



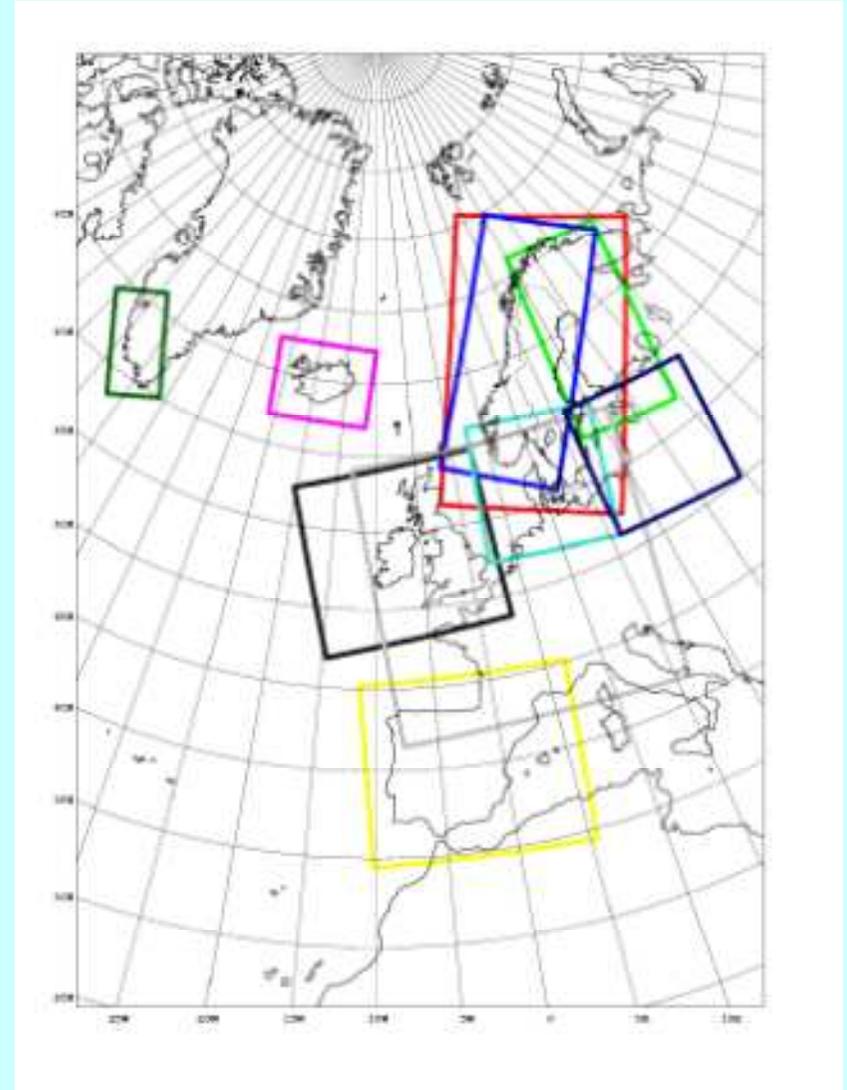
HIRLAM

a quick overview

Jeanette Onvlee
EWGLAM meeting, 8/10/2012

Organizational aspects

- ✓ Members: unchanged since last year (Dk, Es, Fi, Fr (coop), Ic, Ir, Li, NI, No, Sp, Sw)
- ✓ Project leaders:
Ulf Andrae, Jelena Bojarova,
Mariano Hortal, Inger-Lise Frogner,
Laura Rontu, Xiaohua Yang



Upper air data assimilation

Challenge: How to make the best possible use of high-res observations in a mesoscale analysis system?

- ✓ Introduce new high-resolution obs types or better handle existing ones:
 - Radar: struggling with pre-processing of multi-country data
 - Mode-S: validation/QC, more Eur data, introduction in NRT
 - cloud initialization with MSG data: simple approach already beneficial for fog cases, NRT experiments starting

- ✓ Development of more flow-dependent algorithms:
hybrid ensemble assimilation, B-matrix slicing, 4D-VAR, field alignment

- ✓ Rapid update cycling setups
 - 1h, 3h cycling experiments

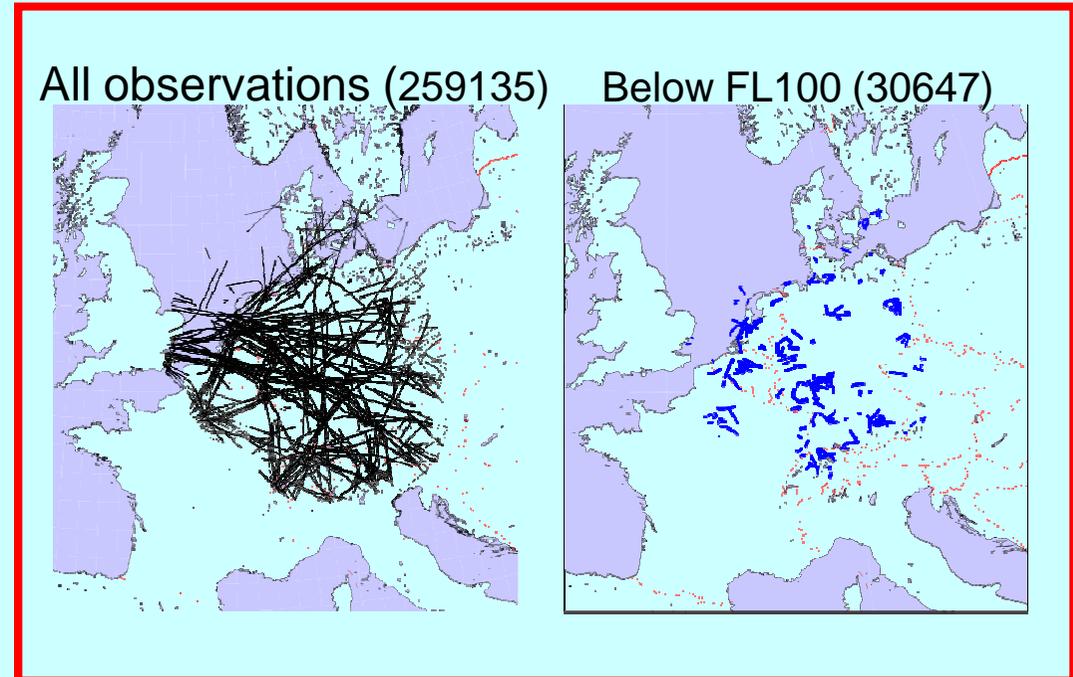
Radar data handling and quality control

- Reflectivity/wind data from European radars provided to the OPERA data hub: level of QC too different to use them directly
 - => need to apply “common” QC
- Experiments with Baltrad package in local implementations:
 - difficult to implement without help
 - some important algorithms still missing (de-aliasing of velocities)
 - open question: how good are algorithms wrt alternatives?
- New phase from OPERA:
 - provision of data through hub not going to be available anytime soon.
 - bilateral agreements needed if something to be exchanged sooner
 - plan now includes intercomparison of QC algorithms
 - New: OPERA user group. SRNWP representative(s)?

Mode-S observations

- ✓ Near-real-time data streams set up with NL data, test set from Eurocontrol (ff,ddd,T)
- ✓ Quality control studies:
Calibration (per aircraft) is essential!
(de Haan, JGR,2011)
- ✓ Data for research: contact siebren.de.haan@knmi.nl
- ✓ Discussion ongoing with several ATC centers to arrange near-real-time data provision (expected latency: <10min) for a larger European area. Intention: formal arrangements for free availability of these data to NMS's for official duty. Outcome expected ~summer 2013

Period 2012/08/09 10:00-10:15



Forecast model

Upper air:

- ✓ Continued work on NH VFE formulation
- ✓ Actions to assess/improve stable BL behaviour, low clouds
 - GABLS4; stable BL workshop 3-5 December, Helsinki
- ✓ Radiation intercomparison study ongoing; relative importance of spectral detail, cloud and aerosol interactions and orographic effects
- ✓ Towards (sub)km-scale modelling
 - pilot studies
 - alternative sources of high-resolution local orography and physiography

Surface:

- ✓ Snow and lake data assimilation
- ✓ Validation/implementation Multiple Energy Budget scheme, prognostic ice in Surfex
- ✓ Lake workshop, September 18-20, Helsinki

High-resolution orography and physiography

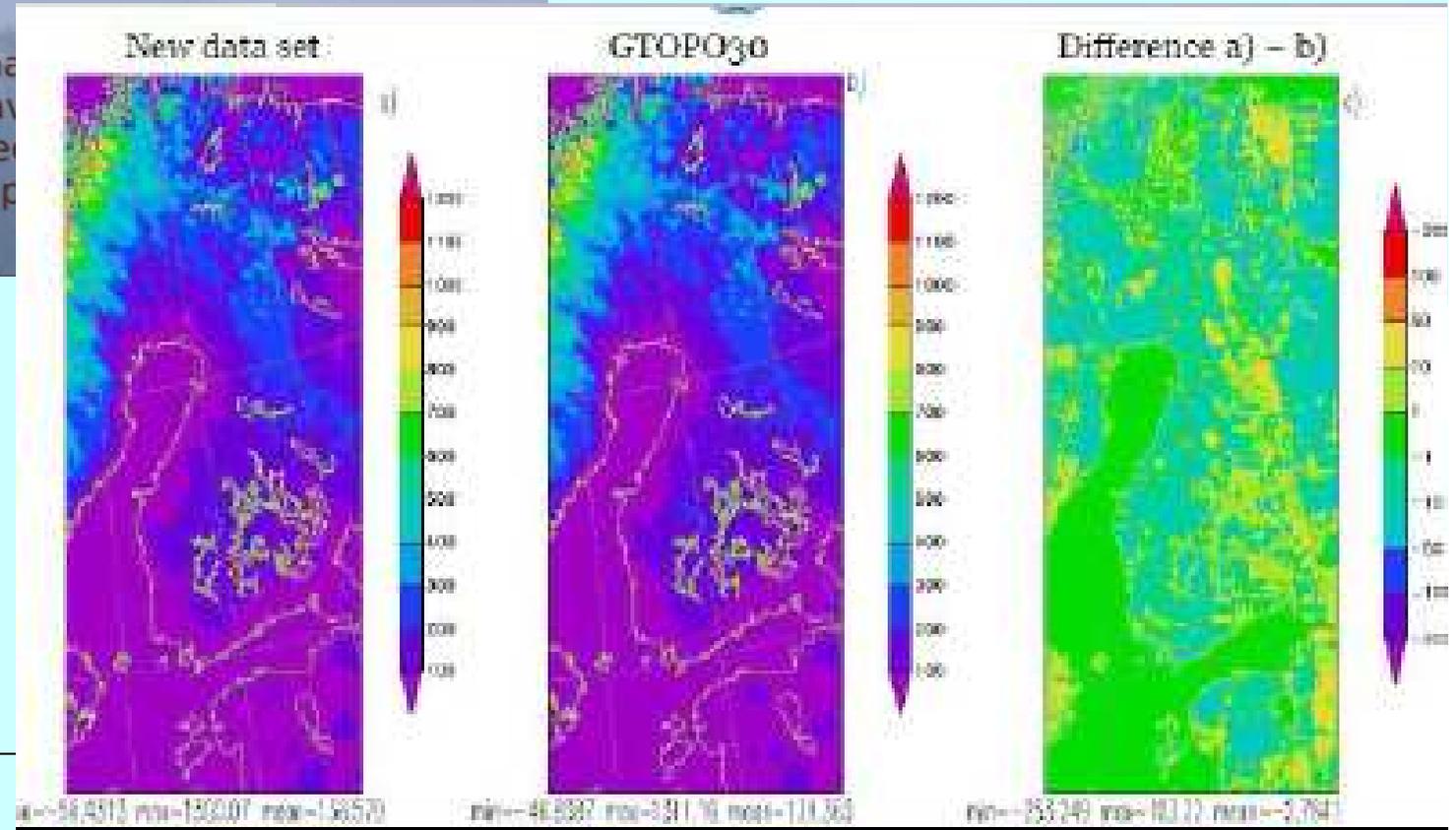
GENERAL PLAN OF OROGRAPHY

Take the most detailed global digital elevation data (SRTM - ASTER - Pan-Arctic DEM ...), prepare to gtopo format

Do (spectral) filtering to separate scales for derivation of variables for

Topic for SRNWP cooperation?

Model dynamical
Orographic buoyancy waves
Smallest scale orographic effects
Orographic radiation patterns



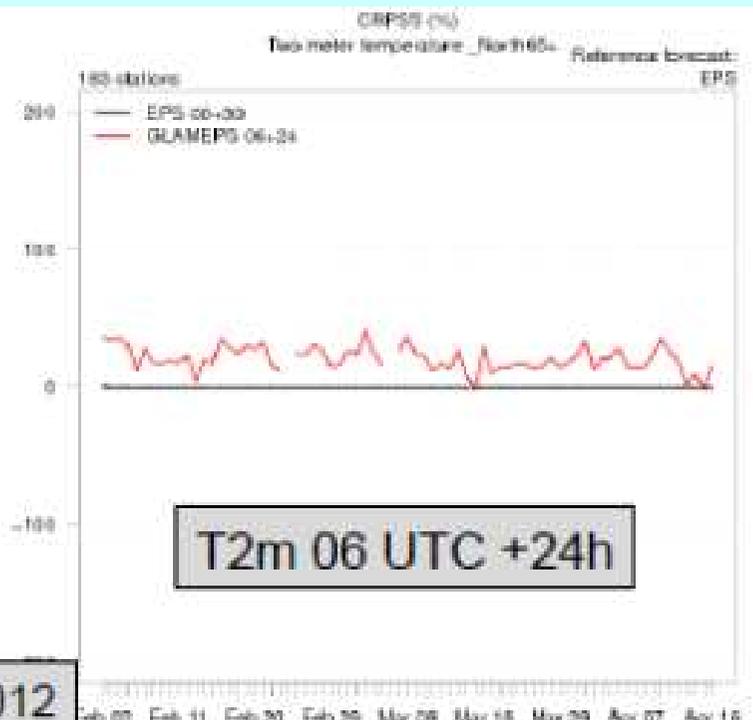
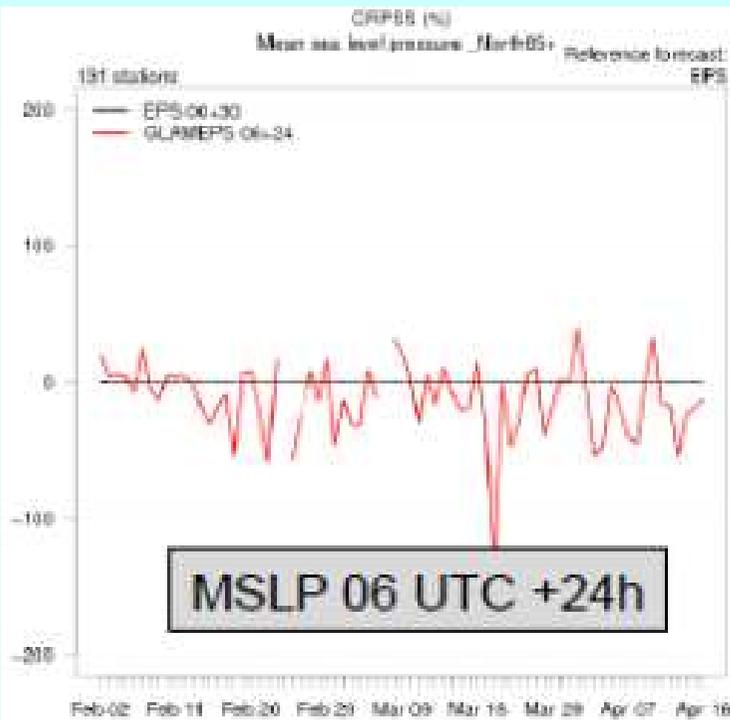
Probabilistic forecasting

GLAMEPS:

- ✓ GLAMEPS-v1: made ready as ECMWF TCF-2 facility
- ✓ GLAMEPS-v2 configuration experiments ongoing

Towards convection-permitting (2.5km) ensemble HarmonEPS:

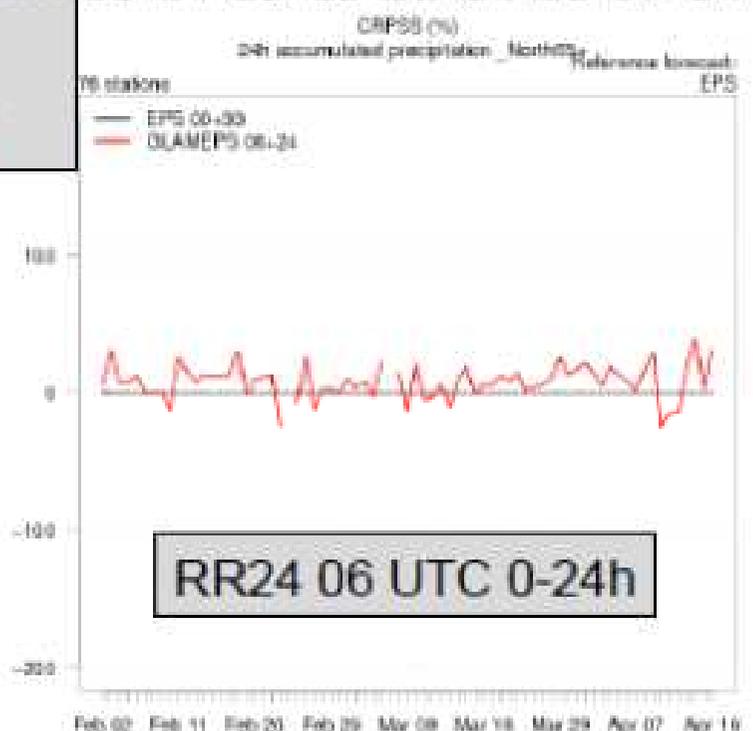
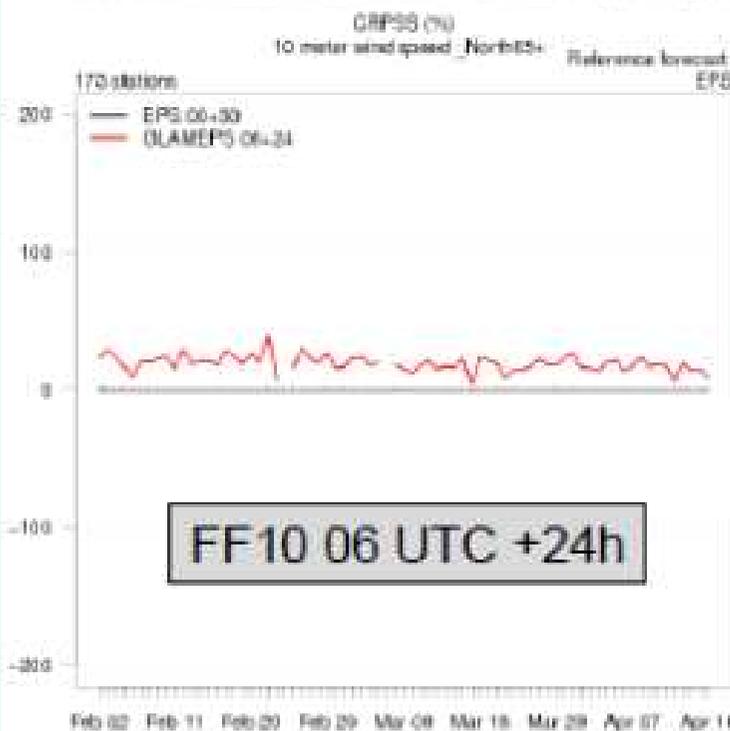
- ✓ Experience in parallel with 4(2.5)km, 5km real-time Harmonie- and HIRLAM-based ensembles at met.no, DMI
- ✓ HarmonEPS experiments just starting
- ✓ Initially based on downscaling, lagging, phys perturbations; later DA



1 Feb 2012 – 15 Apr 2012

EPS _____

GLAMEPS _____



System aspects, verification and operational cooperation

System:

- ✓ Reference Harmonie system
- ✓ Training activities
- ✓ Harmonie-climate version set up

Verification:

- ✓ Extension of automated verification of Harmonie suites,
- ✓ Investigation into possible new scores
- ✓ On-duty monitoring / helpdesk team installed

Operational cooperation:

- ✓ Activities on common monitoring, helpdesk, benchmarking etc
- ✓ Met.no – SMHI operational NWP cooperation