OroraTech Wildfire Service (WFS)
Early Detection and Monitoring System

rosenbauer

ORORA
TECHNOLOGIES

Overview

The WFS provides timely information about hotspots to emergency service managers and other users on a global scale. The mapping system aggregates near-real time multi-spectral, hotspot and auxiliary data from currently 21+ **satellites** to detect areas producing high levels of infrared radiation to allow users to **identify potential wildfires**. This data is fused within our cloud-based platform and displayed through a web interface for use on **desktop and mobile devices**.
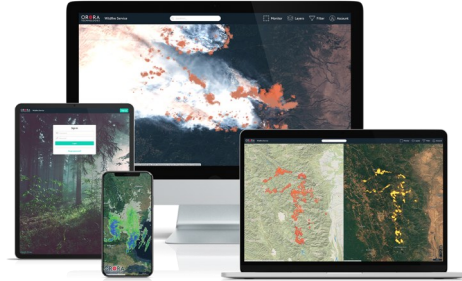
Functionalities

1. **Risk assessment** (Fire risk & weather information)
2. **Early detection** (Instant notifications)
3. **Near-real time monitoring** (Continuos 24/7 updates)
4. **Damage analysis** (burned area + fire origin)
   (data available from Oct. 2019 onwards)

BEFORE → DURING → AFTER

RISK ASSESSMENT — EARLY DETECTION — REAL-TIME MONITORING — DAMAGE ANALYSIS
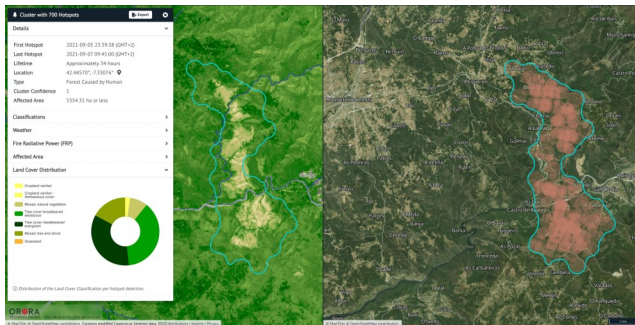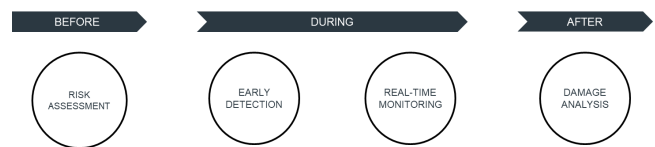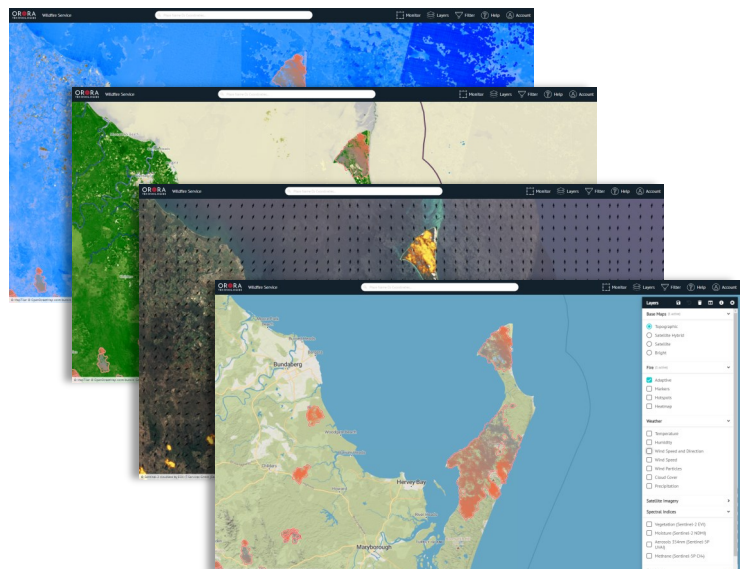

Fire Cluster Information

- Time of first/last detection
- Cluster confidence
- Affected area and vegetation type
- Cluster type classification (e.g., wildfire, industrial site, volcano, PV solar plants)
- Current and forecasted weather information +/- 2 days

Maps and Layers

- Weather Data (Temperature, Humidity, Cloud Cover, Precipitation)
- Lightning Strike Data (On-demand)
- Visible Satellite Imagery (daily updates and high resolution every 5 days)
- Moisture and Vegetation Greeness Maps
- Fire Risk Index
- Fuel/Vegetation
- Aerial Firefighters
- Split Screen Option
- 3D Mode
- Measurement Tools

Currently Integrated Satellites

The platform currently works with satellites in two different types of orbits:

- Low Earth Orbit **(LEO)** satellites at less than 1,000 km above earth. Because of their short distance from Earth LEO satellites are capable of making observations with a smaller footprint on ground than GEO satellites, which makes them useful in detection of relatively small fires. (reference avg. fire size 10m*10m)

- Geostationary Orbit **(GEO)** satellites at 35,786 km above earth. Because they have exactly the same speed as Earth rotation they appear to be 'stationary' over a fixed position. GEO satellites offer a near-real time monitoring with new images every 15 minutes on average. (reference avg. fire size 30m*30m)

LEO Satellites:

- Aqua
- Terra
- Suomi-NPP
- NOAA-20
- MetOp-B
- MetOp-C
- Sentinel-2A
- Sentinel-2B
- Sentinel-3A
- Sentinel-3B
- Landsat-8
- Landsat-9
- Fengyun-3D

GEO Satellites:

- GOES-16
- GOES-17
- GK-2A
- Himawari-8
- Meteosat-8
- Meteosat-9
- Meteosat-10
- Meteosat-11
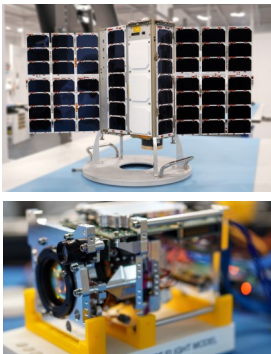
## Continuous Improvement Through Own Satellite Launches

Due to the current insufficient coverage by LEO satellites for steady Earth observation, OroraTech is developing its **own fleet of nano-satellites with their in-house developed infrared camera**. The addition of OroraTech´s satellite data will help to ensure that hotspot information is available at the closest possible distance, especially at times of highest fire risk. The first test satellite was successfully launched in January 2022, and the **next satellite is scheduled for early 2023. By mid 2024 there will be 8 more satellites.** The WFS will therefore be continuously improved and become more efficient.

WFS 2.0 „Wildfire Management Platform" (WMP)

In a **joint development by Rosenbauer and OroraTech**, the WFS will be expanded to include mission-relevant information. This means that it can no longer be used only for the surveillance, notification and monitoring of wildfires, but also provides the emergency services on site with an overview of the entire operational scenario. By implementing vehicle data, fire fighter tracking, drone livestreaming and other incident command functions, the Wildfire Management Platform (WMP) supports the authorities throughout the entire incident.

The WMP is expected to be available in 2023. **WFS customers are invited to serve as development partners for the WMP**. For further information please contact:

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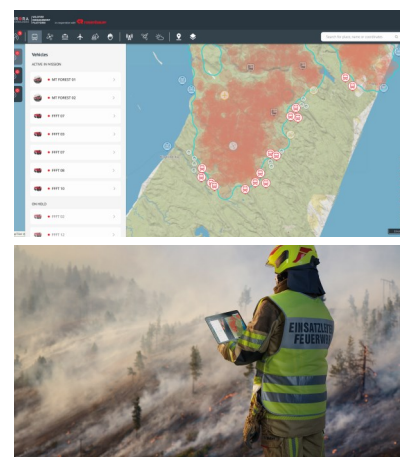
WFS Sales, Helpdesk and Support

- Sales: please contact your local Rosenbauer sales representative
- Helpdesk and support:
  - E-Mail: Direct e-mail to support.rds@rosenbauer.com
  - Phone: +43676/880324069

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WFS_EN_2022