

#EUSpace 

EU SPACE WEEK 2023

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Promoting sustainable forestry by satellite monitoring

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European
Commission



Contents

1. How do we use satellite data for forest monitoring

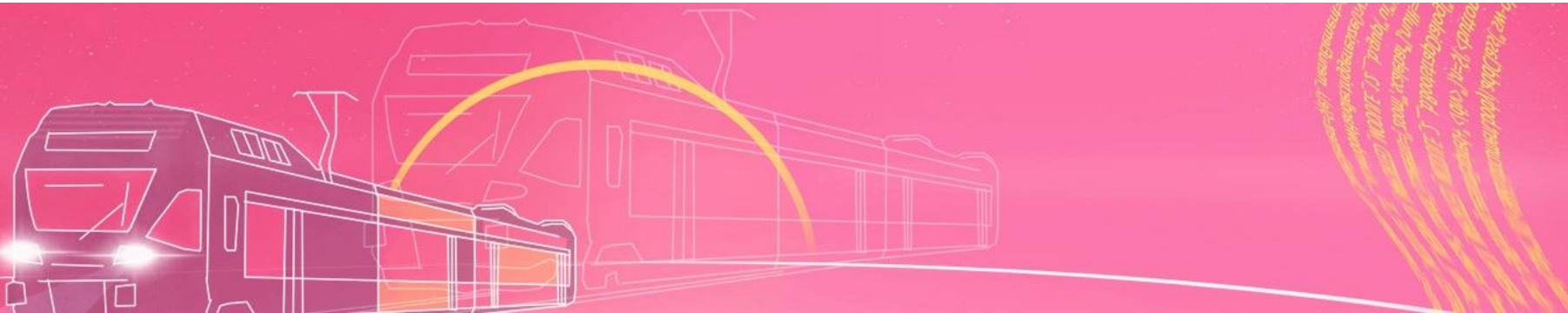
2. Our ongoing R&D projects related to smart analytics

Sitowise Oy has ~2000 employees in Finland and Sweden. Projects related to **construction, infrastructure and environment.**

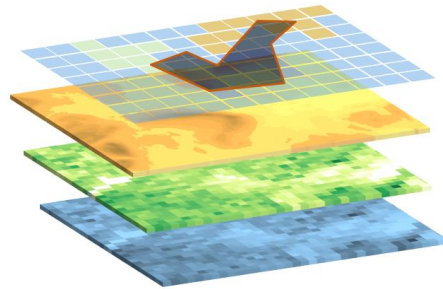
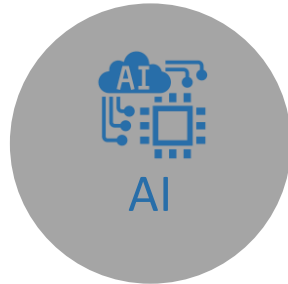
179 Million € revenue

Forest business unit focuses on **forest products and AI**

Strong emphasis on **smart analytics and sustainability**



SMARTER DECISIONS BY UP-TO-DATE FOREST MAPS



Training data

- Forest data
- Satellite data
- Harvester data
 - Drone data
 - LiDAR data
- Field inventories

Change detection
of cuttings &
storm damages

Forest
management
needs

Biodiversity index

Forest vitality
risks

Forest growth and
CO2 estimates

Coming: fire risks

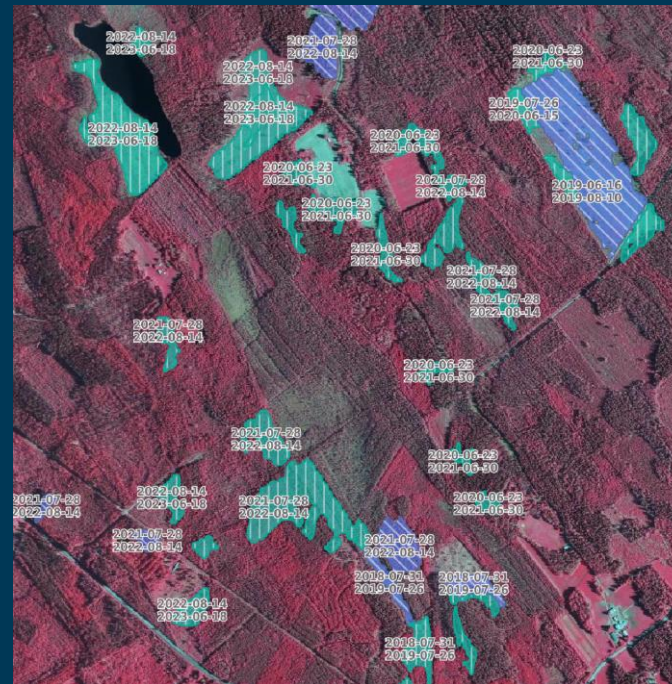
Detection of cuttings and damages

PROBLEM

- Authorities need tools to monitor legality of forest cuttings without field work.

SOLUTION

- Automatic Sentinel 2 based monitoring service
- Shows recent cuttings / storm damages, and their intensity
- Can be used also for forest fire damages mapping



2019:
automatic monitoring
of loggings is started

Eye in the sky: Finland monitors logging by satellite

A new forest surveillance service may also be used to map out damage from storms or pests.



Logging and forest carbon sinks have become a political hot potato recently. Image: Ville Honkonen

YLE NEWS

24.6.2019 18:20

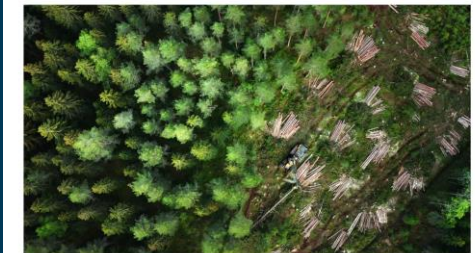
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The Finnish Forest Centre has rolled out a national system of tracking forest logging by satellite. Authorities will be able to compare the maps it generates with logging notifications from landowners and timber owners.

2022:
40% reduce
in forestry violations
in Finland

Satellite surveillance curbs forestry violations in Finland

The first two years of satellite surveillance saw increases in observed breaches of the Forestry Act, but last year the crimes dropped by around 40 percent.



The Forestry Act aims to promote "economically, ecologically and socially sustainable management and utilisation of forests in order that the forests produce a good output in a sustainable way while their biological diversity is being preserved." Image: Janne Langen / Yle

YLE NEWS

13.6.2022 18:44

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Works globally.
Has been used already
in several countries in
Europe.

Forest vitality risk mapping

PROBLEM

Increasing forest damages due to warming climate → bark beetle infestations are now spreading.

SOLUTION

- Automatic mapping of vitality risks.
- Bases on Sentinel 2 time series data and AI model
- Map shows **areas with problems in vegetation**
- Updates automatically, rate depends on weather conditions, as algorithm needs cloud-free imagery.



- ✓ **For detecting damages as early as possible and prevent them from spreading further**
- ✓ **For saving time and money by reducing costly field visits and targeting them to the most important problem areas**

Ongoing R&D related to forest monitoring

Eco2Adapt project (EU Horizon)

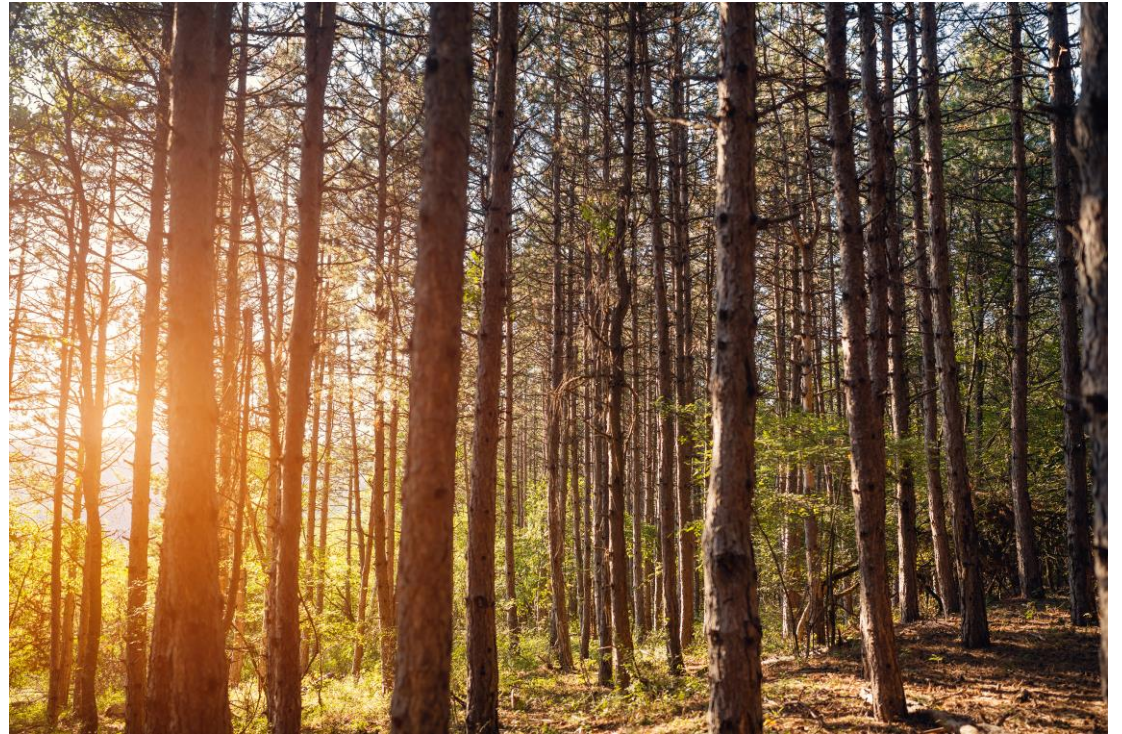
- Strong collaboration with Finnish Forest Centre and University of Eastern Finland, focus in climate risk modeling (insects)
- In other European areas, e.g. fire risk modeling in Southern Europe

Innovation partnership project with Finnish Forest Centre

- Developing automatic monitoring system for **insect damage mapping**

Own R&D - Forest CO2 estimates and biodiversity mapping with AI

- More precise estimates on **forest biodiversity** and **CO2** e.g. for sustainability monitoring and reporting




We are interested in collaborating in development projects related to forest monitoring

Thank you!

Contact our team if you are interested in collaboration related to satellite monitoring services!

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