COSMO General Meeting - PP COLOBOC

Date: 07.09.2009	Time: 09:00-13:00

Location: DWD F135

Reference:

Participants:

Bettems (Bt), Schulz (Sc), Bucchignani (Bu), Cheloni (Ch), Ritter (Ri), Helmert (He), Asensio (As), de Morsier (Ms), Morgillo (Mo), Vogel (Vo), Lange (La), Will (Wl), Rozinkina (Rz), Sapuntsova (Sp)

Distribution	Participants

Guidance: Bt	Record: He

Notes: Draft

TOP 1			Responsible **All**	To settle until **-**
Introduction (agenda) (Bt)				

Bt presented the agenda of the meeting and specific points for the general discussion. Topics of the snow analysis and data sets available for SVAT-model validation are subject for the general discussion.

TOP 2			Responsible **All**	To settle until **-**
Consolidation of EXPAR and extension with new raw data sets (As)				

The new software system for the generation of external parameters at DWD (EXPAR) was presented by (As) with focus on the COSMO model. Guidance of the development was given by the software requirement specification (SRS). Following this specification NetCDF was defined as basic file format for Input/Output, the source code is written in Fortran 2003 / Fortran 95 Standard, and technical documentation with doxygen was included.

Additional data sets (total 30 fields) are ready for distribution (NDVI, Aerosol, EMISS, PRSMIN, Lake, Urban, SSO, RAD_ORO). A climatology of albedo data is possible but not available yet.

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

DWD was in contact with BGR for soil texture data. A closer investigation of the potential of these data will be performed together with the CLM group.

NetCDF attributes will used for data maintenance. Code maintenance is ensured by the version control system.

TOP 3			Responsible All	To settle until -
New results of standalone simulations with the TERRA module (Vo)				

With focus on the improvement of the Bowen ratio for several climatically different stations Vo showed the impact of the plant coverage due to harvesting on the turbulent fluxes.

A comparison of results from COSMO experiments with measurements at Falkenberg showed that the performance of the TERRA module can be improved if the bare soil evaporation, the water withdraw from soil by the vegetation, and the water transfer at the lower hydrological boundary are modified. Furthermore, besides a realistic ratio of the turbulent fluxes, their accurate amounts are likewise important to achieve a realistic soil water content in the annual cycle as well. Both experimental model runs (with SMA/ without SMA) should be continued to estimate the chosen options more reliably. To consolidate the findings similar validation studies are recommended at other boundary layer sites with different local conditions.

TOP 4			Responsible All	To settle until -
Revision of the SVAT model TERRA in the COSMO model (He)				

The impact of changes in root density distribution, bare soil evaporation, water transport, and soil heat conductivity from TERRA-Standalone simulations (see e.g., TOP 3) was investigated in numerical experiments of the COSMO model at DWD and MeteoSchweiz. The results from both centres agree in the increase of T_2M bias and decrease of TD_2M bias due to these changes. Therefore, further adaptations are necessary.

TOP 5			Responsible All	To settle until -
New multi-layer snow model (Ms)				

The multi-layer snow model is now in the COSMO model based on V4.7. New fields are available:
T_SNOW_M   mean temperature of the snow layer (K)
DH_SNOW_M   layer thickness between interfaces   (m)
WL_SNOW_M   liquid water content in the snow (m H2O)
WT_SNOW_M   total (liquid+solid) water content (m H2O)
There is a scientific documentation and technical documentation.

The performance of the new snow model was validated for Winter 2007/2008 in comparison to COSMO-7 snow analysis, SLF analysis, and TERRA standalone (with single layer snow model). The results are slightly better for snow/no snow with multi layer snow model over Northern Europe In Eastern Europe and over orography the new snow model produces larger snow depth.

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The systematic underestimation of the snow height by the original snow model is largely removed by using the new snow model. The multi layer snow model works well at different altitudes, but in complex topography might overestimate the snow height in some areas.

TOP 6			Responsible All	To settle until -
Status of the tile & mosaic implementation (Bt)				

The initial validation of SUBS was done for ver. 4.8 of COSMO model and the influence of SUBS on model results for different parameterisation of physics and numerics was estimated in first tests. Further tests, validation and verification are necessary.

TOP 7			Responsible All	To settle until -
Developments at ETHZ: NCAR CLM, JRC soil types, SWISSMEX (Bt)				

Results from the coupling of COSMO-CLM with the Community Land Model driven by ERA40 were presented showing that compared to measurements (CRU, GSWP-2) typical errors (RMSE) are smaller in CCLM-CLM for both temperature and precipitation at both seasons. The coupling has a stronger effect in summer than in winter. The Summer cold/wet bias was suppressed in the period 1986 to 1995.

TOP 8			Responsible All	To settle until -
Project status and discussion (Bt)				

The overview of the running and finished tasks and proposals for extensions of COLOBOC was given by Bt. The sharing of observational data between COSMO members and SRNWP members was discussed. The regulatory framework for COSMO should be given by the STC.

Next meeting: COSMO User Seminar

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