UN-GGIM Exchange Forum

Maximizing the Utility of Satellite Remote Sensing for the Management of Global Challenges

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MDA Geospatial Services Inc. (GSI)

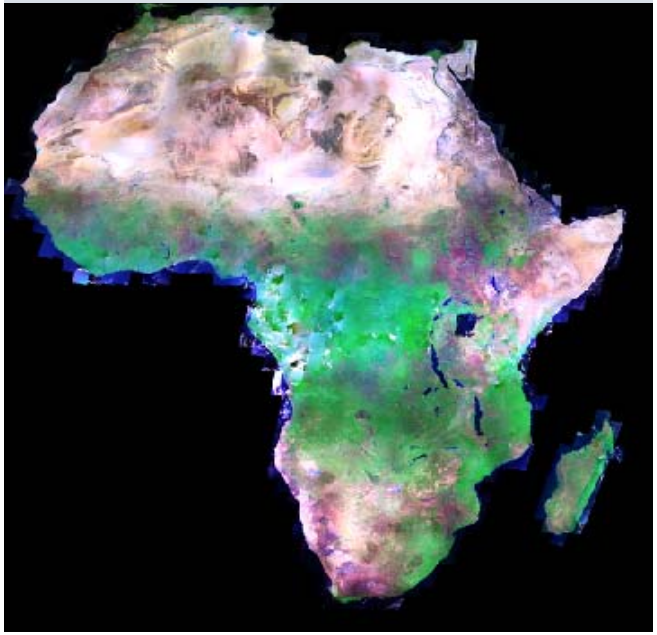
Providing Essential Geospatial Products and Services to a global base of customers.

SATELLITE DATA DISTRIBUTION

Top Image - Copyright © 2002 DigitialGlobe

Bottom Image - RADARSAT-1 Data © CSA (2001). Received by the Canada Centre for Remote Sensing. Processed and distributed by MDA Geospatial Services Inc.

DERIVED INFORMATION SERVICES



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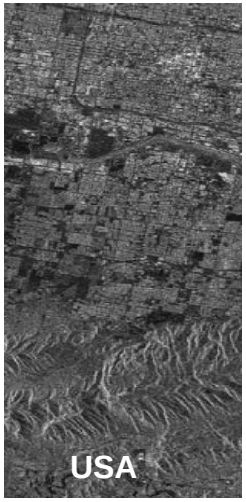
MDA GSI - Satellite Data Distribution

Worldwide distributor of radar and optical satellite data

RADARSAT-2



GeoEye

WorldView

RapidEye

Satellites

- RADARSAT-1 (worldwide)
- RADARSAT-2 (worldwide)
- LANDSAT 5
- LANDSAT 7
- ENVISAT
- ERS
- RapidEye
- QuickBird
- WorldView-1
- WorldView-2
- IKONOS
- GeoEye-1
- EROS A
- EROS B

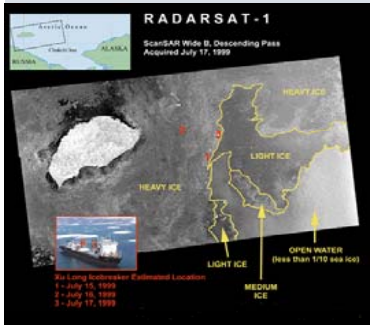
Example Key Clients

- Canadian Ice Centre
- United Nations
- U.S. National Geospatial-Intelligence Agency
- European monitoring agencies
- Oil companies
- Fisheries agencies
- National Remote Sensing Centres

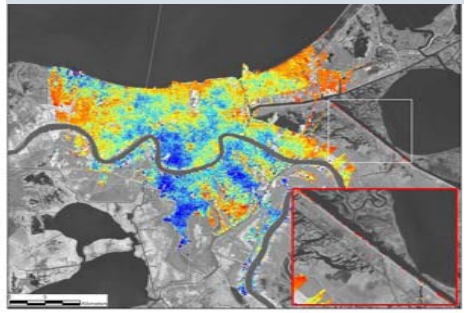
MDA GSI - Derived Information Services

- MDA Geospatial Services provides value-added services to customers worldwide based on geospatial data
- The mandate is to understand the information the customer is interested in – not just provide them with imagery
  - In most cases we do not provide imagery as our end product – we provide the extracted information
- We prefer sustainable, long term service models, rather than “one-of” projects
  - Typically monitoring applications

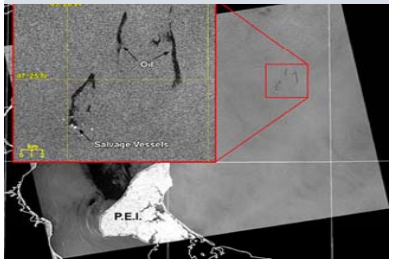
SEA ICE MONITORING



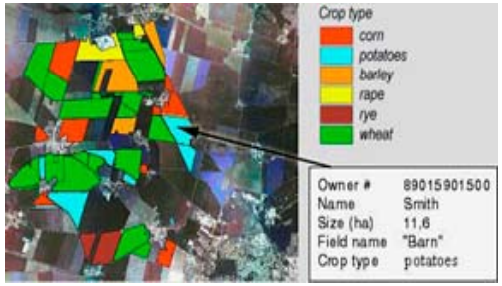
URBAN MONITORING



OIL POLLUTION MONITORING



AGRICULTURE MONITORING



MDA GSI and the United Nations

- MDA GSI has been under contract to the United Nations since 2004, providing satellite imagery to the UN and 39 UN entities.
- Satellites currently supported:
  - Optical satellites including QuickBird, WorldView-1, WorldView-2, IKONOS and GeoEye-1;
  - SAR satellites including Radarsat-1 and Radarsat-2.
- Acting as a single-channel satellite remote sensing data broker, MDA GSI serves the UN in the following key aspects:
  - Understands the complexity involved in multiple collection systems and UN missions' data requirements;
  - Determines optimal sensors for collection, based on sensor capacity and imaging characteristics;
  - Interfaces with multiple satellite data providers for order placement and product retrieval.
- MDA GSI supports the following major UN groups operationally:
  - Department of Peacekeeping Operations (DPKO), for refugee camp mapping and emergency and disaster response;
  - United Nations Office on Drugs and Crime (UNODC), for illicit crop monitoring.

The Contribution of Satellite Remote Sensing towards the Development of Geospatial Information and Intelligence

Satellite remote sensing imagery and derived information are essential elements of geospatial information and intelligence, serving various needs:

- Provide the "big picture" context that is often unclear from other information collection sources.
- Give spatial context to events that otherwise might be assumed to be unconnected.
- Promote a shared visualization framework that is independent of language or cultural impediments. This is critical in cases where the UN is operating in conjunction with local partners and authorities.
- Contribute to decision making without putting people into the hazardous and unstable environments often encountered where the UN operates.

Key Applications of Satellite Remote Sensing in Addressing Global Challenges

Geospatial information and intelligence derived from satellite remote sensing data contribute greatly in addressing global challenges, in fields such as:

- Disaster Management
- Food and Agriculture Management
- Climate Change Monitoring
- Natural Resources Management
- Environmental Monitoring
- Peacekeeping Missions and Security
- Urban Monitoring
- Overall Poverty Alleviation

The Critical Value of Satellite Remote Sensing Data

In the management of global challenges, satellite remote sensing provides a particularly effective tool for a number of critical tasks:

- Risk assessment analysis, such as:
  - determining extent of flood plains
  - identifying communities at risk
  - assessing stability/health of food resources
  - assessing securing of refugee camps in relation to water supply, food supply chains, disruptive political elements, etc
- Determination of the extent of disaster impact and provision of key information required for effective emergency response:
  - precise mapping of affected areas (Where should aid be directed?)
  - determination of what infrastructure has been damaged, and what remains available (What hospitals are available? What's the nearest route to a safe water supply? What impact has been had on the season's crop harvest?)

The Role of SAR Satellites

Within the field of satellite remote sensing, Synthetic Aperture Radar (SAR) data provides an important contribution towards the development of geospatial information and intelligence through:

- All-weather, day and night operation, leading to greater data availability and reliability.
- Special suitability for certain applications such as ice monitoring, oil spill detection and tracking, and flood monitoring.
- Complementarity to satellite optical imagery and other data sources, providing greater information content.

Key Requirements on Satellite Remote Sensing Data for Effective Use in the Management of Global Challenges

The spatially-broad and time-critical nature of the issues being addressed poses the following key requirements on satellite remote sensing data:

- Reliable and dependable data sources
- Fast turnaround from data ordering, acquisition, processing, analysis and dissemination of derived information to decision makers
- Simple and harmonized access to data and information, including ordering and manipulation
- Data sharing, interoperability and standardization
- Data affordability

Policy-Related Challenges faced by the Satellite Remote Sensing Industry

Despite significant progress in recent years, the ability of the satellite remote sensing data to fulfill the key requirements discussed in the previous slide is still adversely affected by a number of pervasive data policy related issues:

- Each satellite operator has its own national regulatory regime and commercial policies that often are not harmonized with other operators. Achieving common licensing and distribution terms that can apply to multiple providers has proven very complex.
- The processes and mechanisms required to order data from different satellites are not standardized, making it more 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.

Suggestions for the Creation of a Common Framework for Better Policy Environment

To properly address the challenges identified in the previous slide, a Common Framework needs to be established, with the following goals:

- Harmonization of national satellite remote sensing regulatory regimes
- Harmonization of commercial data policies
- Standardization of data ordering protocols
- Standardization of product formats and product delivery protocols

In order to be successful, this Common Framework requires appropriate representation from governments, industry and large end users, and should be based on the experience accumulated in efforts such as the Committee on Earth Observation Satellites (CEOS), the Group on Earth Observations (GEO) and the Global Monitoring for Environment and Security (GMES) Programme.

The Value of a Single-Channel Satellite Remote Sensing Data Broker to the United Nations

Given the current challenges discussed in this presentation, a single-channel satellite remote sensing data broker can offer unique value to UN end users by:

- Understanding the complexities involved in working with multiple satellite remote sensing data providers.
- Consolidating end users' information requirements and optimizing the capabilities, capacities and commercial conditions from the different remote sensing satellites to best meet those consolidated user requirements.
  - Potentially enabling data cost sharing by allowing various users to publish their project requirements and, if requirements overlap, devising solutions that allow various users to split the data cost.
- Sheltering end users from having to deal with satellite remote sensing complexities and allowing them to stay focused on the problems they are trying to solve.
- Managing the end-to-end process to ensure that the users' information requirements are fully met in a timely manner.


MDA
Thank You