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ESG & Climate Resilience Summit

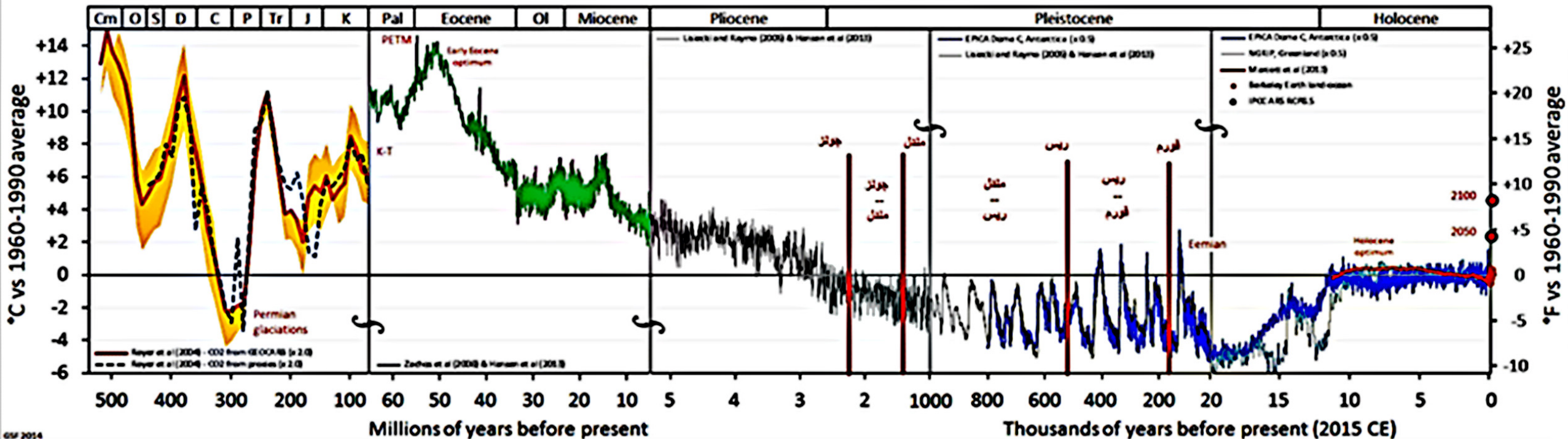
Building resilience to climate disasters

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President of Polish Sapce Agency POLSA

15 May 2024



Temperature of Planet Earth



The changes have enormous impact on live on the planet



NATURAL DISASTERS



Australian wildfires



Western U.S. wildfires



Major flood warnings are in place across many regions. (Photo: AP)



Hurricane Ian in the US and Cuba cost more than \$100 billion and was one of the costliest climate disasters in 2022.

Not neglecting long term changes we have to deal with short term disasters.

Source of photos:

<https://www.oxfam.org/en/5-natural-disasters-need-climate-action>

<https://www.independent.co.uk/news/the-stormy-fierce-year-when-climate-disasters-wouldnt-stop-climate-change-united-states-atlantic-weather-record-b1769536.html>

<https://www.weforum.org/agenda/2023/01/10-costliest-climate-disasters-of-2022/>

<https://www.indiatoday.in/environment/story/climate-change-extreme-weather-events-ipcc-floods-wildfires-2286387-2022-10-17>

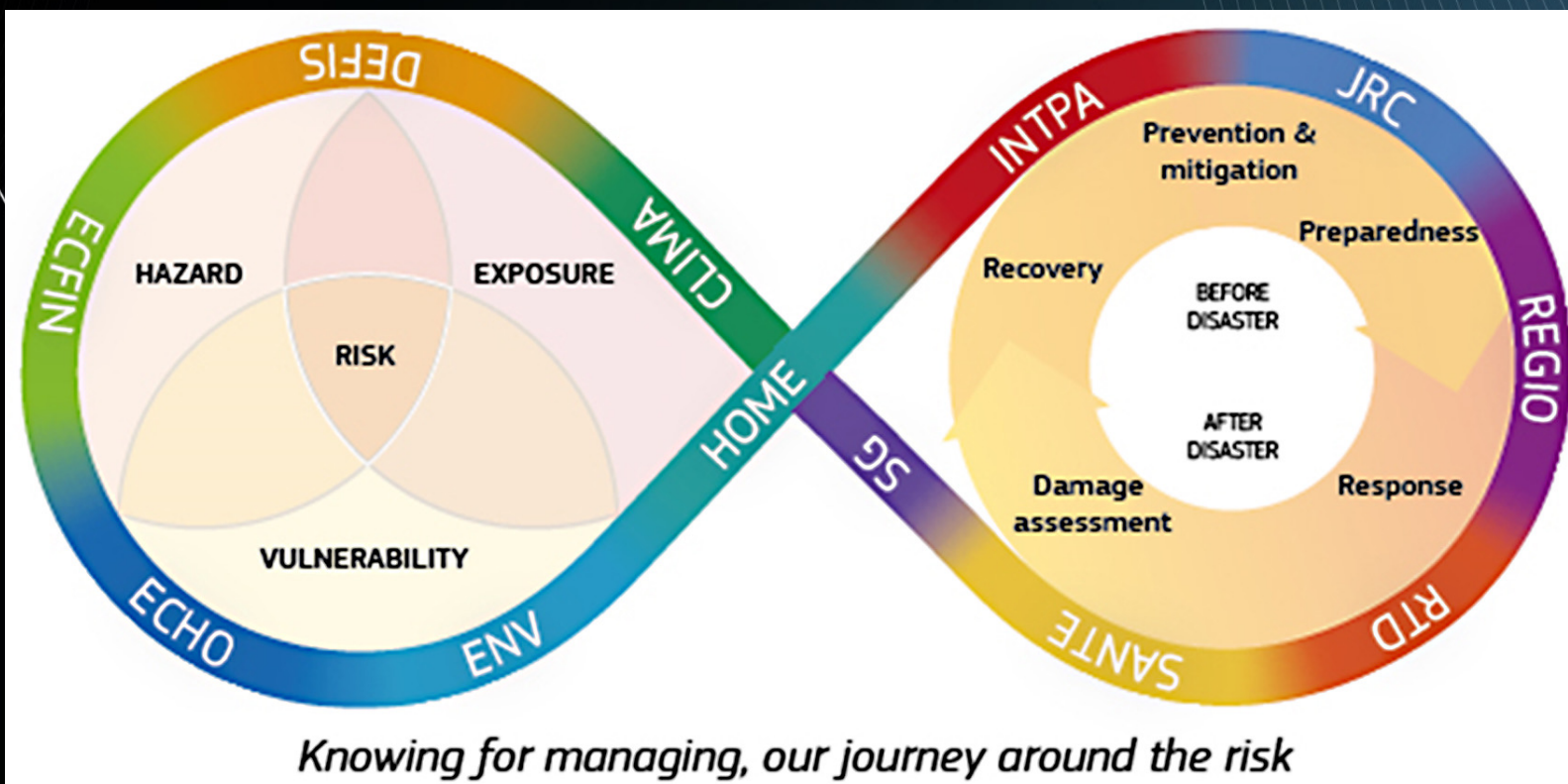


JRC helps EU through its research in:

- crisis management technologies,
- satellite image processing and analysis,
- disaster risk management
- internet surveillance systems.

JRC's work focuses on integrated systems for:

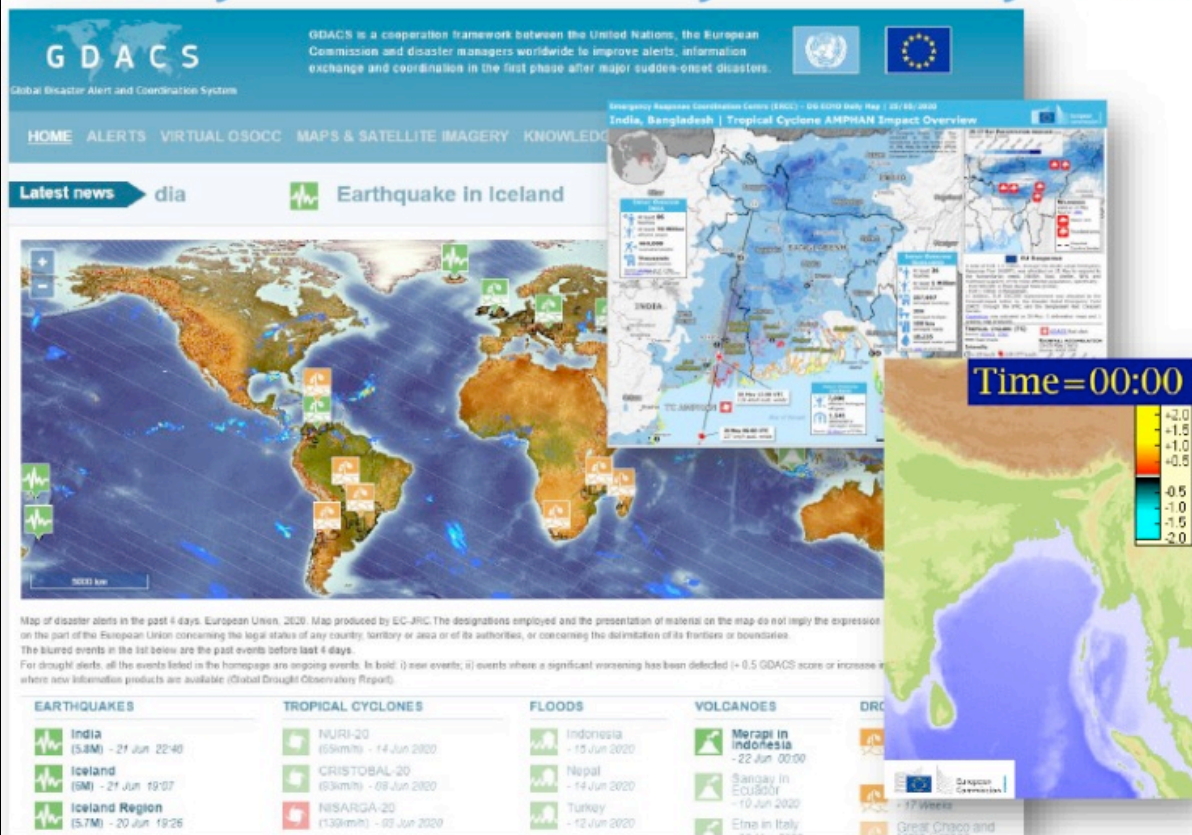
- risk analysis,
- situational awareness,
- early warning,
- collaborative decision-making.





Global Disaster Alert and Coordinatin System

Right Information, Right Time, Right Format, Right Place



- Automated GIS-based impact analysis of earthquakes, cyclones, tsunamis, droughts, floods and volcanoes.
- Actionable information with Green-Orange-Red alert scores for humanitarian impact.
- A long-term partnership among EU and UN based on science

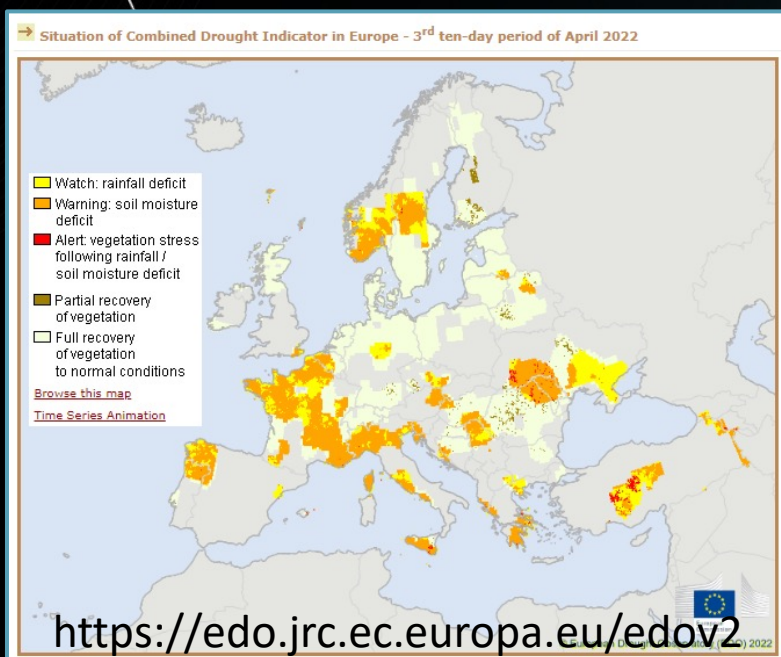


Example of a map produced by the JRC based on GDACS automatic information during cyclone AMPHAN in Bangladesh in May 2020



EDORA – Drought observatory for resilience and adaptation

- Copernicus Emergency Management Service – EDO; EDORA = network in EU
- Extension beyond early warning: systemic impacts and solutions for resilience and adaptation
- Research in climate attribution + systemic impacts



EFAS/GLOFAS - Flood forecasting

- Copernicus Emergency Management Service – Floods
 - EU-wide and global forecasting
 - Near real-time satellite monitoring
- Impact: solidarity fund plausibility checks
- Climate change future impacts and adaptation options: PESETA IV

Emergency Management Service

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Copernicus Emergency Management Service (CEMS) • European Flood Awareness System (EFAS)

European Flood Awareness System – EFAS

European Flood Awareness System (EFAS)

Map viewer

Training

European Flood Awareness System



CONCLUSIONS FROM GLOC 2023 & ESA SECURITY CONFERENCE:

There is abundance of satellite data & much more is coming

Only small fraction is used due to lack of interface to end-users
(local authorities, crisis management forces, civilians, ...)

Urgent need for:

- Tools to acquire international & multivendor data in emergency situations
- Storage & archive space for huge amount of data
- Interfaces to get access to data for various applications
- Software to convert data to information
- Hardware to help acquiring and digesting information by end-users



What is missing?

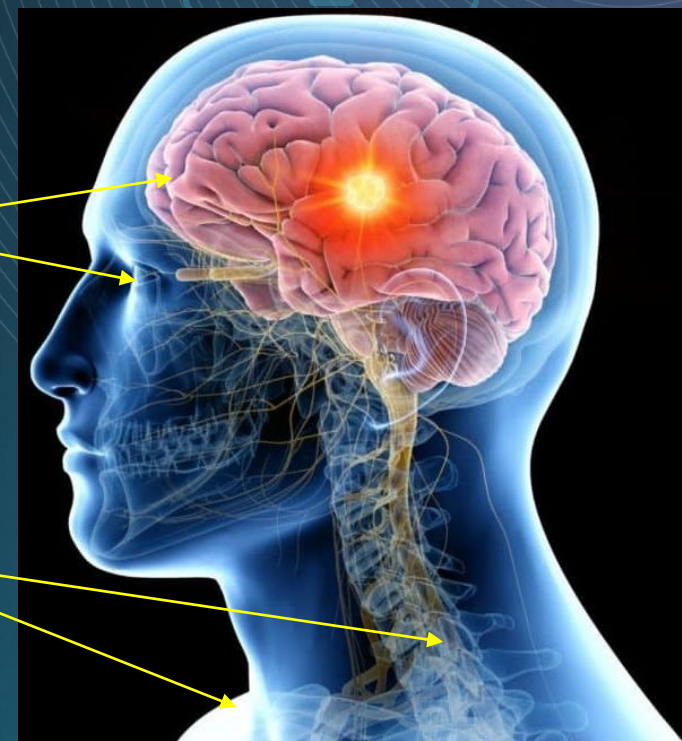
Imagine you have eyes to see the environment and you have a body to act

But you have no memory to remember what you see
and nerves to move the body according to what you see.

So, in spite of having eyes and body, you are practically blind and paralysed.

- **Satelittes** are our **eyes**
– we have them
- **End users** is the **body**
– they exist
- **Space for data** is the **memory**
– not enough & weakly organized
- **Interfaces & applications** are the **nerves**
– it is a bottleneck today

Let's discuss how to improve overall system performance!





Accelerator 2: Rapid and Resilient Crisis Response



Linking all key information

Earth Observation
HAPS
In-situ



Into one
integrated
smart
network

Fully utilising
Secure
Connectivity
EU flagship





Accelerator 2: Rapid and Resilient Crisis Response



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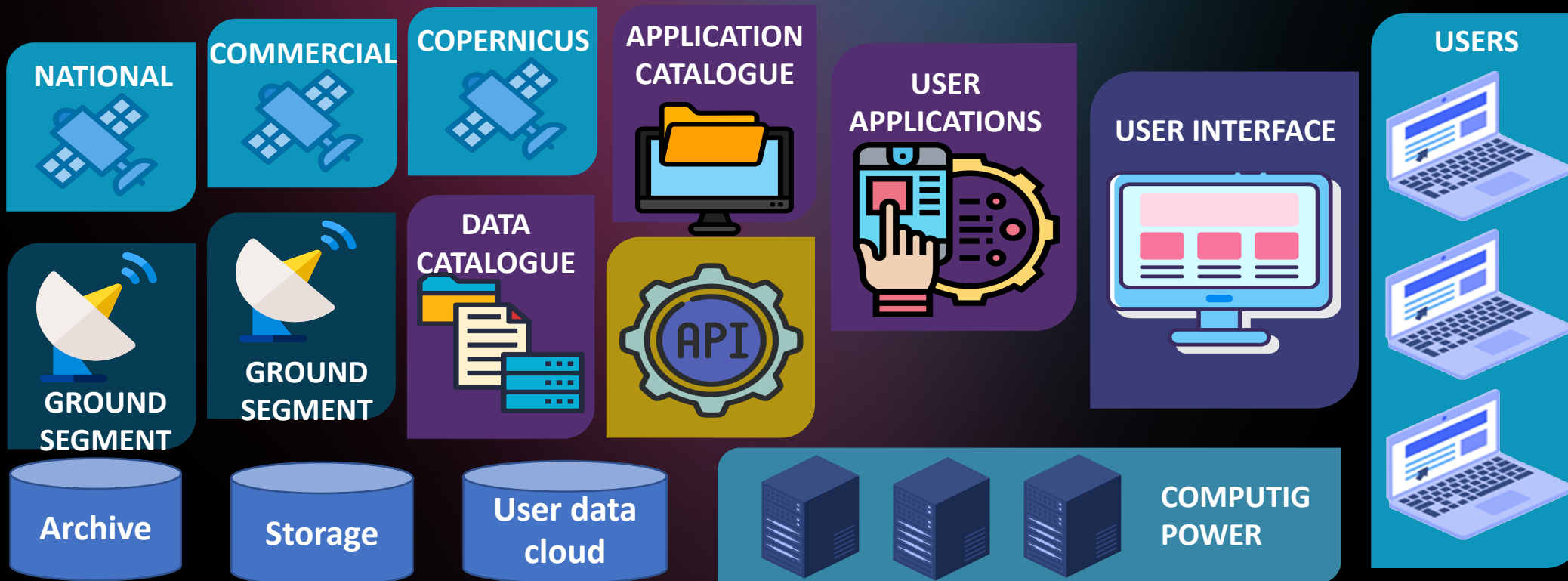
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- Collecting data from Copernicus, national & commercial satellites
- Data storage, archive, catalogue, preprocessing
- Companies can add algorithms, services & products
- Users (public & private) can search for data, products & services





Why the Center? (building/personel)

Combined crisis management and hi-tech expertise + some operational capability is required to:

- support technology providers in final phases of solution development
- facilitate adoption of innovative solutions through demonstration and pilot activities
- provide operational support for early adopters (among crisis management entities)



- **Demand driven.** Focus on well-defined, „owned” user needs
 - Solutions developed for a specific „leading end-users” (anchor clients)
 - and jointly implemented until fully operational and „internalised”.
- **Bridge the gap** between development of innovative technologies and operational use – actively support solutions until fully introduced
 - Technical capability development > assessment and validation > pre-operational utilisation > full introduction
- **Beyond crisis response.**
All crisis management phases can benefit from space
 - Risk assessment > Prevention > Response > Long-term recovery



Why in Poland?

- Poland as EU border country is subject to crises
- Experience in crisis management
- Local forces open to innovative solutions
- Leading role or participation in several international activities
- Existing Crisis Center at CBK PAN using satellite data
- Two cities: Zielona Góra and Rzeszów experienced in different type of crises



Well-established culture of experimenting with innovation for crisis management

- Polish State Fire Service
 - assessing and experimenting with innovative solutions since 2006 during national and international field exercises
 - PL Civil Protection Modules are very active (Sweden 2020, Greece 2021, France 2022), open for support by innovative space/geoinfo solutions
- European network of Competence Centres (Driver+) on trialling innovative solutions led by Polish CIK
 - methodology formally standardised - Horizon Europe flagship success,
- European leader in implementing UTM (drone traffic management)





Do not dream that we have power to fix the climate!
Hopefully we do not disturb it too much.



Disasters will happen. Prepare for them.

Risk assessment > Prevention > Response > Long-term recovery



Global effort needed. Every country should contribute.

JRC, ESA help to develop and integrate.