

## VERSUS SYSTEM IS A FLEXIBLE AND CONFIGURABLE TOOL CREATED TO PERFORM STATISTICAL VERIFICATIONS OF NWP

VERSUS differentiates from other verification systems for the following unique features:

- An RDBMS (MySQL)
- A Web-based GUI (Graphical User Interface) to configure and manage all verification activities
- Conditional Verifications capability
- Front Ends for data loading into DB and Scores Front End for scores computation, graphical production and storage of the statistical results

The package is the outcome of COSMO consortium priority project on verification, planned and designed through the requirements from COSMO Working Group 5 members.

## VERSUS MAIN FEATURES

### STANDARD VERIFICATIONS

VERSUS performs standard verifications for:

- Continuous variables (surface and upper-air)
- Binary events (contingency table)
- Weather type dependent verifications

and for:

- A configurable number of stratifications
- Different models
- Monthly, seasonally or free period based

### CONDITIONAL VERIFICATIONS

Conditional verifications can be performed using masks or filters in the observations or forecasts space:

- T2m fc vs. T2m obs when obs TCC = 8 okt

Conditions can be imposed:

- by Value (T2m > ....)
- by Function (T2m > mean of the period)

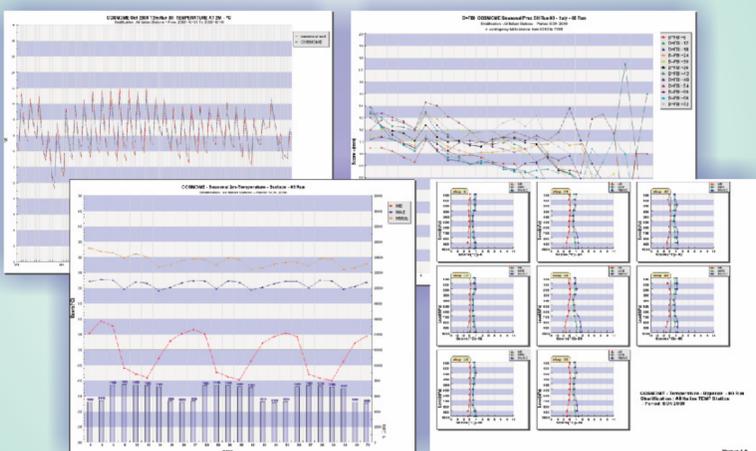
### WEB BASED GUI

VERSUS uses Web browsers to visualize the GUI. All the management and verification activities are fully configurable through the GUI.

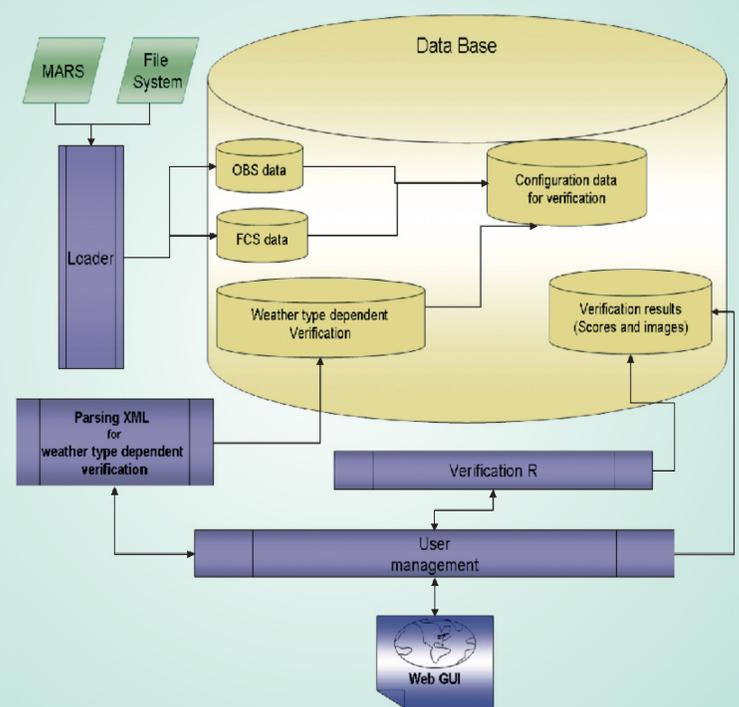


### GRAPHICAL OUTPUTS

Different types of graphics for different types of verifications.



### VERSUS ARCHITECTURE



### WEB GUI PAGES



### FUTURE DEVELOPMENTS

#### Cosmo Versus2 Project 2009-2011

- Use of non-standard observations (raingauges and remote sensing obs)
- Use of gridded observations
- Improvement of conditional verifications
- Fuzzy verifications
- Object based verifications
- Verification for probabilistic and ensemble forecasts
- More statistical features (confidence intervals)
- Architectural improvements (NETCDF, Feedback files GRIB2)