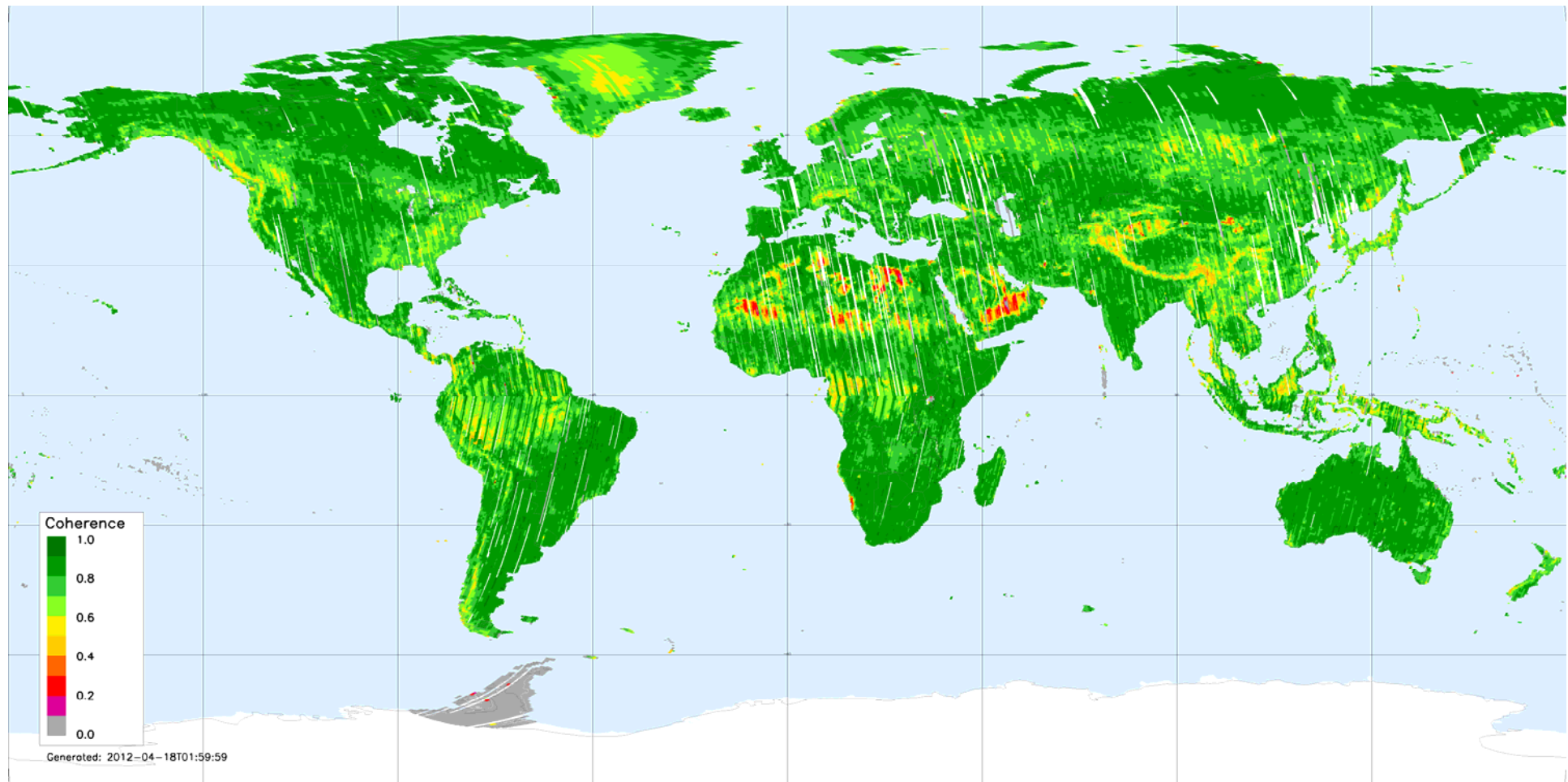




L/S/X-Band Antenna in Inuvik, NWT, Canada



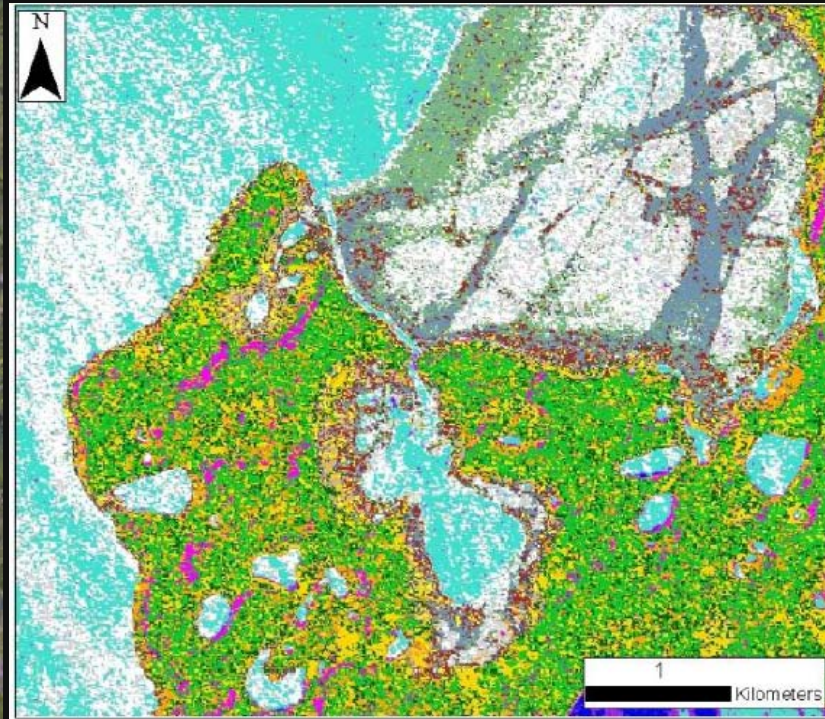
TanDEM-X after first year of operations



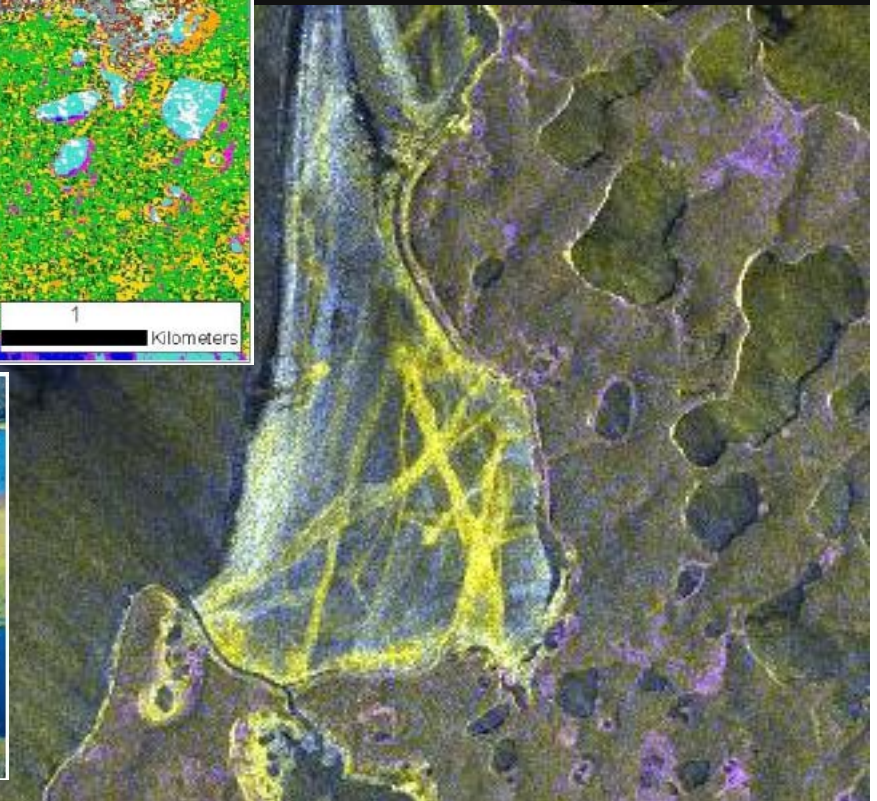
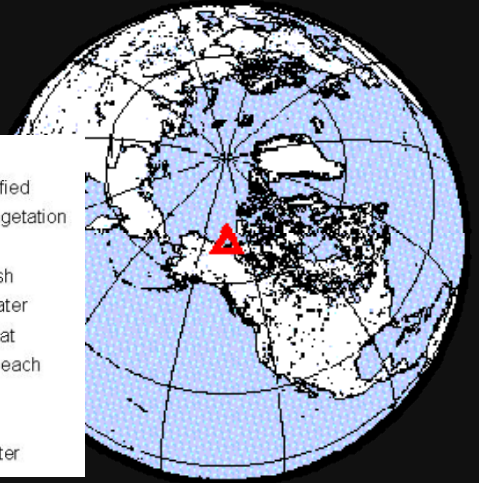
TerraSAR - StripMap Image HH/VV: Richards Island, July 5, 2011

TERRA SAR X

Ecological Shoreline mapping in the Canadian North



- wetland
- Unclassified
- shrub vegetation
- sand
- salt marsh
- rough water
- pebble flat
- pebble beach
- peat
- mud flat
- clear water





Helmholtz-Alberta-Initiative (HAI)

Terrestrial Ecosystems and Resource Informatics (TERI) Initiative

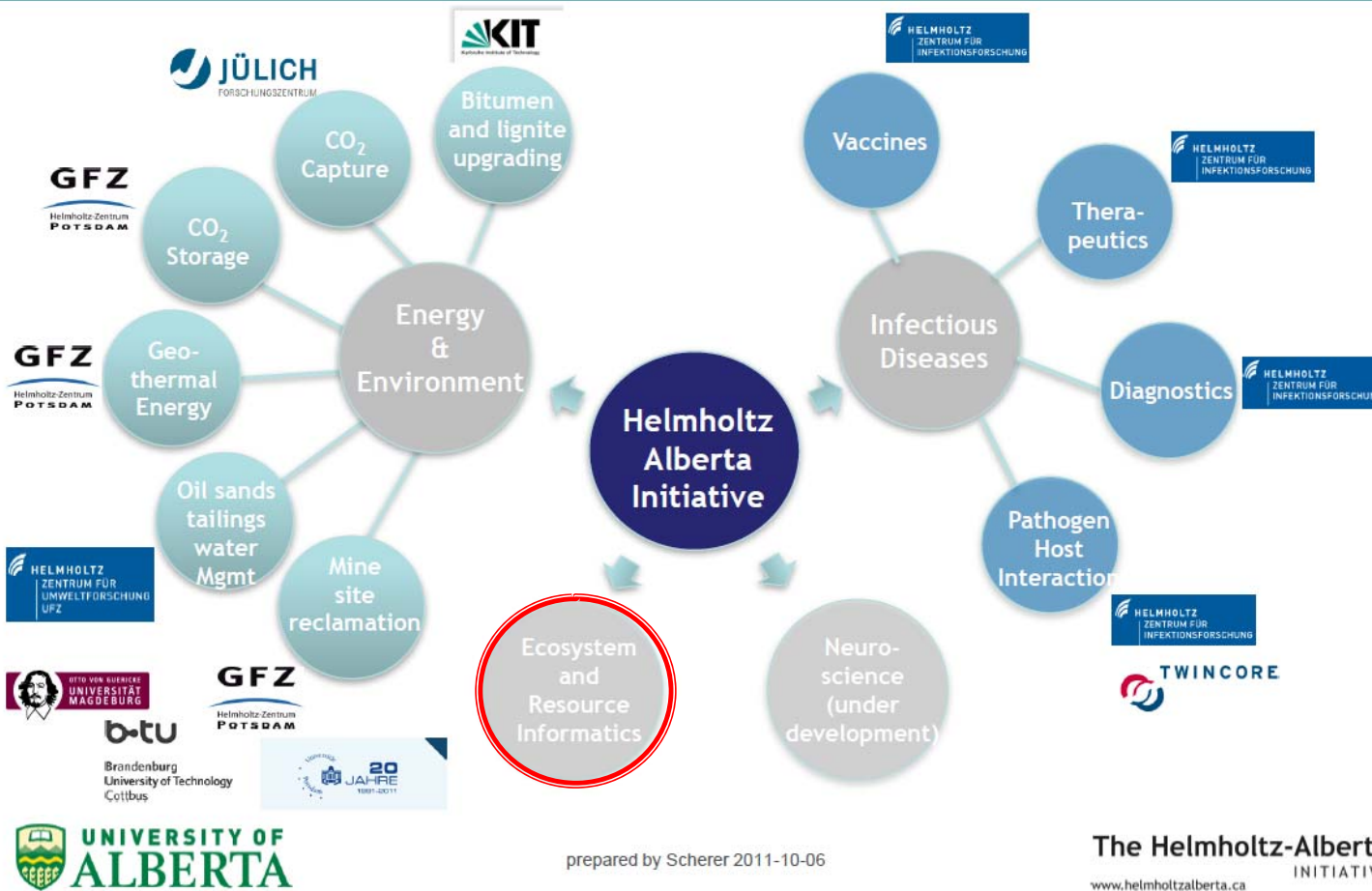
- independent international research partnership
- solutions to key challenges in fields such as energy and the environment, ecosystem and resource informatics, and health.

Themes:

- Sensing Solutions for Mining Operations
- Monitoring and Managing Outcomes of Resource Extraction
- Modeling Climate and Land-use / Land-cover Change Feedbacks
- Ecosystem Valuation

U of A HAI future

13





Terrestrial Ecosystems and Resource Informatics (TERI) Initiative

R & D partner



Center for Earth Observation Sciences (CEOS), University of Alberta



Sensing Solutions for Mining Operations

Monitoring of Mine Sites / Mapping Northern Mining

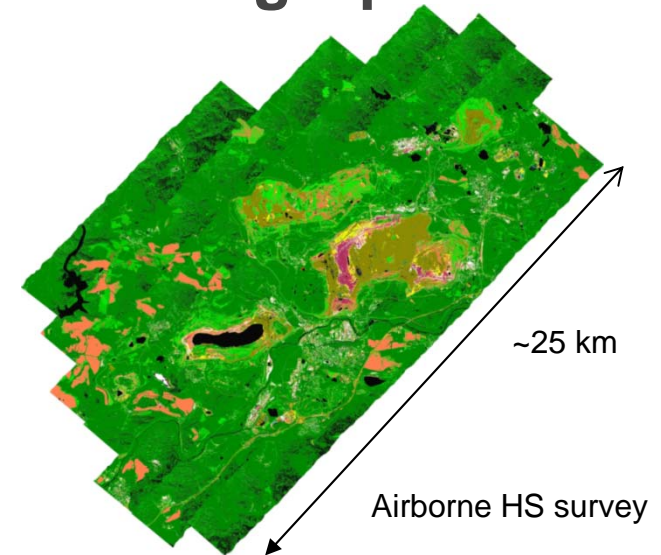
Information retrieval

Sensors & systems

Scale analysis

Modeling & monitoring

- Samples taken on a site to be analyzed
- Lab analysis to assess sensor needs
- Algorithms
- Decision on sensor system(s)
- Ground, airborne, spaceborne
- Design of data acquisition
- Core imagery, airborne, satellite imagery
- Investigation on transferability
- Multi-sensor approach: e.g. data fusion
- Imaging rock samples, mines, and productive regions
- **Identification of economically recyclable tailings**
- **Exploration and exploitation (e.g. REEs)**
- **Improving geo-spatial information over the life-cycle of mining operations**





Cooperation interests

Line of business: Environmental / ICT

- Industrial partners for
 - Environmental Sensor Systems and Sensor Networks
 - Mining Technology Supply
 - Environmental Monitoring and Risk Analysis
 - Geo-spatial Data Application Developments

- HAI forms a potential framework other cooperation activities may include
 - bi-lateral R&D projects or
 - projects within the EU Framework Program (FP) and beyond (Horizon 2020)

Point of Contact: **Christian Fischer (c.fischer@dlr.de)**

RAPIDEYE SATELLITE CONSTELLATION

UNRIVALED EARTH OBSERVATION CAPACITY



RapidEye

Delivering the World

www.rapideye.com

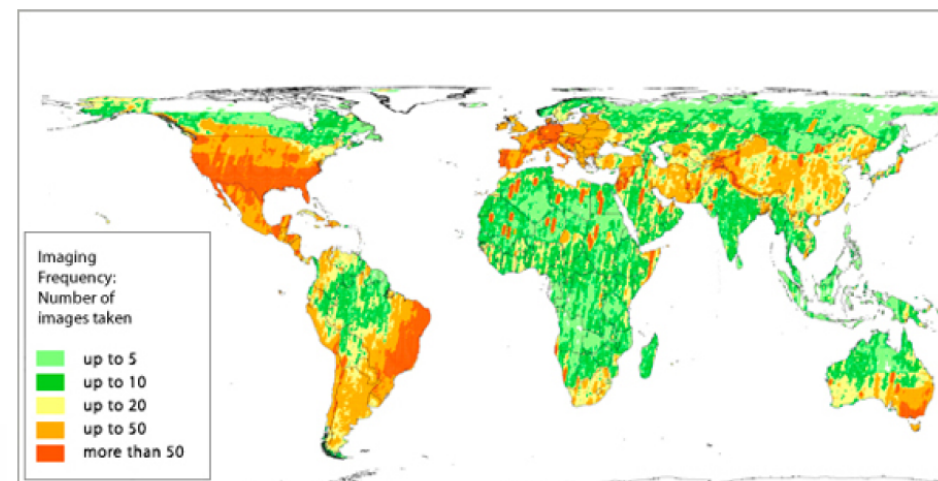
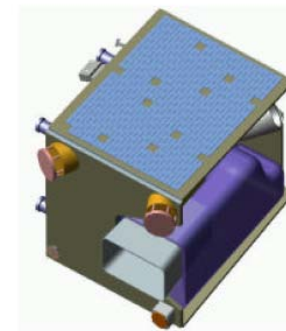




RapidEye



- **Constellation**
 - **Five active micro satellites in constellation, 3 planes**
- **Launch date**
 - **August 2008**
- **Prime Instrument**
 - **Optical 5 bands**
 - **6,5 m res. / 80km swath**
- **Science data access: DLR**
- **New owner (since 2011)**
 - **Canadian (Blackbridge, Alberta) and German investors**





RapidEye

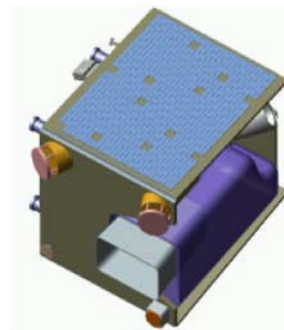
- Five active micro satellites in 3 orbital planes
 - Optical 5 bands @ 6,5 m res. / 80km swath
- Science data access: DLR



2009 - 2011
Imaging Frequency,
Numbers of images taken



Cloud Coverage: < 20%



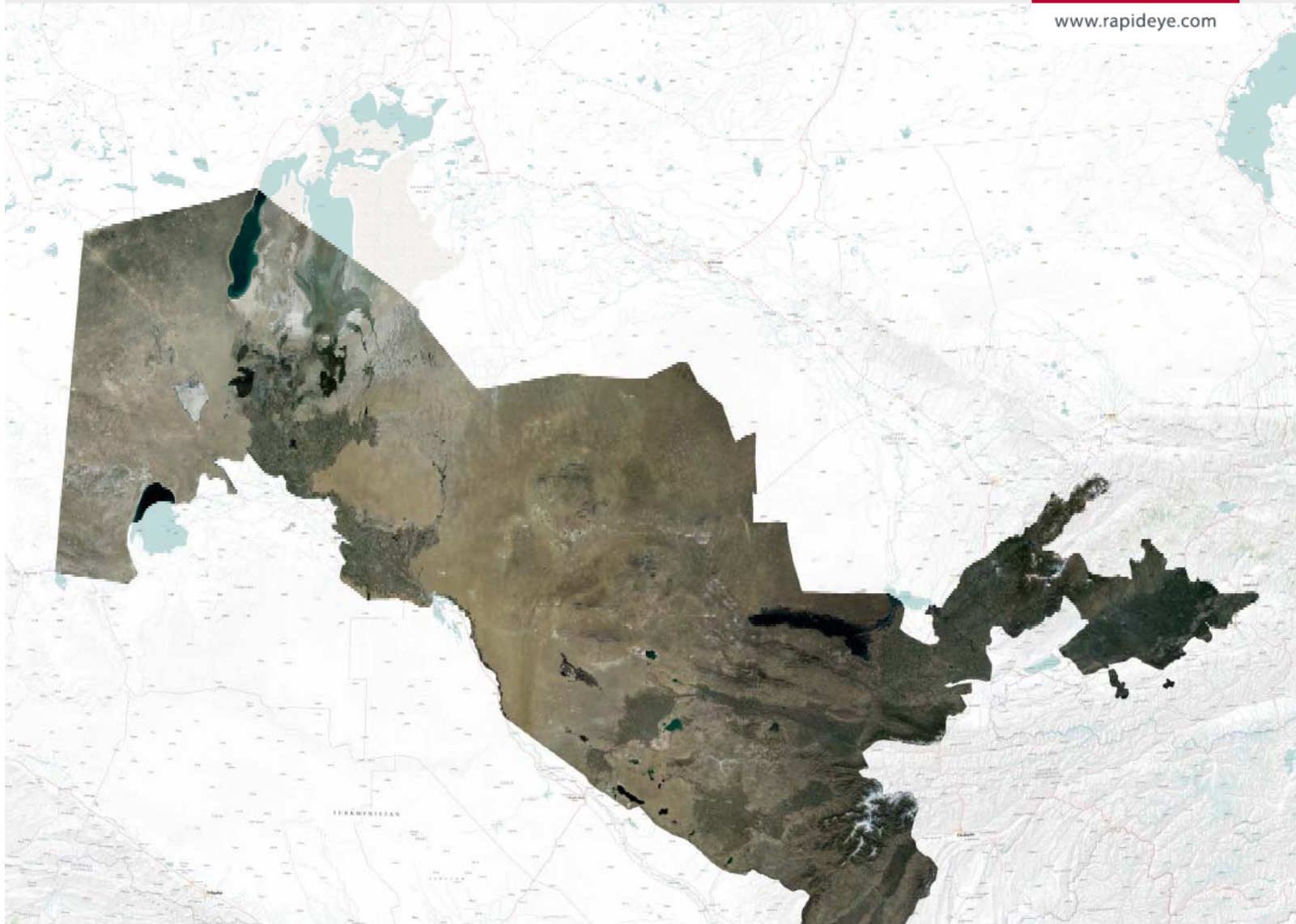
RAPIDEYE MOSAICS™

UZBEKISTAN



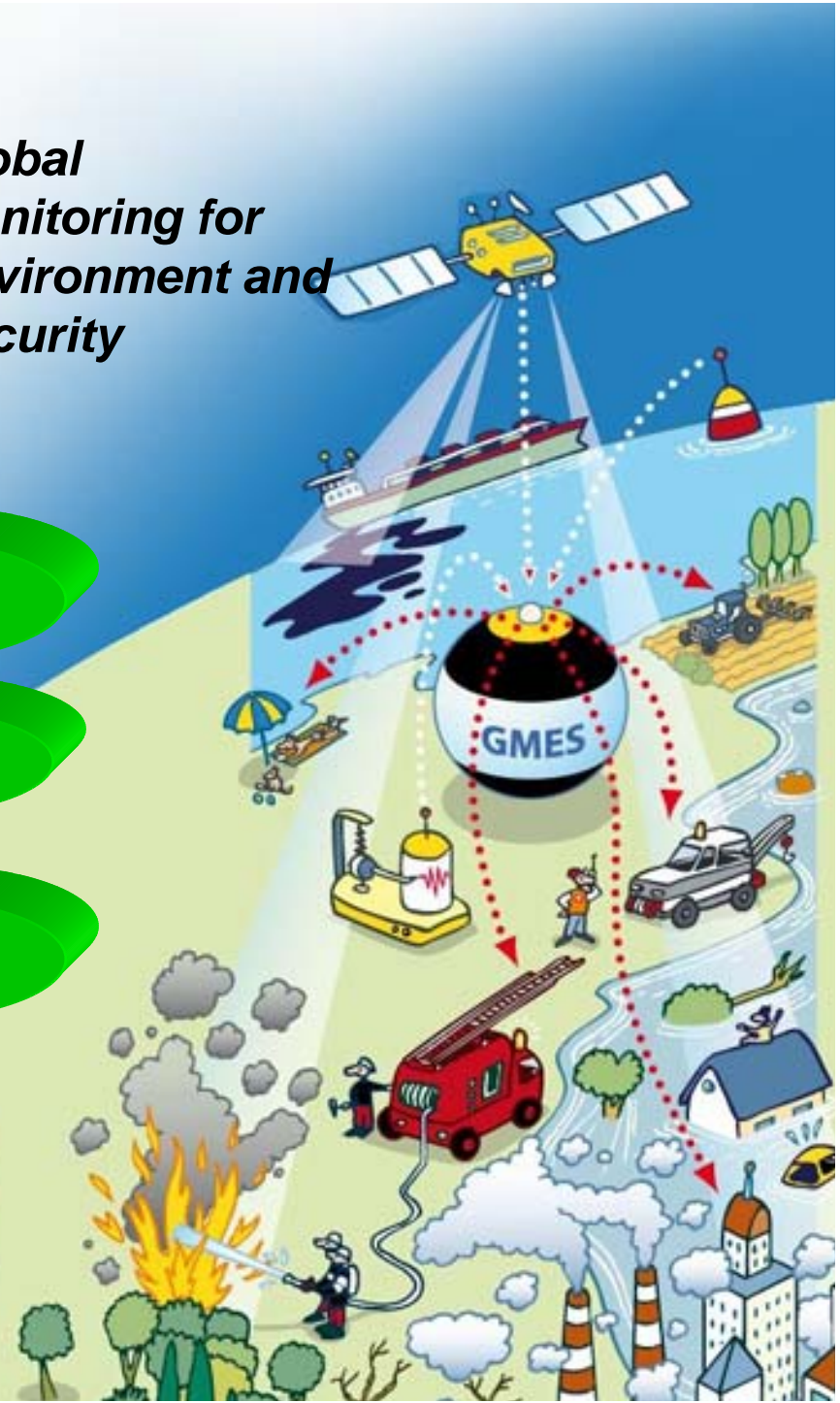
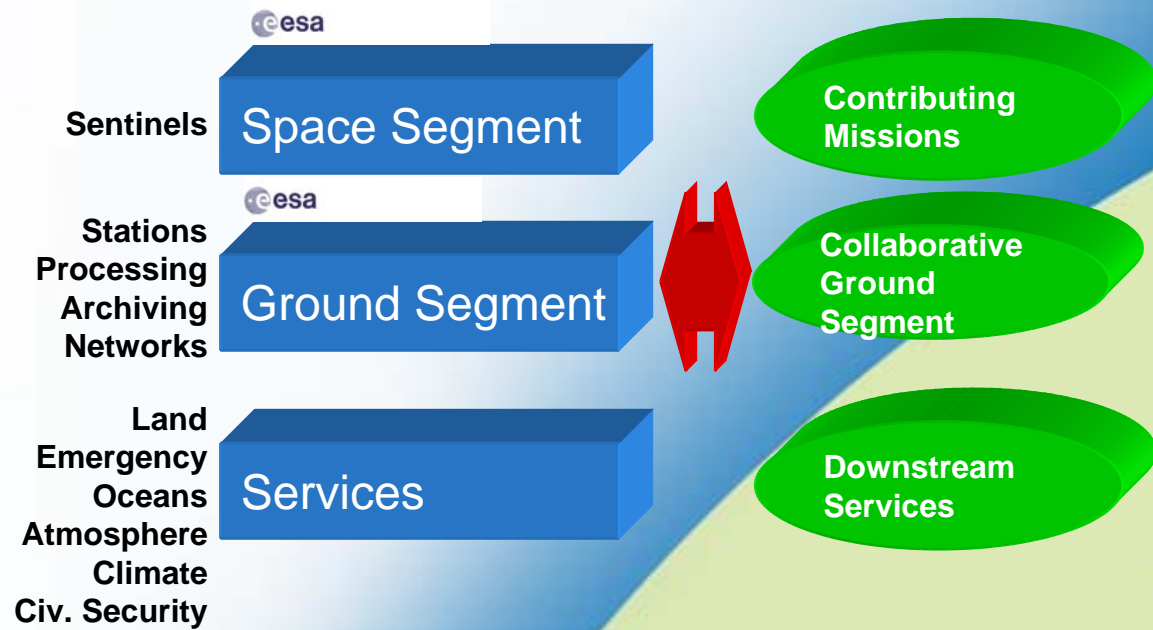
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Global Monitoring for Environment and Security



LAND



ATMOSPHERE



DISASTERS
RAPID MAPPING



CLIMATE CHANGE



OCEANS



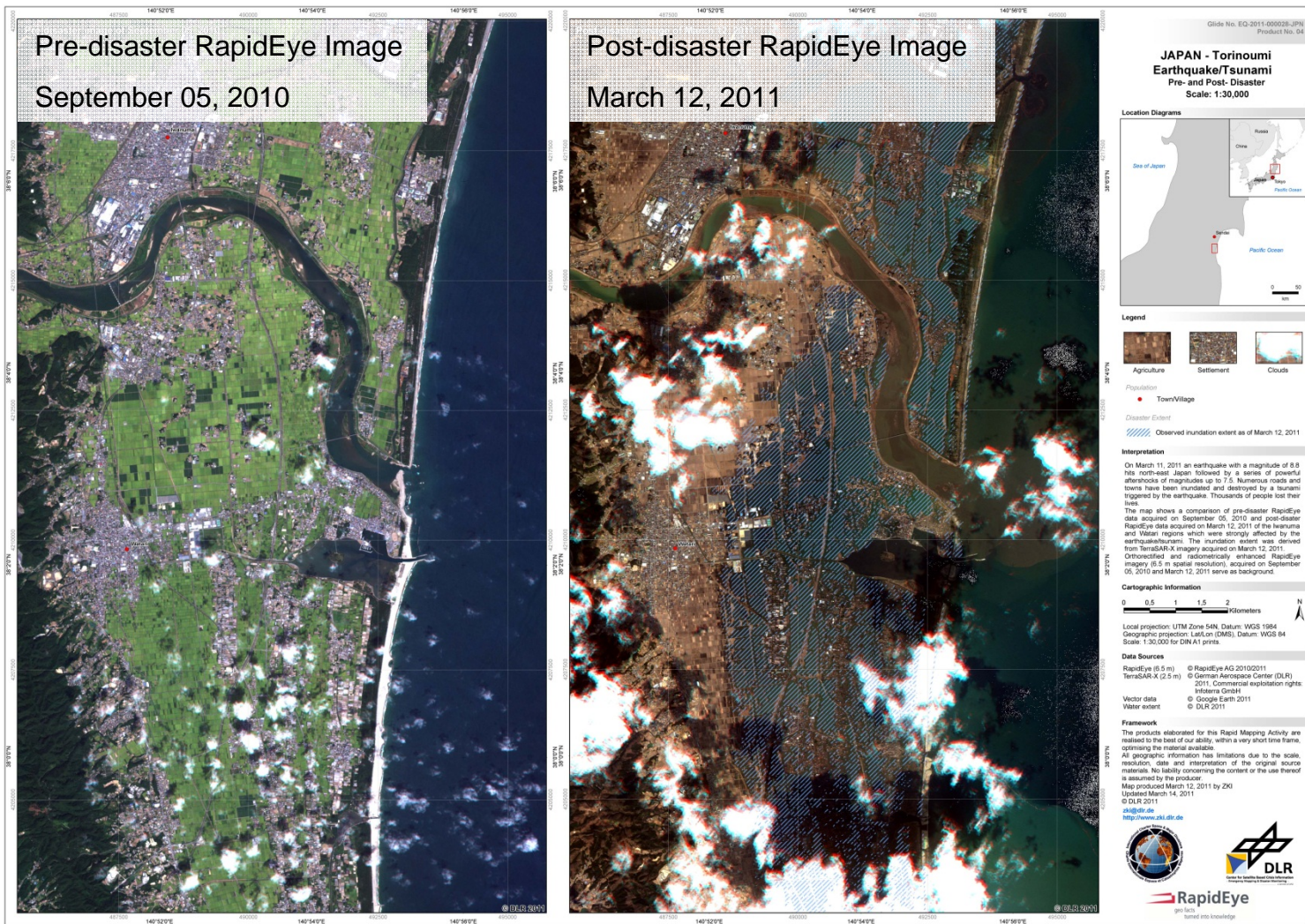
CIVIL SECURITY





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STERN online

Disaster Extent Map - Pre- and Post Disaster



Inundation area derived from TerraSAR-X imagery acquired on March 12, 2011

International Charter on Space and Major Disasters



Deutsches Zentrum
DLR für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft

Since 2000: Global framework for capturing and delivering earth observation data in case of natural disasters and other emergencies

Called thru authorized users:

- Emergency relief organizations
- National and international (UN)

Members

- Space Agencies and satellite operators
- DLR since 2010





Thank you