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## **DLR – DAAD – Fellowships**

Fellowship No. 293

|                           |   |
|---------------------------|---|
| <b>Research Area :</b>    | Space   |
| <b>Research Topic:</b>    | <b>Combination of multispectral and synthetic aperture radar (SAR) remote sensing data to analyse the effects of climate change on snow cover in the European Alps</b>  |
| <b>DLR Institute:</b>     | Deutsches Fernerkundungsdatenzentrum (DFD), Oberpfaffenhofen  |
| <b>Position:</b>          | Doctoral Fellow   |
| <b>Openings:</b>          | 1   |
| <b>Job Specification:</b> | <p>Climate change affects snow cover extent and depth all around the world, leading to shifts in snow cover season, shorter snow cover duration, decrease of glaciated areas, and altered runoff regimes within inherent river catchments. These effects can be observed worldwide, but are most severe within mountainous regions where the rates of increasing temperature are often above the global average. As these mountain regions often serve as water towers for downstream populations, changing snow cover characteristics and trends need to be identified and described in detail.</p> <p>High resolution remote sensing data, especially the European Sentinel satellites, provide sufficient spatial detail to analyse the complex processes that occur within mountainous terrain. As cloud cover is frequently present especially during winter, a combination of multispectral data with synthetic aperture radar (SAR) data which is independent from cloud cover shall be implemented that allows the detection of snow cover also during cloud covered conditions. Possible data sources include, but are not limited to, Sentinel 1. The combination and integration of remotely sensed data originating from different sensor systems shall be developed by the successful candidate. Necessary steps therefore include the development of a processor for high resolution multispectral data, the integration of SAR data using the results of the multispectral approach for calibration, the implementation of the algorithm, the validation, and the processing of the time series of</p> |

available high resolution data to identify the major dominating snow cover dynamics within the European Alps.

- Required Qualification:** Master in Geosciences, Environmental Sciences, Geomatics, Geodesy or similar disciplines, with a strong background in remote sensing.
- Advantageous Skills:** Good programming skills (preferably Python, R, IDL, etc.), experience in handling big data, strong interest in applied geosciences, cold regions.
- English competence:** Advanced knowledge (speaking, reading, and writing) required.
- Earliest Start Date:** As soon as possible
- Application Deadline:** Until position is filled
- Further Information:** <http://www.dlr.de>  
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