Present Status of ALADIN Verification Project

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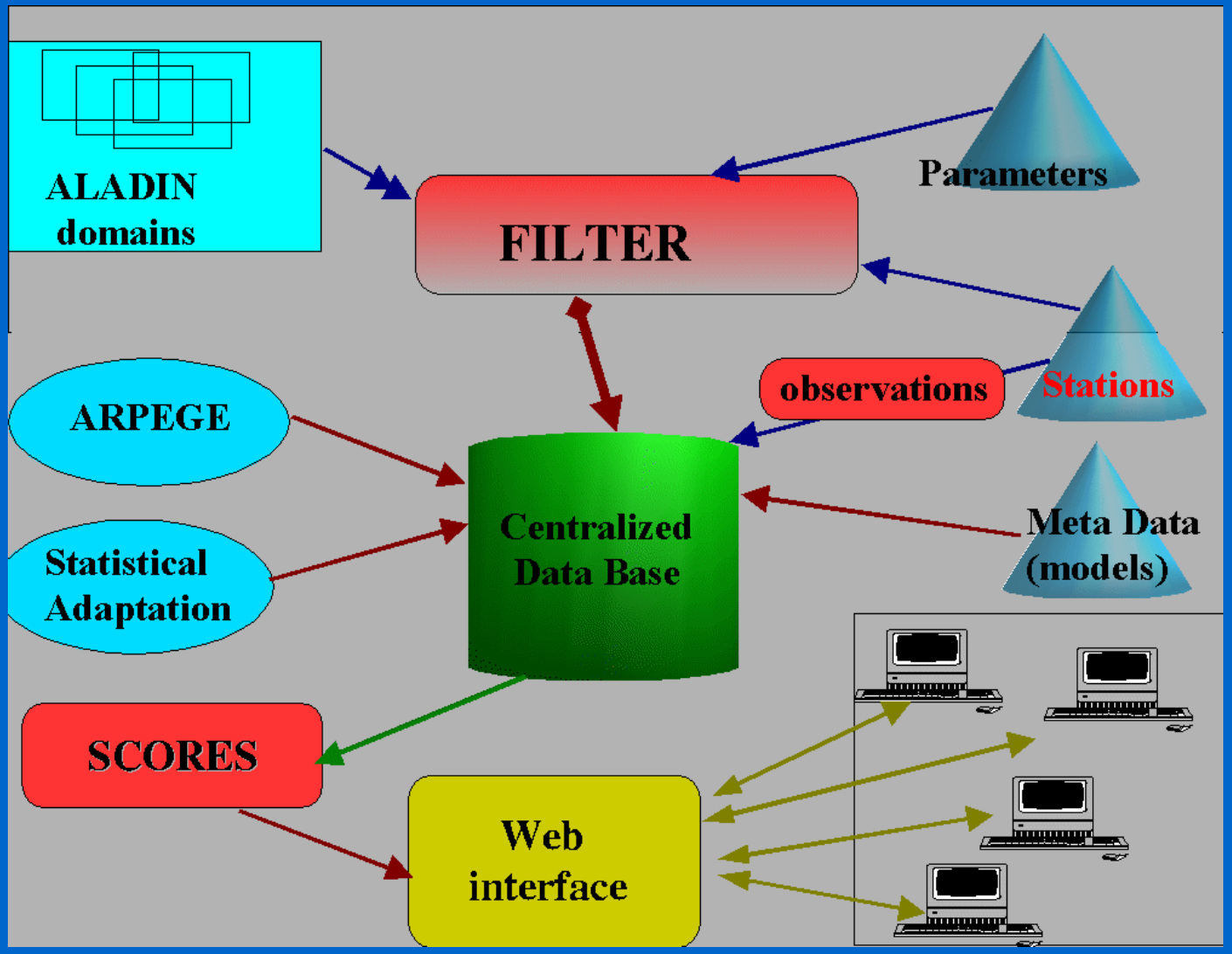
AVP schema


ALADIN
domains
FILTER
Parameters
observations
Stations
ARPEGE
Centralized
Data Base
Meta Data
(models)
Statistical
Adaptation
SCORES
Web
interface

Current status

- System is running in testing mode
  - limited number of models
  - user interface testing
  - suggestions from users are expected

What's new

- List of stations defined
- Model results from 7 centers
- AVP web site access possible

Current station list

348 SYNOP stations

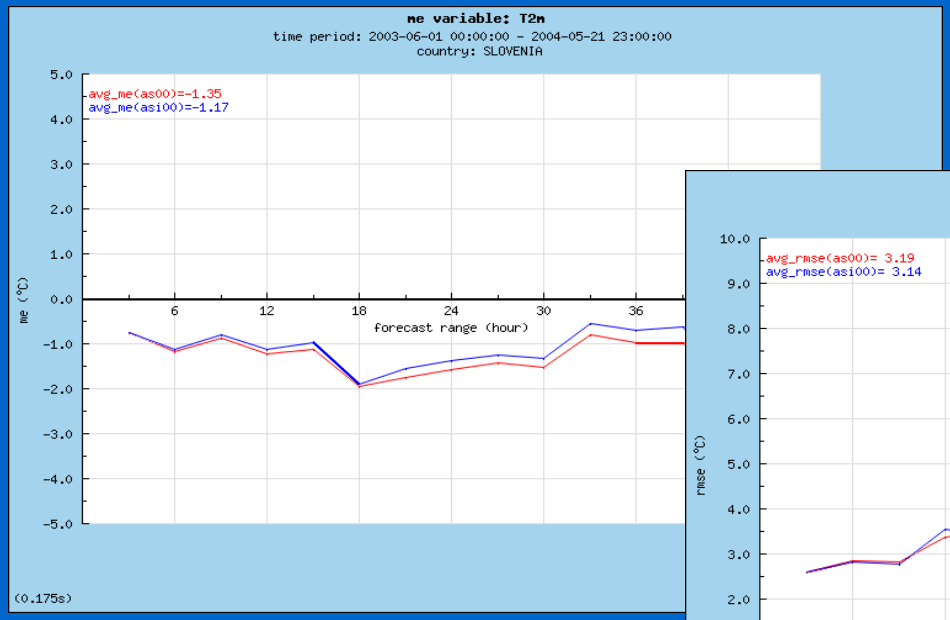
74 TEMP stations

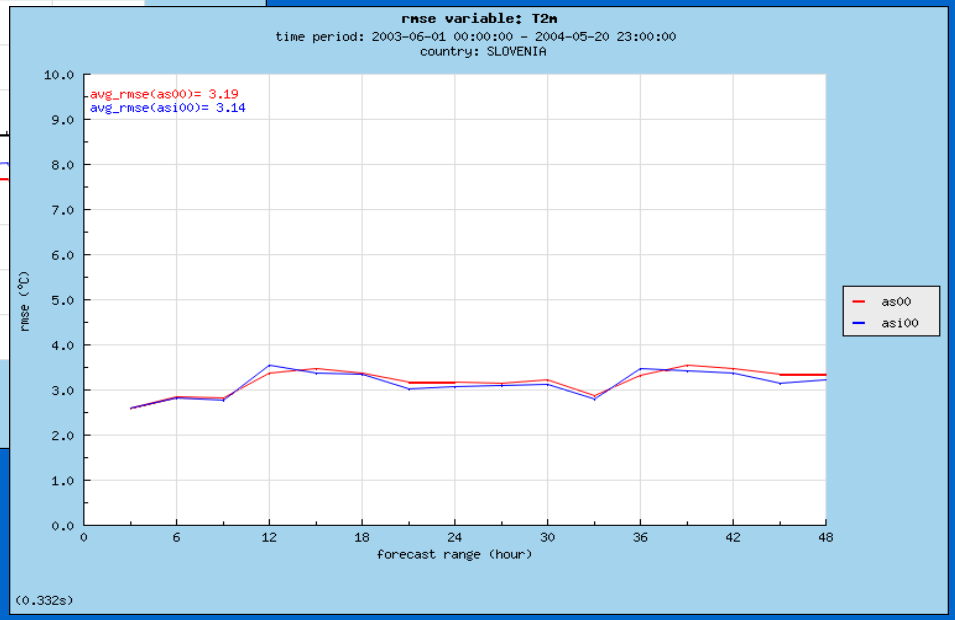
Data transfer

- Installation of client software at centers needed
- Data are sent via emails …
- … and are stored into database
- Austria, Croatia, Hungary, Slovakia, Slovenia, Romania and Tunisia are currently contributing

Comparison between ALADIN cycles

T2m





Comparison between ALADIN cycles

24h precipitation

Contingency table for parameter *rrc* on using model(s) as00, asi00 and FC=30

mod\obs	0<=rrc<0.1	0.1<=rrc<2	2<=rrc<10	10<=rrc	sum fc
0<=rrc<0.1	2805 2786	240 250	85 107	18 23	3148 3166
0.1<=rrc<2	818 877	276 290	260 263	80 96	1434 1526
2<=rrc<10	308 281	187 174	339 334	239 233	1073 1022
10<=rrc	45 32	49 38	167 147	390 375	651 592
sum obs	3976	752	851	727	sum

num_evnts:6306

PC(as00)= 0.604
HSS(as00)= 0.365

PC(asi00)= 0.600
HSS(asi00)= 0.357

class\score	BIAS	POD	FAR
0<=rrc<0.1	0.792 0.796	0.705 0.701	0.109 0.120
0.1<=rrc<2	1.907 2.029	0.367 0.386	0.808 0.810
2<=rrc<10	1.261 1.201	0.398 0.392	0.684 0.673
10<=rrc	0.895 0.814	0.536 0.516	0.401 0.367

Comparison of ALADIN configurations

total cloudiness

Contingency table for parameter *n* on using model(s) asi00, ahu00 and FC=12

mod\obs	0<=n<3	3<=n<5	5<=n<7	7<=n	sum fc
0<=n<3	486 383	102 80	51 39	17 15	656 517
3<=n<5	428 440	141 144	100 98	75 74	744 756
5<=n<7	538 647	232 270	188 249	213 282	1171 1448
7<=n	588 570	302 283	402 355	642 576	1934 1784
sum obs	2040	777	741	947	sum

num_evnts:4505

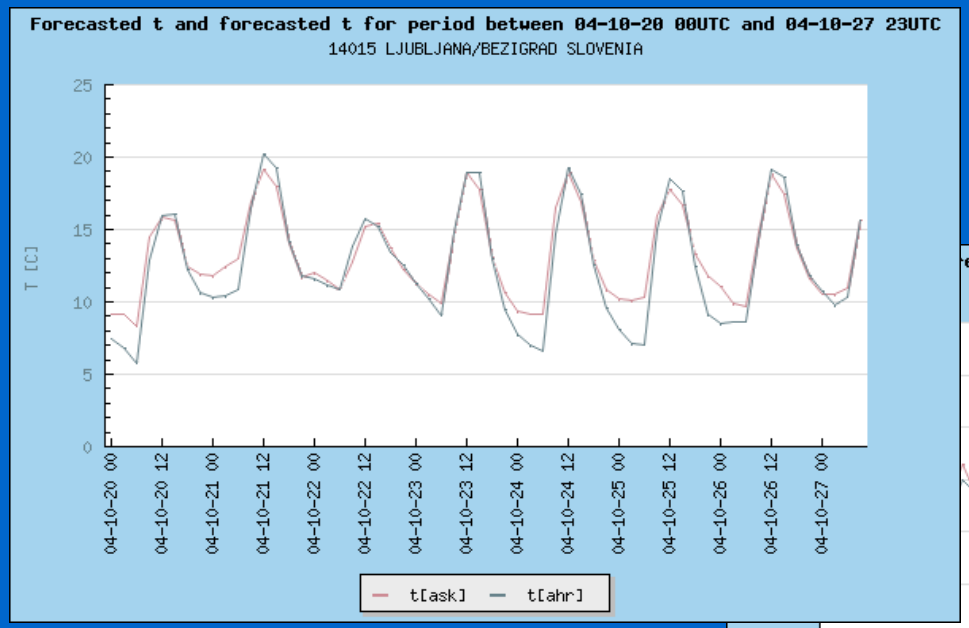
PC(asi00)= 0.323
HSS(asi00)= 0.124

PC(ahu00)= 0.300
HSS(ahu00)= 0.106

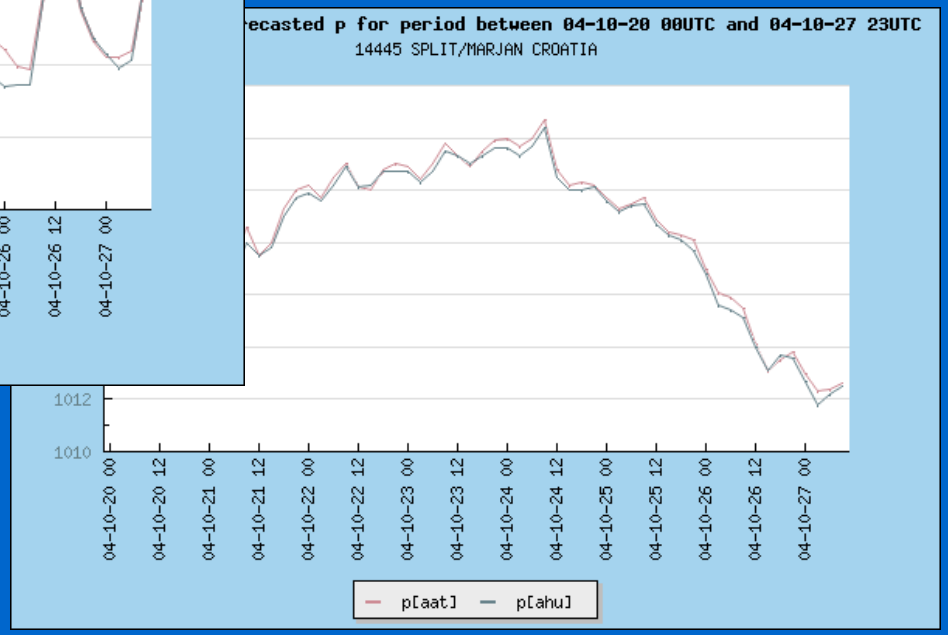
class\score	BIAS	POD	FAR
0<=n<3	0.322 0.253	0.238 0.188	0.259 0.259
3<=n<5	0.958 0.973	0.181 0.185	0.810 0.810
5<=n<7	1.580 1.954	0.254 0.336	0.839 0.828
7<=n	2.042 1.884	0.678 0.608	0.668 0.677

2. Comparison of ALADIN configurations

T2m

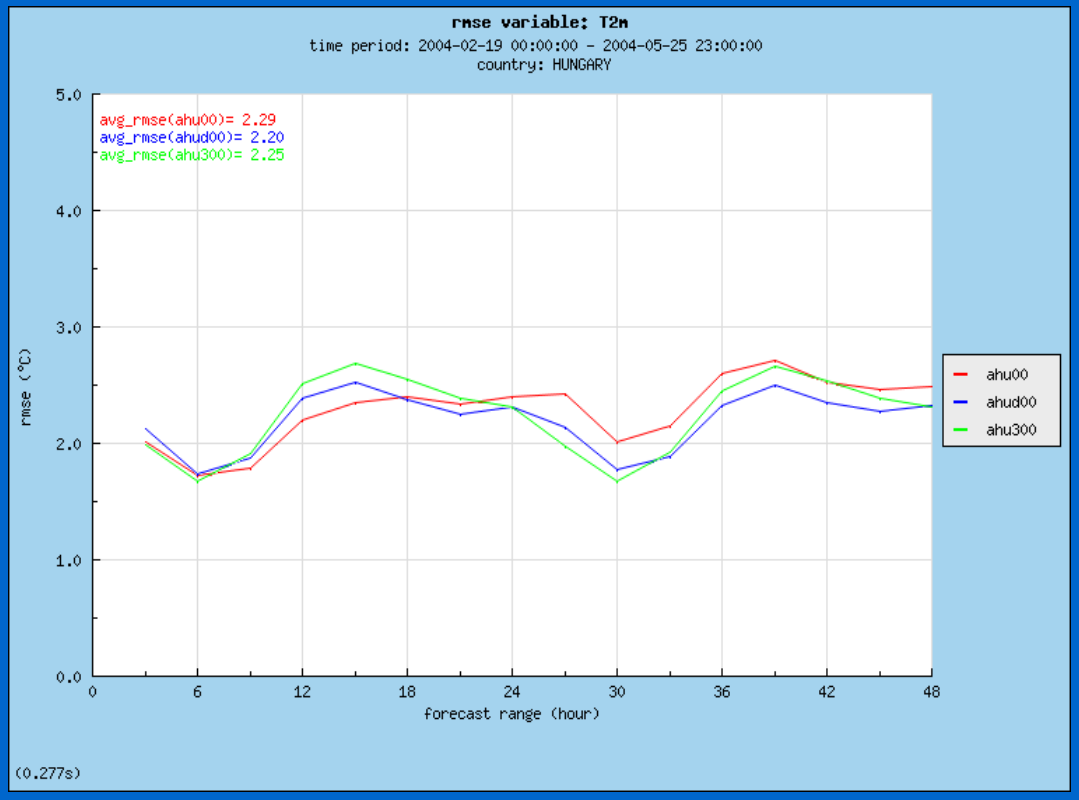


msl pressure



3. Comparison of ALADIN versions from one center

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

num_evnts:764

PC(ahu00)= 0.584
HSS(ahu00)= 0.367

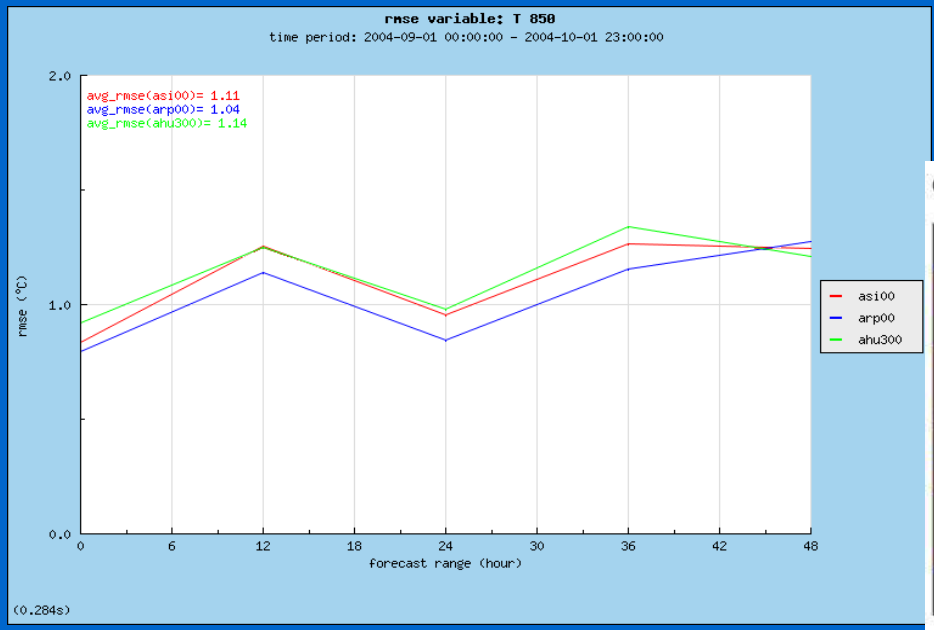
PC(ahud00)= 0.589
HSS(ahud00)= 0.390

PC(ahu300)= 0.582
HSS(ahu300)= 0.384

class\score	BIAS	POD	FAR
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

4. Comparison of ALADIN and ARPEGE model

temperature at 850hPa



wind speed at 850hPa

Contingency table for parameter *ff850* on using model(s) arp00, ahud00 and FC=24

mod\obs	0<=ff850<2	2<=ff850<5	5<=ff850<10	10<=ff850	sum fc
0<=ff850<2	4 3	19 29	4 5	0 0	27 37
2<=ff850<5	8 10	73 67	55 55	3 7	139 139
5<=ff850<10	3 3	20 16	137 136	43 45	203 200
10<=ff850	3 2	1 1	26 26	187 181	217 210
sum obs	18	113	222	233	sum

num_evnts:586

PC(arp00)= 0.684
HSS(arp00)= 0.532

PC(ahud00)= 0.660
HSS(ahud00)= 0.501

class\score	BIAS	POD	FAR
0<=ff850<2	1.500 2.056	0.222 0.167	0.852 0.919
2<=ff850<5	1.230 1.230	0.646 0.593	0.475 0.518
5<=ff850<10	0.914 0.901	0.617 0.613	0.325 0.320
10<=ff850	0.931 0.901	0.803 0.777	0.138 0.138

Next steps

- Automated report production
- Add new scores from ECMWF Technical Memorandum on verification
- Resolve performance issues
- Invite other centers to join

Collaboration with HIRLAM

- Project with similar goals has started in HIRLAM group
- Common work on this topic?
  - Faster development of verification tools
  - Exchange of the code?

Unresolved issues

- Optimization of list of station
- Time consumption

- Quality flags of observations
  - the ODBs after the analysis
  - the 'rejet' ASCII files
  - the MF observation database called BDM

- Surface variables from ARPEGE