

PEIXE: An application for verification of forecast time series

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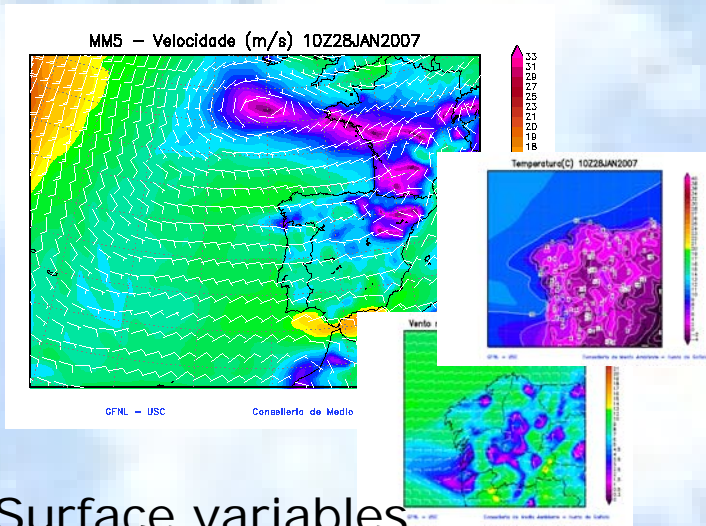


MeteoGalicia

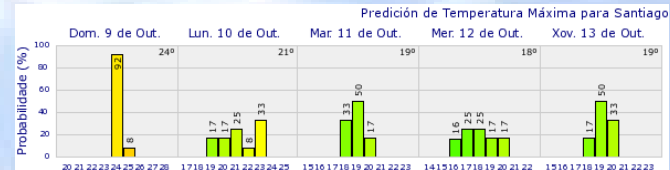
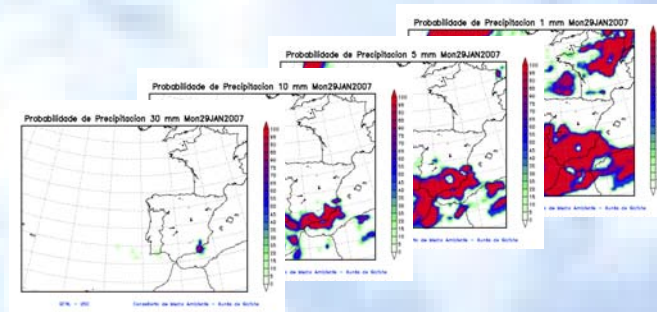
- Galician Regional Meteorological Public Agency since 2000
- Main tasks:
 - Operational forecasts
 - Meteorological stations network
 - Research
- Areas/Departments:
 - Forecast
 - NWP and Research
 - Observations and climate
 - Technical Resources



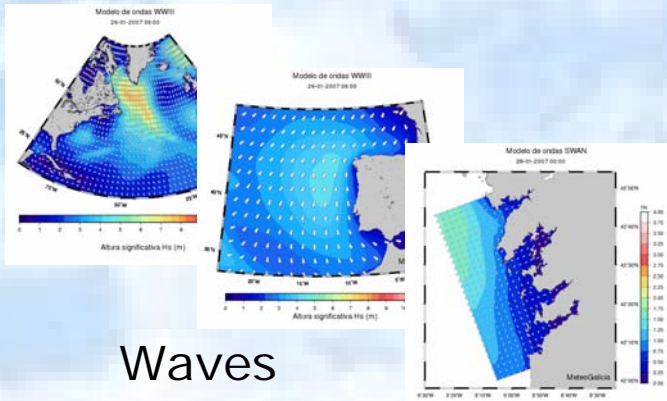
Some numeric products



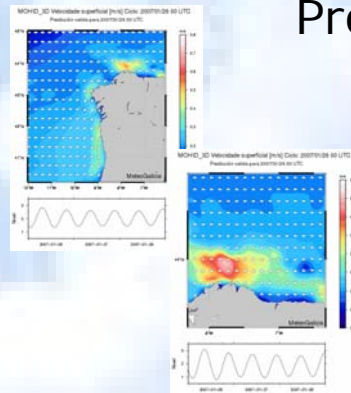
Surface variables



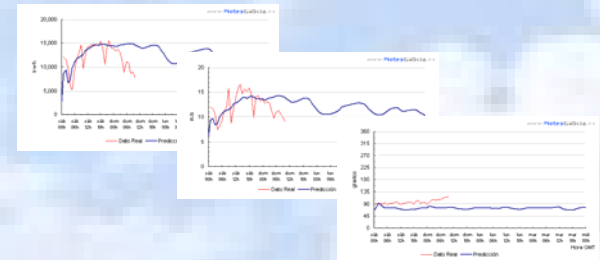
Probabilistic forecasts



Waves



Currents



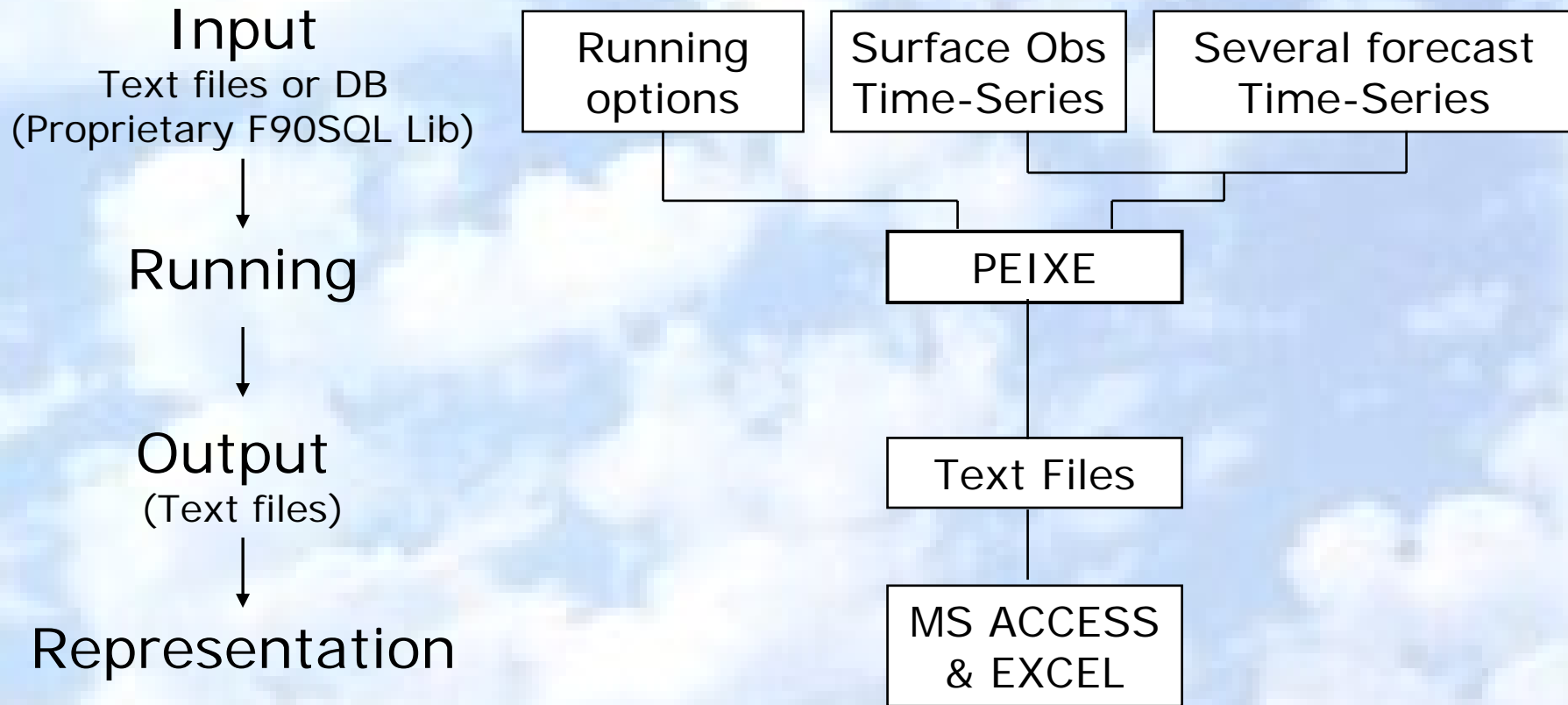
Wind power prediction

A verification software is needed

- Know the performance of the operational model.
- For quick verification of different model runs when testing changes in the model.
- Should handle both deterministic and probabilistic forecasts
- Needed to be flexible to add new scores or variables. A modular structure is needed for flexibility.
- Open fortran 90 source for portability.
- A representation software may be associated for quick visualization of the scores.

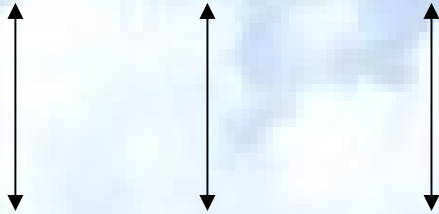


Basic working scheme I



Basic working scheme II

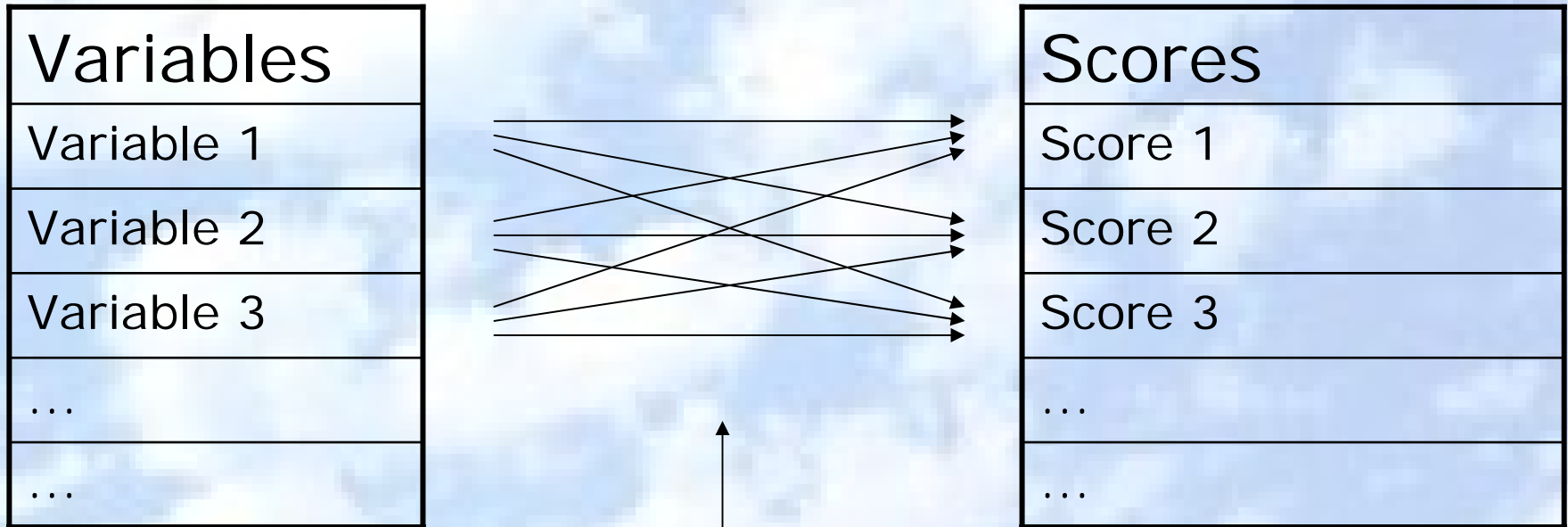
V (data,variable,location) = observed value



V (data,variable,location,model,leading time) = forecasted value



Basic working scheme III

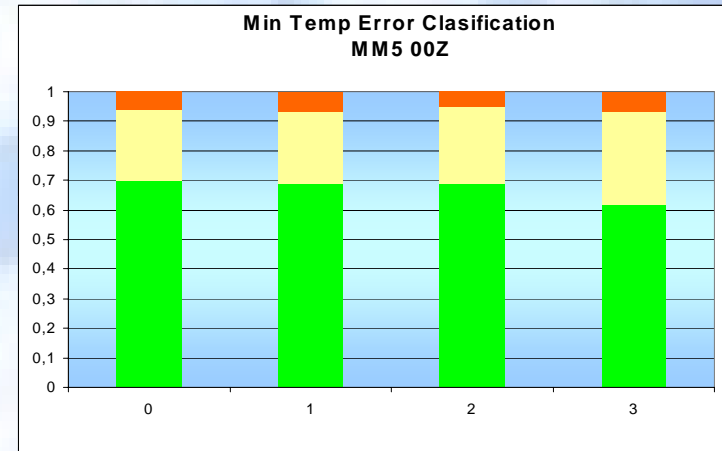
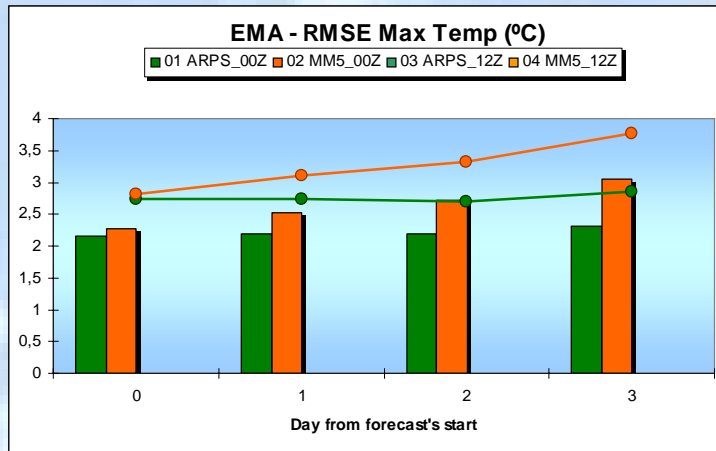


Data Processing options
(e.g. Do not use wind dir.
of winds under 5m/s)

Some facts about PEIXE

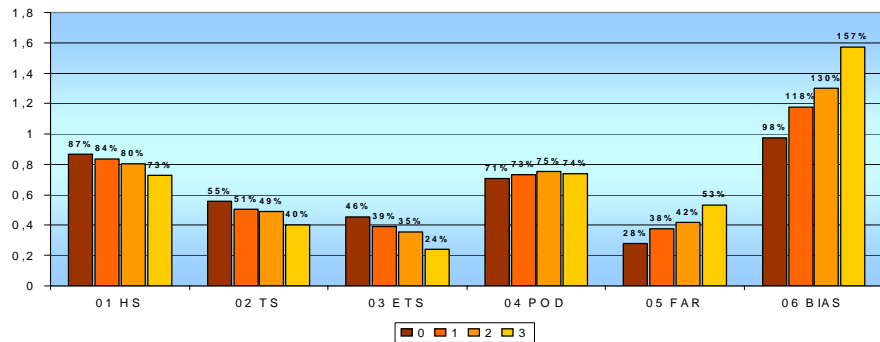
- Calculates accumulated or mean values in hourly periods.
(e.g. 6hour accumulated rainfall)
- Calculates daily variables and their scores.
(e.g. Max/Min Temp, 24h accumulated rainfall)
- Scores allow some parameter tuning.
(e.g. Different thresholds for Brier scores or contingency tables)

Some examples – Deterministic forecasts

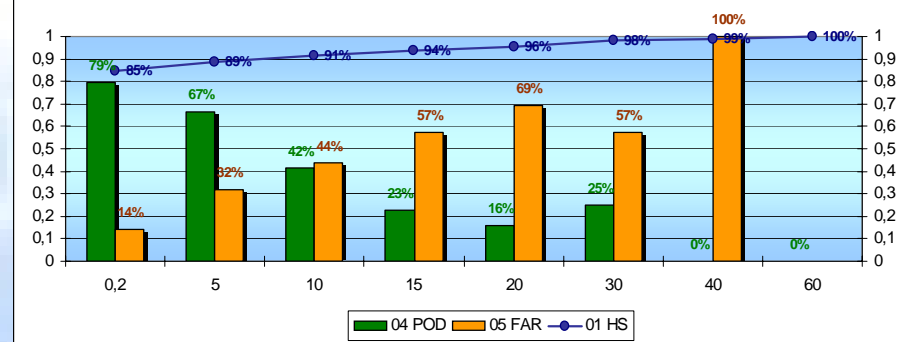


Some examples – Deterministic forecasts

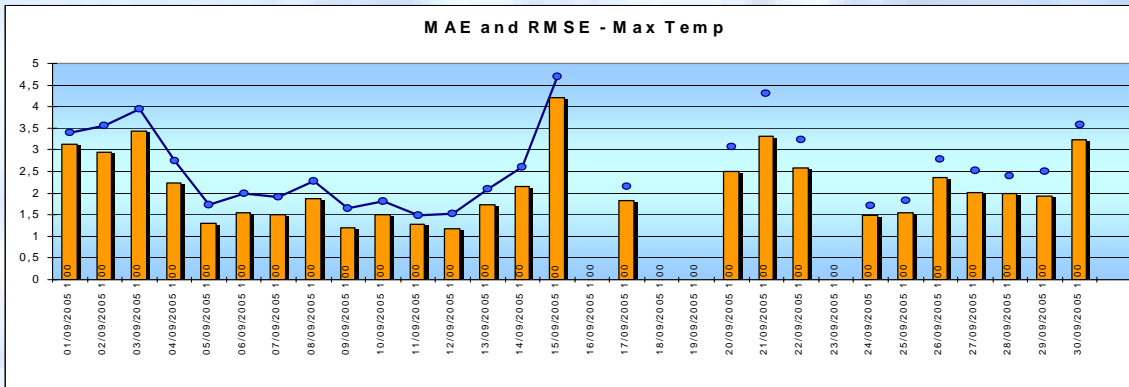
Contingency Scores for categorical 6h acc. rainfall



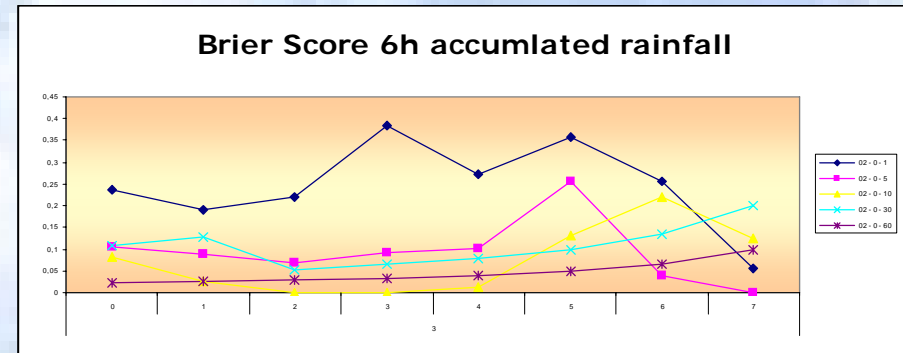
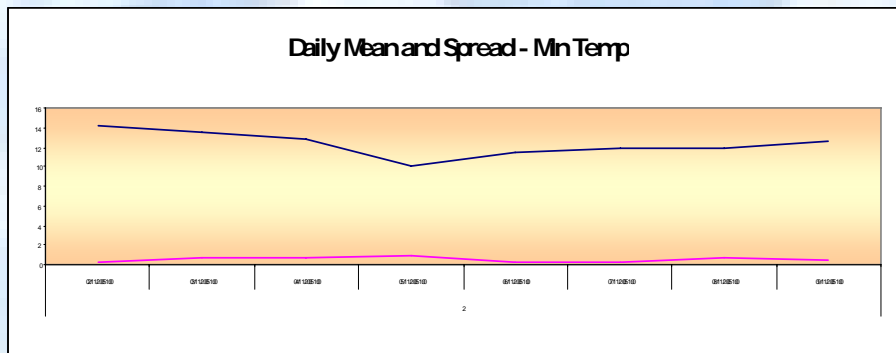
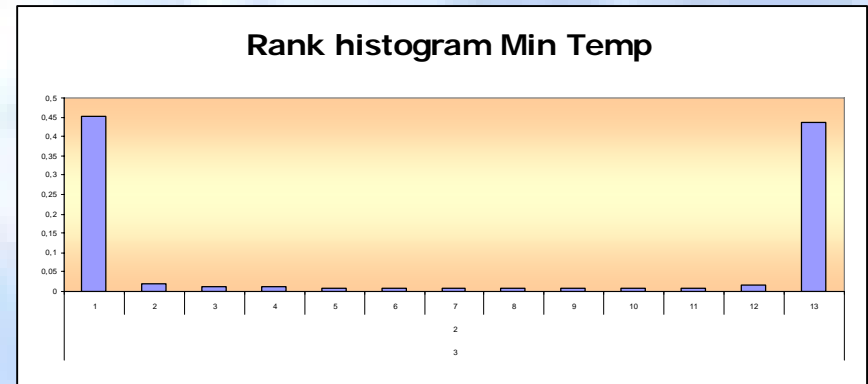
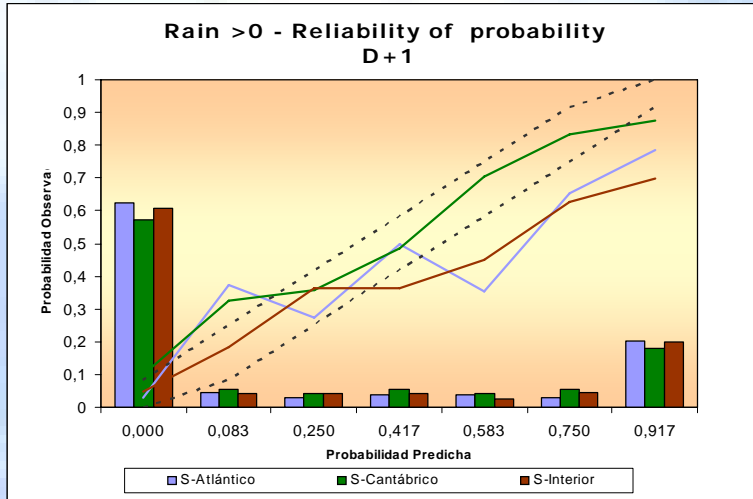
HS, FAR and POD for 6h acc. rainfall - inc. threshold



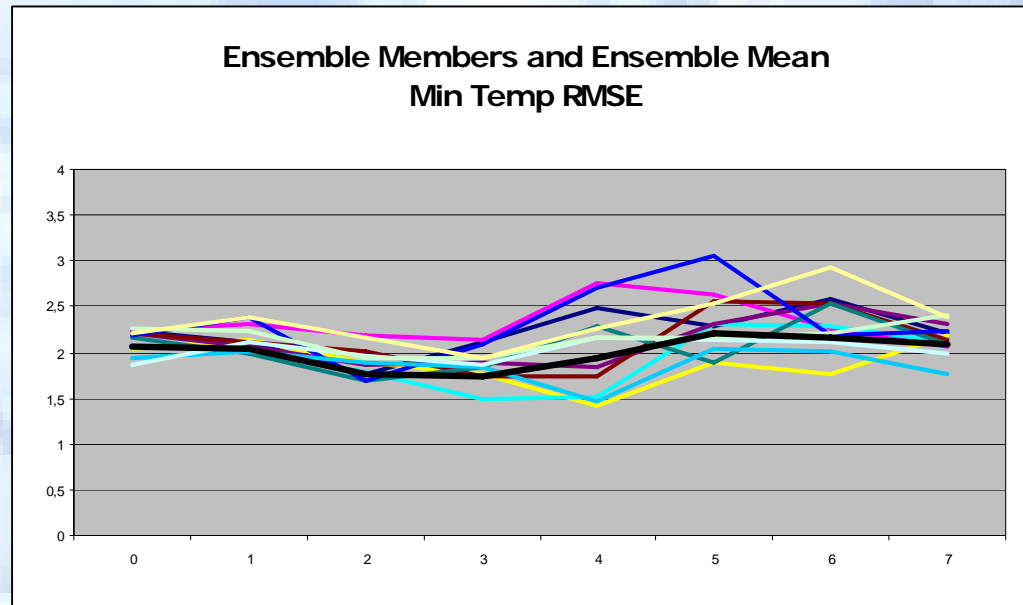
MAE and RMSE - Max Temp



Some examples – Probabilistic forecasts



Some examples – Probabilistic forecasts



Future development

- Include the possibility to handle Rawindsonde obs (vertical interpolation), current and wave model validation.
- Input output format in a more efficient storage format. (May it be NetCDF?)
- The actual code is modular and the score subroutines even may be used outside the PEIXE environment. However this future developments may imply an effort in to increase the modular structure.
- Uses MS Office for representation purposes. An open source representation tool may be more interesting.
- It lacks an extensive describing manual.
- Currently code is well commented, but not in English!



Thank you!

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