Project: **169**

Project title: **Klimamodellierung mit dem Virtuellen Labor für Erdsystem Studien**

Principal investigator: **Ingo Kirchner**

Report period: **2022-11-01 to 2023-10-31**

The three major topics of the project are

1. establish a gateway between education and HPC using the VAST plattform (https://vast.klimod.de)

2. Support of PhD projects

testing and integration of ICON in the VAST system.

In the current report periode the HPC was not active used for the VAST system, because the upgrade of the system to the latest Debian caused a lot of reengineering tasks. For the ongoing courses in the winter term the ICON will be used and the VAST system is working on the levante. Therefore few AMIP type experiments are planned until the end of 2023.

In addition the ressources was shared with other project. One of these is the analysis of extreme precipitation. The project used large initial condition ensembles of global climate models with reanalysis data and observations of extreme precipitation. Precipitation scaling and (thermo-)dynamic decomposition were applied as described in Pfahl et al. (2017). Thermodynamic and dynamic factors including vertical wind, moisture fluxes and CAPE at daily resolution were used or computed to quantify the synoptic weather conditions during local precipitation extremes. This used roughly 2200 node hours.

Reference:

Pfahl, S., O'Gorman, P. A., & Fischer, E. M. (2017). Understanding the regional pattern of projected future changes in extreme precipitation. Nature Climate Change, 7(6), 423-427.