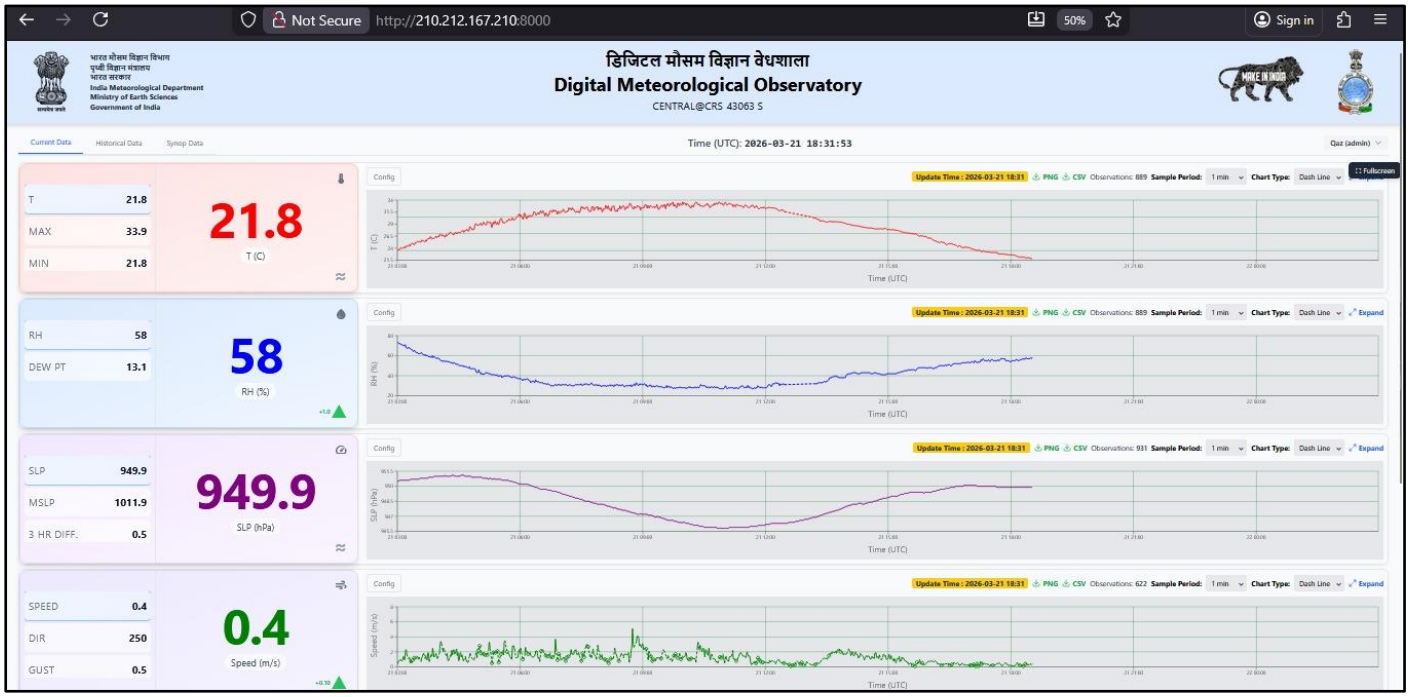
PRESS RELEASE – 23.03.2026
Climate Research & Services
India Meteorological Department, Pune

WMO day 2026 is being celebrated across the globe today with the theme "Observing today, protecting tomorrow". WMO day is celebrated at Office of Climate Research & Services, IMD at Pune as an open day for the public to understand the activities of IMD and to interact with the weather forecasters.

In line with the WMO day theme, Office of Climate Research & Services, IMD at Pune is pleased to induct the Digital Surface Meteorological Observation system, in its Surface observation network.

Designed and developed in-house in the Surface Instrument division of India Meteorological Department, Pune, this system is based on Digital Sensors using Wi-Fi enabled electronics to measure Air Temperature, Atmospheric Humidity, Pressure, Wind data and Rainfall with Geo-tagged data for Meteorological Applications.



DIGITAL METEOROLOGICAL OBSERVATION SYSTEM

India also joins many developed countries which have implemented modernisation of the surface observational instruments and replaced analogue mechanical instruments along with self-recording type of instruments with electronic ones.

The Minamata Convention on mercury, aimed at protecting human health and the environment from the adverse effect of mercury aims to abolish the use of mercury based instruments. Government of India is also a signatory of the Treaty. WMO has also recognized the environmental impact of mercury based observing systems and practices. Environmental sustainability of observing instruments is being emphasised and organizations around the world are shifting to "greener" policies and practices.

This induction of digital sensors in place of mercury based sensors in IMD’s network will be fulfilling both these objectives.

Digital Temperature & Humidity Sensor

Digital Barometer

IMD has a long tradition of in-house development and manufacturing of instruments. In line with the Make in India policy and Atmanirbhar Bharat & Digital India vision of the Government, this development has been carried out to modernize and digitize measurements of surface meteorological parameters in smart surface weather observatories of IMD. This initiative of the India Meteorological Department is a step towards Self Reliant India, to create a self-sufficient nation by boosting domestic manufacturing, reducing import dependency and fostering local industries.

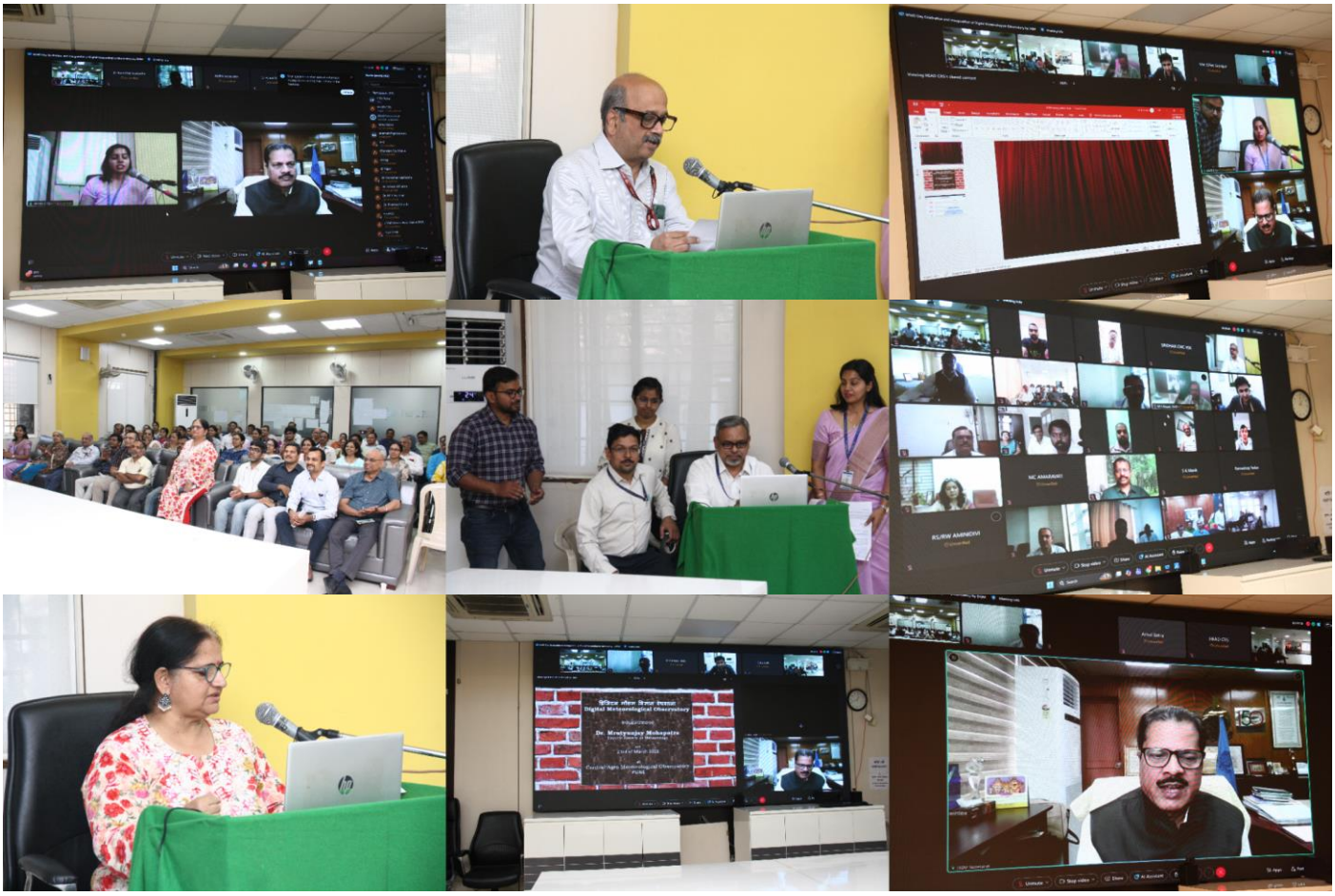
This cost effective system has features such as automated quality control of the data and it's archival, remote online monitoring using dashboards and maintenance through remote access. The sensors provide data at a high sampling rate, providing higher temporal resolution and improved accuracy with reliable data in real time.

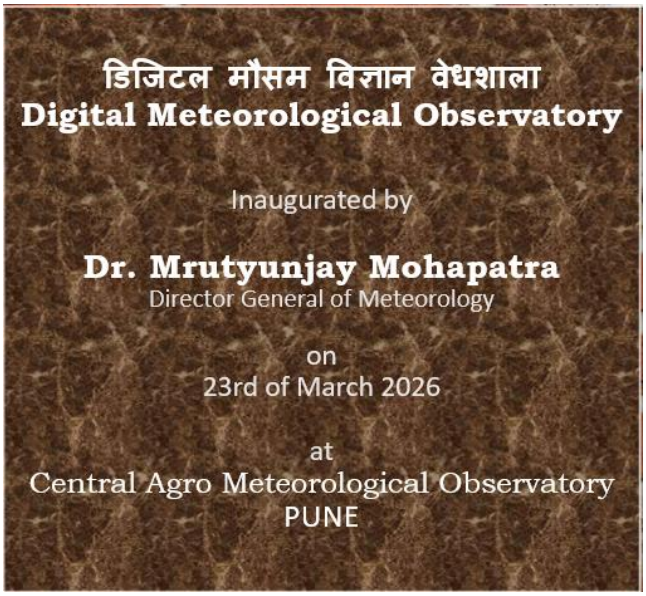
The developed system incorporates inbuilt fuzzy algorithms to identify and eliminate abnormal sensor performance and thus provide reliable measurements with high confidence factor. Additionally, the system has built in redundancy and is thus fault tolerant, thereby increasing the reliability and resilience. The design has open architecture and is scalable with non-proprietary modules.

The development was completed in 6 months, and after thorough testing, calibration, NABL certification and evaluation, the Digital Meteorological

Observation system is being inducted in the network. The calibration results have indicated that the accuracy and performance have been achieved as required. Hardware and Software both are in-house developed at Surface Instruments Division at the Office of Climate Research and Services, India Meteorological Department, Pune.

The first system has been virtually inaugurated today on 23 March, WMO day 2026, by Director General of Meteorology, Dr. Mrutyunjay Mohapatra. The event showed an online attendance of more than 100 people from media and different offices of IMD, as well as the retired IMD officials in additional to CRS officials present in person.





DGM, appreciated the in-house development work and expressed desire to implement it in the entire network at fast pace.

Future course of action planned is to operationalize it in the entire network in the next two-three years by collaborating with Indian industries for manufacturing based on IMD's design. Availability of every minute observational data and hourly (user programmable) SYNOP message from surface observatories will significantly improve the weather forecasting models.

The process for applying an Indian patent for the above is underway. Intellectual property rights (IPR) are crucial for governments to foster innovation, drive economic growth, and safeguard public interests.