Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Home Affairs FDHA
Federal Office of Meteorology and Climatology MeteoSwiss

Numerical Weather Prediction at MeteoSwiss

31st EWGLAM meeting

28th September 2009

Status of operational suite

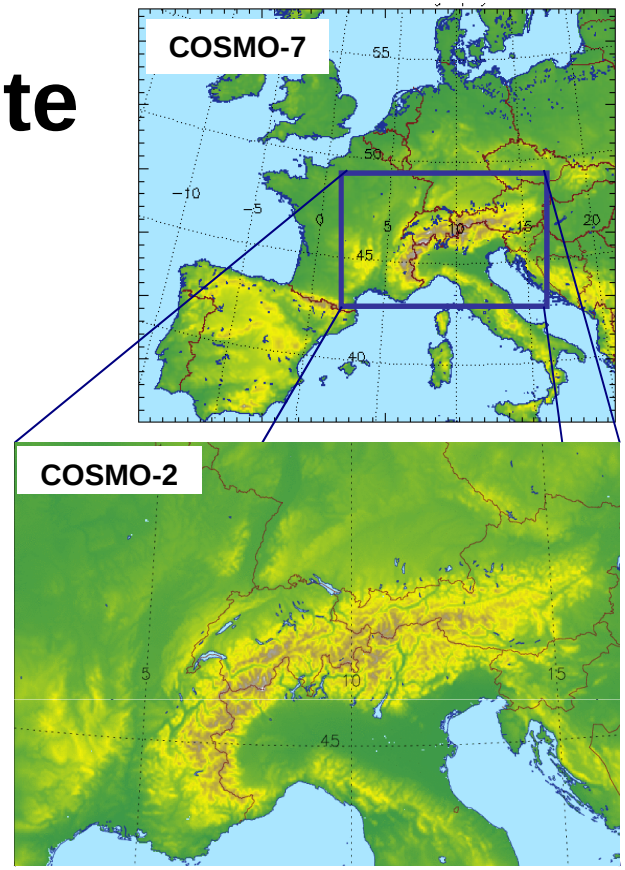
COSMO-7 :

6.6km, 393x338x60 GP, 3 x 72h fcst /day

COSMO-2 :

2.2km, 520x350x60 GP, 8 x 24h fcst /day

own assimilation cycle, cut-off 45 min



Production at CSCS, Manno

Main machine: **Cray XT4**, 440 dual cores

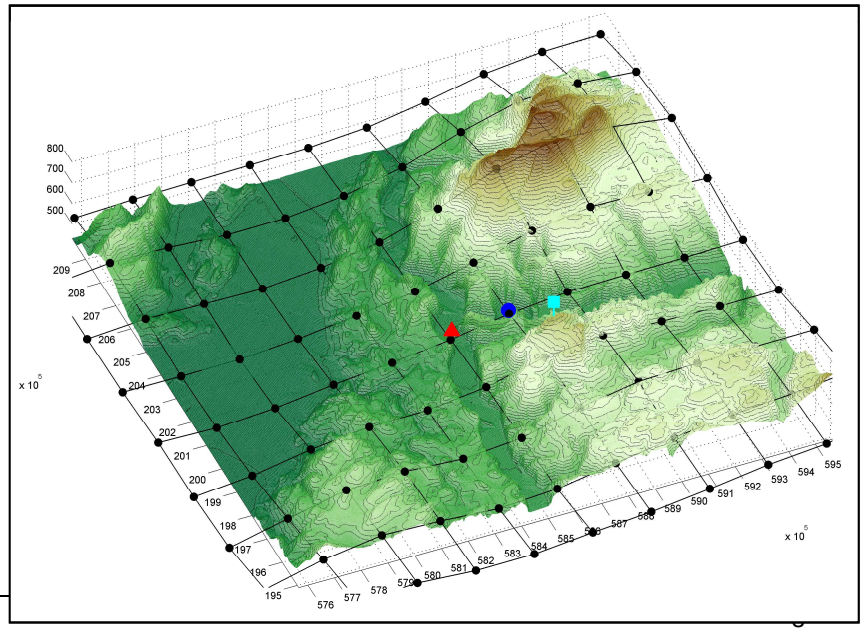
Fall-back: **Cray XT3**, 540 dual cores

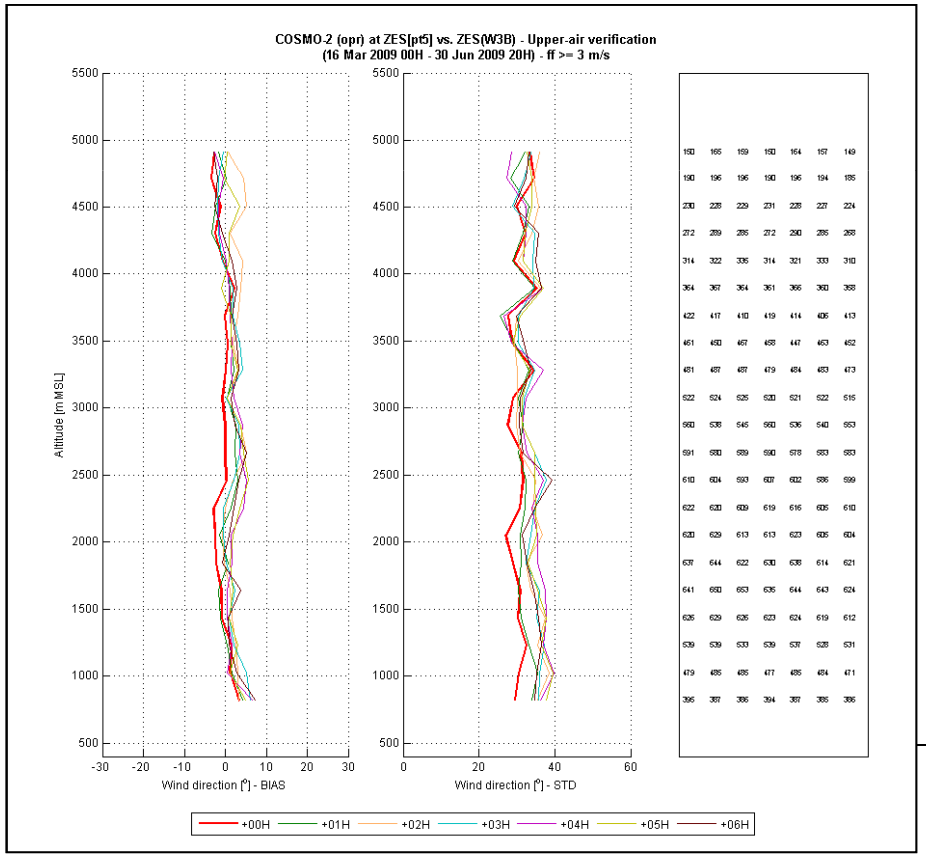
Service nodes used for front-end functions

Separate servers for DB

Validation of COSMO-2 with independent wind profiler data

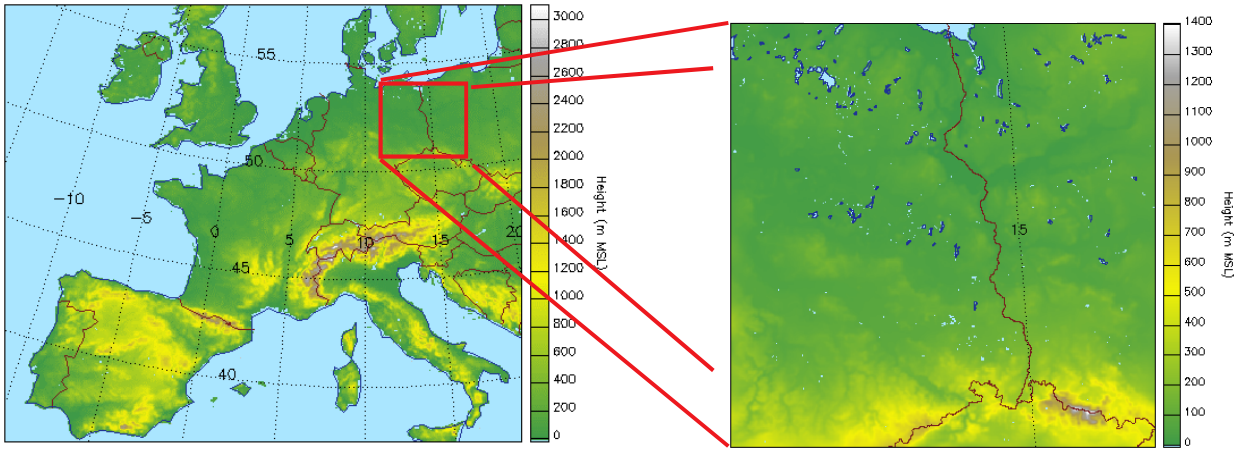
- Measurement campaign of 3.5 months
- Complex orography
- Results less good than with soundings





COSMO runs at 1 km horizontal resolution

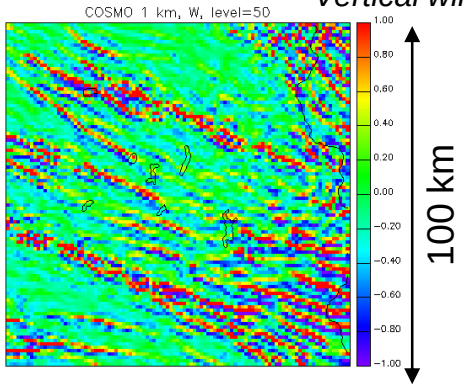
COSMO-7 **COSMO-1**



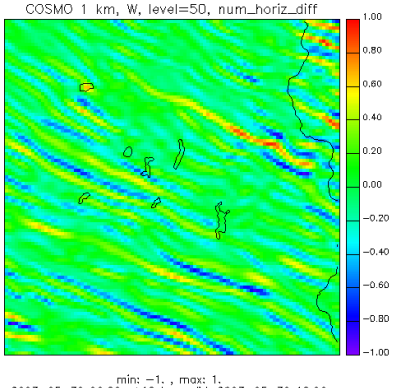
- LITFASS-2003
- Horizontal resolution: **1 km**
- Timestep: 10 s
- Case study: 2003-05-30 : convective day, calm winds, no clouds
- Simulation of the whole diurnal cycle
- Testing of:
  - Horizontal numerical diffusion
  - Vertical level distribution

Sensitivity to horizontal diffusion:

Vertical wind at 800 m AGL



Without hor. diff.



With hor. diff.

- Without horizontal diffusion the results are not very realistic → wavelength is on the order of the mesh size
- Horizontal diffusion reduces the amplitude of waves and increases the wavelength
- <u>Outlook:</u> validation of COSMO with newly generated LES data