

# Weather and Environment Piloting New Concepts



*16.10.2007*

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# Vaisala in brief

We develop, manufacture and market products, solutions and services for environmental and industrial measurement.

## The Vaisala Group

- Employs over 1,000 professionals
- Has over 20 offices world wide
- Achieved net sales of Yen 35328 million(353億) in 2006
- Main market areas North America (36 %) and Europe (34%)
- Vaisala products are used in over 100 countries



# Vaisala locations



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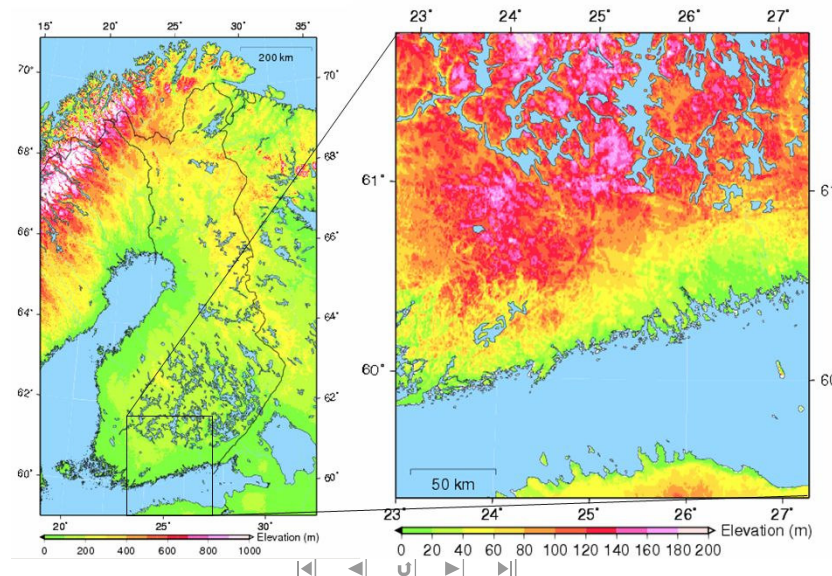
# Helsinki Testbed I (2005-2007) and II (2007-2009)

## •Testbed I

- Mesoscale weather network infrastructure and research project
- Information systems, technology integration and data distribution for public and research community

## •Testbed II

- Application specific phase; traffic, industry, air quality
- Forecast and dispersion models development and verification
- End-user product development and demonstration



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# Mesoscale terminology

	<b><i>Space scale</i></b>	<b><i>Time scale</i></b>
Meso- $\alpha$	200-2000 km	6 h – 2 d
Meso- $\beta$	20-200 km	30 min – 6 h
Meso- $\gamma$	2-20 km	3-30 min

Orlanski (1975)

# Where do these mesoscale weather phenomena exist?

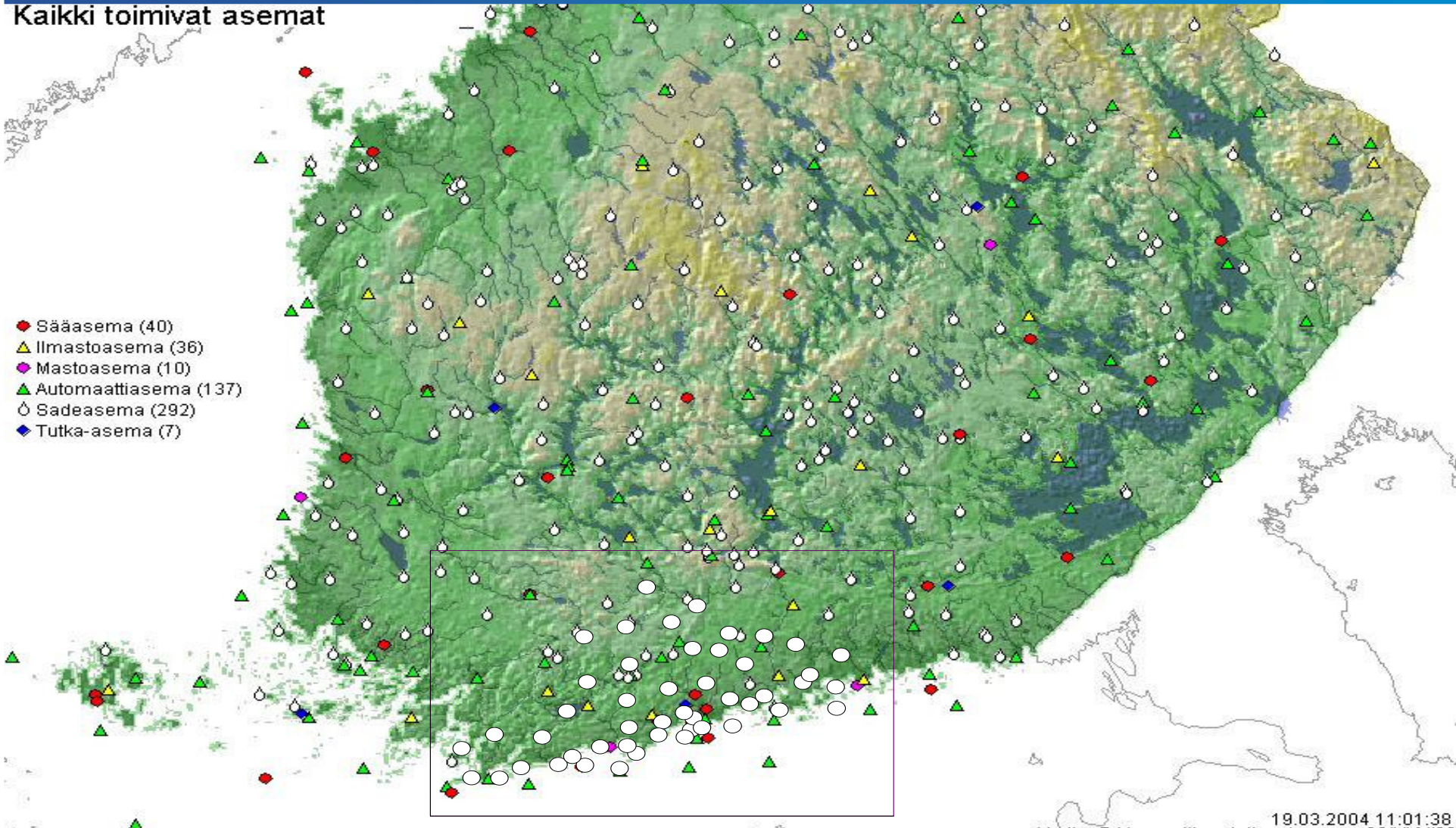
When the underlying surface changes:

1. Coastal area ( water - land interface)
2. Mountainous areas (low land - mountain interface)
3. Urban area / country side area



# Helsinki Testbed area - automatic weather station network - station sites

Kaikki toimivat asemat



19.03.2004 11:01:38  
Kartta: © Maanmittauslaitos, lupa nro 30/MYY/00

Real time results of weather radar and temperature sensors



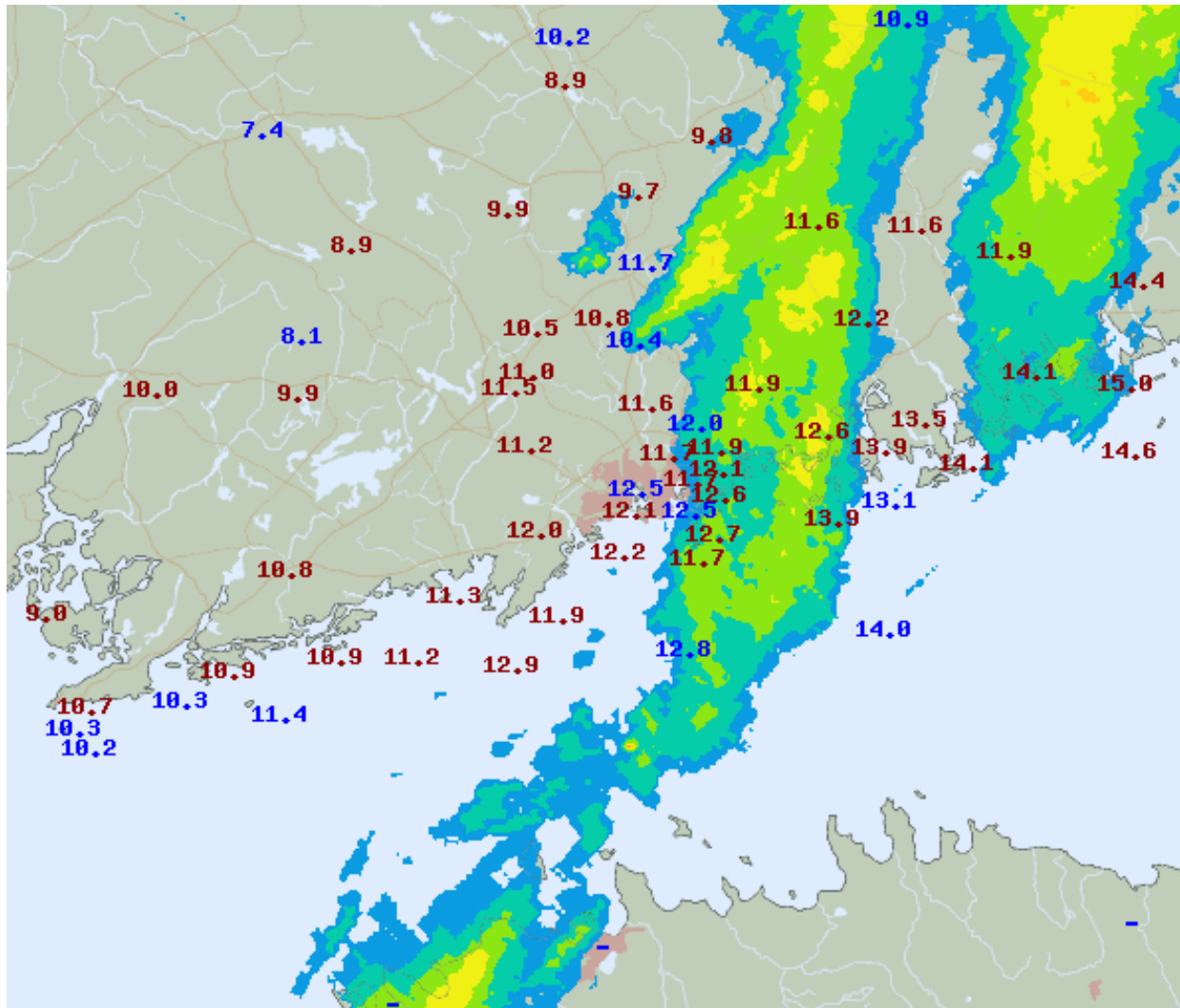
# Vaisala Weather Transmitter WXT510 enables conventional weather station to be minimized to a small size



**Compact - only  
24cm tall**



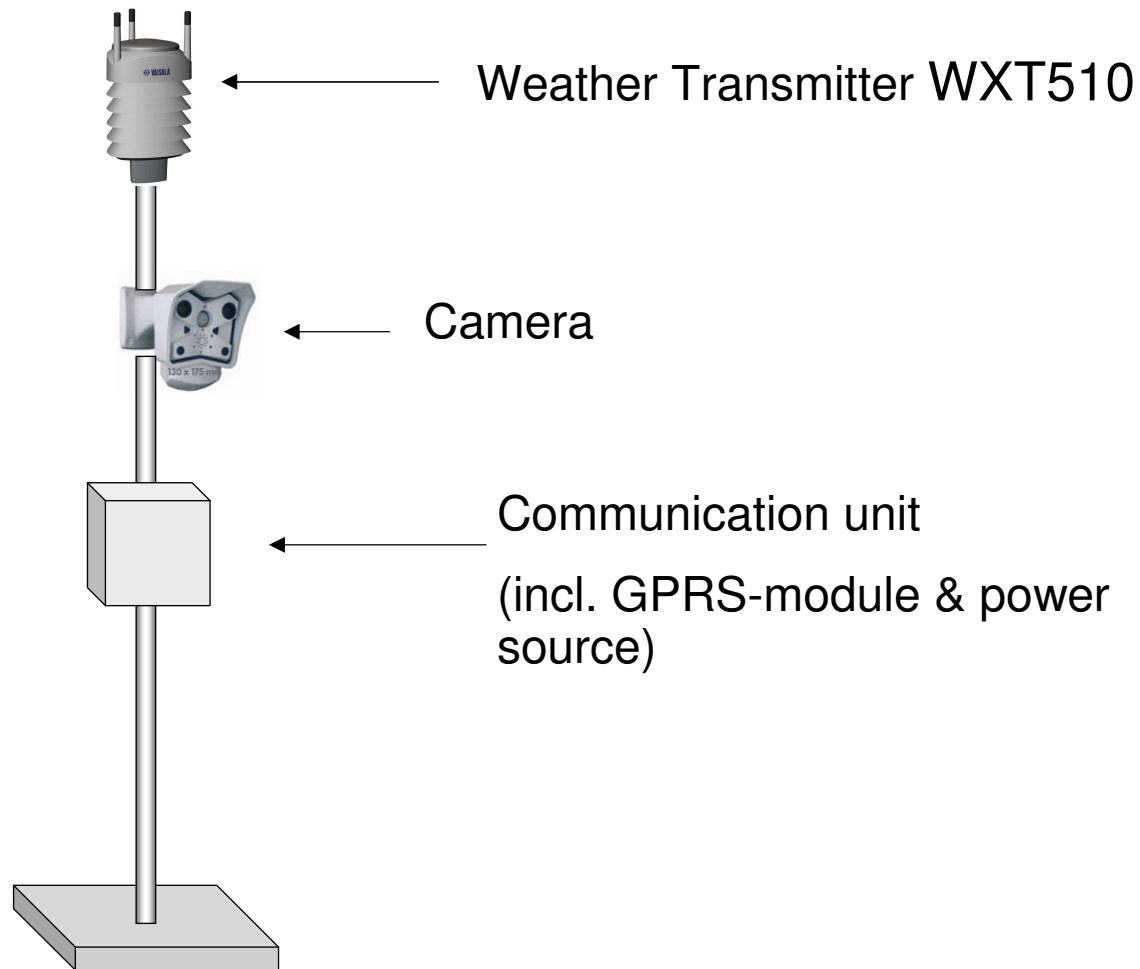
# Helsinki Testbed precipitation and temperature



**Network of 62 stations with 112 WXT510 weather transmitters.**

<http://testbed.fmi.fi>

# Instruments behind the weather service pilot concept



# Pilot in summer 2006 - Weather Camera service - Golf course

2006-10-24 EEST 10:25:03



Data could be used also in emergency situations.



## Weather Camera - Luukki 24.10.2006 10:20

Air temperature	12 °C	stable
Barometric pressure	984 hPa	rising 0,4 hPa/h
Relative humidity	91 %	stable
Wind	South 2,2 m/s	stable



# Pilot during summer 2006 - weather camera service at swimming pool in Helsinki



 **VAISALA**  
www.vaisala.com

**Sääkamera - Uimastadion 31.05.2006 10:35**

Lämpötila	13 °C	vakaa
Ilmanpaine	1003 hPa	nousee +0.4 hPa/h
Ilman kosteus	63 %	laskee -8 %/h
Tuuli	Kaakko 1.7 m/s	vakaa

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## Pilot project URBAN WEATHER in OULU

'Oulun Ilma' (Ouluの天気) project started in the beginning of January 2007.

Partners in Oulu pilot - Nokia, City of Oulu, University of Oulu, Oulu AMK (lower technical school) and VTT's previously purchased weather station will be included in the network after calibration.

Oulu Innovation is coordinating the project in Oulu.

Piloting and finding **new applications** together with above mentioned companies.



# Hailuoto - Island on the sea off Oulu

2007-01-09 EET 15:38:02



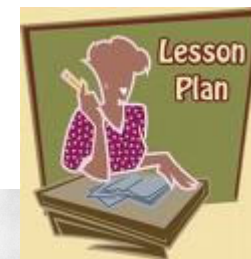
Sääkamera - Hailuoto 09.01.2007 15:30

Ilman lämpötila  
Ilmanpaine  
Ilman kosteus  
Tuuli

2 °C  
982 hPa  
94 %  
Etelä 8,5 m/s

vakaa  
vakaa  
nousee 1 %/h  
voimistuu 4 m/s/h

# Example of School project in Oulu



## Oulu Microsoft Future School project - Networking globally

Out of 200 applications 12 schools were chosen globally to be named 'Future Schools'. These schools are located in: Sweden, France, Germany, England, Chile, Brazil, Mexico, Hong Kong, Taiwan, Finland, Singapore and Philadelphia USA. Oulu's Future School will be Ritaharju School, which will be built 2008-2010. Before that 10 trial Smart Schools will be used to evaluate the concepts and technology for the Future School in Oulu.

Future schools will use the latest leadership, learning and teaching methods, networking and technology, and share the knowledge together with the other school and Future Schools globally.



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# Benefits of Precision Weather networks for industrial areas

- Better situational awareness
- Weather information, e.g. wind direction, is available for all chemical plants and rescue services simultaneously during an emergency situation.
- Local spot and area information available at the same time.
- Possibility to add more weather transmitters to the network any time.
- The weather information could be used other applications too.



**Good weather observation network will result in better situational awareness. This is important both in emergency situations and in understanding the climate challenges in weather related risks.**

**THANK YOU - KIITOS**