



## **Impact of Aerosol-Cloud Interactions on the Southern Ocean Warm Bias in EC-Earth Model**

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This work is a part of a coupled assessment of EC-Earth model and concentrates on the development and evaluation of the aerosol and cloud representation and the impact these will have on the Southern Ocean warm surface bias. Key atmospheric processes contributing to ocean mixing in the Southern Ocean are surface momentum and radiation fluxes, the latter being greatly influenced by clouds.

EC-Earth version 3 is now being run with prescribed aerosol concentrations and with direct aerosol effect only being included in these simulations. In this study, we extend the cloud and radiation schemes to account for the indirect aerosol effects on clouds (cloud albedo effect) and precipitation (cloud lifetime effect). The benefits of this more complete representation clouds in the model are evaluated against the CMIP observations for model evaluation (CMIP-OBS) and will be presented at the meeting.