



CLIMADAT-hub: High-resolution long-term climate projections for Greece

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CLIMADAT-hub project aims at bridging the gap between the available climatic information and the information required for assessing climate risks at the local scale by creating high resolution observational gridded datasets, as well as statistically downscaled seasonal forecasts and climate change projections for Greece.

Regarding the climate change projections, the main objective is to statistical downscale CMIP6 climate change output to a higher spatial resolution, using the CLIMADAT-GRid dataset- a daily gridded dataset at 1km x 1km developed in the early days of the project, as the reference dataset (Varotsos et al., 2025, <https://doi.org/10.5194/essd-2025-29>). To this aim the long-term climate projections data are remapped on the high resolution CLIMADAT-GRid gridded datasets using bilinear interpolation and consequently the models' output is bias adjusted using the gridded product as the reference dataset. To reduce the computational cost prior to statistical downscaling a regional sub-ensemble that encapsulates the variability of CMIP6 projections is created using a methodology that refines CMIP6 model selection to balance historical accuracy with diverse future responses. In this study, we report the results of the climate change assessment on a very high resolution over Greece, for temperature and precipitation, while the statistical downscaling will be extended for other variables such as relative humidity and wind speed. The results of this project can be utilized by stakeholders and decision makers to develop well-informed and science-based local/regional adaptation plans, in order to allow better use of water resources, improve agricultural production and sustainability, as well as make urban centers climate proof.

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