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Present Status of ALADIN Verification Project

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ALADIN Verification Project

Overview

- Background
- Objectives
- Project schema
- Where are we?
- Status of web interface
- Todo
- Conclusion
- References

Background

- Lack of common strategy for verification at synoptic scale
- Call for coordinated verification (Lisbon 1999)
- All attempts had failed (Cassablanca 2001)
- End of 2003: still in the same situation as in 2001
- ALADIN 3rd medium-term research plan
- ECMWF Technical Memoranda on verification

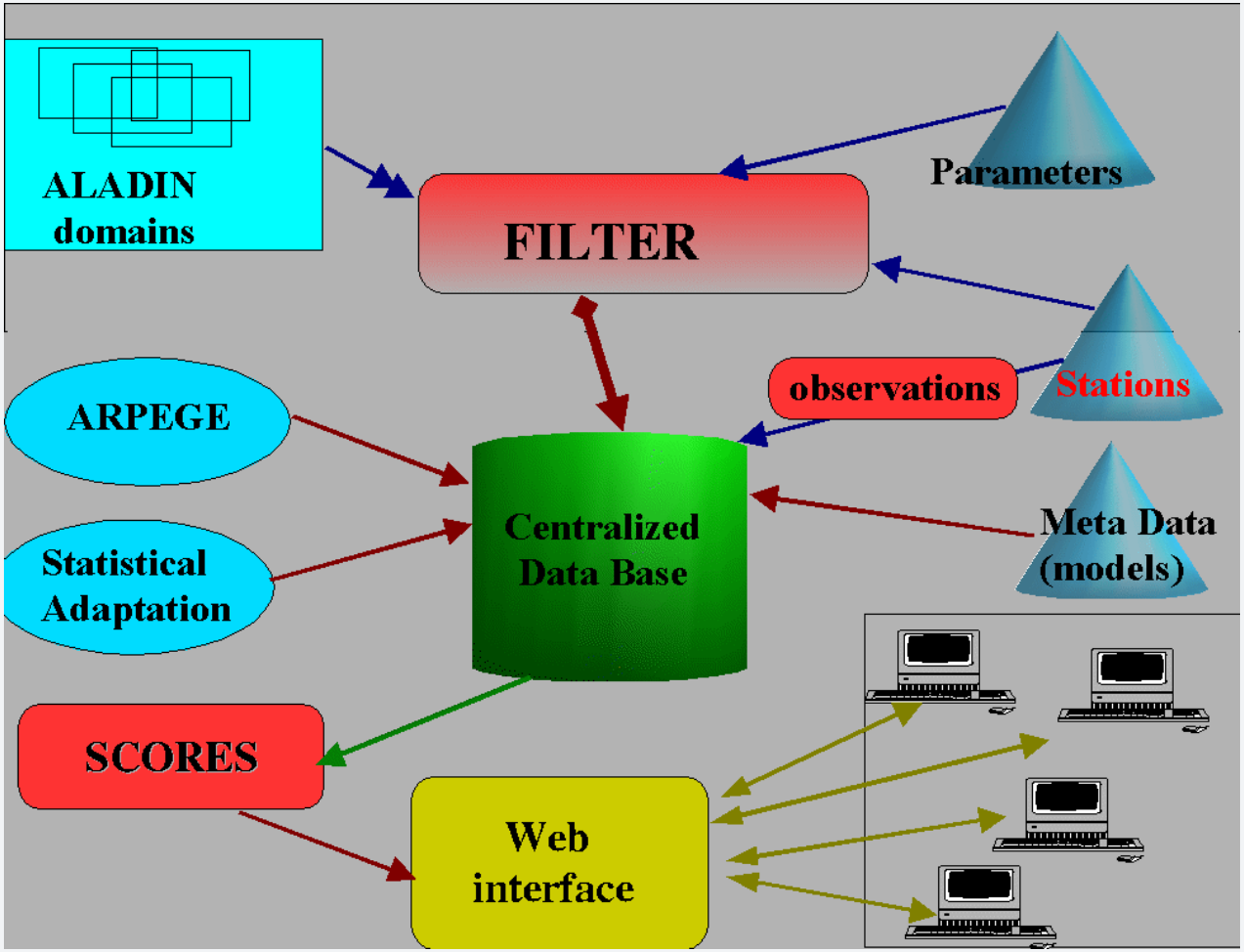
Objectives

- Objective verification at synoptic scale
- As simple usage as possible, minimal users interaction
- Time evolution and comparison of classical scores over different domains and version
- Towards a verification procedure for high resolution forecasts

Project prototype schema

- Central database
- FILTER application (running locally)
- List of reliable stations
- List of weather parameters
- List of verification scores
- Web interface

Project schema



Advantages of the concept

- Direct comparison of model data and verification scores
- Minimum actions required to start at partner state side
- Minimum interactions from users
- No additional application for monitor results
- Simple data exchange (email)
- Minimal amount of data to be transfered

Disadvantages of the concept

- Less flexibility with adding:
  - new scores
  - new models
  - new observations
- Commitment of one partner to maintain the system
- Observation flags

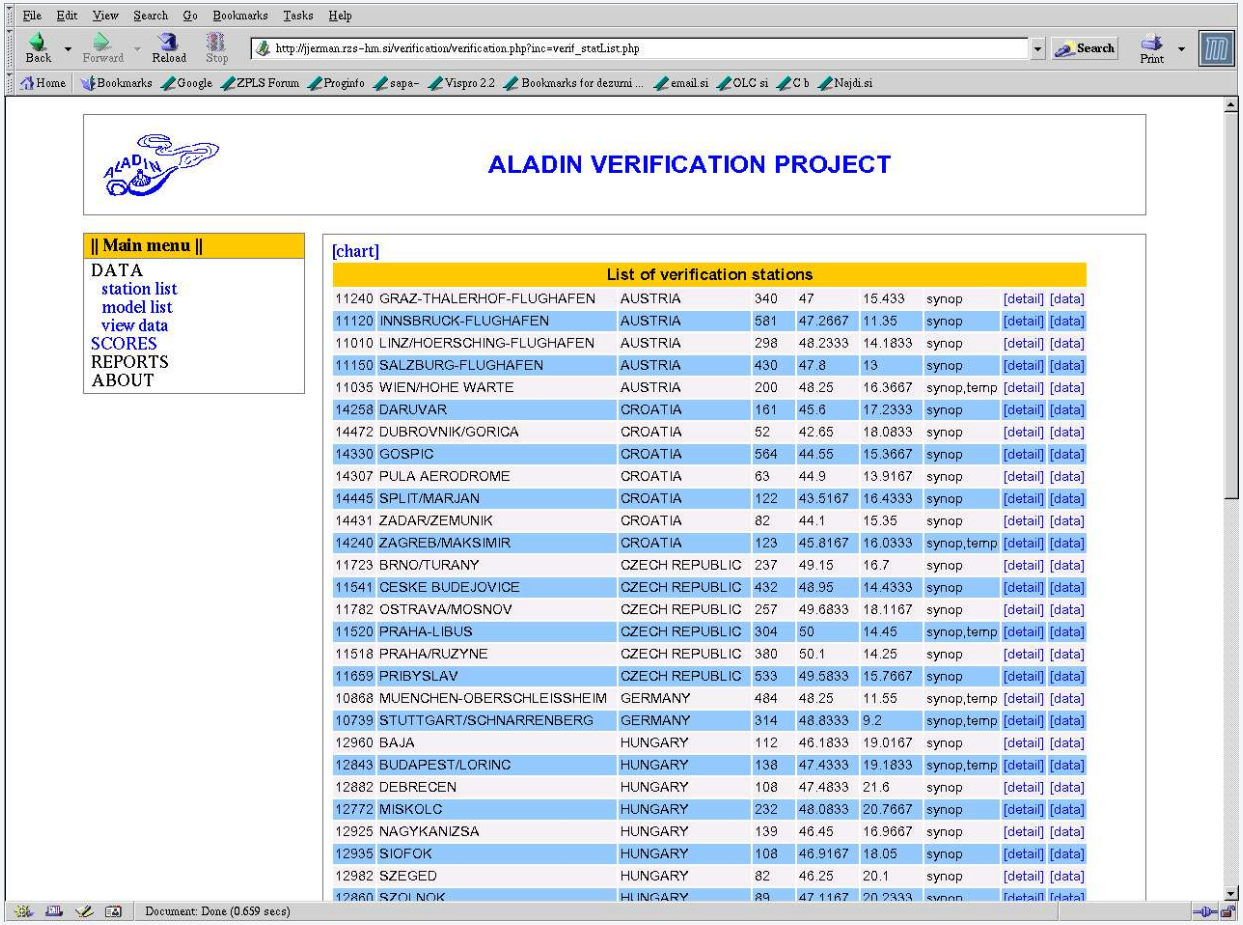
Where are we?

- FILTER application (ready)
  - needs minor modifications
- data parsing and inserting (ready)
  - perl scripts
- central database (ready)
  - Postgresql database with Postgis extension
- web interface (under development)
  - PHP, JpGraph, MapServer
- automatic report generation (not yet)
- documentation / user manual (not yet)
- models meta data (not yet)

Web interface status

- time series of data
- direct comparision of data from different models
- scatter plots
- ME, MAE, RMSE, STDEV vs. time or forecast range
- contingency tables
- BIAS, FAR, POD, PC, HSS

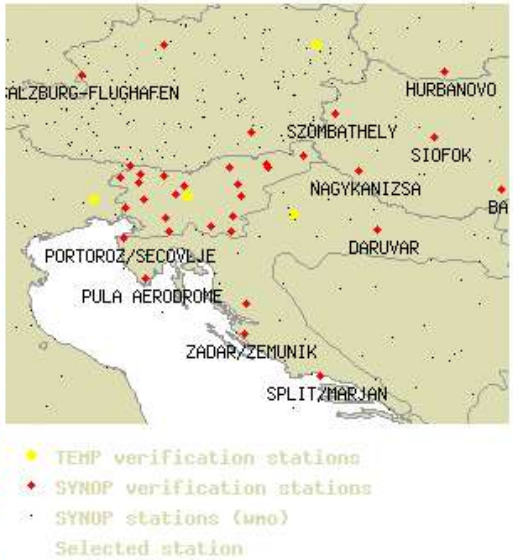
Web interface – station list



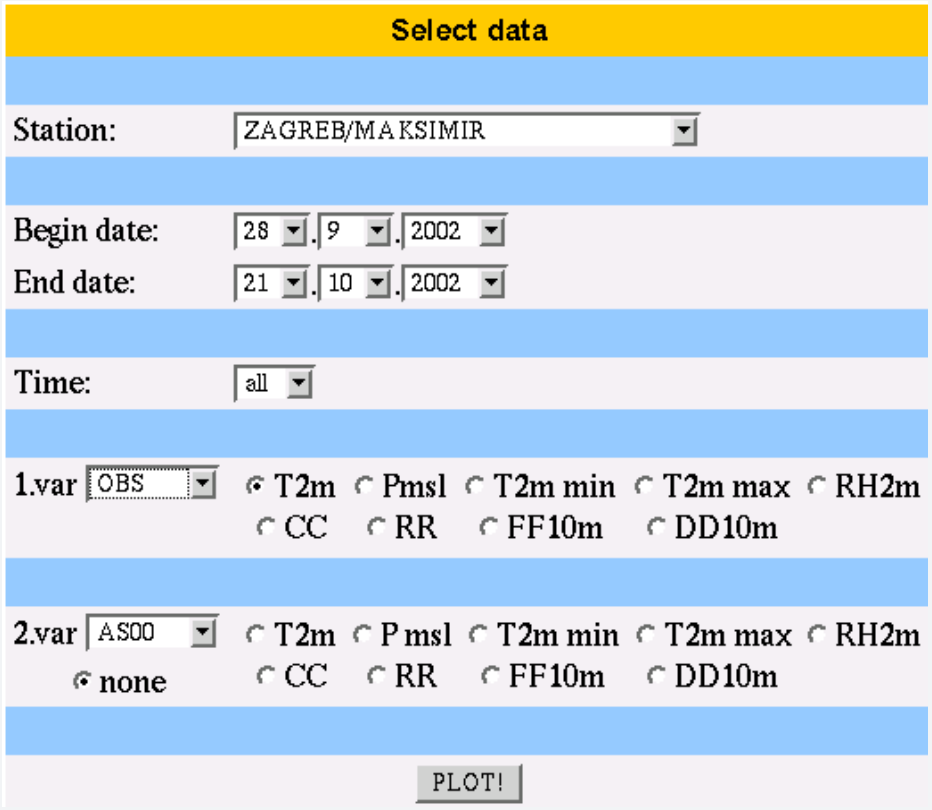
Web interface – station detail

[<<list]

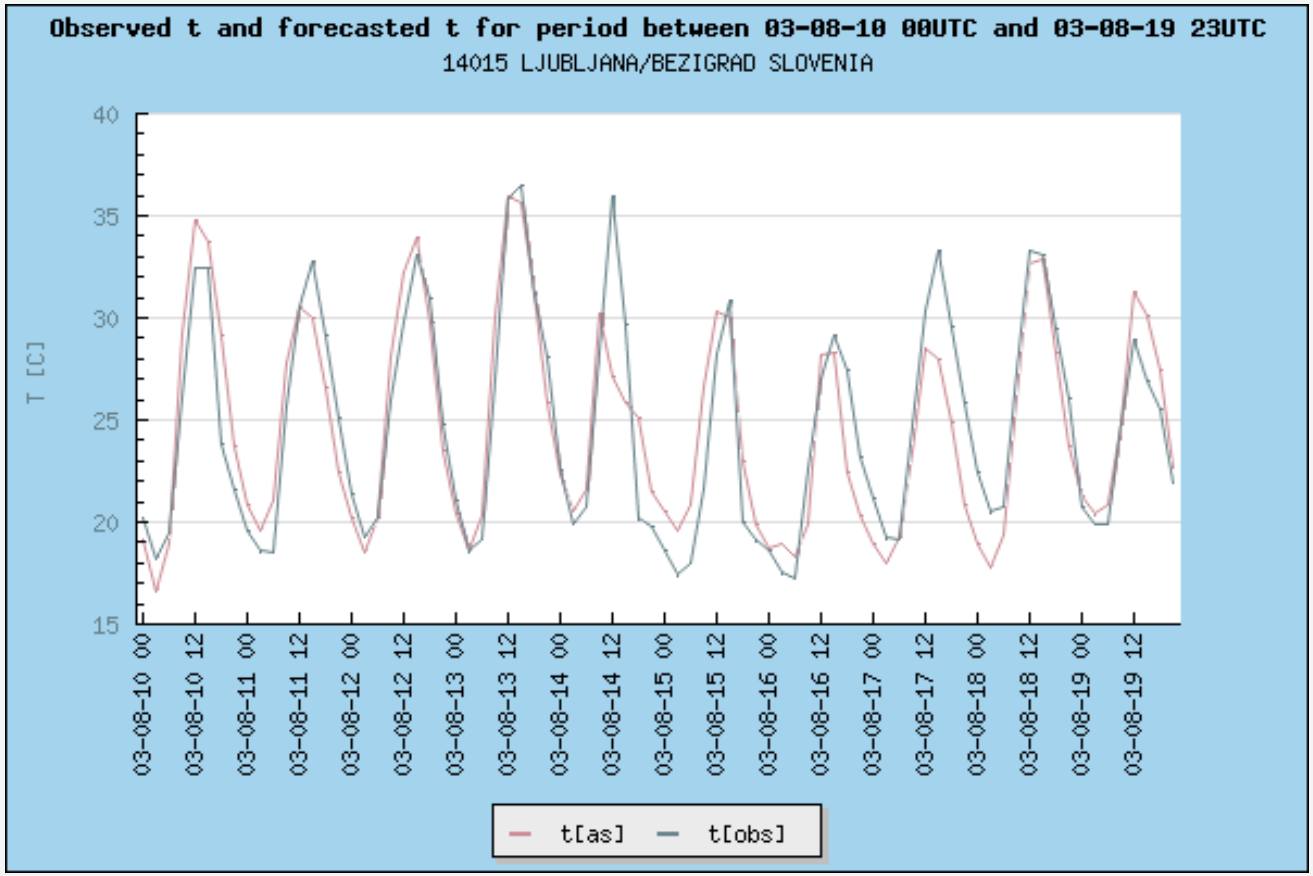
14240 ZAGREB/MAKSIMIR CROATIA	
SYNOP DATA	
first data	2002-08-28 00:00:00+02
last data	2002-10-21 21:00:00+02
number of records	426
espected number of records	440
all	**426/440 [oooooooooo] 96.8 %**
00	50 / 55 [oooooooooo_] 90.9 %
03	52 / 55 [oooooooooo_] 94.5 %
06	54 / 55 [oooooooooo] 98.2 %
09	54 / 55 [oooooooooo] 98.2 %
12	54 / 55 [oooooooooo] 98.2 %
15	55 / 55 [oooooooooo] 100.0 %
18	54 / 55 [oooooooooo] 98.2 %
21	53 / 55 [oooooooooo] 96.4 %
TEMP DATA	
first data	2002-08-28 00:00:00+02
last data	2002-10-21 12:00:00+02
number of records	98
espected number of records	110
all	**98 / 110 [oooooooooo_] 89.1 %**
00	49 / 55 [oooooooooo_] 89.1 %
12	49 / 55 [oooooooooo_] 89.1 %



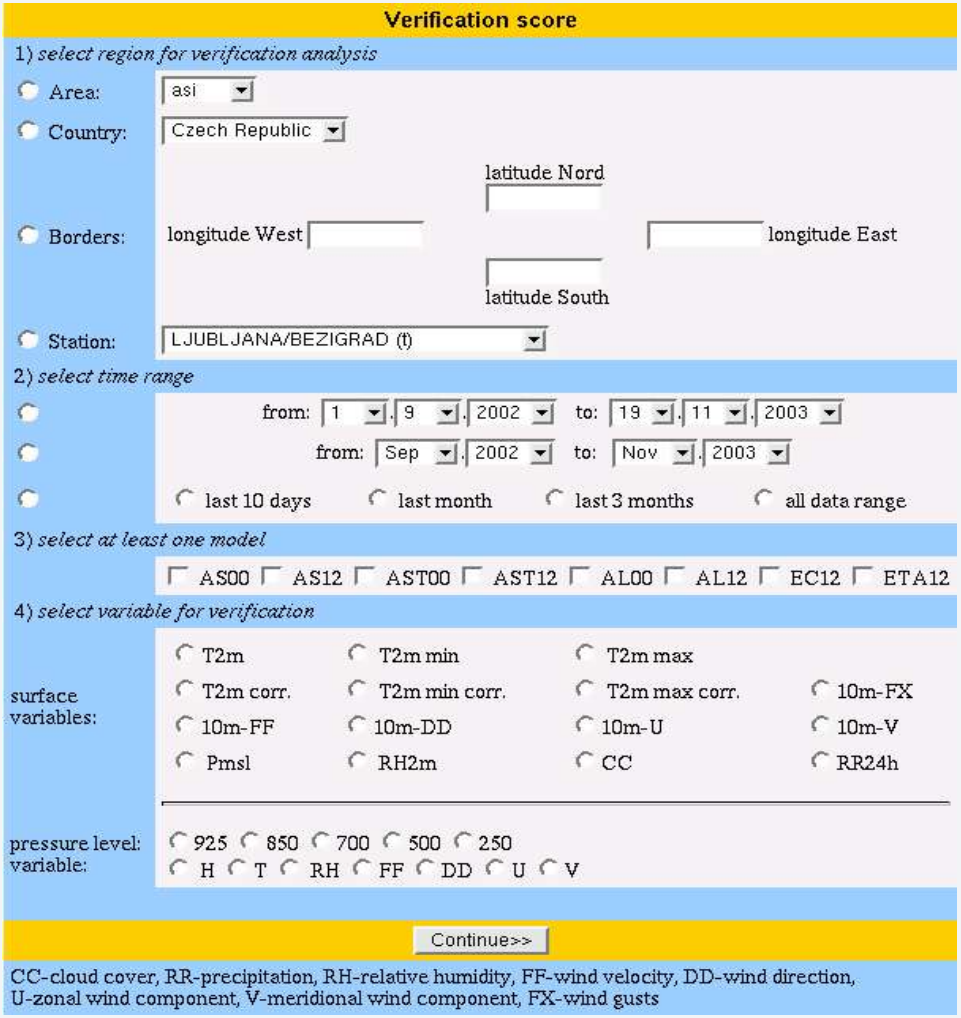
Web interface – select data



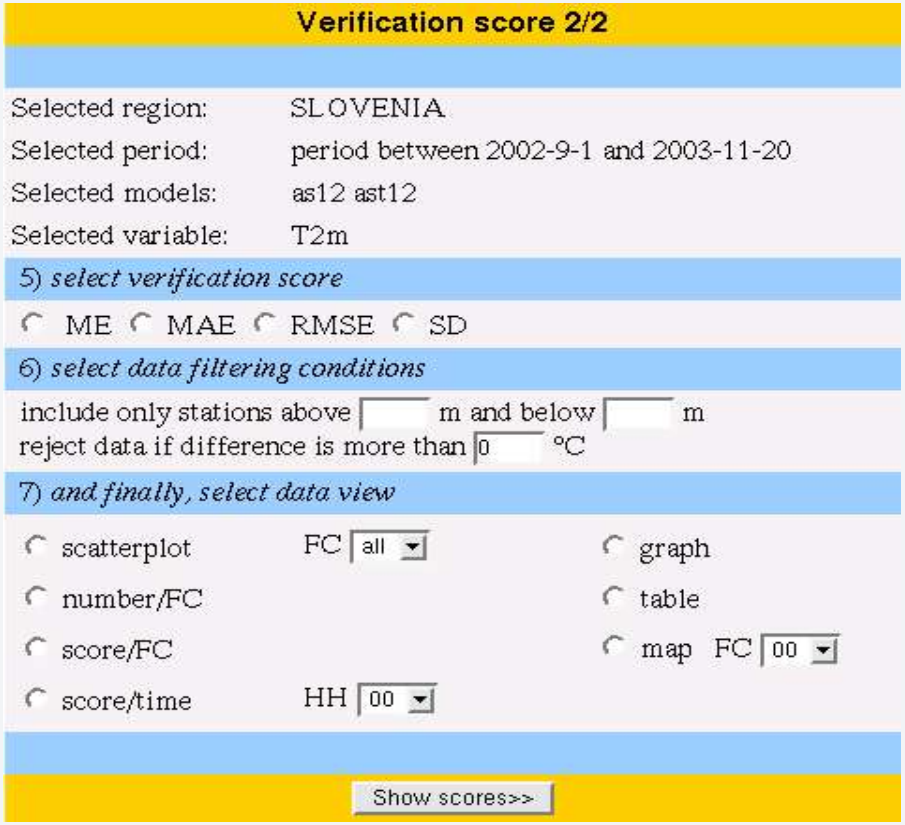
Web interface – view data



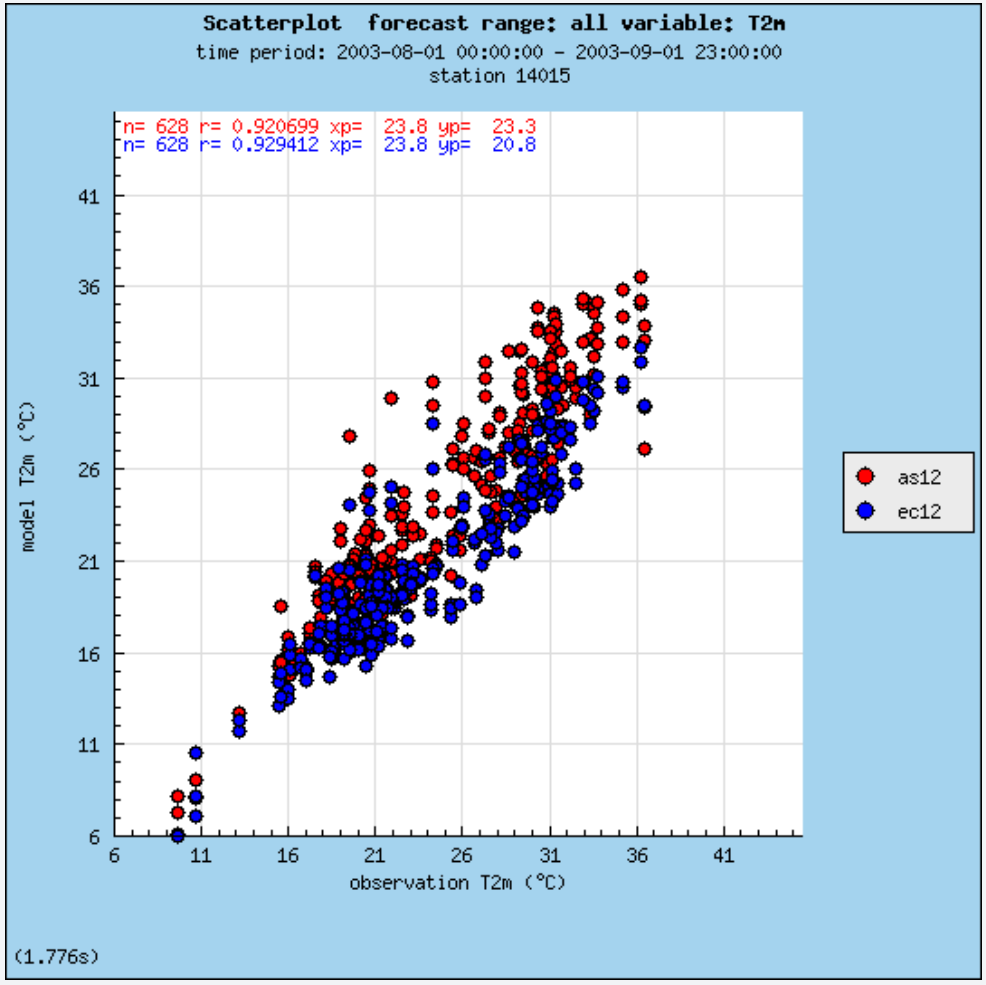
Web interface – view scores



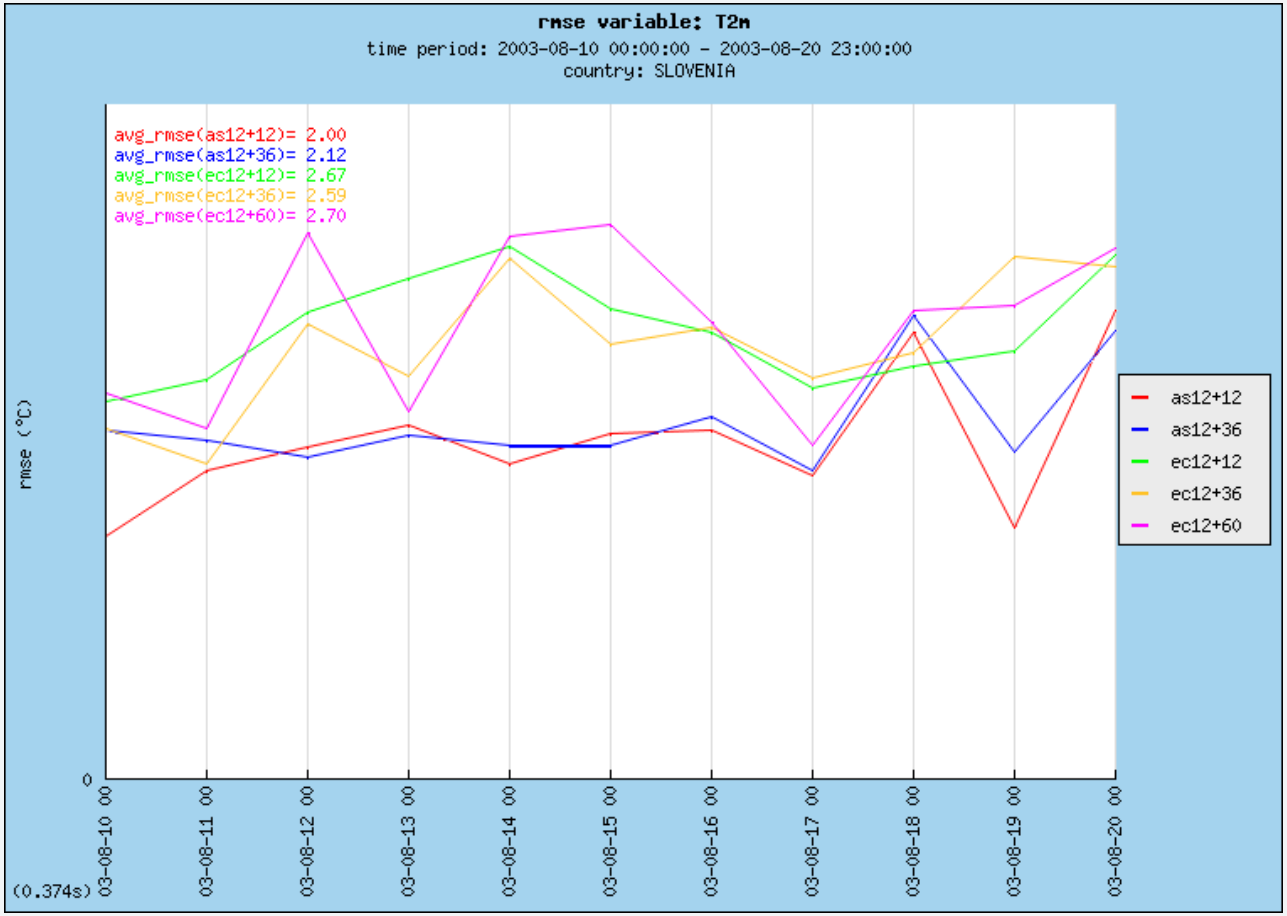
Web interface – define scores



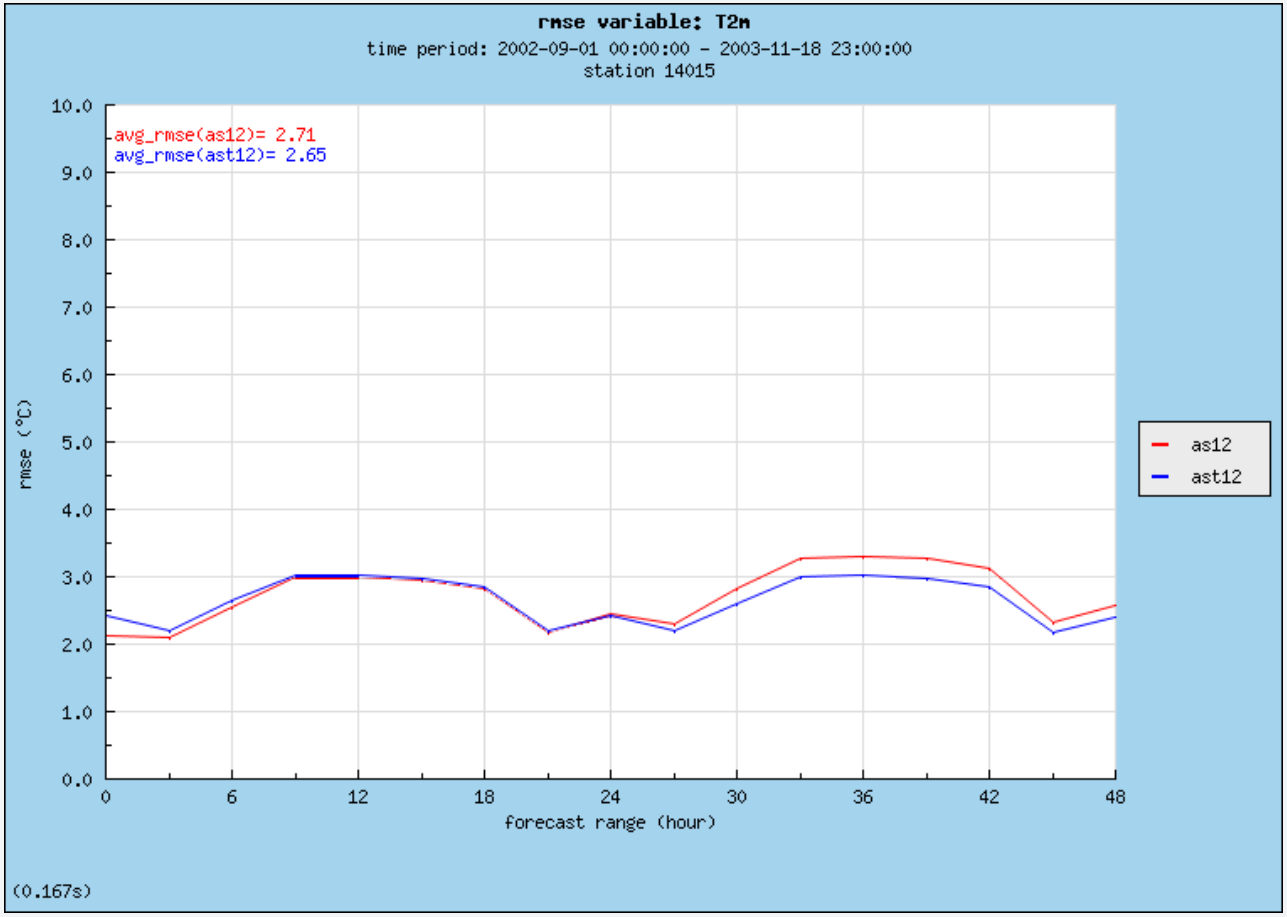
Web interface – scatter plots



Web interface – score vs. time



Web interface – score vs. forecast range



Web interface – contingency table

Contingency table for parameter *rrc* on using model(s) as12, ec12 and FC=42

mod\obs	0<=rrc<0.1	0.1<=rrc<5	5<=rrc<20	20<=rrc	sum fc
0<=rrc<0.1	211 147	31 9	3 1	0 1	245 158
0.1<=rrc<5	36 100	39 60	27 21	6 2	108 183
5<=rrc<20	0 1	11 12	10 17	11 15	32 45
20<=rrc	1 0	2 2	2 3	5 4	10 9
sum obs	248	83	42	22	sum

num_evnts:395

PC(as12)= 0.671
HSS(as12)= 0.394

PC(ec12)= 0.577
HSS(ec12)= 0.337

class\score	BIAS	POD	FAR
0<=rrc<0.1	0.988 0.637	0.851 0.593	0.139 0.070
0.1<=rrc<5	1.301 2.205	0.470 0.723	0.639 0.672
5<=rrc<20	0.762 1.071	0.238 0.405	0.688 0.622
20<=rrc	0.455 0.409	0.227 0.182	0.500 0.556

Todo

- Model meta data
- Automated report production
- Web interface upgrade
- User autentification / Profile management
- Documentation / User guide
- Local implementations !!

Conclusion

- Simple user interface
- Allows direct interactive comparision
- Close to routine synoptic verification
- Aladin Verification Project ready for next step
- Slovenia is willing to provide machine and maintenance of central data base server ...
- ... volunteers needed for finalization of interface
- ... for test implementation of FILTER and data exchange

References

- Aladin Verification Project
  www.cnrm.meteo.fr/aladin/concept/verification.htm
- Pertti Nurmi: Recommendations on the verification of local weather forecasts (draft version of ECMWF Technical Memoranda, October 2003)
- D.S. Wilks: Statistical Methods in the Atmospheric Sciences (Academic Press, 1995)
- J. Jerman: Prototype for common verification at synoptic scale, presentation at 7th Assembly of the ALADIN partners, Bucharest, 2002