



## **Modeling of water stable isotopes in the ECHAM6 atmospheric general circulation model: current status and perspectives**

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We present here the first results for present-day conditions of the ongoing implementation of water stable isotopes in the latest version of the ECHAM atmospheric general circulation model, ECHAM6, enhanced by the JSBACH interactive land surface scheme (ECHAM6-wiso). Major changes with respect to its predecessor ECHAM5 have to do with the treatment of shortwave radiative transfer, the development of a new surface albedo representation, a new aerosol climatology, the height of the model top, and a more complex representation of the land surface [1]. Besides, a new five-layer soil hydrology scheme can be used instead of the single soil moisture reservoir in ECHAM5/JSBACH [2]. Our first analyses of the ECHAM6-wiso results concentrate on a detailed comparison to the previous model release, ECHAM5-wiso, and potential improvements in simulating the water stable isotopes signal due to overall model enhancements.

This study represents the first step of the incorporation of water stable isotope tracers in all components of the fully coupled Earth system model MPI-ESM. The project is part of the PalMod initiative ("Paleo Modelling: A national paleo climate modelling initiative"), funded by the German Federal Ministry of Education and Science (BMBF).

[1] Stevens et al., 2013, *JAMES*, **5**, 146–172.

[2] Hagemann and Stacke, 2015, *Clim. Dyn.*, **44**, 1731–1750.