



Call for Applications: 4 Ph.D. Positions in Hydroclimatology & Data Science

Location: Czech University of Life Sciences Prague (CZU)

Start Date: October 1, 2025

Application Deadline: March 25, 2025

Our research group at the Czech University of Life Sciences (CZU), in collaboration with the National Observatory of Athens (NOA), is seeking four highly motivated Ph.D. candidates to join our team. Our research focuses on **hydroclimatic extremes, the terrestrial water cycle, and data-driven hydroclimatology**, utilizing cutting-edge data science, machine learning, and hydrological modeling techniques.

Available Ph.D. Topics:

1. Understanding Drought Evolution: From Dry-Spells to Long-Term Aridification

This thesis investigates the evolution of droughts, from short-term dry spells to long-term aridification processes. By combining eco-hydrological modeling and statistical techniques, it identifies trends, tipping points, and underlying mechanisms across temporal and spatial scales. The research aims to improve the mid-term to long-term forecasting and inform sustainable water and land management strategies under changing climate.

2. Extreme Evaporation Events in a Changing Climate

Extreme Evaporation Events (ExEvEs) are increasingly critical phenomena shaped by changing climatic conditions. This thesis explores their frequency, intensity, and underlying drivers. By analyzing interactions among temperature, radiation, and precipitation, it aims to enhance understanding of ExEvEs and their impacts on ecosystems, water resources, and climate resilience.

3. AI-Driven Estimation of the Terrestrial Water Cycle Components and Their Intensification

This topic focuses on AI-driven integration of terrestrial water cycle components, mainly precipitation, evapotranspiration, runoff, and soil moisture using multi-source datasets. The research aims to identify trends and key drivers of increased water cycle variability and assess the impact on its availability due to global warming.

4. Land-Atmospheric Feedbacks in Drought-to-Flood Events

The successful candidate will explore land-atmospheric feedbacks in drought-to-flood transitions, focusing on how soil moisture, vegetation, and surface heat fluxes interact with atmospheric processes to amplify or mitigate extremes. Using process-based and statistical modeling, they will identify key drivers and thresholds in feedback loops, offering insights to improve predictions and management of hydroclimatic extremes.

What We Offer:

- Competitive Ph.D. scholarship
- A dynamic and interdisciplinary research environment
- Access to high-performance computing and state-of-the-art datasets
- Collaboration with international research networks
- Travel funding for conferences and workshops

Requirements:

- Master's degree in Hydrology, Climate Science, Environmental Science, Data Science, or a related field
- Strong programming skills (preferably R) and experience in data analysis
- Background in statistics, machine learning or hydrological modeling is a plus
- Excellent English communication and writing skills

How to Apply:

Interested candidates should submit their CV, 2-page motivation letter and contact information for two references via email to **Yannis Markonis (markonis@fzp.czu.cz)** by **March 25, 2025**.

Join us in pushing the boundaries of hydroclimatic research!   