

# 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** 2019

**Project Title:** Exploring the predictability limits of severe weather in the western Mediterranean

**Computer Project Account:** SPESHOMA

**Principal Investigator(s):** Víctor Homar Santaner

**Affiliation:** University of the Balearic Islands

**Name of ECMWF scientist(s) collaborating to the project (if applicable)** NA

**Start date of the project:** March 2019

**Expected end date:** December 2021

## 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)	NA	NA	12.000.000	Marginal
<b>Data storage capacity</b>	(Gbytes)	NA	NA	20.000	Marginal

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

The proposed project aims to explore the potential of a promising assimilation and prediction strategy, including stochastic physics perturbations, to improve the short-range forecasts of weather phenomena affecting Mediterranean coastlands. Specific objectives of this project are:

- 1) The forecast of PDFs by means of the Liouville equation
- 2) Sampling IC error by means of EnKF data assimilation system and bred-vector based high-resolution forecasts
- 3) Sampling model error by means of stochastic physics
- 4) Exploring next-gen forecast sensitivity information

The proposed activity pursues the main objective of improving the above mentioned predictability challenges of severe weather events that mainly initiate and develop over the Mediterranean Sea and eventually affect populated coastal areas.

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

For the moment, we have compiled/installed the numerical models and tested the queueing system successfully. We have also familiarized with the filesystem organization.

No major problems have arisen.

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

Once the codes and the computer environment is configured for our needs, we will start performing research experiments from July 1<sup>st</sup>.

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

None in the 4 months of execution period for this project.

### **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.

Since we are in the first phase of this project, no scientific outcome has been produced yet. The four months of execution have been used to familiarize with the environment, the installation of codes and the adaptation of running scripts. We expect to begin producing tangible results in the coming weeks.