REQUEST FOR A SPECIAL PROJECT 2010–2012

MEMBER STATE: FRANCE

Principal Investigator[1]: Philippe ROGEL

Affiliation: ……

Address: 42 Av Coriolis

31057 TOULOUSE Cedex 1

FRANCE

E-mail: rogel@cerfacs.fr

Other researchers: ……

……

Project Title: **Seasonal to interannual predictability of a coupled ocean-atmosphere model (SPFROASP)**

If this is a continuation of an existing project, please state the computer project account assigned previously.	**SPFROASP**	
Starting year: (Each project will have a well defined duration, up to a maximum of 3 years, agreed at the beginning of the project. For projects started before 2009, please state 2009 as the start year.)		
Would you accept support for 1 year only, if necessary?	YES X☐	NO ☐

Computer resources required for 2010-2012: (The maximum project duration is 3 years, therefore a continuation project cannot request resources for 2012.)	**2010**	**2011**	**2012**
High Performance Computing Facility (units)	10000	10000	10000
Data storage capacity (total archive volume) (gigabytes)	150	150	150

*An electronic copy of this form **must be sent** via e-mail to:* *special_projects@ecmwf.int*

Electronic copy of the form sent on (please specify date): 30/04/2009

Continue overleaf

[1] The Principal Investigator will act as contact person for this Special Project and, in particular, will be asked to register the project, provide an annual progress report of the project's activities, etc.

Principal Investigator: **Philippe ROGEL**

Project Title: **Seasonal to interannual predictability of a coupled ocean-atmosphere model (SPFROASP)**

Extended abstract

This special project aims to investigate the seasonal to decadal climate predictability with a coupled ocean-atmosphere model used and developed at Cerfacs and to investigate the role of the ocean variability as seen by long reanalyses and of ocean initial conditions (ICs).

This model gathers the ARPEGE-Climat atmospheric model and the ORCA (OPA) ocean model through the OASIS coupler. Seasonal and longer range climate predictability is investigated through several sets of realistic coupled prediction experiments over the ERA40 period, or over testing sub periods. The work is based on tools developed on the long run during several European projects for about one decade, and particularly the EC-FP6 ENSEMBLES project. It will also feed into the COMBINE project and the decadal exercise of the CMIP5/IPCC project.

As a benchmark of these, we have produced of the second ENSEMBLES Stream of decadal hincast simulations, including ocean reanalyses, and the whole set has been stored and archived on the ECMWF facilities. Production of ensembles of ocean initial ICs was possible through links with the SPFRVODA Special Project. Until the end of the project and beyond, we will exploit these simulations and investigate decadal predictability at the global scale, and also predictability of tropical modes of variability.

In 2010, we will begin the production of decadal hindcasts and forecasts for COMBINE and CMIP5. To do this, we need to redesign and test our initialisation method, based on a new model and on the use of ECMWF ocean reanalyses. In particular, we will test coupled initialisation with restoring towards reanalyses. Some of these tests will be carried out at ECMWF.