

Analyze coastal dynamics with cartographic displays

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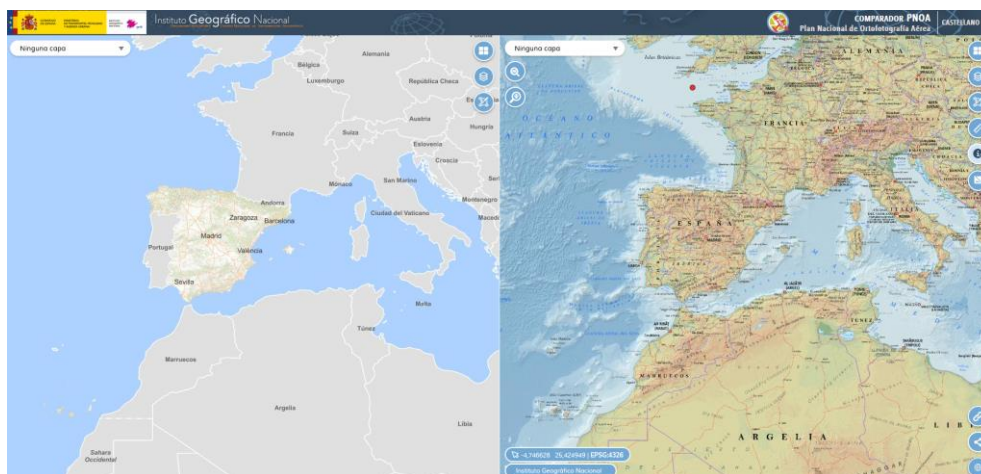
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Introduction

Geographic Information Technologies (GIT) are a permanent improvement in the ability to interpret the world and, therefore, help to propose solutions that can minimize or eradicate environmental and social problems. Visualizers and Geographic Information Systems (GIS) have greatly expanded the didactic potential of conventional cartography, allowing multiple thematic layers to be explored and information to be analyzed from a holistic approach. They also contribute to the development of skills that can help students acquire the competencies demanded by society today and in the future, so the use and application of technology should be integrated into the curricular content.

The cartographic viewers of the National Geographic Institute have an enormous didactic potential and can be used as tools to contribute to the improvement of the teaching and learning process of Geography and other Social and Earth Sciences.

In this activity, we propose to analyze the coastal dynamics using the viewer of the National Geographic Institute PNOA (National Plan of Aerial Orthophotography), a tool that allows comparing the same territory photographed at different times.



Objective of the activity

The objective of the proposed activity is to analyze coastal dynamics using a cartographic visualizer as a tool.

Description of the activity

Some systems evolve rapidly. This is the case of coastal arrows, whose dynamics can be identified by comparing images from different decades. This activity consists of analyzing and comparing images from different periods of the Rompido coastal arrow and finding out its dynamics.

A coastal arrow is an accumulation of sediments, sands and gravels, contributed by coastal drift, attached to the land at one end. They are usually arranged parallel to the coast.



Rompido Arrow (Huelva, España)

Steps to perform the activity

Step 1) We access the PNOA (National Aerial Orthophotography Plan), a tool that allows comparing the same territory photographed at different times, ideal for analyzing the evolution of dynamic systems, as is the case of the Rompido coastal arrow.

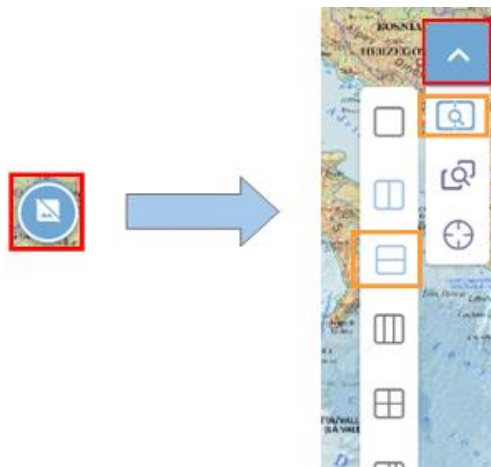
Step 2) We locate in the display the "Flecha del Rompido" (Rompido Arrow).



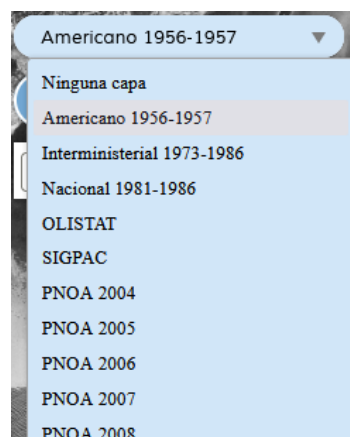


Step 3) Select the most convenient split screen mode

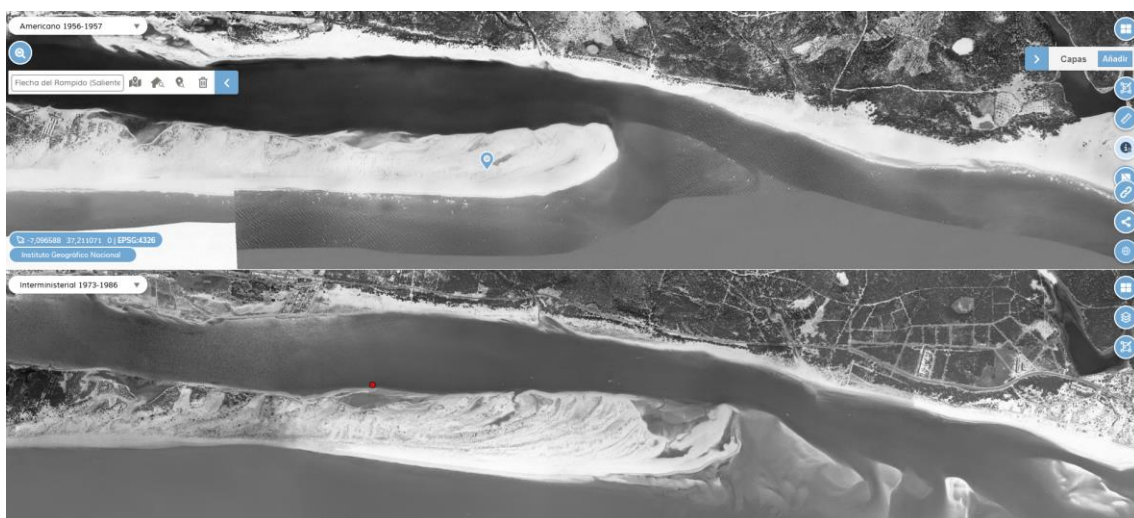
In this case we work with a **double horizontal screen**, a format that allows us to analyze the landscape at two different times, in a synchronized manner.



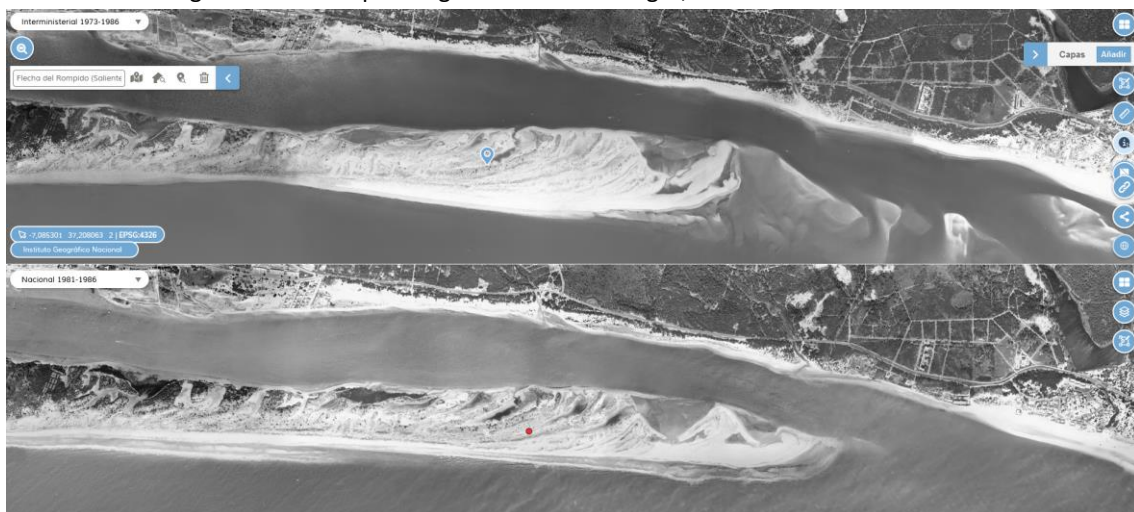
Step 4) We select several image layers and perform a two-by-two comparison:



- upper image corresponding to the flight *Americano serie B, 1956-57*;
- image below corresponding to the *Interministerial* flight, 1973.



- upper image corresponding to the *Interministerial* flight, 1973;
- image below corresponding to the National flight, 1981-86.



- upper image corresponding to the National flight, 1981-86;
- image below corresponding to the PNOA flight, 2005.



- upper image corresponding to PNOA 2005 flight;
- image below corresponding to PNOA 2022 flight.



Analysis of coastal dynamics: questions

Analyze the images compared above and give a reasoned answer to the following questions:

- 1) Does this sandy formation grow or decrease in length, and in width?
- 2) Is the growth rate over the period analyzed increasing or decreasing?
- 3) What natural factors are involved in the formation and evolution of the arrow?
- 4) What anthropic elements have been incorporated throughout the period that may have affected the natural dynamics of the system?

The tools for measuring lengths and surfaces offered by the comparator menu can be used to find answers.



We hope you enjoyed this activity



The following document offers many more activities for learning Geography using visualizers:

<https://www.ign.es/web/resources/acercaDe/libDigPub/actividades-geografia-IGN.pdf>