Committee on Earth Observation Satellites

# CEOS MIM - Potential addition of Disasters applications

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WGDisasters-15 Meeting

Virtual Meeting

9 – 11 March 2021

# CEOS MIM Overview

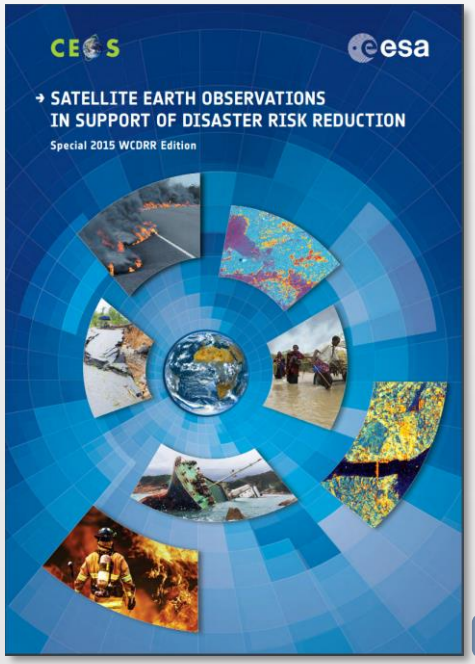
- ***The CEOS MIM** (Missions, Instruments, Measurements) **service across the CEOS community.***

http://eohandbook.com/


- **Information:**

| Missions | Instruments (Distinct) |
|---|---|
| Operating: 189 | Operating: 655 (289) |
| Approved: 85 | Being developed: 92 (60) |
| Planned: 41 | Approved: 42 (25) |
| Considered: 14 | Proposed: 67 (35) |

- **Annual Traffic Update** more than 15,000 users in 2020.



# Originally, a service for the EO Community

- **CEOS MIM mostly used by people familiar with EO from space.**

- **Some user communities** (e.g. Disasters) **are interested only by receiving a timely & accurate information associated to a specific hazard. Feared/Not interested by underpinning technology.**

***Margareta Wahlström***
*Head of the UN Office for Disaster Risk Reduction*

**UNISDR Foreword – Resilient People, Resilient Planet:**

*"The real-time monitoring from space of natural hazards such as cyclones, floods, drought and volcanoes provides us with reliable and actionable information that is end-user friendly for planners, technical experts, business, countries, farmers, air traffic, and others; in other words for all of society.*

*Such information must be understandable and provide the foundation for important decisions that determine how cities are planned, […]"*

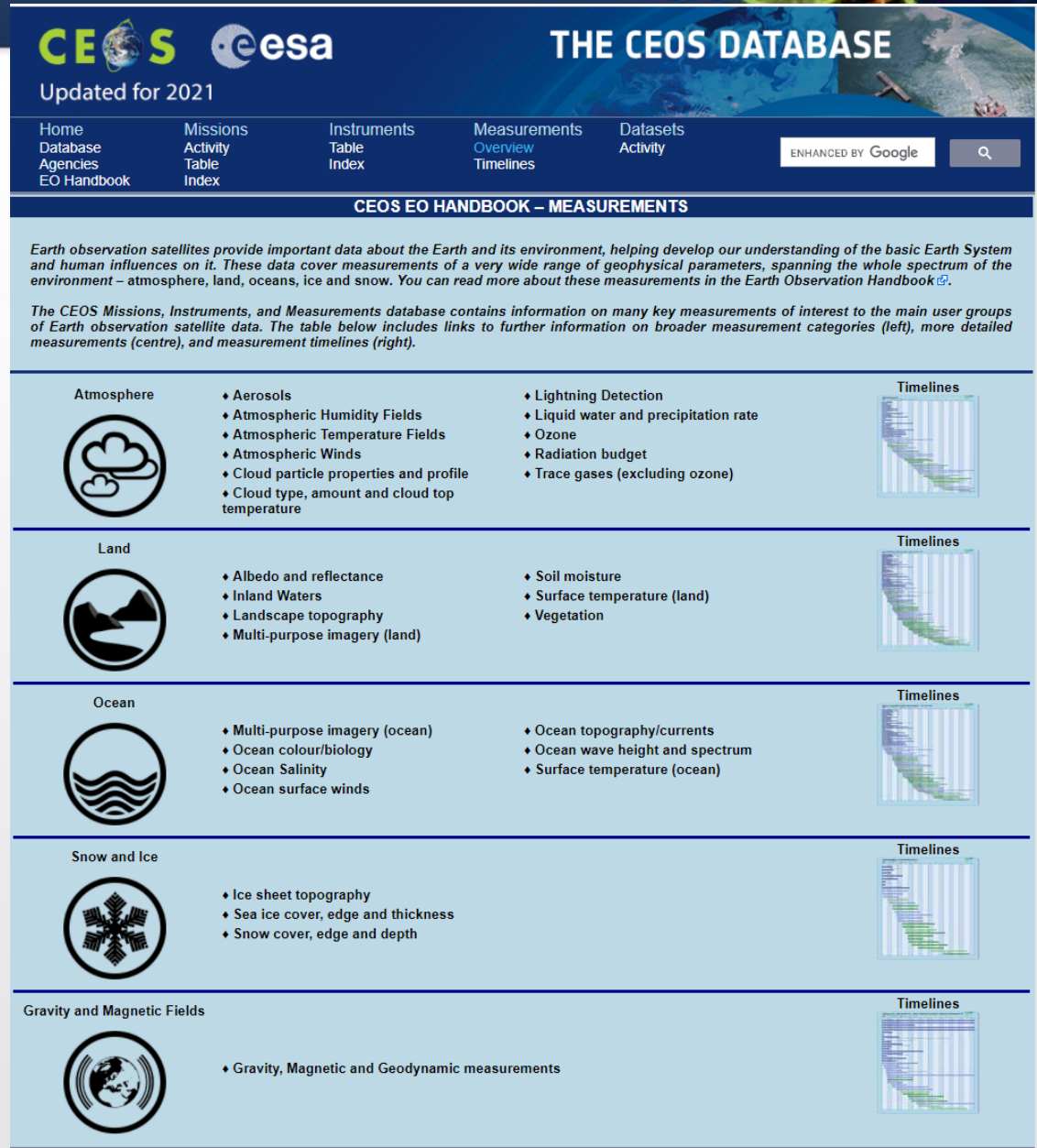
# Enlarge the Community of Users

New target: **Community of users that are less familiar with satellite missions and instruments, but that have a good knowledge of specific phenomena (e.g. volcanoes) and/or measurements.**

Objective:

- **Increase the awareness of non-EO specialists.**
- **Show that remote sensing is a valuable and reliable additional source of information, that can benefit multiple domains**

**Today, there is no indication of types of hazards**

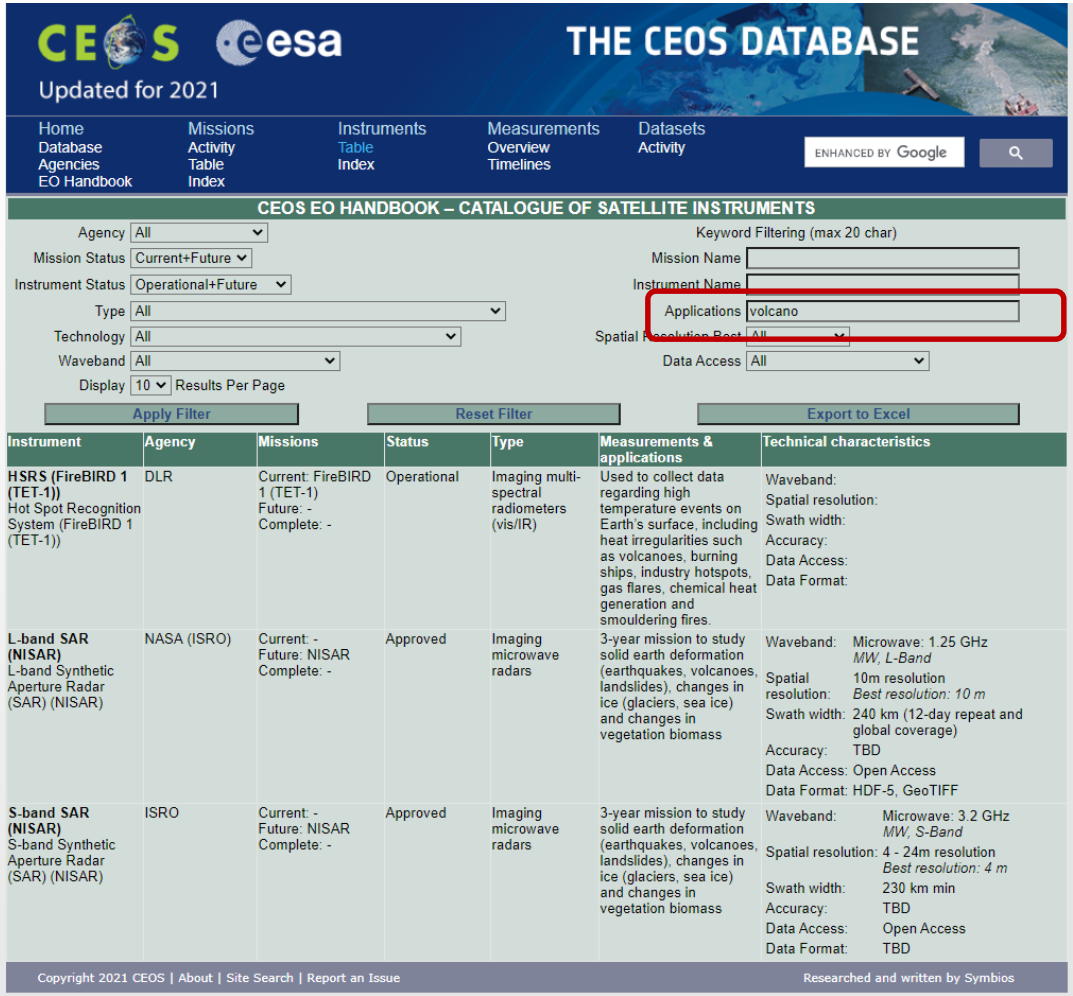


# Limited search by “Applications”

- **Currently, CEOS MIM has no dedicated “Applications” tab**
  - only “Missions”, “Instruments”, “measurements”

- **“Applications” query field gives limited results** e.g.
  - **Floods:** 1 mission, 3 instruments
  - **Volcanoes**: 3 missions, 3 instruments

**…. due to insufficient information attached to individual mission and instrument**



CEOS esa — THE CEOS DATABASE

Updated for 2021

Home | Database | Agencies | EO Handbook
Missions | Activity | Table | Index
Instruments | Table | Index
Measurements | Overview | Timelines
Datasets | Activity

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CEOS EO HANDBOOK – CATALOGUE OF SATELLITE INSTRUMENTS

Agency: All
Mission Status: Current+Future
Instrument Status: Operational+Future
Type: All
Technology: All
Waveband: All
Display: 10 Results Per Page

Keyword Filtering (max 20 char)
Mission Name:
Instrument Name:
Applications: volcano
Spatial Resolution Best: All
Data Access: All

Apply Filter | Reset Filter | Export to Excel

| Instrument | Agency | Missions | Status | Type | Measurements & applications | Technical characteristics |
|---|---|---|---|---|---|---|
| **HSRS (FireBIRD 1 (TET-1))** Hot Spot Recognition System (FireBIRD 1 (TET-1)) | DLR | Current: FireBIRD 1 (TET-1) Future: - Complete: - | Operational | Imaging multi-spectral radiometers (vis/IR) | Used to collect data regarding high temperature events on Earth's surface, including heat irregularities such as volcanoes, burning ships, industry hotspots, gas flares, chemical heat generation and smouldering fires. | Waveband: Spatial resolution: Swath width: Accuracy: Data Access: Data Format: |
| **L-band SAR (NISAR)** L-band Synthetic Aperture Radar (SAR) (NISAR) | NASA (ISRO) | Current: - Future: NISAR Complete: - | Approved | Imaging microwave radars | 3-year mission to study solid earth deformation (earthquakes, volcanoes, landslides), changes in ice (glaciers, sea ice) and changes in vegetation biomass | Waveband: Microwave: 1.25 GHz *MW, L-Band*<br>Spatial resolution: 10m resolution *Best resolution: 10 m*<br>Swath width: 240 km (12-day repeat and global coverage)<br>Accuracy: TBD<br>Data Access: Open Access<br>Data Format: HDF-5, GeoTIFF |
| **S-band SAR (NISAR)** S-band Synthetic Aperture Radar (SAR) (NISAR) | ISRO | Current: - Future: NISAR Complete: - | Approved | Imaging microwave radars | 3-year mission to study solid earth deformation (earthquakes, volcanoes, landslides), changes in ice (glaciers, sea ice) and changes in vegetation biomass | Waveband: Microwave: 3.2 GHz *MW, S-Band*<br>Spatial resolution: 4 - 24m resolution *Best resolution: 4 m*<br>Swath width: 230 km min<br>Accuracy: TBD<br>Data Access: Open Access<br>Data Format: TBD |

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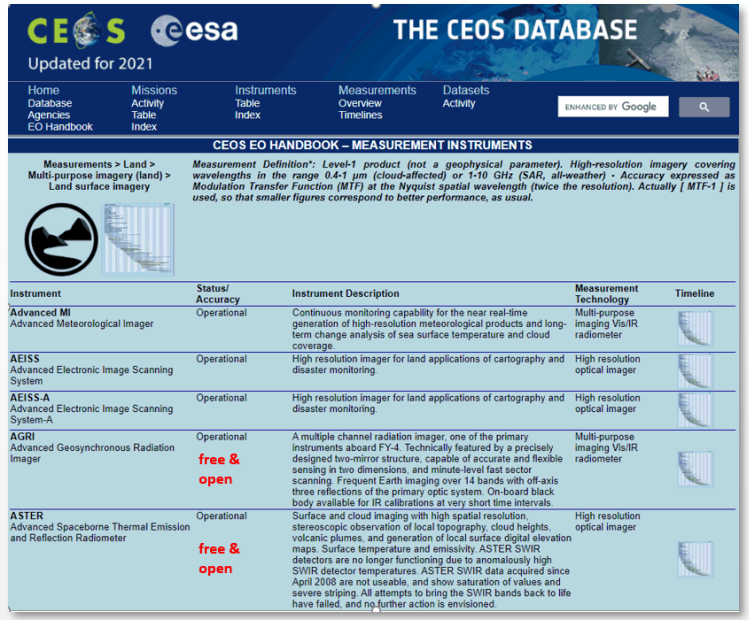
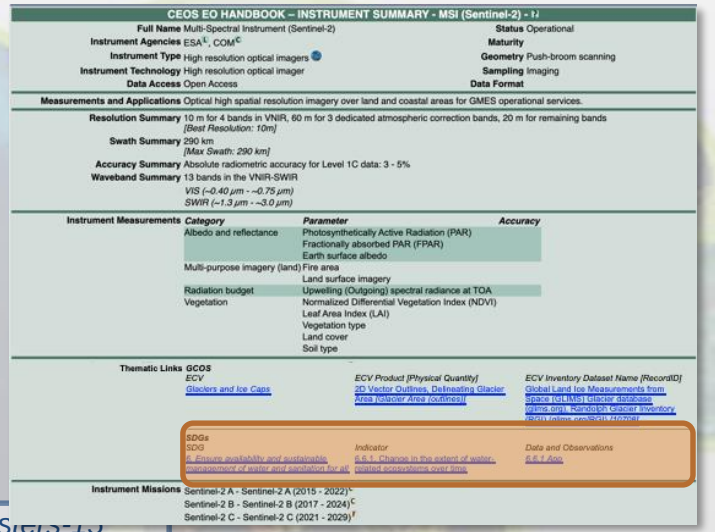
# Way forward

1. **WGDisasters to work with CEOS MIM team (ESA , Symbios) to define the improvements to be brought to CEOS MIM to better serve the Disaster Risk Management community** *(decision-makers, practitioners, scientists, disaster experts, organisations…)*

   - *"Applications" tab ? Other ?*
   - *Query results pointing to ..? Datasets, Missions, Instruments, Measurements, other ,…. ?*




2. **In operations, WG Disasters responsible for filling the CEOS MIM database with the relevant information, and keep it up to date.**