

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 2020

Project Title: ALARO Limited Area Ensemble Forecast (A-LAEF)

Computer Project Account: spcralae

Principal Investigator(s): Martina Tudor (DHMZ)

Affiliation: DHMZ

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

Start date of the project: 1 Feb 2020

Expected end date: Currently 31 Dec 2020

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)			5.000.000	0
Data storage capacity	(Gbytes)				0

Summary of project objectives (10 lines max)

Research and development concerning the regional ensemble forecasting system A-LAEF in order to sustainably improve its operational implementation. Implementation of new random number generator (SPG) suitable for LAM EPS environment in A-LAEF 5km. Investigate the possibilities of stochastic perturbation of fluxes instead of tendencies. This should be beneficial with respect to the energy balance preservation in perturbed model. Preparation of flow-dependent B-matrix using the A-LAEF 5km operational outputs. Implementation of A-LAEF 5km Phase II configuration involving ENS BlendVar to improve the simulation of upper-air ICs uncertainty. Calibration of precipitation. Methodology for post-processing over the river catchments according to the needs of hydrological models.

Summary of problems encountered (10 lines max)

The allocated SBUs were primarily intended for research and development purposes that are associated with research stays in and of the NMSs that are Members of RC LACE, however due to covid 19 restrictions, it was not possible to fulfil a research stay in the period since the Special Project was approved. The work is currently being reorganised to allow remote coordinated work and the use of the SBUs allocated for research purposes. The A-LAEF operational application has progressed in the meantime, but the SBUs for that effort are used from a different account.

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

The research plan is being adjusted in order to fulfil at least part of the project objectives during this year without the necessity for a research stay (that a researcher from one country travels to another service and work with researcher there). Currently, the computation of a flow dependent B-matrix, new random number generator and the Phase II configuration seem feasible to be done before the end of the year.

List of publications/reports from the project with complete references

Currently none

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.

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