Project: **1153** Project title: **DYAMOND** Principal investigator: **Daniel Klocke** Report period: **2023-11-01 to 2024-10-31**

Maximum of 2 pages including figures. 9 pt minimum font size.

The DYAMOND project was requested as a dedicated project with modest compute resources for the server-side postprocessing of data, especially output of the European project nextGEMS simulations and in support of the international DYAMOND initiative. This practice has proven very valuable for a few years already. It allowed us to give users access to these resources without risking them accidentally burning the substantial resources of other projects and to create a platform to facilitate the exchange between users. Currently, 519 users of more than 50 institutions worldwide are using the data, 126 users more than at the end of 2023. A significant increase in the usage of DYAMOND resources is observed around and following the nextGEMS hackathons, but there is a continuous use throughout the year (Fig. 1), and we keep getting requests for the DYAMOND Summer and Winter datasets.



Figure 1: CPU users

Although the nextGEMS project started three years ago, each new simulation cycle attracts new users to analyse these storm-resolving simulations. The DYAMOND intercomparison data sets are also attractive to scientists from all over the world. Although the last period of the initiative (DYAMOND Winter) was started in 2019 and the supporting project ESiWACE2 ended in March 2023, there still are new users every month requesting data access. The easy access to DYAMOND data especially attracts young scientists from all over the world, so that they learn how to work with global high-resolution data sets and can make efficient use of pre-exascale simulations. With the DYAMOND simulations (the DYAMOND-Summer and DYAMOND-Winter data sets) and four cycles of nextGEMS simulations completed, the user group is expected to still grow in the next year.

In addition to the numbers above, the usefulness of the DYAMOND project in providing the resources for research is shown in an increased number of publications referencing the data of the nextGEMS simulations, including the DYAMOND simulations, and acknowledging DKRZ in the storage and/or computing support, e.g. Spät et al. (2024).

We have compiled a list of publications referencing project bb1153 in the publications form of this resource application. Publications from the nextGEMS project are also listed at https://nextgems-h2020.eu/publications/.

Literature

Spät, D., M. Biasutti, D. Schuhbauer, and A. Voigt (2024). "Autocorrelation—A Simple Diagnostic for Tropical Precipitation Variability in Global Kilometer-Scale Climate Models". In: *Geophysical Research Letters* 51.17. e2024GL108856 2024GL108856, e2024GL108856. DOI: https://doi.org/10.1029/2024GL108856.