

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

**MEMBER STATE:** Italy

**Principal Investigator<sup>1</sup>:** Valerio Capecchi

**Affiliation:** LaMMA Consortium - Environmental Modelling and Monitoring Laboratory for Sustainable Development

**Address:** Via Madonna del piano, 10, Sesto Fiorentino, Florence, Italy

**E-mail:** capecchi@lamma.rete.toscana.it

**Other researchers:** Simon Lang, Roberto Buizza

**Project title:** High-impact precipitation events prediction with a convection-permitting model nested in the ECMWF ensemble

.....

**Project account:** SPI TCAPE

Additional computer resources requested for	2016
High Performance Computing Facility (units)	3 000 000
Data storage capacity (total) (Gbytes)	25 000

*Continue overleaf*

---

<sup>1</sup> The Principal Investigator is the contact person for this Special Project

## Technical reasons and scientific justifications why additional resources are needed

Two reasons:

1. Scientific justification: almost all (~93%) the SBU allocated for this year, were consumed to perform a preliminary test by tuning one parameter that controls the scaling factor of perturbation in the IFS model.

This fine-tuning test was decided in accordance with the Research Department Staff in order to set properly the initial condition perturbation amplitude for the proposed cases. The first case under exam is the Cinque Terre flood (October 2011); it is estimated that the observations available in 2011 were about 60% those available in 2016 (observations routinely assimilated in a single model run were about 45 million in 2011 and are about 70 millions in 2016). Now, since the ensemble spread of the model cycle 41r2 is likely to be under-estimated when assimilating only the observations available in 2011, we modified one parameter (EPSGAMMA) of the singular vector initial perturbation in order to enhance the ensemble spread and have a reliable ensemble (ie ensemble spread as close as possible to the ensemble error)

2. Technical reason: there was an error in the SBU requested in the first SP Request form, namely SBU were largely under-estimated. This problem will be bypassed by reducing the length of the IFS forecast (length will be up to 10 days instead of 15 days) and by running on Principal Investigator's computer facilities part of the WRF simulations initially foreseen on the ECMWF supercomputer