

**2023**

**Project ID 2b111e**

**“Using satellite images in geography class  
in secondary school in France”**

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# Observation

Today, the use of Earth observation satellite data is essential to contribute to more sustainable management of the planet. As a result, spatial imagery should have an essential place in geography classes where the emphasis is placed on the study of territories with a lot of images.

In recent years, the massive distribution of free, full and open access satellite data in a context of digital democratization has made it necessary to rethink the place of satellite images in the geography class.

Already, the use of Landsat and Sentinel 2 images has proven to be very suitable for studying the anthropization of territories in the classroom.

Concerning very high resolution satellite images, the initiative launched by the french Ministry of National Education and the CNES to promote Pléiades images is interesting although limited to simple image commentary.

# Objective of the project

With regard to the French Ministry of Education/CNES initiative and taking into account the secondary school geography programs in France, **this project aims:**

- ◆ **To evaluate the benefit of using VHR satellite images in geography classes, particularly for the preparation of activities for students.**
- ◆ **To arouse the interest of geography teachers by offering them VHR images that meet their specific needs.**
- ◆ **To offer students the opportunity to implement a class project using time series of VHR satellite images.**

This project took advantage of **Pléiades** and **Maxar** images.



# Providing teachers with VHR satellite images

- ✓ Linked to the official school programs
- ✓ Through a dedicated web page : [www.imgsat.grweb.fr](http://www.imgsat.grweb.fr)

Yangshan: a port at the heart of globalization

Le terminal n°4 du port de Yangshan [2019]

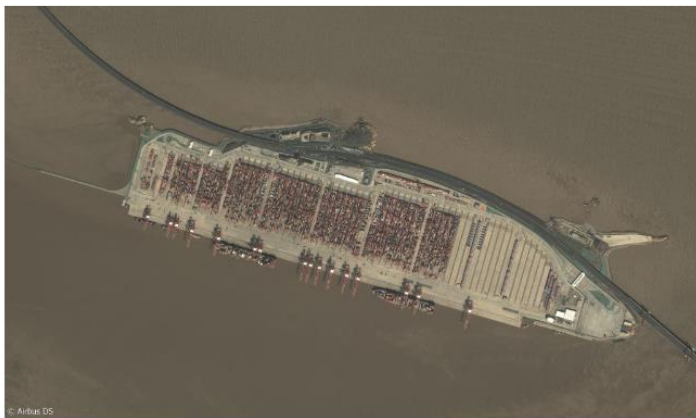


Image Pléiades (Pansharpened/Vraies couleurs), 8 avril 2019, Sentinel Hub/Airbus DS

Industrial disaster: collapse of a mine in China

La zone effondrée vue à très haute résolution (25 février)



AIRBUS  
DEFENCE & SPACE

Image Pléiades (Vraies couleurs/Pansharpened), 25.02.2023, Airbus DS [données modifiées]

Localized case study: Cayenne commercial port

Grand Port Maritime de Guyane (2021)



Image Pléiades (Pansharpened/Vraies couleurs), 24 septembre 2021, Sentinel Hub/Airbus DS



# Using VHR satellite images in school project

Ongoing high school project:

**“My city is transforming under the eyes of satellites”**



*Extension of the new district called "Vidal" in the urban area of Cayenne (Rémire Montjoly)*



*Construction of the new Larivot bridge in the urban area of Cayenne (Matoury)*

# Benefit of using tools and data within cloud environment

- ◆ **Autonomy**

- ◆ **Handy**

- ◆ **Time saving**

*Limitation : the purchased data is no longer accessible once the subscription ends.*

# Which benefits to society are derived from this project?

Training secondary school students in the practical use of satellite images (including VHR images) is now essential to prepare the citizens of tomorrow. The approach must be part of **education for global citizenship**. Regarding VHR images, strong points include:

- ◆ **Track transformations over a small area that is not regularly covered by Google Earth (French Guyana for instance)**
- ◆ **Monitoring the effects of natural disasters (earthquake, floods, etc.) by supplementing Sentinel data**
- ◆ **Supporting Media and Information Education (called EMI in France) by working on the interest of VHR images for fact-checking (geography and geopolitics topics)**



## Discussion

The benefit of using VHR satellite images compared to Sentinel 2 and Landsat data in geography class in France is questionable when it comes to the study of sustainable development or even urbanization at the scale of a city (especially in a large period of time).

Regarding the benefit of the VHR image itself to study small zone, Google Earth (or IGN's Geoportail) would be enough in many cases.

Regarding data availability, it is not always possible to find the images that interest us on a specific date. In this respect, access to PlanetScope daily data could be a good alternative.

**However, VHR images have proven to be very interesting for transversal Media and Information Education (EMI in France).**