COSMO Priority Task: TERRA Nova

Version 1.2, 06/09/2017

Task Leader: Yiftach Ziv (IMS)

Project Extension: COSMO year 2017-2018

A **prolongation of the PT TERRA Nova for 6 more months** is proposed in order to complete the tasks planned in the original PT and to provide robust deliverables. The extension is requested due to
(1) the significant delay in the release v5.05 of COSMO (the version to be tested in this PT),
(2) the unexpected difficulties using the VERSUS tool at ECMWF.
Since the completion of the task is absolutely dependent on a stable COSMO 5.05 version, and a usable VERSUS at ECMWF, the requested extension is until the end of June 2018. The necessary ressources for this PT extension are available: the FTEs not used because of the delay in the delivery of version 5.05 will be moved to the extension period of the task, while **an additional 0.18 FTEs will be provided by IMS to fulfil the task**. The total requested resources for the COSMO year 2017-2018 are equivalent to 0.45 FTE.

In addition, it is estimated that in order to fulfil the full extent of the PT, i.e. execute simulations for 3 versions of COSMO (5.0, 5.05 with conservative setting and 5.05 with advanced setting) an additional CPU time at ECMWF equivalent to 6 million Billing Units (BU) is required. MCH has already secured 6 million BU for the PT for year 2017, so **additional 6 million BU is required**, possibly in year 2018.

Description of Individual Tasks

Task1: Compare various TERRA versions over various domains

Subtask 1.1: Defining and executing the simulations.

Delayed due to delay in delivery of v5.05

Subtask 1.2: Verification of the simulations and documentation of the main differences.

Uncertainties and extra FTEs required due to use of VERSUS in ECMWF.

Estimated Resources

Extension of PT TERRA Nova until June 2018 is proposed due to the delay in the completion of some Tasks. Estimated resources required:
- Total of 0.45 FTEs is required (0.27 FTE moved from unused resources of PT TERRA Nova 2016-2017 plan).
- Additional 6 million BU at ECMWF computing centre is required.

Task	Contributing Scientist(s)	FTE-Years	Start	Deliverables	Date of Delivery
1	Y. Ziv (IMS) I. Rozinikina (RHM) M.Nikitin (RHM) J.M Bettems (MCH) J. Helmert (DWD) J. P. Schultz (DWD)	0.31 0.03 0.07 0.02 0.01 0.01	1.2017	(1) A set of simulations based on the reference COSMO/TERRA 5.00, and the associated observation listed in the previous table, available for further studies. (2) Documenting the differences between the three versions of TERRA and standard near surface measurements in terms of RMSE, MBE and other scores used, for instance, by MCH "Movero" (standard verification). (3) Documenting the differences in land surface temperature between the three versions of TERRA and CM-SAF data base, according to CM-SAF validation methods (Anke et al. 2016). (4) Documenting the various fluxes differences and diurnal deviations between the three versions of TERRA.	06.2018

Total of 0.45 FTEs