

Numerical Weather Prediction at DWD

Global model GME

Grid spacing: 40 km

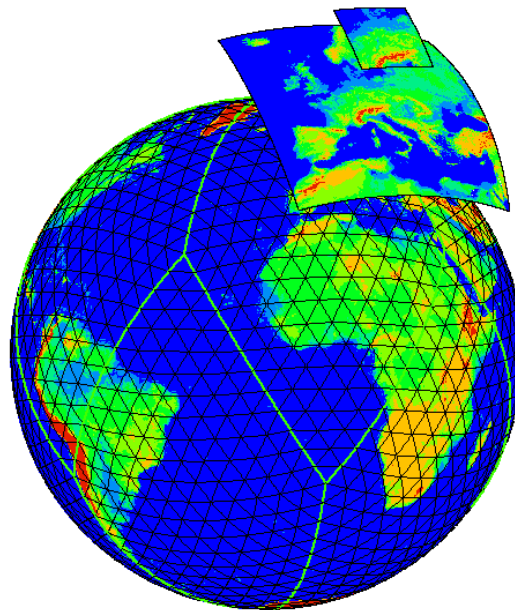
Layers: 40

Forecast range:

174 h at 00 and 12 UTC

48 h at 06 and 18 UTC

1 grid element: 1384 km²



COSMO-EU

Grid spacing: 7 km

Layers: 40

Forecast range:

78 h at 00 and 12 UTC

48 h at 06 and 18 UTC

1 grid element: 49 km²

COSMO-DE

Grid spacing: 2.8 km

Layers: 50

Forecast range:

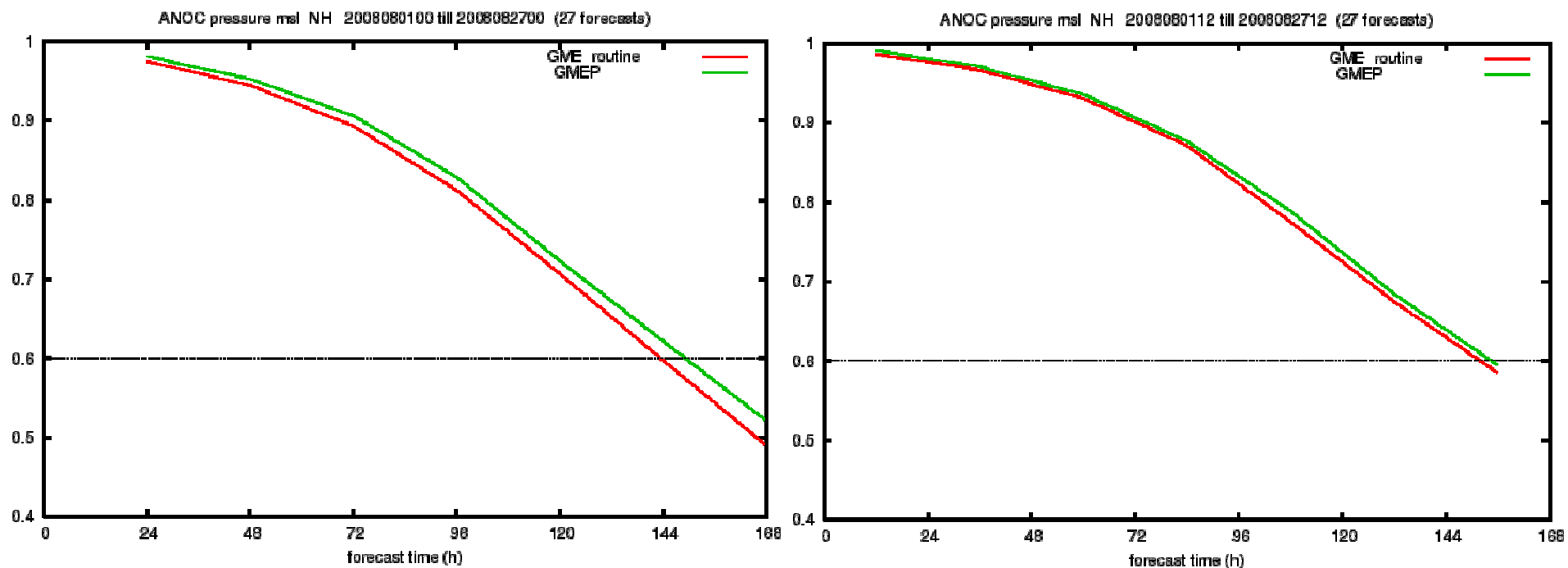
21 h at 00, 03, 06, 09,

12, 15, 18, 21 UTC

1 grid element: 8 km²

PSAS 3D-Var Data Assimilation for GME

- Operational since 17 September 2008
- PSAS scheme, 3-h assimilation windows
- $J(\mathbf{x}) = \underbrace{\frac{1}{2}[\mathbf{x}_b - \mathbf{x}]^T \mathbf{P}_b^{-1}[\mathbf{x}_b - \mathbf{x}]}_{J_b} + \underbrace{\frac{1}{2}[\mathbf{y}_o - H(\mathbf{x})]^T \mathbf{R}^{-1}[\mathbf{y}_o - H(\mathbf{x})]}_{J_o}$
- Observations used: SYNOP, BUOYS, TEMP, PILOT, AMDAR, AMV, ATOVS



New DWD Headquarters by June 2008



Offenbach, Frankfurter Strasse 135



New DWD Supercomputer by November 2008

- **NEC SX 9, Sun Login nodes and SGI data base server**
- **Installation phase 0 in *June 2008* (because of delay of SX 9):
2 x 0.3 TFlop/s sustained (SX 8R)**
- **Installation phase I in *October 2008*:
2 x 4.5 TFlop/s sustained (SX 9)**
- **Installation phase II in *2010*:
Upgrade by a factor of 3**
- **Main cost driver: Ensembles (data assimilation, forecasting)**