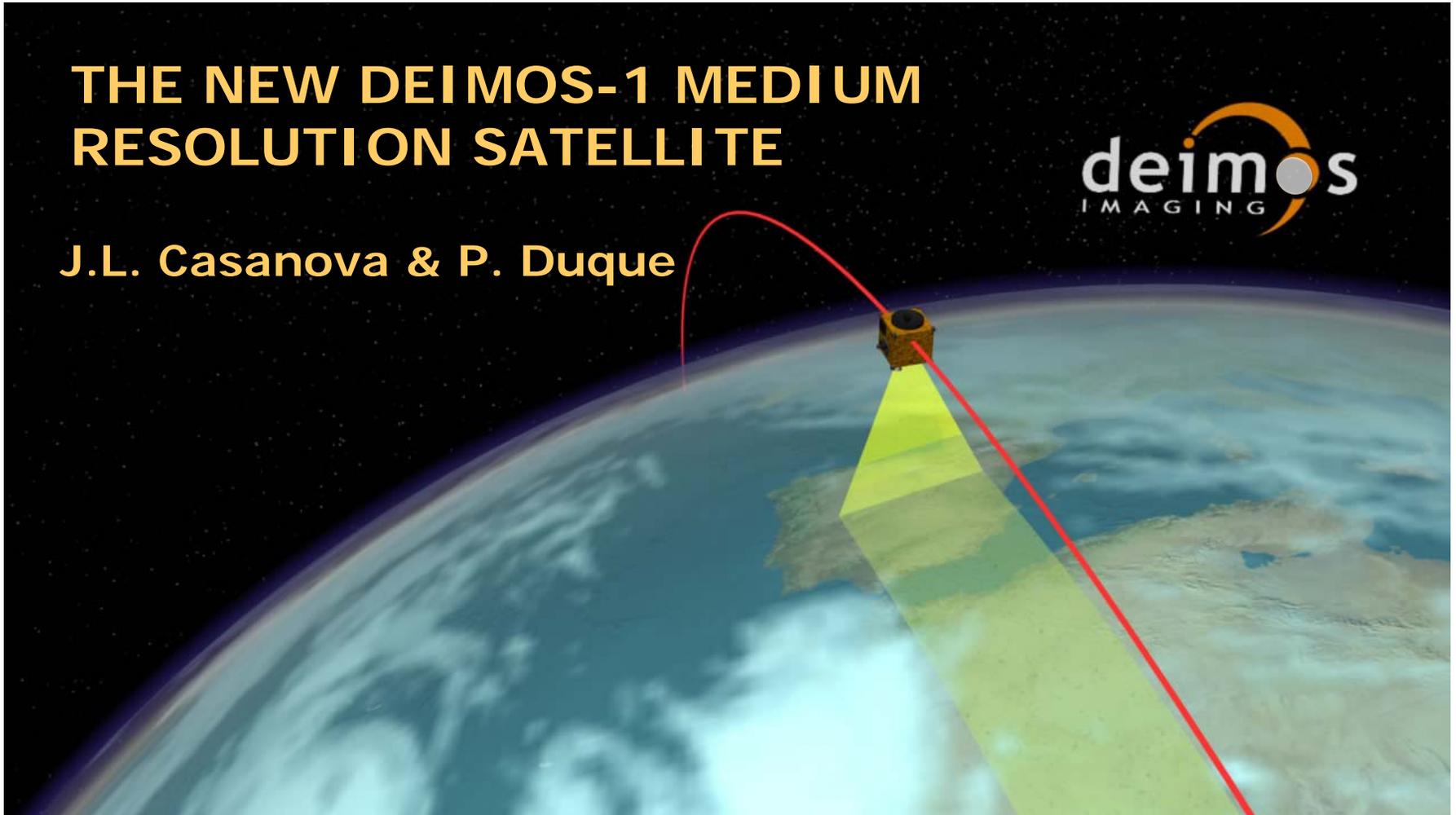


THE NEW DEIMOS-1 MEDIUM RESOLUTION SATELLITE

J.L. Casanova & P. Duque



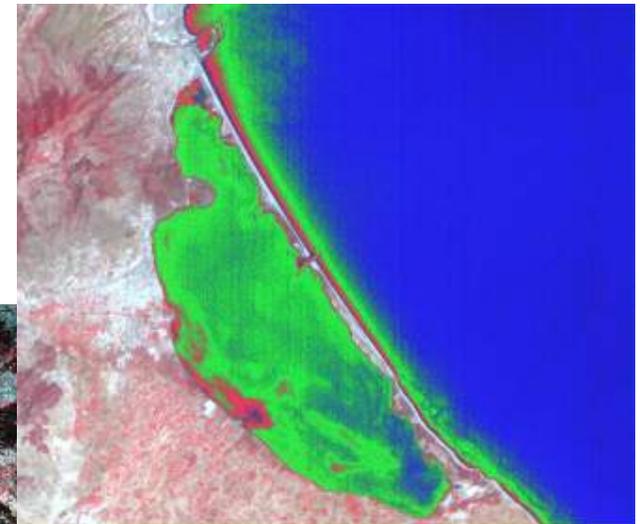
➤ **System and Compounds**

- Fly Segment
- Ground Segment
- User Segment

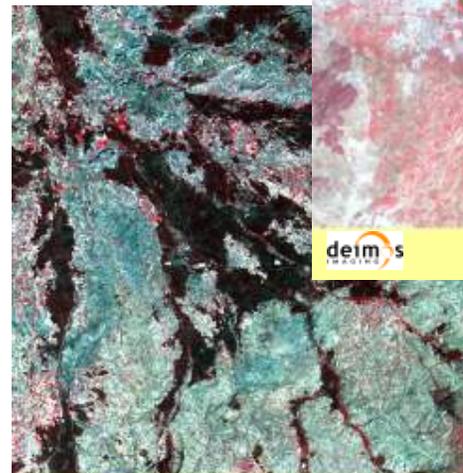
➤ **DEIMOS Imaging: Assures Quality and Reliability**

➤ **Products and Services**

- Agriculture
- Environment
- Forestry
- Others



Source: UK-DMC SST Ltd



Source: UK-DMC SST Ltd



Fly Segment

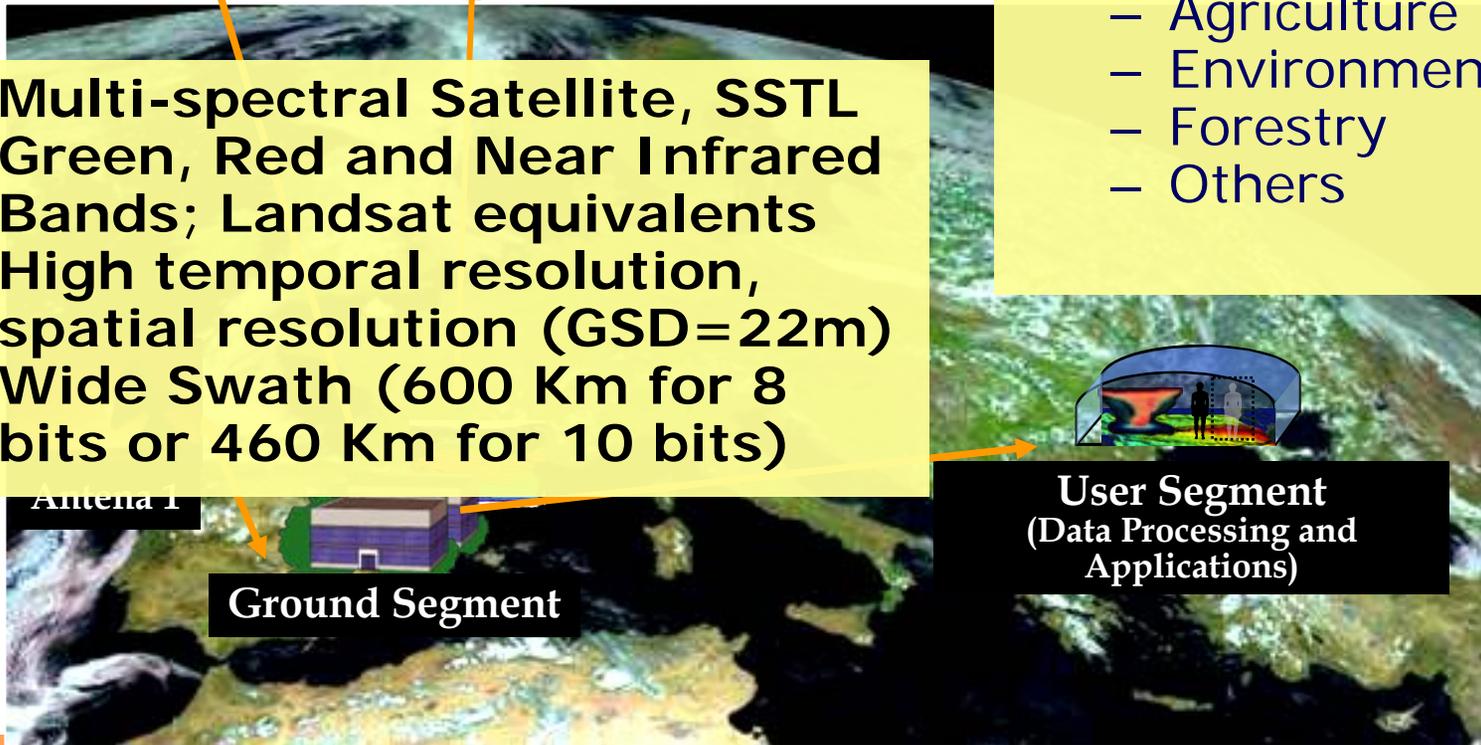


Antena 2

➤ **Antennas in Boecillo (Valladolid, SPAIN) and Northern Europe**

- **Multi-spectral Satellite, SSSL**
- **Green, Red and Near Infrared Bands; Landsat equivalents**
- **High temporal resolution, spatial resolution (GSD=22m)**
- **Wide Swath (600 Km for 8 bits or 460 Km for 10 bits)**

- Applications on:**
- Agriculture
 - Environment
 - Forestry
 - Others



Antena 1



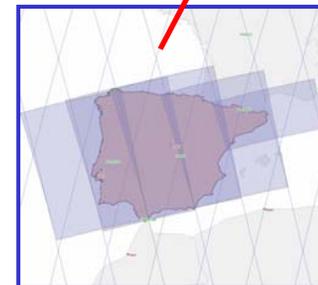
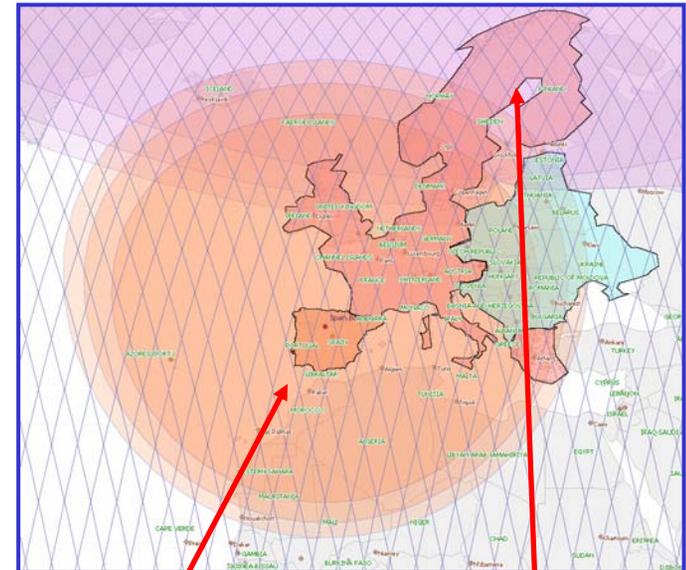
Ground Segment



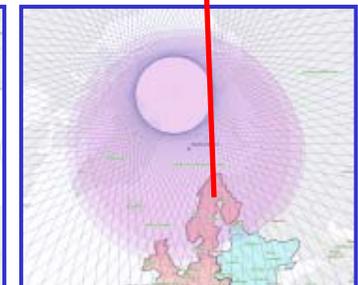
User Segment (Data Processing and Applications)

- **Inherits DEIMOS Space` s experience and prestige in the aerospace sector**
- **Inherits LATUV` s experience, know-how, historical records and scientific knowledge in remote sensing**
- **Ensure imagery supply with its own EO system**
- **Control of the whole Production Chain (Vertical Integration of the Operations)**

- High Temporal Resolution
- Produce 120 Gb of data a week
- Sustainable capacity to cover three millions of squared km a day
- 74 passes a week in Svalbard (10-11 pass a day, 628 sconds)
- 15 passes in Boecillo (2-3 passes a day, 278 seconds)
- During disaster events or for specific needs the capture capacity can be increased

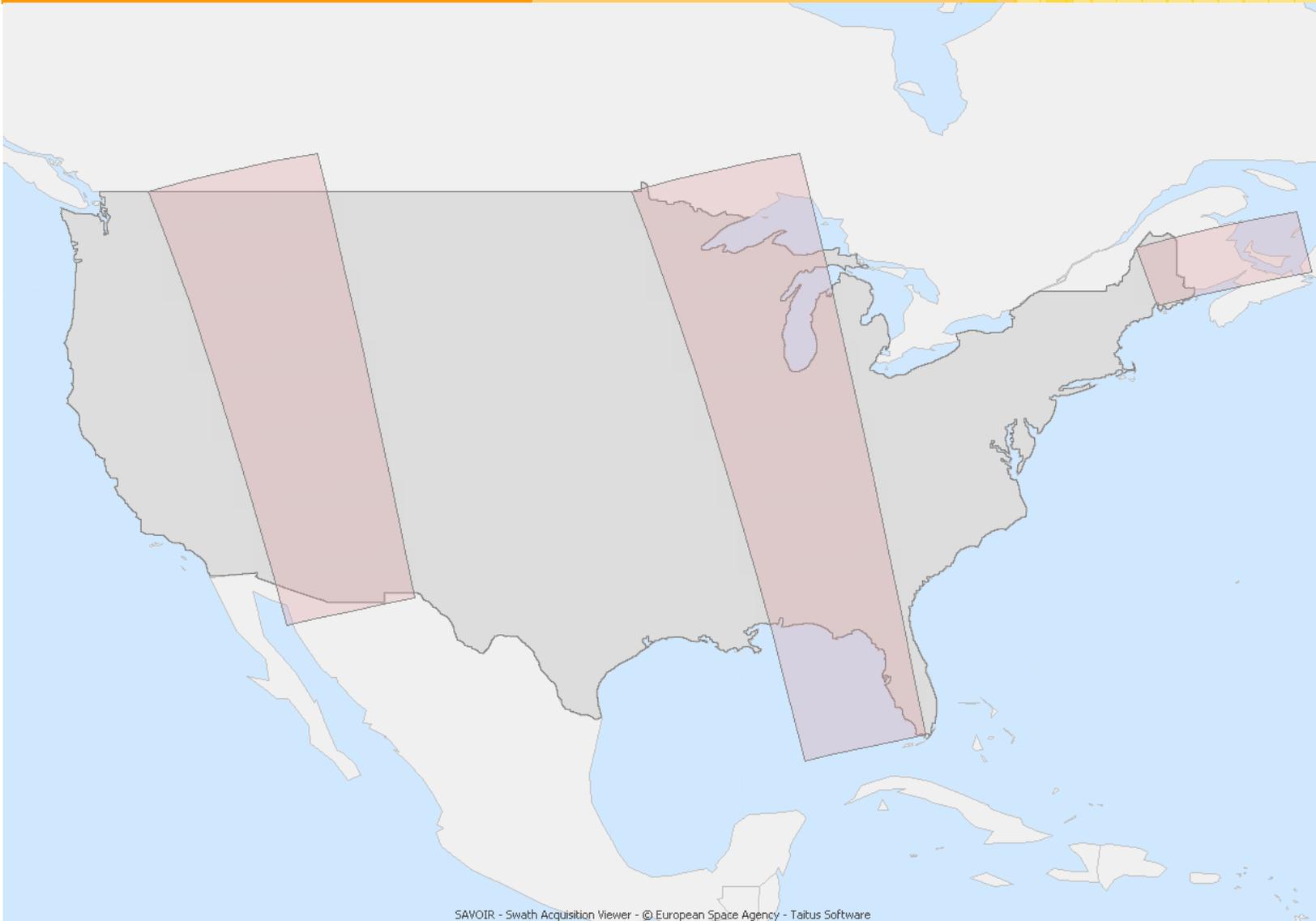


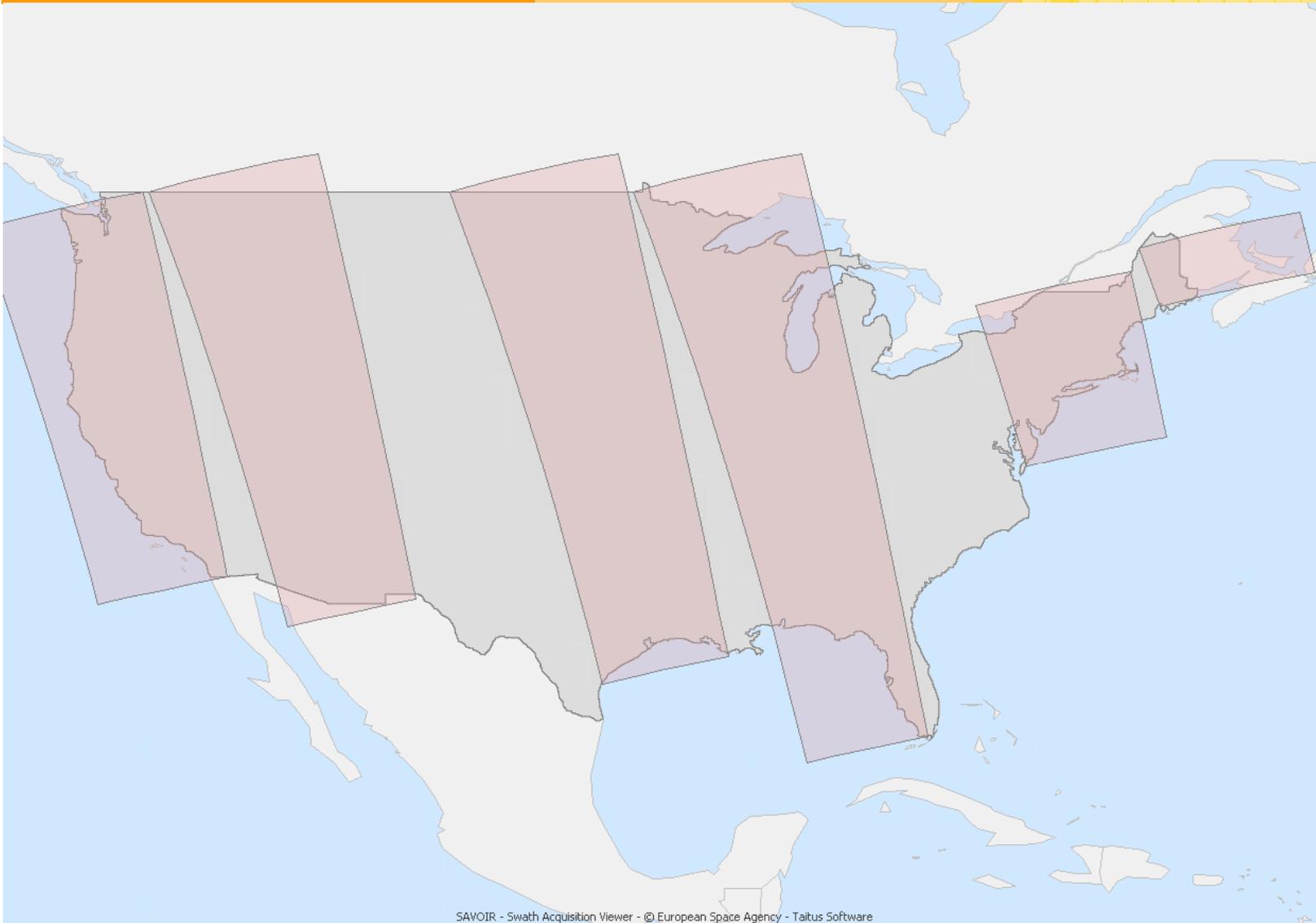
Boecillo

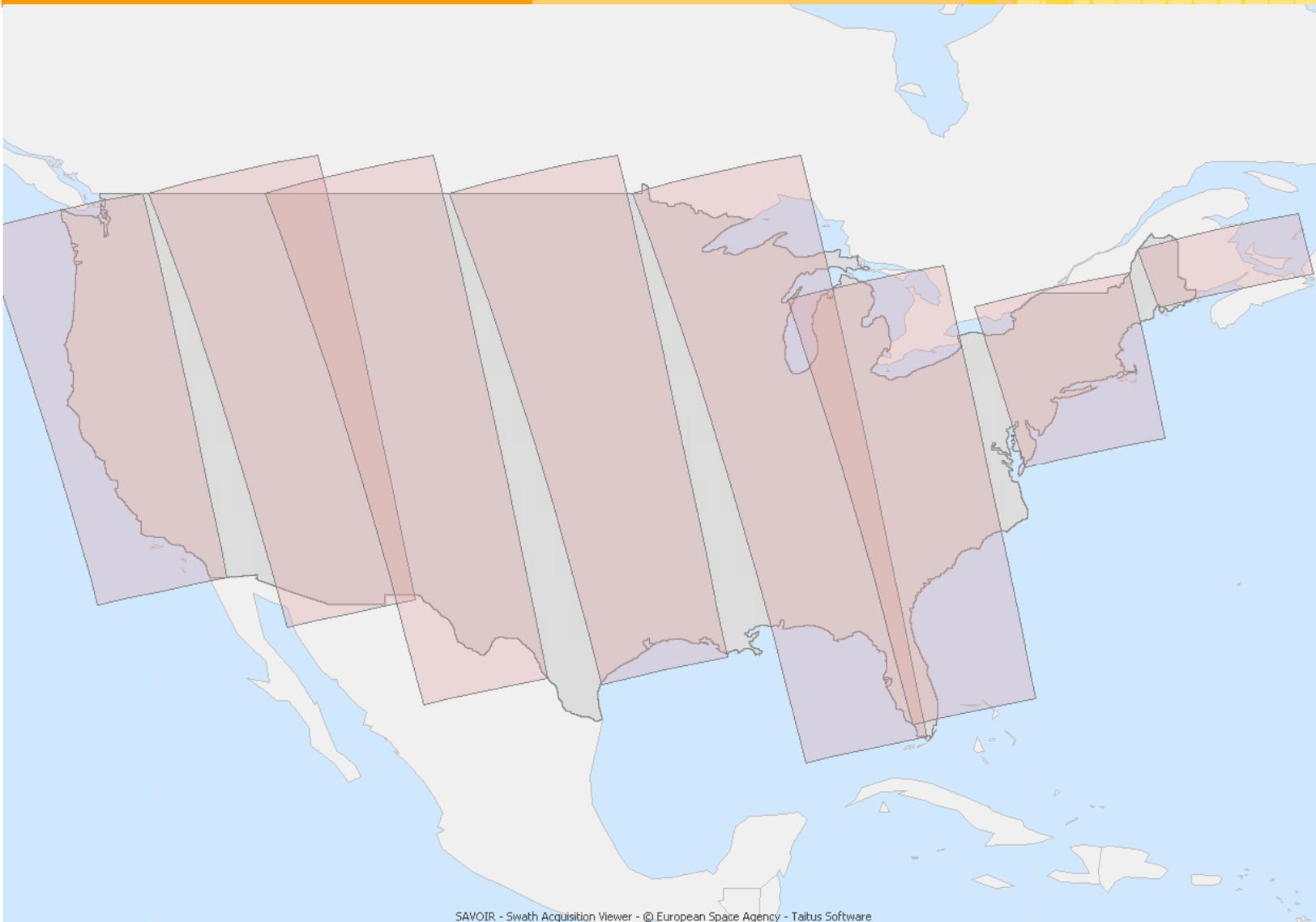


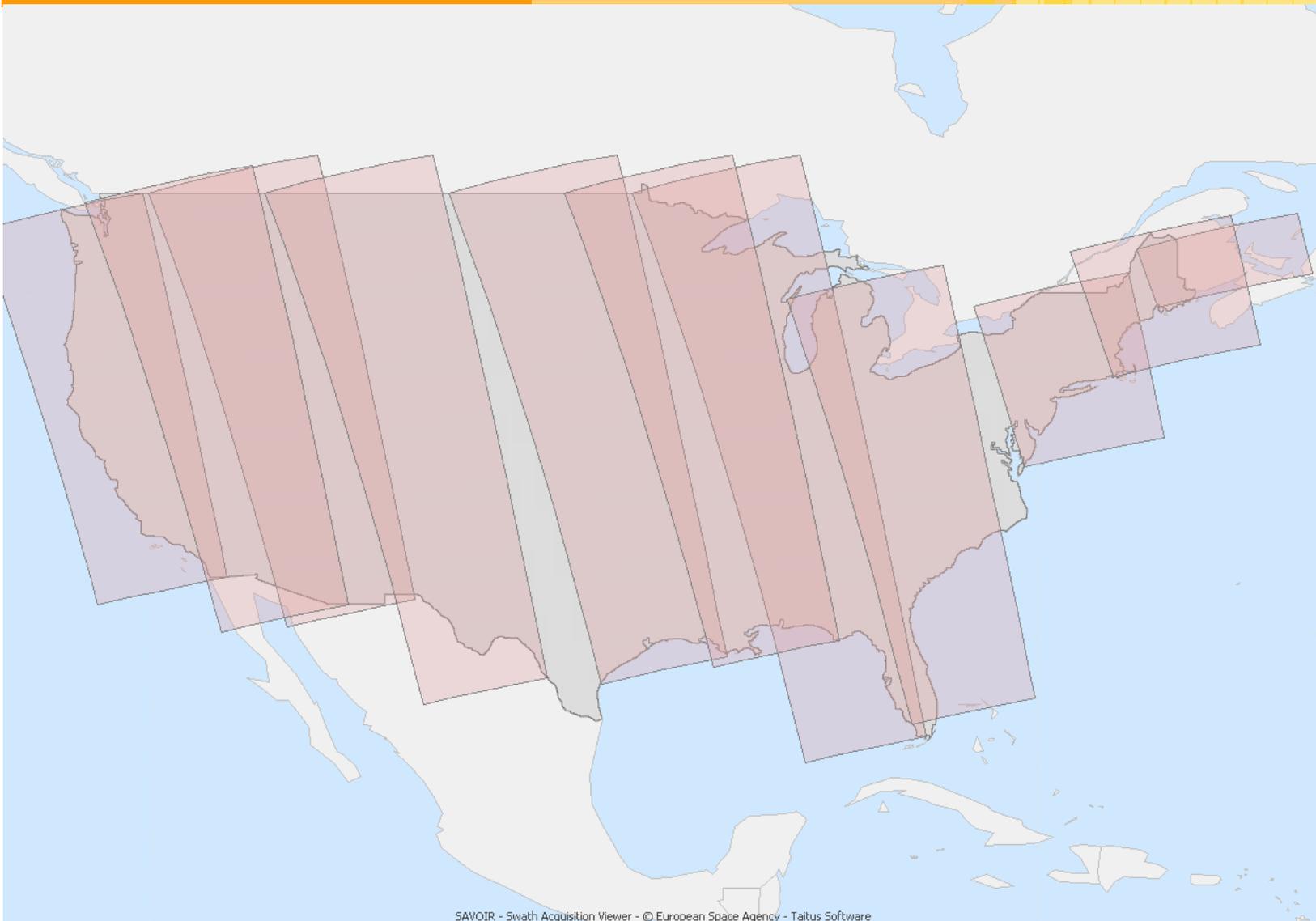
Svalbard

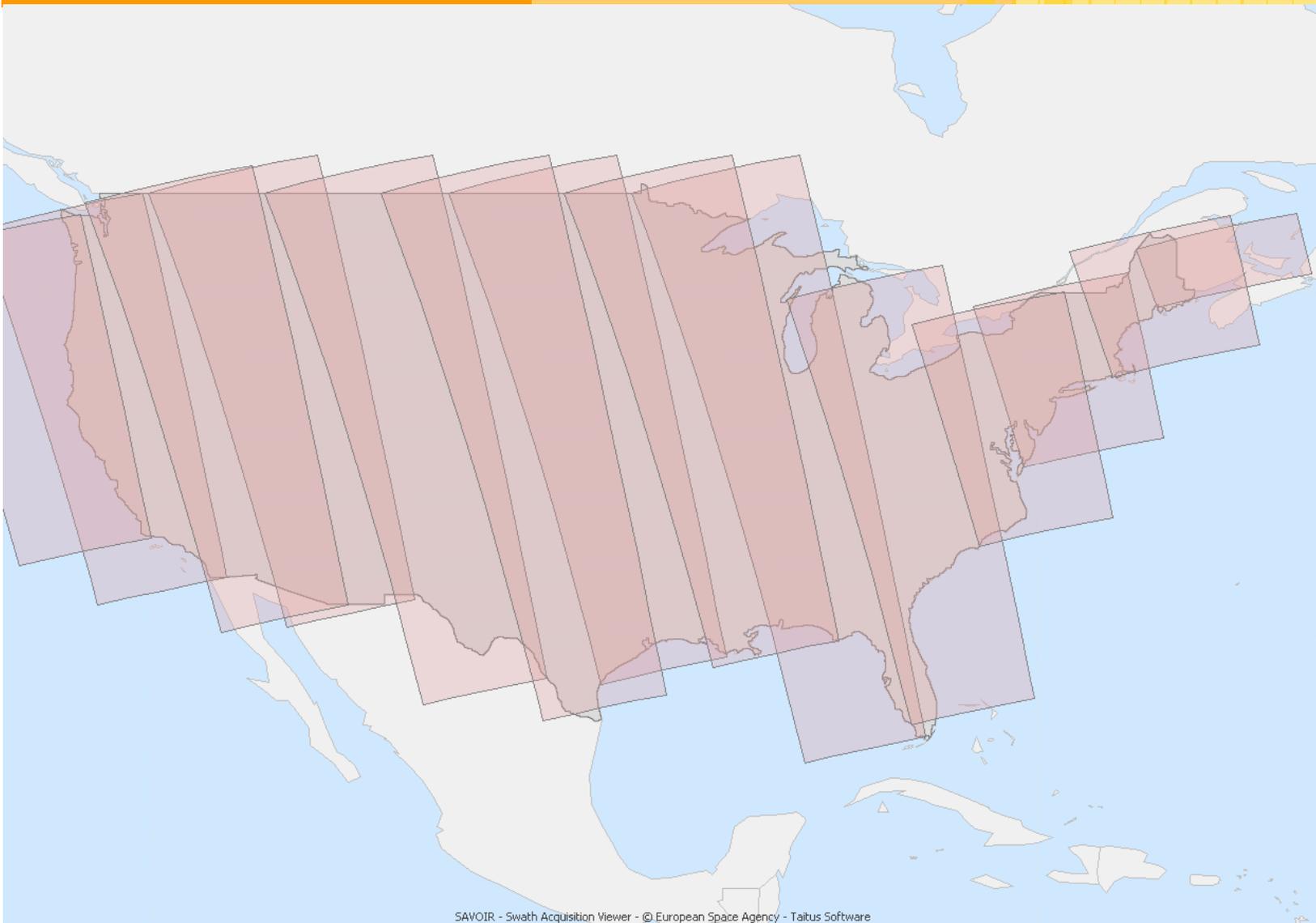
Region	Activity	Orbit number
Europa-Africa	Mapping	5-6-7-8; 20-21-22; 34-35-36-37; 49-50-51; 64-65-66; 78-79-80; 93-94-95 (23)
Atlantic Ocean	Rest	9, 23, 24, 25, 38, 52, 67, 81, 96 (9)
America	Mapping	10-11-12; 25-26-27; 39-40-41; 54-55-56; 68-69-70; 82-83-84-85; 97-98-99-100 (24)
Pacific Ocean	Rest	13-14-15; 28-29; 42-43; 57-58; 71-72-73; 86-87-88, 101-102 (17)
Asia	Mapping	1-2-3-4; 16-17-18-19; 30-31-32-33; 44-45-46-47-48; 59-60-61-62-63; 74-75-76-77; 89-90-91-92 (30)

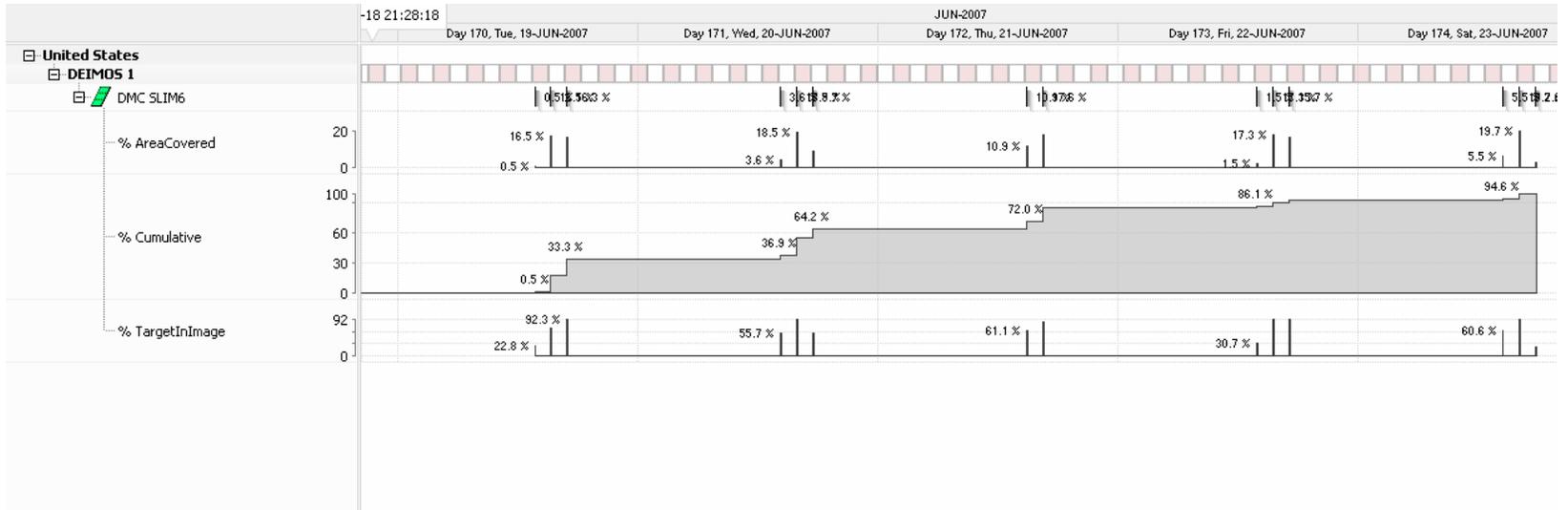




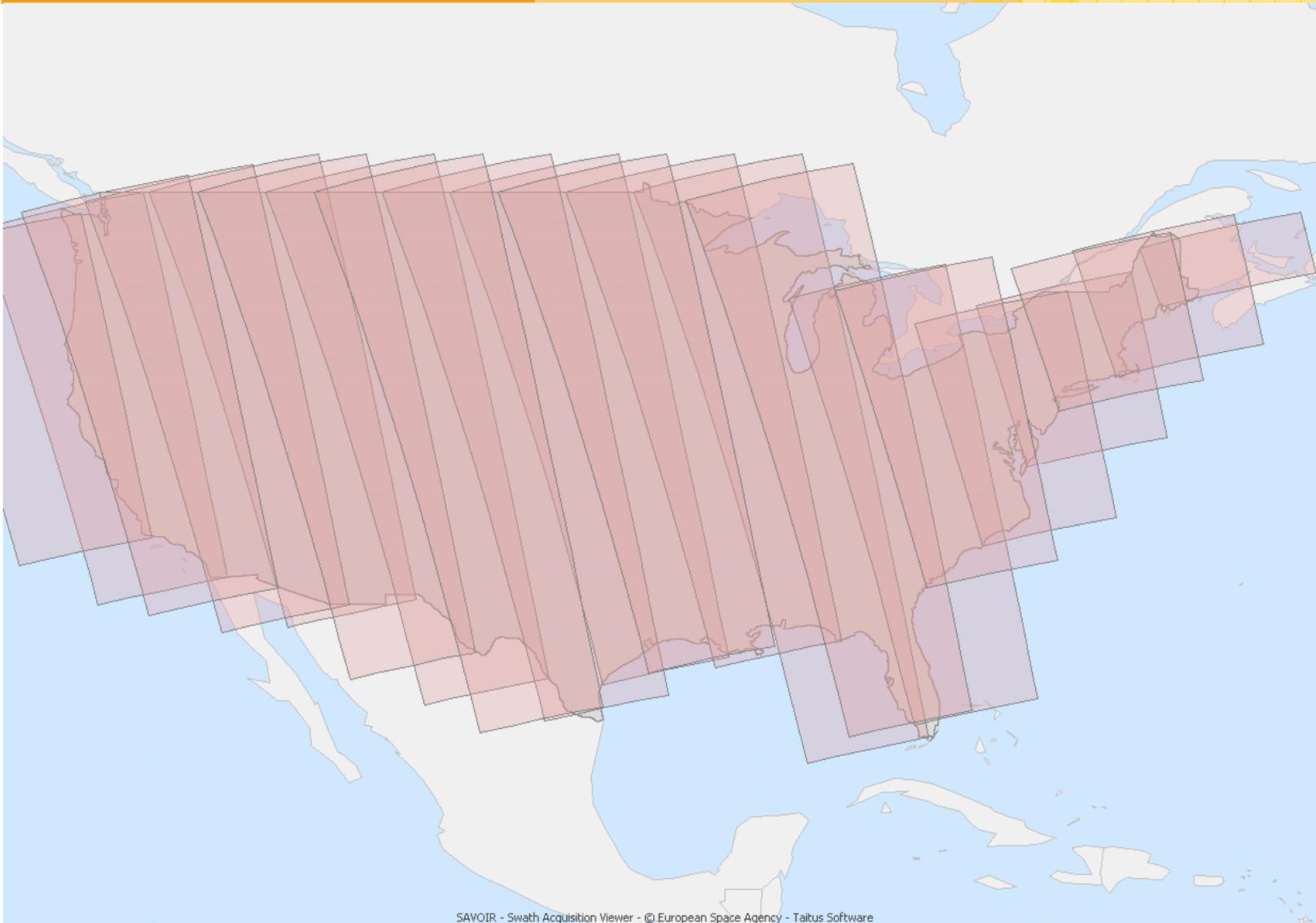




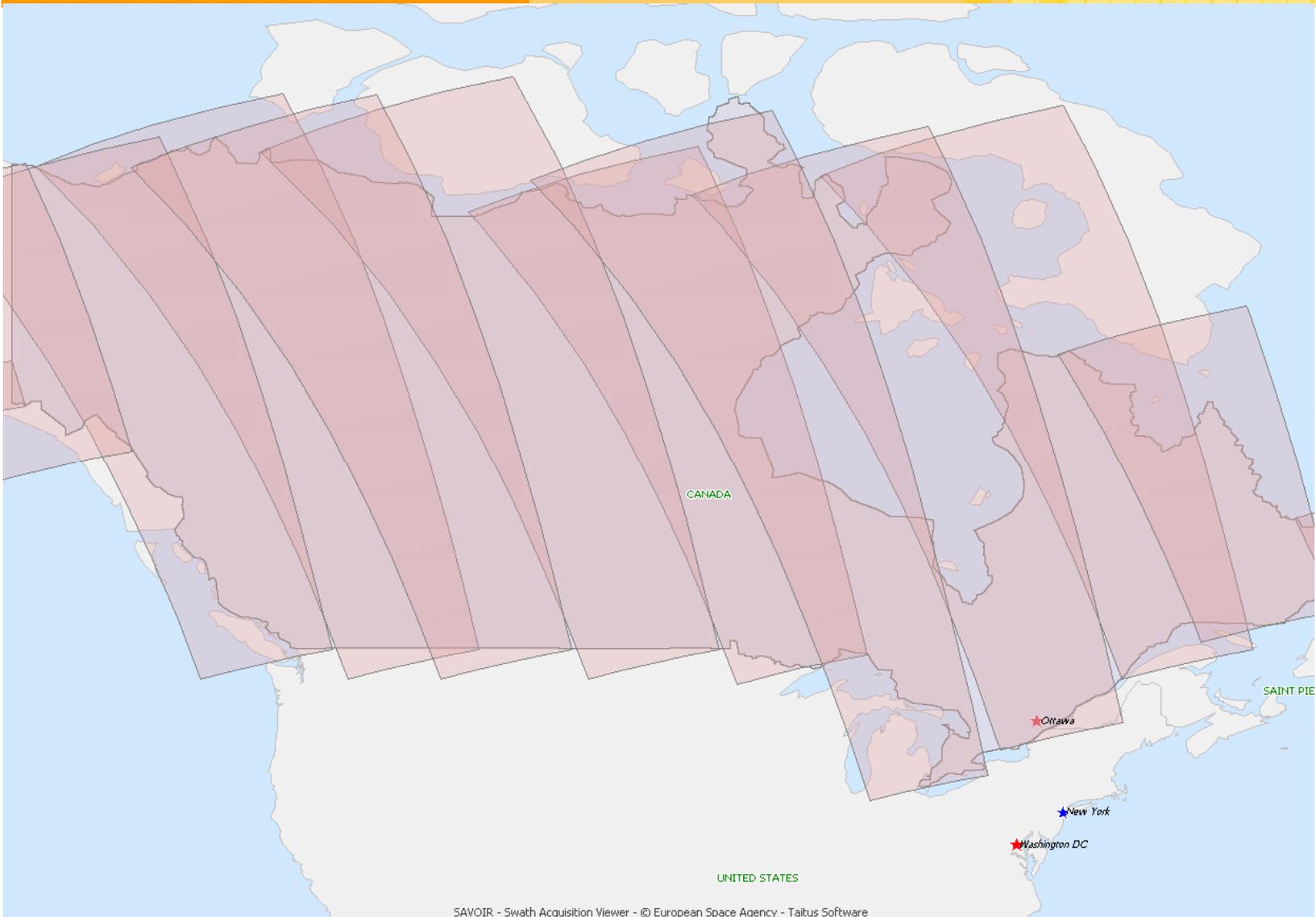


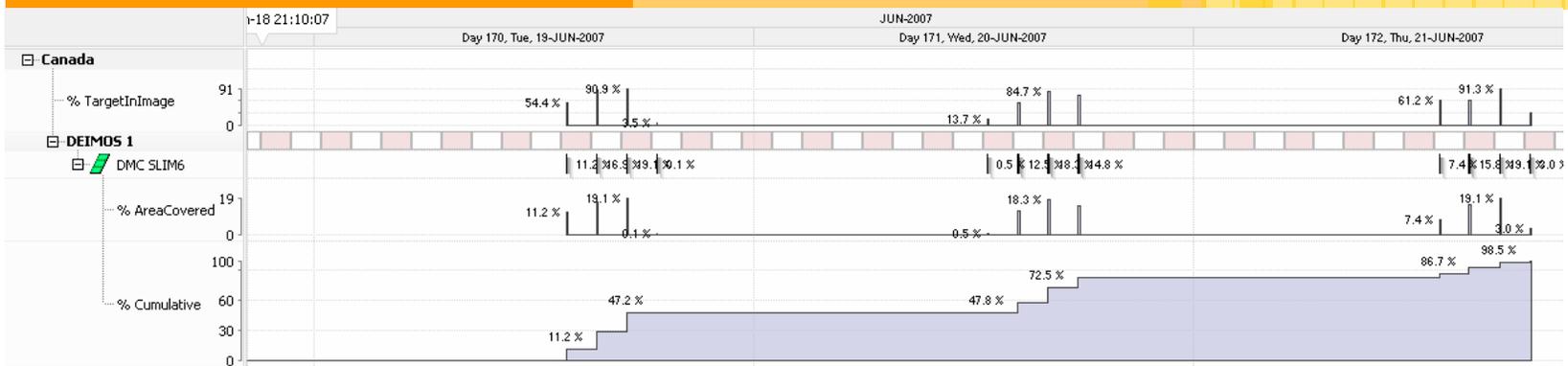


Gantt Diagram

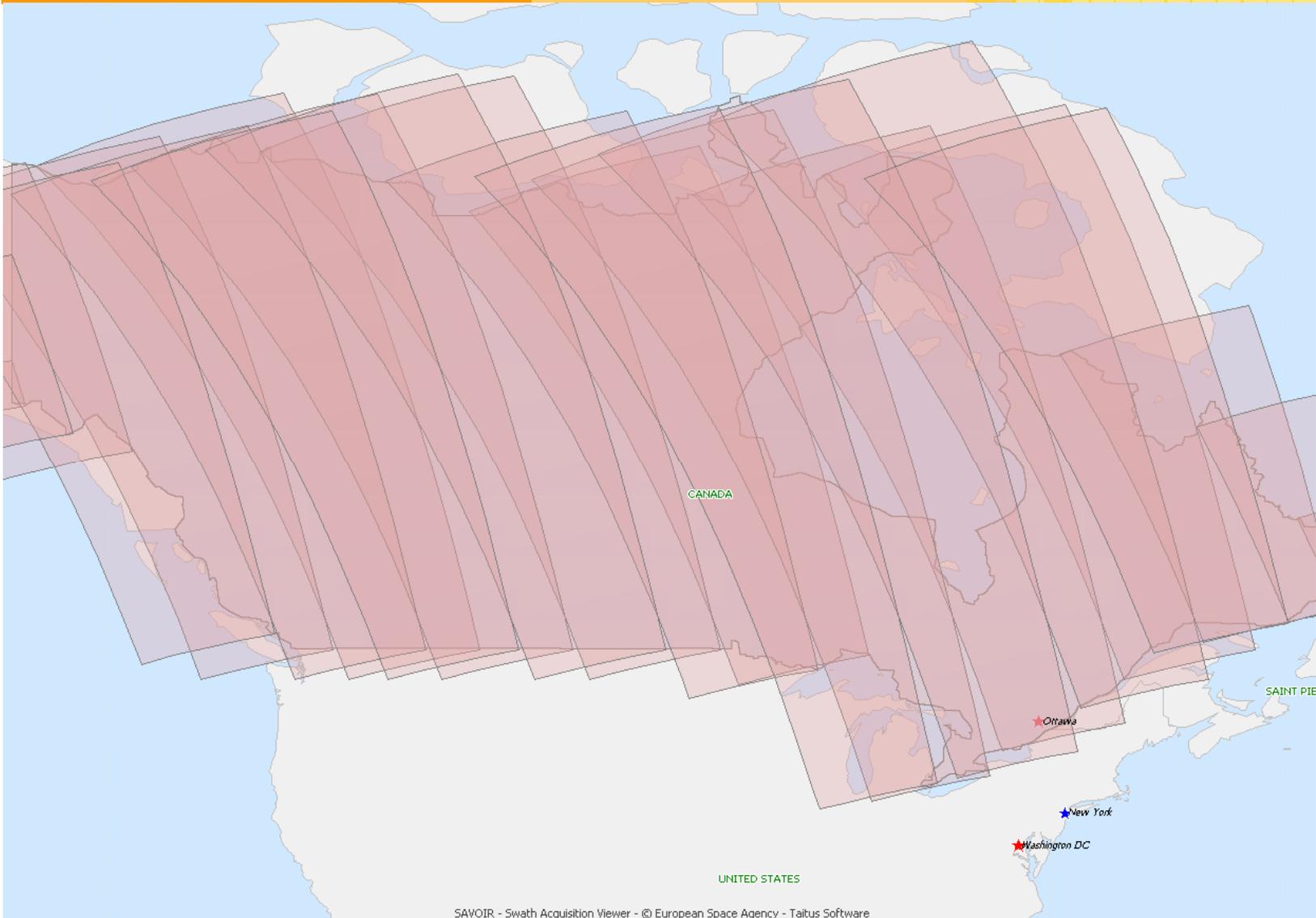


- *USA can be covered in 5 days*
- *USA is covered twice in 8 days*
- *North regions of USA are covered twice in 5 days and 3 times in 8 days*

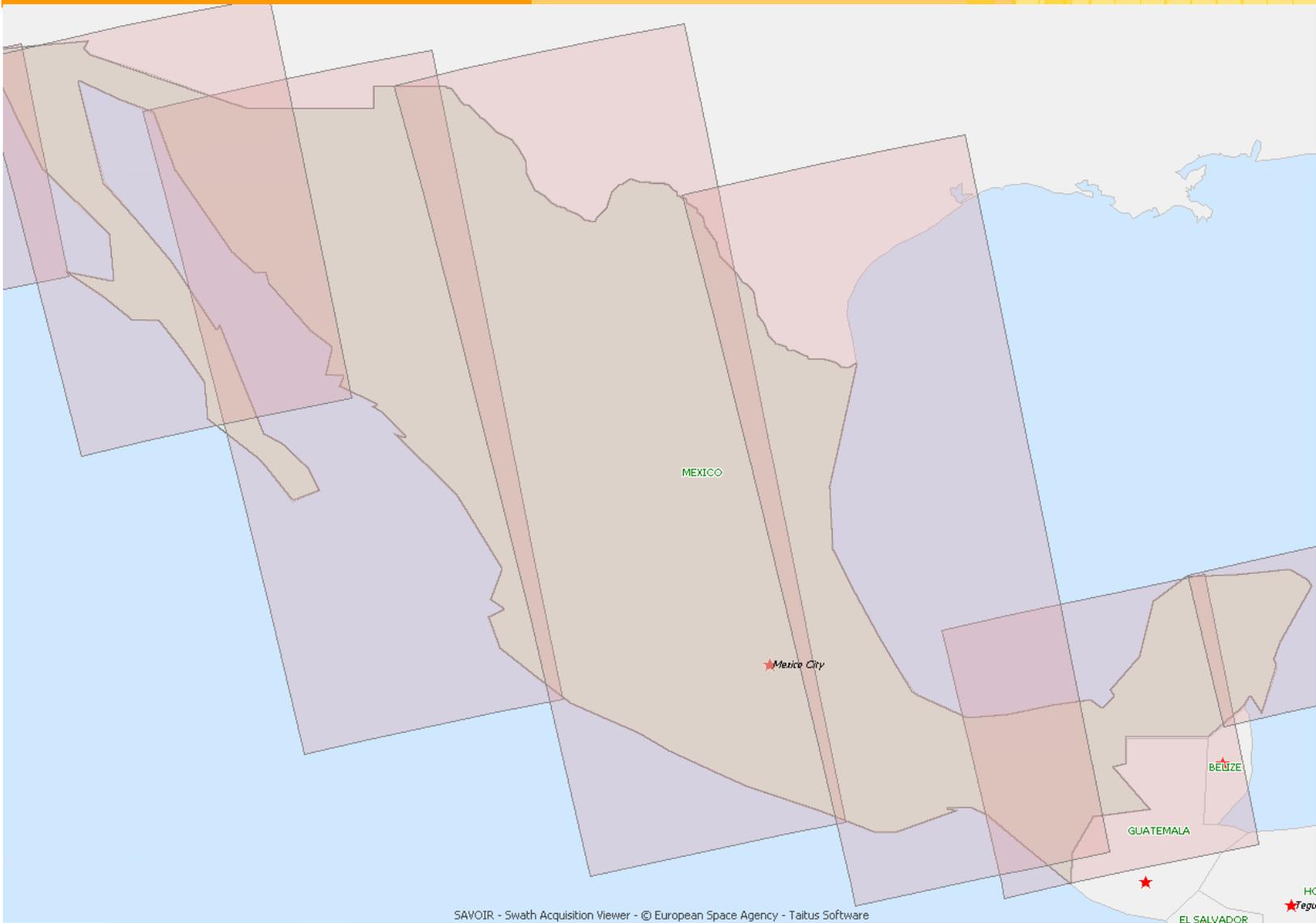


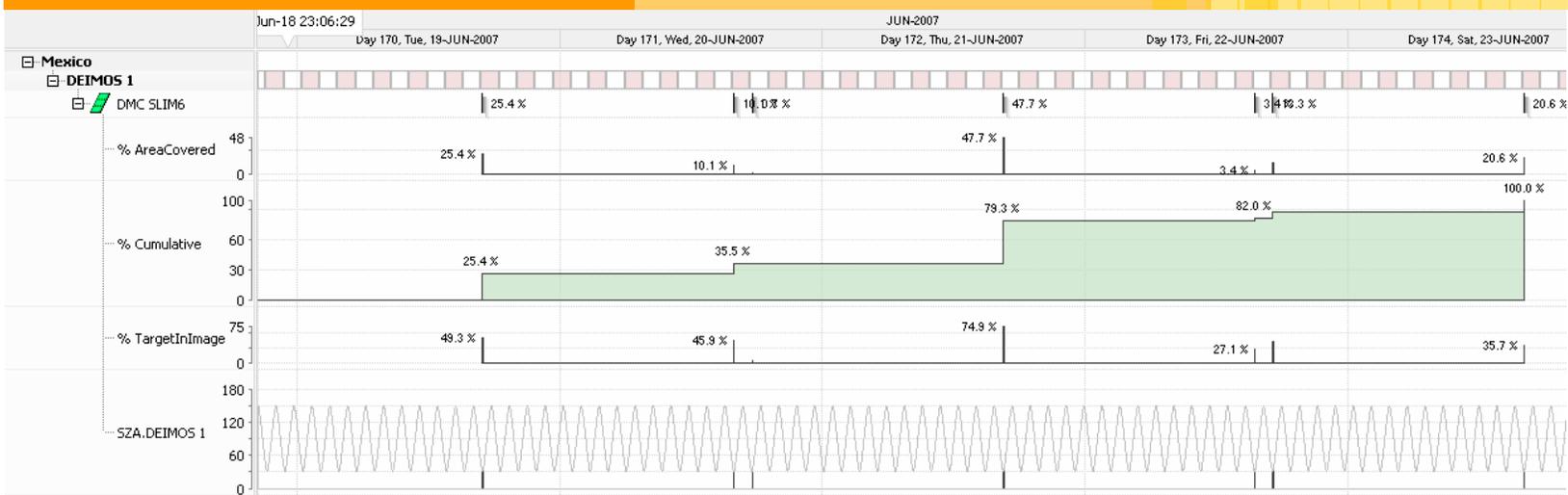


Gantt Diagram

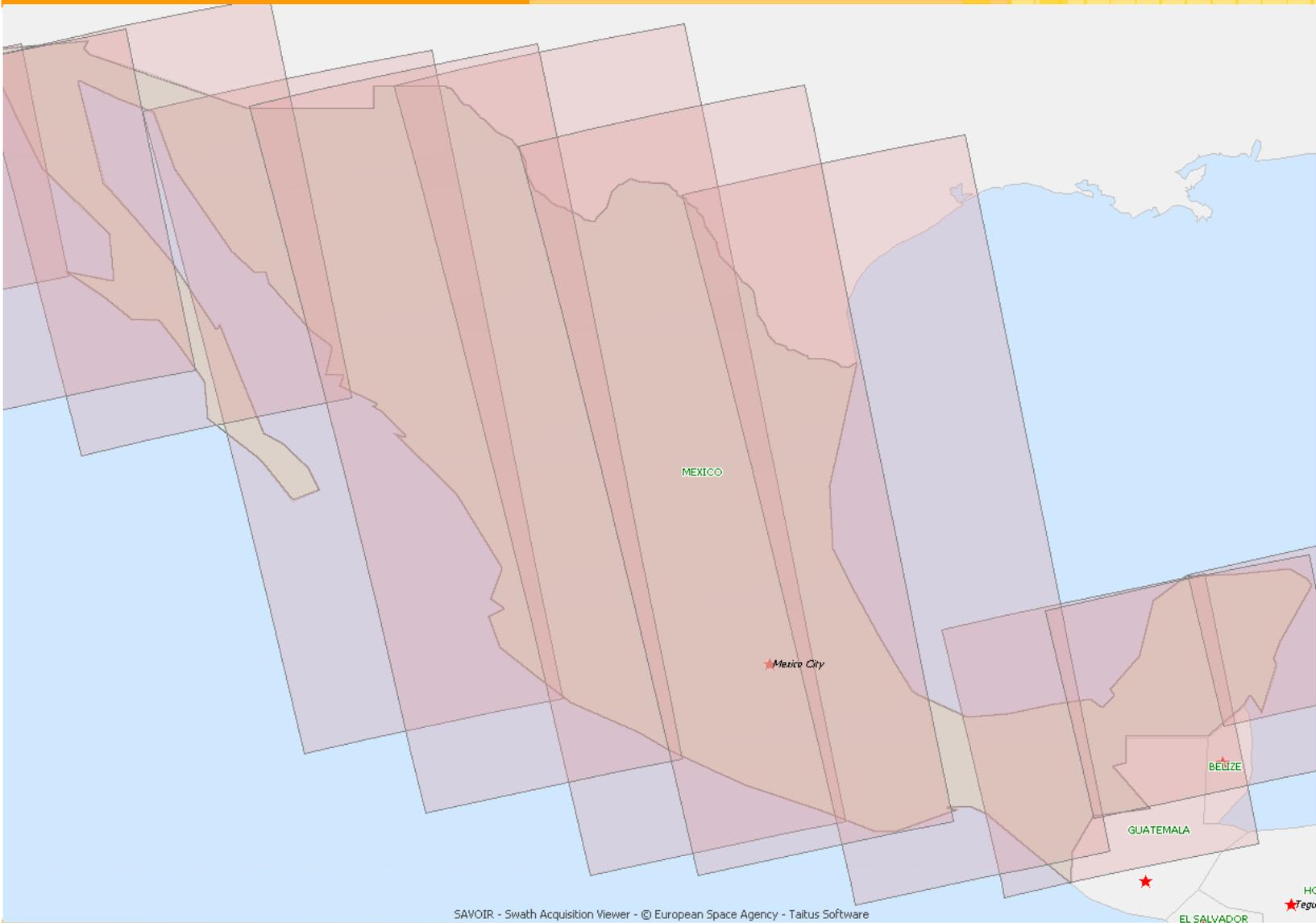


- *Canada can be covered in 3 days*
- *Canada is covered twice in 6 days*
- *North regions of Canada are covered twice in 3 days and 4 times in 6 days*

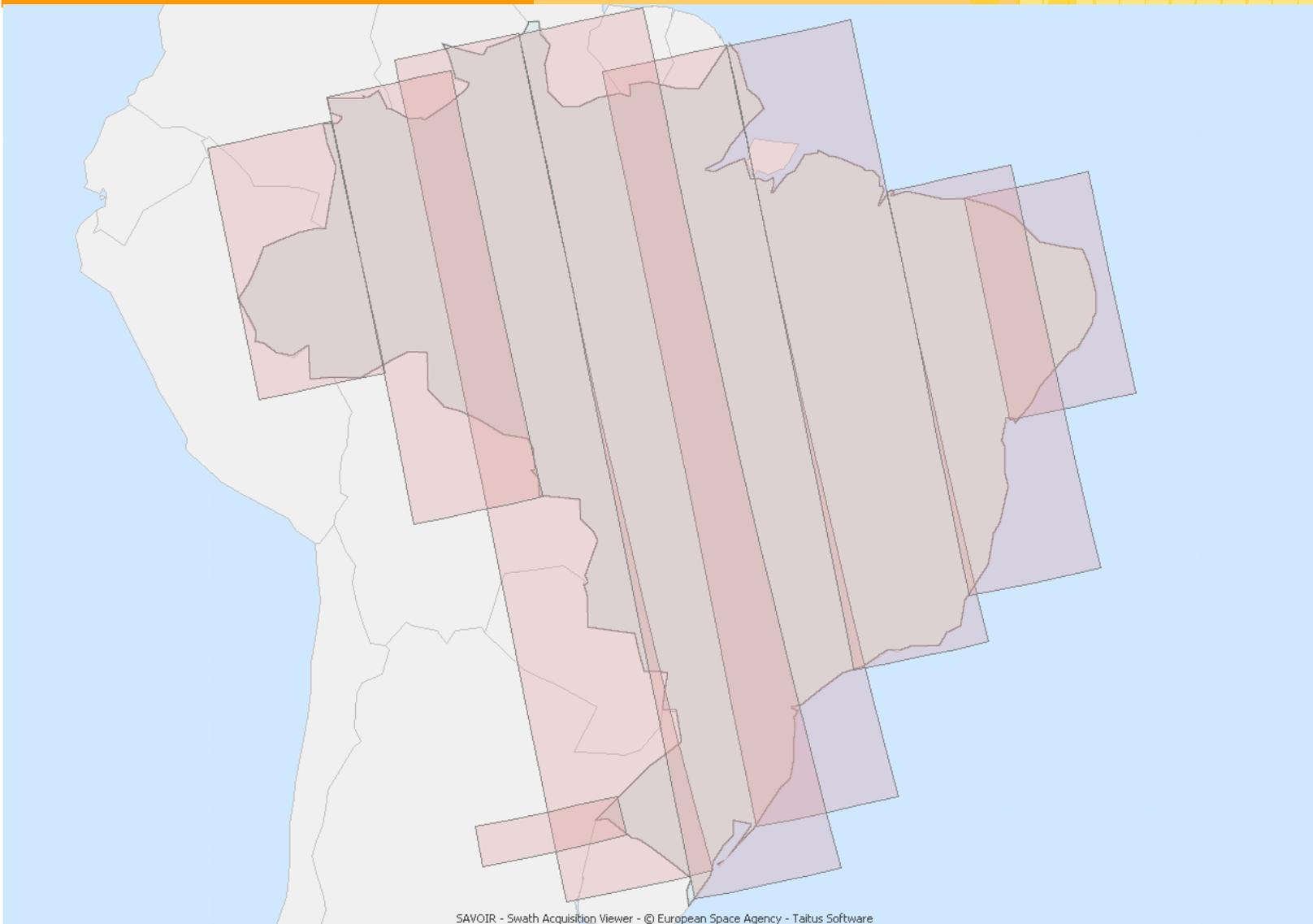




Gantt Diagram



- *Mexico can be covered in 5 days*
- *Nearly all Mexico is covered twice in 8 days*

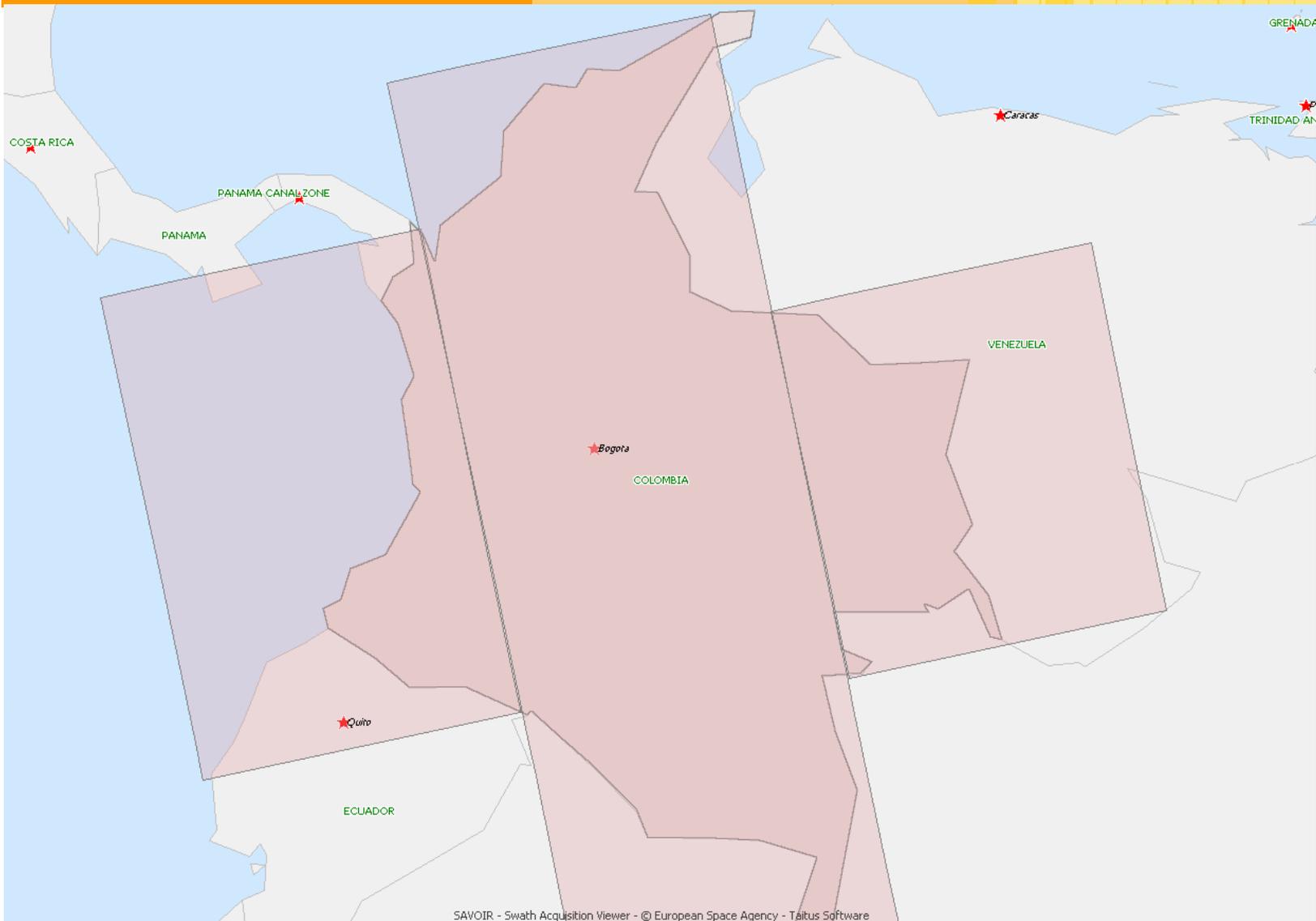


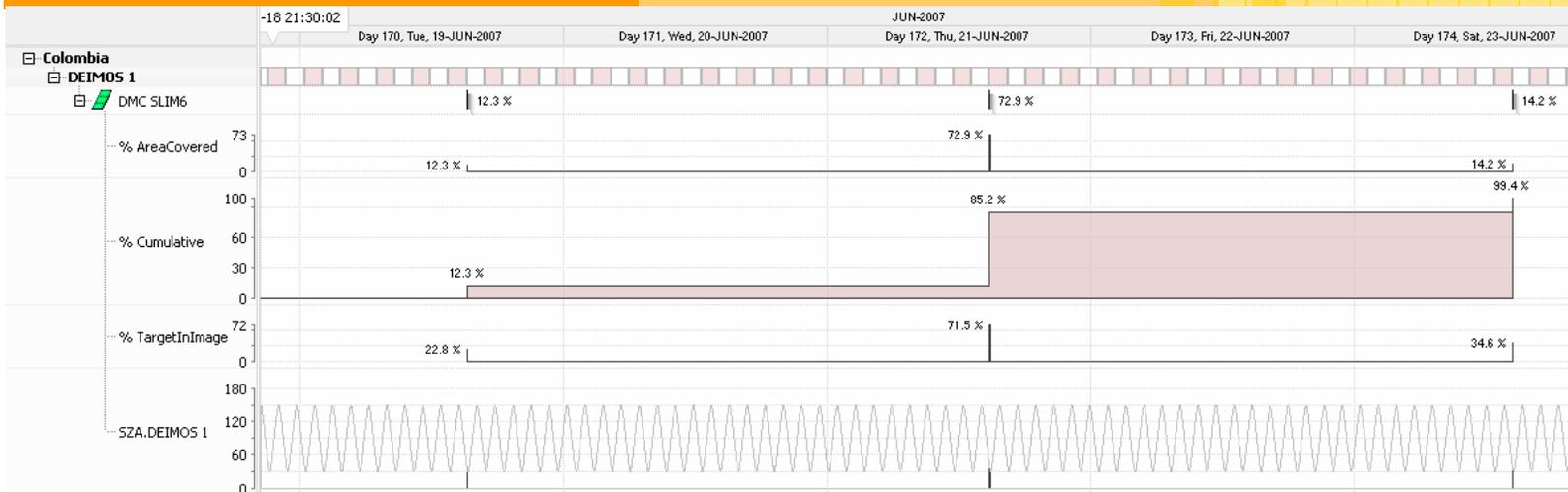
SAVOIR - Swath Acquisition Viewer - © European Space Agency - Taitus Software



Gantt Diagram

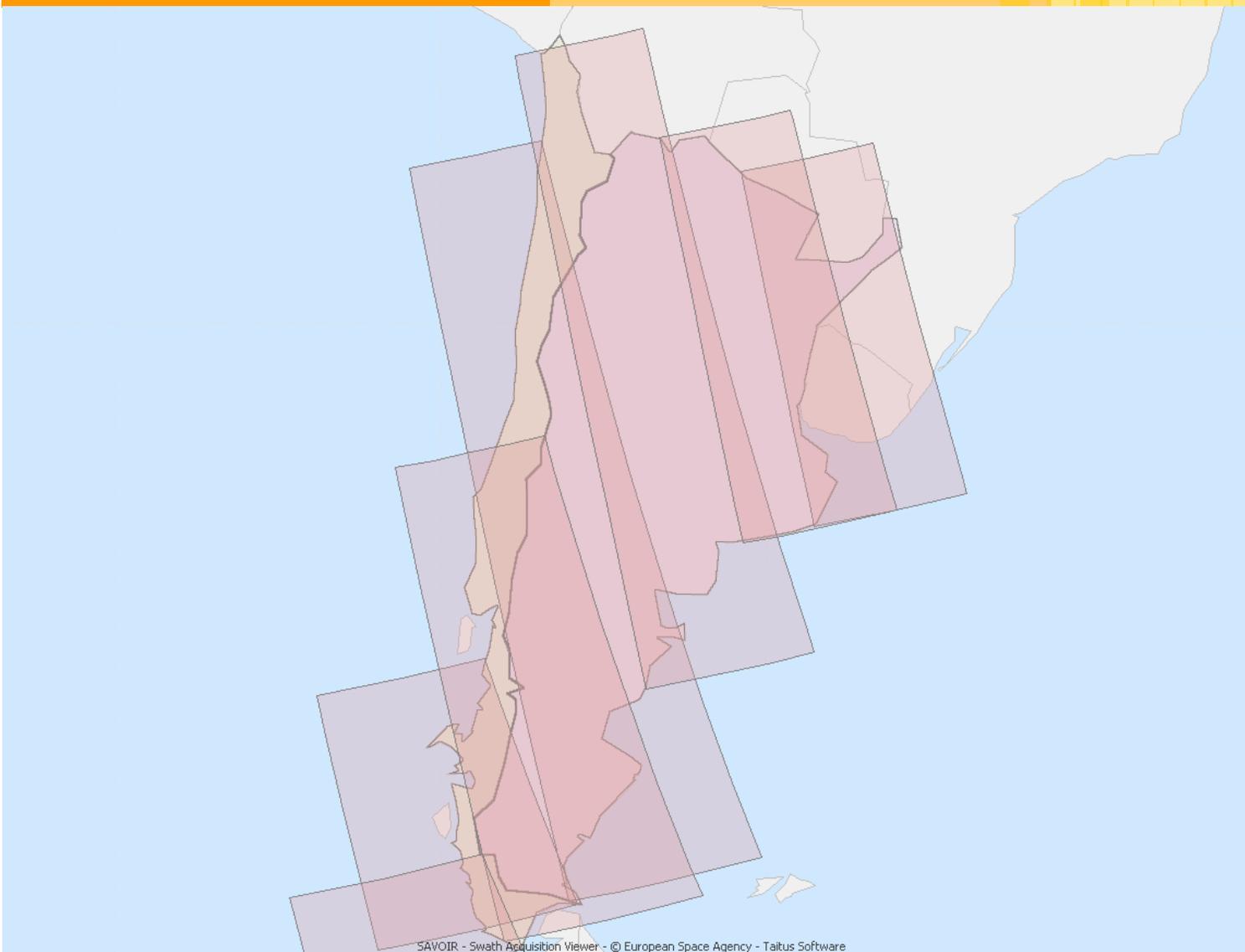
- *Brasil can be covered in 5 days*

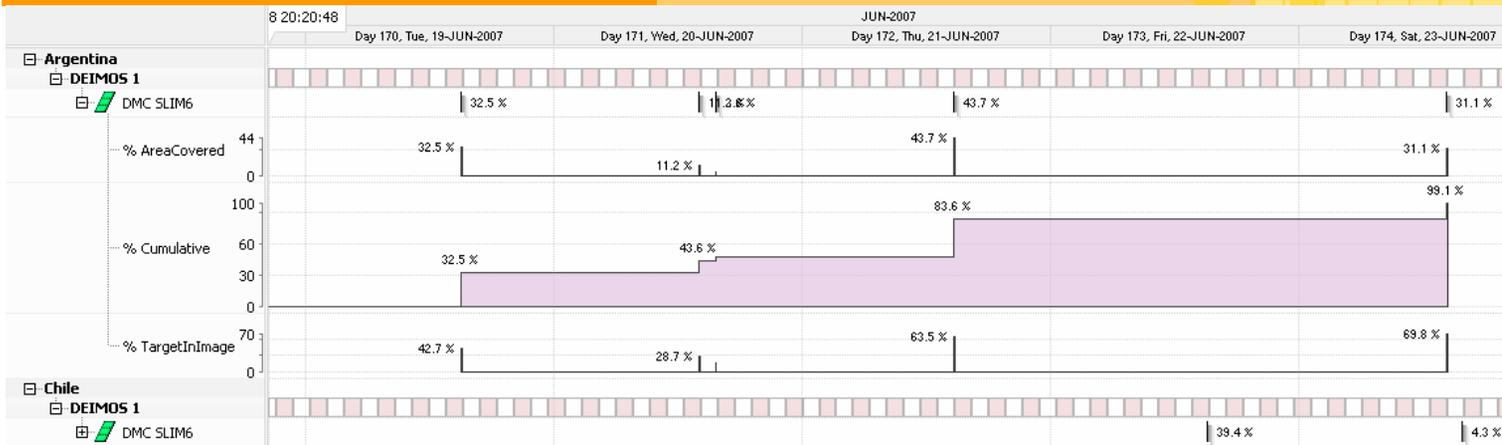




Gantt Diagram

- *Colombia can be covered in 5 days, with 3 images*





Gantt Diagram

- ***Argentina-Chile can be covered in 5 days with 7 images***



NOAA-Feng Yun Receiver



MSG Receiver



MODIS-TERRA & AQUA receiver

DMI also has NOAA, Feng Yun, MSG and MODIS receivers, to use together with DMI images in order to develop different products in the European area.

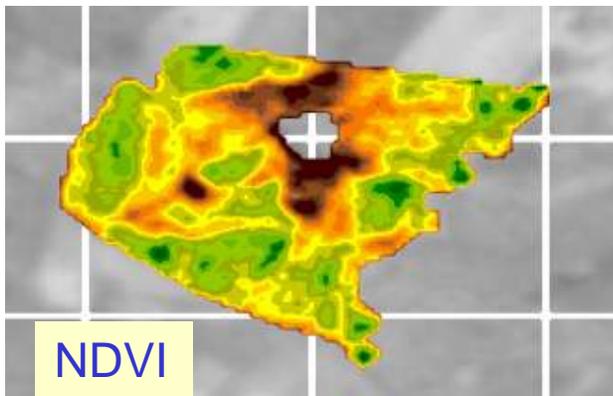
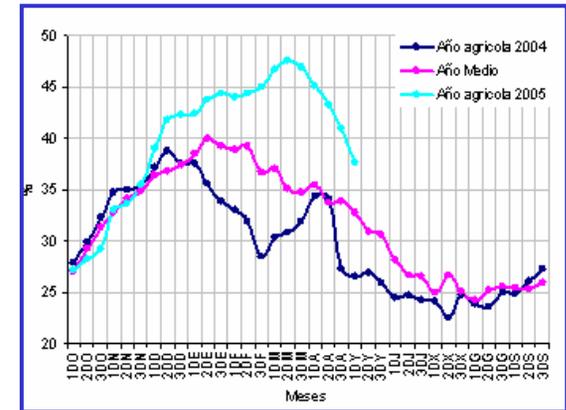
- **Images: raw, L1b..., georeferenced, orthorectified etc.**
- **Agriculture**
- **Inner and coastal waters**
- **Environment**
- **Forest**
- **Forest fires**
- **Agriculture problems: Hail, drougness, frosts..**
- **Floods**
- **Fishing**
- **Others**

- > **Watering Planning Support**
- > **Monitoring of Underground Water Extraction**
- > **Drought monitoring and assessment**
- > **Hail or Frost damage location and assessment**
- > **Farming reports (Quantitative and Qualitative Analysis; Nitrogen and Biomass Content, Foliar Area Index, Anomalies, etc.)**
- > **....**

➤ **Quantitative and Qualitative Analysis:**

- Biomass and NDVI
- Nitrogen Index
- Leaf Area Index

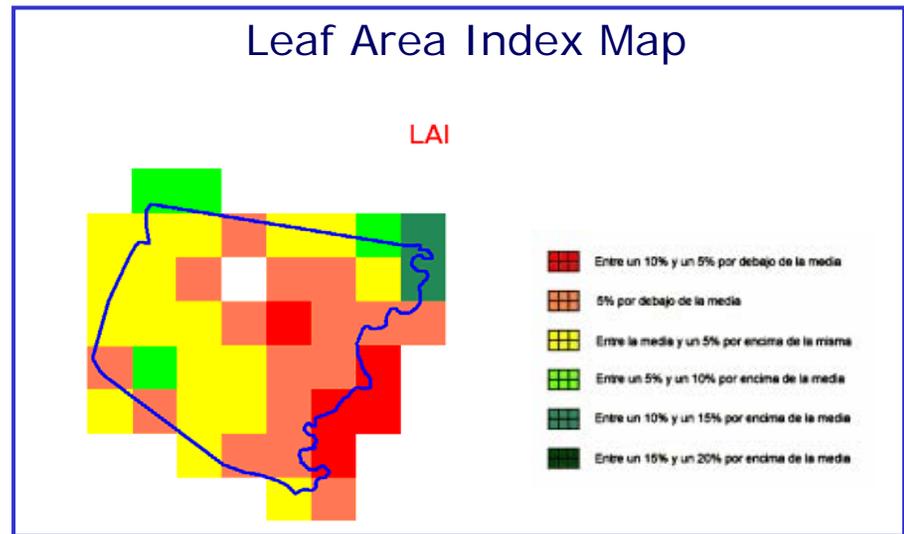
- **Based on MODIS and DMC data**
- **With Historical Records**



NDVI

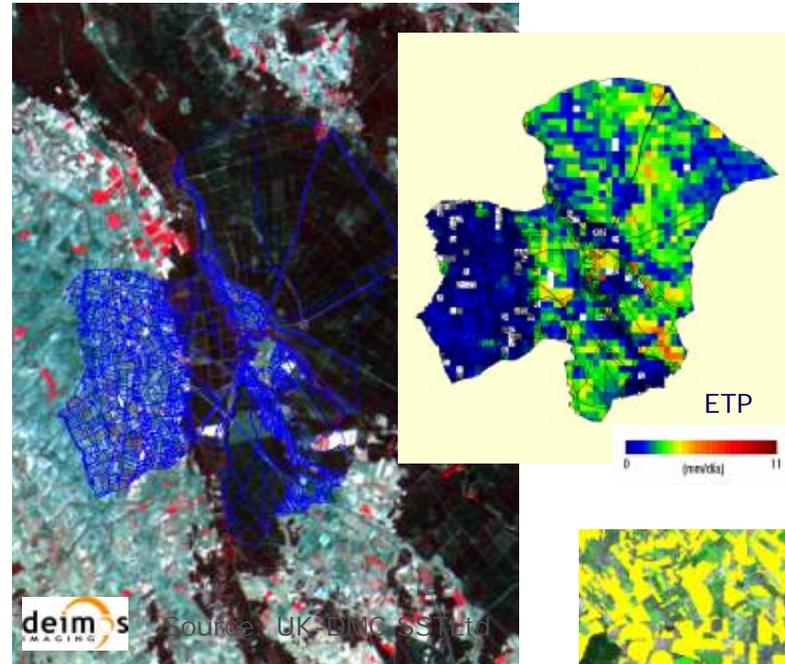


Source: UK-DMC SST Ltd



- **Land Use Land Cover Maps**
- **Spills Monitoring**
- **Flood Surveillance and Monitoring**
- **Watershed Planning and Water Quality**
- **Watershed Snow Cover Assessment**
- **Flood Area Mapping**
- **Wind and Solar Energy Plant Location Assessment**
- **Erythematic Radiation and Ozone Thickness Assessment**

- > Evapotranspiration Assessment
- > Watershed Planning:
 - Irrigated Land Monitoring
- > Snow Cover Analysis

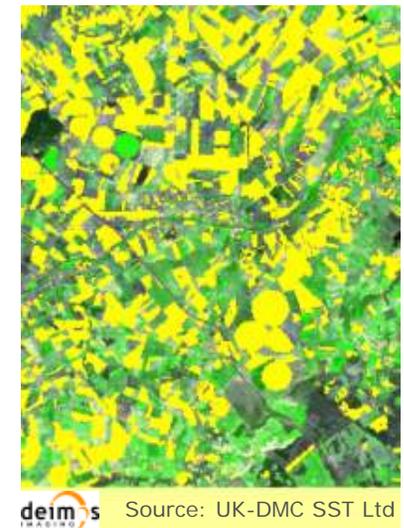


Weekly Analysis



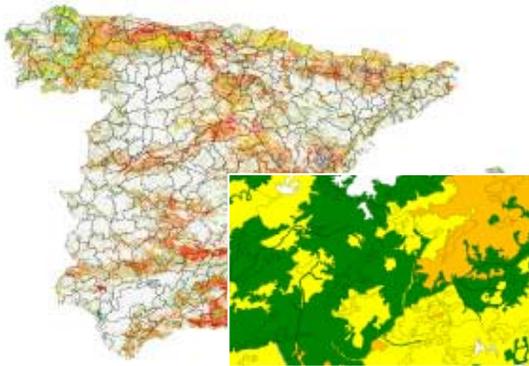
SNOW COVER RATE ANALYSIS

	0		41 - 50		91 - 100
	1 - 10		51 - 60		
	11 - 20		61 - 70		
	21 - 30		71 - 80		
	31 - 40		81 - 90		



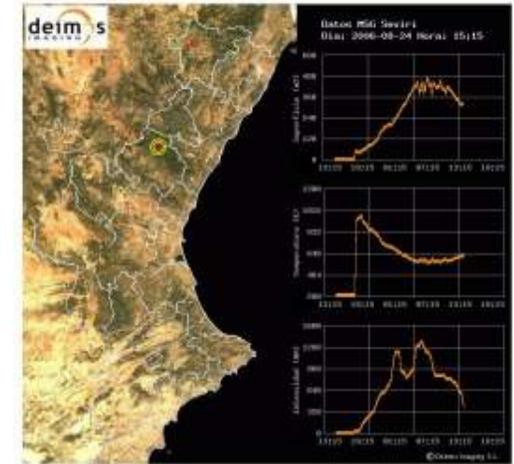
- **Fire Detection and Monitoring**
- **Vegetation Condition Reports and Fire Danger Analysis**
- **Fuel Models Mapping**
- **Fire Severity Analysis**
- **Burned Areas Regeneration Success Assessment**
- **Forest Plagues and Illnesses Monitoring**
- **Reforestation Success and other Sylvicultural Actions Assessment (Cuts, clearing, etc.)**
- **Forest Inventories Support (Forest Cover Fraction, Stand definition, etc.)**

Fire Danger (Based on vegetation conditions)

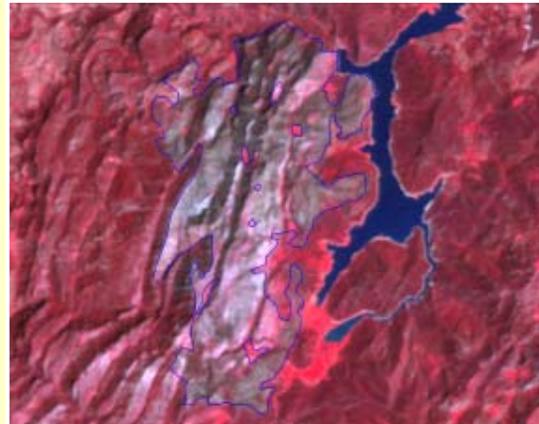


Forest Fire Mapping

Fire Detection and Monitoring: MSG / MODIS

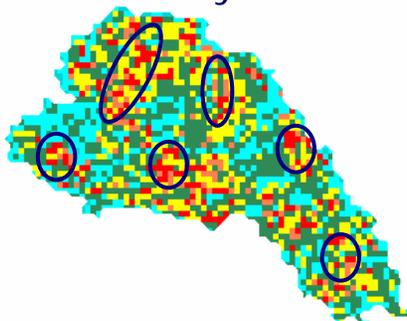


Burned Areas Mapping

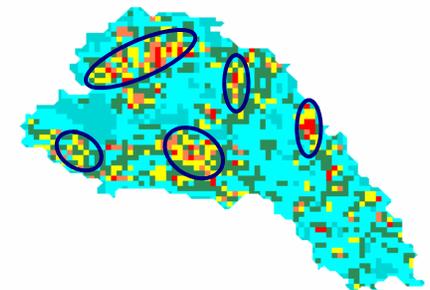


Source: UK-DMC SSTLtd

Fire Severity Analysis



Regeneration Assessment

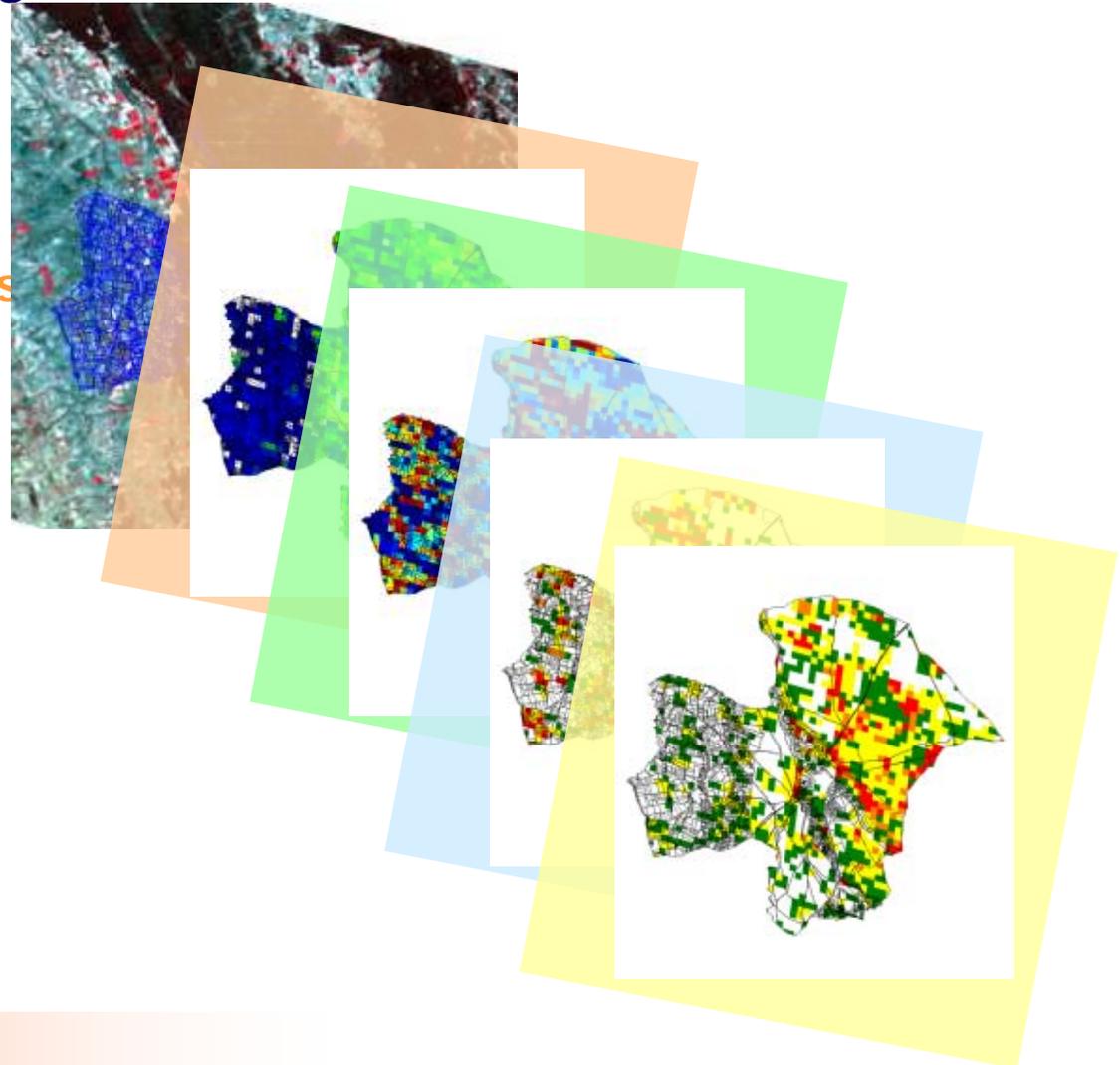


➤ **Vegetation Conditions Reports (Spatial and Temporal Analysis):**

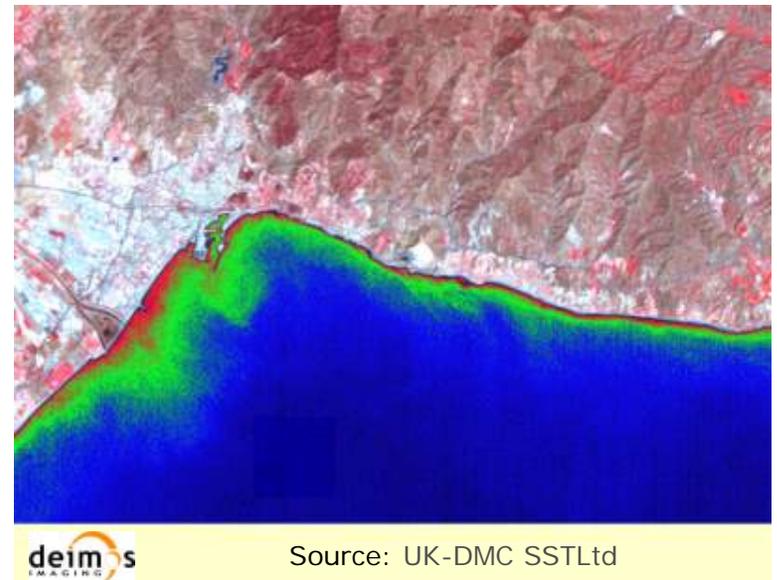
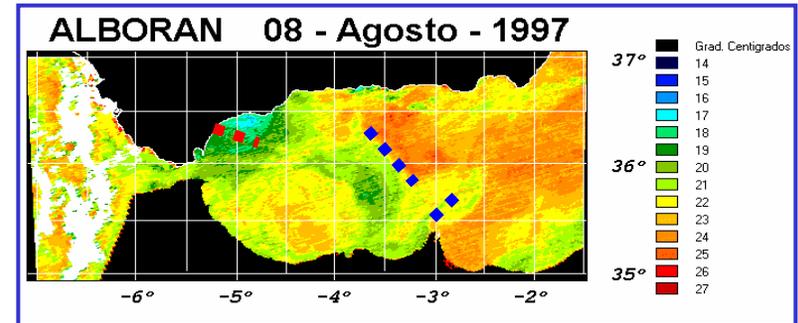
- **Maps (visual)**
- **Statistical Analysis**

➤ **Layers:**

- **Vector – False Color**
- **Real ETP**
- **Live Fuel Biomass**
- **Vegetation Index**
- **Danger Index**
- **Others: LAI, Biomass, etc.**



- **Civil Defence**
 - Crisis and Disaster Monitoring
 - Rapid Response System and Storm Monitoring
 - Boats detection
- **Coastal monitoring**
- **Thematic Mapping and Statistical Analysis**
- **Fishing**



THANKS FOR YOUR ATTENTION