



Space Resilience Node for Finland - ESA definition study

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ESA European Resilience programme and Space Resilience Nodes for improved comprehensive security

- ▶ **EU:** Earth Observation Governmental Services (EOGS): European Dual-use space capability.
- ▶ **ESA:** European Resilience from Space (ERS) programme for building
 - ▶ Element 1: EOGS space segment
 - ▶ Element 2: National complementary components: Clusters and Space Resilience Nodes (SRNs).
- ▶ Participating countries in ERS/SRN: Poland, Finland, Belgium, Denmark, Hungary, Canada, Luxemburg, Portugal, Austria, Greece, Czechia, Slovenia, ...



Need:

Space: Society's resilience, continuity of operations, and well-being are increasingly reliant on space-based activities and satellite services, and the sector is growing fast.

Resilience: As the operating environment has changed, new sources of uncertainty have emerged, challenging societal security and crisis resilience.

Node: National platform for preparedness, monitoring, alerting, and information sharing on environmental and safety-related threats and events.





ESA's National Space Resilience Nodes

Space Resilience Node is defined as an unclassified¹ user segment that provides space-enabled solutions in support of Public Protection and Disaster Relief (PPDR).

- ▶ **Swift and easy access** to a suite of space-enabled solutions, e.g. **EO-based** and **Satellite Communications**.
- ▶ **Pooling and sharing between nodes:** Nodes to specialise on selected services and benefit from the synergy and complementarity of the other nodes.

¹ as it is not classified





ESA Definition study of SRN-FI

6 months study, 04 /2026 – 10/2026

FMI (lead J. Tamminen), Syke, CMC, Erillisverkot

- ▶ Assessment of Current State
- ▶ User Requirements Analysis
- ▶ Comparative Landscape Analysis
- ▶ Conceptual Architecture Design
- ▶ Governance and Operational Model
- ▶ Pilot Demo
- ▶ Market and Exploitation Strategy
- ▶ Implementation Roadmap

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SRN-FI
SPACE RESILIENCE NODE
- FINLAND -

Final Report of SRN-FI study
**Definition of
Space Resilience Node Finland**

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Distributed to: ... ESA

Satellite based forest fire alerts

Operational service for Ministry of Interior

- Satellite data reception at Sodankylä
- Automatic hot-spot processing
- Automatic SMS- and email notification to fire and rescue services.
- Several first alerts every year
- Smoke dispersion and fire scars can also be detected from EO data.

2022 – 2026 FMI is part of consortium providing European Forest Fires (CEMS/EFFIS)

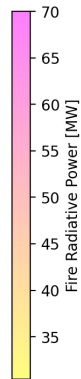
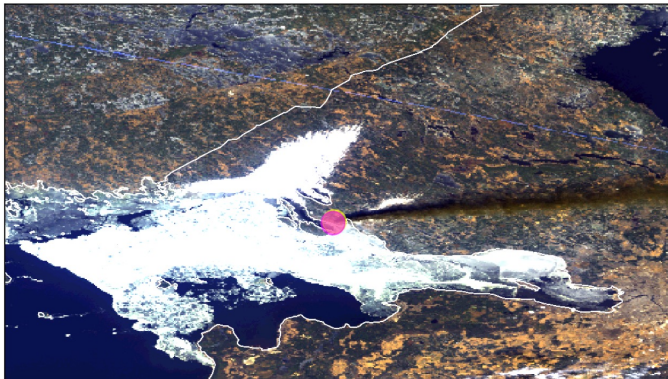




EO-supported situational awareness: Ukrainian Drone Activity Targeting Oil Ports in the Gulf of Finland



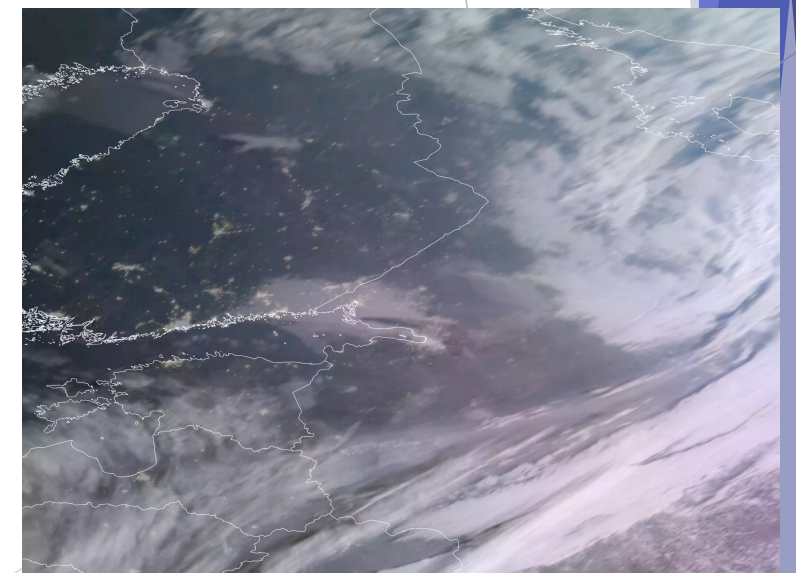
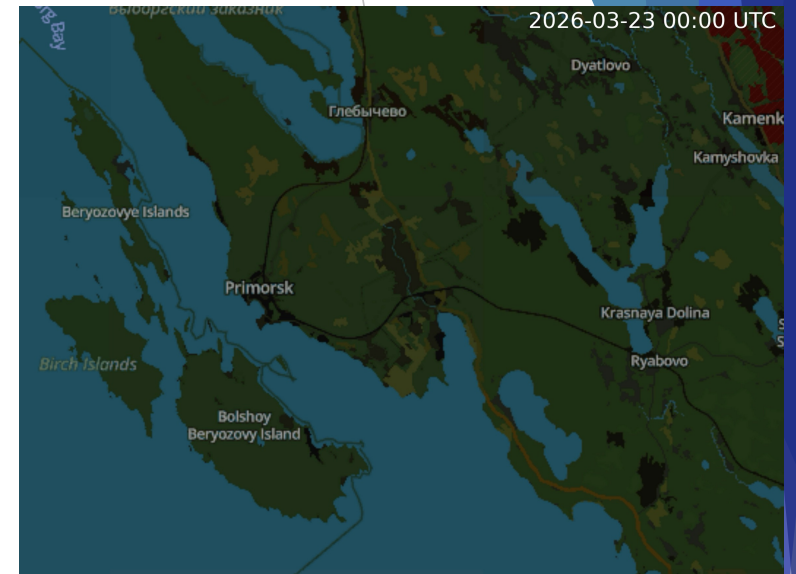
EUMETSAT Sentinel-3 (OLCI & SLSTR)
24.3.2026



EUMETSAT FCI Fire
Temperature
Primorsk Oil Terminal
23.3.2026 00-06 UTC

EUMETSAT FCI
Geocolour RGB
24.3.2026 05-13 UTC

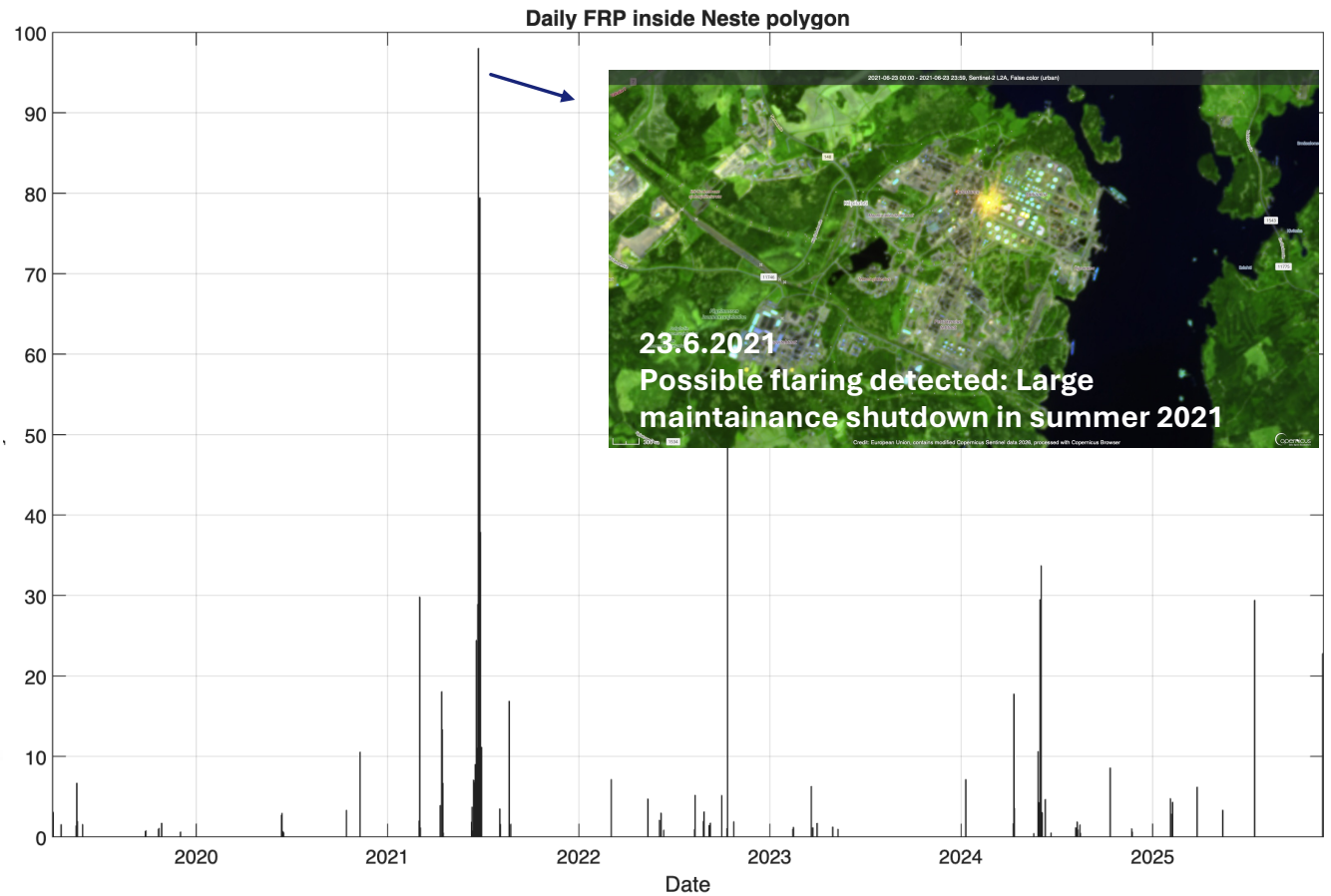
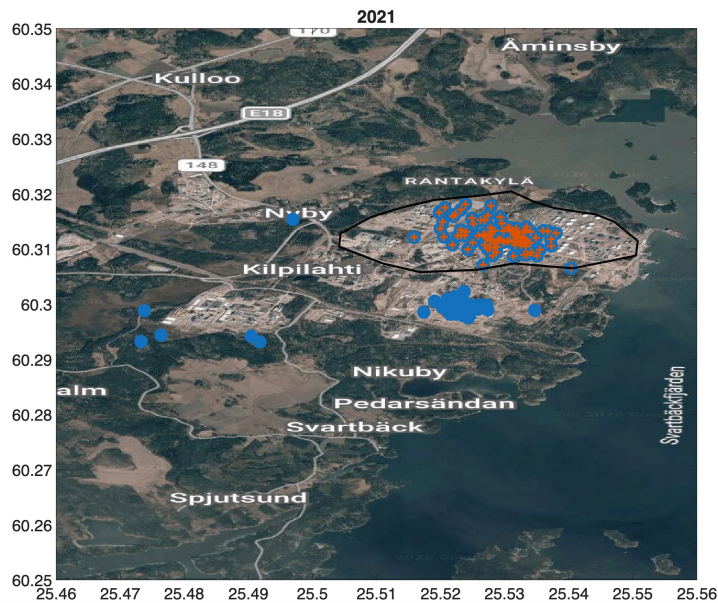
(10 min. temporal resolution)



Monitoring critical infrastructure: Case study NESTE

Industrial heat signal can be used to track anomalous activities

N20 VIIRS thermal anomaly data





Finnish actors of Security, Safety, Disaster and Crisis response

- ▶ Ministries: TEM, SM, UM (NSA), LVM, PLM (DSA), VNK
- ▶ Poliisi / Police
- ▶ Pelastustoimi / Rescue services
- ▶ Rajavartiolaitos / Border Guard
- ▶ Häätokeskuslaitos / Emergency Response Centre
- ▶ Crises Management Centre
- ▶ Suojelupoliisi / Finnish Security and Intelligence Service
- ▶ Liikenne- ja viestintäministeriö / Ministry of Traffic and Comm.
- ▶ Traficom / Finnish Transport and Communications Agency
- ▶ Väyävirasto / Finnish Transport Infrastructure Agency
- ▶ Traffic Management company Fintraffic
- ▶ Arctia Ltd
- ▶ Ilmatieteen laitos / Finnish Met Institute
- ▶ Huoltovarmuuskeskus / National Emergency Supply Agency
- ▶ Ruokavirasto / Finnish Food Authority
- ▶ Maanmittauslaitos / Nat. Land Survey of Finland
- ▶ Energiavirasto / Energy Authority
- ▶ Ympäristökeskus / Finnish Environment Institute
- ▶ Säteilyturvakeskus / Radiation and nuclear safety authority
- ▶ Erillisverkot
- ▶ VN-TIKE / Gov. Situation Centre at the PM's office
- ▶ Puolustusvoimat / Defence forces

Enhanced resilience by:



Preparedness: Improved preparedness and risk assessment



Forecasting: Timely forecasting, early warnings and alerting



Monitoring: Enhanced **situational awareness** and **monitoring** during and after crisis or civil security events



Evaluation: Analysing afterwards the events and derive lessons learned



Connectivity: Enhanced Secure & Resilient **connectivity** for responders

First thoughts about Governance: Layered framework to enable distributed service and data providers



End user layer



Operational layer



Administrative layer / Governance



Development layer



SRN-FI Info and networking event at FMI



REGISTRATION
required

Time: Monday 17.8. 2026 at 09:30-12:30

Place: Finnish Meteorological Institute
Erik Palmenin aukio 1, Helsinki

Agenda:

- 09:30 Networking coffee
- 10:00 SRN-FI definition study intro
- 10:45 Discussion
- 11:00 Bilateral meetings with project team.
- 12:30 Lunch at own cost