

WELCOME TO HYDRAULICS AND WATER RESOURCE ENGINEERING (HWRE)



Dr. Balaji Narasimhan



Dr. B.S. Murty



Dr. Soumendra Nath Kuiry



Dr. K.P. Sudheer



Dr. Venkatraman Srinivasan



Dr. Venu Chandra



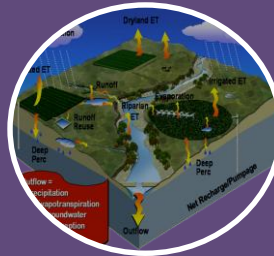
Dr. Balaji Narasimhan
Ph.D, Texas A&M University, USA
Professor, Dept. of Civil Engineering
044-2257-4293; nbalaji@iitm.ac.in
http://www.civil.iitm.ac.in/balaji_edu



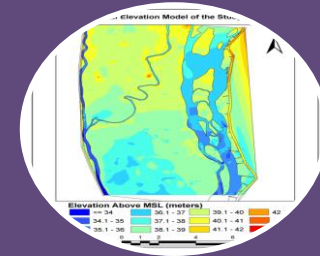
- ❖ Remote Sensing and GIS
- ❖ Hydrological Modeling
- ❖ Irrigation water management



Crop Evapotranspiration,
Inter-basin water transfer,
Irrigation efficiency



Impact of climate and land use
changes on the water
resources



Floods & droughts extent,
magnitude, duration and
frequency

Hydrologic Modelling for effective management of land and water resources

Dr. B. S. Murty

Ph.D, Washington State Univ., Pullman, USA

Professor, Dept. of Civil Engineering

044-2257-4262; bsm@iitm.ac.in

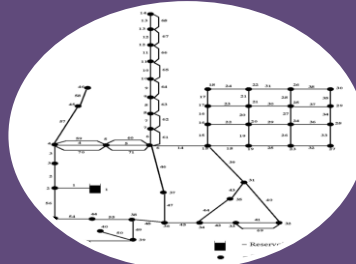
http://www.civil.iitm.ac.in/murty_edu



- ❖ Open-Channel Flow Modeling
- ❖ Closed Conduit Flows
- ❖ Groundwater Resources Management



Modeling of flow and transport of pollutants in open channels for quantity and quality management



Analysis of steady and transient flows in pipe systems, optimal design, condition assessment



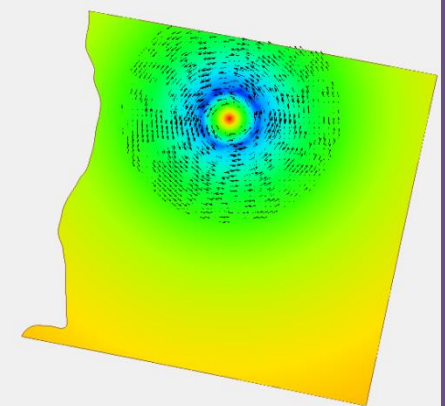
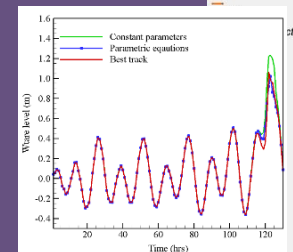
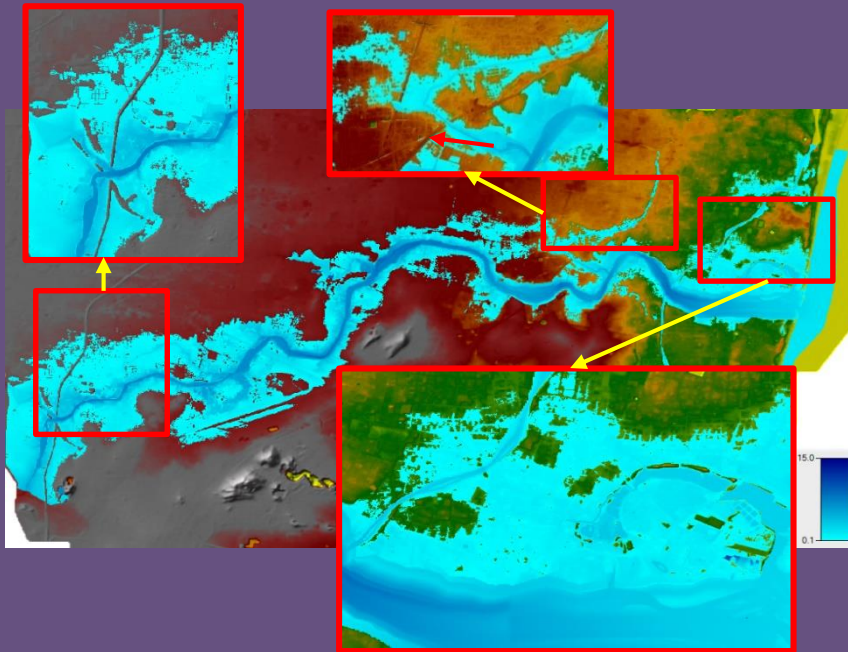
Simulation and management models for groundwater resources utilization and aquifer remediation

Computational Hydraulics for Management of Water Resources

Dr. Somendra Nath Kuiry
Ph.D., IIT Kharagpur
Assistant Professor, Dept. of Civil Engineering
044 -2257 4309; snkuiry@iitm.ac.in
http://www.civil.iitm.ac.in/kuiry_edu



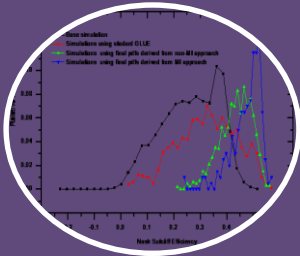
- ❖ Computational Hydraulics – river, coastal and dam-break flow, urban flood, flash flood
- ❖ Experimental Hydraulics – flow and sediment transport in river-networks
- ❖ Ocean Dynamics - storm surge and tsunami wave propagation, interaction of river and ocean



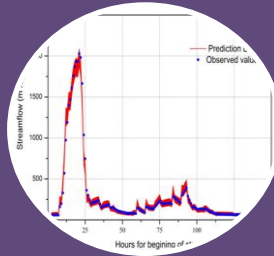
Dr. K. P. Sudheer
Ph.D, IIT Delhi, India
Professor, Dept. of Civil Engineering
044-2257-4288; sudheer@iitm.ac.in
http://www.civil.iitm.ac.in/sudheer_edu



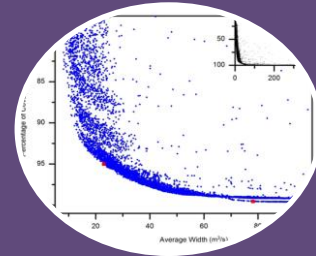
- ❖ Hydrologic Modeling
- ❖ Predictions in Ungauged Basins (PUB)
- ❖ Uncertainty and Sensitivity Analysis



Distributed Hydrological Models for PUB



Hydrologic Prediction Band



Construction of Prediction band

Employing Distributed Hydrological Models for Water Resources Assessment



Dr. Venkatraman Srinivasan

PhD, University of Illinois Urbana Champaign, USA

Assistant Professor, Civil Engineering

phone: 044-2257-4321; email: venkatraman@iitm.ac.in

website: <http://www.home.iitm.ac.in/venkatraman>



Major Areas of Research

- Process based eco-hydrological models of vegetated land surfaces
- Climate change impact on food and water security
- Experimental manipulation of crop micro climate environment



Develop an experimental greenhouse facility to study plant behavior under various microclimatic conditions



Develop a high resolution 3D explicit architecture plant canopy and root system ecohydrological model



Predict impact of climate change on future food and water security and suggest mitigation measures

Predict the response of vegetation under abiotic stresses and climate change

Dr. Venu Chandra

Ph.D., IIT Kanpur

Associate Professor, Dept. of Civil Engineering

044 -2257 4281; vc@iitm.ac.in



- ❖ Experimental Hydraulics
- ❖ Sediment Transport
- ❖ Cohesive Sediment Dynamics
- ❖ River Training and Scour Protection Works



Step pool hydrodynamics
in mountain streams



Annular flume
(Cohesive sediment studies)



Field application

Laboratory to field to prevent sedimentation at hydraulic structures

Typical Courses & Electives

Hydraulic & Water Resources Engineering

Applied Hydraulic Engineering
Groundwater Engineering
Surface water hydrology
Water Resources Planning & Management
Rive Engineering

Simulation Modeling in Water Resources
Contaminant transport Modeling
Pipeline Engineering
Geographic Information System
Remote Sensing of the Environment
Urban Hydrology and Storm Drainage design

Hydraulic Engineering Laboratory
Hydroinformatics Laboratory

INDIAN INSTITUTE OF TECHNOLOGY MADRAS
Department of Civil Engineering

HWRE

August 23, 2022 at IITM



Hydraulic & Water Resources Engineering Lab

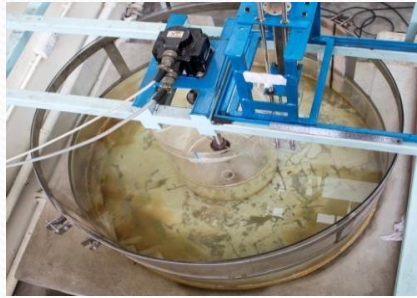


INDIAN INSTITUTE OF TECHNOLOGY MADRAS
Department of Civil Engineering

HWRE

August 23, 2022 at IITM

Experimental Research Facilities at the Hydraulic Laboratory



Annular flume



Experimental flume with steep slope



River confluence model with mobile bed



New hydraulics laboratory with experimental flumes

HWRE

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Department of Civil Engineering

August 23, 2022 at IITM

