Swedish Meteorological & Hydrological Institute

Ralf Döscher
ralf.doescher@smhi.se

Decadal climate predictions produced with EC-Earth3

The objective is to demonstrate application of iAOS for improving decadal climate predictions: usage of Sea Ice Concentrations from CERSAT

Decadal predictions with the global coupled climate model EC-Earth3 have been produced, initialized from ocean (ORA-S5) and atmosphere (ERA-Interim) reanalyses (reference system).

Integrated Arctic Observing System will be used for:

a) independent verification

b) assimilation/initialization yielding potentially improved decadal predictions
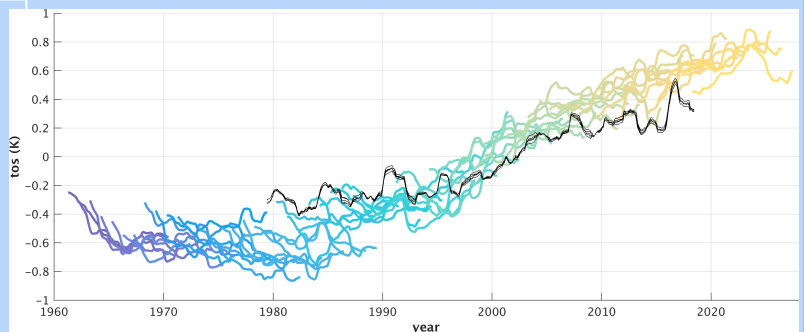

Figure 1. Observed (black) SST-anomaly over Arctic Ocean (65°N-90°N) and resp. retroactive decadal climate predictions (colored)

Decadal predictions produced with EC-Arth3 are global. iAOS will provide valueable data, that (i) allows for more thorough evaluation and verification of the predictions in a region highly important for the global climate but still underrepresented in existing observational products, and (ii) contributes to improving estimates of climate states, beneficial for the performance of decadal climate predictions initialized from these.

The EC-Earth3 decadal predictions demonstrate the application of iAOS data for the climate modelling community, other scientific actors and follow-up benefits for political and socio-economic stakeholders including local communities.

The climate prediction data is freely available from the Earth System Grid Federation:
https://doi.org/10.22033/ESGF/CMIP6.4553

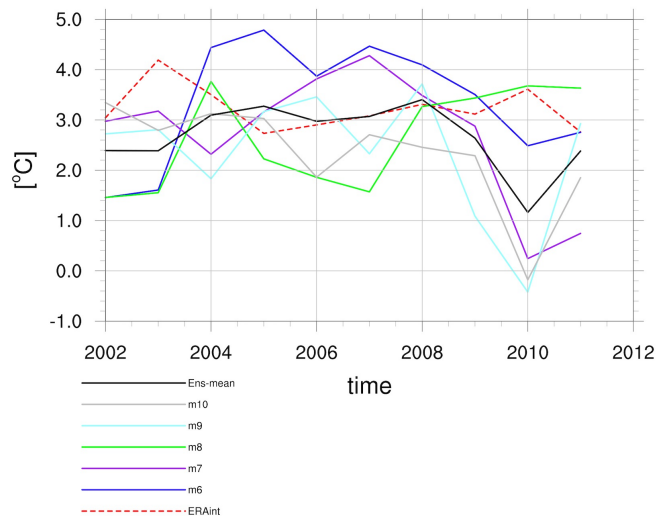
Surface temperature, Iceland-I

Figure 2. Observed (red) 2m-temperature in Ísafjörður (Iceland) and retroactive decadal climate predictions (bluish & ensemble mean in black) initialized in November 2001