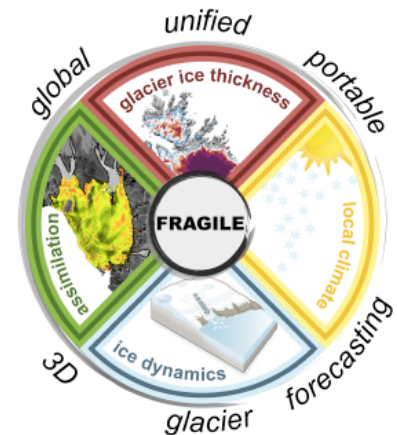




The Institute of Geography seeks motivated candidates for **two three-year positions** at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) in Erlangen, Germany. Preferable start in Spring 2021.

The positions are part of the FRAGILE project on the 'Next generation framework for global glacier forecasting' funded by the European Research Council as a Starting Grant within Horizon 2020. The aim is to develop a self-consistent, ice-dynamic forecasting framework for global glacier evolution that will lift the confidence in forward projections for this century. The heart of the framework is a systematic utilisation of the rapidly growing body of information from satellite remote sensing. For this purpose, we pass on to ensemble assimilation techniques that transiently consider measurements as they become available. This will streamline and increase the total information flow into glacier system models. The envisaged 3D finite-element modelling framework (Elmer/Ice) will further allow for a more realistic representation of the local energy balance, a comprehensive description of the ice-dynamic adjustment as well as a state-of-the-art approach for iceberg calving. When FRAGILE is in full swing, it comprises 5 team members at FAU.



For the start of FRAGILE, we search for a **Postdoctoral researcher** and a **Ph.D. student**:

PostDoc

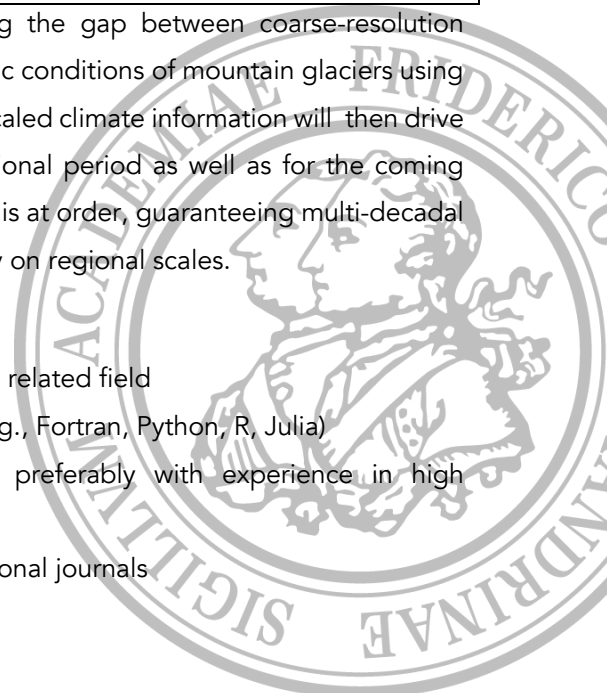
refer to: FRAGILE-PostDoc

period: 3 years, salary: Entgelt-/Bes.Gr. E13, 100%

The PostDoc is expected to take on the challenge of bridging the gap between coarse-resolution information from regional climate models and the local atmospheric conditions of mountain glaciers using downscaling techniques adequate for regional application. Downscaled climate information will then drive melt models to determine the glaciers evolution in the observational period as well as for the coming century. Concerning the melt-model sophistication, a compromise is at order, guaranteeing multi-decadal stability in the melt relation while keeping computational feasibility on regional scales.

Required skills:

- Ph.D. in Earth Sciences, Physics, Applied Mathematics or a related field
- Experience with numerical modeling and programming (e.g., Fortran, Python, R, Julia)
- Proficient usage of scientific computing environments preferably with experience in high performance computing (HPC) environments
- Competitive publication record in peer-reviewed, international journals
- Proficiency in English equivalent to CEFR level C1





- Ability to work independently, to critically assess own results and to cooperate within a wider research team

Desired and advantageous are:

- Research record in climate/atmospheric or Earth System modelling
- Affinity for geophysical modelling with regard to glaciology
- Experience or interest in big data handling, parallel computing, HPC or cloud computing
- Demonstrated capacity for independent thinking and diligence
- Experience in external fund raising
- Collaboration experience in international research projects

Ph.D.

refer to: FRAGILE-PhD

period: 3 years, salary: Entgelt-/Bes.Gr. E13, 67%

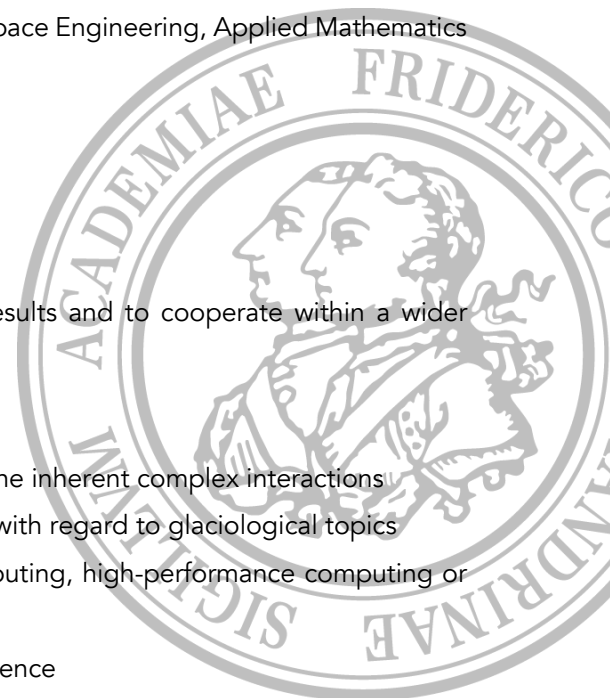
The Ph.D. candidate will deal with the systematic utilisation of observations from satellite remote sensing to substantially increase the overall information transfer into ice-flow models. For this purpose, a transient variant of data assimilation will be applied that considers observations at the respective acquisition time. In the envisaged assimilation framework, an ensemble of forward simulations is iteratively evaluated and updated when measurements are available. The candidate will evaluate the performance of this assimilation framework on individual benchmark glaciers and transfer it to regional scales.

Required skills:

- MSc in Earth Sciences, Physics, Computer Sciences, Aerospace Engineering, Applied Mathematics or a related field
- Programming skills (Fortran, Python, R, Julia or similar)
- Affinity for scientific computing and script development
- Good reporting and presentation skills
- Excellent level of written and spoken English
- Ability to work independently, to critically assess own results and to cooperate within a wider research team

Desired and advantageous are :

- Interest in the processes that drive the Earth System and the inherent complex interactions
- Affinity for geophysical modelling and/or remote sensing with regard to glaciological topics
- Experience or interest in big data handling, parallel computing, high-performance computing or cloud computing
- Demonstrated capacity for independent thinking and diligence





European Research Council
Established by the European Commission



Proficiency in German is advantageous but not required, as the working language is English.

The candidates will be placed at the FAU Institute of Geography (<https://www.geographie.nat.fau.de/>), which offers a vivid working environment with specific research focus on mountain regions. Close interaction is anticipated with the Climate System Research Group by Prof. Thomas Mölg (<https://www.geography.nat.fau.eu/research/ag-moelg/>) and the Remote Sensing Group by Prof. Matthias Braun (<https://www.geography.nat.fau.eu/research/ag-braun/>). FRAGILE is coordinated by Dr. Johannes Fürst who has a track record in glacier-system modelling and data assimilation on various scales.

The preferred starting date for both positions is February 2021 with some flexibility. The employment is limited to 3 years due to availability of project funds with a possibility of extension depending on successful project completion/prolongation or other third-party funding. Depending on qualification and personal requirements, this position is grouped into the Entgelt-/Bes.Gr E13.

The Friedrich-Alexander-Universität Erlangen-Nürnberg is seeking to augment the number of women in research and teaching and hence asks female scientists in particular to apply for this position. We further encourage persons with disabilities to apply. If desired, a member of the equal opportunity office of FAU can participate in the selection process without any disadvantage for the applicant.

Please submit your full application including a letter of motivation, a CV, certificates and contact details of two referees as a single PDF-file to sabine.donner@fau.de. Please refer either to FRAGILE-PostDoc or FRAGILE-PhD in your application.

Deadline for application: 31 October 2020, the position is open until filled

Further information: Dr. Johannes Fürst, Institute of Geography, FAU, office phone: +49-(0)9131-85-26680, johannes.fuerst@fau.de

