



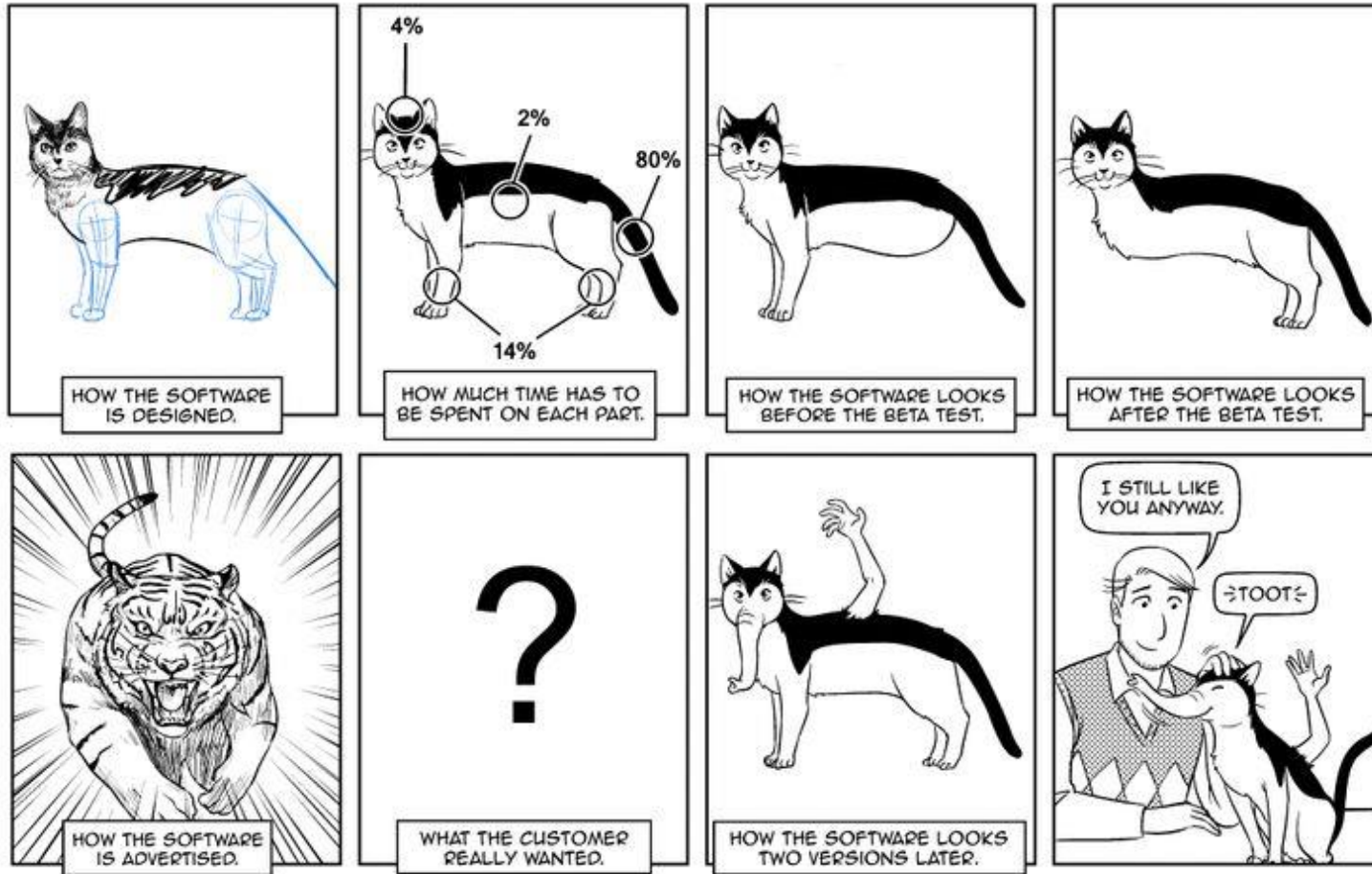
# PP VERSUS2

## Phase 7 – 2014/2015 Status Overview and Long Term Maintenance Plan

**Angela Celozzi**

IAF Operational Center for Meteorology (COMET)

## Richard's guide to software development



Sandra and Woo by Oliver Knörzer (writer) and Powree (artist) – [www.sandraandwoo.com](http://www.sandraandwoo.com)



## PHASE 7: COSMO year 2014-15

In the VERSUS PP phase7 the tasks are defined as following:

### Task 0

Help Desk, Refinements VERSUS code

### Task 1

Refinement of functionalities

### Task 2

Final Implementation of Feedback Files in VERSUS

### Task 3

Functionality to ingest GRIB2

### Task 4

Station based forecasts verification activities

### Task 5

Additional statistical techniques compatible

This year a great collaboration allowed to increase the technical knowledge of software



# Help Desk, code refinement



## Task 0

Help Desk [PL TEAM](#) and [RHM](#) collaboration

Documentation updates

## Task 1

[Technical Manual](#) (on line)

[User Manual](#) collected from the [HNMS](#)

## Task 2

New [VERSUS](#) releases

## Task 3

Two official versions: [October 3.3](#) and [July 4.2](#)

[VERSUS](#) User Seminar

## Task 4

[Turin](#) [May 27-29th](#) thanks to the [ARPA- Piemonte](#)

## Task 5

Further sub-tasks related with the optimization

# Optimization



VERSUS has been used mainly for **deterministic models** on a limited number of stations. (at CNMCA  $\cong$  200 stations=**200 forecast**)



The verification for **probabilistic models and the intense use of system** have led to a substantial increase of these numbers. ( $\cong$  2100 stations \* 20 members=**42.000 forecast**)



As consequence the system is became **slow** and has required intervention for optimization in order to get acceptable times.



Interventions were made at all levels: **DB, source code and adoption of parallelism running where possible.**



# Optimization

A meeting was organized with the WG7 coordinator

It was held on October 29th in Pratica di Mare and the document [VERSUS CNMCA-ARPAER 29102014.docx](#) describes the activities that have been agreed.

Improvements have affected different areas:  
Database, code optimization, execution of verification in background, multiuser, plots, score, score output etc



# Refinement of functionalities

Task 0

Confidence Interval Integration  
code provided from RHM

Task 1

Scripts able to facilitate functional capabilities

Task 2

1. for stations update

Task 3

2. to delete data from VERSUS DB by shell

Task 4

3. to delete Suspect Observation directly from DB

Task 5

4. to download a set of scores already executed into VERSUS

VERSUS Portability - VERSUS on FEDORA 15 and 20  
Task performed by NMA

# Final Implementation of FF

Task 0

Integration of Feedback Files (FF) of TEMP/PILOT and AIREP in order to improve upper air verification

Task 1

Task 2

Versus 4.0 - first release December 2<sup>th</sup> 2014  
- second release January 12<sup>th</sup> 2015

Task 3

Now available in 4.2 VERSUS version

Task 4

Thanks to the DWD Collaboration

Task 5



# GRIB2 Integration

Task 0

The task provide the Implementation of VERSUS functionality to ingest/manage GRIB2

Task 1

Task 2

The upgrade of the Phoenix libraries - completed.  
Code and GUI adjustment - in progress

Task 3

Delay - scheduled at the end of October

Task 4

Task 5



# XML Ingestion

Task 0

Task 1

Task 2

Task 3

Task 4

Task 5

Ingestion of a standard XML file format (provided by Fieldextra) for post-processed station based forecast.

The new phps file IMS and the interface available in the 4.2

This implies the implementation and related verification of XML files.

The screenshot shows a web interface for 'Process Administration' with a sub-section for 'Acquisition Registration'. The form includes the following fields:

- Name:** An empty text input field.
- Msg:** A dropdown menu with 'xml' selected. This field is highlighted with a red border.
- Description:** A large text area with a vertical scrollbar.
- Stratification:** A dropdown menu with 'All Italian Stations' selected.
- Status:** Radio buttons for 'Offline' (selected) and 'Online'.
- Directories:** Five text input fields for 'Error Directory', 'Log File', 'Backup Directory', and 'Input Directory', each with a default path of '/versus/VERSUS/data/'.

At the bottom of the form are 'Save' and 'Back' buttons.





# Additional statistical techniques

## Task 0

To coordinate the execution of the COSMO Project VAST.

## Task 1

On January 14th to 16th a meeting has been held in Pratica di Mare between PL Team and Naima Vela, VAST developer in order to finalize the software

## Task 2

The software is available in the <ftp.meteoam.it> as a test dataset and related documentation

## Task 3

## Task 4

The test phase was carried out by NMA and HNMS

## Task 5

The project ended in May 2015





# VERSUS today...

Now, in conclusion, what is VERSUS able to do?

Summarizing the capabilities of the tool ....





# Loading Data



VERSUS GUI provides FE for data loading

The system has currently capability to ingest different format:

- GRIB1/XML for fcs data
- BUFR/TXT for obs data
- NETCDF for Feedbackfile

Soon also GRIB2 format





# Standard Verification

VERSUS performs verification of deterministic model vs observations:

Verification Standard
On-site
Analysis
EPS
FeedbackFile
Conditional
Weather Type
COSI
Time Series
Daily Cycle
Scatter Plot
Cross Model
Monthly

- for date and periodical intervals such as monthly, seasonal, yearly
- with period based on observations or forecasts
- computing continuous and dichotomic scores
- Performing and plotting geographically distributed scores
- for **surface and upper** air levels





# Standard Verification

Verification Standard
On-site
<b>Analysis</b>
EPS
FeedbackFile
Conditional
Weather Type
COSI
Time Series
Daily Cycle
Scatter Plot
Cross Model
Monthly

VERSUS performs verification of analysis vs a reference model for surface and upper levels computing continuous scores (ME, MAE, MSE, RMSE or a subset)





# Standard Verification

Ensemble Prediction System vs observation at surface level computing the following scores and diagrams:

<b>Verification</b>
<b>Standard</b>
On-site
Analysis
<b>EPS</b>
<b>FeedbackFile</b>
Conditional
Weather Type
COSI
Time Series
Daily Cycle
Scatter Plot
Cross Model
Monthly

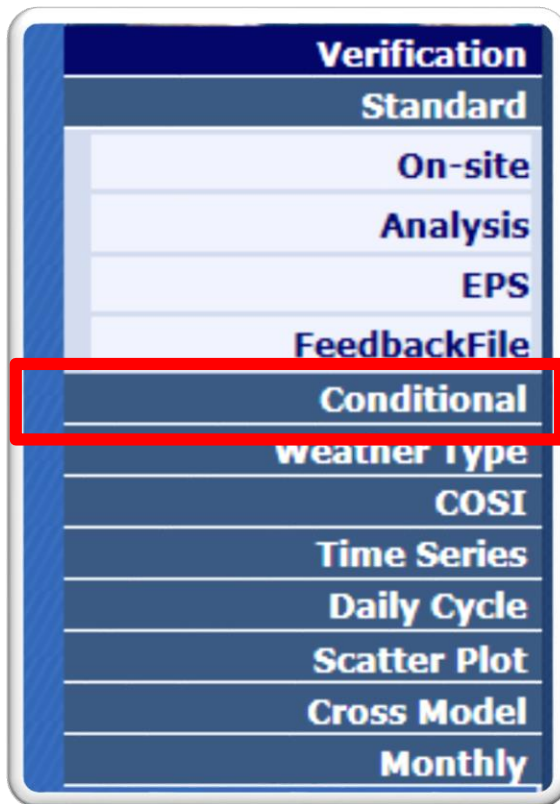
	Brier.reliability, Brier.reliability.CI.high, Brier.reliability.CI.low, Brier.resolution, Brier.resolution.CI.high, Brier.resolution.CI.low, Brier.SKILL, Brier.SKILL.CI.high, Brier.SKILL.CI.low, Brier.uncertain, Brier.uncertain.CI.high, Brier.uncertain.CI.low, CRPS, CRPS-CI.high, CRPS-CI.low, CRPSS, ROC area, RPS, RPS-CI.high, RPS-CI.low, RPSS, RPSS-CI.high, RPSS-CI.low, RPS.dim, RPS.dim-CI.high, RPS.dim-CI.low, ERROR, SPREAD, OUTLIERS
Diagrams	ROC, Reliability, Cost-Loss, Rank

loaded in the system





# Conditional Verification



Verification on deterministic model vs observations (as for standard) of a parameter conditioned to the value assumed of an other one.

The condition can be set on observation, on forecast or both (two in all cases).

The condition can be «by value» or «by function»





# Weather Type

Weather Type Dependant Verification	
Registration	
Criteria type : Surface	
Description	<input type="text"/>
<b>Weather type</b>	
Weather Service	HNMS ...
Weather Class	<input type="text"/> ... Delete
Stratification	<input type="text"/> ...
<input checked="" type="radio"/> Date <input type="radio"/> Frequency	Start <input type="text"/> ... Stop <input type="text"/> ... Period based <input checked="" type="radio"/> Observation <input type="radio"/> Forecast
Step	Start <input type="text"/> End <input type="text"/> Interval <input type="text"/>
<b>Observation</b>	
Parameter	<input type="text"/> ...
<b>Forecast</b>	
Model	Run 0 ...
Grid	<input type="text"/> ...
Parameter	<input type="text"/> ...
Method	<input type="text"/> ...
Index	<input type="radio"/> dichotomic <input checked="" type="radio"/> continuous <input type="text"/> ... Delete
Suspect Observation <input checked="" type="radio"/> Not Active <input type="radio"/> Active	
Geographical Score Calculation <input checked="" type="radio"/> Not Active <input type="radio"/> Active	
<input type="button" value="Save"/>	

Weather Type verifications - on Site and Analysis  
The system lets to create verification on days where a specific weather Class is assigned





# COSI

Verification
Standard
On-site
Analysis
EPS
FeedbackFile
Conditional
Weather Type
<b>COSI</b>
Time Series
Daily Cycle
Scatter Plot
Cross Model
Monthly

VERSUS performs COSI index by the composition of prefixed parameter verifications:

- 2m Temperature
- Wind Vector
- Total Cloud Covered
- Precipitation



# Time Series and Daily Cycle



VERSUS performs Time Series and Daily Cycle **observation vs forecast** for one or more models simultaneously.

It graphics parameters and scores (continuous or dichotomic) separately

Time Series can be performed on the first, the second or the third day saving the data on a txt file



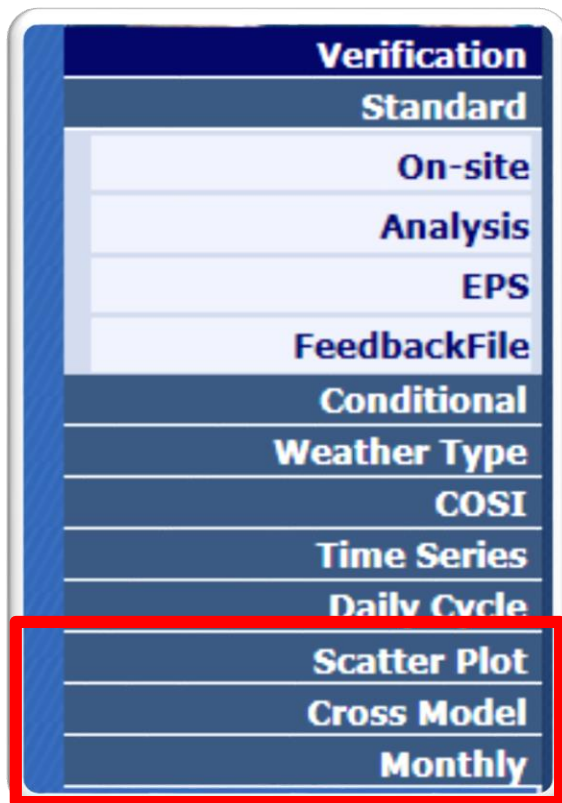


# Graphical representation

**Scatter Plot** observation vs forecast for one model for date and periodical intervals such as monthly, seasonal, yearly

**Cross Plots** of verifications previously computed and saved in the DB. The verifications that can be selected are: standard, conditional, weather type, EPS for surface and upper air with a representation of a maximum of 10 models

Trend of **monthly** scores (continuous or dichotomic) for a model





# Long term Maintenance

The Long-Term Maintenance services are planned to be assured by C.O.Met (the new Operational Meteorological Center of the Italian Air Force) for 2015/2017 (2) COSMO years

The Source Code Administrator for VERSUS is appointed from C.O.Met staff as a focal point  
(Antonio Vocino)

The SCA reserves the right to define time/way of the support activity





# Long term Maintenance

For the concept of "Maintenance Service" it is to be intended:

1. Bug fixing and related patch release;
2. Adaptation of the software to future versions of prerequisite libraries and operating system;
3. Code optimization and minor adjustments of the software (under SCA responsibility);
4. User support by web Forum tool and software for bugs tracking (Bugzilla, ...)
5. Any further maintenance activity according to SCA





# Long term Maintenance

VERSUS forum is offered to facilitate communication for user support .

VERSUS ftp AREA and Test Machine will be guaranteed.

Traduttore x Versus: Login x "shattler uli" - Cerca con x

80.17.44.25/versus/Login.php

**COSMO**

Home  
Information  
Consortium  
Related links  
Contact

SERVIZIO METEOROLOGICO DELL'AERONAUTICA

Documents  
User Manual  
Technical Manual  
Glossary  
Version

Welcome,

you have an Administrator level user privilege that other users accounts, acquisition and scores Front and graphical scores.  
Enjoy VERSUS!

**MeteoAM.it**  
Forum del Servizio Meteorologico

Search  Search  
Advanced search

Board index

User Control Panel (0 new messages) • View your posts

FAQ Members Logout [ versus01 ]

It is currently 06/09/2015, 21:32  
[ Moderator Control Panel ]

Last visit was: 03/09/2015, 15:44

View unanswered posts • View unread posts • View new posts • View active topics

Mark forums read

FORUM	TOPICS	POSTS	LAST POST
METEAM Forum Generale	2	2	by administrator 31/01/2011, 14:34
VERSUS			
Documentation Moderator: versus01	27	50	by versus01 27/07/2015, 13:11
Installation Moderator: versus01	7	49	by coppola 11/08/2015, 8:05
Bugs Report Moderator: versus01	44	391	by fgofa 02/09/2015, 16:35
Suggestion Moderator: versus01	5	10	by Anastasia Bundel 08/08/2014, 16:29
Support Moderator: versus01	55	358	by versus01 03/09/2015, 15:44
F.A.Q. Moderator: versus01	23	35	by filodea 07/07/2015, 8:23







*Thanks for  
your  
attention!*

