

Spatial Technology and Modeling for Drought Management

Overview

Drought is a complex natural phenomenon that can cause devastating losses across large regions. In agricultural regions such as Karnataka, losses can come in the form of reduced crop yield and even crop failure. When drought conditions occur, precipitation is typically scarce and more water evaporates to the environment, which demands more irrigation to meet the crop water needs. In these cases, the amount of water used is increased (if possible) to sustain production. However, increased water use places greater demand on available water resources that are likely to be already over-exploited from the drought conditions, while increased water costs reduce net profits.

This course is organized in two modules that should be taken together. The topics in Module A will expose the participants to the basics of spatial technologies – remote sensing, geographical information system (GIS), and hydrometeorology. Topics in Module B include evapotranspiration, surface energy balance equations, ET models and mapping software followed by a few applied case studies.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

Modules	A: Introduction to remote sensing, GIS and hydrometeorology: July 11–July 15 B: ET, surface energy balance, ET models and mapping software: July 18 – July 22 Number of participants for the course will be limited to fifty.
You Should Attend If...	<ul style="list-style-type: none">▪ you are an environmental, civil engineer, or research scientist interested in natural disaster management.▪ you are a student, preferably final year undergraduate or post graduate or faculty from academic institutions interested in research on drought monitoring and modeling, early warning system.▪ You are consulting engineers, in-service engineers from various government and non-government organization
Fees	The participation fees for taking the course is as follows: <ul style="list-style-type: none">• Students of host Institution: Free• Students from Academic Institutions: Rs. 2,000/-• Members of the Faculty from Academic Institutions: Rs. 3,000/-• Industry/ Research Organizations: Rs. 5,000/-• Participants from abroad : US \$200 The above fee includes all instructional materials.

The Faculty



Dr. Prasanna Gowda is the research leader at USDA-ARS Grazinglands Research Laboratory, EL Reno, Oklahoma, USA. He conducts research on water resources availability, water demand and irrigation management in the Ogallala aquifer region and other irrigated regions in the world. Specific research areas include evapotranspiration (ET) mapping and reference ET software for operational ET remote sensing programs and irrigation scheduling, eddy covariance, scintillometry, and hydrologic and water quality modeling, surface energy balance models, calibration and validation of SWAT, RZWQ, APEX, AQUACROP and DISSAT models and revising their irrigation and yield estimation algorithms, linking ET-SWAT-MODFLOW models, and application of ET models in climate change applications.



Dr. Pushpa Tuppadis an Associate Professor in the Department of Environmental Engineering, at SJCE, Mysuru in Sept 2011. She has published 18 research papers in various reputed peer reviewed journals and more than 20 in national and international conference proceedings. Her areas of interest are hydrology, watershed management, water quantity and quality modeling, applications of remote sensing and GIS in natural resources management, etc. She has worked on several watershed/water quality (WQ) modeling projects using APEX, SWAT models, both at field and watershed scale, with applications ranging from evaluation of the impacts of land use change, climate change, and various agricultural best management practices (BMPs) on runoff, sediment, and nutrients, crop yields, and identification of the priority areas for BMP implementation to water footprint analysis of biofuel feed stock production using SWAT model.

Course Co-ordinator

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