



# Climate Change and Disaster Mitigation

## Determining Information Needs: Maximizing Value and Accessibility

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# Outline

- About MDA Geospatial Services
- Support to the United Nations
- Climate Change and Disaster Management
  - Context and Challenges
  - Relation to Sustainable Development Goals
  - Increasing Geospatial Information Value and Accessibility
- Some Considerations for the Panel

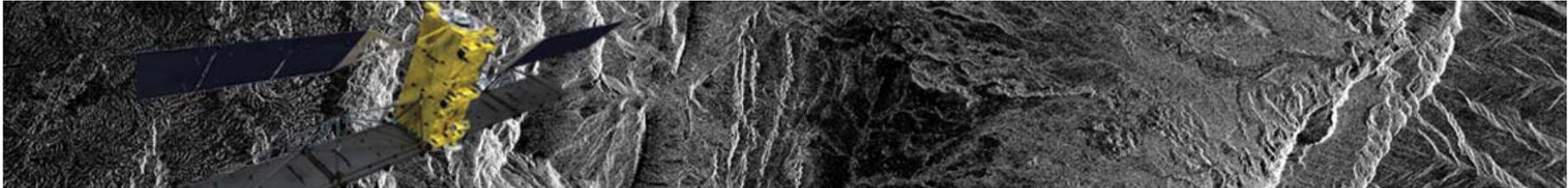
# About MDA Geospatial Services

The market leader in the operational delivery of time-sensitive, business process-specific, geospatial information

- Designs and delivers near real-time solutions based on geospatial data for operational environments
- Delivers operationally-responsive, 24/7 support for just-in-time decision making
- Operates the RADARSAT-2 mission and delivers radar imagery worldwide
- Provides single source access to a broad range of optical satellite missions



# Operational Capabilities Servicing Global Markets



Oil and Gas	Disaster Management	Natural Resources	Agriculture	Mining	Aviation	Defence and Security
<p>Offshore Oil Monitoring</p> <hr/> <p>Ice Monitoring</p> <hr/> <p>Surface Movement Monitoring</p> <hr/> <p>Asset Security</p>	<p>Flood Monitoring</p> <hr/> <p>Flood Modeling</p>	<p>Ice Monitoring</p> <hr/> <p>Illegal Fishing</p> <hr/> <p>Deforestation Monitoring</p>	<p>Crop Monitoring</p> <hr/> <p>Rice Monitoring</p>	<p>Surface Asset Monitoring</p> <hr/> <p>Decommissioned and Abandoned Mine Monitoring</p>	<p>Airport Mapping</p> <hr/> <p>Obstruction Mapping</p>	<p>Maritime Surveillance</p> <hr/> <p>Intelligence and Reconnaissance</p>

# Support to the United Nations

- MDA has been under contract to the United Nations since 2004, providing satellite imagery to 39 UN entities.
- Imagery products benefit a variety of UN projects with strategic intelligence and information enabling enhanced decision making
- Projects include:
  - Peace Keeping Base Mapping and Surveillance
  - UNODC Illicit Crop Monitoring
  - UN Security Council Situational Awareness
  - FAO Food Security Issues



# Climate and Disasters: Context and Challenges

- Climate change and disasters have a significant impact on the well-being of the global population.
- Geospatial information has an important role to play in monitoring and mitigating the impact of climate and disaster-induced change.
- Further, to support the achievement of sustainable global development goals, it is imperative that we work to increase the value and accessibility of geospatial information.

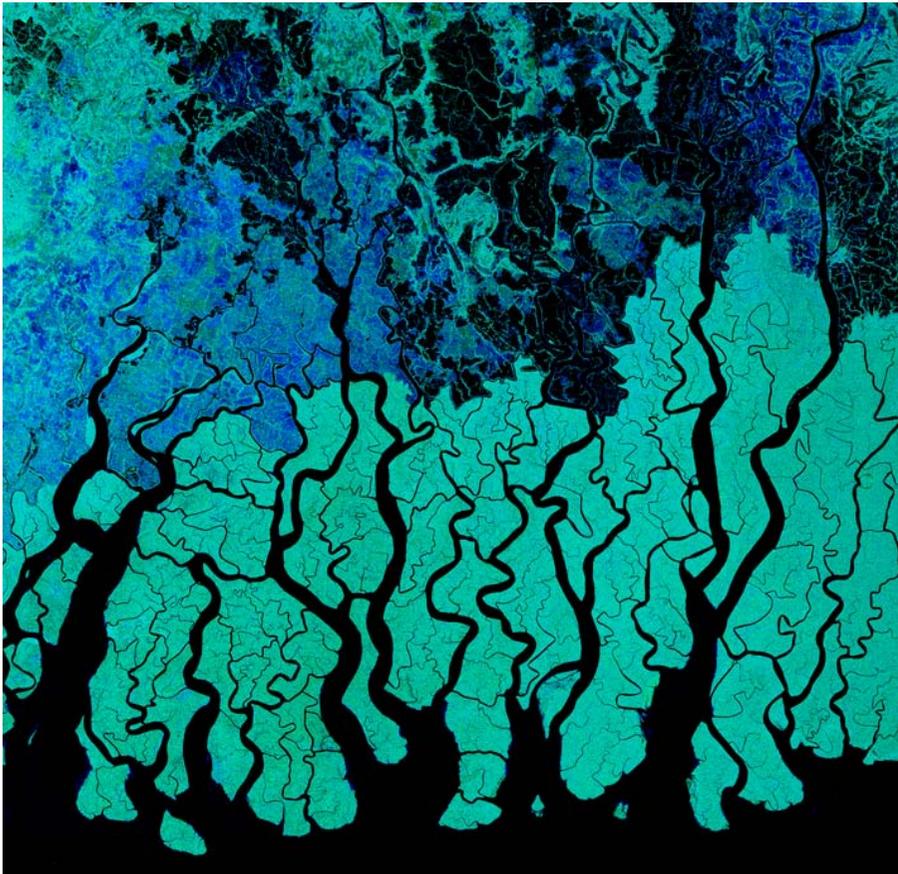


# The Role of Geospatial Data in Achieving Sustainable Development Goals

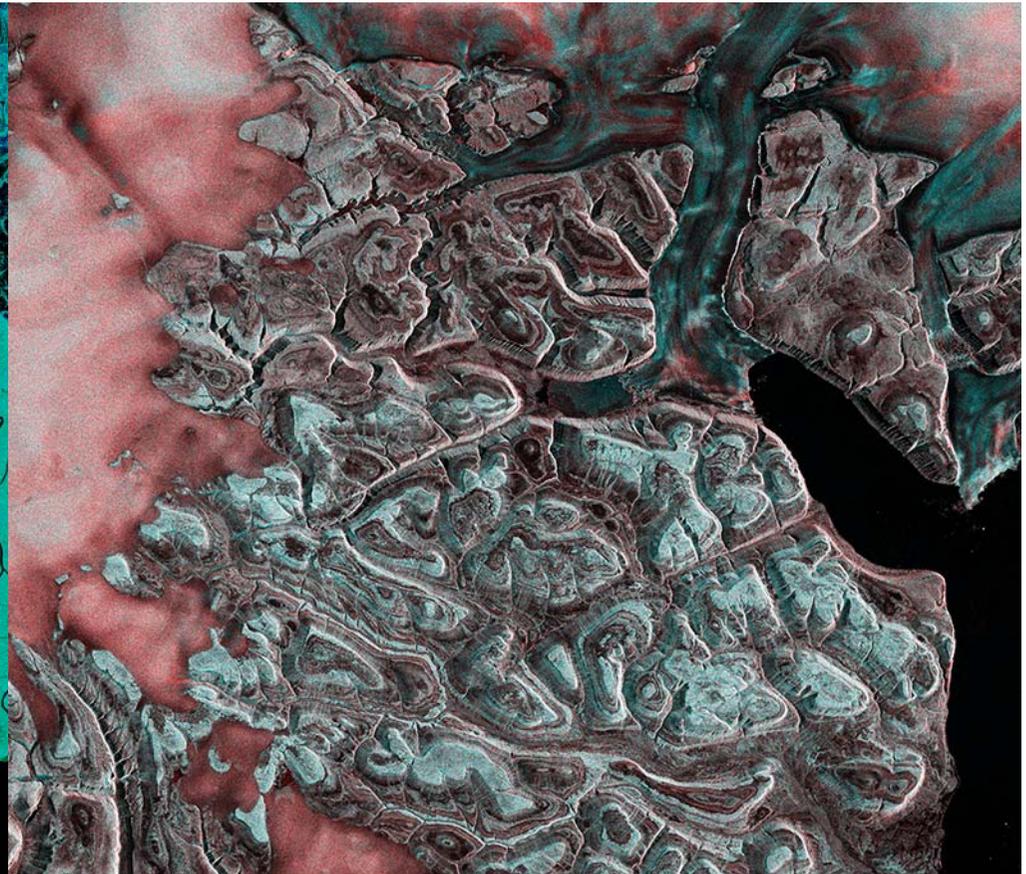
#	OWG4SD Sustainable Development Goal	Direct Role	Indirect Role
1	End poverty in all its forms everywhere		X
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	X	
3	Ensure healthy lives and promote well-being for all at all ages		X
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all		
5	Achieve gender equality and empower all women and girls		
6	Ensure availability and sustainable management of water and sanitation for all	X	
7	Ensure access to affordable, reliable, sustainable, and modern energy for all	X	
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all		X
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation		X
10	Reduce inequality within and among countries		X
11	Make cities and human settlements inclusive, safe, resilient and sustainable	X	
12	Ensure sustainable consumption and production patterns		X
13	Take urgent action to combat climate change and its impacts	X	
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	X	
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	X	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels		X
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development		X

# Climate Change – Global Issue, Local Consequences

How can we assess the impact that changes in global sea ice will have on vulnerable coastal populations and ecosystems?



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# Disaster Mitigation – Managing Prevention, Response

How can we best equip emergency responders with timely information to direct resources to where help is needed most?



Image: Natori, Japan | March 12, 2011 | Natural Color Image

DigitalGlobe Proprietary and Business Confidential

# Maximizing Value Needs a Multi-Source Approach

Each sensor platform has its own capabilities and benefits. Increased value and information content is achieved using a multi-source approach.

Fig 1. Optical Satellites

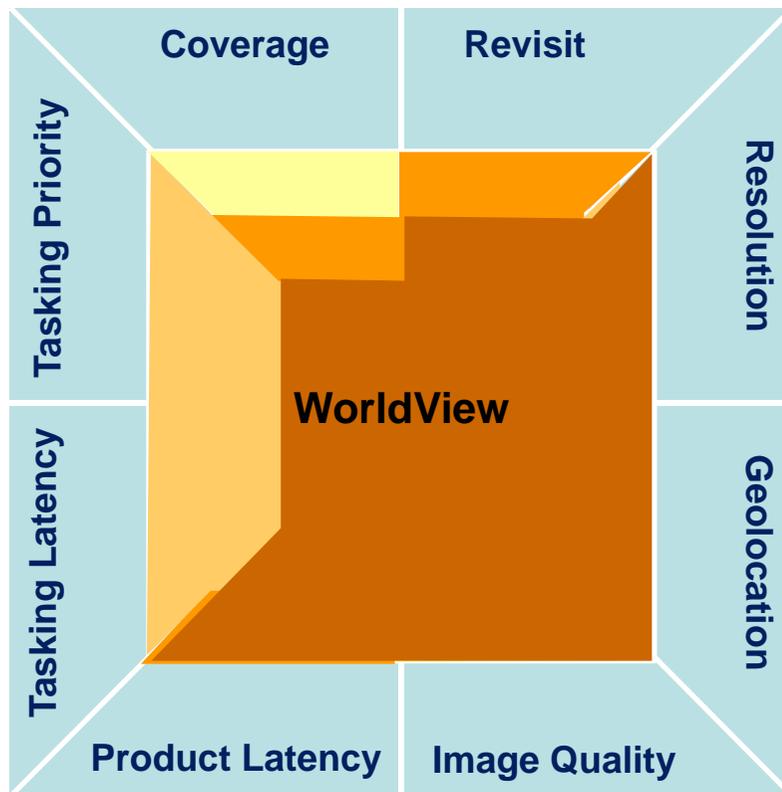
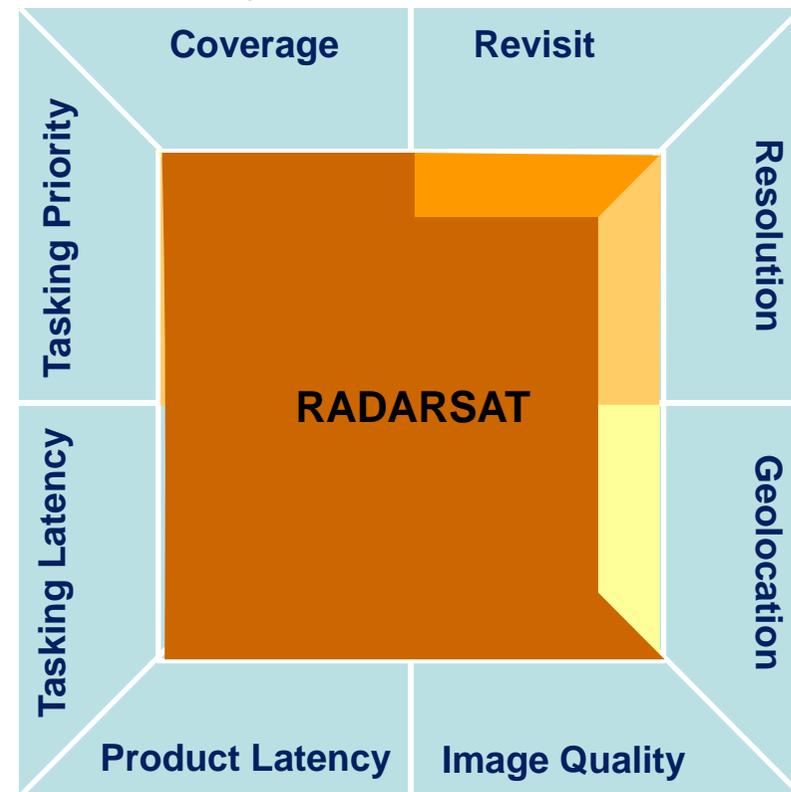
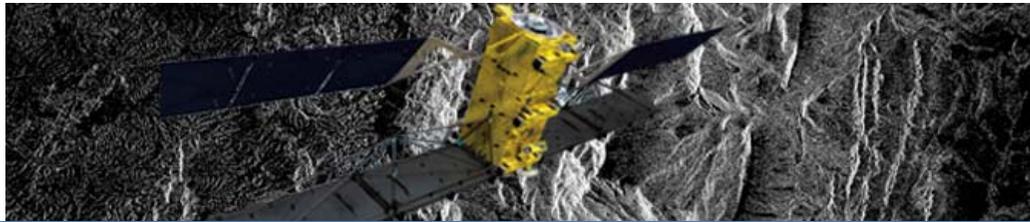


Fig 2. RADAR Satellites



# Latency and Response Times Are Critical

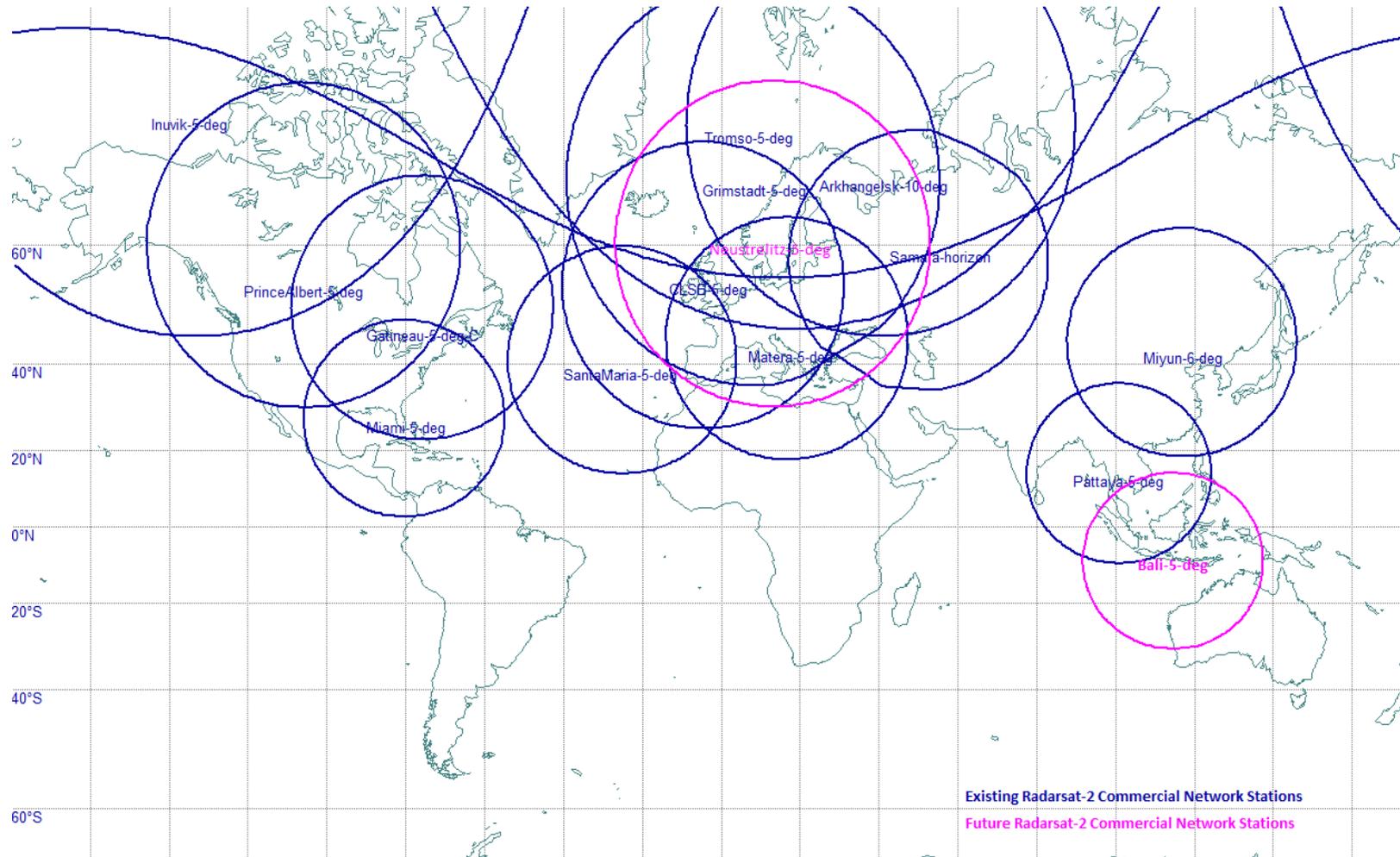


Oil and Gas	Disaster Management	Natural Resources	Defence and Security
Oil Spill Monitoring Incident Response	Flood Mapping Landslide Monitoring	Ice Monitoring Illegal Fishing	Maritime Surveillance Target Change Detection

- Geospatial information value is time limited for many applications.
- Geospatial information is not just about where and what, but:
  - When?
  - Still relevant?
  - What is changing?
- Reducing latency and response applies to both:
  - Tasking of new collections
  - Post-collection product delivery

**The world is dynamic. Need to think not only geospatial... but geotemporal.**

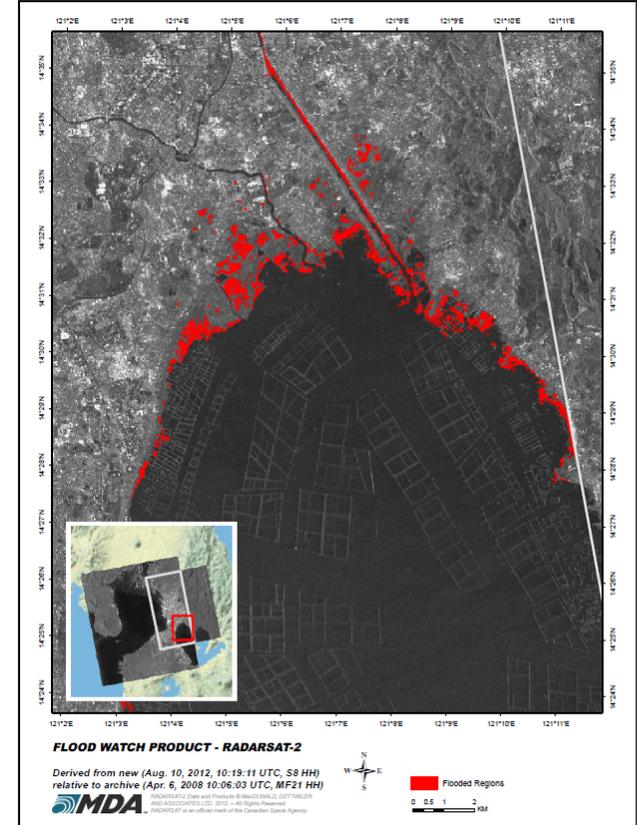
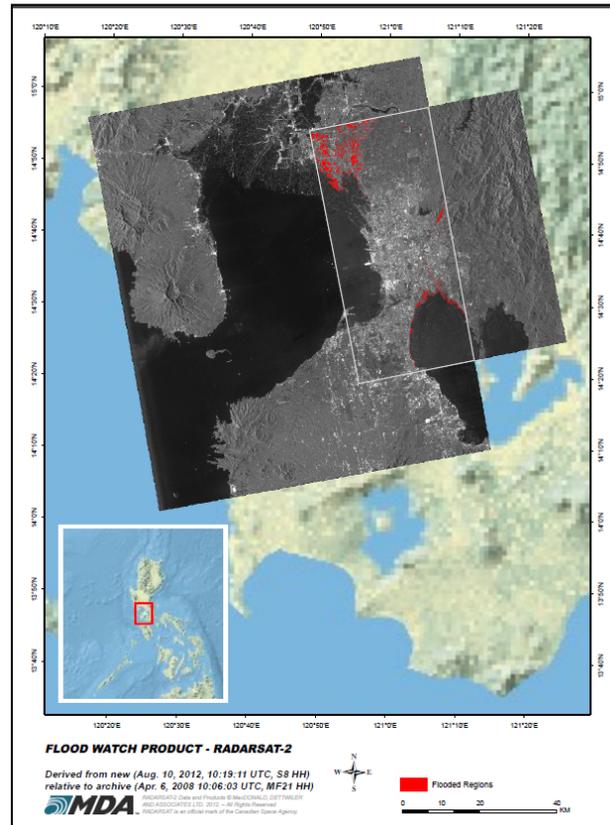
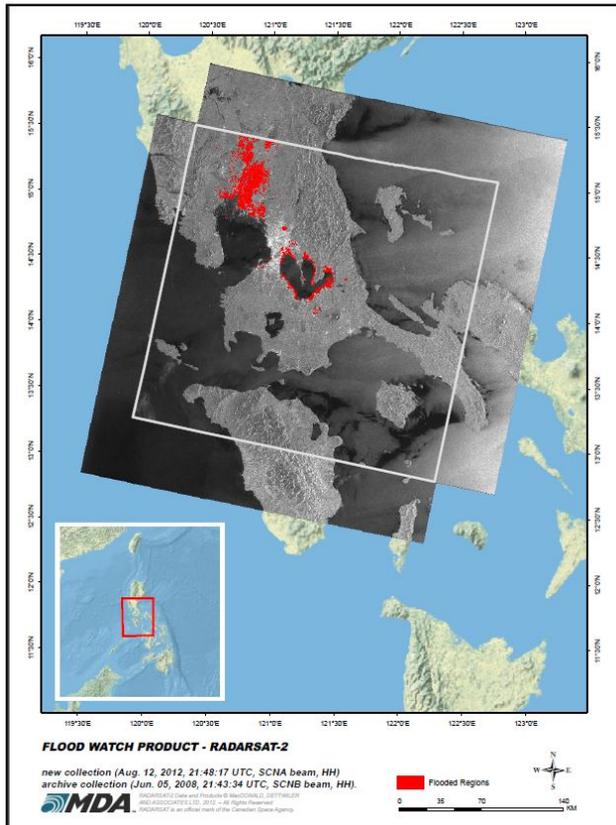
# Rapid Response Requires Global Infrastructure



**A global network of direct satellite access infrastructure minimizes latency.**

# Imagery as a Product is Not Enough

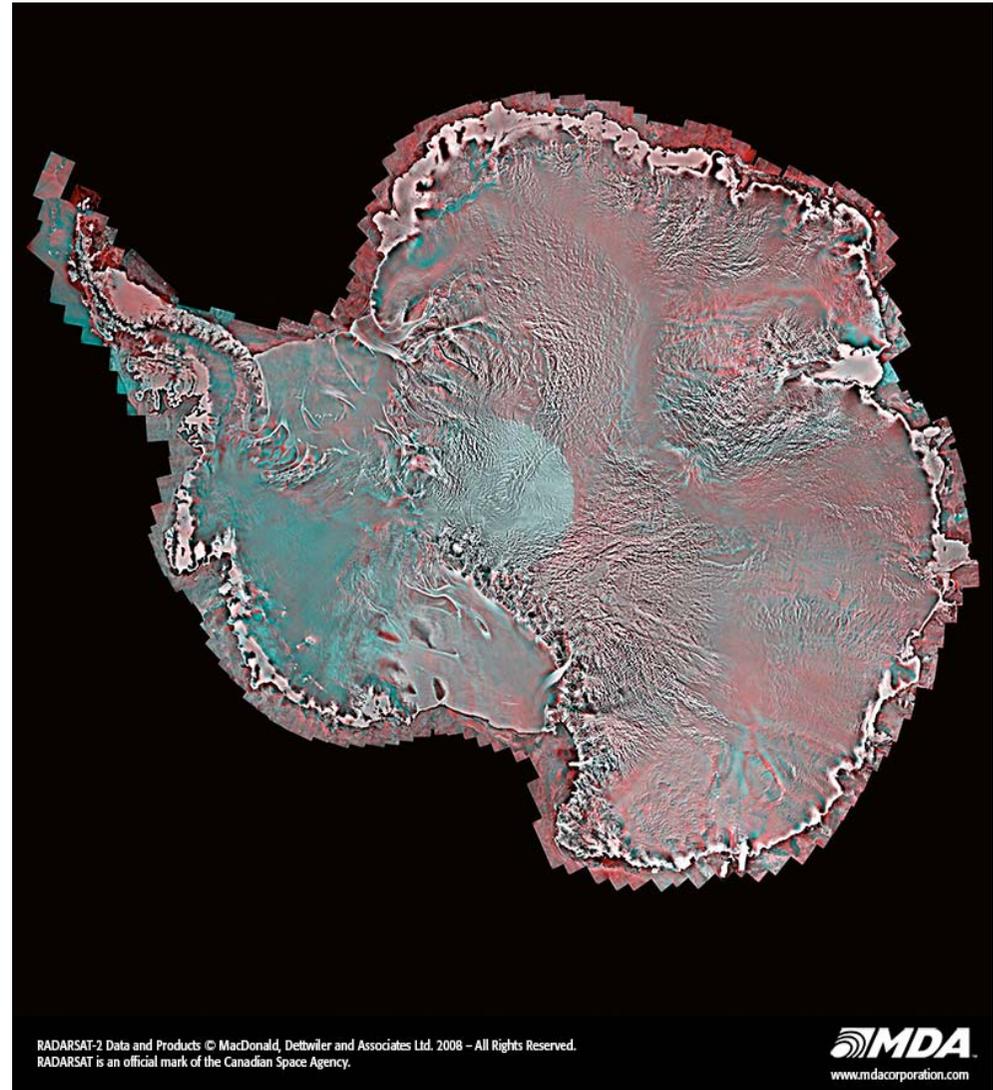
Geospatial information products need to be designed to answer the specific questions of target users and integrate directly with user workflows.



# Climate Change is Geographically Extensive

- Questions of climate change are global in nature.
- Climate change processes span large spatial and temporal scales
- Extensive and repeat geographic coverage are required to observe and characterize climate-related changes.

**Broad area, repeat monitoring is fundamentally valuable – its not just about resolution.**





# Policy and Standards Related Challenges

- Each satellite operator has its own regulatory, access, and licensing policies. Achieving a harmonized solution across multiple operators is often very complex.
- The processes and mechanisms required to order data from different satellites are not standardized, making it difficult for users to create and submit requests that meet their needs.
- Product formats are reasonably standardized but there remain some issues across different standards and data sources that inhibit use.

**A single-channel satellite remote sensing data broker offers unique value to the diverse requirements of organizations like the UN.**



## In Conclusion: Some Considerations for the Panel

- How can the climate change and disaster management community best take advantage of new generation sensors?
- During disasters, how fast is fast enough when it comes to geospatial information product delivery?
- What do we need to do to foster the development of information services that better target the requirements of the users we serve?
- How can the climate change community better access and take advantage of the geospatial big data sets collected of our planet?
- How can we minimize the barriers created by different licensing and commercial approaches in the context of disaster response?



**Thank You**