

Weather Radar and Hydrology

Overview

Rainfall is among the most uncertain of weather variables to measure, primarily due to its spatial and temporal variability. Raingages at best represent only point measurement of rainfall and the density of raingage network needed to capture the spatial variability of rainfall accurately over a large area is often not enough for hydrologic modelling and flood forecasting. In the past two decades, weather radar technology has advanced considerably for accurately characterizing the spatial variability of rainfall. Today, radar has an important role in flood forecasting, flood mitigation & management and water resources management in various regions.

This course intends to provide graduate students, operational forecasters, and researchers with a theoretical framework and practical knowledge of radar precipitation estimation. Further, this course will also provide an overview of distributed hydrologic modelling using HEC-HMS and integration of radar data for flood modelling and forecasting.

The objectives of the course are:

- Provide theoretical framework and practical knowledge of radar precipitation estimation
- Processing of radar data to arrive at accurate estimates of rainfall
- Advanced radar sensing principles and applications
- Hands-on application of hydrologic models, Radar rainfall inputs, parameters, state variables, calibration procedures, and outputs

Dates for the Course	5th March 2018 to 17th March 2018
Host Institute	IIT Madras
No. of Credits	2
Maximum No. of Participants	30
You Should Attend If...	<ul style="list-style-type: none">▪ You work in the areas of hydrology, water resources and flood forecasting.▪ you are a student or faculty from academic institution interested in learning the concepts of hydrologic models such as HEC-HMS
Course Registration Fees	<p>The participation fees for taking the course is as follows:</p> <p>Student Participants: Rs.2,000 Faculty Participants: Rs.5,000 Government Research Organization Participants: Rs.5,000 Industry Participants: Rs.10,000</p> <p>The above fee is towards participation in the course, the course material, computer use for tutorials and assignments, and laboratory equipment usage charges. <u>Accommodation is not a part of registration fee.</u></p> <p>Mode of payment: <u>Online transfer: (Preferred)</u> Account Name: CCE IIT Madras Acc. No.: 36401111110 Branch: SBI, IIT Madras Branch, Chennai , IFSC Code: SBIN0001055 OR Demand draft in favour of "Registrar, IIT Madras" payable at Chennai. The demand draft is to be sent to the Course Coordinator at the address given below.</p>
Accommodation	<p>The participants may be provided with hostel accommodation, depending on the availability, on payment basis. <u>Accommodation is not a part of registration fee.</u> Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel</p>

Course Faculty



Dr. Chandrasekar(Chandra), is currently a University Distinguished Professor at Colorado State University. He has made pioneering contributions in the area of “Polarimetric Radar Observations of the Atmosphere”. Dr. Chandra has extensive experience in Radar System Design, Radar Network Development, DSP Design as well as RF Communication Systems.

He has contributed significantly to the areas weather radar and applications to Atmospheric Sciences. Dr Chandra is co-author of two textbooks, Polarimetric and Doppler Weather Radar (by Cambridge University Press) and Probability and Random Processes (by McGraw Hill) and five general-purpose books. He has been a PI or Co-PI on several national level programs such as the Advanced Communication Technology Satellite (ACTS) program at CSU, DARPA NGI program, the NASA TRMM and GPM missions. He is currently a CO-PI of the CSU-CHILL radar facility and plays an important role in maintaining it as one of the most advanced meteorological radar systems in the world available for research, and continues to work actively with the CSU-CHILL radar supporting its research and education mission. He is a Fellow of IEEE, The American Meteorological Society and CIRA (NOAA), and Knighted by the Government of Finland. He was a member of the National Academy of Sciences panel on “Future Radar Systems beyond NEXRAD “.He has served as a visiting professor at the National research Council of Italy, as well as Distinguished Visiting Scientist at the NASA Goddard Space Flight Center. He has won numerous awards including the IEEE (Remote sensing) Education award and the Outstanding Researcher Award.



Dr. Balaji Narasimhan, is an Associate Professor in the Department of Civil Engineering, IIT Madras. He has over 12 years of experience in the use of GIS and remote sensing tools for hydrologic model development. He was also a Member of “Think Tank” for development of Water Resources Information System (WRIS), Ministry of Water Resources, Govt. of India. His fields of interests include, hydrologic modelling of floods, Irrigation water management, and Hydroinformatics.

Course Coordinator

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For detailed Syllabus:
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