GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. - 1603
ANSWERED ON 03/08/2023

DOPPLER WEATHER RADARS

1603. SHRI AYODHYA RAMI REDDY ALLA:

Will the Minister of **EARTH SCIENCES** be pleased to state:

(a) the details of the existing network of Doppler Weather Radars in the country and their geographical coverage, whether Government is considering for expanding the radar network to enhance weather monitoring capabilities and cover underserved areas; and
(b) whether Government is taking any steps to explore the integration of Doppler radar data into weather forecasting models for accurate and localized weather predictions, if so, the details thereof?

ANSWER
THE MINISTER OF EARTH SCIENCES
(SHRI KIREN RIJIJU)

(a) At present India Meteorological Department (IMD) is operating 37 numbers of Doppler Weather Radars (DWRs) across the country comprising of 22 S-Band DWRs, 4 C-Band DWRs and 11 X-Band DWRs. The details of the radars are given in Annexure. The expansion of the radar network is based on the requirement and need and is a continuous process.

(b) Yes Sir. IMD is running Global Forecast System (GFS) model at 12 kms resolution to support the operational forecast and this model is run four times a day to generate operational products. In this model, Doppler Weather Radar (DWR) data is assimilated to improve the initial conditions. The VAD (Velocity azimuth display) data from DWR is assimilated in the term of wind format as a wind profile over radar location, derived from RADAR reflectivity and radial velocity.

IMD is issuing nowcast and very short range weather forecast up to 12 hours using High resolution Rapid Refresh (HRRR) regional model. The HRRR regional model is run at 2 km resolution using boundary conditions from the GFS model. In this model Radar observations are assimilated in the form RADAR reflectivity and radial velocity to improve the initial state of the atmosphere.

National Centre for Medium Range Weather Forecasting (NCMRWF) issues forecasts at 4 km resolution in the short range scale upto 72 hours using boundary conditions from Global NCMRF Unified model (NCUM-G). In this model Radar observations are assimilated in the form of radar reflectivity and radial velocity to improve initial state of the atmosphere.

Annexure

Details of DWR Network

S. No.	STATION	State	Type
1.	AGARTALA	TRIPURA	S-BAND
2.	AYA NAGAR	NEW DELHI	X-BAND
3.	BHOPAL	MADHYA PRADESH	S-BAND
4.	BHUJ	GUJARAT	S-BAND
5.	BANIHAL	JAMMU & KASHMIR	X-BAND
6.	CHENNAI	TAMILNADU	S-BAND
7.	CHERAPUNJEE	MEGHALAYA	S-BAND
8.	GOA	GOA	S-BAND
9.	GOPALPUR	ODISHA	S-BAND
10.	HYDERABAD	TELANGANA	S-BAND
11.	JAIPUR	RAJASTHAN	C-BAND
12.	JAMMU	JAMMU & KASHMIR	X-BAND
13.	JOT	HIMACHAL PRADESH	X-BAND
14.	KARAIKAL	PUDUCHERRY	S-BAND
15.	KOLKATA	WEST BENGAL	S-BAND
16.	KOCHI	KERALA	S-BAND
17.	KUFRI	HIMACHAL PRADESH	X-BAND
18.	LEH	LADAKH	X-BAND
19.	LUCKNOW	UTTAR PRADESH	S-BAND
20.	MACHILIPATNAM	ANDHRA PRADESH	S-BAND
21.	MOHANBARI	ASSAM	S-BAND
22.	MUKTESHWAR	UTTARAKHAND	X-BAND
23.	MUMBAI (B)	MAHARASHTRA	S-BAND
24.	MURARI DEVI	HIMACHAL PRADESH	X-BAND
25.	NAGPUR(M)	MAHARASHTRA	S-BAND
26.	NEW DELHI (HQ)	NEW DELHI	C-BAND
27.	NEW DELHI (PALAM)	NEW DELHI	S-BAND
28.	PALLIKARANAI	TAMILNADU	X-BAND
29.	PARADEEP	ODISHA	S-BAND
30.	PATIALA	PUNJAB	S-BAND
31.	PATNA	BIHAR	S-BAND
32.	SRIHARIKOTA	ANDHRA PRADESH	S-BAND
33.	SRINAGAR	JAMMU & KASHMIR	X-BAND
34.	SURKANDA DEVI	UTTARAKHAND	X-BAND
35.	THIRUVANANTHAPURAM	KERALA	S-BAND
36.	VERAVALI	MAHARASHTRA	C-BAND
37.	VISAKHAPATNAM	ANDHRA PRADESH	S-BAND

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