



From climate simulations directly to actionable insights: The Climate Change Digital Twin

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The Climate Change Adaptation Digital Twin (Climate DT), developed as part of the Destination Earth Initiative, produces global multi-decadal kilometer-scale simulations (5 – 10 km) in a new operational framework. A significant achievement in Climate DT is the capability to automatically process the hourly model output with impact applications which provide insights for users. Such applications include for instance the analysis of flood risks, renewable energy generation and wildfire risks. Therefore, Climate DT data can provide direct insights into potential adaptation requirements. Additionally, the Climate DT runs with multiple climate models (IFS-FESOM, IFS-NEMO and ICON) which led to the implementation of a standardized data portfolio on HealPix meshes, further benefiting data users in analyzing the data.

In this presentation we will introduce the operational Climate DT framework as well as the workflow that enables us to perform the climate simulations with automatic post-processing by multiple applications including scientific evaluation. Other aspects that will be introduced are the standardized data-portfolio and the simulations that have been performed so far as part of Climate DT.

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