First Information Brochure

आपो हिष्टा मयोभुवः

ROORKEE WATER CONCLAVE

Feb 26 – 28, 2020

Organised by

Indian Institute of Technology Roorkee
Roorkee

National Institute of Hydrology
Roorkee

India

BACKGROUND

Indian Institute of Technology Roorkee and National Institute of Hydrology Roorkee jointly decided to organize regular international conference every 2 years in the area of various facets of water to be known as Roorkee Water Conclave. The present water conclave is being organized broadly focusing on "Hydrological Aspects of Climate Change".

Climate change and its impact on water sector are the most critical global challenge in current century. It is likely to be more severe in developing countries whose economy is largely dependent on the agriculture and is already under stress due to population increase and associated demands for energy, fresh water and food. Climate change poses uncertainties to the supply and management of water resources. The Intergovernmental Panel on Climate Change (IPCC) predicted an increase of temperature about 2 to 4° C over the next 100 years. As a result, the various components of hydrologic cycle would be affected causing considerable changes in the precipitation characteristics, evapotranspiration, runoff patterns, snow & glacier melts, recharge to the ground water etc. Consequently, these changes can indirectly affect the flux and storage of water in surface and subsurface reservoirs (i.e., lakes, soil moisture, and groundwater). In addition, there may be other associated impacts, such as acceleration of floods & drought, seawater intrusion, water quality & environmental deterioration, potable water shortage, etc.

In order to minimize the adverse impacts of climate change on country's water resources and attaining its sustainable development and management, there are needs for developing the rational adaptation strategies and enhancing the capacity to adapt those strategies. It would provide the means for alleviating the negative impacts of climate change. The risk, reliability and uncertainty analysis are must before deciding the adaptation strategies. Keeping in view, the importance of impacts of climate change, it is necessary to identify the key issues and challenges, which the expected climate change will bring in water resources planning, design and management, provide the framework for adequate research, and formulate recommendations for the future work. Looking to the aforementioned aspects, the themes and sub-themes of the conference are as follows:

1. **Monitoring of Hydrological & Hydro-Meteorological data and its Management**
   - (i) Advanced Hydrological & Hydro-Meteorological instruments
   - (ii) Emerging technology for data monitoring
   - (iii) Data Storage, retrieval and dissemination
   - (iv) Web based Hydrological Information System
2. **Climate Change, Climatological Modelling & Predictions**
   - (i) Climate change and Global Warming
   - (ii) Climate change and technological solution
   - (iii) General Circulation and Regional Circulation Models
   - (iv) Downscaling and Uncertainty Analysis
3. **Hydrological Modelling under changing Climates**
   - (i) Hydrological Models and its applications to simulate the hydrologic cycle
   - (ii) Calibration, Validation and Sensitivity Analysis
   - (iii) Ensemble Modelling
   - (iv) Models for assessment of soil erosion and sedimentation
4. **Assessment of Water Resources and climate change**
   - (i) Methodologies for water resources assessment
   - (ii) Climate change & evaluation of its impact on water resources
   - (iii) Uncertainty & Reliability Analysis
   - (iv) Water Resources Planning considering climate change
   - (v) Decision Support system for Integrated Water Resources Development & Management
   - (vi) Hydrology of wetlands, ponds & lakes
   - (vii) Isotope Techniques for Water Resources Management
5. **Groundwater Management**
   - (i) Ground Water Monitoring
   - (ii) Assessment of Ground Water Resources
   - (iii) Aquifer Mapping
   - (iv) Ground Water Modelling
   - (v) Sea water intrusion in coastal areas
6. **Floods & its Management**
   - (i) Flood mechanism & its possible causes
   - (ii) Cloud burst and Flash Floods
   - (iii) Riverine floods, Glacial outburst floods and Urban Floods
   - (iv) Floods resulting due to drainage congestion and structural failure
   - (v) Design Floods and Climate Change
   - (vi) Integrated Flood Management
   - (vii) Space technology & flood management
7. **River dynamics and hydraulic structures**
   - (i) Morphology of rivers and morphodynamics
   - (ii) Erosion and protection works
   - (iii) Reservoir sedimentation
   - (iv) Hyper concentrated flow
   - (v) Aerated flows
   - (vi) Instrumentation
   - (vii) Environmental hydraulics
   - (viii) Numerical and physical modeling
   - (ix) Hydraulic transients
   - (x) Hydraulic structures
8. **Drought & its Management**
   - (i) Drought Monitoring
   - (ii) Meteorological, Hydrological & Agricultural Aspects of Drought
   - (iii) Drought response plan
   - (iv) Drought Vulnerability and Management
   - (v) Space technology & drought management
9. **Water Resources System operation and Climate Change**
   - (i) Reservoir water balance
   - (ii) Rule curves
   - (iii) Integrated operation of Multipurpose reservoirs
   - (iv) Decision support systems for real time operation
   - (v) Reliability analysis under changing climate
   - (vi) Dam Safety and management

(vii) Space technology & reservoir management
(viii) Space Technology for Groundwater

10. Environment and Water Quality Management

(i) Eco-Hydrology
(ii) Forest hydrology
(iii) Green Technologies & Climate Change
(iv) Monitoring and Management of Surface & Groundwater quality under climate change

11. Adaptation Strategies

(i) Monitoring & predictions
(ii) Advanced analytical tools & techniques
(iii) Creation of additional storages
(iv) Interlinking of rivers
(v) Artificial recharge
(vi) Cropping pattern
(vii) Enhancing Water use efficiency
(viii) Short term, medium term & long term structural and non structural measures to cope with climate change

12. Water-Energy-Food Nexus

(i) Assessment of Hydro- Power potentials
(ii) Hydro-power Developments & Managements including risk mitigation
(iii) Advance Technologies for Hydropower Developments
(iv) Multiple benefits of hydropower
(v) Weather prediction & forecasting for Irrigation Scheduling, flood & drought management
(vi) Applications of satellite technologies for societal benefits
(vii) Impacts of Land degradation on livelihood
(viii) Socio-Economic Analysis for water and energy
(ix) Water-Energy-Food Nexus
(x) Strengthen gender-response policy development
(xi) Raise awareness of gender and climate change issues

13. Policy Frame Work

(i) Planning strategies under Climate Change & their implementation
(ii) Participatory approaches along with their integration in management practices as well as for sustainable development

14. Mitigating climate change through management of greenhouse gases emissions

(i) Mitigating challenges through its risk management
(ii) CO_2 sequestration and associated risks.

CALL FOR ABSTRACT

Abstracts of papers (not exceeding 150 words) on the above session themes of the Conference are invited latest by **July 30, 2019** and the acceptance will be notified by August 31, 2019. While submitting the abstract the authors are requested to indicate the theme of the conference wherein their paper may be considered. The authors of the accepted abstracts are requested to submit the full length papers latest by **November 30, 2019.** The abstract of the papers can be uploaded on the https://easychair.org/cfp/rwc2020.

INVITED SPEAKERS

Eminent experts from international and national universities/institutes, Research institutions, government organisations, planners and decision makers, field personnel, consultants, multilateral and bilateral international organisations have been invited to this first Roorkee Water Conclave. The details of confirmed speakers shall be uploaded on website soon.

PARTICIPANTS

Members from international and national universities/institutes, research institutions, government organisations, planners and decision makers, field personnel, consultants, financial institutions, multilateral and bilateral international organisations are invited to participate in the conclave.

REGISTRATION FEES AND MODE OF PAYMENT

The Registration fee for the conference will be Rs. 10,000 per Indian delegate and Rs. 4000 for Indian student and, US$300 per foreign delegate and US$ 100 for foreign student. The fee may be paid in the form of Demand Draft drawn in favour of **Dean (SRIC), IIT Roorkee** payable at Roorkee. Alternatively, it can be paid by direct transfer through the Link for online Conference fee collection available at http://sric.iitr.ernet.in/

DATE & CONFERENCE VENUE

The conference will be held at Indian Institute of Technology Roorkee, Uttarakhand, India, during Feb 26 – 28, 2020

ACCOMMODATION

A range of hotels are available in and around Roorkee. Details are available on website https://www.iitr.ac.in/rwc2020/

HOW TO REACH IIT ROORKEE

Roorkee is well connected to Delhi by rail and road. Trains which are convenient for travelling between Delhi and Roorkee are New Delhi-Dehradun-New Delhi Shatabdi Express and Dehradun-New Delhi-Dehradun Janshatabdi Express. Nearest airport to Roorkee is Dehradun's Jolly Grant airport which has Air India, Spice Jet and Jet Airways services from New Delhi. But most preferable airport nearest from Roorkee is the New Delhi International Airport which is about 180 kilometers away.

SPONSORSHIP OPPORTUNITIES

The conference provides a unique opportunity for sponsoring organizations to promote their products/services to the focused international and national audiences/stake holders besides having an excellent opportunity to interact with engineers/scientists/academicians/managers. Details are available on website https://www.iitr.ac.in/rwc2020/

ABOUT IIT ROORKEE

Indian Institute of Technology Roorkee is the successor of first Technical University of Independent India, University of Roorkee. It is the oldest technical institution of the country, established as the Roorkee College of Engineering in 1847 and rechristened as Thomason College of Civil Engineering in 1857. IIT Roorkee played a vital role in providing water resources related technical manpower and knowhow to a large number of Asian and African countries. Institute offers 12 bachelors, 55 graduates and doctoral programme in Engineering, Science, Architecture, Planning and Management.

ABOUT NIH ROORKEE

National Institute of Hydrology (NIH) is a premier research and development organization in the area of hydrology and water resources in India. The Institute was established in 1978, as an autonomous society under the Ministry of Water Resources, River Development & Ganga Rejuvenation, Government of India, with its headquarter at Roorkee. The Institute undertakes, aides, promotes and coordinates systematic and scientific work in all aspects of hydrology. Six Regional Centres of the Institute are located in different physiographic regions of the country. The scientific and technical credibility of the Institute in conducting hydrological and water resources research is well recognized both at the national and international level.

ORGANIZING COMMITTEE

Chairman
Prof. Ajit K. Chaturvedi
Director, IIT Roorkee

Co-Chairman
Dr. S.K. Jain
Director, NIH Roorkee

CONFERENCE COMMITTEE

IIT ROORKEE	NIH
Prof. Ashish Pandey, WRDM Tel: +91-1332-285872	**Dr. Sanjay Kumar**, Scientist Tel: +91-1332-249229
Prof. Brijesh Yadav, DOH Tel: +91-1332-284755	**Dr. L N Thakural**, Scientist Tel: +91-1332-249244

For conclave related information please visit website https://www.iitr.ac.in/rwc2020/ or contact through email: info.rwc@iitr.ac.in.

Places to visit near Roorkee