

# SPECIAL PROJECT PROGRESS REPORT

All the following mandatory information needs to be provided. The length should *reflect the complexity and duration* of the project.

**Reporting year** 2021

**Project Title:** EC-Earth3 contribution to Polar Amplification Intercomparison Project (PAMIP)

**Computer Project Account:** SPDKLANG

**Principal Investigator(s):** Peter L. Langen

**Affiliation:** Aarhus University, Denmark

**Name of ECMWF scientist(s) collaborating to the project (if applicable)** N/A

**Start date of the project:** Jan 1, 2021

**Expected end date:** Dec 31, 2022

## Computer resources allocated/used for the current year and the previous one (if applicable)

Please answer for all project resources

|  |          | Previous year |      | Current year |      |
|--|----------|---------------|------|--------------|------|
|  |          | Allocated     | Used | Allocated    | Used |
| <b>High Performance Computing Facility</b> | (units)  | 0             | 0    | 10,000,000   | 0    |
| <b>Data storage capacity</b>               | (Gbytes) | 0             | 0    | 25,000       | 0    |

### **Summary of project objectives** (10 lines max)

Confounding impacts of many simultaneous ongoing changes affect the observed, real-world polar amplification leaving a clear decomposition of the response near impossible. The Polar Amplification Intercomparison Project (PAMIP) has been designed to remedy this by supplying detailed experimental protocols and input datasets to allow for proper intercomparability between model results making data available through the CMIP6 infrastructure.

This special project covers only the Tier 1 experiments (plus two experiments from Tier 2), consisting of a set of atmosphere-only experiments designed to allow analyses of the relative roles of SST and sea ice changes in the past and future in determining Arctic temperatures and Arctic-midlatitude-communication.

### **Summary of problems encountered** (10 lines max)

We have not yet started the experiments, so we have not encountered any problems. We have EC-Earth colleagues who have previously performed and processed some of the PAMIP experiments on the ECMWF infrastructure, so given their experience and scripts we expect the setup and execution to be rather painless.

### **Summary of plans for the continuation of the project** (10 lines max)

The plan is to start the setup in late August and to perform about half of the experiments over the fall. The other half are expected to be performed in the first part of 2022, after which processing and analyses may indicate whether follow-up experimentation is needed in the latter half of 2022.

### **List of publications/reports from the project with complete references**

None.

### **Summary of results**

If submitted **during the first project year**, please summarise the results achieved during the period from the project start to June of the current year. A few paragraphs might be sufficient. If submitted **during the second project year**, this summary should be more detailed and cover the period from the project start. The length, at most 8 pages, should reflect the complexity of the project. Alternatively, it could be replaced by a short summary plus an existing scientific report on the project attached to this document. If submitted **during the third project year**, please summarise the results achieved during the period from July of the previous year to June of the current year. A few paragraphs might be sufficient.

As mentioned above, we have not yet commenced the setup and experimentation, so there are no results to report on yet.