EUMETNET- SRNWP verification programme
-Met Office Responsible member

Clive Wilson – Project manager

31st EWGLAM/16th SRNWP meetings – Athens 29 Sep 2009

EUMETNET/SRNWP programme - Deliverables

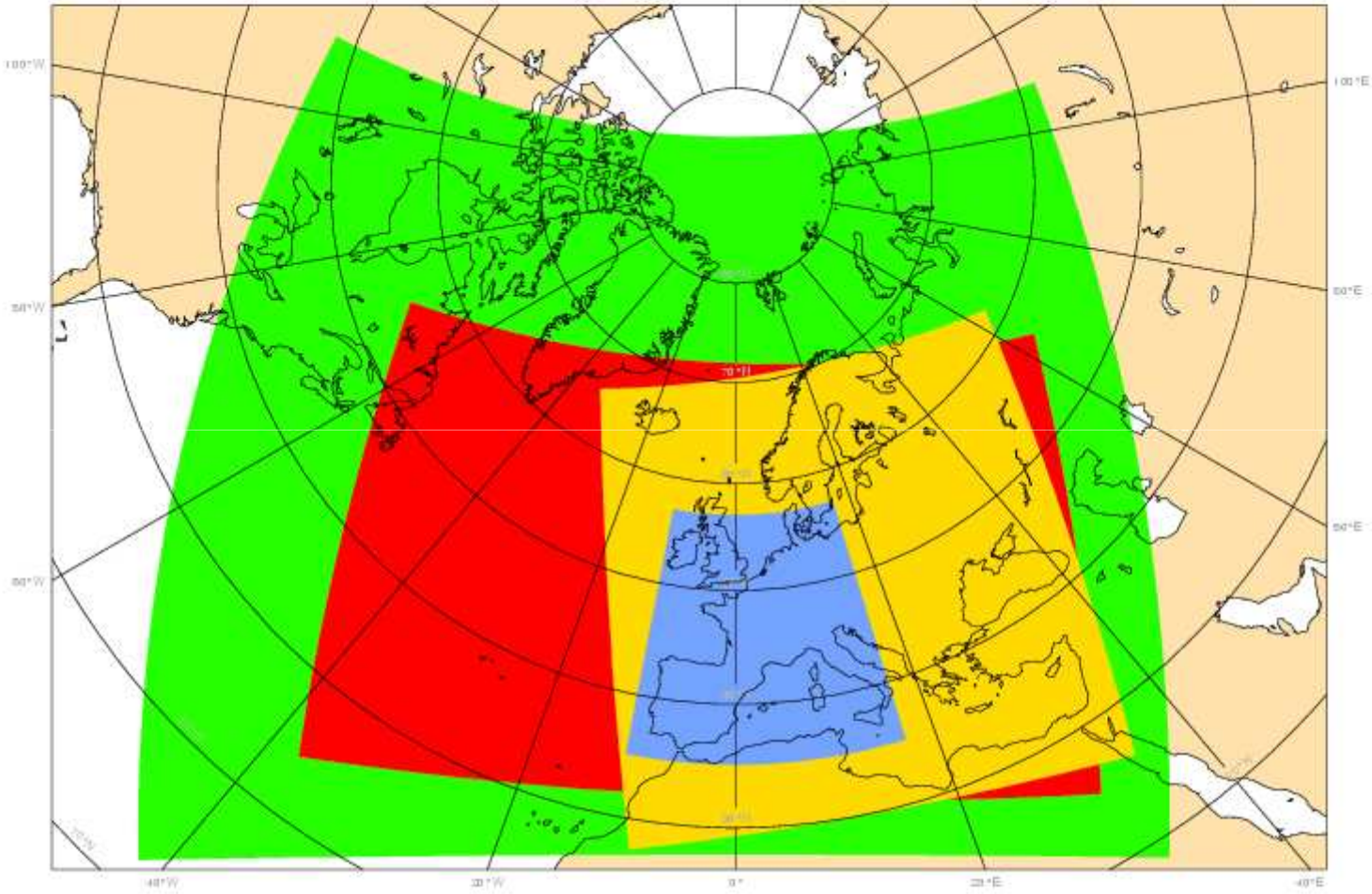
- **Main objective this year is**
  - **D1: Operational verification comparison of deterministic forecasts from one version of each of the 4 regional models of Europe (available for all the participating members)**
- **D2: Additional intercomparison of other versions of the consortia models including high resolution models**
- **D3: Inventory and recommendations of "new" scale-selective verification methods.**
- **D4: Catalogue of sources of non-GTS data**
- **D5 Exchange methods and code for verification of severe weather forecasts- NEW**

D1. Operational model intercomparison

- Exchange of forecasts* from models at 3-4 centres
  - Met Office NAE - 12km
  - Hirlam reference - 15km
  - Aladin France - 10km
  - COSMO-EU - 7km
- Use existing packages at different verification centres
  - Accept different station selection, QC (difficult to mandate/change at op. centres)
- Verify common scores for same parameters over common areas
- Compare, contrast & pool results to reach “consensus”
- Extension of existing precipitation verification done by Met Office

* Format – GRIB1 then GRIB2 as adopted by interoperability

Domains of 4 consortia reference models



Hirlam UM COSMO ALADIN

Outline Plan – 1st year

- D1, Jan- Apr 2009
  - Review methods, agree parameters & format for exchange
  - Agree contact points & participating centres
- May : start exchange
- Aug : publicise results on web site
- Dec : Report on intercomparison results
- D3, Jun:High res. methods workshop- Helsinki
- Dec: 1st recommendations for high res verification methods

Deliverables D2, D3 , D4, D5

- D2. Add more models/configurations including higher resolution forecasts to intercomparison
- D3. Methods/code for high resolution forecasts
  - Collaborate on investigation of new methods
  - Provide/exchange code for new methods
  - Publicise verification studies
- D4. Non-GTS data
  - Catalogue sources
  - Enable access to radar composites (OPERA)
- D5 - Exchange methods and code for verification of severe weather forecasts

Agreed Contact points for each consortia for D1

- Met Office
  - Clive Wilson, clive.wilson@metoffice.gov.uk
  - Marion Mittermaier, marion.mittermaier@metoffice.gov.uk
- ALADIN
  - Joël Stein, joel.stein@meteo.fr
- COSMO
  - Francis Schubiger, Francis.Schubiger@meteoswiss.ch
  - Ulrich Damrath, ulrich.damrath@dwd.de
- HIRLAM
  - Carl Fortelius, carl.fortelius@fmi.fi
- ALADIN-LACE
  - Dijana Klaric, dijana@cirus.dhz.hr

Requested Models & responsible contacts

- NAE 12km Unified Model – Met Office
  - Responsible person – Rob Darvell, rob.darvell@metoffice.gov.uk
  - Also In charge of Verification suite
- ALADIN- France – MeteoFrance
  - Responsible person - Joël Stein
- COSMO – DWD
  - Responsible person – Ulrich Damrath
- HIRLAM reference – FMI
  - Responsible person – Carl Fortelius

Work to date

- Programme decision completed by EUMETNET Ex-committee at 26th March 2009
- Contract Agreement between Met Office & Directors of the participating members
- The forecast parameter list and other fields such as land sea masks and orography specified.
- Method of collecting the forecast data agreed and commenced with June 2009 data (commenced July)
  - intend to back-fill with forecasts from January 2009
- Data decoded from GRIB to internal Met Office format (fieldsfile)
- Verification suite built and under test
- A station list of synoptic observations to be used for comparison areas will be agreed and publicised.

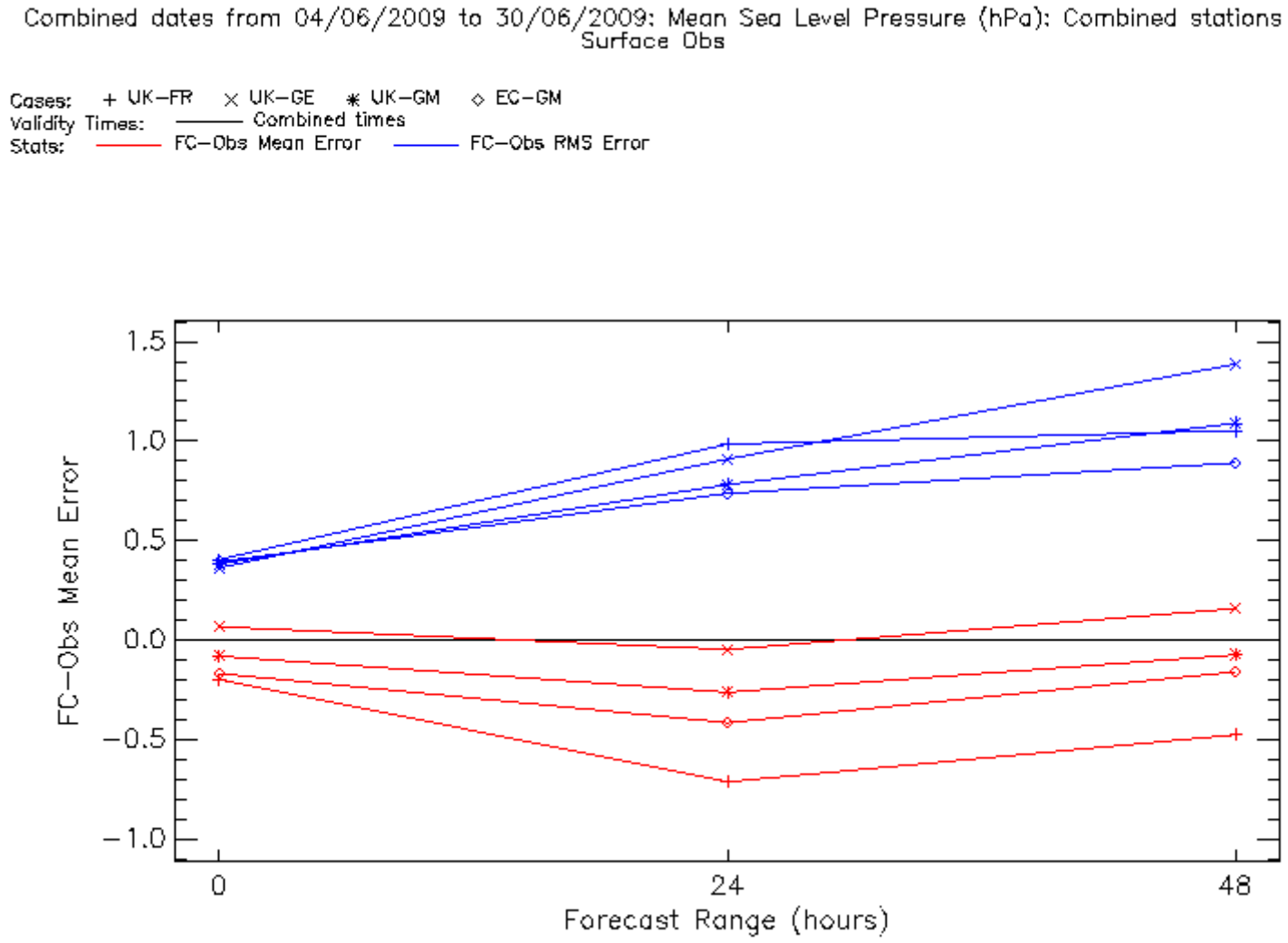
Problems & delays to plan

- Verification suite could not commence until an upgrade of the computing resource was made end of May.
- Problems with transfer of operational verification suite to IBM supercomputer delayed start on SRNWP suite (August)
- Some issues with rotated grid (Hirlam) still need ironing out
- Meteo_France supply of dddff winds need transformation to components

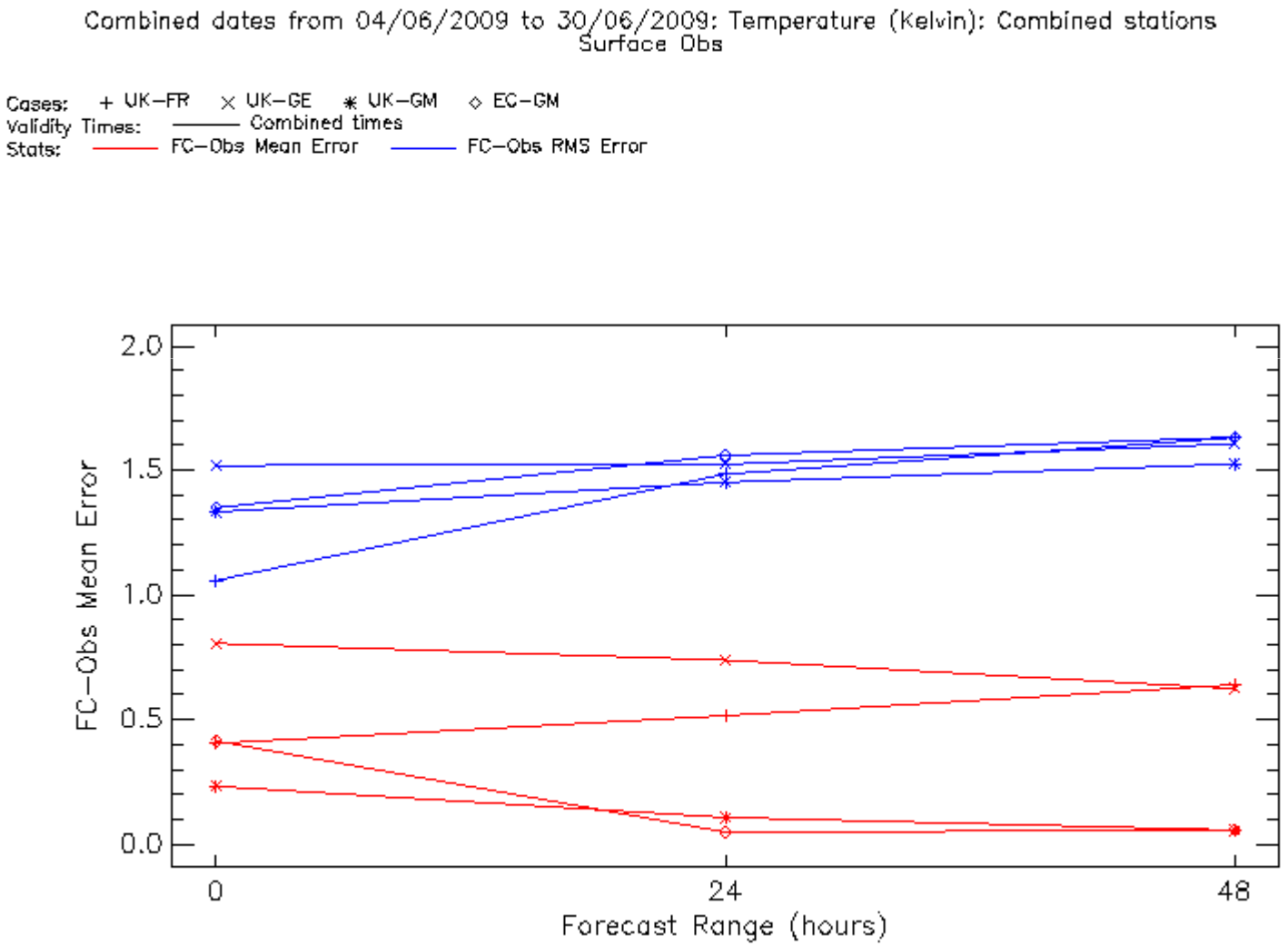
Indication of participating verification centres besides the Met Office

- At present only the Met Office has agreed to verify all the forecasts. The intercomparison would benefit from another centre verifying them independently, as proposed in the programme
  - Agreed at ET meeting in Helsinki to return results for each model to suppliers to check against their own verification for QC of Met Office process
  - Xiaohua Yang, indicated DMI maybe interested in independent verification using Hirlam verification system

Very preliminary test results MSLP, Block 03200 to 03900



Very preliminary test results T_{2m}, Block 03200 to 03900



Successes:

- Few problems in organising supply and transfers – Thanks!
- GRIB1 mostly OK
- “Operational” SRNWP verification suite built
- Greater resource effort now available
  - Speed up of processing
  - Exchange of results for QC by suppliers

Plan for next 3 months for D1

- Iron out remaining GRIB/rotation problems
- Exchange results for QC checks
- Include EC high resolution forecasts
- Backfill from January 2009
- Establish results pages on EUMET portal
  - All ET participants to be given access
- Report on results for first year (end Dec)

Plan for next 3 months for Methods/code for high resolution forecasts

- Produce review of current methods used in SRNWP and elsewhere – seek contributions/input from:
  - Met Office – Intensity/scale & Fractional Brier Skill
  - Meteo_France Fuzzy- BSS_SO, BSS_NO
  - MeteoSwiss- D phase tests of methods
  - DWD – Fuzzy techniques
  - FMI- SAL
  - Others
  - WAF Spatial Forecast Verification Methods Special Collection
  - NCAR,RAL, Spatial Forecast Verification Methods Inter-Comparison Project

Outline Plan 2nd year

- Continue intercomparison & report Dec
- D2: Add high res. models
- D4: Construct catalogue of non-GTS data
- D3: Aug: final recommendations for high res verification methods & code
- D5: Exchange methods & code for severe weather forecasts

Responsible member duties

- Model Intercomparison
  - organise the exchange of forecasts from the 4 reference models
  - coordinate the participating verification centres
  - verify the reference models using its verification package
  - produce the graphics and compute the consensus verification scores
  - maintain up-to-date the model intercomparison pages on its web site
  - store on its computer system all the verification results
- Use of the non-GTS observing data in verification
  - Establish a catalogue of data sources
  - Publicise verification studies and routine use of such data
  - motivate the NMS to provide their non-GTS observation data for verification use

Dates & Cost (per year)

- Start 1 January 2009
- End 31 December 2010 (2 years)
- Costs of the Responsible Member
  - 0.3 Full time equivalent scientist: € 30,000.-
  - Travel expenses of the 0.3 full time equivalent scientist: € 2,000.-
- **Total cost per year: € 32,000.-**
- **Project managers – Clive Wilson & Marion Mittermaier**