



Minutes of the Results

Workshop SOILVEG/ COLOBOC

Date: 28.02.2011

Time: 13:30-18:30

Location: BTZ Langen

Reference:

Participants:

Bettems (MCH), Helmert (DWD), Asensio (DWD), Vogel (DWD), Lange (DWD), Davin (ETH), Yurova (HMCRU), Kazakova (HMCRU), Rozinkina (HMCRU), Truhetz (U Gratz), Vieli (ETH), Guillod (ETH), Roches (C2SM), Brienzen (DWD), Cesari (ARPA-SIMC), Trusilova (DWD), Masbou (U Bonn), de Morsier (MCH), Brendel (U Frankfurt), Machulskaya (DWD), Kalinka (U Frankfurt), Bauer (BiKF), Gerstner (BiKF), Ludwig (GKSS-HZG), Schlüter (U Göttingen), Bellprat (ETH), Morgillo (ARPA-SIMC)

Distribution

COLOBOC mailing list, COSMO web site

Guidance: Bettems

Record: Helmert, Bettems

Notes: draft version

Next meeting: COSMO General Meeting



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TOP 1			Responsible All	To settle until -
Introduction (agenda) (J. M. Bettems)				

TOP 2			Responsible All	To settle until -
E. Machulskaya: Further development of the tile approach for TERRA				

An overview of the advantages of a Tile-approach for TERRA, especially for snow was given. First sanity tests with the TILE-approach in COSMO have been performed.

TOP 3			Responsible All	To settle until -
M. Masbou: Patterns in Soil-Vegetation- Atmosphere Systems Monitoring, Modelling and Data Assimilation				

An overview of the TR32 project was presented. Main focus is on energy and mass soil-atmosphere exchange at all scales. Dependent on the scale, the following approaches are used:

- NMR and SIP sense the very small soil scales in the laboratory by model-data integration
- Patterns of soil-carbon, evapotranspiration and respiration in the field
- Catchment-scale measuring and integrated modeling of exchange processes
- Atmospheric boundary-layer

The Rur catchment and its measurement infrastructure is coordinated by a cross-cutting group and a central service project.

A multi-model approach is used to cover horizontal scales from 0.001 km² to 10000 km².

TOP 4			Responsible All	To settle until -
B. Guillod: Comparison between FAO and JRC soil maps within COSMO-CLM				

COSMO-CLM experiments with TERRA-ML and soil maps from FAO and JRC have been performed and the overall response in mean summer climate has been determined. It was found that different soil types lead to large changes in flux partitioning. Sensitivity study of soil parameters was performed. Main impact comes from water holding capacities and hydraulic diffusivity.



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TOP 5			Responsible All	To settle until -
O. Bellprat: Effects of alternative external fields for TERRA on temperature for climate applications.				

COSMO-CLM sensitivity studies for soil albedo, leaf area index, plant coverage, root depth, and aerosol climatology were presented. A MODIS-based albedo has main impact on screen-level temperature. Due to lower transpiration, shorter roots based on ISLSCP II lead to warmer summer temperatures in COSMO-CLM.

TOP 6			Responsible All	To settle until -
M. Schlüter: Impact of bioenergy related land use changes in Central Germany on regional climate				

Presentation of the BEST-project and the sub-project within. Goals: Installation of meteorological stations at selected field sites to quantify land use properties; downscaling and analysis of existing data from regional climate scenarios; simulation of land-atmosphere feedbacks; development of optimized land use strategies.

TOP 7			Responsible All	To settle until -
E. Davin: COSMO-CLM2 : A summary of its development and evaluation				

A comparison between COSMO-CLM coupled with the community land model v4.0 and COSMO-CLM coupled with TERRA was presented. The simulated climate is found to be significantly affected by the coupling, particularly in summer. The community land model has a positive effect on surface fluxes and surface climate (seems robust across different regions and COSMO versions). IPCC/CORDEX setup showed large differences in surface albedo for TERRA in North-Africa and therefore a large warm bias of T_{2M}.

TOP 8			Responsible All	To settle until -
B. Vieli: Evaluation of COSMO-CLM2 in weather mode				

A comparison of two configurations of COSMO-7 was shown: COSMO-7 with newest developments of TERRA-ML and COSMO-7 with community land model was shown for 2x year 2007 + 2008. A verification of the simulations was performed. Main sensitivity on change of the land-surface model is visible in screen-level temperature and dew point temperature. Data from

File:

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T = Task / **I** = Information / **D** = Decision



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SRNWP data pool has been used for model validation. These preliminary results show a benefit from the use of community land model on surface heat fluxes, but not on near surface temperature and dew-point.

TOP 9			Responsible All	To settle until -
H. Asensio: Consolidation of the software for the generation of External Parameters and extension with new raw data				

The current status of the EXPAR-system (new software code basis , doxygen documentation, user guide, netcdf support, grib-api-based) was presented. GlobCover-2009 data were used to evaluate the coastline differences between GLC2000 and GLCC. Open topics are the distribution of software (and raw datasets), the web-interface, update of documentation, orography smoothing, external parameters for orogr. radiation correction and new raw datasets.

TOP 10			Responsible All	To settle until -
J. Helmert: Land-surface model calibration: Results from new experiments				

Based on global experiments on the impact of the minimum stomatal resistance and vegetation albedo on screen level variables, limited area experiments with COSMO-EU and COSMO-DE have been performed.

The required new external parameter data sets show small differences to those used in the routine and caused a new initialisation of the soil variables. Results for COSMO-DE in two case studies of cloud-free and cloudy-sky situations were presented. The T_{2M} bias of COSMO-DE was decreased by the experiment in cloud-free situation, but uncertainties due to the cloud impact still exist.

TOP 11			Responsible All	To settle until -
E. Kazakova: Development of snow parameterization: definition of initial snow density and accounting of fractional snow coverage within a cell				

The impact of changes of the snow parameterization on forecasts of COSMO-Ru in three regions was shown. Data from SYNOP measurements and decade measurements of snow survey were used for comparison. Snow density, Snow water equivalent and snow fraction were identified as critical parameters with influence on screen-level temperature during snow-melt conditions.



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TOP 12			Responsible All	To settle until -
M. Lange: Snow analysis package				

The tasks for the snow analysis package were presented. These include the extensions for multilayer snow model, GRIB-IO adaption, and usage of the MSG snow mask.

TOP 13			Responsible All	To settle until -
J.-M. Bettems: Project status, open questions and future plans				

The status of the tasks in the COLOBOC project was presented and an outlook of the work after COLOBOC end was given (split of WG3, mires).