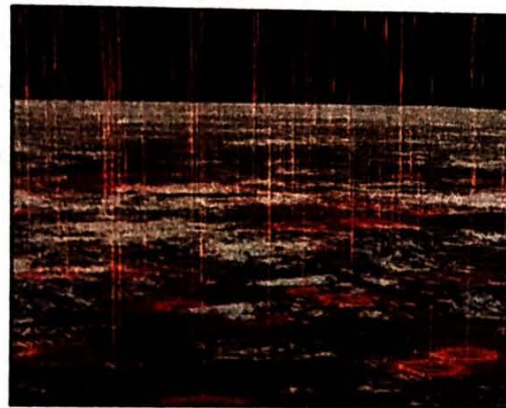


Air pollution turning rainfall more acidic in several cities: 34-year IMD-IITM study

Neha.Madaan
@timesofindia.com

Pune: A comprehensive 34-year study tracking rainwater chemistry across India has found that Visakhapatnam (Andhra Pradesh), Prayagraj (Uttar Pradesh) and Mohanbari (Assam) are increasingly experiencing acidic rainfall.

Though true “acid rain” is not yet a major threat, scientists associated with the study — conducted by IMD and Indian Institute of Tropical Meteorology (IITM) — have detected a concerning downward trend in pH levels across most monitored locations. The lower the pH, the higher the acidity of rain. pH is a measure that indicates how acidic or al-



pH IMBALANCE

kaline a substance is on a scale from 0 to 14, with 7 being neutral. Values below 5.65 in rainwater are considered acidic.

The research, conducted at 10 Global Atmosphere Watch stations from 1987 to 2021, found a “general decrease in pH over time” at most locations, with significant reductions observed at multiple

stations. This trend indicates rainwater is becoming more acidic, particularly in industrial and urban areas with high air pollution.

The acidity in Visakhapatnam’s rainwater, for instance, can be traced to emissions from the city’s oil refinery, power plant, fertiliser facility, and shipping yard. “In contrast, Jodhpur and Srinagar benefit from natural dust particles from nearby regions, like the Thar Desert, which help neutralise acidic components,” an IMD scientist said.

The study was conducted for Srinagar, Jodhpur, Prayagraj, Mohanbari, Pune, Nagpur, Visakhapatnam, Kodaikanal, Minicoy and Port Blair.

The research also found

that rain’s natural ability to neutralise acidic pollutants was weakening in several regions. “In places like Prayagraj, Jodhpur and Nagpur, the presence of calcium particles — which help cancel out acidity — is dropping over time. Some areas are witnessing a rise in other neutralisers, like ammonium. But this is not enough to fully offset the trend,” the scientist said. “The main pollutant linked to acidic rain is nitrate, which is rising because of emissions from vehicles, factories, burning of crop residue, and household sources.”

The study concluded city growth and industrial development significantly affect rainwater composition in India.