

BASINS/HSPF Training Workshop

Overview

With the increased stress on the water resources around the world due to climate change and population explosion, it is imperative to conduct planning and management of water resources at the watershed scale. Watershed modeling is a widely used, and an extremely important tool for assessing the impacts of watershed management on the health of water resources.

Hydrologic Simulation Program - FORTRAN (HSPF) is commonly recognized as the most complete and defensible process-based watershed model for quantifying runoff and addressing water quality impairments associated with combined point and nonpoint sources. Since its initial development nearly thirty years ago, the HSPF model has been applied throughout North America, numerous countries, and different climatic regimes around the world; it enjoys the joint sponsorship of both the U.S. Environmental Protection Agency and the U.S. Geological Survey, and continues to undergo refinement and enhancement of its component simulation capabilities along with user support and code maintenance activities. In addition to process-oriented enhancements, recent years have seen significant development efforts directed towards improved user interaction.

Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) is a multipurpose environmental analysis system designed to help regional, state, and local agencies perform watershed- and water quality-based studies. It was developed by the U.S. Environmental Protection Agency to assist in watershed management and TMDL development by integrating environmental data, analysis tools, and watershed and water quality models. A geographic information system (GIS) provides the integrating framework for BASINS. GIS organizes spatial information so it can be displayed as maps, tables, or graphics. GIS allows the user to analyze landscape information and display relationships among data. Through the use of GIS, BASINS has the flexibility to display and integrate a wide range of information (e.g., land use, time series meteorological data, point source discharges, water supply withdrawals etc.) at a scale chosen by the user. BASINS makes watershed and water quality studies easier by bringing together key data and analytical components in one tool. The overall goal of this workshop is to expose the attendees to watershed modeling and training them to develop their own watershed model.

Objectives:

1. Expose attendees to the BASINS interface and the data gathering process for developing a watershed model.
2. Introduce the attendees to details of watershed modeling, which includes teaching model algorithms.
3. Develop a watershed model that can simulate hydrology, and water quality.
4. Calibrate watershed model; Develop scenarios to study the effect of watershed management on the receiving water quality.

Modules	A: Duration : June 6 - June 14, 2016 B: Venue : Department of Hydrology, Indian Institute of Technology Roorkee The detailed workshop schedule will be available by February 29, 2016. For a typical workshop schedule, please visit http://www.aquaterra.com/resources/workshops/wqwkshop.php Number of participants for the course will be limited to twenty five.
You Should Attend If...	<ul style="list-style-type: none">▪ you are a student or faculty from academic institution dealing water related topics;▪ you are a civil/agriculture engineer, or environmental scientist interested in water quantity and quality issues in freshwater systems; interested in remote sensing and GIS application in hydrology;▪ you are a person from industry/research organization and interested in learning about modern watershed-scale hydrological modeling;
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$200 Industry: ₹ 10000 Academic Institutions Faculty/Staff: 5000 Research scholar/student (with grading): ₹1000 Research scholar/student (without grading): ₹500 The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Dr. Anurag Mishra is currently working as a senior engineer and project manager at AQUA TERRA Consultants (A Division of RESPEC). He has been involved in various watershed modeling projects over the past few years as a key watershed modeler. He has served multiple clients at this position at AQUA TERRA that include Department of Defense (US), Environmental Protection Agency (US), Minnesota Pollution Control Agency, MN etc. Dr. Mishra is also involved in software development for BASINS. He is the lead developer for HSPEXP+, an enhanced expert system for hydrology and water quality calibration of HSPF based watershed models.

Dr. Sumit Sen is an Assistant Professor at the Department of Hydrology, Indian Institute of Technology, Roorkee, India. He is involved in teaching post-



graduate courses, such as Watershed Behavior and Conservation Practices; Watershed Modeling and Simulation, Planning and Management of Watersheds, and Hydrometeorology. His research area focuses on watershed management, monitoring and rainfall-runoff modeling. He

has been developing an experimental watershed in the Yamuna River Basin by intensively instrumenting the Aglar watershed. In this workshop, Dr. Sen will be covering the topics on hydrological processes occurring in a watershed and watershed management.

ABOUT ROORKEE

Roorkee is a part of the State of Uttarakhand and is located at the foothills of Himalayas. Roorkee Railway Station is on the main line of Northern Railways having direct links to Delhi, Mumbai, Calcutta, Amritsar, Jodhpur and Shri Ganganagar. The place is also within easy reach by road from Delhi (200 km) and Chandigarh (180 km). It is located on Delhi – Haridwar and Delhi – Dehradun bus routes. Roorkee is ideally located near several tourist places, like Dehradun (70 km), Mussorie (100 km), Haridwar (32 km) and Rishikesh (50 km).

Registration

Registration forms are attached with the brochure. Duly filled registration forms can be sent to the coordinator both by online and offline mode.

Course Co-ordinator

Dr. Sumit Sen

Phone: 01332-284754; 9457449522

E-mail: ssenhfhy@iitr.ac.in;

sensumit2@gmail.com

<http://www.gian.iitkgp.ac.in/GREGN>

**REGISTRATION AND
ACCOMODATION REQUEST FORM**
(To reach electronically by 4th April, 2016)

BASINS/HSPF TRAINING WORKSHOP

June 6-14, 2016

**Department of Hydrology, Indian Institute of Technology Roorkee
Roorkee, Uttarakhand**

After Completion, please mail to: Dr. Sumit Sen, IIT Roorkee Roorkee – 247 667 (Uttarakhand) Phone: (01332)284754, 286754 Fax: (01332) 2273560 Email: ssenhfhy@iitr.ac.in , sensumit2@gmail.com	Affix passport size photograph
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1. Name of applicant (in block letters): Ms./Mr.
2. Designation

3a. Residential address with pin code

Tel:

Mobile:

3b. Official address with pin code

Phone (Off.) Fax: Email:

Fax: Email:

3c. Name of the Institute where employed

3d. Name of the Department

4. Highest Academic Qualification

5. Branch of Specialization

6. Teaching Experience in Years

Date:

Signature of applicant

Note:

- (i) Application should reach DOH Office at the above address latest by 18th April, 2016. Scanned copy may be sent by e-mail.
- (ii) Please come to Roorkee to attend the workshop, only if you have received intimation.