Project: **1153**
Project title: **DYAMOND**
Principal investigator: **Daniel Klocke**
Report period: **2024-11-01 to 2025-10-31**

The DYAMOND project was requested as a dedicated project with modest compute resources for the server-side post-processing 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, 640 users of more than 150 institutions worldwide are using the data, 121 users more than at the end of 2024. A significant increase in the usage of DYAMOND resources is observed around and following the Digital Earths km-scale hackathon, but there is a continuous use throughout the year (Fig. 1), and we keep getting requests for the DYAMOND Summer and Winter datasets.

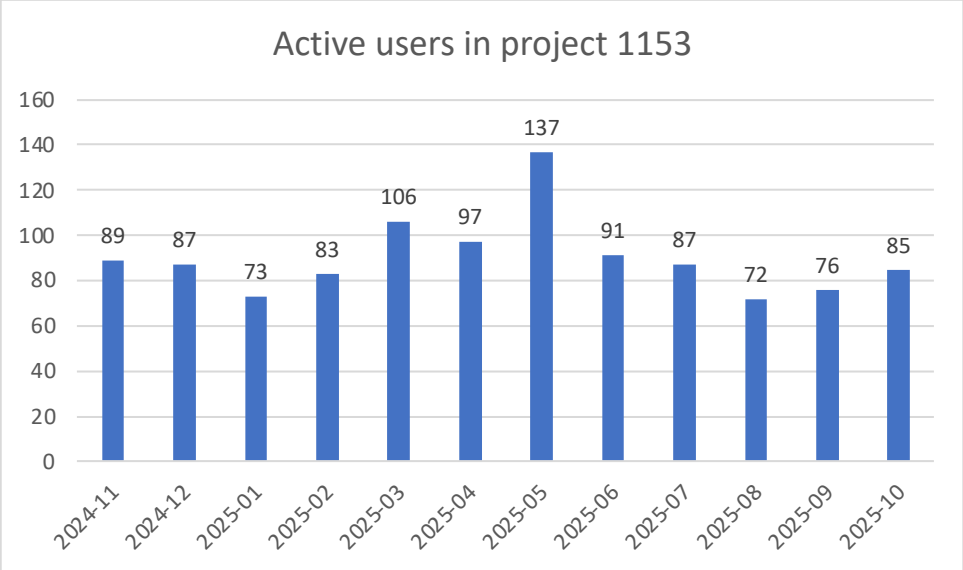

Figure 1: Count of users consuming cpu hours in a given month.

Although the nextGEMS project is ending now, each new simulation cycle has attracted new users to analyse these storm-resolving simulations, and we have received several requests for a prolongation of this project as publications currently are in the making. 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. So, despite the official ends of ESiWACE2 and nextGEMS, we expect continued interest in these simulations in 2026.

In addition to the numbers above, the usefulness of the DYAMOND project in providing the resources for research is shown in an high number of publications referencing the data of the nextGEMS and DYAMOND simulations, and acknowledging DKRZ in the storage and/or computing support, e.g. Poujol et al. (2025).

We have compiled a list of publications referencing project bb1153 in the publications form of this resource application. This list is non-exhaustive, as the users do not report their publictions to us. Publications from the nextGEMS project are also listed at `https://nextgems-h2020.eu/publications/`.

Literature

Poujol, B., J. Lee, T. Rackow, M. W. Rotach, and N. Ban (2025). "Are the Largest Benefits of Kilometer-Scale Climate Models Over Mountains or Over Flatland?" In: *Geophysical Research Letters* 52.8. DOI: https://doi.org/10.1029/2024GL113937.