Hydrological monitoring, data collection, analysis and assessment

Water resources management relies on hydrological monitoring, data collection and processing. Reliable data on atmospheric, surface and groundwater fluxes obtained in the field and supported by remote sensing are crucial for assessing and understanding spatiotemporal interactions among the hydrological components, as well as impacts from human interventions. In this module the acquisition, handling and processing of hydrological data is covered. This includes both hydrological time series and spatial analysis aspects, and the planning and evolving nature of hydrological monitoring networks. Students will learn to identify and describe the need for hydrological data and information, the roles and functions of National Hydrological Services and the activities involved in water resources-related data collection, processing, storage and retrieval. The module will address concepts, techniques and instruments used both in field and remotely sensed hydrological observing networks and routine data collection. Students will get hands-on training in data collection and processing tools, enhancing their skills on hydrological field instruments, groundwater surveying or remote-sensing based monitoring of water availability. Students will further learn the basics on designing and evaluating hydrological monitoring networks and on applying statistical methods for processing and analysing the hydrological data to prepare water resources information.