

WG6 activities summary and Science Plan

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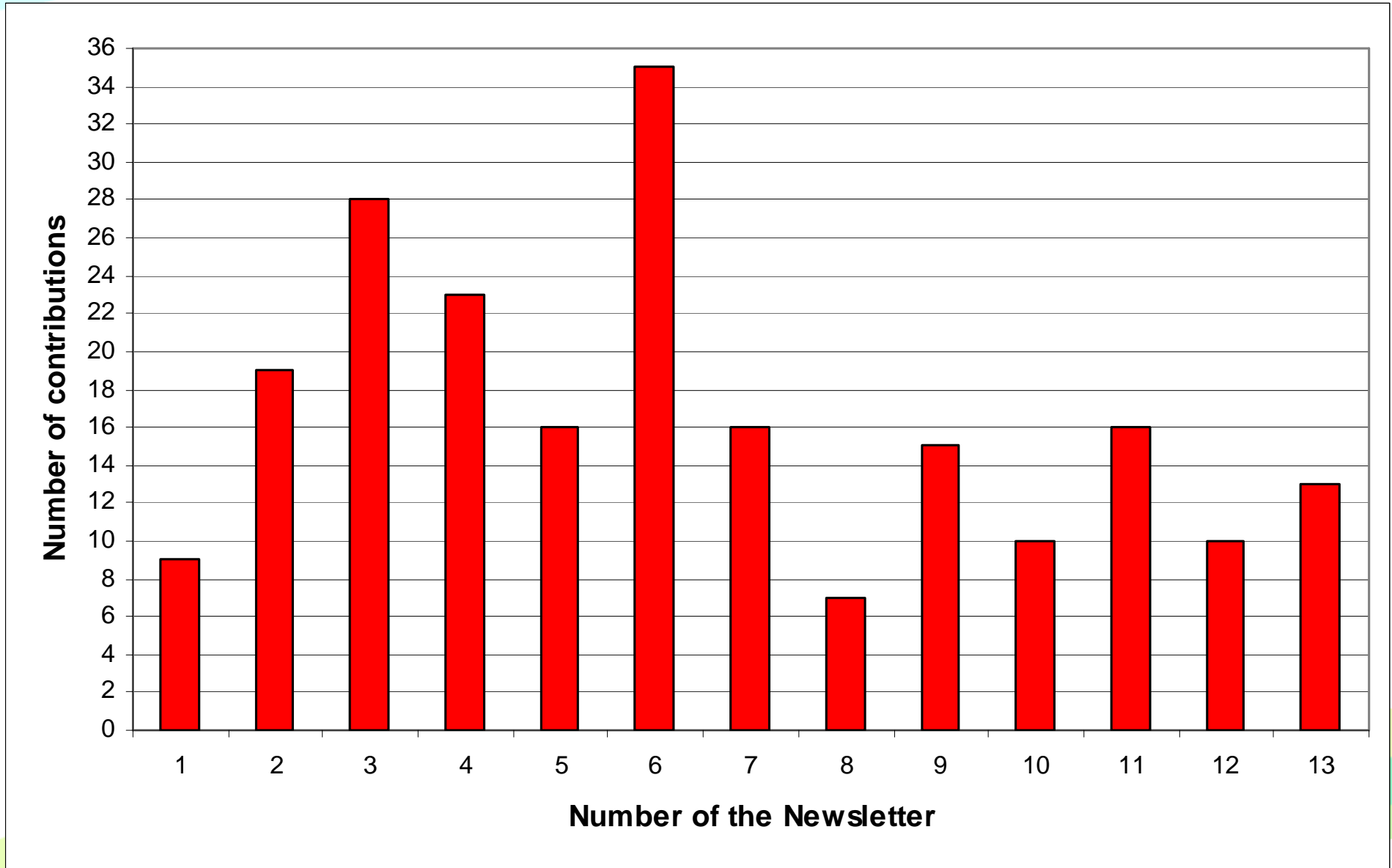
Sibiu, 15th COSMO General Meeting - Thursday, 5th September 2013

Outline

- Grib2 support
- PP POMPA
- Newsletter and TRs
- Web updates
- Open question
- Support of COSMO licenses (NMA)
- Training support (NMA)
- Implementation of a RUC suite at ARPA SIMC
- Science Plan

Newsletter and TRs

- Newsletter n° 13 published on April 2013
- 3 TRs published:
 - ✓ “The CONSENS Priority Project”, C. Marsigli, T. Diomedede, A. Montani, T. Paccagnella, P. Louka, F. Gofa, A. Corigliano
 - ✓ “A new fast-waves solver for the Runge-Kutta dynamical core”, M. Baldauf
 - ✓ “Tracer module in the COSMO model”, A. Roches, O. Fuhrer
- A downloadable template has been added in the respective web pages for the correct format
- 3 TRs to be published, as usual for finished PPs:
 - ✓ COLOBOC (Bettems, MCH)
 - ✓ CDC (Baldauf, DWD)
 - ✓ UTCS (Mironov, DWD)



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Web updates

- TAG page updated with agendas and minutes of the meetings
- New mail lists created: cosmo-tag@cosmo-model.org, cosmo-extpar@cosmo-model.org, cosmo-calm@cosmo-model.org
- The WG-related pages that were password-protected became public
- A new page about COSMO model licensing policies for "external" users was added
- The priority projects CELO and CORSO were introduced in the site
- A lot of pages became editable and a manual for editing files of the site is placed in the miscellaneous documents page
- WG work plans and PP task lists with the same fields as the model-development (MD) pages (1-entry: WG/PP → MD)
- Introduction of a checkbox with a "simple output in new window" caption in WG, PP and Model Management pages

Open question

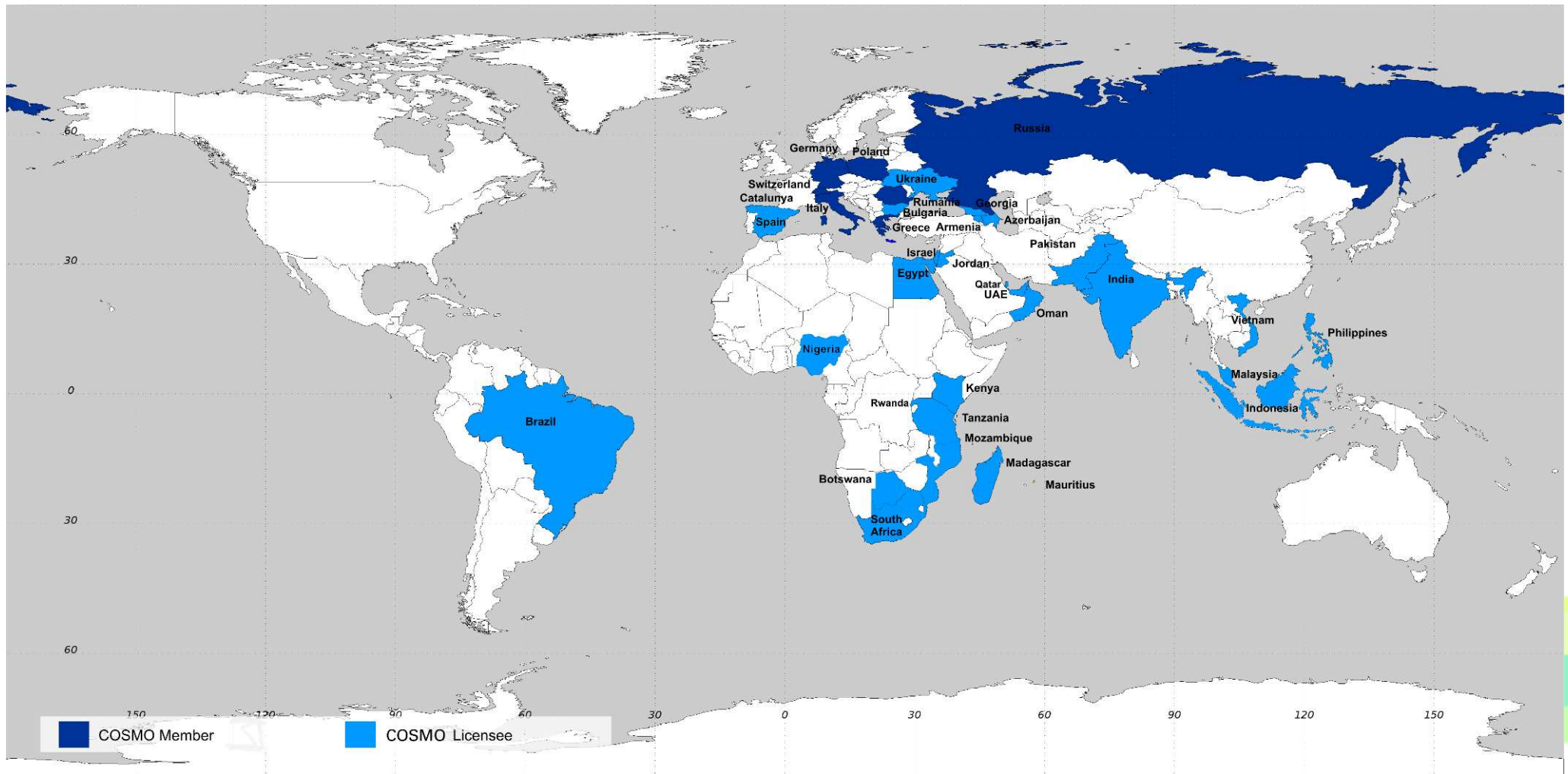
The Swiss mirror is practically defunct (cit. Andreadis) since its disk space is exhausted. There are contacts between Marco Consoli and Theodore Andreadis for solving the problem (moving to a new virtual machine ?)

Support of COSMO licenses (NMA)

- Support of new COSMO users during the implementation phase through **e-mail assistance** and by **remote access** to their computer system, helping them to set up their operational COSMO applications and running the COSMO - Model and the INT2LM software.
- As part of these activities, Romania offered support for sequential / parallel compiling without data assimilation of the model
- Requirements:
 - Fortran compiler: gfortran (vs. > 4.5); C compiler: gcc
 - DWD-libgrib1_20110128.tar.gz, GRIB_API.tar.gz
 - int2lm_130701_1.22.tar.gz & cosmo_130701_4.28.tar.gz

Support to Indonesia, Nigeria, Oman, Brasil, Pakistan, Qatar, Tanzania.

Migration from HRM to the COSMO model until October 2013 at latest!



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Training support (BTZ Langen)

- **COSMO/CLM Spring School**, February 18 - 22, 2013, for students and scientists interested in working with COSMO/ CLM model.
- **Capacity Building in the Regional Numerical Weather Prediction based on the COSMO Model**, 15 to 26 July 2013. This training is for other national meteorological services which plan to use the COSMO model for operational NWP.
- **Training on COSMO Data Assimilation (DA)**, 29 July – 9 August 2013, organized by DWD in collaboration with IBL company with participation from Qatar, Brazil-INMET, Brazil-NAVY, Oman and Tanzania

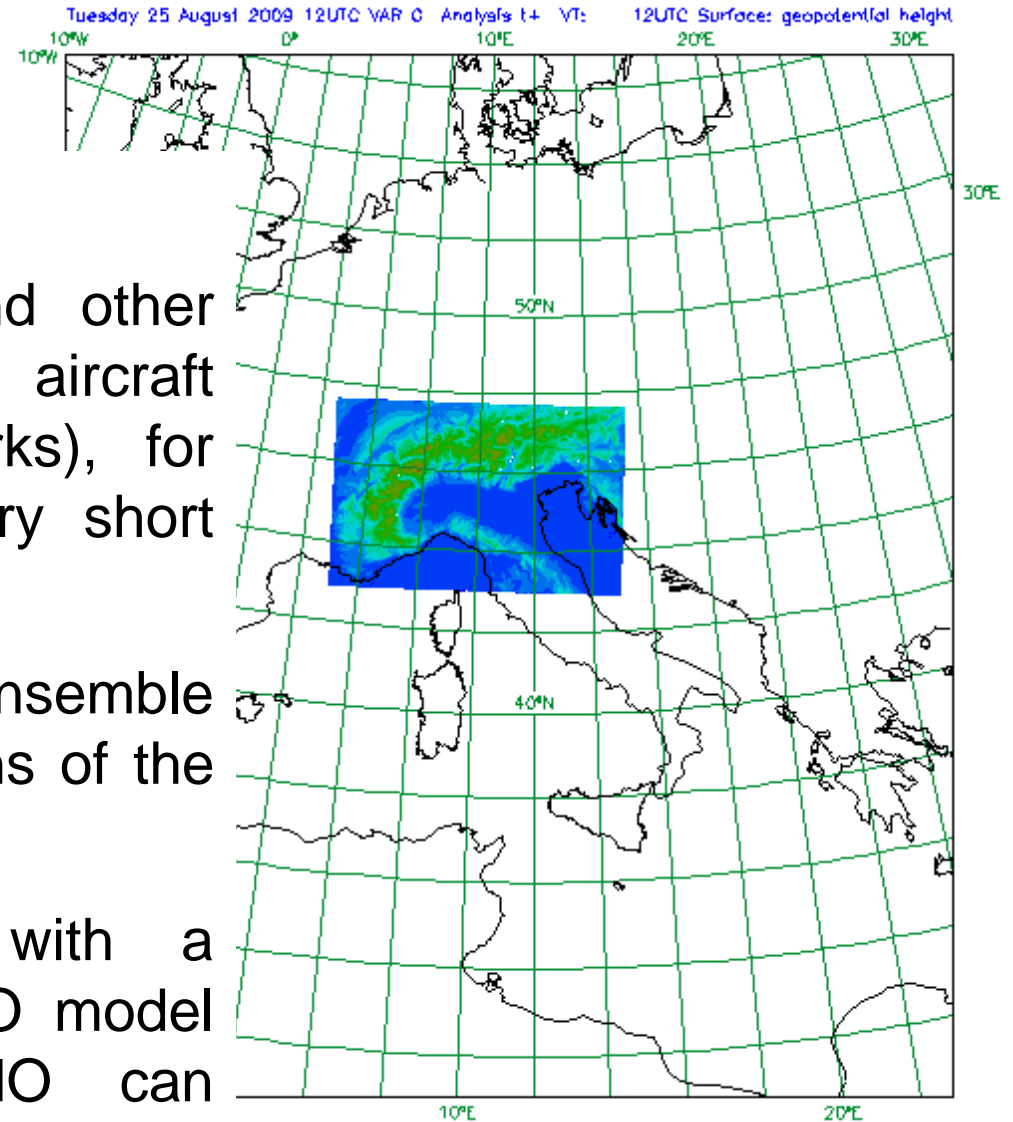
Training support (Indonesia)

Training (in situ) on Regional Weather Prediction Based on the COSMO model, 5-9 November 2012, Bandung, Indonesia

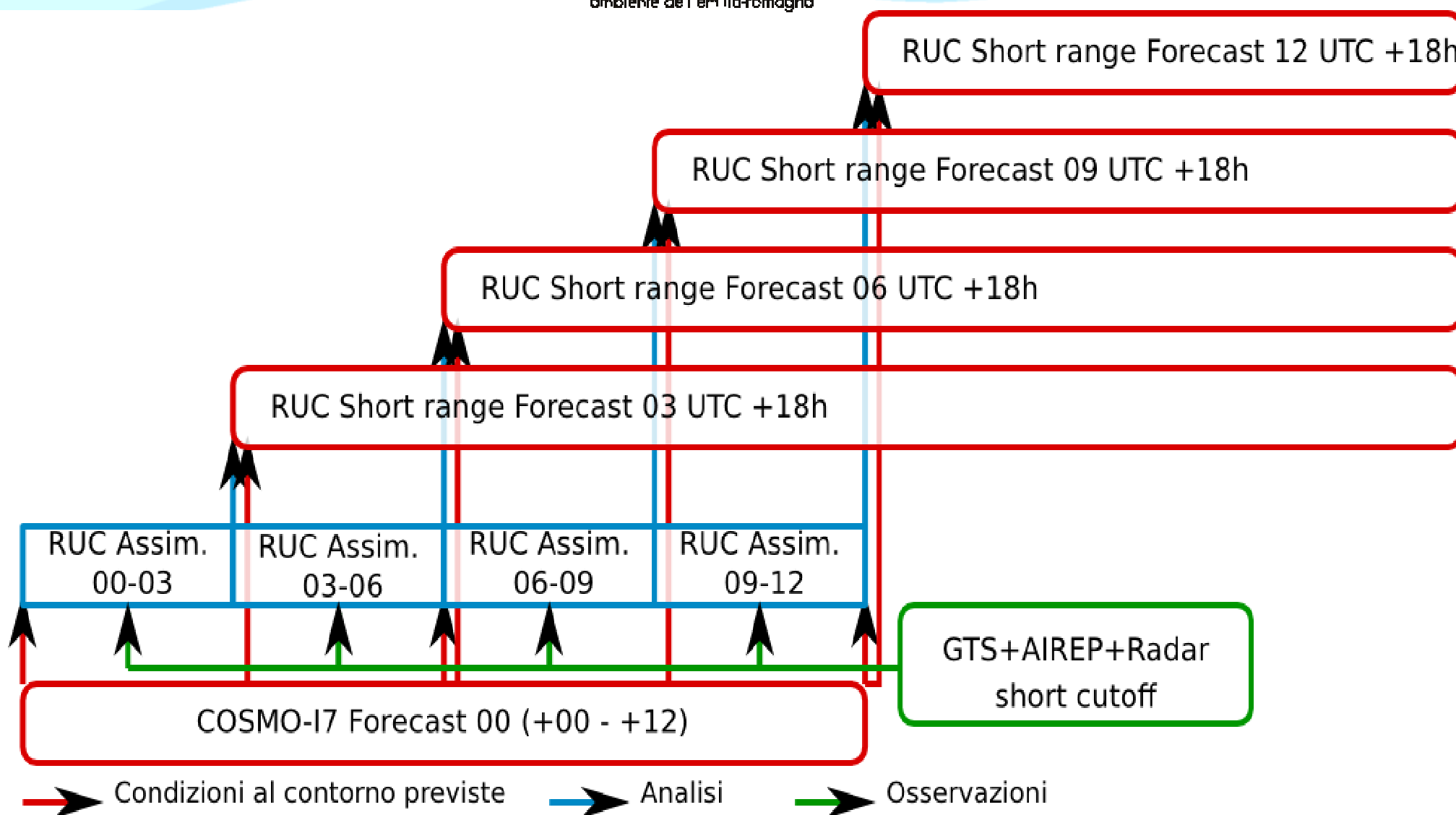
- organized by National Institute of Aeronautics and Space (LAPAN), Indonesia
- good opportunity to increase the **visibility** of COSMO consortium
- the Romanian COSMO Support team (C. Barbu, R. Dobre) gained **experience** useful for the next similar activities

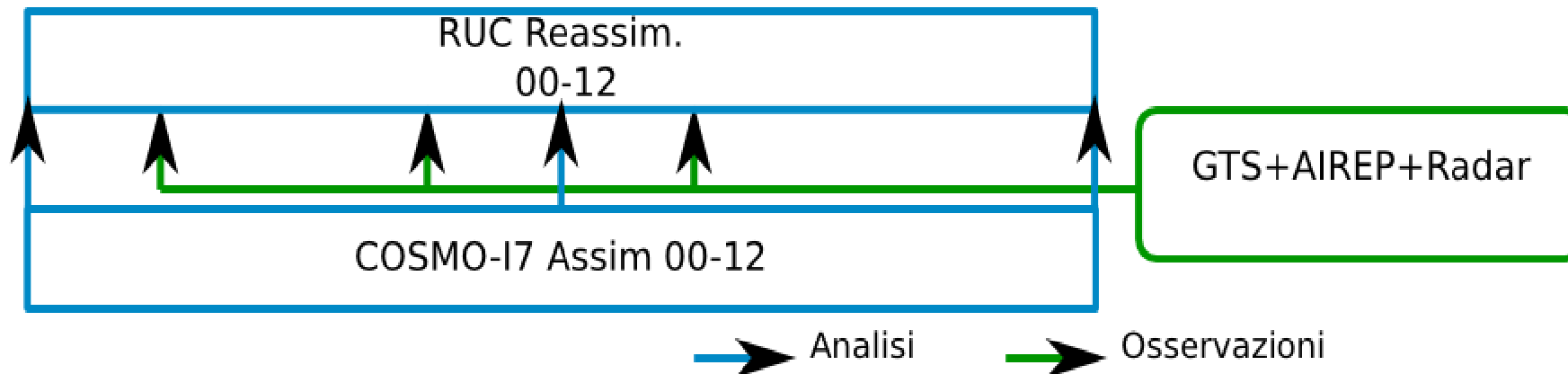
RUC suite (D. Cesari)

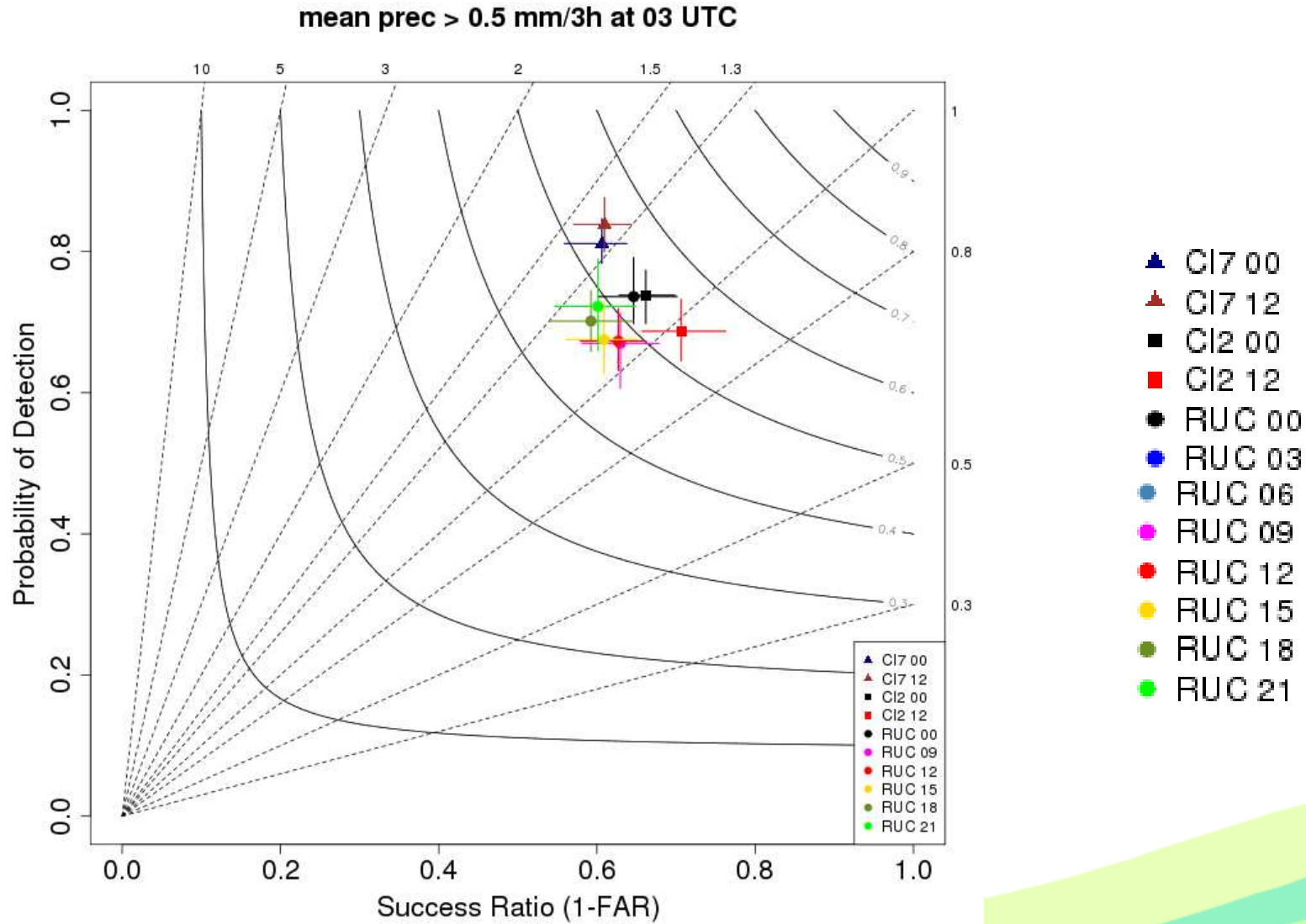
- RUC = Rapidly Updating Cycle
- Take advantage of radar data and other "fresh" observations available (e.g. aircraft reports, local surface station networks), for having some added value in the very short range
- Produce a very short range mini-ensemble giving an idea of the possible evolutions of the meteorological situation
- Produce an objective analysis with a reasonably small delay, using COSMO model and the observations that COSMO can assimilate



- Grid step 2.8 km
- Model configuration similar to the operational COSMO-I2
- Boundary conditions from the operational COSMO-I7
- Nudging: SYNOP, SHIP, TEMP, AIREP, the same as COSMO-I7/COSMO-I2, but split in 3-hour "packs" and with a shorter cutoff (about 1h30'), provided by CNMCA
- Latent heat nudging: 15' surface precipitation estimated by radar, composite provided by the Italian National Civil Protection Department







Next steps (WG7, WG5, WG1 involved)

- Extension of the integration domain to all Italian territory
- Extension of the available products (limited at the moment)
- Collaboration with ARPA Piemonte for extending and improving the data assimilation setup using more surface observations from Italian local observation networks for the nudging and the FASDAS scheme (see for instance Galli and Milelli, CUS 2012)
- Improve the coverage and the quality of radar data used for the latent heat nudging

Science plan

Short-term activities (2015-2017)

1. Consolidation of the results of the POMPA project (hybrid parallelization; asynchronous I/O)
2. Focus of optimisation efforts on x86/Power- and cache-based, massively parallel architectures
3. Consolidation of the GPU-version of COSMO and testing this and also other emerging architectures (as Intel XeonPhi)
4. Consolidation and increase of cooperation with the numerical aspects group
5. Organization of regular training courses for COSMO researchers on new architectures and programming languages/paradigms like DSEL

Long-term activities (2018-2020)

1. See previous slide in case of delay...
2. Transfer of new programming paradigms (DSEL, C++) to ICON model
3. Re-thinking (and improving, why not ?) source code management rules taking into account new languages and paradigms

Thanks for your attention !



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