

Training Course on
Satellite Altimetry and Hydrological Applications
September 26 - 30, 2016
At Institute of Space Technology
Islamabad



Satellite altimetry is one of the recent techniques which is used for monitoring lake and reservoir volume and water level, river levels and discharge and flood modeling. Altimetry is a technique for measuring height. Temporary or permanent flooded areas can be observed and integrated into hydrological models. Altimetry can give hydrological information that can often be difficult to obtain due to inaccessibility to a region, the

sparse distribution of gauge stations, or slow dissemination of data. The applications of satellite altimetry in hydrology are: monitoring height variations of lake and river, determining sea level rise, sea ice thickness and glacier topography, identifying littoral and shallow-water regions and most fragile areas, and natural disasters.

This course was especially designed to address the above mentioned issues. It covered satellite-based remote sensing technologies, and discussed their potential as tools for assessing, managing, and protecting water resources. While remote sensing has proven useful in diverse applications, it is an underutilized, yet very promising, technology for use in hydrological applications. This course was conducted by foreign and national resource persons. A number of representatives from various organization participated in this course. The main objective of this course was to familiarize the candidates with the use of satellite altimetry in hydrological modeling and other applications. This course was also aimed at bringing together scientists, hydrologists, model developers and technical experts to share their experiences and knowledge for monitoring and managing water resources. The Hands-on Exercises based on different hydrological applications were also included in this course. The main features of the training course were:

- To demonstrate the satellite altimetry techniques to measure level of water bodies.
- To provide understanding of monitoring hydrological processes (Precipitation, flood, river runoff etc).

During the course, the main resource person, Dr. Stefano Vignudelli from National Council for Research, Pisa, Italy covered the following subjects:

- Introduction of Altimetry, its Principles and Future Missions.
- Strategic Combination of Satellite & Ground Based data
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Other subjects covered by national experts were:

- Introduction Hydrology and Water Resources
- Snowmelt Runoff Estimation Using DEM, RS&GIS and Modeling Techniques
- HEC-HMS: HEC-Hydrologic Modeling System
- Use of Remote Sensing and GIS in Hydrologic Modelling Case Study Mangla Basin