FORMOSAT-2, KOMPSAT-2, ASTRO TERRA

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ESA/ESRIN Frascati
FORMOSAT-2 Mission status

- F-2 is owned by Taiwan National Space Organisation (NSPO), designed and manufactured by Astrium
- Launched in 2004
- Spot Image is exclusive distributor
- Special orbit (sun-synchronous & geo-synchronous with exactly 14 orbits/day) providing daily revisit of accessible areas, always seen under the same roll angle
- High resolution (2mPAN, 8mMS)
- 4 spectral bands B, G, R, SWIR
- Swath 24km
- More than 1 million images in the archive
KOMPSAT-2 Mission status

- K-2 owned by Korean Aerospace Research Institute (KARI), designed and manufactured by KARI and Astrium
- Launched in 2006
- Spot Image is exclusive distributor
- Very High Resolution (1mPAN, 4mMS)
- 4 spectral bands B, G, R, NIR
- Swath 15km
- Operations over Europe shared between ESA (Cat-1 users) and Spot Image (commercial users)
FORMOSAT-2 and KOMPSAT-2 HMA implementation
Interoperability between missions

- Spot Image operates a multimission ground segment integrating SPOT, F-2, K-2 and later PLEIADES and ASTROTERRA

- K-2 integrated to SPOT catalogue through EOLI interface, F2 on-going
- Ordering WS-Order based on HMA-Order implemented on all satellites
- Multimission programming using SPS
## FORMOSAT-2 and KOMPSAT-2 HMA implementation

### HMA standards

<table>
<thead>
<tr>
<th>Component</th>
<th>Standard</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth Observation Product Metadata</td>
<td>OGC 06-080, GML Application Schema for EO Products, Version 0.9.3, 21/07/2008</td>
<td>Within GSC-DA</td>
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<td>Catalogue Search</td>
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FORMOSAT-2 and KOMPSAT-2
HMA implementation – GMES Data Access V1
FORMOSAT-2 and KOMPSAT-2 HMA implementation

- **Comments**
  - EOLI is very efficient, except on metadata
  - GML Application Schema for EO products is more efficient on metadata
  - ebRIM profile of CSW 2.0 does not demonstrate efficiency

- **Recommendations**
  - ebRIM to be implemented through a proxy access and not directly on the catalogue
Quality Assurance for Earth Observation (QA4EO)

- Refer to presentation on SPOT and PLEIADES
- Orient KARI and NSPO towards policy compliant with SPOT and PLEIADES practices
- Products described in DIMAP format, compliant with QA4EO
- On-going action to translate DIMAP into SensorML
FORMOSAT-2 - Ground EO data flow

FORMOSAT-2 – European Ground Segment

VRS Virtual Reception Station

Virtual Reception WEB Interface

Production

Polar Station

NSPO (Taiwan)

Spot Image (France)

Programming

Reception

FORMOSAT-2
KOMPSAT-2 - Ground EO data flow

Image Data Downlink

X-Band Receiving Station

Raw Data

Other Direct Receiving Stations Worldwide

Data Ingestion, Data Management, Data processing

Tasking Requests

Catalogue update

KARI

1. Satellite Housekeeping
2. Payload tasking

KARI – Korean government use
Data Ingestion, Data Management, Data processing

Tasking Requests

Catalogue update

Spot image & its network
International Sales Distribution Network

Tasking Order, Product Order

KAI Image Inc.
Central catalogue maintained by KAI Image Inc.

Catalogue browsing

Tasking Requests

USERS
Recommendations

• Areas of standardisation in operational processes or interfaces that GSCB should address
  
  – Implementation of SPS Application Profile for EO sensors
  
  – Continuous effort to promote WCS and GML JP2000 for on-line data access consumption (ODA-C)
  
  – Development of WPS to link data providers and service providers
SPOT-6, SPOT-7 Mission status
(Astroterra programme)

- Spot Image owner and exclusive distributor
- SPOT-6 planned to be launched in September 2012 and SPOT-7 planned to be launched 15 months later
- 694km sun synchronous orbit
- High resolution (2mPAN, 8mMS)
- Simultaneous PAN and MS acquisitions
- 4 spectral bands B, G, R, NIR
- Swath 60km
### SPOT-6, SPOT-7 HMA implementation (Astroterra programme)

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<tr>
<td>Earth Observation Product Metadata</td>
<td>OGC 06-080, GML Application Schema for EO Products, Version 0.9.3, 21/07/2008</td>
<td>Update of SPOT Constellation mapping</td>
</tr>
<tr>
<td>Catalogue Search</td>
<td>OGC 06-131, EO Products Extension Package for ebRIM Profile of CSW 2.0, Version 0.2.2, 12/11/2008</td>
<td>Same as SPOT with proxy based on Erdas solution</td>
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<tr>
<td>Order</td>
<td>OGC 06-141. Ordering Services for Earth Observation Products, Version 0.9.4, 05/09/2008</td>
<td>Re-use of SPOT, tuning only</td>
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<tr>
<td>Programming</td>
<td>OGC 07-018, SPS for EO profile. New version to be developed within HMA-FO</td>
<td>Re-use of Pléiades tuning only</td>
</tr>
<tr>
<td>Online Data Access</td>
<td>WCS EO application profile. Output of HMA-FO</td>
<td>Development to be done</td>
</tr>
<tr>
<td>Product</td>
<td>GMLJP2 format with DIMAP Metadata.</td>
<td>Re-use of Pléiades</td>
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