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The DYAMOND Winter data collection

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The DYAMOND project (**DY**namics of the **A**tmospheric general circulation **M**odeled **O**n **N**on-hydrostatic **D**omains) is the first initiative for a model intercomparison of global storm resolving (km-scale) climate simulations. The analysis of these simulations advances the understanding of the climate system and improves the next-generation of weather and climate models. In a first phase, a period of 40 days from 1st of August 2016 was simulated, with all models starting from the same initial conditions. The resulting data set is referred to as "DYAMOND Summer" data. In its second, currently ongoing phase "DYAMOND Winter", participating models simulate 40 days starting on the 20th of January 2020, also covering the period of the EUREC4A field experiment. While the DYAMOND Summer only included atmosphere models, the DYAMOND Winter data set also includes coupled atmosphere-ocean models resolving ocean-eddies, atmospheric storms and their interactions.

The analysis of these simulations allows to identify robust features common to this class of new models, and provides insights into implementation-dependence of the results and a hint of the future of climate modelling (e.g. *Arnold et al., 2020* ; *Dueben et al., 2020* ; *Stevens et al., 2020* ; *Wedi et al., 2020*).

The Centre of Excellence in Simulation of Weather and Climate in Europe (ESiWACE) and the German Climate computing centre (DKRZ) are making this data available to the research community. For this purpose, a user-friendly central point of access, the so-called "DYAMOND data library" has been developed. It provides access to the Summer and Winter data collections. A growing community with a lively exchange (e.g. during regular Hackathons) further simplifies the usage of these data sets.

The presentation will introduce the DYAMOND project with a focus on the new DYAMOND Winter data collection. It will present the corresponding experiment protocol and the participating models. To invite scientists to use these data sets, different ways of using the data on the supercomputer of DKRZ will be described in detail.