



Minutes of the Results

Workshop PP COLOBOC

Date: 06.11.2008

Time: 11:45-16:30

Location: F135, Raum E0.A.32

Reference:

Participants:

Theunert (Th), Wisskirchen (Wk), Raddatz (Rd), Smiatek (Sm), Asensio (As), Helmert (He), Bettems (Bt), Zängl (Zn), Schulz (Sz), Röpnack (Rp), Lange (Lg), Ritter (Ri)

Distribution

Participants

Guidance: He

Record: He

Notes: Draft

TOP 1			Responsible All	To settle until -
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Talk: COSMO PP COLOBOC (Bt)

The talk of Bt presented the Priority Project (PP) COLOBOC (Consolidation of lower boundary condition). Starting with a motivation of this new PP within COSMO, Bt explained the planned actions and tasks. Here, the software system for generation of external parameters is one specific task in this PP.

TOP 2			Responsible All	To settle until -
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Talk: Data sources for external parameters – review (He)

Starting from the importance of external parameters on the exchange of heat, moisture, and momentum between soil and atmosphere, (He) described the data sources used for external

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parameters in GME and COSMO and gave an outlook regarding additional external parameters to be used in future versions of COSMO. Some of these are already operational in GME (e.g., minimum stomata resistance, NDVI-based LAI and PLCOV climatology, SSO).

TOP 3			Responsible All	To settle until -
Talk: External parameters at DWD (As)				

The current software system for the generation of external parameters at DWD (EXPAR) was presented by (As) with focus on the COSMO model. Current changes in the software system are required for the migration to the new High Performance Computing System at DWD, where external parameter software runs on Linux nodes. A technical revision of EXPAR including the use of a version control system and NetCDF output (in addition to GRIB) is planned. Further short term actions are related to the implementation of the additional external parameters for COSMO mentioned above. Based on a software requirement specification, which is currently being written, a consolidated system for the generation of external parameters will be developed. This system will support all NWP models of the current and next generation employed by DWD. The operational use and development of EXPAR should be located at DWD, the PEP system (Sm) should be used for scientific experiments.

TOP 4			Responsible All	To settle until -
User requirements: ICON – DWD (Zn)				

For the ICON development group at DWD main issues related to the external parameters are the grid generation, topography blending, the need for flexibility regarding the implementation of new parameters, and potential requirements of an ocean model coupled to the atmospheric model. Experiences made with GME (e.g., data filtering) should be taken into account. For the use of very high resolution data sets (dx<1km, e.g. for orography) available for limited geographical domains the need for data consistency at the intersection of data sources is recognized.

For the EXPAR development there is a need for a tracing of the ICON grid generation (T).

TOP 5			Responsible All	To settle until -
User requirements: Bundeswehr (Th,Wk)				

Flexibility and the possibility to use the EXPAR system by shell scripts are of prime importance. According to Rp, the structure of EXPAR with web interface does not prevent the use of shell scripts. The existence of geographical poles in the model domain should not create problem for EXPAR (T).



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A logfile is needed for the process of external parameter generation and for problematic points in the model domain (points that missed the consistency check and need manual inspection) (**D**). Here the problem of useful default values for such point arises. Manual modification of points should be possible (**T**). Due to different data formats of raw data there is a need for an integrative data format. Due to the possibility to include meta information with the data, the NetCDF format is an interesting candidate. There is experience with NetCDF attributes in the CLM community (**Sm**) that could be used. The question if several NetCDF files are needed for global coverage of high resolution data was discussed but need some practical tests.

TOP 6			Responsible All	To settle until -
User requirements: MPI Hamburg (Rd)				

At MPI there is demand for application of the EXPAR system (web interface needed) as well as for the development of particular features in the source code of EXPAR. Here the problem of source code management arises and should be solved by a version control system. For additional parameters at MPI an extended input file is needed (**D**). For interpolation and grid generation routines in EXPAR external modules should be used (**D**). At MPI, there are some resources available for development work (**I**).

TOP 7			Responsible All	To settle until -
User requirements: CLM (Sm)				

A comparison of used raw data in CLM external parameter system PEP with EXPAR showed that except for one file the same data are used. There are some differences in the FORTRAN source files. They will be eliminated after a versioning system for EXPAR has been established. In CLM there is a cooperation with Landesamt für Geologie und Bergwesen Sachsen-Anhalt in the use of soil data and connections to JRC exist.

TOP 8			Responsible All	To settle until -
User requirements: COSMO (Bt)				

Comment [j1]: I tried to represent the COSMO consortium, and not specifically MeteoSwiss

In order to avoid duplication of effort within COSMO, the proposed software infrastructure should be:

- reasonably portable, in particular not strongly coupled with DWD infrastructures (e.g. database)
- well documented in English
- flexible and modular to support experimentation with different data sets, with new aggregation algorithms, or with different look-up tables

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To support future developments of the SVAT module and higher model resolution, it is important to build a software which is easily extensible (e.g. orographic radiation corrections – M. Buzzi **T**).

Using NetCDF for input and output is acceptable, and possibly a good choice, but the NetCDF data should contain all necessary data to derive a GRIB record (pds, gds). This would ensure that converting between both formats is always possible.

The use of high-resolution data sets in EXPAR for particular domains was discussed (e.g. high-resolution land-use data for Europe). However, here homogeneity of raw data should be taken into account.

The use of the Tile-approach should be possible in future versions of EXPAR. However, input format and data structure need some clarification.
Here some experiences of MPI Hamburg with the use of a Tile-approach could be useful.

TOP 9			Responsible	To settle until
			All	-
General discussion				

The connection of EXPAR with Flake – additional parameter field with lake depth and the potential use of vector data (e.g. from Ninjo) was discussed. Here, some development work is necessary. Next steps are the collection, editing and inclusion of user requirements in the software requirement specification and the development of the EXPAR software based on that document.