HIRLAM Probabilistic NWP: Short Status

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Important part of the activity is to contribute to

GLAMEPS:

Grand Limited Area Model Ensemble Prediction System

which is at present entirely a HIRLAM-ALADIN co-operative activity

wheras EurEPS is a proposed pan-European project

under the new SRNWP including COSMO and UKMO

The GLAMEPS objective

is in real time to provide to all HIRLAM and ALADIN partner countries:

an operational, quantitative basis for forecasting probabilities of weather events in Europe up to 60 hours in advance

to the benefit of highly specified as well as general applications,

including risks of high-impact weather.

Quality objective

To operationally produce ensemble forecasts with

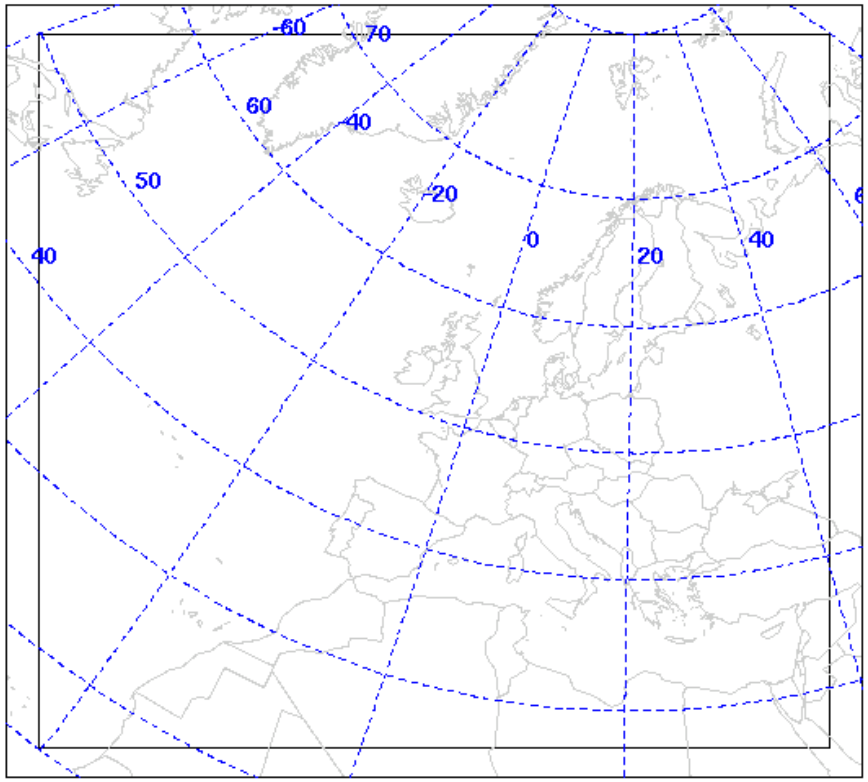
- ***a spread reflecting known uncertainties in data and model;***
- ***a satisfactory spread-skill relationship (calibration); and***
- ***a better probabilistic skill than the operational ECMWF EPS;***

for

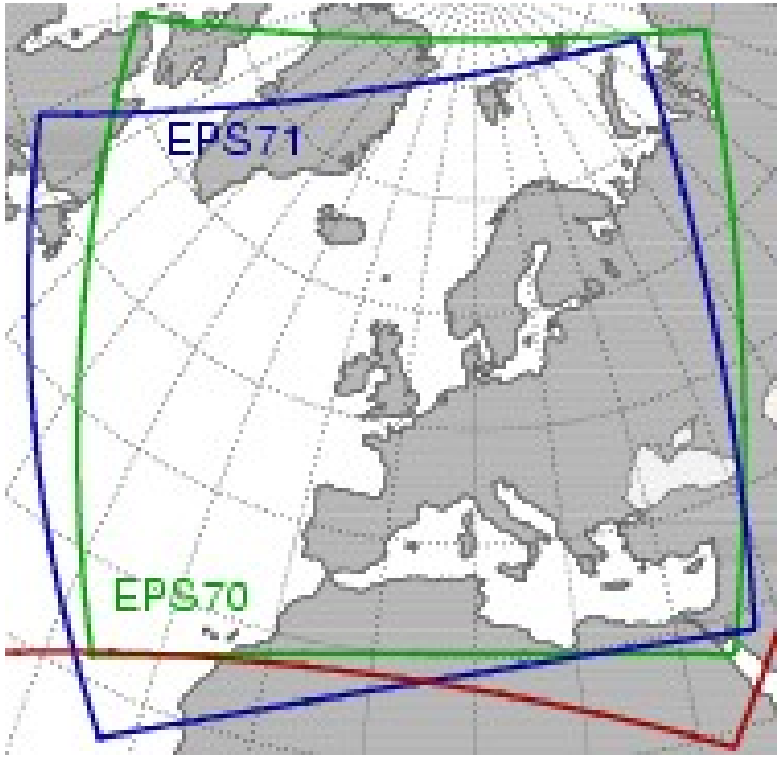
- ***the chosen forecast range of 60 hours (negotiable);***
- ***our common target domain; and***
- ***weather events of our particular interest (probabilistic skill parameters).***

GLAMEPS Common Domain

ALADIN



HIRLAM (EPS71)



The GLAMEPS laboratory at ECMWF
HIRLAM Activities

- To select different model versions which are equally valid,
  - 2 different model versions:
    - HIRLAM-STRACO
    - HIRLAM RK-KF
- To construct initial/lateral boundary perturbations
  - ECMWF TEPS / EPS (*build on met.no LAMEPS*)
    - Could be adjusted by defining e.g 3 different targets
- Ensemble calibration (Multi-model: partly build on INM SREPS)
  - spread-skill-relation,
- Ensemble Size
  - E.g. Bayesian Model Averaging (KNMI, INM, ...)
- Product presentation (build on INM and met.no, ECMWF)
  - Probabilistic estimation, high-impact weather
- Estimate Predictability of the day
- Quality Estimations:
  - Reliability, BSS, ROC, Value, ...

Operational

To set up a first phase test-suite at ECMWF (SPNOGEPS)

Over 1-2 years, this suite should gradually become distributed to partners, and run in RT by the end of 2008

NB: The success of GLAMEPS relies critically on dedicated partners for this!

To use ECMWF for data exchange in RT

(NB: Selected data set for forecasting, re. TIGGE-LAM recommendations)

To use ECMWF software to provide a default set of

Further R&D in parallel

Through research to gradually increase ensemble size and error-sources

Include lower boundary perturbations and other types of model perturbations

- vary model coefficients (all)
- Targeted Forcing SVs or Forcing Sensitivities (*KNMI, met.no*),
- weak 4D-Var perturbed tendencies (KNMI?)?
- Stochastic physics (DMI)

Include alternative initial/lateral boundary perturbations

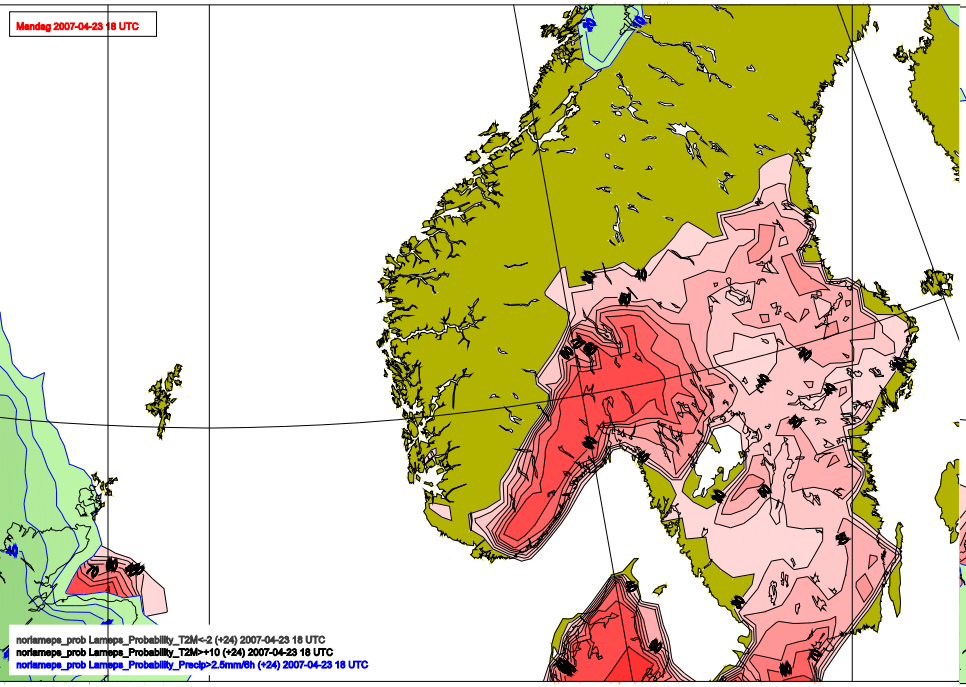
- ETKF generalized breeding (*SMHI*),
- HIRLAM and ALADIN LAM SVs (*KNMI, SMHI, HMS*),

Pdf-estimation, presentation, validation etc.

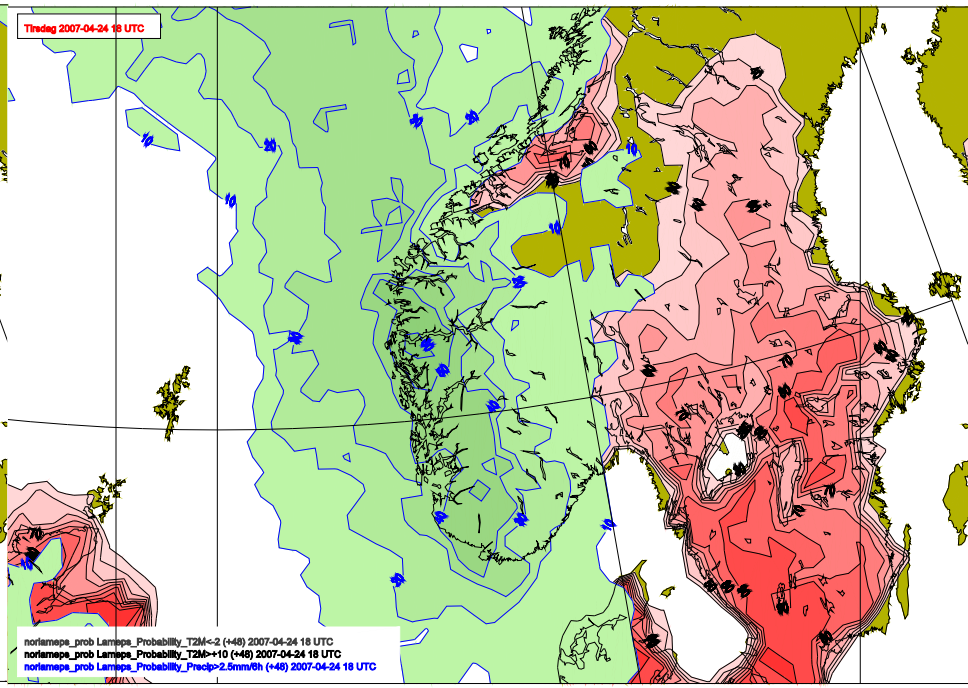
- BMA, (KNMI, INM)
- Products
- Validation

NORLAMEPS-forecasts

Today at 20 local time



Tomorrow at 20 local time



Thank you for your attention