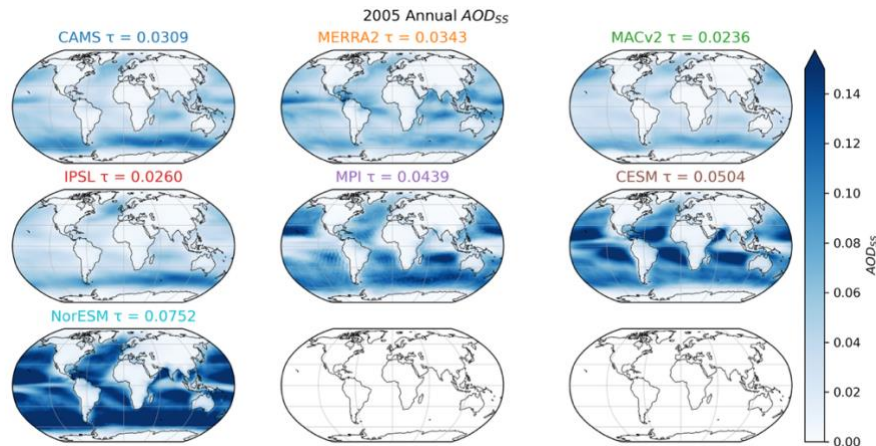


Master of Science Thesis Project

Background



Do you want to get hands-on experience with climate model output? Have you been interested in how models treat aerosols? Are you eager to better understand one of the dominant natural aerosols?

The ALIC²E research group, under supervision of Prof. Fiedler, is characterizing how model members of the Coupled Model Intercomparison Project phase 6 (CMIP6) represent a variety of aerosols including anthropogenic, dust, and sea salt (SS). SS is often overlooked despite dominating natural aerosol emissions globally.

This project seeks to characterize how different model members of CMIP6 represent sea salt aerosol optical depth (AOD, also referred to as tau “τ”), a measure of how much SS is in the atmospheric column. The primary objectives of this project include:

- (1) How diverse is simulated SS AOD across models?
- (2) How has SS AOD changed with climate change?
- (3) Over what regions does SS dominate total AOD?

Work Content

The successful student will work alongside researchers within the ALIC²E group, namely Dr. Raymond Leibensperger III and Prof. Fiedler. Dr. Leibensperger is leading a related project seeking to improve modeled SS AOD. The student will carry out a detailed comparison and analysis of modeled historical SS AOD across CMIP6 model members under the guidance of Dr. Leibensperger and Prof. Fiedler. The project will also include CMIP7 model output as they become available.

Prerequisites

- A strong interest in atmospheric or environmental physics
- Very good grades
- Familiarity with coding for data analysis (e.g., Python)
- Ability to communicate in English

Interested?

Please send a short motivational statement (in English) along with a transcript of your grades to Raymond.leibensperger@uni-heidelberg.de by 15 April 2026.