Smarter Decision-Making through Premium Satellite Solutions

Airbus DS, Geo-Intelligence Business Presentation

March 06, 2014

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The Power of the Airbus Group

AIRBUS GROUP

Employees*: ~ 140,000
Revenues*: ~ € 56 bn

CASSIDIAN
AIRBUS MILITARY
ASTRIUM
AN EADS COMPANY

Integration & Rebranding 2014

AIRBUS

Employees*: ~ 73,500
Revenues*: ~ € 39 bn

AIRBUS HELICOPTERS

Employees*: ~ 22,400
Revenues*: ~ € 6.3 bn

AIRBUS DEFENCE & SPACE

Employees**: ~ 40,000
Revenues**: ~ € 14 bn

* in 2012
** estimate for 2014

Space Systems I Military Aircraft I Communication, Intelligence & Security I Electronics

- [redacted]
- SatComms
- Integrated Systems
- Secure Land Communications

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Never Far Away

- Our offices
- Direct receiving stations

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A Unique Satellite Fleet

PAZ
Terr
Laur
FC

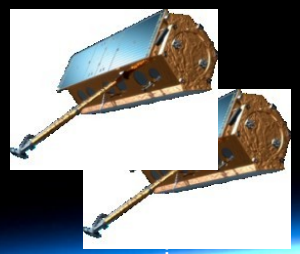
TerraSAR-X Next Generation
0.25m ground resolution

Daily
Char

TerraSAR-X TanDEM-X
Radar satellite formation
Weather-independent – cloud-free guarantee
Various resolutions [0.25m to 40m] & scene sizes
large areas

SPOT 5

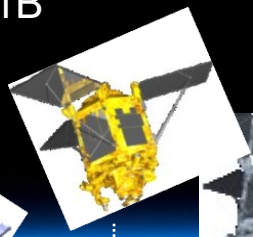
FORMOSAT-2



TerraSAR-X
TanDEM-X

DEIMOS-1

Pléiades 1B



SPOT 6

SPOT 7

PAZ

SPOT 6 & 7
Pléiades
Twin satellites with high resolution [1.5m products]
Secure **data continuity for SPOT mission** (since 1986)
60km swath for large-area coverage as a standard
Constellation for daily revisit anywhere on Earth
Highly reactive system

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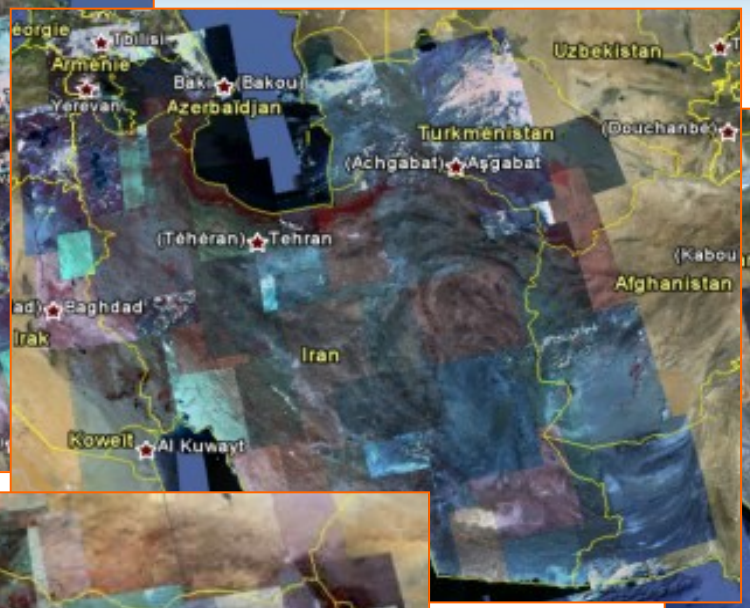
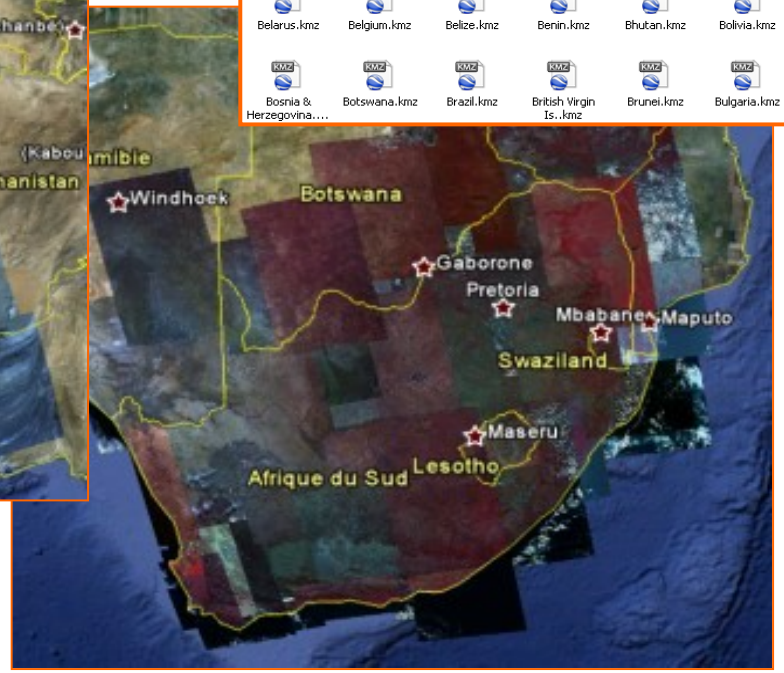
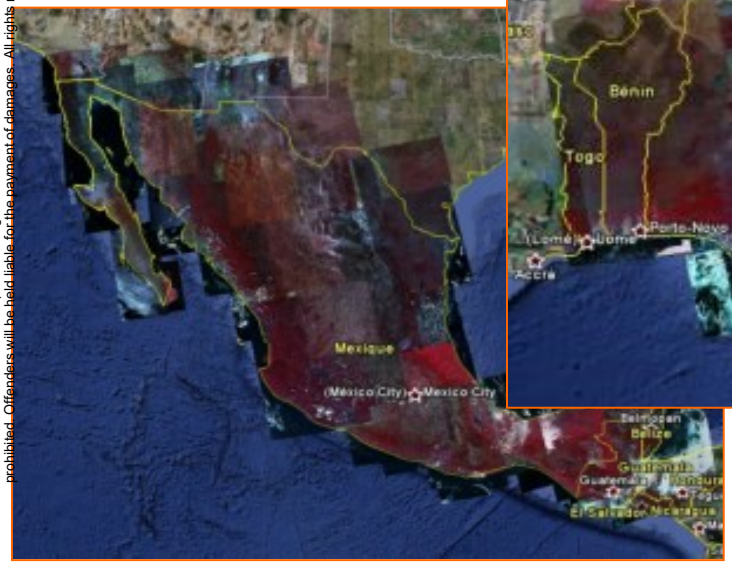
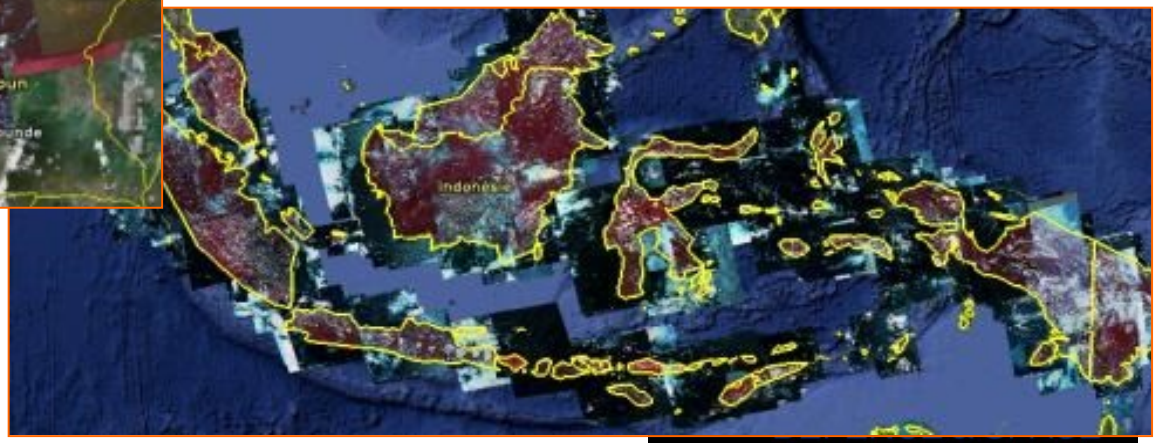
DEIMOS-1 - Poyang Lake - China

DEIMOS-1 archive availability – some examples 2/2









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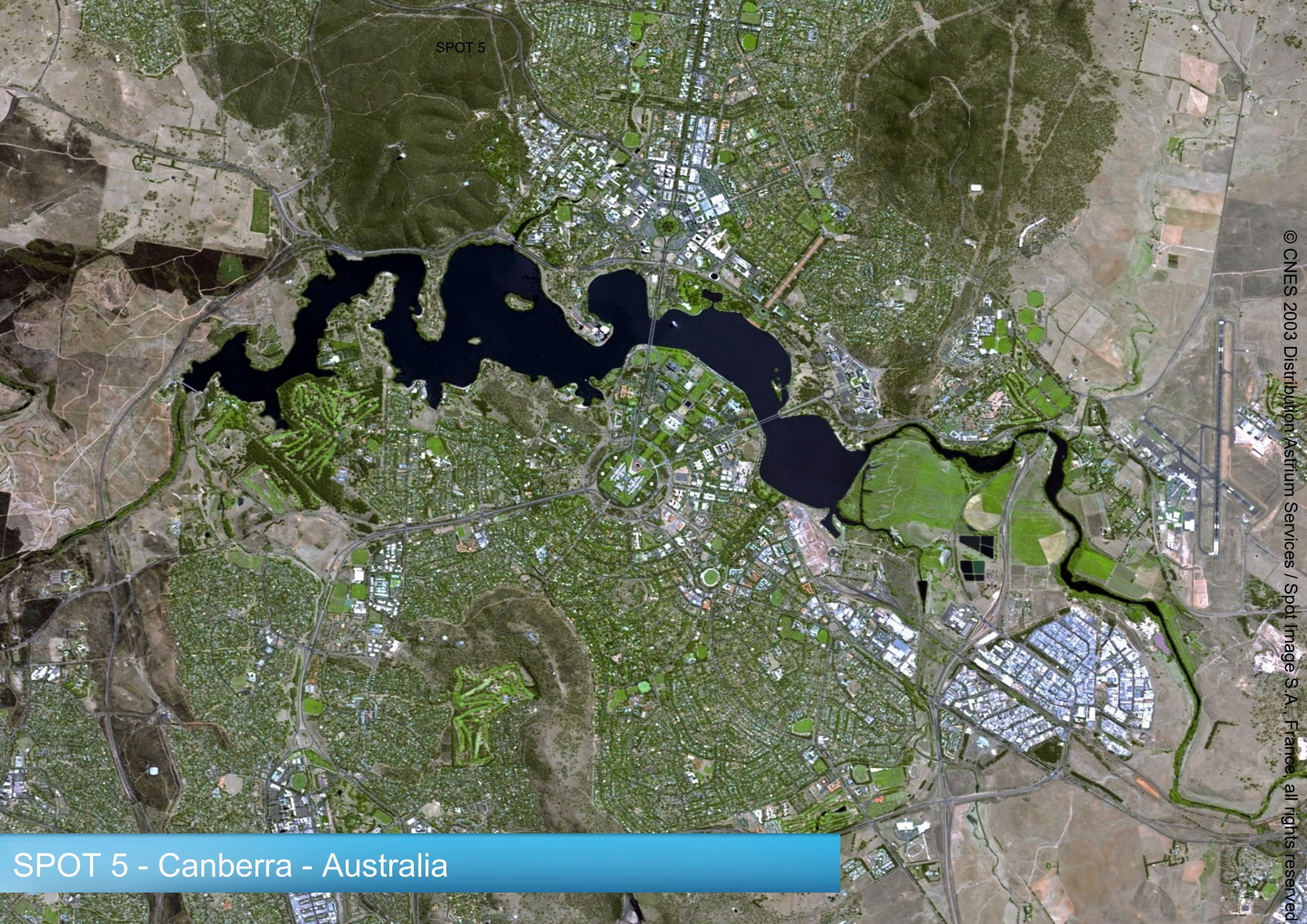

SPOT 5 - Canberra - Australia

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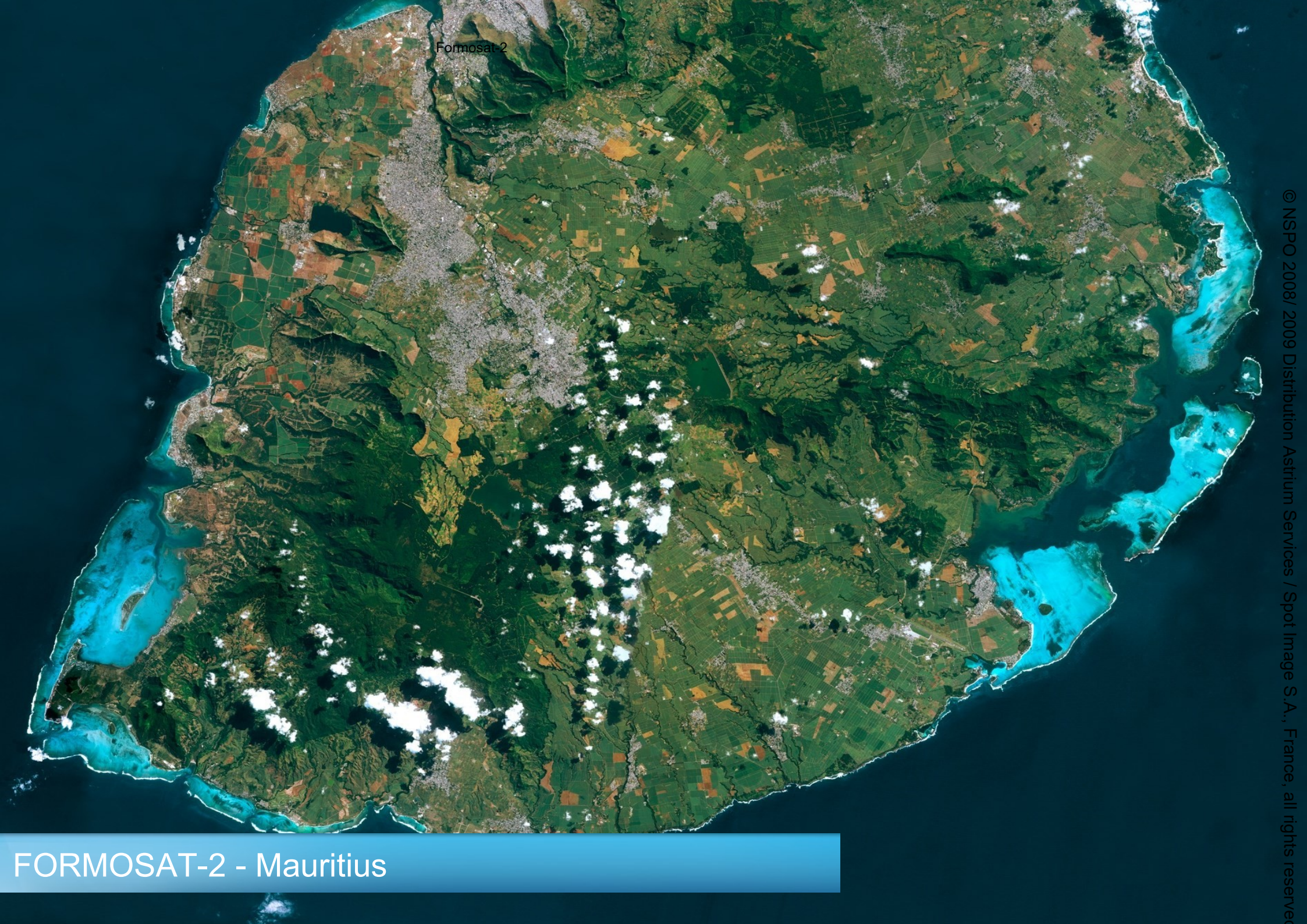

FORMOSAT-2 - Mauritius

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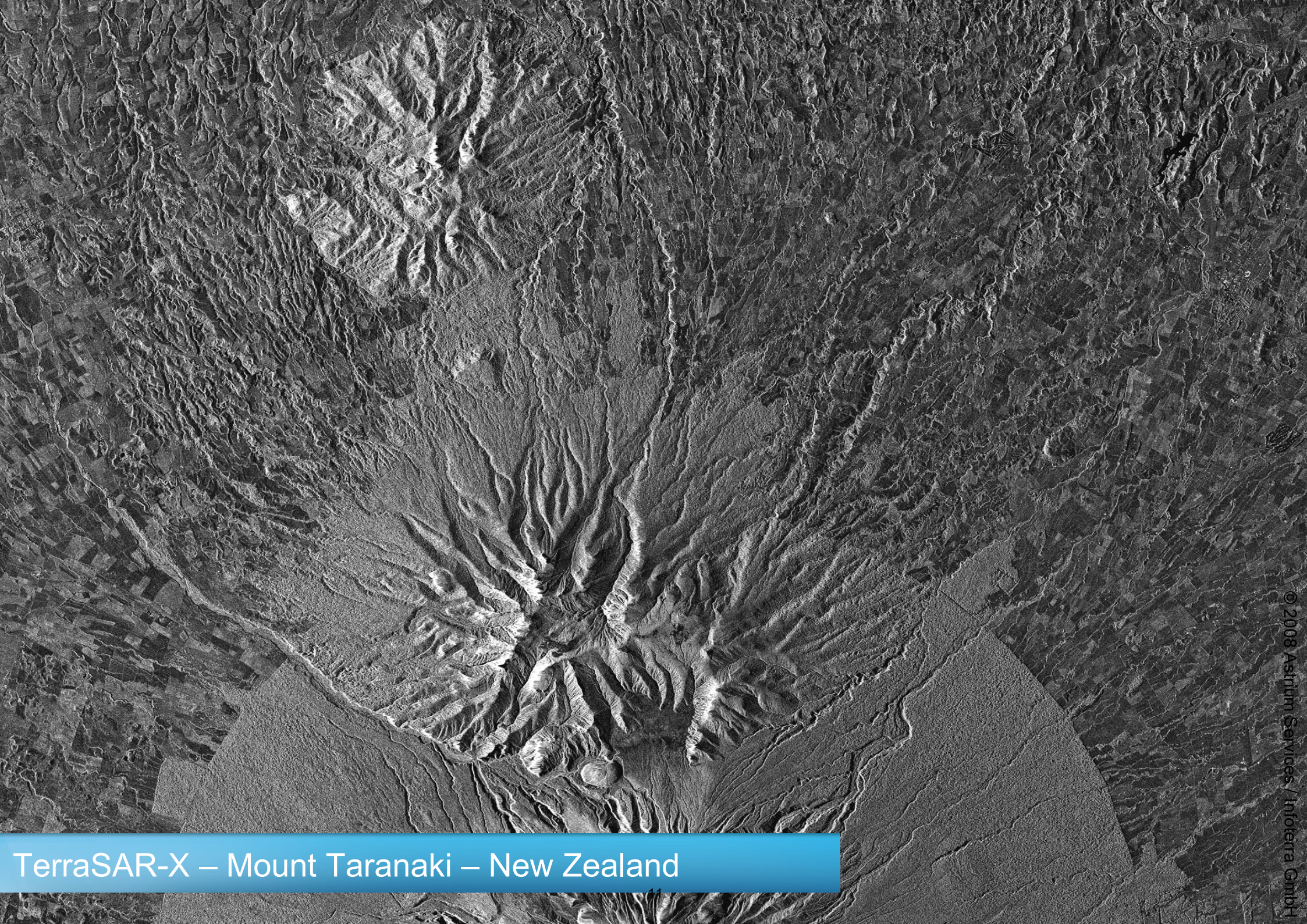

TerraSAR-X – Mount Taranaki – New Zealand

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SPOT 6 - Doha - Qatar

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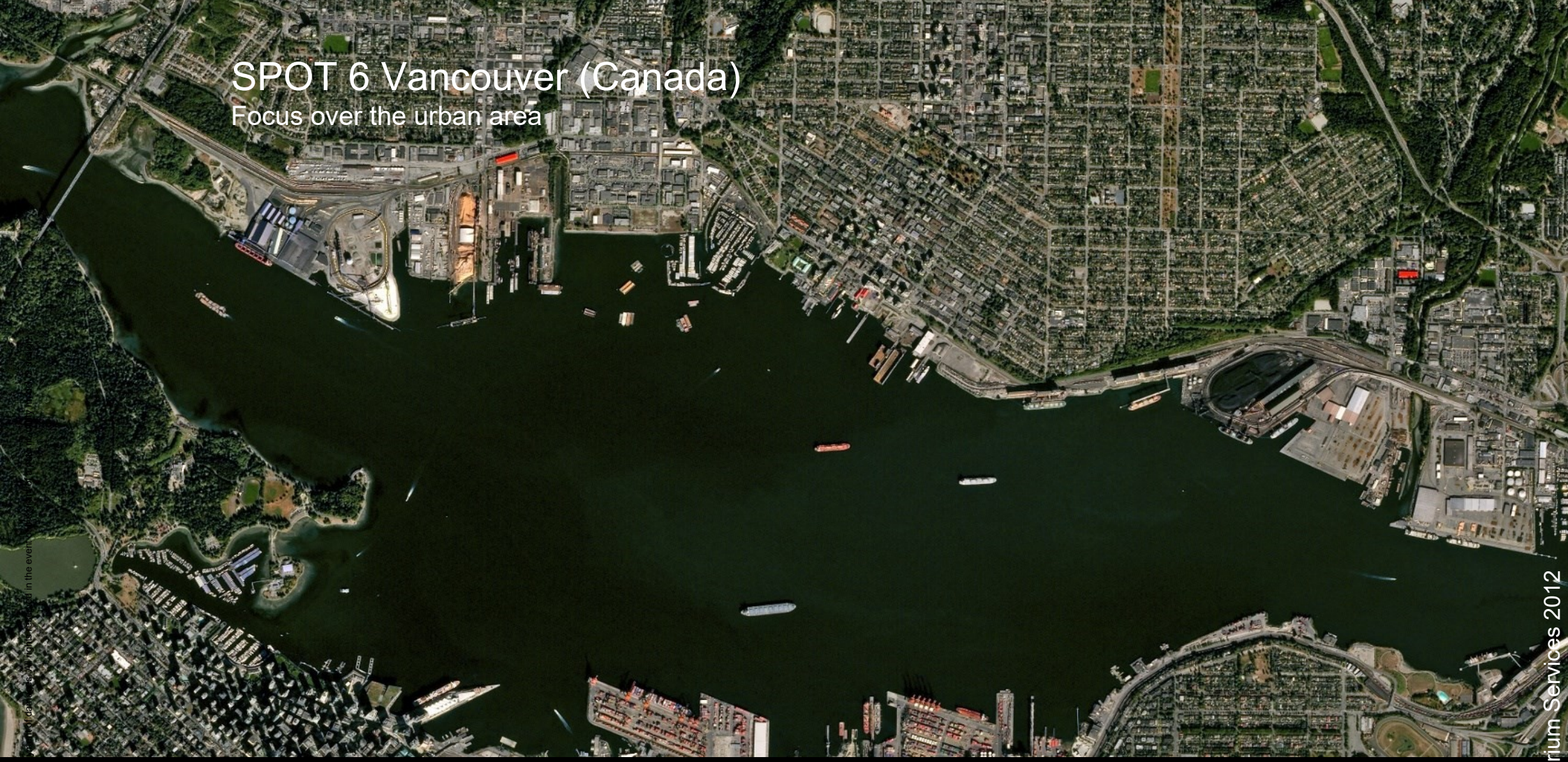
SPOT 6 Vancouver (Canada)

Focus over the urban area



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SPOT 6 Vancouver (Canada)

Full resolution

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SPOT 5
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2.5m res. products

SPOT 6
© Astrium Services 2013
1.5m res. products

SPOT 6 Vladivostok

Russia, 2012 - Full resolution

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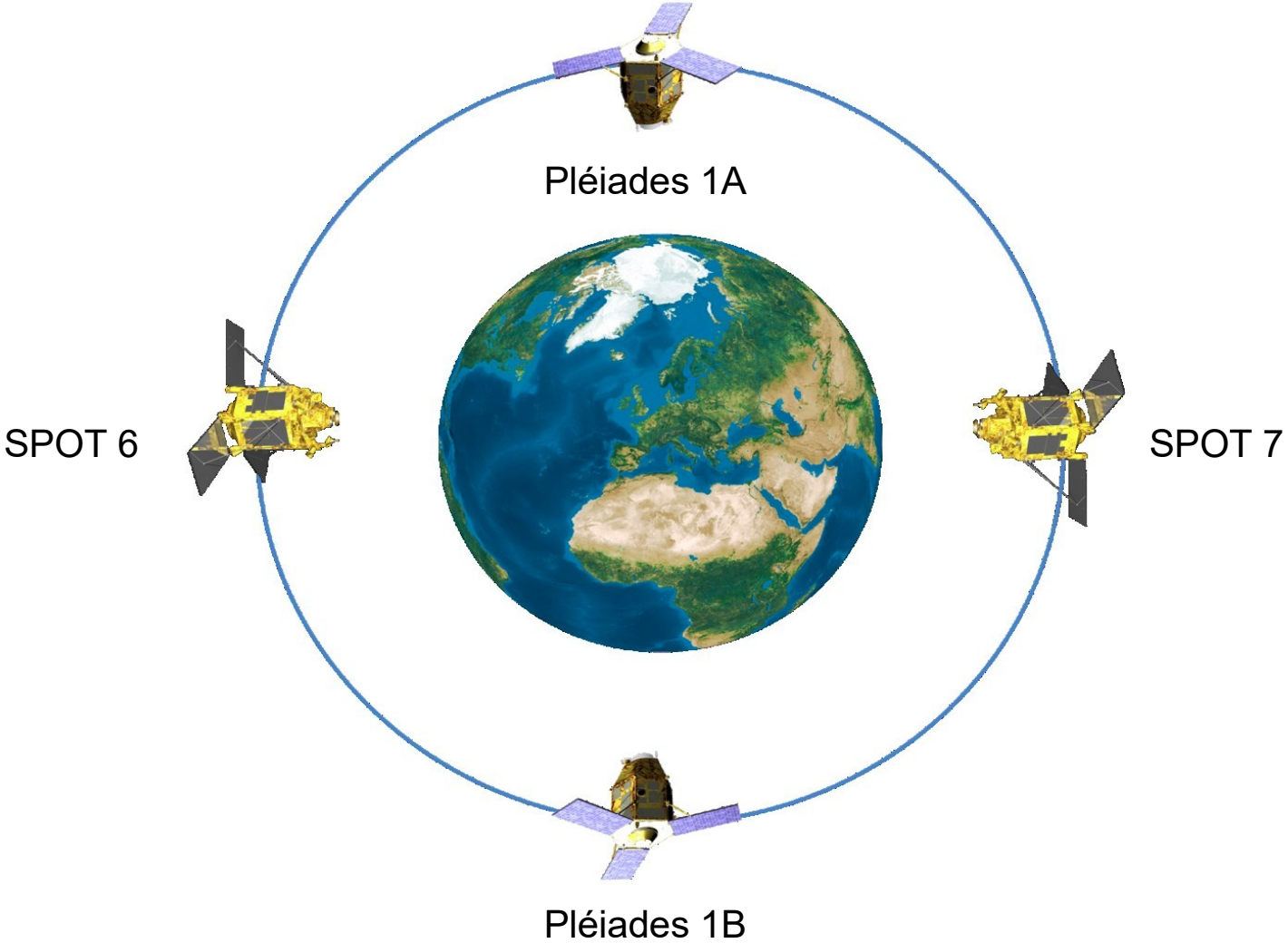
Two Missions. A genuine Constellation.

Featuring a genuine and very smart constellation



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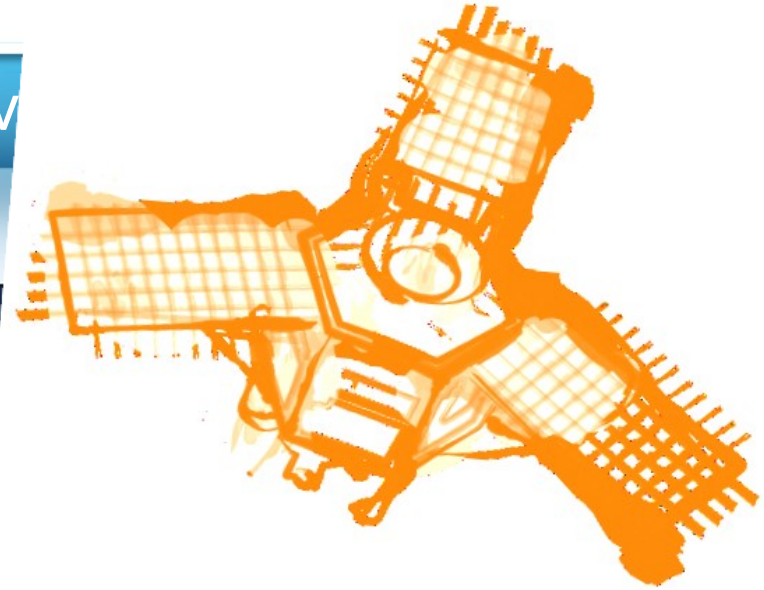
Prov

Large Areas Covered in Record Time



✓ Cyprus Island covered in one pass

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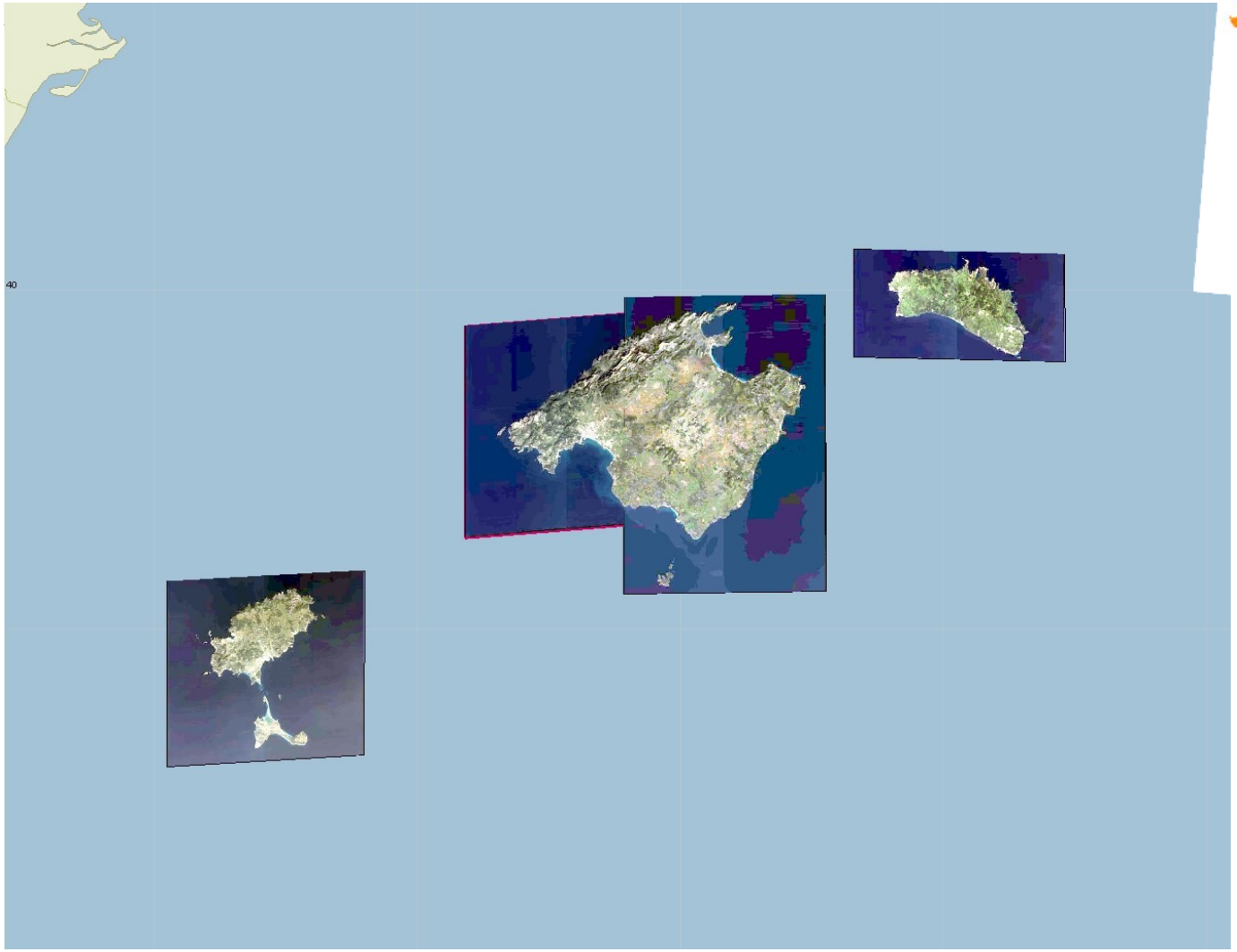
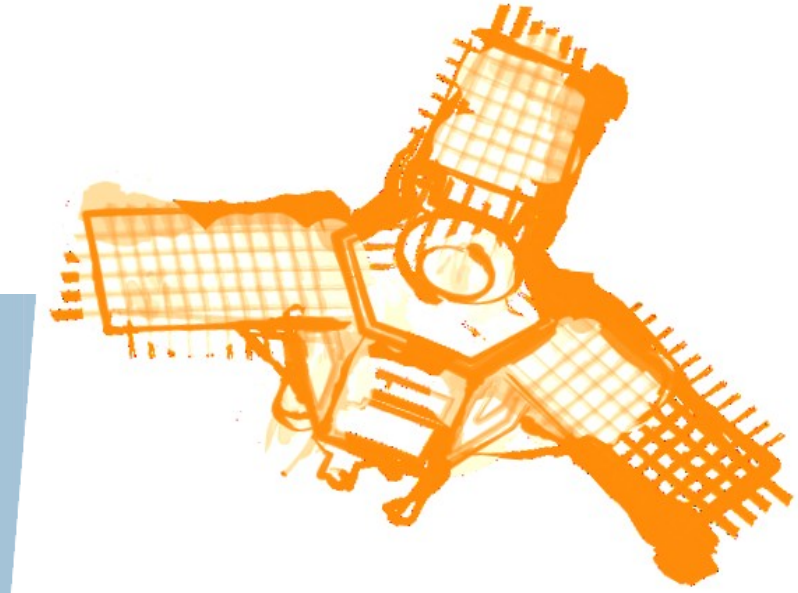
Proven Example: SPOT 6

Large Areas Covered in Record Time





✓ Baleares Islands covered in one pass

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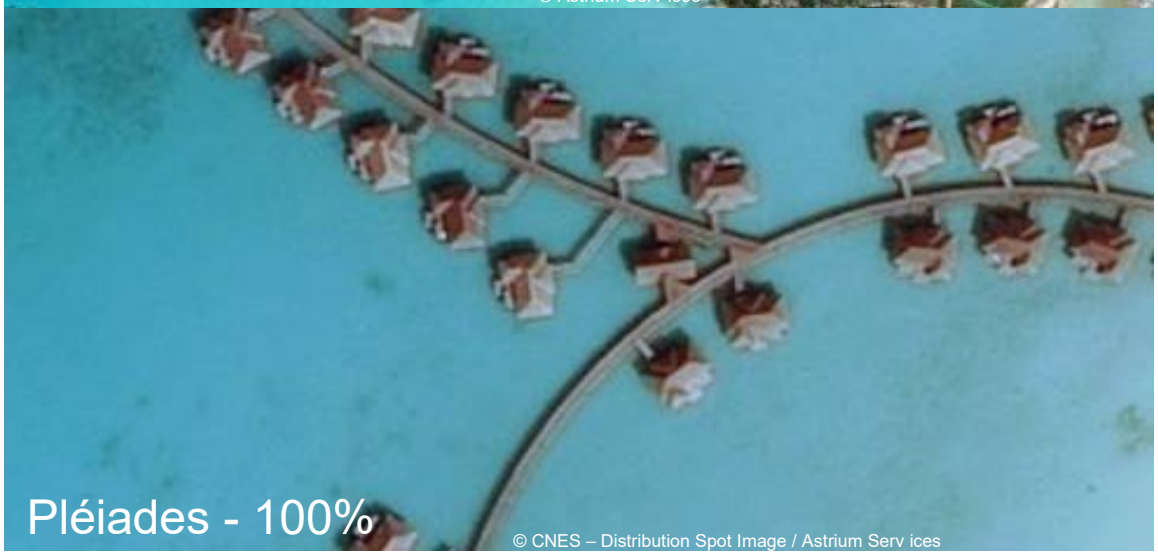
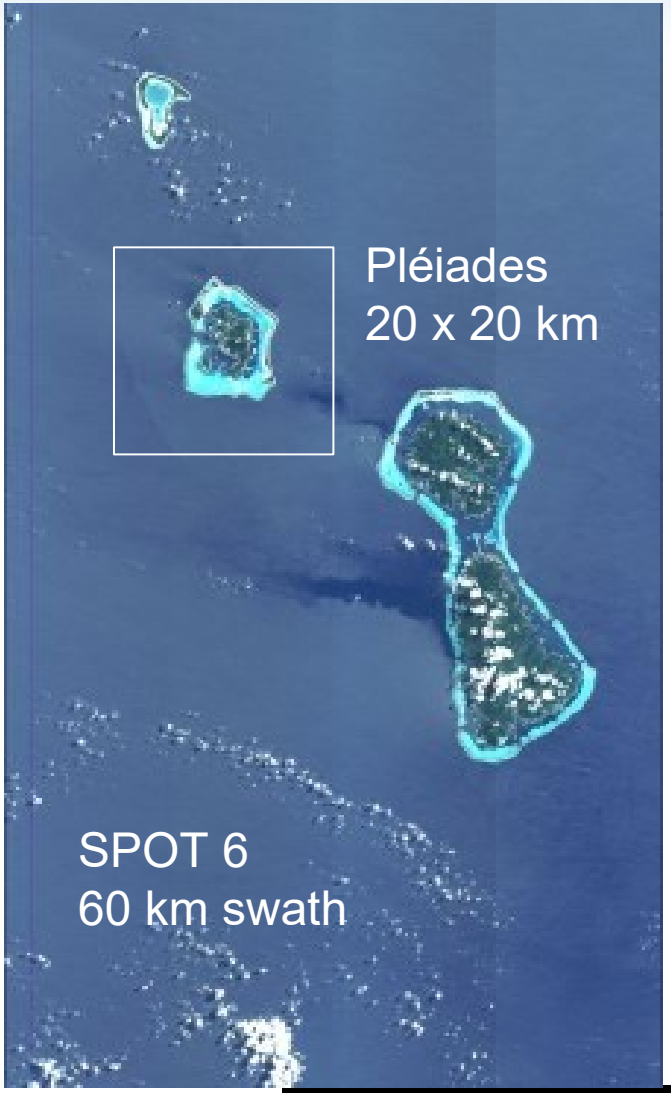
Pléiades - Suez - Egypt

Pléiades - 100%
© CNES – Distribution Spot Image / Astrium Serv ices
SPOT 6 - 400%
SPOT 6 - 100%

Ideal Balance

Coverage and Resolution Combined





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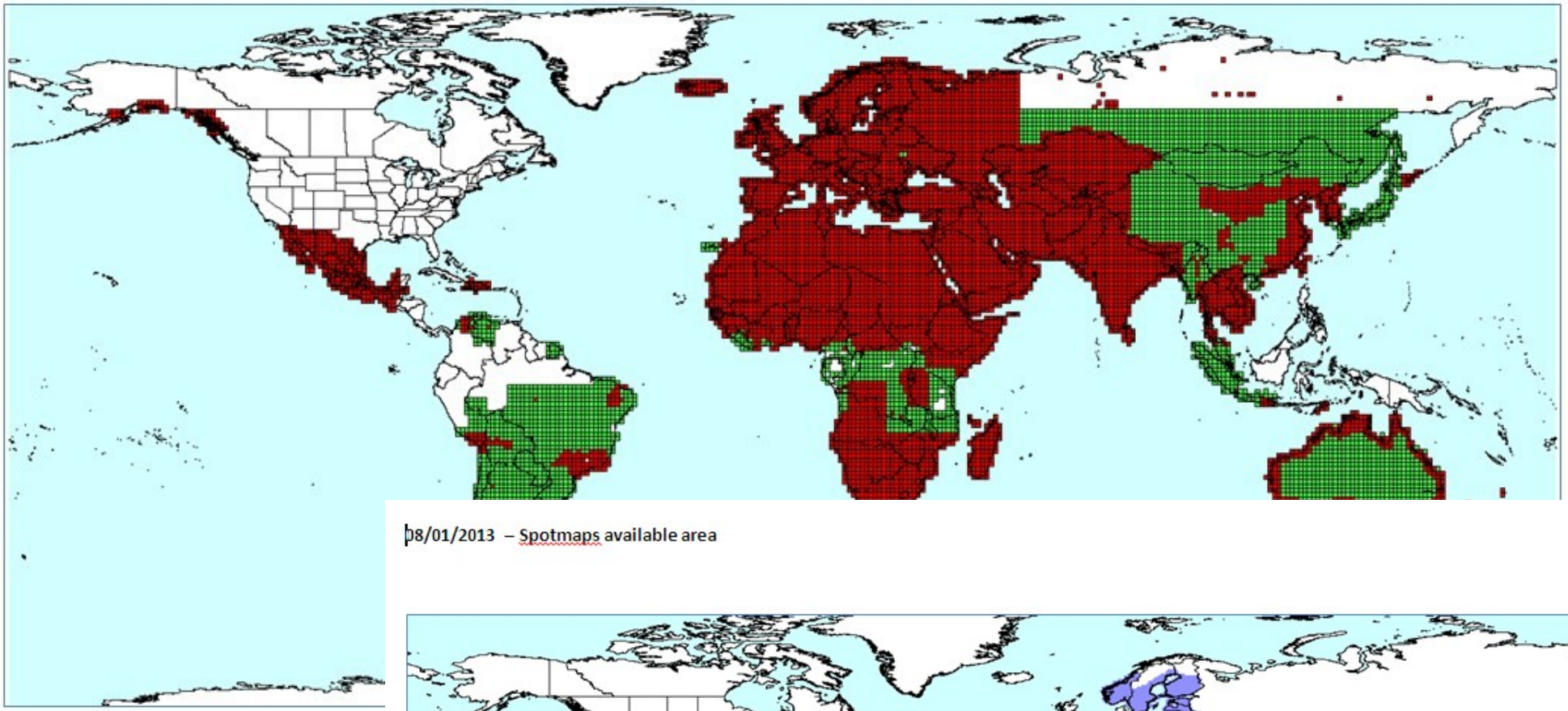
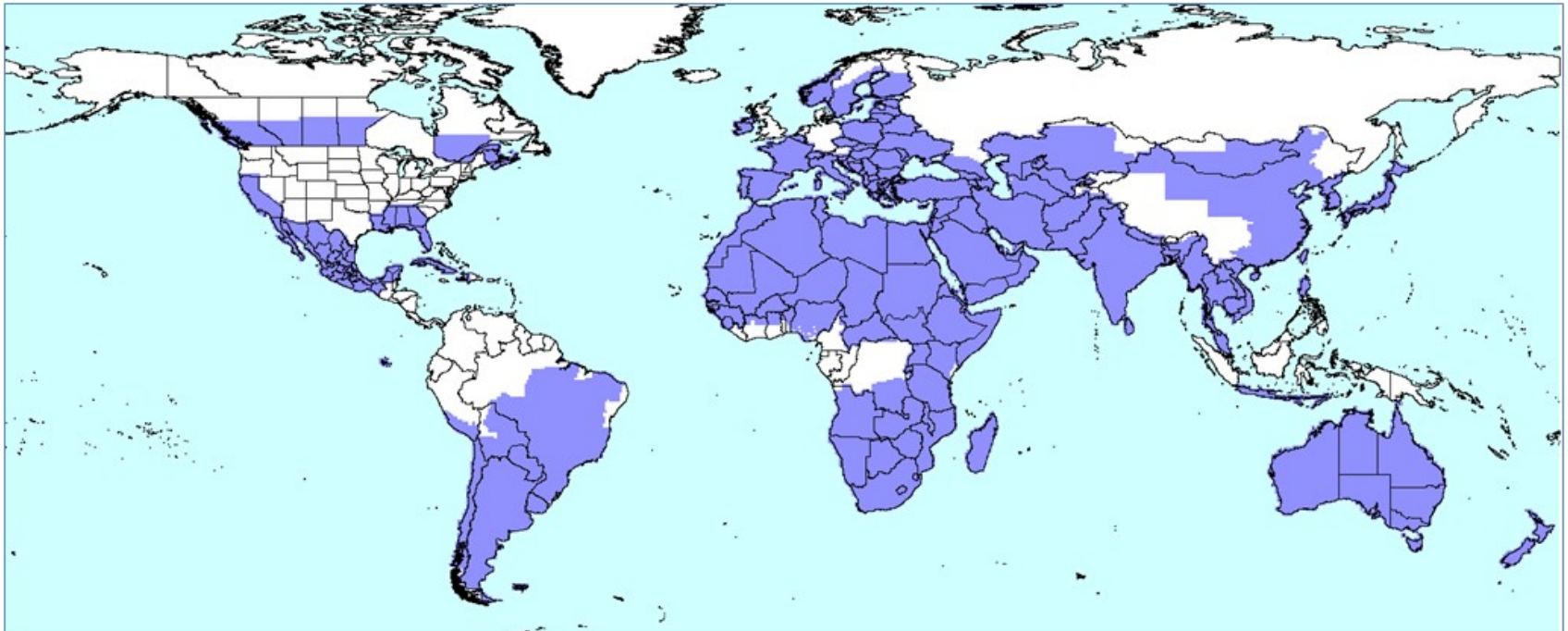
08/01/2013– 7038 Ref3D tiles : 70 634 253 km² and 3814 Alpha tiles : 38 351 966 km²

(Ctrl)



08/01/2013 – Spotmaps available area



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Elevation8: Perfect for large new data coverage

✓ SPOT 6 DEM: the new comer in the Elevation range of product

□ What's different with this product?

❑ SPOT 6 great acquisition capability enables to cover wide coverage in very little time. The simultaneous stereo or tri stereo acquisition makes possible to offer an 8m posting DEM with great accuracies at a very competitive price.

– Eg: 1° x 1° geocell (**10 000km²**) acquired in stereo in **one** single pass

❑ Key information

– Production on demand

– **NO AUTHORIZATION REQUIRED**

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Elevation8 over Sainte Victoire Mountain

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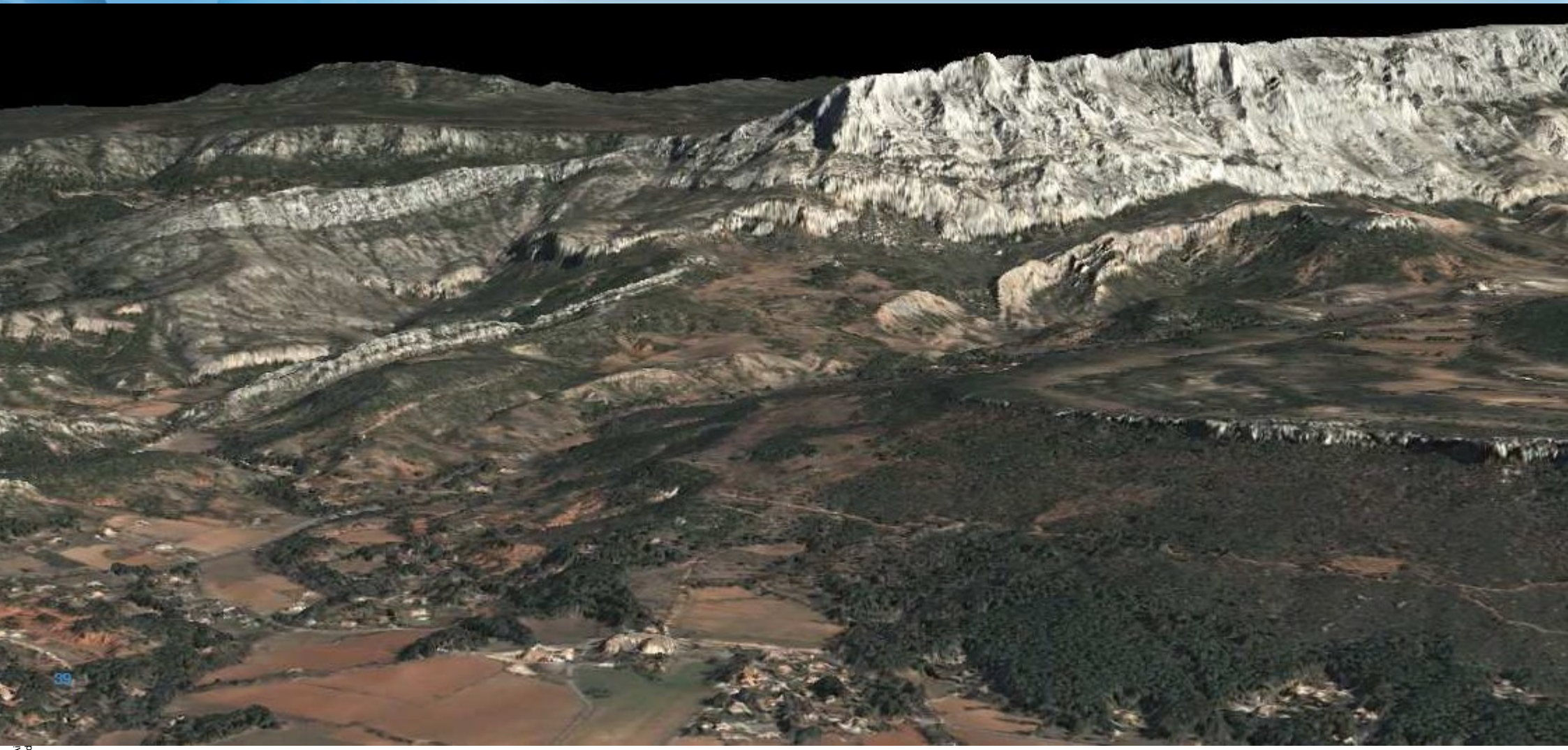
Elevation1 over Sainte Victoire Mountain



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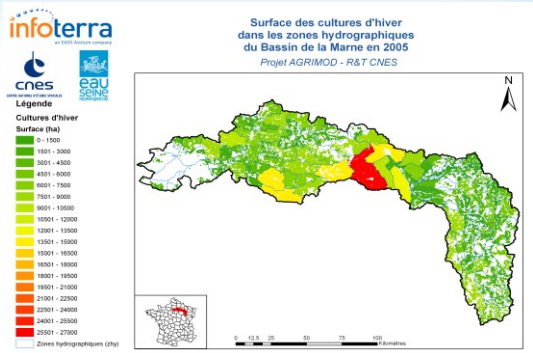
Tailor-made solutions to fit the needs of all agriculture players (1

Needs of public players

- Yield and production forecasts
- Management of food security
- Support to the implementation and control of subsidizing policies
- Monitoring of policy effectiveness
- Optimization of the suitability between land potential and agricultural activities
- Assessment of the impact of climate change

Needs of economical players (coops, industry, insurers)

- Support to the implementation of traceability and certification processes
- Detection of growth anomalies and assessment of related impacts
- Support to production logistics (harvest…)
- Yield and production forecasts



Map of the winter crop acreages

Synthetic Farmstar product dedicated to coops

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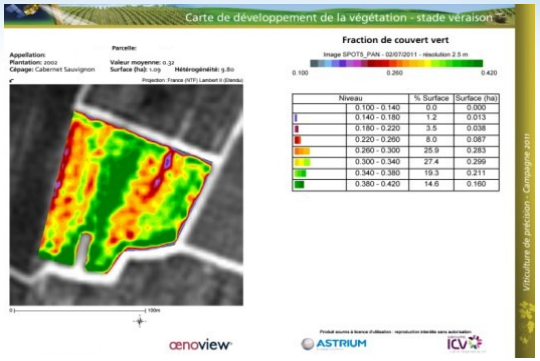
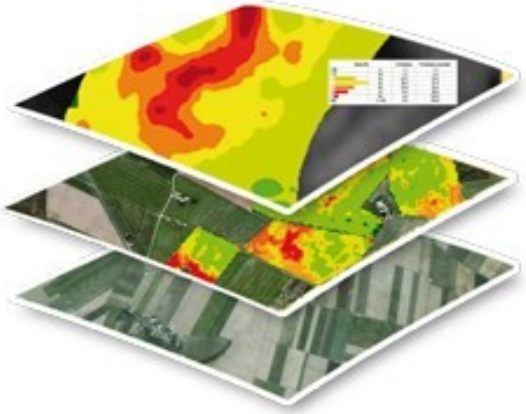
Tailor-made solutions to fit the needs of all agriculture players (2

Needs of farmers

- Get reliable information on the crop status at the field and intra-field scale
- Management of input at the field scale (water fertilizers, chemicals,…)
- Support to field scouting



Field scale oenoview product dedicated to wine-growers



Optimizing inputs from satellite imagery

Practical use of field-scale map

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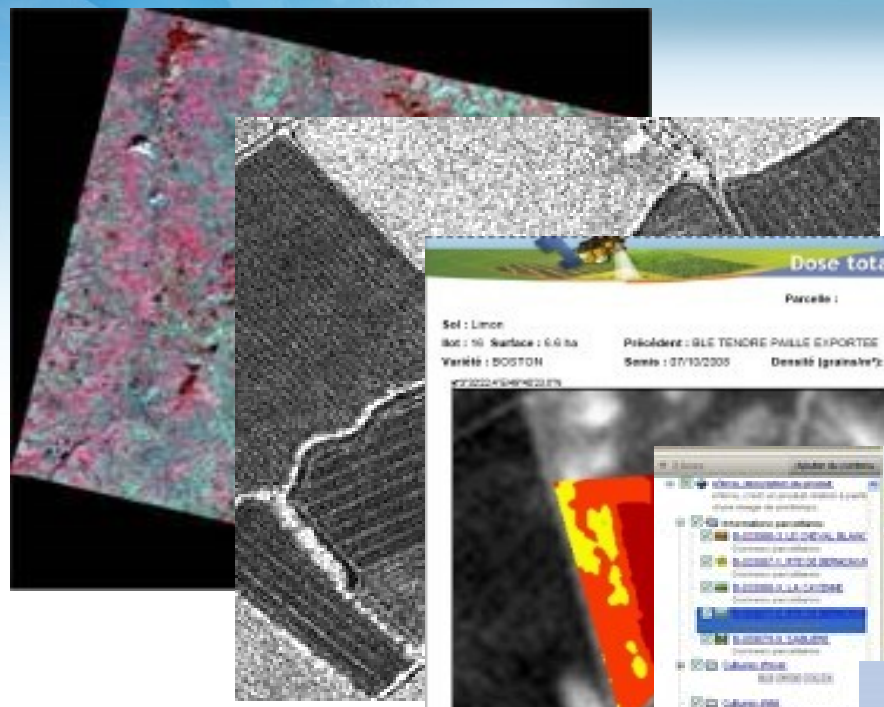
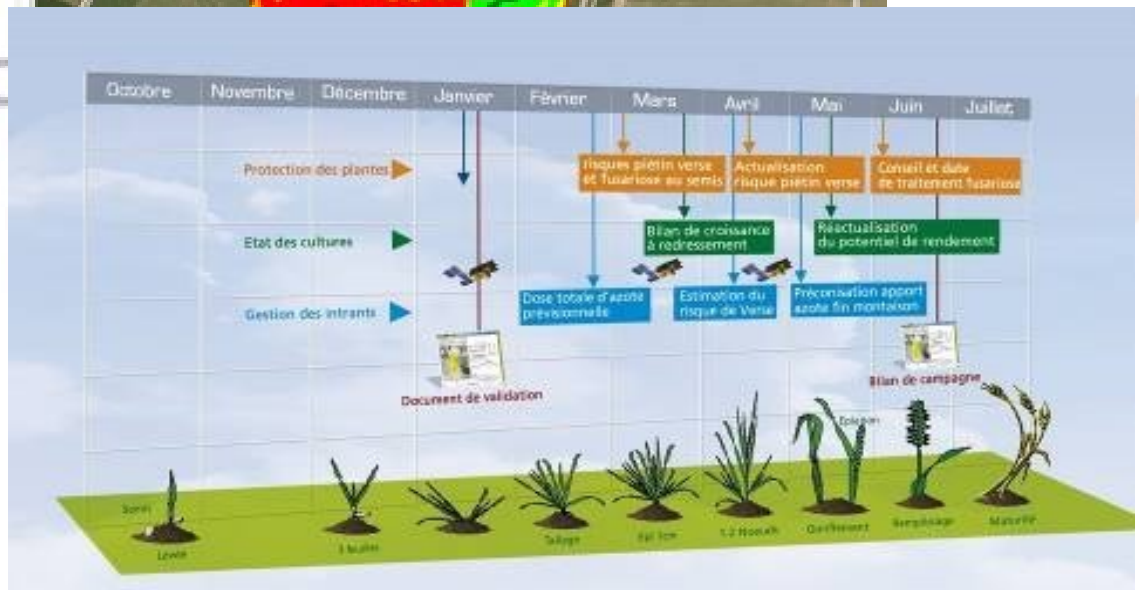
Farmstar: the field-scale crop management in France

The status of crops for each farmer's field is estimated from satellite images …



… to generate a set of tailor-made maps delivered at the main crop development stages...



…dedicated to farmers and cooperatives to optimize practicies

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Farmstar concept: a mix of agronomy and remote sensing

Satellite or airborne images

1. REMOTE SENSING

- Leaf Area Index
- Chlorophyll

1. BIOPHYSICAL PARAMETERS

2. ECOPHYSIOLOGY

- Biomass
- Nitrogen Status

2. AGRONOMIC INDEXES

3. AGRONOMY

3. RECOMMENDATIONS

- Nitrogen absorbed end of winter
- Crop bending risk
- Nitrogen input at seed production
- End of winter status
- Yield potential update

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Farmstar operation network

Climatic and agronomic data

Farmstar processing chain

Field application

Intermediate products

Modulation file

Field data

Recommendation products

Farmstar processing chain

Agronomic quality controls

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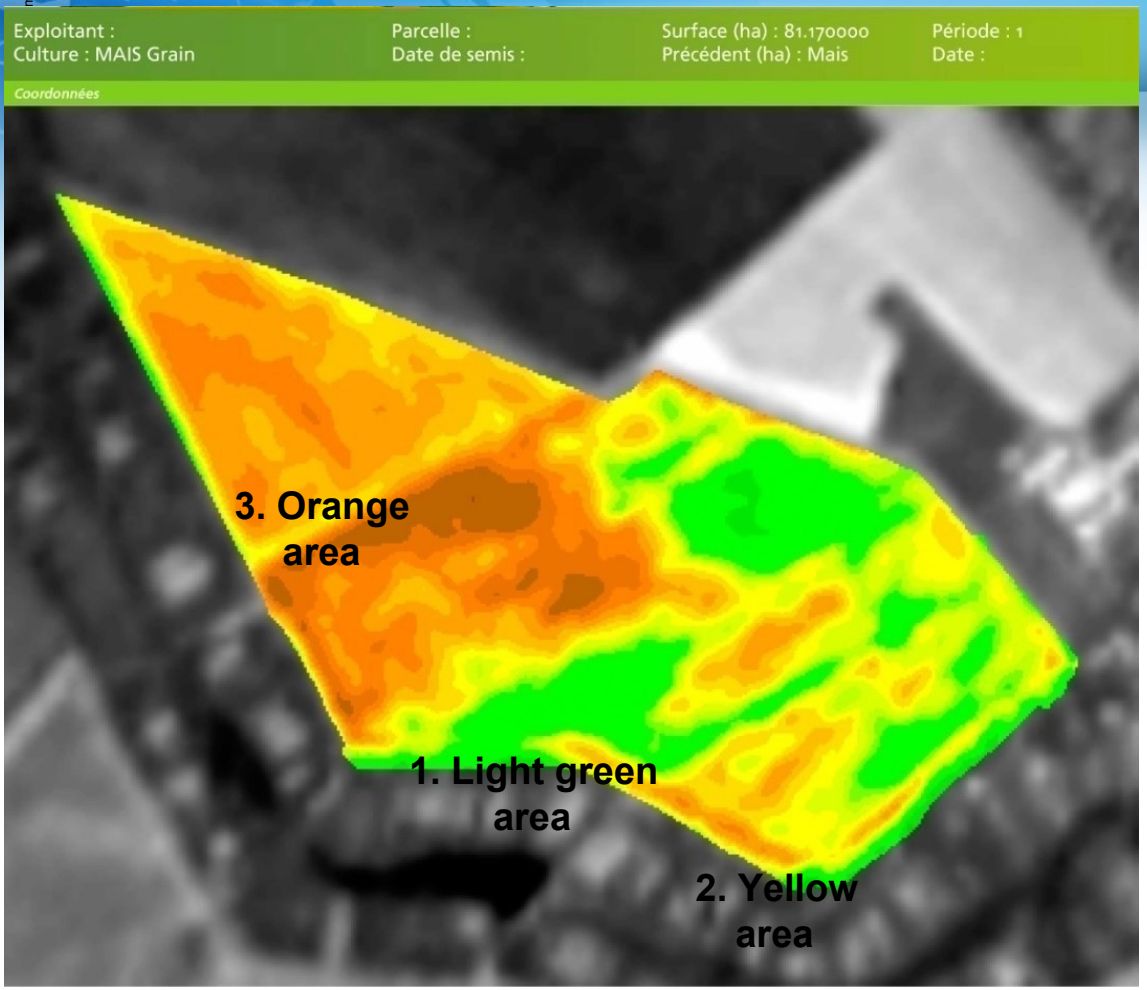
Practical use of a F Cover map



Fraction de couvert vert	% Surface
0.0312 - 0.141	0.00
0.141 - 0.252	17.40
0.252 - 0.362	36.70
0.362 - 0.472	25.20
0.472 - 0.582	15.40
0.582 - 0.692	5.30
0.692 - 0.802	0.00
0.802 - 0.913	0.00

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Example: maize field

Area 1: *well developed maize*

Area 2: *infested by weeds*

Area 3: *under-developed (crop emergence anomaly)*

Products & Services to Address Your Needs

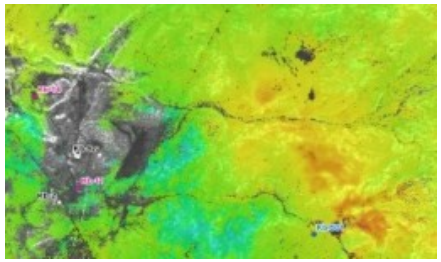
Optical Imagery

- Pléiades
- SPOT
- DEIMOS-1
- FORMOSAT-2

Software

- I4D
- Pixel & Street Factory
- SAFEcommand

Radar Imagery

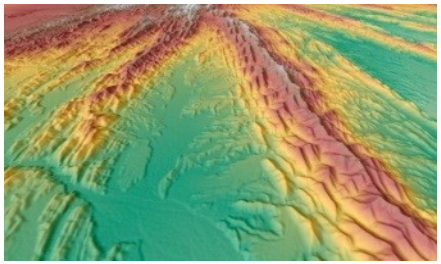


- TerraSAR-X
- TanDEM-X
- PAZ

Services

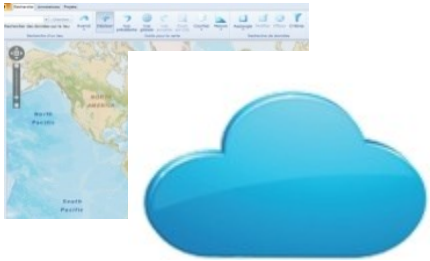
- GO Monitor
- GO Monitor Forest
- Global Seeps
- Geological Studies
- Maritime Surveillance
- Farmstar
- Surface Movement Monitoring
- Change Detection

Reference Layers



- GEO Elevation
- WorldDEM
- Ground Control Points
- SPOTMaps
- Airport Layer

Easy Access to Data



- Cloud Services
- GeoStore
- Direct Reception Services

A wide range of products and services to offer you the right solution for your needs and make your daily work easier

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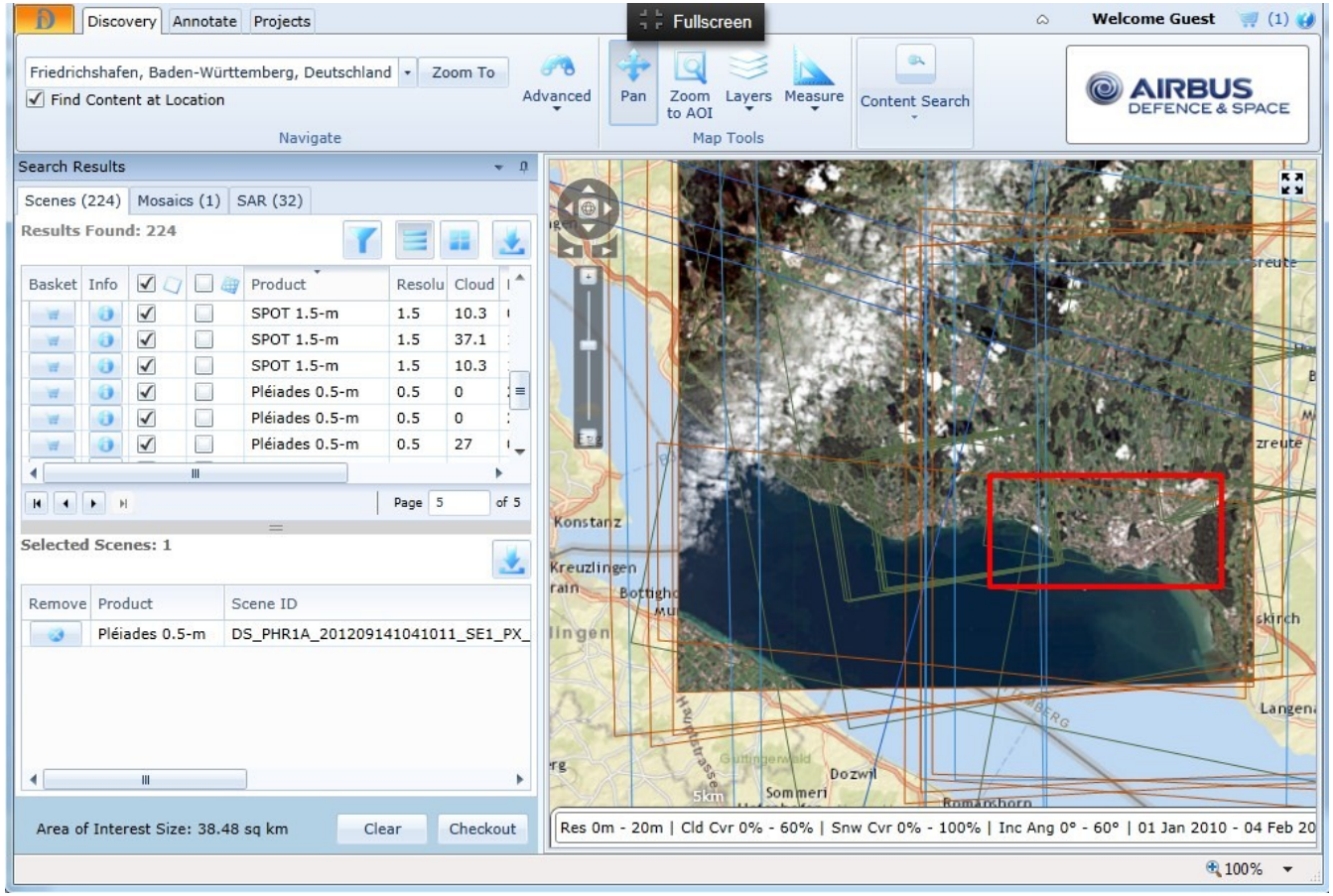
- Customized set-up
- Tasking & archive ordering with direct delivery
- Be informed with alerts and follow orders



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Pléiades – Hong-Kong

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