

Use of Guidance Products in Met Éireann

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Overview

- Products
- Developments
- EPS Use
- Threat Appraisal
- Challenges

Products



ECMWF products

- Deterministic (T+10days, 40km, L91)
- Probabilistic (T+15days, 80km, L62)
- Probabilistic (T+32days, 80km, L62)
- Probabilistic (T+7months, 125km, L62)
- Boundary conditions for member NMS

Met Éireann Products

- Deterministic forecasts (T+48h, 15km, L60)
- Deterministic forecasts (T+30h, 5km, L60)
- Deterministic *hourly* forecasts (T+6h, 15km, L60)
- Wave model (T+48h, 25km)
- Ocean Surge (T+48h, 8km)
- Various Environmental/Dispersion models
 - Foot & Mouth
 - Dispersion (HySplit)
 - Trajectory
 - Fire Warning
 - AgMet (Animal/Plant Diseases)

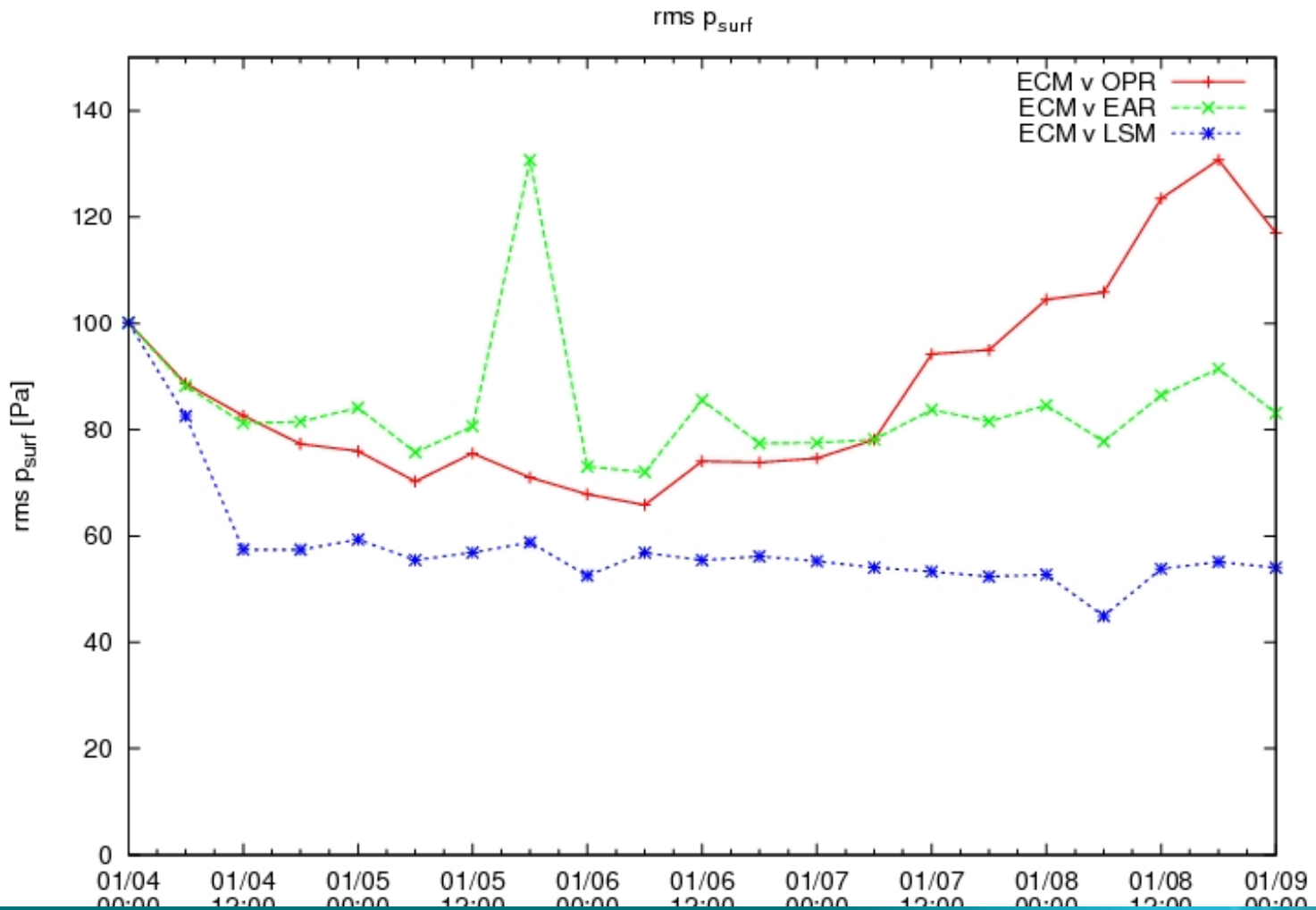
Developments



Recent changes: LSMIX

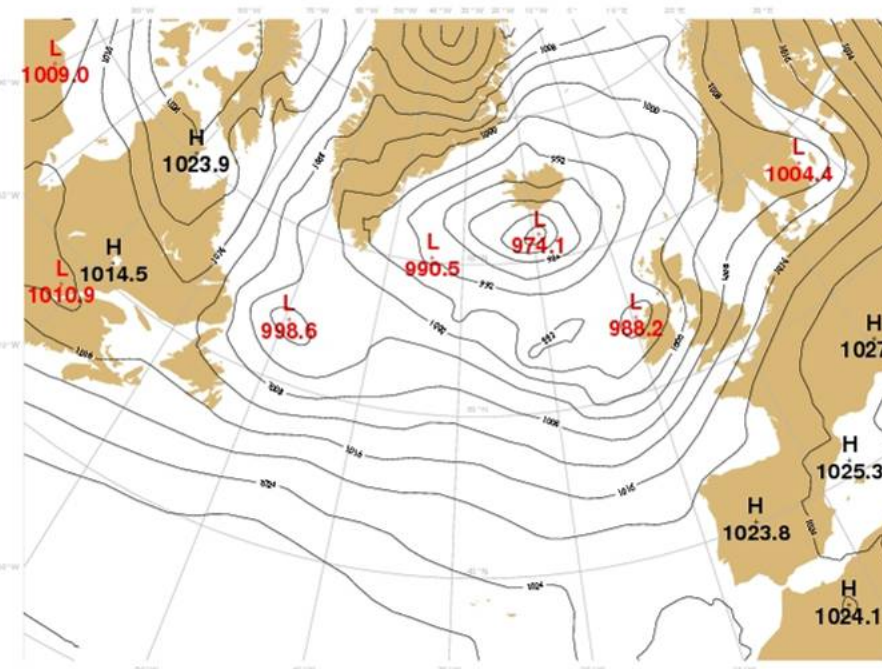
- Large-scale mixing (Feb '08)
- Prompted by poor performance in Jan '08
- Used operationally in most HIRLAM NMS
- Analyses benefit from ECMWF analysis

Recent changes: LSMIX



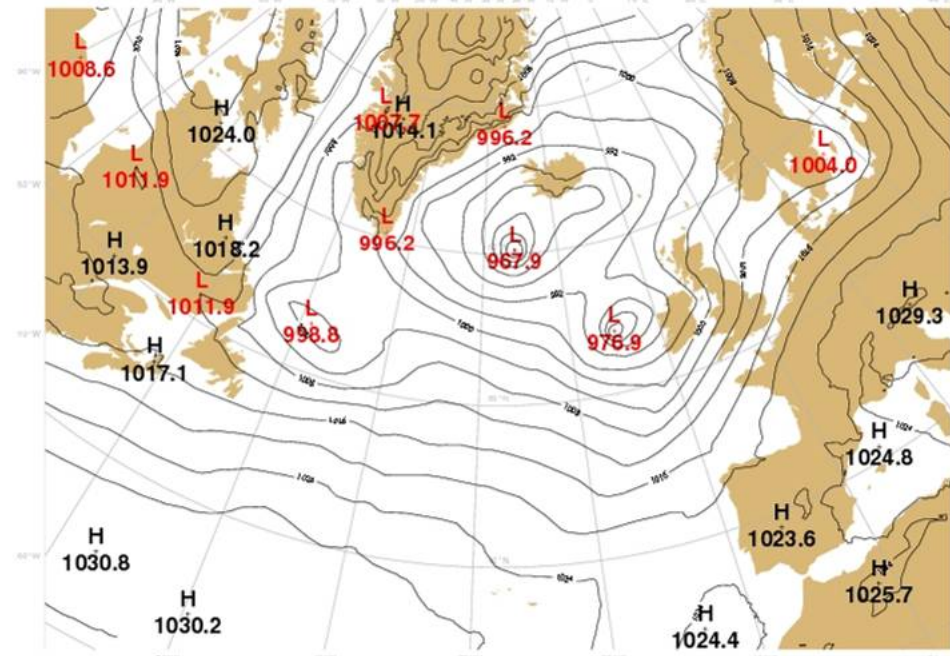
Recent changes: LSMIX

Mean Sea Level Pressure 2008010812, 00hour forecast



Mon Jan 21 15:59:45 2008

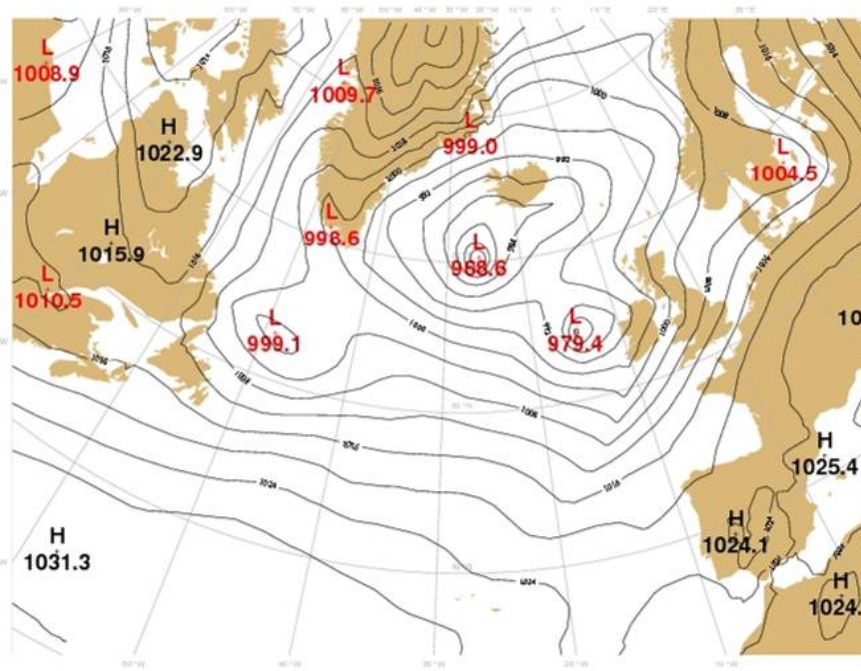
Mean Sea Level Pressure 2008010812, 00hour forecast



Mon Jan 21 15:57:24 2008

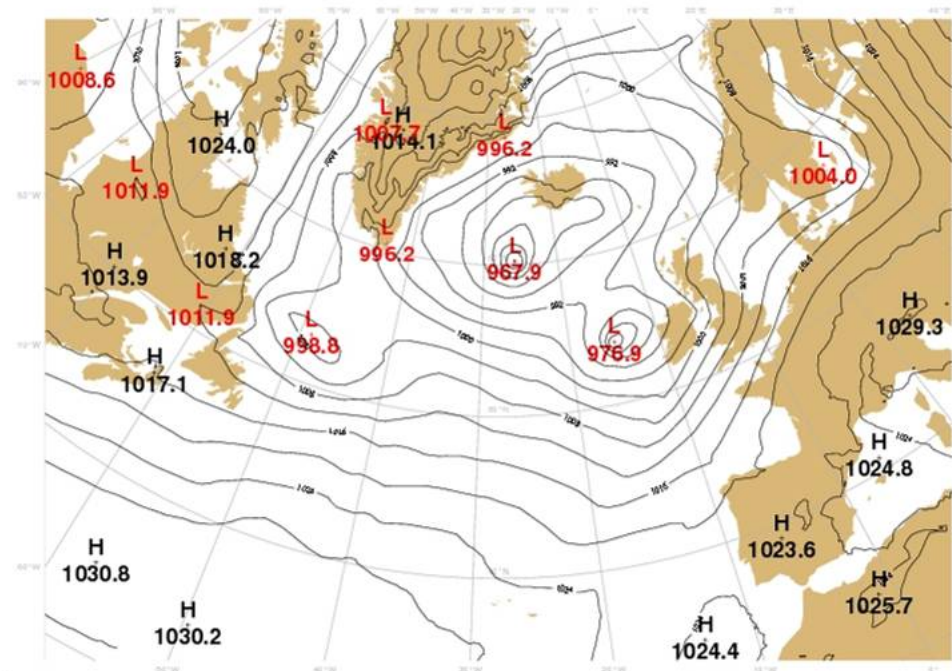
Recent changes: LSMIX

Mean Sea Level Pressure 2008010812, 00hour forecast



in 24 13:49:22 2005

Mean Sea Level Pressure 2008010812, 00hour forecast



Mon Jan 21 15:57:24 2005

Recent changes: ATOVS

- Introduction of ATOVS data (Oct '08)
- 4k - 20k extra observations per cycle
- Used over seas under clear sky conditions
- Bias corrections required
- Performance closely monitored

NWP Performance

- HIRLAM monitored using
 - local graphical tools
 - HIRLAM verification packages
- HIRLAM performing well for surface parameters
- EC performs better for upper air

Current Activities

- Upgrade of HIRLAM
- Upgrade version 7.0 → 7.2
 - 4DVAR
 - Extra diagnostics including:
 - Gusts at 10m
 - min/max screen level temperatures
 - Precipitation type
 - Kain-Fritsch condensation
 - RTTOV8 package for satellite observations
- Parallel tests underway

Current Activities

- Testing of H_{ARMONIE}
- Collaboration with ICHEC
- Technical issues outstanding
- Meteorological issues outstanding
 - Convection, winds
- Other NMS noticing problems
- Mixed results when compared with H_{IRLAM}

Plans: Met Éireann

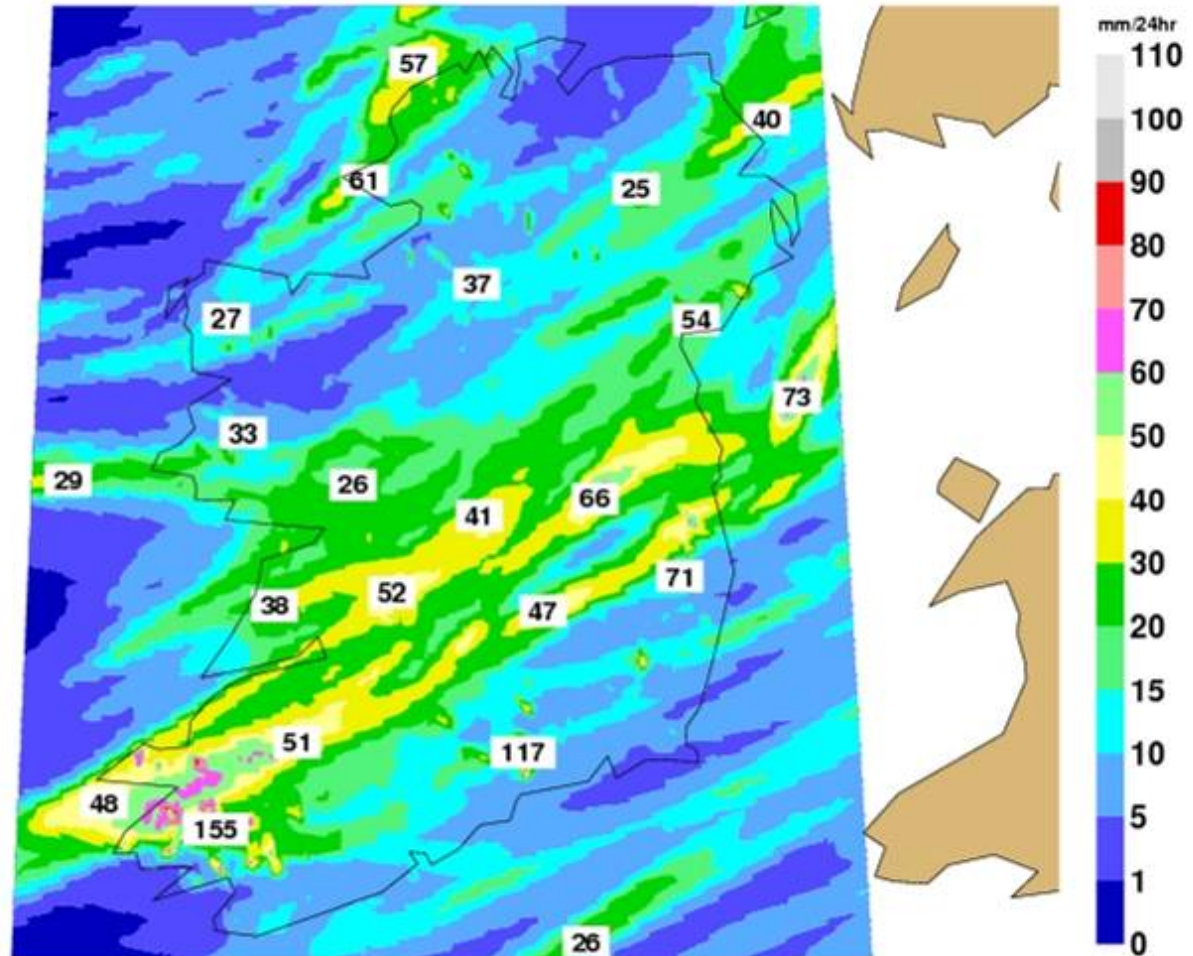
- Make HIRLAM 7.2 operational
- Continue development activities within HIRLAM
 - System development
 - Use of observations
 - Rapid update to boundaries
 - Surface scheme (HARMONIE)
- Test use of larger domain
- Test use of higher resolution boundaries

Plans: Met Éireann

- Install HARMONIE at 2.5km resolution (or less)
- Ensure technical reliability
- Ensure meteorological reliability
- Provide experimental data by early 2010
- Limited success to date

Plans: Met Éireann

Plot of rainfall for 2008080906 forecast
Accumulation for 2008080909 - 2008081009



Plans: Met Éireann

- GLAMEPS
- Met Éireann member of GLAMEPS_V1
 - Grand Limited Area Model Ensemble Prediction System
- ICHEC staff involved
- Run a few ensemble member forecasts
- Due to have started

EPS Use in CAFO

- Direct output from ECMWF
- No In-house Processing
- Qualitative Assessment
- Training/Skill Dependant

Threat Appraisal

- “Poor Man’s Clustering”
- EFI Applied to Severe Weather Assessment
- Warnings Regime Co-ordinated with Meteoalarm
- Aids Streamlining and Avoids Duplication / Confusion

Warnings Criteria

- Wind: Gusts Most Important
- Rain:
 - 70mm / 24hr
 - 50 mm / 12hr
 - 40 mm / 6 hr
- Snow: Not for High Ground
- Thunderstorm: Not for Isolated Storms
- Low Temperatures:
 - Min < -5 Celsius
 - Max < +2 Celsius
- Fog: Not High Ground nor Coasts
- Ice/Freezing Precipitation
- Flooding: Tidal and Meteorological Factors Combined

Challenges

- Phasing Out of Old Visualisation Package
- Implementation of IBL System
- Merging of Aviation Office and CAFO
- Upskilling Required
- Ongoing Training Essential

Thank You

