



ILMATIETEEN LAITOS
METEOROLOGISKA INSTITUTET
FINNISH METEOROLOGICAL INSTITUTE

Hirlam on-line mast verification

Markku Kangas

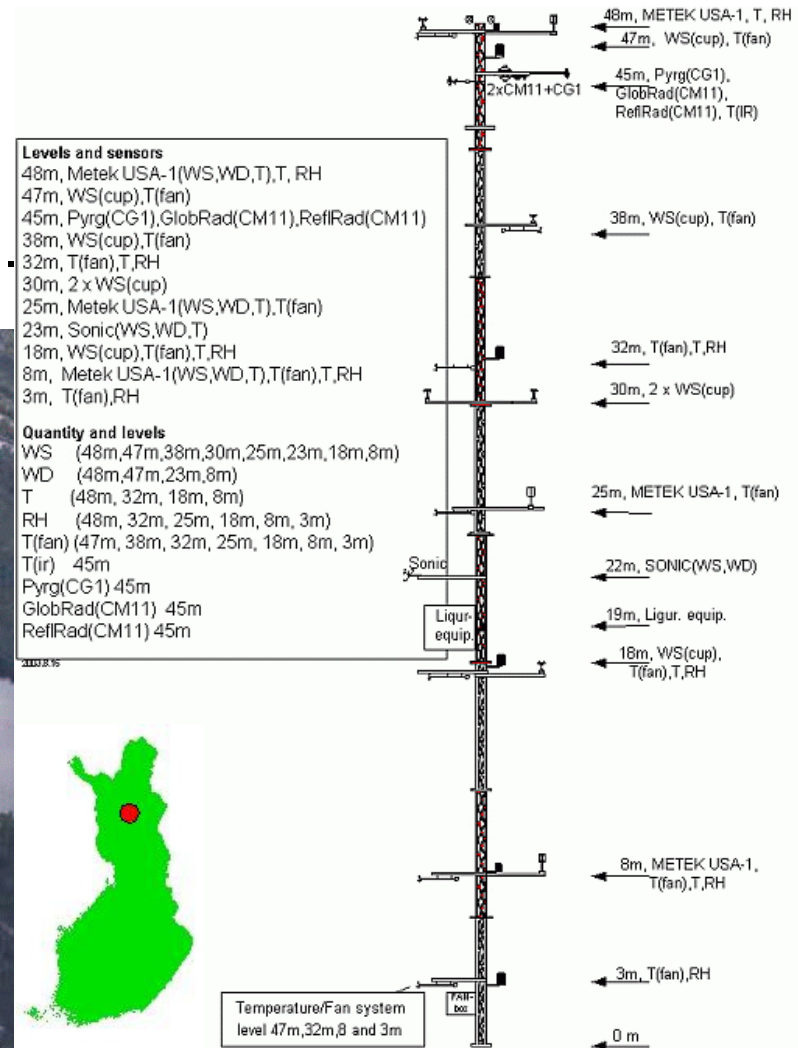
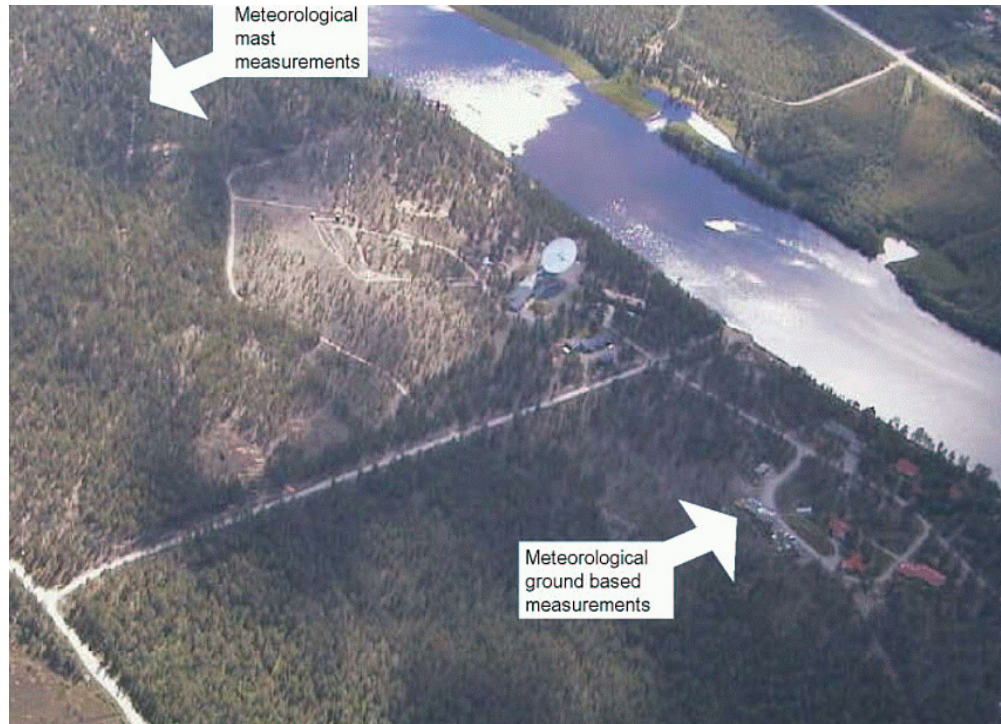
*FMI / Research and Development /
Meteorology / Numerical Weather
Prediction Models*





Sodankylä : FMI Arctic Research Centre

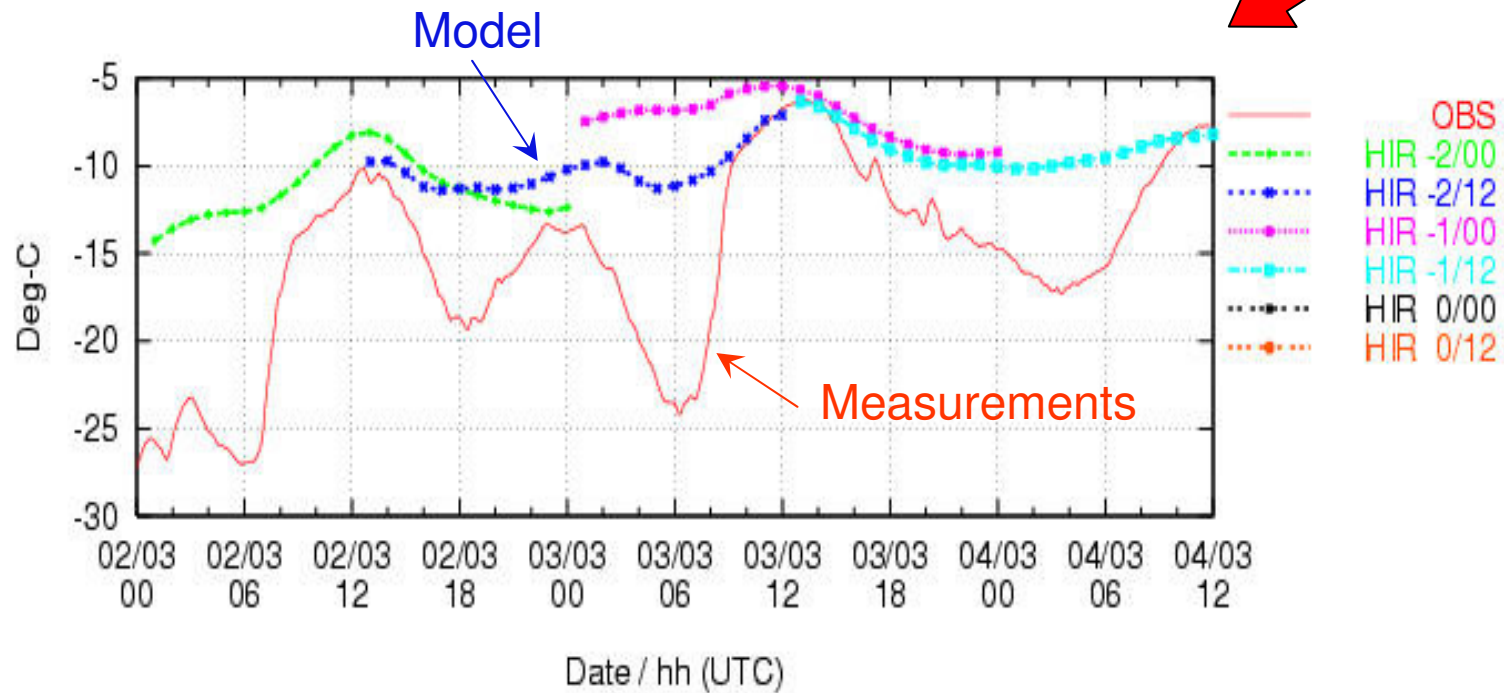
- 67.4°N, 26.6°E, 179 m.s.l.
- CEOP measurement site
- SYNOP, soundings, ABL mast, CO₂ ,...





On-line verification

- On-line comparison : "alarm clock"
- Nordic temperature inversion problem

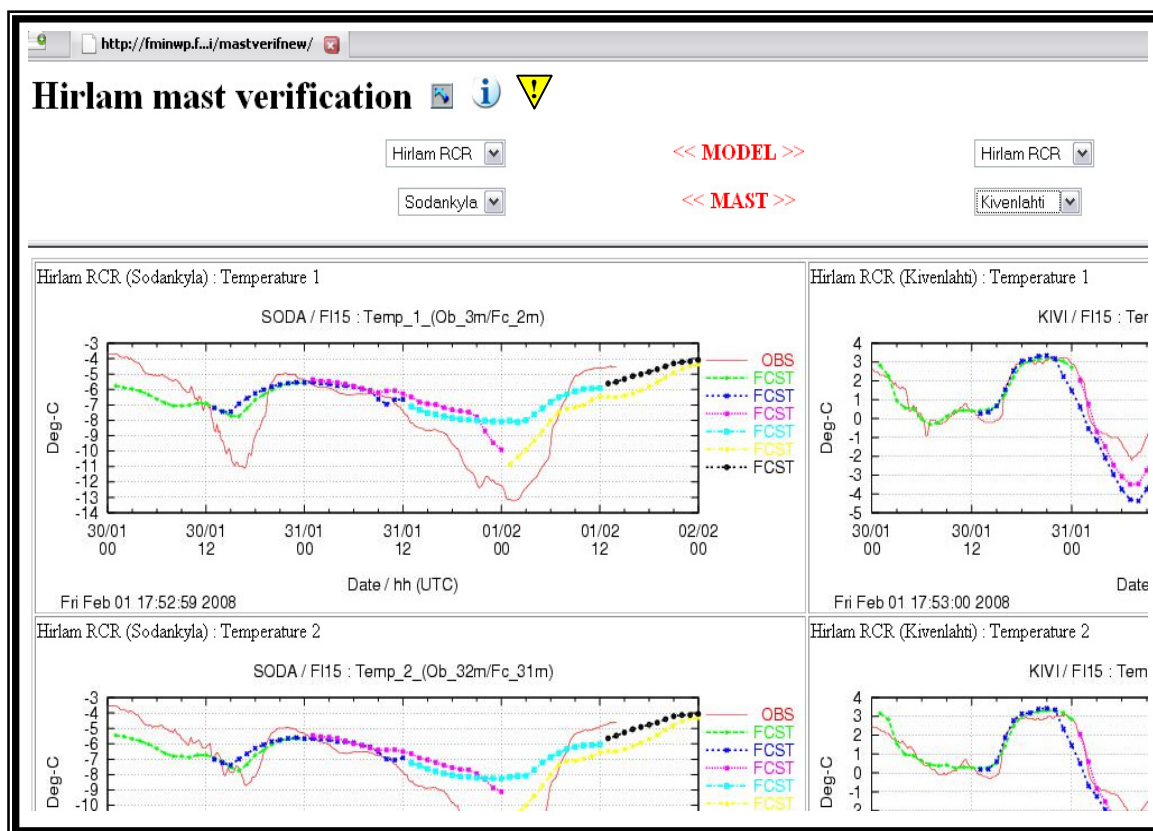


Fri Mar 04 15:10:02 2005



Mast verification at present

- 5 (+3*) models, 6 (+1*) masts
- 11 parameters : T, V, Rh, SW, LW, Hflux, LFlux ...
- <http://fminwp.fmi.fi/mastverifnew/>

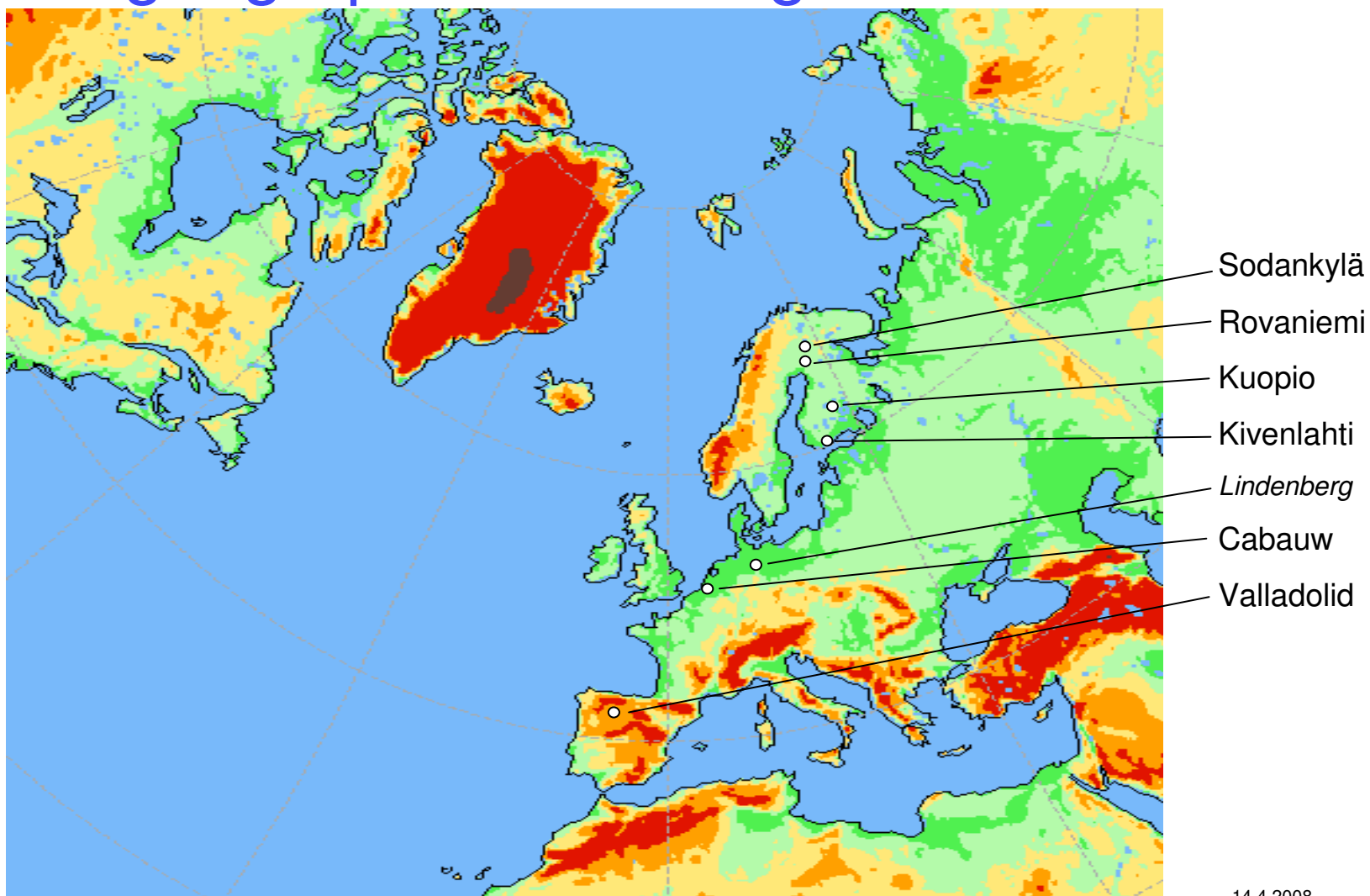


Models	Masts
Hirlam RCR (Fin)	Sodankylä (Fin)
Hirlam MBE (Fin)	Cabauw (NL)
Hirlam INM (Spa)	Valladolid (Spa)
Arpege (Fra)	Kivenlahti (Fin)
Aladin (Fra)	Kuopio (Fin)
<i>IFS (ECMWF)*</i>	Rovaniemi (Fin)
<i>Arome (Swe/Fin)*</i>	<i>Lindenberg (Ger)*</i>
<i>UM (Met Office)*</i>	

* = *in the works*



Mast geographical coverage

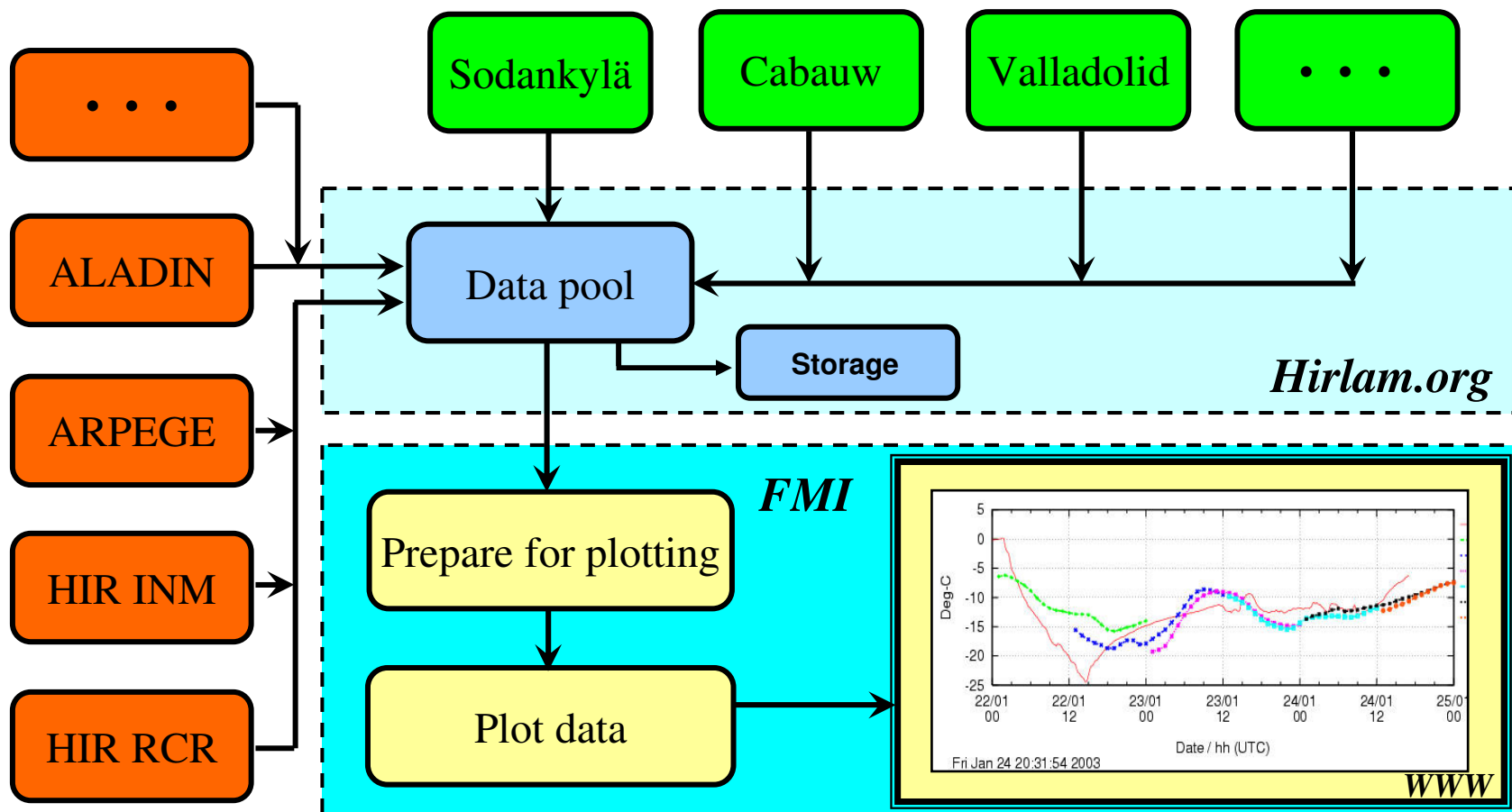




Mast verification plotting system

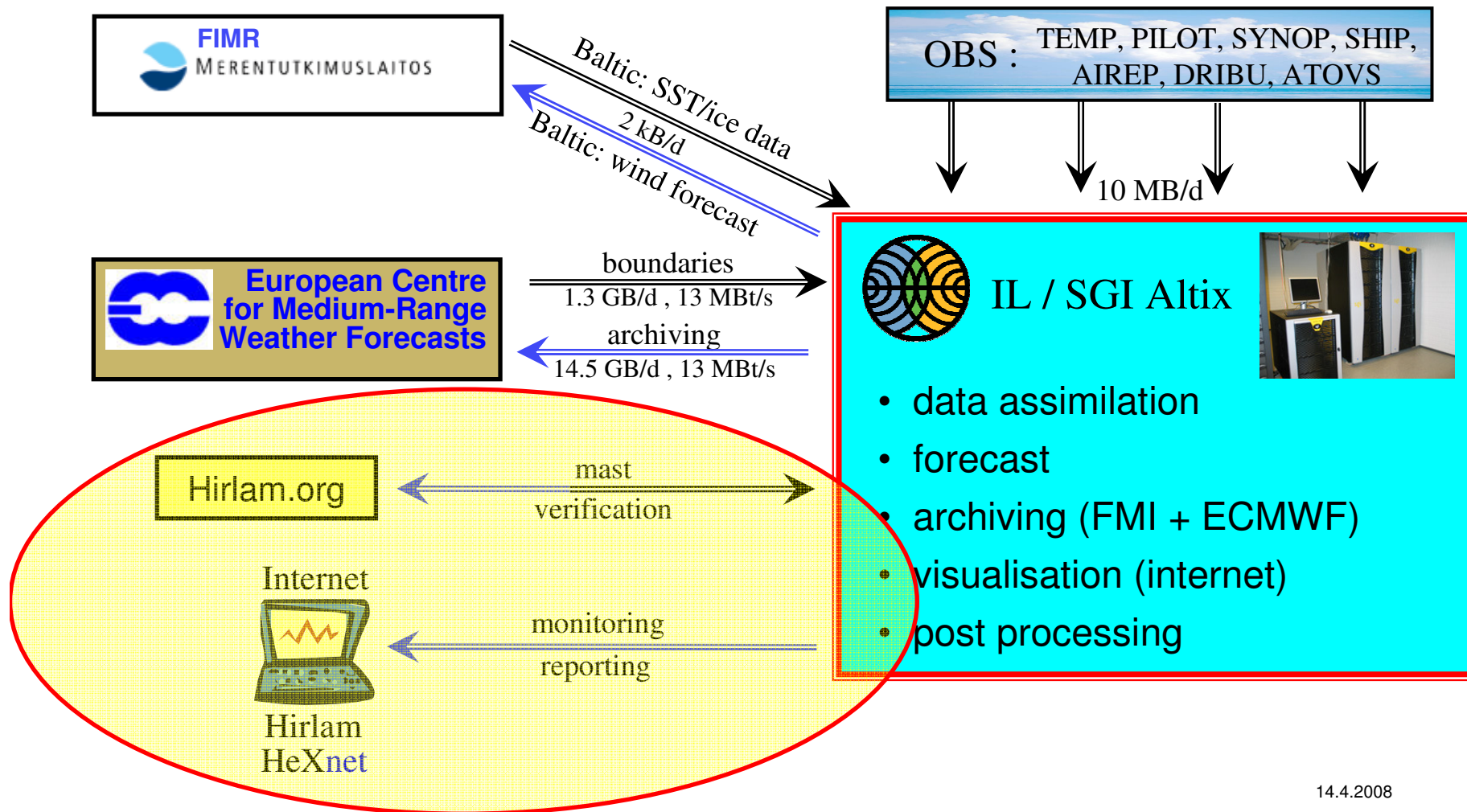
M e a s u r e m e n t s

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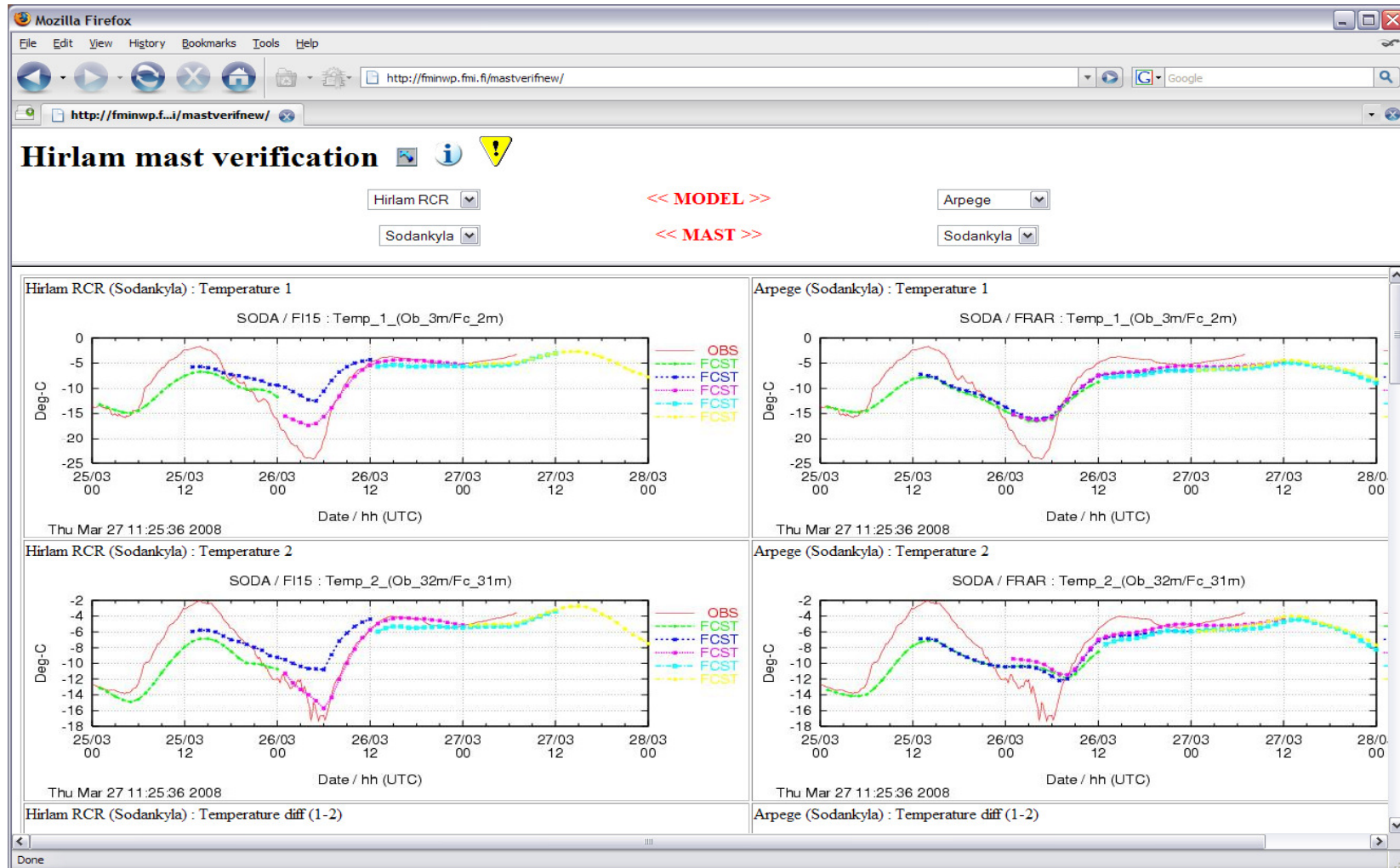


Hirlam RCR operational system





Comparison page example





Comparison information

Hirnam mast verification ⏪

Data tentative

Plots show comparison of mast measurements with weather model forecasts. Model forecasts are denoted in the plot legend with "FCST", measurements with "OBS". The time interval in the plots spans starting from 2 days backwards from present day midnight and reaching forward as far as data is available. First 24 hours from 00 and 12 forecasts are plotted.

The actual measurement heights vary somewhat with masts, which must be considered when looking at the plots. The height may also not be exactly the same for mast and model. Plot heading shows show appropriate heights ("Ob" = mast, "Fc" = model). Also the parameters plotted in the graphs vary depending on the mast in question. See the "list of parameters" below for description of parameters. In addition heading identifies mast and model using "ID" shown in the tables below. For more information about the IDs and the data in general, see the "verification input data description" below.

Starting from February 8, 2008, the old mast verification page is no longer active.

[Contact information](#)

Masts [ID]

- [Sodankylä](#) [SODA]
- [Cabauw](#) [CABA]
- [Valladolid](#) [VALL]
- [Kivenlahti](#) [KIVI]
- [Kuopio](#) [KUOP]
- [Rovaniemi](#) [ROVA]

Models [ID]

- [Hirnam RCR](#) [F115]
- [Hirnam MB71](#) [F175]
- [Hirnam INM](#) [SP16]
- [Arpege](#) [FRAR]
- [Aladin](#) [FRAL]

Parameters

- [List of parameters](#)
- [Verification input data description](#)

Known issues

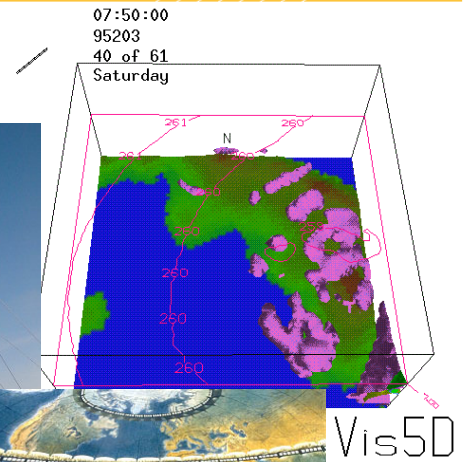
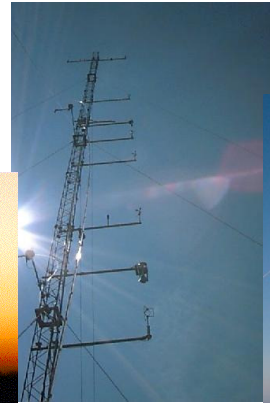
Feb 05, 2008 : Datalogger problems with Kuopio mast measurements

Done



Conclusions & future

- More forecasts
- More masts
- Parameter list update
 - more/different parameters and/or levels ?
 - profiles ?
- WebGraf integration (Ulf Andrae)
 - synergy with other verification products
- Data archiving
 - so far : forecast file storage at hirlam.org
 - aim: cumulative data archiving of forecasts + mast measurements
 - hirlam.org / Sodankylä data base





Sodankylä data base

- Data archiving
- FMI-ARC data repository
- free access, registration needed


<http://litdb.fmi.fi/>



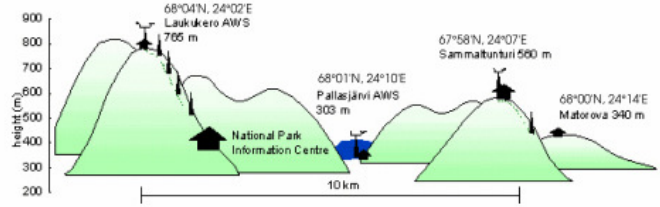
DATABASE DATABASE DATABASE DATABASE DATABASE DATABASE DATABASE DATABASE

Database of Sodankylä and Pallas measurements

[GENERAL DATA DISCLAIMER](#)



The data base stores the data of Pallas-Sodankylä GAW station. The summary of the data products are at [list of all data and measurements](#). Currently only Sodankylä data is available, Pallas will join later. Sodankylä is the classical meteorological part of the twin site, homogenized data records date back to 1908. Pallas is a new clean air site for air chemistry and aerosol measurements established 1994. For the satellite validation applications spectral radiance/reflectance measurements of typical Lappish surfaces: Pine forest, bare lichen surface and snow surface are included. Data is intended for colleagues doing research not for service applications. Therefore data is generally not real time but updated periodically after checks. Access to data requires registration (instructions at [help for users\(pdf\)](#)).



Upper-air data
Column data
Radiation data
Aerosol optical depth
FUVIRC
NorSEN mast
Albedo from the mast
Mast data
Synop data
HIRLAM
Pallas data
SMS data

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Go to main page of FMI/ARC visits total: 2743



Thanks to ...

- Data providers
 - › Eric Bazile, Cisco de Bruin, Gema Morales Martin, Antti Poikonen, Mika Aurela, Jani Poutiainen
- ... those aspiring (hopefully) to become such
 - › David Richardson, Ulf Andrae, Sami Niemelä, Mike Bush, Frank Beyrich
- Operational setup
 - › Thor Olason, Niko Sokka, Xiahua Yang
- System development and support
 - › Laura Rontu, Carl Fortelius, Xiahua Yang, Sander Tijm, Evgeniy Atlaskin, Jose A. Garcia-Moya



Thank you for
your attention