

<Title>

Technical development of the EC-Earth3 Single Column Model (SCM)

Project plan

< The purpose of the project plan is to identify, define and delimit the project's commitment. >

< WHO IS INVOLVED IN THE PROJECT >

1. Project organization

Requester

Name: Gunilla Svensson

Title/position: Professor

Affiliation: Department of Meteorology, Stockholms University

Phone:

E-mail: gunilla@misu.su.se

Project responsible for SNIC

Name: Hamish Struthers

Title/position: Application expert

Affiliation: NSC, SNIC

Phone: 0732702419

E-mail: struthers@nsc.liu.se

< For other project members, please specify role and contact details. >

Project manager

Name: Torben Rasmussen

Title/position: Application expert

Affiliation: NSC, SNIC

Phone: 013281494

E-mail: torbenr@nsc.liu.se

2. SNIC project name

< Name of an associated SNIC resource allocation project, if applicable (e.g. SNIC 2014/X-YYY). >

SNIC 2015/10-4

< MOTIVATION FOR GETTING THIS PROJECT SUPPORT >

3. Expected enabling benefit

< Generally provided by the requester. Formulate the expected enabling benefit. That is, the benefit the project will contribute to associated research activities on short and/or long term. How will this further enable research activities for the requester and others? >

Short-term goal:

- Develop a coupled single column model (SCM) version of the EC-Earth version 3.2 model, including the OpenIFS and NEMO/LIM3 models and the associated coupling using OASIS-MCT

Long-term goal:

- Fully integrate SCM into the trunk of the EC-Earth3 model development

A SCM version of the EC-Earth model can be used in a variety of ways to study in detail:

- Physical processes of the atmosphere and ocean, and how they are parameterized.
- Coupling between the atmosphere and ocean, including the complex interaction with sea ice

SCMs have been shown to be very useful tools that give the opportunity to compare and contrast physical parameterizations in a way that is not possible within full three dimensional global model. The current SCM version of EC-Earth3 is an atmosphere only model and there are no plans for further development of this model version. This project aims to update and configure a coupled SCM.

4. Impact of the research that the project is associated with

< Generally provided by the requester. Why is this enabling important? For example, describe how important the software/data is for your current and future research activity and for other national and international research activities. >

EC-Earth (<http://www.ec-earth.org/>) is a fully coupled global climate model being developed and used by a consortium of European partners currently lead by the Rossby Centre. The current model version (EC-Earth 3) is targeting a full-scale ESM including new components such as dynamic vegetation, a global carbon cycle and terrestrial carbon balance.

Within the Swedish climate modeling community, research projects using EC-Earth will work along four primary scientific tracks:

1. Circulation, variability and decadal predictability;
2. Climate change future scenarios
3. Parameterization of unresolved scales;
4. Paleo-climate modelling;
5. Arctic climate change.

EC-Earth is the most widely used climate model in Swedish academic research.

5. Why is SNIC assistance needed?

The proposed project is a technical development of the EC-Earth model and therefore outside the scope of the climate modeling scientific research. SNIC application experts have experience with code modifications of complex models such as EC-Earth.

< WHAT ARE WE HANDS-ON GOING TO DO IN THE PROJECT? AND HOW? >

6. Project objective

< Describe briefly the background and formulate the project objective, i.e. what is it intended that the project should do to achieve the expected enabling benefit? How are you going to deliver the requested enabling? >

This project is a technical development of EC-Earth and does not cover the scientific verification or tuning of output from the single column model.

Deliverables:

Delivery no.	Description	Schedule
1	Fully coupled version of SCM included in the trunk of EC-Earth3	Completed 2016-05-31
2	Full documentation of configuration and building of EC-Earth SCM in the EC-Earth3 development portal	Completed 2016-05-31

7. Work plan and resource estimate

< Specify the required staff resources in PM and the time frame for the project. >

The project will be conducted during 2015-H2 and 2016-H1. NSC will spend up to 3 PM within this project. Person months will be carried by the 'Avancerat national Användarstöd' project.

Start date: November 2015

End date: 2015-05-31

Defined milestones (MS) and decision points (DP):

< Describe important review points in the form of milestones and decision points. >

Milestone/Decision point	Description	Date
DP1	Project plan approved	November 2015
MS1	Standalone OpenIFS SCM and NEMO SCM included in EC-Earth framework (development branch)	Jan 2016
DP2	Review of progress & goals	Feb 01 2016
MS2 & DP2	Fully coupled version of SCM (development branch)	March 2016
MS3	Fully coupled SCM (trunk) and documentation	May 2015

Responsibilities:

< Describe the responsibilities of the various project members and stakeholders. Who is responsible for what? And who decides what? >

- Assistance with project planning and OpenIFS SCM configuration (Contact: Kerstin Hartung, Gunilla Svensson).
- The implementation work will be a coordinated effort amongst EC-Earth consortium partners. (Contact: Hamish)
- NSC/SNIC will ensure code changes are logged and documentation added to the EC-Earth development portal (Contact: Hamish).
- NSC/SNIC will organize a mid-point meeting to review progress and coordination of work (Contact: Hamish).

Communication and dialogue:

< Describe how the project members will keep each other updated throughout the project. Describe how results, decisions, project changes, etc. will be discussed and communicated. >

- E-mail contact as necessary throughout the project.
- Project meetings organized during the project in conjunction with regular AE visits to MISU
- Wiki/forums on the EC-Earth development portal will be used to document project.

Confidentiality requirements:

N/A

8. Approval

< The signatures of all parties confirm the validity of the project plan. The SNIC office can overrule this approval or require adjustments to the project plan, such as the amount of PMs that can be spent in the project. >

I agree to the objective, scope, and responsibilities described in this project plan:

Requester**For SNIC**

Date: _____

Date: _____

Gunilla Svensson_____
Patrick Norman**Project responsible for SNIC**

Date: _____

Hamish Struthers