

SPECIAL PROJECT PROGRESS REPORT

Progress Reports should be 2 to 10 pages in length, depending on importance of the project. All the following mandatory information needs to be provided.

Reporting year 2016.....

Project Title: Regional surface re-analysis with MESCAN for the UERRA project

Computer Project Account: SPFRBAZI.....

Principal Investigator(s): ...Eric BAZILE.....
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Affiliation: CNRMGAME, Météo-France

Name of ECMWF scientist(s) collaborating to the project (if applicable)
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Start date of the project:24th March 2016

Expected end date:31 /12/2016 only one year was accepted due to the late request.....

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
High Performance Computing Facility	(units)			10000000	7100000
Data storage capacity	(Gbytes)				

Summary of project objectives

(10 lines max)

This special project aims to create a regional surface re-analysis over Europe in the framework of the UERRA (Uncertainties in Ensembles of Regional Re-Analyses) FP7 project. The objective is to provide 50 years (1961-2010) of surface analysis for Essential Climate Variables (ECV) such as 2m temperature, relative humidity, wind, precipitation etc ... at 5km over Europe.

The uncertainties of the re-analysis is estimated by an ensemble with at least 6 members for the period 2006-2010.

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Summary of problems encountered (if any)

(20 lines max)

.....No problem

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Summary of results of the current year (from July of previous year to June of current year) scientific report on the project

We received the approval and the account for this project the 29th March 2016, since this date we have already used more than 70% of the allocated resources. The 5 years forecast at 5.5 km over Europe with the ALADIN model (Limited Area Model with the ARPEGE physics) are almost finished. The 6h forecast will be used as a background for the surface analysis and compared with the surface analysis done with the downscaled background from the 3Dvar re-analysis done by SMHI at 11km.

In addition, the production of the members of the ensemble surface analysis have been started. To address the impact of the evolution of the surface observation network and the availability of the data, two sets of observations have been created one similar to the 60's, with ~500 observations available and one with 5000 observations for the recent years., the impact of this large differences will be evaluated through the ensemble analysis for the period 2006-2010 with some members using a low density network (similar to the 60's) for the temperature and precipitation (Fig 1). For example the impact of the density network is shown in Fig2 for the accumulated precipitation for

June-July-August 2006. Over the Alps, the impact can reach 200mm. The variability between the members (Fig2 right) is shown with the standard deviation, in some areas the uncertainties are related to the density network and in northern Africa the differences come from the physics used by the background.

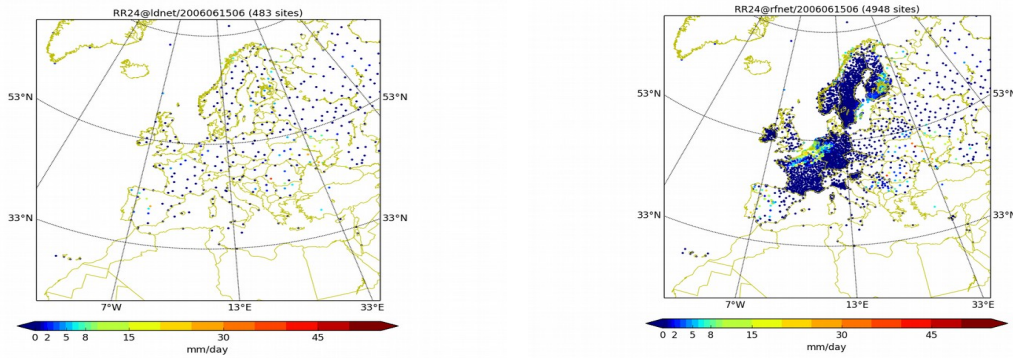


Fig. 1 24h accumulated precipitation observation for the low density network and the reference one

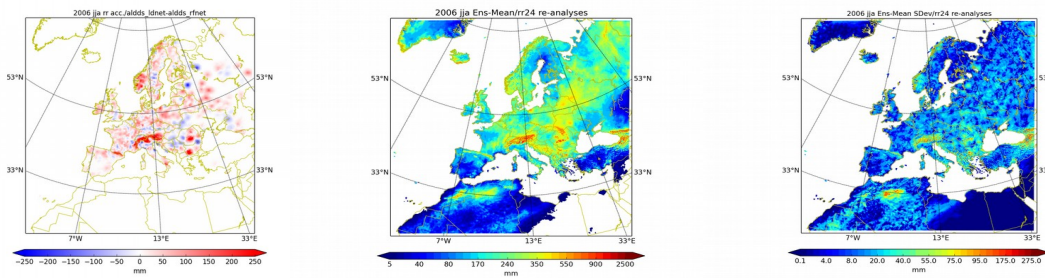


Fig. 2 Left: impact of the density network on the precipitation analysis for JJA 2006 (mm). Middle ensemble mean for the accumulated precipitation for JJA 2006 with 5 members. Right: Standard deviation for the 5 members JJA 2006

List of publications/reports from the project with complete references

UERRA periodic report from www.uerra.eu.....
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Summary of plans for the continuation of the project

(10 lines max)

We will start in Autumn the 50 years production since 1960 when the 3Dvar re-analysis done by SMHI will be available (we need first to downscale the background). The objective is to produce 15 year of surface re-analysis before the end of 2016. A special project has been request for 2017-2018 to finalize the 50 years production and to do further study at higher resolution with AROME at 2.5km

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