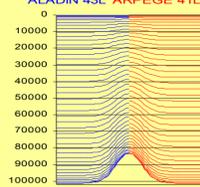
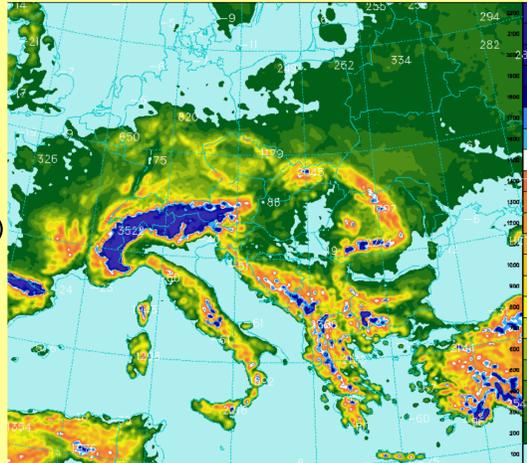




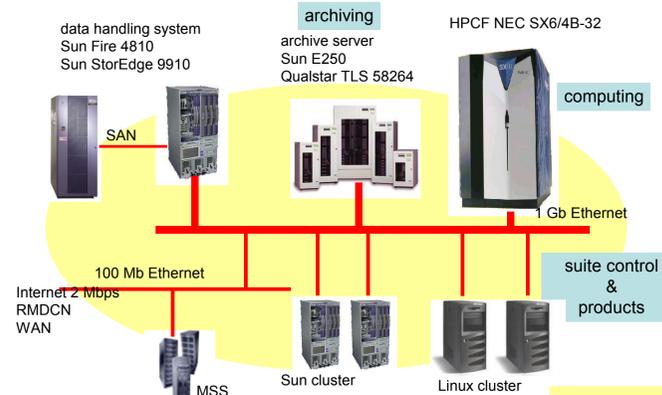
ALADIN@CHMI

OPERATIONAL

- LACE domain (309x277 grid points, linear truncation E159x143, $\Delta x=9\text{km}$)
- 43 vertical levels, mean orography
- time step 360 s
- digital filter spectral blending long cut-off cycle (6h cycle, filtering at truncation E47x42, no DFI in the next +6h guess integration)
- digital filter blending + incremental DFI initialization of short cut-off production analysis
- 3h coupling interval
- ARPEGE/ALADIN cycle 28T3
- 00 and 12 UTC forecast to +54h
- hourly on-line fullpos
- post-processing of near-surface parameters into selected localities using obs-operators of OI
- new products for RODOS



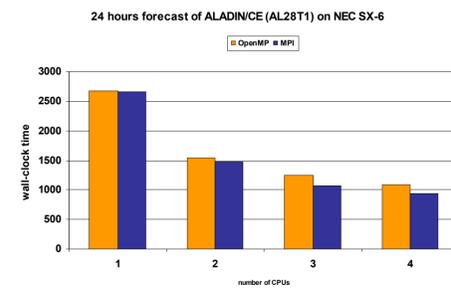
- hourly DIAGPACK analysis of T_{2m} , RH_{2m} , v_{10m} , KO-index, CAPE, MOCON (SYNOP observations)
- verification package based on cycle AL12 (AL28 in validation)
- monitoring of SYNOP and TEMP observation based on OI quality control



- #### Model Operations
- operational team:
 - 4 NWPers (on-call support)
 - computer operators
 - the suite operated under SMS 4
 - mixed use of RMDCN and Internet

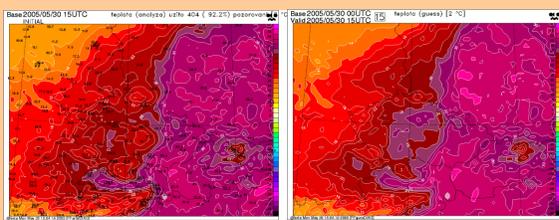
NEC SX-6/4B-32

- 4x 8 GFlops/s vector processors
- 11 GFlops/s sustained
- 32 GB shared memory
- 128 GB/s
- SuperUX 13.1
- NQS batch processing
- OpenMP and MPI

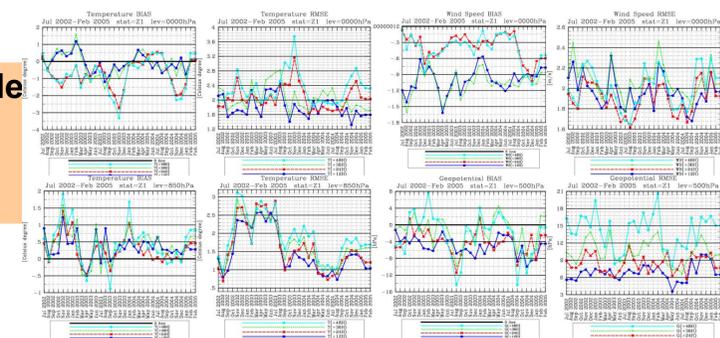


Diagpack

analysis and guess of 2m temperature for 20050530 at 15UTC



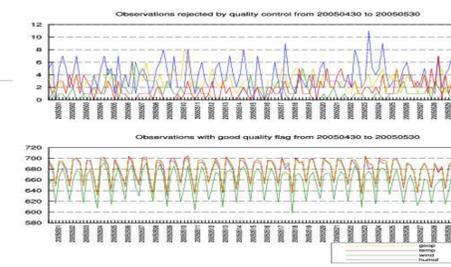
00 UTC mode scores
monthly averages against 33 Czech SYNOP stations



Observation monitoring

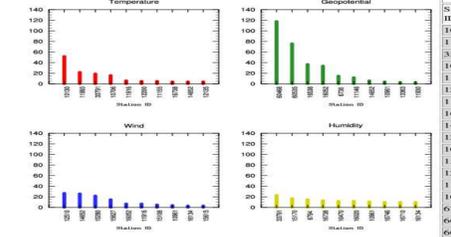
observations rejected by quality control and with good flags for last 30 days
monitoring of stations with the highest number of rejected observations

Monitoring of SYNOP observations for last 30 days



Hour	temp good	temp bad	temp good	temp bad	wind good	wind bad	humid good	humid bad
2005 05 30 00	606	1	607	0	648	1	695	2
05 30 06	650	1	650	1	620	1	649	2
12 06 18	683	2	681	1	638	0	676	6
2005 05 29 00	694	3	694	3	671	0	690	7
06 06 06	686	2	687	1	640	1	683	5
12 06 18	647	1	644	4	615	2	644	4
2005 05 28 00	681	5	685	0	662	1	681	2
06 06 12	692	4	692	4	662	1	691	1
12 06 18	679	3	674	7	656	2	674	7
2005 05 27 00	690	2	690	2	648	3	691	1
06 06 06	649	1	645	5	616	0	648	2
12 06 18	675	3	677	1	638	2	676	2
2005 05 26 00	692	4	692	4	662	1	691	5
06 06 06	679	3	680	2	629	1	679	3
12 06 18	638	1	636	3	612	1	637	2
2005 05 25 00	674	3	675	2	649	1	673	3
06 06 06	688	3	687	4	669	1	688	3
12 06 18	692	4	692	4	654	1	690	6
2005 05 24 00	648	2	646	4	616	3	645	5
06 06 06	686	1	685	2	652	2	684	3
12 06 18	698	5	698	5	678	1	699	3
2005 05 23 00	696	3	698	1	661	1	696	3
06 06 06	652	4	655	1	633	1	654	2

SYNOP stations with the highest number of rejected observations for 05/2005



Stations ordered by number of rejected observations:

Station ID	Temperature Rejected obs	Geopotential Rejected obs	Wind Rejected obs	Humidity Rejected obs
10130	52	66468	118	12510
11993	22	66835	76	14682
33791	19	16538	37	15280
10706	16	16052	34	15627
11916	6	6730	15	16052
12200	5	11146	12	11916
11155	5	14652	6	15108
16738	4	10961	4	10961
14652	4	13363	3	16134
12135	4	11930	3	16134
10791	4	6720	3	11930
15108	3	60475	2	10980
12510	3	16096	2	10378
11212	3	11112	2	11155
10131	3	6680	2	10180
6791	3	66445	1	10908
6669	3	66402	1	66468
66462	2	66360	1	66360

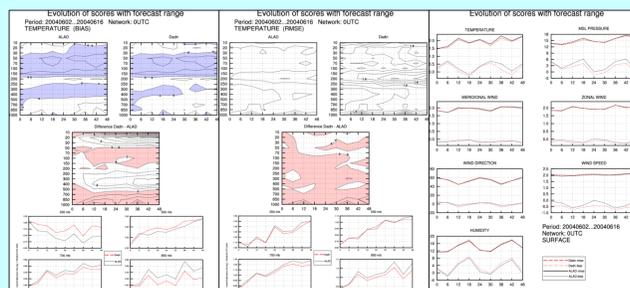
Major operational changes

CHANGES IN MODEL PHYSICS AND DYNAMICS (autumn 2004)

- new parameterization of the GWD and orographic lift
- replacement of envelope by the mean orography
- linear spectral diffusion mostly replaced by SLHD
- quasy-monotonous specific humidity interpolation
- consistency improvement in the radiation scheme
- evaporation over sea enhancement by gustiness
- roughness modification over sea
- damp fibrillations around 0°C (modified ratio of fall speeds of rain and snow)
- improvement in the cloudiness scheme (new formulation and tuning of Xu-Randal)
- new PBL height diagnostic
- modification concerning the inversion-layer clouds

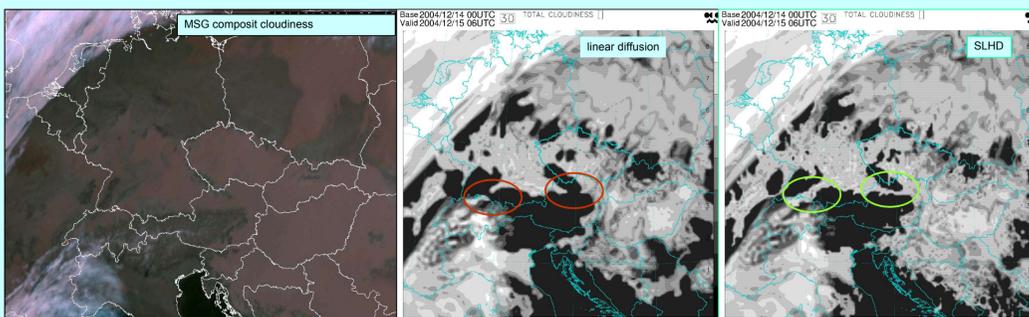
Testing results:

- temperature improvement
- slight geopotential and 10m wind deterioration
- improved cyclogenesis
- reduction of local precipitation spots around orography peaks and too strong upwind slopes precipitation



SLHD improves cloudiness

The local impact of the SLHD (semi-Lagrangian horizontal diffusion) scheme was found to be beneficial also for the diagnostics of cloudiness above orographic features. As shown on the figures from the 30 hours forecast, the linear spectral diffusion scheme redistributes moisture from the Danube valley. Consequently model with this scheme is not able to diagnose the low cloudiness which has been developing there

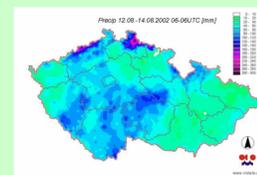


Future plans

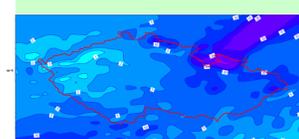
ENSEMBLE FORECASTING

A recent idea to use the ensemble forecasting technique initially mainly for the hydrological purposes at CHMI is behind our first steps with ALADIN/LAMEPS. With the help and ready to use tools of our Hungarian colleagues we have learnt the methods how to run and verify the results of both global and local ensemble systems (ARPEGE/PEACE and ALADIN/LAMEPS). After the first practical aims (implementation of necessary ARPEGE/ALADIN configurations in Prague) the more scientific work on the improvement of performance of the whole EPS system in the frame of LACE cooperation is planned. The preferred topics for the time being should be related to French ARPEGE/PEACE system as a forcing for ALADIN/LAMEPS

EPS case study of flood event from August 2002



observed precipitation sum for August 12-13, 2002



2 days ensemble mean precipitation for August 12-13, 2002



probability forecast of two days sums of precipitation above 150 mm, for August 12-13, 2002.

The examples of the output from EPS case study of flood event from August 2002 (top) are shown here. The comprehensive evaluation of the whole flood period from EPS point of view is in progress (objective scores computations for different catchments or predefined areas, preparation of inputs for hydrological models and evaluation of their outputs etc.). The results of one ALADIN/LAMEPS 60h long integration starting from 18 UTC, 11th May are presented. The boundary conditions come from ARPEGE/PEACE. The ensemble mean (middle) looks to perform better than control run: the precipitation maxima in Jizerske hory (mountains in the Northern Bohemia) are increased and too high ones in the middle of Czech republic decreased. There is also more precipitation over Krusne hory (mountains in the north-western Bohemia) and Sumava (southern part of Bohemia). The predictability of the flood event was very good because the heavy rains in the most affected areas in Northern Bohemia are present in all EPS members. There is a high probability of the occurrence of heavy rains even for the threshold 150 mm during 48 hours (bottom).