

EDITORIAL

Hydrological forecasting is one of the important aspects of applied hydrology. With the increase of population, the demand of water for various uses is growing at a fast pace. The water resources development activities are being taken-up to meet these demands, and the need has arisen to develop appropriate forecasting and control procedures suitable for operation of water resources systems in a real time. Such operation becomes quite crucial in the times of extremes of hydrological events such as floods and droughts. Flood management strategies are dependent to a large extent upon lead times possible for issue of warning and mostly these will have to be evolved for specific river reaches. However, in case of droughts vast areas are affected and management strategies have to consider not only the rainfall and river flows but also availability of water from reservoirs and ground water storages and the types of needs of affected human and animal population.

The natural hydrologic systems are complex and could not be defined by exact physical loss. The synthesis or simulation approach of deterministic hydrological modelling could be used for simulation of the processes of a real catchment. The probabilistic and stochastic approaches could be used for providing likely magnitudes and timings of the hydrological events on the basis of statistical characteristics of past events. The use of electronic computers has made it possible to simulate the complex natural hydrological phenomena, and provided methodologies and approaches for forecasting of floods, droughts, flow volumes, ground water levels, soil moisture etc. Techniques have been developed for both short term as well as long term forecasting. The application of remotely sensed data using radars and satellites have further added to the capabilities in forecasting of hydrological events. However, these have yet to find application at field level.

This issue of Jalvigyan Sameeksha has been devoted to the theme of hydrological forecasting and it is hoped that ideas expressed and information provided by different authors in their papers would lead to better understanding of the various aspects of forecasting both on short term and long term, and increased operational use of modern techniques.