*Regional Cooperation for
Limited Area Modeling in Central Europe*

LACE
nwp central europe

LACE in 2016

Yong Wang + many LACE colleagues

Organisational: No change

Programme Manager: Yong Wang

- **Area Leaders:**

    Dynamics & Coupling: Petra Smolikova

    Physics: Neva Pristov

    Data Assimilation: Mate Mile

    Predictability: Martin Bellus

- **Data Manager:** Alena Trojakova

- **System Coordinator:** Oldrich Spaniel

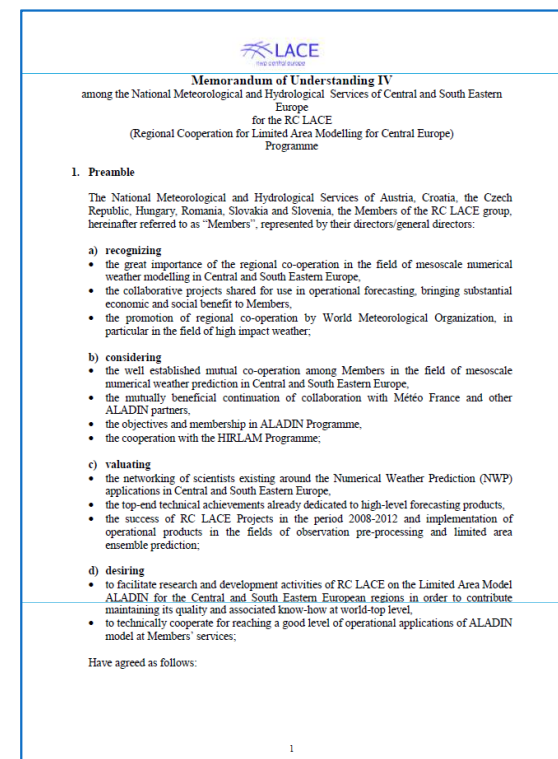- **Climate Project manager:** Gabriella Szepszo

- **Administration and Finance:** Andrea Sigl

LACE MoU V for next period
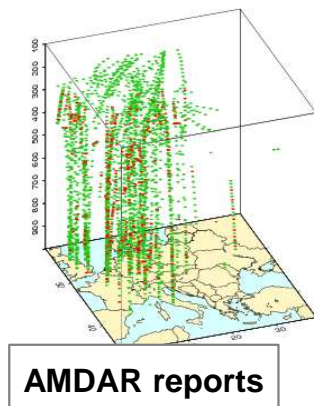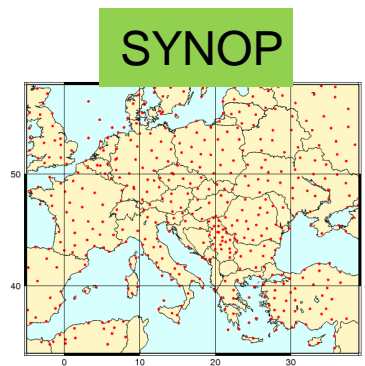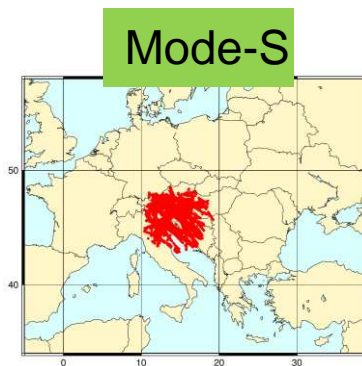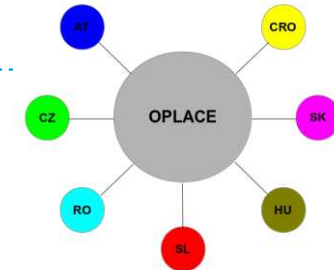
Extension of LACE MoU IV to end of 2019 .

Council decision!

New LACE MoU V will be proposed in 2019 in framework of ALADIN-HIRLAM Consortium.

Common operations

▸ OPLACE: The common Observation Pre-processing for LACE DA and Verification.


Mode-S

SYNOP

National

AMDAR reports

- new data added
  - Advance Technology Mirowave Sounder (ATMS)
  - AMDAR Q from Lufthansa aircraft
  - Mode-S EHS

- OPLACE access for non-LACE countries
  - agreement with Tunisia was signed & access was provided

Data monitoring 2016

Deatils at Mate's talk
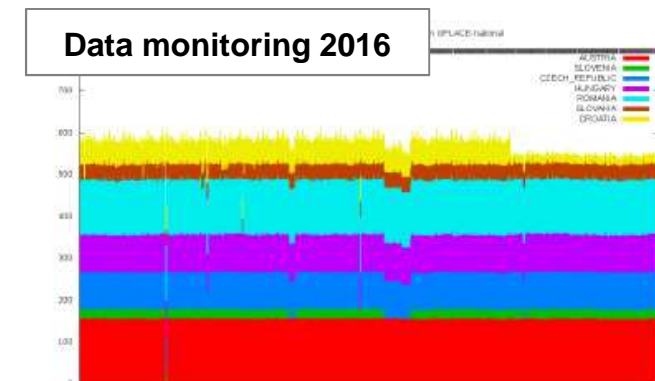
Common operations

- ▶ ALADIN-LAEF: no change, works on LAEF 5km, stochastic phy., EDA …..

Ensemble size	16+1
Horizontal resolution	11km
Vertical resolution	45
Runs/day	2
Forecast range	72h
Coupling	ECMWF EPS time lagged
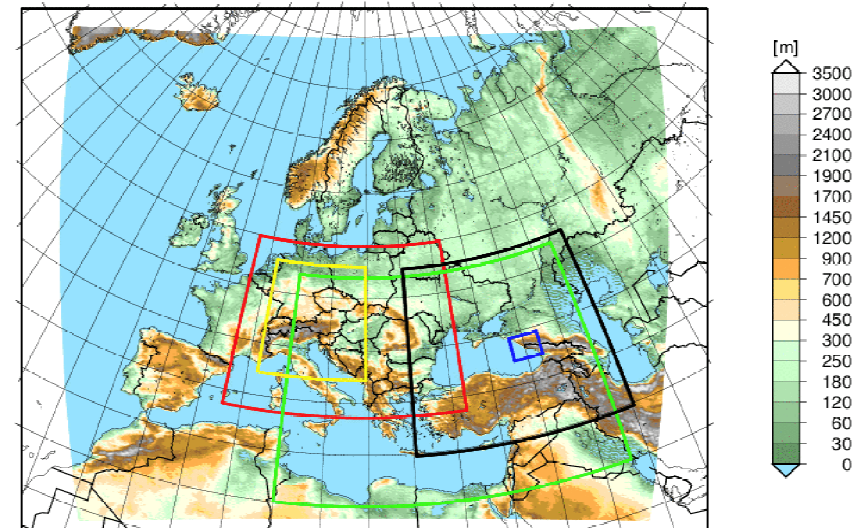
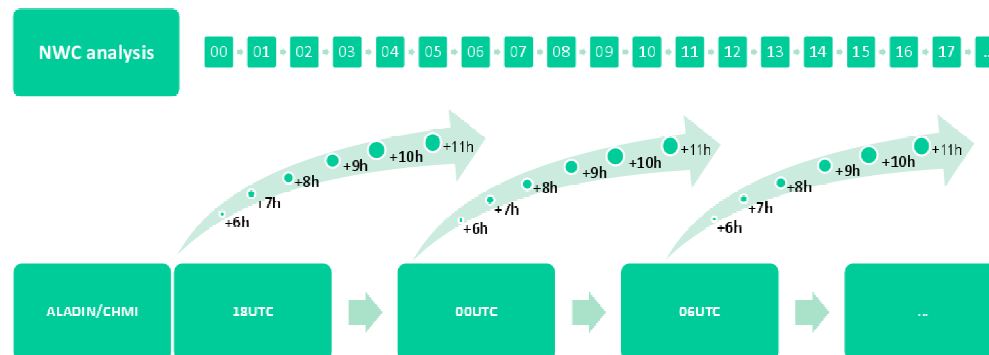| Initial perturbation	Blending
Model perturbation	multi-physics
Initial surface perturbation	ensemble DA

Details at Martin's talk

R&D highlights in DA

AROME–Nowcasting Domain & Topography

AROME RUC 1,2km
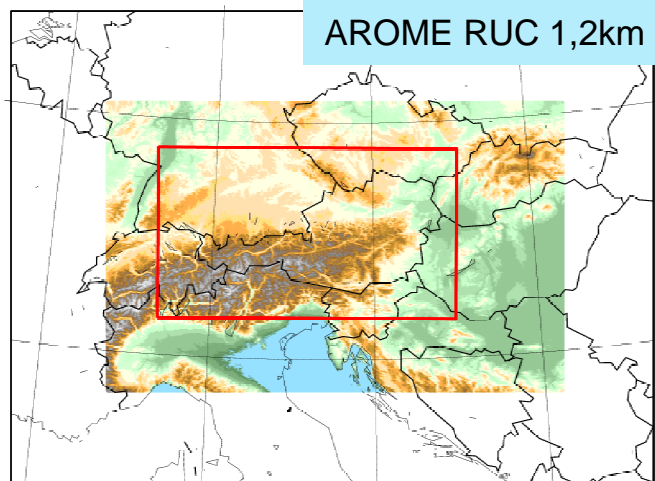
Vienna: AROME 1h RUC for nowcatsing

Prague: hourly updated DA for nowcatsing

| NWC analysis | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | ... |

| ALADIN/CHMI | 18UTC | | 00UTC | | 06UTC | | ... |

+6h +7h +8h +9h +10h +11h

Details at Mate's talk

R&D highlights in DA

- EKF assimilation of Soil moisture (combination of Sentinel-1 and ASCAT), LST (Sentinel-3)

- Radar QC for DA

- DA Experiments with GNSS ZTD, MODE-S MRAR and EHS, radiance data such as AMSU-A, MHS, and SEVIRI.

- Tunning of VARBC

PAFE01_LOWM_201607021900.hdf
DBZH - 1.5deg

PAFE01_LOWM_201607021900_new.hdf
DBZH - 1.5deg

Details at Mate's talk
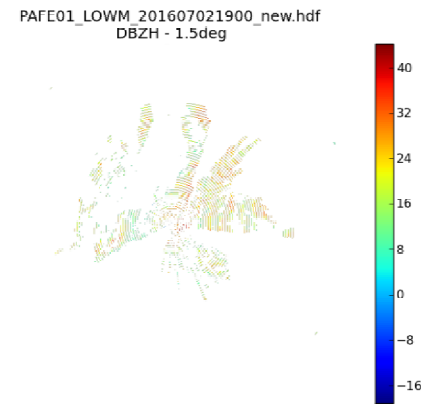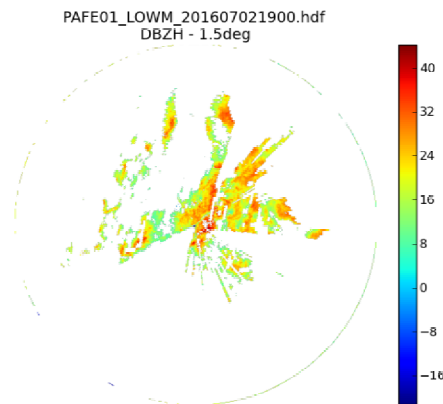
R&D highlights in DYN

1. **VFE NH**
   - ▸ Design of vertical finite elements scheme for NH version of the model

2. **SL scheme**
   - ▸ Application of ENO technique to SL interpolations
   - ▸ COMAD weights for SL interpolations

3. **Evaluation of the dynamical core in very high resolutions**
   - ▸ Clear comparison of SETTLS and ICI time schemes
   - ▸ Upper boundary conditions

Details at Petra's talk

R&D highlights in PHY

▸ ALARO-1 (10km – 1km):

DEVELOPMENT: TOUCANS (shallow convection closure),

ACRANEB2 (implementation of narrow band model for LW validation), updates of complementary sub-grid (up & down) drafts, and tuning of unsaturated downdraft scheme

Details at Neva's talk
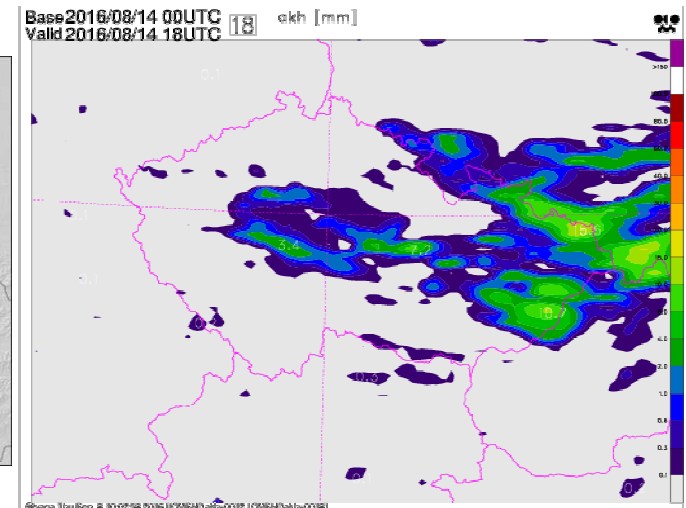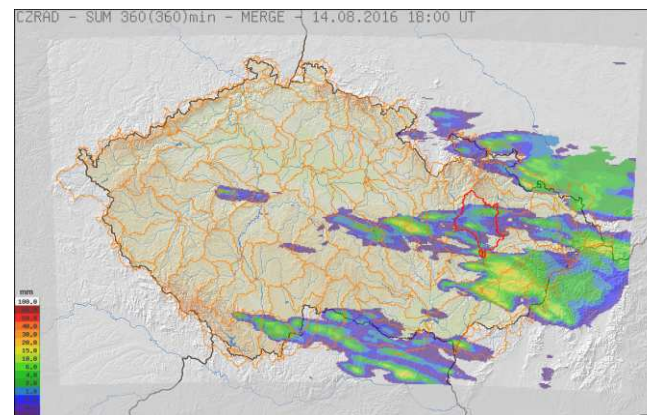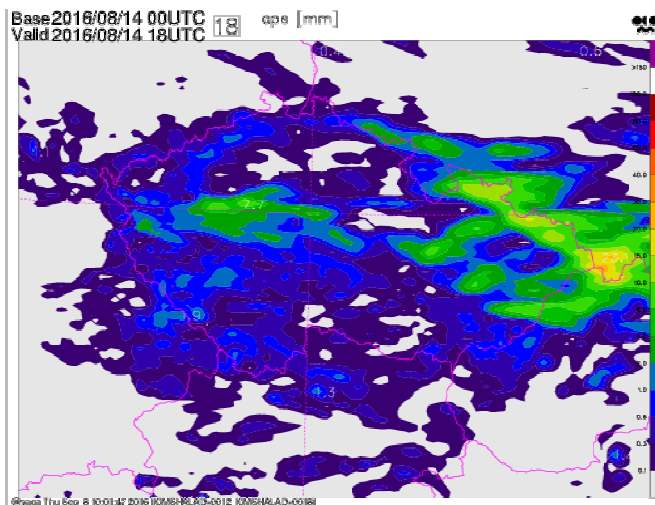
R&D highlights in EPS

ALADIN-LAEF 5km resolution
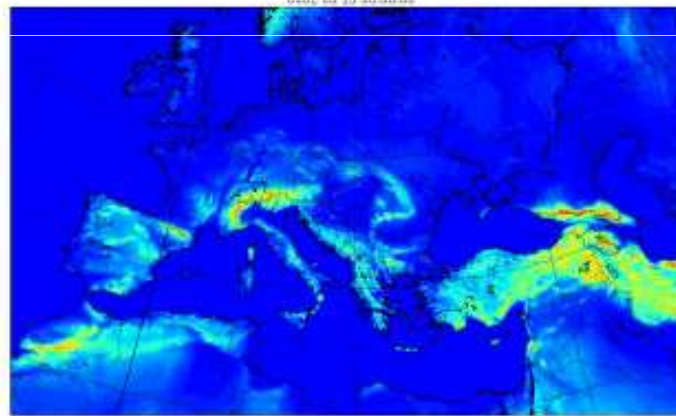
Current operational 11 km ALADIN-LAEF domain borders (blue) with the nested new 5 km domain (red) - left, and the model orography of the new domain - right.

Ensemble of BeIndVAR

Multi-physics

Convection permitting ensemble

Stochastic physics: atmosphere, land surface

Ensemble J_K

Stochastic pattern generator

Details at Martin's talk

For the next future

- focusing on AROME/ALARO at 1 -- 2.5km scale

- designing LACE future model systems, VFE, ALARO

- further developing DA, 1h RUC, radar QC, DA

- upgrading LAEF, 5km, EN-DA, multi/stochastic PHY

- R&D on convection permitting EPS

Thanks!