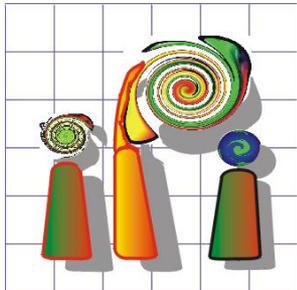
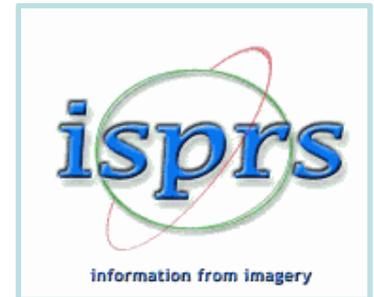


# SDG's and the role of Earth Observation

Christian Heipke

**IPI** - Institute for Photogrammetry  
and GeoInformation  
Leibniz Universität Hannover  
Germany



Secretary General, **ISPRS**

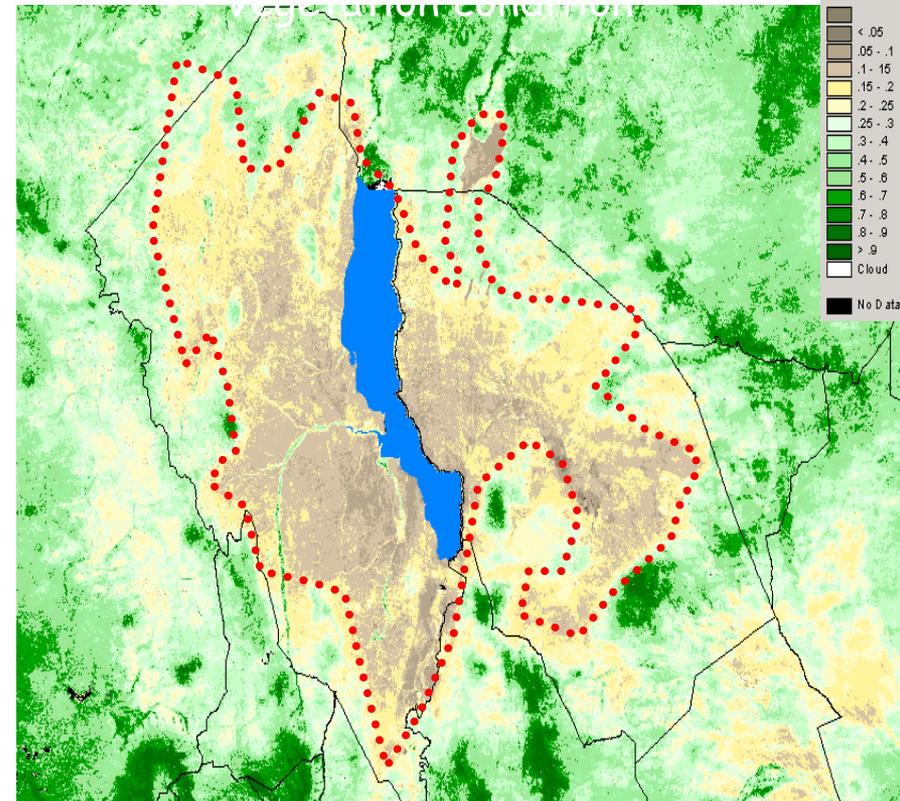
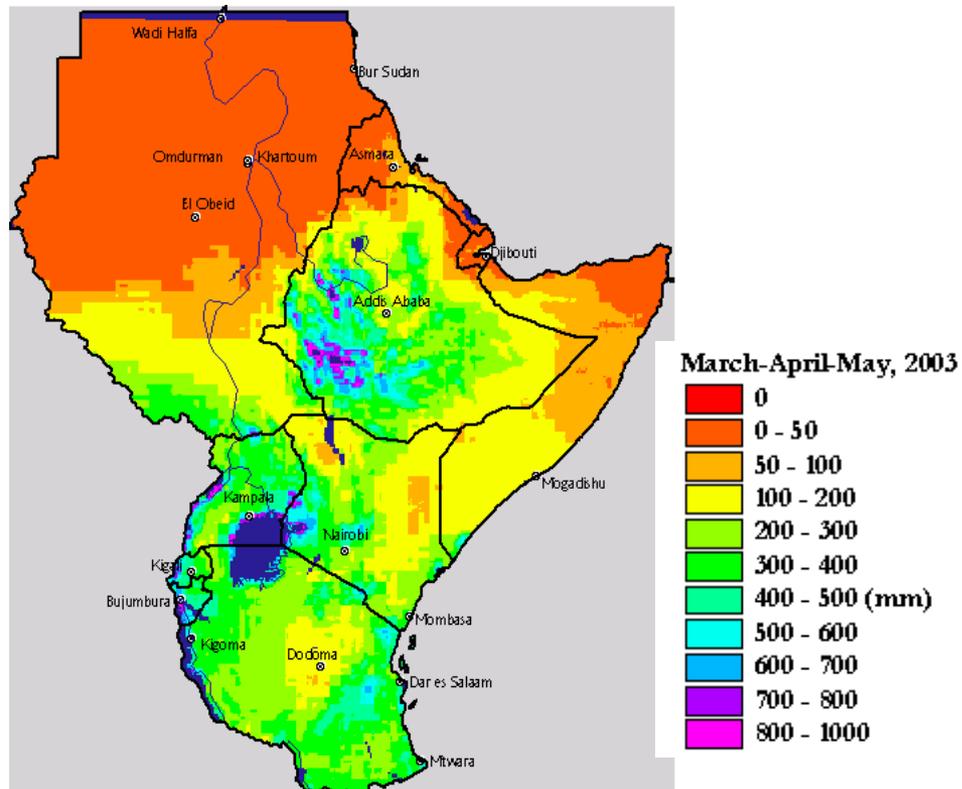


# SDG's: where Earth Observation can help

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



# Satellite based rainfall and crop yield forecast



# Natural disaster: Banda Aceh

## Indonesia - Banda Aceh Subset 3

1 : 5000

### IKONOS - January 10, 2003 - PRE-DISASTER IMAGE

### IKONOS - December 29, 2004 - POST-DISASTER IMAGE

Center for Satellite based Crisis Information  
Emergency Mapping & Disaster Monitoring

German Remote Sensing Data Center  
German Aerospace Center



Interpretation

The map shows an area north of the village of Ulu-nga on the northwestern coast of Sumatra (Indonesia) before and after the devastating Tsunami flood waves, which struck many countries in the Indian Ocean on December 26, 2004. The IKONOS images were taken on January 10, 2003 and December 29, 2004, respectively. The region of Banda Aceh is one of most severely damaged areas. The Tsunami washed up to two kilometers inland and destroyed major parts of the coastal plains, including settlements, forests and farmland.

Scale



1 : 5000

Projection: UTM Zone 48 N  
Epoch: WGS84  
Datum: WGS 84

Data Source

IKONOS imagery provided through  
Centre for Remote Imaging,  
Sensing and Processing (CRISP)



Map created December 26, 2004 by zhigds.R.D.E





Refugee camp, Al Zaatari, Jordan  
08.03.2011



Refugee camp, Al Zaatari, Jordan  
12.12.2012



Refugee camp, Al Zaatari, Jordan  
26.02.2013

0 500 m

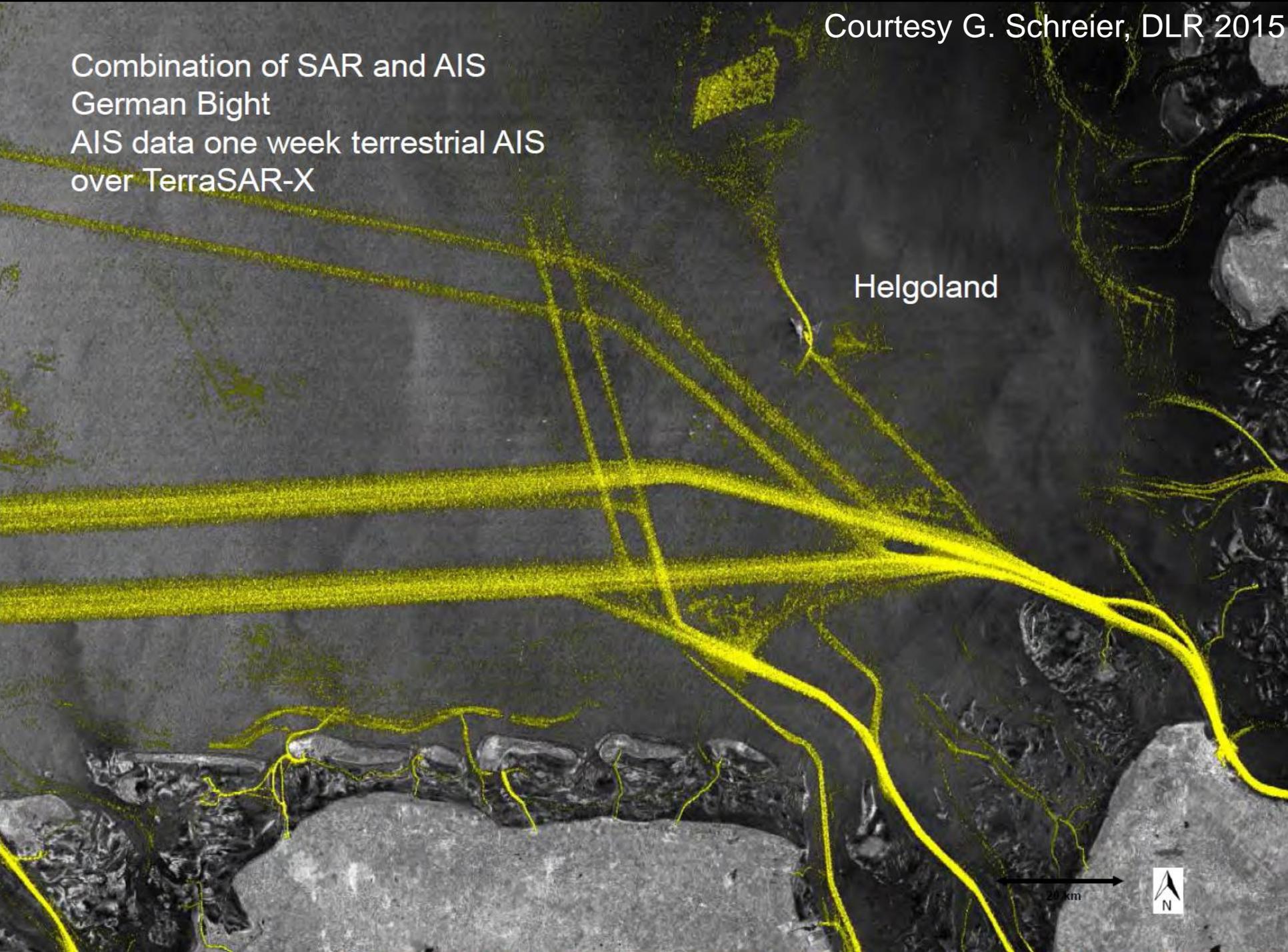


Refugee camp Al Zaatari, Jordan  
13.01.2014

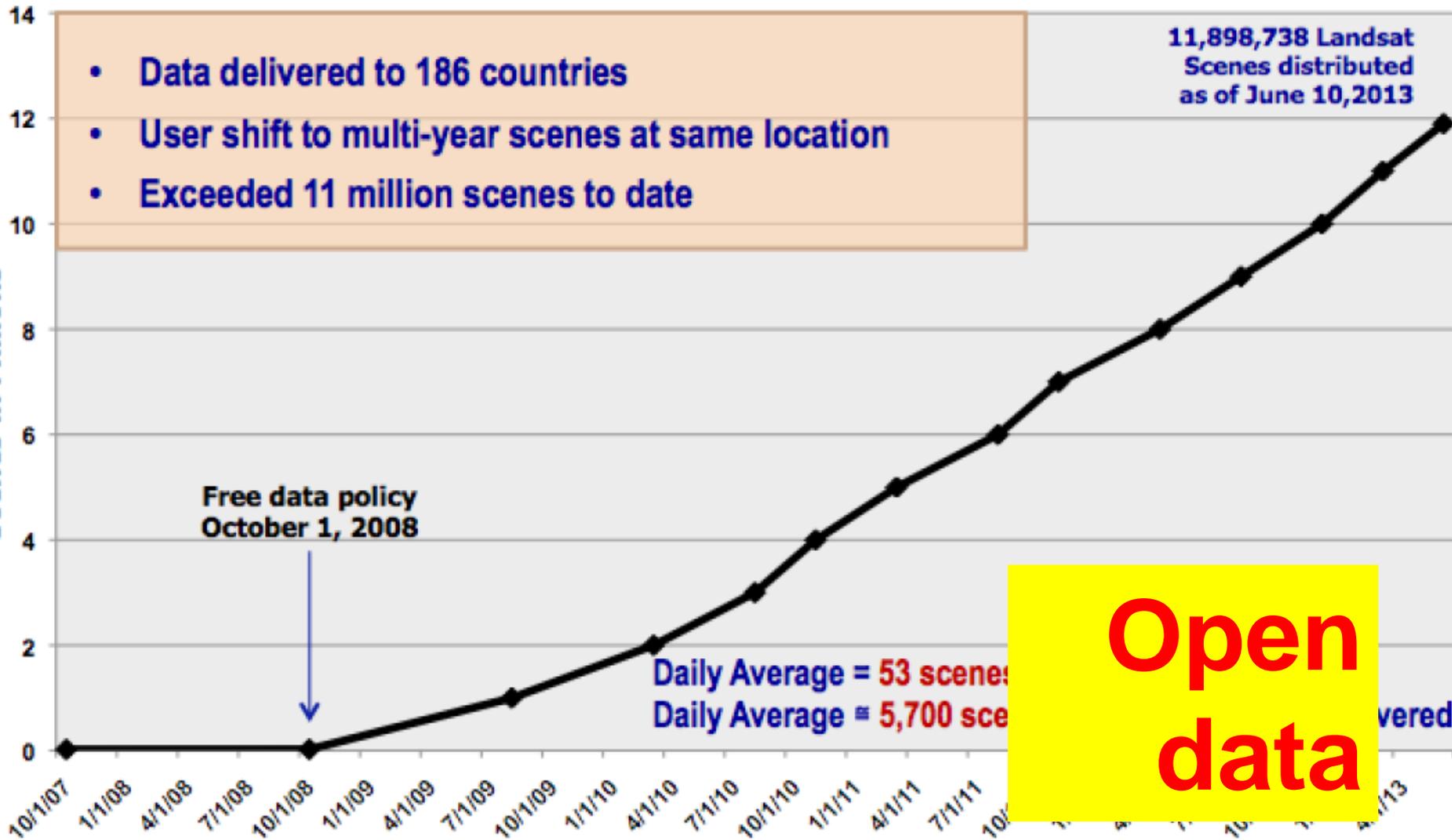
0 500 m

Combination of SAR and AIS  
German Bight  
AIS data one week terrestrial AIS  
over TerraSAR-X

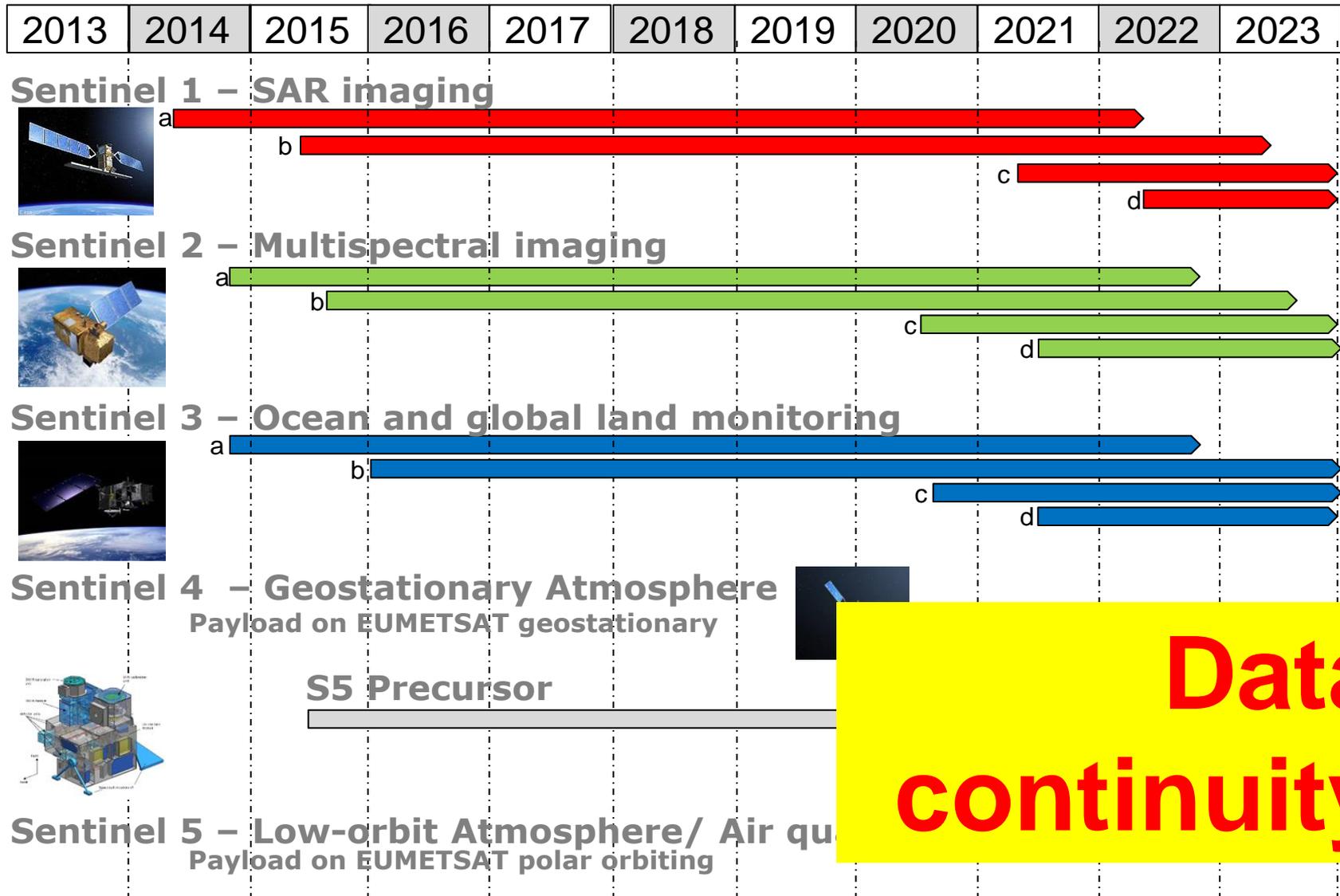
Helgoland



# Increasing Demand for Free Landsat Data



# European contribution: Sentinels



**Data continuity**

# Space programmes and EO satellites

Space programmes have been established in many different countries, some based on multi-national cooperation

Austria	Iraq	Russia
Australia	Israel	Saudi Arabia
Brazil	Italy	Singapore
Canada	Japan	S. Korea
Chile	Kazakhstan	Spain
China	Luxembourg	Sweden
Czech Rep.	Malaysia	Taiwan
Europe	Mexico	Thailand
France	Multi-national	Turkey
Germany	North Korea	UAE
Hungary	Norway	UK
India	Pakistan	Ukraine
Indonesia	Philippines	USA
Iran	Portugal	...



**International  
topic**



# International Charter on Space and Major Disasters

Courtesy G. Schreier, DLR 2015



An International agreement among participating Space Agencies to provide

**Worldwide cooperation**

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

- **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
    - 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 other digital technologies, as well as other measures for successful disaster risk reduction, in accordance with national laws;

... 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 Cadastral Agency** Forum +

ISPRS – IAA **Space Agency** Forum



**ISPRS – UN-GGIM National Mapping  
and Cadastral Agency Forum**  
14 – 15 July 2016

An integral part of the XXIII ISPRS Congress in Prague



**ISPRS – IAA Space Agency Forum**  
14 – 15 July 2016

An integral part of the XXIII ISPRS Congress in Prague