



Committee on Earth Observation Satellites

# DINAMIS

**The French national facility for institutional  
procurement of VHR satellite imagery**

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WG Disasters 18

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Access to data  
is quite  
complicated



Pléiades@CNES, 2015, Distribution Airbus DS



Spot@Airbus DS

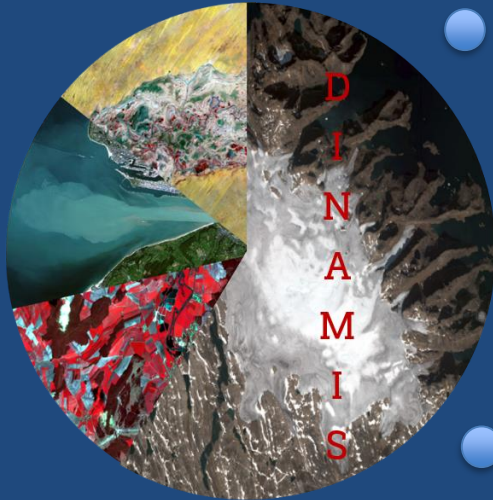


Pléiades@CNES, 2015, Distribution Airbus DS

We are  
helping  
this

# Who are we?

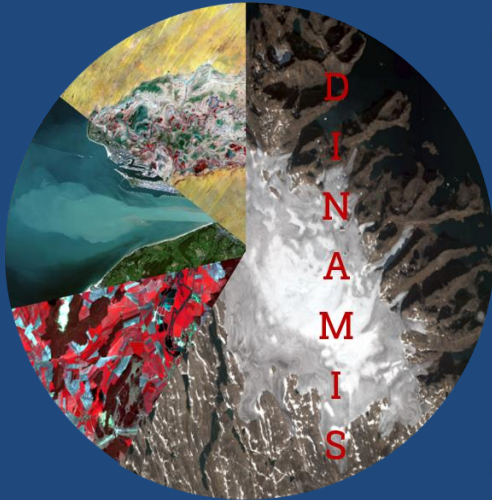
**French national facility for institutional procurement of  
VHR satellite imagery**



- Created in 2017
- On the initiative of 6 French highly regarded partners :  
CNES, CNRS, IGN, IRD, CIRAD, INRAE
- For an unique and central data access

# Propose

- Data for institutional users (public actors and scientists), education and innovation
- Earth Observation satellite data
- Very High Resolution images



# What exactly?

- Raw satellite data (Pléiades/Spot 6-7) (included geometric and radiometric pre-processing)
  - Free download data from DINAMIS Catalogue
- New data acquisition\* based on free quota\*\* completed by co-financing or institutional pricing in case of quota overshooting

\* Pléiades/Spot 6-7 tasking and archive

\*\* Not fixed



# For which users?

Authorized Institutional Users (AIU\*):  
the French Pléiades Public Service Delegation  
CNES-Airbus

- French scientists
- European/international scientists:
  - ➔ Specific conditions
- French public actors (included educational bodies)
- French private companies for R&D activities

\*AIU : French institutional bodies, (governmental, ministerial, regional, departmental, territorial, communal, university, laboratory scientist, educational institution,...), associative organism with a public mission





# How does it work?

France

## 3 main steps

1. Applying for membership: your organism must adhere to DINAMIS. Signature of DINAMIS Charte. Online registration. Validation by DINAMIS within 48h
2. Create your user account (individual, professional mail address)
3. Consult DINAMIS Catalogue. Free images download  
And if needed: new images requests (archive and/or tasking)

# Cost

## France

DINAMIS Catalogue: free images

Archive images\* and satellite tasking: free quota

### Pléiades

Scientist: 4 500 sq.km  
Public actors: 3 500 sq.km

### Per user/demand

- French institutional
- French R&D

### Spot 6-7

10 telemetry credits (36 000 sq.km)

### Over quota

French scientist | 1 € / sq. km

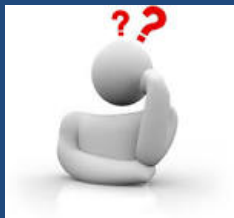
French public actors | 1,4 € / sq. km archive  
French private companies | 1,8 € / sq. km tasking

French institutionnel  
(scientist+public)

20 credits more: 20 k€  
50 credits more: 50 k€

\*Referenced images in Airbus Catalogue





# European scientists

## Specific conditions

- Access to Pléiades archive and tasking through specific framework (CEOS) or through collaborative science projects (Pléiades Glacier Observatory)
- European scientists: no free quota, preferential institutional rate
- International scientists: must be partnered with a European scientist, access to archives only.

Archive 1,4 € / sq. km /- Tasking 1,8 € / sq. km



# Current images offer

## Available in DINAMIS Catalogue

- Pléiades et SPOT 6-7 (worldwide)
- Pléiades annual coverage: French metropolitan and Guyana littoral, overseas departments
- SPOT 6-7 annual coverage for French metropolitan
- Complementary high resolution images
  - Spot World Heritage Program (Spot 1-5)
  - PEPS platform (Sentinel 2)
  - Kalideos Project (RapidEye, CosmoSkyMed, Aster, TerraSar-X)

## On request

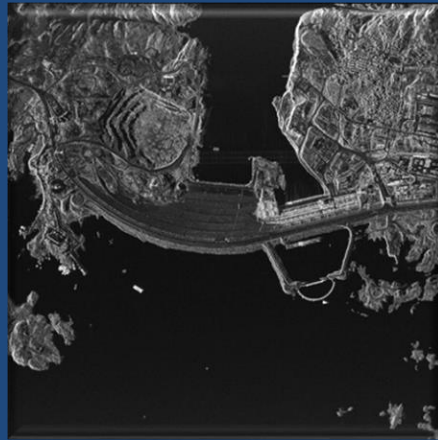
- Pléiades  
SPOT 6-7

Tasking around the world  
Referenced images in Airbus  
Catalogue

# Tomorrow offer



Pléiades-Neo 30 cm



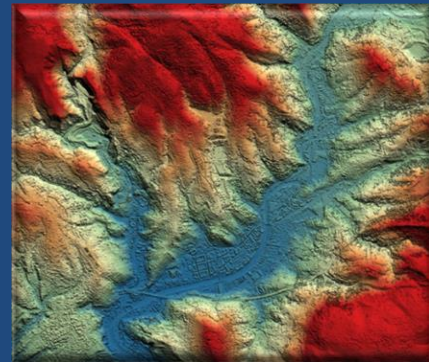
TerraSarX 25 cm à 40 m



Planet 0,6-1m



Jilin 0,5-3m



CO3D – MNS 1m

# Factsheets and tutorials

Data features: Pléiades & Spot 6-7 imagery/products


Data access: Catalogue tutorials


### Catalogue tutorial

Tutorial n° 2 - Viewing data

**VIEWING DATA**  
This tutorial shows you how to use simple or advanced data visualization techniques in the DINAMIS Catalogue.

You can view data in the Catalogue in several ways:

- Viewing by bounding box**  


Schematic data visualization using a bounding box.
- Viewing by image**  


Quicklook visualization with grid tool selected.

### Catalogue tutorial

Tutorial n°1 - Searching, filters and saving searches

This tutorial shows you how to do a simple or advanced search for satellite data in the DINAMIS Catalogue.

**SEARCHING**  
You can search the meta-catalogue in several ways:

- Text search in the search bar**  
Simply key in your search text, i.e. theme, sensor, keyword, area of interest, etc. in the search bar.
- Geographic search using the map**
- Date search using the timeline**  
This timeline is at the bottom of your web browser window. You can also filter or select dates on the image.

**SEARCH FILTERS**  
From left to right, you can search data directly and then refine your search criteria using additional filters or queries (see Defining Searches below).


There are **basic filters** (acquisition mode, Resolution or Toponym) and advanced filters (Processing level, Cloud cover and Incidence angle).



### Pléiades imagery

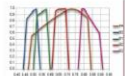
Characteristics

**1. RESOLUTION**  
**Very high spatial resolution**  
Pléiades images are onboard satellite acquired at 30 cm resolution (at nadir) for panchromatic spectral mode (black & white) and at 20 cm resolution (at nadir) for multispectral mode (colour). On-ground 50 cm processing resampling algorithm is performed allowing images resolution, especially in the case of orbit processing.  
50 cm resampled images reflect better quality in terms of information content and ensure the initial content is fully preserved in the final product.  
Pléiades images distributed by Airbus DS are at 50 cm in panchromatic and at 21 cm in multispectral modes.



**2. RADIOMETRY**  
**Spectral bands**  
5 spectral bands:  

- Panchromatic (PAN): 470 - 630 nm
- Blue (B): 450 - 500 nm
- Green (G): 500 - 600 nm
- Red (R): 590 - 710 nm
- Near-infrared (NIR): 740 - 940 nm



**Spectral combinations**

Panchromatic (PAN)	Multispectral (MS)	Bands (PAN&S)	Resolution (PAN&S)
50 cm	21 cm	50 cm and 21 cm separated	50 cm merged product
Band (black and white)	4 bands (B, G, R, NIR)	Panchromatic: 1 band Multispectral: 4 bands	Pan-sharpened: 5 bands Pan-sharpened: 4 bands

### Pléiades products

Characteristics

**1. GEOMETRIC PROCESSING LEVELS**  
**Primary products**  
The primary product is the geometric processing level closest to the natural image acquired by the sensor. This product retains perfect orthorectification. However, the sensor acquisition rectification geometry and the image geometry are still radiometric distortions. This product is optimal for those users familiar with satellite imagery processing techniques, who want to apply their own production methods (orthorectification, 3D modeling for example). To this end, SPOT 6 and SPOT 7 sensors are provided with the product to ensure full autonomy and simplicity for users. The primary best product is a sensor geometry, implemented on a perfect angle and these both know why with an equated radiometry on the native dynamic range of the sensor, 12 bits (DNV values).  
**Ortho images**  
The Ortho product is a georeferenced image in Earth geometry, corrected from acquisition and terrain off-axis effects. The Ortho is produced by a standard with fully automatic processing.  
The standard Ortho product is an image that has been corrected for viewing angle and ground offset so that it can be superimposed on a map. In addition to radiometric and geometric adjustments, a geometric prisma using a third model (bore-sight) orthorectification eliminates the perspective effect on the ground (just on buildings, restoring the geometry of a vertical shot). The Ortho product is optimal for angle and direct use of the image. It can be used and integrated directly into a Geographic Information System. This processing level facilitates the management of several layers of products from the same sensor or others, while reducing location gaps that can be caused by different viewing angles or relief between the various bands.  
The standard 3D model used for ground corrections is the worldwide Reference3D dataset, which is part of Airbus DS Elevation3D suite.

**2. RADIOMETRIC PROCESSING LEVEL**  
Basic imagery corresponds to raw data without any radiometric processing. Each pixel is given in digital numbers (DN), i.e. native pixel values from the sensor acquisition (after equalization). These digital numbers quantify the energy recorded by the detector, corrected relative to the other detectors to avoid non-uniformity noise.

**Key benefits**

- Perfect for expert users, addicted to pure data and familiar with satellite imagery applications and image processing tools.
- Most file carry up calibration and own spectral analysis.




### Spot-6 and Spot-7 Imagery

Characteristics

SPOT 6 and SPOT 7 form with the two Pleiades satellites a constellation of optical Earth-imaging satellites providing continuity and availability of High- and very high-resolution data.

SPOT 6 and SPOT 7 draw on the successful heritage of previous generations of SPOT satellites to offer products at a resolution of 10,5 m.

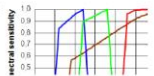
The two identical French imaging instruments on SPOT 6 and SPOT 7 afford a ground swath of 60 km and a daily revisit capability (swath angle =45°, operated simultaneously on the two satellites).



**Resolution**  
The SPOT 6 and SPOT 7 satellites acquire imagery at a resolution of 2 m at nadir in panchromatic (black and white) mode and 8 m at nadir in multispectral (color) mode, with a dynamic range of 12 bits per pixel. Images are then resampled on the ground. Airbus Defense & Space and GEOSUD/DINAMIS distribute SPOT 6 and SPOT 7 products at a resolution of 10.5 m in panchromatic mode and 6 m in multispectral mode.

**Spectral bands**  
The five spectral bands are always acquired simultaneously.

- Panchromatic (PAN): 0,450-0,745 μm
- Blue (B): 0,450-0,505 μm
- Green (G): 0,505-0,695 μm
- Red (R): 0,625-0,695 μm
- Near-infrared (NIR): 0,740-0,950 μm



### SPOT 6-7 products

Characteristics

Products generated by GEOSUD/DINAMIS team:

Instrument	Resolution	Spectral mode	Processing level	Description
SPOT 6*	10.5 m	PAN	Primary	15m panchromatic, with radiometric and geometric corrections (*)
SPOT 6*	10.5 m	PAN	Ortho	15m panchromatic, orthorectified to projection
SPOT 6*	6 m	5S	Primary	6m colour, with radiometric and geometric corrections
SPOT 6*	6 m	5S	Ortho	6m colour, orthorectified to projection
SPOT 6*	10.5 m	PAN&MS	Ortho	15m merged product, orthorectified to projection (merged 5-band natural colour, merged 5-band false colour, merged 4-band)
SPOT 6*	6 m	5S	Primary	Simultaneous acquisition of 4 colour bands at 6 m and 1 panchromatic band at 15 m
SPOT 6*	6 m	PAN&MS	Ortho	Orthorectification, simultaneous acquisition of 4 colour bands at 6 m and 1 panchromatic band at 15 m
SPOT 6*	10.5 m	PAN&MS	Primary	15m merged product (merged 5-band natural colour, merged 5-band false colour, merged 4-band)

(\*) at nadir

# Keep up-to-date



- Website: <https://dinamis.data-terra.org/>
- Catalogue: <https://catalogue-dinamis.data-terra.org/>
- On line request Application: <http://application-dinamis.data-terra.org/login>



- LinkedIn: <https://www.linkedin.com/company/dataterra-dinamis>
- You Tube: <https://www.youtube.com/channel/UC5uatLlrr4s3lc38TYQblug>



- Dedicated form: <https://dinamis.data-terra.org/contact/>

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Our priority issue

To best help you to make your project  
successful

