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Federal Department of Home Affairs FDHA  
Federal Office of Meteorology and Climatology MeteoSwiss

# Status of VERSUS at MCH and experience with Version ~~3.2~~ 3.3

Pirmin Kaufmann, Francis Schubiger



# More on EPS-Verification

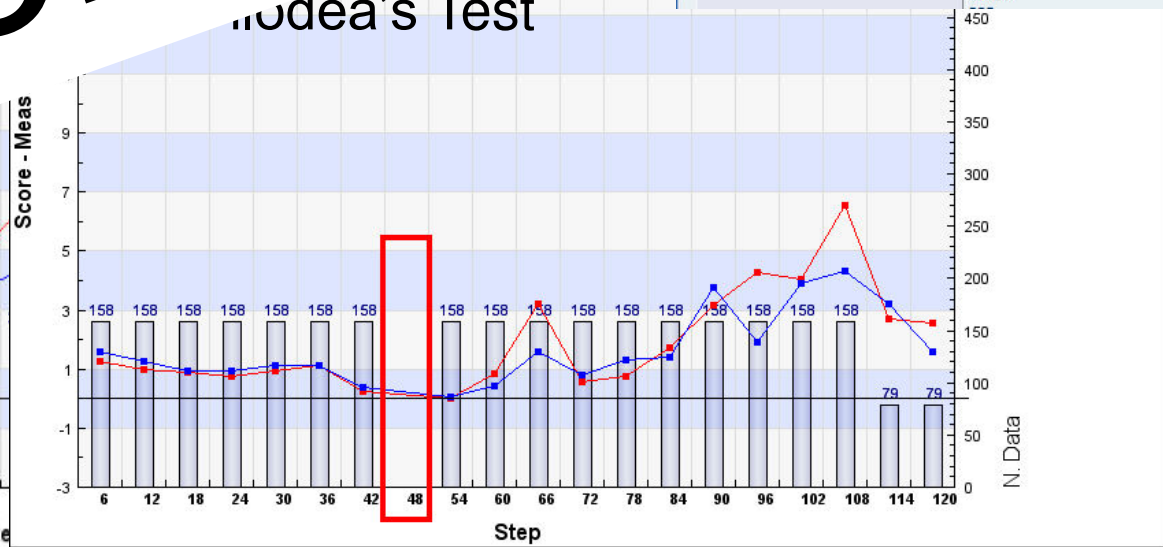
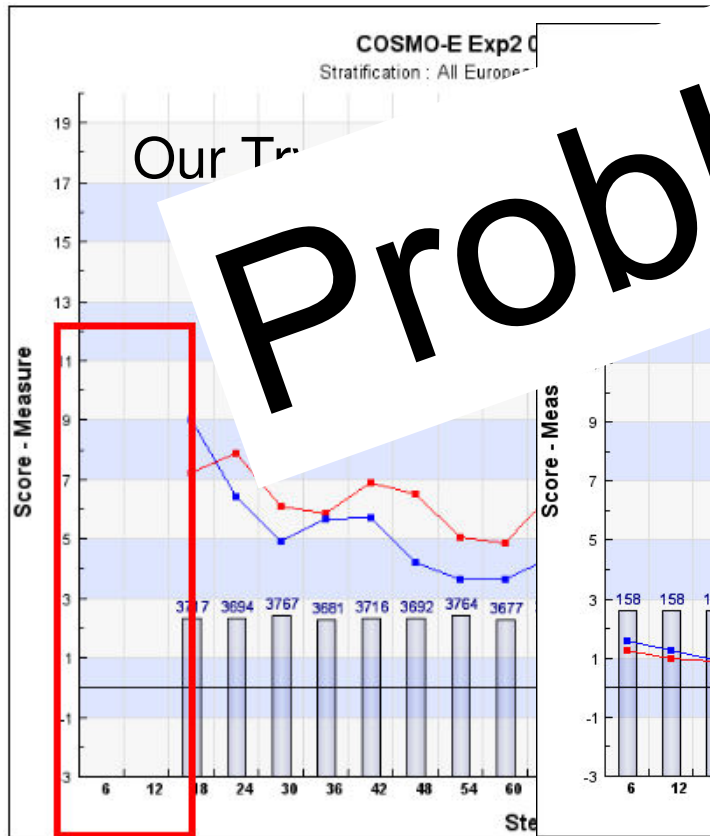
... will be presented by Francis Schubiger and André Walser tomorrow afternoon in the joint WG5/7 session



# Problems with Run 6

Standard Verification Report[EPS]	
Id	4919
Name	EPS run 6
Criteria Type	Surface
Dichotomic	No
Run	6
Frequency	Monthly
Period Based	Forecast
Steps	START
Stratification	
Lat first:-4; Lon first:-5.7; Lat last:2.98; Lon last:4.68	
Precipitation - mm - 2	
ROC, Reliability, Cost-Loss, Rank	
Scores	BRIER BRIER-reliability BRIER-resolution BRIER-SKILL BRIER-uncer CRPS CRPSS

Problem Solved





# Remaining Issues

## Parallel use

- No multi-user support for verification calculation
- Problems with calculation of verification during data upload (of a different verification) – seems to be calculated only after upload has finished.

A deeper test is needed – TASK 0.f PP 2014/2015 Are you available?

## Change in model configuration

- Change in external parameters (new orography): no possibility to verify the same model over this change

Yes . It been a choice made at the beginning



# Software Repository

- Which patches need to be applied, which can be left out? E.g. patch 3.3 includes 3.2.1 completely, but does not include 3.2.
- Distinguish full versions, released patches and patches for testing
- What to do when a patch is applied in the wrong sequence?

## FTP Listing of /VERSUS\_INSTALLATION/ at ftp.meteoam.it

### Parent Directory

```
Jul 17 2014 14:23   Directory DB PARTITION 3.2 extra
Aug 26 2014 13:01   Directory EXTRA SOFTWARE
Jul 05 2013 00:00   Directory INSTALL.old
Jul 18 2011 00:00   5969920 MK GRIB.tar
Jan 22 2014 00:00   Directory VERSUS 1.0
Jan 22 2014 00:00   Directory VERSUS 2.0
Jan 22 2014 00:00   Directory VERSUS 2.0 Patch3
Jan 22 2014 00:00   Directory VERSUS 2.0 Patch4
Jan 22 2014 00:00   Directory VERSUS 2.0 Patch5
Jan 22 2014 00:00   Directory VERSUS 2.0 Patch6
Jan 22 2014 00:00   Directory VERSUS 2.0 Patch7
Apr 18 2013 00:00   Directory VERSUS 3.0
May 06 2014 14:36   Directory VERSUS 3.1
Apr 01 2014 09:05   Directory VERSUS 3.2
Jul 10 2014 15:44   Directory VERSUS 3.2.1
Jul 25 2014 14:54   Directory VERSUS 3.3
Jun 14 2014 12:28   Directory VERSUS INST PAK 3.0
Jan 22 2014 00:00   Directory VERSUS Manual
Jul 02 2012 00:00   4191 versus.conf
Jan 24 2011 00:00   1441946 versus DB structure.sql
```



# Software Repository (cont.)

## FTP Listing of /VERSUS\_INSTALLATION/VERSUS\_3.1/

### Parent Directory

Mar 26 2014 13:36	51200	<a href="#">PATCH VERSUS 3.1.tar</a>
May 06 2014 14:37	48242397	<a href="#">VERSUS 3.1 090414.tar.gz</a>
Mar 26 2014 13:31	Directory	<a href="#">old version</a>

## FTP Listing of /VERSUS\_INSTALLATION/VERSUS\_3.2/

### Parent Directory

Jan 29 2014 00:00	492	<a href="#">VERSUS 3.2.doc</a>
Feb 20 2014 00:00	650125	<a href="#">VERSUS 3.2.docx</a>
Feb 20 2014 00:00	2366913498	<a href="#">SRNWP dataset.zip</a>
Feb 20 2014 00:00	99667	<a href="#">Test Procedure VERSUS 3.2.docx</a>
Apr 01 2014 09:06	48750111	<a href="#">VERSUS 3.2.tar.gz</a>
Jan 29 2014 00:00	71680	<a href="#">VERSUS 3 2.doc</a>
Mar 13 2014 16:28	Directory	<a href="#">old version</a>

3.2 older than 3.1?

Why is Version 3.2 older than 3.1?  
Are all fixes for 3.1 included in 3.2?

**Forum and mails explain it**



# Batch Execution Handling

- Better control needed over «Clear Queue», more information on job status and access to log file via link from here
- Warning if not empty when starting new job
- If necessary we can modify the PP and substitute an other task with this one

Logout Administration

User

Process

Acquisition Manager

Acquisition Registration

Score Manager

Batch Execution

**Clear Queue**

Configuration

**Process Administration**

**Clear Queue**

	Description	Date
<input checked="" type="checkbox"/>	<a href="#">COSMO-E-TST-11 00 PREC06 DEC12 CH</a>	2012-12-03 2012-12-31
<input checked="" type="checkbox"/>	<a href="#">COSMO-E-TST-11 00 PREC06 DEC12 CH</a>	2012-12-03 2012-12-31

**Results: 2**

Select All Dequeue



# Batch and interactive use of VERSUS

- How to kill a job that runs: not possible to kill mysql without being root
- Log-files for non-batch runs should not be overwritten with each new job, instead append or add a sequence number to file name
- Is it forbidden to close the GUI window after starting a non-batch job? Does this produce a hanging process?





# Data Import

- Coding of test chains: Versus requires differentiation by generating process
- In addition, usage of COSMO standard to set namelist *IOCTL*, variable *nvers* should be enabled (PDS local section 47)
- XML import format needs to be finalized . **It is written in the PP**



# Grid point allocation

- MeteoSwiss needs mean of 9 nearest grid points for precipitation for its own purposes -> Instructions needed how to implement in Phoenix code

The phoenix library is written in C  
You can modify the algorithm of the mean of 4 point already existing otherwise You can do it quicker using the radius

## Creation of a new Forecas Method

by versus01 » 28/06/2014, 8:20

It's possible to configure a new method with a circle with a radius that you can choose. To create this new kind of method click in the Configuration->Forecast MMethod->Registration and compile the field as following:

Description: the description of the method [ex 06) Mean of points Circle R=15 km]

Algorithm: mean\_radius

Parameter: the radius of the circle (ex 15)

for any other method you have to enter in the Phoenix code.

## Method selection

### Description

- 01) Nearest point 3D optimized (id\_order=1 )
- 02) Nearest Point height optimized (id\_order>=1 )
- 03) 4 Nearest Points Mean (id\_order=1 )
- 04) Mean of points Circle R=30 km (mean\_radius param.=30)
- 05) Nearest point distance (id\_order=1 )
- 06) Mean of points Circle R=15 km (mean\_radius param.=15)
- 07) 4 Nearest Points height optimized (id\_order>=1 and id\_order<=4 )

ts distance (id\_order>=1 and id\_order<=4 )  
ve model (id\_order=1 )  
param.=9.4)

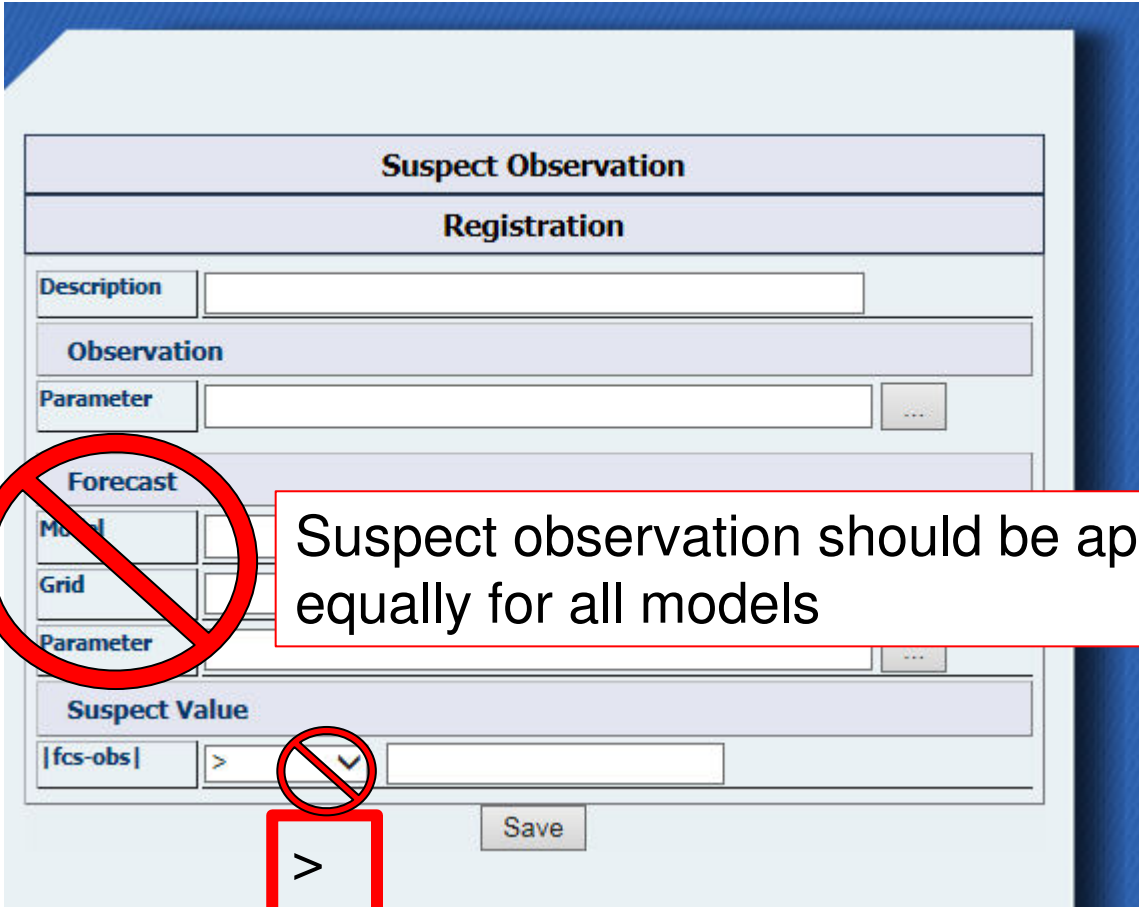
<< 1 >>

Results: 10

Select

New

# Suspect Observation **Solved last week!!!**



The screenshot shows a web form titled "Suspect Observation" with a "Registration" section. The form includes fields for "Description", "Observation", "Parameter", and "Forecast". The "Forecast" section has sub-sections for "Model", "Grid", and "Parameter". The "Suspect Value" section contains a dropdown menu with the value "[fcs-obs]" and a comparison operator dropdown. A red circle with a diagonal slash is drawn over the "Forecast" section. A red box highlights the comparison operator dropdown, which contains the following options: ">", "<", ">=", and "<=". A red circle with a diagonal slash is also drawn over the "<" option.

Suspect observation should be applied equally for all models

Unneeded options, only first is meaningful, danger of creating inconsistencies among countries



# Model Comparison

- How can station metadata be updated (e.g. different lat/lon or height, remove old, add new stations) without manually editing each station and each stratification?

Actually the system performs that by the flat file uploading.

- Suspect observations check: must be independent of model choice

System is made in this way

- For cross model validation (and EPS), the same observations must be excluded for all models (members).



# Automatic storage of figures

- Parameters 11012 (FF\_10M) Standard, 12004 (T\_2M) Standard, and 13021 (TOT\_PREC) are stored in \$VERSUS\_HOME/html/versus/data/**COSMO-7\_107\_215**/surface/seasonal/MAM/00
- Parameters 10051 (PMSL), 11012 (FF\_10M) Conditional, 12004 (T\_2M) Conditional, 12006 (TD\_2M), and 20010 (CLCT) are stored in \$VERSUS\_HOME/html/versus/data/surface/seasonal/MAM/00 **To detect if is a bug**

```

versus@versus2:~/VERSUS/html/versus/data/surface/seasonal/MAM/00> find . -typ versus@versus2:~/VERSUS/html/versus/data/COSMO-7_107_215/surface/seasonal/MAM/00>
./10051/Standard/All Swiss stations/C_2471.png
./10051/Standard/Common Area/C_2487.png
./11012/Standard/All Swiss stations/C_2475.png
./11012/Standard/Common Area/C_2476.png
./11012/Standard/Swiss above 500m/C_2522.png
./11012/Standard/Swiss below 500m/C_2521.png
./12004/Standard/All Swiss stations/C_2508.png
./12004/Standard/Common Area/C_2470.png
./12004/Standard/Swiss above 500m/C_2518.png
./12004/Standard/Swiss below 500m/C_2517.png
./12006/Standard/All Swiss stations/C_2494.png
./12006/Standard/Common Area/C_2491.png
./12006/Standard/Swiss above 500m/C_2520.png
./12006/Standard/Swiss below 500m/C_2519.png
./20010/Standard/All Swiss stations/C_2477.png
./20010/Standard/Common Area/C_2478.png
./11012/Conditional/All Swiss stations/C_2528.png
./11012/Conditional/All Swiss stations/C_2529.png
./12004/Conditional/All Swiss stations/C_2523.png
./12004/Conditional/All Swiss stations/C_2524.png
./12004/Conditional/Common Area/C_2624.png
./12004/Conditional/Common Area/C_2625.png
./12004/Standard/All Swiss stations/C_2508.png
./13021/Standard/All Swiss stations/D_B=FBI_2509_ST_.png
./13021/Standard/All Swiss stations/D_B=FBI_2509_TH_.png
./13021/Standard/All Swiss stations/D_B=FBI_2510_ST_.png
./13021/Standard/All Swiss stations/D_B=FBI_2510_TH_.png
./13021/Standard/All Swiss stations/D_ETS_2509_ST_.png
./13021/Standard/All Swiss stations/D_ETS_2509_TH_.png
./13021/Standard/All Swiss stations/D_ETS_2510_ST_.png
./13021/Standard/All Swiss stations/D_ETS_2510_TH_.png
./13021/Standard/Common Area/D_B=FBI_2512_ST_.png
./13021/Standard/Common Area/D_B=FBI_2512_TH_.png
./13021/Standard/Common Area/D_B=FBI_2618_ST_.png
./13021/Standard/Common Area/D_B=FBI_2618_TH_.png
./13021/Standard/Common Area/D_ETS_2512_ST_.png
./13021/Standard/Common Area/D_ETS_2512_TH_.png
./13021/Standard/Common Area/D_ETS_2618_ST_.png
./13021/Standard/Common Area/D_ETS_2618_TH_.png

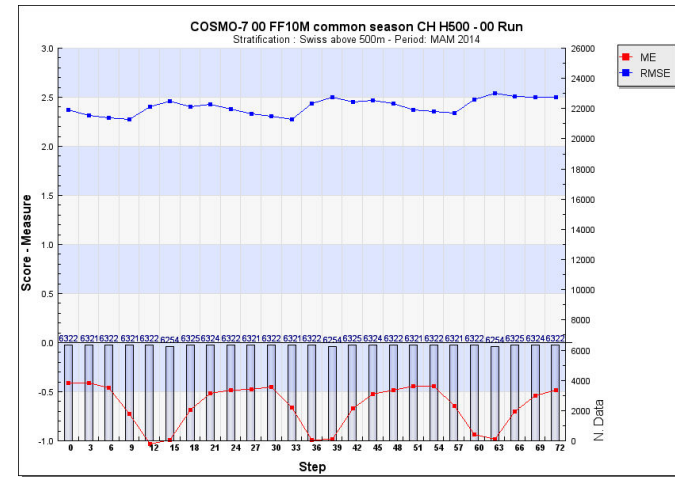
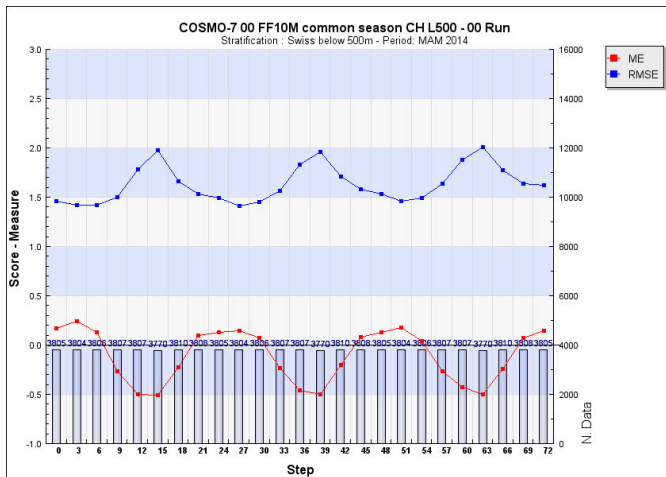
```



# Versus 3.3 at MeteoSwiss: Example COSMO-7 10 m Wind speed

Wind speed at low stations shows diurnal cycle because of valley wind systems, with underestimation of daytime wind speed.

Wind speed at high stations underestimated due to many mountain peak stations in this stratification





# ...and Scatterplots

**Scatter Plot**

**Registration**

Description: COSMO-7 FF10M CH ALL

Stratification: All Swiss stations

Date  
 Frequency

Seasonal

**Observation**

Parameter: WIND SPEED AT 10 M - M/S - 11012

**Forecast**

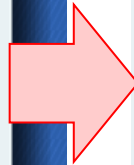
Model: COSMO-7-107-215-1  
Run 0

Grid: Lat1: -9.78; Lon1: -16.32; Lat2: 10.44; Lon2: 7.2

Parameter: Wind Speed - m/s - 69 - TRI : 0

Method: 01) Nearest point 3D optimized

Save



**Scatter plot.**

**Scatter Plot Report**

Id	2771
Name	COSMO-7 FF10M CH ALL
Criteria Type	Scatter Plot
Dichotomic	No
Run	0
Frequency	Seasonal
Steps	[-24, 0]
Stratification	All Swiss stations

**OBS**

Parameter: WIND SPEED AT 10 M - M/S - 11012

**FCS**

Model: COSMO-7

Grid: Lat first:-9.78; Lon first:-16.32; Lat last:10.44; Lon last:7.2

Parameter: Wind Speed - m/s - 69

Scores: No score selected

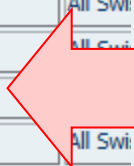
Method: 01) Nearest point 3D optimized  
Algoritm:id\_order=1

Back Duplicate



[-24, 0]

<input type="checkbox"/>	2321	FF10M_scatter_COSMO-7_ch_seasonal	0	No	All Swi
<input type="checkbox"/>	2500	COSMO-7_scatter_plot_T2M_CH_season	0	No	All Swi
<input checked="" type="checkbox"/>	2771	COSMO-7 FF10M CH ALL	0	No	All Swi
<input type="checkbox"/>	2772	COSMO-7 FF10M CH ALL	0	No	All Swi



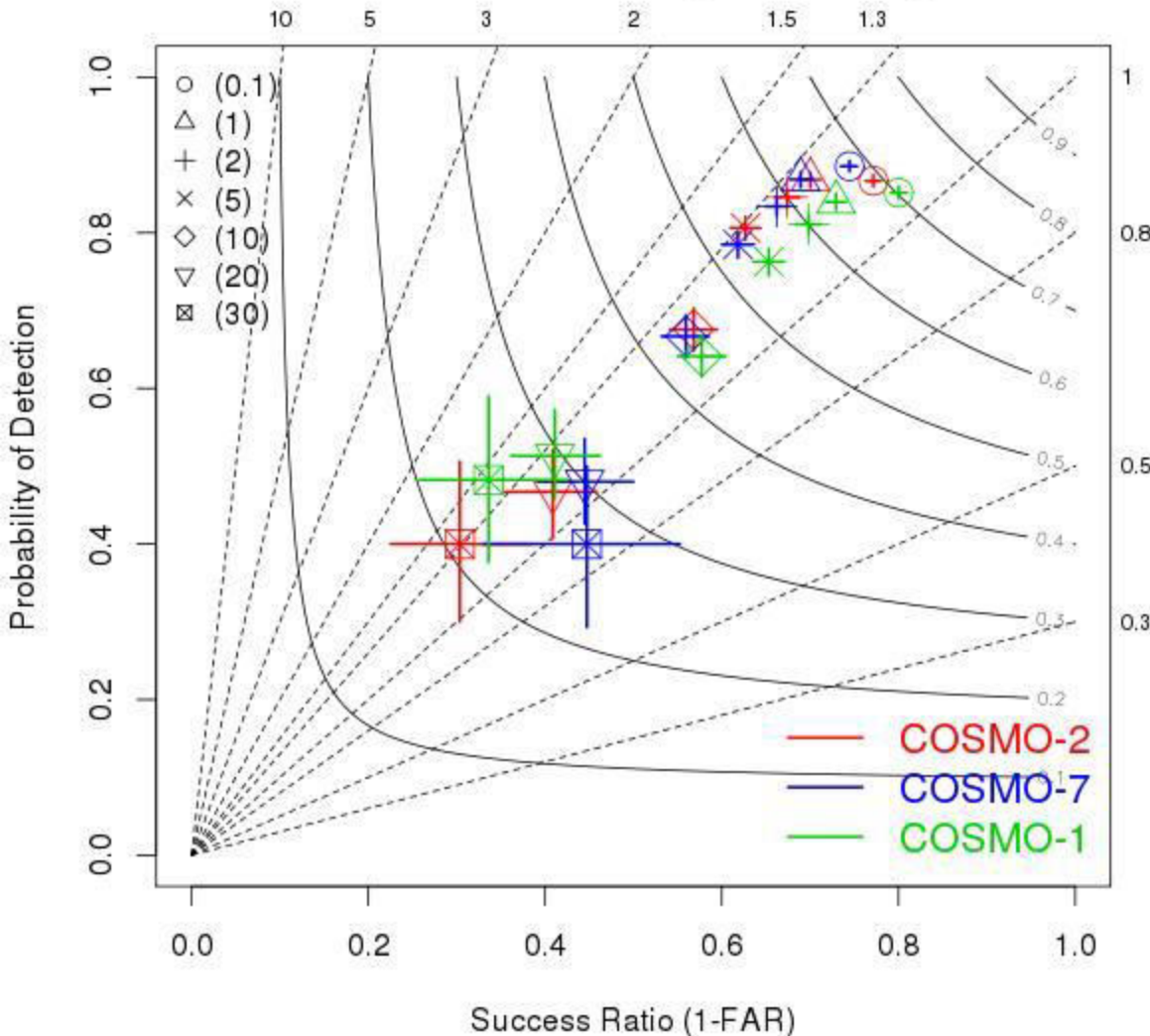
Results: 7

Select All Run Force Run Back



# MeteoSwiss Results: COSMO resolutions MAM 2014

COSMO-2 vs COSMO-7 vs COSMO-1 @ch for TOT\_PREC12 & It 1:

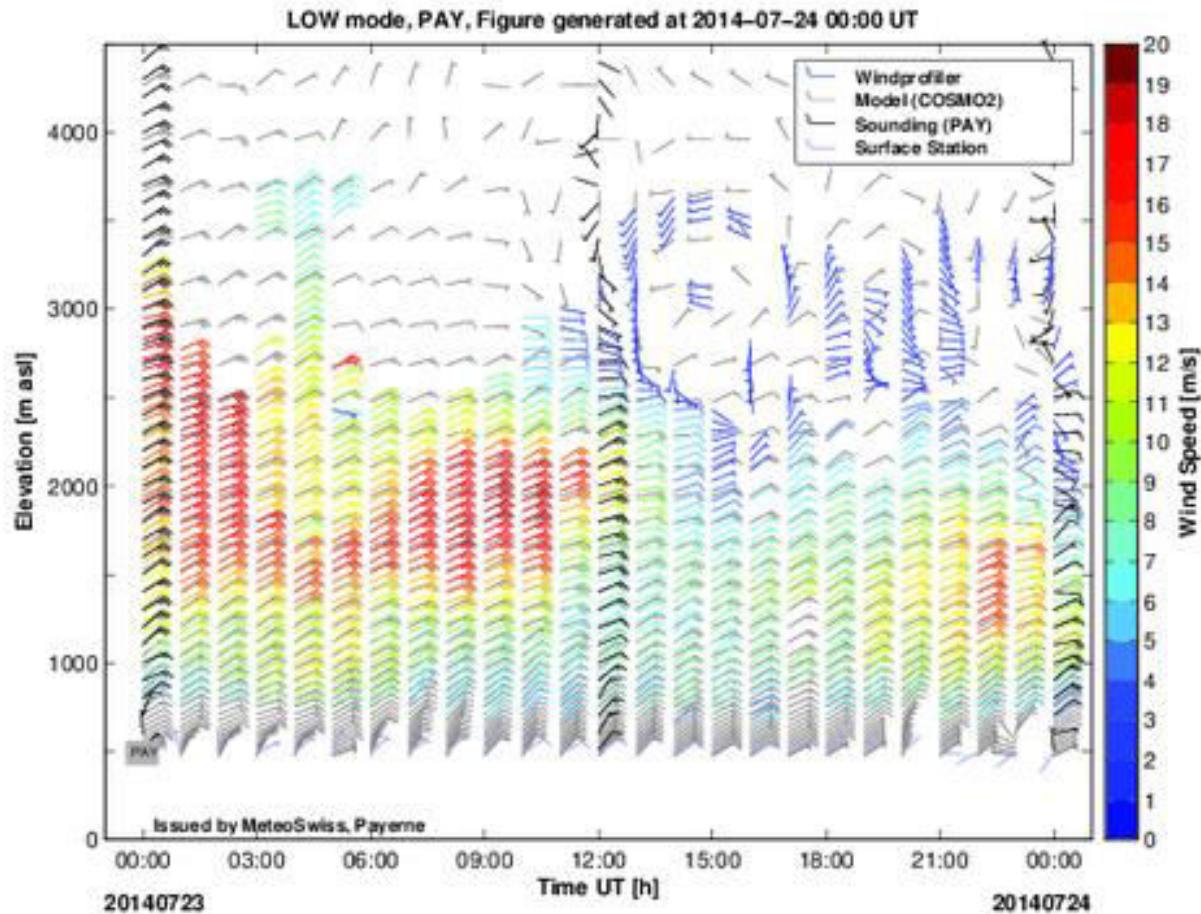


- Slight advantage of COSMO-1 over other models at low thresholds
- within error bars of scores for high thresholds





# Outlook Upper Air Verification: Why we need non-standard levels



Example: Comparison of wind profiler (color barbs), radio sonde (black) and COSMO-2 (grey) at Payerne



# Summary

- Versus 3.3 improves mainly EPS capabilities
- It generally works ok for non-EPS verification, except scatterplots (needs investigation)
- Some issues remaining from earlier versions
- More on EPS verification with Versus 3.3 tomorrow afternoon ...