Mapping and environmental monitoring in the EU-cooperation with the Indo-Pacific region

Copernicus Programme Webinar

19 October 2022

Housekeeping Notes

This session is scheduled to last 2.5 hours.

You can use the chat box to drop questions to the trainer when they come up.
For all technical related issues, please send a private message to the MKS Team.

Make sure to have a headphone connected to your computer, the sound will be better.

Please mute yourself when not talking.

Keep next to you a good coffee and a bit of patience, sometimes technology is not perfect.

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Content of this webinar

- Welcome address
- Introduction: tour de table
- Module 1: Earth observation: Examples in all areas relevant to the Indo-Pacific
- Module 2: How to work with Copernicus?
- Module 3: Features of the Copernicus Programme
- Event evaluation, summary and closure

Structure of each module

- Presentation
- Checking knowledge with mentimeter quiz
- Questions & Answers

- Ask your questions any time!

Welcome by Ms. Doriana Leo

Unit F5 Science, Technology, Innovation and Digitalisation of

Directorate General International Partnerships (INTPA) of the European Commission (EC)

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Introduction

Tour de table: Participants and trainer

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Your trainer:
Renaat Van Rompaey

Wageningen, The Netherlands

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Renaat Van Rompaey

- MSc Tropical Forestry ’87 Gent University, Belgium. Thesis: Suriname
- PhD ’93 Wageningen Univ. (Netherlands) about: Forest gradients in West Africa
- Research in climate change, biodiversity, sustainable forest management
- Invited professor’01 Brussels,’02 Berlin, ‘03 ENGREF-Montpellier
- Since ’07 self-employed EU expert: consultancy, evaluation, identification, training
- RenaatVR@gmail.com

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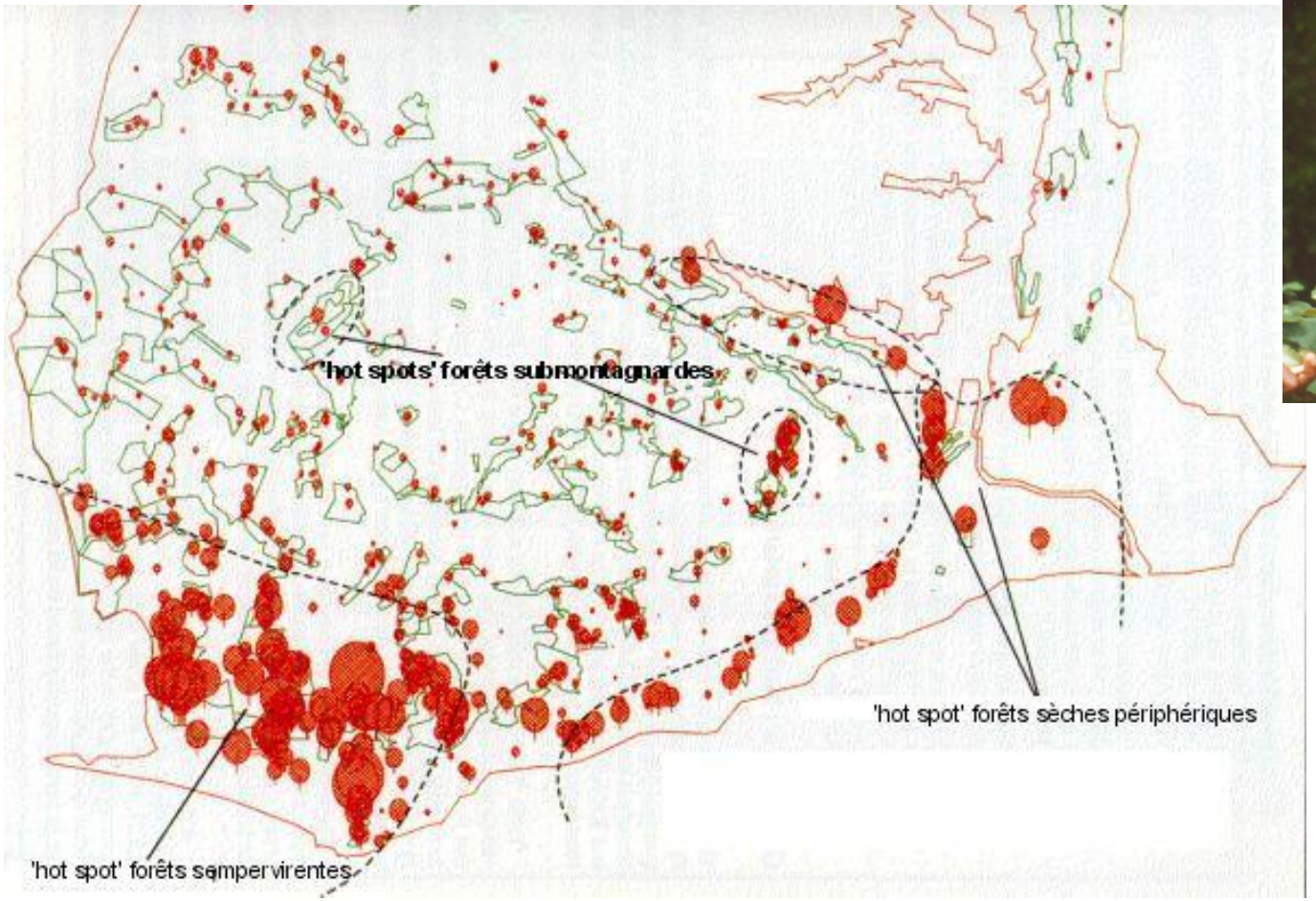
Taï forest, Côte d'Ivoire, Landsat Thematic Mapper satellite image dd. 14-12-1988

Rare species richness & forest biodiversity hotspots, SW Ghana, based on field data



Anthonotha sassandraensis (Leguminosae-Caesalpinioideae). Photo Adou Yao, 2000.

Specific experience in the region

Country	Date from – Date to
Pre-accession: Albania	2019
Neighbourhood: Algeria, pan- Mediterranean	2019
Armenia – Turkey - Georgia	2010
Asia: Bangladesh, Malaysia, Indonesia, Vietnam	2015, 2007, 2013
Central Asia: Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, Tajikistan	2008-2009
Europe: Netherlands, Belgium, Germany, Poland, France	1987-2004
Caribbean (Suriname, Guyana, Guyane)	1986, 2011, 2012, 2015
Pacific (Papua New Guinea, Vanuatu, Fiji)	2011, 2012, 2015
West Africa (Ghana, Côte d'Ivoire, Liberia, Burkina Faso, Mali, Niger, Togo, Benin, Guinea, Senegal)	1987 – 2021 many visits
Central Africa (Cameroon, Gabon, DR Congo)	2000, 2001, 2012
Southern Africa (Namibia, South Africa)	2001, 2008
Zimbabwe, Botswana	2018
East Africa (Ethiopia, Kenya, Rwanda, Burundi, Uganda)	2003, 2011, 2013, 2014

Introduction

Quiz time!

Mentimeter

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Objectives of this webinar

- Introduce you to Copernicus Programme
- Promote awareness of the many potential uses of its data and information
- These can benefit EU’s international partnerships and its actions

Agenda of the webinar: 3 modules

- Welcome
- Introduction
- **1. Earth observation examples**
- 2. How to work with Copernicus?
- 3. Features of the Copernicus Programme
- Evaluation & closure

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Module 1: Earth observation

Examples in areas relevant to the Indo-Pacific region

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EU Strategy for Cooperation in the Indo-Pacific

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Examples from daily life on my mobile phone

- Weather app: Buienradar.nl - neerslagradar voor komende 3 uur en 24 uur
- RainViewer: Live Weather Radar - Fiji | RainViewer
- Google maps: Je locatie naar Amsterdam - Google Maps, life traffic information for your navigation; Street View pictures at ground level
- Google Earth combines maps with pictures
- Topotijdreis: Topotijdreis: 200 jaar topografische kaarten, travel back in time

Application areas of earth observation data

- Climate change adaptation
- Marine, coastal & mangroves monitoring
- Monitoring of fishing operations / marine security
- Land cover / use change – (from) agriculture (to residential & industrial use overtime), forest monitoring;
- Post-disaster impact assessments, including on economic activity (e.g. damage of cultivated areas or blocked access to areas of economic interest).

Six thematic information services provided by the Copernicus Earth Observation Programme

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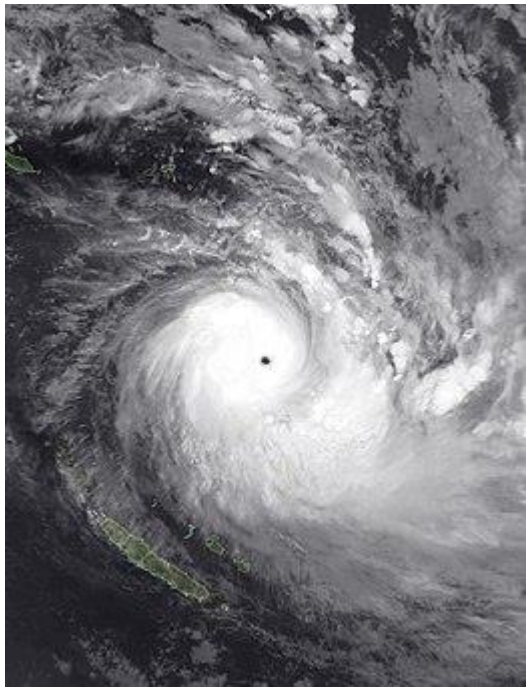
Climate change adaptation



- Cyclone Harold, April 2020 → Fiji Meteorological Service alert map

- El Niño, la Niña prediction and advisory by NOAA: PowerPoint Presentation (noaa.gov)

- The rising ocean:

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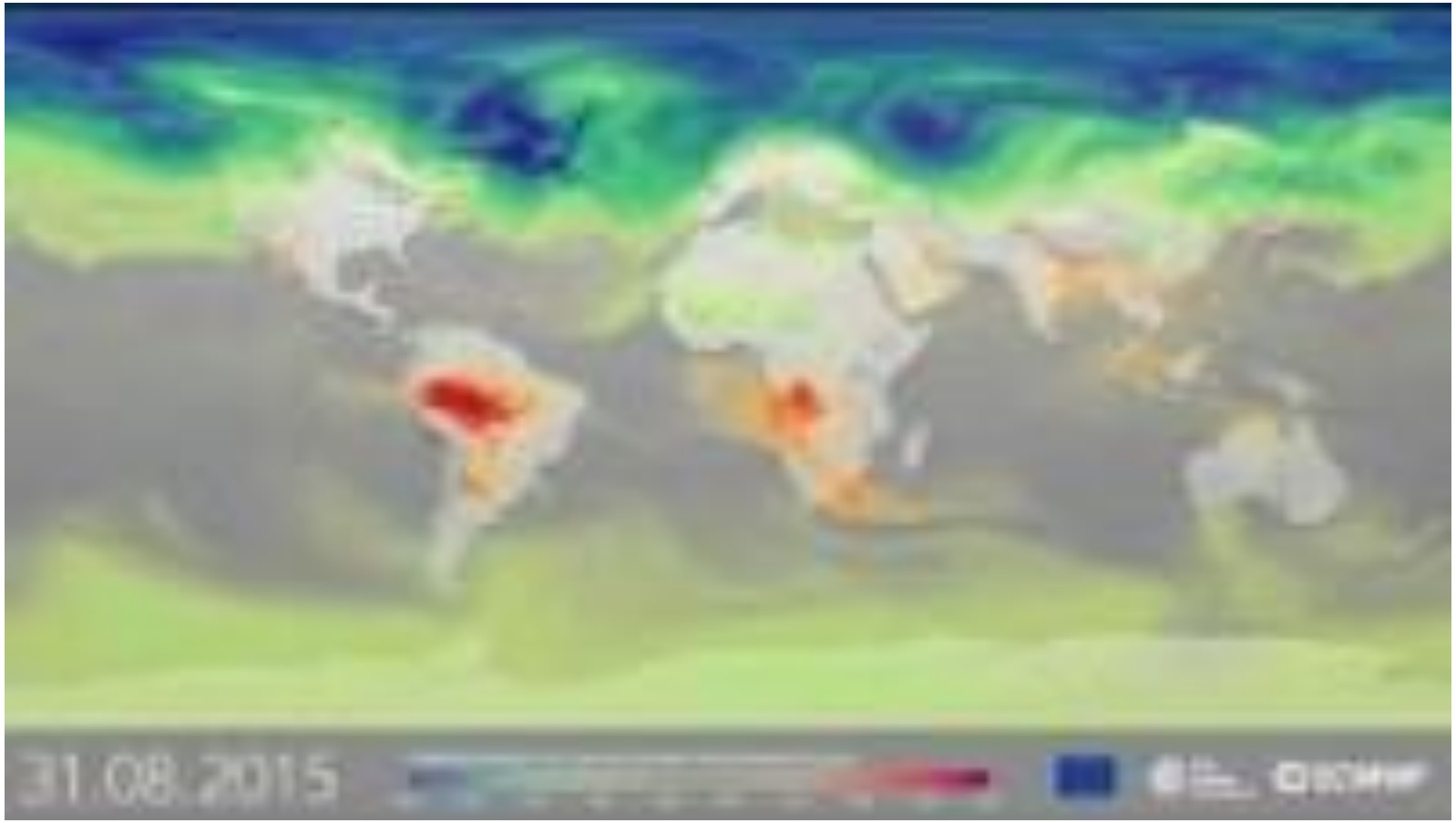
Video: CHE Project - A year of atmospheric CO2 variability (ECMWF)

- Animation how carbon dioxide gets distributed over the globe, Copernicus Atmosphere



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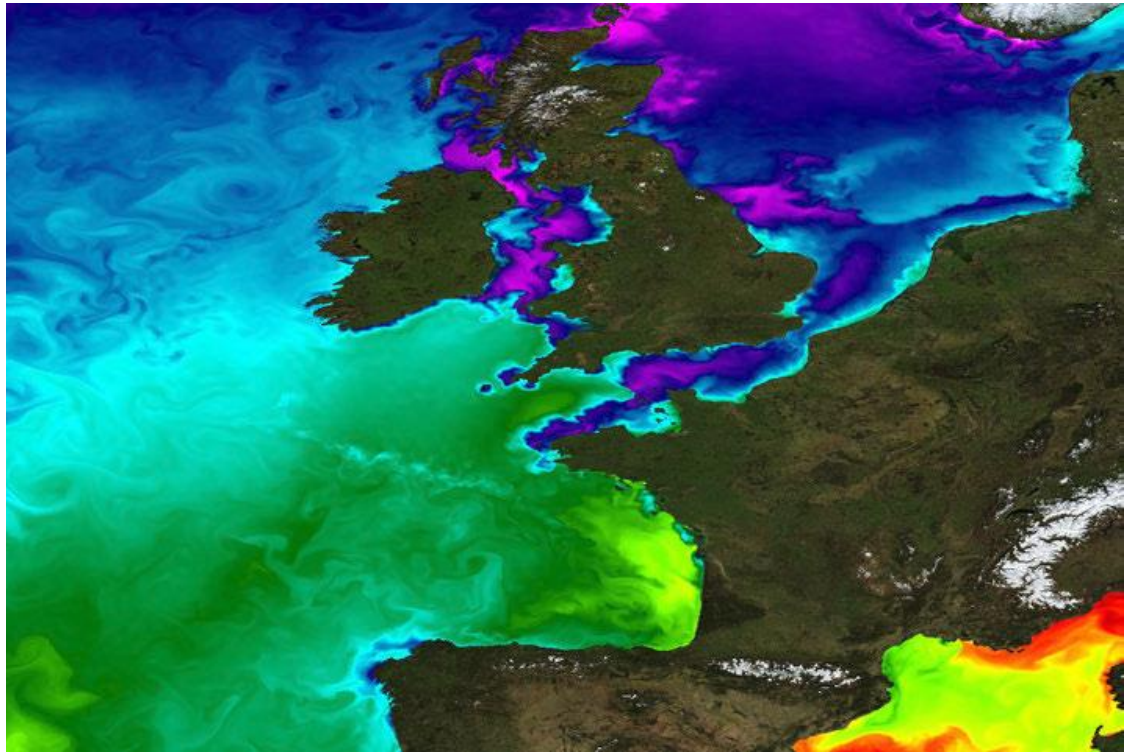
Marine, coastal and mangroves monitoring

- Marine safety;
- Marine resources;
- Coastal and marine environment;
- Weather, seasonal forecasting and climate.
- See: Copernicus Marine Environment Monitoring Service (copernicus.eu)
- MyOcean Learn (copernicus.eu)



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Monitoring of fishing operations / marine security

Thematic Assembly Centres (TAC):

- Security: Maritime Border Surveillance, with integration of coastal radar information, Vessel Detection Systems, Vessel Traffic Management Systems (VTS) and Automatic Identification Systems (AIS)
- Restrictions apply to the use of the Security service

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Land cover / use change – agriculture, forest monitoring

Applications:

- Spatial and urban planning • Forest management • Water management • Agriculture & food security • Nature conservation and restoration • Ecosystem accounting • Mitigation to climate change
- Forest monitoring: special conditions in Pacific, drones…
- https://europa.eu/capacity4dev/public-ict/wiki/forest-monitoring

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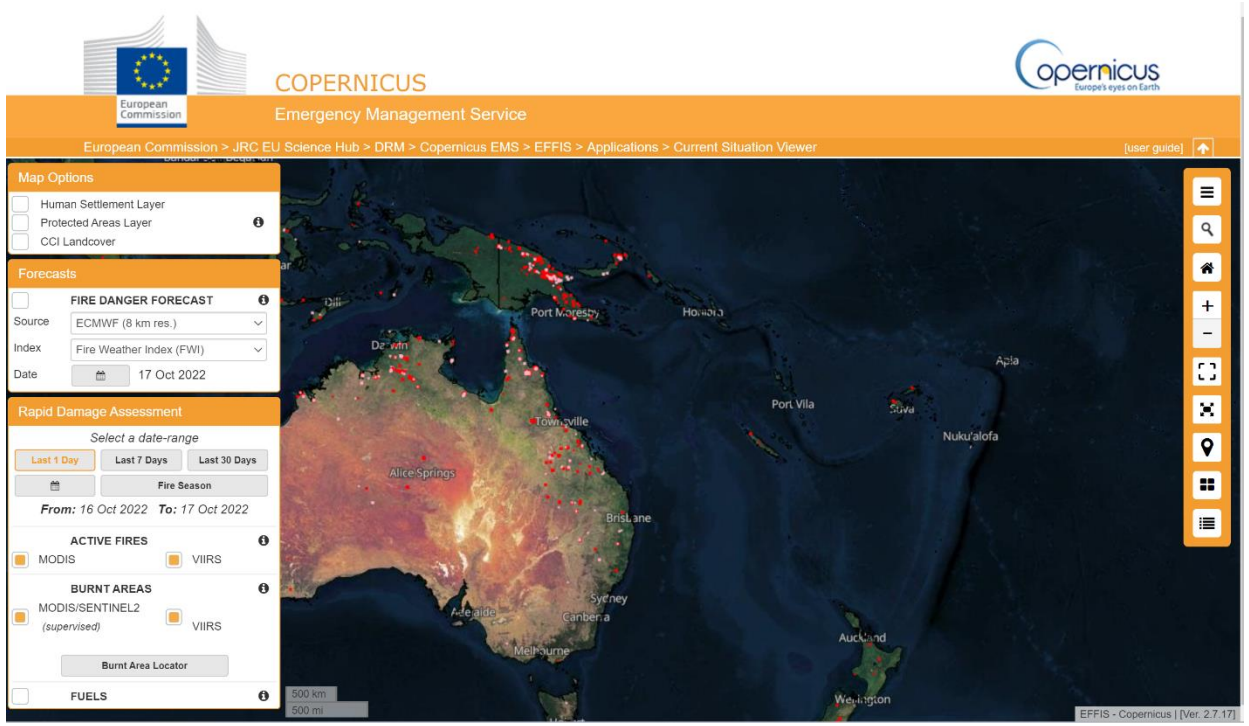
Post-disaster impact assessments

Emergency management: floods, forest fires, drought

1. a mapping component;

2. an early warning component

3. https://effis.jrc.ec.europa.eu/apps/effis_current_situation/index.html



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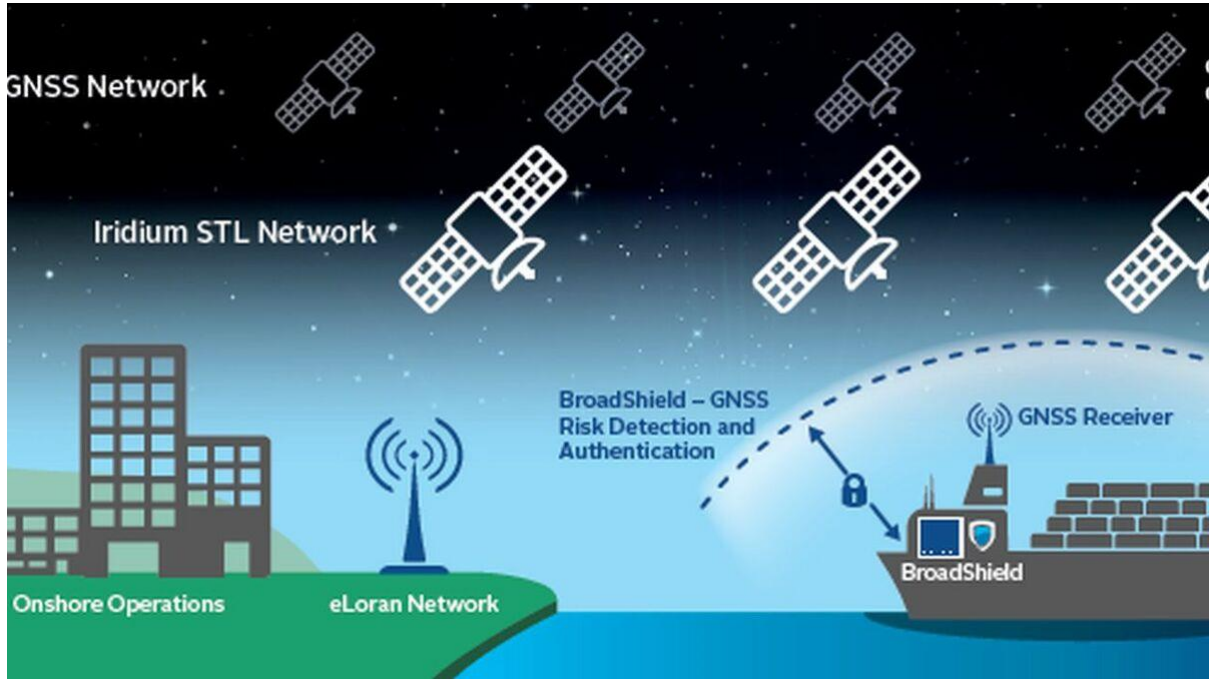
Marine search & rescue, relying on GNSS

- Global Navigation Satellite System (GNSS) refers to a constellation of satellites providing signals from space that transmit positioning and timing data to GNSS receivers.
- GNSS are used in all forms of transportation: **space stations, aviation, maritime, rail, road and mass transit**. Positioning, navigation and timing (PNT) play a critical role in telecommunications, land surveying, law enforcement, emergency response, precision agriculture, mining, finance, scientific research and so on.
- Added value of Galileo: SAR reduced to 2 km radius and 10 min localization time, return signal



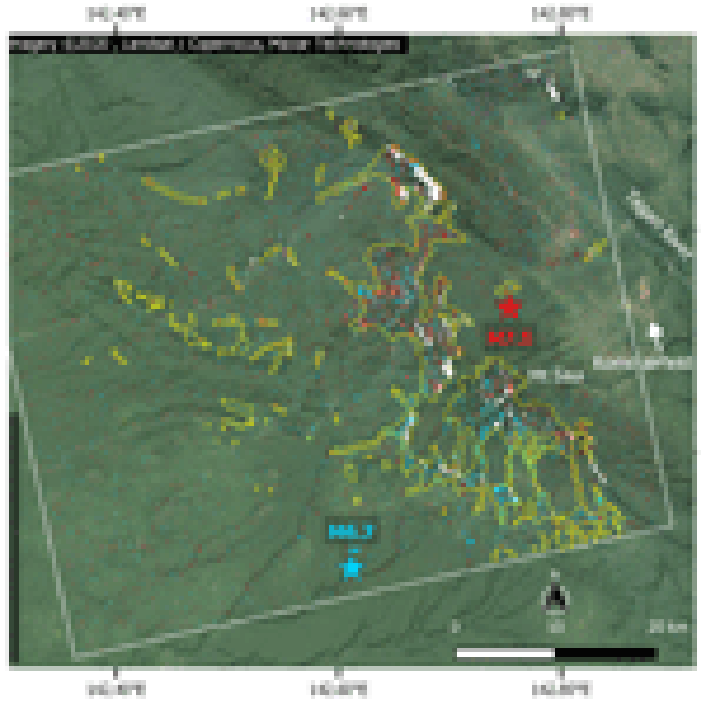
Already available use cases from other regions

- Blue Economy: GUTTA-VISIR - decision support system for ferries in the Adriatic Sea, Port waters quality control in the Alboran Sea;

- Climate Change: SunSmart, Plume Labs: Air Report to dodge the smog and find clean air

Local use cases from the Pacific region

- A spaceborne SAR-based procedure to support the detection of **landslides** in Papua-New-Guinea, using Sentinel images, Esposito et al. 2020
- **Drought** Detection over Papua New Guinea Using Satellite-Derived Products, Chua et al, 2020
- NOT used in: Papua New Guinea Multipurpose National Forest Inventory (FAO), Implementing REDD+ in Papua New Guinea
- Mentioned in MIP 2021-2027 PNG
- Forest monitoring in Fiji: see video Mr Wolf Forstreuter



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Module 1: Earth observation

Quiz time!

Questions & Answers

- Ask your questions
- Remarks
- Suggestions on Module 1

End of Module 1

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