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Visualization of high-resolution climate model output in a Visualization dome

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The new generation of global storm-resolving climate models yields model output at unprecedented resolution, going way beyond what can be displayed on a state-of-the-art computer screen. This data can be visualized in photo-realistic renderings that cannot be easily distinguished from satellite data (e.g. Stevens et al, 2019). The EU-funded Centre of Excellence in Simulation of Weather and Climate in Europe (ESiWACE) enables this kind of simulations through improvements of model performance, data storage and processing. It is closely related with the DYAMOND model intercomparison project. The Max-Planck-Institute for Meteorology (MPI-M) will contribute to the second phase of the DYAMOND intercomparison with coupled global 5 km-resolving atmosphere-ocean climate simulations, internally called DYAMOND++.

Because of the great level of detail, these simulations are especially appealing for scientific outreach. In this PICO presentation we will illustrate how we turn the output of a DYAMOND++ test simulation into a movie clip for dome theaters, as used in the WISDOME contest of the IEEE EUROVIS conference and in planetaria and science centers. Our presentation outlines the main steps of this process from data generation via pre-processing to the methods employed in the rendering of the scenes.

Stevens, B., Satoh, M., Auger, L. et al.: DYAMOND: the DYnamics of the Atmospheric general circulation Modeled On Non-hydrostatic Domains. *Prog Earth Planet Sci* (2019) 6: 61. <https://doi.org/10.1186/s40645-019-0304-z>