



INDIAN INSTITUTE OF SCIENCE
BANGALORE

INSTITUTE COLLOQUIUM
(Earth and Environmental Sciences)

Professor P. P. Mujumdar
Chairman, Department of Civil Engineering

will deliver a lecture
on

"HYDROLOGIC IMPACTS OF CLIMATE CHANGE"

Date : 14th October 2010 Time : 4.00 pm

Venue : Faculty Hall

Professor P. Balaram, Director
will preside

Coffee/Tea : 5.00 pm
Reception Hall

All are cordially invited

ABSTRACT

Climate change results in regional hydrologic change. The three prominent signals of climate change, viz., increase in global average temperatures, rise in sea levels and change in precipitation patterns convert into signals of regional hydrologic change in terms of modifications in water availability, evaporative water demand, hydrologic extremes of floods and droughts, water quality, salinity intrusion in coastal aquifers, groundwater recharge and other related phenomena.

A major research focus in hydrologic sciences in recent years has been assessment of impacts of climate change at regional scales. An important research issue addressed in this context is related to the responses of water fluxes on a catchment scale to the global climatic variations. A commonly adopted methodology for assessing the regional hydrologic impacts of climate change is to use the climate projections provided by the General Circulation Models (GCMs) for specified emission scenarios in conjunction with the process-based hydrologic models to generate the corresponding hydrologic projections. The scaling problem arising because of the large spatial scales at which the GCMs operate compared to those required in distributed hydrologic models, is addressed by downscaling the GCM simulations to hydrologic scales. Projections obtained with this procedure are burdened with a large amount of uncertainty introduced by the choice of GCMs and emission scenarios, small samples of historical data against which the models are calibrated, downscaling methods used and other sources. Development of methodologies to quantify such uncertainties is a current area of research in hydrology.

In this colloquium, an overview of research carried out at IISc on assessment of hydrologic impacts of climate change addressing scale issues and quantification of uncertainties, will be provided.