



Center for Satellite Based Crisis Information – Emergency Mapping & Disaster Monitoring –

a service of DFD

Current Status and Considerations for the Future

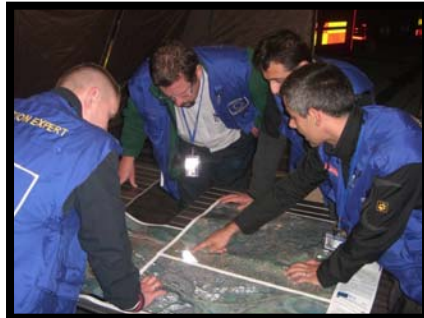
Harald Mehl & Stefan Voigt
German Aerospace Center (DLR)



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

Supporting DLR's engagement in EO for civil security

- Contribution to the implementation of the DLR programme „Security“
 - R&D activities in Germany and Europe
 - Development and operation of Rapid Mapping and Early Warning services
 - Extensive training and exercise activities for situation centers and decision makers



Supporting DLR's engagement in EO for civil security

- Contribution to the implementation of the DLR programme „Security“
- Implementation of the DLR technical and operational contribution to the „International Charter Space and Major Disasters“
 - Providing TerraSAR-X Data for the Charter
 - Emergency On Call Officer (ECO)
 - Project Management (PM)
 - Value Adding (VA)



TerraSAR-X & TanDEM-X

**Launched June 15, 2007 &
June 21, 2010**

**Global very high resolution
X-Band SAR**

**Global high resolution
Digital Elevation Model (DEM)**

- **Innovative constellation flight**
- **Ground segment & processing
by DLR**
- **PPP with Astrium/InfoTerra**
- **Charter Satellite from 2010**





Supporting DLR's engagement in EO for civil security

- Contribution to the implementation of the DLR programme „Security“
- Implementation of the DLR contribution to the „International Charter Space and Major Disasters“
- Strong role in GMES Services „Emergency Response“ and „Civil Security“
 - National R&D
 - EU GMES R&D
 - EU GMES ERS Preparatory Action



European and German GMES Projects

European

➤ Land

geoland:2

➤ Ozean



➤ Emergency



German



D=Secure Overview

Satellitengestützte Kriseninformation für Deutschland

Collaborative project initiated by the German Space Agency (DLR)

➤ **Purpose:**

Improve the quality and availability of satellite base crisis information for Germany

➤ **Financed by:**

Federal Ministry of Economics and Technology (BMWi)

➤ **Users:**

GMLZ, MIC, UN Agencies, THW, DRK, Private Organisations...

➤ **Partners:**

eight organizations and teams from the institutional, research and commercial sector



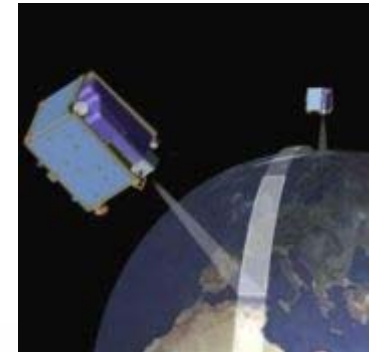
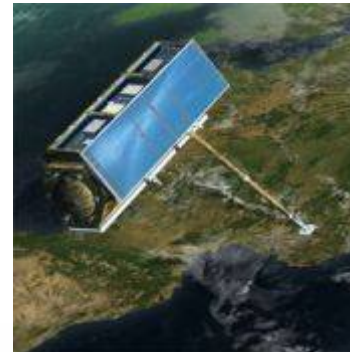
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D=Secure Objectives

Satellitengestützte Kriseninformation für Deutschland

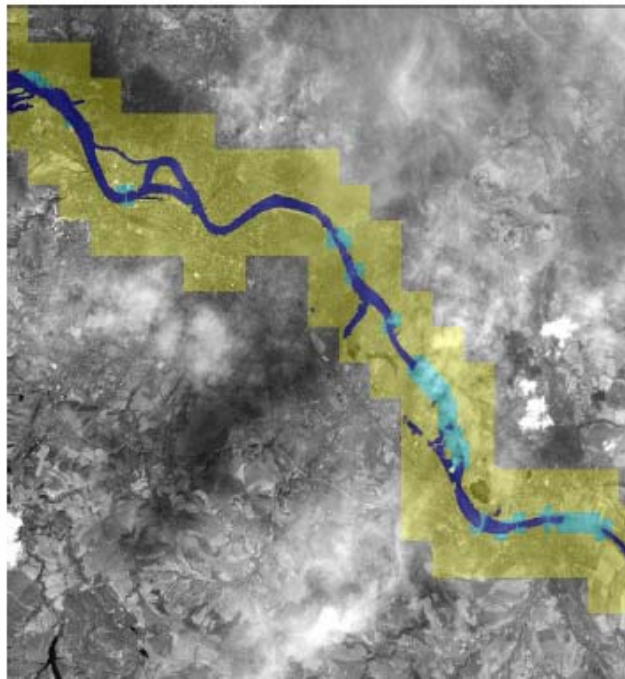
Improving operational provision of satellite based crisis information

- Providing better products even faster to the user
- Strengthening the methodological-technical rapid mapping capacities in Germany through
 - Process optimisation at existing institutions (DLR- ZKI)
 - Extension and set-up of capacities in partner institutions
- Building a German disaster analysis network with:
 - Institutional partners
 - SMEs and industry
 - Research institutes
- Improved integration of German satellites into the rapid mapping processing chains
 - TerraSAR-X
 - RapidEye

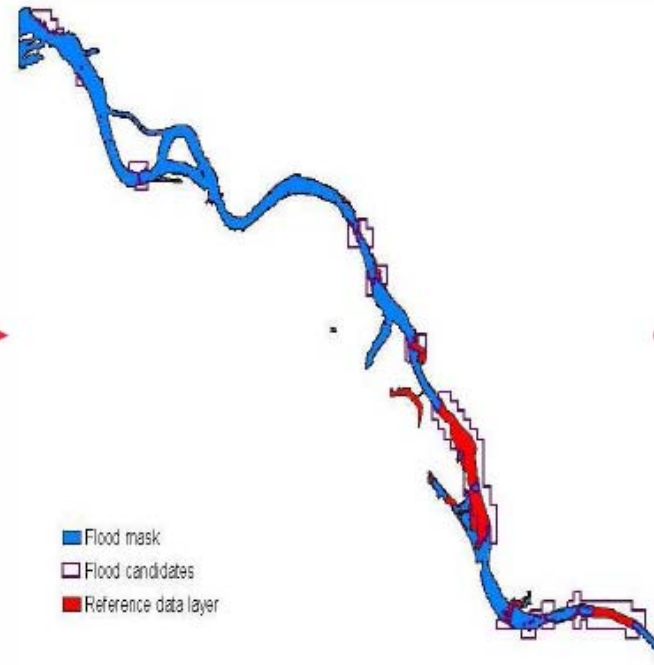


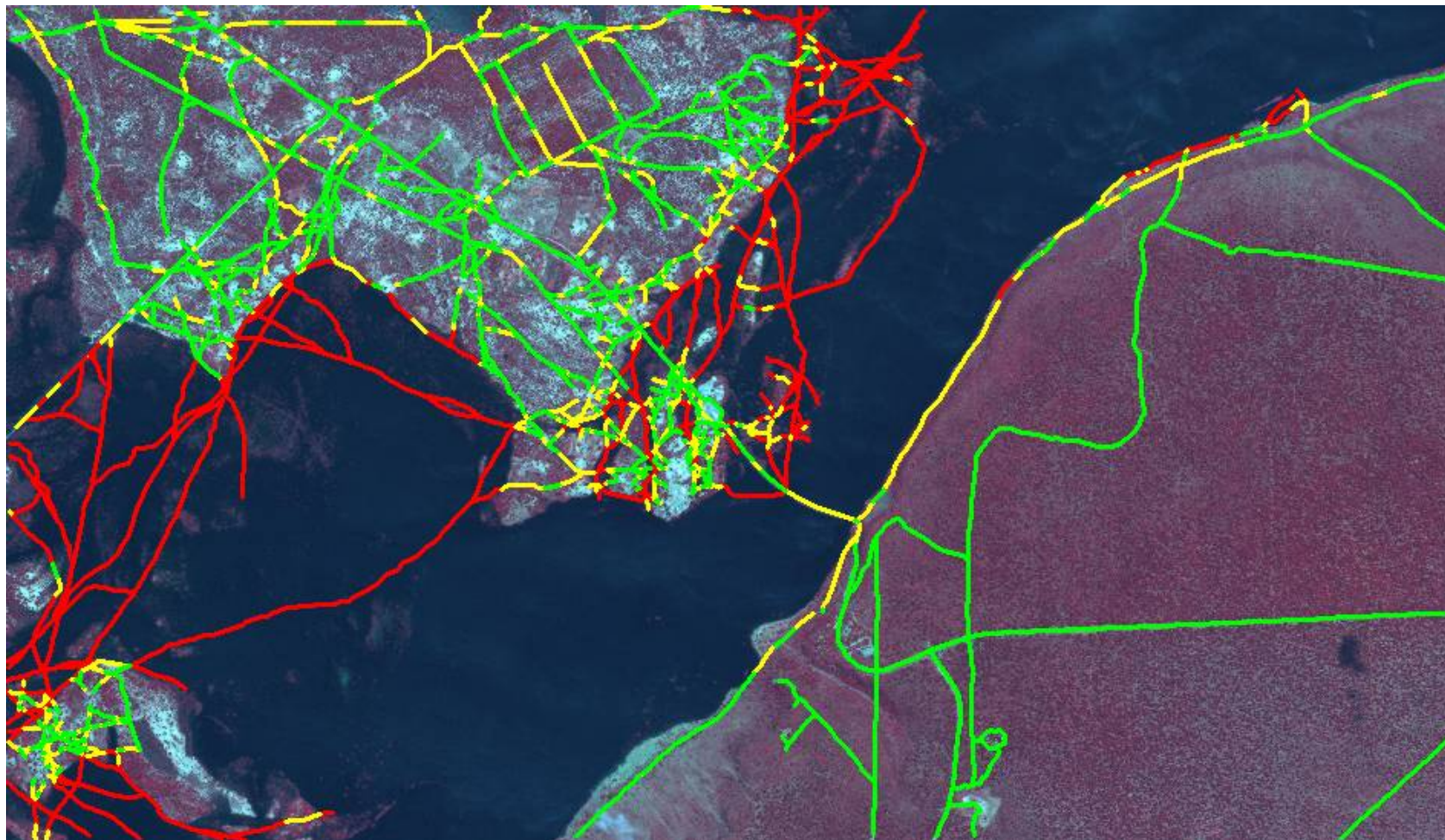
Flood mask extraction with Definiens Developer

Classification of flood candidates

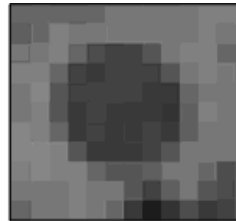
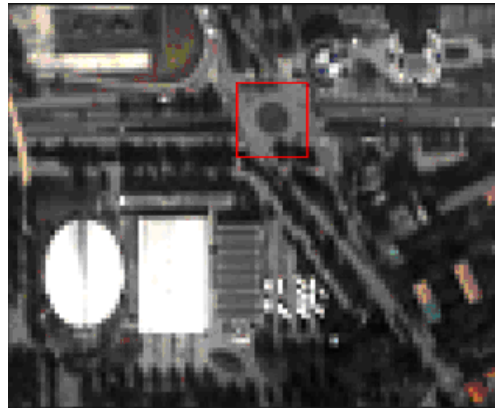


Export of flood mask und flood candidates as vector

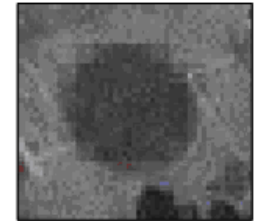




— accessible — potentially accessible — flooded

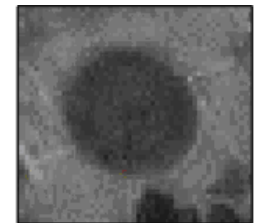


Original



0. Näherung

Pansharpening



7. Näherung

Ikonos-Scene of Munich (1m/4m res.)



Supporting DLR's engagement in EO for civil security

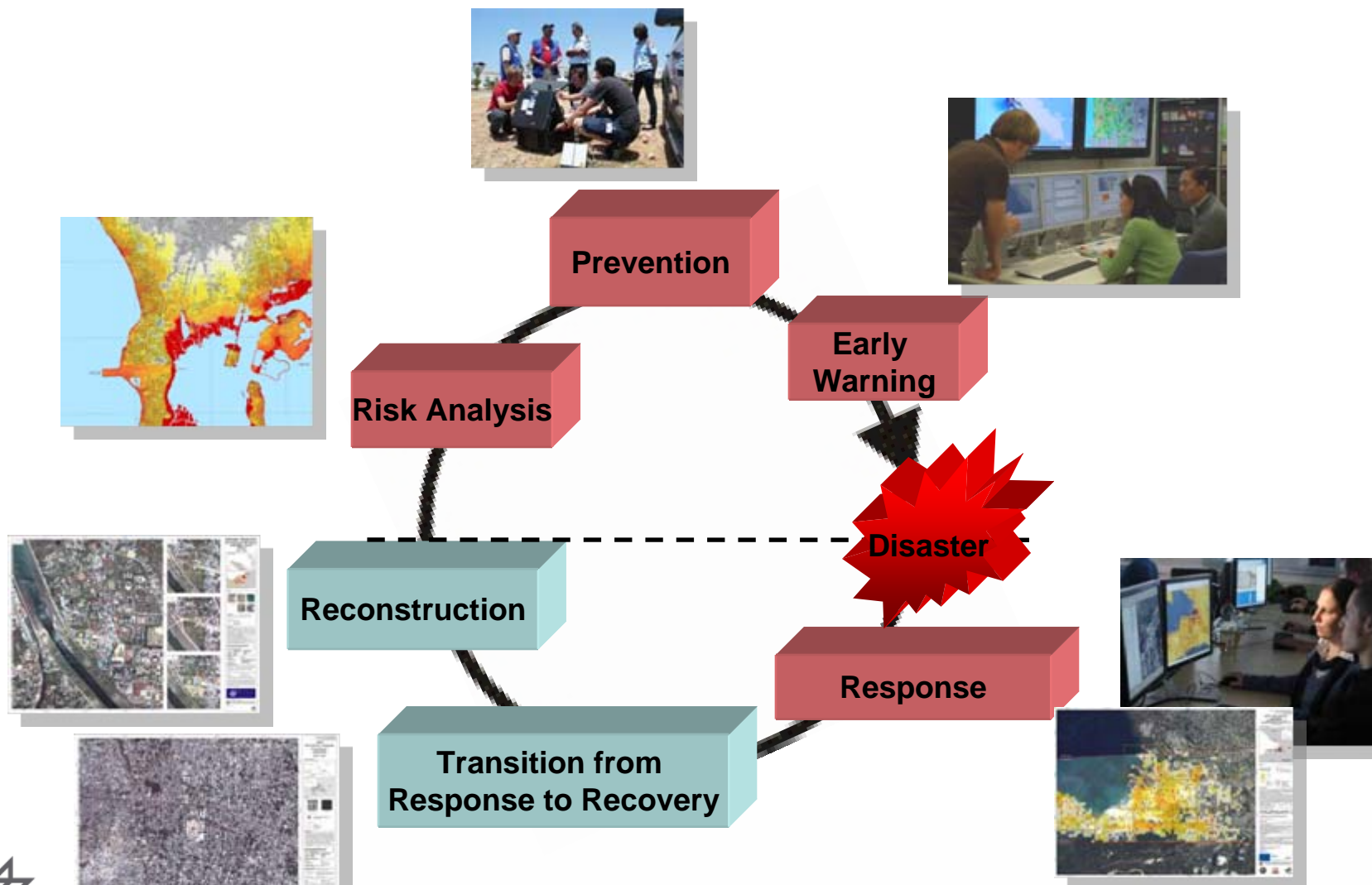
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- Implementation of the DLR contribution to the „International Charter Space and Major Disasters“
- Strong role in GMES Services „Emergency Response“ and „Civil Security“
- Operating the DLR Center for Satellite Based Crisis Information
 - National mandate under discussion at ministerial level



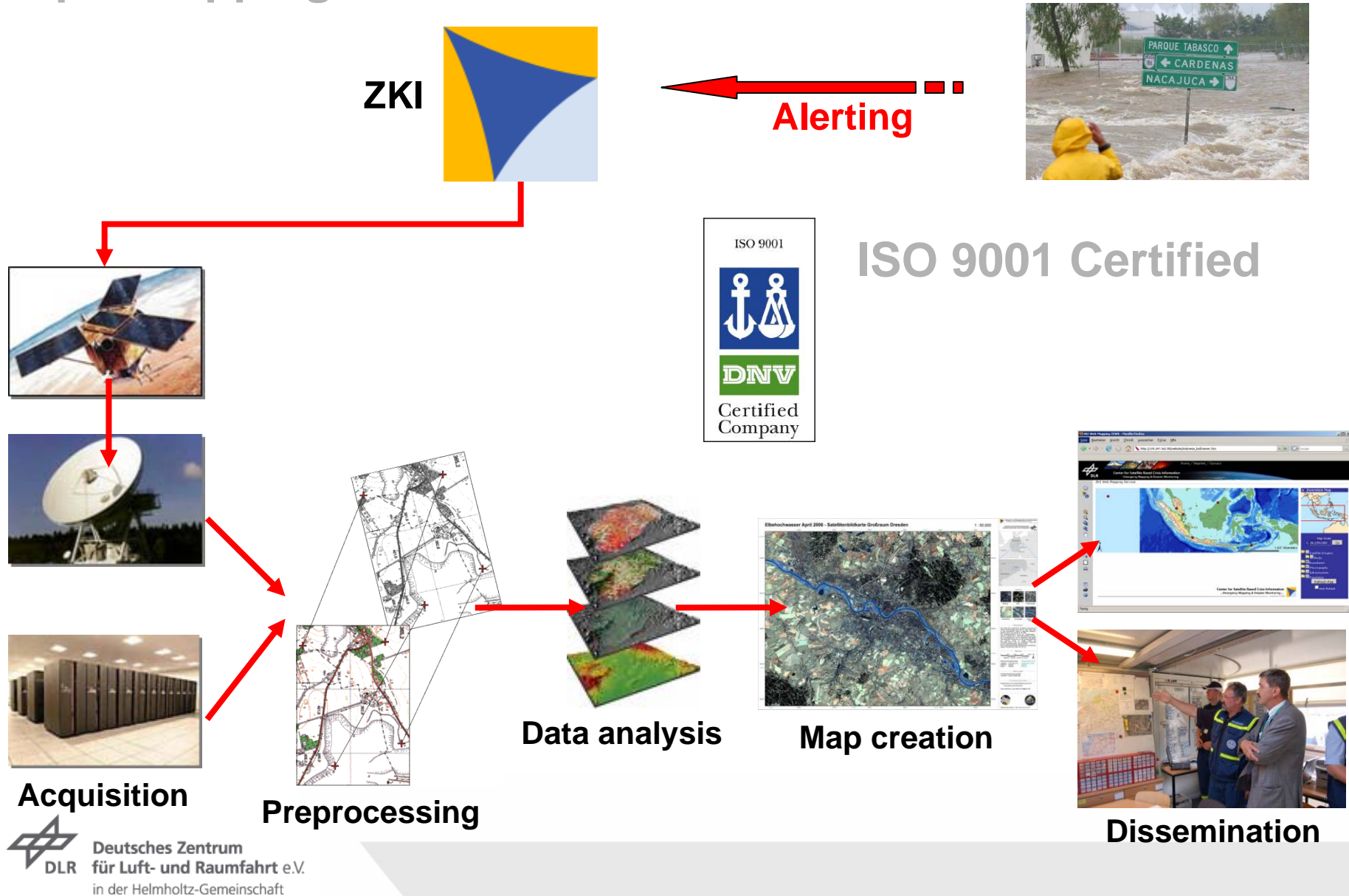
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DLR-ZKI contributions to the crisis management cycle



Rapid Mapping Workflow





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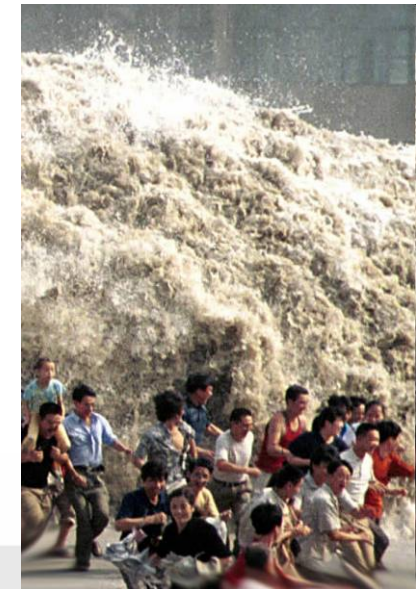
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- Operating the DLR Center for Satellite Based Crisis Information
- Supporting the UN-SPIDER Programme





Food for thought for future international cooperation in our joint global response to extreme disaster events as a community

- **Scale of:** Tsunami, Haiti-EQ 2010, Pakistan-Flood 2010
- **Many actors** and numerous satellite mapping / analysis efforts, on ad hoc basis...
- **Coordination** needed on who does what, what is needed and how to collaborate...
- ... to avoid a “**mapping disaster**”!



„Haiti Mapping Disaster“

- In earlier cases - only a limited number of actors were involved in satellite mapping activities
- In the Haiti 2010 case - we saw a large number of organisations providing satellite mapping and analysis
 - in a poorly coordinated way
 - Hundreds of maps ended on ReliefWeb
- Resulting in:
 - Overflow of mapping information
 - Inconsistent, at least largely diverging, mapping and satellite imagery analysis
 - Completely different representation of damage classes, map features,....
 - Confusion, frustration and resignation of the “user” community with respect to satellite maps/analysis



What can we improve?

Learn from the modus operandi of professional, international relief actors on the ground:

Coordinate to the extent possible, by

- Sharing of resources
- Standardising our products to the extent possible
- Formalising the procedures of engagements
- Certifying capacities
- Working collaboratively with a maximum discipline, professionalism and modesty



OSOCC - ORION Exercise,
UK, Sept. 2010





Let us consider to adopt for our community e.g.
**INSARAG/UNDAC guidelines, operations, OSOCC/
VOSOCC work, certification of teams, etc.,,**

➤ INSARAG / UNDAC

- Clear Rules of Engagement
- Standard “on-site” and “virtual” coordination
- Certified teams and capacities
- Trainings, exercises, standing operational working groups to elaborate standards
- Formal handbook defining rules and guidelines

➤ Intl. Satellite Community

- Some coordination at data provision level through “Charter”
- “Informal” collaboration exists through UNSPIDER
- UN SPIDER portal provides some information and activity sharing
- Actors coordinate through informal links, networks and telecons, etc.
- **Strong and generally accepted rules for engagement are still MISSING!”**





Thus, we should establish an international working group, based on the UNSPIDER network to...

- ...elaborate and internationally agree **rules of engagement** for collaborative satellite mapping in case of extreme disaster situations,
- ... **derive and set standards** for processing, analysis and mapping
- ... ensure best possible **quality, validity and coherence** of mapping/satellite data analysis
- ...organise **certification and accreditation** of mandated organisations and actors in the collaborative effort before a disasters strikes,
- ... establish **an accepted coordination mechanism** as single reference (rotating, virtual,...) point for incoming requests and outgoing products etc.,
- ...**avoid user confusion**, fatigue and frustration
- ... achieve a **functional, operational, best quality, efficient and internationally accepted** satellite mapping response for extreme disaster events in the future!



Thanks for your attention and you are invited
to visit our recently reworked web site of DLR/ZKI!



DLR - ZKI - Home - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://www.zki.dlr.de/

Meistbesuchte Seiten Erste Schritte Aktuelle Nachrichten

DLR - ZKI - Home

Center for Satellite Based Crisis Information
a service of DFD

DLR Portal Home | Imprint | Contact | RSS | Login | Deutsch

Monday 11 Oct 2010
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Feature

Floods in Pakistan
TerraSAR-X helps mapping the flood in Pakistan.
Read more...

Topics

- Flood (60)
- Earthquake (21)
- Fire (15)
- Technical Accident (8)
- Tsunami (1)
- Landslide (3)
- Volcanic Eruption (1)
- Large-Scale Event (3)

ISO 9001

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DLR - ZKI - H...

