



Universität Stuttgart

Institute for Modelling Hydraulic
and Environmental Systems



Department of Hydrology
und Geohydrology
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MSc. Thesis

Cosmic ray neutron sensing based monitoring of snowpack dynamics in the Pinios Hydrological Observatory, Greece

Snow monitoring instruments like snow pillows are influenced by disturbances, e.g. energy transport into the snowpack, changes of the wind field, or varying snow properties (e.g. ice layers). Recently, it has been shown that aboveground cosmic ray neutron sensors (CRNS) are a promising technique to monitor snow pack development providing both larger support and lower maintenance. The main principle is that snow water moderates neutron intensity in the vicinity of the CRNS probe. In this thesis, long-term CRNS measurements from the Pinios Hydrological Observatory, Greece, will be used to test different methods to convert neutron count rates to snow pack dynamics.



Tasks:

- Assess accuracy of various methods to convert existing time series of neutron count rates to snow pack dynamics using independent validation data
- Data analysis using Matlab or Python

General Information:

- Advisors: Dr. Heye Bogena and Prof. Sander Huisman
- Willingness to work at Forschungszentrum Jülich (www.fz-juelich.de)
- Financial support through student-assistant position available

Apply now:



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