

---

## Abstract

The paper discusses the interdisciplinary nature of hydrology, emphasizing its key role in understanding and solving water-related problems. Water stands out as a basic prerequisite for life, the development of societies and ecosystems, but also as a source of potential threats in the form of floods and droughts. Climate change further intensifies these risks, which is why better water resource management is necessary. Different divisions of hydrology are presented (according to components of the hydrological cycle, research methods, applications and spatial scale) and the emergence of new fields such as ecohydrology and socio-hydrology is highlighted. They integrate natural and social processes into hydrology, exploring how the interaction of water, ecosystems and people shapes the environment and social development. Special emphasis is placed on forest hydrology. Forests, through their processes of interception, infiltration, transpiration and reduction of surface runoff, significantly affect the water balance, the regulation of hydrological extremes, erosion mitigation, flood protection and preservation of drinking water quality. Research shows that forests reduce rainfall variability, stabilize the climate and act as natural reservoirs and filters for water. At the same time, deforestation increases runoff and erosion, while afforestation can temporarily reduce water availability due to high evapotranspiration of young forests. Optimal effects depend on climate, forest type and spatial scale. The need for an integrated approach to forest and water management is emphasized, since the impacts of forests on water resources are not universally positive or negative, but depend on local conditions. Future development of forest hydrology requires interdisciplinarity, long-term data and linking scientific research with practical ecosystem management in the context of climate change.

**Keywords:** hydrology, forest hydrology, interception, ecohydrology, water resources management