

15th ALADIN Workshop

Present Status of ALADIN Verification Project

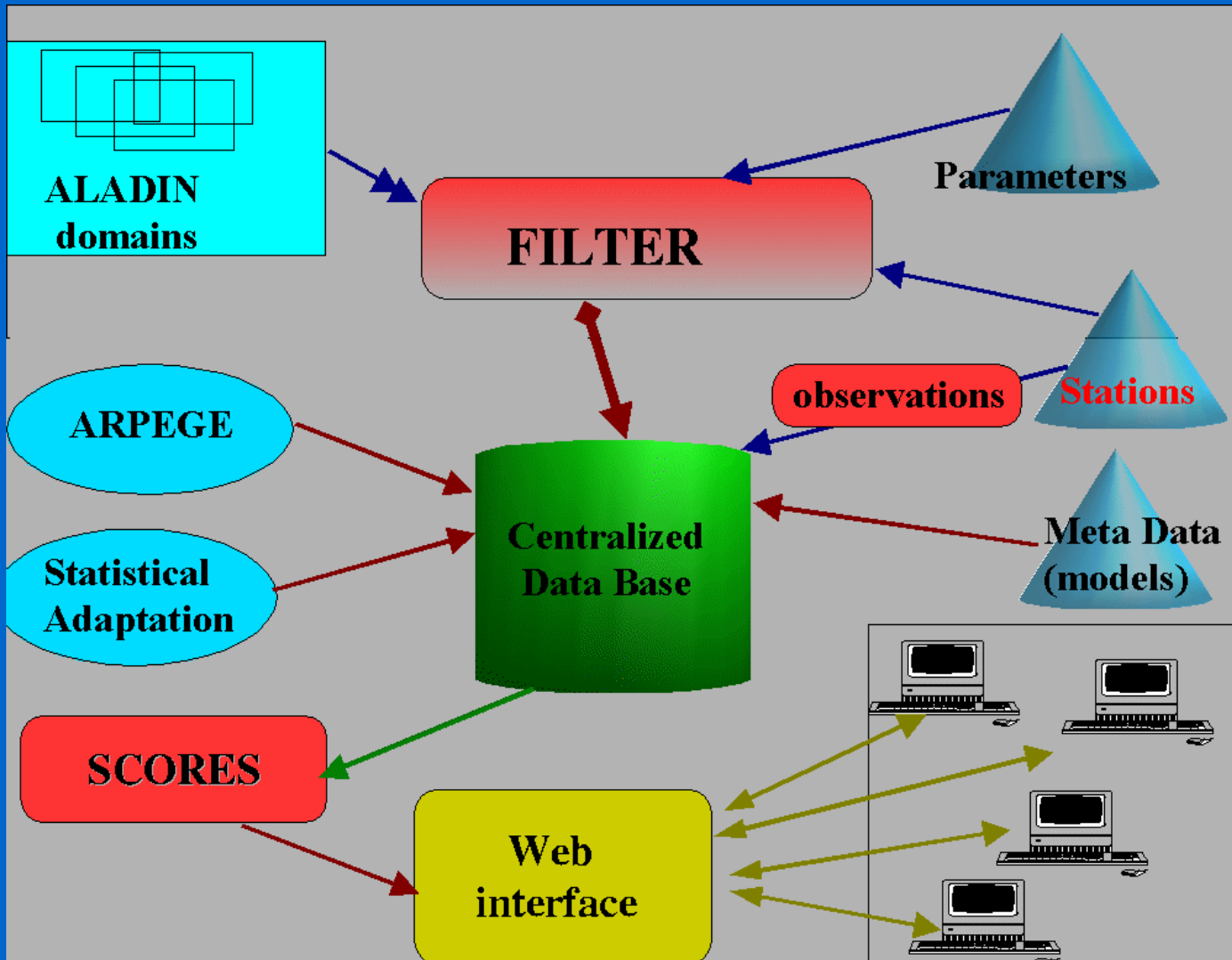
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EARS

Outline of presentation

- **Overview of ALADIN verification project**
- **Ongoing work**
- **Problems**
- **Conclusions**

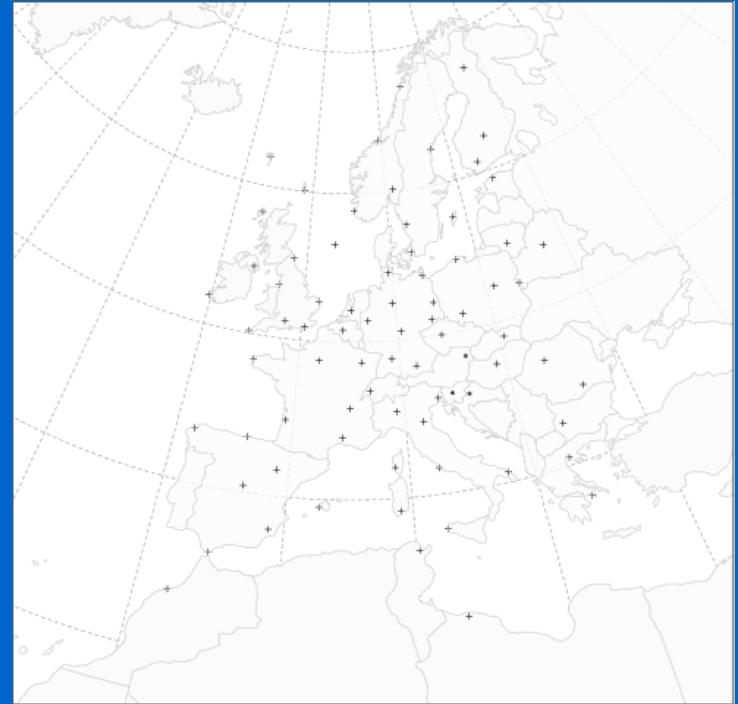
AVP dataflow



Current status

- **System is running in testing mode**
- **Limited number of models**
 - **Austria, Croatia, Czech Republic, Hungary, Romania, Slovakia, Slovenia, Tunisia**
 - **from operational models and parallel suites**
- **user interface**
 - **AVP web site access possible**
www.arso.gov.si/verification/
- **suggestions from users are welcome (and expected)**

List of station



Data transfer

- **Installation of client software at centers needed**
- **Data are sent via emails (online or delayed)**
- **Received data are stored into database (once per day)**

Server side software

- **Postgresql with Postgis extension**
 - **Meta data tables (WMO stations, models, model points)**
 - **Data (observations, model data)**
- **Php scripts for calculations**
- **JPgraph for displaying graphs**

Users interface (1)

|| AVP menu ||

- DATA
 - station list
 - model list
 - view data
- SCORES
 - select score
 - select report
- DOCUMENTATION
 - user guide
- pEPS
 - multigrams
- MONITOR
 - check files
 - check database

Select data

Station:

Begin date:

End date:

Time:

1.var T2m Pmsl T2m min T2m max RH2m
 CC RR FF10m DD10m

2.var none T2m P msl T2m min T2m max RH2m
 CC RR FF10m DD10m

Users interface (2)

|| AVP menu ||

- DATA
 - station list
 - model list
 - view data
- SCORES
 - select score
 - select report
- DOCUMENTATION
 - user guide
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 - check database

Verification score

1) select region for verification analysis

Country:

Borders: longitude West longitude East
latitude Nord
latitude South

Station:

2) select time range

from: to:

from: to:

last 10 days last month last 3 months all data range

3) select at least one model

4) select variable for verification

surface variables:

<input checked="" type="radio"/> T2m	<input type="radio"/> T2m min	<input type="radio"/> T2m max	
<input type="radio"/> T2m corr.	<input type="radio"/> T2m min corr.	<input type="radio"/> T2m max corr.	<input type="radio"/> 10m-FX
<input type="radio"/> 10m-FF	<input type="radio"/> 10m-DD	<input type="radio"/> 10m-U	<input type="radio"/> 10m-V
<input type="radio"/> Pmsl	<input type="radio"/> RH2m	<input type="radio"/> CC	<input type="radio"/> RR24h

pressure level:

variable: 925 850 700 500 250
 H T RH FF DD U V

CC-cloud cover, RR-precipitation, RH-relative humidity, FF-wind velocity, DD-wind direction, U-zonal wind component, V-meridional wind component, FX-wind gusts

Users interface (3)

|| AVP menu ||

DATA
station list
model list
view data

SCORES
select score
select report

DOCUMENTATION
user guide

pEPS
multigrams

MONITOR
check files
check database

Verification score 2/2

Selected region: station: 14015

Selected period: last 10 days

Selected models: aat00

Selected variable: T2m

5) *select verification score*

ME MAE RMSE SD

6) *select data filtering conditions*

include only stations above m and below m
reject data if difference is more than °C

7) *and finally, select data view*

scatterplot FC graph

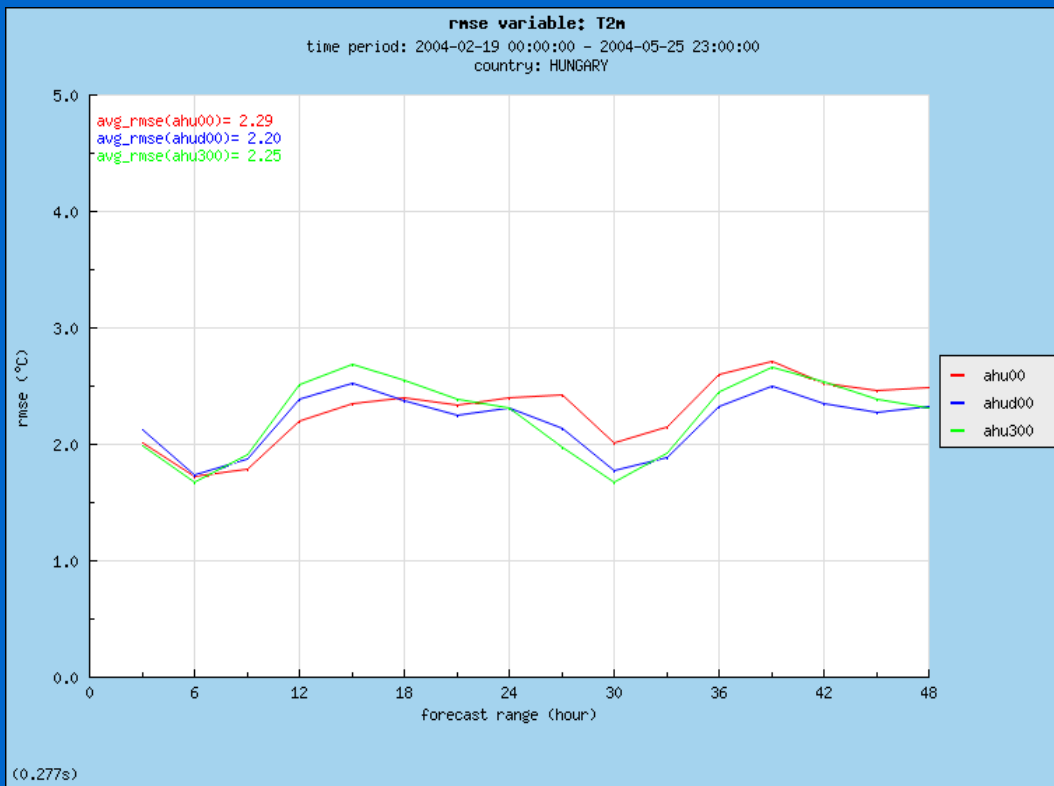
number/FC table

score/FC map FC

score/time HH

Example of verification scores

T2m



24h precipitation

Contingency table for parameter rrc on using model(s) ahu00, ahud00, ahu300 and FC=30

mod\obs	0<=rrc<0.1	0.1<=rrc<2	2<=rrc<10	10<=rrc	sum fc
0<=rrc<0.1	292 270 267	25 20 15	8 3 3	0 0 0	325 293 285
0.1<=rrc<2	146 165 168	67 75 74	57 48 49	4 2 3	274 290 294
2<=rrc<10	9 11 11	34 31 37	63 81 81	18 20 20	124 143 149
10<=rrc	0 1 1	1 1 1	16 12 11	24 24 23	41 38 36
sum obs	447	127	144	46	sum

class\score	BIAS	POD	FAR
num_evnts:764			
0<=rrc<0.1	0.727 0.655 0.638	0.653 0.604 0.597	0.102 0.078 0.063
0.1<=rrc<2	2.157 2.283 2.315	0.528 0.591 0.583	0.755 0.741 0.748
2<=rrc<10	0.861 0.993 1.035	0.438 0.563 0.563	0.492 0.434 0.456
10<=rrc	0.891 0.826 0.783	0.522 0.522 0.500	0.415 0.368 0.361
PC(ahu00)= 0.584 HSS(ahu00)= 0.367			
PC(ahud00)= 0.589 HSS(ahud00)= 0.390			
PC(ahu300)= 0.582 HSS(ahu300)= 0.384			

Basic documentation is available

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2. Overview of Verification Scores

[Introduction to Verification Scores](#)

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[Data Browsing](#)

[User Defined Scores](#)

Performance problem

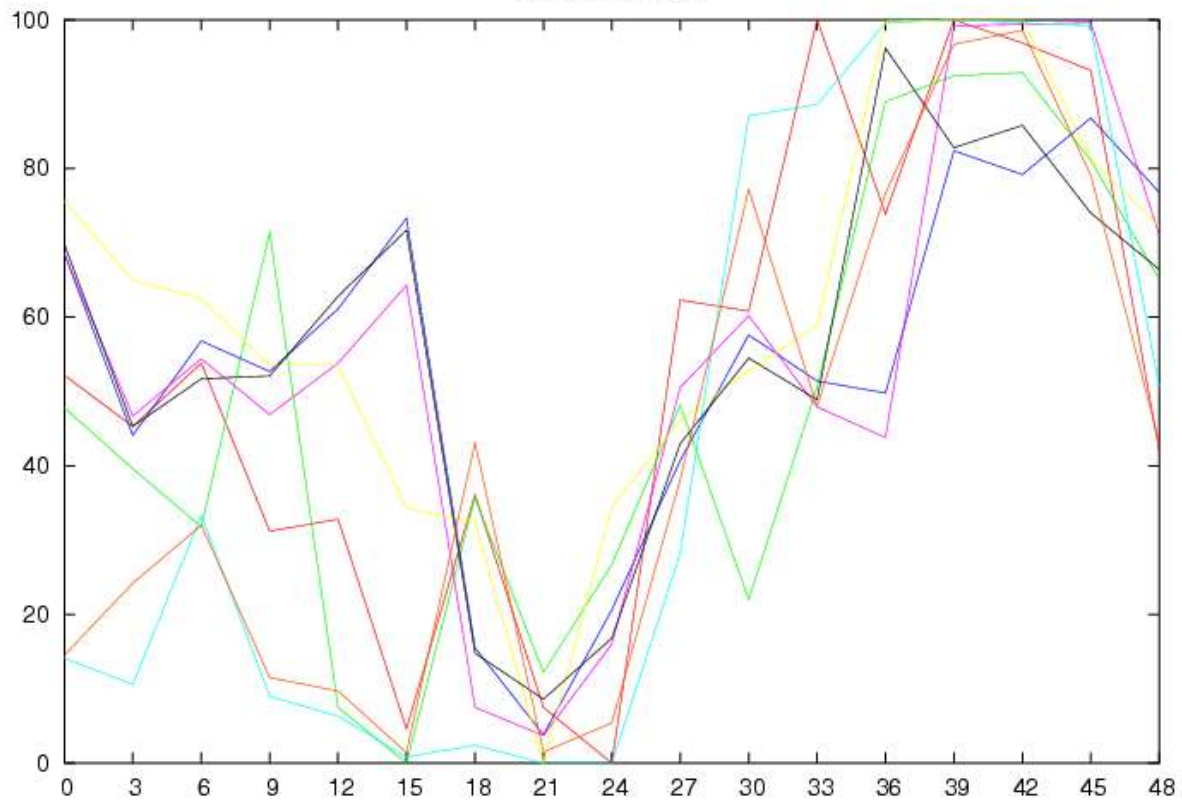
- **Interactively select one model and table and then combine yourself**
- **Predefined products automatically produced once per month**
- **Developments tested**
 - **Additional tables in data base for each model and with differences against observations**
 - **Statistical packet R for calculation and displaying results (less problems)**

Example of possible usage

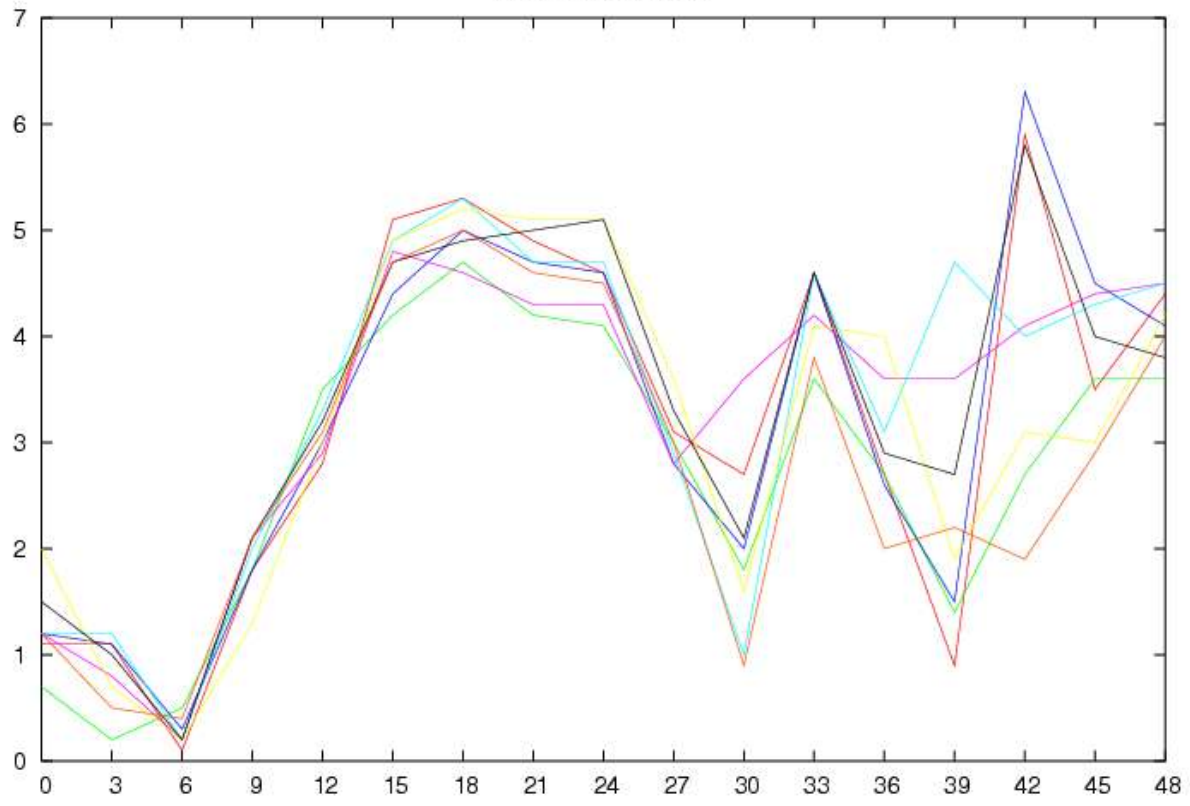
- **ALADIN PEPS meteogram**
 - **For selected station**
 - **For selected variables (precipitation,...)**

AVP menu	ALADIN multigram
<p>DATA station list model list view data</p> <p>SCORES select score select report</p> <p>DOCUMENTATION user guide</p> <p>pEPS multigrams</p> <p>MONITOR check files check database</p>	<p>1) <i>pick a station</i></p> <p><input type="text" value="14015 LJUBLJANA/BEZIGRAD"/></p> <p>2) <i>select day</i></p> <p><input type="text" value="3"/> <input type="text" value="6"/> <input type="text" value="2005"/></p> <p>3) <i>select variable</i></p> <p><input checked="" type="radio"/> T2m <input type="radio"/> mslp <input type="radio"/> RR</p> <p><input type="button" value="Show>>"/></p>

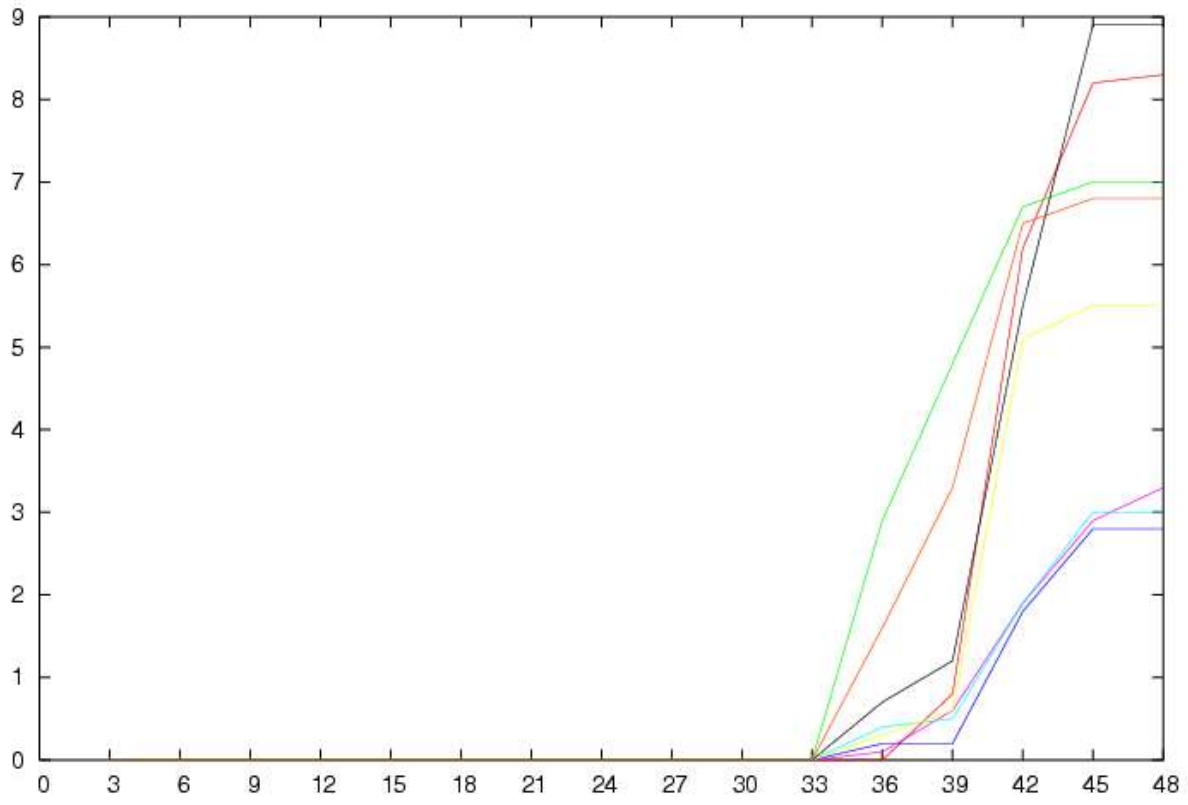
11035 Cloudiness



11035 Wind velocity



11035 precipitation



Future plans

- Resolve performance issues (detailed study of database performance)
- Automated report production
- Add new scores from ECMWF Technical Memorandum on verification
- Invite other centers to join
- Lack of manpower (looking for contributors).
- Transfer of application to dedicated server

Conclusions

- **Conceptual infrastructure is ready**
- **Performance issues (but there are workarounds)**