Opportunity for a Specialized Master project and a “Semesterassistenz” on Observing Water availability in Switzerland

This recently established InnoPool project aims to assess the water availability across ecosystems in Switzerland. The project is a collaboration between the H2K and RSL groups and intends to integrate two approaches based on hydrological modeling and satellite remote sensing of dynamic vegetation processes.

Recently, H2K developed a drought index (SMRI) to assess water availability and eventually stream flow and soil infiltration in ecosystems. It is common practice to calculate such indices based on gridded meteorological data to monitor and forecast droughts. Evaluating the impact of these droughts on ecosystems is complicated because of missing observations of the ecosystem status. However, RSL developed an approach that combines satellite remote sensing data and statistical modeling to provide information of vegetation activity as an indicator of the ecosystem status. Our goal is to combine these two approaches and link droughts as a driver to observed changes in ecosystem functioning.

We are seeking a specialized master student to complement our project team. The aim of the master project is to link spatial and temporal patterns derived from the SMRI - indicating drought conditions, with those from the remote sensing approach - indicating changes in vegetation activity. Specific tasks include (1) analyzing the agreement of SMRI and vegetation-activity changes for the specific droughts of 2003, 2011 and the most recent of 2015 in selected Swiss catchments and (2) extrapolating the relationship to other years and catchments for a general analysis of drought effects in Switzerland.

We are looking for a highly motivated master student with interest in environmental research, particularly in the impact of weather extremes and changing climate on ecosystems. The ideal candidate has the ambition to do a 60 ECTS (i.e. specialized) master thesis project and has experience in data analysis, including basic programming skills (e.g., R, Matlab). A good standard of written English is an asset.

The additional employment as “Semesterassistenz” (20% for 8 months) allows the candidate to gain insight in scientific outreach and proposal writing by actively supporting the preparation of a pilot study.

If you are interested in this opportunity, please contact one of the following persons:

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