

DA activities at ZAMG in 2016

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All DA activities are still based on cycle 36t1, we will probably switch directly to cy40t1 (implementation is ongoing)

AROME-Nowcasting:

Main settings remained as in last report. The system was switched from cy38t1 to cy40t1 export except 3D-Var part (still cy36t1; SCREENING and MINIMIZATION of cy40t1 are not working, yet. See also next topic). Interpolation of AROME soil with PREP-Offline failed so far due to SURFACE field inconsistencies in LFINFO_MT64.

AROME_ESUITE:

CANARI with LMESCAN=T and OIMAIN-inline of cy40t1 export is used and seems to work properly. 3D-Var is still cycle 36t1. BATOR cy40t1 is working, Screening of cy40t1 is working with conventional OBS, geowind and RADAR, but crashing with satellite data during ODB reading, MINIMIZATION is running, but background error is NAN in NODE file and there are problems with reading our old B-matrix (degree vs. radiant coordinates in B-matrix file lead to EDOG crash). Debugging is ongoing.

RADAR assimilation and stay in Météo France: Two more quality indices (climate and SQI) are used in RADAR-QC now. RADAR Vienna-Airport has many RLAN noise signals. Stay in Toulouse (with Ludovic Auger): New MF RADAR-DA settings were tested on 2 heavy precipitation events in Southern France (different thinning length, different observation error, different number of profiles chosen in Bayesian 1D part) in AROME-PI 1.3km. Some slight positive impact was shown. Test of saturated RADAR moisture profiles to increase precipitation amount and even supersaturated ones in 1D+3D-Var to initialise hydrometeors instead of hydrometeor blending has been conducted with slight improvement in the two case studies over France. Development of latent heat nudging code for AROME: Code to interpolate 2D-RAPID-INCA/INCA/MF-Antilope precipitation product to AROME domain (FA file) and to nudge it during 001 was written and tested. Test failed for MF AROME-PI (Memory problems, crowded HPC), but was successful for Austrian 2.5km AROME-Nowcasting/AROME_ESUITE. More tests, tuning and better formulation for latent heating climate profiles is needed (based on former work of Jure?). Code is available for cy38t1 and cy40t1 export, stay report has still to be written.

SAF-HRW assimilation: In addition to the activities in last report a space dependent observation error was coded into BATOR (cy36t1) based on standard deviation of cloudiness

MODE-S assimilation: No new activities from our side since last report. Austrian ATC MET department receives Mode-S EHS data now (MRAR is not feasible due to huge data amount) and is interested in QC procedures.

GPS-refractivity index assimilation: For Austrian GPS network 1D+3D-Var Code refractivity index assimilation was tested and compared to ZTD assimilation (Christoph/Xin). Austria is test member of EGVAP again. EGVAP is too late for AROME-Nowcasting, but could be used in AROME-OPER. Further tests with national ZTD are planned.