

## How well is infrared radiation captured by radiative transfer models?

**Research group:** Atmospheric Physics



### Introduction

Water vapor is the most important greenhouse gas in the Earth's atmosphere. The downward infrared radiation received on the Earth's surface is increased if more water vapor is present in the atmosphere. The Dutch Atmospheric Large-Eddy Simulation Model, a high resolution turbulence model that is widely used by the Dutch research community, uses the Rapid Radiative Transfer Model for General Circulation Model (RRTMG).

### Goals

We wish to establish the skill with which RRTMG calculates infrared radiation. To this end the RRTMG model will be run with vertical profiles of temperature and humidity, both of which will be based on a compilation of observations and reanalysis data. The results will be compared with direct observations of infrared radiative fluxes collected at Cabauw, Netherlands. There will also be an opportunity to use observations of infrared radiation that were measured with a newly developed instrument by the Delft company Hukseflux.

### Interested?

We are looking for an enthusiastic student with an interest in both observations and modeling. For the analysis of the data it is highly desired that you are wanting to write some basic code in your own preferred data language (i.e. Python, Matlab etc).

### Supervisors:

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### Additional information:

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