

## 2026 Helmholtz – OCPC – Programme for the involvement of postdocs in bilateral collaboration projects

### PART A

**Title of the project:**

Soil–Vegetation–Atmosphere Interactions under Climate Extremes

**Helmholtz Centre and/or institute:**

Helmholtz Centre for Environmental Research - UFZ

**Project leader:**

Prof. Dr. Jian Peng

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**Web-address:**

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**Department:** (at the Helmholtz centre or Institute)

Department of Remote Sensing

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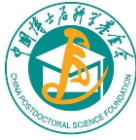
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**Description of the project** (max. 1 page):

Under the framework of the Helmholtz Programme-Oriented Research (POF-IV) programme “Changing Earth – Sustaining our Future”, UFZ contributes leading expertise in ecosystem and hydrological research, regional land-surface modelling, and socio-environmental systems analysis. Within this framework, the SMART Models and Monitoring Research Unit aims to improve process understanding and predictive capacity of soil–vegetation–atmosphere interactions under climate variability and extremes.

To advance this mission, multi-source Earth observations from satellite- and airborne platforms are integrated with field measurements and modelling approaches to characterize terrestrial water, carbon, and energy fluxes. The combination of remote sensing, in-situ data, and process-based or machine learning models provides a powerful framework to quantify ecosystem responses to droughts, heatwaves, and compound climate extremes. Strengthening the coupling between observations and modelling



frameworks will improve our ability to diagnose feedback processes, reduce uncertainties in land-surface models, and enhance projections of ecosystem resilience and vulnerability under climate change.

The Remote Sensing Department seeks a highly motivated research scientist to contribute to the development of innovative methodologies that exploit and synergize multi-source Earth observations and modelling approaches. The overarching goal is to improve understanding and representation of soil–vegetation–atmosphere feedbacks and ecosystem responses to climate extremes. This position offers the opportunity to work in an interdisciplinary environment linking field experiments, remote sensing data, and advanced modelling frameworks to advance mechanistic understanding and predictive capability of ecosystem–climate interactions.

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**Description of existing or sought Chinese collaboration partner institute (max. half page):**

The Remote Sensing Department plans to establish collaborations with Chinese Universities/institutions, including but are not limited to: Tsinghua University, Beijing Normal University, Fudan University, Zhengzhou University, Chinese Academy of Sciences (e.g., Institute of Geographic Sciences and Natural Resources Research, Institute of Tibetan Plateau Research).

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**Required qualification of the postdoc:**

- PhD degree in earth system science, remote sensing, meteorology, hydrology, physical geography, environmental sciences, physics, statistics, computer sciences, or related field
- Domain knowledge in remote sensing and earth system modelling
- Good programming skills (e.g., Python, Fortran, R, or Matlab)
- Good communication skills in English, and strong interest to work in an interdisciplinary research team
- A proven ability to publish in peer-reviewed journals