

## 7 COSMO Meetings and Events

This section summarizes the main meetings, workshops and seminars as well as management decisions from the previous year. Other COSMO activities such as guest scientists and internal visits are also considered. Finally, an overview of the forthcoming activities in the present COSMO working period is given.

### 7.1 Poland became a new member of COSMO

On the 4th of July 2002, the national weather service of Poland (IMGW) has signed the COSMO Agreement. The ceremony of signing the Declaration of Membership of IMGW in the COSMO consortium has gathered the representatives of the institutions participating in COSMO, namely: Mr. Massimo Capaldo – the Chairman of the Steering Committee and the Deputy Director of the Italian Meteorological Service (UGM), Mr. Udo Gärtner – the President of the Meteorological Service of Germany (DWD), Mr. Gerhard Adrian – the Head of the R&D Division of DWD, Mrs. Chryssoula Gagaoudaki – the Deputy Director of the National Meteorological Service of Greece (HNMS), and Mr. Georges Sakellarides – the Head of the R&D Division of HNMS. Mr. Jan Calak took part in the Ceremony as the representative of the State Committee of Scientific Research. The Ceremony was witnessed by the members of the research and development teams from IMGW involved in the mesoscale numerical modelling. Lateron, the program for modernization of hydrological and meteorological services of IMGW was presented, followed by a visit to central offices for hydrological and meteorological forecasts.

The LM had been installed on the SGI 3800 supercomputer at IMGW in autumn 2001 and passed a preoperational trial during 2002. It is planned to make the model fully operational by the end of 2002.

### 7.2 Meetings in 2002

#### *(1) COSMO WG3-WG5 Joint Meeting*

The members of Working Group 3 for Physical Aspects and of Working Group 5 for Verification and Case Studies met on 6-8 February 2002 at CSI in Torino (Italy) for a joint internal COSMO workshop. One of the main topics was the impact of the new PBL surface layer scheme (based on TKE) on the prediction of near-surface weather parameters and corresponding verification aspects.

The first day of the workshop started with a presentation concerning verification results of a test suite of aLMo with the TKE-scheme versus the present operational version using the old turbulence scheme. Thereafter, M. Raschendorfer gave a very detailed talk on the new surface layer scheme focusing on simplified relations between near surface model variables and tunable parameters of the transfer scheme. The second day continued with physical aspects where a strategy for verification with "feedback" on the physics parameterizations in the case of the new transfer scheme was presented and discussed. The following WG5 session started with presentations related to the statistical significance of the verification scores, followed by talks on the most recent verification results of the various operational LM applications within COSMO. Another theme in the WG5 session considered high resolution verification of precipitation and investigation of the "realism" of the LM forecasts, which was covered by a number of presentations. The third day covered more technical aspects such as the exchange of data and forecasts between COSMO partners, and the installation of a LM verification

system at ECMWF. The extensive discussions during the meeting considered the following main points:

1. Comparison of model output with near surface observations – selection of representative (SYNOP) stations, use of superobservations, adaption of diagnostic model output.
2. Verification with feedback on the physics parameterizations – determination of the tunable parameters of the new PBL schemes by variational methods.
3. Conditional verification – a tool for model development, especially for physics validation and parameter tuning.
4. Statistical significance of the verification scores – evaluation of deterministic and probabilistic forecasts, hypothesis testing and bootstrap resampling techniques.
5. High resolution verification of precipitation and investigation of the "realism" of the LM forecast – the double penalty problem, random behaviour, pattern recognition methods and upscaling methodologies.
6. Exchange of data between COSMO partners – exchange of high-resolution non-GTS precipitation data and radar data for verification purposes (non real-time), creation of a small working group to tackle technical aspects.
7. Periods for the "test" cases at ECMWF – list of cases with different categories of interesting weather events, use of the MAP period (Sep-Nov 1999) as a test period for data assimilation experiments and test of new numerics and physics.
8. Setup of a common verification package at ECMWF – discussion of scientific, technical and staff requirements.

A detailed workshop report including a short summary of the talks, and a summary of the discussions and their results has been prepared by M. Arpagaus and C. Cacciamani. This report available on our web-site.

### **(2) LM User Seminar**

This seminar on scientific applications of the LM was organized by Jürgen Steppeler and was held at DWD in Langen, 27-29 May 2002. It was dedicated to research activities with the LM at various universities and covered various scientific topics. Central issues have been numerical methods for nonhydrostatic models and physical processes. The 2002 User Seminar included also tutorials on the LM Package and on numerical methods. Proceedings of the seminar have not been published.

### **(3) Meeting of the Work Package Coordinators**

The work package coordinators (WPCs, i.e. C. Schraff, J. Steppeler, M. Arpagaus, P. Eckert, C. Cacciamani and U. Schättler), and the scientific project manager (SPM, G. Doms) met at DWD on 23 May 2002 in Offenbach. The first part of the meeting was dedicated to review the progress in the work packages, to identify problems and delays in specific WPs and to set up a list with model deficiencies and technical problems. The second part concerned some preparations for the next General Meeting in Warsaw: set-up of the agenda, proposals for new work packages, interdependencies and priorities of WPs, definition of goals for 2003 and items for the strategic discussion. The minutes of this meeting are available on the web-site.

#### **(4) COSMO WG6 Meeting on Reference Version and Implementation**

Members of the COSMO Working Group 6 met with the WPC U. Schättler on 13 June 2002 in Offenbach to discuss various topics related to the implementation of the LM-Package. Following a status report of the work packages in this group and a review of the current operational implementations, the first Reference Version of LM with the required test procedures was considered. Also, various Grib-code related items, and problems in the installation of a LM data assimilation cycle based on file I/O have been discussed. Detailed minutes of this meeting are available on the web-site.

#### **(5) COSMO WG2 Meeting on Numerical Methods**

Members of the COSMO numerics group (WG2) met one day before the General Meeting on 24 September 2002 in Warsaw. The participants discussed the current state of dynamics and numerics in European NWP models. J. Steppeler gave an overview on numerical activities within SRNWP and within COSMO. J. Quiby summarized problems which emerge from the use of terrain-following coordinated over steep orography. Finally, the current state of the z-coordinate developments at DWD and ARPA-SMR have been reviewed and the strategy for the future work has been discussed. Especially, the question of including the physics parameterization by an interpolating interface to the terrain-following model was addressed. The minutes of this internal workshop will be made available on our web-site.

#### **(6) 4th COSMO General Meeting**

The recent COSMO general meeting was held in Warsaw (Poland) on 25-27 September 2002. It was hosted by the Institute of Meteorology and Water Management (IMGW) and took place in the Conference Room of the Institute. With 44 participants (see Fig. 15 and 16), the meeting was well attended. It was a very stimulating meeting with many interesting presentations, with many discussions on various subjects, and with much organizational work related to concrete work packages. The Director of IMGW, Prof. J. Zielinsky, opened the meeting by a welcome address. Dr. R. Klejnowski, the head of the IMGW Forecast Department welcomed us in Warsaw and presented further details about the organization of the meeting. The Chairman of the STC, M. Capaldo gave an account of the work of the Steering Committee and G. Doms summarized the activities of SPM and the WPCs during the year.

The first (public) part was organized in six main sessions according to our working group structure. The work package coordinators gave an overview on progress in the various research and development activities of the working groups, followed by presentations on selected issues by the responsible scientists. Each session was closed by a general discussion on central topics. Summaries of the talks including the slides are available on our web-site. Section 9 of this Newsletter contains a number of contributions which emerged from the presentations in Warsaw.

The second (internal part) of the meeting was dedicated to formulate the research plan for the next period (Oct 2002 - Oct 2003). Delayed work packages and proposals for new ones have been presented by the WPCs and discussed in the plenum. Allowing time for this plenum discussion on future work packages was found to be a good idea and useful, not only for a cross-checking of interdependencies but also for more scientific input and ideas to the following workshops of the WGs. The proposals for work packages were oriented along some basic guidelines for the next working period, which were presented by the Chairman of the STC.



Figure 15: Participants at the 4th COSMO General Meeting 25-27 September 2002, held at IMGW in Warsaw. From left to right, front row: Katarzyna Starosta, Georges Sakellaridis, Massimo Capaldo, Ryszard Klejnowski, Günther Doms. Second row: Massimo Ferri, Andrea Montani, Theagenis Charantonis, Erdmann Heise, Susanne Theis, Marco Arpagaus, Zbigniew Sorbjan. Third row: Blazej Krzeminski, Davide Sacchetti (hidden), Euripides Avgoustoglou, Heinz-Werner Bitzer, Elena Oberto, Almuth Gassmann, Davide Cesari, Pirmin Kaufmann, Ulrich Damrath, Antonio Vocino. Back rows: Francis Schubiger, Ioannis Alexiou, Carlo Cacciamani (hidden), Miroslav Andrejcuk, Jean Quiby, Jan Parfiniewicz, Gerd Vogel, Jürgen Steppeler, Ulrich Schättler, Dieter Frühwald, Matthias Raschendorfer. Standing, left: Andrzej Mazur, Pierre Eckert. Standing, right: Tiziana Paccagnella, Guy de Morsier, Jean-Marie Bettens. A part of the crew is still in the coffee break.

- Consolidation, Upgrade and Documentation of the LM
  - increased quality of the precipitation forecasts
  - assessment of the 'realism' of high-resolution forecasts
  - assimilation of remote sensing data
- Application and Interpretation
  - quasi-operational run of the COSMO limited area EPS system (LEPS) based on the ECMWF ensemble prediction
  - statistical interpretation of high resolution forecasts
  - severe weather events
- Paving the way for Meso- $\gamma$  Scale
  - continue work on the z-coordinate version of the model
  - new parameterization schemes
  - forefront verification and case studies

Detailed work plans have then been set-up by the working groups in separate workshops, which afterwards were presented to the plenum. The last part of the meeting was dedicated



Figure 16: Participants at the 4th COSMO General Meeting 25-27 September 2002 in the conference meeting room at IMGW in Warsaw. Prof. Jan Zielinski has just opened the meeting.

to presentations of external collaborations of COSMO member services by national and international projects (see also Section 10) and a general discussion on further perspectives of work in our group. The final version of the work plans and a short description of each work package is available on the member area of our web-site.

### ***(7) 8th Meeting of the COSMO Steering Committee***

The 8th Meeting of the STC was held on 27 September 2002 during the COSMO General Meeting in Warsaw (participants: M. Capaldo, G. Sakellaridis, D. Frühwald, J. Ambühl and R. Klejnowski). The Chairman M. Capaldo informed the STC on his activities concerning the accession of IMGW to the COSMO agreement and the implementation of the COSMO-LEPS project at ECMWF. The discussion on COSMO-LEPS was mainly devoted to the scheme for providing the allocation of the computer units for this project at ECMWF. It was decided that all Members (excluding IMGW) would contribute to the scheme according to the percentages depending upon the respective allocation at ECMWF. The results of the project will be made available to all members, including IMGW.

Other topics have been proposals for the two scientists who would be responsible for the running of test suites and verifications for all modifications envisaged to the reference version of LM, and discussions on the goals and perspectives 2003. Dr. Frühwald offered to organize the next COSMO General Meeting at DWD in Langen (Germany) from 24-26 September 2003. The minutes of this STC meeting are available on our web-site.

### **(8) 9th Meeting of the COSMO Steering Committee**

The 9th meeting of the COSMO Steering Committee was held in Rome at UGM/CNMCA on 29 November 2002 (participants: M. Capaldo, G. Sakellaridis, D. Frühwald, J. Ambühl, R. Klejnowski and G. Doms). The SPM presented the draft work plans for upcoming COSMO period as prepared by the WPCs. All work packages have been approved, some with a couple of modifications. The final version of the work plans are available at the member area of our web-site. Further points of discussion have been computer resources for COSMO LEPS and dissemination of products, the exchange of non-GTS observational data between COSMO members, and the real-time visualization of precipitation forecasts of the members on the member area of the web site.

The term of office of both the Chairman of the STC and the Scientific Project Manager will finish by the end of 2002. The STC has elected Tiziana Paccagnella from ARPA-SMR as the new Project Manager for the next 3 years. As there was no candidate for the Chairman position, M. Capaldo agreed to continue his term of office as the Chairman until a candidate has been found (but not beyond 2003). Minutes of this meeting will be available on the member area of our web-site.

### **7.3 Guest Scientists**

Z. Janjic from NCEP (USA) visits the research department of DWD as a guest scientist for 4 weeks during May/June 2002. He contributes to the WG2 development work on the z-coordinate version of LM. A specific topic is the development and coding of an interface to the physics routines in the terrain-following version of the LM.

From 26 August to 20 September, A. Gassmann from DWD works as a guest scientist at MeteoSwiss. She conducts and evaluates various parallel test suites of LM concerning the new 2-timelevel integration scheme and the 3-d transport of precipitation.

### **7.4 Internal Visits**

Davide Cesari from ARPA-SMR visited DWD from 11-13 June. Various topics related to workpackages in WG1 and WG6 have been discussed. On 31 July - 2 August, Dr. Andrzej Mazur from the Centre for Development of Numerical Weather Forecasts at IMGW visited DWD. Besides the organization of the General Meeting in Warsaw, possible future contributions of IMGW staff to COSMO workpackages has been discussed. Two staff members from IMGW, Ms. Joanna Linkowska and Mr. Blazej Krzeminski, visited DWD on 28-29 October 2002 for a short training course on the LM-package.

### **7.5 Upcoming COSMO Meetings**

The following COSMO workshops and meetings are planned for 2003.

#### **31 March-2 April 2003: LM User Seminar**

at DWD, Langen (D)

This seminar is dedicated to research activities and scientific applications of the LM at various universities and research institutes. The this years seminar will also include tutorials on numerics and on the LM Package. Information on the program, registration and accommodation can be found at [www.dwd.de/en/FundE/Analyse/Modellierung/Tagungen](http://www.dwd.de/en/FundE/Analyse/Modellierung/Tagungen).

**26-27 May 2003: COSMO WG4-WG5 Workshop on Use and Verification of LEPS**

at MeteoSwiss Geneva, Geneva (CH)

In this joint WG4-WG5 meeting, verification methodologies and results of LEPS will be presented. A strategy for presenting a digest of LM and LEPS verifications to the forecasters will be discussed. P. Eckert will invite for this workshop.

**28 May 2003: 6th Meeting of the Work-Package Coordinators**

at MeteoSwiss Geneva, Geneva (CH).

Assessment of the progress of WPs, identification of problems and delays, and some preparations for the next General Meeting. The SPM will invite for this meeting during March.

**23 September 2003: COSMO WG2 Meeting on Numerical Methods**

DWD, Langen (D)

Discussion on new numerics and dynamical cores. J. Steppeler will invite for this workshop during the year.

**24-26 September 2003: 5th COSMO General Meeting**

DWD, Langen (D)

Progress Reports from the Working Groups and presentation of results from the work packages; discussion and set-up of a scientific work plan for 2004.

**November 2003: Meeting of the Steering Committee**

UGM, Rome (I)

Regular business meeting, revision of work packages and definition of the final COSMO work plan for 2004.

**7.6 Announcements**

This section lists a number of meetings which are of specific interest for active participation. Of course, this list is by no means complete.

**EGS-AGU-EUG Joint Assembly**

6-11 April 2003, Nice, France ([www.copernicus.org.egsagueug](http://www.copernicus.org.egsagueug)).

**2nd SRNWP Workshop on Statistical and Dynamical Adaption**

5-7 May 2003, Vienna, Austria ([www.zamg.ac.at/swsa2003](http://www.zamg.ac.at/swsa2003)).

**2nd SRNWP Workshop on Verification**

Spring 2003, De Bilt, Netherlands ([srnwp.cscs.ch](http://srnwp.cscs.ch)).

**ICAM/MAP Meeting 2003**

19-23 May 2003, Brig, Switzerland ([www.icam2003.ch](http://www.icam2003.ch)).

**ECMWF Seminar on Recent Developments in Atmos. and Ocean Data Assimilation**

8-12 September 2003, Reading, UK ([www.ecmwf.int/newsevents/meetings/annual\\_seminar](http://www.ecmwf.int/newsevents/meetings/annual_seminar)).

**5th SRNWP Workshop on Nonhydrostatic Modelling**

27-29 October 2003, Bad Orb, Germany. The special topic of this meeting will be *Parameterization Techniques* ([srnwp.cscs.ch](http://srnwp.cscs.ch)).

**25th EWGLAM and 10th SRNWP meeting**

5-9 October 2003, Lisbon, Portugal. The special topic of the this year EWGLAM session will be *Use of non conventional and new observing systems for short range NWP*.

**ECMWF 9th Workshop on Meteorological Operational Systems**

10-14 November 2003, Reading, UK.