Regional Cooperation for
Limited Area Modeling in Central Europe

LACE
nwp central europe

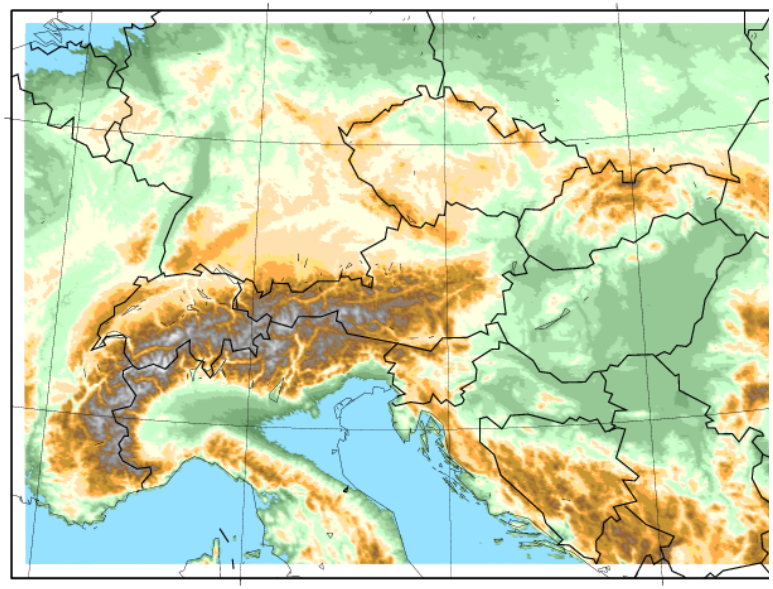
Status data assimilation in Austria

Florian Meier

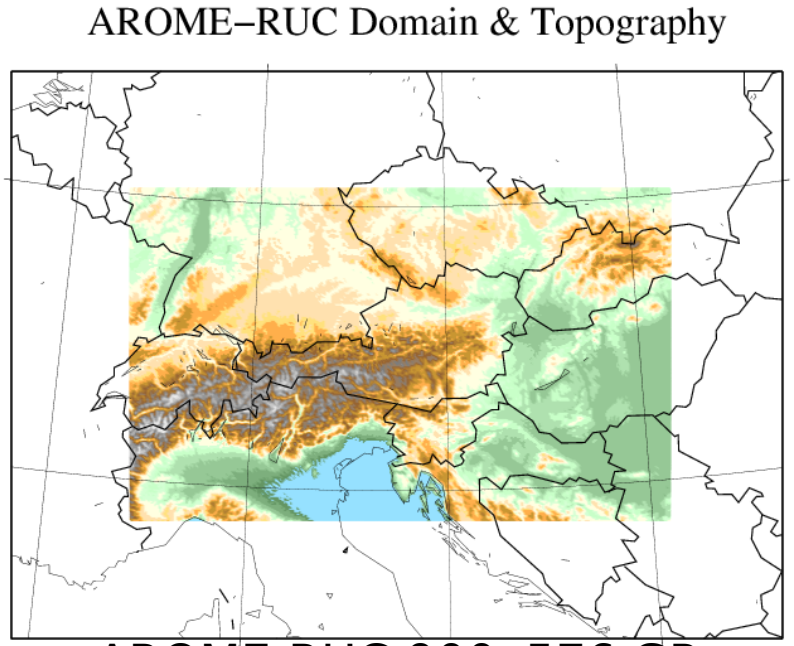
DHMZ SHMU OMSZ ZAMG ROMANIA ANM

Operational systems (cy40t1)

- AROME-Aut 2.5km/L90 3h cycle
- CLAEF (AROME-EPS) 2.5km/L90 6h cycle + Jk (ECMWF HPC)
- AROME-RUC 1.2km/L90 1h cycle + IAU
- (ALADIN LAEF 11km



AROME-/C-LAEF 600x432 GP



AROME-RUC 900x576 GP

Observations used in AROME/C-LAEF:

Obstype	Parameter
Synop+Tawes+Ship	U10m,V10m, RH2m,T2m, Z
AMDAR	U, V, T
MODE-S test (KNMI/OPLACE) DK	U, V, T
GEOWIND	AMV (WVCL1/2,WVMW1, IR3, VIS3)
TEMP	U, V, T, Z, Q
PILOT	U, V
MSG-SEVIRI	WV radiances
NOAA18/19/MetOp-A,-B	AMSU-A, AMSU-B, MHS, HIRS
MetOp-A	IASI
MetOp-A	U10m, V10m ASCAT ocean winds 25km

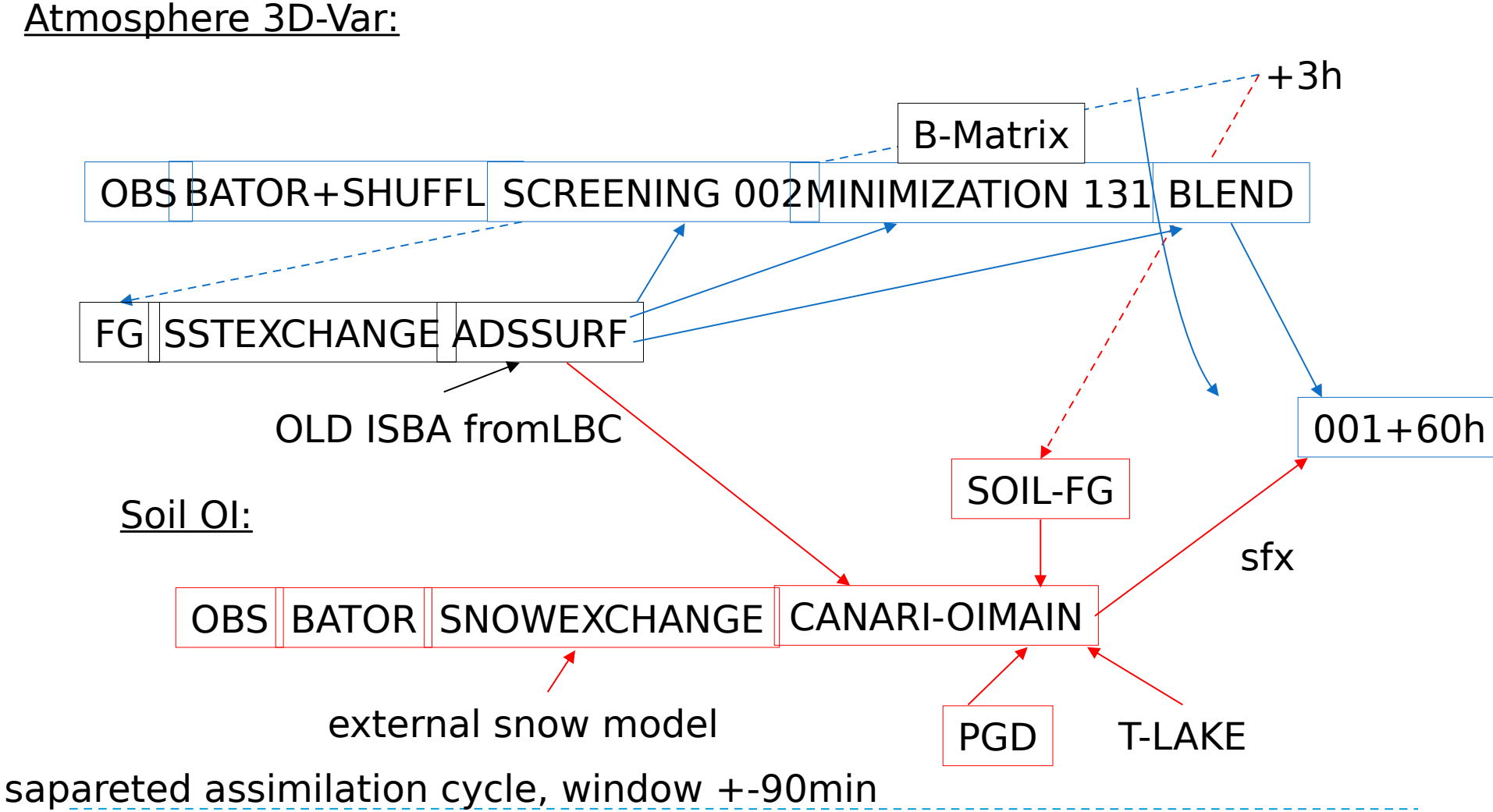
CANARI settings: REF_A=190km, LVARSIGO=F, LMESCAN=T, LCORRF=T
REF_S_T2=5.0,REF_S_H2=0.3,RCLIMCA=0.045,RCT2SY=3.9, RCH2SY=2.5

T_LAKE from Lake Constance from measurement interpolated inside OIMAIN OROLIM=3800.,ORODIF=1650. REDNMC=1.2

Additional observations in AROME-RUC:

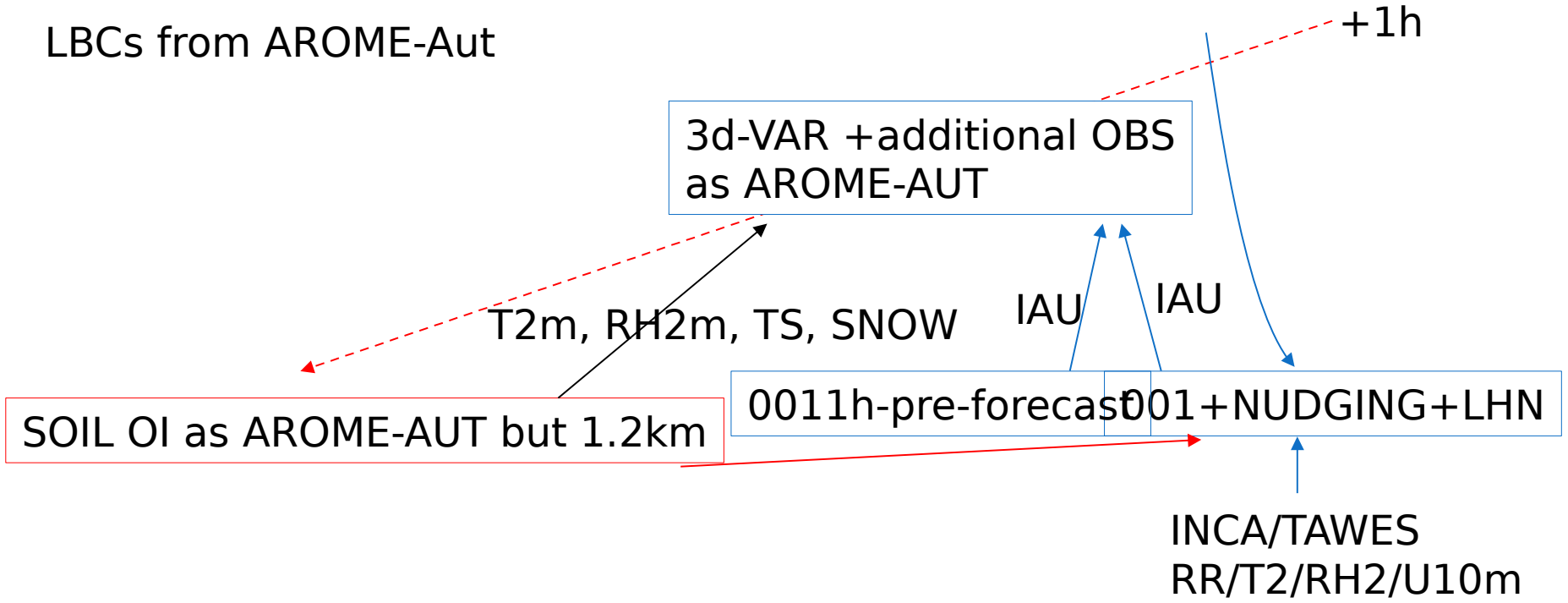
Obstype	Parameter
SYNOP national (AT+ OPLACE without SK)	U10m,V10m, RH2m,T2m, Z
MODE-S ARSO/CHMI (MRAR) KNMI/AT/DK	U, V, T +AMDAR-Q
RADAR	DOW+REF +saturation of profiles
GNSS (AT national) VARBC	ZTD
GNSS-RO ROMSAF	bending angle
Windprofiler + SODAR	U, V
MetOp-C all radiances active	AMSUA, MHS, IASI
ATMS SUOMI+NOAA20	Radiances ch1-3,5-14,16-22
INCA	RR5min via LHN
TAWES+10/20/30min	T2m/RH2m/U10m/V10m via FDDA Nudging
T-Lak	CANARI settings: REF_A=100km, LVARSIGO=F, LMESCAN=T, LCORRF=T REF_S_T2=3.12,REF_S_H2=0.28, RCLIMCA=0.045,

AROME-Aut structure (3 hourly cycle)



AROME-RUC structure (hourly cycle)

Atmosphere 3D-Var:

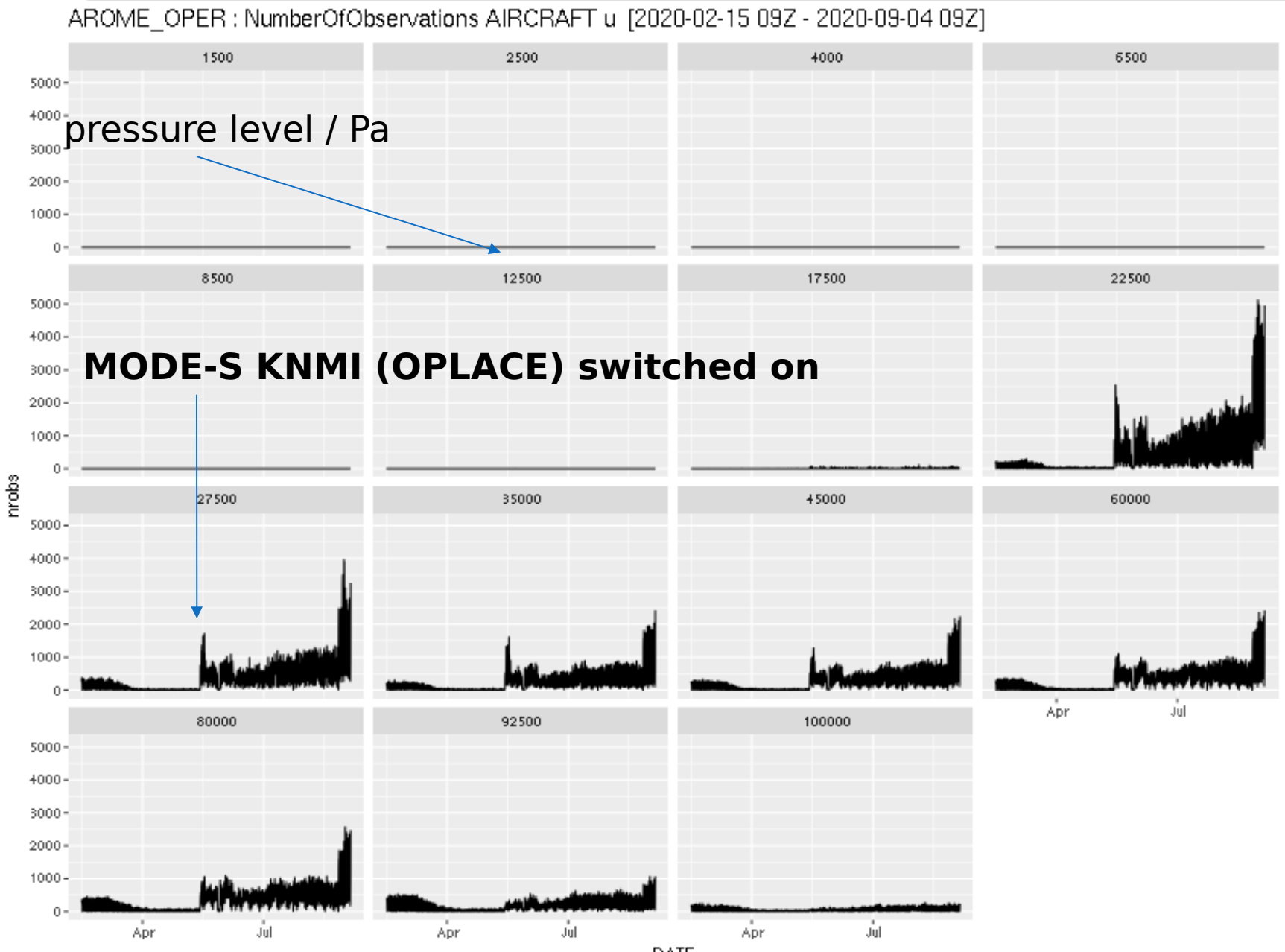


apareted assimilation cycle, window -90min-+30min; cutoff 25min

COVID 19 impact on aircraft OBS

Regional Cooperation for Limited Area Modeling in Central Europe

LACE nwp central europe



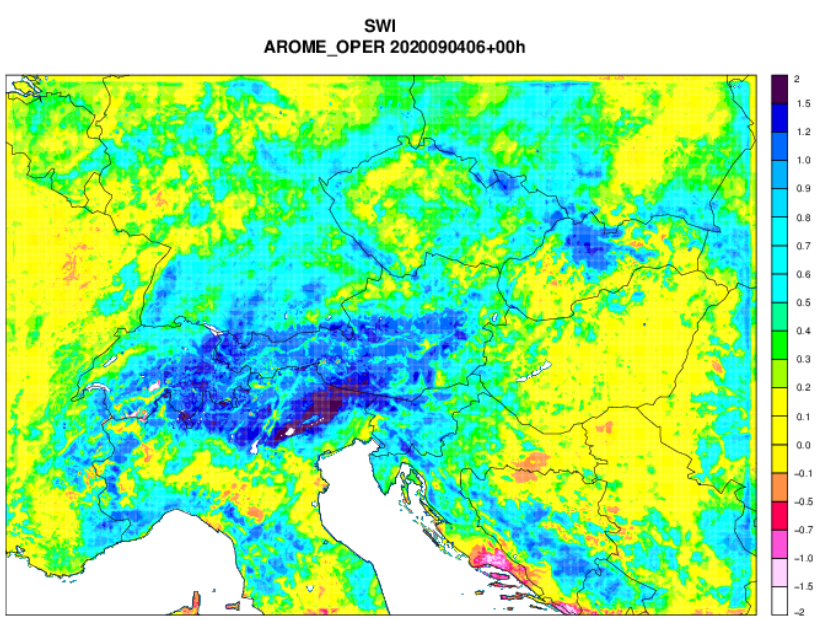
Status of cy43t2 at ZAMG

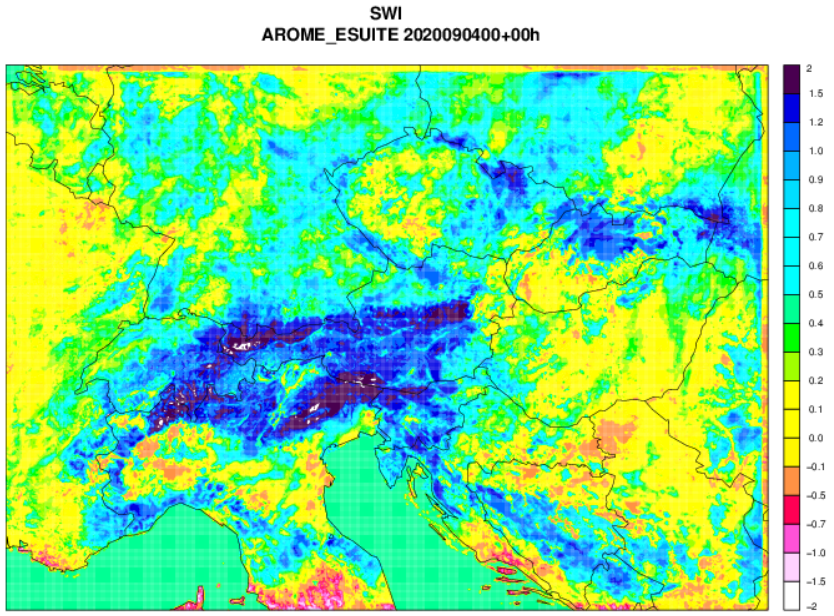
- All local modifications coded into cy43t2
- all binaries and scripts/namelists generated (setting close to cy40t1); all steps technically working
- RADAR pre-processing adapted to cy43t2 BATOR
- Start of AROME-Aut parallel run in late spring 2020 with

  same observations as cy40t1 except satellite (only passive)
- no OIMAIN namelist read in cy43t2?

Status of cy43t2 at ZAMG

ores not satisfying at all
positive 2m temperature bias at night in Alpine valleys under stable conditions
> reason: orography GMTED vs smoothed GTOPO; independent of cycle
metimes huge differences in precipitation during the first hours
nificant difference in soil moisture (cy43t2 more wet)
bably mixture of DA and other issues (orography, SURFEX, physics)
ther investigation needed





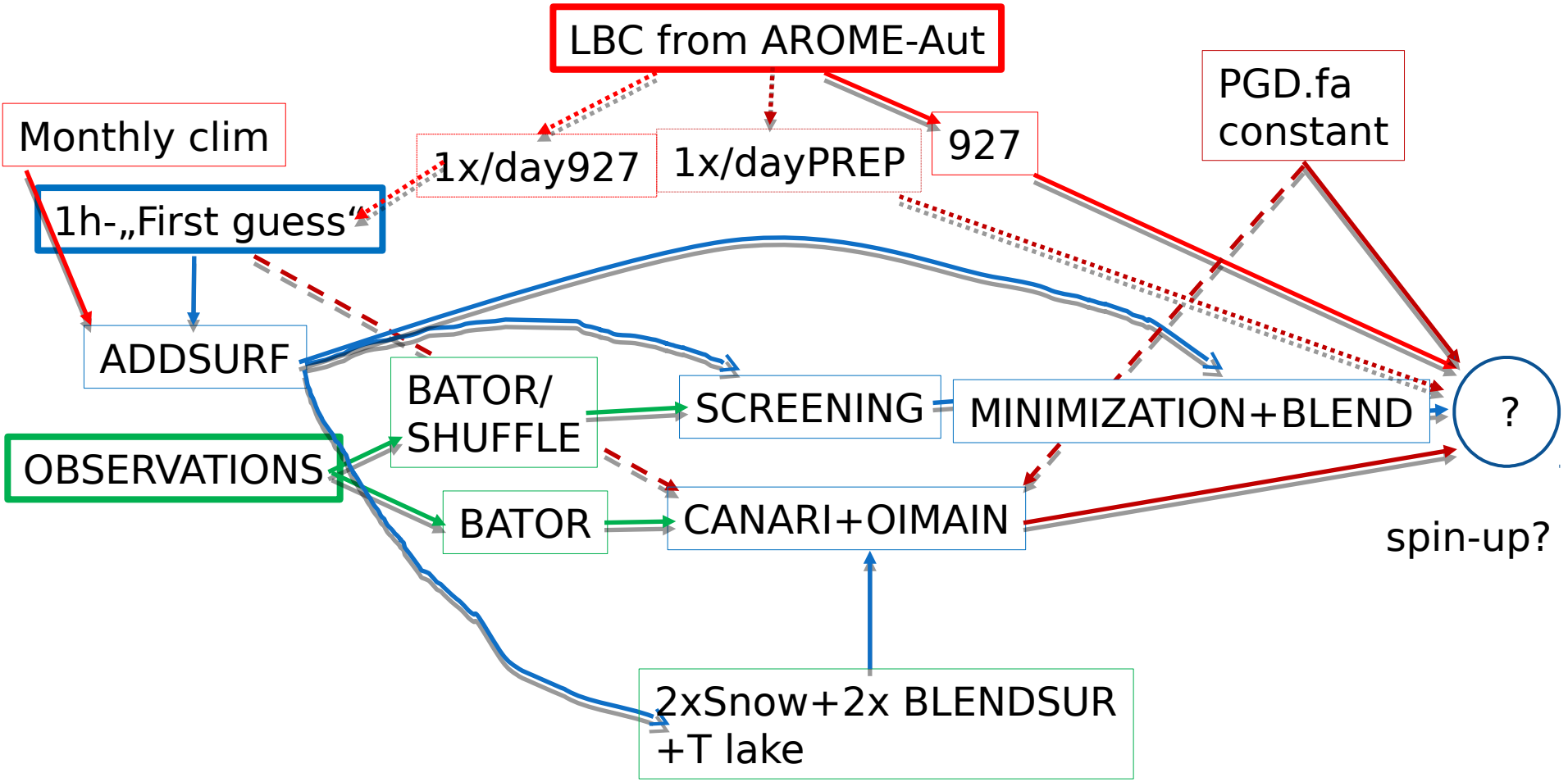
SWI

Plans for 2021

- Assimilation of GNSS-ZTD on board of Austrian trains
- Exploitation of microwave links from Austrian mobile phone network ->LHN
- Cycle update
- Little work on radar ->modification of hydrometeors
- bring CLAEF/AROME-AUT closer together

2020: tests with private weather stations

AROME-RUC structure part A



window -90/+30min additional observations