

SPECIAL PROJECT PROGRESS REPORT

Reporting year 2018

Project Title: Integrated Simulations of the Terrestrial System over the European CORDEX Domain

Computer Project Account: SPDEKOLL

Principal Investigator(s): Stefan Kollet

Affiliation: Forschungszentrum Jülich, Agrosphere (IBG-3)

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

Start date of the project: 05.06.2018

Expected end date: 31.12.2018

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)			5000000	0
Data storage capacity	(Gbytes)			60000	46000

Summary of project objectives

The objective of this study is to identify and quantify feedback pathways of human water use on the atmospheric moisture transport using a Lagrangian particle dispersion model and high-resolution fully coupled aquifer-to-atmosphere simulations over the European CORDEX domain. The Lagrangian particle dispersion model FLEXPART is used to trace atmospheric water vapour, and facilitates the identification of moisture sources, which lead to precipitation. Simulations from our previous special project are used as input data and allow to address the impact of human water use, here considered as irrigation and groundwater abstraction, on precipitation recycling.

Summary of problems encountered (if any)

No problems have been encountered.

Summary of results of the current year (from July of previous year to June of current year)

Due to the late request, which was granted at the beginning of June, the project has not started yet. However, some preparations have been made. I.e. the particle dispersion model FLEXPART-COSMO has been transferred to the ECMWF and will be compiled in the next days.

List of publications/reports from the project with complete references

None.

Summary of plans for the continuation of the project

FLEXPART will be compiled at the ECMWF and test simulations will be performed. In order to improve performance, scaling and profiling studies are planned. After successful test simulations, the input data will be prepared using the newly developed cclm4flexpart-tools. Subsequently, simulations will be started.