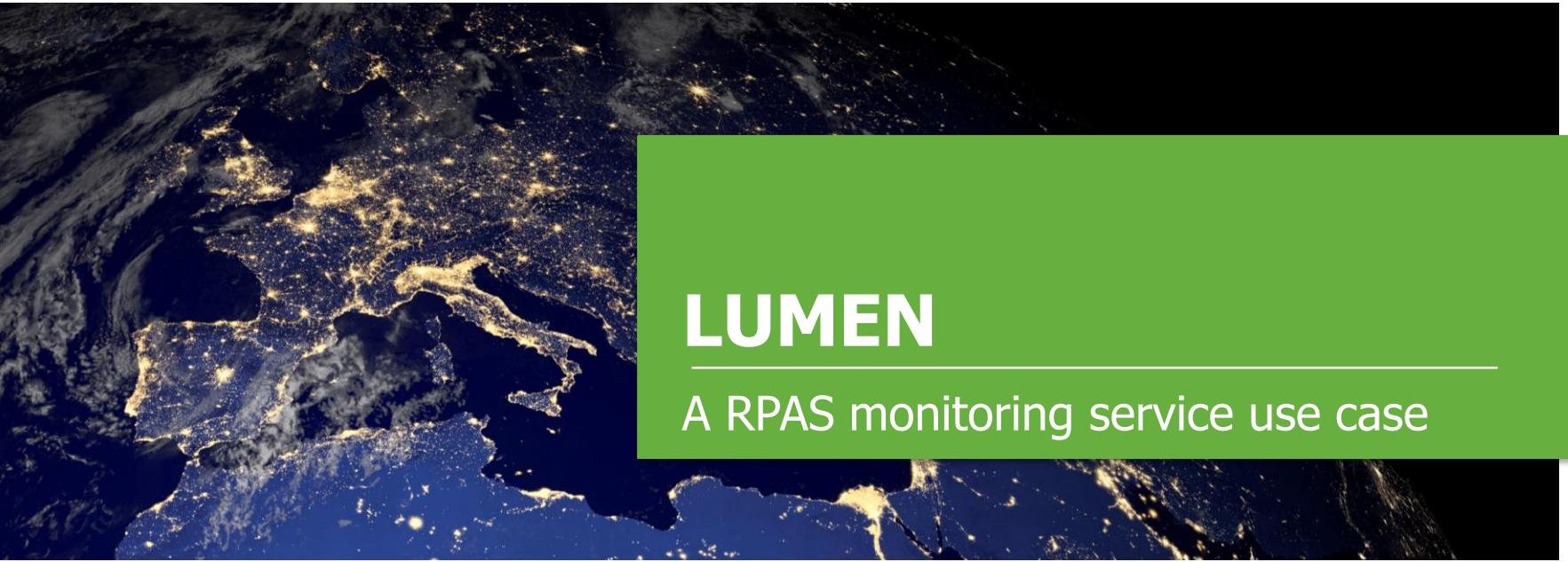
vito
remote sensing



LUMEN

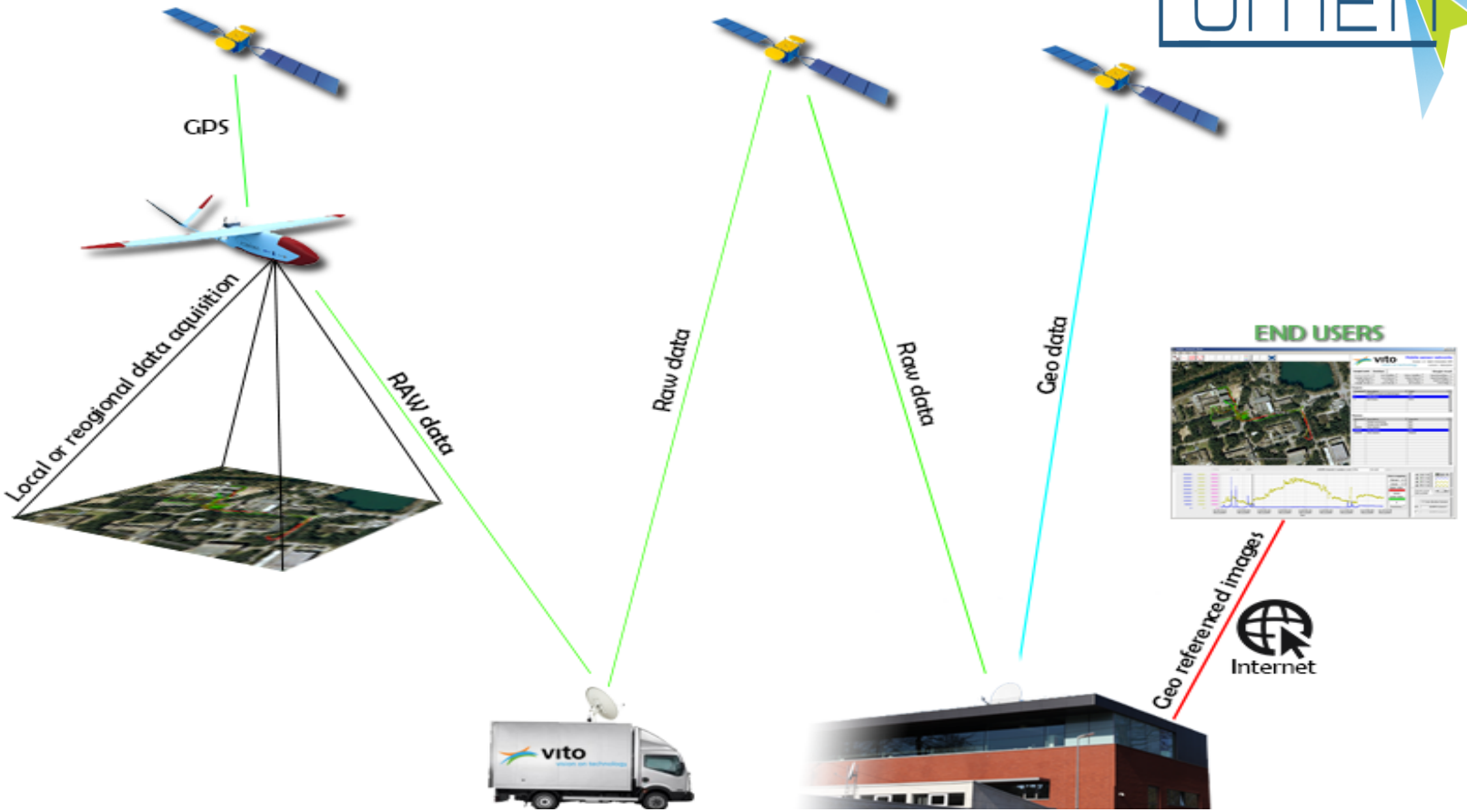
A RPAS monitoring service use case

Bleu Drones 24 October 2019

LUMEN an ESA-IAP project

A **service** that delivers an **end-to-end solution** where the customer receives **real time imagery** and **near-real time image derived products** (e.g. maps) at his/her **office desk**.

Imagery is acquired with a light-weight **medium sized RPAS** that can operate **beyond line of sight** for command and control.



vito remote sensing

remotesensing.vito.be

Demonstration set-up

- 2 Demonstration use cases (Flood monitoring / Maritime surveillance)
- Flights in Norway
- Satcom communication from RPAS – Data centre
- Data processing in NRT (Mol and Tromsø)
- End-users in Belgium

- Special thanks to
  - Norwegian Coastal Administration
  - Norwegian Civil Aviation Authority
  - Salangen Airfield, Elvenes

KYSTVERKET

Luftfartstilsynet
CIVIL AVIATION AUTHORITY - NORWAY

arena elvenes

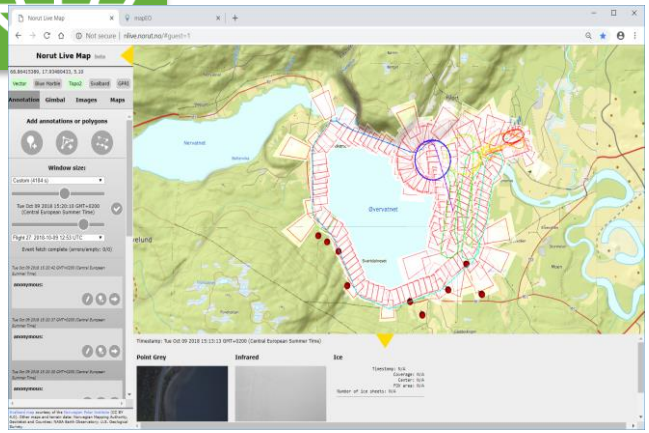
Flood Monitoring use case

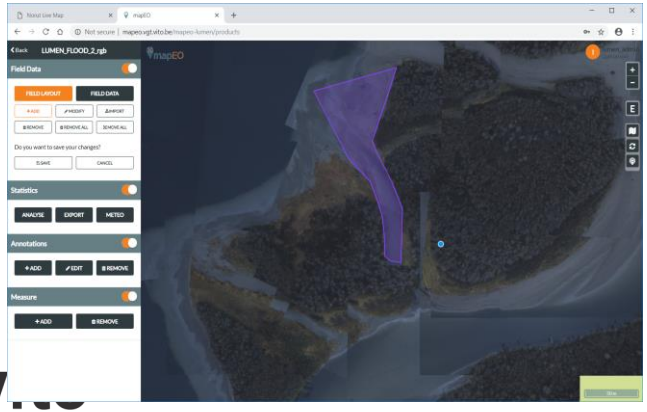
- Cryowing scout – range 2 hours @ 70 km/h
  - wingspan 2,5 meters; 2 electric motors
  - maximum take-off weight of 11,5 kg
  - maximum payload of 3,5 kg.

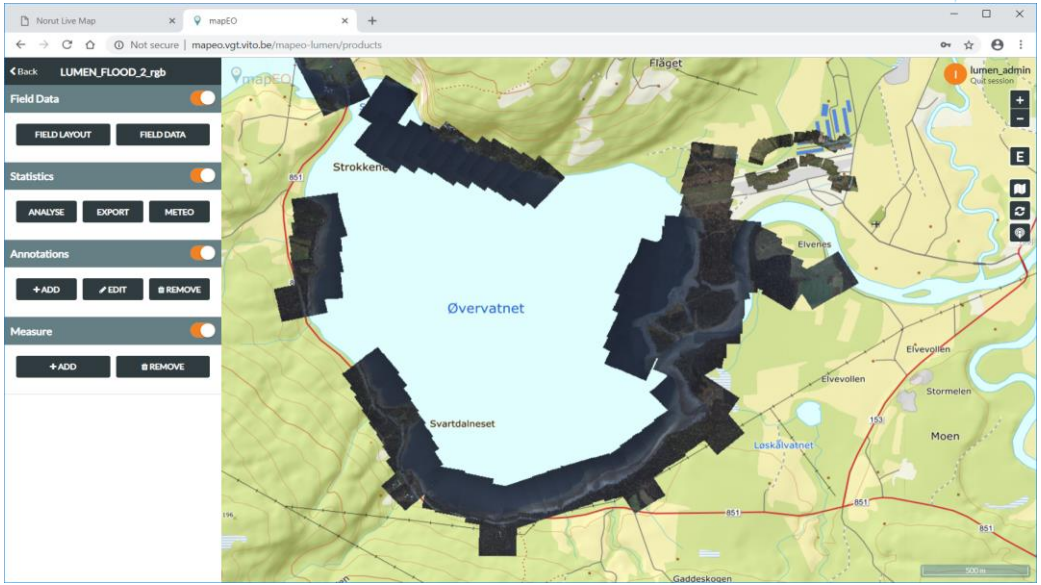
- Payload
  - RGB (PTGrey 5mpix)
  - Thermal imager (FLIR Tau1)

- Harsh environmental conditions
  - Clouds and rain
  - Temperatures near freezing point

Flood Monitoring use case







remote sensing

remotesensing.vito.be

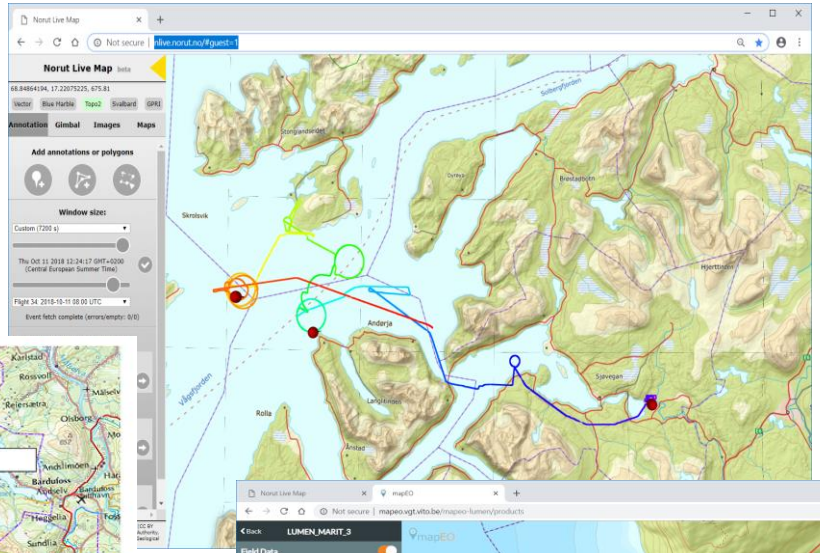
Maritime Surveilance use case

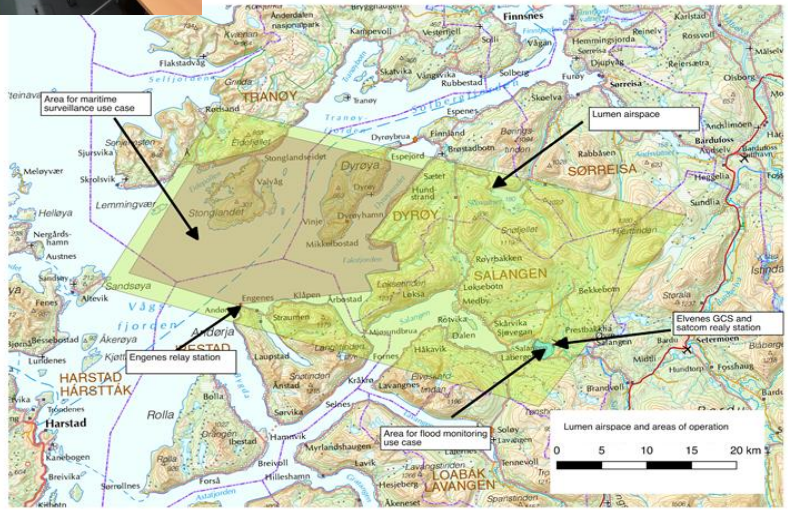
- Cryowing Explorer – 10 hours @ 100 km/h
  - wingspan 5,2 meters; 110 cc fuel engine
  - maximum take-off weight of 60 kg
  - maximum payload of 15 kg.
- Payload OTUS L-170 Gimbal

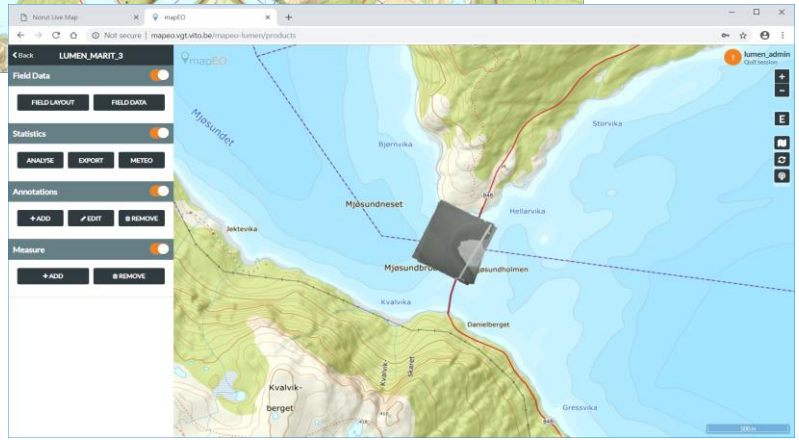
  (RGB/TIR video)

- Coastal waters outside Harstad Norway
  - Flown 45 km from shore / 150 minutes
  - Realistic weather conditions

Maritime Surveilance use case

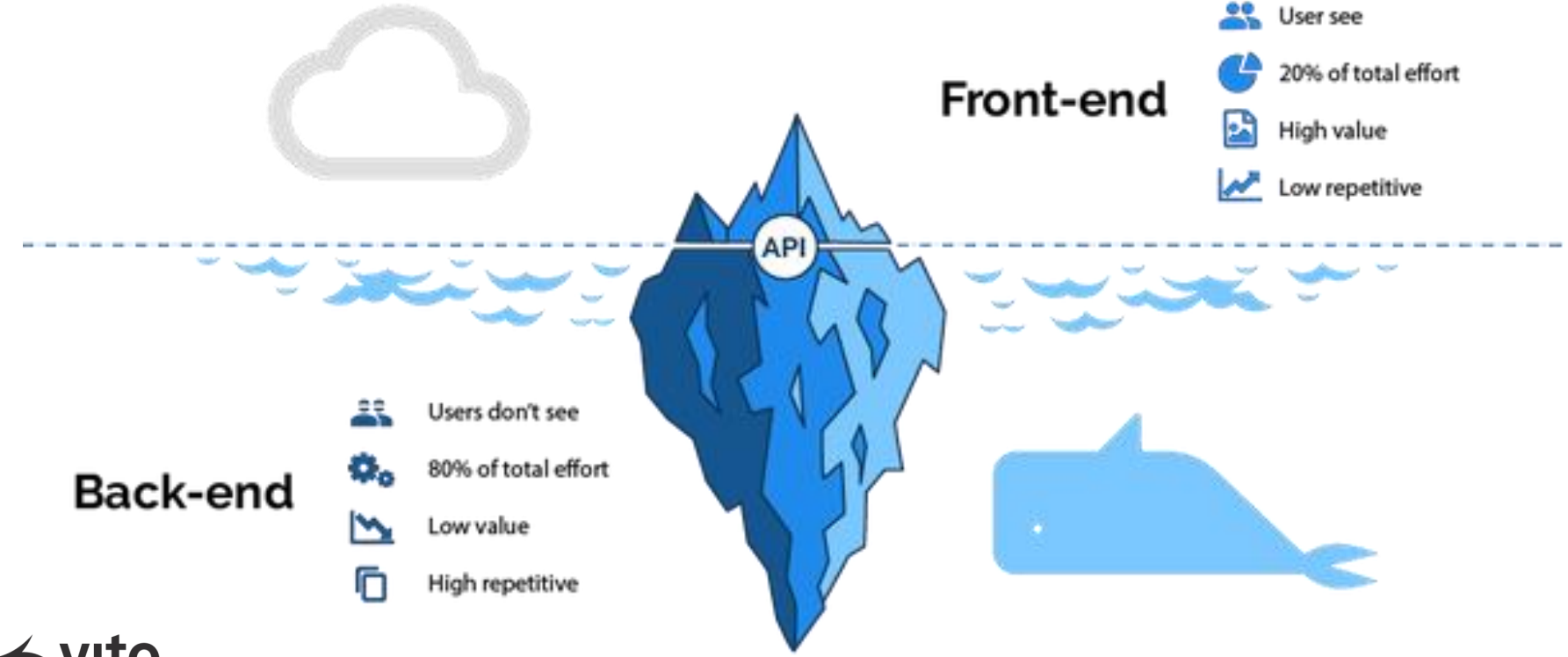






remote sensing

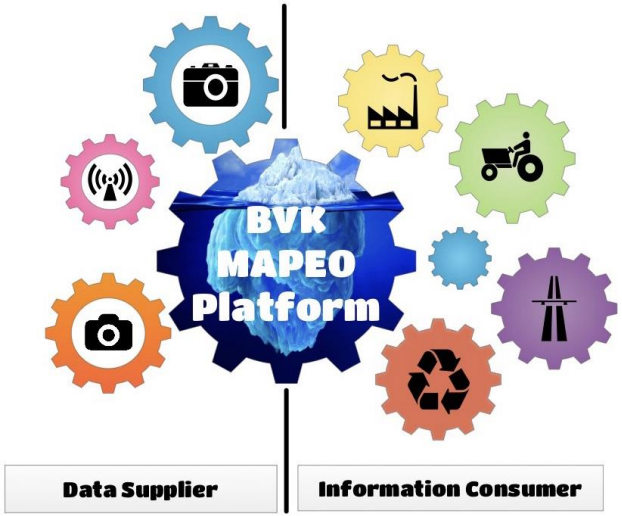
Spatial Data Infrastructures
the need for structural support



MAPEO a tool to facilitate logistics

Data Suppliers:

- Satellite RS systems
- Airborne RS systems
- Drones RS systems
- Mobile mapping
- Robotics RS systems
- RS operations
- Sensors/Cameras
- SW Middleware
- Universities: algorithms



Information Consumers:

- Agriculture
- Infrastructure
- Water
- Security
- Coastal Defense
- Environment
- …

vito
remote sensing

THANK YOU

remotesensing.vito.be

Sentinel-2 image Copernicus Sentinel data (2016)