



From Disruption towards **Mainstreaming**

Satellite Environmental Information Informing
Sustainable Development Decision Making

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Directorate of Earth Observation Programmes
ESA Representative to the World Bank

World Bank HQ | Washington DC, 13 Jun 2019
Global Environment Facility KM Advisory Group Meeting

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THE FUTURE IS IN THE SKIES.

Mustafa Kemal Atatürk

K. Atatürk



The Future is Now



European SPACE Agency

IS OUR
MIDDLE
NAME




European Space Agency: Activities



ESA is one of the few space agencies in the world to combine responsibility in nearly all areas of space activity.

- space science
- human spaceflight
- exploration
- earth observation
- launchers
- navigation
- operations
- technology
- telecommunications

* Space science is a Mandatory programme, all Member States contribute to it according to GNP. All other programmes are Optional, funded 'à la carte' by Participating States.

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European Space Agency: Activities



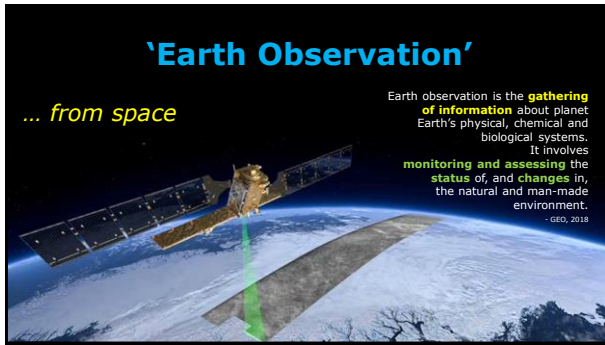
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Mobilizing the Data Revolution for Sustainable Dev.



"**Data** and evidence are the foundation of development **policy** and effective program **implementation**."

Mahmoud Mohieldin, SVP, World Bank




UN SG Independent Expert Advisory Group, 11/2014

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European Space Agency


Role of EO Data supporting this Revolution



Transforming our World: The 2030 Plan for Global Action

Article 76:
... We will promote transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of **data**, including **Earth observation** and **geo-spatial information**, while ensuring national ownership in supporting and tracking progress.

17 GOALS



"Collecting **rich data** on the world's problems is the **first step toward fixing them**."

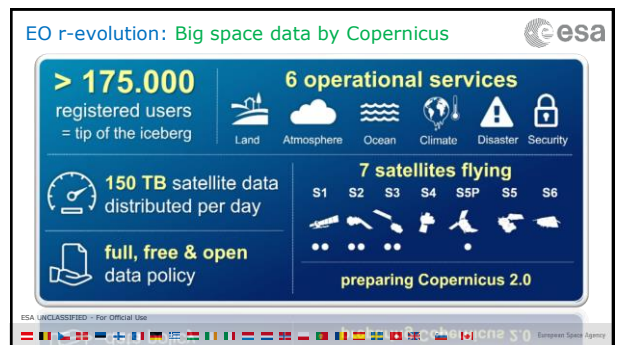
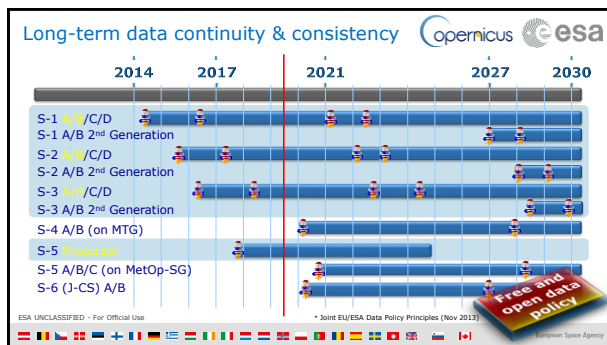
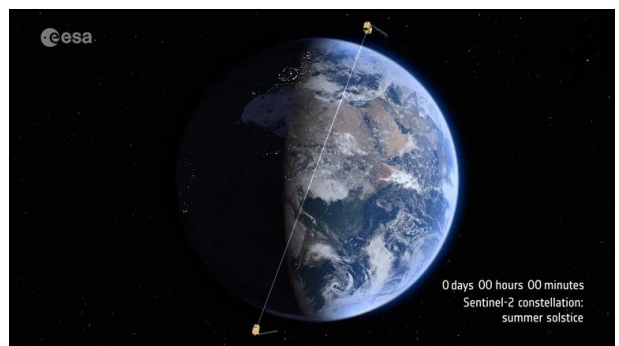
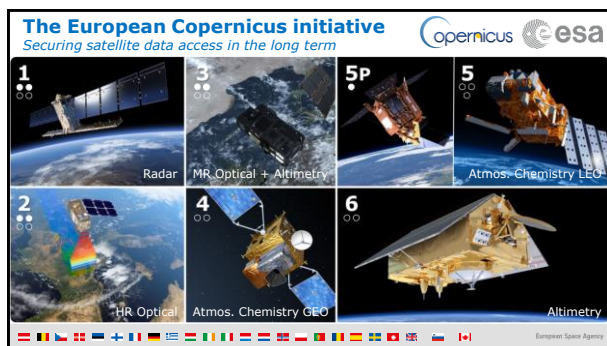
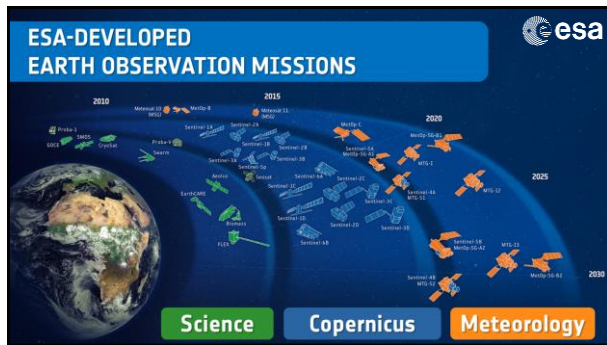
- Seth Stephens-Davidowitz, former Google Data Scientist -




Start of a New Era: Feeling the Pulse of our Planet




European Space Agency



Copernicus 2.0 – New Monitoring Missions

CO2M – Anthropogenic CO₂ Mon. Mission
Causes of Climate Change

LSTM – Land Surface Temperature Monitoring Mission
Agriculture & Water Productivity

CRISTAL – Polar Ice & Snow Topography
Effects of Climate Change

CHIME – Hyperspectral Imaging Mission
Food Security, Soil, Minerals, Biodiversity

CIMR – Passive Microwave Radiometer
Sea: Surface Temp. & Ice Concentration

ROSE-L – L-band SAR Mission
Vegetation & Ground Motion & Moisture

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New Space in Europe: Distr. systems/constellations

ICEYE [Finland]
World's first micro-SAR (<100kg)
X1 launched 1/2018
X2 end 2018
Constellation end 2019

cosine [Netherlands]
Hyperspectral nanosat payload
ESA-sponsored GomX-4B launched 2/2018

Earth-1 [UK]
World's first full-colour video enabled constellation (15 satellites)
launched in batches of 5, from late 2019 | 3 daily revisits

VIVID-I
VividX2 (100kg) launched 1/2018

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How to handle all that data

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The Value of EO in Decision Making

Availability, Accessibility, Actionability

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copernicus space component data access

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climate change initiative

open data portal cci

<http://cci.esa.int/data>

Welcome to the CCI Open Data Portal. A single point of entry to CCI data. Open, free and easily accessible.

CCI Dashboard
The big picture

CCI Search
Simple & focused

CCI FTP
Quick & simple

CCI Toolbox
Use the data

aerosol
cci

cloud
cci

fire
cci

ghg
cci

glaciers
cci

antarctic ice sheet
cci

ice sheets
greenland
cci

land cover
cci

ocean colour
cci

ozone
cci

sea ice
cci

sea level
cci

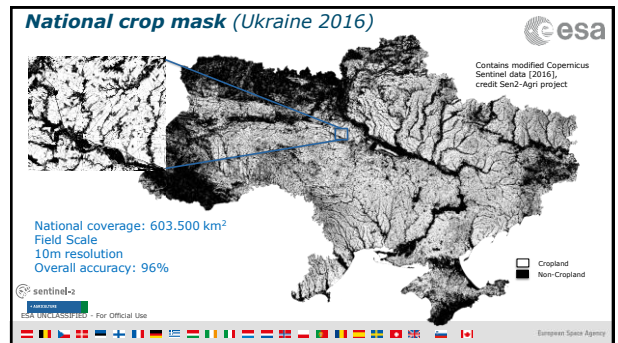
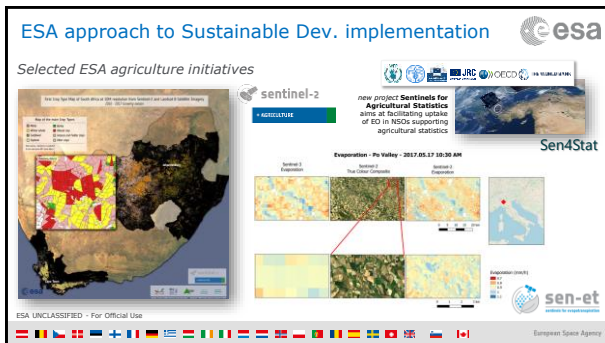
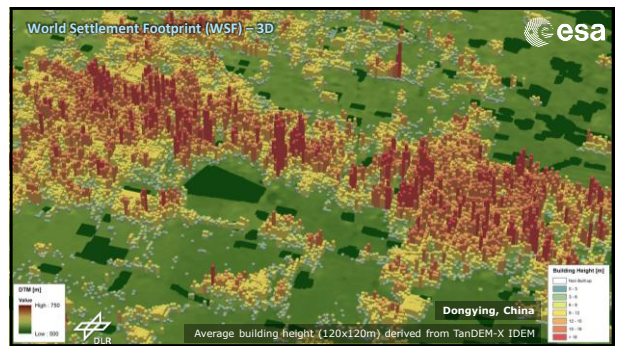
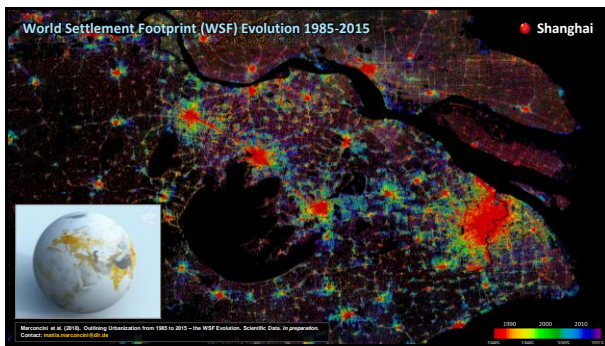
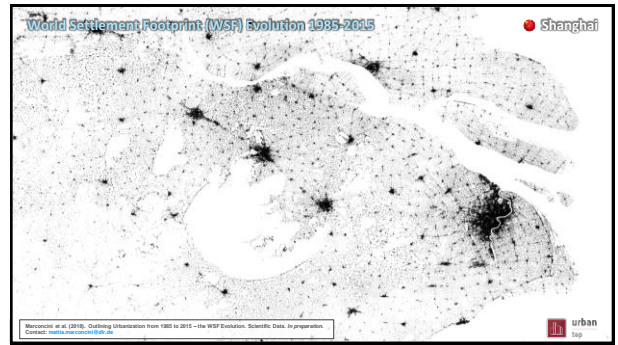
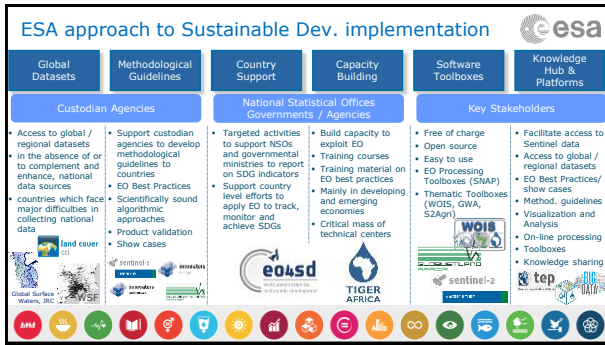
sst
cci

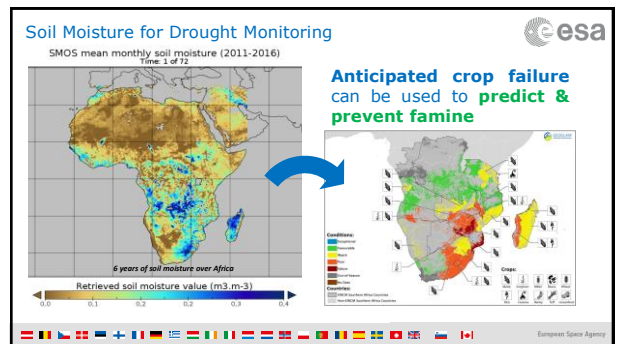
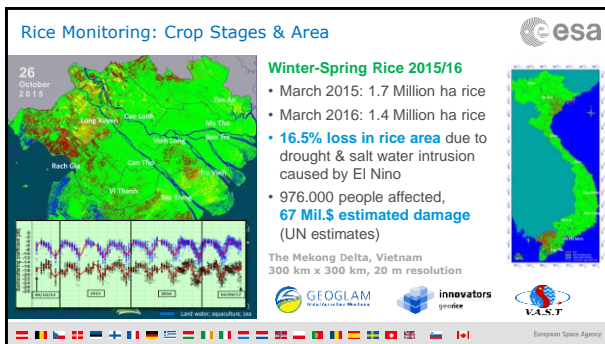
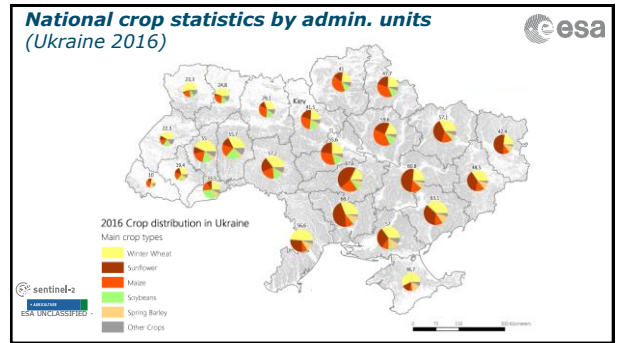
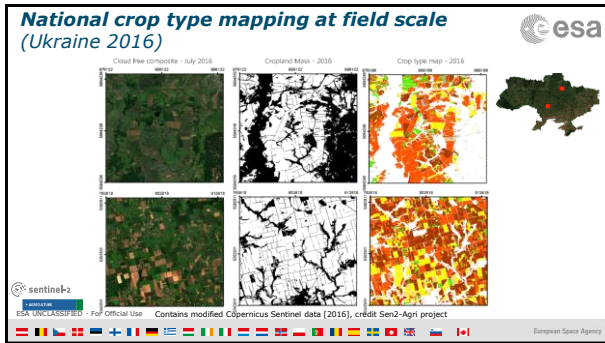
soil moisture
cci

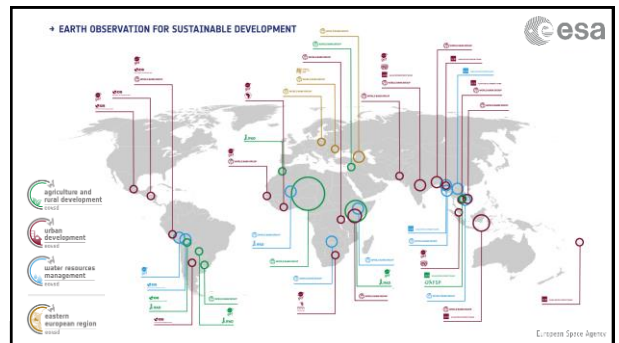
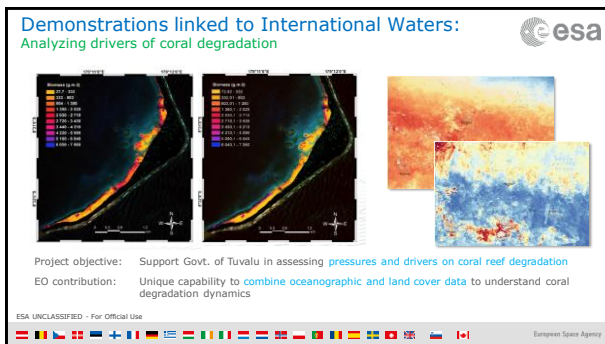
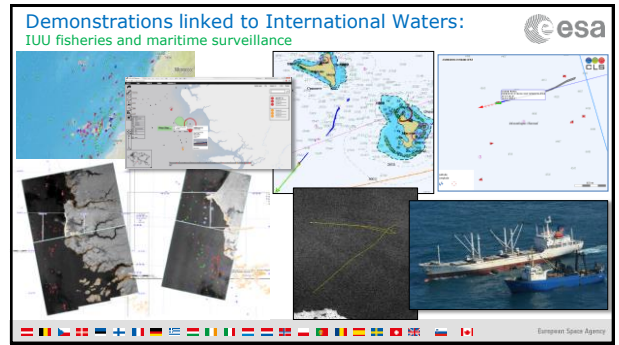
cmug
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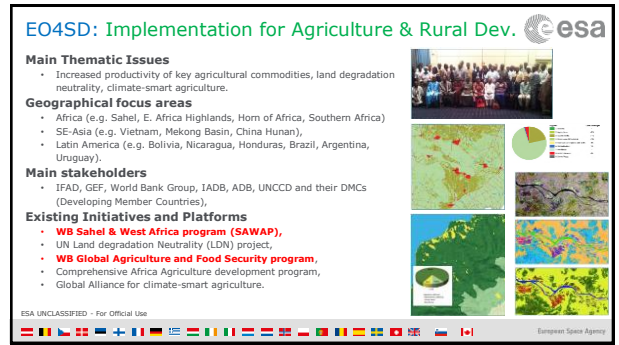
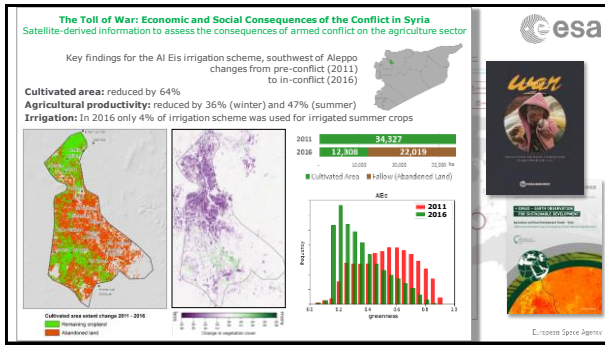
sea level budget closure
cci

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




Promoting geo-data literacy and use in Intl. Dev.

- Why is ESA working with Development Banks?**
 - Significant investment** has been made by Europe in space and associated ground processing infrastructure resulting in massive step change in **observing capabilities**
 - At present this is mainly focused on addressing European stakeholders
 - Design and capability of infrastructure ensures capability to acquire large volumes of data over entire Earth and **support wide range of monitoring and analyses**
 - At the same time, **ICT developments** are supporting step change in processing and analysis capabilities and **easier mechanisms to access and analyze satellite data**
 - In parallel, the **international development** community is addressing a wider range of **new challenges** where **comprehensive and timely information** is becoming more **critical**
 - European countries are the largest donors overall to international development actions – satellite derived information can contribute to ensuring effectiveness of these funds
 - ESA is working to integrate the identified technology developments within the Int. Development Banks efforts to address these new development challenges**

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Promoting geo-data literacy and use in Intl. Dev.


working with Development Banks?

Since the start of the ESA collaboration with IFIs we worked with **more than 100 service providers** from **more than 20 different countries**

working to integrate the identified technology developments within the development Banks efforts to add



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From Piloting to Mainstreaming

1998

From Piloting to Mainstreaming

Implementation **Planning**

1. Identification stage:

- ✓ Project Concept Note (PCN)

2. Preparation stage:

- ✓ Technical Assessment
- ✓ Economic/Financial
- ✓ Institutional Capacity and Institutional Arrangements
- ✓ Financial Management
- ✓ Procurement
- ✓ Social and Environmental
- ✓ Results, Risks

3. Approval stage:

- ✓ Project Appraisal Document
- ✓ Operational stages
- ✓ Legal Agreements (draft)

4. Negotiations and Board Approval stage:

- ✓ PAD (final)
- ✓ Legal Agreement (final)
- ✓ Memorandum of President

5. Implementation and Support:

- ✓ Implementation Status and Results report (ISR)

6. Completion and Evaluation:

- ✓ Implementation Completion and Results report (ICR)
- ✓ ICR Evaluation of ICR

BRIDIDA/PC/MIGA Systematic Country Diagnostic

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From Piloting to Mainstreaming

IS IT ODA?

Space for International Development Assistance

Official Development Assistance (ODA) compliancy confirmed by the OECD DAC in 6/2018

1 Global Development Assistance Traditional 'Space budget'

2 Space Partnership MDTF ODA resources

Knowledge Development **Capacity Building & Skills Transfer**

Awareness **Acceptance** **Adoption**

Space19

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“

THE DINOSAURS BECAME
EXTINCT BECAUSE THEY
DIDN'T HAVE A SPACE
PROGRAM.



Larry Niven