

## ACRoNNIM: Aerosol and Climate Response to NH<sub>3</sub> in the NMMB/BSC Inter-Scale Model

### Description

Atmospheric particulate matter reduces visibility, adversely affects human health and impacts Earth's climate. Recent laboratory research has identified NH<sub>3</sub> as a potentially important reactive species in the formation and aging of SOA, a significant but not-well-quantified class of aerosol particles. The goal of this project is to answer the questions: How does NH<sub>3</sub> affect aerosol mass loadings and optical properties on a global scale? And, what impact do these effects have on air quality and climate?

The project will seek to incorporate NH<sub>3</sub>-related SOA chemistry, currently being investigated by collaborators at the University of California, Irvine (UCI), into the state-of-the-art CACM/MPMPO SOA module. The updated module will be deployed in the NMMB/BSC global chemical weather model, maintained at the Barcelona Supercomputing Center (BSC). Model predictions will be validated by field measurements collected during an IDAEA-CSIC campaign. This will result in one of the most advanced SOA treatments available in global models and allow an investigation of the impact of NH<sub>3</sub> on global SOA, air quality and climate, thus directly impacting a crosscutting issue of the Horizon 2020 Program, climate action. This project possesses the ideal conditions to successfully achieve its goal and strengthen the collaboration between the European BSC and IDAEA-CSIC, and US-based UCI teams.

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