

# Recent activities and ambitions in LACE Data Assimilation

Gergely Bölöni  
(with contributions from Alena Trojáková and Oldrich Spaniel)

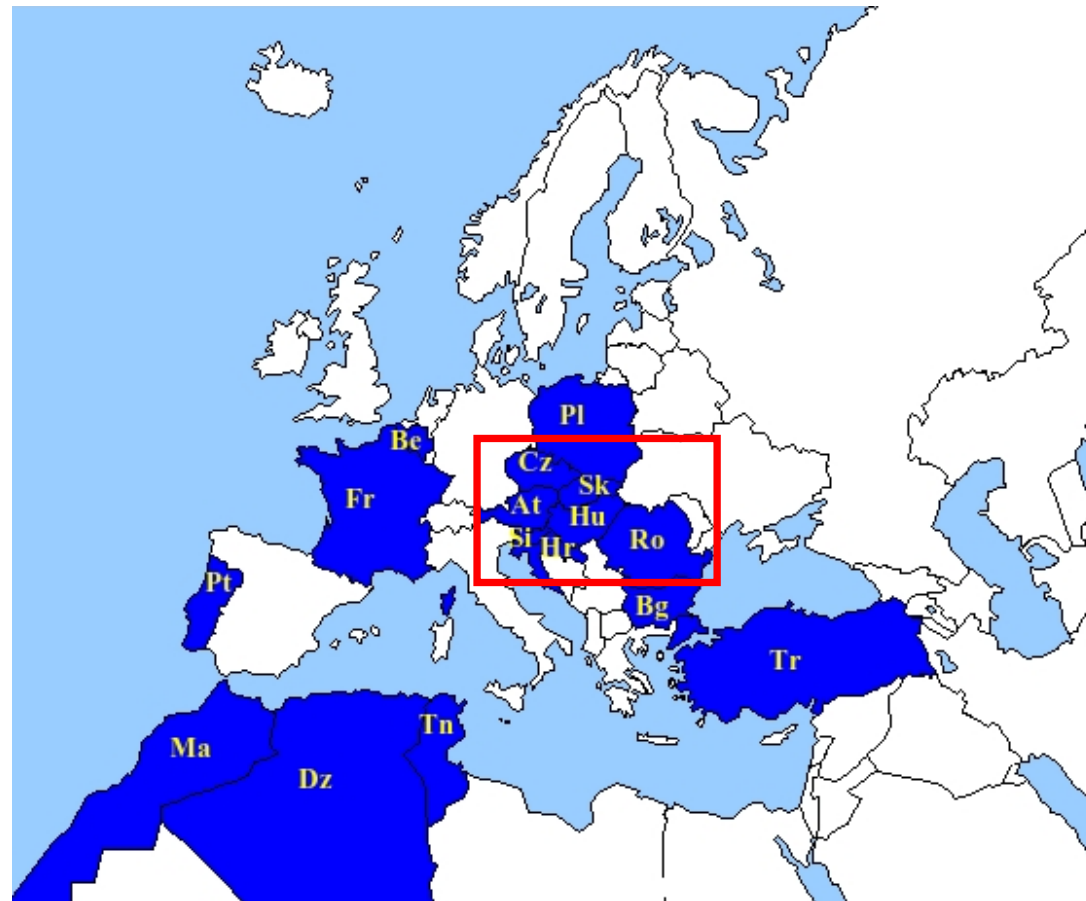


# Content

1. Recent developments
2. Ambitions (observation preprocessing and DA installations)

# LACE

- Austria
- Croatia
- Czech Republic
- Hungary
- Romania
- Slovakia
- Slovenia



# Recent developments

## BlendVar (CZ)

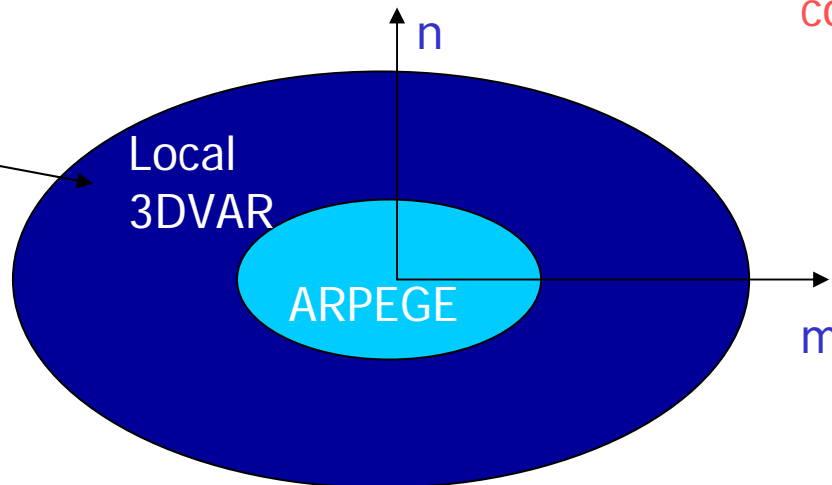
New experimental setup. Blending (atm) + OI (surf) + 3DVAR (atm)

Oper CZ

New component

Settings:

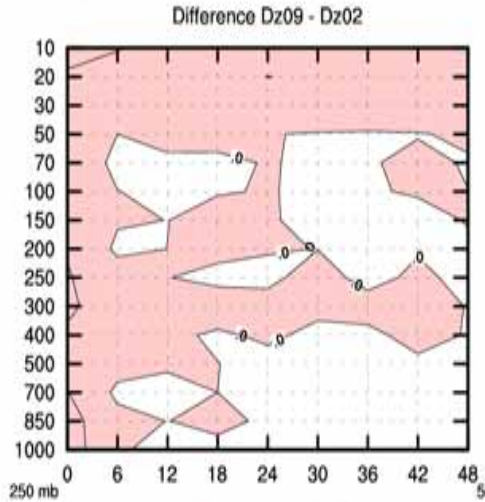
- lagged NMC B matrix (small lengthscales)
- SYNOP and TEMP obs



# Recent developments

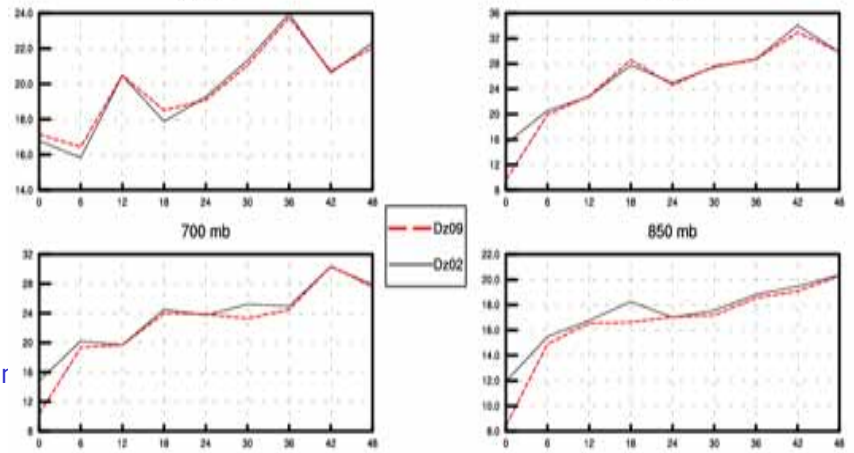
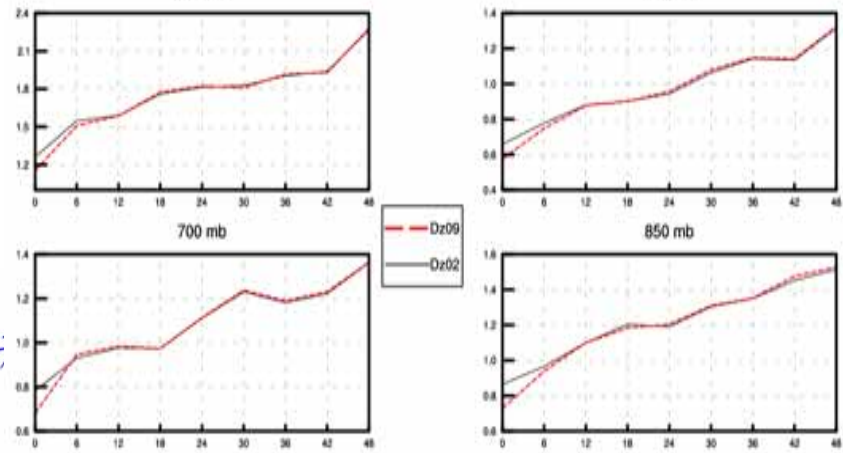
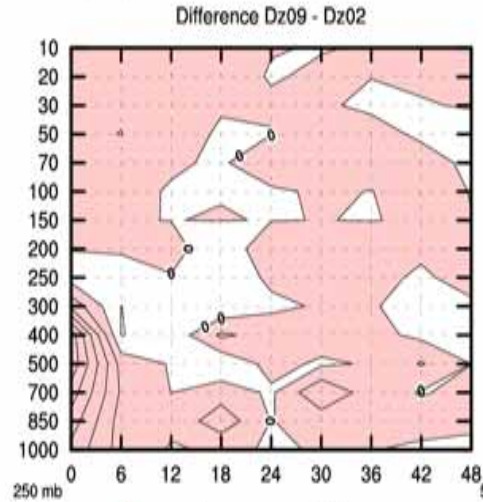
## BlendVar (CZ)

**T**



**Black: oper**  
**Red: BlendVar**

**RH**



eting, Madr



# Recent developments

## Surface assimilation and new LBCs (HU)

New operational setup: OI (surf) + 3DVAR (atm) + LBC from ECMWF (IFS)

New components

OI (CANARI) settings:

- SST analysis from the global model
- soil analysis using 2m RH and T observations

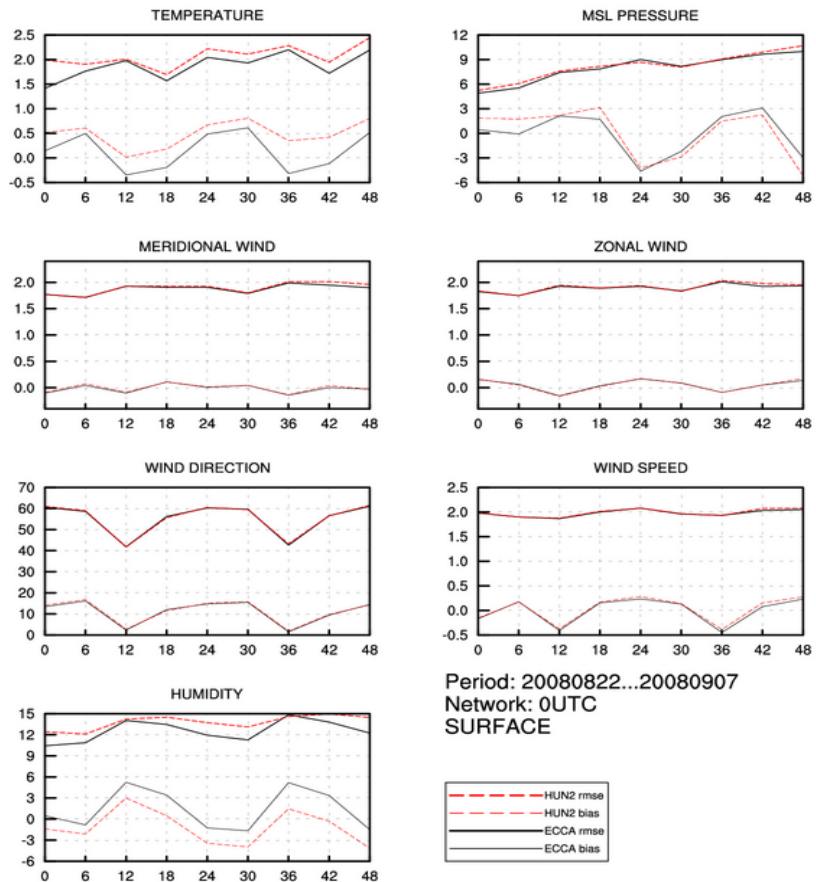
LBC settings:

- ECMWF LBCs in assimilation and production (use ARPEGE as backup)
- LBCs from ECMWF are used with a 6 hour shift  
(i.e. at 00 UTC use LBCs from the 18UTC run, etc.)

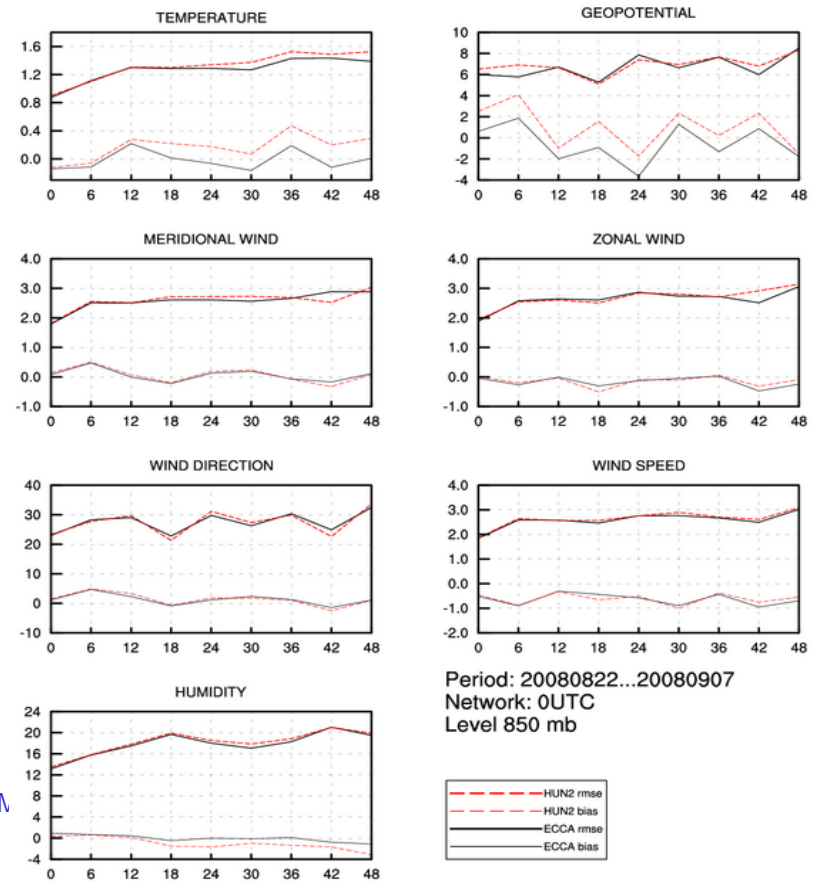
# Recent developments

## Surface assimilation and new LBCs (HU)

Evolution of scores with forecast range **2m**



Evolution of scores with forecast range **850hPa**



meeting, M



# Recent developments

## Use of observations (HU)

### MSG/SEVIRI

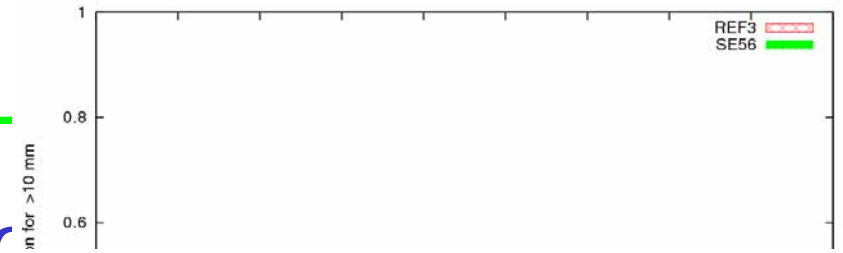
- use IR + WV channels
- neutral classical scores
- improved QPF scores for precipitation (together w

### Wind Profilers

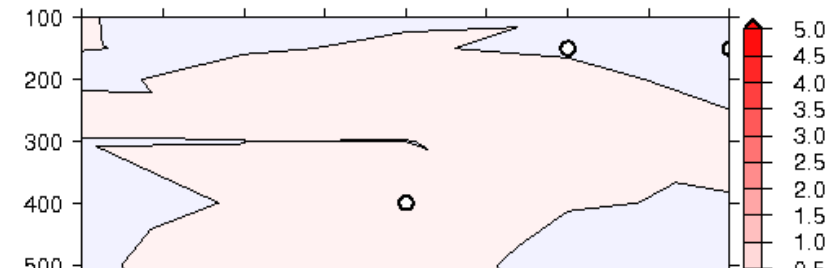
- Meteo France blacklist (4 sites, data between 700
- slight improvement for wind and humidity (oper s

### NOAA/ATOVS

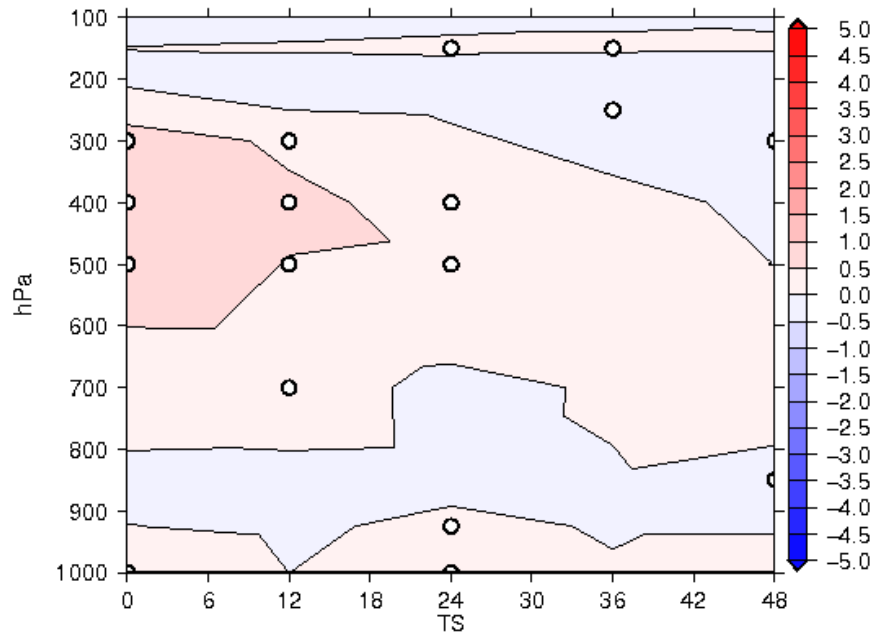
- add NOAA-18 (AMSU-A and MHS)
- improvement in humidity (oper since 28/01/2008)



**Experiments: ALHU\_00 - WPRF\_00**  
 Par: RHU Period: 2007090600-2007092200  
 Area: egeszAladin Score: terRMSE-sign Ref: ECM\_boloni Val: -0.1/0.1



**Experiments: ALHU\_12 - AN18\_12**  
 Par: RHU Period: 2007072700-2007082600  
 Area: egeszAladin Score: terRMSE-sign Ref: ECM\_boloni Val: -0.3/1.0





# Ambitions: obs preprocessing

- Preprocessing center is HMS
- Regular preprocessing from Jan 2009 (GTS and EUMETCAST)
- Later include national data from all members (from 2010 ?)
- Download via Ftp from HMS
- ASCII and GRIB (later BUFR instead of ASCII)
- 1 file / timeslot / obstype (for FGAT, 4DVAR, OSEs)
- Tool to merge and split data by obstype and timeslot
- A short and longer cut-off



# Local installations of DA systems

„Brick” approach: comprehensive script samples

Help via the  
web forum  
of LACE

**Screening in general**  
by Alena.Trojickova on Wed Jul 23, 2008 1:48 pm

**Screening** is described in Fischer et al (2007) as the last step of the pre-treatment of the data to be used in the analysis. Aim is to remove the wrong data and to make the final choices inside the set of data which are found to be potentially acceptable by the control at the monitoring. The observations are controlled against the background, to verify their vertical consistency, and then thinned when their spatial density is too high compared to the resolution of the analysis (to avoid representativeness error). A further description of the several steps of screening can be found in the References below. Here follows basic input/output summary and command line arguments.

**Screening procedure**

**INPUTS:**

- The first guess file  
CODE: SELECT ALL  
In -s guess ICMR83CRPHIT
- The observation database, which requires special variables to be exported  
CODE: SELECT ALL  
export ODB\_STATIC\_LINKING=1  
export TO\_ODB\_REMOTE=0  
  
export ODB\_CMA=RCMA ... Database type RCMA (extended)  
export ODB\_SRC\_PATH\_RCMA=...  
export ODB\_DATA\_PATH\_RCMA=...  
export IOASSIGH=...  
  
export ODB\_ANALYSIS\_DATE=\${YYYY}\${MM}\${DD}  
export ODB\_ANALYSIS\_TIME=\${HT}0000  
export TIME\_INIT\_YEAR=\${YYYY}\${MM}\${DD}  
export TIME\_INIT\_HOUR=\${HT}0000

**OUTPUTS:**

```
CODE: SELECT ALL  
-----  
blendsur  
-----  
The above "mixed" file is then to be used as a first guess in SCREENING.  
A sample of script and rsmelist is attached.
```

**Attachments:**  
B BlendSurLog  
B RsmelistDownloadedLines

**Update of surface fields without CANARI**  
by Sergey Babenko on Thu Jul 24, 2008 5:05 pm

How to reinitialize the surface fields in an assimilation system with only atmospheric component like 3DVAR (if CANARI is not yet implemented for instance)? As 3DVAR does not modify the surface fields, the analysis will remain a 6 hour forecast as far as surface fields are concerned. This means that in a cycling forecast errors of the surface fields will accumulate without any correction by the observations. A solution is to replace the background surface fields (i.e. before the atmospheric analysis) by those of the ARPEGE analysis. This can be done by running the BLENDSUR program with an appropriate rsmelist. The BLENDSUR program can be obtained with grib2pack specifying "a blendsur".

**BlendSUR procedure**

**INPUTS:**

- The ARPEGE analysis and the first guess  
CODE: SELECT ALL  
In -m1 -m2 -m3 -m4 -m5 -m6 -m7 -m8 -m9 -m10 -m11 -m12 -m13 -m14 -m15 -m16 -m17 -m18 -m19 -m20 -m21 -m22 -m23 -m24 -m25 -m26 -m27 -m28 -m29 -m30 -m31 -m32 -m33 -m34 -m35 -m36 -m37 -m38 -m39 -m40 -m41 -m42 -m43 -m44 -m45 -m46 -m47 -m48 -m49 -m50 -m51 -m52 -m53 -m54 -m55 -m56 -m57 -m58 -m59 -m60 -m61 -m62 -m63 -m64 -m65 -m66 -m67 -m68 -m69 -m70 -m71 -m72 -m73 -m74 -m75 -m76 -m77 -m78 -m79 -m80 -m81 -m82 -m83 -m84 -m85 -m86 -m87 -m88 -m89 -m90 -m91 -m92 -m93 -m94 -m95 -m96 -m97 -m98 -m99 -m100 -m101 -m102 -m103 -m104 -m105 -m106 -m107 -m108 -m109 -m110 -m111 -m112 -m113 -m114 -m115 -m116 -m117 -m118 -m119 -m120 -m121 -m122 -m123 -m124 -m125 -m126 -m127 -m128 -m129 -m130 -m131 -m132 -m133 -m134 -m135 -m136 -m137 -m138 -m139 -m140 -m141 -m142 -m143 -m144 -m145 -m146 -m147 -m148 -m149 -m150 -m151 -m152 -m153 -m154 -m155 -m156 -m157 -m158 -m159 -m160 -m161 -m162 -m163 -m164 -m165 -m166 -m167 -m168 -m169 -m170 -m171 -m172 -m173 -m174 -m175 -m176 -m177 -m178 -m179 -m180 -m181 -m182 -m183 -m184 -m185 -m186 -m187 -m188 -m189 -m190 -m191 -m192 -m193 -m194 -m195 -m196 -m197 -m198 -m199 -m200 -m201 -m202 -m203 -m204 -m205 -m206 -m207 -m208 -m209 -m210 -m211 -m212 -m213 -m214 -m215 -m216 -m217 -m218 -m219 -m220 -m221 -m222 -m223 -m224 -m225 -m226 -m227 -m228 -m229 -m230 -m231 -m232 -m233 -m234 -m235 -m236 -m237 -m238 -m239 -m240 -m241 -m242 -m243 -m244 -m245 -m246 -m247 -m248 -m249 -m250 -m251 -m252 -m253 -m254 -m255 -m256 -m257 -m258 -m259 -m260 -m261 -m262 -m263 -m264 -m265 -m266 -m267 -m268 -m269 -m270 -m271 -m272 -m273 -m274 -m275 -m276 -m277 -m278 -m279 -m280 -m281 -m282 -m283 -m284 -m285 -m286 -m287 -m288 -m289 -m290 -m291 -m292 -m293 -m294 -m295 -m296 -m297 -m298 -m299 -m300 -m301 -m302 -m303 -m304 -m305 -m306 -m307 -m308 -m309 -m310 -m311 -m312 -m313 -m314 -m315 -m316 -m317 -m318 -m319 -m320 -m321 -m322 -m323 -m324 -m325 -m326 -m327 -m328 -m329 -m330 -m331 -m332 -m333 -m334 -m335 -m336 -m337 -m338 -m339 -m340 -m341 -m342 -m343 -m344 -m345 -m346 -m347 -m348 -m349 -m350 -m351 -m352 -m353 -m354 -m355 -m356 -m357 -m358 -m359 -m360 -m361 -m362 -m363 -m364 -m365 -m366 -m367 -m368 -m369 -m370 -m371 -m372 -m373 -m374 -m375 -m376 -m377 -m378 -m379 -m380 -m381 -m382 -m383 -m384 -m385 -m386 -m387 -m388 -m389 -m390 -m391 -m392 -m393 -m394 -m395 -m396 -m397 -m398 -m399 -m400 -m401 -m402 -m403 -m404 -m405 -m406 -m407 -m408 -m409 -m410 -m411 -m412 -m413 -m414 -m415 -m416 -m417 -m418 -m419 -m420 -m421 -m422 -m423 -m424 -m425 -m426 -m427 -m428 -m429 -m430 -m431 -m432 -m433 -m434 -m435 -m436 -m437 -m438 -m439 -m440 -m441 -m442 -m443 -m444 -m445 -m446 -m447 -m448 -m449 -m450 -m451 -m452 -m453 -m454 -m455 -m456 -m457 -m458 -m459 -m460 -m461 -m462 -m463 -m464 -m465 -m466 -m467 -m468 -m469 -m470 -m471 -m472 -m473 -m474 -m475 -m476 -m477 -m478 -m479 -m480 -m481 -m482 -m483 -m484 -m485 -m486 -m487 -m488 -m489 -m490 -m491 -m492 -m493 -m494 -m495 -m496 -m497 -m498 -m499 -m500 -m501 -m502 -m503 -m504 -m505 -m506 -m507 -m508 -m509 -m510 -m511 -m512 -m513 -m514 -m515 -m516 -m517 -m518 -m519 -m520 -m521 -m522 -m523 -m524 -m525 -m526 -m527 -m528 -m529 -m530 -m531 -m532 -m533 -m534 -m535 -m536 -m537 -m538 -m539 -m540 -m541 -m542 -m543 -m544 -m545 -m546 -m547 -m548 -m549 -m550 -m551 -m552 -m553 -m554 -m555 -m556 -m557 -m558 -m559 -m560 -m561 -m562 -m563 -m564 -m565 -m566 -m567 -m568 -m569 -m570 -m571 -m572 -m573 -m574 -m575 -m576 -m577 -m578 -m579 -m580 -m581 -m582 -m583 -m584 -m585 -m586 -m587 -m588 -m589 -m590 -m591 -m592 -m593 -m594 -m595 -m596 -m597 -m598 -m599 -m600 -m601 -m602 -m603 -m604 -m605 -m606 -m607 -m608 -m609 -m610 -m611 -m612 -m613 -m614 -m615 -m616 -m617 -m618 -m619 -m620 -m621 -m622 -m623 -m624 -m625 -m626 -m627 -m628 -m629 -m630 -m631 -m632 -m633 -m634 -m635 -m636 -m637 -m638 -m639 -m640 -m641 -m642 -m643 -m644 -m645 -m646 -m647 -m648 -m649 -m650 -m651 -m652 -m653 -m654 -m655 -m656 -m657 -m658 -m659 -m660 -m661 -m662 -m663 -m664 -m665 -m666 -m667 -m668 -m669 -m670 -m671 -m672 -m673 -m674 -m675 -m676 -m677 -m678 -m679 -m680 -m681 -m682 -m683 -m684 -m685 -m686 -m687 -m688 -m689 -m690 -m691 -m692 -m693 -m694 -m695 -m696 -m697 -m698 -m699 -m700 -m701 -m702 -m703 -m704 -m705 -m706 -m707 -m708 -m709 -m710 -m711 -m712 -m713 -m714 -m715 -m716 -m717 -m718 -m719 -m720 -m721 -m722 -m723 -m724 -m725 -m726 -m727 -m728 -m729 -m730 -m731 -m732 -m733 -m734 -m735 -m736 -m737 -m738 -m739 -m740 -m741 -m742 -m743 -m744 -m745 -m746 -m747 -m748 -m749 -m750 -m751 -m752 -m753 -m754 -m755 -m756 -m757 -m758 -m759 -m760 -m761 -m762 -m763 -m764 -m765 -m766 -m767 -m768 -m769 -m770 -m771 -m772 -m773 -m774 -m775 -m776 -m777 -m778 -m779 -m780 -m781 -m782 -m783 -m784 -m785 -m786 -m787 -m788 -m789 -m790 -m791 -m792 -m793 -m794 -m795 -m796 -m797 -m798 -m799 -m800 -m801 -m802 -m803 -m804 -m805 -m806 -m807 -m808 -m809 -m810 -m811 -m812 -m813 -m814 -m815 -m816 -m817 -m818 -m819 -m820 -m821 -m822 -m823 -m824 -m825 -m826 -m827 -m828 -m829 -m830 -m831 -m832 -m833 -m834 -m835 -m836 -m837 -m838 -m839 -m840 -m841 -m842 -m843 -m844 -m845 -m846 -m847 -m848 -m849 -m850 -m851 -m852 -m853 -m854 -m855 -m856 -m857 -m858 -m859 -m860 -m861 -m862 -m863 -m864 -m865 -m866 -m867 -m868 -m869 -m870 -m871 -m872 -m873 -m874 -m875 -m876 -m877 -m878 -m879 -m880 -m881 -m882 -m883 -m884 -m885 -m886 -m887 -m888 -m889 -m890 -m891 -m892 -m893 -m894 -m895 -m896 -m897 -m898 -m899 -m900 -m901 -m902 -m903 -m904 -m905 -m906 -m907 -m908 -m909 -m910 -m911 -m912 -m913 -m914 -m915 -m916 -m917 -m918 -m919 -m920 -m921 -m922 -m923 -m924 -m925 -m926 -m927 -m928 -m929 -m930 -m931 -m932 -m933 -m934 -m935 -m936 -m937 -m938 -m939 -m940 -m941 -m942 -m943 -m944 -m945 -m946 -m947 -m948 -m949 -m950 -m951 -m952 -m953 -m954 -m955 -m956 -m957 -m958 -m959 -m960 -m961 -m962 -m963 -m964 -m965 -m966 -m967 -m968 -m969 -m970 -m971 -m972 -m973 -m974 -m975 -m976 -m977 -m978 -m979 -m980 -m981 -m982 -m983 -m984 -m985 -m986 -m987 -m988 -m989 -m990 -m991 -m992 -m993 -m994 -m995 -m996 -m997 -m998 -m999 -m1000 -m1001 -m1002 -m1003 -m1004 -m1005 -m1006 -m1007 -m1008 -m1009 -m1010 -m1011 -m1012 -m1013 -m1014 -m1015 -m1016 -m1017 -m1018 -m1019 -m1020 -m1021 -m1022 -m1023 -m1024 -m1025 -m1026 -m1027 -m1028 -m1029 -m1030 -m1031 -m1032 -m1033 -m1034 -m1035 -m1036 -m1037 -m1038 -m1039 -m1040 -m1041 -m1042 -m1043 -m1044 -m1045 -m1046 -m1047 -m1048 -m1049 -m1050 -m1051 -m1052 -m1053 -m1054 -m1055 -m1056 -m1057 -m1058 -m1059 -m1060 -m1061 -m1062 -m1063 -m1064 -m1065 -m1066 -m1067 -m1068 -m1069 -m1070 -m1071 -m1072 -m1073 -m1074 -m1075 -m1076 -m1077 -m1078 -m1079 -m1080 -m1081 -m1082 -m1083 -m1084 -m1085 -m1086 -m1087 -m1088 -m1089 -m1090 -m1091 -m1092 -m1093 -m1094 -m1095 -m1096 -m1097 -m1098 -m1099 -m1100 -m1101 -m1102 -m1103 -m1104 -m1105 -m1106 -m1107 -m1108 -m1109 -m1110 -m1111 -m1112 -m1113 -m1114 -m1115 -m1116 -m1117 -m1118 -m1119 -m1120 -m1121 -m1122 -m1123 -m1124 -m1125 -m1126 -m1127 -m1128 -m1129 -m1130 -m1131 -m1132 -m1133 -m1134 -m1135 -m1136 -m1137 -m1138 -m1139 -m1140 -m1141 -m1142 -m1143 -m1144 -m1145 -m1146 -m1147 -m1148 -m1149 -m1150 -m1151 -m1152 -m1153 -m1154 -m1155 -m1156 -m1157 -m1158 -m1159 -m1160 -m1161 -m1162 -m1163 -m1164 -m1165 -m1166 -m1167 -m1168 -m1169 -m1170 -m1171 -m1172 -m1173 -m1174 -m1175 -m1176 -m1177 -m1178 -m1179 -m1180 -m1181 -m1182 -m1183 -m1184 -m1185 -m1186 -m1187 -m1188 -m1189 -m1190 -m1191 -m1192 -m1193 -m1194 -m1195 -m1196 -m1197 -m1198 -m1199 -m1200 -m1201 -m1202 -m1203 -m1204 -m1205 -m1206 -m1207 -m1208 -m1209 -m1210 -m1211 -m1212 -m1213 -m1214 -m1215 -m1216 -m1217 -m1218 -m1219 -m1220 -m1221 -m1222 -m1223 -m1224 -m1225 -m1226 -m1227 -m1228 -m1229 -m1230 -m1231 -m1232 -m1233 -m1234 -m1235 -m1236 -m1237 -m1238 -m1239 -m1240 -m1241 -m1242 -m1243 -m1244 -m1245 -m1246 -m1247 -m1248 -m1249 -m1250 -m1251 -m1252 -m1253 -m1254 -m1255 -m1256 -m1257 -m1258 -m1259 -m1260 -m1261 -m1262 -m1263 -m1264 -m1265 -m1266 -m1267 -m1268 -m1269 -m1270 -m1271 -m1272 -m1273 -m1274 -m1275 -m1276 -m1277 -m1278 -m1279 -m1280 -m1281 -m1282 -m1283 -m1284 -m1285 -m1286 -m1287 -m1288 -m1289 -m1290 -m1291 -m1292 -m1293 -m1294 -m1295 -m1296 -m1297 -m1298 -m1299 -m1300 -m1301 -m1302 -m1303 -m1304 -m1305 -m1306 -m1307 -m1308 -m1309 -m1310 -m1311 -m1312 -m1313 -m1314 -m1315 -m1316 -m1317 -m1318 -m1319 -m1320 -m1321 -m1322 -m1323 -m1324 -m1325 -m1326 -m1327 -m1328 -m1329 -m1330 -m1331 -m1332 -m1333 -m1334 -m1335 -m1336 -m1337 -m1338 -m1339 -m1340 -m1341 -m1342 -m1343 -m1344 -m1345 -m1346 -m1347 -m1348 -m1349 -m1350 -m1351 -m1352 -m1353 -m1354 -m1355 -m1356 -m1357 -m1358 -m1359 -m1360 -m1361 -m1362 -m1363 -m1364 -m1365 -m1366 -m1367 -m1368 -m1369 -m1370 -m1371 -m1372 -m1373 -m1374 -m1375 -m1376 -m1377 -m1378 -m1379 -m1380 -m1381 -m1382 -m1383 -m1384 -m1385 -m1386 -m1387 -m1388 -m1389 -m1390 -m1391 -m1392 -m1393 -m1394 -m1395 -m1396 -m1397 -m1398 -m1399 -m1400 -m1401 -m1402 -m1403 -m1404 -m1405 -m1406 -m1407 -m1408 -m1409 -m1410 -m1411 -m1412 -m1413 -m1414 -m1415 -m1416 -m1417 -m1418 -m1419 -m1420 -m1421 -m1422 -m1423 -m1424 -m1425 -m1426 -m1427 -m1428 -m1429 -m1430 -m1431 -m1432 -m1433 -m1434 -m1435 -m1436 -m1437 -m1438 -m1439 -m1440 -m1441 -m1442 -m1443 -m1444 -m1445 -m1446 -m1447 -m1448 -m1449 -m1450 -m1451 -m1452 -m1453 -m1454 -m1455 -m1456 -m1457 -m1458 -m1459 -m1460 -m1461 -m1462 -m1463 -m1464 -m1465 -m1466 -m1467 -m1468 -m1469 -m1470 -m1471 -m1472 -m1473 -m1474 -m1475 -m1476 -m1477 -m1478 -m1479 -m1480 -m1481 -m1482 -m1483 -m1484 -m1485 -m1486 -m1487 -m1488 -m1489 -m1490 -m1491 -m1492 -m1493 -m1494 -m1495 -m1496 -m1497 -m1498 -m1499 -m1500 -m1501 -m1502 -m1503 -m1504 -m1505 -m1506 -m1507 -m1508 -m1509 -m1510 -m1511 -m1512 -m1513 -m1514 -m1515 -m1516 -m1517 -m1518 -m1519 -m1520 -m1521 -m1522 -m1523 -m1524 -m1525 -m1526 -m1527 -m1528 -m1529 -m1530 -m1531 -m1532 -m1533 -m1534 -m1535 -m1536 -m1537 -m1538 -m1539 -m1540 -m1541 -m1542 -m1543 -m1544 -m1545 -m1546 -m1547 -m1548 -m1549 -m1550 -m1551 -m1552 -m1553 -m1554 -m1555 -m1556 -m1557 -m1558 -m1559 -m1560 -m1561 -m1562 -m1563 -m1564 -m1565 -m1566 -m1567 -m1568 -m1569 -m1570 -m1571 -m1572 -m1573 -m1574 -m1575 -m1576 -m1577 -m1578 -m1579 -m1580 -m1581 -m1582 -m1583 -m1584 -m1585 -m1586 -m1587 -m1588 -m1589 -m1590 -m1591 -m1592 -m1593 -m1594 -m1595 -m1596 -m1597 -m1598 -m1599 -m1600 -m1601 -m1602 -m1603 -m1604 -m1605 -m1606 -m1607 -m1608 -m1609 -m1610 -m1611 -m1612 -m1613 -m1614 -m1615 -m1616 -m1617 -m1618 -m1619 -m1620 -m1621 -m1622 -m1623 -m1624 -m1625 -m1626 -m1627 -m1628 -m1629 -m1630 -m1631 -m1632 -m1633 -m1634 -m1635 -m1636 -m1637 -m1638 -m1639 -m1640 -m1641 -m1642 -m1643 -m1644 -m1645 -m1646 -m1647 -m1648 -m1649 -m1650 -m1651 -m1652 -m1653 -m1654 -m1655 -m1656 -m1657 -m1658 -m1659 -m1660 -m1661 -m1662 -m1663 -m1664 -m1665 -m1666 -m1667 -m1668 -m1669 -m1670 -m1671 -m1672 -m1673 -m1674 -m1675 -m1676 -m1677 -m1678 -m1679 -m1680 -m1681 -m1682 -m1683 -m1684 -m1685 -m1686 -m1687 -m1688 -m1689 -m1690 -m1691 -m1692 -m1693 -m1694 -m1695 -m1696 -m1697 -m1698 -m1699 -m1700 -m1701 -m1702 -m1703 -m1704 -m1705 -m1706 -m1707 -m1708 -m1709 -m1710 -m1711 -m1712 -m1713 -m1714 -m1715 -m1716 -m1717 -m1718 -m1719 -m1720 -m1721 -m1722 -m1723 -m1724 -m1725 -m1726 -m1727 -m1728 -m1729 -m1730 -m1731 -m1732 -m1733 -m1734 -m1735 -m1736 -m1737 -m1738 -m1739 -m1740 -m1741 -m1742 -m1743 -m1744 -m1745 -m1746 -m1747 -m1748 -m1749 -m1750 -m1751 -m1752 -m1753 -m1754 -m1755 -m1756 -m1757 -m1758 -m1759 -m1760 -m1761 -m1762 -m1763 -m1764 -m1765 -m1766 -m1767 -m1768 -m1769 -m1770 -m1771 -m1772 -m1773 -m1774 -m1775 -m1776 -m1777 -m1778 -m1779 -m1780 -m1781 -m1782 -m1783 -m1784 -m1785 -m1786 -m1787 -m1788 -m1789 -m1790 -m1791 -m1792 -m1793 -m1794 -m1795 -m1796 -m1797 -m1798 -m1799 -m1800 -m1801 -m1802 -m1803 -m1804 -m1805 -m1806 -m1807 -m1808 -m1809 -m1810 -m1811 -m1812 -m1813 -m1814 -m1815 -m1816 -m1817 -m1818 -m1819 -m1820 -m1821 -m1822 -m1823 -m1824 -m1825 -m1826 -m1827 -m1828 -m1829 -m1830 -m1831 -m1832 -m1833 -m1834 -m1835 -m1836 -m1837 -m1838 -m1839 -m1840 -m1841 -m1842 -m1843 -m1844 -m1845 -m1846 -m1847 -m1848 -m1849 -m1850 -m1851 -m1852 -m1853 -m1854 -m1855 -m1856 -m1857 -m1858 -m1859 -m1860 -m1861 -m1862 -m1863 -m1864 -m1865 -m1866 -m1867 -m1868 -m1869 -m1870 -m1871 -m1872 -m1873 -m1874 -m1875 -m1876 -m1877 -m1878 -m1879 -m1880 -m1881 -m1882 -m1883 -m1884 -m1885 -m1886 -m1887 -m1888 -m1889 -m1890 -m1891 -m1892 -m1893 -m1894 -m1895 -m1896 -m1897 -m1898 -m1899 -m1900 -m1901 -m1902 -m1903 -m1904 -m1905 -m1906 -m1907 -m1908 -m1909 -m1910 -m1911 -m1912 -m1913 -m1914 -m1915 -m1916 -m1917 -m1918 -m1919 -m1920 -m1921 -m1922 -m1923 -m1924 -m1925 -m1926 -m1927 -m1928 -m1929 -m1930 -m1931 -m1932 -m1933 -m1934 -m1935 -m1936 -m1937 -m1938 -m1939 -m1940 -m1941 -m1942 -m1943 -m1944 -m1945 -m1946 -m1947 -m1948 -m1949 -m1950 -m1951 -m1952 -m1953 -m1954 -m1955 -m1956 -m1957 -m1958 -m1959 -m1960 -m1961 -m1962 -m1963 -m1964 -m1965 -m1966 -m1967 -m1968 -m1969 -m1970 -m1971 -m1972 -m1973 -m1974 -m1975 -m1976 -m1977 -m1978 -m1979 -m1980 -m1981 -m1982 -m1983 -m1984 -m1985 -m1986 -m1987 -m1988 -m1989 -m1990 -m1991 -m1992 -m1993 -m1994 -m1995 -m1996 -m1997 -m1998 -m1999 -m2000 -m2001 -m2002 -m2003 -m2004 -m2005 -m2006 -m2007 -m2008 -m2009 -m2010 -m2011 -m2012 -m2013 -m2014 -m2015 -m2016 -m2017 -m2018 -m2019 -m2020 -m2021 -m2022 -m2023 -m2024 -m2025 -m2026 -m2027 -m2028 -m2029 -m2030 -m2031 -m2032 -m2033 -m2034 -m2035 -m2036 -m2037 -m2038 -m2039 -m2040 -m2041 -m2042 -m2043 -m2044 -m2045 -m2046 -m2047 -m2048 -m2049 -m2050 -m2051 -m2052 -m2053 -m2054 -m2055 -m2056 -m2057 -m2058 -m2059 -m2060 -m2061 -m2062 -m2063 -m2064 -m2065 -m2066 -m2067 -m2068 -m2069 -m2070 -m2071 -m2072 -m2073 -m2074 -m2075 -m2076 -m2077 -m2078 -m2079 -m2080 -m2081 -m2082 -m2083 -m2084

# Local installations of DA systems

Possible common „supersystem“ with HIRLAM (HARMONIE system):

- central repository for sources/scripts/compilers together
- running under mSMS or SMS
- central maintenance
- missing elements for LACE (work to be devoted if this approach)

Thank you for your attention!