



North-East Atmospheric Radar Workshop NEAR-2019

8th & 9th August 2019 at Guwahati



Atmosphere (derived from the Greek ατμος meaning vapour), also called वायुमंडल in Hindi, is the thin shell of gases surrounding the Earth and bound to the Earth because of its gravity. The atmosphere is made up of at least five layers starting from: The troposphere - closest to the earth's surface and contains all the weather, water vapour, airplanes. Stratosphere - contains the ozone layer that absorbs and protects us from the sun's ultraviolet radiation. Mesosphere - extends up to about 90 km above the earth's surface and burns up the meteors. Thermosphere - contains the ionosphere that is used for long distance radio communication. Exosphere - The outermost layer, where artificial satellites may be found and where particles escape the earth's gravity. Solar differential heating, earth's rotation and local pressure variations affect atmospheric circulation. Because of the effect and importance of the atmosphere on man; coupled with his inability to change it at his will, man has made great efforts to observe, study and understand, and then attempt to predict the vagaries of atmospheric dynamics. The process of observing the atmosphere from the earth's surface is called atmospheric remote sensing and one of the tools used for this is 'radio detection and ranging' or radar. The term atmospheric radar has been used in this workshop to mean any radar that can observe any part of the atmosphere using electromagnetic waves. This includes clear air radars such as MST Radar, Boundary Layer Radars and UHF wind profilers, Meteorological or Weather Radars, Ionosonde, Cloud Profiling Radar etc. The radar processes the received signal to evaluate the parameters of interest e.g. wind speed, wind direction, signal-to-noise ratio, Doppler shift and precipitation that are then used for further scientific analysis. The aim of this workshop is to discuss some of these aspects and to bring NEAR engineers and scientists of various branches of atmospheric science, leading to fruitful interaction and drawing inspiration from each other.

About **SAMEER**

The Society for Applied Microwave Electronics Engineering and Research (SAMEER) was set up as an autonomous R&D laboratory at Mumbai under the then Department of Electronics, Government of India with a broad mandate to undertake R & D work in the areas of Microwave Engineering and Electromagnetic Engineering Technology. It is an offshoot of the Special Microwave Products Unit (SMPU) set up in 1977 at the Tata Institute of Fundamental Research (TIFR), Mumbai. SAMEER, Mumbai (Centre for Microwave Research) was setup in 1984. The Centre of Electromagnetics, Chennai of the then Department of Electronics (DOE) was merged with SAMEER in 1987. SAMEER Kolkata Centre was set up in 1994 for Research & Development in Millimetrewave Technology. SAMEER, Vishakhapatnam and SAMEER, Guwahati have recently been started. SAMEER is an autonomous Society of MeitY, Govt. of India. Various atmospheric instruments pioneered and developed by SAMEER include: • MST Radar at 53 MHz, installed at the then NMRF, Gadanki • ST Radar - 212.5 MHz, installed at Gauhati University Assam • UHF Wind Profiler with RASS attachment - 404.37 MHz, installed at IMD, Pune • Doppler Sodar - installed at a number of places across the country • Radio Theodolite - 401 MHz • Digital Ionosonde - HF, installed at Dibrugarh, Assam and • Cloud profiling Radar - Ka band Cloud Radar

Workshop Venue - Conference Hall IIT Guwahati, Guwahati, Assam



Organising Committee

Patrons

Shri Ajay Prakash Sawhney, Secretary, MeitY
Dr.Mridul Hazarika, Vice-Chancellor, Gauhati Univ.

Advisors

Dr.Sulabha Ranade, Director General, SAMEER
Ms.Geeta Kathpalia, Group Co-ord., MeitY
Prof.A.K.Gogoi, IIT Guwahati
Prof.A.K.Barbara, Ex-Dean of Science, Gauhati Univ.
Prof.Minakshi Devi, In-charge, ST Radar Centre, GU
Dr.A.Agarwal, Ex-PD, SAMEER

National Organising Committee

S.S.Prasadh, Program Director, SAMEER- Chairman
J.D.Abhyankar, Program Director, SAMEER
Prof.Ratnadeep Bhattacharjee, IIT Guwahati
Ms.Sangita Arora, Director, MeitY

Local Organising Committee

Dr.T.Tiwari, PD Incharge, SAMEER- Chairman
Ms.P.Shrivastava, Scientist, SAMEER
D.Pamu, IIT Guwahati
R.Rangari, Scientist, SAMEER
Ms.S.Choudhari, Scientist, SAMEER
K.Aurobindo, Scientist, SAMEER
Shambhu Hegde, Scientist, SAMEER
Narugopal Nayek, Scientist, SAMEER
Vijay Sarode, Scientist, SAMEER
Samiran Patgiri, RS, Gauhati Univ.

Workshop Schedule

Day 1- August 8, 2019

Registration 09.00 - 10.00 am
Inauguration 10.00 - 10.30 am
Session 1 10.30 - 11.15 am
Tea Break 11.15 - 11.30 am
Session 2 11.30 - 12.15 pm
Session 3 12.15 - 01.00 pm
Lunch 01.00 - 01.45 pm
Session 4 01.45 - 02.30 pm
Tea Break 02.30 - 02.45 pm

**Site visit to ST Radar 2.45 pm
onwards**

Day 2- August 9, 2019

Session 5 09.00 - 09.45 am
Session 6 09.45 - 10.30 am
Session 7 10.30 - 11.15 am
Tea Break 11.15 - 11.30 pm
Session 8 11.30 - 12.15 pm
Session 9 12.15 - 01.00 pm
Lunch Break 01.00 - 02.00 pm
Valedictory 02.00 - 03.00 pm

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