REQUEST FOR ADDITIONAL RESOURCES IN THE CURRENT YEAR FOR AN EXISTING SPECIAL PROJECT

MEMBER STATE: FRANCE……..……...…

Principal Investigator[1]: Yves Morel……..……

Affiliation: CNRS/Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS)
……..……

Address: 14 avenue Edouard Belin, 31400 TOULOUSE, FRANCE.……

E-mail: Yves.Morel@legos.obs-mip.fr…….……

Other researchers: Dr. Florent Lyard (CNRS/LEGOS, Toulouse, France), Dr. Benoit Dr. Tranchant (CLS, Ramonville, France), Dr. Loren Carrere (CLS, Ramonville, France)

Project title: Improvement of the barotropic tide in the 1/12° global ocean NEMO model

Project account: **SPFRMORE**

Additional computer resources requested for	**15/05/2020**
High Performance Computing Facility (units)	2,000,000
Data storage capacity (total) (Gbytes)	0

Continue overleaf

1 The Principal Investigator is the contact person for this Special Project

Technical reasons and scientific justifications why additional resources are needed

This project is based on the global configuration at 1/12° named MFC-GLO used in CMEMS. The goal is to introduce, validate and imporve the modeling of barotropic tides in the general circulation of the global ocean, at high resolution. It is a time consuming configuration especially since we explicitly solve the barotropic tides. In particular, we had to reduce the time barotropic time step to imporve their representation in the model. This induced a cost we did not expect at the beginning of the project.
As planed in the project, we implemented a new parameterization of the internal wave drag in order to well specify the dissipation due to internal waves in the model. This new parameterization generated numerical instabilities that we were only able to kill by using a smaller baroclinic time step (180 s instead 360 s usually).
Smaller time steps leads to a larger computational cost which is the main reasons why we exceeded our SBU quota already.
In addition, in order to valid the tide solution (Tide gauges, HF radar, altimeter data) in a ocean model, a minimum of 40 days of computation is needed.

In order to perform the final tests and simulations, we need 2,000,000 additional SBU.

We hope it will be possible to extend our quota.

Many thanks in advance for your help and your answer.
With my very best regards,

Yves Morel