EGU21-15993
https://doi.org/10.5194/egusphere-egu21-15993
EGU General Assembly 2021

MOSAiC simulator in CMIP6

Rajka Juhrbandt[1], Suvarchal Cheedela[1], Nikolay Koldunov[1,2], and Thomas Jung[1,3]
[1]Alfred-Wegener-Institut, Climate Dynamics, Bremerhaven, Germany
[2]Zentrum fur Marine Umweltwissenschaften, Bremen, Germany
[3]University of Bremen, Bremen, Germany

The recently completed Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC) can serve as reference to evaluate current and future ocean state of the Arctic Ocean. With this premise, we perform a virtual MOSAiC expedition in historical and ssp370-scenario experiments in data generated by CMIP6 models.

The timespan covered ranges from preindustrial times (1851-1860) through present-day up to a 4K world (2091-2100). Early results using AWI-CM model, suggest that for scenario simulations a thinning of the colder surface layer and a warming of the layer between 200 and 1200 m along the MOSAiC path can be expected, while there is no significant change in temperature below this depth. Results from other models will be presented.

The Python-centric tool used for the analysis simplifies preprocessing of a pool of CMIP6 data and selecting data on space-time trajectory. It exposes an interface that is agnostic to underlying model or its grid type. Code snippets are presented along to demonstrate the tool's ease of use with a hope to inspire such virtual field campaigns using other past observations or arbitrary trajectories.