Finnish Meteorological Institute’s Services for Insurance Sector

Regional training workshop
Role of the NMHSs in support of DRR-related activities in the field of insurance

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Topics

• FMI in brief

• Weather and Safety Service

• Services for Insurance Sector
  • Present Services
  • Future Services
FMI in Brief
Organization 1.1.2014

Director General’s Office

Weather and Safety
- Weather and Safety Centre
- Customer Services
- Service Development
- Production Systems for Weather Services
- Observation Services

Research and Development
- Climate Service Centre
- Climate Research
- Atmospheric Composition Research
- Meteorological Research
- Marine Research
- Earth Observation
- Arctic Research
- Atmospheric Research Centre of Eastern Finland
- Expert Services

Administration

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Personnells

Person Years
(Total 679)

- Weather and Safety: 276
- Research and Development: 362
- Administration and Director General’s Office: 41

Breakdown of the Personnel’s Education

- General Education: 8%
- Secondary Level: 28%
- Lowest Post-Secondary: 5%
- Lower Tertiary: 8%
- Higher Tertiary: 34%
- Doctoral and Licentiate’s Degree: 17%

Job Satisfaction
Range 1–5

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Weather & Safety Service
Weather and Safety Centre

- Weather service production for the whole society
- Operational on duty hours 150-200/day
Observation Network

Operative stations, in total ca. 550
Sounding stations 3
Weather radars 8
Antennas for lightning location 8
Air quality stations 30
Surface observation stations 180
Rainfall measurement sites 400

Automation 95%

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Numerical Weather Models at FMI

Global models
• ECMWF (~15 km)

High Resolution Limited Area Models
• HIRLAM RCR (~7.5km)
• HARMONIE (2.5km)

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Meteorological Workstation - Smartmet

- Visualization of the data:
  - Numerical models
  - Observations, etc.
- Multiple ways for visualization
- Choosing NWP-model
- Editing the model data
~ Million forecaster corrected products per day generated automatically from the modified grid database
WEATHER SERVICE PRODUCTION SYSTEM

- Observations
- Forecast models
- Central databank
- Automatic production
- Special products

SmartMet

24/7 control and editing

Observations
Forecast models
Central databank
Automatic production
Special products

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24/7 Warning Services

- 2013: 28 days of very bad road conditions
- Red and orange colored warnings cause significant harm
- Tapani storm caused nearly 6000 alerts for Emergency Response Centre 26.-28.12.2011
- First information about coming storm from the FMI 22.12., pre-warnings and VAARA-announcement 23.12.
- Electricity outages and fallen trees caused danger for e.g. road and rail traffic
Distribution channels for general public

- Radio and TV
- fmi.fi: graphics, texts
- Mobile apps
- Meteoalarm since 2007
- Twitter feeds since 2009
- 24/7 media phone contact 2008
Weather Services for authorities

- Trajectories and dispersion calculations of airborne substances
- Drifting calculations for sea areas
- Severe Weather Outlooks
- Monitoring Centre for Natural disasters
- Web User Interfaces
Marine Services for shipping

• Sea ice monitoring
• Sea level, waves, temperature forecasts/warnings
• High resolution satellite applications
• Customers: Finnish Transport Agency, Ice-breakers, general public
Commercial weather services

- Customized services
- Weather services on mobile phone
- TV, radio and www
- Newspapers
- Road and marine traffic
- Agriculture and forestry
- Industry and energy
- Insurance sector

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Services for Insurance Sector
Present Services

- FMI´s Climate Service provides:
  - Weather data from the past
  - Statistical data
  - Future scenarios and consultation

- Frequently asked parameters:
  - Wind speed
  - Rain fall
  - Lightning strikes
  - Snow amounts

- Insurance companies get weather related data by request
  - Phone calls (2 man months)
  - Requests via e-mail

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Usual Indemnities Due to Weather

- Forrest damages
- Damage to houses or vehicles
- Flooding
- Sealevel rise
- Traffic accidents during winter
- Snowload damages

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Wind

- Data from FMI’s AWS – stations
- Finnish Traffic Agency’s RWS – stations
- 10 min avg wind speed limit 15 - 20 m/s
- Kriging analysis can be done
Rain

- Rain station data
- Radar based rainfall products
- Radar images every 5 minutes (8 radars)

Flashes

- Avg 140 000 flashes annually
- Btw 50 000 – 350 000/year
- Positioning 600m
Snow

- FMI´s snow depth stations
- Finnish Environment Institute is main provider of service

Road

- 1500 injured, over 50 dead 2013 during wintertime
- 100 000 indemnity cases/year
- ~280 dead yearly
- Finnish Transport Agency´s observations
Future Services
• User interface for insurance companies
• Charts for threshold values
• Maximum value charts
Insurance Companies Care About Clients

- Early warnings
- Probabilistic forecasts
- Warnings based on:
  - Placement
  - Type of insurance
  - Client level
- Client informing:
  - E-mail
  - SMS
  - Mobile Apps

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Risk Management

• Climate scenarios
  • Adjusting the limit values for different weather scenarios

• Readiness
  • Early warnings for customers
  • Insurance company’s personnel alarmed
Automatic Warning Services

• Based on weather forecasts and road weather forecasts
• Warnings for road users and pedestrians
• Warnings with windspeed limit
• Threshold value is reached -> Customer is alarmed
Mobile Application

- Weather and road weather observations and forecasts
- Official warnings
- Road warnings with 11 warning classes
- Utilizes users location

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Thank You for Your Attention!

URL: ilmanet.fi
User: Ickale
Password: Insurance