

THE CURRENT MAPS AND COMPASSES OF THE TERRITORY: CARTOGRAPHIC VIEWERS AND REMOTE-SENSING SYSTEMS

Posted on 21/10/2025 by Naider

Cartographic viewers and remote-sensing systems have established themselves as key tools for territorial analysis and environmental management. They enable the visualisation, combination and analysis of geographic information from multiple sources, thus contributing to a more precise understanding of the territory and its climatic, ecosystemic and socio-economic dynamics.

Maps that think about the territory

The development of Spatial Data Infrastructures (SDIs) has enabled geographic information produced by administrations, public bodies and research centres to become accessible and interoperable. These platforms follow common standards that facilitate the visualisation, download and merging of cartographic data from different sources.

From these infrastructures institutional cartographic viewers have emerged, which centralise a large portion of available territorial information. Notable examples include the Basque Country's [GeoEuskadi](#) and the [Visor GVA](#) in the Valencian Community, and locally the [GeoportalBCN](#) of the Barcelona City Council, all offering detailed information linked to their territorial scope. Meanwhile, the Spanish Geographic Institute (IGN) manages the state cartographic reference, integrating topographic data, orthophotos and digital models of the entire territory of Spain, available for viewing via its platform [Iberpix](#).

These viewers typically operate with vector layers (also known as shapefiles), which represent discrete entities via points, lines or polygons. Each element contains associated information such as land-use type, zoning classification or administrative boundary.

A view from space

Remote-sensing systems expand the territorial perspective by integrating satellite observations. Platforms such as Copernicus, EO Browser, Land Viewer or the IGN's National Remote Sensing Portal allow access to images obtained by sensors like Sentinel, Landsat or MODIS.

Unlike institutional viewers, these systems work with raster layers, which are suitable for continuous analysis of environmental variables. In this context the concepts of spatial resolution and temporal resolution are fundamental:

- **Spatial resolution:** the minimum distinguishable size on the ground.
 - *Sentinel-2*: 10 metros □ ideal for local analysis.
 - *Landsat 8/9*: 30 metros □ suitable for regional analysis.
 - *MODIS*: 250–1000 metros □ ideal for global and climate studies.
- **Temporal resolution:** the frequency with which a sensor observes the same area.
 - *Sentinel-2*: every 5 days.

- *Landsat*: every 16 days.
- *MODIS*: daily observations.

This combination of detail and frequency makes remote sensing a versatile tool: it allows both the monitoring of soil degradation processes or changes in vegetation cover and the early detection of climatic risks.

Vector layers (shape): representation of defined objects (roads, rivers, plots) with associated attributes.

Raster layers: continuous territory representation via a grid of pixels, each storing a numerical value (temperature, humidity, vegetation...).

From data to territorial planning

At Naider, the use of viewers is oriented towards the practical transformation of territorial knowledge. One example is the institutional viewer developed in collaboration with Ihobe, focused on the strategic visualisation of Nature-Based Solutions in the Basque Country.

This application gathers green-and-blue infrastructure interventions across the Basque territory, classified by typology and adaptation objective. It enables users to consult and filter interventions that improve climate resilience, promote ecological connectivity or foster sustainable water management.

The viewer combines geospatial information from various institutional and remote-sensing sources, thereby facilitating an integrated reading of the territory. This approach contributes to informed decision-making and coordination among local and regional actors.

From pixels to decisions

At Naider, viewers are understood as more than mere sources of information: they are tools for territorial diagnosis and ecological transition support. Their practical application allows:

- Analysing vegetation recovery after fires or disturbances.
- Overlaying flood-risk layers with transport networks or strategic infrastructures.
- Identifying areas of water stress using spectral indices.
- Assessing urban expansion and its relationship with heat-island phenomena.

Real utility emerges when both logics are combined: vector (concrete entities) and raster (continuous processes). This integration enables the shift from observation to planning, from map to action.

The convergence between institutional viewers and remote-sensing systems is shaping a new cartographic culture. The ability to overlay vector planning layers with raster climate-variable layers enables the analysis of complex phenomena: flood risk, urban heat islands or ecosystem evolution.

Viewers cease to be simple maps and become platforms of territorial knowledge, transforming data into strategic information. Understanding how they work and leveraging their potential is essential to advance towards more sustainable, digital and adaptive planning models.

In this context, digital cartography is consolidating as a tool for ecological transition: a way to look at the territory with precision, context and purpose.

