

# Wind Pattern and Ventilation Index

March 22, 2021

**Air mass inflow forecast in Delhi along with predicted ventilation coefficient and weather forecast is as follows**

- The air quality over Delhi-NCR is likely to improve marginally but remain in the Poor category on 19.03.2021 and Poor to Moderate category 20.03.2021.
- Predominant pollutant is PM10 as the northwest part of India is influenced by the transported dust. The dust concentration is likely to subside on 19th March. The air quality is likely to remain in the Moderate category on 21.03.2021.
- The Outlook for subsequent 5 Days: The air quality is likely to improve and remain in the Moderate to Satisfactory category.
  - The predominant surface wind is likely to be coming from variable directions of Delhi with wind speed 08-14 kmph and partly cloudy sky on 19.03.2021.
  - The predominant surface wind is likely to be coming from Northwest directions of Delhi with wind speed 14-22 kmph, partly cloudy sky, mist in the morning and strong surface winds (speed 20- 30 kmph) during the day on 20.03.2021.
  - The predominant surface wind is likely to be coming from East directions of Delhi with wind speed 10-22 kmph, partly cloudy sky, mist in the morning and strong surface winds (speed 20-30 kmph) during the day on 21.03.2021.
- Predicted maximum mixing depth is likely to be approx.
  - 1800 m on 19.03.2021, 4000 m on 20.03.2021 and 4400 m on 21.03.2021 over Delhi.
  - Maximum Ventilation index is likely to be approx

8500 m<sup>2</sup>/s on 19.03.2021, 27500 m<sup>2</sup>/s on 20.03.2021 and 20000 m<sup>2</sup>/s on 21.03.2021.

- The ventilation index lower than 6000 m<sup>2</sup>/s with average wind speed less than 10 kmph is unfavourable for dispersion of pollutants.
- The northwest part of India is influenced by the long range transported dust from the Middle-east and Arabian Peninsula. The dust concentration is likely to subside on 19th March.
- Detailed forecast analysis and verification can be seen at <https://ews.tropmet.res.in>.
- Air mass inflow in Delhi along with ventilation index is attached.

**Ventilation Index:** Ventilation Index is a measure of the volumetric rate of wind transporting air horizontally.

### **Highlights:**

- It is a measure of the volumetric rate of wind transporting air horizontally in the mixed layer per unit distance in the vertical direction. The unit is in square meters per second or knot feet.
- In simple terms, it is an indicator that indicates the efficiency of the dispersion of pollutants in the atmosphere.
- The ventilation index is the multiplier of wind speed and mixing height.
- When the ventilation index value is low and harmful pollutants are close to the ground, air quality risks occur.
- When the ventilation index value is low, there is also a visibility risk.
- It is a useful tool for air pollution management.