



DLR – DAAD Fellowships

Fellowship No. 406

Research Area :	Space
Research Topic:	Determination of volcanic SO₂ cloud layer heights based on satellite UV measurements
DLR Institute:	Remote Sensing Technology Institute (IMF) at DLR Berlin-Adlershof and Oberpfaffenhofen
Position:	Doctoral Fellow
Openings:	1
Job Specification:	<p>The institute's Atmospheric Processors section conducts research on atmospheric remote sensing with infrared and ultraviolet spectrometers. Research on the mathematical and physical basics of atmospheric remote sensing is focused on radiative transfer modelling, mathematics of inversion, and electromagnetic scattering.</p> <p>Volcanic eruptions can have a major impact on local population, aviation as well as on a global scale. DOAS techniques allow the determination of the amount of volcanic SO₂ in the atmosphere; however the retrieval of the plume height requires computationally expensive direct fitting techniques.</p> <p>The new generation of hyper-spectral atmospheric composition sensors (e.g. Sentinel-5 Precursor) has unprecedented high spatial resolution paired with enhanced radiometric sensitivity resulting in large data volumes that are needed to be processed in a real time mode. This necessitates new approaches based on high-performance computing, hyper-spectral content analysis and machine learning.</p> <p>This PhD-project will be focused on the development and validation of an algorithm to retrieve SO₂ layer heights from Sentinel-5 Precursor measurements. In order to validate and intercompare with the results from other satellite sensors and ground stations, a dispersion model has to be applied to investigate the movement of the volcanic plume.</p>

We are striving to increase the proportion of female employees and therefore particularly welcome applications from women. Disabled applicants with equivalent qualifications will be given preferential treatment.

Required Qualification: Master in physics, mathematics, computer science, or in a similar field.
Good programming skills in a Unix/Linux environment.
Good programming skills in Python
The candidate should have some background in atmospheric remote sensing or radiative transfer. Open communication, team spirit and a can-do attitude are expected.

Advantageous Skills: Knowledge and experience in remote sensing measurements, retrieval techniques and high performance computing. Background in machine learning and dimensionality reduction techniques.

English competence: See requirements on www.daad.de/dlr; Fluent in spoken and written English

Earliest Start Date: September 2019

Application Deadline: until position filled

Further Information: <http://www.dlr.de>
<http://www.daad.de/dlr>