



# Geomatics Lab –MSc Thesis

Geography Department, Humboldt-Universität zu Berlin

*Developing a radiometric normalization approach using decadal MODIS normalized reflectance data and stable targets as an alternative to absolute atmospheric correction.*

## Supervisors

Patrick Griffiths, Dirk Pflugmacher

## Thematic Background

Remote Sensing, GIS, Computer sciences

## Objectives

Atmospheric correction of remote sensing imagery provides physical meaningful units of reflectance which again allows integrating data from different images into analyses. New atmospheric correction approaches thus have been important for many time series and large area mapping approaches. However, full atmospheric correction approaches are computationally intense which renders some analyses extremely costly in terms of computational resources. Relative radiometric normalization is an alternative approach that has been shown to provide similar radiometric consistency among images and to facilitate using large image collections in time series or compositing approaches.

In this thesis the potential of coarse resolution MODIS normalized reflectance data will be evaluated as a normalization reference for larger sets of Landsat data. This involves first generating a spectrally stable and temporally invariant normalization reference and then developing empirical normalization models to transform Landsat top-of-atmosphere reflectance to a spatially and temporally consistent surface reflectance signal.

## Target group

Geography M.Sc. students with a strong interest in remote sensing and geoinformatics.

## Pre-requisites

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Experience and successful participation in GIS, statistics and remote sensing courses.

Programming background helpful but might not be necessarily needed.

Willingness to study selected scientific literature required.

### **Dates and Duration & Application Procedure**

No specific starting dates; duration 6 months

Interested students are asked to contact one of the supervisors