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The monitoring and modeling ecohydrological processes as a tool for Integrated Water Resources Management

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Ecohydrology is an integrative science, composed of two key elements.

The first component is based on analysis hydrological cycle - water, plant, soil interactions in terrastrial fraction of the catchment. The second one appeared decade ago in the framework of UNESCO International Hydrological Programme, as the efforts towards integration hydrological and ecological surficial processes. The main body of theory was covering by teleological components- regulation hydrology to control the biological processes e.g eutrophication, and vice versa: shaping biota to control hydrological processes, mostly water quality. After formulating of Ecohydrology principles and definitions, the key assumptions were tested in the framework of IHP activities in various geographic zones. Integration catchment and freshwater ecosystems ecohydrological processes creates holistic framework for evaluation of impact and identification solutions. Moreover such systemic approach provides scientific background for not only an improvement of water quality and environment, but also there is increasing number of evidences of possibility of development positive socio-economic feedbacks. However there is still necessity to improve monitoring of both hydrological and ecological processes across the scales. The integration and monitoring data should provide background for development various scenarios of problem solving. The key study case for Europe, Asia, Africa and South America will be presented.