



# ONDA

## Serco DIAS solution

CEOS WGISS-48

10 October 2019

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serco






# About the DIAS



## Data and Information Access Services

funded by the European Commission  
Managed by the European Space Agency

## New paradigm in accessing and exploiting data

- facilitate access to Copernicus data and information
  - support the development of Copernicus-based user applications and enable research & business
- 

# What is ONDA?



## Bring solution to current challenges

- Extended Portfolio / Big Data Application
- Increasing storage needs / computing power
- Bandwidth challenge / System redundancy...

# ONDA

A **unified place** to access geospatial data

A **Cloud-based Platform** to build applications



# Who is ONDA?



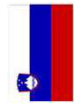
Serco Italia



OVH

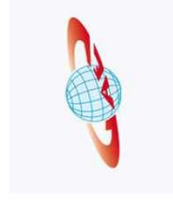


Gael Systems



Sinergise

# ONDA



# ONDA Data Portfolio

≈ 20 PB ONDA  
Volume of products

- **Free & Open Access to data and information**
  - Copernicus Sentinel Missions, Landsat-8 & Envisat
  - Copernicus Core Services
- **Full Copernicus Sentinel Archives**
  - Most Processing Levels & Product Types
  - From June 2016 onward
  - Constantly up-dated with new acquisitions
- **Additional Datasets (RSS feed, newsletter)**
- **Third-party Data Hosting**



Sentinel-1



Sentinel-2



Sentinel-3



Envisat



Landsat 8



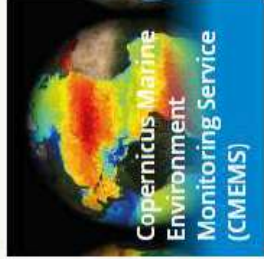
Sentinel-5P



Copernicus Land Monitoring Service (CLMS)



Copernicus Atmosphere Monitoring Service (CAMS)

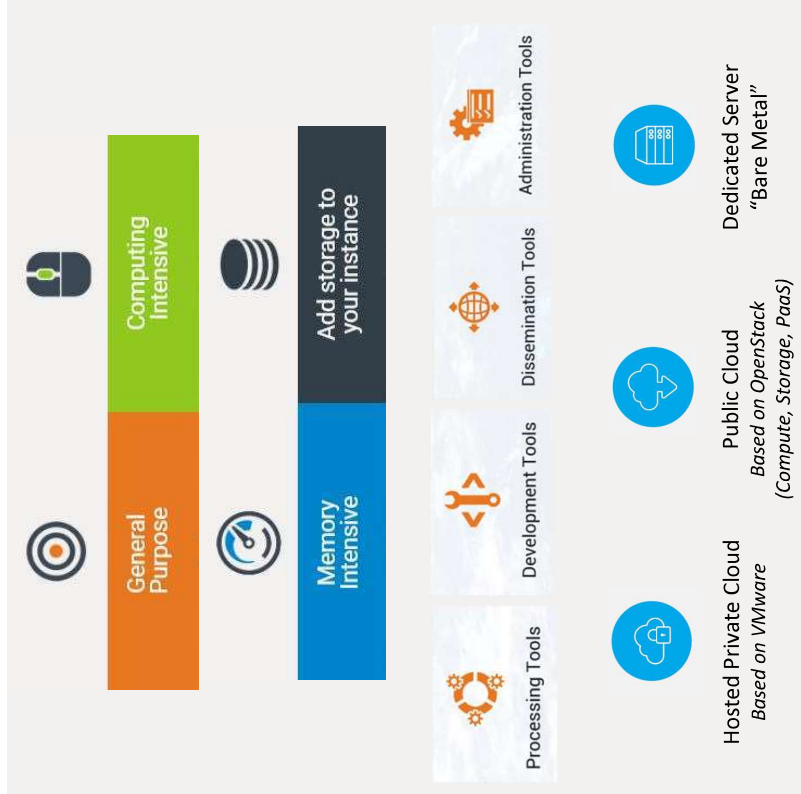


Copernicus Marine Environment Monitoring Service (CMEMS)

# Cloud Resources

≈ 300 ONDA  
Active Virtual Machine

- Tailored **Virtual Servers** for any scenario
  - Your VM in 120 seconds
- **Scalability**
  - Tenants
  - Kubernetes
- **Open & free SW** already installed
- **Guaranteed Service Quality**
  - Full control on DC Exploitation / Network / Security / Evolution
  - No external contribution / additional cost
- **Eco-Friendly cloud provider**
  - In house cooling systems / Total elimination of air conditioning in DC
  - Savings reflected in server prices
- **Multiple Solution & Flexible Payment methods**

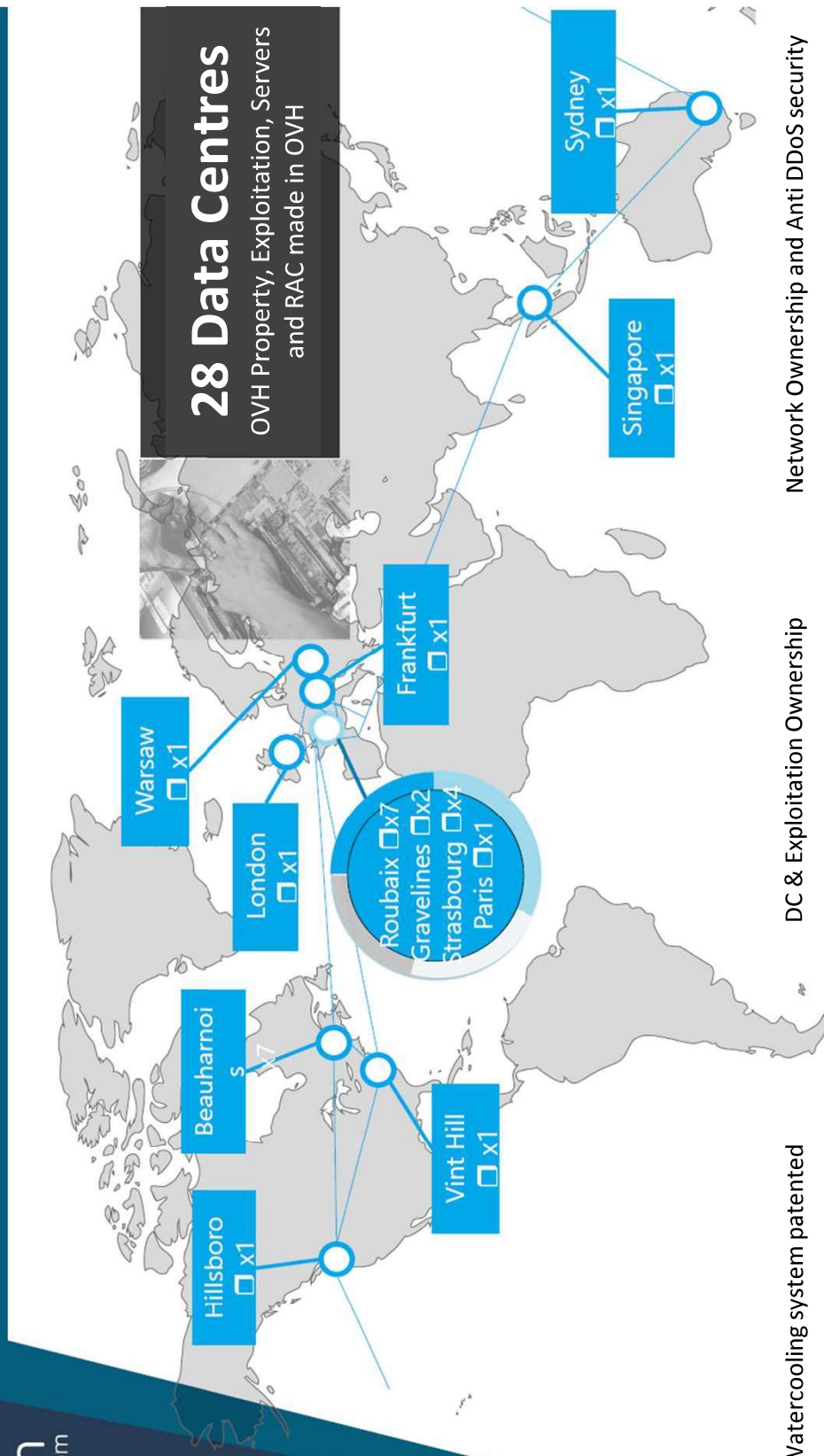




OVH.com  
Innovation is Freedom

OVH, L'ALTERNATIVE SMART CLOUD

ONDA



# Data Access

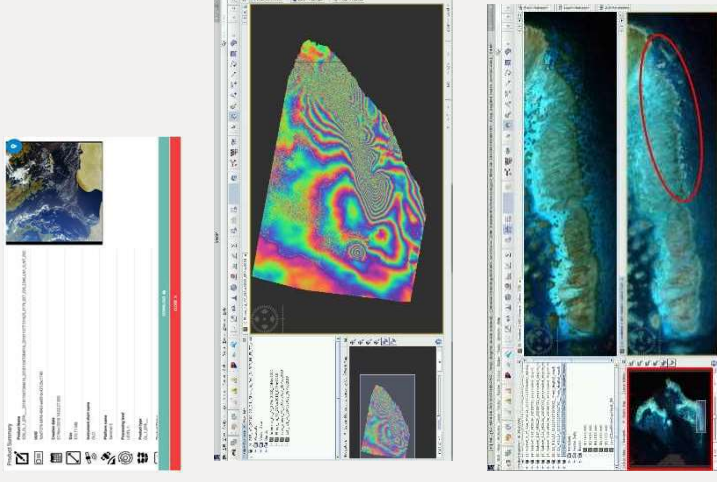
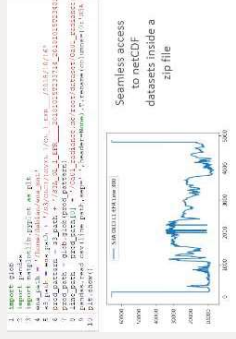
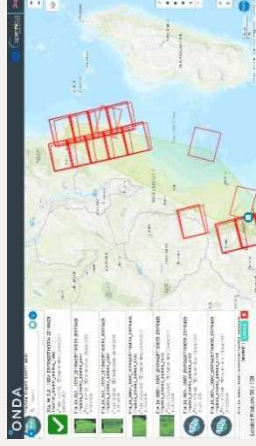
1000+  
Registered Users



- **Catalogue capabilities**
  - Search / View
  - API / GUI
- **Open/Free APIs**
  - **OData**
    - ZIP product
    - Semantic Search
  - **ENS (Advanced API)**
    - Product in a standard file system
    - No product download (Process the information)
    - No Need for specific libraries (HTTP, OData, NFS)
    - Supported by all programming languages
    - Integration into Jupyter Notebook

• **Linux Command line / Remote Desktop**

• **GIS Interface (Rest APIs)**





# ONDA ENS => Example of NDVI Processing Chain



Use a virtual server in ONDA



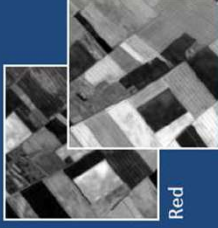
Customize UI using ONDA Catalogue API



Access to archive via ENS VFS



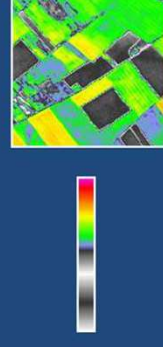
Only read needed data subset



Compute NDVI

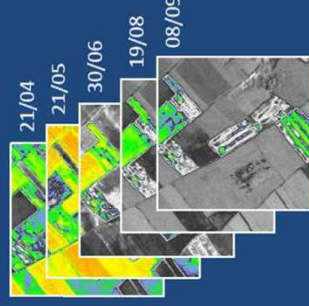


Apply custom color palette



Thanks to the huge archive, processing can be applied to time series with multiple products covering the same area:

- Filter unwanted cloud coverage
- Monitor crops growth and harvest
- Change detection
- Precision agriculture



# User Services

## User Support

- Newsletter
- RSS Feed
- Online Documentation
- Multilingual web content



## Free Trial Access

- Raise confidence
- Migrate your application



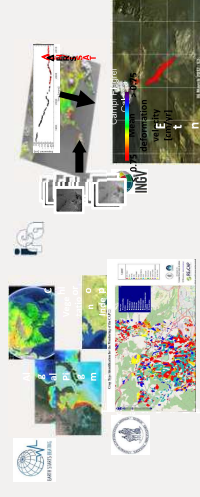
## Professional Services

Premium support to our customers **customizable on request**



## Showcase

Publish and promote your service developed on ONDA platform

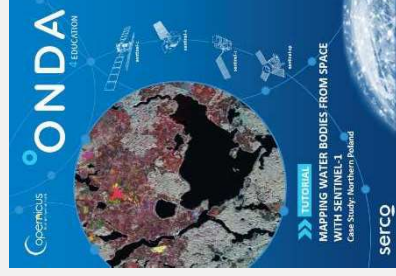


# ONDA

## Evolution – New Services

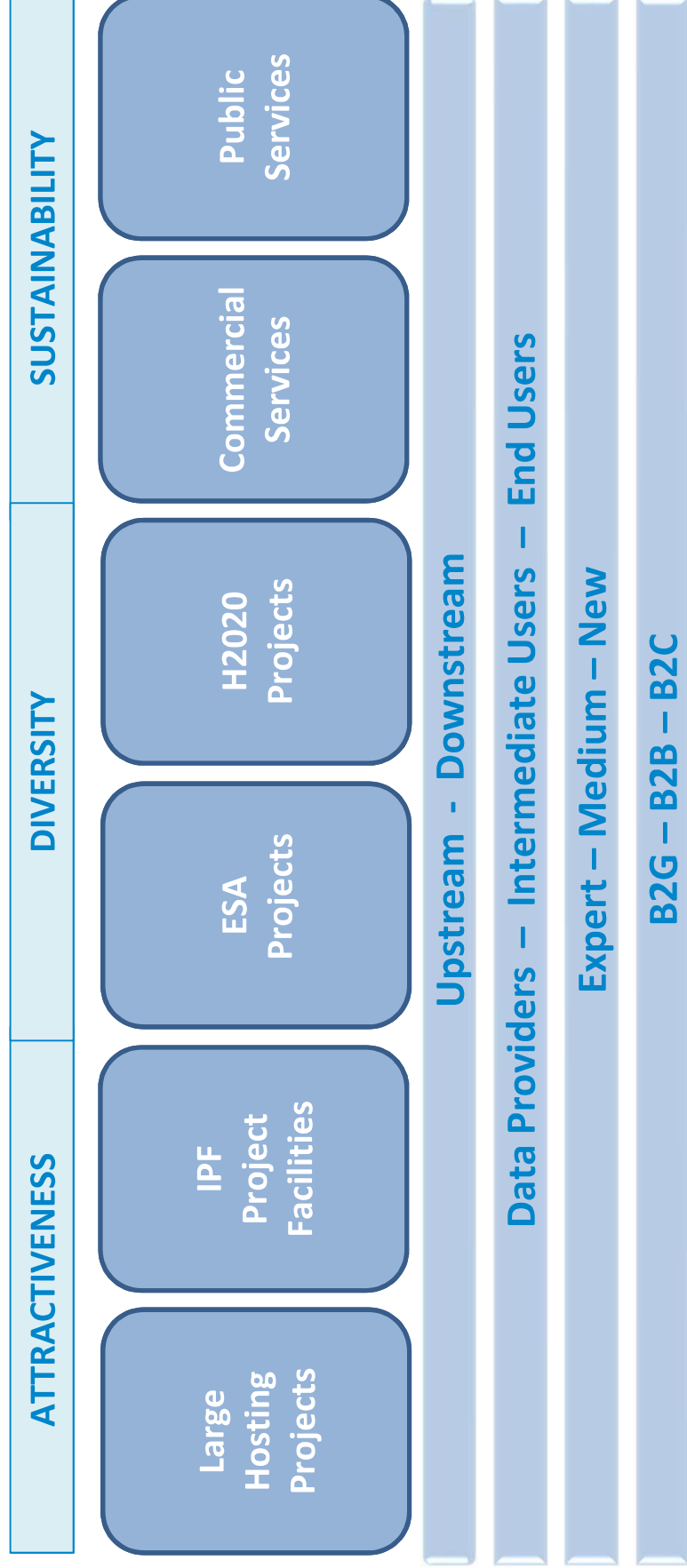


- **VHR satellite images up to 40 cm**  
*(Optical/SAR)*
- **New Digital information**  
*(Non Earth Observation)*
- **ONDA for Education**
- **Additional Cloud Features**





# A MODULAR APPROACH

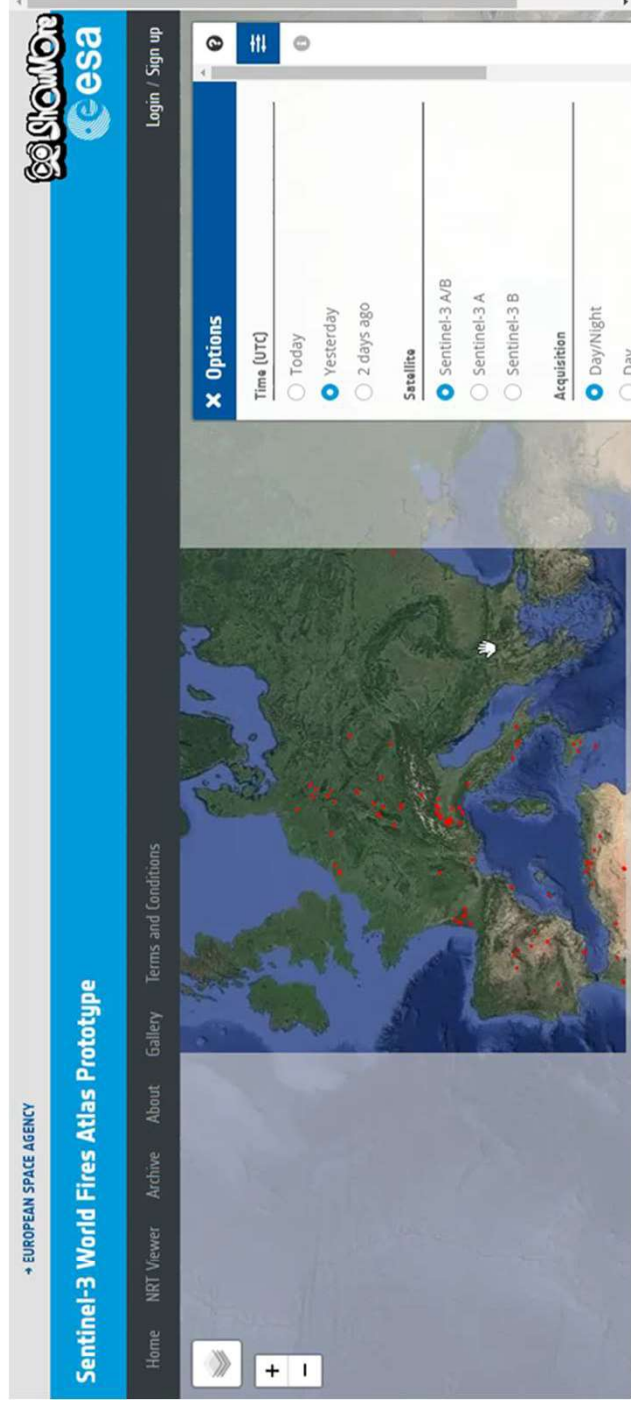


# Use Cases (Example of Tailored services / Products)



## Sentinel-3 World Fires Atlas Prototype

- Institutional Service
- Daily Fire Maps + Fire Detection System from systematic process of Sentinel-3A/3B
- SNAP and GDAL hosted in ONDA



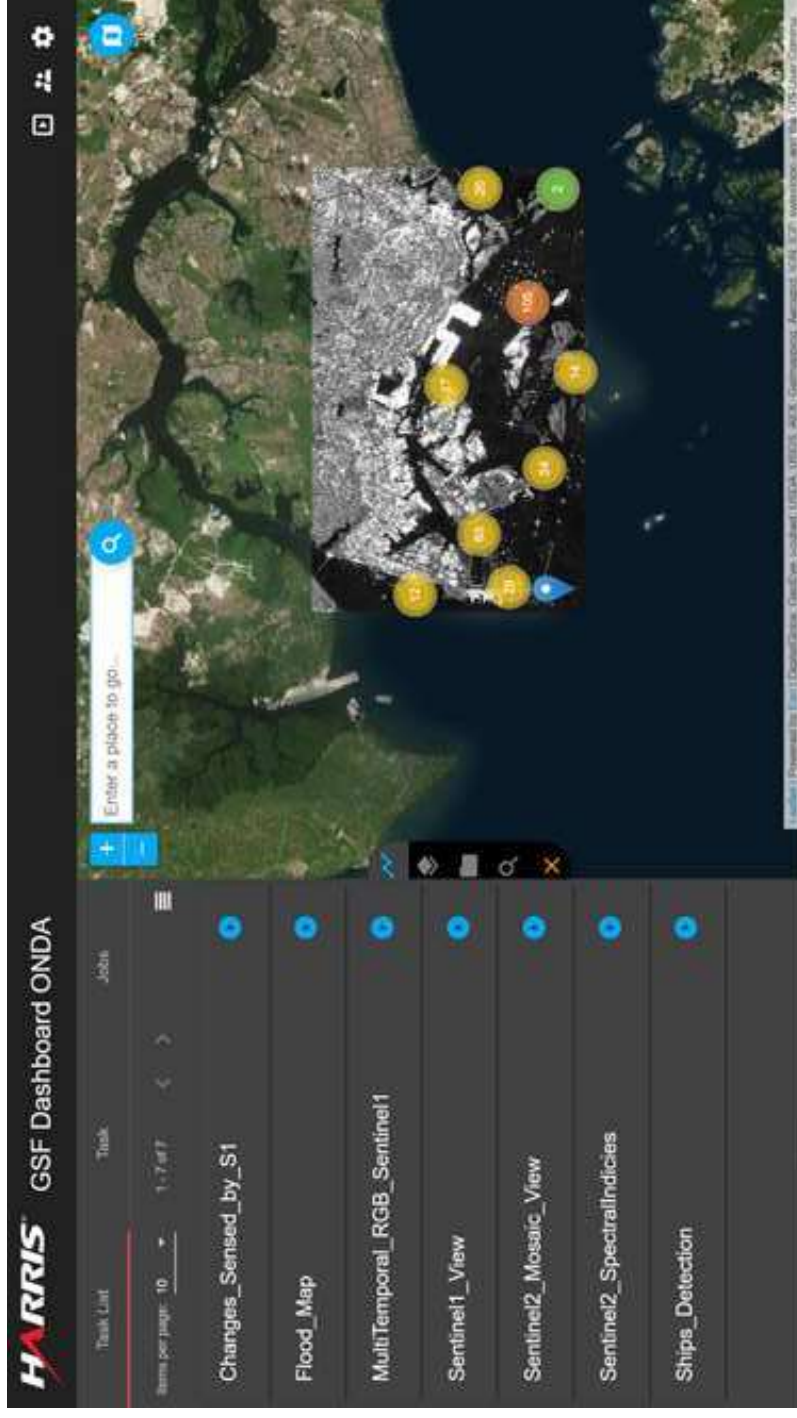
# Use Cases

## HARRIS Analytics

- Commercial Services
- Major Industrial actors
- Automatic Extraction of information linking ONDA Services with Harris analytics capabilities



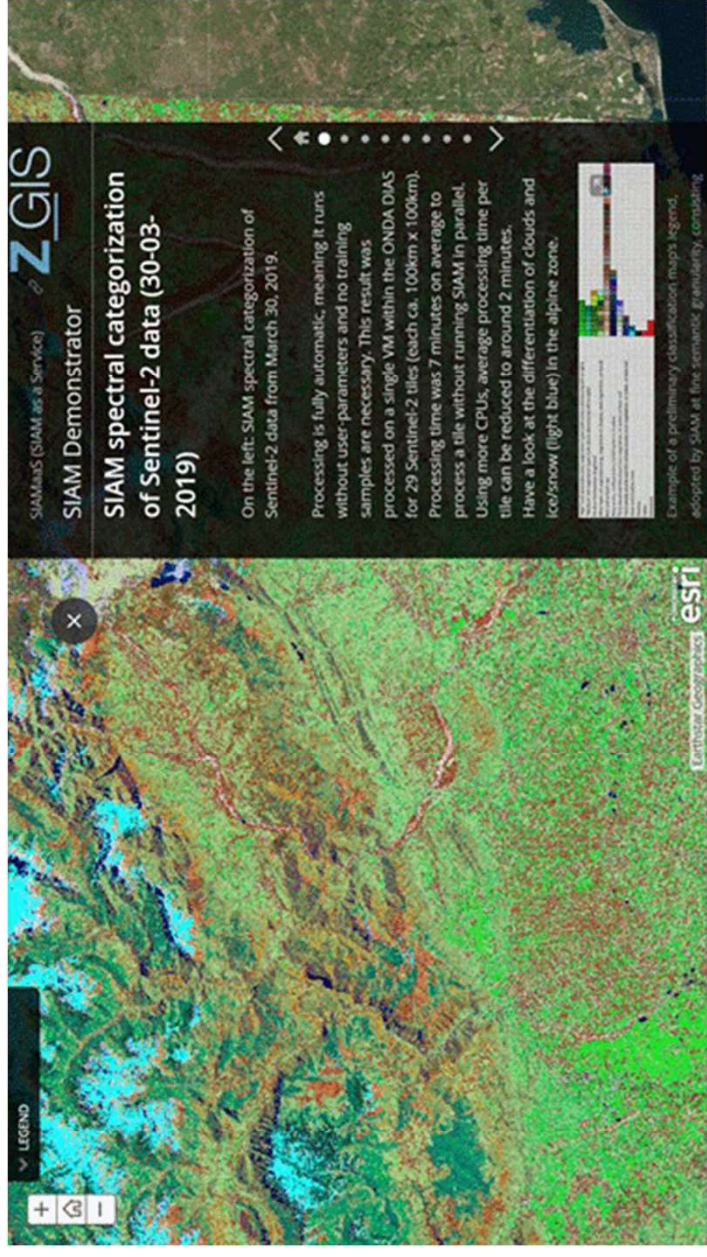
# ONDA



# Use Cases

## SIAM (Satellite Image Automatic Mapper)

- Research and Development (AI)
- University of Salzburg , Z-GIS, Spatial Services
- Fully automatic Spectral Categorization of Satellite data (multi-sensor) to improve spatial/temporal analytics



Satellite Image Automatic Mapper

# Use Cases

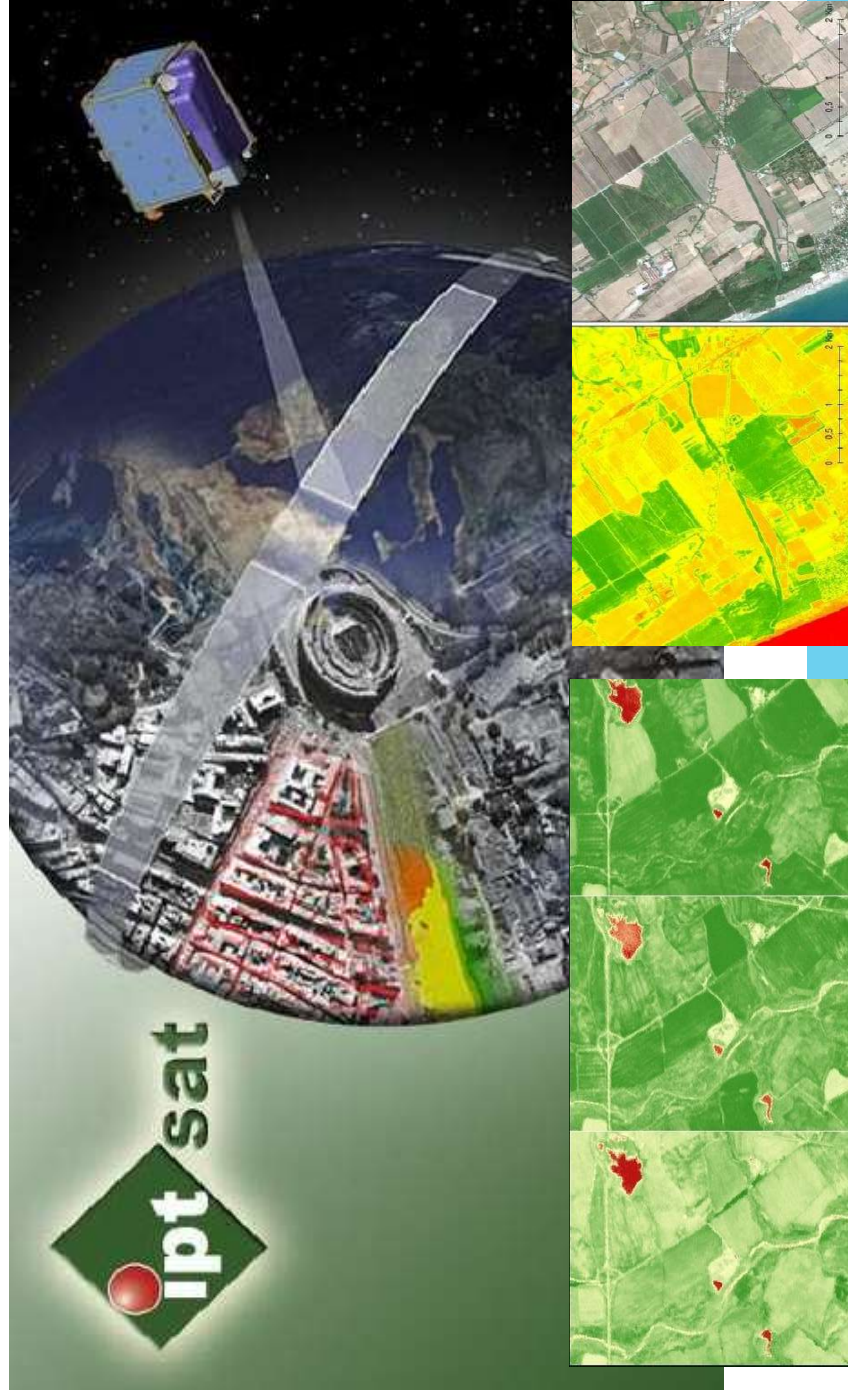
## FARming Observation System

- Commercial Service
- Precise Farming
- Generation of Environmental indicators and modelization



FAROS  
FARming Observation System

# ONDA



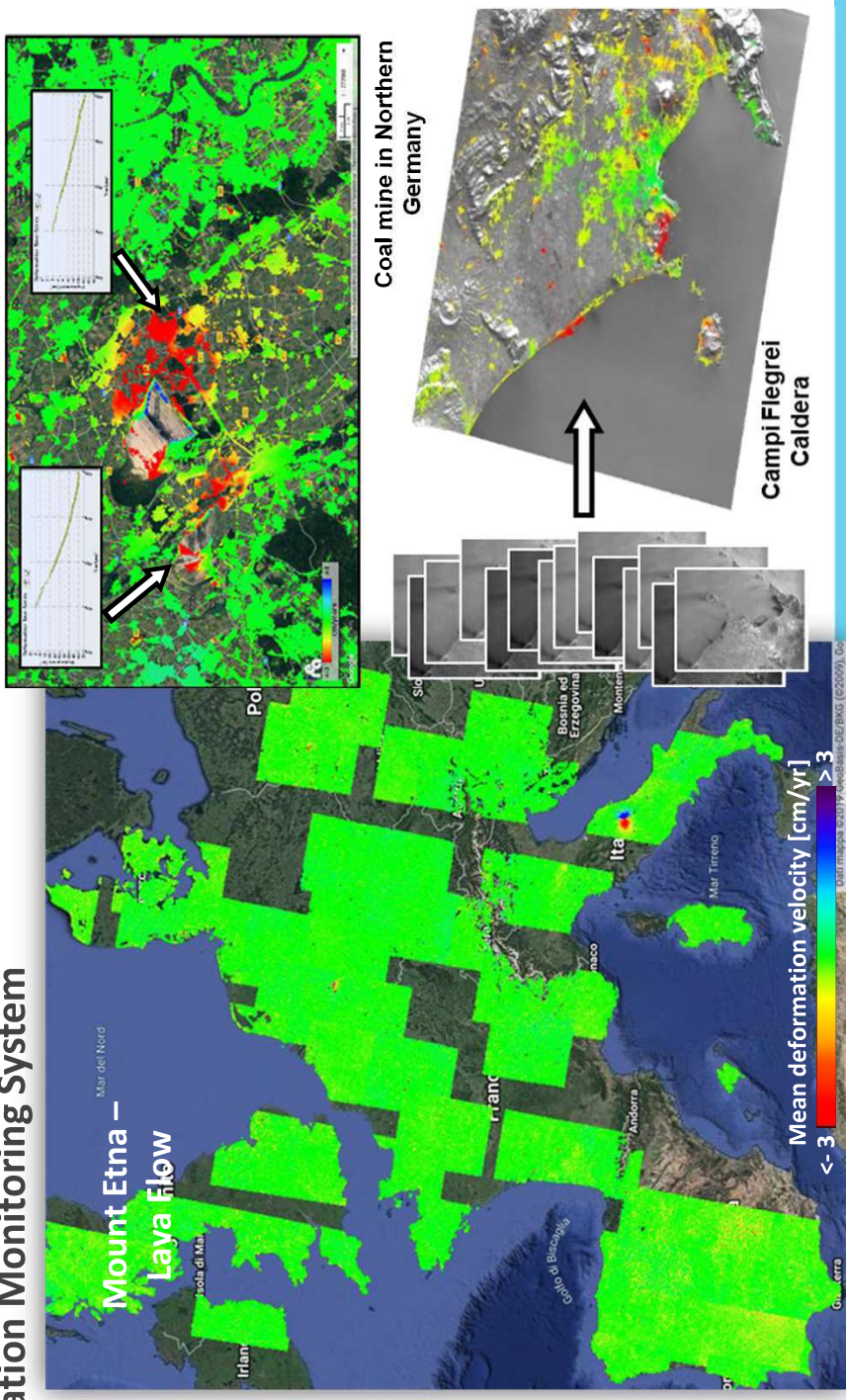


# Use Cases

## Earth Surface Deformation Monitoring System

- R&D + Operational
- Ground-deformation velocity maps on a wide scale (cm/mm accuracy)
- **CNR IREA**  
National Council of Research, Institute for Electromagnetic Sensing of the Environment

# ONDA

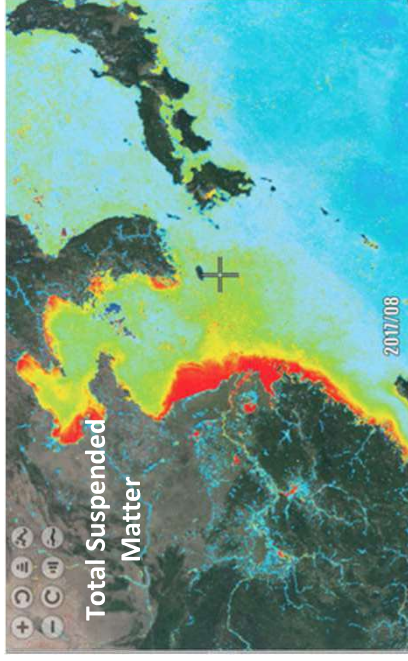
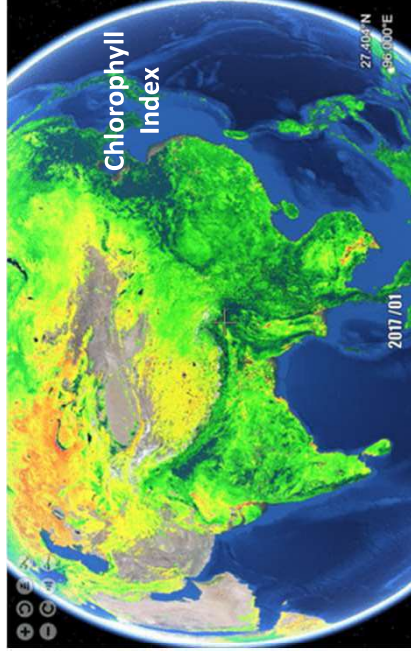
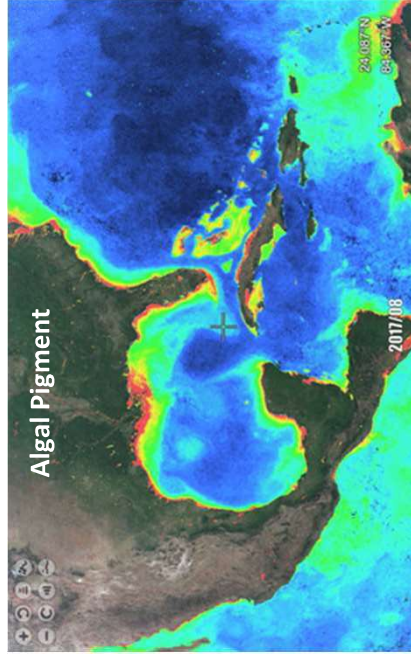


# Use Cases

## Evaluation of Climate Change Effects

- Interactive visualizations of global time series analysis
- Geophysical Indicators maps from Sentinel-3, to track, measure and visualize changes

- Source: **Earth Starts Beating**



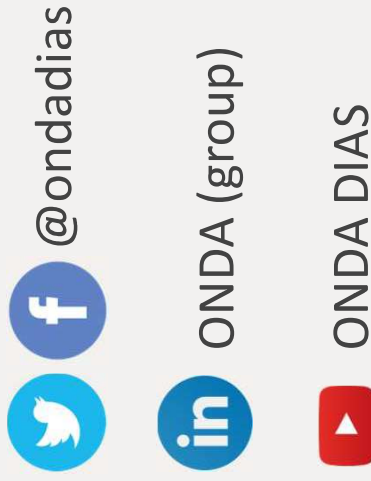
# Thank You and Stay connected !



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