

KSCSTE INSTITUTE FOR CLIMATE CHANGE STUDIES



Five Days
National Workshop
on

VIC HYDROLOGICAL MODELLING

27th – 31st January, 2025

Venue: National Institute for
Rubber Training,
Kottayam



Department of
Science &
Technology,
Government of
India



BACKGROUND

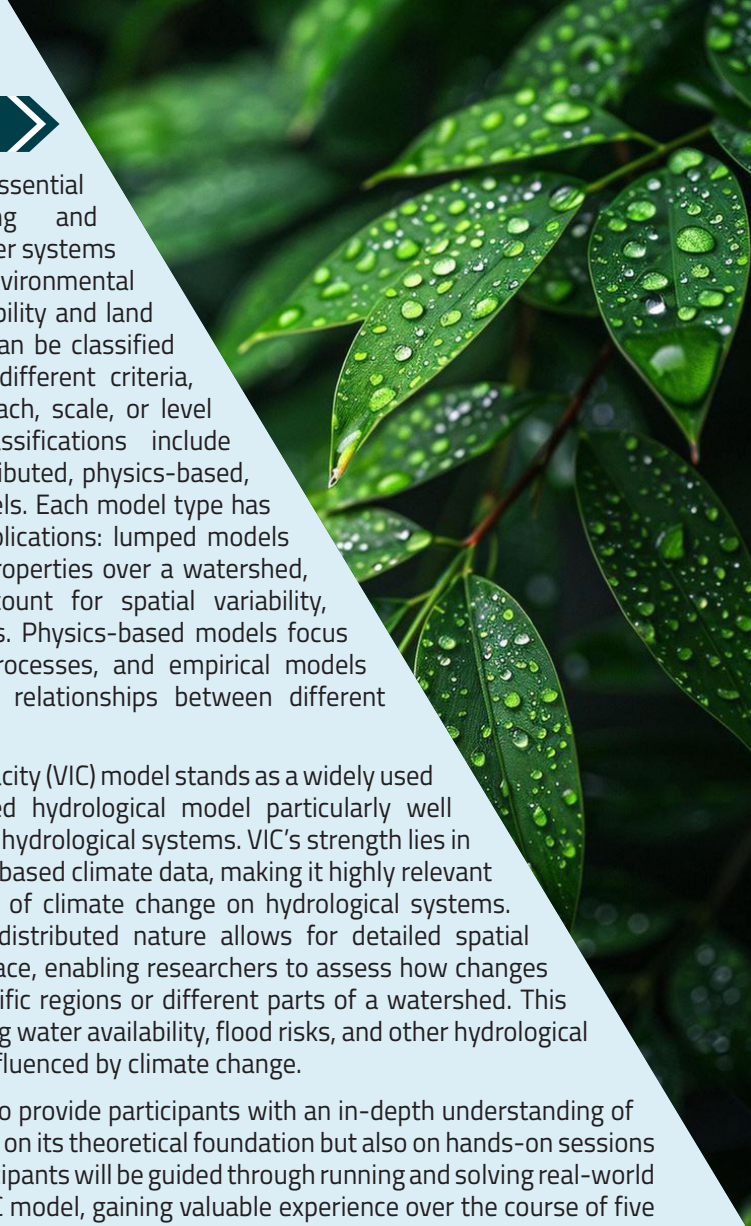
Hydrological models are essential tools for understanding and predicting the behaviour of water systems in response to various environmental factors, including climate variability and land-use changes. These models can be classified into several types based on different criteria, such as their structure, approach, scale, or level of complexity. Common classifications include lumped, distributed, semi-distributed, physics-based, conceptual, and empirical models. Each model type has its unique advantages and applications: lumped models offer simplicity by averaging properties over a watershed, while distributed models account for spatial variability, providing more detailed results. Physics-based models focus on simulating real physical processes, and empirical models use observed data to derive relationships between different hydrological variables.

The Variable Infiltration Capacity (VIC) model stands as a widely used distributed, semi-physics-based hydrological model particularly well-suited for studying large-scale hydrological systems. VIC's strength lies in its ability to integrate with grid-based climate data, making it highly relevant for understanding the impacts of climate change on hydrological systems. Unlike lumped models, VIC's distributed nature allows for detailed spatial representation of the land surface, enabling researchers to assess how changes in climate variables affect specific regions or different parts of a watershed. This capability is crucial for evaluating water availability, flood risks, and other hydrological impacts that are increasingly influenced by climate change.

This workshop is designed to provide participants with an in-depth understanding of the VIC model, focusing not only on its theoretical foundation but also on hands-on sessions to enhance practical skills. Participants will be guided through running and solving real-world hydrological scenarios using VIC model, gaining valuable experience over the course of five days. The hands-on nature of this training will empower participants to confidently apply the VIC model to their research, fostering a deeper understanding of hydrological impacts in a changing climate.

AIMS

- To introduce the fundamentals of hydrological modelling and the VIC model.
- To offer hands-on training sessions enabling participants to run the VIC model independently.
- To provide an understanding of how the VIC model is used to assess hydrological impacts of climate change.
- To foster interdisciplinary collaboration by providing a platform for knowledge exchange among hydrologists, climate scientists, and other researchers.



Resource Person

Eminent scientists from renowned National Institutes.

Topics Covered

- Introduction to hydrology and hydrologic modelling
- Introduction to VIC model
- Data Preparation for VIC Model
- Calibration and Validation of VIC model
- Water availability analysis using VIC model
- Case Studies and Applications of VIC Model



IMPORTANT DATES AND SCHEDULE

- 07-01-2025 ▶ **Last date of Application**
- 10-01-2025 ▶ **Notification of Acceptance**
- 27-01-2025 ▶ **Workshop Day 1**
Opening Ceremony
Expert Lecture
Hands-on Session I
- 28-01-2025 ▶ **Workshop Day 2**
Hands-on Session II
Hands-on Session III
- 29-01-2025 ▶ **Workshop Day 3**
Hands-on Session IV
Assignment Session I
- 30-01-2025 ▶ **Workshop Day 4**
Assignment Session II
Assignment Session III
- 31-01-2025 ▶ **Workshop Day 5**
Student Presentation
Valedictory Ceremony
Field Visit (Optional)
- 01-02-2025 ▶ **Day 6**
Field Visit (Optional)

REGISTRATION

Candidates must complete the online application form (Google Forms Link: <https://forms.gle/Vm3ez6Ayfx4b2qKP9> not later than 05th January, 2025. The registration fee is:

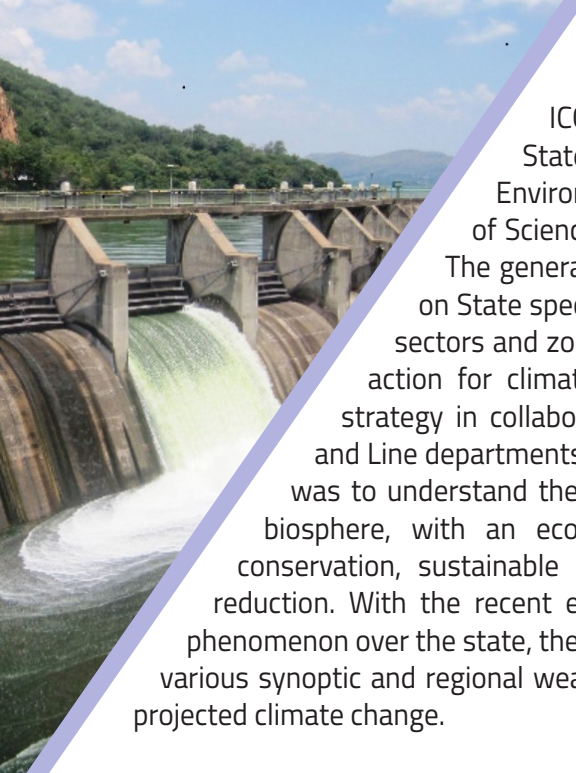
Rs. 3000/- ▶ Without accommodation

Rs. 4000/- ▶ With accommodation on sharing basis

The registration includes workshop materials, participation in all the events, and food. Candidates have to meet their own travel expenses. **If selected, the participants are requested to bring their own laptops.**



ABOUT ICCS



ICCS is a R&D Institution of the Kerala State Council for Science Technology and Environment (KSCSTE), under the Department of Science and Technology, Government of Kerala. The general objectives of ICCS are focused research on State specific impacts of climate change on various sectors and zones of the State and propose appropriate action for climate change management and adaptation strategy in collaboration with other Institutes, Universities and Line departments. At the inception, the institute's initiative was to understand the effects of global climate change on the biosphere, with an ecosystem approach towards biodiversity conservation, sustainable agricultural practices, and disaster risk reduction. With the recent experience of frequent extreme weather phenomenon over the state, the institute has broadened its research over various synoptic and regional weather patterns causing extreme events in projected climate change.

ORGANIZING TEAM

▶ **Prof. K. P. Sudheer**
Ex Officio Principal Secretary
S&T Department &
Executive Vice President, KSCSTE

▶ **Dr. K. Rajendran**
Director
KSCSTE - Institute for
Climate Change Studies, Kottayam

ORGANIZING SECRETARIES

▶ **Dr. C. C. Bajjish**
Senior Scientist, ICCS
Mob: +91-9074051401
Email: ccbajjish@iccs.res.in

▶ **Dr. Sinan Nizar**
Junior Scientist, ICCS
Mob: +91-9567047444
Email: sinan@iccs.res.in

▶ **Dr. Aiswarya K P**
Junior Scientist, ICCS
Mob: +91-8281729054
Email: aiswarya@iccs.res.in