



The Department of Geosciences of the University Tübingen is internationally known for its research in the environmental sciences. In this context, the Geophysics Group at the Geo- and Environmental Center (GUZ) announces the vacancy of a

PhD Position (f/m/d, E13 TV-L, 65%)*.

The PhD project will run for 3 years, starting in September 2024. The objective of the project is the development of a novel ground-based radar system in the MHz range geared for enhanced sub-surface imaging of glaciers, ice-sheets and other terrestrial near-surface systems.

The PhD is part of the BRISANT project funded by the Baden-Württemberg Stiftung. The project aims to understand the dynamic behavior of glaciers and ice-sheets and their interactions with the atmosphere and oceans. For this, we need data from repeat-pass profiling over many tens of kilometers, to detect changes in the englacial as well as subglacial geometry. To enable acquisition of such data with high vertical resolution, the development of a new low-cost, open-source ground-based radar is required. This development leverages on the technical progress in the world of phase-coherent, frequency-modulated systems and associated signal processing techniques.

The PhD researcher will be responsible for conducting and analyzing ground-based radar data to enhance our understanding of different glaciological processes and how we can monitor those using radar. The PhD researcher will be involved in the development of a new radar system that fulfills the characteristics described above. This development includes not only engineering the radar components but testing the radar, the design of signal processing techniques and the documentation of the characteristics to make the system open-access and replicable to anyone. Spectacular test sites include glaciers of the European Alps and potentially even field work in polar regions. The PhD project combines a scientific question in earth science with engineering and the technical development of a new system, with the potential that further collaborative research opportunities arise in neighboring scientific fields. This allows the successful candidate to develop skills in both disciplines. We anticipate multiple peer-reviewed publications and presentations at international conferences to emerge from this development and the usage of the new radar in future projects with other research foci.

The successful candidate will work closely with Dr. Rebecca Schlegel as well as the whole geophysics group and collaborators at the Institute of Microwave Engineering (IMWT) at Ulm University.

What we offer:

The Geophysics Group at University Tübingen is a multidisciplinary group, currently consisting of 12 members, including post-doctoral researchers, PhD, Master and Bachelor students. Our research focus is very diverse including various geophysical methods (ground-based radar, airborne radar, seismics, geoelectrics, etc.), numerical modelling, machine learning, remote sensing and engineering providing a broad academic network spanning from ice shelves, ice streams via ice cores to alpine glaciers.

We have a great focus on multidisciplinary collaboration especially within the group but also across the department. We conduct department seminars and other social as well as scientific activities to foster this. We value the informal and friendly working environment we have established in our group and set a focus on maintaining this by regular social activities outside of the university, such as going with the Stocherkahn on the Neckar, BBQs and illustrating research using home-made and decorated cake.



Tübingen is a dynamic, young (30% of inhabitants are students) and lively university town (<https://uni-tuebingen.de/de/147603>) close to the Swabian Alps which offers various outdoor activities. Tübingen University is one of the eleven German Excellence Universities and offers different Research Training Groups (e.g. Graduiertenkolleg) and support for international as well as national students regarding any administrative issues. Our institute is located close to the city centre of Tübingen and can be easily reached with public transport or bike. Part of the research will be conducted at the Institute of Microwave Engineering (IMWT) at Ulm University in the group of Prof. Christian Waldschmidt, including experts in developing radar systems for various applications (<https://www.uni-ulm.de/in/mwt/>).

*Payment according to TV-L 13 (<https://oeffentlicher-dienst.info/tv-l/allg/>) 65%

What we are looking for:

We look for a motivated researcher with a Master degree in Geoscience, Physics, Engineering or related disciplines. The successful candidate should **either**

- have knowledge of geophysics with a particular focus on wave-based methods such as radar or seismics **or**
- have knowledge in electrical engineering, ideally experience with electromagnetic systems.

In addition, the candidate should have good communication skills in order to work in a highly collaborative and international environment, as well as a very good command of written and spoken English. Knowledge of German is appreciated but not a requirement. Participation in fieldwork in remote areas would be a plus.

Applicants should send one single pdf-document including a letter of motivation, a complete curriculum vitae, copies of qualifications as well as names of two references via email to rebecca.schlegel@uni-tuebingen.de, who may also be contacted in case of questions. For more information also visit our website: <https://uni-tuebingen.de/de/147603>. The position remains open until filled. First evaluations will start 12th of June 2024.

It is the policy of the University of Tübingen to increase the percentage of female employees. If equally qualified, preference will be given to female applicants. Individuals with disabilities are strongly encouraged to apply and, having the same occupational aptitude, will be preferred. International candidates are highly encouraged to apply but German language skills are recommended to interact with students and non-scientific staff.