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## SPACE APPLICATIONS AND DEVELOPMENT COOPERATION

Brussels, 8 December 2015 | giz Representation to the European Union

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The workshop on "Space Applications and Development Cooperation" launched a dialogue on how Space uses can be valuable for emerging and developing countries. The event, held in Brussels on the 8th of December 2015, was co-organized by the Brussels-based representations of giz, the Free Hanseatic City of Bremen, and the European network NEREUS.

### HIGHLIGHTS

-  The workshop outlined concrete opportunities for aerospace clusters, involving topics where NEREUS members have special expertise.
-  The European priorities announced within the general policy framework can be a driver for the development of the downstream market as they involve new user groups and identify relevant topics for Space regions.
-  The policy framework of reference is the Africa-Europe Partnership Initiative "GMES&Africa" which will result in the adoption of the African Space Policy in 2016. The first steps in its implementation will concern three main thematic areas: marine and coastal zones, the management of water resources and that of natural resources.
-  A new scenario for the collaboration between space scientists, development practitioners and public administrations in Europe and Africa opens up. The emergence of project ideas that join up national space programmes with cooperation and development aid may soon be expected, and initiatives aiming at training and raising awareness among Local and Regional Administrations (LRAs) in Africa can be foreseen.
-  It is important to better understand the specific needs in Space applications by African groups of end-users, as there is "no one-size-fits-all" solution.

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## EXPLORING THE USE OF SATELLITE DATA FOR DEVELOPMENT IN AFRICA

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After setting the scene with representatives from the European Commission (EC) and the European Space Agency (ESA), a moderated panel debate involving all the participants tackled the gaps and needs in this field.



Martin Foth-Feldhusen (Head of giz Office Bremen) presenting his institution to the audience

In the first session, Konstantinos Anastasopoulos (DG DEVCO, EC) explained the strategy pursued by his institution to support, firstly, research on space technology by African actors and, secondly, to disseminate the use of satellite data for broader user groups in Africa. Peter Zeil (DG GROW, EC) presented the joint initiative "GMES & Africa" by the European and African Unions, which will result in the adoption of the African Space Policy in 2016. In the first phase of its implementation, the focus will be placed on marine and coastal areas, the sustainable management of natural resources and water resource management.

After the presentation by Sebastian Kleim (DLR) and Martin Foth-Feldhusen (giz), Anna Burzykowska (ESA) explained the agency's activities which focus on Africa.

The emerging cooperation between the giz and the DLR was addressed, as were the possible steps in the next year.

In the second part of the workshop, invited speakers and the audience took the floor. Both Kay Kallweit (giz) and Carsten Haub (EFTAS Remote Sensing Technology Transfer GmbH) stressed that the mere provision of processed images was not sufficient to effectively anchor the use of Earth Observation. Particular attention should be paid to the qualification of partners, for example in the use of data by on-the-job training, as well as to support institutions and develop a precise knowledge of end-user needs. There are no "one-size-fits-all" solutions. Ms. Werner, working on a giz project in Morocco on Integrated Water Resources Management, wished to contact remote sensing actors from the EU in order to get access to the latest developments and data and be able to make better informed decisions.



Invited speakers and the audience take the floor during the second part of the workshop



Roya Ayazi (NEREUS Secretary General) moderates the second part of the event

PRESENTATION HIGHLIGHTS



Peter Zeil, European Commission  
(DG GROW, Copernicus Unit)

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Presentation on general policy framework | GMES & Africa

Date	Event
2007	Lisbon Declaration & Roadmap
2007 -2013	Joint Africa Europe Strategy JAES Partnerships (8 – Science, ICT, Space)
04/2014	Roadmap EU Africa Summit and AUC-EC Cooperative Arrangement on GMES & Africa
04/2014	Pan African Programme PanAf
04/2015	3rd Space Troika and College-2-College Meeting, Brussels; adoption of GMES&Africa implementation roadmap
01/2016	Africa Space Policy validation, Head of State meeting for Adoption.

Policy timeline | Adoption of Africa Space Policy

Thematic areas

Recommendations and consolidation

-  Marine and Coastal Areas
-  Water Resources Management
-  Management of Natural Resources



Policy thematic areas |  
Relevant for NEREUS Regions' expertise

**Next steps**

- 11<sup>th</sup> African Association of Remote Sensing of the Environment Conference AARSE2016 Kampala Uganda October 24-28 2016
- 2016 Validation of DRR and CCA
- Q1/2016 Validation of theme Rural Development and Food Security
- 01/2016 African Space Policy adopted
- 13/11/2015 PanAf adopted by EC
- 08/09/2015 GMES&Africa Implementation adopted

Next steps

PRESENTATION HIGHLIGHTS



Konstantinos Anastasopoulos,  
European Commission (DG DEVCO)

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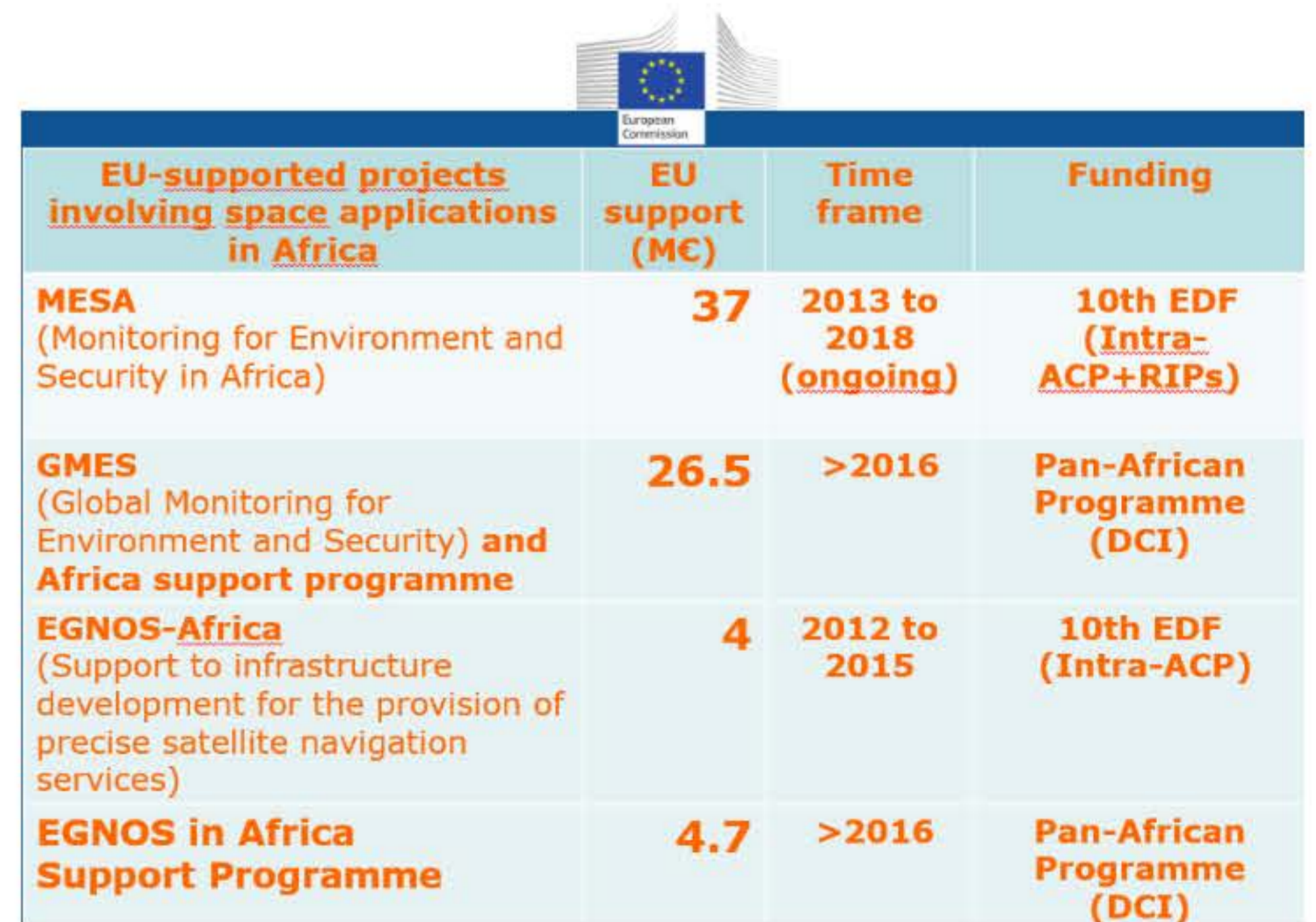


**Workshop: Space applications & development cooperation**

**The EU response in Africa**


K. Anastasopoulos  
DG DEVCO Unit C5

Presentation on the European response in Africa



EU-supported projects involving space applications in Africa	EU support (MC)	Time frame	Funding
<b>MESA</b> (Monitoring for Environment and Security in Africa)	<b>37</b>	<b>2013 to 2018 (ongoing)</b>	<b>10th EDF (Intra-ACP+RIPs)</b>
<b>GMES</b> (Global Monitoring for Environment and Security) and <b>Africa support programme</b>	<b>26.5</b>	<b>&gt;2016</b>	<b>Pan-African Programme (DCI)</b>
<b>EGNOS-Africa</b> (Support to infrastructure development for the provision of precise satellite navigation services)	<b>4</b>	<b>2012 to 2015</b>	<b>10th EDF (Intra-ACP)</b>
<b>EGNOS in Africa Support Programme</b>	<b>4.7</b>	<b>&gt;2016</b>	<b>Pan-African Programme (DCI)</b>

Relevant EU-funded programmes for Space applications in Africa



**GMES: Land services**

- Improve river navigation
- Biodiversity Conservation
- Forest management
- Development of agriculture
- Infrastructure development (water, energy, etc.)

Examples of projects in the field of Land services



**GMES: Marine services**

- Service 1 – **Marine Resources Management**
  - Oceanographic charts for detection of Potential Fishing Zones (PFZ);
  - Monitoring of Oceanography Variables (Biological and Physical);
- Service 2 – **Monitoring of Coastal Environment**
  - Wave and Surge Monitoring;
  - Coastal Area Management

Buoys

Coastal and Marine Areas

Example of projects in the field of Marine services

## PRESENTATION HIGHLIGHTS

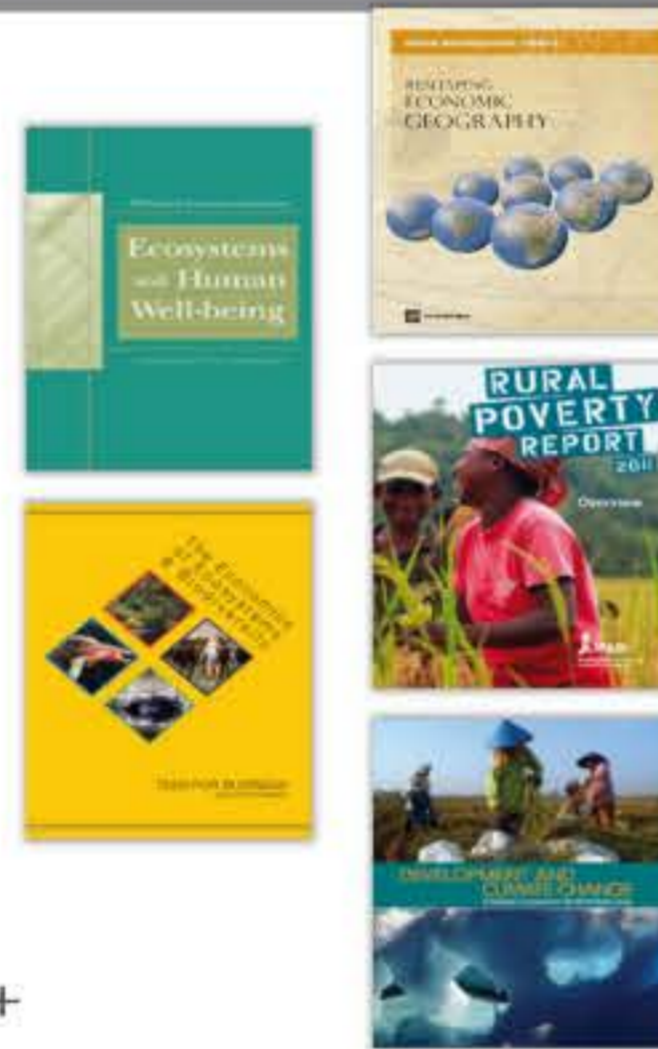


Anna Burzykowska,  
European Space Agency

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### To which Development Issues is EO Relevant?

- Sustainable Agriculture and Food Security
- Rural Development
- Water
- Clean Energy
- Oceans Living Resources
- Sustainable Cities
- Forestry (REDD)
- Transport
- Ecosystems Valuation
- Health
- Climate Resilience
- Disaster Risk Reduction and Recovery .....+



Development issues that can use EO data

### International Financing Institutions: How could they use EO ?

#### Information Drivers

- **Green Growth**
  - Environmental impact / sustainability of economic development investments
- **Climate Resilience / Proofing**
  - Long-term durability of development investments
- **Natural Capital Valuation**
  - Economic valuation of Ecosystems for National and Global accounting (GDP)
- **Open Development**
  - Increasing drive towards transparency in knowledge resources

#### Information Uses

- **In support directly to Programs / Projects**
  - concept definition, planning, implementation
  - close-out and remission
  - as part of capacity-building in developing countries
- **In support of monitoring & evaluation methodologies**
  - as *best-practice* to harmonize M&E tools:
    - Feasibility
    - Environmental Impact Assessments
    - Audits
- **In support of policy & planning**
  - sectorial analyses
  - country development planning
  - recent financial approaches to valuation of natural capital



International institutions using EO



### 2014 ESA Innovators Project led by DLR

Phase 1 (2015-2016) :

- the past urban extent (2002-2003) with ASAR WSM data for East Africa;**
  - 75m spatial resolution built-up extent
  - It includes entire **Uganda, Rwanda, Burundi and Kenya** in addition to big parts of **Somalia, Ethiopia, South Sudan and Zambia**
- the current urban extent for Addis Ababa, Dar es Salaam and Nairobi from Sentinel-1 IW GRDH data acquired in 2014-2015.**

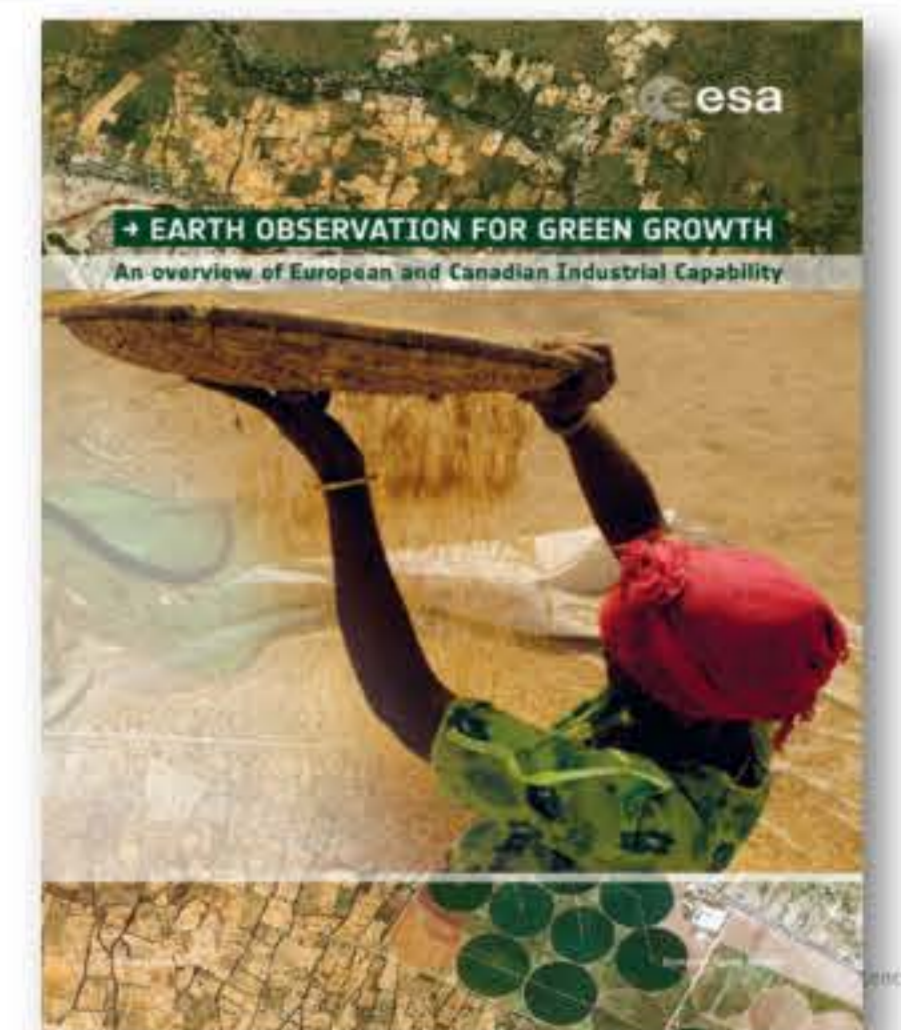
Phase 2 (2016-2017):

- the past urban extent (2002-2003) with ASAR WSM data of the remaining part of the African continent;**
- the current urban extent for Kigali and entire Uganda (including Kampala) from Sentinel-1 IW GRDH data acquired in 2014-2016**

The example of the German Space Agency DLR

### Longer-Term : A New Opportunity

- A window of opportunity exists to exploit **European EO assets (satellites and services)** within the activities of the **International Development sector.**
- The International Stakeholders are **already positioned** to further explore EO capabilities with initial evidence that resources are made available when benefits are demonstrated, and real potential path to **long-term sustainability**
- Start 3 Larger-scale (regional-level) activities in early 2016 in the areas of **Water resources, Urban, Agriculture.**



ESA UNCLASSIFIED - For Official Use

Why exploiting EO is a new opportunity on the long term

## PRESENTATION HIGHLIGHTS



Martin Foth-Feldhusen,  
Head of giz Office Bremen

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**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit e.V. (GIZ) GmbH

**Space Application and Development Cooperation**  
Workshop held on Dec. 8, 2015  
at GIZ Representation, Rue du Trône 108, Brussels.



**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit e.V. (GIZ) GmbH

### Use of Space Application in GIZ-Programs

- GIZ is applying space applications and remote sensing in large number of programs - examples:
  - Reduction of greenhouse gases and adaptation to climate change
  - Reduction of Emissions from Deforestation and Forest Degradation (REDD+) (measuring, verification, reporting – MRV)
  - Prevention, control and monitoring of bush fires in Brasil
  - Fight against poaching in DR of Congo.
  - Management of climate risks – climate-related loss and damage
  - Land and land use management, urban development
  - Monitoring of rice production – yield prediction
  - Water management
  - Disaster management

The global challenges  
of tomorrow drive our work  
today. We shape sustainable  
development worldwide.

Martin Foth-Feldhusen  
Head of GIZ Office Bremen, Germany

### Looking back on Remote Sensing in Development Cooperation



**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit e.V. (GIZ) GmbH

Weak points – as experiences of GIZ programs show:

- different areas of application
- different origin of data (optical, radar, laser) – different in quality and resolution
- Transfer of data – weak internet connections are a problem
- Management of remote sensing programs by external consulting companies mainly
- Weak capacities for management and processing of available data within partner institutions
- Exchange of data with other institutions is poor
- Hardware performance and storage capacity often a problem
- An institutional (GIZ) strategy for use and application of space application is still to be developed.

### Space applications in giz programs



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für Internationale  
Zusammenarbeit e.V. (GIZ) GmbH

Topics of interest – to be tackled

- How to create conditions, which support the use of earth observation data in development cooperation programs?
- Access to data (is it easy enough – where are hindrances, bottlenecks)
  - Quality of data (resolution, near-real time data)
  - Supporting financial conditions
  - Combination of data from different sources.
- How to empower international partners for better use of space apps?
- Knowledge sharing – networking
  - Capacity building for end users

PRESENTATION HIGHLIGHTS

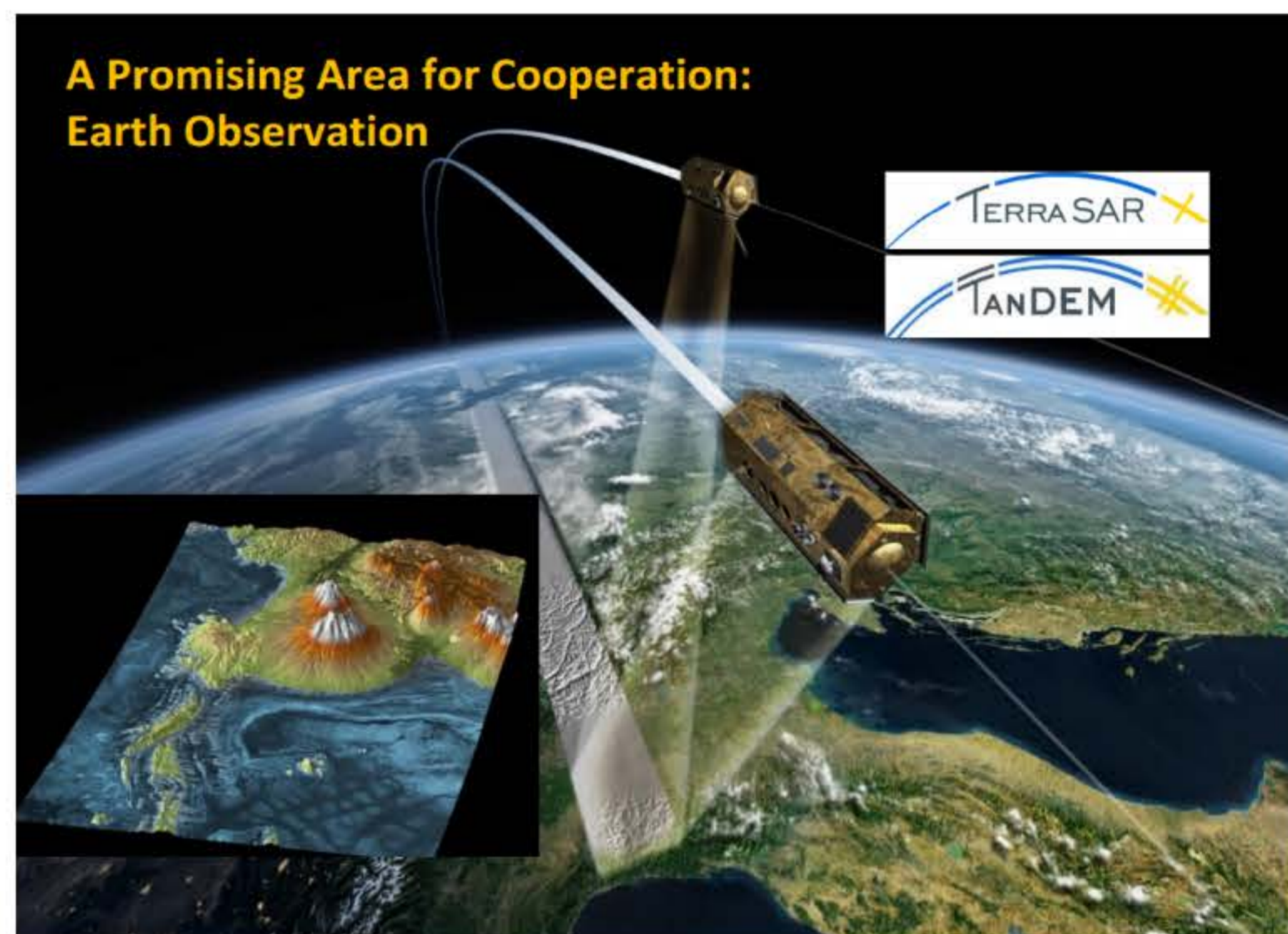


Sebastian Kleim, DLR

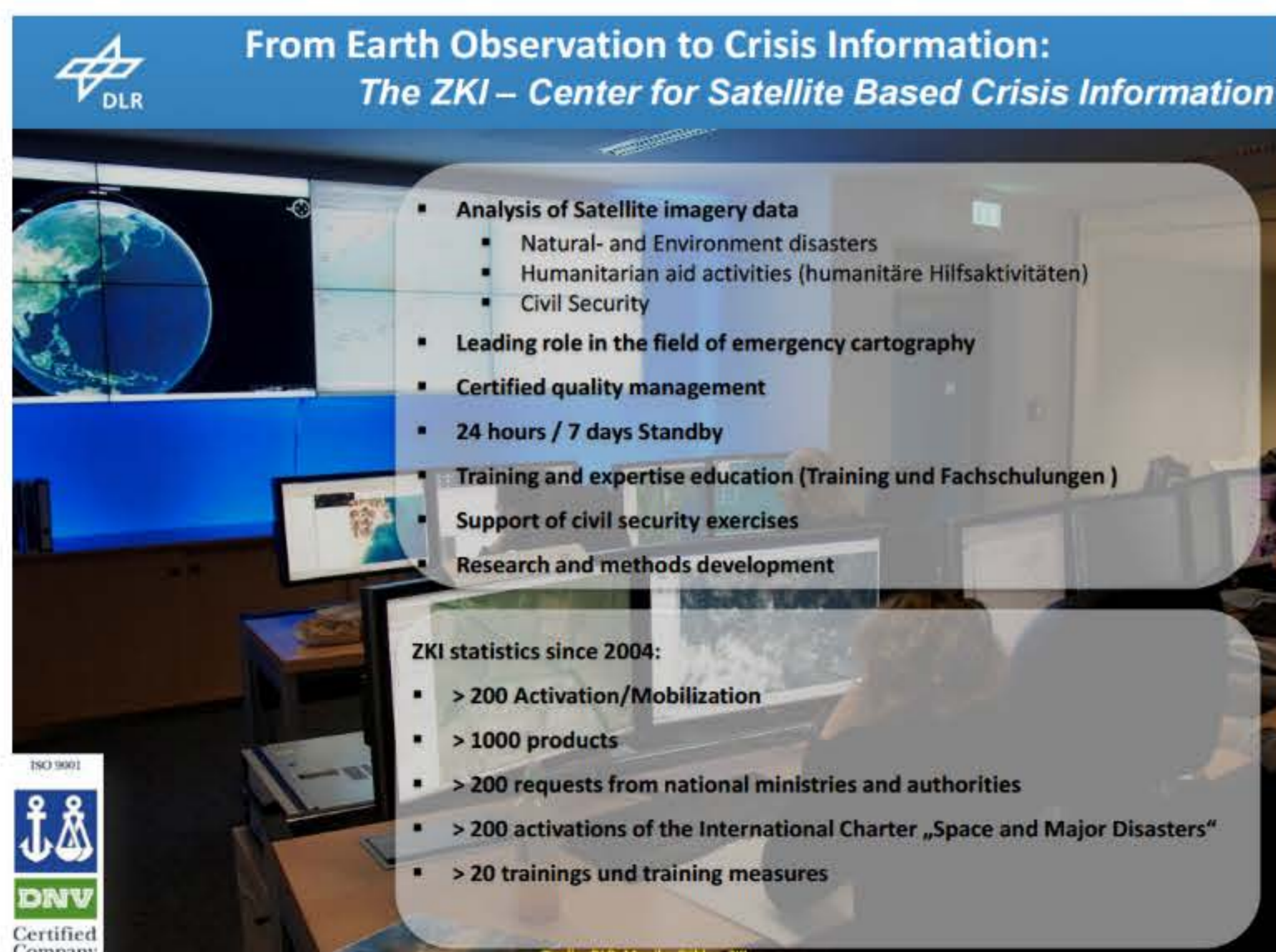
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Introducing DLR and giz collaboration



How Earth Observation enables Development Cooperation



Using Earth Observation for Crisis Information



Monitoring Refugee camps in Syria



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## CONCLUDING REMARKS

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Christian Bruns,  
NEREUS Vice President and  
Head of Bremen Representation

In his concluding remarks, Christian Bruns confirmed the overall interest for the overlaps between Space and Development Aid. He thanked the over 50 attendees and spoke of the event as a prelude. He outlined possible future steps, and left the audience with some key messages.

There is an emerging need for innovative solutions to tackle challenges in the field of development cooperation, and space technologies offer a broad range of applications.

Satellite data and space-based products and services deliver key information for the design, implementation monitoring and assessment of development projects in third countries.

With their vibrant space communities, NEREUS Regions have a consistent number capabilities, skills and experience in the field of Earth Observation information services industry.

European institutions, such as the European Commission and the European Space Agency, have a proven track record of policies and programmes to frame Space and Development cooperation activities.

The interest for Space and Cooperation Aid is confirmed: the event is only a prelude to further steps which will be taken in the future. Expect a workshop including more African partners as well as organizations and service-providers operating in African countries.

The organizers wish to thank all the participants for their presence and pro-activeness during the workshop on Space and Development Aid.

The powerpoint presentations and other information on this theme is published on the NEREUS website [www.nereus-regions.eu/spacedev](http://www.nereus-regions.eu/spacedev)