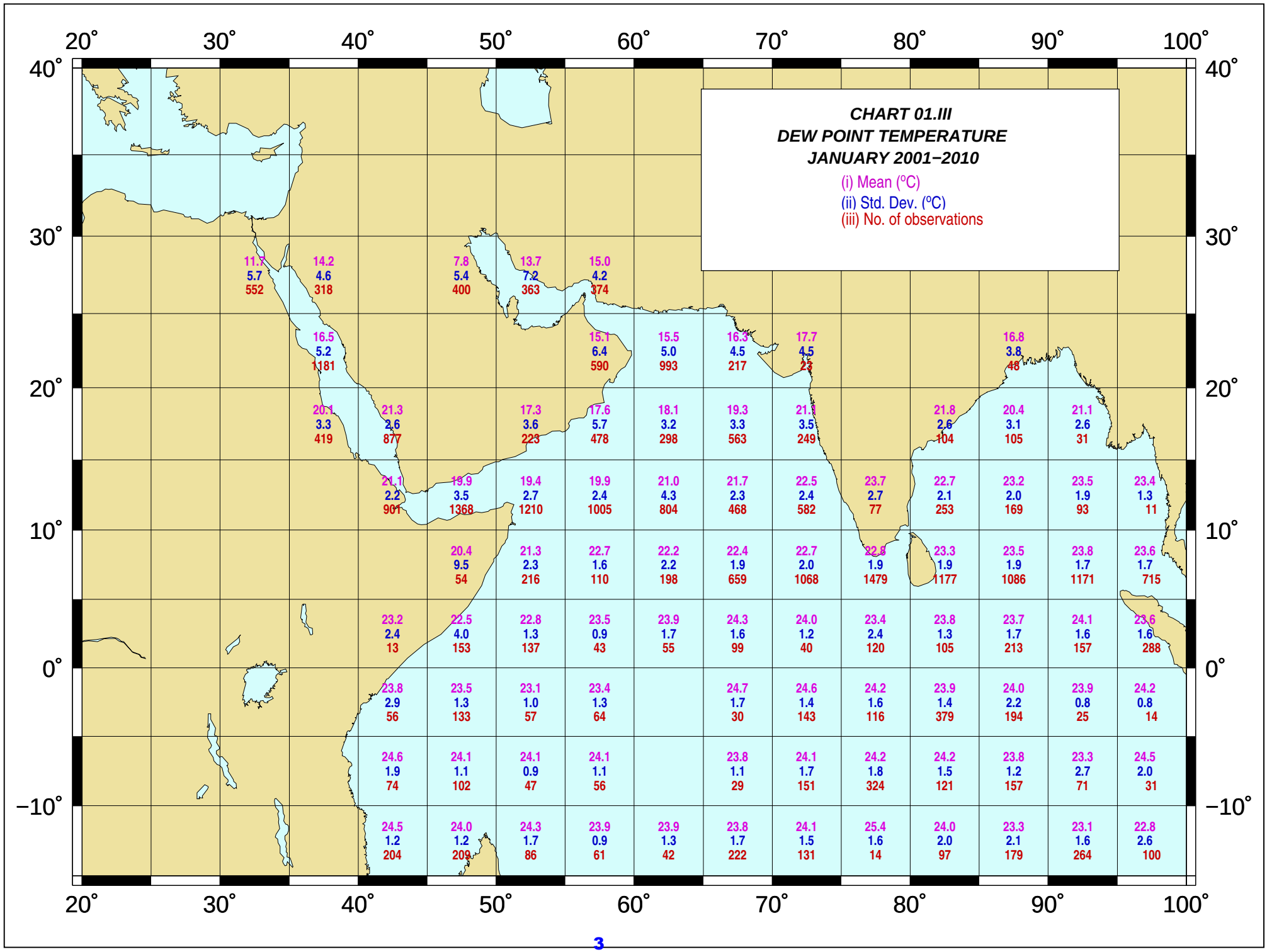


CHART 01.III
DEW POINT TEMPERATURE
JANUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
11.7 5.7 552
14.2 4.6 318
7.8 5.4 400
13.7 7.2 363
15.0 4.2 374
16.5 5.2 1181
15.1 6.4 590
15.5 5.0 993
16.3 4.5 217
17.7 4.5 23
16.8 3.8 48
20.1 3.3 419
21.3 2.6 877
17.3 3.6 223
17.6 5.7 478
18.1 3.2 298
19.3 3.3 563
21.8 2.6 104
20.4 3.1 105
21.1 2.6 31
21.1 2.2 901
19.9 3.5 1368
19.4 2.7 1210
19.9 2.4 1005
21.0 4.3 804
21.7 2.3 468
22.5 2.4 582
23.7 2.7 77
22.7 2.1 253
23.2 2.0 169
23.5 1.9 93
23.4 1.3 11
20.4 9.5 54
21.3 2.3 216
22.7 1.6 110
22.2 2.2 198
22.4 1.9 659
22.7 2.0 1068
22.9 1.9 1479
23.3 1.9 1177
23.5 1.9 1086
23.8 1.7 1171
23.6 1.7 715
23.2 2.4 13
22.5 4.0 153
22.8 1.3 137
23.5 0.9 43
23.9 1.7 55
24.3 1.6 99
24.0 1.2 40
23.4 2.4 120
23.8 1.3 105
23.7 1.7 213
24.1 1.6 157
23.6 1.6 288
23.8 2.9 56
23.5 1.3 133
23.1 1.0 57
23.4 1.3 64
24.7 1.7 30
24.6 1.4 143
24.2 1.6 116
23.9 1.4 379
24.0 2.2 194
23.9 0.8 25
24.2 0.8 14
24.6 1.9 74
24.1 1.1 102
24.1 0.9 47
24.1 1.1 56
23.8 1.1 29
24.1 1.7 151
24.2 1.8 324
24.2 1.5 121
23.8 1.2 157
23.3 2.7 71
24.5 2.0 31
24.5 1.2 204
24.0 1.2 209
24.3 1.7 86
23.9 0.9 61
23.9 1.3 42
23.8 1.7 222
24.1 1.5 131
25.4 1.6 14
24.0 2.0 97
23.3 2.1 179
23.1 1.6 264
22.8 2.6 100

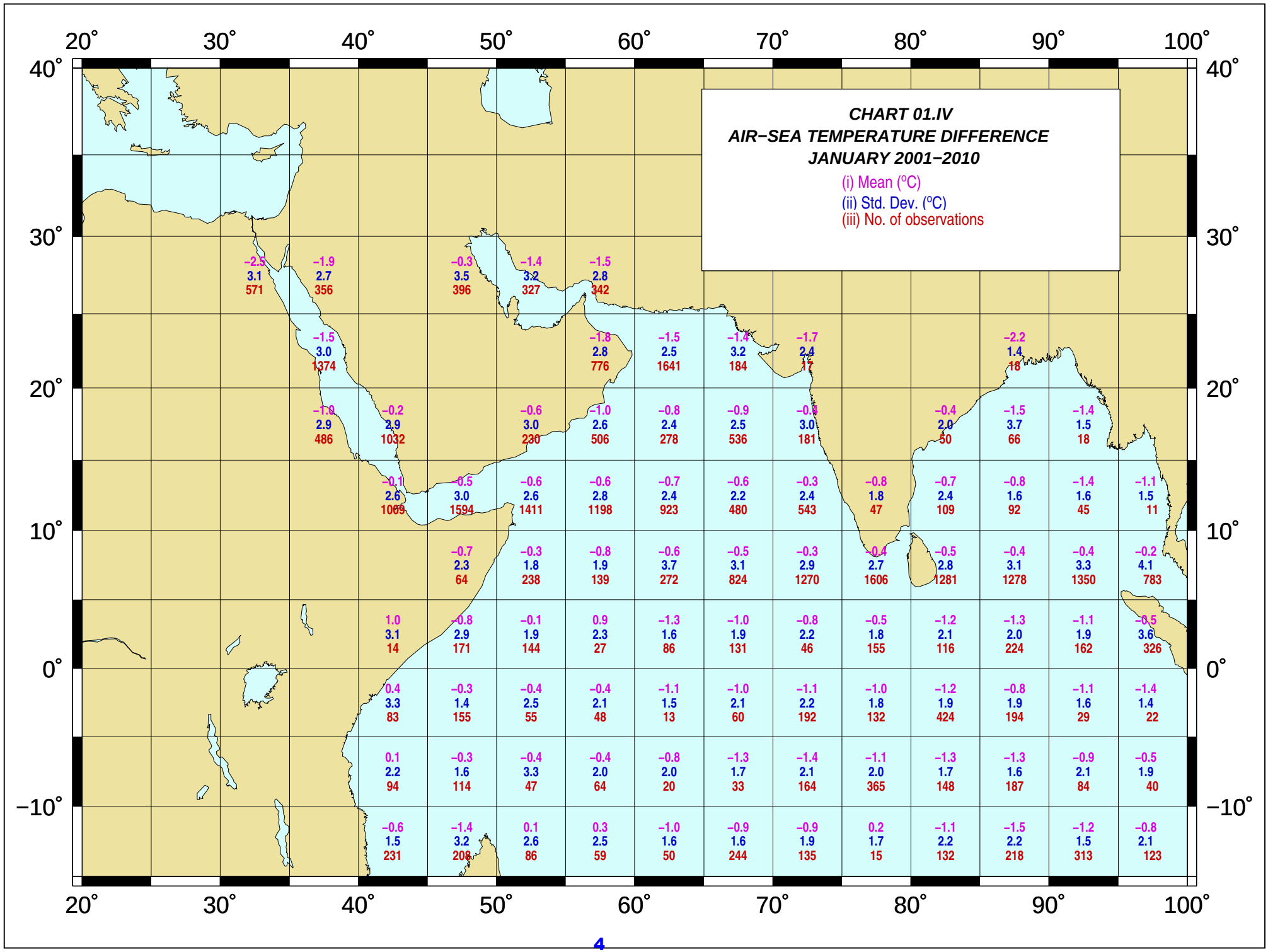


CHART 01.IV
AIR–SEA TEMPERATURE DIFFERENCE
JANUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−2.5 3.1 571
−1.9 2.7 356
−0.3 3.5 396
−1.4 3.2 327
−1.5 2.8 342
−1.5 3.0 1374
−1.8 2.8 776
−1.5 2.5 1641
−1.4 3.2 184
−1.7 2.4 17
−2.2 1.4 18
−1.9 2.9 486
−0.2 2.9 1032
−0.6 3.0 230
−1.0 2.6 506
−0.8 2.4 278
−0.9 2.5 536
−0.4 2.0 50
−1.5 3.7 66
−1.4 1.5 18
−0.1 2.6 1009
−0.5 3.0 1594
−0.6 2.6 1411
−0.6 2.8 1198
−0.7 2.4 923
−0.6 2.2 480
−0.3 2.4 543
−0.8 1.8 47
−0.7 2.4 109
−0.8 1.6 92
−1.4 1.6 45
−1.1 1.5 11
−0.7 2.3 64
−0.3 1.8 238
−0.8 1.9 139
−0.6 3.7 272
−0.5 3.1 824
−0.3 2.9 1270
−0.4 2.7 1606
−0.5 2.8 1281
−0.4 3.1 1278
−0.4 3.3 1350
−0.2 4.1 783
1.0 3.1 14
−0.8 2.9 171
−0.1 1.9 144
0.9 2.3 27
−1.3 1.6 86
−1.0 1.9 131
−0.8 2.2 46
−0.5 1.8 155
−1.2 2.1 116
−1.3 2.0 224
−1.1 1.9 162
−0.5 3.6 326
0.4 3.3 83
−0.3 1.4 155
−0.4 2.5 55
−0.4 2.1 48
−1.1 1.5 13
−1.0 2.1 60
−1.1 2.2 192
−1.0 1.8 132
−1.2 1.9 424
−0.8 1.9 194
−1.1 1.6 29
−1.4 1.4 22
0.1 2.2 94
−0.3 1.6 114
−0.4 3.3 47
−0.4 2.0 64
−0.8 2.0 20
−1.3 1.7 33
−1.4 2.1 164
−1.1 2.0 365
−1.3 1.7 148
−1.3 1.6 187
−0.9 2.1 84
−0.5 1.9 40
−0.6 1.5 231
−1.4 3.2 208
0.1 2.6 86
0.3 2.5 59
−1.0 1.6 50
−0.9 1.6 244
−0.9 1.9 135
0.2 1.7 15
−1.1 2.2 132
−1.5 2.2 218
−1.2 1.5 313
−0.8 2.1 123

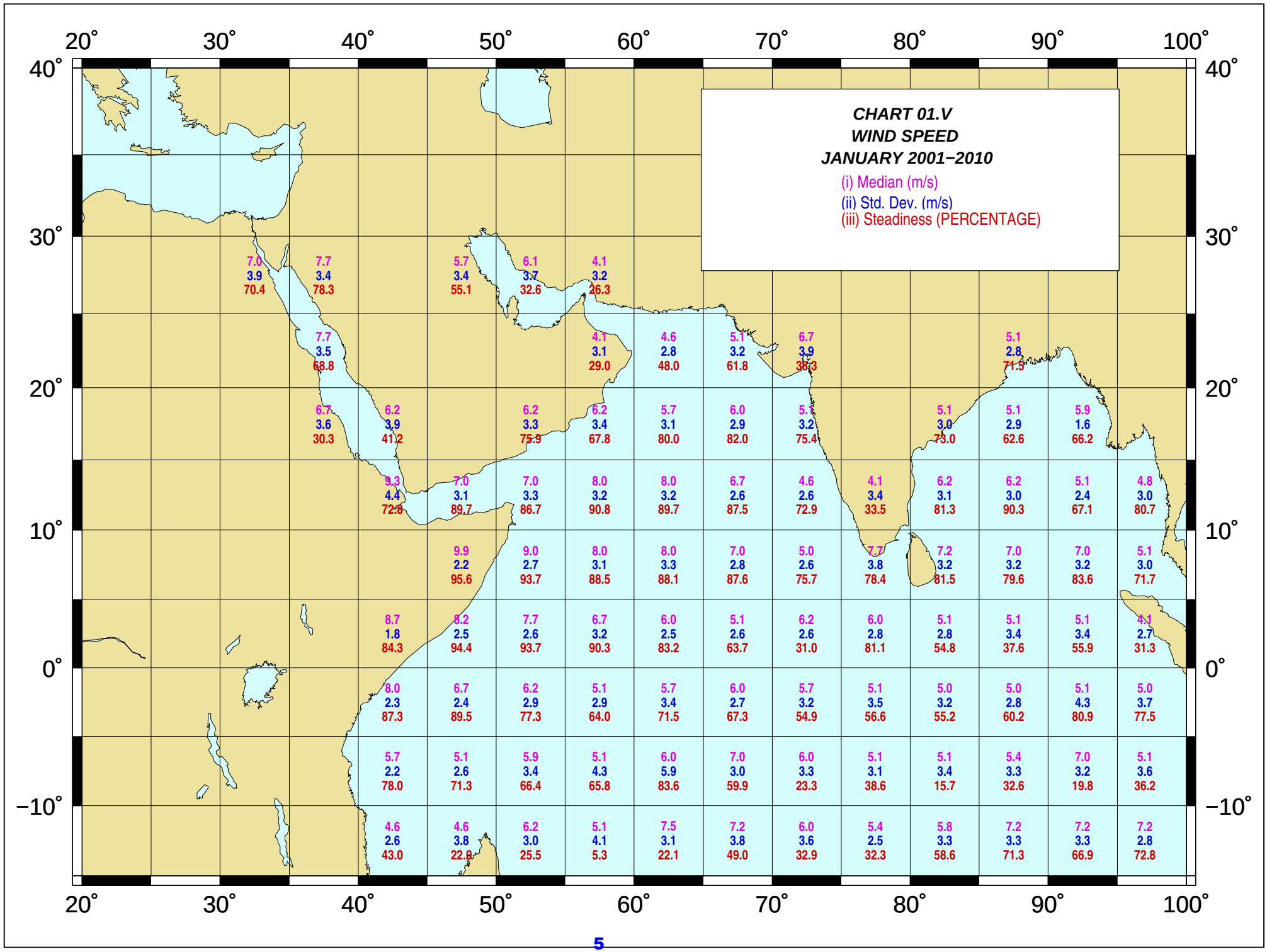


CHART 01.V
WIND SPEED
JANUARY 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
7.0 3.9 70.4
7.7 3.4 78.3
5.7 3.4 55.1
6.1 3.7 32.6
4.1 3.2 26.3
7.7 3.5 68.8
4.1 3.1 29.0
4.6 2.8 48.0
5.1 3.2 61.8
6.7 3.9 38.3
5.1 2.8 71.5
6.7 3.6 30.3
6.2 3.9 41.2
6.2 3.3 75.9
6.2 3.4 67.8
5.7 3.1 80.0
6.0 2.9 82.0
5.1 3.2 75.4
5.1 3.0 73.0
5.1 2.9 62.6
5.9 1.6 66.2
9.3 4.4 72.8
7.0 3.1 89.7
7.0 3.3 86.7
8.0 3.2 90.8
8.0 3.2 89.7
6.7 2.6 87.5
4.6 2.6 72.9
4.1 3.4 33.5
6.2 3.1 81.3
6.2 3.0 90.3
5.1 2.4 67.1
4.8 3.0 80.7
9.9 2.2 95.6
9.0 2.7 93.7
8.0 3.1 88.5
8.0 3.3 88.1
7.0 2.8 87.6
5.0 2.6 75.7
7.7 3.8 78.4
7.2 3.2 81.5
7.0 3.2 79.6
7.0 3.2 83.6
5.1 3.0 71.7
8.7 1.8 84.3
8.2 2.5 94.4
7.7 2.6 93.7
6.7 3.2 90.3
6.0 2.5 83.2
5.1 2.6 63.7
6.2 2.6 31.0
6.0 2.8 81.1
5.1 2.8 54.8
5.1 3.4 37.6
5.1 3.4 55.9
4.1 2.7 31.3
8.0 2.3 87.3
6.7 2.4 89.5
6.2 2.9 77.3
5.1 2.9 64.0
5.7 3.4 71.5
6.0 2.7 67.3
5.7 3.2 54.9
5.1 3.5 56.6
5.0 3.2 55.2
5.0 2.8 60.2
5.1 4.3 80.9
5.0 3.7 77.5
5.7 2.2 78.0
5.1 2.6 71.3
5.9 3.4 66.4
5.1 4.3 65.8
6.0 5.9 83.6
7.0 3.0 59.9
6.0 3.3 23.3
5.1 3.1 38.6
5.1 3.4 15.7
5.4 3.3 32.6
7.0 3.2 19.8
5.1 3.6 36.2
4.6 2.6 43.0
4.6 3.8 22.0
6.2 3.0 25.5
5.1 4.1 5.3
7.5 3.1 22.1
7.2 3.8 49.0
6.0 3.6 32.9
5.4 2.5 32.3
5.8 3.3 58.6
7.2 3.3 71.3
7.2 3.3 66.9
7.2 2.8 72.8

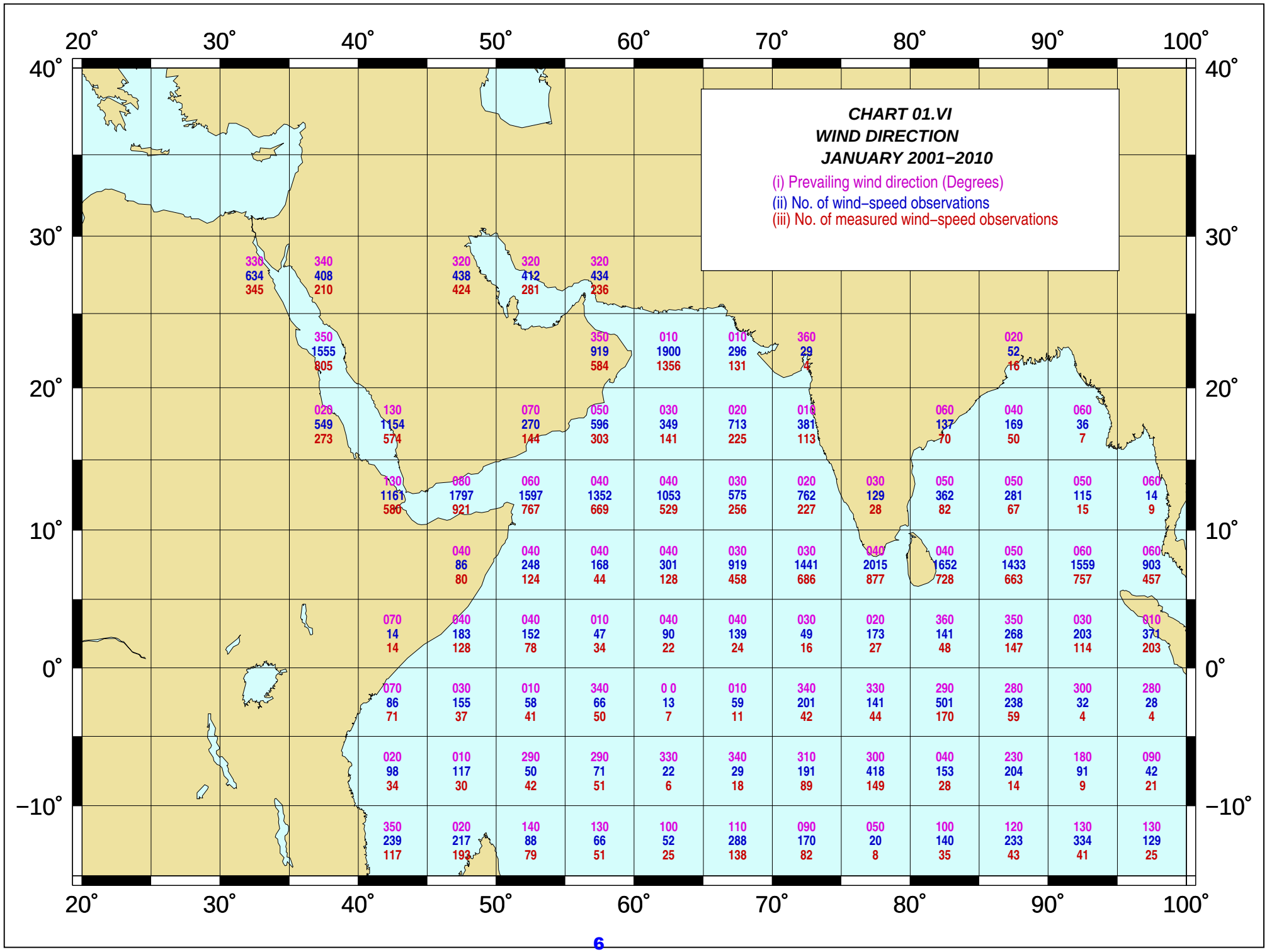


CHART 01.VI
WIND DIRECTION
JANUARY 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 634 345
340 408 210
320 438 424
320 412 281
320 434 236
350 1555 805
350 919 584
010 1900 1356
010 296 131
360 29 4
020 52 16
020 549 273
130 1154 574
070 270 144
050 596 303
030 349 141
020 713 225
010 381 113
060 137 70
040 169 50
060 36 7
130 1161 580
080 1797 921
060 1597 767
040 1352 669
040 1053 529
030 575 256
020 762 227
030 129 28
050 362 82
050 281 67
050 115 15
060 14 9
040 86 80
040 248 124
040 168 44
040 301 128
030 919 458
030 1441 686
040 2015 877
040 1652 728
050 1433 663
060 1559 757
060 903 457
070 14 14
040 183 128
040 152 78
010 47 34
040 90 22
040 139 24
030 49 16
020 173 27
360 141 48
350 268 147
030 203 114
010 371 203
070 86 71
030 155 37
010 58 41
340 66 50
0 0 13 7
010 59 11
340 201 42
330 141 44
290 501 170
280 238 59
300 32 4
280 28 4
020 98 34
010 117 30
290 50 42
290 71 51
330 22 6
340 29 18
310 191 89
300 418 149
040 153 28
230 204 14
180 91 9
090 42 21
350 239 117
020 217 193
140 88 79
130 66 51
100 52 25
110 288 138
090 170 82
050 20 8
100 140 35
120 233 43
130 334 41
130 129 25

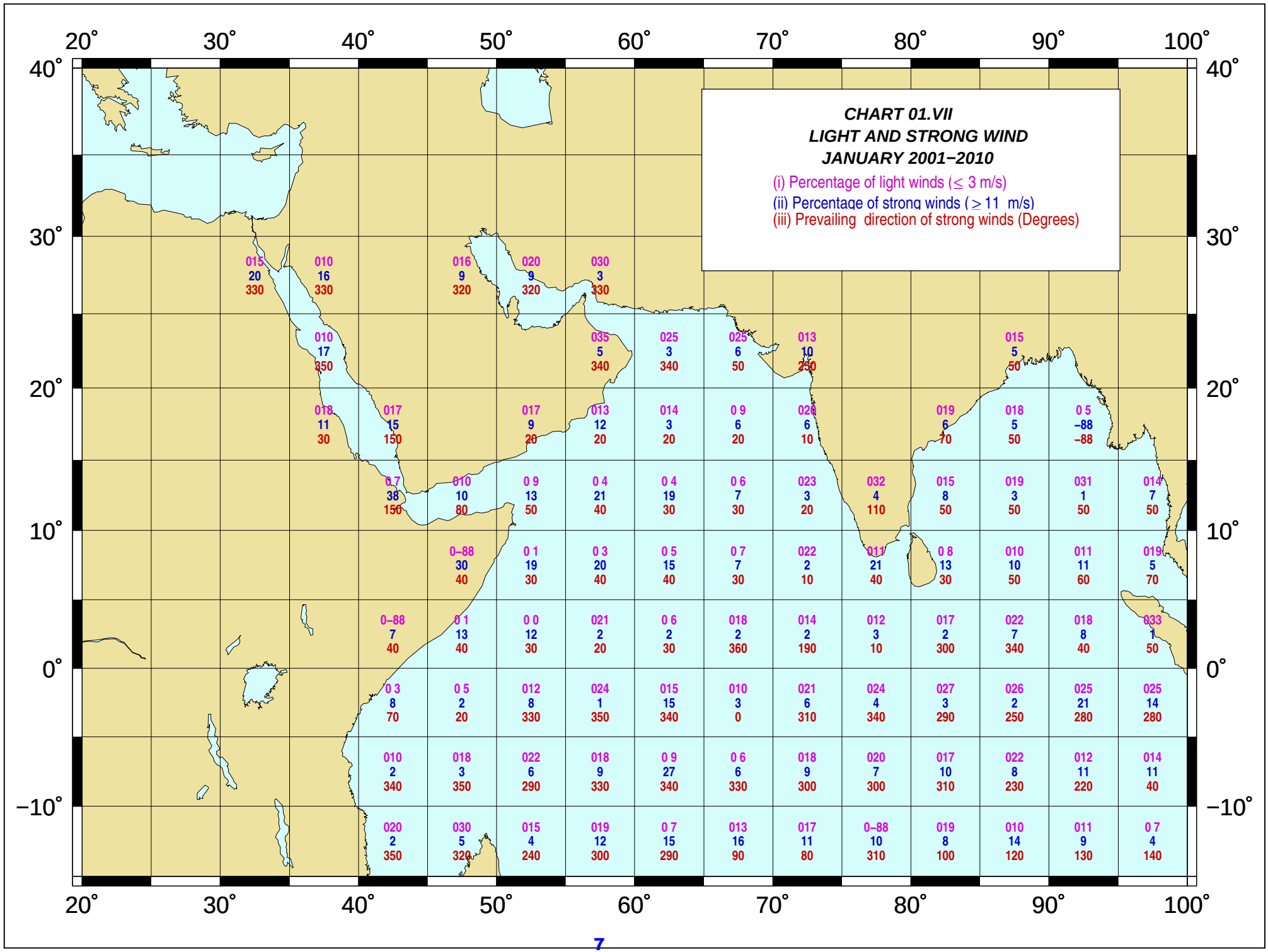


CHART 01.VII
LIGHT AND STRONG WIND
JANUARY 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
015 20 330
010 16 330
016 9 320
020 9 320
030 3 330
010 17 350
035 5 340
025 3 340
025 6 50
013 10 250
015 5 50
018 11 30
017 15 150
017 9 20
013 12 20
014 3 20
0 9 6 20
020 6 10
019 6 70
018 5 50
0 5 −88 −88
0 7 38 150
010 10 80
0 9 13 50
0 4 21 40
0 4 19 30
0 6 7 30
023 3 20
032 4 110
015 8 50
019 3 50
031 1 50
014 7 50
0−88 30 40
0 1 19 30
0 3 20 40
0 5 15 40
0 7 7 30
022 2 10
011 21 40
0 8 13 30
010 10 50
011 11 60
019 5 70
0−88 7 40
0 1 13 40
0 0 12 30
021 2 20
0 6 2 30
018 2 360
014 2 190
012 3 10
017 2 300
022 7 340
018 8 40
033 1 50
0 3 8 70
0 5 2 20
012 8 330
024 1 350
015 15 340
010 3 0
021 6 310
024 4 340
027 3 290
026 2 250
025 21 280
025 14 280
010 2 340
018 3 350
022 6 290
018 9 330
0 9 27 340
0 6 6 330
018 9 300
020 7 300
017 10 310
022 8 230
012 11 220
014 11 40
020 2 350
030 5 320
015 4 240
019 12 300
0 7 15 290
013 16 90
017 11 80
0−88 10 310
019 8 100
010 14 120
011 9 130
0 7 4 140

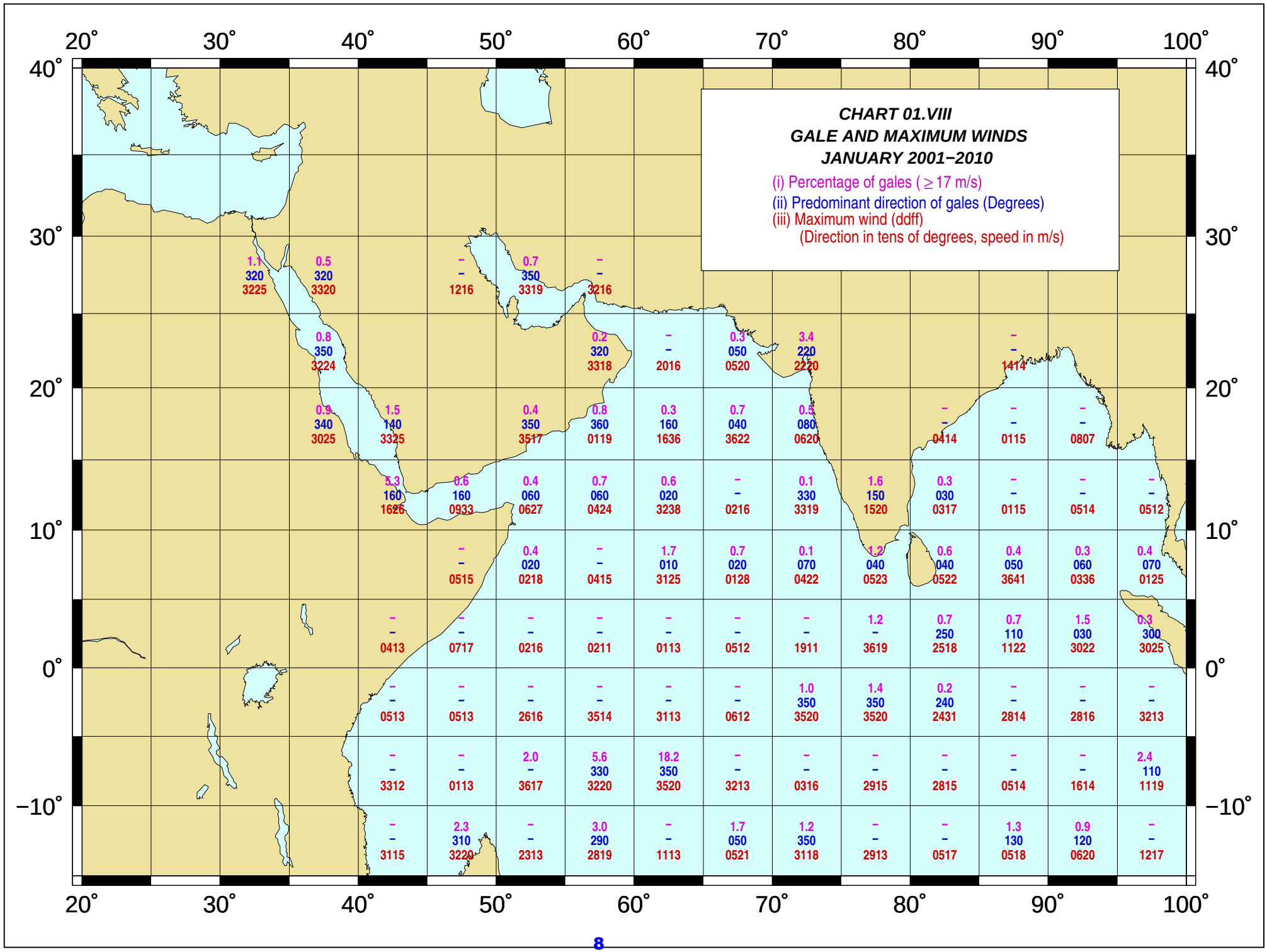


CHART 01.VIII
GALE AND MAXIMUM WINDS
JANUARY 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 320 3225
0.5 320 3320
– – 1216
0.7 350 3319
– – 3216
0.8 350 3224
0.2 320 3318
– – 2016
0.3 050 0520
3.4 220 2220
– – 1414
0.9 340 3025
1.5 140 3325
0.4 350 3517
0.8 360 0119
0.3 160 1636
0.7 040 3622
0.5 080 0620
– – 0414
– – 0115
– – 0807
5.3 160 1626
0.6 160 0933
0.4 060 0627
0.7 060 0424
0.6 020 3238
– – 0216
0.1 330 3319
1.6 150 1520
0.3 030 0317
– – 0115
– – 0514
– – 0512
– – 0515
0.4 020 0218
– – 0415
1.7 010 3125
0.7 020 0128
0.1 070 0422
1.2 040 0523
0.6 040 0522
0.4 050 3641
0.3 060 0336
0.4 070 0125
– – 0413
– – 0717
– – 0216
– – 0211
– – 0113
– – 0512
– – 1911
1.2 – 3619
0.7 250 2518
0.7 110 1122
1.5 030 3022
0.3 300 3025
– – 0513
– – 0513
– – 2616
– – 3514
– – 3113
– – 0612
1.0 350 3520
1.4 350 3520
0.2 240 2431
– – 2814
– – 2816
– – 3213
– – 3312
– – 0113
2.0 – 3617
5.6 330 3220
18.2 350 3520
– – 3213
– – 0316
– – 2915
– – 2815
– – 0514
– – 1614
2.4 110 1119
– – 3115
2.3 310 3220
– – 2313
3.0 290 2819
– – 1113
1.7 050 0521
1.2 350 3118
– – 2913
– – 0517
1.3 130 0518
0.9 120 0620
– – 1217

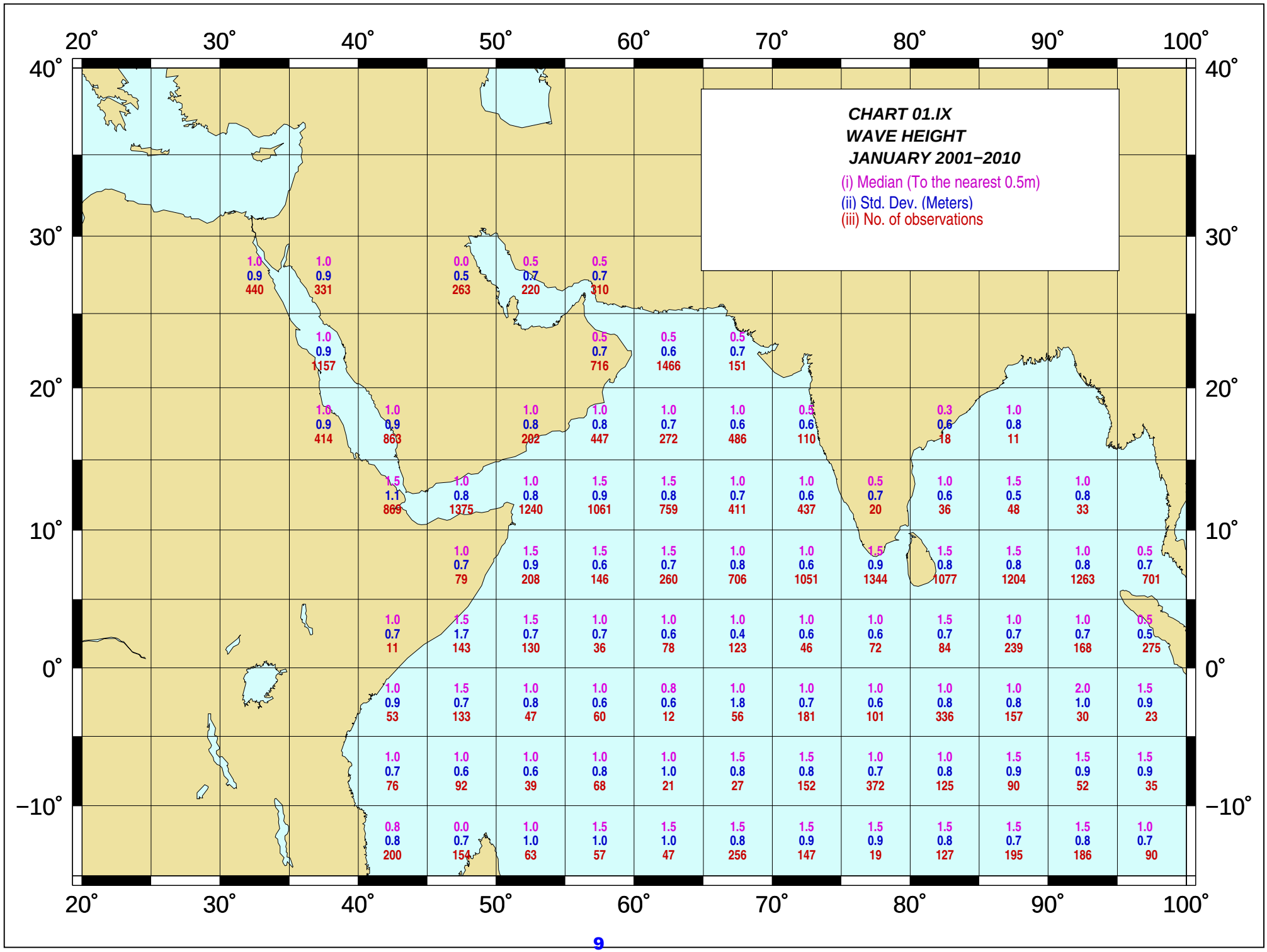


CHART 01.IX
WAVE HEIGHT
JANUARY 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.9 440
1.0 0.9 331
0.0 0.5 263
0.5 0.7 220
0.5 0.7 310
1.0 0.9 1157
0.5 0.7 716
0.5 0.6 1466
0.5 0.7 151
1.0 0.9 414
1.0 0.9 863
1.0 0.8 202
1.0 0.8 447
1.0 0.7 272
1.0 0.6 486
0.5 0.6 110
0.3 0.6 18
1.0 0.8 11
1.5 1.1 869
1.0 0.8 1375
1.0 0.8 1240
1.5 0.9 1061
1.5 0.8 759
1.0 0.7 411
1.0 0.6 437
0.5 0.7 20
1.0 0.6 36
1.5 0.5 48
1.0 0.8 33
1.0 0.7 79
1.5 0.9 208
1.5 0.6 146
1.5 0.7 260
1.0 0.8 706
1.0 0.6 1051
1.5 0.9 1344
1.5 0.8 1077
1.5 0.8 1204
1.0 0.8 1263
0.5 0.7 701
1.0 0.7 11
1.5 1.7 143
1.5 0.7 130
1.0 0.7 36
1.0 0.6 78
1.0 0.4 123
1.0 0.6 46
1.0 0.6 72
1.5 0.7 84
1.0 0.7 239
1.0 0.7 168
0.5 0.5 275
1.0 0.9 53
1.5 0.7 133
1.0 0.8 47
1.0 0.6 60
0.8 0.6 12
1.0 1.8 56
1.0 0.7 181
1.0 0.6 101
1.0 0.8 336
1.0 0.8 157
2.0 1.0 30
1.5 0.9 23
1.0 0.7 76
1.0 0.6 92
1.0 0.6 39
1.0 0.8 68
1.0 1.0 21
1.5 0.8 27
1.5 0.8 152
1.0 0.7 372
1.0 0.8 125
1.5 0.9 90
1.5 0.9 52
1.5 0.9 35
0.8 0.8 200
0.0 0.7 154
1.0 1.0 63
1.5 1.0 57
1.5 1.0 47
1.5 0.8 256
1.5 0.9 147
1.5 0.9 19
1.5 0.8 127
1.5 0.7 195
1.5 0.8 186
1.0 0.7 90

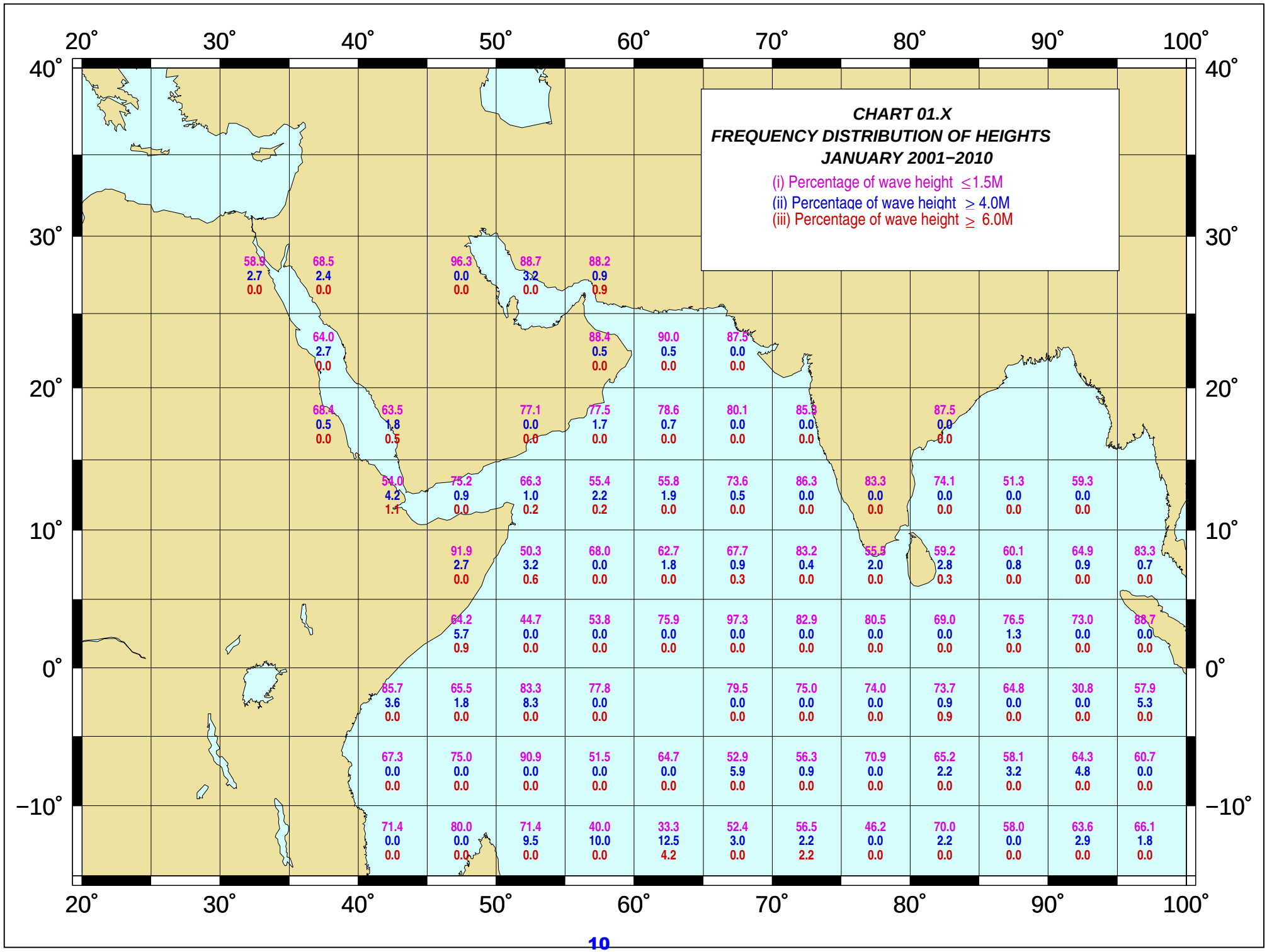


CHART 01.X
FREQUENCY DISTRIBUTION OF HEIGHTS
JANUARY 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
58.9 2.7 0.0
68.5 2.4 0.0
96.3 0.0 0.0
88.7 3.2 0.0
88.2 0.9 0.9
64.0 2.7 0.0
88.4 0.5 0.0
90.0 0.5 0.0
87.5 0.0 0.0
68.4 0.5 0.0
63.5 1.8 0.5
77.1 0.0 0.0
77.5 1.7 0.0
78.6 0.7 0.0
80.1 0.0 0.0
85.9 0.0 0.0
87.5 0.0 0.0
51.0 4.2 1.1
75.2 0.9 0.0
66.3 1.0 0.2
55.4 2.2 0.2
55.8 1.9 0.0
73.6 0.5 0.0
86.3 0.0 0.0
83.3 0.0 0.0
74.1 0.0 0.0
51.3 0.0 0.0
59.3 0.0 0.0
91.9 2.7 0.0
50.3 3.2 0.6
68.0 0.0 0.0
62.7 1.8 0.0
67.7 0.9 0.3
83.2 0.4 0.0
55.5 2.0 0.0
59.2 2.8 0.3
60.1 0.8 0.0
64.9 0.9 0.0
83.3 0.7 0.0
64.2 5.7 0.9
44.7 0.0 0.0
53.8 0.0 0.0
75.9 0.0 0.0
97.3 0.0 0.0
82.9 0.0 0.0
80.5 0.0 0.0
69.0 0.0 0.0
76.5 1.3 0.0
73.0 0.0 0.0
88.7 0.0 0.0
85.7 3.6 0.0
65.5 1.8 0.0
83.3 8.3 0.0
77.8 0.0 0.0
79.5 0.0 0.0
75.0 0.0 0.0
74.0 0.0 0.0
73.7 0.9 0.9
64.8 0.0 0.0
30.8 0.0 0.0
57.9 5.3 0.0
67.3 0.0 0.0
75.0 0.0 0.0
90.9 0.0 0.0
51.5 0.0 0.0
64.7 0.0 0.0
52.9 5.9 0.0
56.3 0.9 0.0
70.9 0.0 0.0
65.2 2.2 0.0
58.1 3.2 0.0
64.3 4.8 0.0
60.7 0.0 0.0
71.4 0.0 0.0
80.0 0.0 0.0
71.4 9.5 0.0
40.0 10.0 0.0
33.3 12.5 4.2
52.4 3.0 0.0
56.5 2.2 2.2
46.2 0.0 0.0
70.0 2.2 0.0
58.0 0.0 0.0
63.6 2.9 0.0
66.1 1.8 0.0

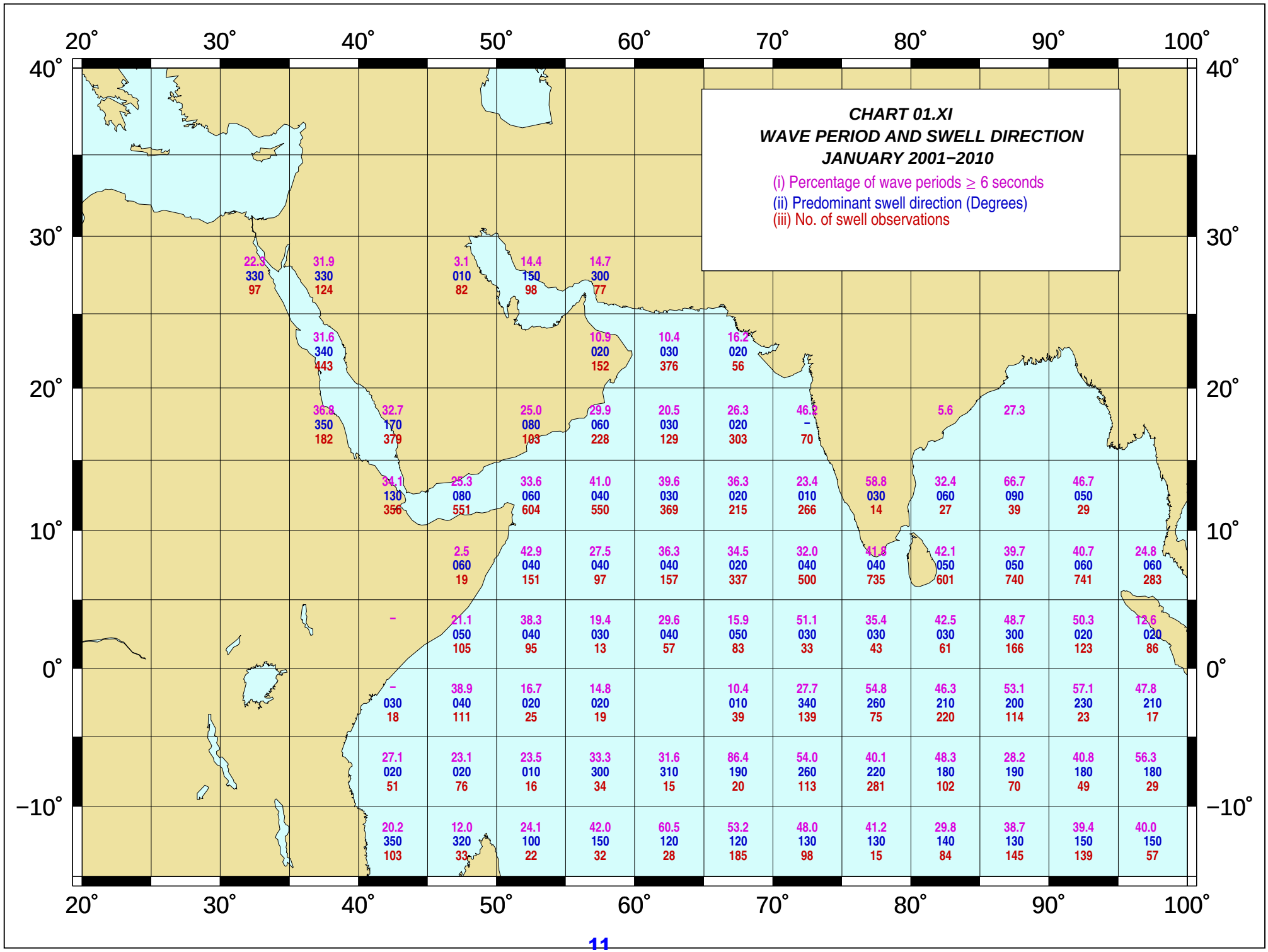


CHART 01.XI
WAVE PERIOD AND SWELL DIRECTION
JANUARY 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
22.3 330 97
31.9 330 124
3.1 010 82
14.4 150 98
14.7 300 77
31.6 340 443
10.9 020 152
10.4 030 376
16.2 020 56
36.8 350 182
32.7 170 379
25.0 080 103
29.9 060 228
20.5 030 129
26.3 020 303
46.2 – 70
5.6
27.3
31.1 130 356
25.3 080 551
33.6 060 604
41.0 040 550
39.6 030 369
36.3 020 215
23.4 010 266
58.8 030 14
32.4 060 27
66.7 090 39
46.7 050 29
2.5 060 19
42.9 040 151
27.5 040 97
36.3 040 157
34.5 020 337
32.0 040 500
41.8 040 735
42.1 050 601
39.7 050 740
40.7 060 741
24.8 060 283
– 21.1 050 105
38.3 040 95
19.4 030 13
29.6 040 57
15.9 050 83
51.1 030 33
35.4 030 43
42.5 030 61
48.7 300 166
50.3 020 123
12.6 020 86
– 030 18
38.9 040 111
16.7 020 25
14.8 020 19
10.4 010 39
27.7 340 139
54.8 260 75
46.3 210 220
53.1 200 114
57.1 230 23
47.8 210 17
27.1 020 51
23.1 020 76
23.5 010 16
33.3 300 34
31.6 310 15
86.4 190 20
54.0 260 113
40.1 220 281
48.3 180 102
28.2 190 70
40.8 180 49
56.3 180 29
20.2 350 103
12.0 320 33
24.1 100 22
42.0 150 32
60.5 120 28
53.2 120 185
48.0 130 98
41.2 130 15
29.8 140 84
38.7 130 145
39.4 150 139
40.0 150 57

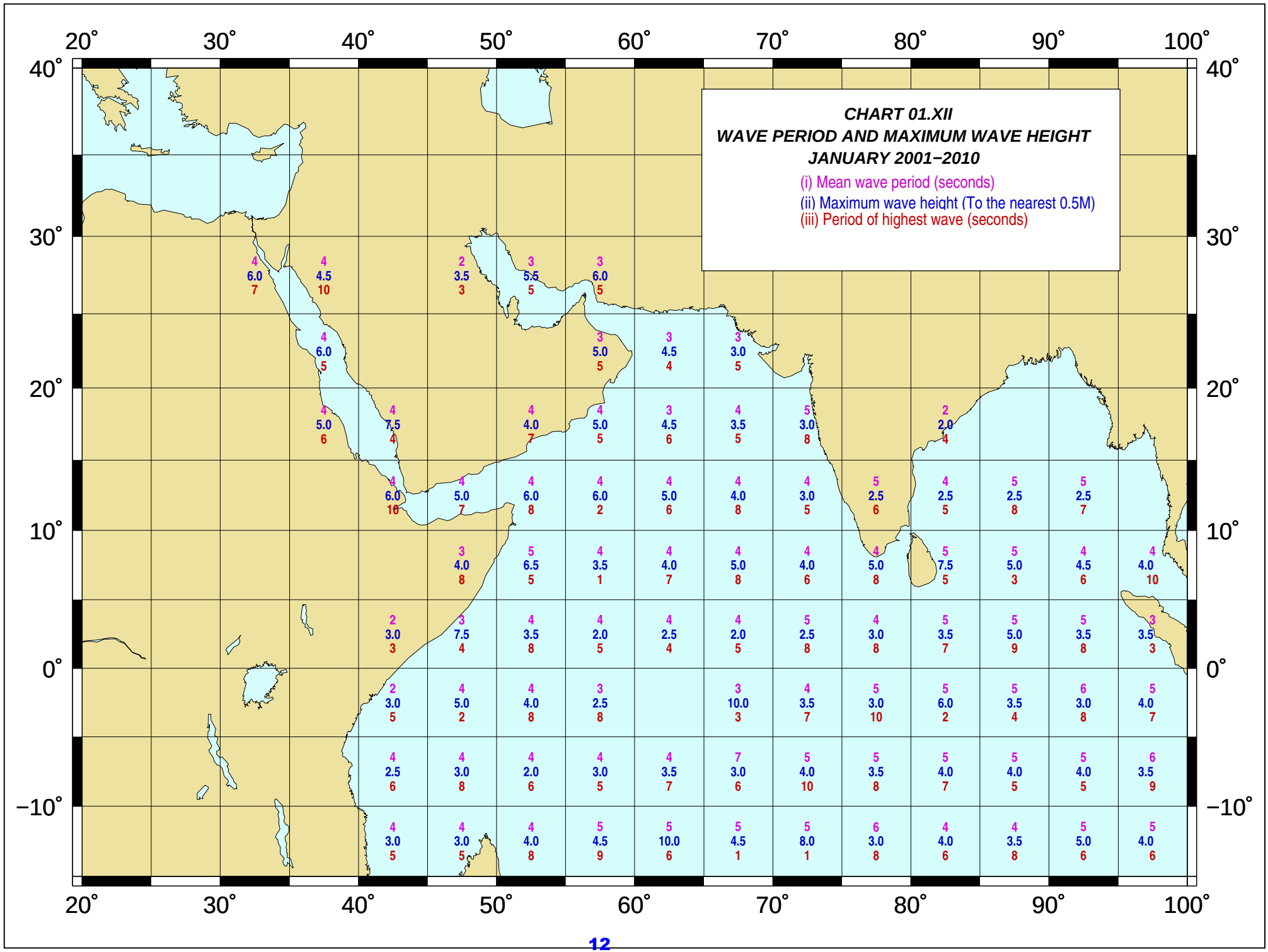


CHART 01.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
JANUARY 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°

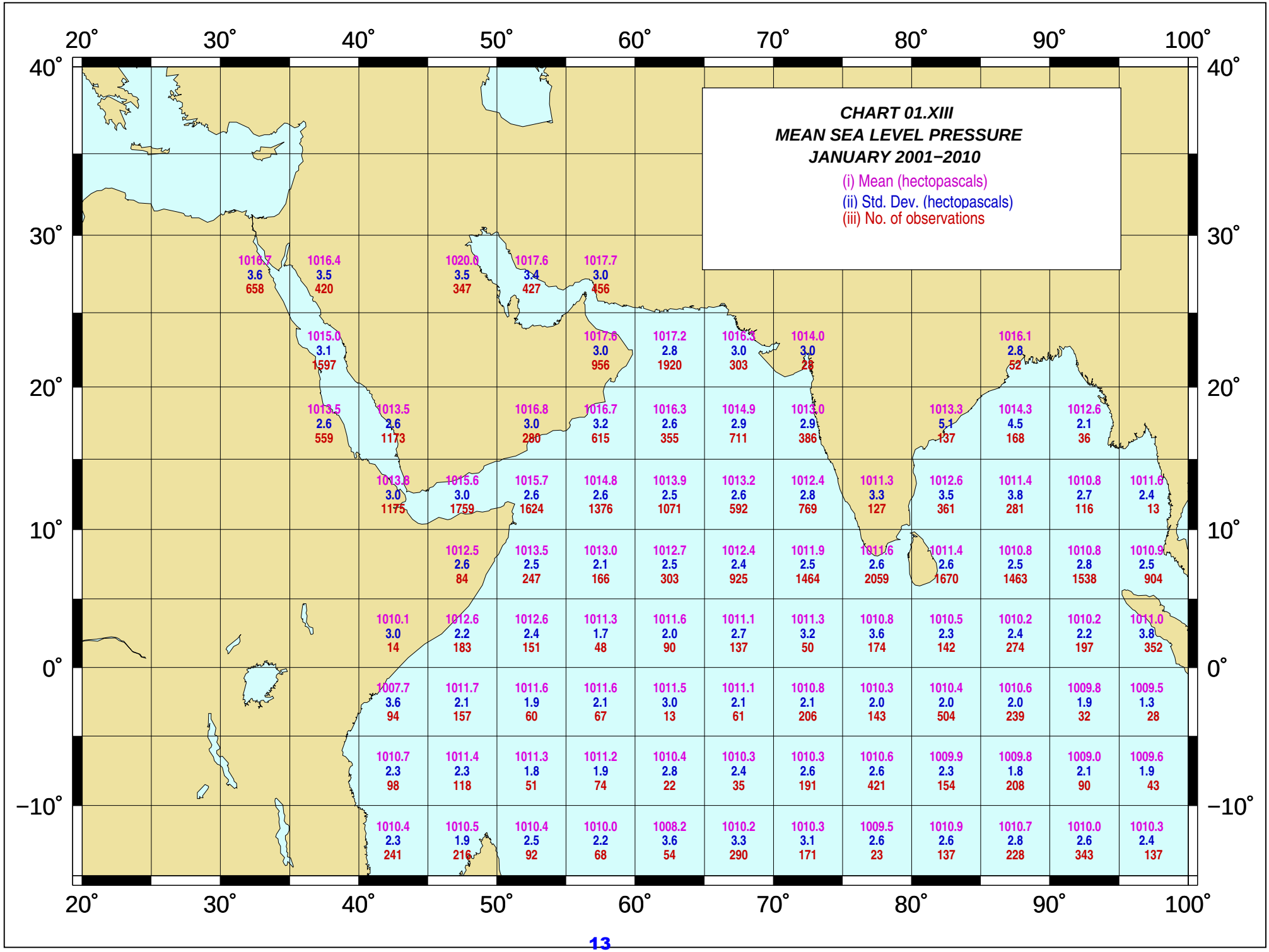


CHART 01.XIII
MEAN SEA LEVEL PRESSURE
JANUARY 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1016.7 3.6 658
1016.4 3.5 420
1020.0 3.5 347
1017.6 3.4 427
1017.7 3.0 456
1015.0 3.1 1597
1017.6 3.0 956
1017.2 2.8 1920
1016.3 3.0 303
1014.0 3.0 26
1016.1 2.8 52
1013.5 2.6 559
1013.5 2.6 1173
1016.8 3.0 280
1016.7 3.2 615
1016.3 2.6 355
1014.9 2.9 711
1013.0 2.9 386
1013.3 5.1 137
1014.3 4.5 168
1012.6 2.1 36
1013.8 3.0 1175
1015.6 3.0 1759
1015.7 2.6 1624
1014.8 2.6 1376
1013.9 2.5 1071
1013.2 2.6 592
1012.4 2.8 769
1011.3 3.3 127
1012.6 3.5 361
1011.4 3.8 281
1010.8 2.7 116
1011.6 2.4 13
1012.5 2.6 84
1013.5 2.5 247
1013.0 2.1 166
1012.7 2.5 303
1012.4 2.4 925
1011.9 2.5 1464
1011.6 2.6 2059
1011.4 2.6 1670
1010.8 2.5 1463
1010.8 2.8 1538
1010.9 2.5 904
1010.1 3.0 14
1012.6 2.2 183
1012.6 2.4 151
1011.3 1.7 48
1011.6 2.0 90
1011.1 2.7 137
1011.3 3.2 50
1010.8 3.6 174
1010.5 2.3 142
1010.2 2.4 274
1010.2 2.2 197
1011.0 3.8 352
1007.7 3.6 94
1011.7 2.1 157
1011.6 1.9 60
1011.6 2.1 67
1011.5 3.0 13
1011.1 2.1 61
1010.8 2.1 206
1010.3 2.0 143
1010.4 2.0 504
1010.6 2.0 239
1009.8 1.9 32
1009.5 1.3 28
1010.7 2.3 98
1011.4 2.3 118
1011.3 1.8 51
1011.2 1.9 74
1010.4 2.8 22
1010.3 2.4 35
1010.3 2.6 191
1010.6 2.6 421
1009.9 2.3 154
1009.8 1.8 208
1009.0 2.1 90
1009.6 1.9 43
1010.4 2.3 241
1010.5 1.9 216
1010.4 2.5 92
1010.0 2.2 68
1008.2 3.6 54
1010.2 3.3 290
1010.3 3.1 171
1009.5 2.6 23
1010.9 2.6 137
1010.7 2.8 228
1010.0 2.6 343
1010.3 2.4 137

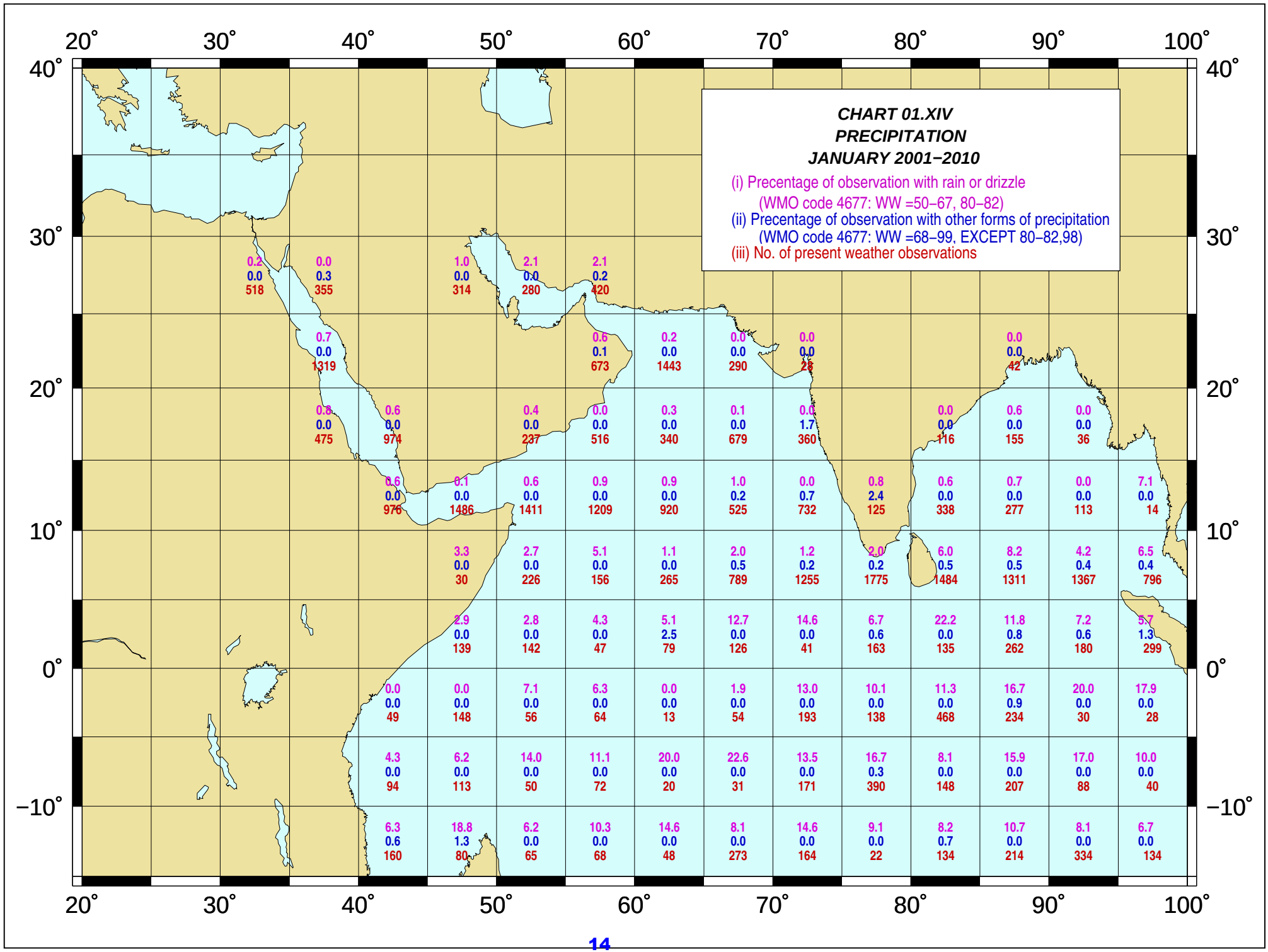


CHART 01.XIV
PRECIPITATION
JANUARY 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.0 518
0.0 0.3 355
1.0 0.0 314
2.1 0.0 280
2.1 0.2 420
0.7 0.0 1319
0.6 0.1 673
0.2 0.0 1443
0.0 0.0 290
0.0 0.0 26
0.0 0.0 42
0.8 0.0 475
0.6 0.0 974
0.4 0.0 237
0.0 0.0 516
0.3 0.0 340
0.1 0.0 679
0.0 1.7 360
0.0 0.0 116
0.6 0.0 155
0.0 0.0 36
0.6 0.0 976
0.1 0.0 1486
0.6 0.0 1411
0.9 0.0 1209
0.9 0.0 920
1.0 0.2 525
0.0 0.7 732
0.8 2.4 125
0.6 0.0 338
0.7 0.0 277
0.0 0.0 113
7.1 0.0 14
3.3 0.0 30
2.7 0.0 226
5.1 0.0 156
1.1 0.0 265
2.0 0.5 789
1.2 0.2 1255
2.0 0.2 1775
6.0 0.5 1484
8.2 0.5 1311
4.2 0.4 1367
6.5 0.4 796
2.9 0.0 139
2.8 0.0 142
4.3 0.0 47
5.1 2.5 79
12.7 0.0 126
14.6 0.0 41
6.7 0.6 163
22.2 0.0 135
11.8 0.8 262
7.2 0.6 180
5.7 1.3 299
0.0 0.0 49
0.0 0.0 148
7.1 0.0 56
6.3 0.0 64
0.0 0.0 13
1.9 0.0 54
13.0 0.0 193
10.1 0.0 138
11.3 0.0 468
16.7 0.9 234
20.0 0.0 30
17.9 0.0 28
4.3 0.0 94
6.2 0.0 113
14.0 0.0 50
11.1 0.0 72
20.0 0.0 20
22.6 0.0 31
13.5 0.0 171
16.7 0.3 390
8.1 0.0 148
15.9 0.0 207
17.0 0.0 88
10.0 0.0 40
6.3 0.6 160
18.8 1.3 80
6.2 0.0 65
10.3 0.0 68
14.6 0.0 48
8.1 0.0 273
14.6 0.0 164
9.1 0.0 22
8.2 0.7 134
10.7 0.0 214
8.1 0.0 334
6.7 0.0 134

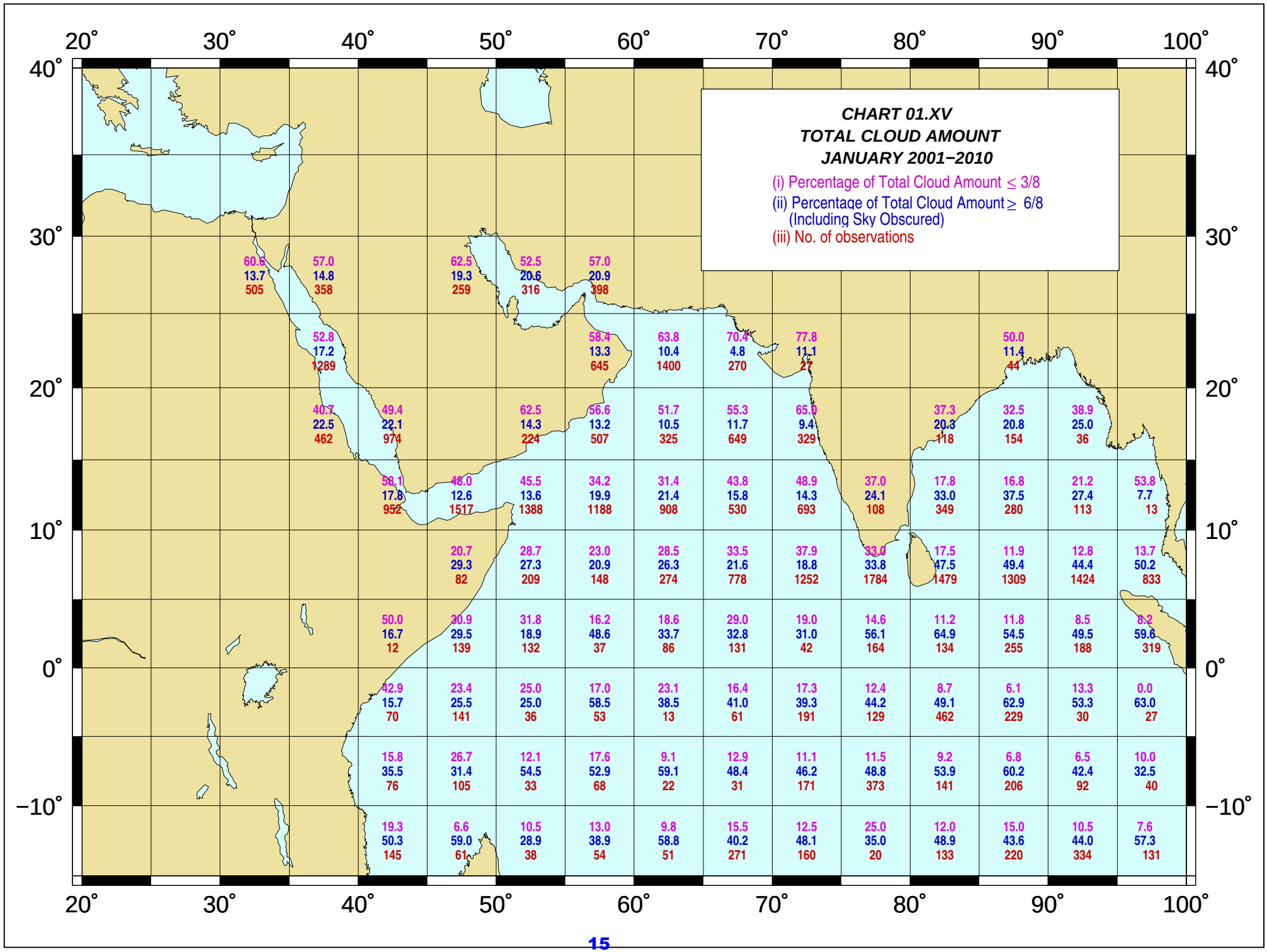


CHART 01.XV
TOTAL CLOUD AMOUNT
JANUARY 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
60.6 13.7 505
57.0 14.8 358
62.5 19.3 259
52.5 20.6 316
57.0 20.9 398
52.8 17.2 1289
58.4 13.3 645
63.8 10.4 1400
70.4 4.8 270
77.8 11.1 27
50.0 11.4 44
40.7 22.5 462
49.4 22.1 974
62.5 14.3 224
56.6 13.2 507
51.7 10.5 325
55.3 11.7 649
65.9 9.4 329
37.3 20.3 118
32.5 20.8 154
38.9 25.0 36
58.1 17.8 952
48.0 12.6 1517
45.5 13.6 1388
34.2 19.9 1188
31.4 21.4 908
43.8 15.8 530
48.9 14.3 693
37.0 24.1 108
17.8 33.0 349
16.8 37.5 280
21.2 27.4 113
53.8 7.7 13
20.7 29.3 82
28.7 27.3 209
23.0 20.9 148
28.5 26.3 274
33.5 21.6 778
37.9 18.8 1252
33.0 33.8 1784
17.5 47.5 1479
11.9 49.4 1309
12.8 44.4 1424
13.7 50.2 833
50.0 16.7 12
30.9 29.5 139
31.8 18.9 132
16.2 48.6 37
18.6 33.7 86
29.0 32.8 131
19.0 31.0 42
14.6 56.1 164
11.2 64.9 134
11.8 54.5 255
8.5 49.5 188
6.2 59.6 319
42.9 15.7 70
23.4 25.5 141
25.0 25.0 36
17.0 58.5 53
23.1 38.5 13
16.4 41.0 61
17.3 39.3 191
12.4 44.2 129
8.7 49.1 462
6.1 62.9 229
13.3 53.3 30
0.0 63.0 27
15.8 35.5 76
26.7 31.4 105
12.1 54.5 33
17.6 52.9 68
9.1 59.1 22
12.9 48.4 31
11.1 46.2 171
11.5 48.8 373
9.2 53.9 141
6.8 60.2 206
6.5 42.4 92
10.0 32.5 40
19.3 50.3 145
6.6 59.0 61
10.5 28.9 38
13.0 38.9 54
9.8 58.8 51
15.5 40.2 271
12.5 48.1 160
25.0 35.0 20
12.0 48.9 133
15.0 43.6 220
10.5 44.0 334
7.6 57.3 131

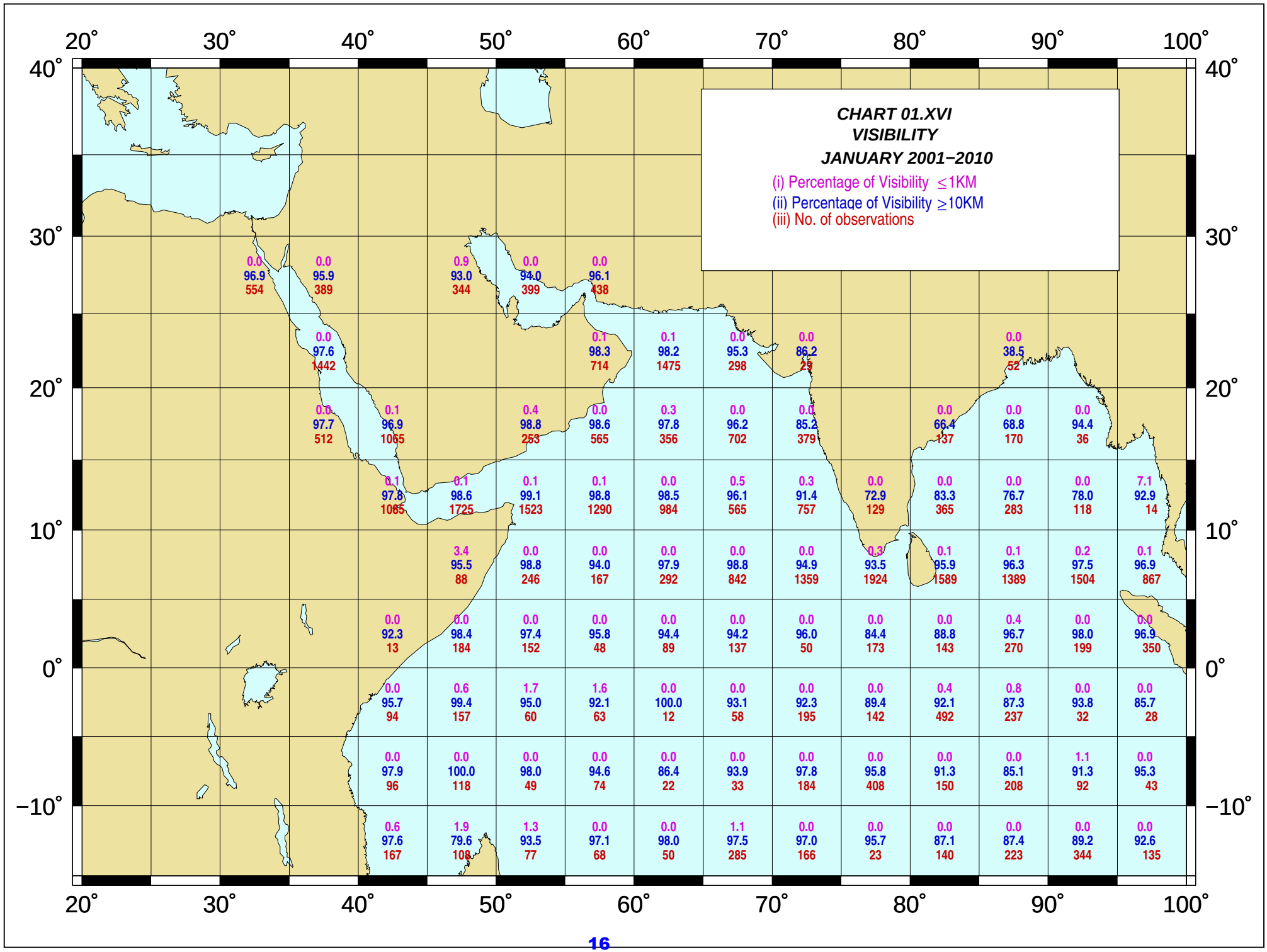


CHART 01.XVI
VISIBILITY
JANUARY 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 96.9 554
0.0 95.9 389
0.9 93.0 344
0.0 94.0 399
0.0 96.1 438
0.0 97.6 1442
0.1 98.3 714
0.1 98.2 1475
0.0 95.3 298
0.0 86.2 29
0.0 38.5 52
0.0 97.7 512
0.1 96.9 1065
0.4 98.8 253
0.0 98.6 565
0.3 97.8 356
0.0 96.2 702
0.0 85.2 379
0.0 66.4 137
0.0 68.8 170
0.0 94.4 36
0.1 97.8 1065
0.1 98.6 1725
0.1 99.1 1523
0.1 98.8 1290
0.0 98.5 984
0.5 96.1 565
0.3 91.4 757
0.0 72.9 129
0.0 83.3 365
0.0 76.7 283
0.0 78.0 118
7.1 92.9 14
3.4 95.5 88
0.0 98.8 246
0.0 94.0 167
0.0 97.9 292
0.0 98.8 842
0.0 94.9 1359
0.3 93.5 1924
0.1 95.9 1589
0.1 96.3 1389
0.2 97.5 1504
0.1 96.9 867
0.0 92.3 13
0.0 98.4 184
0.0 97.4 152
0.0 95.8 48
0.0 94.4 89
0.0 94.2 137
0.0 96.0 50
0.0 84.4 173
0.0 88.8 143
0.4 96.7 270
0.0 98.0 199
0.0 96.9 350
0.0 95.7 94
0.6 99.4 157
1.7 95.0 60
1.6 92.1 63
0.0 100.0 12
0.0 93.1 58
0.0 92.3 195
0.0 89.4 142
0.4 92.1 492
0.8 87.3 237
0.0 93.8 32
0.0 85.7 28
0.0 97.9 96
0.0 100.0 118
0.0 98.0 49
0.0 94.6 74
0.0 86.4 22
0.0 93.9 33
0.0 97.8 184
0.0 95.8 408
0.0 91.3 150
0.0 85.1 208
1.1 91.3 92
0.0 95.3 43
0.6 97.6 167
1.9 79.6 108
1.3 93.5 77
0.0 97.1 68
0.0 98.0 50
1.1 97.5 285
0.0 97.0 166
0.0 95.7 23
0.0 87.1 140
0.0 87.4 223
0.0 89.2 344
0.0 92.6 135

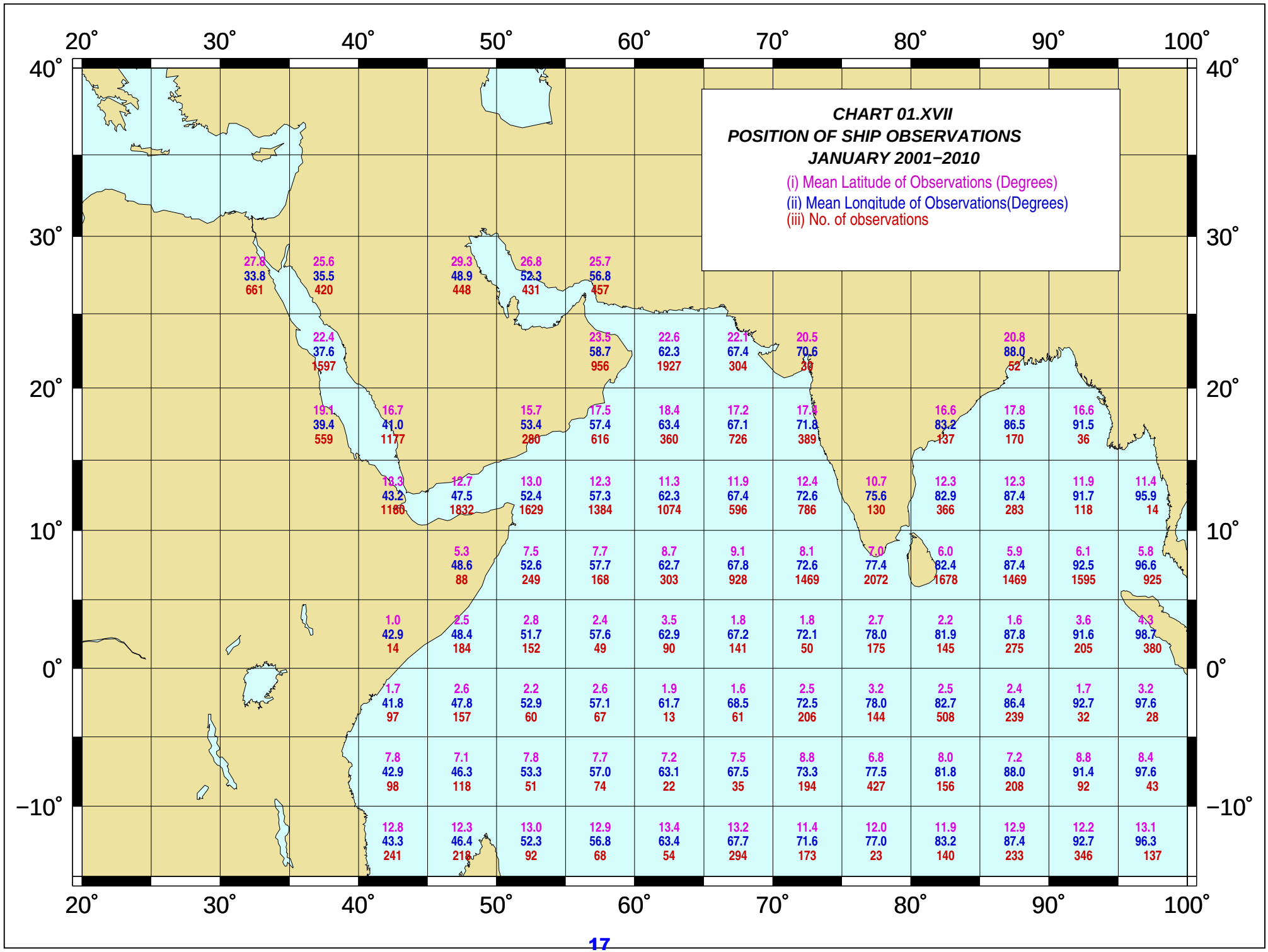


CHART 01.XVII
POSITION OF SHIP OBSERVATIONS
JANUARY 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.8 33.8 661
25.6 35.5 420
29.3 48.9 448
26.8 52.3 431
25.7 56.8 457
22.4 37.6 1597
23.5 58.7 956
22.6 62.3 1927
22.1 67.4 304
20.5 70.6 36
20.8 88.0 52
19.1 39.4 559
16.7 41.0 1177
15.7 53.4 280
17.5 57.4 616
18.4 63.4 360
17.2 67.1 726
17.9 71.8 389
16.6 83.2 137
17.8 86.5 170
16.6 91.5 36
10.3 43.2 1166
12.7 47.5 1832
13.0 52.4 1629
12.3 57.3 1384
11.3 62.3 1074
11.9 67.4 596
12.4 72.6 786
10.7 75.6 130
12.3 82.9 366
12.3 87.4 283
11.9 91.7 118
11.4 95.9 14
5.3 48.6 88
7.5 52.6 249
7.7 57.7 168
8.7 62.7 303
9.1 67.8 928
8.1 72.6 1469
7.0 77.4 2072
6.0 82.4 1678
5.9 87.4 1469
6.1 92.5 1595
5.8 96.6 925
1.0 42.9 14
2.5 48.4 184
2.8 51.7 152
2.4 57.6 49
3.5 62.9 90
1.8 67.2 141
1.8 72.1 50
2.7 78.0 175
2.2 81.9 145
1.6 87.8 275
3.6 91.6 205
4.3 98.7 380
1.7 41.8 97
2.6 47.8 157
2.2 52.9 60
2.6 57.1 67
1.9 61.7 13
1.6 68.5 61
2.5 72.5 206
3.2 78.0 144
2.5 82.7 508
2.4 86.4 239
1.7 92.7 32
3.2 97.6 28
7.8 42.9 98
7.1 46.3 118
7.8 53.3 51
7.7 57.0 74
7.2 63.1 22
7.5 67.5 35
8.8 73.3 194
6.8 77.5 427
8.0 81.8 156
7.2 88.0 208
8.8 91.4 92
8.4 97.6 43
12.8 43.3 241
12.3 46.4 218
13.0 52.3 92
12.9 56.8 68
13.4 63.4 54
13.2 67.7 294
11.4 71.6 173
12.0 77.0 23
11.9 83.2 140
12.9 87.4 233
12.2 92.7 346
13.1 96.3 137

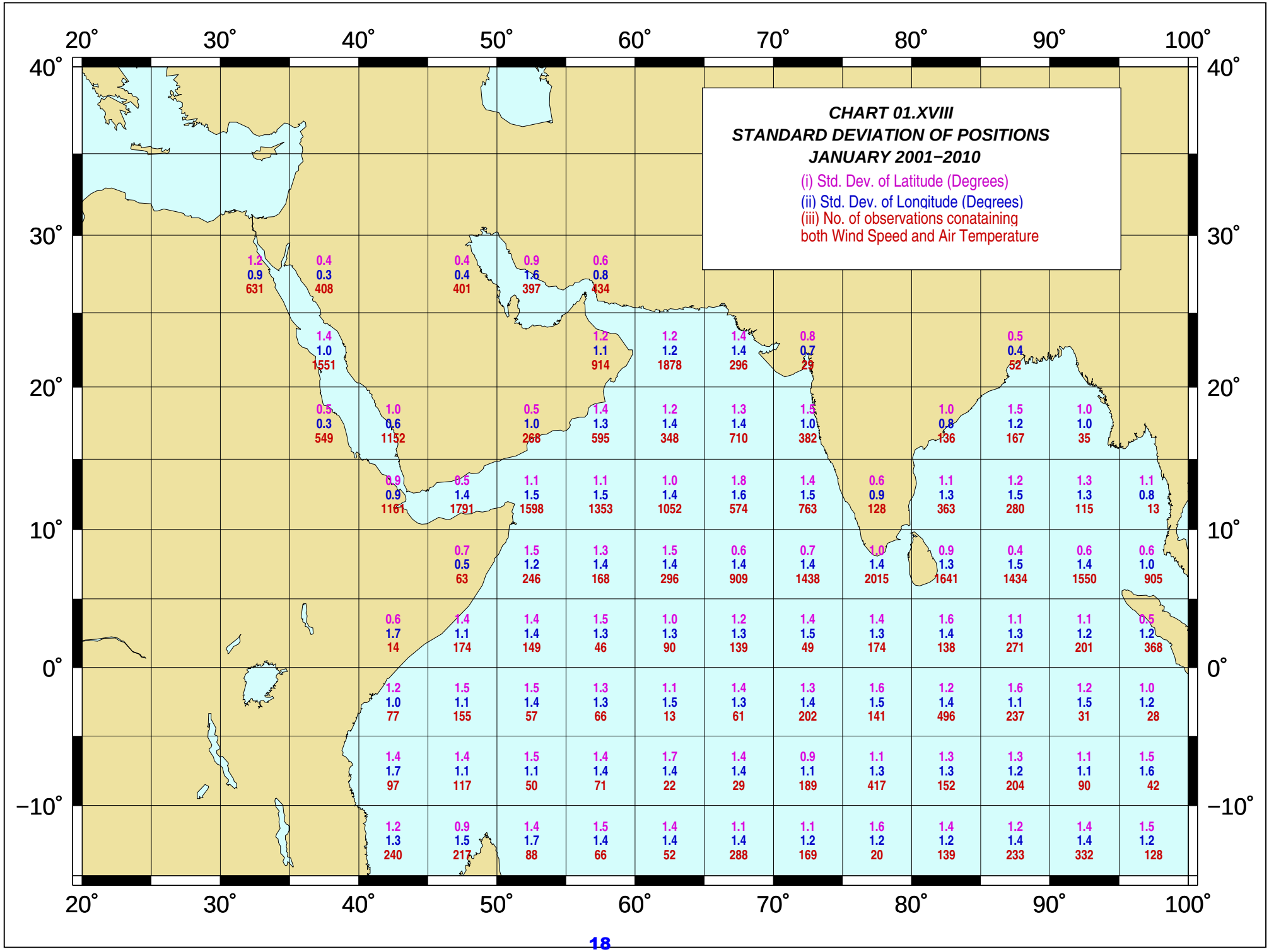
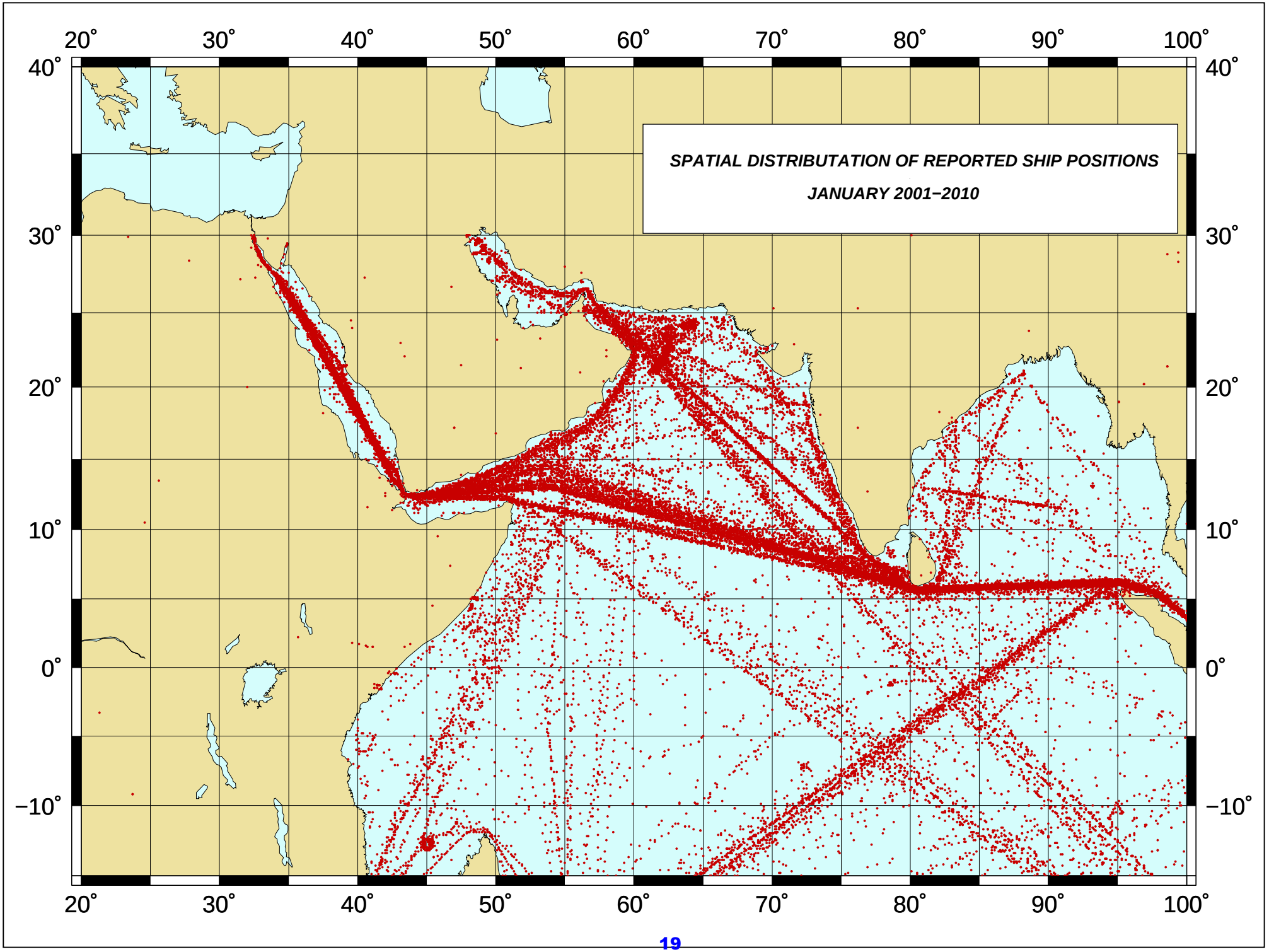


CHART 01.XVIII
STANDARD DEVIATION OF POSITIONS
JANUARY 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.2 0.9 631
0.4 0.3 408
0.4 0.4 401
0.9 1.6 397
0.6 0.8 434
1.4 1.0 1551
1.2 1.1 914
1.2 1.2 1878
1.4 1.4 296
0.8 0.7 29
0.5 0.4 52
0.5 0.3 549
1.0 0.6 1152
0.5 1.0 268
1.4 1.3 595
1.2 1.4 348
1.3 1.4 710
1.5 1.0 382
1.0 0.8 136
1.5 1.2 167
1.0 1.0 35
0.9 0.9 1161
0.5 1.4 1791
1.1 1.5 1598
1.1 1.5 1353
1.0 1.4 1052
1.8 1.6 574
1.4 1.5 763
0.6 0.9 128
1.1 1.3 363
1.2 1.5 280
1.3 1.3 115
1.1 0.8 13
0.7 0.5 63
1.5 1.2 246
1.3 1.4 168
1.5 1.4 296
0.6 1.4 909
0.7 1.4 1438
1.0 1.4 2015
0.9 1.3 1641
0.4 1.5 1434
0.6 1.4 1550
0.6 1.0 905
0.6 1.7 14
1.4 1.1 174
1.4 1.4 149
1.5 1.3 46
1.0 1.3 90
1.2 1.3 139
1.4 1.5 49
1.4 1.3 174
1.6 1.4 138
1.1 1.3 271
1.1 1.2 201
0.5 1.2 368
1.2 1.0 77
1.5 1.1 155
1.5 1.4 57
1.3 1.3 66
1.1 1.5 13
1.4 1.3 61
1.3 1.4 202
1.6 1.5 141
1.2 1.4 496
1.6 1.1 237
1.2 1.5 31
1.0 1.2 28
1.4 1.7 97
1.4 1.1 117
1.5 1.1 50
1.4 1.4 71
1.7 1.4 22
1.4 1.4 29
0.9 1.1 189
1.1 1.3 417
1.3 1.3 152
1.3 1.2 204
1.1 1.1 90
1.5 1.6 42
1.2 1.3 240
0.9 1.5 217
1.4 1.7 88
1.5 1.4 66
1.4 1.4 52
1.1 1.4 288
1.1 1.2 169
1.6 1.2 20
1.4 1.2 139
1.2 1.4 233
1.4 1.4 332
1.5 1.2 128


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
JANUARY 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF FEBRUARY 2001-2010

Marine Climatological Summary Charts 2001-2010

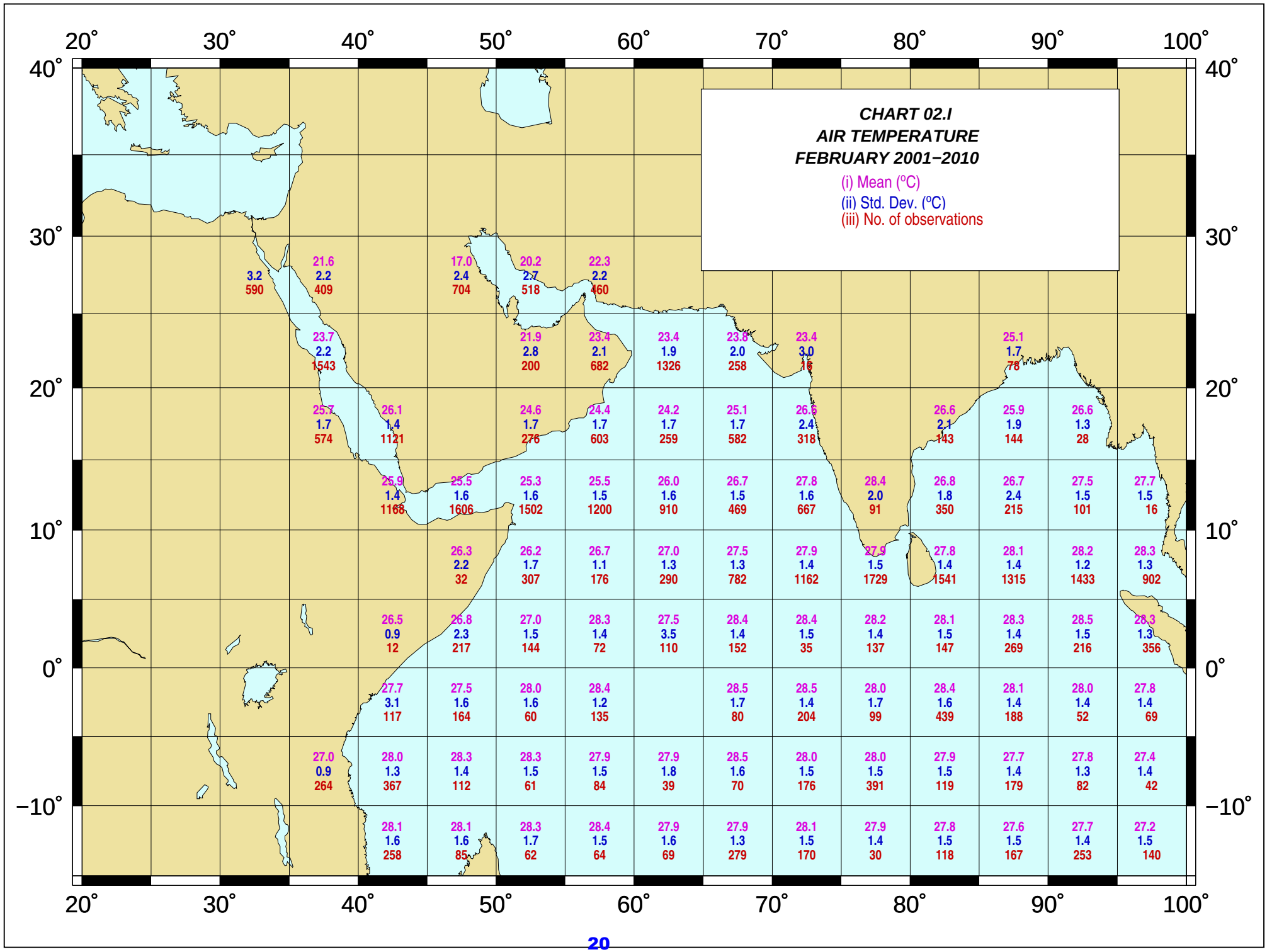


CHART 02.I
AIR TEMPERATURE
FEBRUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
3.2 590
21.6 2.2 409
17.0 2.4 704
20.2 2.7 518
22.3 2.2 460
23.7 2.2 1543
21.9 2.8 200
23.4 2.1 682
23.4 1.9 1326
23.8 2.0 258
23.4 3.0 16
25.1 1.7 78
25.7 1.7 574
26.1 1.4 1121
24.6 1.7 276
24.4 1.7 603
24.2 1.7 259
25.1 1.7 582
26.6 2.4 318
26.6 2.1 143
25.9 1.9 144
26.6 1.3 28
25.9 1.4 1168
25.5 1.6 1606
25.3 1.6 1502
25.5 1.5 1200
26.0 1.6 910
26.7 1.5 469
27.8 1.6 667
28.4 2.0 91
26.8 1.8 350
26.7 2.4 215
27.5 1.5 101
27.7 1.5 16
26.3 2.2 32
26.2 1.7 307
26.7 1.1 176
27.0 1.3 290
27.5 1.3 782
27.9 1.4 1162
27.9 1.5 1729
27.8 1.4 1541
28.1 1.4 1315
28.2 1.2 1433
28.3 1.3 902
26.5 0.9 12
26.8 2.3 217
27.0 1.5 144
28.3 1.4 72
27.5 3.5 110
28.4 1.4 152
28.4 1.5 35
28.2 1.4 137
28.1 1.5 147
28.3 1.4 269
28.5 1.5 216
28.3 1.3 356
27.7 3.1 117
27.5 1.6 164
28.0 1.6 60
28.4 1.2 135
28.5 1.7 80
28.5 1.4 204
28.0 1.7 99
28.4 1.6 439
28.1 1.4 188
28.0 1.4 52
27.8 1.4 69
27.0 0.9 264
28.0 1.3 367
28.3 1.4 112
28.3 1.5 61
27.9 1.5 84
27.9 1.8 39
28.5 1.6 70
28.0 1.5 176
28.0 1.5 391
27.9 1.5 119
27.7 1.4 179
27.8 1.3 82
27.4 1.4 42
28.1 1.6 258
28.1 1.6 85
28.3 1.7 62
28.4 1.5 64
27.9 1.6 69
27.9 1.3 279
28.1 1.5 170
27.9 1.4 30
27.8 1.5 118
27.6 1.5 167
27.7 1.4 253
27.2 1.5 140

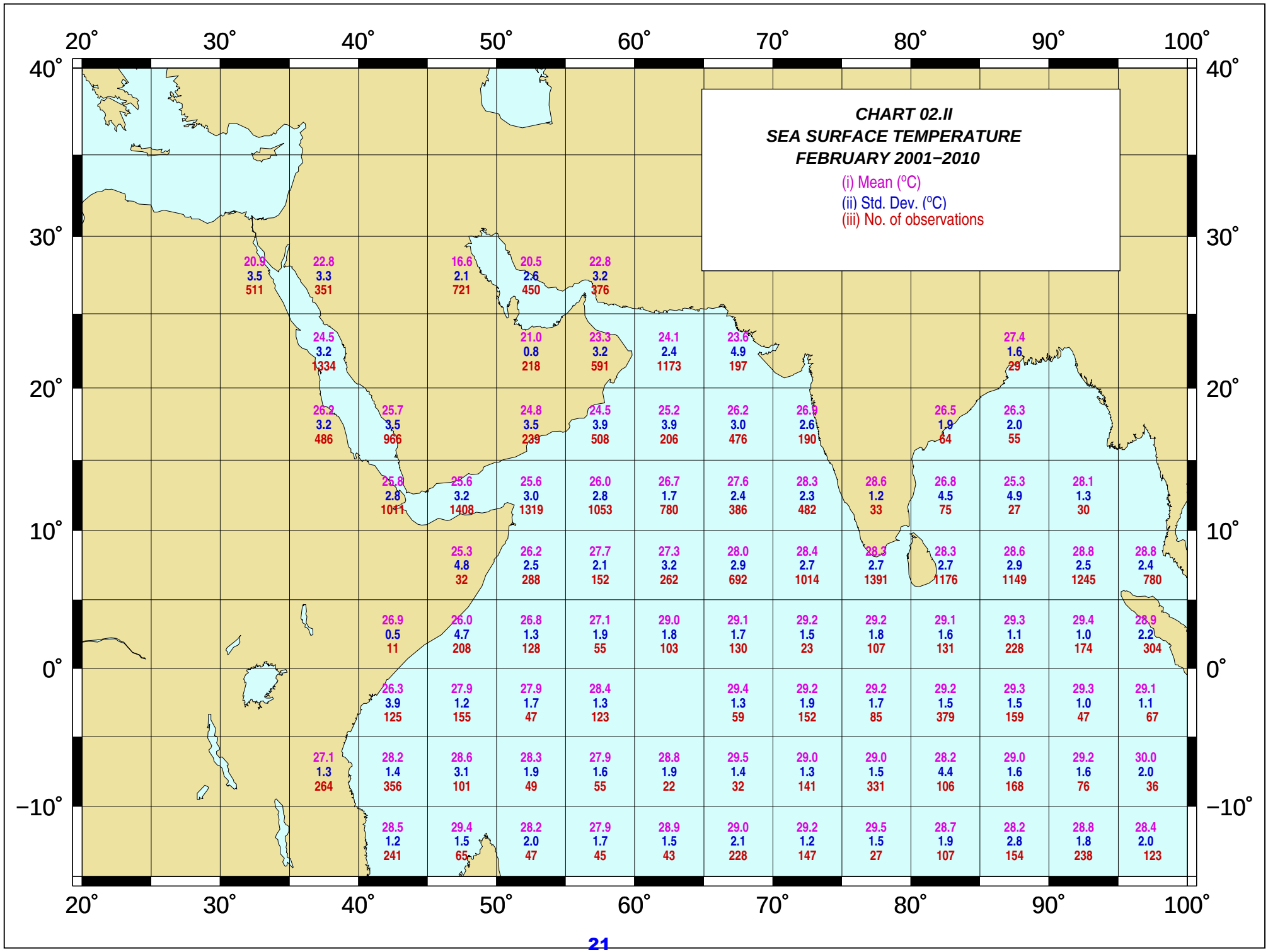


CHART 02.II
SEA SURFACE TEMPERATURE
FEBRUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
20.9 3.5 511
22.8 3.3 351
16.6 2.1 721
20.5 2.6 450
22.8 3.2 376
24.5 3.2 1334
21.0 0.8 218
23.3 3.2 591
24.1 2.4 1173
23.6 4.9 197
27.4 1.6 29
26.2 3.2 486
25.7 3.5 966
24.8 3.5 239
24.5 3.9 508
25.2 3.9 206
26.2 3.0 476
26.9 2.6 190
26.5 1.9 64
26.3 2.0 55
25.8 2.8 1011
25.6 3.2 1408
25.6 3.0 1319
26.0 2.8 1053
26.7 1.7 780
27.6 2.4 386
28.3 2.3 482
28.6 1.2 33
26.8 4.5 75
25.3 4.9 27
28.1 1.3 30
25.3 4.8 32
26.2 2.5 288
27.7 2.1 152
27.3 3.2 262
28.0 2.9 692
28.4 2.7 1014
28.3 2.7 1391
28.3 2.7 1176
28.6 2.9 1149
28.8 2.5 1245
28.8 2.4 780
26.9 0.5 11
26.0 4.7 208
26.8 1.3 128
27.1 1.9 55
29.0 1.8 103
29.1 1.7 130
29.2 1.5 23
29.2 1.8 107
29.1 1.6 131
29.3 1.1 228
29.4 1.0 174
28.9 2.2 304
26.3 3.9 125
27.9 1.2 155
27.9 1.7 47
28.4 1.3 123
29.4 1.3 59
29.2 1.9 152
29.2 1.7 85
29.2 1.5 379
29.3 1.5 159
29.3 1.0 47
29.1 1.1 67
27.1 1.3 264
28.2 1.4 356
28.6 3.1 101
28.3 1.9 49
27.9 1.6 55
28.8 1.9 22
29.5 1.4 32
29.0 1.3 141
29.0 1.5 331
28.2 4.4 106
29.0 1.6 168
29.2 1.6 76
30.0 2.0 36
28.5 1.2 241
29.4 1.5 65
28.2 2.0 47
27.9 1.7 45
28.9 1.5 43
29.0 2.1 228
29.2 1.2 147
29.5 1.5 27
28.7 1.9 107
28.2 2.8 154
28.8 1.8 238
28.4 2.0 123

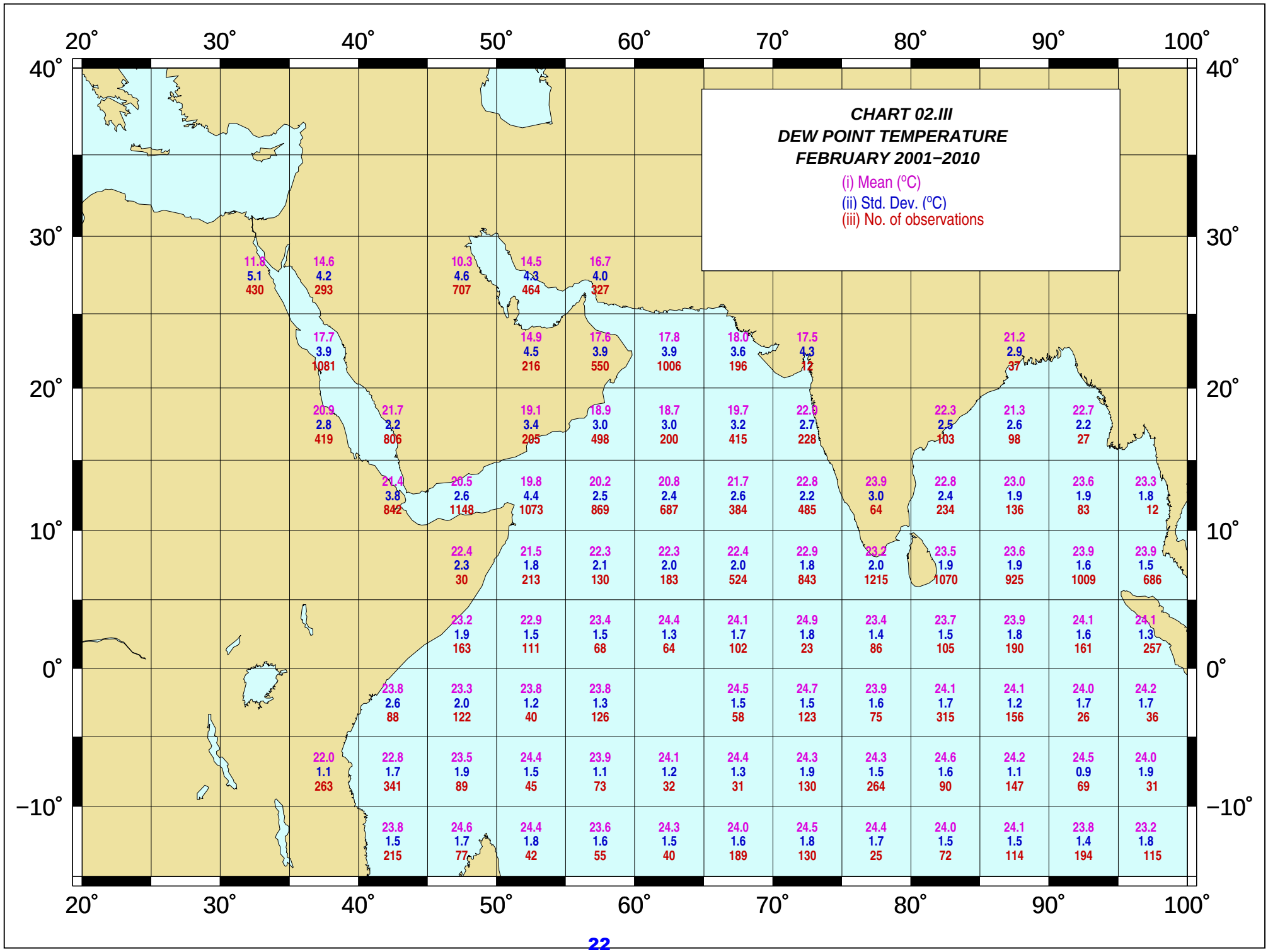


CHART 02.III
DEW POINT TEMPERATURE
FEBRUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
11.8 5.1 430
14.6 4.2 293
10.3 4.6 707
14.5 4.3 464
16.7 4.0 327
17.7 3.9 1081
14.9 4.5 216
17.6 3.9 550
17.8 3.9 1006
18.0 3.6 196
17.5 4.3 12
21.2 2.9 37
20.9 2.8 419
21.7 2.2 806
19.1 3.4 205
18.9 3.0 498
18.7 3.0 200
19.7 3.2 415
22.9 2.7 228
22.3 2.5 103
21.3 2.6 98
22.7 2.2 27
21.4 3.8 842
20.5 2.6 1148
19.8 4.4 1073
20.2 2.5 869
20.8 2.4 687
21.7 2.6 384
22.8 2.2 485
23.9 3.0 64
22.8 2.4 234
23.0 1.9 136
23.6 1.9 83
23.3 1.8 12
22.4 2.3 30
21.5 1.8 213
22.3 2.1 130
22.3 2.0 183
22.4 2.0 524
22.9 1.8 843
23.2 2.0 1215
23.5 1.9 1070
23.6 1.9 925
23.9 1.6 1009
23.9 1.5 686
23.2 1.9 163
22.9 1.5 111
23.4 1.5 68
24.4 1.3 64
24.1 1.7 102
24.9 1.8 23
23.4 1.4 86
23.7 1.5 105
23.9 1.8 190
24.1 1.6 161
24.1 1.3 257
23.8 2.6 88
23.3 2.0 122
23.8 1.2 40
23.8 1.3 126
24.5 1.5 58
24.7 1.5 123
23.9 1.6 75
24.1 1.7 315
24.1 1.2 156
24.0 1.7 26
24.2 1.7 36
22.0 1.1 263
22.8 1.7 341
23.5 1.9 89
24.4 1.5 45
23.9 1.1 73
24.1 1.2 32
24.4 1.3 31
24.3 1.9 130
24.3 1.5 264
24.6 1.6 90
24.2 1.1 147
24.5 0.9 69
24.0 1.9 31
23.8 1.5 215
24.6 1.7 77
24.4 1.8 42
23.6 1.6 55
24.3 1.5 40
24.0 1.6 189
24.5 1.8 130
24.4 1.7 25
24.0 1.5 72
24.1 1.5 114
23.8 1.4 194
23.2 1.8 115

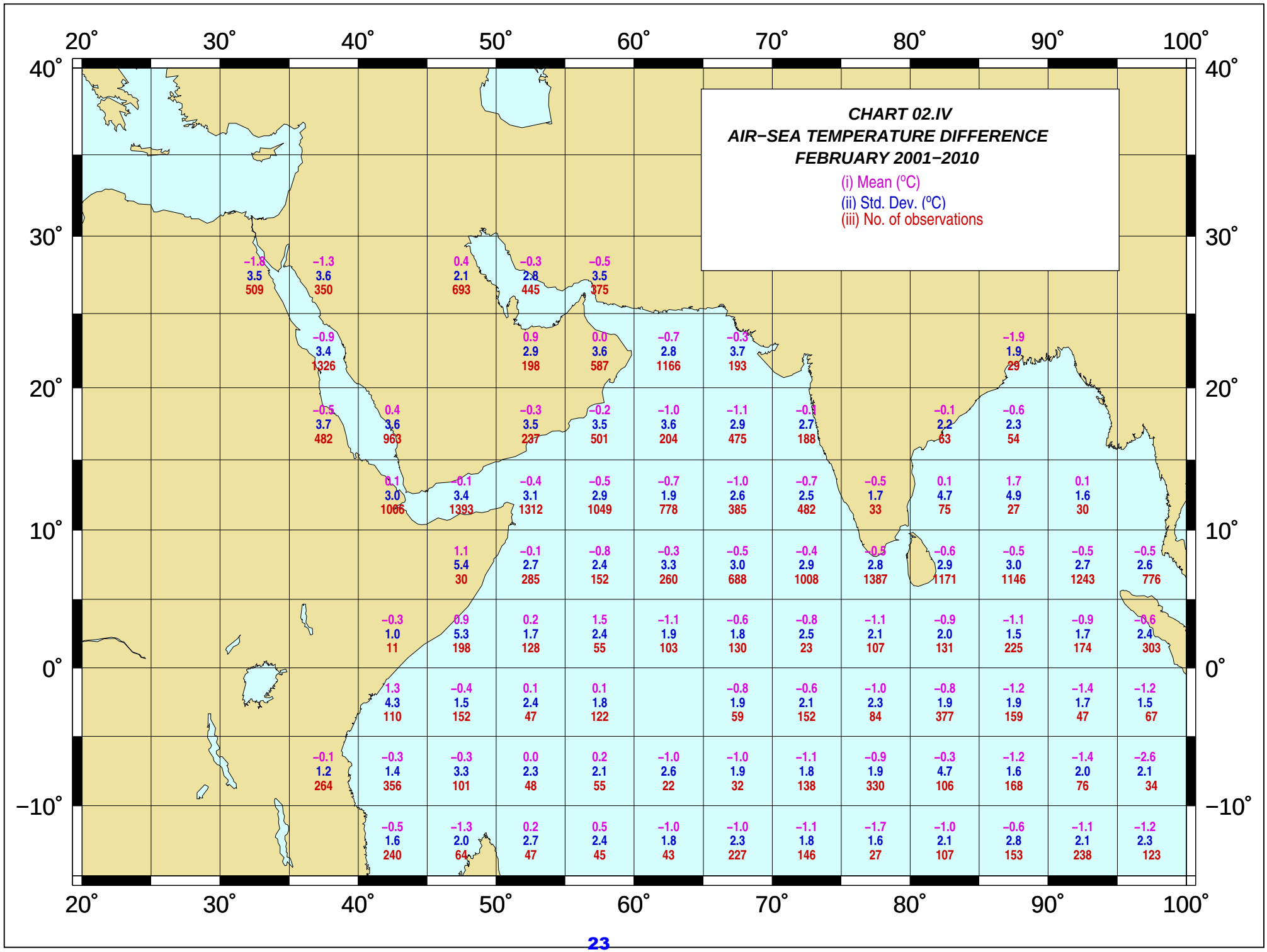


CHART 02.IV
AIR–SEA TEMPERATURE DIFFERENCE
FEBRUARY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−1.8 3.5 509
−1.3 3.6 350
0.4 2.1 693
−0.3 2.8 445
−0.5 3.5 375
−0.9 3.4 1326
0.9 2.9 198
0.0 3.6 587
−0.7 2.8 1166
−0.3 3.7 193
−1.9 1.9 29
−0.5 3.7 482
0.4 3.6 963
−0.3 3.5 237
−0.2 3.5 501
−1.0 3.6 204
−1.1 2.9 475
−0.1 2.2 63
−0.6 2.3 54
0.1 3.0 1066
−0.1 3.4 1393
−0.4 3.1 1312
−0.5 2.9 1049
−0.7 1.9 778
−1.0 2.6 385
−0.7 2.5 482
−0.5 1.7 33
0.1 4.7 75
1.7 4.9 27
0.1 1.6 30
1.1 5.4 30
−0.1 2.7 285
−0.8 2.4 152
−0.3 3.3 260
−0.5 3.0 688
−0.4 2.9 1008
−0.5 2.8 1387
−0.6 2.9 1171
−0.5 3.0 1146
−0.5 2.7 1243
−0.5 2.6 776
−0.3 1.0 11
0.9 5.3 198
0.2 1.7 128
1.5 2.4 55
−1.1 1.9 103
−0.6 1.8 130
−0.8 2.5 23
−1.1 2.1 107
−0.9 2.0 131
−1.1 1.5 225
−0.9 1.7 174
−0.6 2.4 303
1.3 4.3 110
−0.4 1.5 152
0.1 2.4 47
0.1 1.8 122
−0.8 1.9 59
−0.6 2.1 152
−1.0 2.3 84
−0.8 1.9 377
−1.2 1.9 159
−1.4 1.7 47
−1.2 1.5 67
−0.1 1.2 264
−0.3 1.4 356
−0.3 3.3 101
0.0 2.3 48
0.2 2.1 55
−1.0 2.6 22
−1.0 1.9 32
−1.1 1.8 138
−0.9 1.9 330
−0.3 4.7 106
−1.2 1.6 168
−1.4 2.0 76
−2.6 2.1 34
−0.5 1.6 240
−1.3 2.0 64
0.2 2.7 47
0.5 2.4 45
−1.0 1.8 43
−1.0 2.3 227
−1.1 1.8 146
−1.7 1.6 27
−1.0 2.1 107
−0.6 2.8 153
−1.1 2.1 238
−1.2 2.3 123

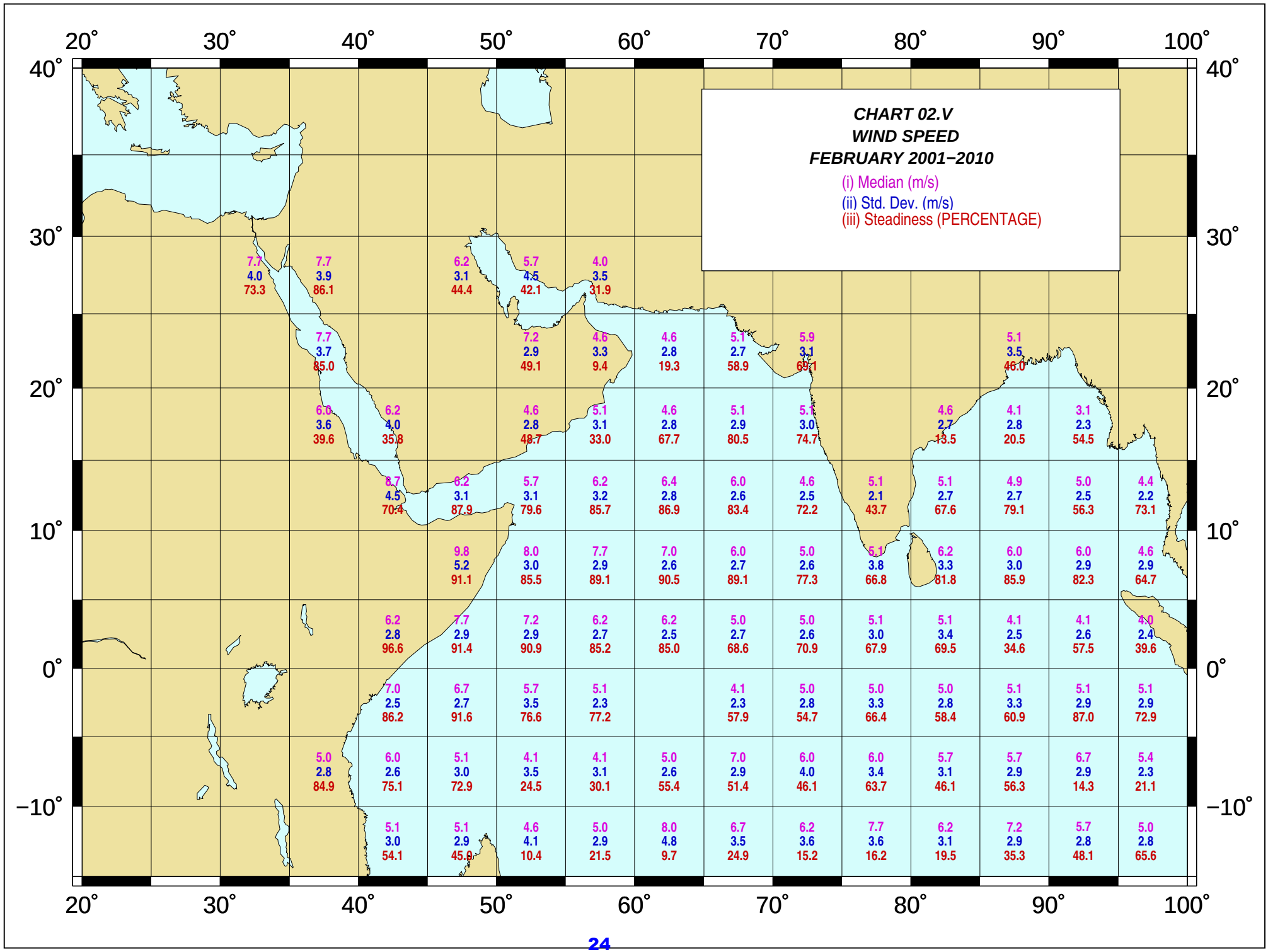


CHART 02.V
WIND SPEED
FEBRUARY 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
7.7 4.0 73.3
7.7 3.9 86.1
6.2 3.1 44.4
5.7 4.5 42.1
4.0 3.5 31.9
7.7 3.7 85.0
7.2 2.9 49.1
4.6 3.3 9.4
4.6 2.8 19.3
5.1 2.7 58.9
5.9 3.1 69.1
5.1 3.5 46.0
6.0 3.6 39.6
6.2 4.0 35.8
4.6 2.8 48.7
5.1 3.1 33.0
4.6 2.8 67.7
5.1 2.9 80.5
5.1 3.0 74.7
4.6 2.7 13.5
4.1 2.8 20.5
3.1 2.3 54.5
8.7 4.5 70.4
6.2 3.1 87.9
5.7 3.1 79.6
6.2 3.2 85.7
6.4 2.8 86.9
6.0 2.6 83.4
4.6 2.5 72.2
5.1 2.1 43.7
5.1 2.7 67.6
4.9 2.7 79.1
5.0 2.5 56.3
4.4 2.2 73.1
9.8 5.2 91.1
8.0 3.0 85.5
7.7 2.9 89.1
7.0 2.6 90.5
6.0 2.7 89.1
5.0 2.6 77.3
5.1 3.8 66.8
6.2 3.3 81.8
6.0 3.0 85.9
6.0 2.9 82.3
4.6 2.9 64.7
6.2 2.8 96.6
7.7 2.9 91.4
7.2 2.9 90.9
6.2 2.7 85.2
6.2 2.5 85.0
5.0 2.7 68.6
5.0 2.6 70.9
5.1 3.0 67.9
5.1 3.4 69.5
4.1 2.5 34.6
4.1 2.6 57.5
4.0 2.4 39.6
7.0 2.5 86.2
6.7 2.7 91.6
5.7 3.5 76.6
5.1 2.3 77.2
4.1 2.3 57.9
5.0 2.8 54.7
5.0 3.3 66.4
5.0 2.8 58.4
5.1 3.3 60.9
5.1 2.9 87.0
5.1 2.9 72.9
5.0 2.8 84.9
6.0 2.6 75.1
5.1 3.0 72.9
4.1 3.5 24.5
4.1 3.1 30.1
5.0 2.6 55.4
7.0 2.9 51.4
6.0 4.0 46.1
6.0 3.4 63.7
5.7 3.1 46.1
5.7 2.9 56.3
6.7 2.9 14.3
5.4 2.3 21.1
5.1 3.0 54.1
5.1 2.9 45.8
4.6 4.1 10.4
5.0 2.9 21.5
8.0 4.8 9.7
6.7 3.5 24.9
6.2 3.6 15.2
7.7 3.6 16.2
6.2 3.1 19.5
7.2 2.9 35.3
5.7 2.8 48.1
5.0 2.8 65.6

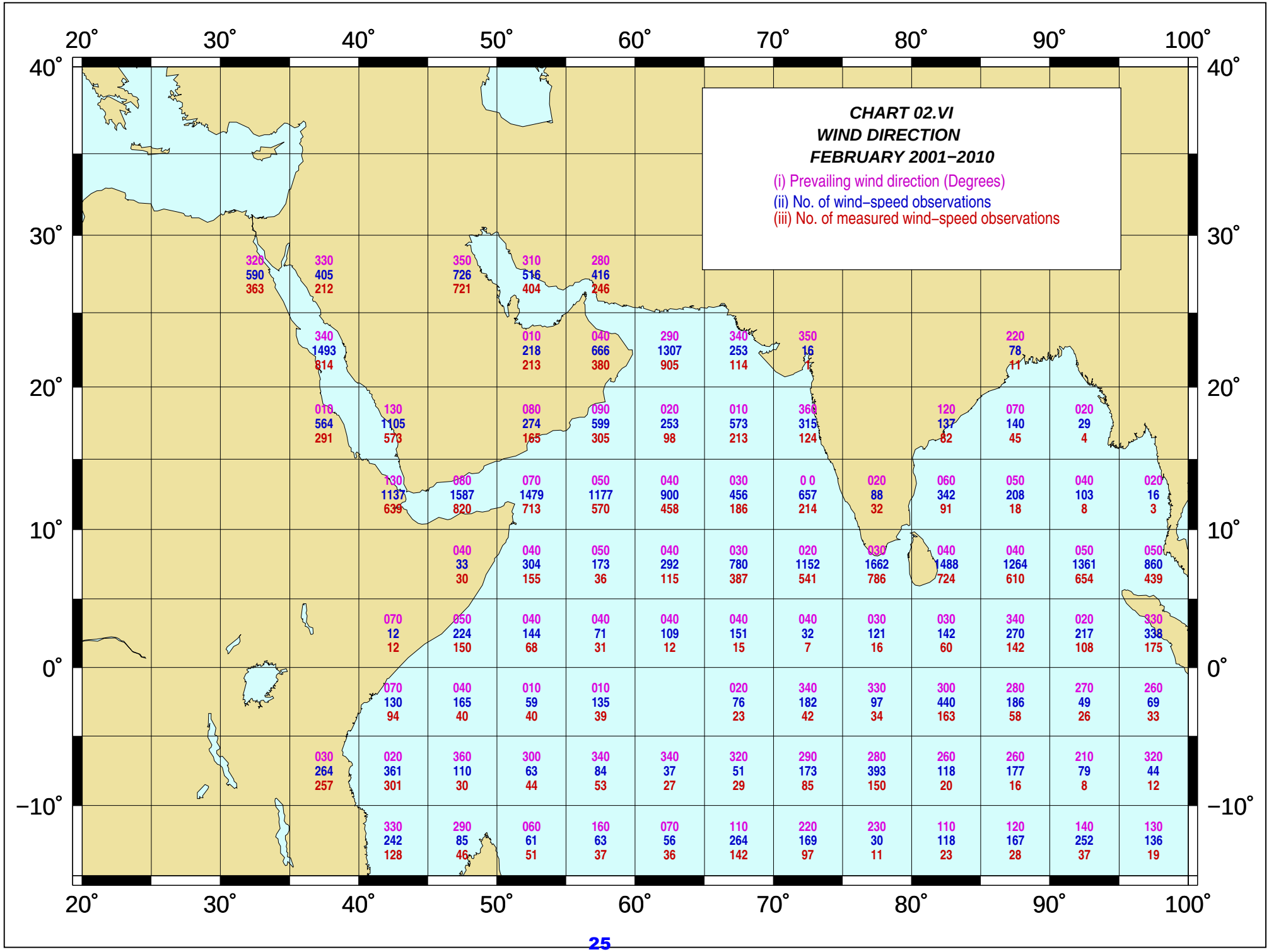


CHART 02.VI
WIND DIRECTION
FEBRUARY 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
320 590 363
330 405 212
350 726 721
310 516 404
280 416 246
340 1493 814
010 218 213
040 666 380
290 1307 905
340 253 114
350 16 7
220 78 11
010 564 291
130 1105 573
080 274 165
090 599 305
020 253 98
010 573 213
360 315 124
120 137 82
070 140 45
020 29 4
130 1137 639
080 1587 820
070 1479 713
050 1177 570
040 900 458
030 456 186
0 0 657 214
020 88 32
060 342 91
050 208 18
040 103 8
020 16 3
040 33 30
040 304 155
050 173 36
040 292 115
030 780 387
020 1152 541
030 1662 786
040 1488 724
040 1264 610
050 1361 654
050 860 439
070 12 12
050 224 150
040 144 68
040 71 31
040 109 12
040 151 15
040 32 7
030 121 16
030 142 60
340 270 142
020 217 108
330 338 175
070 130 94
040 165 40
010 59 40
010 135 39
020 76 23
340 182 42
330 97 34
300 440 163
280 186 58
270 49 26
260 69 33
030 264 257
020 361 301
360 110 30
300 63 44
340 84 53
340 37 27
320 51 29
290 173 85
280 393 150
260 118 20
260 177 16
210 79 8
320 44 12
330 242 128
290 85 46
060 61 51
160 63 37
070 56 36
110 264 142
220 169 97
230 30 11
110 118 23
120 167 28
140 252 37
130 136 19

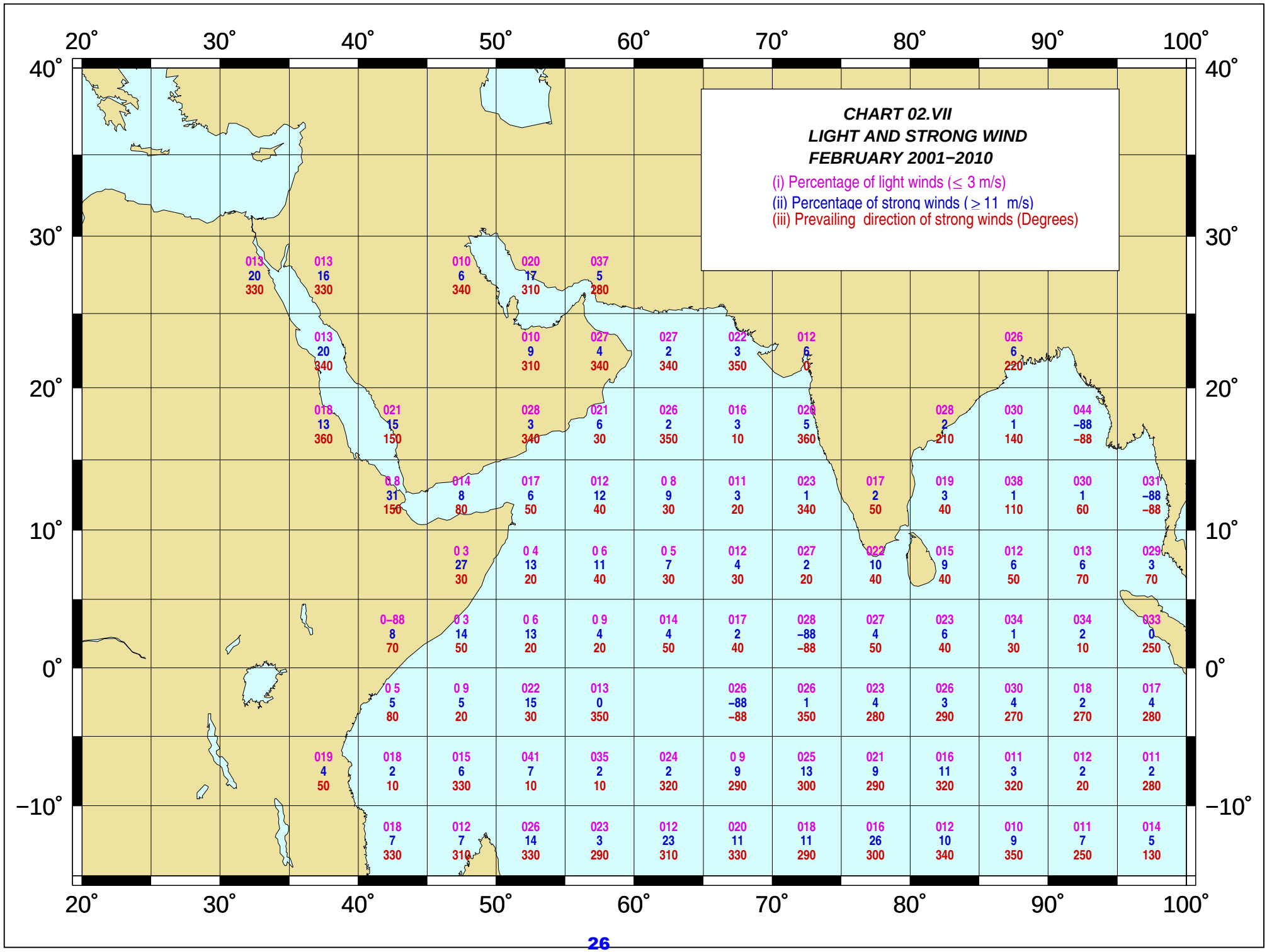


CHART 02.VII
LIGHT AND STRONG WIND
FEBRUARY 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
013 20 330
013 16 330
010 6 340
020 17 310
037 5 280
013 20 340
010 9 310
027 4 340
027 2 340
022 3 350
012 6 0
026 6 220
018 13 360
021 15 150
028 3 340
021 6 30
026 2 350
016 3 10
026 5 360
028 2 210
030 1 140
044 −88 −88
0 8 31 150
014 8 80
017 6 50
012 12 40
0 8 9 30
011 3 20
023 1 340
017 2 50
019 3 40
038 1 110
030 1 60
031 −88 −88
0 3 27 30
0 4 13 20
0 6 11 40
0 5 7 30
012 4 30
027 2 20
022 10 40
015 9 40
012 6 50
013 6 70
029 3 70
0–88 8 70
0 3 14 50
0 6 13 20
0 9 4 20
014 4 50
017 2 40
028 −88 −88
027 4 50
023 6 40
034 1 30
034 2 10
033 0 250
0 5 5 80
0 9 5 20
022 15 30
013 0 350
026 −88 −88
026 1 350
023 4 280
026 3 290
030 4 270
018 2 270
017 4 280
019 4 50
018 2 10
015 6 330
041 7 10
035 2 10
024 2 320
0 9 9 290
025 13 300
021 9 290
016 11 320
011 3 320
012 2 20
011 2 280
018 7 330
012 7 310
026 14 330
023 3 290
012 23 310
020 11 330
018 11 290
016 26 300
012 10 340
010 9 350
011 7 250
014 5 130

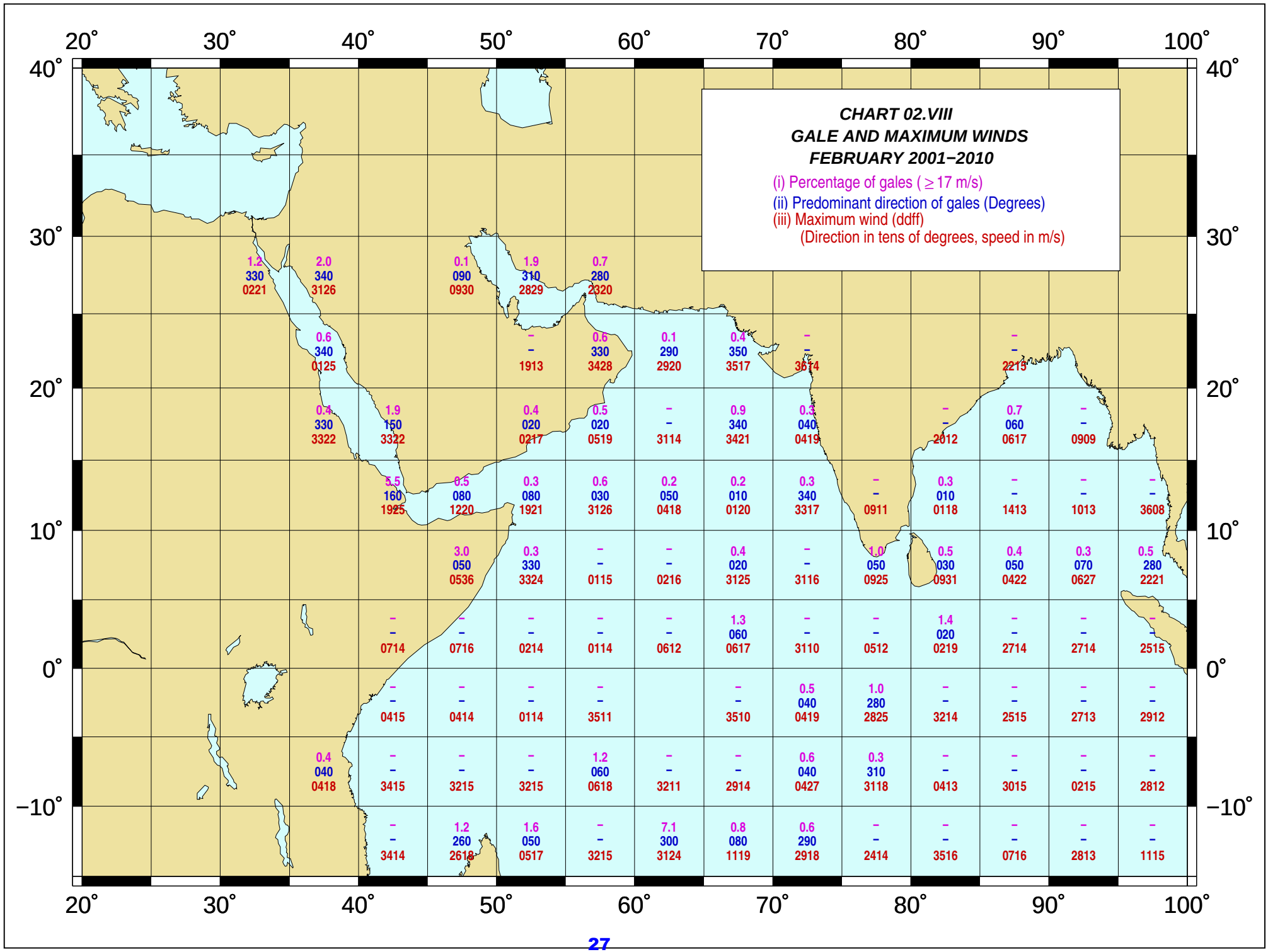


CHART 02.VIII
GALE AND MAXIMUM WINDS
FEBRUARY 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.2 330 0221
2.0 340 3126
0.1 090 0930
1.9 310 2829
0.7 280 2320
0.6 340 0125
– – 1913
0.6 330 3428
0.1 290 2920
0.4 350 3517
– – 3614
– – 2215
0.4 330 3322
1.9 150 3322
0.4 020 0217
0.5 020 0519
– – 3114
0.9 340 3421
0.3 040 0419
– – 2012
0.7 060 0617
– – 0909
5.5 160 1925
0.5 080 1220
0.3 080 1921
0.6 030 3126
0.2 050 0418
0.2 010 0120
0.3 340 3317
– – 0911
0.3 010 0118
– – 1413
– – 1013
– – 3608
3.0 050 0536
0.3 330 3324
– – 0115
– – 0216
0.4 020 3125
– – 3116
1.0 050 0925
0.5 030 0931
0.4 050 0422
0.3 070 0627
0.5 280 2221
– – 0714
– – 0716
– – 0214
– – 0114
– – 0612
1.3 060 0617
– – 3110
– – 0512
1.4 020 0219
– – 2714
– – 2714
– – 2515
– – 0415
– – 0414
– – 0114
– – 3511
– – 3510
0.5 040 0419
1.0 280 2825
– – 3214
– – 2515
– – 2713
– – 2912
0.4 040 0418
– – 3415
– – 3215
– – 3215
1.2 060 0618
– – 3211
– – 2914
0.6 040 0427
0.3 310 3118
– – 0413
– – 3015
– – 0215
– – 2812
– – 3414
1.2 260 2618
1.6 050 0517
– – 3215
7.1 300 3124
0.8 080 1119
0.6 290 2918
– – 2414
– – 3516
– – 0716
– – 2813
– – 1115

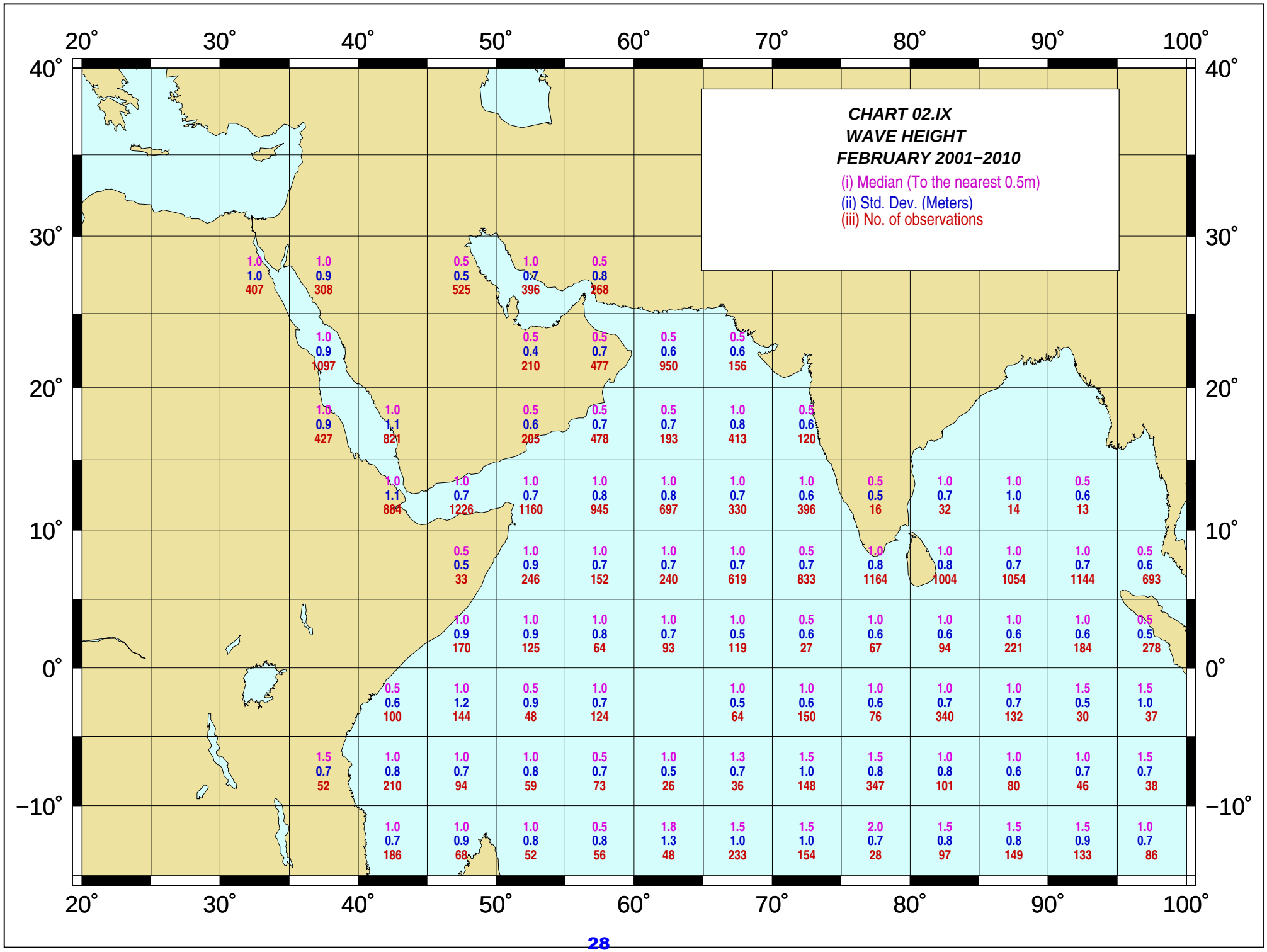


CHART 02.IX
WAVE HEIGHT
FEBRUARY 2001−2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 1.0 407
1.0 0.9 308
0.5 0.5 525
1.0 0.7 396
0.5 0.8 268
1.0 0.9 1097
0.5 0.4 210
0.5 0.7 477
0.5 0.6 950
0.5 0.6 156
1.0 0.9 427
1.0 1.1 821
0.5 0.6 205
0.5 0.7 478
0.5 0.7 193
1.0 0.8 413
0.5 0.6 120
1.0 1.1 884
1.0 0.7 1226
1.0 0.7 1160
1.0 0.8 945
1.0 0.8 697
1.0 0.7 330
1.0 0.6 396
0.5 0.5 16
1.0 0.7 32
1.0 1.0 14
0.5 0.6 13
0.5 0.5 33
1.0 0.9 246
1.0 0.7 152
1.0 0.7 240
1.0 0.7 619
0.5 0.7 833
1.0 0.8 1164
1.0 0.8 1004
1.0 0.7 1054
1.0 0.7 1144
0.5 0.6 693
1.0 0.9 170
1.0 0.9 125
1.0 0.8 64
1.0 0.7 93
1.0 0.5 119
0.5 0.6 27
1.0 0.6 67
1.0 0.6 94
1.0 0.6 221
1.0 0.6 184
0.5 0.5 278
0.5 0.6 100
1.0 1.2 144
0.5 0.9 48
1.0 0.7 124
1.0 0.5 64
1.0 0.6 150
1.0 0.6 76
1.0 0.7 340
1.0 0.7 132
1.5 0.5 30
1.5 1.0 37
1.5 0.7 52
1.0 0.8 210
1.0 0.7 94
1.0 0.8 59
0.5 0.7 73
1.0 0.5 26
1.3 0.7 36
1.5 1.0 148
1.5 0.8 347
1.0 0.8 101
1.0 0.6 80
1.0 0.7 46
1.5 0.7 38
1.0 0.7 186
1.0 0.9 68
1.0 0.8 52
0.5 0.8 56
1.8 1.3 48
1.5 1.0 233
1.5 1.0 154
2.0 0.7 28
1.5 0.8 97
1.5 0.8 149
1.5 0.9 133
1.0 0.7 86

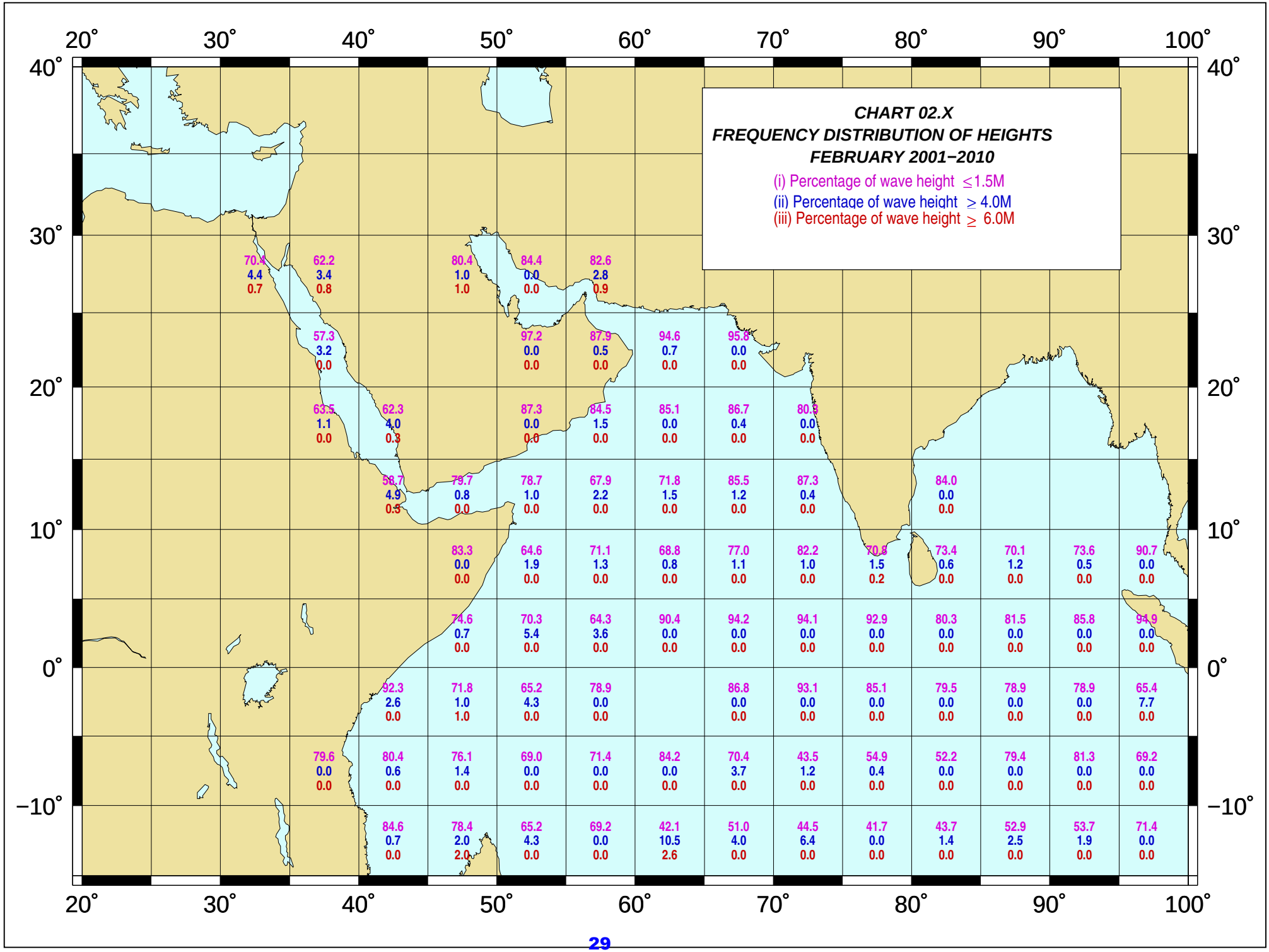


CHART 02.X
FREQUENCY DISTRIBUTION OF HEIGHTS
FEBRUARY 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
70.4 4.4 0.7
62.2 3.4 0.8
80.4 1.0 1.0
84.4 0.0 0.0
82.6 2.8 0.9
57.3 3.2 0.0
97.2 0.0 0.0
87.9 0.5 0.0
94.6 0.7 0.0
95.8 0.0 0.0
63.5 1.1 0.0
62.3 4.0 0.3
87.3 0.0 0.0
84.5 1.5 0.0
85.1 0.0 0.0
86.7 0.4 0.0
80.9 0.0 0.0
58.7 4.9 0.5
79.7 0.8 0.0
78.7 1.0 0.0
67.9 2.2 0.0
71.8 1.5 0.0
85.5 1.2 0.0
87.3 0.4 0.0
84.0 0.0 0.0
83.3 0.0 0.0
64.6 1.9 0.0
71.1 1.3 0.0
68.8 0.8 0.0
77.0 1.1 0.0
82.2 1.0 0.0
70.8 1.5 0.2
73.4 0.6 0.0
70.1 1.2 0.0
73.6 0.5 0.0
90.7 0.0 0.0
74.6 0.7 0.0
70.3 5.4 0.0
64.3 3.6 0.0
90.4 0.0 0.0
94.2 0.0 0.0
94.1 0.0 0.0
92.9 0.0 0.0
80.3 0.0 0.0
81.5 0.0 0.0
85.8 0.0 0.0
94.9 0.0 0.0
92.3 2.6 0.0
71.8 1.0 1.0
65.2 4.3 0.0
78.9 0.0 0.0
86.8 0.0 0.0
93.1 0.0 0.0
85.1 0.0 0.0
79.5 0.0 0.0
78.9 0.0 0.0
78.9 0.0 0.0
65.4 7.7 0.0
79.6 0.0 0.0
80.4 0.6 0.0
76.1 1.4 0.0
69.0 0.0 0.0
71.4 0.0 0.0
84.2 0.0 0.0
70.4 3.7 0.0
43.5 1.2 0.0
54.9 0.4 0.0
52.2 0.0 0.0
79.4 0.0 0.0
81.3 0.0 0.0
69.2 0.0 0.0
84.6 0.7 0.0
78.4 2.0 2.0
65.2 4.3 0.0
69.2 0.0 0.0
42.1 10.5 2.6
51.0 4.0 0.0
44.5 6.4 0.0
41.7 0.0 0.0
43.7 1.4 0.0
52.9 2.5 0.0
53.7 1.9 0.0
71.4 0.0 0.0

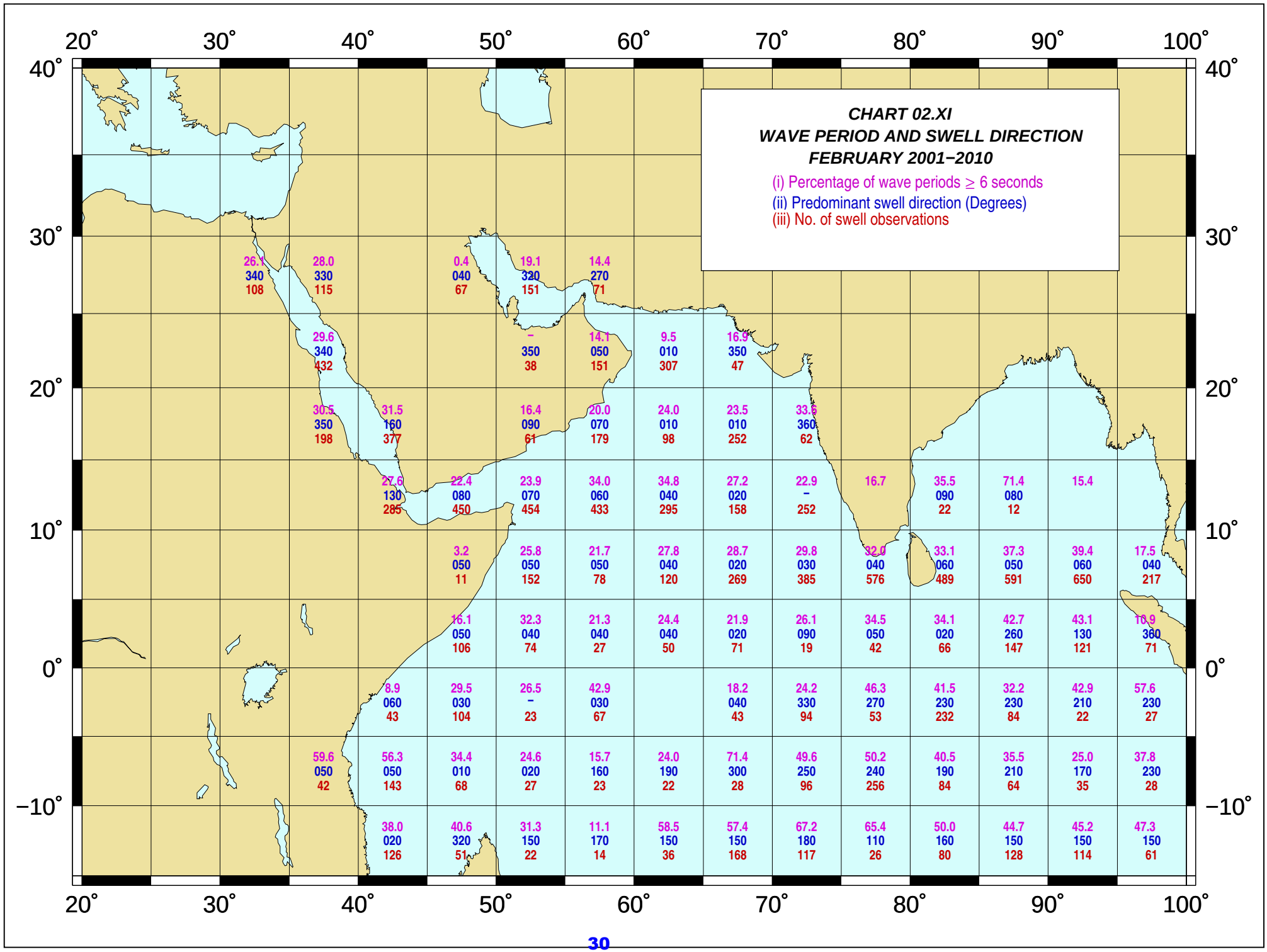


CHART 02.XI
WAVE PERIOD AND SWELL DIRECTION
FEBRUARY 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
26.1 340 108
28.0 330 115
0.4 040 67
19.1 320 151
14.4 270 71
29.6 340 432
– 350 38
14.1 050 151
9.5 010 307
16.9 350 47
30.5 350 198
31.5 160 377
16.4 090 61
20.0 070 179
24.0 010 98
23.5 010 252
33.6 360 62
27.6 130 285
22.4 080 450
23.9 070 454
34.0 060 433
34.8 040 295
27.2 020 158
22.9 – 252
16.7
35.5 090 22
71.4 080 12
15.4
3.2 050 11
25.8 050 152
21.7 050 78
27.8 040 120
28.7 020 269
29.8 030 385
32.0 040 576
33.1 060 489
37.3 050 591
39.4 060 650
17.5 040 217
16.1 050 106
32.3 040 74
21.3 040 27
24.4 040 50
21.9 020 71
26.1 090 19
34.5 050 42
34.1 020 66
42.7 260 147
43.1 130 121
10.9 360 71
8.9 060 43
29.5 030 104
26.5 – 23
42.9 030 67
18.2 040 43
24.2 330 94
46.3 270 53
41.5 230 232
32.2 230 84
42.9 210 22
57.6 230 27
59.6 050 42
56.3 050 143
34.4 010 68
24.6 020 27
15.7 160 23
24.0 190 22
71.4 300 28
49.6 250 96
50.2 240 256
40.5 190 84
35.5 210 64
25.0 170 35
37.8 230 28
38.0 020 126
40.6 320 51
31.3 150 22
11.1 170 14
58.5 150 36
57.4 150 168
67.2 180 117
65.4 110 26
50.0 160 80
44.7 150 128
45.2 150 114
47.3 150 61

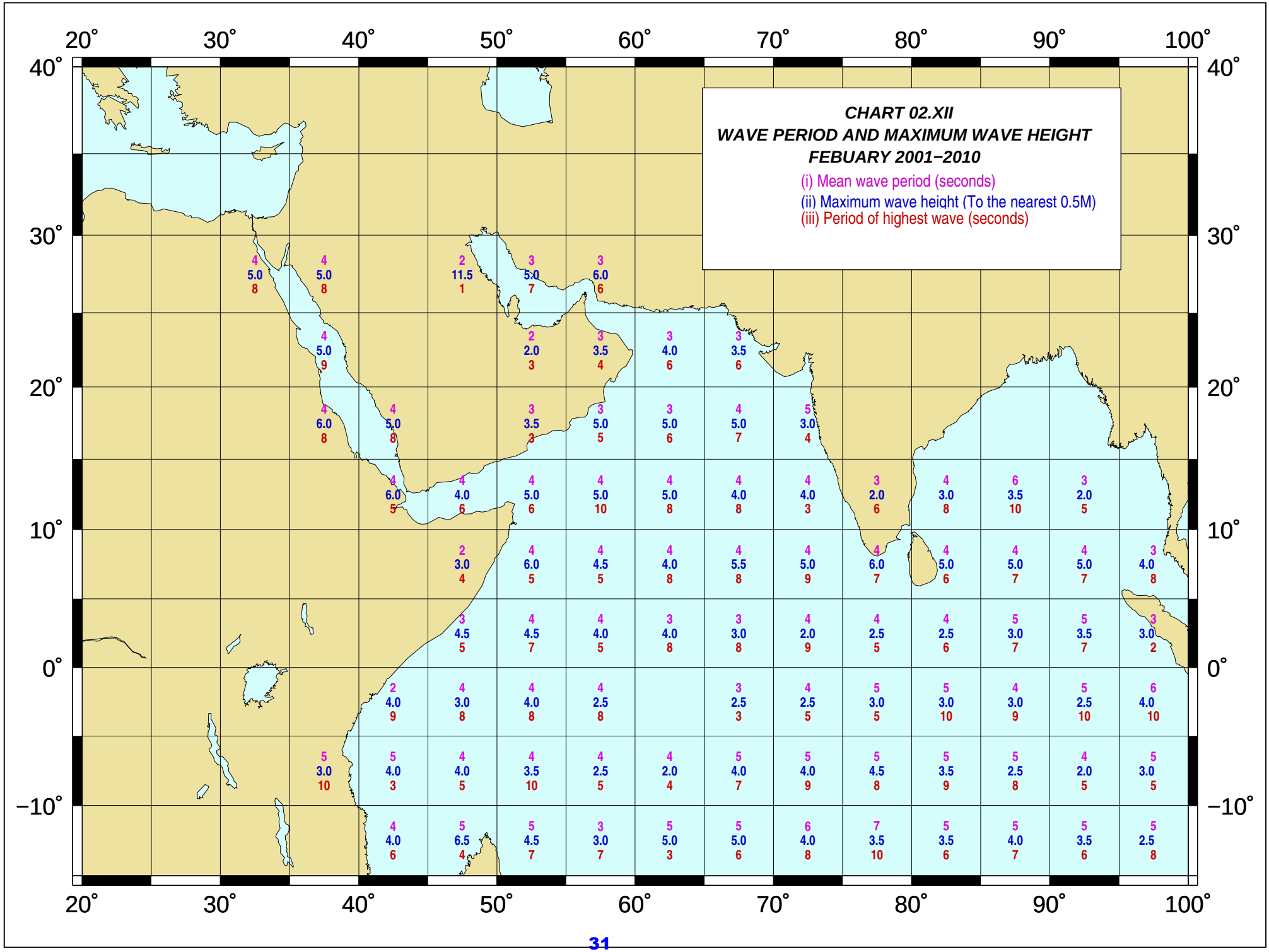


CHART 02.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
FEBUARY 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 5.0 8
4 5.0 8
2 11.5 1
3 5.0 7
3 6.0 6
4 5.0 9
2 2.0 3
3 3.5 4
3 4.0 6
3 3.5 6
4 6.0 8
4 5.0 8
3 3.5 3
3 5.0 5
3 5.0 6
4 5.0 7
5 3.0 4
4 6.0 5
4 4.0 6
4 5.0 6
4 5.0 10
4 5.0 8
4 4.0 8
4 4.0 3
3 2.0 6
4 3.0 8
6 3.5 10
3 2.0 5
2 3.0 4
4 6.0 5
4 4.5 5
4 4.0 8
4 5.5 8
4 5.0 9
4 6.0 7
4 5.0 6
4 5.0 7
4 5.0 7
3 4.0 8
3 4.5 5
4 4.5 7
4 4.0 5
3 4.0 8
3 3.0 8
4 2.0 9
4 2.5 5
4 2.5 6
5 3.0 7
5 3.5 7
3 3.0 2
2 4.0 9
4 3.0 8
4 4.0 8
4 2.5 8
3 2.5 3
4 2.5 5
5 3.0 5
5 3.0 10
4 3.0 9
5 2.5 10
6 4.0 10
5 3.0 10
5 4.0 3
4 4.0 5
4 3.5 10
4 2.5 5
4 2.0 4
5 4.0 7
5 4.0 9
5 4.5 8
5 3.5 9
5 2.5 8
4 2.0 5
5 3.0 5
4 4.0 6
5 6.5 4
5 4.5 7
3 3.0 7
5 5.0 3
5 5.0 6
6 4.0 8
7 3.5 10
5 3.5 6
5 4.0 7
5 3.5 6
5 2.5 8

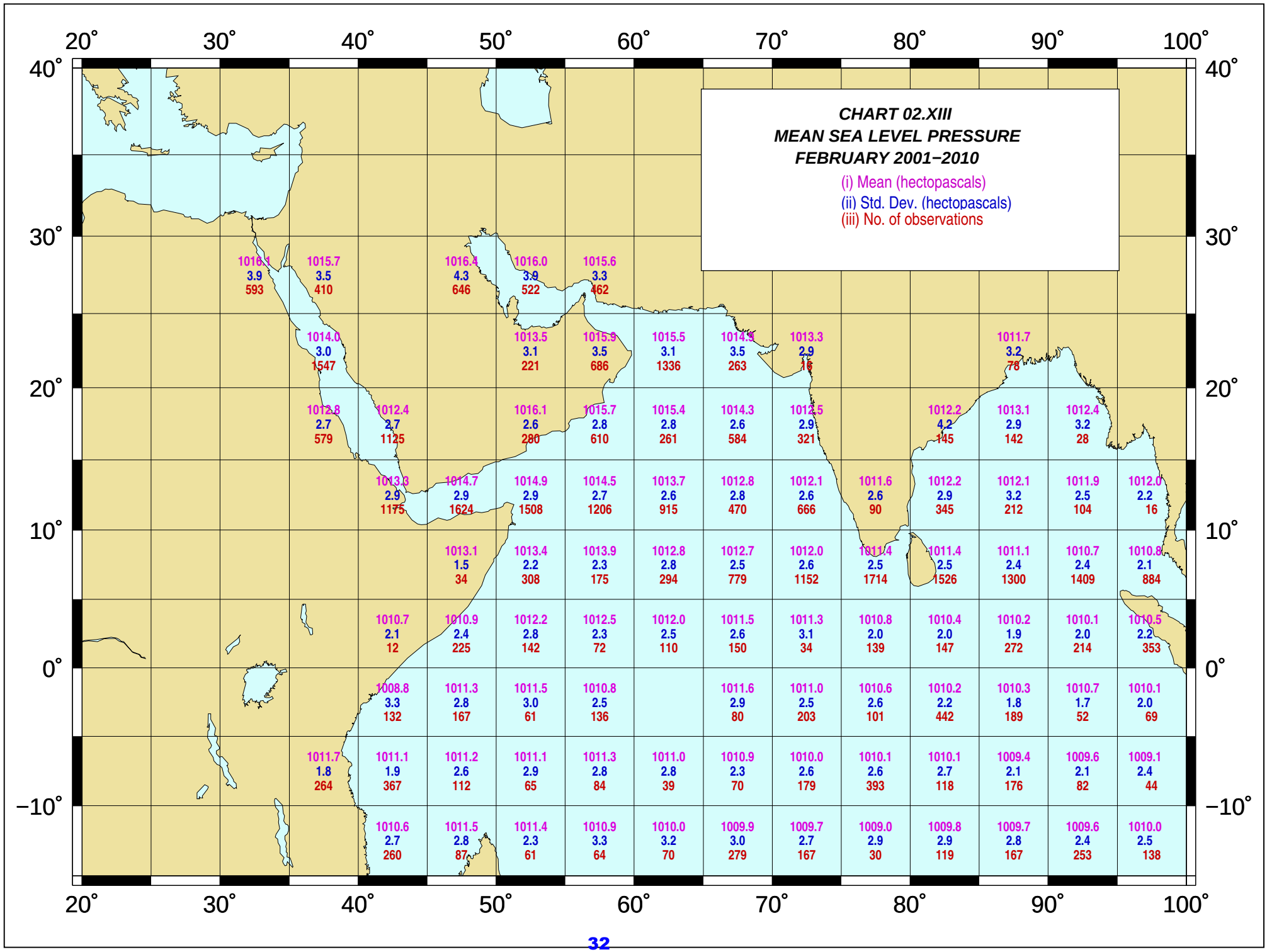


CHART 02.XIII
MEAN SEA LEVEL PRESSURE
FEBRUARY 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1016.1 3.9 593
1015.7 3.5 410
1016.4 4.3 646
1016.0 3.9 522
1015.6 3.3 462
1014.0 3.0 1547
1013.5 3.1 221
1015.9 3.5 686
1015.5 3.1 1336
1014.9 3.5 263
1013.3 2.9 16
1011.7 3.2 78
1012.8 2.7 579
1012.4 2.7 1125
1016.1 2.6 280
1015.7 2.8 610
1015.4 2.8 261
1014.3 2.6 584
1012.5 2.9 321
1012.2 4.2 145
1013.1 2.9 142
1012.4 3.2 28
1013.3 2.9 1175
1014.7 2.9 1624
1014.9 2.9 1508
1014.5 2.7 1206
1013.7 2.6 915
1012.8 2.8 470
1012.1 2.6 666
1011.6 2.6 90
1012.2 2.9 345
1012.1 3.2 212
1011.9 2.5 104
1012.0 2.2 16
1013.1 1.5 34
1013.4 2.2 308
1013.9 2.3 175
1012.8 2.8 294
1012.7 2.5 779
1012.0 2.6 1152
1011.4 2.5 1714
1011.4 2.5 1526
1011.1 2.4 1300
1010.7 2.4 1409
1010.8 2.1 884
1010.7 2.1 12
1010.9 2.4 225
1012.2 2.8 142
1012.5 2.3 72
1012.0 2.5 110
1011.5 2.6 150
1011.3 3.1 34
1010.8 2.0 139
1010.4 2.0 147
1010.2 1.9 272
1010.1 2.0 214
1010.5 2.2 353
1008.8 3.3 132
1011.3 2.8 167
1011.5 3.0 61
1010.8 2.5 136
1011.6 2.9 80
1011.0 2.5 203
1010.6 2.6 101
1010.2 2.2 442
1010.3 1.8 189
1010.7 1.7 52
1010.1 2.0 69
1011.7 1.8 264
1011.1 1.9 367
1011.2 2.6 112
1011.1 2.9 65
1011.3 2.8 84
1011.0 2.8 39
1010.9 2.3 70
1010.0 2.6 179
1010.1 2.6 393
1010.1 2.7 118
1009.4 2.1 176
1009.6 2.1 82
1009.1 2.4 44
1010.6 2.7 260
1011.5 2.8 87
1011.4 2.3 61
1010.9 3.3 64
1010.0 3.2 70
1009.9 3.0 279
1009.7 2.7 167
1009.0 2.9 30
1009.8 2.9 119
1009.7 2.8 167
1009.6 2.4 253
1010.0 2.5 138

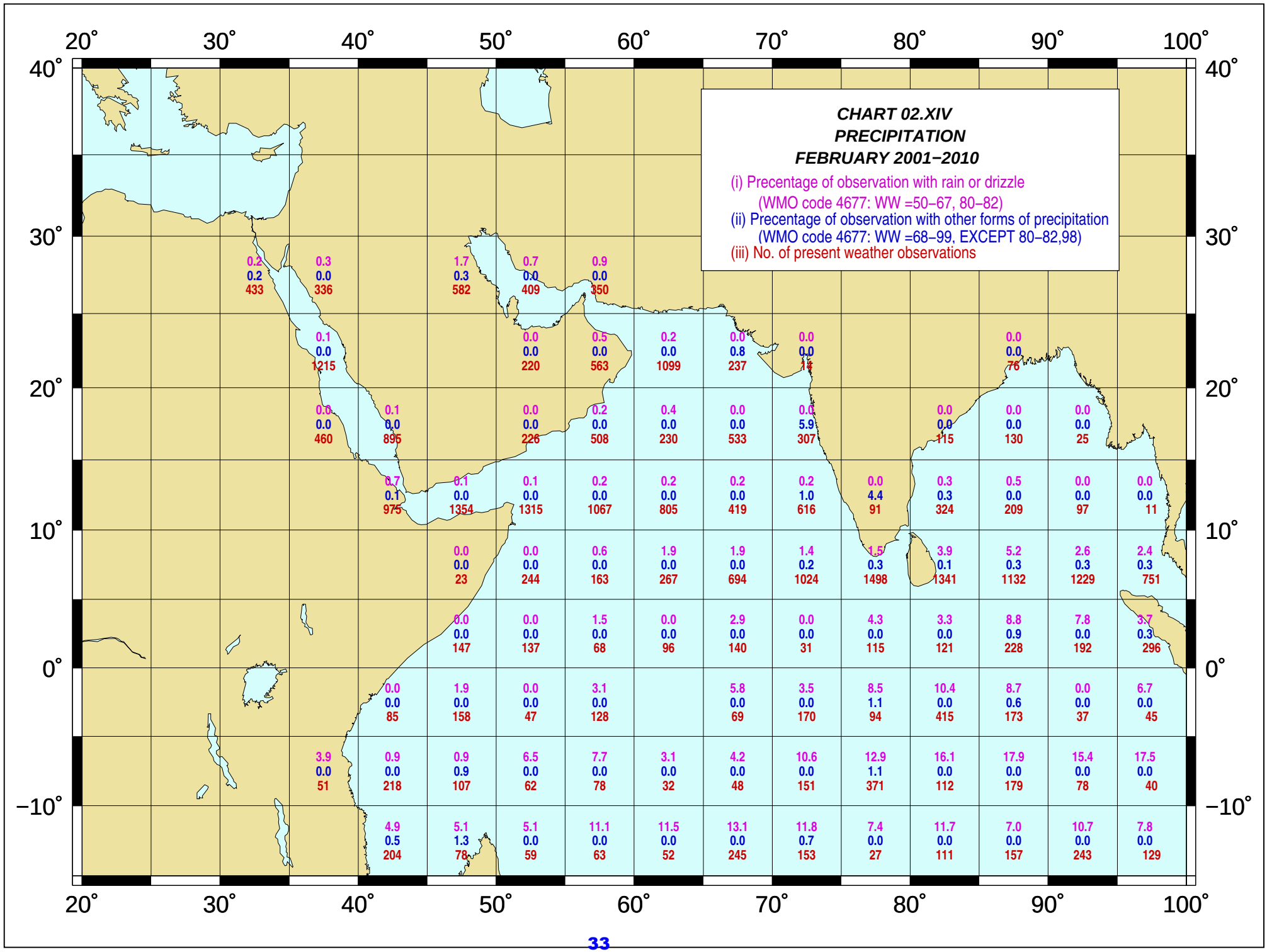


CHART 02.XIV
PRECIPITATION
FEBRUARY 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.2 433
0.3 0.0 336
1.7 0.3 582
0.7 0.0 409
0.9 0.0 350
0.1 0.0 1215
0.0 0.0 220
0.5 0.0 563
0.2 0.0 1099
0.0 0.8 237
0.0 0.0 76
0.0 0.0 460
0.1 0.0 896
0.0 0.0 226
0.2 0.0 508
0.4 0.0 230
0.0 0.0 533
0.0 5.9 307
0.0 0.0 115
0.0 0.0 130
0.0 0.0 25
0.7 0.1 975
0.1 0.0 1354
0.1 0.0 1315
0.2 0.0 1067
0.2 0.0 805
0.2 0.0 419
0.2 1.0 616
0.0 4.4 91
0.3 0.3 324
0.5 0.0 209
0.0 0.0 97
0.0 0.0 11
0.0 0.0 23
0.0 0.0 244
0.6 0.0 163
1.9 0.0 267
1.9 0.0 694
1.4 0.2 1024
1.5 0.3 1498
3.9 0.1 1341
5.2 0.3 1132
2.6 0.3 1229
2.4 0.3 751
0.0 0.0 147
0.0 0.0 137
1.5 0.0 68
0.0 0.0 96
2.9 0.0 140
0.0 0.0 31
4.3 0.0 115
3.3 0.0 121
8.8 0.9 228
7.8 0.0 192
3.7 0.3 296
0.0 0.0 85
1.9 0.0 158
0.0 0.0 47
3.1 0.0 128
5.8 0.0 69
3.5 0.0 170
8.5 1.1 94
10.4 0.0 415
8.7 0.6 173
0.0 0.0 37
6.7 0.0 45
3.9 0.0 51
0.9 0.0 218
0.9 0.9 107
6.5 0.0 62
7.7 0.0 78
3.1 0.0 32
4.2 0.0 48
10.6 0.0 151
12.9 1.1 371
16.1 0.0 112
17.9 0.0 179
15.4 0.0 78
17.5 0.0 40
4.9 0.5 204
5.1 1.3 78
5.1 0.0 59
11.1 0.0 63
11.5 0.0 52
13.1 0.0 245
11.8 0.7 153
7.4 0.0 27
11.7 0.0 111
7.0 0.0 157
10.7 0.0 243
7.8 0.0 129

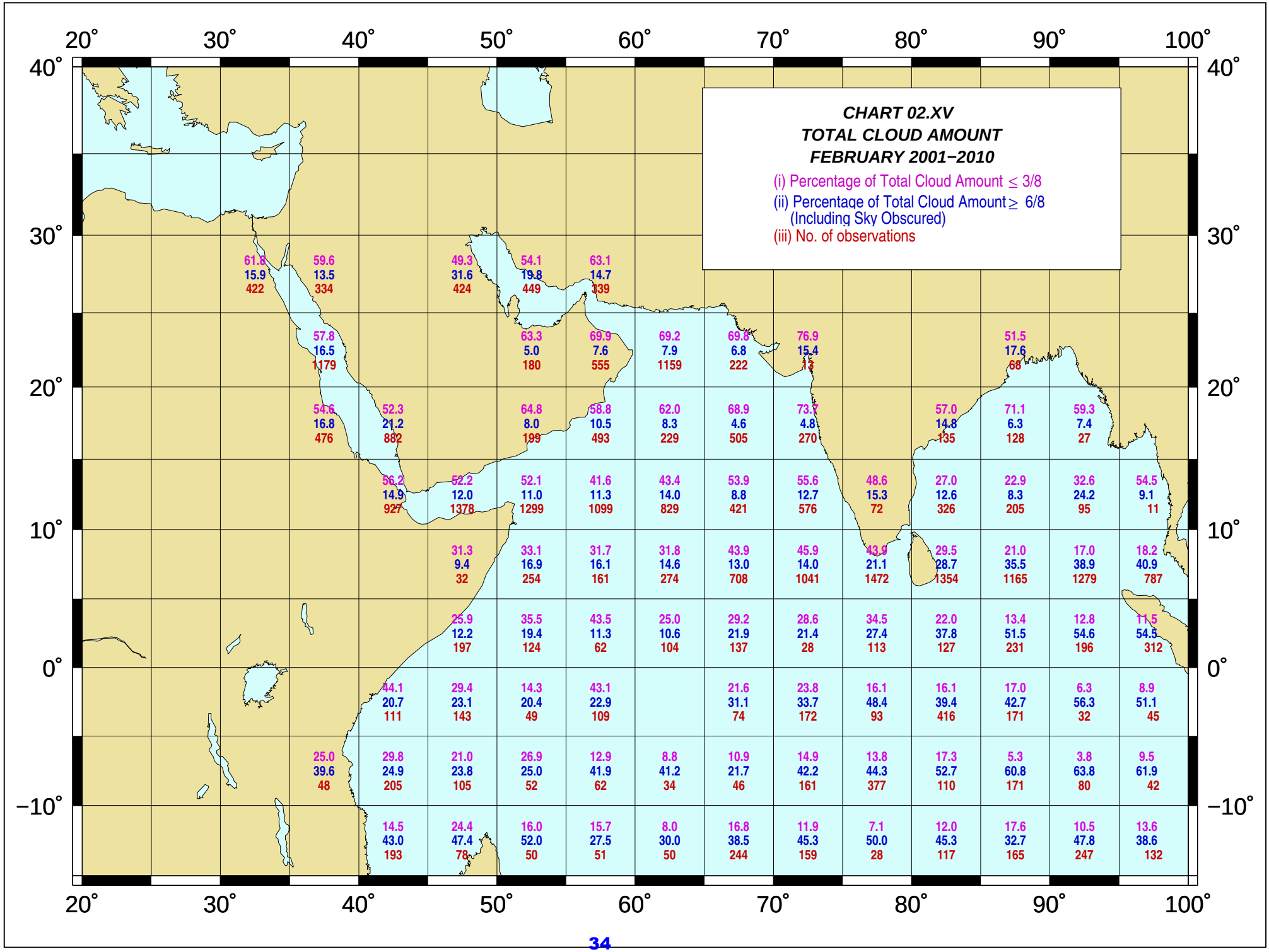


CHART 02.XV
TOTAL CLOUD AMOUNT
FEBRUARY 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
61.8 15.9 422
59.6 13.5 334
49.3 31.6 424
54.1 19.8 449
63.1 14.7 339
57.8 16.5 1179
63.3 5.0 180
69.9 7.6 555
69.2 7.9 1159
69.8 6.8 222
76.9 15.4 13
51.5 17.6 68
54.6 16.8 476
52.3 21.2 882
64.8 8.0 199
58.8 10.5 493
62.0 8.3 229
68.9 4.6 505
73.7 4.8 270
57.0 14.8 135
71.1 6.3 128
59.3 7.4 27
56.2 14.9 927
52.2 12.0 1378
52.1 11.0 1299
41.6 11.3 1099
43.4 14.0 829
53.9 8.8 421
55.6 12.7 576
48.6 15.3 72
27.0 12.6 326
22.9 8.3 205
32.6 24.2 95
54.5 9.1 11
31.3 9.4 32
33.1 16.9 254
31.7 16.1 161
31.8 14.6 274
43.9 13.0 708
45.9 14.0 1041
43.9 21.1 1472
29.5 28.7 1354
21.0 35.5 1165
17.0 38.9 1279
18.2 40.9 787
25.9 12.2 197
35.5 19.4 124
43.5 11.3 62
25.0 10.6 104
29.2 21.9 137
28.6 21.4 28
34.5 27.4 113
22.0 37.8 127
13.4 51.5 231
12.8 54.6 196
11.5 54.5 312
44.1 20.7 111
29.4 23.1 143
14.3 20.4 49
43.1 22.9 109
21.6 31.1 74
23.8 33.7 172
16.1 48.4 93
16.1 39.4 416
17.0 42.7 171
6.3 56.3 32
8.9 51.1 45
25.0 39.6 48
29.8 24.9 205
21.0 23.8 105
26.9 25.0 52
12.9 41.9 62
8.8 41.2 34
10.9 21.7 46
14.9 42.2 161
13.8 44.3 377
17.3 52.7 110
5.3 60.8 171
3.8 63.8 80
9.5 61.9 42
14.5 43.0 193
24.4 47.4 78
16.0 52.0 50
15.7 27.5 51
8.0 30.0 50
16.8 38.5 244
11.9 45.3 159
7.1 50.0 28
12.0 45.3 117
17.6 32.7 165
10.5 47.8 247
13.6 38.6 132

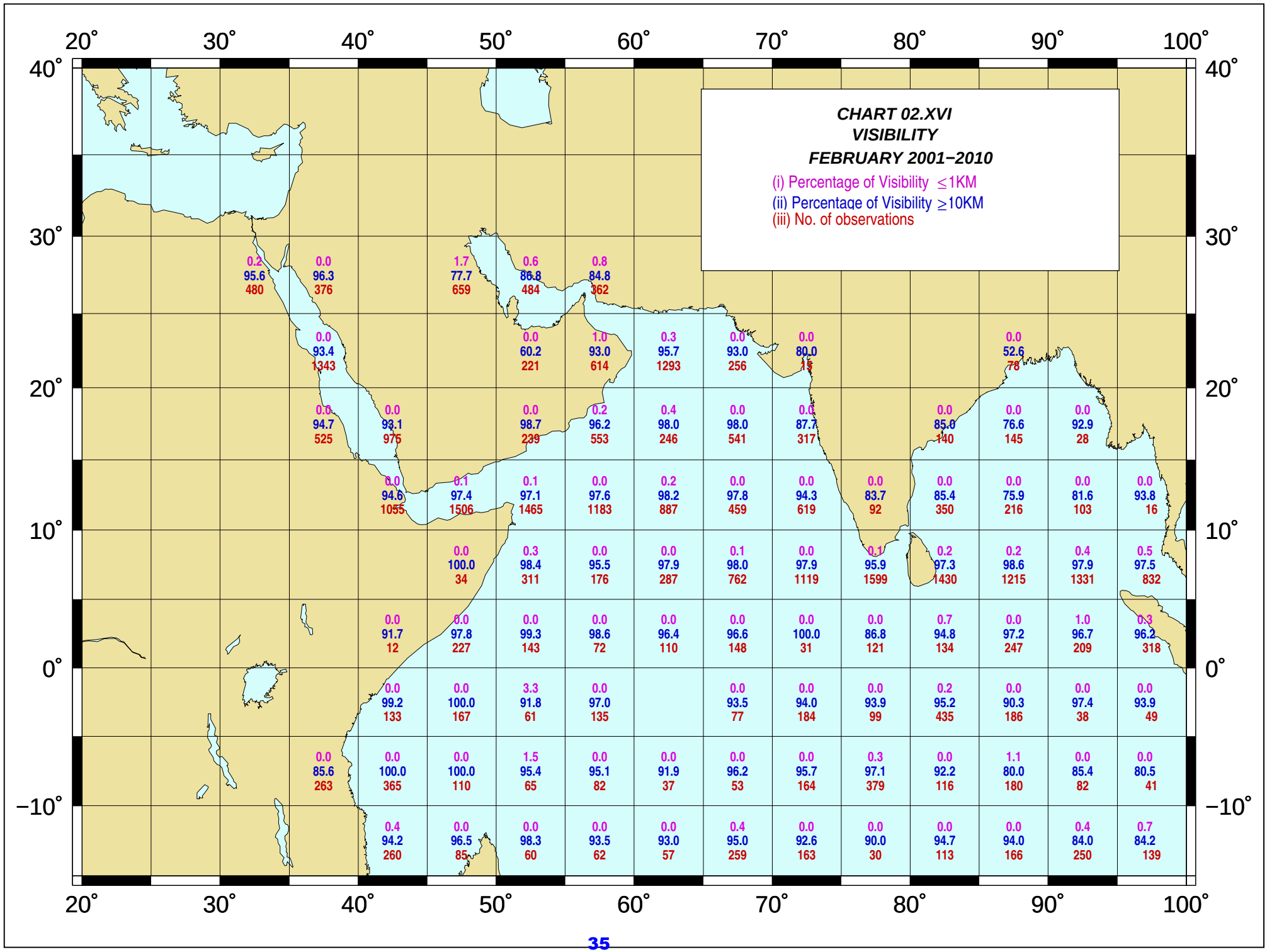


CHART 02.XVI
VISIBILITY
FEBRUARY 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 95.6 480
0.0 96.3 376
1.7 77.7 659
0.6 86.8 484
0.8 84.8 362
0.0 93.4 1343
0.0 60.2 221
1.0 93.0 614
0.3 95.7 1293
0.0 93.0 256
0.0 80.0 15
0.0 52.6 78
0.0 94.7 525
0.0 93.1 975
0.0 98.7 239
0.2 96.2 553
0.4 98.0 246
0.0 98.0 541
0.0 87.7 317
0.0 85.0 140
0.0 76.6 145
0.0 92.9 28
0.0 94.6 1055
0.1 97.4 1506
0.1 97.1 1465
0.0 97.6 1183
0.2 98.2 887
0.0 97.8 459
0.0 94.3 619
0.0 83.7 92
0.0 85.4 350
0.0 75.9 216
0.0 81.6 103
0.0 93.8 16
0.0 100.0 34
0.3 98.4 311
0.0 95.5 176
0.0 97.9 287
0.1 98.0 762
0.0 97.9 1119
0.1 95.9 1599
0.2 97.3 1430
0.2 98.6 1215
0.4 97.9 1331
0.5 97.5 832
0.0 91.7 12
0.0 97.8 227
0.0 99.3 143
0.0 98.6 72
0.0 96.4 110
0.0 96.6 148
0.0 100.0 31
0.0 86.8 121
0.7 94.8 134
0.0 97.2 247
1.0 96.7 209
0.3 96.2 318
0.0 99.2 133
0.0 100.0 167
3.3 91.8 61
0.0 97.0 135
0.0 93.5 77
0.0 94.0 184
0.0 93.9 99
0.2 95.2 435
0.0 90.3 186
0.0 97.4 38
0.0 93.9 49
0.0 85.6 263
0.0 100.0 365
0.0 100.0 110
1.5 95.4 65
0.0 95.1 82
0.0 91.9 37
0.0 96.2 53
0.0 95.7 164
0.3 97.1 379
0.0 92.2 116
1.1 80.0 180
0.0 85.4 82
0.0 80.5 41
0.4 94.2 260
0.0 96.5 85
0.0 98.3 60
0.0 93.5 62
0.0 93.0 57
0.4 95.0 259
0.0 92.6 163
0.0 90.0 30
0.0 94.7 113
0.0 94.0 166
0.4 84.0 250
0.7 84.2 139

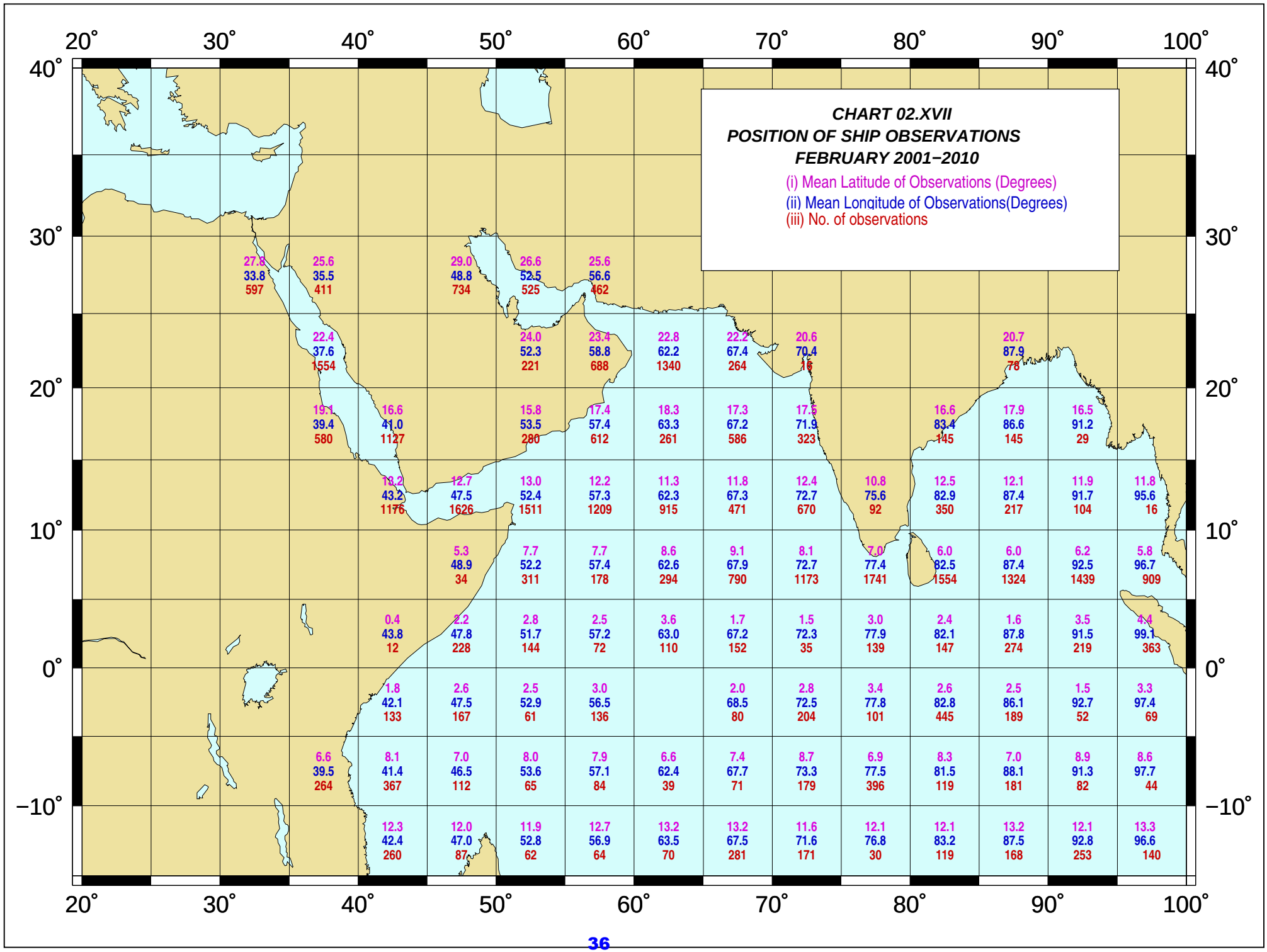


CHART 02.XVII
POSITION OF SHIP OBSERVATIONS
FEBRUARY 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.8 33.8 597
25.6 35.5 411
29.0 48.8 734
26.6 52.5 525
25.6 56.6 462
22.4 37.6 1554
24.0 52.3 221
23.4 58.8 688
22.8 62.2 1340
22.2 67.4 264
20.6 70.4 16
20.7 87.9 78
19.1 39.4 580
16.6 41.0 1127
15.8 53.5 280
17.4 57.4 612
18.3 63.3 261
17.3 67.2 586
17.5 71.9 323
16.6 83.4 145
17.9 86.6 145
16.5 91.2 29
13.2 43.2 1176
12.7 47.5 1626
13.0 52.4 1511
12.2 57.3 1209
11.3 62.3 915
11.8 67.3 471
12.4 72.7 670
10.8 75.6 92
12.5 82.9 350
12.1 87.4 217
11.9 91.7 104
11.8 95.6 16
5.3 48.9 34
7.7 52.2 311
7.7 57.4 178
8.6 62.6 294
9.1 67.9 790
8.1 72.7 1173
7.0 77.4 1741
6.0 82.5 1554
6.0 87.4 1324
6.2 92.5 1439
5.8 96.7 909
0.4 43.8 12
2.2 47.8 228
2.8 51.7 144
2.5 57.2 72
3.6 63.0 110
1.7 67.2 152
1.5 72.3 35
3.0 77.9 139
2.4 82.1 147
1.6 87.8 274
3.5 91.5 219
4.4 99.1 363
1.8 42.1 133
2.6 47.5 167
2.5 52.9 61
3.0 56.5 136
2.0 68.5 80
2.8 72.5 204
3.4 77.8 101
2.6 82.8 445
2.5 86.1 189
1.5 92.7 52
3.3 97.4 69
6.6 39.5 264
8.1 41.4 367
7.0 46.5 112
8.0 53.6 65
7.9 57.1 84
6.6 62.4 39
7.4 67.7 71
8.7 73.3 179
6.9 77.5 396
8.3 81.5 119
7.0 88.1 181
8.9 91.3 82
8.6 97.7 44
12.3 42.4 260
12.0 47.0 87
11.9 52.8 62
12.7 56.9 64
13.2 63.5 70
13.2 67.5 281
11.6 71.6 171
12.1 76.8 30
12.1 83.2 119
13.2 87.5 168
12.1 92.8 253
13.3 96.6 140

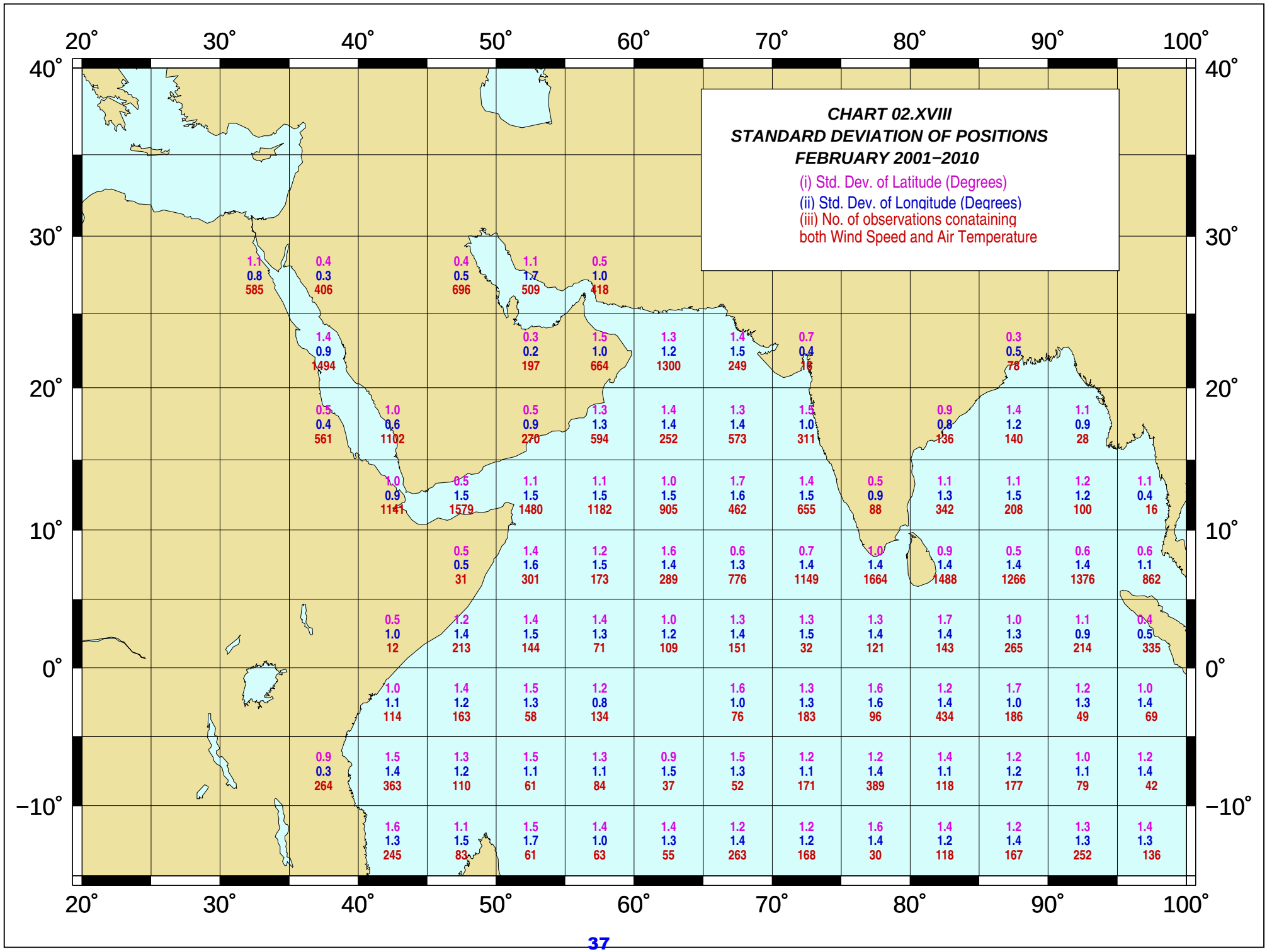
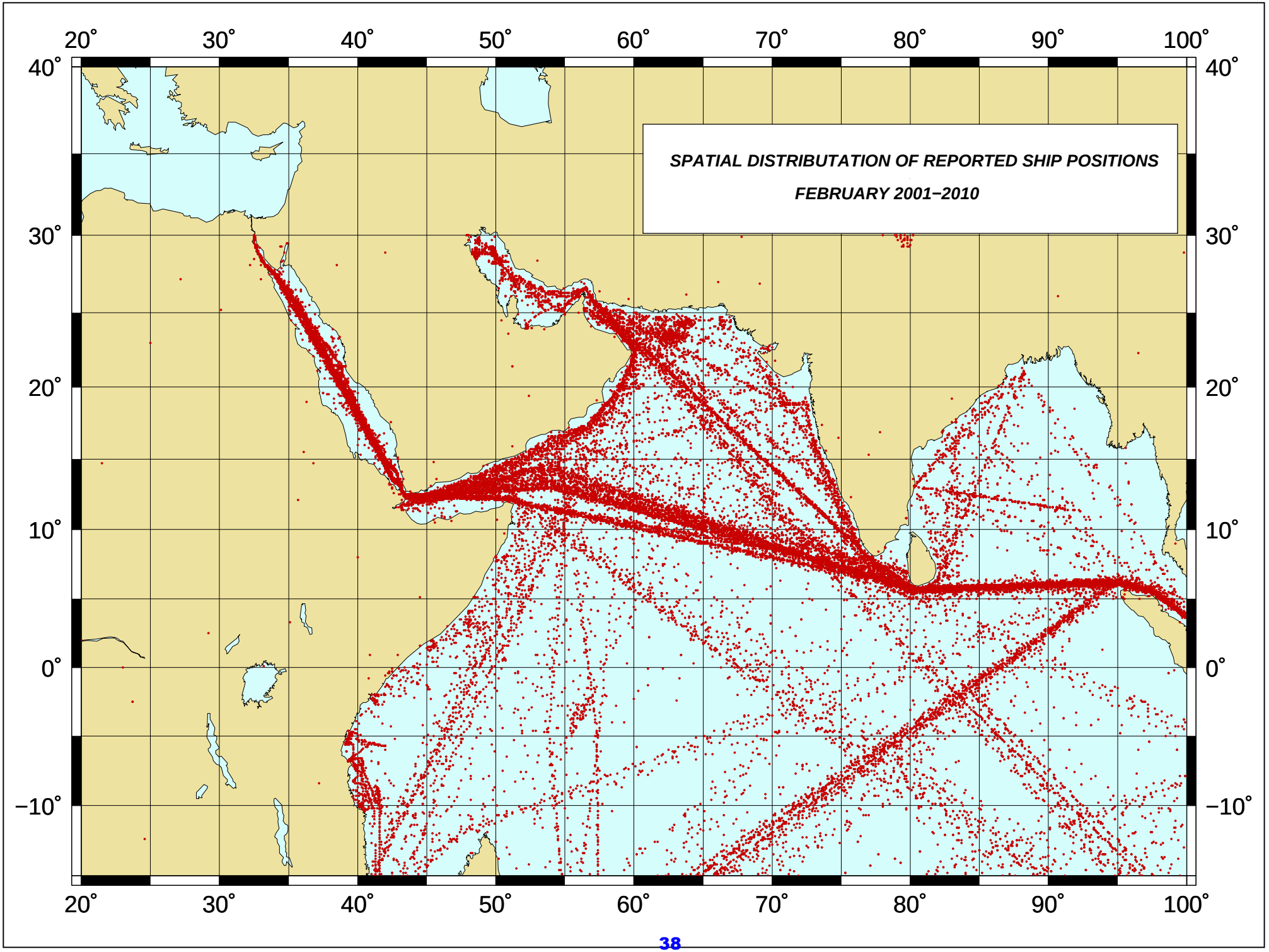


CHART 02.XVIII
STANDARD DEVIATION OF POSITIONS
FEBRUARY 2001−2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 585
0.4 0.3 406
0.4 0.5 696
1.1 1.7 509
0.5 1.0 418
1.4 0.9 1494
0.3 0.2 197
1.5 1.0 664
1.3 1.2 1300
1.4 1.5 249
0.7 0.4 16
0.3 0.5 78
0.5 0.4 561
1.0 0.6 1102
0.5 0.9 270
1.3 1.3 594
1.4 1.4 252
1.3 1.4 573
1.5 1.0 311
0.9 0.8 136
1.4 1.2 140
1.1 0.9 28
1.0 0.9 1141
0.5 1.5 1579
1.1 1.5 1480
1.1 1.5 1182
1.0 1.5 905
1.7 1.6 462
1.4 1.5 655
0.5 0.9 88
1.1 1.3 342
1.1 1.5 208
1.2 1.2 100
1.1 0.4 16
0.5 0.5 31
1.4 1.6 301
1.2 1.5 173
1.6 1.4 289
0.6 1.3 776
0.7 1.4 1149
1.0 1.4 1664
0.9 1.4 1488
0.5 1.4 1266
0.6 1.4 1376
0.6 1.1 862
0.5 1.0 12
1.2 1.4 213
1.4 1.5 144
1.4 1.3 71
1.0 1.2 109
1.3 1.4 151
1.3 1.5 32
1.3 1.4 121
1.7 1.4 143
1.0 1.3 265
1.1 0.9 214
0.4 0.5 335
1.0 1.1 114
1.4 1.2 163
1.5 1.3 58
1.2 0.8 134
1.6 1.0 76
1.3 1.3 183
1.6 1.6 96
1.2 1.4 434
1.7 1.0 186
1.2 1.3 49
1.0 1.4 69
0.9 0.3 264
1.5 1.4 363
1.3 1.2 110
1.5 1.1 61
1.3 1.1 84
0.9 1.5 37
1.5 1.3 52
1.2 1.1 171
1.2 1.4 389
1.4 1.1 118
1.2 1.2 177
1.0 1.1 79
1.2 1.4 42
1.6 1.3 245
1.1 1.5 83
1.5 1.7 61
1.4 1.0 63
1.4 1.3 55
1.2 1.4 263
1.2 1.2 168
1.6 1.4 30
1.4 1.2 118
1.2 1.4 167
1.3 1.3 252
1.4 1.3 136


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
FEBRUARY 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF MARCH 2001-2010

Marine Climatological Summary Charts 2001-2010

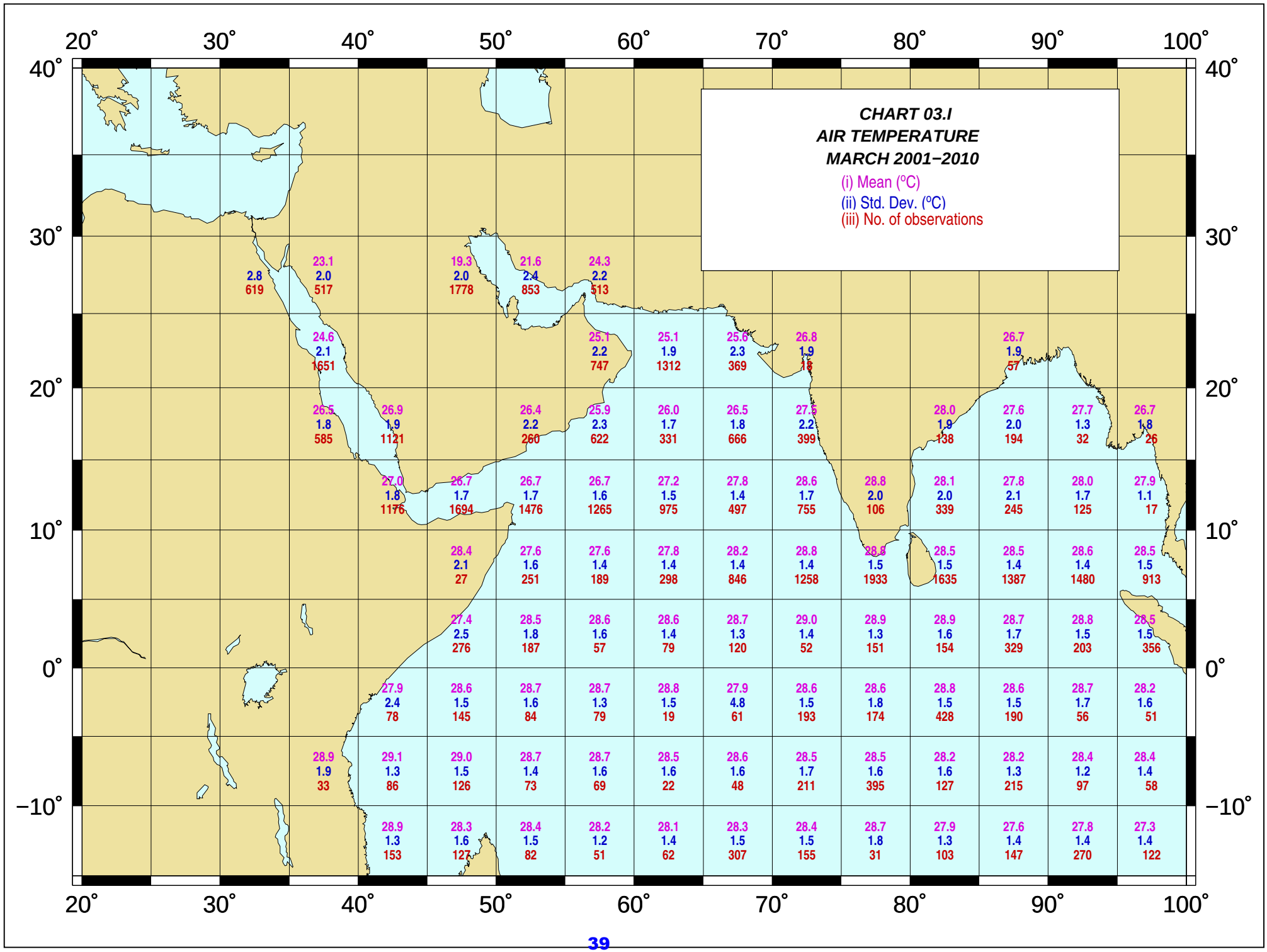


CHART 03.I
AIR TEMPERATURE
MARCH 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.8 619
23.1 2.0 517
19.3 2.0 1778
21.6 2.4 853
24.3 2.2 513
24.6 2.1 1651
25.1 2.2 747
25.1 1.9 1312
25.6 2.3 369
26.8 1.9 16
26.7 1.9 57
26.5 1.8 585
26.9 1.9 1121
26.4 2.2 260
25.9 2.3 622
26.0 1.7 331
26.5 1.8 666
27.5 2.2 399
28.0 1.9 138
27.6 2.0 194
27.7 1.3 32
26.7 1.8 26
27.0 1.8 1176
26.7 1.7 1694
26.7 1.7 1476
26.7 1.6 1265
27.2 1.5 975
27.8 1.4 497
28.6 1.7 755
28.8 2.0 106
28.1 2.0 339
27.8 2.1 245
28.0 1.7 125
27.9 1.1 17
28.4 2.1 27
27.6 1.6 251
27.6 1.4 189
27.8 1.4 298
28.2 1.4 846
28.8 1.4 1258
28.9 1.5 1933
28.5 1.5 1635
28.5 1.4 1387
28.6 1.4 1480
28.5 1.5 913
27.4 2.5 276
28.5 1.8 187
28.6 1.6 57
28.6 1.4 79
28.7 1.3 120
29.0 1.4 52
28.9 1.3 151
28.9 1.6 154
28.7 1.7 329
28.8 1.5 203
28.5 1.5 356
27.9 2.4 78
28.6 1.5 145
28.7 1.6 84
28.7 1.3 79
28.8 1.5 19
27.9 4.8 61
28.6 1.5 193
28.6 1.8 174
28.8 1.5 428
28.6 1.5 190
28.7 1.7 56
28.2 1.6 51
28.9 1.9 33
29.1 1.3 86
29.0 1.5 126
28.7 1.4 73
28.7 1.6 69
28.5 1.6 22
28.6 1.6 48
28.5 1.7 211
28.5 1.6 395
28.2 1.6 127
28.2 1.3 215
28.4 1.2 97
28.4 1.4 58
28.9 1.3 153
28.3 1.6 127
28.4 1.5 82
28.2 1.2 51
28.1 1.4 62
28.3 1.5 307
28.4 1.5 155
28.7 1.8 31
27.9 1.3 103
27.6 1.4 147
27.8 1.4 270
27.3 1.4 122

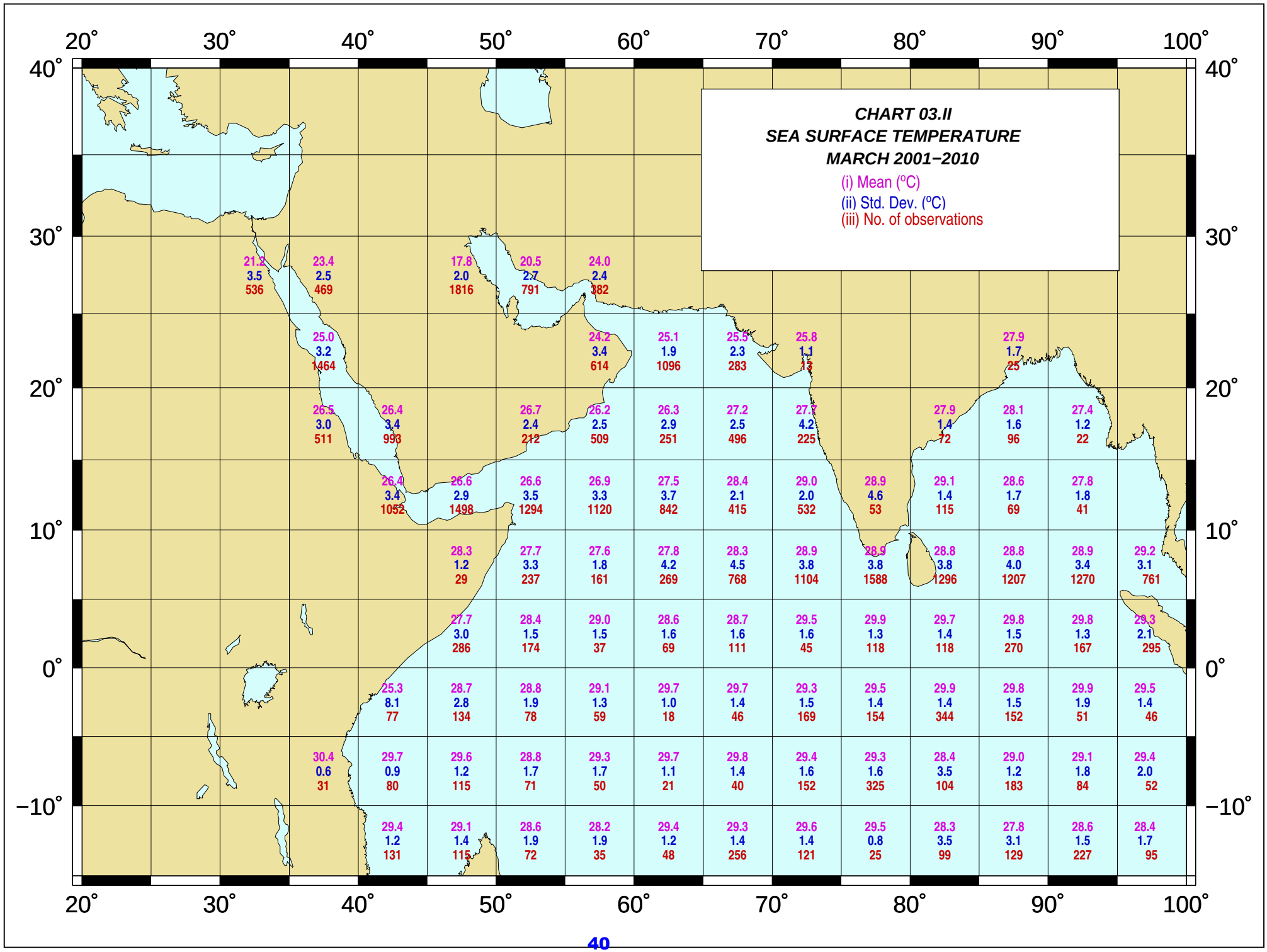


CHART 03.II
SEA SURFACE TEMPERATURE
MARCH 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
21.2 3.5 536
23.4 2.5 469
17.8 2.0 1816
20.5 2.7 791
24.0 2.4 382
25.0 3.2 1464
24.2 3.4 614
25.1 1.9 1096
25.5 2.3 283
25.8 1.1 13
27.9 1.7 25
26.5 3.0 511
26.4 3.4 993
26.7 2.4 212
26.2 2.5 509
26.3 2.9 251
27.2 2.5 496
27.7 4.2 225
27.9 1.4 72
28.1 1.6 96
27.4 1.2 22
26.4 3.4 1052
26.6 2.9 1498
26.6 3.5 1294
26.9 3.3 1120
27.5 3.7 842
28.4 2.1 415
29.0 2.0 532
28.9 4.6 53
29.1 1.4 115
28.6 1.7 69
27.8 1.8 41
28.3 1.2 29
27.7 3.3 237
27.6 1.8 161
27.8 4.2 269
28.3 4.5 768
28.9 3.8 1104
28.9 3.8 1588
28.8 3.8 1296
28.8 4.0 1207
28.9 3.4 1270
29.2 3.1 761
27.7 3.0 286
28.4 1.5 174
29.0 1.5 37
28.6 1.6 69
28.7 1.6 111
29.5 1.6 45
29.9 1.3 118
29.7 1.4 118
29.8 1.5 270
29.8 1.3 167
29.3 2.1 295
25.3 8.1 77
28.7 2.8 134
28.8 1.9 78
29.1 1.3 59
29.7 1.0 18
29.7 1.4 46
29.3 1.5 169
29.5 1.4 154
29.9 1.4 344
29.8 1.5 152
29.9 1.9 51
29.5 1.4 46
30.4 0.6 31
29.7 0.9 80
29.6 1.2 115
28.8 1.7 71
29.3 1.7 50
29.7 1.1 21
29.8 1.4 40
29.4 1.6 152
29.3 1.6 325
28.4 3.5 104
29.0 1.2 183
29.1 1.8 84
29.4 2.0 52
29.4 1.2 131
29.1 1.4 115
28.6 1.9 72
28.2 1.9 35
29.4 1.2 48
29.3 1.4 256
29.6 1.4 121
29.5 0.8 25
28.3 3.5 99
27.8 3.1 129
28.6 1.5 227
28.4 1.7 95

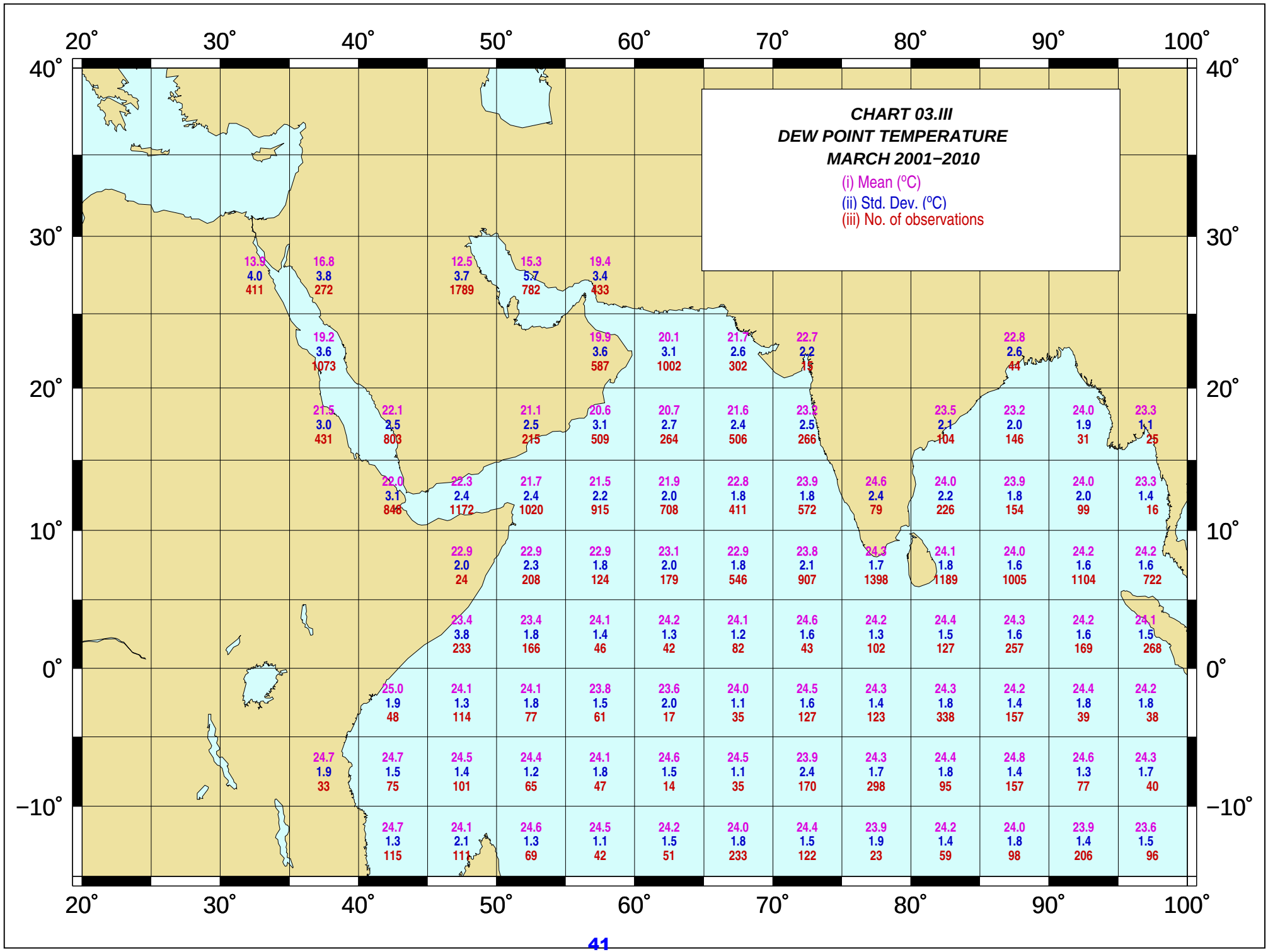


CHART 03.III
DEW POINT TEMPERATURE
MARCH 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
13.9 4.0 411
16.8 3.8 272
12.5 3.7 1789
15.3 5.7 782
19.4 3.4 433
19.2 3.6 1073
19.9 3.6 587
20.1 3.1 1002
21.7 2.6 302
22.7 2.2 15
22.8 2.6 44
21.5 3.0 431
22.1 2.5 803
21.1 2.5 215
20.6 3.1 509
20.7 2.7 264
21.6 2.4 506
23.2 2.5 266
23.5 2.1 104
23.2 2.0 146
24.0 1.9 31
23.3 1.1 25
22.0 3.1 846
22.3 2.4 1172
21.7 2.4 1020
21.5 2.2 915
21.9 2.0 708
22.8 1.8 411
23.9 1.8 572
24.6 2.4 79
24.0 2.2 226
23.9 1.8 154
24.0 2.0 99
23.3 1.4 16
22.9 2.0 24
22.9 2.3 208
22.9 1.8 124
23.1 2.0 179
22.9 1.8 546
23.8 2.1 907
24.3 1.7 1398
24.1 1.8 1189
24.0 1.6 1005
24.2 1.6 1104
24.2 1.6 722
23.4 3.8 233
23.4 1.8 166
24.1 1.4 46
24.2 1.3 42
24.1 1.2 82
24.6 1.6 43
24.2 1.3 102
24.4 1.5 127
24.3 1.6 257
24.2 1.6 169
24.1 1.5 268
25.0 1.9 48
24.1 1.3 114
24.1 1.8 77
23.8 1.5 61
23.6 2.0 17
24.0 1.1 35
24.5 1.6 127
24.3 1.4 123
24.3 1.8 338
24.2 1.4 157
24.4 1.8 39
24.2 1.8 38
24.7 1.9 33
24.7 1.5 75
24.5 1.4 101
24.4 1.2 65
24.1 1.8 47
24.6 1.5 14
24.5 1.1 35
23.9 2.4 170
24.3 1.7 298
24.4 1.8 95
24.8 1.4 157
24.6 1.3 77
24.3 1.7 40
24.7 1.3 115
24.1 2.1 111
24.6 1.3 69
24.5 1.1 42
24.2 1.5 51
24.0 1.8 233
24.4 1.5 122
23.9 1.9 23
24.2 1.4 59
24.0 1.8 98
23.9 1.4 206
23.6 1.5 96

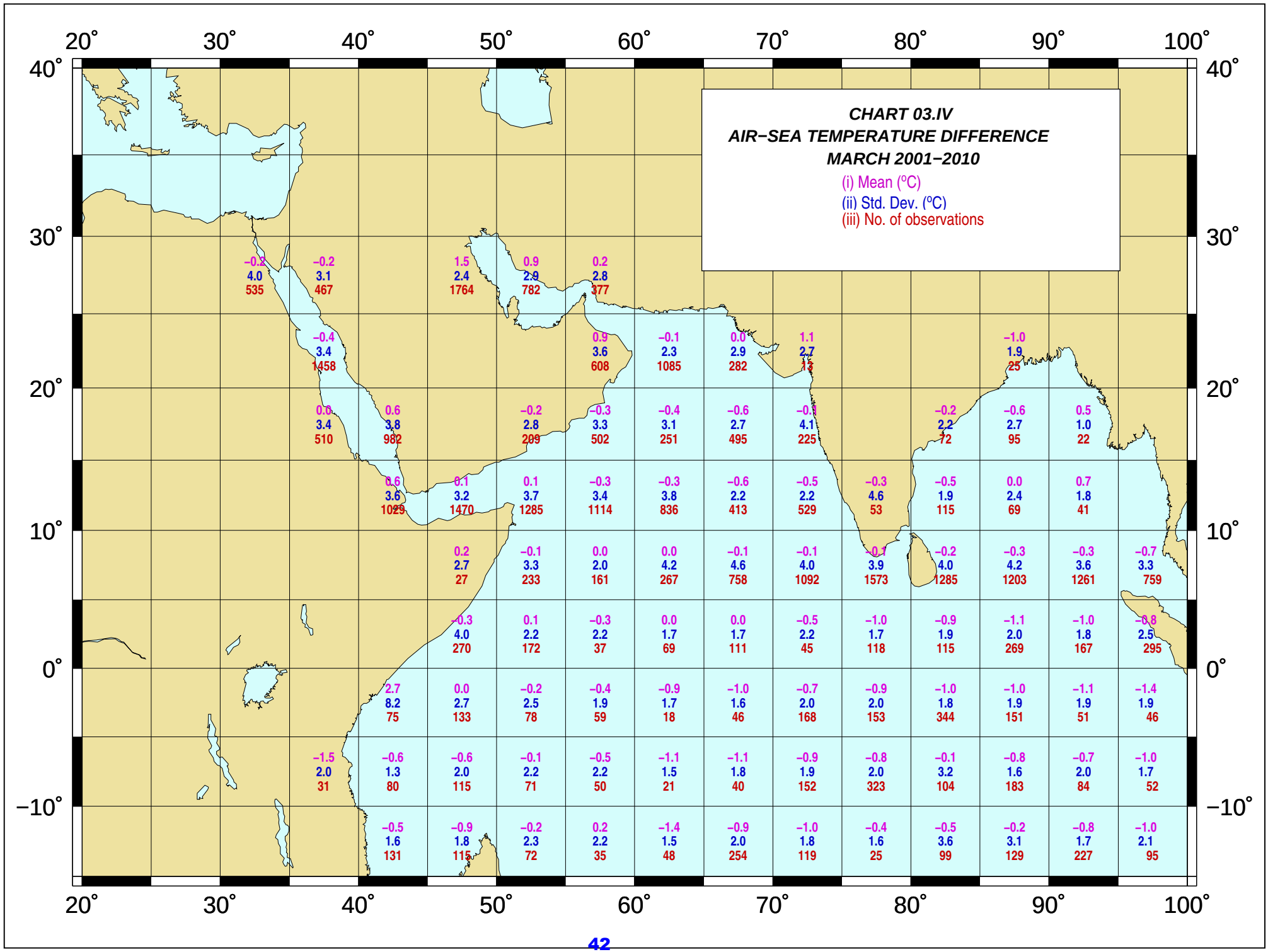
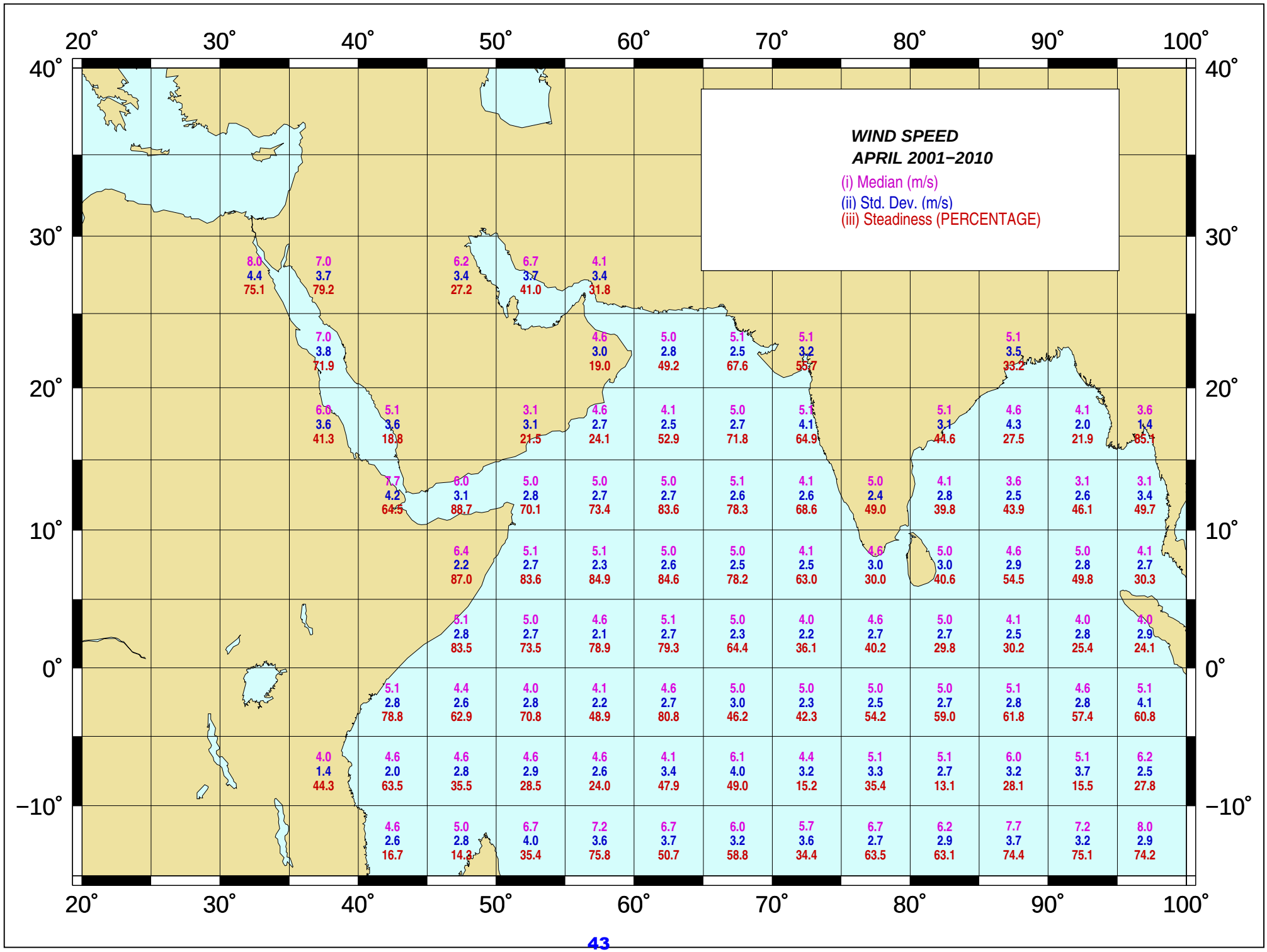


CHART 03.IV
AIR–SEA TEMPERATURE DIFFERENCE
MARCH 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−0.2 4.0 535
−0.2 3.1 467
1.5 2.4 1764
0.9 2.9 782
0.2 2.8 377
−0.4 3.4 1458
0.9 3.6 608
−0.1 2.3 1085
0.0 2.9 282
1.1 2.7 13
−1.0 1.9 25
0.0 3.4 510
0.6 3.8 982
−0.2 2.8 209
−0.3 3.3 502
−0.4 3.1 251
−0.6 2.7 495
−0.2 2.2 72
−0.6 2.7 95
0.5 1.0 22
0.6 3.6 1029
0.1 3.2 1470
0.1 3.7 1285
−0.3 3.4 1114
−0.3 3.8 836
−0.6 2.2 413
−0.5 2.2 529
−0.3 4.6 53
−0.5 1.9 115
0.0 2.4 69
0.7 1.8 41
0.2 2.7 27
−0.1 3.3 233
0.0 2.0 161
0.0 4.2 267
−0.1 4.6 758
−0.1 4.0 1092
−0.2 4.0 1285
−0.3 4.2 1203
−0.3 3.6 1261
−0.7 3.3 759
−0.3 4.0 270
0.1 2.2 172
−0.3 2.2 37
0.0 1.7 69
0.0 1.7 111
−0.5 2.2 45
−1.0 1.7 118
−0.9 1.9 115
−1.1 2.0 269
−1.0 1.8 167
−0.8 2.5 295
2.7 8.2 75
0.0 2.7 133
−0.2 2.5 78
−0.4 1.9 59
−0.9 1.7 18
−1.0 1.6 46
−0.7 2.0 168
−0.9 2.0 153
−1.0 1.8 344
−1.0 1.9 151
−1.1 1.9 51
−1.4 1.9 46
−1.5 2.0 31
−0.6 1.3 80
−0.6 2.0 115
−0.1 2.2 71
−0.5 2.2 50
−1.1 1.5 21
−1.1 1.8 40
−0.9 1.9 152
−0.8 2.0 323
−0.1 3.2 104
−0.8 1.6 183
−0.7 2.0 84
−1.0 1.7 52
−0.5 1.6 131
−0.9 1.8 115
−0.2 2.3 72
0.2 2.2 35
−1.4 1.5 48
−0.9 2.0 254
−1.0 1.8 119
−0.4 1.6 25
−0.5 3.6 99
−0.2 3.1 129
−0.8 1.7 227
−1.0 2.1 95


WIND SPEED
APRIL 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.0 4.4 75.1
7.0 3.7 79.2
6.2 3.4 27.2
6.7 3.7 41.0
4.1 3.4 31.8
7.0 3.8 71.9
4.6 3.0 19.0
5.0 2.8 49.2
5.1 2.5 67.6
5.1 3.2 55.7
5.1 3.5 33.2
6.0 3.6 41.3
5.1 3.6 18.8
3.1 3.1 21.5
4.6 2.7 24.1
4.1 2.5 52.9
5.0 2.7 71.8
5.1 4.1 64.9
5.1 3.1 44.6
4.6 4.3 27.5
4.1 2.0 21.9
3.6 1.4 85.1
7.7 4.2 64.5
6.0 3.1 88.7
5.0 2.8 70.1
5.0 2.7 73.4
5.0 2.7 83.6
5.1 2.6 78.3
4.1 2.6 68.6
5.0 2.4 49.0
4.1 2.8 39.8
3.6 2.5 43.9
3.1 2.6 46.1
3.1 3.4 49.7
6.4 2.2 87.0
5.1 2.7 83.6
5.1 2.3 84.9
5.0 2.6 84.6
5.0 2.5 78.2
4.1 2.5 63.0
4.6 3.0 30.0
5.0 3.0 40.6
4.6 2.9 54.5
5.0 2.8 49.8
4.1 2.7 30.3
5.1 2.8 83.5
5.0 2.7 73.5
4.6 2.1 78.9
5.1 2.7 79.3
5.0 2.3 64.4
4.0 2.2 36.1
4.6 2.7 40.2
5.0 2.7 29.8
4.1 2.5 30.2
4.0 2.8 25.4
4.0 2.9 24.1
5.1 2.8 78.8
4.4 2.6 62.9
4.0 2.8 70.8
4.1 2.2 48.9
4.6 2.7 80.8
5.0 3.0 46.2
5.0 2.3 42.3
5.0 2.5 54.2
5.0 2.7 59.0
5.1 2.8 61.8
4.6 2.8 57.4
5.1 4.1 60.8
4.0 1.4 44.3
4.6 2.0 63.5
4.6 2.8 35.5
4.6 2.9 28.5
4.6 2.6 24.0
4.1 3.4 47.9
6.1 4.0 49.0
4.4 3.2 15.2
5.1 3.3 35.4
5.1 2.7 13.1
6.0 3.2 28.1
5.1 3.7 15.5
6.2 2.5 27.8
4.6 2.6 16.7
5.0 2.8 14.3
6.7 4.0 35.4
7.2 3.6 75.8
6.7 3.7 50.7
6.0 3.2 58.8
5.7 3.6 34.4
6.7 2.7 63.5
6.2 2.9 63.1
7.7 3.7 74.4
7.2 3.2 75.1
8.0 2.9 74.2

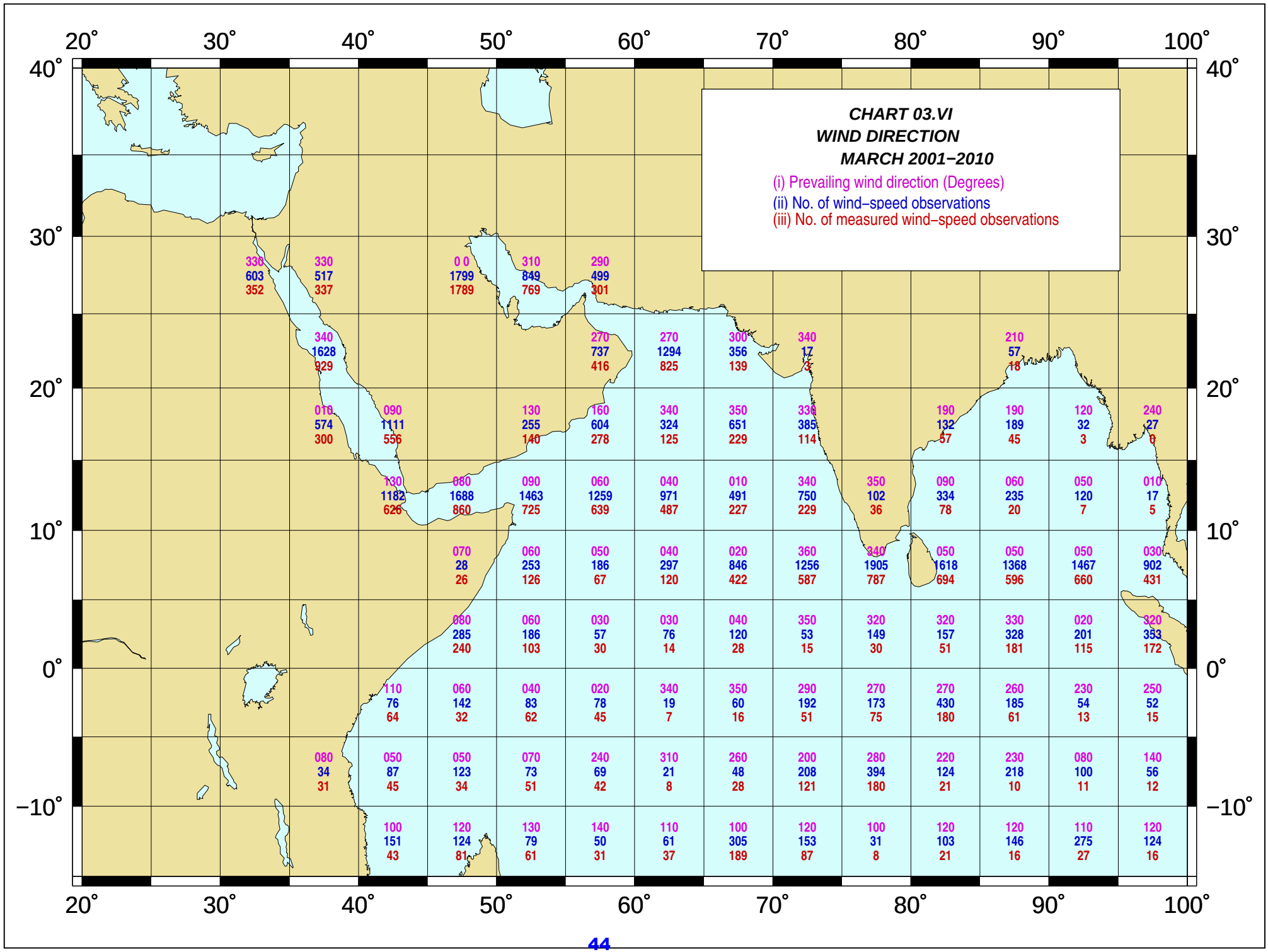


CHART 03.VI
WIND DIRECTION
MARCH 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 603 352
330 517 337
0 0 1799 1789
310 849 769
290 499 301
340 1628 929
270 737 416
270 1294 825
300 356 139
340 17 3
210 57 18
010 574 300
090 1111 556
130 255 140
160 604 278
340 324 125
350 651 229
330 385 114
190 132 57
190 189 45
120 32 3
240 27 9
130 1182 626
080 1688 860
090 1463 725
060 1259 639
040 971 487
010 491 227
340 750 229
350 102 36
090 334 78
060 235 20
050 120 7
010 17 5
070 28 26
060 253 126
050 186 67
040 297 120
020 846 422
360 1256 587
340 1905 787
050 1618 694
050 1368 596
050 1467 660
030 902 431
080 285 240
060 186 103
030 57 30
030 76 14
040 120 28
350 53 15
320 149 30
320 157 51
330 328 181
020 201 115
320 353 172
110 76 64
060 142 32
040 83 62
020 78 45
340 19 7
350 60 16
290 192 51
270 173 75
270 430 180
260 185 61
230 54 13
250 52 15
080 34 31
050 87 45
050 123 34
070 73 51
240 69 42
310 21 8
260 48 28
200 208 121
280 394 180
220 124 21
230 218 10
080 100 11
140 56 12
100 151 43
120 124 81
130 79 61
140 50 31
110 61 37
100 305 189
120 153 87
100 31 8
120 103 21
120 146 16
110 275 27
120 124 16

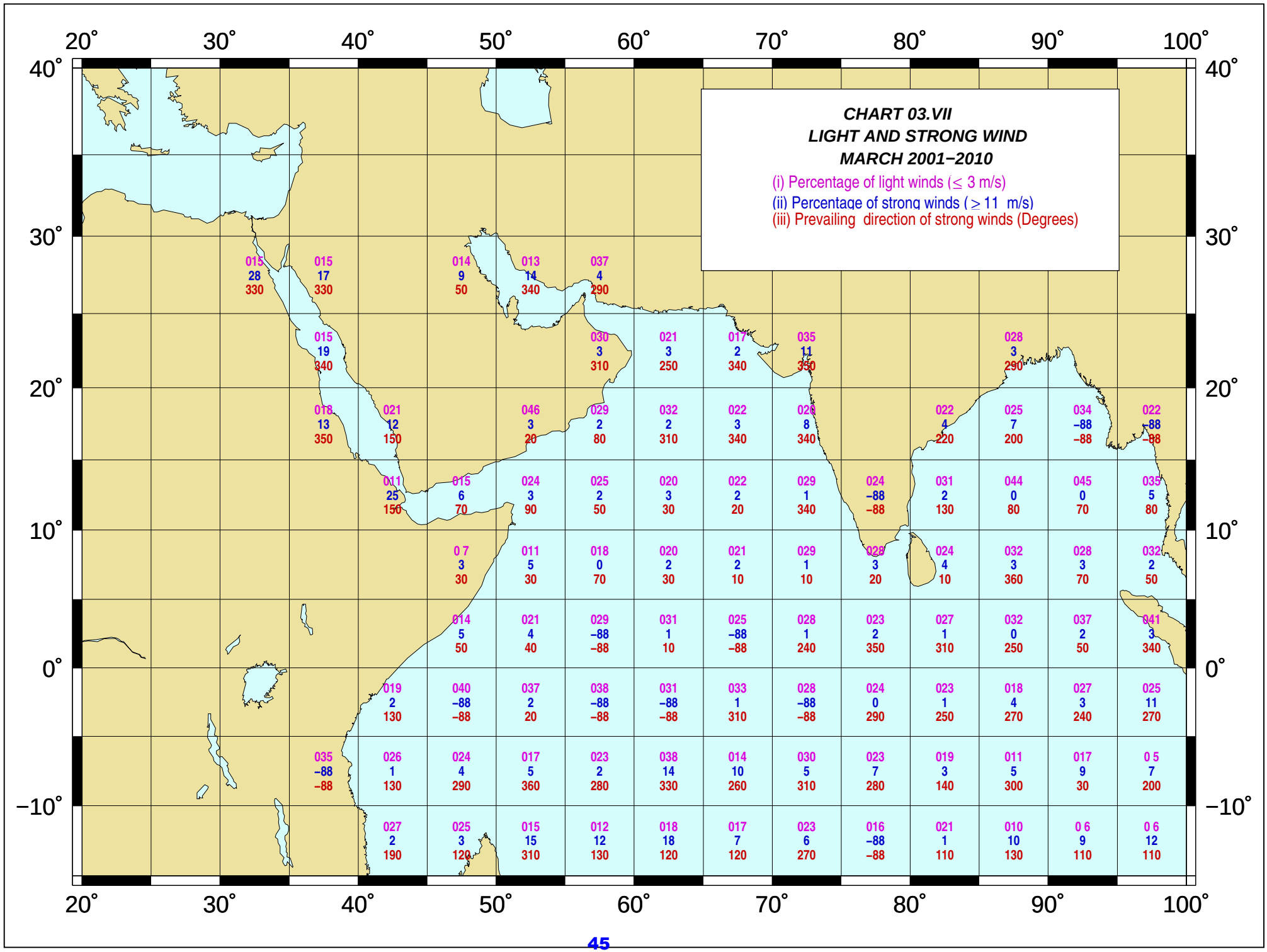


CHART 03.VII
LIGHT AND STRONG WIND
MARCH 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
015 28 330
015 17 330
014 9 50
013 14 340
037 4 290
015 19 340
030 3 310
021 3 250
017 2 340
035 11 350
028 3 290
018 13 350
021 12 150
046 3 20
029 2 80
032 2 310
022 3 340
026 8 340
022 4 220
025 7 200
034 −88 −88
022 −88 −88
011 25 150
015 6 70
024 3 90
025 2 50
020 3 30
022 2 20
029 1 340
024 −88 −88
031 2 130
044 0 80
045 0 70
035 5 80
0 7 3 30
011 5 30
018 0 70
020 2 30
021 2 10
029 1 10
028 3 20
024 4 10
032 3 360
028 3 70
032 2 50
014 5 50
021 4 40
029 −88 −88
031 1 10
025 −88 −88
028 1 240
023 2 350
027 1 310
032 0 250
037 2 50
041 3 340
019 2 130
040 −88 −88
037 2 20
038 −88 −88
031 −88 −88
033 1 310
028 −88 −88
024 0 290
023 1 250
018 4 270
027 3 240
025 11 270
035 −88 −88
026 1 130
024 4 290
017 5 360
023 2 280
038 14 330
014 10 260
030 5 310
023 7 280
019 3 140
011 5 300
017 9 30
0 5 7 200
027 2 190
025 3 120
015 15 310
012 12 130
018 18 120
017 7 120
023 6 270
016 −88 −88
021 1 110
010 10 130
0 6 9 110
0 6 12 110

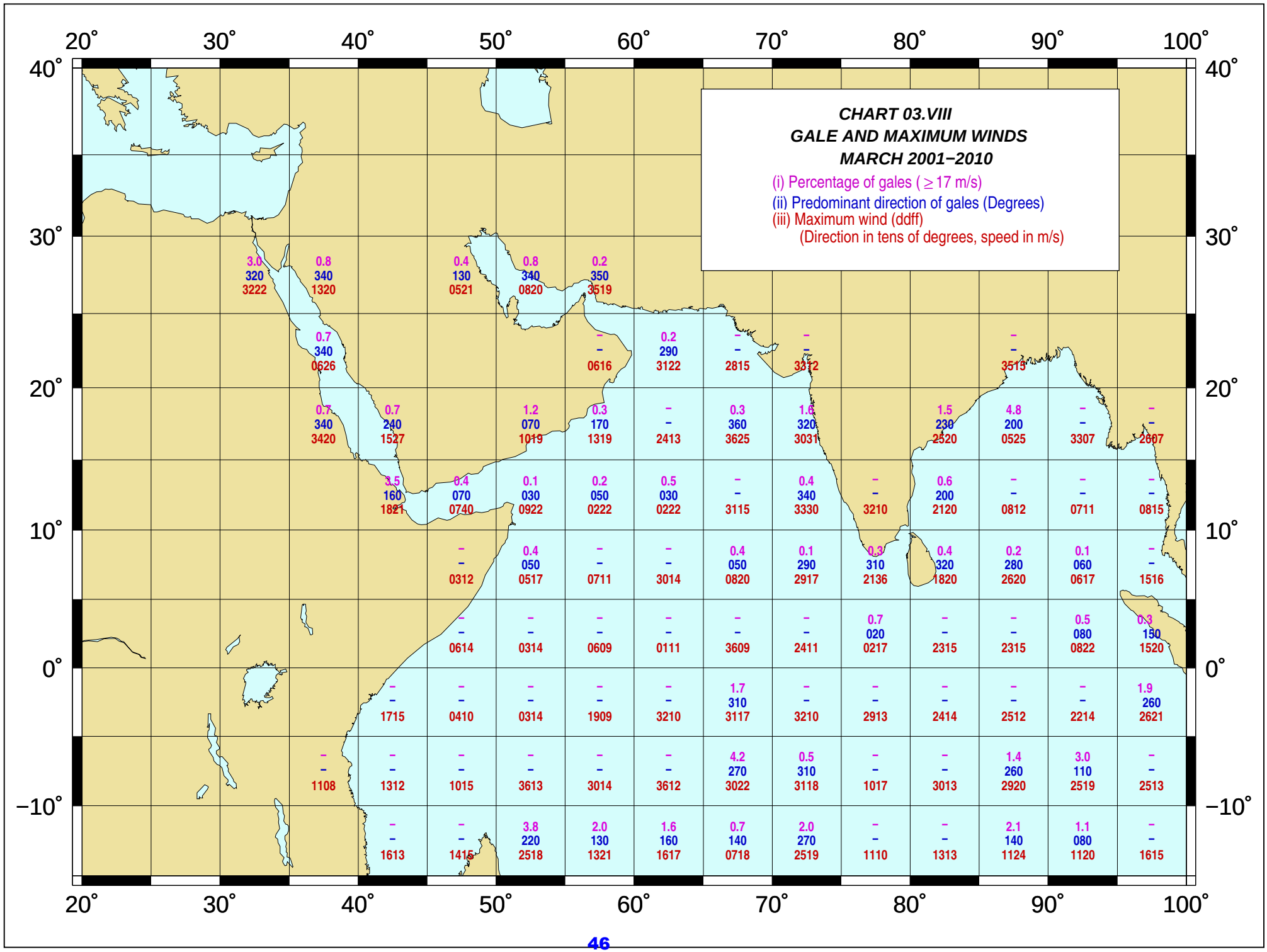


CHART 03.VIII
GALE AND MAXIMUM WINDS
MARCH 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
3.0 320 3222
0.8 340 1320
0.4 130 0521
0.8 340 0820
0.2 350 3519
0.7 340 0626
– – 0616
0.2 290 3122
– – 2815
– – 3312
– – 3515
0.7 340 3420
0.7 240 1527
1.2 070 1019
0.3 170 1319
– – 2413
0.3 360 3625
1.6 320 3031
1.5 230 2520
4.8 200 0525
– – 3307
– – 2607
3.5 160 1821
0.4 070 0740
0.1 030 0922
0.2 050 0222
0.5 030 0222
– – 3115
0.4 340 3330
– – 3210
0.6 200 2120
– – 0812
– – 0711
– – 0815
– – 0312
0.4 050 0517
– – 0711
– – 3014
0.4 050 0820
0.1 290 2917
0.3 310 2136
0.4 320 1820
0.2 280 2620
0.1 060 0617
– – 1516
– – 0614
– – 0314
– – 0609
– – 0111
– – 3609
– – 2411
0.7 020 0217
– – 2315
– – 2315
0.5 080 0822
0.3 150 1520
– – 1715
– – 0410
– – 0314
– – 1909
– – 3210
1.7 310 3117
– – 3210
– – 2913
– – 2414
– – 2512
– – 2214
1.9 260 2621
– – 1108
– – 1312
– – 1015
– – 3613
– – 3014
– – 3612
4.2 270 3022
0.5 310 3118
– – 1017
– – 3013
1.4 260 2920
3.0 110 2519
– – 2513
– – 1613
– – 1415
3.8 220 2518
2.0 130 1321
1.6 160 1617
0.7 140 0718
2.0 270 2519
– – 1110
– – 1313
2.1 140 1124
1.1 080 1120
– – 1615

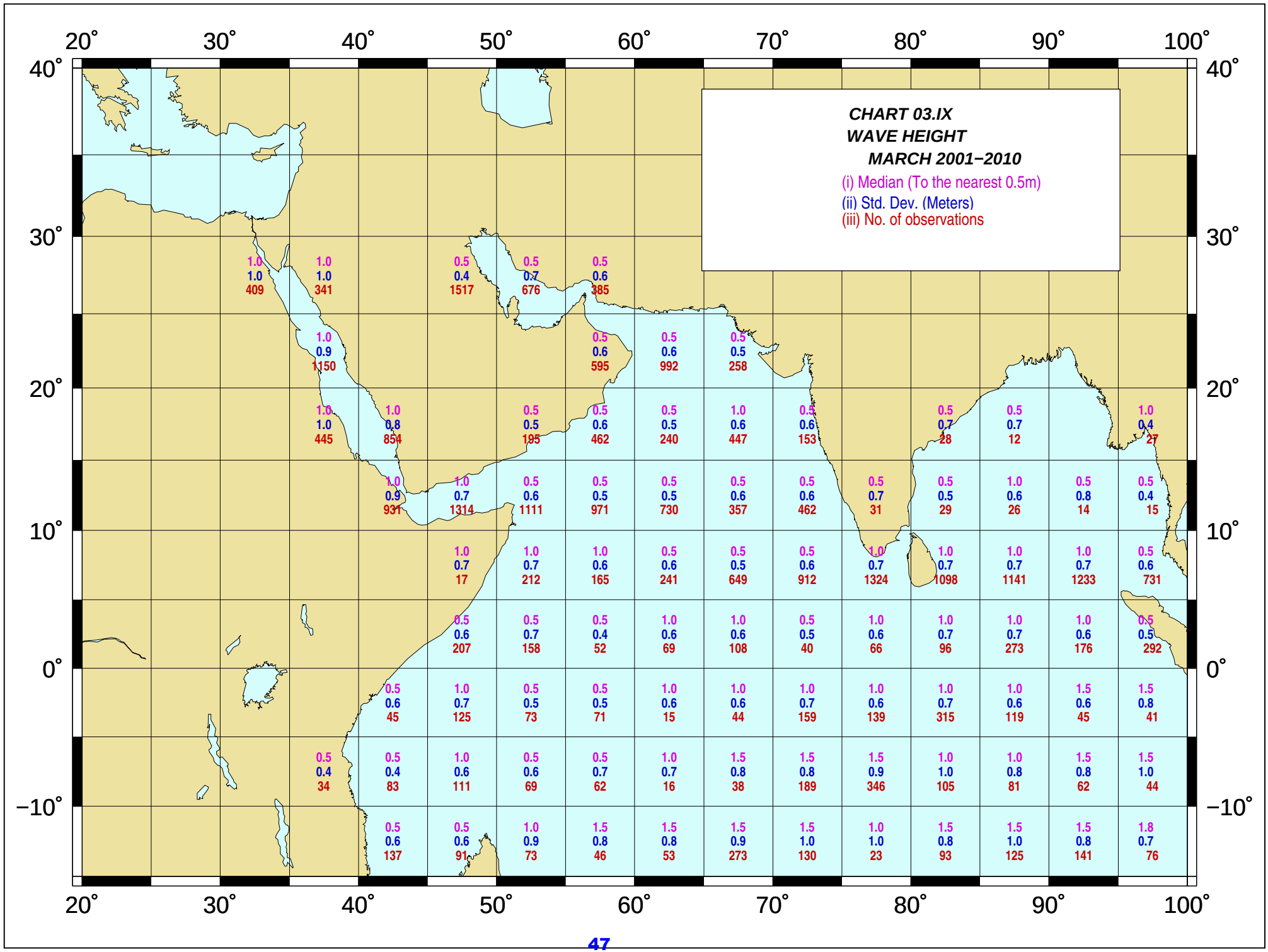


CHART 03.IX
WAVE HEIGHT
MARCH 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 1.0 409
1.0 1.0 341
0.5 0.4 1517
0.5 0.7 676
0.5 0.6 385
1.0 0.9 1150
0.5 0.6 595
0.5 0.6 992
0.5 0.5 258
1.0 1.0 445
1.0 0.8 854
0.5 0.5 195
0.5 0.6 462
0.5 0.5 240
1.0 0.6 447
0.5 0.6 153
0.5 0.7 28
0.5 0.7 12
1.0 0.4 27
1.0 0.9 931
1.0 0.7 1314
0.5 0.6 1111
0.5 0.5 971
0.5 0.5 730
0.5 0.6 357
0.5 0.6 462
0.5 0.7 31
0.5 0.5 29
1.0 0.6 26
0.5 0.8 14
0.5 0.4 15
1.0 0.7 17
1.0 0.7 212
1.0 0.6 165
0.5 0.6 241
0.5 0.5 649
0.5 0.6 912
1.0 0.7 1324
1.0 0.7 1098
1.0 0.7 1141
1.0 0.7 1233
0.5 0.6 731
0.5 0.6 207
0.5 0.7 158
0.5 0.4 52
1.0 0.6 69
1.0 0.6 108
0.5 0.5 40
1.0 0.6 66
1.0 0.7 96
1.0 0.7 273
1.0 0.6 176
0.5 0.5 292
0.5 0.6 45
1.0 0.7 125
0.5 0.5 73
0.5 0.5 71
1.0 0.6 15
1.0 0.6 44
1.0 0.7 159
1.0 0.6 139
1.0 0.7 315
1.0 0.6 119
1.5 0.6 45
1.5 0.8 41
0.5 0.4 34
0.5 0.4 83
1.0 0.6 111
0.5 0.6 69
0.5 0.7 62
1.0 0.7 16
1.5 0.8 38
1.5 0.8 189
1.5 0.9 346
1.0 1.0 105
1.0 0.8 81
1.5 0.8 62
1.5 1.0 44
0.5 0.6 137
0.5 0.6 91
1.0 0.9 73
1.5 0.8 46
1.5 0.8 53
1.5 0.9 273
1.5 1.0 130
1.0 1.0 23
1.5 0.8 93
1.5 1.0 125
1.5 0.8 141
1.8 0.7 76

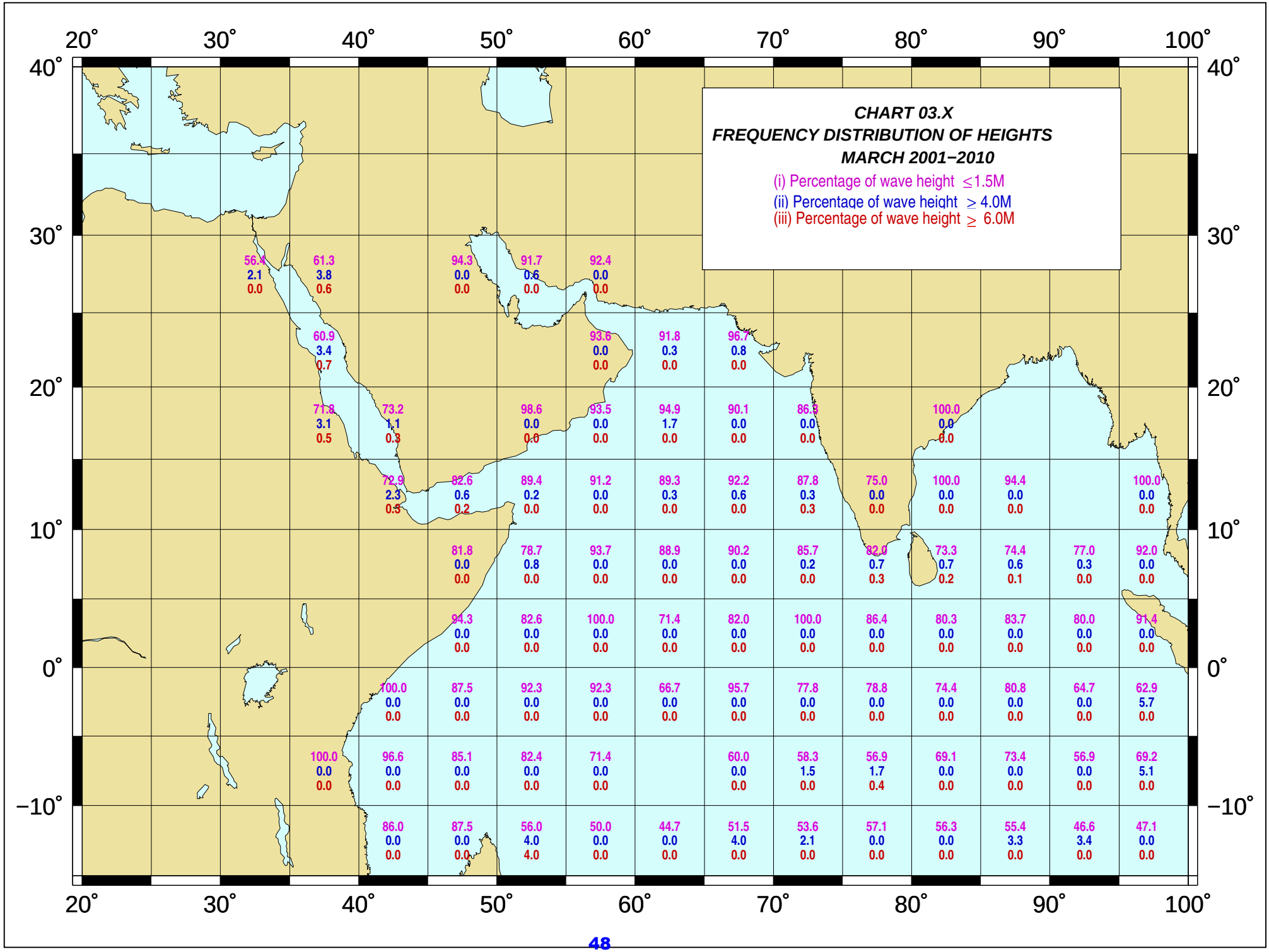


CHART 03.X
FREQUENCY DISTRIBUTION OF HEIGHTS
MARCH 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
56.4 2.1 0.0
61.3 3.8 0.6
94.3 0.0 0.0
91.7 0.6 0.0
92.4 0.0 0.0
60.9 3.4 0.7
93.6 0.0 0.0
91.8 0.3 0.0
96.7 0.8 0.0
71.8 3.1 0.5
73.2 1.1 0.3
98.6 0.0 0.0
93.5 0.0 0.0
94.9 1.7 0.0
90.1 0.0 0.0
86.9 0.0 0.0
100.0 0.0 0.0
72.9 2.3 0.5
82.6 0.6 0.2
89.4 0.2 0.0
91.2 0.0 0.0
89.3 0.3 0.0
92.2 0.6 0.0
87.8 0.3 0.3
75.0 0.0 0.0
100.0 0.0 0.0
94.4 0.0 0.0
100.0 0.0 0.0
81.8 0.0 0.0
78.7 0.8 0.0
93.7 0.0 0.0
88.9 0.0 0.0
90.2 0.0 0.0
85.7 0.2 0.0
82.0 0.7 0.3
73.3 0.7 0.2
74.4 0.6 0.1
77.0 0.3 0.0
92.0 0.0 0.0
94.3 0.0 0.0
82.6 0.0 0.0
100.0 0.0 0.0
71.4 0.0 0.0
82.0 0.0 0.0
100.0 0.0 0.0
86.4 0.0 0.0
80.3 0.0 0.0
83.7 0.0 0.0
80.0 0.0 0.0
91.4 0.0 0.0
100.0 0.0 0.0
87.5 0.0 0.0
92.3 0.0 0.0
92.3 0.0 0.0
66.7 0.0 0.0
95.7 0.0 0.0
77.8 0.0 0.0
78.8 0.0 0.0
74.4 0.0 0.0
80.8 0.0 0.0
64.7 0.0 0.0
62.9 5.7 0.0
100.0 0.0 0.0
96.6 0.0 0.0
85.1 0.0 0.0
82.4 0.0 0.0
71.4 0.0 0.0
60.0 0.0 0.0
58.3 1.5 0.0
56.9 1.7 0.4
69.1 0.0 0.0
73.4 0.0 0.0
56.9 0.0 0.0
69.2 5.1 0.0
86.0 0.0 0.0
87.5 0.0 0.0
56.0 4.0 4.0
50.0 0.0 0.0
44.7 0.0 0.0
51.5 4.0 0.0
53.6 2.1 0.0
57.1 0.0 0.0
56.3 0.0 0.0
55.4 3.3 0.0
46.6 3.4 0.0
47.1 0.0 0.0

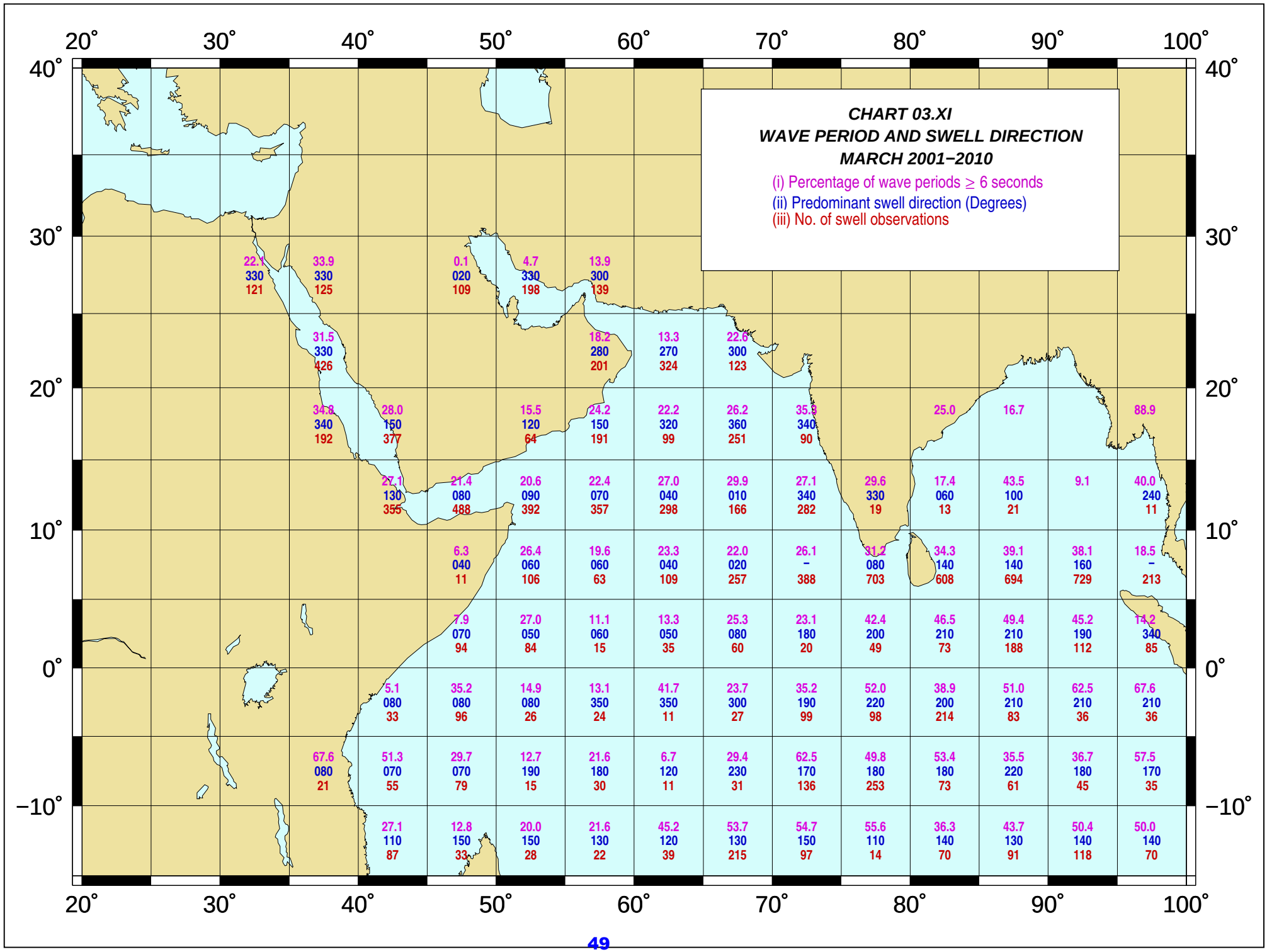


CHART 03.XI
WAVE PERIOD AND SWELL DIRECTION
MARCH 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
22.1 330 121
33.9 330 125
0.1 020 109
4.7 330 198
13.9 300 139
31.5 330 426
18.2 280 201
13.3 270 324
22.6 300 123
34.8 340 192
28.0 150 377
15.5 120 64
24.2 150 191
22.2 320 99
26.2 360 251
35.3 340 90
25.0
16.7
88.9
27.1 130 355
21.4 080 488
20.6 090 392
22.4 070 357
27.0 040 298
29.9 010 166
27.1 340 282
29.6 330 19
17.4 060 13
43.5 100 21
9.1
40.0 240 11
6.3 040 11
26.4 060 106
19.6 060 63
23.3 040 109
22.0 020 257
26.1 – 388
31.2 080 703
34.3 140 608
39.1 140 694
38.1 160 729
18.5 – 213
7.9 070 94
27.0 050 84
11.1 060 15
13.3 050 35
25.3 080 60
23.1 180 20
42.4 200 49
46.5 210 73
49.4 210 188
45.2 190 112
14.2 340 85
5.1 080 33
35.2 080 96
14.9 080 26
13.1 350 24
41.7 350 11
23.7 300 27
35.2 190 99
52.0 220 98
38.9 200 214
51.0 210 83
62.5 210 36
67.6 210 36
67.6 080 21
51.3 070 55
29.7 070 79
12.7 190 15
21.6 180 30
6.7 120 11
29.4 230 31
62.5 170 136
49.8 180 253
53.4 180 73
35.5 220 61
36.7 180 45
57.5 170 35
27.1 110 87
12.8 150 33
20.0 150 28
21.6 130 22
45.2 120 39
53.7 130 215
54.7 150 97
55.6 110 14
36.3 140 70
43.7 130 91
50.4 140 118
50.0 140 70

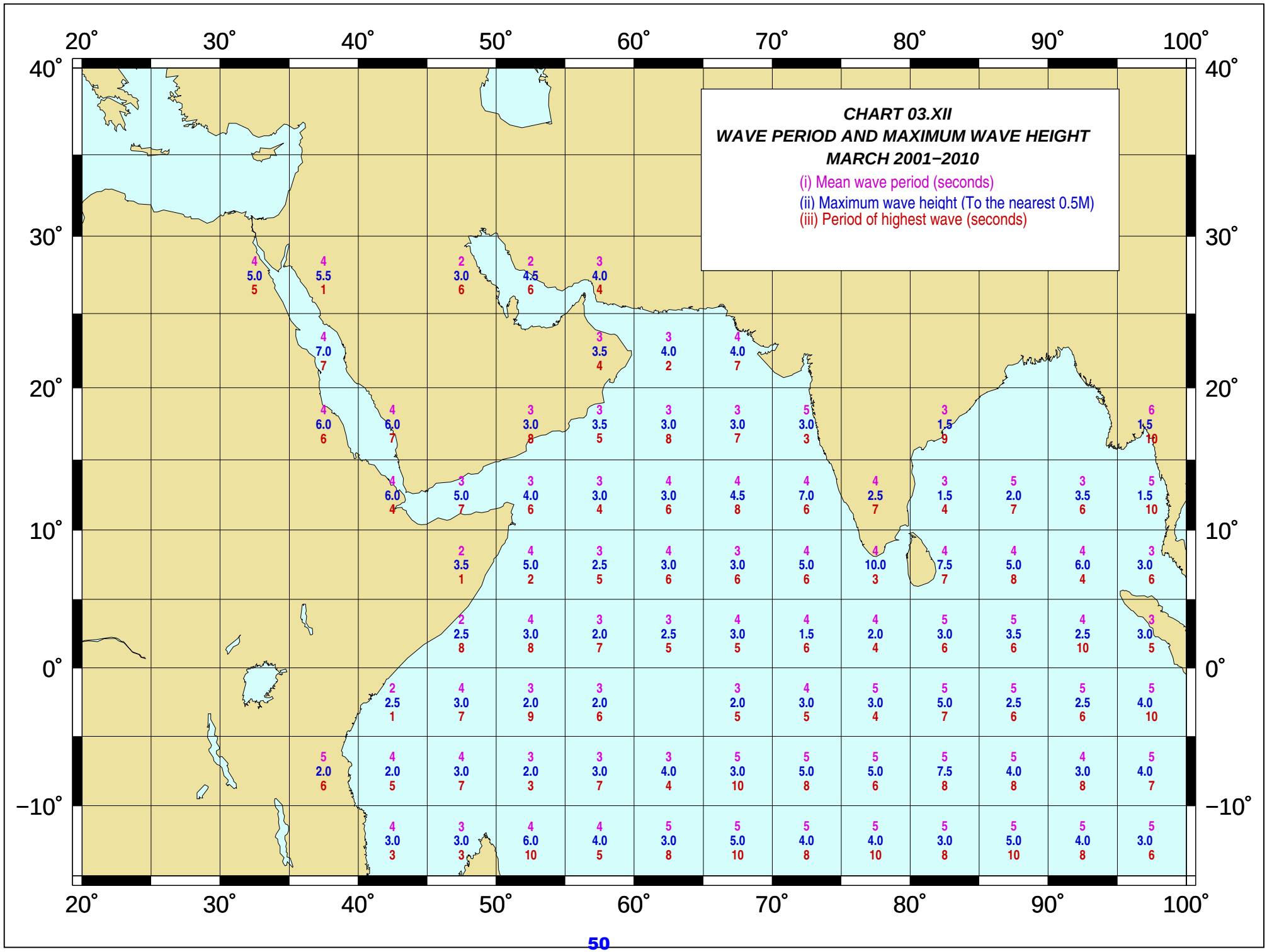


CHART 03.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
MARCH 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 5.0 5
4 5.5 1
2 3.0 6
2 4.5 6
3 4.0 4
4 7.0 7
3 3.5 4
3 4.0 2
4 4.0 7
4 6.0 6
4 6.0 7
3 3.0 8
3 3.5 5
3 3.0 8
3 3.0 7
5 3.0 3
3 1.5 9
6 1.5 10
4 6.0 4
3 5.0 7
3 4.0 6
3 3.0 4
4 3.0 6
4 4.5 8
4 7.0 6
4 2.5 7
3 1.5 4
5 2.0 7
3 3.5 6
5 1.5 10
2 3.5 1
4 5.0 2
3 2.5 5
4 3.0 6
3 3.0 6
4 5.0 6
4 10.0 3
4 7.5 7
4 5.0 8
4 6.0 4
3 3.0 6
2 2.5 8
4 3.0 8
3 2.0 7
3 2.5 5
4 3.0 5
4 1.5 6
4 2.0 4
5 3.0 6
5 3.5 6
4 2.5 10
3 3.0 5
2 2.5 1
4 3.0 7
3 2.0 9
3 2.0 6
3 2.0 5
4 3.0 5
5 3.0 4
5 5.0 7
5 2.5 6
5 2.5 6
5 4.0 10
5 2.0 6
4 2.0 5
4 3.0 7
3 2.0 3
3 3.0 7
3 4.0 4
5 3.0 10
5 5.0 8
5 5.0 6
5 7.5 8
5 4.0 8
4 3.0 8
5 4.0 7
4 3.0 3
3 3.0 3
4 6.0 10
4 4.0 5
5 3.0 8
5 5.0 10
5 4.0 8
5 4.0 10
5 3.0 8
5 5.0 10
5 4.0 8
5 3.0 6

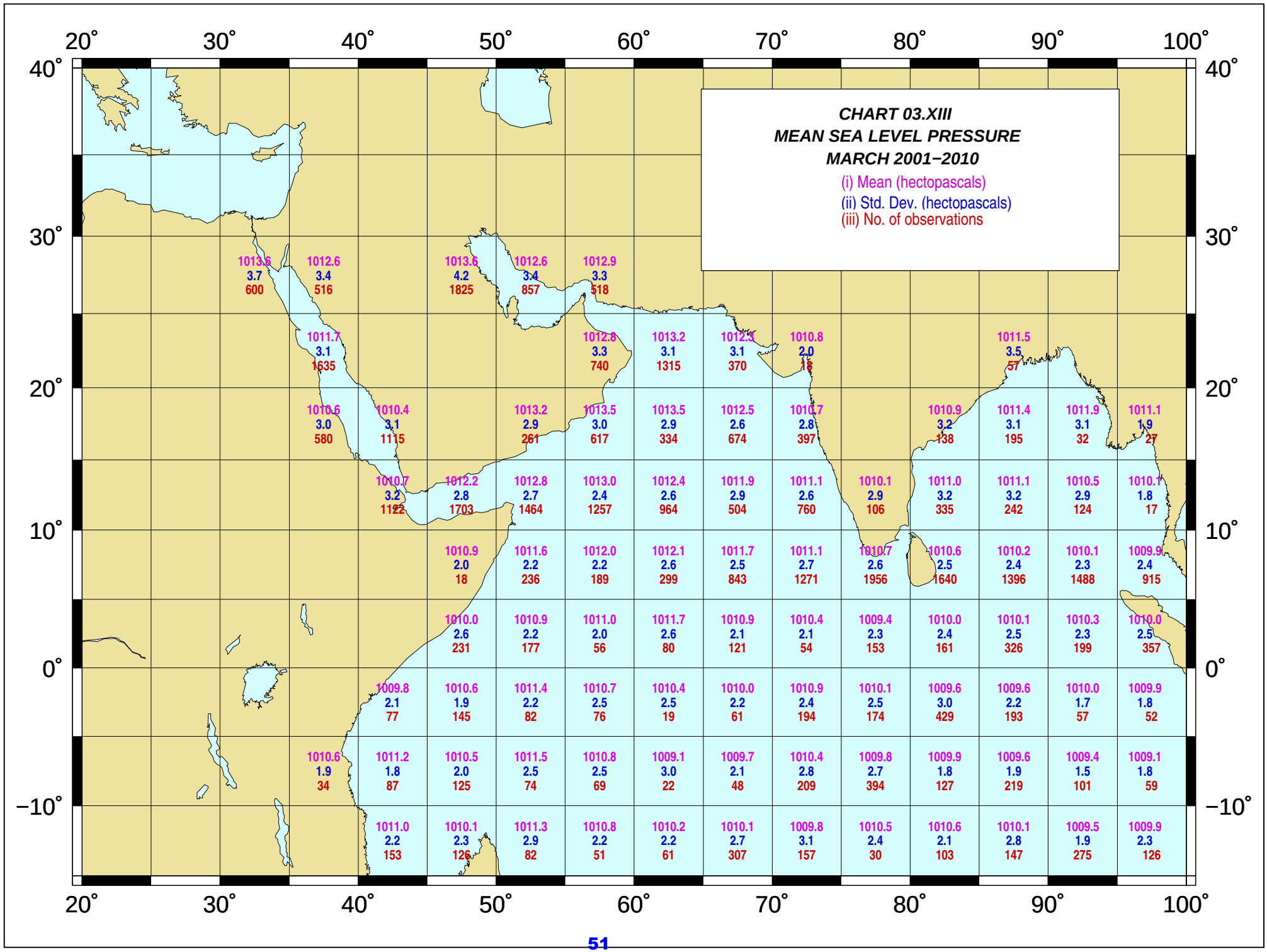


CHART 03.XIII
MEAN SEA LEVEL PRESSURE
MARCH 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1013.5 3.7 600
1012.6 3.4 516
1013.6 4.2 1825
1012.6 3.4 857
1012.9 3.3 518
1011.7 3.1 1635
1012.8 3.3 740
1013.2 3.1 1315
1012.8 3.1 370
1010.8 2.0 16
1011.5 3.5 57
1010.6 3.0 580
1010.4 3.1 1115
1013.2 2.9 261
1013.5 3.0 617
1013.5 2.9 334
1012.5 2.6 674
1010.7 2.8 397
1010.9 3.2 138
1011.4 3.1 195
1011.9 3.1 32
1011.1 1.9 27
1010.7 3.2 1122
1012.2 2.8 1703
1012.8 2.7 1464
1013.0 2.4 1257
1012.4 2.6 964
1011.9 2.9 504
1011.1 2.6 760
1010.1 2.9 106
1011.0 3.2 335
1011.1 3.2 242
1010.5 2.9 124
1010.1 1.8 17
1010.9 2.0 18
1011.6 2.2 236
1012.0 2.2 189
1012.1 2.6 299
1011.7 2.5 843
1011.1 2.7 1271
1010.7 2.6 1956
1010.6 2.5 1640
1010.2 2.4 1396
1010.1 2.3 1488
1009.9 2.4 915
1010.0 2.6 231
1010.9 2.2 177
1011.0 2.0 56
1011.7 2.6 80
1010.9 2.1 121
1010.4 2.1 54
1009.4 2.3 153
1010.0 2.4 161
1010.1 2.5 326
1010.3 2.3 199
1010.0 2.5 357
1009.8 2.1 77
1010.6 1.9 145
1011.4 2.2 82
1010.7 2.5 76
1010.4 2.5 19
1010.0 2.2 61
1010.9 2.4 194
1010.1 2.5 174
1009.6 3.0 429
1009.6 2.2 193
1010.0 1.7 57
1009.9 1.8 52
1010.6 1.9 34
1011.2 1.8 87
1010.5 2.0 125
1011.5 2.5 74
1010.8 2.5 69
1009.1 3.0 22
1009.7 2.1 48
1010.4 2.8 209
1009.8 2.7 394
1009.9 1.8 127
1009.6 1.9 219
1009.4 1.5 101
1009.1 1.8 59
1011.0 2.2 153
1010.1 2.3 126
1011.3 2.9 82
1010.8 2.2 51
1010.2 2.2 61
1010.1 2.7 307
1009.8 3.1 157
1010.5 2.4 30
1010.6 2.1 103
1010.1 2.8 147
1009.5 1.9 275
1009.9 2.3 126

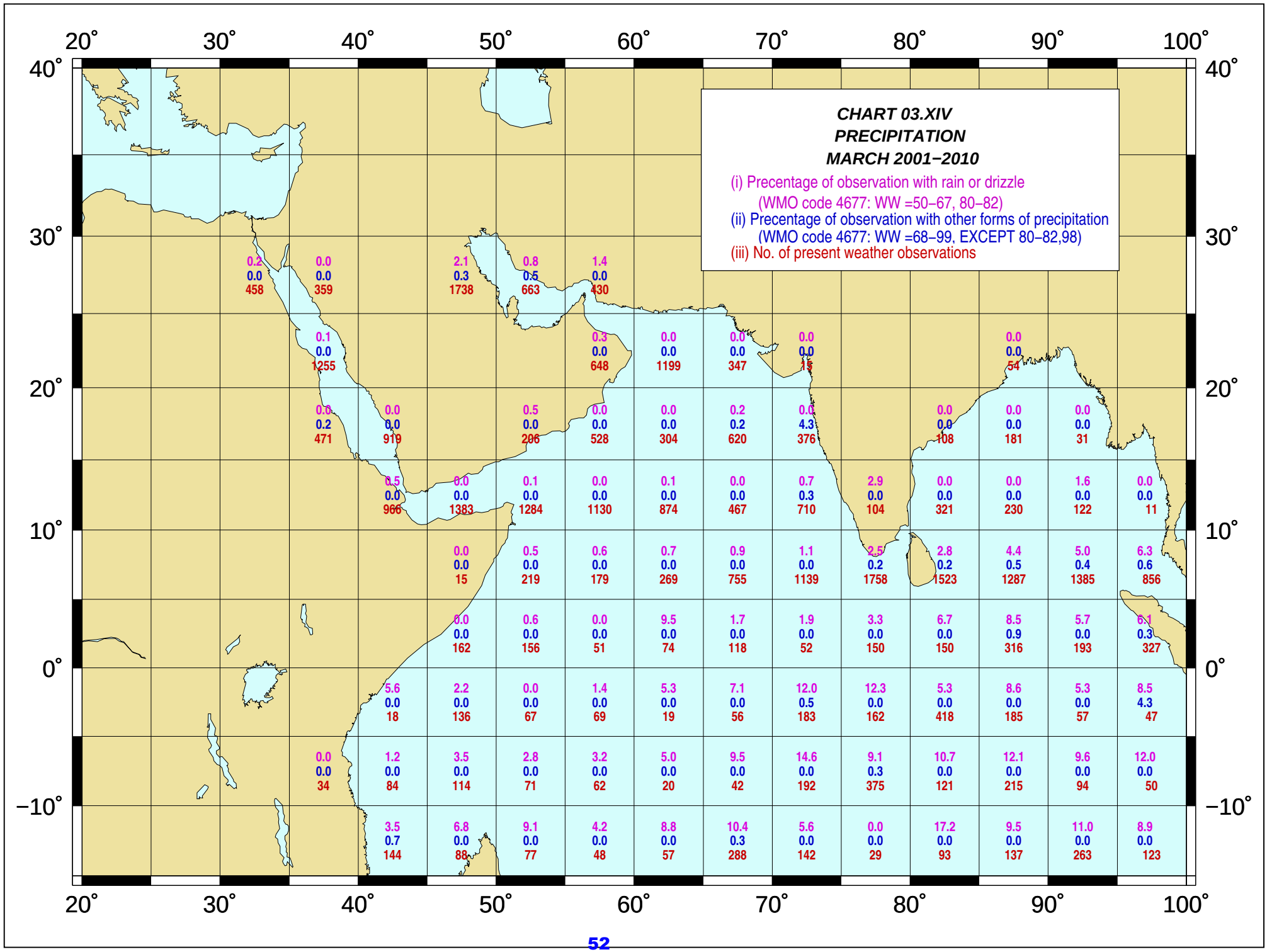


CHART 03.XIV
PRECIPITATION
MARCH 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.0 458
0.0 0.0 359
2.1 0.3 1738
0.8 0.5 663
1.4 0.0 430
0.1 0.0 1255
0.3 0.0 648
0.0 0.0 1199
0.0 0.0 347
0.0 0.0 15
0.0 0.0 54
0.0 0.2 471
0.0 0.0 919
0.5 0.0 206
0.0 0.0 528
0.0 0.0 304
0.2 0.2 620
0.0 4.3 376
0.0 0.0 108
0.0 0.0 181
0.0 0.0 31
0.5 0.0 966
0.0 0.0 1383
0.1 0.0 1284
0.0 0.0 1130
0.1 0.0 874
0.0 0.0 467
0.7 0.3 710
2.9 0.0 104
0.0 0.0 321
0.0 0.0 230
1.6 0.0 122
0.0 0.0 11
0.0 0.0 15
0.5 0.0 219
0.6 0.0 179
0.7 0.0 269
0.9 0.0 755
1.1 0.0 1139
2.5 0.2 1758
2.8 0.2 1523
4.4 0.5 1287
5.0 0.4 1385
6.3 0.6 856
0.0 0.0 162
0.6 0.0 156
0.0 0.0 51
9.5 0.0 74
1.7 0.0 118
1.9 0.0 52
3.3 0.0 150
6.7 0.0 150
8.5 0.9 316
5.7 0.0 193
6.1 0.3 327
5.6 0.0 18
2.2 0.0 136
0.0 0.0 67
1.4 0.0 69
5.3 0.0 19
7.1 0.0 56
12.0 0.5 183
12.3 0.0 162
5.3 0.0 418
8.6 0.0 185
5.3 0.0 57
8.5 4.3 47
0.0 0.0 34
1.2 0.0 84
3.5 0.0 114
2.8 0.0 71
3.2 0.0 62
5.0 0.0 20
9.5 0.0 42
14.6 0.0 192
9.1 0.3 375
10.7 0.0 121
12.1 0.0 215
9.6 0.0 94
12.0 0.0 50
3.5 0.7 144
6.8 0.0 88
9.1 0.0 77
4.2 0.0 48
8.8 0.0 57
10.4 0.3 288
5.6 0.0 142
0.0 0.0 29
17.2 0.0 93
9.5 0.0 137
11.0 0.0 263
8.9 0.0 123

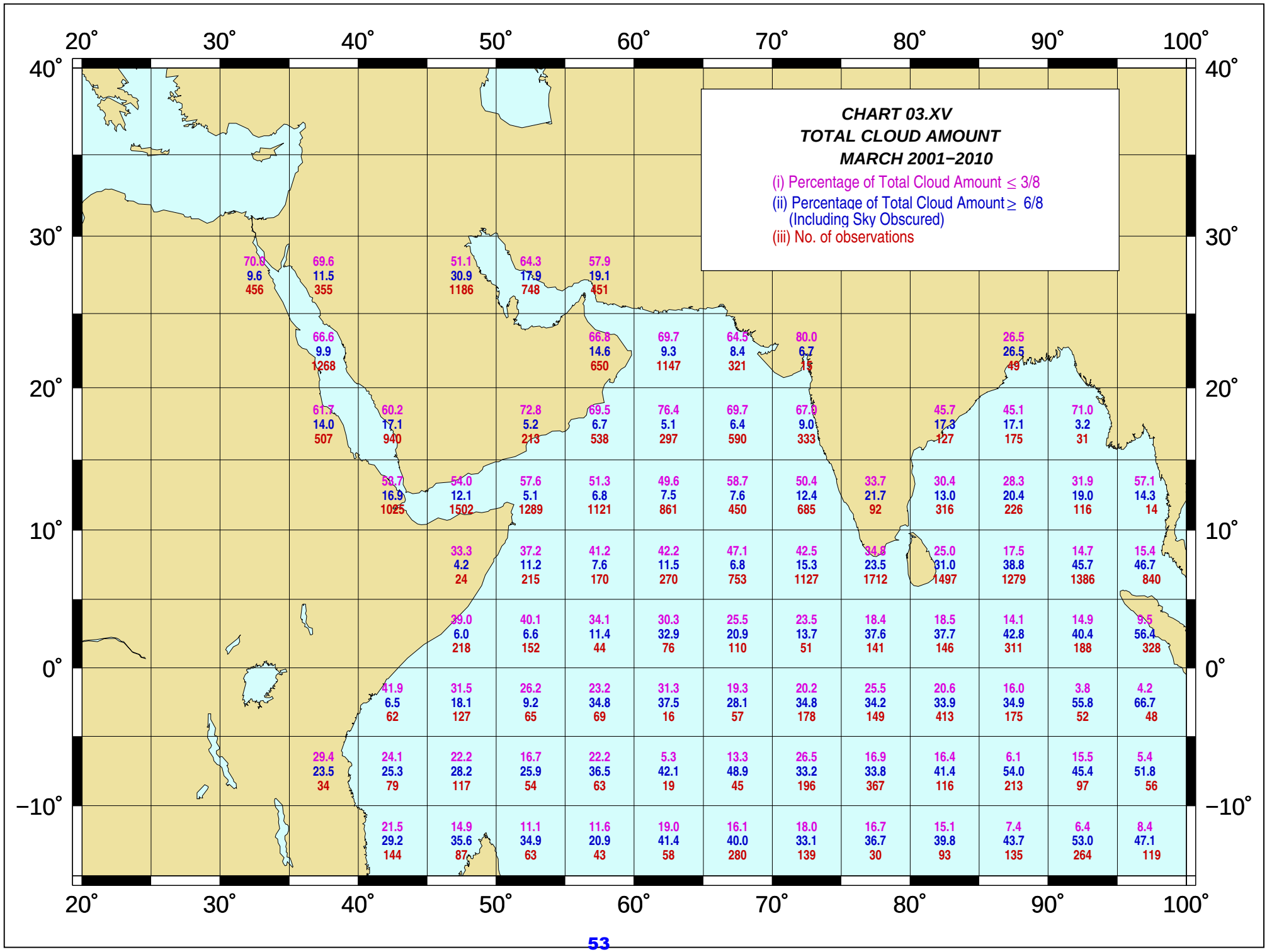


CHART 03.XV
TOTAL CLOUD AMOUNT
MARCH 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
70.8 9.6 456
69.6 11.5 355
51.1 30.9 1186
64.3 17.9 748
57.9 19.1 451
66.6 9.9 1268
66.8 14.6 650
69.7 9.3 1147
64.5 8.4 321
80.0 6.7 15
26.5 26.5 49
61.7 14.0 507
60.2 17.1 940
72.8 5.2 213
69.5 6.7 538
76.4 5.1 297
69.7 6.4 590
67.9 9.0 333
45.7 17.3 127
45.1 17.1 175
71.0 3.2 31
50.7 16.9 1025
54.0 12.1 1502
57.6 5.1 1289
51.3 6.8 1121
49.6 7.5 861
58.7 7.6 450
50.4 12.4 685
33.7 21.7 92
30.4 13.0 316
28.3 20.4 226
31.9 19.0 116
57.1 14.3 14
33.3 4.2 24
37.2 11.2 215
41.2 7.6 170
42.2 11.5 270
47.1 6.8 753
42.5 15.3 1127
34.9 23.5 1712
25.0 31.0 1497
17.5 38.8 1279
14.7 45.7 1386
15.4 46.7 840
39.0 6.0 218
40.1 6.6 152
34.1 11.4 44
30.3 32.9 76
25.5 20.9 110
23.5 13.7 51
18.4 37.6 141
18.5 37.7 146
14.1 42.8 311
14.9 40.4 188
9.5 56.4 328
41.9 6.5 62
31.5 18.1 127
26.2 9.2 65
23.2 34.8 69
31.3 37.5 16
19.3 28.1 57
20.2 34.8 178
25.5 34.2 149
20.6 33.9 413
16.0 34.9 175
3.8 55.8 52
4.2 66.7 48
29.4 23.5 34
24.1 25.3 79
22.2 28.2 117
16.7 25.9 54
22.2 36.5 63
5.3 42.1 19
13.3 48.9 45
26.5 33.2 196
16.9 33.8 367
16.4 41.4 116
6.1 54.0 213
15.5 45.4 97
5.4 51.8 56
21.5 29.2 144
14.9 35.6 87
11.1 34.9 63
11.6 20.9 43
19.0 41.4 58
16.1 40.0 280
18.0 33.1 139
16.7 36.7 30
15.1 39.8 93
7.4 43.7 135
6.4 53.0 264
8.4 47.1 119

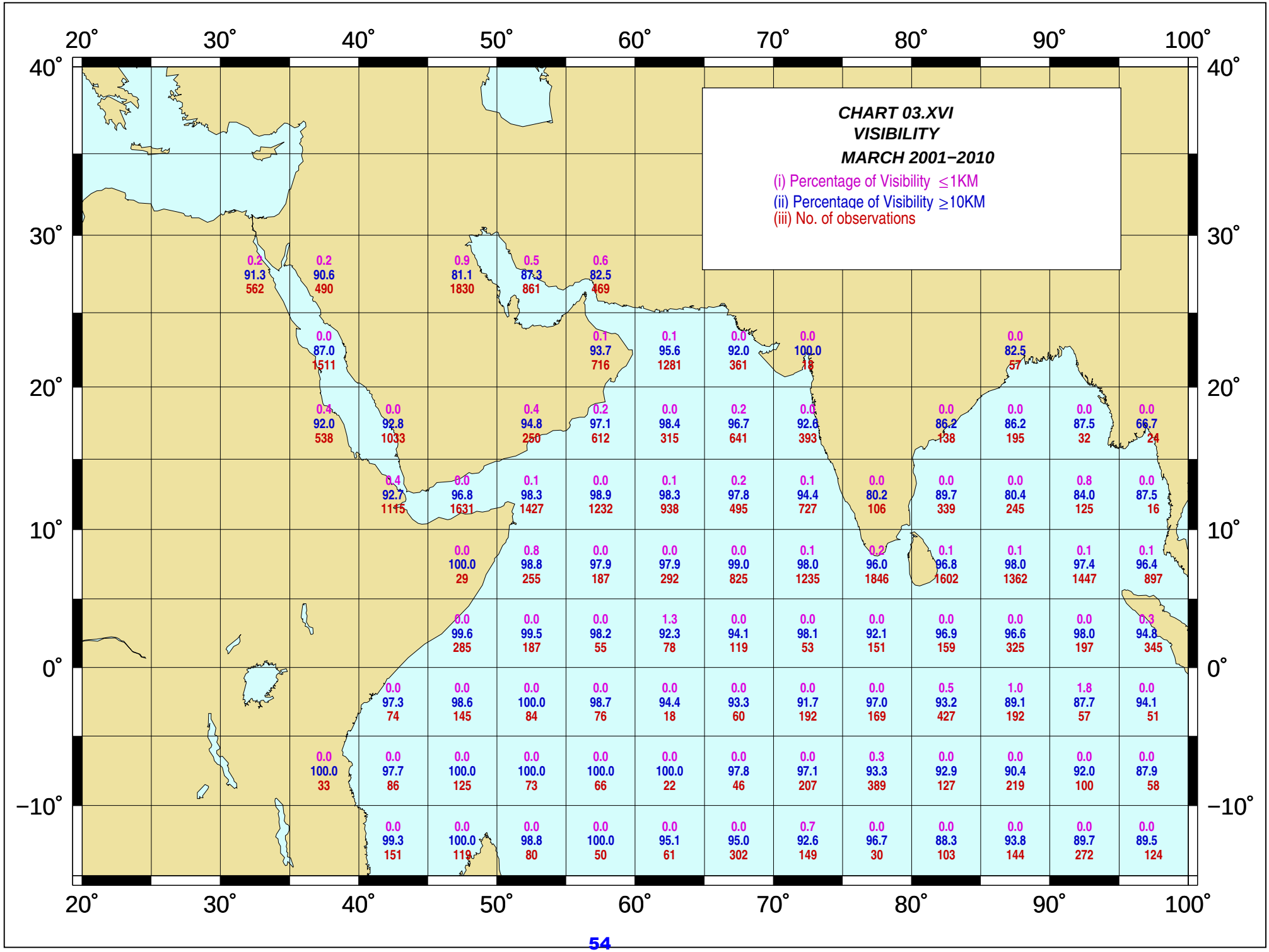


CHART 03.XVI
VISIBILITY
MARCH 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 91.3 562
0.2 90.6 490
0.9 81.1 1830
0.5 87.3 861
0.6 82.5 469
0.0 87.0 1511
0.1 93.7 716
0.1 95.6 1281
0.0 92.0 361
0.0 100.0 16
0.0 82.5 57
0.4 92.0 538
0.0 92.8 1033
0.4 94.8 250
0.2 97.1 612
0.0 98.4 315
0.2 96.7 641
0.0 92.6 393
0.0 86.2 138
0.0 86.2 195
0.0 87.5 32
0.0 66.7 24
0.4 92.7 1115
0.0 96.8 1631
0.1 98.3 1427
0.0 98.9 1232
0.1 98.3 938
0.2 97.8 495
0.1 94.4 727
0.0 80.2 106
0.0 89.7 339
0.0 80.4 245
0.8 84.0 125
0.0 87.5 16
0.0 100.0 29
0.8 98.8 255
0.0 97.9 187
0.0 97.9 292
0.0 99.0 825
0.1 98.0 1235
0.2 96.0 1846
0.1 96.8 1602
0.1 98.0 1362
0.1 97.4 1447
0.1 96.4 897
0.0 99.6 285
0.0 99.5 187
0.0 98.2 55
1.3 92.3 78
0.0 94.1 119
0.0 98.1 53
0.0 92.1 151
0.0 96.9 159
0.0 96.6 325
0.0 98.0 197
0.3 94.8 345
0.0 97.3 74
0.0 98.6 145
0.0 100.0 84
0.0 98.7 76
0.0 94.4 18
0.0 93.3 60
0.0 91.7 192
0.0 97.0 169
0.5 93.2 427
1.0 89.1 192
1.8 87.7 57
0.0 94.1 51
0.0 100.0 33
0.0 97.7 86
0.0 100.0 125
0.0 100.0 73
0.0 100.0 66
0.0 100.0 22
0.0 97.8 46
0.0 97.1 207
0.3 93.3 389
0.0 92.9 127
0.0 90.4 219
0.0 92.0 100
0.0 87.9 58
0.0 99.3 151
0.0 100.0 119
0.0 98.8 80
0.0 100.0 50
0.0 95.1 61
0.0 95.0 302
0.7 92.6 149
0.0 96.7 30
0.0 88.3 103
0.0 93.8 144
0.0 89.7 272
0.0 89.5 124

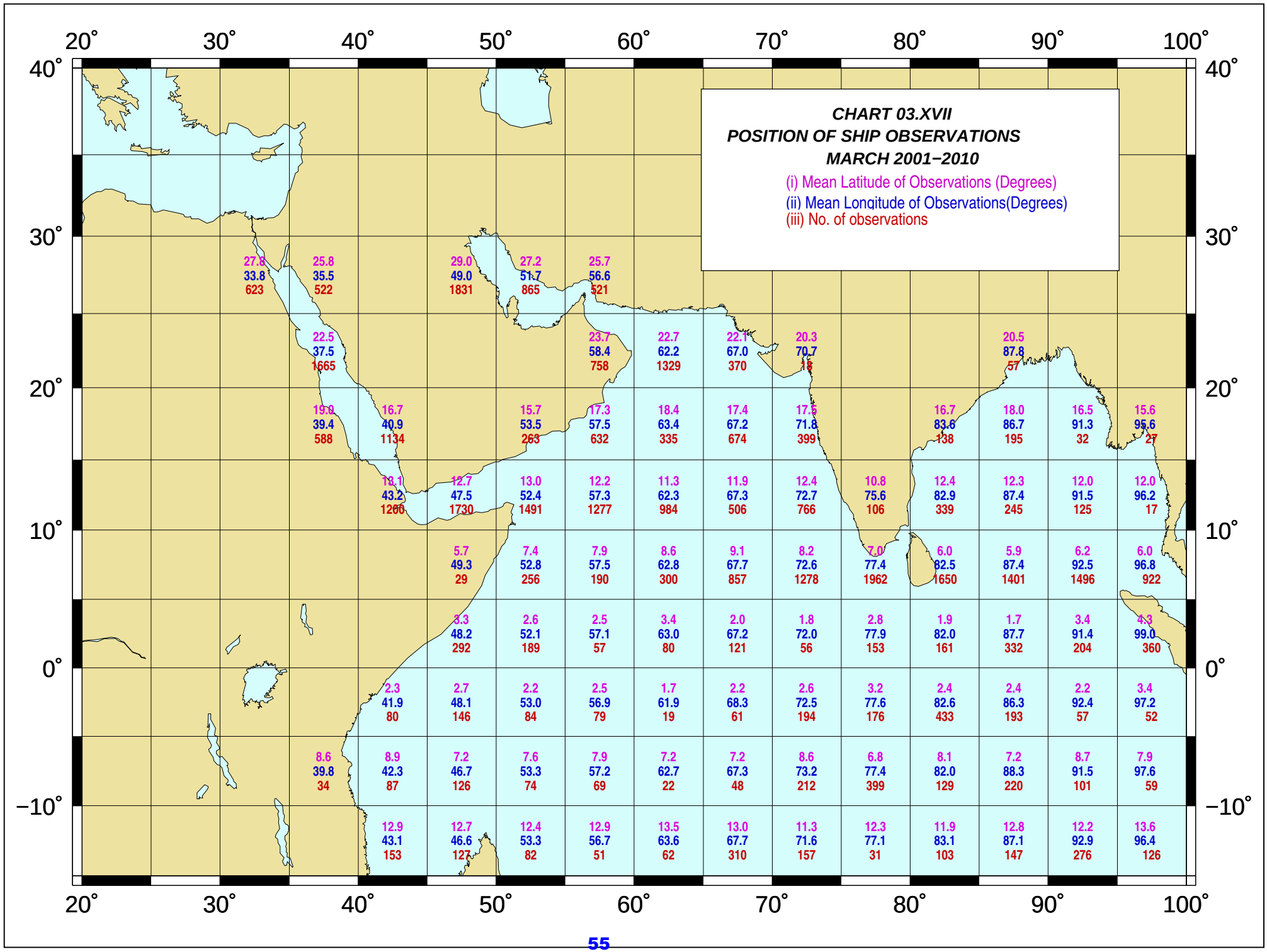


CHART 03.XVII
POSITION OF SHIP OBSERVATIONS
MARCH 2001−2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.8 33.8 623
25.8 35.5 522
29.0 49.0 1831
27.2 51.7 865
25.7 56.6 521
22.5 37.5 1665
23.7 58.4 758
22.7 62.2 1329
22.1 67.0 370
20.3 70.7 16
20.5 87.8 57
19.9 39.4 588
16.7 40.9 1134
15.7 53.5 263
17.3 57.5 632
18.4 63.4 335
17.4 67.2 674
17.5 71.8 399
16.7 83.6 138
18.0 86.7 195
16.5 91.3 32
15.6 95.6 27
10.1 43.2 1266
12.7 47.5 1730
13.0 52.4 1491
12.2 57.3 1277
11.3 62.3 984
11.9 67.3 506
12.4 72.7 766
10.8 75.6 106
12.4 82.9 339
12.3 87.4 245
12.0 91.5 125
12.0 96.2 17
5.7 49.3 29
7.4 52.8 256
7.9 57.5 190
8.6 62.8 300
9.1 67.7 857
8.2 72.6 1278
7.0 77.4 1962
6.0 82.5 1650
5.9 87.4 1401
6.2 92.5 1496
6.0 96.8 922
3.3 48.2 292
2.6 52.1 189
2.5 57.1 57
3.4 63.0 80
2.0 67.2 121
1.8 72.0 56
2.8 77.9 153
1.9 82.0 161
1.7 87.7 332
3.4 91.4 204
4.3 99.0 360
2.3 41.9 80
2.7 48.1 146
2.2 53.0 84
2.5 56.9 79
1.7 61.9 19
2.2 68.3 61
2.6 72.5 194
3.2 77.6 176
2.4 82.6 433
2.4 86.3 193
2.2 92.4 57
3.4 97.2 52
8.6 39.8 34
8.9 42.3 87
7.2 46.7 126
7.6 53.3 74
7.9 57.2 69
7.2 62.7 22
7.2 67.3 48
8.6 73.2 212
6.8 77.4 399
8.1 82.0 129
7.2 88.3 220
8.7 91.5 101
7.9 97.6 59
12.9 43.1 153
12.7 46.6 127
12.4 53.3 82
12.9 56.7 51
13.5 63.6 62
13.0 67.7 310
11.3 71.6 157
12.3 77.1 31
11.9 83.1 103
12.8 87.1 147
12.2 92.9 276
13.6 96.4 126

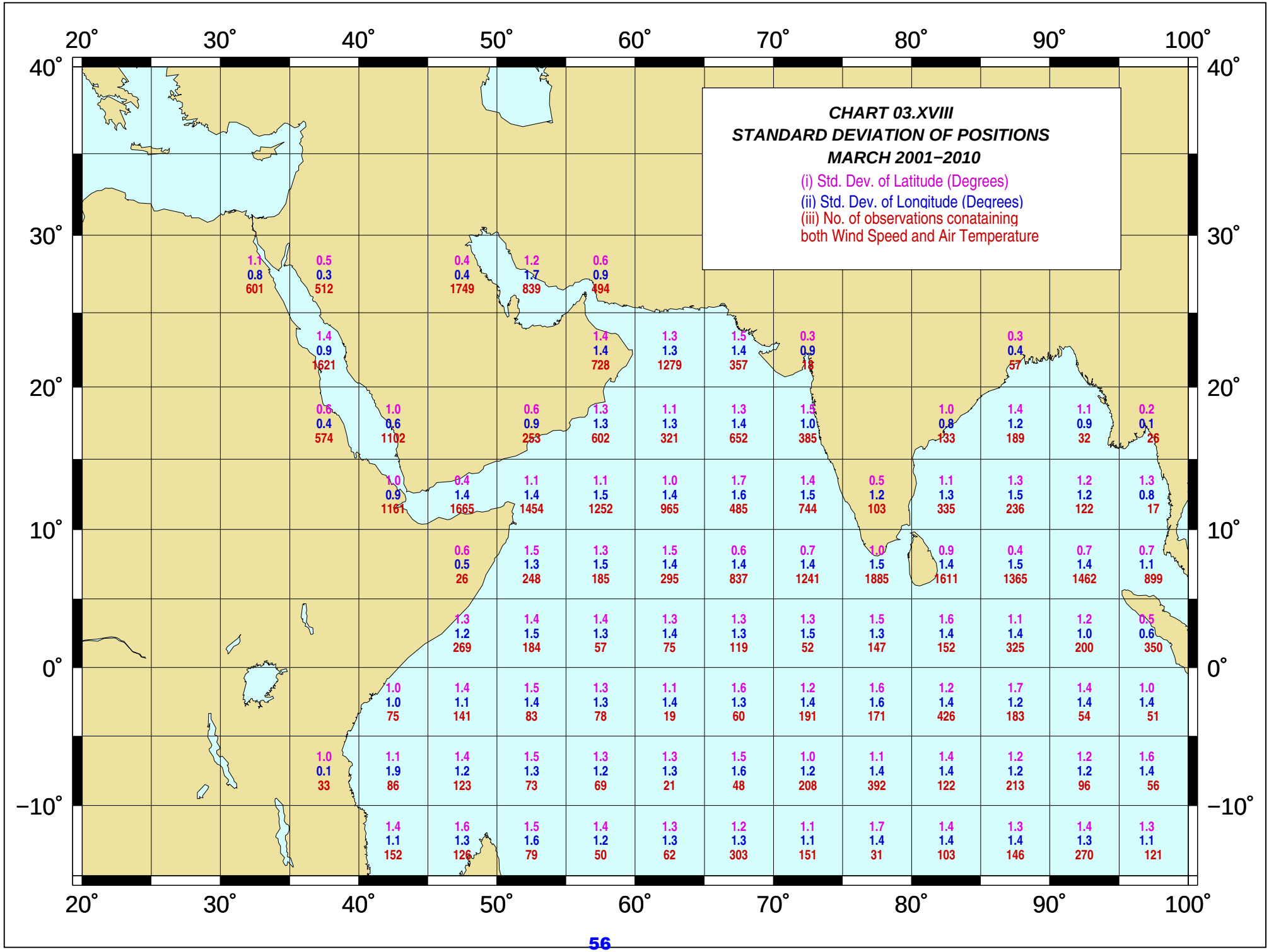
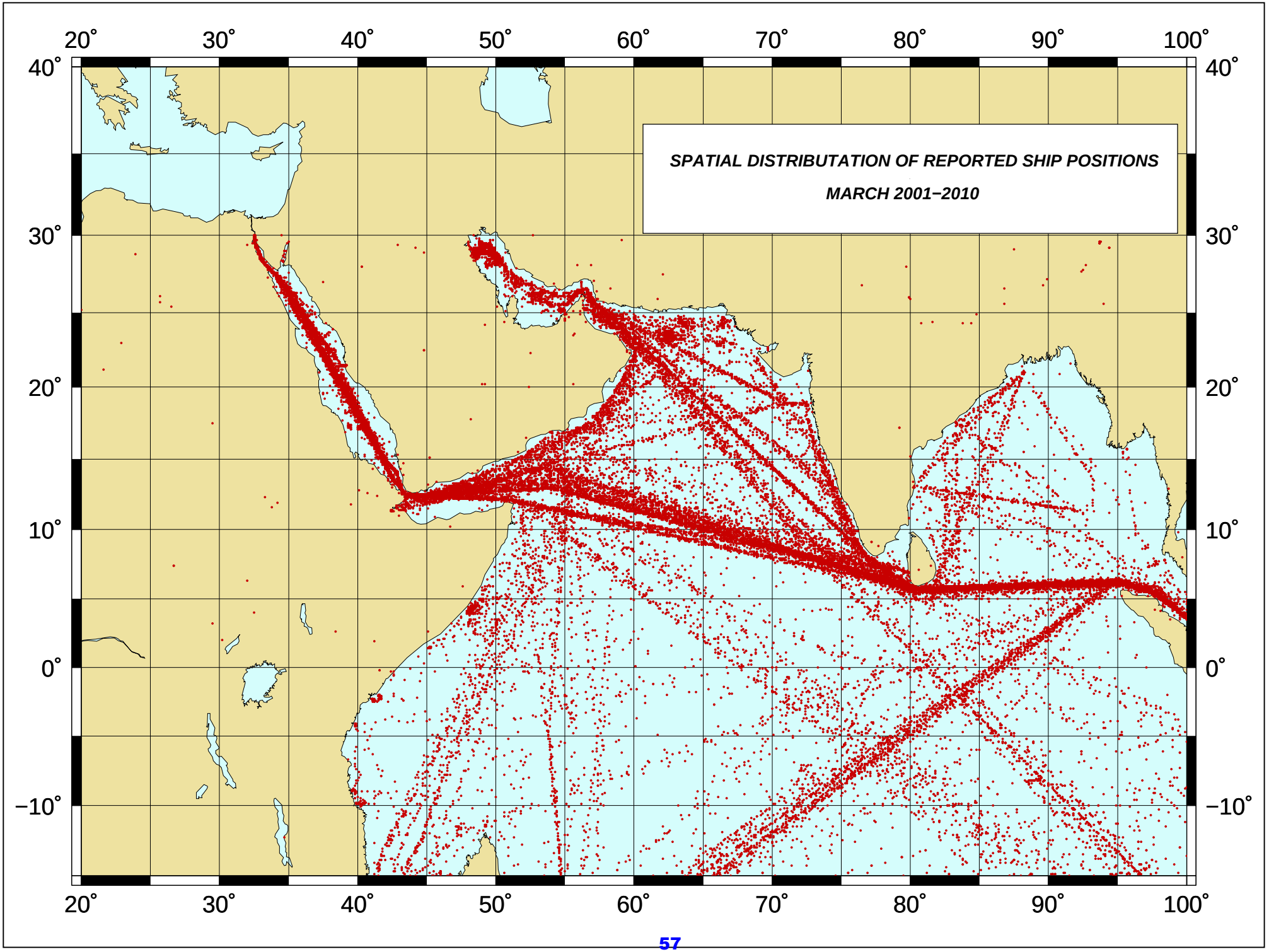


CHART 03.XVIII
STANDARD DEVIATION OF POSITIONS
MARCH 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 601
0.5 0.3 512
0.4 0.4 1749
1.2 1.7 839
0.6 0.9 494
1.4 0.9 1621
1.4 1.4 728
1.3 1.3 1279
1.5 1.4 357
0.3 0.9 16
0.3 0.4 57
0.6 0.4 574
1.0 0.6 1102
0.6 0.9 253
1.3 1.3 602
1.1 1.3 321
1.3 1.4 652
1.5 1.0 385
1.0 0.8 133
1.4 1.2 189
1.1 0.9 32
0.2 0.1 26
1.0 0.9 1161
0.4 1.4 1665
1.1 1.4 1454
1.1 1.5 1252
1.0 1.4 965
1.7 1.6 485
1.4 1.5 744
0.5 1.2 103
1.1 1.3 335
1.3 1.5 236
1.2 1.2 122
1.3 0.8 17
0.6 0.5 26
1.5 1.3 248
1.3 1.5 185
1.5 1.4 295
0.6 1.4 837
0.7 1.4 1241
1.0 1.5 1885
0.9 1.4 1611
0.4 1.5 1365
0.7 1.4 1462
0.7 1.1 899
1.3 1.2 269
1.4 1.5 184
1.4 1.3 57
1.3 1.4 75
1.3 1.3 119
1.3 1.5 52
1.5 1.3 147
1.6 1.4 152
1.1 1.4 325
1.2 1.0 200
0.5 0.6 350
1.0 1.0 75
1.4 1.1 141
1.5 1.4 83
1.3 1.3 78
1.1 1.4 19
1.6 1.3 60
1.2 1.4 191
1.6 1.6 171
1.2 1.4 426
1.7 1.2 183
1.4 1.4 54
1.0 1.4 51
1.0 0.1 33
1.1 1.9 86
1.4 1.2 123
1.5 1.3 73
1.3 1.2 69
1.3 1.3 21
1.5 1.6 48
1.0 1.2 208
1.1 1.4 392
1.4 1.4 122
1.2 1.2 213
1.2 1.2 96
1.6 1.4 56
1.4 1.1 152
1.6 1.3 126
1.5 1.6 79
1.4 1.2 50
1.3 1.3 62
1.2 1.3 303
1.1 1.1 151
1.7 1.4 31
1.4 1.4 103
1.3 1.4 146
1.4 1.3 270
1.3 1.1 121


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
MARCH 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF APRIL 2001-2010

Marine Climatological Summary Charts 2001-2010

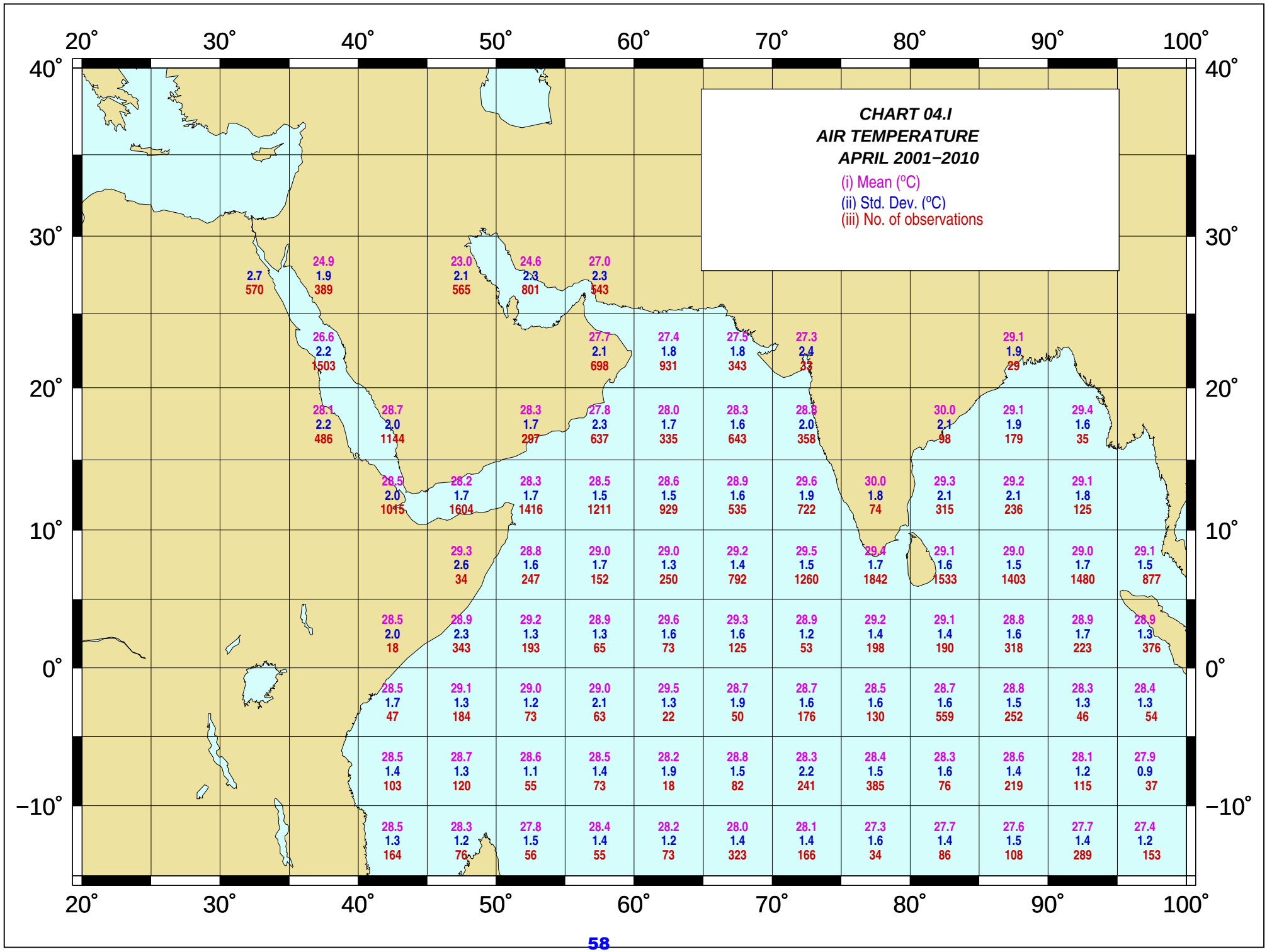


CHART 04.I
AIR TEMPERATURE
APRIL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.7 570
24.9 1.9 389
23.0 2.1 565
24.6 2.3 801
27.0 2.3 543
26.6 2.2 1503
27.7 2.1 698
27.4 1.8 931
27.5 1.8 343
27.3 2.4
29.1 1.9 29
28.1 2.2 486
28.7 2.0 1144
28.3 1.7 297
27.8 2.3 637
28.0 1.7 335
28.3 1.6 643
28.9 2.0 358
30.0 2.1 98
29.1 1.9 179
29.4 1.6 35
28.5 2.0 1015
28.2 1.7 1604
28.3 1.7 1416
28.5 1.5 1211
28.6 1.5 929
28.9 1.6 535
29.6 1.9 722
30.0 1.8 74
29.3 2.1 315
29.2 2.1 236
29.1 1.8 125
29.3 2.6 34
28.8 1.6 247
29.0 1.7 152
29.0 1.3 250
29.2 1.4 792
29.5 1.5 1260
29.4 1.7 1842
29.1 1.6 1533
29.0 1.5 1403
29.0 1.7 1480
29.1 1.5 877
28.5 2.0 18
28.9 2.3 343
29.2 1.3 193
28.9 1.3 65
29.6 1.6 73
29.3 1.6 125
28.9 1.2 53
29.2 1.4 198
29.1 1.4 190
28.8 1.6 318
28.9 1.7 223
28.9 1.3 376
28.5 1.7 47
29.1 1.3 184
29.0 1.2 73
29.0 2.1 63
29.5 1.3 22
28.7 1.9 50
28.7 1.6 176
28.5 1.6 130
28.7 1.6 559
28.8 1.5 252
28.3 1.3 46
28.4 1.3 54
28.5 1.4 103
28.7 1.3 120
28.6 1.1 55
28.5 1.4 73
28.2 1.9 18
28.8 1.5 82
28.3 2.2 241
28.4 1.5 385
28.3 1.6 76
28.6 1.4 219
28.1 1.2 115
27.9 0.9 37
28.5 1.3 164
28.3 1.2 76
27.8 1.5 56
28.4 1.4 55
28.2 1.2 73
28.0 1.4 323
28.1 1.4 166
27.3 1.6 34
27.7 1.4 86
27.6 1.5 108
27.7 1.4 289
27.4 1.2 153

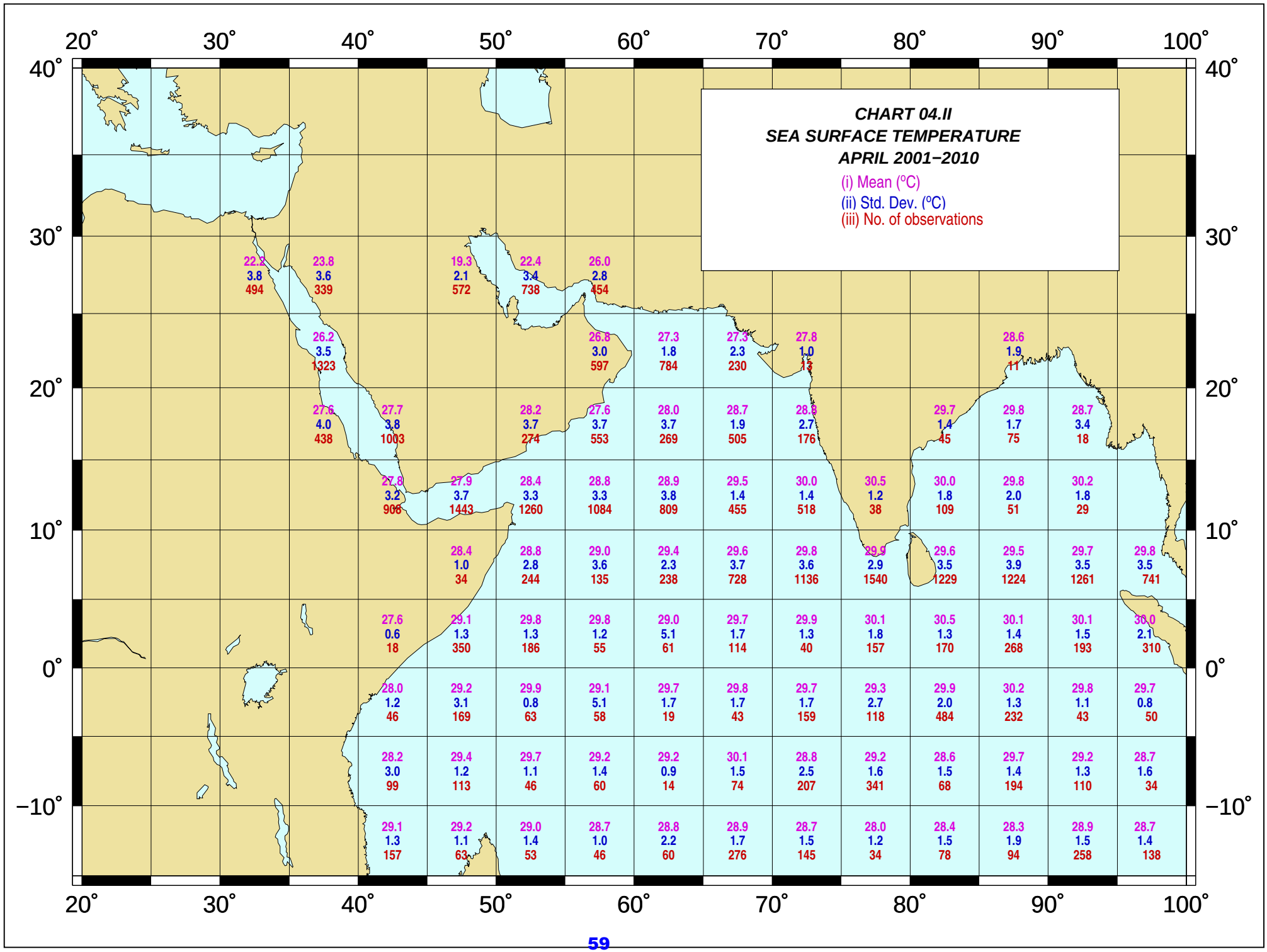


CHART 04.II
SEA SURFACE TEMPERATURE
APRIL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
22.2 3.8 494
23.8 3.6 339
19.3 2.1 572
22.4 3.4 738
26.0 2.8 454
26.2 3.5 1323
26.8 3.0 597
27.3 1.8 784
27.3 2.3 230
27.8 1.0 13
28.6 1.9 11
27.6 4.0 438
27.7 3.8 1003
28.2 3.7 274
27.6 3.7 553
28.0 3.7 269
28.7 1.9 505
28.9 2.7 176
29.7 1.4 45
29.8 1.7 75
28.7 3.4 18
27.8 3.2 906
27.9 3.7 1443
28.4 3.3 1260
28.8 3.3 1084
28.9 3.8 809
29.5 1.4 455
30.0 1.4 518
30.5 1.2 38
30.0 1.8 109
29.8 2.0 51
30.2 1.8 29
28.4 1.0 34
28.8 2.8 244
29.0 3.6 135
29.4 2.3 238
29.6 3.7 728
29.8 3.6 1136
29.9 2.9 1540
29.6 3.5 1229
29.5 3.9 1224
29.7 3.5 1261
29.8 3.5 741
27.6 0.6 18
29.1 1.3 350
29.8 1.3 186
29.8 1.2 55
29.0 5.1 61
29.7 1.7 114
29.9 1.3 40
30.1 1.8 157
30.5 1.3 170
30.1 1.4 268
30.1 1.5 193
30.0 2.1 310
28.0 1.2 46
29.2 3.1 169
29.9 0.8 63
29.1 5.1 58
29.7 1.7 19
29.8 1.7 43
29.7 1.7 159
29.3 2.7 118
29.9 2.0 484
30.2 1.3 232
29.8 1.1 43
29.7 0.8 50
28.2 3.0 99
29.4 1.2 113
29.7 1.1 46
29.2 1.4 60
29.2 0.9 14
30.1 1.5 74
28.8 2.5 207
29.2 1.6 341
28.6 1.5 68
29.7 1.4 194
29.2 1.3 110
28.7 1.6 34
29.1 1.3 157
29.2 1.1 63
29.0 1.4 53
28.7 1.0 46
28.8 2.2 60
28.9 1.7 276
28.7 1.5 145
28.0 1.2 34
28.4 1.5 78
28.3 1.9 94
28.9 1.5 258
28.7 1.4 138

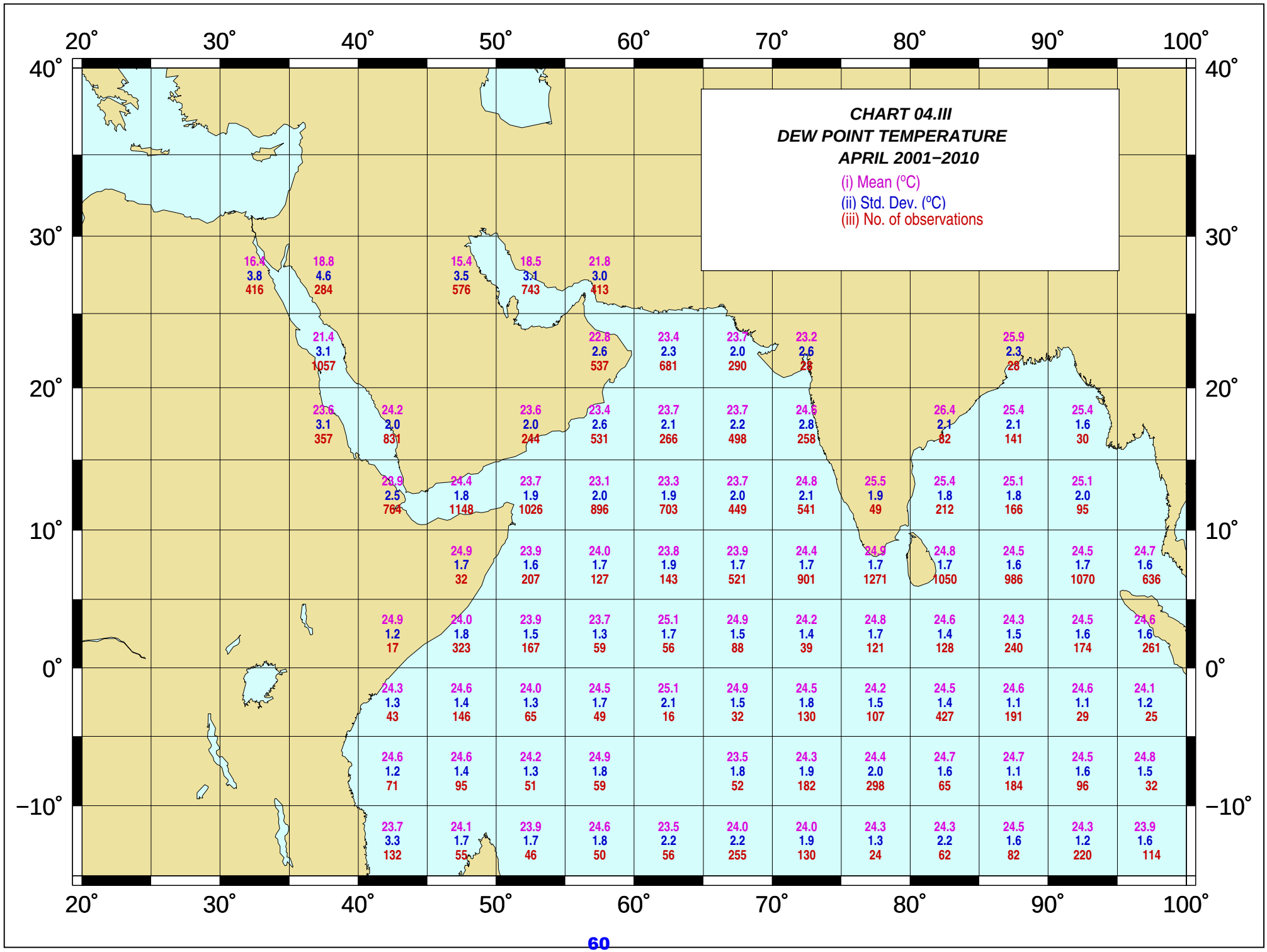


CHART 04.III
DEW POINT TEMPERATURE
APRIL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
16.4 3.8 416
18.8 4.6 284
15.4 3.5 576
18.5 3.1 743
21.8 3.0 413
21.4 3.1 1057
22.8 2.6 537
23.4 2.3 681
23.7 2.0 290
23.2 2.6 26
25.9 2.3 28
23.6 3.1 357
24.2 2.0 831
23.6 2.0 244
23.4 2.6 531
23.7 2.1 266
23.7 2.2 498
24.6 2.8 258
26.4 2.1 82
25.4 2.1 141
25.4 1.6 30
23.9 2.5 764
24.4 1.8 1148
23.7 1.9 1026
23.1 2.0 896
23.3 1.9 703
23.7 2.0 449
24.8 2.1 541
25.5 1.9 49
25.4 1.8 212
25.1 1.8 166
25.1 2.0 95
24.9 1.7 32
23.9 1.6 207
24.0 1.7 127
23.8 1.9 143
23.9 1.7 521
24.4 1.7 901
24.9 1.7 1271
24.8 1.7 1050
24.5 1.6 986
24.5 1.7 1070
24.7 1.6 636
24.9 1.2 17
24.0 1.8 323
23.9 1.5 167
23.7 1.3 59
25.1 1.7 56
24.9 1.5 88
24.2 1.4 39
24.8 1.7 121
24.6 1.4 128
24.3 1.5 240
24.5 1.6 174
24.6 1.6 261
24.3 1.3 43
24.6 1.4 146
24.0 1.3 65
24.5 1.7 49
25.1 2.1 16
24.9 1.5 32
24.5 1.8 130
24.2 1.5 107
24.5 1.4 427
24.6 1.1 191
24.6 1.1 29
24.1 1.2 25
24.6 1.2 71
24.6 1.4 95
24.2 1.3 51
24.9 1.8 59
23.5 1.8 52
24.3 1.9 182
24.4 2.0 298
24.7 1.6 65
24.7 1.1 184
24.5 1.6 96
24.8 1.5 32
23.7 3.3 132
24.1 1.7 55
23.9 1.7 46
24.6 1.8 50
23.5 2.2 56
24.0 2.2 255
24.0 1.9 130
24.3 1.3 24
24.3 2.2 62
24.5 1.6 82
24.3 1.2 220
23.9 1.6 114

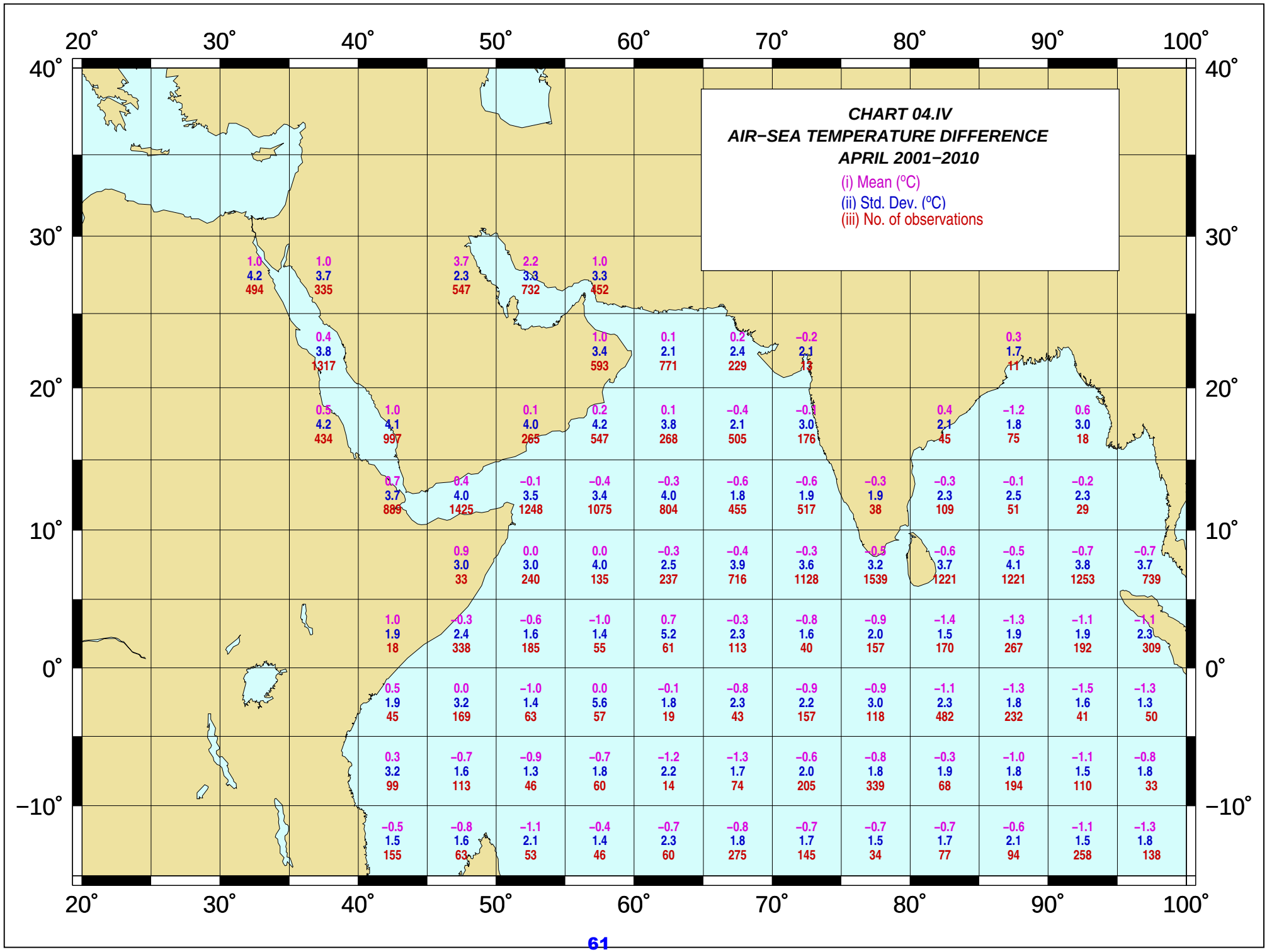
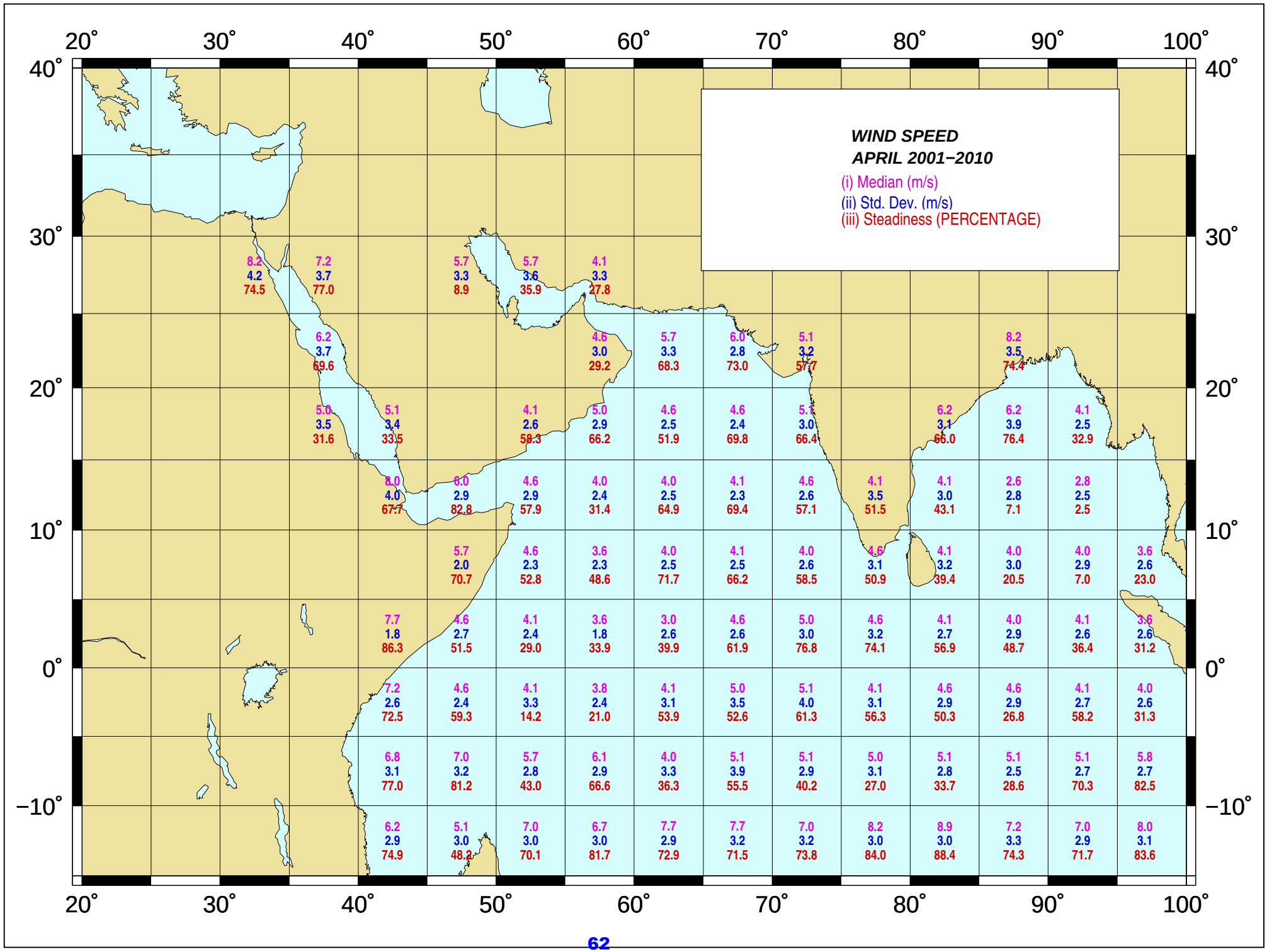


CHART 04.IV
AIR–SEA TEMPERATURE DIFFERENCE
APRIL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 4.2 494
1.0 3.7 335
3.7 2.3 547
2.2 3.3 732
1.0 3.3 452
0.4 3.8 1317
1.0 3.4 593
0.1 2.1 771
0.2 2.4 229
−0.2 2.1 13
0.3 1.7 11
0.5 4.2 434
1.0 4.1 997
0.1 4.0 265
0.2 4.2 547
0.1 3.8 268
−0.4 2.1 505
−0.3 3.0 176
0.4 2.1 45
−1.2 1.8 75
0.6 3.0 18
0.7 3.7 889
0.4 4.0 1425
−0.1 3.5 1248
−0.4 3.4 1075
−0.3 4.0 804
−0.6 1.8 455
−0.6 1.9 517
−0.3 1.9 38
−0.3 2.3 109
−0.1 2.5 51
−0.2 2.3 29
0.9 3.0 33
0.0 3.0 240
0.0 4.0 135
−0.3 2.5 237
−0.4 3.9 716
−0.3 3.6 1128
−0.5 3.2 1539
−0.6 3.7 1221
−0.5 4.1 1221
−0.7 3.8 1253
−0.7 3.7 739
1.0 1.9 18
−0.3 2.4 338
−0.6 1.6 185
−1.0 1.4 55
0.7 5.2 61
−0.3 2.3 113
−0.8 1.6 40
−0.9 2.0 157
−1.4 1.5 170
−1.3 1.9 267
−1.1 1.9 192
−1.1 2.3 309
0.5 1.9 45
0.0 3.2 169
−1.0 1.4 63
0.0 5.6 57
−0.1 1.8 19
−0.8 2.3 43
−0.9 2.2 157
−0.9 3.0 118
−1.1 2.3 482
−1.3 1.8 232
−1.5 1.6 41
−1.3 1.3 50
0.3 3.2 99
−0.7 1.6 113
−0.9 1.3 46
−0.7 1.8 60
−1.2 2.2 14
−1.3 1.7 74
−0.6 2.0 205
−0.8 1.8 339
−0.3 1.9 68
−1.0 1.8 194
−1.1 1.5 110
−0.8 1.8 33
−0.5 1.5 155
−0.8 1.6 63
−1.1 2.1 53
−0.4 1.4 46
−0.7 2.3 60
−0.8 1.8 275
−0.7 1.7 145
−0.7 1.5 34
−0.7 1.7 77
−0.6 2.1 94
−1.1 1.5 258
−1.3 1.8 138


WIND SPEED
APRIL 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.2 4.2 74.5
7.2 3.7 77.0
5.7 3.3 8.9
5.7 3.6 35.9
4.1 3.3 27.8
6.2 3.7 69.6
4.6 3.0 29.2
5.7 3.3 68.3
6.0 2.8 73.0
5.1 3.2 57.7
8.2 3.5 74.4
5.0 3.5 31.6
5.1 3.4 33.5
4.1 2.6 58.3
5.0 2.9 66.2
4.6 2.5 51.9
4.6 2.4 69.8
5.1 3.0 66.4
6.2 3.1 66.0
6.2 3.9 76.4
4.1 2.5 32.9
8.0 4.0 67.7
6.0 2.9 82.8
4.6 2.9 57.9
4.0 2.4 31.4
4.0 2.5 64.9
4.1 2.3 69.4
4.6 2.6 57.1
4.1 3.5 51.5
4.1 3.0 43.1
2.6 2.8 7.1
2.8 2.5 2.5
5.7 2.0 70.7
4.6 2.3 52.8
3.6 2.3 48.6
4.0 2.5 71.7
4.1 2.5 66.2
4.0 2.6 58.5
4.6 3.1 50.9
4.1 3.2 39.4
4.0 3.0 20.5
4.0 2.9 7.0
3.6 2.6 23.0
7.7 1.8 86.3
4.6 2.7 51.5
4.1 2.4 29.0
3.6 1.8 33.9
3.0 2.6 39.9
4.6 2.6 61.9
5.0 3.0 76.8
4.6 3.2 74.1
4.1 2.7 56.9
4.0 2.9 48.7
4.1 2.6 36.4
3.6 2.6 31.2
7.2 2.6 72.5
4.6 2.4 59.3
4.1 3.3 14.2
3.8 2.4 21.0
4.1 3.1 53.9
5.0 3.5 52.6
5.1 4.0 61.3
4.1 3.1 56.3
4.6 2.9 50.3
4.6 2.9 26.8
4.1 2.7 58.2
4.0 2.6 31.3
6.8 3.1 77.0
7.0 3.2 81.2
5.7 2.8 43.0
6.1 2.9 66.6
4.0 3.3 36.3
5.1 3.9 55.5
5.1 2.9 40.2
5.0 3.1 27.0
5.1 2.8 33.7
5.1 2.5 28.6
5.1 2.7 70.3
5.8 2.7 82.5
6.2 2.9 74.9
5.1 3.0 48.2
7.0 3.0 70.1
6.7 3.0 81.7
7.7 2.9 72.9
7.7 3.2 71.5
7.0 3.2 73.8
8.2 3.0 84.0
8.9 3.0 88.4
7.2 3.3 74.3
7.0 2.9 71.7
8.0 3.1 83.6

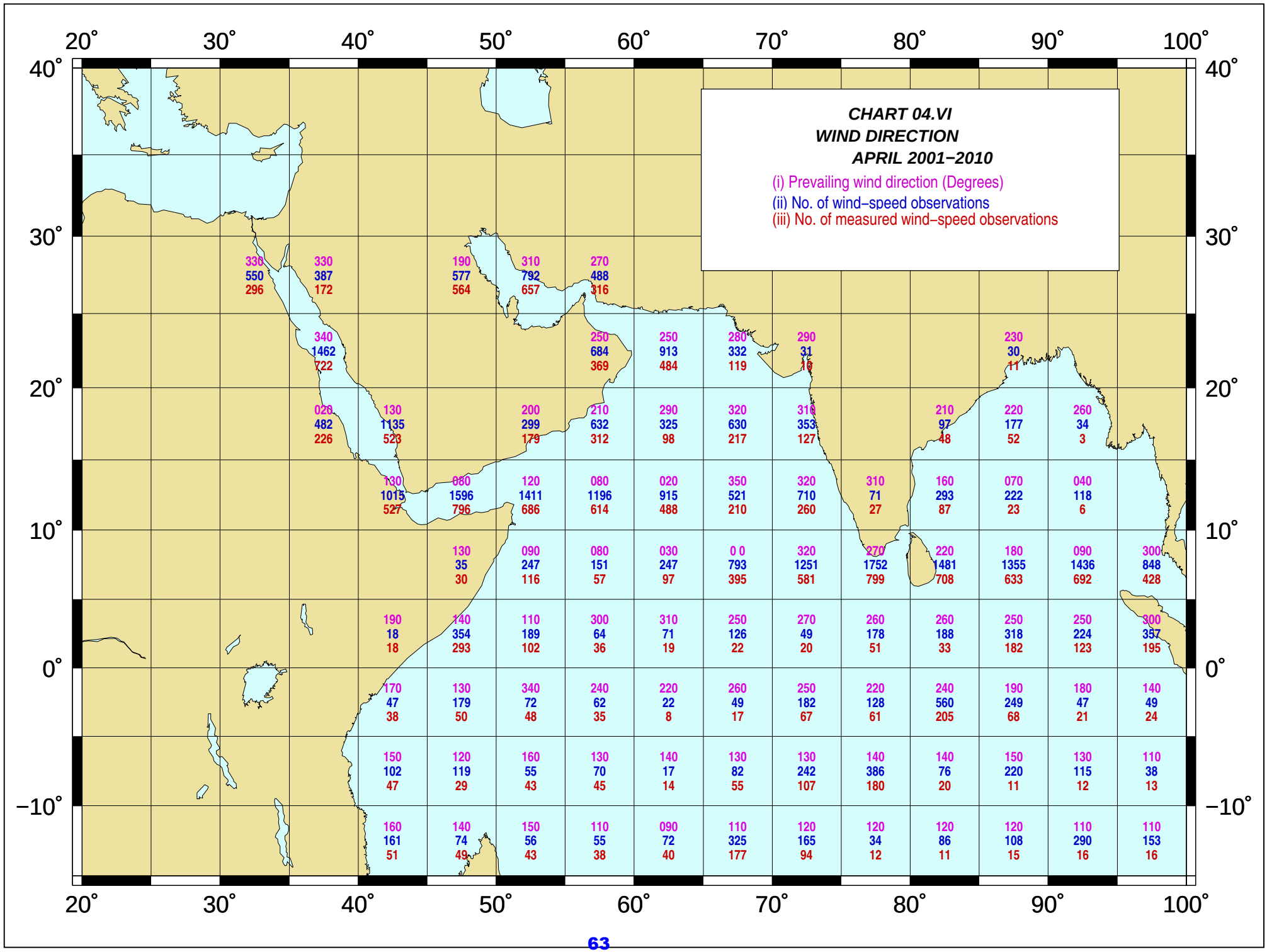


CHART 04.VI
WIND DIRECTION
APRIL 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 550 296
330 387 172
190 577 564
310 792 657
270 488 316
340 1462 722
250 684 369
250 913 484
280 332 119
290 31 16
230 30 11
020 482 226
130 1135 523
200 299 179
210 632 312
290 325 98
320 630 217
310 353 127
210 97 48
220 177 52
260 34 3
130 1015 527
080 1596 796
120 1411 686
080 1196 614
020 915 488
350 521 210
320 710 260
310 71 27
160 293 87
070 222 23
040 118 6
130 35 30
090 247 116
080 151 57
030 247 97
0 0 793 395
320 1251 581
270 1752 799
220 1481 708
180 1355 633
090 1436 692
300 848 428
190 18 18
140 354 293
110 189 102
300 64 36
310 71 19
250 126 22
270 49 20
260 178 51
260 188 33
250 318 182
250 224 123
300 337 195
170 47 38
130 179 50
340 72 48
240 62 35
220 22 8
260 49 17
250 182 67
220 128 61
240 560 205
190 249 68
180 47 21
140 49 24
150 102 47
120 119 29
160 55 43
130 70 45
140 17 14
130 82 55
130 242 107
140 386 180
140 76 20
150 220 11
130 115 12
110 38 13
160 161 51
140 74 49
150 56 43
110 55 38
090 72 40
110 325 177
120 165 94
120 34 12
120 86 11
120 108 15
110 290 16
110 153 16

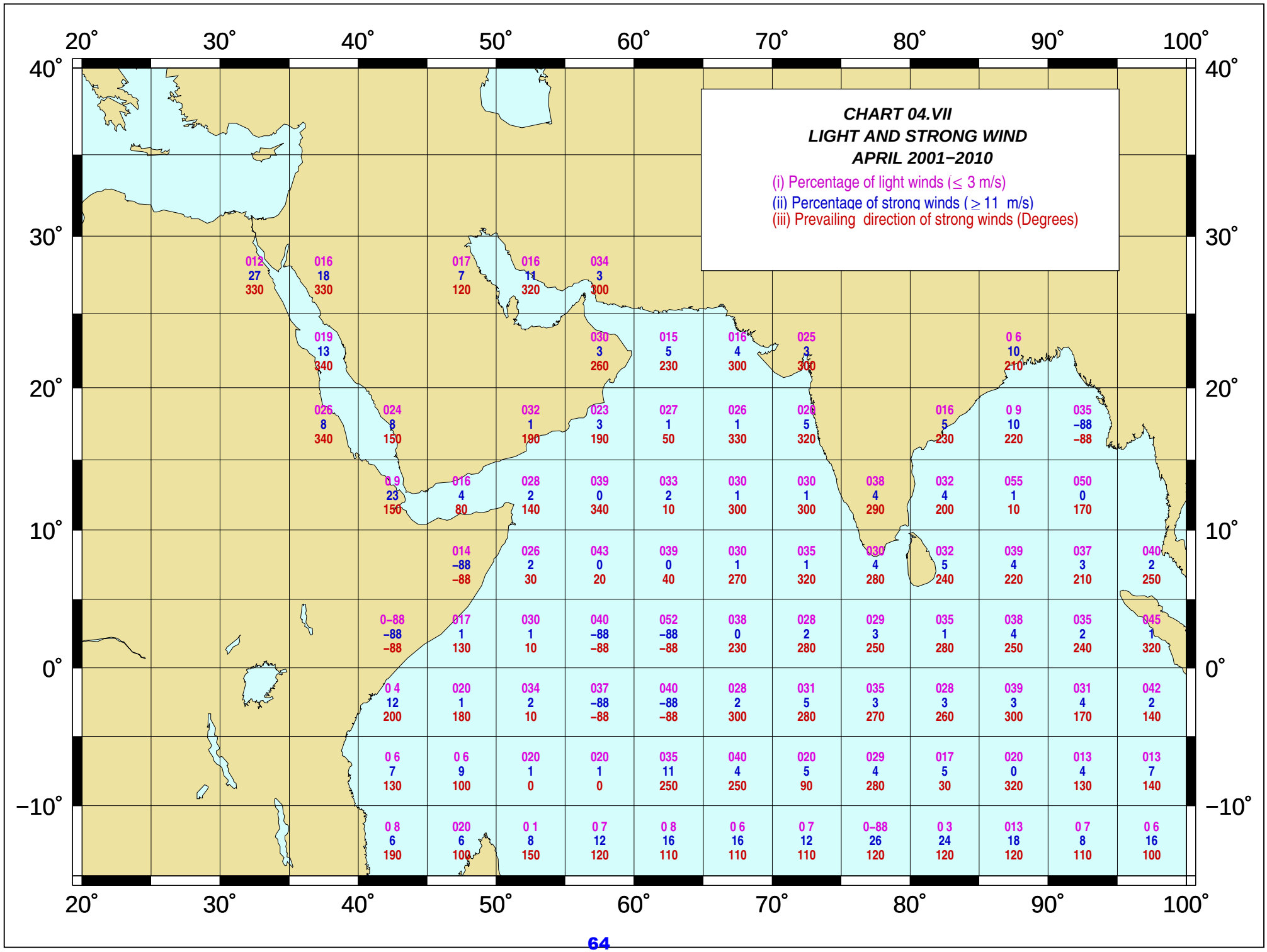


CHART 04.VII
LIGHT AND STRONG WIND
APRIL 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
012 27 330
016 18 330
017 7 120
016 11 320
034 3 300
019 13 340
030 3 260
015 5 230
016 4 300
025 3 300
0 6 10 210
026 8 340
024 8 150
032 1 190
023 3 190
027 1 50
026 1 330
026 5 320
016 5 230
0 9 10 220
035 −88 −88
0 9 23 150
016 4 80
028 2 140
039 0 340
033 2 10
030 1 300
030 1 300
038 4 290
032 4 200
055 1 10
050 0 170
014 −88 −88
026 2 30
043 0 20
039 0 40
030 1 270
035 1 320
030 4 280
032 5 240
039 4 220
037 3 210
040 2 250
0−88 −88 −88
017 1 130
030 1 10
040 −88 −88
052 −88 −88
038 0 230
028 2 280
029 3 250
035 1 280
038 4 250
035 2 240
045 1 320
0 4 12 200
020 1 180
034 2 10
037 −88 −88
040 −88 −88
028 2 300
031 5 280
035 3 270
028 3 260
039 3 300
031 4 170
042 2 140
0 6 7 130
0 6 9 100
020 1 0
020 1 0
035 11 250
040 4 250
020 5 90
029 4 280
017 5 30
020 0 320
013 4 130
013 7 140
0 8 6 190
020 6 100
0 1 8 150
0 7 12 120
0 8 16 110
0 6 16 110
0 7 12 110
0−88 26 120
0 3 24 120
013 18 120
0 7 8 110
0 6 16 100

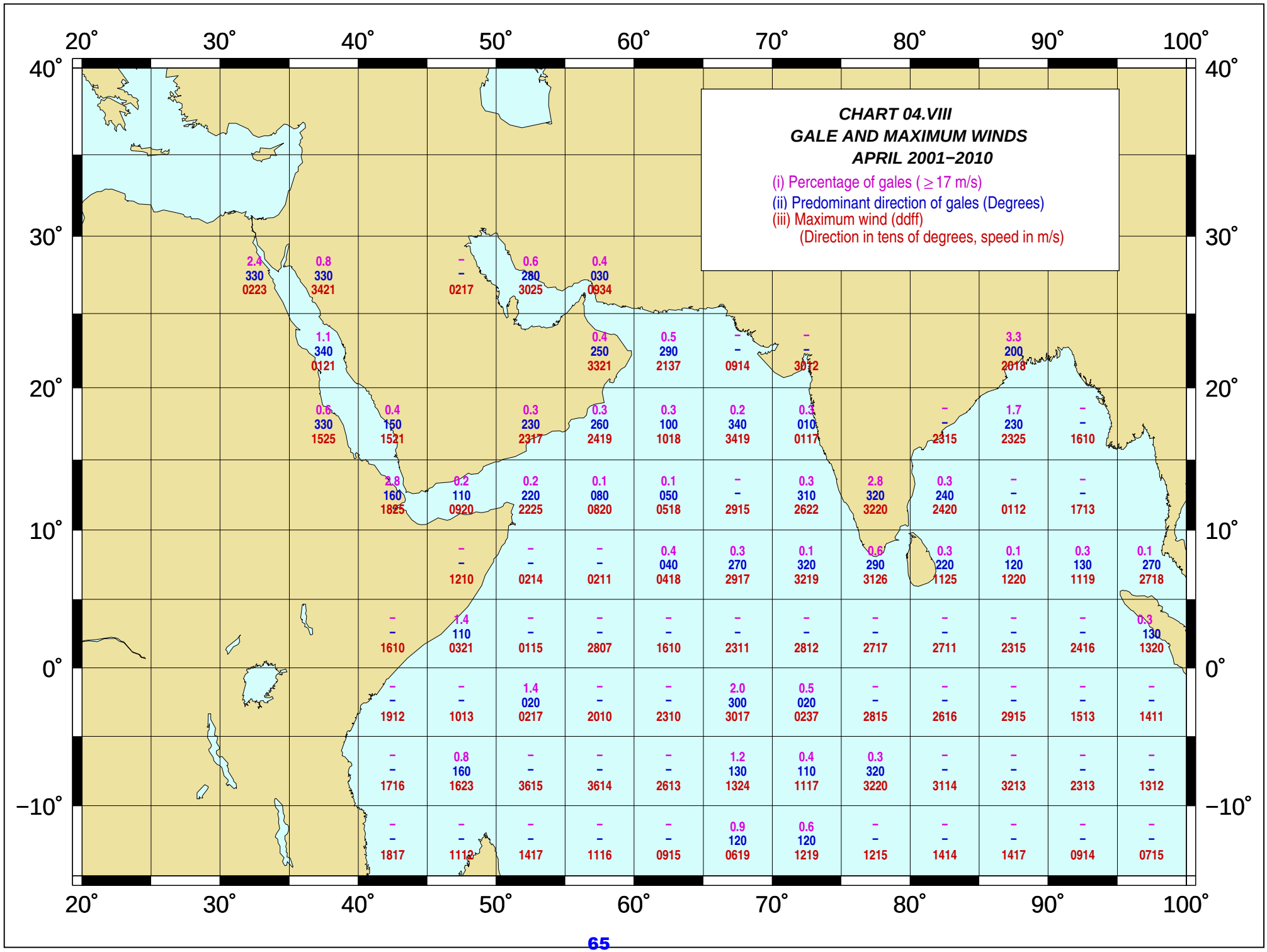


CHART 04.VIII
GALE AND MAXIMUM WINDS
APRIL 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.4 330 0223
0.8 330 3421
– – 0217
0.6 280 3025
0.4 030 0934
1.1 340 0121
0.4 250 3321
0.5 290 2137
– – 0914
– – 3012
3.3 200 2018
0.6 330 1525
0.4 150 1521
0.3 230 2317
0.3 260 2419
0.3 100 1018
0.2 340 3419
0.3 010 0117
– – 2315
1.7 230 2325
– – 1610
2.8 160 1825
0.2 110 0920
0.2 220 2225
0.1 080 0820
0.1 050 0518
– – 2915
0.3 310 2622
2.8 320 3220
0.3 240 2420
– – 0112
– – 1713
– – 1210
– – 0214
– – 0211
0.4 040 0418
0.3 270 2917
0.1 320 3219
0.6 290 3126
0.3 220 1125
0.1 120 1220
0.3 130 1119
0.1 270 2718
– – 1610
1.4 110 0321
– – 0115
– – 2807
– – 1610
– – 2311
– – 2812
– – 2717
– – 2711
– – 2315
– – 2416
0.3 130 1320
– – 1912
– – 1013
1.4 020 0217
– – 2010
– – 2310
2.0 300 3017
0.5 020 0237
– – 2815
– – 2616
– – 2915
– – 1513
– – 1411
– – 1716
0.8 160 1623
– – 3615
– – 3614
– – 2613
1.2 130 1324
0.4 110 1117
0.3 320 3220
– – 3114
– – 3213
– – 2313
– – 1312
– – 1817
– – 1112
– – 1417
– – 1116
– – 0915
0.9 120 0619
0.6 120 1219
– – 1215
– – 1414
– – 1417
– – 0914
– – 0715

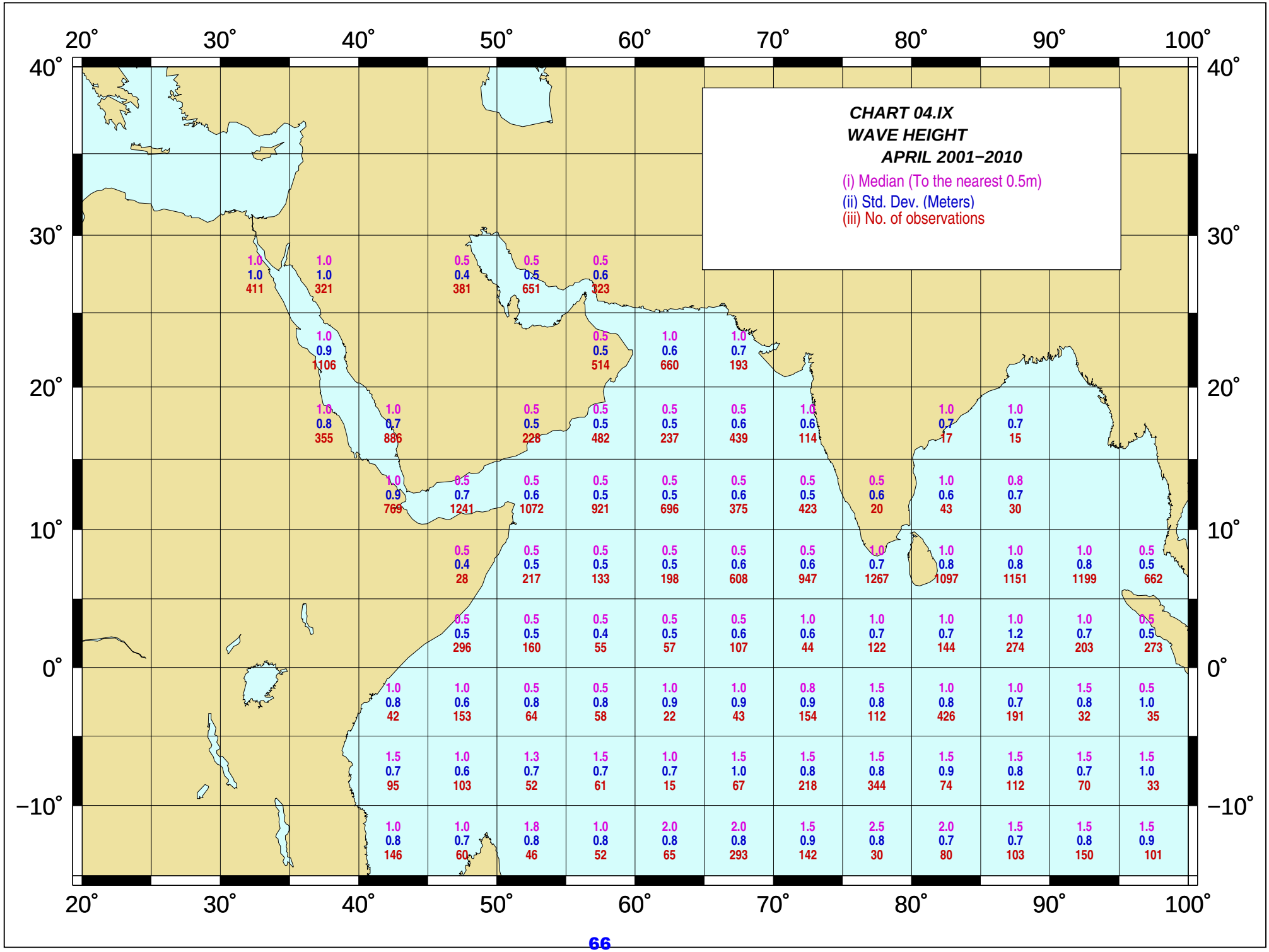


CHART 04.IX
WAVE HEIGHT
APRIL 2001−2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 1.0 411
1.0 1.0 321
0.5 0.4 381
0.5 0.5 651
0.5 0.6 323
1.0 0.9 1106
0.5 0.5 514
1.0 0.6 660
1.0 0.7 193
1.0 0.8 355
1.0 0.7 886
0.5 0.5 228
0.5 0.5 482
0.5 0.5 237
0.5 0.6 439
1.0 0.6 114
1.0 0.7 17
1.0 0.7 15
1.0 0.9 769
0.5 0.7 1241
0.5 0.6 1072
0.5 0.5 921
0.5 0.5 696
0.5 0.6 375
0.5 0.5 423
0.5 0.6 20
1.0 0.6 43
0.8 0.7 30
0.5 0.4 28
0.5 0.5 217
0.5 0.5 133
0.5 0.5 198
0.5 0.6 608
0.5 0.6 947
1.0 0.7 1267
1.0 0.8 1097
1.0 0.8 1151
1.0 0.8 1199
0.5 0.5 662
0.5 0.5 296
0.5 0.5 160
0.5 0.4 55
0.5 0.5 57
0.5 0.6 107
1.0 0.6 44
1.0 0.7 122
1.0 0.7 144
1.0 1.2 274
1.0 0.7 203
0.5 0.5 273
1.0 0.8 42
1.0 0.6 153
0.5 0.8 64
0.5 0.8 58
1.0 0.9 22
1.0 0.9 43
0.8 0.9 154
1.5 0.8 112
1.0 0.8 426
1.0 0.7 191
1.5 0.8 32
0.5 1.0 35
1.5 0.7 95
1.0 0.6 103
1.3 0.7 52
1.5 0.7 61
1.0 0.7 15
1.5 1.0 67
1.5 0.8 218
1.5 0.8 344
1.5 0.9 74
1.5 0.8 112
1.5 0.7 70
1.5 1.0 33
1.0 0.8 146
1.0 0.7 60
1.8 0.8 46
1.0 0.8 52
2.0 0.8 65
2.0 0.8 293
1.5 0.9 142
2.5 0.8 30
2.0 0.7 80
1.5 0.7 103
1.5 0.8 150
1.5 0.9 101

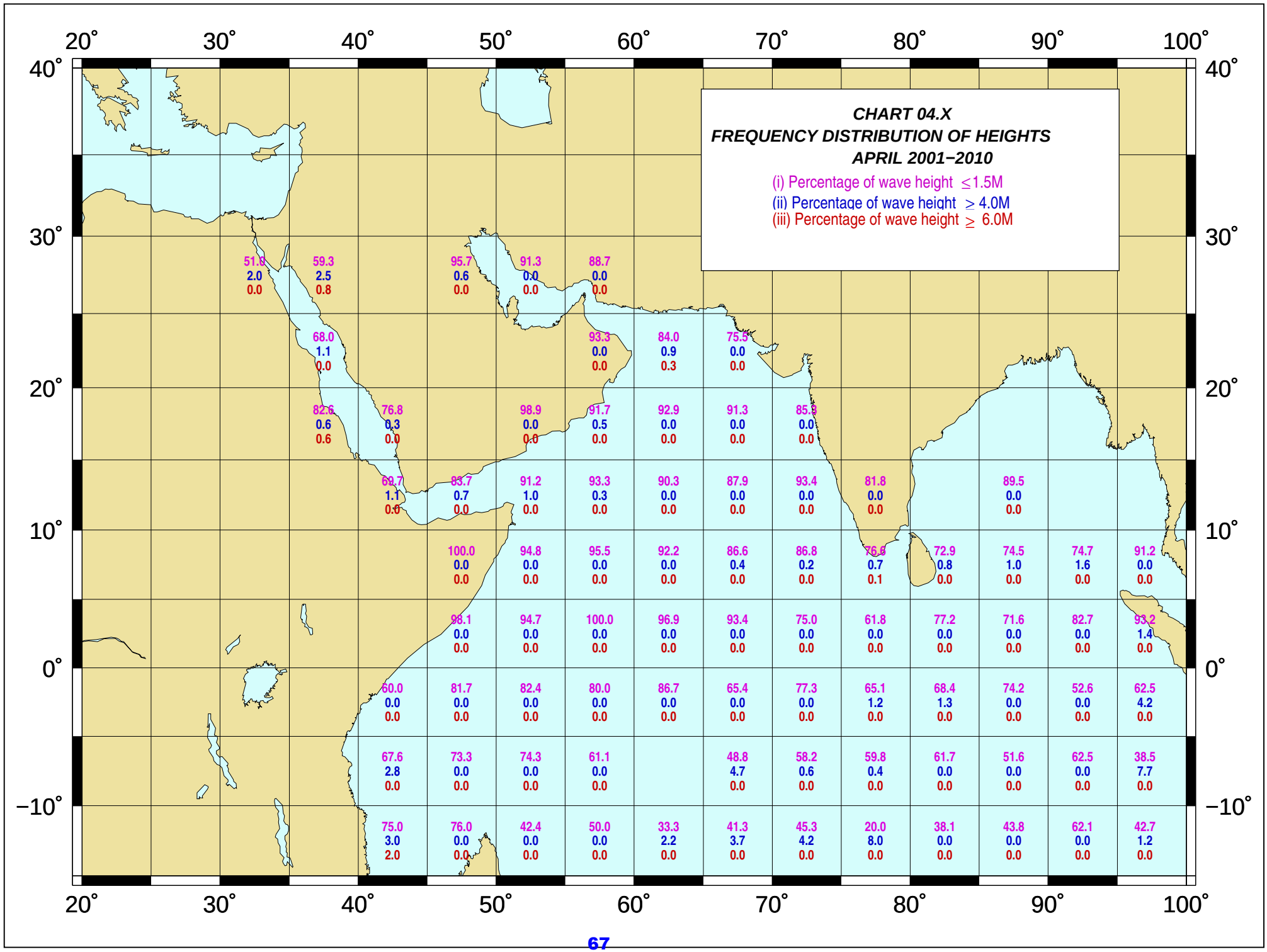


CHART 04.X
FREQUENCY DISTRIBUTION OF HEIGHTS
APRIL 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
51.8 2.0 0.0
59.3 2.5 0.8
95.7 0.6 0.0
91.3 0.0 0.0
88.7 0.0 0.0
68.0 1.1 0.0
93.3 0.0 0.0
84.0 0.9 0.3
75.5 0.0 0.0
82.6 0.6 0.6
76.8 0.3 0.0
98.9 0.0 0.0
91.7 0.5 0.0
92.9 0.0 0.0
91.3 0.0 0.0
85.3 0.0 0.0
69.7 1.1 0.6
83.7 0.7 0.0
91.2 1.0 0.0
93.3 0.3 0.0
90.3 0.0 0.0
87.9 0.0 0.0
93.4 0.0 0.0
81.8 0.0 0.0
89.5 0.0 0.0
100.0 0.0 0.0
94.8 0.0 0.0
95.5 0.0 0.0
92.2 0.0 0.0
86.6 0.4 0.0
86.8 0.2 0.0
76.9 0.7 0.1
72.9 0.8 0.0
74.5 1.0 0.0
74.7 1.6 0.0
91.2 0.0 0.0
98.1 0.0 0.0
94.7 0.0 0.0
100.0 0.0 0.0
96.9 0.0 0.0
93.4 0.0 0.0
75.0 0.0 0.0
61.8 0.0 0.0
77.2 0.0 0.0
71.6 0.0 0.0
82.7 0.0 0.0
93.2 1.4 0.0
60.0 0.0 0.0
81.7 0.0 0.0
82.4 0.0 0.0
80.0 0.0 0.0
86.7 0.0 0.0
65.4 0.0 0.0
77.3 0.0 0.0
65.1 1.2 0.0
68.4 1.3 0.0
74.2 0.0 0.0
52.6 0.0 0.0
62.5 4.2 0.0
67.6 2.8 0.0
73.3 0.0 0.0
74.3 0.0 0.0
61.1 0.0 0.0
48.8 4.7 0.0
58.2 0.6 0.0
59.8 0.4 0.0
61.7 0.0 0.0
51.6 0.0 0.0
62.5 0.0 0.0
38.5 7.7 0.0
75.0 3.0 2.0
76.0 0.0 0.0
42.4 0.0 0.0
50.0 0.0 0.0
33.3 2.2 0.0
41.3 3.7 0.0
45.3 4.2 0.0
20.0 8.0 0.0
38.1 0.0 0.0
43.8 0.0 0.0
62.1 0.0 0.0
42.7 1.2 0.0

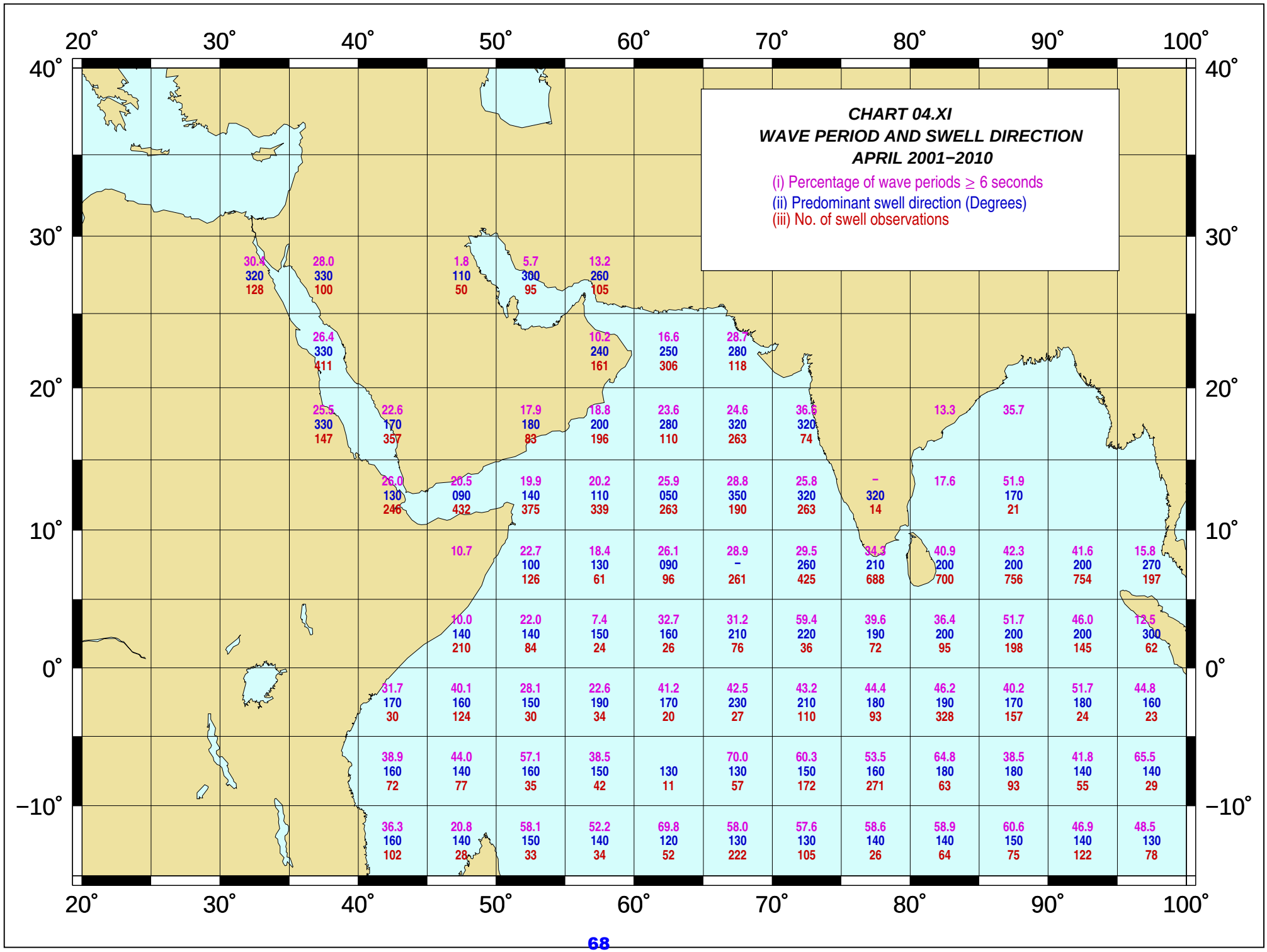


CHART 04.XI
WAVE PERIOD AND SWELL DIRECTION
APRIL 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
30.4 320 128
28.0 330 100
1.8 110 50
5.7 300 95
13.2 260 105
26.4 330 411
10.2 240 161
16.6 250 306
28.7 280 118
25.5 330 147
22.6 170 357
17.9 180 83
18.8 200 196
23.6 280 110
24.6 320 263
36.6 320 74
13.3
35.7
26.0 130 246
20.5 090 432
19.9 140 375
20.2 110 339
25.9 050 263
28.8 350 190
25.8 320 263
– 320 14
17.6
51.9 170 21
10.7
22.7 100 126
18.4 130 61
26.1 090 96
28.9 – 261
29.5 260 425
34.3 210 688
40.9 200 700
42.3 200 756
41.6 200 754
15.8 270 197
10.0 140 210
22.0 140 84
7.4 150 24
32.7 160 26
31.2 210 76
59.4 220 36
39.6 190 72
36.4 200 95
51.7 200 198
46.0 200 145
12.5 300 62
31.7 170 30
40.1 160 124
28.1 150 30
22.6 190 34
41.2 170 20
42.5 230 27
43.2 210 110
44.4 180 93
46.2 190 328
40.2 170 157
51.7 180 24
44.8 160 23
38.9 160 72
44.0 140 77
57.1 160 35
38.5 150 42
130 11
70.0 130 57
60.3 150 172
53.5 160 271
64.8 180 63
38.5 180 93
41.8 140 55
65.5 140 29
36.3 160 102
20.8 140 28
58.1 150 33
52.2 140 34
69.8 120 52
58.0 130 222
57.6 130 105
58.6 140 26
58.9 140 64
60.6 150 75
46.9 140 122
48.5 130 78

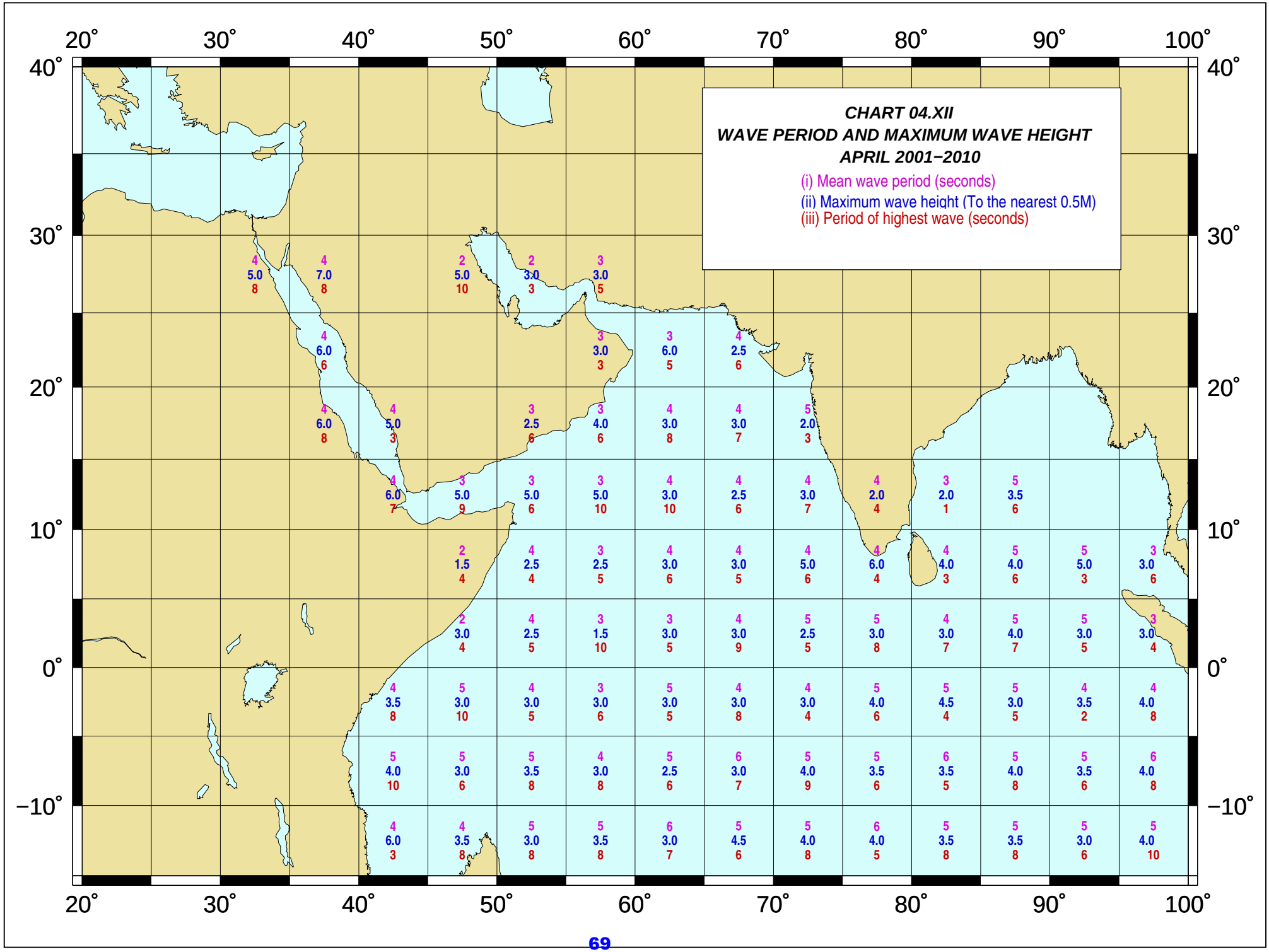


CHART 04.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
APRIL 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 5.0 8
4 7.0 8
2 5.0 10
2 3.0 3
3 3.0 5
4 6.0 6
3 3.0 3
3 6.0 5
4 2.5 6
4 6.0 8
4 5.0 3
3 2.5 6
3 4.0 6
4 3.0 8
4 3.0 7
5 2.0 3
4 6.0 7
3 5.0 9
3 5.0 6
3 5.0 10
4 3.0 10
4 2.5 6
4 3.0 7
4 2.0 4
3 2.0 1
5 3.5 6
2 1.5 4
4 2.5 4
3 2.5 5
4 3.0 6
4 3.0 5
4 5.0 6
4 6.0 4
4 4.0 3
5 4.0 6
5 5.0 3
3 3.0 6
2 3.0 4
4 2.5 5
3 1.5 10
3 3.0 5
4 3.0 9
5 2.5 5
5 3.0 8
4 3.0 7
5 4.0 7
5 3.0 5
3 3.0 4
4 3.5 8
5 3.0 10
4 3.0 5
3 3.0 6
5 3.0 5
4 3.0 8
4 3.0 4
5 4.0 6
5 4.5 4
5 3.0 5
4 3.5 2
4 4.0 8
5 4.0 10
5 3.0 6
5 3.5 8
4 3.0 8
5 2.5 6
6 3.0 7
5 4.0 9
5 3.5 6
6 3.5 5
5 4.0 8
5 3.5 6
6 4.0 8
4 6.0 3
4 3.5 8
5 3.0 8
5 3.5 8
6 3.0 7
5 4.5 6
5 4.0 8
6 4.0 5
5 3.5 8
5 3.5 8
5 3.0 6
5 4.0 10

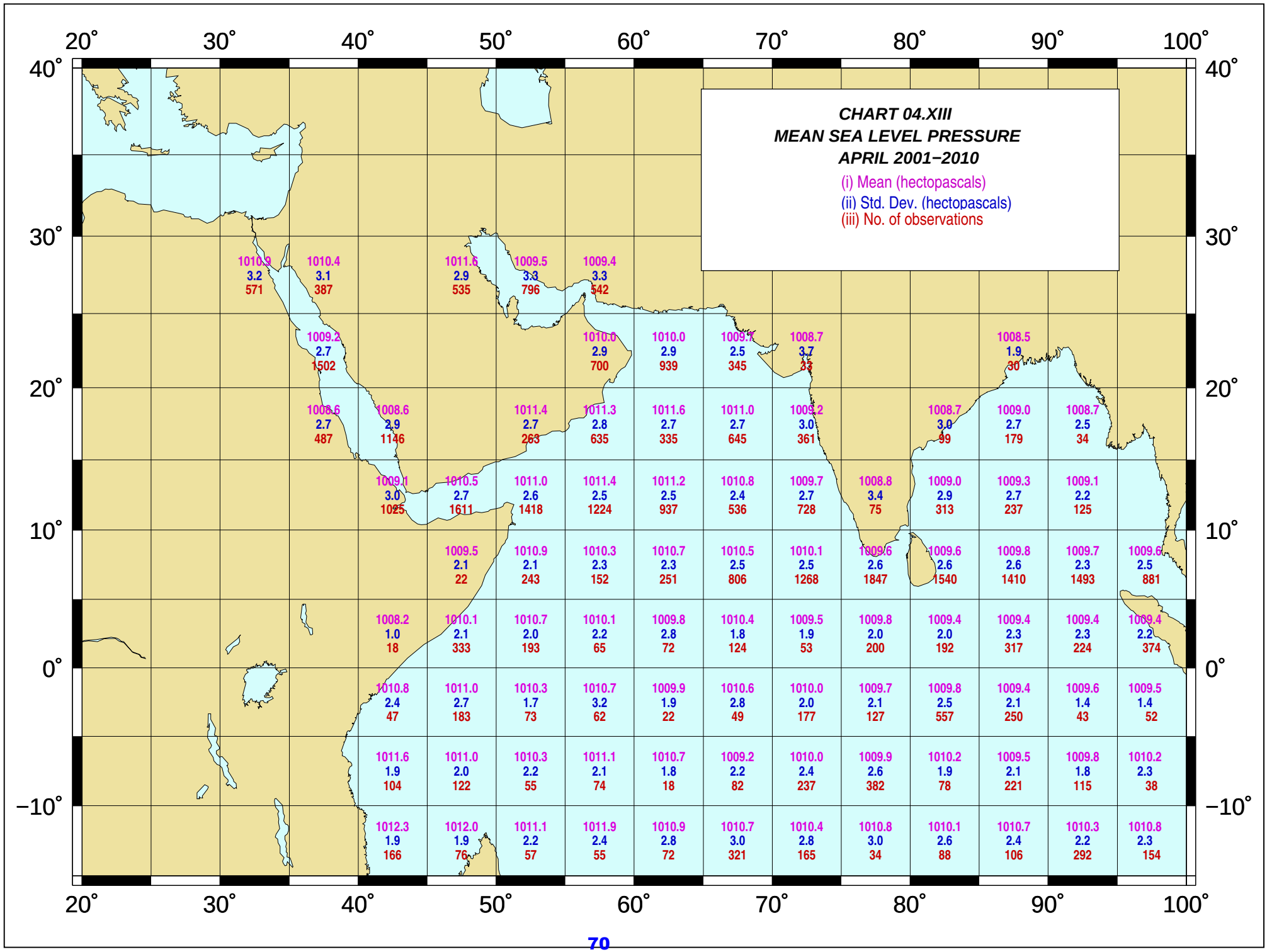


CHART 04.XIII
MEAN SEA LEVEL PRESSURE
APRIL 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1010.9 3.2 571
1010.4 3.1 387
1011.6 2.9 535
1009.5 3.3 796
1009.4 3.3 542
1009.2 2.7 1502
1010.0 2.9 700
1010.0 2.9 939
1009.7 2.5 345
1008.7 3.7 33
1008.5 1.9 30
1008.6 2.7 487
1008.6 2.9 1146
1011.4 2.7 263
1011.3 2.8 635
1011.6 2.7 335
1011.0 2.7 645
1009.2 3.0 361
1008.7 3.0 99
1009.0 2.7 179
1008.7 2.5 34
1009.1 3.0 1025
1010.5 2.7 1611
1011.0 2.6 1418
1011.4 2.5 1224
1011.2 2.5 937
1010.8 2.4 536
1009.7 2.7 728
1008.8 3.4 75
1009.0 2.9 313
1009.3 2.7 237
1009.1 2.2 125
1009.5 2.1 22
1010.9 2.1 243
1010.3 2.3 152
1010.7 2.3 251
1010.5 2.5 806
1010.1 2.5 1268
1009.6 2.6 1847
1009.6 2.6 1540
1009.8 2.6 1410
1009.7 2.3 1493
1009.6 2.5 881
1008.2 1.0 18
1010.1 2.1 333
1010.7 2.0 193
1010.1 2.2 65
1009.8 2.8 72
1010.4 1.8 124
1009.5 1.9 53
1009.8 2.0 200
1009.4 2.0 192
1009.4 2.3 317
1009.4 2.3 224
1009.4 2.2 374
1010.8 2.4 47
1011.0 2.7 183
1010.3 1.7 73
1010.7 3.2 62
1009.9 1.9 22
1010.6 2.8 49
1010.0 2.0 177
1009.7 2.1 127
1009.8 2.5 557
1009.4 2.1 250
1009.6 1.4 43
1009.5 1.4 52
1011.6 1.9 104
1011.0 2.0 122
1010.3 2.2 55
1011.1 2.1 74
1010.7 1.8 18
1009.2 2.2 82
1010.0 2.4 237
1009.9 2.6 382
1010.2 1.9 78
1009.5 2.1 221
1009.8 1.8 115
1010.2 2.3 38
1012.3 1.9 166
1012.0 1.9 76
1011.1 2.2 57
1011.9 2.4 55
1010.9 2.8 72
1010.7 3.0 321
1010.4 2.8 165
1010.8 3.0 34
1010.1 2.6 88
1010.7 2.4 106
1010.3 2.2 292
1010.8 2.3 154

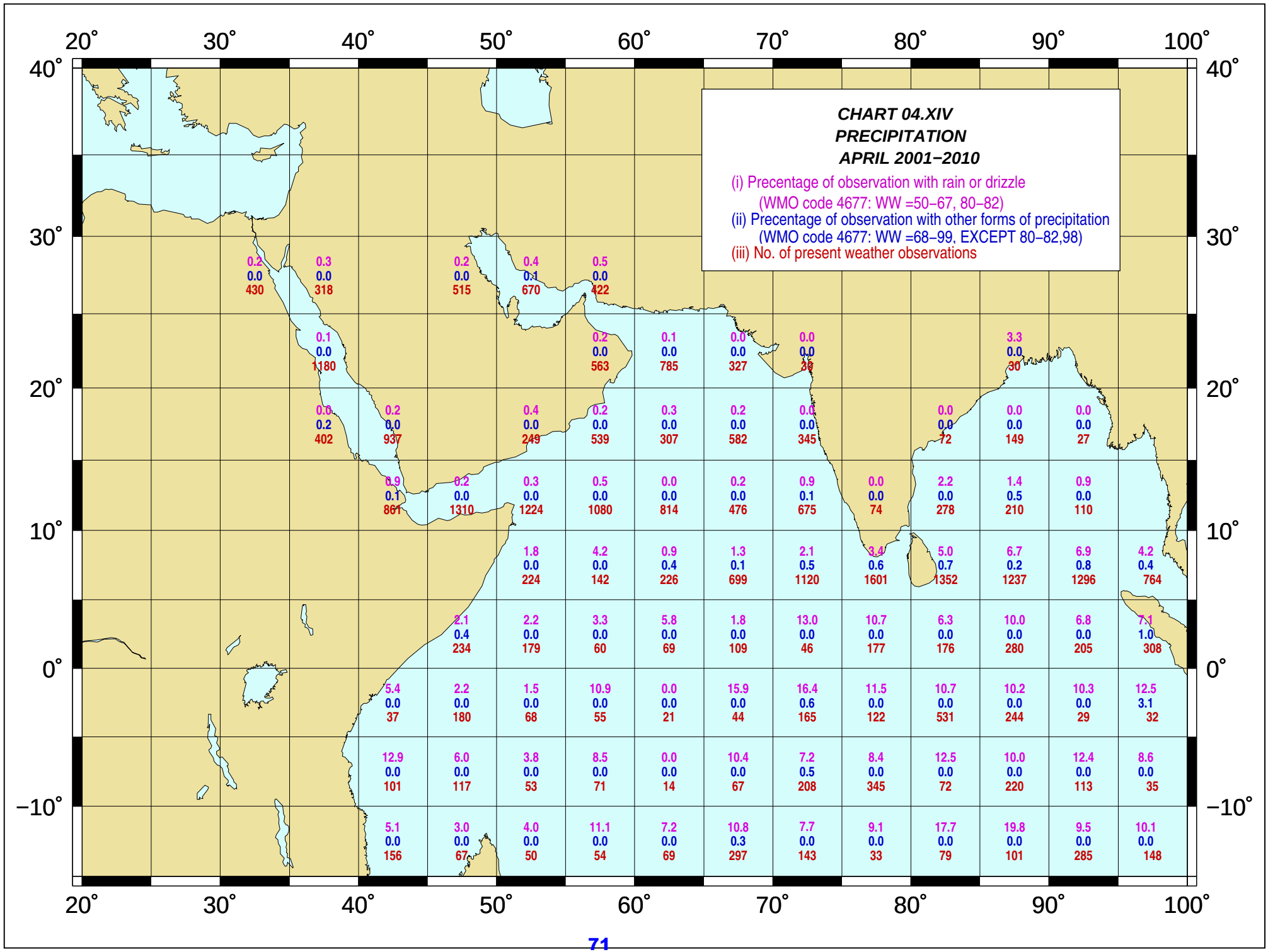


CHART 04.XIV
PRECIPITATION
APRIL 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.0 430
0.3 0.0 318
0.2 0.0 515
0.4 0.1 670
0.5 0.0 422
0.1 0.0 1180
0.2 0.0 563
0.1 0.0 785
0.0 0.0 327
0.0 0.0 30
3.3 0.0 30
0.0 0.2 402
0.2 0.0 937
0.4 0.0 249
0.2 0.0 539
0.3 0.0 307
0.2 0.0 582
0.0 0.0 345
0.0 0.0 72
0.0 0.0 149
0.0 0.0 27
0.9 0.1 861
0.2 0.0 1310
0.3 0.0 1224
0.5 0.0 1080
0.0 0.0 814
0.2 0.0 476
0.9 0.1 675
0.0 0.0 74
2.2 0.0 278
1.4 0.5 210
0.9 0.0 110
1.8 0.0 224
4.2 0.0 142
0.9 0.4 226
1.3 0.1 699
2.1 0.5 1120
3.4 0.6 1601
5.0 0.7 1352
6.7 0.2 1237
6.9 0.8 1296
4.2 0.4 764
2.1 0.4 234
2.2 0.0 179
3.3 0.0 60
5.8 0.0 69
1.8 0.0 109
13.0 0.0 46
10.7 0.0 177
6.3 0.0 176
10.0 0.0 280
6.8 0.0 205
7.1 1.0 308
5.4 0.0 37
2.2 0.0 180
1.5 0.0 68
10.9 0.0 55
0.0 0.0 21
15.9 0.0 44
16.4 0.6 165
11.5 0.0 122
10.7 0.0 531
10.2 0.0 244
10.3 0.0 29
12.5 3.1 32
12.9 0.0 101
6.0 0.0 117
3.8 0.0 53
8.5 0.0 71
0.0 0.0 14
10.4 0.0 67
7.2 0.5 208
8.4 0.0 345
12.5 0.0 72
10.0 0.0 220
12.4 0.0 113
8.6 0.0 35
5.1 0.0 156
3.0 0.0 67
4.0 0.0 50
11.1 0.0 54
7.2 0.0 69
10.8 0.3 297
7.7 0.0 143
9.1 0.0 33
17.7 0.0 79
19.8 0.0 101
9.5 0.0 285
10.1 0.0 148

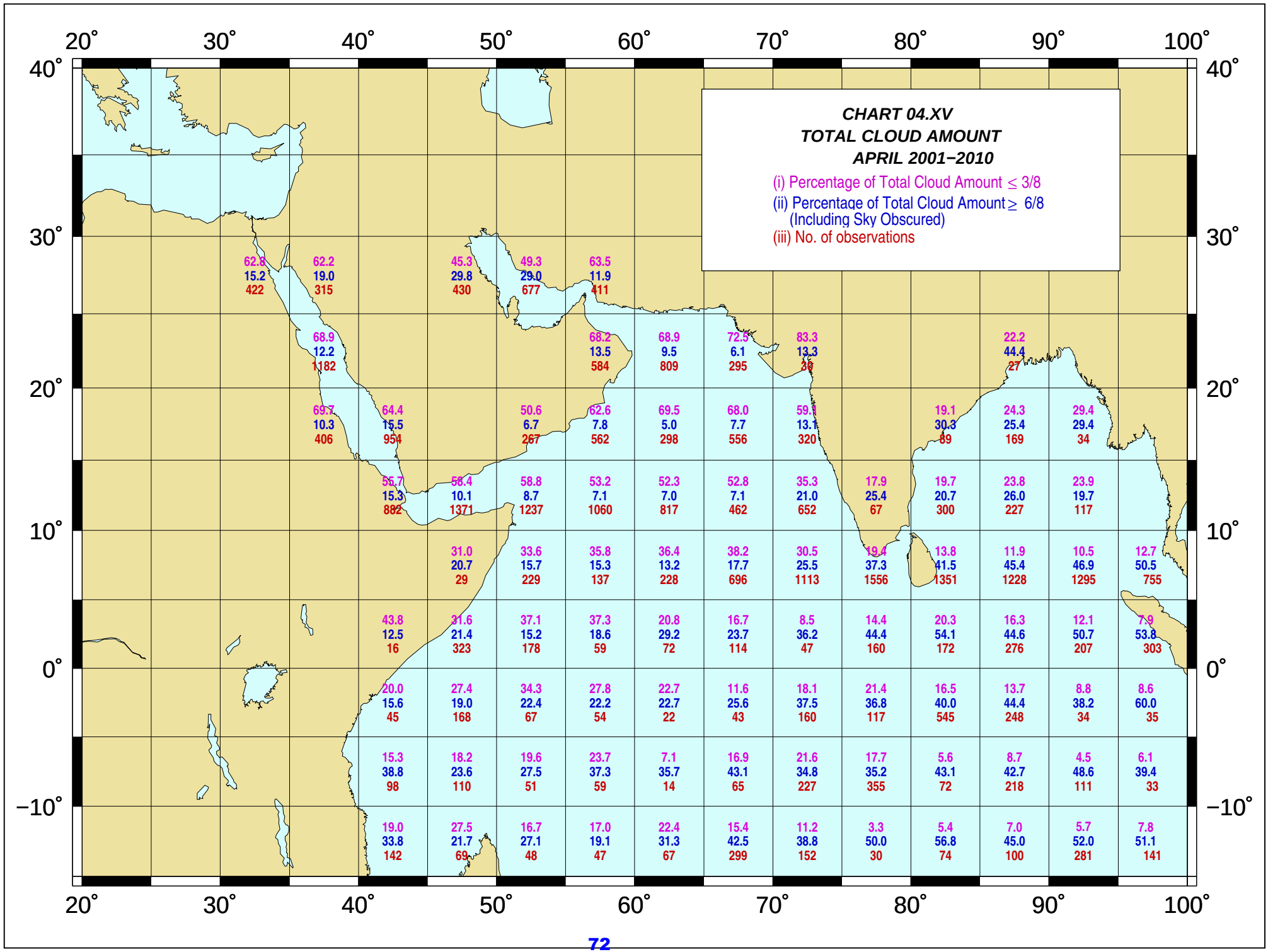


CHART 04.XV
TOTAL CLOUD AMOUNT
APRIL 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
62.8 15.2 422
62.2 19.0 315
45.3 29.8 430
49.3 29.0 677
63.5 11.9 411
68.9 12.2 1182
68.2 13.5 584
68.9 9.5 809
72.5 6.1 295
83.3 13.3 36
22.2 44.4 27
69.7 10.3 406
64.4 15.5 954
50.6 6.7 267
62.6 7.8 562
69.5 5.0 298
68.0 7.7 556
59.1 13.1 320
19.1 30.3 89
24.3 25.4 169
29.4 29.4 34
55.7 15.3 882
58.4 10.1 1371
58.8 8.7 1237
53.2 7.1 1060
52.3 7.0 817
52.8 7.1 462
35.3 21.0 652
17.9 25.4 67
19.7 20.7 300
23.8 26.0 227
23.9 19.7 117
31.0 20.7 29
33.6 15.7 229
35.8 15.3 137
36.4 13.2 228
38.2 17.7 696
30.5 25.5 1113
19.4 37.3 1556
13.8 41.5 1351
11.9 45.4 1228
10.5 46.9 1295
12.7 50.5 755
43.8 12.5 16
31.6 21.4 323
37.1 15.2 178
37.3 18.6 59
20.8 29.2 72
16.7 23.7 114
8.5 36.2 47
14.4 44.4 160
20.3 54.1 172
16.3 44.6 276
12.1 50.7 207
7.9 53.8 303
20.0 15.6 45
27.4 19.0 168
34.3 22.4 67
27.8 22.2 54
22.7 22.7 22
11.6 25.6 43
18.1 37.5 160
21.4 36.8 117
16.5 40.0 545
13.7 44.4 248
8.8 38.2 34
8.6 60.0 35
15.3 38.8 98
18.2 23.6 110
19.6 27.5 51
23.7 37.3 59
7.1 35.7 14
16.9 43.1 65
21.6 34.8 227
17.7 35.2 355
5.6 43.1 72
8.7 42.7 218
4.5 48.6 111
6.1 39.4 33
19.0 33.8 142
27.5 21.7 69
16.7 27.1 48
17.0 19.1 47
22.4 31.3 67
15.4 42.5 299
11.2 38.8 152
3.3 50.0 30
5.4 56.8 74
7.0 45.0 100
5.7 52.0 281
7.8 51.1 141

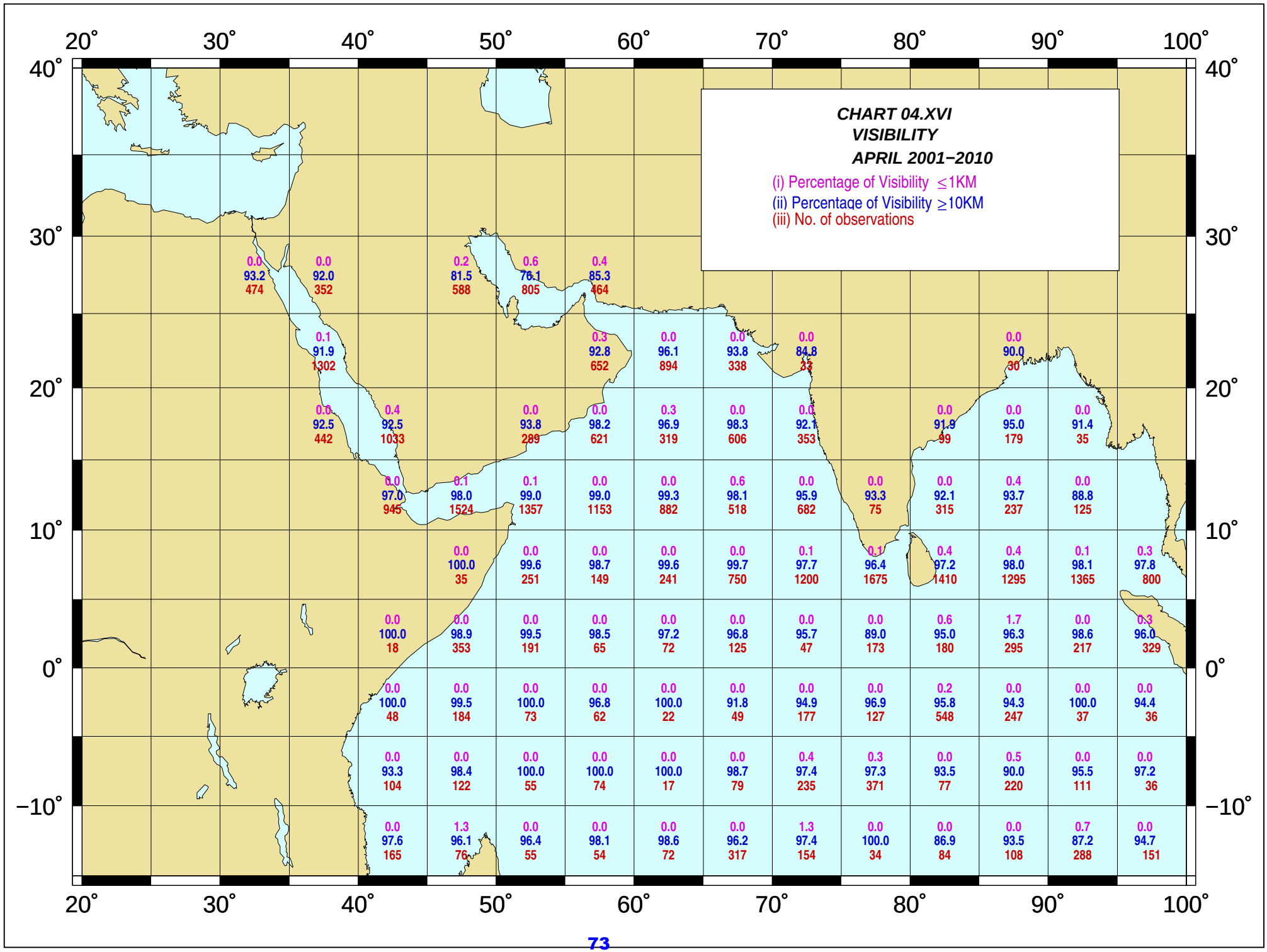


CHART 04.XVI
VISIBILITY
APRIL 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 93.2 474
0.0 92.0 352
0.2 81.5 588
0.6 76.1 805
0.4 85.3 464
0.1 91.9 1302
0.3 92.8 652
0.0 96.1 894
0.0 93.8 338
0.0 84.8 33
0.0 90.0 30
0.0 92.5 442
0.4 92.5 1033
0.0 93.8 289
0.0 98.2 621
0.3 96.9 319
0.0 98.3 606
0.0 92.1 353
0.0 91.9 99
0.0 95.0 179
0.0 91.4 35
0.0 97.0 945
0.1 98.0 1524
0.1 99.0 1357
0.0 99.0 1153
0.0 99.3 882
0.6 98.1 518
0.0 95.9 682
0.0 93.3 75
0.0 92.1 315
0.4 93.7 237
0.0 88.8 125
0.0 100.0 35
0.0 99.6 251
0.0 98.7 149
0.0 99.6 241
0.0 99.7 750
0.1 97.7 1200
0.1 96.4 1675
0.4 97.2 1410
0.4 98.0 1295
0.1 98.1 1365
0.3 97.8 800
0.0 100.0 18
0.0 98.9 353
0.0 99.5 191
0.0 98.5 65
0.0 97.2 72
0.0 96.8 125
0.0 95.7 47
0.0 89.0 173
0.6 95.0 180
1.7 96.3 295
0.0 98.6 217
0.3 96.0 329
0.0 100.0 48
0.0 99.5 184
0.0 100.0 73
0.0 96.8 62
0.0 100.0 22
0.0 91.8 49
0.0 94.9 177
0.0 96.9 127
0.2 95.8 548
0.0 94.3 247
0.0 100.0 37
0.0 94.4 36
0.0 93.3 104
0.0 98.4 122
0.0 100.0 55
0.0 100.0 74
0.0 100.0 17
0.0 98.7 79
0.4 97.4 235
0.3 97.3 371
0.0 93.5 77
0.5 90.0 220
0.0 95.5 111
0.0 97.2 36
0.0 97.6 165
1.3 96.1 76
0.0 96.4 55
0.0 98.1 54
0.0 98.6 72
0.0 96.2 317
1.3 97.4 154
0.0 100.0 34
0.0 86.9 84
0.0 93.5 108
0.7 87.2 288
0.0 94.7 151

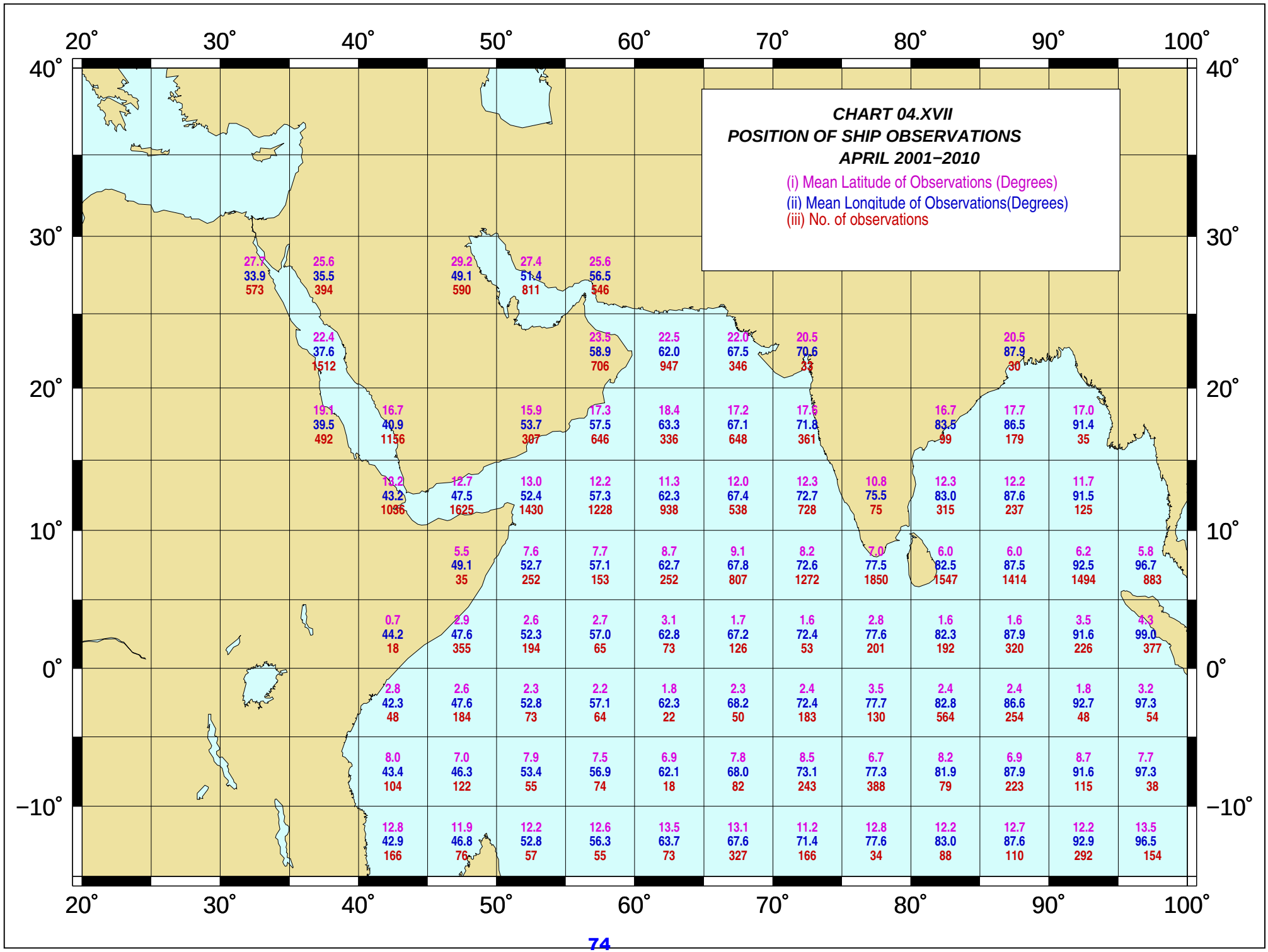


CHART 04.XVII
POSITION OF SHIP OBSERVATIONS
APRIL 2001−2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.7 33.9 573
25.6 35.5 394
29.2 49.1 590
27.4 51.4 811
25.6 56.5 546
22.4 37.6 1512
23.5 58.9 706
22.5 62.0 947
22.0 67.5 346
20.5 70.6 33
20.5 87.9 30
19.1 39.5 492
16.7 40.9 1156
15.9 53.7 307
17.3 57.5 646
18.4 63.3 336
17.2 67.1 648
17.5 71.8 361
16.7 83.5 99
17.7 86.5 179
17.0 91.4 35
11.2 43.2 1036
12.7 47.5 1625
13.0 52.4 1430
12.2 57.3 1228
11.3 62.3 938
12.0 67.4 538
12.3 72.7 728
10.8 75.5 75
12.3 83.0 315
12.2 87.6 237
11.7 91.5 125
5.5 49.1 35
7.6 52.7 252
7.7 57.1 153
8.7 62.7 252
9.1 67.8 807
8.2 72.6 1272
7.0 77.5 1850
6.0 82.5 1547
6.0 87.5 1414
6.2 92.5 1494
5.8 96.7 883
0.7 44.2 18
2.9 47.6 355
2.6 52.3 194
2.7 57.0 65
3.1 62.8 73
1.7 67.2 126
1.6 72.4 53
2.8 77.6 201
1.6 82.3 192
1.6 87.9 320
3.5 91.6 226
4.3 99.0 377
2.8 42.3 48
2.6 47.6 184
2.3 52.8 73
2.2 57.1 64
1.8 62.3 22
2.3 68.2 50
2.4 72.4 183
3.5 77.7 130
2.4 82.8 564
2.4 86.6 254
1.8 92.7 48
3.2 97.3 54
8.0 43.4 104
7.0 46.3 122
7.9 53.4 55
7.5 56.9 74
6.9 62.1 18
7.8 68.0 82
8.5 73.1 243
6.7 77.3 388
8.2 81.9 79
6.9 87.9 223
8.7 91.6 115
7.7 97.3 38
12.8 42.9 166
11.9 46.8 76
12.2 52.8 57
12.6 56.3 55
13.5 63.7 73
13.1 67.6 327
11.2 71.4 166
12.8 77.6 34
12.2 83.0 88
12.7 87.6 110
12.2 92.9 292
13.5 96.5 154

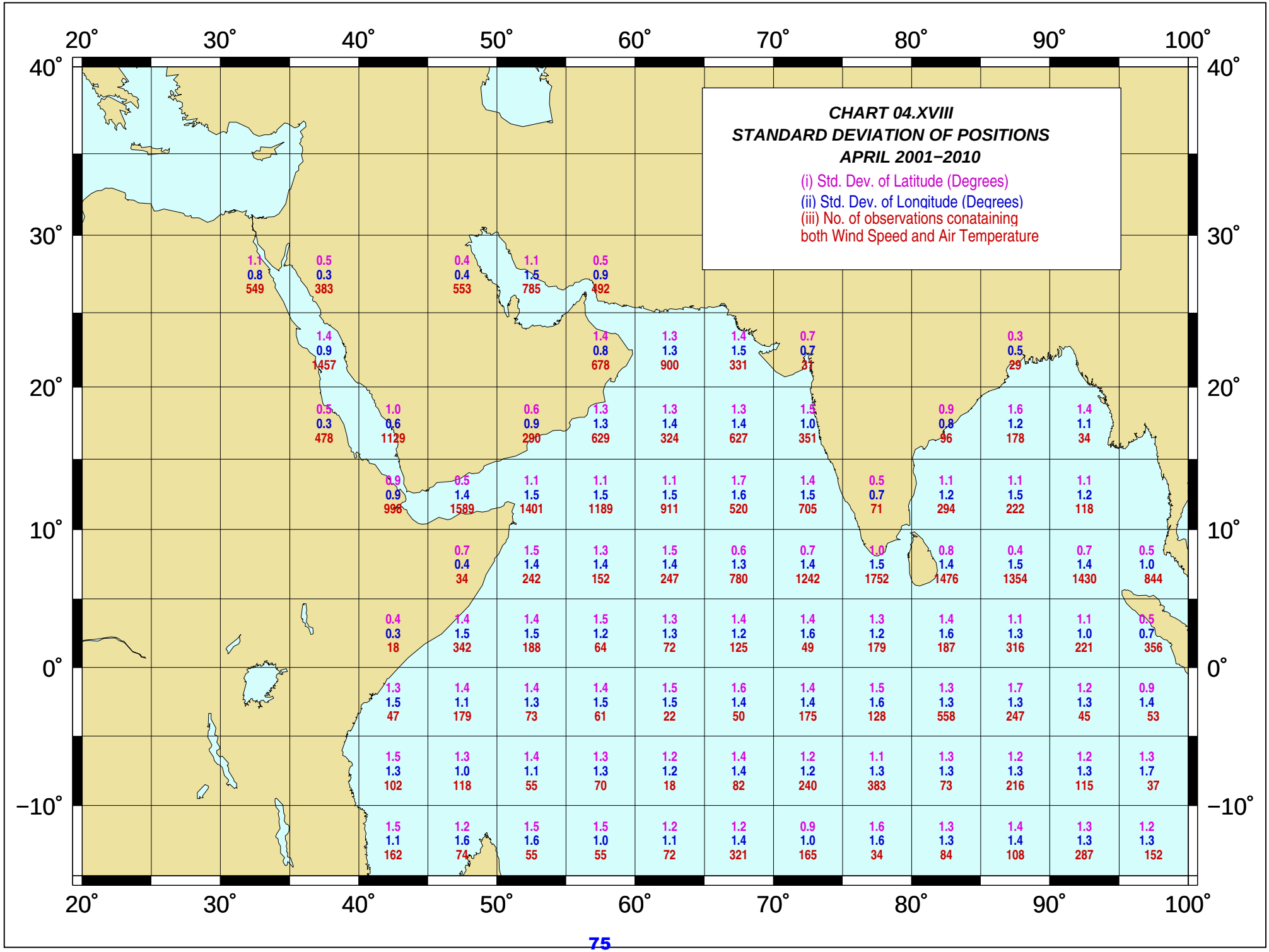
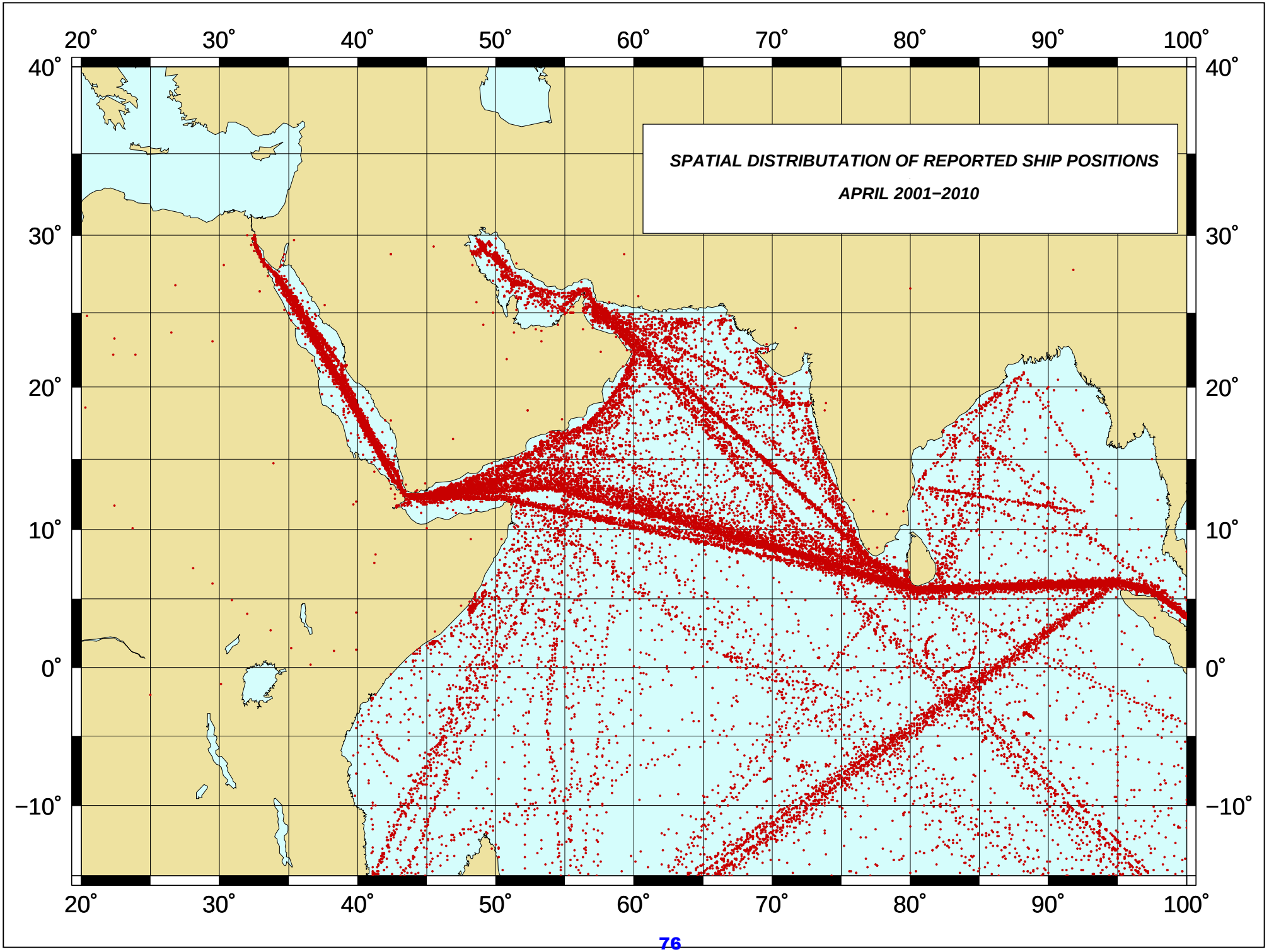


CHART 04.XVIII
STANDARD DEVIATION OF POSITIONS
APRIL 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 549
0.5 0.3 383
0.4 0.4 553
1.1 1.5 785
0.5 0.9 492
1.4 0.9 1457
1.4 0.8 678
1.3 1.3 900
1.4 1.5 331
0.7 0.7 31
0.3 0.5 29
0.5 0.3 478
1.0 0.6 1129
0.6 0.9 290
1.3 1.3 629
1.3 1.4 324
1.3 1.4 627
1.5 1.0 351
0.9 0.8 96
1.6 1.2 178
1.4 1.1 34
0.9 0.9 996
0.5 1.4 1589
1.1 1.5 1401
1.1 1.5 1189
1.1 1.5 911
1.7 1.6 520
1.4 1.5 705
0.5 0.7 71
1.1 1.2 294
1.1 1.5 222
1.1 1.2 118
0.7 0.4 34
1.5 1.4 242
1.3 1.4 152
1.5 1.4 247
0.6 1.3 780
0.7 1.4 1242
1.0 1.5 1752
0.8 1.4 1476
0.4 1.5 1354
0.7 1.4 1430
0.5 1.0 844
0.4 0.3 18
1.4 1.5 342
1.4 1.5 188
1.5 1.2 64
1.3 1.3 72
1.4 1.2 125
1.4 1.6 49
1.3 1.2 179
1.4 1.6 187
1.1 1.3 316
1.1 1.0 221
0.5 0.7 356
1.3 1.5 47
1.4 1.1 179
1.4 1.3 73
1.4 1.5 61
1.5 1.5 22
1.6 1.4 50
1.4 1.4 175
1.5 1.6 128
1.3 1.3 558
1.7 1.3 247
1.2 1.3 45
0.9 1.4 53
1.5 1.3 102
1.3 1.0 118
1.4 1.1 55
1.3 1.3 70
1.2 1.2 18
1.4 1.4 82
1.2 1.2 240
1.1 1.3 383
1.3 1.3 73
1.2 1.3 216
1.2 1.3 115
1.3 1.7 37
1.5 1.1 162
1.2 1.6 74
1.5 1.6 55
1.5 1.0 55
1.2 1.1 72
1.2 1.4 321
0.9 1.0 165
1.6 1.6 34
1.3 1.3 84
1.4 1.4 108
1.3 1.3 287
1.2 1.3 152


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
APRIL 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF MAY 2001-2010

Marine Climatological Summary Charts 2001-2010

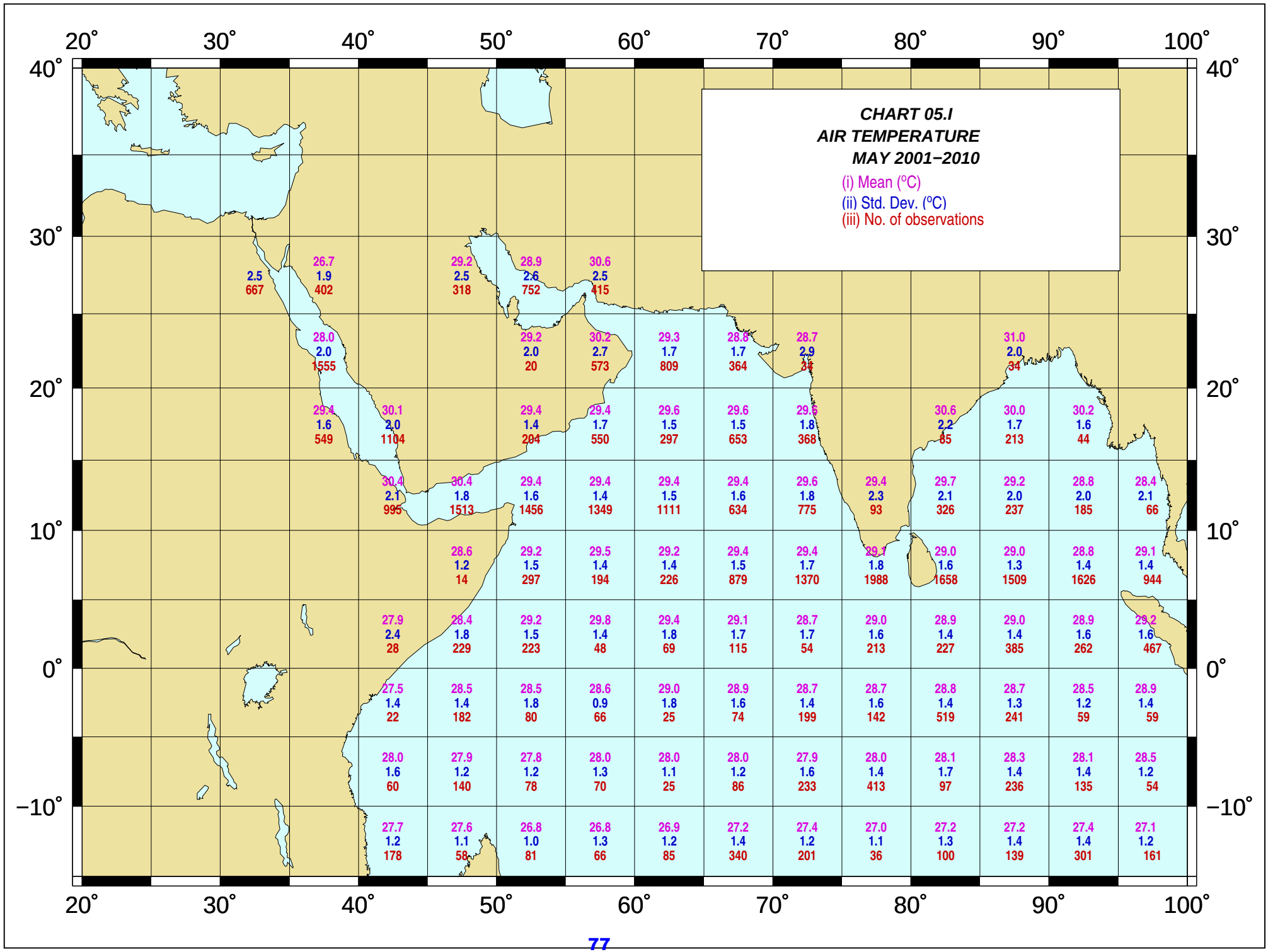


CHART 05.I
AIR TEMPERATURE
MAY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.5 667
26.7 1.9 402
29.2 2.5 318
28.9 2.6 752
30.6 2.5 415
28.0 2.0 1555
29.2 2.0 20
30.2 2.7 573
29.3 1.7 809
28.8 1.7 364
28.7 2.9 34
31.0 2.0 34
29.4 1.6 549
30.1 2.0 1104
29.4 1.4 204
29.4 1.7 550
29.6 1.5 297
29.6 1.5 653
29.6 1.8 368
30.6 2.2 85
30.0 1.7 213
30.2 1.6 44
30.4 2.1 995
30.4 1.8 1513
29.4 1.6 1456
29.4 1.4 1349
29.4 1.5 1111
29.4 1.6 634
29.6 1.8 775
29.4 2.3 93
29.7 2.1 326
29.2 2.0 237
28.8 2.0 185
28.4 2.1 66
28.6 1.2 14
29.2 1.5 297
29.5 1.4 194
29.2 1.4 226
29.4 1.5 879
29.4 1.7 1370
29.1 1.8 1988
29.0 1.6 1658
29.0 1.3 1509
28.8 1.4 1626
29.1 1.4 944
27.9 2.4 28
28.4 1.8 229
29.2 1.5 223
29.8 1.4 48
29.4 1.8 69
29.1 1.7 115
28.7 1.7 54
29.0 1.6 213
28.9 1.4 227
29.0 1.4 385
28.9 1.6 262
29.2 1.6 467
27.5 1.4 22
28.5 1.4 182
28.5 1.8 80
28.6 0.9 66
29.0 1.8 25
28.9 1.6 74
28.7 1.4 199
28.7 1.6 142
28.8 1.4 519
28.7 1.3 241
28.5 1.2 59
28.9 1.4 59
28.0 1.6 60
27.9 1.2 140
27.8 1.2 78
28.0 1.3 70
28.0 1.1 25
28.0 1.2 86
27.9 1.6 233
28.0 1.4 413
28.1 1.7 97
28.3 1.4 236
28.1 1.4 135
28.5 1.2 54
27.7 1.2 178
27.6 1.1 58
26.8 1.0 81
26.8 1.3 66
26.9 1.2 85
27.2 1.4 340
27.4 1.2 201
27.0 1.1 36
27.2 1.3 100
27.2 1.4 139
27.4 1.4 301
27.1 1.2 161

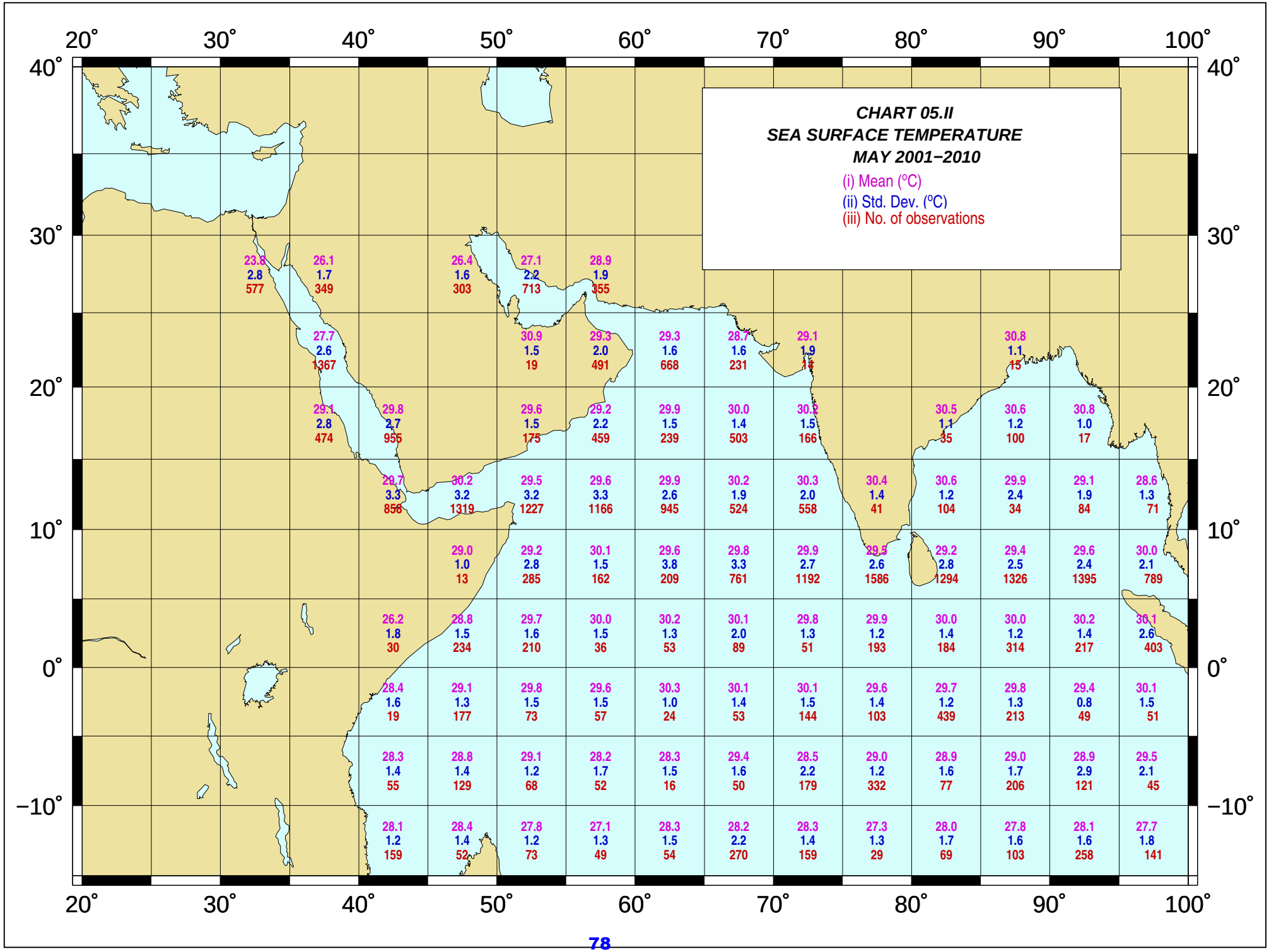


CHART 05.II
SEA SURFACE TEMPERATURE
MAY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
23.8 2.8 577
26.1 1.7 349
26.4 1.6 303
27.1 2.2 713
28.9 1.9 355
27.7 2.6 1367
30.9 1.5 19
29.3 2.0 491
29.3 1.6 668
28.7 1.6 231
29.1 1.9 14
30.8 1.1 15
29.1 2.8 474
29.8 2.7 955
29.6 1.5 175
29.2 2.2 459
29.9 1.5 239
30.0 1.4 503
30.2 1.5 166
30.5 1.1 35
30.6 1.2 100
30.8 1.0 17
29.7 3.3 856
30.2 3.2 1319
29.5 3.2 1227
29.6 3.3 1166
29.9 2.6 945
30.2 1.9 524
30.3 2.0 558
30.4 1.4 41
30.6 1.2 104
29.9 2.4 34
29.1 1.9 84
28.6 1.3 71
29.0 1.0 13
29.2 2.8 285
30.1 1.5 162
29.6 3.8 209
29.8 3.3 761
29.9 2.7 1192
29.5 2.6 1586
29.2 2.8 1294
29.4 2.5 1326
29.6 2.4 1395
30.0 2.1 789
26.2 1.8 30
28.8 1.5 234
29.7 1.6 210
30.0 1.5 36
30.2 1.3 53
30.1 2.0 89
29.8 1.3 51
29.9 1.2 193
30.0 1.4 184
30.0 1.2 314
30.2 1.4 217
30.1 2.6 403
28.4 1.6 19
29.1 1.3 177
29.8 1.5 73
29.6 1.5 57
30.3 1.0 24
30.1 1.4 53
30.1 1.5 144
29.6 1.4 103
29.7 1.2 439
29.8 1.3 213
29.4 0.8 49
30.1 1.5 51
28.3 1.4 55
28.8 1.4 129
29.1 1.2 68
28.2 1.7 52
28.3 1.5 16
29.4 1.6 50
28.5 2.2 179
29.0 1.2 332
28.9 1.6 77
29.0 1.7 206
28.9 2.9 121
29.5 2.1 45
28.1 1.2 159
28.4 1.4 52
27.8 1.2 73
27.1 1.3 49
28.3 1.5 54
28.2 2.2 270
28.3 1.4 159
27.3 1.3 29
28.0 1.7 69
27.8 1.6 103
28.1 1.6 258
27.7 1.8 141

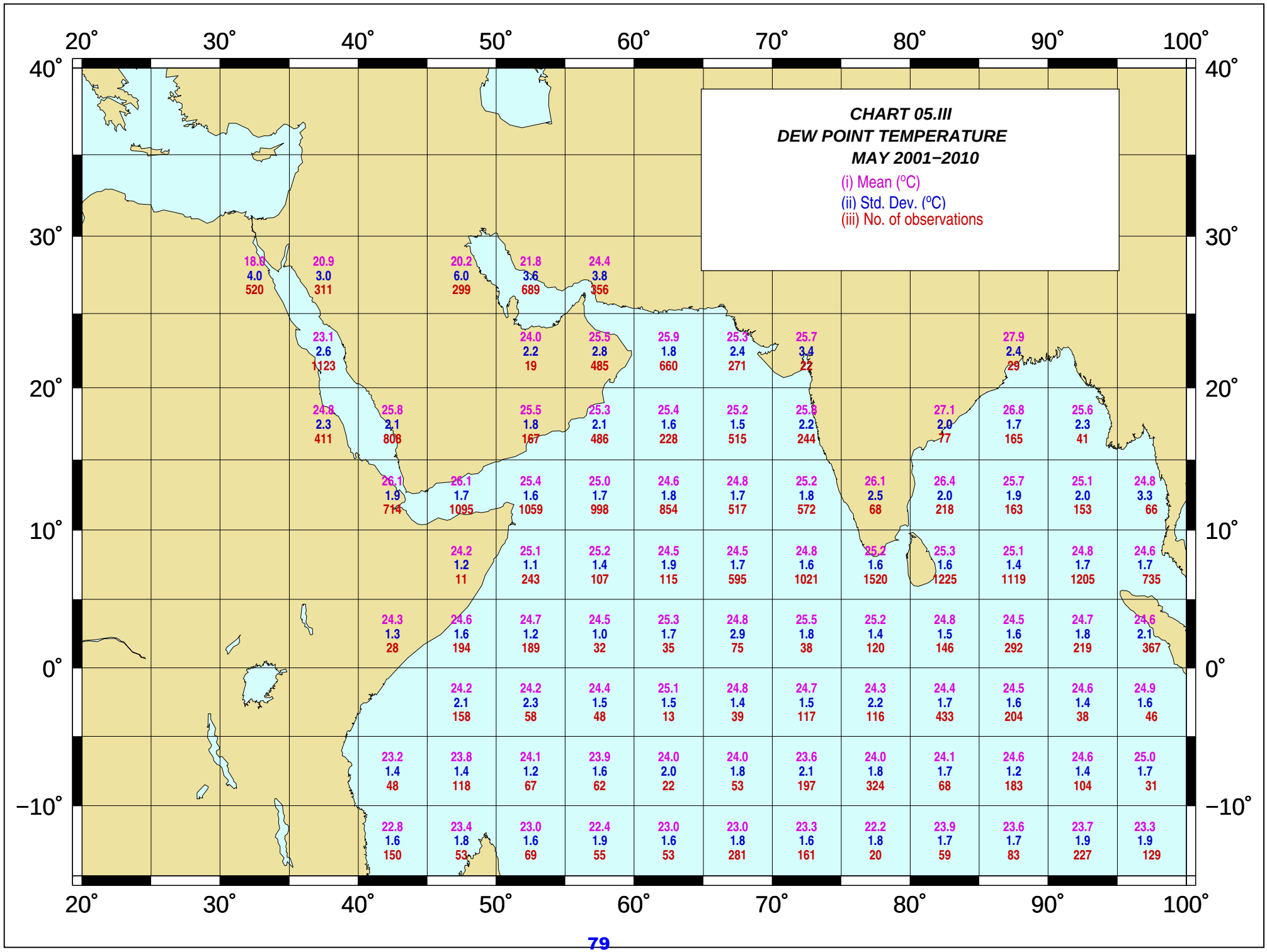


CHART 05.III
DEW POINT TEMPERATURE
MAY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
18.8 4.0 520
20.9 3.0 311
20.2 6.0 299
21.8 3.6 689
24.4 3.8 356
23.1 2.6 1123
24.0 2.2 19
25.5 2.8 485
25.9 1.8 660
25.3 2.4 271
25.7 3.4 22
27.9 2.4 29
24.8 2.3 411
25.8 2.1 808
25.5 1.8 167
25.3 2.1 486
25.4 1.6 228
25.2 1.5 515
25.9 2.2 244
27.1 2.0 77
26.8 1.7 165
25.6 2.3 41
26.1 1.9 714
26.1 1.7 1095
25.4 1.6 1059
25.0 1.7 998
24.6 1.8 854
24.8 1.7 517
25.2 1.8 572
26.1 2.5 68
26.4 2.0 218
25.7 1.9 163
25.1 2.0 153
24.8 3.3 66
24.2 1.2 11
25.1 1.1 243
25.2 1.4 107
24.5 1.9 115
24.5 1.7 595
24.8 1.6 1021
25.2 1.6 1520
25.3 1.6 1225
25.1 1.4 1119
24.8 1.7 1205
24.6 1.7 735
24.3 1.3 28
24.6 1.6 194
24.7 1.2 189
24.5 1.0 32
25.3 1.7 35
24.8 2.9 75
25.5 1.8 38
25.2 1.4 120
24.8 1.5 146
24.5 1.6 292
24.7 1.8 219
24.6 2.1 367
24.2 2.1 158
24.2 2.3 58
24.4 1.5 48
25.1 1.5 13
24.8 1.4 39
24.7 1.5 117
24.3 2.2 116
24.4 1.7 433
24.5 1.6 204
24.6 1.4 38
24.9 1.6 46
23.2 1.4 48
23.8 1.4 118
24.1 1.2 67
23.9 1.6 62
24.0 2.0 22
24.0 1.8 53
23.6 2.1 197
24.0 1.8 324
24.1 1.7 68
24.6 1.2 183
24.6 1.4 104
25.0 1.7 31
22.8 1.6 150
23.4 1.8 53
23.0 1.6 69
22.4 1.9 55
23.0 1.6 53
23.0 1.8 281
23.3 1.6 161
22.2 1.8 20
23.9 1.7 59
23.6 1.7 83
23.7 1.9 227
23.3 1.9 129

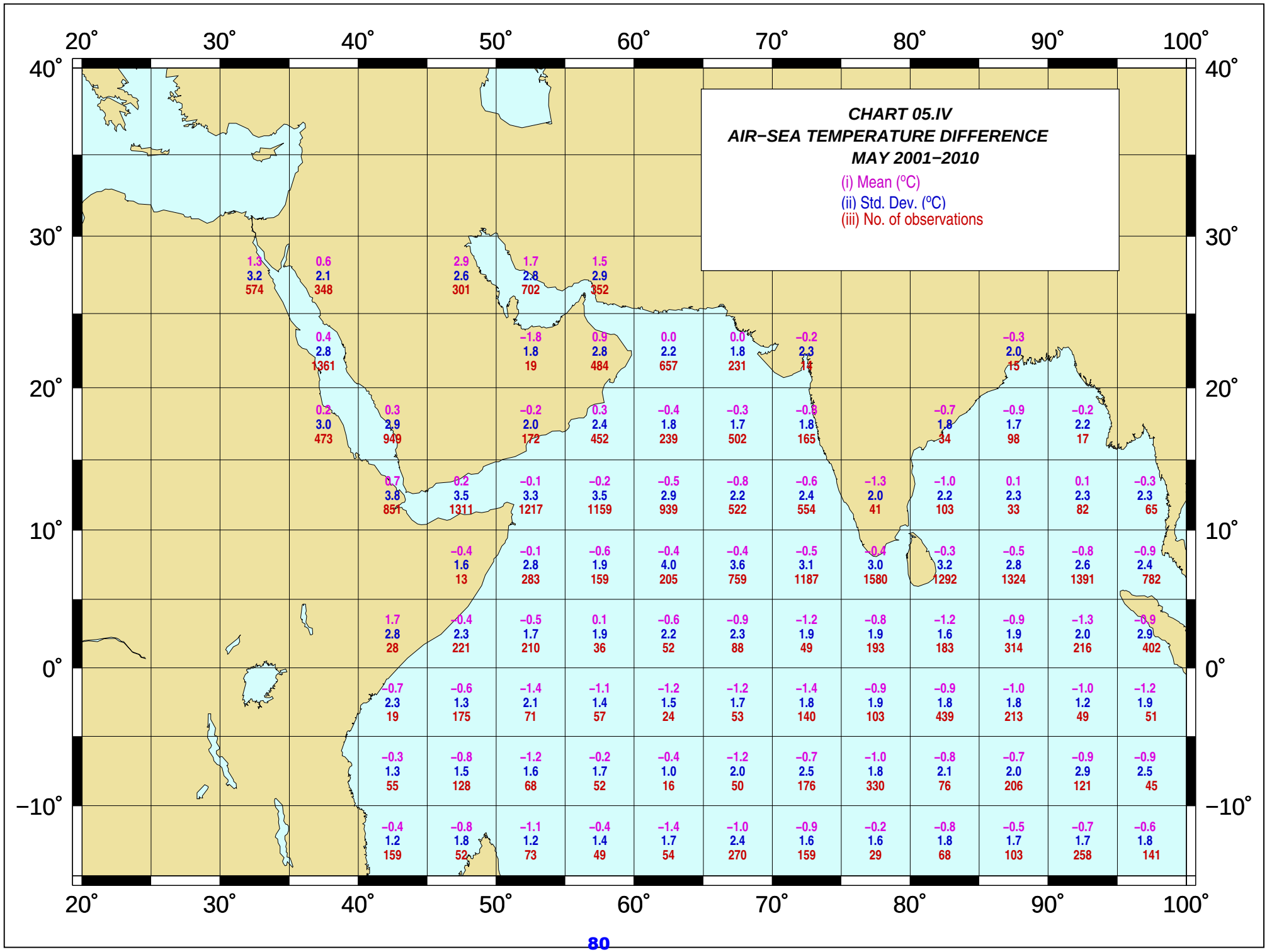


CHART 05.IV
AIR–SEA TEMPERATURE DIFFERENCE
MAY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.3 3.2 574
0.6 2.1 348
2.9 2.6 301
1.7 2.8 702
1.5 2.9 352
0.4 2.8 1361
−1.8 1.8 19
0.9 2.8 484
0.0 2.2 657
0.0 1.8 231
−0.2 2.3
−0.3 2.0
0.2 3.0 473
0.3 2.9 949
−0.2 2.0 172
0.3 2.4 452
−0.4 1.8 239
−0.3 1.7 502
−0.7 1.8
−0.9 1.7 98
−0.2 2.2 17
0.7 3.8 851
0.2 3.5 1311
−0.1 3.3 1217
−0.2 3.5 1159
−0.5 2.9 939
−0.8 2.2 522
−0.6 2.4 554
−1.3 2.0 41
−1.0 2.2 103
0.1 2.3 33
0.1 2.3 82
−0.3 2.3 65
−0.4 1.6 13
−0.1 2.8 283
−0.6 1.9 159
−0.4 4.0 205
−0.4 3.6 759
−0.5 3.1 1187
−0.4 3.0 1580
−0.3 3.2 1292
−0.5 2.8 1324
−0.8 2.6 1391
−0.9 2.4 782
1.7 2.8 28
−0.4 2.3 221
−0.5 1.7 210
0.1 1.9 36
−0.6 2.2 52
−0.9 2.3 88
−1.2 1.9 49
−0.8 1.9 193
−1.2 1.6 183
−0.9 1.9 314
−1.3 2.0 216
−0.9 2.9 402
−0.7 2.3 19
−0.6 1.3 175
−1.4 2.1 71
−1.1 1.4 57
−1.2 1.5 24
−1.2 1.7 53
−1.4 1.8 140
−0.9 1.9 103
−0.9 1.8 439
−1.0 1.8 213
−1.0 1.2 49
−1.2 1.9 51
−0.3 1.3 55
−0.8 1.5 128
−1.2 1.6 68
−0.2 1.7 52
−0.4 1.0 16
−1.2 2.0 50
−0.7 2.5 176
−1.0 1.8 330
−0.8 2.1 76
−0.7 2.0 206
−0.9 2.9 121
−0.9 2.5 45
−0.4 1.2 159
−0.8 1.8 52
−1.1 1.2 73
−0.4 1.4 49
−1.4 1.7 54
−1.0 2.4 270
−0.9 1.6 159
−0.2 1.6 29
−0.8 1.8 68
−0.5 1.7 103
−0.7 1.7 258
−0.6 1.8 141

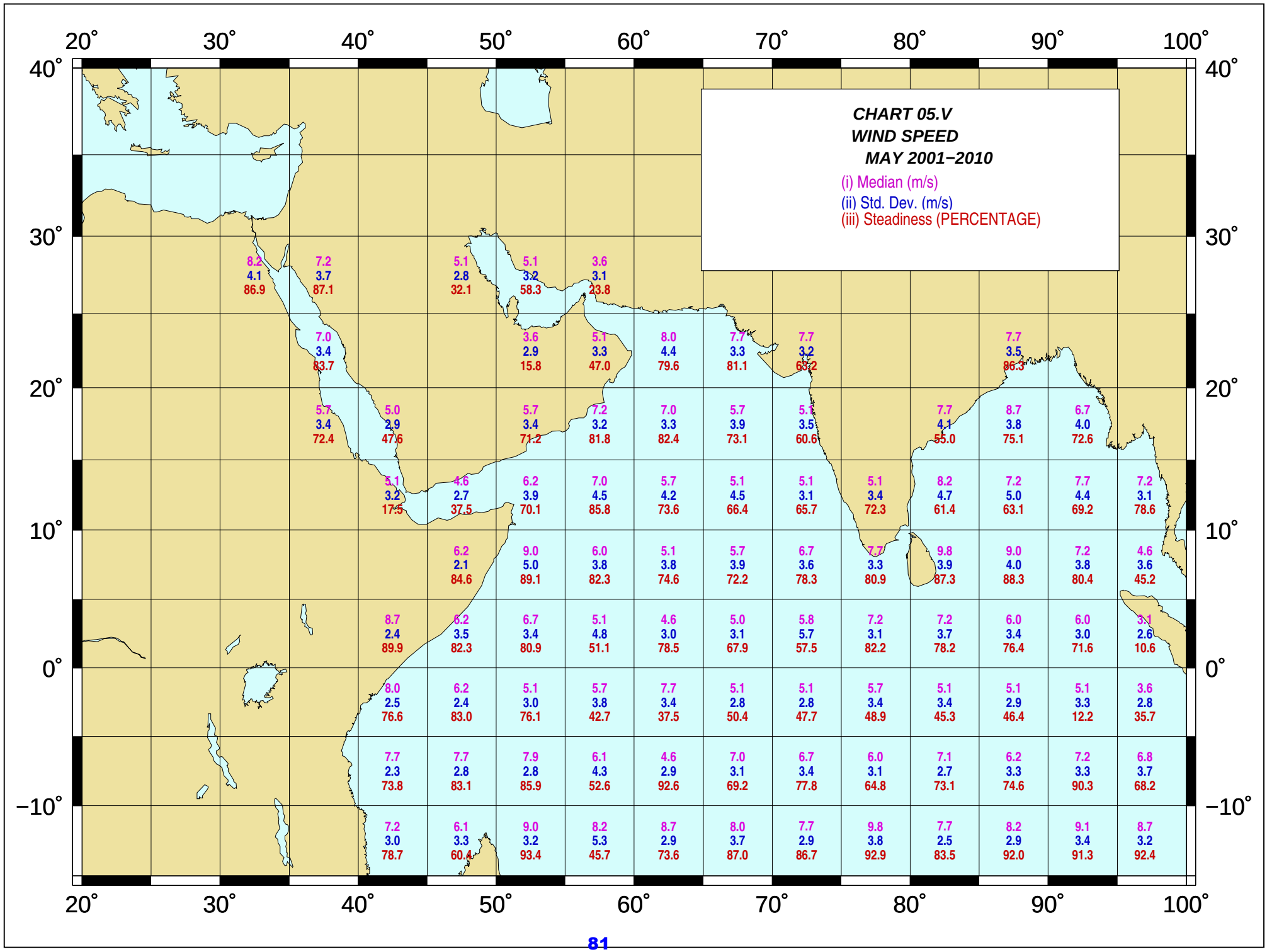


CHART 05.V
WIND SPEED
MAY 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.2 4.1 86.9
7.2 3.7 87.1
5.1 2.8 32.1
5.1 3.2 58.3
3.6 3.1 23.8
7.0 3.4 83.7
3.6 2.9 15.8
5.1 3.3 47.0
8.0 4.4 79.6
7.7 3.3 81.1
7.7 3.2 63.2
7.7 3.5 86.3
5.7 3.4 72.4
5.0 2.9 47.6
5.7 3.4 71.2
7.2 3.2 81.8
7.0 3.3 82.4
5.7 3.9 73.1
5.1 3.5 60.6
7.7 4.1 55.0
8.7 3.8 75.1
6.7 4.0 72.6
5.1 3.2 17.5
4.6 2.7 37.5
6.2 3.9 70.1
7.0 4.5 85.8
5.7 4.2 73.6
5.1 4.5 66.4
5.1 3.1 65.7
5.1 3.4 72.3
8.2 4.7 61.4
7.2 5.0 63.1
7.7 4.4 69.2
7.2 3.1 78.6
6.2 2.1 84.6
9.0 5.0 89.1
6.0 3.8 82.3
5.1 3.8 74.6
5.7 3.9 72.2
6.7 3.6 78.3
7.7 3.3 80.9
9.8 3.9 87.3
9.0 4.0 88.3
7.2 3.8 80.4
4.6 3.6 45.2
8.7 2.4 89.9
6.2 3.5 82.3
6.7 3.4 80.9
5.1 4.8 51.1
4.6 3.0 78.5
5.0 3.1 67.9
5.8 5.7 57.5
7.2 3.1 82.2
7.2 3.7 78.2
6.0 3.4 76.4
6.0 3.0 71.6
3.1 2.6 10.6
8.0 2.5 76.6
6.2 2.4 83.0
5.1 3.0 76.1
5.7 3.8 42.7
7.7 3.4 37.5
5.1 2.8 50.4
5.1 2.8 47.7
5.7 3.4 48.9
5.1 3.4 45.3
5.1 2.9 46.4
5.1 3.3 12.2
3.6 2.8 35.7
7.7 2.3 73.8
7.7 2.8 83.1
7.9 2.8 85.9
6.1 4.3 52.6
4.6 2.9 92.6
7.0 3.1 69.2
6.7 3.4 77.8
6.0 3.1 64.8
7.1 2.7 73.1
6.2 3.3 74.6
7.2 3.3 90.3
6.8 3.7 68.2
7.2 3.0 78.7
6.1 3.3 60.4
9.0 3.2 93.4
8.2 5.3 45.7
8.7 2.9 73.6
8.0 3.7 87.0
7.7 2.9 86.7
9.8 3.8 92.9
7.7 2.5 83.5
8.2 2.9 92.0
9.1 3.4 91.3
8.7 3.2 92.4

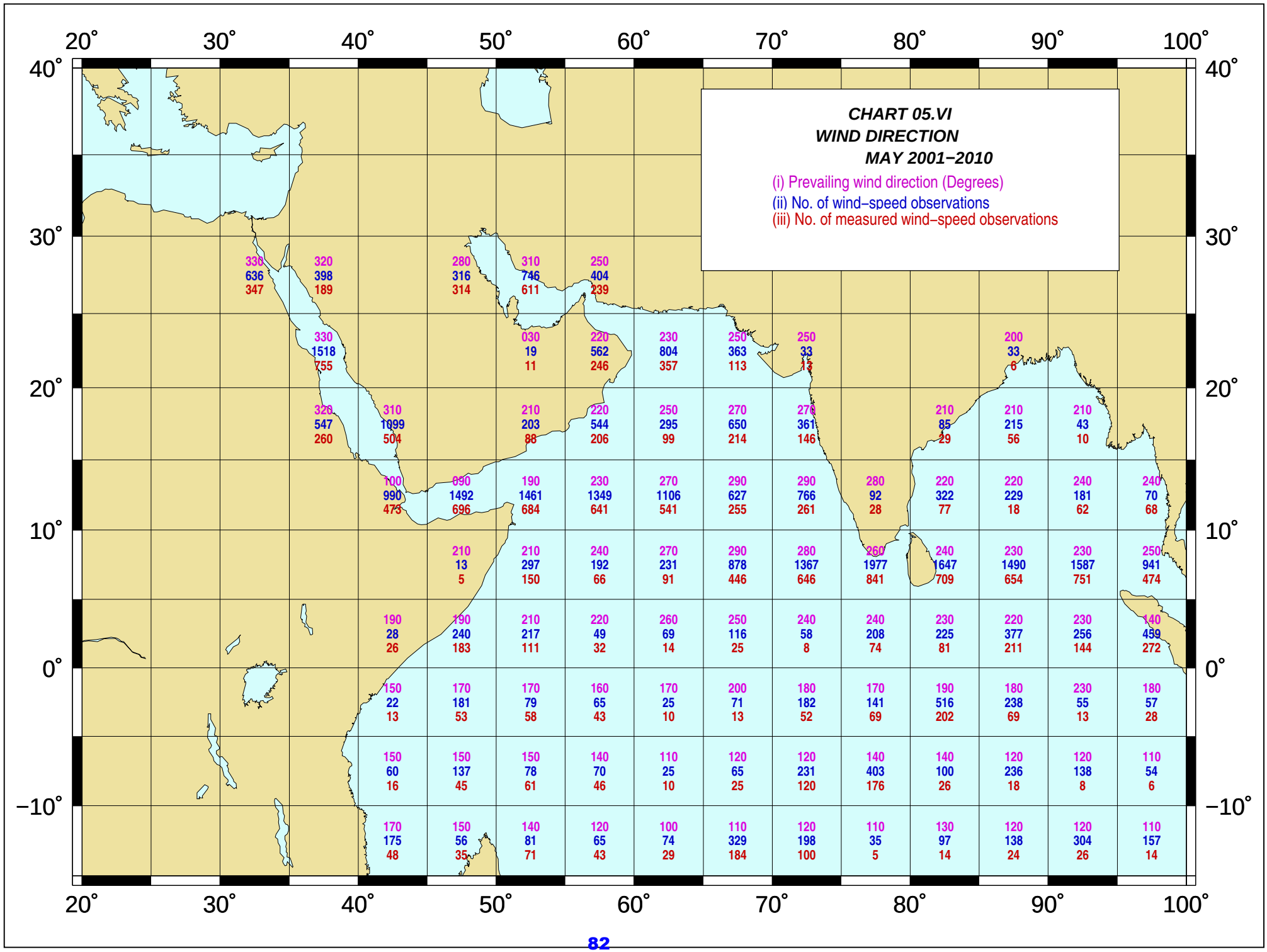


CHART 05.VI
WIND DIRECTION
MAY 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 636 347
320 398 189
280 316 314
310 746 611
250 404 239
330 1518 755
030 19 11
220 562 246
230 804 357
250 363 113
250 33 13
200 33 6
320 547 260
310 1099 504
210 203 88
220 544 206
250 295 99
270 650 214
270 361 146
210 85 29
210 215 56
210 43 10
100 990 473
090 1492 696
190 1461 684
230 1349 641
270 1106 541
290 627 255
290 766 261
280 92 28
220 322 77
220 229 18
240 181 62
240 70 68
210 13 5
210 297 150
240 192 66
270 231 91
290 878 446
280 1367 646
260 1977 841
240 1647 709
230 1490 654
230 1587 751
250 941 474
190 28 26
190 240 183
210 217 111
220 49 32
260 69 14
250 116 25
240 58 8
240 208 74
230 225 81
220 377 211
230 256 144
140 459 272
150 22 13
170 181 53
170 79 58
160 65 43
170 25 10
200 71 13
180 182 52
170 141 69
190 516 202
180 238 69
230 55 13
180 57 28
150 60 16
150 137 45
150 78 61
140 70 46
110 25 10
120 65 25
120 231 120
140 403 176
140 100 26
120 236 18
120 138 8
110 54 6
170 175 48
150 56 35
140 81 71
120 65 43
100 74 29
110 329 184
120 198 100
110 35 5
130 97 14
120 138 24
120 304 26
110 157 14

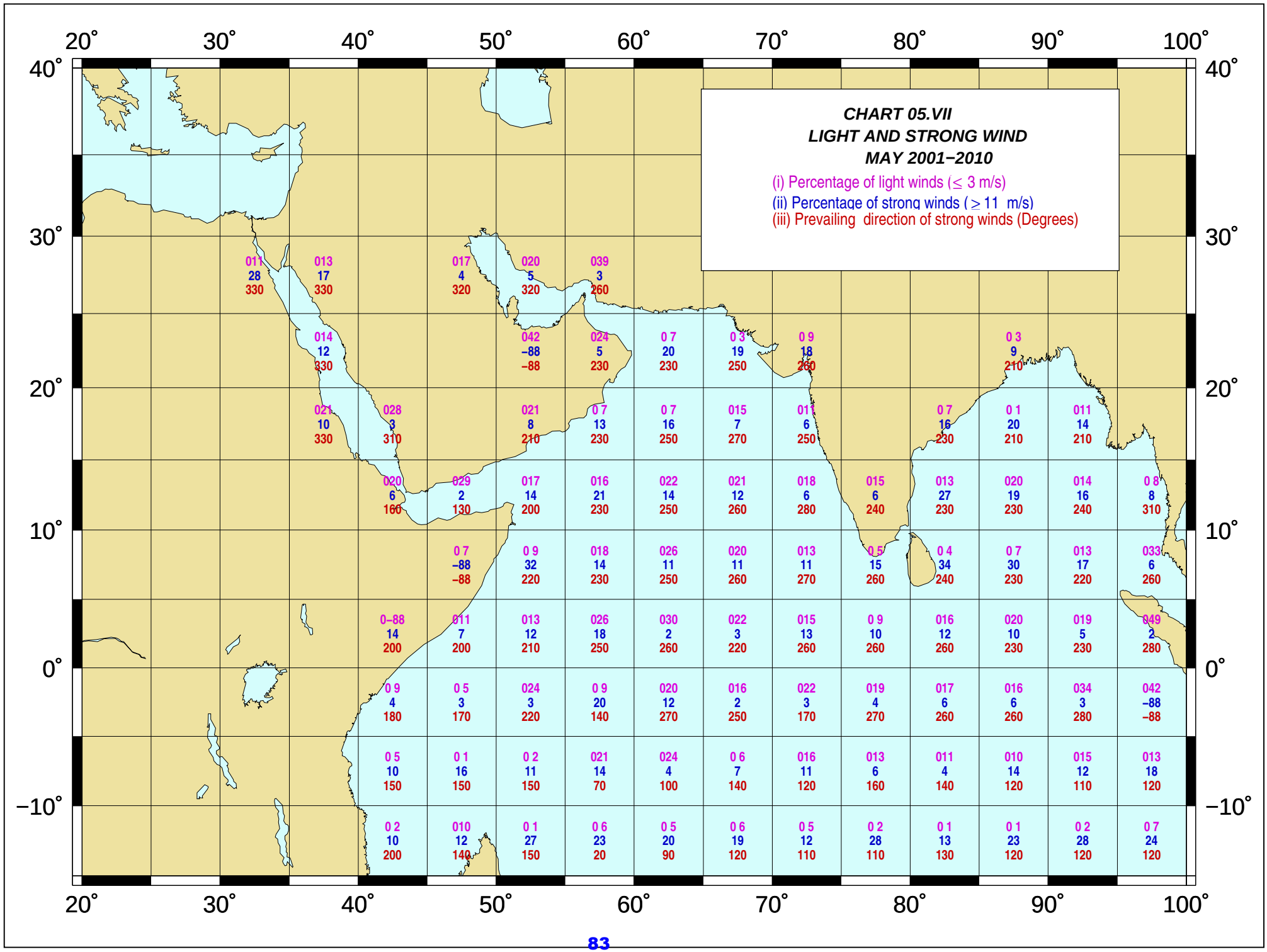


CHART 05.VII
LIGHT AND STRONG WIND
MAY 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
011 28 330
013 17 330
017 4 320
020 5 320
039 3 260
014 12 330
042 −88 −88
024 5 230
0 7 20 230
0 3 19 250
0 9 18 260
0 3 9 210
021 10 330
028 3 310
021 8 210
0 7 13 230
0 7 16 250
015 7 270
011 6 250
0 7 16 230
0 1 20 210
011 14 210
020 6 160
029 2 130
017 14 200
016 21 230
022 14 250
021 12 260
018 6 280
015 6 240
013 27 230
020 19 230
014 16 240
0 8 8 310
0 7 −88 −88
0 9 32 220
018 14 230
026 11 250
020 11 260
013 11 270
0 5 15 260
0 4 34 240
0 7 30 230
013 17 220
033 6 260
0−88 14 200
011 7 200
013 12 210
026 18 250
030 2 260
022 3 220
015 13 260
0 9 10 260
016 12 260
020 10 230
019 5 230
049 2 280
0 9 4 180
0 5 3 170
024 3 220
0 9 20 140
020 12 270
016 2 250
022 3 170
019 4 270
017 6 260
016 6 260
034 3 280
042 −88 −88
0 5 10 150
0 1 16 150
0 2 11 150
021 14 70
024 4 100
0 6 7 140
016 11 120
013 6 160
011 4 140
010 14 120
015 12 110
013 18 120
0 2 10 200
010 12 140
0 1 27 150
0 6 23 20
0 5 20 90
0 6 19 120
0 5 12 110
0 2 28 110
0 1 13 130
0 1 23 120
0 2 28 120
0 7 24 120

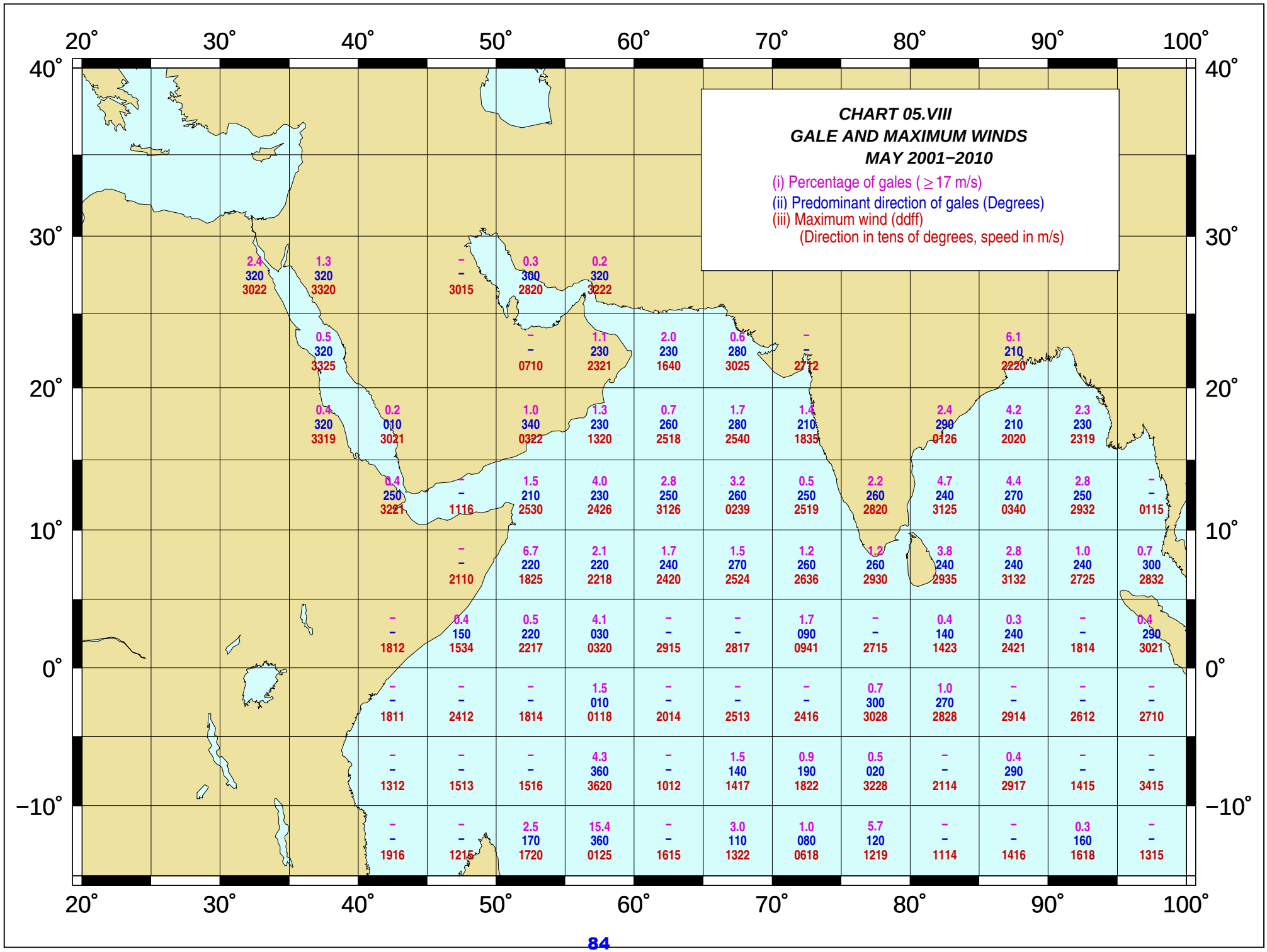


CHART 05.VIII
GALE AND MAXIMUM WINDS
MAY 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.4 320 3022
1.3 320 3320
– – 3015
0.3 300 2820
0.2 320 3222
0.5 320 3325
– – 0710
1.1 230 2321
2.0 230 1640
0.6 280 3025
– – 2712
6.1 210 2220
0.4 320 3319
0.2 010 3021
1.0 340 0322
1.3 230 1320
0.7 260 2518
1.7 280 2540
1.4 210 1835
2.4 290 0126
4.2 210 2020
2.3 230 2319
0.4 250 3221
– – 1116
1.5 210 2530
4.0 230 2426
2.8 250 3126
3.2 260 0239
0.5 250 2519
2.2 260 2820
4.7 240 3125
4.4 270 0340
2.8 250 2932
– – 0115
– – 2110
6.7 220 1825
2.1 220 2218
1.7 240 2420
1.5 270 2524
1.2 260 2636
1.2 260 2930
3.8 240 2935
2.8 240 3132
1.0 240 2725
0.7 300 2832
– – 1812
0.4 150 1534
0.5 220 2217
4.1 030 0320
– – 2915
– – 2817
1.7 090 0941
– – 2715
0.4 140 1423
0.3 240 2421
– – 1814
0.4 290 3021
– – 1811
– – 2412
– – 1814
1.5 010 0118
– – 2014
– – 2513
– – 2416
0.7 300 3028
1.0 270 2828
– – 2914
– – 2612
– – 2710
– – 1312
– – 1513
– – 1516
4.3 360 3620
– – 1012
1.5 140 1417
0.9 190 1822
0.5 020 3228
– – 2114
0.4 290 2917
– – 1415
– – 3415
– – 1916
– – 1215
2.5 170 1720
15.4 360 0125
– – 1615
3.0 110 1322
1.0 080 0618
5.7 120 1219
– – 1114
– – 1416
0.3 160 1618
– – 1315

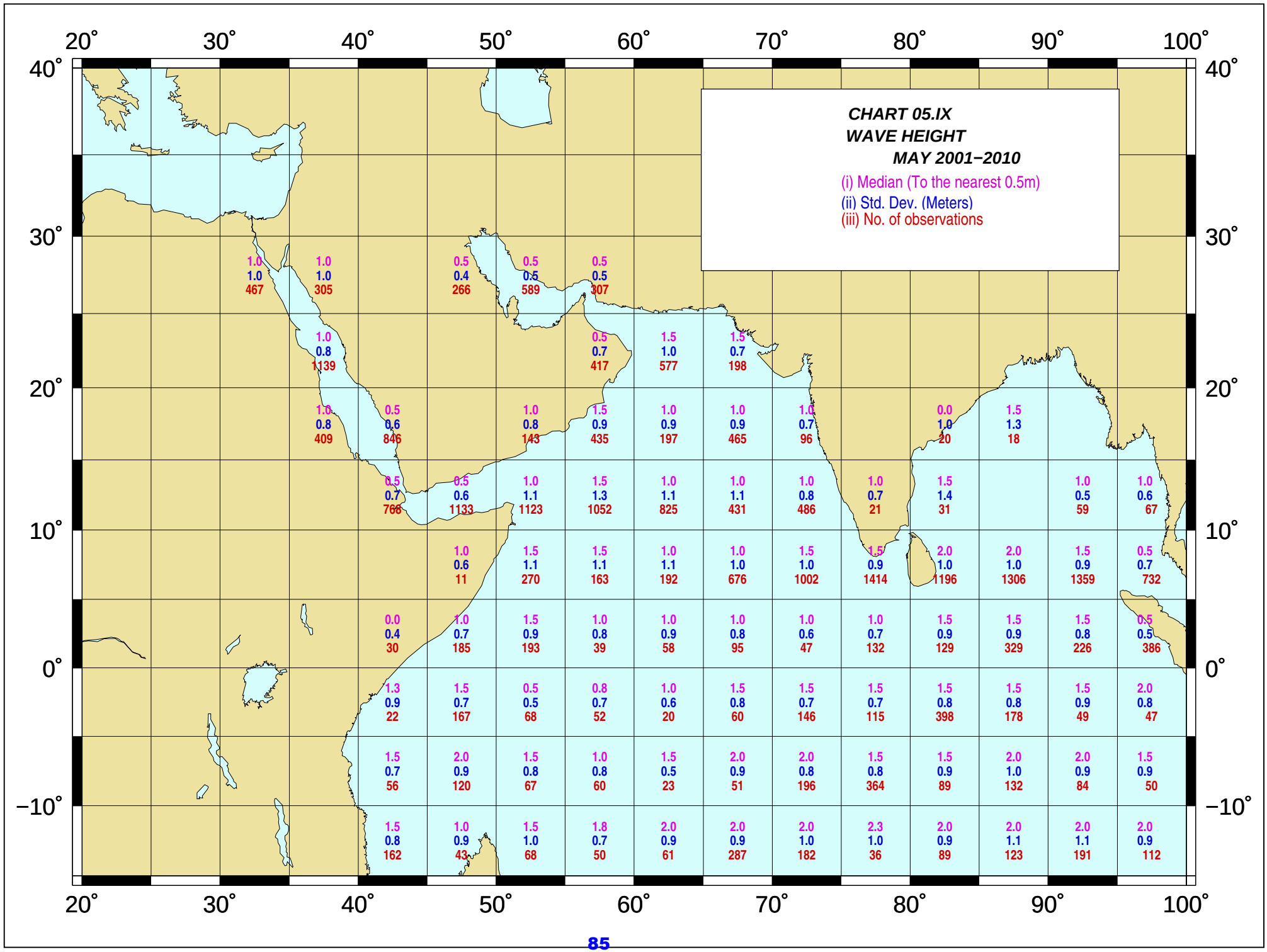


CHART 05.IX
WAVE HEIGHT
MAY 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 1.0 467
1.0 1.0 305
0.5 0.4 266
0.5 0.5 589
0.5 0.5 307
1.0 0.8 1139
0.5 0.7 417
1.5 1.0 577
1.5 0.7 198
1.0 0.8 409
0.5 0.6 846
1.0 0.8 143
1.5 0.9 435
1.0 0.9 197
1.0 0.9 465
1.0 0.7 96
0.0 1.0 20
1.5 1.3 18
0.5 0.7 766
0.5 0.6 1133
1.0 1.1 1123
1.5 1.3 1052
1.0 1.1 825
1.0 1.1 431
1.0 0.8 486
1.0 0.7 21
1.5 1.4 31
1.0 0.5 59
1.0 0.6 67
1.0 0.6 11
1.5 1.1 270
1.5 1.1 163
1.0 1.1 192
1.0 1.0 676
1.5 1.0 1002
1.5 0.9 1414
2.0 1.0 1196
2.0 1.0 1306
1.5 0.9 1359
0.5 0.7 732
0.0 0.4 30
1.0 0.7 185
1.5 0.9 193
1.0 0.8 39
1.0 0.9 58
1.0 0.8 95
1.0 0.6 47
1.0 0.7 132
1.5 0.9 129
1.5 0.9 329
1.5 0.8 226
0.5 0.5 386
1.3 0.9 22
1.5 0.7 167
0.5 0.5 68
0.8 0.7 52
1.0 0.6 20
1.5 0.8 60
1.5 0.7 146
1.5 0.7 115
1.5 0.8 398
1.5 0.8 178
1.5 0.9 49
2.0 0.8 47
1.5 0.7 56
2.0 0.9 120
1.5 0.8 67
1.0 0.8 60
1.5 0.5 23
2.0 0.9 51
2.0 0.8 196
1.5 0.8 364
1.5 0.9 89
2.0 1.0 132
2.0 0.9 84
1.5 0.9 50
1.5 0.8 162
1.0 0.9 43
1.5 1.0 68
1.8 0.7 50
2.0 0.9 61
2.0 0.9 287
2.0 1.0 182
2.3 1.0 36
2.0 0.9 89
2.0 1.1 123
2.0 1.1 191
2.0 0.9 112

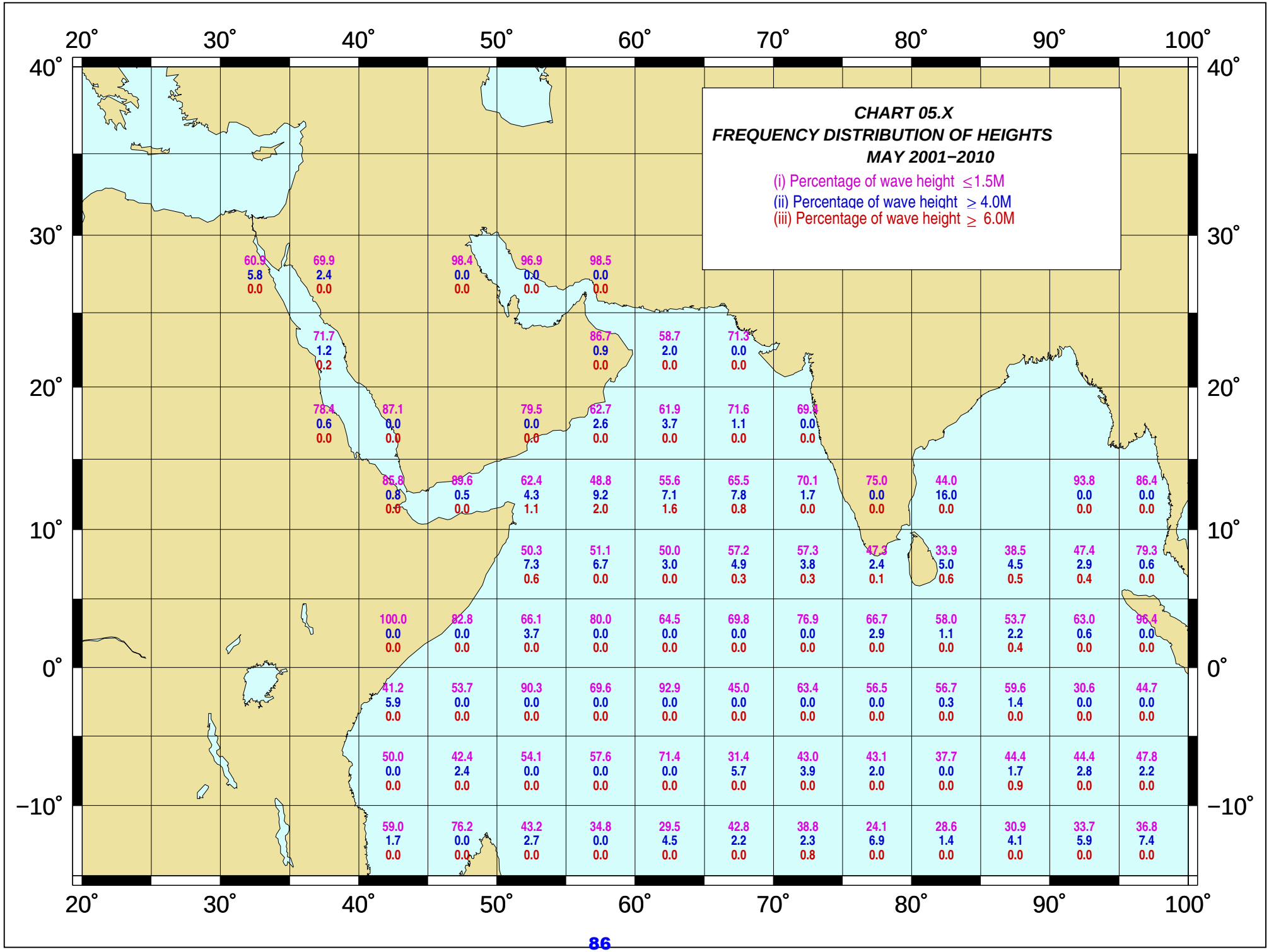


CHART 05.X
FREQUENCY DISTRIBUTION OF HEIGHTS
MAY 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
60.9 5.8 0.0
69.9 2.4 0.0
98.4 0.0 0.0
96.9 0.0 0.0
98.5 0.0 0.0
71.7 1.2 0.2
86.7 0.9 0.0
58.7 2.0 0.0
71.3 0.0 0.0
78.4 0.6 0.0
87.1 0.0 0.0
79.5 0.0 0.0
62.7 2.6 0.0
61.9 3.7 0.0
71.6 1.1 0.0
69.8 0.0 0.0
85.8 0.8 0.6
89.6 0.5 0.0
62.4 4.3 1.1
48.8 9.2 2.0
55.6 7.1 1.6
65.5 7.8 0.8
70.1 1.7 0.0
75.0 0.0 0.0
44.0 16.0 0.0
93.8 0.0 0.0
86.4 0.0 0.0
50.3 7.3 0.6
51.1 6.7 0.0
50.0 3.0 0.0
57.2 4.9 0.3
57.3 3.8 0.3
47.9 2.4 0.1
33.9 5.0 0.6
38.5 4.5 0.5
47.4 2.9 0.4
79.3 0.6 0.0
100.0 0.0 0.0
82.8 0.0 0.0
66.1 3.7 0.0
80.0 0.0 0.0
64.5 0.0 0.0
69.8 0.0 0.0
76.9 0.0 0.0
66.7 2.9 0.0
58.0 1.1 0.0
53.7 2.2 0.4
63.0 0.6 0.0
96.4 0.0 0.0
41.2 5.9 0.0
53.7 0.0 0.0
90.3 0.0 0.0
69.6 0.0 0.0
92.9 0.0 0.0
45.0 0.0 0.0
63.4 0.0 0.0
56.5 0.0 0.0
56.7 0.3 0.0
59.6 1.4 0.0
30.6 0.0 0.0
44.7 0.0 0.0
50.0 0.0 0.0
42.4 2.4 0.0
54.1 0.0 0.0
57.6 0.0 0.0
71.4 0.0 0.0
31.4 5.7 0.0
43.0 3.9 0.0
43.1 2.0 0.0
37.7 0.0 0.0
44.4 1.7 0.9
44.4 2.8 0.0
47.8 2.2 0.0
59.0 1.7 0.0
76.2 0.0 0.0
43.2 2.7 0.0
34.8 0.0 0.0
29.5 4.5 0.0
42.8 2.2 0.0
38.8 2.3 0.8
24.1 6.9 0.0
28.6 1.4 0.0
30.9 4.1 0.0
33.7 5.9 0.0
36.8 7.4 0.0

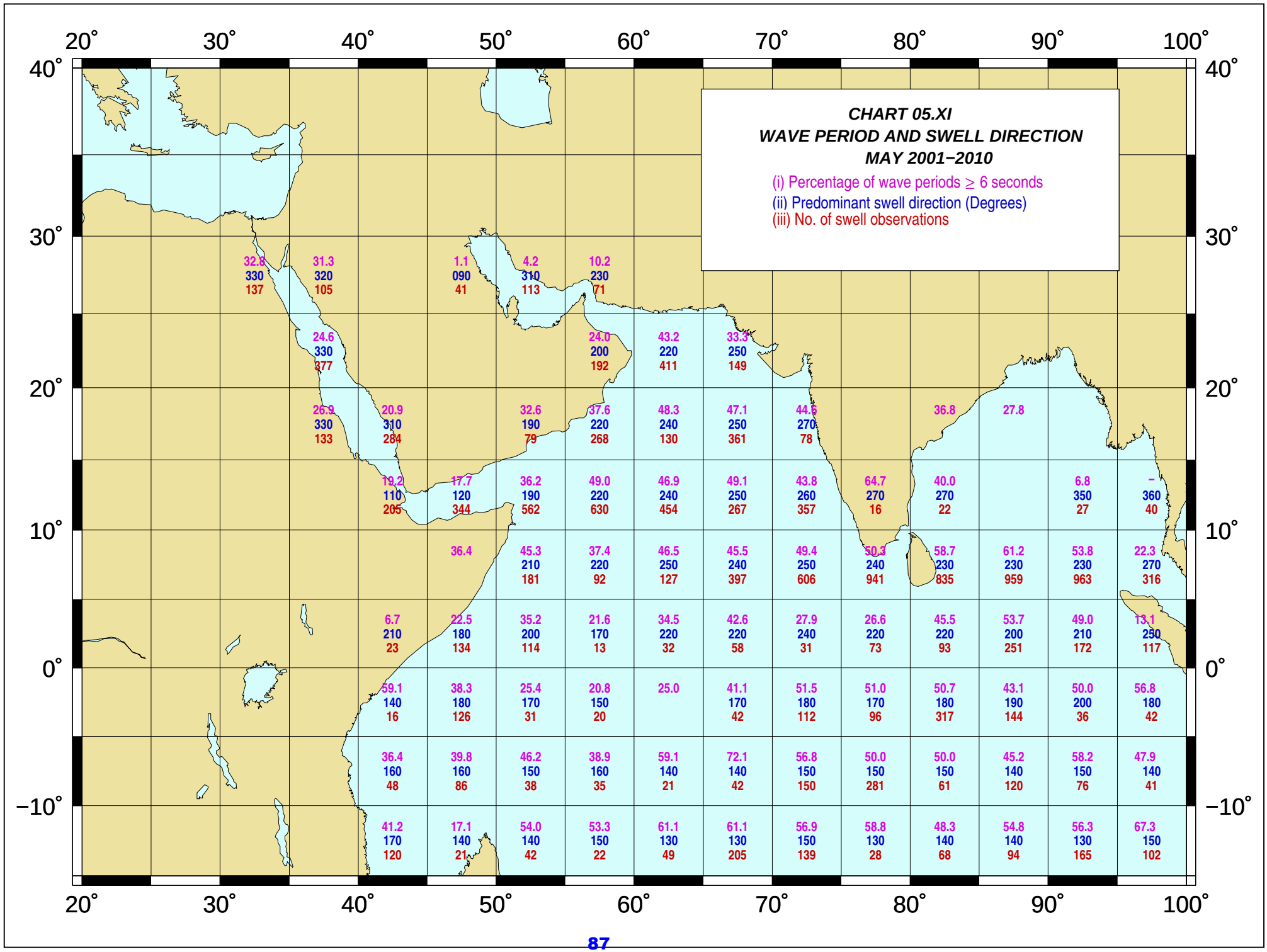


CHART 05.XI
WAVE PERIOD AND SWELL DIRECTION
MAY 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
32.8 330 137
31.3 320 105
1.1 090 41
4.2 310 113
10.2 230 71
24.6 330 377
24.0 200 192
43.2 220 411
33.3 250 149
26.9 330 133
20.9 310 284
32.6 190 79
37.6 220 268
48.3 240 130
47.1 250 361
44.6 270 78
36.8
27.8
19.2 110 205
17.7 120 344
36.2 190 562
49.0 220 630
46.9 240 454
49.1 250 267
43.8 260 357
64.7 270 16
40.0 270 22
6.8 350 27
– 360 40
36.4
45.3 210 181
37.4 220 92
46.5 250 127
45.5 240 397
49.4 250 606
50.3 240 941
58.7 230 835
61.2 230 959
53.8 230 963
22.3 270 316
6.7 210 23
22.5 180 134
35.2 200 114
21.6 170 13
34.5 220 32
42.6 220 58
27.9 240 31
26.6 220 73
45.5 220 93
53.7 200 251
49.0 210 172
13.1 250 117
59.1 140 16
38.3 180 126
25.4 170 31
20.8 150 20
25.0
41.1 170 42
51.5 180 112
51.0 170 96
50.7 180 317
43.1 190 144
50.0 200 36
56.8 180 42
36.4 160 48
39.8 160 86
46.2 150 38
38.9 160 35
59.1 140 21
72.1 140 42
56.8 150 150
50.0 150 281
50.0 150 61
45.2 140 120
58.2 150 76
47.9 140 41
41.2 170 120
17.1 140 21
54.0 140 42
53.3 150 22
61.1 130 49
61.1 130 205
56.9 150 139
58.8 130 28
48.3 140 68
54.8 140 94
56.3 130 165
67.3 150 102

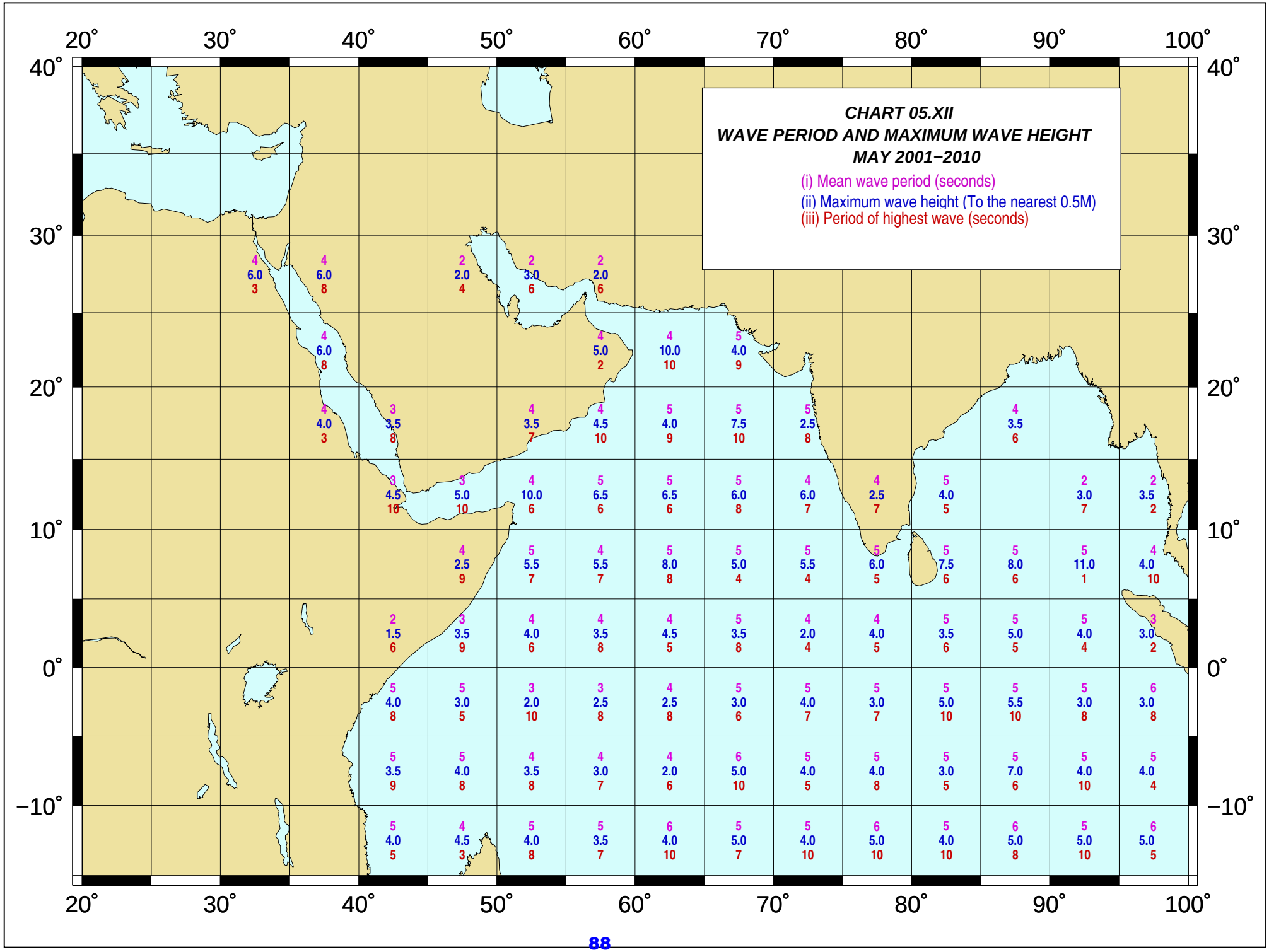


CHART 05.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
MAY 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 6.0 3
4 6.0 8
2 2.0 4
2 3.0 6
2 2.0 6
4 6.0 8
4 5.0 2
4 10.0 10
5 4.0 9
4 4.0 3
3 3.5 8
4 3.5 7
4 4.5 10
5 4.0 9
5 7.5 10
5 2.5 8
4 3.5 6
3 4.5 10
3 5.0 10
4 10.0 6
5 6.5 6
5 6.5 6
5 6.0 8
4 6.0 7
4 2.5 7
5 4.0 5
2 3.0 7
2 3.5 2
4 2.5 9
5 5.5 7
4 5.5 7
5 8.0 8
5 5.0 4
5 5.5 4
5 6.0 5
5 7.5 6
5 8.0 6
5 11.0 1
4 4.0 10
2 1.5 6
3 3.5 9
4 4.0 6
4 3.5 8
4 4.5 5
5 3.5 8
4 2.0 4
4 4.0 5
5 3.5 6
5 5.0 5
5 4.0 4
3 3.0 2
5 4.0 8
5 3.0 5
3 2.0 10
3 2.5 8
4 2.5 8
5 3.0 6
5 4.0 7
5 3.0 7
5 5.0 10
5 5.5 10
5 3.0 8
6 3.0 8
5 3.5 9
5 4.0 8
4 3.5 8
4 3.0 7
4 2.0 6
6 5.0 10
5 4.0 5
5 4.0 8
5 3.0 5
5 7.0 6
5 4.0 10
5 4.0 4
5 4.0 5
4 4.5 3
5 4.0 8
5 3.5 7
6 4.0 10
5 5.0 7
5 4.0 10
6 5.0 10
5 4.0 10
6 5.0 8
5 5.0 10
6 5.0 5

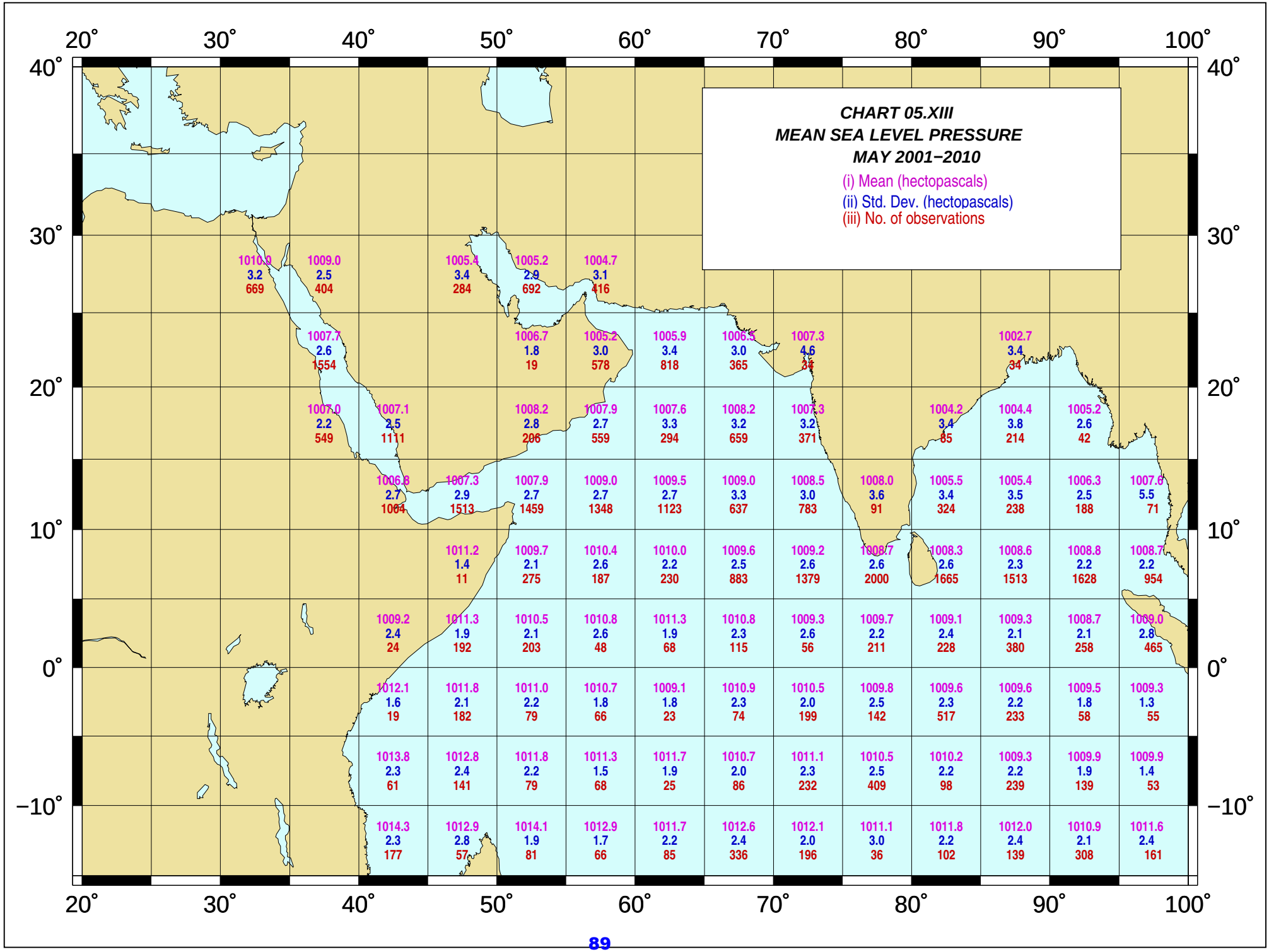


CHART 05.XIII
MEAN SEA LEVEL PRESSURE
MAY 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1010.0 3.2 669
1009.0 2.5 404
1005.4 3.4 284
1005.2 2.9 692
1004.7 3.1 416
1007.7 2.6 1554
1006.7 1.8 19
1005.2 3.0 578
1005.9 3.4 818
1006.5 3.0 365
1007.3 4.6 34
1002.7 3.4 34
1007.0 2.2 549
1007.1 2.5 1111
1008.2 2.8 206
1007.9 2.7 559
1007.6 3.3 294
1008.2 3.2 659
1007.3 3.2 371
1004.2 3.4 85
1004.4 3.8 214
1005.2 2.6 42
1006.8 2.7 1004
1007.3 2.9 1513
1007.9 2.7 1459
1009.0 2.7 1348
1009.5 2.7 1123
1009.0 3.3 637
1008.5 3.0 783
1008.0 3.6 91
1005.5 3.4 324
1005.4 3.5 238
1006.3 2.5 188
1007.6 5.5 71
1011.2 1.4 11
1009.7 2.1 275
1010.4 2.6 187
1010.0 2.2 230
1009.6 2.5 883
1009.2 2.6 1379
1008.7 2.6 2000
1008.3 2.6 1665
1008.6 2.3 1513
1008.8 2.2 1628
1008.7 2.2 954
1009.2 2.4 24
1011.3 1.9 192
1010.5 2.1 203
1010.8 2.6 48
1011.3 1.9 68
1010.8 2.3 115
1009.3 2.6 56
1009.7 2.2 211
1009.1 2.4 228
1009.3 2.1 380
1008.7 2.1 258
1009.0 2.8 465
1012.1 1.6 19
1011.8 2.1 182
1011.0 2.2 79
1010.7 1.8 66
1009.1 1.8 23
1010.9 2.3 74
1010.5 2.0 199
1009.8 2.5 142
1009.6 2.3 517
1009.6 2.2 233
1009.5 1.8 58
1009.3 1.3 55
1013.8 2.3 61
1012.8 2.4 141
1011.8 2.2 79
1011.3 1.5 68
1011.7 1.9 25
1010.7 2.0 86
1011.1 2.3 232
1010.5 2.5 409
1010.2 2.2 98
1009.3 2.2 239
1009.9 1.9 139
1009.9 1.4 53
1014.3 2.3 177
1012.9 2.8 57
1014.1 1.9 81
1012.9 1.7 66
1011.7 2.2 85
1012.6 2.4 336
1012.1 2.0 196
1011.1 3.0 36
1011.8 2.2 102
1012.0 2.4 139
1010.9 2.1 308
1011.6 2.4 161

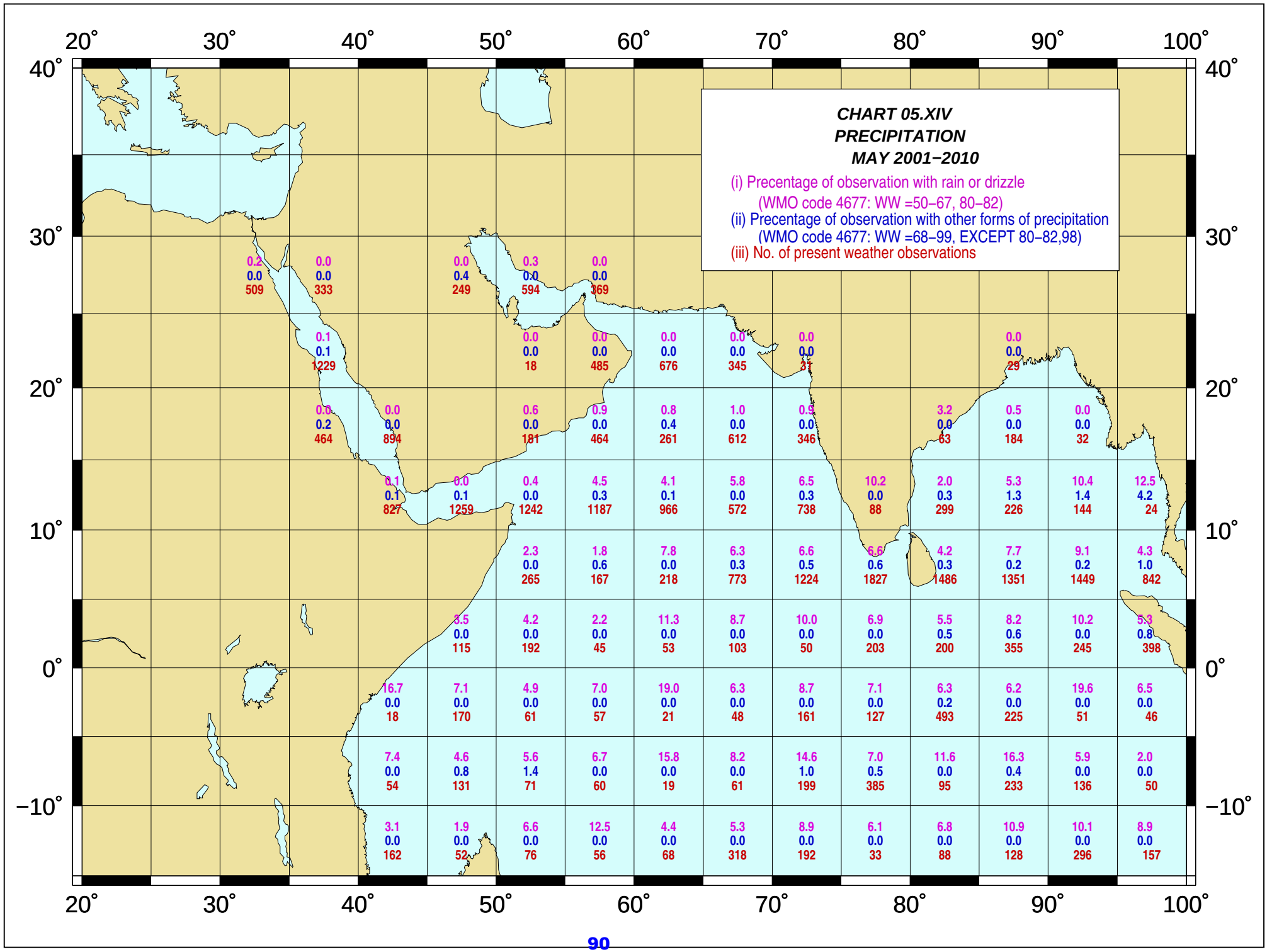


CHART 05.XIV
PRECIPITATION
MAY 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.0 509
0.0 0.0 333
0.0 0.4 249
0.3 0.0 594
0.0 0.0 369
0.1 0.1 1229
0.0 0.0 18
0.0 0.0 485
0.0 0.0 676
0.0 0.0 345
0.0 0.0 31
0.0 0.0 29
0.0 0.2 464
0.0 0.0 894
0.6 0.0 181
0.9 0.0 464
0.8 0.4 261
1.0 0.0 612
0.9 0.0 346
3.2 0.0 63
0.5 0.0 184
0.0 0.0 32
0.1 0.1 827
0.0 0.1 1259
0.4 0.0 1242
4.5 0.3 1187
4.1 0.1 966
5.8 0.0 572
6.5 0.3 738
10.2 0.0 88
2.0 0.3 299
5.3 1.3 226
10.4 1.4 144
12.5 4.2 24
2.3 0.0 265
1.8 0.6 167
7.8 0.0 218
6.3 0.3 773
6.6 0.5 1224
6.6 0.6 1827
4.2 0.3 1486
7.7 0.2 1351
9.1 0.2 1449
4.3 1.0 842
3.5 0.0 115
4.2 0.0 192
2.2 0.0 45
11.3 0.0 53
8.7 0.0 103
10.0 0.0 50
6.9 0.0 203
5.5 0.5 200
8.2 0.6 355
10.2 0.0 245
5.3 0.8 398
16.7 0.0 18
7.1 0.0 170
4.9 0.0 61
7.0 0.0 57
19.0 0.0 21
6.3 0.0 48
8.7 0.0 161
7.1 0.0 127
6.3 0.2 493
6.2 0.0 225
19.6 0.0 51
6.5 0.0 46
7.4 0.0 54
4.6 0.8 131
5.6 1.4 71
6.7 0.0 60
15.8 0.0 19
8.2 0.0 61
14.6 1.0 199
7.0 0.5 385
11.6 0.0 95
16.3 0.4 233
5.9 0.0 136
2.0 0.0 50
3.1 0.0 162
1.9 0.0 52
6.6 0.0 76
12.5 0.0 56
4.4 0.0 68
5.3 0.0 318
8.9 0.0 192
6.1 0.0 33
6.8 0.0 88
10.9 0.0 128
10.1 0.0 296
8.9 0.0 157

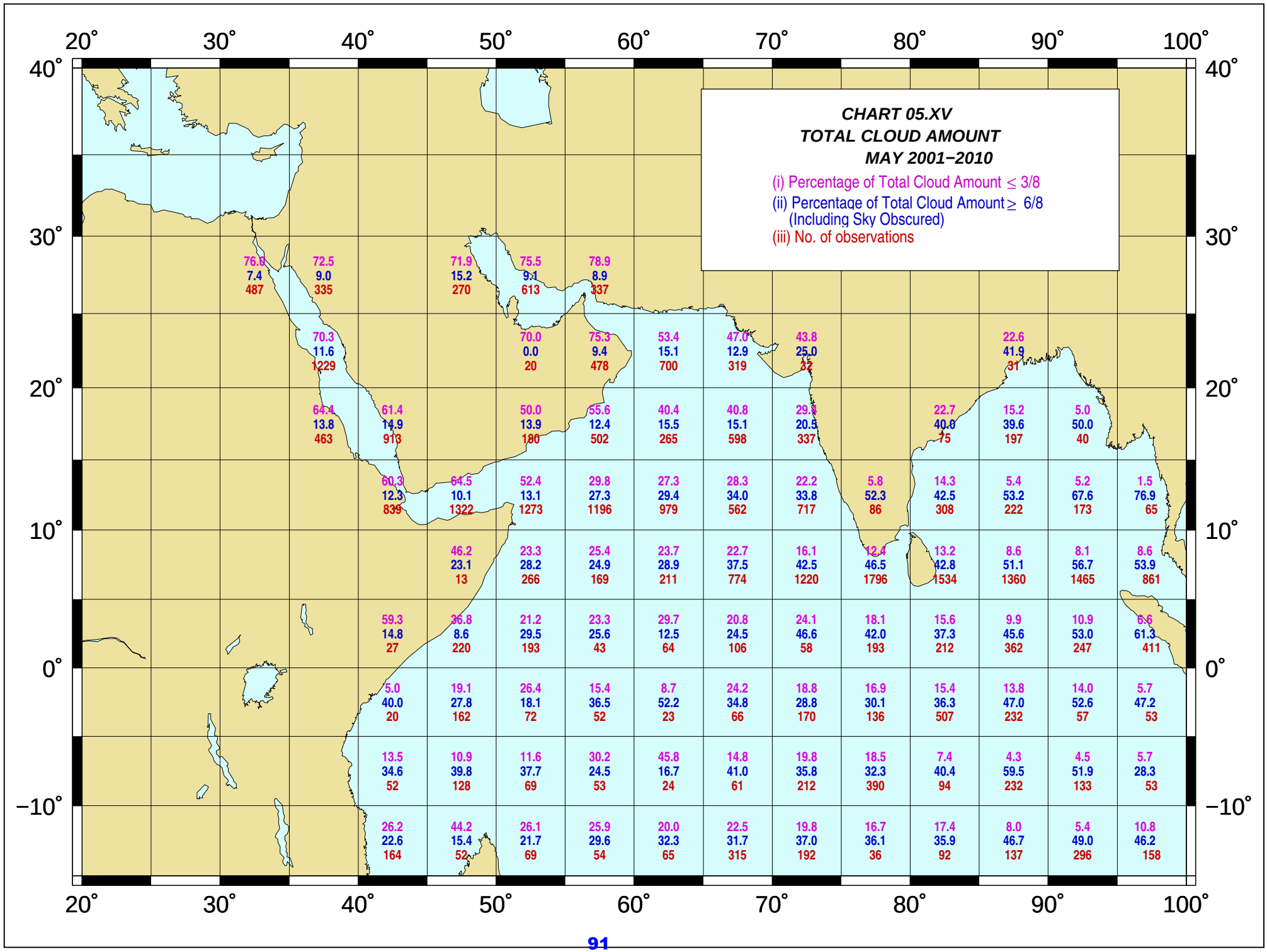


CHART 05.XV
TOTAL CLOUD AMOUNT
MAY 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
76.6 7.4 487
72.5 9.0 335
71.9 15.2 270
75.5 9.1 613
78.9 8.9 337
70.3 11.6 1229
70.0 0.0 20
75.3 9.4 478
53.4 15.1 700
47.0 12.9 319
43.8 25.0 32
22.6 41.9 31
64.4 13.8 463
61.4 14.9 913
50.0 13.9 180
55.6 12.4 502
40.4 15.5 265
40.8 15.1 598
29.9 20.5 337
22.7 40.0 75
15.2 39.6 197
5.0 50.0 40
60.3 12.3 839
64.5 10.1 1322
52.4 13.1 1273
29.8 27.3 1196
27.3 29.4 979
28.3 34.0 562
22.2 33.8 717
5.8 52.3 86
14.3 42.5 308
5.4 53.2 222
5.2 67.6 173
1.5 76.9 65
46.2 23.1 13
23.3 28.2 266
25.4 24.9 169
23.7 28.9 211
22.7 37.5 774
16.1 42.5 1220
12.4 46.5 1796
13.2 42.8 1534
8.6 51.1 1360
8.1 56.7 1465
8.6 53.9 861
59.3 14.8 27
36.8 8.6 220
21.2 29.5 193
23.3 25.6 43
29.7 12.5 64
20.8 24.5 106
24.1 46.6 58
18.1 42.0 193
15.6 37.3 212
9.9 45.6 362
10.9 53.0 247
6.6 61.3 411
5.0 40.0 20
19.1 27.8 162
26.4 18.1 72
15.4 36.5 52
8.7 52.2 23
24.2 34.8 66
18.8 28.8 170
16.9 30.1 136
15.4 36.3 507
13.8 47.0 232
14.0 52.6 57
5.7 47.2 53
13.5 34.6 52
10.9 39.8 128
11.6 37.7 69
30.2 24.5 53
45.8 16.7 24
14.8 41.0 61
19.8 35.8 212
18.5 32.3 390
7.4 40.4 94
4.3 59.5 232
4.5 51.9 133
5.7 28.3 53
26.2 22.6 164
44.2 15.4 52
26.1 21.7 69
25.9 29.6 54
20.0 32.3 65
22.5 31.7 315
19.8 37.0 192
16.7 36.1 36
17.4 35.9 92
8.0 46.7 137
5.4 49.0 296
10.8 46.2 158

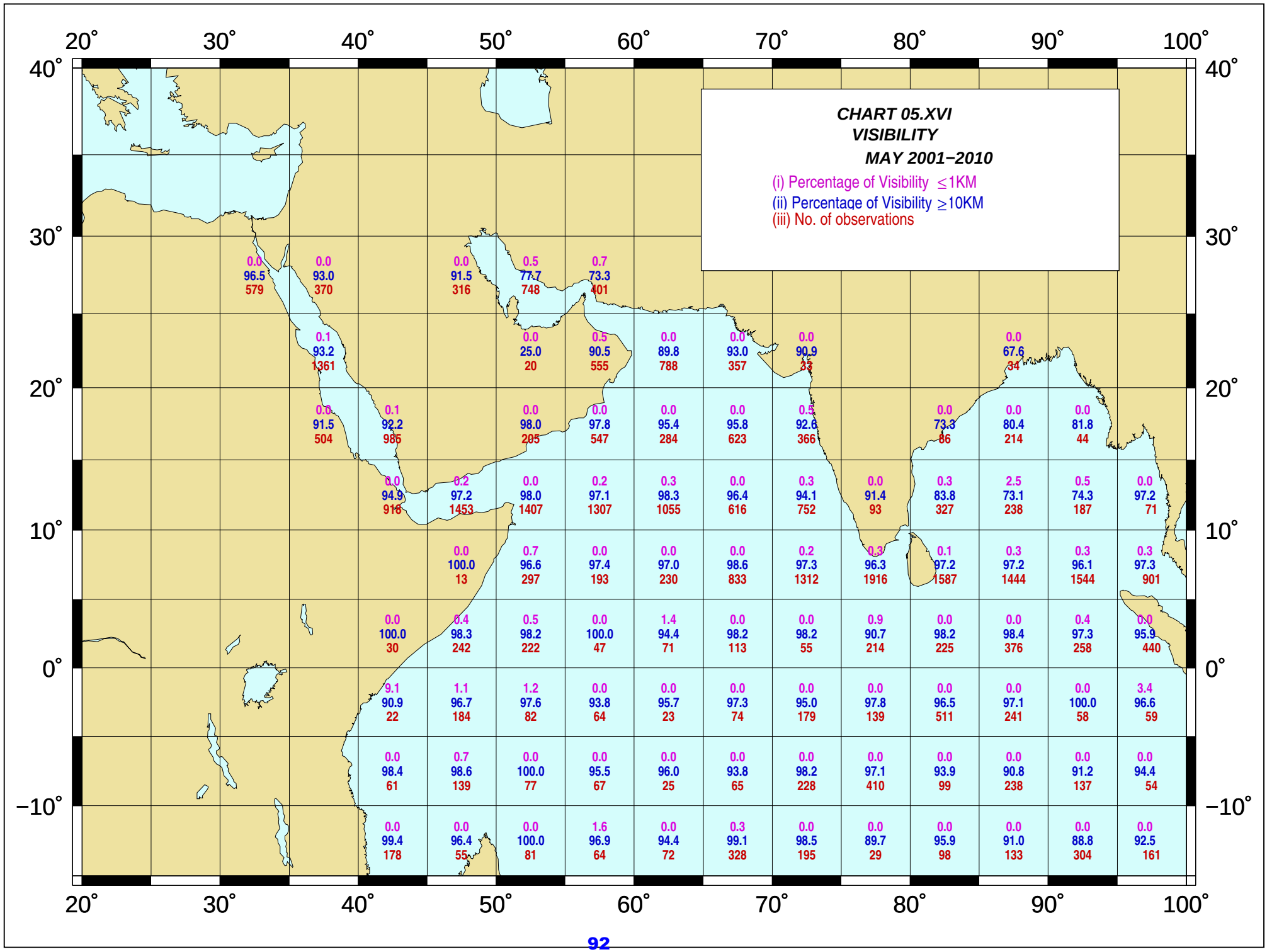


CHART 05.XVI
VISIBILITY
MAY 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 96.5 579
0.0 93.0 370
0.0 91.5 316
0.5 77.7 748
0.7 73.3 401
0.1 93.2 1361
0.0 25.0 20
0.5 90.5 555
0.0 89.8 788
0.0 93.0 357
0.0 90.9 33
0.0 67.6 34
0.0 91.5 504
0.1 92.2 985
0.0 98.0 205
0.0 97.8 547
0.0 95.4 284
0.0 95.8 623
0.0 92.6 366
0.0 73.3 66
0.0 80.4 214
0.0 81.8 44
0.0 94.9 916
0.2 97.2 1453
0.0 98.0 1407
0.2 97.1 1307
0.3 98.3 1055
0.0 96.4 616
0.3 94.1 752
0.0 91.4 93
0.3 83.8 327
2.5 73.1 238
0.5 74.3 187
0.0 97.2 71
0.0 100.0 13
0.7 96.6 297
0.0 97.4 193
0.0 97.0 230
0.0 98.6 833
0.2 97.3 1312
0.3 96.3 1916
0.1 97.2 1587
0.3 97.2 1444
0.3 96.1 1544
0.3 97.3 901
0.0 100.0 30
0.4 98.3 242
0.5 98.2 222
0.0 100.0 47
1.4 94.4 71
0.0 98.2 113
0.0 98.2 55
0.9 90.7 214
0.0 98.2 225
0.0 98.4 376
0.4 97.3 258
0.0 95.9 440
9.1 90.9 22
1.1 96.7 184
1.2 97.6 82
0.0 93.8 64
0.0 95.7 23
0.0 97.3 74
0.0 95.0 179
0.0 97.8 139
0.0 96.5 511
0.0 97.1 241
0.0 100.0 58
3.4 96.6 59
0.0 98.4 61
0.7 98.6 139
0.0 100.0 77
0.0 95.5 67
0.0 96.0 25
0.0 93.8 65
0.0 98.2 228
0.0 97.1 410
0.0 93.9 99
0.0 90.8 238
0.0 91.2 137
0.0 94.4 54
0.0 99.4 178
0.0 96.4 55
0.0 100.0 81
1.6 96.9 64
0.0 94.4 72
0.3 99.1 328
0.0 98.5 195
0.0 89.7 29
0.0 95.9 98
0.0 91.0 133
0.0 88.8 304
0.0 92.5 161

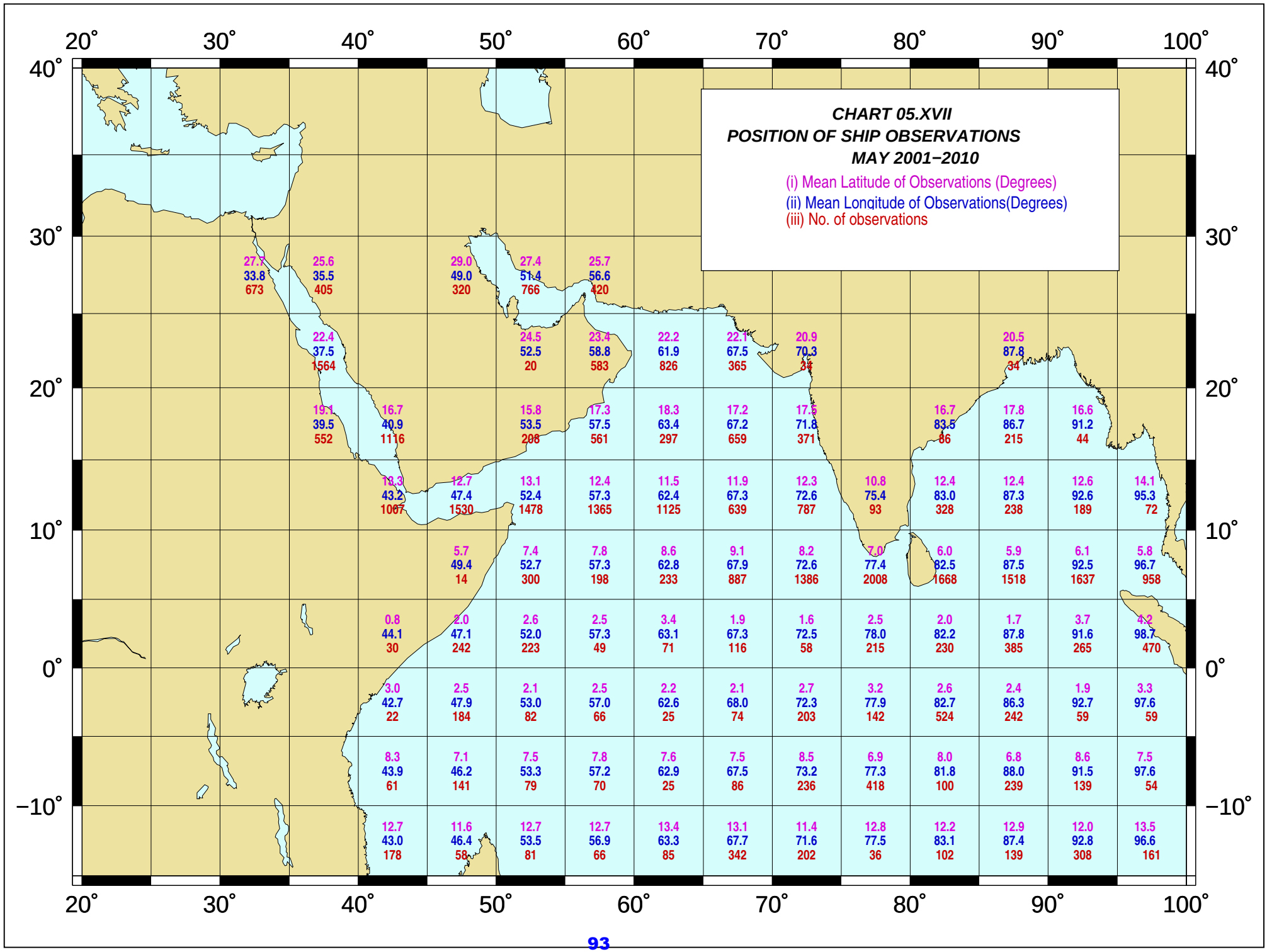


CHART 05.XVII
POSITION OF SHIP OBSERVATIONS
MAY 2001−2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.7 33.8 673
25.6 35.5 405
29.0 49.0 320
27.4 51.4 766
25.7 56.6 420
22.4 37.5 1564
24.5 52.5 20
23.4 58.8 583
22.2 61.9 826
22.1 67.5 365
20.9 70.3
20.5 87.8
19.1 39.5 552
16.7 40.9 1116
15.8 53.5 208
17.3 57.5 561
18.3 63.4 297
17.2 67.2 659
17.5 71.8 371
16.7 83.5
17.8 86.7 215
16.6 91.2 44
10.3 43.2 1067
12.7 47.4 1530
13.1 52.4 1478
12.4 57.3 1365
11.5 62.4 1125
11.9 67.3 639
12.3 72.6 787
10.8 75.4 93
12.4 83.0 328
12.4 87.3 238
12.6 92.6 189
14.1 95.3 72
5.7 49.4 14
7.4 52.7 300
7.8 57.3 198
8.6 62.8 233
9.1 67.9 887
8.2 72.6 1386
7.0 77.4 2008
6.0 82.5 1668
5.9 87.5 1518
6.1 92.5 1637
5.8 96.7 958
0.8 44.1 30
2.0 47.1 242
2.6 52.0 223
2.5 57.3 49
3.4 63.1 71
1.9 67.3 116
1.6 72.5 58
2.5 78.0 215
2.0 82.2 230
1.7 87.8 385
3.7 91.6 265
4.2 98.7 470
3.0 42.7 22
2.5 47.9 184
2.1 53.0 82
2.5 57.0 66
2.2 62.6 25
2.1 68.0 74
2.7 72.3 203
3.2 77.9 142
2.6 82.7 524
2.4 86.3 242
1.9 92.7 59
3.3 97.6 59
8.3 43.9 61
7.1 46.2 141
7.5 53.3 79
7.8 57.2 70
7.6 62.9 25
7.5 67.5 86
8.5 73.2 236
6.9 77.3 418
8.0 81.8 100
6.8 88.0 239
8.6 91.5 139
7.5 97.6 54
12.7 43.0 178
11.6 46.4 58
12.7 53.5 81
12.7 56.9 66
13.4 63.3 85
13.1 67.7 342
11.4 71.6 202
12.8 77.5 36
12.2 83.1 102
12.9 87.4 139
12.0 92.8 308
13.5 96.6 161

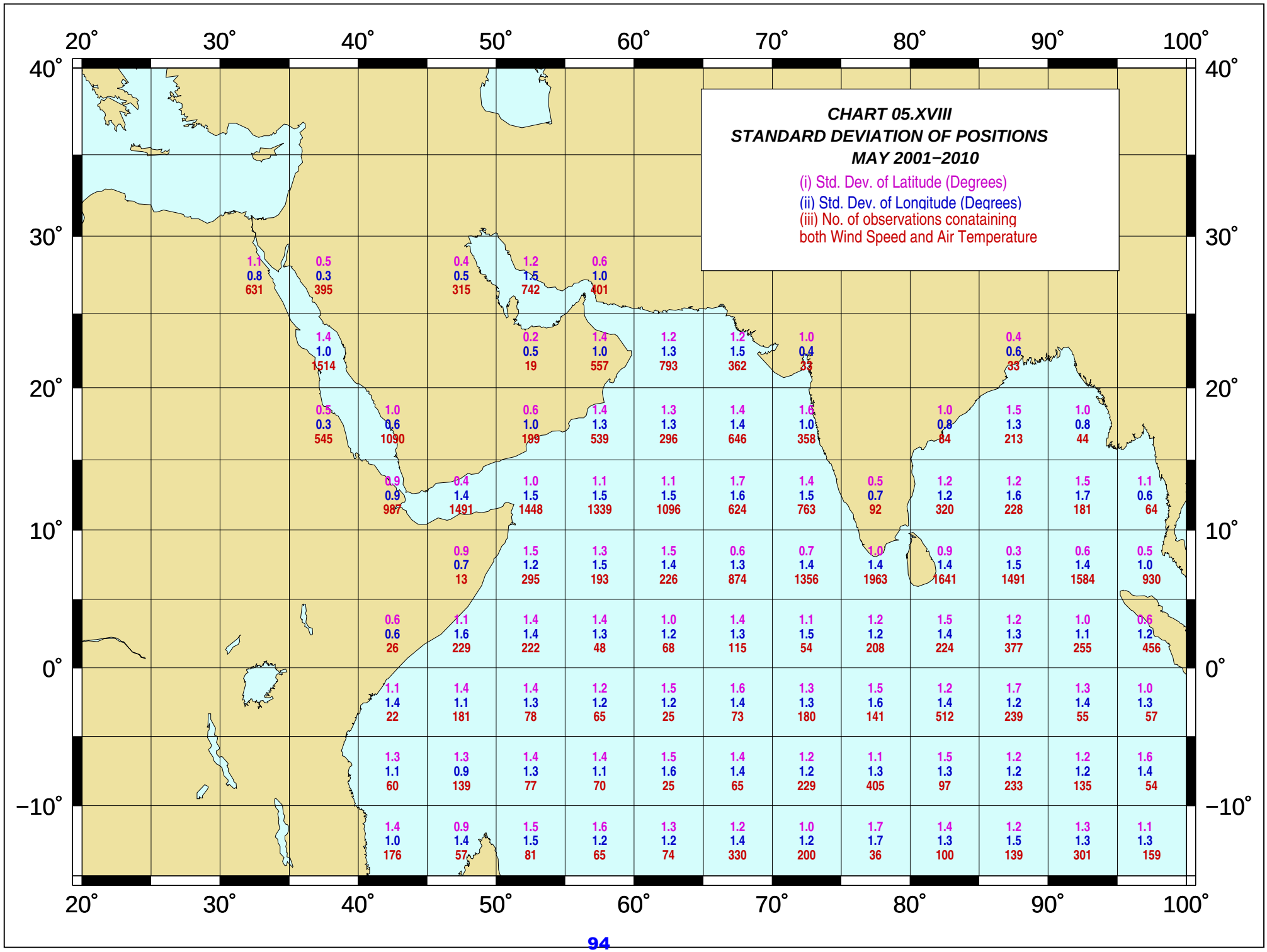
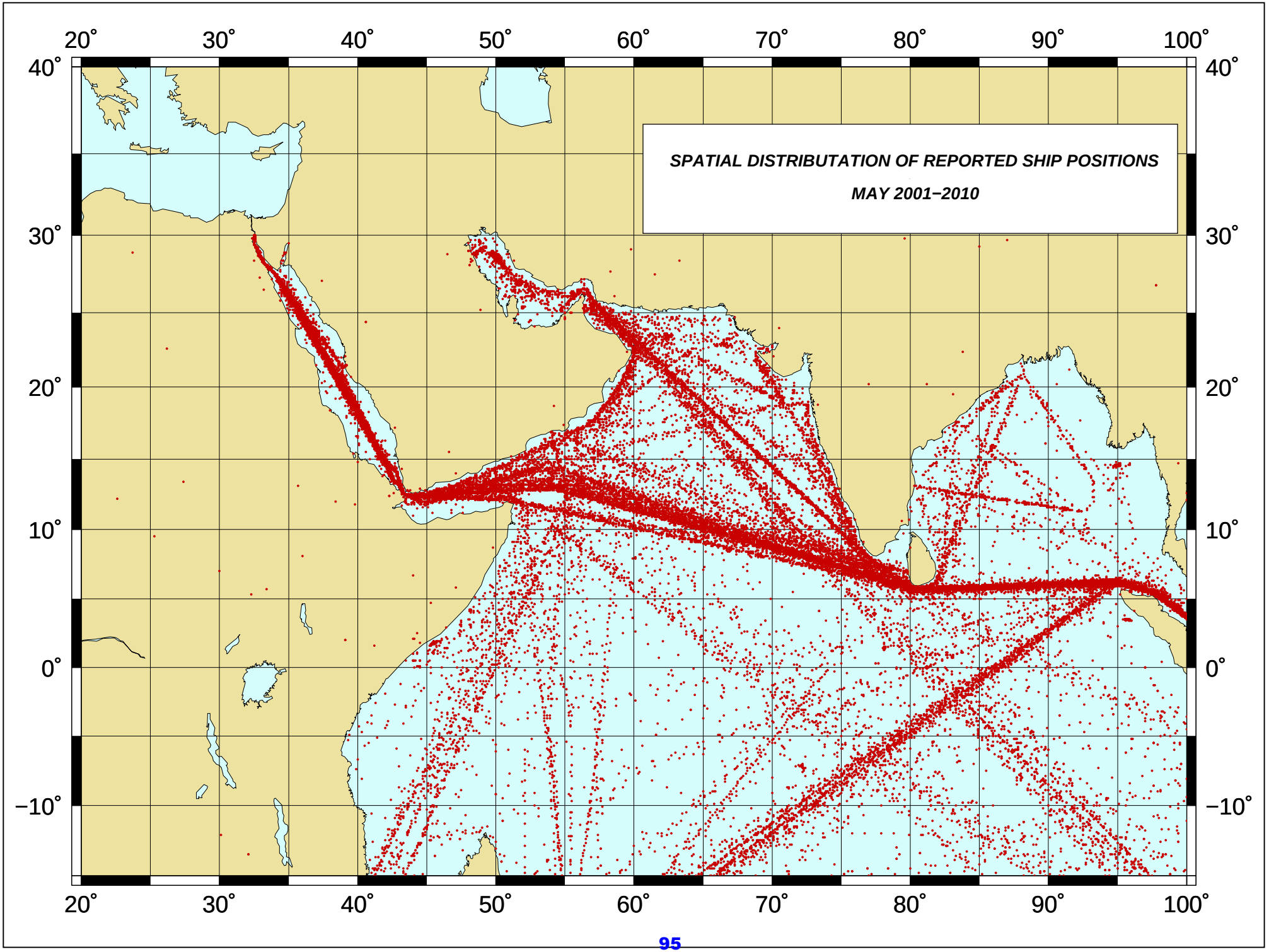


CHART 05.XVIII
STANDARD DEVIATION OF POSITIONS
MAY 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 631
0.5 0.3 395
0.4 0.5 315
1.2 1.5 742
0.6 1.0 401
1.4 1.0 1514
0.2 0.5 19
1.4 1.0 557
1.2 1.3 793
1.2 1.5 362
1.0 0.4 33
0.4 0.6 33
0.5 0.3 545
1.0 0.6 1090
0.6 1.0 199
1.4 1.3 539
1.3 1.3 296
1.4 1.4 646
1.0 1.0 358
1.0 0.8 84
1.5 1.3 213
1.0 0.8 44
0.9 0.9 987
0.4 1.4 1491
1.0 1.5 1448
1.1 1.5 1339
1.1 1.5 1096
1.7 1.6 624
1.4 1.5 763
0.5 0.7 92
1.2 1.2 320
1.2 1.6 228
1.5 1.7 181
1.1 0.6 64
0.9 0.7 13
1.5 1.2 295
1.3 1.5 193
1.5 1.4 226
0.6 1.3 874
0.7 1.4 1356
1.0 1.4 1963
0.9 1.4 1641
0.3 1.5 1491
0.6 1.4 1584
0.5 1.0 930
0.6 0.6 26
1.1 1.6 229
1.4 1.4 222
1.4 1.3 48
1.0 1.2 68
1.4 1.3 115
1.1 1.5 54
1.2 1.2 208
1.5 1.4 224
1.2 1.3 377
1.0 1.1 255
0.6 1.2 456
1.1 1.4 22
1.4 1.1 181
1.4 1.3 78
1.2 1.2 65
1.5 1.2 25
1.6 1.4 73
1.3 1.3 180
1.5 1.6 141
1.2 1.4 512
1.7 1.2 239
1.3 1.4 55
1.0 1.3 57
1.3 1.1 60
1.3 0.9 139
1.4 1.3 77
1.4 1.1 70
1.5 1.6 25
1.4 1.4 65
1.2 1.2 229
1.1 1.3 405
1.5 1.3 97
1.2 1.2 233
1.2 1.2 135
1.6 1.4 54
1.4 1.0 176
0.9 1.4 57
1.5 1.5 81
1.6 1.2 65
1.3 1.2 74
1.2 1.4 330
1.0 1.2 200
1.7 1.7 36
1.4 1.3 100
1.2 1.5 139
1.3 1.3 301
1.1 1.3 159


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
MAY 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF JUNE 2001-2010

Marine Climatological Summary Charts 2001-2010

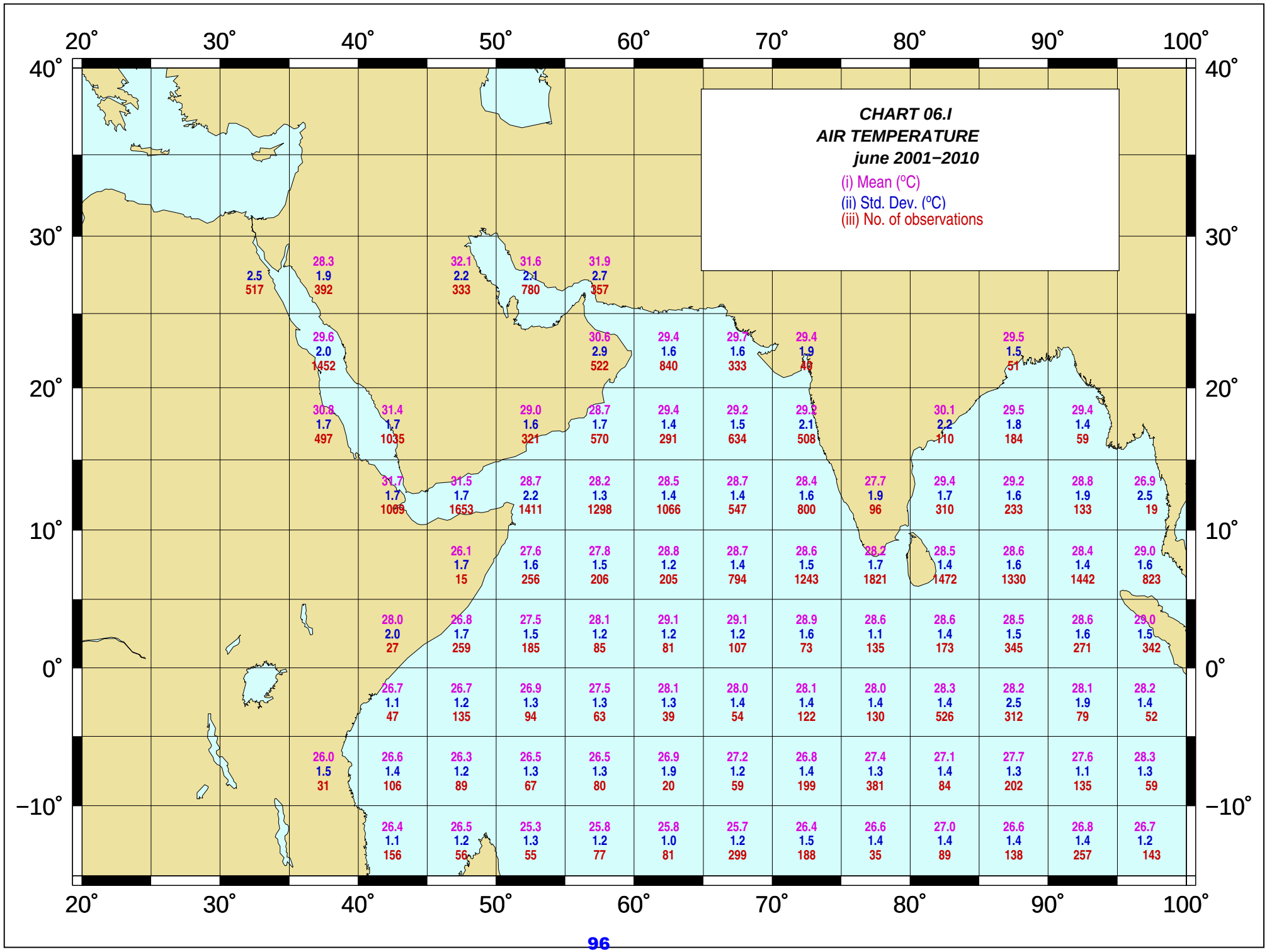


CHART 06.I
AIR TEMPERATURE
june 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.5 517
28.3 1.9 392
32.1 2.2 333
31.6 2.1 780
31.9 2.7 357
29.6 2.0 1452
30.6 2.9 522
29.4 1.6 840
29.7 1.6 333
29.4 1.9 46
29.5 1.5 51
30.8 1.7 497
31.4 1.7 1035
29.0 1.6 321
28.7 1.7 570
29.4 1.4 291
29.2 1.5 634
29.2 2.1 508
30.1 2.2 110
29.5 1.8 184
29.4 1.4 59
31.7 1.7 1069
31.5 1.7 1653
28.7 2.2 1411
28.2 1.3 1298
28.5 1.4 1066
28.7 1.4 547
28.4 1.6 800
27.7 1.9 96
29.4 1.7 310
29.2 1.6 233
28.8 1.9 133
26.9 2.5 19
26.1 1.7 15
27.6 1.6 256
27.8 1.5 206
28.8 1.2 205
28.7 1.4 794
28.6 1.5 1243
28.2 1.7 1821
28.5 1.4 1472
28.6 1.6 1330
28.4 1.4 1442
29.0 1.6 823
28.0 2.0 27
26.8 1.7 259
27.5 1.5 185
28.1 1.2 85
29.1 1.2 81
29.1 1.2 107
28.9 1.6 73
28.6 1.1 135
28.6 1.4 173
28.5 1.5 345
28.6 1.6 271
29.0 1.5 342
26.7 1.1 47
26.7 1.2 135
26.9 1.3 94
27.5 1.3 63
28.1 1.3 39
28.0 1.4 54
28.1 1.4 122
28.0 1.4 130
28.3 1.4 526
28.2 2.5 312
28.1 1.9 79
28.2 1.4 52
26.0 1.5 31
26.6 1.4 106
26.3 1.2 89
26.5 1.3 67
26.5 1.3 80
26.9 1.9 20
27.2 1.2 59
26.8 1.4 199
27.4 1.3 381
27.1 1.4 84
27.7 1.3 202
27.6 1.1 135
28.3 1.3 59
26.4 1.1 156
26.5 1.2 56
25.3 1.3 55
25.8 1.2 77
25.8 1.0 81
25.7 1.2 299
26.4 1.5 188
26.6 1.4 35
27.0 1.4 89
26.6 1.4 138
26.8 1.4 257
26.7 1.2 143

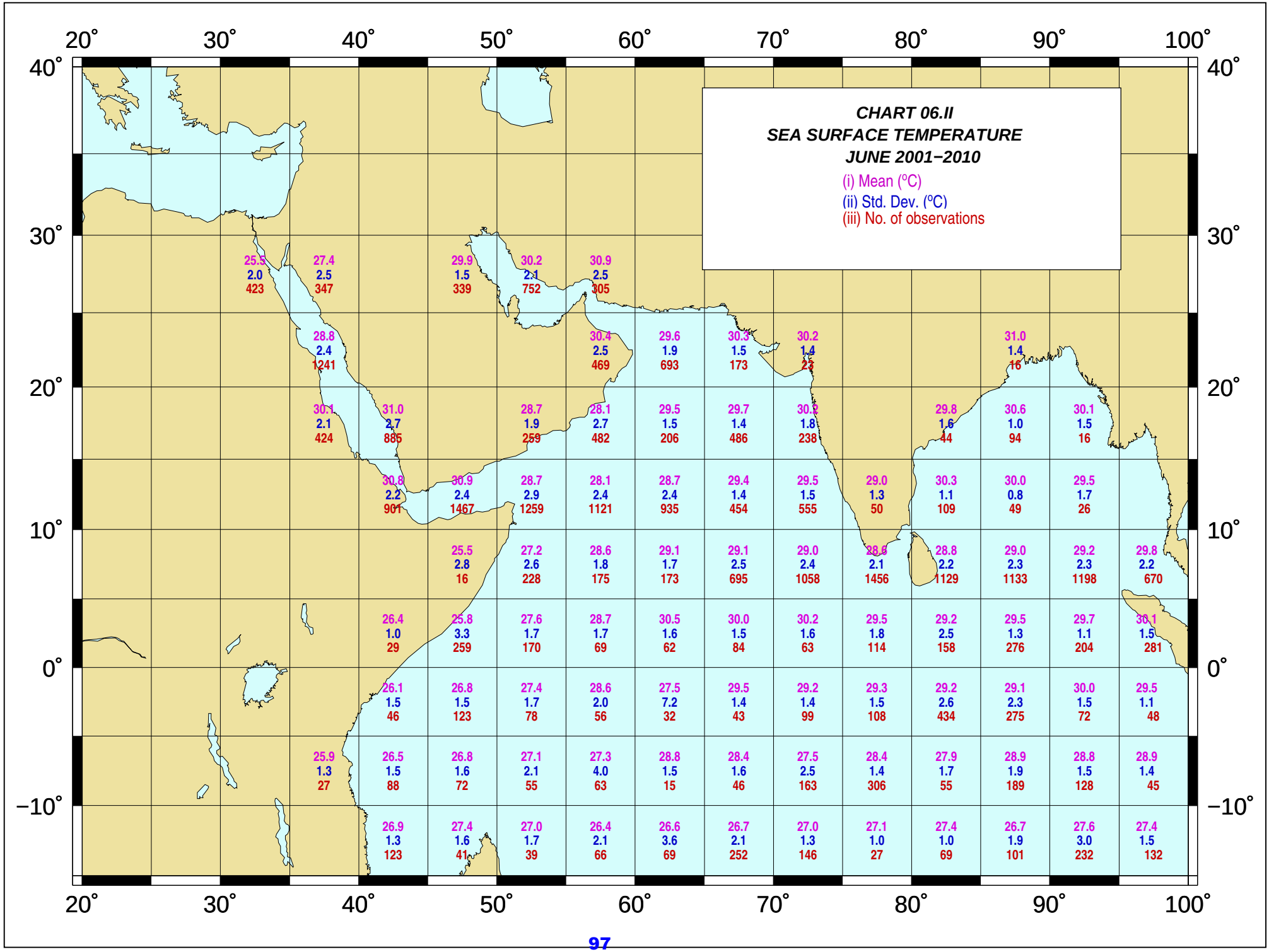


CHART 06.II
SEA SURFACE TEMPERATURE
JUNE 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
25.5 2.0 423
27.4 2.5 347
29.9 1.5 339
30.2 2.1 752
30.9 2.5 305
28.8 2.4 1241
30.4 2.5 469
29.6 1.9 693
30.3 1.5 173
30.2 1.4 23
31.0 1.4 16
30.1 2.1 424
31.0 2.7 885
28.7 1.9 259
28.1 2.7 482
29.5 1.5 206
29.7 1.4 486
30.2 1.8 238
29.8 1.6 44
30.6 1.0 94
30.1 1.5 16
30.8 2.2 901
30.9 2.4 1467
28.7 2.9 1259
28.1 2.4 1121
28.7 2.4 935
29.4 1.4 454
29.5 1.5 555
29.0 1.3 50
30.3 1.1 109
30.0 0.8 49
29.5 1.7 26
25.5 2.8 16
27.2 2.6 228
28.6 1.8 175
29.1 1.7 173
29.1 2.5 695
29.0 2.4 1058
28.6 2.1 1456
28.8 2.2 1129
29.0 2.3 1133
29.2 2.3 1198
29.8 2.2 670
26.4 1.0 29
25.8 3.3 259
27.6 1.7 170
28.7 1.7 69
30.5 1.6 62
30.0 1.5 84
30.2 1.6 63
29.5 1.8 114
29.2 2.5 158
29.5 1.3 276
29.7 1.1 204
30.1 1.5 281
26.1 1.5 46
26.8 1.5 123
27.4 1.7 78
28.6 2.0 56
27.5 7.2 32
29.5 1.4 43
29.2 1.4 99
29.3 1.5 108
29.2 2.6 434
29.1 2.3 275
30.0 1.5 72
29.5 1.1 48
25.9 1.3 27
26.5 1.5 88
26.8 1.6 72
27.1 2.1 55
27.3 4.0 63
28.8 1.5 15
28.4 1.6 46
27.5 2.5 163
28.4 1.4 306
27.9 1.7 55
28.9 1.9 189
28.8 1.5 128
28.9 1.4 45
26.9 1.3 123
27.4 1.6 41
27.0 1.7 39
26.4 2.1 66
26.6 3.6 69
26.7 2.1 252
27.0 1.3 146
27.1 1.0 27
27.4 1.0 69
26.7 1.9 101
27.6 3.0 232
27.4 1.5 132

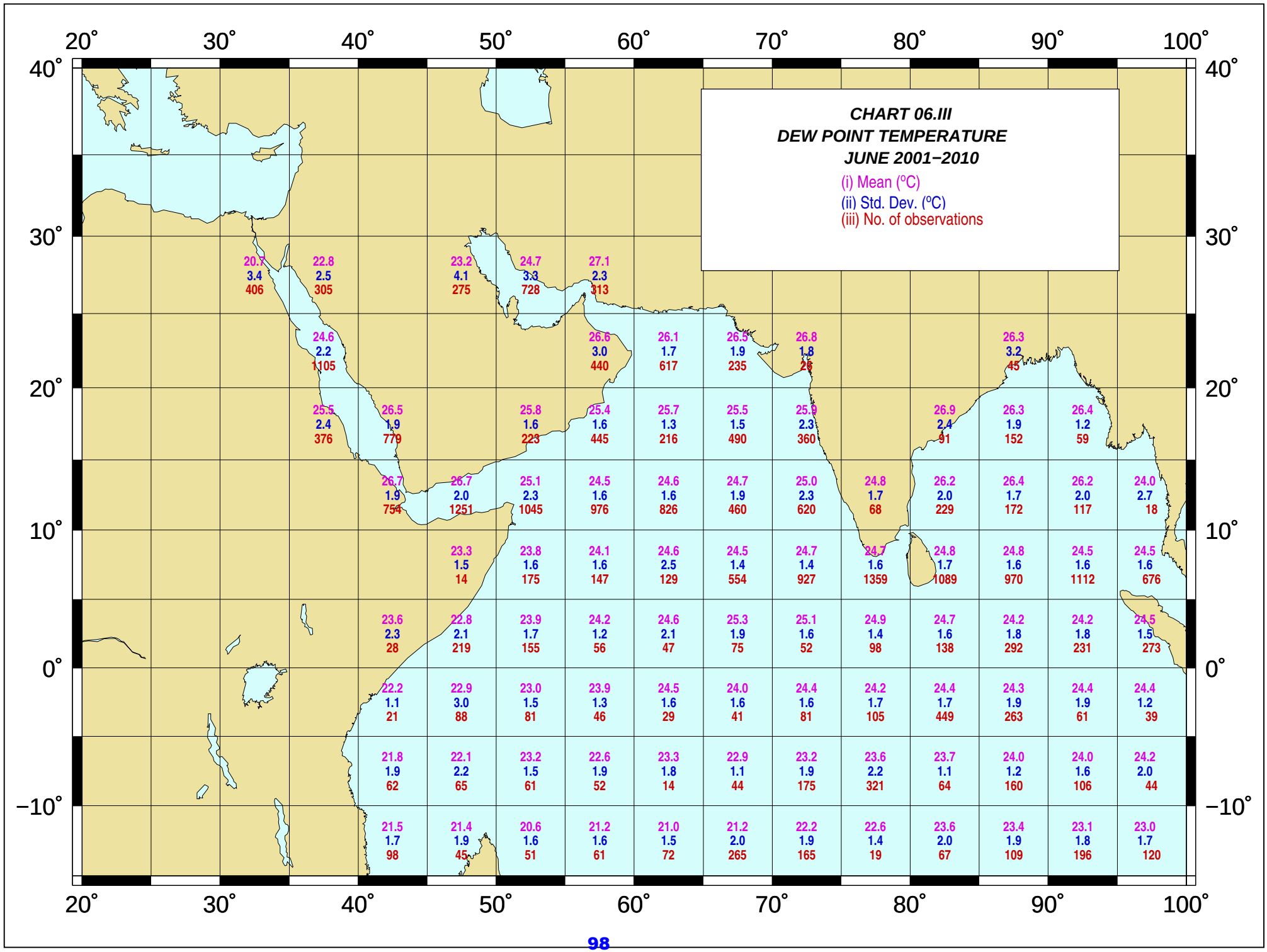


CHART 06.III
DEW POINT TEMPERATURE
JUNE 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
20.7 3.4 406
22.8 2.5 305
23.2 4.1 275
24.7 3.3 728
27.1 2.3 313
24.6 2.2 1105
26.6 3.0 440
26.1 1.7 617
26.5 1.9 235
26.8 1.8 26
26.3 3.2 45
25.5 2.4 376
26.5 1.9 779
25.8 1.6 223
25.4 1.6 445
25.7 1.3 216
25.5 1.5 490
25.9 2.3 360
26.9 2.4 91
26.3 1.9 152
26.4 1.2 59
26.7 1.9 754
26.7 2.0 1251
25.1 2.3 1045
24.5 1.6 976
24.6 1.6 826
24.7 1.9 460
25.0 2.3 620
24.8 1.7 68
26.2 2.0 229
26.4 1.7 172
26.2 2.0 117
24.0 2.7 18
23.3 1.5 14
23.8 1.6 175
24.1 1.6 147
24.6 2.5 129
24.5 1.4 554
24.7 1.4 927
24.7 1.6 1359
24.8 1.7 1089
24.8 1.6 970
24.5 1.6 1112
24.5 1.6 676
23.6 2.3 28
22.8 2.1 219
23.9 1.7 155
24.2 1.2 56
24.6 2.1 47
25.3 1.9 75
25.1 1.6 52
24.9 1.4 98
24.7 1.6 138
24.2 1.8 292
24.2 1.8 231
24.5 1.5 273
22.2 1.1 21
22.9 3.0 88
23.0 1.5 81
23.9 1.3 46
24.5 1.6 29
24.0 1.6 41
24.4 1.6 81
24.2 1.7 105
24.4 1.7 449
24.3 1.9 263
24.4 1.9 61
24.4 1.2 39
21.8 1.9 62
22.1 2.2 65
23.2 1.5 61
22.6 1.9 52
23.3 1.8 14
22.9 1.1 44
23.2 1.9 175
23.6 2.2 321
23.7 1.1 64
24.0 1.2 160
24.0 1.6 106
24.2 2.0 44
21.5 1.7 98
21.4 1.9 45
20.6 1.6 51
21.2 1.6 61
21.0 1.5 72
21.2 2.0 265
22.2 1.9 165
22.6 1.4 19
23.6 2.0 67
23.4 1.9 109
23.1 1.8 196
23.0 1.7 120

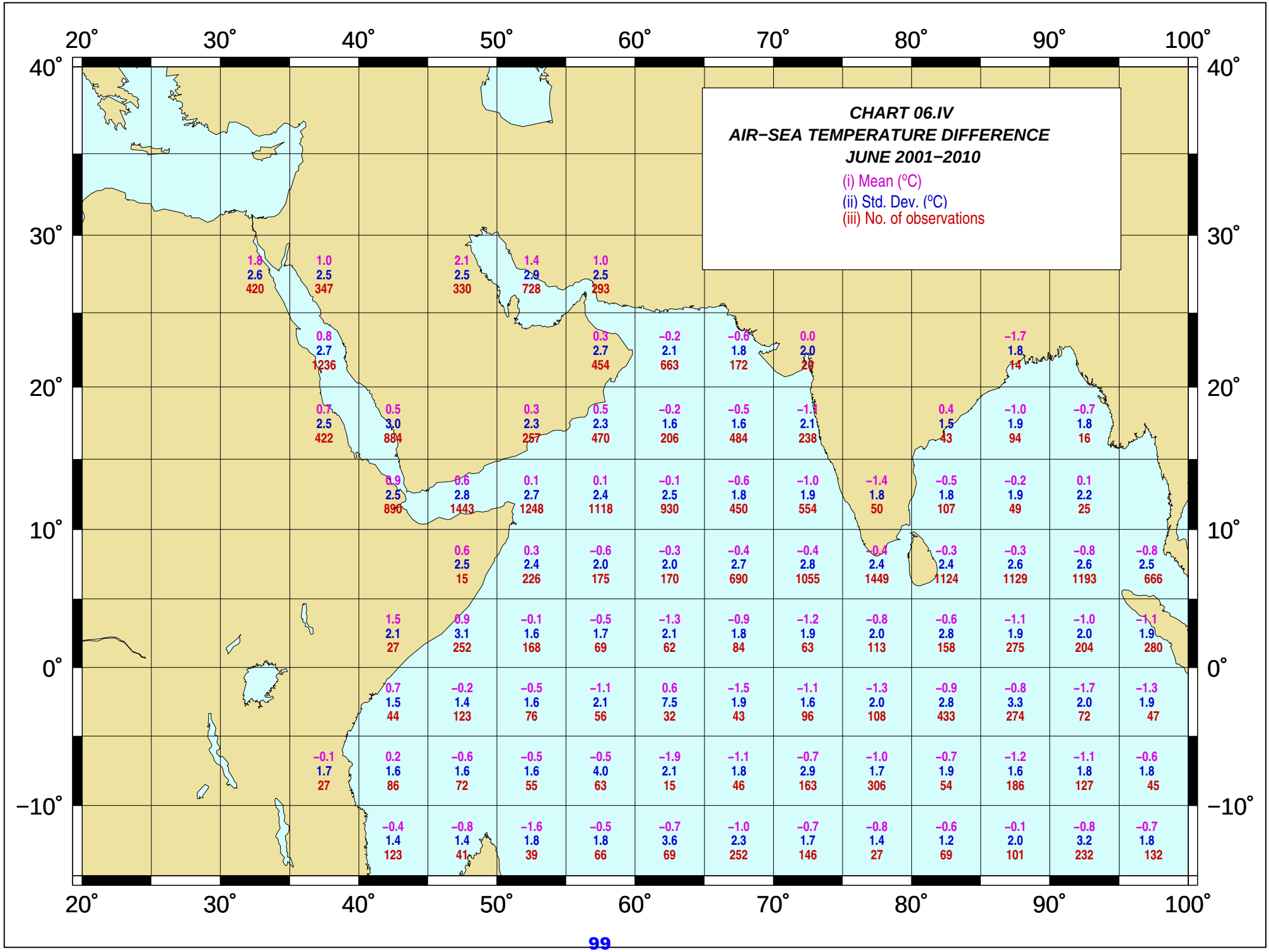


CHART 06.IV
AIR–SEA TEMPERATURE DIFFERENCE
JUNE 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.8 2.6 420
1.0 2.5 347
2.1 2.5 330
1.4 2.9 728
1.0 2.5 293
0.8 2.7 1236
0.3 2.7 454
−0.2 2.1 663
−0.6 1.8 172
0.0 2.0 26
−1.7 1.8 14
0.7 2.5 422
0.5 3.0 884
0.3 2.3 257
0.5 2.3 470
−0.2 1.6 206
−0.5 1.6 484
−1.3 2.1 238
0.4 1.5 43
−1.0 1.9 94
−0.7 1.8 16
0.9 2.5 896
0.6 2.8 1443
0.1 2.7 1248
0.1 2.4 1118
−0.1 2.5 930
−0.6 1.8 450
−1.0 1.9 554
−1.4 1.8 50
−0.5 1.8 107
−0.2 1.9 49
0.1 2.2 25
0.6 2.5 15
0.3 2.4 226
−0.6 2.0 175
−0.3 2.0 170
−0.4 2.7 690
−0.4 2.8 1055
−0.4 2.4 1449
−0.3 2.4 1124
−0.3 2.6 1129
−0.8 2.6 1193
−0.8 2.5 666
1.5 2.1 27
0.9 3.1 252
−0.1 1.6 168
−0.5 1.7 69
−1.3 2.1 62
−0.9 1.8 84
−1.2 1.9 63
−0.8 2.0 113
−0.6 2.8 158
−1.1 1.9 275
−1.0 2.0 204
−1.1 1.9 280
0.7 1.5 44
−0.2 1.4 123
−0.5 1.6 76
−1.1 2.1 56
0.6 7.5 32
−1.5 1.9 43
−1.1 1.6 96
−1.3 2.0 108
−0.9 2.8 433
−0.8 3.3 274
−1.7 2.0 72
−1.3 1.9 47
−0.1 1.7 27
0.2 1.6 86
−0.6 1.6 72
−0.5 1.6 55
−0.5 4.0 63
−1.9 2.1 15
−1.1 1.8 46
−0.7 2.9 163
−1.0 1.7 306
−0.7 1.9 54
−1.2 1.6 186
−1.1 1.8 127
−0.6 1.8 45
−0.4 1.4 123
−0.8 1.4 41
−1.6 1.8 39
−0.5 1.8 66
−0.7 3.6 69
−1.0 2.3 252
−0.7 1.7 146
−0.8 1.4 27
−0.6 1.2 69
−0.1 2.0 101
−0.8 3.2 232
−0.7 1.8 132

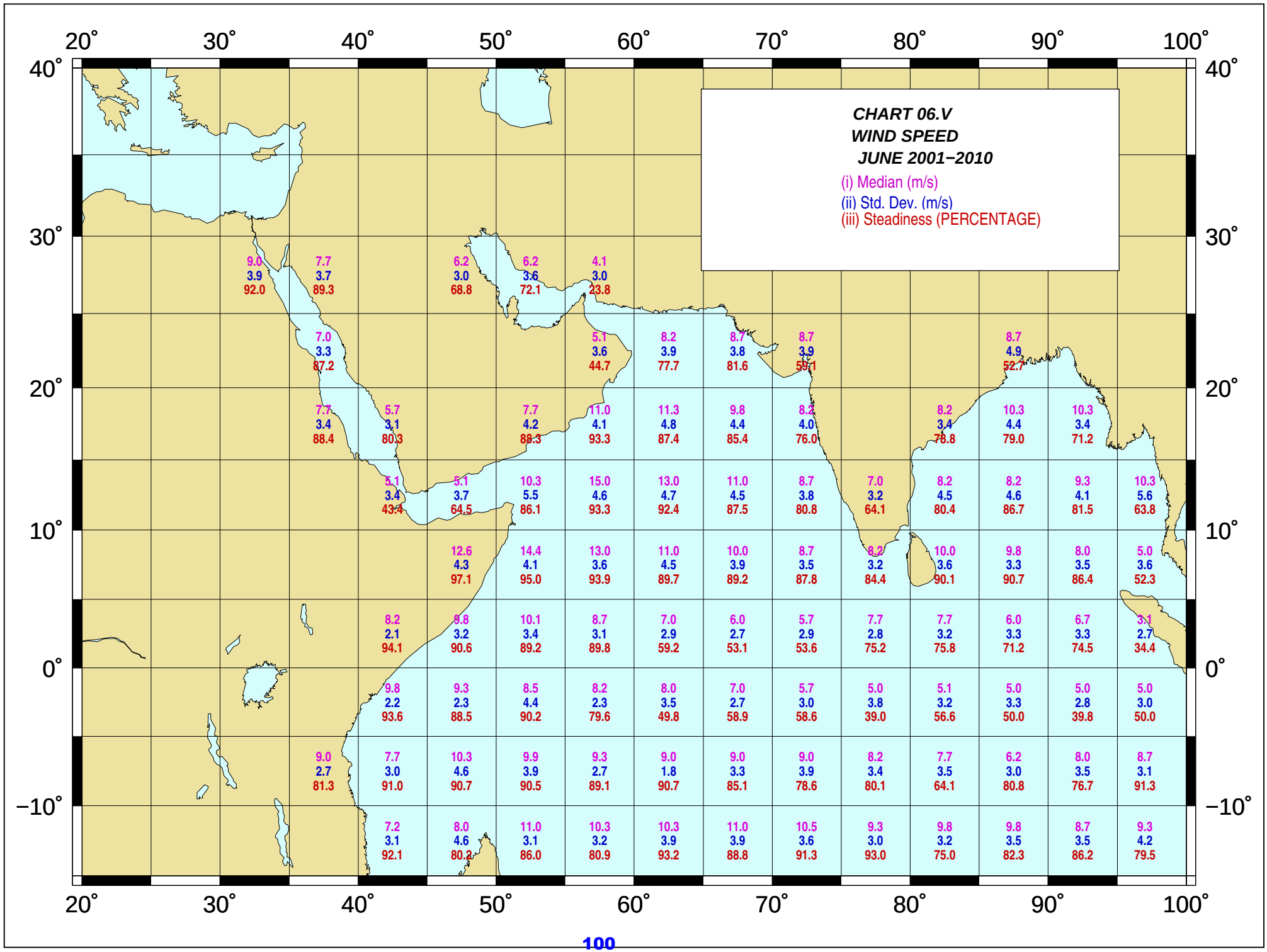


CHART 06.V
WIND SPEED
JUNE 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
9.0 3.9 92.0
7.7 3.7 89.3
6.2 3.0 68.8
6.2 3.6 72.1
4.1 3.0 23.8
7.0 3.3 87.2
5.1 3.6 44.7
8.2 3.9 77.7
8.7 3.8 81.6
8.7 3.9 59.1
8.7 4.9 52.7
7.7 3.4 88.4
5.7 3.1 80.3
7.7 4.2 88.3
11.0 4.1 93.3
11.3 4.8 87.4
9.8 4.4 85.4
8.2 4.0 76.0
8.2 3.4 78.8
10.3 4.4 79.0
10.3 3.4 71.2
5.1 3.4 43.4
5.1 3.7 64.5
10.3 5.5 86.1
15.0 4.6 93.3
13.0 4.7 92.4
11.0 4.5 87.5
8.7 3.8 80.8
7.0 3.2 64.1
8.2 4.5 80.4
8.2 4.6 86.7
9.3 4.1 81.5
10.3 5.6 63.8
12.6 4.3 97.1
14.4 4.1 95.0
13.0 3.6 93.9
11.0 4.5 89.7
10.0 3.9 89.2
8.7 3.5 87.8
8.2 3.2 84.4
10.0 3.6 90.1
9.8 3.3 90.7
8.0 3.5 86.4
5.0 3.6 52.3
8.2 2.1 94.1
9.8 3.2 90.6
10.1 3.4 89.2
8.7 3.1 89.8
7.0 2.9 59.2
6.0 2.7 53.1
5.7 2.9 53.6
7.7 2.8 75.2
7.7 3.2 75.8
6.0 3.3 71.2
6.7 3.3 74.5
3.1 2.7 34.4
9.8 2.2 93.6
9.3 2.3 88.5
8.5 4.4 90.2
8.2 2.3 79.6
8.0 3.5 49.8
7.0 2.7 58.9
5.7 3.0 58.6
5.0 3.8 39.0
5.1 3.2 56.6
5.0 3.3 50.0
5.0 2.8 39.8
5.0 3.0 50.0
9.0 2.7 81.3
7.7 3.0 91.0
10.3 4.6 90.7
9.9 3.9 90.5
9.3 2.7 89.1
9.0 1.8 90.7
9.0 3.3 85.1
9.0 3.9 78.6
8.2 3.4 80.1
7.7 3.5 64.1
6.2 3.0 80.8
8.0 3.5 76.7
8.7 3.1 91.3
7.2 3.1 92.1
8.0 4.6 80.2
11.0 3.1 86.0
10.3 3.2 80.9
10.3 3.9 93.2
11.0 3.9 88.8
10.5 3.6 91.3
9.3 3.0 93.0
9.8 3.2 75.0
9.8 3.5 82.3
8.7 3.5 86.2
9.3 4.2 79.5

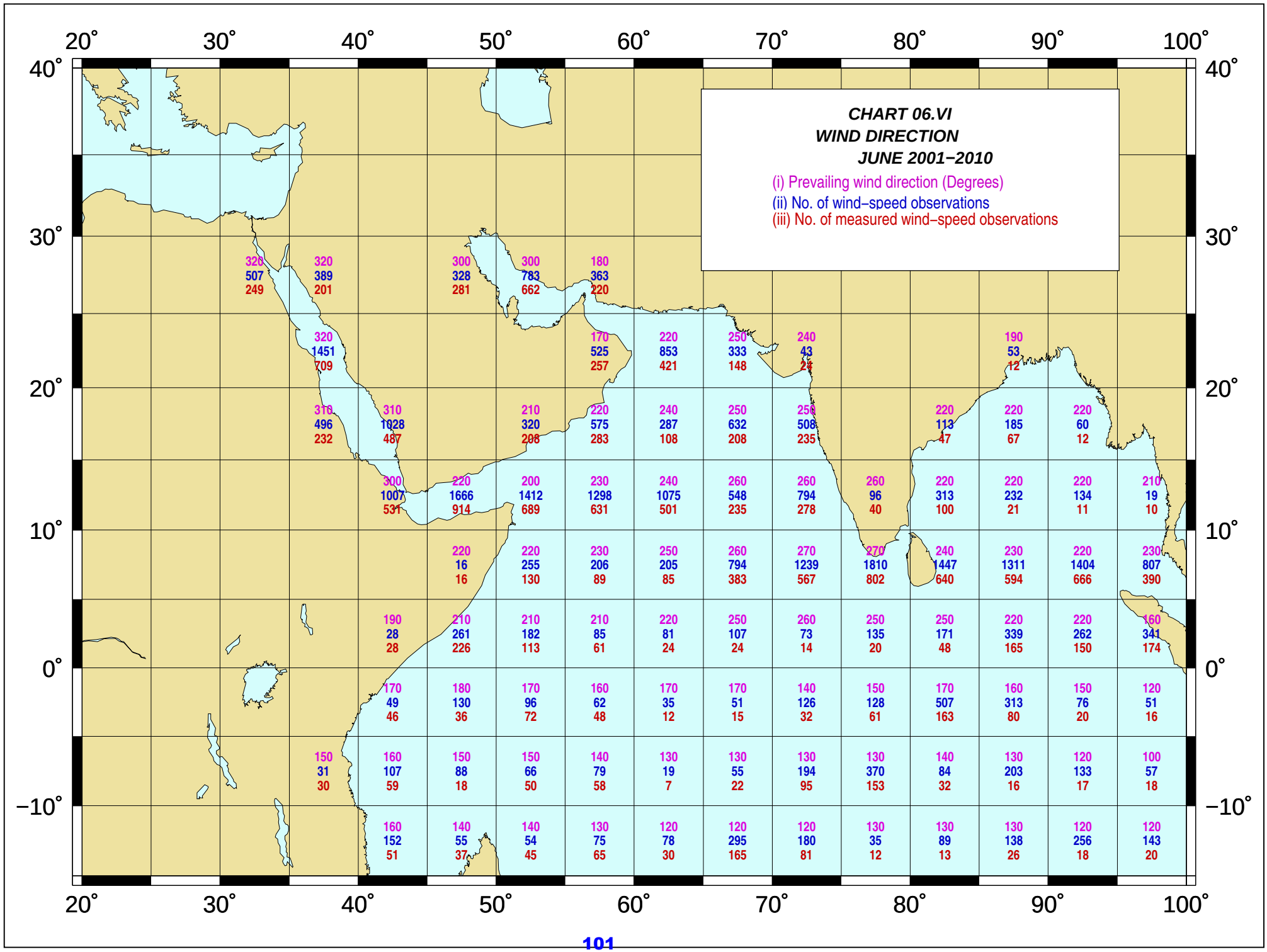


CHART 06.VI
WIND DIRECTION
JUNE 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
320 507 249
320 389 201
300 328 281
300 783 662
180 363 220
320 1451 709
170 525 257
220 853 421
250 333 148
240 43 24
190 53 12
310 496 232
310 1028 487
210 320 208
220 575 283
240 287 108
250 632 208
250 508 235
220 113 47
220 185 67
220 60 12
300 1007 531
220 1666 914
200 1412 689
230 1298 631
240 1075 501
260 548 235
260 794 278
260 96 40
220 313 100
220 232 21
220 134 11
210 19 10
220 16 16
220 255 130
230 206 89
250 205 85
260 794 383
270 1239 567
270 1810 802
240 1447 640
230 1311 594
220 1404 666
230 807 390
190 28 28
210 261 226
210 182 113
210 85 61
220 81 24
250 107 24
260 73 14
250 135 20
250 171 48
220 339 165
220 262 150
160 341 174
170 49 46
180 130 36
170 96 72
160 62 48
170 35 12
170 51 15
140 126 32
150 128 61
170 507 163
160 313 80
150 76 20
120 51 16
150 31 30
160 107 59
150 88 18
150 66 50
140 79 58
130 19 7
130 55 22
130 194 95
130 370 153
140 84 32
130 203 16
120 133 17
100 57 18
160 152 51
140 55 37
140 54 45
130 75 65
120 78 30
120 295 165
120 180 81
130 35 12
130 89 13
130 138 26
120 256 18
120 143 20

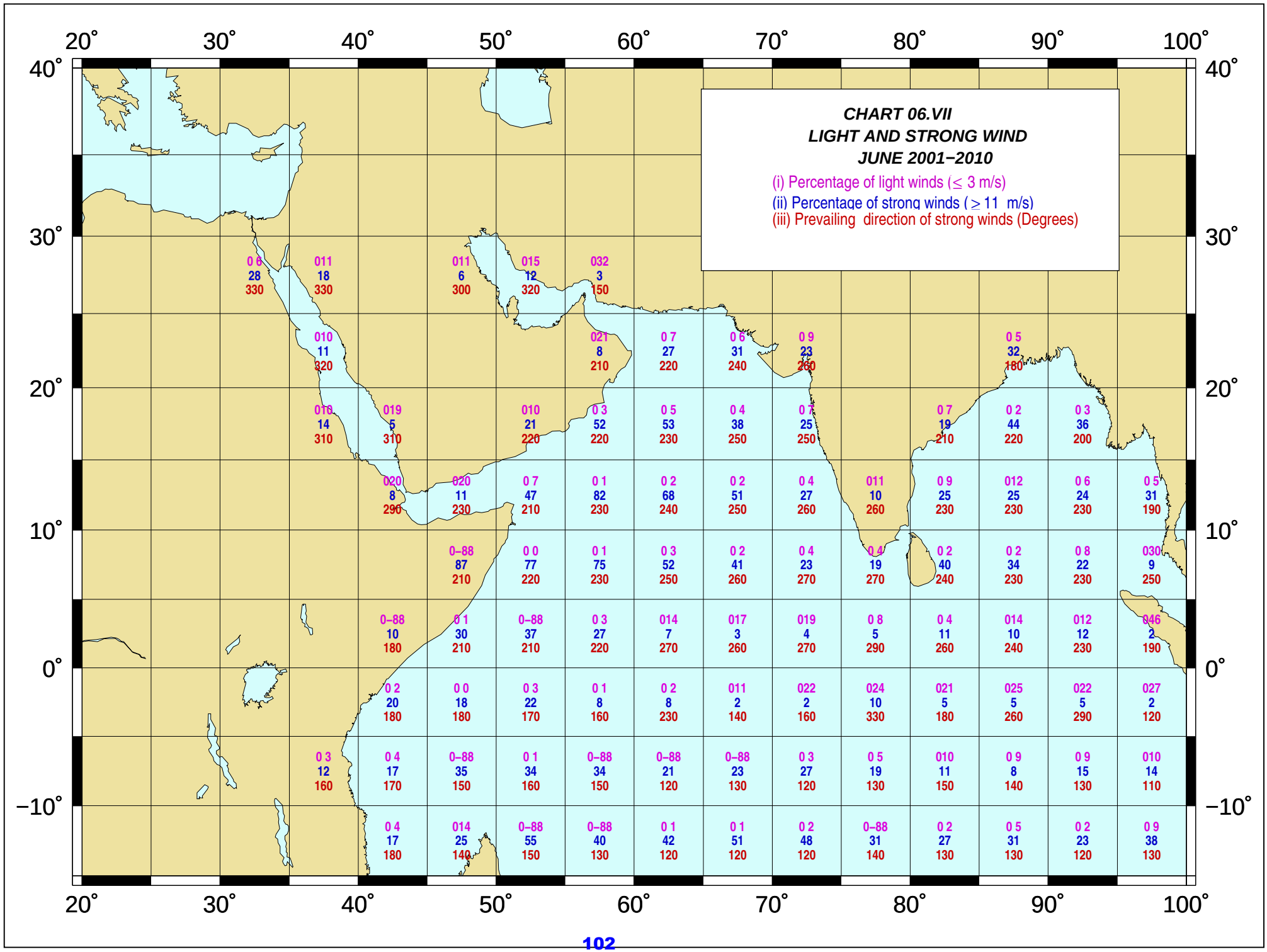


CHART 06.VII
LIGHT AND STRONG WIND
JUNE 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
06 28 330
011 18 330
011 6 300
015 12 320
032 3 150
010 11 320
021 8 210
07 27 220
06 31 240
09 23 260
05 32 180
010 14 310
019 5 310
010 21 220
03 52 220
05 53 230
04 38 250
07 25 250
07 19 210
02 44 220
03 36 200
020 8 290
020 11 230
07 47 210
01 82 230
02 68 240
02 51 250
04 27 260
011 10 260
09 25 230
012 25 230
06 24 230
05 31 190
0–88 87 210
00 77 220
01 75 230
03 52 250
02 41 260
04 23 270
04 19 270
02 40 240
02 34 230
08 22 230
030 9 250
0–88 10 180
01 30 210
0–88 37 210
03 27 220
014 7 270
017 3 260
019 4 270
08 5 290
04 11 260
014 10 240
012 12 230
046 2 190
02 20 180
00 18 180
03 22 170
01 8 160
02 8 230
011 2 140
022 2 160
024 10 330
021 5 180
025 5 260
022 5 290
027 2 120
03 12 160
04 17 170
0–88 35 150
01 34 160
0–88 34 150
0–88 21 120
0–88 23 130
03 27 120
05 19 130
010 11 150
09 8 140
09 15 130
010 14 110
04 17 180
014 25 140
0–88 55 150
0–88 40 130
01 42 120
01 51 120
02 48 120
0–88 31 140
02 27 130
05 31 130
02 23 120
09 38 130

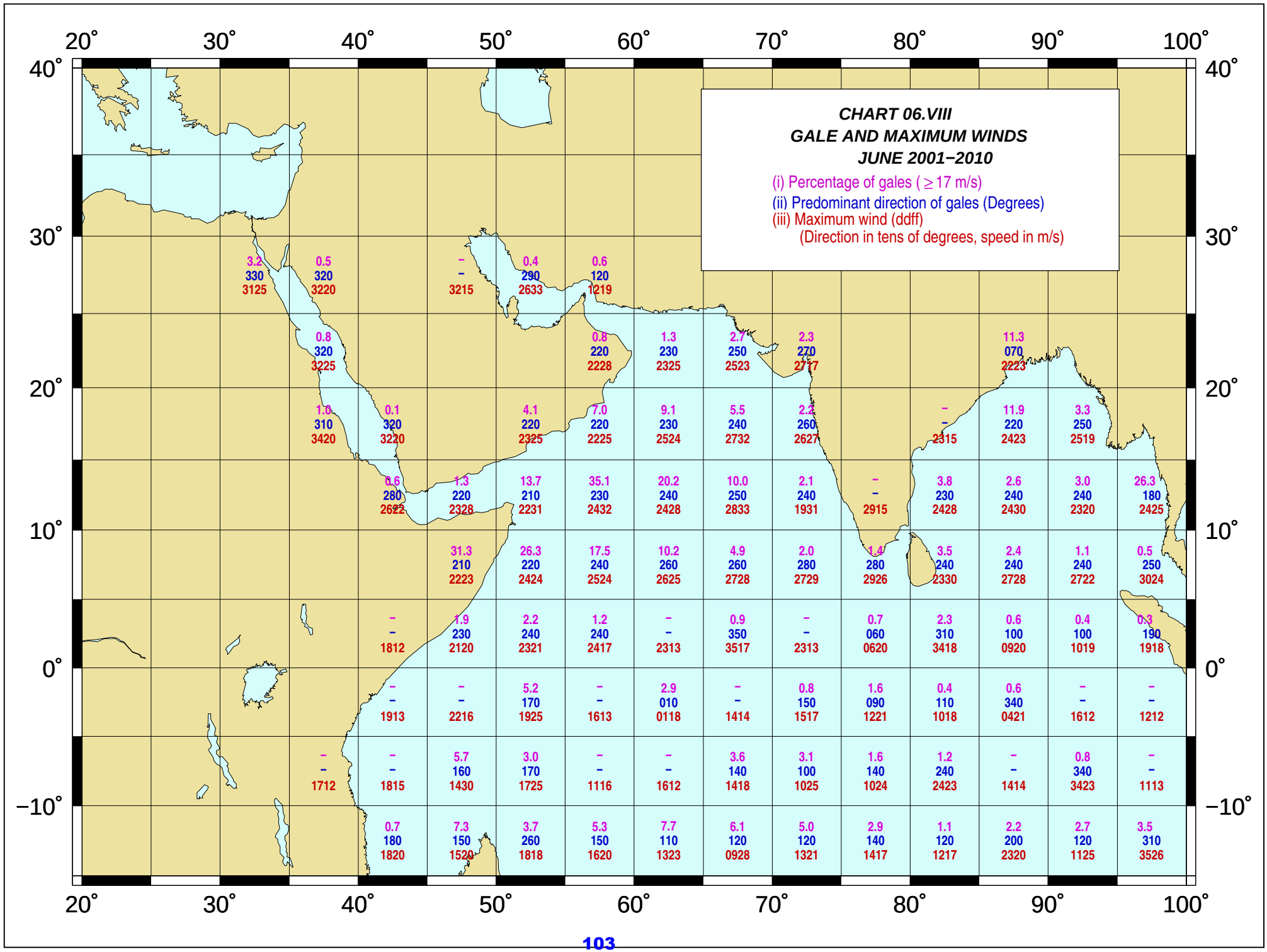


CHART 06.VIII
GALE AND MAXIMUM WINDS
JUNE 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
3.2 330 3125
0.5 320 3220
– – 3215
0.4 290 2633
0.6 120 1219
0.8 320 3225
0.8 220 2228
1.3 230 2325
2.7 250 2523
2.3 270 2717
11.3 070 2223
1.0 310 3420
0.1 320 3220
4.1 220 2325
7.0 220 2225
9.1 230 2524
5.5 240 2732
2.2 260 2627
– – 2315
11.9 220 2423
3.3 250 2519
0.6 280 2622
1.3 220 2328
13.7 210 2231
35.1 230 2432
20.2 240 2428
10.0 250 2833
2.1 240 1931
– – 2915
3.8 230 2428
2.6 240 2430
3.0 240 2320
26.3 180 2425
31.3 210 2223
26.3 220 2424
17.5 240 2524
10.2 260 2625
4.9 260 2728
2.0 280 2729
1.4 280 2926
3.5 240 2330
2.4 240 2728
1.1 240 2722
0.5 250 3024
– – 1812
1.9 230 2120
2.2 240 2321
1.2 240 2417
– – 2313
0.9 350 3517
– – 2313
0.7 060 0620
2.3 310 3418
0.6 100 0920
0.4 100 1019
0.3 190 1918
– – 1913
– – 2216
5.2 170 1925
– – 1613
2.9 010 0118
– – 1414
0.8 150 1517
1.6 090 1221
0.4 110 1018
0.6 340 0421
– – 1612
– – 1212
– – 1712
– – 1815
5.7 160 1430
3.0 170 1725
– – 1116
– – 1612
3.6 140 1418
3.1 100 1025
1.6 140 1024
1.2 240 2423
– – 1414
0.8 340 3423
– – 1113
0.7 180 1820
7.3 150 1520
3.7 260 1818
5.3 150 1620
7.7 110 1323
6.1 120 0928
5.0 120 1321
2.9 140 1417
1.1 120 1217
2.2 200 2320
2.7 120 1125
3.5 310 3526

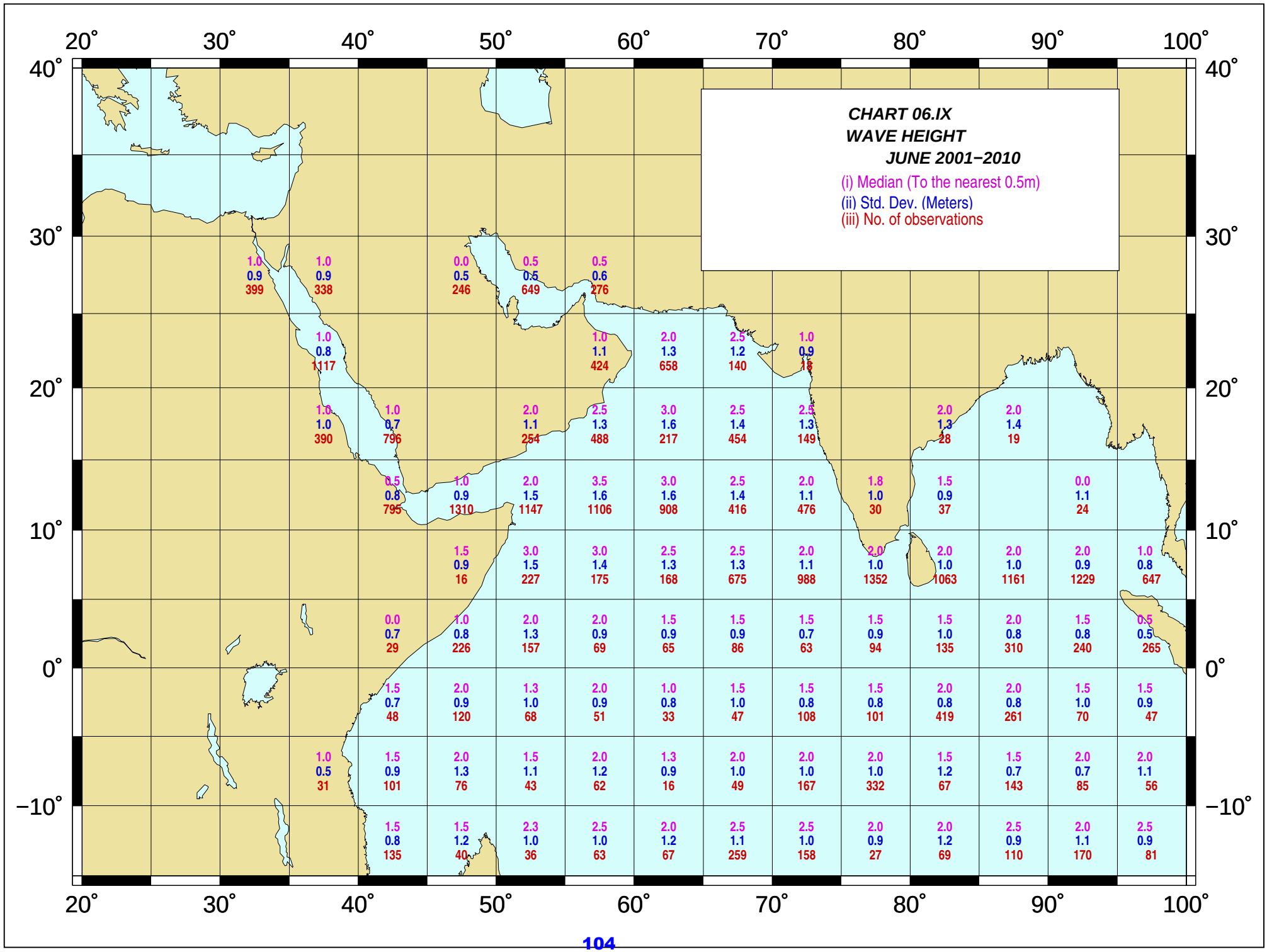


CHART 06.IX
WAVE HEIGHT
JUNE 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.9 399
1.0 0.9 338
0.0 0.5 246
0.5 0.5 649
0.5 0.6 276
1.0 0.8 1117
1.0 1.1 424
2.0 1.3 658
2.5 1.2 140
1.0 0.9 16
1.0 1.0 390
1.0 0.7 796
2.0 1.1 254
2.5 1.3 488
3.0 1.6 217
2.5 1.4 454
2.5 1.3 149
2.0 1.3 28
2.0 1.4 19
0.5 0.8 795
1.0 0.9 1310
2.0 1.5 1147
3.5 1.6 1106
3.0 1.6 908
2.5 1.4 416
2.0 1.1 476
1.8 1.0 30
1.5 0.9 37
0.0 1.1 24
1.5 0.9 16
3.0 1.5 227
3.0 1.4 175
2.5 1.3 168
2.5 1.3 675
2.0 1.1 988
2.0 1.0 1352
2.0 1.0 1063
2.0 1.0 1161
2.0 0.9 1229
1.0 0.8 647
0.0 0.7 29
1.0 0.8 226
2.0 1.3 157
2.0 0.9 69
1.5 0.9 65
1.5 0.9 86
1.5 0.7 63
1.5 0.9 94
1.5 1.0 135
2.0 0.8 310
1.5 0.8 240
0.5 0.5 265
1.5 0.7 48
2.0 0.9 120
1.3 1.0 68
2.0 0.9 51
1.0 0.8 33
1.5 1.0 47
1.5 0.8 108
1.5 0.8 101
2.0 0.8 419
2.0 0.8 261
1.5 1.0 70
1.5 0.9 47
1.0 0.5 31
1.5 0.9 101
2.0 1.3 76
1.5 1.1 43
2.0 1.2 62
1.3 0.9 16
2.0 1.0 49
2.0 1.0 167
2.0 1.0 332
1.5 1.2 67
1.5 0.7 143
2.0 0.7 85
2.0 1.1 56
1.5 0.8 135
1.5 1.2 40
2.3 1.0 36
2.5 1.0 63
2.0 1.2 67
2.5 1.1 259
2.5 1.0 158
2.0 0.9 27
2.0 1.2 69
2.5 0.9 110
2.0 1.1 170
2.5 0.9 81

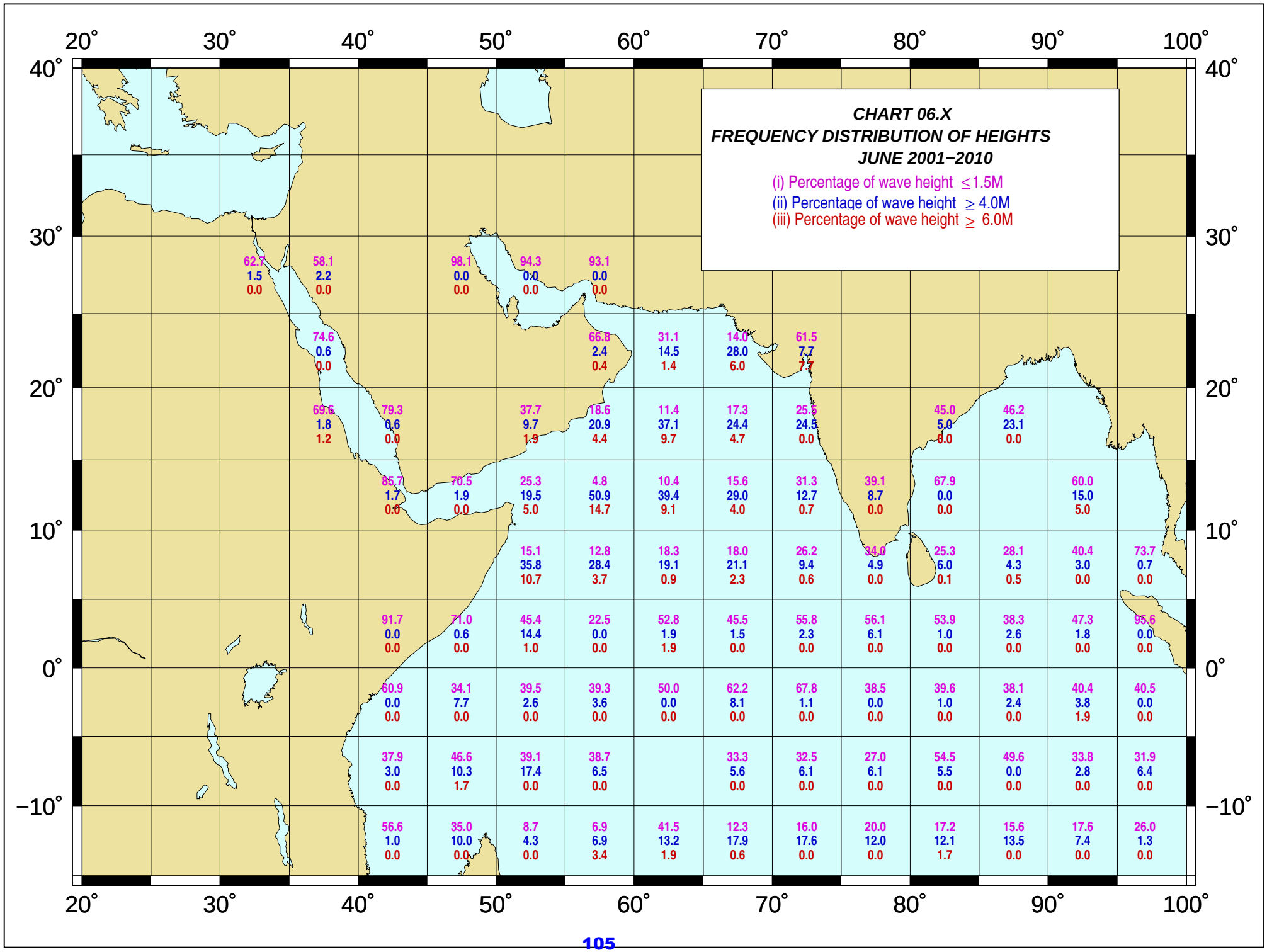


CHART 06.X
FREQUENCY DISTRIBUTION OF HEIGHTS
JUNE 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
62.7 1.5 0.0
58.1 2.2 0.0
98.1 0.0 0.0
94.3 0.0 0.0
93.1 0.0 0.0
74.6 0.6 0.0
66.8 2.4 0.4
31.1 14.5 1.4
14.0 28.0 6.0
61.5 7.7 1.7
69.6 1.8 1.2
79.3 0.6 0.0
37.7 9.7 1.9
18.6 20.9 4.4
11.4 37.1 9.7
17.3 24.4 4.7
25.5 24.5 0.0
45.0 5.0 0.0
46.2 23.1 0.0
85.7 1.7 0.6
70.5 1.9 0.0
25.3 19.5 5.0
4.8 50.9 14.7
10.4 39.4 9.1
15.6 29.0 4.0
31.3 12.7 0.7
39.1 8.7 0.0
67.9 0.0 0.0
60.0 15.0 5.0
15.1 35.8 10.7
12.8 28.4 3.7
18.3 19.1 0.9
18.0 21.1 2.3
26.2 9.4 0.6
34.0 4.9 0.0
25.3 6.0 0.1
28.1 4.3 0.5
40.4 3.0 0.0
73.7 0.7 0.0
91.7 0.0 0.0
71.0 0.6 0.0
45.4 14.4 1.0
22.5 0.0 0.0
52.8 1.9 1.9
45.5 1.5 0.0
55.8 2.3 0.0
56.1 6.1 0.0
53.9 1.0 0.0
38.3 2.6 0.0
47.3 1.8 0.0
95.6 0.0 0.0
60.9 0.0 0.0
34.1 7.7 0.0
39.5 2.6 0.0
39.3 3.6 0.0
50.0 0.0 0.0
62.2 8.1 0.0
67.8 1.1 0.0
38.5 0.0 0.0
39.6 1.0 0.0
38.1 2.4 0.0
40.4 3.8 1.9
40.5 0.0 0.0
37.9 3.0 0.0
46.6 10.3 1.7
39.1 17.4 0.0
38.7 6.5 0.0
33.3 5.6 0.0
32.5 6.1 0.0
27.0 6.1 0.0
54.5 5.5 0.0
49.6 0.0 0.0
33.8 2.8 0.0
31.9 6.4 0.0
56.6 1.0 0.0
35.0 10.0 0.0
8.7 4.3 0.0
6.9 6.9 3.4
41.5 13.2 1.9
12.3 17.9 0.6
16.0 17.6 0.0
20.0 12.0 0.0
17.2 12.1 1.7
15.6 13.5 0.0
17.6 7.4 0.0
26.0 1.3 0.0

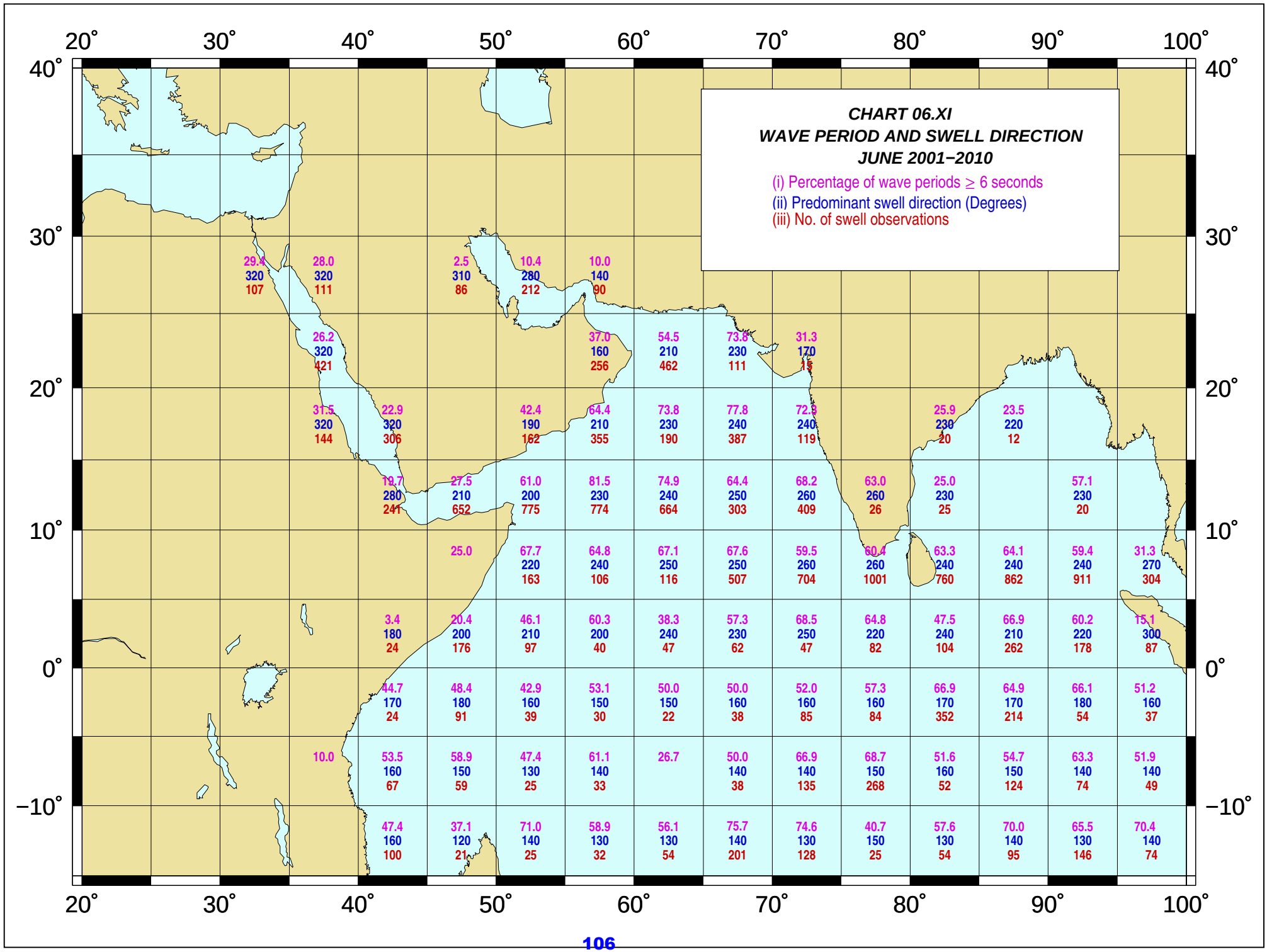


CHART 06.XI
WAVE PERIOD AND SWELL DIRECTION
JUNE 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
29.4 320 107
28.0 320 111
2.5 310 86
10.4 280 212
10.0 140 90
26.2 320 421
37.0 160 256
54.5 210 462
73.8 230 111
31.3 170 15
31.5 320 144
22.9 320 306
42.4 190 162
64.4 210 355
73.8 230 190
77.8 240 387
72.9 240 119
25.9 230 20
23.5 220 12
19.7 280 241
27.5 210 652
61.0 200 775
81.5 230 774
74.9 240 664
64.4 250 303
68.2 260 409
63.0 260 26
25.0 230 25
57.1 230 20
25.0
67.7 220 163
64.8 240 106
67.1 250 116
67.6 250 507
59.5 260 704
60.4 260 1001
63.3 240 760
64.1 240 862
59.4 240 911
31.3 270 304
3.4 180 24
20.4 200 176
46.1 210 97
60.3 200 40
38.3 240 47
57.3 230 62
68.5 250 47
64.8 220 82
47.5 240 104
66.9 210 262
60.2 220 178
15.1 300 87
44.7 170 24
48.4 180 91
42.9 160 39
53.1 150 30
50.0 150 22
50.0 160 38
52.0 160 85
57.3 160 84
66.9 170 352
64.9 170 214
66.1 180 54
51.2 160 37
10.0
53.5 160 67
58.9 150 59
47.4 130 25
61.1 140 33
26.7
50.0 140 38
66.9 140 135
68.7 150 268
51.6 160 52
54.7 150 124
63.3 140 74
51.9 140 49
47.4 160 100
37.1 120 21
71.0 140 25
58.9 130 32
56.1 130 54
75.7 140 201
74.6 130 128
40.7 150 25
57.6 130 54
70.0 140 95
65.5 130 146
70.4 140 74

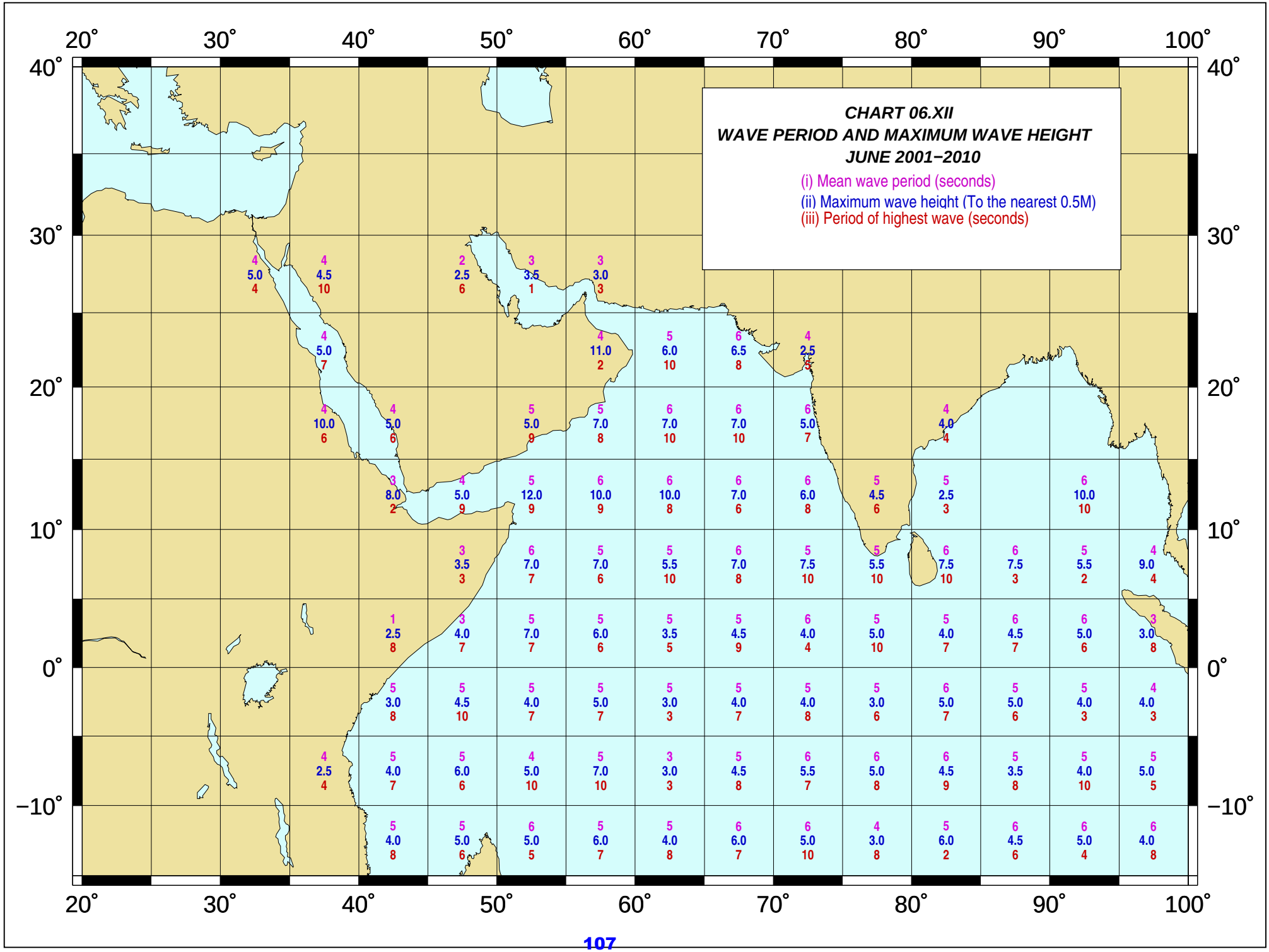


CHART 06.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
JUNE 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 5.0 4
4 4.5 10
2 2.5 6
3 3.5 1
3 3.0 3
4 5.0 7
4 11.0 2
5 6.0 10
6 6.5 8
4 2.5 5
4 10.0 6
4 5.0 6
5 5.0 9
5 7.0 8
6 7.0 10
6 7.0 10
6 5.0 7
4 4.0 4
3 8.0 2
4 5.0 9
5 12.0 9
6 10.0 9
6 10.0 8
6 7.0 6
6 6.0 8
5 4.5 6
5 2.5 3
6 10.0 10
3 3.5 3
6 7.0 7
5 7.0 6
5 5.5 10
6 7.0 8
5 7.5 10
5 5.5 10
6 7.5 10
6 7.5 3
5 5.5 2
4 9.0 4
1 2.5 8
3 4.0 7
5 7.0 7
5 6.0 6
5 3.5 5
5 4.5 9
6 4.0 4
5 5.0 10
5 4.0 7
6 4.5 7
6 5.0 6
3 3.0 8
5 3.0 8
5 4.5 10
5 4.0 7
5 5.0 7
5 3.0 3
5 4.0 7
5 4.0 8
5 3.0 6
6 5.0 7
5 5.0 6
5 4.0 3
4 4.0 3
4 2.5 4
5 4.0 7
5 6.0 6
4 5.0 10
5 7.0 10
3 3.0 3
5 4.5 8
6 5.5 7
6 5.0 8
6 4.5 9
5 3.5 8
5 4.0 10
5 5.0 5
5 4.0 8
5 5.0 6
6 5.0 5
5 6.0 7
5 4.0 8
6 6.0 7
6 5.0 10
4 3.0 8
5 6.0 2
6 4.5 6
6 5.0 4
6 4.0 8

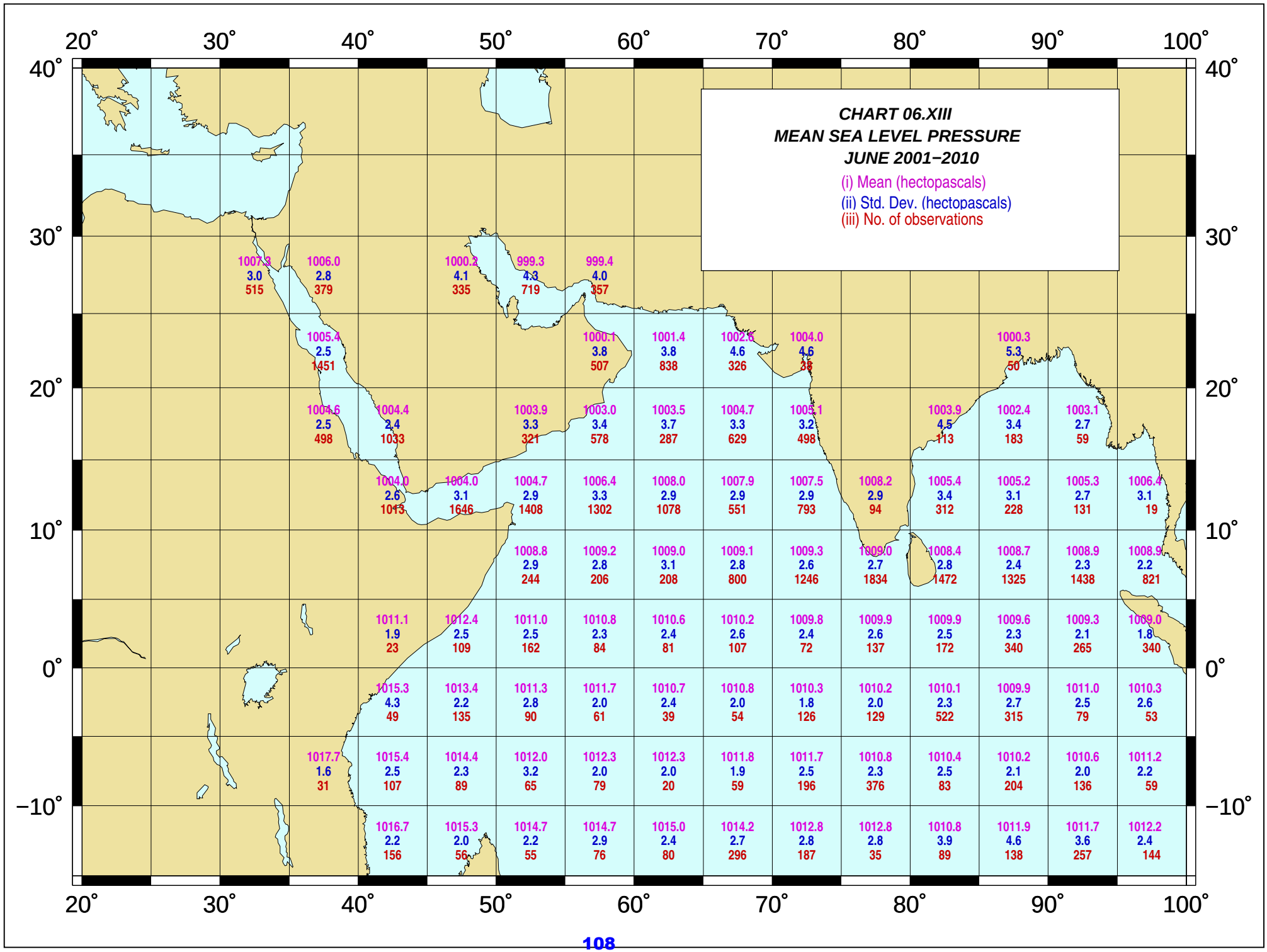


CHART 06.XIII
MEAN SEA LEVEL PRESSURE
JUNE 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1007.3 3.0 515
1006.0 2.8 379
1000.2 4.1 335
999.3 4.3 719
999.4 4.0 357
1005.4 2.5 1451
1000.1 3.8 507
1001.4 3.8 838
1002.6 4.6 326
1004.0 4.6 36
1000.3 5.3 50
1004.6 2.5 498
1004.4 2.4 1033
1003.9 3.3 321
1003.0 3.4 578
1003.5 3.7 287
1004.7 3.3 629
1005.1 3.2 498
1003.9 4.5 113
1002.4 3.4 183
1003.1 2.7 59
1004.0 2.6 1013
1004.0 3.1 1646
1004.7 2.9 1408
1006.4 3.3 1302
1008.0 2.9 1078
1007.9 2.9 551
1007.5 2.9 793
1008.2 2.9 94
1005.4 3.4 312
1005.2 3.1 228
1005.3 2.7 131
1006.4 3.1 19
1008.8 2.9 244
1009.2 2.8 206
1009.0 3.1 208
1009.1 2.8 800
1009.3 2.6 1246
1009.0 2.7 1834
1008.4 2.8 1472
1008.7 2.4 1325
1008.9 2.3 1438
1008.9 2.2 821
1011.1 1.9 23
1012.4 2.5 109
1011.0 2.5 162
1010.8 2.3 84
1010.6 2.4 81
1010.2 2.6 107
1009.8 2.4 72
1009.9 2.6 137
1009.9 2.5 172
1009.6 2.3 340
1009.3 2.1 265
1009.0 1.8 340
1015.3 4.3 49
1013.4 2.2 135
1011.3 2.8 90
1011.7 2.0 61
1010.7 2.4 39
1010.8 2.0 54
1010.3 1.8 126
1010.2 2.0 129
1010.1 2.3 522
1009.9 2.7 315
1011.0 2.5 79
1010.3 2.6 53
1017.7 1.6 31
1015.4 2.5 107
1014.4 2.3 89
1012.0 3.2 65
1012.3 2.0 79
1012.3 2.0 20
1011.8 1.9 59
1011.7 2.5 196
1010.8 2.3 376
1010.4 2.5 83
1010.2 2.1 204
1010.6 2.0 136
1011.2 2.2 59
1016.7 2.2 156
1015.3 2.0 56
1014.7 2.2 55
1014.7 2.9 76
1015.0 2.4 80
1014.2 2.7 296
1012.8 2.8 187
1012.8 2.8 35
1010.8 3.9 89
1011.9 4.6 138
1011.7 3.6 257
1012.2 2.4 144

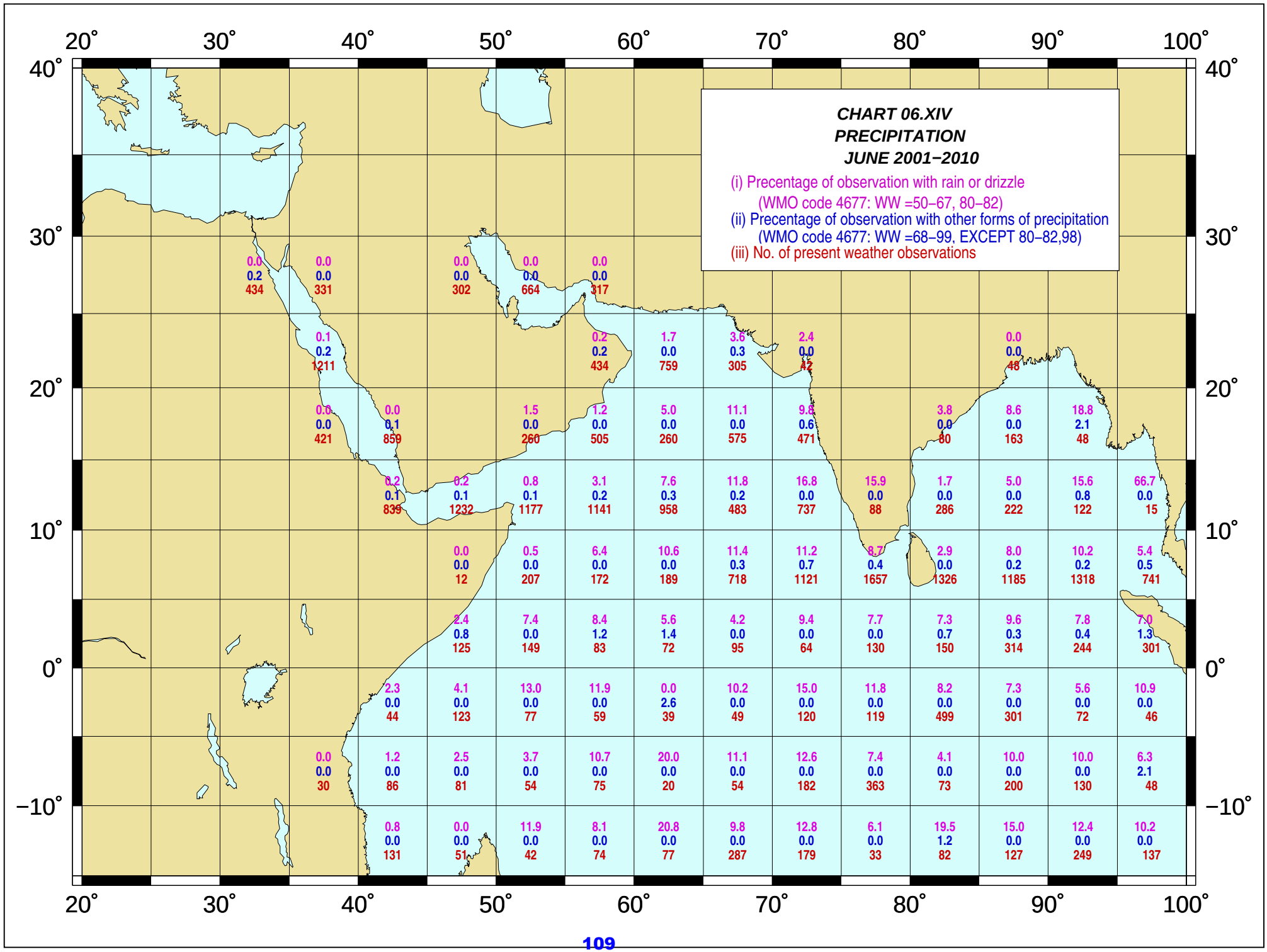


CHART 06.XIV
PRECIPITATION
JUNE 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 0.2 434
0.0 0.0 331
0.0 0.0 302
0.0 0.0 664
0.0 0.0 317
0.1 0.2 1211
0.2 0.2 434
1.7 0.0 759
3.6 0.3 305
2.4 0.0 42
0.0 0.0 48
0.0 0.0 421
0.0 0.1 859
1.5 0.0 260
1.2 0.0 505
5.0 0.0 260
11.1 0.0 575
9.8 0.6 471
3.8 0.0 80
8.6 0.0 163
18.8 2.1 48
0.2 0.1 839
0.2 0.1 1232
0.8 0.1 1177
3.1 0.2 1141
7.6 0.3 958
11.8 0.2 483
16.8 0.0 737
15.9 0.0 88
1.7 0.0 286
5.0 0.0 222
15.6 0.8 122
66.7 0.0 15
0.0 0.0 12
0.5 0.0 207
6.4 0.0 172
10.6 0.0 189
11.4 0.3 718
11.2 0.7 1121
8.7 0.4 1657
2.9 0.0 1326
8.0 0.2 1185
10.2 0.2 1318
5.4 0.5 741
2.4 0.8 125
7.4 0.0 149
8.4 1.2 83
5.6 1.4 72
4.2 0.0 95
9.4 0.0 64
7.7 0.0 130
7.3 0.7 150
9.6 0.3 314
7.8 0.4 244
7.0 1.3 301
2.3 0.0 44
4.1 0.0 123
13.0 0.0 77
11.9 0.0 59
0.0 2.6 39
10.2 0.0 49
15.0 0.0 120
11.8 0.0 119
8.2 0.0 499
7.3 0.0 301
5.6 0.0 72
10.9 0.0 46
0.0 0.0 30
1.2 0.0 86
2.5 0.0 81
3.7 0.0 54
10.7 0.0 75
20.0 0.0 20
11.1 0.0 54
12.6 0.0 182
7.4 0.0 363
4.1 0.0 73
10.0 0.0 200
10.0 0.0 130
6.3 2.1 48
0.8 0.0 131
0.0 0.0 51
11.9 0.0 42
8.1 0.0 74
20.8 0.0 77
9.8 0.0 287
12.8 0.0 179
6.1 0.0 33
19.5 1.2 82
15.0 0.0 127
12.4 0.0 249
10.2 0.0 137

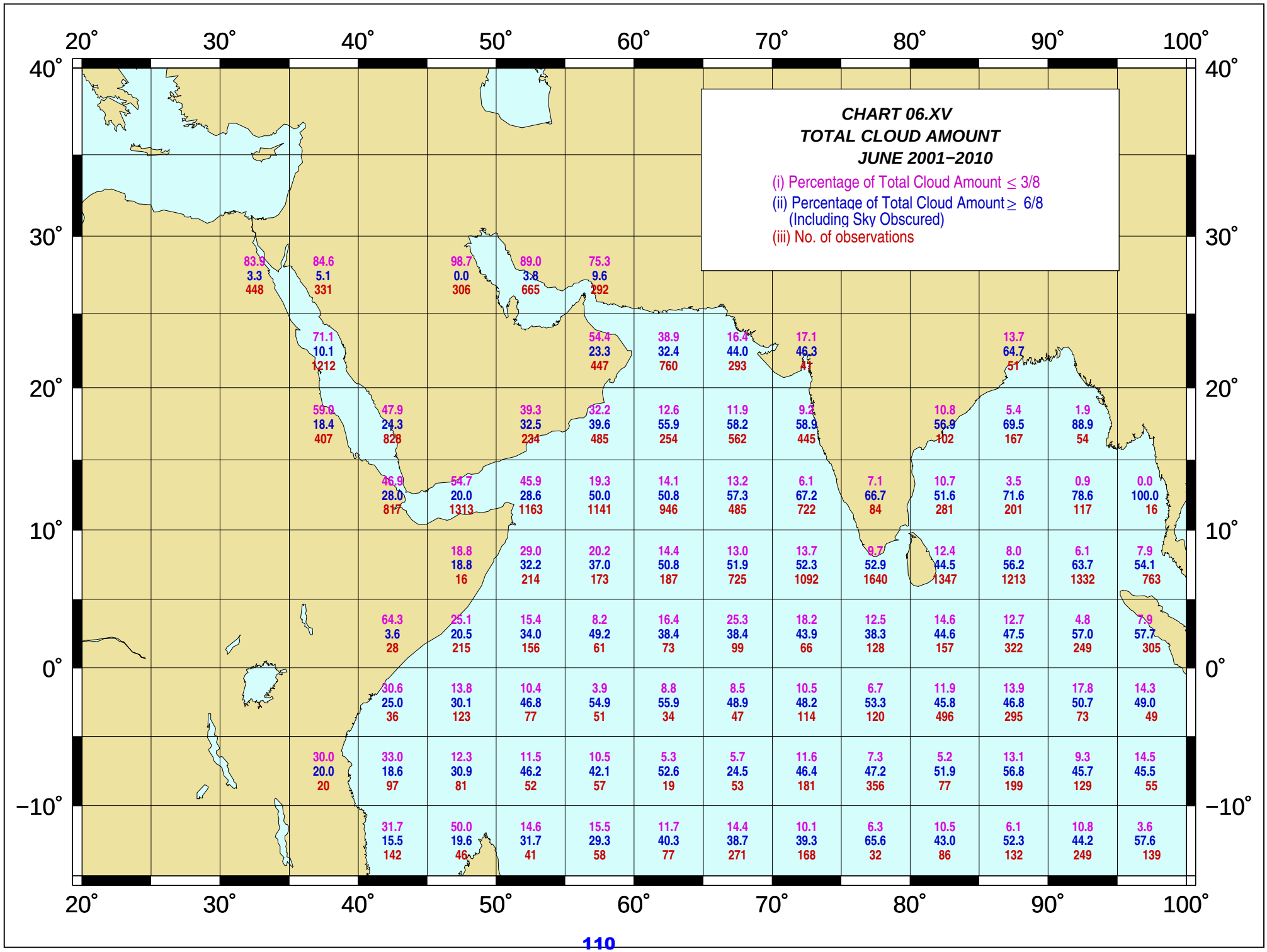


CHART 06.XV
TOTAL CLOUD AMOUNT
JUNE 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
83.9 3.3 448
84.6 5.1 331
98.7 0.0 306
89.0 3.8 665
75.3 9.6 292
71.1 10.1 1212
54.4 23.3 447
38.9 32.4 760
16.4 44.0 293
17.1 46.3 41
13.7 64.7 51
59.0 18.4 407
47.9 24.3 828
39.3 32.5 234
32.2 39.6 485
12.6 55.9 254
11.9 58.2 562
9.2 58.9 445
10.8 56.9 102
5.4 69.5 167
1.9 88.9 54
46.9 28.0 817
54.7 20.0 1313
45.9 28.6 1163
19.3 50.0 1141
14.1 50.8 946
13.2 57.3 485
6.1 67.2 722
7.1 66.7 84
10.7 51.6 281
3.5 71.6 201
0.9 78.6 117
0.0 100.0 16
18.8 18.8 16
29.0 32.2 214
20.2 37.0 173
14.4 50.8 187
13.0 51.9 725
13.7 52.3 1092
9.7 52.9 1640
12.4 44.5 1347
8.0 56.2 1213
6.1 63.7 1332
7.9 54.1 763
64.3 3.6 28
25.1 20.5 215
15.4 34.0 156
8.2 49.2 61
16.4 38.4 73
25.3 38.4 99
18.2 43.9 66
12.5 38.3 128
14.6 44.6 157
12.7 47.5 322
4.8 57.0 249
7.9 57.7 305
30.6 25.0 36
13.8 30.1 123
10.4 46.8 77
3.9 54.9 51
8.8 55.9 34
8.5 48.9 47
10.5 48.2 114
6.7 53.3 120
11.9 45.8 496
13.9 46.8 295
17.8 50.7 73
14.3 49.0 49
30.0 20.0 20
33.0 18.6 97
12.3 30.9 81
11.5 46.2 52
10.5 42.1 57
5.3 52.6 19
5.7 24.5 53
11.6 46.4 181
7.3 47.2 356
5.2 51.9 77
13.1 56.8 199
9.3 45.7 129
14.5 45.5 55
31.7 15.5 142
50.0 19.6 46
14.6 31.7 41
15.5 29.3 58
11.7 40.3 77
14.4 38.7 271
10.1 39.3 168
6.3 65.6 32
10.5 43.0 86
6.1 52.3 132
10.8 44.2 249
3.6 57.6 139

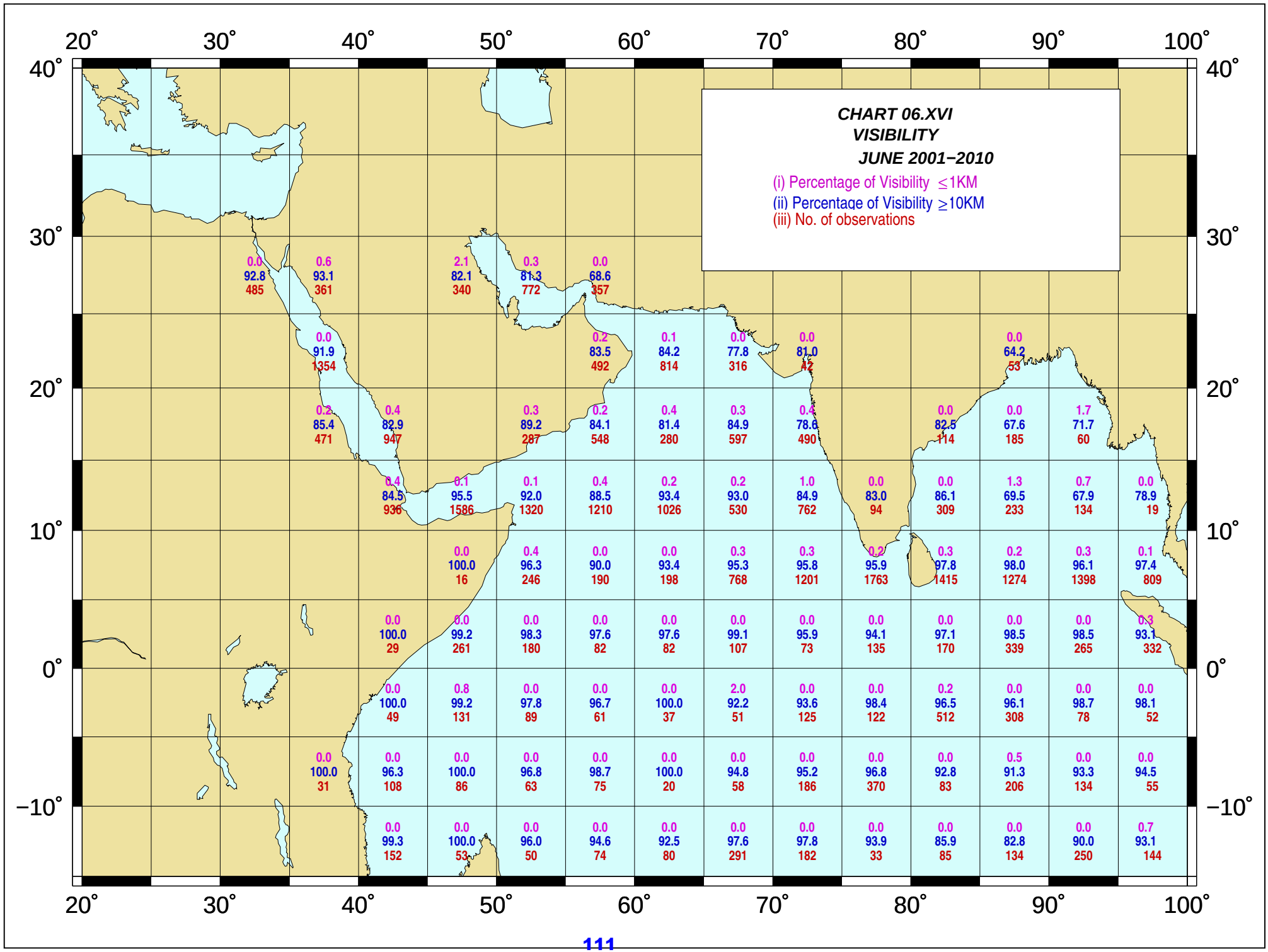


CHART 06.XVI
VISIBILITY
JUNE 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 92.8 485
0.6 93.1 361
2.1 82.1 340
0.3 81.3 772
0.0 68.6 357
0.0 91.9 1354
0.2 83.5 492
0.1 84.2 814
0.0 77.8 316
0.0 81.0 42
0.0 64.2 53
0.2 85.4 471
0.4 82.9 947
0.3 89.2 287
0.2 84.1 548
0.4 81.4 280
0.3 84.9 597
0.4 78.6 490
0.0 82.5 114
0.0 67.6 185
1.7 71.7 60
0.4 84.5 936
0.1 95.5 1586
0.1 92.0 1320
0.4 88.5 1210
0.2 93.4 1026
0.2 93.0 530
1.0 84.9 762
0.0 83.0 94
0.0 86.1 309
1.3 69.5 233
0.7 67.9 134
0.0 78.9 19
0.0 100.0 16
0.4 96.3 246
0.0 90.0 190
0.0 93.4 198
0.3 95.3 768
0.3 95.8 1201
0.2 95.9 1763
0.3 97.8 1415
0.2 98.0 1274
0.3 96.1 1398
0.1 97.4 809
0.0 100.0 29
0.0 99.2 261
0.0 98.3 180
0.0 97.6 82
0.0 97.6 82
0.0 99.1 107
0.0 95.9 73
0.0 94.1 135
0.0 97.1 170
0.0 98.5 339
0.0 98.5 265
0.3 93.1 332
0.0 100.0 49
0.8 99.2 131
0.0 97.8 89
0.0 96.7 61
0.0 100.0 37
2.0 92.2 51
0.0 93.6 125
0.0 98.4 122
0.2 96.5 512
0.0 96.1 308
0.0 98.7 78
0.0 98.1 52
0.0 100.0 31
0.0 96.3 108
0.0 100.0 86
0.0 96.8 63
0.0 98.7 75
0.0 100.0 20
0.0 94.8 58
0.0 95.2 186
0.0 96.8 370
0.0 92.8 83
0.5 91.3 206
0.0 93.3 134
0.0 94.5 55
0.0 99.3 152
0.0 100.0 53
0.0 96.0 50
0.0 94.6 74
0.0 92.5 80
0.0 97.6 291
0.0 97.8 182
0.0 93.9 33
0.0 85.9 85
0.0 82.8 134
0.0 90.0 250
0.7 93.1 144

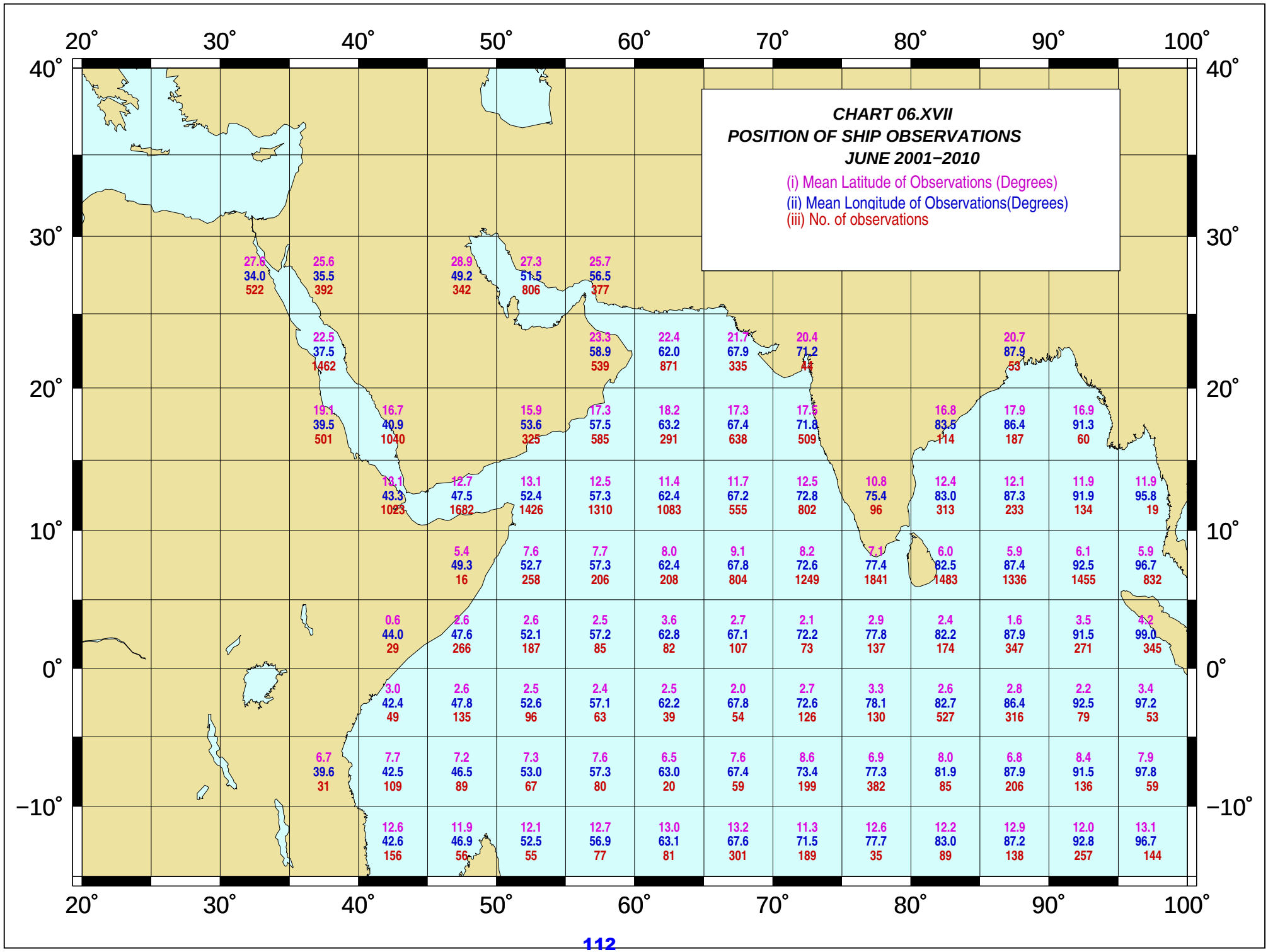


CHART 06.XVII
POSITION OF SHIP OBSERVATIONS
JUNE 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.6 34.0 522
25.6 35.5 392
28.9 49.2 342
27.3 51.5 806
25.7 56.5 377
22.5 37.5 1462
23.3 58.9 539
22.4 62.0 871
21.7 67.9 335
20.4 71.2 44
20.7 87.9 53
19.1 39.5 501
16.7 40.9 1040
15.9 53.6 325
17.3 57.5 585
18.2 63.2 291
17.3 67.4 638
17.5 71.8 509
16.8 83.5 114
17.9 86.4 187
16.9 91.3 60
19.1 43.3 1023
12.7 47.5 1682
13.1 52.4 1426
12.5 57.3 1310
11.4 62.4 1083
11.7 67.2 555
12.5 72.8 802
10.8 75.4 96
12.4 83.0 313
12.1 87.3 233
11.9 91.9 134
11.9 95.8 19
5.4 49.3 16
7.6 52.7 258
7.7 57.3 206
8.0 62.4 208
9.1 67.8 804
8.2 72.6 1249
7.1 77.4 1841
6.0 82.5 1483
5.9 87.4 1336
6.1 92.5 1455
5.9 96.7 832
0.6 44.0 29
2.6 47.6 266
2.6 52.1 187
2.5 57.2 85
3.6 62.8 82
2.7 67.1 107
2.1 72.2 73
2.9 77.8 137
2.4 82.2 174
1.6 87.9 347
3.5 91.5 271
4.2 99.0 345
3.0 42.4 49
2.6 47.8 135
2.5 52.6 96
2.4 57.1 63
2.5 62.2 39
2.0 67.8 54
2.7 72.6 126
3.3 78.1 130
2.6 82.7 527
2.8 86.4 316
2.2 92.5 79
3.4 97.2 53
6.7 39.6 31
7.7 42.5 109
7.2 46.5 89
7.3 53.0 67
7.6 57.3 80
6.5 63.0 20
7.6 67.4 59
8.6 73.4 199
6.9 77.3 382
8.0 81.9 85
6.8 87.9 206
8.4 91.5 136
7.9 97.8 59
12.6 42.6 156
11.9 46.9 56
12.1 52.5 55
12.7 56.9 77
13.0 63.1 81
13.2 67.6 301
11.3 71.5 189
12.6 77.7 35
12.2 83.0 89
12.9 87.2 138
12.0 92.8 257
13.1 96.7 144

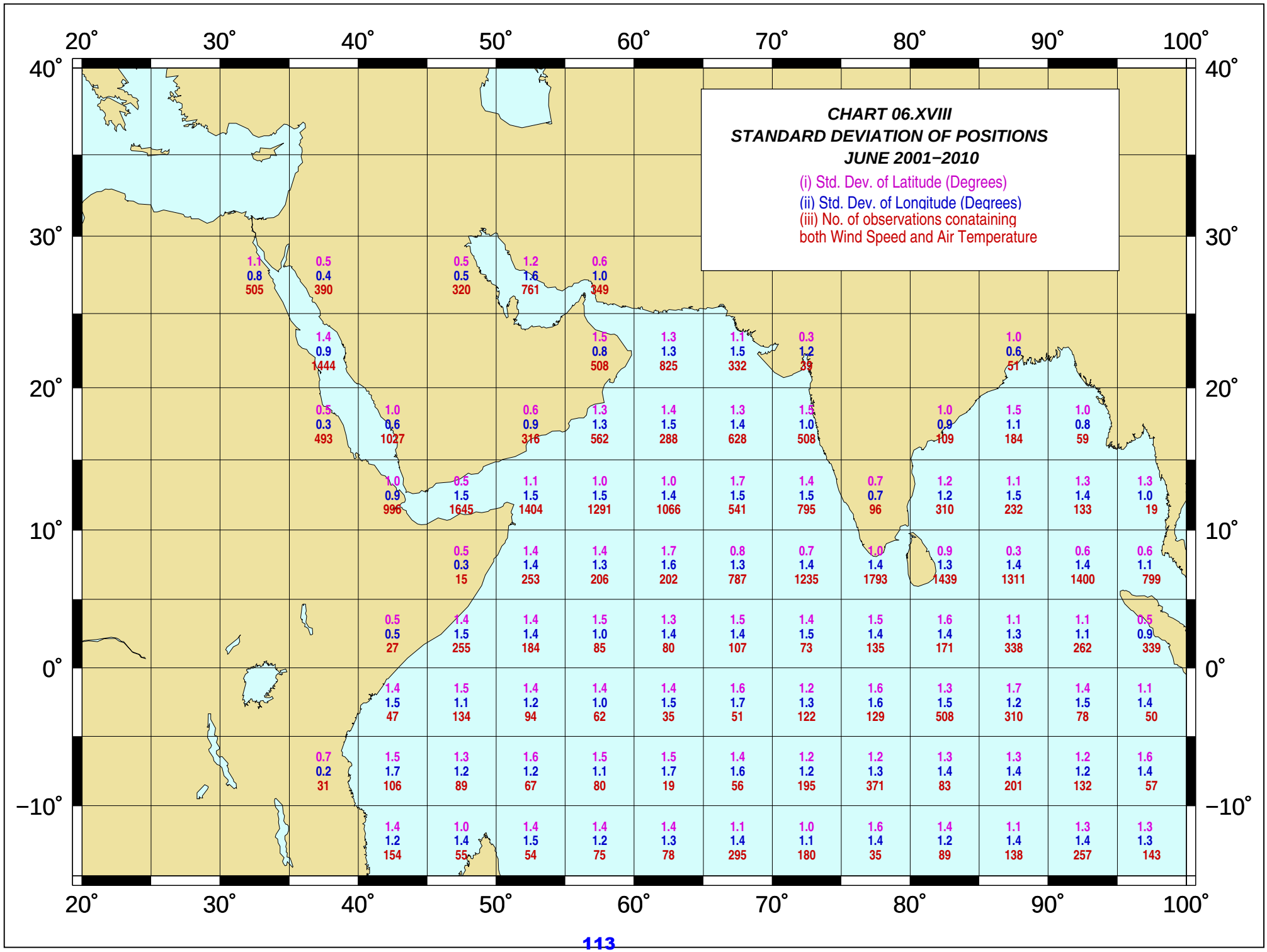
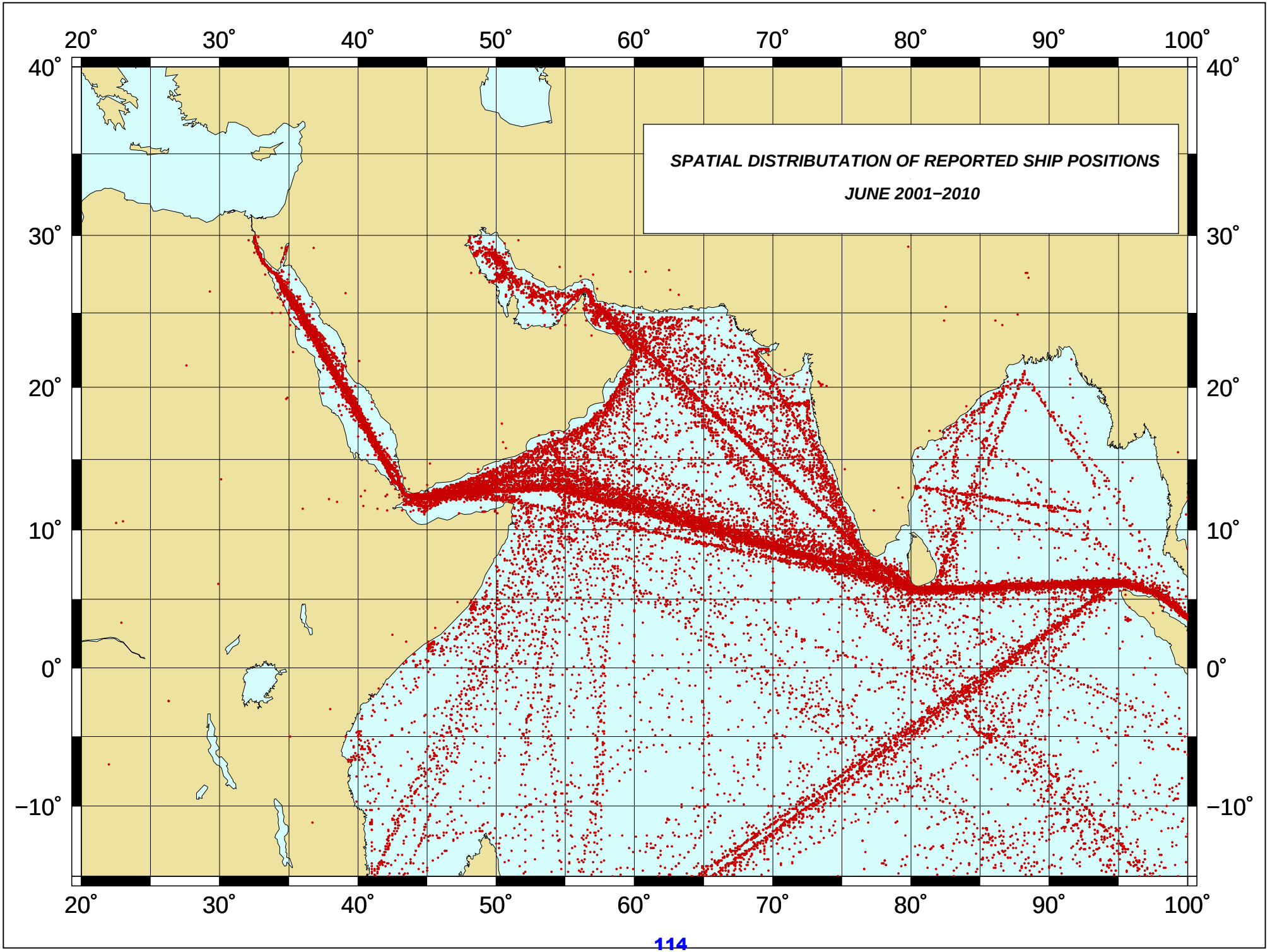


CHART 06.XVIII
STANDARD DEVIATION OF POSITIONS
JUNE 2001−2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 505
0.5 0.4 390
0.5 0.5 320
1.2 1.6 761
0.6 1.0 349
1.4 0.9 1444
1.5 0.8 508
1.3 1.3 825
1.1 1.5 332
0.3 1.2 39
1.0 0.6 51
0.5 0.3 493
1.0 0.6 1027
0.6 0.9 316
1.3 1.3 562
1.4 1.5 288
1.3 1.4 628
1.5 1.0 508
1.0 0.9 109
1.5 1.1 184
1.0 0.8 59
1.0 0.9 996
0.5 1.5 1645
1.1 1.5 1404
1.0 1.5 1291
1.0 1.4 1066
1.7 1.5 541
1.4 1.5 795
0.7 0.7 96
1.2 1.2 310
1.1 1.5 232
1.3 1.4 133
1.3 1.0 19
0.5 0.3 15
1.4 1.4 253
1.4 1.3 206
1.7 1.6 202
0.8 1.3 787
0.7 1.4 1235
1.0 1.4 1793
0.9 1.3 1439
0.3 1.4 1311
0.6 1.4 1400
0.6 1.1 799
0.5 0.5 27
1.4 1.5 255
1.4 1.4 184
1.5 1.0 85
1.3 1.4 80
1.5 1.4 107
1.4 1.5 73
1.5 1.4 135
1.6 1.4 171
1.1 1.3 338
1.1 1.1 262
0.5 0.9 339
1.4 1.5 47
1.5 1.1 134
1.4 1.2 94
1.4 1.0 62
1.4 1.5 35
1.6 1.7 51
1.2 1.3 122
1.6 1.6 129
1.3 1.5 508
1.7 1.2 310
1.4 1.5 78
1.1 1.4 50
0.7 0.2 31
1.5 1.7 106
1.3 1.2 89
1.6 1.2 67
1.5 1.1 80
1.5 1.7 19
1.4 1.6 56
1.2 1.2 195
1.2 1.3 371
1.3 1.4 83
1.3 1.4 201
1.2 1.2 132
1.6 1.4 57
1.4 1.2 154
1.0 1.4 55
1.4 1.5 54
1.4 1.2 75
1.4 1.3 78
1.1 1.4 295
1.0 1.1 180
1.6 1.4 35
1.4 1.2 89
1.1 1.4 138
1.3 1.4 257
1.3 1.3 143


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
JUNE 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF JULY 2001-2010

Marine Climatological Summary Charts 2001-2010

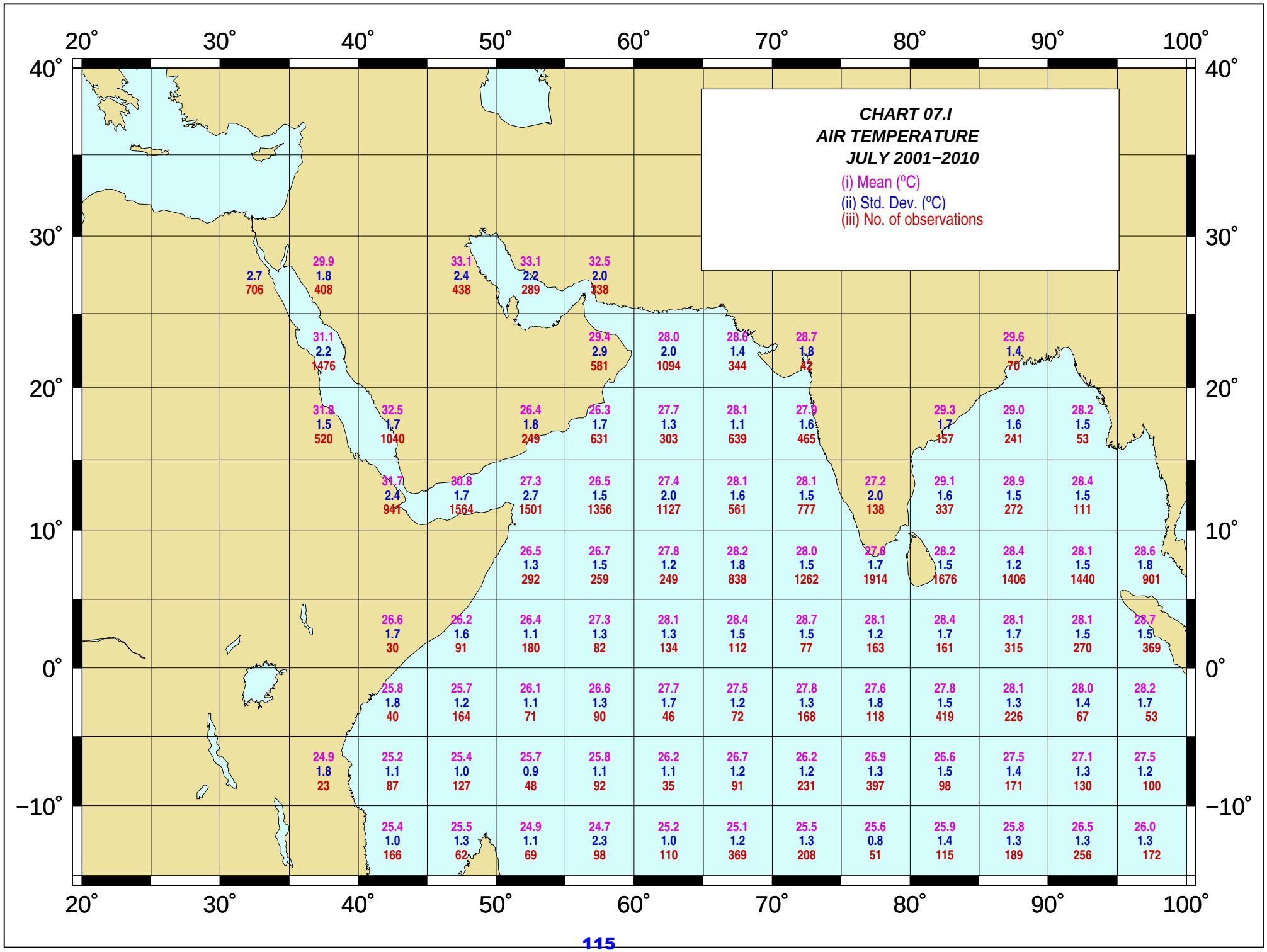


CHART 07.I
AIR TEMPERATURE
JULY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.7 706
29.9 1.8 408
33.1 2.4 438
33.1 2.2 289
32.5 2.0 338
31.1 2.2 1476
29.4 2.9 581
28.0 2.0 1094
28.6 1.4 344
28.7 1.8 42
29.6 1.4 70
31.8 1.5 520
32.5 1.7 1040
26.4 1.8 249
26.3 1.7 631
27.7 1.3 303
28.1 1.1 639
27.9 1.6 465
29.3 1.7 157
29.0 1.6 241
28.2 1.5 53
31.7 2.4 941
30.8 1.7 1564
27.3 2.7 1501
26.5 1.5 1356
27.4 2.0 1127
28.1 1.6 561
28.1 1.5 777
27.2 2.0 138
29.1 1.6 337
28.9 1.5 272
28.4 1.5 111
26.5 1.3 292
26.7 1.5 259
27.8 1.2 249
28.2 1.8 838
28.0 1.5 1262
27.9 1.7 1914
28.2 1.5 1676
28.4 1.2 1406
28.1 1.5 1440
28.6 1.8 901
26.6 1.7 30
26.2 1.6 91
26.4 1.1 180
27.3 1.3 82
28.1 1.3 134
28.4 1.5 112
28.7 1.5 77
28.1 1.2 163
28.4 1.7 161
28.1 1.7 315
28.1 1.5 270
28.7 1.5 369
25.8 1.8 40
25.7 1.2 164
26.1 1.1 71
26.6 1.3 90
27.7 1.7 46
27.5 1.2 72
27.8 1.3 168
27.6 1.8 118
27.8 1.5 419
28.1 1.3 226
28.0 1.4 67
28.2 1.7 53
24.9 1.8 23
25.2 1.1 87
25.4 1.0 127
25.7 0.9 48
25.8 1.1 92
26.2 1.1 35
26.7 1.2 91
26.2 1.2 231
26.9 1.3 397
26.6 1.5 98
27.5 1.4 171
27.1 1.3 130
27.5 1.2 100
25.4 1.0 166
25.5 1.3 62
24.9 1.1 69
24.7 2.3 98
25.2 1.0 110
25.1 1.2 369
25.5 1.3 208
25.6 0.8 51
25.9 1.4 115
25.8 1.3 189
26.5 1.3 256
26.0 1.3 172

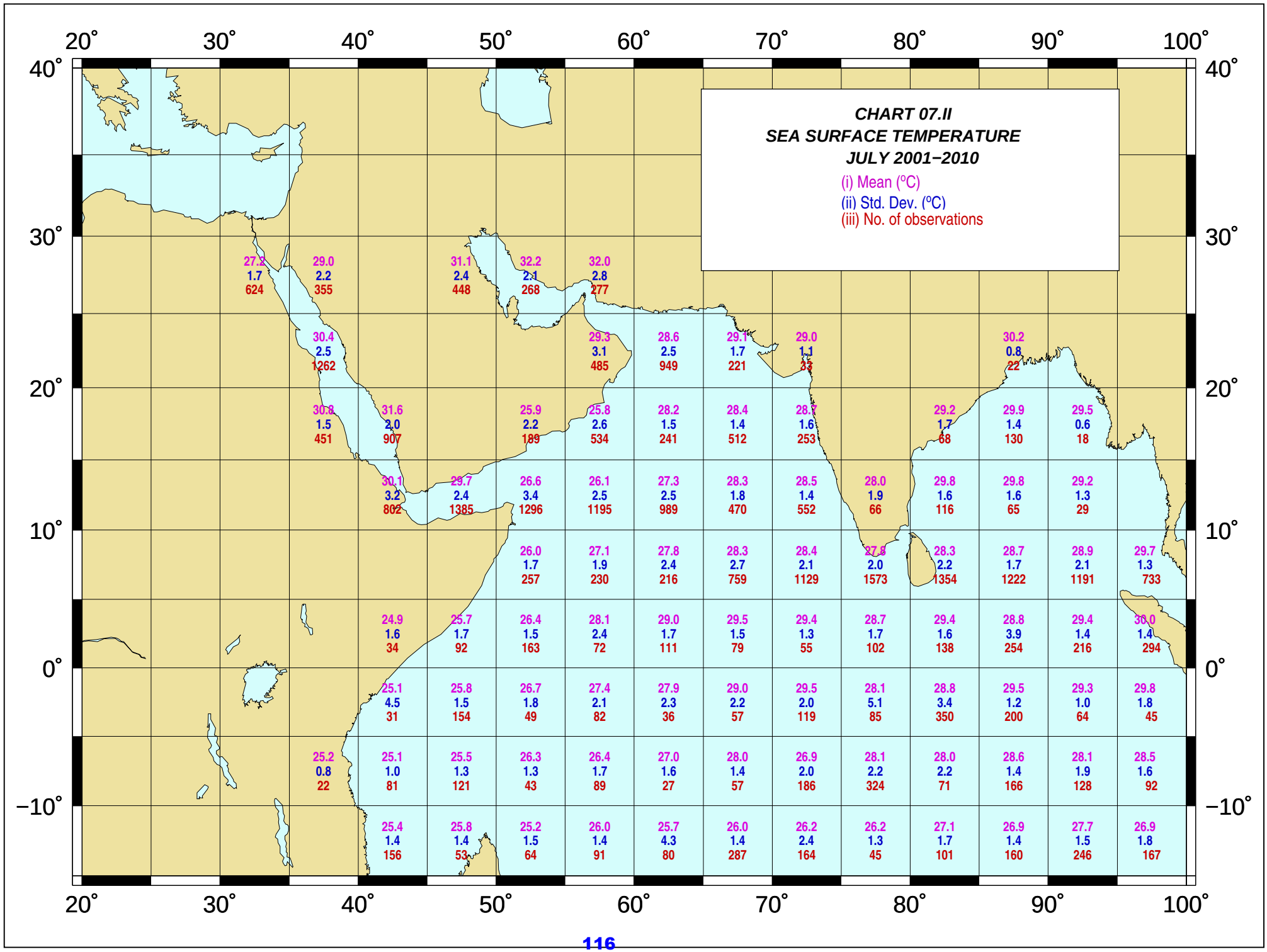


CHART 07.II
SEA SURFACE TEMPERATURE
JULY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.2 1.7 624
29.0 2.2 355
31.1 2.4 448
32.2 2.1 268
32.0 2.8 277
30.4 2.5 1262
29.3 3.1 485
28.6 2.5 949
29.1 1.7 221
29.0 1.1 33
30.2 0.8 22
30.8 1.5 451
31.6 2.0 907
25.9 2.2 189
25.8 2.6 534
28.2 1.5 241
28.4 1.4 512
28.7 1.6 253
29.2 1.7 68
29.9 1.4 130
29.5 0.6 18
30.1 3.2 802
29.7 2.4 1385
26.6 3.4 1296
26.1 2.5 1195
27.3 2.5 989
28.3 1.8 470
28.5 1.4 552
28.0 1.9 66
29.8 1.6 116
29.8 1.6 65
29.2 1.3 29
26.0 1.7 257
27.1 1.9 230
27.8 2.4 216
28.3 2.7 759
28.4 2.1 1129
27.9 2.0 1573
28.3 2.2 1354
28.7 1.7 1222
28.9 2.1 1191
29.7 1.3 733
24.9 1.6 34
25.7 1.7 92
26.4 1.5 163
28.1 2.4 72
29.0 1.7 111
29.5 1.5 79
29.4 1.3 55
28.7 1.7 102
29.4 1.6 138
28.8 3.9 254
29.4 1.4 216
30.0 1.4 294
25.1 4.5 31
25.8 1.5 154
26.7 1.8 49
27.4 2.1 82
27.9 2.3 36
29.0 2.2 57
29.5 2.0 119
28.1 5.1 85
28.8 3.4 350
29.5 1.2 200
29.3 1.0 64
29.8 1.8 45
25.2 0.8 22
25.1 1.0 81
25.5 1.3 121
26.3 1.3 43
26.4 1.7 89
27.0 1.6 27
28.0 1.4 57
26.9 2.0 186
28.1 2.2 324
28.0 2.2 71
28.6 1.4 166
28.1 1.9 128
28.5 1.6 92
25.4 1.4 156
25.8 1.4 53
25.2 1.5 64
26.0 1.4 91
25.7 4.3 80
26.0 1.4 287
26.2 2.4 164
26.2 1.3 45
27.1 1.7 101
26.9 1.4 160
27.7 1.5 246
26.9 1.8 167

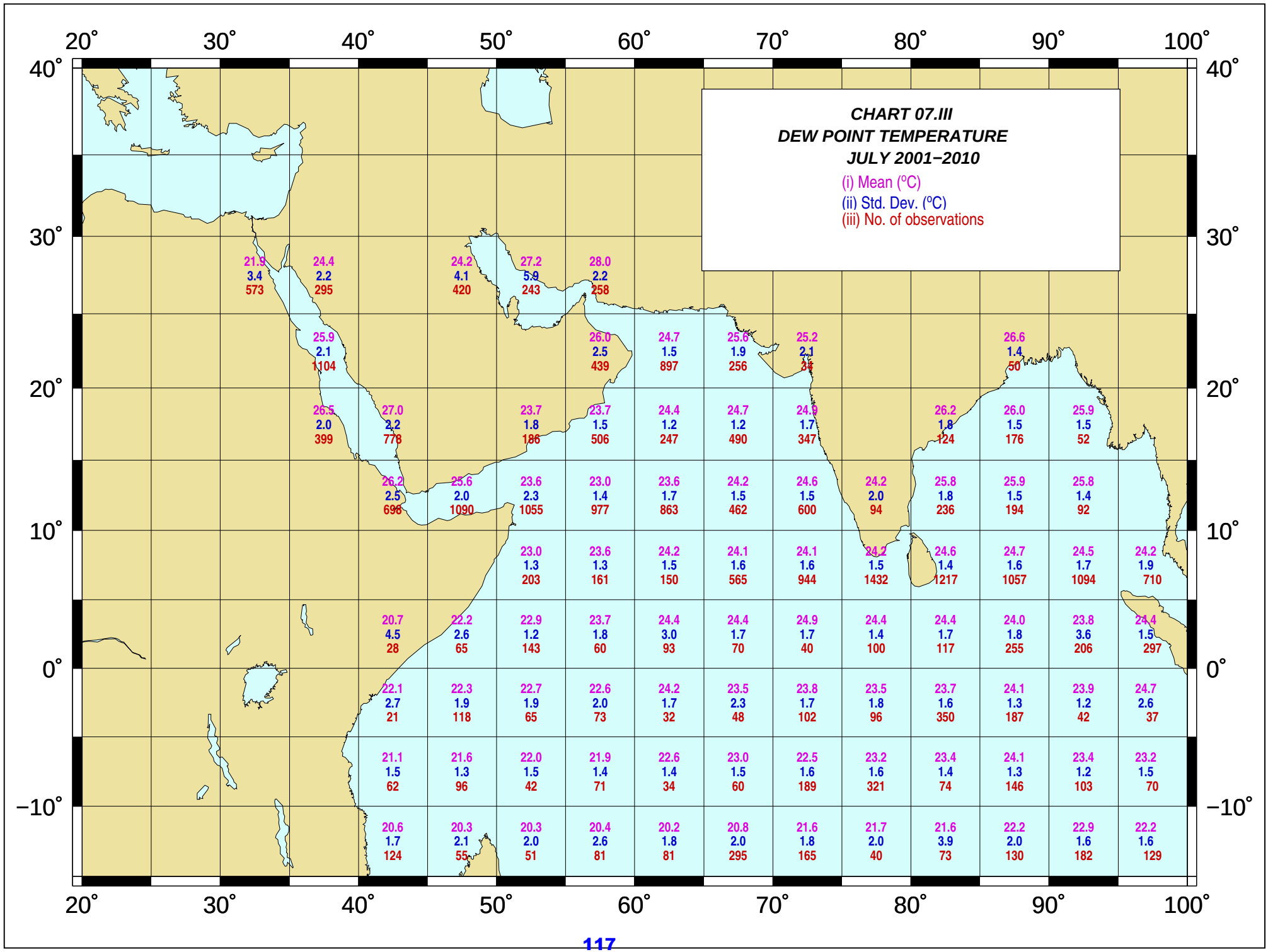


CHART 07.III
DEW POINT TEMPERATURE
JULY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
21.9 3.4 573
24.4 2.2 295
24.2 4.1 420
27.2 5.9 243
28.0 2.2 258
25.9 2.1 1104
26.0 2.5 439
24.7 1.5 897
25.6 1.9 256
25.2 2.1 34
26.6 1.4 50
26.5 2.0 399
27.0 2.2 778
23.7 1.8 186
23.7 1.5 506
24.4 1.2 247
24.7 1.2 490
24.9 1.7 347
26.2 1.8 124
26.0 1.5 176
25.9 1.5 52
26.2 2.5 696
25.6 2.0 1090
23.6 2.3 1055
23.0 1.4 977
23.6 1.7 863
24.2 1.5 462
24.6 1.5 600
24.2 2.0 94
25.8 1.8 236
25.9 1.5 194
25.8 1.4 92
23.0 1.3 203
23.6 1.3 161
24.2 1.5 150
24.1 1.6 565
24.1 1.6 944
24.2 1.5 1432
24.6 1.4 1217
24.7 1.6 1057
24.5 1.7 1094
24.2 1.9 710
20.7 4.5 28
22.2 2.6 65
22.9 1.2 143
23.7 1.8 60
24.4 3.0 93
24.4 1.7 70
24.9 1.7 40
24.4 1.4 100
24.4 1.7 117
24.0 1.8 255
23.8 3.6 206
24.4 1.5 297
22.1 2.7 21
22.3 1.9 118
22.7 1.9 65
22.6 2.0 73
24.2 1.7 32
23.5 2.3 48
23.8 1.7 102
23.5 1.8 96
23.7 1.6 350
24.1 1.3 187
23.9 1.2 42
24.7 2.6 37
21.1 1.5 62
21.6 1.3 96
22.0 1.5 42
21.9 1.4 71
22.6 1.4 34
23.0 1.5 60
22.5 1.6 189
23.2 1.6 321
23.4 1.4 74
24.1 1.3 146
23.4 1.2 103
23.2 1.5 70
20.6 1.7 124
20.3 2.1 55
20.3 2.0 51
20.4 2.6 81
20.2 1.8 81
20.8 2.0 295
21.6 1.8 165
21.7 2.0 40
21.6 3.9 73
22.2 2.0 130
22.9 1.6 182
22.2 1.6 129

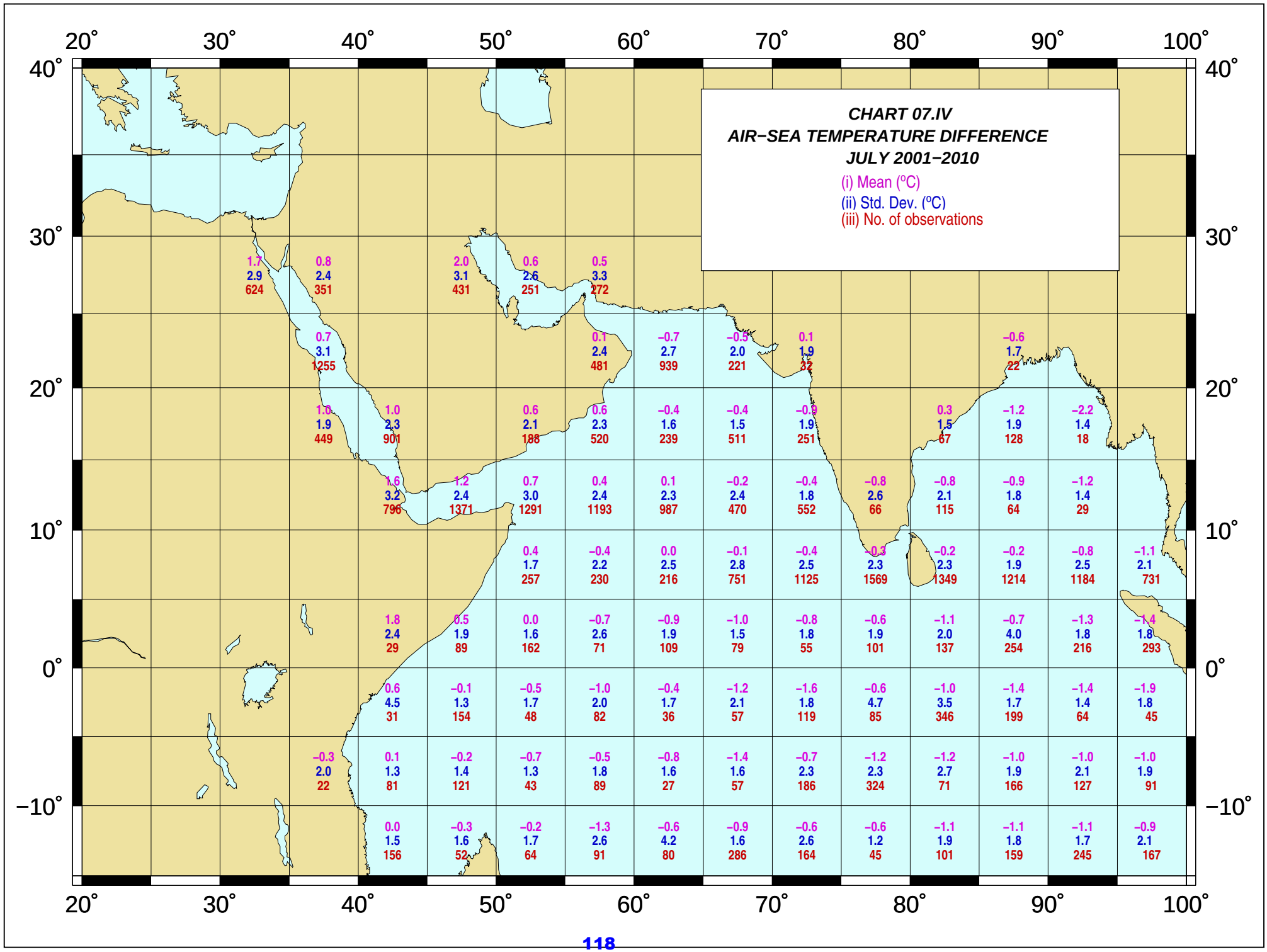


CHART 07.IV
AIR–SEA TEMPERATURE DIFFERENCE
JULY 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.7 2.9 624
0.8 2.4 351
2.0 3.1 431
0.6 2.6 251
0.5 3.3 272
0.7 3.1 1255
0.1 2.4 481
−0.7 2.7 939
−0.5 2.0 221
0.1 1.9 32
−0.6 1.7 22
1.0 1.9 449
1.0 2.3 901
0.6 2.1 188
0.6 2.3 520
−0.4 1.6 239
−0.4 1.5 511
−0.9 1.9 251
0.3 1.5 67
−1.2 1.9 128
−2.2 1.4 18
1.6 3.2 796
1.2 2.4 1371
0.7 3.0 1291
0.4 2.4 1193
0.1 2.3 987
−0.2 2.4 470
−0.4 1.8 552
−0.8 2.6 66
−0.8 2.1 115
−0.9 1.8 64
−1.2 1.4 29
0.4 1.7 257
−0.4 2.2 230
0.0 2.5 216
−0.1 2.8 751
−0.4 2.5 1125
−0.3 2.3 1569
−0.2 2.3 1349
−0.2 1.9 1214
−0.8 2.5 1184
−1.1 2.1 731
1.8 2.4 29
0.5 1.9 89
0.0 1.6 162
−0.7 2.6 71
−0.9 1.9 109
−1.0 1.5 79
−0.8 1.8 55
−0.6 1.9 101
−1.1 2.0 137
−0.7 4.0 254
−1.3 1.8 216
−1.4 1.8 293
0.6 4.5 31
−0.1 1.3 154
−0.5 1.7 48
−1.0 2.0 82
−0.4 1.7 36
−1.2 2.1 57
−1.6 1.8 119
−0.6 4.7 85
−1.0 3.5 346
−1.4 1.7 199
−1.4 1.4 64
−1.9 1.8 45
−0.3 2.0 22
0.1 1.3 81
−0.2 1.4 121
−0.7 1.3 43
−0.5 1.8 89
−0.8 1.6 27
−1.4 1.6 57
−0.7 2.3 186
−1.2 2.3 324
−1.2 2.7 71
−1.0 1.9 166
−1.0 2.1 127
−1.0 1.9 91
0.0 1.5 156
−0.3 1.6 52
−0.2 1.7 64
−1.3 2.6 91
−0.6 4.2 80
−0.9 1.6 286
−0.6 2.6 164
−0.6 1.2 45
−1.1 1.9 101
−1.1 1.8 159
−1.1 1.7 245
−0.9 2.1 167

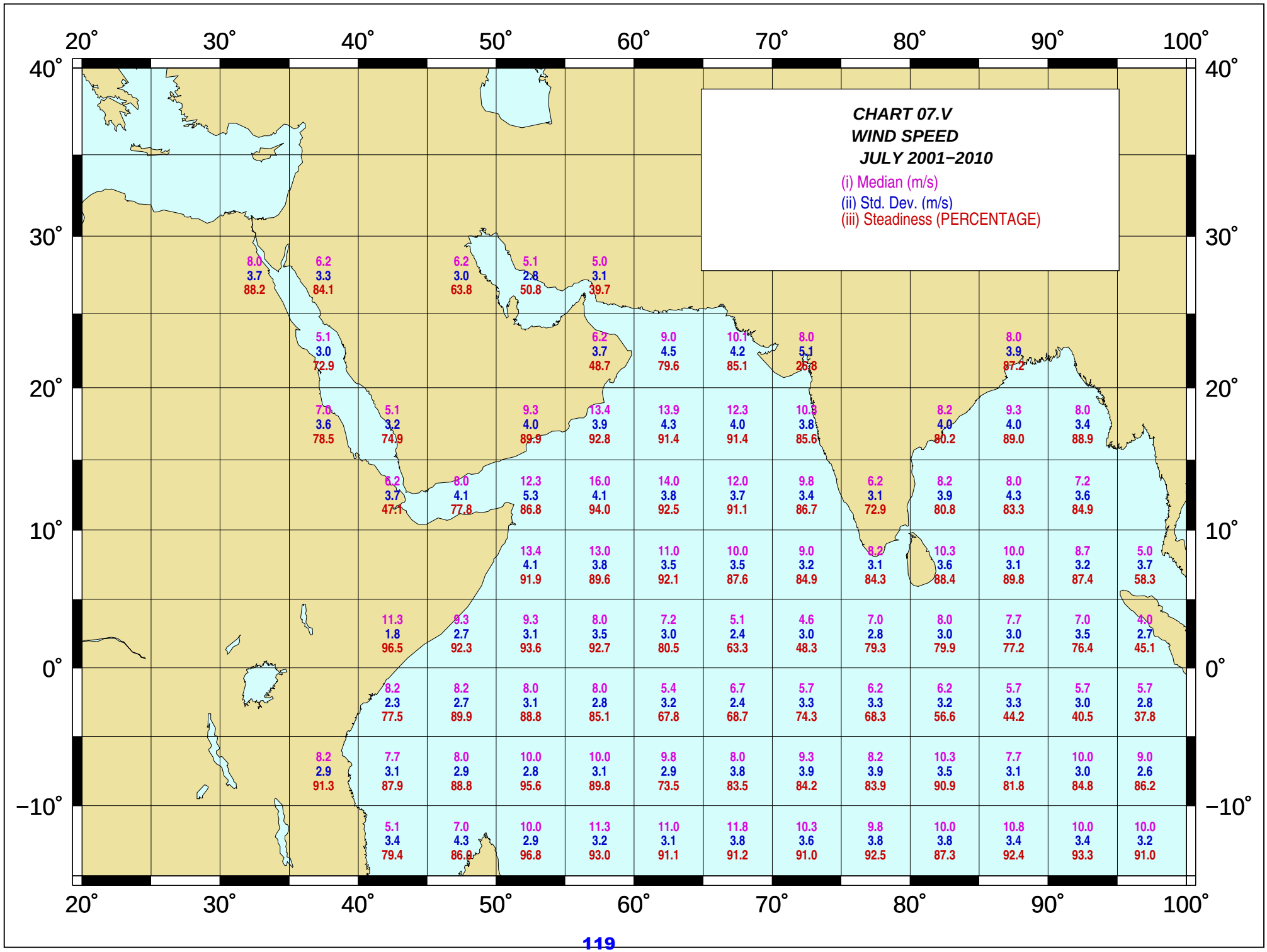


CHART 07.V
WIND SPEED
JULY 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.0 3.7 88.2
6.2 3.3 84.1
6.2 3.0 63.8
5.1 2.8 50.8
5.0 3.1 39.7
5.1 3.0 72.9
6.2 3.7 48.7
9.0 4.5 79.6
10.1 4.2 85.1
8.0 5.1 25.8
8.0 3.9 87.2
7.0 3.6 78.5
5.1 3.2 74.9
9.3 4.0 89.9
13.4 3.9 92.8
13.9 4.3 91.4
12.3 4.0 91.4
10.9 3.8 85.6
8.2 4.0 80.2
9.3 4.0 89.0
8.0 3.4 88.9
6.2 3.7 47.1
8.0 4.1 77.8
12.3 5.3 86.8
16.0 4.1 94.0
14.0 3.8 92.5
12.0 3.7 91.1
9.8 3.4 86.7
6.2 3.1 72.9
8.2 3.9 80.8
8.0 4.3 83.3
7.2 3.6 84.9
13.4 4.1 91.9
13.0 3.8 89.6
11.0 3.5 92.1
10.0 3.5 87.6
9.0 3.2 84.9
8.2 3.1 84.3
10.3 3.6 88.4
10.0 3.1 89.8
8.7 3.2 87.4
5.0 3.7 58.3
11.3 1.8 96.5
9.3 2.7 92.3
9.3 3.1 93.6
8.0 3.5 92.7
7.2 3.0 80.5
5.1 2.4 63.3
4.6 3.0 48.3
7.0 2.8 79.3
8.0 3.0 79.9
7.7 3.0 77.2
7.0 3.5 76.4
4.0 2.7 45.1
8.2 2.3 77.5
8.2 2.7 89.9
8.0 3.1 88.8
8.0 2.8 85.1
5.4 3.2 67.8
6.7 2.4 68.7
5.7 3.3 74.3
6.2 3.3 68.3
6.2 3.2 56.6
5.7 3.3 44.2
5.7 3.0 40.5
5.7 2.8 37.8
8.2 2.9 91.3
7.7 3.1 87.9
8.0 2.9 88.8
10.0 2.8 95.6
10.0 3.1 89.8
9.8 2.9 73.5
8.0 3.8 83.5
9.3 3.9 84.2
8.2 3.9 83.9
10.3 3.5 90.9
7.7 3.1 81.8
10.0 3.0 84.8
9.0 2.6 86.2
5.1 3.4 79.4
7.0 4.3 86.0
10.0 2.9 96.8
11.3 3.2 93.0
11.0 3.1 91.1
11.8 3.8 91.2
10.3 3.6 91.0
9.8 3.8 92.5
10.0 3.8 87.3
10.8 3.4 92.4
10.0 3.4 93.3
10.0 3.2 91.0

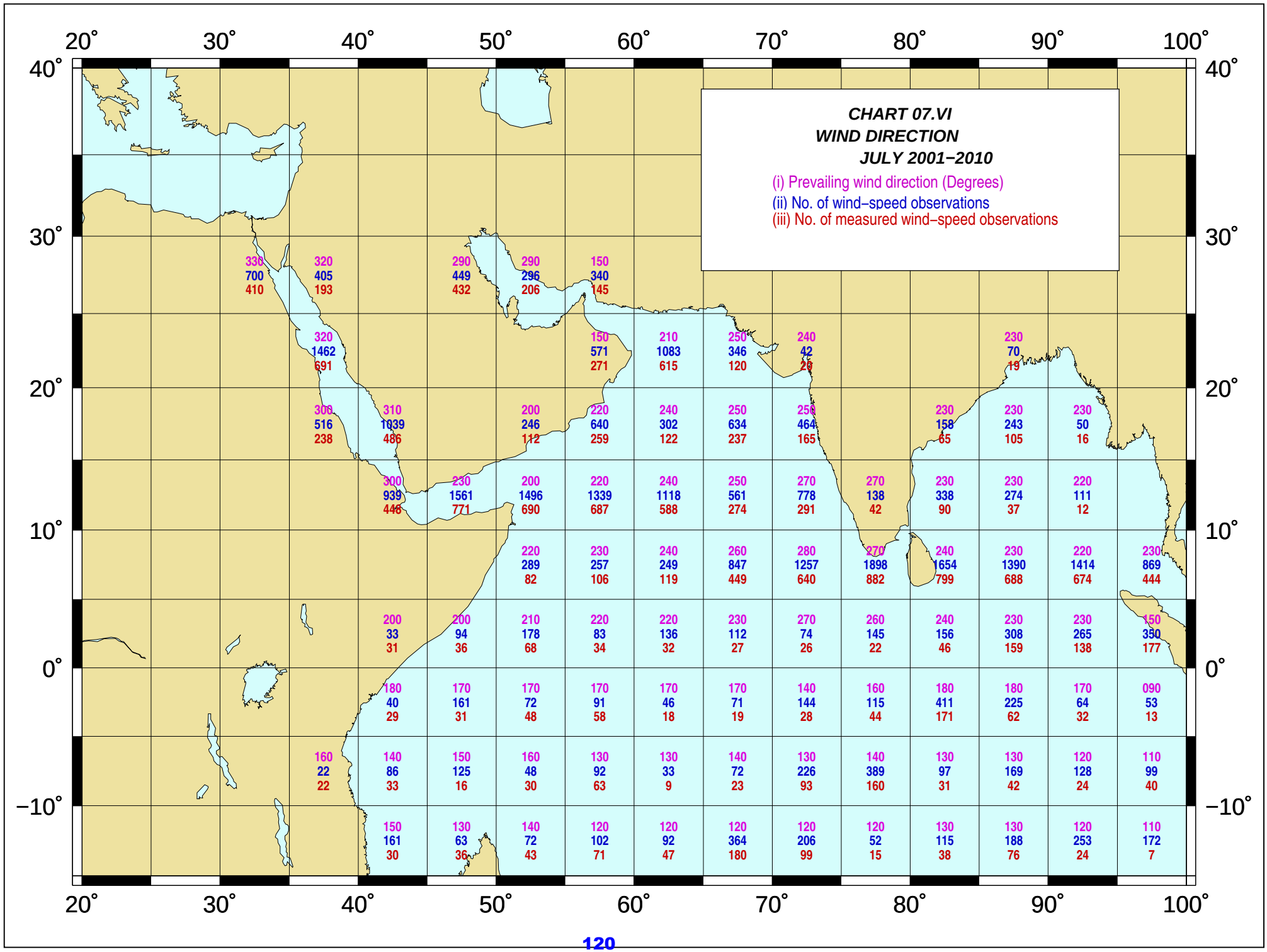


CHART 07.VI
WIND DIRECTION
JULY 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 700 410
320 405 193
290 449 432
290 296 206
150 340 145
320 1462 691
150 571 271
210 1083 615
250 346 120
240 42 20
230 70 19
300 516 238
310 1039 486
200 246 112
220 640 259
240 302 122
250 634 237
250 464 165
230 158 65
230 243 105
230 50 16
300 939 446
230 1561 771
200 1496 690
220 1339 687
240 1118 588
250 561 274
270 778 291
270 138 42
230 338 90
230 274 37
220 111 12
220 289 82
230 257 106
240 249 119
260 847 449
280 1257 640
270 1898 882
240 1654 799
230 1390 688
220 1414 674
230 869 444
200 33 31
200 94 36
210 178 68
220 83 34
220 136 32
230 112 27
270 74 26
260 145 22
240 156 46
230 308 159
230 265 138
150 330 177
180 40 29
170 161 31
170 72 48
170 91 58
170 46 18
170 71 19
140 144 28
160 115 44
180 411 171
180 225 62
170 64 32
090 53 13
160 22 22
140 86 33
150 125 16
160 48 30
130 92 63
130 33 9
140 72 23
130 226 93
140 389 160
130 97 31
130 169 42
120 128 24
110 99 40
150 161 30
130 63 36
140 72 43
120 102 71
120 92 47
120 364 180
120 206 99
120 52 15
130 115 38
130 188 76
120 253 24
110 172 7

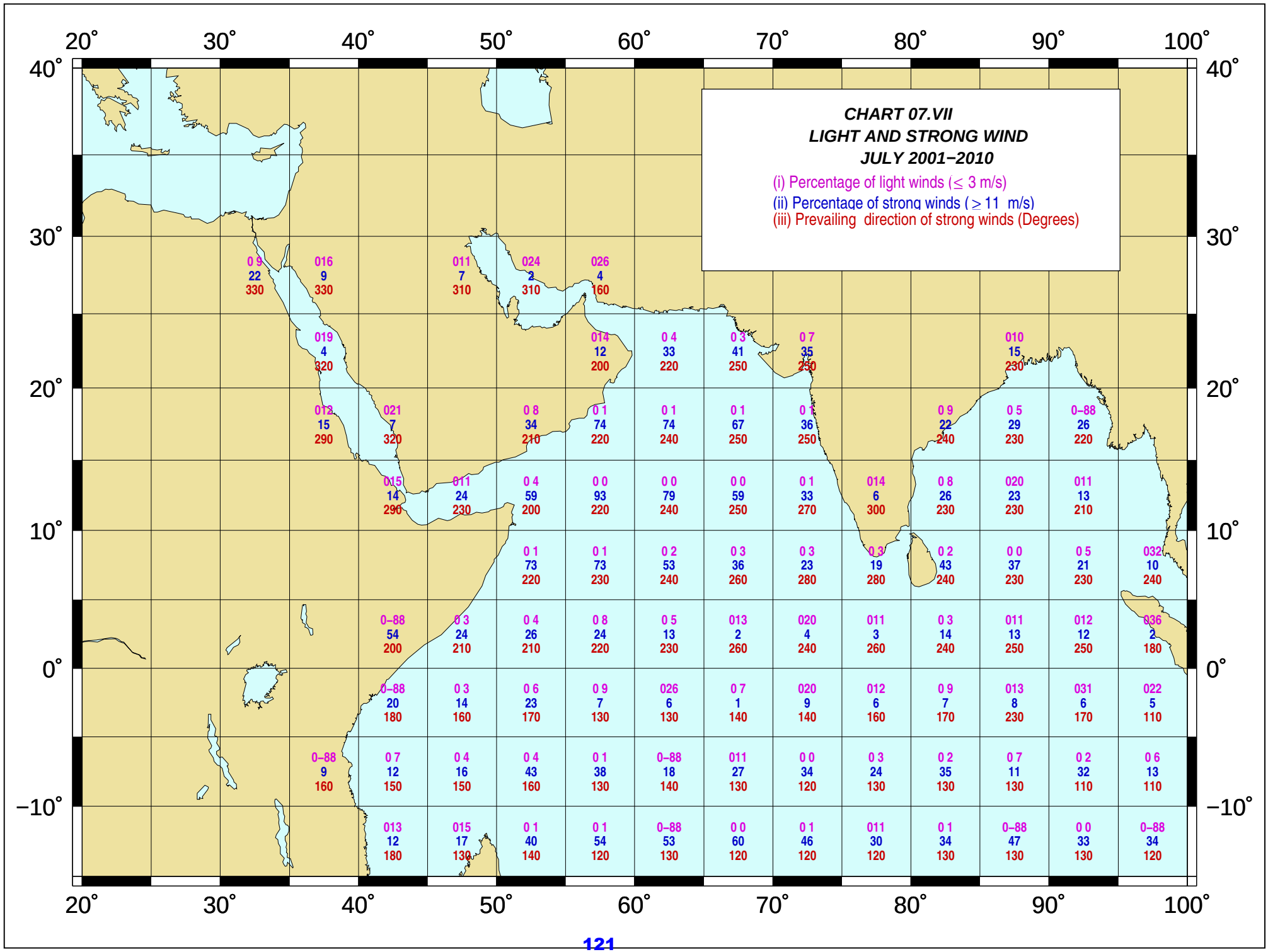


CHART 07.VII
LIGHT AND STRONG WIND
JULY 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
09 22 330
016 9 330
011 7 310
024 2 310
026 4 160
019 4 320
014 12 200
04 33 220
03 41 250
07 35 250
010 15 230
012 15 290
021 7 320
08 34 210
01 74 220
01 74 240
01 67 250
01 36 250
09 22 240
05 29 230
0–88 26 220
015 14 290
011 24 230
04 59 200
00 93 220
00 79 240
00 59 250
01 33 270
014 6 300
08 26 230
020 23 230
011 13 210
01 73 220
01 73 230
02 53 240
03 36 260
03 23 280
03 19 280
02 43 240
00 37 230
05 21 230
032 10 240
0–88 54 200
03 24 210
04 26 210
08 24 220
05 13 230
013 2 260
020 4 240
011 3 260
03 14 240
011 13 250
012 12 250
036 2 180
0–88 20 180
03 14 160
06 23 170
09 7 130
026 6 130
07 1 140
020 9 140
012 6 160
09 7 170
013 8 230
031 6 170
022 5 110
0–88 9 160
07 12 150
04 16 150
04 43 160
01 38 130
0–88 18 140
011 27 130
00 34 120
03 24 130
02 35 130
07 11 130
02 32 110
06 13 110
013 12 180
015 17 130
01 40 140
01 54 120
0–88 53 130
00 60 120
01 46 120
011 30 120
01 34 130
0–88 47 130
00 33 130
0–88 34 120

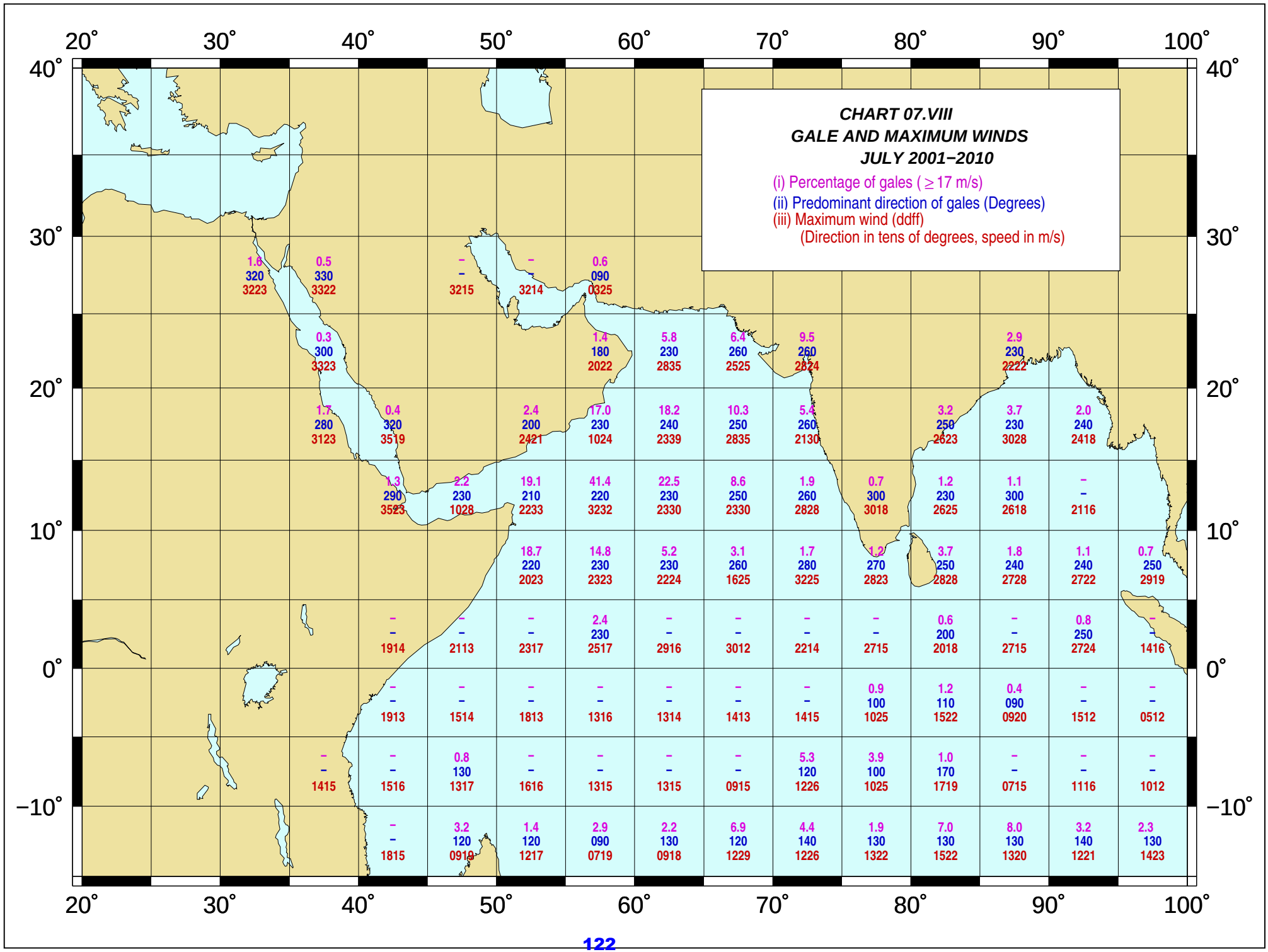


CHART 07.VIII
GALE AND MAXIMUM WINDS
JULY 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.6 320 3223
0.5 330 3322
– – 3215
– – 3214
0.6 090 0325
0.3 300 3323
1.4 180 2022
5.8 230 2835
6.4 260 2525
9.5 260 2824
2.9 230 2222
1.7 280 3123
0.4 320 3519
2.4 200 2421
17.0 230 1024
18.2 240 2339
10.3 250 2835
5.4 260 2130
3.2 250 2623
3.7 230 3028
2.0 240 2418
1.3 290 3523
2.2 230 1028
19.1 210 2233
41.4 220 3232
22.5 230 2330
8.6 250 2330
1.9 260 2828
0.7 300 3018
1.2 230 2625
1.1 300 2618
– – 2116
18.7 220 2023
14.8 230 2323
5.2 230 2224
3.1 260 1625
1.7 280 3225
1.2 270 2823
3.7 250 2828
1.8 240 2728
1.1 240 2722
0.7 250 2919
– – 1914
– – 2113
– – 2317
2.4 230 2517
– – 2916
– – 3012
– – 2214
– – 2715
0.6 200 2018
– – 2715
0.8 250 2724
– – 1416
– – 1913
– – 1514
– – 1813
– – 1316
– – 1314
– – 1413
– – 1415
0.9 100 1025
1.2 110 1522
0.4 090 0920
– – 1512
– – 0512
– – 1415
– – 1516
0.8 130 1317
– – 1616
– – 1315
– – 1315
– – 0915
5.3 120 1226
3.9 100 1025
1.0 170 1719
– – 0715
– – 1116
– – 1012
– – 1815
3.2 120 0919
1.4 120 1217
2.9 090 0719
2.2 130 0918
6.9 120 1229
4.4 140 1226
1.9 130 1322
7.0 130 1522
8.0 130 1320
3.2 140 1221
2.3 130 1423

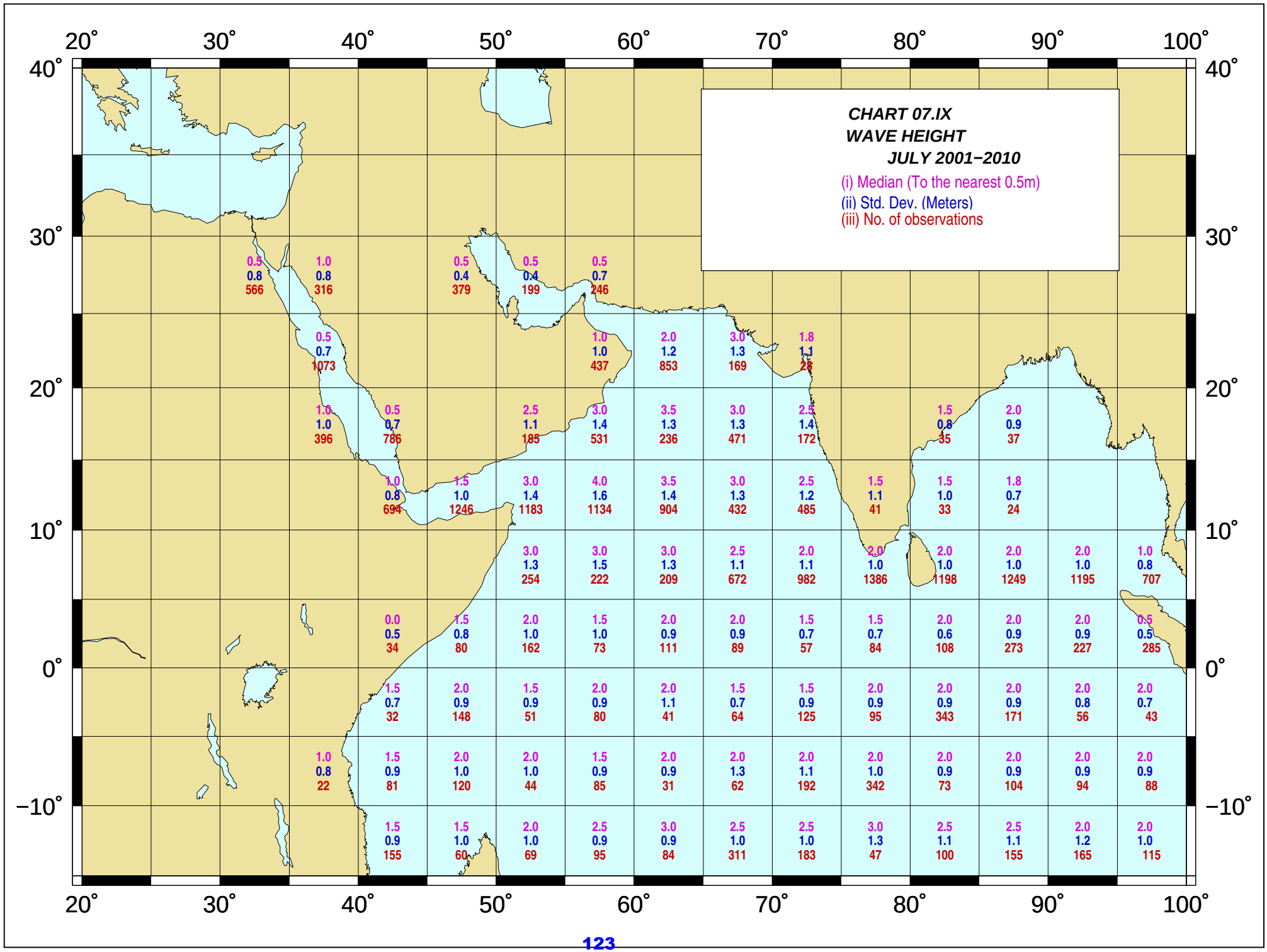


CHART 07.IX
WAVE HEIGHT
JULY 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.5 0.8 566
1.0 0.8 316
0.5 0.4 379
0.5 0.4 199
0.5 0.7 246
0.5 0.7 1073
1.0 1.0 437
2.0 1.2 853
3.0 1.3 169
1.8 1.1 26
1.0 1.0 396
0.5 0.7 786
2.5 1.1 185
3.0 1.4 531
3.5 1.3 236
3.0 1.3 471
2.5 1.4 172
1.5 0.8 35
2.0 0.9 37
1.0 0.8 694
1.5 1.0 1246
3.0 1.4 1183
4.0 1.6 1134
3.5 1.4 904
3.0 1.3 432
2.5 1.2 485
1.5 1.1 41
1.5 1.0 33
1.8 0.7 24
3.0 1.3 254
3.0 1.5 222
3.0 1.3 209
2.5 1.1 672
2.0 1.1 982
2.0 1.0 1386
2.0 1.0 1198
2.0 1.0 1249
2.0 1.0 1195
1.0 0.8 707
0.0 0.5 34
1.5 0.8 80
2.0 1.0 162
1.5 1.0 73
2.0 0.9 111
2.0 0.9 89
1.5 0.7 57
1.5 0.7 84
2.0 0.6 108
2.0 0.9 273
2.0 0.9 227
0.5 0.5 285
1.5 0.7 32
2.0 0.9 148
1.5 0.9 51
2.0 0.9 80
2.0 1.1 41
1.5 0.7 64
1.5 0.9 125
2.0 0.9 95
2.0 0.9 343
2.0 0.9 171
2.0 0.8 56
2.0 0.7 43
1.0 0.8 22
1.5 0.9 81
2.0 1.0 120
2.0 1.0 44
1.5 0.9 85
2.0 0.9 31
2.0 1.3 62
2.0 1.1 192
2.0 1.0 342
2.0 0.9 73
2.0 0.9 104
2.0 0.9 94
2.0 0.9 88
1.5 0.9 155
1.5 1.0 60
2.0 1.0 69
2.5 0.9 95
3.0 0.9 84
2.5 1.0 311
2.5 1.0 183
3.0 1.3 47
2.5 1.1 100
2.5 1.1 155
2.0 1.2 165
2.0 1.0 115

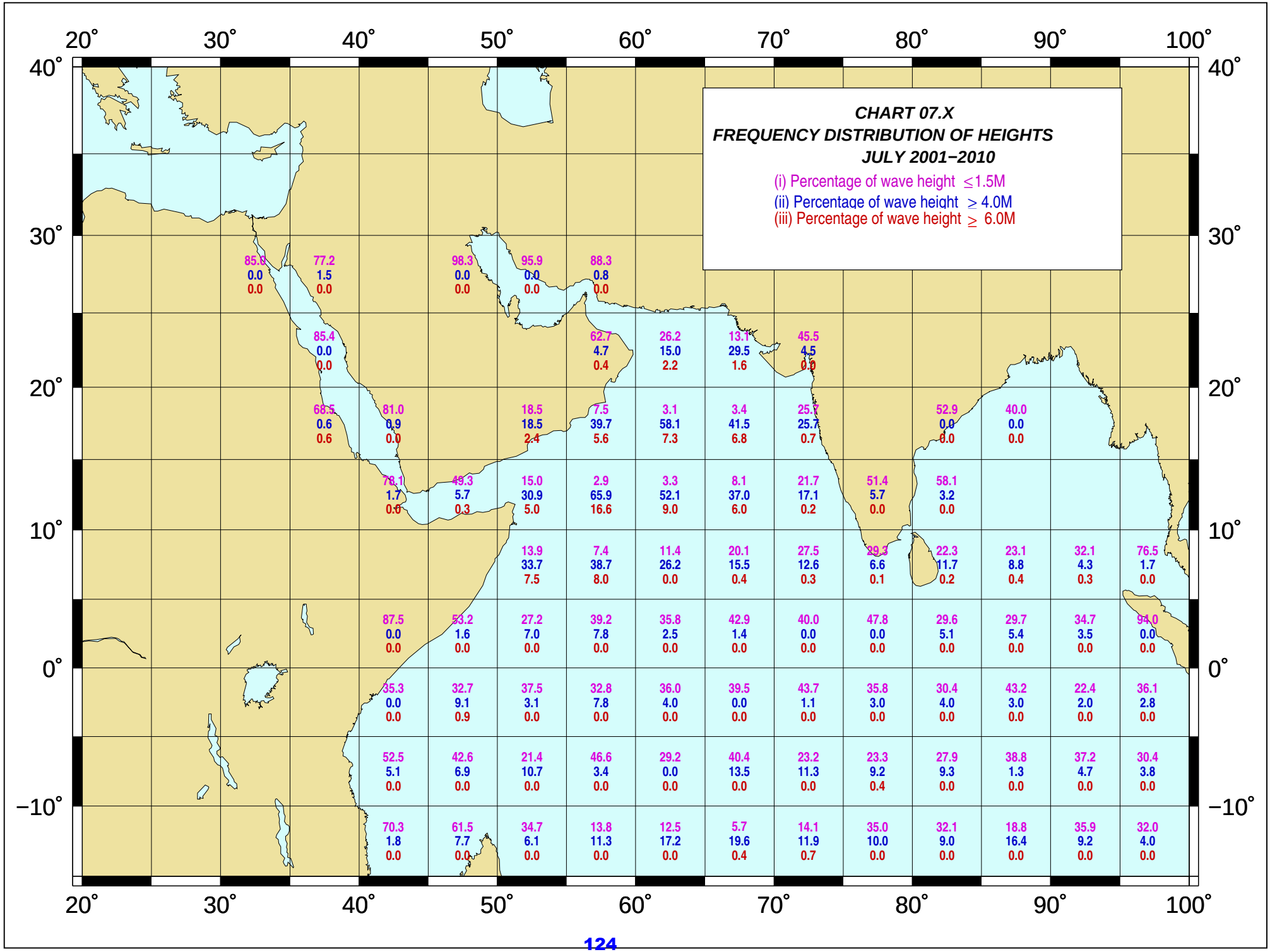


CHART 07.X
FREQUENCY DISTRIBUTION OF HEIGHTS
JULY 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
85.6 0.0 0.0
77.2 1.5 0.0
98.3 0.0 0.0
95.9 0.0 0.0
88.3 0.8 0.0
85.4 0.0 0.0
62.7 4.7 0.4
26.2 15.0 2.2
13.1 29.5 1.6
45.5 4.5 0.9
68.5 0.6 0.6
81.0 0.9 0.0
18.5 18.5 2.4
7.5 39.7 5.6
3.1 58.1 7.3
3.4 41.5 6.8
25.7 25.7 0.7
52.9 0.0 0.0
40.0 0.0 0.0
78.1 1.7 0.6
49.3 5.7 0.3
15.0 30.9 5.0
2.9 65.9 16.6
3.3 52.1 9.0
8.1 37.0 6.0
21.7 17.1 0.2
51.4 5.7 0.0
58.1 3.2 0.0
13.9 33.7 7.5
7.4 38.7 8.0
11.4 26.2 0.0
20.1 15.5 0.4
27.5 12.6 0.3
29.3 6.6 0.1
22.3 11.7 0.2
23.1 8.8 0.4
32.1 4.3 0.3
76.5 1.7 0.0
87.5 0.0 0.0
53.2 1.6 0.0
27.2 7.0 0.0
39.2 7.8 0.0
35.8 2.5 0.0
42.9 1.4 0.0
40.0 0.0 0.0
47.8 0.0 0.0
29.6 5.1 0.0
29.7 5.4 0.0
34.7 3.5 0.0
94.0 0.0 0.0
35.3 0.0 0.0
32.7 9.1 0.9
37.5 3.1 0.0
32.8 7.8 0.0
36.0 4.0 0.0
39.5 0.0 0.0
43.7 1.1 0.0
35.8 3.0 0.0
30.4 4.0 0.0
43.2 3.0 0.0
22.4 2.0 0.0
36.1 2.8 0.0
52.5 5.1 0.0
42.6 6.9 0.0
21.4 10.7 0.0
46.6 3.4 0.0
29.2 0.0 0.0
40.4 13.5 0.0
23.2 11.3 0.0
23.3 9.2 0.4
27.9 9.3 0.0
38.8 1.3 0.0
37.2 4.7 0.0
30.4 3.8 0.0
70.3 1.8 0.0
61.5 7.7 0.0
34.7 6.1 0.0
13.8 11.3 0.0
12.5 17.2 0.0
5.7 19.6 0.4
14.1 11.9 0.7
35.0 10.0 0.0
32.1 9.0 0.0
18.8 16.4 0.0
35.9 9.2 0.0
32.0 4.0 0.0

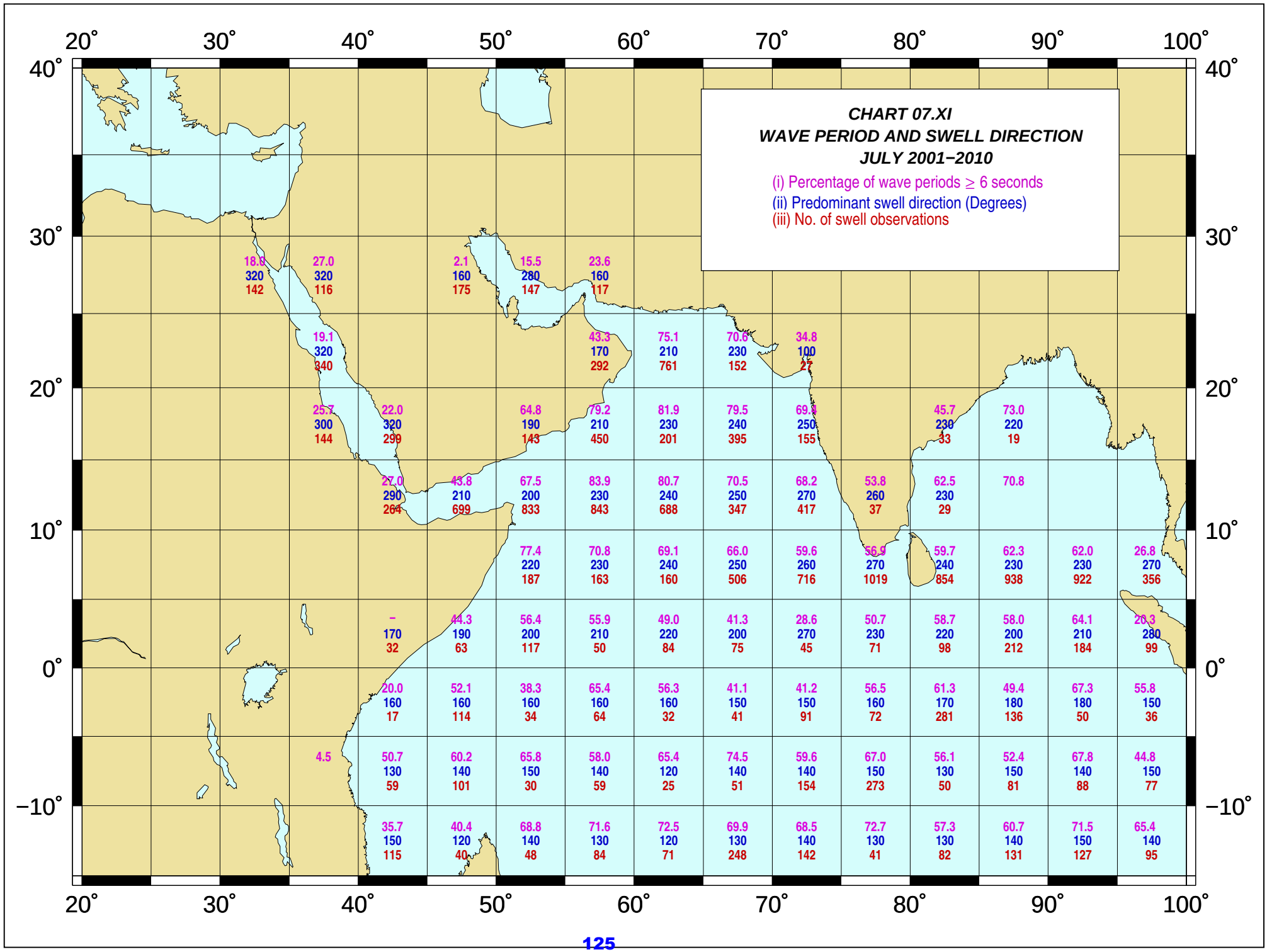


CHART 07.XI
WAVE PERIOD AND SWELL DIRECTION
JULY 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
18.6 320 142
27.0 320 116
2.1 160 175
15.5 280 147
23.6 160 117
19.1 320 340
43.3 170 292
75.1 210 761
70.6 230 152
34.8 100 27
25.7 300 144
22.0 320 299
64.8 190 143
79.2 210 450
81.9 230 201
79.5 240 395
69.9 250 155
45.7 230 33
73.0 220 19
27.0 290 264
43.8 210 699
67.5 200 833
83.9 230 843
80.7 240 688
70.5 250 347
68.2 270 417
53.8 260 37
62.5 230 29
70.8
77.4 220 187
70.8 230 163
69.1 240 160
66.0 250 506
59.6 260 716
56.9 270 1019
59.7 240 854
62.3 230 938
62.0 230 922
26.8 270 356
– 170 32
44.3 190 63
56.4 200 117
55.9 210 50
49.0 220 84
41.3 200 75
28.6 270 45
50.7 230 71
58.7 220 98
58.0 200 212
64.1 210 184
20.3 280 99
20.0 160 17
52.1 160 114
38.3 160 34
65.4 160 64
56.3 160 32
41.1 150 41
41.2 150 91
56.5 160 72
61.3 170 281
49.4 180 136
67.3 180 50
55.8 150 36
4.5
50.7 130 59
60.2 140 101
65.8 150 30
58.0 140 59
65.4 120 25
74.5 140 51
59.6 140 154
67.0 150 273
56.1 130 50
52.4 150 81
67.8 140 88
44.8 150 77
35.7 150 115
40.4 120 40
68.8 140 48
71.6 130 84
72.5 120 71
69.9 130 248
68.5 140 142
72.7 130 41
57.3 130 82
60.7 140 131
71.5 150 127
65.4 140 95

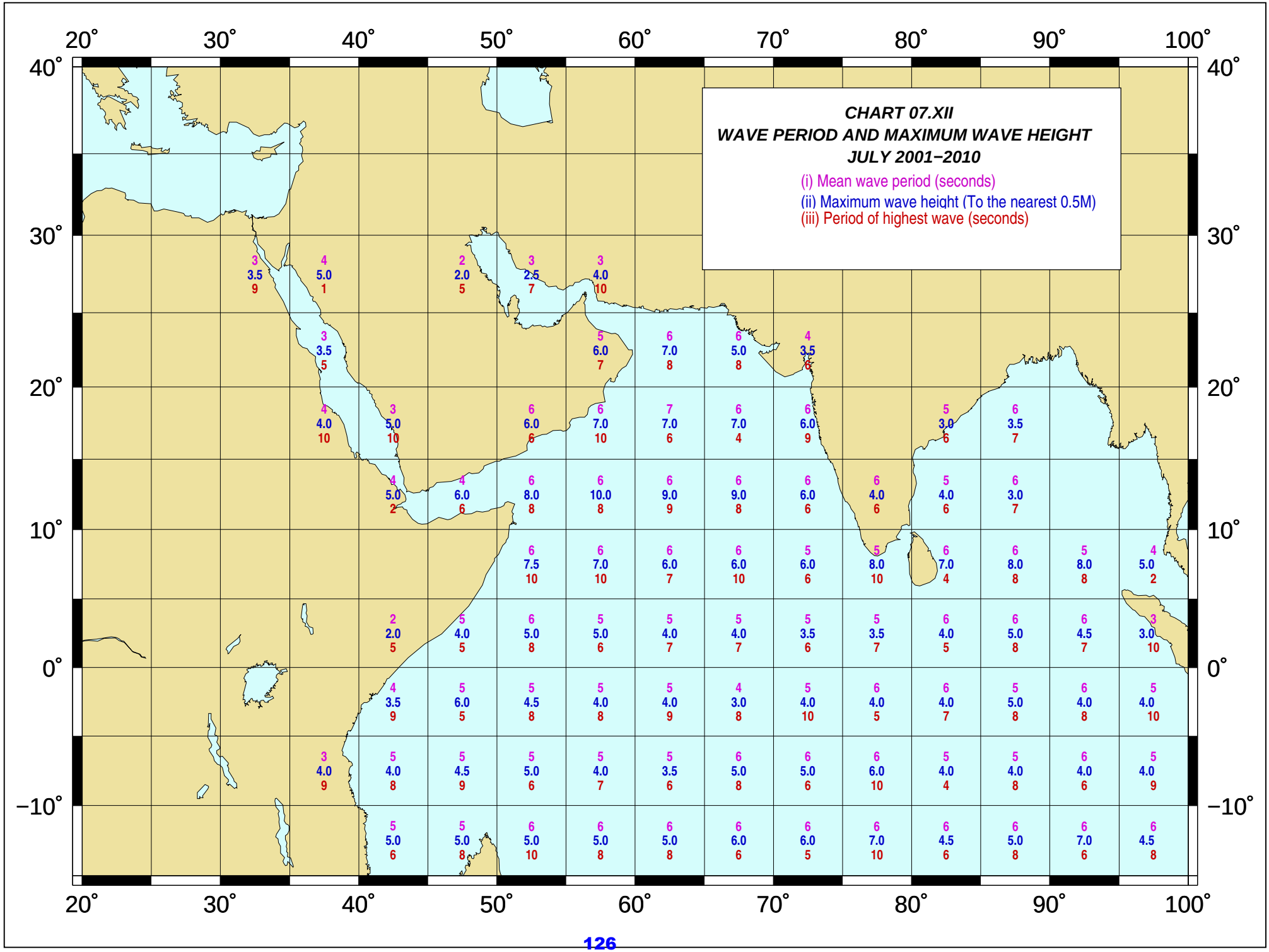


CHART 07.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
JULY 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
3 3.5 9
4 5.0 1
2 2.0 5
3 2.5 7
3 4.0 10
3 3.5 5
5 6.0 7
6 7.0 8
6 5.0 8
4 3.5 6
4 4.0 10
3 5.0 10
6 6.0 6
6 7.0 10
7 7.0 6
6 7.0 4
6 6.0 9
5 3.0 6
6 3.5 7
4 5.0 2
4 6.0 6
6 8.0 8
6 10.0 8
6 9.0 9
6 9.0 8
6 6.0 6
6 4.0 6
5 4.0 6
6 3.0 7
6 7.5 10
6 7.0 10
6 6.0 7
6 6.0 10
5 6.0 6
5 8.0 10
6 7.0 4
6 8.0 8
5 8.0 8
4 5.0 2
2 2.0 5
5 4.0 5
6 5.0 8
5 5.0 6
5 4.0 7
5 4.0 7
5 3.5 6
5 3.5 7
6 4.0 5
6 5.0 8
6 4.5 7
3 3.0 10
4 3.5 9
5 6.0 5
5 4.5 8
5 4.0 8
5 4.0 9
4 3.0 8
5 4.0 10
6 4.0 5
6 4.0 7
5 5.0 8
6 4.0 8
5 4.0 10
3 4.0 9
5 4.0 8
5 4.5 9
5 5.0 6
5 4.0 7
5 3.5 6
6 5.0 8
6 5.0 6
6 6.0 10
5 4.0 4
5 4.0 8
6 4.0 6
5 4.0 9
5 5.0 6
5 5.0 8
6 5.0 10
6 5.0 8
6 5.0 8
6 6.0 6
6 6.0 5
6 7.0 10
6 4.5 6
6 5.0 8
6 7.0 6
6 4.5 8

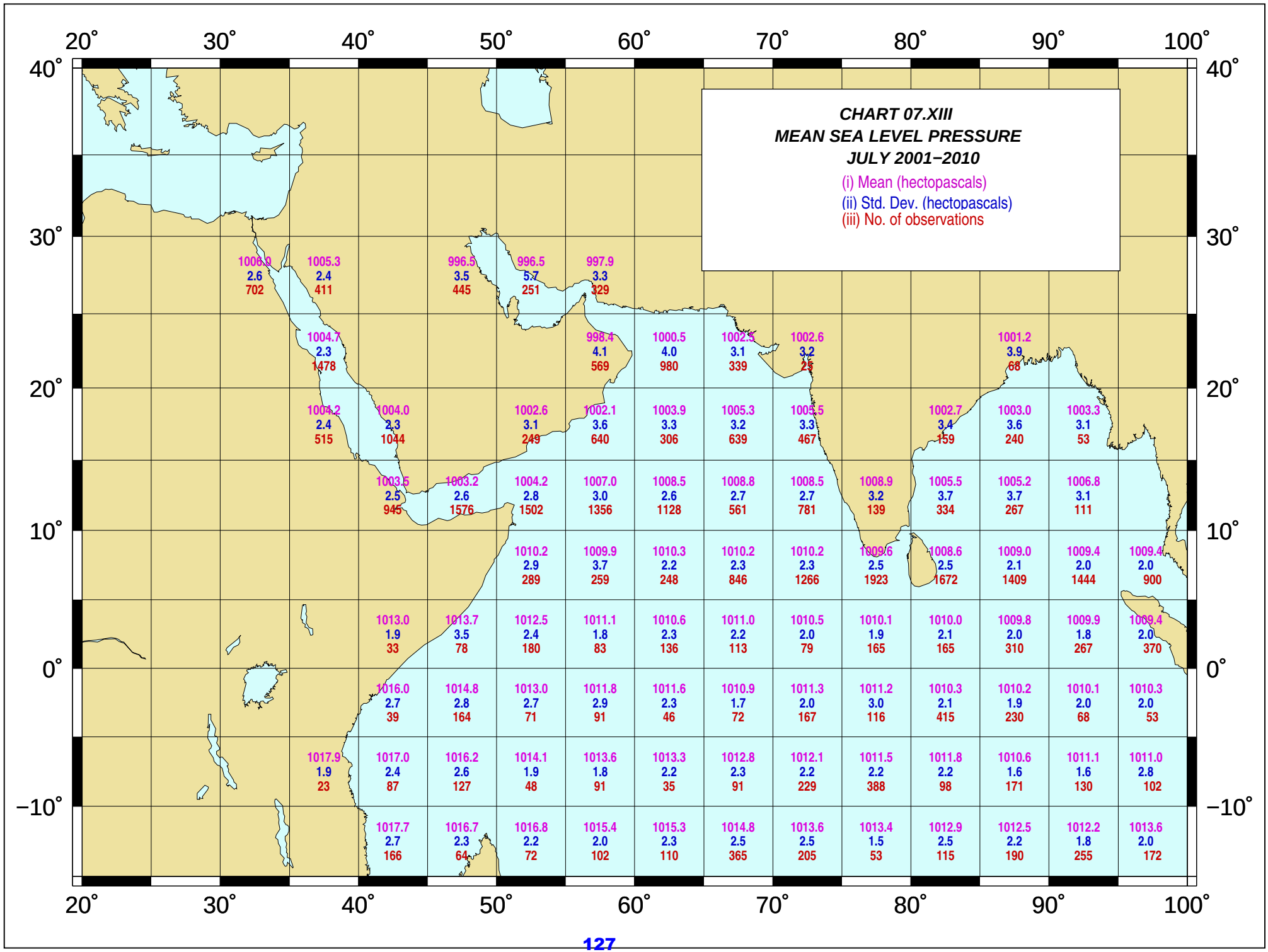


CHART 07.XIII
MEAN SEA LEVEL PRESSURE
JULY 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1006.0 2.6 702
1005.3 2.4 411
996.5 3.5 445
996.5 5.7 251
997.9 3.3 329
1004.7 2.3 1478
998.4 4.1 569
1000.5 4.0 980
1002.5 3.1 339
1002.6 3.2 25
1001.2 3.9 68
1004.2 2.4 515
1004.0 2.3 1044
1002.6 3.1 249
1002.1 3.6 640
1003.9 3.3 306
1005.3 3.2 639
1005.5 3.3 467
1002.7 3.4 159
1003.0 3.6 240
1003.3 3.1 53
1003.5 2.5 945
1003.2 2.6 1576
1004.2 2.8 1502
1007.0 3.0 1356
1008.5 2.6 1128
1008.8 2.7 561
1008.5 2.7 781
1008.9 3.2 139
1005.5 3.7 334
1005.2 3.7 267
1006.8 3.1 111
1010.2 2.9 289
1009.9 3.7 259
1010.3 2.2 248
1010.2 2.3 846
1010.2 2.3 1266
1009.6 2.5 1923
1008.6 2.5 1672
1009.0 2.1 1409
1009.4 2.0 1444
1009.4 2.0 900
1013.0 1.9 33
1013.7 3.5 78
1012.5 2.4 180
1011.1 1.8 83
1010.6 2.3 136
1011.0 2.2 113
1010.5 2.0 79
1010.1 1.9 165
1010.0 2.1 165
1009.8 2.0 310
1009.9 1.8 267
1009.4 2.0 370
1016.0 2.7 39
1014.8 2.8 164
1013.0 2.7 71
1011.8 2.9 91
1011.6 2.3 46
1010.9 1.7 72
1011.3 2.0 167
1011.2 3.0 116
1010.3 2.1 415
1010.2 1.9 230
1010.1 2.0 68
1010.3 2.0 53
1017.9 1.9 23
1017.0 2.4 87
1016.2 2.6 127
1014.1 1.9 48
1013.6 1.8 91
1013.3 2.2 35
1012.8 2.3 91
1012.1 2.2 229
1011.5 2.2 388
1011.8 2.2 98
1010.6 1.6 171
1011.1 1.6 130
1011.0 2.8 102
1017.7 2.7 166
1016.7 2.3 64
1016.8 2.2 72
1015.4 2.0 102
1015.3 2.3 110
1014.8 2.5 365
1013.6 2.5 205
1013.4 1.5 53
1012.9 2.5 115
1012.5 2.2 190
1012.2 1.8 255
1013.6 2.0 172

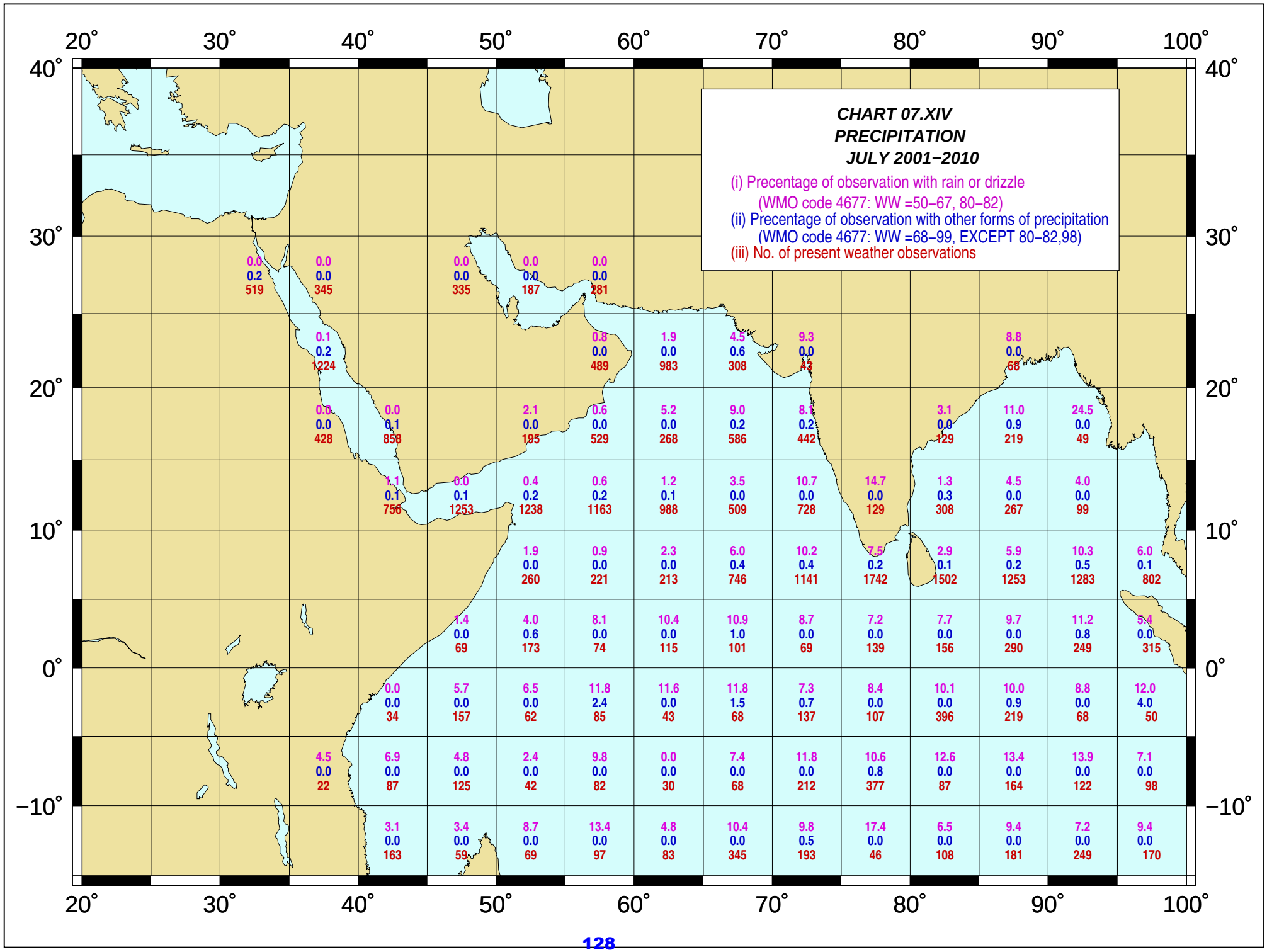


CHART 07.XIV
PRECIPITATION
JULY 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 0.2 519
0.0 0.0 345
0.0 0.0 335
0.0 0.0 187
0.0 0.0 281
0.1 0.2 1224
0.8 0.0 489
1.9 0.0 983
4.5 0.6 308
9.3 0.0 43
8.8 0.0 68
0.0 0.0 428
0.0 0.1 858
2.1 0.0 195
0.6 0.0 529
5.2 0.0 268
9.0 0.2 586
8.1 0.2 442
3.1 0.0 129
11.0 0.9 219
24.5 0.0 49
1.1 0.1 756
0.0 0.1 1253
0.4 0.2 1238
0.6 0.2 1163
1.2 0.1 988
3.5 0.0 509
10.7 0.0 728
14.7 0.0 129
1.3 0.3 308
4.5 0.0 267
4.0 0.0 99
1.9 0.0 260
0.9 0.0 221
2.3 0.0 213
6.0 0.4 746
10.2 0.4 1141
7.5 0.2 1742
2.9 0.1 1502
5.9 0.2 1253
10.3 0.5 1283
6.0 0.1 802
1.4 0.0 69
4.0 0.6 173
8.1 0.0 74
10.4 0.0 115
10.9 1.0 101
8.7 0.0 69
7.2 0.0 139
7.7 0.0 156
9.7 0.0 290
11.2 0.8 249
5.4 0.0 315
0.0 0.0 34
5.7 0.0 157
6.5 0.0 62
11.8 2.4 85
11.6 0.0 43
11.8 1.5 68
7.3 0.7 137
8.4 0.0 107
10.1 0.0 396
10.0 0.9 219
8.8 0.0 68
12.0 4.0 50
4.5 0.0 22
6.9 0.0 87
4.8 0.0 125
2.4 0.0 42
9.8 0.0 82
0.0 0.0 30
7.4 0.0 68
11.8 0.0 212
10.6 0.8 377
12.6 0.0 87
13.4 0.0 164
13.9 0.0 122
7.1 0.0 98
3.1 0.0 163
3.4 0.0 59
8.7 0.0 69
13.4 0.0 97
4.8 0.0 83
10.4 0.0 345
9.8 0.5 193
17.4 0.0 46
6.5 0.0 108
9.4 0.0 181
7.2 0.0 249
9.4 0.0 170

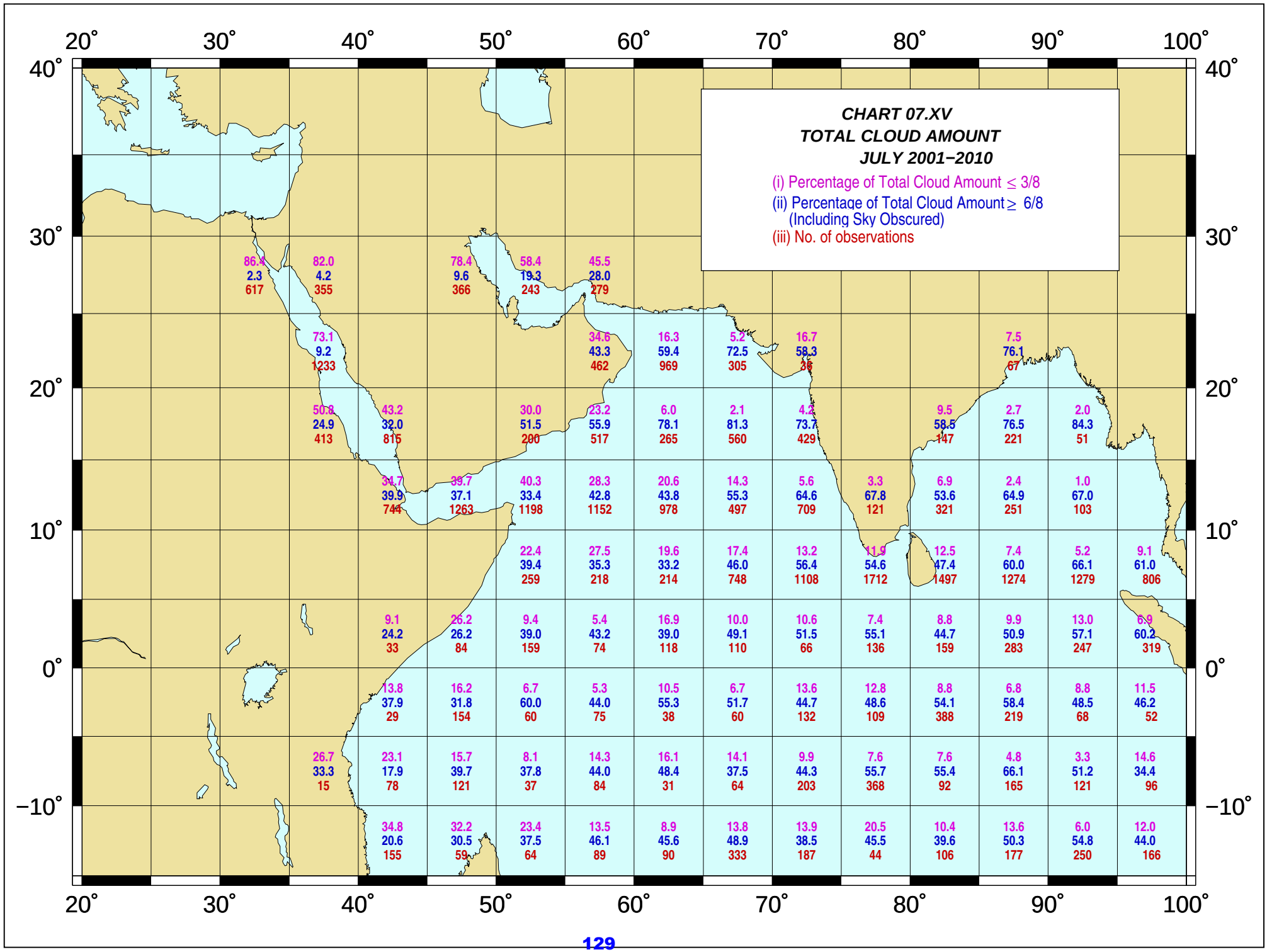


CHART 07.XV
TOTAL CLOUD AMOUNT
JULY 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
86.4 2.3 617
82.0 4.2 355
78.4 9.6 366
58.4 19.3 243
45.5 28.0 279
73.1 9.2 1233
34.6 43.3 462
16.3 59.4 969
5.2 72.5 305
16.7 58.3 36
7.5 76.1 67
50.8 24.9 413
43.2 32.0 815
30.0 51.5 200
23.2 55.9 517
6.0 78.1 265
2.1 81.3 560
4.2 73.7 429
9.5 58.5 147
2.7 76.5 221
2.0 84.3 51
31.7 39.9 744
39.7 37.1 1263
40.3 33.4 1198
28.3 42.8 1152
20.6 43.8 978
14.3 55.3 497
5.6 64.6 709
3.3 67.8 121
6.9 53.6 321
2.4 64.9 251
1.0 67.0 103
22.4 39.4 259
27.5 35.3 218
19.6 33.2 214
17.4 46.0 748
13.2 56.4 1108
11.9 54.6 1712
12.5 47.4 1497
7.4 60.0 1274
5.2 66.1 1279
9.1 61.0 806
9.1 24.2 33
26.2 26.2 84
9.4 39.0 159
5.4 43.2 74
16.9 39.0 118
10.0 49.1 110
10.6 51.5 66
7.4 55.1 136
8.8 44.7 159
9.9 50.9 283
13.0 57.1 247
6.9 60.2 319
13.8 37.9 29
16.2 31.8 154
6.7 60.0 60
5.3 44.0 75
10.5 55.3 38
6.7 51.7 60
13.6 44.7 132
12.8 48.6 109
8.8 54.1 388
6.8 58.4 219
8.8 48.5 68
11.5 46.2 52
26.7 33.3 15
23.1 17.9 78
15.7 39.7 121
8.1 37.8 37
14.3 44.0 84
16.1 48.4 31
14.1 37.5 64
9.9 44.3 203
7.6 55.7 368
7.6 55.4 92
4.8 66.1 165
3.3 51.2 121
14.6 34.4 96
34.8 20.6 155
32.2 30.5 59
23.4 37.5 64
13.5 46.1 89
8.9 45.6 90
13.8 48.9 333
13.9 38.5 187
20.5 45.5 44
10.4 39.6 106
13.6 50.3 177
6.0 54.8 250
12.0 44.0 166

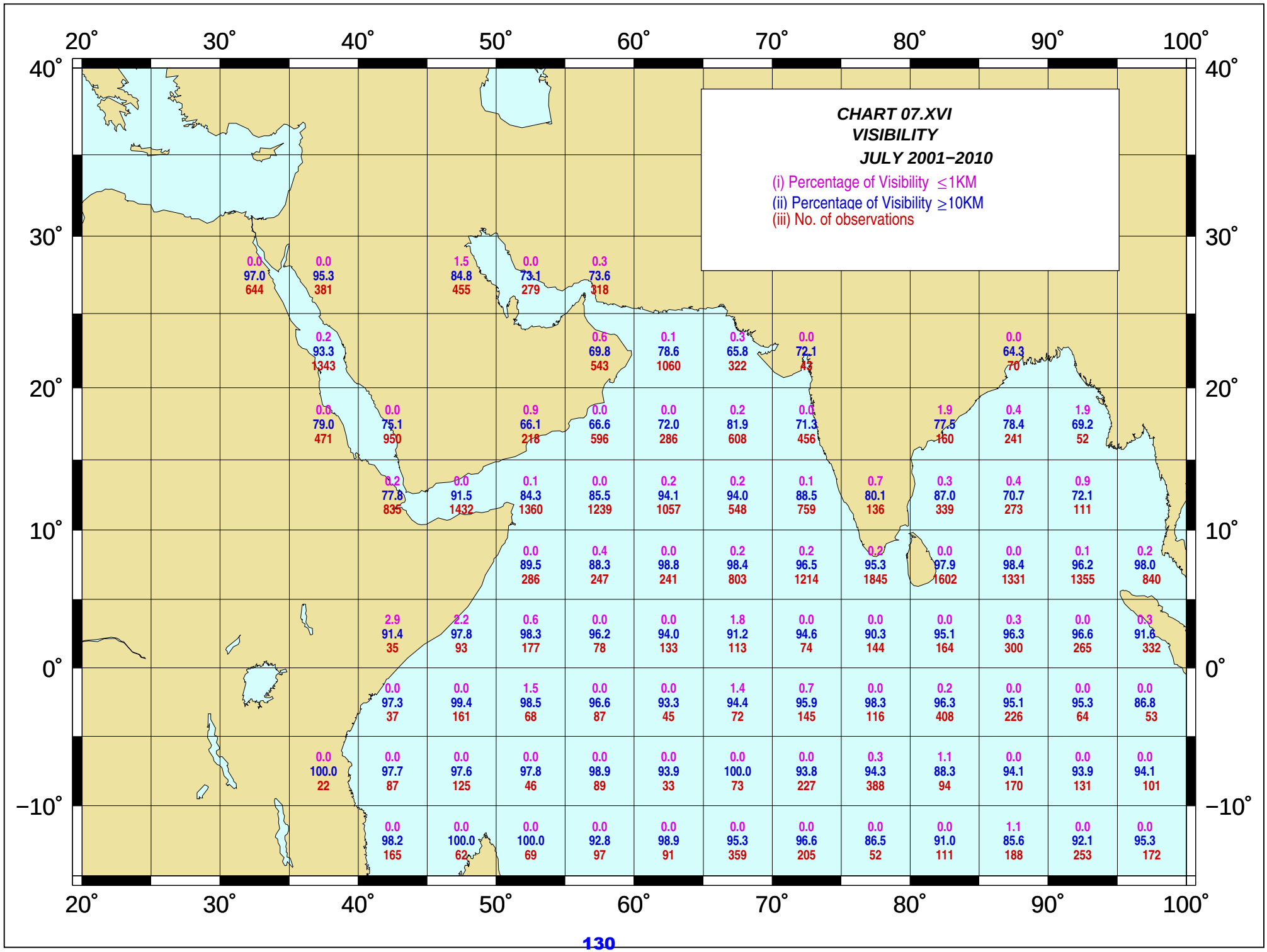


CHART 07.XVI
VISIBILITY
JULY 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 97.0 644
0.0 95.3 381
1.5 84.8 455
0.0 73.1 279
0.3 73.6 318
0.2 93.3 1343
0.6 69.8 543
0.1 78.6 1060
0.3 65.8 322
0.0 72.1 43
0.0 64.3 70
0.0 79.0 471
0.0 75.1 950
0.9 66.1 218
0.0 66.6 596
0.0 72.0 286
0.2 81.9 608
0.0 71.3 456
1.9 77.5 160
0.4 78.4 241
1.9 69.2 52
0.2 77.8 835
0.0 91.5 1432
0.1 84.3 1360
0.0 85.5 1239
0.2 94.1 1057
0.2 94.0 548
0.1 88.5 759
0.7 80.1 136
0.3 87.0 339
0.4 70.7 273
0.9 72.1 111
0.0 89.5 286
0.4 88.3 247
0.0 98.8 241
0.2 98.4 803
0.2 96.5 1214
0.2 95.3 1845
0.0 97.9 1602
0.0 98.4 1331
0.1 96.2 1355
0.2 98.0 840
2.9 91.4 35
2.2 97.8 93
0.6 98.3 177
0.0 96.2 78
0.0 94.0 133
1.8 91.2 113
0.0 94.6 74
0.0 90.3 144
0.0 95.1 164
0.3 96.3 300
0.0 96.6 265
0.3 91.6 332
0.0 97.3 37
0.0 99.4 161
1.5 98.5 68
0.0 96.6 87
0.0 93.3 45
1.4 94.4 72
0.7 95.9 145
0.0 98.3 116
0.2 96.3 408
0.0 95.1 226
0.0 95.3 64
0.0 86.8 53
0.0 100.0 22
0.0 97.7 87
0.0 97.6 125
0.0 97.8 46
0.0 98.9 89
0.0 93.9 33
0.0 100.0 73
0.0 93.8 227
0.3 94.3 388
1.1 88.3 94
0.0 94.1 170
0.0 93.9 131
0.0 94.1 101
0.0 98.2 165
0.0 100.0 62
0.0 100.0 69
0.0 92.8 97
0.0 98.9 91
0.0 95.3 359
0.0 96.6 205
0.0 86.5 52
0.0 91.0 111
1.1 85.6 188
0.0 92.1 253
0.0 95.3 172

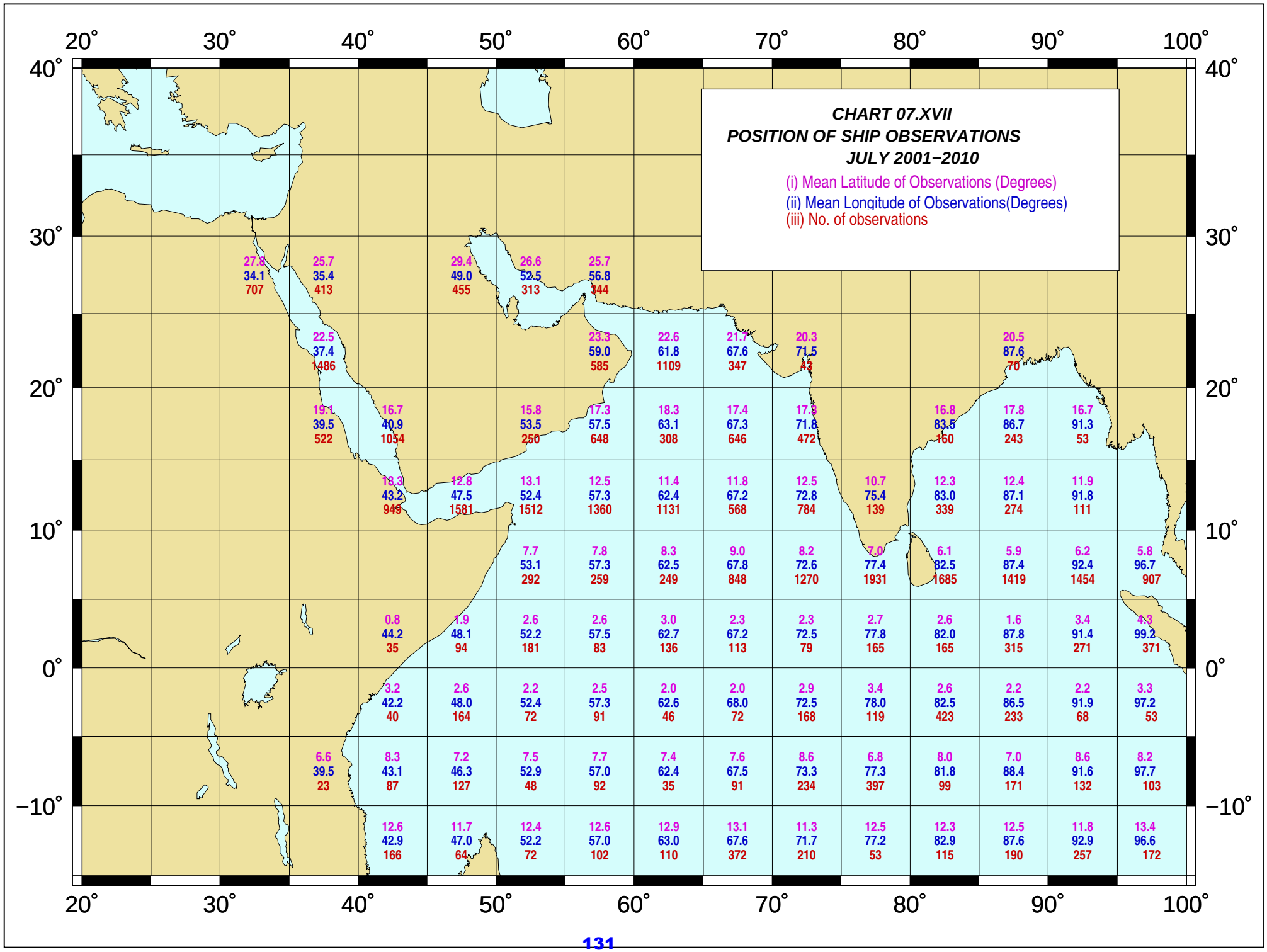


CHART 07.XVII
POSITION OF SHIP OBSERVATIONS
JULY 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.8 34.1 707
25.7 35.4 413
29.4 49.0 455
26.6 52.5 313
25.7 56.8 344
22.5 37.4 1486
23.3 59.0 585
22.6 61.8 1109
21.7 67.6 347
20.3 71.5 43
20.5 87.6 70
19.1 39.5 522
16.7 40.9 1054
15.8 53.5 250
17.3 57.5 648
18.3 63.1 308
17.4 67.3 646
17.9 71.8 472
16.8 83.5 160
17.8 86.7 243
16.7 91.3 53
10.3 43.2 949
12.8 47.5 1581
13.1 52.4 1512
12.5 57.3 1360
11.4 62.4 1131
11.8 67.2 568
12.5 72.8 784
10.7 75.4 139
12.3 83.0 339
12.4 87.1 274
11.9 91.8 111
7.7 53.1 292
7.8 57.3 259
8.3 62.5 249
9.0 67.8 848
8.2 72.6 1270
7.0 77.4 1931
6.1 82.5 1685
5.9 87.4 1419
6.2 92.4 1454
5.8 96.7 907
0.8 44.2 35
1.9 48.1 94
2.6 52.2 181
2.6 57.5 83
3.0 62.7 136
2.3 67.2 113
2.3 72.5 79
2.7 77.8 165
2.6 82.0 165
1.6 87.8 315
3.4 91.4 271
4.3 99.2 371
3.2 42.2 40
2.6 48.0 164
2.2 52.4 72
2.5 57.3 91
2.0 62.6 46
2.0 68.0 72
2.9 72.5 168
3.4 78.0 119
2.6 82.5 423
2.2 86.5 233
2.2 91.9 68
3.3 97.2 53
6.6 39.5 23
8.3 43.1 87
7.2 46.3 127
7.5 52.9 48
7.7 57.0 92
7.4 62.4 35
7.6 67.5 91
8.6 73.3 234
6.8 77.3 397
8.0 81.8 99
7.0 88.4 171
8.6 91.6 132
8.2 97.7 103
12.6 42.9 166
11.7 47.0 64
12.4 52.2 72
12.6 57.0 102
12.9 63.0 110
13.1 67.6 372
11.3 71.7 210
12.5 77.2 53
12.3 82.9 115
12.5 87.6 190
11.8 92.9 257
13.4 96.6 172

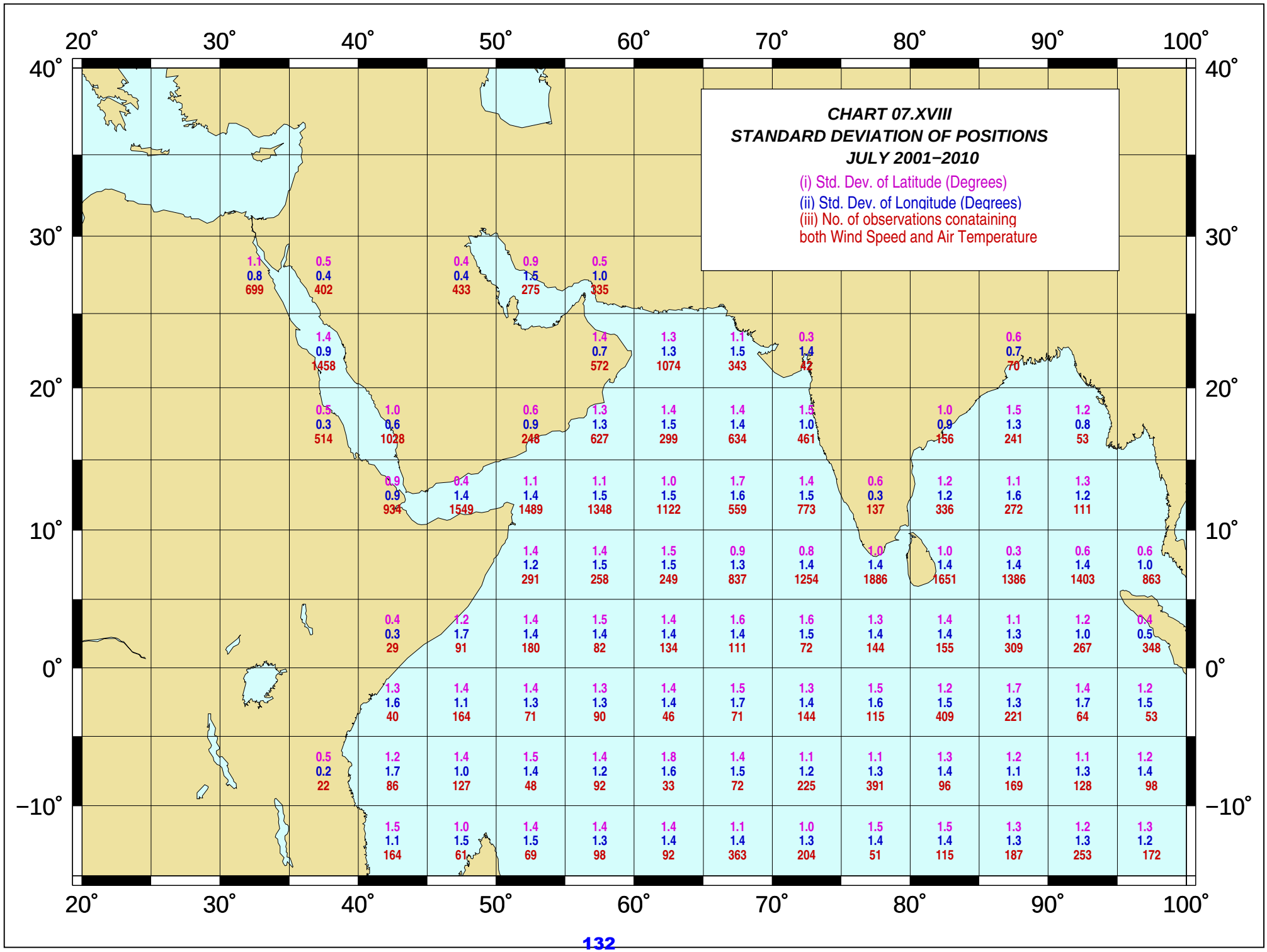
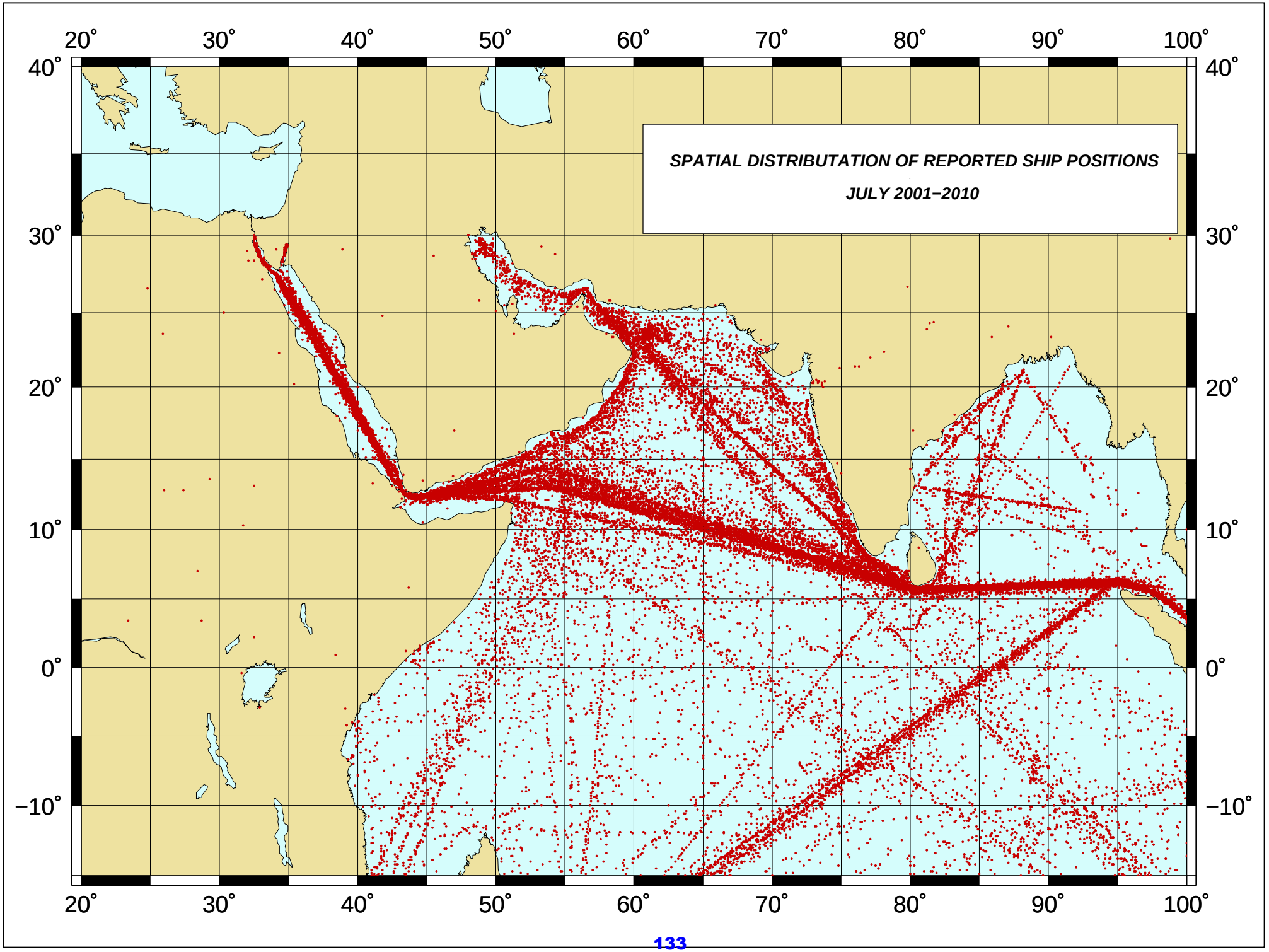


CHART 07.XVIII
STANDARD DEVIATION OF POSITIONS
JULY 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 699
0.5 0.4 402
0.4 0.4 433
0.9 1.5 275
0.5 1.0 335
1.4 0.9 1458
1.4 0.7 572
1.3 1.3 1074
1.1 1.5 343
0.3 1.4 42
0.6 0.7 70
0.5 0.3 514
1.0 0.6 1028
0.6 0.9 248
1.3 1.3 627
1.4 1.5 299
1.4 1.4 634
1.5 1.0 461
1.0 0.9 156
1.5 1.3 241
1.2 0.8 53
0.9 0.9 934
0.4 1.4 1549
1.1 1.4 1489
1.1 1.5 1348
1.0 1.5 1122
1.7 1.6 559
1.4 1.5 773
0.6 0.3 137
1.2 1.2 336
1.1 1.6 272
1.3 1.2 111
1.4 1.2 291
1.4 1.5 258
1.5 1.5 249
0.9 1.3 837
0.8 1.4 1254
1.0 1.4 1886
1.0 1.4 1651
0.3 1.4 1386
0.6 1.4 1403
0.6 1.0 863
0.4 0.3 29
1.2 1.7 91
1.4 1.4 180
1.5 1.4 82
1.4 1.4 134
1.6 1.4 111
1.6 1.5 72
1.3 1.4 144
1.4 1.4 155
1.1 1.3 309
1.2 1.0 267
0.4 0.5 348
1.3 1.6 40
1.4 1.1 164
1.4 1.3 71
1.3 1.3 90
1.4 1.4 46
1.5 1.7 71
1.3 1.4 144
1.5 1.6 115
1.2 1.5 409
1.7 1.3 221
1.4 1.7 64
1.2 1.5 53
0.5 0.2 22
1.2 1.7 86
1.4 1.0 127
1.5 1.4 48
1.4 1.2 92
1.8 1.6 33
1.4 1.5 72
1.1 1.2 225
1.1 1.3 391
1.3 1.4 96
1.2 1.1 169
1.1 1.3 128
1.2 1.4 98
1.5 1.1 164
1.0 1.5 61
1.4 1.5 69
1.4 1.3 98
1.4 1.4 92
1.1 1.4 363
1.0 1.3 204
1.5 1.4 51
1.5 1.4 115
1.3 1.3 187
1.2 1.3 253
1.3 1.2 172


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
JULY 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF AUGUST 2001-2010

Marine Climatological Summary Charts 2001-2010

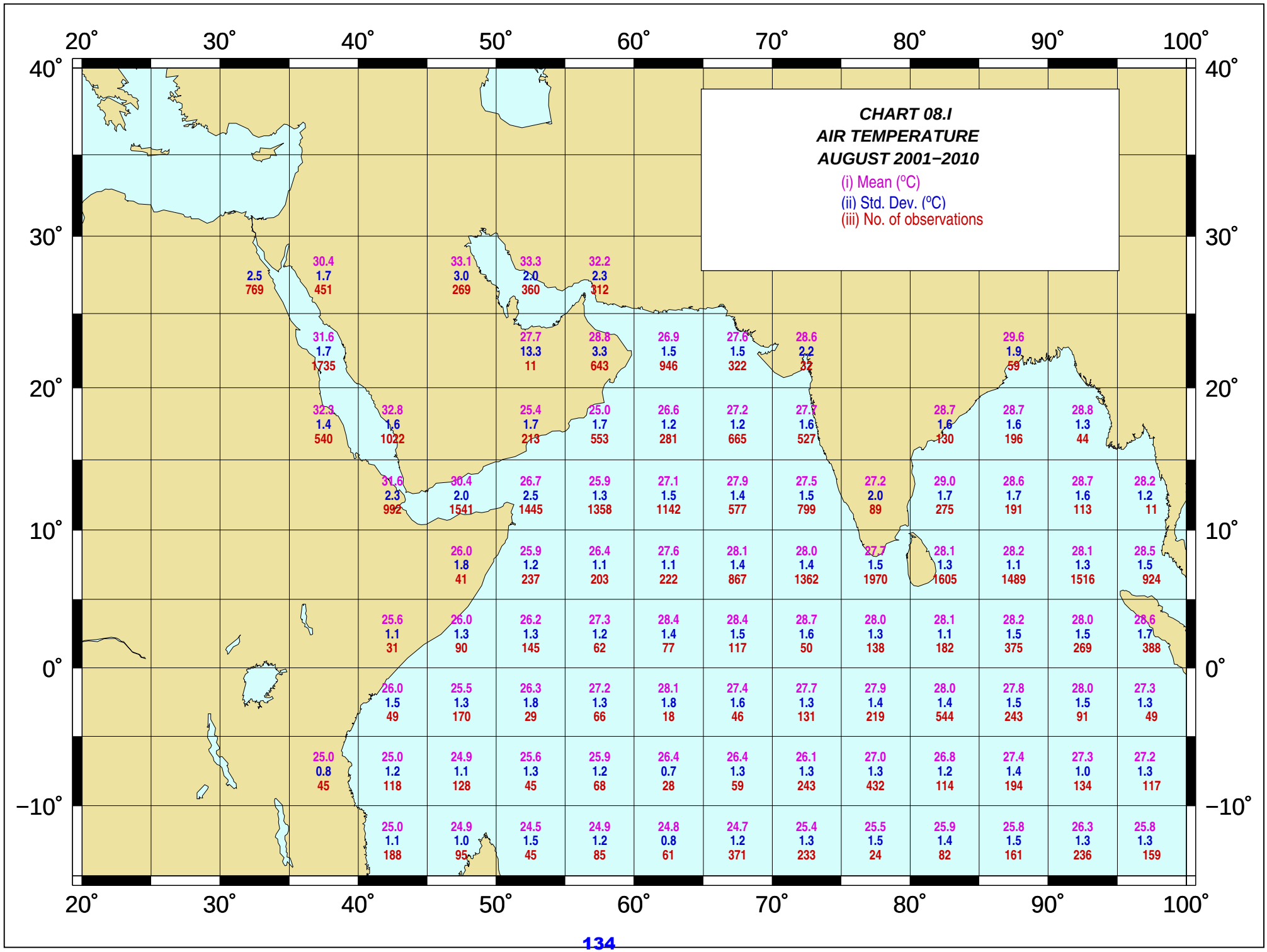


CHART 08.I
AIR TEMPERATURE
AUGUST 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.5 769
30.4 1.7 451
33.1 3.0 269
33.3 2.0 360
32.2 2.3 312
31.6 1.7 1735
27.7 13.3 11
28.8 3.3 643
26.9 1.5 946
27.6 1.5 322
28.6 2.2 32
29.6 1.9 59
32.3 1.4 540
32.8 1.6 1022
25.4 1.7 213
25.0 1.7 553
26.6 1.2 281
27.2 1.2 665
27.7 1.6 527
28.7 1.6 130
28.7 1.6 196
28.8 1.3 44
31.6 2.3 992
30.4 2.0 1541
26.7 2.5 1445
25.9 1.3 1358
27.1 1.5 1142
27.9 1.4 577
27.5 1.5 799
27.2 2.0 89
29.0 1.7 275
28.6 1.7 191
28.7 1.6 113
28.2 1.2 11
26.0 1.8 41
25.9 1.2 237
26.4 1.1 203
27.6 1.1 222
28.1 1.4 867
28.0 1.4 1362
27.7 1.5 1970
28.1 1.3 1605
28.2 1.1 1489
28.1 1.3 1516
28.5 1.5 924
25.6 1.1 31
26.0 1.3 90
26.2 1.3 145
27.3 1.2 62
28.4 1.4 77
28.4 1.5 117
28.7 1.6 50
28.0 1.3 138
28.1 1.1 182
28.2 1.5 375
28.0 1.5 269
28.6 1.7 388
26.0 1.5 49
25.5 1.3 170
26.3 1.8 29
27.2 1.3 66
28.1 1.8 18
27.4 1.6 46
27.7 1.3 131
27.9 1.4 219
28.0 1.4 544
27.8 1.5 243
28.0 1.5 91
27.3 1.3 49
25.0 0.8 45
25.0 1.2 118
24.9 1.1 128
25.6 1.3 45
25.9 1.2 68
26.4 0.7 28
26.4 1.3 59
26.1 1.3 243
27.0 1.3 432
26.8 1.2 114
27.4 1.4 194
27.3 1.0 134
27.2 1.3 117
25.0 1.1 188
24.9 1.0 95
24.5 1.5 45
24.9 1.2 85
24.8 0.8 61
24.7 1.2 371
25.4 1.3 233
25.5 1.5 24
25.9 1.4 82
25.8 1.5 161
26.3 1.3 236
25.8 1.3 159

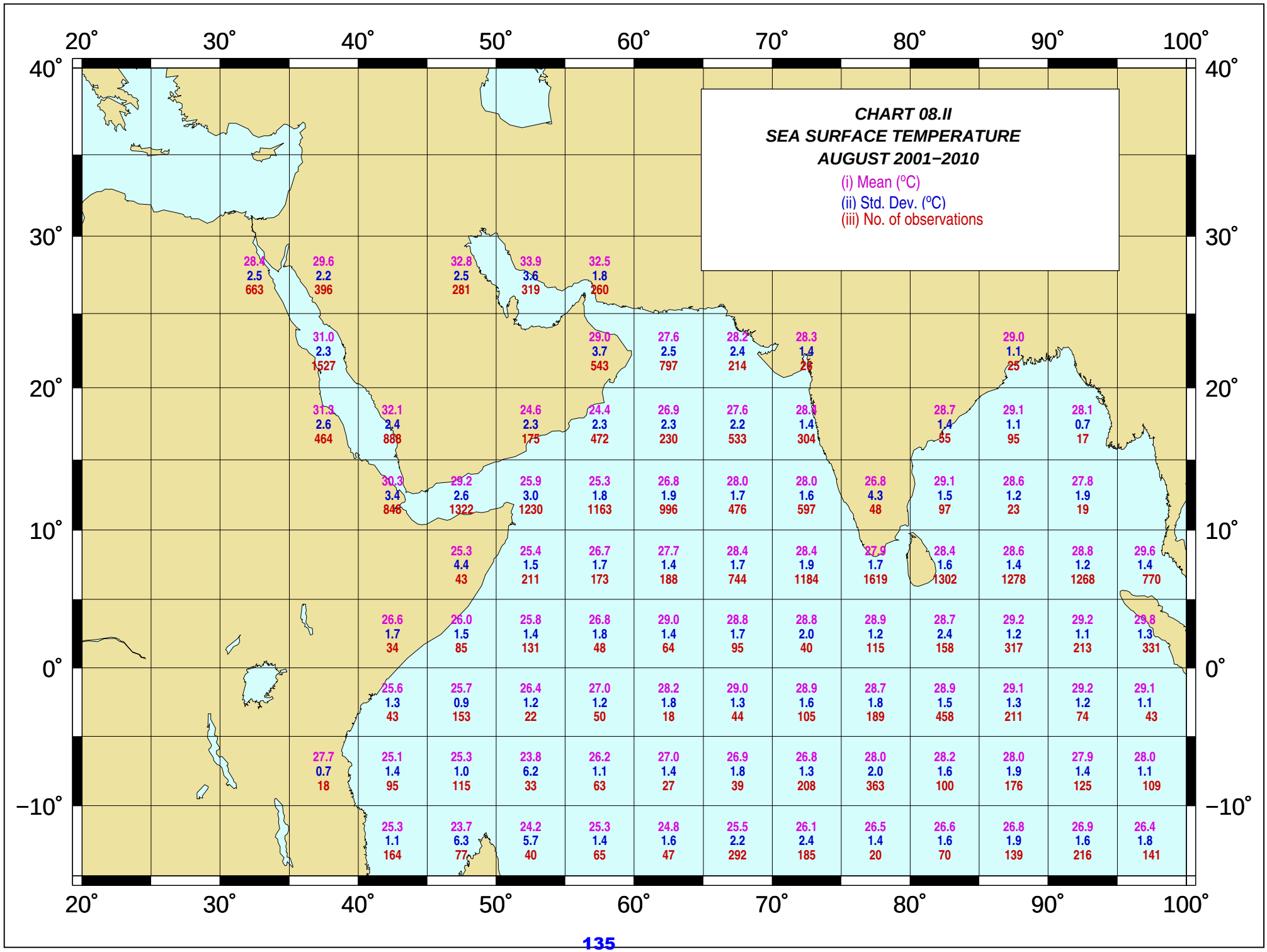


CHART 08.II
SEA SURFACE TEMPERATURE
AUGUST 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
28.4 2.5 663
29.6 2.2 396
32.8 2.5 281
33.9 3.6 319
32.5 1.8 260
31.0 2.3 1527
29.0 3.7 543
27.6 2.5 797
28.2 2.4 214
28.3 1.4 26
29.0 1.1 25
31.3 2.6 464
32.1 2.4 888
24.6 2.3 175
24.4 2.3 472
26.9 2.3 230
27.6 2.2 533
28.3 1.4 304
28.7 1.4 55
29.1 1.1 95
28.1 0.7 17
30.3 3.4 846
29.2 2.6 1322
25.9 3.0 1230
25.3 1.8 1163
26.8 1.9 996
28.0 1.7 476
28.0 1.6 597
26.8 4.3 48
29.1 1.5 97
28.6 1.2 23
27.8 1.9 19
25.3 4.4 43
25.4 1.5 211
26.7 1.7 173
27.7 1.4 188
28.4 1.7 744
28.4 1.9 1184
27.9 1.7 1619
28.4 1.6 1302
28.6 1.4 1278
28.8 1.2 1268
29.6 1.4 770
26.6 1.7 34
26.0 1.5 85
25.8 1.4 131
26.8 1.8 48
29.0 1.4 64
28.8 1.7 95
28.8 2.0 40
28.9 1.2 115
28.7 2.4 158
29.2 1.2 317
29.2 1.1 213
29.8 1.3 331
25.6 1.3 43
25.7 0.9 153
26.4 1.2 22
27.0 1.2 50
28.2 1.8 18
29.0 1.3 44
28.9 1.6 105
28.7 1.8 189
28.9 1.5 458
29.1 1.3 211
29.2 1.2 74
29.1 1.1 43
27.7 0.7 18
25.1 1.4 95
25.3 1.0 115
23.8 6.2 33
26.2 1.1 63
27.0 1.4 27
26.9 1.8 39
26.8 1.3 208
28.0 2.0 363
28.2 1.6 100
28.0 1.9 176
27.9 1.4 125
28.0 1.1 109
25.3 1.1 164
23.7 6.3 77
24.2 5.7 40
25.3 1.4 65
24.8 1.6 47
25.5 2.2 292
26.1 2.4 185
26.5 1.4 20
26.6 1.6 70
26.8 1.9 139
26.9 1.6 216
26.4 1.8 141

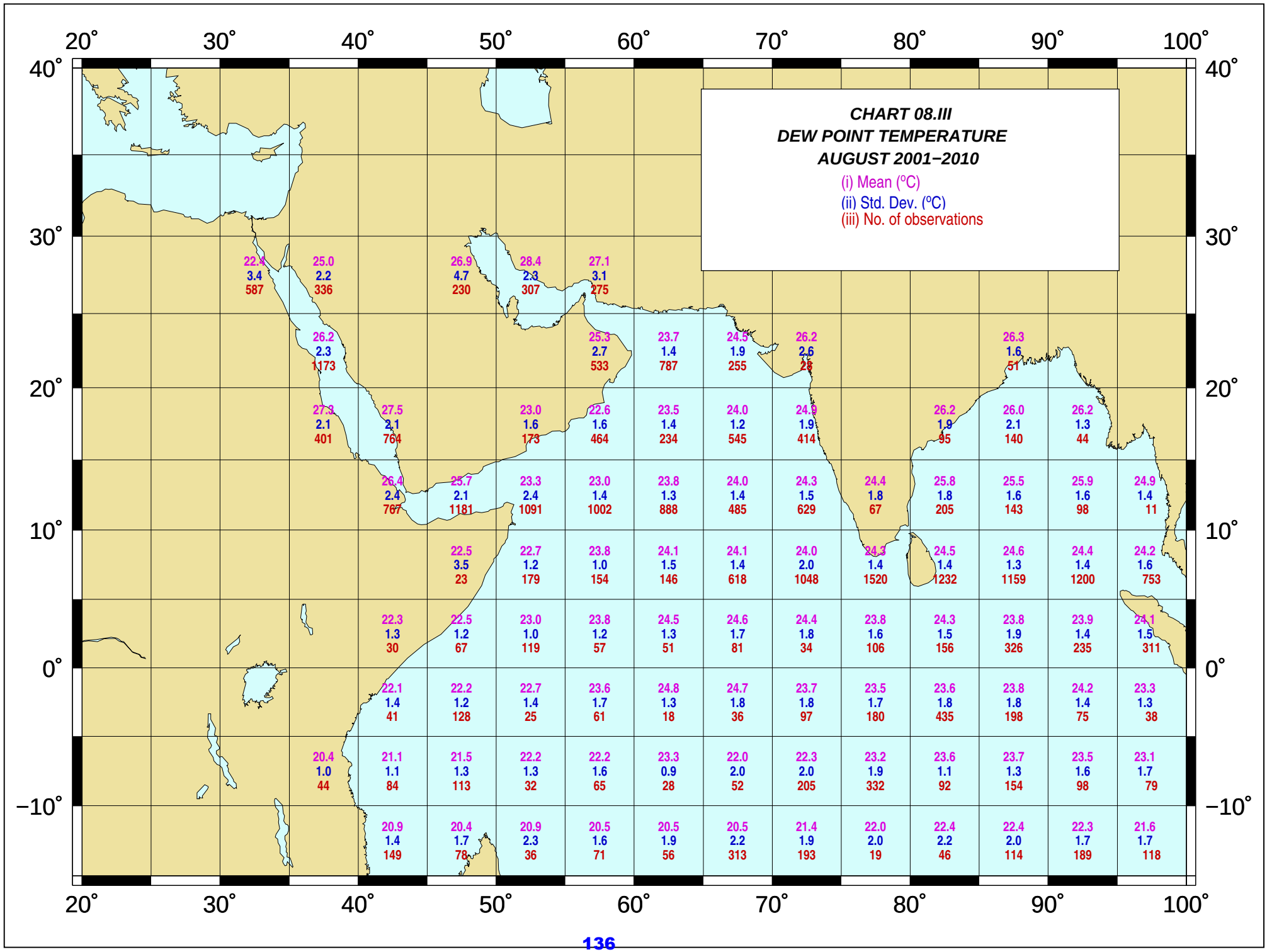


CHART 08.III
DEW POINT TEMPERATURE
AUGUST 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
22.4 3.4 587
25.0 2.2 336
26.9 4.7 230
28.4 2.3 307
27.1 3.1 275
26.2 2.3 1173
25.3 2.7 533
23.7 1.4 787
24.5 1.9 255
26.2 2.6 26
26.3 1.6 51
27.3 2.1 401
27.5 2.1 764
23.0 1.6 173
22.6 1.6 464
23.5 1.4 234
24.0 1.2 545
24.9 1.9 414
26.2 1.9 95
26.0 2.1 140
26.2 1.3 44
26.4 2.4 767
25.7 2.1 1181
23.3 2.4 1091
23.0 1.4 1002
23.8 1.3 888
24.0 1.4 485
24.3 1.5 629
24.4 1.8 67
25.8 1.8 205
25.5 1.6 143
25.9 1.6 98
24.9 1.4 11
22.5 3.5 23
22.7 1.2 179
23.8 1.0 154
24.1 1.5 146
24.1 1.4 618
24.0 2.0 1048
24.3 1.4 1520
24.5 1.4 1232
24.6 1.3 1159
24.4 1.4 1200
24.2 1.6 753
22.3 1.3 30
22.5 1.2 67
23.0 1.0 119
23.8 1.2 57
24.5 1.3 51
24.6 1.7 81
24.4 1.8 34
23.8 1.6 106
24.3 1.5 156
23.8 1.9 326
23.9 1.4 235
24.1 1.5 311
22.1 1.4 41
22.2 1.2 128
22.7 1.4 25
23.6 1.7 61
24.8 1.3 18
24.7 1.8 36
23.7 1.8 97
23.5 1.7 180
23.6 1.8 435
23.8 1.8 198
24.2 1.4 75
23.3 1.3 38
20.4 1.0 44
21.1 1.1 84
21.5 1.3 113
22.2 1.3 32
22.2 1.6 65
23.3 0.9 28
22.0 2.0 52
22.3 2.0 205
23.2 1.9 332
23.6 1.1 92
23.7 1.3 154
23.5 1.6 98
23.1 1.7 79
20.9 1.4 149
20.4 1.7 78
20.9 2.3 36
20.5 1.6 71
20.5 1.9 56
20.5 2.2 313
21.4 1.9 193
22.0 2.0 19
22.4 2.2 46
22.4 2.0 114
22.3 1.7 189
21.6 1.7 118

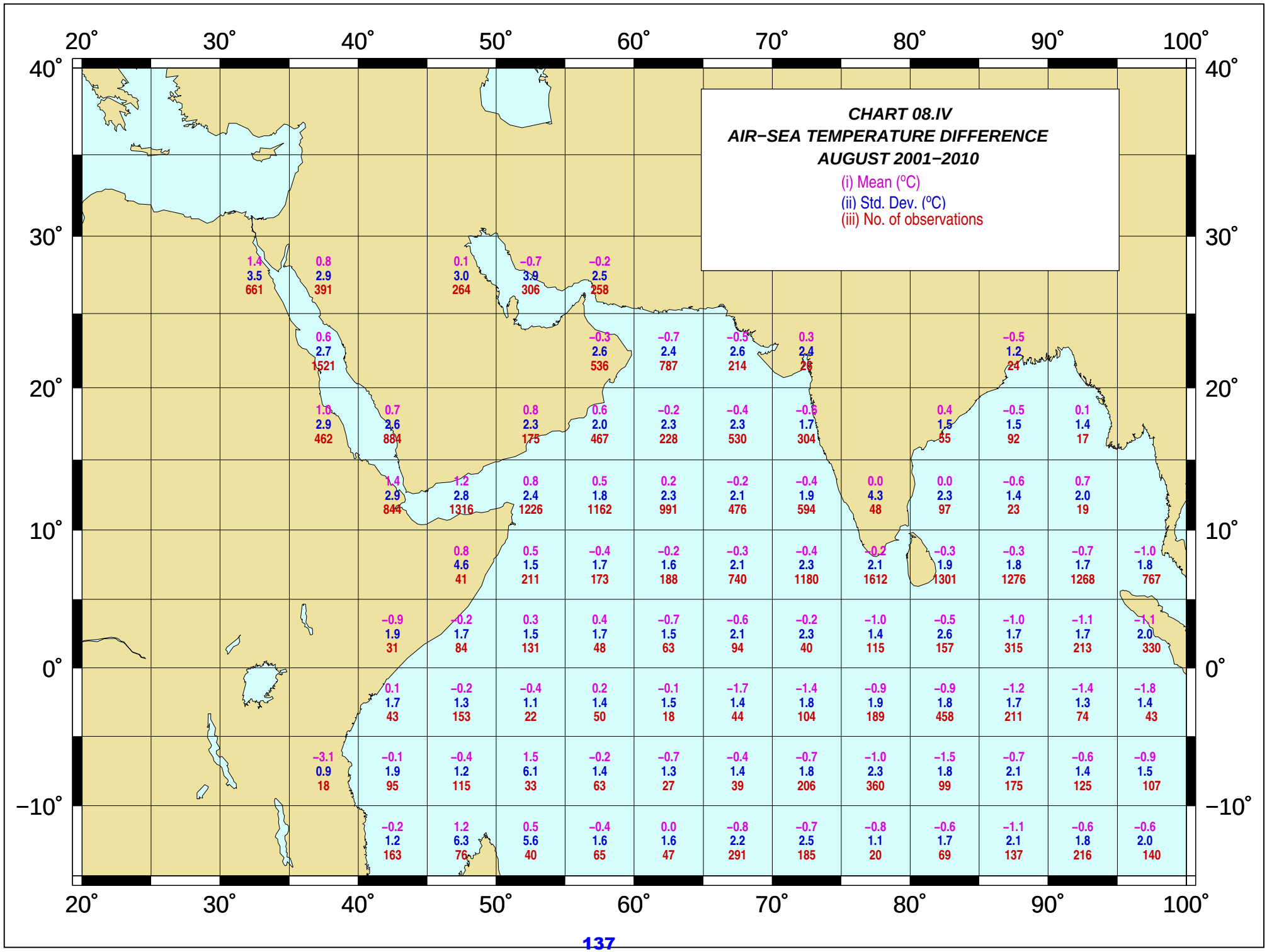


CHART 08.IV
AIR–SEA TEMPERATURE DIFFERENCE
AUGUST 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.4 3.5 661
0.8 2.9 391
0.1 3.0 264
−0.7 3.9 306
−0.2 2.5 258
0.6 2.7 1521
−0.3 2.6 536
−0.7 2.4 787
−0.5 2.6 214
0.3 2.4 26
−0.5 1.2 24
1.0 2.9 462
0.7 2.6 884
0.8 2.3 175
0.6 2.0 467
−0.2 2.3 228
−0.4 2.3 530
−0.6 1.7 304
0.4 1.5 55
−0.5 1.5 92
0.1 1.4 17
1.4 2.9 844
1.2 2.8 1316
0.8 2.4 1226
0.5 1.8 1162
0.2 2.3 991
−0.2 2.1 476
−0.4 1.9 594
0.0 4.3 48
0.0 2.3 97
−0.6 1.4 23
0.7 2.0 19
0.8 4.6 41
0.5 1.5 211
−0.4 1.7 173
−0.2 1.6 188
−0.3 2.1 740
−0.4 2.3 1180
−0.2 2.1 1612
−0.3 1.9 1301
−0.3 1.8 1276
−0.7 1.7 1268
−1.0 1.8 767
−0.9 1.9 31
−0.2 1.7 84
0.3 1.5 131
0.4 1.7 48
−0.7 1.5 63
−0.6 2.1 94
−0.2 2.3 40
−1.0 1.4 115
−0.5 2.6 157
−1.0 1.7 315
−1.1 1.7 213
−1.1 2.0 330
0.1 1.7 43
−0.2 1.3 153
−0.4 1.1 22
0.2 1.4 50
−0.1 1.5 18
−1.7 1.4 44
−1.4 1.8 104
−0.9 1.9 189
−0.9 1.8 458
−1.2 1.7 211
−1.4 1.3 74
−1.8 1.4 43
−3.1 0.9 18
−0.1 1.9 95
−0.4 1.2 115
1.5 6.1 33
−0.2 1.4 63
−0.7 1.3 27
−0.4 1.4 39
−0.7 1.8 206
−1.0 2.3 360
−1.5 1.8 99
−0.7 2.1 175
−0.6 1.4 125
−0.9 1.5 107
−0.2 1.2 163
1.2 6.3 76
0.5 5.6 40
−0.4 1.6 65
0.0 1.6 47
−0.8 2.2 291
−0.7 2.5 185
−0.8 1.1 20
−0.6 1.7 69
−1.1 2.1 137
−0.6 1.8 216
−0.6 2.0 140

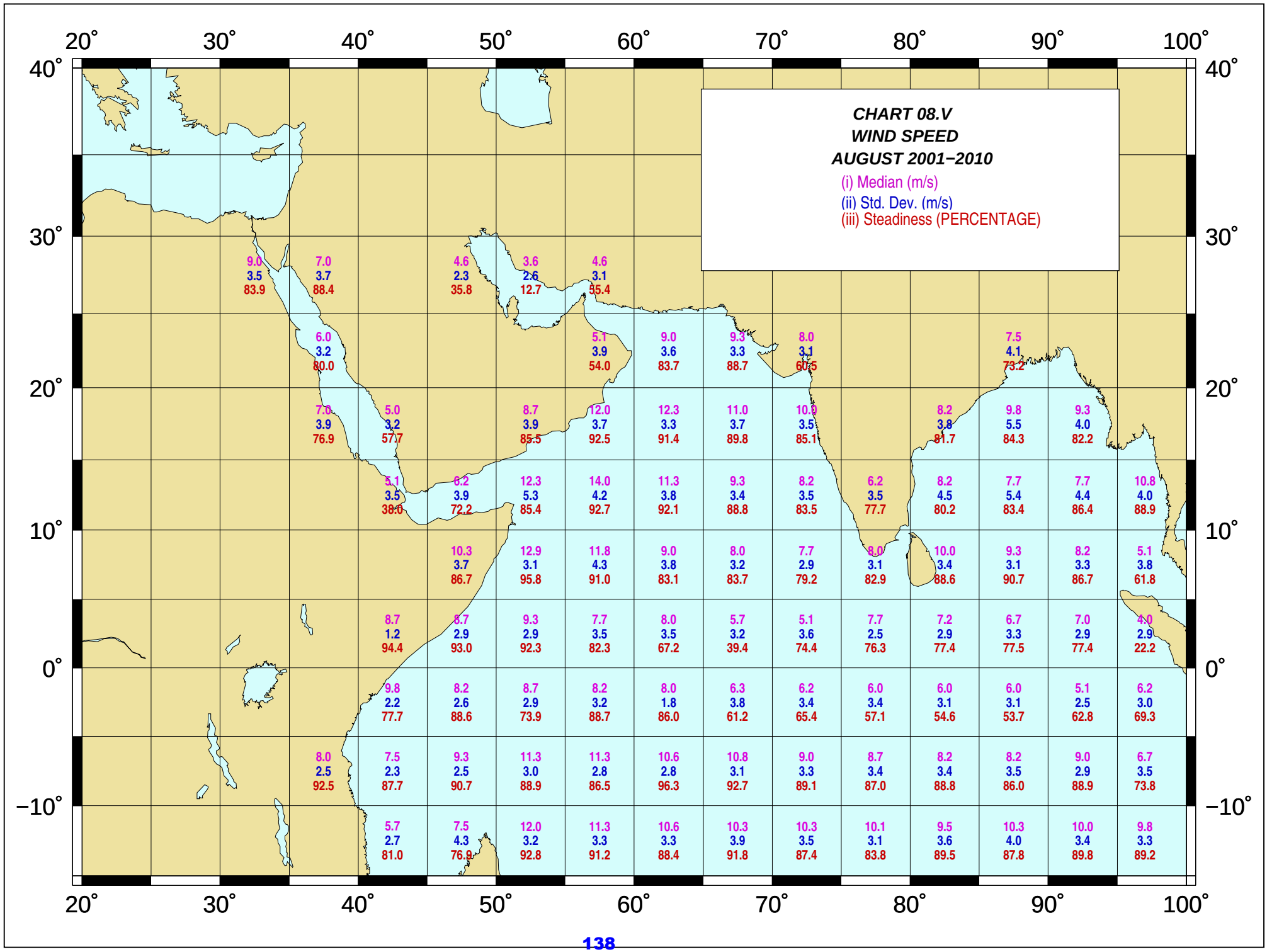


CHART 08.V
WIND SPEED
AUGUST 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
9.0 3.5 83.9
7.0 3.7 88.4
4.6 2.3 35.8
3.6 2.6 12.7
4.6 3.1 55.4
6.0 3.2 80.0
5.1 3.9 54.0
9.0 3.6 83.7
9.3 3.3 88.7
8.0 3.1 60.5
7.5 4.1 73.2
7.0 3.9 76.9
5.0 3.2 57.7
8.7 3.9 85.5
12.0 3.7 92.5
12.3 3.3 91.4
11.0 3.7 89.8
10.9 3.5 85.1
8.2 3.8 81.7
9.8 5.5 84.3
9.3 4.0 82.2
5.1 3.5 38.0
6.2 3.9 72.2
12.3 5.3 85.4
14.0 4.2 92.7
11.3 3.8 92.1
9.3 3.4 88.8
8.2 3.5 83.5
6.2 3.5 77.7
8.2 4.5 80.2
7.7 5.4 83.4
7.7 4.4 86.4
10.8 4.0 88.9
10.3 3.7 86.7
12.9 3.1 95.8
11.8 4.3 91.0
9.0 3.8 83.1
8.0 3.2 83.7
7.7 2.9 79.2
8.0 3.1 82.9
10.0 3.4 88.6
9.3 3.1 90.7
8.2 3.3 86.7
5.1 3.8 61.8
8.7 1.2 94.4
8.7 2.9 93.0
9.3 2.9 92.3
7.7 3.5 82.3
8.0 3.5 67.2
5.7 3.2 39.4
5.1 3.6 74.4
7.7 2.5 76.3
7.2 2.9 77.4
6.7 3.3 77.5
7.0 2.9 77.4
4.0 2.9 22.2
9.8 2.2 77.7
8.2 2.6 88.6
8.7 2.9 73.9
8.2 3.2 88.7
8.0 1.8 86.0
6.3 3.8 61.2
6.2 3.4 65.4
6.0 3.4 57.1
6.0 3.1 54.6
6.0 3.1 53.7
5.1 2.5 62.8
6.2 3.0 69.3
8.0 2.5 92.5
7.5 2.3 87.7
9.3 2.5 90.7
11.3 3.0 88.9
11.3 2.8 86.5
10.6 2.8 96.3
10.8 3.1 92.7
9.0 3.3 89.1
8.7 3.4 87.0
8.2 3.4 88.8
8.2 3.5 86.0
9.0 2.9 88.9
6.7 3.5 73.8
5.7 2.7 81.0
7.5 4.3 76.8
12.0 3.2 92.8
11.3 3.3 91.2
10.6 3.3 88.4
10.3 3.9 91.8
10.3 3.5 87.4
10.1 3.1 83.8
9.5 3.6 89.5
10.3 4.0 87.8
10.0 3.4 89.8
9.8 3.3 89.2

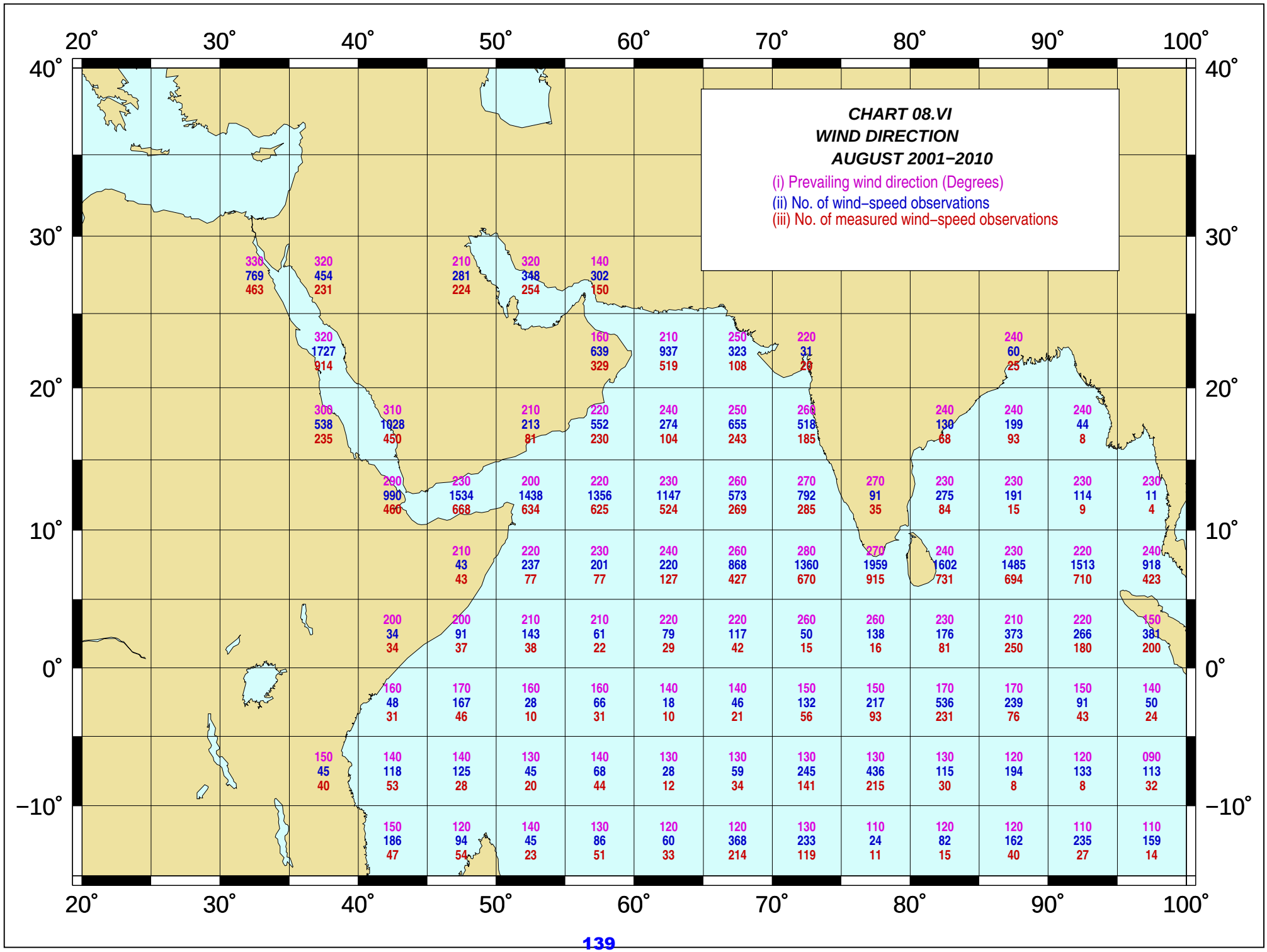


CHART 08.VI
WIND DIRECTION
AUGUST 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 769 463
320 454 231
210 281 224
320 348 254
140 302 150
320 1727 914
160 639 329
210 937 519
250 323 108
220 31 20
240 60 25
300 538 235
310 1028 450
210 213 81
220 552 230
240 274 104
250 655 243
260 518 185
240 130 68
240 199 93
240 44 8
290 990 460
230 1534 668
200 1438 634
220 1356 625
230 1147 524
260 573 269
270 792 285
270 91 35
230 275 84
230 191 15
230 114 9
230 11 4
210 43 43
220 237 77
230 201 77
240 220 127
260 868 427
280 1360 670
270 1959 915
240 1602 731
230 1485 694
220 1513 710
240 918 423
200 34 34
200 91 37
210 143 38
210 61 22
220 79 29
220 117 42
260 50 15
260 138 16
230 176 81
210 373 250
220 266 180
150 381 200
160 48 31
170 167 46
160 28 10
160 66 31
140 18 10
140 46 21
150 132 56
150 217 93
170 536 231
170 239 76
150 91 43
140 50 24
150 45 40
140 118 53
140 125 28
130 45 20
140 68 44
130 28 12
130 59 34
130 245 141
130 436 215
130 115 30
120 194 8
120 133 8
090 113 32
150 186 47
120 94 54
140 45 23
130 86 51
120 60 33
120 368 214
130 233 119
110 24 11
120 82 15
120 162 40
110 235 27
110 159 14

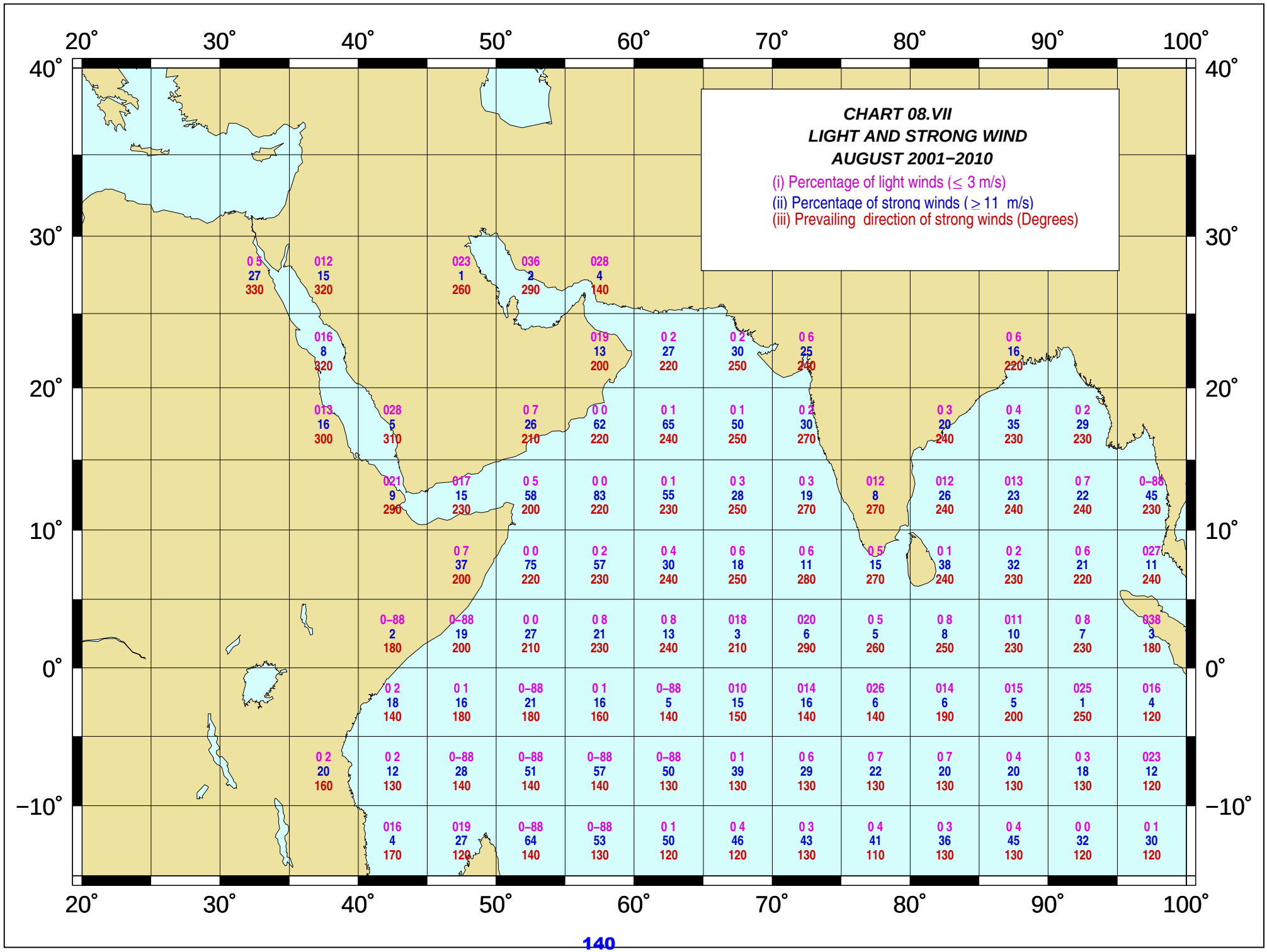


CHART 08.VII
LIGHT AND STRONG WIND
AUGUST 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
05 27 330
012 15 320
023 1 260
036 2 290
028 4 140
016 8 320
019 13 200
02 27 220
02 30 250
06 25 240
06 16 220
013 16 300
028 5 310
07 26 210
00 62 220
01 65 240
01 50 250
02 30 270
03 20 240
04 35 230
02 29 230
021 9 290
017 15 230
05 58 200
00 83 220
01 55 230
03 28 250
03 19 270
012 8 270
012 26 240
013 23 240
07 22 240
0–88 45 230
07 37 200
00 75 220
02 57 230
04 30 240
06 18 250
06 11 280
05 15 270
01 38 240
02 32 230
06 21 220
027 11 240
0–88 2 180
0–88 19 200
00 27 210
08 21 230
08 13 240
018 3 210
020 6 290
05 5 260
08 8 250
011 10 230
08 7 230
038 3 180
02 18 140
01 16 180
0–88 21 180
01 16 160
0–88 5 140
010 15 150
014 16 140
026 6 140
014 6 190
015 5 200
025 1 250
016 4 120
02 20 160
02 12 130
0–88 28 140
0–88 51 140
0–88 57 140
0–88 50 130
01 39 130
06 29 130
07 22 130
07 20 130
04 20 130
03 18 130
023 12 120
016 4 170
019 27 120
0–88 64 140
0–88 53 130
01 50 120
04 46 120
03 43 130
04 41 110
03 36 130
04 45 130
00 32 120
01 30 120

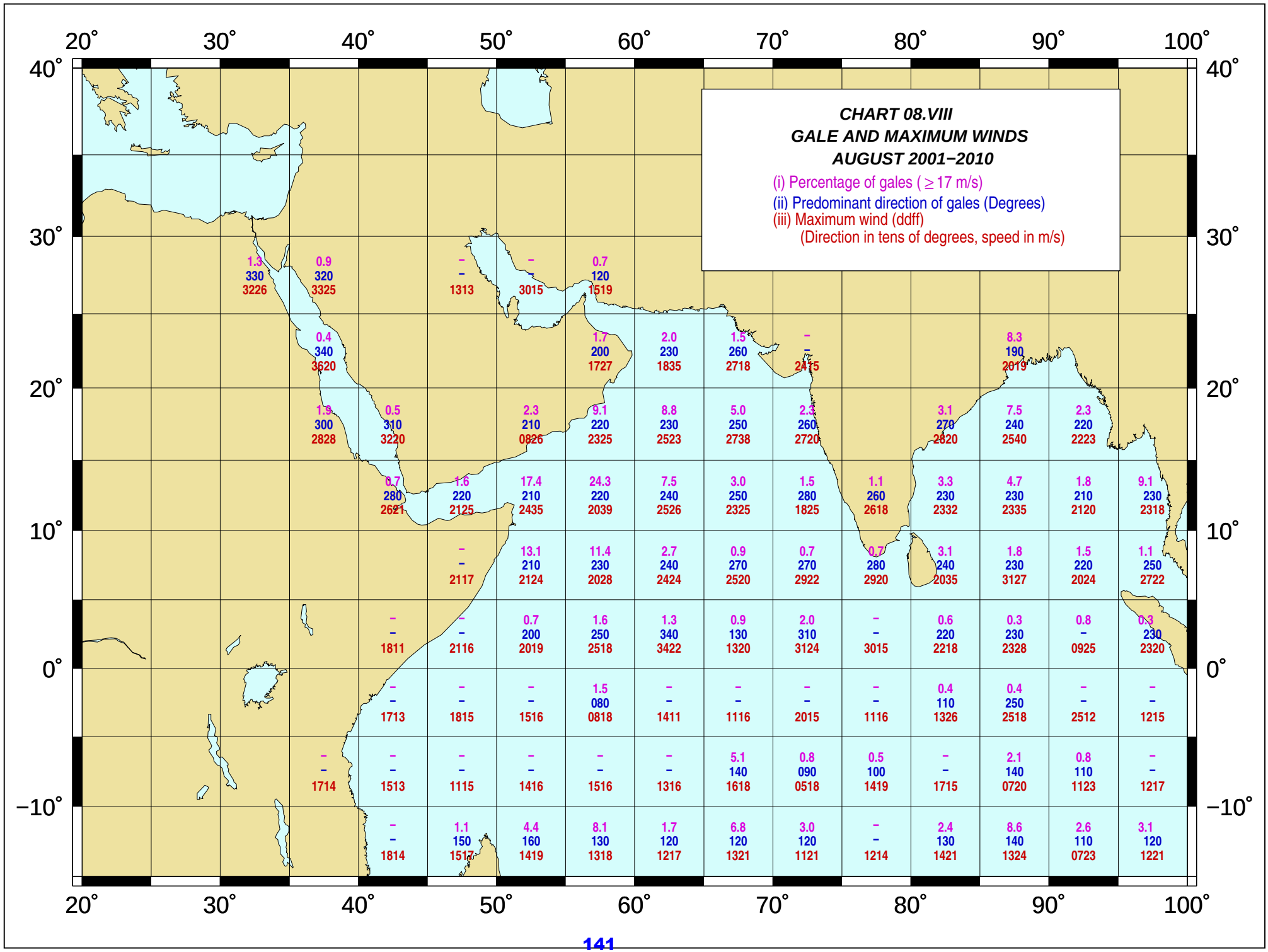


CHART 08.VIII
GALE AND MAXIMUM WINDS
AUGUST 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.3 330 3226
0.9 320 3325
– – 1313
– – 3015
0.7 120 1519
0.4 340 3620
1.7 200 1727
2.0 230 1835
1.5 260 2718
– – 2415
8.3 190 2019
1.9 300 2828
0.5 310 3220
2.3 210 0826
9.1 220 2325
8.8 230 2523
5.0 250 2738
2.3 260 2720
3.1 270 2820
7.5 240 2540
2.3 220 2223
0.7 280 2621
1.6 220 2125
17.4 210 2435
24.3 220 2039
7.5 240 2526
3.0 250 2325
1.5 280 1825
1.1 260 2618
3.3 230 2332
4.7 230 2335
1.8 210 2120
9.1 230 2318
– – 2117
13.1 210 2124
11.4 230 2028
2.7 240 2424
0.9 270 2520
0.7 270 2922
0.7 280 2920
3.1 240 2035
1.8 230 3127
1.5 220 2024
1.1 250 2722
– – 1811
– – 2116
0.7 200 2019
1.6 250 2518
1.3 340 3422
0.9 130 1320
2.0 310 3124
– – 3015
0.6 220 2218
0.3 230 2328
0.8 – 0925
0.3 230 2320
– – 1713
– – 1815
– – 1516
1.5 080 0818
– – 1411
– – 1116
– – 2015
– – 1116
0.4 110 1326
0.4 250 2518
– – 2512
– – 1215
– – 1714
– – 1513
– – 1115
– – 1416
– – 1516
– – 1316
5.1 140 1618
0.8 090 0518
0.5 100 1419
– – 1715
2.1 140 0720
0.8 110 1123
– – 1217
– – 1814
1.1 150 1517
4.4 160 1419
8.1 130 1318
1.7 120 1217
6.8 120 1321
3.0 120 1121
– – 1214
2.4 130 1421
8.6 140 1324
2.6 110 0723
3.1 120 1221

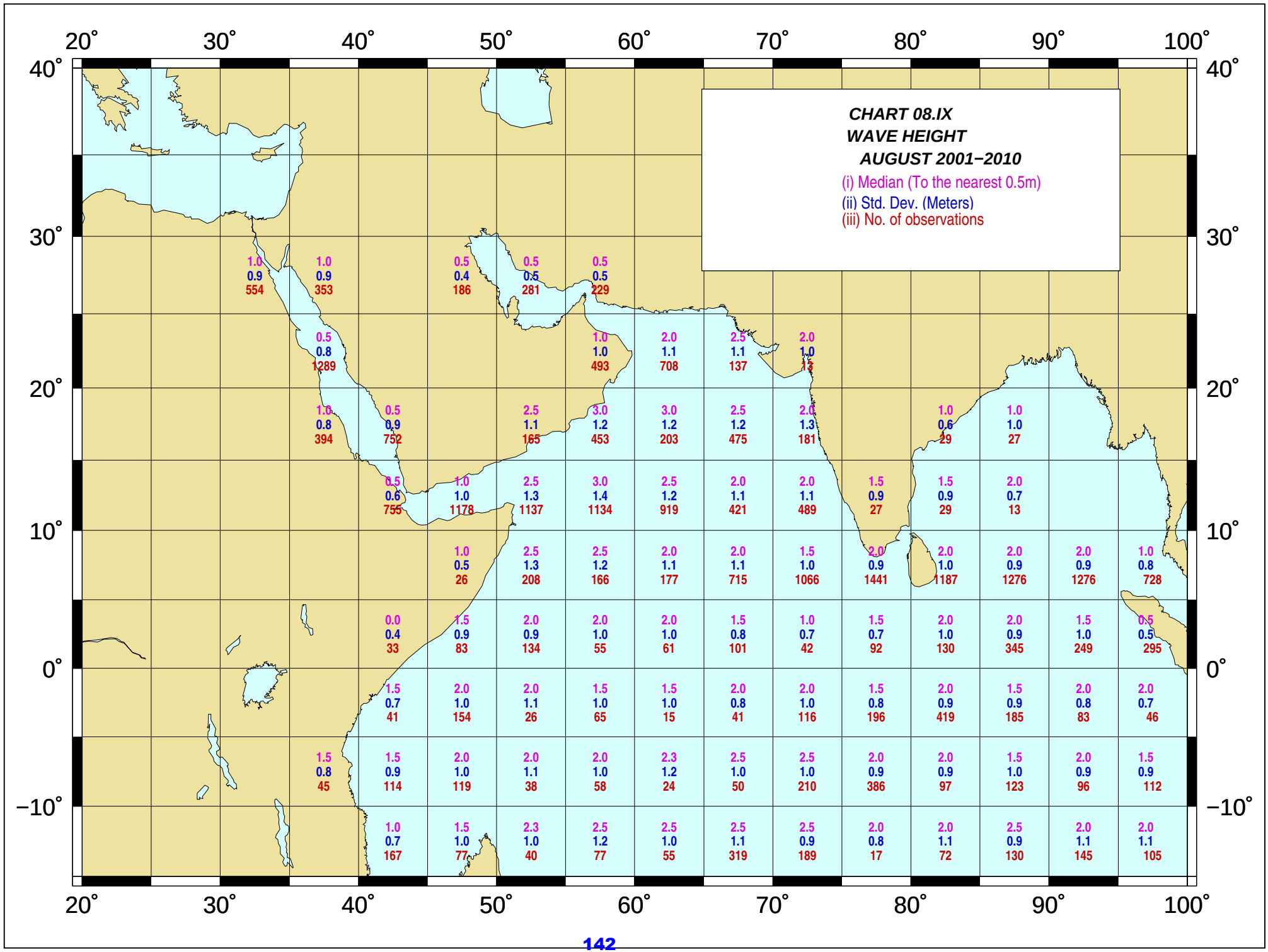


CHART 08.IX
WAVE HEIGHT
AUGUST 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.9 554
1.0 0.9 353
0.5 0.4 186
0.5 0.5 281
0.5 0.5 229
0.5 0.8 1289
1.0 1.0 493
2.0 1.1 708
2.5 1.1 137
2.0 1.0 13
1.0 0.8 394
0.5 0.9 752
2.5 1.1 165
3.0 1.2 453
3.0 1.2 203
2.5 1.2 475
2.0 1.3 181
1.0 0.6 29
1.0 1.0 27
0.5 0.6 755
1.0 1.0 1178
2.5 1.3 1137
3.0 1.4 1134
2.5 1.2 919
2.0 1.1 421
2.0 1.1 489
1.5 0.9 27
1.5 0.9 29
2.0 0.7 13
1.0 0.5 26
2.5 1.3 208
2.5 1.2 166
2.0 1.1 177
2.0 1.1 715
1.5 1.0 1066
2.0 0.9 1441
2.0 1.0 1187
2.0 0.9 1276
2.0 0.9 1276
1.0 0.8 728
0.0 0.4 33
1.5 0.9 83
2.0 0.9 134
2.0 1.0 55
2.0 1.0 61
1.5 0.8 101
1.0 0.7 42
1.5 0.7 92
2.0 1.0 130
2.0 0.9 345
1.5 1.0 249
0.5 0.5 295
1.5 0.7 41
2.0 1.0 154
2.0 1.1 26
1.5 1.0 65
1.5 1.0 15
2.0 0.8 41
2.0 1.0 116
1.5 0.8 196
1.5 0.9 419
1.5 0.9 185
2.0 0.8 83
2.0 0.7 46
1.5 0.8 45
1.5 0.9 114
2.0 1.0 119
2.0 1.1 38
2.0 1.0 58
2.3 1.2 24
2.5 1.0 50
2.5 1.0 210
2.0 0.9 386
2.0 0.9 97
1.5 1.0 123
2.0 0.9 96
1.5 0.9 112
1.0 0.7 167
1.5 1.0 77
2.3 1.0 40
2.5 1.2 77
2.5 1.0 55
2.5 1.1 319
2.5 0.9 189
2.0 0.8 17
2.0 1.1 72
2.5 0.9 130
2.0 1.1 145
2.0 1.1 105

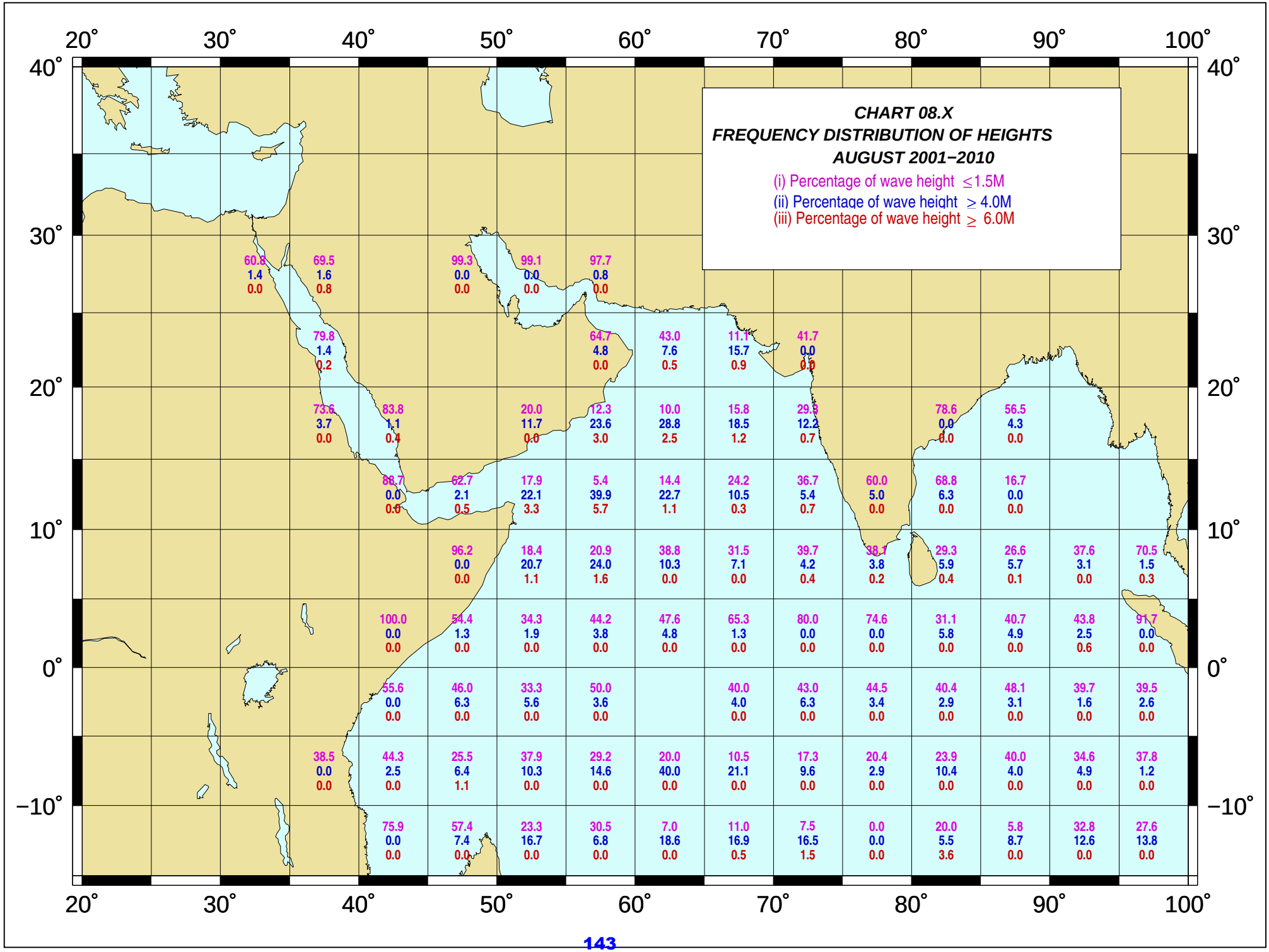


CHART 08.X
FREQUENCY DISTRIBUTION OF HEIGHTS
AUGUST 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
60.8 1.4 0.0
69.5 1.6 0.8
99.3 0.0 0.0
99.1 0.0 0.0
97.7 0.8 0.0
79.8 1.4 0.2
64.7 4.8 0.0
43.0 7.6 0.5
11.1 15.7 0.9
41.7 0.0 0.0
73.6 3.7 0.0
83.8 1.1 0.4
20.0 11.7 0.0
12.3 23.6 3.0
10.0 28.8 2.5
15.8 18.5 1.2
29.3 12.2 0.7
78.6 0.0 0.0
56.5 4.3 0.0
88.7 0.0 0.0
62.7 2.1 0.5
17.9 22.1 3.3
5.4 39.9 5.7
14.4 22.7 1.1
24.2 10.5 0.3
36.7 5.4 0.7
60.0 5.0 0.0
68.8 6.3 0.0
16.7 0.0 0.0
96.2 0.0 0.0
18.4 20.7 1.1
20.9 24.0 1.6
38.8 10.3 0.0
31.5 7.1 0.0
39.7 4.2 0.4
38.1 3.8 0.2
29.3 5.9 0.4
26.6 5.7 0.1
37.6 3.1 0.0
70.5 1.5 0.3
100.0 0.0 0.0
54.4 1.3 0.0
34.3 1.9 0.0
44.2 3.8 0.0
47.6 4.8 0.0
65.3 1.3 0.0
80.0 0.0 0.0
74.6 0.0 0.0
31.1 5.8 0.0
40.7 4.9 0.0
43.8 2.5 0.6
91.7 0.0 0.0
55.6 0.0 0.0
46.0 6.3 0.0
33.3 5.6 0.0
50.0 3.6 0.0
40.0 4.0 0.0
43.0 6.3 0.0
44.5 3.4 0.0
40.4 2.9 0.0
48.1 3.1 0.0
39.7 1.6 0.0
39.5 2.6 0.0
38.5 0.0 0.0
44.3 2.5 0.0
25.5 6.4 1.1
37.9 10.3 0.0
29.2 14.6 0.0
20.0 40.0 0.0
10.5 21.1 0.0
17.3 9.6 0.0
20.4 2.9 0.0
23.9 10.4 0.0
40.0 4.0 0.0
34.6 4.9 0.0
37.8 1.2 0.0
75.9 0.0 0.0
57.4 7.4 0.0
23.3 16.7 0.0
30.5 6.8 0.0
7.0 18.6 0.0
11.0 16.9 0.5
7.5 16.5 1.5
0.0 0.0 0.0
20.0 5.5 3.6
5.8 8.7 0.0
32.8 12.6 0.0
27.6 13.8 0.0

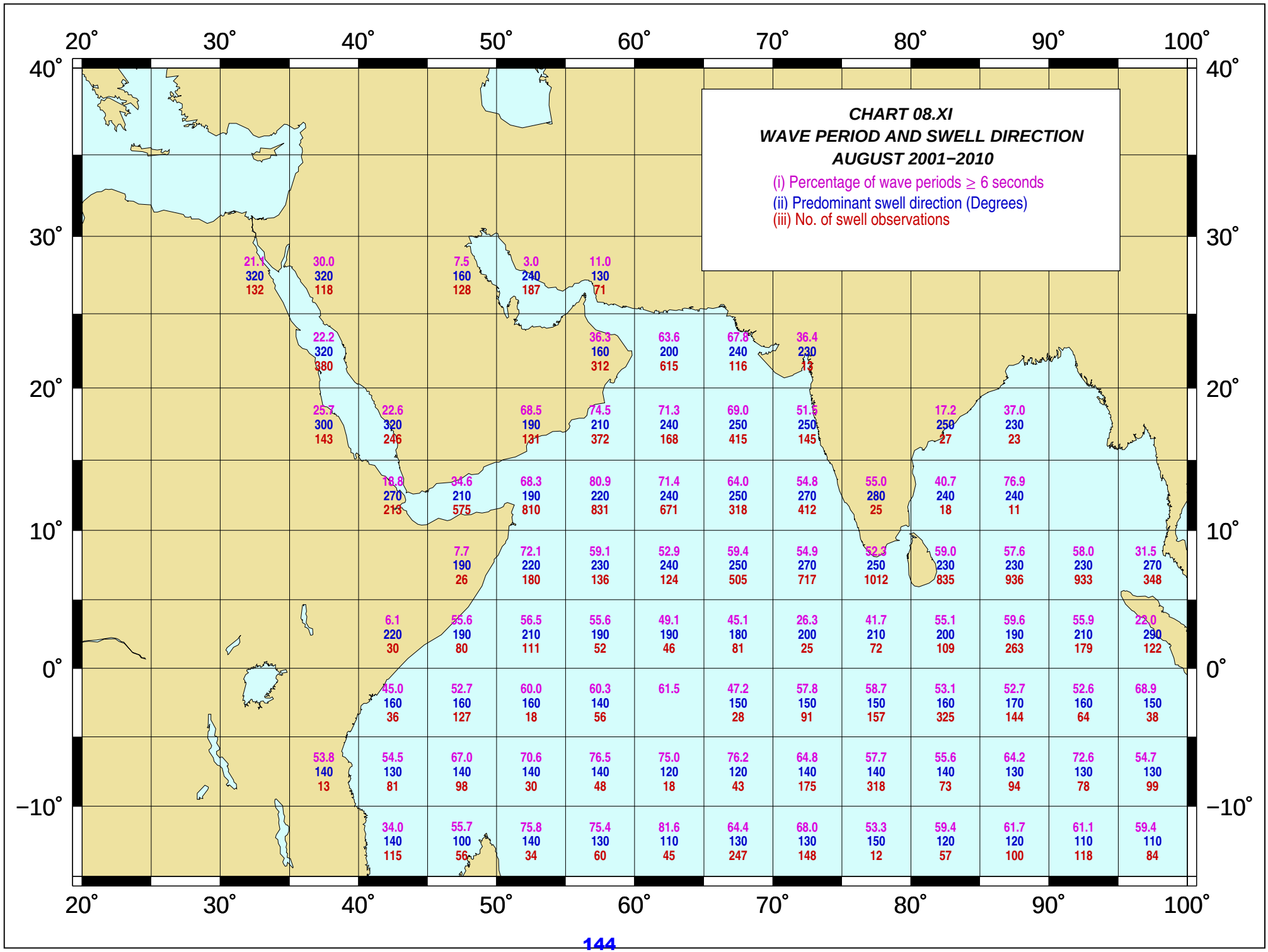


CHART 08.XI
WAVE PERIOD AND SWELL DIRECTION
AUGUST 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
21.1 320 132
30.0 320 118
7.5 160 128
3.0 240 187
11.0 130 71
22.2 320 380
36.3 160 312
63.6 200 615
67.8 240 116
36.4 230 13
25.7 300 143
22.6 320 246
68.5 190 131
74.5 210 372
71.3 240 168
69.0 250 415
51.5 250 145
17.2 250 27
37.0 230 23
18.8 270 213
34.6 210 575
68.3 190 810
80.9 220 831
71.4 240 671
64.0 250 318
54.8 270 412
55.0 280 25
40.7 240 18
76.9 240 11
7.7 190 26
72.1 220 180
59.1 230 136
52.9 240 124
59.4 250 505
54.9 270 717
52.3 250 1012
59.0 230 835
57.6 230 936
58.0 230 933
31.5 270 348
6.1 220 30
55.6 190 80
56.5 210 111
55.6 190 52
49.1 190 46
45.1 180 81
26.3 200 25
41.7 210 72
55.1 200 109
59.6 190 263
55.9 210 179
22.0 290 122
45.0 160 36
52.7 160 127
60.0 160 18
60.3 140 56
61.5
47.2 150 28
57.8 150 91
58.7 150 157
53.1 160 325
52.7 170 144
52.6 160 64
68.9 150 38
53.8 140 13
54.5 130 81
67.0 140 98
70.6 140 30
76.5 140 48
75.0 120 18
76.2 120 43
64.8 140 175
57.7 140 318
55.6 140 73
64.2 130 94
72.6 130 78
54.7 130 99
34.0 140 115
55.7 100 56
75.8 140 34
75.4 130 60
81.6 110 45
64.4 130 247
68.0 130 148
53.3 150 12
59.4 120 57
61.7 120 100
61.1 110 118
59.4 110 84

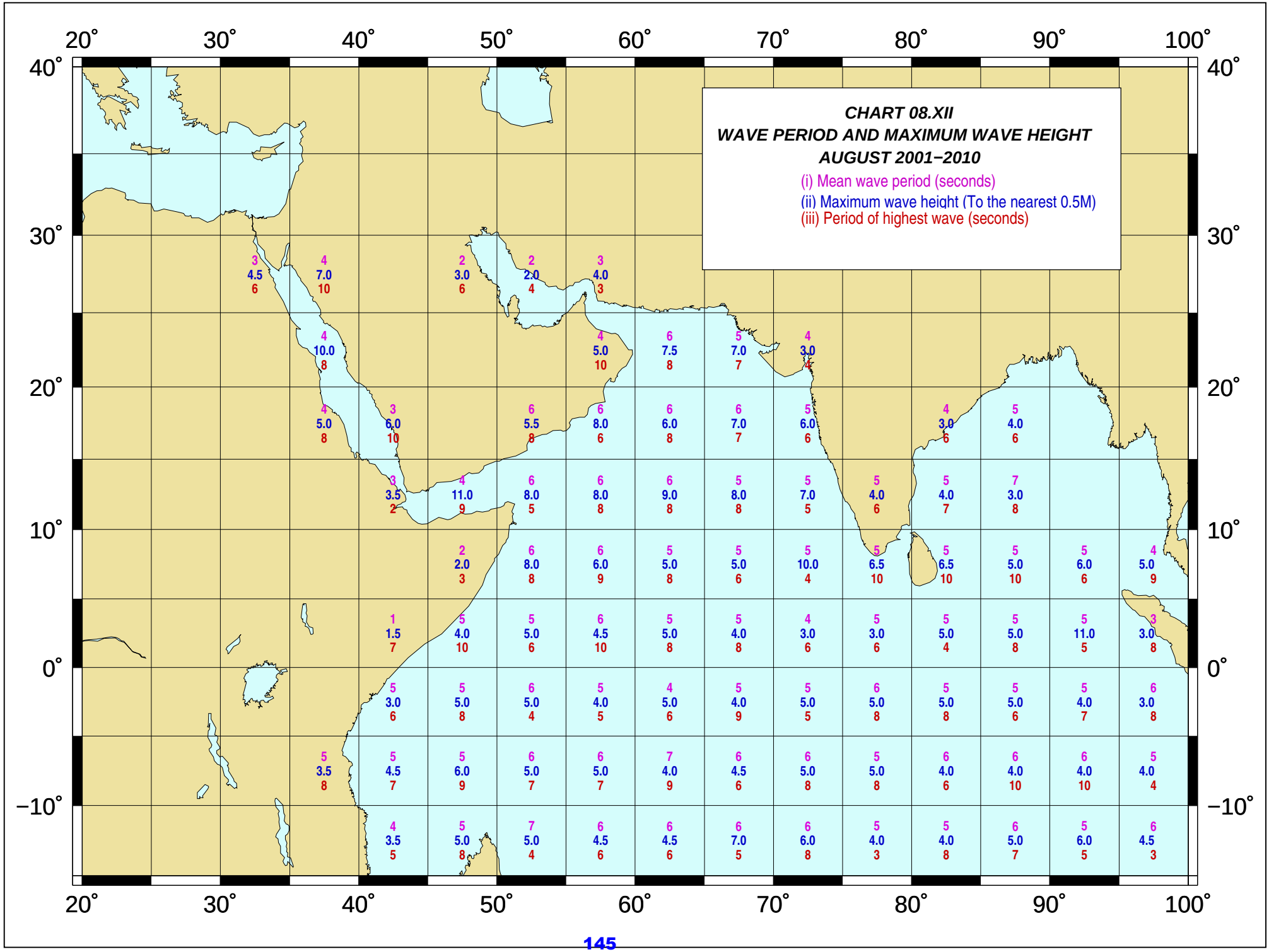


CHART 08.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
AUGUST 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
3 4.5 6
4 7.0 10
2 3.0 6
2 2.0 4
3 4.0 3
4 10.0 8
4 5.0 10
6 7.5 8
5 7.0 7
4 3.0 4
4 5.0 8
3 6.0 10
6 5.5 8
6 8.0 6
6 6.0 8
6 7.0 7
5 6.0 6
4 3.0 6
5 4.0 6
3 3.5 2
4 11.0 9
6 8.0 5
6 8.0 8
6 9.0 8
5 8.0 8
5 7.0 5
5 4.0 6
5 4.0 7
7 3.0 8
2 2.0 3
6 8.0 8
6 6.0 9
5 5.0 8
5 5.0 6
5 10.0 4
5 6.5 10
5 6.5 10
5 5.0 10
5 6.0 6
4 5.0 9
1 1.5 7
5 4.0 10
5 5.0 6
6 4.5 10
5 5.0 8
5 4.0 8
4 3.0 6
5 3.0 6
5 5.0 4
5 5.0 8
5 11.0 5
3 3.0 8
5 3.0 6
5 5.0 8
6 5.0 4
5 4.0 5
4 5.0 6
5 4.0 9
5 5.0 8
6 5.0 8
5 5.0 8
5 5.0 6
5 4.0 7
6 3.0 8
5 3.5 8
5 4.5 7
5 6.0 9
6 5.0 7
6 5.0 7
7 4.0 9
6 4.5 6
6 5.0 8
5 5.0 8
6 4.0 6
6 4.0 10
6 4.0 10
5 4.0 4
4 3.5 5
5 5.0 8
7 5.0 4
6 4.5 6
6 4.5 6
6 7.0 5
6 6.0 8
5 4.0 3
5 4.0 8
6 5.0 7
5 6.0 5
6 4.5 3

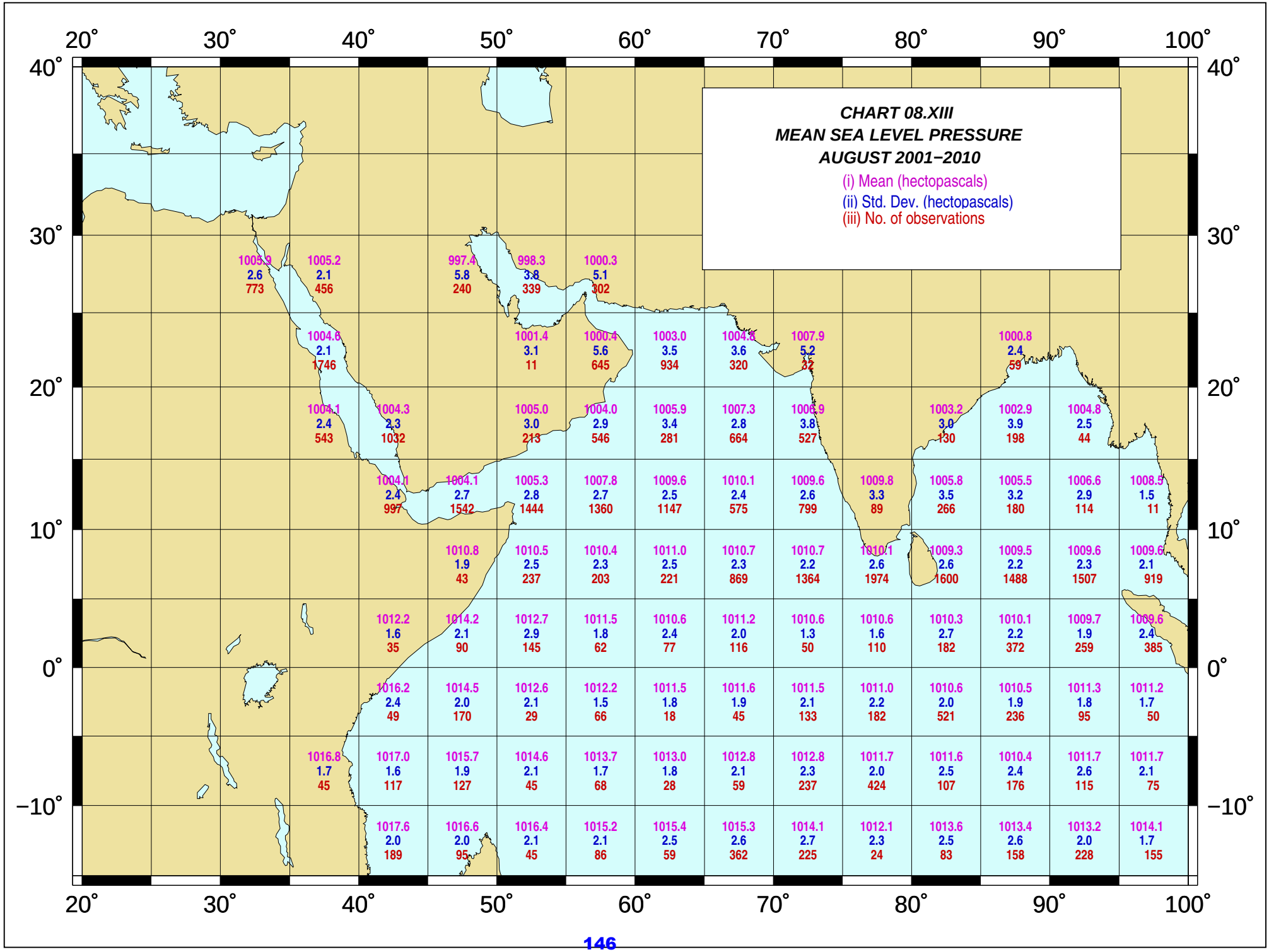


CHART 08.XIII
MEAN SEA LEVEL PRESSURE
AUGUST 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1005.2 2.1 456
997.4 5.8 240
998.3 3.8 339
1000.3 5.1 302
1004.6 2.1 1746
1001.4 3.1 11
1000.4 5.6 645
1003.0 3.5 934
1004.8 3.6 320
1007.9 5.2 32
1000.8 2.4 59
1004.1 2.4 543
1004.3 2.3 1032
1005.0 3.0 213
1004.0 2.9 546
1005.9 3.4 281
1007.3 2.8 664
1006.9 3.8 527
1003.2 3.0 130
1002.9 3.9 198
1004.8 2.5 44
1004.1 2.4 997
1004.1 2.7 1542
1005.3 2.8 1444
1007.8 2.7 1360
1009.6 2.5 1147
1010.1 2.4 575
1009.6 2.6 799
1009.8 3.3 89
1005.8 3.5 266
1005.5 3.2 180
1006.6 2.9 114
1008.5 1.5 11
1010.8 1.9 43
1010.5 2.5 237
1010.4 2.3 203
1011.0 2.5 221
1010.7 2.3 869
1010.7 2.2 1364
1010.1 2.6 1974
1009.3 2.6 1600
1009.5 2.2 1488
1009.6 2.3 1507
1009.6 2.1 919
1012.2 1.6 35
1014.2 2.1 90
1012.7 2.9 145
1011.5 1.8 62
1010.6 2.4 77
1011.2 2.0 116
1010.6 1.3 50
1010.6 1.6 110
1010.3 2.7 182
1010.1 2.2 372
1009.7 1.9 259
1009.6 2.4 385
1016.2 2.4 49
1014.5 2.0 170
1012.6 2.1 29
1012.2 1.5 66
1011.5 1.8 18
1011.6 1.9 45
1011.5 2.1 133
1011.0 2.2 182
1010.6 2.0 521
1010.5 1.9 236
1011.3 1.8 95
1011.2 1.7 50
1016.8 1.7 45
1017.0 1.6 117
1015.7 1.9 127
1014.6 2.1 45
1013.7 1.7 68
1013.0 1.8 28
1012.8 2.1 59
1012.8 2.3 237
1011.7 2.0 424
1011.6 2.5 107
1010.4 2.4 176
1011.7 2.6 115
1011.7 2.1 75
1017.6 2.0 189
1016.6 2.0 95
1016.4 2.1 45
1015.2 2.1 86
1015.4 2.5 59
1015.3 2.6 362
1014.1 2.7 225
1012.1 2.3 24
1013.6 2.5 83
1013.4 2.6 158
1013.2 2.0 228
1014.1 1.7 155

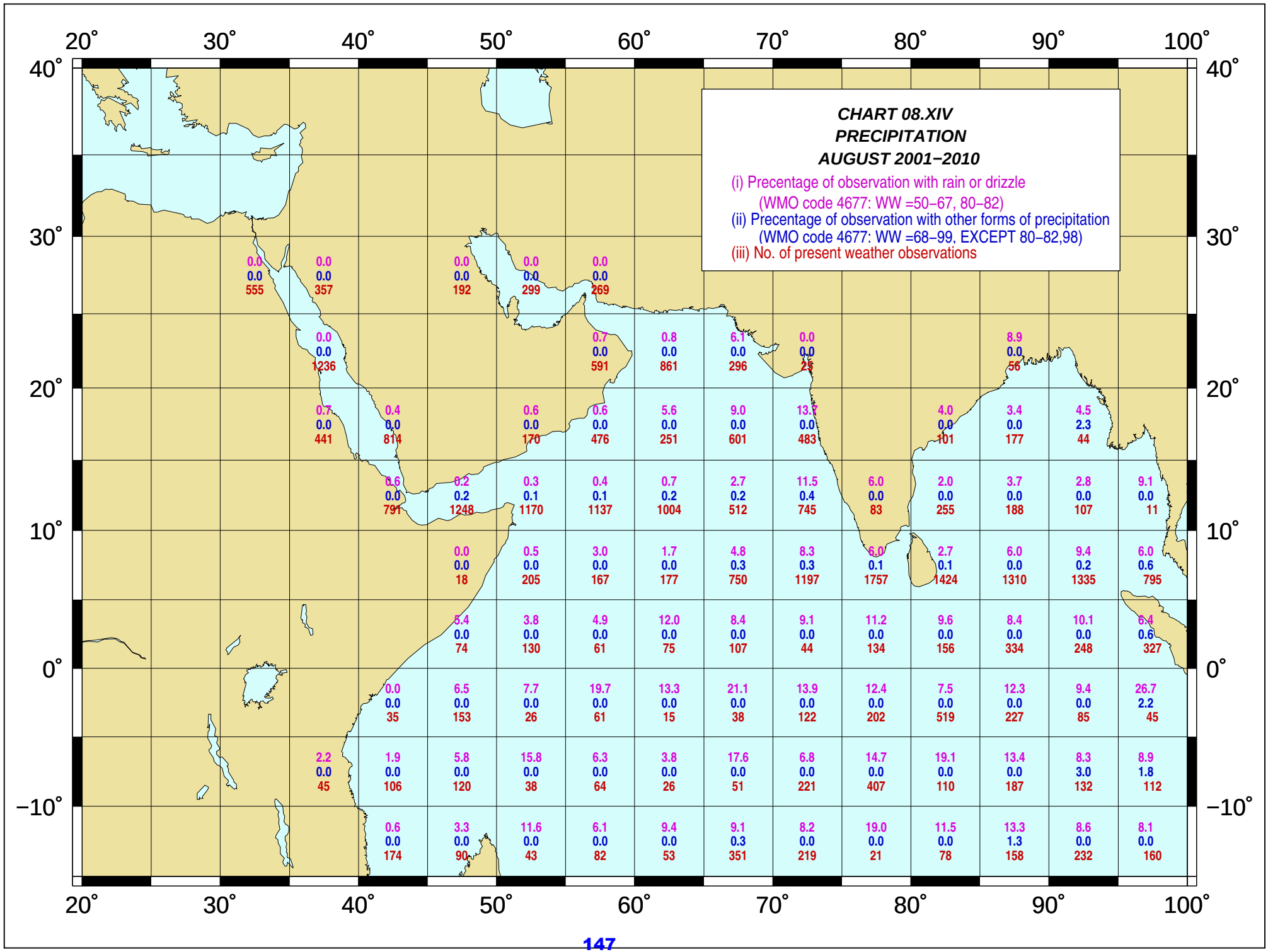


CHART 08.XIV
PRECIPITATION
AUGUST 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 0.0 555
0.0 0.0 357
0.0 0.0 192
0.0 0.0 299
0.0 0.0 269
0.0 0.0 1236
0.7 0.0 591
0.8 0.0 861
6.1 0.0 296
0.0 0.0 25
8.9 0.0 56
0.7 0.0 441
0.4 0.0 814
0.6 0.0 170
0.6 0.0 476
5.6 0.0 251
9.0 0.0 601
13.7 0.0 483
4.0 0.0 101
3.4 0.0 177
4.5 2.3 44
0.6 0.0 791
0.2 0.2 1248
0.3 0.1 1170
0.4 0.1 1137
0.7 0.2 1004
2.7 0.2 512
11.5 0.4 745
6.0 0.0 83
2.0 0.0 255
3.7 0.0 188
2.8 0.0 107
9.1 0.0 11
0.0 0.0 18
0.5 0.0 205
3.0 0.0 167
1.7 0.0 177
4.8 0.3 750
8.3 0.3 1197
6.0 0.1 1757
2.7 0.1 1424
6.0 0.0 1310
9.4 0.2 1335
6.0 0.6 795
5.4 0.0 74
3.8 0.0 130
4.9 0.0 61
12.0 0.0 75
8.4 0.0 107
9.1 0.0 44
11.2 0.0 134
9.6 0.0 156
8.4 0.0 334
10.1 0.0 248
6.4 0.6 327
0.0 0.0 35
6.5 0.0 153
7.7 0.0 26
19.7 0.0 61
13.3 0.0 15
21.1 0.0 38
13.9 0.0 122
12.4 0.0 202
7.5 0.0 519
12.3 0.0 227
9.4 0.0 85
26.7 2.2 45
2.2 0.0 45
1.9 0.0 106
5.8 0.0 120
15.8 0.0 38
6.3 0.0 64
3.8 0.0 26
17.6 0.0 51
6.8 0.0 221
14.7 0.0 407
19.1 0.0 110
13.4 0.0 187
8.3 3.0 132
8.9 1.8 112
0.6 0.0 174
3.3 0.0 90
11.6 0.0 43
6.1 0.0 82
9.4 0.0 53
9.1 0.3 351
8.2 0.0 219
19.0 0.0 21
11.5 0.0 78
13.3 1.3 158
8.6 0.0 232
8.1 0.0 160

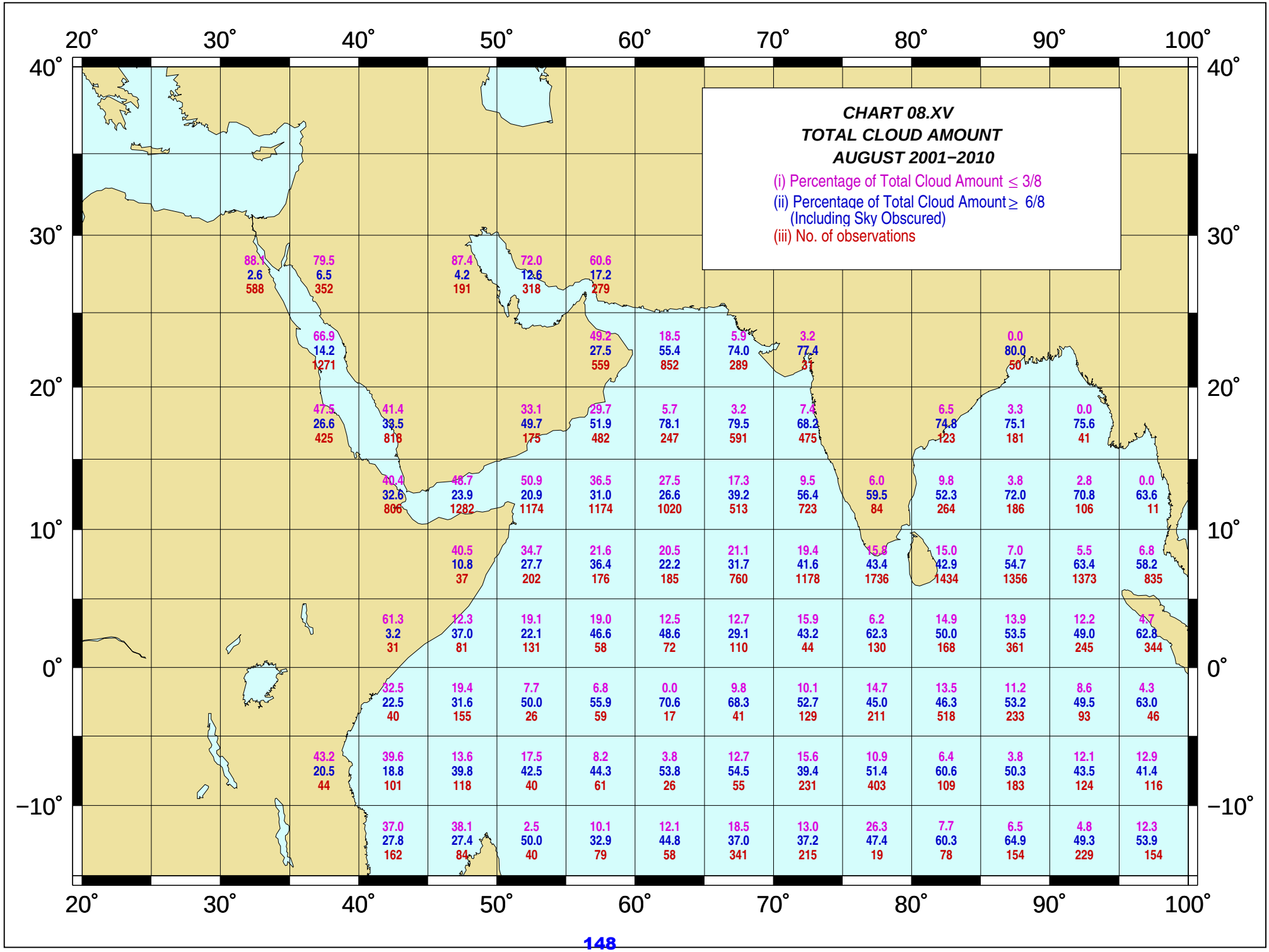


CHART 08.XV
TOTAL CLOUD AMOUNT
AUGUST 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
88.1 2.6 588
79.5 6.5 352
87.4 4.2 191
72.0 12.6 318
60.6 17.2 279
66.9 14.2 1271
49.2 27.5 559
18.5 55.4 852
5.9 74.0 289
3.2 77.4 31
0.0 80.0 50
47.5 26.6 425
41.4 33.5 818
33.1 49.7 175
29.7 51.9 482
5.7 78.1 247
3.2 79.5 591
7.4 68.2 475
6.5 74.8 123
3.3 75.1 181
0.0 75.6 41
40.4 32.6 806
48.7 23.9 1282
50.9 20.9 1174
36.5 31.0 1174
27.5 26.6 1020
17.3 39.2 513
9.5 56.4 723
6.0 59.5 84
9.8 52.3 264
3.8 72.0 186
2.8 70.8 106
0.0 63.6 11
40.5 10.8 37
34.7 27.7 202
21.6 36.4 176
20.5 22.2 185
21.1 31.7 760
19.4 41.6 1178
15.9 43.4 1736
15.0 42.9 1434
7.0 54.7 1356
5.5 63.4 1373
6.8 58.2 835
61.3 3.2 31
12.3 37.0 81
19.1 22.1 131
19.0 46.6 58
12.5 48.6 72
12.7 29.1 110
15.9 43.2 44
6.2 62.3 130
14.9 50.0 168
13.9 53.5 361
12.2 49.0 245
4.7 62.8 344
32.5 22.5 40
19.4 31.6 155
7.7 50.0 26
6.8 55.9 59
0.0 70.6 17
9.8 68.3 41
10.1 52.7 129
14.7 45.0 211
13.5 46.3 518
11.2 53.2 233
8.6 49.5 93
4.3 63.0 46
43.2 20.5 44
39.6 18.8 101
13.6 39.8 118
17.5 42.5 40
8.2 44.3 61
3.8 53.8 26
12.7 54.5 55
15.6 39.4 231
10.9 51.4 403
6.4 60.6 109
3.8 50.3 183
12.1 43.5 124
12.9 41.4 116
37.0 27.8 162
38.1 27.4 84
2.5 50.0 40
10.1 32.9 79
12.1 44.8 58
18.5 37.0 341
13.0 37.2 215
26.3 47.4 19
7.7 60.3 78
6.5 64.9 154
4.8 49.3 229
12.3 53.9 154

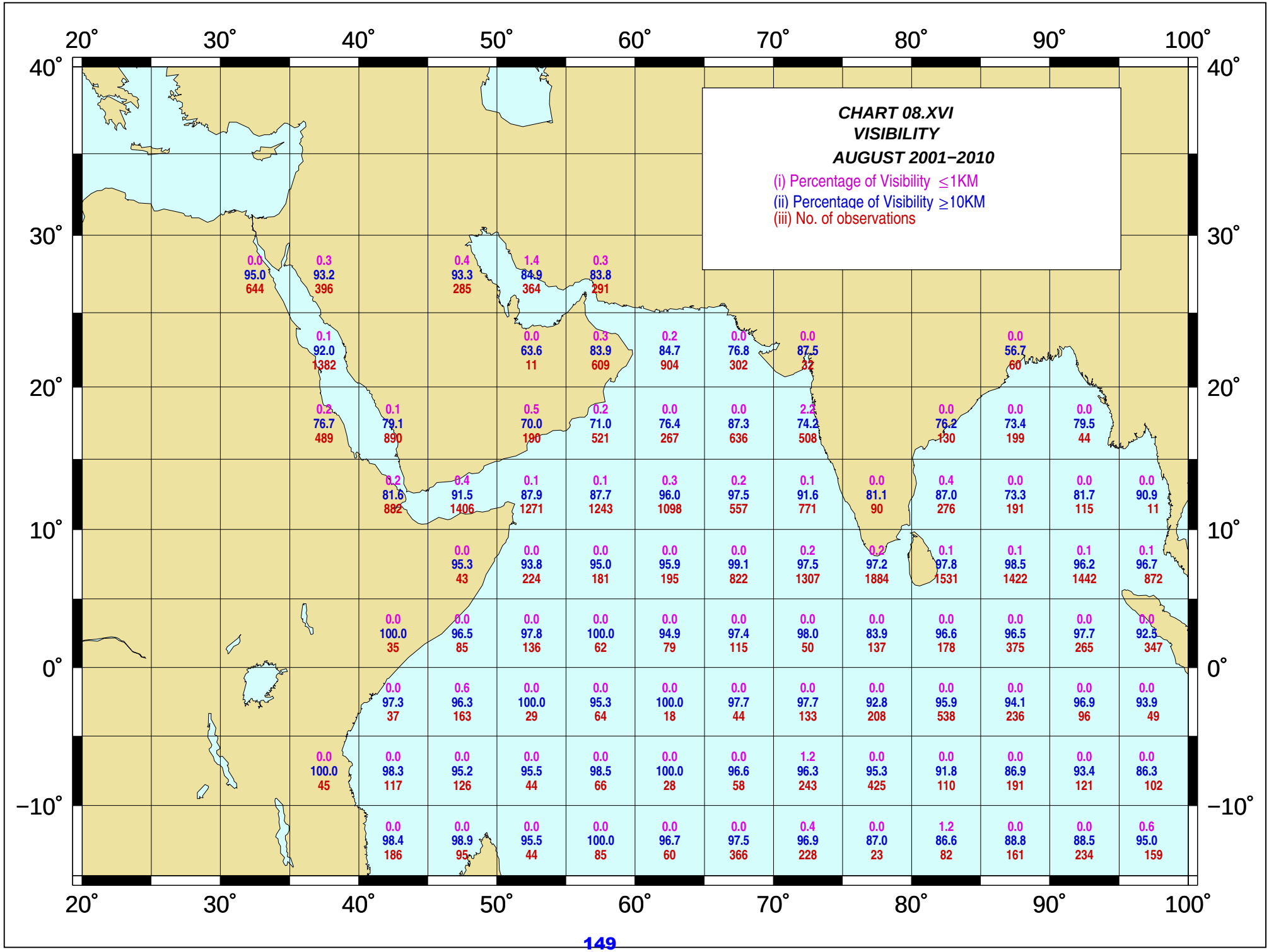


CHART 08.XVI
VISIBILITY
AUGUST 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 95.0 644
0.3 93.2 396
0.4 93.3 285
1.4 84.9 364
0.3 83.8 291
0.1 92.0 1382
0.0 63.6 11
0.3 83.9 609
0.2 84.7 904
0.0 76.8 302
0.0 87.5 32
0.0 56.7 60
0.2 76.7 489
0.1 79.1 890
0.5 70.0 190
0.2 71.0 521
0.0 76.4 267
0.0 87.3 636
2.2 74.2 508
0.0 76.2 130
0.0 73.4 199
0.0 79.5 44
0.2 81.6 882
0.4 91.5 1406
0.1 87.9 1271
0.1 87.7 1243
0.3 96.0 1098
0.2 97.5 557
0.1 91.6 771
0.0 81.1 90
0.4 87.0 276
0.0 73.3 191
0.0 81.7 115
0.0 90.9 11
0.0 95.3 43
0.0 93.8 224
0.0 95.0 181
0.0 95.9 195
0.0 99.1 822
0.2 97.5 1307
0.2 97.2 1884
0.1 97.8 1531
0.1 98.5 1422
0.1 96.2 1442
0.1 96.7 872
0.0 100.0 35
0.0 96.5 85
0.0 97.8 136
0.0 100.0 62
0.0 94.9 79
0.0 97.4 115
0.0 98.0 50
0.0 83.9 137
0.0 96.6 178
0.0 96.5 375
0.0 97.7 265
0.0 92.5 347
0.0 97.3 37
0.6 96.3 163
0.0 100.0 29
0.0 95.3 64
0.0 100.0 18
0.0 97.7 44
0.0 97.7 133
0.0 92.8 208
0.0 95.9 538
0.0 94.1 236
0.0 96.9 96
0.0 93.9 49
0.0 100.0 45
0.0 98.3 117
0.0 95.2 126
0.0 95.5 44
0.0 98.5 66
0.0 100.0 28
0.0 96.6 58
1.2 96.3 243
0.0 95.3 425
0.0 91.8 110
0.0 86.9 191
0.0 93.4 121
0.0 86.3 102
0.0 98.4 186
0.0 98.9 95
0.0 95.5 44
0.0 100.0 85
0.0 96.7 60
0.0 97.5 366
0.4 96.9 228
0.0 87.0 23
1.2 86.6 82
0.0 88.8 161
0.0 88.5 234
0.6 95.0 159

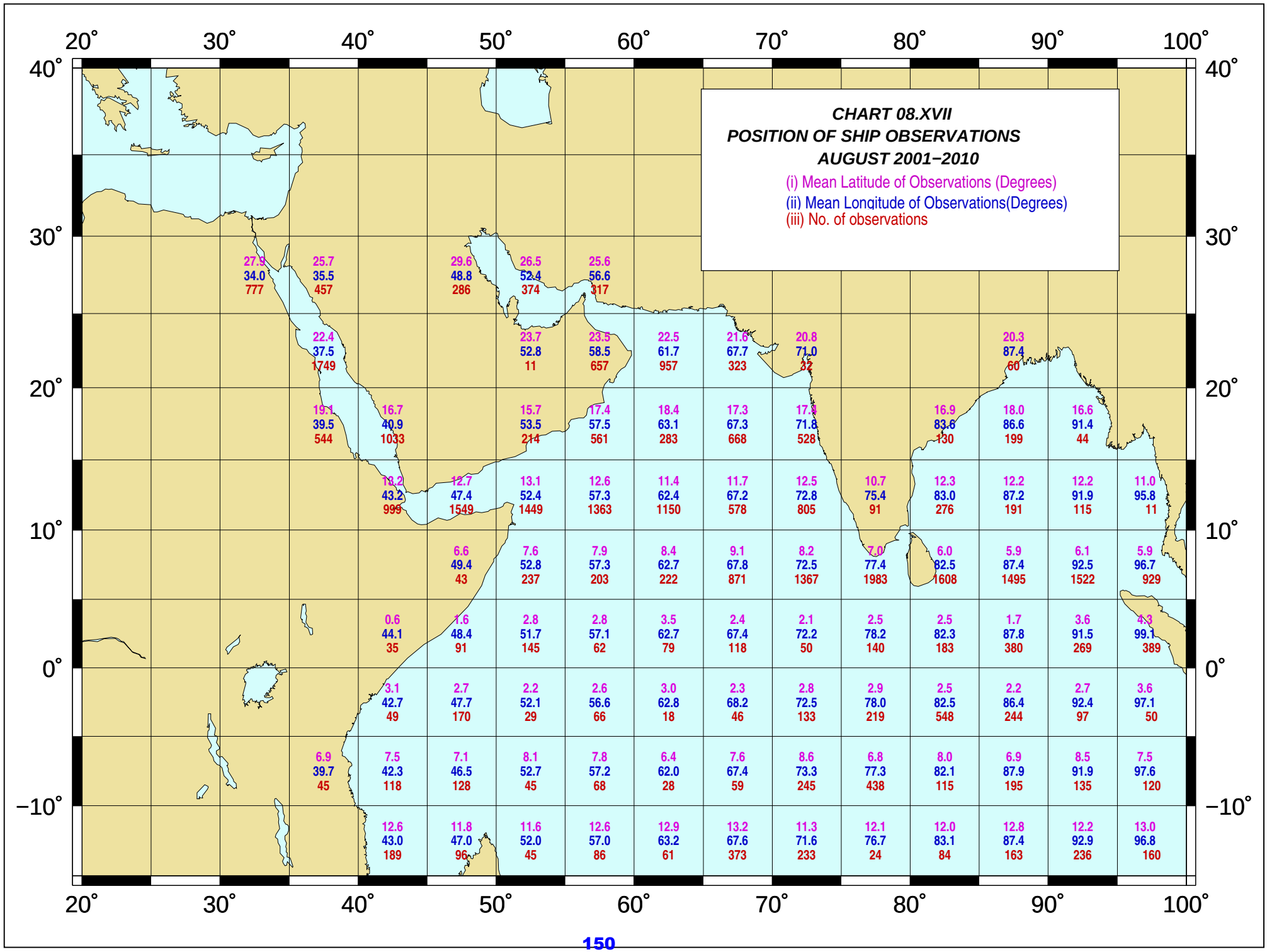


CHART 08.XVII
POSITION OF SHIP OBSERVATIONS
AUGUST 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.9 34.0 777
25.7 35.5 457
29.6 48.8 286
26.5 52.4 374
25.6 56.6 317
22.4 37.5 1749
23.7 52.8 11
23.5 58.5 657
22.5 61.7 957
21.6 67.7 323
20.8 71.0 32
20.3 87.4 60
19.1 39.5 544
16.7 40.9 1033
15.7 53.5 214
17.4 57.5 561
18.4 63.1 283
17.3 67.3 668
17.9 71.8 528
16.9 83.6 130
18.0 86.6 199
16.6 91.4 44
12.7 47.4 1549
13.1 52.4 1449
12.6 57.3 1363
11.4 62.4 1150
11.7 67.2 578
12.5 72.8 805
10.7 75.4 91
12.3 83.0 276
12.2 87.2 191
12.2 91.9 115
11.0 95.8 11
6.6 49.4 43
7.6 52.8 237
7.9 57.3 203
8.4 62.7 222
9.1 67.8 871
8.2 72.5 1367
7.0 77.4 1983
6.0 82.5 1608
5.9 87.4 1495
6.1 92.5 1522
5.9 96.7 929
0.6 44.1 35
1.6 48.4 91
2.8 51.7 145
2.8 57.1 62
3.5 62.7 79
2.4 67.4 118
2.1 72.2 50
2.5 78.2 140
2.5 82.3 183
1.7 87.8 380
3.6 91.5 269
4.3 99.1 389
3.1 42.7 49
2.7 47.7 170
2.2 52.1 29
2.6 56.6 66
3.0 62.8 18
2.3 68.2 46
2.8 72.5 133
2.9 78.0 219
2.5 82.5 548
2.2 86.4 244
2.7 92.4 97
3.6 97.1 50
6.9 39.7 45
7.5 42.3 118
7.1 46.5 128
8.1 52.7 45
7.8 57.2 68
6.4 62.0 28
7.6 67.4 59
8.6 73.3 245
6.8 77.3 438
8.0 82.1 115
6.9 87.9 195
8.5 91.9 135
7.5 97.6 120
12.6 43.0 189
11.8 47.0 96
11.6 52.0 45
12.6 57.0 86
12.9 63.2 61
13.2 67.6 373
11.3 71.6 233
12.1 76.7 24
12.0 83.1 84
12.8 87.4 163
12.2 92.9 236
13.0 96.8 160

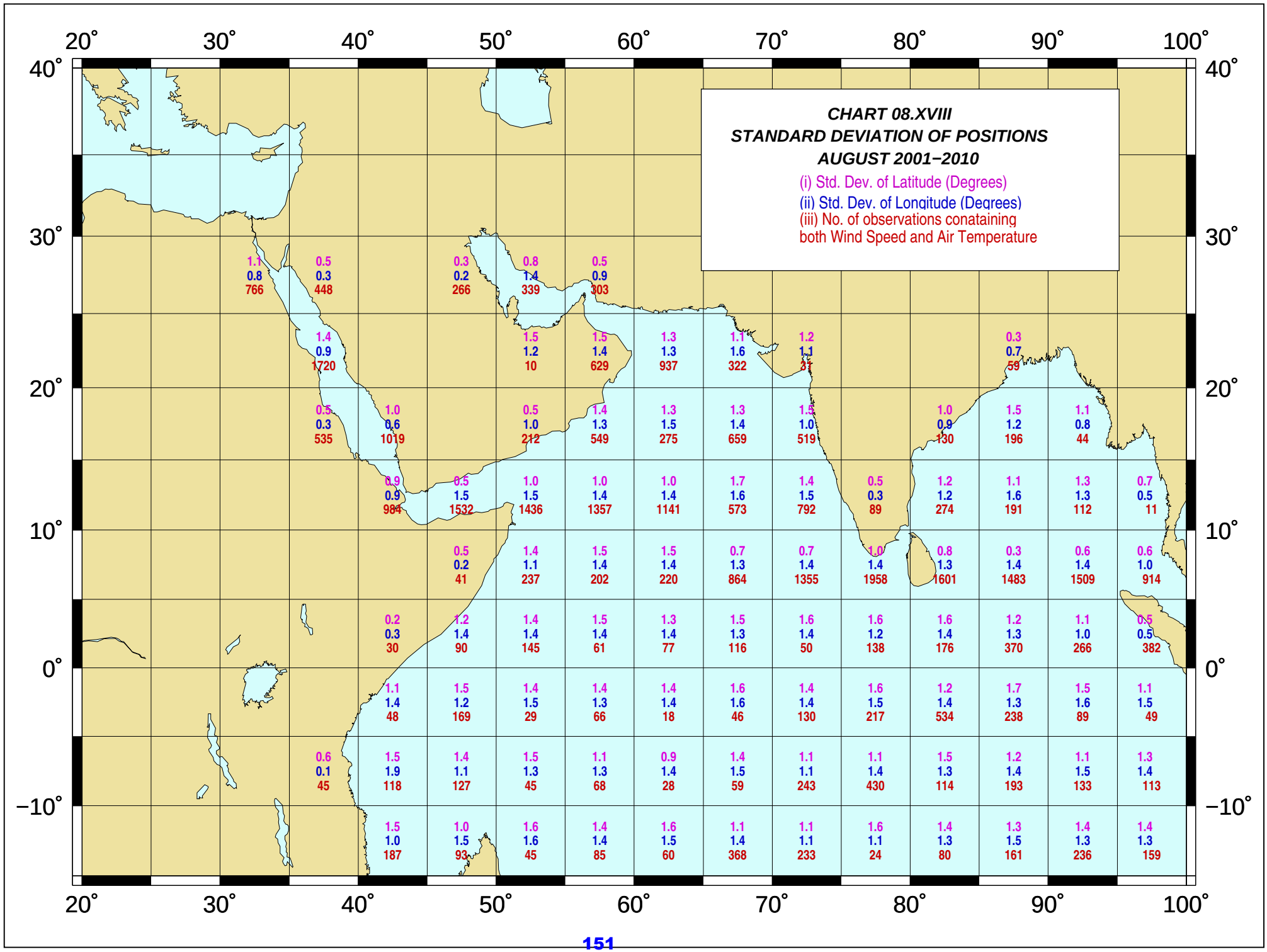
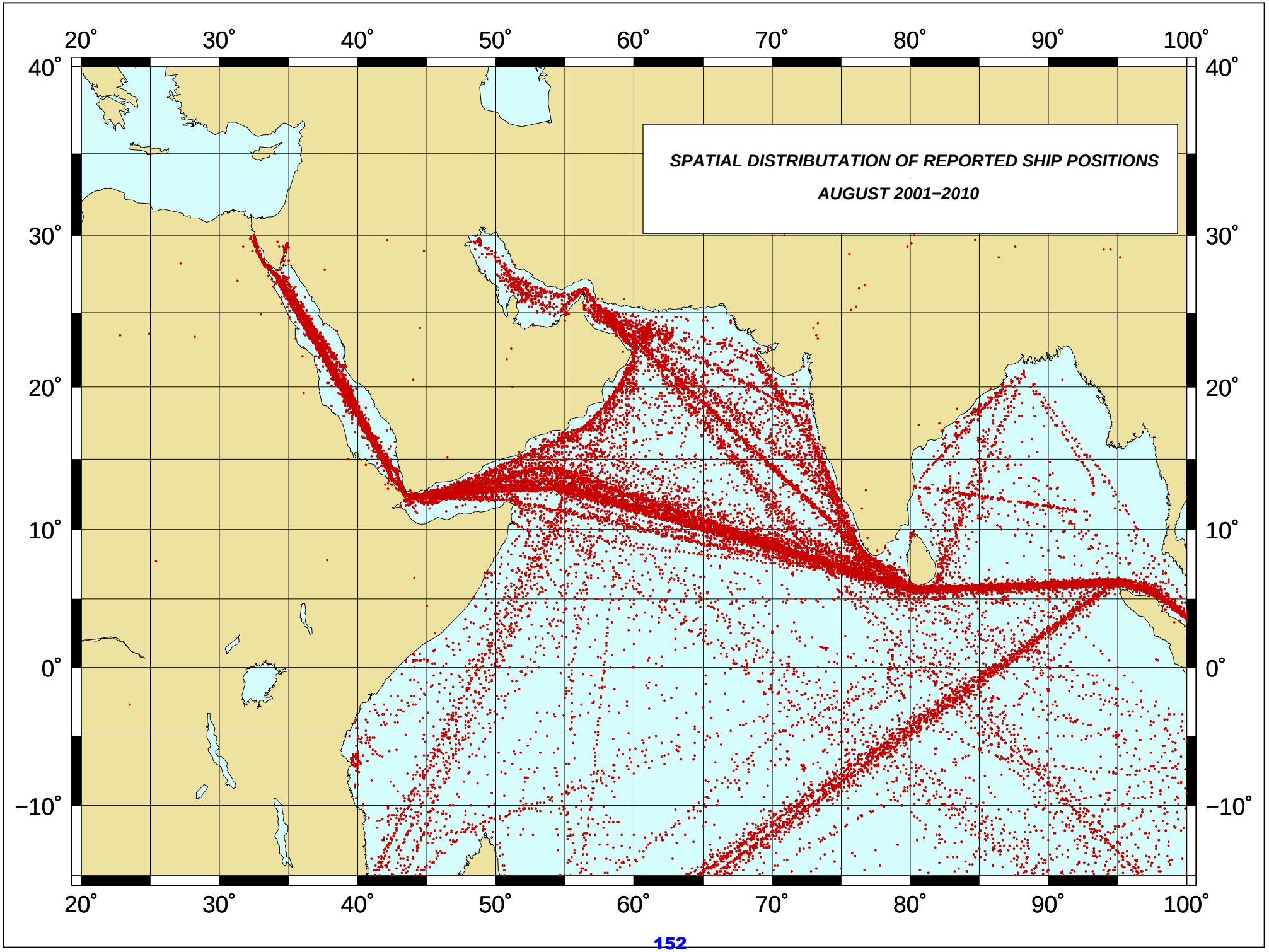


CHART 08.XVIII
STANDARD DEVIATION OF POSITIONS
AUGUST 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 766
0.5 0.3 448
0.3 0.2 266
0.8 1.4 339
0.5 0.9 303
1.4 0.9 1720
1.5 1.2 10
1.5 1.4 629
1.3 1.3 937
1.1 1.6 322
1.2 1.1 31
0.3 0.7 59
0.5 0.3 535
1.0 0.6 1019
0.5 1.0 212
1.4 1.3 549
1.3 1.5 275
1.3 1.4 659
1.5 1.0 519
1.0 0.9 130
1.5 1.2 196
1.1 0.8 44
0.9 0.9 984
0.5 1.5 1532
1.0 1.5 1436
1.0 1.4 1357
1.0 1.4 1141
1.7 1.6 573
1.4 1.5 792
0.5 0.3 89
1.2 1.2 274
1.1 1.6 191
1.3 1.3 112
0.7 0.5 11
0.5 0.2 41
1.4 1.1 237
1.5 1.4 202
1.5 1.4 220
0.7 1.3 864
0.7 1.4 1355
1.0 1.4 1958
0.8 1.3 1601
0.3 1.4 1483
0.6 1.4 1509
0.6 1.0 914
0.2 0.3 30
1.2 1.4 90
1.4 1.4 145
1.5 1.4 61
1.3 1.4 77
1.5 1.3 116
1.6 1.4 50
1.6 1.2 138
1.6 1.4 176
1.2 1.3 370
1.1 1.0 266
0.5 0.5 382
1.1 1.4 48
1.5 1.2 169
1.4 1.5 29
1.4 1.3 66
1.4 1.4 18
1.6 1.6 46
1.4 1.4 130
1.6 1.5 217
1.2 1.4 534
1.7 1.3 238
1.5 1.6 89
1.1 1.5 49
0.6 0.1 45
1.5 1.9 118
1.4 1.1 127
1.5 1.3 45
1.1 1.3 68
0.9 1.4 28
1.4 1.5 59
1.1 1.1 243
1.1 1.4 430
1.5 1.3 114
1.2 1.4 193
1.1 1.5 133
1.3 1.4 113
1.5 1.0 187
1.0 1.5 93
1.6 1.6 45
1.4 1.4 85
1.6 1.5 60
1.1 1.4 368
1.1 1.1 233
1.6 1.1 24
1.4 1.3 80
1.3 1.5 161
1.4 1.3 236
1.4 1.3 159


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
AUGUST 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF SEPTEMBER 2001-2010

Marine Climatological Summary Charts 2001-2010

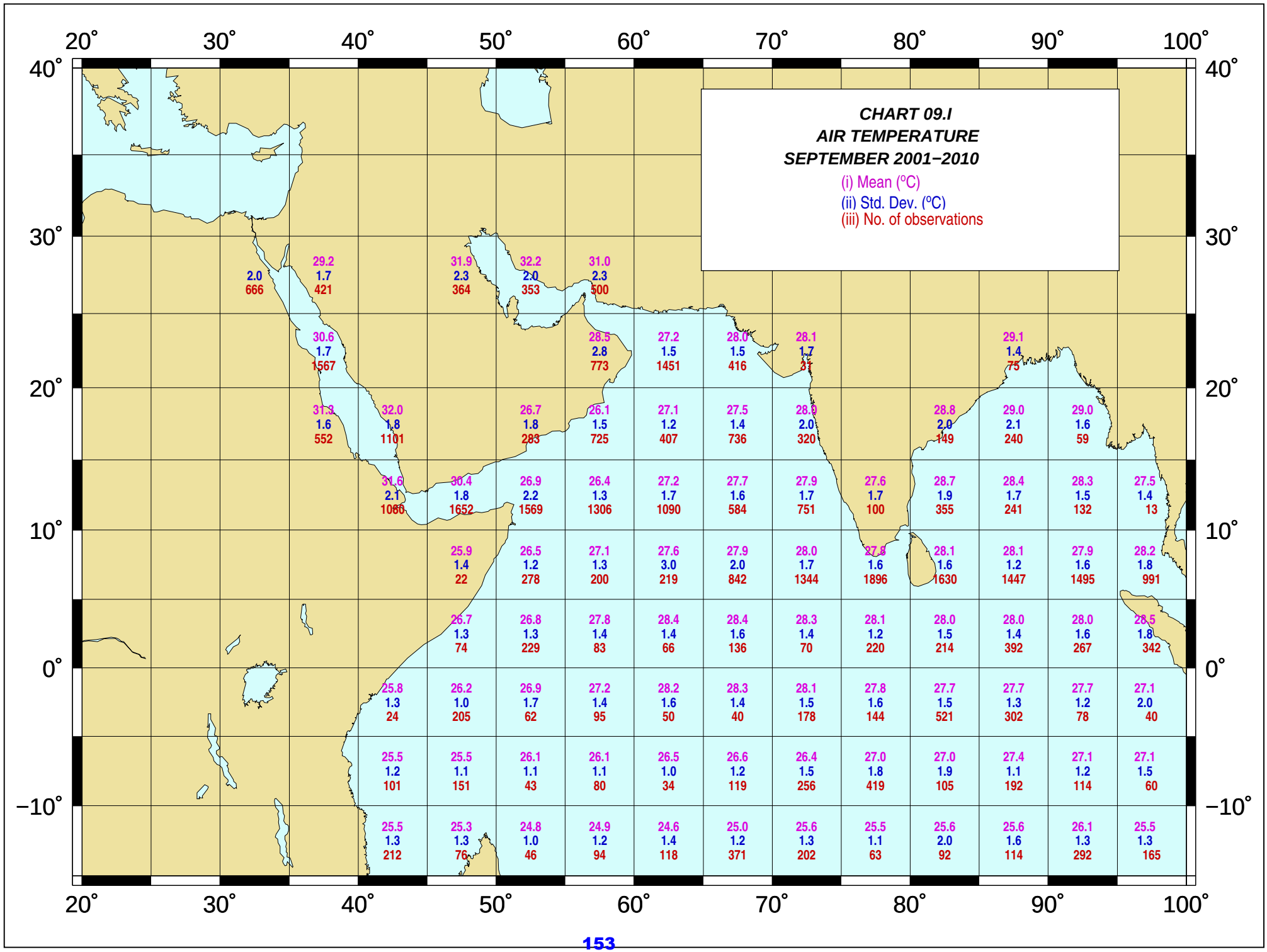


CHART 09.I
AIR TEMPERATURE
SEPTEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.0 666
29.2 1.7 421
31.9 2.3 364
32.2 2.0 353
31.0 2.3 500
30.6 1.7 1567
28.5 2.8 773
27.2 1.5 1451
28.0 1.5 416
28.1 1.7 31
29.1 1.4 75
31.3 1.6 552
32.0 1.8 1101
26.7 1.8 283
26.1 1.5 725
27.1 1.2 407
27.5 1.4 736
28.9 2.0 320
28.8 2.0 149
29.0 2.1 240
29.0 1.6 59
31.6 2.1 1066
30.4 1.8 1652
26.9 2.2 1569
26.4 1.3 1306
27.2 1.7 1090
27.7 1.6 584
27.9 1.7 751
27.6 1.7 100
28.7 1.9 355
28.4 1.7 241
28.3 1.5 132
27.5 1.4 13
25.9 1.4 22
26.5 1.2 278
27.1 1.3 200
27.6 3.0 219
27.9 2.0 842
28.0 1.7 1344
27.9 1.6 1896
28.1 1.6 1630
28.1 1.2 1447
27.9 1.6 1495
28.2 1.8 991
26.7 1.3 74
26.8 1.3 229
27.8 1.4 83
28.4 1.4 66
28.4 1.6 136
28.3 1.4 70
28.1 1.2 220
28.0 1.5 214
28.0 1.4 392
28.0 1.6 267
28.5 1.8 342
25.8 1.3 24
26.2 1.0 205
26.9 1.7 62
27.2 1.4 95
28.2 1.6 50
28.3 1.4 40
28.1 1.5 178
27.8 1.6 144
27.7 1.5 521
27.7 1.3 302
27.7 1.2 78
27.1 2.0 40
25.5 1.2 101
25.5 1.1 151
26.1 1.1 43
26.1 1.1 80
26.5 1.0 34
26.6 1.2 119
26.4 1.5 256
27.0 1.8 419
27.0 1.9 105
27.4 1.1 192
27.1 1.2 114
27.1 1.5 60
25.5 1.3 212
25.3 1.3 76
24.8 1.0 46
24.9 1.2 94
24.6 1.4 118
25.0 1.2 371
25.6 1.3 202
25.5 1.1 63
25.6 2.0 92
25.6 1.6 114
26.1 1.3 292
25.5 1.3 165

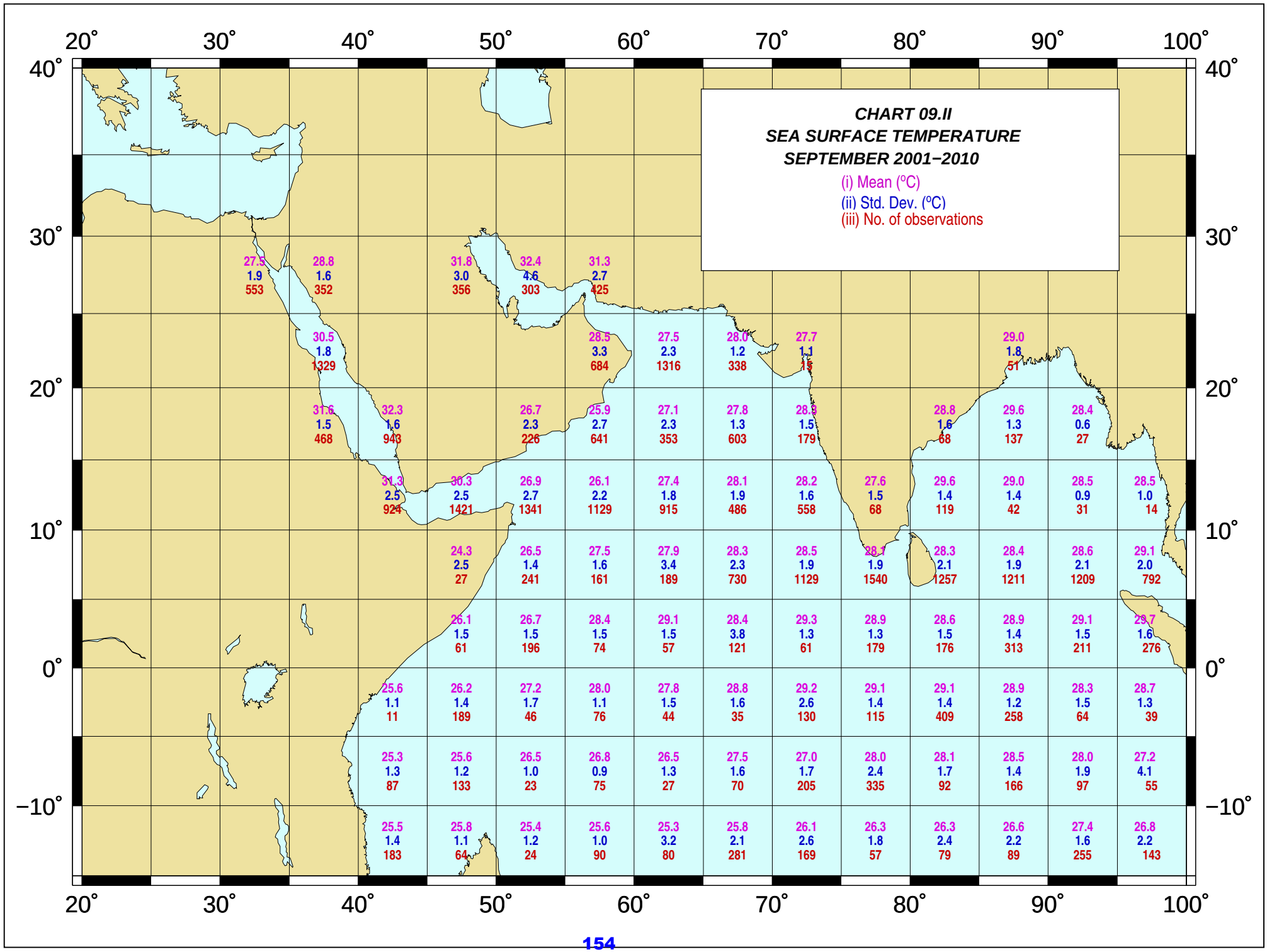


CHART 09.II
SEA SURFACE TEMPERATURE
SEPTEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.5 1.9 553
28.8 1.6 352
31.8 3.0 356
32.4 4.6 303
31.3 2.7 425
30.5 1.8 1329
28.5 3.3 684
27.5 2.3 1316
28.0 1.2 338
27.7 1.1 15
29.0 1.8 51
31.6 1.5 468
32.3 1.6 943
26.7 2.3 226
25.9 2.7 641
27.1 2.3 353
27.8 1.3 603
28.3 1.5 179
28.8 1.6 68
29.6 1.3 137
28.4 0.6 27
31.3 2.5 924
30.3 2.5 1421
26.9 2.7 1341
26.1 2.2 1129
27.4 1.8 915
28.1 1.9 486
28.2 1.6 558
27.6 1.5 68
29.6 1.4 119
29.0 1.4 42
28.5 0.9 31
28.5 1.0 14
24.3 2.5 27
26.5 1.4 241
27.5 1.6 161
27.9 3.4 189
28.3 2.3 730
28.5 1.9 1129
28.1 1.9 1540
28.3 2.1 1257
28.4 1.9 1211
28.6 2.1 1209
29.1 2.0 792
26.1 1.5 61
26.7 1.5 196
28.4 1.5 74
29.1 1.5 57
28.4 3.8 121
29.3 1.3 61
28.9 1.3 179
28.6 1.5 176
28.9 1.4 313
29.1 1.5 211
29.7 1.6 276
25.6 1.1 11
26.2 1.4 189
27.2 1.7 46
28.0 1.1 76
27.8 1.5 44
28.8 1.6 35
29.2 2.6 130
29.1 1.4 115
29.1 1.4 409
28.9 1.2 258
28.3 1.5 64
28.7 1.3 39
25.3 1.3 87
25.6 1.2 133
26.5 1.0 23
26.8 0.9 75
26.5 1.3 27
27.5 1.6 70
27.0 1.7 205
28.0 2.4 335
28.1 1.7 92
28.5 1.4 166
28.0 1.9 97
27.2 4.1 55
25.5 1.4 183
25.8 1.1 64
25.4 1.2 24
25.6 1.0 90
25.3 3.2 80
25.8 2.1 281
26.1 2.6 169
26.3 1.8 57
26.3 2.4 79
26.6 2.2 89
27.4 1.6 255
26.8 2.2 143

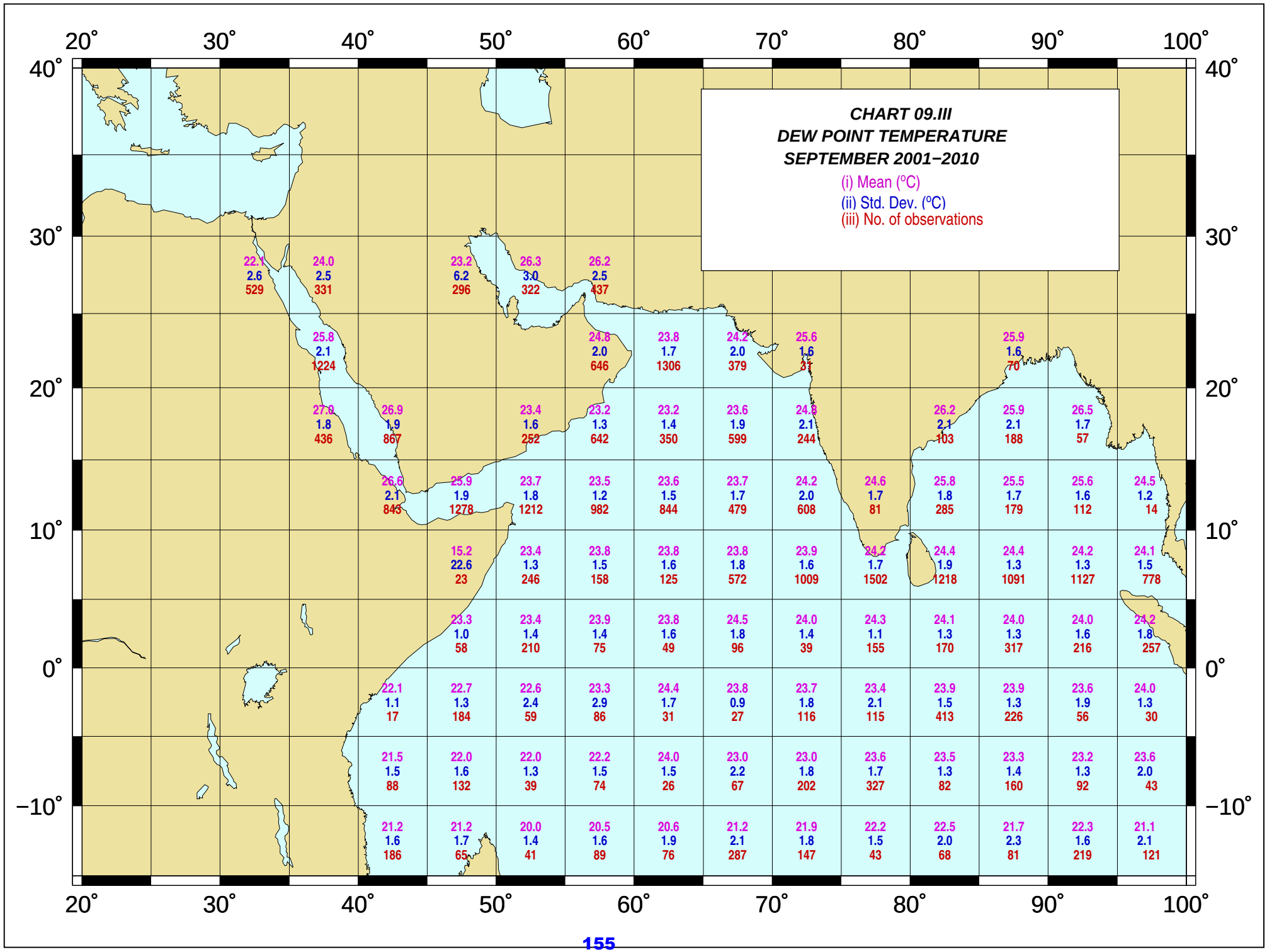


CHART 09.III
DEW POINT TEMPERATURE
SEPTEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
22.1 2.6 529
24.0 2.5 331
23.2 6.2 296
26.3 3.0 322
26.2 2.5 437
25.8 2.1 1224
24.8 2.0 646
23.8 1.7 1306
24.2 2.0 379
25.6 1.6 31
25.9 1.6 70
27.0 1.8 436
26.9 1.9 867
23.4 1.6 252
23.2 1.3 642
23.2 1.4 350
23.6 1.9 599
24.0 2.1 244
26.2 2.1 103
25.9 2.1 188
26.5 1.7 57
26.6 2.1 843
25.9 1.9 1278
23.7 1.8 1212
23.5 1.2 982
23.6 1.5 844
23.7 1.7 479
24.2 2.0 608
24.6 1.7 81
25.8 1.8 285
25.5 1.7 179
25.6 1.6 112
24.5 1.2 14
15.2 22.6 23
23.4 1.3 246
23.8 1.5 158
23.8 1.6 125
23.8 1.8 572
23.9 1.6 1009
24.2 1.7 1502
24.4 1.9 1218
24.4 1.3 1091
24.2 1.3 1127
24.1 1.5 778
23.3 1.0 58
23.4 1.4 210
23.9 1.4 75
23.8 1.6 49
24.5 1.8 96
24.0 1.4 39
24.3 1.1 155
24.1 1.3 170
24.0 1.3 317
24.0 1.6 216
24.2 1.8 257
22.1 1.1 17
22.7 1.3 184
22.6 2.4 59
23.3 2.9 86
24.4 1.7 31
23.8 0.9 27
23.7 1.8 116
23.4 2.1 115
23.9 1.5 413
23.9 1.3 226
23.6 1.9 56
24.0 1.3 30
21.5 1.5 88
22.0 1.6 132
22.0 1.3 39
22.2 1.5 74
24.0 1.5 26
23.0 2.2 67
23.0 1.8 202
23.6 1.7 327
23.5 1.3 82
23.3 1.4 160
23.2 1.3 92
23.6 2.0 43
21.2 1.6 186
21.2 1.7 65
20.0 1.4 41
20.5 1.6 89
20.6 1.9 76
21.2 2.1 287
21.9 1.8 147
22.2 1.5 43
22.5 2.0 68
21.7 2.3 81
22.3 1.6 219
21.1 2.1 121

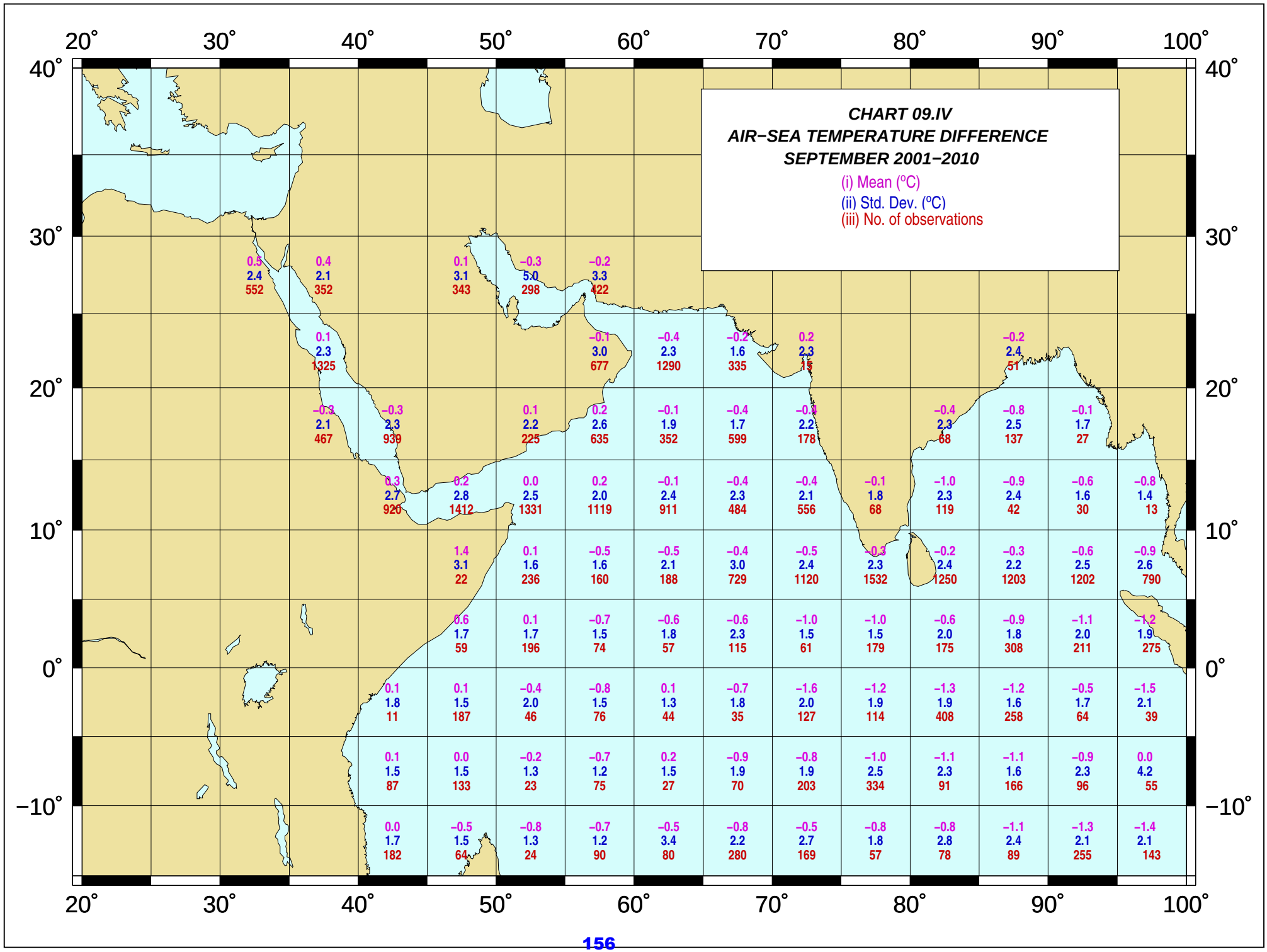


CHART 09.IV
AIR–SEA TEMPERATURE DIFFERENCE
SEPTEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.5 2.4 552
0.4 2.1 352
0.1 3.1 343
−0.3 5.0 298
−0.2 3.3 422
0.1 2.3 1325
−0.1 3.0 677
−0.4 2.3 1290
−0.2 1.6 335
0.2 2.3 15
−0.2 2.4 51
−0.3 2.1 467
−0.3 2.3 939
0.1 2.2 225
0.2 2.6 635
−0.1 1.9 352
−0.4 1.7 599
−0.3 2.2 178
−0.4 2.3 68
−0.8 2.5 137
−0.1 1.7 27
0.3 2.7 926
0.2 2.8 1412
0.0 2.5 1331
0.2 2.0 1119
−0.1 2.4 911
−0.4 2.3 484
−0.4 2.1 556
−0.1 1.8 68
−1.0 2.3 119
−0.9 2.4 42
−0.6 1.6 30
−0.8 1.4 13
1.4 3.1 22
0.1 1.6 236
−0.5 1.6 160
−0.5 2.1 188
−0.4 3.0 729
−0.5 2.4 1120
−0.3 2.3 1532
−0.2 2.4 1250
−0.3 2.2 1203
−0.6 2.5 1202
−0.9 2.6 790
0.6 1.7 59
0.1 1.7 196
−0.7 1.5 74
−0.6 1.8 57
−0.6 2.3 115
−1.0 1.5 61
−1.0 1.5 179
−0.6 2.0 175
−0.9 1.8 308
−1.1 2.0 211
−1.2 1.9 275
0.1 1.8 11
0.1 1.5 187
−0.4 2.0 46
−0.8 1.5 76
0.1 1.3 44
−0.7 1.8 35
−1.6 2.0 127
−1.2 1.9 114
−1.3 1.9 408
−1.2 1.6 258
−0.5 1.7 64
−1.5 2.1 39
0.1 1.5 87
0.0 1.5 133
−0.2 1.3 23
−0.7 1.2 75
0.2 1.5 27
−0.9 1.9 70
−0.8 1.9 203
−1.0 2.5 334
−1.1 2.3 91
−1.1 1.6 166
−0.9 2.3 96
0.0 4.2 55
0.0 1.7 182
−0.5 1.5 64
−0.8 1.3 24
−0.7 1.2 90
−0.5 3.4 80
−0.8 2.2 280
−0.5 2.7 169
−0.8 1.8 57
−0.8 2.8 78
−1.1 2.4 89
−1.3 2.1 255
−1.4 2.1 143

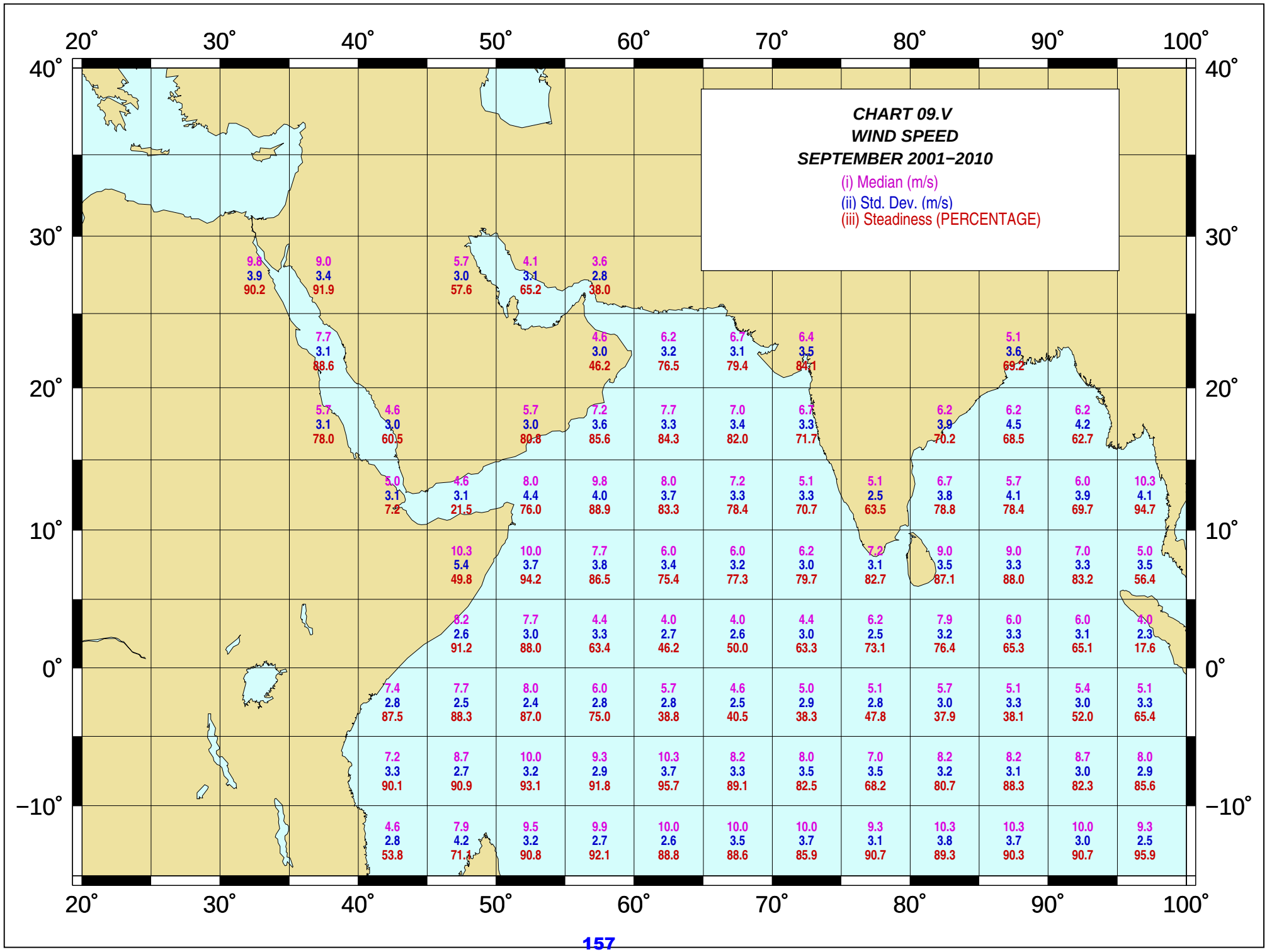


CHART 09.V
WIND SPEED
SEPTEMBER 2001−2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
9.8 3.9 90.2
9.0 3.4 91.9
5.7 3.0 57.6
4.1 3.1 65.2
3.6 2.8 38.0
7.7 3.1 88.6
4.6 3.0 46.2
6.2 3.2 76.5
6.7 3.1 79.4
6.4 3.5 84.1
5.1 3.6 69.2
5.7 3.1 78.0
4.6 3.0 60.5
5.7 3.0 80.8
7.2 3.6 85.6
7.7 3.3 84.3
7.0 3.4 82.0
6.7 3.3 71.7
6.2 3.9 70.2
6.2 4.5 68.5
6.2 4.2 62.7
5.0 3.1 72
4.6 3.1 21.5
8.0 4.4 76.0
9.8 4.0 88.9
8.0 3.7 83.3
7.2 3.3 78.4
5.1 3.3 70.7
5.1 2.5 63.5
6.7 3.8 78.8
5.7 4.1 78.4
6.0 3.9 69.7
10.3 4.1 94.7
10.3 5.4 49.8
10.0 3.7 94.2
7.7 3.8 86.5
6.0 3.4 75.4
6.0 3.2 77.3
6.2 3.0 79.7
7.2 3.1 82.7
9.0 3.5 87.1
9.0 3.3 88.0
7.0 3.3 83.2
5.0 3.5 56.4
8.2 2.6 91.2
7.7 3.0 88.0
4.4 3.3 63.4
4.0 2.7 46.2
4.0 2.6 50.0
4.4 3.0 63.3
6.2 2.5 73.1
7.9 3.2 76.4
6.0 3.3 65.3
6.0 3.1 65.1
4.0 2.3 17.6
7.4 2.8 87.5
7.7 2.5 88.3
8.0 2.4 87.0
6.0 2.8 75.0
5.7 2.8 38.8
4.6 2.5 40.5
5.0 2.9 38.3
5.1 2.8 47.8
5.7 3.0 37.9
5.1 3.3 38.1
5.4 3.0 52.0
5.1 3.3 65.4
7.2 3.3 90.1
8.7 2.7 90.9
10.0 3.2 93.1
9.3 2.9 91.8
10.3 3.7 95.7
8.2 3.3 89.1
8.0 3.5 82.5
7.0 3.5 68.2
8.2 3.2 80.7
8.2 3.1 88.3
8.7 3.0 82.3
8.0 2.9 85.6
4.6 2.8 53.8
7.9 4.2 71.1
9.5 3.2 90.8
9.9 2.7 92.1
10.0 2.6 88.8
10.0 3.5 88.6
10.0 3.7 85.9
9.3 3.1 90.7
10.3 3.8 89.3
10.3 3.7 90.3
10.0 3.0 90.7
9.3 2.5 95.9

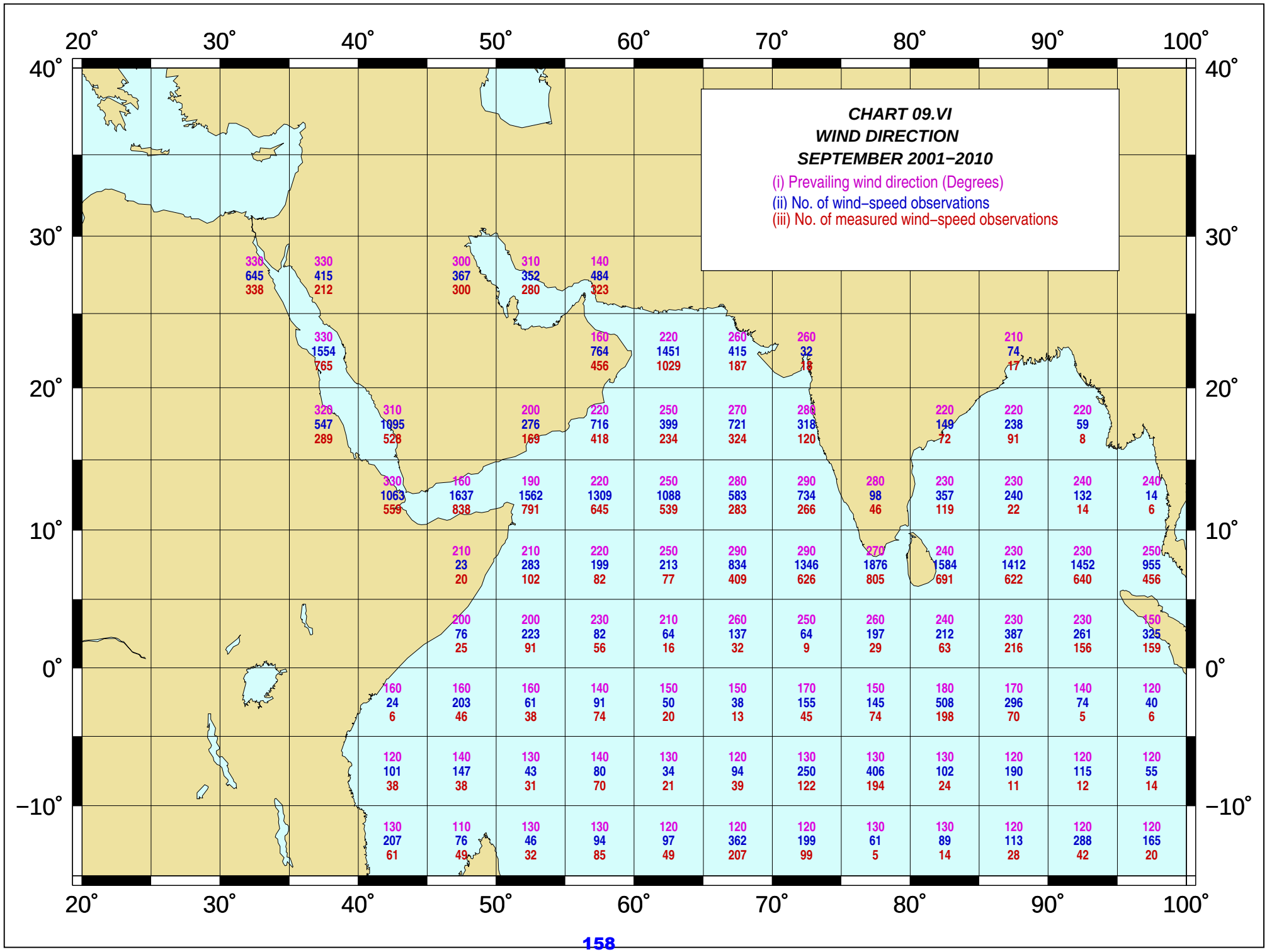


CHART 09.VI
WIND DIRECTION
SEPTEMBER 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 645 338
330 415 212
300 367 300
310 352 280
140 484 323
330 1554 765
160 764 456
220 1451 1029
260 415 187
260 32 16
210 74 17
320 547 289
310 1095 528
200 276 169
220 716 418
250 399 234
270 721 324
280 318 120
220 149 72
220 238 91
220 59 8
330 1063 559
160 1637 838
190 1562 791
220 1309 645
250 1088 539
280 583 283
290 734 266
280 98 46
230 357 119
230 240 22
240 132 14
240 14 6
210 23 20
210 283 102
220 199 82
250 213 77
290 834 409
290 1346 626
270 1876 805
240 1584 691
230 1412 622
230 1452 640
250 955 456
200 76 25
200 223 91
230 82 56
210 64 16
260 137 32
250 64 9
260 197 29
240 212 63
230 387 216
230 261 156
150 325 159
160 24 6
160 203 46
160 61 38
140 91 74
150 50 20
150 38 13
170 155 45
150 145 74
180 508 198
170 296 70
140 74 5
120 40 6
120 101 38
140 147 38
130 43 31
140 80 70
130 34 21
120 94 39
130 250 122
130 406 194
130 102 24
120 190 11
120 115 12
120 55 14
130 207 61
110 76 49
130 46 32
130 94 85
120 97 49
120 362 207
120 199 99
130 61 5
130 89 14
120 113 28
120 288 42
120 165 20

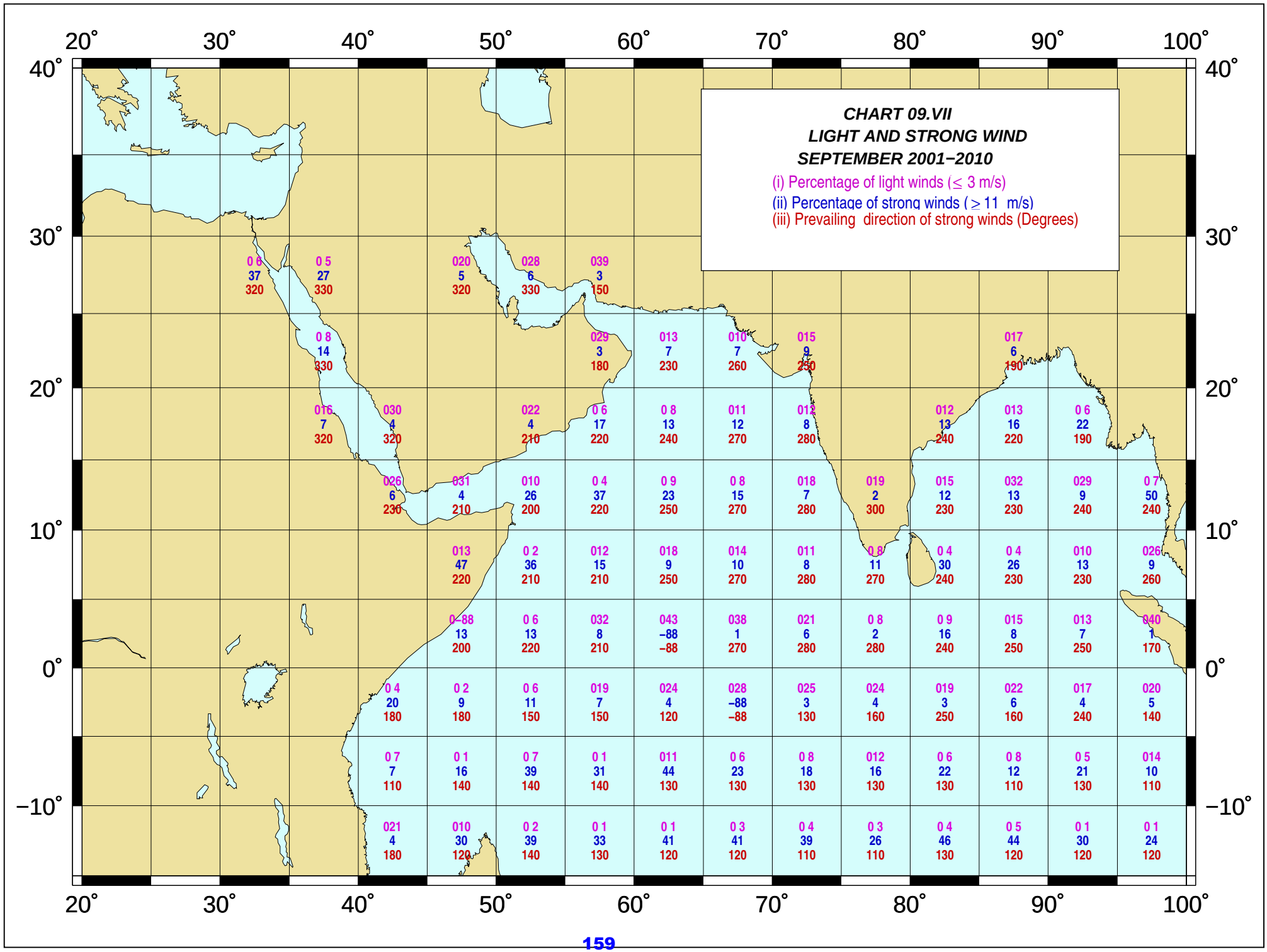


CHART 09.VII
LIGHT AND STRONG WIND
SEPTEMBER 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
06 37 320
05 27 330
020 5 320
028 6 330
039 3 150
08 14 330
029 3 180
013 7 230
010 7 260
015 9 250
017 6 190
016 7 320
030 4 320
022 4 210
06 17 220
08 13 240
011 12 270
012 8 280
012 13 240
013 16 220
06 22 190
026 6 230
031 4 210
010 26 200
04 37 220
09 23 250
08 15 270
018 7 280
019 2 300
015 12 230
032 13 230
029 9 240
07 50 240
013 47 220
02 36 210
012 15 210
018 9 250
014 10 270
011 8 280
08 11 270
04 30 240
04 26 230
010 13 230
026 9 260
−88 13 200
06 13 220
032 8 210
043 −88 −88
038 1 270
021 6 280
08 2 280
09 16 240
015 8 250
013 7 250
040 1 170
04 20 180
02 9 180
06 11 150
019 7 150
024 4 120
028 −88 −88
025 3 130
024 4 160
019 3 250
022 6 160
017 4 240
020 5 140
07 7 110
01 16 140
07 39 140
01 31 140
011 44 130
06 23 130
08 18 130
012 16 130
06 22 130
08 12 110
05 21 130
014 10 110
021 4 180
010 30 120
02 39 140
01 33 130
01 41 120
03 41 120
04 39 110
03 26 110
04 46 130
05 44 120
01 30 120
01 24 120

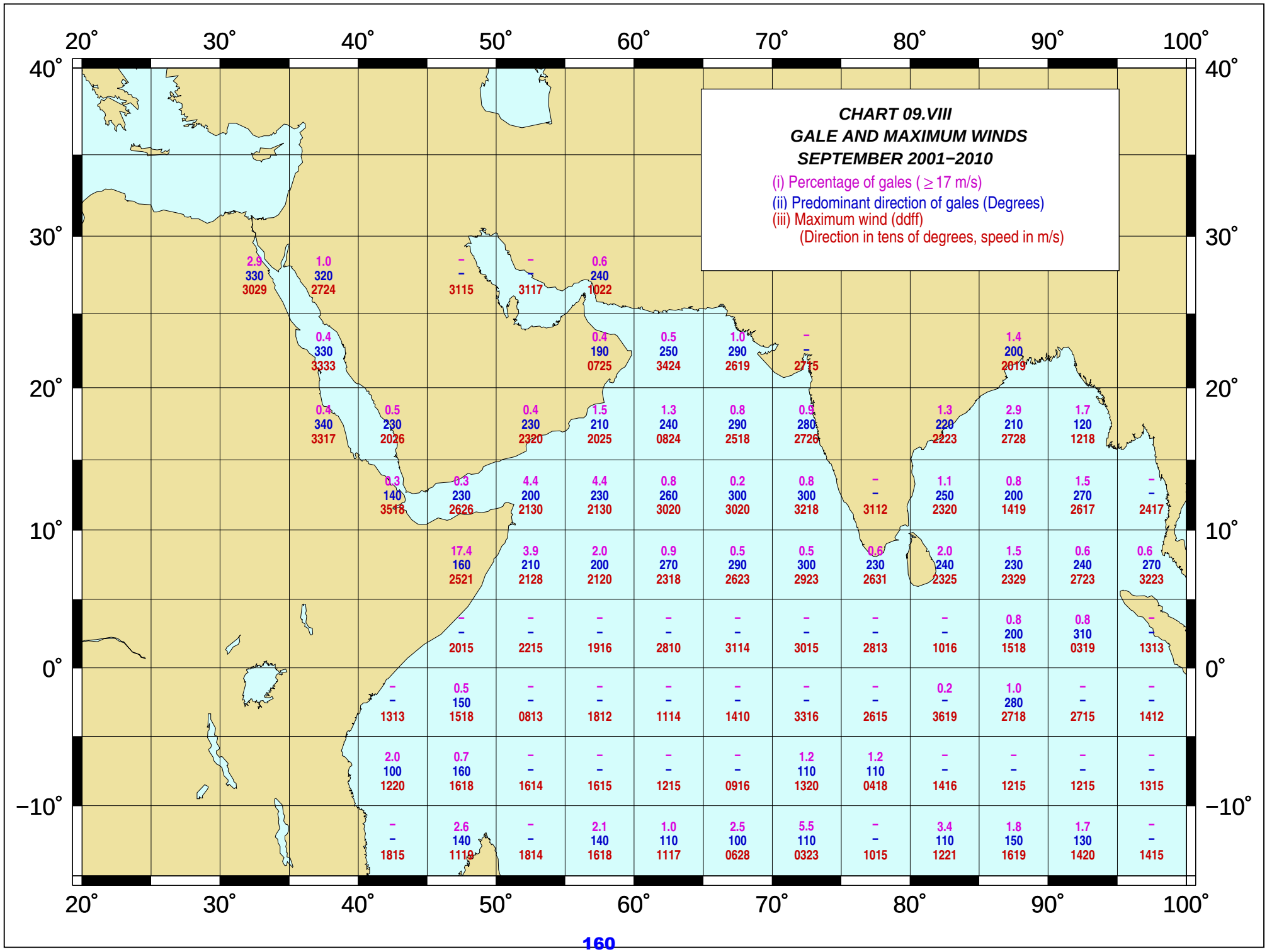


CHART 09.VIII
GALE AND MAXIMUM WINDS
SEPTEMBER 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.9 330 3029
1.0 320 2724
– – 3115
– – 3117
0.6 240 1022
0.4 330 3333
0.4 190 0725
0.5 250 3424
1.0 290 2619
– – 2715
1.4 200 2019
0.4 340 3317
0.5 230 2026
0.4 230 2320
1.5 210 2025
1.3 240 0824
0.8 290 2518
0.8 280 2726
1.3 220 2223
2.9 210 2728
1.7 120 1218
0.3 140 3518
0.3 230 2626
4.4 200 2130
4.4 230 2130
0.8 260 3020
0.2 300 3020
0.8 300 3218
– – 3112
1.1 250 2320
0.8 200 1419
1.5 270 2617
– – 2417
17.4 160 2521
3.9 210 2128
2.0 200 2120
0.9 270 2318
0.5 290 2623
0.5 300 2923
0.6 230 2631
2.0 240 2325
1.5 230 2329
0.6 240 2723
0.6 270 3223
– – 2015
– – 2215
– – 1916
– – 2810
– – 3114
– – 3015
– – 2813
– – 1016
0.8 200 1518
0.8 310 0319
– – 1313
– – 1313
0.5 150 1518
– – 0813
– – 1812
– – 1114
– – 1410
– – 3316
– – 2615
0.2 – 3619
1.0 280 2718
– – 2715
– – 1412
2.0 100 1220
0.7 160 1618
– – 1614
– – 1615
– – 1215
– – 0916
1.2 110 1320
1.2 110 0418
– – 1416
– – 1215
– – 1215
– – 1315
– – 1815
2.6 140 1110
– – 1814
2.1 140 1618
1.0 110 1117
2.5 100 0628
5.5 110 0323
– – 1015
3.4 110 1221
1.8 150 1619
1.7 130 1420
– – 1415

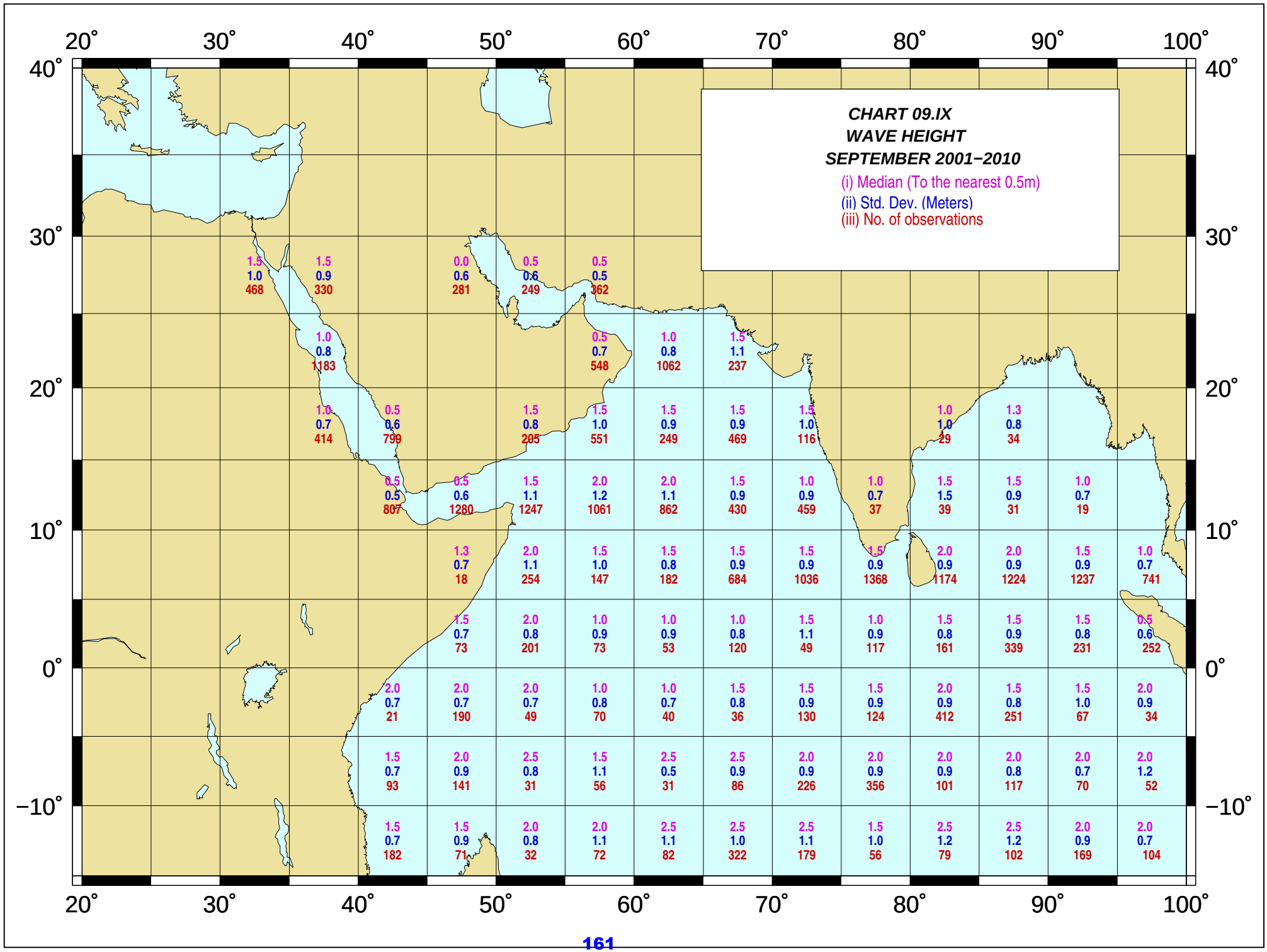


CHART 09.IX
WAVE HEIGHT
SEPTEMBER 2001−2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.5 1.0 468
1.5 0.9 330
0.0 0.6 281
0.5 0.6 249
0.5 0.5 362
1.0 0.8 1183
0.5 0.7 548
1.0 0.8 1062
1.5 1.1 237
1.0 0.7 414
0.5 0.6 799
1.5 0.8 205
1.5 1.0 551
1.5 0.9 249
1.5 0.9 469
1.5 1.0 116
1.0 1.0 29
1.3 0.8 34
0.5 0.5 807
0.5 0.6 1280
1.5 1.1 1247
2.0 1.2 1061
2.0 1.1 862
1.5 0.9 430
1.0 0.9 459
1.0 0.7 37
1.5 1.5 39
1.5 0.9 31
1.0 0.7 19
1.3 0.7 18
2.0 1.1 254
1.5 1.0 147
1.5 0.8 182
1.5 0.9 684
1.5 0.9 1036
1.5 0.9 1368
2.0 0.9 1174
2.0 0.9 1224
1.5 0.9 1237
1.0 0.7 741
1.5 0.7 73
2.0 0.8 201
1.0 0.9 73
1.0 0.9 53
1.0 0.8 120
1.5 1.1 49
1.0 0.9 117
1.5 0.8 161
1.5 0.9 339
1.5 0.8 231
0.5 0.6 252
2.0 0.7 21
2.0 0.7 190
2.0 0.7 49
1.0 0.8 70
1.0 0.7 40
1.5 0.8 36
1.5 0.9 130
1.5 0.9 124
2.0 0.9 412
1.5 0.8 251
1.5 1.0 67
2.0 0.9 34
1.5 0.7 93
2.0 0.9 141
2.5 0.8 31
1.5 1.1 56
2.5 0.5 31
2.5 0.9 86
2.0 0.9 226
2.0 0.9 356
2.0 0.9 101
2.0 0.8 117
2.0 0.7 70
2.0 1.2 52
1.5 0.7 182
1.5 0.9 71
2.0 0.8 32
2.0 1.1 72
2.5 1.1 82
2.5 1.0 322
2.5 1.1 179
1.5 1.0 56
2.5 1.2 79
2.5 1.2 102
2.0 0.9 169
2.0 0.7 104

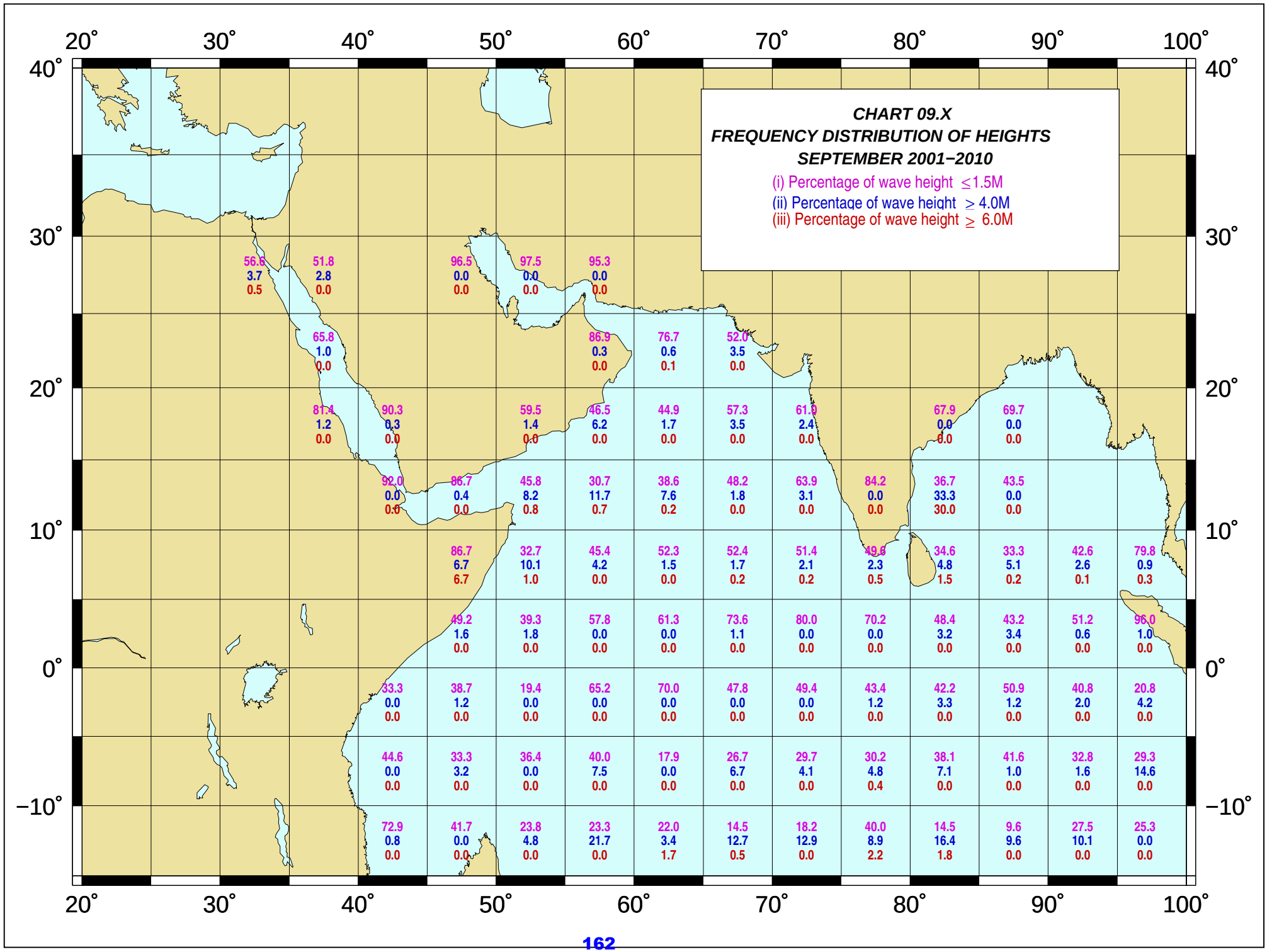


CHART 09.X
FREQUENCY DISTRIBUTION OF HEIGHTS
SEPTEMBER 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
56.6 3.7 0.5
51.8 2.8 0.0
96.5 0.0 0.0
97.5 0.0 0.0
95.3 0.0 0.0
65.8 1.0 0.0
86.9 0.3 0.0
76.7 0.6 0.1
52.0 3.5 0.0
81.4 1.2 0.0
90.3 0.3 0.0
59.5 1.4 0.0
46.5 6.2 0.0
44.9 1.7 0.0
57.3 3.5 0.0
61.9 2.4 0.0
67.9 0.0 0.0
69.7 0.0 0.0
92.0 0.0 0.0
86.7 0.4 0.0
45.8 8.2 0.8
30.7 11.7 0.7
38.6 7.6 0.2
48.2 1.8 0.0
63.9 3.1 0.0
84.2 0.0 0.0
36.7 33.3 30.0
43.5 0.0 0.0
86.7 6.7 6.7
32.7 10.1 1.0
45.4 4.2 0.0
52.3 1.5 0.0
52.4 1.7 0.2
51.4 2.1 0.2
49.6 2.3 0.5
34.6 4.8 1.5
33.3 5.1 0.2
42.6 2.6 0.1
79.8 0.9 0.3
49.2 1.6 0.0
39.3 1.8 0.0
57.8 0.0 0.0
61.3 0.0 0.0
73.6 1.1 0.0
80.0 0.0 0.0
70.2 0.0 0.0
48.4 3.2 0.0
43.2 3.4 0.0
51.2 0.6 0.0
96.0 1.0 0.0
33.3 0.0 0.0
38.7 1.2 0.0
19.4 0.0 0.0
65.2 0.0 0.0
70.0 0.0 0.0
47.8 0.0 0.0
49.4 0.0 0.0
43.4 1.2 0.0
42.2 3.3 0.0
50.9 1.2 0.0
40.8 2.0 0.0
20.8 4.2 0.0
44.6 0.0 0.0
33.3 3.2 0.0
36.4 0.0 0.0
40.0 7.5 0.0
17.9 0.0 0.0
26.7 6.7 0.0
29.7 4.1 0.0
30.2 4.8 0.4
38.1 7.1 0.0
41.6 1.0 0.0
32.8 1.6 0.0
29.3 14.6 0.0
72.9 0.8 0.0
41.7 0.0 0.0
23.8 4.8 0.0
23.3 21.7 0.0
22.0 3.4 1.7
14.5 12.7 0.5
18.2 12.9 0.0
40.0 8.9 2.2
14.5 16.4 1.8
9.6 9.6 0.0
27.5 10.1 0.0
25.3 0.0 0.0

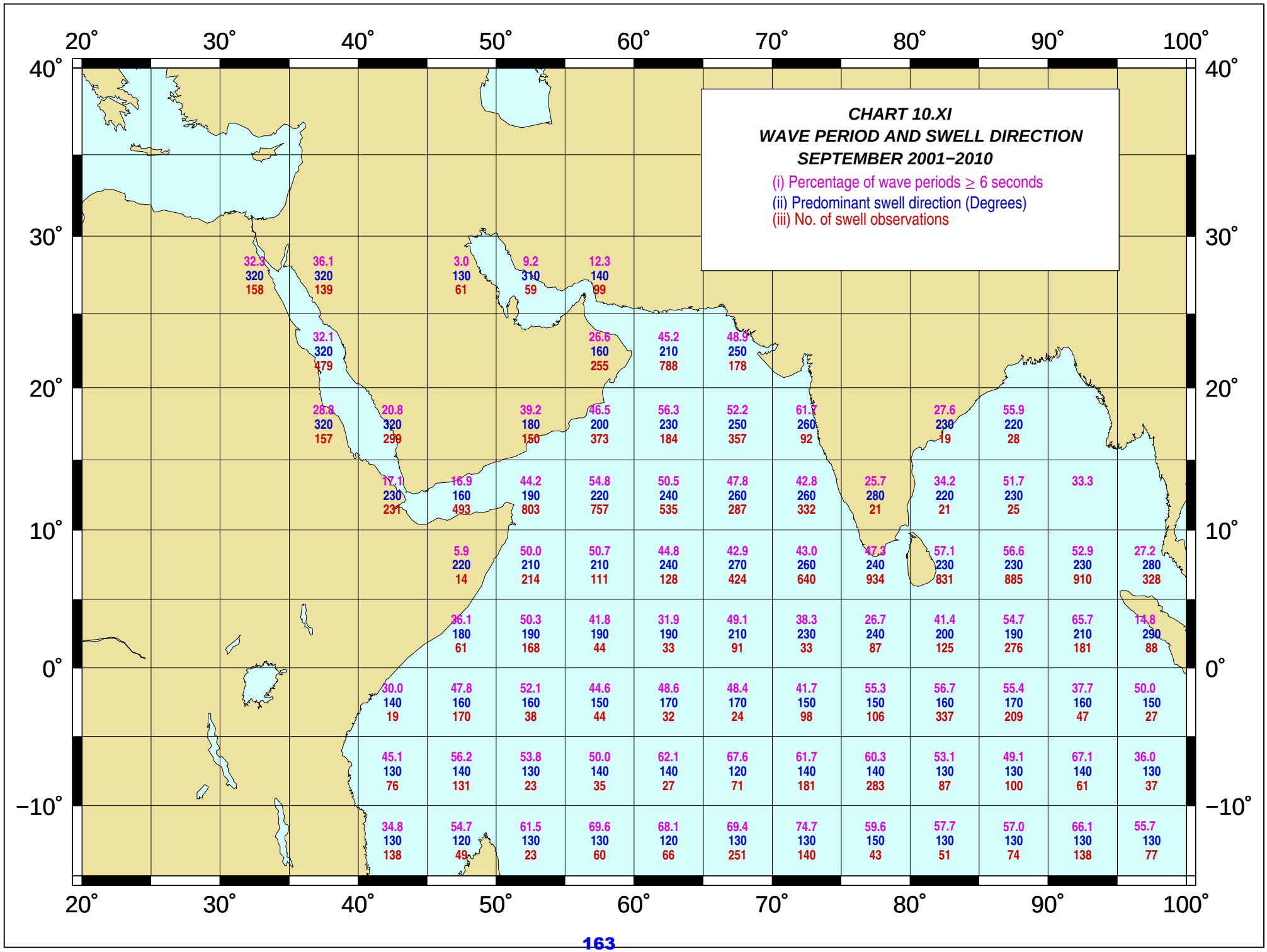


CHART 10.XI
WAVE PERIOD AND SWELL DIRECTION
SEPTEMBER 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
32.3 320 158
36.1 320 139
3.0 130 61
9.2 310 59
12.3 140 99
32.1 320 479
26.6 160 255
45.2 210 788
48.9 250 178
28.8 320 157
20.8 320 299
39.2 180 150
46.5 200 373
56.3 230 184
52.2 250 357
61.7 260 92
27.6 230 19
55.9 220 28
17.1 230 231
16.9 160 493
44.2 190 803
54.8 220 757
50.5 240 535
47.8 260 287
42.8 260 332
25.7 280 21
34.2 220 21
51.7 230 25
33.3
5.9 220 14
50.0 210 214
50.7 210 111
44.8 240 128
42.9 270 424
43.0 260 640
47.3 240 934
57.1 230 831
56.6 230 885
52.9 230 910
27.2 280 328
36.1 180 61
50.3 190 168
41.8 190 44
31.9 190 33
49.1 210 91
38.3 230 33
26.7 240 87
41.4 200 125
54.7 190 276
65.7 210 181
14.8 290 88
30.0 140 19
47.8 160 170
52.1 160 38
44.6 150 44
48.6 170 32
48.4 170 24
41.7 150 98
55.3 150 106
56.7 160 337
55.4 170 209
37.7 160 47
50.0 150 27
45.1 130 76
56.2 140 131
53.8 130 23
50.0 140 35
62.1 140 27
67.6 120 71
61.7 140 181
60.3 140 283
53.1 130 87
49.1 130 100
67.1 140 61
36.0 130 37
34.8 130 138
54.7 120 49
61.5 130 23
69.6 130 60
68.1 120 66
69.4 130 251
74.7 130 140
59.6 150 43
57.7 130 51
57.0 130 74
66.1 130 138
55.7 130 77

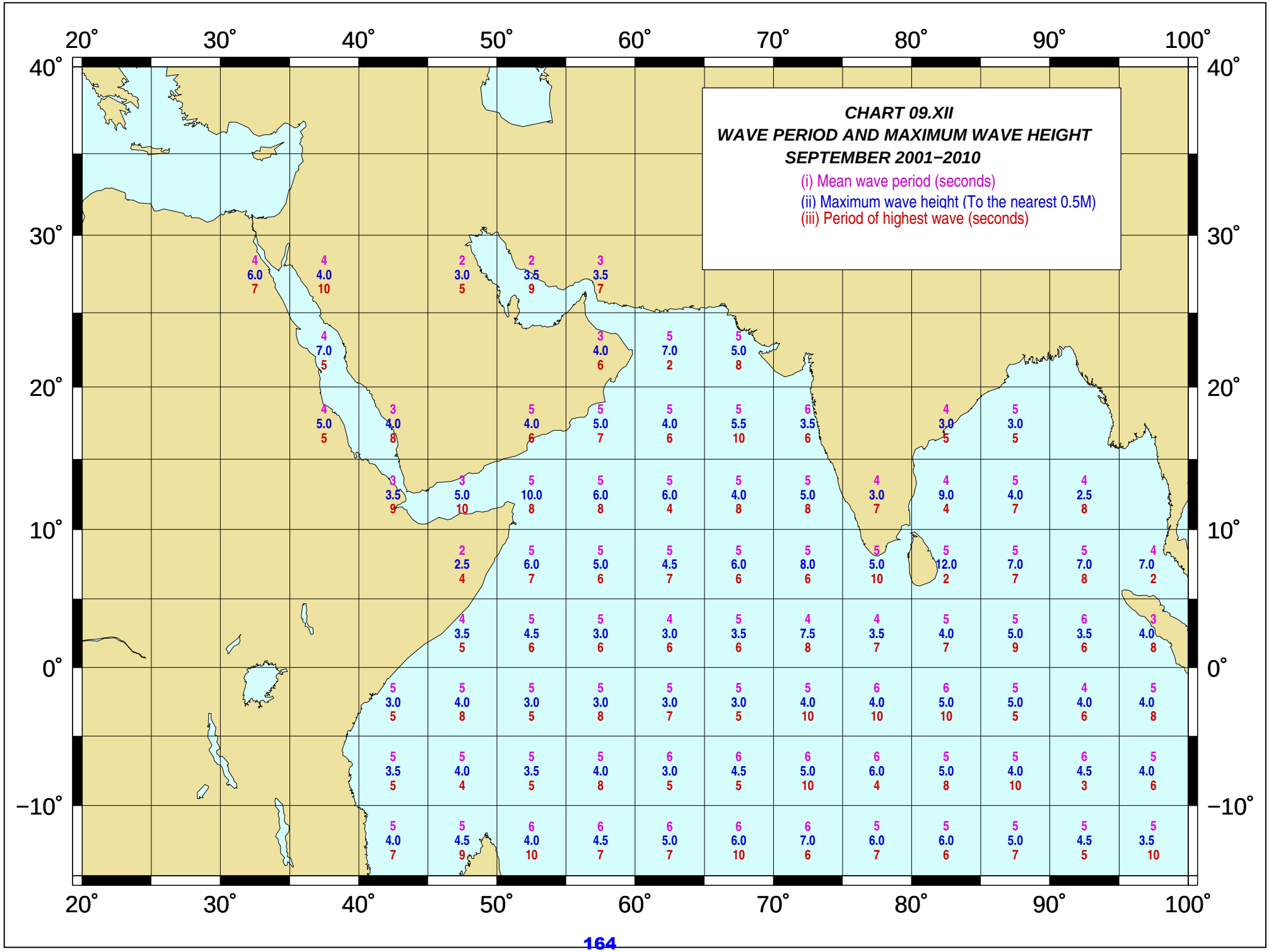


CHART 09.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
SEPTEMBER 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°

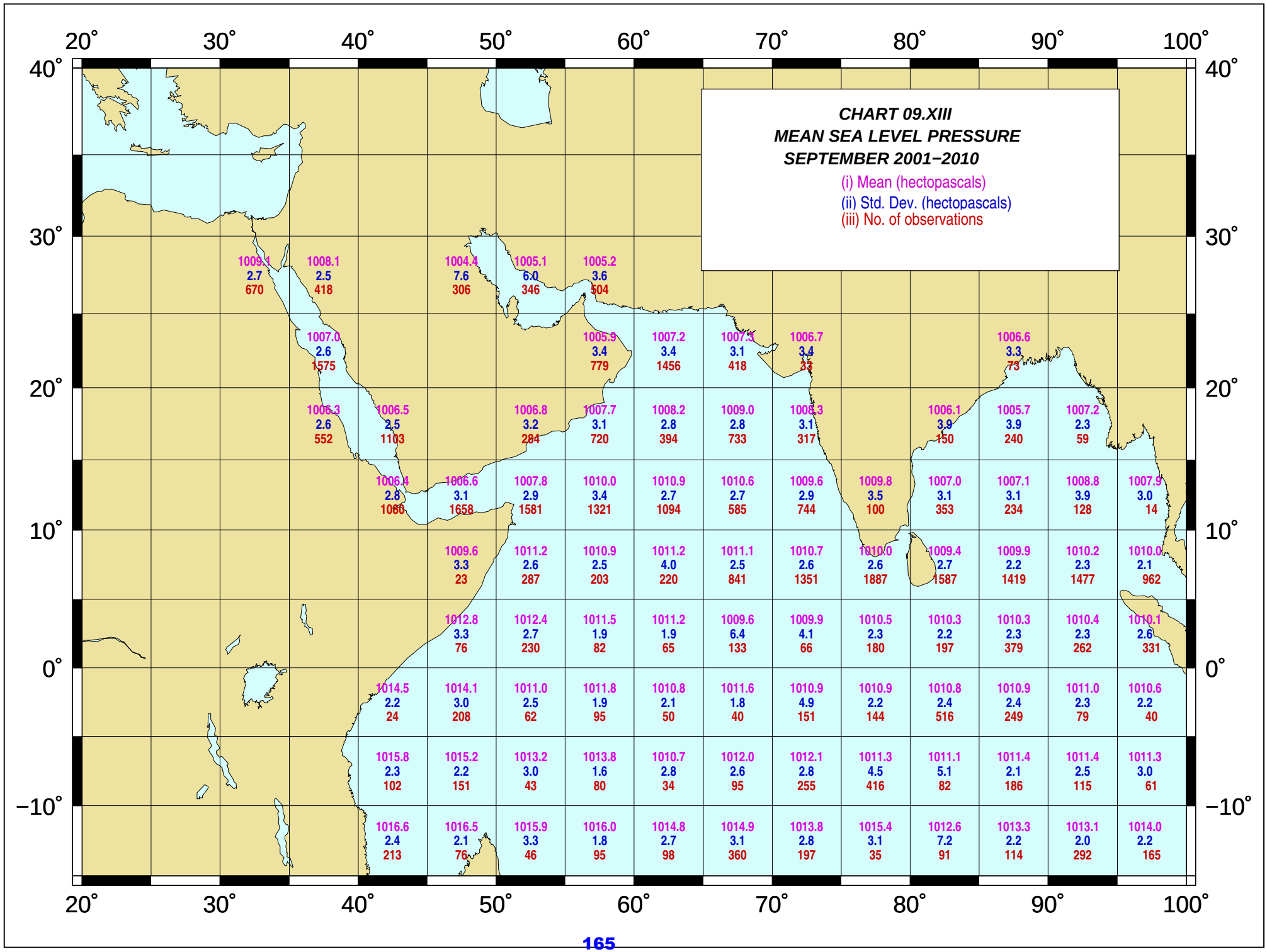


CHART 09.XIII
MEAN SEA LEVEL PRESSURE
SEPTEMBER 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1009.1 2.7 670
1008.1 2.5 418
1004.4 7.6 306
1005.1 6.0 346
1005.2 3.6 504
1007.0 2.6 1575
1005.9 3.4 779
1007.2 3.4 1456
1007.3 3.1 418
1006.7 3.4 33
1006.6 3.3 73
1006.3 2.6 552
1006.5 2.5 1103
1006.8 3.2 284
1007.7 3.1 720
1008.2 2.8 394
1009.0 2.8 733
1008.3 3.1 317
1006.1 3.9 150
1005.7 3.9 240
1007.2 2.3 59
1006.4 2.8 1066
1006.6 3.1 1658
1007.8 2.9 1581
1010.0 3.4 1321
1010.9 2.7 1094
1010.6 2.7 585
1009.6 2.9 744
1009.8 3.5 100
1007.0 3.1 353
1007.1 3.1 234
1008.8 3.9 128
1007.9 3.0 14
1009.6 3.3 23
1011.2 2.6 287
1010.9 2.5 203
1011.2 4.0 220
1011.1 2.5 841
1010.7 2.6 1351
1010.0 2.6 1887
1009.4 2.7 1587
1009.9 2.2 1419
1010.2 2.3 1477
1010.0 2.1 962
1012.8 3.3 76
1012.4 2.7 230
1011.5 1.9 82
1011.2 1.9 65
1009.6 6.4 133
1009.9 4.1 66
1010.5 2.3 180
1010.3 2.2 197
1010.3 2.3 379
1010.4 2.3 262
1010.1 2.6 331
1014.5 2.2 24
1014.1 3.0 208
1011.0 2.5 62
1011.8 1.9 95
1010.8 2.1 50
1011.6 1.8 40
1010.9 4.9 151
1010.9 2.2 144
1010.8 2.4 516
1010.9 2.4 249
1011.0 2.3 79
1010.6 2.2 40
1015.8 2.3 102
1015.2 2.2 151
1013.2 3.0 43
1013.8 1.6 80
1010.7 2.8 34
1012.0 2.6 95
1012.1 2.8 255
1011.3 4.5 416
1011.1 5.1 82
1011.4 2.1 186
1011.4 2.5 115
1011.3 3.0 61
1016.6 2.4 213
1016.5 2.1 76
1015.9 3.3 46
1016.0 1.8 95
1014.8 2.7 98
1014.9 3.1 360
1013.8 2.8 197
1015.4 3.1 35
1012.6 7.2 91
1013.3 2.2 114
1013.1 2.0 292
1014.0 2.2 165

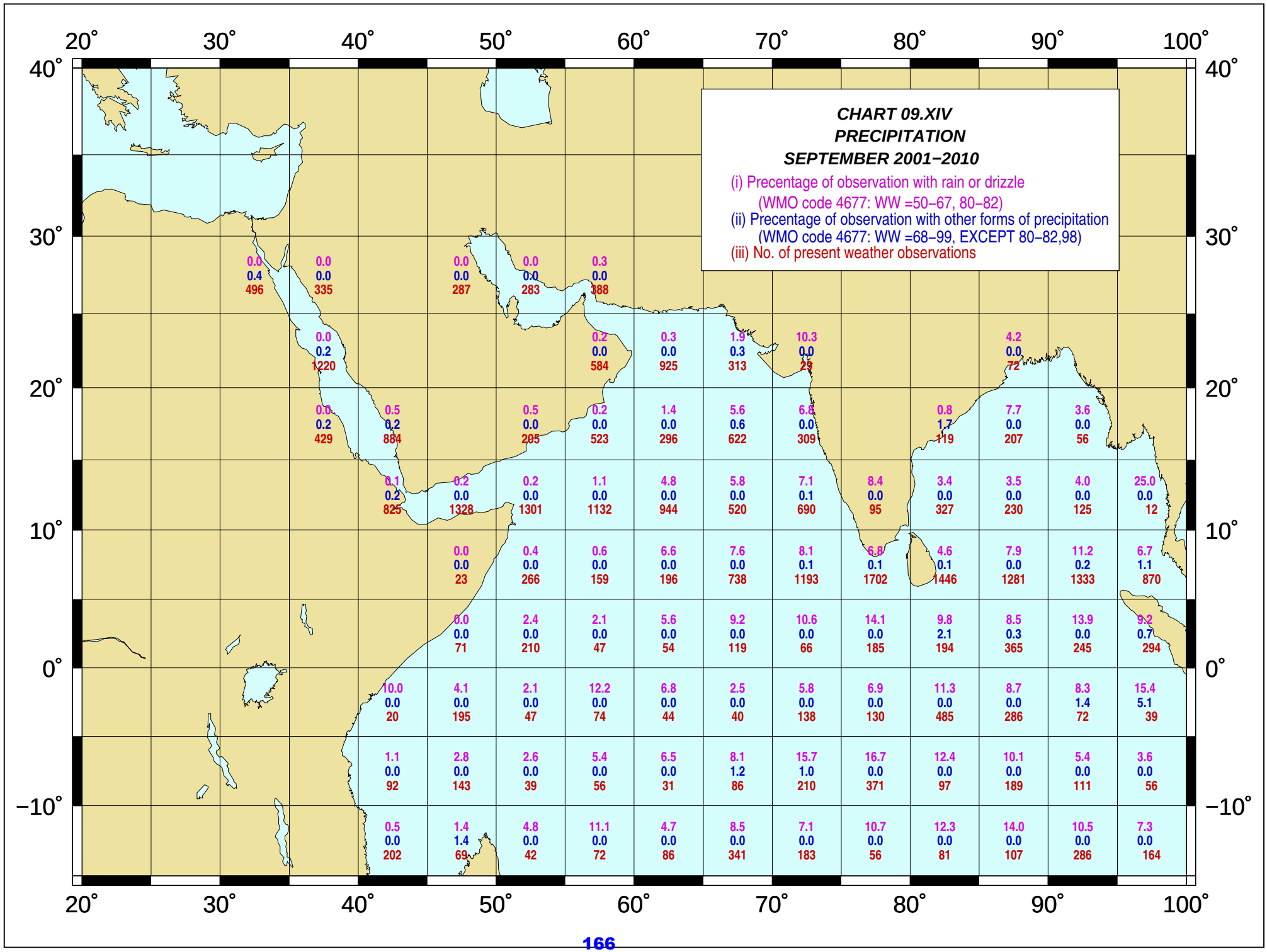


CHART 09.XIV
PRECIPITATION
SEPTEMBER 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 0.4 496
0.0 0.0 335
0.0 0.0 287
0.0 0.0 283
0.3 0.0 388
0.0 0.2 1220
0.2 0.0 584
0.3 0.0 925
1.9 0.3 313
10.3 0.0 29
4.2 0.0 72
0.0 0.2 429
0.5 0.2 884
0.5 0.0 205
0.2 0.0 523
1.4 0.0 296
5.6 0.6 622
6.8 0.0 309
0.8 1.7 119
7.7 0.0 207
3.6 0.0 56
0.1 0.2 825
0.2 0.0 1328
0.2 0.0 1301
1.1 0.0 1132
4.8 0.0 944
5.8 0.0 520
7.1 0.1 690
8.4 0.0 95
3.4 0.0 327
3.5 0.0 230
4.0 0.0 125
25.0 0.0 12
0.0 0.0 23
0.4 0.0 266
0.6 0.0 159
6.6 0.0 196
7.6 0.0 738
8.1 0.1 1193
6.8 0.1 1702
4.6 0.1 1446
7.9 0.0 1281
11.2 0.2 1333
6.7 1.1 870
0.0 0.0 71
2.4 0.0 210
2.1 0.0 47
5.6 0.0 54
9.2 0.0 119
10.6 0.0 66
14.1 0.0 185
9.8 2.1 194
8.5 0.3 365
13.9 0.0 245
9.2 0.7 294
10.0 0.0 20
4.1 0.0 195
2.1 0.0 47
12.2 0.0 74
6.8 0.0 44
2.5 0.0 40
5.8 0.0 138
6.9 0.0 130
11.3 0.0 485
8.7 0.0 286
8.3 1.4 72
15.4 5.1 39
1.1 0.0 92
2.8 0.0 143
2.6 0.0 39
5.4 0.0 56
6.5 0.0 31
8.1 1.2 86
15.7 1.0 210
16.7 0.0 371
12.4 0.0 97
10.1 0.0 189
5.4 0.0 111
3.6 0.0 56
0.5 0.0 202
1.4 1.4 69
4.8 0.0 42
11.1 0.0 72
4.7 0.0 86
8.5 0.0 341
7.1 0.0 183
10.7 0.0 56
12.3 0.0 81
14.0 0.0 107
10.5 0.0 286
7.3 0.0 164

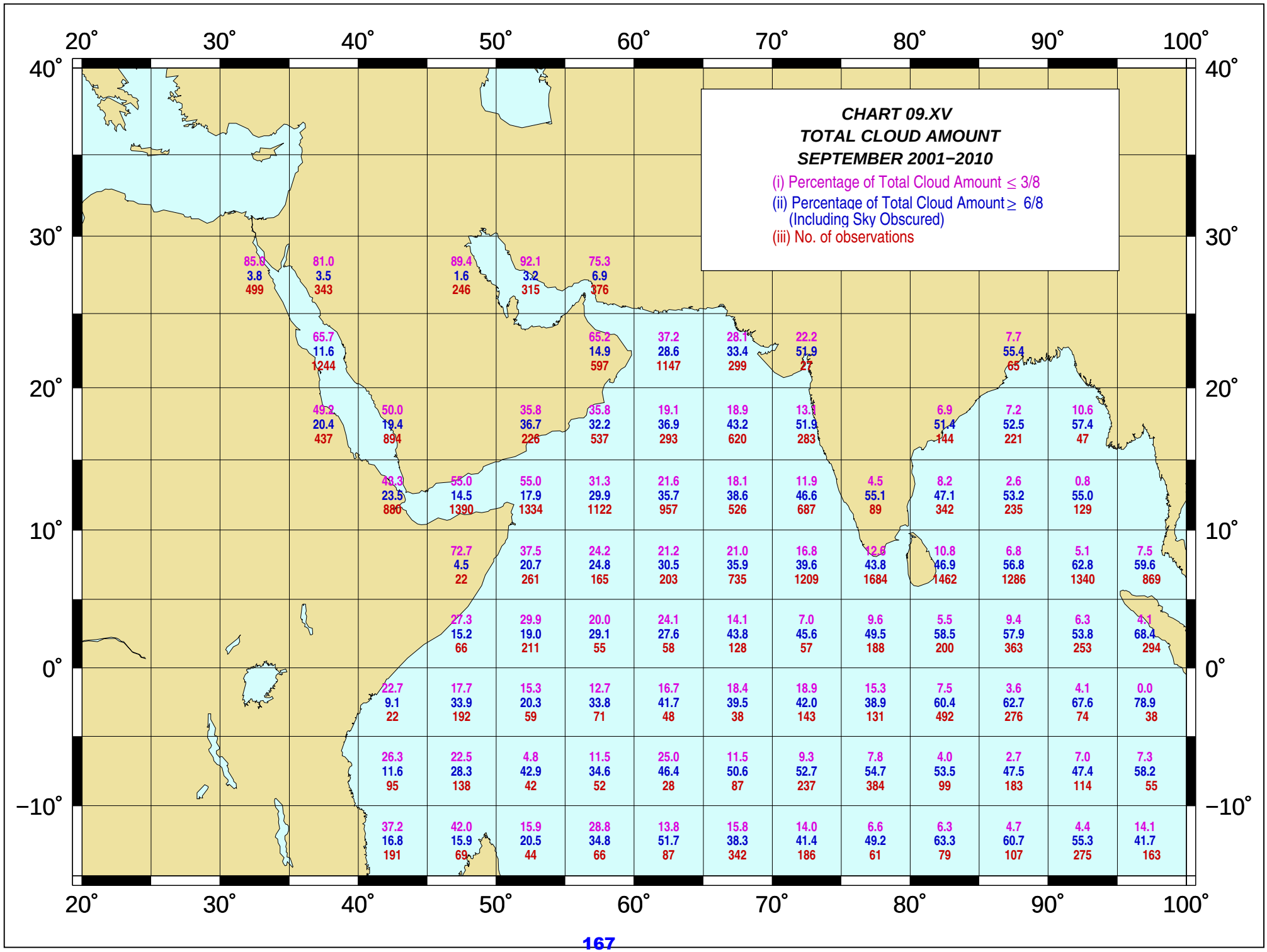


CHART 09.XV
TOTAL CLOUD AMOUNT
SEPTEMBER 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
85.6 3.8 499
81.0 3.5 343
89.4 1.6 246
92.1 3.2 315
75.3 6.9 376
65.7 11.6 1244
65.2 14.9 597
37.2 28.6 1147
28.1 33.4 299
22.2 51.9 27
7.7 55.4 65
49.2 20.4 437
50.0 19.4 894
35.8 36.7 226
35.8 32.2 537
19.1 36.9 293
18.9 43.2 620
13.1 51.9 283
6.9 51.4 144
7.2 52.5 221
10.6 57.4 47
40.3 23.5 886
55.0 14.5 1390
55.0 17.9 1334
31.3 29.9 1122
21.6 35.7 957
18.1 38.6 526
11.9 46.6 687
4.5 55.1 89
8.2 47.1 342
2.6 53.2 235
0.8 55.0 129
72.7 4.5 22
37.5 20.7 261
24.2 24.8 165
21.2 30.5 203
21.0 35.9 735
16.8 39.6 1209
12.9 43.8 1684
10.8 46.9 1462
6.8 56.8 1286
5.1 62.8 1340
7.5 59.6 869
27.3 15.2 66
29.9 19.0 211
20.0 29.1 55
24.1 27.6 58
14.1 43.8 128
7.0 45.6 57
9.6 49.5 188
5.5 58.5 200
9.4 57.9 363
6.3 53.8 253
4.1 68.4 294
22.7 9.1 22
17.7 33.9 192
15.3 20.3 59
12.7 33.8 71
16.7 41.7 48
18.4 39.5 38
18.9 42.0 143
15.3 38.9 131
7.5 60.4 492
3.6 62.7 276
4.1 67.6 74
0.0 78.9 38
26.3 11.6 95
22.5 28.3 138
4.8 42.9 42
11.5 34.6 52
25.0 46.4 28
11.5 50.6 87
9.3 52.7 237
7.8 54.7 384
4.0 53.5 99
2.7 47.5 183
7.0 47.4 114
7.3 58.2 55
37.2 16.8 191
42.0 15.9 69
15.9 20.5 44
28.8 34.8 66
13.8 51.7 87
15.8 38.3 342
14.0 41.4 186
6.6 49.2 61
6.3 63.3 79
4.7 60.7 107
4.4 55.3 275
14.1 41.7 163

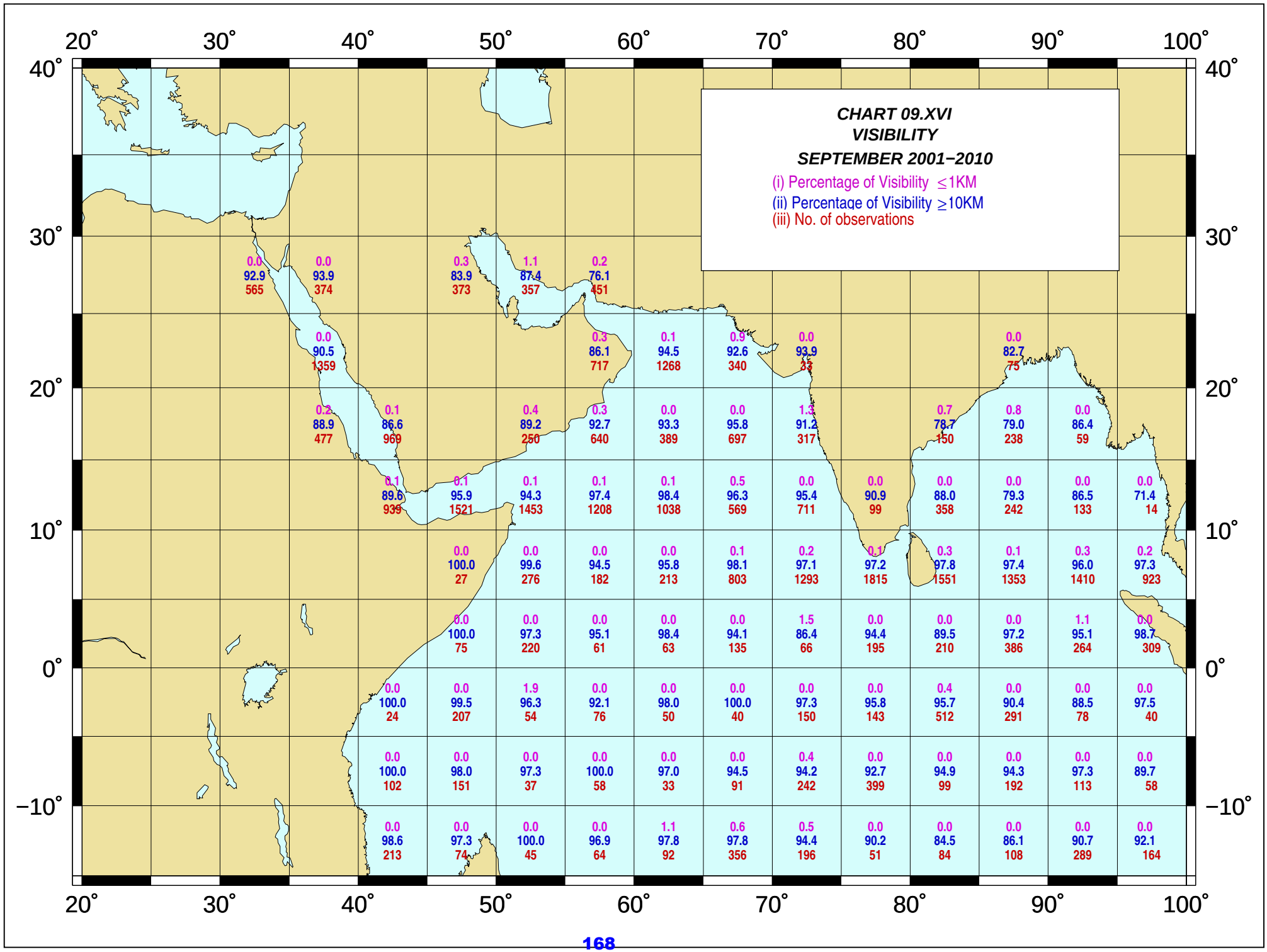


CHART 09.XVI
VISIBILITY
SEPTEMBER 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 92.9 565
0.0 93.9 374
0.3 83.9 373
1.1 87.4 357
0.2 76.1 451
0.0 90.5 1359
0.3 86.1 717
0.1 94.5 1268
0.9 92.6 340
0.0 93.9 33
0.0 82.7 75
0.2 88.9 477
0.1 86.6 969
0.4 89.2 250
0.3 92.7 640
0.0 93.3 389
0.0 95.8 697
1.3 91.2 317
0.7 78.7 150
0.8 79.0 238
0.0 86.4 59
0.1 89.6 939
0.1 95.9 1521
0.1 94.3 1453
0.1 97.4 1208
0.1 98.4 1038
0.5 96.3 569
0.0 95.4 711
0.0 90.9 99
0.0 88.0 358
0.0 79.3 242
0.0 86.5 133
0.0 71.4 14
0.0 100.0 27
0.0 99.6 276
0.0 94.5 182
0.0 95.8 213
0.1 98.1 803
0.2 97.1 1293
0.1 97.2 1815
0.3 97.8 1551
0.1 97.4 1353
0.3 96.0 1410
0.2 97.3 923
0.0 100.0 75
0.0 97.3 220
0.0 95.1 61
0.0 98.4 63
0.0 94.1 135
1.5 86.4 66
0.0 94.4 195
0.0 89.5 210
0.0 97.2 386
1.1 95.1 264
0.0 98.7 309
0.0 100.0 24
0.0 99.5 207
1.9 96.3 54
0.0 92.1 76
0.0 98.0 50
0.0 100.0 40
0.0 97.3 150
0.0 95.8 143
0.4 95.7 512
0.0 90.4 291
0.0 88.5 78
0.0 97.5 40
0.0 100.0 102
0.0 98.0 151
0.0 97.3 37
0.0 100.0 58
0.0 97.0 33
0.0 94.5 91
0.4 94.2 242
0.0 92.7 399
0.0 94.9 99
0.0 94.3 192
0.0 97.3 113
0.0 89.7 58
0.0 98.6 213
0.0 97.3 74
0.0 100.0 45
0.0 96.9 64
1.1 97.8 92
0.6 97.8 356
0.5 94.4 196
0.0 90.2 51
0.0 84.5 84
0.0 86.1 108
0.0 90.7 289
0.0 92.1 164

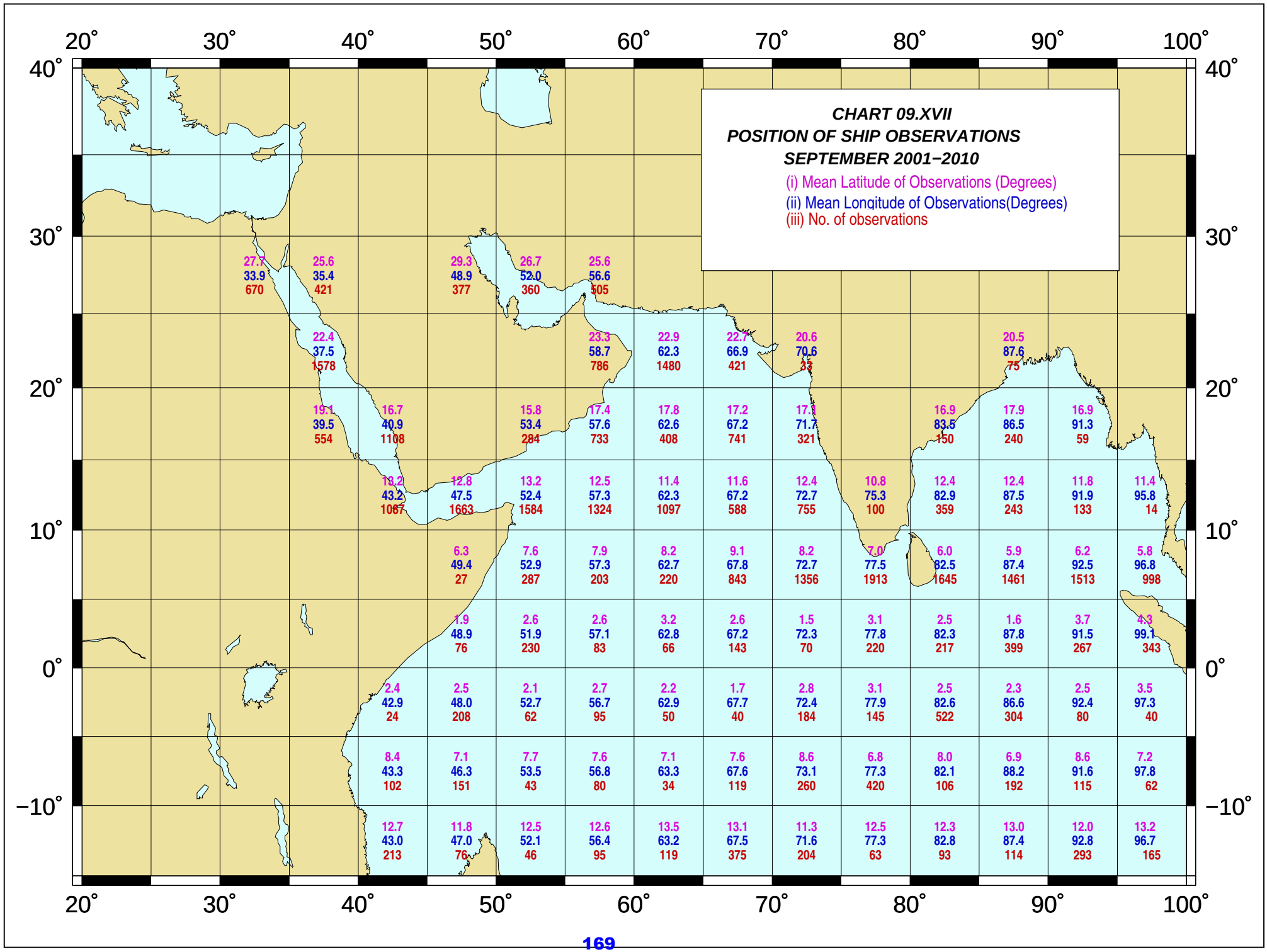


CHART 09.XVII
POSITION OF SHIP OBSERVATIONS
SEPTEMBER 2001−2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.7 33.9 670
25.6 35.4 421
29.3 48.9 377
26.7 52.0 360
25.6 56.6 505
22.4 37.5 1578
23.3 58.7 786
22.9 62.3 1480
22.7 66.9 421
20.6 70.6 33
20.5 87.6 75
19.1 39.5 554
16.7 40.9 1108
15.8 53.4 284
17.4 57.6 733
17.8 62.6 408
17.2 67.2 741
17.1 71.7 321
16.9 83.5 150
17.9 86.5 240
16.9 91.3 59
13.2 43.2 1067
12.8 47.5 1663
13.2 52.4 1584
12.5 57.3 1324
11.4 62.3 1097
11.6 67.2 588
12.4 72.7 755
10.8 75.3 100
12.4 82.9 359
12.4 87.5 243
11.8 91.9 133
11.4 95.8 14
6.3 49.4 27
7.6 52.9 287
7.9 57.3 203
8.2 62.7 220
9.1 67.8 843
8.2 72.7 1356
7.0 77.5 1913
6.0 82.5 1645
5.9 87.4 1461
6.2 92.5 1513
5.8 96.8 998
1.9 48.9 76
2.6 51.9 230
2.6 57.1 83
3.2 62.8 66
2.6 67.2 143
1.5 72.3 70
3.1 77.8 220
2.5 82.3 217
1.6 87.8 399
3.7 91.5 267
4.3 99.1 343
2.4 42.9 24
2.5 48.0 208
2.1 52.7 62
2.7 56.7 95
2.2 62.9 50
1.7 67.7 40
2.8 72.4 184
3.1 77.9 145
2.5 82.6 522
2.3 86.6 304
2.5 92.4 80
3.5 97.3 40
8.4 43.3 102
7.1 46.3 151
7.7 53.5 43
7.6 56.8 80
7.1 63.3 34
7.6 67.6 119
8.6 73.1 260
6.8 77.3 420
8.0 82.1 106
6.9 88.2 192
8.6 91.6 115
7.2 97.8 62
12.7 43.0 213
11.8 47.0 76
12.5 52.1 46
12.6 56.4 95
13.5 63.2 119
13.1 67.5 375
11.3 71.6 204
12.5 77.3 63
12.3 82.8 93
13.0 87.4 114
12.0 92.8 293
13.2 96.7 165

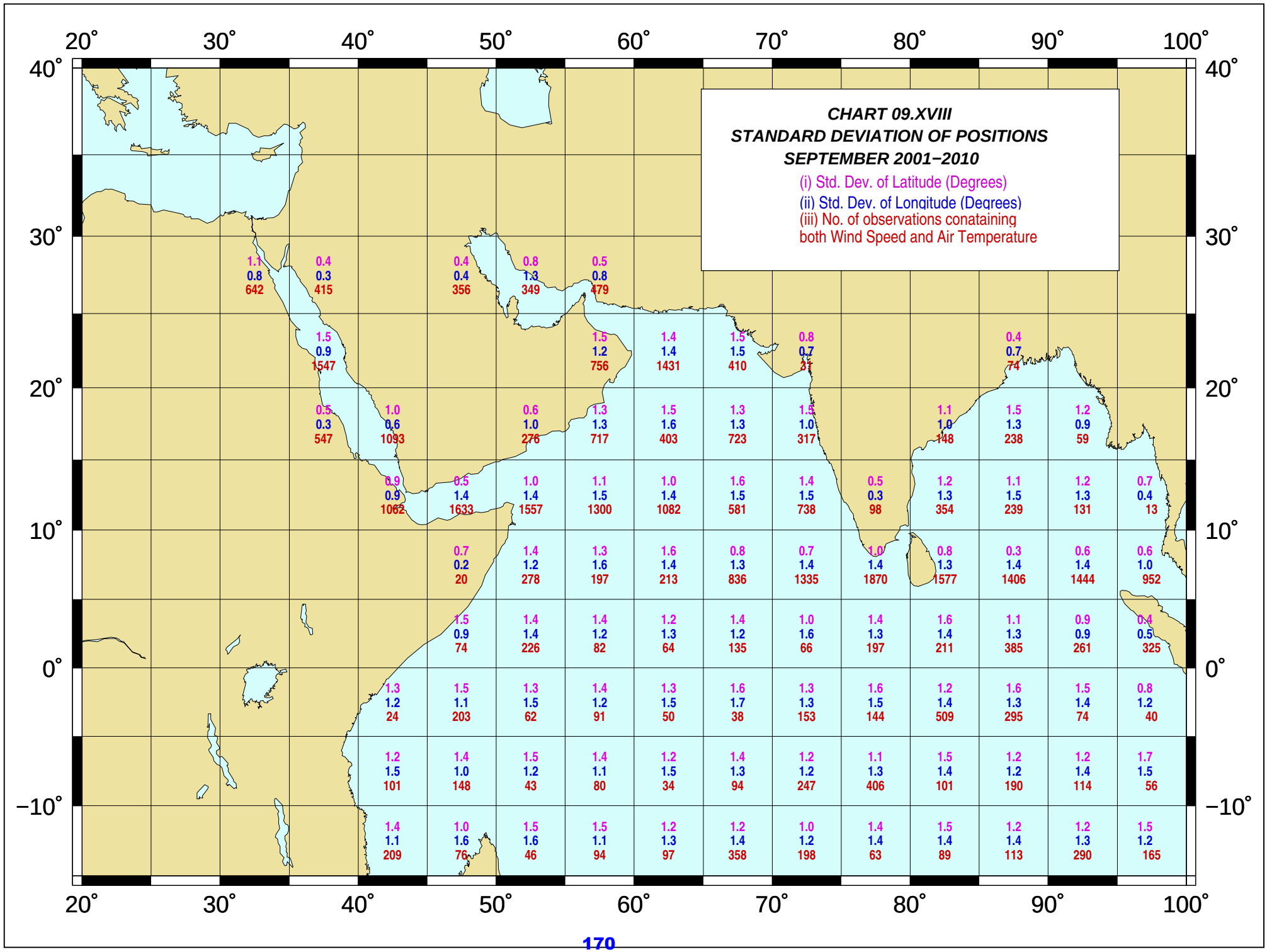
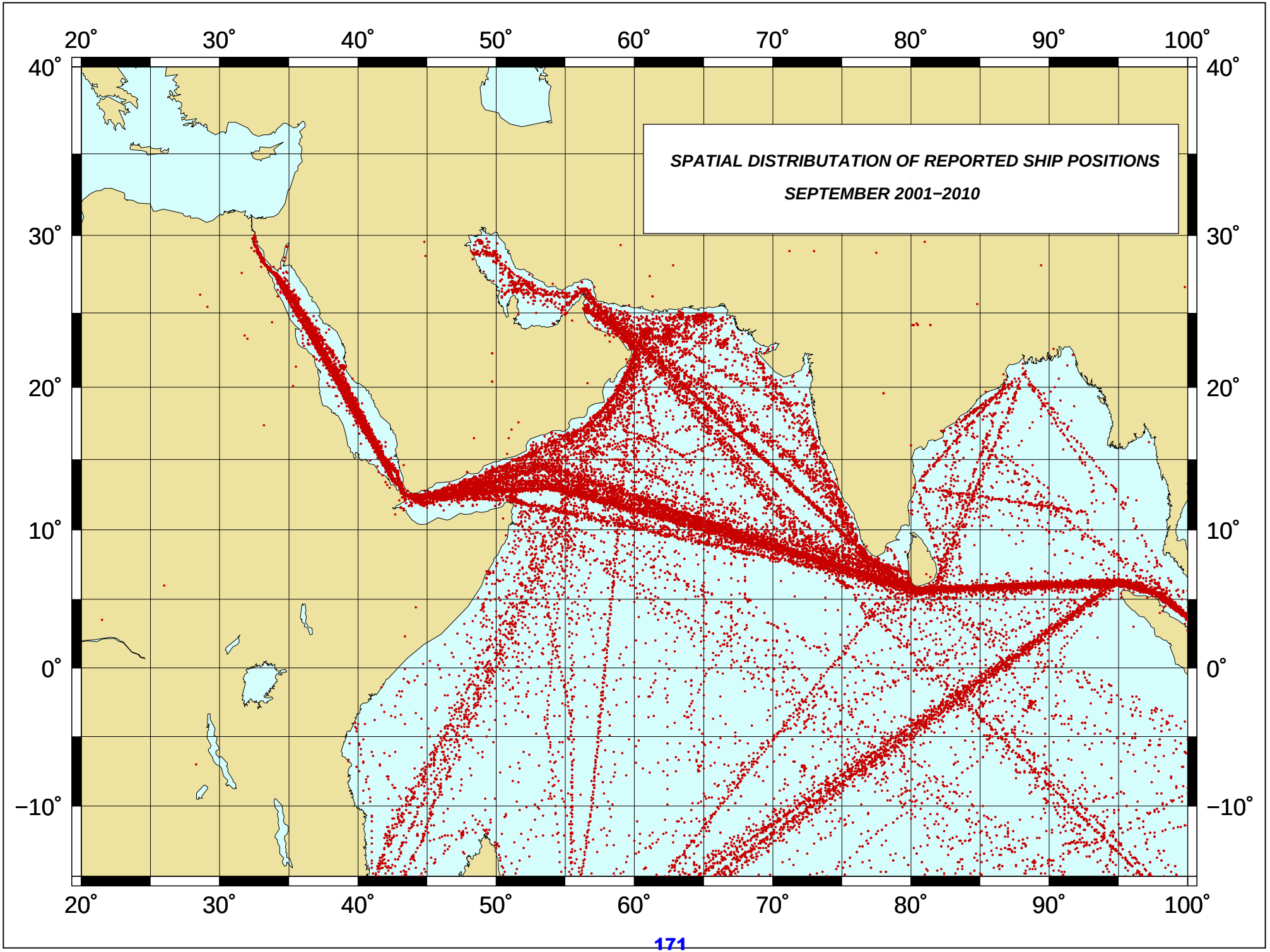


CHART 09.XVIII
STANDARD DEVIATION OF POSITIONS
SEPTEMBER 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 642
0.4 0.3 415
0.4 0.4 356
0.8 1.3 349
0.5 0.8 479
1.5 0.9 1547
1.5 1.2 756
1.4 1.4 1431
1.5 1.5 410
0.8 0.7 31
0.4 0.7 74
0.5 0.3 547
1.0 0.6 1093
0.6 1.0 276
1.3 1.3 717
1.5 1.6 403
1.3 1.3 723
1.5 1.0 317
1.1 1.0 148
1.5 1.3 238
1.2 0.9 59
0.9 0.9 1062
0.5 1.4 1633
1.0 1.4 1557
1.1 1.5 1300
1.0 1.4 1082
1.6 1.5 581
1.4 1.5 738
0.5 0.3 98
1.2 1.3 354
1.1 1.5 239
1.2 1.3 131
0.7 0.4 13
0.7 0.2 20
1.4 1.2 278
1.3 1.6 197
1.6 1.4 213
0.8 1.3 836
0.7 1.4 1335
1.0 1.4 1870
0.8 1.3 1577
0.3 1.4 1406
0.6 1.4 1444
0.6 1.0 952
1.5 0.9 74
1.4 1.4 226
1.4 1.2 82
1.2 1.3 64
1.4 1.2 135
1.0 1.6 66
1.4 1.3 197
1.6 1.4 211
1.1 1.3 385
0.9 0.9 261
0.4 0.5 325
1.3 1.2 24
1.5 1.1 203
1.3 1.5 62
1.4 1.2 91
1.3 1.5 50
1.6 1.7 38
1.3 1.3 153
1.6 1.5 144
1.2 1.4 509
1.6 1.3 295
1.5 1.4 74
0.8 1.2 40
1.2 1.5 101
1.4 1.0 148
1.5 1.2 43
1.4 1.1 80
1.2 1.5 34
1.4 1.3 94
1.2 1.2 247
1.1 1.3 406
1.5 1.4 101
1.2 1.2 190
1.2 1.4 114
1.7 1.5 56
1.4 1.1 209
1.0 1.6 76
1.5 1.6 46
1.5 1.1 94
1.2 1.3 97
1.2 1.4 358
1.0 1.2 198
1.4 1.4 63
1.5 1.4 89
1.2 1.4 113
1.2 1.3 290
1.5 1.2 165


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
SEPTEMBER 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF OCTOBER 2001-2010

Marine Climatological Summary Charts 2001-2010

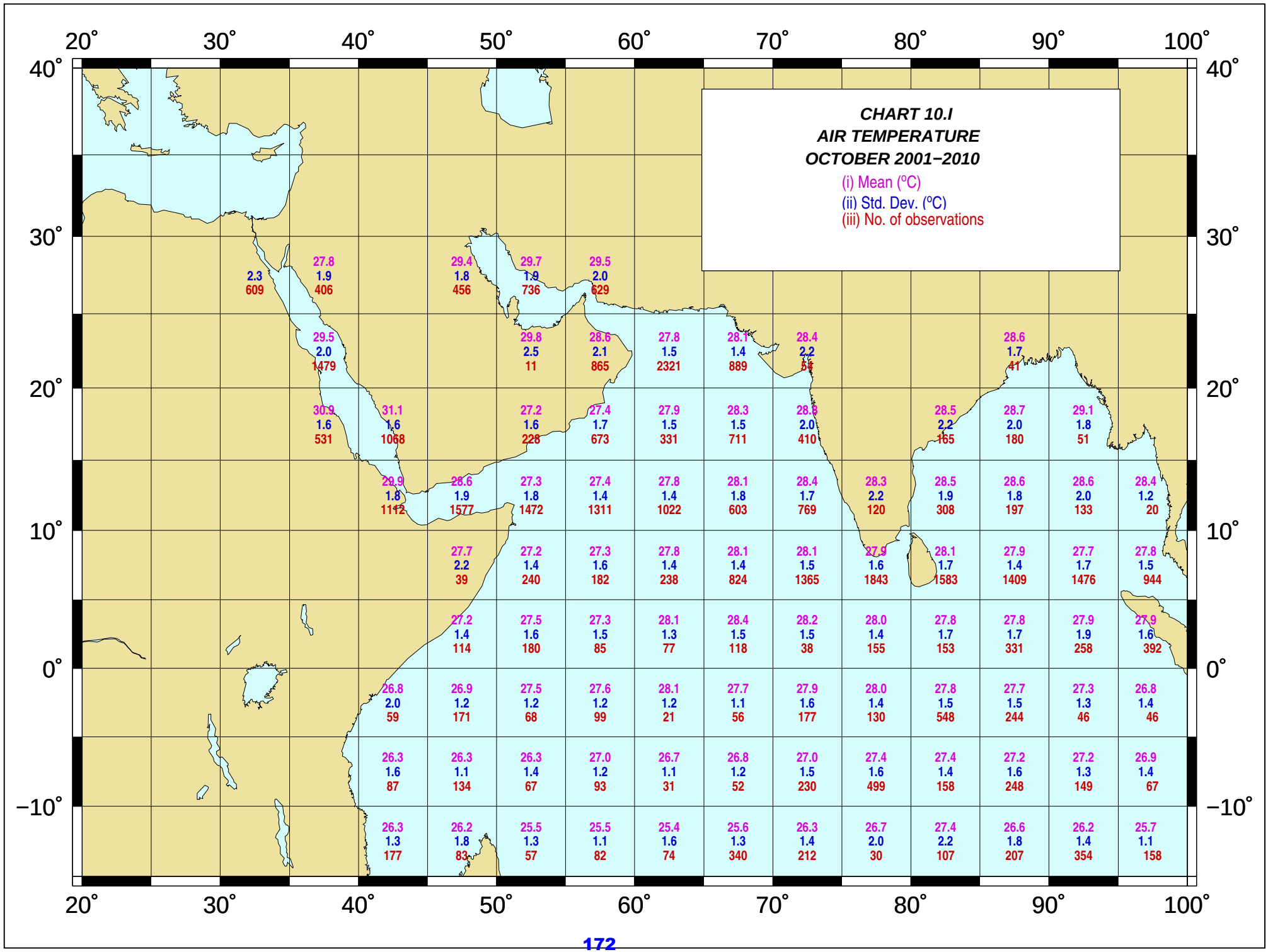


CHART 10.I
AIR TEMPERATURE
OCTOBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.3 609
27.8 1.9 406
29.4 1.8 456
29.7 1.9 736
29.5 2.0 629
29.5 2.0 1479
29.8 2.5 11
28.6 2.1 865
27.8 1.5 2321
28.1 1.4 889
28.4 2.2 56
28.6 1.7 41
30.9 1.6 531
31.1 1.6 1068
27.2 1.6 228
27.4 1.7 673
27.9 1.5 331
28.3 1.5 711
28.9 2.0 410
28.5 2.2 165
28.7 2.0 180
29.1 1.8 51
29.9 1.8 1112
28.6 1.9 1577
27.3 1.8 1472
27.4 1.4 1311
27.8 1.4 1022
28.1 1.8 603
28.4 1.7 769
28.3 2.2 120
28.5 1.9 308
28.6 1.8 197
28.6 2.0 133
28.4 1.2 20
27.7 2.2 39
27.2 1.4 240
27.3 1.6 182
27.8 1.4 238
28.1 1.4 824
28.1 1.5 1365
27.9 1.6 1843
28.1 1.7 1583
27.9 1.4 1409
27.7 1.7 1476
27.8 1.5 944
27.2 1.4 114
27.5 1.6 180
27.3 1.5 85
28.1 1.3 77
28.4 1.5 118
28.2 1.5 38
28.0 1.4 155
27.8 1.7 153
27.8 1.7 331
27.9 1.9 258
27.9 1.6 392
26.8 2.0 59
26.9 1.2 171
27.5 1.2 68
27.6 1.2 99
28.1 1.2 21
27.7 1.1 56
27.9 1.6 177
28.0 1.4 130
27.8 1.5 548
27.7 1.5 244
27.3 1.3 46
26.8 1.4 46
26.3 1.6 87
26.3 1.1 134
26.3 1.4 67
27.0 1.2 93
26.7 1.1 31
26.8 1.2 52
27.0 1.5 230
27.4 1.6 499
27.4 1.4 158
27.2 1.6 248
27.2 1.3 149
26.9 1.4 67
26.3 1.3 177
26.2 1.8 83
25.5 1.3 57
25.5 1.1 82
25.4 1.6 74
25.6 1.3 340
26.3 1.4 212
26.7 2.0 30
27.4 2.2 107
26.6 1.8 207
26.2 1.4 354
25.7 1.1 158

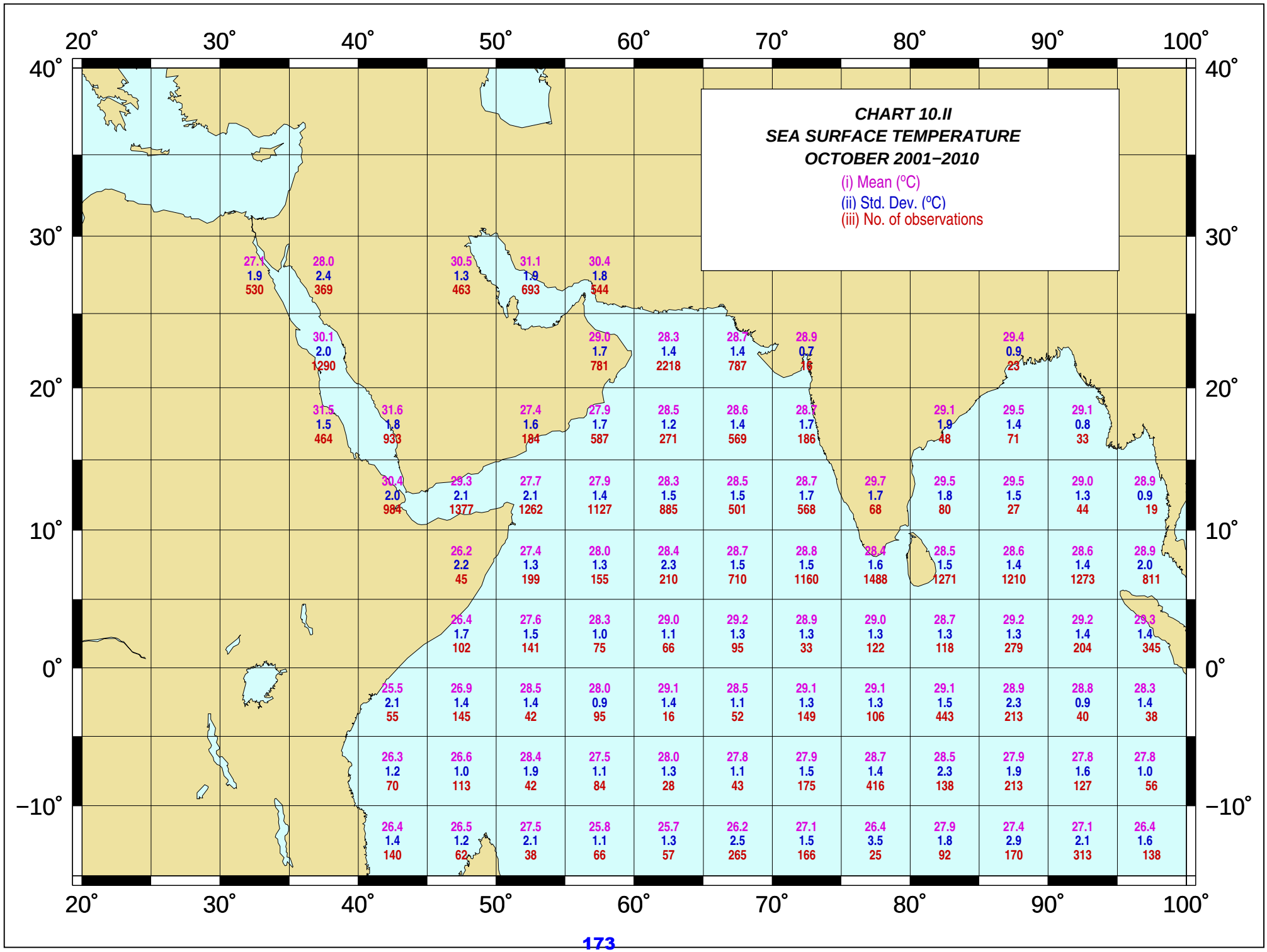


CHART 10.II
SEA SURFACE TEMPERATURE
OCTOBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.1 1.9 530
28.0 2.4 369
30.5 1.3 463
31.1 1.9 693
30.4 1.8 544
30.1 2.0 1290
29.0 1.7 781
28.3 1.4 2218
28.7 1.4 787
28.9 0.7 16
29.4 0.9 23
31.5 1.5 464
31.6 1.8 933
27.4 1.6 184
27.9 1.7 587
28.5 1.2 271
28.6 1.4 569
28.7 1.7 186
29.1 1.9 48
29.5 1.4 71
29.1 0.8 33
30.4 2.0 984
29.3 2.1 1377
27.7 2.1 1262
27.9 1.4 1127
28.3 1.5 885
28.5 1.5 501
28.7 1.7 568
29.7 1.7 68
29.5 1.8 80
29.5 1.5 27
29.0 1.3 44
28.9 0.9 19
26.2 2.2 45
27.4 1.3 199
28.0 1.3 155
28.4 2.3 210
28.7 1.5 710
28.8 1.5 1160
28.4 1.6 1488
28.5 1.5 1271
28.6 1.4 1210
28.6 1.4 1273
28.9 2.0 811
26.4 1.7 102
27.6 1.5 141
28.3 1.0 75
29.0 1.1 66
29.2 1.3 95
28.9 1.3 33
29.0 1.3 122
28.7 1.3 118
29.2 1.3 279
29.2 1.4 204
29.3 1.4 345
25.5 2.1 55
26.9 1.4 145
28.5 1.4 42
28.0 0.9 95
29.1 1.4 16
28.5 1.1 52
29.1 1.3 149
29.1 1.3 106
29.1 1.5 443
28.9 2.3 213
28.8 0.9 40
28.3 1.4 38
26.3 1.2 70
26.6 1.0 113
28.4 1.9 42
27.5 1.1 84
28.0 1.3 28
27.8 1.1 43
27.9 1.5 175
28.7 1.4 416
28.5 2.3 138
27.9 1.9 213
27.8 1.6 127
27.8 1.0 56
26.4 1.4 140
26.5 1.2 62
27.5 2.1 38
25.8 1.1 66
25.7 1.3 57
26.2 2.5 265
27.1 1.5 166
26.4 3.5 25
27.9 1.8 92
27.4 2.9 170
27.1 2.1 313
26.4 1.6 138

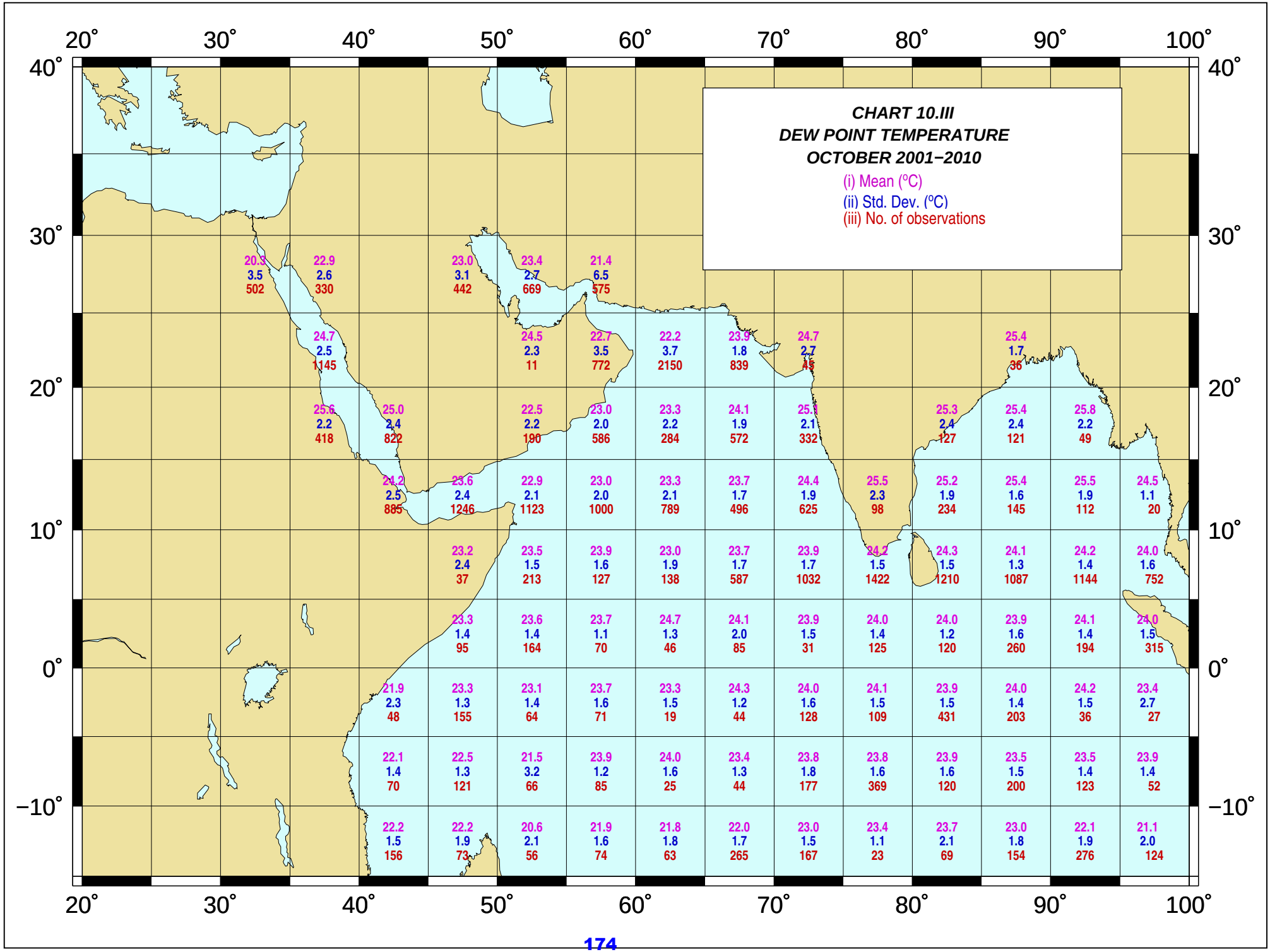


CHART 10.III
DEW POINT TEMPERATURE
OCTOBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
20.3 3.5 502
22.9 2.6 330
23.0 3.1 442
23.4 2.7 669
21.4 6.5 575
24.7 2.5 1145
24.5 2.3 11
22.7 3.5 772
22.2 3.7 2150
23.9 1.8 839
24.7 2.7 45
25.4 1.7 36
25.6 2.2 418
25.0 2.4 822
22.5 2.2 190
23.0 2.0 586
23.3 2.2 284
24.1 1.9 572
25.1 2.1 332
25.3 2.4 127
25.4 2.4 121
25.8 2.2 49
21.2 2.5 885
23.6 2.4 1246
22.9 2.1 1123
23.0 2.0 1000
23.3 2.1 789
23.7 1.7 496
24.4 1.9 625
25.5 2.3 98
25.2 1.9 234
25.4 1.6 145
25.5 1.9 112
24.5 1.1 20
23.2 2.4 37
23.5 1.5 213
23.9 1.6 127
23.0 1.9 138
23.7 1.7 587
23.9 1.7 1032
24.2 1.5 1422
24.3 1.5 1210
24.1 1.3 1087
24.2 1.4 1144
24.0 1.6 752
23.3 1.4 95
23.6 1.4 164
23.7 1.1 70
24.7 1.3 46
24.1 2.0 85
23.9 1.5 31
24.0 1.4 125
24.0 1.2 120
23.9 1.6 260
24.1 1.4 194
24.0 1.5 315
21.9 2.3 48
23.3 1.3 155
23.1 1.4 64
23.7 1.6 71
23.3 1.5 19
24.3 1.2 44
24.0 1.6 128
24.1 1.5 109
23.9 1.5 431
24.0 1.4 203
24.2 1.5 36
23.4 2.7 27
22.1 1.4 70
22.5 1.3 121
21.5 3.2 66
23.9 1.2 85
24.0 1.6 25
23.4 1.3 44
23.8 1.8 177
23.8 1.6 369
23.9 1.6 120
23.5 1.5 200
23.5 1.4 123
23.9 1.4 52
22.2 1.5 156
22.2 1.9 73
20.6 2.1 56
21.9 1.6 74
21.8 1.8 63
22.0 1.7 265
23.0 1.5 167
23.4 1.1 23
23.7 2.1 69
23.0 1.8 154
22.1 1.9 276
21.1 2.0 124

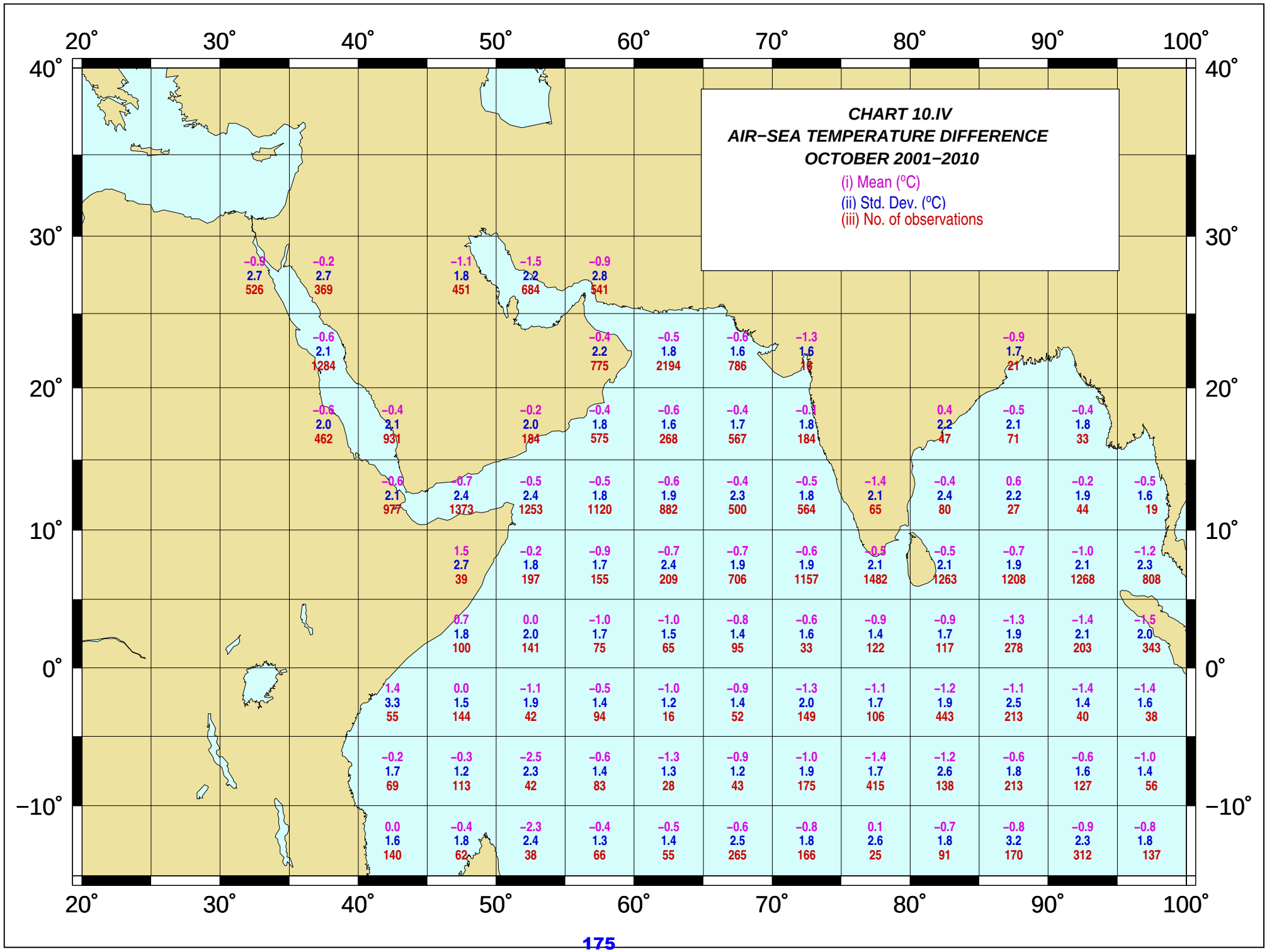


CHART 10.IV
AIR–SEA TEMPERATURE DIFFERENCE
OCTOBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−0.9 2.7 526
−0.2 2.7 369
−1.1 1.8 451
−1.5 2.2 684
−0.9 2.8 541
−0.6 2.1 1284
−0.4 2.2 775
−0.5 1.8 2194
−0.6 1.6 786
−1.3 1.6 16
−0.9 1.7 21
−0.6 2.0 462
−0.4 2.1 931
−0.2 2.0 184
−0.4 1.8 575
−0.6 1.6 268
−0.4 1.7 567
−0.5 1.8 184
0.4 2.2 47
−0.5 2.1 71
−0.4 1.8 33
−0.6 2.1 977
−0.7 2.4 1373
−0.5 2.4 1253
−0.5 1.8 1120
−0.6 1.9 882
−0.4 2.3 500
−0.5 1.8 564
−1.4 2.1 65
−0.4 2.4 80
0.6 2.2 27
−0.2 1.9 44
−0.5 1.6 19
1.5 2.7 39
−0.2 1.8 197
−0.9 1.7 155
−0.7 2.4 209
−0.7 1.9 706
−0.6 1.9 1157
−0.5 2.1 1482
−0.5 2.1 1263
−0.7 1.9 1208
−1.0 2.1 1268
−1.2 2.3 808
0.7 1.8 100
0.0 2.0 141
−1.0 1.7 75
−1.0 1.5 65
−0.8 1.4 95
−0.6 1.6 33
−0.9 1.4 122
−0.9 1.7 117
−1.3 1.9 278
−1.4 2.1 203
−1.5 2.0 343
1.4 3.3 55
0.0 1.5 144
−1.1 1.9 42
−0.5 1.4 94
−1.0 1.2 16
−0.9 1.4 52
−1.3 2.0 149
−1.1 1.7 106
−1.2 1.9 443
−1.1 2.5 213
−1.4 1.4 40
−1.4 1.6 38
−0.2 1.7 69
−0.3 1.2 113
−2.5 2.3 42
−0.6 1.4 83
−1.3 1.3 28
−0.9 1.2 43
−1.0 1.9 175
−1.4 1.7 415
−1.2 2.6 138
−0.6 1.8 213
−0.6 1.6 127
−1.0 1.4 56
0.0 1.6 140
−0.4 1.8 62
−2.3 2.4 38
−0.4 1.3 66
−0.5 1.4 55
−0.6 2.5 265
−0.8 1.8 166
0.1 2.6 25
−0.7 1.8 91
−0.8 3.2 170
−0.9 2.3 312
−0.8 1.8 137

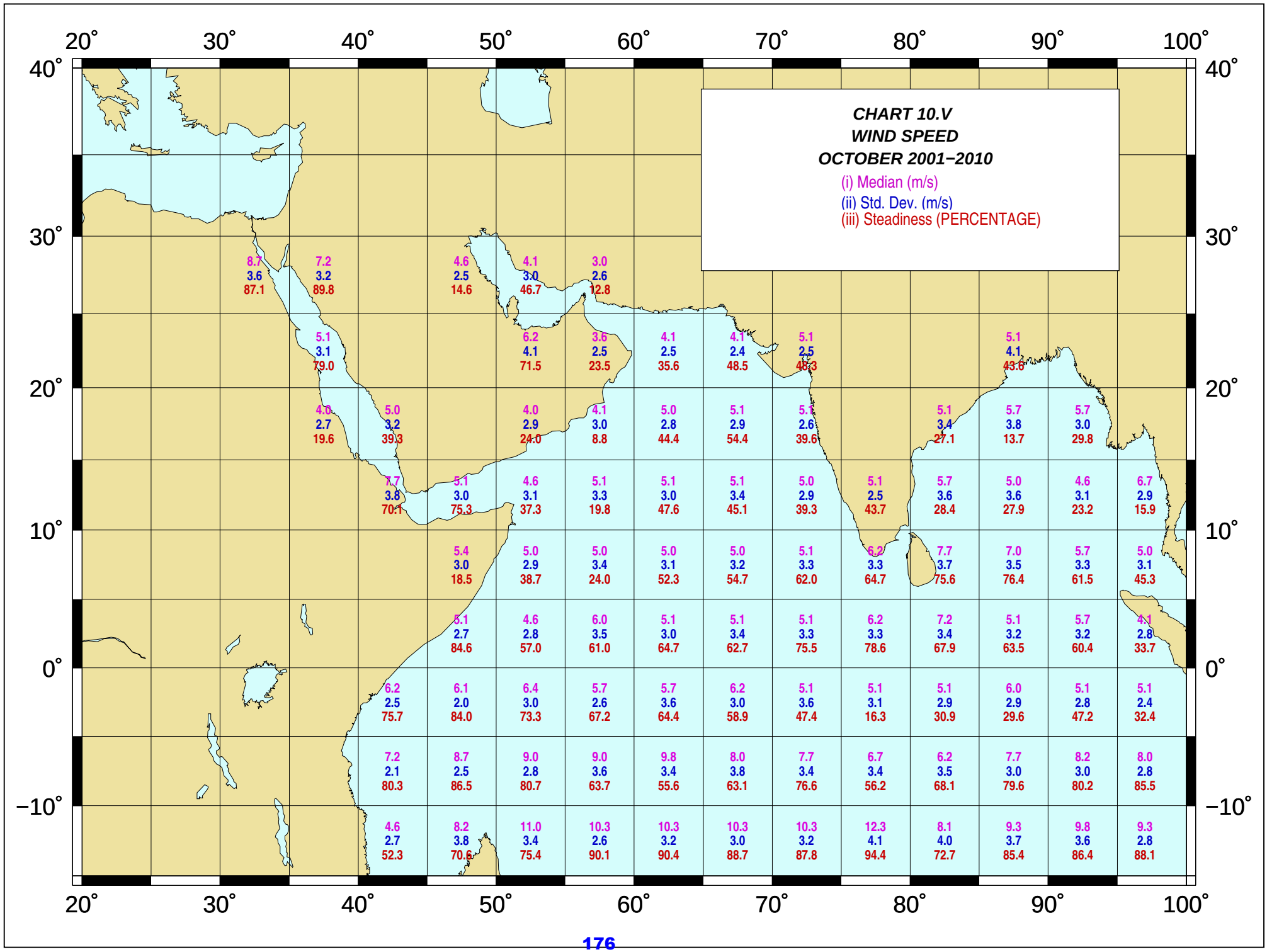


CHART 10.V
WIND SPEED
OCTOBER 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.7 3.6 87.1
7.2 3.2 89.8
4.6 2.5 14.6
4.1 3.0 46.7
3.0 2.6 12.8
5.1 3.1 79.0
6.2 4.1 71.5
3.6 2.5 23.5
4.1 2.5 35.6
4.1 2.4 48.5
5.1 2.5 48.3
5.1 4.1 43.6
4.0 2.7 19.6
5.0 3.2 39.3
4.0 2.9 24.0
4.1 3.0 8.8
5.0 2.8 44.4
5.1 2.9 54.4
5.1 2.6 39.6
5.1 3.4 27.1
5.7 3.8 13.7
5.7 3.0 29.8
7.7 3.8 70.1
5.1 3.0 75.3
4.6 3.1 37.3
5.1 3.3 19.8
5.1 3.0 47.6
5.1 3.4 45.1
5.0 2.9 39.3
5.1 2.5 43.7
5.7 3.6 28.4
5.0 3.6 27.9
4.6 3.1 23.2
6.7 2.9 15.9
5.4 3.0 18.5
5.0 2.9 38.7
5.0 3.4 24.0
5.0 3.1 52.3
5.0 3.2 54.7
5.1 3.3 62.0
6.2 3.3 64.7
7.7 3.7 75.6
7.0 3.5 76.4
5.7 3.3 61.5
5.0 3.1 45.3
5.1 2.7 84.6
4.6 2.8 57.0
6.0 3.5 61.0
5.1 3.0 64.7
5.1 3.4 62.7
5.1 3.3 75.5
6.2 3.3 78.6
7.2 3.4 67.9
5.1 3.2 63.5
5.7 3.2 60.4
4.1 2.8 33.7
6.2 2.5 75.7
6.1 2.0 84.0
6.4 3.0 73.3
5.7 2.6 67.2
5.7 3.6 64.4
6.2 3.0 58.9
5.1 3.6 47.4
5.1 3.1 16.3
5.1 2.9 30.9
6.0 2.9 29.6
5.1 2.8 47.2
5.1 2.4 32.4
7.2 2.1 80.3
8.7 2.5 86.5
9.0 2.8 80.7
9.0 3.6 63.7
9.8 3.4 55.6
8.0 3.8 63.1
7.7 3.4 76.6
6.7 3.4 56.2
6.2 3.5 68.1
7.7 3.0 79.6
8.2 3.0 80.2
8.0 2.8 85.5
4.6 2.7 52.3
8.2 3.8 70.6
11.0 3.4 75.4
10.3 2.6 90.1
10.3 3.2 90.4
10.3 3.0 88.7
10.3 3.2 87.8
12.3 4.1 94.4
8.1 4.0 72.7
9.3 3.7 85.4
9.8 3.6 86.4
9.3 2.8 88.1

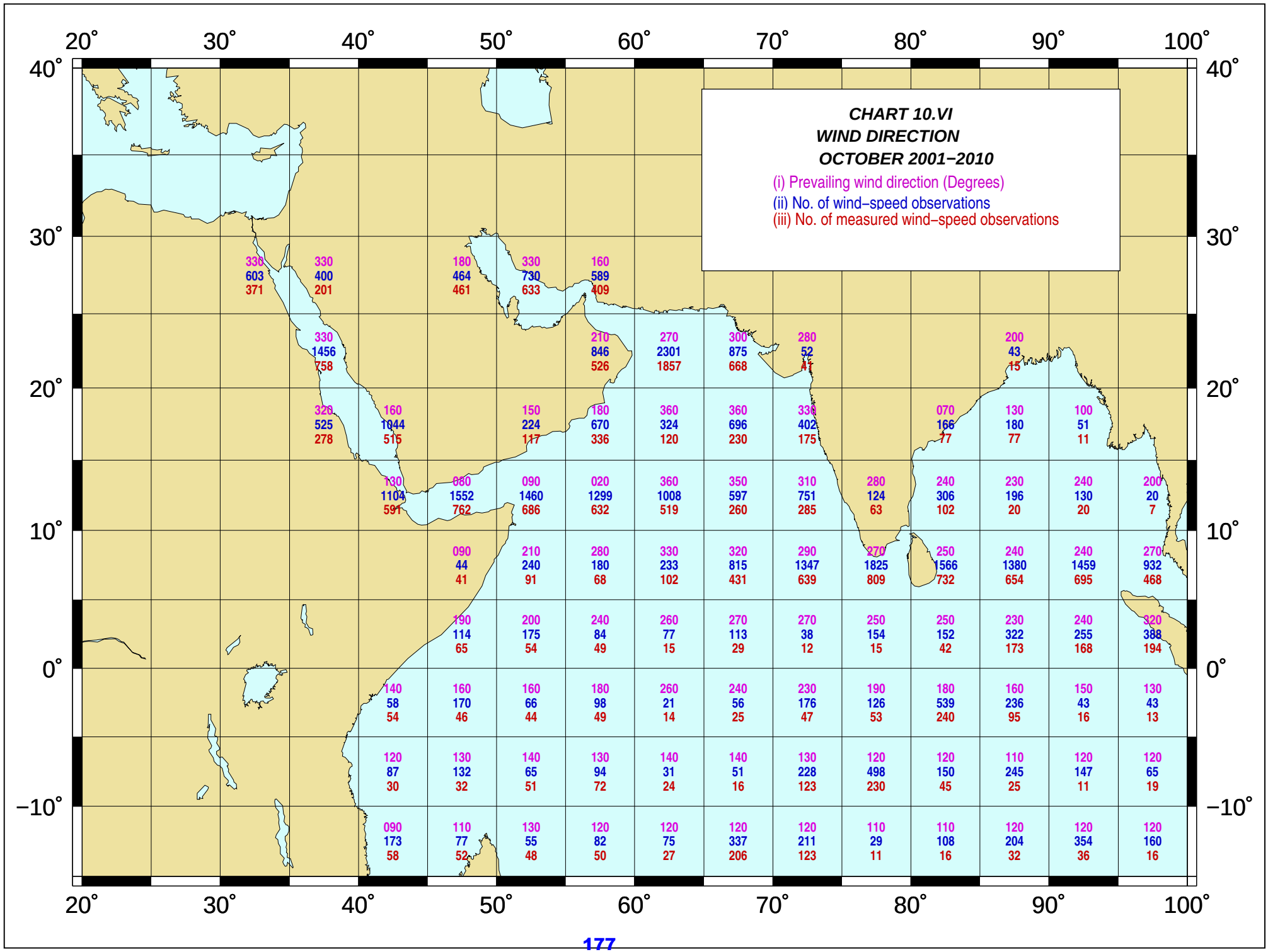


CHART 10.VI
WIND DIRECTION
OCTOBER 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 603 371
330 400 201
180 464 461
330 730 633
160 589 409
330 1456 758
210 846 526
270 2301 1857
300 875 668
280 52 41
200 43 15
320 525 278
160 1044 515
150 224 117
180 670 336
360 324 120
360 696 230
330 402 175
070 166 77
130 180 77
100 51 11
130 1104 591
080 1552 762
090 1460 686
020 1299 632
360 1008 519
350 597 260
310 751 285
280 124 63
240 306 102
230 196 20
240 130 20
200 20 7
090 44 41
210 240 91
280 180 68
330 233 102
320 815 431
290 1347 639
270 1825 809
250 1566 732
240 1380 654
240 1459 695
270 932 468
190 114 65
200 175 54
240 84 49
260 77 15
270 113 29
270 38 12
250 154 15
250 152 42
230 322 173
240 255 168
320 388 194
140 58 54
160 170 46
160 66 44
180 98 49
260 21 14
240 56 25
230 176 47
190 126 53
180 539 240
160 236 95
150 43 16
130 43 13
120 87 30
130 132 32
140 65 51
130 94 72
140 31 24
140 51 16
130 228 123
120 498 230
120 150 45
110 245 25
120 147 11
120 65 19
090 173 58
110 77 52
130 55 48
120 82 50
120 75 27
120 337 206
120 211 123
110 29 11
110 108 16
120 204 32
120 354 36
120 160 16

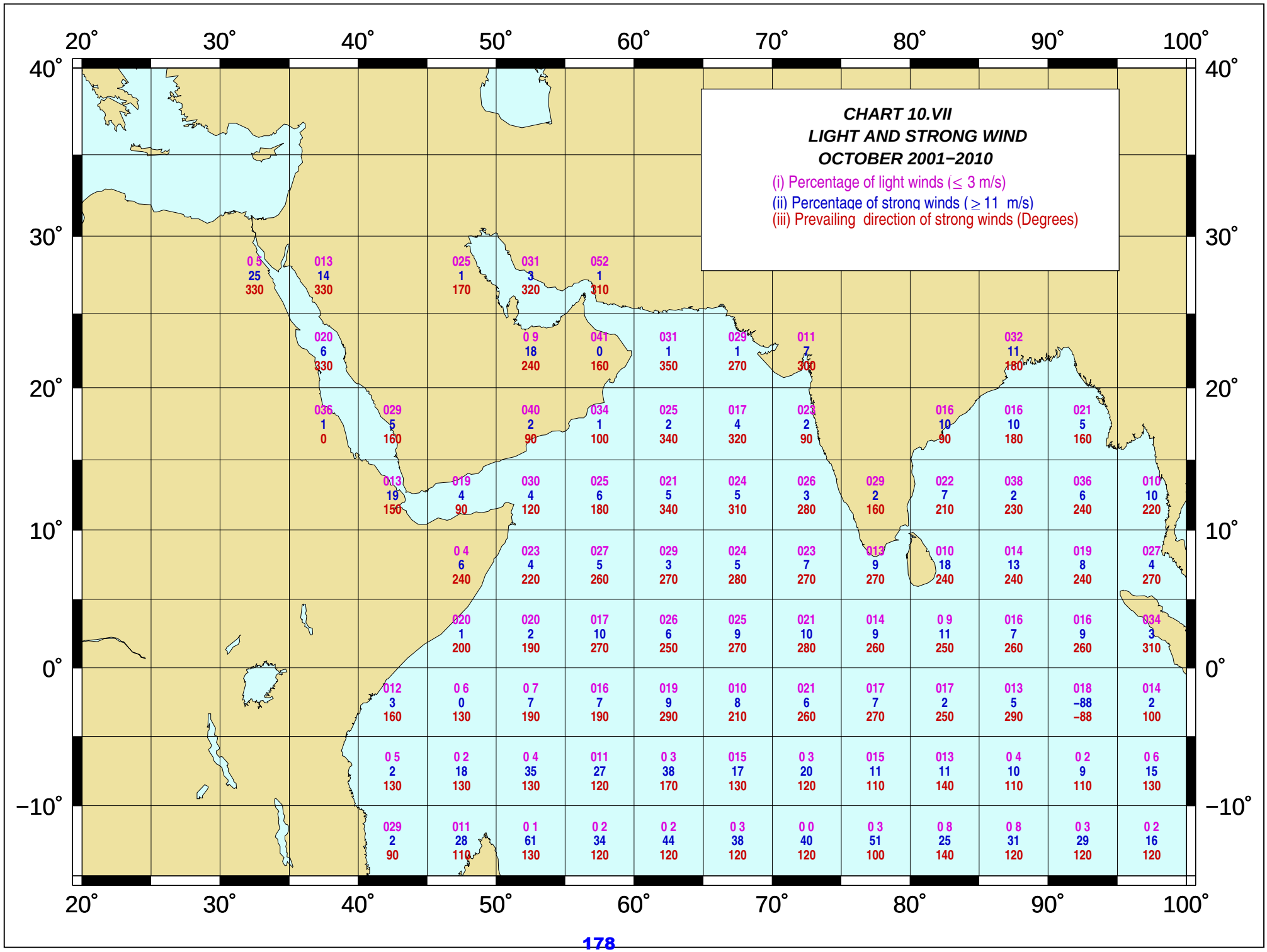


CHART 10.VII
LIGHT AND STRONG WIND
OCTOBER 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
05 25 330
013 14 330
025 1 170
031 3 320
052 1 310
020 6 330
09 18 240
041 0 160
031 1 350
029 1 270
011 7 300
032 11 180
036 1 0
029 5 160
040 2 90
034 1 100
025 2 340
017 4 320
023 2 90
016 10 90
016 10 180
021 5 160
013 19 150
019 4 90
030 4 120
025 6 180
021 5 340
024 5 310
026 3 280
029 2 160
022 7 210
038 2 230
036 6 240
010 10 220
04 6 240
023 4 220
027 5 260
029 3 270
024 5 280
023 7 270
013 9 270
010 18 240
014 13 240
019 8 240
027 4 270
020 1 200
020 2 190
017 10 270
026 6 250
025 9 270
021 10 280
014 9 260
09 11 250
016 7 260
016 9 260
034 3 310
012 3 160
06 0 130
07 7 190
016 7 190
019 9 290
010 8 210
021 6 260
017 7 270
017 2 250
013 5 290
018 −88 −88
014 2 100
05 2 130
02 18 130
04 35 130
011 27 120
03 38 170
015 17 130
03 20 120
015 11 110
013 11 140
04 10 110
02 9 110
06 15 130
029 2 90
011 28 110
01 61 130
02 34 120
02 44 120
03 38 120
00 40 120
03 51 100
08 25 140
08 31 120
03 29 120
02 16 120

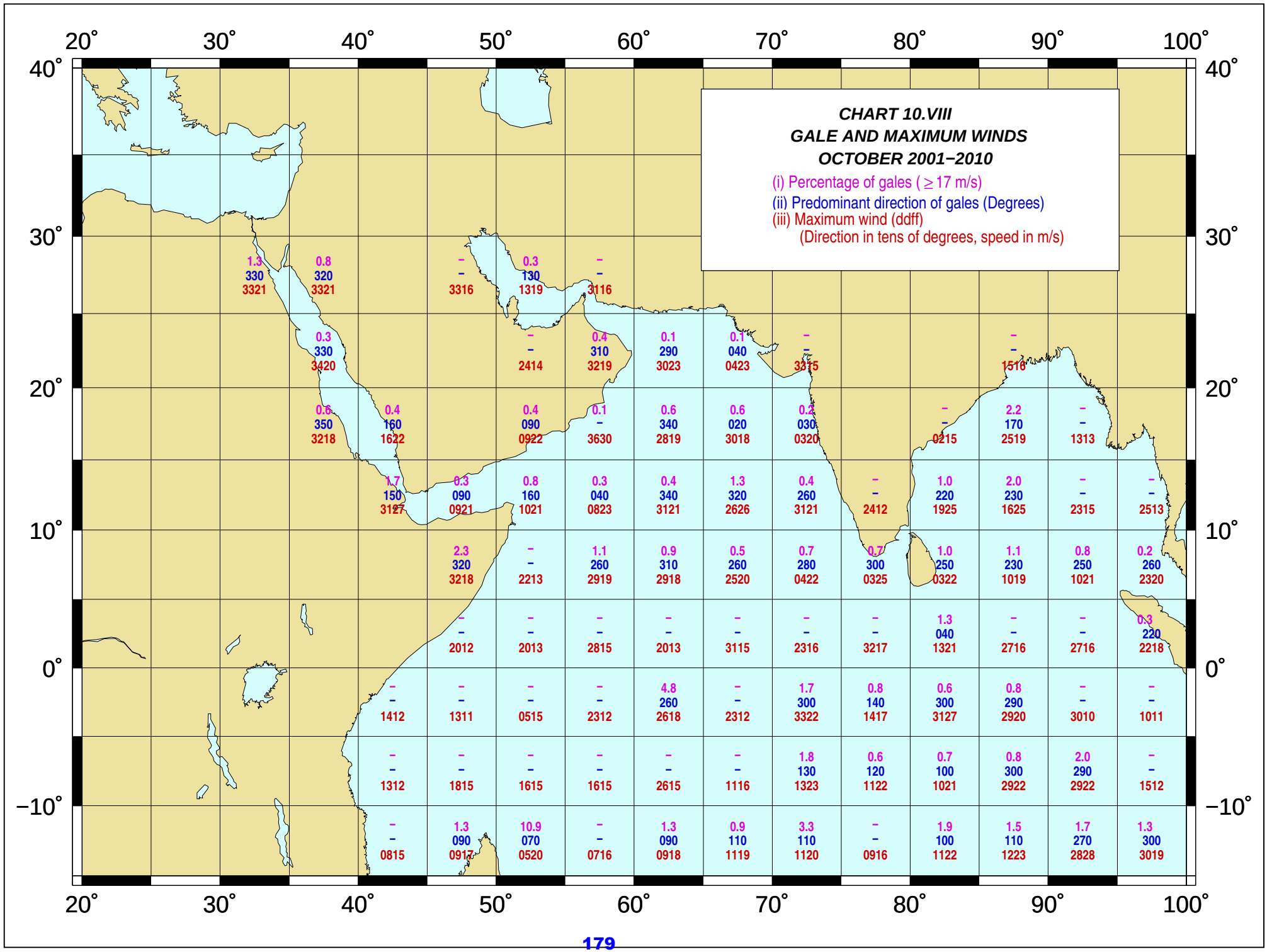


CHART 10.VIII
GALE AND MAXIMUM WINDS
OCTOBER 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.3 330 3321
0.8 320 3321
– – 3316
0.3 130 1319
– – 3116
0.3 330 3420
– – 2414
0.4 310 3219
0.1 290 3023
0.1 040 0423
– – 3315
– – 1516
0.6 350 3218
0.4 160 1622
0.4 090 0922
0.1 – 3630
0.6 340 2819
0.6 020 3018
0.2 030 0320
– – 0215
2.2 170 2519
– – 1313
1.7 150 3127
0.3 090 0921
0.8 160 1021
0.3 040 0823
0.4 340 3121
1.3 320 2626
0.4 260 3121
– – 2412
1.0 220 1925
2.0 230 1625
– – 2315
– – 2513
2.3 320 3218
– – 2213
1.1 260 2919
0.9 310 2918
0.5 260 2520
0.7 280 0422
0.7 300 0325
1.0 250 0322
1.1 230 1019
0.8 250 1021
0.2 260 2320
– – 2012
– – 2013
– – 2815
– – 2013
– – 3115
– – 2316
– – 3217
1.3 040 1321
– – 2716
– – 2716
0.3 220 2218
– – 1412
– – 1311
– – 0515
– – 2312
4.8 260 2618
– – 2312
1.7 300 3322
0.8 140 1417
0.6 300 3127
0.8 290 2920
– – 3010
– – 1011
– – 1312
– – 1815
– – 1615
– – 1615
– – 2615
– – 1116
1.8 130 1323
0.6 120 1122
0.7 100 1021
0.8 300 2922
2.0 290 2922
– – 1512
– – 0815
1.3 090 0917
10.9 070 0520
– – 0716
1.3 090 0918
0.9 110 1119
3.3 110 1120
– – 0916
1.9 100 1122
1.5 110 1223
1.7 270 2828
1.3 300 3019

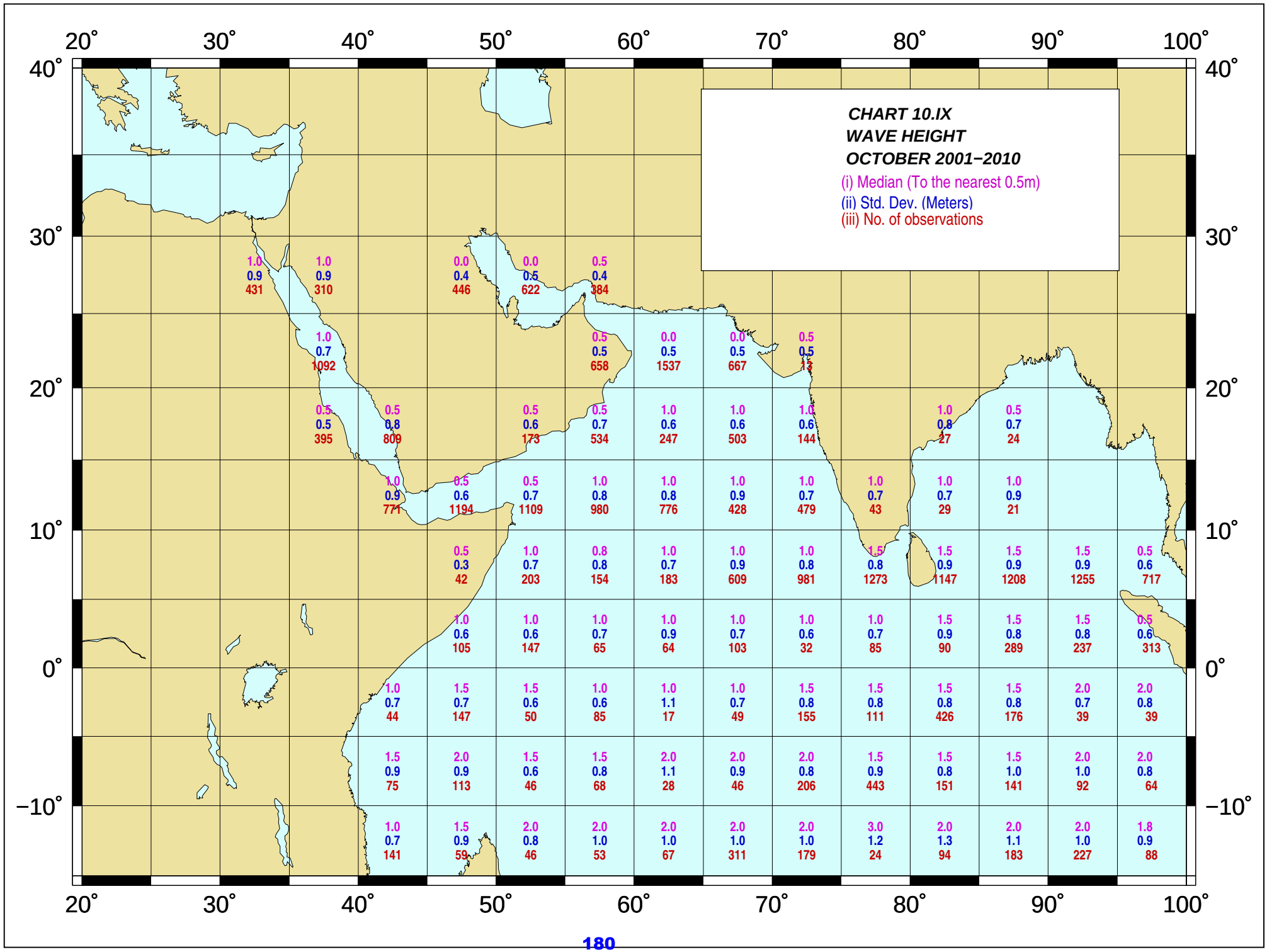


CHART 10.IX
WAVE HEIGHT
OCTOBER 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.9 431
1.0 0.9 310
0.0 0.4 446
0.0 0.5 622
0.5 0.4 384
1.0 0.7 1092
0.5 0.5 658
0.0 0.5 1537
0.0 0.5 667
0.5 0.5 13
0.5 0.5 395
0.5 0.8 809
0.5 0.6 173
0.5 0.7 534
1.0 0.6 247
1.0 0.6 503
1.0 0.6 144
1.0 0.8 27
0.5 0.7 24
1.0 0.9 771
0.5 0.6 1194
0.5 0.7 1109
1.0 0.8 980
1.0 0.8 776
1.0 0.9 428
1.0 0.7 479
1.0 0.7 43
1.0 0.7 29
1.0 0.9 21
0.5 0.3 42
1.0 0.7 203
0.8 0.8 154
1.0 0.7 183
1.0 0.9 609
1.0 0.8 981
1.5 0.8 1273
1.5 0.9 1147
1.5 0.9 1208
1.5 0.9 1255
0.5 0.6 717
1.0 0.6 105
1.0 0.6 147
1.0 0.7 65
1.0 0.9 64
1.0 0.7 103
1.0 0.6 32
1.0 0.7 85
1.5 0.9 90
1.5 0.8 289
1.5 0.8 237
0.5 0.6 313
1.0 0.7 44
1.5 0.7 147
1.5 0.6 50
1.0 0.6 85
1.0 1.1 17
1.0 0.7 49
1.5 0.8 155
1.5 0.8 111
1.5 0.8 426
1.5 0.8 176
2.0 0.7 39
2.0 0.8 39
1.5 0.9 75
2.0 0.9 113
1.5 0.6 46
1.5 0.8 68
2.0 1.1 28
2.0 0.9 46
2.0 0.8 206
1.5 0.9 443
1.5 0.8 151
1.5 1.0 141
2.0 1.0 92
2.0 0.8 64
1.0 0.7 141
1.5 0.9 59
2.0 0.8 46
2.0 1.0 53
2.0 1.0 67
2.0 1.0 311
2.0 1.0 179
3.0 1.2 24
2.0 1.3 94
2.0 1.1 183
2.0 1.0 227
1.8 0.9 88

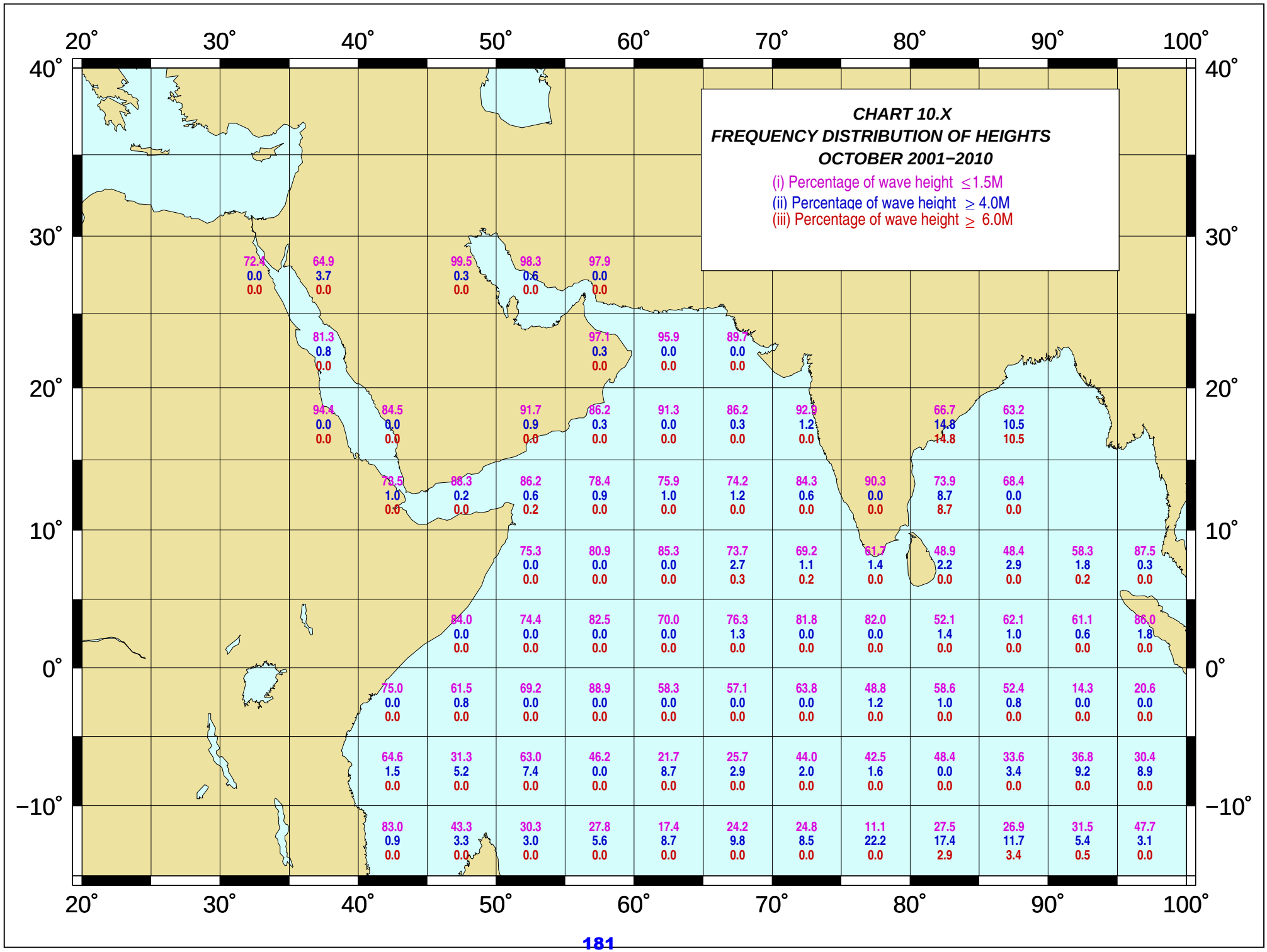


CHART 10.X
FREQUENCY DISTRIBUTION OF HEIGHTS
OCTOBER 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
72.4 0.0 0.0
64.9 3.7 0.0
99.5 0.3 0.0
98.3 0.6 0.0
97.9 0.0 0.0
81.3 0.8 0.0
97.1 0.3 0.0
95.9 0.0 0.0
89.7 0.0 0.0
94.4 0.0 0.0
84.5 0.0 0.0
91.7 0.9 0.0
86.2 0.3 0.0
91.3 0.0 0.0
86.2 0.3 0.0
92.9 1.2 0.0
66.7 14.8 14.8
63.2 10.5 10.5
79.5 1.0 0.6
88.3 0.2 0.0
86.2 0.6 0.2
78.4 0.9 0.0
75.9 1.0 0.0
74.2 1.2 0.0
84.3 0.6 0.0
90.3 0.0 0.0
73.9 8.7 8.7
68.4 0.0 0.0
75.3 0.0 0.0
80.9 0.0 0.0
85.3 0.0 0.0
73.7 2.7 0.3
69.2 1.1 0.2
61.7 1.4 0.0
48.9 2.2 0.0
48.4 2.9 0.0
58.3 1.8 0.2
87.5 0.3 0.0
84.0 0.0 0.0
74.4 0.0 0.0
82.5 0.0 0.0
70.0 0.0 0.0
76.3 1.3 0.0
81.8 0.0 0.0
82.0 0.0 0.0
52.1 1.4 0.0
62.1 1.0 0.0
61.1 0.6 0.0
86.0 1.8 0.0
75.0 0.0 0.0
61.5 0.8 0.0
69.2 0.0 0.0
88.9 0.0 0.0
58.3 0.0 0.0
57.1 0.0 0.0
63.8 0.0 0.0
48.8 1.2 0.0
58.6 1.0 0.0
52.4 0.8 0.0
14.3 0.0 0.0
20.6 0.0 0.0
64.6 1.5 0.0
31.3 5.2 0.0
63.0 7.4 0.0
46.2 0.0 0.0
21.7 8.7 0.0
25.7 2.9 0.0
44.0 2.0 0.0
42.5 1.6 0.0
48.4 0.0 0.0
33.6 3.4 0.0
36.8 9.2 0.0
30.4 8.9 0.0
83.0 0.9 0.0
43.3 3.3 0.0
30.3 3.0 0.0
27.8 5.6 0.0
17.4 8.7 0.0
24.2 9.8 0.0
24.8 8.5 0.0
11.1 22.2 0.0
27.5 17.4 2.9
26.9 11.7 3.4
31.5 5.4 0.5
47.7 3.1 0.0

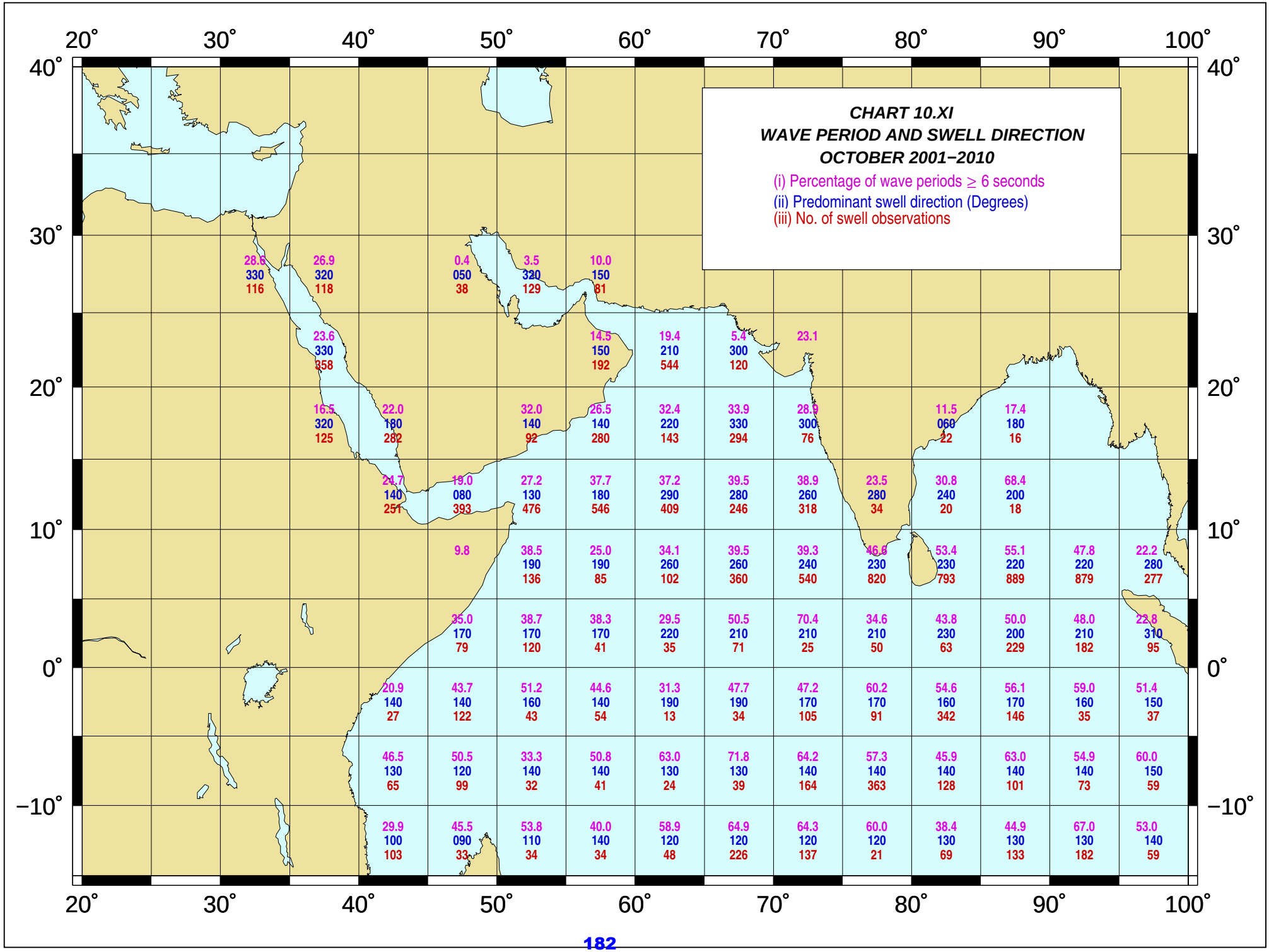


CHART 10.XI
WAVE PERIOD AND SWELL DIRECTION
OCTOBER 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
28.6 330 116
26.9 320 118
0.4 050 38
3.5 320 129
10.0 150 81
23.6 330 358
14.5 150 192
19.4 210 544
5.4 300 120
23.1
16.5 320 125
22.0 180 282
32.0 140 92
26.5 140 280
32.4 220 143
33.9 330 294
28.9 300 76
11.5 060 22
17.4 180 16
21.7 140 251
19.0 080 393
27.2 130 476
37.7 180 546
37.2 290 409
39.5 280 246
38.9 260 318
23.5 280 34
30.8 240 20
68.4 200 18
9.8
38.5 190 136
25.0 190 85
34.1 260 102
39.5 260 360
39.3 240 540
46.6 230 820
53.4 230 793
55.1 220 889
47.8 220 879
22.2 280 277
35.0 170 79
38.7 170 120
38.3 170 41
29.5 220 35
50.5 210 71
70.4 210 25
34.6 210 50
43.8 230 63
50.0 200 229
48.0 210 182
22.8 310 95
20.9 140 27
43.7 140 122
51.2 160 43
44.6 140 54
31.3 190 13
47.7 190 34
47.2 170 105
60.2 170 91
54.6 160 342
56.1 170 146
59.0 160 35
51.4 150 37
46.5 130 65
50.5 120 99
33.3 140 32
50.8 140 41
63.0 130 24
71.8 130 39
64.2 140 164
57.3 140 363
45.9 140 128
63.0 140 101
54.9 140 73
60.0 150 59
29.9 100 103
45.5 090 33
53.8 110 34
40.0 140 34
58.9 120 48
64.9 120 226
64.3 120 137
60.0 120 21
38.4 130 69
44.9 130 133
67.0 130 182
53.0 140 59

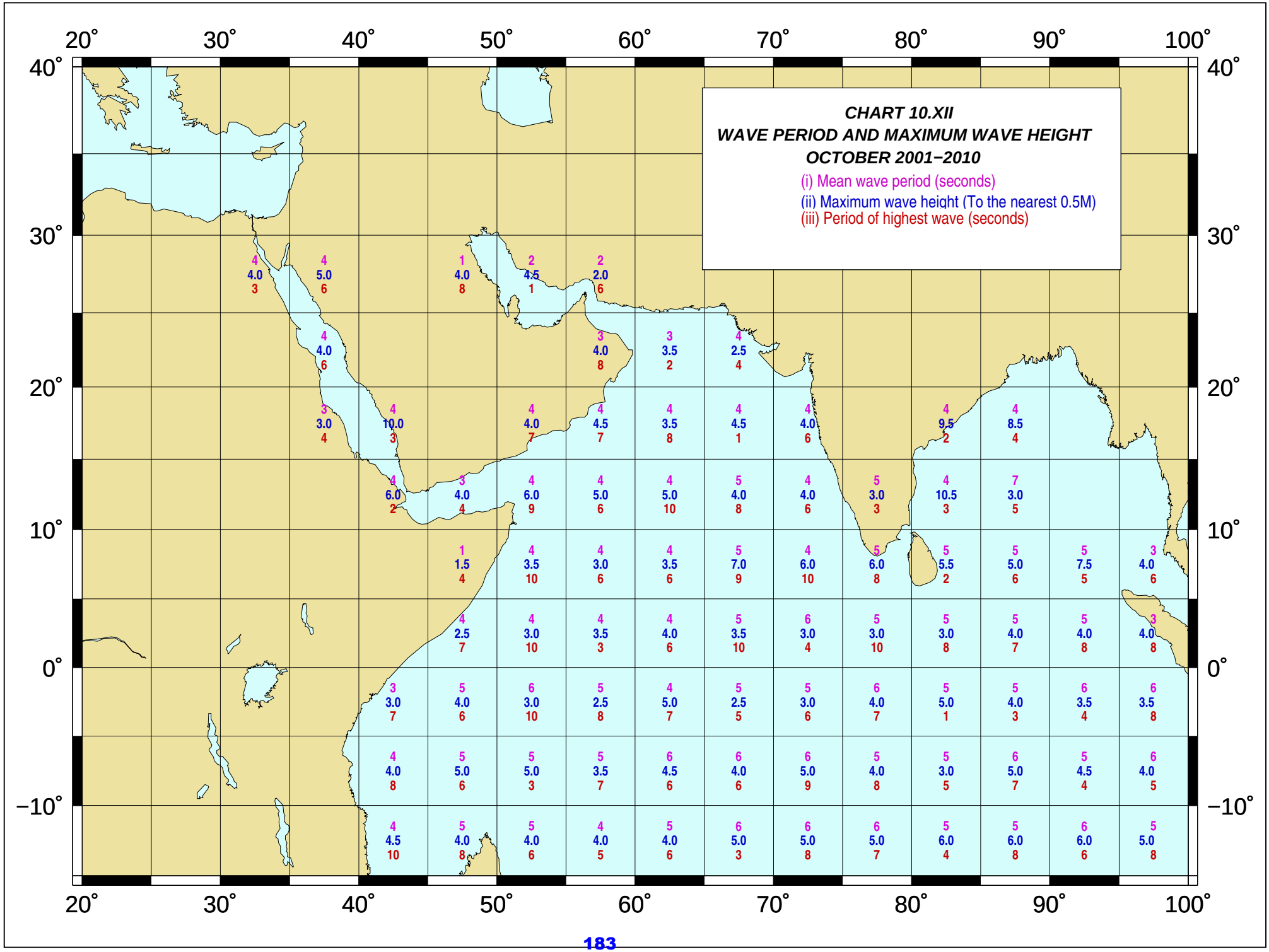


CHART 10.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
OCTOBER 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 4.0 3
4 5.0 6
1 4.0 8
2 4.5 1
2 2.0 6
4 4.0 6
3 4.0 8
3 3.5 2
4 2.5 4
3 3.0 4
4 10.0 3
4 4.0 7
4 4.5 7
4 3.5 8
4 4.5 1
4 4.0 6
4 9.5 2
4 8.5 4
4 6.0 2
3 4.0 4
4 6.0 9
4 5.0 6
4 5.0 10
5 4.0 8
4 4.0 6
5 3.0 3
4 10.5 3
7 3.0 5
1 1.5 4
4 3.5 10
4 3.0 6
4 3.5 6
5 7.0 9
4 6.0 10
5 6.0 8
5 5.5 2
5 5.0 6
5 7.5 5
3 4.0 6
4 2.5 7
4 3.0 10
4 3.5 3
4 4.0 6
5 3.5 10
6 3.0 4
5 3.0 10
5 3.0 8
5 4.0 7
5 4.0 8
3 4.0 8
3 3.0 7
5 4.0 6
6 3.0 10
5 2.5 8
4 5.0 7
5 2.5 5
5 3.0 6
6 4.0 7
5 5.0 1
5 4.0 3
6 3.5 4
6 3.5 8
4 4.0 8
5 5.0 6
5 5.0 3
5 3.5 7
6 4.5 6
6 4.0 6
6 5.0 9
5 4.0 8
5 3.0 5
6 5.0 7
5 4.5 4
6 4.0 5
4 4.5 10
5 4.0 8
5 4.0 6
4 4.0 5
5 4.0 6
6 5.0 3
6 5.0 8
6 5.0 7
5 6.0 4
5 6.0 8
6 6.0 6
5 5.0 8

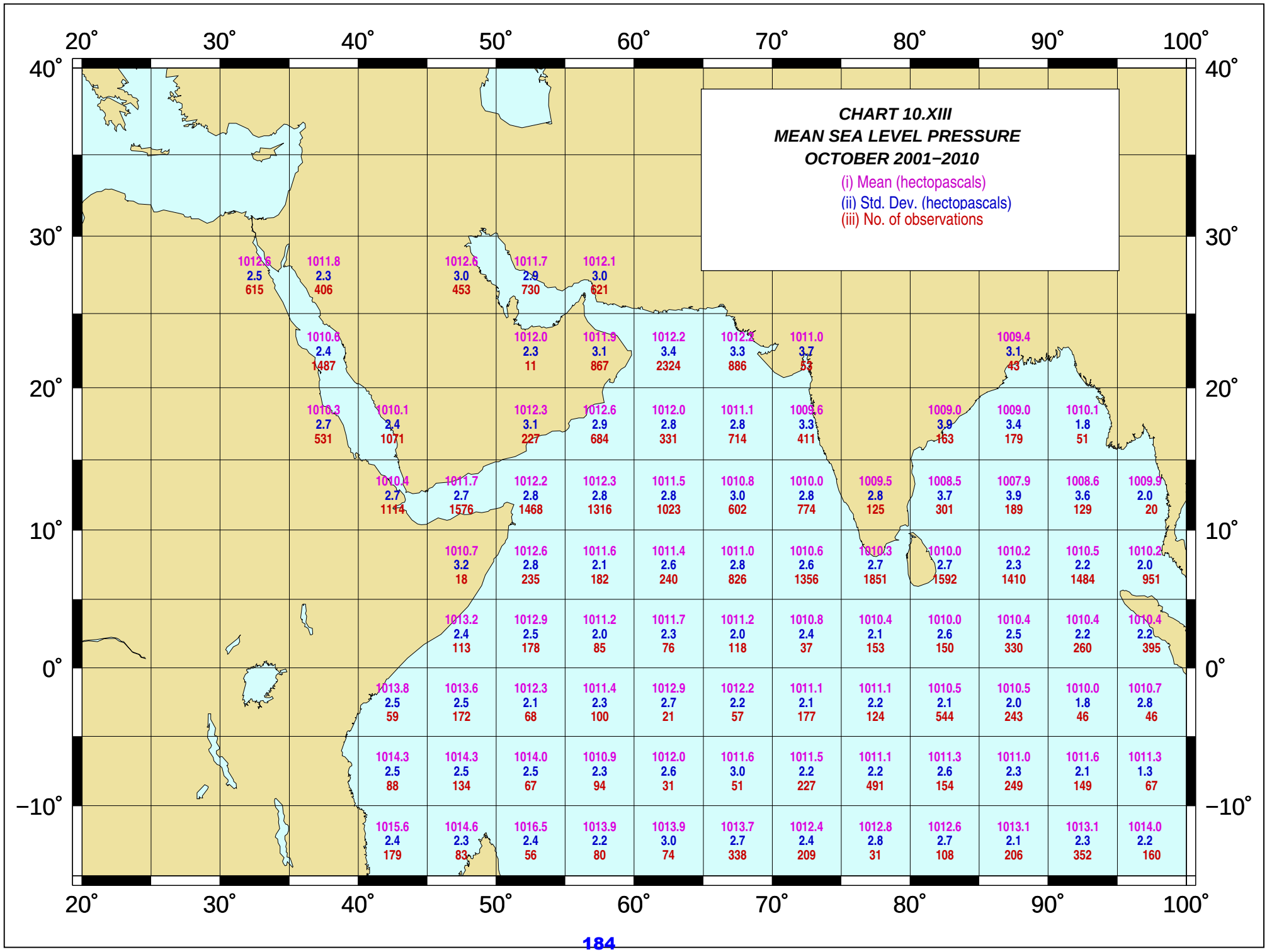


CHART 10.XIII
MEAN SEA LEVEL PRESSURE
OCTOBER 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1012.5 2.5 615
1011.8 2.3 406
1012.6 3.0 453
1011.7 2.9 730
1012.1 3.0 621
1010.6 2.4 1487
1012.0 2.3 11
1011.9 3.1 867
1012.2 3.4 2324
1012.2 3.3 886
1011.0 3.7 53
1009.4 3.1 43
1010.3 2.7 531
1010.1 2.4 1071
1012.3 3.1 227
1012.6 2.9 684
1012.0 2.8 331
1011.1 2.8 714
1009.6 3.3 411
1009.0 3.9 163
1009.0 3.4 179
1010.1 1.8 51
1010.4 2.7 1114
1011.7 2.7 1576
1012.2 2.8 1468
1012.3 2.8 1316
1011.5 2.8 1023
1010.8 3.0 602
1010.0 2.8 774
1009.5 2.8 125
1008.5 3.7 301
1007.9 3.9 189
1008.6 3.6 129
1009.9 2.0 20
1010.7 3.2 18
1012.6 2.8 235
1011.6 2.1 182
1011.4 2.6 240
1011.0 2.8 826
1010.6 2.6 1356
1010.3 2.7 1851
1010.0 2.7 1592
1010.2 2.3 1410
1010.5 2.2 1484
1010.2 2.0 951
1013.2 2.4 113
1012.9 2.5 178
1011.2 2.0 85
1011.7 2.3 76
1011.2 2.0 118
1010.8 2.4 37
1010.4 2.1 153
1010.0 2.6 150
1010.4 2.5 330
1010.4 2.2 260
1010.4 2.2 395
1013.8 2.5 59
1013.6 2.5 172
1012.3 2.1 68
1011.4 2.3 100
1012.9 2.7 21
1012.2 2.2 57
1011.1 2.1 177
1011.1 2.2 124
1010.5 2.1 544
1010.5 2.0 243
1010.0 1.8 46
1010.7 2.8 46
1014.3 2.5 88
1014.3 2.5 134
1014.0 2.5 67
1010.9 2.3 94
1012.0 2.6 31
1011.6 3.0 51
1011.5 2.2 227
1011.1 2.2 491
1011.3 2.6 154
1011.0 2.3 249
1011.6 2.1 149
1011.3 1.3 67
1015.6 2.4 179
1014.6 2.3 83
1016.5 2.4 56
1013.9 2.2 80
1013.9 3.0 74
1013.7 2.7 338
1012.4 2.4 209
1012.8 2.8 31
1012.6 2.7 108
1013.1 2.1 206
1013.1 2.3 352
1014.0 2.2 160

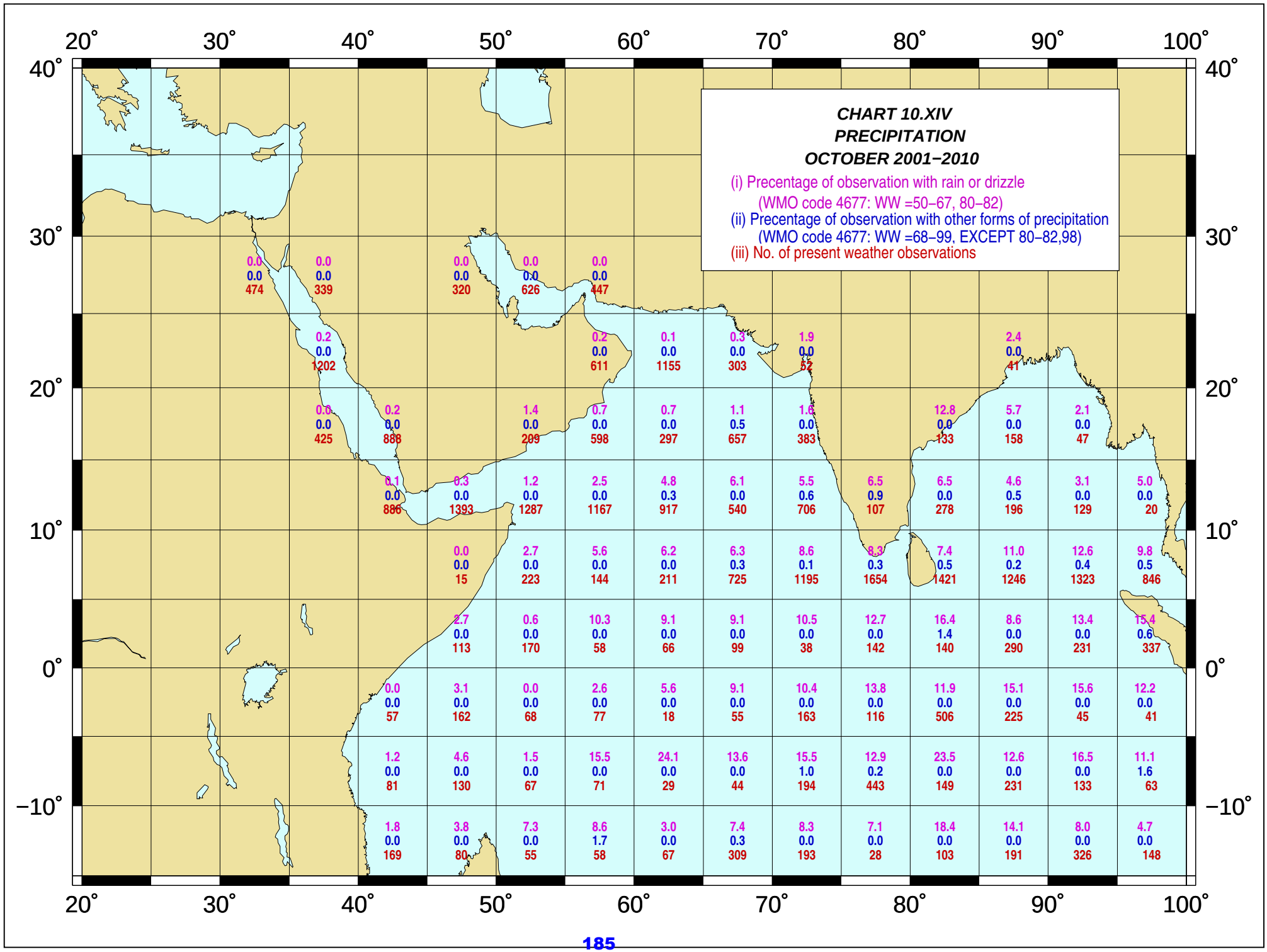


CHART 10.XIV
PRECIPITATION
OCTOBER 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 0.0 474
0.0 0.0 339
0.0 0.0 320
0.0 0.0 626
0.0 0.0 447
0.2 0.0 1202
0.2 0.0 611
0.1 0.0 1155
0.3 0.0 303
1.9 0.0 52
2.4 0.0 41
0.0 0.0 425
0.2 0.0 888
1.4 0.0 209
0.7 0.0 598
0.7 0.0 297
1.1 0.5 657
1.6 0.0 383
12.8 0.0 133
5.7 0.0 158
2.1 0.0 47
0.1 0.0 886
0.3 0.0 1393
1.2 0.0 1287
2.5 0.0 1167
4.8 0.3 917
6.1 0.0 540
5.5 0.6 706
6.5 0.9 107
6.5 0.0 278
4.6 0.5 196
3.1 0.0 129
5.0 0.0 20
0.0 0.0 15
2.7 0.0 223
5.6 0.0 144
6.2 0.0 211
6.3 0.3 725
8.6 0.1 1195
8.3 0.3 1654
7.4 0.5 1421
11.0 0.2 1246
12.6 0.4 1323
9.8 0.5 846
2.7 0.0 113
0.6 0.0 170
10.3 0.0 58
9.1 0.0 66
9.1 0.0 99
10.5 0.0 38
12.7 0.0 142
16.4 1.4 140
8.6 0.0 290
13.4 0.0 231
15.4 0.6 337
0.0 0.0 57
3.1 0.0 162
0.0 0.0 68
2.6 0.0 77
5.6 0.0 18
9.1 0.0 55
10.4 0.0 163
13.8 0.0 116
11.9 0.0 506
15.1 0.0 225
15.6 0.0 45
12.2 0.0 41
1.2 0.0 81
4.6 0.0 130
1.5 0.0 67
15.5 0.0 71
24.1 0.0 29
13.6 0.0 44
15.5 1.0 194
12.9 0.2 443
23.5 0.0 149
12.6 0.0 231
16.5 0.0 133
11.1 1.6 63
1.8 0.0 169
3.8 0.0 80
7.3 0.0 55
8.6 1.7 58
3.0 0.0 67
7.4 0.3 309
8.3 0.0 193
7.1 0.0 28
18.4 0.0 103
14.1 0.0 191
8.0 0.0 326
4.7 0.0 148

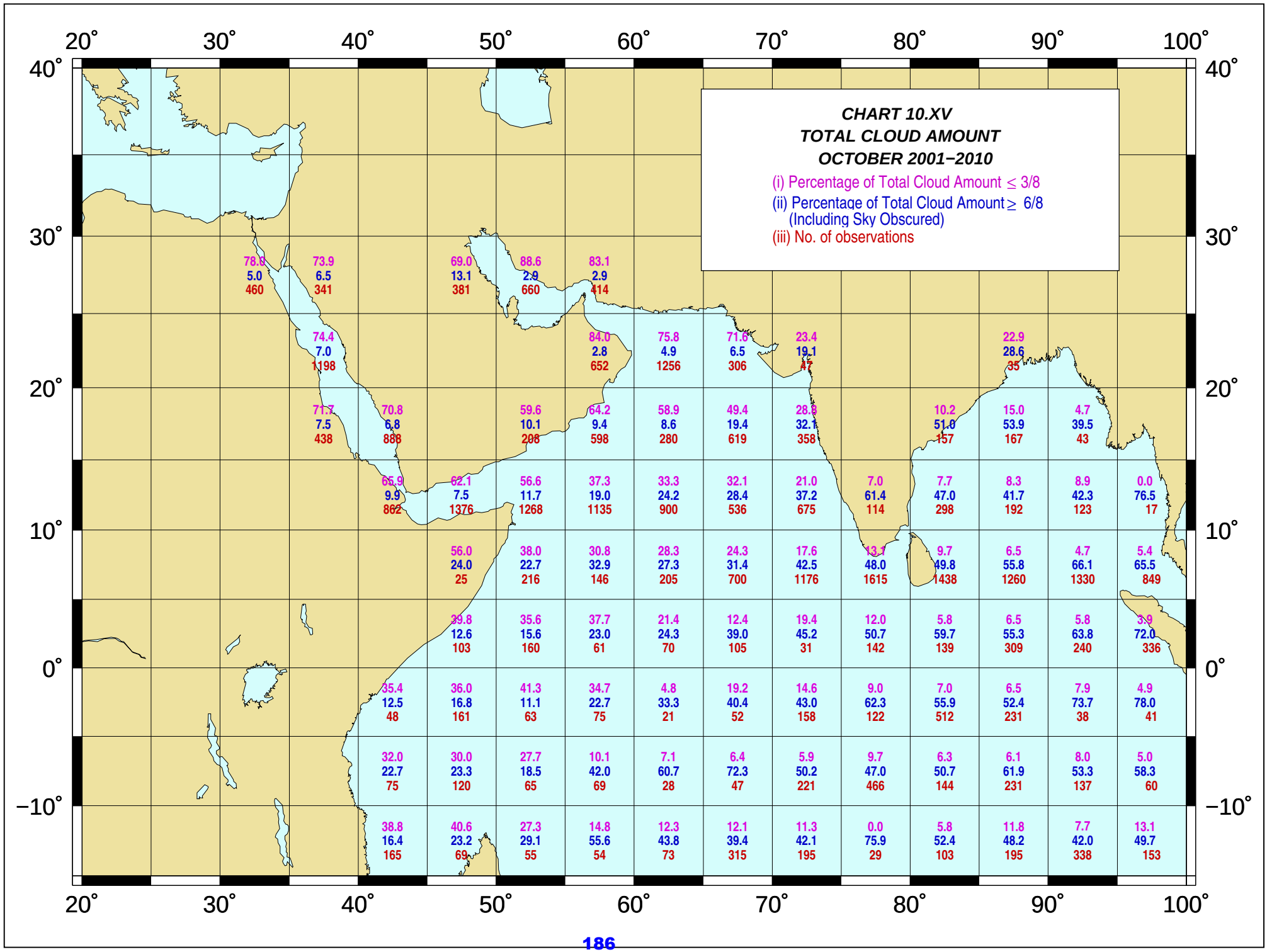


CHART 10.XV
TOTAL CLOUD AMOUNT
OCTOBER 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
78.6 5.0 460
73.9 6.5 341
69.0 13.1 381
88.6 2.9 660
83.1 2.9 414
74.4 7.0 1198
84.0 2.8 652
75.8 4.9 1256
71.6 6.5 306
23.4 19.1 47
22.9 28.6 35
71.7 7.5 438
70.8 6.8 888
59.6 10.1 208
64.2 9.4 598
58.9 8.6 280
49.4 19.4 619
28.8 32.1 358
10.2 51.0 157
15.0 53.9 167
4.7 39.5 43
65.9 9.9 862
62.1 7.5 1376
56.6 11.7 1268
37.3 19.0 1135
33.3 24.2 900
32.1 28.4 536
21.0 37.2 675
7.0 61.4 114
7.7 47.0 298
8.3 41.7 192
8.9 42.3 123
0.0 76.5 17
56.0 24.0 25
38.0 22.7 216
30.8 32.9 146
28.3 27.3 205
24.3 31.4 700
17.6 42.5 1176
13.1 48.0 1615
9.7 49.8 1438
6.5 55.8 1260
4.7 66.1 1330
5.4 65.5 849
39.8 12.6 103
35.6 15.6 160
37.7 23.0 61
21.4 24.3 70
12.4 39.0 105
19.4 45.2 31
12.0 50.7 142
5.8 59.7 139
6.5 55.3 309
5.8 63.8 240
3.9 72.0 336
35.4 12.5 48
36.0 16.8 161
41.3 11.1 63
34.7 22.7 75
4.8 33.3 21
19.2 40.4 52
14.6 43.0 158
9.0 62.3 122
7.0 55.9 512
6.5 52.4 231
7.9 73.7 38
4.9 78.0 41
32.0 22.7 75
30.0 23.3 120
27.7 18.5 65
10.1 42.0 69
7.1 60.7 28
6.4 72.3 47
5.9 50.2 221
9.7 47.0 466
6.3 50.7 144
6.1 61.9 231
8.0 53.3 137
5.0 58.3 60
38.8 16.4 165
40.6 23.2 69
27.3 29.1 55
14.8 55.6 54
12.3 43.8 73
12.1 39.4 315
11.3 42.1 195
0.0 75.9 29
5.8 52.4 103
11.8 48.2 195
7.7 42.0 338
13.1 49.7 153

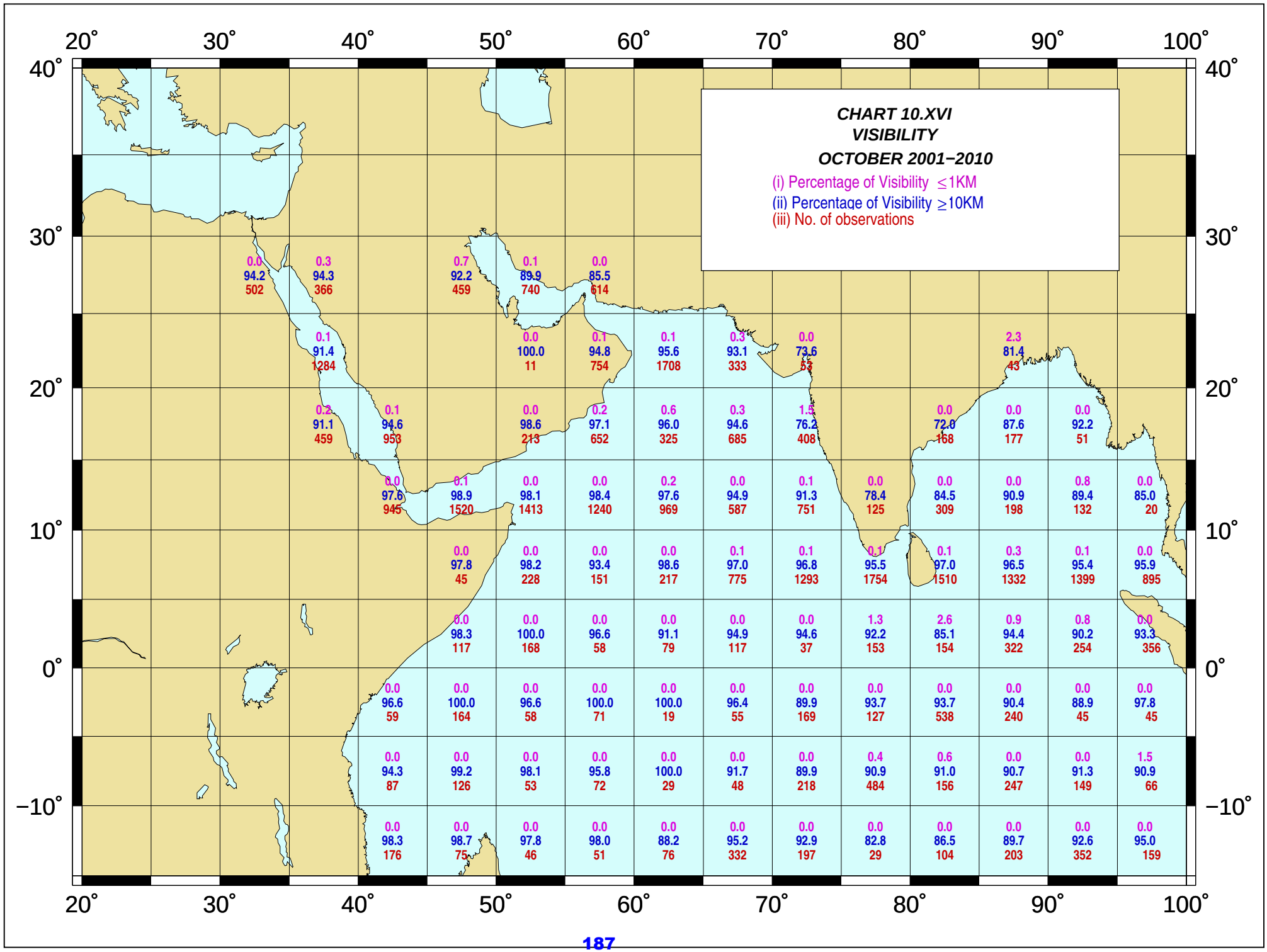


CHART 10.XVI
VISIBILITY
OCTOBER 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 94.2 502
0.3 94.3 366
0.7 92.2 459
0.1 89.9 740
0.0 85.5 614
0.1 91.4 1284
0.0 100.0 11
0.1 94.8 754
0.1 95.6 1708
0.3 93.1 333
0.0 73.6 53
2.3 81.4 43
0.2 91.1 459
0.1 94.6 953
0.0 98.6 213
0.2 97.1 652
0.6 96.0 325
0.3 94.6 685
1.5 76.2 408
0.0 72.0 168
0.0 87.6 177
0.0 92.2 51
0.0 97.6 945
0.1 98.9 1520
0.0 98.1 1413
0.0 98.4 1240
0.2 97.6 969
0.0 94.9 587
0.1 91.3 751
0.0 78.4 125
0.0 84.5 309
0.0 90.9 198
0.8 89.4 132
0.0 85.0 20
0.0 97.8 45
0.0 98.2 228
0.0 93.4 151
0.0 98.6 217
0.1 97.0 775
0.1 96.8 1293
0.1 95.5 1754
0.1 97.0 1510
0.3 96.5 1332
0.1 95.4 1399
0.0 95.9 895
0.0 98.3 117
0.0 100.0 168
0.0 96.6 58
0.0 91.1 79
0.0 94.9 117
0.0 94.6 37
1.3 92.2 153
2.6 85.1 154
0.9 94.4 322
0.8 90.2 254
0.0 93.3 356
0.0 96.6 59
0.0 100.0 164
0.0 96.6 58
0.0 100.0 71
0.0 100.0 19
0.0 96.4 55
0.0 89.9 169
0.0 93.7 127
0.0 93.7 538
0.0 90.4 240
0.0 88.9 45
0.0 97.8 45
0.0 94.3 87
0.0 99.2 126
0.0 98.1 53
0.0 95.8 72
0.0 100.0 29
0.0 91.7 48
0.0 89.9 218
0.4 90.9 484
0.6 91.0 156
0.0 90.7 247
0.0 91.3 149
1.5 90.9 66
0.0 98.3 176
0.0 98.7 75
0.0 97.8 46
0.0 98.0 51
0.0 88.2 76
0.0 95.2 332
0.0 92.9 197
0.0 82.8 29
0.0 86.5 104
0.0 89.7 203
0.0 92.6 352
0.0 95.0 159

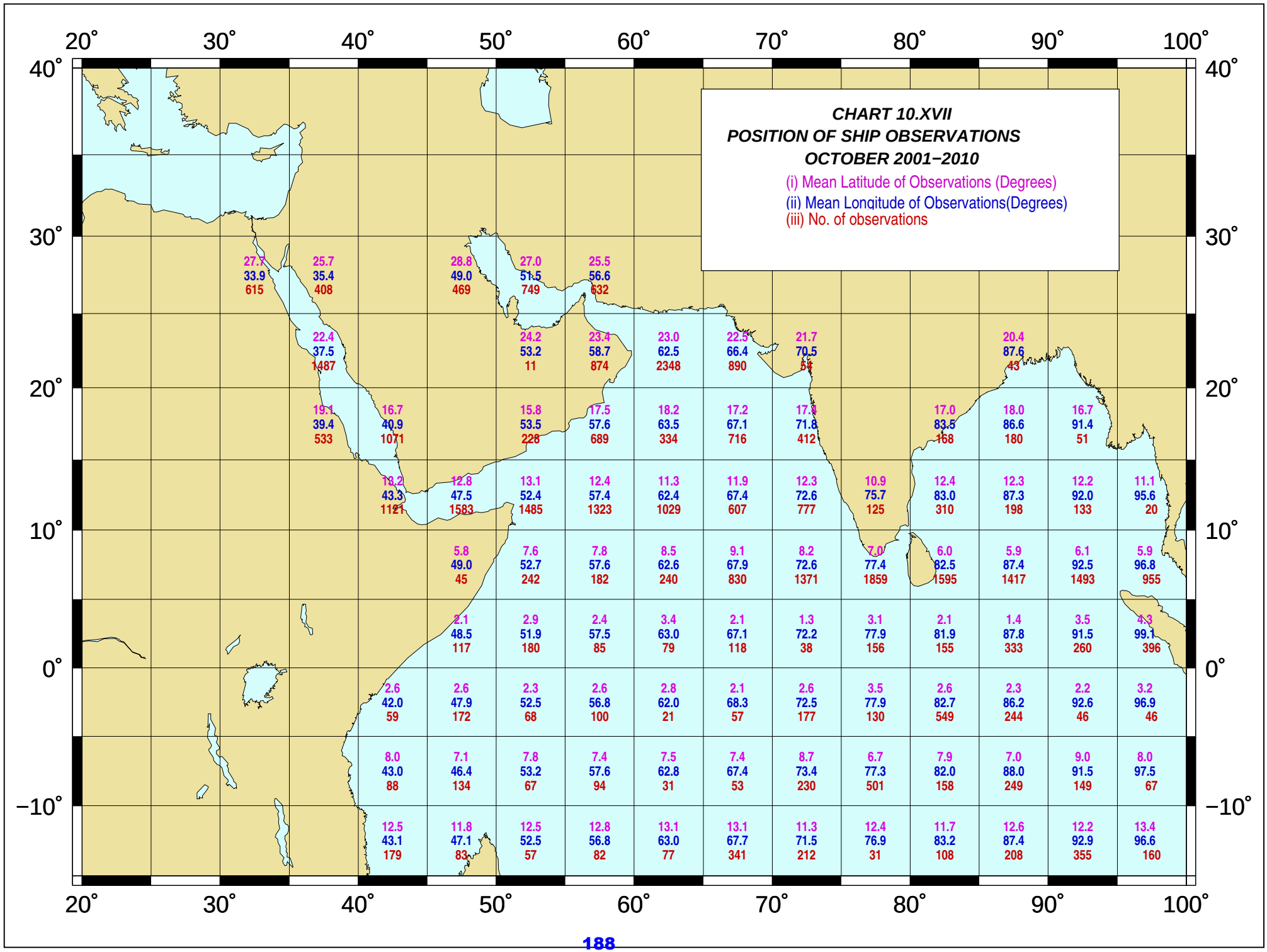


CHART 10.XVII
POSITION OF SHIP OBSERVATIONS
OCTOBER 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.7 33.9 615
25.7 35.4 408
28.8 49.0 469
27.0 51.5 749
25.5 56.6 632
22.4 37.5 1487
24.2 53.2 11
23.4 58.7 874
23.0 62.5 2348
22.5 66.4 890
21.7 70.5 56
20.4 87.6 43
19.1 39.4 533
16.7 40.9 1071
15.8 53.5 228
17.5 57.6 689
18.2 63.5 334
17.2 67.1 716
17.9 71.8 412
17.0 83.5 168
18.0 86.6 180
16.7 91.4 51
13.2 43.3 1121
12.8 47.5 1583
13.1 52.4 1485
12.4 57.4 1323
11.3 62.4 1029
11.9 67.4 607
12.3 72.6 777
10.9 75.7 125
12.4 83.0 310
12.3 87.3 198
12.2 92.0 133
11.1 95.6 20
5.8 49.0 45
7.6 52.7 242
7.8 57.6 182
8.5 62.6 240
9.1 67.9 830
8.2 72.6 1371
7.0 77.4 1859
6.0 82.5 1595
5.9 87.4 1417
6.1 92.5 1493
5.9 96.8 955
2.1 48.5 117
2.9 51.9 180
2.4 57.5 85
3.4 63.0 79
2.1 67.1 118
1.3 72.2 38
3.1 77.9 156
2.1 81.9 155
1.4 87.8 333
3.5 91.5 260
4.3 99.1 396
2.6 42.0 59
2.6 47.9 172
2.3 52.5 68
2.6 56.8 100
2.8 62.0 21
2.1 68.3 57
2.6 72.5 177
3.5 77.9 130
2.6 82.7 549
2.3 86.2 244
2.2 92.6 46
3.2 96.9 46
8.0 43.0 88
7.1 46.4 134
7.8 53.2 67
7.4 57.6 94
7.5 62.8 31
7.4 67.4 53
8.7 73.4 230
6.7 77.3 501
7.9 82.0 158
7.0 88.0 249
9.0 91.5 149
8.0 97.5 67
12.5 43.1 179
11.8 47.1 83
12.5 52.5 57
12.8 56.8 82
13.1 63.0 77
13.1 67.7 341
11.3 71.5 212
12.4 76.9 31
11.7 83.2 108
12.6 87.4 208
12.2 92.9 355
13.4 96.6 160

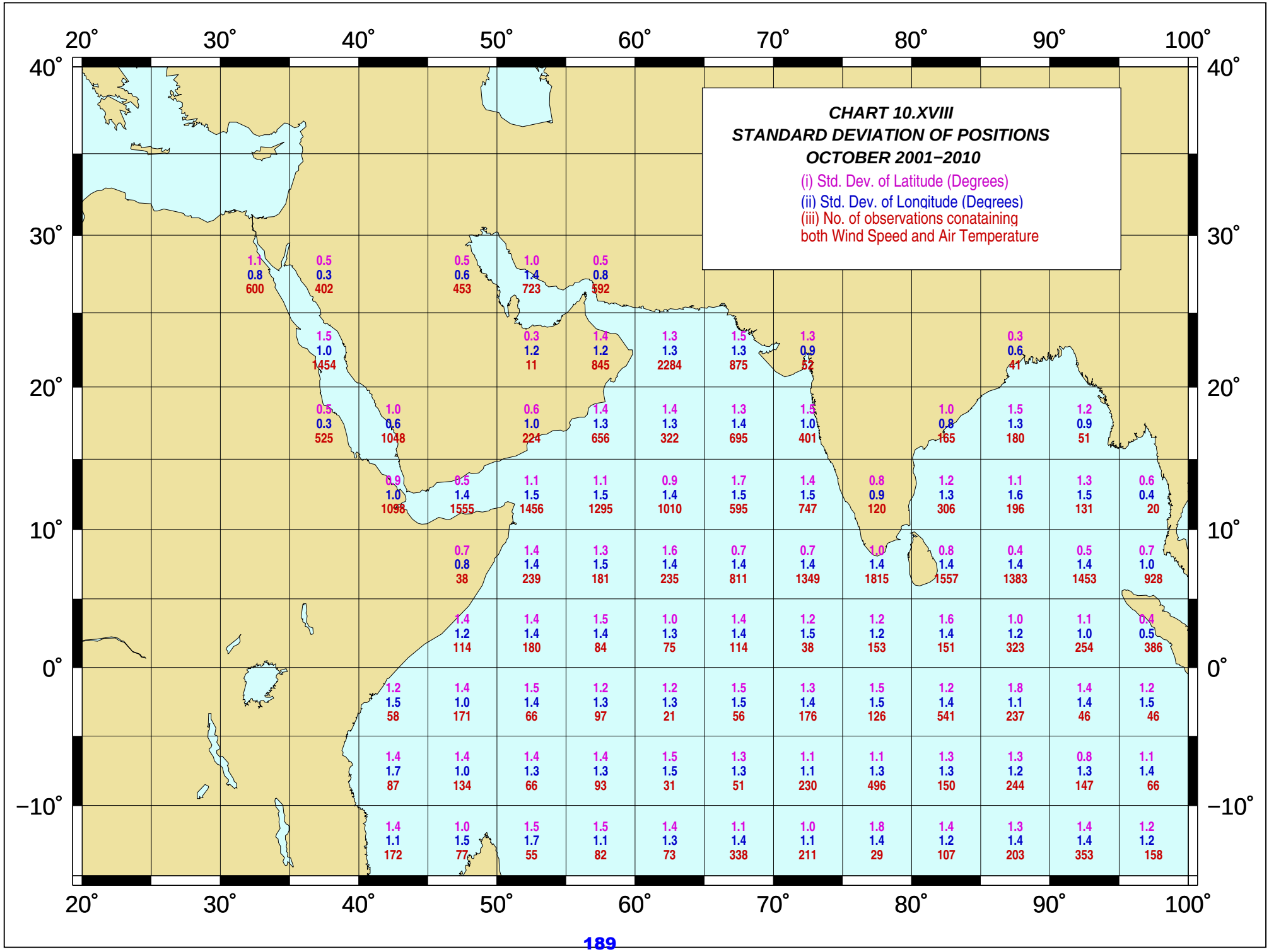
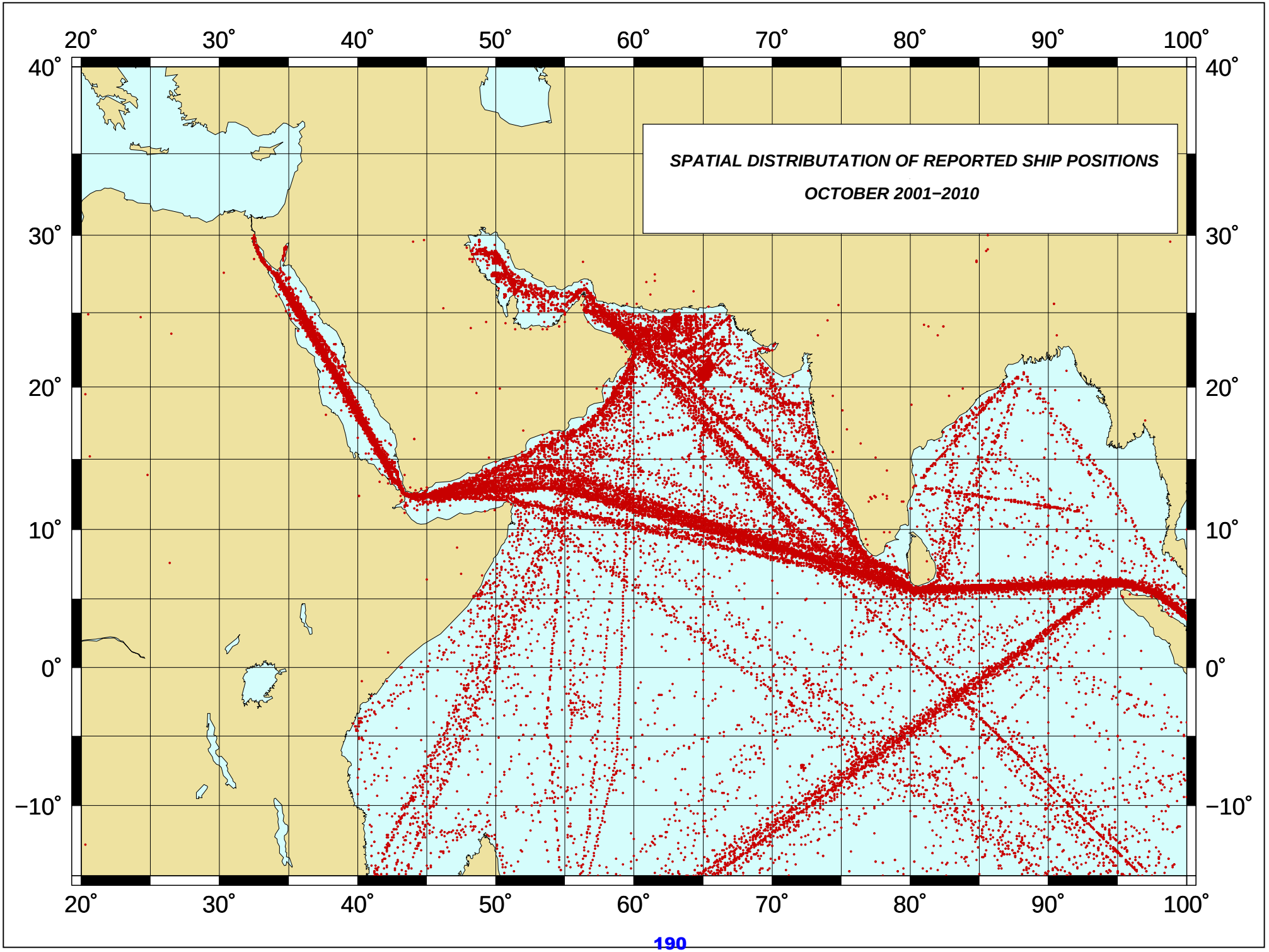


CHART 10.XVIII
STANDARD DEVIATION OF POSITIONS
OCTOBER 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 600
0.5 0.3 402
0.5 0.6 453
1.0 1.4 723
0.5 0.8 592
1.5 1.0 1454
0.3 1.2 11
1.4 1.2 845
1.3 1.3 2284
1.5 1.3 875
1.3 0.9 52
0.3 0.6 41
0.5 0.3 525
1.0 0.6 1048
0.6 1.0 224
1.4 1.3 656
1.4 1.3 322
1.3 1.4 695
1.5 1.0 401
1.0 0.8 165
1.5 1.3 180
1.2 0.9 51
0.9 1.0 1098
0.5 1.4 1555
1.1 1.5 1456
1.1 1.5 1295
0.9 1.4 1010
1.7 1.5 595
1.4 1.5 747
0.8 0.9 120
1.2 1.3 306
1.1 1.6 196
1.3 1.5 131
0.6 0.4 20
0.7 0.8 38
1.4 1.4 239
1.3 1.5 181
1.6 1.4 235
0.7 1.4 811
0.7 1.4 1349
1.0 1.4 1815
0.8 1.4 1557
0.4 1.4 1383
0.5 1.4 1453
0.7 1.0 928
1.4 1.2 114
1.4 1.4 180
1.5 1.4 84
1.0 1.3 75
1.4 1.4 114
1.2 1.5 38
1.2 1.2 153
1.6 1.4 151
1.0 1.2 323
1.1 1.0 254
0.4 0.5 386
1.2 1.5 58
1.4 1.0 171
1.5 1.4 66
1.2 1.3 97
1.2 1.3 21
1.5 1.5 56
1.3 1.4 176
1.5 1.5 126
1.2 1.4 541
1.8 1.1 237
1.4 1.4 46
1.2 1.5 46
1.4 1.7 87
1.4 1.0 134
1.4 1.3 66
1.4 1.3 93
1.5 1.5 31
1.3 1.3 51
1.1 1.1 230
1.1 1.3 496
1.3 1.3 150
1.3 1.2 244
0.8 1.3 147
1.1 1.4 66
1.4 1.1 172
1.0 1.5 77
1.5 1.7 55
1.5 1.1 82
1.4 1.3 73
1.1 1.4 338
1.0 1.1 211
1.8 1.4 29
1.4 1.2 107
1.3 1.4 203
1.4 1.4 353
1.2 1.2 158


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
OCTOBER 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF NOVEMBER 2001-2010

Marine Climatological Summary Charts 2001-2010

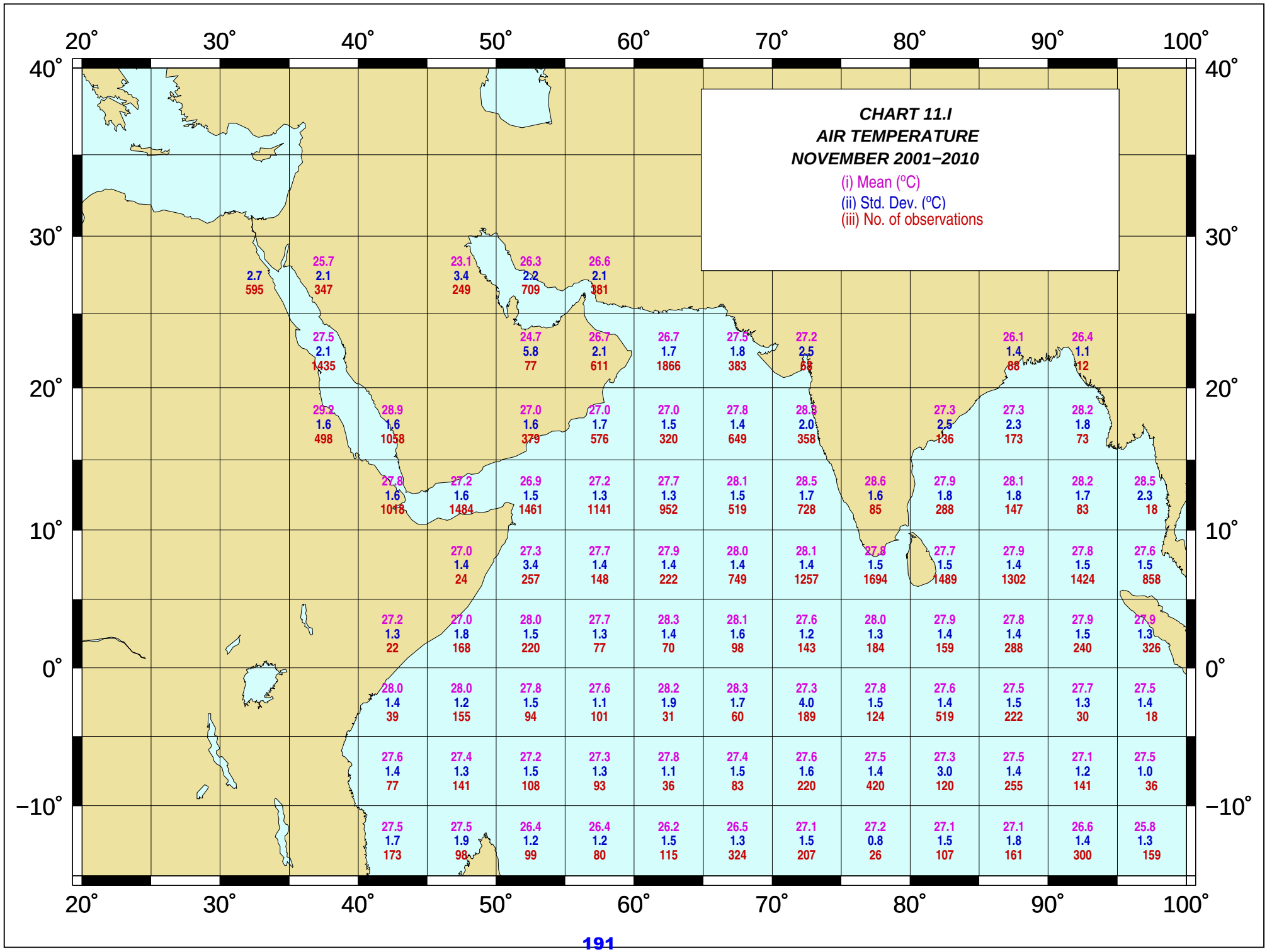


CHART 11.I
AIR TEMPERATURE
NOVEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.7 595
25.7 2.1 347
23.1 3.4 249
26.3 2.2 709
26.6 2.1 381
27.5 2.1 1435
24.7 5.8 77
26.7 2.1 611
26.7 1.7 1866
27.5 1.8 383
27.2 2.5 66
26.1 1.4 88
26.4 1.1 12
29.2 1.6 498
28.9 1.6 1058
27.0 1.6 379
27.0 1.7 576
27.0 1.5 320
27.8 1.4 649
28.3 2.0 358
27.3 2.5 136
27.3 2.3 173
28.2 1.8 73
27.8 1.6 1018
27.2 1.6 1484
26.9 1.5 1461
27.2 1.3 1141
27.7 1.3 952
28.1 1.5 519
28.5 1.7 728
28.6 1.6 85
27.9 1.8 288
28.1 1.8 147
28.2 1.7 83
28.5 2.3 18
27.0 1.4 24
27.3 3.4 257
27.7 1.4 148
27.9 1.4 222
28.0 1.4 749
28.1 1.4 1257
27.9 1.5 1694
27.7 1.5 1489
27.9 1.4 1302
27.8 1.5 1424
27.6 1.5 858
27.2 1.3 22
27.0 1.8 168
28.0 1.5 220
27.7 1.3 77
28.3 1.4 70
28.1 1.6 98
27.6 1.2 143
28.0 1.3 184
27.9 1.4 159
27.8 1.4 288
27.9 1.5 240
27.9 1.3 326
28.0 1.4 39
28.0 1.2 155
27.8 1.5 94
27.6 1.1 101
28.2 1.9 31
28.3 1.7 60
27.3 4.0 189
27.8 1.5 124
27.6 1.4 519
27.5 1.5 222
27.7 1.3 30
27.5 1.4 18
27.6 1.4 77
27.4 1.3 141
27.2 1.5 108
27.3 1.3 93
27.8 1.1 36
27.4 1.5 83
27.6 1.6 220
27.5 1.4 420
27.3 3.0 120
27.5 1.4 255
27.1 1.2 141
27.5 1.0 36
27.5 1.7 173
27.5 1.9 98
26.4 1.2 99
26.4 1.2 80
26.2 1.5 115
26.5 1.3 324
27.1 1.5 207
27.2 0.8 26
27.1 1.5 107
27.1 1.8 161
26.6 1.4 300
25.8 1.3 159

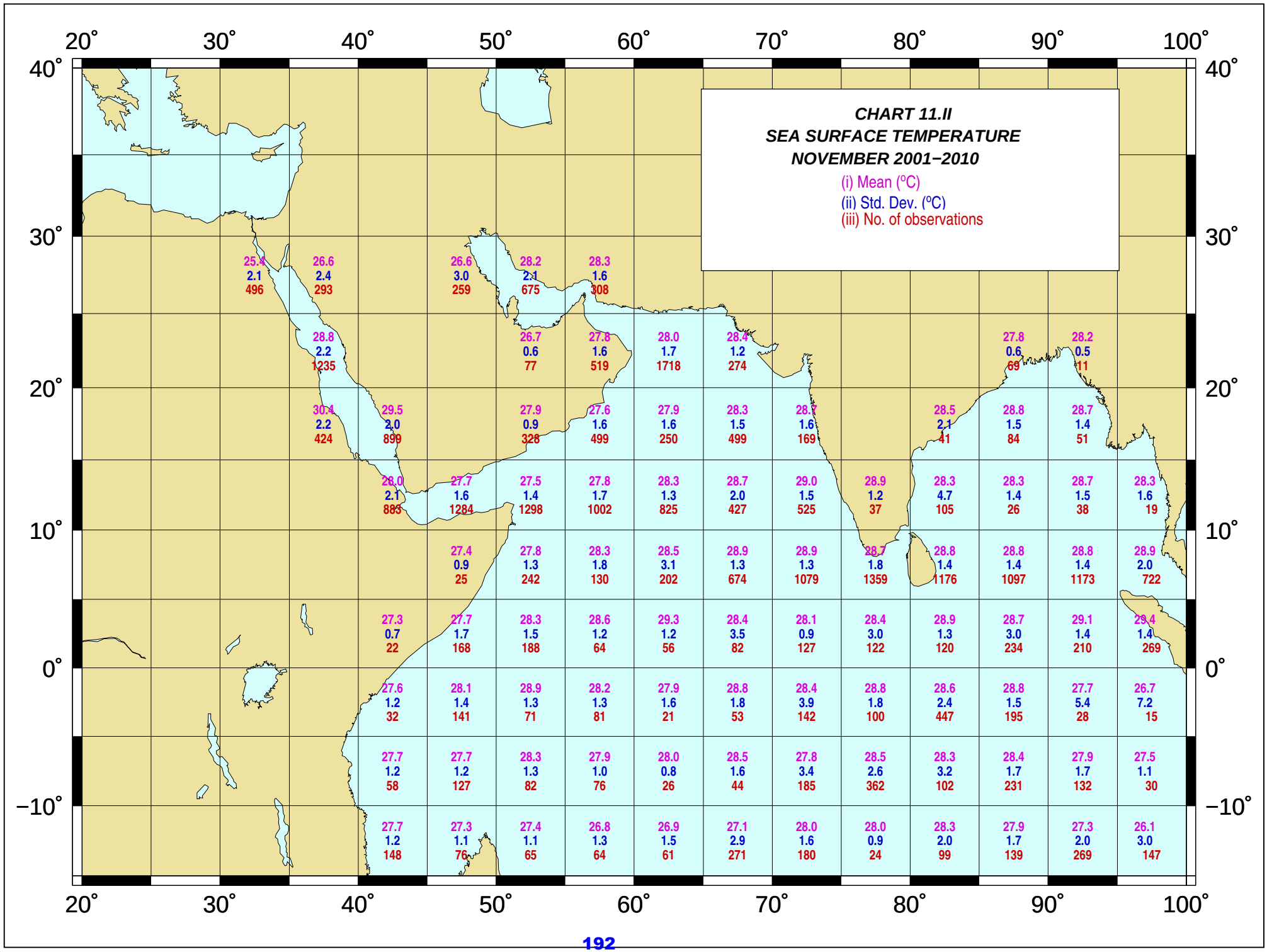


CHART 11.II
SEA SURFACE TEMPERATURE
NOVEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
25.4 2.1 496
26.6 2.4 293
26.6 3.0 259
28.2 2.1 675
28.3 1.6 308
28.8 2.2 1235
26.7 0.6 77
27.8 1.6 519
28.0 1.7 1718
28.4 1.2 274
27.8 0.6 69
28.2 0.5 11
30.4 2.2 424
29.5 2.0 899
27.9 0.9 328
27.6 1.6 499
27.9 1.6 250
28.3 1.5 499
28.7 1.6 169
28.5 2.1 41
28.8 1.5 84
28.7 1.4 51
28.0 2.1 883
27.7 1.6 1284
27.5 1.4 1298
27.8 1.7 1002
28.3 1.3 825
28.7 2.0 427
29.0 1.5 525
28.9 1.2 37
28.3 4.7 105
28.3 1.4 26
28.7 1.5 38
28.3 1.6 19
27.4 0.9 25
27.8 1.3 242
28.3 1.8 130
28.5 3.1 202
28.9 1.3 674
28.9 1.3 1079
28.7 1.8 1359
28.8 1.4 1176
28.8 1.4 1097
28.8 1.4 1173
28.9 2.0 722
27.3 0.7 22
27.7 1.7 168
28.3 1.5 188
28.6 1.2 64
29.3 1.2 56
28.4 3.5 82
28.1 0.9 127
28.4 3.0 122
28.9 1.3 120
28.7 3.0 234
29.1 1.4 210
29.4 1.4 269
27.6 1.2 32
28.1 1.4 141
28.9 1.3 71
28.2 1.3 81
27.9 1.6 21
28.8 1.8 53
28.4 3.9 142
28.8 1.8 100
28.6 2.4 447
28.8 1.5 195
27.7 5.4 28
26.7 7.2 15
27.7 1.2 58
27.7 1.2 127
28.3 1.3 82
27.9 1.0 76
28.0 0.8 26
28.5 1.6 44
27.8 3.4 185
28.5 2.6 362
28.3 3.2 102
28.4 1.7 231
27.9 1.7 132
27.5 1.1 30
27.7 1.2 148
27.3 1.1 76
27.4 1.1 65
26.8 1.3 64
26.9 1.5 61
27.1 2.9 271
28.0 1.6 180
28.0 0.9 24
28.3 2.0 99
27.9 1.7 139
27.3 2.0 269
26.1 3.0 147

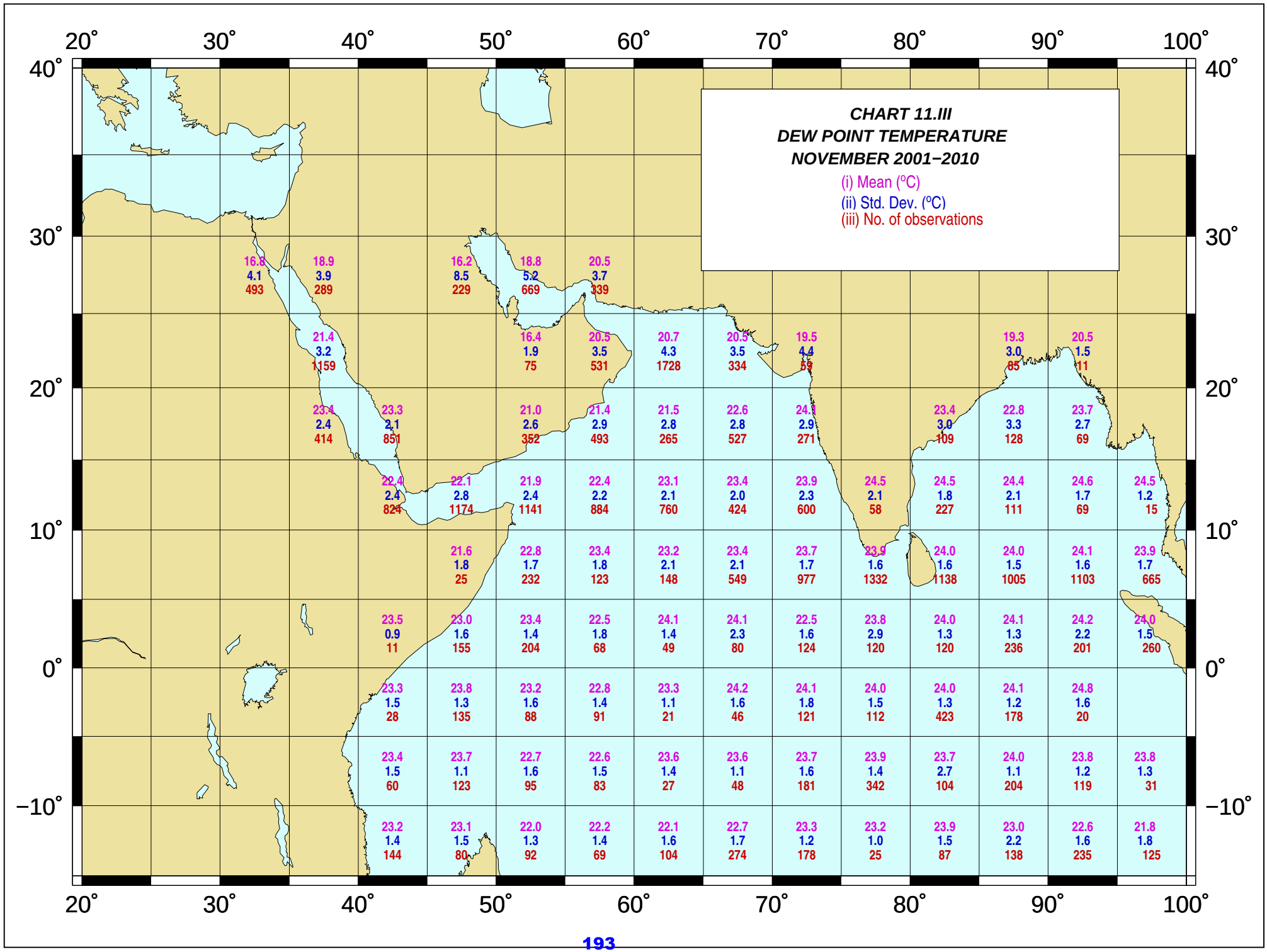


CHART 11.III
DEW POINT TEMPERATURE
NOVEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
16.8 4.1 493
18.9 3.9 289
16.2 8.5 229
18.8 5.2 669
20.5 3.7 339
21.4 3.2 1159
16.4 1.9 75
20.5 3.5 531
20.7 4.3 1728
20.5 3.5 334
19.5 4.4 59
19.3 3.0 85
20.5 1.5 11
23.4 2.4 414
23.3 2.1 851
21.0 2.6 352
21.4 2.9 493
21.5 2.8 265
22.6 2.8 527
24.1 2.9 271
23.4 3.0 109
22.8 3.3 128
23.7 2.7 69
22.4 2.4 824
22.1 2.8 1174
21.9 2.4 1141
22.4 2.2 884
23.1 2.1 760
23.4 2.0 424
23.9 2.3 600
24.5 2.1 58
24.5 1.8 227
24.4 2.1 111
24.6 1.7 69
24.5 1.2 15
21.6 1.8 25
22.8 1.7 232
23.4 1.8 123
23.2 2.1 148
23.4 2.1 549
23.7 1.7 977
23.9 1.6 1332
24.0 1.6 1138
24.0 1.5 1005
24.1 1.6 1103
23.9 1.7 665
23.5 0.9 11
23.0 1.6 155
23.4 1.4 204
22.5 1.8 68
24.1 1.4 49
24.1 2.3 80
22.5 1.6 124
23.8 2.9 120
24.0 1.3 120
24.1 1.3 236
24.2 2.2 201
24.0 1.5 260
23.3 1.5 28
23.8 1.3 135
23.2 1.6 88
22.8 1.4 91
23.3 1.1 21
24.2 1.6 46
24.1 1.8 121
24.0 1.5 112
24.0 1.3 423
24.1 1.2 178
24.8 1.6 20
23.4 1.5 60
23.7 1.1 123
22.7 1.6 95
22.6 1.5 83
23.6 1.4 27
23.6 1.1 48
23.7 1.6 181
23.9 1.4 342
23.7 2.7 104
24.0 1.1 204
23.8 1.2 119
23.8 1.3 31
23.2 1.4 144
23.1 1.5 80
22.0 1.3 92
22.2 1.4 69
22.1 1.6 104
22.7 1.7 274
23.3 1.2 178
23.2 1.0 25
23.9 1.5 87
23.0 2.2 138
22.6 1.6 235
21.8 1.8 125

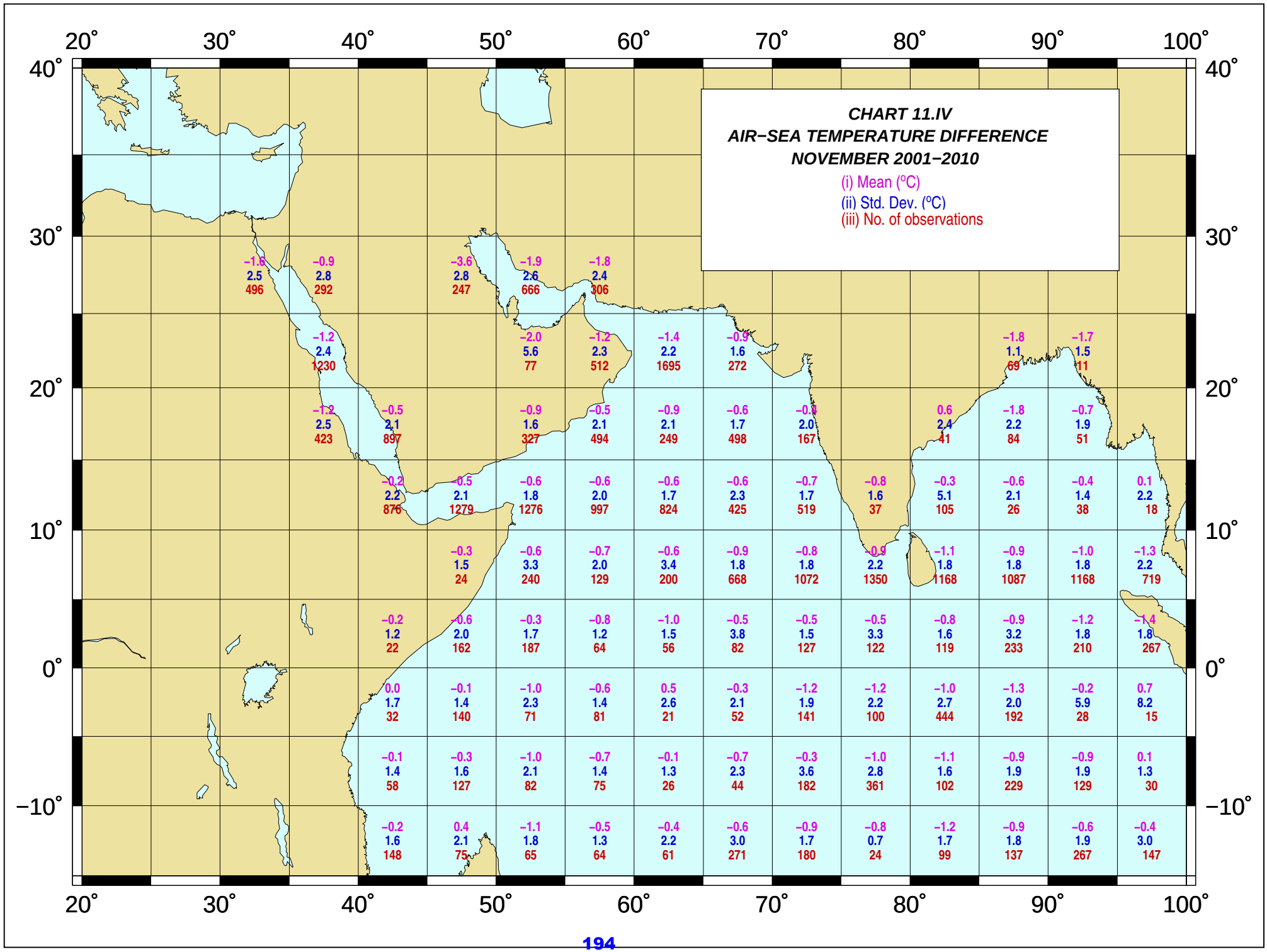


CHART 11.IV
AIR–SEA TEMPERATURE DIFFERENCE
NOVEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−1.6 2.5 496
−0.9 2.8 292
−3.6 2.8 247
−1.9 2.6 666
−1.8 2.4 306
−1.2 2.4 1230
−2.0 5.6 77
−1.2 2.3 512
−1.4 2.2 1695
−0.9 1.6 272
−1.8 1.1 69
−1.7 1.5 11
−1.2 2.5 423
−0.5 2.1 897
−0.9 1.6 327
−0.5 2.1 494
−0.9 2.1 249
−0.6 1.7 498
0.6 2.4 41
−1.8 2.2 84
−0.7 1.9 51
−0.2 2.2 876
−0.5 2.1 1279
−0.6 1.8 1276
−0.6 2.0 997
−0.6 1.7 824
−0.6 2.3 425
−0.7 1.7 519
−0.8 1.6 37
−0.3 5.1 105
−0.6 2.1 26
−0.4 1.4 38
0.1 2.2 18
−0.3 1.5 24
−0.6 3.3 240
−0.7 2.0 129
−0.6 3.4 200
−0.9 1.8 668
−0.8 1.8 1072
−0.9 2.2 1350
−1.1 1.8 1168
−0.9 1.8 1087
−1.0 1.8 1168
−1.3 2.2 719
−0.2 1.2 22
−0.6 2.0 162
−0.3 1.7 187
−0.8 1.2 64
−1.0 1.5 56
−0.5 3.8 82
−0.5 1.5 127
−0.5 3.3 122
−0.8 1.6 119
−0.9 3.2 233
−1.2 1.8 210
−1.4 1.8 267
0.0 1.7 32
−0.1 1.4 140
−1.0 2.3 71
−0.6 1.4 81
0.5 2.6 21
−0.3 2.1 52
−1.2 1.9 141
−1.2 2.2 100
−1.0 2.7 444
−1.3 2.0 192
−0.2 5.9 28
0.7 8.2 15
−0.1 1.4 58
−0.3 1.6 127
−1.0 2.1 82
−0.7 1.4 75
−0.1 1.3 26
−0.7 2.3 44
−0.3 3.6 182
−1.0 2.8 361
−1.1 1.6 102
−0.9 1.9 229
−0.9 1.9 129
0.1 1.3 30
−0.2 1.6 148
0.4 2.1 75
−1.1 1.8 65
−0.5 1.3 64
−0.4 2.2 61
−0.6 3.0 271
−0.9 1.7 180
−0.8 0.7 24
−1.2 1.7 99
−0.9 1.8 137
−0.6 1.9 267
−0.4 3.0 147

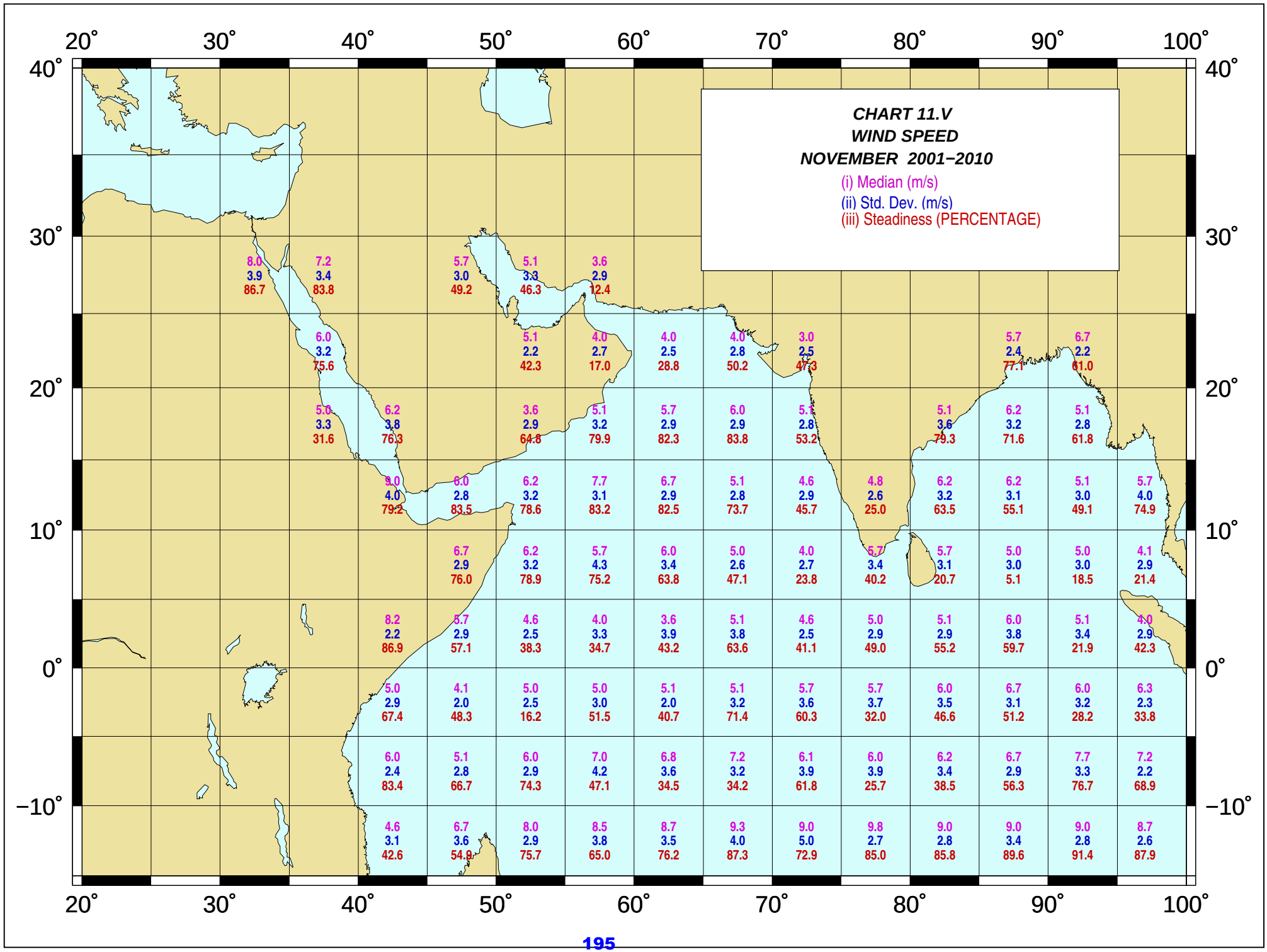


CHART 11.V
WIND SPEED
NOVEMBER 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.0 3.9 86.7
7.2 3.4 83.8
5.7 3.0 49.2
5.1 3.3 46.3
3.6 2.9 12.4
6.0 3.2 75.6
5.1 2.2 42.3
4.0 2.7 17.0
4.0 2.5 28.8
4.0 2.8 50.2
3.0 2.5 47.3
5.7 2.4 77.1
6.7 2.2 61.0
5.0 3.3 31.6
6.2 3.8 76.3
3.6 2.9 64.8
5.1 3.2 79.9
5.7 2.9 82.3
6.0 2.9 83.8
5.1 2.8 53.2
5.1 3.6 79.3
6.2 3.2 71.6
5.1 2.8 61.8
6.0 4.0 79.2
6.0 2.8 83.5
6.2 3.2 78.6
7.7 3.1 83.2
6.7 2.9 82.5
5.1 2.8 73.7
4.6 2.9 45.7
4.8 2.6 25.0
6.2 3.2 63.5
6.2 3.1 55.1
5.1 3.0 49.1
5.7 4.0 74.9
6.7 2.9 76.0
6.2 3.2 78.9
5.7 4.3 75.2
6.0 3.4 63.8
5.0 2.6 47.1
4.0 2.7 23.8
5.7 3.4 40.2
5.7 3.1 20.7
5.0 3.0 5.1
5.0 3.0 18.5
4.1 2.9 21.4
8.2 2.2 86.9
5.7 2.9 57.1
4.6 2.5 38.3
4.0 3.3 34.7
3.6 3.9 43.2
5.1 3.8 63.6
4.6 2.5 41.1
5.0 2.9 49.0
5.1 2.9 55.2
6.0 3.8 59.7
5.1 3.4 21.9
4.0 2.9 42.3
5.0 2.9 67.4
4.1 2.0 48.3
5.0 2.5 16.2
5.0 3.0 51.5
5.1 2.0 40.7
5.1 3.2 71.4
5.7 3.6 60.3
5.7 3.7 32.0
6.0 3.5 46.6
6.7 3.1 51.2
6.0 3.2 28.2
6.3 2.3 33.8
6.0 2.4 83.4
5.1 2.8 66.7
6.0 2.9 74.3
7.0 4.2 47.1
6.8 3.6 34.5
7.2 3.2 34.2
6.1 3.9 61.8
6.0 3.9 25.7
6.2 3.4 38.5
6.7 2.9 56.3
7.7 3.3 76.7
7.2 2.2 68.9
4.6 3.1 42.6
6.7 3.6 54.8
8.0 2.9 75.7
8.5 3.8 65.0
8.7 3.5 76.2
9.3 4.0 87.3
9.0 5.0 72.9
9.8 2.7 85.0
9.0 2.8 85.8
9.0 3.4 89.6
9.0 2.8 91.4
8.7 2.6 87.9

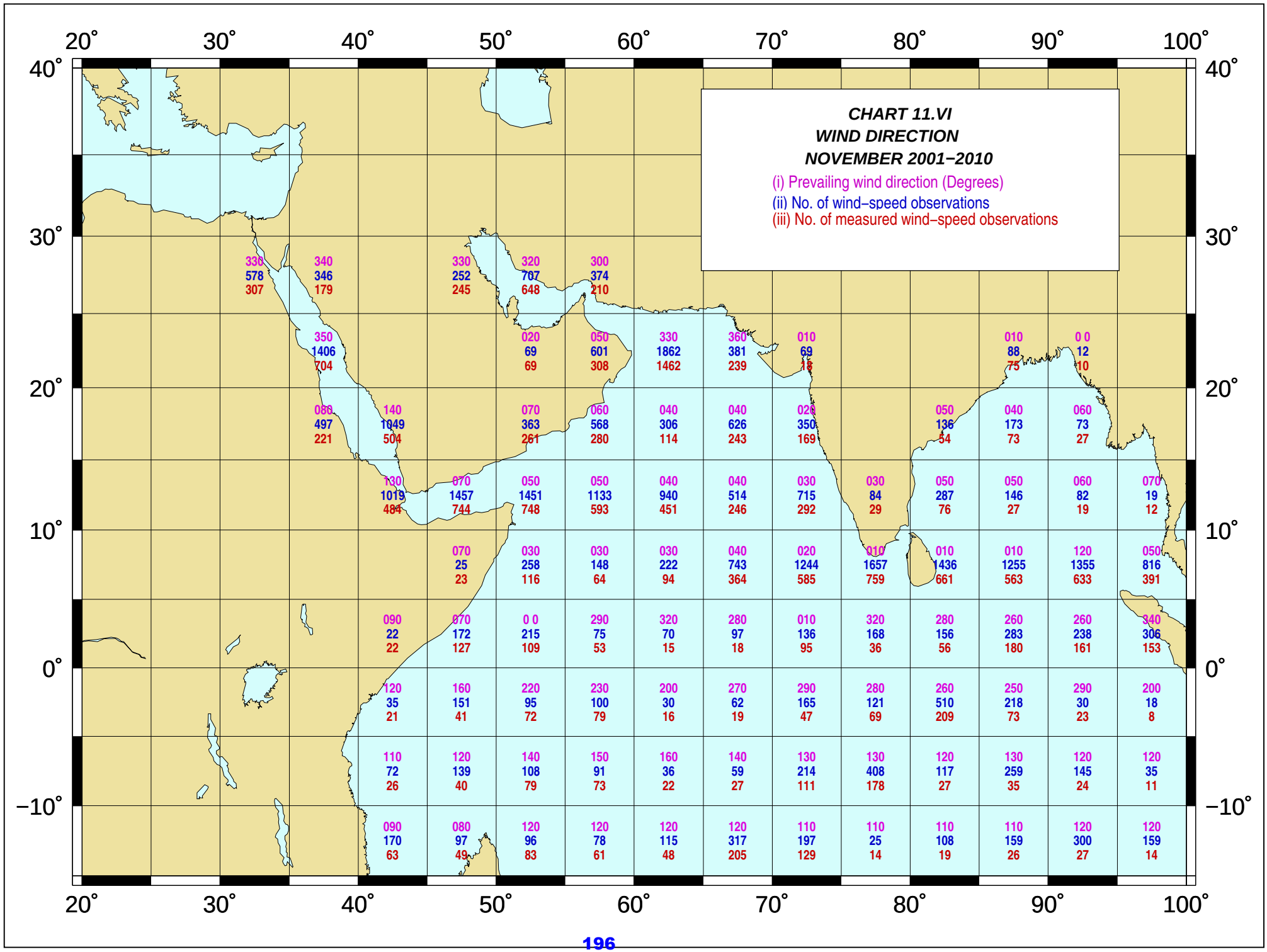


CHART 11.VI
WIND DIRECTION
NOVEMBER 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 578 307
340 346 179
330 252 245
320 707 648
300 374 210
350 1406 704
020 69 69
050 601 308
330 1862 1462
360 381 239
010 69 16
010 88 75
0 0 12 10
080 497 221
140 1049 504
070 363 261
060 568 280
040 306 114
040 626 243
020 350 169
050 136 54
040 173 73
060 73 27
130 1019 484
070 1457 744
050 1451 748
050 1133 593
040 940 451
040 514 246
030 715 292
030 84 29
050 287 76
050 146 27
060 82 19
070 19 12
070 25 23
030 258 116
030 148 64
030 222 94
040 743 364
020 1244 585
010 1657 759
010 1436 661
010 1255 563
120 1355 633
050 816 391
090 22 22
070 172 127
0 0 215 109
290 75 53
320 70 15
280 97 18
010 136 95
320 168 36
280 156 56
260 283 180
260 238 161
340 306 153
120 35 21
160 151 41
220 95 72
230 100 79
200 30 16
270 62 19
290 165 47
280 121 69
260 510 209
250 218 73
290 30 23
200 18 8
110 72 26
120 139 40
140 108 79
150 91 73
160 36 22
140 59 27
130 214 111
130 408 178
120 117 27
130 259 35
120 145 24
120 35 11
090 170 63
080 97 49
120 96 83
120 78 61
120 115 48
120 317 205
110 197 129
110 25 14
110 108 19
110 159 26
120 300 27
120 159 14

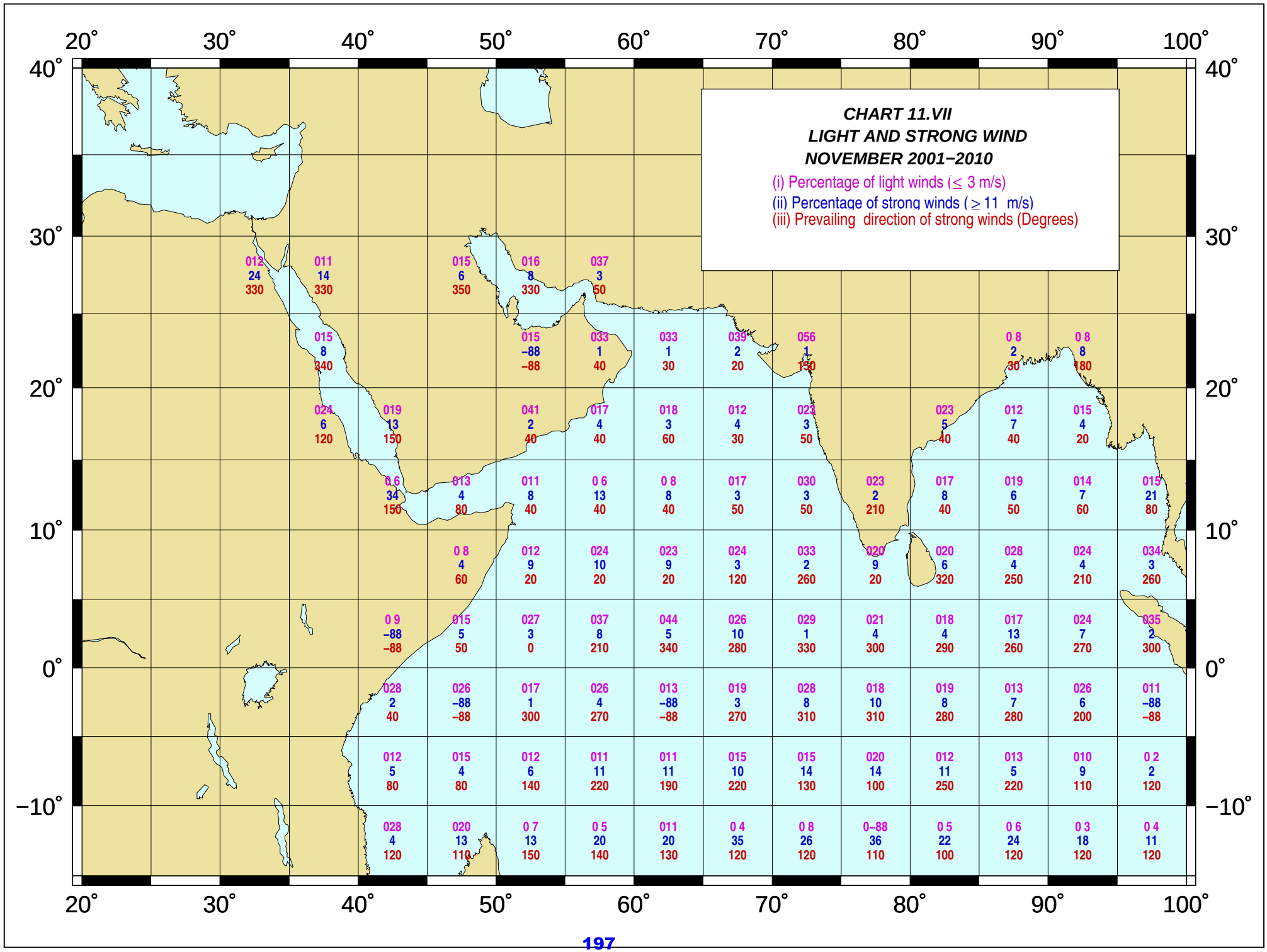


CHART 11.VII
LIGHT AND STRONG WIND
NOVEMBER 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
012 24 330
011 14 330
015 6 350
016 8 330
037 3 50
015 8 340
015 −88 −88
033 1 40
033 1 30
039 2 20
056 1 150
0 8 2 30
0 8 8 180
024 6 120
019 13 150
041 2 40
017 4 40
018 3 60
012 4 30
023 3 50
023 5 40
012 7 40
015 4 20
0 6 34 150
013 4 80
011 8 40
0 6 13 40
0 8 8 40
017 3 50
030 3 50
023 2 210
017 8 40
019 6 50
014 7 60
015 21 80
0 8 4 60
012 9 20
024 10 20
023 9 20
024 3 120
033 2 260
020 9 20
020 6 320
028 4 250
024 4 210
034 3 260
0 9 −88 −88
015 5 50
027 3 0
037 8 210
044 5 340
026 10 280
029 1 330
021 4 300
018 4 290
017 13 260
024 7 270
035 2 300
028 2 40
026 −88 −88
017 1 300
026 4 270
013 −88 −88
019 3 270
028 8 310
018 10 310
019 8 280
013 7 280
026 6 200
011 −88 −88
012 5 80
015 4 80
012 6 140
011 11 220
011 11 190
015 10 220
015 14 130
020 14 100
012 11 250
013 5 220
010 9 110
0 2 2 120
028 4 120
020 13 110
0 7 13 150
0 5 20 140
011 20 130
0 4 35 120
0 8 26 120
0–88 36 110
0 5 22 100
0 6 24 120
0 3 18 120
0 4 11 120

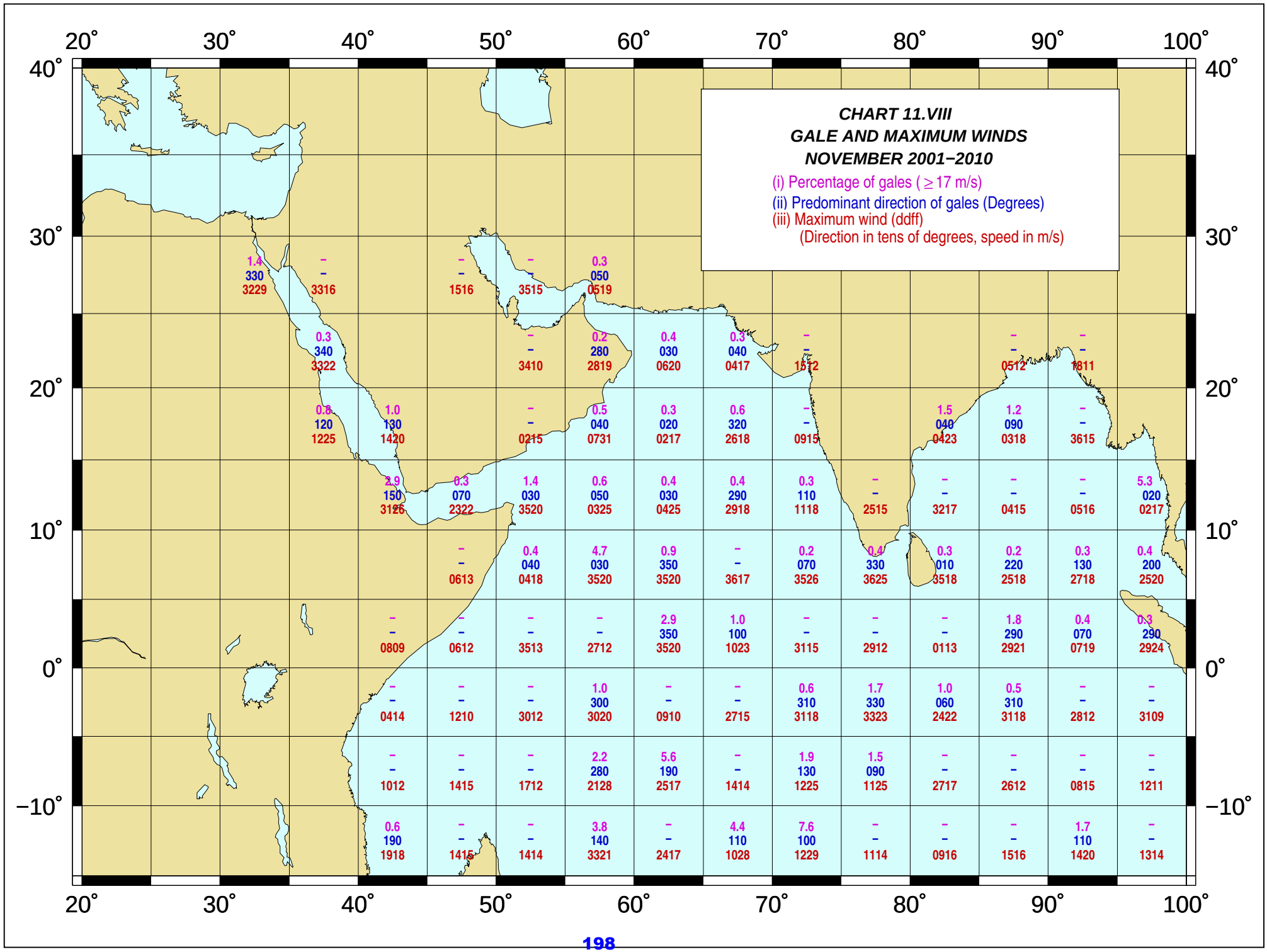


CHART 11.VIII
GALE AND MAXIMUM WINDS
NOVEMBER 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.4 330 3229
– – 3316
– – 1516
– – 3515
0.3 050 0519
0.3 340 3322
– – 3410
0.2 280 2819
0.4 030 0620
0.3 040 0417
– – 1512
– – 0512
– – 1811
0.8 120 1225
1.0 130 1420
– – 0215
0.5 040 0731
0.3 020 0217
0.6 320 2618
– – 0915
1.5 040 0423
1.2 090 0318
– – 3615
2.9 150 3126
0.3 070 2322
1.4 030 3520
0.6 050 0325
0.4 030 0425
0.4 290 2918
0.3 110 1118
– – 2515
– – 3217
– – 0415
– – 0516
5.3 020 0217
– – 0613
0.4 040 0418
4.7 030 3520
0.9 350 3520
– – 3617
0.2 070 3526
0.4 330 3625
0.3 010 3518
0.2 220 2518
0.3 130 2718
0.4 200 2520
– – 0809
– – 0612
– – 3513
– – 2712
2.9 350 3520
1.0 100 1023
– – 3115
– – 2912
– – 0113
1.8 290 2921
0.4 070 0719
0.3 290 2924
– – 0414
– – 1210
– – 3012
1.0 300 3020
– – 0910
– – 2715
0.6 310 3118
1.7 330 3323
1.0 060 2422
0.5 310 3118
– – 2812
– – 3109
– – 1012
– – 1415
– – 1712
2.2 280 2128
5.6 190 2517
– – 1414
1.9 130 1225
1.5 090 1125
– – 2717
– – 2612
– – 0815
– – 1211
0.6 190 1918
– – 1415
– – 1414
3.8 140 3321
– – 2417
4.4 110 1028
7.6 100 1229
– – 1114
– – 0916
– – 1516
1.7 110 1420
– – 1314

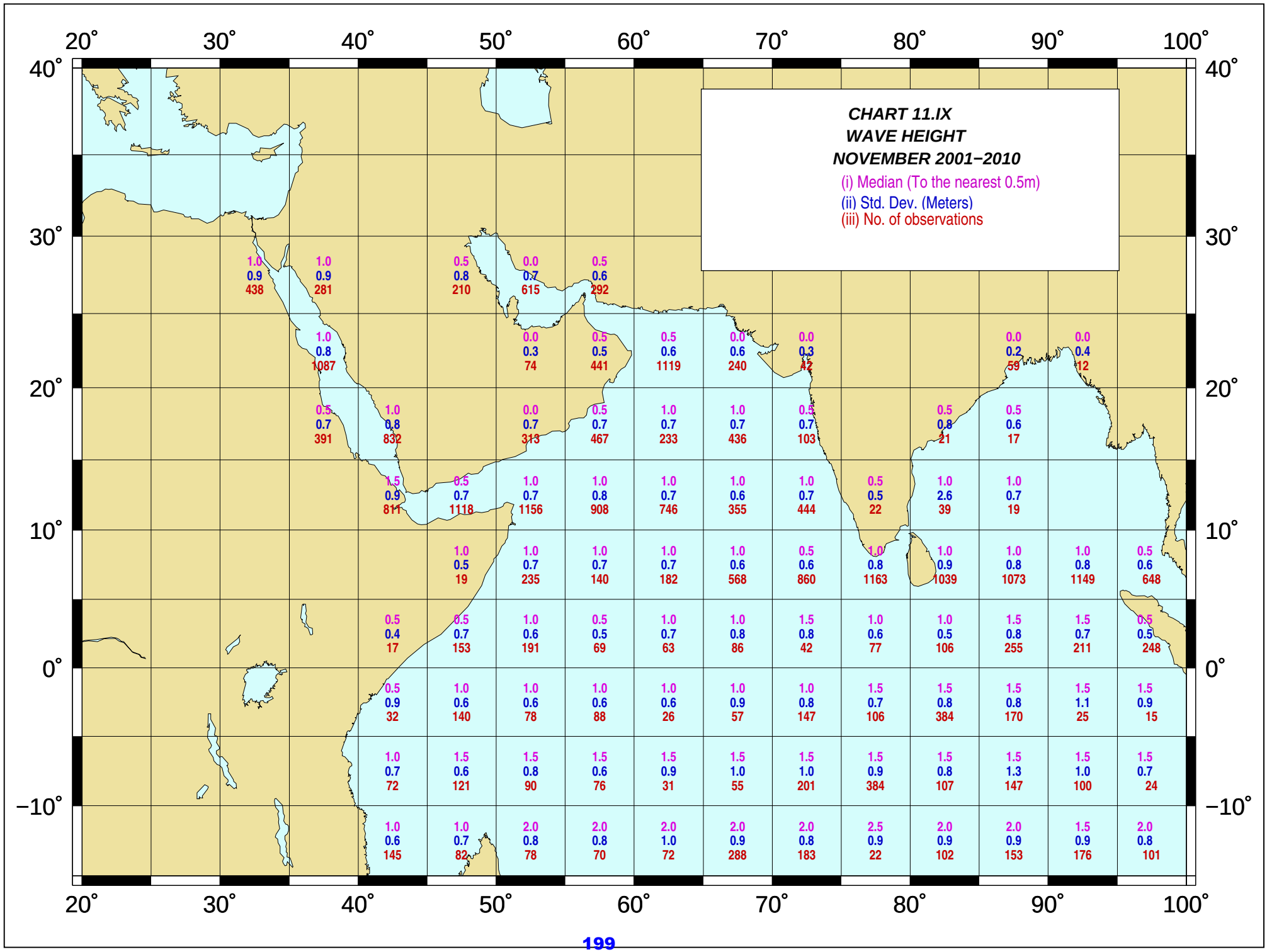


CHART 11.IX
WAVE HEIGHT
NOVEMBER 2001−2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.9 438
1.0 0.9 281
0.5 0.8 210
0.0 0.7 615
0.5 0.6 292
1.0 0.8 1087
0.0 0.3 74
0.5 0.5 441
0.5 0.6 1119
0.0 0.6 240
0.0 0.3 42
0.0 0.2 59
0.0 0.4 12
0.5 0.7 391
1.0 0.8 832
0.0 0.7 313
0.5 0.7 467
1.0 0.7 233
1.0 0.7 436
0.5 0.7 103
0.5 0.8 21
0.5 0.6 17
1.5 0.9 811
0.5 0.7 1118
1.0 0.7 1156
1.0 0.8 908
1.0 0.7 746
1.0 0.6 355
1.0 0.7 444
0.5 0.5 22
1.0 2.6 39
1.0 0.7 19
1.0 0.5 19
1.0 0.7 235
1.0 0.7 140
1.0 0.7 182
1.0 0.6 568
0.5 0.6 860
1.0 0.8 1163
1.0 0.9 1039
1.0 0.8 1073
1.0 0.8 1149
0.5 0.6 648
0.5 0.4 17
0.5 0.7 153
1.0 0.6 191
0.5 0.5 69
1.0 0.7 63
1.0 0.8 86
1.5 0.8 42
1.0 0.6 77
1.0 0.5 106
1.5 0.8 255
1.5 0.7 211
0.5 0.5 248
0.5 0.9 32
1.0 0.6 140
1.0 0.6 78
1.0 0.6 88
1.0 0.6 26
1.0 0.9 57
1.0 0.8 147
1.5 0.7 106
1.5 0.8 384
1.5 0.8 170
1.5 1.1 25
1.5 0.9 15
1.0 0.7 72
1.5 0.6 121
1.5 0.8 90
1.5 0.6 76
1.5 0.9 31
1.5 1.0 55
1.5 1.0 201
1.5 0.9 384
1.5 0.8 107
1.5 1.3 147
1.5 1.0 100
1.5 0.7 24
1.0 0.6 145
1.0 0.7 82
2.0 0.8 78
2.0 0.8 70
2.0 1.0 72
2.0 0.9 288
2.0 0.8 183
2.5 0.9 22
2.0 0.9 102
2.0 0.9 153
1.5 0.9 176
2.0 0.8 101

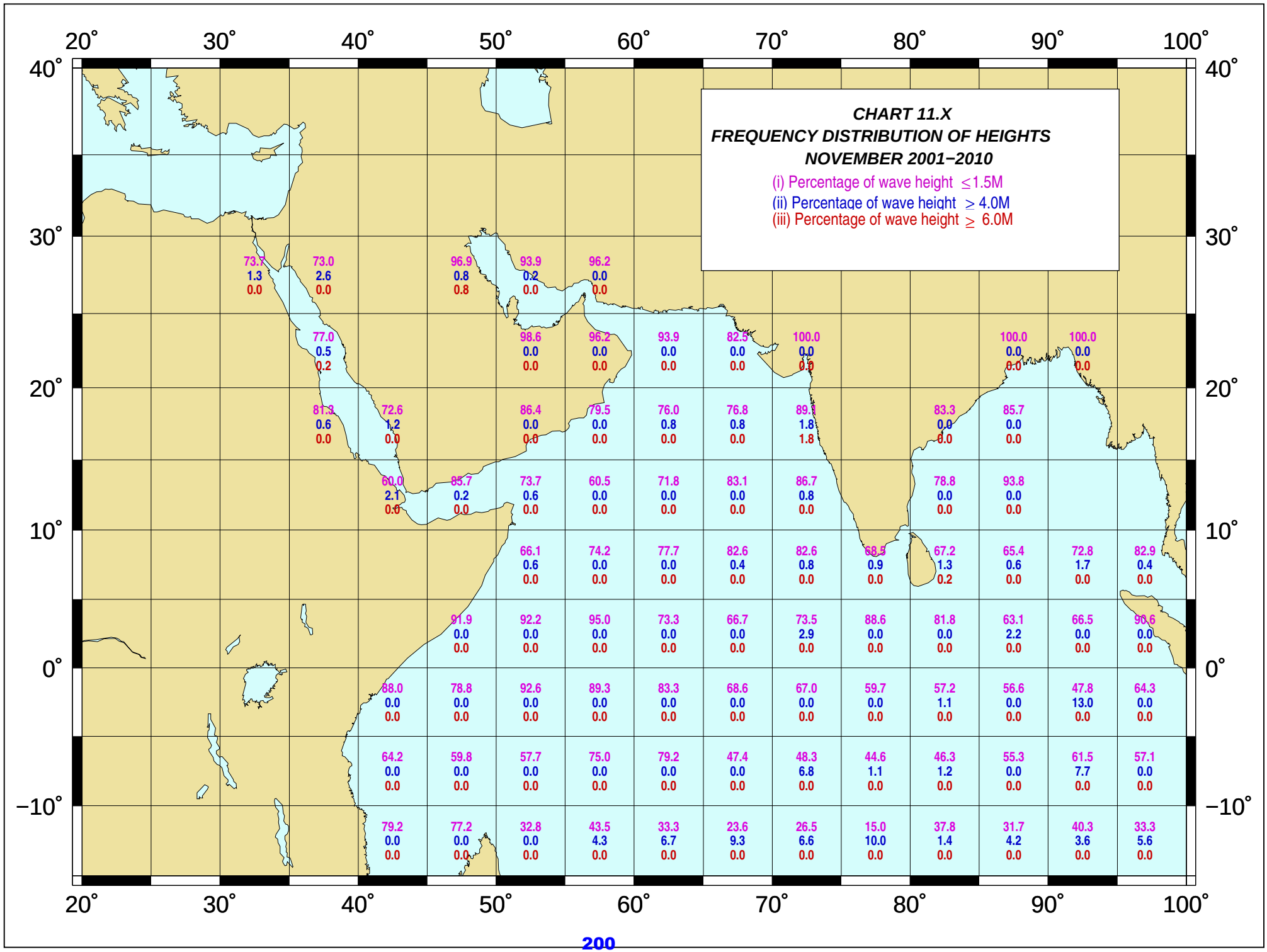


CHART 11.X
FREQUENCY DISTRIBUTION OF HEIGHTS
NOVEMBER 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
73.7 1.3 0.0
73.0 2.6 0.0
96.9 0.8 0.8
93.9 0.2 0.0
96.2 0.0 0.0
77.0 0.5 0.2
98.6 0.0 0.0
96.2 0.0 0.0
93.9 0.0 0.0
82.5 0.0 0.0
100.0 0.0 0.0
100.0 0.0 0.0
100.0 0.0 0.0
81.3 0.6 0.0
72.6 1.2 0.0
86.4 0.0 0.0
79.5 0.0 0.0
76.0 0.8 0.0
76.8 0.8 0.0
89.1 1.8 1.8
83.3 0.0 0.0
85.7 0.0 0.0
60.0 2.1 0.6
85.7 0.2 0.0
73.7 0.6 0.0
60.5 0.0 0.0
71.8 0.0 0.0
83.1 0.0 0.0
86.7 0.8 0.0
78.8 0.0 0.0
93.8 0.0 0.0
66.1 0.6 0.0
74.2 0.0 0.0
77.7 0.0 0.0
82.6 0.4 0.0
82.6 0.8 0.0
68.5 0.9 0.0
67.2 1.3 0.2
65.4 0.6 0.0
72.8 1.7 0.0
82.9 0.4 0.0
91.9 0.0 0.0
92.2 0.0 0.0
95.0 0.0 0.0
73.3 0.0 0.0
66.7 0.0 0.0
73.5 2.9 0.0
88.6 0.0 0.0
81.8 0.0 0.0
63.1 2.2 0.0
66.5 0.0 0.0
90.6 0.0 0.0
88.0 0.0 0.0
78.8 0.0 0.0
92.6 0.0 0.0
89.3 0.0 0.0
83.3 0.0 0.0
68.6 0.0 0.0
67.0 0.0 0.0
59.7 0.0 0.0
57.2 1.1 0.0
56.6 0.0 0.0
47.8 13.0 0.0
64.3 0.0 0.0
64.2 0.0 0.0
59.8 0.0 0.0
57.7 0.0 0.0
75.0 0.0 0.0
79.2 0.0 0.0
47.4 0.0 0.0
48.3 6.8 0.0
44.6 1.1 0.0
46.3 1.2 0.0
55.3 0.0 0.0
61.5 7.7 0.0
57.1 0.0 0.0
79.2 0.0 0.0
77.2 0.0 0.0
32.8 0.0 0.0
43.5 4.3 0.0
33.3 6.7 0.0
23.6 9.3 0.0
26.5 6.6 0.0
15.0 10.0 0.0
37.8 1.4 0.0
31.7 4.2 0.0
40.3 3.6 0.0
33.3 5.6 0.0

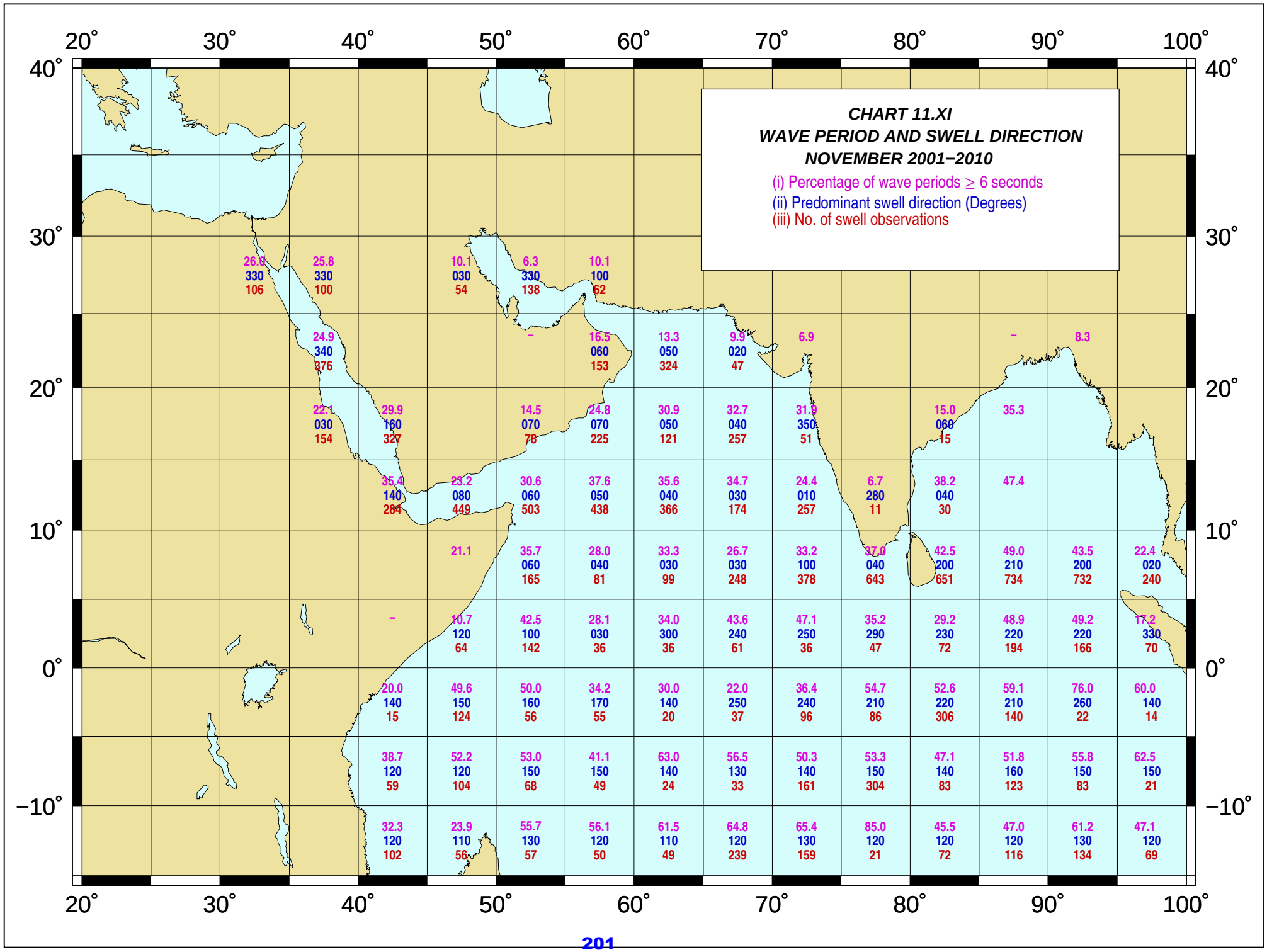


CHART 11.XI
WAVE PERIOD AND SWELL DIRECTION
NOVEMBER 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
26.6 330 106
25.8 330 100
10.1 030 54
6.3 330 138
10.1 100 62
24.9 340 376
–
16.5 060 153
13.3 050 324
9.9 020 47
6.9
–
8.3
22.1 030 154
29.9 160 327
14.5 070 78
24.8 070 225
30.9 050 121
32.7 040 257
31.9 350 51
15.0 060 15
35.3
35.4 140 284
23.2 080 449
30.6 060 503
37.6 050 438
35.6 040 366
34.7 030 174
24.4 010 257
6.7 280 11
38.2 040 30
47.4
21.1
35.7 060 165
28.0 040 81
33.3 030 99
26.7 030 248
33.2 100 378
37.0 040 643
42.5 200 651
49.0 210 734
43.5 200 732
22.4 020 240
–
10.7 120 64
42.5 100 142
28.1 030 36
34.0 300 36
43.6 240 61
47.1 250 36
35.2 290 47
29.2 230 72
48.9 220 194
49.2 220 166
17.2 330 70
20.0 140 15
49.6 150 124
50.0 160 56
34.2 170 55
30.0 140 20
22.0 250 37
36.4 240 96
54.7 210 86
52.6 220 306
59.1 210 140
76.0 260 22
60.0 140 14
38.7 120 59
52.2 120 104
53.0 150 68
41.1 150 49
63.0 140 24
56.5 130 33
50.3 140 161
53.3 150 304
47.1 140 83
51.8 160 123
55.8 150 83
62.5 150 21
32.3 120 102
23.9 110 56
55.7 130 57
56.1 120 50
61.5 110 49
64.8 120 239
65.4 130 159
85.0 120 21
45.5 120 72
47.0 120 116
61.2 130 134
47.1 120 69

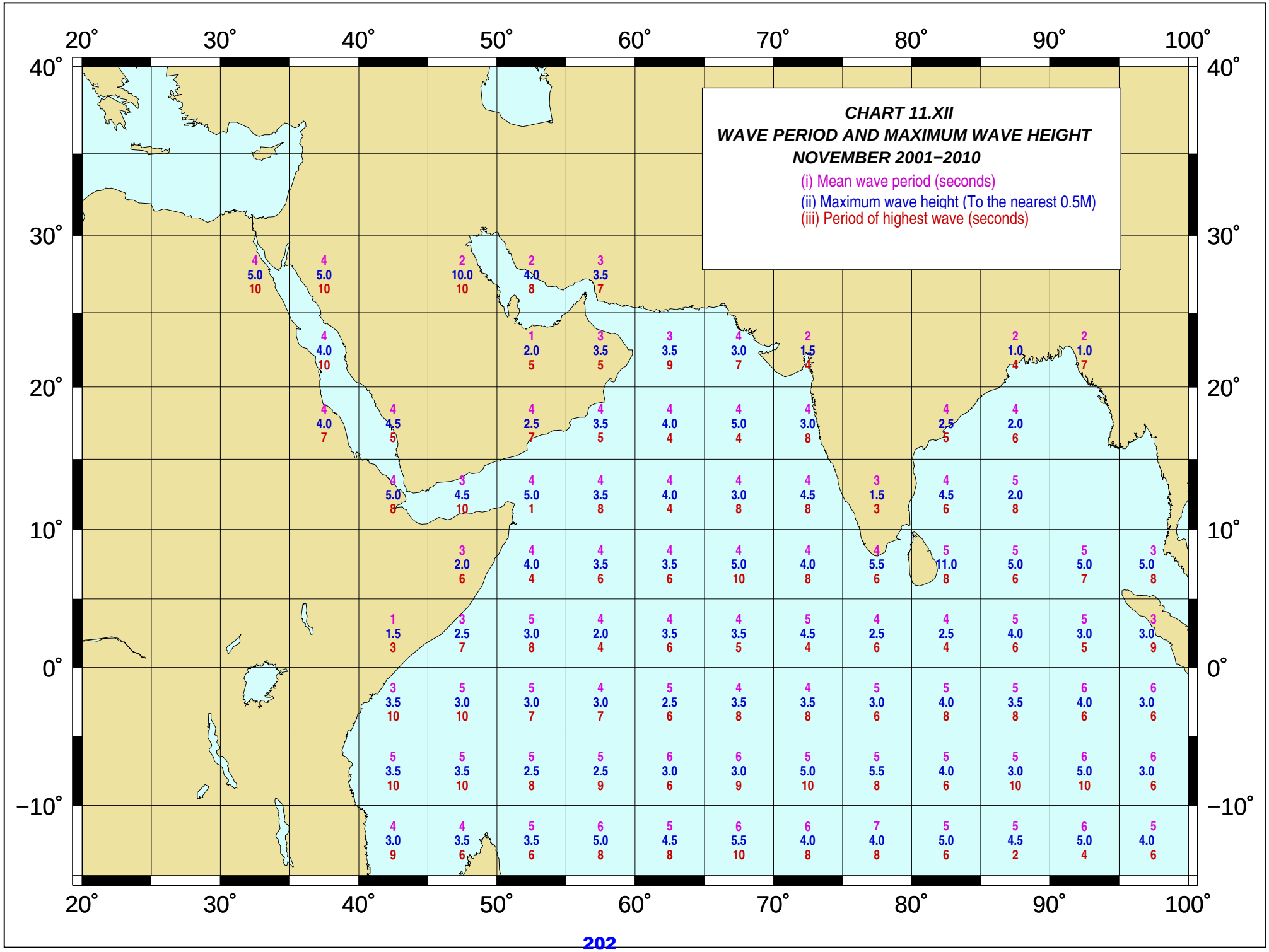


CHART 11.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
NOVEMBER 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°

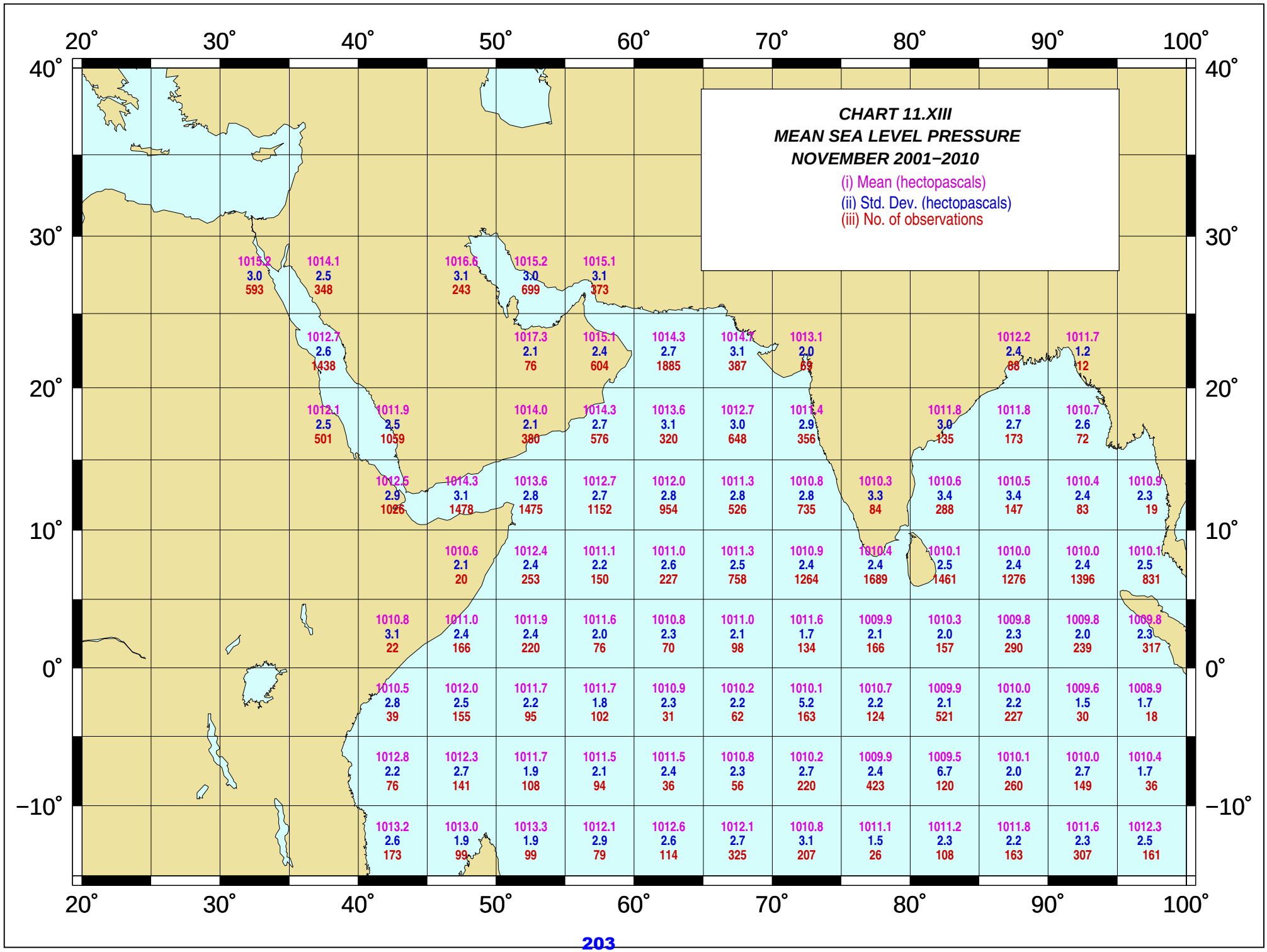


CHART 11.XIII
MEAN SEA LEVEL PRESSURE
NOVEMBER 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1015.2 3.0 593
1014.1 2.5 348
1016.6 3.1 243
1015.2 3.0 699
1015.1 3.1 373
1012.7 2.6 1438
1017.3 2.1 76
1015.1 2.4 604
1014.3 2.7 1885
1014.7 3.1 387
1013.1 2.0 69
1012.2 2.4 88
1011.7 1.2 12
1012.1 2.5 501
1011.9 2.5 1059
1014.0 2.1 380
1014.3 2.7 576
1013.6 3.1 320
1012.7 3.0 648
1011.4 2.9 356
1011.8 3.0 135
1011.8 2.7 173
1010.7 2.6 72
1012.5 2.9 1026
1014.3 3.1 1478
1013.6 2.8 1475
1012.7 2.7 1152
1012.0 2.8 954
1011.3 2.8 526
1010.8 2.8 735
1010.3 3.3 84
1010.6 3.4 288
1010.5 3.4 147
1010.4 2.4 83
1010.9 2.3 19
1010.6 2.1 20
1012.4 2.4 253
1011.1 2.2 150
1011.0 2.6 227
1011.3 2.5 758
1010.9 2.4 1264
1010.4 2.4 1689
1010.1 2.5 1461
1010.0 2.4 1276
1010.0 2.4 1396
1010.1 2.5 831
1010.8 3.1 22
1011.0 2.4 166
1011.9 2.4 220
1011.6 2.0 76
1010.8 2.3 70
1011.0 2.1 98
1011.6 1.7 134
1009.9 2.1 166
1010.3 2.0 157
1009.8 2.3 290
1009.8 2.0 239
1009.8 2.3 317
1010.5 2.8 39
1012.0 2.5 155
1011.7 2.2 95
1011.7 1.8 102
1010.9 2.3 31
1010.2 2.2 62
1010.1 5.2 163
1010.7 2.2 124
1009.9 2.1 521
1010.0 2.2 227
1009.6 1.5 30
1008.9 1.7 18
1012.8 2.2 76
1012.3 2.7 141
1011.7 1.9 108
1011.5 2.1 94
1011.5 2.4 36
1010.8 2.3 56
1010.2 2.7 220
1009.9 2.4 423
1009.5 6.7 120
1010.1 2.0 260
1010.0 2.7 149
1010.4 1.7 36
1013.2 2.6 173
1013.0 1.9 99
1013.3 1.9 99
1012.1 2.9 79
1012.6 2.6 114
1012.1 2.7 325
1010.8 3.1 207
1011.1 1.5 26
1011.2 2.3 108
1011.8 2.2 163
1011.6 2.3 307
1012.3 2.5 161

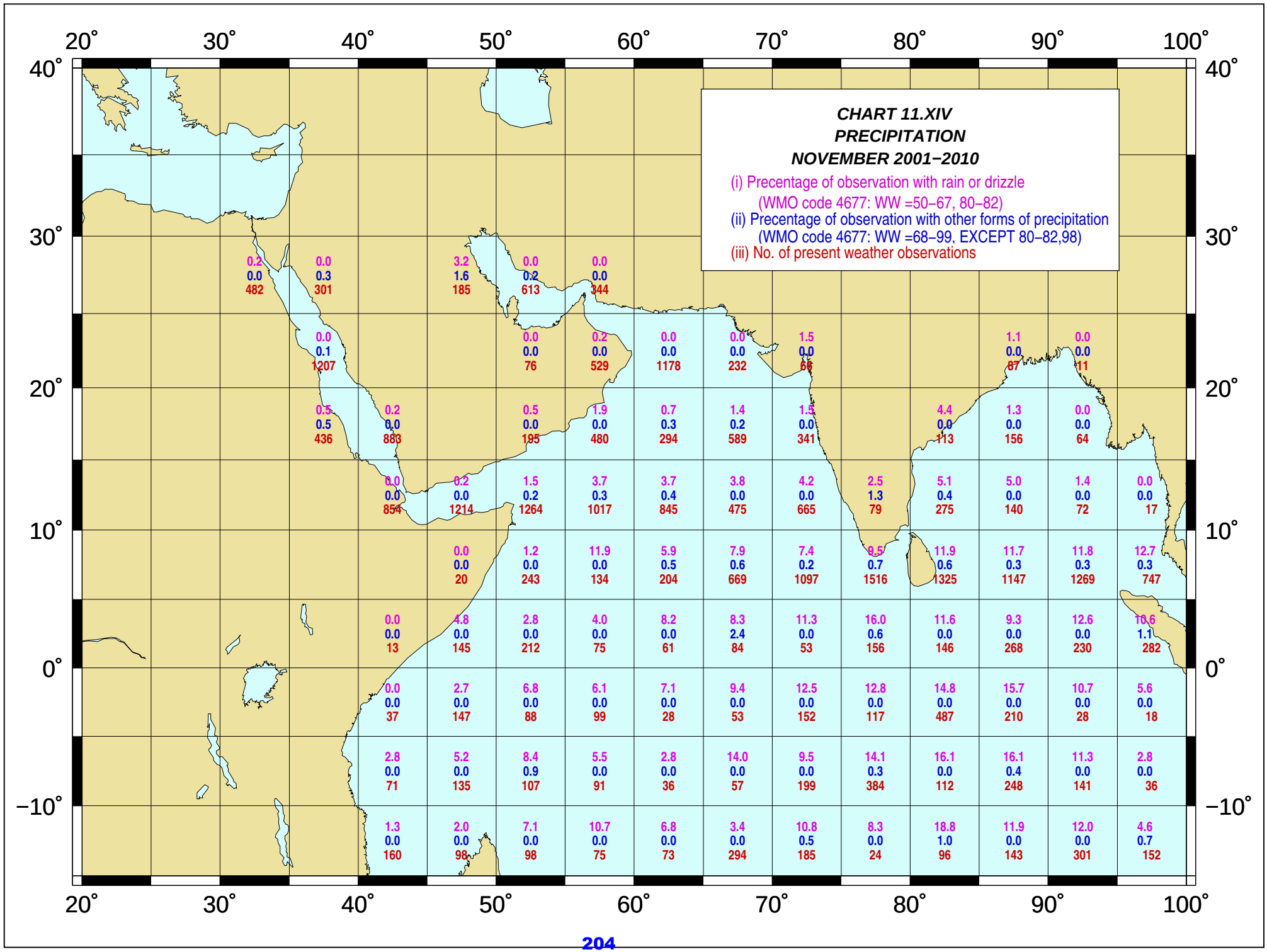


CHART 11.XIV
PRECIPITATION
NOVEMBER 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.0 482
0.0 0.3 301
3.2 1.6 185
0.0 0.2 613
0.0 0.0 344
0.0 0.1 1207
0.0 0.0 76
0.2 0.0 529
0.0 0.0 1178
0.0 0.0 232
1.5 0.0 66
1.1 0.0 87
0.0 0.0 11
0.5 0.5 436
0.2 0.0 883
0.5 0.0 195
1.9 0.0 480
0.7 0.3 294
1.4 0.2 589
1.5 0.0 341
4.4 0.0 113
1.3 0.0 156
0.0 0.0 64
0.0 0.0 854
0.2 0.0 1214
1.5 0.2 1264
3.7 0.3 1017
3.7 0.4 845
3.8 0.0 475
4.2 0.0 665
2.5 1.3 79
5.1 0.4 275
5.0 0.0 140
1.4 0.0 72
0.0 0.0 17
0.0 0.0 20
1.2 0.0 243
11.9 0.0 134
5.9 0.5 204
7.9 0.6 669
7.4 0.2 1097
9.5 0.7 1516
11.9 0.6 1325
11.7 0.3 1147
11.8 0.3 1269
12.7 0.3 747
0.0 0.0 13
4.8 0.0 145
2.8 0.0 212
4.0 0.0 75
8.2 0.0 61
8.3 2.4 84
11.3 0.0 53
16.0 0.6 156
11.6 0.0 146
9.3 0.0 268
12.6 0.0 230
10.6 1.1 282
0.0 0.0 37
2.7 0.0 147
6.8 0.0 88
6.1 0.0 99
7.1 0.0 28
9.4 0.0 53
12.5 0.0 152
12.8 0.0 117
14.8 0.0 487
15.7 0.0 210
10.7 0.0 28
5.6 0.0 18
2.8 0.0 71
5.2 0.0 135
8.4 0.9 107
5.5 0.0 91
2.8 0.0 36
14.0 0.0 57
9.5 0.0 199
14.1 0.3 384
16.1 0.0 112
16.1 0.4 248
11.3 0.0 141
2.8 0.0 36
1.3 0.0 160
2.0 0.0 98
7.1 0.0 98
10.7 0.0 75
6.8 0.0 73
3.4 0.0 294
10.8 0.5 185
8.3 0.0 24
18.8 1.0 96
11.9 0.0 143
12.0 0.0 301
4.6 0.7 152

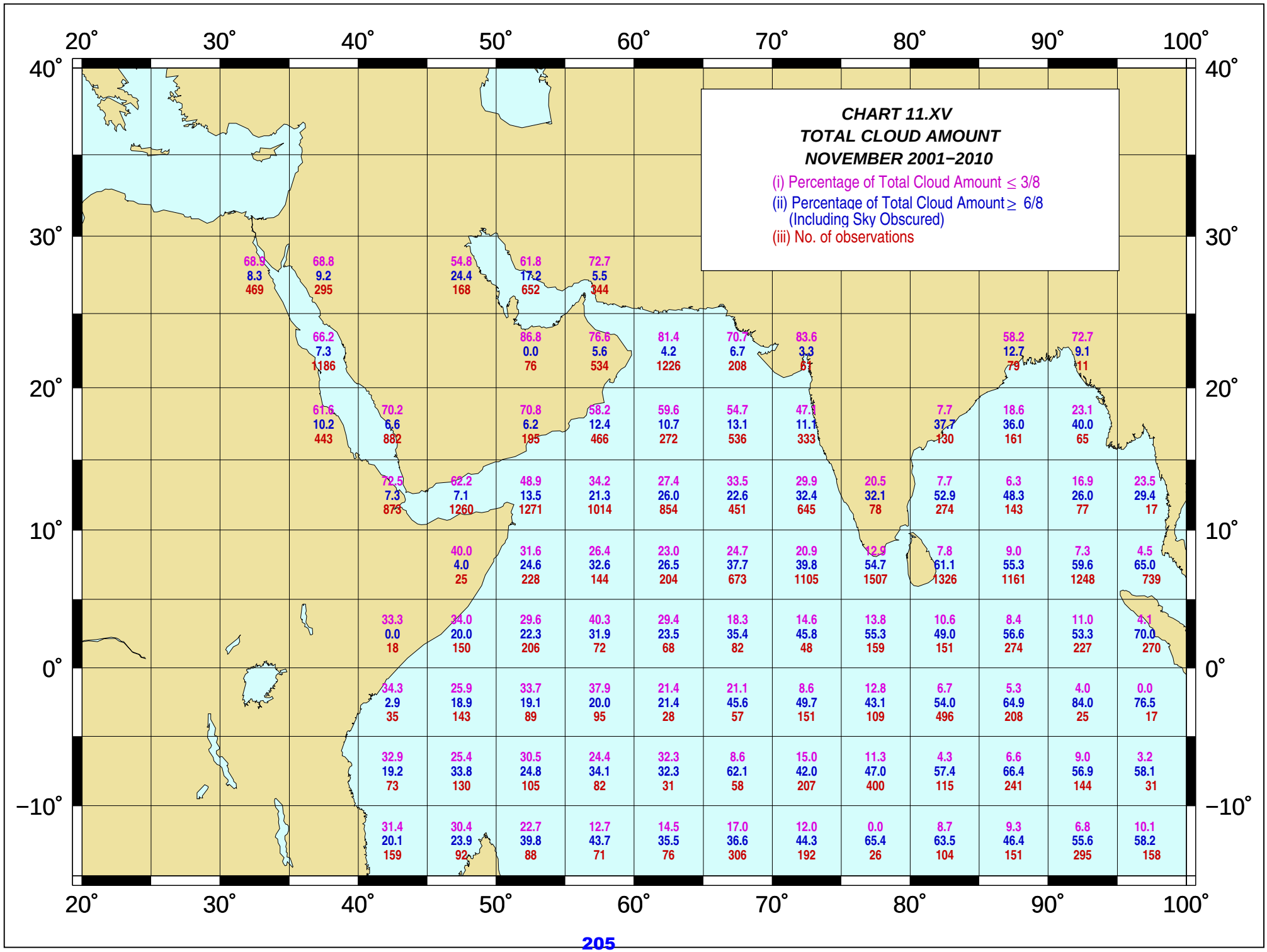


CHART 11.XV
TOTAL CLOUD AMOUNT
NOVEMBER 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
68.9 8.3 469
68.8 9.2 295
54.8 24.4 168
61.8 17.2 652
72.7 5.5 344
66.2 7.3 1186
86.8 0.0 76
76.6 5.6 534
81.4 4.2 1226
70.7 6.7 208
83.6 3.3 61
58.2 12.7 79
72.7 9.1 11
61.6 10.2 443
70.2 6.6 882
70.8 6.2 195
58.2 12.4 466
59.6 10.7 272
54.7 13.1 536
47.1 11.1 333
7.7 37.7 130
18.6 36.0 161
23.1 40.0 65
72.5 7.3 873
62.2 7.1 1260
48.9 13.5 1271
34.2 21.3 1014
27.4 26.0 854
33.5 22.6 451
29.9 32.4 645
20.5 32.1 78
7.7 52.9 274
6.3 48.3 143
16.9 26.0 77
23.5 29.4 17
40.0 4.0 25
31.6 24.6 228
26.4 32.6 144
23.0 26.5 204
24.7 37.7 673
20.9 39.8 1105
12.9 54.7 1507
7.8 61.1 1326
9.0 55.3 1161
7.3 59.6 1248
4.5 65.0 739
33.3 0.0 18
34.0 20.0 150
29.6 22.3 206
40.3 31.9 72
29.4 23.5 68
18.3 35.4 82
14.6 45.8 48
13.8 55.3 159
10.6 49.0 151
8.4 56.6 274
11.0 53.3 227
4.1 70.0 270
34.3 2.9 35
25.9 18.9 143
33.7 19.1 89
37.9 20.0 95
21.4 21.4 28
21.1 45.6 57
8.6 49.7 151
12.8 43.1 109
6.7 54.0 496
5.3 64.9 208
4.0 84.0 25
0.0 76.5 17
32.9 19.2 73
25.4 33.8 130
30.5 24.8 105
24.4 34.1 82
32.3 32.3 31
8.6 62.1 58
15.0 42.0 207
11.3 47.0 400
4.3 57.4 115
6.6 66.4 241
9.0 56.9 144
3.2 58.1 31
31.4 20.1 159
30.4 23.9 92
22.7 39.8 88
12.7 43.7 71
14.5 35.5 76
17.0 36.6 306
12.0 44.3 192
0.0 65.4 26
8.7 63.5 104
9.3 46.4 151
6.8 55.6 295
10.1 58.2 158

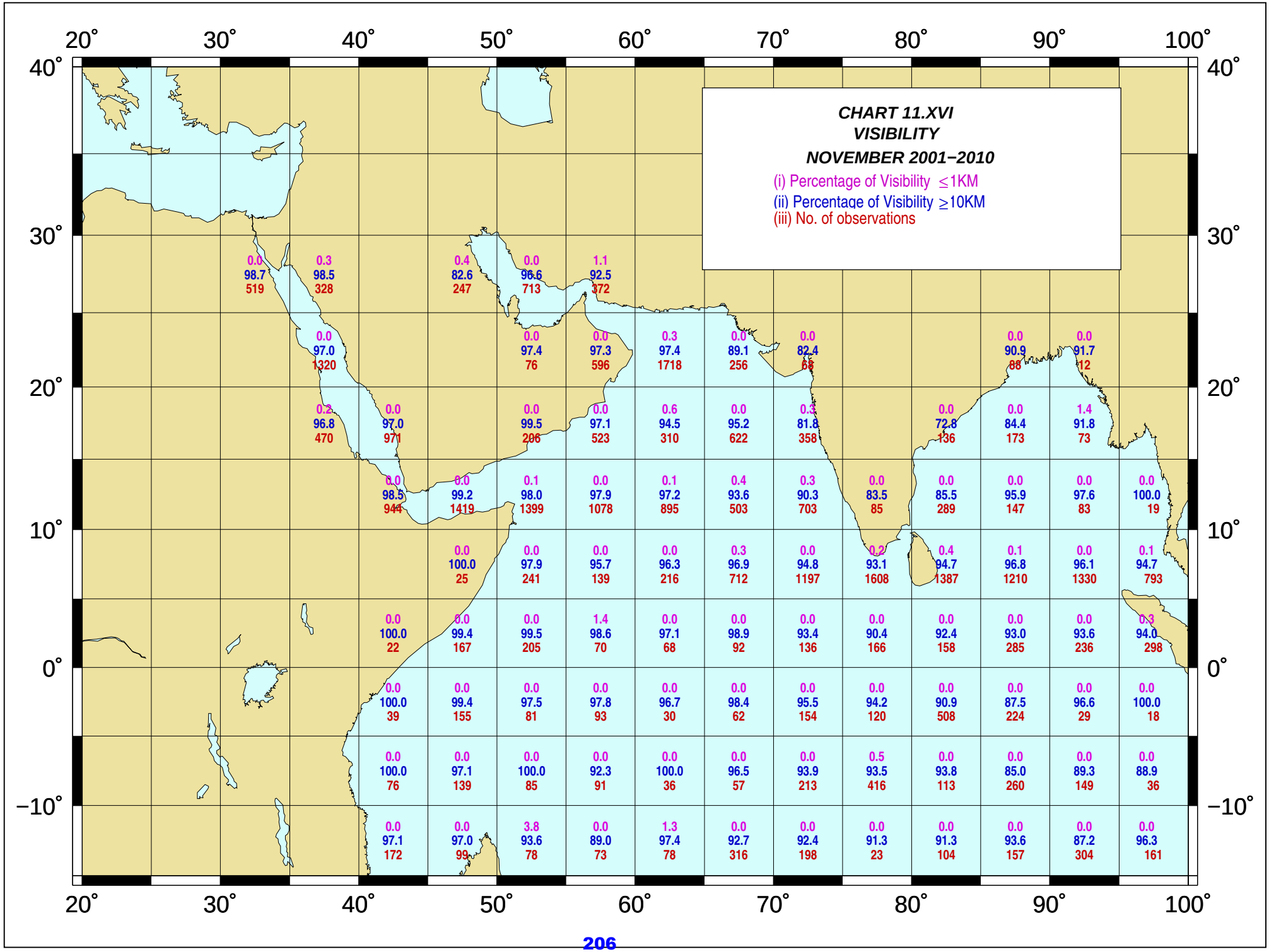


CHART 11.XVI
VISIBILITY
NOVEMBER 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 98.7 519
0.3 98.5 328
0.4 82.6 247
0.0 96.6 713
1.1 92.5 372
0.0 97.0 1320
0.0 97.4 76
0.0 97.3 596
0.3 97.4 1718
0.0 89.1 256
0.0 82.4 66
0.0 90.9 88
0.0 91.7 12
0.2 96.8 470
0.0 97.0 971
0.0 99.5 206
0.0 97.1 523
0.6 94.5 310
0.0 95.2 622
0.3 81.8 358
0.0 72.8 136
0.0 84.4 173
1.4 91.8 73
0.0 98.5 944
0.0 99.2 1419
0.1 98.0 1399
0.0 97.9 1078
0.1 97.2 895
0.4 93.6 503
0.3 90.3 703
0.0 83.5 85
0.0 85.5 289
0.0 95.9 147
0.0 97.6 83
0.0 100.0 19
0.0 100.0 25
0.0 97.9 241
0.0 95.7 139
0.0 96.3 216
0.3 96.9 712
0.0 94.8 1197
0.2 93.1 1608
0.4 94.7 1387
0.1 96.8 1210
0.0 96.1 1330
0.1 94.7 793
0.0 100.0 22
0.0 99.4 167
0.0 99.5 205
1.4 98.6 70
0.0 97.1 68
0.0 98.9 92
0.0 93.4 136
0.0 90.4 166
0.0 92.4 158
0.0 93.0 285
0.0 93.6 236
0.3 94.0 298
0.0 100.0 39
0.0 99.4 155
0.0 97.5 81
0.0 97.8 93
0.0 96.7 30
0.0 98.4 62
0.0 95.5 154
0.0 94.2 120
0.0 90.9 508
0.0 87.5 224
0.0 96.6 29
0.0 100.0 18
0.0 100.0 76
0.0 97.1 139
0.0 100.0 85
0.0 92.3 91
0.0 100.0 36
0.0 96.5 57
0.0 93.9 213
0.5 93.5 416
0.0 93.8 113
0.0 85.0 260
0.0 89.3 149
0.0 88.9 36
0.0 97.1 172
0.0 97.0 99
3.8 93.6 78
0.0 89.0 73
1.3 97.4 78
0.0 92.7 316
0.0 92.4 198
0.0 91.3 23
0.0 91.3 104
0.0 93.6 157
0.0 87.2 304
0.0 96.3 161

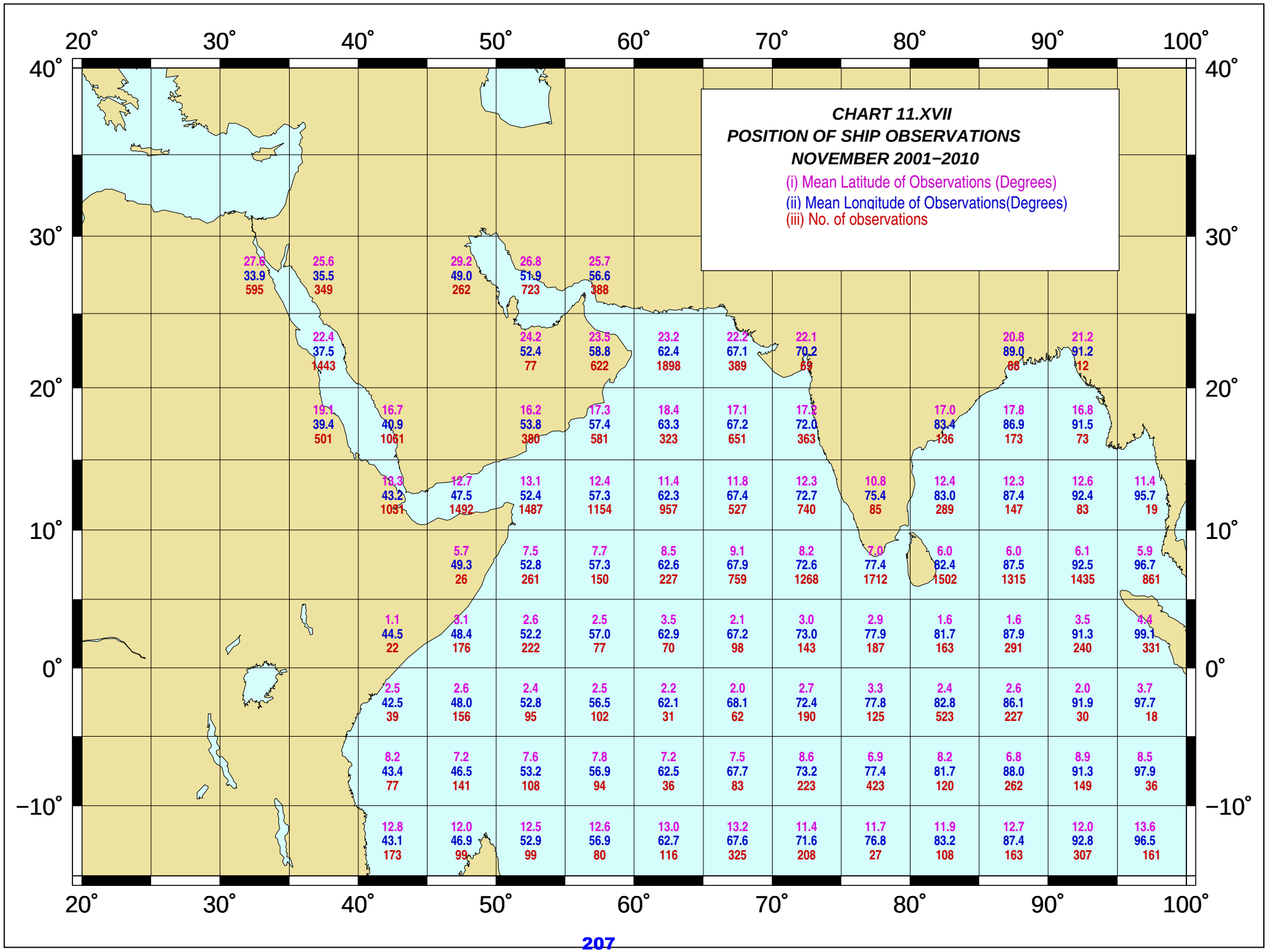


CHART 11.XVII
POSITION OF SHIP OBSERVATIONS
NOVEMBER 2001−2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.6 33.9 595
25.6 35.5 349
29.2 49.0 262
26.8 51.9 723
25.7 56.6 388
22.4 37.5 1443
24.2 52.4 77
23.5 58.8 622
23.2 62.4 1898
22.2 67.1 389
22.1 70.2 69
20.8 89.0 88
21.2 91.2 12
19.1 39.4 501
16.7 40.9 1061
16.2 53.8 380
17.3 57.4 581
18.4 63.3 323
17.1 67.2 651
17.2 72.0 363
17.0 83.4 136
17.8 86.9 173
16.8 91.5 73
13.3 43.2 1051
12.7 47.5 1492
13.1 52.4 1487
12.4 57.3 1154
11.4 62.3 957
11.8 67.4 527
12.3 72.7 740
10.8 75.4 85
12.4 83.0 289
12.3 87.4 147
12.6 92.4 83
11.4 95.7 19
5.7 49.3 26
7.5 52.8 261
7.7 57.3 150
8.5 62.6 227
9.1 67.9 759
8.2 72.6 1268
7.0 77.4 1712
6.0 82.4 1502
6.0 87.5 1315
6.1 92.5 1435
5.9 96.7 861
1.1 44.5 22
3.1 48.4 176
2.6 52.2 222
2.5 57.0 77
3.5 62.9 70
2.1 67.2 98
3.0 73.0 143
2.9 77.9 187
1.6 81.7 163
1.6 87.9 291
3.5 91.3 240
4.4 99.1 331
2.5 42.5 39
2.6 48.0 156
2.4 52.8 95
2.5 56.5 102
2.2 62.1 31
2.0 68.1 62
2.7 72.4 190
3.3 77.8 125
2.4 82.8 523
2.6 86.1 227
2.0 91.9 30
3.7 97.7 18
8.2 43.4 77
7.2 46.5 141
7.6 53.2 108
7.8 56.9 94
7.2 62.5 36
7.5 67.7 83
8.6 73.2 223
6.9 77.4 423
8.2 81.7 120
6.8 88.0 262
8.9 91.3 149
8.5 97.9 36
12.8 43.1 173
12.0 46.9 99
12.5 52.9 99
12.6 56.9 80
13.0 62.7 116
13.2 67.6 325
11.4 71.6 208
11.7 76.8 27
11.9 83.2 108
12.7 87.4 163
12.0 92.8 307
13.6 96.5 161

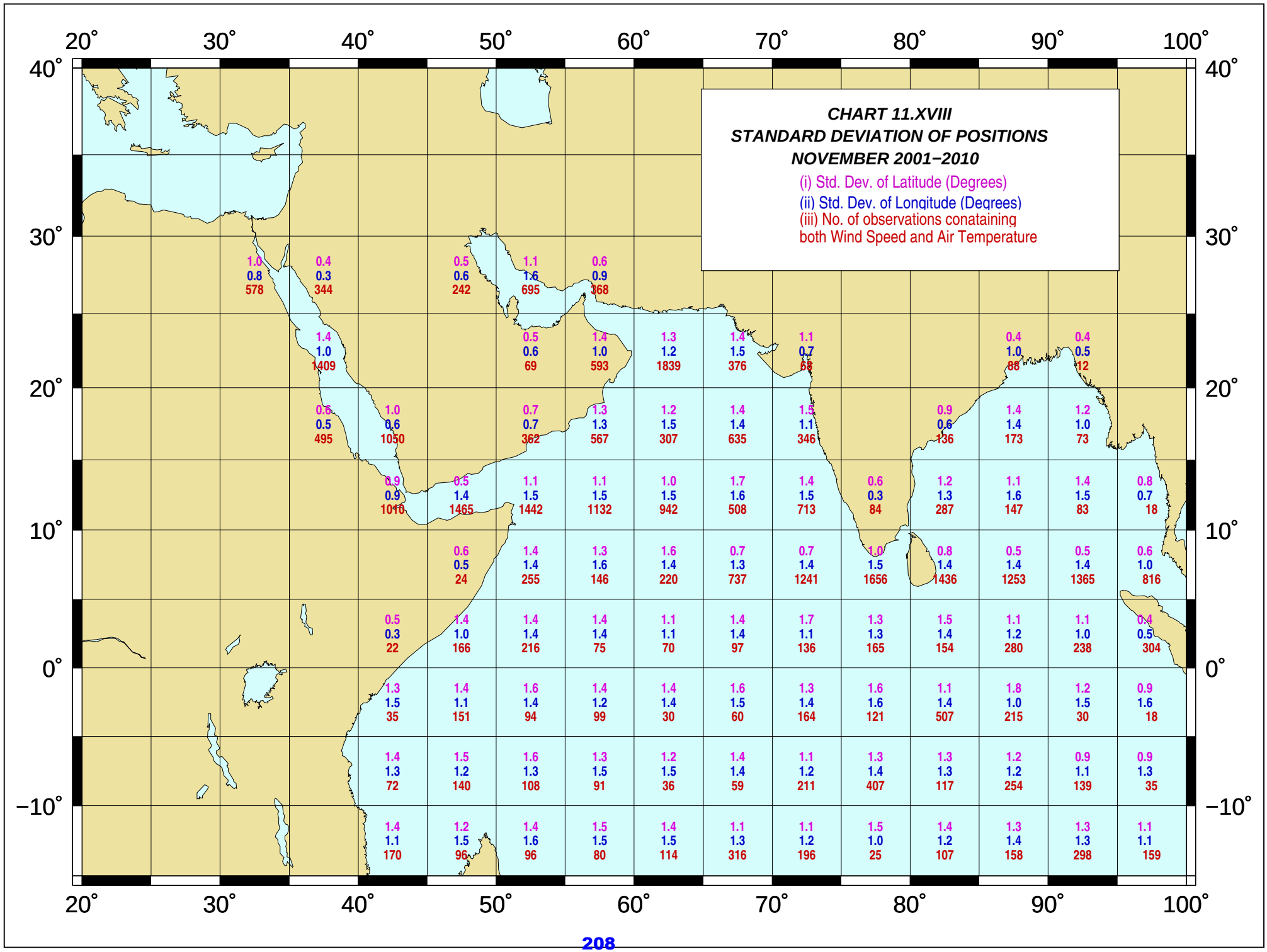
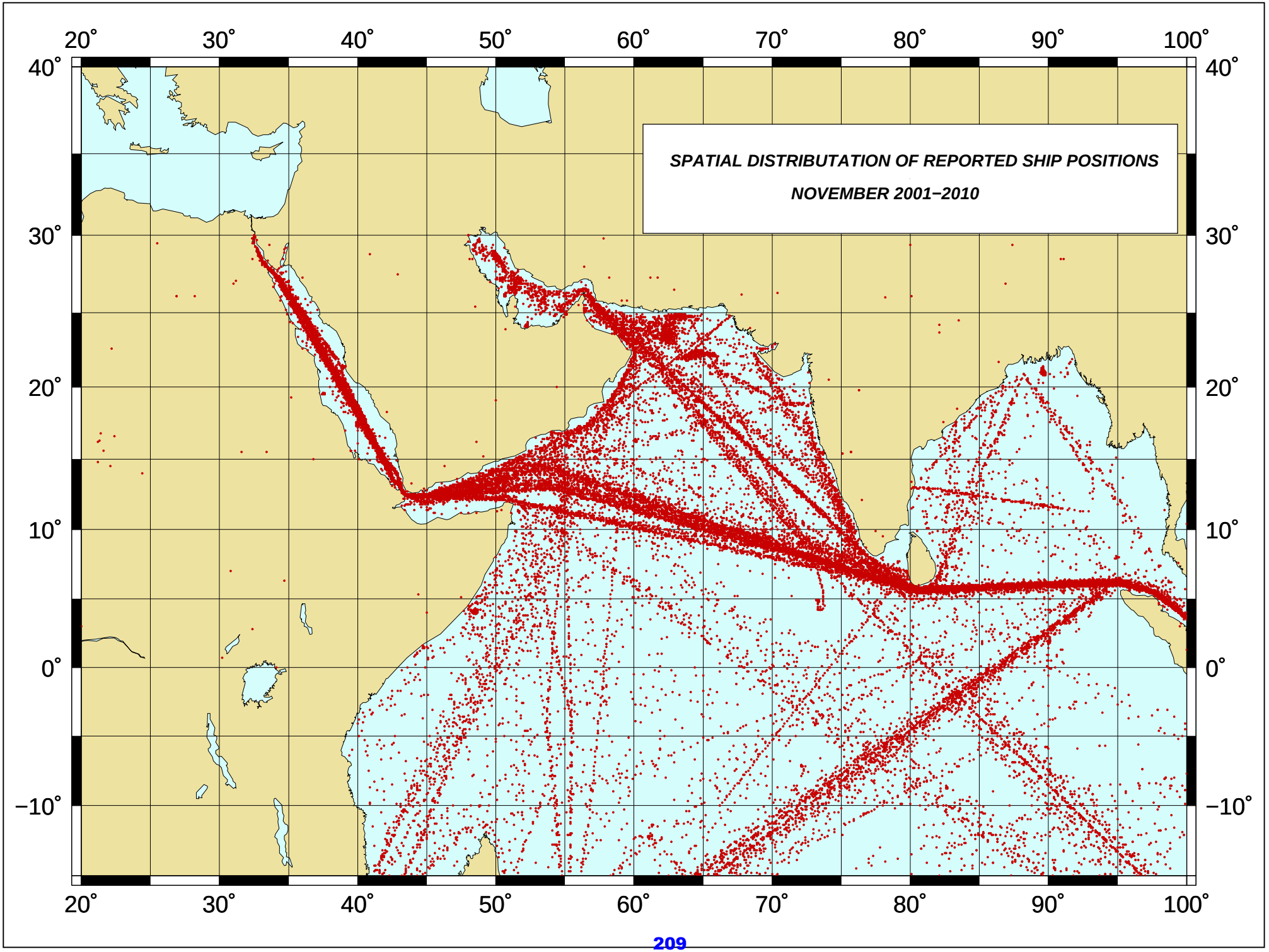


CHART 11.XVIII
STANDARD DEVIATION OF POSITIONS
NOVEMBER 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.8 578
0.4 0.3 344
0.5 0.6 242
1.1 1.6 695
0.6 0.9 368
1.4 1.0 1409
0.5 0.6 69
1.4 1.0 593
1.3 1.2 1839
1.4 1.5 376
1.1 0.7 66
0.4 1.0 88
0.4 0.5 12
0.6 0.5 495
1.0 0.6 1050
0.7 0.7 362
1.3 1.3 567
1.2 1.5 307
1.4 1.4 635
1.1 1.1 346
0.9 0.6 136
1.4 1.4 173
1.2 1.0 73
0.9 0.9 1010
0.5 1.4 1465
1.1 1.5 1442
1.1 1.5 1132
1.0 1.5 942
1.7 1.6 508
1.4 1.5 713
0.6 0.3 84
1.2 1.3 287
1.1 1.6 147
1.4 1.5 83
0.8 0.7 18
0.6 0.5 24
1.4 1.4 255
1.3 1.6 146
1.6 1.4 220
0.7 1.3 737
0.7 1.4 1241
1.0 1.5 1656
0.8 1.4 1436
0.5 1.4 1253
0.5 1.4 1365
0.6 1.0 816
0.5 0.3 22
1.4 1.0 166
1.4 1.4 216
1.4 1.4 75
1.1 1.1 70
1.4 1.4 97
1.7 1.1 136
1.3 1.3 165
1.5 1.4 154
1.1 1.2 280
1.1 1.0 238
0.4 0.5 304
1.3 1.5 35
1.4 1.1 151
1.6 1.4 94
1.4 1.2 99
1.4 1.4 30
1.6 1.5 60
1.3 1.4 164
1.6 1.6 121
1.1 1.4 507
1.8 1.0 215
1.2 1.5 30
0.9 1.6 18
1.4 1.3 72
1.5 1.2 140
1.6 1.3 108
1.3 1.5 91
1.2 1.5 36
1.4 1.4 59
1.1 1.2 211
1.3 1.4 407
1.3 1.3 117
1.2 1.2 254
0.9 1.1 139
0.9 1.3 35
1.4 1.1 170
1.2 1.5 96
1.4 1.6 96
1.5 1.5 80
1.4 1.5 114
1.1 1.3 316
1.1 1.2 196
1.5 1.0 25
1.4 1.2 107
1.3 1.4 158
1.3 1.3 298
1.1 1.1 159


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
NOVEMBER 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF DECEMBER 2001-2010

Marine Climatological Summary Charts 2001-2010

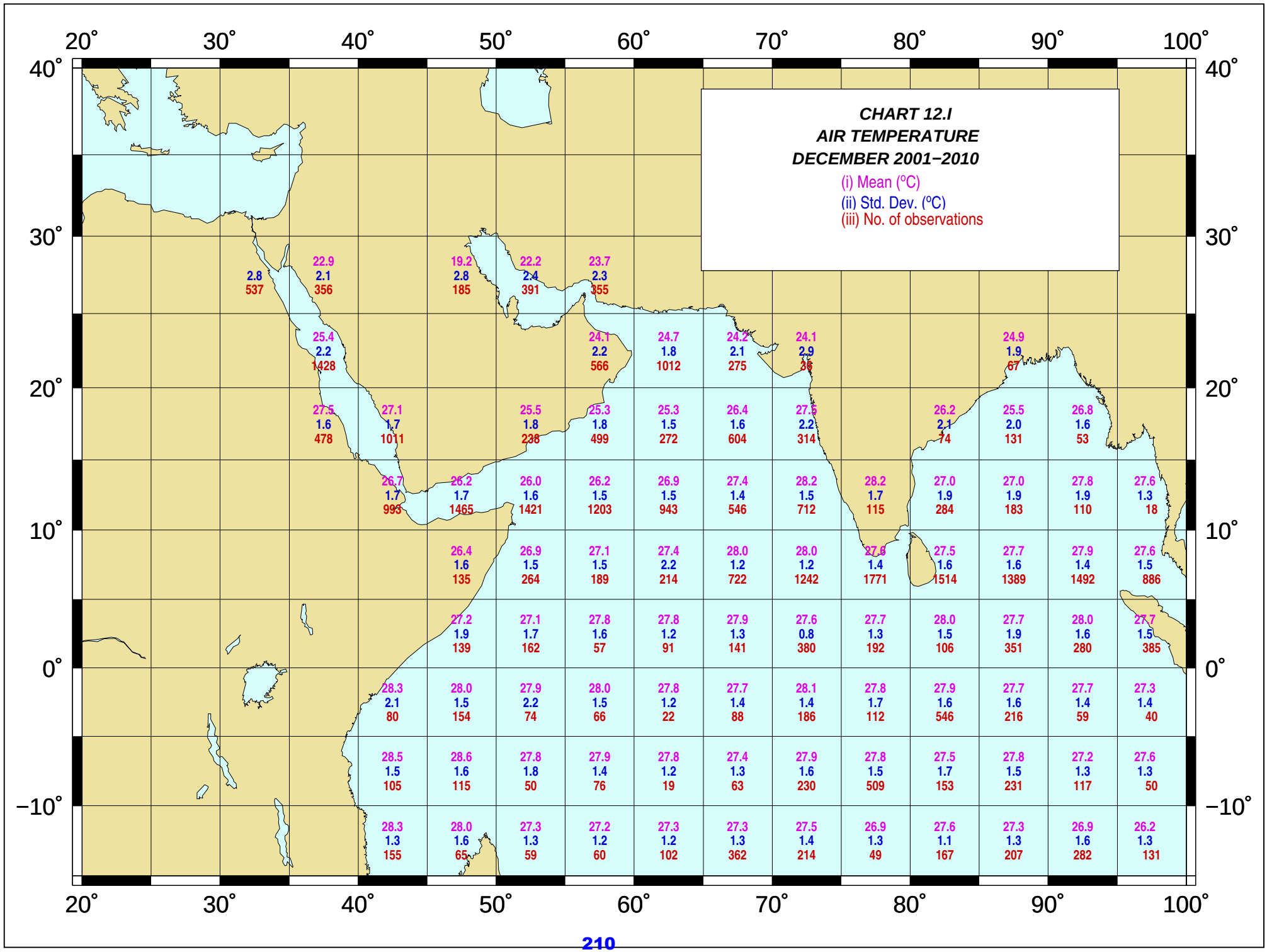


CHART 12.I
AIR TEMPERATURE
DECEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
2.8 537
22.9 2.1 356
19.2 2.8 185
22.2 2.4 391
23.7 2.3 355
25.4 2.2 1428
24.1 2.2 566
24.7 1.8 1012
24.2 2.1 275
24.1 2.9 36
24.9 1.9 67
27.5 1.6 478
27.1 1.7 1011
25.5 1.8 238
25.3 1.8 499
25.3 1.5 272
26.4 1.6 604
27.5 2.2 314
26.2 2.1 74
25.5 2.0 131
26.8 1.6 53
26.7 1.7 993
26.2 1.7 1465
26.0 1.6 1421
26.2 1.5 1203
26.9 1.5 943
27.4 1.4 546
28.2 1.5 712
28.2 1.7 115
27.0 1.9 284
27.0 1.9 183
27.8 1.9 110
27.6 1.3 18
26.4 1.6 135
26.9 1.5 264
27.1 1.5 189
27.4 2.2 214
28.0 1.2 722
28.0 1.2 1242
27.9 1.4 1771
27.5 1.6 1514
27.7 1.6 1389
27.9 1.4 1492
27.6 1.5 886
27.2 1.9 139
27.1 1.7 162
27.8 1.6 57
27.8 1.2 91
27.9 1.3 141
27.6 0.8 380
27.7 1.3 192
28.0 1.5 106
27.7 1.9 351
28.0 1.6 280
27.7 1.5 385
28.3 2.1 80
28.0 1.5 154
27.9 2.2 74
28.0 1.5 66
27.8 1.2 22
27.7 1.4 88
28.1 1.4 186
27.8 1.7 112
27.9 1.6 546
27.7 1.6 216
27.7 1.4 59
27.3 1.4 40
28.5 1.5 105
28.6 1.6 115
27.8 1.8 50
27.9 1.4 76
27.8 1.2 19
27.4 1.3 63
27.9 1.6 230
27.8 1.5 509
27.5 1.7 153
27.8 1.5 231
27.2 1.3 117
27.6 1.3 50
28.3 1.3 155
28.0 1.6 65
27.3 1.3 59
27.2 1.2 60
27.3 1.2 102
27.3 1.3 362
27.5 1.4 214
26.9 1.3 49
27.6 1.1 167
27.3 1.3 207
26.9 1.6 282
26.2 1.3 131

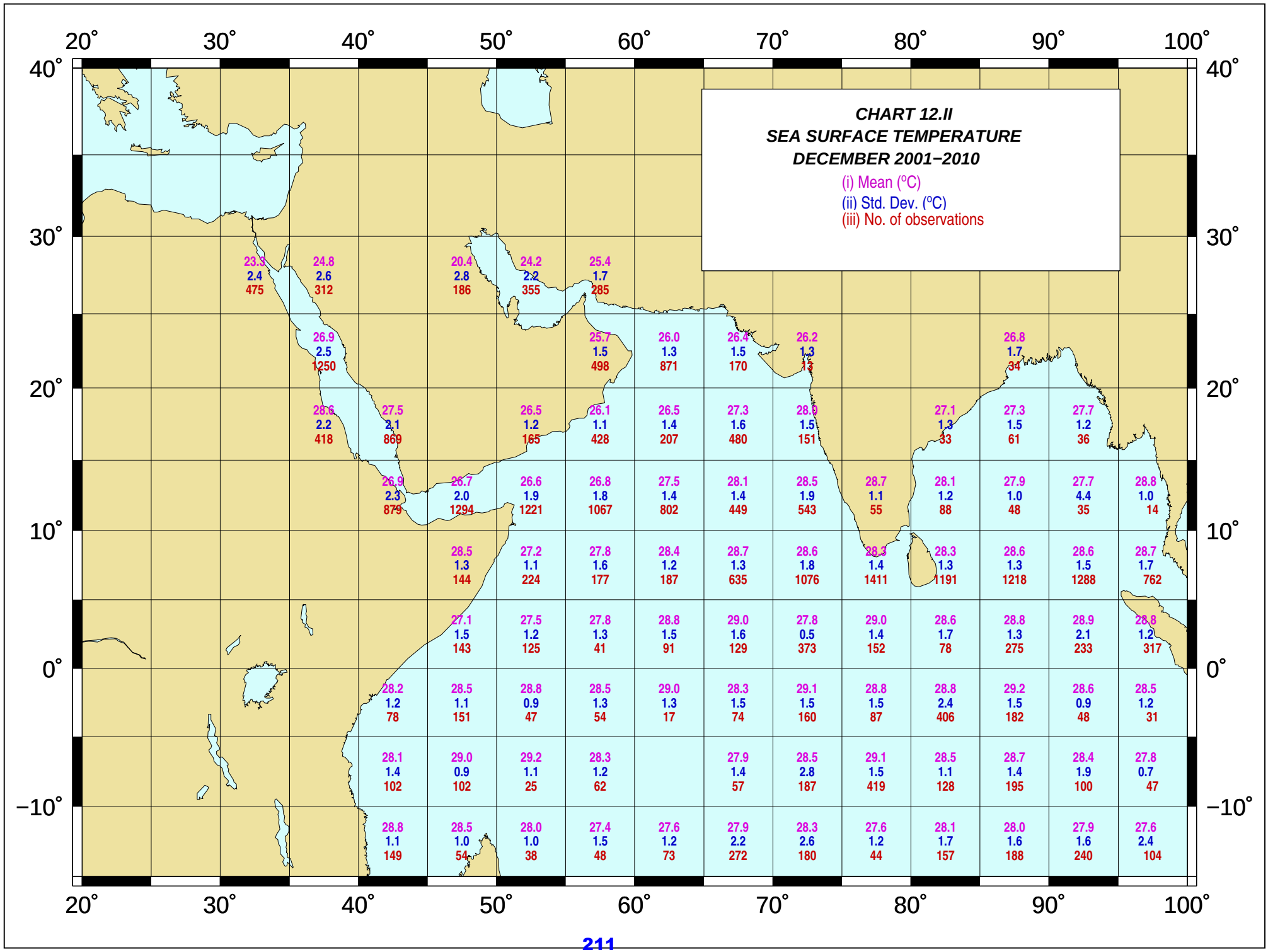


CHART 12.II
SEA SURFACE TEMPERATURE
DECEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
23.3 2.4 475
24.8 2.6 312
20.4 2.8 186
24.2 2.2 355
25.4 1.7 285
26.9 2.5 1250
25.7 1.5 498
26.0 1.3 871
26.4 1.5 170
26.2 1.3 13
26.8 1.7 34
28.6 2.2 418
27.5 2.1 869
26.5 1.2 165
26.1 1.1 428
26.5 1.4 207
27.3 1.6 480
28.9 1.5 151
27.1 1.3 33
27.3 1.5 61
27.7 1.2 36
26.9 2.3 879
26.7 2.0 1294
26.6 1.9 1221
26.8 1.8 1067
27.5 1.4 802
28.1 1.4 449
28.5 1.9 543
28.7 1.1 55
28.1 1.2 88
27.9 1.0 48
27.7 4.4 35
28.8 1.0 14
28.5 1.3 144
27.2 1.1 224
27.8 1.6 177
28.4 1.2 187
28.7 1.3 635
28.6 1.8 1076
28.3 1.4 1411
28.3 1.3 1191
28.6 1.3 1218
28.6 1.5 1288
28.7 1.7 762
27.1 1.5 143
27.5 1.2 125
27.8 1.3 41
28.8 1.5 91
29.0 1.6 129
27.8 0.5 373
29.0 1.4 152
28.6 1.7 78
28.8 1.3 275
28.9 2.1 233
28.8 1.2 317
28.2 1.2 78
28.5 1.1 151
28.8 0.9 47
28.5 1.3 54
29.0 1.3 17
28.3 1.5 74
29.1 1.5 160
28.8 1.5 87
28.8 2.4 406
29.2 1.5 182
28.6 0.9 48
28.5 1.2 31
28.1 1.4 102
29.0 0.9 102
29.2 1.1 25
28.3 1.2 62
27.9 1.4 57
28.5 2.8 187
29.1 1.5 419
28.5 1.1 128
28.7 1.4 195
28.4 1.9 100
27.8 0.7 47
28.8 1.1 149
28.5 1.0 54
28.0 1.0 38
27.4 1.5 48
27.6 1.2 73
27.9 2.2 272
28.3 2.6 180
27.6 1.2 44
28.1 1.7 157
28.0 1.6 188
27.9 1.6 240
27.6 2.4 104

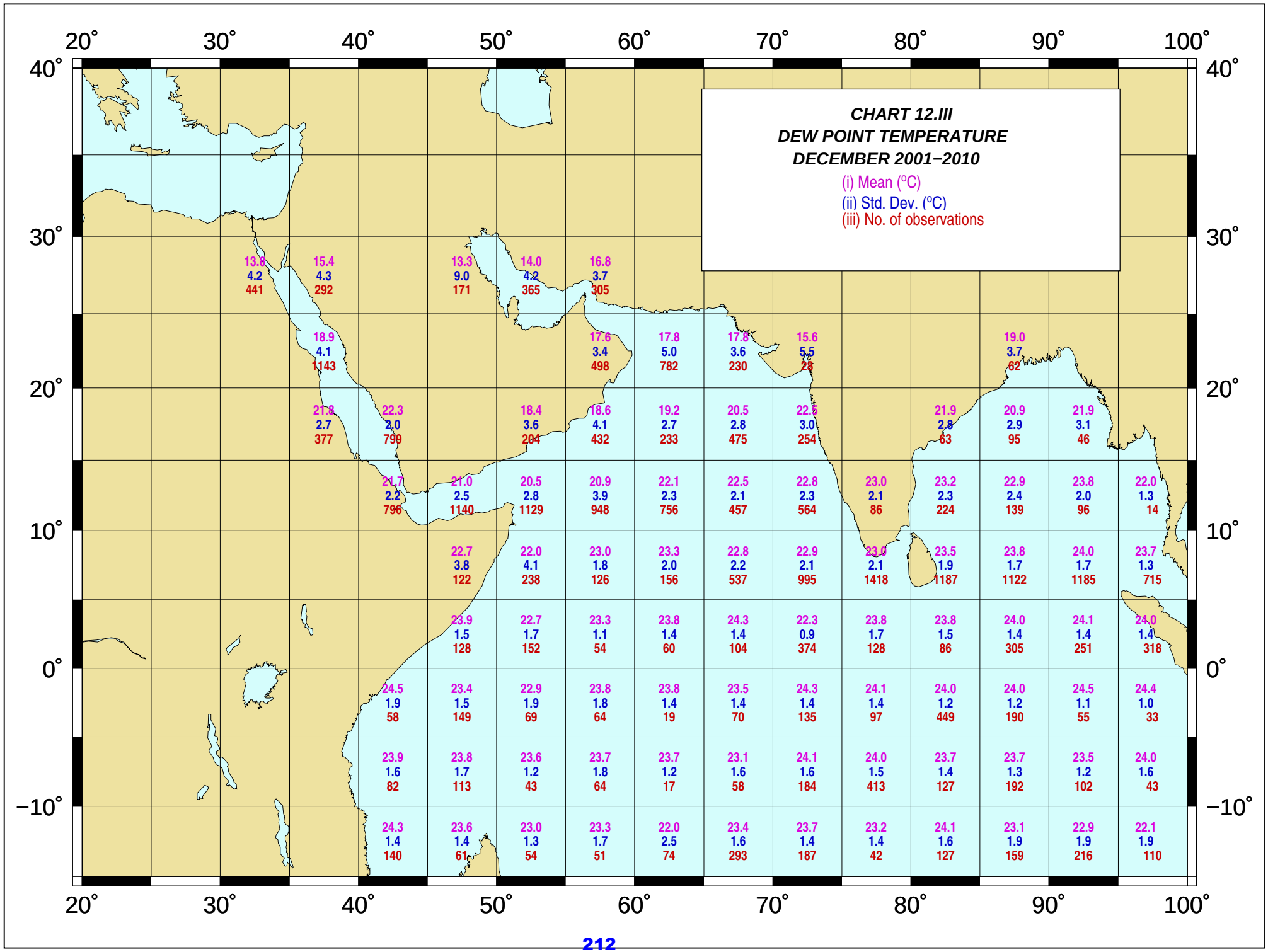


CHART 12.III
DEW POINT TEMPERATURE
DECEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
13.8 4.2 441
15.4 4.3 292
13.3 9.0 171
14.0 4.2 365
16.8 3.7 305
18.9 4.1 1143
17.6 3.4 498
17.8 5.0 782
17.8 3.6 230
15.6 5.5 26
19.0 3.7 62
21.8 2.7 377
22.3 2.0 799
18.4 3.6 204
18.6 4.1 432
19.2 2.7 233
20.5 2.8 475
22.5 3.0 254
21.9 2.8 63
20.9 2.9 95
21.9 3.1 46
21.7 2.2 796
21.0 2.5 1140
20.5 2.8 1129
20.9 3.9 948
22.1 2.3 756
22.5 2.1 457
22.8 2.3 564
23.0 2.1 86
23.2 2.3 224
22.9 2.4 139
23.8 2.0 96
22.0 1.3 14
22.7 3.8 122
22.0 4.1 238
23.0 1.8 126
23.3 2.0 156
22.8 2.2 537
22.9 2.1 995
23.0 2.1 1418
23.5 1.9 1187
23.8 1.7 1122
24.0 1.7 1185
23.7 1.3 715
23.9 1.5 128
22.7 1.7 152
23.3 1.1 54
23.8 1.4 60
24.3 1.4 104
22.3 0.9 374
23.8 1.7 128
23.8 1.5 86
24.0 1.4 305
24.1 1.4 251
24.0 1.4 318
24.5 1.9 58
23.4 1.5 149
22.9 1.9 69
23.8 1.8 64
23.8 1.4 19
23.5 1.4 70
24.3 1.4 135
24.1 1.4 97
24.0 1.2 449
24.0 1.2 190
24.5 1.1 55
24.4 1.0 33
23.9 1.6 82
23.8 1.7 113
23.6 1.2 43
23.7 1.8 64
23.7 1.2 17
23.1 1.6 58
24.1 1.6 184
24.0 1.5 413
23.7 1.4 127
23.7 1.3 192
23.5 1.2 102
24.0 1.6 43
24.3 1.4 140
23.6 1.4 61
23.0 1.3 54
23.3 1.7 51
22.0 2.5 74
23.4 1.6 293
23.7 1.4 187
23.2 1.4 42
24.1 1.6 127
23.1 1.9 159
22.9 1.9 216
22.1 1.9 110

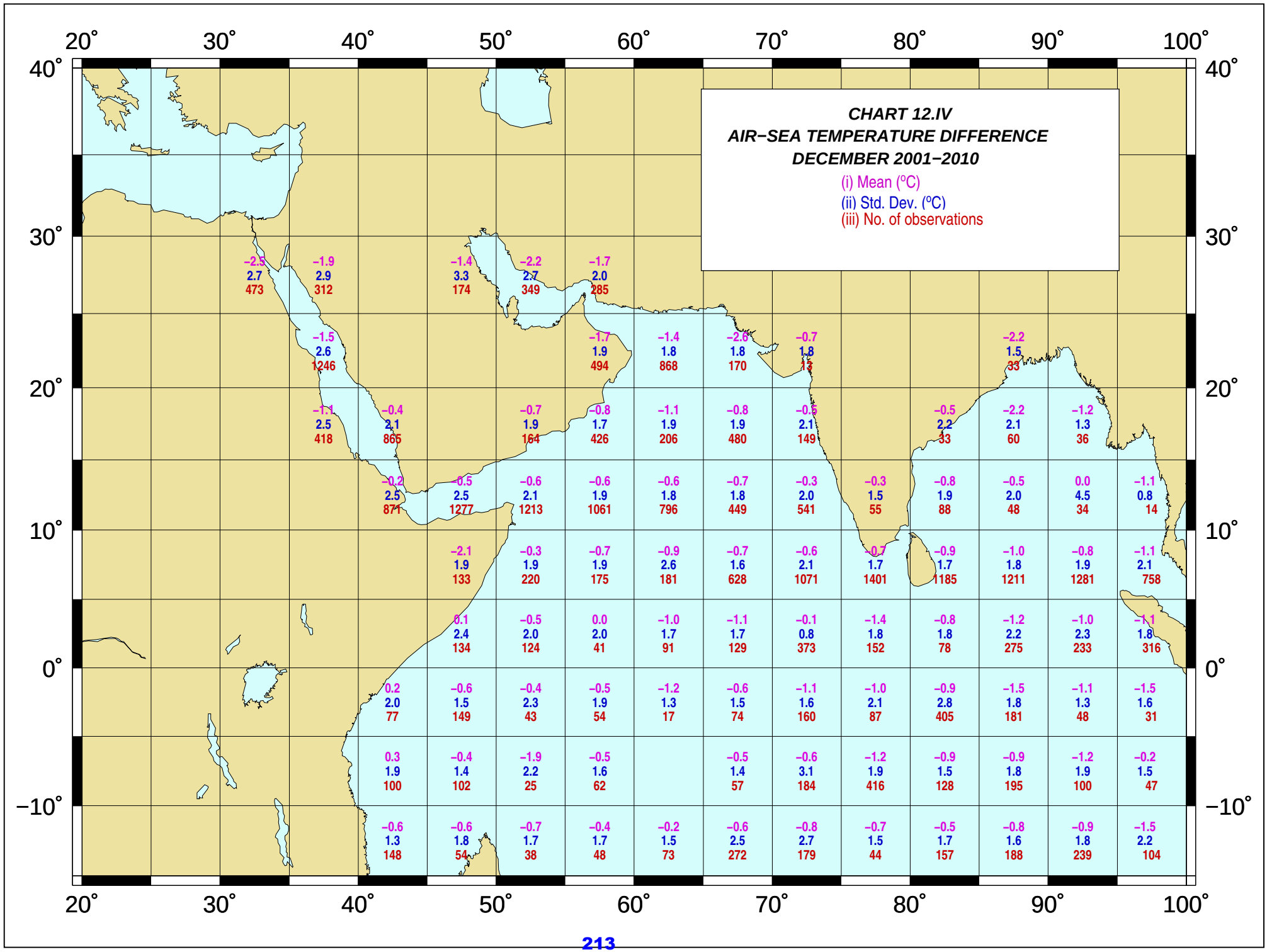
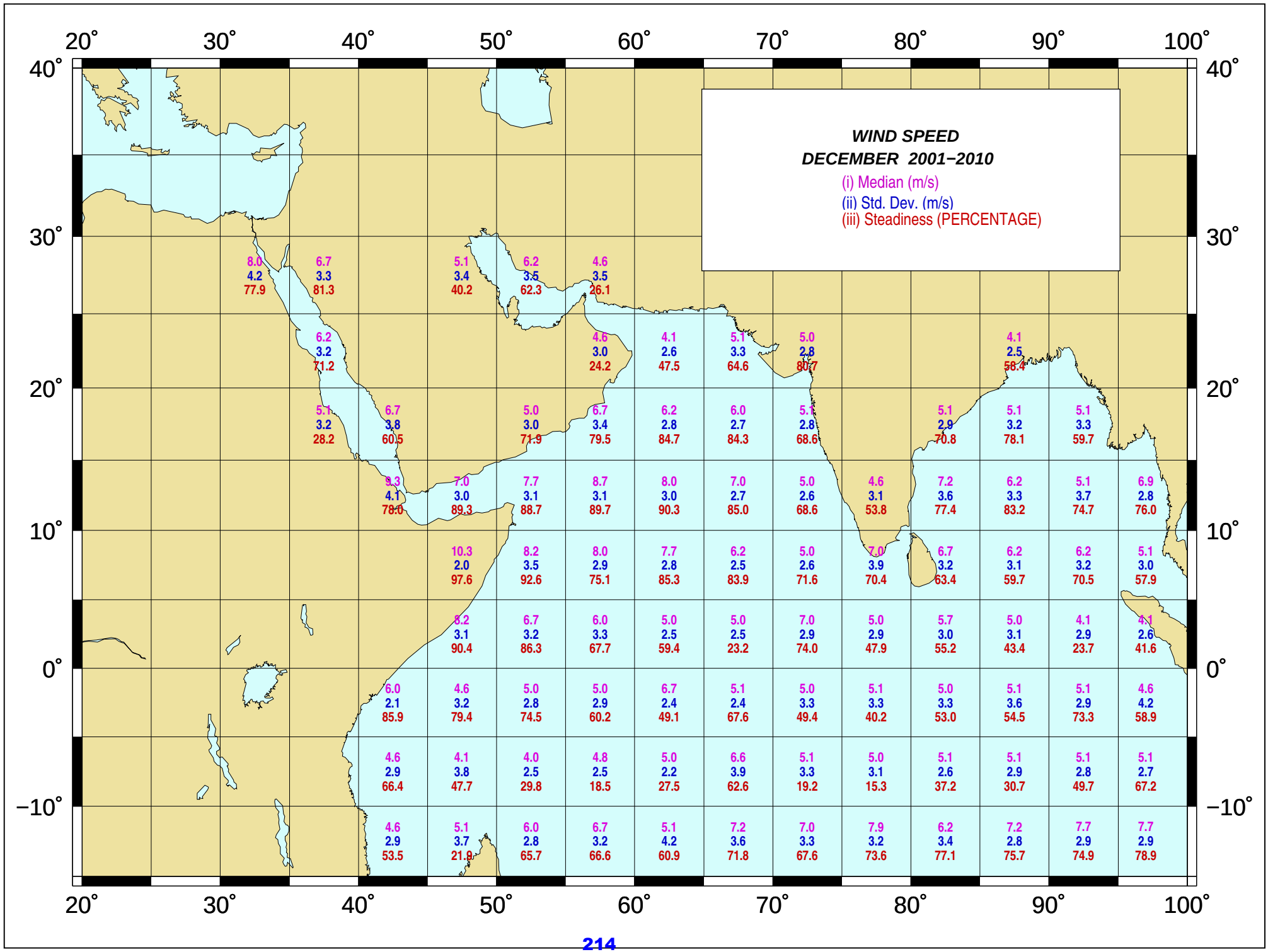


CHART 12.IV
AIR–SEA TEMPERATURE DIFFERENCE
DECEMBER 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−2.5 2.7 473
−1.9 2.9 312
−1.4 3.3 174
−2.2 2.7 349
−1.7 2.0 285
−1.5 2.6 1246
−1.7 1.9 494
−1.4 1.8 868
−2.6 1.8 170
−0.7 1.8 13
−2.2 1.5 33
−1.1 2.5 418
−0.4 2.1 865
−0.7 1.9 164
−0.8 1.7 426
−1.1 1.9 206
−0.8 1.9 480
−0.5 2.1 149
−0.5 2.2 33
−2.2 2.1 60
−1.2 1.3 36
−0.2 2.5 871
−0.5 2.5 1277
−0.6 2.1 1213
−0.6 1.9 1061
−0.6 1.8 796
−0.7 1.8 449
−0.3 2.0 541
−0.3 1.5 55
−0.8 1.9 88
−0.5 2.0 48
0.0 4.5 34
−1.1 0.8 14
−2.1 1.9 133
−0.3 1.9 220
−0.7 1.9 175
−0.9 2.6 181
−0.7 1.6 628
−0.6 2.1 1071
−0.7 1.7 1401
−0.9 1.7 1185
−1.0 1.8 1211
−0.8 1.9 1281
−1.1 2.1 758
0.1 2.4 134
−0.5 2.0 124
0.0 2.0 41
−1.0 1.7 91
−1.1 1.7 129
−0.1 0.8 373
−1.4 1.8 152
−0.8 1.8 78
−1.2 2.2 275
−1.0 2.3 233
−1.1 1.8 316
0.2 2.0 77
−0.6 1.5 149
−0.4 2.3 43
−0.5 1.9 54
−1.2 1.3 17
−0.6 1.5 74
−1.1 1.6 160
−1.0 2.1 87
−0.9 2.8 405
−1.5 1.8 181
−1.1 1.3 48
−1.5 1.6 31
0.3 1.9 100
−0.4 1.4 102
−1.9 2.2 25
−0.5 1.6 62
−0.5 1.4 57
−0.6 3.1 184
−1.2 1.9 416
−0.9 1.5 128
−0.9 1.8 195
−1.2 1.9 100
−0.2 1.5 47
−0.6 1.3 148
−0.6 1.8 54
−0.7 1.7 38
−0.4 1.7 48
−0.2 1.5 73
−0.6 2.5 272
−0.8 2.7 179
−0.7 1.5 44
−0.5 1.7 157
−0.8 1.6 188
−0.9 1.8 239
−1.5 2.2 104


WIND SPEED
DECEMBER 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.0 4.2 77.9
6.7 3.3 81.3
5.1 3.4 40.2
6.2 3.5 62.3
4.6 3.5 26.1
6.2 3.2 71.2
4.6 3.0 24.2
4.1 2.6 47.5
5.1 3.3 64.6
5.0 2.8 80.7
4.1 2.5 58.4
5.1 3.2 28.2
6.7 3.8 60.5
5.0 3.0 71.9
6.7 3.4 79.5
6.2 2.8 84.7
6.0 2.7 84.3
5.1 2.8 68.6
5.1 2.9 70.8
5.1 3.2 78.1
5.1 3.3 59.7
9.3 4.1 78.0
7.0 3.0 89.3
7.7 3.1 88.7
8.7 3.1 89.7
8.0 3.0 90.3
7.0 2.7 85.0
5.0 2.6 68.6
4.6 3.1 53.8
7.2 3.6 77.4
6.2 3.3 83.2
5.1 3.7 74.7
6.9 2.8 76.0
10.3 2.0 97.6
8.2 3.5 92.6
8.0 2.9 75.1
7.7 2.8 85.3
6.2 2.5 83.9
5.0 2.6 71.6
7.0 3.9 70.4
6.7 3.2 63.4
6.2 3.1 59.7
6.2 3.2 70.5
5.1 3.0 57.9
8.2 3.1 90.4
6.7 3.2 86.3
6.0 3.3 67.7
5.0 2.5 59.4
5.0 2.5 23.2
7.0 2.9 74.0
5.0 2.9 47.9
5.7 3.0 55.2
5.0 3.1 43.4
4.1 2.9 23.7
4.1 2.6 41.6
6.0 2.1 85.9
4.6 3.2 79.4
5.0 2.8 74.5
5.0 2.9 60.2
6.7 2.4 49.1
5.1 2.4 67.6
5.0 3.3 49.4
5.1 3.3 40.2
5.0 3.3 53.0
5.1 3.6 54.5
5.1 2.9 73.3
4.6 4.2 58.9
4.6 2.9 66.4
4.1 3.8 47.7
4.0 2.5 29.8
4.8 2.5 18.5
5.0 2.2 27.5
6.6 3.9 62.6
5.1 3.3 19.2
5.0 3.1 15.3
5.1 2.6 37.2
5.1 2.9 30.7
5.1 2.8 49.7
5.1 2.7 67.2
4.6 2.9 53.5
5.1 3.7 21.8
6.0 2.8 65.7
6.7 3.2 66.6
5.1 4.2 60.9
7.2 3.6 71.8
7.0 3.3 67.6
7.9 3.2 73.6
6.2 3.4 77.1
7.2 2.8 75.7
7.7 2.9 74.9
7.7 2.9 78.9

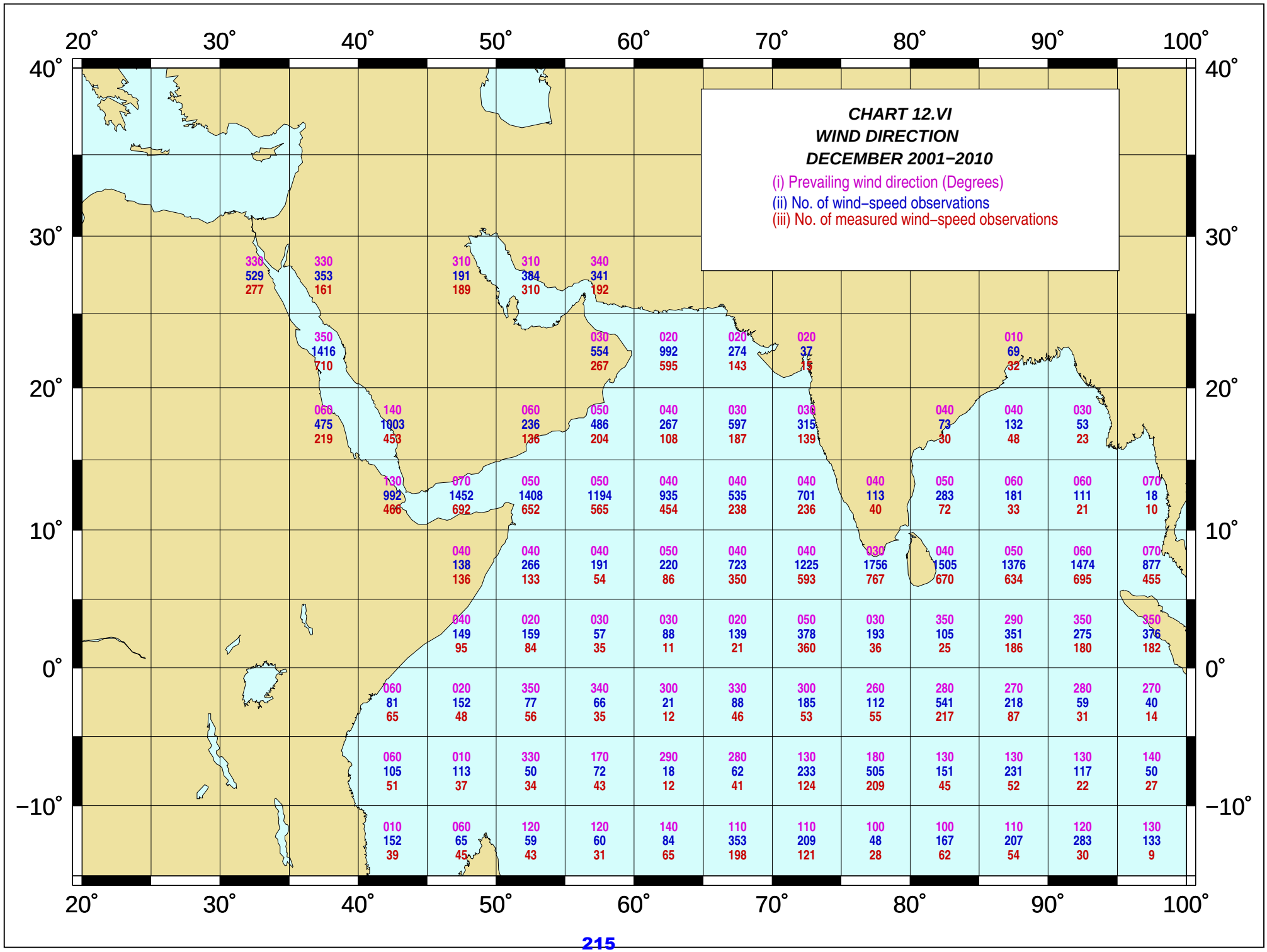


CHART 12.VI
WIND DIRECTION
DECEMBER 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 529 277
330 353 161
310 191 189
310 384 310
340 341 192
350 1416 710
030 554 267
020 992 595
020 274 143
020 37 15
010 69 32
060 475 219
140 1003 453
060 236 136
050 486 204
040 267 108
030 597 187
030 315 139
040 73 30
040 132 48
030 53 23
130 992 466
070 1452 692
050 1408 652
050 1194 565
040 935 454
040 535 238
040 701 236
040 113 40
050 283 72
060 181 33
060 111 21
070 18 10
040 138 136
040 266 133
040 191 54
050 220 86
040 723 350
040 1225 593
030 1756 767
040 1505 670
050 1376 634
060 1474 695
070 877 455
040 149 95
020 159 84
030 57 35
030 88 11
020 139 21
050 378 360
030 193 36
350 105 25
290 351 186
350 275 180
350 376 182
060 81 65
020 152 48
350 77 56
340 66 35
300 21 12
330 88 46
300 185 53
260 112 55
280 541 217
270 218 87
280 59 31
270 40 14
060 105 51
010 113 37
330 50 34
170 72 43
290 18 12
280 62 41
130 233 124
180 505 209
130 151 45
130 231 52
130 117 22
140 50 27
010 152 39
060 65 45
120 59 43
120 60 31
140 84 65
110 353 198
110 209 121
100 48 28
100 167 62
110 207 54
120 283 30
130 133 9

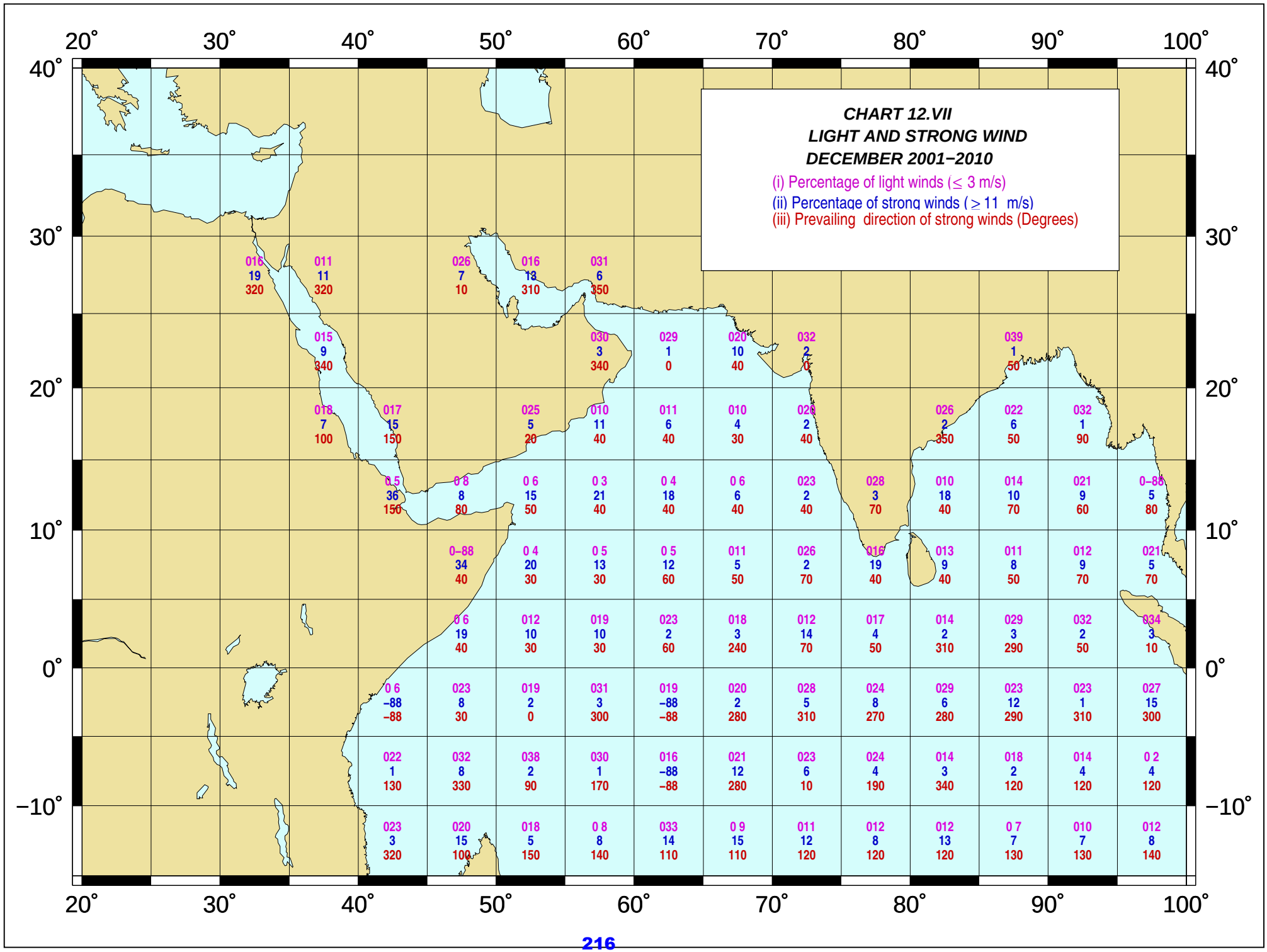


CHART 12.VII
LIGHT AND STRONG WIND
DECEMBER 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
016 19 320
011 11 320
026 7 10
016 13 310
031 6 350
015 9 340
030 3 340
029 1 0
020 10 40
032 2 0
039 1 50
018 7 100
017 15 150
025 5 20
010 11 40
011 6 40
010 4 30
026 2 350
022 6 50
032 1 90
0 5 36 150
0 8 8 80
0 6 15 50
0 3 21 40
0 4 18 40
0 6 6 40
023 2 40
028 3 70
010 18 40
014 10 70
021 9 60
0–88 5 80
0–88 34 40
0 4 20 30
0 5 13 30
0 5 12 60
011 5 50
026 2 70
016 19 40
013 9 40
011 8 50
012 9 70
021 5 70
0 6 19 40
012 10 30
019 10 30
023 2 60
018 3 240
012 14 70
017 4 50
014 2 310
029 3 290
032 2 50
034 3 10
0 6 −88 −88
023 8 30
019 2 0
031 3 300
019 −88 −88
020 2 280
028 5 310
024 8 270
029 6 280
023 12 290
023 1 310
027 15 300
022 1 130
032 8 330
038 2 90
030 1 170
016 −88 −88
021 12 280
023 6 10
024 4 190
014 3 340
018 2 120
014 4 120
0 2 4 120
023 3 320
020 15 100
018 5 150
0 8 8 140
033 14 110
0 9 15 110
011 12 120
012 8 120
012 13 120
0 7 7 130
010 7 130
012 8 140

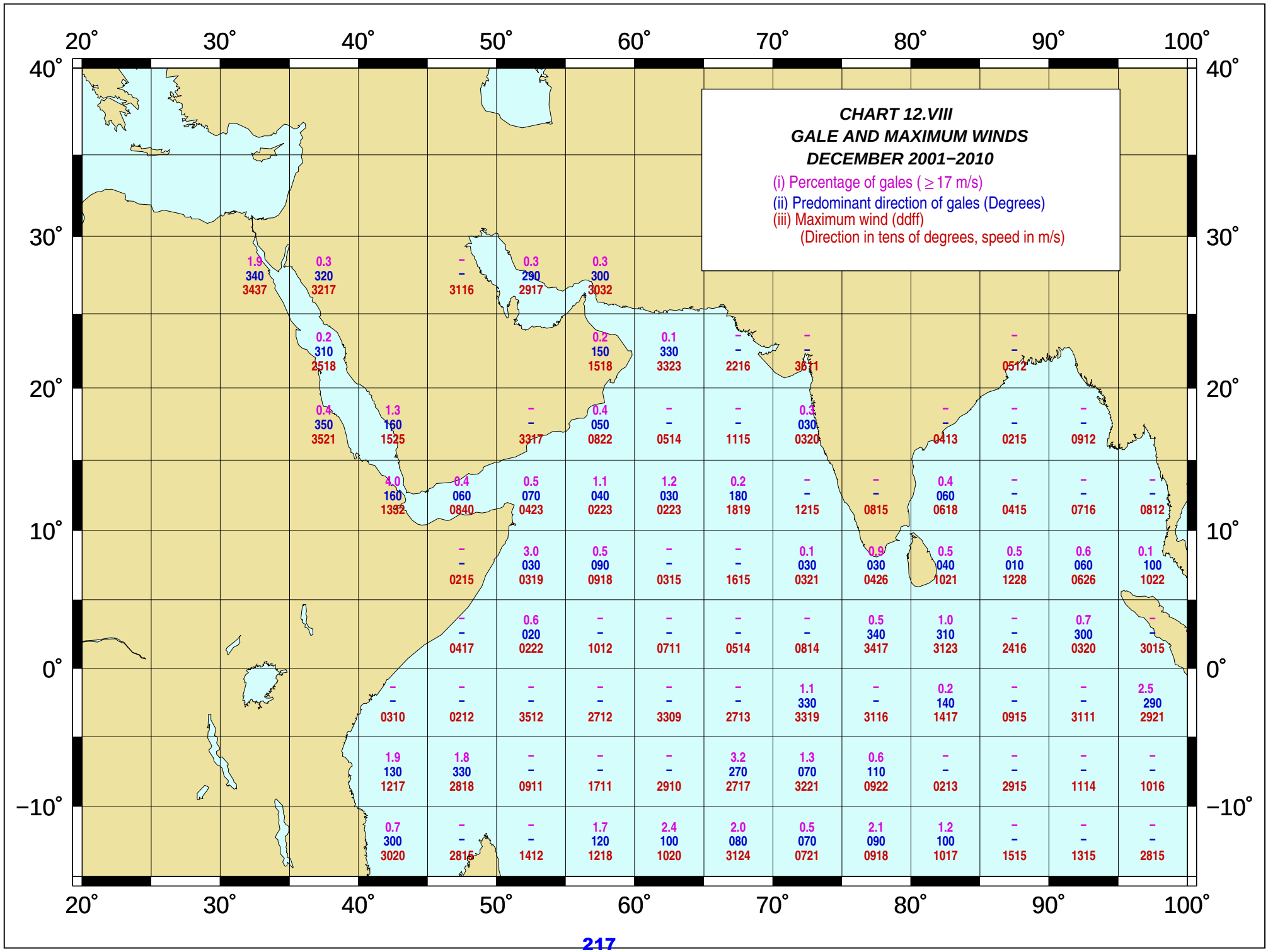


CHART 12.VIII
GALE AND MAXIMUM WINDS
DECEMBER 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.9 340 3437
0.3 320 3217
– – 3116
0.3 290 2917
0.3 300 3032
0.2 310 2518
0.2 150 1518
0.1 330 3323
– – 2216
– – 3611
– – 0512
0.4 350 3521
1.3 160 1525
– – 3317
0.4 050 0822
– – 0514
– – 1115
0.3 030 0320
– – 0413
– – 0215
– – 0912
4.0 160 1352
0.4 060 0840
0.5 070 0423
1.1 040 0223
1.2 030 0223
0.2 180 1819
– – 1215
– – 0815
0.4 060 0618
– – 0415
– – 0716
– – 0812
– – 0215
3.0 030 0319
0.5 090 0918
– – 0315
– – 1615
0.1 030 0321
0.9 030 0426
0.5 040 1021
0.5 010 1228
0.6 060 0626
0.1 100 1022
– – 0417
0.6 020 0222
– – 1012
– – 0711
– – 0514
– – 0814
0.5 340 3417
1.0 310 3123
– – 2416
0.7 300 0320
– – 3015
– – 0310
– – 0212
– – 3512
– – 2712
– – 3309
– – 2713
1.1 330 3319
– – 3116
0.2 140 1417
– – 0915
– – 3111
2.5 290 2921
1.9 130 1217
1.8 330 2818
– – 0911
– – 1711
– – 2910
3.2 270 2717
1.3 070 3221
0.6 110 0922
– – 0213
– – 2915
– – 1114
– – 1016
0.7 300 3020
– – 2815
– – 1412
1.7 120 1218
2.4 100 1020
2.0 080 3124
0.5 070 0721
2.1 090 0918
1.2 100 1017
– – 1515
– – 1315
– – 2815

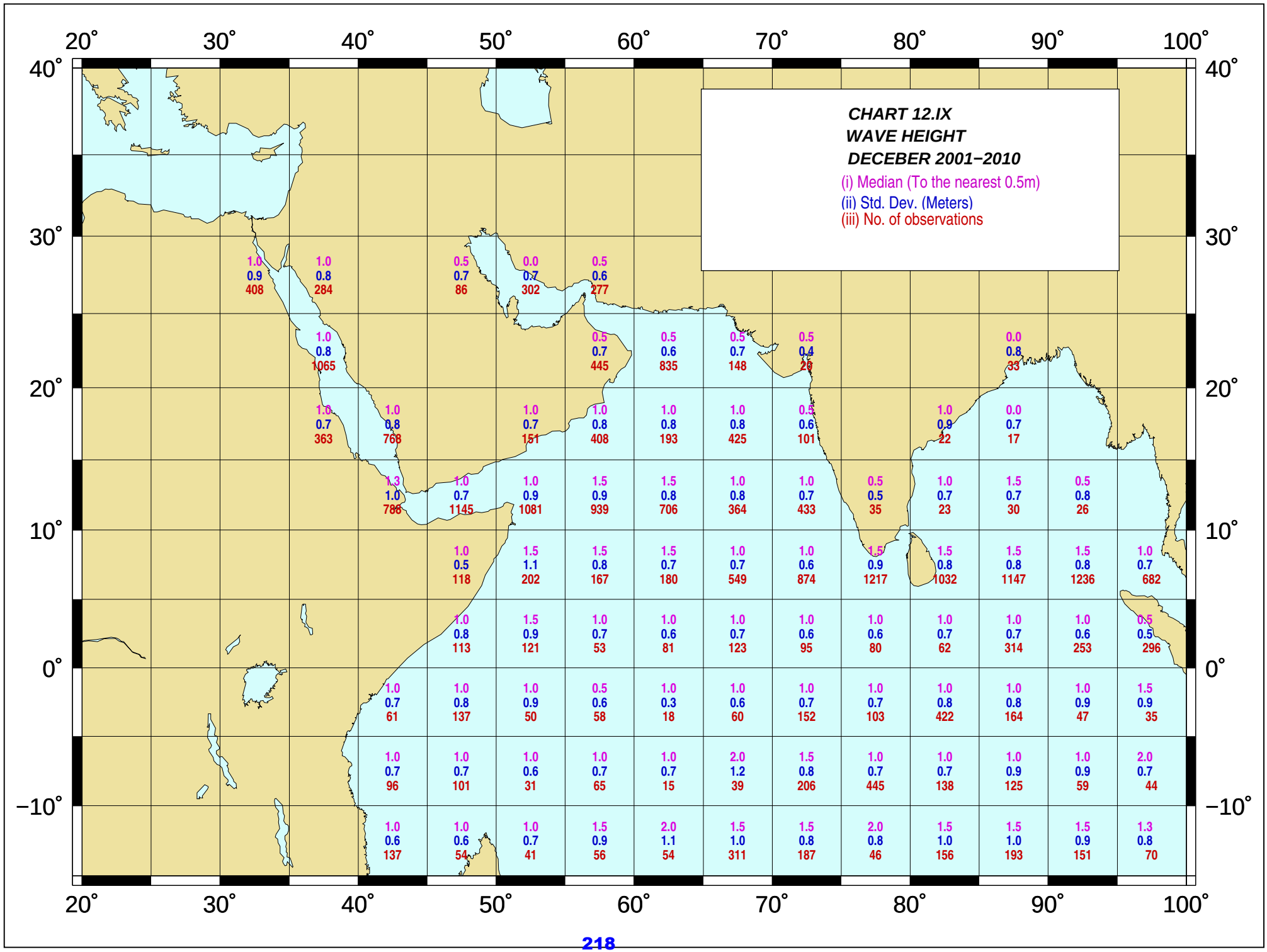


CHART 12.IX
WAVE HEIGHT
DECEBER 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.0 0.9 408
1.0 0.8 284
0.5 0.7 86
0.0 0.7 302
0.5 0.6 277
1.0 0.8 1065
0.5 0.7 445
0.5 0.6 835
0.5 0.7 148
0.5 0.4 26
0.0 0.8 33
1.0 0.7 363
1.0 0.8 768
1.0 0.7 151
1.0 0.8 408
1.0 0.8 193
1.0 0.8 425
0.5 0.6 101
1.0 0.9 22
0.0 0.7 17
1.3 1.0 786
1.0 0.7 1145
1.0 0.9 1081
1.5 0.9 939
1.5 0.8 706
1.0 0.8 364
1.0 0.7 433
0.5 0.5 35
1.0 0.7 23
1.5 0.7 30
0.5 0.8 26
1.0 0.5 118
1.5 1.1 202
1.5 0.8 167
1.5 0.7 180
1.0 0.7 549
1.0 0.6 874
1.5 0.9 1217
1.5 0.8 1032
1.5 0.8 1147
1.5 0.8 1236
1.0 0.7 682
1.0 0.8 113
1.5 0.9 121
1.0 0.7 53
1.0 0.6 81
1.0 0.7 123
1.0 0.6 95
1.0 0.6 80
1.0 0.7 62
1.0 0.7 314
1.0 0.6 253
0.5 0.5 296
1.0 0.7 61
1.0 0.8 137
1.0 0.9 50
0.5 0.6 58
1.0 0.3 18
1.0 0.6 60
1.0 0.7 152
1.0 0.7 103
1.0 0.8 422
1.0 0.8 164
1.0 0.9 47
1.5 0.9 35
1.0 0.7 96
1.0 0.7 101
1.0 0.6 31
1.0 0.7 65
1.0 0.7 15
2.0 1.2 39
1.5 0.8 206
1.0 0.7 445
1.0 0.7 138
1.0 0.9 125
1.0 0.9 59
2.0 0.7 44
1.0 0.6 137
1.0 0.6 54
1.0 0.7 41
1.5 0.9 56
2.0 1.1 54
1.5 1.0 311
1.5 0.8 187
2.0 0.8 46
1.5 1.0 156
1.5 1.0 193
1.5 0.9 151
1.3 0.8 70

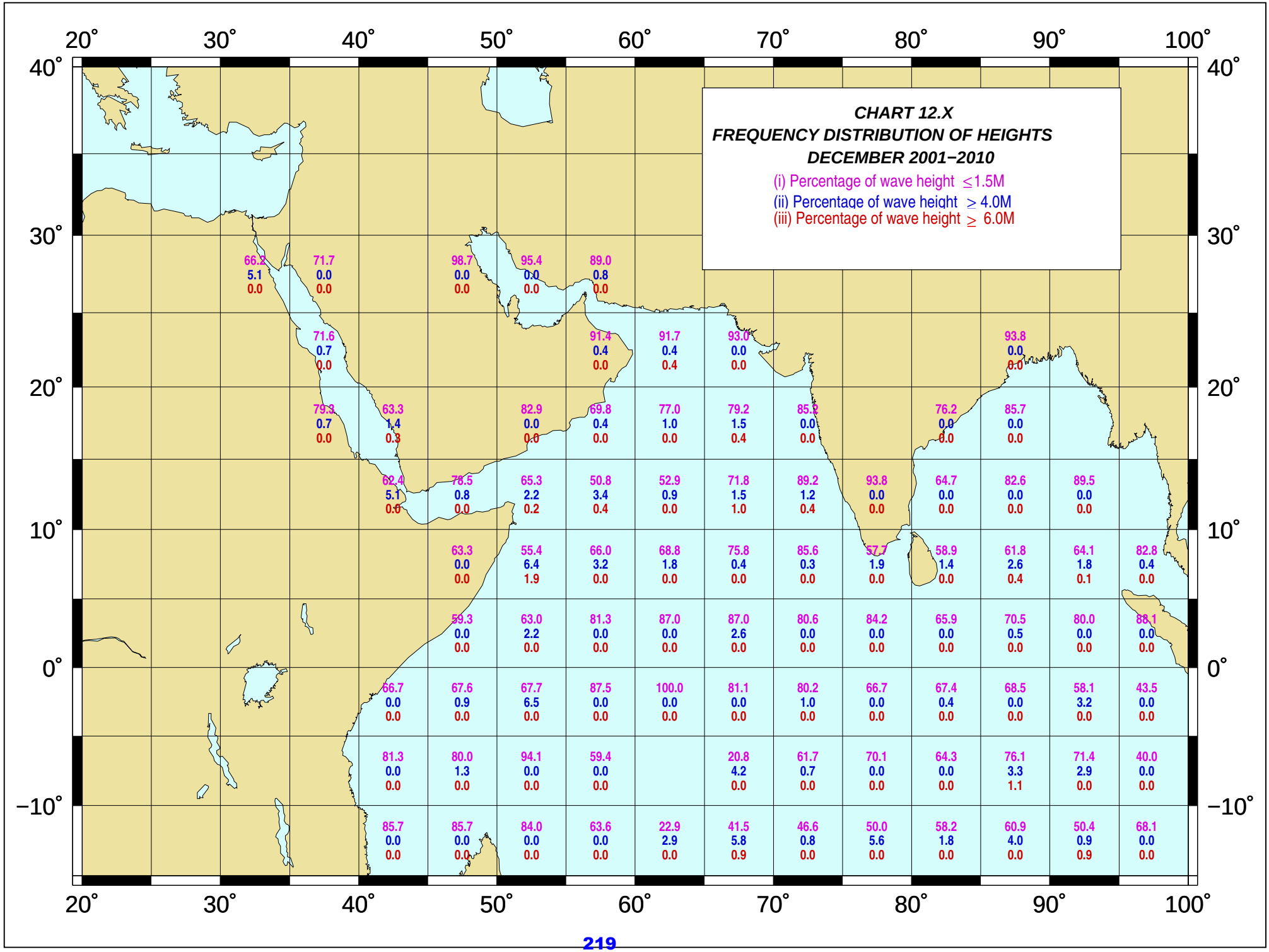


CHART 12.X
FREQUENCY DISTRIBUTION OF HEIGHTS
DECEMBER 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
66.2 5.1 0.0
71.7 0.0 0.0
98.7 0.0 0.0
95.4 0.0 0.0
89.0 0.8 0.0
71.6 0.7 0.0
91.4 0.4 0.0
91.7 0.4 0.4
93.0 0.0 0.0
93.8 0.0 0.0
79.3 0.7 0.0
63.3 1.4 0.3
82.9 0.0 0.0
69.8 0.4 0.0
77.0 1.0 0.0
79.2 1.5 0.4
85.2 0.0 0.0
76.2 0.0 0.0
85.7 0.0 0.0
62.4 5.1 0.6
78.5 0.8 0.0
65.3 2.2 0.2
50.8 3.4 0.4
52.9 0.9 0.0
71.8 1.5 1.0
89.2 1.2 0.4
93.8 0.0 0.0
64.7 0.0 0.0
82.6 0.0 0.0
89.5 0.0 0.0
63.3 0.0 0.0
55.4 6.4 1.9
66.0 3.2 0.0
68.8 1.8 0.0
75.8 0.4 0.0
85.6 0.3 0.0
57.7 1.9 0.0
58.9 1.4 0.0
61.8 2.6 0.4
64.1 1.8 0.1
82.8 0.4 0.0
59.3 0.0 0.0
63.0 2.2 0.0
81.3 0.0 0.0
87.0 0.0 0.0
87.0 2.6 0.0
80.6 0.0 0.0
84.2 0.0 0.0
65.9 0.0 0.0
70.5 0.5 0.0
80.0 0.0 0.0
88.1 0.0 0.0
66.7 0.0 0.0
67.6 0.9 0.0
67.7 6.5 0.0
87.5 0.0 0.0
100.0 0.0 0.0
81.1 0.0 0.0
80.2 1.0 0.0
66.7 0.0 0.0
67.4 0.4 0.0
68.5 0.0 0.0
58.1 3.2 0.0
43.5 0.0 0.0
81.3 0.0 0.0
80.0 1.3 0.0
94.1 0.0 0.0
59.4 0.0 0.0
20.8 4.2 0.0
61.7 0.7 0.0
70.1 0.0 0.0
64.3 0.0 0.0
76.1 3.3 1.1
71.4 2.9 0.0
40.0 0.0 0.0
85.7 0.0 0.0
85.7 0.0 0.0
84.0 0.0 0.0
63.6 0.0 0.0
22.9 2.9 0.0
41.5 5.8 0.9
46.6 0.8 0.0
50.0 5.6 0.0
58.2 1.8 0.0
60.9 4.0 0.0
50.4 0.9 0.9
68.1 0.0 0.0

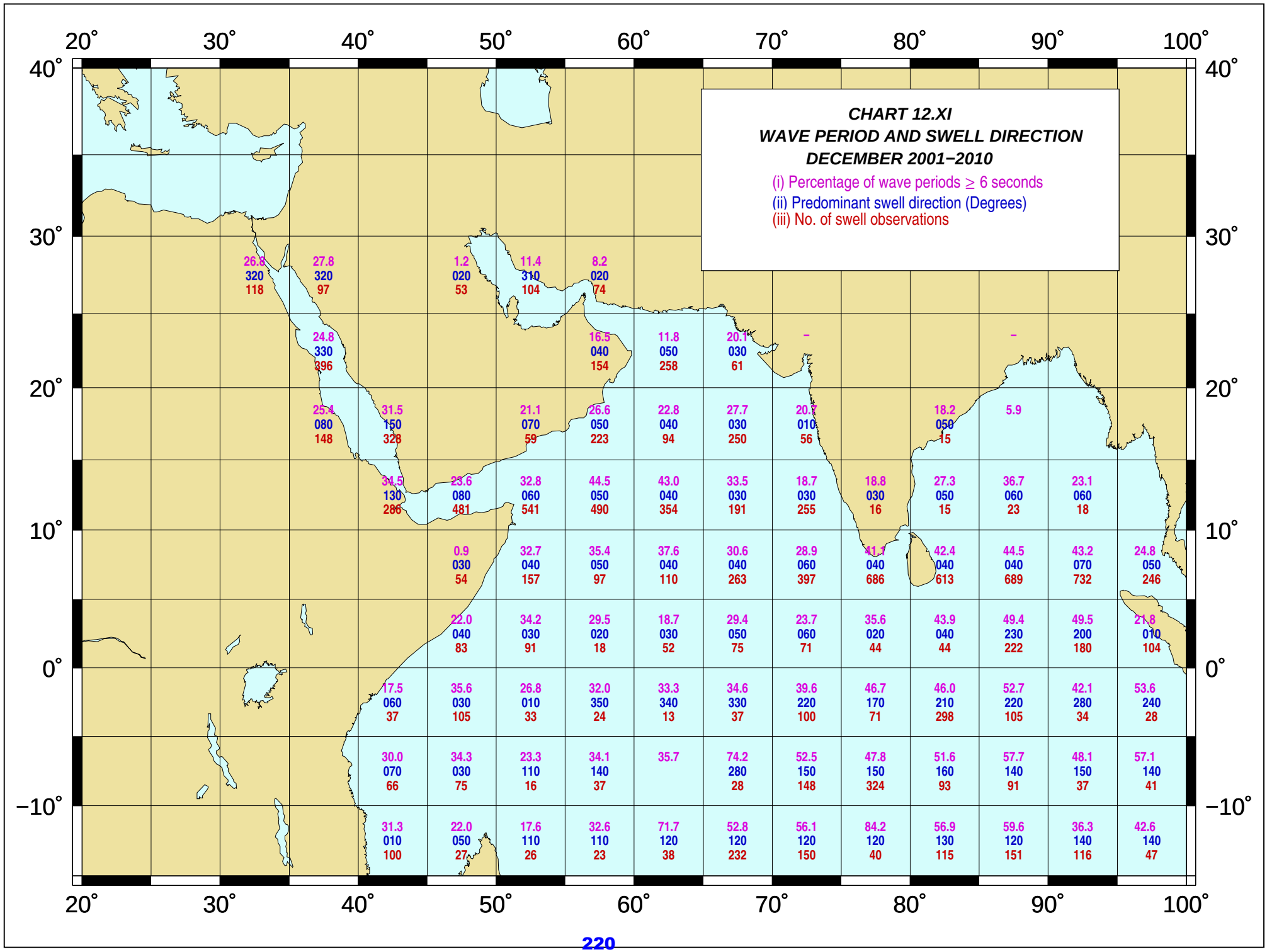


CHART 12.XI
WAVE PERIOD AND SWELL DIRECTION
DECEMBER 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
26.8 320 118
27.8 320 97
1.2 020 53
11.4 310 104
8.2 020 74
24.8 330 396
16.5 040 154
11.8 050 258
20.1 030 61
25.4 080 148
31.5 150 328
21.1 070 59
26.6 050 223
22.8 040 94
27.7 030 250
18.2 050 15
5.9
31.5 130 286
23.6 080 481
32.8 060 541
44.5 050 490
43.0 040 354
33.5 030 191
18.7 030 255
18.8 030 16
27.3 050 15
36.7 060 23
23.1 060 18
0.9 030 54
32.7 040 157
35.4 050 97
37.6 040 110
30.6 040 263
28.9 060 397
42.4 040 613
44.5 040 689
43.2 070 732
24.8 050 246
22.0 040 83
34.2 030 91
29.5 020 18
18.7 030 52
29.4 050 75
23.7 060 71
35.6 020 44
43.9 040 44
49.4 230 222
49.5 200 180
21.8 010 104
17.5 060 37
35.6 030 105
26.8 010 33
32.0 350 24
33.3 340 13
34.6 330 37
39.6 220 100
46.7 170 71
46.0 210 298
52.7 220 105
42.1 280 34
53.6 240 28
30.0 070 66
34.3 030 75
23.3 110 16
34.1 140 37
35.7
74.2 280 28
52.5 150 148
47.8 150 324
51.6 160 93
57.7 140 91
48.1 150 37
57.1 140 41
31.3 010 100
22.0 050 27
17.6 110 26
32.6 110 23
71.7 120 38
52.8 120 232
56.1 120 150
84.2 120 40
56.9 130 115
59.6 120 151
36.3 140 116
42.6 140 47

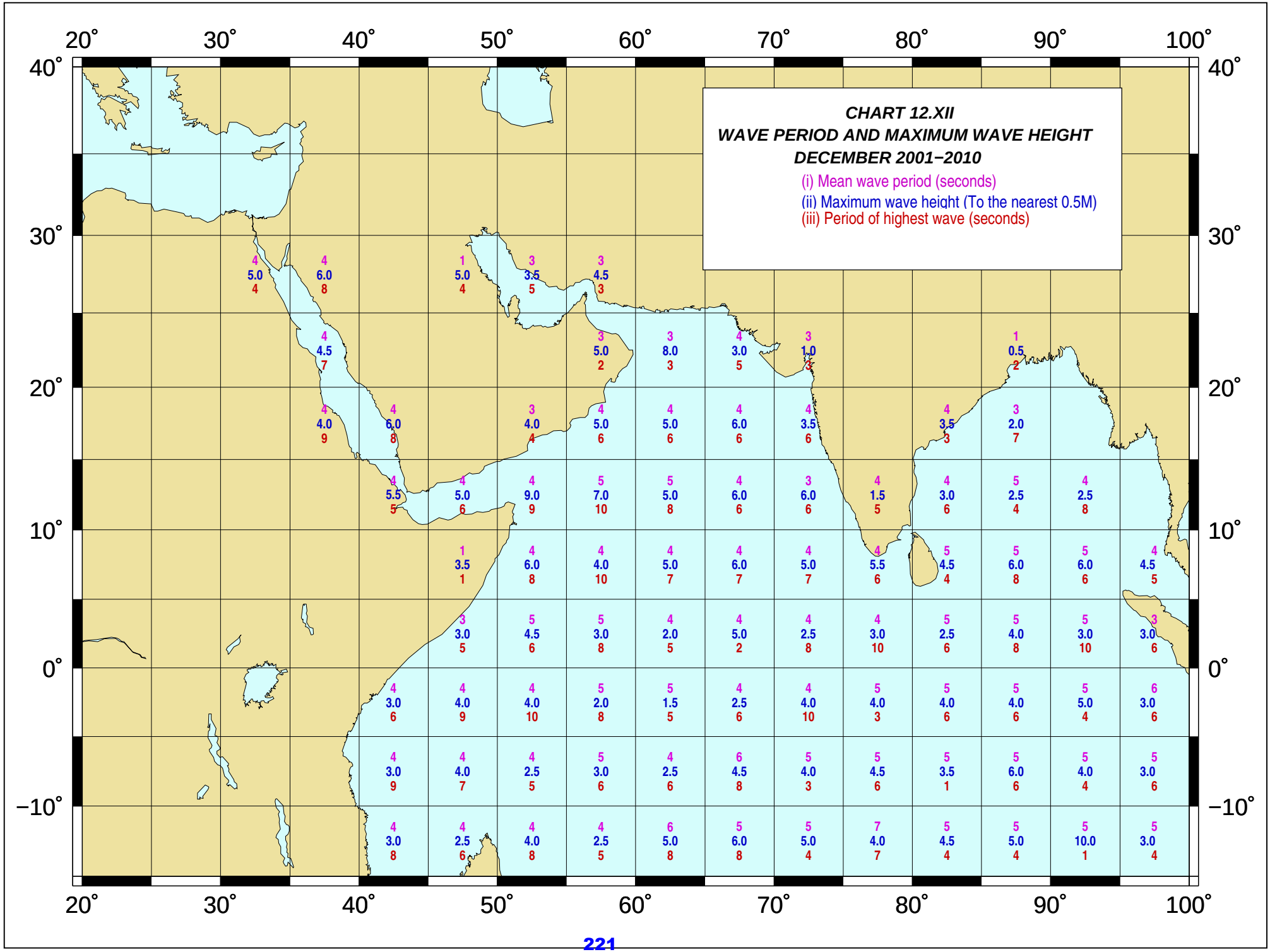


CHART 12.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
DECEMBER 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 5.0 4
4 6.0 8
1 5.0 4
3 3.5 5
3 4.5 3
4 4.5 7
3 5.0 2
3 8.0 3
4 3.0 5
3 1.0 3
1 0.5 2
4 4.0 9
4 6.0 8
3 4.0 4
4 5.0 6
4 5.0 6
4 6.0 6
4 3.5 6
4 3.5 3
3 2.0 7
4 5.5 5
4 5.0 6
4 9.0 9
5 7.0 10
5 5.0 8
4 6.0 6
3 6.0 6
4 1.5 5
4 3.0 6
5 2.5 4
4 2.5 8
1 3.5 1
4 6.0 8
4 4.0 10
4 5.0 7
4 6.0 7
4 5.0 7
4 5.5 6
5 4.5 4
5 6.0 8
5 6.0 6
4 4.5 5
3 3.0 5
5 4.5 6
5 3.0 8
4 2.0 5
4 5.0 2
4 2.5 8
4 3.0 10
5 2.5 6
5 4.0 8
5 3.0 10
3 3.0 6
4 3.0 6
4 4.0 9
4 4.0 10
5 2.0 8
5 1.5 5
4 2.5 6
4 4.0 10
5 4.0 3
5 4.0 6
5 4.0 6
5 5.0 4
6 3.0 6
4 3.0 9
4 4.0 7
4 2.5 5
5 3.0 6
4 2.5 6
6 4.5 8
5 4.0 3
5 4.5 6
5 3.5 1
5 6.0 6
5 4.0 4
5 3.0 6
4 3.0 8
4 2.5 6
4 4.0 8
4 2.5 5
6 5.0 8
5 6.0 8
5 5.0 4
7 4.0 7
5 4.5 4
5 5.0 4
5 10.0 1
5 3.0 4

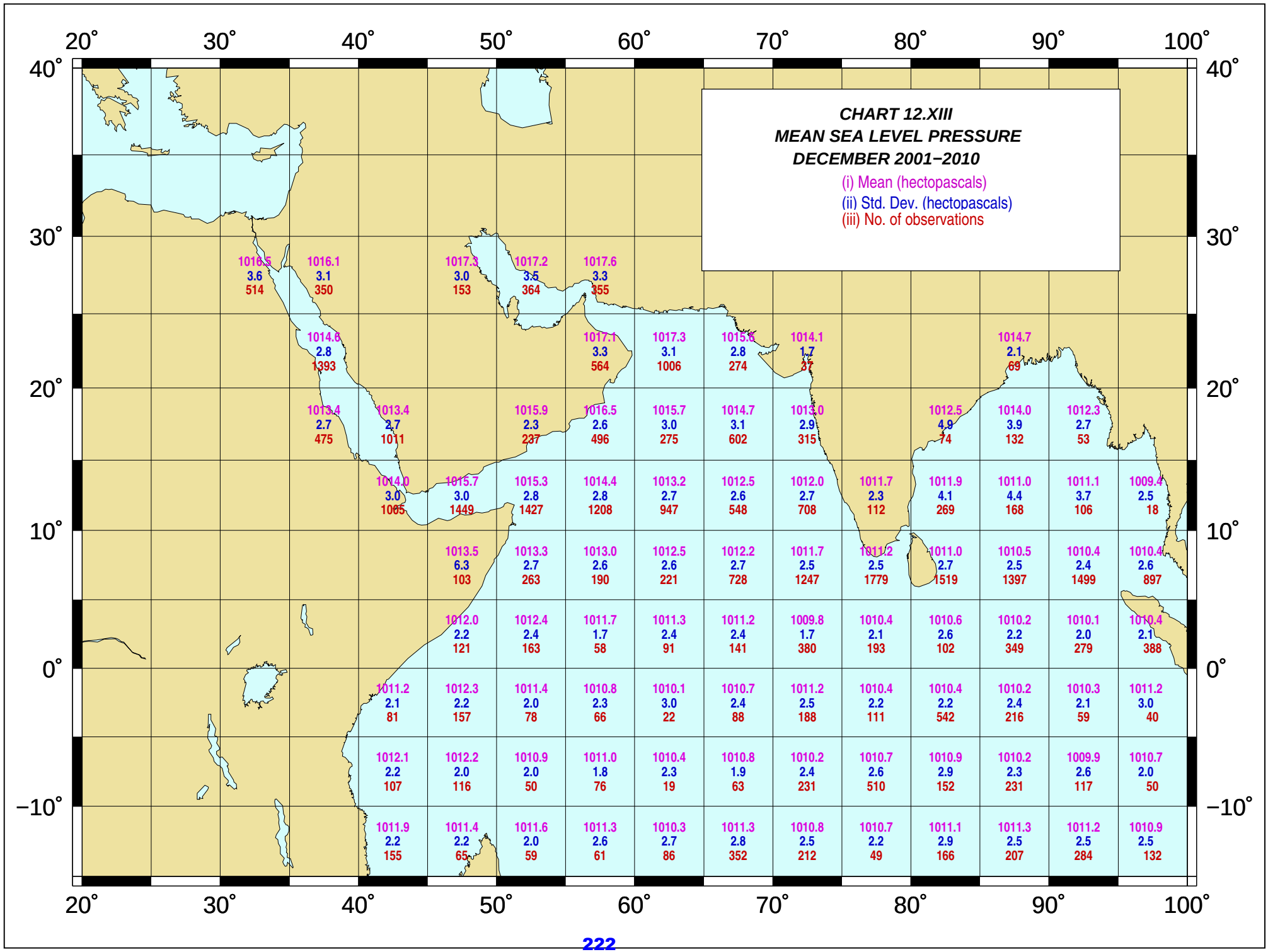


CHART 12.XIII
MEAN SEA LEVEL PRESSURE
DECEMBER 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1016.5 3.6 514
1016.1 3.1 350
1017.3 3.0 153
1017.2 3.5 364
1017.6 3.3 355
1014.6 2.8 1393
1017.1 3.3 564
1017.3 3.1 1006
1015.6 2.8 274
1014.1 1.7 37
1014.7 2.1 69
1013.4 2.7 475
1013.4 2.7 1011
1015.9 2.3 237
1016.5 2.6 496
1015.7 3.0 275
1014.7 3.1 602
1013.0 2.9 315
1012.5 4.9 74
1014.0 3.9 132
1012.3 2.7 53
1014.0 3.0 1065
1015.7 3.0 1449
1015.3 2.8 1427
1014.4 2.8 1208
1013.2 2.7 947
1012.5 2.6 548
1012.0 2.7 708
1011.7 2.3 112
1011.9 4.1 269
1011.0 4.4 168
1011.1 3.7 106
1009.4 2.5 18
1013.5 6.3 103
1013.3 2.7 263
1013.0 2.6 190
1012.5 2.6 221
1012.2 2.7 728
1011.7 2.5 1247
1011.2 2.5 1779
1011.0 2.7 1519
1010.5 2.5 1397
1010.4 2.4 1499
1010.4 2.6 897
1012.0 2.2 121
1012.4 2.4 163
1011.7 1.7 58
1011.3 2.4 91
1011.2 2.4 141
1009.8 1.7 380
1010.4 2.1 193
1010.6 2.6 102
1010.2 2.2 349
1010.1 2.0 279
1010.4 2.1 388
1011.2 2.1 81
1012.3 2.2 157
1011.4 2.0 78
1010.8 2.3 66
1010.1 3.0 22
1010.7 2.4 88
1011.2 2.5 188
1010.4 2.2 111
1010.4 2.2 542
1010.2 2.4 216
1010.3 2.1 59
1011.2 3.0 40
1012.1 2.2 107
1012.2 2.0 116
1010.9 2.0 50
1011.0 1.8 76
1010.4 2.3 19
1010.8 1.9 63
1010.2 2.4 231
1010.7 2.6 510
1010.9 2.9 152
1010.2 2.3 231
1009.9 2.6 117
1010.7 2.0 50
1011.9 2.2 155
1011.4 2.2 65
1011.6 2.0 59
1011.3 2.6 61
1010.3 2.7 86
1011.3 2.8 352
1010.8 2.5 212
1010.7 2.2 49
1011.1 2.9 166
1011.3 2.5 207
1011.2 2.5 284
1010.9 2.5 132

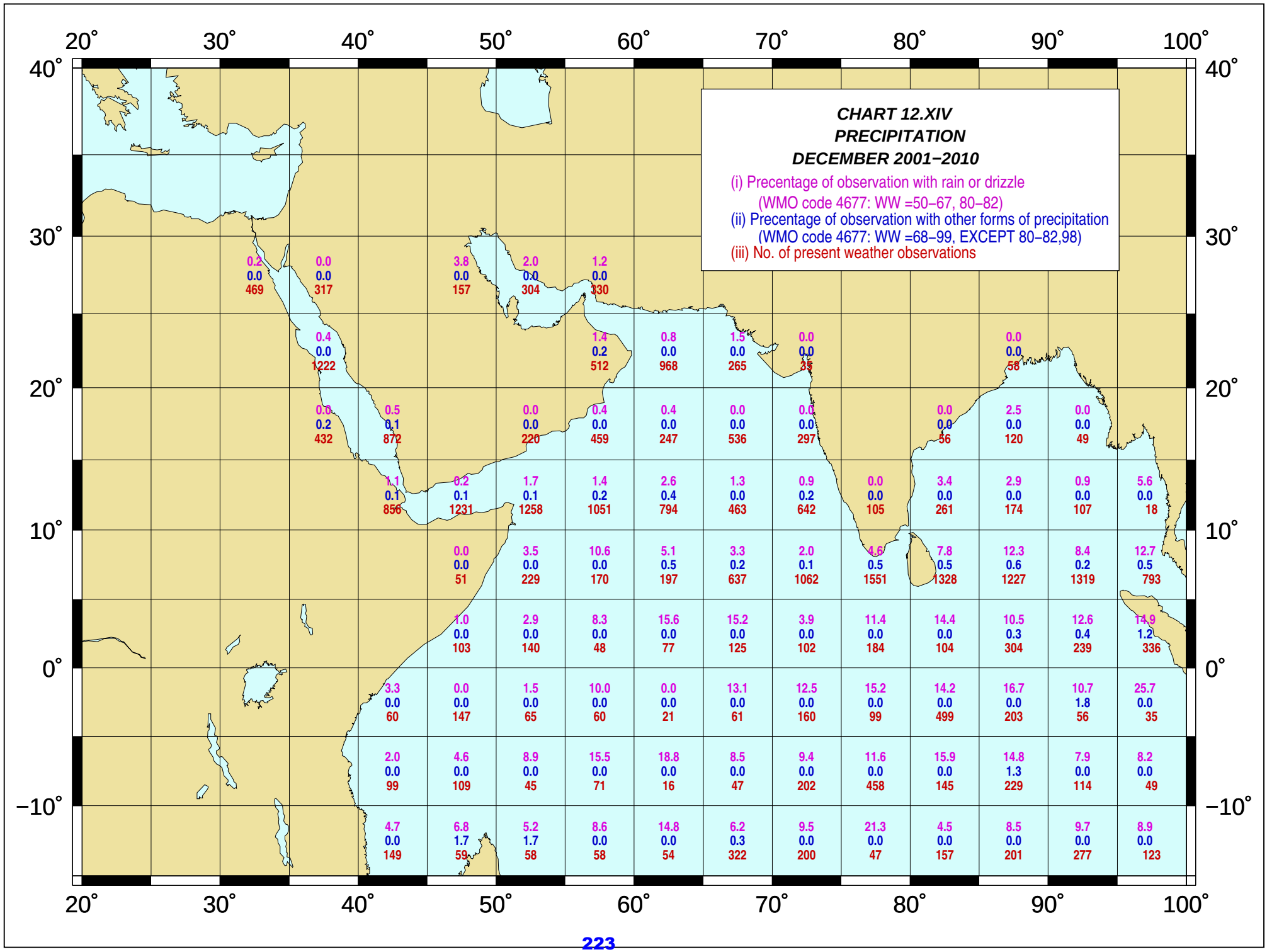


CHART 12.XIV
PRECIPITATION
DECEMBER 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.2 0.0 469
0.0 0.0 317
3.8 0.0 157
2.0 0.0 304
1.2 0.0 330
0.4 0.0 1222
1.4 0.2 512
0.8 0.0 968
1.5 0.0 265
0.0 0.0 35
0.0 0.0 58
0.0 0.2 432
0.5 0.1 872
0.0 0.0 220
0.4 0.0 459
0.4 0.0 247
0.0 0.0 536
0.0 0.0 297
0.0 0.0 56
2.5 0.0 120
0.0 0.0 49
1.1 0.1 856
0.2 0.1 1231
1.7 0.1 1258
1.4 0.2 1051
2.6 0.4 794
1.3 0.0 463
0.9 0.2 642
0.0 0.0 105
3.4 0.0 261
2.9 0.0 174
0.9 0.0 107
5.6 0.0 18
0.0 0.0 51
3.5 0.0 229
10.6 0.0 170
5.1 0.5 197
3.3 0.2 637
2.0 0.1 1062
4.6 0.5 1551
7.8 0.5 1328
12.3 0.6 1227
8.4 0.2 1319
12.7 0.5 793
1.0 0.0 103
2.9 0.0 140
8.3 0.0 48
15.6 0.0 77
15.2 0.0 125
3.9 0.0 102
11.4 0.0 184
14.4 0.0 104
10.5 0.3 304
12.6 0.4 239
14.9 1.2 336
3.3 0.0 60
0.0 0.0 147
1.5 0.0 65
10.0 0.0 60
0.0 0.0 21
13.1 0.0 61
12.5 0.0 160
15.2 0.0 99
14.2 0.0 499
16.7 0.0 203
10.7 1.8 56
25.7 0.0 35
2.0 0.0 99
4.6 0.0 109
8.9 0.0 45
15.5 0.0 71
18.8 0.0 16
8.5 0.0 47
9.4 0.0 202
11.6 0.0 458
15.9 0.0 145
14.8 1.3 229
7.9 0.0 114
8.2 0.0 49
4.7 0.0 149
6.8 1.7 59
5.2 1.7 58
8.6 0.0 58
14.8 0.0 54
6.2 0.3 322
9.5 0.0 200
21.3 0.0 47
4.5 0.0 157
8.5 0.0 201
9.7 0.0 277
8.9 0.0 123

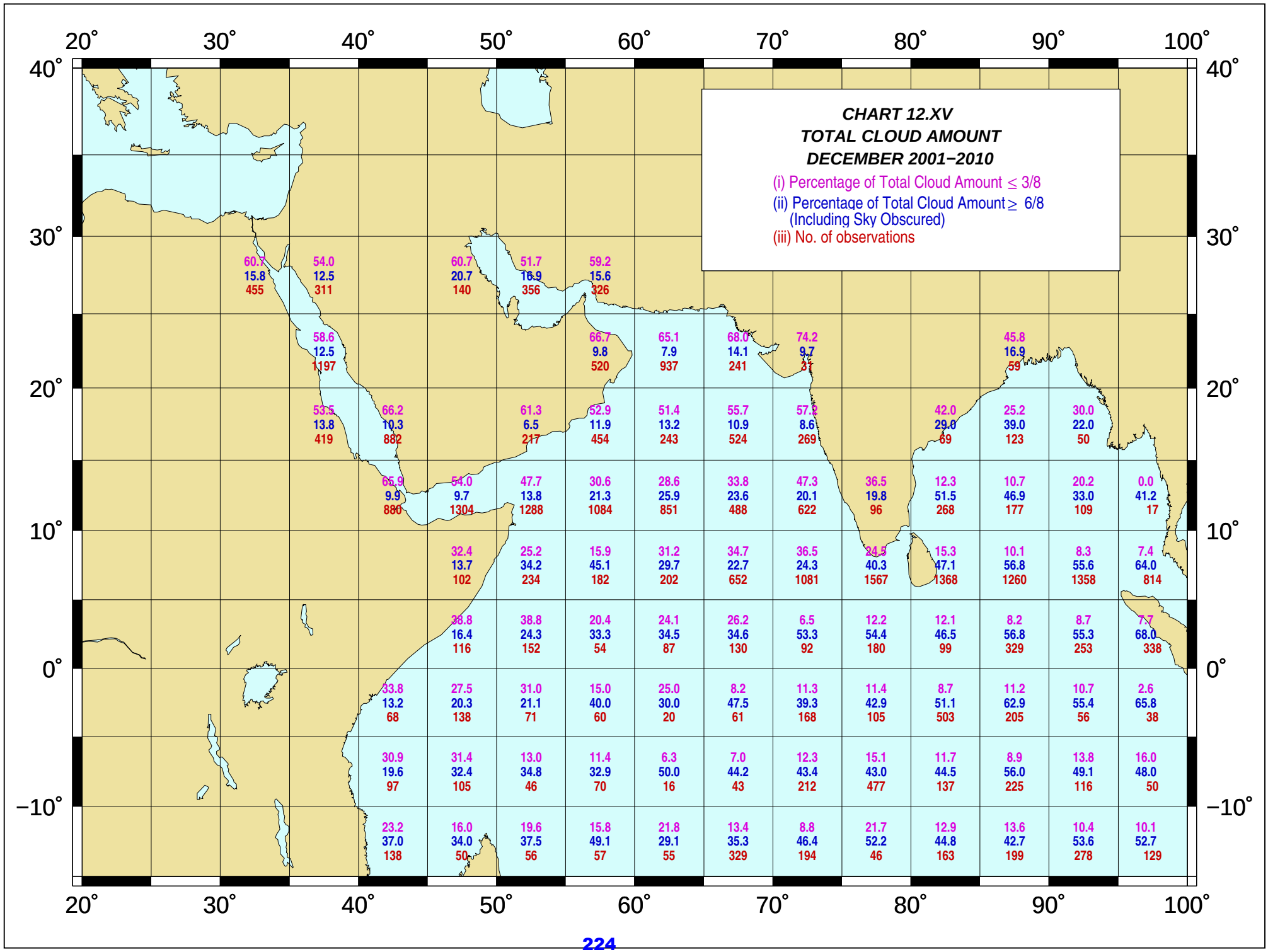


CHART 12.XV
TOTAL CLOUD AMOUNT
DECEMBER 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
60.7 15.8 455
54.0 12.5 311
60.7 20.7 140
51.7 16.9 356
59.2 15.6 326
58.6 12.5 1197
66.7 9.8 520
65.1 7.9 937
68.0 14.1 241
74.2 9.7 31
45.8 16.9 59
53.5 13.8 419
66.2 10.3 882
61.3 6.5 217
52.9 11.9 454
51.4 13.2 243
55.7 10.9 524
57.2 8.6 269
42.0 29.0 69
25.2 39.0 123
30.0 22.0 50
65.9 9.9 880
54.0 9.7 1304
47.7 13.8 1288
30.6 21.3 1084
28.6 25.9 851
33.8 23.6 488
47.3 20.1 622
36.5 19.8 96
12.3 51.5 268
10.7 46.9 177
20.2 33.0 109
0.0 41.2 17
32.4 13.7 102
25.2 34.2 234
15.9 45.1 182
31.2 29.7 202
34.7 22.7 652
36.5 24.3 1081
24.5 40.3 1567
15.3 47.1 1368
10.1 56.8 1260
8.3 55.6 1358
7.4 64.0 814
38.8 16.4 116
38.8 24.3 152
20.4 33.3 54
24.1 34.5 87
26.2 34.6 130
6.5 53.3 92
12.2 54.4 180
12.1 46.5 99
8.2 56.8 329
8.7 55.3 253
7.7 68.0 338
33.8 13.2 68
27.5 20.3 138
31.0 21.1 71
15.0 40.0 60
25.0 30.0 20
8.2 47.5 61
11.3 39.3 168
11.4 42.9 105
8.7 51.1 503
11.2 62.9 205
10.7 55.4 56
2.6 65.8 38
30.9 19.6 97
31.4 32.4 105
13.0 34.8 46
11.4 32.9 70
6.3 50.0 16
7.0 44.2 43
12.3 43.4 212
15.1 43.0 477
11.7 44.5 137
8.9 56.0 225
13.8 49.1 116
16.0 48.0 50
23.2 37.0 138
16.0 34.0 50
19.6 37.5 56
15.8 49.1 57
21.8 29.1 55
13.4 35.3 329
8.8 46.4 194
21.7 52.2 46
12.9 44.8 163
13.6 42.7 199
10.4 53.6 278
10.1 52.7 129

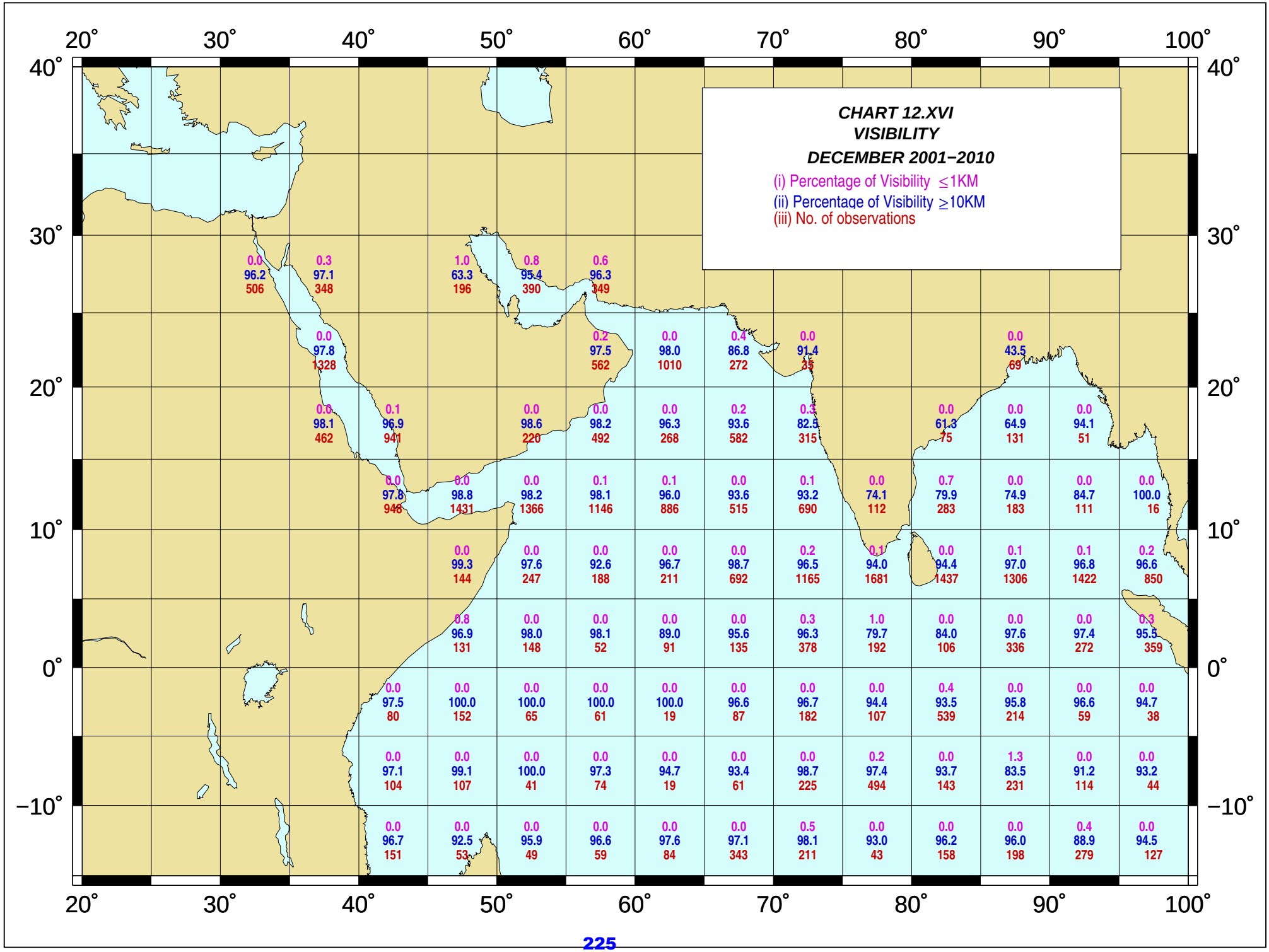


CHART 12.XVI
VISIBILITY
DECEMBER 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 96.2 506
0.3 97.1 348
1.0 63.3 196
0.8 95.4 390
0.6 96.3 349
0.0 97.8 1328
0.2 97.5 562
0.0 98.0 1010
0.4 86.8 272
0.0 91.4 35
0.0 43.5 69
0.0 98.1 462
0.1 96.9 941
0.0 98.6 220
0.0 98.2 492
0.0 96.3 268
0.2 93.6 582
0.3 82.5 315
0.0 61.3 75
0.0 64.9 131
0.0 94.1 51
0.0 97.8 946
0.0 98.8 1431
0.0 98.2 1366
0.1 98.1 1146
0.1 96.0 886
0.0 93.6 515
0.1 93.2 690
0.0 74.1 112
0.7 79.9 283
0.0 74.9 183
0.0 84.7 111
0.0 100.0 16
0.0 99.3 144
0.0 97.6 247
0.0 92.6 188
0.0 96.7 211
0.0 98.7 692
0.2 96.5 1165
0.1 94.0 1681
0.0 94.4 1437
0.1 97.0 1306
0.1 96.8 1422
0.2 96.6 850
0.8 96.9 131
0.0 98.0 148
0.0 98.1 52
0.0 89.0 91
0.0 95.6 135
0.3 96.3 378
1.0 79.7 192
0.0 84.0 106
0.0 97.6 336
0.0 97.4 272
0.3 95.5 359
0.0 97.5 80
0.0 100.0 152
0.0 100.0 65
0.0 100.0 61
0.0 100.0 19
0.0 96.6 87
0.0 96.7 182
0.0 94.4 107
0.4 93.5 539
0.0 95.8 214
0.0 96.6 59
0.0 94.7 38
0.0 97.1 104
0.0 99.1 107
0.0 100.0 41
0.0 97.3 74
0.0 94.7 19
0.0 93.4 61
0.0 98.7 225
0.2 97.4 494
0.0 93.7 143
1.3 83.5 231
0.0 91.2 114
0.0 93.2 44
0.0 96.7 151
0.0 92.5 53
0.0 95.9 49
0.0 96.6 59
0.0 97.6 84
0.0 97.1 343
0.5 98.1 211
0.0 93.0 43
0.0 96.2 158
0.0 96.0 198
0.4 88.9 279
0.0 94.5 127

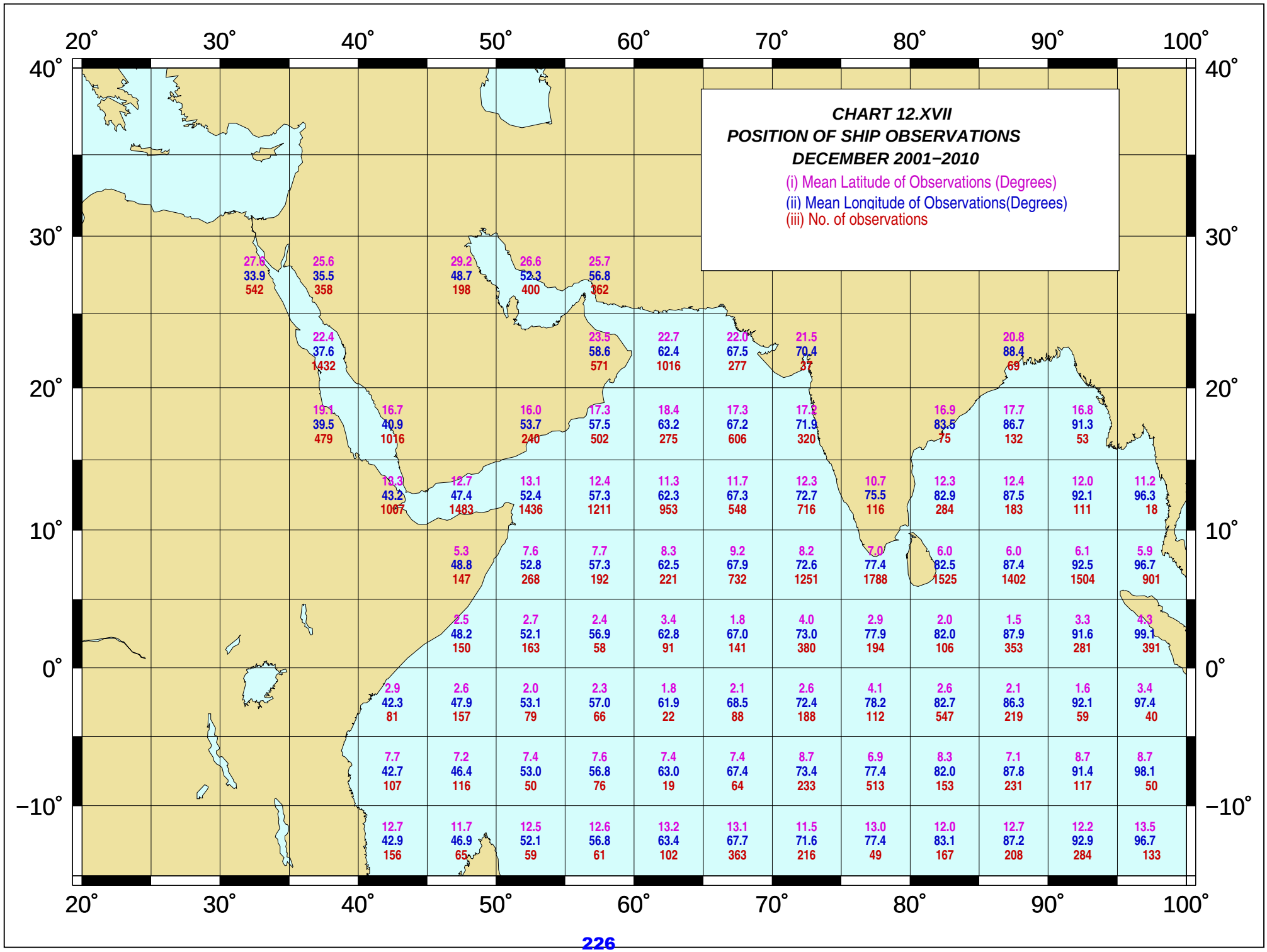


CHART 12.XVII
POSITION OF SHIP OBSERVATIONS
DECEMBER 2001−2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.6 33.9 542
25.6 35.5 358
29.2 48.7 198
26.6 52.3 400
25.7 56.8 362
22.4 37.6 1432
23.5 58.6 571
22.7 62.4 1016
22.0 67.5 277
21.5 70.4 37
20.8 88.4 69
19.1 39.5 479
16.7 40.9 1016
16.0 53.7 240
17.3 57.5 502
18.4 63.2 275
17.3 67.2 606
17.2 71.9 320
16.9 83.5 75
17.7 86.7 132
16.8 91.3 53
13.3 43.2 1067
12.7 47.4 1483
13.1 52.4 1436
12.4 57.3 1211
11.3 62.3 953
11.7 67.3 548
12.3 72.7 716
10.7 75.5 116
12.3 82.9 284
12.4 87.5 183
12.0 92.1 111
11.2 96.3 18
5.3 48.8 147
7.6 52.8 268
7.7 57.3 192
8.3 62.5 221
9.2 67.9 732
8.2 72.6 1251
7.0 77.4 1788
6.0 82.5 1525
6.0 87.4 1402
6.1 92.5 1504
5.9 96.7 901
2.5 48.2 150
2.7 52.1 163
2.4 56.9 58
3.4 62.8 91
1.8 67.0 141
4.0 73.0 380
2.9 77.9 194
2.0 82.0 106
1.5 87.9 353
3.3 91.6 281
4.3 99.1 391
2.9 42.3 81
2.6 47.9 157
2.0 53.1 79
2.3 57.0 66
1.8 61.9 22
2.1 68.5 88
2.6 72.4 188
4.1 78.2 112
2.6 82.7 547
2.1 86.3 219
1.6 92.1 59
3.4 97.4 40
7.7 42.7 107
7.2 46.4 116
7.4 53.0 50
7.6 56.8 76
7.4 63.0 19
7.4 67.4 64
8.7 73.4 233
6.9 77.4 513
8.3 82.0 153
7.1 87.8 231
8.7 91.4 117
8.7 98.1 50
12.7 42.9 156
11.7 46.9 65
12.5 52.1 59
12.6 56.8 61
13.2 63.4 102
13.1 67.7 363
11.5 71.6 216
13.0 77.4 49
12.0 83.1 167
12.7 87.2 208
12.2 92.9 284
13.5 96.7 133

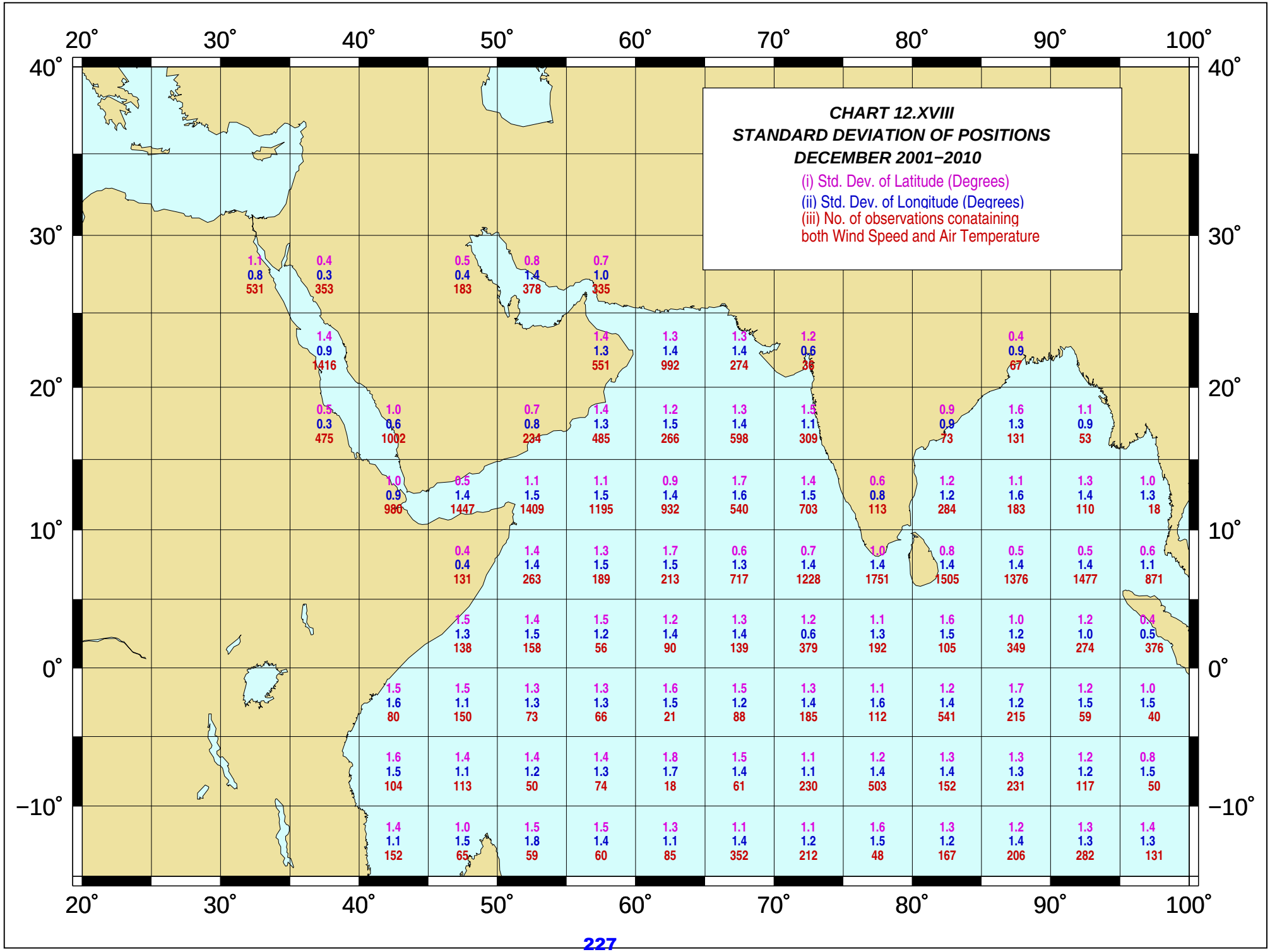
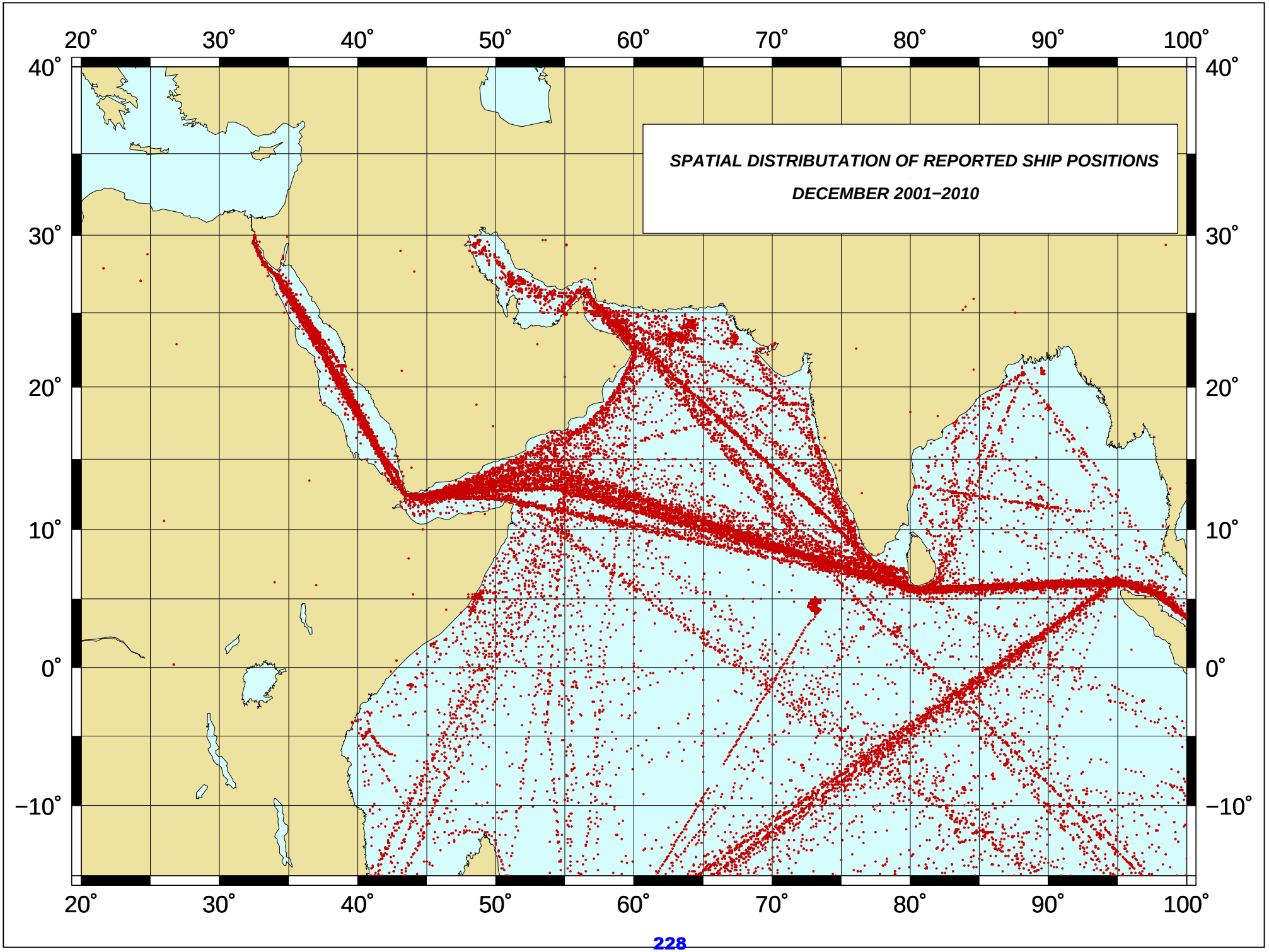


CHART 12.XVIII
STANDARD DEVIATION OF POSITIONS
DECEMBER 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
DECEMBER 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°

CHARTS OF ANNUAL 2001-2010

Marine Climatological Summary Charts 2001-2010

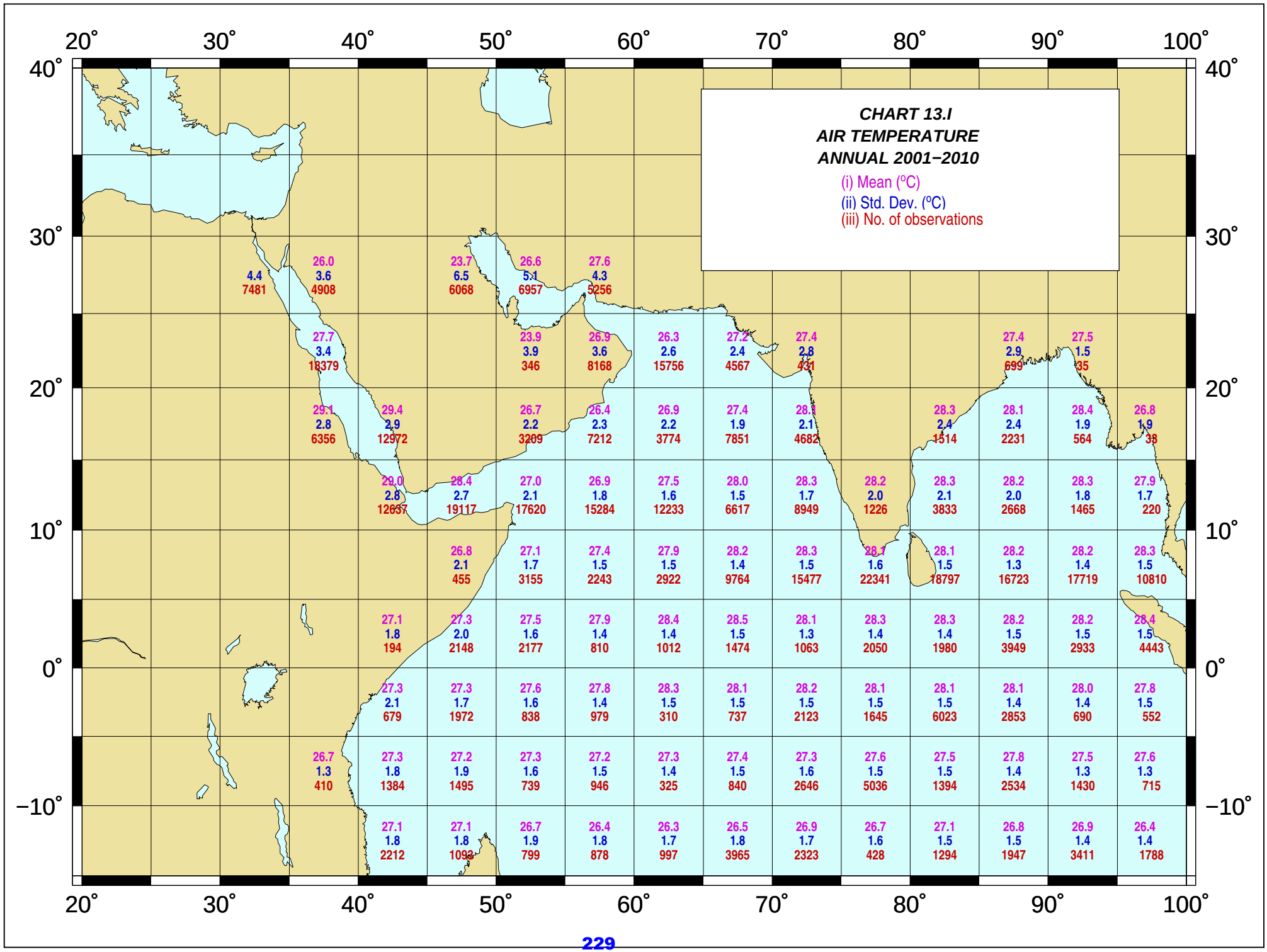


CHART 13.I
AIR TEMPERATURE
ANNUAL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4.4 7481
26.0 3.6 4908
23.7 6.5 6068
26.6 5.1 6957
27.6 4.3 5256
27.7 3.4 18379
23.9 3.9 346
26.9 3.6 8168
26.3 2.6 15756
27.2 2.4 4567
27.4 2.8 431
27.4 2.9 699
27.5 1.5 35
29.1 2.8 6356
29.4 2.9 12972
26.7 2.2 3209
26.4 2.3 7212
26.9 2.2 3774
27.4 1.9 7851
28.3 2.1 4682
28.3 2.4 1514
28.1 2.4 2231
28.4 1.9 564
26.8 1.9 38
29.0 2.8 12637
28.4 2.7 19117
27.0 2.1 17620
26.9 1.8 15284
27.5 1.6 12233
28.0 1.5 6617
28.3 1.7 8949
28.2 2.0 1226
28.3 2.1 3833
28.2 2.0 2668
28.3 1.8 1465
27.9 1.7 220
26.8 2.1 455
27.1 1.7 3155
27.4 1.5 2243
27.9 1.5 2922
28.2 1.4 9764
28.3 1.5 15477
28.1 1.6 22341
28.1 1.5 18797
28.2 1.3 16723
28.2 1.4 17719
28.3 1.5 10810
27.1 1.8 194
27.3 2.0 2148
27.5 1.6 2177
27.9 1.4 810
28.4 1.4 1012
28.5 1.5 1474
28.1 1.3 1063
28.3 1.4 2050
28.3 1.4 1980
28.2 1.5 3949
28.2 1.5 2933
28.4 1.5 4443
27.3 2.1 679
27.3 1.7 1972
27.6 1.6 838
27.8 1.4 979
28.3 1.5 310
28.1 1.5 737
28.2 1.5 2123
28.1 1.5 1645
28.1 1.5 6023
28.1 1.4 2853
28.0 1.4 690
27.8 1.5 552
26.7 1.3 410
27.3 1.8 1384
27.2 1.9 1495
27.3 1.6 739
27.2 1.5 946
27.3 1.4 325
27.4 1.5 840
27.3 1.6 2646
27.6 1.5 5036
27.5 1.5 1394
27.8 1.4 2534
27.5 1.3 1430
27.6 1.3 715
27.1 1.8 2212
27.1 1.8 1093
26.7 1.9 799
26.4 1.8 878
26.3 1.7 997
26.5 1.8 3965
26.9 1.7 2323
26.7 1.6 428
27.1 1.5 1294
26.8 1.5 1947
26.9 1.4 3411
26.4 1.4 1788

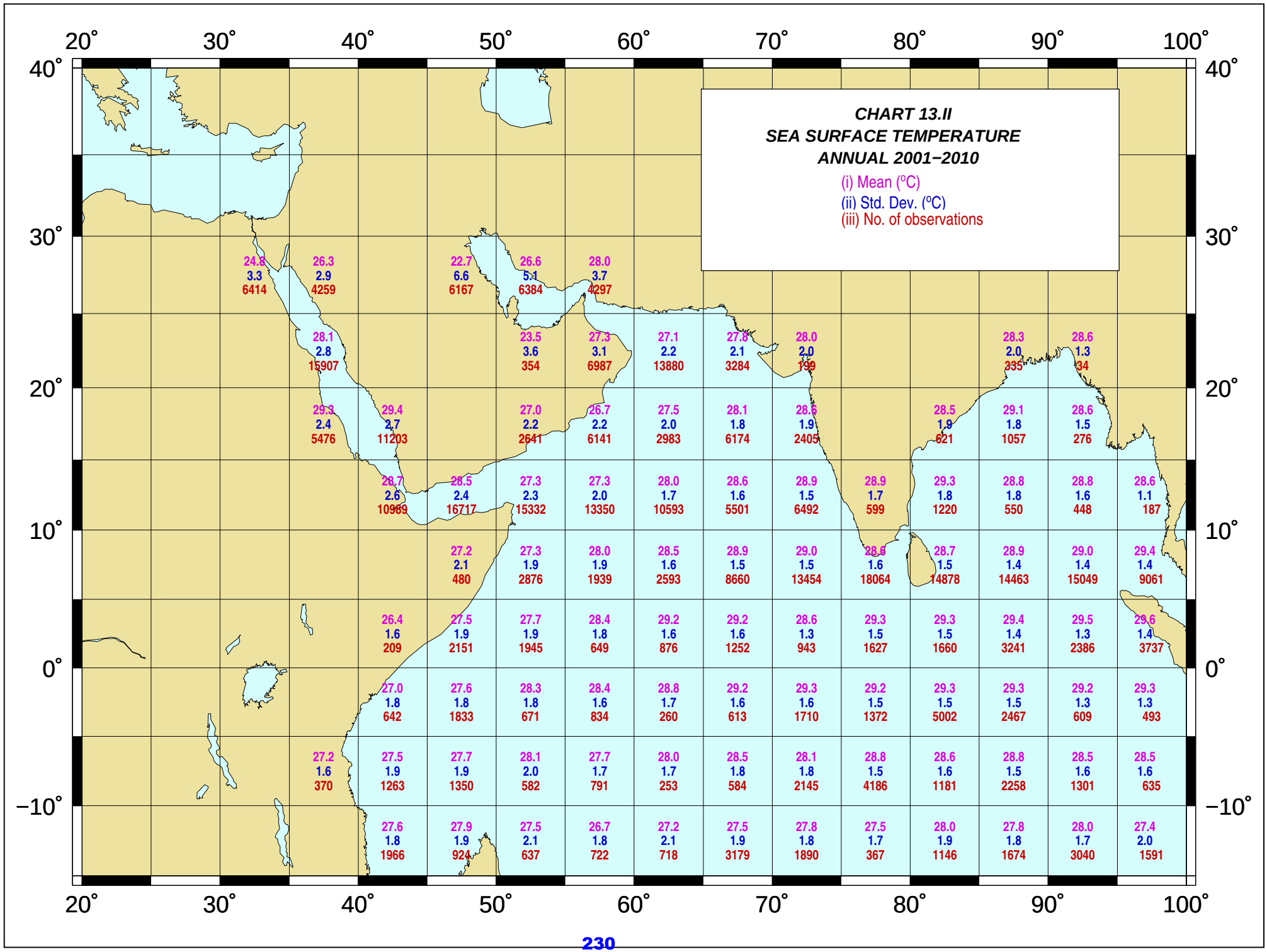


CHART 13.II
SEA SURFACE TEMPERATURE
ANNUAL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
24.8 3.3 6414
26.3 2.9 4259
22.7 6.6 6167
26.6 5.1 6384
28.0 3.7 4297
28.1 2.8 15907
23.5 3.6 354
27.3 3.1 6987
27.1 2.2 13880
27.8 2.1 3284
28.0 2.0 1999
28.3 2.0 335
28.6 1.3 34
29.3 2.4 5476
29.4 2.7 11203
27.0 2.2 2641
26.7 2.2 6141
27.5 2.0 2983
28.1 1.8 6174
28.6 1.9 2405
28.5 1.9 621
29.1 1.8 1057
28.6 1.5 276
28.7 2.6 10969
28.5 2.4 16717
27.3 2.3 15332
27.3 2.0 13350
28.0 1.7 10593
28.6 1.6 5501
28.9 1.5 6492
28.9 1.7 599
29.3 1.8 1220
28.8 1.8 550
28.8 1.6 448
28.6 1.1 187
27.2 2.1 480
27.3 1.9 2876
28.0 1.9 1939
28.5 1.6 2593
28.9 1.5 8660
29.0 1.5 13454
28.9 1.6 18064
28.7 1.5 14878
28.9 1.4 14463
29.0 1.4 15049
29.4 1.4 9061
26.4 1.6 209
27.5 1.9 2151
27.7 1.9 1945
28.4 1.8 649
29.2 1.6 876
29.2 1.6 1252
28.6 1.3 943
29.3 1.5 1627
29.3 1.5 1660
29.4 1.4 3241
29.5 1.3 2386
29.6 1.4 3737
27.0 1.8 642
27.6 1.8 1833
28.3 1.8 671
28.4 1.6 834
28.8 1.7 260
29.2 1.6 613
29.3 1.6 1710
29.2 1.5 1372
29.3 1.5 5002
29.3 1.5 2467
29.2 1.3 609
29.3 1.3 493
27.2 1.6 370
27.5 1.9 1263
27.7 1.9 1350
28.1 2.0 582
27.7 1.7 791
28.0 1.7 253
28.5 1.8 584
28.1 1.8 2145
28.8 1.5 4186
28.6 1.6 1181
28.8 1.5 2258
28.5 1.6 1301
28.5 1.6 635
27.6 1.8 1966
27.9 1.9 924
27.5 2.1 637
26.7 1.8 722
27.2 2.1 718
27.5 1.9 3179
27.8 1.8 1890
27.5 1.7 367
28.0 1.9 1146
27.8 1.8 1674
28.0 1.7 3040
27.4 2.0 1591

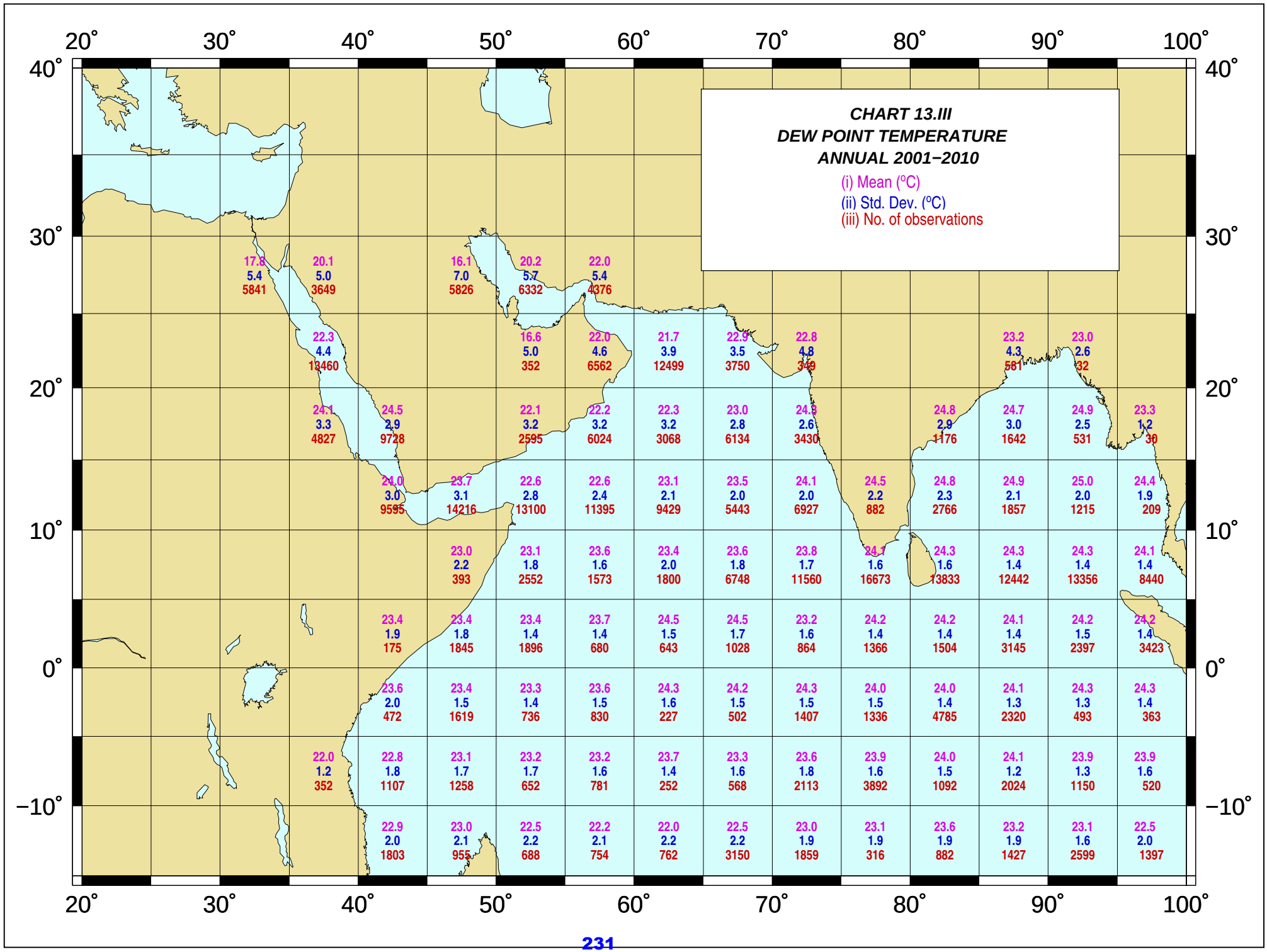


CHART 13.III
DEW POINT TEMPERATURE
ANNUAL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
17.8 5.4 5841
20.1 5.0 3649
16.1 7.0 5826
20.2 5.7 6332
22.0 5.4 4376
22.3 4.4 13460
16.6 5.0 352
22.0 4.6 6562
21.7 3.9 12499
22.9 3.5 3750
22.8 4.8 349
23.2 4.3 581
23.0 2.6 32
24.1 3.3 4827
24.5 2.9 9728
22.1 3.2 2595
22.2 3.2 6024
22.3 3.2 3068
23.0 2.8 6134
24.3 2.6 3430
24.8 2.9 1176
24.7 3.0 1642
24.9 2.5 531
23.3 1.2 30
24.0 3.0 9595
23.7 3.1 14216
22.6 2.8 13100
22.6 2.4 11395
23.1 2.1 9429
23.5 2.0 5443
24.1 2.0 6927
24.5 2.2 882
24.8 2.3 2766
24.9 2.1 1857
25.0 2.0 1215
24.4 1.9 209
23.0 2.2 393
23.1 1.8 2552
23.6 1.6 1573
23.4 2.0 1800
23.6 1.8 6748
23.8 1.7 11560
24.1 1.6 16673
24.3 1.6 13833
24.3 1.4 12442
24.3 1.4 13356
24.1 1.4 8440
23.4 1.9 175
23.4 1.8 1845
23.4 1.4 1896
23.7 1.4 680
24.5 1.5 643
24.5 1.7 1028
23.2 1.6 864
24.2 1.4 1366
24.2 1.4 1504
24.1 1.4 3145
24.2 1.5 2397
24.2 1.4 3423
23.6 2.0 472
23.4 1.5 1619
23.3 1.4 736
23.6 1.5 830
24.3 1.6 227
24.2 1.5 502
24.3 1.5 1407
24.0 1.5 1336
24.0 1.4 4785
24.1 1.3 2320
24.3 1.3 493
24.3 1.4 363
22.0 1.2 352
22.8 1.8 1107
23.1 1.7 1258
23.2 1.7 652
23.2 1.6 781
23.7 1.4 252
23.3 1.6 568
23.6 1.8 2113
23.9 1.6 3892
24.0 1.5 1092
24.1 1.2 2024
23.9 1.3 1150
23.9 1.6 520
22.9 2.0 1803
23.0 2.1 955
22.5 2.2 688
22.2 2.1 754
22.0 2.2 762
22.5 2.2 3150
23.0 1.9 1859
23.1 1.9 316
23.6 1.9 882
23.2 1.9 1427
23.1 1.6 2599
22.5 2.0 1397

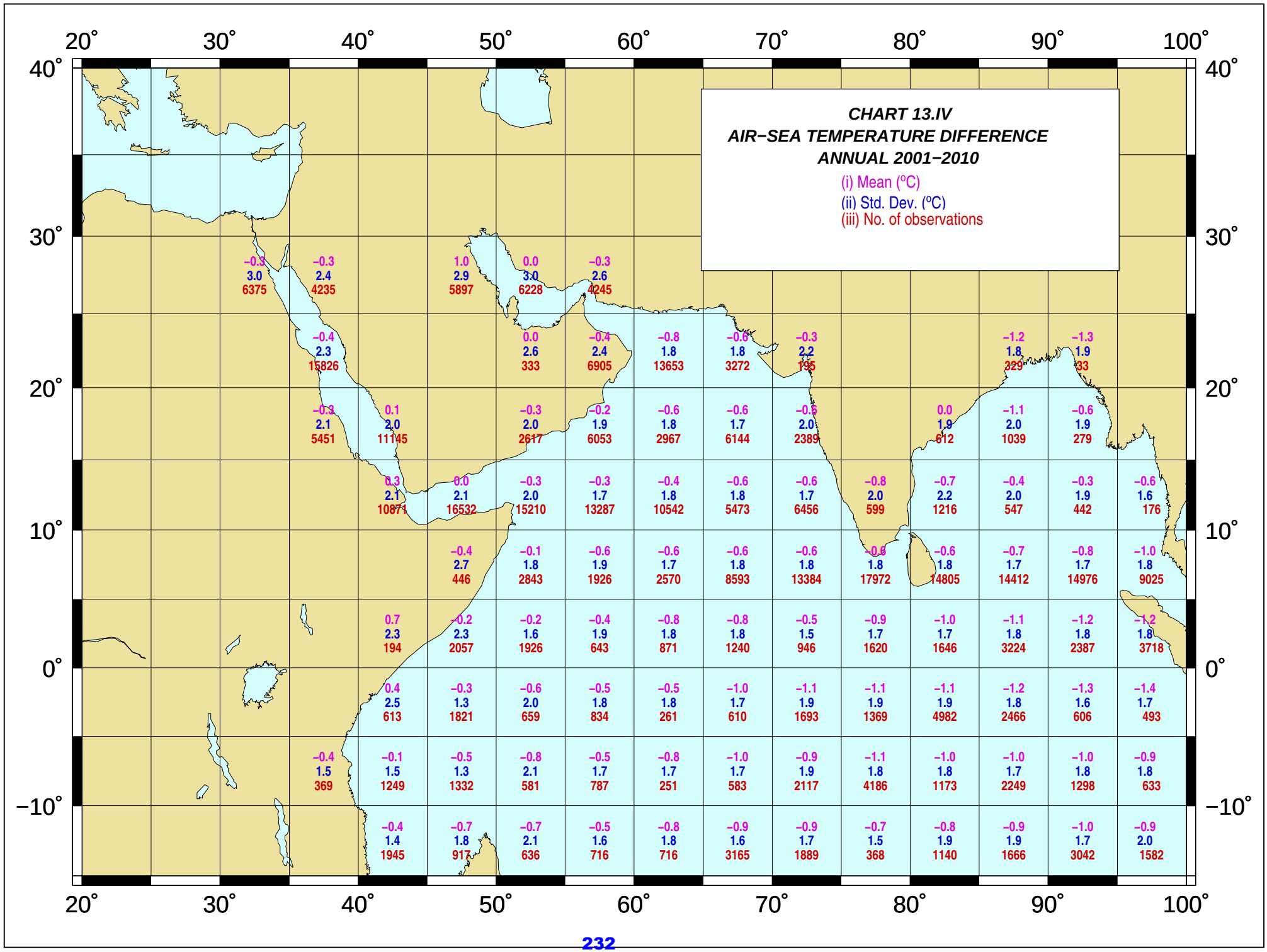


CHART 13.IV
AIR–SEA TEMPERATURE DIFFERENCE
ANNUAL 2001–2010
(i) Mean (°C)
(ii) Std. Dev. (°C)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
−0.3 3.0 6375
−0.3 2.4 4235
1.0 2.9 5897
0.0 3.0 6228
−0.3 2.6 4245
−0.4 2.3 15826
0.0 2.6 333
−0.4 2.4 6905
−0.8 1.8 13653
−0.6 1.8 3272
−0.3 2.2 1935
−1.2 1.8 329
−1.3 1.9 33
−0.3 2.1 5451
0.1 2.0 11145
−0.3 2.0 2617
−0.2 1.9 6053
−0.6 1.8 2967
−0.6 1.7 6144
−0.5 2.0 2389
0.0 1.9 612
−1.1 2.0 1039
−0.6 1.9 279
0.3 2.1 10871
0.0 2.1 16532
−0.3 2.0 15210
−0.3 1.7 13287
−0.4 1.8 10542
−0.6 1.8 5473
−0.6 1.7 6456
−0.8 2.0 599
−0.7 2.2 1216
−0.4 2.0 547
−0.3 1.9 442
−0.6 1.6 176
−0.4 2.7 446
−0.1 1.8 2843
−0.6 1.9 1926
−0.6 1.7 2570
−0.6 1.8 8593
−0.6 1.8 13384
−0.6 1.8 17972
−0.6 1.8 14805
−0.7 1.7 14412
−0.8 1.7 14976
−1.0 1.8 9025
0.7 2.3 194
−0.2 2.3 2057
−0.2 1.6 1926
−0.4 1.9 643
−0.8 1.8 871
−0.8 1.8 1240
−0.5 1.5 946
−0.9 1.7 1620
−1.0 1.7 1646
−1.1 1.8 3224
−1.2 1.8 2387
−1.2 1.8 3718
0.4 2.5 613
−0.3 1.3 1821
−0.6 2.0 659
−0.5 1.8 834
−0.5 1.8 261
−1.0 1.7 610
−1.1 1.9 1693
−1.1 1.9 1369
−1.1 1.9 4982
−1.2 1.8 2466
−1.3 1.6 606
−1.4 1.7 493
−0.4 1.5 369
−0.1 1.5 1249
−0.5 1.3 1332
−0.8 2.1 581
−0.5 1.7 787
−0.8 1.7 251
−1.0 1.7 583
−0.9 1.9 2117
−1.1 1.8 4186
−1.0 1.8 1173
−1.0 1.7 2249
−1.0 1.8 1298
−0.9 1.8 633
−0.4 1.4 1945
−0.7 1.8 917
−0.7 2.1 636
−0.5 1.6 716
−0.8 1.8 716
−0.9 1.6 3165
−0.9 1.7 1889
−0.7 1.5 368
−0.8 1.9 1140
−0.9 1.9 1666
−1.0 1.7 3042
−0.9 2.0 1582

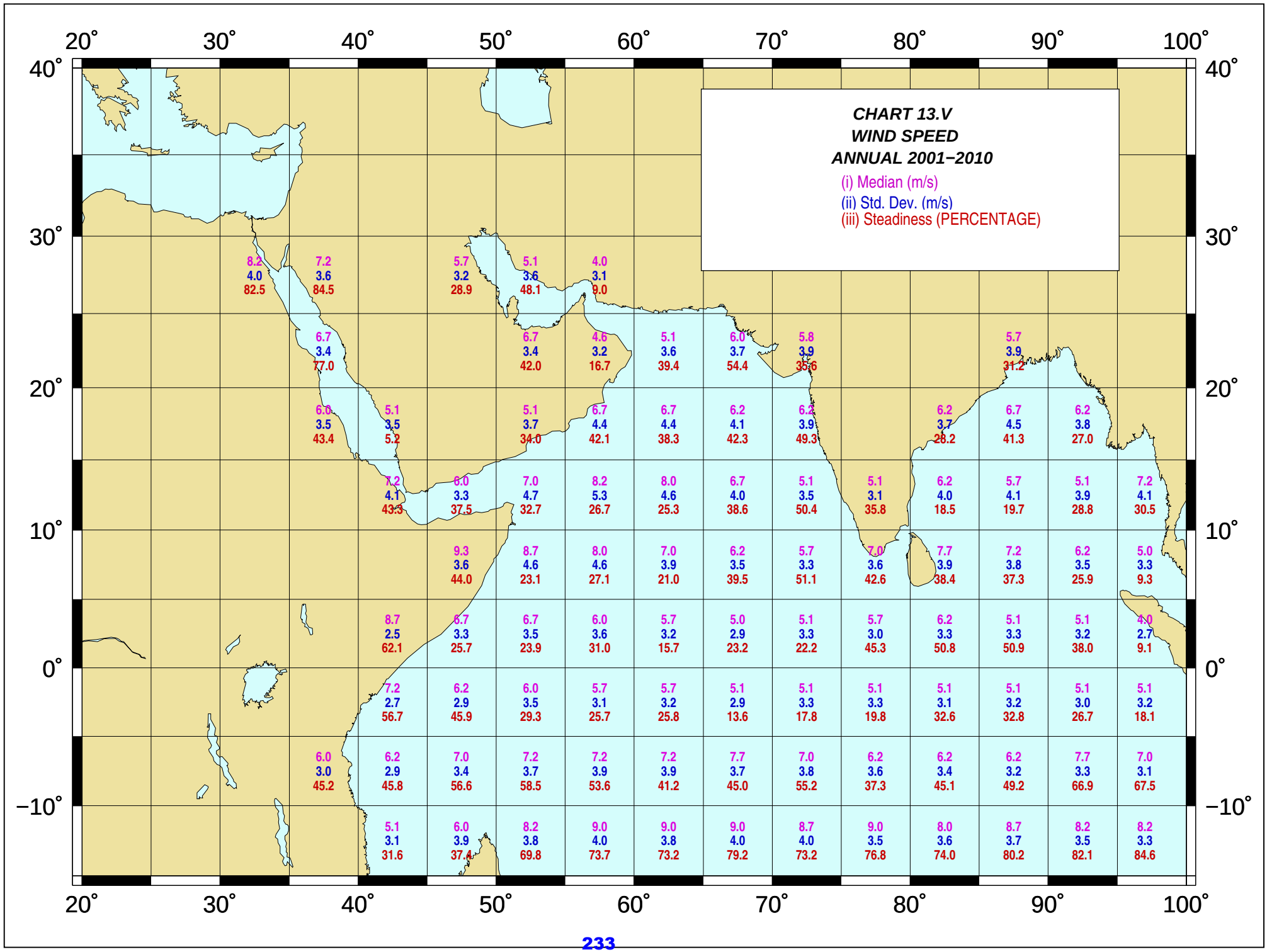


CHART 13.V
WIND SPEED
ANNUAL 2001–2010
(i) Median (m/s)
(ii) Std. Dev. (m/s)
(iii) Steadiness (PERCENTAGE)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
8.2 4.0 82.5
7.2 3.6 84.5
5.7 3.2 28.9
5.1 3.6 48.1
4.0 3.1 9.0
6.7 3.4 77.0
6.7 3.4 42.0
4.6 3.2 16.7
5.1 3.6 39.4
6.0 3.7 54.4
5.8 3.9 35.6
5.7 3.9 31.2
6.0 3.5 43.4
5.1 3.5 5.2
5.1 3.7 34.0
6.7 4.4 42.1
6.7 4.4 38.3
6.2 4.1 42.3
6.2 3.9 49.3
6.2 3.7 28.2
6.7 4.5 41.3
6.2 3.8 27.0
7.2 4.1 43.3
6.0 3.3 37.5
7.0 4.7 32.7
8.2 5.3 26.7
8.0 4.6 25.3
6.7 4.0 38.6
5.1 3.5 50.4
5.1 3.1 35.8
6.2 4.0 18.5
5.7 4.1 19.7
5.1 3.9 28.8
7.2 4.1 30.5
9.3 3.6 44.0
8.7 4.6 23.1
8.0 4.6 27.1
7.0 3.9 21.0
6.2 3.5 39.5
5.7 3.3 51.1
7.0 3.6 42.6
7.7 3.9 38.4
7.2 3.8 37.3
6.2 3.5 25.9
5.0 3.3 9.3
8.7 2.5 62.1
6.7 3.3 25.7
6.7 3.5 23.9
6.0 3.6 31.0
5.7 3.2 15.7
5.0 2.9 23.2
5.1 3.3 22.2
5.7 3.0 45.3
6.2 3.3 50.8
5.1 3.3 50.9
5.1 3.2 38.0
4.0 2.7 9.1
7.2 2.7 56.7
6.2 2.9 45.9
6.0 3.5 29.3
5.7 3.1 25.7
5.7 3.2 25.8
5.1 2.9 13.6
5.1 3.3 17.8
5.1 3.3 19.8
5.1 3.1 32.6
5.1 3.2 32.8
5.1 3.0 26.7
5.1 3.2 18.1
6.0 3.0 45.2
6.2 2.9 45.8
7.0 3.4 56.6
7.2 3.7 58.5
7.2 3.9 53.6
7.2 3.9 41.2
7.7 3.7 45.0
7.0 3.8 55.2
6.2 3.6 37.3
6.2 3.4 45.1
6.2 3.2 49.2
7.7 3.3 66.9
7.0 3.1 67.5
5.1 3.1 31.6
6.0 3.9 37.4
8.2 3.8 69.8
9.0 4.0 73.7
9.0 3.8 73.2
9.0 4.0 79.2
8.7 4.0 73.2
9.0 3.5 76.8
8.0 3.6 74.0
8.7 3.7 80.2
8.2 3.5 82.1
8.2 3.3 84.6

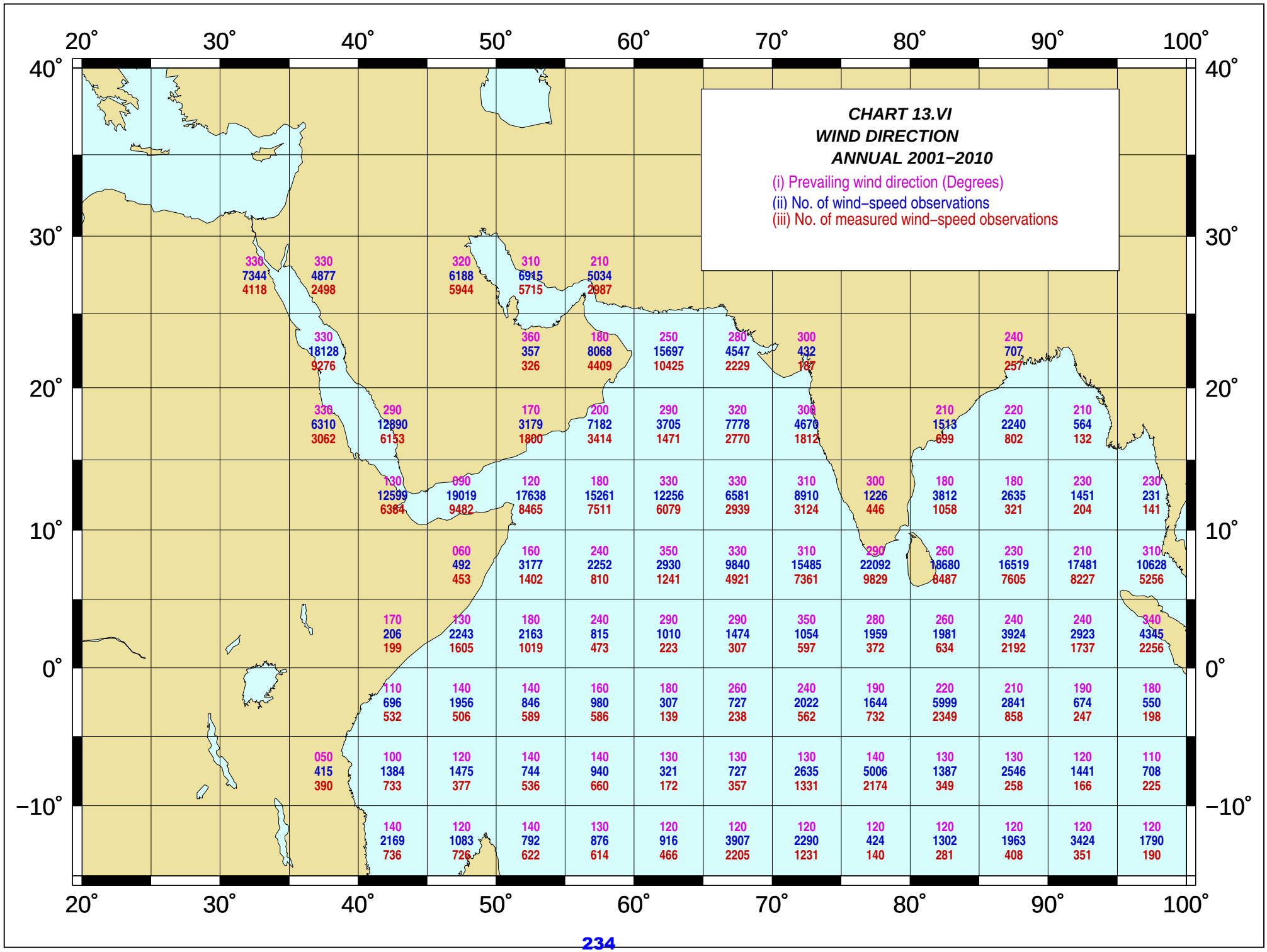


CHART 13.VI
WIND DIRECTION
ANNUAL 2001–2010
(i) Prevailing wind direction (Degrees)
(ii) No. of wind–speed observations
(iii) No. of measured wind–speed observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
330 7344 4118
330 4877 2498
320 6188 5944
310 6915 5715
210 5034 2987
330 18128 9276
360 357 326
180 8068 4409
250 15697 10425
280 4547 2229
300 432 187
240 707 257
330 6310 3062
290 12890 6153
170 3179 1860
200 7182 3414
290 3705 1471
320 7778 2770
300 4670 1812
210 1513 699
220 2240 802
210 564 132
130 12599 6364
090 19019 9482
120 17638 8465
180 15261 7511
330 12256 6079
330 6581 2939
310 8910 3124
300 1226 446
180 3812 1058
180 2635 321
230 1451 204
230 231 141
060 492 453
160 3177 1402
240 2252 810
350 2930 1241
330 9840 4921
310 15485 7361
290 22092 9829
260 18680 8487
230 16519 7605
210 17481 8227
310 10628 5256
170 206 199
130 2243 1605
180 2163 1019
240 815 473
290 1010 223
290 1474 307
350 1054 597
280 1959 372
260 1981 634
240 3924 2192
240 2923 1737
340 4345 2256
110 696 532
140 1956 506
140 846 589
160 980 586
180 307 139
260 727 238
240 2022 562
190 1644 732
220 5999 2349
210 2841 858
190 674 247
180 550 198
050 415 390
100 1384 733
120 1475 377
140 744 536
140 940 660
130 321 172
130 727 357
130 2635 1331
140 5006 2174
130 1387 349
130 2546 258
120 1441 166
110 708 225
140 2169 736
120 1083 726
140 792 622
130 876 614
120 916 466
120 3907 2205
120 2290 1231
120 424 140
120 1302 281
120 1963 408
120 3424 351
120 1790 190

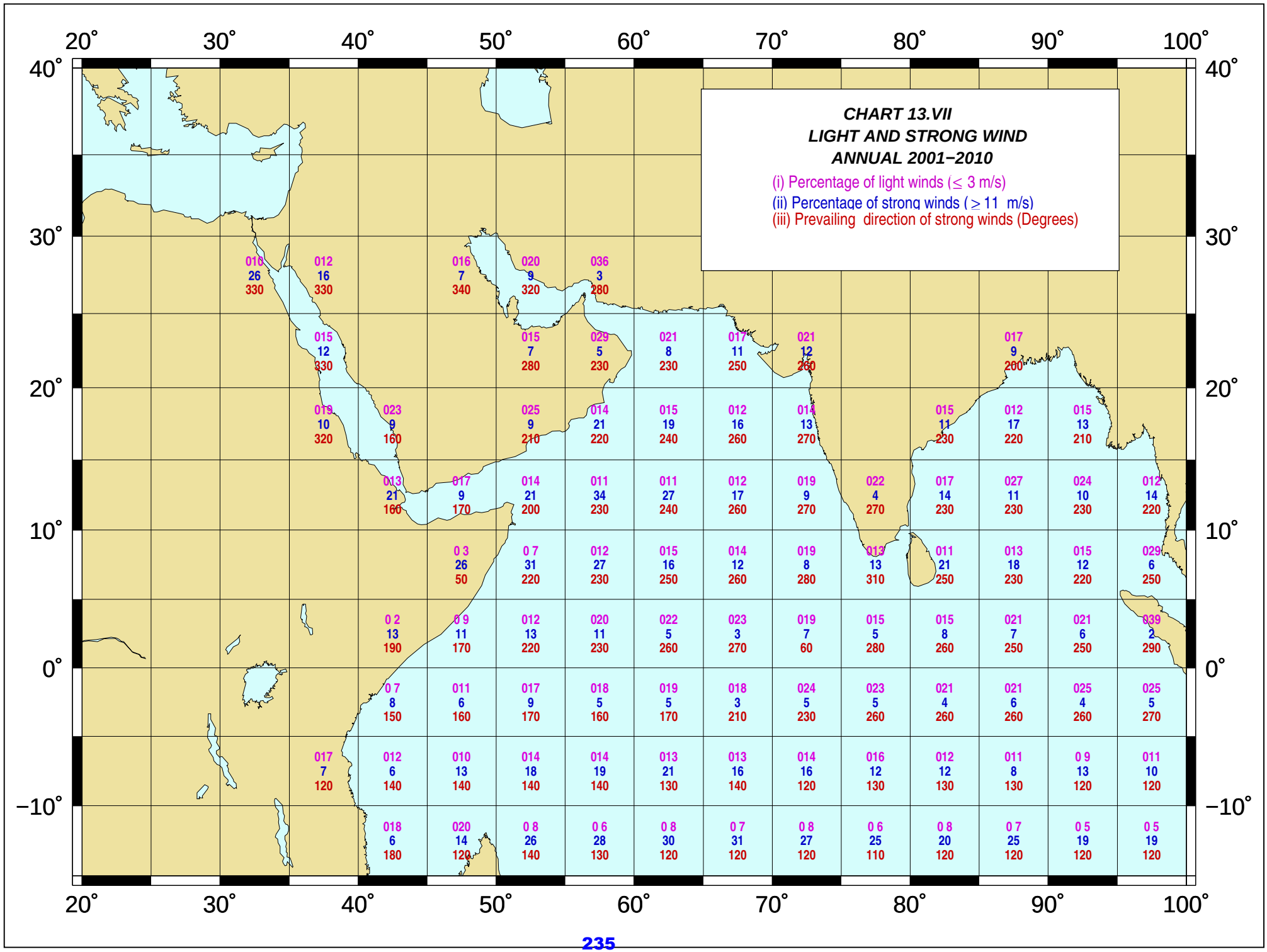


CHART 13.VII
LIGHT AND STRONG WIND
ANNUAL 2001–2010
(i) Percentage of light winds (≤ 3 m/s)
(ii) Percentage of strong winds (≥ 11 m/s)
(iii) Prevailing direction of strong winds (Degrees)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
018 26 330
012 16 330
016 7 340
020 9 320
036 3 280
015 12 330
015 7 280
029 5 230
021 8 230
017 11 250
021 12 260
017 9 260
019 10 320
023 9 160
025 9 210
014 21 220
015 19 240
012 16 260
014 13 270
015 11 230
012 17 220
015 13 210
013 21 160
017 9 170
014 21 200
011 34 230
011 27 240
012 17 260
019 9 270
022 4 270
017 14 230
027 11 230
024 10 230
012 14 220
0 3 26 50
0 7 31 220
012 27 230
015 16 250
014 12 260
019 8 280
013 13 310
011 21 250
013 18 230
015 12 220
029 6 250
0 2 13 190
0 9 11 170
012 13 220
020 11 230
022 5 260
023 3 270
019 7 60
015 5 280
015 8 260
021 7 250
021 6 250
039 2 290
0 7 8 150
011 6 160
017 9 170
018 5 160
019 5 170
018 3 210
024 5 230
023 5 260
021 4 260
021 6 260
025 4 260
025 5 270
017 7 120
012 6 140
010 13 140
014 18 140
014 19 140
013 21 130
013 16 140
014 16 120
016 12 130
012 12 130
011 8 130
0 9 13 120
011 10 120
018 6 180
020 14 120
0 8 26 140
0 6 28 130
0 8 30 120
0 7 31 120
0 8 27 120
0 6 25 110
0 8 20 120
0 7 25 120
0 5 19 120
0 5 19 120

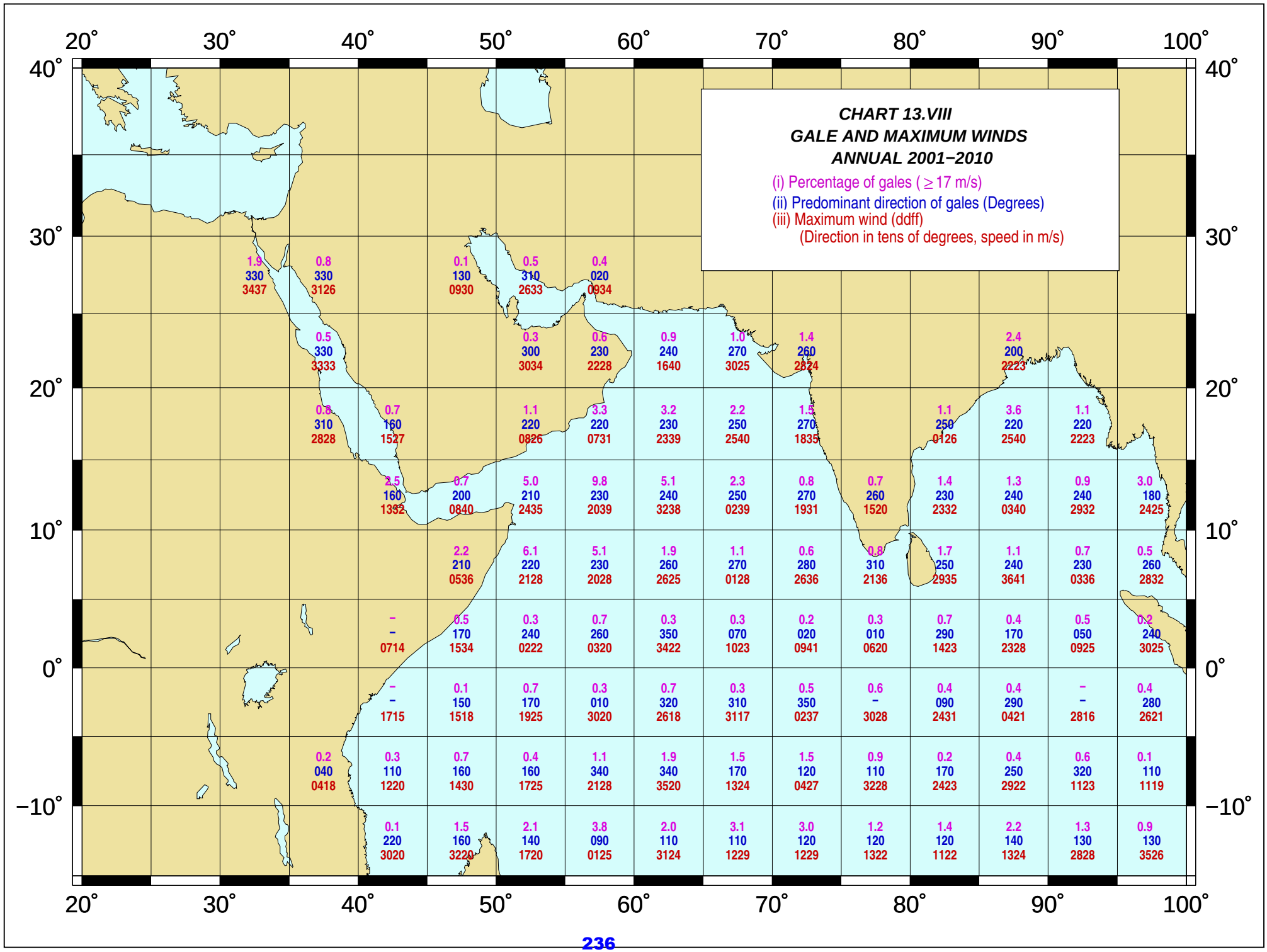


CHART 13.VIII
GALE AND MAXIMUM WINDS
ANNUAL 2001–2010
(i) Percentage of gales (≥ 17 m/s)
(ii) Predominant direction of gales (Degrees)
(iii) Maximum wind (ddff)
(Direction in tens of degrees, speed in m/s)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.9 330 3437
0.8 330 3126
0.1 130 0930
0.5 310 2633
0.4 020 0934
0.5 330 3333
0.3 300 3034
0.6 230 2228
0.9 240 1640
1.0 270 3025
1.4 260 2824
2.4 200 2223
0.8 310 2828
0.7 160 1527
1.1 220 0826
3.3 220 0731
3.2 230 2339
2.2 250 2540
1.5 270 1835
1.1 250 0126
3.6 220 2540
1.1 220 2223
2.5 160 1352
0.7 200 0840
5.0 210 2435
9.8 230 2039
5.1 240 3238
2.3 250 0239
0.8 270 1931
0.7 260 1520
1.4 230 2332
1.3 240 0340
0.9 240 2932
3.0 180 2425
2.2 210 0536
6.1 220 2128
5.1 230 2028
1.9 260 2625
1.1 270 0128
0.6 280 2636
0.8 310 2136
1.7 250 2935
1.1 240 3641
0.7 230 0336
0.5 260 2832
– – 0714
0.5 170 1534
0.3 240 0222
0.7 260 0320
0.3 350 3422
0.3 070 1023
0.2 020 0941
0.3 010 0620
0.7 290 1423
0.4 170 2328
0.5 050 0925
0.2 240 3025
– – 1715
0.1 150 1518
0.7 170 1925
0.3 010 3020
0.7 320 2618
0.3 310 3117
0.5 350 0237
0.6 – 3028
0.4 090 2431
0.4 290 0421
– – 2816
0.4 280 2621
0.2 040 0418
0.3 110 1220
0.7 160 1430
0.4 160 1725
1.1 340 2128
1.9 340 3520
1.5 170 1324
1.5 120 0427
0.9 110 3228
0.2 170 2423
0.4 250 2922
0.6 320 1123
0.1 110 1119
0.1 220 3020
1.5 160 3220
2.1 140 1720
3.8 090 0125
2.0 110 3124
3.1 110 1229
3.0 120 1229
1.2 120 1322
1.4 120 1122
2.2 140 1324
1.3 130 2828
0.9 130 3526

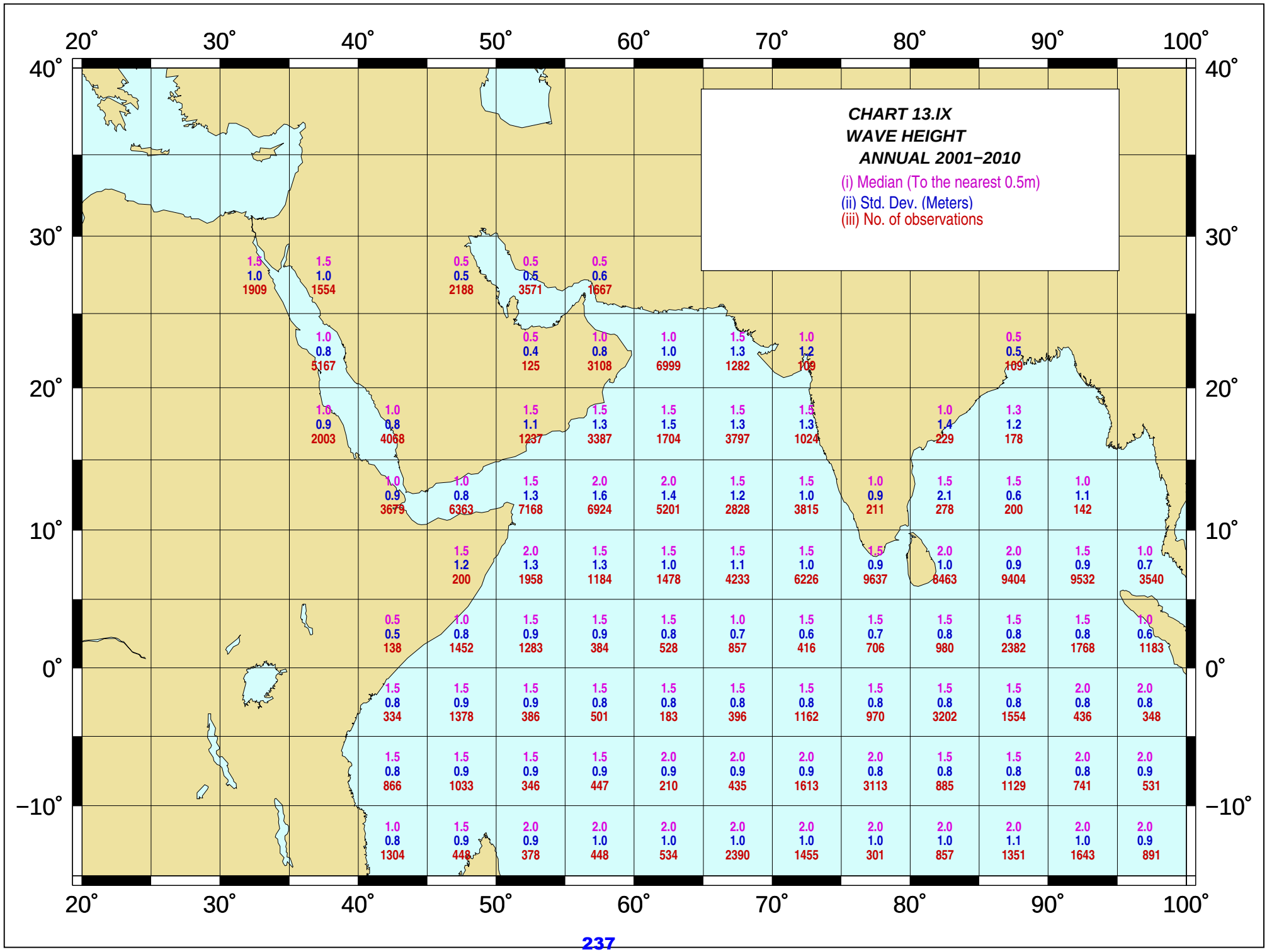


CHART 13.IX
WAVE HEIGHT
ANNUAL 2001–2010
(i) Median (To the nearest 0.5m)
(ii) Std. Dev. (Meters)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.5 1.0 1909
1.5 1.0 1554
0.5 0.5 2188
0.5 0.5 3571
0.5 0.6 1667
1.0 0.8 5167
0.5 0.4 125
1.0 0.8 3108
1.0 1.0 6999
1.5 1.3 1282
1.0 1.2 109
0.5 0.5 109
1.0 0.9 2003
1.0 0.8 4068
1.5 1.1 1237
1.5 1.3 3387
1.5 1.5 1704
1.5 1.3 3797
1.5 1.3 1024
1.0 1.4 229
1.3 1.2 178
1.0 0.9 3679
1.0 0.8 6363
1.5 1.3 7168
2.0 1.6 6924
2.0 1.4 5201
1.5 1.2 2828
1.5 1.0 3815
1.0 0.9 211
1.5 2.1 278
1.5 0.6 200
1.0 1.1 142
1.5 1.2 200
2.0 1.3 1958
1.5 1.3 1184
1.5 1.0 1478
1.5 1.1 4233
1.5 1.0 6226
1.5 0.9 9637
2.0 1.0 8463
2.0 0.9 9404
1.5 0.9 9532
1.0 0.7 3540
0.5 0.5 138
1.0 0.8 1452
1.5 0.9 1283
1.5 0.9 384
1.5 0.8 528
1.0 0.7 857
1.5 0.6 416
1.5 0.7 706
1.5 0.8 980
1.5 0.8 2382
1.5 0.8 1768
1.0 0.6 1183
1.5 0.8 334
1.5 0.9 1378
1.5 0.9 386
1.5 0.8 501
1.5 0.8 183
1.5 0.8 396
1.5 0.8 1162
1.5 0.8 970
1.5 0.8 3202
1.5 0.8 1554
2.0 0.8 436
2.0 0.8 348
1.5 0.8 866
1.5 0.9 1033
1.5 0.9 346
1.5 0.9 447
2.0 0.9 210
2.0 0.9 435
2.0 0.9 1613
2.0 0.8 3113
1.5 0.8 885
1.5 0.8 1129
2.0 0.8 741
2.0 0.9 531
1.0 0.8 1304
1.5 0.9 448
2.0 0.9 378
2.0 1.0 448
2.0 1.0 534
2.0 1.0 2390
2.0 1.0 1455
2.0 1.0 301
2.0 1.0 857
2.0 1.1 1351
2.0 1.0 1643
2.0 0.9 891

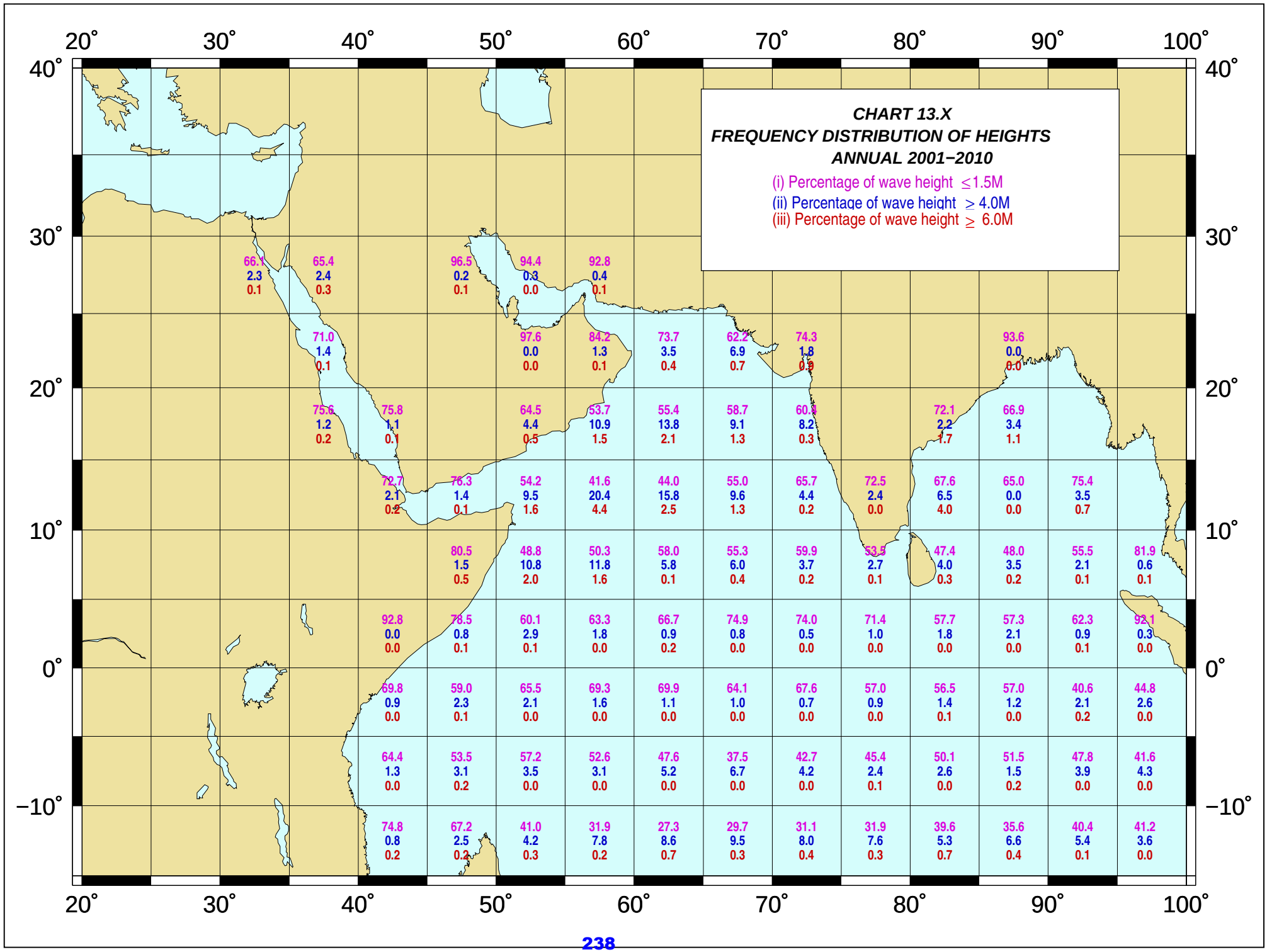


CHART 13.X
FREQUENCY DISTRIBUTION OF HEIGHTS
ANNUAL 2001–2010
(i) Percentage of wave height ≤1.5M
(ii) Percentage of wave height ≥ 4.0M
(iii) Percentage of wave height ≥ 6.0M
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
66.1 2.3 0.1
65.4 2.4 0.3
96.5 0.2 0.1
94.4 0.3 0.0
92.8 0.4 0.1
71.0 1.4 0.1
97.6 0.0 0.0
84.2 1.3 0.1
73.7 3.5 0.4
62.2 6.9 0.7
74.3 1.8 0.3
93.6 0.0 0.0
75.6 1.2 0.2
75.8 1.1 0.1
64.5 4.4 0.5
53.7 10.9 1.5
55.4 13.8 2.1
58.7 9.1 1.3
60.9 8.2 0.3
72.1 2.2 1.7
66.9 3.4 1.1
72.7 2.1 0.2
76.3 1.4 0.1
54.2 9.5 1.6
41.6 20.4 4.4
44.0 15.8 2.5
55.0 9.6 1.3
65.7 4.4 0.2
72.5 2.4 0.0
67.6 6.5 4.0
65.0 0.0 0.0
75.4 3.5 0.7
80.5 1.5 0.5
48.8 10.8 2.0
50.3 11.8 1.6
58.0 5.8 0.1
55.3 6.0 0.4
59.9 3.7 0.2
53.5 2.7 0.1
47.4 4.0 0.3
48.0 3.5 0.2
55.5 2.1 0.1
81.9 0.6 0.1
92.8 0.0 0.0
78.5 0.8 0.1
60.1 2.9 0.1
63.3 1.8 0.0
66.7 0.9 0.2
74.9 0.8 0.0
74.0 0.5 0.0
71.4 1.0 0.0
57.7 1.8 0.0
57.3 2.1 0.0
62.3 0.9 0.1
92.1 0.3 0.0
69.8 0.9 0.0
59.0 2.3 0.1
65.5 2.1 0.0
69.3 1.6 0.0
69.9 1.1 0.0
64.1 1.0 0.0
67.6 0.7 0.0
57.0 0.9 0.0
56.5 1.4 0.1
57.0 1.2 0.0
40.6 2.1 0.2
44.8 2.6 0.0
64.4 1.3 0.0
53.5 3.1 0.2
57.2 3.5 0.0
52.6 3.1 0.0
47.6 5.2 0.0
37.5 6.7 0.0
42.7 4.2 0.0
45.4 2.4 0.1
50.1 2.6 0.0
51.5 1.5 0.2
47.8 3.9 0.0
41.6 4.3 0.0
74.8 0.8 0.2
67.2 2.5 0.2
41.0 4.2 0.3
31.9 7.8 0.2
27.3 8.6 0.7
29.7 9.5 0.3
31.1 8.0 0.4
31.9 7.6 0.3
39.6 5.3 0.7
35.6 6.6 0.4
40.4 5.4 0.1
41.2 3.6 0.0

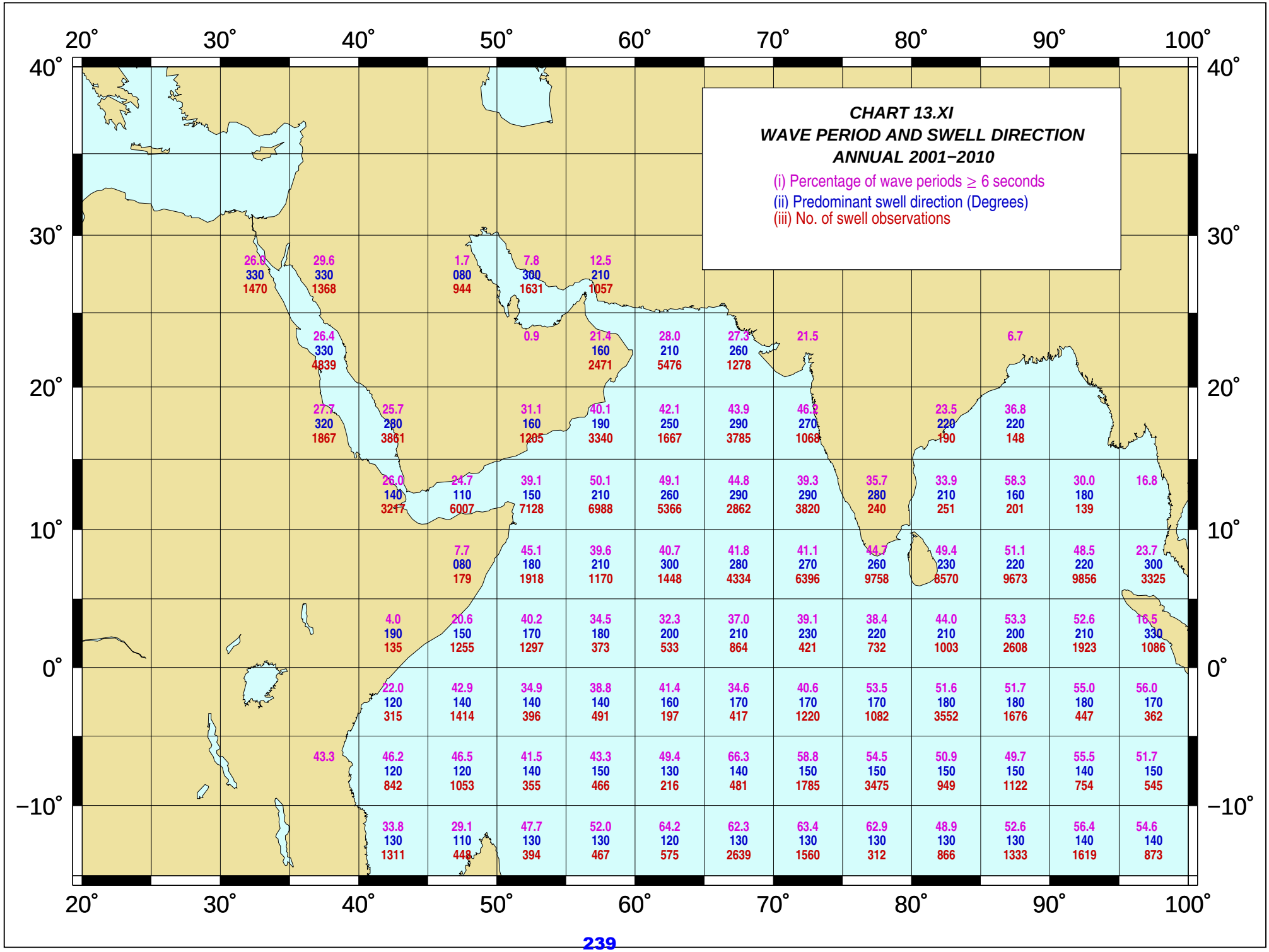


CHART 13.XI
WAVE PERIOD AND SWELL DIRECTION
ANNUAL 2001–2010
(i) Percentage of wave periods ≥ 6 seconds
(ii) Predominant swell direction (Degrees)
(iii) No. of swell observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
26.8 330 1470
29.6 330 1368
1.7 080 944
7.8 300 1631
12.5 210 1057
26.4 330 4839
0.9
21.4 160 2471
28.0 210 5476
27.3 260 1278
21.5
6.7
27.7 320 1867
25.7 280 3861
31.1 160 1205
40.1 190 3340
42.1 250 1667
43.9 290 3785
46.2 270 1068
23.5 220 190
36.8 220 148
26.0 140 3217
24.7 110 6007
39.1 150 7128
50.1 210 6988
49.1 260 5366
44.8 290 2862
39.3 290 3820
35.7 280 240
33.9 210 251
58.3 160 201
30.0 180 139
16.8
7.7 080 179
45.1 180 1918
39.6 210 1170
40.7 300 1448
41.8 280 4334
41.1 270 6396
44.7 260 9758
49.4 230 8570
51.1 220 9673
48.5 220 9856
23.7 300 3325
4.0 190 135
20.6 150 1255
40.2 170 1297
34.5 180 373
32.3 200 533
37.0 210 864
39.1 230 421
38.4 220 732
44.0 210 1003
53.3 200 2608
52.6 210 1923
16.5 330 1086
22.0 120 315
42.9 140 1414
34.9 140 396
38.8 140 491
41.4 160 197
34.6 170 417
40.6 170 1220
53.5 170 1082
51.6 180 3552
51.7 180 1676
55.0 180 447
56.0 170 362
43.3
46.2 120 842
46.5 120 1053
41.5 140 355
43.3 150 466
49.4 130 216
66.3 140 481
58.8 150 1785
54.5 150 3475
50.9 150 949
49.7 150 1122
55.5 140 754
51.7 150 545
33.8 130 1311
29.1 110 448
47.7 130 394
52.0 130 467
64.2 120 575
62.3 130 2639
63.4 130 1560
62.9 130 312
48.9 130 866
52.6 130 1333
56.4 140 1619
54.6 140 873

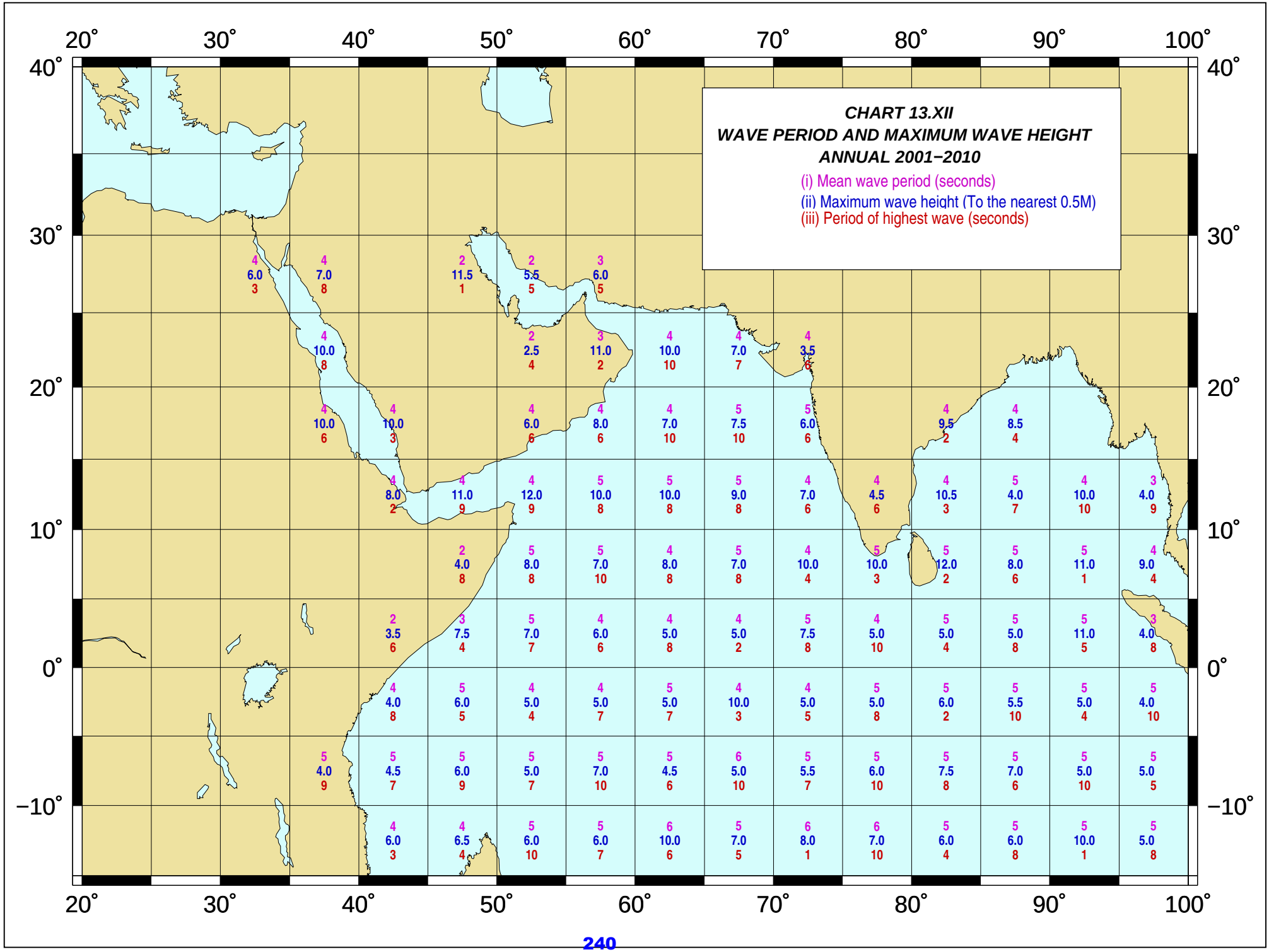


CHART 13.XII
WAVE PERIOD AND MAXIMUM WAVE HEIGHT
ANNUAL 2001–2010
(i) Mean wave period (seconds)
(ii) Maximum wave height (To the nearest 0.5M)
(iii) Period of highest wave (seconds)
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
4 6.0 3
4 7.0 8
2 11.5 1
2 5.5 5
3 6.0 5
4 10.0 8
2 2.5 4
3 11.0 2
4 10.0 10
4 7.0 7
4 3.5 6
4 10.0 6
4 10.0 3
4 6.0 6
4 8.0 6
4 7.0 10
5 7.5 10
5 6.0 6
4 9.5 2
4 8.5 4
4 8.0 2
4 11.0 9
4 12.0 9
5 10.0 8
5 10.0 8
5 9.0 8
4 7.0 6
4 4.5 6
4 10.5 3
5 4.0 7
4 10.0 10
3 4.0 9
2 4.0 8
5 8.0 8
5 7.0 10
4 8.0 8
5 7.0 8
4 10.0 4
5 10.0 3
5 12.0 2
5 8.0 6
5 11.0 1
4 9.0 4
2 3.5 6
3 7.5 4
5 7.0 7
4 6.0 6
4 5.0 8
4 5.0 2
5 7.5 8
4 5.0 10
5 5.0 4
5 5.0 8
5 11.0 5
3 4.0 8
4 4.0 8
5 6.0 5
4 5.0 4
4 5.0 7
5 5.0 7
4 10.0 3
4 5.0 5
5 5.0 8
5 6.0 2
5 5.5 10
5 5.0 4
5 4.0 10
5 4.0 9
5 4.5 7
5 6.0 9
5 5.0 7
5 7.0 10
5 4.5 6
6 5.0 10
5 5.5 7
5 6.0 10
5 7.5 8
5 7.0 6
5 5.0 10
5 5.0 5
4 6.0 3
4 6.5 4
5 6.0 10
5 6.0 7
6 10.0 6
5 7.0 5
6 8.0 1
6 7.0 10
5 6.0 4
5 6.0 8
5 10.0 1
5 5.0 8

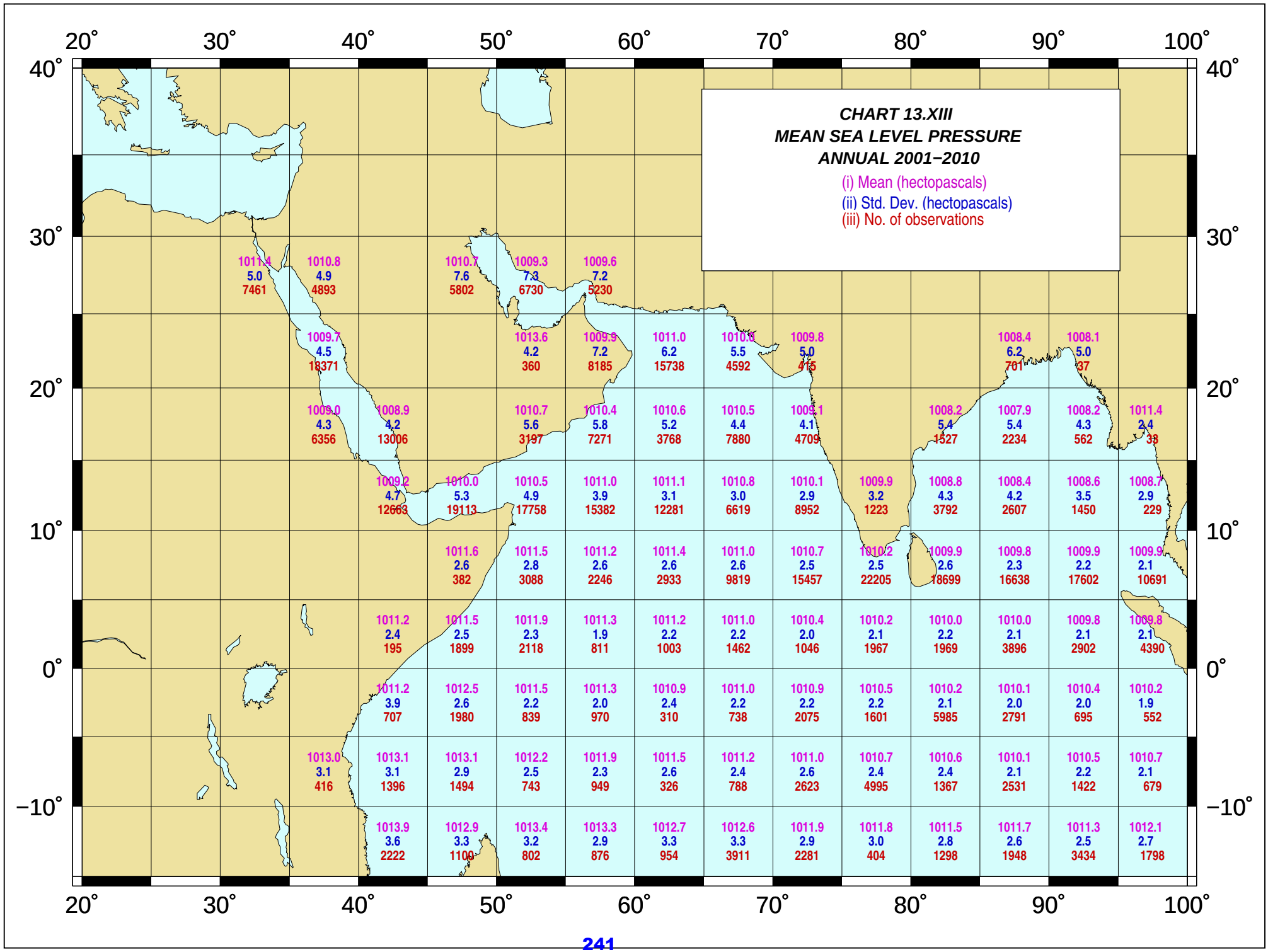


CHART 13.XIII
MEAN SEA LEVEL PRESSURE
ANNUAL 2001–2010
(i) Mean (hectopascals)
(ii) Std. Dev. (hectopascals)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1011.4 5.0 7461
1010.8 4.9 4893
1010.7 7.6 5802
1009.3 7.3 6730
1009.6 7.2 5230
1009.7 4.5 18371
1013.6 4.2 360
1009.9 7.2 8185
1011.0 6.2 15738
1010.5 5.5 4592
1009.8 5.0 415
1008.4 6.2 701
1008.1 5.0 37
1009.0 4.3 6356
1008.9 4.2 13006
1010.7 5.6 3197
1010.4 5.8 7271
1010.6 5.2 3768
1010.5 4.4 7880
1009.1 4.1 4709
1008.2 5.4 1527
1007.9 5.4 2234
1008.2 4.3 562
1011.4 2.4 38
1009.2 4.7 12663
1010.0 5.3 19113
1010.5 4.9 17758
1011.0 3.9 15382
1011.1 3.1 12281
1010.8 3.0 6619
1010.1 2.9 8952
1009.9 3.2 1223
1008.8 4.3 3792
1008.4 4.2 2607
1008.6 3.5 1450
1008.7 2.9 229
1011.6 2.6 382
1011.5 2.8 3088
1011.2 2.6 2246
1011.4 2.6 2933
1011.0 2.6 9819
1010.7 2.5 15457
1010.2 2.5 22205
1009.9 2.6 18699
1009.8 2.3 16638
1009.9 2.2 17602
1009.9 2.1 10691
1011.2 2.4 195
1011.5 2.5 1899
1011.9 2.3 2118
1011.3 1.9 811
1011.2 2.2 1003
1011.0 2.2 1462
1010.4 2.0 1046
1010.2 2.1 1967
1010.0 2.2 1969
1010.0 2.1 3896
1009.8 2.1 2902
1009.8 2.1 4390
1011.2 3.9 707
1012.5 2.6 1980
1011.5 2.2 839
1011.3 2.0 970
1010.9 2.4 310
1011.0 2.2 738
1010.9 2.2 2075
1010.5 2.2 1601
1010.2 2.1 5985
1010.1 2.0 2791
1010.4 2.0 695
1010.2 1.9 552
1013.0 3.1 416
1013.1 3.1 1396
1013.1 2.9 1494
1012.2 2.5 743
1011.9 2.3 949
1011.5 2.6 326
1011.2 2.4 788
1011.0 2.6 2623
1010.7 2.4 4995
1010.6 2.4 1367
1010.1 2.1 2531
1010.5 2.2 1422
1010.7 2.1 679
1013.9 3.6 2222
1012.9 3.3 1100
1013.4 3.2 802
1013.3 2.9 876
1012.7 3.3 954
1012.6 3.3 3911
1011.9 2.9 2281
1011.8 3.0 404
1011.5 2.8 1298
1011.7 2.6 1948
1011.3 2.5 3434
1012.1 2.7 1798

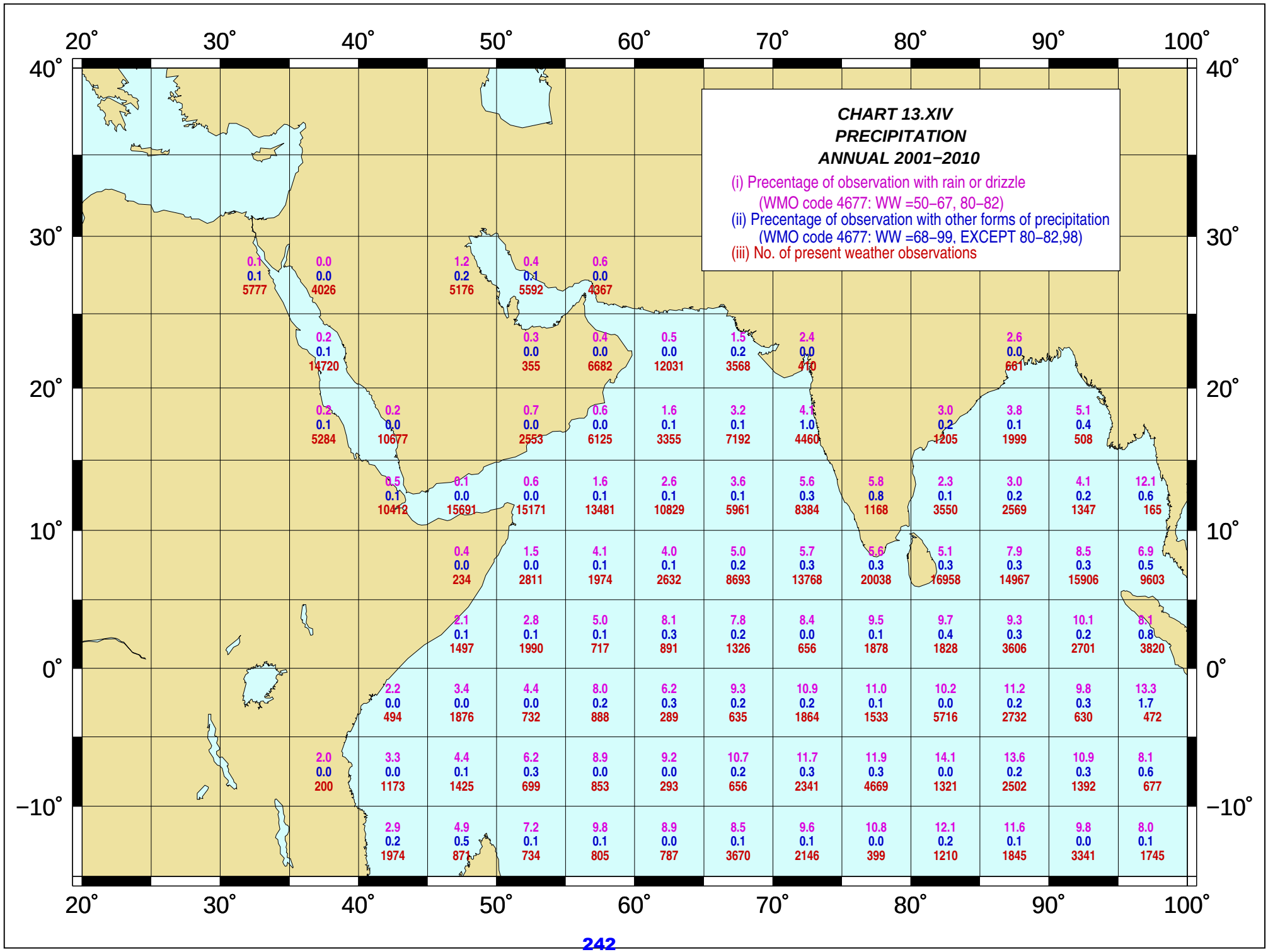


CHART 13.XIV
PRECIPITATION
ANNUAL 2001–2010
(i) Precentage of observation with rain or drizzle
(WMO code 4677: WW =50–67, 80–82)
(ii) Precentage of observation with other forms of precipitation
(WMO code 4677: WW =68–99, EXCEPT 80–82,98)
(iii) No. of present weather observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.1 0.1 5777
0.0 0.0 4026
1.2 0.2 5176
0.4 0.1 5592
0.6 0.0 4367
0.2 0.1 14720
0.3 0.0 355
0.4 0.0 6682
0.5 0.0 12031
1.5 0.2 3568
2.4 0.0 410
2.6 0.0 661
0.2 0.1 5284
0.2 0.0 10677
0.7 0.0 2553
0.6 0.0 6125
1.6 0.1 3355
3.2 0.1 7192
4.1 1.0 4460
3.0 0.2 1205
3.8 0.1 1999
5.1 0.4 508
0.5 0.1 10412
0.1 0.0 15691
0.6 0.0 15171
1.6 0.1 13481
2.6 0.1 10829
3.6 0.1 5961
5.6 0.3 8384
5.8 0.8 1168
2.3 0.1 3550
3.0 0.2 2569
4.1 0.2 1347
12.1 0.6 165
0.4 0.0 234
1.5 0.0 2811
4.1 0.1 1974
4.0 0.1 2632
5.0 0.2 8693
5.7 0.3 13768
5.6 0.3 20038
5.1 0.3 16958
7.9 0.3 14967
8.5 0.3 15906
6.9 0.5 9603
2.1 0.1 1497
2.8 0.1 1990
5.0 0.1 717
8.1 0.3 891
7.8 0.2 1326
8.4 0.0 656
9.5 0.1 1878
9.7 0.4 1828
9.3 0.3 3606
10.1 0.2 2701
8.1 0.8 3820
2.2 0.0 494
3.4 0.0 1876
4.4 0.0 732
8.0 0.2 888
6.2 0.3 289
9.3 0.2 635
10.9 0.2 1864
11.0 0.1 1533
10.2 0.0 5716
11.2 0.2 2732
9.8 0.3 630
13.3 1.7 472
2.0 0.0 200
3.3 0.0 1173
4.4 0.1 1425
6.2 0.3 699
8.9 0.0 853
9.2 0.0 293
10.7 0.2 656
11.7 0.3 2341
11.9 0.3 4669
14.1 0.0 1321
13.6 0.2 2502
10.9 0.3 1392
8.1 0.6 677
2.9 0.2 1974
4.9 0.5 871
7.2 0.1 734
9.8 0.1 805
8.9 0.0 787
8.5 0.1 3670
9.6 0.1 2146
10.8 0.0 399
12.1 0.2 1210
11.6 0.1 1845
9.8 0.0 3341
8.0 0.1 1745

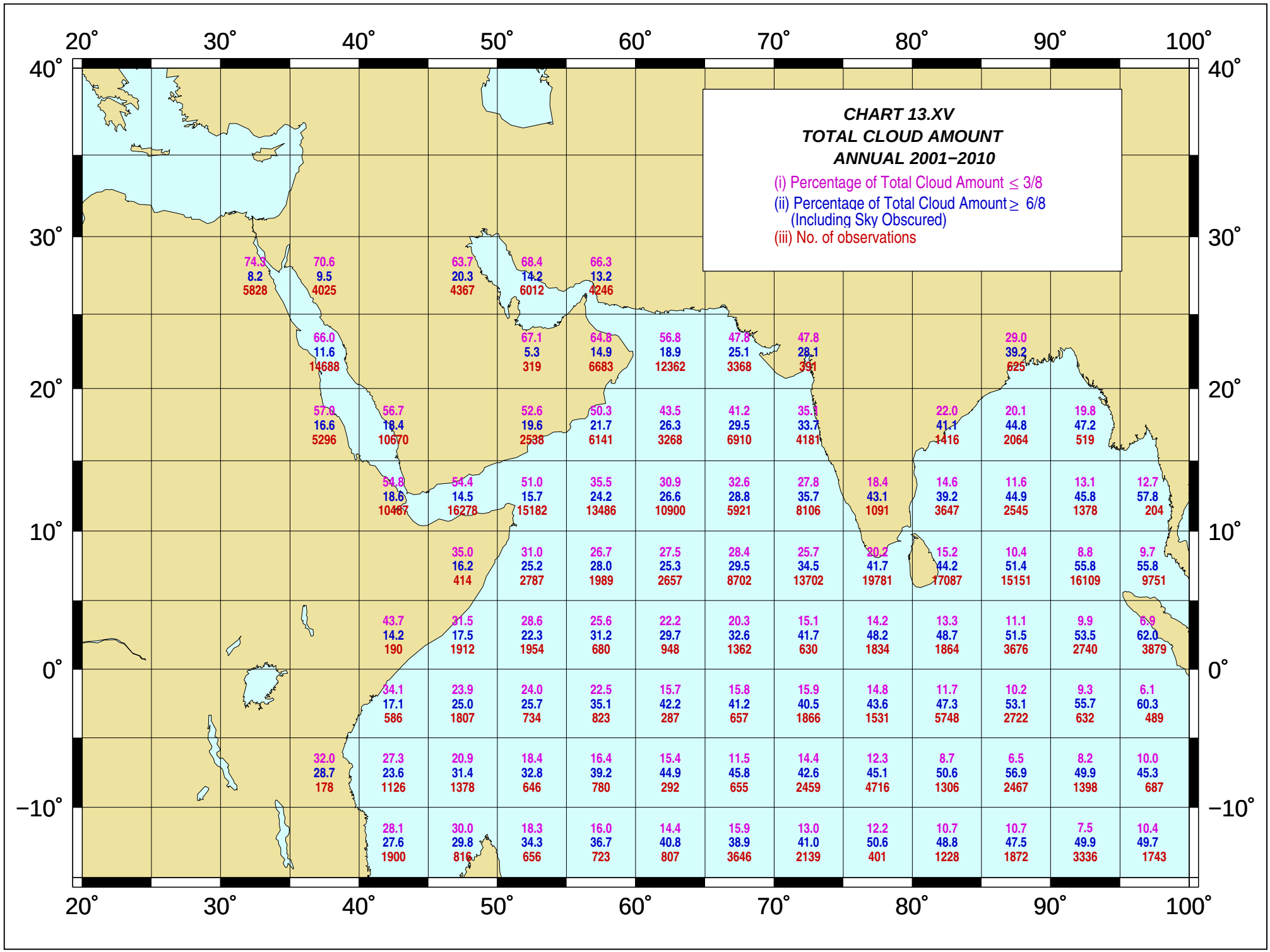


CHART 13.XV
TOTAL CLOUD AMOUNT
ANNUAL 2001–2010
(i) Percentage of Total Cloud Amount ≤ 3/8
(ii) Percentage of Total Cloud Amount ≥ 6/8 (Including Sky Obscured)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
74.3 8.2 5828
70.6 9.5 4025
63.7 20.3 4367
68.4 14.2 6012
66.3 13.2 4246
66.0 11.6 14688
67.1 5.3 319
64.8 14.9 6683
56.8 18.9 12362
47.8 25.1 3368
47.8 28.1 391
29.0 39.2 625
57.0 16.6 5296
56.7 18.4 10670
52.6 19.6 2538
50.3 21.7 6141
43.5 26.3 3268
41.2 29.5 6910
35.1 33.7 4181
22.0 41.1 1416
20.1 44.8 2064
19.8 47.2 519
51.8 18.6 10467
54.4 14.5 16278
51.0 15.7 15182
35.5 24.2 13486
30.9 26.6 10900
32.6 28.8 5921
27.8 35.7 8106
18.4 43.1 1091
14.6 39.2 3647
11.6 44.9 2545
13.1 45.8 1378
12.7 57.8 204
35.0 16.2 414
31.0 25.2 2787
26.7 28.0 1989
27.5 25.3 2657
28.4 29.5 8702
25.7 34.5 13702
20.2 41.7 19781
15.2 44.2 17087
10.4 51.4 15151
8.8 55.8 16109
9.7 55.8 9751
43.7 14.2 190
31.5 17.5 1912
28.6 22.3 1954
25.6 31.2 680
22.2 29.7 948
20.3 32.6 1362
15.1 41.7 630
14.2 48.2 1834
13.3 48.7 1864
11.1 51.5 3676
9.9 53.5 2740
6.9 62.0 3879
34.1 17.1 586
23.9 25.0 1807
24.0 25.7 734
22.5 35.1 823
15.7 42.2 287
15.8 41.2 657
15.9 40.5 1866
14.8 43.6 1531
11.7 47.3 5748
10.2 53.1 2722
9.3 55.7 632
6.1 60.3 489
32.0 28.7 178
27.3 23.6 1126
20.9 31.4 1378
18.4 32.8 646
16.4 39.2 780
15.4 44.9 292
11.5 45.8 655
14.4 42.6 2459
12.3 45.1 4716
8.7 50.6 1306
6.5 56.9 2467
8.2 49.9 1398
10.0 45.3 687
28.1 27.6 1900
30.0 29.8 816
18.3 34.3 656
16.0 36.7 723
14.4 40.8 807
15.9 38.9 3646
13.0 41.0 2139
12.2 50.6 401
10.7 48.8 1228
10.7 47.5 1872
7.5 49.9 3336
10.4 49.7 1743

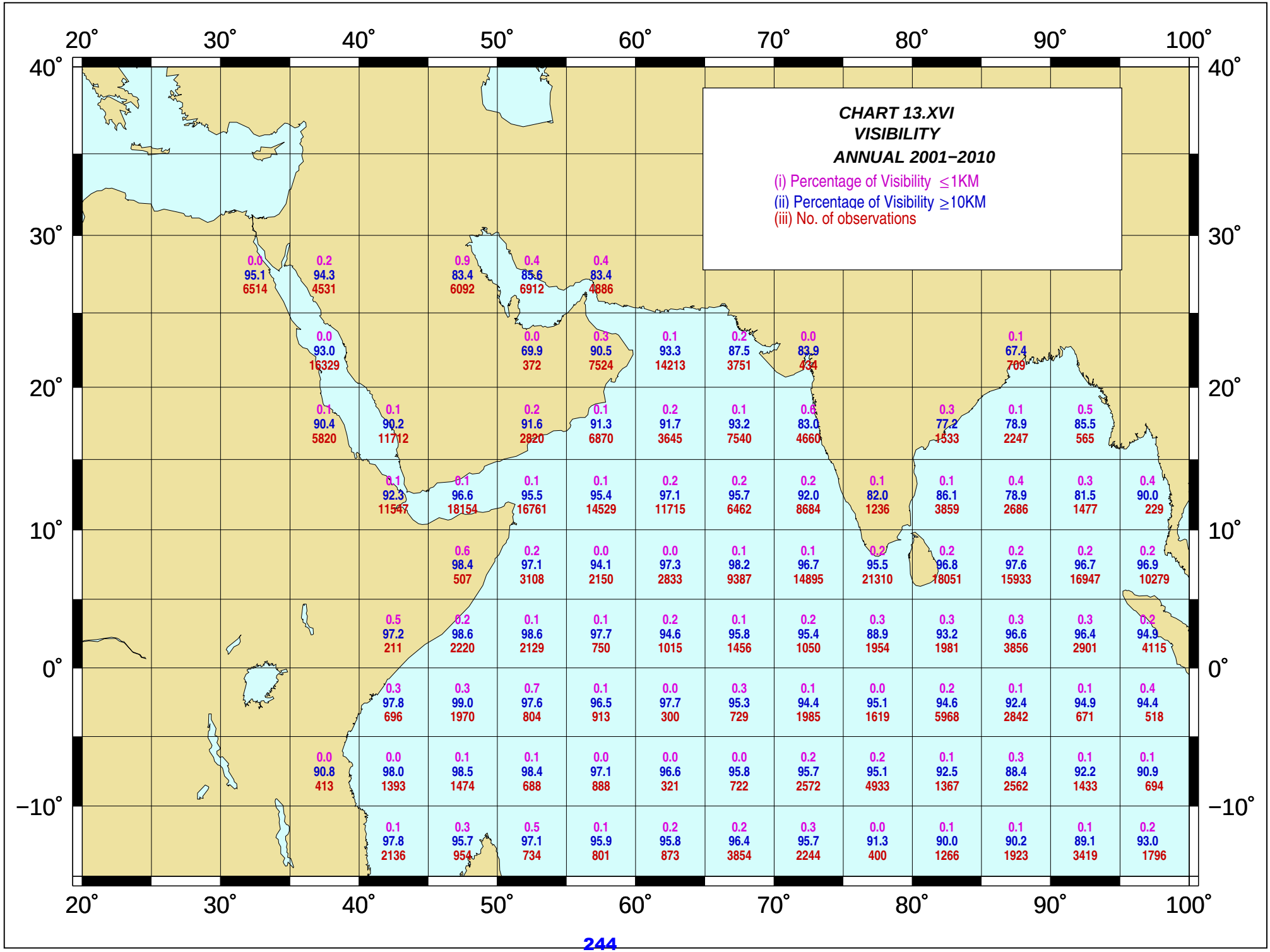


CHART 13.XVI
VISIBILITY
ANNUAL 2001–2010
(i) Percentage of Visibility ≤1KM
(ii) Percentage of Visibility ≥10KM
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
0.0 95.1 6514
0.2 94.3 4531
0.9 83.4 6092
0.4 85.6 6912
0.4 83.4 4886
0.0 93.0 16329
0.0 69.9 372
0.3 90.5 7524
0.1 93.3 14213
0.2 87.5 3751
0.0 83.9 434
0.1 67.4 709
0.1 90.4 5820
0.1 90.2 11712
0.2 91.6 2820
0.1 91.3 6870
0.2 91.7 3645
0.1 93.2 7540
0.0 83.0 4660
0.3 77.2 1533
0.1 78.9 2247
0.5 85.5 565
0.1 92.3 11547
0.1 96.6 18154
0.1 95.5 16761
0.1 95.4 14529
0.2 97.1 11715
0.2 95.7 6462
0.2 92.0 8684
0.1 82.0 1236
0.1 86.1 3859
0.4 78.9 2686
0.3 81.5 1477
0.4 90.0 229
0.6 98.4 507
0.2 97.1 3108
0.0 94.1 2150
0.0 97.3 2833
0.1 98.2 9387
0.1 96.7 14895
0.2 95.5 21310
0.2 96.8 18051
0.2 97.6 15933
0.2 96.7 16947
0.2 96.9 10279
0.5 97.2 211
0.2 98.6 2220
0.1 98.6 2129
0.1 97.7 750
0.2 94.6 1015
0.1 95.8 1456
0.2 95.4 1050
0.3 88.9 1954
0.3 93.2 1981
0.3 96.6 3856
0.3 96.4 2901
0.2 94.9 4115
0.3 97.8 696
0.3 99.0 1970
0.7 97.6 804
0.1 96.5 913
0.0 97.7 300
0.3 95.3 729
0.1 94.4 1985
0.0 95.1 1619
0.2 94.6 5968
0.1 92.4 2842
0.1 94.9 671
0.4 94.4 518
0.0 90.8 413
0.0 98.0 1393
0.1 98.5 1474
0.1 98.4 688
0.0 97.1 888
0.0 96.6 321
0.0 95.8 722
0.2 95.7 2572
0.2 95.1 4933
0.1 92.5 1367
0.3 88.4 2562
0.1 92.2 1433
0.1 90.9 694
0.1 97.8 2136
0.3 95.7 954
0.5 97.1 734
0.1 95.9 801
0.2 95.8 873
0.2 96.4 3854
0.3 95.7 2244
0.0 91.3 400
0.1 90.0 1266
0.1 90.2 1923
0.1 89.1 3419
0.2 93.0 1796

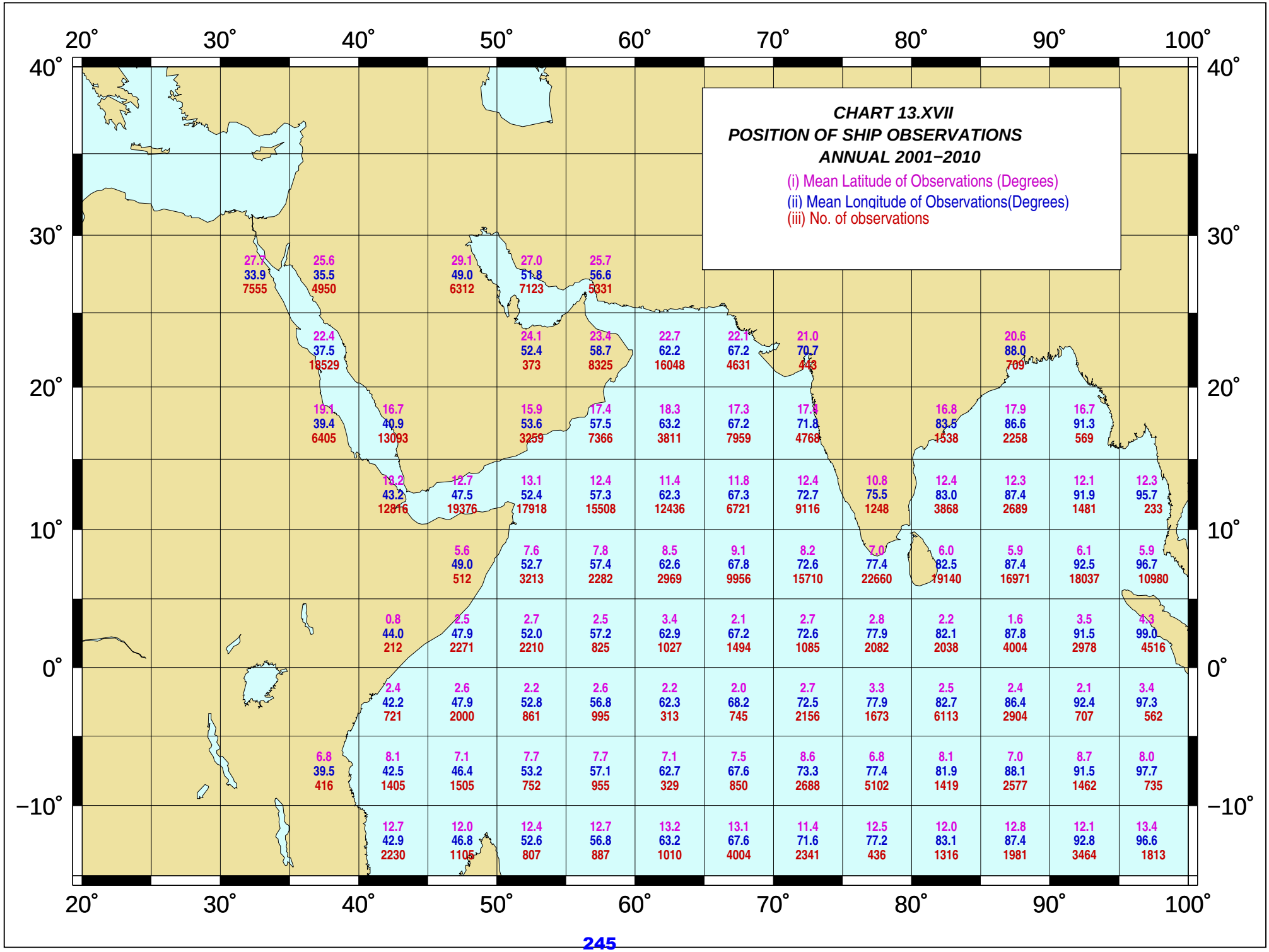


CHART 13.XVII
POSITION OF SHIP OBSERVATIONS
ANNUAL 2001–2010
(i) Mean Latitude of Observations (Degrees)
(ii) Mean Longitude of Observations(Degrees)
(iii) No. of observations
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
27.7 33.9 7555
25.6 35.5 4950
29.1 49.0 6312
27.0 51.8 7123
25.7 56.6 5331
22.4 37.5 18529
24.1 52.4 373
23.4 58.7 8325
22.7 62.2 16048
22.1 67.2 4631
21.0 70.7 443
20.6 88.0 709
19.1 39.4 6405
16.7 40.9 13093
15.9 53.6 3259
17.4 57.5 7366
18.3 63.2 3811
17.3 67.2 7959
17.9 71.8 4768
16.8 83.5 1538
17.9 86.6 2258
16.7 91.3 569
13.2 43.2 12816
12.7 47.5 19376
13.1 52.4 17918
12.4 57.3 15508
11.4 62.3 12436
11.8 67.3 6721
12.4 72.7 9116
10.8 75.5 1248
12.4 83.0 3868
12.3 87.4 2689
12.1 91.9 1481
12.3 95.7 233
5.6 49.0 512
7.6 52.7 3213
7.8 57.4 2282
8.5 62.6 2969
9.1 67.8 9956
8.2 72.6 15710
7.0 77.4 22660
6.0 82.5 19140
5.9 87.4 16971
6.1 92.5 18037
5.9 96.7 10980
0.8 44.0 212
2.5 47.9 2271
2.7 52.0 2210
2.5 57.2 825
3.4 62.9 1027
2.1 67.2 1494
2.7 72.6 1085
2.8 77.9 2082
2.2 82.1 2038
1.6 87.8 4004
3.5 91.5 2978
4.3 99.0 4516
2.4 42.2 721
2.6 47.9 2000
2.2 52.8 861
2.6 56.8 995
2.2 62.3 313
2.0 68.2 745
2.7 72.5 2156
3.3 77.9 1673
2.5 82.7 6113
2.4 86.4 2904
2.1 92.4 707
3.4 97.3 562
6.8 39.5 416
8.1 42.5 1405
7.1 46.4 1505
7.7 53.2 752
7.7 57.1 955
7.1 62.7 329
7.5 67.6 850
8.6 73.3 2688
6.8 77.4 5102
8.1 81.9 1419
7.0 88.1 2577
8.7 91.5 1462
8.0 97.7 735
12.7 42.9 2230
12.0 46.8 1105
12.4 52.6 807
12.7 56.8 887
13.2 63.2 1010
13.1 67.6 4004
11.4 71.6 2341
12.5 77.2 436
12.0 83.1 1316
12.8 87.4 1981
12.1 92.8 3464
13.4 96.6 1813

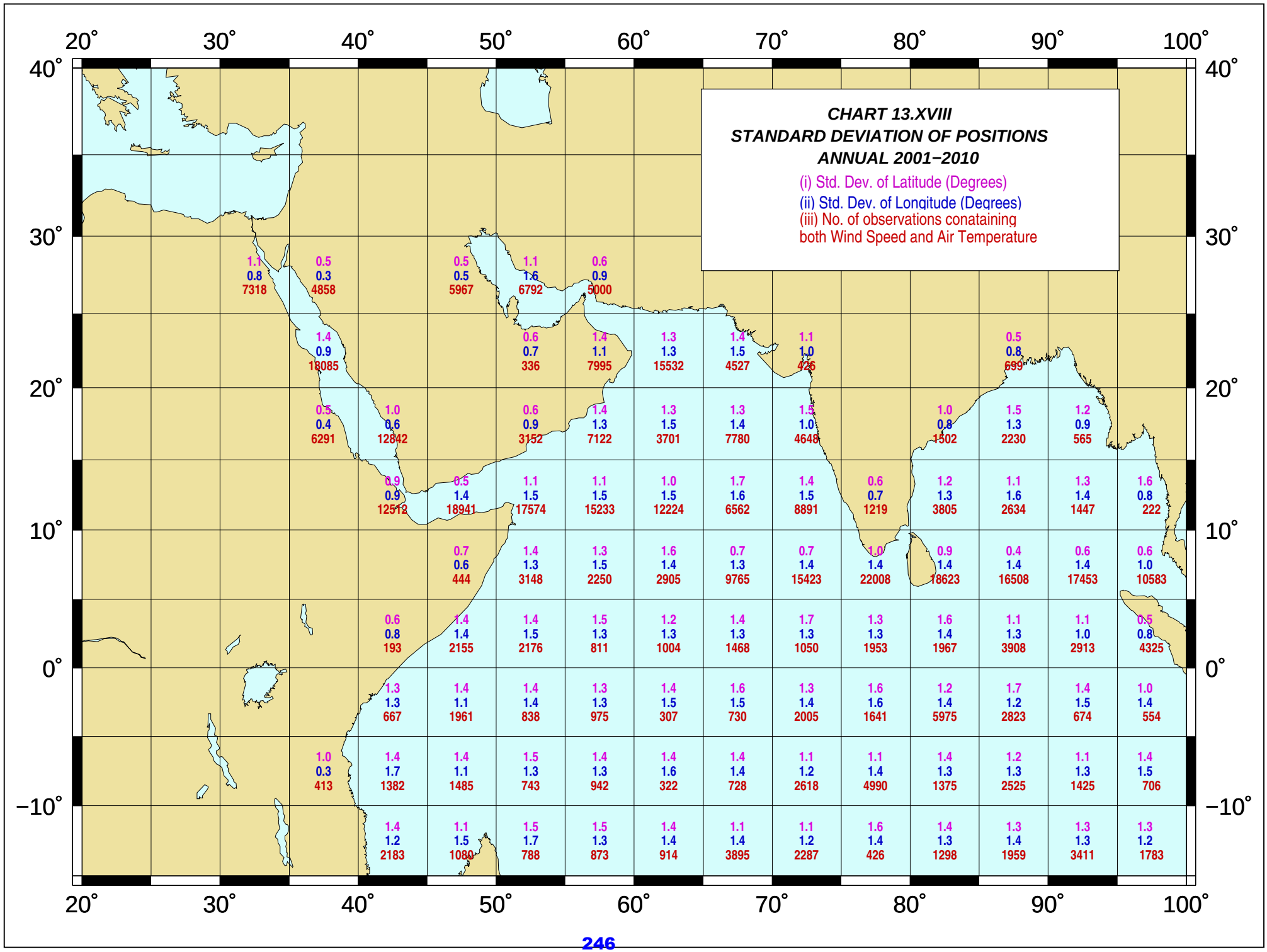
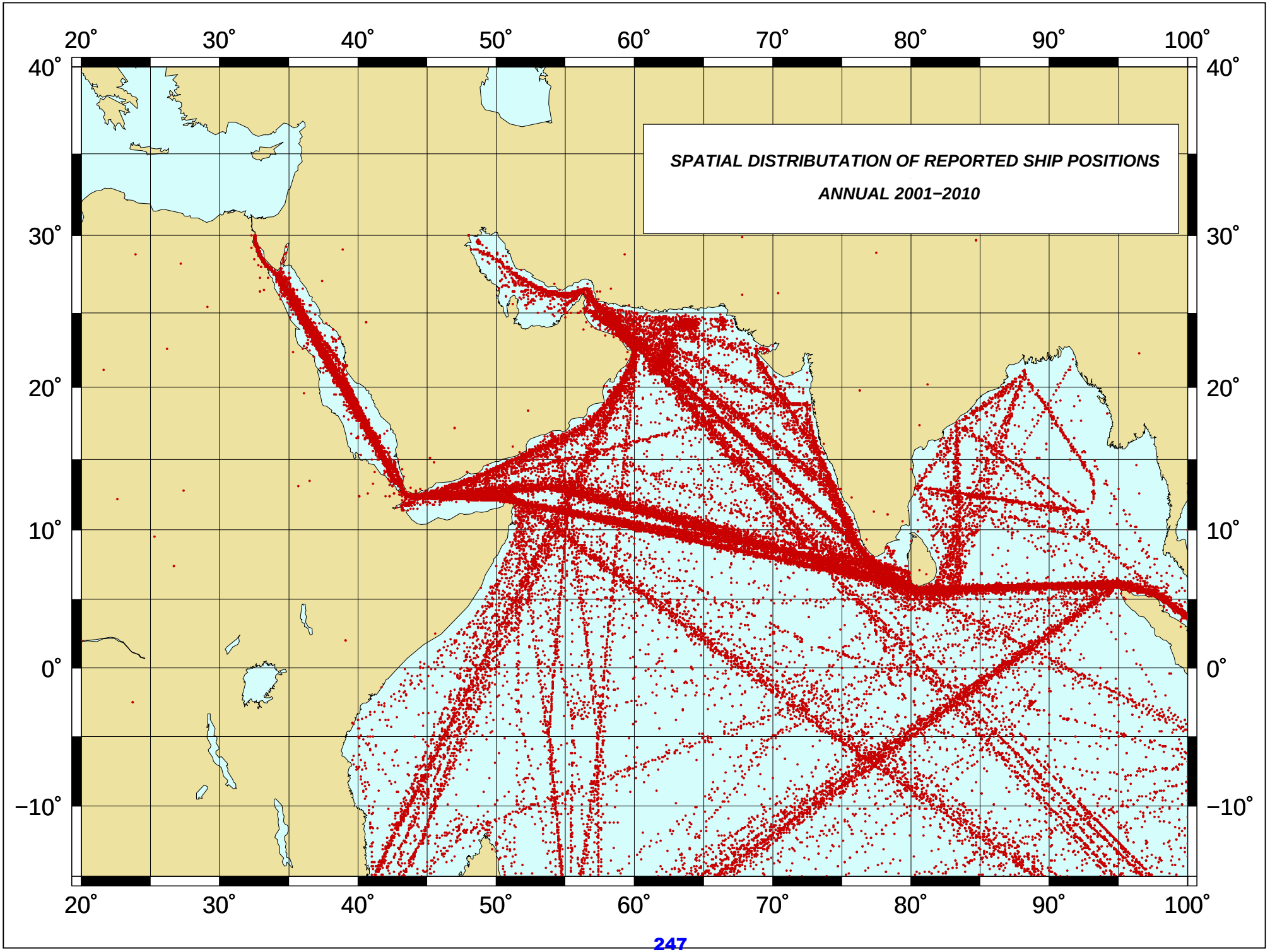
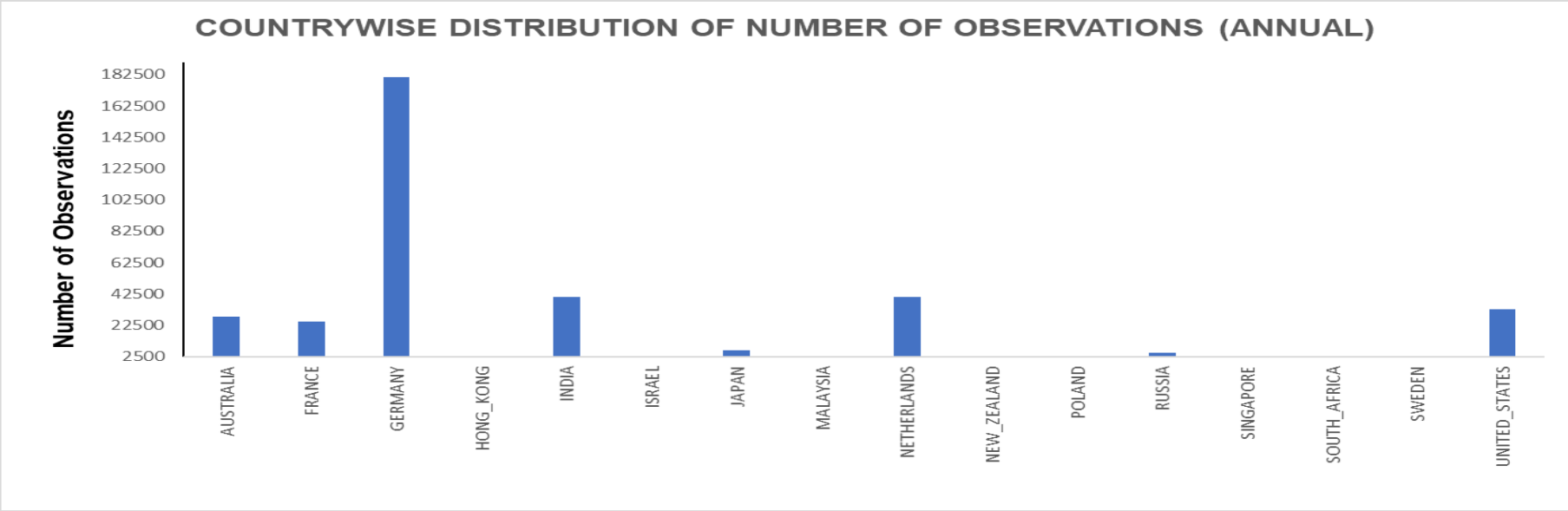
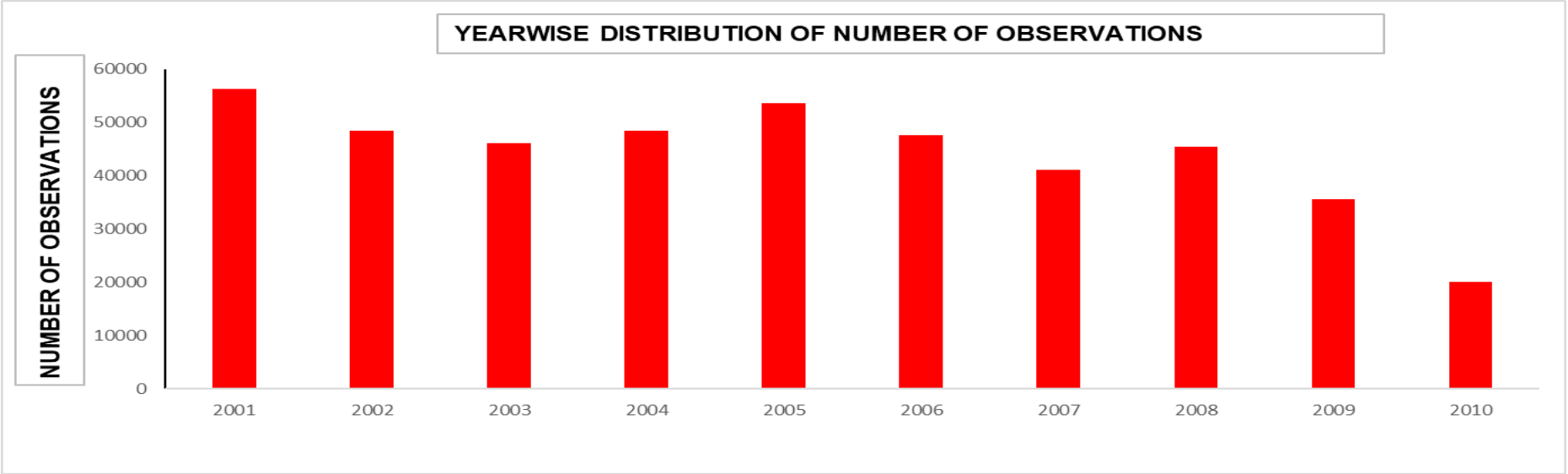


CHART 13.XVIII
STANDARD DEVIATION OF POSITIONS
ANNUAL 2001–2010
(i) Std. Dev. of Latitude (Degrees)
(ii) Std. Dev. of Longitude (Degrees)
(iii) No. of observations conataining
both Wind Speed and Air Temperature
20° 30° 40° 50° 60° 70° 80° 90° 100°
40° 30° 20° 10° 0° −10°
1.1 0.8 7318
0.5 0.3 4858
0.5 0.5 5967
1.1 1.6 6792
0.6 0.9 5000
1.4 0.9 18085
0.6 0.7 336
1.4 1.1 7995
1.3 1.3 15532
1.4 1.5 4527
1.1 1.0 426
0.5 0.8 699
0.5 0.4 6291
1.0 0.6 12842
0.6 0.9 3152
1.4 1.3 7122
1.3 1.5 3701
1.3 1.4 7780
1.5 1.0 4648
1.0 0.8 1502
1.5 1.3 2230
1.2 0.9 565
0.9 0.9 12512
0.5 1.4 18941
1.1 1.5 17574
1.1 1.5 15233
1.0 1.5 12224
1.7 1.6 6562
1.4 1.5 8891
0.6 0.7 1219
1.2 1.3 3805
1.1 1.6 2634
1.3 1.4 1447
1.6 0.8 222
0.7 0.6 444
1.4 1.3 3148
1.3 1.5 2250
1.6 1.4 2905
0.7 1.3 9765
0.7 1.4 15423
1.0 1.4 22008
0.9 1.4 18623
0.4 1.4 16508
0.6 1.4 17453
0.6 1.0 10583
0.6 0.8 193
1.4 1.4 2155
1.4 1.5 2176
1.5 1.3 811
1.2 1.3 1004
1.4 1.3 1468
1.7 1.3 1050
1.3 1.3 1953
1.6 1.4 1967
1.1 1.3 3908
1.1 1.0 2913
0.5 0.8 4325
1.3 1.3 667
1.4 1.1 1961
1.4 1.4 838
1.3 1.3 975
1.4 1.5 307
1.6 1.5 730
1.3 1.4 2005
1.6 1.6 1641
1.2 1.4 5975
1.7 1.2 2823
1.4 1.5 674
1.0 1.4 554
1.0 0.3 413
1.4 1.7 1382
1.4 1.1 1485
1.5 1.3 743
1.4 1.3 942
1.4 1.6 322
1.4 1.4 728
1.1 1.2 2618
1.1 1.4 4990
1.4 1.3 1375
1.2 1.3 2525
1.1 1.3 1425
1.4 1.5 706
1.4 1.2 2183
1.1 1.5 1080
1.5 1.7 788
1.5 1.3 873
1.4 1.4 914
1.1 1.4 3895
1.1 1.2 2287
1.6 1.4 426
1.4 1.3 1298
1.3 1.4 1959
1.3 1.3 3411
1.3 1.2 1783


SPATIAL DISTRIBUTATION OF REPORTED SHIP POSITIONS
ANNUAL 2001–2010
20°
30°
40°
50°
60°
70°
80°
90°
100°
40°
30°
20°
10°
0°
−10°


COUNTRYWISE DISTRIBUTION OF NUMBER OF OBSERVATIONS (ANNUAL)
Number of Observations
182500
162500
142500
122500
102500
82500
62500
42500
22500
2500
AUSTRALIA
FRANCE
GERMANY
HONG_KONG
INDIA
ISRAEL
JAPAN
MALAYSIA
NETHERLANDS
NEW_ZEALAND
POLAND
RUSSIA
SINGAPORE
SOUTH_AFRICA
SWEDEN
UNITED_STATES


YEARWISE DISTRIBUTION OF NUMBER OF OBSERVATIONS
NUMBER OF OBSERVATIONS
60000
50000
40000
30000
20000
10000
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010

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INDIA METEOROLOGICAL DEPARTMENT, PUNE- 411005