Working Group 6
Support Activities

Status and Plans; Meeting during the 8th COSMO General Meeting

September 18, 2006

Agenda

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1. Status of COSMO Software

LM

The following new LM versions have been implemented in the last year:

- LM 3.17 (12.12.05)
  Modifications to the multi-layer soil model (implementation of snow density).
- LM 3.18 (01.03.06)
  - Technical changes: Options for restart, NetCDF-IO, climate simulations (CLM); SLEVE-coordinate; usage of special GRIB features; new time unit "d" (lfff2006050312); output of subdomains
  - Changes in the assimilation: stability-dependent thresholds for radiosonde humidity; multi-level check for radiosonde humidity; preparations for use of real-data 1DVar satellite retrievals; option for alternative weighting of multiple observations; option for scaling the horizontal correlation scale for surface pressure data as a function of data density; option to compute analyses increments; frequent flushing of diagnostic output files; latent heat nudging: general update of the scheme
  - Implementation of FLake Model
  - Changes to Runge-Kutta Scheme
  - Changes in the grid point output (a single file for every grid point; option to specify grid points with lat/lon)
- LM 3.19 (25.04.06)
  Some minor technical changes and bug corrections. This version is operational at DWD since 27.05.06, 12 UTC.
- LM 3.20 (29.06.06)
  There was a bug when running with several output namelists /GRIBOUT/ and different output

frequencies. Since this is used only at DWD, this version has not been released officially.

Work is going on for LM Version 3.21 and the following components:

- consolidation of the climate version CLM
- consolidation of the FLake Model
- Preparation of the Ensemble Mode (new Namelist group /TUNING/)
- Changes in the I/O:
    - To use the correct time level, step `nnow` has to be written for the results. Also for the diagnostics (near surface values, grid point output), `nnow` has to be used.
    - Restart files have to be written in the time step before a full hour. Otherwise the restart files that are written in the last time step of a simulation are not reproducible, because for the last time step the next boundary data set is needed, but not read any more.
    - Additional variables can now be written in result files (several convective indices, cloud base and cloud top for shallow convection clouds, several analysis increments, several variables from the parameterization).
- Dynamics: Bug correction in the 2nd Rayleigh damping option.
- Physics: Some modifications have been done in the soil model:
    - In the first step, the soil model must not use the dt/2 step as the leapfrog scheme does, but must use the dt step, because it is a 2 time level method.
    - If present, graupel is used similar to rain and snow.
    - Some modifications have been implemented to avoid soil water content below air dryness point.
    - The gravitational runoff calculations have been modified in case of frozen soil layer.
- Grid point output: the way how the grid points are specified in the namelist group has been changed. Now it is possible to specify also a station name.
- LMK: Update and optimization of the Runge-Kutta scheme.

INT2LM

After finishing the work on LM 3.21, the interpolation program `INT2LM` will be updated. There are several versions at the moment, that have to be unified again:

- Modifications for LMK (e.g.: interpolation of rain, snow, graupel)
- Modifications for CLM (use of a "common" global climate model)
- Modifications in Switzerland, because of migration to Cray XT3 (has to be explained in more detail by Swiss colleagues)

Other Developments

- LM_Z:
  Development work is going on for the Z-coordinate version of the LM. Some bugs have been detected in version LM_Z 1.5, which must be corrected. New developments have to be incorporated. In the next month a test version must be available that could be used in an experiment "under operational conditions".
- LM Nesting Version:
  No work has been done on the Nesting version lately. Euripides wanted to know about the known problems with the Nesting version. These are:
    - Determination of the fine nest in the mother nest: the computation of the offsets in the parallel program seems not to be correct.
    - The interpolation procedure used has to be investigated whether it is appropriate for the soil variables
    - The communication between the different nests takes too long. It has to be optimized
    - The implementation of the feedback is not reproducible (different results when using different processor configurations

        ○ Initialization of the nest variables. How to take into account the different topography? These are only the known problems. It is possible that other severe problems occur, when taking a closer look to the implementation.

Testing of new Versions

In the last year there were few big changes and therefore only few testing (only one LM Version has been distributed for testing before its official release. Therefore the time (FTEs) spend on this subtask in the "Support Activities" is low. This can (and should) change in the future. There should be a finer grain testing, in order to have a better evaluation of the single changes and to better track problems, if they occur. At DWD, richer test suites (experiments) are run for new versions. For the reference versions, some reference cases should be tested.

Auto-Configuration for LM

Davide investigated the use of autoconf / automake tools for managing portable software packages. He suggests to use these also for the LM.

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2. Status and Future of the Web

Contents of the Web

There has been a commitment from Romania to take over the part of the *Contents Manager*. But contact between the project leader of the support project and the new Contents Manager could not be established up to now, even after few (perhaps insufficient) trials from the project leader. The situation is very critical now, because only very little work has been done on updating the relevant COSMO public and private pages.

Technical issues about the Web

On the private pages, an additional page has been added for the Priority Projects. There are updates for the verification pages (mainly from Switzerland). The presentations from the General Meeting last year in Zürich are available.

As far as updates were provided, they have been included by the Web Masters. The work of the "Mirror Master" (Marco Consoli) in Manno could be limited to "normal maintenance" because the Web Master (Theodore Andreadis) could manage all things by himself from Athens.

The following new features have been implemented:

- Mailing lists: an overall COSMO mailing list (`cosmo-all`), a list for every working group (`cosmo-wg[1-6]`) and a list for the Steering Committee (`cosmo-stc`).
- Exchanged mails are archived and indexed per list. But seeing this in the browser is disabled at the moment, until a proper "access policy" and passwords for every list are set. This policy has to be discussed.
- Search engine: This is installed in Athens, not in Manno, because it takes root access to set it up. This is a first installation; it should be tested and can be adapted in the future.
- Presenting maps: Theodore developed a "nice way to present maps". Because of network access problems to the server, this could not be implemented at the moment.

The "access policy" and the usage of the mailing lists have to be discussed.

Future of the Web

In the next 2-3 months we have to start a concentrated action, to update the public pages of the Web Page. We already identified the following responsible authors and I suggest some deadlines:

Item	Responsible author	Deadline
Model System	Ulrich Schättler, DWD	November
Organization	Chairman STC	October
Working Groups	SPM and SAC	October
Contacts	Chairman STC	October
Links	Ulrich Schättler	November
Activities	Chairman STC, SPM, SAC	October
Publications	Ulrich Schättler	November
Operational Applications	Emanuele Zala	November
Collaborations	Ulrich Schättler	November
Documentation	Editor of Documentation	with LM 4.1

We should aim at having all material together, so that it can be put to the Web at the beginning of December the latest! In the meantime we have to discuss related issues (appearance, way of presenting material, additional pages, etc.). There will be a presentation by Theodore about how to put diverse material to the web page.

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3. Status of the Documentation

Jan-Peter Schulz took over the task as an Editor of the Documentation. But up to now there are only updates of the multi-layer soil model and a first version of the radiation scheme for Part II (Physical Parameterizations). No other work is available.

Still missing parts of the documentations are:

- Part IV: Implementation Documentation
- Part VI: Postprocessing

And not complete are

- Part V: Preprocessing: Initial and Boundary Data for the LM
  - Necessary initial and boundary data for the LM
  - The interpolation procedures
  - (Enhancement of) Namelist INPUT for INT2LM
- Part VII: User's Guide
  - (Enhancement of) Namelist INPUT for INT2LM
  - Description of the different possible configurations

We should try to extend the existing documentation in the next COSMO year!

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4. The COSMO Newsletter

It was planned to publish Newsletter No. 6 early 2006. Because of other work of the editors, this had been delayed. Another problem also was, that several contributions came rather late. It could be printed and published finally in July 2006 (with another delay on the Web, because of holidays). Some hardcopies will be distributed.

In the future it is planned, that the Priority Projects should aim at having a publication as deliverable (reviewed, if possible, or as a COSMO Technical Report at least). Therefore, only (extended) abstracts, including references, should occur in the Newsletter.

Thus, there will be room for other contributions again!

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5. Status Report for the Plenum

I send you the draft for my status report on WG 6 and the "Support Activities", which we will discuss in Bukarest.

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6. Plans for next year

The tasks of the Priority Project "Support Activities" will go on as in the last year. I think we have to put emphasize on the Contents of the Web (as stated above) and we should work on the documentation (enhance User Guide of the LM and the documentation of the INT2LM).

Any (other) suggestions are welcome.