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FINNISH METEOROLOGICAL INSTITUTE

DATA HOLDINGS OF THE NORDIC COUNTRIES

Heikki Tuomenvirta

Thanks to: Dave Schultz, Jani
Poutiainen, Lars Andresen (met.no)





*Meteorologisk
institutt
met.no*

Norwegian meteorological stations at work per 2008

Lars Andresen – larsa@met.no

Norwegian stations at work per January 2008

- about 230 stations measuring temperature
- about 500 stations measuring precipitation
- about 160 stations measuring air pressure
- about 100 stations observing visual parameters

Long time series of monthly mean temperature, still at work per January 2008

- 17 stations ≥ 100 years
- 17 stations ≥ 75 years (< 100 years)
- 27 stations ≥ 50 years (< 75 years)

Norwegian data policy

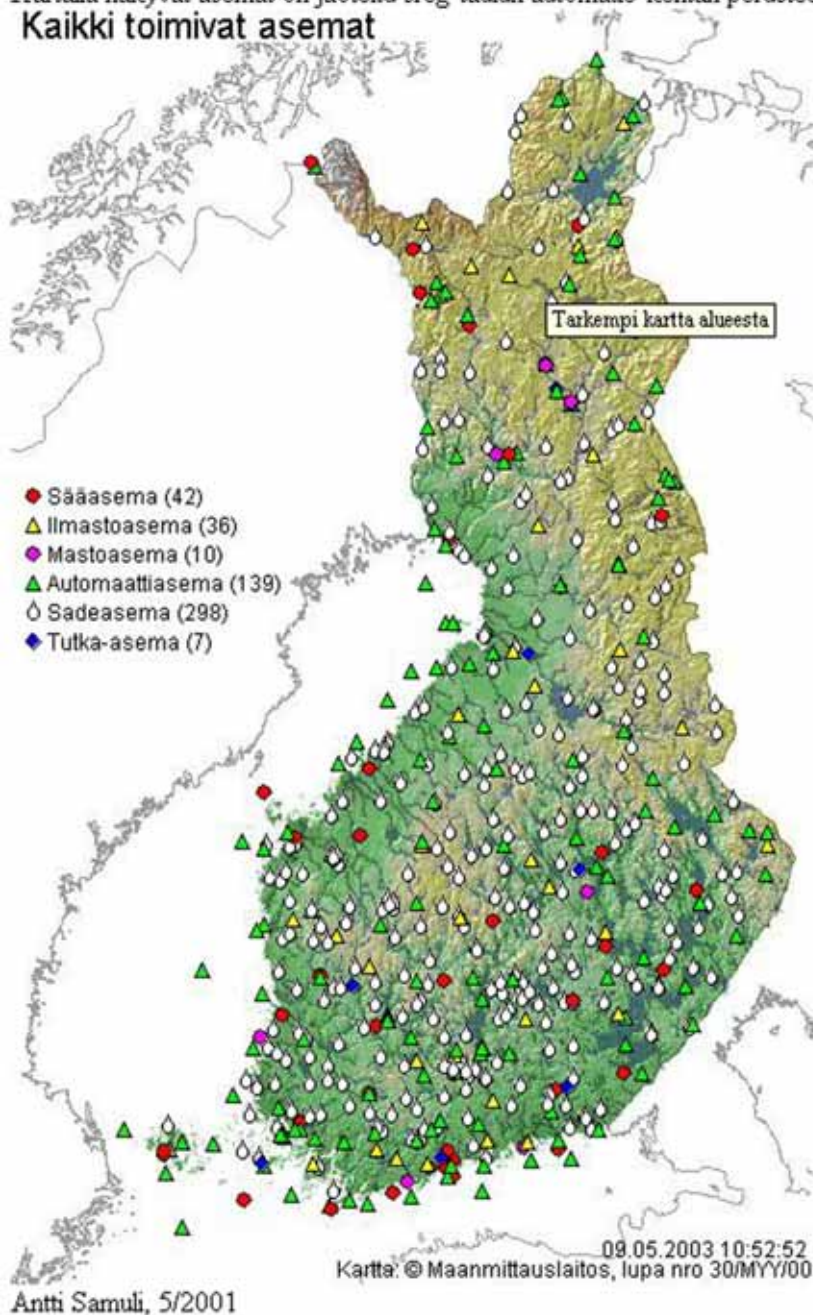


- Free use of data (except for some external data), through :
eKlima and wsKlima (web service)
- Use web site yr.no :
<http://www.yr.no/verdata/1.3400347>

NORDKLIM CO-OPERATION
DATA QUALITY and GRIDDING (Eurogrid)

Asemakartta - Kaikki toimivat asemat

Kartalla näkyvät asemat on jaoteltu sreg-taulun automatic-kentän perusteella
Kaikki toimivat asemat



Present observing network at FMI:

- synoptic stations mostly automatic, about 170 stations
- precipitation stations, about 250
- global radiation, about 30
- three sounding stations
- nine measurement towers
- plus some specialities



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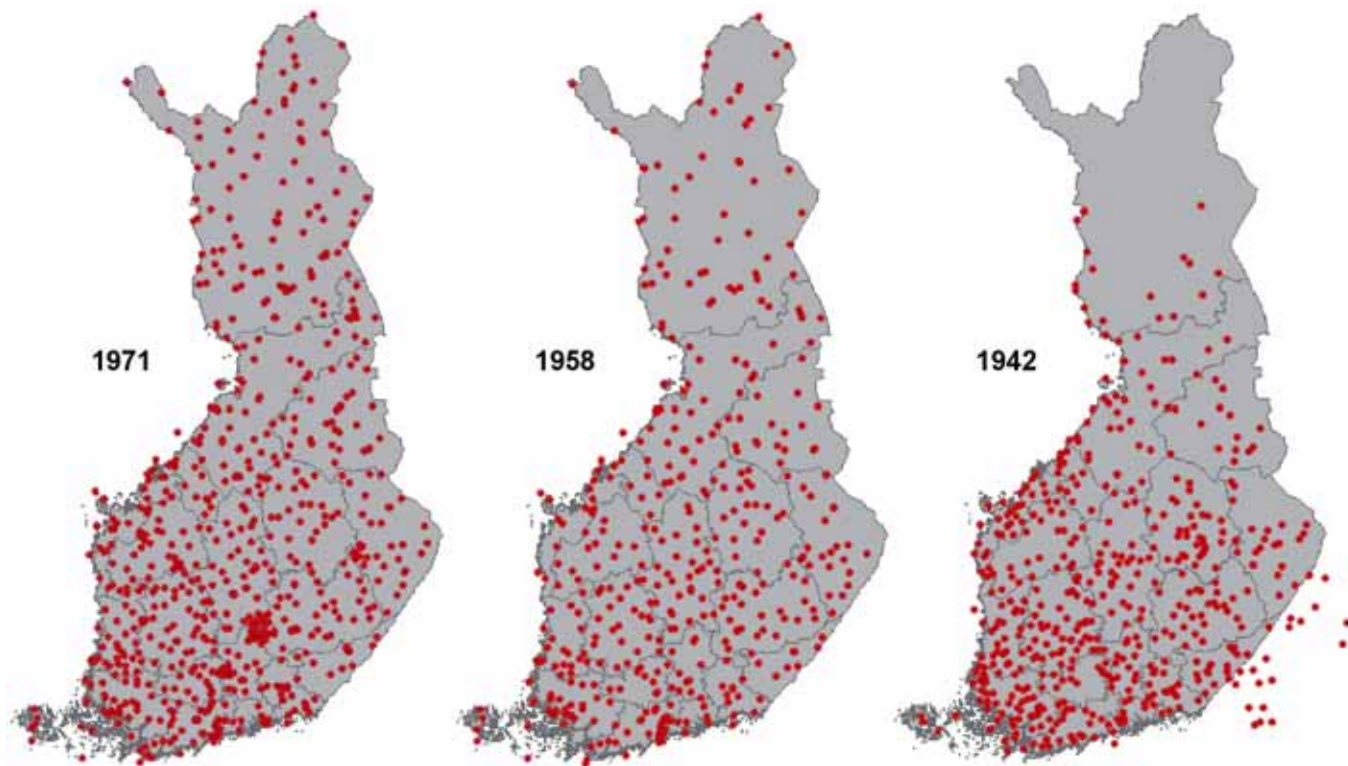


Three types of data sources for long-term data:

DATA BASE

YEARBOOKS

ARCHIVES



PRECIPITATION STATIONS



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Data policy at FMI



~~For commercial use. ECOMET rules~~

For research: work to extract data is charged

For joint research: no cost

Some limitations on use and distribution



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Helsinki Testbed 2005-2009?

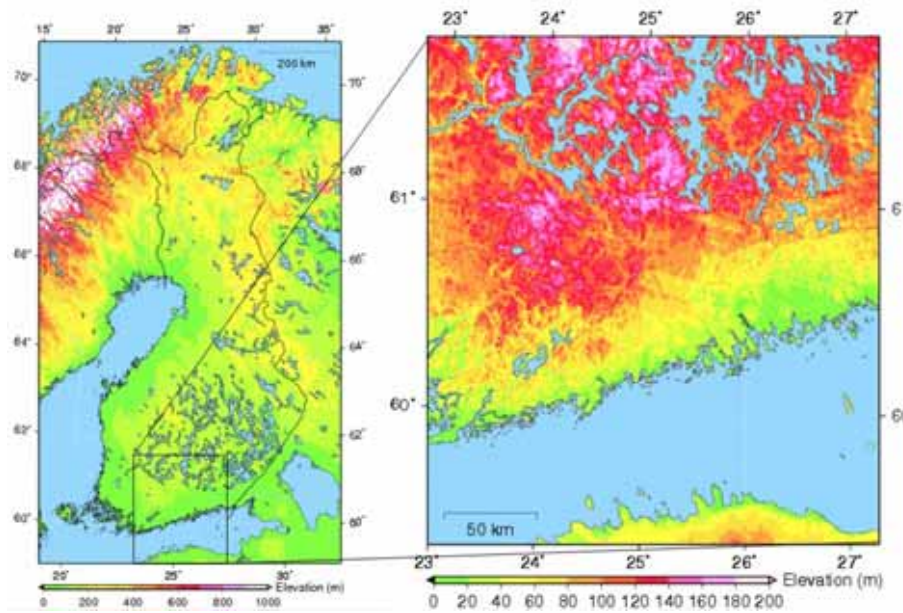
Mesoscale weather research

Forecast and dispersion models development and verification

Information systems and technology integration

End-user product development and demonstration

Data distribution for public and research community



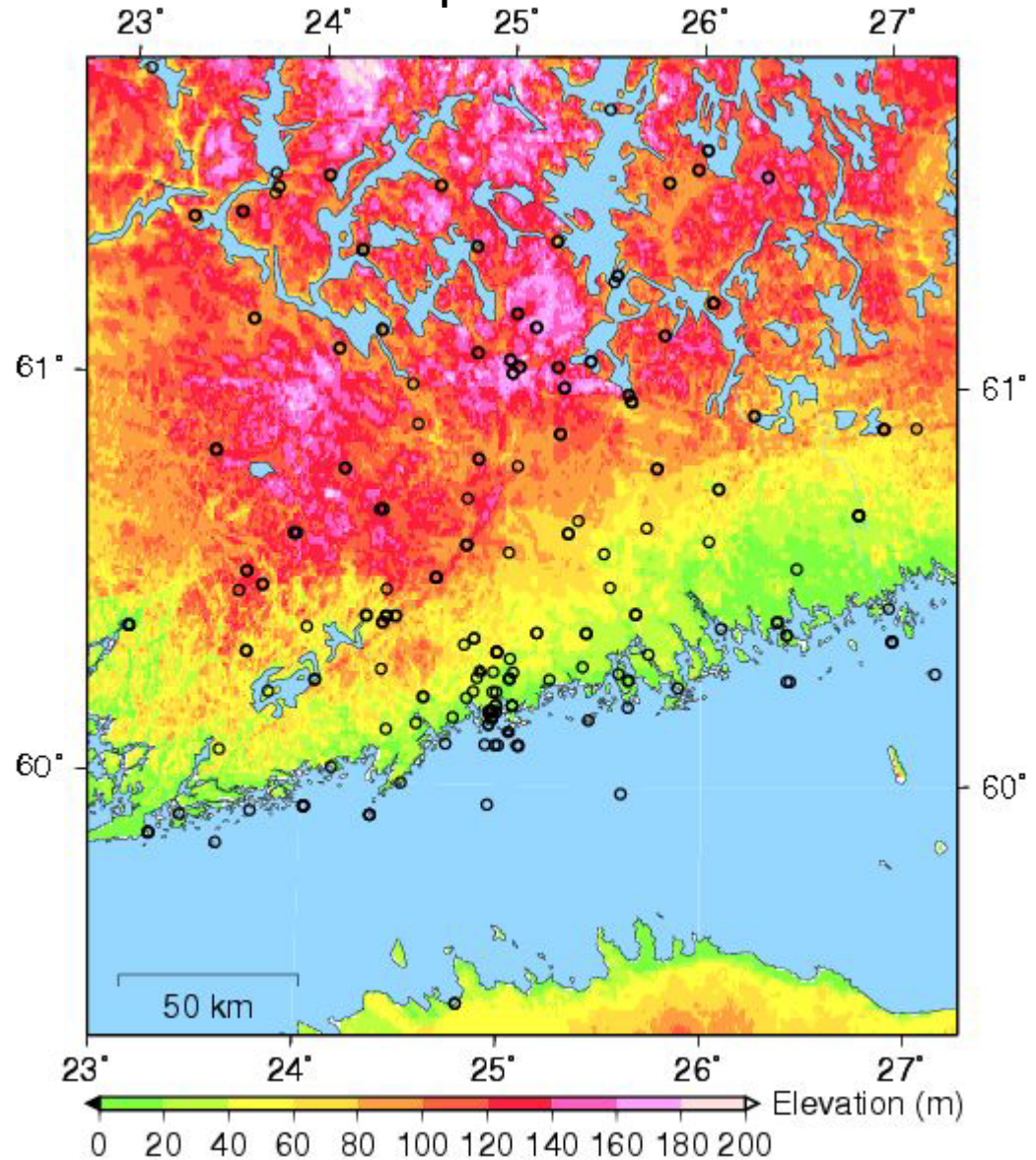
Surface
Weather
Transmitter:
Vaisala
WXT510
(61)



<\$2000

Dave Schultz / FMI

All stations except road weather stations





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Mast Installations (44)

Upper Weather
Transmitter

40–120 m

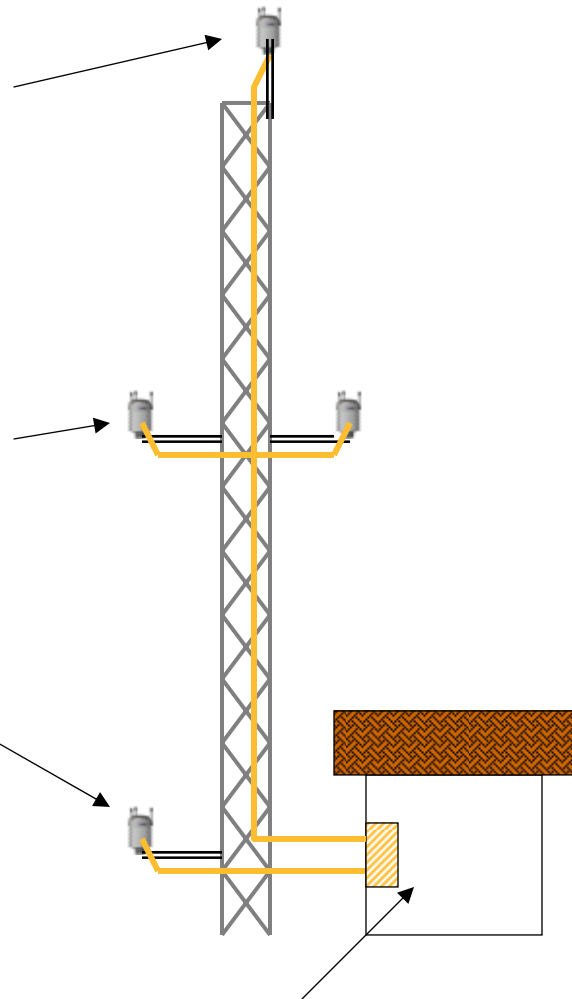
Middle Weather
Transmitters

20–30 m

(on 5 sites)

Lower Weather
Transmitter

2 m














Communications Unit





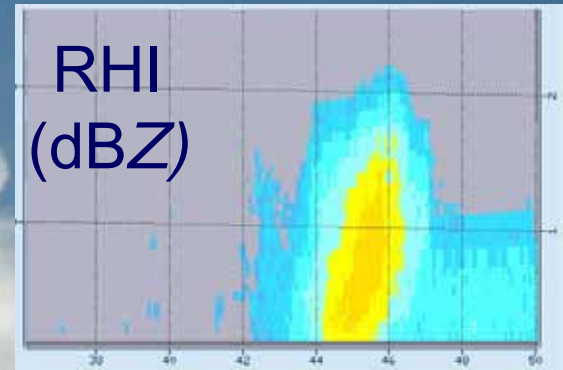
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Other Instrumentation

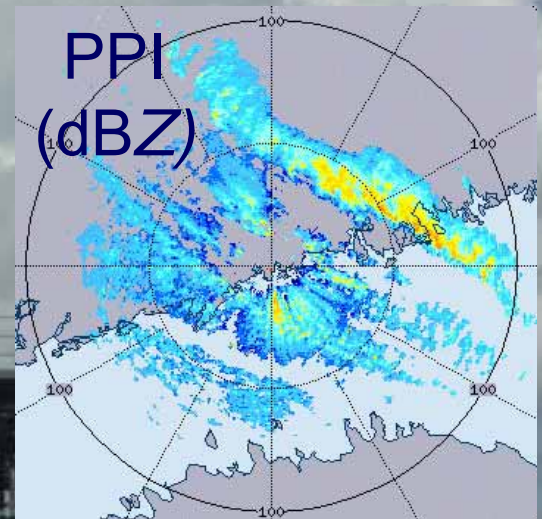
- Radiosonde (1–2)  
- Road weather sensors (191)  TIEHALLINTO
FINNISH ROAD ADMINISTRATION
- Weighing precipitation sensors (10)  VAISALA
- Ceilometers (12)  
- UHF wind profiler with RASS 
- RD-69 Disdrometer 
- Precipitation occurrence sensor 
- Hydrometeor Size Detector 
- Ecological stations (6) 

Univ of Helsinki Dual-Polarimetric Radar

<http://testbed.fmi.fi>

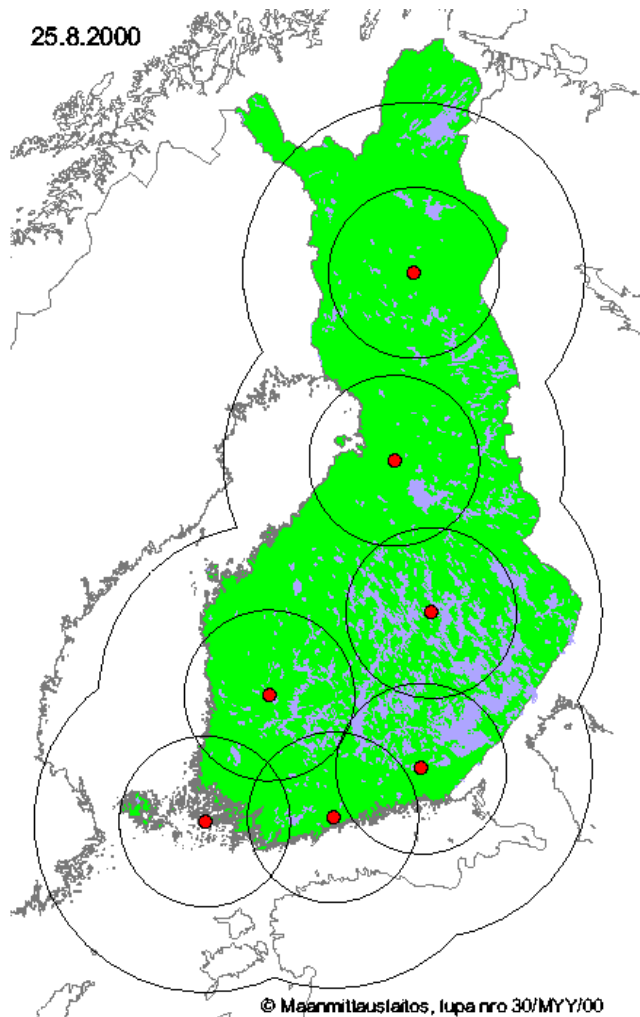


VAISALA





RADAR OBSERVATIONS USED IN CLIMATOLOGY



- 7 C-band Doppler radars
- Jun-Aug 2000-2005
- bin resolution $670 \text{ m} \times 0.95^\circ$
- time interval 5 min or 15 min
- ground level point rainfall intensity of 1-2 minutes over an area of 1 km^2



- **Range limited to 30-200 km (VPR-effects, residual clutter)**
- **Removal of remaining non-meteorological targets (ships, aircraft, bird flocks) by fuzzy logics filter (Peura et al., 2002)**
- **Excluding sea areas not necessary (found later)**
- **Excluding all bins where $Z \leq 10$ dBZ (insects, birds, drizzle)**
- **Excluding all bins with some probability (>0) of hail (Holleman, 1999)**
- **Remaining data 150 billion rainfall samples ~ 10 TB**
- **Summers 2000-2005 climatologically representative**



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