
ALARO physics (pre-)operational use

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Content

- **ALARO 10 km**
- **LACE project: Operational ALARO configuration at scales around 5km mesh-size (ALARO 5km)**
- **ALARO 5km – recent evaluation**

ALARO 10 km

ALARO with 3MT

- operational:
 - ↪ Cz (since 4 June), assimilation cycle
 - ↪ Si (since 16 June), initialization with 0
 - ↪ Sk (since 19 August), assimilation cycle
- parallel suite:
 - ↪ At, initialization with 0
- LAEF

ALARO without 3MT

- operational: At and Hr

ALARO with/without 3MT

Verification:

- Most of scores better, including precipitation
- Wide areas of weak precipitation are removed
- Better scores for precipitation rates up to 10mm, worse for higher rates
- Precipitation maxima over mountain ridges are higher
- The convection is better organized
- Overestimation of afternoon (mostly convective) precipitation

LACE project

Name: Operational ALARO configuration at scales around 5km mesh-size (ALARO 5km)

Responsible person: Neva Pristov

Responsible center: CHMI

Project duration: 2008-2010

50 person months

10 LACE scientists

LACE project

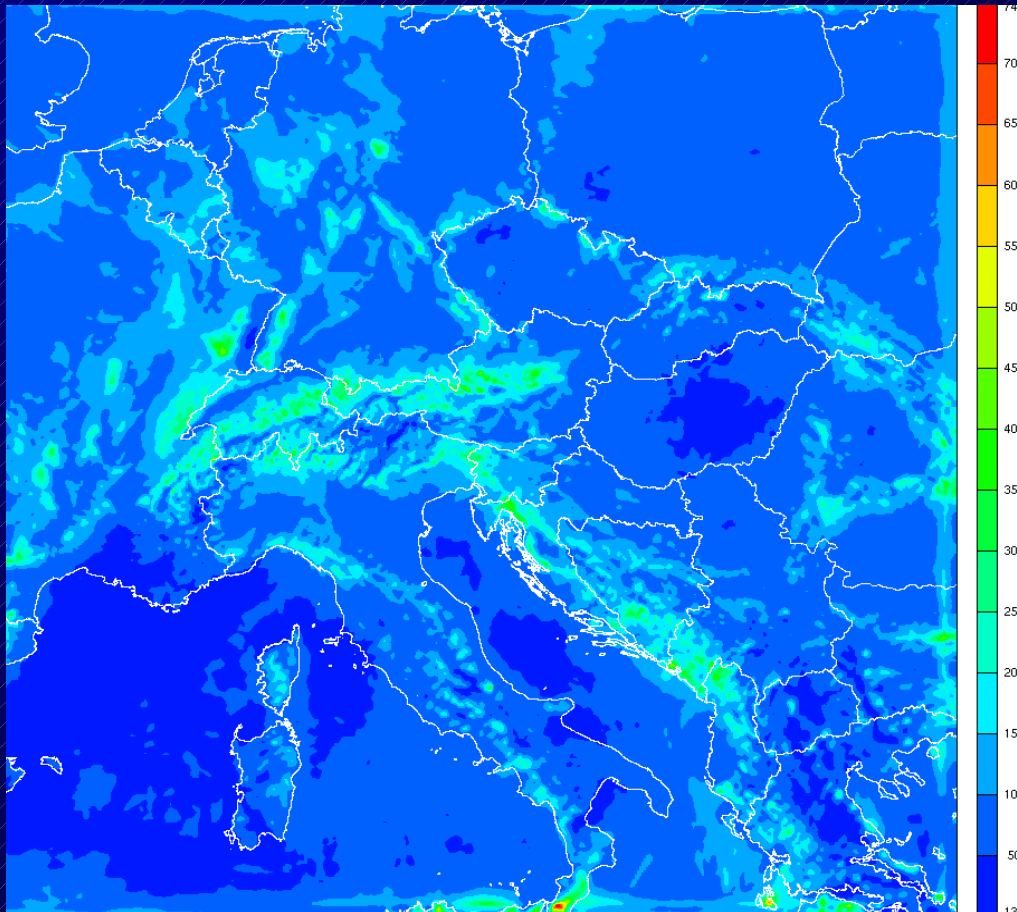
- **WP 1: Research - development of the schemes**
 - ↪ **Task 1.1: Turbulent scheme**
 - ↪ **Task 1.2: Radiation scheme**
 - ↪ **Task 1.3: Cloudiness scheme**
- **WP 2: Scientific maintenance**
 - ↪ **Task 2.1: Code optimization**
 - ↪ **Task 2.2: Validation, tuning**
 - ↪ **Task 2.3: Evaluation**
- **WP 3: Operational implementation**
 - ↪ **Task 3.1: Operational model at CHMI**
 - ↪ **Task 3.2: Guidance and recommendations**

ALARO 5km

Environment is set in 3 services:

- **at:**
 - ↪ domain with resolution 4.9 km,
 - ↪ case studies with stratus situation in stable winter anticyclone,
- **CZ:**
 - ↪ domain with resolution 4.5 km, 2.3 km
 - ↪ sensitivity studies,
- **Si:**
 - ↪ domain with resolution 4.4 km,
 - ↪ regular daily runs for subjective evaluation,
 - ↪ case studies on strong convection cases
 - ↪ runs (00+30) for the year 2007

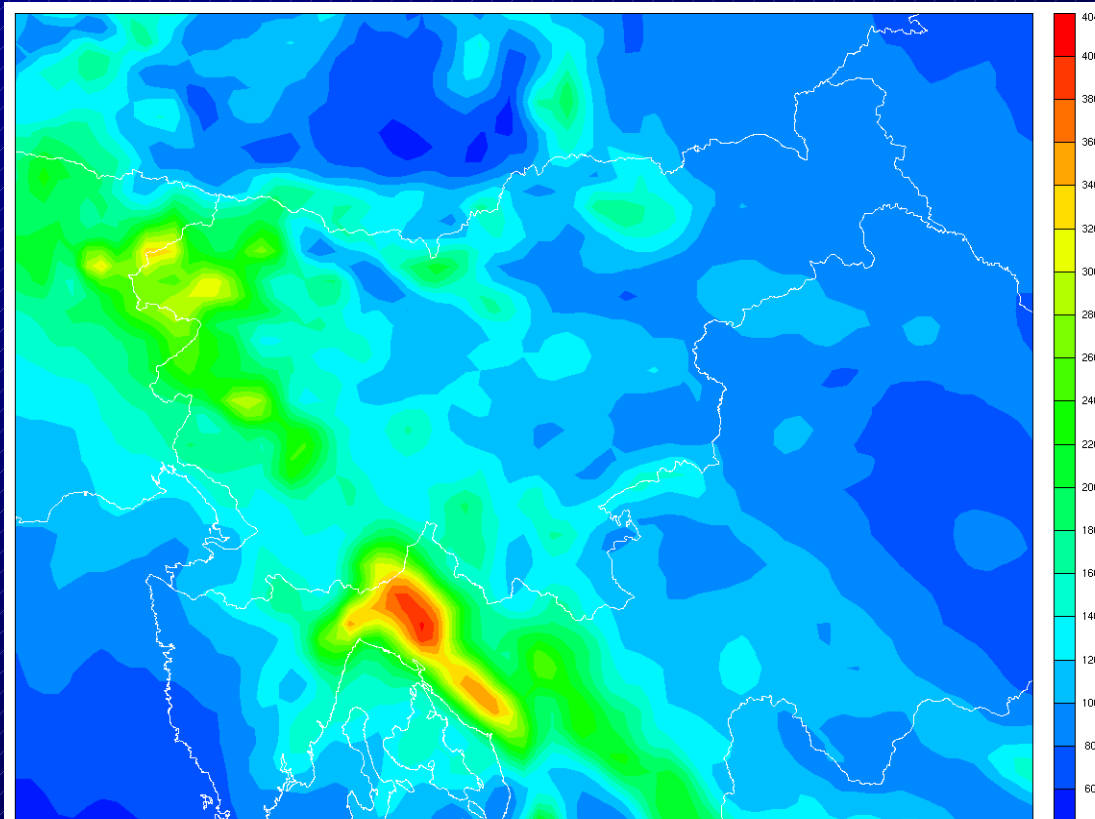
ALARO 5 km one year prec. amounts



24 hours accumulated
precipitation for 2007

Unrealistic along the borders

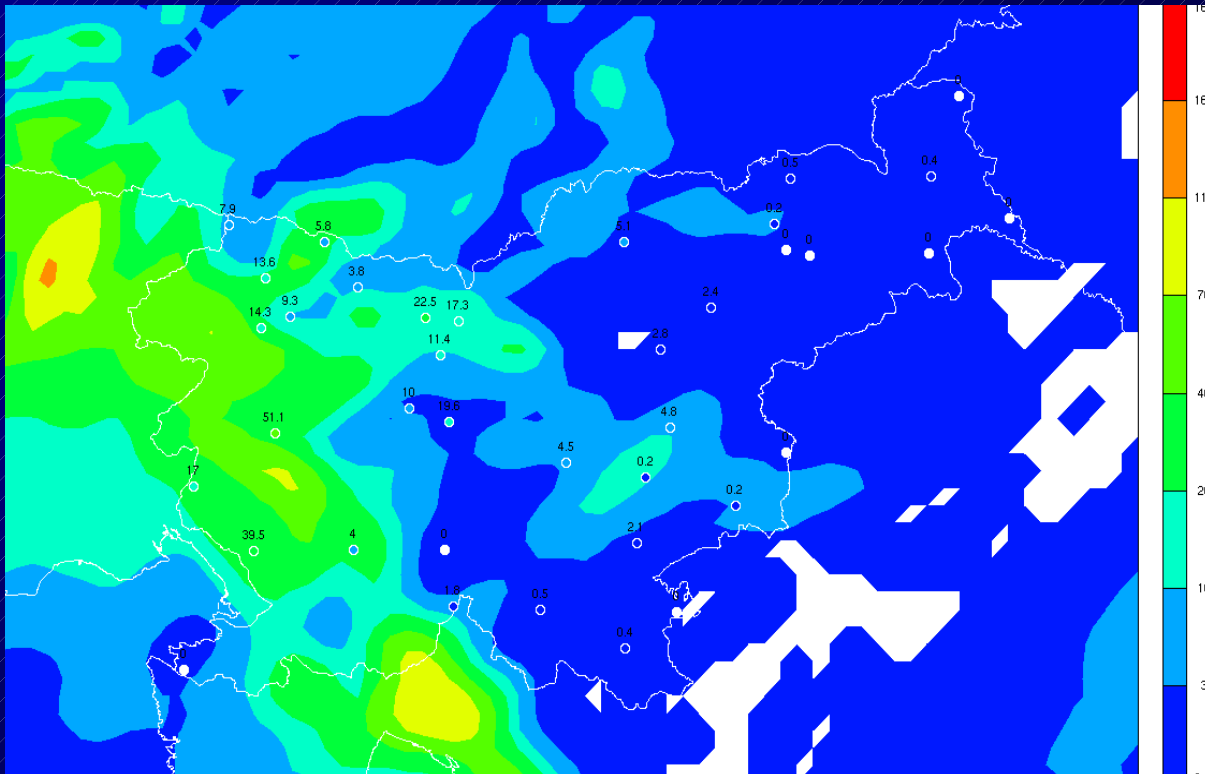
ALARO 5 km one year prec. amounts



24 hours accumulated
precipitation for 2007
Slovenia

very realistic distribution and amounts

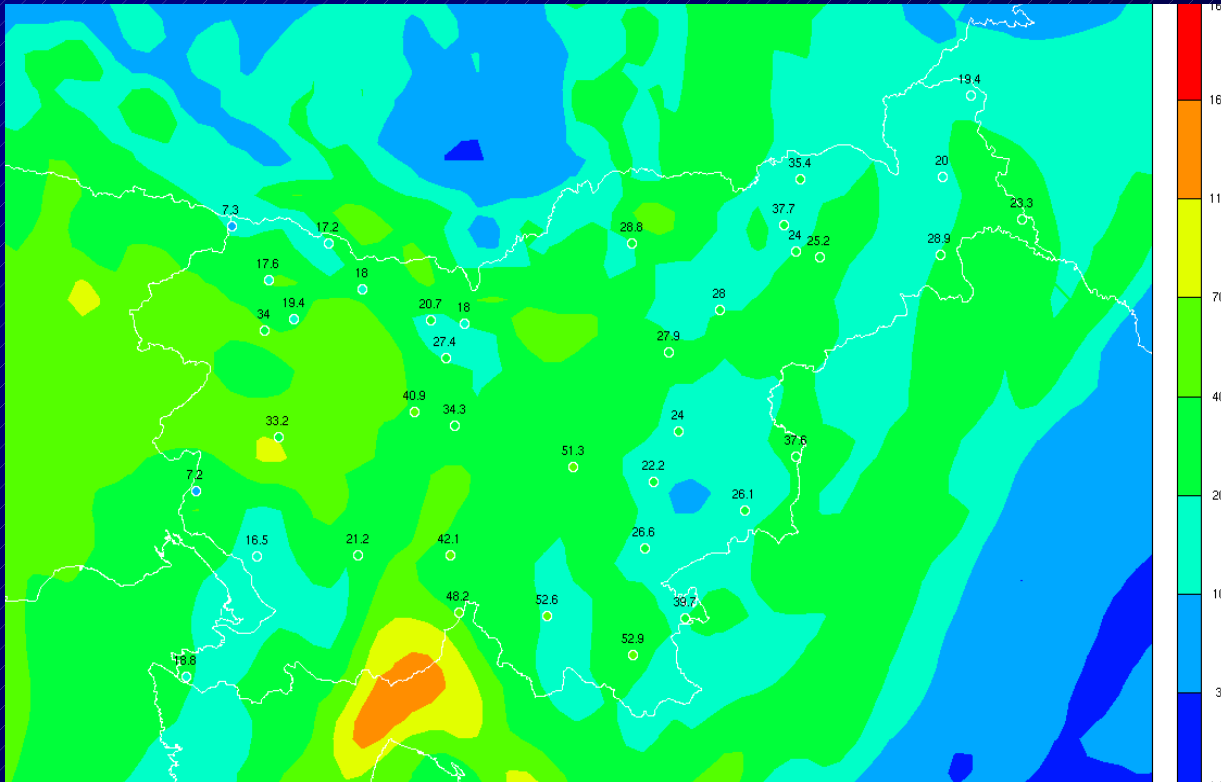
ALARO 5 km



24 hours accum.prec.
15 June 2007
SW flow

Good agreement

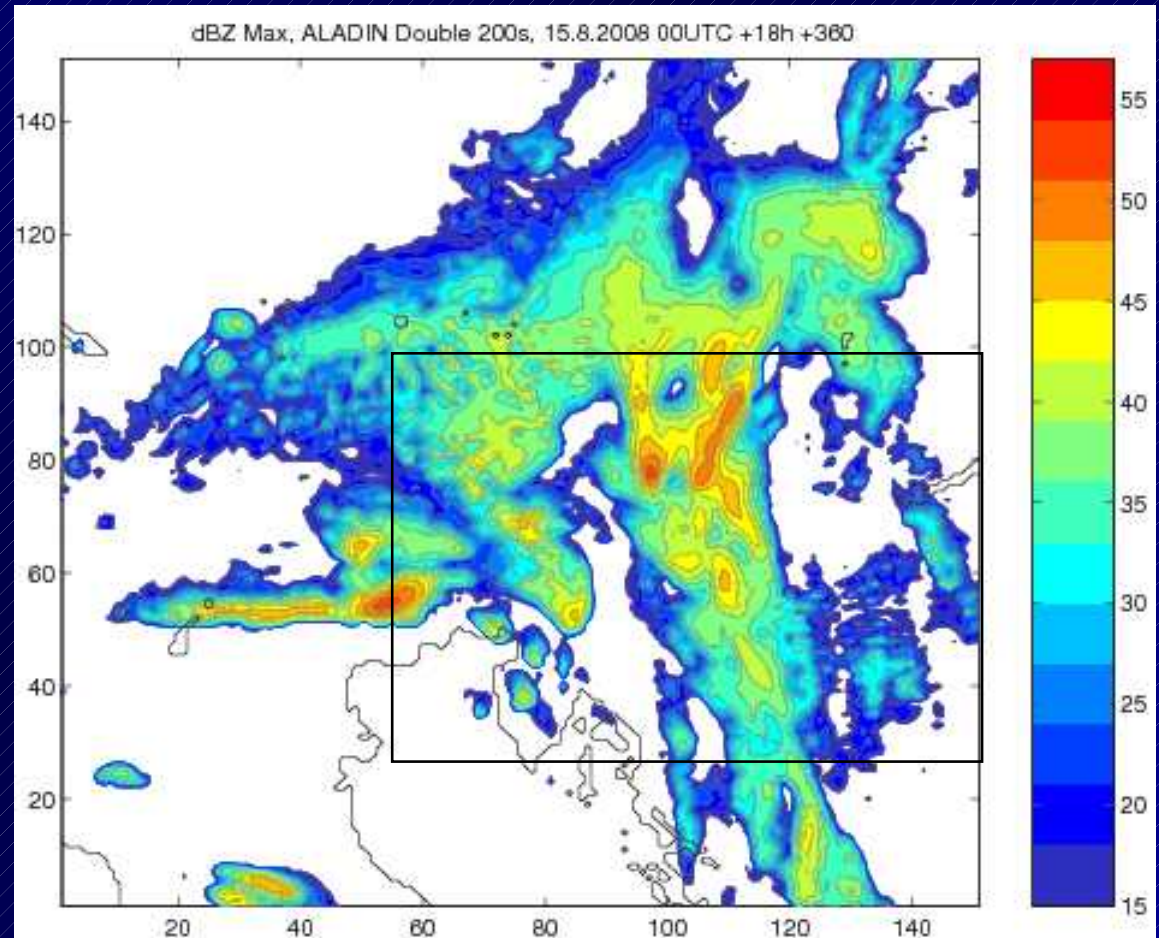
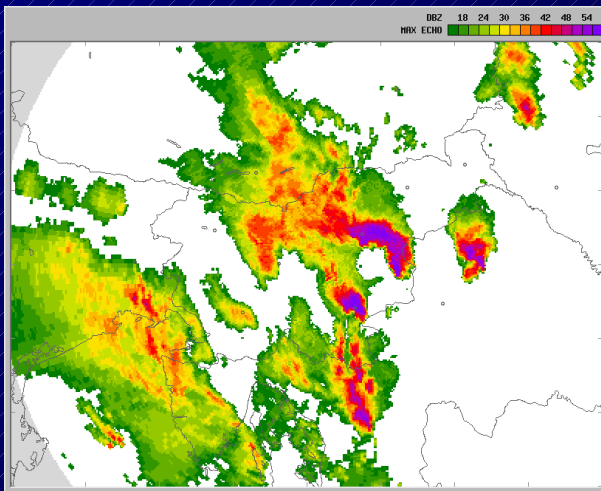
ALARO 5 km



24 hours accum.prec.
4 May 2007
cyclone

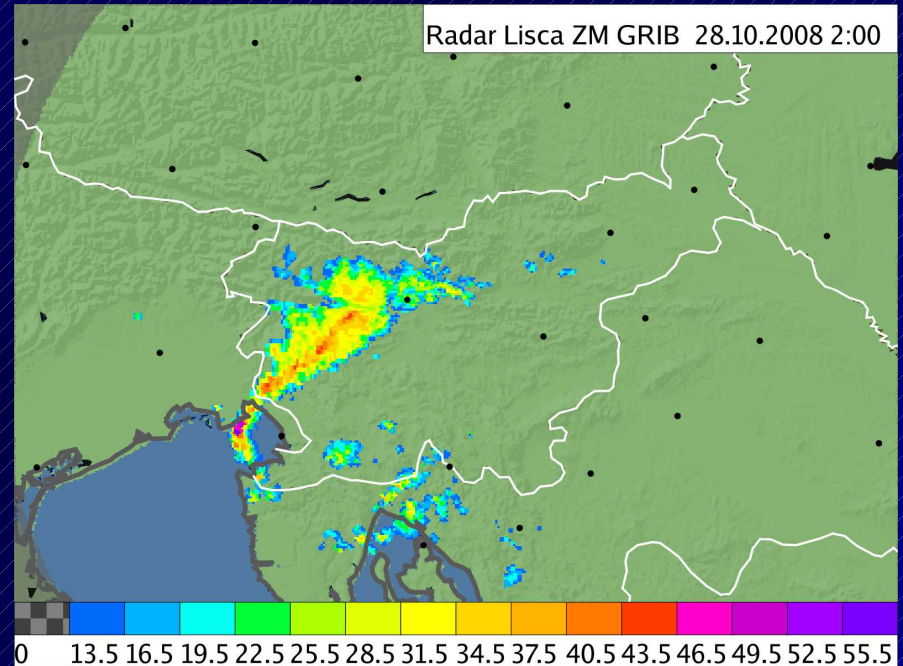
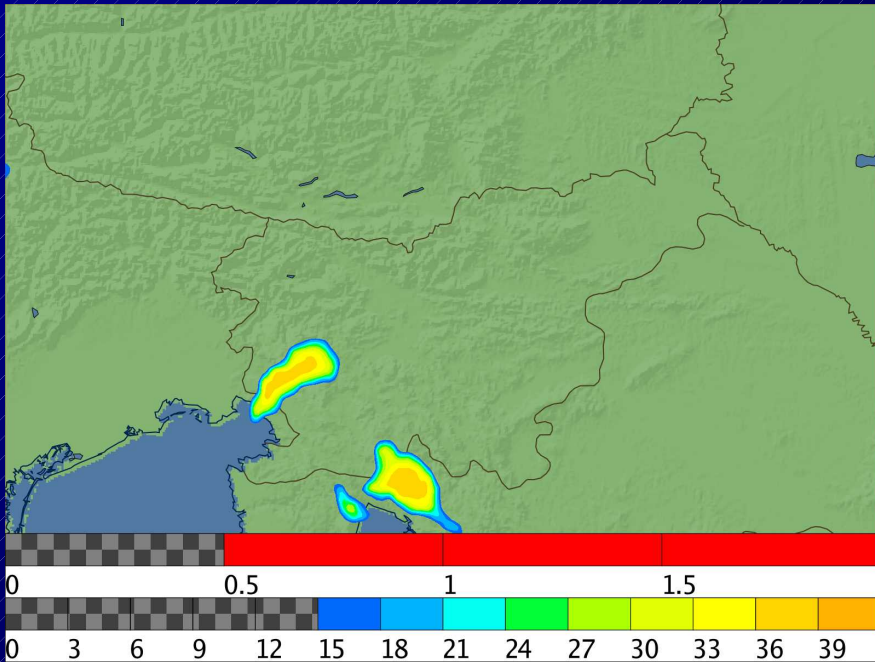
Over-forecasted in west, under-forecasting in east

ALARO 5 km convection



Radar reflectivity

ALARO 5 km convection



Structure of the convective cell