

DLR – DAAD Fellowships

Fellowship No. 397

Research Area : Space

Research Topic: Assessing the relationship between air quality, health, and economic growth

DLR Institute: Earth Observation Center (EOC), German Remote Sensing Data Center (DFD), Department Atmosphere (ATM), DLR Oberpfaffenhofen

Position: Doctoral Fellow

Openings: 1

Job Specification: Environmental stressors such as air pollution and heat waves can harm human health. However, the individual responses to these factors are highly variable and not well established. To assess the general health risk related to pollution, weather and climate aggregated risk indices have been developed. The ARI (Aggregated Risk Index) and UTCI (Universal Thermal Climate Index) link environmental parameters like the concentration of certain pollutants to the statistical increase of health endpoints, e.g., raised mortality. There is evidence that economic growth is strongly related to air pollution – and thus to environmental human health risks.

The announced position aims at improving our current understanding on the relationship between air quality, economic growth, and induced human health risk. The following topics shall be addressed:

- (1) literature study to document the state-of-the-art knowledge
- (2) Documentation of air pollution for selected regions on the Earth. Has the air quality changed within the last two decades? If so, how and why? Used shall be satellite-based data. Trends shall be estimated.
- (3) Assessing the relationship between economic growth and air quality Is there any relationship? If so: how and why? Is it possible to discriminate different impacts on the economic growth (e.g. industry

versus services). What could be natural impacts on possible changes of air quality within the selected regions?

- (4) Assessing the relationship between economic growth and air quality. Calculating the health aggregated risk index for the selected regions based on satellite data. Developing corrections to tune satellite data towards surface conditions using especially numerical air quality modelling results.
- (5) Assessing scenarios in terms of using expected future economic development in selected regions for estimating environmental health risks.
- (6) Assessing the self-cleaning capacity of the atmosphere

Required Qualification: Master degree in geography, geoinformation, atmospheric physics, or meteorology, programming experience, atmospheric remote sensing

Advantageous Skills: Experience in data analysis, GIS experience, experience with Python, R, data bases, communication skills

English competence: See requirements on www.daad.de/dlr

Earliest Start Date: As soon as possible

Application Deadline: Until position filled

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