Operational status at the AEMET (INM), Spain

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SYSTEM

Cray X1E Configuration

16 physical nodes X1E
8 MSP each
- 1,2 GHz, 19,2 Gflops -64 bits- by MSP
- 32 logical nodes
  31 application nodes + 1 support node

128 MSP / 512 SSP

512 GB memory

2,304 Tflops theoretical peak performance for applications.

Cross-compiler based in linux cluster

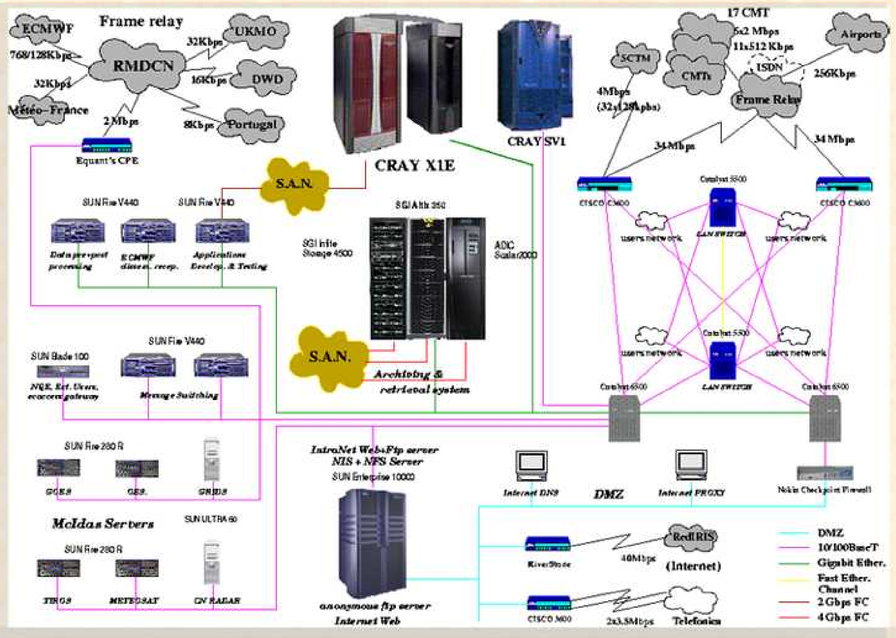
Archive Capacity

1 TB directly attached disk

20 TB SAN

24 TB cartridge Library

AEMET NETWORK



OPERATIONAL SUITE

Operational runs on CrayX1

3 **HIRLAM v6.1.2** experiments:
- ONR (0.16deg), HNR (0.05deg)
- Over Canary Islands 0.05 deg

Four runs at 00, 06, 12 & 18 UTC

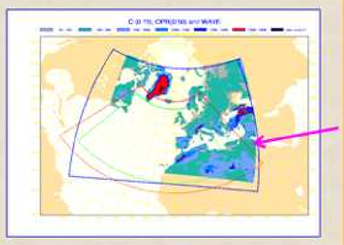
40 levels in the vertical (more resolution in the PBL)

SL Dynamics

3DVAR assimilation with Statistical Jb

ISBA

Integration area

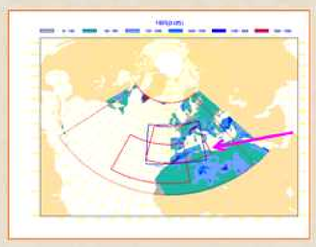


ONR (0.16 deg)

latxlon (582x424)

72 hour forecasts

Dynamics time step = 240 sec



HNR (0.05 deg)

latxlon (606x430)

36 hour forecasts

Dynamics time step = 120 sec

Hirlam INM vs. reference system

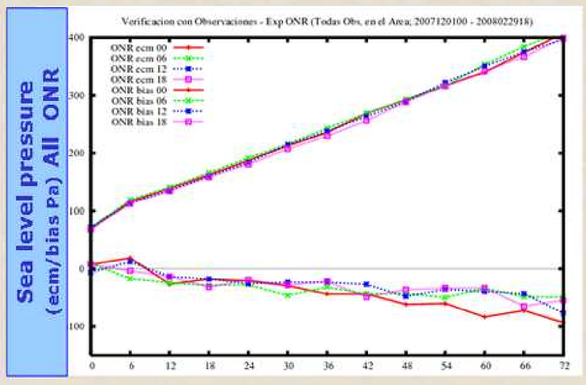
3DVar Analysis
- Statistical Jb

Observations usage:
- ATOVS AMSU-A data TIROS NOAA15 & NOAA16
- 20041222. Active from 20050117

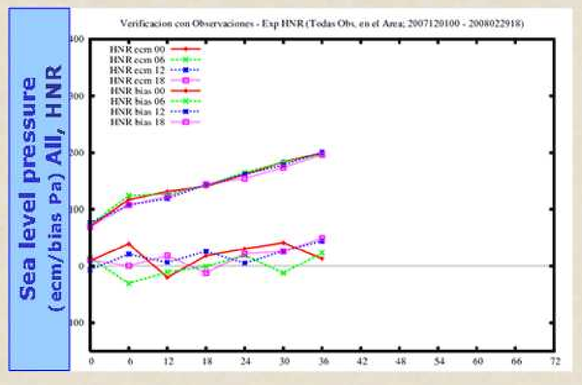
Also introduced in operational suite in passive mode:
- VAD data (14 meteorological data from INM radar network) 20041019
- GPS (ZTD) data from TOUGH server 20041021
- Relative humidity from SYNOP 20041021

OBSERVATION VERIFICATION –December 2007 – February 2008

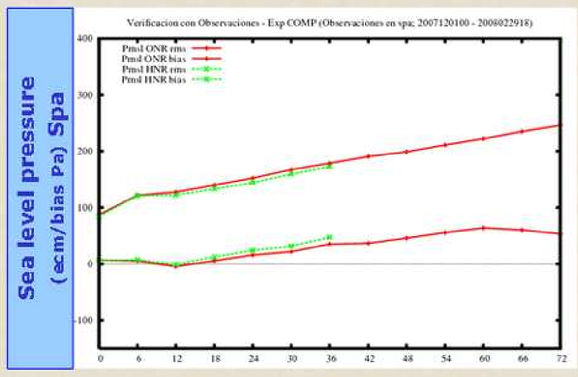
Sea level pressure (ecm/bias Pa) All ONR



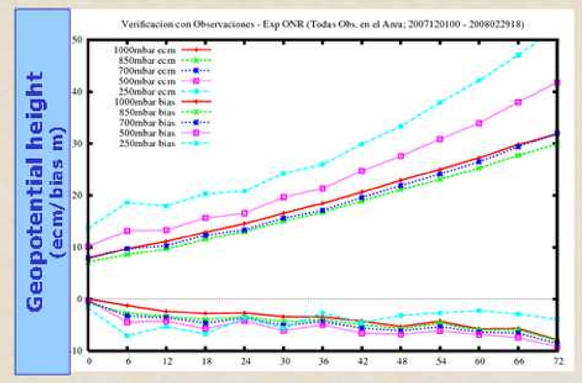
Sea level pressure (ecm/bias Pa) All, HNR



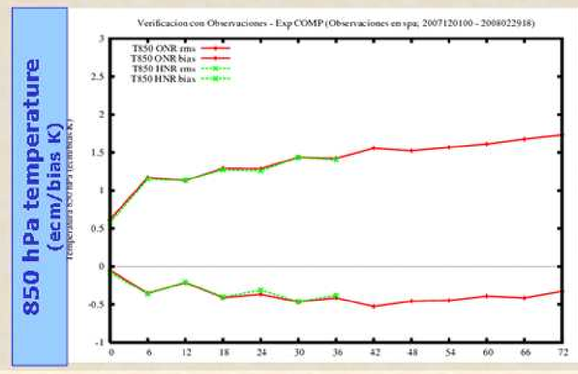
Sea level pressure (ecm/bias Pa) Spa



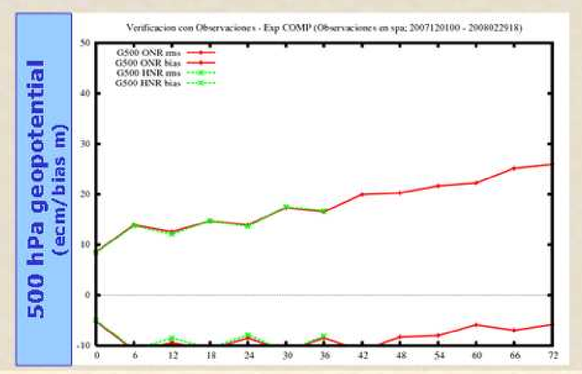
Geopotential height (ecm/bias m)



850 hPa temperature (ecm/bias K)



500 hPa geopotential (ecm/bias m)



PRE-OPERATIONAL SUITE

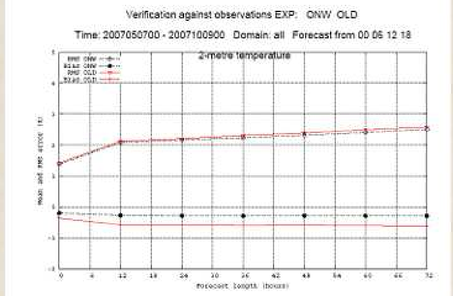
3 HIRLAM v7.0 experiments:
- ONR (0.16), HNR (0.05)
- Over Canary Islands 0.05 deg

Four runs at 00, 06, 12 & 18 UTC

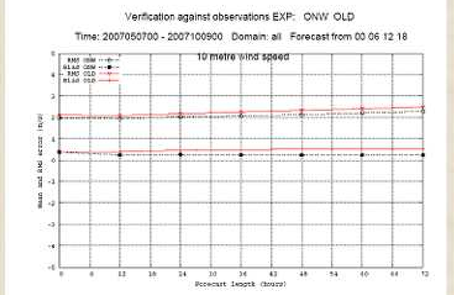
60 levels in the vertical (more resolution in the PBL)

Obs verifications
OLD operational v6.1.2
ONW pre-operational v7.0

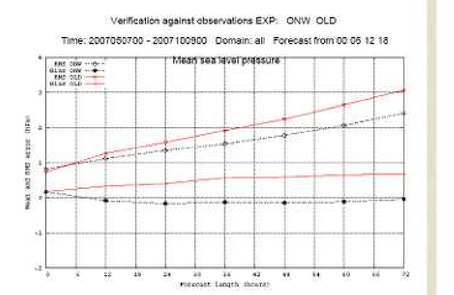
2m temperature



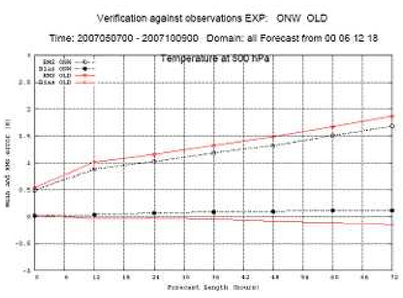
10m wind speed



Mean sea level pressure



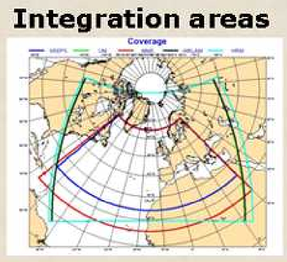
850 hPa temperature



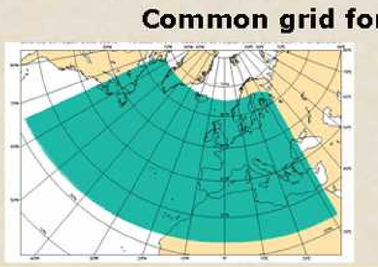
SREPS

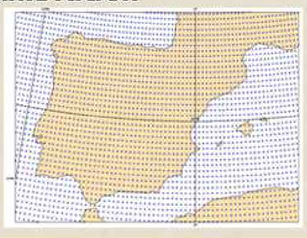
Multi-Model	Multi–boundaries	Num. EPS Members	Forecast length (daily runs)	Horizontal resolution
Hirlam HRM (DWD) MM5 UM (UKMO) Lokal Model	ECMWF GME GFS UKMO	5 models X 4 boundaries = 20	72 (twice)	0,25º

Integration areas

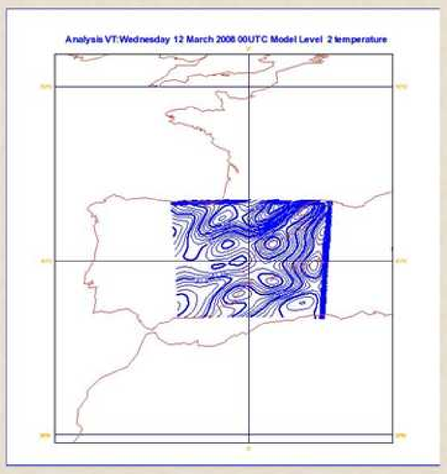


Common grid for calibration





HARMONIE



HIRLAM ONR (0.16 deg) →

HARMONIE cy31h1

latxlon (384x400)
40 levels
Horizontal resolution 11 km
12 hours forecasts
Dynamics time step = 300 sec
Hydrostatic run

↓

HARMONIE cy31h1

latxlon (300x300)
40 levels
Horizontal resolution 2.5 km
12 hours forecasts
Dynamics time step = 60 sec
Non-hydrostatic run

FUTURE

New Computer's ITT 2009

- **Hirlam v7.0 operational suite**
- **HIRLAM 7.2 version:**
  - Parallel HIRLAM v7.2 suite
  - Improvements in horizontal resolution (0.08 deg.)
  - 4DVar

SREPS

- ALADIN model in SREPS
- New global model MSC (Canadian Met. Service)

HARMONIE

- 1 run per day 00 UTC
- 24 hours forecasts
- Harmonie cy32h2
- New integration area

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