



ILMATIETEEN LAITOS  
METEOROLOGISKA INSTITUTET  
FINNISH METEOROLOGICAL INSTITUTE

# REMOTE SENSING DAYS

29th-30th October 2014

Helsinki, Finland

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## Climate Change Indicators and Vulnerability of Boreal Zone Applying Innovative Observation and Modeling Techniques

# MONIMET

LIFE12 ENV/FI/000409

PROJECT LOCATION: Helsinki



### BUDGET INFO:

Total amount: **2,755,288 €**

% EC Co-funding: **1,366,952 €**

DURATION: Start: **02/09/13** - End: **01/09/17**

### PROJECT'S IMPLEMENTORS:

Coordinating Beneficiary: **Ilmatieteen Laitos (FMI)**

Associated Beneficiary(ies): **Metsäntutkimuslaitos (METLA),  
Suomen Ympäristökeskus (SYKE), Helsingin Yliopisto (UHEL)**



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## OBJECTIVES:

- To collect information, data and expertise that is currently spread over several institutes, in order to build a comprehensive platform for analyzing climate change effects on seasonal dynamics of various phenomena
- To create links and add value to existing monitoring mechanisms such as ICOS and EO systems (GMES/COPERNICUS) and make use of data acquired in previous EU Life+ funded, and other projects related to ecosystem monitoring
- To create new webcam monitoring system in order to facilitate Earth Observation systems by providing time-series of field observation for calibration and validation, as well as to improve the assessment of forest ecosystem services
- To synthesize modeling and observation approaches to identify climate change indicators
- To establish link between the climate change indicators and their effects in order to create vulnerability maps of boreal zone in connection to climate change scenarios



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## MAIN ACTIVITIES:

The main activity of MONIMET is implementing a new innovative approach to in situ monitoring and mapping of climate change indicators that have an influence on the mitigation potential and vulnerability estimates of boreal forests and peat lands. The approach is based on a combination of different information sources describing phenology, CO<sub>2</sub> and CH<sub>4</sub> exchange, land cover, snow evolution and albedo. The information sources include in situ observations and Earth Observation (EO) (satellite) data, as well as ancillary data supporting vulnerability assessments. Dedicated high resolution regional models are applied to describe climate and land surface fluxes of carbon and water by different ecosystems.



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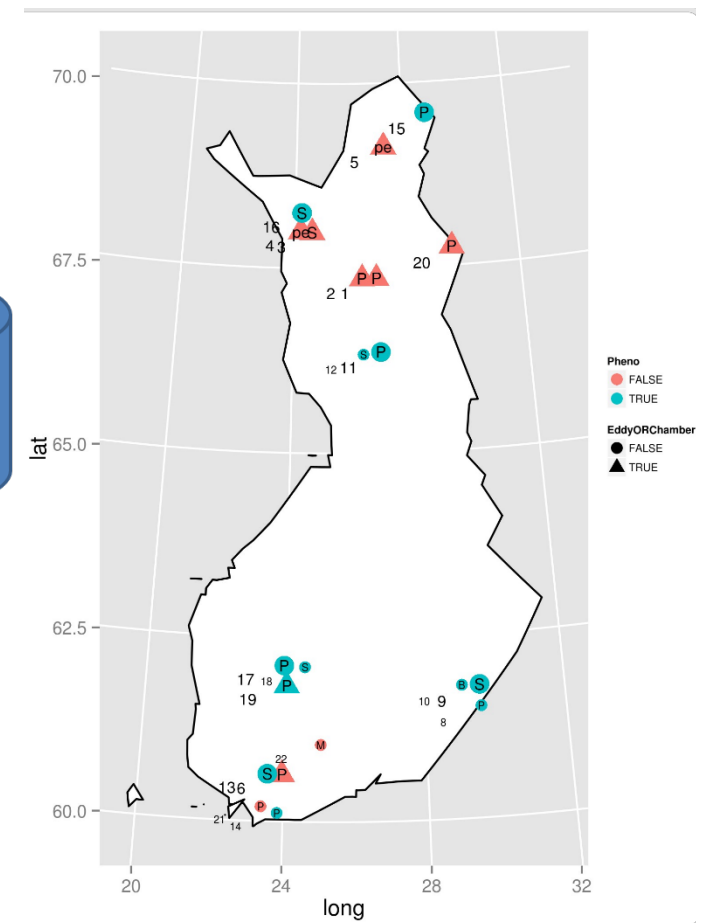
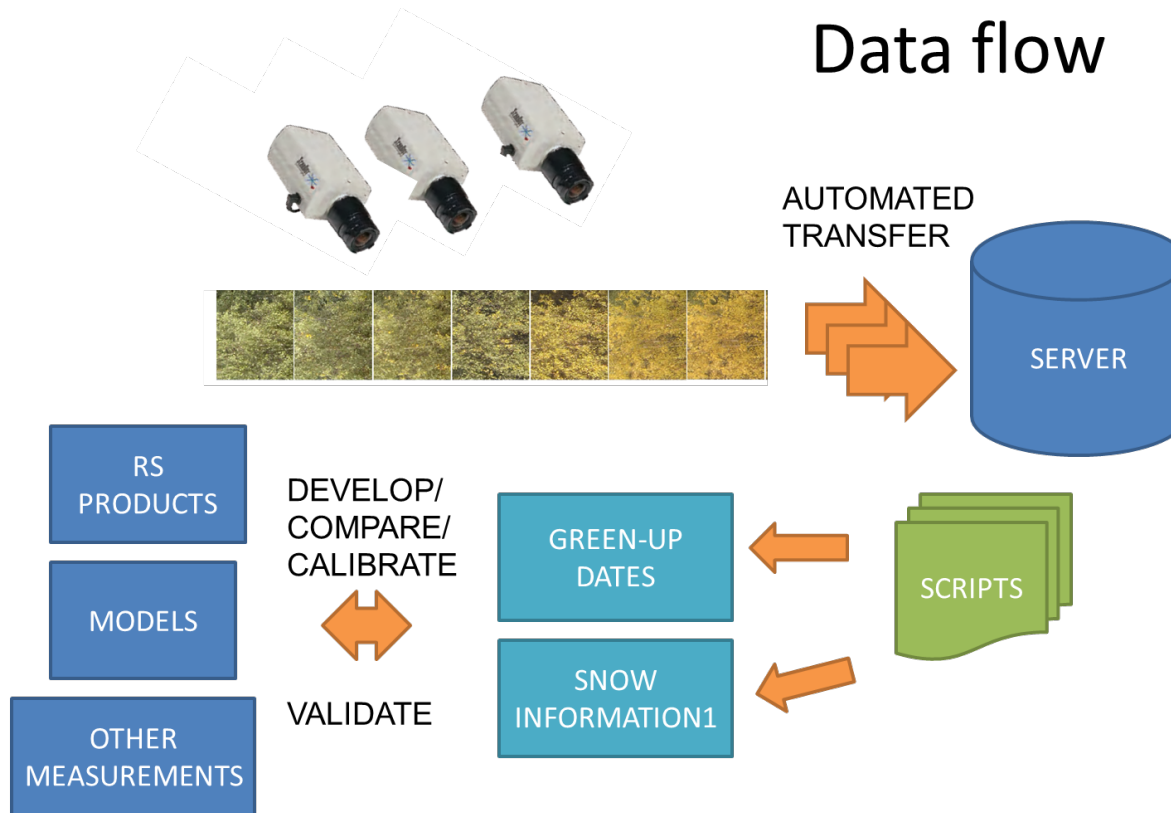


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## EXPECTED RESULTS:

- ✓ **A harmonized webcam network for monitoring the seasonal cycle in boreal ecosystem carbon exchange**
- ✓ **Demonstration of the mapping of climate change indicators in boreal forest zone**
- ✓ **Demonstration of the vulnerability assessment for Finnish municipalities to climate change effects**
- ✓ **Calibrated soil-vegetation-atmosphere model parameterizations for the boreal zone**
- ✓ **Estimates of the uncertainty of the results**



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