# रेडियो सौन्डे और रेडियो विंड के मासिक सामान्य मूल्य (१९८१ - २०१०) तथा मासिक उपरिवायु के पवन दिग्दर्शक आरेख (२००० - २०१५)

# MONTHLY NORMALS OF RADIOSONDE AND RADIOWIND (1981-2010) AND

# MONTHLY UPPER AIR WINDROSE DIAGRAMS (2000-2015)



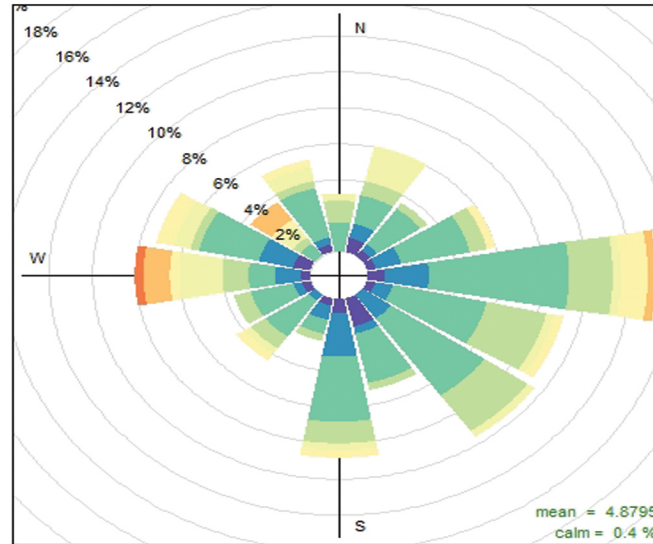# लखनऊ
# LUCKNOW

सितम्बर २०२०

SEPTEMBER 2020

भारत सरकार / GOVERNMENT OF INDIA

पृथ्वी विज्ञान मंत्रालय/ MINISTRY OF EARTH SCIENCES

भारत मौसम विज्ञान भवन / INDIA METEOROLOGICAL DEPARTMENT

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# MONTHLY UPPER AIR WINDROSE DIAGRAMS (2000-2015)

# लखनऊ
# LUCKNOW

जलवायु आंकड़ां प्रबंधन समूह /CLIMATE DATA MANAGEMENT AND SERVICES GROUP

जलवायु अनुसंधान एवं सेवाएँ कार्यालय पुणे /OFFICE OF HEAD CLIMATE RESEARCH & SERVICES PUNE

सितम्बर २०२०

SEPTEMBER 2020

# PREFACE

India Meteorological Department (IMD), Ministry of Earth Sciences, brings out publications on varied meteorological topics. Normals of Radiosonde and Radiowind data has been published by the Climate Data Management and Services Group (CDMS), Office of Climate Research and Services (C R & S), IMD Pune since 1979. Four such publications have been published till date. The present publication 'Monthly Normals of Radiosonde and Radiowind (1981-2010) and Monthly Upper Air Windrose Diagrams (2000-2015)' is prepared using 0000 UTC (0530 IST) observation data from 35 Radiosonde and Radiowind (RS/RW) Upper Air stations for the period 1981-2010 and wind profile data of 34 RS/RW stations for the period 2000-2015 at eight different levels (1000, 925, 850, 700, 500, 300, 200, 100 hPa). The wind rose diagrams are prepared using R software after processing the RS/RW data by applying various quality checks. The present publication provides the climatology of different meteorological parameters at various levels over the station **Lucknow** (Latitude $26^0 45$'N, Longitude $80^0 53$'E).

The first part of this publication contains wind roses which provide comprehensive wind frequency information from each direction with various ranges of wind speed. Wind rose is a graphical tool prepared in order to summarise the information about wind speed and wind direction for the station. The tables adjoining to each wind rose diagrams contain information of frequency of occurrence of wind speed in percentage at different ranges of wind direction. In wind roses, the most regular structure comprises of a circle from which eight or sixteen lines come out, one for each direction. The length of each line denotes the occurrence of wind from that direction and the occurrence of calm conditions is entered in the centre. The wind rose diagrams prepared in this publication will be an essential source of information to the distribution pattern of wind direction and wind speed over the station. The information generated in this publication regarding wind roses is expected to be useful and have several applications in the fields such as environmental impact assessment, industrial emissions measurements, wind energy, agriculture engineering, ambient air monitoring, air quality measurements, air dispersion modelling, etc.

The second part of the publication contains information related to station normals which comprises of altitude of standard pressure levels (mean, highest and lowest), normal values of upper air temperatures (mean, highest, lowest and dew point), resultant wind direction, resultant wind velocity and scalar wind speed at standard pressure levels. Besides, it also contains normal values of pressure and altitude of freezing level and pressure, altitude and temperature of tropopause.

Pune   **Dr. D. S. Pai**

September 2020   Head C R & S

# Table of content

# Description of various terms used in the table (Normals of Radiosonde data)

| SN. | Terms | Description |
|---|---|---|
| 1 | PRESSURE | Standard Pressure levels in hPa (1000 to 7 hPa) |
| 2 | HEIGHT | Mean altitude of isobaric levels in gpm. |
| 3 | Hmax | Highest altitude of monthly mean values in gpm. |
| 4 | Hmin | Lowest altitude of monthly mean values in gpm. |
| 5 | TEMP | Mean dry bulb air temperature in °C. |
| 6 | TMAX | Highest value of temperature in °C observed at particular isobaric level |
| 7 | TMIN | Lowest value of temperature in °C observed at particular isobaric level |
| 8 | DEWPT | Mean dew point temperature in °C. |
| 9 | DIR | Mean resultant wind direction in degrees . |
| 10 | VELO | Mean resultant wind velocity in mps (vector mean). |
| 11 | U | The resolved part of wind velocity in East direction (East component) |
| 12 | V | The resolved part of wind velocity in North direction (North component) |
| 13 | VM | Mean wind speed irrespective of direction in mps (scalar mean). |
| 14 | P | Mean pressure of freezing and tropopause levels in hPa . |
| 15 | Height | Altitude of freezing and tropopause levels in gpm . |
| 16 | H_max | Highest altitude of freezing level of monthly mean values in gpm. |
| 17 | H_min | Lowest altitude of freezing level of monthly mean values in gpm . |
| 18 | SURFACE | Station level atmospheric pressure in hPa. |
| 19 | FIRST TROPOPAUSE | Tropopause observed at altitude less than 14 Km . |
| 20 | SECOND TROPOPAUSE | Tropopause observed at altitude more than 14 Km . |

# Description of terms used in the table (Wind rose table)

| | | |
|---|---|---|
| 1 | Speed | Range of wind velocity in mps |
| 2 | Direction | Range of wind direction in degrees |

# Interpretation of wind rose diagrams:



**Frequency of counts by wind direction (%)**
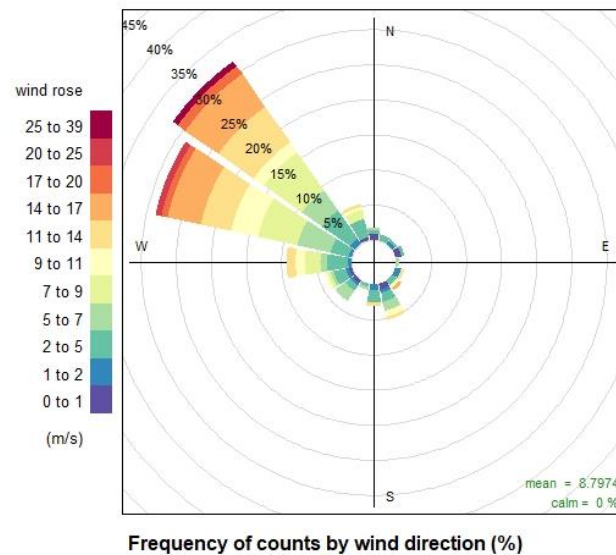
A wind rose diagrams at different upper air levels gives a very concise but information-laden view of how wind speed and direction are typically distributed at a particular location and month.

- The diagrams normally comprise of 8, 16 or 32 radiating spokes, which represent wind directions in terms of the cardinal wind directions (North East South West) and their intermediate directions.

- Presented in a circular format, the wind rose shows the frequency of winds blowing FROM particular directions.

- The length of each "spoke" around the circle is related to the frequency of time that the wind blows from a particular direction and each of the spokes are color-coded along their length to indicate the speed of the wind.

- Each concentric circle represents a different frequency, emanating from zero at the centre to increasing frequencies at the outer circles.

The circular format of the wind rose shows the direction the winds blew from and the length of each "spoke" around the circle shows how often the wind blew from that direction.

**Lucknow**  **January**  **1000 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 10.2 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 3.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 1.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 1.6 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 1.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 2.3 | 7.8 | 2.3 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.8 | 8.6 | 3.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 1.6 | 9.4 | 4.7 | 1.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 2.3 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

**Lucknow**  **January**  **925 hPa level**
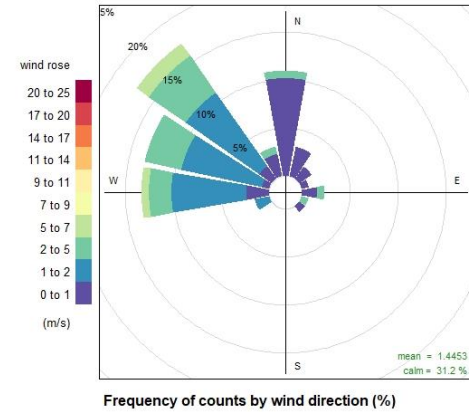
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 1.1 | 0 | 3.2 | 1.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.5 | 2.6 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0.5 | 0 |
| 34-56 | | 0.5 | 0.5 | 2.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 1.1 | 0 | 1.6 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 1.1 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0.5 | 0.5 | 0.5 | 0 | 1.1 | 0.5 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.5 | 0 | 2.6 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0.5 | 1.1 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 168-191 | 0 | 2.6 | 0 | 1.6 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.5 | 0.5 | 1.1 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.5 | 0.5 | 1.1 | 0 | 0.5 | 0 | 0 | 0 | 1.1 | 0 | 0 |
| 282-303 | | 0.5 | 0 | 7.4 | 4.2 | 4.8 | 1.1 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 3.2 | 6.3 | 5.3 | 6.3 | 4.2 | 2.6 | 0.5 | 1.1 | 0 | 0 |
| 327-348 | | 0 | 0 | 5.8 | 2.1 | 0.5 | 1.1 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

# Lucknow          January          850 hPa level
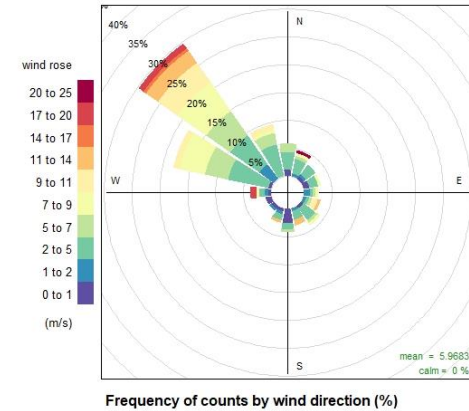
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0.5 | 0 | 0.5 | 1.1 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 |
| 12-33 |  | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |  | 0 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0 | 0.5 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 1.1 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 1.1 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 0.5 | 0 | 0.5 | 1.1 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 |
| 192-213 |  | 0.5 | 0 | 1.6 | 0.5 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0 | 0 | 0 | 0 | 1.1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 237-258 |  | 0 | 0.5 | 2.1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 |  | 0.5 | 0 | 5.9 | 1.1 | 3.7 | 0 | 0.5 | 0 | 0 | 0 | 0.5 |
| 282-303 |  | 0 | 1.6 | 3.7 | 7.5 | 8 | 3.2 | 3.2 | 0.5 | 0.5 | 0 | 0.5 |
| 304-326 |  | 0.5 | 1.1 | 4.8 | 2.1 | 6.4 | 5.3 | 4.3 | 3.7 | 0 | 0.5 | 0 |
| 327-348 |  | 0 | 0 | 0.5 | 0.5 | 1.1 | 1.6 | 0.5 | 0 | 0 | 0 | 0 |



wind rose

25 to 56
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 7.9144
calm = 0 %

Frequency of counts by wind direction (%)

# Lucknow          January          700 hPa level
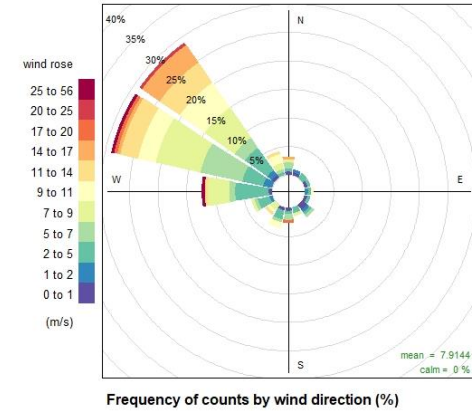
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 |
| 12-33 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 |
| 168-191 |  | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |
| 192-213 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0.5 | 0 | 0.5 | 0 | 0.5 | 0 | 1.6 | 0.5 | 0 | 0.5 | 0 |
| 237-258 |  | 0 | 0 | 0.5 | 1.1 | 1.6 | 1.1 | 1.6 | 1.6 | 0.5 | 0.5 | 0 |
| 259-281 |  | 0 | 0 | 1.1 | 3.8 | 6.5 | 2.7 | 3.3 | 3.8 | 2.7 | 0 | 0.5 |
| 282-303 |  | 0 | 0 | 2.2 | 1.6 | 6 | 4.9 | 9.8 | 6 | 3.8 | 1.6 | 1.1 |
| 304-326 |  | 0.5 | 0 | 1.1 | 3.3 | 1.1 | 2.2 | 4.3 | 3.3 | 2.2 | 0.5 | 0.5 |
| 327-348 |  | 0 | 0 | 0.5 | 1.1 | 0 | 0 | 0 | 0 | 1.1 | 0 | 0 |



wind rose

25 to 49
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 12.489
calm = 0 %

Frequency of counts by wind direction (%)
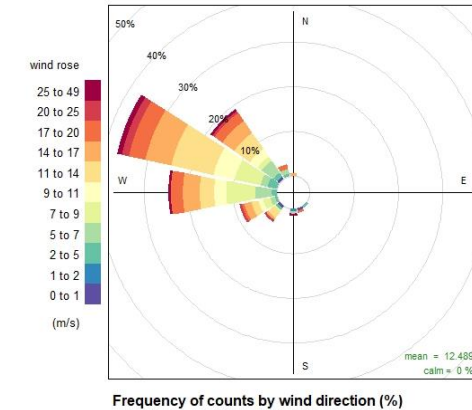
## Lucknow — January — 500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | 1.1 |
| 237-258 | | 0 | 0 | 1.1 | 0.6 | 0 | 0 | 1.1 | 0.6 | 0.6 | 5.1 | 4.5 |
| 259-281 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 1.1 | 2.8 | 7.3 | 8.5 | 16.9 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 1.7 | 3.4 | 5.6 | 5.1 | 20.3 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 1.7 | 2.3 | 1.7 | 2.3 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | 0 | 0 | 0 | 0 |



wind rose
25 to 47
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 24.723
calm = 0 %

Frequency of counts by wind direction (%)
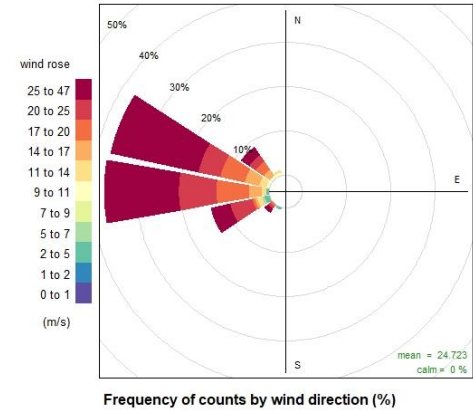
## Lucknow — January — 300 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 237-258 | | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 1.2 | 12.7 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 0.6 | 1.2 | 44.6 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 25.3 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.2 | 0 | 0.6 | 4.8 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0.6 |



wind rose
25 to 89
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 42.777
calm = 0 %

Frequency of counts by wind direction (%)

**Lucknow**                    January                    200 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.8 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 14.1 |
| 259-281 | | 0 | 0 | 0 | 0 | 0.6 | 0.6 | 0.6 | 0 | 0 | 2.6 | 46.2 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.6 | 23.7 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 4.5 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
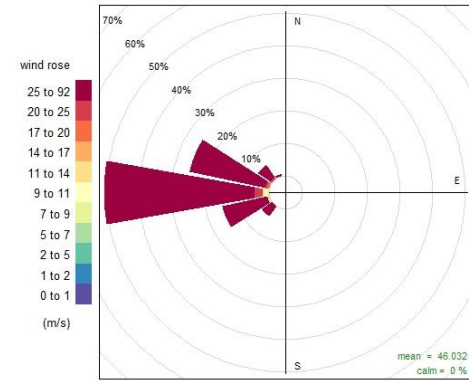


wind rose
25 to 92
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 46.032
calm = 0 %

**Frequency of counts by wind direction (%)**

**Lucknow**                    January                    100 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0 | 0 |
| 237-258 | | 0 | 0 | 0 | 0 | 1.6 | 0.8 | 0 | 2.4 | 1.6 | 0 | 8 |
| 259-281 | | 0 | 0 | 0 | 0 | 1.6 | 0 | 3.2 | 4 | 4.8 | 8.8 | 26.4 |
| 282-303 | | 0 | 0 | 0 | 2.4 | 3.2 | 0.8 | 0.8 | 0.8 | 4.8 | 5.6 | 9.6 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0.8 | 0.8 | 3.2 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
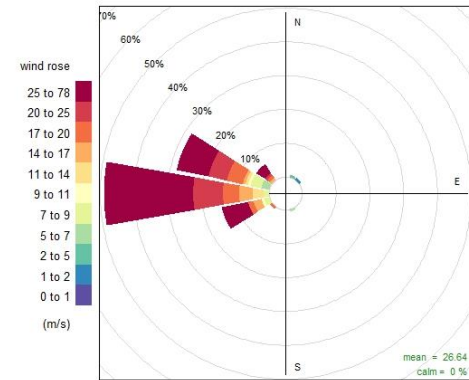


wind rose
25 to 78
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 26.64
calm = 0 %

**Frequency of counts by wind direction (%)**

**Lucknow**          **February**          **1000 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 6.9 | 2.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |  | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 2.3 | 1.1 | 2.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 |  | 0 | 12.6 | 6.9 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 |  | 1.1 | 4.6 | 9.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 |  | 4.6 | 2.3 | 4.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 |  | 4.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
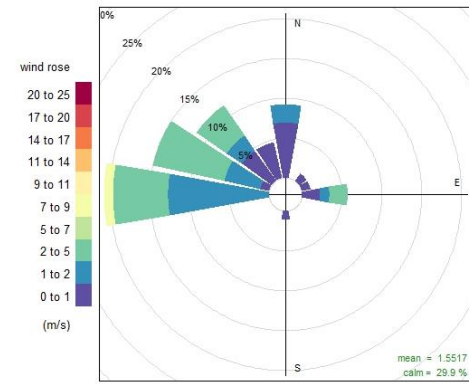


mean = 1.5517
calm = 29.9 %

Frequency of counts by wind direction (%)

**Lucknow**          **February**          **925 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0 | 1.8 | 1.8 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 |  | 0.9 | 0.9 | 1.8 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0.4 |
| 34-56 |  | 0 | 0 | 1.3 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0.4 |
| 57-78 |  | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0 | 0 | 0.4 | 1.8 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0.9 | 0 | 0.9 | 0 | 0.9 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 1.8 | 0 | 2.2 | 1.3 | 0.4 | 0 | 1.3 | 0 | 0 | 0.4 | 0 |
| 147-168 | 0 | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 0.9 | 0.4 | 3.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 |  | 0 | 0.9 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 |  | 0 | 0.4 | 0.9 | 0.9 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 282-303 |  | 0 | 1.3 | 2.6 | 4.8 | 3.1 | 1.3 | 1.8 | 1.3 | 0 | 0.4 | 0 |
| 304-326 |  | 0 | 0.9 | 10.5 | 7.5 | 4.4 | 3.5 | 4.8 | 1.8 | 0.9 | 1.3 | 0 |
| 327-348 |  | 0 | 0.9 | 3.9 | 1.8 | 1.3 | 0.9 | 2.2 | 0 | 0 | 0.4 | 0 |
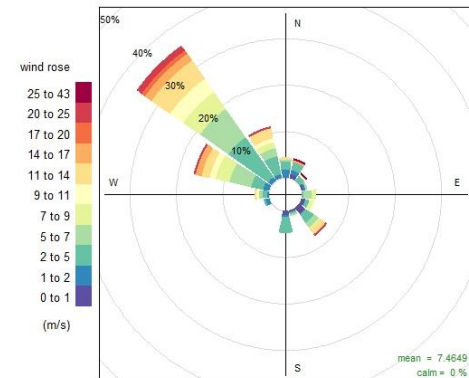


mean = 7.4649
calm = 0.0 %

Frequency of counts by wind direction (%)

# Lucknow       February       850 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |   | 0.9 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |   | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |   | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |   | 0.9 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |   | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |   | 0 | 0.9 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 124-146 |   | 0 | 0 | 0.9 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |
| 147-168 | 0 | 0.9 | 0.4 | 1.3 | 1.3 | 0 | 0.9 | 0.4 | 0 | 0 | 0 | 0 |
| 168-191 |   | 0 | 0.9 | 1.8 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 192-213 |   | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |   | 0.4 | 0.4 | 0.9 | 1.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 |   | 0.4 | 0.4 | 1.8 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 259-281 |   | 0 | 0.4 | 3.1 | 0.9 | 2.2 | 1.3 | 1.3 | 0 | 0 | 0 | 0 |
| 282-303 |   | 0 | 0.4 | 2.6 | 4.8 | 5.7 | 4 | 4.4 | 4.8 | 0.9 | 0.9 | 0 |
| 304-326 |   | 0 | 0.9 | 4.8 | 3.5 | 6.6 | 1.8 | 6.2 | 5.7 | 1.3 | 0 | 0.9 |
| 327-348 |   | 0.4 | 0 | 2.6 | 0 | 1.3 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
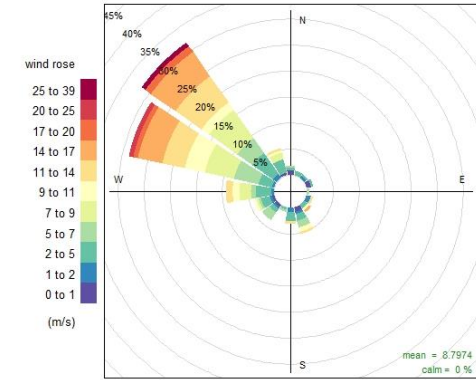


Frequency of counts by wind direction (%)

# Lucknow       February       700 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |   | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| 102-123 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 |
| 192-213 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |   | 0 | 0 | 0.9 | 0.4 | 1.8 | 0 | 0.9 | 1.3 | 0 | 0.4 | 0.4 |
| 237-258 |   | 0 | 0 | 0.4 | 0.9 | 0.9 | 2.2 | 1.3 | 0.4 | 1.8 | 0 | 0 |
| 259-281 |   | 0 | 0 | 1.3 | 2.2 | 2.7 | 4.5 | 4.9 | 4.5 | 0.9 | 2.7 | 0 |
| 282-303 |   | 0 | 0 | 0.4 | 2.7 | 4 | 4 | 7.2 | 11.7 | 5.4 | 0.9 | 0 |
| 304-326 |   | 0 | 0 | 0 | 1.3 | 2.7 | 2.2 | 3.6 | 4 | 2.7 | 2.2 | 0 |
| 327-348 |   | 0.4 | 0 | 0.4 | 1.8 | 0.9 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

**Lucknow**     February     500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 237-258 | | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 0.5 | 2.4 | 4.8 | 4.8 |
| 259-281 | | 0 | 0 | 0 | 0.5 | 0 | 0.5 | 0.5 | 8.6 | 7.1 | 11 | 11.4 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 1 | 0.5 | 2.9 | 4.3 | 14.3 | 11.9 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.5 | 0 | 2.4 | 2.9 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0.5 | 0 | 0.5 |



Frequency of counts by wind direction (%)

**Lucknow**     February     300 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.6 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.2 | 21.6 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 1.8 | 1.8 | 35.9 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.8 | 25.7 |
| 304-326 | | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0.6 | 0 | 5.4 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.2 |



Frequency of counts by wind direction (%)

**Lucknow**  February  200 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.6 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22.1 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 1.3 | 47.4 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 1.9 | 20.1 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 2.6 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

**Lucknow**  February  100 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 |
| 124-146 | | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0.8 |
| 237-258 | | 0 | 0 | 0 | 0 | 0.8 | 0 | 1.7 | 0.8 | 1.7 | 0 | 6.6 |
| 259-281 | | 0 | 0 | 1.7 | 0 | 0 | 1.7 | 5.8 | 5.8 | 8.3 | 14.9 | 23.1 |
| 282-303 | | 0 | 0 | 0 | 0.8 | 0.8 | 0.8 | 2.5 | 3.3 | 3.3 | 2.5 | 7.4 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow          March          1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Lucknow          March          925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0 | 1.1 | 3.3 | 0.4 | 0.4 | 0.4 | 0.7 | 0 | 0 | 0 | 0.4 |
| 12-33 |  | 0.4 | 0.7 | 1.5 | 1.5 | 0 | 0 | 0.7 | 0 | 0 | 0.4 | 0 |
| 34-56 |  | 0 | 0 | 1.1 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 0 | 0.4 | 2.6 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0.4 | 0.4 | 1.5 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0 | 0 | 1.1 | 1.1 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 0 | 1.1 | 2.6 | 0 | 1.5 | 0.4 | 0 | 0 | 0.4 | 0 | 0 |
| 147-168 | 0 | 0.4 | 0 | 1.1 | 0.4 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 0.4 | 0.4 | 0.7 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |  | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0.4 | 0.4 | 1.5 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 237-258 |  | 0 | 0 | 0.7 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 |  | 0.4 | 0 | 1.5 | 0.7 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 282-303 |  | 0.4 | 0 | 2.2 | 4.8 | 1.8 | 0.4 | 0.7 | 0 | 1.1 | 0 | 0 |
| 304-326 |  | 0.4 | 1.8 | 8.4 | 4.8 | 6.6 | 3.7 | 4.8 | 1.5 | 1.1 | 1.8 | 0.7 |
| 327-348 |  | 0 | 0 | 2.9 | 2.2 | 2.2 | 0.7 | 1.1 | 1.1 | 0 | 0 | 0.4 |



wind rose

25 to 32
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 7.6007
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow  March  850 hPa level
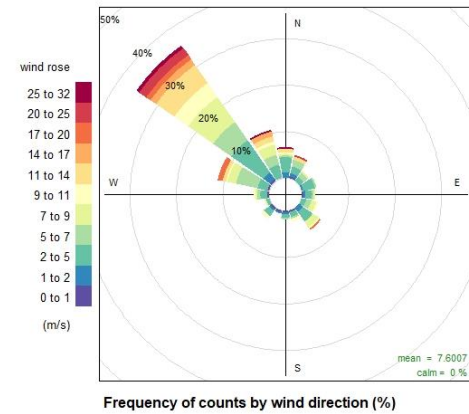
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0.7 | 1.1 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 1.5 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0 | 1.5 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0.4 |
| 168-191 | | 0 | 0 | 1.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0 | 1.1 | 0.7 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 214-236 | | 0.7 | 0.4 | 1.1 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 1.8 | 0 | 0.7 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.7 | 0.7 | 1.5 | 2.6 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 |
| 282-303 | | 0.4 | 0.7 | 4 | 4.4 | 6.2 | 4 | 5.1 | 3.3 | 1.8 | 0.7 | 1.5 |
| 304-326 | | 0.7 | 0.4 | 2.6 | 3.7 | 4.4 | 4 | 4.4 | 4 | 0.7 | 1.8 | 1.1 |
| 327-348 | | 0.7 | 0 | 4 | 1.1 | 1.1 | 0.4 | 0.7 | 1.1 | 0 | 0 | 0 |
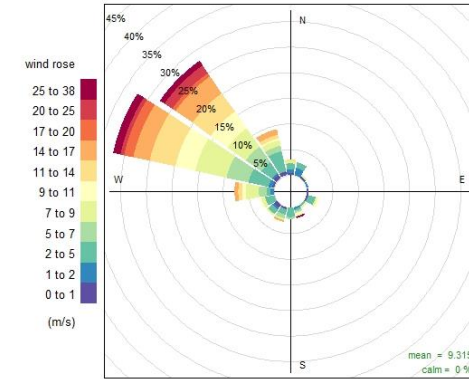


Frequency of counts by wind direction (%)

## Lucknow  March  700 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.4 | 0.4 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0.4 | 0.4 | 0.7 | 0.4 | 0 | 0.4 | 0 |
| 237-258 | | 0.4 | 0 | 0.4 | 0.7 | 1.1 | 1.1 | 3 | 2.2 | 1.5 | 0.4 | 0.4 |
| 259-281 | | 0 | 0 | 2.2 | 1.5 | 4.1 | 3.4 | 4.1 | 2.6 | 1.5 | 0.4 | 0.4 |
| 282-303 | | 0 | 0 | 0 | 1.1 | 2.6 | 4.9 | 7.8 | 10.1 | 3.7 | 3.7 | 1.5 |
| 304-326 | | 0 | 0 | 0.7 | 2.2 | 1.1 | 2.2 | 3 | 4.1 | 2.2 | 2.2 | 0.4 |
| 327-348 | | 0 | 0 | 0.7 | 0.4 | 1.1 | 1.5 | 1.9 | 0.7 | 0 | 0.4 | 0 |
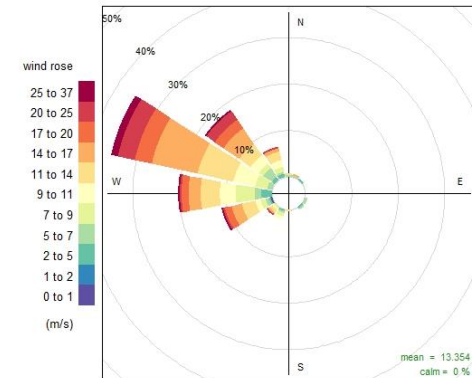


Frequency of counts by wind direction (%)

## Lucknow     March     500 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0.8 | 0.4 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0.4 | 0.4 | 0 | 0.8 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0.4 | 0 | 0 | 0.4 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0.4 | 1.7 | 2.1 | 1.7 | 3 | 0.4 |
| 259-281 | | 0 | 0 | 0.4 | 0 | 1.7 | 2.1 | 1.3 | 5.9 | 9.7 | 11.9 | 8.9 |
| 282-303 | | 0 | 0 | 0 | 0.4 | 0.4 | 2.1 | 4.7 | 4.2 | 5.9 | 7.2 | 5.1 |
| 304-326 | | 0 | 0 | 0.4 | 0.8 | 0.4 | 0.8 | 1.7 | 1.3 | 1.3 | 1.7 | 1.3 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0.4 | 0.4 | 0 | 1.3 | 0 | 0 |
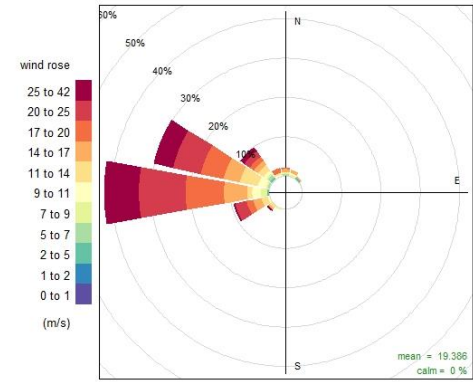


**Frequency of counts by wind direction (%)**

## Lucknow     March     300 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 1.6 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 1.1 | 15.9 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 1.1 | 4.8 | 38.1 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 1.1 | 1.1 | 1.1 | 0 | 2.1 | 19.6 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 1.1 | 0.5 | 3.2 |
| 327-348 | | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 1.1 | 0 | 0 | 0 |
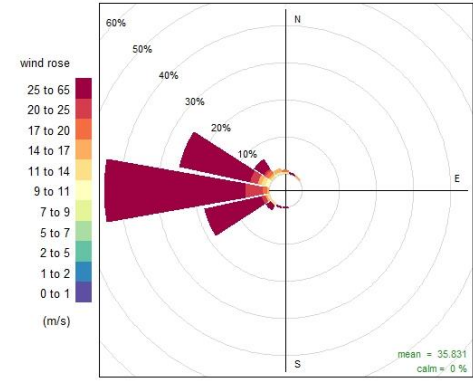


**Frequency of counts by wind direction (%)**

**Lucknow**  **March**  **200 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.8 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 2.4 | 20.1 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 1.8 | 3 | 37.2 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 1.2 | 24.4 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 0 | 2.4 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 |
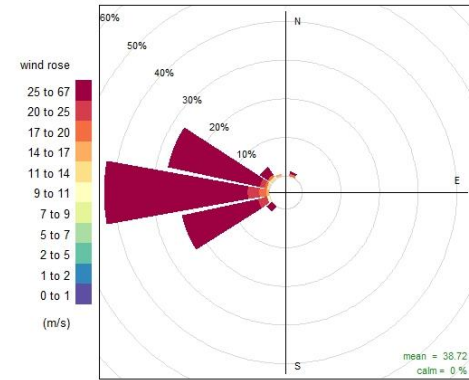


Frequency of counts by wind direction (%)

**Lucknow**  **March**  **100 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 1.4 |
| 237-258 | | 0.7 | 0 | 1.4 | 0 | 0 | 0 | 2.1 | 0.7 | 3.4 | 2.1 | 6.2 |
| 259-281 | | 0.7 | 0 | 0.7 | 2.1 | 3.4 | 3.4 | 4.1 | 6.2 | 3.4 | 8.9 | 19.2 |
| 282-303 | | 0 | 0 | 0 | 0.7 | 2.7 | 0 | 2.7 | 2.1 | 0.7 | 4.1 | 6.2 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 4.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow          April          1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | | | | | | | | | | | |
| 12-33 | | | | | | | | | | | | |
| 34-56 | | | | | | | | | | | | |
| 57-78 | | | | | | | | | | | | |
| 79-101 | | | | | | | | | | | | |
| 102-123 | | | | | | | | | | | | |
| 124-146 | | | | | | | | | | | | |
| 147-168 | | | | | | | | | | | | |
| 168-191 | | | | | | | | | | | | |
| 192-213 | | | | | | | | | | | | |
| 214-236 | | | | | | | | | | | | |
| 237-258 | | | | | | | | | | | | |
| 259-281 | | | | | | | | | | | | |
| 282-303 | | | | | | | | | | | | |
| 304-326 | | | | | | | | | | | | |
| 327-348 | | | | | | | | | | | | |

## Lucknow          April          925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.8 | 1.7 | 0.8 | 0.4 | 0.4 | 0.8 | 0.4 | 0 | 0 | 0.4 |
| 12-33 | | 0.4 | 0.4 | 0.8 | 0 | 0 | 0 | 0.8 | 0.4 | 0.4 | 0 | 0 |
| 34-56 | | 0.8 | 0.4 | 1.3 | 0.4 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.4 | 1.7 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0 |
| 79-101 | | 0.4 | 0 | 2.1 | 1.3 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0.4 | 1.7 | 0.4 | 1.3 | 0.8 | 0 | 0.4 | 0 | 0 | 0 |
| 124-146 | | 0.4 | 1.3 | 2.5 | 1.7 | 0.8 | 0.4 | 1.7 | 0.4 | 0 | 0 | 0 |
| 147-168 | 0 | 0.8 | 0 | 2.1 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.4 | 0.4 | 2.1 | 0.8 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0.4 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 3 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 1.7 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.8 | 1.3 | 1.3 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 2.5 | 1.3 | 0.4 | 1.3 | 1.3 | 0.4 | 0 | 0.4 | 0 |
| 304-326 | | 0.4 | 0 | 3.4 | 5.1 | 3 | 3.8 | 4.2 | 2.5 | 0.4 | 1.3 | 0 |
| 327-348 | | 0.4 | 0.4 | 4.2 | 0.8 | 3.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |



wind rose

25 to 26
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 7.3347
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow    April    850 hPa level
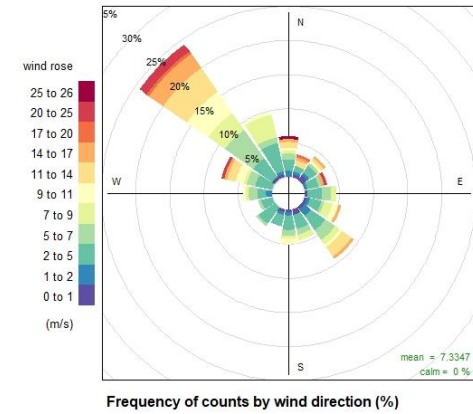
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 3 | 1.3 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.4 | 0.4 | 0.9 | 0.4 | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.4 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 1.3 | 0.9 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0 | 0.9 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 124-146 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 |
| 168-191 | | 0 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.4 | 0.9 | 0.9 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.9 | 0.9 | 3 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 0.9 | 2.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.4 | 0.9 | 2.1 | 3.8 | 1.3 | 0.9 | 0 | 0 | 0.4 | 0 | 0 |
| 282-303 | | 0 | 0.9 | 2.6 | 3 | 2.1 | 3.4 | 3 | 4.3 | 2.6 | 0.4 | 0 |
| 304-326 | | 0 | 0.9 | 5.5 | 4.3 | 3 | 3.8 | 5.1 | 1.7 | 2.1 | 0 | 0.9 |
| 327-348 | | 0 | 0.9 | 3.4 | 2.6 | 1.7 | 1.3 | 0.4 | 0 | 0 | 0 | 0 |
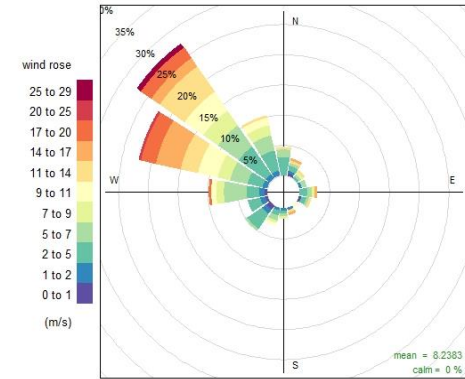


wind rose

25 to 29
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 8.2383
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow    April    700 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.4 | 0.4 | 0.9 | 0.9 | 0 | 0.4 | 0.4 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.4 | 1.3 | 0.9 | 0.9 | 0.9 | 1.3 | 0.4 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 1.7 | 0.4 | 3 | 2.1 | 5.6 | 3 | 0.9 | 0.9 | 0.4 |
| 282-303 | | 0 | 0.4 | 0.9 | 0.9 | 5.1 | 6 | 11.1 | 9.4 | 3 | 1.7 | 0.9 |
| 304-326 | | 0 | 0 | 0.9 | 2.1 | 3 | 3 | 6.4 | 3.4 | 1.3 | 2.6 | 0 |
| 327-348 | | 0 | 0 | 1.3 | 0.4 | 0.9 | 0 | 0.9 | 0 | 0.9 | 0 | 0 |
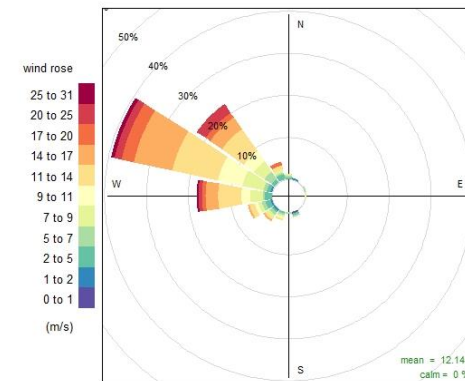


wind rose

25 to 31
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 12.145
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow      April      500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |   | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |   | 0 | 0 | 0 | 0 | 0.9 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 34-56 |   | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |   | 0 | 0 | 0 | 0.9 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |   | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 |
| 237-258 |   | 0 | 0 | 0.5 | 1.8 | 1.8 | 0.9 | 1.4 | 1.4 | 0.9 | 0.9 | 0 |
| 259-281 |   | 0 | 0 | 0.5 | 0 | 1.4 | 1.8 | 6.4 | 5 | 4.1 | 8.7 | 2.7 |
| 282-303 |   | 0 | 0 | 0.5 | 0.9 | 2.3 | 5.9 | 5.5 | 8.2 | 3.7 | 5.5 | 2.3 |
| 304-326 |   | 0 | 0 | 0.9 | 0 | 0.9 | 3.2 | 1.8 | 1.8 | 4.1 | 1.8 | 1.8 |
| 327-348 |   | 0 | 0 | 0 | 0.5 | 0 | 1.4 | 0.5 | 0.5 | 0 | 0 | 0 |
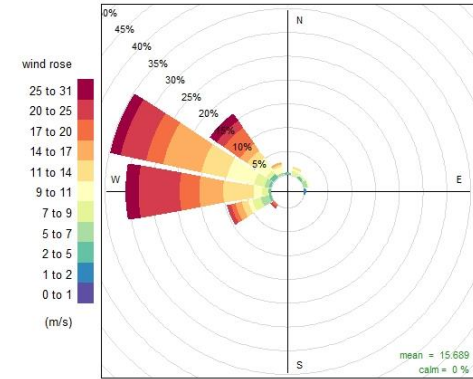


Frequency of counts by wind direction (%)

# Lucknow      April      300 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |   | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 |
| 12-33 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |   | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 79-101 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |   | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |   | 0 | 0 | 0.5 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 0 | 0 |
| 214-236 |   | 0 | 0 | 0 | 0.5 | 0 | 0 | 1.6 | 0.5 | 0.5 | 0 | 0.5 |
| 237-258 |   | 0 | 0 | 0 | 0 | 0 | 1.1 | 0.5 | 3.3 | 1.6 | 2.7 | 7.1 |
| 259-281 |   | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 2.2 | 2.7 | 2.7 | 6 | 20.7 |
| 282-303 |   | 0 | 0 | 0 | 0 | 0 | 0.5 | 1.6 | 1.6 | 1.6 | 4.3 | 16.3 |
| 304-326 |   | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | 3.3 | 1.1 | 0.5 | 5.4 |
| 327-348 |   | 0 | 0 | 0 | 0.5 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 |
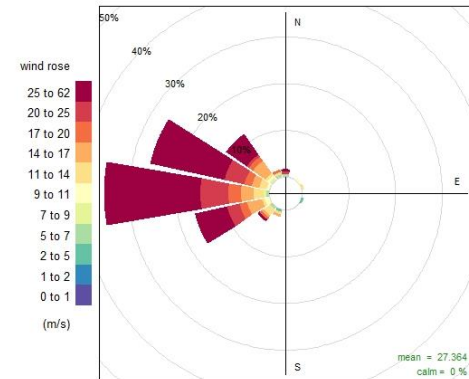


Frequency of counts by wind direction (%)

## Lucknow     April     200 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.6 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.2 | 1.2 |
| 237-258 | | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 0 | 1.2 | 5.6 | 14.8 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.5 | 3.7 | 5.6 | 29 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0.6 | 2.5 | 0.6 | 1.2 | 1.9 | 16 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.9 | 0 | 2.5 | 3.7 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 1.2 | 0 | 0 | 0 | 0 |
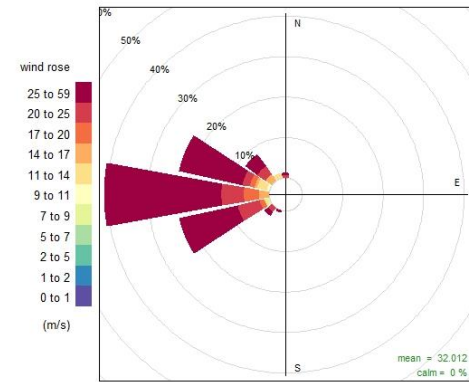


Frequency of counts by wind direction (%)

## Lucknow     April     100 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 1.3 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.7 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0.7 | 0 | 1.3 | 0 | 0 | 0.7 | 0.7 |
| 237-258 | | 0.7 | 0 | 0.7 | 0.7 | 0.7 | 0.7 | 1.3 | 1.3 | 2 | 2.7 | 8.7 |
| 259-281 | | 0 | 0 | 0.7 | 1.3 | 1.3 | 2.7 | 6.7 | 2 | 6 | 9.4 | 10.7 |
| 282-303 | | 0 | 0 | 0.7 | 2 | 2 | 2.7 | 0.7 | 1.3 | 1.3 | 5.4 | 4 |
| 304-326 | | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 1.3 | 0 | 2 |
| 327-348 | | 0.7 | 0 | 2.7 | 0.7 | 0 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow  May  1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | | | | | | | | | | | |
| 12-33 | | | | | | | | | | | | |
| 34-56 | | | | | | | | | | | | |
| 57-78 | | | | | | | | | | | | |
| 79-101 | | | | | | | | | | | | |
| 102-123 | | | | | | | | | | | | |
| 124-146 | | | | | | | | | | | | |
| 147-168 | | | | | | | | | | | | |
| 168-191 | | | | | | | | | | | | |
| 192-213 | | | | | | | | | | | | |
| 214-236 | | | | | | | | | | | | |
| 237-258 | | | | | | | | | | | | |
| 259-281 | | | | | | | | | | | | |
| 282-303 | | | | | | | | | | | | |
| 304-326 | | | | | | | | | | | | |
| 327-348 | | | | | | | | | | | | |

## Lucknow  May  925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.8 | 0.4 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.8 | 0 | 3.4 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 1.5 | 1.1 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.8 | 0.4 | 1.5 | 0.4 | 0.4 | 1.1 | 0.4 | 0 | 0.4 | 0 | 0 |
| 79-101 | | 0 | 0.8 | 1.9 | 0.4 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0.4 | 1.1 | 3.8 | 1.9 | 0.8 | 1.1 | 1.5 | 0.8 | 0.4 | 0 |
| 124-146 | | 0 | 0.8 | 5.7 | 3.1 | 3.1 | 1.1 | 0.8 | 0.4 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 2.3 | 3.1 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.8 | 0 | 2.7 | 1.1 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0.4 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.4 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.4 | 0.8 | 2.3 | 1.5 | 0 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 |
| 282-303 | | 0.4 | 0 | 1.9 | 2.3 | 1.1 | 0.8 | 0 | 0 | 0.4 | 0.8 | 0.8 |
| 304-326 | | 0 | 0 | 2.3 | 1.1 | 1.5 | 1.1 | 0.4 | 0.4 | 0.4 | 0.4 | 1.1 |
| 327-348 | | 0.8 | 1.1 | 2.3 | 1.1 | 1.1 | 1.5 | 1.1 | 0.4 | 0.8 | 0.4 | 0 |



wind rose

25 to 39
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

20%
15%
10%
5%

N
E
S
W

mean = 7.3511
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow      May      850 hPa level
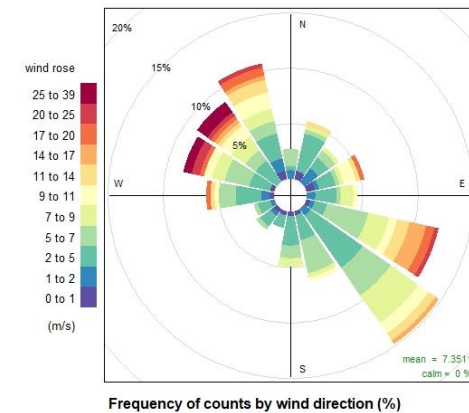
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.8 | 1.1 | 0.8 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.4 | 0.8 | 1.5 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.8 | 1.1 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0.4 | 2.3 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 1.5 | 0 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 1.5 | 0.8 | 0.8 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 1.1 | 0.8 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.4 | 2.3 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 1.9 | 0.4 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 1.1 | 1.1 | 2.3 | 1.1 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.8 | 0.4 | 5 | 1.9 | 1.1 | 1.1 | 0.4 | 0.4 | 0.4 | 0 | 0.4 |
| 282-303 | | 0 | 0.4 | 2.7 | 4.6 | 2.7 | 1.9 | 0.8 | 1.5 | 0.4 | 0.8 | 0.8 |
| 304-326 | | 0 | 0.4 | 3.1 | 5.3 | 1.5 | 4.6 | 4.2 | 1.1 | 0.8 | 0.8 | 0.4 |
| 327-348 | | 0.8 | 1.5 | 4.2 | 1.5 | 1.5 | 0.4 | 0.8 | 0 | 0.8 | 0.4 | 0 |



wind rose

25 to 38
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 7.7099
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow      May      700 hPa level
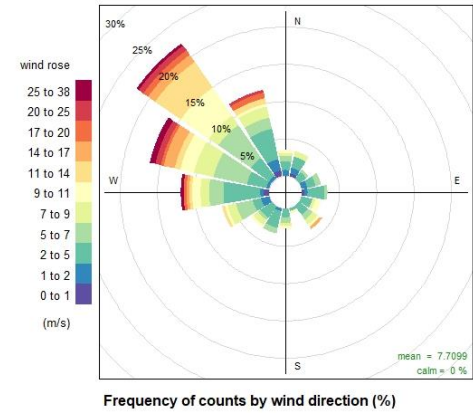
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0 | 0.4 | 0.8 | 0.8 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.8 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 1.2 | 0 | 1.6 | 0.4 | 0.4 | 0 | 0 | 0.4 | 0 |
| 259-281 | | 0 | 0 | 0.4 | 1.6 | 1.2 | 2.4 | 2 | 1.6 | 0.4 | 0.4 | 0 |
| 282-303 | | 0 | 0 | 1.2 | 1.2 | 2.8 | 4.3 | 8.7 | 4.3 | 4.3 | 2 | 2.8 |
| 304-326 | | 0 | 0 | 0.4 | 0 | 4.7 | 5.9 | 9.4 | 6.7 | 6.3 | 2 | 1.6 |
| 327-348 | | 0 | 0 | 0.8 | 0.4 | 0.8 | 3.1 | 1.6 | 1.2 | 0.8 | 0 | 0.4 |



wind rose

25 to 47
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 13.673
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow          May          500 hPa level
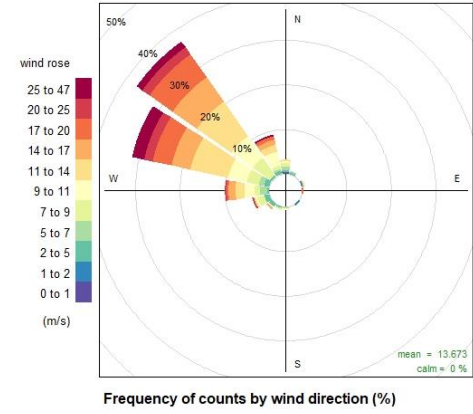
| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0.9 | 0.9 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 |
| 34-56 | | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 |
| 57-78 | | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.5 | 0.9 | 0.5 | 0 | 1.8 | 1.4 | 0 | 0.5 | 0.9 |
| 259-281 | | 0 | 0.5 | 0.9 | 1.4 | 1.4 | 0.9 | 1.4 | 5.4 | 2.3 | 1.8 | 0.9 |
| 282-303 | | 0 | 0.5 | 0.5 | 1.8 | 1.8 | 4.5 | 5.9 | 9 | 5 | 2.7 | 3.2 |
| 304-326 | | 0 | 0 | 2.3 | 0.5 | 2.3 | 1.8 | 5 | 5.9 | 5 | 3.2 | 0.9 |
| 327-348 | | 0 | 0.5 | 0 | 0.5 | 0.5 | 2.3 | 3.2 | 0.9 | 0.5 | 0.9 | 0.5 |
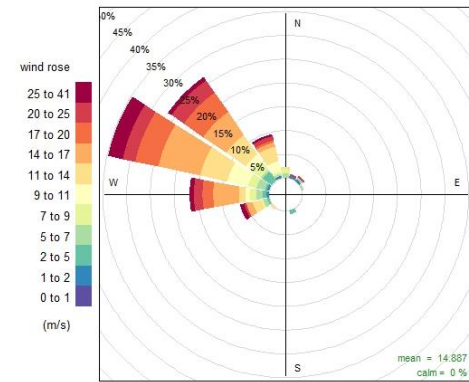


Frequency of counts by wind direction (%)

## Lucknow          May          300 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 1.1 | 0 | 0 | 0.5 | 0.5 | 0.5 | 1.1 | 0.5 |
| 237-258 | | 0 | 0 | 0.5 | 0 | 0.5 | 1.6 | 0.5 | 0 | 0.5 | 2.7 | 8.7 |
| 259-281 | | 0 | 0 | 0 | 1.1 | 1.1 | 1.6 | 4.3 | 3.8 | 2.7 | 2.7 | 9.2 |
| 282-303 | | 0 | 0 | 1.1 | 1.6 | 1.6 | 0.5 | 4.3 | 2.7 | 1.6 | 9.8 | 10.9 |
| 304-326 | | 0 | 0 | 0.5 | 0 | 0.5 | 1.1 | 2.2 | 2.2 | 0.5 | 2.2 | 2.7 |
| 327-348 | | 0 | 0.5 | 0 | 0 | 0.5 | 1.6 | 1.6 | 0.5 | 0.5 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow     May     200 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0 | 0.7 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 1.3 | 0 | 2 | 0.7 | 0 | 0.7 | 3.3 |
| 237-258 | | 0.7 | 0 | 1.3 | 0.7 | 1.3 | 2 | 2.6 | 1.3 | 3.3 | 3.9 | 3.3 |
| 259-281 | | 0 | 0 | 0.7 | 0 | 0.7 | 3.3 | 3.9 | 2 | 2 | 2.6 | 12.5 |
| 282-303 | | 0 | 0 | 1.3 | 0 | 0.7 | 2 | 4.6 | 5.9 | 2.6 | 3.3 | 7.9 |
| 304-326 | | 0 | 0.7 | 1.3 | 0.7 | 0 | 0.7 | 0 | 2 | 1.3 | 0.7 | 2 |
| 327-348 | | 0 | 0 | 0.7 | 0 | 2 | 0 | 0 | 1.3 | 0 | 0 | 0 |



**Frequency of counts by wind direction (%)**

## Lucknow     May     100 hPa level
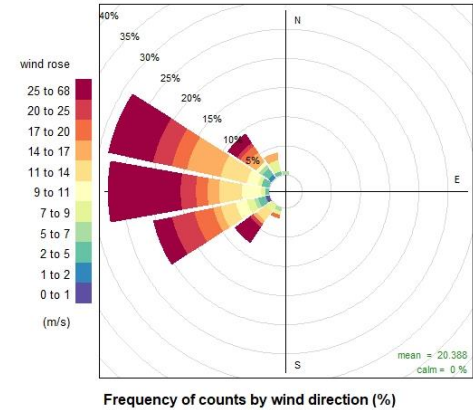
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.9 | 2.6 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 2.6 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.9 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 1.7 | 0 | 3.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 3.4 | 2.6 | 1.7 | 2.6 | 0.9 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0.9 | 0.9 | 3.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.9 | 0.9 | 1.7 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.9 | 0.9 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 1.7 | 1.7 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.9 | 0.9 | 2.6 | 1.7 | 2.6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.9 | 0.9 | 0.9 | 0.9 | 1.7 | 0 | 0 | 0 | 0 | 0.9 |
| 259-281 | | 0 | 0 | 3.4 | 4.3 | 1.7 | 5.2 | 1.7 | 1.7 | 0 | 0 | 0.9 |
| 282-303 | | 0 | 0 | 3.4 | 2.6 | 1.7 | 0.9 | 0.9 | 0 | 0.9 | 0.9 | 0.9 |
| 304-326 | | 0 | 0 | 4.3 | 1.7 | 0 | 1.7 | 0 | 0 | 0.9 | 0 | 0 |
| 327-348 | | 0 | 0 | 0.9 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |



**Frequency of counts by wind direction (%)**

## Lucknow    June    1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | | | | | | | | | | | |
| 12-33 | | | | | | | | | | | | |
| 34-56 | | | | | | | | | | | | |
| 57-78 | | | | | | | | | | | | |
| 79-101 | | | | | | | | | | | | |
| 102-123 | | | | | | | | | | | | |
| 124-146 | | | | | | | | | | | | |
| 147-168 | | | | | | | | | | | | |
| 168-191 | | | | | | | | | | | | |
| 192-213 | | | | | | | | | | | | |
| 214-236 | | | | | | | | | | | | |
| 237-258 | | | | | | | | | | | | |
| 259-281 | | | | | | | | | | | | |
| 282-303 | | | | | | | | | | | | |
| 304-326 | | | | | | | | | | | | |
| 327-348 | | | | | | | | | | | | |

## Lucknow    June    925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0 | 2 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 1.6 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 1.2 | 0.4 | 0.8 | 0 | 0.4 | 1.2 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0.4 | 2.4 | 2.4 | 2 | 2 | 1.6 | 0.4 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 2.8 | 3.2 | 2.4 | 2.4 | 1.2 | 0.4 | 0 | 0.8 | 0 |
| 124-146 | | 0 | 0.4 | 2 | 1.2 | 2.8 | 2.8 | 2 | 0.8 | 0.4 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 2 | 0.4 | 0.4 | 0.4 | 0.8 | 0 | 0 | 0 | 0 |
| 168-191 | | 1.2 | 0.8 | 0.8 | 0.4 | 0 | 0.4 | 0.8 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0.4 | 1.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0 | 2.4 | 0.8 | 0 | 0.8 | 0 | 0 | 0.4 | 0 | 0 |
| 237-258 | | 0 | 0.8 | 2 | 1.2 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.8 | 0.4 | 2.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 |
| 282-303 | | 0 | 0.4 | 2.4 | 0.8 | 0.8 | 2 | 0 | 0.4 | 0.4 | 0 | 0 |
| 304-326 | | 0.4 | 0.8 | 4 | 2 | 1.2 | 1.6 | 1.2 | 0.8 | 1.2 | 0.4 | 0 |
| 327-348 | | 0 | 0.4 | 1.2 | 0.8 | 0.8 | 0 | 0 | 0.8 | 0.4 | 0 | 0 |
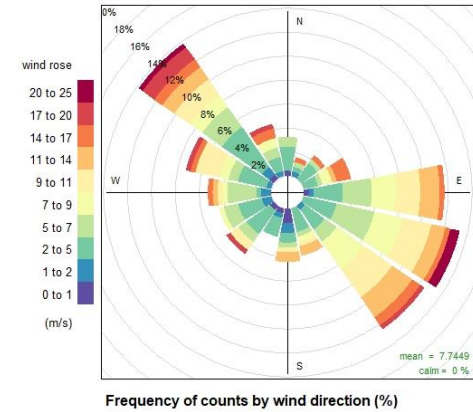


wind rose

20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 7.7449
calm = 0 %

Frequency of counts by wind direction (%)

## Lucknow     June     850 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.4 | 0.8 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 0 | 1.2 | 0.4 | 0 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0 |
| 79-101 | | 0 | 0 | 2.8 | 0.4 | 0 | 0.8 | 0.4 | 0.8 | 1.2 | 0.4 | 0 |
| 102-123 | | 0 | 0 | 3.6 | 1.6 | 0.8 | 0.4 | 0.8 | 1.2 | 0.4 | 0 | 0 |
| 124-146 | | 0.4 | 0 | 0.8 | 0.4 | 0.8 | 0.8 | 0.4 | 0 | 0.4 | 0 | 0 |
| 147-168 | | 0.4 | 0 | 1.6 | 0.8 | 0 | 0.8 | 0.4 | 0 | 0 | 0 | 0 |
| 168-191 | 0 | 0.8 | 0.4 | 4 | 0.8 | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 |
| 192-213 | | 0.8 | 0 | 2 | 0.8 | 0 | 0.8 | 0.4 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.4 | 1.2 | 0.8 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.8 | 3.2 | 0.8 | 0.8 | 1.2 | 0.4 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.8 | 0.4 | 2.8 | 2 | 1.2 | 0.8 | 0.8 | 0.8 | 0 | 0.4 | 0.4 |
| 282-303 | | 0.4 | 0 | 3.2 | 2.8 | 3.2 | 1.6 | 2.4 | 0.8 | 0.8 | 0.4 | 0.4 |
| 304-326 | | 0 | 0.4 | 2 | 2.8 | 4 | 0.8 | 1.6 | 2 | 1.6 | 0 | 0.4 |
| 327-348 | | 0 | 0.4 | 0.4 | 1.6 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 |
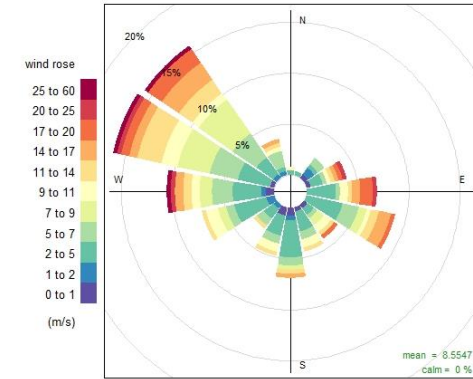


Frequency of counts by wind direction (%)

## Lucknow     June     700 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.4 | 1.7 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.4 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 0.9 | 1.3 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0.4 | 0.4 | 0.4 | 0.9 | 0 | 0.9 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0 | 0.9 | 1.3 | 1.7 | 0 | 2.2 | 0.9 | 0 | 0 | 0 |
| 102-123 | | 0 | 0.4 | 1.3 | 0.9 | 0 | 0 | 1.3 | 0.9 | 0.4 | 0.4 | 0 |
| 124-146 | | 0 | 0.4 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | 0 | 0.4 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.9 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 2.2 | 1.3 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 1.3 | 0.9 | 0.4 | 0.9 | 1.3 | 0.4 | 0 | 0.9 | 0 |
| 282-303 | | 0 | 0.4 | 2.2 | 5.2 | 1.7 | 3.9 | 5.2 | 2.6 | 1.7 | 0.9 | 2.2 |
| 304-326 | | 0 | 0 | 2.2 | 2.2 | 3.4 | 4.3 | 5.6 | 4.7 | 1.7 | 2.2 | 1.3 |
| 327-348 | | 0 | 0.4 | 0.9 | 0.4 | 0.4 | 0 | 2.6 | 0.9 | 0.4 | 0 | 0.4 |
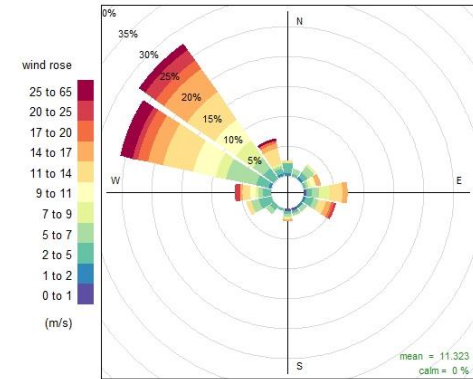


Frequency of counts by wind direction (%)

## Lucknow      June      500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0.5 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 |
| 12-33 | | 0 | 0.5 | 1.1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.5 | 1.1 | 3.2 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.5 | 0 | 0 | 1.6 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.5 | 1.6 | 1.6 | 0 | 1.1 | 0.5 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 1.1 | 0.5 | 0.5 | 1.1 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 1.6 | 0 | 0.5 | 1.1 | 0 | 0 | 0.5 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 1.1 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 1.1 | 1.1 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 1.1 | 2.7 | 0.5 | 1.6 | 1.6 | 0 | 0.5 | 0 | 0 |
| 259-281 | | 0 | 0.5 | 1.1 | 2.1 | 2.7 | 4.8 | 2.1 | 0 | 0 | 0 | 0.5 |
| 282-303 | | 1.1 | 0 | 2.1 | 3.2 | 2.1 | 3.7 | 4.8 | 1.6 | 2.1 | 0.5 | 1.1 |
| 304-326 | | 0.5 | 0 | 1.6 | 0.5 | 1.1 | 3.7 | 3.7 | 2.7 | 2.1 | 1.1 | 0 |
| 327-348 | | 0.5 | 0 | 2.1 | 0.5 | 1.1 | 0.5 | 0.5 | 1.1 | 1.1 | 0 | 0 |
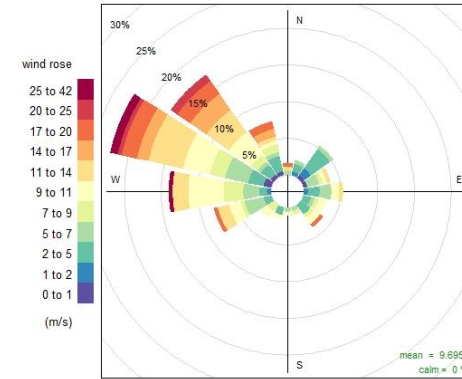


wind rose

25 to 42
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 9.6952
calm = 0 %

Frequency of counts by wind direction (%)

## Lucknow      June      300 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.6 | 0.6 | 1.8 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.6 | 0 | 1.8 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 1.2 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.6 | 1.8 | 1.2 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.6 | 0.6 | 0.6 | 0.6 | 1.2 | 0.6 | 0 | 0.6 | 0.6 | 0 | 0 |
| 102-123 | | 0.6 | 0 | 0.6 | 0.6 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 1.8 | 1.2 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 1 | 0 | 0 | 1.2 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 1.2 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 1.2 | 1.2 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.6 | 0 | 1.2 | 0 | 0 | 1.2 | 1.2 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.6 | 1.2 | 0 | 3 | 0.6 | 4.8 | 1.2 | 3.6 | 3.6 |
| 259-281 | | 0 | 0 | 2.4 | 1.8 | 0.6 | 3 | 6.6 | 1.2 | 1.2 | 2.4 | 1.2 |
| 282-303 | | 0 | 0 | 0.6 | 2.4 | 1.2 | 1.2 | 4.2 | 2.4 | 0.6 | 0.6 | 0.6 |
| 304-326 | | 0 | 0 | 2.4 | 0 | 1.2 | 0.6 | 0.6 | 0.6 | 1.2 | 0 | 0 |
| 327-348 | | 0 | 0 | 0.6 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 |
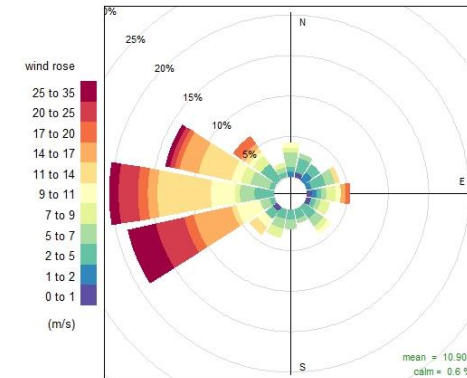


wind rose

25 to 35
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 10.904
calm = 0.6 %

Frequency of counts by wind direction (%)

## Lucknow      June      200 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.7 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.7 | 0 | 0.7 | 0 | 0.7 | 1.4 | 0.7 | 0 | 0.7 | 0 | 0 |
| 34-56 | | 0 | 0.7 | 1.4 | 1.4 | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 2 | 0 | 1.4 | 0 | 0 | 0 | 0.7 | 0 | 0 |
| 79-101 | | 0.7 | 0 | 0 | 1.4 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 1.4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0.7 | 0.7 | 0.7 | 1.4 | 0 | 0.7 | 0.7 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 2 | 0.7 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.7 | 0.7 | 0.7 | 1.4 | 0 | 0 | 0 | 0.7 | 0 |
| 214-236 | | 0 | 0 | 1.4 | 1.4 | 2.7 | 2 | 0 | 2.7 | 1.4 | 0.7 | 0 |
| 237-258 | | 0.7 | 1.4 | 2 | 1.4 | 2 | 1.4 | 0.7 | 1.4 | 1.4 | 2.7 | 1.4 |
| 259-281 | | 0 | 0.7 | 1.4 | 3.4 | 1.4 | 2.7 | 6.8 | 3.4 | 0 | 0.7 | 1.4 |
| 282-303 | | 1.4 | 0 | 1.4 | 0 | 0.7 | 0 | 0.7 | 1.4 | 0.7 | 2 | 0 |
| 304-326 | | 0 | 1.4 | 1.4 | 0 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0 | 0 | 0.7 | 0 | 0.7 | 0 | 0 | 0 | 0 |



wind rose
25 to 36
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 10.514
calm = 0 %

Frequency of counts by wind direction (%)

## Lucknow      June      100 hPa level
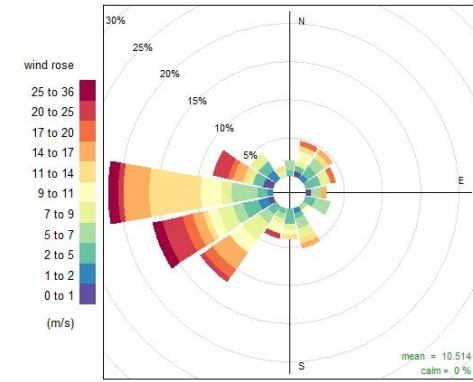
| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.9 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 1.7 | 0.9 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 2.6 | 1.7 | 0.9 | 0.9 | 3.5 | 0.9 | 0.9 | 0 | 0 |
| 57-78 | | 0.9 | 0 | 1.7 | 3.5 | 3.5 | 2.6 | 5.2 | 6.1 | 1.7 | 0 | 0 |
| 79-101 | | 0 | 0 | 0.9 | 3.5 | 0 | 6.1 | 7 | 6.1 | 0 | 0.9 | 0 |
| 102-123 | | 0 | 0 | 0 | 1.7 | 1.7 | 0.9 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | 0 | 0.9 | 0.9 | 3.5 | 0 | 0 | 0.9 | 0.9 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 0 | 0 | 0.9 | 0.9 | 0.9 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0.9 | 1.7 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 1.7 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.9 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 1.7 | 1.7 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 1.7 | 0.9 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.9 | 0 | 0.9 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



wind rose
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 9.1739
calm = 0 %

Frequency of counts by wind direction (%)

## Lucknow     July     1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | | | | | | | | | | | |
| 12-33 | | | | | | | | | | | | |
| 34-56 | | | | | | | | | | | | |
| 57-78 | | | | | | | | | | | | |
| 79-101 | | | | | | | | | | | | |
| 102-123 | | | | | | | | | | | | |
| 124-146 | | | | | | | | | | | | |
| 147-168 | | | | | | | | | | | | |
| 168-191 | | | | | | | | | | | | |
| 192-213 | | | | | | | | | | | | |
| 214-236 | | | | | | | | | | | | |
| 237-258 | | | | | | | | | | | | |
| 259-281 | | | | | | | | | | | | |
| 282-303 | | | | | | | | | | | | |
| 304-326 | | | | | | | | | | | | |
| 327-348 | | | | | | | | | | | | |

## Lucknow     July     925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| 12-33 | | 0 | 0.4 | 1.2 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.8 | 0.8 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.4 | 0.4 | 0.8 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.4 | 3.6 | 1.2 | 2.4 | 1.6 | 0.8 | 0.4 | 0.4 | 0 | 0 |
| 102-123 | | 0 | 0.4 | 5.2 | 4.8 | 2.4 | 0.8 | 2.4 | 1.6 | 0.4 | 0.4 | 0.4 |
| 124-146 | | 0.4 | 0.8 | 2.4 | 2 | 0.8 | 0.4 | 1.2 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0.8 | 0.8 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 3.6 | 0.4 | 1.2 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.8 | 0.4 | 0.8 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 1.6 | 1.2 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 0 | 1.2 | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.8 | 0 | 2 | 1.2 | 0.8 | 1.2 | 2.8 | 0.8 | 0.8 | 0 | 0 |
| 282-303 | | 0 | 0.4 | 3.6 | 0.8 | 1.6 | 2.8 | 3.2 | 3.2 | 0 | 0.8 | 0.4 |
| 304-326 | | 0.8 | 0.8 | 3.6 | 1.2 | 0.4 | 0 | 1.2 | 0 | 0.4 | 0 | 0 |
| 327-348 | | 0 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



wind rose

25 to 46
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 7.759
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow    July    850 hPa level
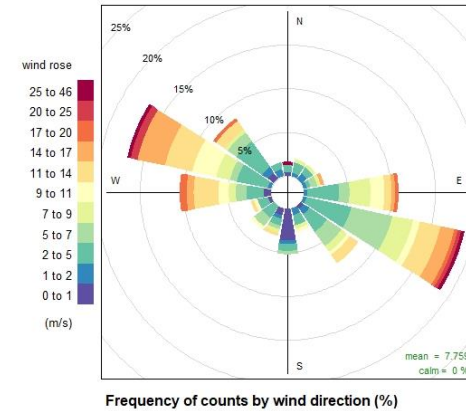
| Direction / Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.4 | 0 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 0.4 | 1.6 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 |
| 79-101 | | 0.4 | 0.8 | 2.5 | 2.5 | 1.2 | 1.6 | 0 | 2 | 0 | 0 | 0 |
| 102-123 | | 0 | 0.8 | 4.1 | 3.3 | 0.8 | 2 | 1.6 | 2 | 1.2 | 0.4 | 0.4 |
| 124-146 | | 0.4 | 0 | 2.9 | 2.5 | 0.4 | 0.8 | 0.4 | 0 | 0.4 | 0 | 0 |
| 147-168 | 0 | 0 | 0.4 | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.8 | 0.4 | 1.6 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 2 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.4 | 0 | 0.8 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 1.2 | 1.2 | 0.4 | 0 | 0.8 | 0 | 0 | 0.4 | 0 | 0 |
| 259-281 | | 0.8 | 0.4 | 2.9 | 2.9 | 2 | 2 | 0.8 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.8 | 0 | 1.6 | 2 | 2.5 | 2.9 | 3.3 | 3.3 | 0.8 | 0 | 1.2 |
| 304-326 | | 0 | 0.4 | 3.3 | 0.8 | 1.6 | 0.8 | 1.2 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0.4 | 0.4 | 1.2 | 0 | 0 | 0.4 | 0 | 0 | 0 |
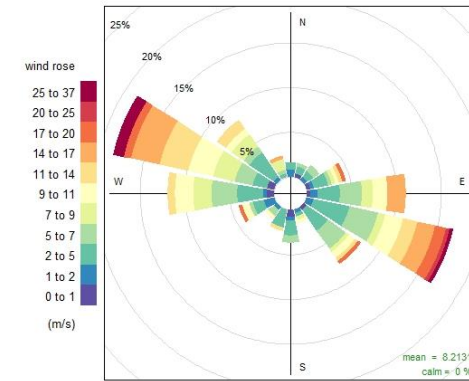


wind rose

25 to 37
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 8.2131
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow    July    700 hPa level

| Direction / Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.9 | 0.5 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.5 | 0.5 | 3.6 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.9 | 0 | 2.3 | 0 | 0.5 | 0 | 0 | 0.5 | 0.5 | 0 | 0 |
| 79-101 | | 0.5 | 0 | 3.6 | 1.4 | 3.2 | 1.8 | 1.4 | 0.5 | 0.5 | 0 | 0 |
| 102-123 | | 0.5 | 0 | 3.2 | 0.9 | 1.8 | 1.8 | 1.4 | 0.5 | 0.5 | 0 | 0 |
| 124-146 | | 0.5 | 0.9 | 1.4 | 1.8 | 1.4 | 0.9 | 1.4 | 0 | 0.5 | 0 | 0 |
| 147-168 | 0 | 0 | 0.5 | 1.8 | 1.4 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 |
| 168-191 | | 0.5 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.9 | 0.9 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.5 | 0.9 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.9 | 0.9 | 1.8 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.5 | 0 | 3.6 | 1.8 | 0.9 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0.5 | 3.2 | 4.1 | 3.2 | 1.4 | 1.8 | 0.5 | 0 | 0 | 0 |
| 304-326 | | 0.5 | 0.5 | 2.7 | 1.8 | 4.1 | 2.3 | 2.3 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0.9 | 0 | 1.4 | 0.5 | 0 | 0.5 | 0 | 0 | 0 |
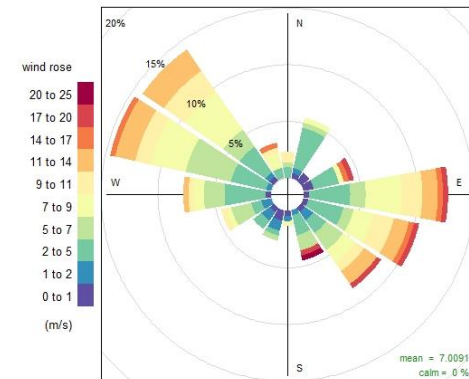


wind rose

20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 7.0091
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow      July      500 hPa level

| Direction / Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 1.1 | 0.6 | 0.6 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.6 | 0 | 1.7 | 0.6 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 2.8 | 1.1 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.6 | 2.2 | 2.8 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 1.7 | 0.6 | 8.9 | 2.8 | 4.5 | 1.1 | 2.2 | 0.6 | 0 | 0 | 0 |
| 102-123 | | 0 | 1.7 | 2.8 | 4.5 | 1.7 | 1.1 | 1.7 | 2.2 | 0 | 0 | 0 |
| 124-146 | | 0 | 0.6 | 3.4 | 2.2 | 1.7 | 0 | 0.6 | 0.6 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 1.7 | 1.7 | 0.6 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.6 | 0 | 3.4 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.6 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.6 | 0 | 1.7 | 1.1 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 0.6 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0.6 | 2.8 | 0 | 0 | 1.1 | 0.6 | 0.6 | 0 | 0 | 0 |
| 304-326 | | 0.6 | 0.6 | 2.8 | 0.6 | 0 | 1.7 | 0 | 0.6 | 0.6 | 0 | 0 |
| 327-348 | | 0.6 | 0 | 2.2 | 0 | 0.6 | 0 | 0.6 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow      July      300 hPa level
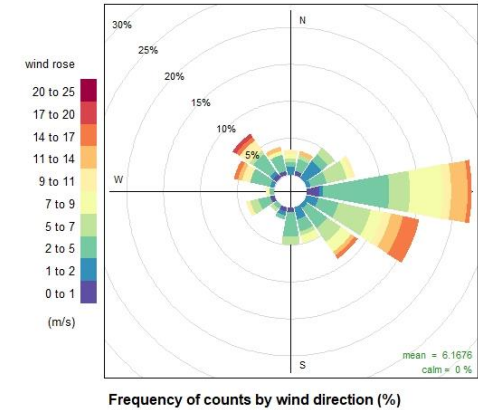
| Direction / Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0.6 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 1.3 | 1.3 | 0.6 | 0 | 0.6 | 0.6 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.6 | 0.6 | 2.5 | 3.8 | 0.6 | 0.6 | 1.9 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.6 | 5.7 | 3.2 | 2.5 | 8.2 | 3.2 | 1.3 | 1.3 | 0 | 0.6 |
| 102-123 | | 0 | 0 | 4.4 | 4.4 | 2.5 | 4.4 | 5.7 | 0.6 | 0.6 | 0 | 0 |
| 124-146 | | 0 | 0.6 | 1.9 | 1.3 | 1.9 | 1.9 | 1.3 | 0.6 | 0 | 0 | 0.6 |
| 147-168 | 0 | 0 | 0.6 | 2.5 | 1.9 | 1.9 | 0 | 0 | 0 | 1.3 | 0 | 0 |
| 168-191 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 1.3 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 1.3 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.6 | 0 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 |
| 282-303 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0.6 | 0.6 | 0 | 0.6 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 1.9 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

# Lucknow July 200 hPa level
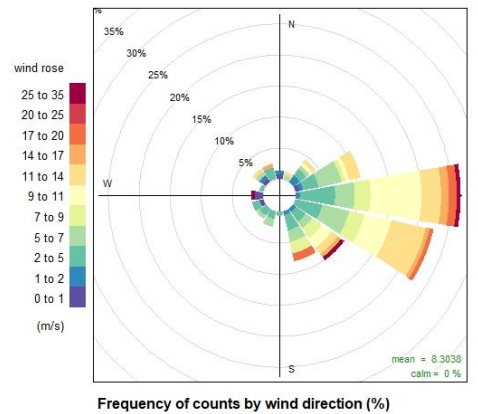
| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 1.4 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.7 | 0.7 | 2.1 | 0 | 1.4 | 0 | 0.7 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.7 | 0.7 | 2.1 | 1.4 | 2.1 | 1.4 | 2.1 | 3.6 | 0.7 | 1.4 |
| 79-101 | | 0 | 0.7 | 2.9 | 2.9 | 4.3 | 5.7 | 6.4 | 6.4 | 2.1 | 2.9 | 2.1 |
| 102-123 | | 0 | 0 | 2.1 | 4.3 | 2.1 | 2.1 | 2.1 | 0.7 | 1.4 | 2.1 | 0 |
| 124-146 | 0 | 0 | 0 | 0.7 | 2.9 | 1.4 | 2.9 | 0.7 | 2.1 | 0.7 | 0 | 0 |
| 147-168 | | 0 | 0 | 0 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 1.4 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0.7 | 0.7 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
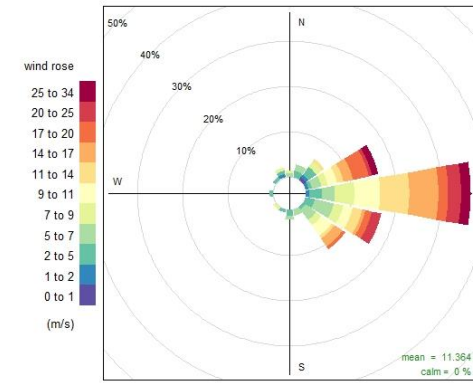


wind rose

25 to 34
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 11.364
calm = 0 %

Frequency of counts by wind direction (%)

# Lucknow July 100 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 1.9 | 0 | 1.9 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 1.9 | 6.6 | 13.2 | 4.7 | 0.9 | 0.9 |
| 79-101 | | 0 | 0 | 0 | 0.9 | 3.8 | 2.8 | 12.3 | 14.2 | 7.5 | 15.1 | 2.8 |
| 102-123 | | 0.9 | 0 | 0.9 | 0.9 | 0.9 | 0.9 | 0 | 0 | 0 | 1.9 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



wind rose

25 to 32
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 16.075
calm = 0 %

Frequency of counts by wind direction (%)

# Lucknow  August  1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | | | | | | | | | | | |
| 12-33 | | | | | | | | | | | | |
| 34-56 | | | | | | | | | | | | |
| 57-78 | | | | | | | | | | | | |
| 79-101 | | | | | | | | | | | | |
| 102-123 | | | | | | | | | | | | |
| 124-146 | | | | | | | | | | | | |
| 147-168 | | | | | | | | | | | | |
| 168-191 | | | | | | | | | | | | |
| 192-213 | | | | | | | | | | | | |
| 214-236 | | | | | | | | | | | | |
| 237-258 | | | | | | | | | | | | |
| 259-281 | | | | | | | | | | | | |
| 282-303 | | | | | | | | | | | | |
| 304-326 | | | | | | | | | | | | |
| 327-348 | | | | | | | | | | | | |

# Lucknow  August  925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | 0 | 0 | 1.1 | 1.1 | 0.7 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.4 | 0 | 0.7 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.7 | 0.7 | 2.5 | 0.4 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 |
| 79-101 | | 0.7 | 0.4 | 4.7 | 1.1 | 5.8 | 0.7 | 2.9 | 1.1 | 0 | 0 | 0 |
| 102-123 | | 0.7 | 0.4 | 5.8 | 4.3 | 4.7 | 2.2 | 2.2 | 0.7 | 0.4 | 0 | 0.4 |
| 124-146 | | 0.4 | 0 | 1.4 | 1.1 | 1.4 | 0 | 0.7 | 0.4 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 1.8 | 0.4 | 0.4 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 1.8 | 0 | 0.4 | 0.4 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.7 | 0 | 0.7 | 0.7 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.7 | 0.7 | 1.4 | 1.4 | 0 | 0.7 | 0.4 | 0 | 0 | 0 |
| 282-303 | | 0.4 | 0 | 2.5 | 2.2 | 2.9 | 1.8 | 2.2 | 1.1 | 0.4 | 0 | 0 |
| 304-326 | | 0 | 0.7 | 3.3 | 2.9 | 1.4 | 1.1 | 1.8 | 0.4 | 0 | 0 | 0 |
| 327-348 | | 0 | 0.7 | 1.1 | 1.1 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
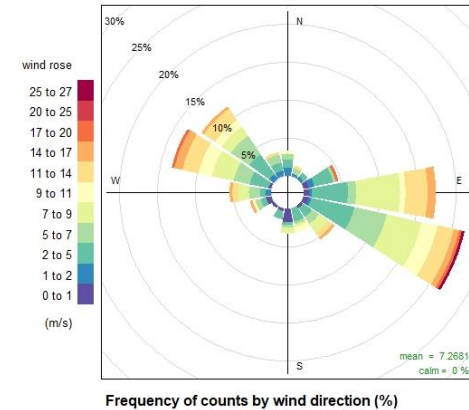


wind rose

25 to 27
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 7.2681
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow      August      850 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.4 | 0 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.4 | 0.4 | 1.5 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.7 | 0.4 | 0.4 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0.4 | 2.2 | 2.6 | 2.6 | 1.5 | 0.7 | 1.1 | 1.1 | 0 | 0.7 |
| 102-123 | | 1.1 | 0 | 4.9 | 4.1 | 3.7 | 2.6 | 4.5 | 2.2 | 1.9 | 0.7 | 0.4 |
| 124-146 | 0 | 0.4 | 0.4 | 0.4 | 1.9 | 1.9 | 0.4 | 1.1 | 0.4 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 1.1 | 0.7 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.4 | 0.4 | 0.4 | 0.4 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0.4 | 0.4 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.4 | 0.7 | 0.7 | 0.4 | 0.7 | 1.1 | 0.4 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0.4 | 3.4 | 1.1 | 2.6 | 3.4 | 1.1 | 0.4 | 0 | 0.4 | 0 |
| 304-326 | | 0 | 1.1 | 3 | 2.6 | 3 | 2.6 | 2.2 | 0.7 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 2.2 | 0.7 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 |



wind rose
25 to 36
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 8.2584
calm = .0.4 %

Frequency of counts by wind direction (%)

# Lucknow      August      700 hPa level
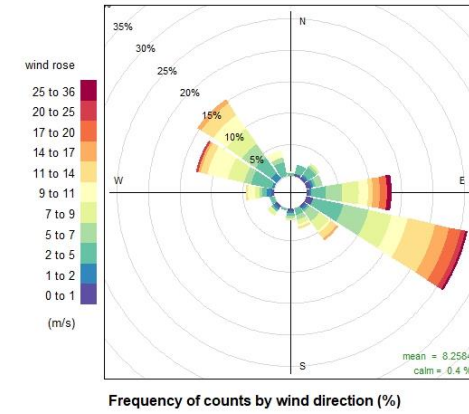
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.8 | 0 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.8 | 0 | 0.8 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.8 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.8 | 0 | 2.8 | 1.2 | 1.6 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 |
| 79-101 | | 0 | 0.4 | 4.4 | 0.8 | 2.4 | 1.2 | 2 | 0.4 | 0 | 0.4 | 0.4 |
| 102-123 | | 0.4 | 0 | 2.4 | 5.6 | 2.4 | 2.4 | 3.2 | 0.4 | 0.4 | 1.2 | 0.4 |
| 124-146 | | 0 | 0 | 3.6 | 1.6 | 0.8 | 1.2 | 2 | 0.4 | 0 | 0 | 0 |
| 147-168 | 0 | 0.4 | 0.4 | 0.4 | 0.4 | 1.2 | 0.8 | 0 | 0.4 | 0 | 0 | 0 |
| 168-191 | | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0 | 1.2 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.4 | 0.4 | 1.6 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.4 | 1.6 | 2 | 2.8 | 1.6 | 0.4 | 0.8 | 0 | 0 | 0 | 0 |
| 304-326 | | 1.2 | 0 | 2.4 | 3.2 | 1.6 | 1.6 | 1.2 | 0.8 | 0 | 0.4 | 1.2 |
| 327-348 | | 0 | 0.8 | 3.2 | 1.6 | 1.2 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |



wind rose
25 to 47
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 7.759
calm = 0 %

Frequency of counts by wind direction (%)

# Lucknow    August    500 hPa level
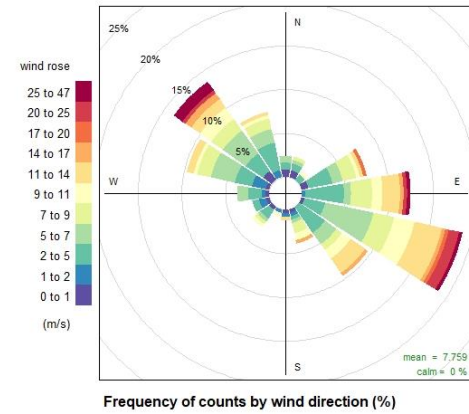
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | 0 | 0.5 | 0 | 2.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.5 | 1.4 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.5 | 0.9 | 2.3 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0.5 |
| 57-78 | | 0.5 | 0 | 2.8 | 2.8 | 1.8 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 79-101 | | 1.8 | 0 | 6.9 | 3.7 | 1.8 | 1.4 | 0.9 | 0.5 | 0.5 | 0 | 0.5 |
| 102-123 | | 0.5 | 0.9 | 4.1 | 3.7 | 4.6 | 1.8 | 0.9 | 0.9 | 0.5 | 0.9 | 0 |
| 124-146 | | 0.9 | 0.5 | 2.8 | 3.7 | 1.8 | 1.4 | 0.5 | 0 | 0 | 0 | 0 |
| 147-168 | | 0.5 | 0.5 | 0.9 | 1.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.5 | 0.9 | 0.9 | 0.9 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.5 | 0.5 | 0.5 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.9 | 0.9 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.5 | 0.9 | 1.4 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 1.4 | 0.9 | 1.4 | 0 | 0.5 | 1.4 | 0.5 | 0.5 | 0 | 0 | 0 |
| 304-326 | | 0 | 0.5 | 1.8 | 0.9 | 0 | 0.5 | 0.5 | 0 | 0.5 | 0 | 0 |
| 327-348 | | 1.4 | 0.9 | 1.8 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
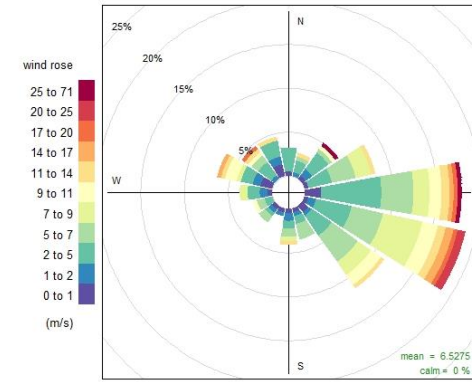


wind rose

25 to 71
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 6.5275
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow    August    300 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | 0 | 0 | 1 | 3.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 1.5 | 2.1 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 |
| 57-78 | | 0 | 0 | 2.6 | 1 | 1.5 | 1.5 | 0.5 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.5 | 0 | 8.7 | 4.6 | 3.1 | 1 | 1 | 1 | 0.5 | 0.5 | 0 |
| 102-123 | | 1.5 | 0.5 | 3.1 | 6.2 | 4.6 | 8.7 | 3.6 | 3.1 | 1.5 | 0 | 0.5 |
| 124-146 | | 0 | 0 | 4.1 | 2.6 | 3.1 | 0 | 1.5 | 1.5 | 1 | 0 | 0 |
| 147-168 | | 0 | 0 | 2.1 | 1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 1 | 1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 1 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.5 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0.5 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 304-326 | | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
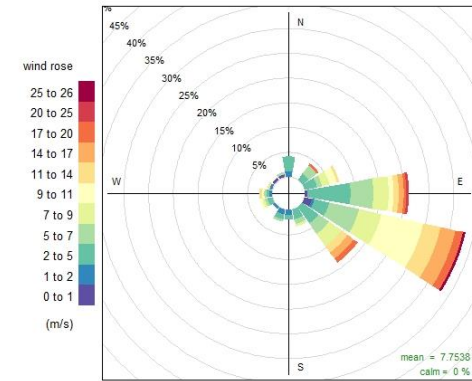


wind rose

25 to 26
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 7.7538
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow　　　　August　　　　200 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.6 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 1.1 | 0 | 0 | 0 | 1.1 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 1.1 | 0.6 | 0.6 | 0.6 | 0.6 | 0 | 0 | 0.6 | 0 |
| 57-78 | | 0 | 0.6 | 2.3 | 1.1 | 2.3 | 1.1 | 5.2 | 1.1 | 1.1 | 0.6 | 0 |
| 79-101 | | 0 | 0.6 | 1.7 | 2.9 | 2.3 | 2.9 | 4 | 1.7 | 2.9 | 1.7 | 1.7 |
| 102-123 | | 0 | 0.6 | 1.1 | 1.7 | 6.3 | 2.9 | 3.4 | 4 | 2.3 | 4 | 1.1 |
| 124-146 | | 0 | 0 | 1.7 | 1.1 | 2.9 | 0 | 0.6 | 1.1 | 1.1 | 1.1 | 0 |
| 147-168 | 0 | 0.6 | 0 | 1.7 | 1.7 | 0.6 | 1.7 | 1.1 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.6 | 0.6 | 1.1 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 1.7 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0.6 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
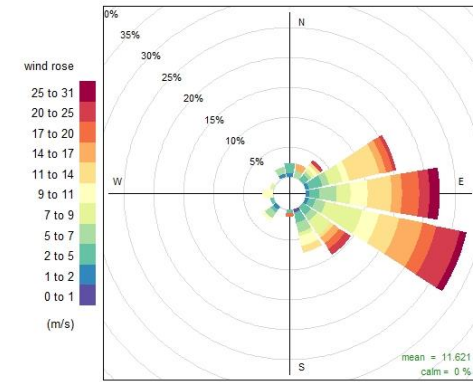


Frequency of counts by wind direction (%)

## Lucknow　　　　August　　　　100 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 1.5 | 0.8 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0.8 | 2.3 | 4.5 | 6.8 | 9 | 3 | 0.8 | 0.8 |
| 79-101 | | 0 | 0 | 0.8 | 1.5 | 6 | 6 | 12 | 12 | 8.3 | 1.5 | 0 |
| 102-123 | | 0 | 0 | 0 | 0.8 | 0 | 3 | 3.8 | 2.3 | 3 | 0.8 | 0.8 |
| 124-146 | | 0 | 0 | 0 | 0.8 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

# Lucknow  September  1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | | | | | | | | | | | |
| 12-33 | | | | | | | | | | | | |
| 34-56 | | | | | | | | | | | | |
| 57-78 | | | | | | | | | | | | |
| 79-101 | | | | | | | | | | | | |
| 102-123 | | | | | | | | | | | | |
| 124-146 | | | | | | | | | | | | |
| 147-168 | | | | | | | | | | | | |
| 168-191 | | | | | | | | | | | | |
| 192-213 | | | | | | | | | | | | |
| 214-236 | | | | | | | | | | | | |
| 237-258 | | | | | | | | | | | | |
| 259-281 | | | | | | | | | | | | |
| 282-303 | | | | | | | | | | | | |
| 304-326 | | | | | | | | | | | | |
| 327-348 | | | | | | | | | | | | |

# Lucknow  September  925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0.4 | 2.8 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.4 | 1.6 | 2.8 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 1.6 | 1.2 | 0 | 0.8 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 57-78 | | 1.2 | 1.6 | 4.8 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.4 | 4.8 | 2.4 | 1.2 | 1.6 | 0.8 | 0.8 | 0.4 | 0 | 0 |
| 102-123 | | 0 | 1.2 | 2.4 | 3.6 | 2 | 0.4 | 2 | 0.4 | 0.4 | 0.8 | 0 |
| 124-146 | | 0.4 | 0 | 2.8 | 1.6 | 1.6 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.8 | 0.4 | 1.6 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 |
| 168-191 | | 1.6 | 0.4 | 0.4 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| 192-213 | | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.4 | 0.8 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.8 | 3.2 | 0.8 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |
| 282-303 | | 0 | 1.2 | 4 | 2.4 | 0.8 | 0 | 1.2 | 0.4 | 0 | 0 | 0 |
| 304-326 | | 0.8 | 0 | 4.4 | 2.4 | 1.6 | 0.8 | 0.4 | 0.4 | 0 | 0.4 | 0 |
| 327-348 | | 0.8 | 0.8 | 2 | 1.6 | 0.4 | 1.2 | 0 | 0 | 0 | 0 | 0 |
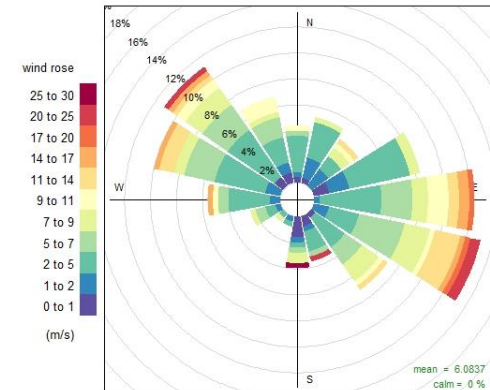
wind rose

25 to 30
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

18%
16%
14%
12%
10%
8%
6%
4%
2%

N
W
S

mean = 6.0837
calm = 0 %

**Frequency of counts by wind direction (%)**

# Lucknow    September    850 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0 | 4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 1.2 | 3.2 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.4 | 0 | 4 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.8 | 0.4 | 3.2 | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 1.6 | 1.6 | 2.8 | 2.8 | 0.4 | 0 | 0 | 0.8 | 0 | 0.4 |
| 102-123 | 0 | 0.8 | 0.4 | 2.4 | 0.8 | 1.2 | 1.2 | 2 | 1.2 | 0.8 | 0.4 | 0.4 |
| 124-146 | | 0 | 0.4 | 0.8 | 2 | 1.2 | 0 | 0.4 | 0.4 | 0 | 0 | 0 |
| 147-168 | | 0.4 | 0 | 0.8 | 0.8 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 1.2 | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.8 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 |
| 214-236 | | 0.8 | 0 | 1.2 | 0.4 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 |
| 259-281 | | 0.4 | 0.4 | 1.2 | 0.8 | 0 | 0.8 | 0.4 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.8 | 0 | 4 | 2 | 0.8 | 1.2 | 0.8 | 0 | 0.4 | 1.2 | 0 |
| 304-326 | | 0.4 | 0 | 5.6 | 3.6 | 3.2 | 2 | 2.8 | 1.2 | 0 | 0 | 0 |
| 327-348 | | 0.8 | 0.8 | 0.4 | 2.4 | 0.8 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

# Lucknow    September    700 hPa level
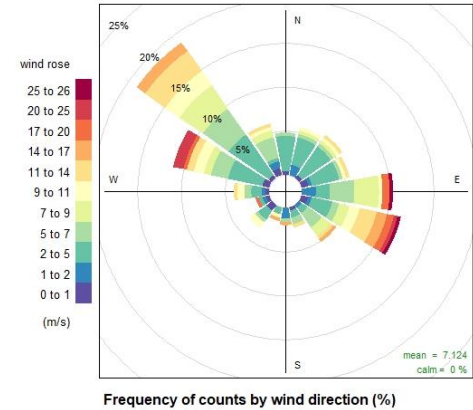
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0.4 | 2.9 | 0.4 | 1.2 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.8 | 0 | 2.5 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 34-56 | | 0.4 | 0 | 2.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 1.2 | 3.7 | 1.7 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.4 | 2.5 | 2.9 | 1.7 | 1.2 | 1.2 | 0.4 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0 | 2.5 | 2.5 | 1.2 | 1.2 | 1.7 | 0.8 | 0.8 | 0.4 | 0 |
| 124-146 | | 0 | 0.4 | 1.2 | 0.8 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 1.2 | 0 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 |
| 168-191 | | 0 | 0.4 | 0.8 | 0 | 0.8 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.8 | 0.4 | 1.2 | 0.4 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 1.2 | 0 | 0 | 0.8 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 1.7 | 1.7 | 1.2 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0.4 | 1.7 | 2.9 | 1.2 | 1.2 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0.4 | 2.5 | 4.5 | 2.1 | 2.5 | 0.8 | 0.4 | 0 | 0.4 | 0 |
| 327-348 | | 1.2 | 0.8 | 5 | 2.9 | 3.3 | 0.8 | 0.4 | 1.2 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

# Lucknow      September      500 hPa level
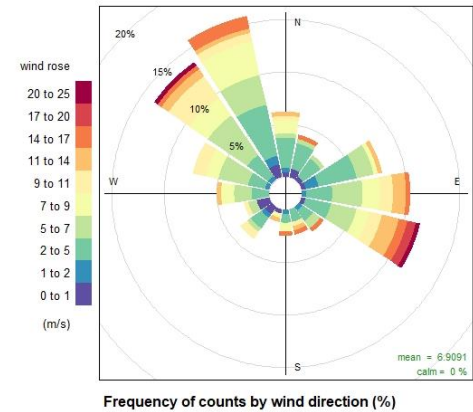
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |   | 0 | 0 | 1.8 | 0 | 1.4 | 0 | 0.5 | 0 | 0.5 | 0 | 0 |
| 12-33 |   | 0.9 | 0 | 0.9 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |   | 0 | 0 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |   | 0 | 0.5 | 2.3 | 0.5 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |   | 0.9 | 0.9 | 2.3 | 1.4 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 102-123 |   | 0.5 | 1.8 | 1.4 | 2.3 | 0.5 | 1.4 | 1.4 | 0.5 | 0 | 0 | 0 |
| 124-146 |   | 0.5 | 0.5 | 4.5 | 0.9 | 0.9 | 0.5 | 0.5 | 0.9 | 0 | 0 | 0 |
| 147-168 | 0 | 0.5 | 0 | 1.4 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |   | 0.5 | 0.5 | 2.3 | 0.9 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 |
| 192-213 |   | 0.5 | 0 | 0.9 | 0.9 | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 0 |
| 214-236 |   | 0 | 1.4 | 4.1 | 3.6 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 |
| 237-258 |   | 1.8 | 1.4 | 2.3 | 2.7 | 2.3 | 1.8 | 1.4 | 0.5 | 0 | 0 | 0 |
| 259-281 |   | 0.5 | 0.9 | 3.2 | 0.9 | 1.4 | 0.5 | 0 | 0.5 | 0 | 0 | 0 |
| 282-303 |   | 0.9 | 0.5 | 5.5 | 1.8 | 0.9 | 1.4 | 0.5 | 0 | 0 | 0 | 0 |
| 304-326 |   | 0 | 0 | 2.3 | 0.5 | 0.9 | 0.5 | 0 | 0.5 | 0.5 | 0 | 0 |
| 327-348 |   | 0.5 | 0 | 1.8 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

mean = 6.05   calm = 0 %

# Lucknow      September      300 hPa level
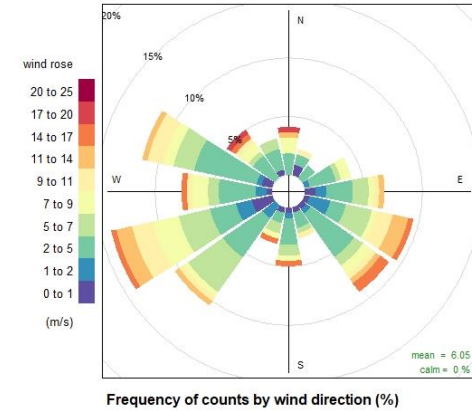
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |   | 0.5 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |   | 0 | 0.5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |   | 0.5 | 0 | 2.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |   | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |   | 0 | 0 | 1.5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |   | 0.5 | 1 | 2.5 | 1.5 | 0.5 | 1.5 | 0.5 | 0 | 0 | 0 | 0 |
| 124-146 |   | 0 | 1.5 | 2.5 | 2 | 0 | 1 | 0 | 0.5 | 0 | 0 | 0 |
| 147-168 | 0 | 0.5 | 0.5 | 2.5 | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 |
| 168-191 |   | 0 | 1 | 3 | 1 | 1 | 0.5 | 0 | 0.5 | 0 | 0 | 0 |
| 192-213 |   | 0 | 0.5 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |   | 0 | 0.5 | 3 | 1.5 | 3.4 | 1.5 | 1 | 0.5 | 0.5 | 0 | 0 |
| 237-258 |   | 1 | 0 | 3.9 | 3 | 2.5 | 4.9 | 1.5 | 1.5 | 1 | 0 | 0 |
| 259-281 |   | 0 | 0 | 2 | 1.5 | 3.4 | 1.5 | 2 | 1.5 | 1 | 0.5 | 0 |
| 282-303 |   | 0.5 | 0.5 | 1.5 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 0 | 0 |
| 304-326 |   | 0.5 | 0.5 | 0.5 | 1.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 |   | 0 | 1 | 0.5 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0.5 |



Frequency of counts by wind direction (%)

mean = 7.3153   calm = 0 %

## Lucknow      September      200 hPa level
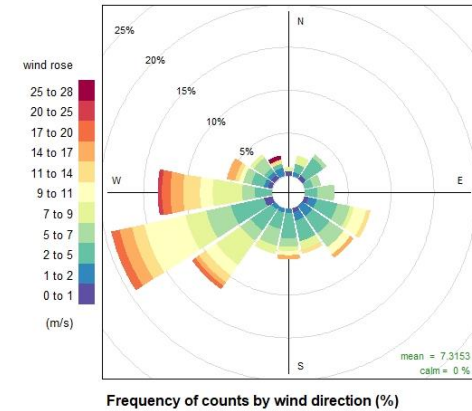
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 1.7 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 1.7 | 0.6 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.6 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.6 | 0.6 | 1.1 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 1.1 | 1.1 | 0.6 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0.6 | 2.2 | 1.1 | 0 | 0 | 0.6 | 0 | 0.6 | 0 | 0 |
| 124-146 | | 0 | 0 | 1.7 | 1.1 | 0.6 | 0 | 0 | 1.1 | 0.6 | 0 | 0 |
| 147-168 | 0 | 0.6 | 0 | 1.7 | 0.6 | 0 | 0 | 0 | 1.7 | 0.6 | 0.6 | 0 |
| 168-191 | | 0 | 0 | 2.2 | 0.6 | 0.6 | 1.1 | 1.1 | 0.6 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.6 | 1.1 | 2.2 | 3.4 | 0 | 0.6 | 1.1 | 0.6 | 0 | 0 |
| 214-236 | | 0 | 0.6 | 1.1 | 1.7 | 5.1 | 1.7 | 2.2 | 1.7 | 1.1 | 1.1 | 0.6 |
| 237-258 | | 0 | 0 | 0 | 1.1 | 1.1 | 3.9 | 2.2 | 0.6 | 1.1 | 0.6 | 0 |
| 259-281 | | 0 | 0.6 | 2.2 | 1.7 | 0.6 | 0 | 3.4 | 0.6 | 1.1 | 1.1 | 0 |
| 282-303 | | 0 | 0 | 2.8 | 3.4 | 1.1 | 1.1 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 1.1 | 0.6 | 0.6 | 0.6 | 1.7 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0 | 0.6 | 0.6 | 0 | 0 | 0.6 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow      September      100 hPa level
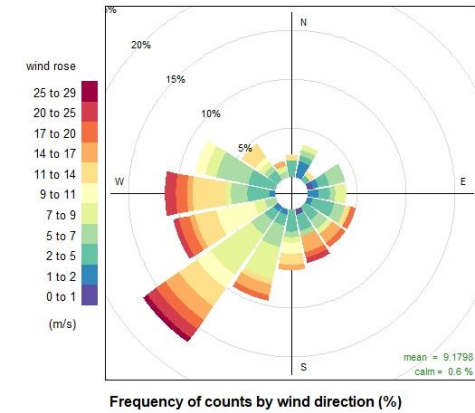
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.7 | 1.3 | 0.7 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 2.7 | 1.3 | 0.7 | 1.3 | 1.3 | 0.7 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 8.1 | 4 | 5.4 | 1.3 | 5.4 | 1.3 | 0 | 0 | 0 |
| 79-101 | | 0 | 1.3 | 2.7 | 4 | 3.4 | 2 | 2 | 1.3 | 0.7 | 0 | 0 |
| 102-123 | | 1.3 | 0 | 0.7 | 3.4 | 2 | 0 | 0.7 | 0.7 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 4.7 | 0.7 | 0 | 0 | 1.3 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0.7 | 1.3 | 2 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0.7 |
| 192-213 | | 0 | 0 | 0.7 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 1.3 | 0.7 | 0 | 0.7 | 1.3 | 0.7 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0 | 2 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 1.3 | 0.7 | 0 | 0.7 | 1.3 | 0 | 0 | 0.7 | 0.7 | 0.7 | 0 |
| 282-303 | | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow    October    1000 hPa level
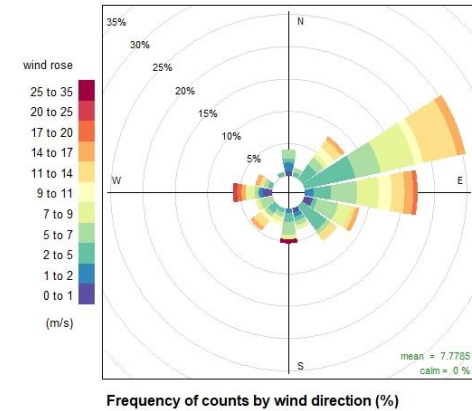
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 9.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 3.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 3.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 3.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
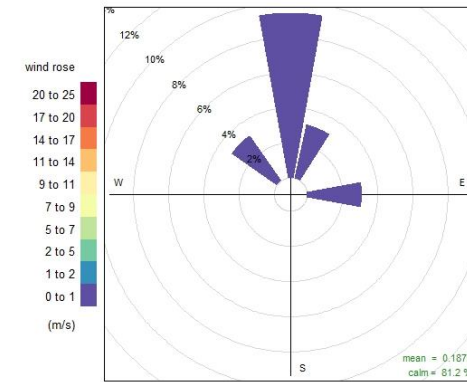


mean = 0.1875
calm = 81.2 %

Frequency of counts by wind direction (%)

## Lucknow    October    925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 1.1 | 0 | 3.2 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 |
| 12-33 | | 1.4 | 0.4 | 1.8 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 1.4 | 2.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 1.4 | 0.4 | 1.4 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.7 | 0.4 | 6.1 | 1.1 | 0.7 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 1.1 | 0 | 4 | 0.4 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 124-146 | | 0.4 | 0.4 | 2.2 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.4 | 0 | 0.7 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 1.8 | 1.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 1.1 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 1.1 | 1.1 | 2.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 1.1 | 0.4 | 1.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 1.4 | 0.7 | 4.3 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.4 | 1.1 | 3.6 | 1.8 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 304-326 | | 1.4 | 0 | 10.1 | 3.6 | 1.1 | 1.4 | 1.1 | 1.8 | 0 | 0 | 0 |
| 327-348 | | 0.7 | 0.4 | 6.1 | 2.9 | 1.4 | 0 | 1.1 | 0 | 0 | 0 | 0 |
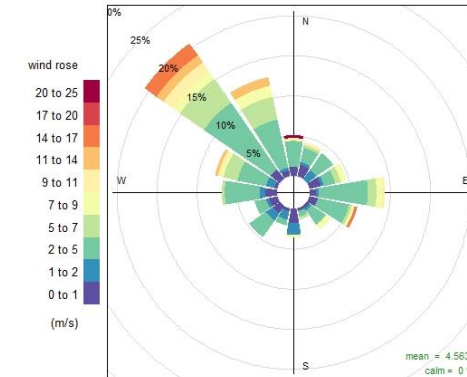


mean = 4.5632
calm = 0 %

Frequency of counts by wind direction (%)

# Lucknow October 850 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.7 | 3.3 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.7 | 0.4 | 3.3 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 3.3 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 1.1 | 2.9 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0.4 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 |
| 102-123 | | 0 | 0 | 1.5 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0.4 | 0.7 | 0.4 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 1.1 | 0.4 | 0.4 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.7 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.7 | 0.7 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.7 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 0.4 | 1.8 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 1.1 | 3.7 | 0 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.4 | 0.7 | 5.9 | 2.6 | 2.6 | 1.1 | 1.1 | 0.7 | 0 | 0 | 0 |
| 304-326 | | 0.4 | 0.7 | 8.8 | 5.5 | 3.3 | 4 | 2.2 | 1.8 | 0.7 | 0.7 | 0 |
| 327-348 | | 0.7 | 2.2 | 4 | 3.3 | 1.8 | 0.7 | 0.7 | 0 | 0 | 0 | 0 |
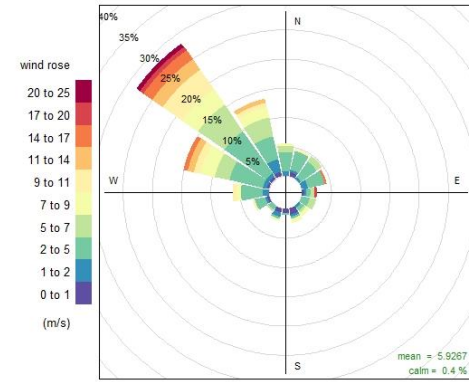


**Frequency of counts by wind direction (%)**

# Lucknow October 700 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.7 | 0.7 | 1.1 | 1.1 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 1.8 | 1.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.7 | 0.4 | 1.8 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 0.4 | 0.7 | 0.4 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| 79-101 | | 0 | 0 | 0.4 | 0.7 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.4 | 0.7 | 1.5 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.4 | 0 | 0.4 | 0.7 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 192-213 | | 0.7 | 0 | 2.2 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.4 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 1.1 | 2.9 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0.4 |
| 259-281 | | 0.4 | 0 | 1.5 | 1.5 | 2.2 | 0.4 | 0.7 | 0 | 0 | 0 | 0 |
| 282-303 | | 1.5 | 0.4 | 4 | 3.7 | 3.3 | 1.5 | 1.1 | 0.4 | 0 | 0 | 0 |
| 304-326 | | 0 | 1.1 | 4.4 | 4.8 | 7.3 | 5.9 | 2.6 | 1.5 | 0.4 | 0 | 0 |
| 327-348 | | 0 | 0.7 | 5.1 | 2.9 | 2.9 | 1.8 | 1.5 | 0 | 0 | 0 | 0 |
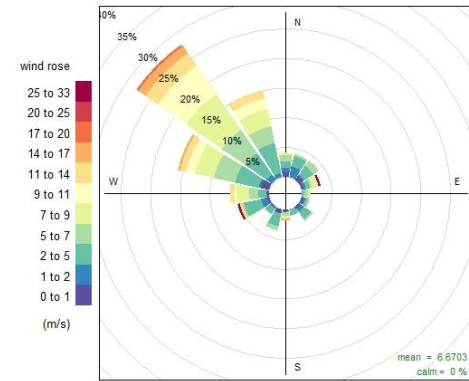


**Frequency of counts by wind direction (%)**

# Lucknow          October          500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0.8 | 0.4 | 1.6 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.4 | 0.4 | 0.4 | 0 | 0.4 | 0.4 | 0 | | 0 |
| 34-56 | | 0 | 0.4 | 0 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0.4 | 0.8 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 1.2 | 0.4 | 0.4 | 2.3 | 1.2 | 0.8 | 0.4 | 0 | 0 |
| 237-258 | | 0 | 0 | 2.7 | 1.6 | 3.9 | 5.5 | 2.3 | 0.8 | 0.8 | 0.4 | 0 |
| 259-281 | | 0.4 | 0.4 | 2.7 | 3.5 | 2.3 | 4.3 | 5.1 | 4.7 | 3.5 | 2 | 0.4 |
| 282-303 | | 0 | 0 | 1.6 | 1.2 | 3.9 | 3.9 | 3.5 | 2 | 0.8 | 0.4 | 0 |
| 304-326 | | 0 | 0 | 0.8 | 2.3 | 1.6 | 3.1 | 1.6 | 3.5 | 0.8 | 0 | 0 |
| 327-348 | | 0 | 0 | 1.6 | 0.8 | 0 | 1.2 | 0 | 0 | 0.4 | 0 | 0 |



wind rose

25 to 26
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 10.547
calm = 0 %

Frequency of counts by wind direction (%)

# Lucknow          October          300 hPa level
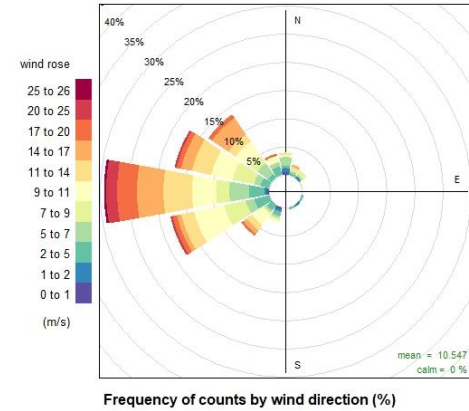
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0.9 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| 124-146 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 1.3 | 0.9 | 1.7 | 0 | 1.3 | 3.1 |
| 237-258 | | 0 | 0 | 0 | 0.4 | 0.4 | 2.2 | 2.2 | 3.1 | 1.7 | 6.6 | 13.5 |
| 259-281 | | 0 | 0 | 0 | 0 | 1.3 | 1.7 | 5.2 | 2.6 | 5.2 | 7.4 | 12.2 |
| 282-303 | | 0 | 0 | 0 | 0.4 | 0.9 | 0.9 | 0 | 2.6 | 3.1 | 3.9 | 3.9 |
| 304-326 | | 0 | 0.4 | 0 | 0 | 0.9 | 0.4 | 1.3 | 0.4 | 0 | 0.9 | 1.3 |
| 327-348 | | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 |
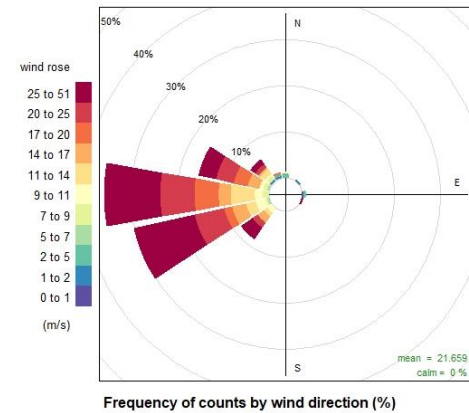


wind rose

25 to 51
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 21.659
calm = 0 %

Frequency of counts by wind direction (%)

**Lucknow**     **October**     **200 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.5 | 0 | 0 | 0.5 | 0 | 0 | 2 | 2.4 | 1 | 0 | 2.9 |
| 237-258 | | 0 | 0 | 0.5 | 0.5 | 0 | 2.4 | 3.4 | 2.4 | 3.4 | 7.3 | 17.6 |
| 259-281 | | 0 | 0 | 0.5 | 0 | 1 | 1 | 2.4 | 2.9 | 3.4 | 5.9 | 18.5 |
| 282-303 | | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | 1 | 2.4 | 1 | 2 | 4.9 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 1 | 0.5 | 1 | 0 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 |
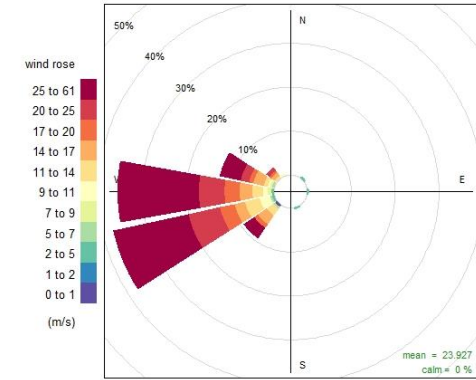


Frequency of counts by wind direction (%)

**Lucknow**     **October**     **100 hPa level**

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.6 | 2.3 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 1.2 | 2.3 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 1.2 | 2.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.6 | 0.6 | 1.2 | 0 | 0.6 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 1.2 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0.6 | 1.2 | 1.2 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.6 | 0 | 1.7 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 1.2 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 1.2 | 0.6 | 1.7 | 0.6 | 0 | 0 | 0.6 | 0 | 0 | 0.6 |
| 237-258 | | 0 | 0.6 | 4.7 | 1.7 | 2.3 | 2.9 | 1.2 | 2.3 | 1.2 | 1.2 | 2.9 |
| 259-281 | | 0 | 1.7 | 4.1 | 0.6 | 4.1 | 2.3 | 2.3 | 1.7 | 3.5 | 3.5 | 1.2 |
| 282-303 | | 0 | 1.2 | 4.1 | 0.6 | 1.7 | 2.3 | 1.2 | 1.7 | 0 | 0.6 | 0 |
| 304-326 | | 0.6 | 1.2 | 0 | 0.6 | 0 | 0.6 | 0.6 | 0.6 | 0 | 0 | 0 |
| 327-348 | | 0.6 | 1.2 | 2.3 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
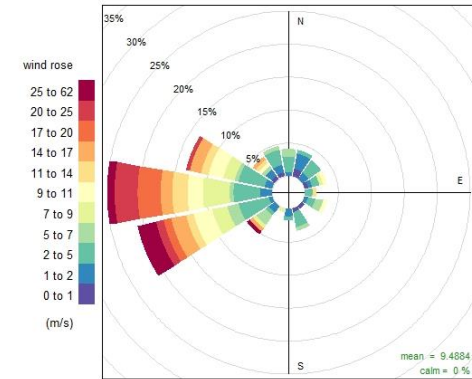


Frequency of counts by wind direction (%)

# Lucknow    November    1000 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 6.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 80 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0.8 | 1.5 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 2.3 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
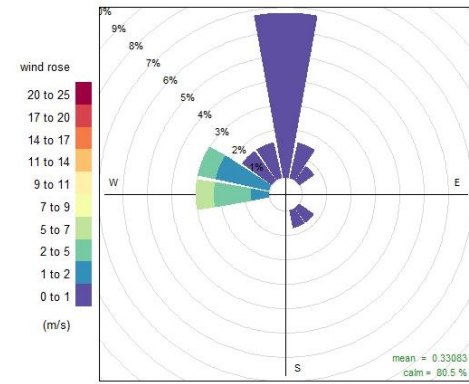


**Frequency of counts by wind direction (%)**

# Lucknow    November    925 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 1.6 | 1.2 | 2 | 2.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.8 | 1.2 | 2.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.8 | 0.8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.8 | 1.2 | 2.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 2.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 1.2 | 0 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.8 | 1.2 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0.4 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 1.6 | 2.8 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 1.6 | 5.5 | 0.8 | 2.4 | 0.4 | 0.4 | 0 | 0 | 0.8 | 0.4 |
| 304-326 | | 0.8 | 2.4 | 11.9 | 7.1 | 4 | 1.2 | 1.6 | 1.2 | 0.4 | 0 | 0 |
| 327-348 | | 0.8 | 1.2 | 7.5 | 2.4 | 1.6 | 0.8 | 0.8 | 0.4 | 0 | 0.4 | 0 |
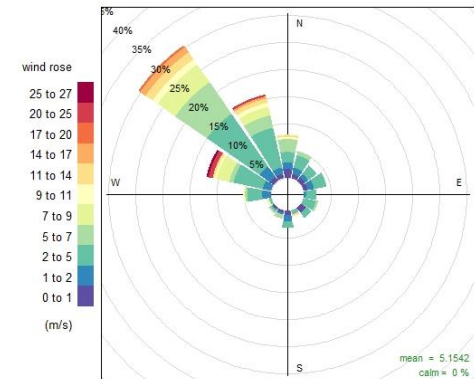


**Frequency of counts by wind direction (%)**

**Lucknow**　　　　　　　　**November**　　　　**850 hPa level**

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0.8 | 2.8 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0.4 | 0 | 1.2 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 0.4 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0.4 | 0.8 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 1.2 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.4 | 0.4 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.4 | 0.8 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.4 | 0.8 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.8 | 0.4 | 0.8 | 0.4 | 0.4 | 1.2 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 1.2 | 1.2 | 8.3 | 7.1 | 2 | 1.6 | 2 | 1.6 | 0.4 | 0 | 0.8 |
| 304-326 | | 0 | 1.2 | 7.5 | 7.5 | 6.7 | 3.6 | 5.1 | 2.4 | 0.8 | 0 | 0.4 |
| 327-348 | | 1.2 | 1.2 | 5.5 | 2.4 | 0.4 | 0.8 | 0 | 0.4 | 0 | 0.4 | 0 |
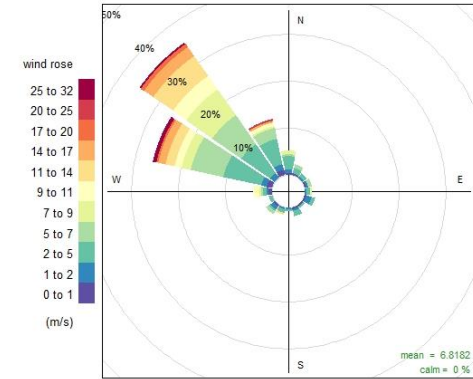


**Frequency of counts by wind direction (%)**

**Lucknow**　　　　　　　　**November**　　　　**700 hPa level**

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0.4 | 0.8 | 1.2 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 1.2 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.8 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0.4 | 0.4 | 0.4 | 0.8 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 259-281 | | 0.4 | 0 | 1.6 | 3.2 | 3.6 | 0.4 | 3.2 | 0.8 | 0.4 | 0.4 | 0 |
| 282-303 | | 0 | 0.4 | 3.2 | 4 | 4.3 | 6.3 | 5.5 | 1.6 | 0.4 | 0.4 | 0 |
| 304-326 | | 0 | 0.4 | 2.4 | 4.7 | 4 | 7.1 | 7.5 | 2 | 1.6 | 0.8 | 0.4 |
| 327-348 | | 0 | 0.8 | 4.3 | 2 | 2 | 1.6 | 2 | 1.2 | 0.8 | 0 | 0 |
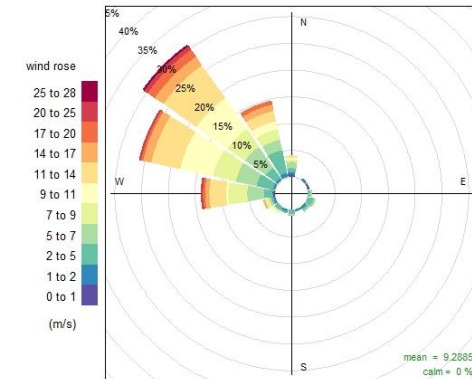


**Frequency of counts by wind direction (%)**

## Lucknow    November    500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 1.3 | 1.3 | 0.4 | 2.2 | 1.7 |
| 259-281 | | 0 | 0 | 0.9 | 0.4 | 1.3 | 3.9 | 5.6 | 6 | 4.3 | 3 | 3 |
| 282-303 | | 0 | 0 | 0 | 0.4 | 3 | 2.6 | 9.1 | 8.2 | 6.5 | 6.5 | 4.3 |
| 304-326 | | 0 | 0.4 | 0.9 | 0 | 1.3 | 1.7 | 3 | 3 | 3.4 | 0.9 | 1.7 |
| 327-348 | | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0.9 | 0.4 | 0.4 | 0.4 | 0 |



wind rose

25 to 62
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 16.815
calm = 0 %

Frequency of counts by wind direction (%)

## Lucknow    November    300 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | 2.5 | 1.5 | 11.7 |
| 259-281 | | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | 1 | 4.6 | 9.1 | 32 |
| 282-303 | | 0 | 0 | 0 | 0 | 0.5 | 0 | 1 | 3 | 1 | 4.1 | 15.7 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | 1.5 | 0.5 | 3.6 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 |



wind rose

25 to 73
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1

(m/s)

mean = 29.629
calm = 0 %

Frequency of counts by wind direction (%)

## Lucknow     November     200 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.1 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 1.1 | 2.2 | 20.2 |
| 259-281 | | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 1.1 | 2.8 | 8.4 | 39.9 |
| 282-303 | | 0 | 0 | 0 | 0.6 | 0 | 0.6 | 0 | 2.2 | 1.1 | 2.2 | 13.5 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.1 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
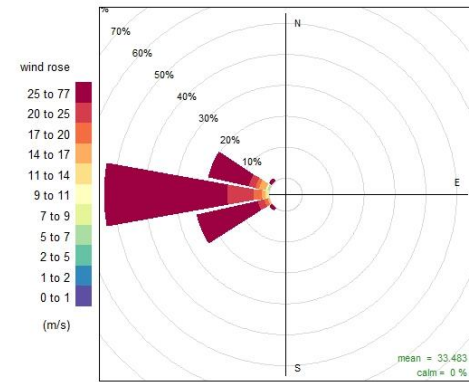


wind rose
25 to 77
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 33.483
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow     November     100 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.7 | 0 | 0.7 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0.7 | 1.3 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0 | 0 | 0.7 | 0 | 0 | 0.7 | 2 | 2 | 0 | 2 | 4 |
| 259-281 | | 0 | 0 | 0.7 | 0.7 | 5.4 | 3.4 | 4 | 14.8 | 4 | 8.7 | 12.1 |
| 282-303 | | 0.7 | 0 | 2 | 1.3 | 3.4 | 2.7 | 1.3 | 1.3 | 0.7 | 2.7 | 3.4 |
| 304-326 | | 0 | 0 | 0.7 | 2 | 0 | 0 | 1.3 | 0.7 | 0 | 0.7 | 0.7 |
| 327-348 | | 0 | 0.7 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
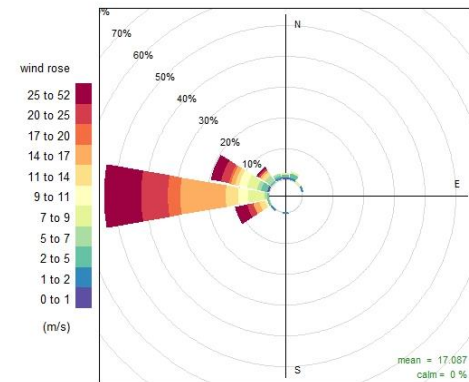


wind rose
25 to 52
20 to 25
17 to 20
14 to 17
11 to 14
9 to 11
7 to 9
5 to 7
2 to 5
1 to 2
0 to 1
(m/s)

mean = 17.087
calm = 0 %

**Frequency of counts by wind direction (%)**

## Lucknow    December    1000 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 13.7 | 1.1 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 2.2 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.5 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.5 | 1.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 1.1 | 4.9 | 2.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 2.7 | 2.2 | 2.2 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304-326 | | 4.4 | 2.7 | 1.1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 1.6 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow    December    925 hPa level
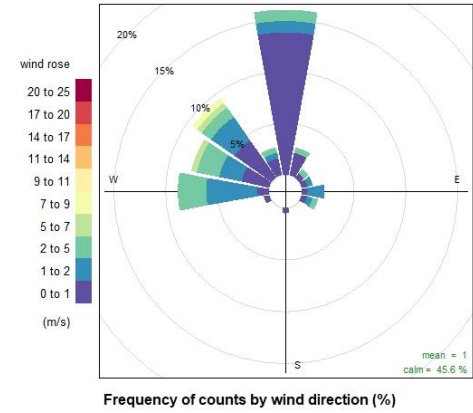
| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 1.3 | 0.4 | 3.4 | 0.4 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 |
| 12-33 | | 0.9 | 0 | 1.3 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.9 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0.4 | 0 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0.4 | 0.4 | 1.3 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0.4 | 0.9 | 0.4 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.4 | 0 | 0.9 | 0.9 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 1.3 | 0.9 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.9 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 1.3 | 0.4 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0.4 | 0.9 | 0.9 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 282-303 | | 0.9 | 2.1 | 8.1 | 4.3 | 4.3 | 1.3 | 0.9 | 0.4 | 0 | 0 | 0 |
| 304-326 | | 1.3 | 1.3 | 7.7 | 8.9 | 7.2 | 2.1 | 3 | 1.3 | 0 | 0 | 0.4 |
| 327-348 | | 1.7 | 2.6 | 5.1 | 1.7 | 1.3 | 0 | 0.4 | 0 | 0.4 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow    December    850 hPa level
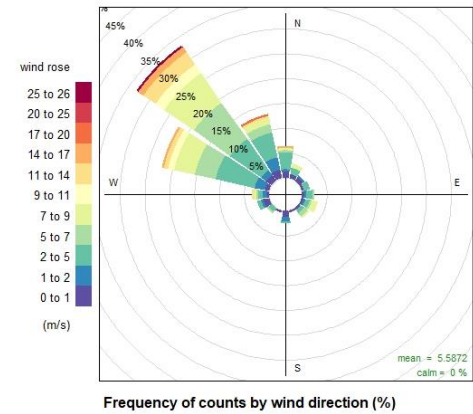
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0.8 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0.4 | 0.4 | 1.3 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.4 | 0.4 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0.4 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0.8 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 1.3 | 0 | 0.4 | 0.8 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 259-281 | | 0 | 0 | 2.5 | 1.3 | 0.8 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 282-303 | | 0 | 1.3 | 5.5 | 5.9 | 3.8 | 5.5 | 5.5 | 1.3 | 0 | 0.8 | 0 |
| 304-326 | | 0.8 | 0.8 | 7.6 | 4.7 | 9.3 | 4.2 | 3.8 | 4.2 | 1.7 | 0.4 | 0 |
| 327-348 | | 0 | 0.4 | 1.7 | 3 | 0.8 | 1.7 | 0 | 0.4 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

## Lucknow    December    700 hPa level
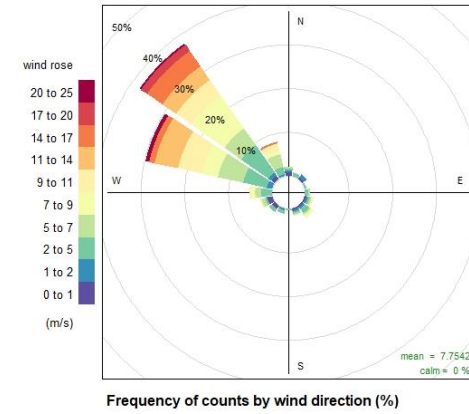
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0.4 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0.4 | 0.4 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 237-258 | | 0.4 | 0 | 1.7 | 1.3 | 0.4 | 0.4 | 0.9 | 0 | 1.7 | 0 | 0 |
| 259-281 | | 0.4 | 0 | 3.4 | 2.6 | 3 | 2.6 | 3.8 | 0.9 | 0 | 0 | 0 |
| 282-303 | | 0 | 0 | 1.3 | 3.8 | 7.7 | 8.1 | 11.5 | 6 | 2.1 | 1.3 | 0 |
| 304-326 | | 0.4 | 0 | 1.7 | 1.7 | 3.8 | 3.8 | 6 | 4.7 | 1.3 | 3 | 0.9 |
| 327-348 | | 0 | 0.4 | 0.4 | 0.9 | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 |



Frequency of counts by wind direction (%)

## Lucknow     December     500 hPa level

| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |  | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 1 | 0 | 0 | 0.5 |
| 237-258 |  | 0 | 0 | 0.5 | 0 | 0 | 1.4 | 1.9 | 0.5 | 1.4 | 4.3 | 1.4 |
| 259-281 |  | 0 | 0 | 0 | 0 | 0 | 2.4 | 3.8 | 4.3 | 8.6 | 10 | 9.6 |
| 282-303 |  | 0 | 0 | 0.5 | 0 | 1 | 0 | 3.3 | 7.7 | 6.7 | 8.6 | 9.1 |
| 304-326 |  | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 1.4 | 0.5 | 3.3 | 0 | 1.9 |
| 327-348 |  | 0 | 0 | 0 | 0.5 | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |



Frequency of counts by wind direction (%)

wind rose — 25 to 54, 20 to 25, 17 to 20, 14 to 17, 11 to 14, 9 to 11, 7 to 9, 5 to 7, 2 to 5, 1 to 2, 0 to 1 (m/s)

mean = 20.612, calm = 0 %

## Lucknow     December     300 hPa level
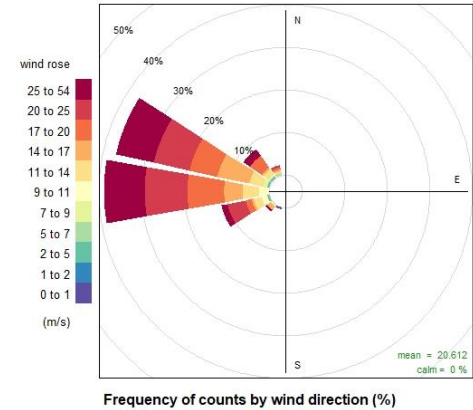
| Direction \ Speed | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 |
| 12-33 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 |
| 237-258 |  | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 1.9 | 1.2 | 17.3 |
| 259-281 |  | 0 | 0 | 0 | 0.6 | 0 | 0 | 0.6 | 3.1 | 3.7 | 8 | 36.4 |
| 282-303 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0 | 1.2 | 21 |
| 304-326 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 1.2 |
| 327-348 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Frequency of counts by wind direction (%)

wind rose — 25 to 63, 20 to 25, 17 to 20, 14 to 17, 11 to 14, 9 to 11, 7 to 9, 5 to 7, 2 to 5, 1 to 2, 0 to 1 (m/s)

mean = 34.16, calm = 0 %
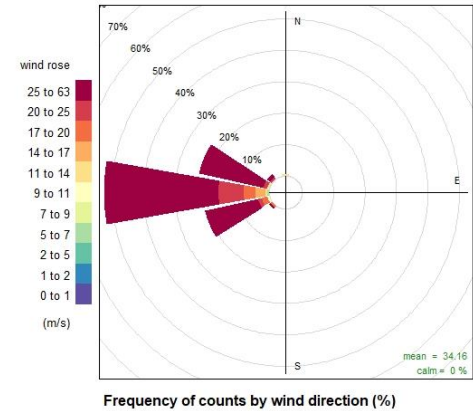
## Lucknow                    December                    200 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.3 |
| 237-258 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 1.3 | 2 | 2.7 | 26.7 |
| 259-281 | | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | 0.7 | 4.7 | 44 |
| 282-303 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 12.7 |
| 304-326 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
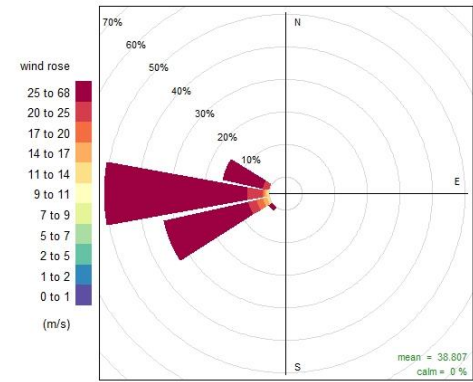


Frequency of counts by wind direction (%)

## Lucknow                    December                    100 hPa level

| Speed / Direction | calm | 0-1 | 1-2 | 2-5 | 5-7 | 7-9 | 9-11 | 11-14 | 14-17 | 17-20 | 20-25 | 25 + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349-11 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-33 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34-56 | | 0 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57-78 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79-101 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102-123 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124-146 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 147-168 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 168-191 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192-213 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 214-236 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 |
| 237-258 | | 0 | 0 | 0.8 | 0 | 0 | 1.6 | 1.6 | 4.7 | 0.8 | 1.6 | 7.8 |
| 259-281 | | 0 | 0 | 1.6 | 0.8 | 2.3 | 1.6 | 4.7 | 3.1 | 3.9 | 13.3 | 18.8 |
| 282-303 | | 0 | 0 | 1.6 | 1.6 | 2.3 | 0 | 4.7 | 1.6 | 3.1 | 3.1 | 7.8 |
| 304-326 | | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8 | 0 |
| 327-348 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
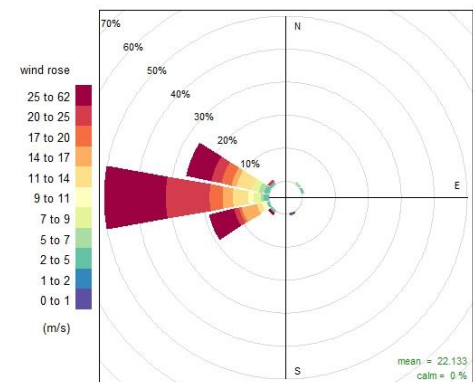


Frequency of counts by wind direction (%)

48

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 1001.1 | 1009 | 991 | 10.1 | 17.6 | 4 | 7.6 | 307 | 0.5 | 0.4 | -0.3 | 1 |
| 1000 | 132 | 195 | 70 | 10 | 20 | 4 | 7.2 | 323 | 0.5 | 0.3 | -0.4 | 1 |
| 950 | 557 | 615 | 434 | 13.3 | 24.6 | 2.8 | 4.4 | 322 | 2.9 | 1.8 | -2.3 | 5.3 |
| 925 | 779 | 835 | 648 | 12.9 | 22.4 | 4.8 | 2.9 | 312 | 3.1 | 2.3 | -2.1 | 5.8 |
| 900 | 1016 | 1110 | 926 | 12 | 23.2 | 2.4 | -0.4 | 307 | 3.8 | 3 | -2.3 | 6.1 |
| 850 | 1492 | 1591 | 1395 | 10 | 19.4 | -0.9 | -4 | 299 | 5 | 4.4 | -2.4 | 7 |
| 800 | 1993 | 2065 | 1886 | 7.6 | 16.6 | -4.9 | -6.4 | 295 | 6.3 | 5.7 | -2.6 | 7.9 |
| 750 | 2518 | 2610 | 2370 | 4.8 | 14.4 | -8.7 | -9.4 | 291 | 7.4 | 6.9 | -2.7 | 9 |
| 700 | 3081 | 3183 | 2948 | 1.8 | 12.8 | -10.7 | -12.2 | 287 | 9 | 8.6 | -2.7 | 10.9 |
| 650 | 3670 | 3800 | 3480 | -1.8 | 8 | -13.9 | -15.4 | 286 | 10.4 | 10 | -2.8 | 12.3 |
| 600 | 4306 | 4443 | 4136 | -5.7 | 5.6 | -18.1 | -19.4 | 283 | 12.9 | 12.6 | -2.9 | 15 |
| 550 | 4988 | 5150 | 4800 | -10 | 0.8 | -22.1 | -22.9 | 282 | 15.3 | 15 | -3.1 | 17.6 |
| 500 | 5710 | 5894 | 5498 | -15 | -2.9 | -41.9 | -27.9 | 280 | 18.3 | 18 | -3.1 | 21 |
| 450 | 6502 | 6750 | 6256 | -20.3 | -8.3 | -31.9 | -32 | 279 | 20.6 | 20.4 | -3.1 | 23.8 |
| 400 | 7362 | 7613 | 7074 | -26.4 | -12.9 | -39.1 | -38.5 | 277 | 25 | 24.8 | -3.1 | 28.7 |
| 350 | 8315 | 8600 | 7981 | -32.9 | -17.7 | -44.1 | -45.5 | 276 | 27.4 | 27.2 | -3 | 31.5 |
| 300 | 9384 | 9721 | 9015 | -39.8 | -24.9 | -52.5 | -52.6 | 275 | 30.7 | 30.6 | -2.6 | 35.1 |
| 250 | 10608 | 10934 | 10222 | -47.3 | -34.3 | -60.5 | -59.8 | 273 | 32.3 | 32.2 | -1.8 | 36.9 |
| 200 | 12056 | 12461 | 11665 | -55.3 | -42.3 | -71.5 | -64.6 | 273 | 37.5 | 37.5 | -1.7 | 42.4 |
| 175 | 12897 | 13329 | 12489 | -59.4 | -48.1 | -74.5 | -60.8 | 272 | 33.1 | 33.1 | -1.2 | 37.2 |
| 150 | 13847 | 14308 | 13421 | -63.9 | -52.7 | -77.1 | | 272 | 29.7 | 29.7 | -1.1 | 33 |
| 125 | 14950 | 15389 | 14481 | -68.8 | -55.3 | -82.5 | | 273 | 24.6 | 24.6 | -1.2 | 26.9 |
| 100 | 16266 | 16748 | 15764 | -72.5 | -58.3 | -87.9 | | 272 | 25.4 | 25.4 | -0.7 | 27.8 |
| 80 | 17580 | 18001 | 17089 | -72 | -58.5 | -89.9 | | 273 | 16.7 | 16.7 | -1 | 18 |
| 70 | 18378 | 18807 | 17865 | -69.5 | -53.7 | -84.7 | | 275 | 12.7 | 12.6 | -1.2 | 15.1 |
| 60 | 19299 | 19706 | 18764 | -66.4 | -50.9 | -79.3 | | 277 | 9.4 | 9.3 | -1.1 | 11.2 |
| 50 | 20422 | 20836 | 19842 | -62.8 | -45.1 | -77.1 | | 276 | 11.6 | 11.5 | -1.2 | 15.2 |
| 40 | 21802 | 22263 | 21189 | -59.3 | -41.3 | -75.1 | | 283 | 8.8 | 8.6 | -2 | 11.2 |
| 30 | 23630 | 24142 | 22982 | -55.3 | -42.5 | -74.3 | | 280 | 6.1 | 6 | -1.1 | 9.5 |
| 25 | 24759 | 25353 | 24137 | -54.7 | -42.3 | -66.7 | | 280 | 5.1 | 5 | -0.9 | 6.2 |
| 20 | 26197 | 26714 | 25560 | -51.6 | -33.4 | -62.5 | | 280 | 15.8 | 15.5 | -2.8 | 20.4 |
| 15 | 28075 | 28636 | 27615 | -50.1 | -39.1 | -60.1 | | 279 | 11.1 | 11 | -1.7 | 13.4 |
| 10 | 30758 | 31221 | 30288 | -45.5 | -40.1 | -52.1 | | 281 | 2 | 2 | -0.4 | 2.2 |
| 7 | 33354 | 33354 | 33354 | -38.1 | -38.1 | -38.1 | | 45 | 0.1 | -0.1 | -0.1 | 0.1 |

**FREEZING LEVEL**

| P | Height | H_max | H_min |
|---|---|---|---|
| 676 | 3375 | 5200 | 1630 |

**FIRST TROPOPAUSE**

| P | Height | Temp |
|---|---|---|
| 212 | 11791 | -60.2 |

**SECOND TROPOPAUSE**

| P | Height | Temp |
|---|---|---|
| 100 | 16368 | -74.8 |

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 998.7 | 1007 | 989 | 12.7 | 19.4 | 6 | 9.2 | 315 | 0.7 | 0.5 | -0.5 | 1.3 |
| 1000 | 109 | 196 | -117 | 12.5 | 19 | 6 | 9.1 | 326 | 0.4 | 0.2 | -0.3 | 0.6 |
| 950 | 540 | 686 | 400 | 16.3 | 27.8 | 6.6 | 6.2 | 325 | 3.3 | 1.9 | -2.7 | 6.4 |
| 925 | 767 | 843 | 658 | 16.1 | 27 | 8 | 5.2 | 319 | 3.5 | 2.3 | -2.6 | 7.3 |
| 900 | 1004 | 1093 | 913 | 14.5 | 26 | 3.8 | 1.7 | 306 | 4.7 | 3.8 | -2.8 | 7.3 |
| 850 | 1484 | 1570 | 1384 | 11.9 | 23.4 | -0.3 | -1.7 | 299 | 6 | 5.3 | -2.9 | 8.5 |
| 800 | 1988 | 2077 | 1877 | 9 | 20.4 | -3.7 | -4.4 | 293 | 7.5 | 6.9 | -3 | 9.9 |
| 750 | 2514 | 2612 | 2365 | 5.7 | 17.4 | -7.1 | -7.4 | 290 | 8.9 | 8.3 | -3.1 | 11.2 |
| 700 | 3079 | 3195 | 2950 | 2.3 | 14.8 | -8.9 | -10.6 | 288 | 10.1 | 9.6 | -3.2 | 12.7 |
| 650 | 3668 | 3812 | 3500 | -1.5 | 13.8 | -11.9 | -14 | 285 | 11.9 | 11.5 | -3 | 14.3 |
| 600 | 4306 | 4469 | 4145 | -5.6 | 11 | -15.3 | -18.5 | 283 | 14.4 | 14 | -3.2 | 16.7 |
| 550 | 4989 | 5183 | 4800 | -10.1 | 5.8 | -20.9 | -22.8 | 281 | 16.4 | 16.1 | -3.1 | 19 |
| 500 | 5711 | 5946 | 5508 | -15 | -1.3 | -25.9 | -27.2 | 280 | 19.1 | 18.8 | -3.3 | 22.1 |
| 450 | 6503 | 6768 | 6290 | -20.4 | -7.3 | -32.1 | -32.2 | 279 | 21.3 | 21 | -3.5 | 24.5 |
| 400 | 7362 | 7659 | 7118 | -26.4 | -12.7 | -36.1 | -38.3 | 279 | 24.7 | 24.4 | -3.8 | 28.6 |
| 350 | 8314 | 8641 | 8010 | -32.9 | -18.7 | -45.1 | -45.1 | 279 | 27.4 | 27.1 | -4.1 | 32 |
| 300 | 9383 | 9753 | 9046 | -39.8 | -23.7 | -53.9 | -53.3 | 277 | 30.6 | 30.4 | -3.9 | 35.8 |
| 250 | 10609 | 11016 | 10256 | -47 | -32.3 | -63.5 | -61.2 | 276 | 32.5 | 32.3 | -3.2 | 37.9 |
| 200 | 12065 | 12502 | 11676 | -54.2 | -39.9 | -73.1 | -67.6 | 274 | 36.3 | 36.2 | -2.4 | 42 |
| 175 | 12913 | 13376 | 12509 | -58.4 | -44.7 | -74.1 | -60.6 | 274 | 31.9 | 31.8 | -2 | 36.6 |
| 150 | 13870 | 14389 | 13458 | -63 | -49.1 | -77.1 | -73.6 | 274 | 27.5 | 27.4 | -1.8 | 31.5 |
| 125 | 14978 | 15564 | 14561 | -67.9 | -54.3 | -81.7 | | 273 | 21.6 | 21.6 | -1.3 | 24.8 |
| 100 | 16297 | 16935 | 15833 | -72.2 | -58.3 | -84.5 | | 274 | 22.9 | 22.8 | -1.6 | 25.7 |
| 80 | 17607 | 18244 | 17074 | -72.6 | -55.1 | -86.3 | | 274 | 14.5 | 14.5 | -1 | 15.8 |
| 70 | 18402 | 19198 | 17850 | -70.6 | -51.9 | -85.3 | | 276 | 11.6 | 11.5 | -1.2 | 13.2 |
| 60 | 19314 | 19900 | 18699 | -67.5 | -49.1 | -81.7 | | 277 | 8 | 7.9 | -1 | 9.7 |
| 50 | 20434 | 21213 | 19782 | -63.2 | -47.9 | -80.9 | | 278 | 10.5 | 10.4 | -1.5 | 13.8 |
| 40 | 21818 | 22660 | 21348 | -59.5 | -47.1 | -77.3 | | 281 | 6.3 | 6.2 | -1.2 | 8.6 |
| 30 | 23641 | 24551 | 23117 | -55.6 | -43.3 | -76.9 | | 281 | 3.1 | 3 | -0.6 | 7.7 |
| 25 | 24778 | 25764 | 24290 | -54.2 | -43.9 | -71.5 | | 274 | 1.3 | 1.3 | -0.1 | 6.1 |
| 20 | 26238 | 27276 | 25168 | -51.6 | -40.1 | -64.3 | | 266 | 5.1 | 5.1 | 0.4 | 12.6 |
| 15 | 28150 | 29246 | 27594 | -48.8 | -38.1 | -59.9 | | 249 | 2.6 | 2.4 | 0.9 | 6.8 |
| 10 | 30856 | 32048 | 30158 | -46.2 | -36.1 | -62.9 | | 255 | 1.6 | 1.5 | 0.4 | 3.4 |
| 7 | 33495 | 34544 | 33020 | -40 | -32.9 | -45.7 | | 198 | 0.3 | 0.1 | 0.3 | 1.1 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND ROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | | P | Height | Temp | | P | Height | Temp |
| 671 | 3441 | 5770 | 1720 | | 207 | 12044 | -60.1 | | 96 | 16629 | -74.5 |

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 995.3 | 1004 | 987 | 17.4 | 26 | 10 | 11.8 | 302 | 0.9 | 0.8 | -0.5 | 1.4 |
| 1000 | 83 | 158 | 4 | 15.7 | 20.8 | 11.2 | 11.5 | 360 | 0.1 | 0 | -0.1 | 0.1 |
| 950 | 519 | 596 | 350 | 21.2 | 31.8 | 8.8 | 7.6 | 320 | 4.3 | 2.8 | -3.3 | 7.3 |
| 925 | 752 | 831 | 580 | 21.1 | 31.6 | 10.2 | 6.4 | 315 | 5.4 | 3.8 | -3.8 | 8.7 |
| 900 | 990 | 1096 | 827 | 19.5 | 31.4 | 6.8 | 3.5 | 308 | 6.1 | 4.8 | -3.7 | 8.7 |
| 850 | 1479 | 1582 | 1310 | 16.5 | 28.6 | 3.2 | 0.5 | 301 | 7.7 | 6.6 | -4 | 10.2 |
| 800 | 1991 | 2093 | 1818 | 12.9 | 24 | -0.5 | -2.2 | 296 | 9.3 | 8.3 | -4.1 | 11.4 |
| 750 | 2521 | 2628 | 2352 | 9 | 18.6 | -3.9 | -4.5 | 292 | 9.8 | 9.1 | -3.7 | 11.9 |
| 700 | 3095 | 3201 | 2914 | 5 | 14.8 | -8.1 | -7.6 | 290 | 11.4 | 10.7 | -3.9 | 13.7 |
| 650 | 3687 | 3810 | 3500 | 0.8 | 11.2 | -12.7 | -11.3 | 288 | 12 | 11.4 | -3.6 | 14.1 |
| 600 | 4333 | 4465 | 4138 | -3.4 | 8 | -16.1 | -16.3 | 286 | 13.8 | 13.3 | -3.7 | 16.2 |
| 550 | 5020 | 5200 | 4814 | -8 | 2.2 | -18.9 | -20.1 | 283 | 14.5 | 14.1 | -3.3 | 16.7 |
| 500 | 5750 | 5988 | 5539 | -13 | -2.3 | -24.3 | -25.7 | 282 | 16.3 | 16 | -3.3 | 19 |
| 450 | 6548 | 6798 | 6300 | -18.6 | -6.7 | -30.1 | -30.4 | 280 | 17.1 | 16.8 | -3.1 | 19.9 |
| 400 | 7413 | 7649 | 7160 | -24.8 | -8.7 | -38.1 | -36.7 | 280 | 20.4 | 20.1 | -3.4 | 23.8 |
| 350 | 8370 | 8698 | 8098 | -31.6 | -17.1 | -43.9 | -42.6 | 279 | 20.9 | 20.6 | -3.3 | 24.9 |
| 300 | 9446 | 9739 | 9142 | -38.9 | -25.3 | -51.1 | -51.6 | 279 | 23.1 | 22.8 | -3.5 | 27.7 |
| 250 | 10675 | 10997 | 10310 | -46.6 | -30.7 | -63.1 | -59.4 | 278 | 24.7 | 24.4 | -3.6 | 29.9 |
| 200 | 12129 | 12484 | 11679 | -53.9 | -41.3 | -70.7 | -65.6 | 277 | 27.7 | 27.5 | -3.2 | 32.7 |
| 175 | 12975 | 13356 | 12507 | -57.8 | -45.7 | -70.7 | -58.2 | 277 | 24.4 | 24.2 | -2.8 | 28.7 |
| 150 | 13942 | 14414 | 13468 | -62 | -46.3 | -76.1 | | 276 | 21.6 | 21.5 | -2.2 | 25.3 |
| 125 | 15047 | 15496 | 14594 | -67.1 | -52.5 | -81.9 | | 274 | 16.8 | 16.8 | -1.2 | 19.5 |
| 100 | 16382 | 16987 | 15927 | -71.4 | -57.3 | -84.5 | | 273 | 18.2 | 18.2 | -1.1 | 20.9 |
| 80 | 17695 | 18247 | 17207 | -71.9 | -57.7 | -85.7 | | 275 | 11.4 | 11.4 | -1 | 12.5 |
| 70 | 18495 | 19128 | 17975 | -69.7 | -53.1 | -83.5 | | 276 | 8.6 | 8.6 | -0.9 | 10.3 |
| 60 | 19423 | 19980 | 18874 | -66.5 | -51.1 | -78.5 | | 277 | 5.5 | 5.5 | -0.7 | 7.1 |
| 50 | 20548 | 21097 | 19962 | -62.2 | -47.2 | -80.9 | | 279 | 6.1 | 6 | -0.9 | 9 |
| 40 | 21934 | 22467 | 21294 | -58 | -46.3 | -70.9 | | 283 | 3.6 | 3.5 | -0.8 | 5.8 |
| 30 | 23788 | 24511 | 23037 | -52.8 | -37.1 | -68.1 | | 280 | 2.3 | 2.3 | -0.4 | 4.5 |
| 25 | 24935 | 25511 | 24100 | -51.4 | -37.9 | -65.7 | | 280 | 1.7 | 1.7 | -0.3 | 3.4 |
| 20 | 26382 | 26997 | 25530 | -49 | -35.1 | -64.5 | | 283 | 4.5 | 4.4 | -1 | 7.8 |
| 15 | 28257 | 28989 | 27758 | -47.3 | -33.5 | -56.7 | | 284 | 3 | 2.9 | -0.7 | 4.5 |
| 10 | 30933 | 31528 | 30366 | -43.7 | -35.3 | -50.9 | | 284 | 0.4 | 0.4 | -0.1 | 0.9 |
| 7 | 33527 | 33920 | 33134 | -41.3 | -34.5 | -48.1 | | 315 | 0.1 | 0.1 | -0.1 | 0.2 |

| FREEZING LEVEL | | | | FIRST TROPOPAUSE | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | P | Height | Temp | P | Height | Temp |
| 640 | 3823 | 5520 | 1850 | 217 | 11730 | -57.4 | 96 | 16685 | -73.6 |

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 991.3 | 1000 | 980 | 22.3 | 30 | 12 | 13 | 342 | 0.3 | 0.1 | -0.3 | 1.3 |
| 1000 | 47 | 126 | -29 | 18.4 | 18.4 | 18.4 | 16.2 | | | | | |
| 950 | 492 | 571 | 400 | 26.6 | 38.8 | 16.8 | 9.3 | 323 | 2.6 | 1.6 | -2.1 | 7.4 |
| 925 | 728 | 807 | 650 | 26.3 | 38.2 | 13 | 8 | 311 | 3 | 2.3 | -2 | 7.8 |
| 900 | 970 | 1062 | 897 | 24.6 | 37.8 | 8 | 5.8 | 311 | 4.4 | 3.3 | -2.9 | 7.8 |
| 850 | 1467 | 1569 | 1364 | 21.2 | 32.8 | -2.7 | 3 | 304 | 6.6 | 5.5 | -3.7 | 9 |
| 800 | 1987 | 2097 | 1859 | 17.3 | 29.4 | -13.1 | 0.5 | 300 | 8.3 | 7.2 | -4.1 | 10.4 |
| 750 | 2524 | 2660 | 2326 | 12.9 | 26 | -23.7 | -2.6 | 294 | 10 | 9.1 | -4.1 | 11.9 |
| 700 | 3107 | 3232 | 2793 | 8.2 | 21 | -34.1 | -5.7 | 292 | 11.2 | 10.4 | -4.2 | 13.3 |
| 650 | 3705 | 3850 | 3274 | 3.5 | 14.4 | -42.3 | -9 | 290 | 12.2 | 11.5 | -4.2 | 14.3 |
| 600 | 4357 | 4494 | 4137 | -1.2 | 9.8 | -11.7 | -13.2 | 289 | 12.8 | 12.1 | -4.2 | 15 |
| 550 | 5050 | 5220 | 4788 | -5.9 | 4.6 | -16.7 | -18.4 | 288 | 12.9 | 12.3 | -3.9 | 15.2 |
| 500 | 5785 | 5955 | 5486 | -10.9 | 3.8 | -21.1 | -24.3 | 286 | 13.8 | 13.3 | -3.8 | 16.1 |
| 450 | 6587 | 6800 | 6237 | -16.5 | -5.9 | -26.5 | -29.3 | 283 | 14.5 | 14.1 | -3.3 | 17 |
| 400 | 7461 | 7765 | 7143 | -23 | -11.5 | -34.9 | -34.8 | 281 | 16.2 | 15.9 | -3.2 | 19.2 |
| 350 | 8426 | 8699 | 8142 | -29.9 | -15.7 | -40.9 | -41.1 | 280 | 17.7 | 17.4 | -3 | 20.8 |
| 300 | 9508 | 9836 | 8961 | -37.5 | -24.3 | -49.5 | -49.3 | 279 | 18.9 | 18.7 | -2.8 | 22.6 |
| 250 | 10745 | 11118 | 10147 | -45.4 | -32.1 | -59.5 | -58.2 | 278 | 20.1 | 19.9 | -2.7 | 24 |
| 200 | 12208 | 12633 | 11815 | -52.8 | -38.3 | -64.9 | -65.1 | 276 | 22 | 21.9 | -2.3 | 26.2 |
| 175 | 13063 | 13509 | 12684 | -56.7 | -42.7 | -70.5 | -69.4 | 276 | 20.1 | 20 | -2 | 23.6 |
| 150 | 14031 | 14493 | 13639 | -61 | -49.3 | -75.7 | -73.2 | 274 | 18.1 | 18.1 | -1.3 | 21.2 |
| 125 | 15150 | 15636 | 14744 | -66 | -38.1 | -79.7 | -77.6 | 275 | 14.5 | 14.5 | -1.2 | 17.1 |
| 100 | 16487 | 16997 | 16033 | -70.8 | -553 | -85.1 | -77.3 | 274 | 15.2 | 15.2 | -1.1 | 17.6 |
| 80 | 17808 | 18339 | 17308 | -71.6 | -56.5 | -85.7 | | 275 | 9 | 9 | -0.8 | 10.5 |
| 70 | 18605 | 19153 | 18130 | -68.9 | -43.3 | -83.5 | -78.2 | 279 | 7.3 | 7.2 | -1.1 | 9.4 |
| 60 | 19529 | 19968 | 19028 | -65.4 | -51.1 | -77.7 | | 282 | 4.5 | 4.4 | -0.9 | 6.5 |
| 50 | 20664 | 21244 | 20111 | -60.3 | -32.1 | -73.7 | -69.1 | 283 | 4.8 | 4.7 | -1.1 | 8.5 |
| 40 | 22066 | 22786 | 21470 | -55.9 | -39.7 | -68.5 | | 291 | 2.5 | 2.3 | -0.9 | 5 |
| 30 | 23934 | 24754 | 23266 | -50.5 | -15.3 | -63.9 | -57.8 | 286 | 2.6 | 2.5 | -0.7 | 4.7 |
| 25 | 25106 | 25997 | 24370 | -48.9 | -38.1 | -61.5 | | 287 | 2.1 | 2 | -0.6 | 3.2 |
| 20 | 26610 | 27524 | 26036 | -46.2 | -33.5 | -66.5 | -67.9 | 279 | 5.2 | 5.1 | -0.8 | 7.7 |
| 15 | 28507 | 29173 | 27872 | -44.3 | -29.9 | -57.1 | | 283 | 2.7 | 2.6 | -0.6 | 3.5 |
| 10 | 31258 | 32072 | 30472 | -41.4 | -26.7 | -58.9 | | 288 | 0.9 | 0.9 | -0.3 | 1.1 |
| 7 | 33335 | 33700 | 32869 | -44.8 | -34.5 | -50.9 | | 270 | 0.4 | 0.4 | 0 | 0.4 |

|  | FREEZING LEVEL | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | |
|---|---|---|---|---|---|---|---|---|---|---|
| **P** | **Height** | **H_max** | **H_min** | **P** | **Height** | **Temp** | | **P** | **Height** | **Temp** |
| 613 | 4195 | 5790 | 2250 | 205 | 12291 | -57.4 | | 95 | 16868 | -73.4 |

**Lucknow**　　　　**42369**　　　　**Station height**　　　**122**　　　　　　　　　　　　　　　　　　　　**May**

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 987.7 | 1000 | 976 | 26.2 | 33.2 | 17 | 17.3 | 63 | 0.4 | -0.4 | -0.2 | 1.5 |
| 1000 | 15 | 122 | -94 | 25 | 25 | 25 | 16.6 | | | | | |
| 950 | 463 | 575 | 350 | 28.5 | 37.8 | 17.2 | 15.2 | 51 | 0.6 | -0.5 | -0.4 | 7.6 |
| 925 | 698 | 801 | 600 | 28.3 | 39.4 | 18.2 | 14.1 | 319 | 1.1 | 0.7 | -0.8 | 8.3 |
| 900 | 945 | 1049 | 828 | 26.9 | 37.6 | 13 | 11.8 | 299 | 2.1 | 1.8 | -1 | 7.6 |
| 850 | 1447 | 1542 | 1323 | 23.7 | 34 | 2 | 8.5 | 302 | 4.7 | 4 | -2.5 | 7.9 |
| 800 | 1972 | 2062 | 1886 | 20 | 30.8 | 7.2 | 5.4 | 303 | 7.2 | 6 | -3.9 | 9.4 |
| 750 | 2515 | 2650 | 2380 | 15.7 | 25.6 | 2.2 | 2.3 | 302 | 9.1 | 7.7 | -4.9 | 11.3 |
| 700 | 3103 | 3218 | 2999 | 11 | 20.4 | -0.7 | -1.3 | 302 | 10.7 | 9.1 | -5.6 | 13 |
| 650 | 3706 | 3852 | 3560 | 6.1 | 17.8 | -4.1 | -5.3 | 299 | 11.5 | 10.1 | -5.6 | 13.8 |
| 600 | 4365 | 4522 | 4170 | 1.4 | 28.4 | -8.1 | -9.9 | 299 | 11.7 | 10.3 | -5.6 | 14 |
| 550 | 5067 | 5231 | 4858 | -3.2 | 6.2 | -12.9 | -15.4 | 298 | 11.2 | 9.9 | -5.2 | 13.5 |
| 500 | 5808 | 5988 | 5601 | -7.7 | 2.2 | -18.1 | -20.8 | 295 | 11.3 | 10.3 | -4.7 | 13.7 |
| 450 | 6624 | 6807 | 6400 | -12.6 | -2.1 | -24.1 | -25.6 | 291 | 11.2 | 10.5 | -4 | 13.6 |
| 400 | 7512 | 7751 | 7270 | -18.5 | -7.3 | -31.3 | -31.8 | 287 | 12.6 | 12.1 | -3.6 | 15.2 |
| 350 | 8497 | 8735 | 8200 | -24.9 | -12.5 | -38.7 | -38.5 | 283 | 13.6 | 13.2 | -3.1 | 16.1 |
| 300 | 9602 | 9900 | 9277 | -32.2 | -18.7 | -47.9 | -46 | 280 | 15.1 | 14.9 | -2.6 | 18 |
| 250 | 10866 | 11238 | 10470 | -40.7 | -27.5 | -57.3 | -55 | 276 | 15.9 | 15.8 | -1.7 | 18.8 |
| 200 | 12352 | 12810 | 11901 | -50.7 | -38.1 | -69.3 | -62.4 | 273 | 16.6 | 16.6 | -1 | 19.4 |
| 175 | 13213 | 13717 | 12708 | -56.1 | -43.1 | -77.1 | -56.9 | 271 | 14.9 | 14.9 | -0.2 | 17.2 |
| 150 | 14184 | 14737 | 13646 | -61.9 | -48.3 | -81.3 | -59.9 | 270 | 12.6 | 12.6 | -0.1 | 14.7 |
| 125 | 15297 | 15906 | 14719 | -68.2 | -53.7 | -78.5 | | 269 | 9.2 | 9.2 | 0.2 | 10.9 |
| 100 | 16617 | 17291 | 16017 | -73.6 | -57.9 | -86.9 | | 271 | 7.3 | 7.3 | -0.1 | 9.7 |
| 80 | 17921 | 18630 | 17264 | -72.9 | -43.3 | -90.5 | | 270 | 2.1 | 2.1 | 0 | 6.3 |
| 70 | 18718 | 19450 | 18090 | -69.6 | -51 | -87.9 | | 297 | 0.4 | 0.4 | -0.2 | 5.5 |
| 60 | 19630 | 19997 | 18957 | -64.9 | -47.5 | -78.3 | | 75 | 1.1 | -1.1 | -0.3 | 4.9 |
| 50 | 20765 | 21499 | 20083 | -59.3 | -39.5 | -74.9 | | 88 | 2.3 | -2.3 | -0.1 | 6.3 |
| 40 | 22187 | 22910 | 21743 | -54.5 | -36.3 | -72.9 | | 86 | 2.6 | -2.6 | -0.2 | 4.8 |
| 30 | 24063 | 24780 | 23503 | -49.2 | -32.9 | -68.1 | | 87 | 2 | -2 | -0.1 | 3.9 |
| 25 | 25259 | 25950 | 24746 | -47.1 | -30.5 | -65.1 | | 84 | 1.8 | -1.8 | -0.2 | 2.9 |
| 20 | 26740 | 27499 | 25785 | -44.8 | -28.5 | -60.9 | | 81 | 2.6 | -2.6 | -0.4 | 5.3 |
| 15 | 28616 | 29532 | 27752 | -43.1 | -27.1 | -57.9 | | 84 | 1 | -1 | -0.1 | 3.4 |
| 10 | 31451 | 32457 | 30726 | -40.3 | -26.5 | -57.5 | | 346 | 0.4 | 0.1 | -0.4 | 1.6 |
| 7 | 33744 | 34498 | 33143 | -42.3 | -32.1 | -48.1 | | 45 | 0.1 | -0.1 | -0.1 | 0.4 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | | P | Height | Temp | | P | Height | Temp |
| 585 | 4590 | 6400 | 2940 | | | | | | 96 | 16894 | -75.8 |

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 984.2 | 993 | 977 | 28.1 | 38 | 22 | 22 | 82 | 0.7 | -0.7 | -0.1 | 1.4 |
| 1000 | -19 | 60 | -88 | | | | | 0 | 0 | 0 | 0 | 0 |
| 950 | 436 | 559 | 348 | 28.8 | 41 | 20.4 | 20.8 | 106 | 1.5 | -1.4 | 0.4 | 7.2 |
| 925 | 674 | 758 | 551 | 28.4 | 37.8 | 19.4 | 20.4 | 125 | 1.2 | -1 | 0.7 | 8.2 |
| 900 | 917 | 996 | 808 | 27.2 | 40.4 | 16.4 | 17.9 | 243 | 0.4 | 0.4 | 0.2 | 7.7 |
| 850 | 1420 | 1510 | 1321 | 24.2 | 35.6 | 8.8 | 14.9 | 294 | 2.4 | 2.2 | -1 | 8.2 |
| 800 | 1947 | 2044 | 1840 | 20.8 | 30.4 | 4.6 | 12.1 | 304 | 4.2 | 3.5 | -2.4 | 8.9 |
| 750 | 2498 | 2600 | 2376 | 16.9 | 28.6 | 1.8 | 8.8 | 311 | 5.5 | 4.2 | -3.6 | 9.6 |
| 700 | 3085 | 3205 | 2943 | 12.9 | 22.8 | 0.4 | 5 | 314 | 6.2 | 4.5 | -4.3 | 10.1 |
| 650 | 3699 | 3850 | 3536 | 8.7 | 21 | -0.7 | 0.6 | 312 | 6.2 | 4.6 | -4.1 | 9.7 |
| 600 | 4359 | 4508 | 4173 | 4.6 | 17.6 | -4.3 | -4 | 310 | 5.5 | 4.2 | -3.5 | 9.1 |
| 550 | 5075 | 5290 | 4862 | 0.6 | 14.8 | -8.3 | -8.4 | 303 | 4.5 | 3.8 | -2.5 | 8.1 |
| 500 | 5822 | 6003 | 5606 | -3.5 | 7.4 | -13.5 | -13 | 294 | 4.3 | 3.9 | -1.7 | 7.9 |
| 450 | 6658 | 6890 | 6418 | -7.8 | 2.8 | -19.7 | -17.8 | 284 | 4.1 | 4 | -1 | 8 |
| 400 | 7558 | 7797 | 7318 | -12.7 | -1.9 | -26.7 | -23.4 | 276 | 4.4 | 4.4 | -0.5 | 8.5 |
| 350 | 8564 | 8833 | 8328 | -18.9 | -6.1 | -33.9 | -29.7 | 271 | 5.1 | 5.1 | -0.1 | 9 |
| 300 | 9698 | 9995 | 9458 | -26.6 | -14.1 | -40.3 | -37.2 | 266 | 5.5 | 5.5 | 0.4 | 9.4 |
| 250 | 10990 | 11322 | 10729 | -36.2 | -24.5 | -48.1 | -46.6 | 258 | 5.4 | 5.3 | 1.1 | 9.2 |
| 200 | 12500 | 12878 | 12172 | -47.9 | -35.1 | -61.7 | -58 | 254 | 5 | 4.8 | 1.4 | 9.2 |
| 175 | 13371 | 13775 | 13005 | -54.7 | -40.9 | -69.3 | -58.7 | 252 | 4.2 | 4 | 1.3 | 8.4 |
| 150 | 14339 | 14774 | 13936 | -62.1 | -47.1 | -76.1 | -61.8 | 252 | 2.9 | 2.8 | 0.9 | 7.5 |
| 125 | 15447 | 15924 | 14998 | -69.5 | -54.5 | -85.1 | -85.3 | 234 | 0.9 | 0.7 | 0.5 | 6.4 |
| 100 | 16753 | 17281 | 16081 | -75.1 | -57.5 | -87.9 | | 98 | 1.4 | -1.4 | 0.2 | 7.2 |
| 80 | 18057 | 18595 | 17544 | -73.5 | -54.1 | -89.5 | | 86 | 4.5 | -4.5 | -0.3 | 6.1 |
| 70 | 18853 | 19392 | 18335 | -69.7 | -48.9 | -86.1 | | 89 | 5.3 | -5.3 | -0.1 | 6.9 |
| 60 | 18384 | 19998 | 19232 | -64.7 | -44.3 | -83.1 | | 90 | 5.5 | -5.5 | 0 | 6.2 |
| 50 | 20894 | 21512 | 20326 | -59.2 | -42.9 | -75.1 | | 90 | 7.8 | -7.8 | 0 | 8.9 |
| 40 | 22315 | 22967 | 21800 | -54.1 | -40.3 | -70.9 | | 90 | 6.9 | -6.9 | 0 | 7.6 |
| 30 | 24178 | 24897 | 23596 | -49.8 | -37.7 | -63.7 | | 91 | 6.7 | -6.7 | 0.1 | 7.1 |
| 25 | 25362 | 26158 | 24731 | -48 | -34.5 | -59.9 | | 92 | 5.8 | -5.8 | 0.2 | 5.9 |
| 20 | 26837 | 27682 | 26184 | -45.4 | -34.1 | -56.5 | | 93 | 10.9 | -10.9 | 0.6 | 11.5 |
| 15 | 28720 | 29652 | 28045 | -43 | -30.3 | -54.1 | | 93 | 7.3 | -7.3 | 0.4 | 7.7 |
| 10 | 31574 | 32423 | 31042 | -40 | -32.7 | -51.9 | | 97 | 1.6 | -1.6 | 0.2 | 1.8 |
| 7 | 34098 | 34570 | 33658 | -36.1 | -24.3 | -46.5 | | 79 | 0.5 | -0.5 | -0.1 | 0.6 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | | P | Height | Temp | | P | Height | Temp |
| 542 | 5200 | 6740 | 3790 | | | | | | 98 | 16945 | -77 |

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 984.2 | 990 | 978 | 27.4 | 33 | 20 | 24.3 | 90 | 0.5 | -0.5 | 0 | 1.3 |
| 1000 | -19 | 48 | -77 | | | | | 0 | 0 | 0 | 0 | 0 |
| 950 | 431 | 533 | 315 | 26.7 | 36.8 | 18.6 | 23.3 | 139 | 1.1 | -0.7 | 0.8 | 6.9 |
| 925 | 667 | 729 | 550 | 26.1 | 39.4 | 19 | 22.1 | 139 | 0.9 | -0.6 | 0.7 | 8.7 |
| 900 | 910 | 993 | 806 | 24.6 | 35.2 | 16.8 | 21 | 189 | 0.6 | 0.1 | 0.6 | 8 |
| 850 | 1409 | 1495 | 1339 | 21.8 | 31 | 10.8 | 18.3 | 288 | 0.3 | 0.3 | -0.1 | 8.1 |
| 800 | 1933 | 2022 | 1855 | 18.9 | 27.2 | 8.8 | 15.5 | 329 | 0.6 | 0.3 | -0.5 | 7.8 |
| 750 | 2485 | 2600 | 2370 | 15.7 | 23.4 | 5.8 | 12.3 | 347 | 0.9 | 0.2 | -0.9 | 7.4 |
| 700 | 3066 | 3190 | 2959 | 12.5 | 21.4 | 3.8 | 8.5 | 6 | 1 | -0.1 | -1 | 7.1 |
| 650 | 3685 | 3810 | 3529 | 9.3 | 18 | -0.3 | 4.1 | 18 | 0.6 | -0.2 | -0.6 | 6.4 |
| 600 | 4344 | 4492 | 4219 | 5.9 | 15 | -3.9 | 0 | 72 | 0.6 | -0.6 | -0.2 | 5.9 |
| 550 | 5068 | 5700 | 4911 | 2.3 | 12.8 | -5.7 | -4.2 | 96 | 1 | -1 | 0.1 | 5.4 |
| 500 | 5817 | 6000 | 5664 | -1.7 | 9 | -11.5 | -8.8 | 102 | 1.4 | -1.4 | 0.3 | 5.3 |
| 450 | 6658 | 6857 | 6473 | -6.2 | 5 | -14.5 | -13.8 | 114 | 1.7 | -1.6 | 0.7 | 5 |
| 400 | 7562 | 7796 | 7382 | -11.6 | -0.3 | -19.9 | -19.8 | 113 | 2.3 | -2.1 | 0.9 | 5.4 |
| 350 | 8574 | 8839 | 8339 | -17.9 | -4.7 | -28.1 | -26.7 | 109 | 2.8 | -2.6 | 0.9 | 5.6 |
| 300 | 9684 | 9960 | 9481 | -25.8 | -12.9 | -37.1 | -34.8 | 108 | 3.5 | -3.3 | 1.1 | 6.1 |
| 250 | 11009 | 11381 | 10730 | -35.7 | -20.5 | -49.1 | -44.5 | 104 | 3.7 | -3.6 | 0.9 | 6.1 |
| 200 | 12520 | 12981 | 12170 | -48.2 | -28.1 | -62.9 | -56.2 | 99 | 5.4 | -5.3 | 0.8 | 8.1 |
| 175 | 13387 | 13907 | 12991 | -55.7 | -38.9 | -71.3 | -58 | 95 | 6 | -6 | 0.5 | 8.6 |
| 150 | 14353 | 14952 | 13892 | -63.5 | -45.3 | -77.3 | -62.4 | 91 | 6 | -6 | 0.1 | 8.6 |
| 125 | 15453 | 16028 | 14938 | -71.2 | -51.1 | -84.7 | -72.3 | 86 | 6.3 | -6.3 | -0.4 | 8.6 |
| 100 | 16751 | 17363 | 16218 | -76.5 | -61.3 | -89.3 | | 86 | 9.3 | -9.3 | -0.7 | 11.9 |
| 80 | 18044 | 18556 | 17513 | -73.7 | -54.1 | -90.3 | | 87 | 9.9 | -9.9 | -0.6 | 10.9 |
| 70 | 18841 | 19500 | 18310 | -69.7 | -54.1 | -84.1 | | 89 | 9.8 | -9.8 | -0.2 | 11 |
| 60 | 18582 | 19999 | 19172 | -64.9 | -51.9 | -80.7 | | 90 | 9.2 | -9.2 | 0 | 9.8 |
| 50 | 20894 | 21469 | 20271 | -59.9 | -45.9 | -76.7 | | 93 | 11.8 | -11.8 | 0.6 | 12.9 |
| 40 | 22296 | 22871 | 21542 | -55.7 | -40.9 | -71.9 | | 92 | 9.6 | -9.6 | 0.3 | 10.3 |
| 30 | 24151 | 24783 | 23316 | -51.2 | -36.5 | -63.1 | | 92 | 8.5 | -8.5 | 0.3 | 9.1 |
| 25 | 25327 | 26000 | 24455 | -49.3 | -37.5 | -62.5 | | 94 | 8 | -8 | 0.5 | 8.5 |
| 20 | 26786 | 27449 | 25864 | -47.3 | -34.5 | -58.3 | | 94 | 16.9 | -16.9 | 1.1 | 17.6 |
| 15 | 28666 | 29445 | 27703 | -45.6 | -31.5 | -56.1 | | 92 | 9.9 | -9.9 | 0.3 | 10.1 |
| 10 | 31331 | 31884 | 30328 | -43.4 | -34.1 | -53.3 | | 90 | 1.2 | -1.2 | 0 | 1.2 |
| 7 | 33800 | 33861 | 33740 | -38.8 | -34.1 | -43.5 | | 90 | 0.3 | -0.3 | 0 | 0.3 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | | P | Height | Temp | | P | Height | Temp |
| 523 | 5474 | 6930 | 3530 | | | | | | 100 | 16762 | -78.2 |

| PRESSURE | HEIGHT | Hmax | Hmin | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|----------|--------|------|------|------|------|------|-------|-----|------|---|---|-----|
| SURFACE | 985.9 | 992 | 980 | 27 | 31 | 22 | 24.7 | 90 | 0.4 | -0.4 | 0 | 1.4 |
| 1000 | -4 | 117 | -58 | | | | | 0 | 0 | 0 | 0 | 0 |
| 950 | 444 | 511 | 305 | 26.1 | 34 | 19.4 | 23 | 98 | 1.4 | -1.4 | 0.2 | 6.9 |
| 925 | 682 | 764 | 600 | 25.3 | 31.4 | 16.8 | 22 | 90 | 1.2 | -1.2 | 0 | 8 |
| 900 | 924 | 994 | 828 | 23.9 | 32.2 | 15.4 | 20.6 | 100 | 1.7 | -1.7 | 0.3 | 8 |
| 850 | 1422 | 1516 | 1324 | 21.1 | 29.2 | 10 | 17.8 | 90 | 1.9 | -1.9 | 0 | 8 |
| 800 | 1945 | 2075 | 1855 | 18.3 | 27.6 | 6.2 | 14.8 | 78 | 1.9 | -1.9 | -0.4 | 7.8 |
| 750 | 2494 | 2623 | 2040 | 15.3 | 25.4 | 4.4 | 11.5 | 81 | 1.9 | -1.9 | -0.3 | 7.6 |
| 700 | 3076 | 3207 | 2955 | 12.4 | 21.8 | 2.4 | 7.7 | 87 | 1.8 | -1.8 | -0.1 | 7 |
| 650 | 3694 | 3848 | 3525 | 9.3 | 17.8 | 0 | 3.6 | 93 | 1.8 | -1.8 | 0.1 | 6.3 |
| 600 | 4354 | 4528 | 4201 | 5.9 | 16 | -3.7 | -0.6 | 99 | 1.8 | -1.8 | 0.3 | 5.7 |
| 550 | 5075 | 5255 | 4926 | 2.1 | 11 | -5.1 | -4.9 | 106 | 2.2 | -2.1 | 0.6 | 5.4 |
| 500 | 5825 | 6033 | 5631 | -2 | 8.2 | -9.9 | -9.4 | 108 | 2.5 | -2.4 | 0.8 | 5.5 |
| 450 | 6665 | 6878 | 6460 | -6.6 | 4.8 | -14.5 | -14.8 | 112 | 2.7 | -2.5 | 1 | 5.4 |
| 400 | 7568 | 7800 | 7333 | -12.1 | -2.3 | -20.7 | -20.8 | 110 | 3 | -2.8 | 1 | 5.6 |
| 350 | 8577 | 8859 | 8330 | -18.4 | -7.7 | -29.5 | -27.1 | 111 | 3.3 | -3.1 | 1.2 | 5.8 |
| 300 | 9712 | 9976 | 9418 | -26.5 | -15.9 | -40.5 | -35.6 | 109 | 3.7 | -3.5 | 1.2 | 6.1 |
| 250 | 11004 | 11303 | 10668 | -36.5 | -23.3 | -54.1 | -45.5 | 108 | 4.2 | -4 | 1.3 | 6.9 |
| 200 | 12510 | 12828 | 12166 | -49.2 | -37.1 | -64.3 | -58.3 | 101 | 5.4 | -5.3 | 1 | 8.9 |
| 175 | 13372 | 13739 | 12972 | -56.5 | -41.7 | -71.5 | -60.1 | 96 | 5.6 | -5.6 | 0.6 | 9 |
| 150 | 14337 | 14762 | 13889 | -64.4 | -49.3 | -78.5 | -62.9 | 93 | 5.9 | -5.9 | 0.3 | 8.8 |
| 125 | 15432 | 15935 | 14981 | -72 | -56.7 | -84.9 | -80.3 | 90 | 5.9 | -5.9 | 0 | 8.2 |
| 100 | 16724 | 17230 | 16242 | -75.6 | -57.3 | -89.1 | | 86 | 9.1 | -9.1 | -0.7 | 11.8 |
| 80 | 18030 | 18542 | 17509 | -72.3 | -54.1 | -87.1 | | 87 | 10 | -10 | -0.6 | 11 |
| 70 | 18837 | 19374 | 18310 | -68 | -49.3 | -81.5 | | 91 | 9.6 | -9.6 | 0.1 | 11.1 |
| 60 | 18524 | 20045 | 19185 | -63.8 | -44.1 | -78.9 | | 91 | 8.7 | -8.7 | 0.1 | 9.5 |
| 50 | 20894 | 21472 | 20263 | -59.4 | -39.5 | -72.3 | | 91 | 11.5 | -11.5 | 0.3 | 13.6 |
| 40 | 22298 | 23300 | 21602 | -55.8 | -32.1 | -68.3 | | 91 | 10.7 | -10.7 | 0.2 | 12 |
| 30 | 24130 | 24901 | 23387 | -52.1 | -41.1 | -62.9 | | 92 | 9.5 | -9.5 | 0.4 | 10.6 |
| 25 | 25302 | 26130 | 24610 | -49.8 | -38 | -60.3 | | 93 | 8.2 | -8.2 | 0.5 | 9 |
| 20 | 26787 | 27667 | 26079 | -47.6 | -35.7 | -59.1 | | 92 | 15.7 | -15.7 | 0.6 | 16.7 |
| 15 | 28720 | 29655 | 28162 | -45 | -33.7 | -54.7 | | 95 | 10.8 | -10.8 | 0.9 | 11 |
| 10 | 31510 | 32227 | 30947 | -41.2 | -31.1 | -54.7 | | 97 | 3.5 | -3.5 | 0.4 | 3.6 |
| 7 | 33819 | 34030 | 33444 | -44.2 | -38.9 | -54.7 | | 90 | 0.2 | -0.2 | 0 | 0.2 |

| FREEZING LEVEL | | | | FIRST TROPOPAUSE | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | P | Height | Temp | P | Height | Temp |
| 525 | 5467 | 6780 | 3636 | | | | 103 | 16599 | -78.2 |

| PRESSURE | HEIGHT | H max | H min | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 989.9 | 998 | 980 | 25.8 | 35.4 | 20 | 23.2 | 79 | 0.5 | -0.5 | -0.1 | 1.2 |
| 1000 | 34 | 103 | -48 | | | | | 0 | 0 | 0 | 0 | 0 |
| 950 | 475 | 564 | 325 | 25.3 | 32.8 | 17.8 | 21 | 70 | 1.2 | -1.1 | -0.4 | 6 |
| 925 | 707 | 805 | 560 | 24.5 | 31 | 16.4 | 19.7 | 79 | 1.6 | -1.6 | -0.3 | 6.6 |
| 900 | 957 | 1031 | 874 | 23 | 30.6 | 15.8 | 18.2 | 67 | 1.3 | -1.2 | -0.5 | 7.1 |
| 850 | 1453 | 1527 | 1317 | 20.1 | 28.2 | 12.6 | 14.7 | 35 | 1.2 | -0.7 | -1 | 7.5 |
| 800 | 1973 | 2048 | 1875 | 17.1 | 27 | 10.4 | 11.3 | 21 | 1.7 | -0.6 | -1.6 | 7.6 |
| 750 | 2516 | 2604 | 2391 | 13.9 | 21.8 | 7.2 | 7.2 | 17 | 1.7 | -0.5 | -1.6 | 7.3 |
| 700 | 3095 | 3193 | 2998 | 10.6 | 19.2 | 2.6 | 3.5 | 13 | 1.3 | -0.3 | -1.3 | 7 |
| 650 | 3710 | 3819 | 3563 | 7.3 | 16 | -2.1 | -0.4 | 22 | 0.5 | -0.2 | -0.5 | 6.5 |
| 600 | 4367 | 4491 | 4230 | 3.7 | 11.4 | -7.1 | -4.4 | 214 | 0.4 | 0.2 | 0.3 | 6.1 |
| 550 | 5080 | 5207 | 4940 | 0.1 | 10.8 | -9.7 | -8.1 | 207 | 0.9 | 0.4 | 0.8 | 6.2 |
| 500 | 5826 | 5975 | 5676 | -4.1 | 7.2 | -15.3 | -13.2 | 228 | 1.5 | 1.1 | 1 | 6.2 |
| 450 | 6658 | 6822 | 6490 | -8.9 | 0.2 | -17.1 | -17.9 | 231 | 1.9 | 1.5 | 1.2 | 6.3 |
| 400 | 7556 | 9574 | 7374 | -14.5 | -4.1 | -25.9 | -24 | 241 | 2.5 | 2.2 | 1.2 | 6.6 |
| 350 | 8552 | 8775 | 8320 | -21.3 | -9.1 | -30.9 | -31.1 | 246 | 3 | 2.7 | 1.2 | 6.9 |
| 300 | 9673 | 9927 | 9449 | -29.3 | -15.5 | -38.3 | -39.7 | 248 | 3.8 | 3.5 | 1.4 | 7.3 |
| 250 | 10949 | 11252 | 10691 | -39.4 | -24.3 | -49.7 | -50.7 | 245 | 4.3 | 3.9 | 1.8 | 8.2 |
| 200 | 12436 | 12772 | 12082 | -51.6 | -35.1 | -62.3 | -61.4 | 247 | 5.1 | 4.7 | 2 | 9.7 |
| 175 | 13290 | 13660 | 12923 | -58.5 | -40.5 | -69.1 | -60.8 | 246 | 4.5 | 4.1 | 1.8 | 9.3 |
| 150 | 14246 | 14724 | 13857 | -65.9 | -45.1 | -76.7 | -59.9 | 247 | 3.3 | 3 | 1.3 | 8.4 |
| 125 | 15331 | 15824 | 14916 | -72.9 | -52.3 | -82.9 | | 253 | 1 | 1 | 0.3 | 6.8 |
| 100 | 16620 | 17215 | 16198 | -76.7 | -62.5 | -88.9 | | 83 | 1.6 | -1.6 | -0.2 | 7.4 |
| 80 | 17913 | 18563 | 17465 | -72.5 | -57.1 | -86.1 | | 86 | 4.6 | -4.6 | -0.3 | 6.9 |
| 70 | 18713 | 19386 | 18246 | -68.2 | -51.5 | -82.3 | | 90 | 5.4 | -5.4 | 0 | 6.9 |
| 60 | 19425 | 19997 | 19143 | -63.7 | -43.1 | -80.9 | | 92 | 6.3 | -6.3 | 0.2 | 7.4 |
| 50 | 20768 | 21511 | 20285 | -59.6 | -47.5 | -76.9 | | 92 | 8.9 | -8.9 | 0.3 | 10 |
| 40 | 22171 | 22955 | 21655 | -55.9 | -41.5 | -69.1 | | 91 | 8.5 | -8.5 | 0.1 | 9.3 |
| 30 | 24009 | 24849 | 23436 | -52 | -39.1 | -63.5 | | 95 | 7.3 | -7.3 | 0.6 | 7.9 |
| 25 | 25187 | 26068 | 24562 | -50.4 | -37.9 | -62.3 | | 94 | 5.7 | -5.7 | 0.4 | 6.2 |
| 20 | 26667 | 27571 | 25950 | -48 | -35.3 | -61.3 | | 96 | 13.9 | -13.8 | 1.4 | 15.1 |
| 15 | 28557 | 29441 | 27756 | -46.3 | -36.1 | -61.1 | | 95 | 6.9 | -6.9 | 0.6 | 7.8 |
| 10 | 31223 | 32258 | 30368 | -44.4 | -35.1 | -55.3 | | 96 | 3 | -3 | 0.3 | 3.4 |
| 7 | 33610 | 34135 | 33279 | -47 | -38.1 | -64.9 | | 117 | 0.2 | -0.2 | 0.1 | 0.5 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H max | H min | | P | Height | Temp | | P | Height | Temp |
| 551 | 5078 | 6760 | 3380 | | | | | | 104 | 16441 | -78.4 |

| PRESSURE | HEIGHT | H max | H min | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 995.4 | 1003 | 947 | 21.3 | 29 | 14 | 18 | 360 | 0.1 | 0 | -0.1 | 0.4 |
| 1000 | 83 | 149 | 9 | 18.8 | 24 | 15 | 16 | 0 | 0 | 0 | 0 | 0 |
| 950 | 523 | 588 | 371 | 23.3 | 30.4 | 12.8 | 13.3 | 333 | 0.9 | 0.4 | -0.8 | 4.5 |
| 925 | 755 | 820 | 640 | 22.2 | 30.8 | 14.4 | 11.9 | 336 | 1 | 0.4 | -0.9 | 5 |
| 900 | 997 | 1075 | 898 | 20.8 | 29.6 | 11.4 | 9.4 | 325 | 1.9 | 1.1 | -1.6 | 5 |
| 850 | 1488 | 1546 | 1392 | 17.6 | 30.4 | 6.8 | 5 | 320 | 3.1 | 2 | -2.4 | 6.1 |
| 800 | 2002 | 2077 | 1895 | 14.2 | 27.8 | 2.2 | 1 | 319 | 4.1 | 2.7 | -3.1 | 7.2 |
| 750 | 2537 | 2650 | 2360 | 10.7 | 22.6 | -0.7 | -3.1 | 317 | 4.4 | 3 | -3.2 | 7.6 |
| 700 | 3114 | 3225 | 2978 | 7.2 | 19 | -2.1 | -7 | 310 | 4.3 | 3.3 | -2.8 | 7.5 |
| 650 | 3715 | 3851 | 3570 | 3.9 | 15.2 | -7.5 | -11 | 299 | 4.5 | 3.9 | -2.2 | 7.5 |
| 600 | 4365 | 4519 | 4204 | 0.4 | 12.2 | -10.7 | -14.5 | 286 | 5.3 | 5.1 | -1.5 | 8.4 |
| 550 | 5064 | 5240 | 4890 | -3.5 | 8.6 | -15.1 | -18.5 | 281 | 6.5 | 6.4 | -1.2 | 9.4 |
| 500 | 5804 | 6017 | 5624 | -8.1 | 4.4 | -20.9 | -23.5 | 277 | 8.5 | 8.4 | -1 | 11.2 |
| 450 | 6619 | 6857 | 6350 | -13.3 | -0.9 | -26.9 | -29.1 | 274 | 10.7 | 10.7 | -0.8 | 13.4 |
| 400 | 7502 | 7775 | 7262 | -19.2 | -8.5 | -32.7 | -34.9 | 272 | 13.7 | 13.7 | -0.4 | 16.6 |
| 350 | 8484 | 8790 | 8180 | -25.8 | -12.3 | -40.3 | -42.1 | 269 | 16.3 | 16.3 | 0.2 | 19.2 |
| 300 | 9585 | 9927 | 9267 | -33.3 | -20.9 | -46.7 | -50 | 267 | 18.8 | 18.8 | 1.1 | 21.8 |
| 250 | 10841 | 11233 | 10497 | -42.5 | -27.3 | -54.3 | -59.7 | 265 | 20.4 | 20.3 | 1.9 | 23.1 |
| 200 | 12314 | 12764 | 11905 | -53.5 | -36.7 | -64.7 | -69.7 | 263 | 22.3 | 22.1 | 2.9 | 25.1 |
| 175 | 13163 | 13646 | 12723 | -59.6 | -42.3 | -73.5 | -61.6 | 262 | 20.3 | 20.1 | 2.9 | 22.8 |
| 150 | 14114 | 14642 | 13653 | -66 | -48.1 | -79.7 | -77.1 | 263 | 17.2 | 17.1 | 2.2 | 19.5 |
| 125 | 15202 | 15787 | 14747 | -72 | -56.9 | -85.7 | | 263 | 13.2 | 13.1 | 1.6 | 14.9 |
| 100 | 16498 | 17168 | 16074 | -75 | -61.7 | -90.5 | | 264 | 11.5 | 11.4 | 1.2 | 13.3 |
| 80 | 17805 | 18529 | 17342 | -71.4 | -54.7 | -89.7 | | 271 | 5.7 | 5.7 | -0.1 | 8.1 |
| 70 | 18606 | 19226 | 18112 | -67.3 | -42.6 | -84.5 | | 275 | 3.3 | 3.3 | -0.3 | 6.8 |
| 60 | 19388 | 19984 | 19007 | -63.4 | -48.1 | -78.1 | | 284 | 1.2 | 1.2 | -0.3 | 5.5 |
| 50 | 20670 | 21374 | 20087 | -59.2 | -43.7 | -72.5 | | 63 | 0.4 | -0.4 | -0.2 | 7.1 |
| 40 | 22076 | 22837 | 21437 | -55.7 | -37.3 | -65.5 | | 84 | 1.8 | -1.8 | -0.2 | 6.5 |
| 30 | 23919 | 24757 | 23289 | -51.9 | -30.9 | -63.1 | | 79 | 1.6 | -1.6 | -0.3 | 4.9 |
| 25 | 25096 | 25990 | 24440 | -50.4 | -35.9 | -62.3 | | 84 | 0.9 | -0.9 | -0.1 | 3.8 |
| 20 | 26599 | 27505 | 25947 | -48.2 | -32.3 | -59.1 | | 99 | 1.9 | -1.9 | 0.3 | 6.8 |
| 15 | 28537 | 29267 | 27785 | -46.6 | -34.3 | -56.1 | | 106 | 1.5 | -1.4 | 0.4 | 4.2 |
| 10 | 31200 | 32082 | 30399 | -44.1 | -30.5 | -52.7 | | 225 | 0.3 | 0.2 | 0.2 | 1.8 |
| 7 | 33546 | 34100 | 32800 | -43.9 | -36.1 | -50.5 | | 135 | 0.1 | -0.1 | 0.1 | 0.2 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H max | H min | | P | Height | Temp | | P | Height | Temp |
| 596 | 4442 | 6420 | 2840 | | | | | | 106 | 16253 | -76.8 |

| PRESSURE | HEIGHT | H max | H min | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 999.4 | 1007 | 992 | 15.4 | 24 | 8 | 11.9 | 315 | 0.3 | 0.2 | -0.2 | 0.4 |
| 1000 | 118 | 182 | 37 | 15.1 | 21.5 | 8.4 | 11.4 | 315 | 0.1 | 0.1 | -0.1 | 0.4 |
| 950 | 553 | 658 | 450 | 19.6 | 29.6 | 10.6 | 7.1 | 325 | 2.4 | 1.4 | -2 | 4.8 |
| 925 | 774 | 875 | 640 | 18.7 | 25.4 | 11 | 5.5 | 322 | 2.8 | 1.7 | -2.2 | 5.3 |
| 900 | 1019 | 1100 | 930 | 17 | 26.8 | 6.8 | 3 | 319 | 3.2 | 2.1 | -2.4 | 5.3 |
| 850 | 1502 | 1584 | 1414 | 14 | 24.6 | 4.2 | -1 | 314 | 4.2 | 3 | -2.9 | 6.5 |
| 800 | 2011 | 2097 | 1920 | 11.1 | 21.4 | 1.8 | -4.8 | 313 | 5 | 3.7 | -3.4 | 7.5 |
| 750 | 2542 | 2670 | 2420 | 8.3 | 19.8 | -4.9 | -8.5 | 309 | 5.8 | 4.5 | -3.6 | 8.3 |
| 700 | 3112 | 3217 | 3008 | 5.3 | 17.2 | -3.7 | -12 | 303 | 6.6 | 5.5 | -3.6 | 9.2 |
| 650 | 3710 | 3850 | 3590 | 2.1 | 14 | -6.7 | -15.7 | 299 | 7.5 | 6.6 | -3.6 | 10.1 |
| 600 | 4353 | 4514 | 4236 | -1.8 | 9.2 | -11.3 | -19.4 | 293 | 9.1 | 8.4 | -3.6 | 11.9 |
| 550 | 5046 | 5260 | 4880 | -6.1 | 4.2 | -16.5 | -23.3 | 288 | 11.4 | 10.8 | -3.6 | 14.2 |
| 500 | 5779 | 5996 | 5624 | -11.1 | -0.3 | -26.9 | -27.8 | 284 | 13.6 | 13.2 | -3.4 | 16.5 |
| 450 | 6582 | 6850 | 6330 | -16.7 | -5.1 | -29.5 | -32.3 | 282 | 16.5 | 16.1 | -3.4 | 19.6 |
| 400 | 7454 | 7748 | 7114 | -23 | -12.1 | -34.3 | -38.6 | 280 | 20.4 | 20.1 | -3.7 | 23.9 |
| 350 | 8419 | 8750 | 8090 | -29.8 | -17.7 | -41.7 | -44.8 | 277 | 23.4 | 23.2 | -2.9 | 27.3 |
| 300 | 9502 | 9878 | 9086 | -37.3 | -23.1 | -50.5 | -52.9 | 276 | 26.4 | 26.3 | -2.7 | 30.7 |
| 250 | 10741 | 11157 | 10275 | -45.5 | -29.5 | -58.3 | -61.4 | 273 | 27.9 | 27.9 | -1.4 | 32.2 |
| 200 | 12194 | 12645 | 11701 | -55.1 | -41.1 | -66.7 | -69.9 | 270 | 32.1 | 32.1 | -0.2 | 36.9 |
| 175 | 13040 | 13815 | 12538 | -60.2 | -44.1 | -74.9 | | 269 | 30 | 30 | 0.5 | 34.1 |
| 150 | 13990 | 14518 | 13486 | -65.4 | -48.3 | -79.5 | | 269 | 26.5 | 26.5 | 0.6 | 30.1 |
| 125 | 15076 | 15557 | 12295 | -70.5 | -56.1 | -83.6 | | 269 | 22.1 | 22.1 | 0.2 | 24.7 |
| 100 | 16394 | 16916 | 15871 | -73.5 | -58.1 | -87.8 | | 272 | 20.1 | 20.1 | -0.8 | 22.5 |
| 80 | 17708 | 18275 | 17199 | -71.6 | -56.4 | -85.9 | | 274 | 13.1 | 13.1 | -0.9 | 15 |
| 70 | 18503 | 19125 | 17990 | -68.8 | -53.7 | -81.5 | | 276 | 10.1 | 10 | -1.1 | 12.3 |
| 60 | 19380 | 19900 | 18959 | -65.6 | -52.1 | -78.9 | | 278 | 7.3 | 7.2 | -1 | 9.6 |
| 50 | 20556 | 21251 | 20016 | -61.4 | -45.4 | -78.3 | | 280 | 6.3 | 6.2 | -1.1 | 10.6 |
| 40 | 21952 | 22714 | 21356 | -57.6 | -42.2 | -70.9 | | 286 | 3.7 | 3.6 | -1 | 7.9 |
| 30 | 23784 | 24347 | 23219 | -53.9 | -41.1 | -68.7 | | 284 | 4 | 3.9 | -1 | 6.3 |
| 25 | 24934 | 25417 | 24320 | -52.7 | -39.5 | -67.1 | | 291 | 2.5 | 2.3 | -0.9 | 4.9 |
| 20 | 26385 | 26916 | 25803 | -50.4 | -38.9 | -65.5 | | 280 | 8.4 | 8.3 | -1.5 | 14.8 |
| 15 | 28227 | 28842 | 27660 | -48.3 | -33.9 | -64.1 | | 274 | 4.2 | 4.2 | -0.3 | 7.4 |
| 10 | 30923 | 31518 | 30319 | -46.1 | -34.9 | -61.5 | | 270 | 2.2 | 2.2 | 0 | 3.1 |
| 7 | 33405 | 33907 | 32865 | -42.9 | -40.9 | -46.7 | | 270 | 0.4 | 0.4 | 0 | 0.5 |

| FREEZING LEVEL | | | | FIRST TROPOPAUSE | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | P | Height | Temp | P | Height | Temp |
| 625 | 4053 | 6000 | 2480 | | | | 103 | 16281 | -75.6 |

**Lucknow**       42369       **Station height**       122                                    **December**

| PRESSURE | HEIGHT | H max | H min | TEMP | TMAX | TMIN | DEWPT | DIR | VELO | U | V | VM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | 1001.7 | 1009 | 993 | 11.3 | 19 | 6 | 8.7 | 315 | 0.4 | 0.3 | -0.3 | 0.7 |
| 1000 | 136 | 195 | 35 | 11.5 | 19.8 | 6.2 | 8.3 | 321 | 0.6 | 0.4 | -0.5 | 1.1 |
| 950 | 562 | 645 | 456 | 15.3 | 27.4 | 4 | 4.2 | 322 | 2.9 | 1.8 | -2.3 | 5.2 |
| 925 | 786 | 880 | 670 | 14.8 | 23 | 7.6 | 2.4 | 315 | 3.4 | 2.4 | -2.4 | 5.6 |
| 900 | 1024 | 1095 | 910 | 13.6 | 27.8 | 5.4 | -0.3 | 312 | 3.8 | 2.8 | -2.5 | 5.9 |
| 850 | 1504 | 1600 | 1389 | 11.6 | 26 | 2.6 | -4.2 | 308 | 4.9 | 3.9 | -3 | 7.2 |
| 800 | 2008 | 2134 | 1879 | 9.4 | 21 | -0.5 | -7.2 | 303 | 6.2 | 5.2 | -3.4 | 8.4 |
| 750 | 2536 | 2631 | 2400 | 6.9 | 18.4 | -5.1 | -10.2 | 302 | 7.3 | 6.2 | -3.8 | 9.3 |
| 700 | 3103 | 3261 | 2969 | 3.9 | 15 | -8.5 | -13.2 | 297 | 8.5 | 7.6 | -3.8 | 10.6 |
| 650 | 3697 | 3818 | 3500 | 0.5 | 11 | -12.1 | -17.2 | 293 | 9.9 | 9.1 | -3.8 | 12.1 |
| 600 | 4339 | 4526 | 4180 | -3.4 | 6.8 | -15.1 | -20.4 | 289 | 11.8 | 11.2 | -3.8 | 14.4 |
| 550 | 5026 | 5250 | 4820 | -7.8 | 2.2 | -19.7 | -24.5 | 285 | 14.2 | 13.7 | -3.6 | 17 |
| 500 | 5756 | 5964 | 5509 | -12.9 | -2.5 | -24.4 | -28.6 | 282 | 16.7 | 16.3 | -3.5 | 19.6 |
| 450 | 6554 | 6810 | 6300 | -18.6 | -5 | -29.1 | -33.4 | 280 | 18.8 | 18.5 | -3.3 | 22.1 |
| 400 | 7418 | 7682 | 7145 | -24.9 | -14.3 | -35.9 | -39.1 | 279 | 23 | 22.7 | -3.4 | 26.4 |
| 350 | 8364 | 8624 | 8100 | -31.8 | -18.3 | -76.7 | -45.7 | 278 | 25.5 | 25.3 | -3.5 | 29.3 |
| 300 | 9450 | 9782 | 9103 | -39.2 | -26.1 | -51.9 | -52.7 | 277 | 28.8 | 28.6 | -3.3 | 33.1 |
| 250 | 10676 | 11045 | 10298 | -47.5 | -35.3 | -63.1 | -61.3 | 274 | 31 | 30.9 | -2.1 | 35.6 |
| 200 | 12118 | 12543 | 11740 | -56.5 | -45.3 | -71.9 | -70.2 | 271 | 35 | 35 | -0.9 | 40.3 |
| 175 | 12960 | 13413 | 12576 | -60.9 | -49.5 | -75.9 | -61.8 | 271 | 32.3 | 32.3 | -0.8 | 37.1 |
| 150 | 13904 | 14393 | 13526 | -65.2 | -53.9 | -78.1 | -67.1 | 272 | 28.4 | 28.4 | -0.9 | 32.5 |
| 125 | 15000 | 15407 | 14593 | -69.6 | -57.1 | -81.8 | | 272 | 24.2 | 24.2 | -0.8 | 27.3 |
| 100 | 16317 | 16736 | 15817 | -73.1 | -56.9 | -87.9 | | 273 | 24.9 | 24.9 | -1.3 | 27.6 |
| 80 | 17623 | 18056 | 17084 | -72.2 | -53.7 | -85.3 | | 277 | 17 | 16.9 | -2.1 | 18.9 |
| 70 | 18418 | 18890 | 17860 | -69.9 | -51.7 | -85.9 | | 278 | 12.8 | 12.7 | -1.8 | 15.2 |
| 60 | 19341 | 19794 | 18735 | -67 | -49.3 | -83.9 | | 279 | 9.5 | 9.4 | -1.5 | 12.2 |
| 50 | 20465 | 20954 | 19797 | -63 | -46.1 | -80.1 | | 280 | 10.8 | 10.6 | -1.9 | 14.2 |
| 40 | 21841 | 22356 | 21103 | -59.7 | -43.2 | -80.3 | | 282 | 7.8 | 7.6 | -1.6 | 10.6 |
| 30 | 23655 | 24282 | 22855 | -55.7 | -42.5 | -68.5 | | 287 | 4.8 | 4.6 | -1.4 | 7.3 |
| 25 | 24797 | 25344 | 23987 | -54.4 | -39.8 | -66.1 | | 287 | 3 | 2.9 | -0.9 | 4.8 |
| 20 | 26232 | 26841 | 25600 | -52 | -35.2 | -64.5 | | 282 | 12.3 | 12 | -2.5 | 18.7 |
| 15 | 28091 | 28799 | 27626 | -50.3 | -33.1 | -63.3 | | 272 | 6.5 | 6.5 | -0.2 | 10.1 |
| 10 | 30853 | 31439 | 30337 | -46.8 | -35.7 | -62.1 | | 266 | 3.9 | 3.9 | 0.3 | 4.7 |
| 7 | 32971 | 33012 | 32930 | -57 | -52.9 | -61.1 | | 252 | 1.3 | 1.2 | 0.4 | 1.3 |

| FREEZING LEVEL | | | | | FIRST TROPOPAUSE | | | | SECOND TROPOPAUSE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Height | H_max | H_min | | P | Height | Temp | | P | Height | Temp |
| 647 | 3758 | 5650 | 1970 | | 173 | 13153 | -66.3 | | 99 | 16424 | -75.3 |