



PP VERSUS 2

Plenary Session

Antonio Troisi

Angela Celozzi

USAM-CNMCA



VERSUS - Motivation

The aim of the VERSUS 1 Priority Project (2006 - 2009), with the official delivery of package, was the development of a common and unified verification 'library' (including a Conditional Verification (CV) tool). This library was part of the public COSMO Software along with the new software from Priority Project VERSUS2.

The package and all its main features have been planned and built up with the aim of being a useful and friendly tool for the whole COSMO community, for operational purposes as well as research activities performing conventional method ruled ordinary/ conditional verifications.





VERSUS - History

As following lines, here is a brief summary of main implementations performed all project life-cycle along

VERSUS1 project - The delivery of the complete package occurred during a Workshop/Tutorial in February 2009
(Documents required from STC: **System Architecture Design, System Design Overview** one year)

VERSUS2 Phase1 - Conditional Verification
Batch execution
Cross Model
Time series
Daily Cycle

VERSUS2 Phase2 - Ingestion of observation in txt format
Weather Type
COSI Index
Monthly
Verification with the Analysis



VERSUS - History

VERSUS2 Phase3 -

- Improvement "plug&play" installation
- Improvement of graphical scores representation
- Forum Web page for Help Desk providing
- Implementation Verification for the Wave Model

VERSUS2 Phase4 -

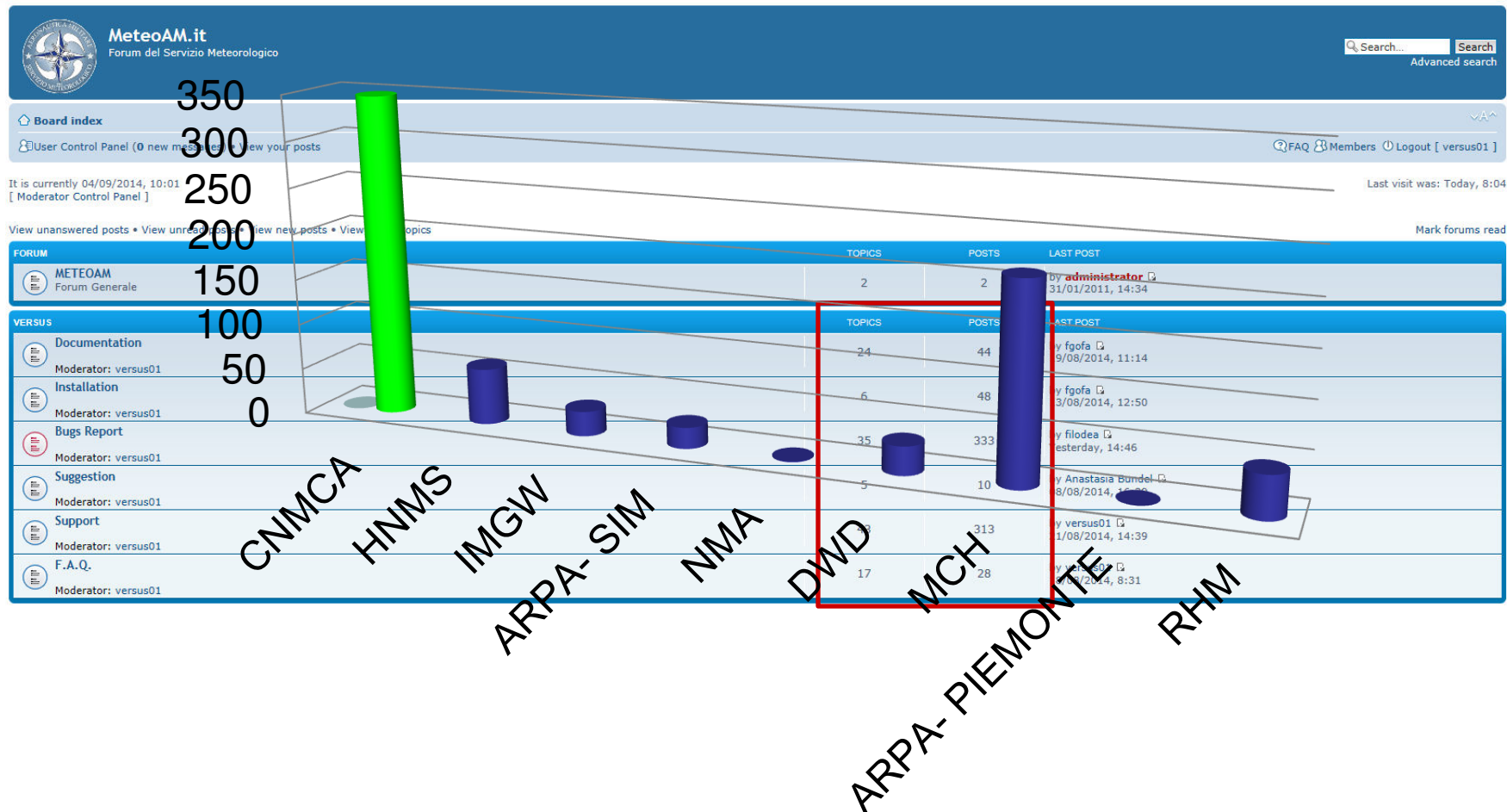
- Implementation of Probabilistic Scores for EPS
- Integration WMO BUFR format
- Geographical Score Calculation
- Scatter Plot

VERSUS2 Phase5 -

- New par. related to SRNWP data pool (TRI=3)
- Test Area and Test Procedure Creation
- Implementation of period 1/3h for prec. Cumulation par
- Implementation parameter with TRI =2 (WIND GUST)
- New plots (Performance diagrams)



FORUM Activity





VERSUS 2

Phase6- Crucial points

The past COSMO year showed several difficulties which heavily affected our work progress.

They consisted fundamentally in:

- Forced absence of the PL for 5 months
- Unforeseen delay in the signing of the contract with the external consultant
- A new resource Training process
- Problems occurring in VUS 2014 organization



Task List - Overview

Task 0: Help Desk, Refinements VERSUS Code

Task 1: Refinement of Functionalities

Task 2: Final Implementation of Feedback Files

Task 3: Introduction of additional statistical Techniques

Task 4: Enhance Flexibility of EPS Verifications

Task 5: Extension of the ASCII Import Capabilities

Modular tasks not dependent on each other.

Not performing or deleting any task has no impact with the others.



Task 0: Help Desk, CODE Refinements

Task 0.a Help Desk ON GOING (www.meteoam.it/forum-meteoam/).

Task 0.b Documentation updates

- User Manual Updated to the **VERSUS 3.2 version**
- Technical Manual: Updated - PHP area with DOXYGEN
- MYSQL area with MYSQL WORKBANCH
- Installation Manual : **Last update 2014 - June 09 th**

Task 0.c New VERSUS releases:

- **VERSUS 3.1 - October 2013**
- **VERSUS 3.2 - March 2014**
- **NEW Installation package VERSUS 3.0. - March 2014**
- **VERSUS 3.2 extra - to be tested**
- **VERSUS 3.2.1 - July 2014**
- **VERSUS 3.3 - July 2014. On testing phase by MCH**

Task 0.e VERSUS Course for Developers: (**BOLOGNA June 24th-25th 2014**) **Required -Technical Course as no attenders.**



Task 1: Refinement of functionalities

The goal was that to improve the functionalities already existing in VERSUS

Main activities:

- Conditional Verification: condition in both fcs and obs Data- **VERSUS 3.2**
- Precipitation analysis from composite sources: **preparatory work, no necessary any more**
- Cross Plot for Time Series and Daily cycle: **VERSUS 3.2**



Task 2: Implementation of FF

Task 2a: Re-Analysis and DB Creation: **DONE**

NEW EXTRA TASK: Development of a software to read the Feedback File in NETCDF: **In Progress**

In the Document "ff_versus_library.docx " all technical details are described.

Task 2b: Implementation of Loader Module for FF in VERSUS: **DELAY**

Task 2c: Creation of new Web GUI for FF and improvement of graphics for upper air: **DELAY**

Task 2d: Dedicated testing phase for FF tool implementation and FF functionalities in VERSUS: **DELAY**

High Priority: This task accomplishment is scheduled at the end of November 2014



Task 3: Additional Stat. Techniques

This task involves the adoption of some external packages in order to perform Verifications with neighborhood methods and spatial verifications (upscaling methods)

Task 3a: Definition of tool to be used: **The TAG and the SCA evaluated LIBSIM to be used**

Task 3b: Description of spatial verification method that need to be implemented (box method, catchment/alert area method): **DONE**

Task 3c: Creation of a extra software for the upscaling

- Software upgrade (LIBSIM): **DONE AUGUST 2014**
- Documentation and User manual: **DONE AUGUST 2014**

Task 3d: Integration of Fyzzzy toolbox: COSMO founds are used for a contract of one year with University of Turin to implement this Task - **expected to be performed June 2014 - May 2015**

Task 3e: SAL Integration: **Deleted**



Task 4 - EPS Refinements

To ensure proper functioning of the system, a **Pre-Operational Phase** has been defined linked with the performance of the system itself under the bulk EPS model data extensive use .

Task 4a: Implementation of CRPS/CRPSS and Plots of Spread/Skill relation: **DONE, VERSUS 3.3**

Task 4b: Pre-Operational phase coming to conclusion.

During VUS (june 2014) and CUS (march 2014) further requests: responses given.

Difficulties rose up in verifications execution because of deal of data to be elaborated. A deeper analysis/ study is still in progress about which configuration is to be considered more appropriate (php.ini)



Task 5: Extension of the ASCII Import Capabilities of VERSUS

The ASCII files (already existing in VERSUS) could be substituted by a more "modern" XML file format, following PL team specifications in coordination with TAG.

- Feasibility Study and Documentation about XML file usage: PL TEAM coming to an agreement despite some little details to be discussed. A meeting is necessary (CNMCA, MCH, IMS).



Task list - Overview

PP VERSION 03.09.2014

- Task 0:** Help Desk, Refinements VERSUS code
- Task 1:** Refinement of functionalities
- Task 2:** Imp. of functionality to ingest/manage GRIB2
- Task 3:** Imp. of station based forecast verification
- Task 4:** Introduction of additional statistical techniques
- Task 5:** Final Implementation of FF in VERSUS

Modular tasks not dependent on each other.

Not performing or deleting any task has no impact with the others.



Task 0: Help Desk, Ref. VERSUS code

TASK 0.a Help Desk: introduction of a first level support: (RHM) and a second level support: (PL TEAM).

Task 0.b Documentation updates

Task 0.e Test for the VERSUS 3.2 extra: (IMGW)

Task 0.f *Test for the concurrent use of VERSUS by more than one user.*

The system allows to be used by more than one user simultaneously. The limitation, derived from R software, has been solved in the Phase 6. A deeper test on this issue is needed by anybody available.

Task 0.g *Feasibility Study* to increase the loading performance: The PL TEAM will investigate the mode to increase the performances in the loading phase in VERSUS with the MCH collaboration: (MCH-PL TEAM)



Task 1: Refinement of Functionalities

- **Confidence Interval integration:** (RHM - PL TEAM)
- **EPS refinements:** necessities risen up during the CUS (March) have been processed and a common agreement was found. During the WG5/WG7 session has been specified that this is a necessary development for all partners. Bugs fixing, Timing, Risk Operation Status list supplied. Test Phase to follow release.
- **Automatization for stability:** (PL TEAM)
 - Check the correct Installation- An automatic control to check that the system is installed in a right way
 - Automatic delete device - script to delete any data older than a definable date



Task 2: Ingest/ manage GRIB2

VERSUS needs to be adapted in order to accept GRIB2 as input for fcs. The system is already designed for GRIB2 as it uses Grib_API as library for decoding, but Tables containing FCS data have to be updated accordingly.

Main activities: (PL TEAM)

- Creation of new tables for GRIB2
- Connection with existing Tables GRIB1
- Gui Adjustment
- Loader Module implementation



Task 3 : Implementation of Station Based Forecasts Verification Activities

In Phase 6 (Task 6) a complete feasibility study was performed together with the setup of a standard XML file format (that can be provided by Fieldextra) for post-processed station based forecasts. Now, in Phase 7, such a functionality will be implemented.

Main activities:

- Implementation of Front-End and related verification activities for ingestion of XML files of post-processed forecasts into VERSUS: (IMS - PL TEAM)
- Test phase (0.02 FTE): MCH



Task 4: Introduction of Additional Statistical Techniques in VERSUS

COSMO funds get used for one year long contract with University of Turin in order this Task (VAST Project) to be implemented. The next year PL TEAM will coordinate this project in all its steps.

Task 4 extra LIBSIM SOFTWARE TEST: During the VERSUS 2 Phase 6, the extra software has been released for performing upscaling-based verification in Versus. In this actual Phase 7 a test on this software is needed: (0.05 FTE for ARPA PIEMONTE).



Task 5: Final Implementation of Feedback Files in VERSUS (delay of the precious phase)

VERSUS is not able to read NETCDF files. The record patch was expected to be provided by the partners: no adequate responses. PL TEAM started this implementation by themselves. This decision has caused a further delay in the conclusion of this task.

PL TEAM need more time to acquire all necessary knowledge about this issue.

A new task has been necessarily planned: **"Task 5.a: Development of new VERSUS library able to read Feedback Files in NETCDF"** (milestone).

END DATE : End of November

A TEST Phase coordination with DWD is required: **AGREED.**



Task 5: Task 2 (Phase 6) - Implementation of FF

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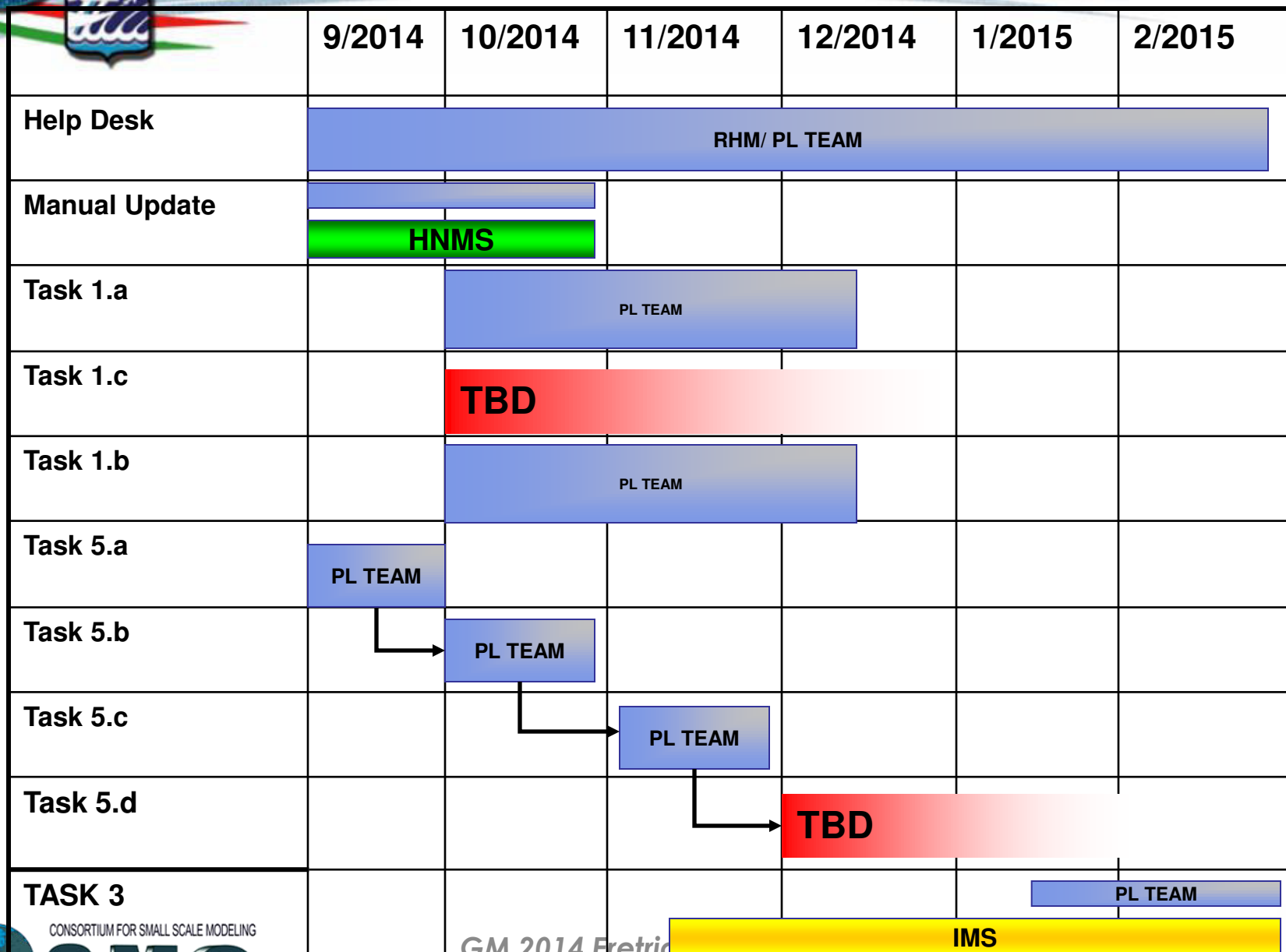


This is the last year in VERSUS 2 planned development life cycle

- Long Term VERSUS Maintenance: CNMCA
 - Help Desk (II Level)
 - Software maintenance (exc new developments)
 - Maintenance coordination by Help Desk
 - SCA assuring (little developments coordination and code correctness)
 - Bugs fixed packages providing
- A really active mutual cooperation is encouraged.
- VUS: COSMO-year 2014-15 CNMCA will be affected by remarkable difficulties in VUS organization. PL TEAM involved other Italian Organizations in logistical support supplying (ARPA Piemonte).



Gantt VERSUS Phase7 2014/15





Gantt VERSUS Phase7 2014/15

	01-02 2015	03 -04 2015	05 – 06 2015	07 08- 2015
TASK 4	PL TEAM - coordination			
	ARPA – PIEMONTE (all year)			
Task 4 extra	TBD			
Task 2.a	PL TEAM			
Task 2.b		PL TEAM		
Task 2.c			PL TEAM	
Task 2.d				DWD ?



Thank you all
for your
attention!!!