



SnowHow

Jussi Kaurola
Director, Weather and Safety
Finnish Meteorological Institute





SERVICES AND SCIENCE

DG & office

Petteri Taalas ~10 my

Weather & safety

Jussi Kaurola ~290 my

- Observation services
- Weather service IT
- Service development
- Weather & safety centre
- Customer services
- Quality management system ISO9001:2008

Research & dev.

Yrjö Viisanen ~370 my

- Climate centre
- Climate research
- Atmospheric composition
- Meteorological research
- Marine research
- Earth observation
- Arctic research
- E-Finland research centre
- Expert services

Administration

Marko Viljanen ~30 my

2013

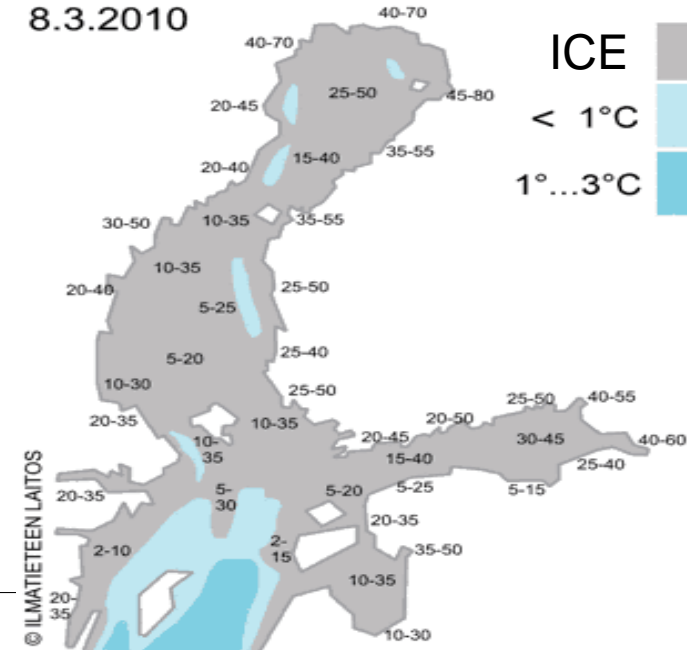
Total budget 78 M€
60 % government, 40 %
external (commercial, R&D)

65 % of R & D external (EC,
Academy of Finland, ESA,
EUMETSAT etc.)

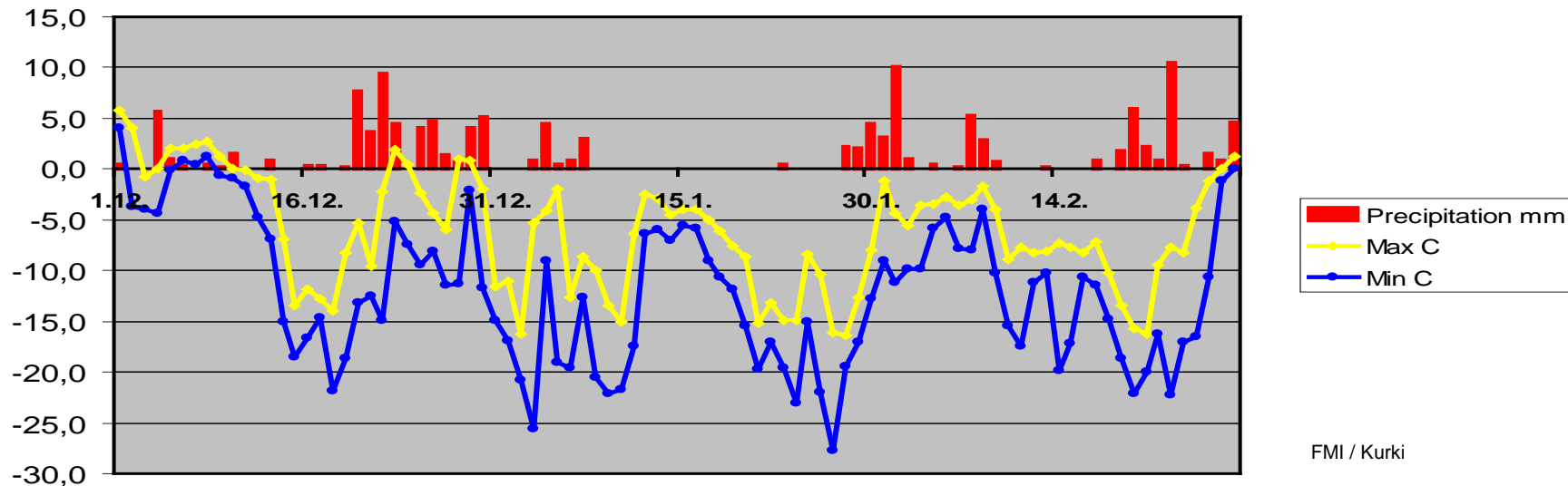
CHALLENGING WEATHER CONDITIONS

- Winters are cold and snowy
- 3-5 months very cold
- 0 – - 25 C Southern Finland
- - 10 – -35 C Northern Finland
- Soil frost up to 1 – 1,5 m
- 30 - 70 cm of snow
- Many heavy snow-storms
- Northern Baltic Sea covered by Ice

8.3.2010



Temperature and Precipitation in Helsinki winter 2010



EFFECTS ON TRANSPORT SECTOR

- **Huge cost**
- **Delays (main driver)**
- **Accidents**
- **User Satisfaction lower**



ALL TRANSPORT AS CUSTOMER

- Aviation
- Road Transport
- Sea Transport
- Rail and Public Transport
- Pedestrians & Cycling





Intelligent Road Weather Forecasts for



Winter Olympics

CoMoSef

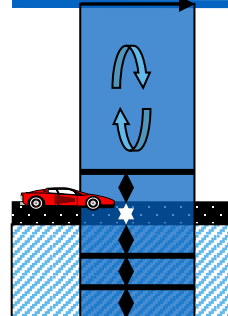


WEATHER FORECAST



ROAD STATE

ROAD WEATHER MODEL

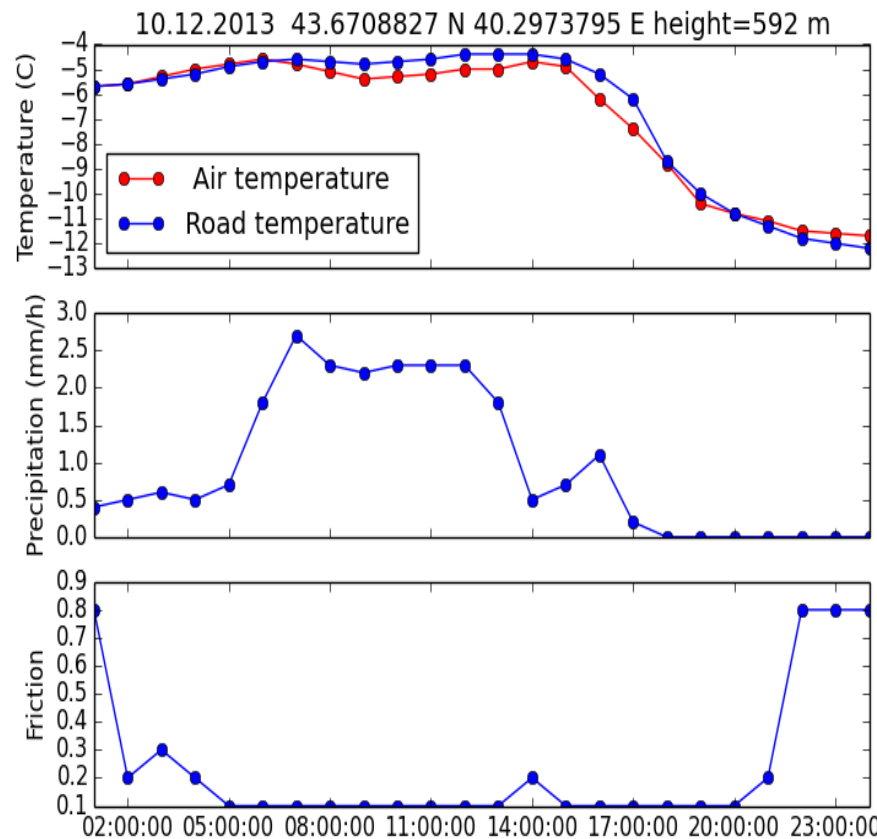
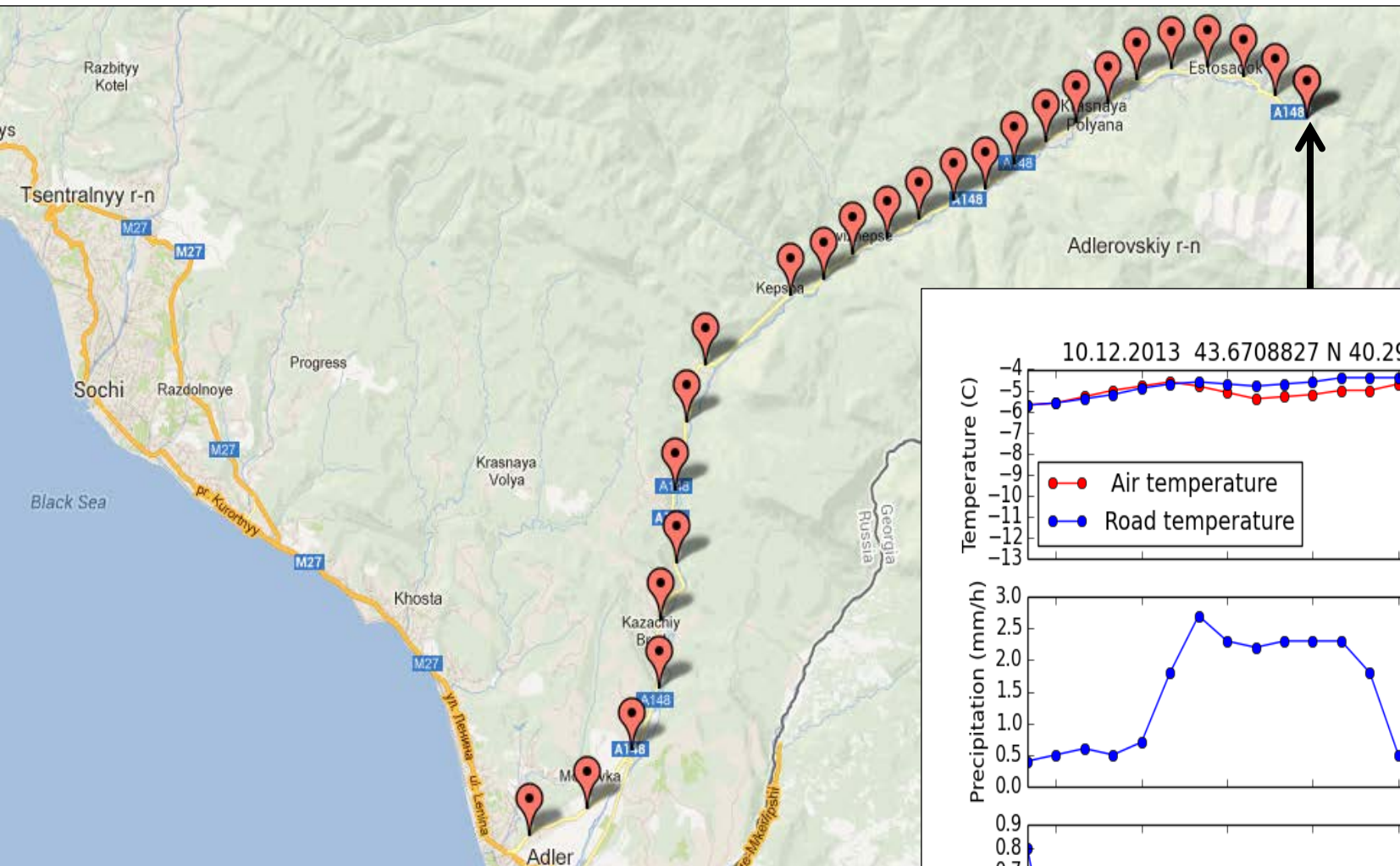


ANALYSIS



OPERATION GUIDANCE



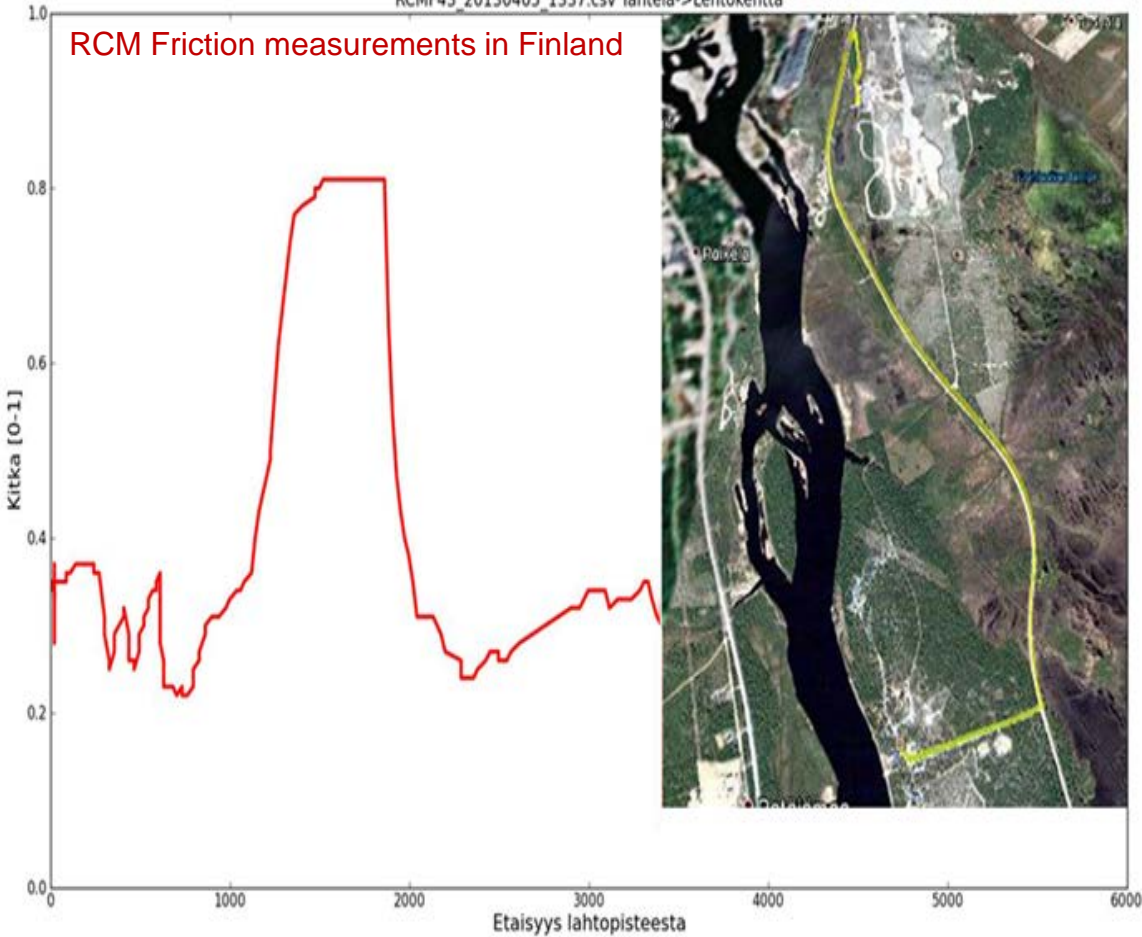


Example of product output :
RWM driven By the **HARMONIE** model



RCMF43_20130405_1337.csv Tahtela->Lentokentta

RCM Friction measurements in Finland



Idea – Proposal:

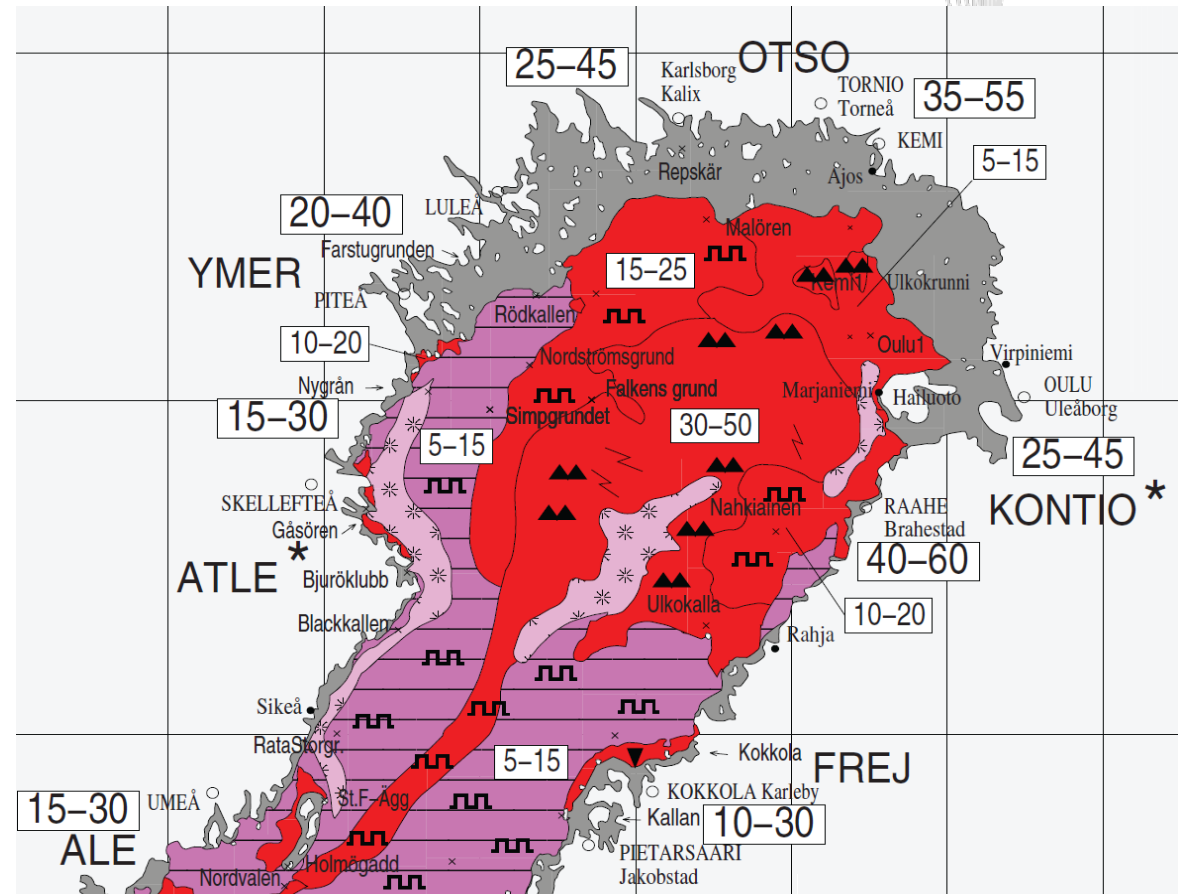
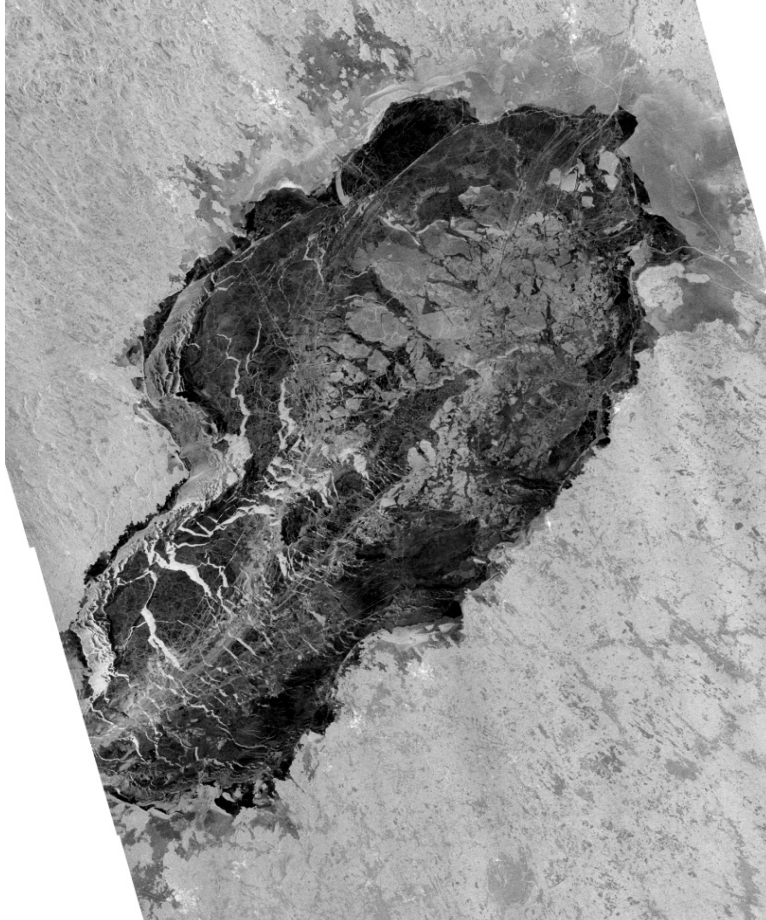
Local measurement campaigns in Sochi with RCM instrument

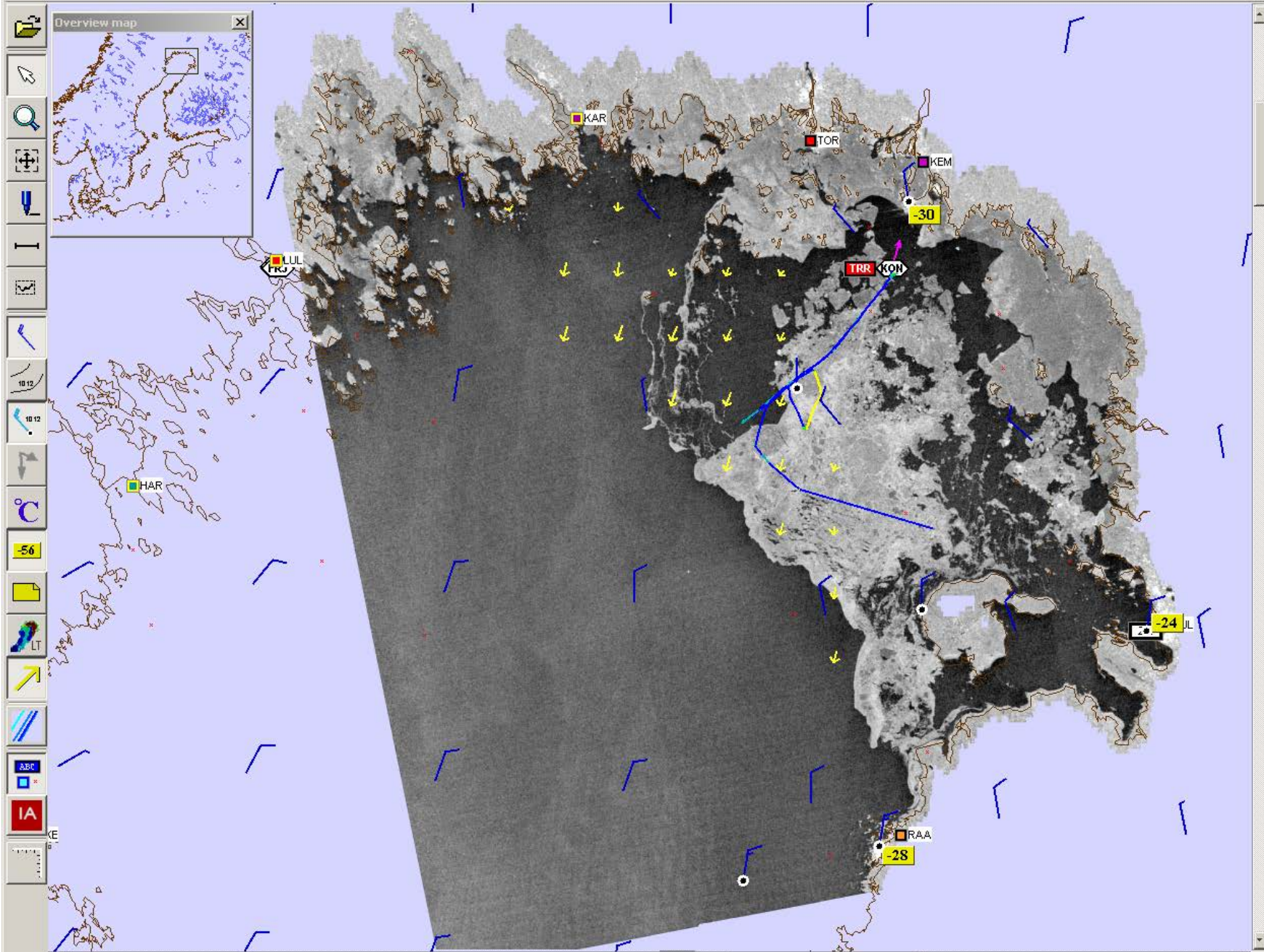


End-user (Finnish skiing service team) comments:

- *HARMONIE was superior*
- *HARMONIE visibility forecasts were excellent*
- *HARMONIE precipitation and cloud height forecasts were highly useful*
- *HARMONIE-Ilmanet five-panel user interface was really good*

18/1/2013 – COSMO-SkyMed and the Baltic Sea Ice Chart (by FMI/J. Vainio)

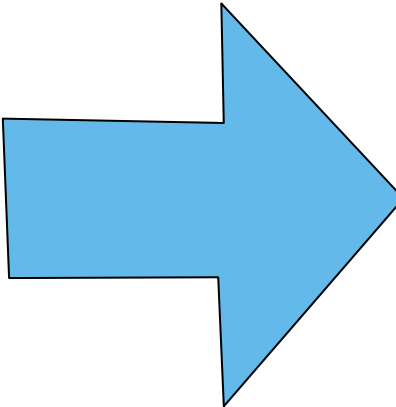
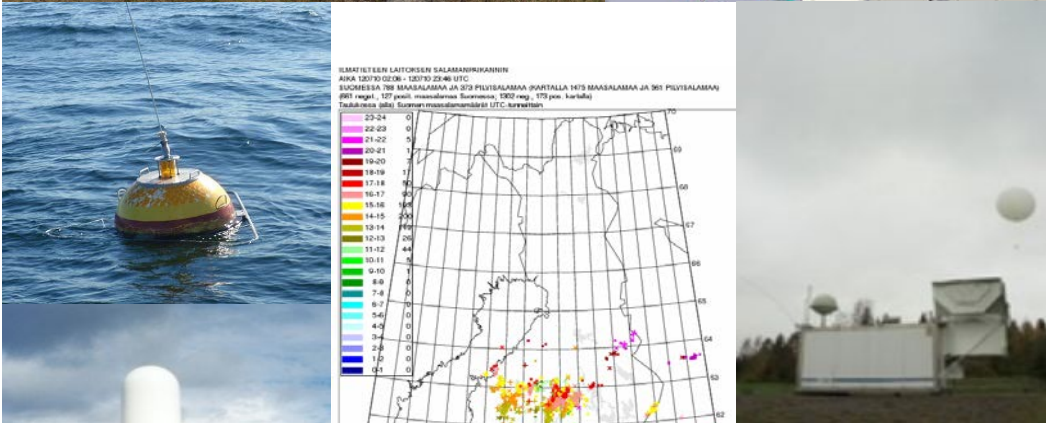
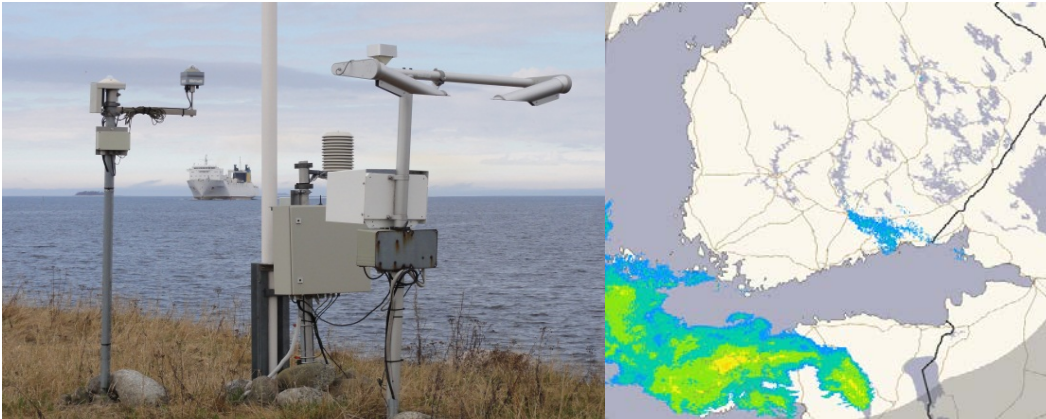




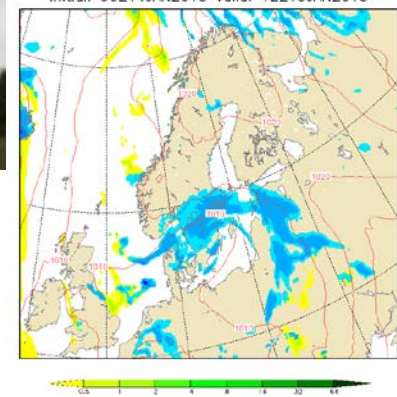
Open data (2013-)

- Digital material
- Machine readable
- Open licence
- Free use and distribution
- Free of charge (as a self-service)
- <https://en.ilmatieteenlaitos.fi/open-data>

• 6000 registered users



Pmsl and hourly prec. (mm) green:rain blue:snow
 initial: 06Z14JAN2013 valid: 12Z15JAN2013



A wide, flat, snow-covered landscape under a clear blue sky with distant snow-capped hills. The foreground is a vast, flat expanse of snow with some subtle textures and shadows. In the distance, a range of low, rounded hills or mountains is visible, their peaks and ridges covered in a thick layer of snow. The sky is a deep, clear blue with a few wispy clouds near the horizon. The overall scene is serene and expansive.

THANK YOU !