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Operational NWP at DWD: Life before Exascale

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The last years again have seen some changes in the operational forecasting chain at DWD. The most significant one being the replacement of the COSMO-Model by the limited area mode application of ICON, the ICON-D2. Other developments, also in data assimilation, are ongoing, for which a significant increase of computing power is needed. This is delivered now in two phases by NEC, which won the procurement in 2019.

In this presentation we will give an overview on the community model ICON and the major developments at DWD for the NWP mode. The need of exascale computing for NWP and the other applications will be discussed.

A possibility to reach exascale is given by accelerators and the work to port ICON to GPGPUs using OpenACC has quite progressed, mainly by the work of our partners at MeteoSwiss, MPI-M and DKRZ. But with upcoming new accelerator hardware also the programming models are changing. Therefore it is unclear, how “operational exascale code” will look like in the future and it seems that this makes the road to exascale a rather rocky one.

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