

Verification activities @ DWD 2014/2015

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- **Limiting conditions for COSMO activities**
 - *Introduction of ICON with several properties*
 - ❖ *Preoperational runs August 2015*
 - ❖ *Operational since 22th of February 2015*
 - ❖ *New parallel suites during March and April 2015 (ICON-nest)*
 - *Every new version requires a new setup for verification against surface weather observations an analysis with:*
 - ❖ *Modification of unix-scripts, FORTRAN-programmes, plotting routines and Intranet pages*
 - ❖ *Watching the results*
- **State of VERSUS**
 - ❖ *Installation of new versions (especially related to feedback files)*
 - ❖ *Detection of problems related to local php-installation (Thanks to Paola!!!)*
 - ❖ *Problems while registering new models (probably a misunderstanding of the documentation, but Anastasja could help)*
 - ❖ *Problems while cloning conditional verification from local domain to common domain*



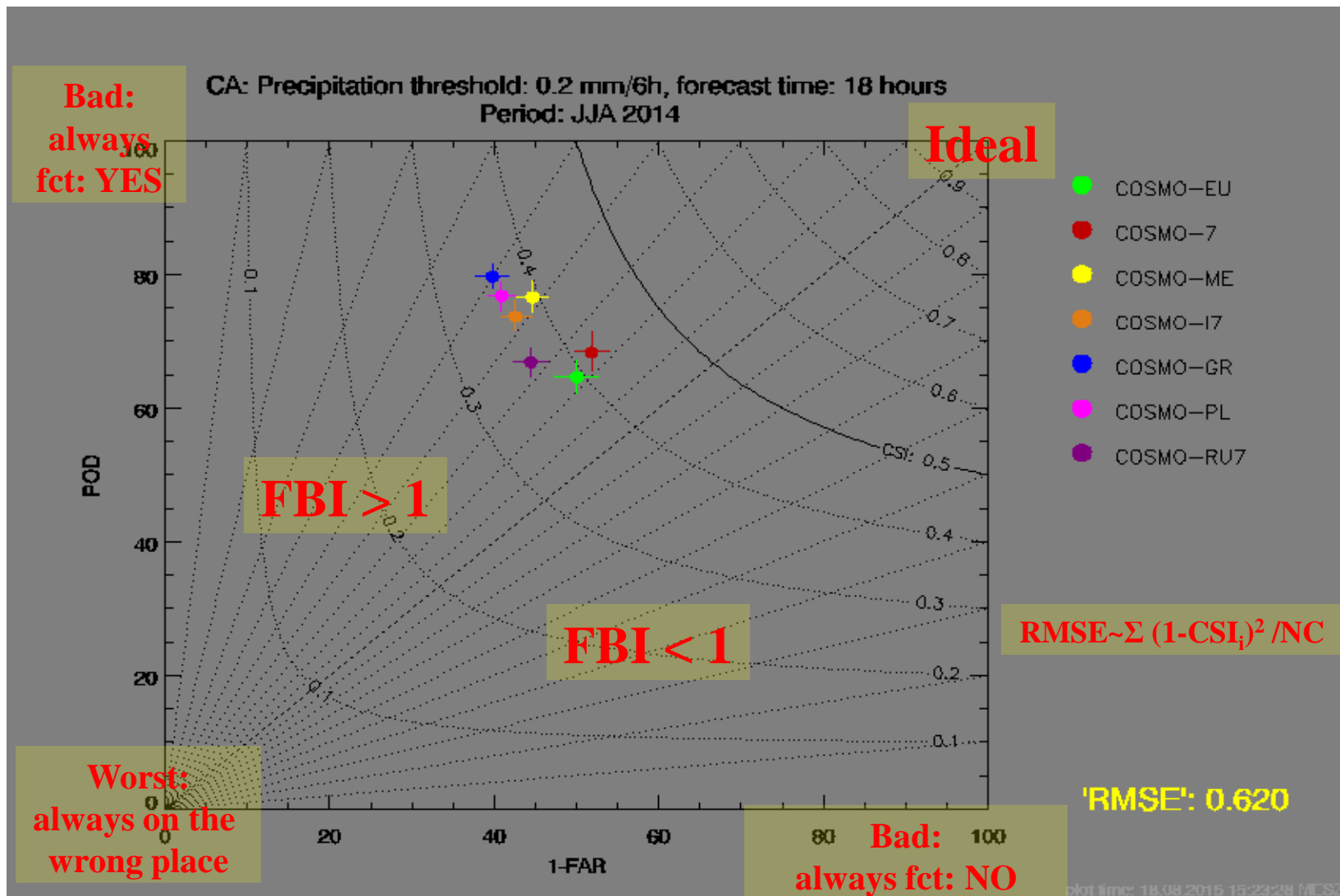
- **Getting data from tar- and zip-files**
 - *Omit dropbox*
 - *Use ftp-server instead*
 - *Look carefully at file names and variables*
- **Creating plots for all COSMO-models**
 - *Special consideration of performance diagrams*
- **Possible prerequisites for continued actions (not by UD)**
 - *No blanks in any names of files and/or directories because it requires some manual actions*

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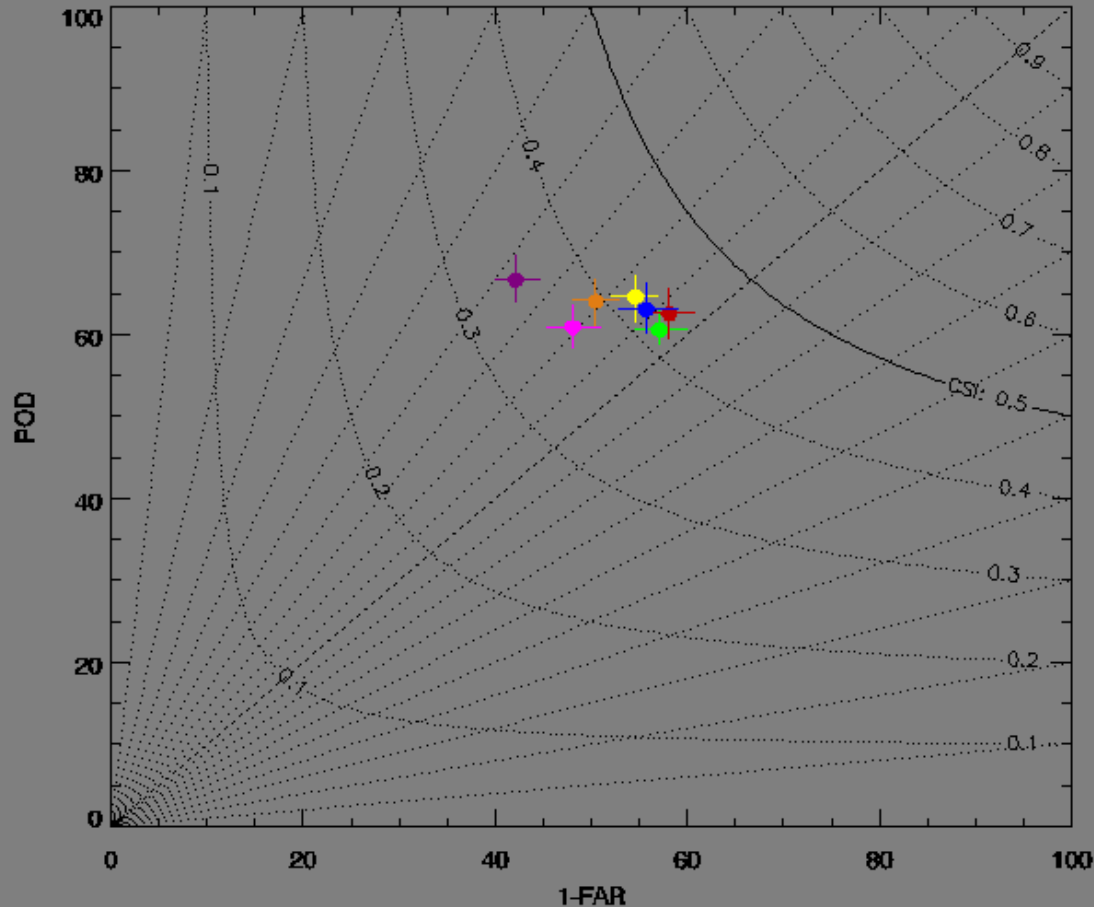
Performance diagram precipitation (example)



Performance diagram precipitation JJA 2014 0.2mm/6h

Morning

CA: Precipitation threshold: 0.2 mm/6h, forecast time: 06 hours
Period: JJA 2014



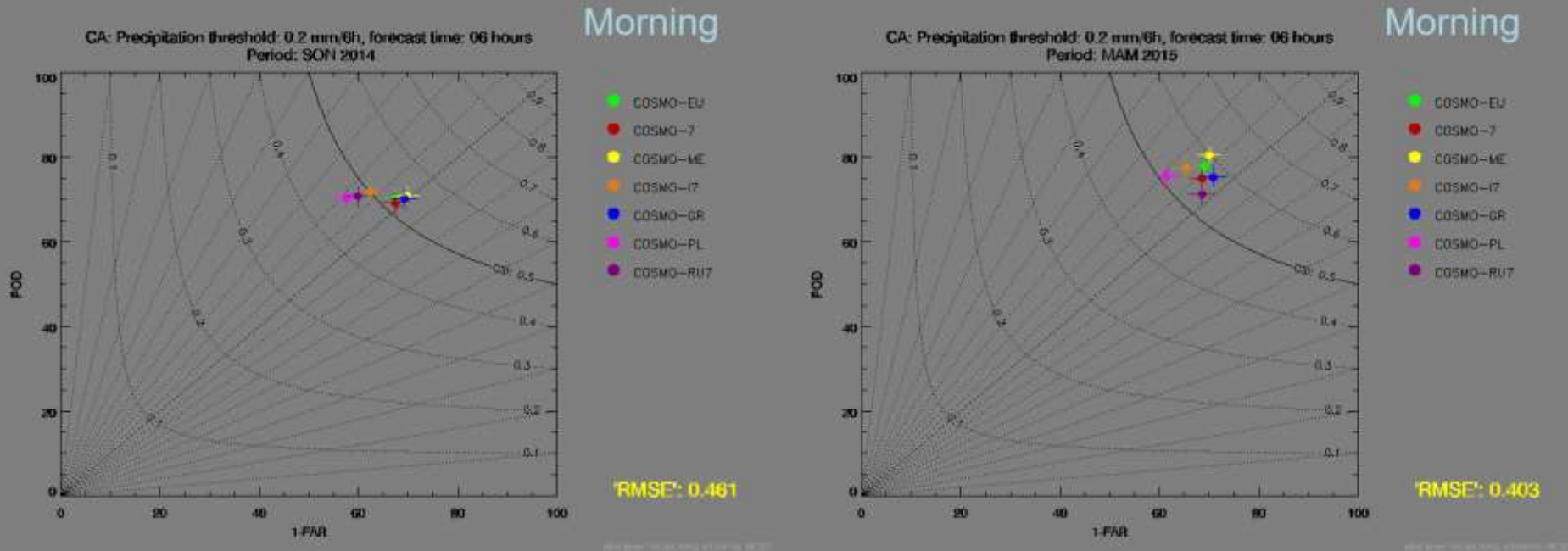
'RMSE': 0.604

plot time: 18.08.2015 15:23:25 MESZ



Performance diagram precipitation 0.2 mm/6h

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



SON 2014

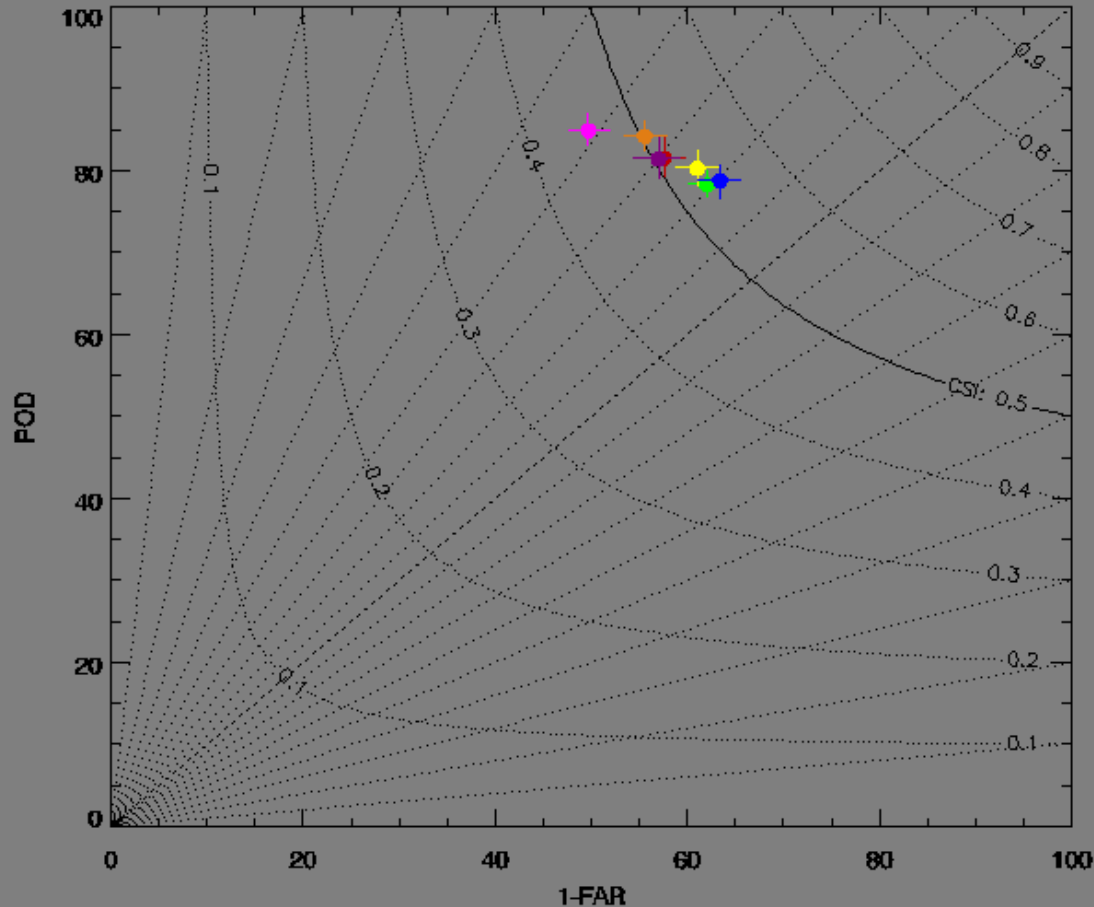
MAM 2015



Performance diagram precipitation DJF 2014/2015 0.2mm/6h

Morning

CA: Precipitation threshold: 0.2 mm/6h, forecast time: 06 hours
Period: DJF 2014



'RMSE': 0.461

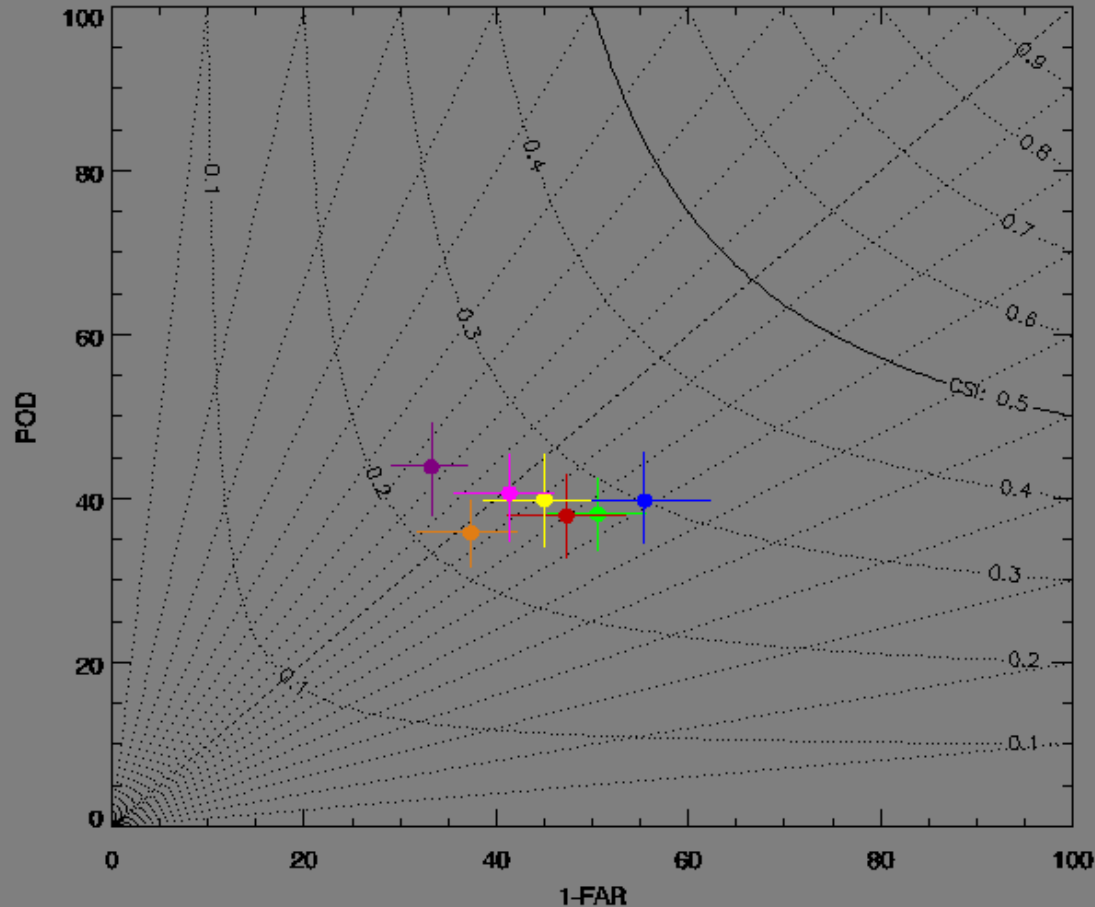
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Performance diagram precipitation JJA 2014 5 mm/6h

Morning

CA: Precipitation threshold: 5 mm/6h, forecast time: 06 hours
Period: JJA 2014



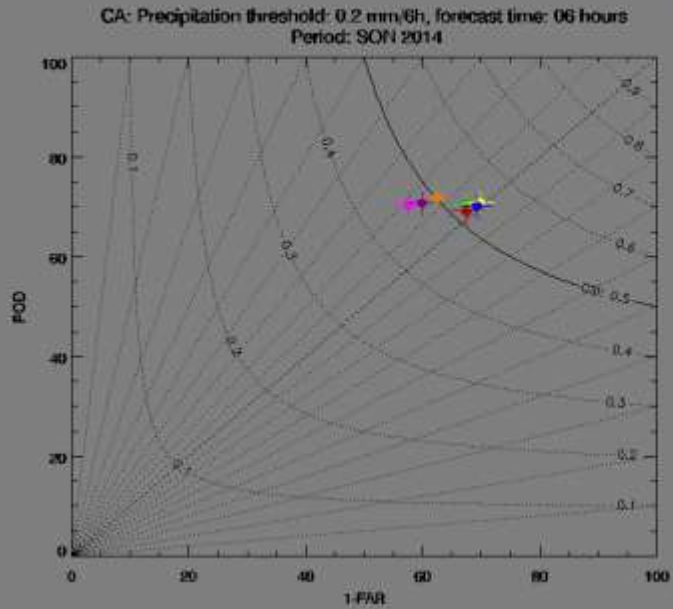
'RMSE': 0.825

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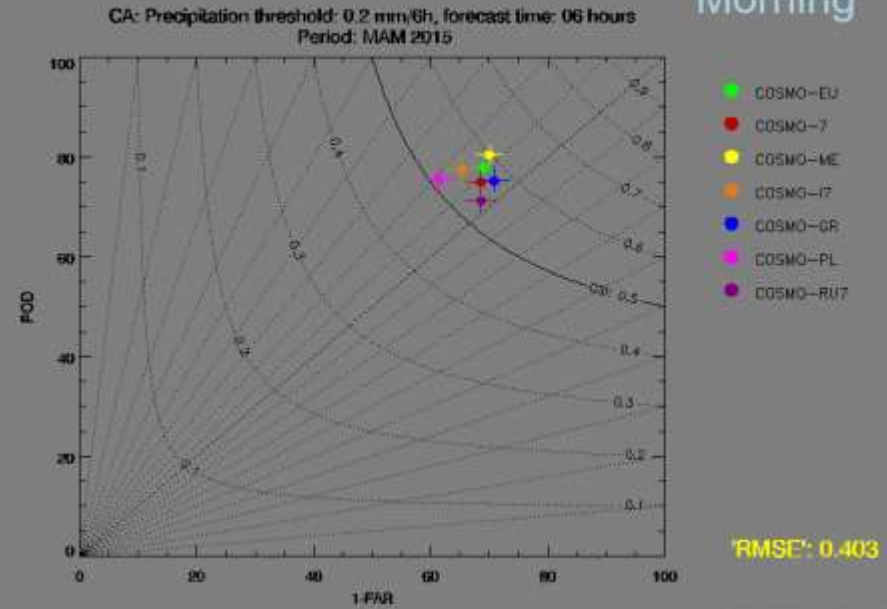


Performance diagram precipitation 4 mm/6h

Morning



Morning



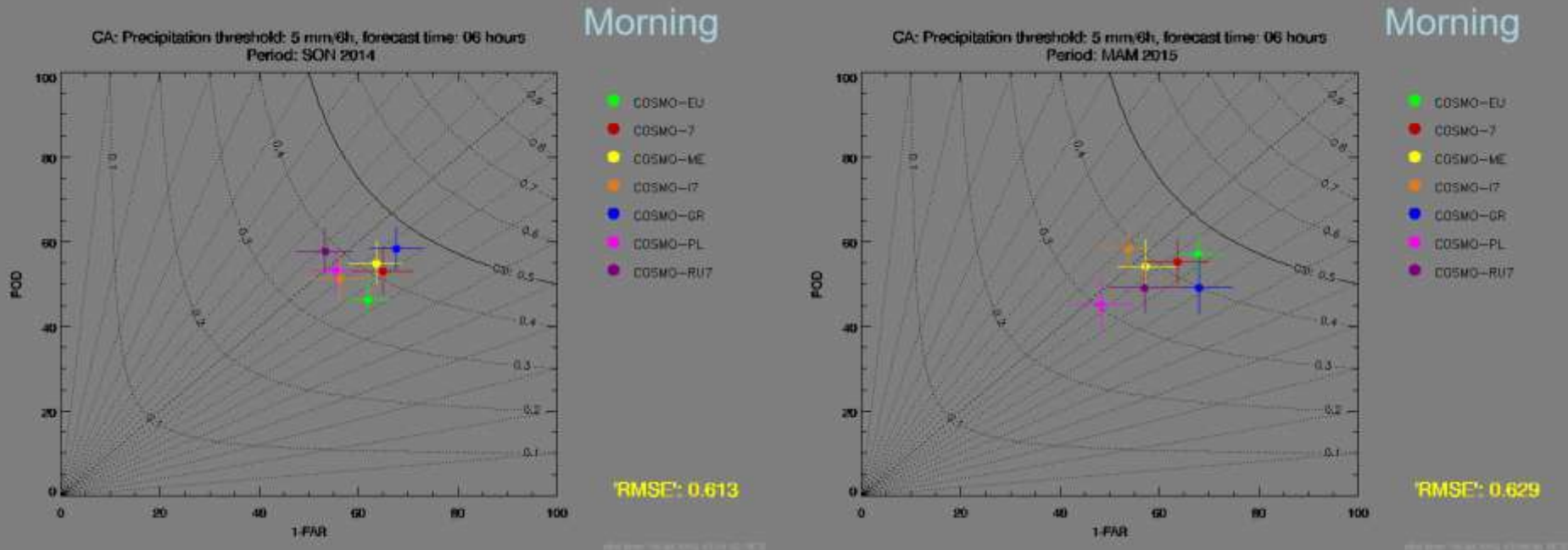
SON 2014

MAM 2015



Performance diagram precipitation 5 mm/6h

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



SON 2014

MAM 2015



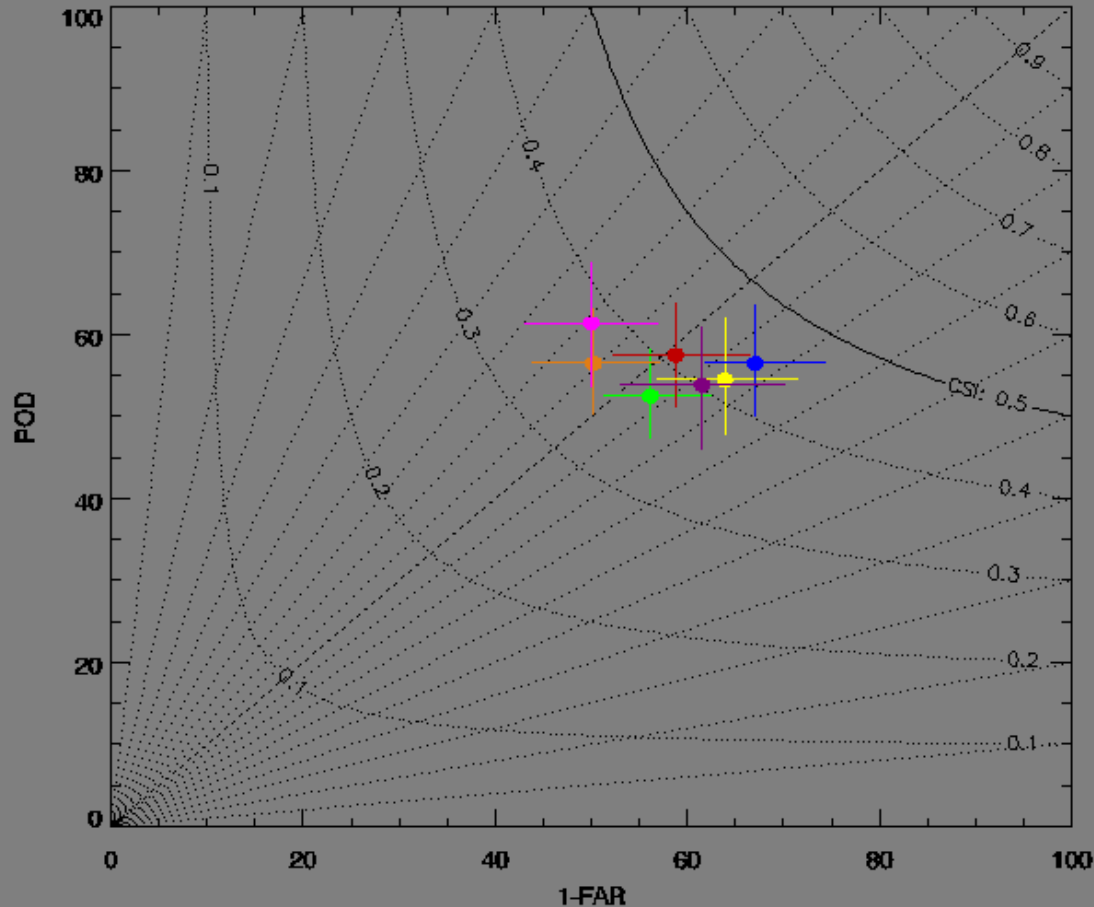
Performance diagram precipitation DJF 2014/2015 5 mm/6h

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



Morning

CA: Precipitation threshold: 5 mm/6h, forecast time: 06 hours
Period: DJF 2014

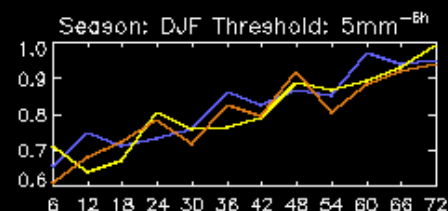
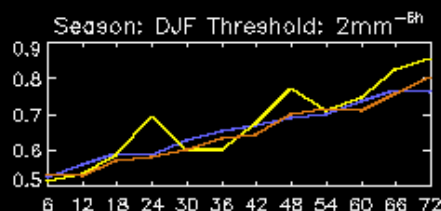
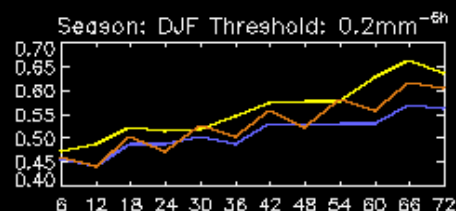
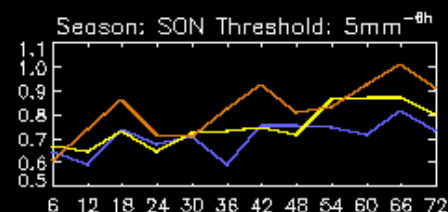
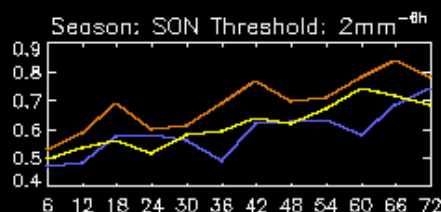
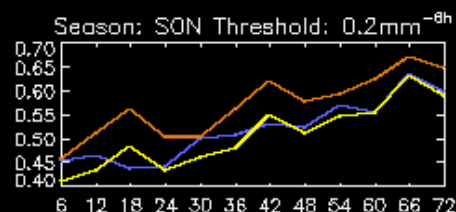
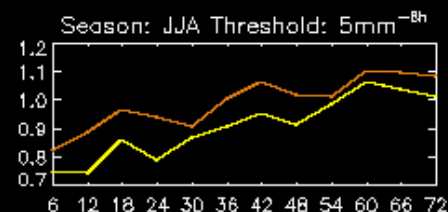
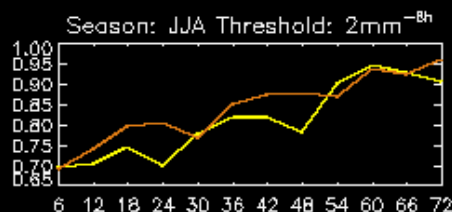
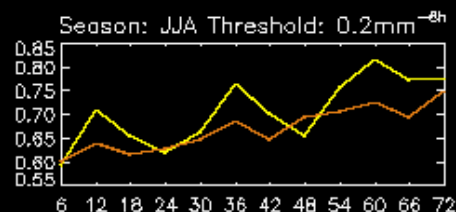
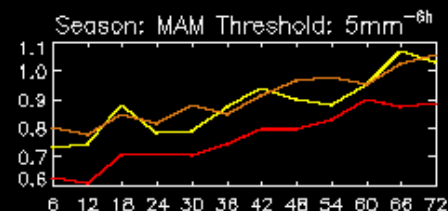
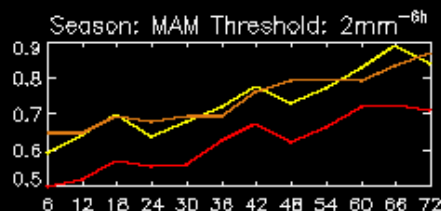
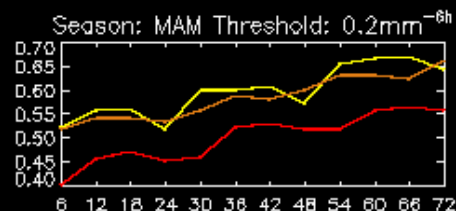


'RMSE': 0.609

plot time: 18.08.2015 15:25:44 MCSZ



„RMSE‘ precipitation depending on forecast time, threshold an season: Is there any trend?



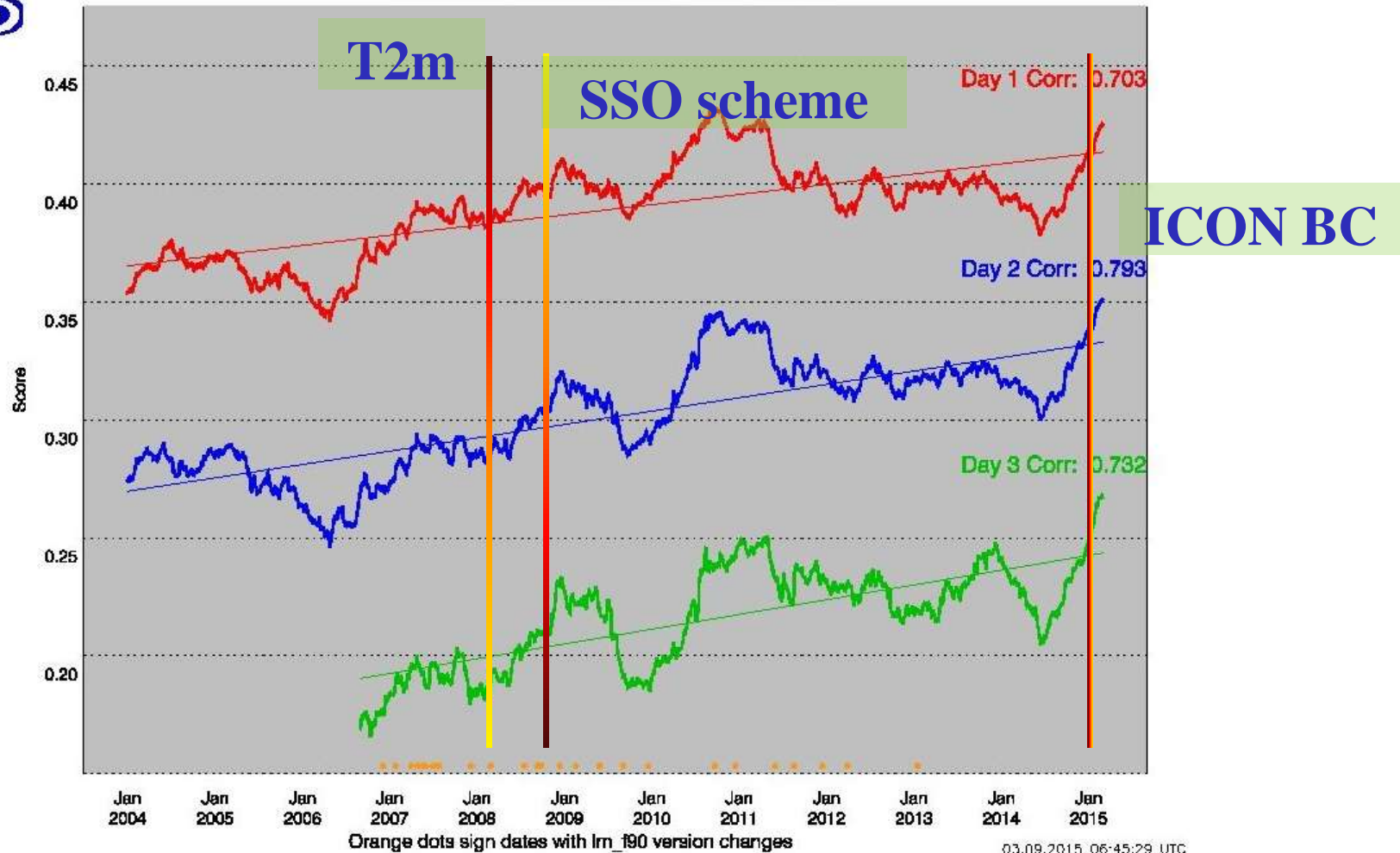
Years: 2012 2013 2014 2015



The COSMO-Index

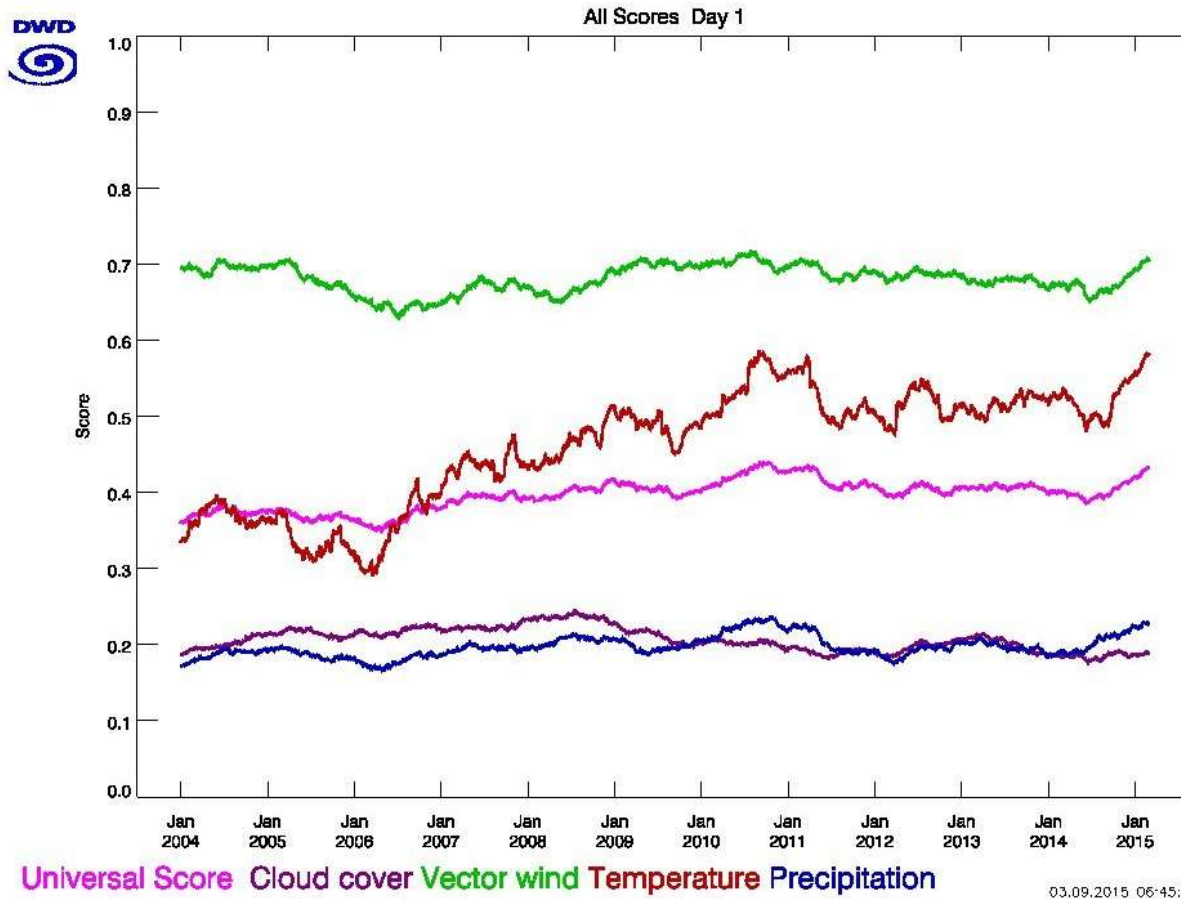


Universal Score Period 01.07.2003 till 29.08.2015
averaging interval 365 days: All forecast days



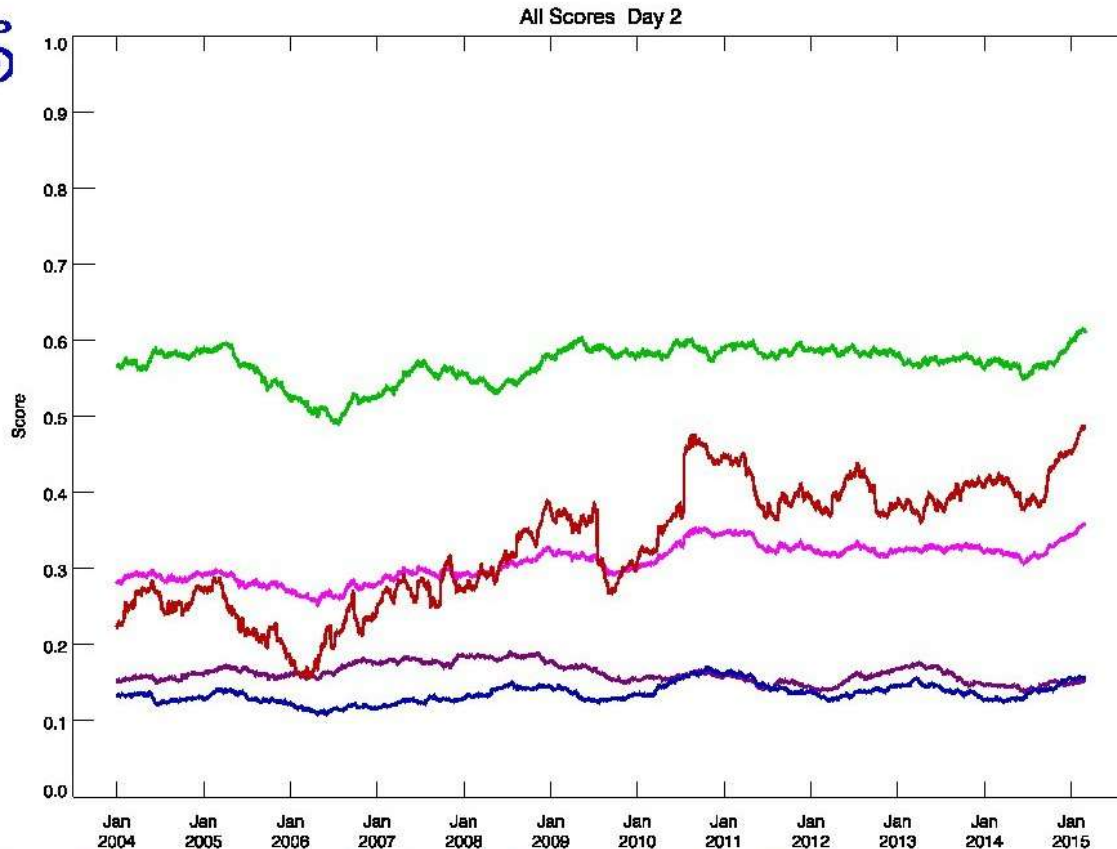
The COSMO-Index Day 1

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



The COSMO-Index Day 2

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



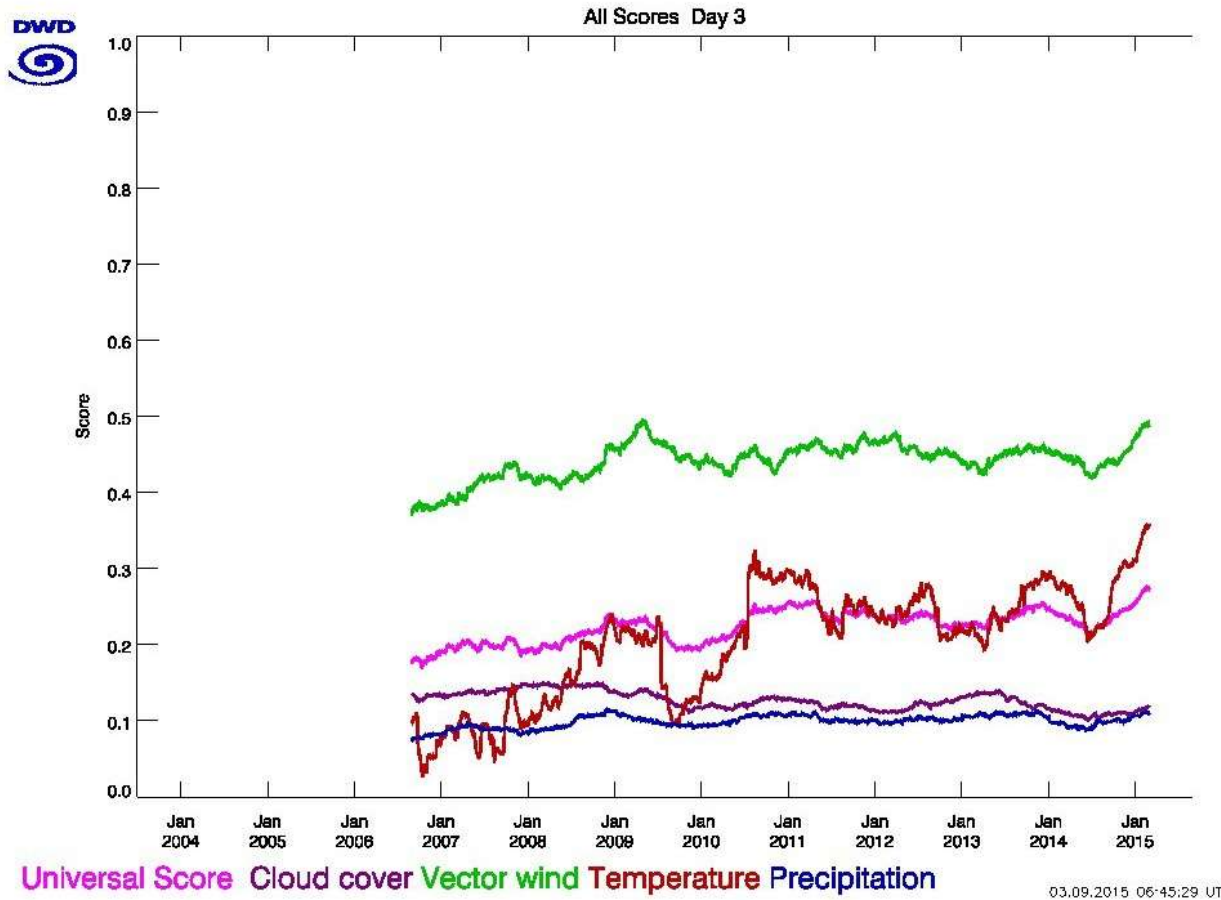
Universal Score Cloud cover Vector wind Temperature Precipitation

03.09.2015 06:45:28 UTC



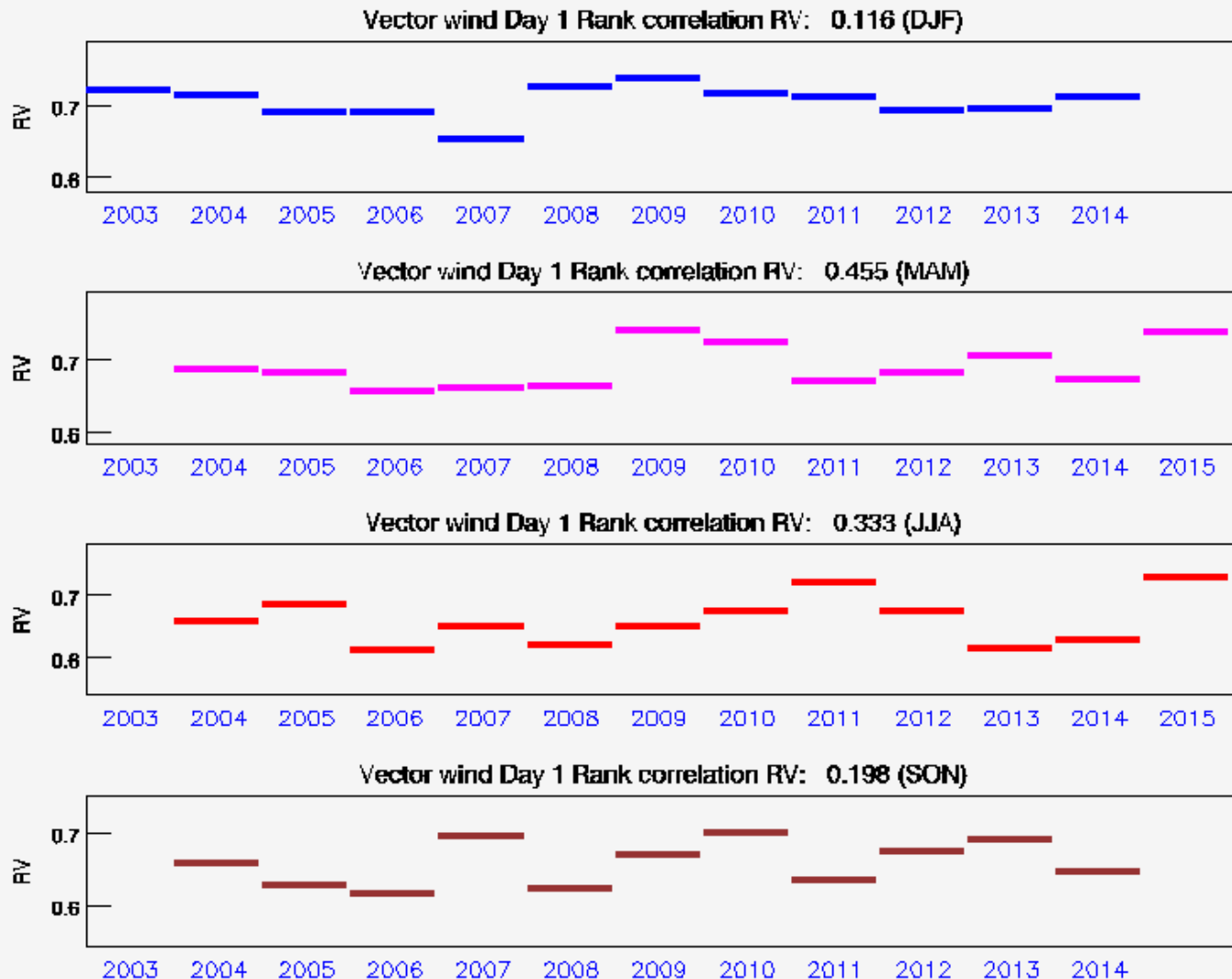
The COSMO-Index Day 3

Deutscher Wetterdienst
Wetter und Klima aus einer Hand



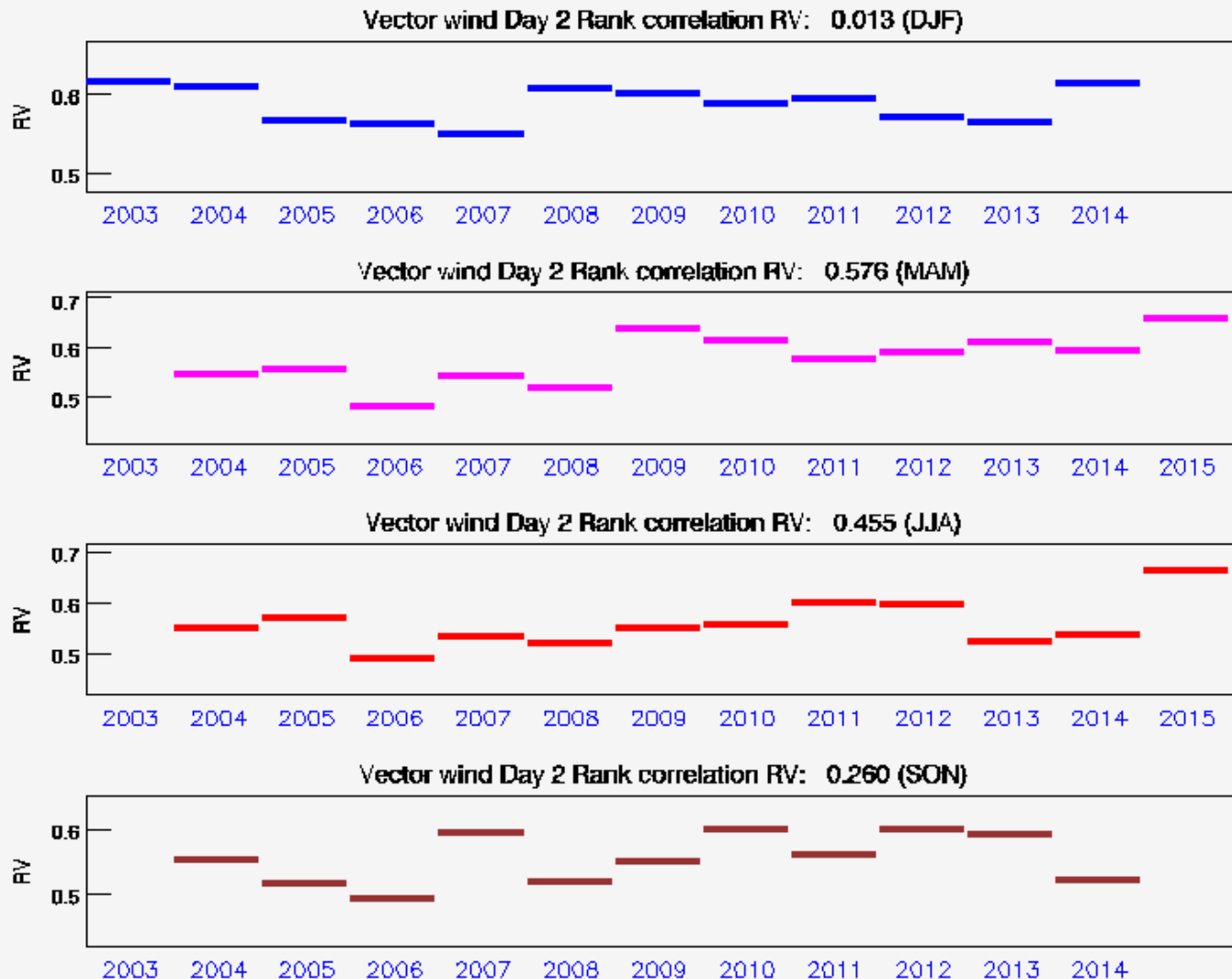
The COSMO-Index – seasonal variation

Vector wind Day 1



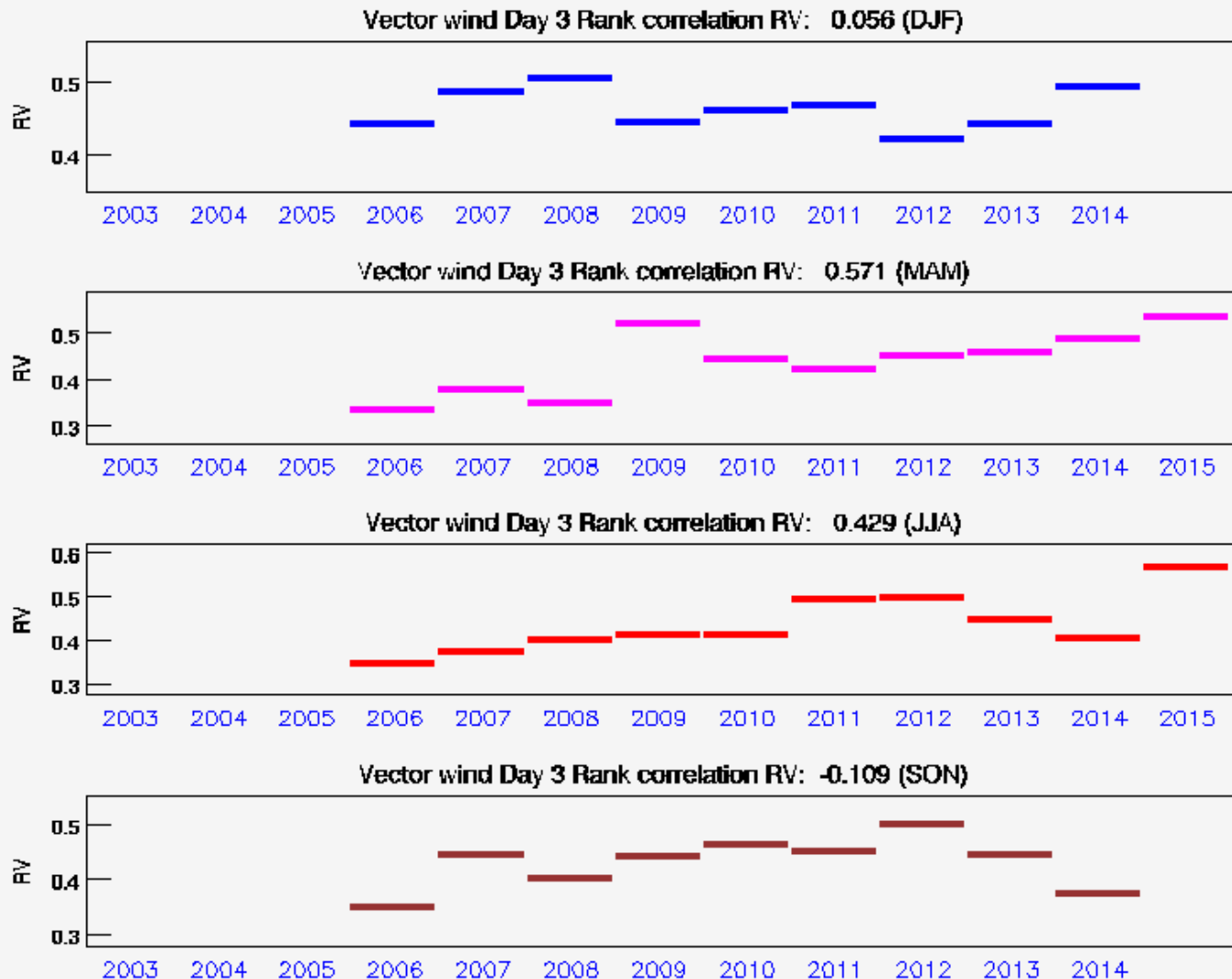
The COSMO-Index – seasonal variation

Vector wind Day 2



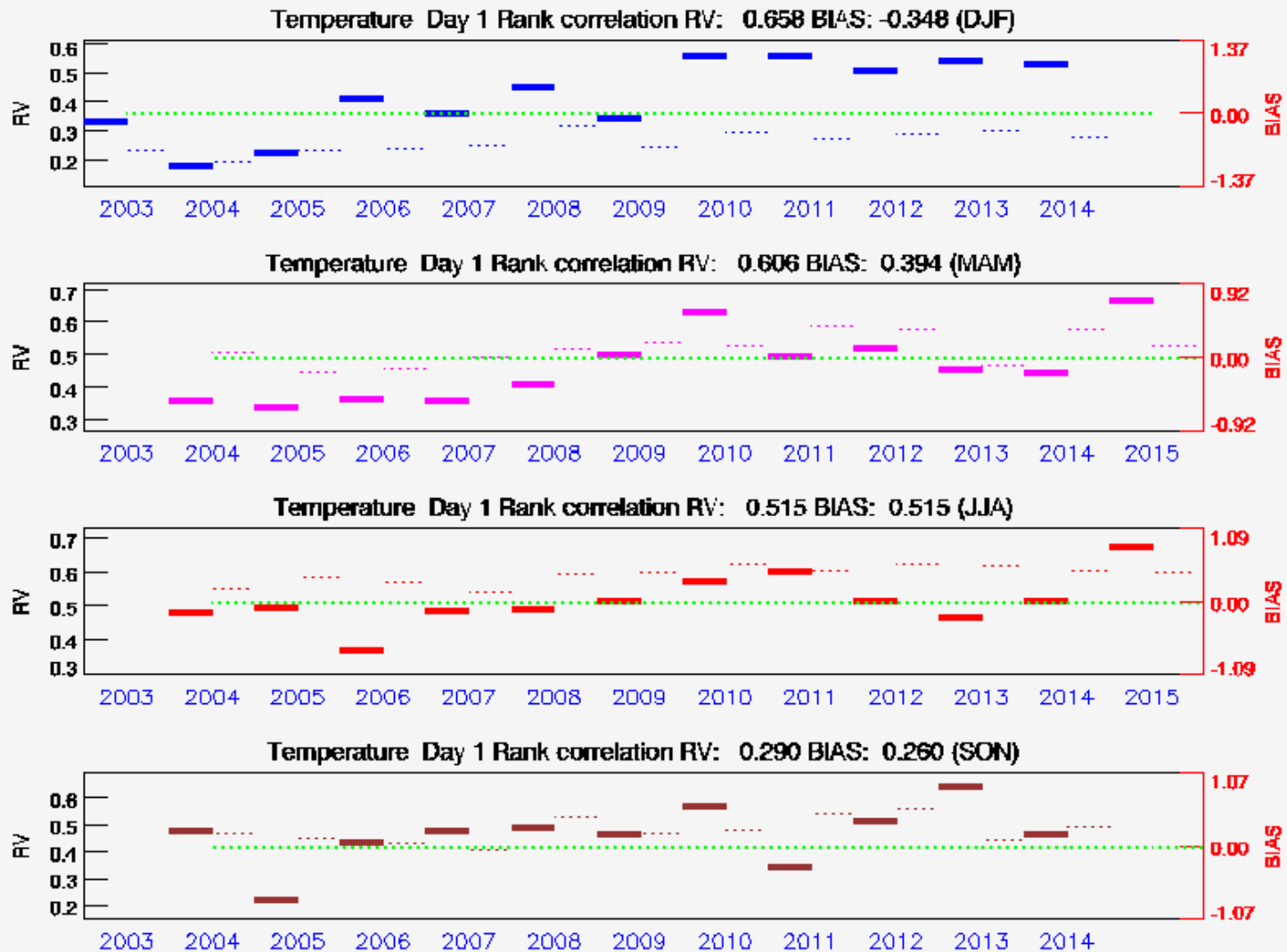
The COSMO-Index – seasonal variation

Vector wind Day 3



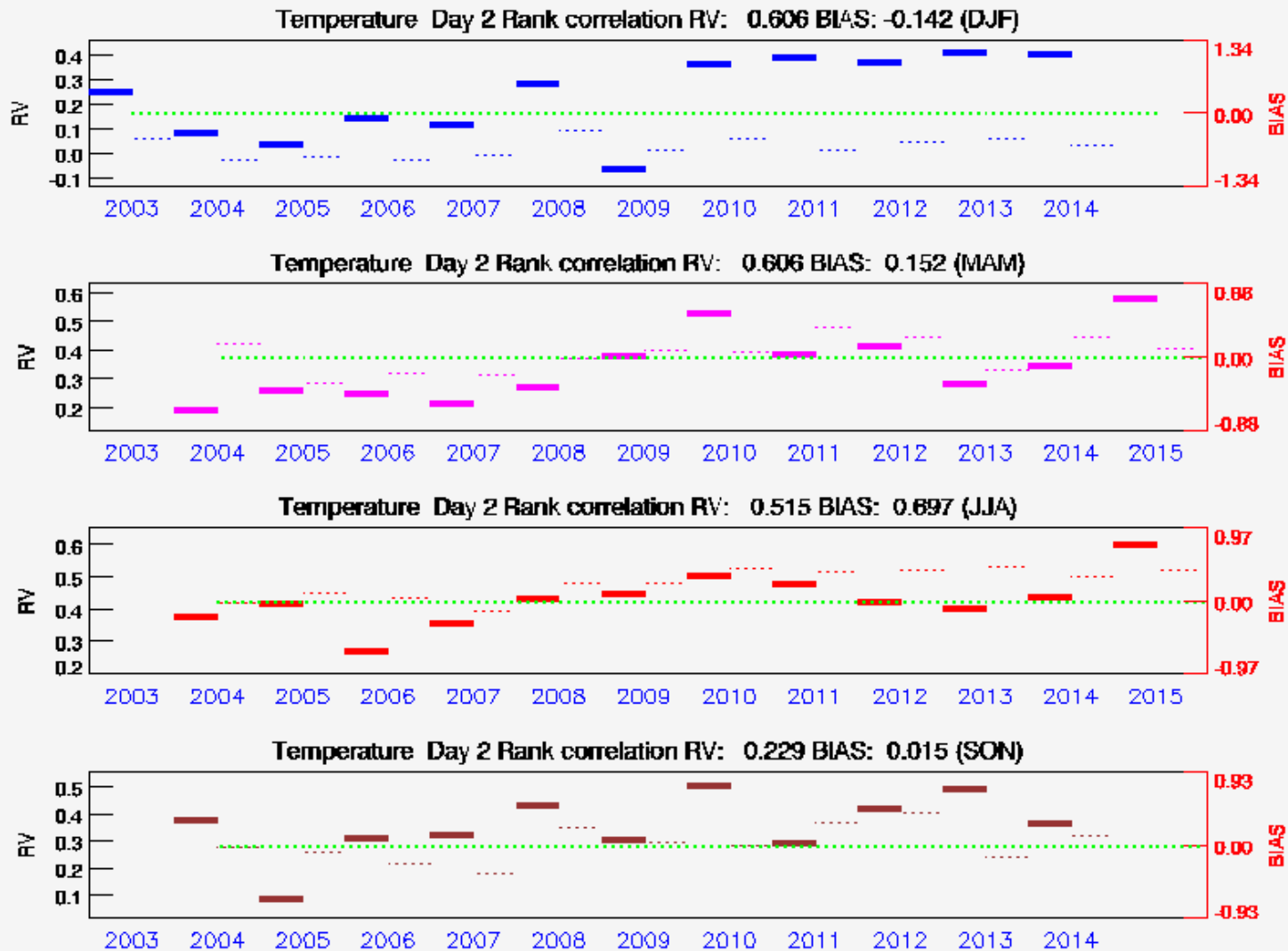
The COSMO-Index – seasonal variation

T2m Day 1



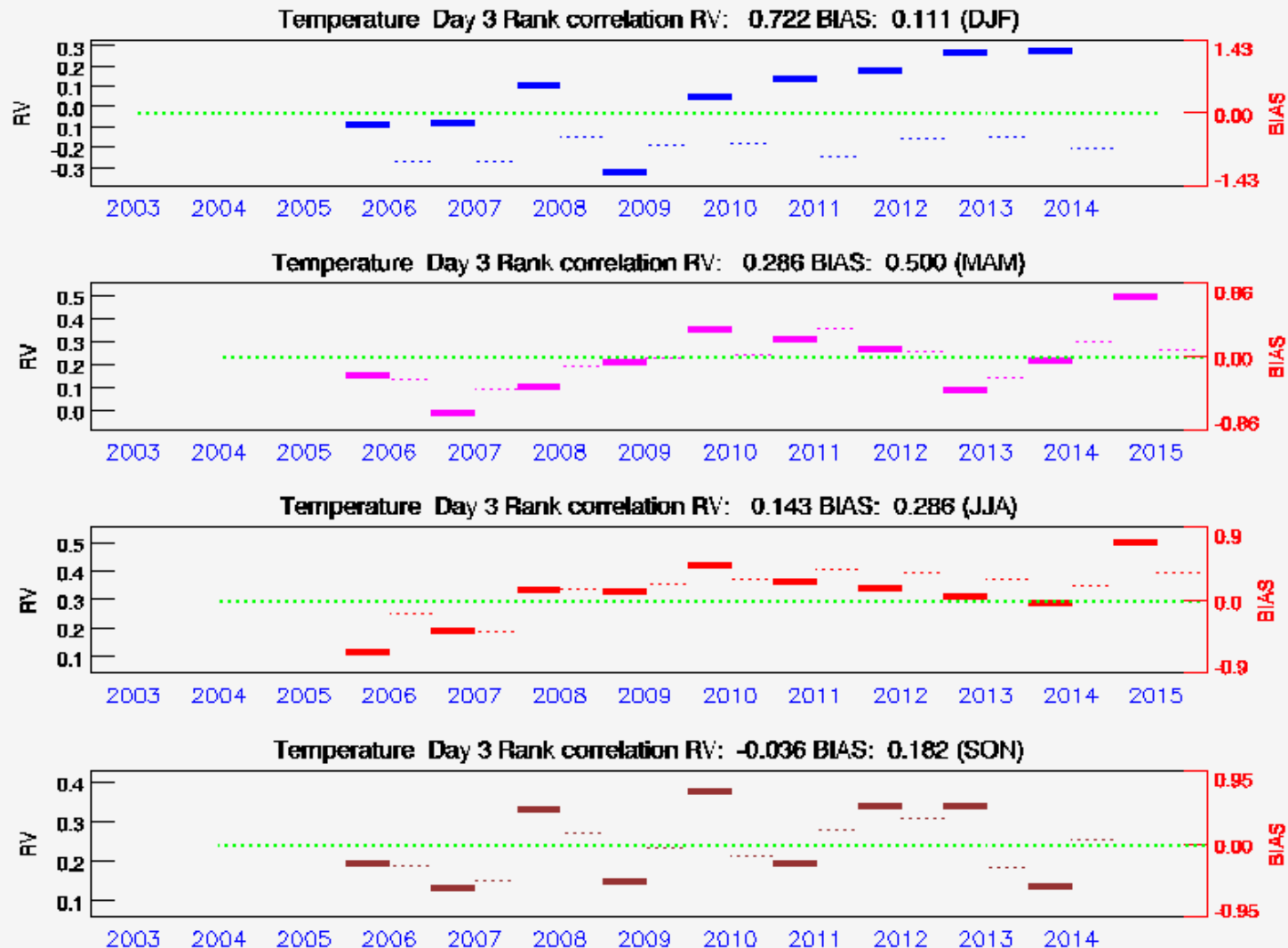
The COSMO-Index – seasonal variation

T2m Day 2



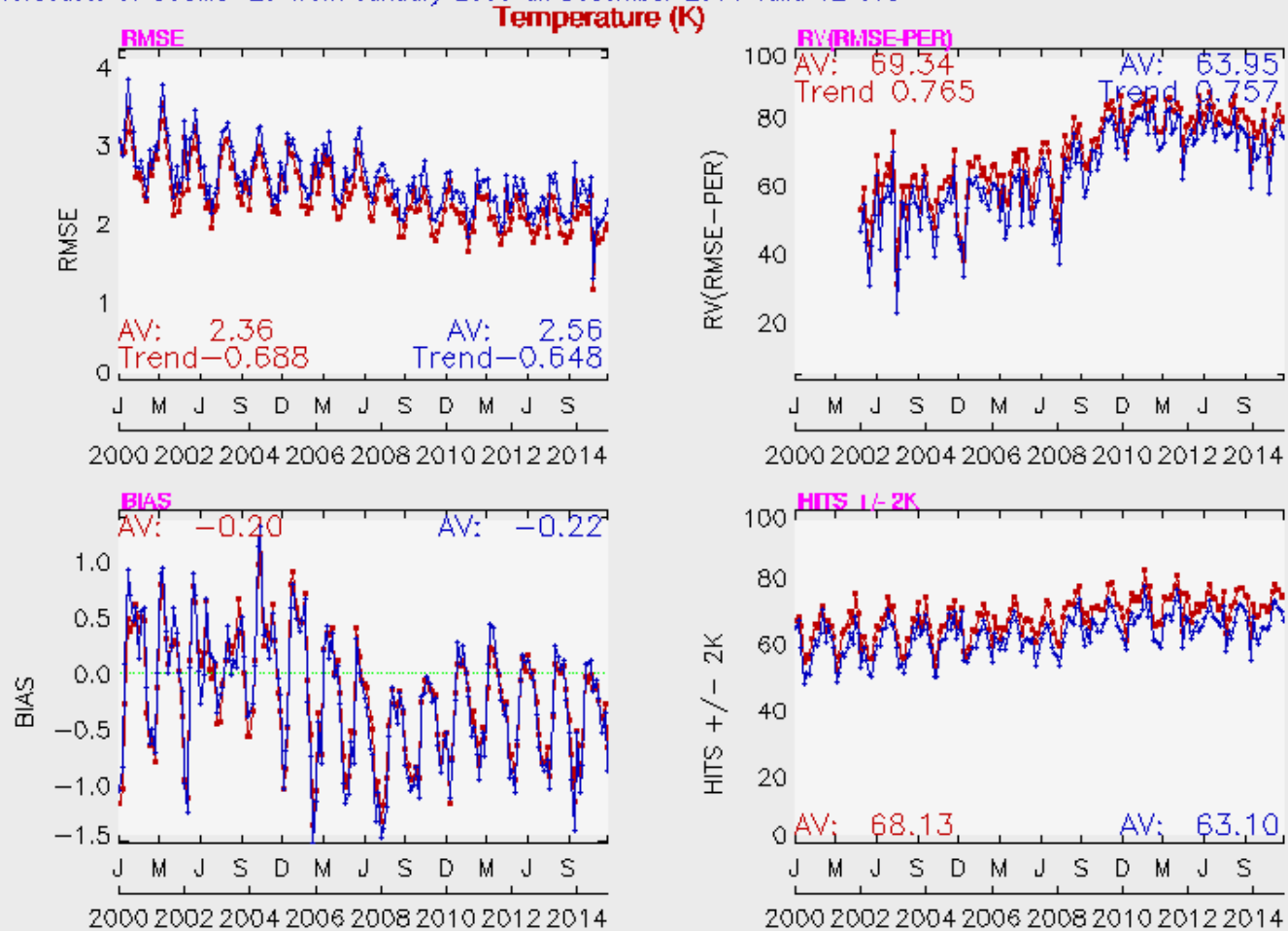
The COSMO-Index – seasonal variation

T2m Day 3



Long term trend for T2m valid at 12 UTC, Monthly mean values

Results of verification of forecasts for local weather elements at surface stations
 024-h-forecasts of COSMO-EU from January 2000 till December 2014 valid 12 UTC
 048-h-forecasts of COSMO-EU from January 2000 till December 2014 valid 12 UTC



All stations
 Basic region: LON: -180. - 180. LAT: -90. - 90.

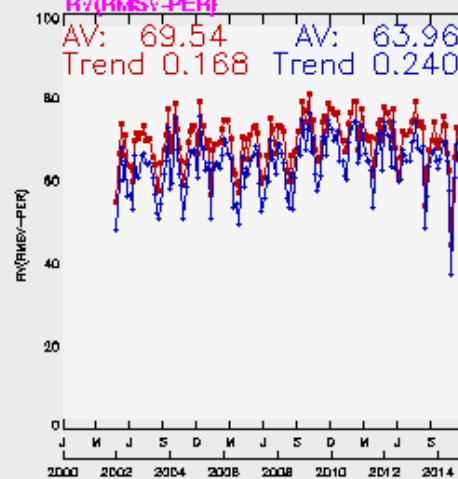
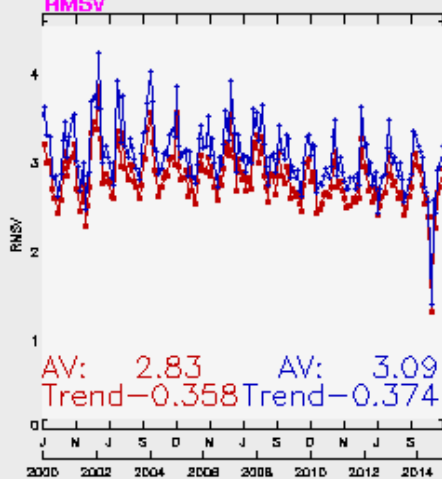
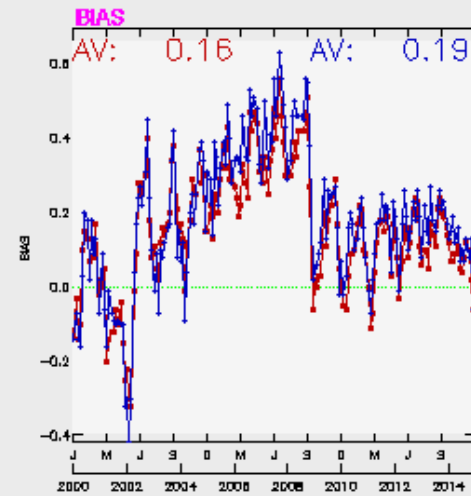
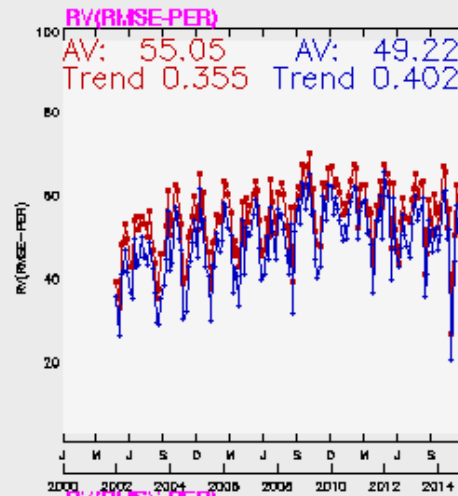
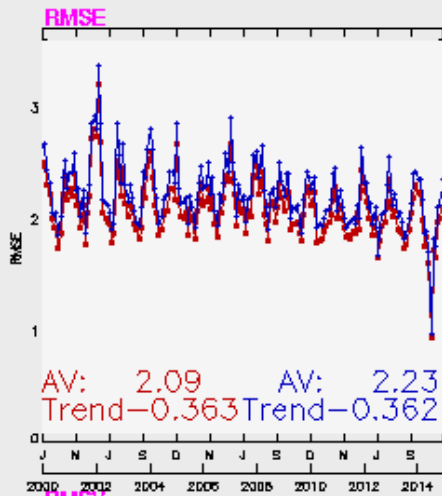
PlotTime: 12.01.2015 14:29:18 MEZ © Ica15



Long term trend for WS 10m valid at 00 UTC, Monthly mean values



Results of verification of forecasts for local weather elements at surface stations
 024-h-forecasts of COSMO-EU from January 2000 till December 2014 valid 00 UTC
 048-h-forecasts of COSMO-EU from January 2000 till December 2014 valid 00 UTC
Wind speed and RMSV (m s⁻¹)

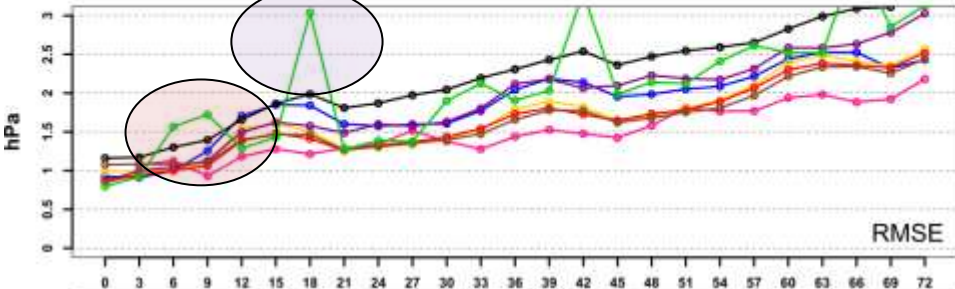


All stations
 Basic region:
 LON: -180, -180,
 LAT: -90, -90.

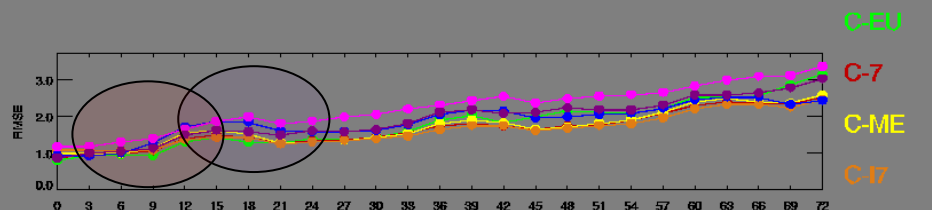
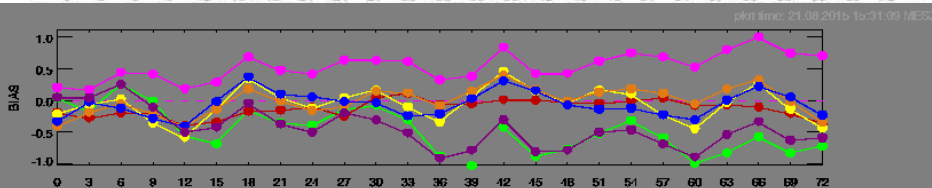


Why MEC!

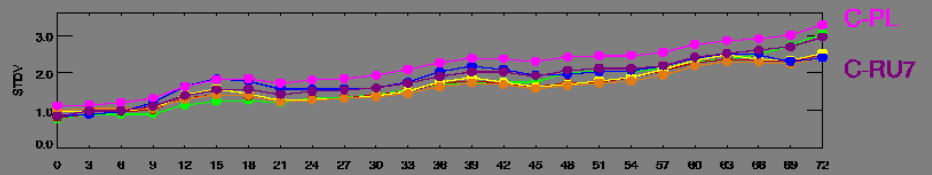
Mean Sea Level Pressure, MAM 2015, Common area, All stations



Suspect value > 25 hPa



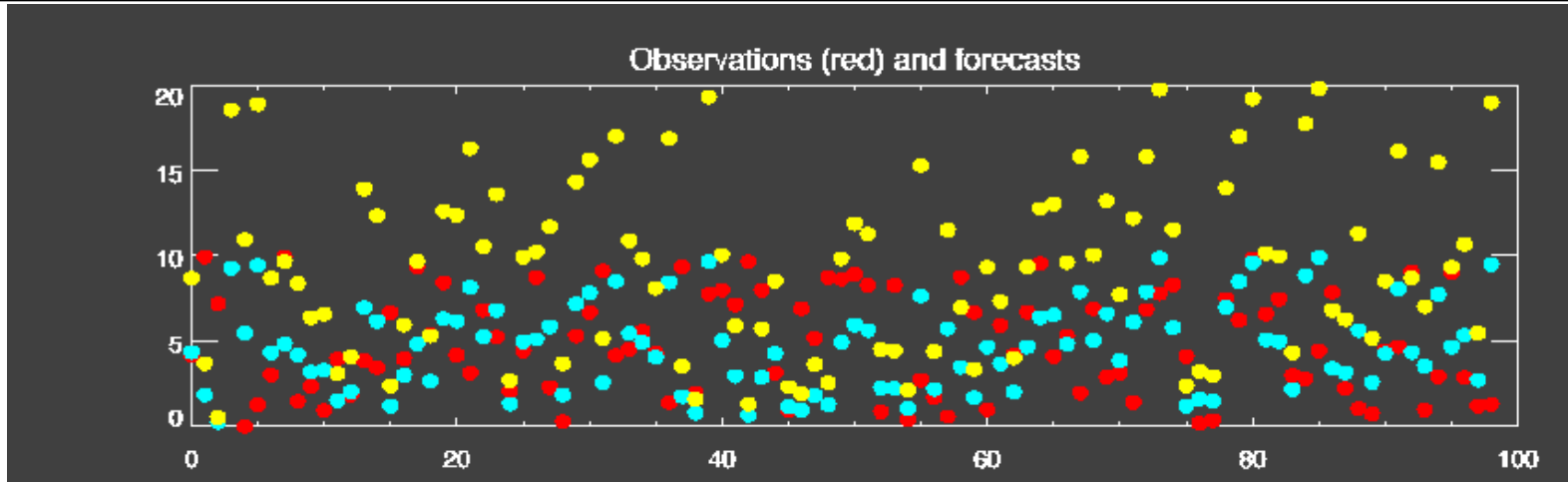
Suspect value > 15 hPa



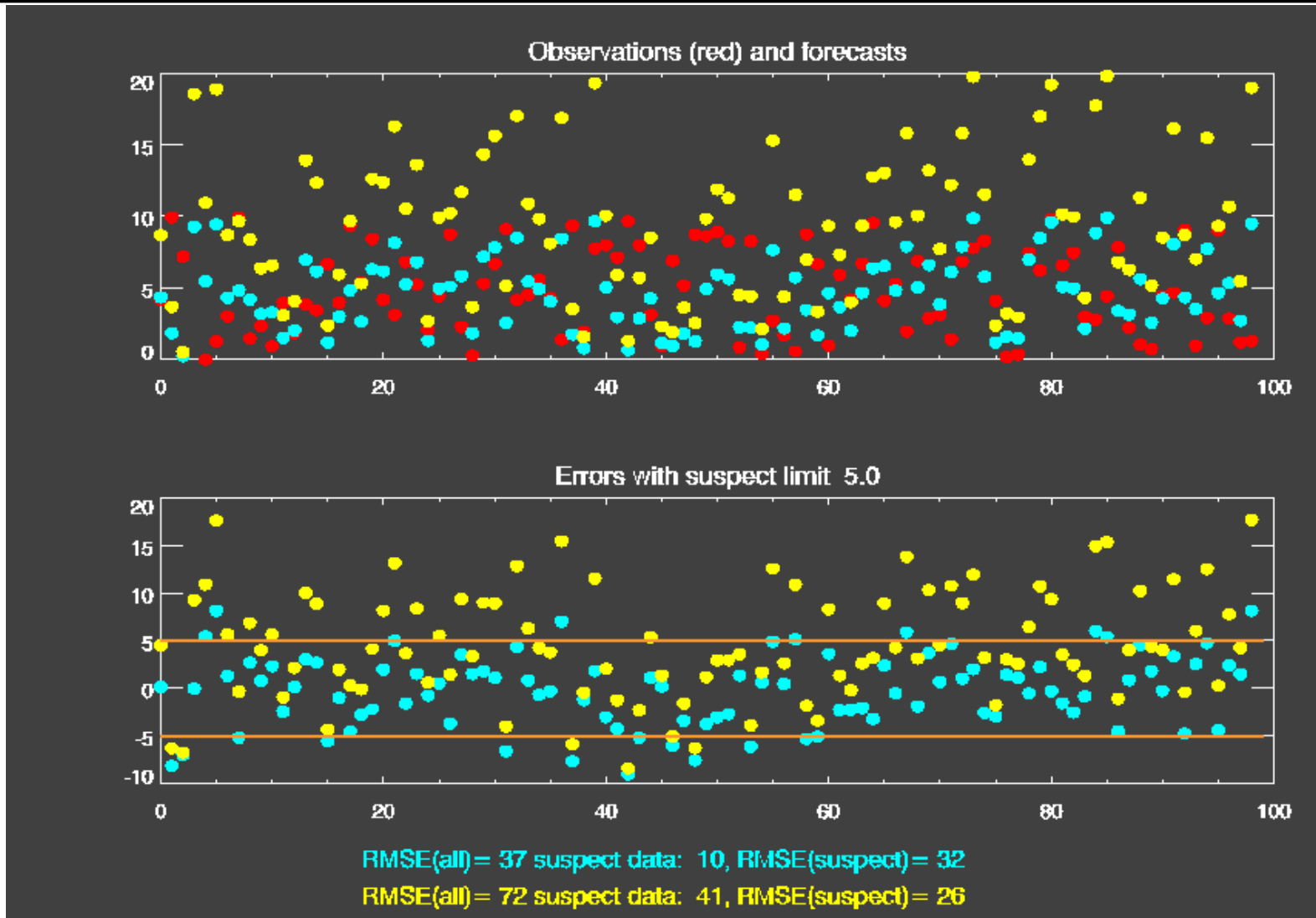
CA MAM 2015: BIAS and RMSE for Mean surface level pressure [hPa]



Why MEC!



Why MEC!



Thank you for your attention!

