gvSIG Association
www.gvsig.com

gvSIG case studies in forestry and environment

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3rd NEAR EAST FORESTRY WEEK
Hashemite Kingdom of Jordan, 26 – 30 January 2014

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1. What's gvSIG

2. gvSIG Community

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4. Case studies in forestry

1. What's gvSIG

gvSIG is an **open source development project** to manage, use and produce geographical information.

gvSIG is a project with a very **active community**, that currently has a worldwide reach.

It is also an investment in a supportive development model, based on the **shared knowledge**. This development model is materialized in the gvSIG Association.

gvSIG invests strongly in the SDI, that are the system suitable for managing the geographical information in any organization.

1. What's gvSIG

gvSIG Desktop: Characteristics

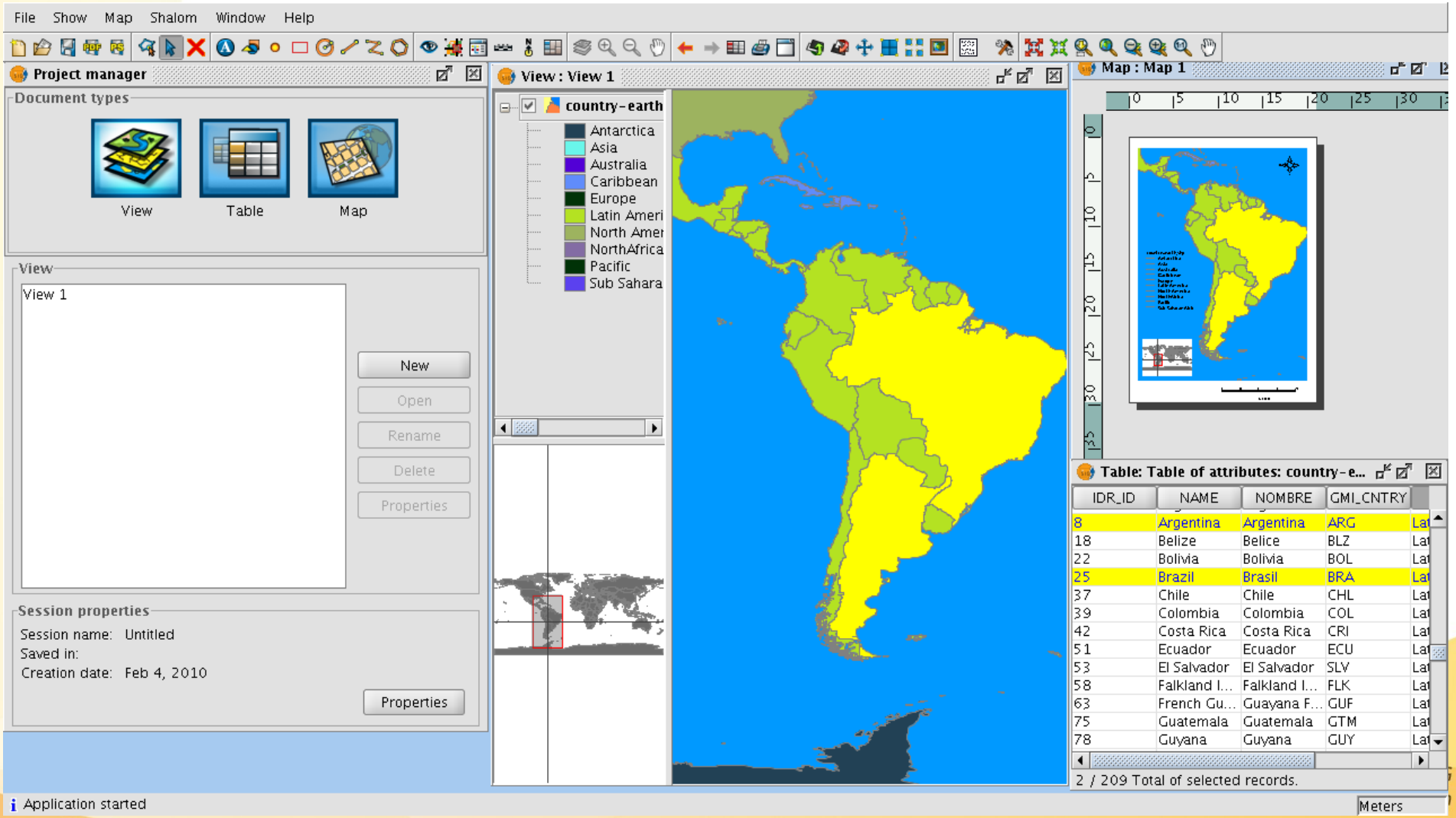
- gvSIG Desktop is currently one of the most complete GIS.

gvSIG has nice vector data editing functions. Users can easily digitize lines by snapping vertices to existing nodes and generate correct topology. With an easy-to-configure locator map, gvSIG immediately reveals where you are in your dataset. Some GIS professionals believe that ***gvSIG is becoming close to replacing ESRI ArcMap software.*** *(National Geospatial Technology Center of Excellence. 2010)*

- **Main characteristics:**
  - Multi-platform: Linux, Windows, Mac OS X
  - Multi-language
  - Simple interface: user friendly
  - Customizable
  - GIS + SDI client (Spatial Data Infrastructure / OGC standards)

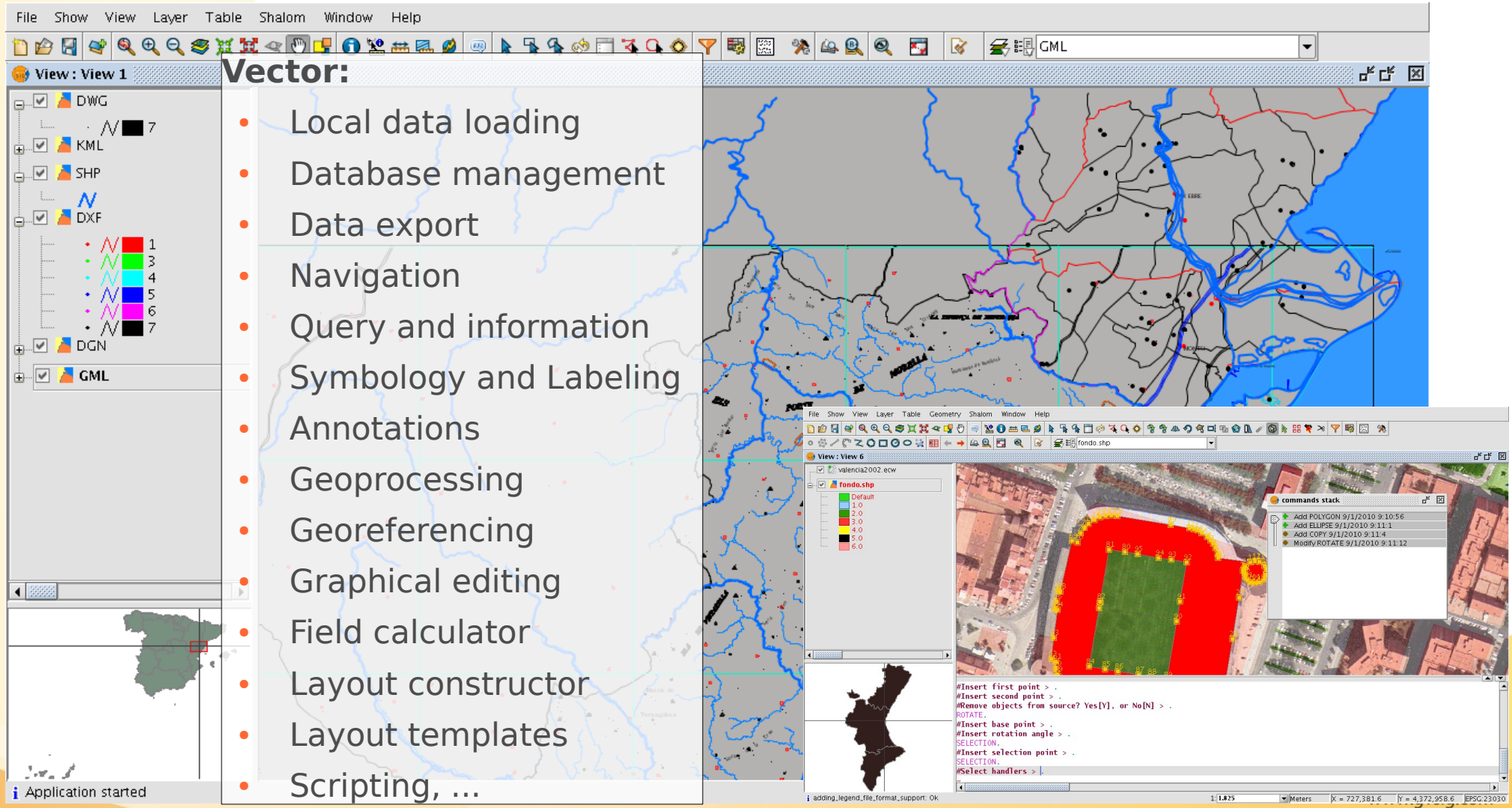
1. What's gvSIG

gvSIG Desktop: Characteristics



1. What's gvSIG

gvSIG Desktop: Characteristics

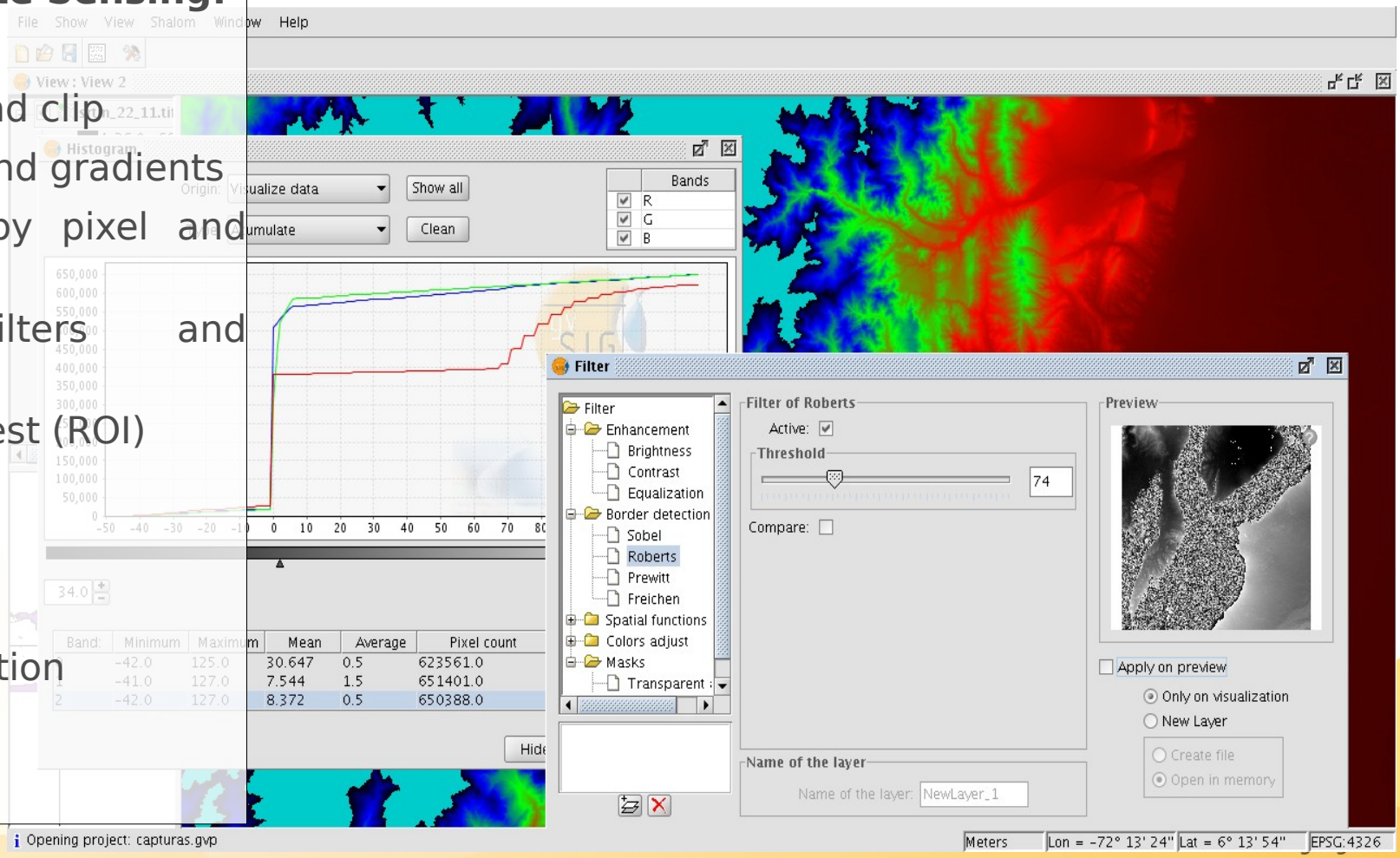


1. What's gvSIG

gvSIG Desktop: Characteristics

Raster and Remote Sensing:

- Bands
- Layer export and clip
- Colour tables and gradients
- Transparency by pixel and opacity
- Statistics, filters and histograms
- Region of Interest (ROI)
- Geolocation
- Enhance
- Vectorization
- Raster reprojection
- Mosaics
- ...

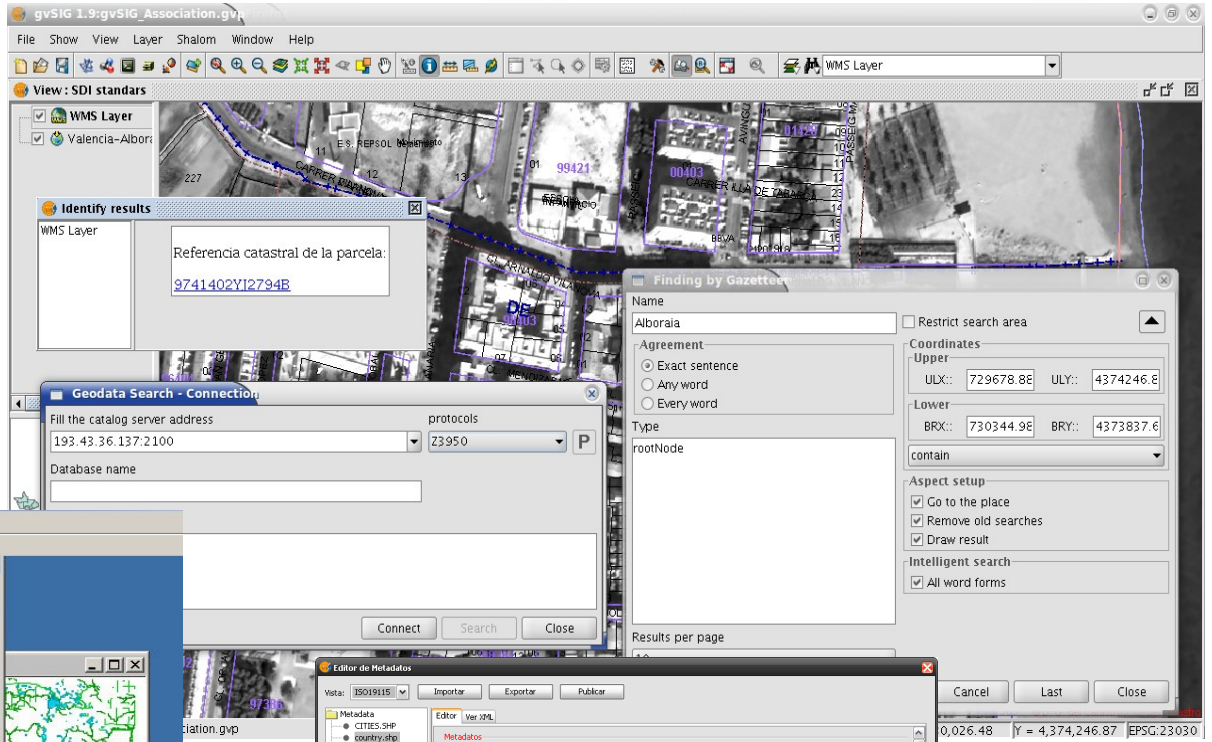


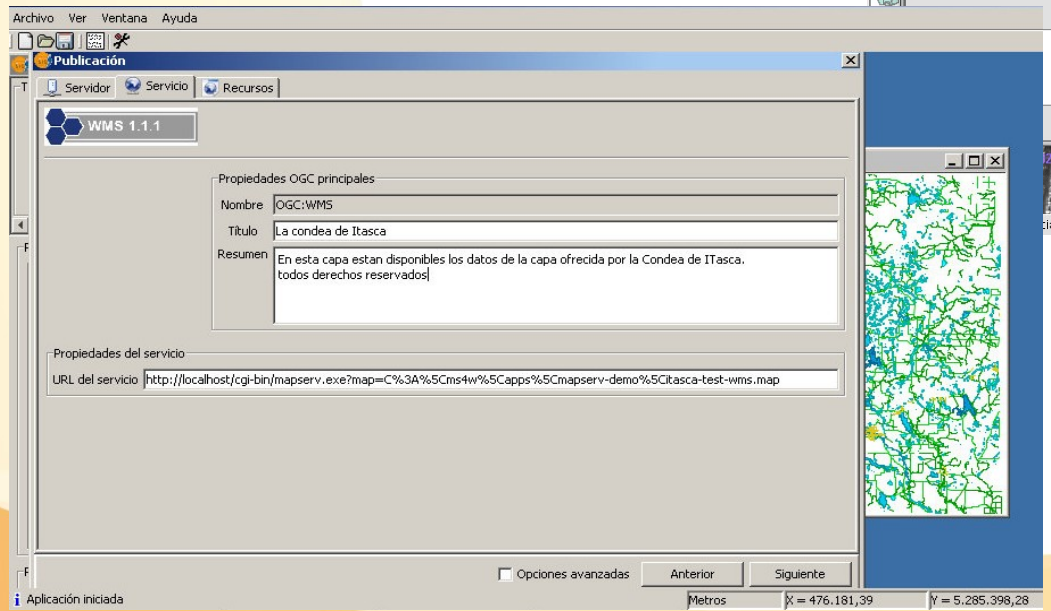
1. What's gvSIG

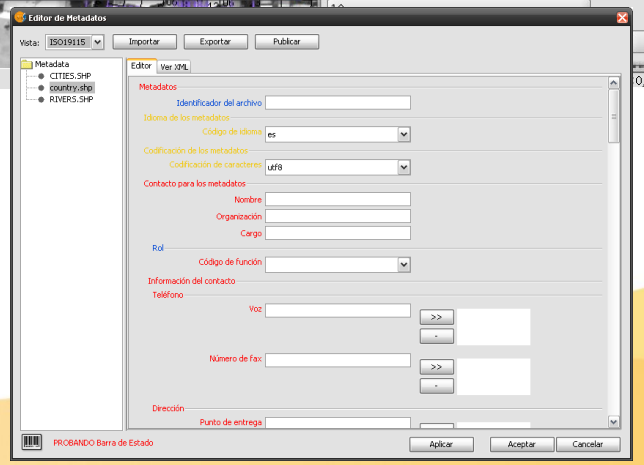
gvSIG Desktop: Characteristics

Spatial Data Infrastructure (SDI):

- WMS Service
- WFS Service
- WCS Service
- Searching serv. (Catalogue client)
- Location serv. (Gazetteer client)







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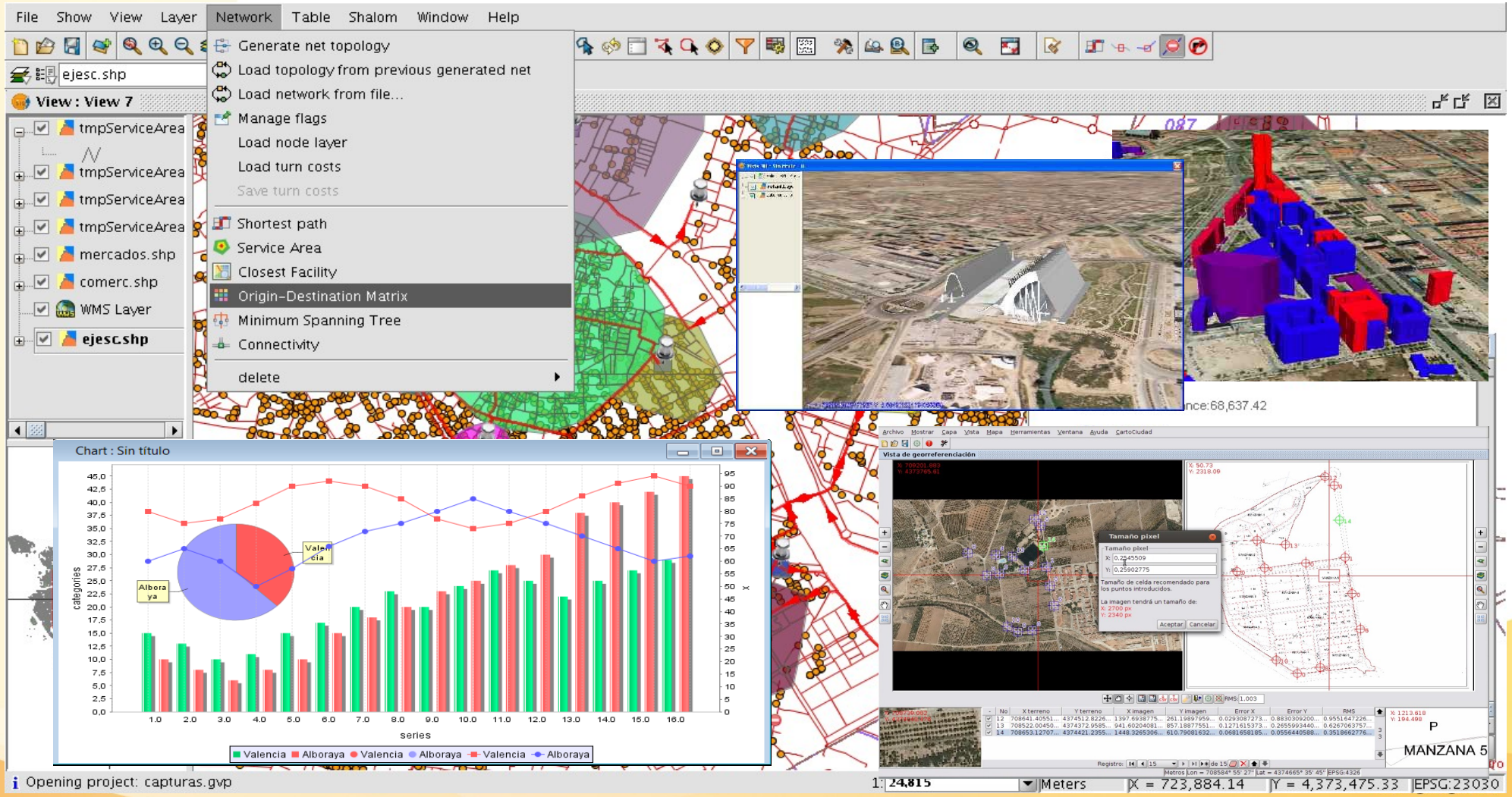
gvSIG Desktop: Characteristics



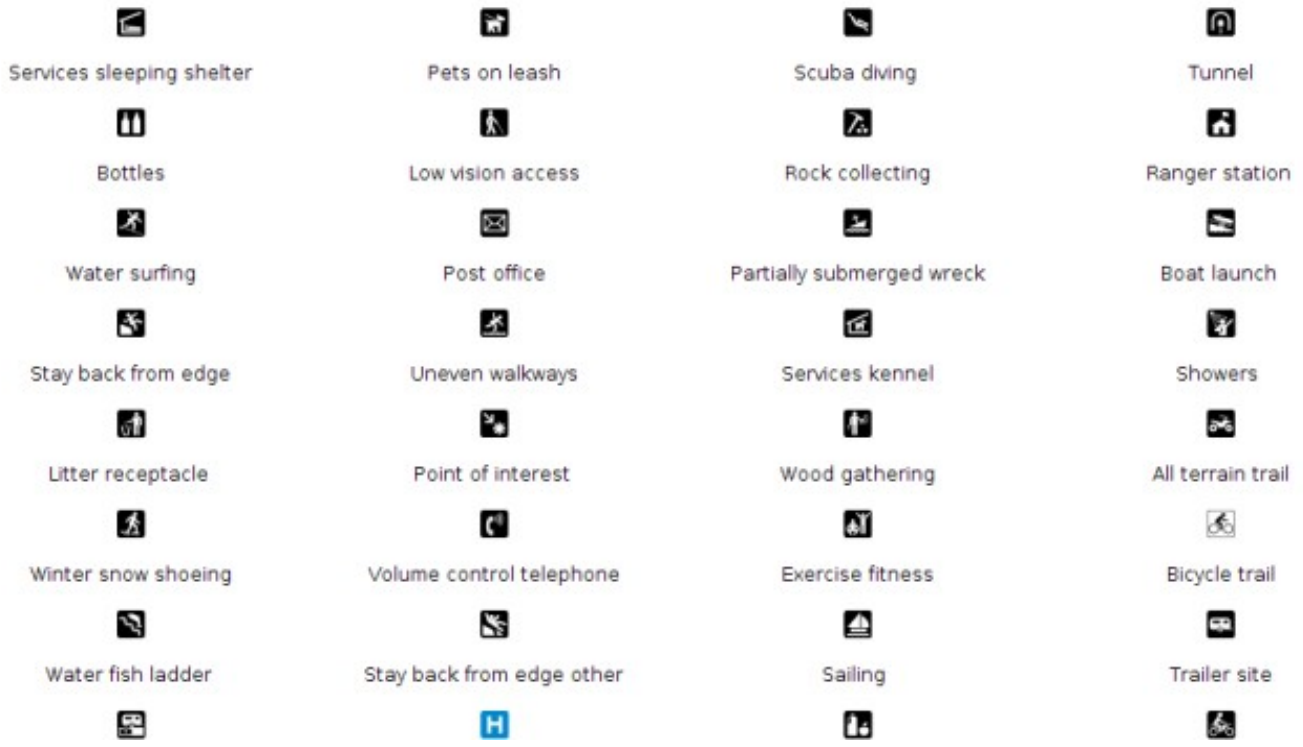
1. What's gvSIG

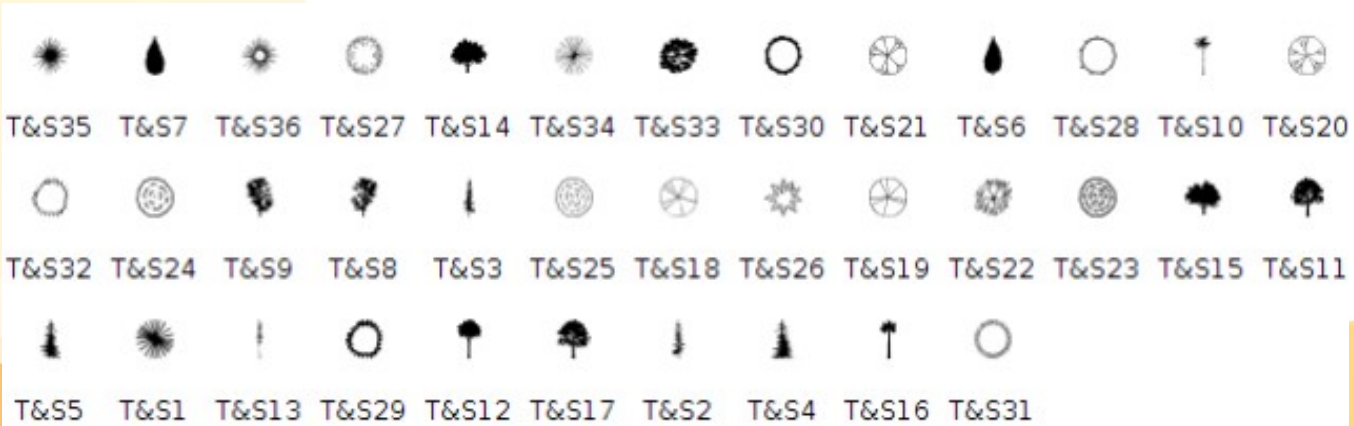
Symbols: Forestry

For point symbols:

- On one side the symbols collection used by the NPS (U.S. National Park Service).

- On the other side we've used the Trees & Shrubs collection made by Jim Mossman.

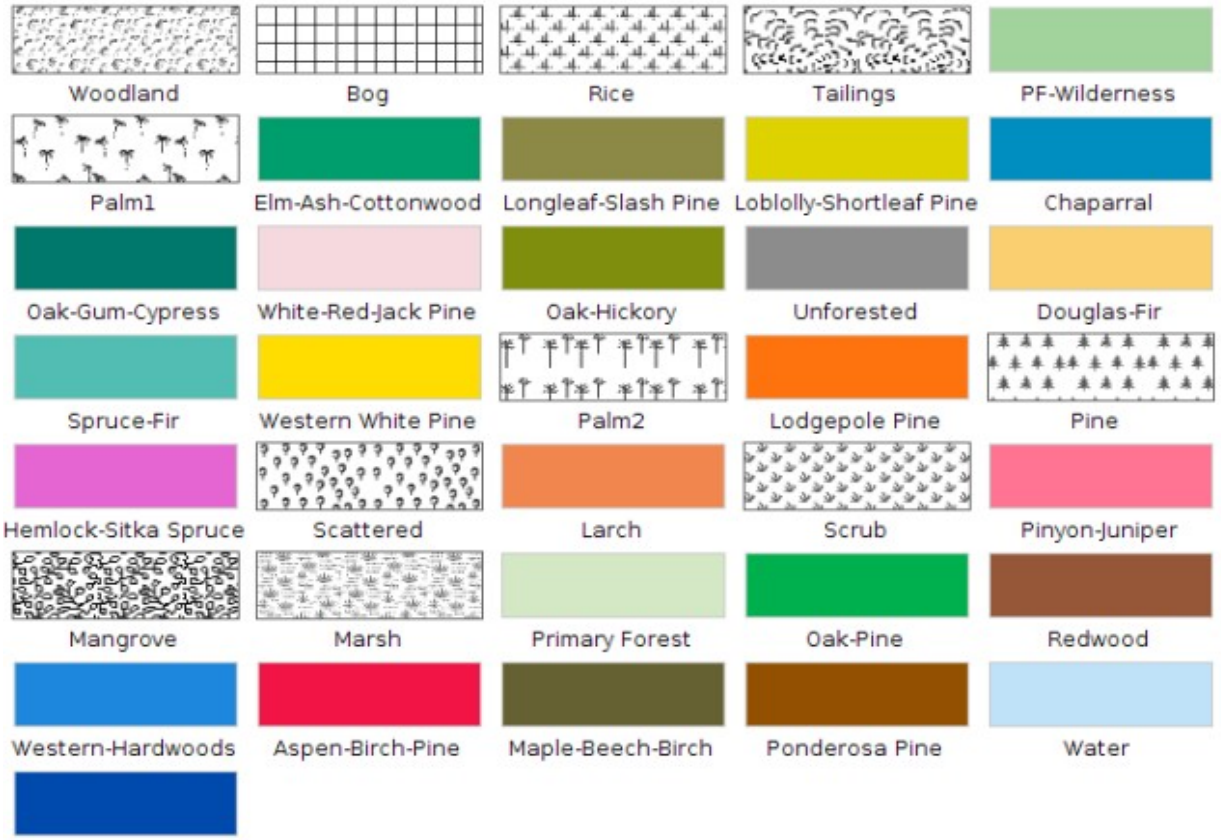


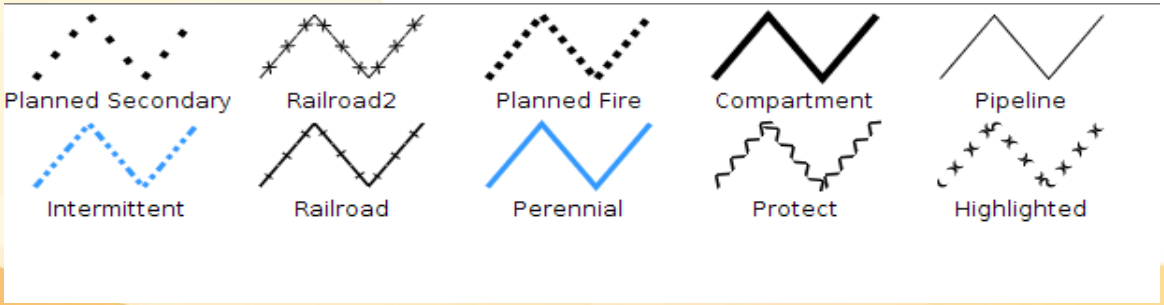


1. What's gvSIG

Symbols: Forestry

Complemented with line and fill symbols, used frequently in forestry maps

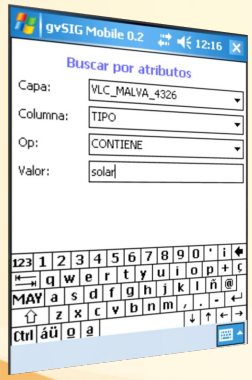


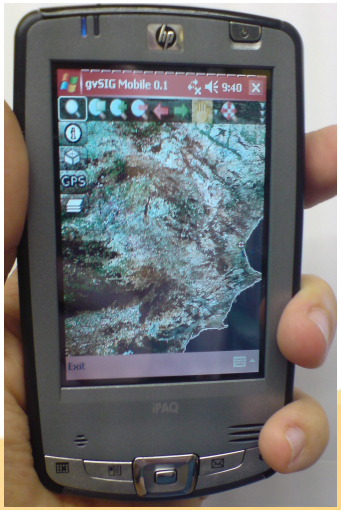


1. What's gvSIG

gvSIG Mobile: Characteristics

- gvSIG Mobile is a GIS complement to be used on field work.
- Main characteristics:
  - Display: several formats, CRS management
  - Symbology and Labeling
  - GPS Support: manual and automatic
  - Editing tools
  - Selection and searching
  - SDI/OGC access: WMS, WFS...
  - Measurement and information
  - ...





1. What's gvSIG

gvSIG Educa: Characteristics

- gvSIG Educa is a customization of the gvSIG Desktop Open Source GIS, adapted as a tool for the education of issues that have a geographic component.
- gvSIG Educa provides educators with a tool that helps students to analyze and understand space, and which can be adapted to different levels or education systems.

"If I can't picture it, I can't understand it (A. Einstein)"

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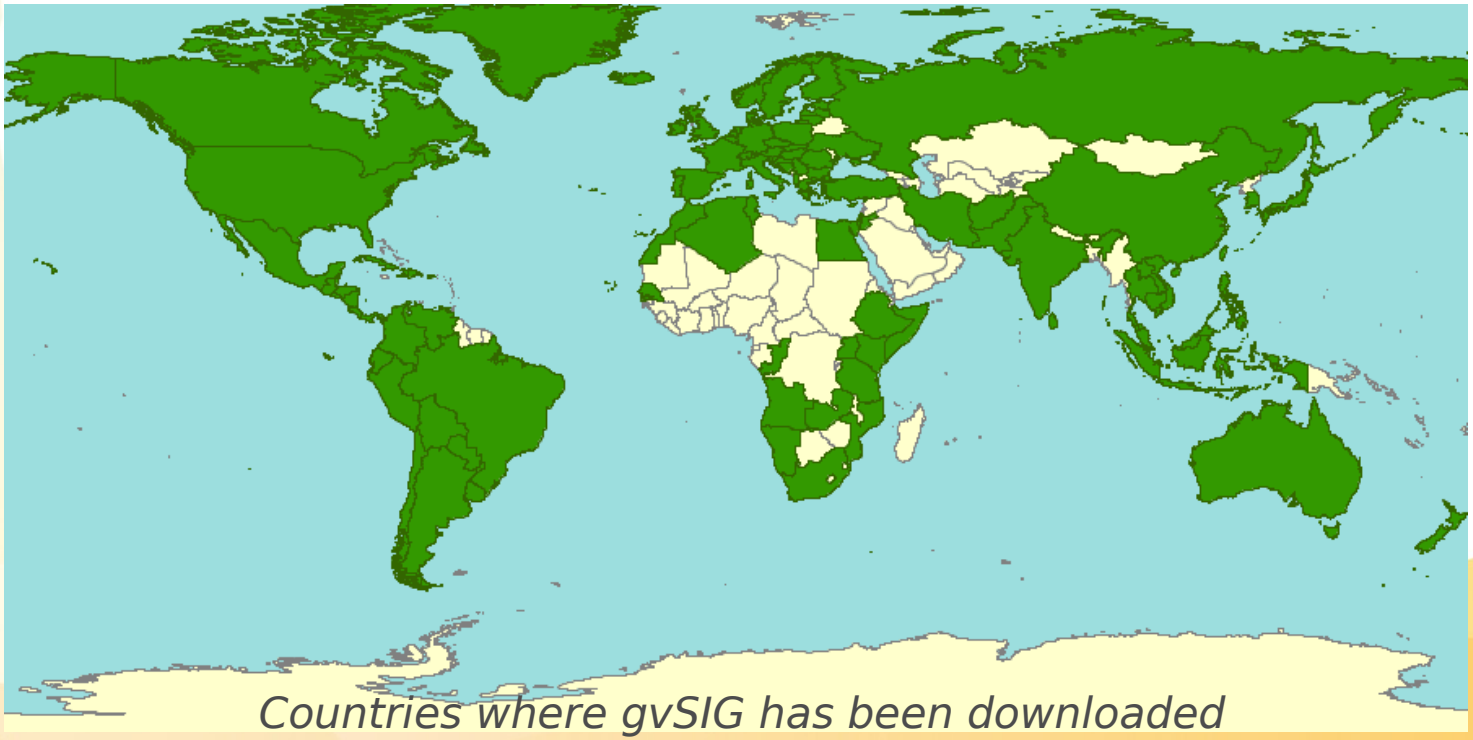
2. gvSIG Community

Some data...

- Translated to more than 25 languages
- Downloaded in more than 100 countries
- Several mailing lists; + 4.000 users
- Conferences in Spain, Germany, Italy, United Kingdom, Brazil, Russia, France, Argentina, Venezuela, Uruguay, Chile...



Countries where gvSIG has been downloaded

2. gvSIG Community

- Blog, Planet, Outreach, Twitter, Facebook...
- gvSIG Association: http://www.gvsig.com

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3. gvSIG Association

Who are we?

- It was born in 2009.
- Composed of companies and non business entities (universities, geographical institutes,...).
- It constitutes the biggest international network of experts in free geomatics.
- References and clients in more than twenty countries.
- Model based on the shared knowledge and the collaboration. Knowledge is transferred to the client.
- We offer **learning, consulting, supporting, developments**...

3. gvSIG Association

Clients and references: Some consulting examples

- Spatial Data Infrastructure. PDVSA (Venezuela)
- Migration from ArcGIS to gvSIG. Munich City Council (Germany)
- GIS analysis for urban areas. UN-Habitat (Kenya)
- Multimodal transport geoportal in Valencia (Spain)
- gvSIG development for cadastral management (Mexico)
- GIS for solid waste management in Basque Country (Spain)
- GIS for road management in the region of Valencia (Spain)

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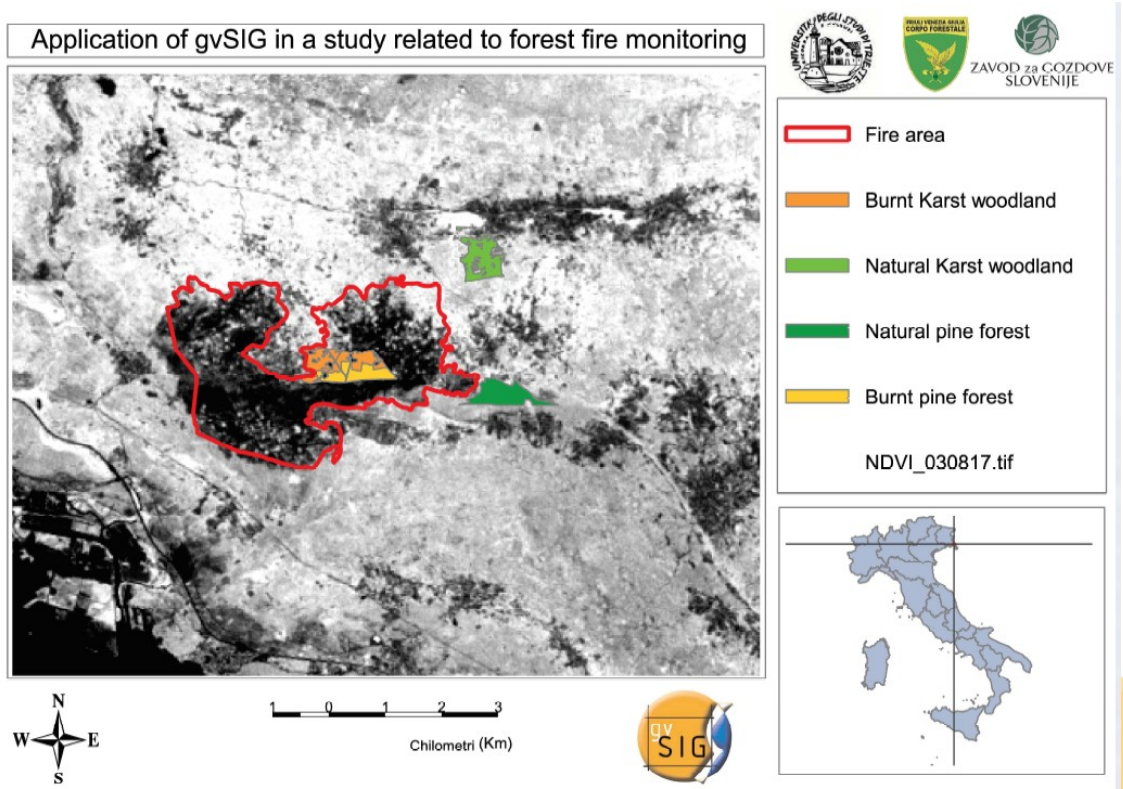
4. Case studies

Application of gvSIG in a study related to forest fire monitoring

Comparative of the vegetation renewal of Karst woodland and pine forest in an area damaged by a fire, with the natural evolution of the same vegetation typologies in unburnt areas.

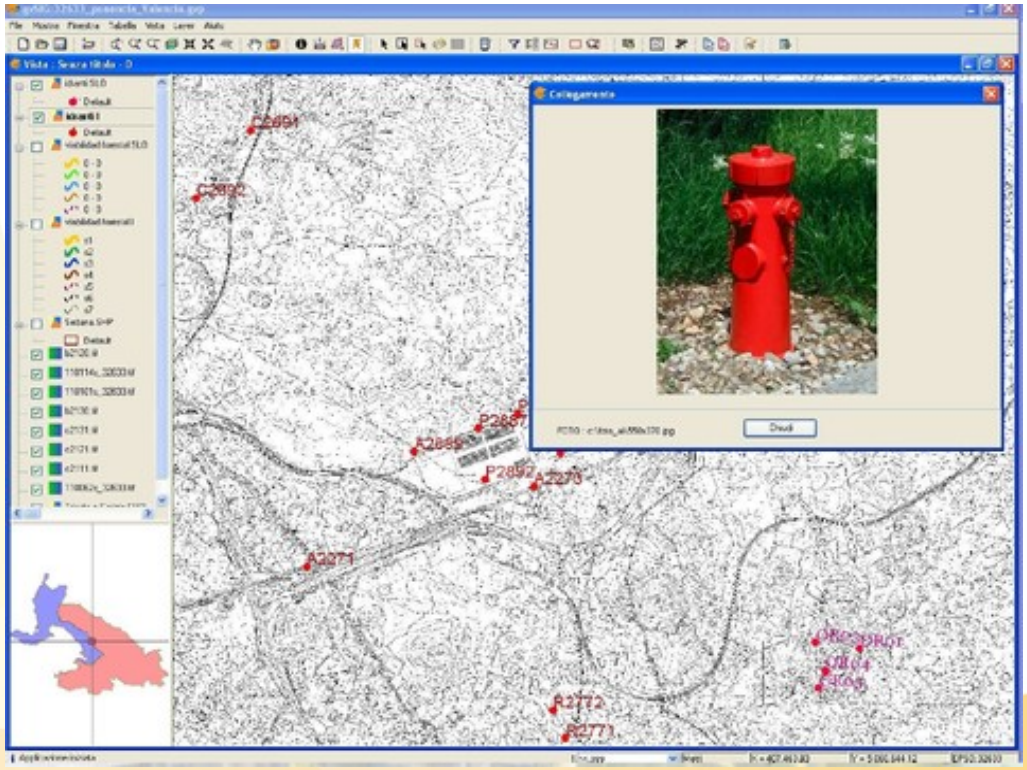


Italy

4. Case studies

gvSIG in forestry, firefighting and environmental management in the provinces of Trieste, Gorizia (Italy) and Sežana (Slovenia)

The administrations of both countries (Italy and Slovenia) collaborated and shared data and knowledge on gvSIG. They used gvSIG Desktop for office work and gvSIG Mobile for field work.

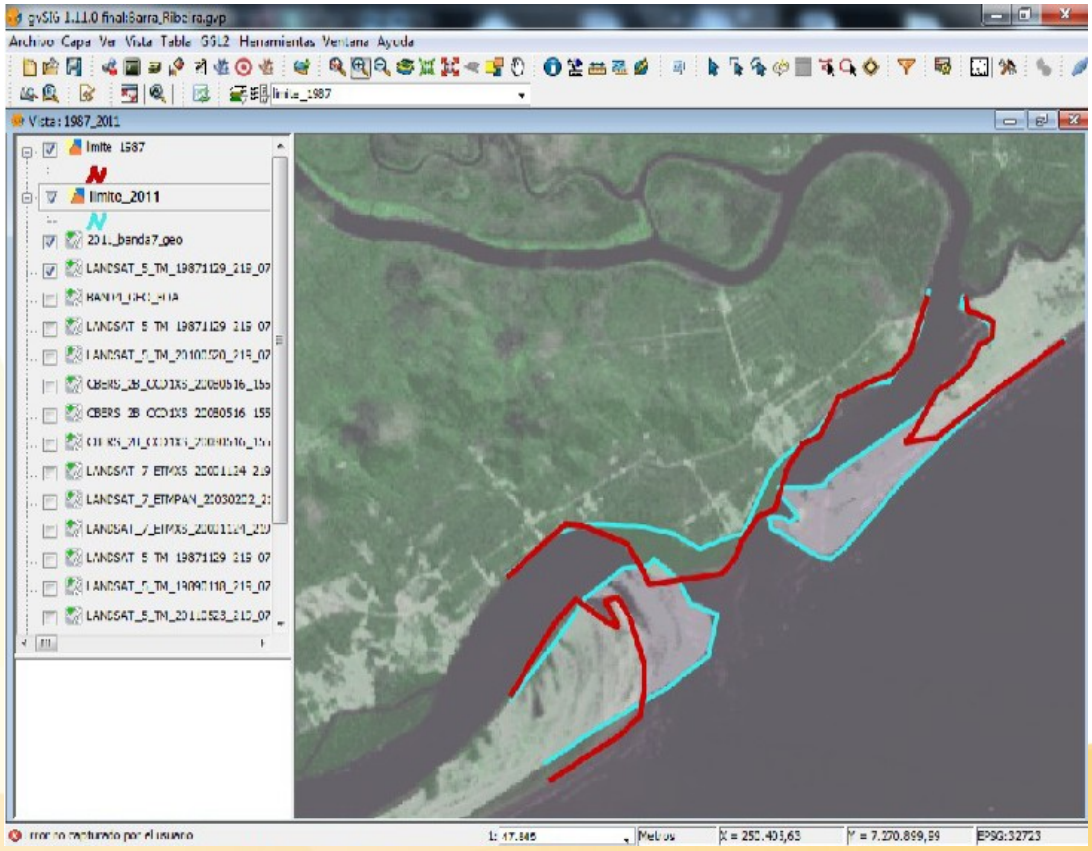


Italy - Slovenia

4. Case studies

gvSIG use applied to study the Ribeira river bank erosion (Brazil)

Study of the changes at the Ribeira River bank, and the advance of the Atlantic Ocean over the continent.

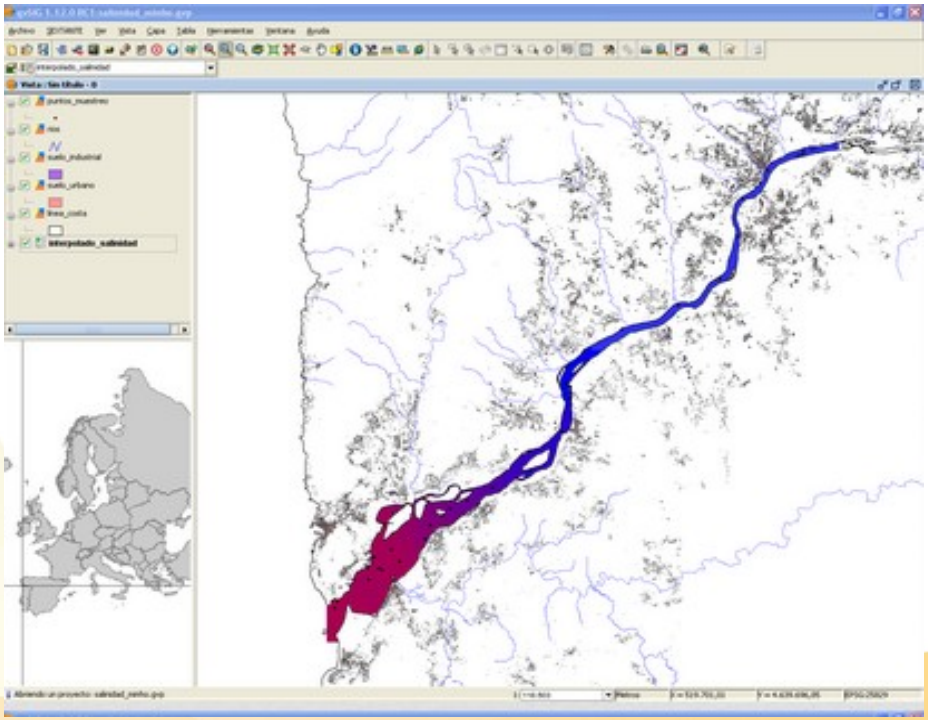


Brazil

4. Case studies

Analysis of contaminants and salinity in the Minho river for the European Project

Determination of the spatial distribution of different physicochemical parameters (salinity, phosphate, ammonium, nitrate and nitrite), at both at low and high tide, at the estuary of the Minho river.

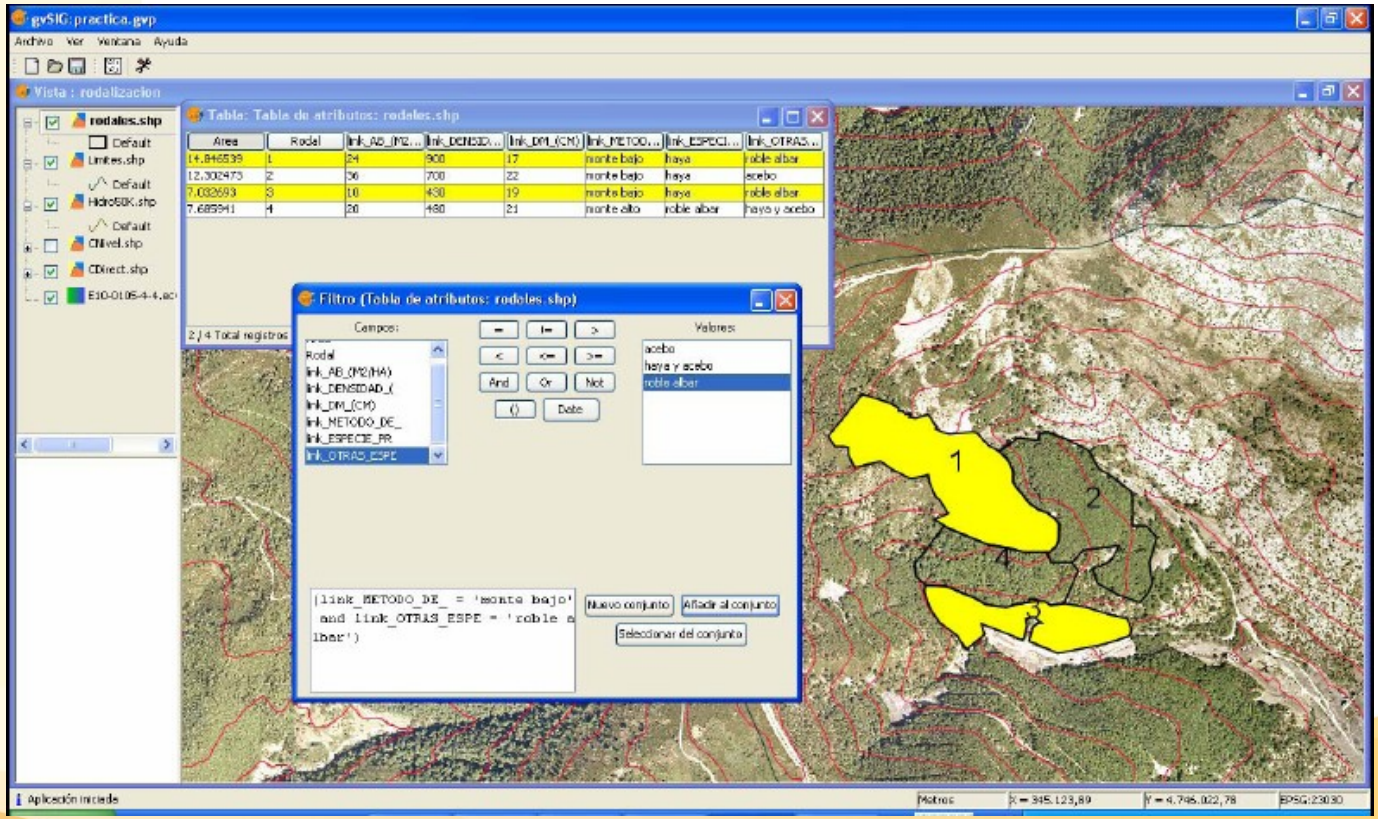


Spain

4. Case studies

gvSIG usage for defining forest stands

Delimitation of the forest stands in a hill, on an ortophoto, using gvSIG. Data got during field work are included at the Geographic Information System.

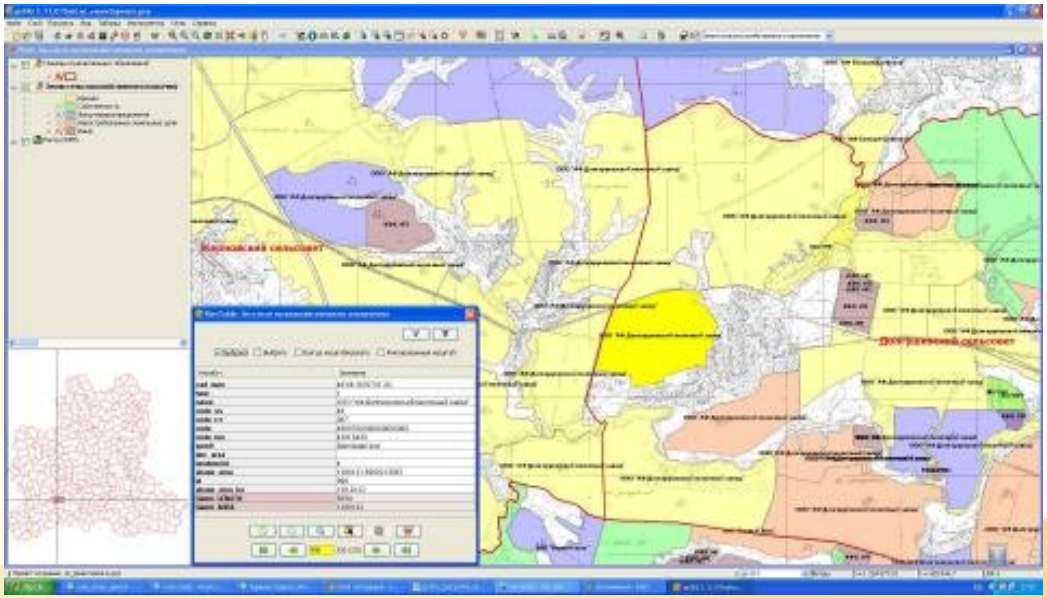


Spain

4. Case studies

gvSIG applied to the management of the agricultural lands of the Lipetsk Region (Russia)

Centralized storage of the information about agricultural lands and supporting of remote access to display spatial data and generate reports on the base of the developed web mapping application.
gvSIG Desktop is used as a client geospatial software to create the draft data sets and to edit final spatial data and their attributes.

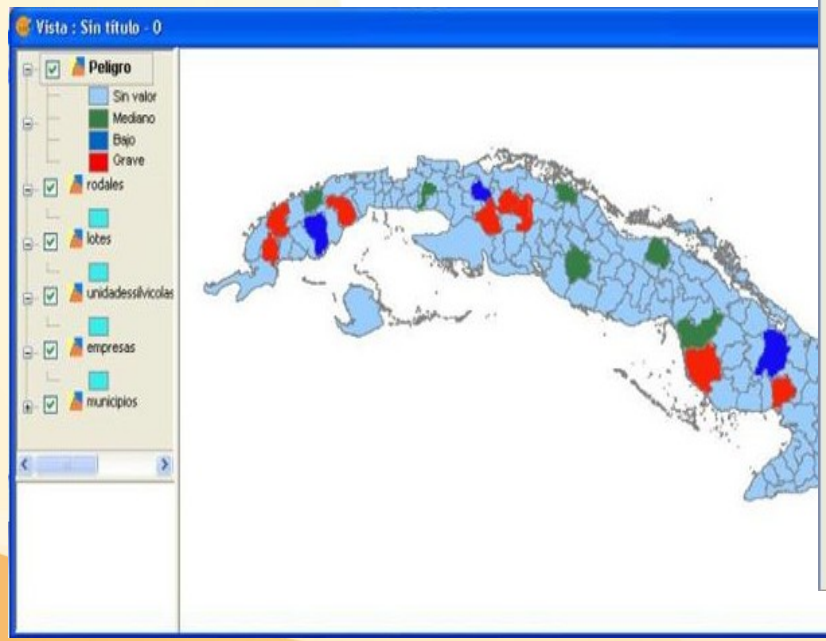


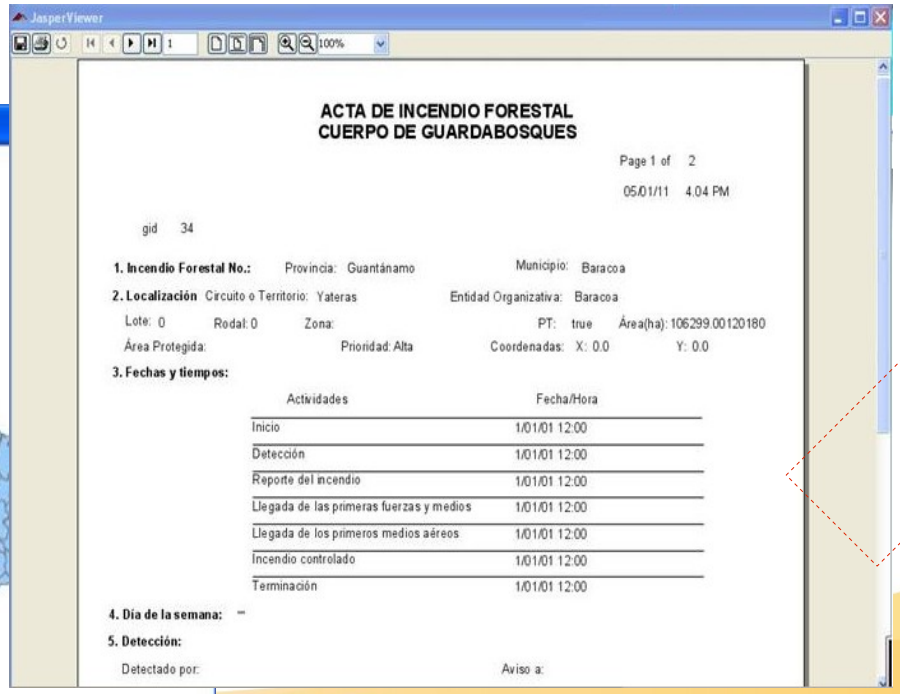
Russia

4. Case studies

gvSIG for Forestry Management: SIFOMAP 3.0

Customized applications that allow to manage, administrate, update... the forestry heritage information. It's composed of different modules, like Forestry Management Planning, Sustainable Development Indicator, Forest Fire...



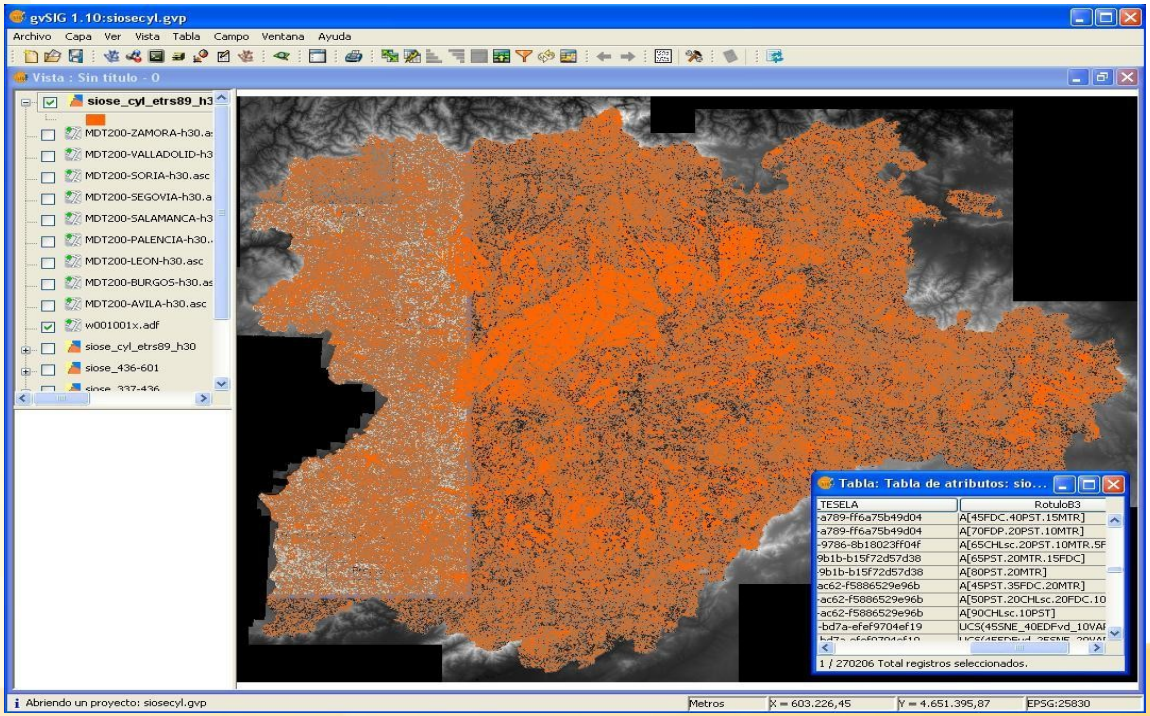


Cuba

4. Case studies

Spatial characterization of lightning strikes in Castilla y León (Spain)

The spatial analysis of lightning strikes allows to prevent and warn about natural disasters (forestry fires, hailstones...) at the agroforestry means, in order to minimize economic losses.

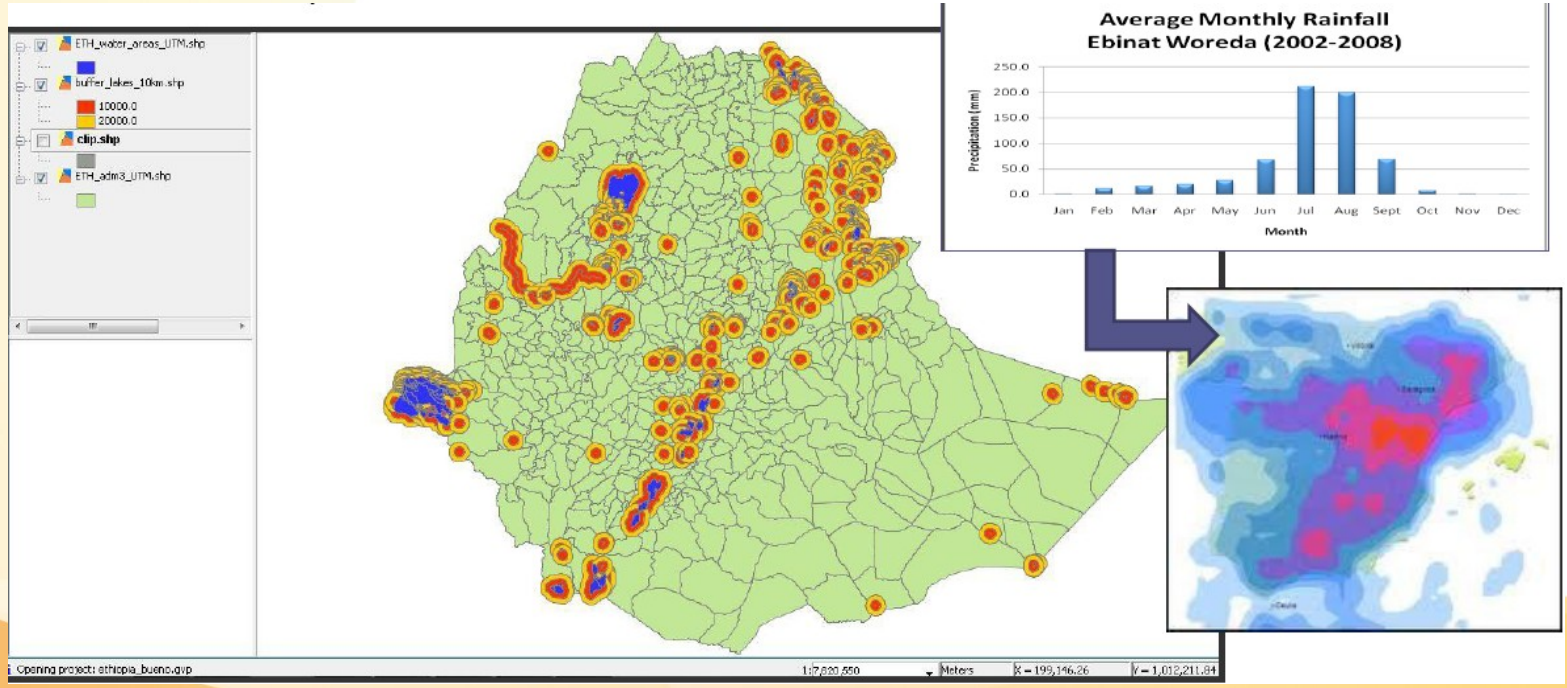


Spain

4. Case studies

Spatial Data Infrastructures in developing countries: The climate change problem in Ebinat (Ethiopia)

Management of the geographical information related to a real problem: drought and climate change.
Analysis of the climatic conditions at the region and their relation with the type of farming.

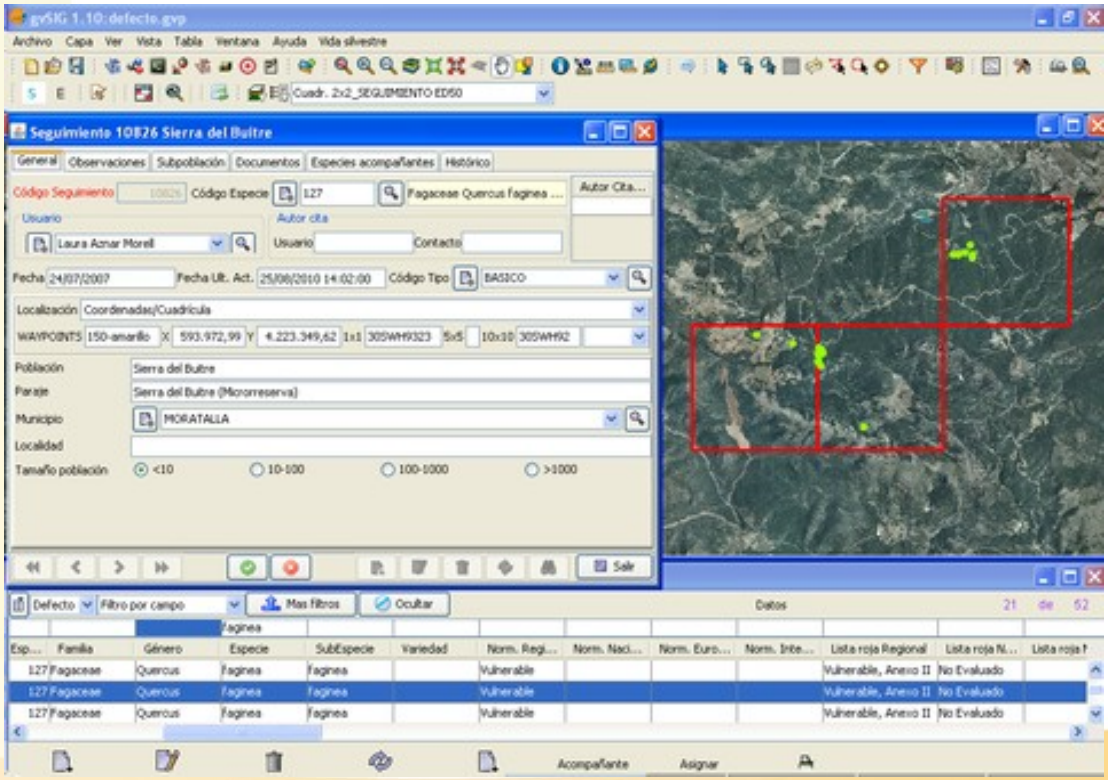


Ethiopia

4. Case studies

gvSIG applied to the monitoring of protected flora in the Region of Murcia

Monitoring of this species of flora, as well as the detection of new locations.



Spain

4. Case studies

Use of gvSIG to create potential distribution models of invading exotic species under different climate change scenarios

Analysis of the invading plants potential distribution at the Valencian Community, under different climate change scenarios in order to help the managers to confront these plagues in the future.

Spain

4. Case studies

Other related case studies

- Using gvSIG to compute light pollution from night satellite images (Spain)
- gvSIG in a small ecological consulting firm, for representing plant or animal populations, extent and quality of vegetation types... (Australia)
- Variation of Neptune Grass in an area at the Calviá coast (Mallorca, Spain)
- Design and implementation of a GIS for underwater characterization (San Luis, Argentina)
- gvSIG use on precision agriculture (Argentina)
- gvSIG for modelling the Holocene landscape (Spain)
- ...

http://outreach.gvsig.org/case-studies

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