SDG’s and the role of Earth Observation

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Secretary General, ISPRS
1. No Poverty
2. Zero Hunger
3. Good Health and Well-Being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life below Water
15. Life on Land
16. Peace, Justice and Strong Institutions
17. Partnership for the Goals

SDG’s: where Earth Observation can help

Courtesy G. Schreier, DLR 2015
Satellite based rainfall and crop yield forecast

March-April-May, 2003
- 0
- 0 - 50
- 50 - 100
- 100 - 200
- 200 - 300
- 300 - 400
- 400 - 500 (mm)
- 500 - 600
- 600 - 700
- 700 - 800
- 800 - 1000

Courtesy H. Farah, 2016
Natural disaster: Banda Aceh

Indonesia - Banda Aceh Subset 3
IKONOS - January 10, 2003 - PRE-DISASTER IMAGE

IKONOS - December 29, 2004 - POST-DISASTER IMAGE

The map shows an area north of the city of Banda Aceh before and after the devastating tsunami that struck Aceh Province, Indonesia on December 26, 2004. The PRE-DISASTER image was acquired on January 10, 2003, and the POST-DISASTER image was acquired on December 29, 2004. The region shown is one of the most severely damaged areas. This map was created at Leibniz Universität Hannover, Institute for Photogrammetry and GeoInformation.
Refugee camp, Al Zaatari, Jordan
08.03.2011

Courtesy G. Schreier, DLR 2015
Refugee camp, Al Zaatari, Jordan
Refugee camp, Al Zaatari, Jordan
26.02.2013
Combination of SAR and AIS
German Bight
AIS data one week terrestrial AIS over TerraSAR-X

Courtesy G. Schreier, DLR 2015
Increasing Demand for Free Landsat Data

- Data delivered to 186 countries
- User shift to multi-year scenes at same location
- Exceeded 11 million scenes to date

Free data policy
October 1, 2008

Daily Average = 53 scenes
Daily Average = 5,700 scenes delivered

11,898,738 Landsat Scenes distributed as of June 10, 2013

Open data
## European contribution: Sentinels

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<td>1.</td>
<td>Sentinel 1 – SAR imaging</td>
<td><img src="image1.png" alt="Sentinel 1 image" /></td>
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<td>2.</td>
<td>Sentinel 2 – Multispectral imaging</td>
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<td>Sentinel 3 – Ocean and global land monitoring</td>
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<td>Sentinel 4 – Geostationary Atmosphere</td>
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<td>5.</td>
<td>Sentinel 5 – Low-orbit Atmosphere/ Air quality</td>
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**Data continuity**
Space programmes and EO satellites

Space programme have been established in many different countries, some based on multi-national cooperation.
International Charter on Space and Major Disasters

An International agreement among participating Space Agencies to provide space-based data and information in support of relief efforts during emergencies caused by major disasters.

Worldwide cooperation
Priority 1: Understanding disaster risk

- National and local levels
  - 24. To achieve this, it is important:
    - (c) To develop, periodically update and disseminate, as appropriate, location-based disaster risk information, including risk maps, to decision makers, the general public and communities at risk of exposure to disaster in an appropriate format by using, as applicable, geospatial information technology;
  - Global and regional levels
  - 25. To achieve this, it is important

- Global and regional levels

- c) To promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data and information, as appropriate, communications and geospatial and space-based technologies and related services; maintain and strengthen in situ and remotely-sensed earth and climate observations; and strengthen the utilization of media, including social media, traditional media, big data and mobile phone networks, to support national measures for successful disaster risk communication, as appropriate and in accordance with national laws;

Third UN World Conference on Disaster Risk Reduction - Sendai, March ‘15

... on the political agenda
Conclusions

• Earth observation - indispensable tool to reach SGD’s
  – Towards daily and **real-time monitoring** of every corner of the globe
    • Land, water, ice, atmosphere
    • Moving objects (people, actions, traffic)
  – Increasingly **global cooperation**, open data policy (GEO)
  – **Operational services** are being developed – **data continuity**
  – Geospatial **data infrastructure** for quick access and automatic interpretation
  – **Research, education and outreach** to better serve the global population
The International Society for Photogrammetry and Remote Sensing (ISPRS)

- an international NGO with a focus on
  - science and development
    - in photogrammetry, remote sensing, spatial information
  - cooperation between all relevant stakeholders
    - academia, private industry, government, end users
    - truly global cooperation
    - education, technology transfer, capacity building
- more than 100 years old
ISPRS Congress, Prague, July 12-19, 2016

approx. 3,000 experts from around the world

ISPRS – UN-GGIM National Mapping and Cadastre Agency Forum +
ISPRS – IAA Space Agency Forum