



## Annex 7

# Geospatial Information Network for the South American Integration

In Support to the Planning and Development  
of the Regional Infrastructure

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Technical Coordinator – GeoSUR Program, CAF



# Objectives of the GeoSUR Program

- To provide the people in charge of the decision-making process with national and multinational digital base maps that facilitate the planning of the physical infrastructure and the regional development.
- To facilitate and promote collaboration among the geographic institutions in the region (and other relevant ones) in order to jointly update, share and work with the geospatial information.



# Profile of the GeoSUR Program

**Geographic area:** The 12 countries in South America

**Implementation period:** 2007 - 2008

**Agencies:**

- National geographic institutes
- Ministries of planning / infrastructure / public works (depending on each country)
- Ministries of the environment
- Pan American Institute of Geography and History (PAIGH)
- United States Geological Service (USGS)
- Secretary of the Inter American Biodiversity Information Network (IABIN)



# IIRSA Information Needs

**PREMISE:** The regional integrated information, developed under common standards, with different resolutions and homogeneous quality facilitates the decision-making process.

The information related to space in South America has some failures:

- There are “gaps” in the information.
- It is not always possible to integrate the information in the borders.
- There are few regional standards.
- It is difficult to localize the information and to have access to it.
- The duplication of efforts is very common in data creation.
- . . . . .



# Use of Technology in other regions

**IABIN**: Development of a geospatial network for Meso America and the Caribbean (2004 – 2006).

**GOS**: Geospatial One Stop of USA. It integrates space geointegrators, geoservers, catalogues and data bases in a decentralized network.

**Global Map of the Americas**: Planned within the framework of the Global Map project – still without financing

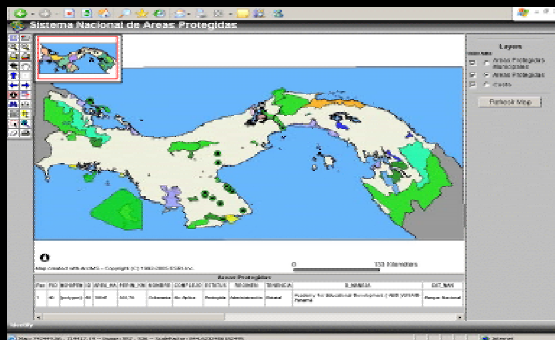
*... and similar initiatives in Europe, Asia . . even in Africa*

**CONDOR**: Interactive SIG developed by the CAF and the CI for the Andean region

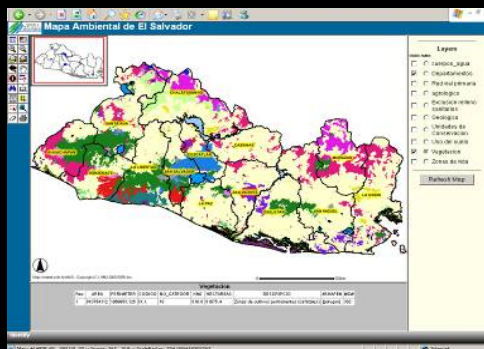


# IABIN Geospatial Network – Meso America

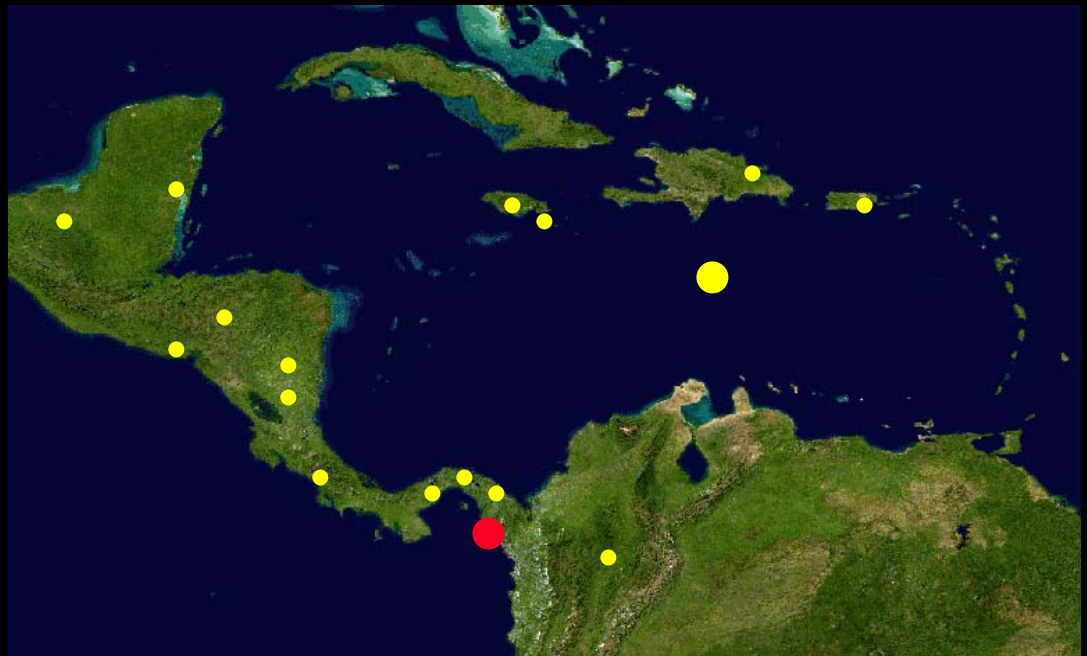
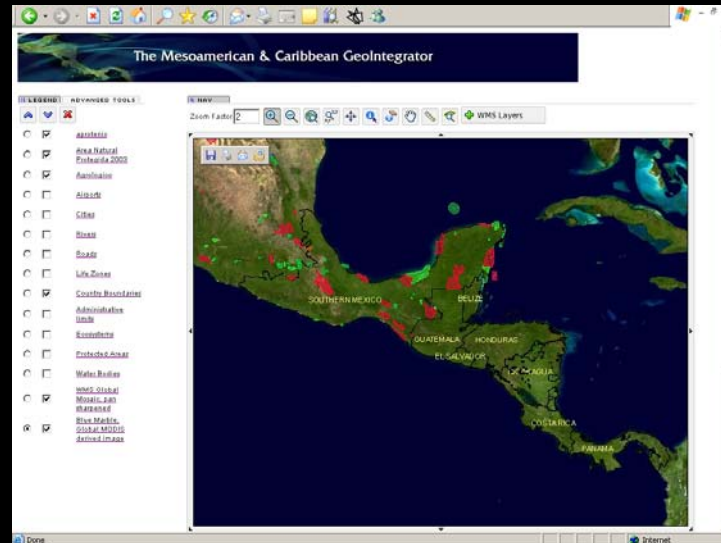
- Active in Central America and the Caribbean.
- More than 20 institutions participate and more than 18 geoservers are under operation.
- The geointegrator is operating in Panamá.



ANAM Panamá with protected areas



MARN El Salvador with vegetation map





# Geospatial One Stop - USA

- Geospatial web site of the USA government.
- Free access.
- More than 150 geoservers with more than 40,000 maps and images.
- Levels: central, state, municipal and tribal.

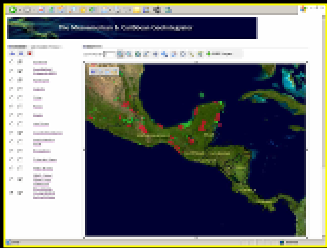
The screenshot displays the geodata.gov website interface within a web browser window. The top navigation bar includes links for Home, Search, Maps, Marketplace, Communities, Statistics, and Help Center. The main content area is divided into several sections:

- Search geodata.gov:** Includes input fields for "What:" (e.g. River) and "Where:" (e.g. Harrison, NY), with a "Show Advanced Search Options" link.
- Communities:** A sidebar menu with categories like "Hurricanes" (General Information, Hurricanes in 2005, Hurricanes in 2006) and "Special Interest" (Fire Mapping, GIS for the Nation, Geographic Names, Homeland Security, Indian Ocean Disaster, Lewis and Clark, Recreation, The National Atlas, The National Map).
- Data Categories:** A sidebar menu listing various data types such as Administrative Boundaries, Agriculture, Atmosphere, Biology, Business, Cadastral, Demographic, Elevation, Environment, Facilities, Geology, Health, Imagery and Basemaps, Inland Water, Locations, Oceans, Transportation, and Utilities.
- The National Map:** A section titled "New Data and Services from the National Geospatial Office" featuring "High Resolution Imagery in Coastal Zones!" and a description of the suite of data discovery and dissemination services.
- USGS Imagery Quickly Viewer:** A section for the "Center for Earth Resources Observation and Science (EROS)" showing a map of North America and a list of data layers: Interstate and Major Roads, States, Counties, and 2006 Pre-Event Composite Data.
- Map Viewer:** A large aerial map of a coastal area with a scale bar (0 to 0.20 KM) and a scale of 1:2,528.

The bottom of the page features a footer with links for Accessibility, FOIA, Privacy, and Policies and Notices, along with the U.S. Department of the Interior and U.S. Geological Survey logos. The browser's taskbar at the bottom shows the Windows XP interface with the Internet Explorer browser open.



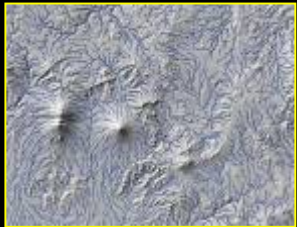
# GeoSUR Products



**GeoIntegrator:** System that allows the integration of space data from the map services of the institutions involved.



**Network of geoservers:** Services of operative maps in each of the institutions involved.



**Maps derived from elevation:** Integrated, standardized and homogeneous maps of South America derived from the MED SRTM (30 m.).



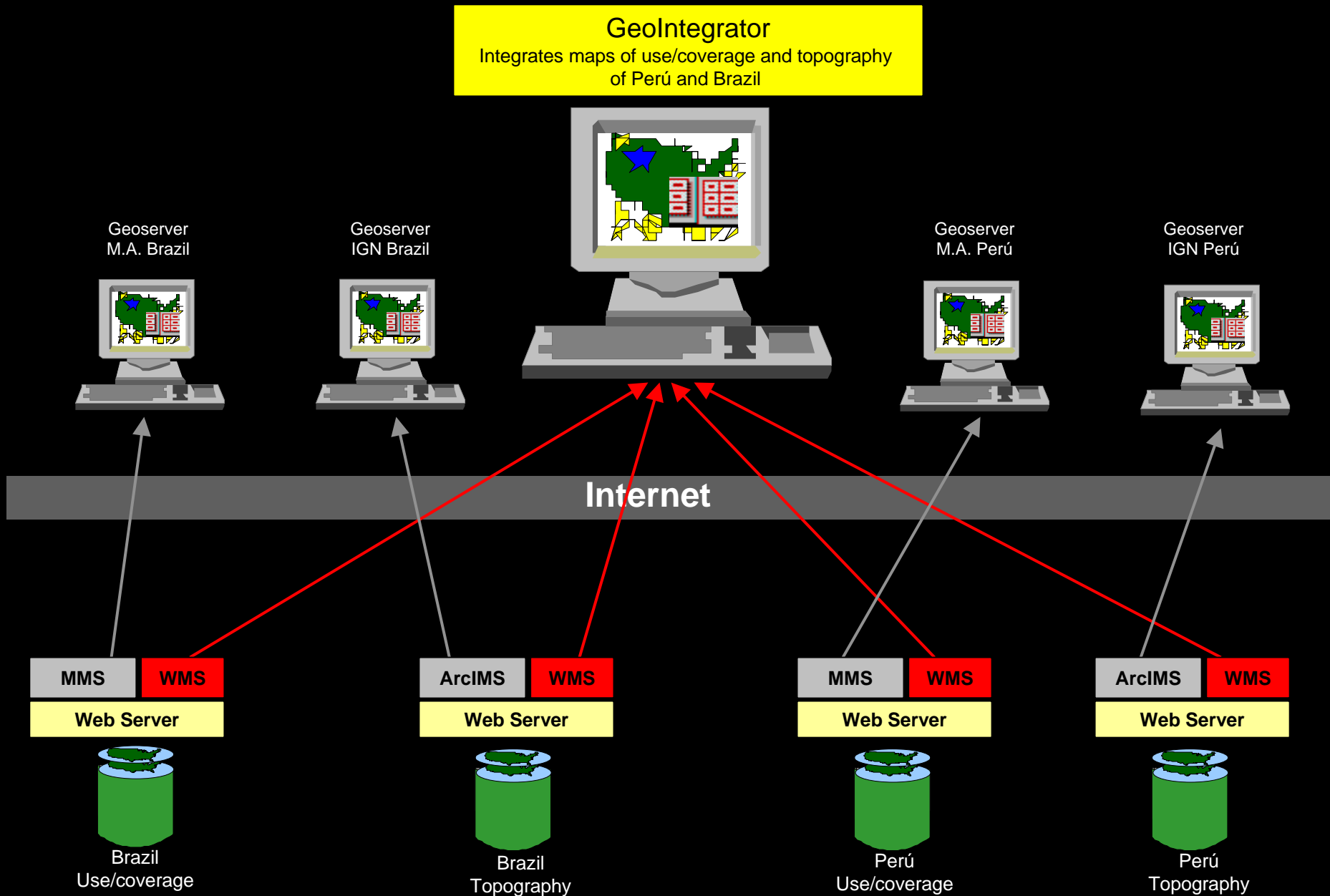
**Base maps of South America:** Integration of national base maps in a mosaic of regional maps (e.g. highway administration, populated centers, etc.)



**Geospatial catalogues:** Creation of metadata and catalogues (clearinghouse)



# GeoSur Program - Architecture





# Implementation of the GeoSUR

- Stage I: Definition of concepts, dimensions, parameters, initial technological evaluation, design of the operative guidelines, alliances, initial products, presentation and agreements with the institutions involved (March, 2007).
- Stage II: Gathering of information on the needs of the involved institutions, final technological evaluation, training of key teams, development of advanced functions of the geointegrator, incorporation of new geoservers, development of a 3D model of South America, development of specialized regional layers, public launch (December, 2008).

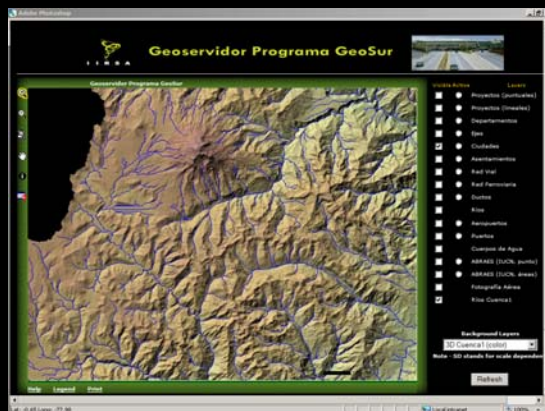




**GeoIntegrator:** Operative in a web site that uses free software



**Regional Geoserver:** With regional data and images as well as IIRSA information



**Maps derived from elevation:** relief, basins, rivers, slopes and aspects of a basin in Ecuador



# Demonstration

Geoservidor Programa GeoSur - Windows Internet Explorer

 **Geoservidor Programa GeoSur**



Geoservidor Programa GeoSur



0 762km

[Help](#) [Legend](#) [Print](#)

**Visible Active**

Visible	Active	Layers
<input type="checkbox"/>	<input checked="" type="radio"/>	Proyectos (puntuales)
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<input type="checkbox"/>	<input checked="" type="radio"/>	Ríos
<input type="checkbox"/>	<input checked="" type="radio"/>	Aeropuertos
<input type="checkbox"/>	<input checked="" type="radio"/>	Puertos
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<input type="checkbox"/>	<input checked="" type="radio"/>	Fotografía Aérea
<input type="checkbox"/>	<input checked="" type="radio"/>	Ríos Cuenca1

**Background Layers**

Imagen Satelital

Note - SD stands for scale dependen

Refresh

Lat: -44.66 Long: -7.32

Local intranet 100%





# Portal Geoespacial Programa GeoSUR



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## Las metas de Programa GeoSUR son:

- Colocar a disposición del público mapas base digitales que faciliten la planificación de la infraestructura física regional.
- Desarrollar la información geográfica espacial supranacional como un bien público regional.
- Contar con un servicio público gratuito y descentralizado de disseminación de información espacial en Internet.
- Facilitar la localización, acceso y aplicación de la información geoespacial existente en la región.

El Programa GeoSUR promueve que se comparta la información temática y georeferenciada disponible entre las organizaciones en Suramérica. Si desea más información, puede enviar un mensaje: [anthony@usgs.gov](mailto:anthony@usgs.gov) o bien enviar sus [sugerencias](#) a través de un formulario en la Web.

## Búsqueda de Servidores de mapas, Información Geográfica, imágenes de satélites y otros tipos de recursos.

¿Qué? (Texto)

Tipo de mapa

☐ Datos digitales ☐ Copia impresa

Resultados por página 10

[Búsqueda experta](#)

[Búsqueda remota](#)



## Información sobre servidores de mapas

Usted puede encontrar servidores de mapas buscando en GeoNetwork por datos digitales y servidores de mapas, o simplemente conectarse directamente con un conjunto de servidores de mapas predefinidos.

Los servidores de mapas disponibles son [Open GeoSpatial@ Consortium](#) Servidores de mapas compatibles OGC o Servidores de mapas [ESRI@ ArcIMS](#).

[Mapa vectorial](#)

[Incorporaciones recientes](#) [RSS](#) [GeoRSS](#)





# Portal Geoespacial Programa GeoSUR



Home | **Last results** | Contact us | Links | About | Help

English | Français | Español

Username  Password  Login

Aggregate Results matching search criteria : 14

**Logo**

## Mapa Digital de Vialidad Suramericana, 2004

**Abstract** El mapa digital contiene la red vial Suramericana. Fuente: ESRI Data and Maps 2004.

**Keywords** suramérica, carreteras, red vial, Suramérica



Metadata

Interactive Map

**Logo**

## Mapa Digital de Límites Políticos de Suramérica, 2004

**Abstract** El mapa digital contiene los límites internacionales de los países Suramericanos. Fuente: ESRI Data and Maps 2004.

**Keywords** suramérica, límites, límites político/administrativos, Suramérica



Metadata

Interactive Map

**Logo**

## Mapa Digital de Areas Protegidas (polígonos) de Suramérica, 2004

**Abstract** El mapa representa a las áreas protegidas establecidas con categorías UICN I a VI (polígonos). El WCMC ha editado tres mapas digitales adicionales con información de áreas protegidas y los cuales com [...more...](#)

**Keywords** suramérica, áreas protegidas, protected areas, south america, parques nacionales, national parks, Suramérica



Metadata

Interactive Map

**Logo**

## Mapa Digital de Proyectos IIRSA (puntuales), Suramérica, 2006





**Default view**

Advanced view

XML view

## ::Identification info



<b>Title</b>	Mapa Digital de Vialidad Suramericana, 2004
<b>Date</b>	2006-12-01 (publication)
<b>Edition</b>	Primera
<b>Presentation form</b>	Map Digital
<b>Language</b>	en
<b>Character set</b>	Utf8
<b>Abstract</b>	El mapa digital contiene la red vial Suramericana. Fuente: ESRI Data and Maps 2004.
<b>Supplemental Information</b>	Este mapa fue obtenido por la Corporación Andina de Fomento (CAF) de la Empresa Golder (USA) como parte de un proyecto financiado por el Banco Interamericano de Desarrollo (BID)
<b>Purpose</b>	Representar la infraestructura vial Suramericana
<b>Status</b>	Completed
<b>Topic category</b>	Transportation
<b>Descriptive keywords</b>	suramérica,carreteras,red vial, (theme).
<b>Descriptive keywords</b>	Suramérica, (place).
<b>Spatial representation type</b>	Vector

## ::Equivalent scale

## ::Geographic box

**North bound latitude**

13



West bound longitude

East bound longitude



# InterMap opensource



Full extent   **Zoom in**   Zoom out   Pan   Identify   Print   Bigger/Smaller map   Add layer   **Reset**

## Layers

☒ [Proyectos \(lineales\)](#)

☐ ☒ opaque

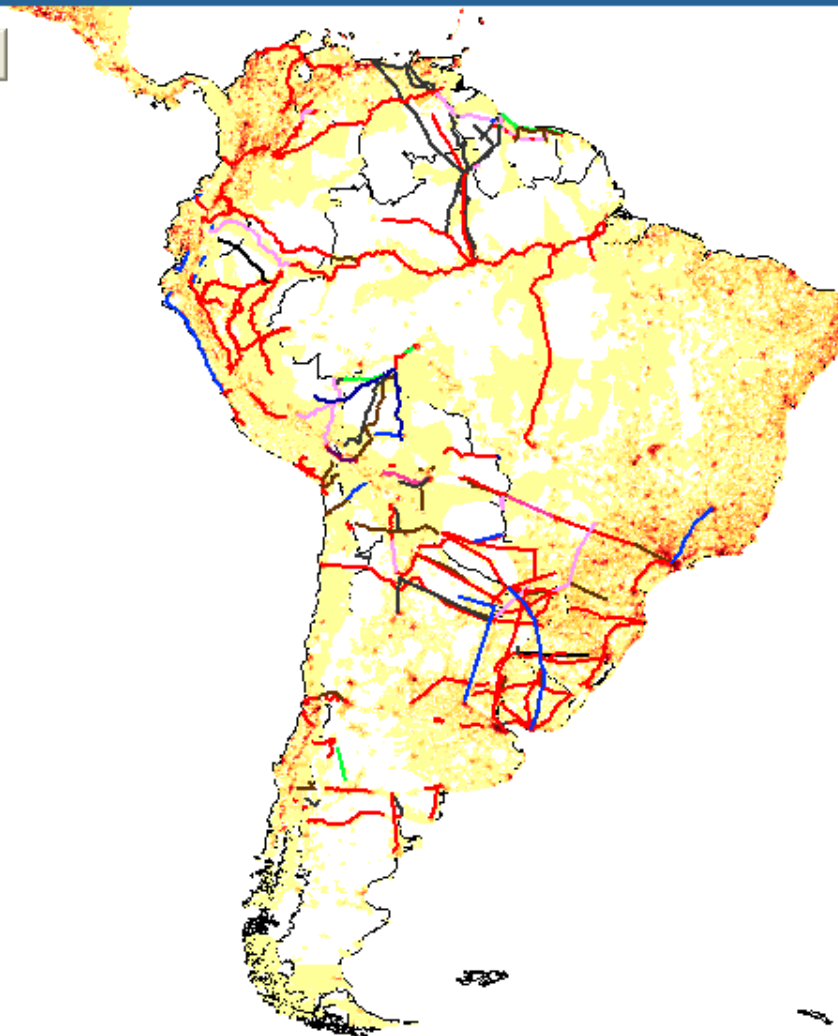
[Population Density 2000](#)

☐ ☒ opaque

☐ [Limites Internacionales](#)

☐ ☒ opaque

Refresh





# InterMap opensource

Full extent **Zoom in** Zoom out Pan Identify Print Bigger/Smaller map Add layer **Reset**

## Layers

☒ Proyectos (lineales)

☐ ☒ opaque

☐ Limites Internacionales

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MODIS

☐ ☒ opaque

Refresh





# InterMap opensource



Full extent   Zoom in   Zoom out   **Pan**   Identify   Print   Bigger/Smaller map   Add layer   **Reset**

## Layers

☒ [Proyectos \(lineales\)](#)

☐  opaque

☐ [Limites Internacionales](#)

☐  opaque

[MODIS](#)

☐  opaque

Refresh





# InterMap opensource



Full extent   **Zoom in**   Zoom out   Pan   Identify   Print   Bigger/Smaller map   Add layer   **Reset**

Please choose a map server from the list below or manually insert another map server

Map Server

- Other WMS server (specify below) ▼

Specify if other:

/wmsconnector/com.esri.wms.Esrimap/PROSIGA\_VECTOR?

► **FAO Web Map Services**

[Click here](#)

Cancel

Connect



# InterMap opensource



Full extent **Zoom in** Zoom out Pan Identify Print Bigger/Smaller map Add layer **Reset**

- ☐ Gasoductos
- ☐ Red eléctrica
- ☐ Yacimientos minerales
- ☐ Sísmos
- ☐ Pozos de exploración petrolera
- ☐ Ciudades principales
- ☐ Centros pathrow
- ☐ Calles
- ☐ Proyectos Hidroeléctricos
- ☐ Radiación Horizontal Media Junio [Mj/m2 dia]
- ☐ Radiación Horizontal Media Anual [Mj/m2 dia]
- ☐ Intensidad Vientos [Km/h]
- ☐ Cuencas
- ☐ División Departamental
- ☐ Permisos de Exploración
- ☐ Concesión de Explotación
- ☐ Sísmica 3D Offshore
- ☐ Sísmica 3D
- ☐ Red Eléctrica
- ☐ Poliductos
- ☐ Oleoductos (General)
- ☐ Gasoductos
- ☐ Líneas de Sísmica
- ☐ Cartas IGM 1:50.000
- ☐ Cartas IGM 1:100.000
- ☐ Cartas IGM 1:500.000
- ☐ Límites Imágenes Landsat
- ☐ Yacimientos
- ☐ ...



# InterMap opensource

Full extent **Zoom in** Zoom out Pan Identify Print Bigger/Smaller map Add layer **Reset**

## Layers

☐ [Aprovechamientos  
Hidroeléctricos](#)

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☐ [Yacimientos](#)

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☐ [Proyectos Hidroeléctricos](#)

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☐ [Pozos de exploración  
petrolera](#)

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☐ [Yacimientos minerales](#)

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☐ [Gasoductos](#)

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☐ [Oleoductos \(General\)](#)

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☐ [Poliductos](#)

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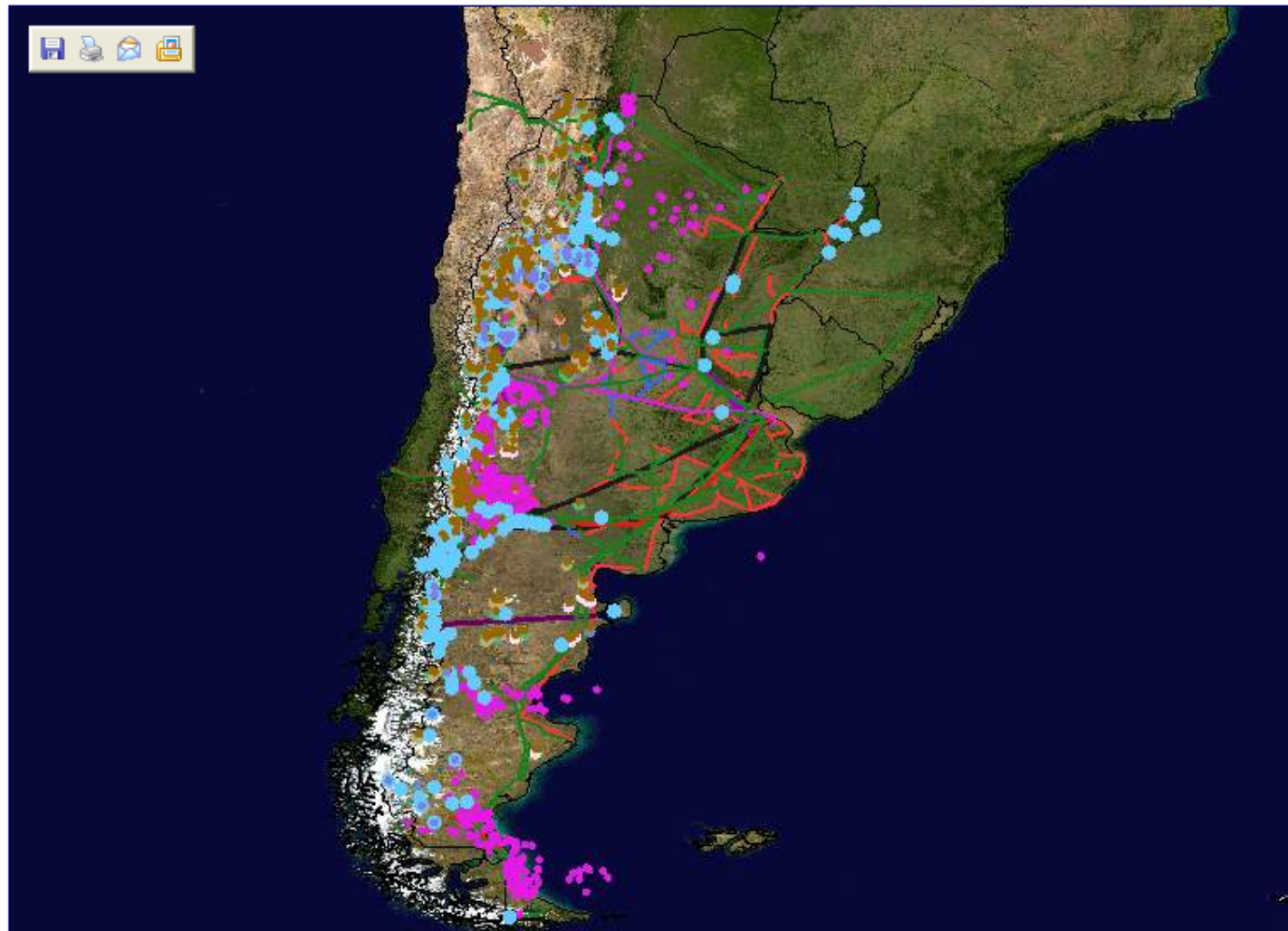
☐ [Red Eléctrica](#)

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☒ [Limites Internacionales](#)

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[MODIS](#)





Reset

05:57 p.m.

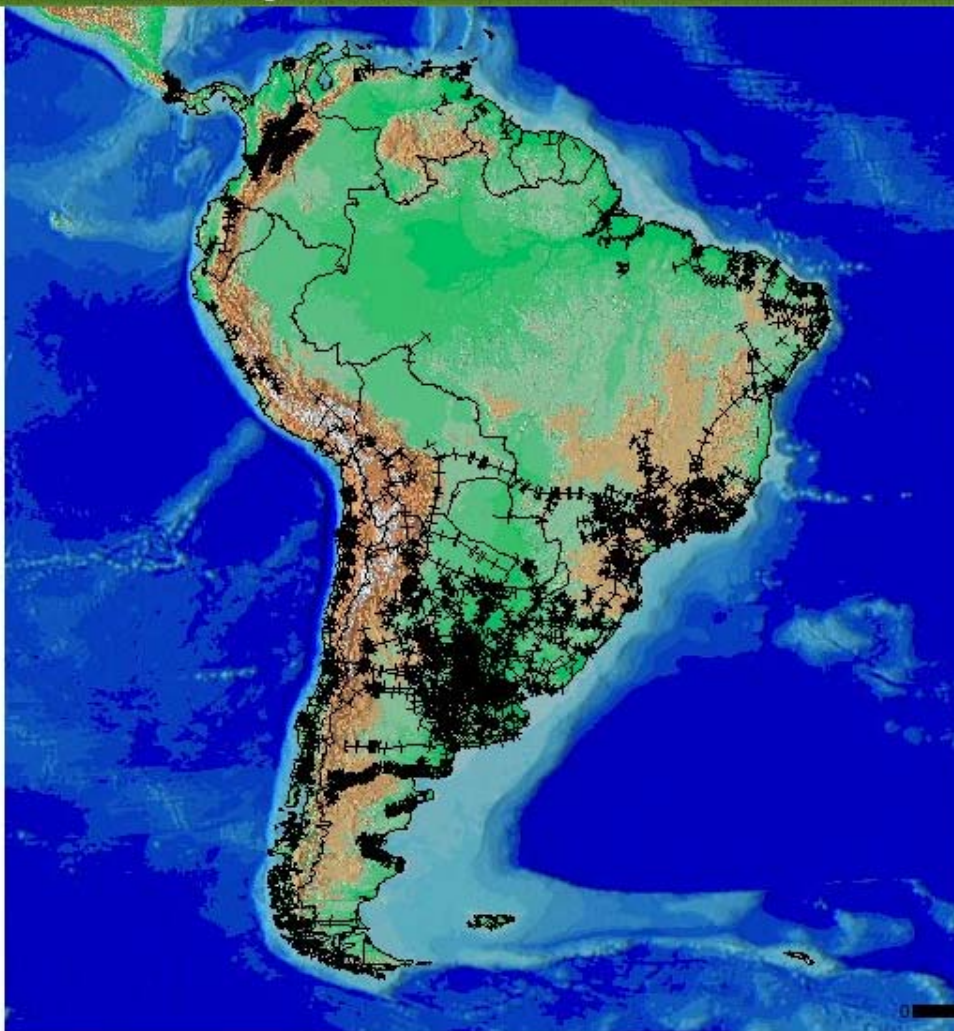




# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



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Background Layers

Modelo 3D Suramérica

Note - SD stands for scale dependent

Refresh

[Help](#) [Legend](#) [Print](#)





# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



0 762km

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Background Layers

Imagen Satelital

Note - SD stands for scale dependent

Refresh

[Help](#) [Legend](#) [Print](#)

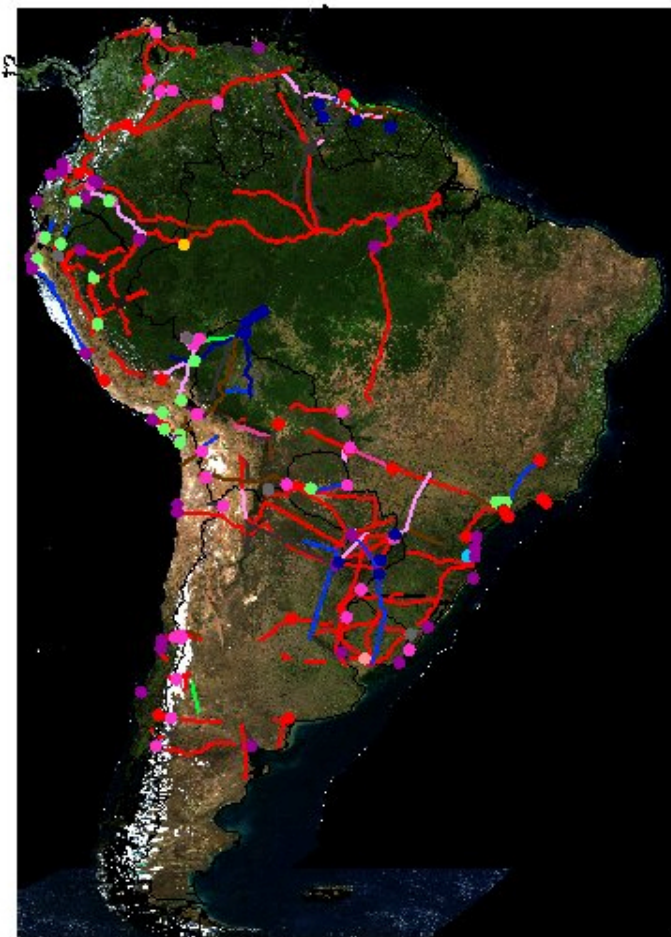




# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



0 762km

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Background Layers

Imagen Satelital

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Refresh

[Help](#) [Legend](#) [Print](#)

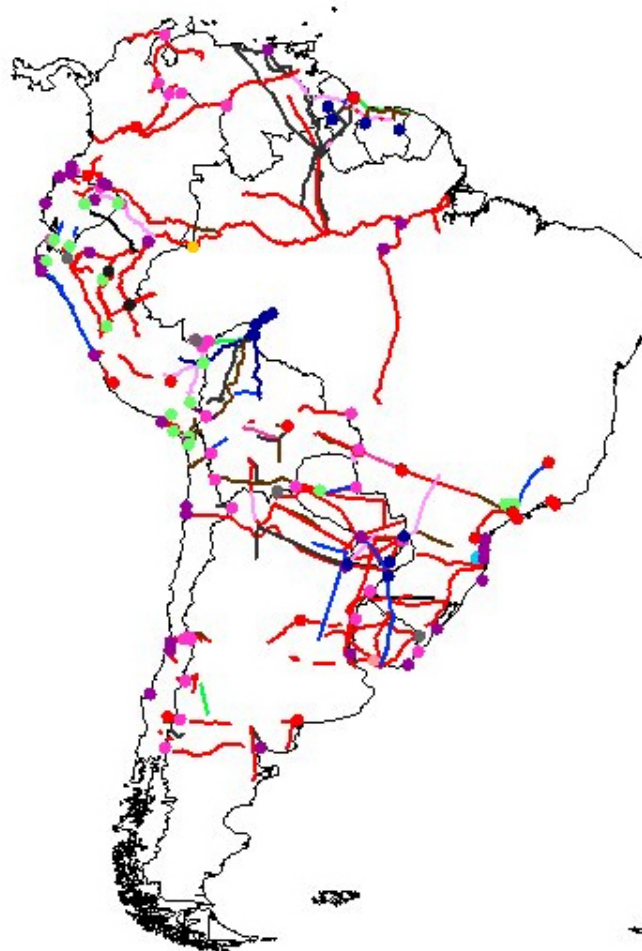




# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



Identify Results - Windows I...

http://localhost/imster

Identify Results

### Proyectos (puntuales)

Nombre del Proyecto	Esquema Hidroelectrico 300 MW (Tapanahoni Diversion)
Eje	Guyanes
Clase	Hidroelectrico
Código	GUY32
Países	Suriname
Sector	Energia
Subsector	Generacion
Naturaleza del Proyecto	Publico
Objetivo	To eliminate the structural shortage of electrical energy in Suriname, substitute hydrocarbon based generation by hydropower and to supply surplus energy to French-Guyana and or Guyana.
Solución	To divert part of the Tapanahoni discharge into the Brokopondo lake, construct several hydropower plants between Tapanahoni

Local intranet 100%

- Visible Active Layers
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Background Layers

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Note - SD stands for scale dependent

Refresh

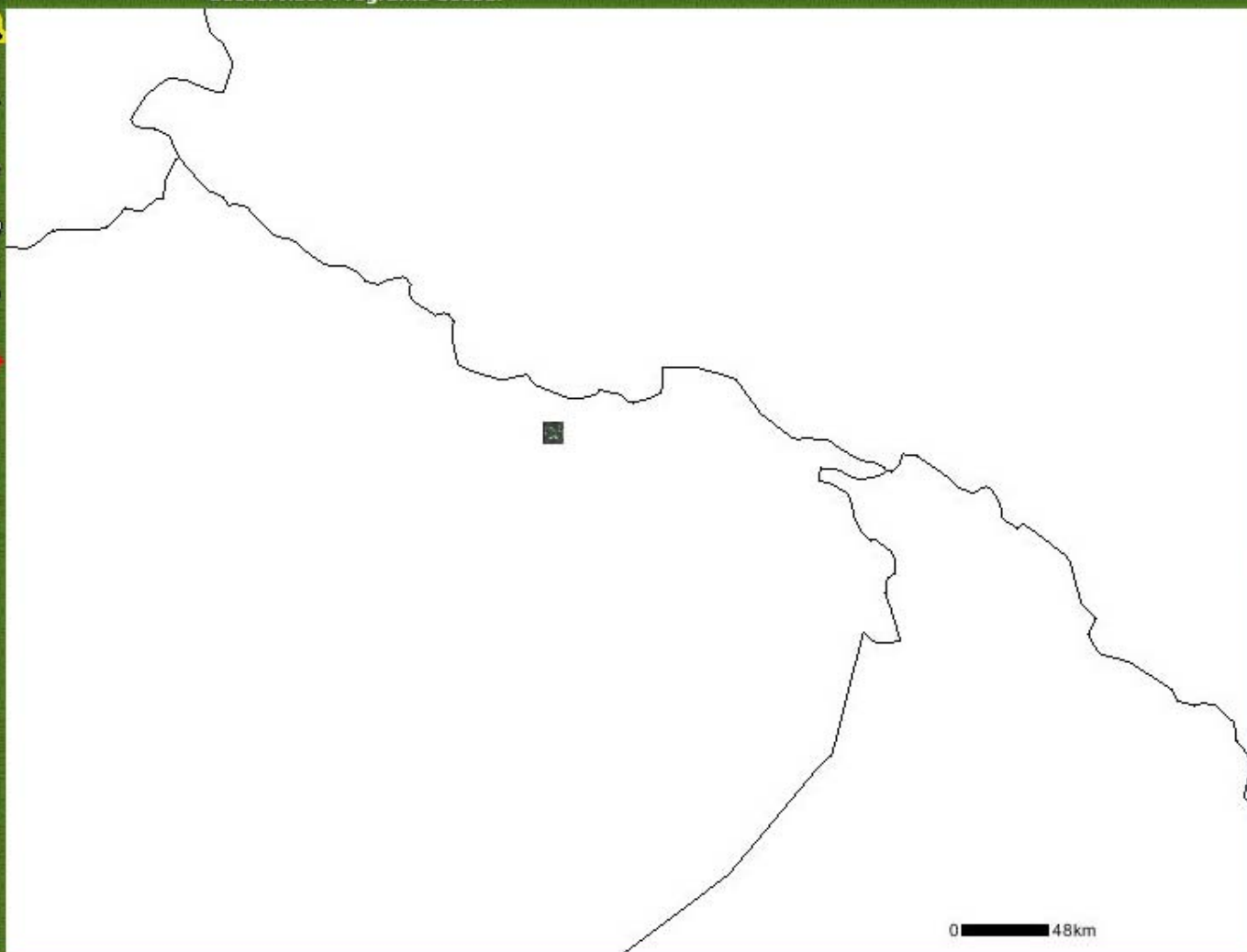




# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



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## Background Layers

No Background Selected

Note - SD stands for scale dependent

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# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



Visible Active

Layers

- |                                     |                       |                       |
|-------------------------------------|-----------------------|-----------------------|
| <input type="checkbox"/>            | <input type="radio"/> | Proyectos (puntuales) |
| <input type="checkbox"/>            | <input type="radio"/> | Proyectos (lineales)  |
| <input type="checkbox"/>            | <input type="radio"/> | Departamentos         |
| <input type="checkbox"/>            | <input type="radio"/> | Ejes                  |
| <input type="checkbox"/>            | <input type="radio"/> | Ciudades              |
| <input type="checkbox"/>            | <input type="radio"/> | Asentamientos         |
| <input type="checkbox"/>            | <input type="radio"/> | Red Vial              |
| <input type="checkbox"/>            | <input type="radio"/> | Red Ferroviaria       |
| <input type="checkbox"/>            | <input type="radio"/> | Ductos                |
| <input type="checkbox"/>            | <input type="radio"/> | Ríos                  |
| <input type="checkbox"/>            | <input type="radio"/> | Aeropuertos           |
| <input type="checkbox"/>            | <input type="radio"/> | Puertos               |
| <input type="checkbox"/>            | <input type="radio"/> | Cuerpos de Agua       |
| <input type="checkbox"/>            | <input type="radio"/> | ABRAES (IUCN, punto)  |
| <input type="checkbox"/>            | <input type="radio"/> | ABRAES (IUCN, áreas)  |
| <input checked="" type="checkbox"/> | <input type="radio"/> | Fotografía Aérea      |
| <input type="checkbox"/>            | <input type="radio"/> | Ríos Cuenca1          |

Background Layers

No Background Selected

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# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



0 48km

- | Visible                  | Active                           | Layers                |
|--------------------------|----------------------------------|-----------------------|
| <input type="checkbox"/> | <input checked="" type="radio"/> | Proyectos (puntuales) |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Proyectos (lineales)  |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Departamentos         |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Ejes                  |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Ciudades              |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Red Vial              |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Red Ferroviaria       |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Ductos                |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Ríos                  |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Aeropuertos           |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Puertos               |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Cuerpos de Agua       |
| <input type="checkbox"/> | <input checked="" type="radio"/> | ABRAES (IUCN, punto)  |
| <input type="checkbox"/> | <input checked="" type="radio"/> | ABRAES (IUCN, áreas)  |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Fotografía Aérea      |
| <input type="checkbox"/> | <input checked="" type="radio"/> | Ríos Cuenca1          |

## Background Layers

3D Cuenca1 (color)

Note - SD stands for scale dependent

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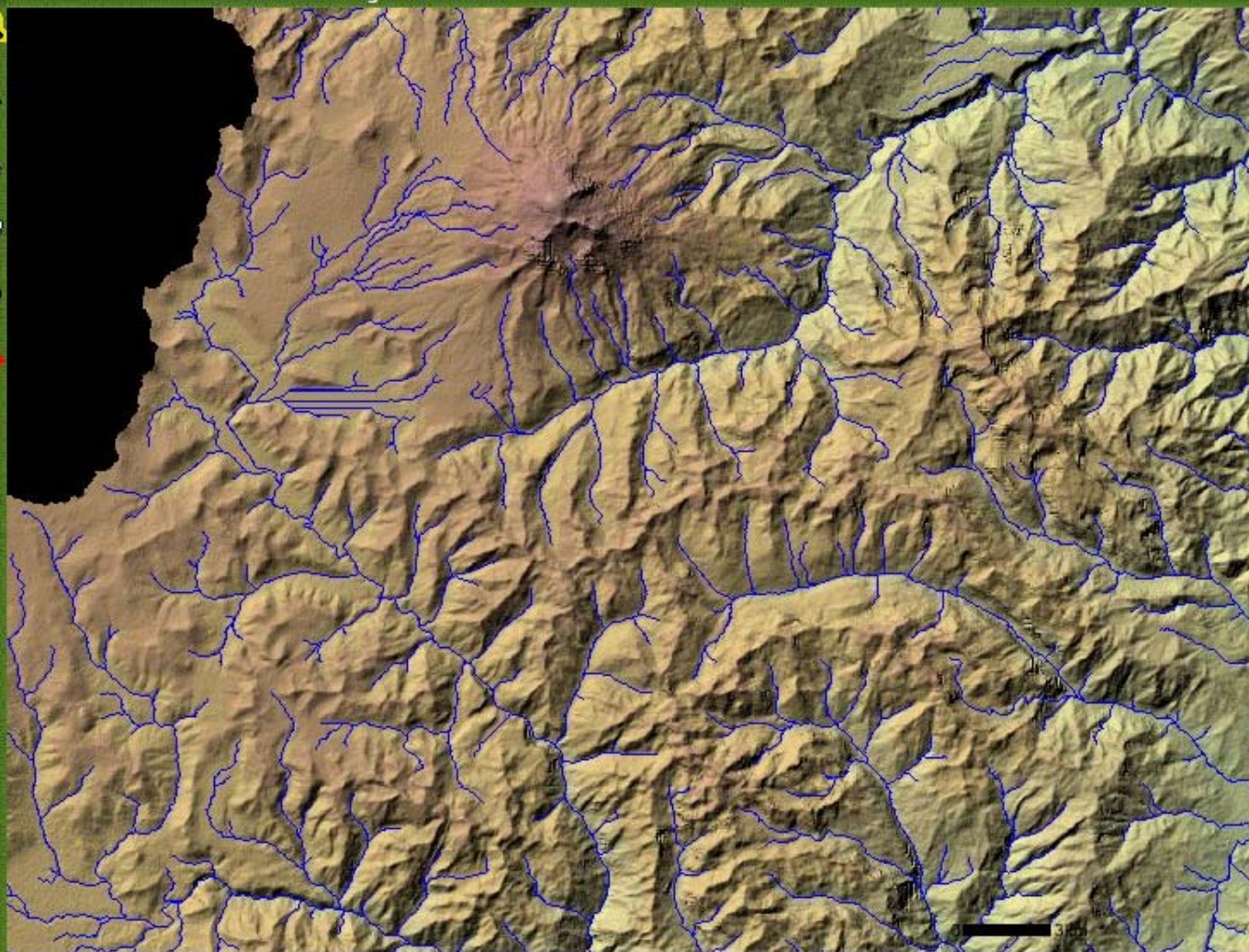




# Geoservidor Programa GeoSur



Geoservidor Programa GeoSur



Visible Active		Layers
<input type="checkbox"/>	<input type="radio"/>	Proyectos (puntuales)
<input type="checkbox"/>	<input type="radio"/>	Proyectos (lineales)
<input type="checkbox"/>	<input type="radio"/>	Departamentos
<input type="checkbox"/>	<input type="radio"/>	Ejes
<input checked="" type="checkbox"/>	<input type="radio"/>	Ciudades
<input type="checkbox"/>	<input type="radio"/>	Asentamientos
<input type="checkbox"/>	<input type="radio"/>	Red Vial
<input type="checkbox"/>	<input type="radio"/>	Red Ferroviaria
<input type="checkbox"/>	<input type="radio"/>	Ductos
<input type="checkbox"/>	<input type="radio"/>	Ríos
<input type="checkbox"/>	<input type="radio"/>	Aeropuertos
<input type="checkbox"/>	<input type="radio"/>	Puertos
<input type="checkbox"/>	<input type="radio"/>	Cuerpos de Agua
<input type="checkbox"/>	<input type="radio"/>	ABRAES (IUCN, punto)
<input type="checkbox"/>	<input type="radio"/>	ABRAES (IUCN, áreas)
<input type="checkbox"/>	<input type="radio"/>	Fotografía Aérea
<input checked="" type="checkbox"/>	<input type="radio"/>	Ríos Cuenca1

## Background Layers

3D Cuenca1 (color) ▼

Note - SD stands for scale dependent

Refresh

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▼ Buscar

Volar a Buscar negocios Cómo llegar

p. ej., 37 25,818' -122 05,36'

▼ Lugares

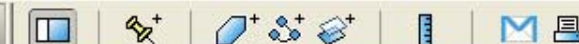
- Mis lugares
  - ☒ Excursiones
 

Selecciona esta carpeta y haz clic en el botón Reproducir de abajo para
  - ☐ default
- ☒ Lugares temporales
  - ☒ IIRSA Demo

▼ Capas

Ver: Principales

- Base de datos principal
  - ☒ Terreno
  - ☐ Contenido destacado
  - ☐ Carreteras
  - ☐ Fronteras
  - ☒ Sitios poblados
  - ☐ Nombres de sitios alternativos
  - ☐ Edificios 3D





▼ Buscar

Volar a Buscar negocios Cómo llegar

p. ej., 37 25,818' -122 05,36'



▼ Lugares

- ☒ Mis lugares
- ☒ [Excursiones](#)  
Selecciona esta carpeta y haz clic en el botón Reproducir de abajo para
- ☐ default
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- ☒ IIRSA Demo

▼ Capas

Ver: Principales

- ☒ Base de datos principal
- ☒ Terreno
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- ☐ Fronteras
- ☒ Sitios poblados
- ☐ Nombres de sitios alternativos
- ☐ Edificios 3D





## More information:

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