Report: DYAMOND Data Intercomparison 2021

Project: 1153
Project title: DYAMOND Data Intercomparison
Principal Investigators: Daniel Klocke (MPI-M), Tomoki Miyakawa (Uni. Tokyo), Florian Ziemen (DKRZ), Julia Duras (DKRZ)
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Having a dedicated project with very modest compute resources for the server-side post-processing proved very valuable. It allowed us to give users access to these resources without risking them accidentally burning the substantial resources of other projects.

Currently 62 users of 37 institutions worldwide are using the data. With the second set of simulations completed (DYAMOND-winter) and the use of the data in the European project NextGEMS[1] Hackathons, the user group will grow in the future. Additionally, the World Climate Research Programs (WCRP) long standing project GEWEX has organized an Early Career Researchers[2] competition to promote the usage of high-resolution simulation output from DYAMOND.
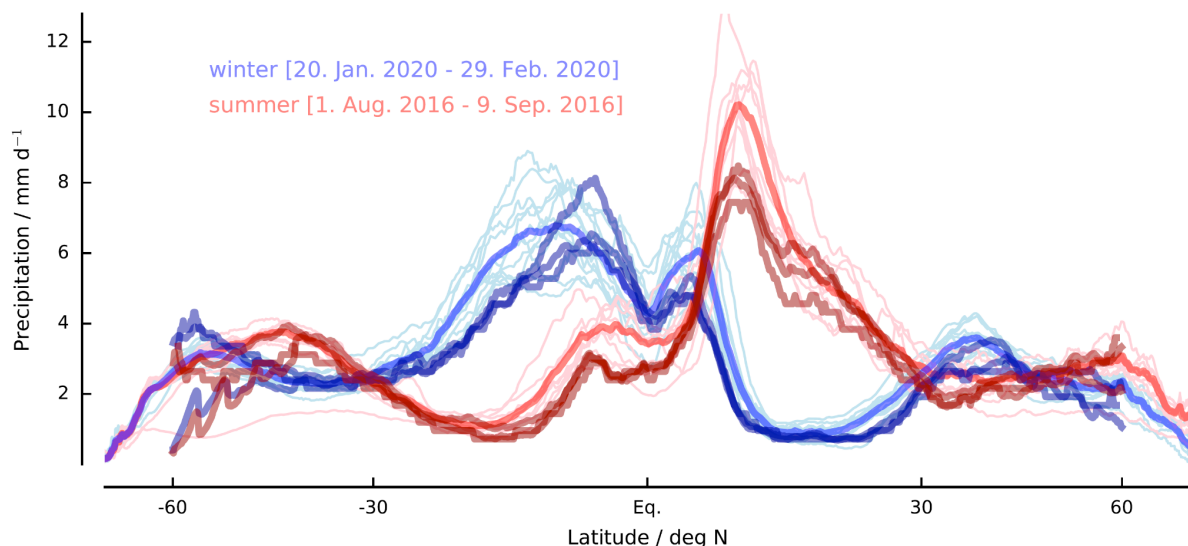
Zonal mean precipitation averaged over the 40 days for the DYAMOND-summer (red) and DYAMOND-winter (blue) models. The ensemble mean of all models for each DYAMOND iteration is shown with the thick lines and three different satellite products are shown as reference in dark red.

There is a growing number of publications in scientific journals using the DYAMOND data set and acknowledging DKRZ for it (several in the review process and preparation) and the DYAMOND ensemble is developing into a benchmark data set for high-resolution model development. The Journal of the Meteorological Society of Japan (JMSJ) hosted a *Special Edition on DYAMOND: The DYnamics of the Atmospheric general circulation Modeled On*

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[1] http://nextgems-h2020.eu/
[2] https://www.gewexevents.org/events/3rd-pan-gass-meetingunderstanding-and-modeling-atmospheric-processes/ecr-competition/

Non-hydrostatic Domains, which includes 9 scientific publications[3]. One highlight publication is by Judt et al. (2021), analysing tropical storms in storm-resolving models.

Literature:

Judt, F., Klocke, D., Rios-Berrios, R., Vanniere, B., Ziemen, F., Auger, L., Biercamp, J., Bretherton, C., Chen, X., Düben, P., Hohenegger, C., Khairoutdinov, M., Kodama, C., Kornblueh, L., Lin, S.-J., Nakano, M., Neumann, P., Putman, W., Röber, N., Roberts, M., Satoh, M., Shibuya, R., Stevens, B., Vidale, P. L., Wedi, N., & Zhou, L. (2021). Tropical Cyclones in Global Storm-Resolving Models. *Journal of the Meteorological Society of Japan. Ser. II*, *99*(3), 579–602. https://doi.org/10.2151/jmsj.2021-029

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[3] http://jmsj.metsoc.jp/special_issues_editions/DYAMOND_info.html