



Spatial Data Infrastructures (SDI) and Catalog Servers

Emmanuel Stefanakis

estef@unb.ca

Definition

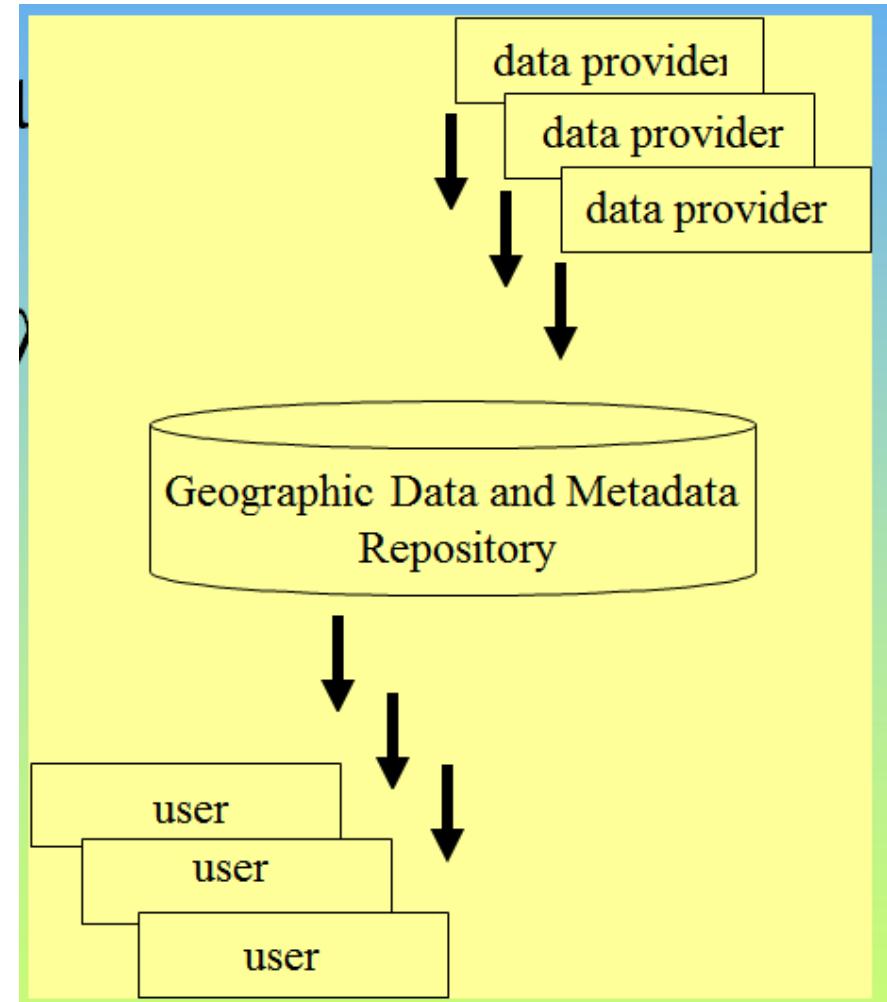
- A data infrastructure ...
 - implements a **framework** of
 - geographic data,
 - metadata,
 - users, and
 - tools
 - that are interactively connected in order to **use** spatial data in an efficient and flexible way.

Definition

- An SDI is the...
 - technology,
 - policies,
 - standards,
 - human resources, and
 - related activities
- necessary to ...
 - acquire, process, distribute, use, maintain, and preserve spatial data

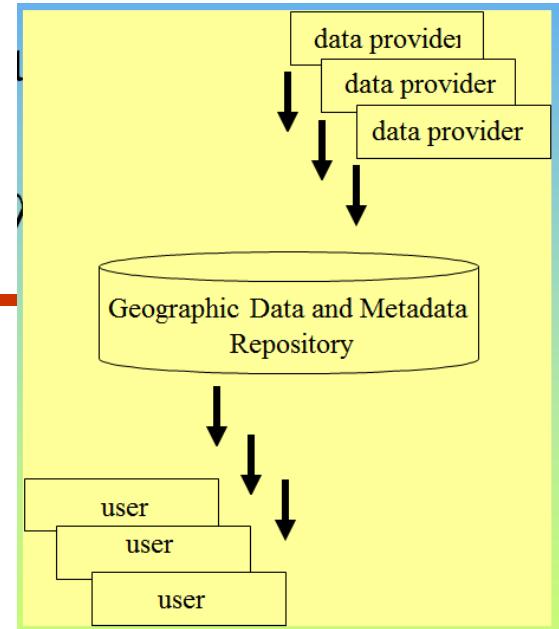
SDI

- The framework...
 - Many providers
 - Many users
- Improve ...
 - Accessibility
 - Usability



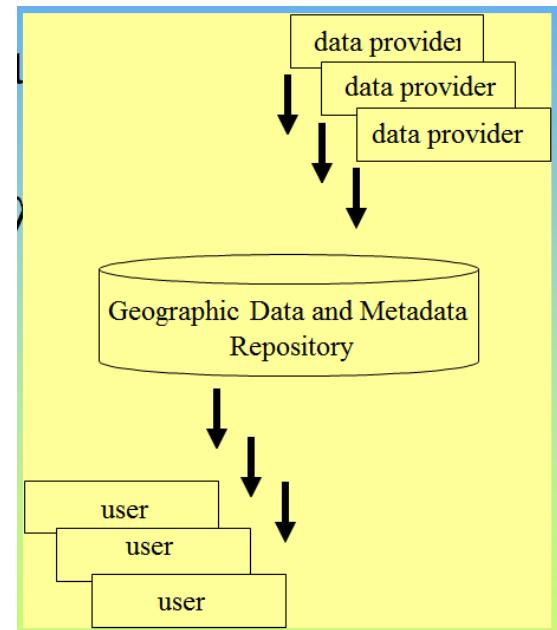
SDI

- Assures...
 - interoperability
- A coordinated series of agreements on
 - technology standards,
 - institutional arrangements,
 - and policies
 - that enable the discovery and use of geospatial information by users and for purposes other than those it was created for



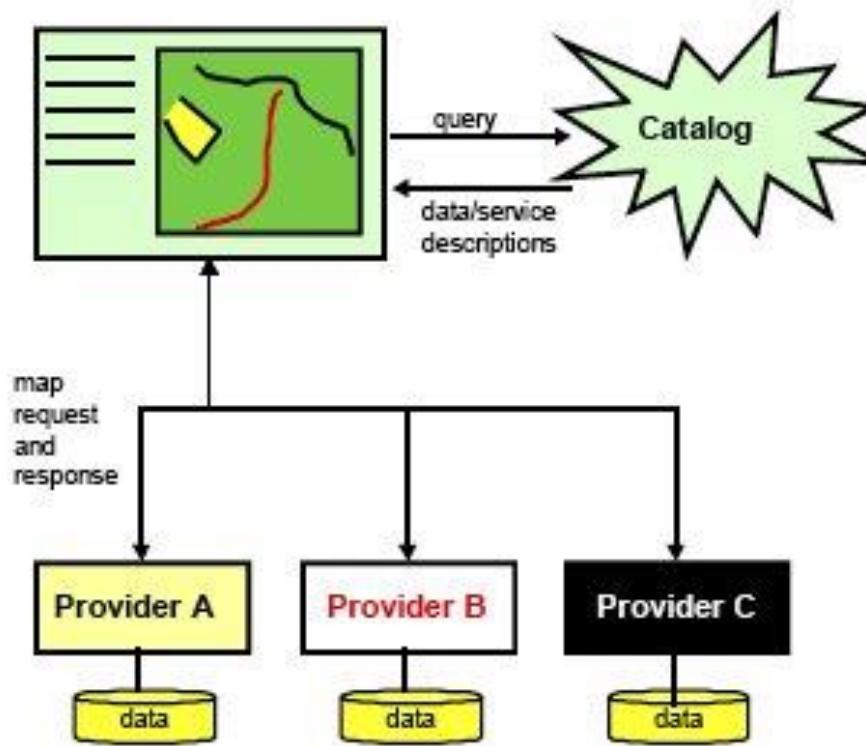
SDI

- **Technology** arrangements
 - OGC, ISO, W3C
 - Software tools
 - Languages
 - Standards and protocols



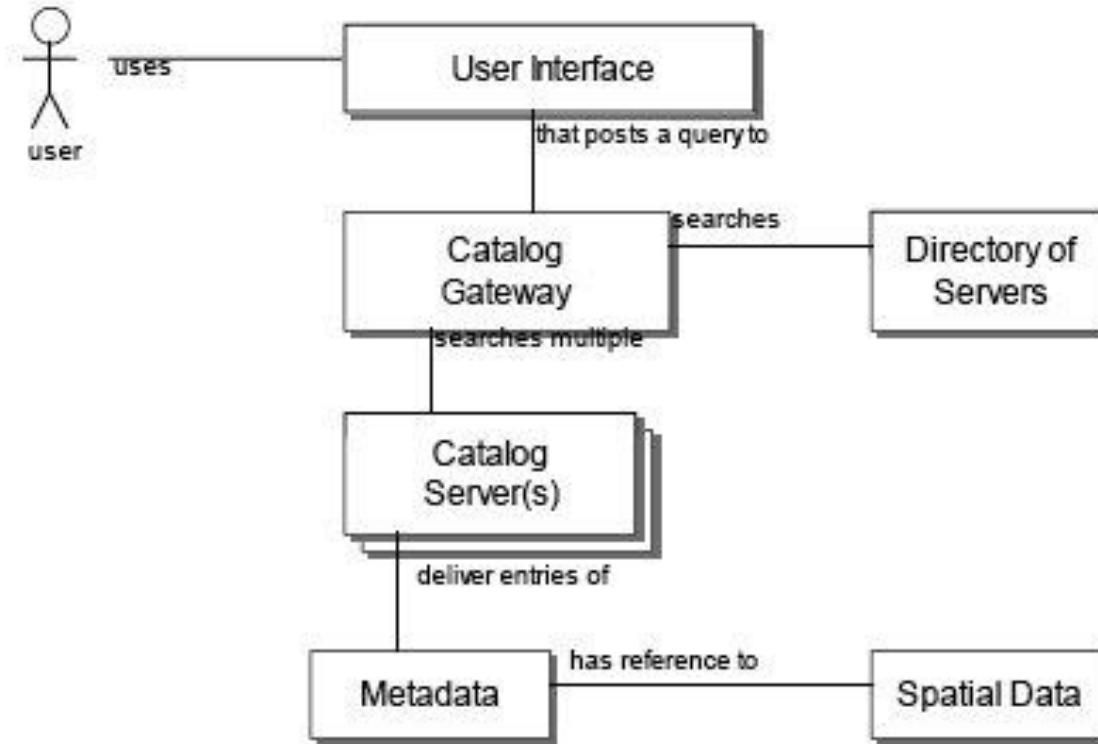
GSDI, 2009. The Spatial Data Infrastructure Cookbook
<http://gsdiassociation.org/index.php/publications/sdi-cookbooks.html>

SDI



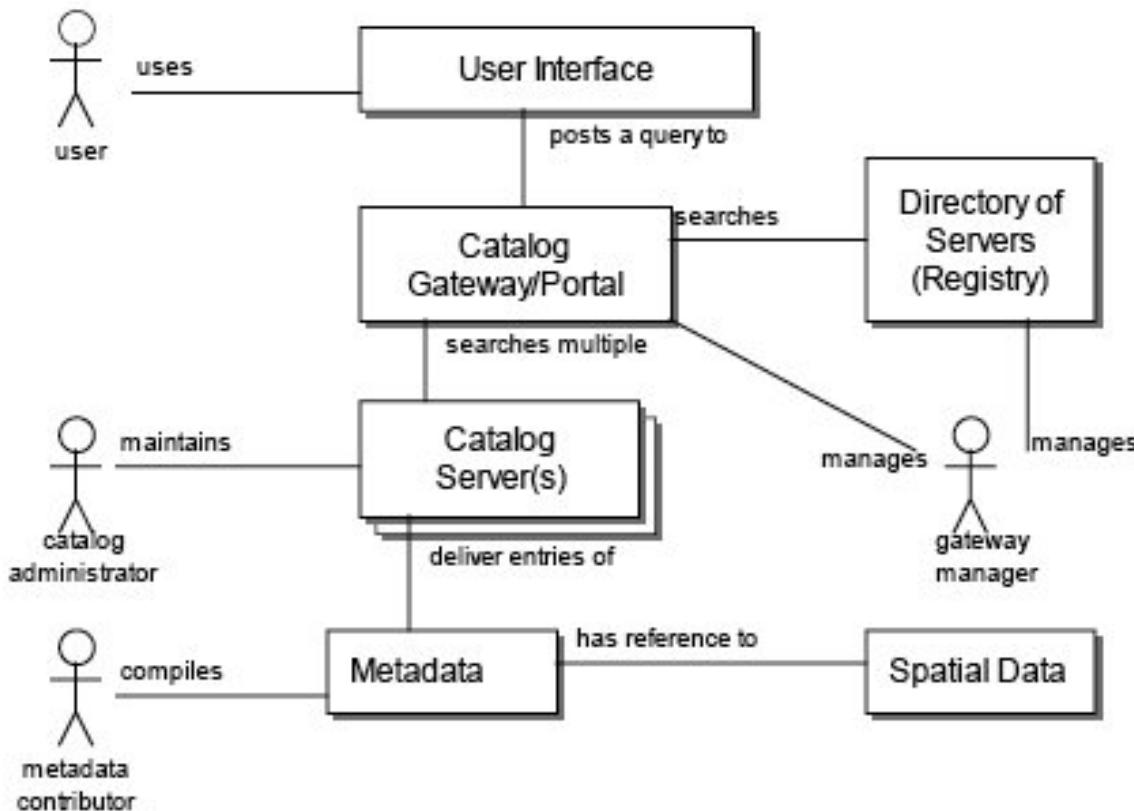
GSDI, 2009. The Spatial Data Infrastructure Cookbook
<http://gsdiassociation.org/index.php/publications/sdi-cookbooks.html>

SDI



GSDI, 2009. The Spatial Data Infrastructure Cookbook
<http://gsdiassociation.org/index.php/publications/sdi-cookbooks.html>

SDI



GSDI, 2009. The Spatial Data Infrastructure Cookbook
<http://gsdiassociation.org/index.php/publications/sdi-cookbooks.html>

SDI

- An SDI can be (**scale**)...
 - Regional (NB)
 - National (Canadian)
 - International (NA, EU – Inspire)

Heraklion SDI

- A regional SDI ...
 - has recently been developed for the Heraklion Prefecture in Crete, Greece
 - using merely ...
 - Geographic Free and Open Source Software (**GeoFOSS**)
 - funded by the EU – GSRT Greece

Heraklion SDI

This screenshot shows the Heraklion SDI (SDI Crete 2006-08) interface as viewed in Microsoft Internet Explorer. The page title is "Heraklion SDI (PEP Crete 2006-08) - Windows Internet Explorer". The URL in the address bar is "http://localhost/coastatlas/index-en.html". The browser toolbar includes standard buttons for back, forward, search, and refresh.

The main navigation menu at the top left shows the path: FORTH > Institutes > IACM > Research Groups > RAD. The top right features links for "SiteMap", "Search", and "Help", along with language and search icons.

A large banner on the left side of the page features the "FORTH IACM" logo and the word "HERAKLION" vertically.

The main content area has a header "Regional Analysis Division" and a sub-header "Heraklion - Spatial Data Infrastructure". A "Greek Version" link is visible on the left.

The central text states: "This page provides access to the Heraklion Prefecture Spatial Data Infrastructure (SDI) geospatial content and the servers: [WMS](#), [WFS](#) and [WCS](#). Additionally, data layers are also available in [KML](#) (for visualization in Google Earth)."

Below this, another text block says: "Browse in the data layers of the Heraklion SDI and combine them with mashups, such as the Google Maps and the CEOS European Data Server, via the [Web Client \(Viewer\)](#)".

A section titled "Web Map Server (WMS)" contains a map of the Heraklion prefecture showing various administrative boundaries and a green highlighted area. To the right of the map is a list of data layers under the heading "Topography".

- [Topography \[GetCapabilities\]](#)
- [Topography Layers \[ALL\] \[GetMap\]](#)
- [Prefecture \[GetMap\]](#)
- [Municipalities \[GetMap\]](#)
- [Municipalities Subdivisions \[GetMap\]](#)
- [Road Network \[GetMap\]](#)
- [Urban Areas \[GetMap\]](#)
- [Towns and Villages \[GetMap\]](#)
- [Lakes \[GetMap\]](#)
- [Heraklion City Buildings \[GetMap\]](#)
- [Airport - Sea Port \(POI\) \[GetMap\]](#)

Heraklion SDI

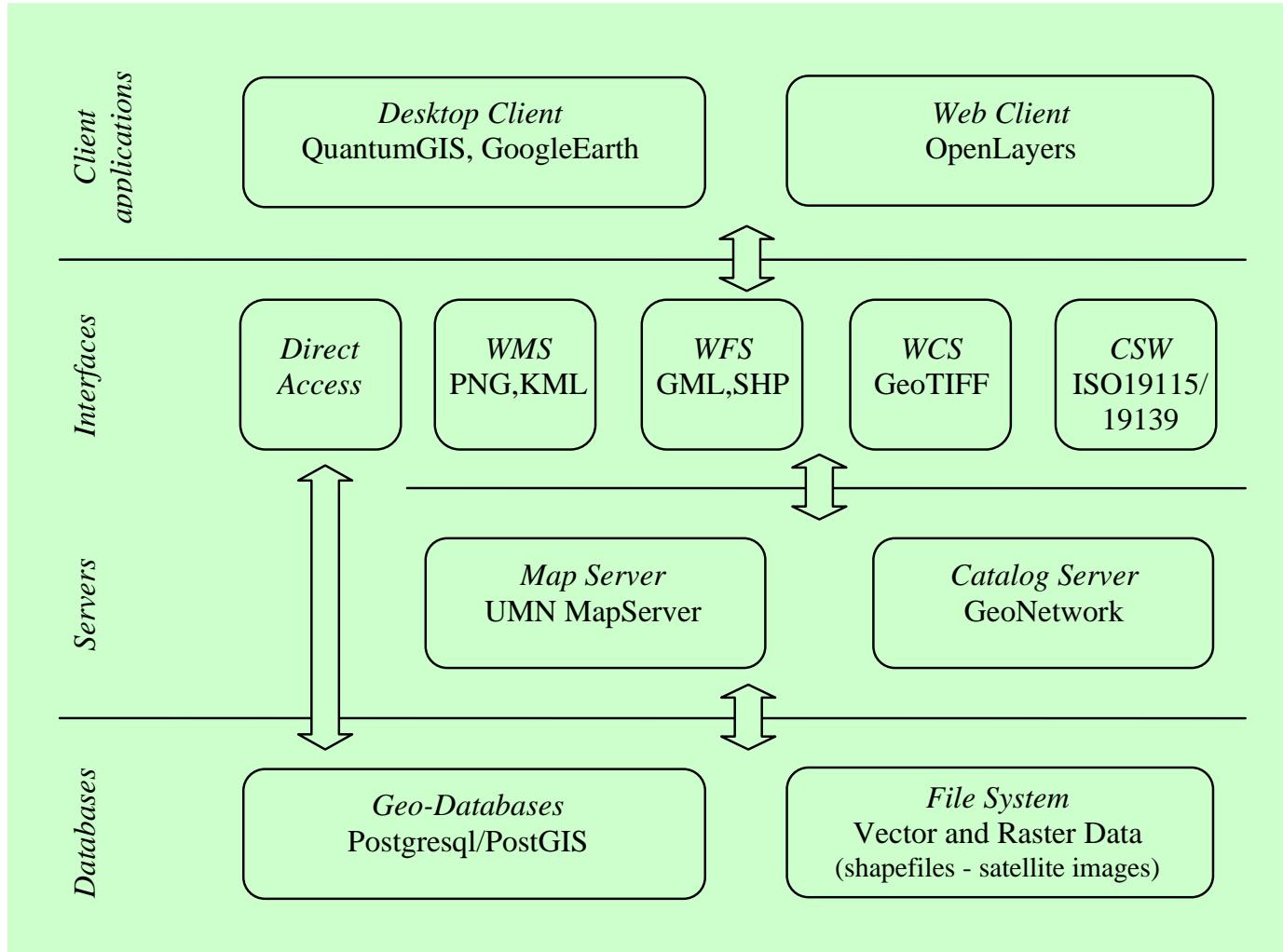
- This SDI is ...
 - **compatible** with
 - the geospatial **standards and specifications**
 - introduced by the **OGC** and **ISO**
 - **serves** the geospatial content
 - through widely accepted **web services**
 - e.g., WMS, WFS, WCS and CSW

Heraklion SDI

- Public Datasets ...

<i>Layer Content/Description</i>	<i>Format</i>	<i>Name</i>
Prefecture (outline)	Shapefile	<i>nomos_irakliou</i>
Municipalities (outlines)	Shapefile	<i>dhmoi_irakliou</i>
Municipalities Subdivisions (outlines)	Shapefile	<i>dhm_diamer_irakliou</i>
Urban Areas (outlines)	Shapefile	<i>bua_irakliou</i>
Towns and Villages (points)	Shapefile	<i>oikismoi_irakliou</i>
Road Network (lines)	Shapefile	<i>odiko_irakliou</i>
Heraklion City buildings (polygons)	Shapefile	<i>build_egsa</i>
Heraklion city Airport and Seaport (points)	Shapefile	<i>poi_irakliou</i>
Lakes (polygons)	Shapefile	<i>limnes_irakliou</i>
Geology cover (polygons)	Shapefile	<i>geo_N_Herakleio</i>
Archaeological spots (points)	Shapefile	<i>archaiologia_N_Herakleio</i>
Digital Elevation Model (raster)	GeoTiff	<i>dem</i>
Land Cover (raster)	GeoTiff	<i>lc</i>
Orthophoto Map (raster)	GeoTiff	<i>hr_ortho</i>

Architecture & Software Systems



Architecture & Software Systems

- Geospatial layers of the SDI **served** using ...
 - Services: WMS, WFS, WCS
 - Languages: GML, KML
 - Standards: ISO19115/139 (ISO/TC211)
- They are **visualized** via ...
 - a web application (web client)
 - a desktop GIS / GE (desktop client)

Architecture & Software Systems

- Open Source Software Systems...

<http://www.osgeo.org/>

The screenshot shows the homepage of the Open Source Geospatial Foundation (OSGeo) website. The header features the OSGeo logo and the tagline "Your Open Source Compass". A search bar is located in the top right corner. The main content area includes a "Community Spotlights" section featuring Steve Lime and Tom Kralidis, and a "News" section listing recent events like FOSS4G 2008 and QGIS releases. On the right side, there are boxes for "Support OSGeo" and "OSGeo Projects" (Web Mapping, Desktop Applications). The footer contains links to various language versions of the site.

OSGeo.org | Your Open Source Compass - Windows Internet Explorer
http://www.osgeo.org/

Welcome to the Open Source Geospatial Foundation Website

The Open Source Geospatial Foundation has been created to support and build the highest-quality open source geospatial software. The foundation's goal is to encourage the use and collaborative development of community-led projects. This website serves as a portal for users and developers to share their ideas and contribute to project development. As the Open Source Geospatial Foundation grows and changes, so will this website. Please check back often and sign up to the [mailing lists](#) to monitor developments. To get involved, check out the [Getting Started](#) page.

Community Spotlights

Steve Lime is the lead developer of MapServer, a leading web mapping package. At the FOSS4G 2007 conference, Steve was honored with the Sol Katz GFOSS Award for 2007. [Read more...](#)

Tom Kralidis is a participant at OSGeo.org and an employee of Environment Canada. Tom is primarily a user of MapServer (and underlying packages) and mapbuilder and also supports OGC specifications for open source projects. [Read more....](#)

News

2008-06-04 FOSS4G 2008 New Bronze sponsorship category and Workshop sneak preview

2008-05-16 **deegree day 2008**

2008-05-15 FOSS4G 2008 Call for paper and workshops extended!

2008-05-12 OSGeo Supports CASCADLOSS

2008-05-03 QGIS Releases 0.10.0

2008-04-24 GRASS GIS 6.3.0 Released

[Submit News](#) [more](#)

Upcoming events

2008- CAPE TOWN SOUTH AFRICA FOSS4G 2008
2008 FREE AND OPEN SOURCE SOFTWARE FOR GEOSPATIAL CONFERENCE

Support OSGeo
Any Amount

OSGeo Projects

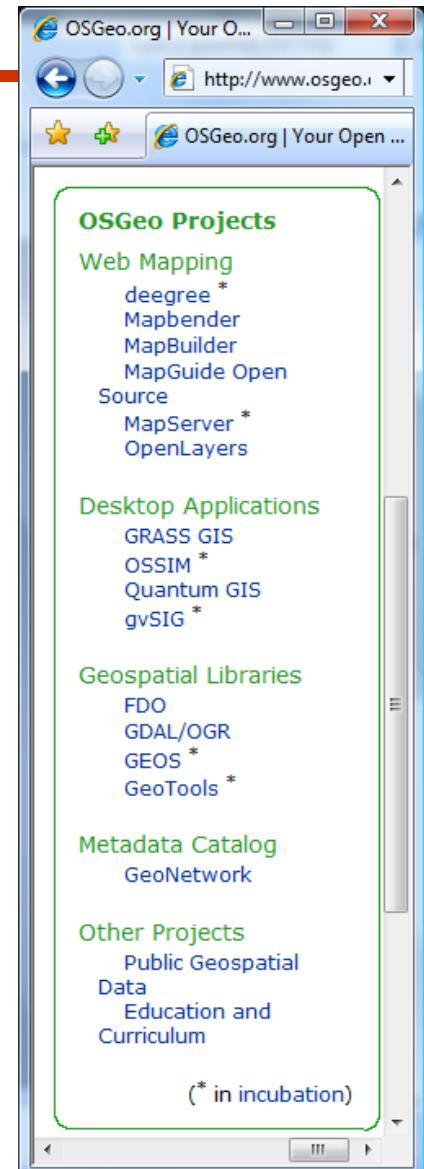
Web Mapping
deegree *
Mapbender
MapBuilder
MapGuide Open Source
MapServer *
OpenLayers

Desktop Applications
GRASS GIS
OGR

Architecture & Software Systems

- OSGeo...
 - The Open Source Geospatial Foundation...
 - has been created to support and build the highest-quality open source geospatial software
 - The foundation's goal is....
 - to encourage the use and collaborative development of community-led projects

<http://www.osgeo.org/>



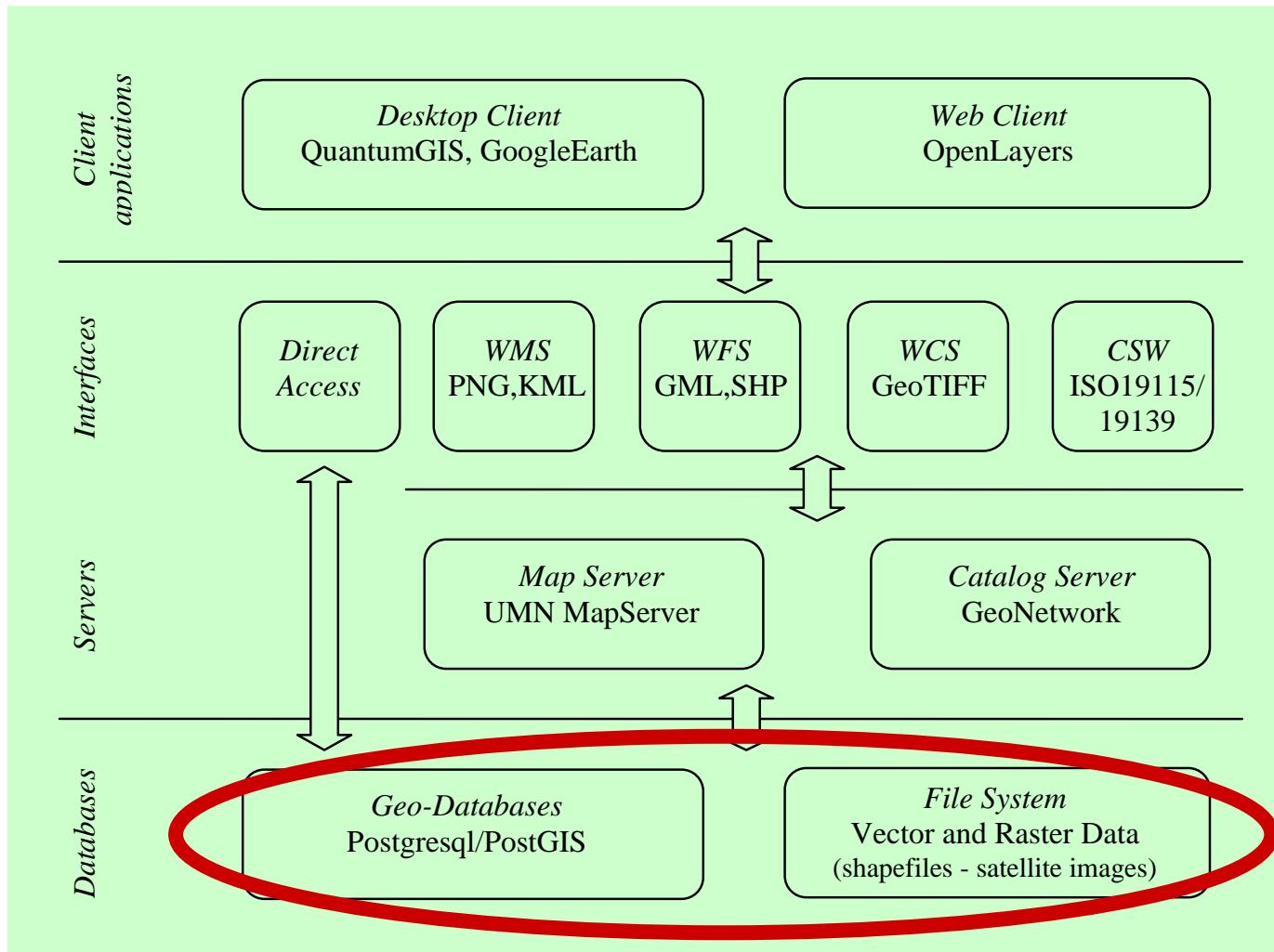
Architecture & Software Systems

- Software Systems...
 - *Apache Web Server* (<http://www.apache.org>) in the role of the **Web Server**.
 - *OpenLayers JavaScript Library* (<http://openlayers.org>) in the role of the **Web Client** (Interface).
 - *QuantumGIS* (<http://www.qgis.org>) in the role of the **Desktop Client**.
 - *Google Earth* (<http://earth.google.com>) in the role of the **Desktop Client** (for the KML files).

Architecture & Software Systems

- Software Systems... (cont')
 - UMN MapServer (<http://mapserver.gis.umn.edu>) in the role of the **Map Server**.
 - GeoNetwork Opensource (<http://geonetwork-opensource.org>) in the role of the **Catalog Server**.
 - GDAL/OGR (<http://www.gdal.org>) in the role of the **Geospatial Library**.
 - Postgresql/PostGIS (<http://www.postgis.org>) in the role of the Spatial **Database Server**.

Architecture & Software Systems



Heraklion SDI

- The Geo-Databases...

SDI Public Layers

Layer Content/Description	Format	Name
Prefecture (outline)	Shapefile	<i>nomos_irakliou</i>
Municipalities (outlines)	Shapefile	<i>dhmoi_irakliou</i>
Municipalities Subdivisions (outlines)	Shapefile	<i>dhm_diamer_irakliou</i>
Urban Areas (outlines)	Shapefile	<i>bua_irakliou</i>
Towns and Villages (points)	Shapefile	<i>oikismoi_irakliou</i>
Road Network (lines)	Shapefile	<i>odiko_irakliou</i>
Heraklion City buildings (polygons)	Shapefile	<i>build_egsa</i>
Heraklion city Airport and Seaport (points)	Shapefile	<i>poi_irakliou</i>
Lakes (polygons)	Shapefile	<i>limnes_irakliou</i>
Geology cover (polygons)	Shapefile	<i>geo_N_Herakleio</i>
Archaeological spots (points)	Shapefile	<i>archaiologia_N_Herakleio</i>
Digital Elevation Model (raster)	GeoTiff	<i>dem</i>
Land Cover (raster)	GeoTiff	<i>lc</i>
Orthophoto Map (raster)	GeoTiff	<i>hr_ortho</i>

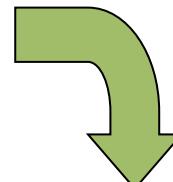
GeoTiff
(Raster)



File System

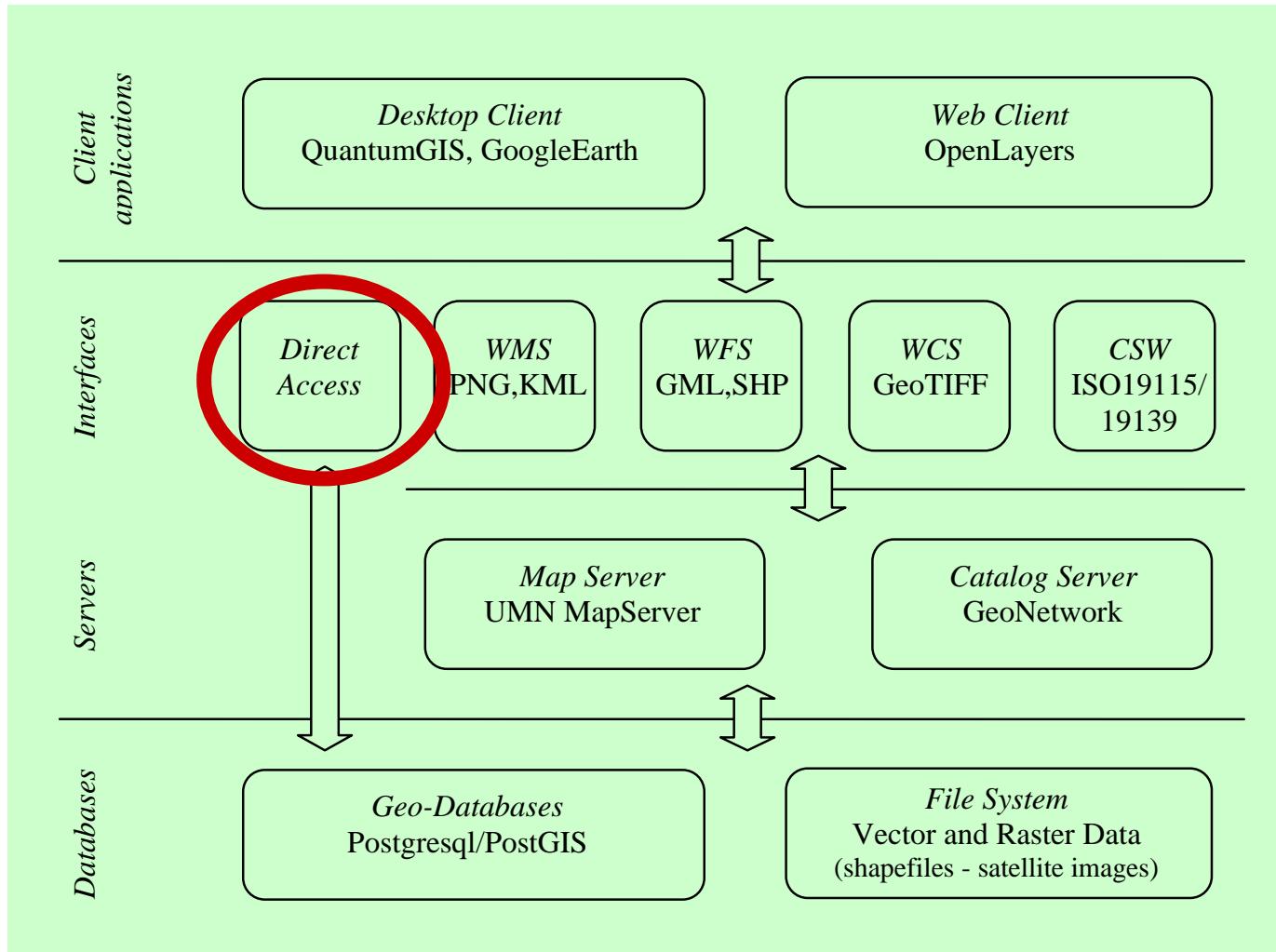
Shapefiles
(Vector)

GDAL/OGR



PostgreSQL/
PostGIS

Architecture & Software Systems

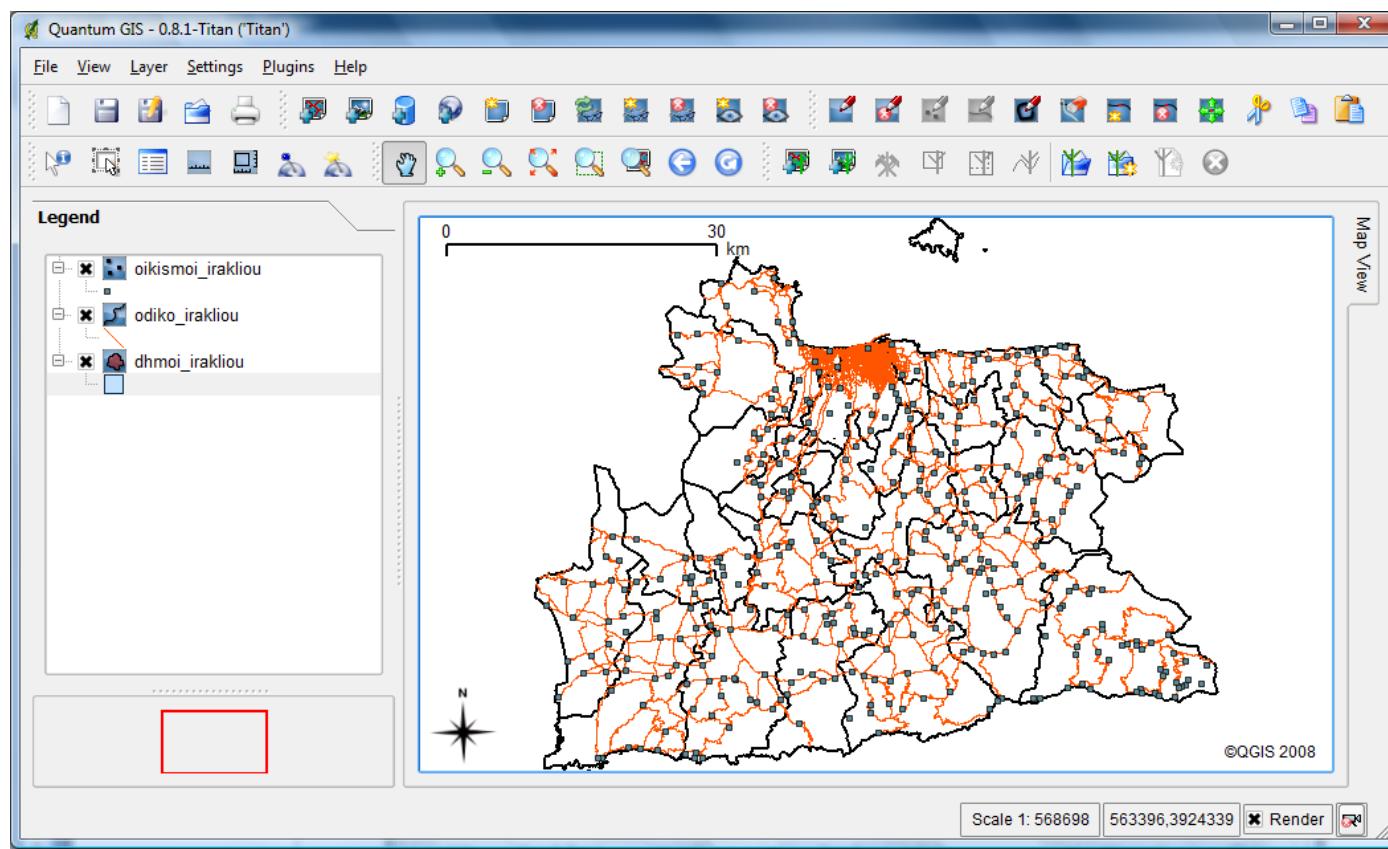


Heraklion SDI

- The middle layer...
 - provides the **Direct Access Interface**
 - to the geospatial content that resides in the spatial database server
 - The Direct Access Interface ...
 - may support effectively...
 - the querying and
 - the analysis
 - ... of the geospatial content using SQL statements

Heraklion SDI

- The **Direct Access Interface...**
 - Example queries...



- **Table of Municipalities: “dhmoi_irakliou” (type: multi_polygon)**

```
SELECT gid, NAMF_EN, POP_01, AsText(the_geom)
FROM dhmoi_irakliou;
```

gid (identifier)	NAMF_EN (municipality name)	POP_01 (population in 2001)	the_geom (geometry column)
1	Municipality Of Irakleio	137711	MULTIPOLYGON(...)
2	Municipality Of Agia Varvara	5310	MULTIPOLYGON(...)
3	Municipality Of Arkalochori	10897	MULTIPOLYGON(...)
4	Municipality Of Archanes	4548	MULTIPOLYGON(...)
...

26 rows

- **Table of Cities/Villages: “oikismoi_irakliou” (type: point)**

```
SELECT gid, NAMEENG, POP01, AsText(the_geom)
FROM oikismoi_irakliou;
```

gid (identifier)	NAMEENG (city/village name)	POP01 (population in 2001)	the_geom (geometry column)
1	Agia Pelagia	553	POINT(592221 3918593)
2	Paralia Fodele	99	POINT(586237 3917962)
3	Achlada	119	POINT(589949 3917093)
4	Fodele	540	POINT(586850 3915575)
...

400 rows

- **Table of Road Network: “odiko_irakliou” (type: multi_linestring)**

```
SELECT gid, SPEED, EU_CODE, AsText(the_geom)
FROM odiko_irakliou;
```

gid (identifier)	SPEED (speed limit)	EU_CODE (E75 for national roads)	the_geom (geometry column)
1	50		MULTILINESTRING(...)
2	50		MULTILINESTRING(...)
3	80	E75	MULTILINESTRING(...)
4	70	E75	MULTILINESTRING(...)
...

12228 rows

Query 1: Find how many cities there are per municipality.

SQL Statement

```
SELECT r.NAMF_EN as Municipality,
       count(m.the_geom) as Number
  FROM dhmoi_irakliou AS r,
       oikismoi_irakliou AS m
 WHERE intersects(r.the_geom, m.the_geom)
 GROUP BY r.NAMF_EN
 ORDER BY number_of_cities DESC;
```

Output

Municipality	Number
Municipality Of Viannos	46
Municipality Of Arkalochori	40
Municipality Of Asterousia	28
Municipality Of Gortyna	26
Municipality Of Kasteelli	24
...	

Query 2: What is the length of roads fully contained within each municipality? Report only the 5 largest.

SQL Statement

```
SELECT m.NAMF_EN as Municipality,
       sum(length(r.the_geom))/1000 as Roads_km
  FROM odiko_irakliou AS r,
       dhmoi_irakliou AS m
 WHERE r.the_geom && m.the_geom
   AND contains(m.the_geom,r.the_geom)
 GROUP BY m.NAMF_EN
 ORDER BY roads_km DESC
 LIMIT 5;
```

Output

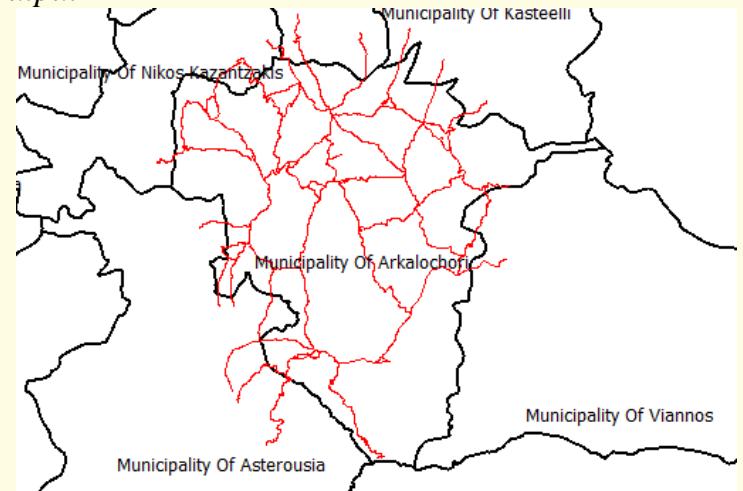
Municipality	Roads_km
Municipality Of Irakleio	595.440
Municipality Of Gazi	200.706
Municipality Of Arkalochori	147.853
Municipality Of Asterousia	146.120
Municipality Of Viannos	137.159
...	

Query 3: Find the road segments intersected by the municipality of Arkalochori

SQL Statement

```
CREATE TABLE "ark_roads"
(gid serial PRIMARY KEY,"id" int4);
SELECT AddGeometryColumn('','ark_roads',
 'the_geom','2100','MULTILINESTRING',2);
INSERT INTO ark_roads(id, the_geom)
SELECT r.gid, r.the_geom
FROM odiko_irakliou AS r,
     dhmoi_irakliou AS m
WHERE r.the_geom && m.the_geom
AND intersects(m.the_geom,r.the_geom)
AND m.NAMF_EN =
'Municipality Of Arkalochori';
```

Output

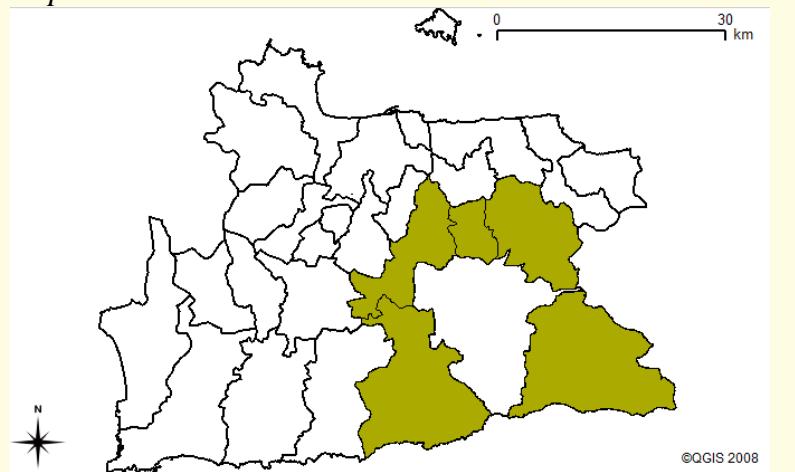


Query 4: Find the neighbors (with a common border) of the municipality of Arkalochori.

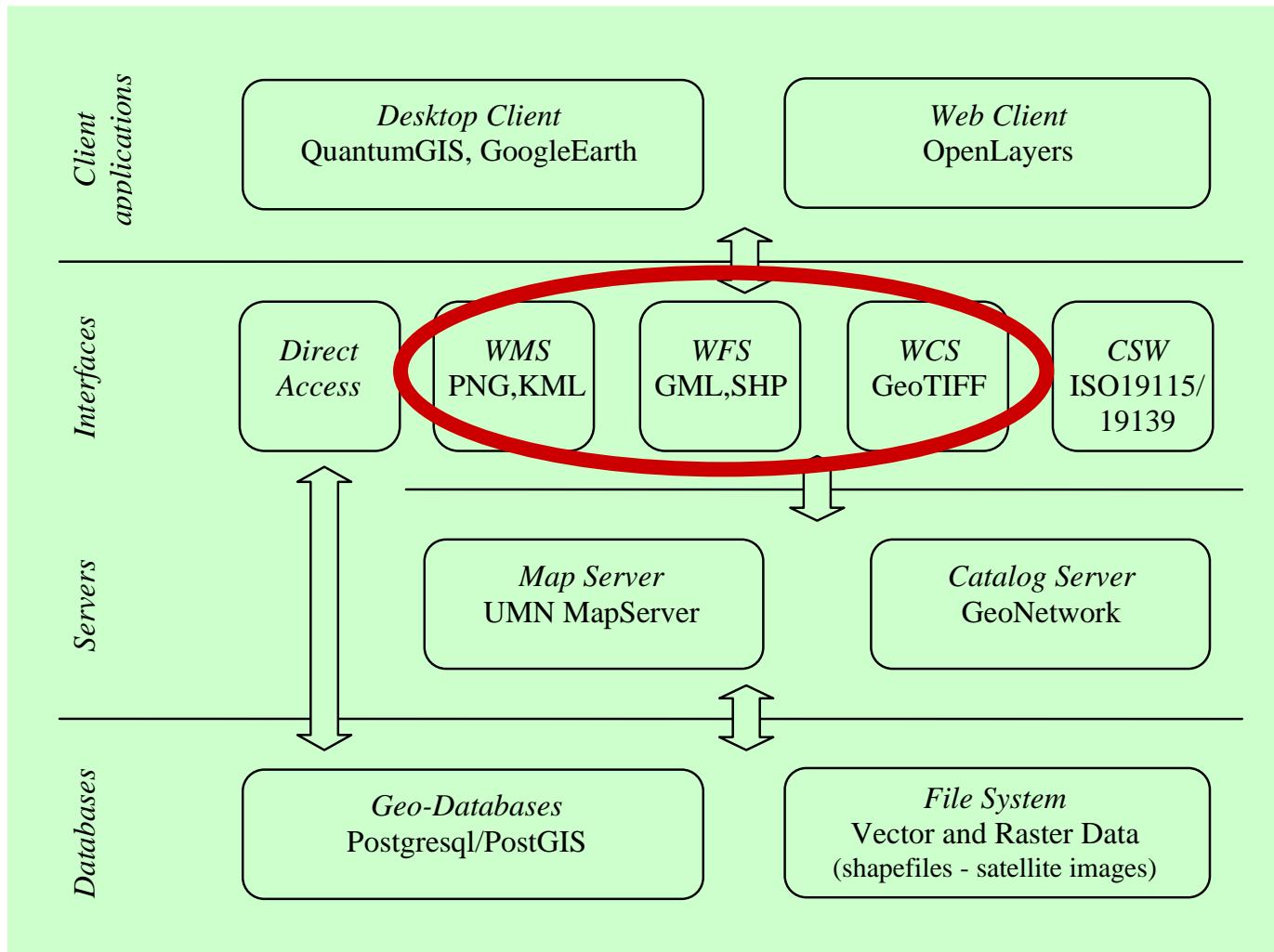
SQL Statement

```
CREATE TABLE "ark_neigh"
(gid serial PRIMARY KEY,"id" int4);
SELECT AddGeometryColumn('','ark_neigh',
 'the_geom','2100','MULTIPOLYGON',2);
INSERT INTO ark_neigh (id, the_geom)
SELECT n.gid, n.the_geom
FROM dhmoi_irakliou as m,
     dhmoi_irakliou as n
WHERE m.NAMF_EN =
'Municipality Of Arkalochori'
AND Touches(m.the_geom, n.the_geom);
```

Output



Architecture & Software Systems



Heraklion SDI

This screenshot shows the Heraklion SDI (SDI Crete 2006-08) interface as it appears in a Windows Internet Explorer browser window.

The title bar reads "Heraklion SDI (PEP Crete 2006-08) - Windows Internet Explorer" and the address bar shows "http://localhost/coastatlas/index-en.html".

The page header includes the FORTH logo, the text "Heraklion SDI (PEP Crete 2006-08)", the breadcrumb navigation "FORTH > Institutes > IACM > Research Groups > RAD", and the "Regional Analysis Division" section. It also features links for "SiteMap | Search | Help" and language options "Ελληνικά" and "Εγγραφή".

The main content area has a large banner with the text "Heraklion - Spatial Data Infrastructure". Below it, there is a link to the "Greek Version". A descriptive text states: "This page provides access to the Heraklion Prefecture Spatial Data Infrastructure (SDI) geospatial content and the servers: [WMS](#), [WFS](#) and [WCS](#). Additionally, data layers are also available in [KML](#) (for visualization in Google Earth)."

A section titled "Web Map Server (WMS)" contains a map of the Heraklion prefecture showing various administrative boundaries and a green highlighted area. To the right of the map, there is a list of data layers under the heading "Topography [GetCapabilities]".

The "Topography Layers [ALL] [GetMap]" section lists the following data layers:

- Prefecture [GetMap]
- Municipalities [GetMap]
- Municipalities Subdivisions [GetMap]
- Road Network [GetMap]
- Urban Areas [GetMap]
- Towns and Villages [GetMap]
- Lakes [GetMap]
- Heraklion City Buildings [GetMap]
- Airport - Sea Port (POI) [GetMap]

The page footer contains a vertical sidebar with the word "FORTH" and a copyright notice: "© 2006-2008 FORTH-IACM All rights reserved".

Heraklion SDI

- Web Map Service (WMS)...

The screenshot shows a Windows Internet Explorer window displaying the Heraklion SDI (PEP Crete 2006-08) Web Map Server (WMS) interface. The title bar reads "Heraklion SDI (PEP Crete 2006-08) - Windows Internet Explorer" and the address bar shows "http://localhost/coastatlas/index-en.html". The page content is titled "Web Map Server (WMS)". On the left, there is a vertical banner with the word "SDI" repeated in large yellow letters. The main area contains two maps: one showing topographic layers (Prefecture, Municipalities, Subdivisions, Road Network, Urban Areas, Towns and Villages, Lakes, Heraklion City Buildings, Airport - Sea Port (POI)) and another showing Archaeological Spots and Geology layers (Prefecture, Geology, Archaeological Spots). Each map has a "GetCapabilities" link and a "GetMap" link.

Web Map Server (WMS)

Topography [GetCapabilities]

Topography Layers [ALL] [GetMap]

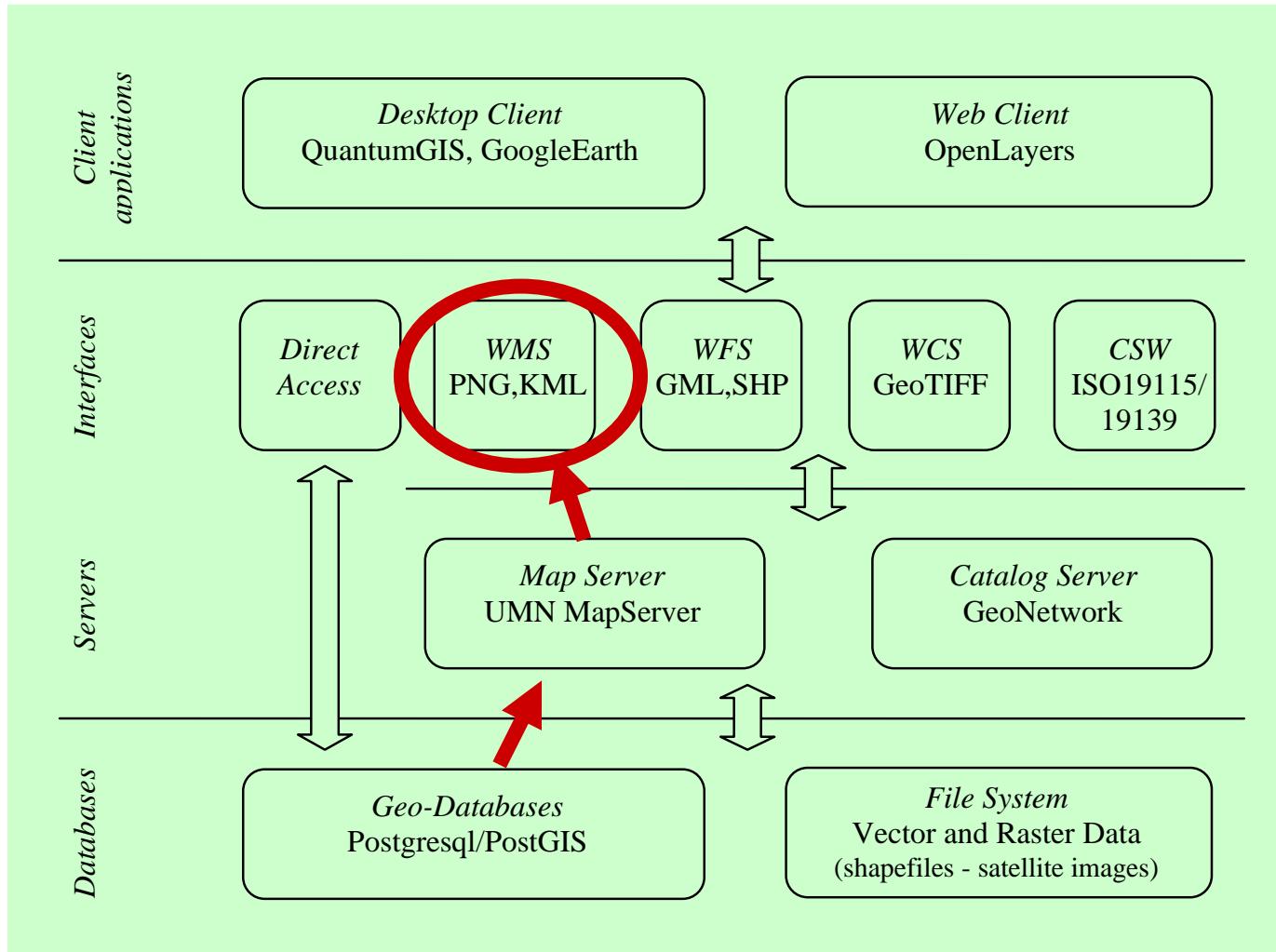
- Prefecture [GetMap]
- Municipalities [GetMap]
- Municipalities Subdivisions [GetMap]
- Road Network [GetMap]
- Urban Areas [GetMap]
- Towns and Villages [GetMap]
- Lakes [GetMap]
- Heraklion City Buildings [GetMap]
- Airport - Sea Port (POI) [GetMap]

Archaeological Spots and Geology [GetCapabilities]

Archaeological Spots and Geology Layers [ALL] [GetMap]

- Prefecture [GetMap]
- Geology [GetMap]
- Archaeological Spots [GetMap]

Architecture & Software Systems

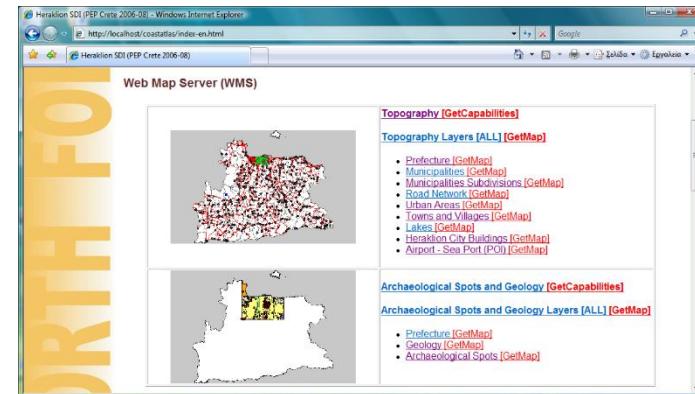


Heraklion SDI

- Web Map Service (WMS)...
 - maps served as images
 - GetCapabilities request

`http://localhost/cgi-bin/mapserv.exe?`
`map=/ms4w/apps/ITE/htdocs/WMS/infocharta.map&`
`SERVICE=WMS &`

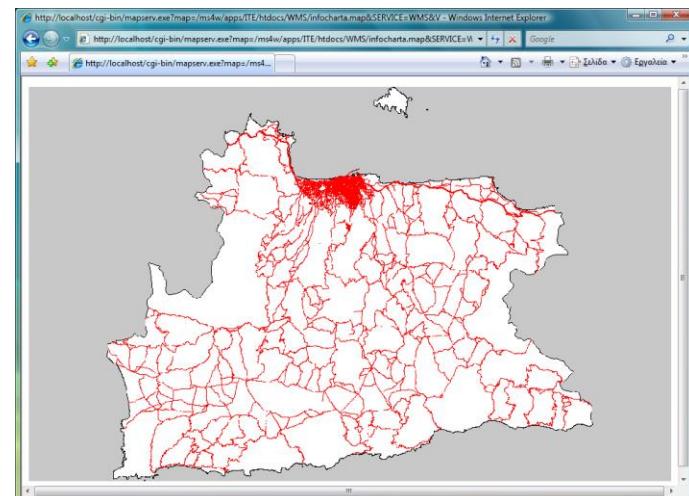
REQUEST=GetCapabilities



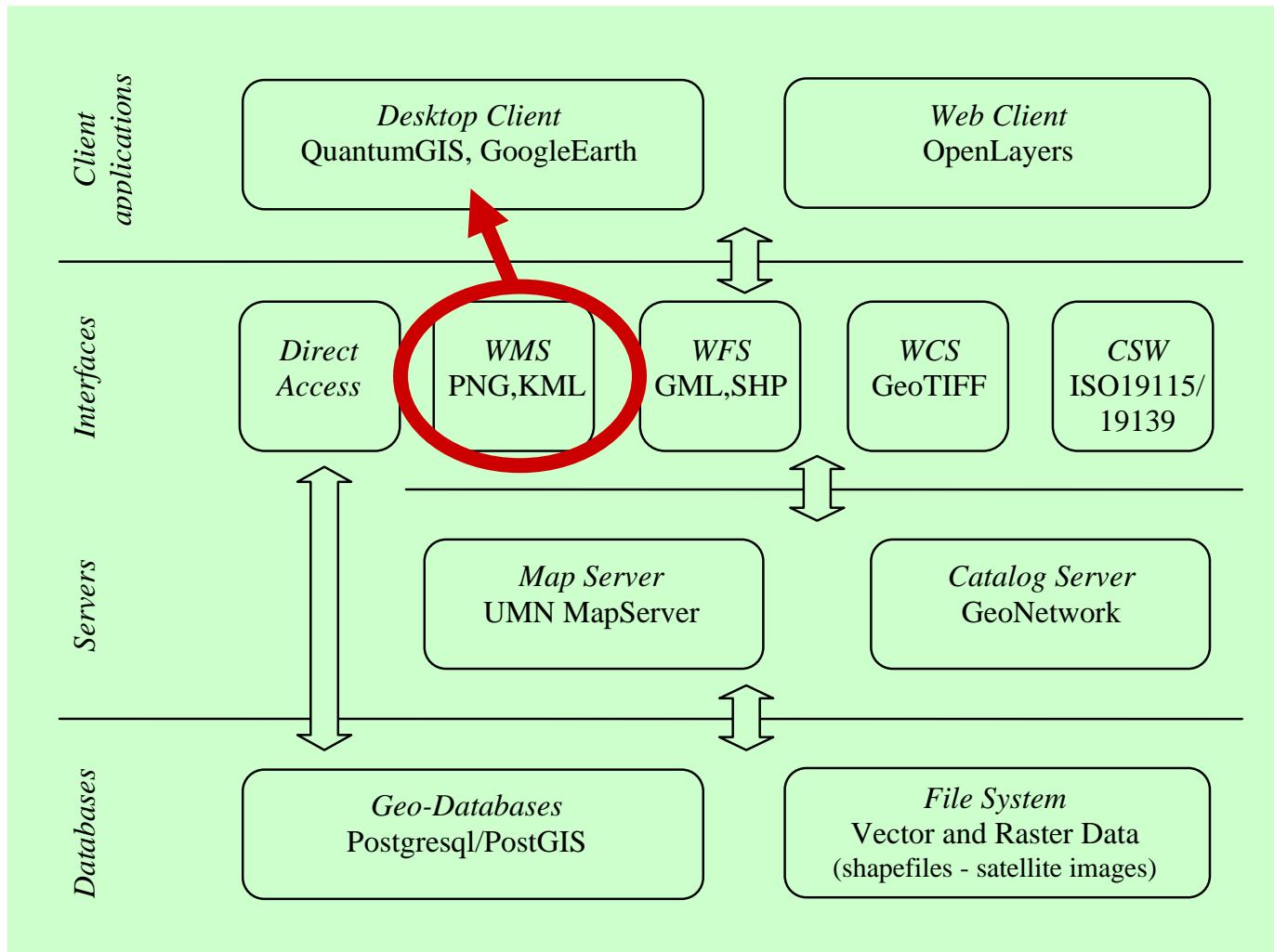
Heraklion SDI

- GetMap request (WMS)

`http://localhost/cgi-bin/mapserv.exe?
map=/ms4w/apps/ITE/htdocs/WMS/infocharta.map&
SERVICE=WMS&VERSION=1.1.1&
REQUEST=GetMap&
LAYERS=odiko_irakliou& (road network)
BBOX=553530,3864020,653540,3925230&
STYLES=&
SRS=EPSG:2100&
WIDTH=500&HEIGHT=306&
FORMAT=image/png`

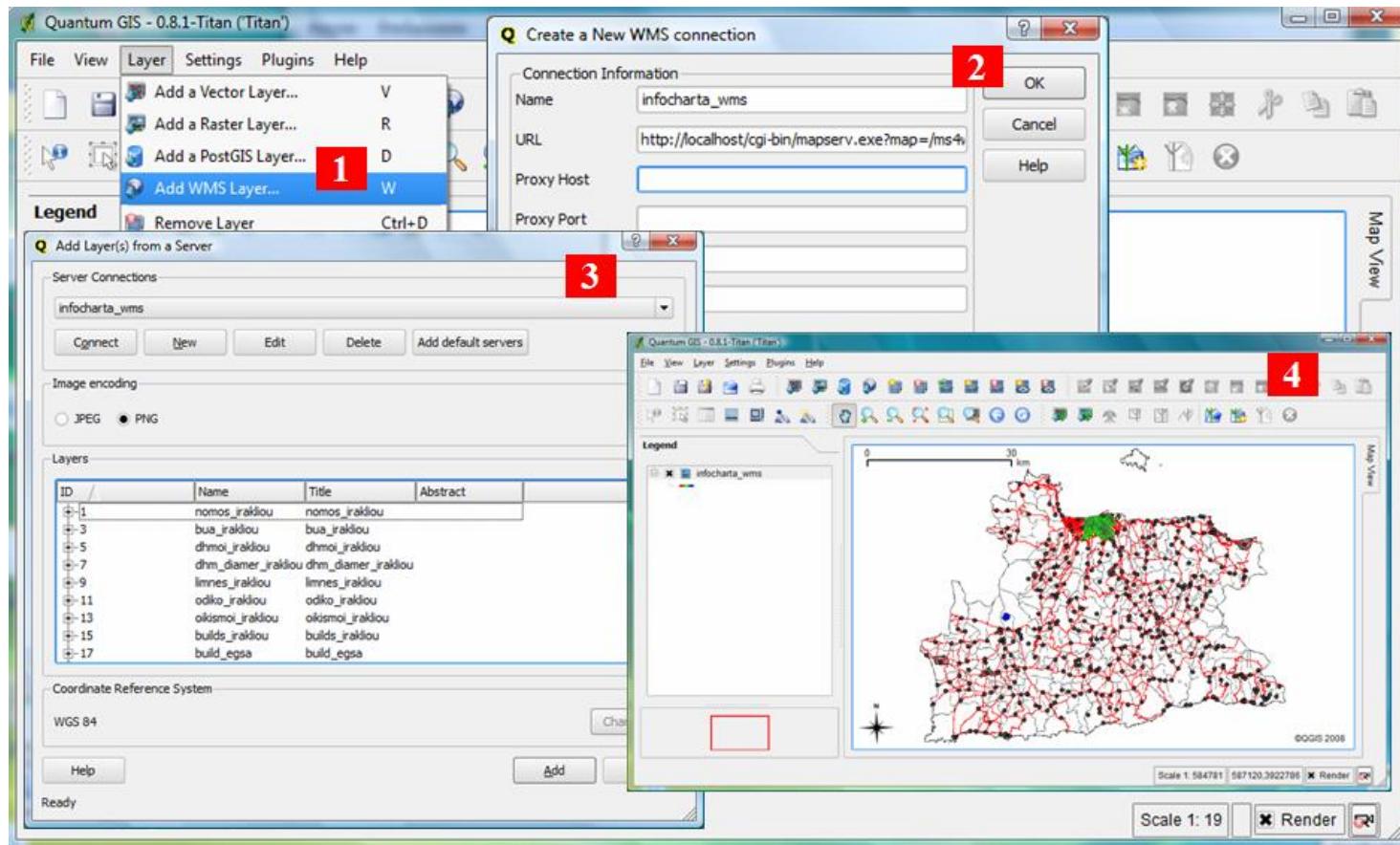


Architecture & Software Systems



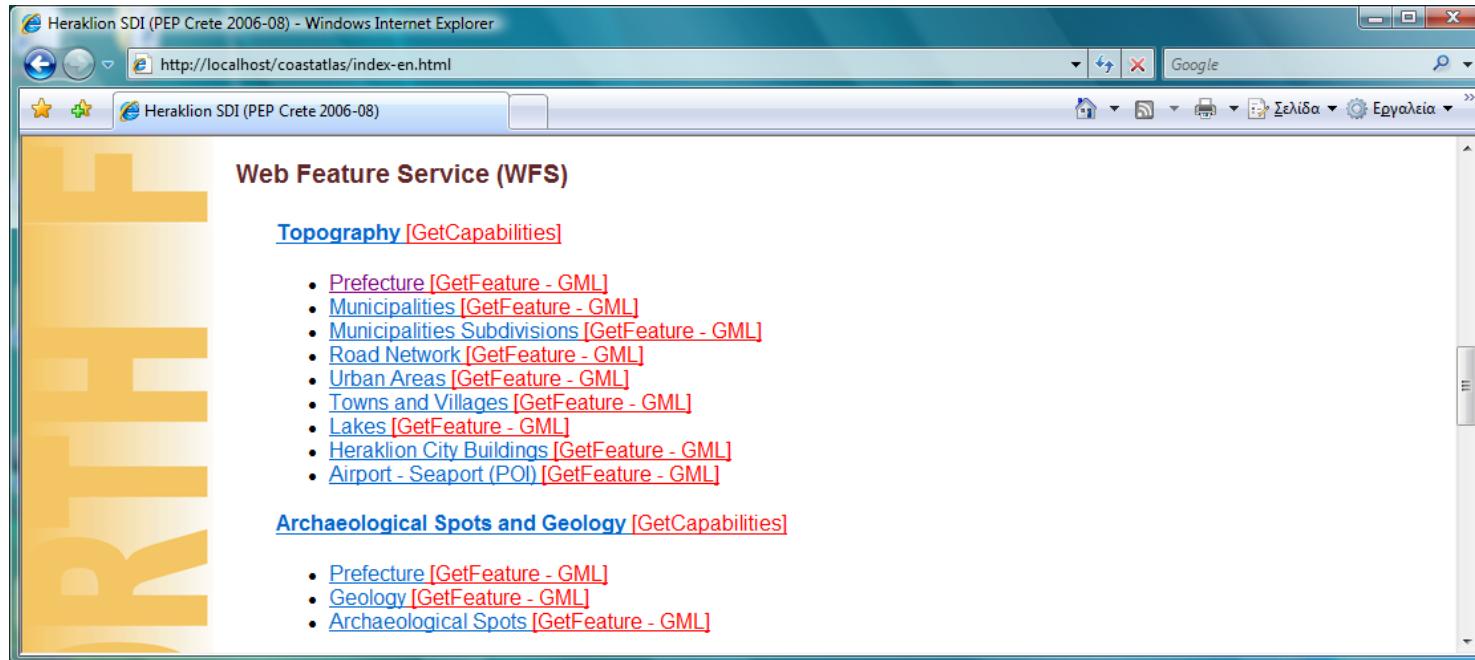
Heraklion SDI

- QGIS: Connect to the WMS

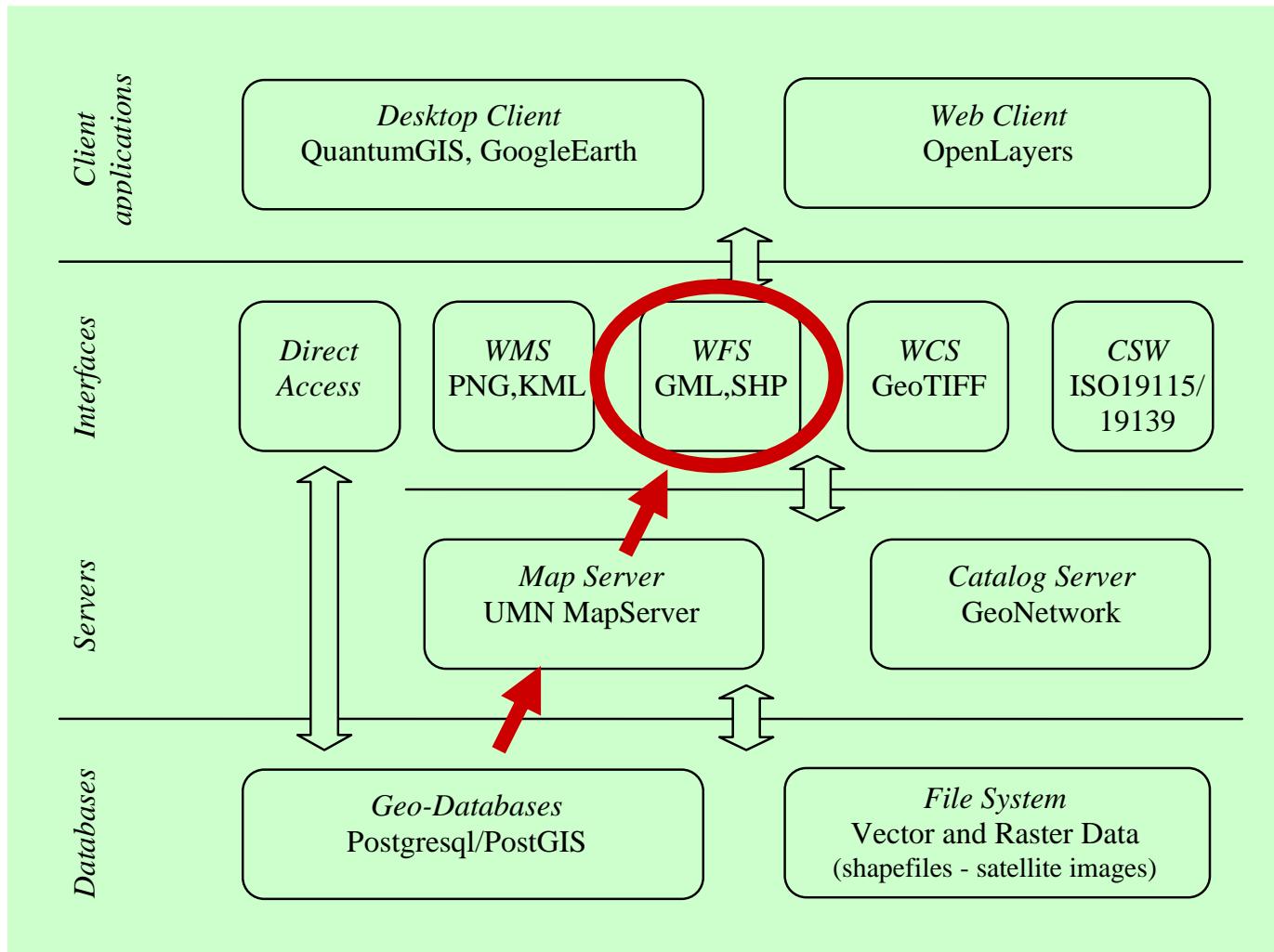


Heraklion SDI

- Web Feature Service (WFS)...



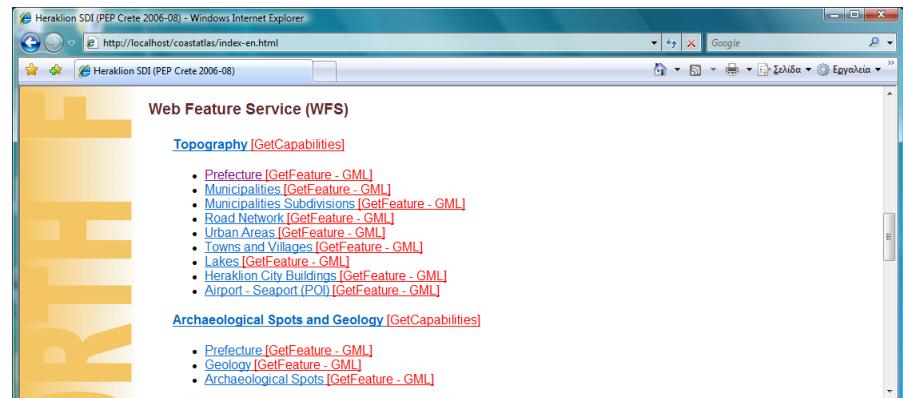
Architecture & Software Systems



Heraklion SDI

- Web Feature Service (WFS)...
 - data served in GML
 - GetCapabilities request

`http://localhost/cgi-bin/mapserv.exe?
map=/ms4w/apps/ITE/htdocs/WFS/infocharta.map&
SERVICE=WFS&
VERSION=1.0.0&
REQUEST=GetCapabilities`



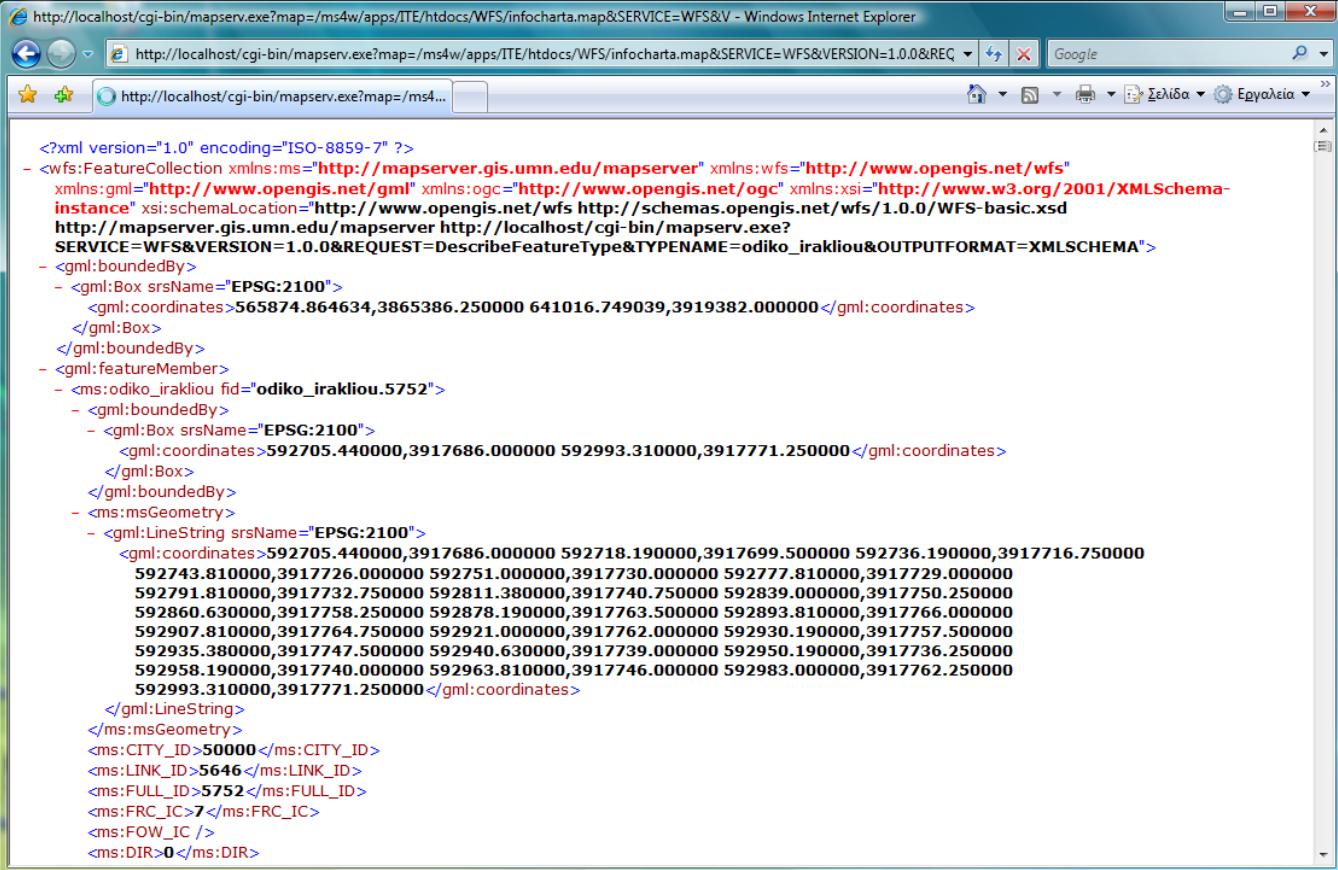
Heraklion SDI

- Web Feature Service (WFS)...
 - GetFeature request

```
http://localhost/cgi-bin/mapserv.exe?  
map=/ms4w/apps/ITE/htdocs/WFS/infocharta.map&  
SERVICE=WFS&VERSION=1.0.0&  
REQUEST=GetFeature&  
typename=odiko_irakliou (road network)
```

Heraklion SDI

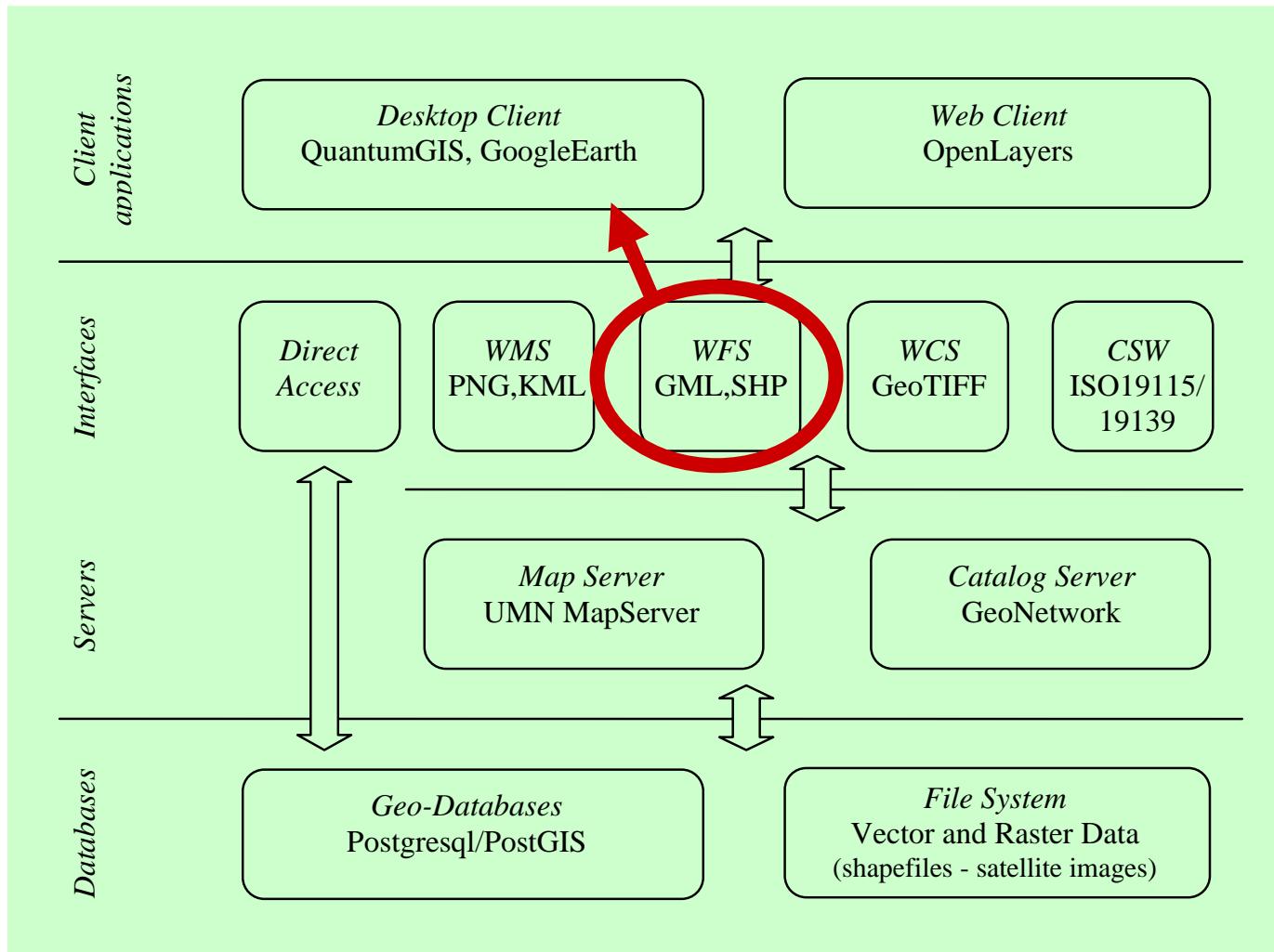
- GetFeature request (WFS)



The screenshot shows a Windows Internet Explorer window displaying an XML document. The URL in the address bar is `http://localhost/cgi-bin/mapserv.exe?map=/ms4w/apps/ITE/htdocs/WFS/infocharta.map&SERVICE=WFS&V`. The XML content is a GetFeature response from a WFS service. It includes a FeatureCollection element with two features. Each feature has a geometry element (LineString) defined by coordinates in EPSG:2100. The XML also contains elements for ms:msGeometry and ms:msGeometry, and attributes like fid and full ID.

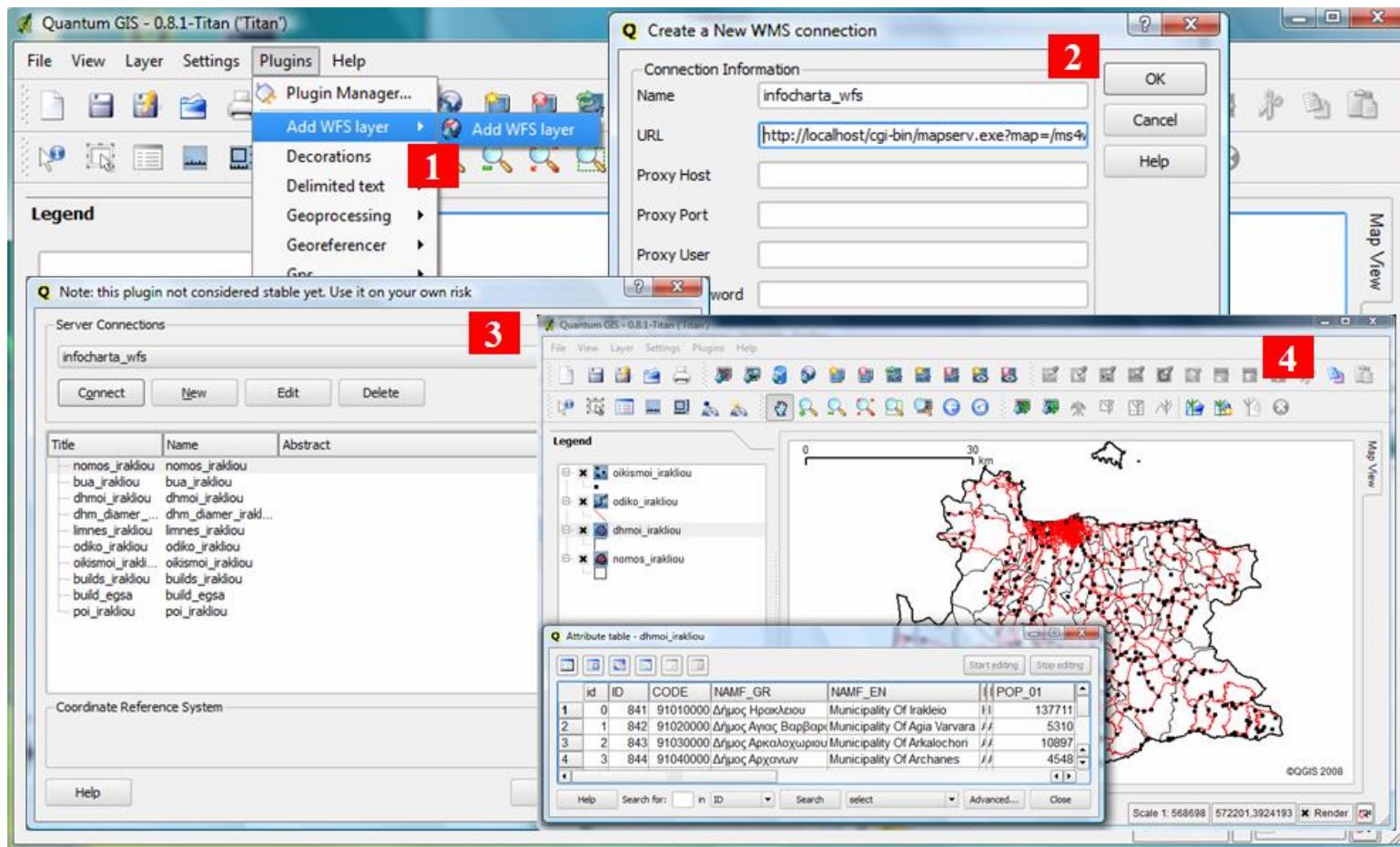
```
<?xml version="1.0" encoding="ISO-8859-7" ?>
<wfs:FeatureCollection xmlns:ms="http://mapserver.gis.umn.edu/mapserver" xmlns:wfs="http://www.opengis.net/wfs"
  xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.0.0/WFS-basic.xsd
  http://mapserver.gis.umn.edu/mapserver http://localhost/cgi-bin/mapserv.exe?
  SERVICE=WFS&VERSION=1.0.0&REQUEST=DescribeFeatureType&TYPENAME=odiko_irakliou&OUTPUTFORMAT=XMLSCHEMA">
  - <gml:boundedBy>
    - <gml:Box srsName="EPSG:2100">
      <gml:coordinates>565874.864634,3865386.250000 641016.749039,3919382.000000</gml:coordinates>
    </gml:Box>
  </gml:boundedBy>
  - <gml:featureMember>
    - <ms:odiko_irakliou fid="odiko_irakliou.5752">
      - <gml:boundedBy>
        - <gml:Box srsName="EPSG:2100">
          <gml:coordinates>592705.440000,3917686.000000 592993.310000,3917771.250000</gml:coordinates>
        </gml:Box>
      </gml:boundedBy>
      - <ms:msGeometry>
        - <gml:LineString srsName="EPSG:2100">
          <gml:coordinates>592705.440000,3917686.000000 592718.190000,3917699.500000 592736.190000,3917716.750000
            592743.810000,3917726.000000 592751.000000,3917730.000000 592777.810000,3917729.000000
            592791.810000,3917732.750000 592811.380000,3917740.750000 592839.000000,3917750.250000
            592860.630000,3917758.250000 592878.190000,3917763.500000 592893.810000,3917766.000000
            592907.810000,3917764.750000 592921.000000,3917762.000000 592930.190000,3917757.500000
            592935.380000,3917747.500000 592940.630000,3917739.000000 592950.190000,3917736.250000
            592958.190000,3917740.000000 592963.810000,3917746.000000 592983.000000,3917762.250000
            592993.310000,3917771.250000</gml:coordinates>
        </gml:LineString>
      </ms:msGeometry>
      <ms:CITY_ID>50000</ms:CITY_ID>
      <ms:LINK_ID>5646</ms:LINK_ID>
      <ms:FULL_ID>5752</ms:FULL_ID>
      <ms:FRC_IC>7</ms:FRC_IC>
      <ms:FOW_IC />
      <ms:DIR>0</ms:DIR>
    </ms:odiko_irakliou>
  </gml:featureMember>
</wfs:FeatureCollection>
```

Architecture & Software Systems



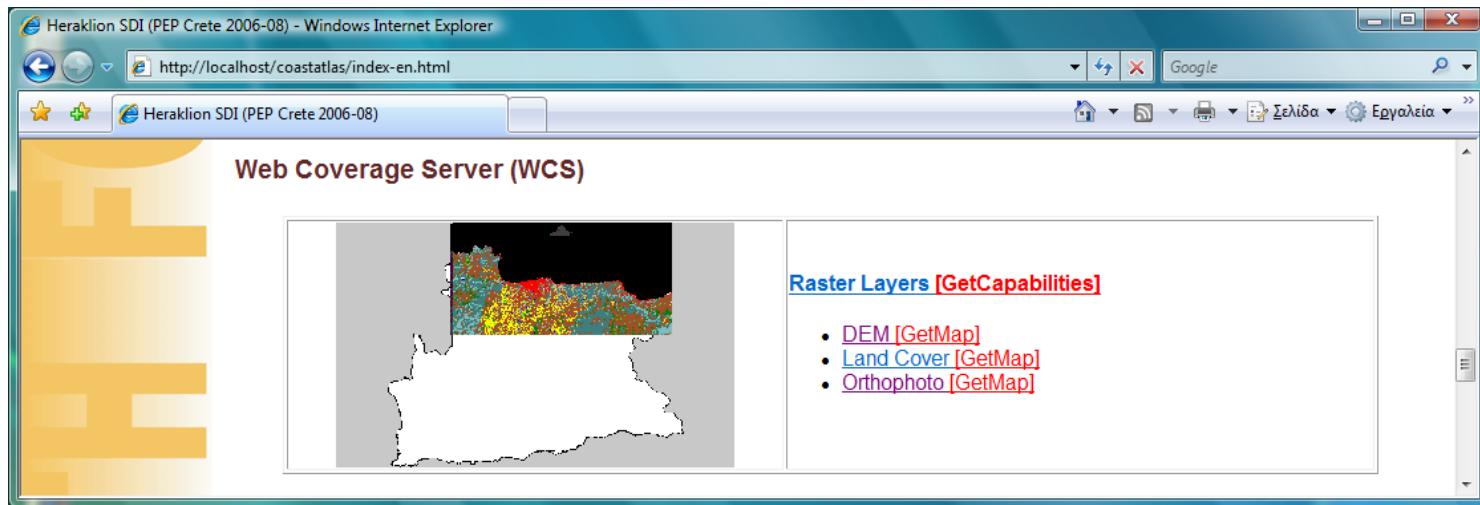
Heraklion SDI

- QGIS: Connect to the WFS

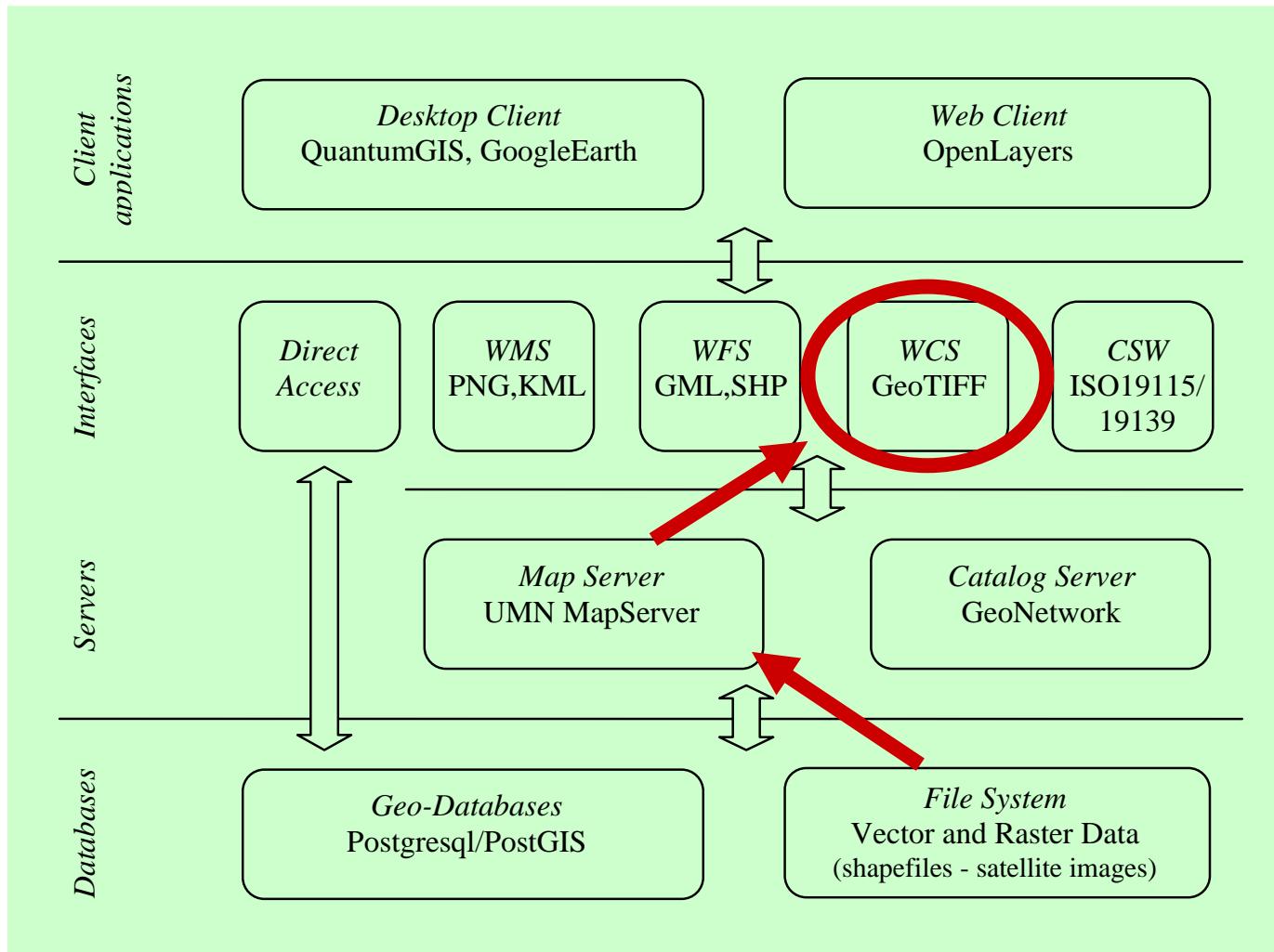


Heraklion SDI

- Web Coverage Service (WCS)...

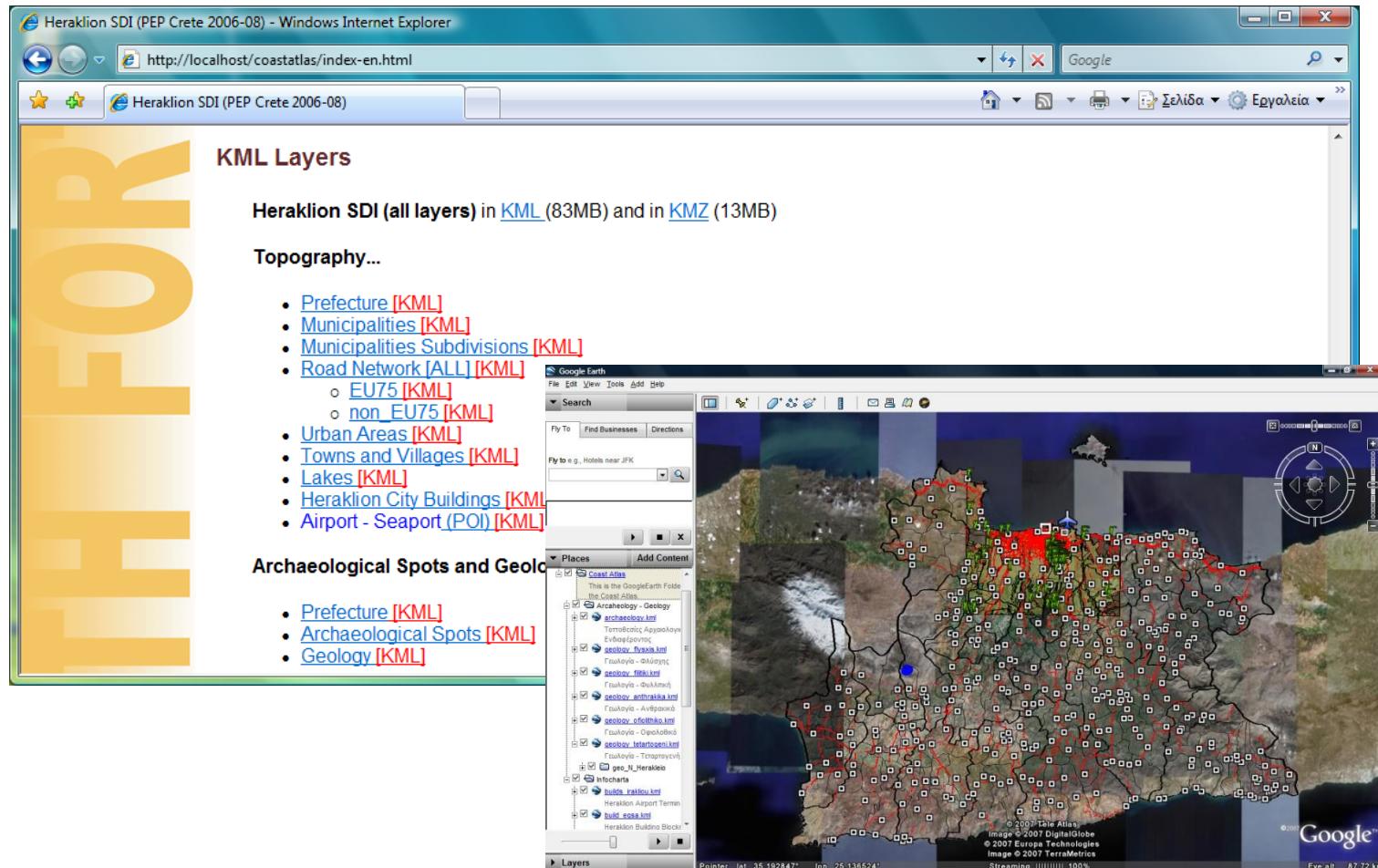


Architecture & Software Systems



Heraklion SDI

- KML Server...



Heraklion SDI

- (Thin) Web Client Application ...

The screenshot shows a web browser window for the Heraklion SDI application. The left side displays a map of the Heraklion Prefecture area in Crete, with a red boundary and numerous black dots representing data points. On the right, a sidebar lists various layers for selection:

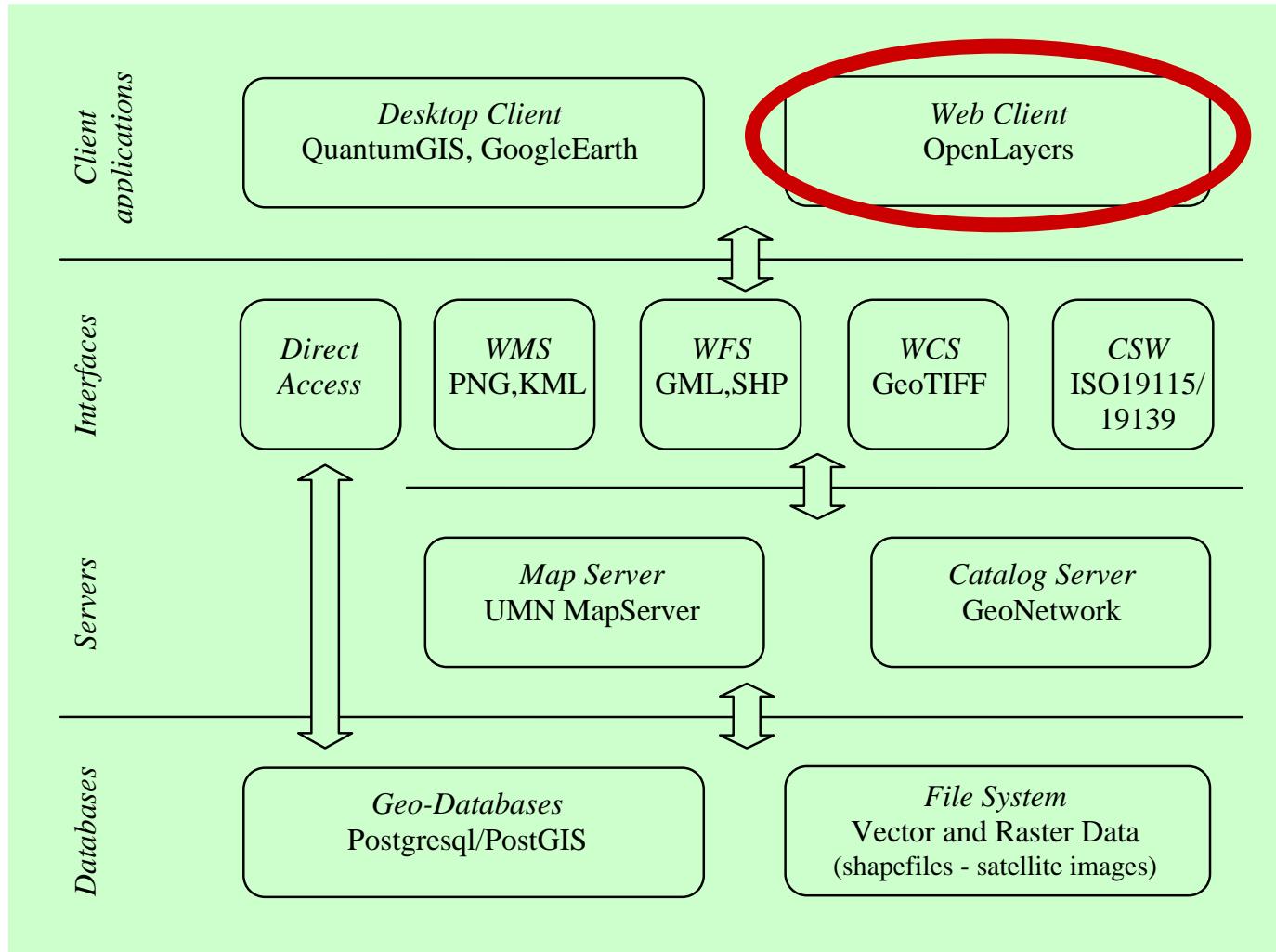
- Base Map** (radio buttons):
 - Heraklion Prefecture
 - ICEDS
 - Google Satellite
 - Google Map
 - Land Cover
 - Orthophoto
 - DEM
- SDI Layers** (multiple selection buttons):
 - Heraklion Prefecture
 - Geology
 - Urban Areas
 - Municipalities
 - Municipal. Subdiv.
 - Lakes
 - Road Network
 - Towns & Villages
 - Airport Building
 - Her. City Buildings
 - Airport/Seaport POI
 - Archaeological Spots

Annotations with arrows point to specific features:

- An arrow points to the "Base Maps" section with the label "Base Maps (radio buttons)".
- An arrow points to the "SDI Layers" section with the label "SDI Layers (multiple selection buttons)".
- An arrow points to the bottom right of the sidebar with the label "Report of attribute values for clicked features".

At the bottom of the sidebar, there is a note: "Welcome to the Heraklion SDI (PEP Crete 2006-08) - Browse in the Geospatial Layers... Select the base map and the thematic layers on the right frame... Double click on the map to zoom in... With a single click on the entities retrieve their non-spatial attributes..."

Architecture & Software Systems

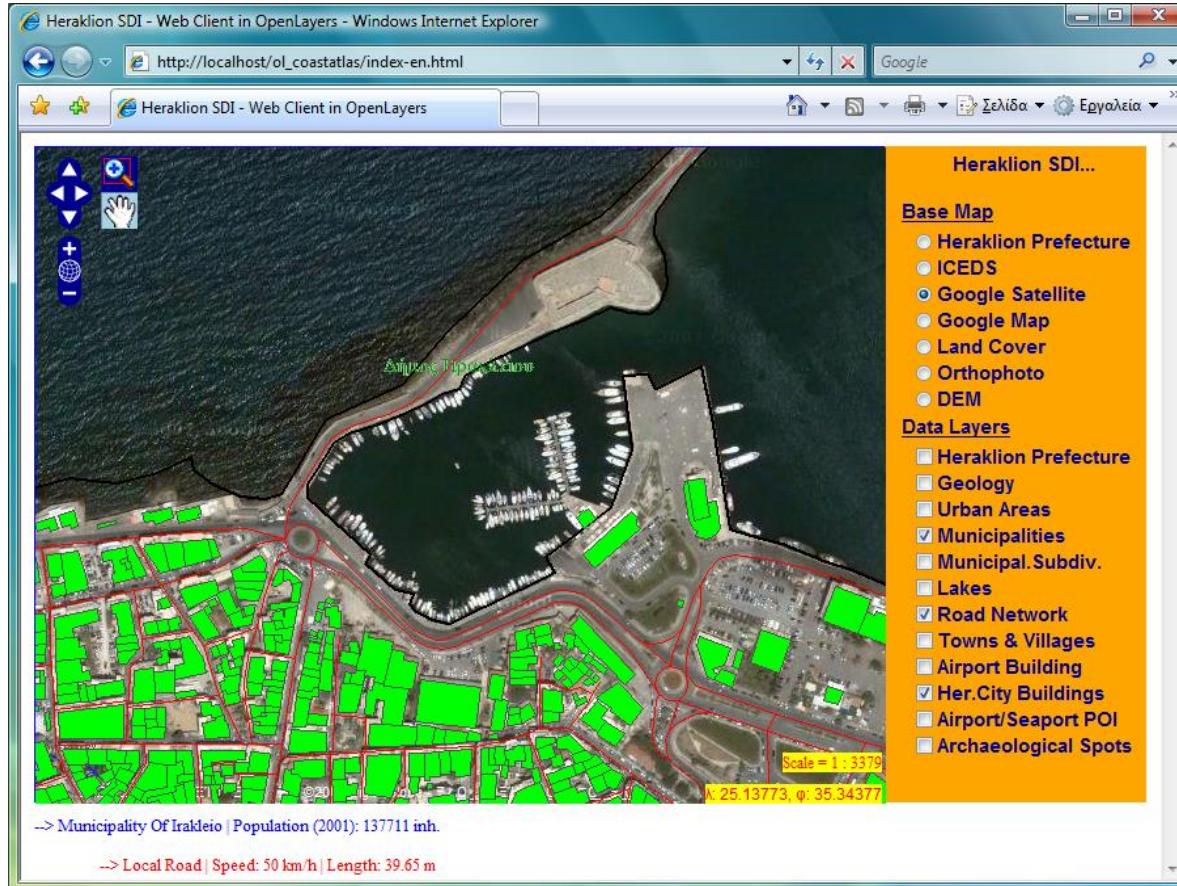


Heraklion SDI

- Web Map Service (WMS)...
 - GetFeatureInfo request

```
dhmoi_irakliou.getFullRequestString({  
    REQUEST: "GetFeatureInfo",  
    EXCEPTIONS: "application/vnd.ogc.se_xml",  
    BBOX: dhmoi_irakliou.map.getExtent().toBBOX(),  
    X: e.xy.x, Y: e.xy.y,  
    INFO_FORMAT: "text/html",  
    FONT: "c:/ms4w/fontlist/times.ttf",  
    ENCODING: "ISO-8859-7",  
    QUERY_LAYERS: dhmoi_irakliou.params.LAYERS,  
    WIDTH: dhmoi_irakliou.map.size.w,  
    HEIGHT: dhmoi_irakliou.map.size.h});
```

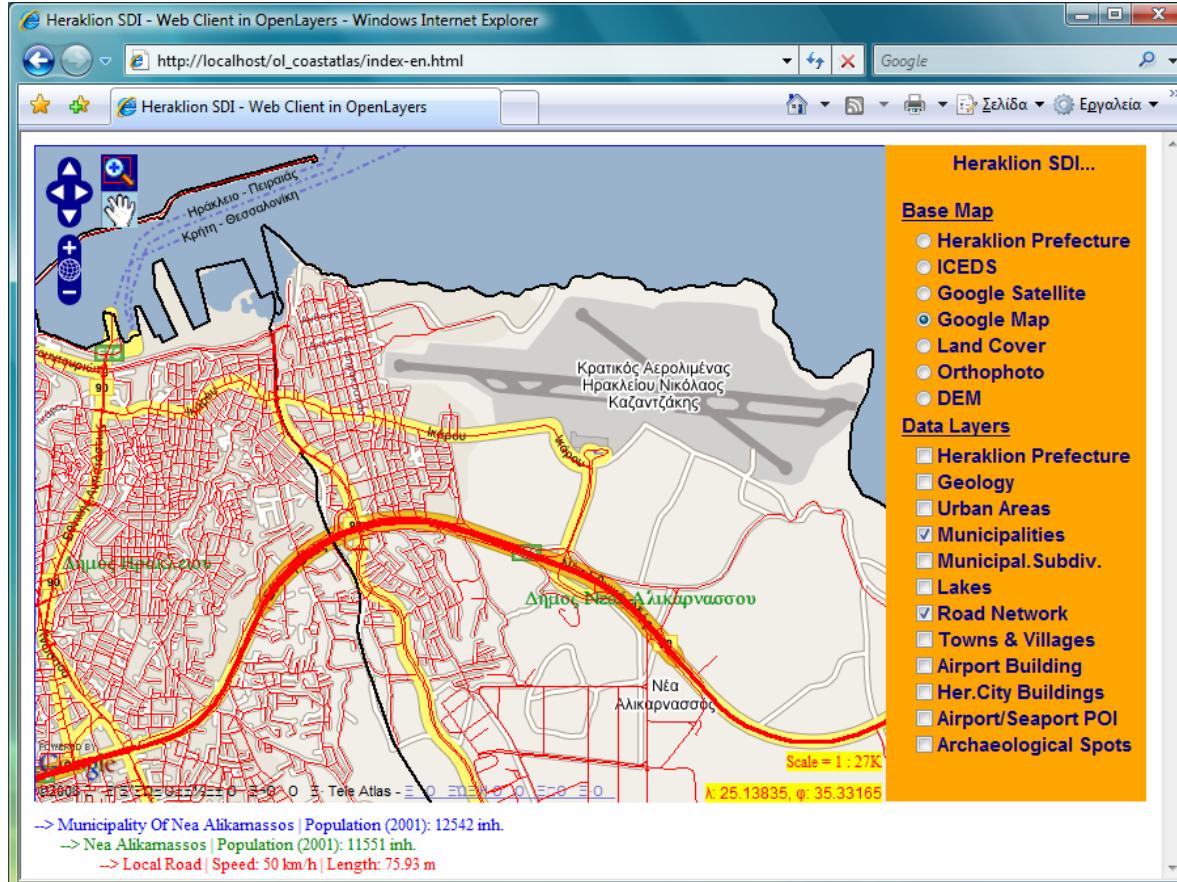
Heraklion SDI -- Mashups



Base Map: Google Satellite

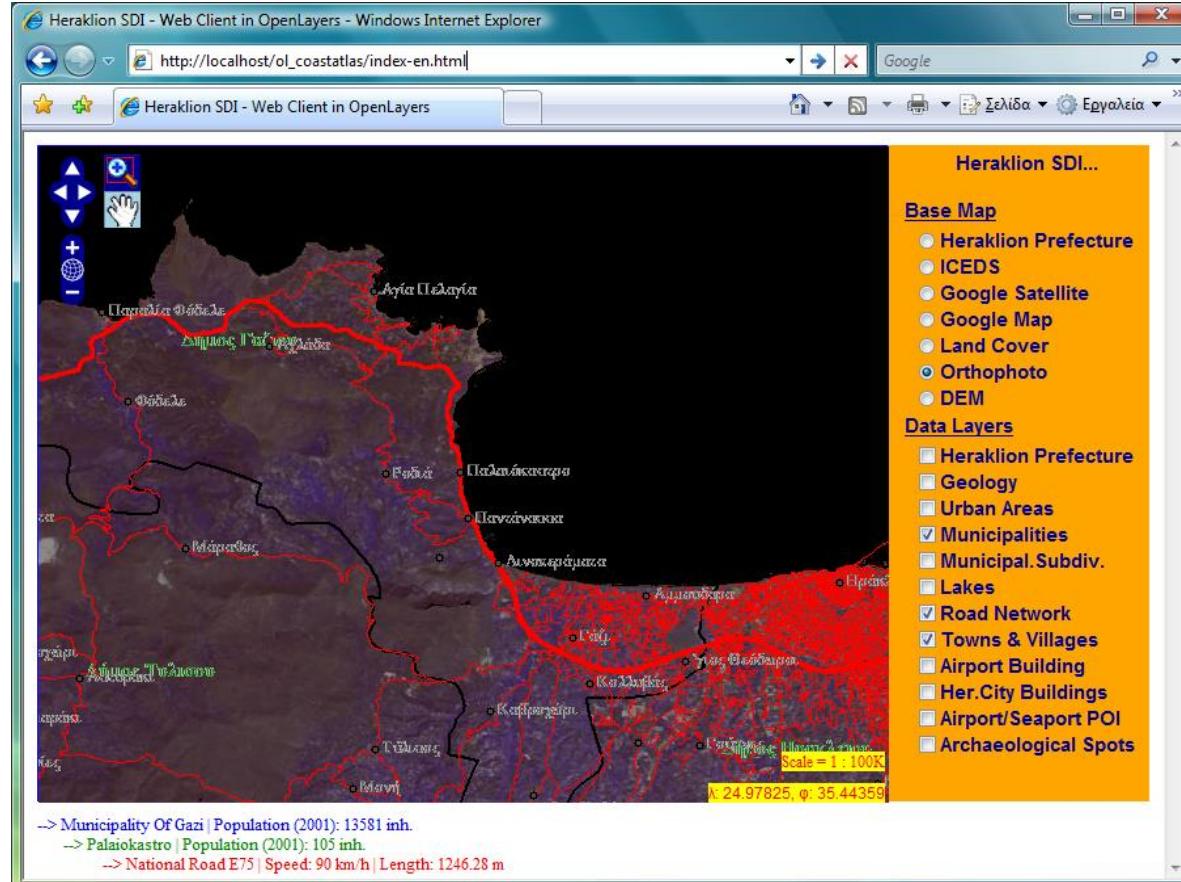
Layers: Municipalities, Road Network, Buildings

Heraklion SDI -- Mashups



Base Map: Google Map
Layers: Municipalities, Road Network

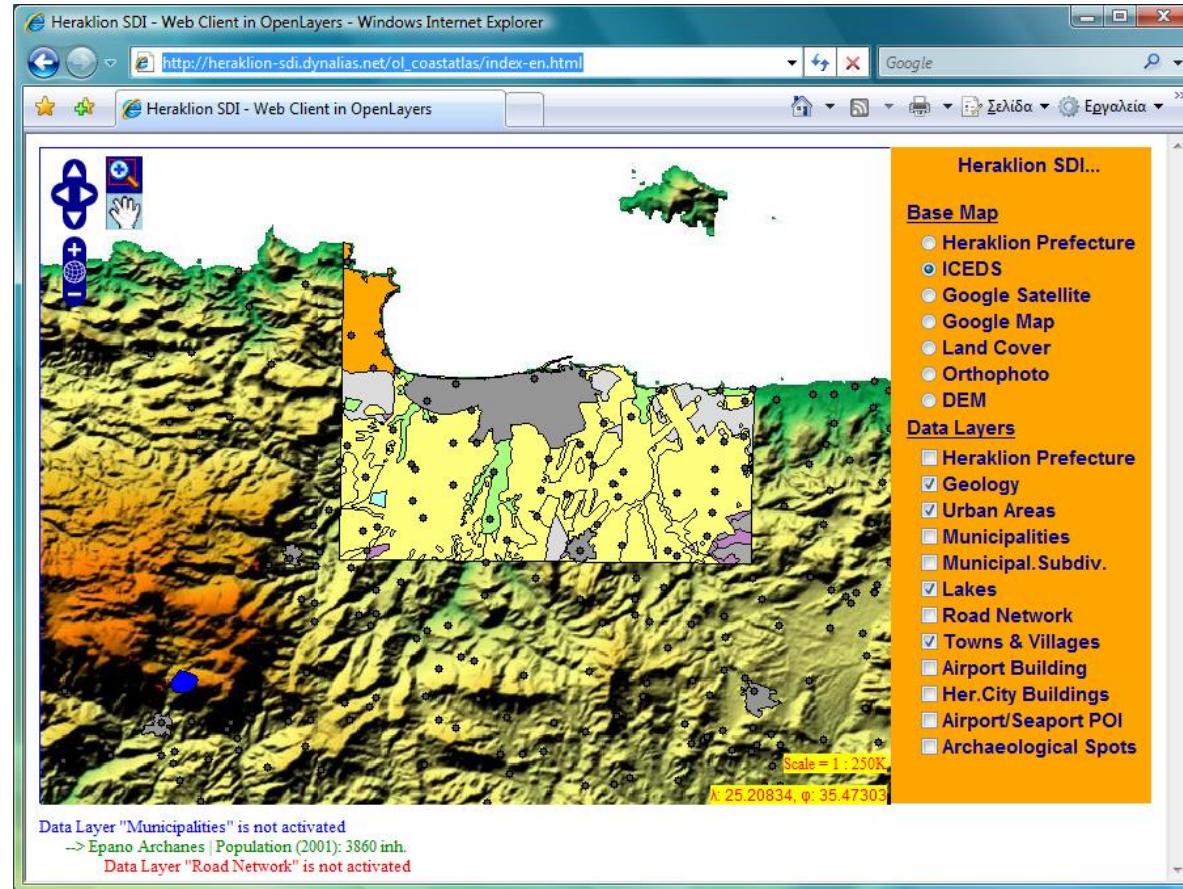
Heraklion SDI -- Mashups



Base Map: Orthophoto Map
Layers: Municipalities, Towns, Road Network

Heraklion SDI -- Mashups

Integrated CEOS European Data Server



Base Map: ICEDS (WMS)
Layers: Geology, Urban areas, Towns, Lakes

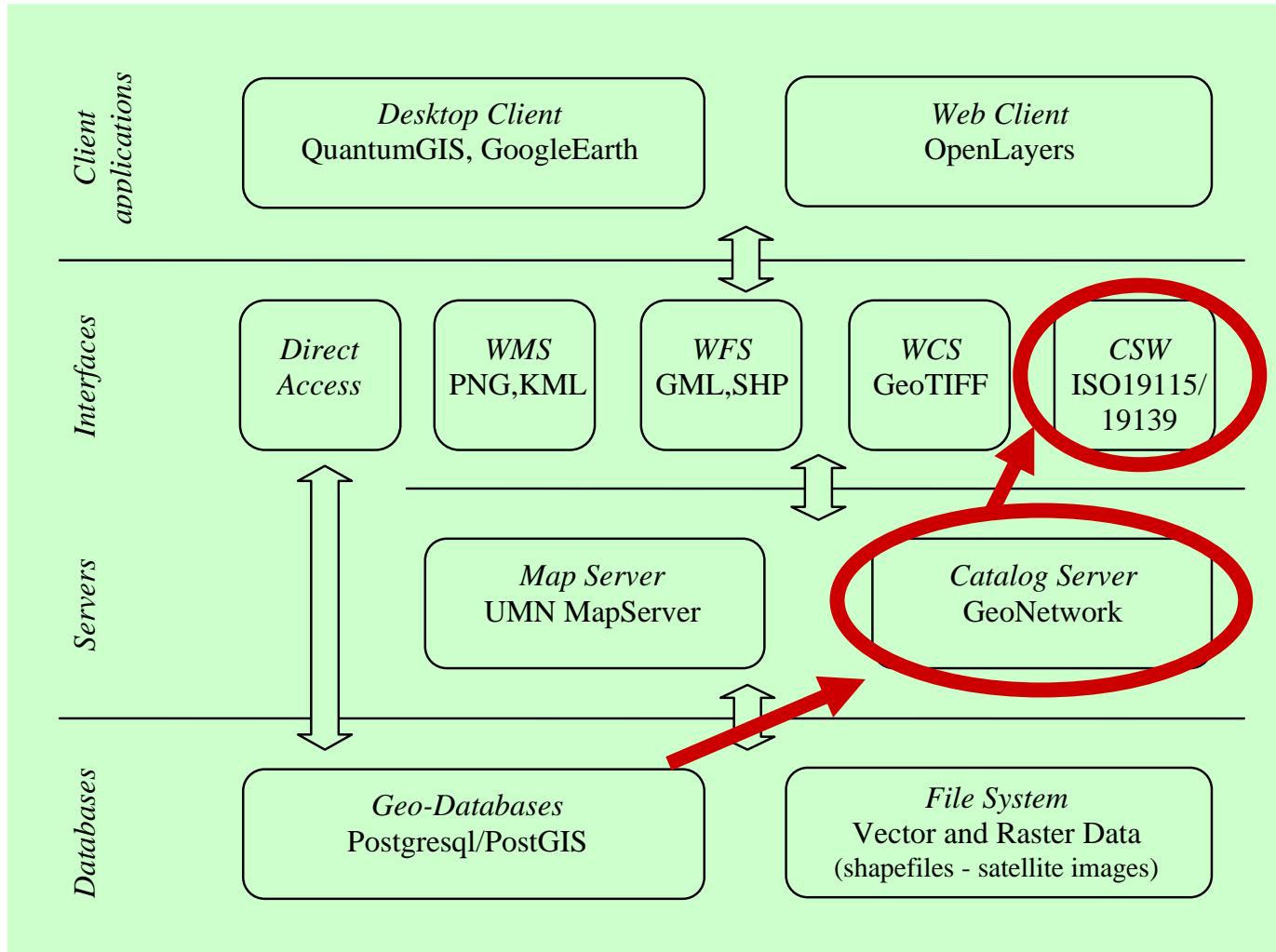
Heraklion SDI

- **Catalog Server ...**
 - Heraklion SDI accommodates...
 - a wide digital content of **various types and formats**
 - geospatial data layers (vector files)
 - satellite images (raster)
 - web mapping applications and services

Heraklion SDI

- Catalog Server ...
 - to make this content **accessible** on the web and assure its **usability**
 - appropriate **metadata items** must be generated
 - a **data catalog server** is needed
 - to make the metadata items available on the web
 - support the efficient discovery & evaluation of the SDI content

Architecture & Software Systems



Heraklion SDI

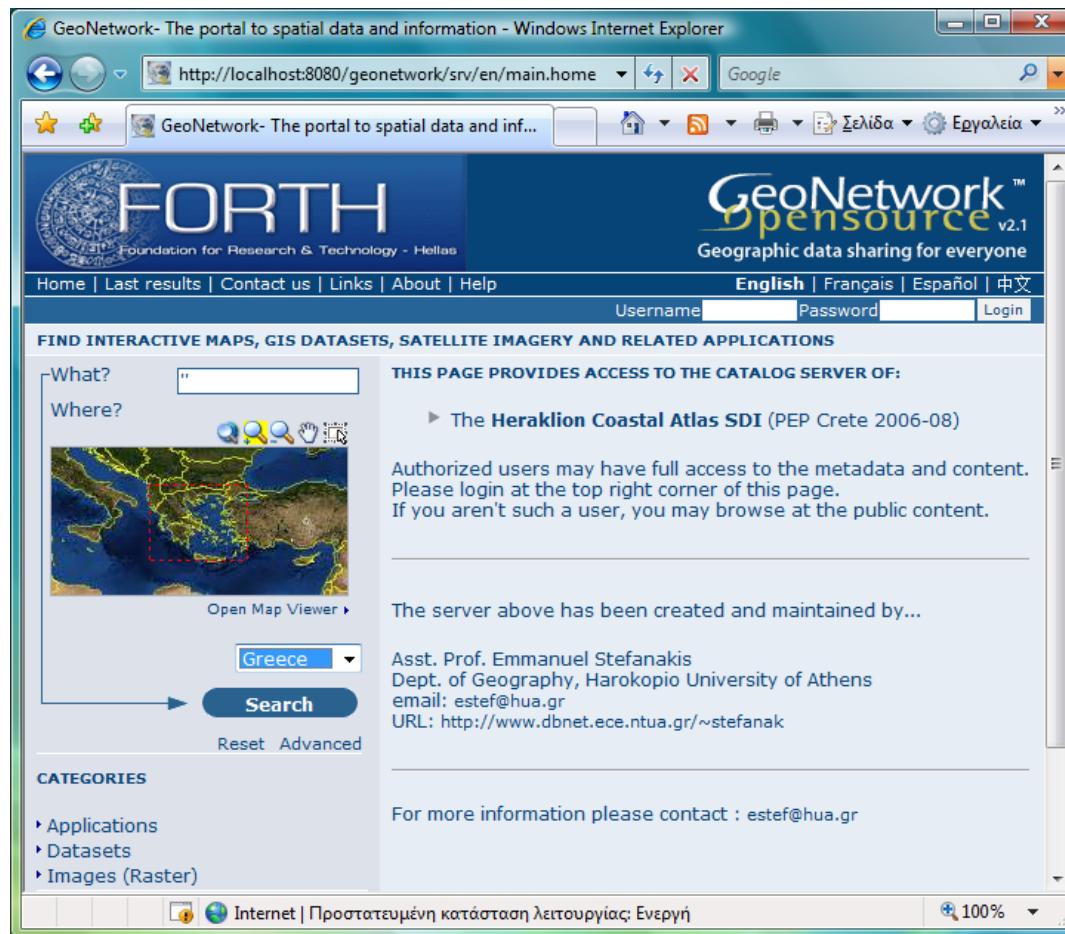
- Catalog Server ...
 - The content items of the SDI ...
 - have been assigned appropriate metadata items in **XML format**
 - according to the specification of a customized **ISO19139 template**

Heraklion SDI

- Catalog Server ...
 - ... then a catalog server has been implemented using **GeoNetwork Opensource Server** software ver. 2.1
 - The configuration adopted utilizes
 - the **PostgreSQL** in the role of the DBMS server and
 - the **Apache Tomcat v5.5** in the role of the Web Server.

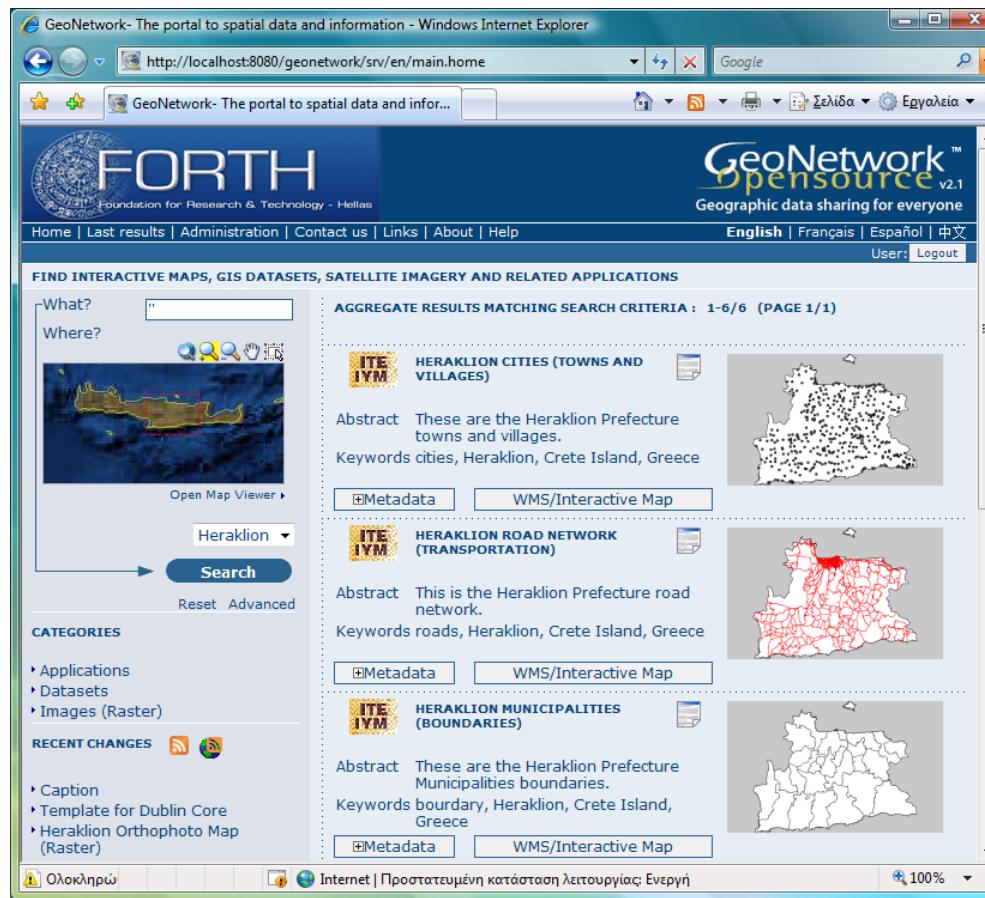
Heraklion SDI

- Catalog Server ...



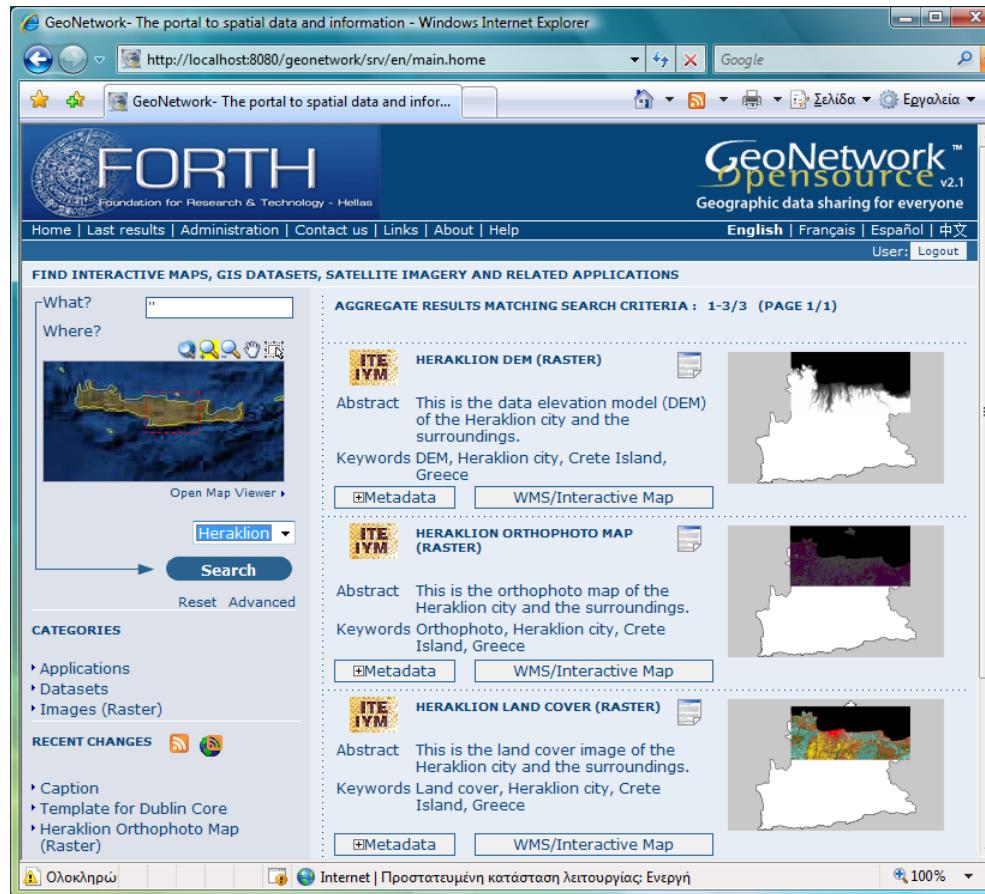
Heraklion SDI

- Catalog Server ...



Heraklion SDI

- Catalog Server ...



Heraklion SDI

- Catalog Server ...



Heraklion SDI

- Catalog Server ...

 HERAKLION ROAD NETWORK (TRANSPORTATION)

Abstract This is the Heraklion Prefecture road network.
Keywords roads, Heraklion, Crete Island, Greece

[Metadata](#) [WMS/Interactive Map](#)



Identification info

Title	Heraklion Road Network (transportation)
Date	2008-02-29T12:21:00
Date type	Publication
Edition	
Presentation form	mapDigital
Abstract	This is the Heraklion Prefecture road network.
Purpose	This layer is part of the Heraklion Coast Atlas SDI (PEP Crete 2006-08)
Status	completed

Heraklion SDI

Point of contact	
Individual name	Emmanuel Stefanakis
Organisation name	Harokopio University of Athens
Position name	Asst Professor
Delivery point	
City	
Administrative area	
Postal code	
Country	
Electronic mail address	estef@hua.gr
Role	publisher
Maintenance and update frequency	
Maintenance and update frequency	notPlanned
Descriptive keywords	roads (theme).
Descriptive keywords	Heraklion, Crete Island, Greece (place).
Access constraints	copyright
Use constraints	copyright
Other constraints	copyright
Spatial representation type	vector
Equivalent scale	
Denominator	5000
Language	English
Character set	utf8
Topic category code	transportation

Heraklion SDI

Extent	
Extent	
Geographic bounding box	
	North bound latitude 35.5
	West bound longitude 24.7
	East bound longitude 25.6
	South bound latitude 34.9
Supplemental Information	
Distribution info	
OnLine resource	KML layer of the Heraklion Coastal SDI
OnLine resource	WFS layer of the Heraklion Coastal SDI
WMS/Interactive Map	WMS layer of the Heraklion Coastal SDI
Reference system info	
Code	HGRS'87 (EGSA'87)
Data quality info	
Hierarchy level	dataset
Statement	TBA

Heraklion SDI

::Metadata	
File identifier	3c20bd77-8eec-481e-8ba8-165143822785
Language	English
Character set	utf8
Date stamp	2008-03-08T21:27:33
Metadata standard name	ISO 19115:2003/19139
Metadata standard version	1.0
::Metadata author	
Individual name	Emmanuel Stefanakis
Organisation name	Harokopio University of Athens
Position name	Asst. Professor
Delivery point	
City	
Administrative area	
Postal code	
Country	
Electronic mail address	estef@hua.gr
Role	pointOfContact

Heraklion SDI

GeoNetwork- The portal to spatial data and information - Windows Internet Explorer
http://localhost:8080/geonetwork/srv/en/user.login#

FORTH Foundation for Research & Technology - Hellas

GeoNetwork™ OpenSource v2.1
Geographic data sharing for everyone

Home | Last results | Administration | Contact us | Links | About | Help | English | Français | Español | 中文 | User: Logout

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

WHAT?

What?

Title

Abstract

Keywords "roads"

Search accuracy
Precise Imprecise

WHERE?

lat (min) 35.5
long (min) 24.7

lat (max) 34.8
long (max) 25.6

Type Region
overlaps

Heraklion
- Any -
Greece
Heraklion
World

WHEN?

Anytime
From 2005-01-01T00 To 2007-12-31T00

Restrict to Catalog Heraklion SDI
Group Coast Atlas
Category Datasets
Map type Digital Hard copy
Hits per page 10

CATEGORIES

Applications
Datasets
Images (Raster)

RECENT CHANGES

Caption
Template for Dublin Core
Heraklion Orthophoto Map (Raster)
Heraklion DEM (Raster)

AGGREGATE RESULTS MATCHING SEARCH CRITERIA : 1-1/1 (PAGE 1/1)

HERAKLION ROAD NETWORK (TRANSPORTATION)

Abstract This is the Heraklion Prefecture road network.
Keywords roads, Heraklion, Crete Island, Greece

1

Ολοκληρώθηκε, αλλά υπάρχουν σφάλματα στη σελίδα.

Internet | Προτετυμένη κατάσταση λειτουργίας: Ενεργή

100%

Catalog Server

- Scope...
 - Create a **Geoportal**
- Content...
 - Various geographic data and services
 - Used/implemented by students

Catalog Server

- GeoNetwork Opensource
 - Installed in a course server

Publish your Metadata

The screenshot shows the Geonetwork OpenSource interface. At the top, there is a header bar with the title "Historical Maps Catalogue" and a URL "uranus.gge.unb.ca:8080/geonetwork/srv/eng/main.home". Below the header, a message says "For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)". On the right side of the header, there is a "Geonetwork™ Opensource" logo with the tagline "Geographic data sharing for everyone". A red circle highlights the login area, which includes dropdown menus for "Language" (set to "English") and "User", and fields for "Username" (containing "edugi") and "Password" (with a masked value). Below the header, there are tabs for "Simple Search" and "Advanced Search". The main search area has fields for "WHAT?" and "WHERE?", with a "Search" button. To the right of the search area is a "Map viewer" panel. The map viewer shows a world map with various red overlays representing data layers. The map includes a scale bar from "5000 km" to "2000 mi" and a "1 : 5000000" ratio. The bottom of the interface features a sidebar with links to "Applications", "Audio/Video", "Case studies, best practices", "Conference proceedings", "Datasets", "Directories", "HistoricalMaps", "HistoricalMapsFeatures", "Interactive resources", "Maps & graphics", "Other information resources", "Photo", "Physical Samples", "Registers", and "Z3950 Servers". There is also a section titled "FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS" and a summary of "GEONETWORK'S PURPOSE IS:" with a bulleted list.

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

Geonetwork™
Opensource
Geographic data sharing for everyone

Language: English

Username: edugi

WGS84 (lat/lon)

WHAT?

WHERE?

Search

Reset

Options

Applications

Audio/Video

Case studies, best practices

Conference proceedings

Datasets

Directories

HistoricalMaps

HistoricalMapsFeatures

Interactive resources

Maps & graphics

Other information resources

Photo

Physical Samples

Registers

Z3950 Servers

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

GEONETWORK'S PURPOSE IS:

- To improve access to and integrated use of spatial data and information
- To support decision making
- To promote multidisciplinary approaches to sustainable development
- To enhance understanding of the benefits of geographic information

Geonetwork opensource allows to easily share geographically referenced thematic information between different organizations. For more information please contact

Catalog Server

The screenshot shows a web browser window titled "Historical Maps Catalogue" with the URL "uranus.gge.unb.ca:8080/geonetwork/srv/eng/admin". The page is a part of the GeoNetwork OpenSource administration interface. A red arrow points to the "Administration" link in the top navigation bar. Another red arrow points to the "New metadata" link under the "Metadata & Template" section. A large red circle highlights the top right corner of the page, which includes the "GeoNetwork OpenSource" logo, the tagline "Geographic data sharing for everyone", language selection ("English"), user information ("User: edugi edugi"), and a "Logout" button.

Historical Maps Catalogue x

uranus.gge.unb.ca:8080/geonetwork/srv/eng/admin

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

Home | **Administration** | Contact us | Links | About | Help |

ADMINISTRATION

Metadata & Template

[New metadata](#) [My metadata](#)

Adds a new metadata into geonetwork copying it from a template
My metadata

Import, export & harvesting

[Metadata insert](#)

Import metadata record in XML or MEF format

Users and groups

[Change password](#) [Change user information](#)

Allow current user to change password
Allow current user to change user information

Thesauri and classification systems

[Category management](#) Add/modify/delete and show categories

[Manage directories](#) Add/modify/delete directories (eg. contact directories)

English

User: edugi edugi [Logout](#)

Catalog Server

GeoNetwork - The portal

gaia.gge.unb.ca:8080/geonetwork/srv/en/metadata.create.form

GeoNetwork™
Geographic data sharing for everyone

Home | Administration | Contact us | Links | About | Help | English User: edugi Logout

METADATA CREATION

	Template
	Template for Vector data in ISO19139 (preferred!)
	Template for Dublin Core
	Template for FGDC
	Feature catalogue template in ISO19110
	Degree22 WFS Fragments Philosopher Database Test Template
	Geoserver WFS Fragments Country Boundaries Test Template
	Template for Raster data in ISO19139
	Template for WMS service in ISO19139/119
	Template for Vector data in ISO19139 (multilingual)
	Template for Vector data in ISO19139 (preferred!)

Catalog Server

Historical Maps Catalogue

uranus.gge.unb.ca:8080/geonetwork/srv/eng/metadata.edit?id=40

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

Minor edit

Default view

By Group

- ISO Minimum
- ISO Core
- ISO All

By Package

- Metadata
- Identification
- Maintenance
- Constraints
- Spat. Info
- Ref. system
- Distribution
- Data quality
- App. schema
- Catalog
- Content Info
- Ext. Info

[XML view](#)

IDENTIFICATION INFO

Title * Heraklion Towns

Date * 2014-03-19

Date type * Publication ▾

Abstract * Towns and villages of Heraklion Prefecture in Crete Island, Greece

Purpose □

Status + □

Completed ▾

Parent/child metadata:

- Add or update parent metadata section

Related service metadata:

- Link service metadata

Related feature catalogues:

- Link feature catalogue

Catalog Server

Historical Maps Catalogue x

uranus.gge.unb.ca:8080/geonetwork/srv/eng/metadata.edit?id=40

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

Point of contact

Individual name: Emmanuel Stefanakis
Organisation name: UNB
Position name:
Role: Originator

Voice:
Facsimile:
Delivery point:
City:
Administrative area:
Postal code:
Country: estef@unb.ca

Maintenance and update frequency: Not planned

Graphic overview:

Descriptive keywords

Keyword: town
Type: Theme

Keyword: village
Type: Theme

Keyword: Crete
Type: Place

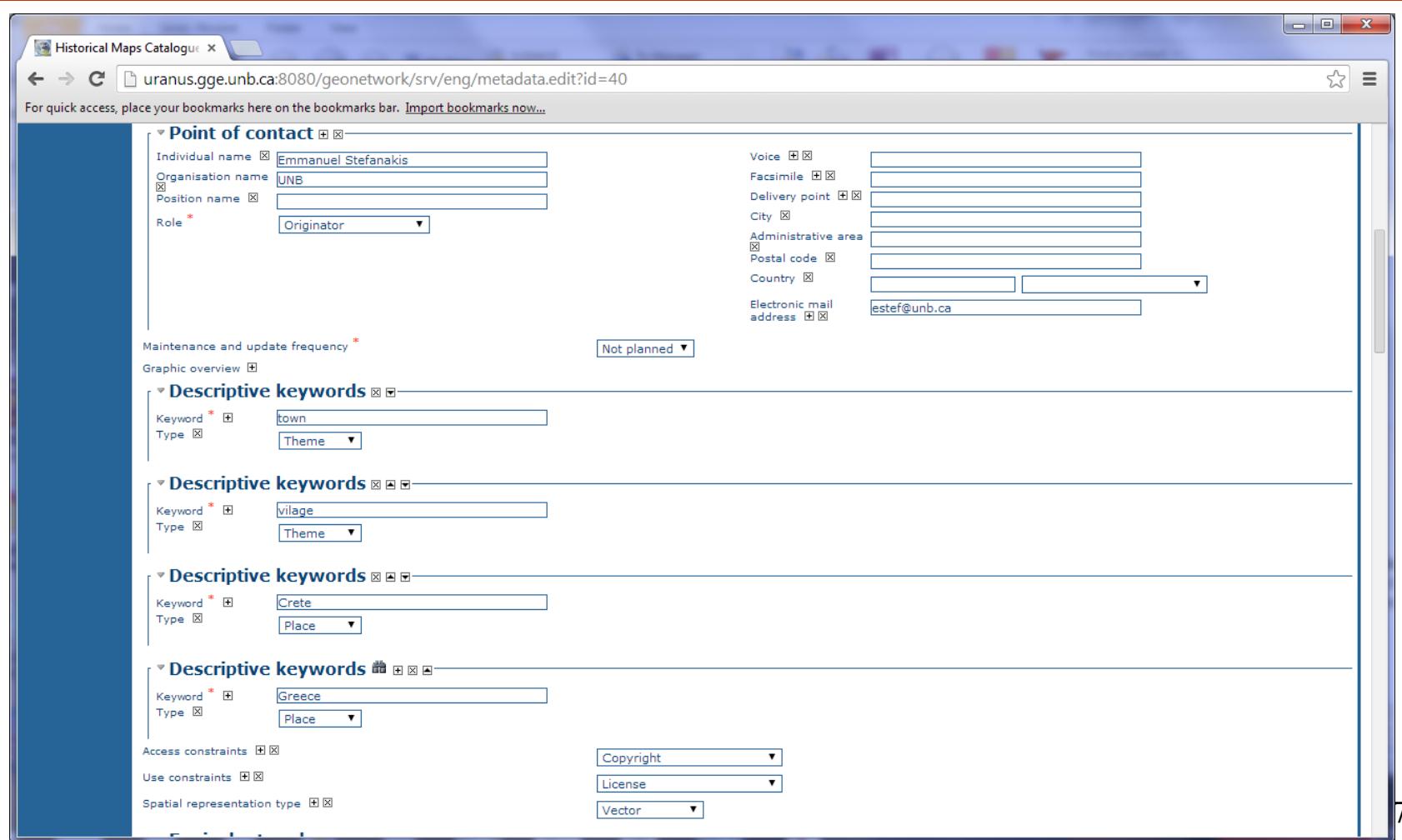
Keyword: Greece
Type: Place

Access constraints:

Use constraints:

Spatial representation type:

Copyright
License
Vector



Catalog Server

GeoNetwork - The portal

gaia.gge.unb.ca:8080/geonetwork/srv/en/metadata.edit

Equivalent scale

Denominator * 5000 (Suggestions: 1:5'000)

Language * English

Character set UTF8

Topic category code * Society

Extent

Temporal Extent

Identifier d5025e435a1052958

Begin date * 2006-01-09T18:57:00 Clear

End date * 2006-01-09T18:57:00 Clear

Extent

Geographic bounding box

WGS 84

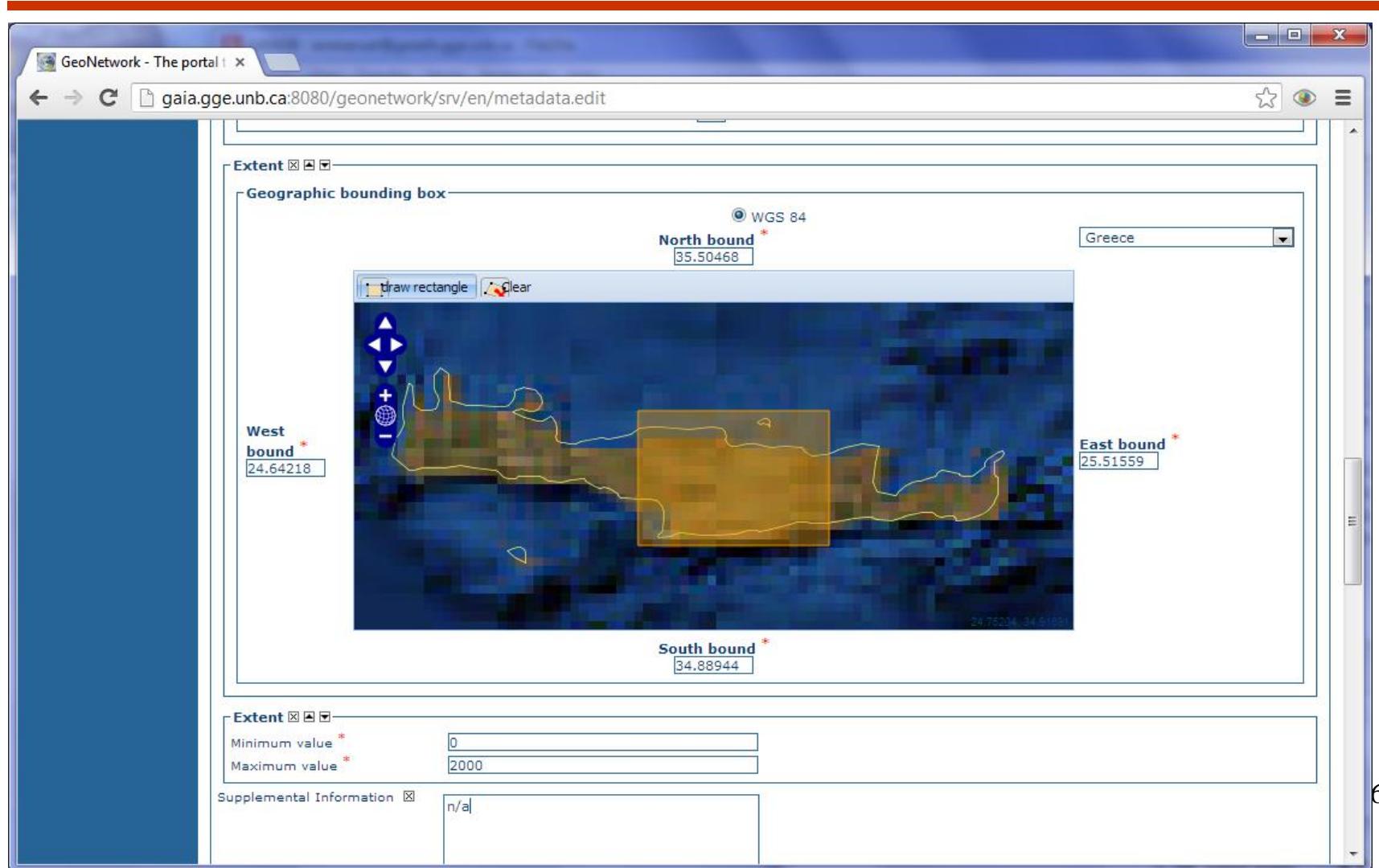
North bound * 41.74780 Greece

draw rectangle Clear

West bound * 19.64000

East bound * 28.23810

Catalog Server



Catalog Server

Historical Maps Catalogue

uranus.gge.unb.ca:8080/geonetwork/srv/eng/metadata.edit?id=40

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

DISTRIBUTION INFORMATION

Transfer options

OnLine resource

URL *
Protocol (Suggestions:)
Name of the resource
Description

OnLine resource

URL *
Protocol (Suggestions:)
Name of the resource
Description

Transfer options

OnLine resource

URL *
Protocol (Suggestions:)
Name of the resource
Description

Transfer options

OnLine resource

URL *
Protocol (Suggestions:)
Name of the resource
Description
Function

77

Catalog Server

Historical Maps Catalogue

uranus.gge.unb.ca:8080/geonetwork/srv/eng/metadata.edit?id=40

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

DISTRIBUTION INFORMATION

Transfer options

OnLine resource

URL * WWW:LINK-1.0-http--link (Suggestions: ▾)

Protocol (Suggestions: ▾)

Name of the resource

Description

<http://gaiadb.gge.unb.ca/GGE6408/LABS/LAB8/shp/towns.rar>

OnLine resource

URL * WWW:LINK-1.0-http--link (Suggestions: ▾)

Protocol (Suggestions: ▾)

Name of the resource

Description

<http://gaiadb.gge.unb.ca/GGE6408/LABS/LAB8/kml/towns.kml>

Transfer options

OnLine resource

URL * WWW:LINK-1.0-http--relat (Suggestions: ▾)

Protocol (Suggestions: ▾)

Name of the resource

Description

http://gaiadb.gge.unb.ca/cgi-bin/mapserv.exe?map=/ms4w/Apache/htdocs/GGE6408/LABS/LAB8/wms/towns_GN.map&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&LAYERS=towns&BBOX=24.68,34.89,25.53,35.52&STYLES=&SRS=EPSG:4326&WIDTH=1000&HEIGHT=600&FORMAT=image/gif&

Transfer options

OnLine resource

URL * OGC:WMS (Suggestions: ▾)

Protocol (Suggestions: ▾)

Name of the resource

Description

http://gaiadb.gge.unb.ca/cgi-bin/mapserv.exe?map=/ms4w/Apache/htdocs/GGE6408/LABS/LAB8/wms/towns_GN.map&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&LAYERS=towns&BBOX=24.68,34.89,25.53,35.52&STYLES=&SRS=EPSG:4326&WIDTH=1000&HEIGHT=600&FORMAT=image/gif&

78

Catalog Server

Historical Maps Catalogue x

uranus.gge.unb.ca:8080/geonetwork/srv/eng/metadata.edit?id=40

For quick access, place your bookmarks here on the bookmarks bar. Import bookmarks now...

REFERENCE SYSTEM INFORMATION

Unique resource identifier * 4326
Codespace EPSG (Suggestions:)

Version

DATA QUALITY INFO

Hierarchy level Dataset
Statement

METADATA

File identifier b8277c75-474e-4eb2-8413-2563b38780a2
Metadata language English
Character set UTF8: 8-bit variable size UCS Transfer Format, based on ISO/IEC 10646
Date stamp 2014-03-24T10:20:23
Metadata standard name ISO 19115:2003/19139
Metadata standard version 1.0

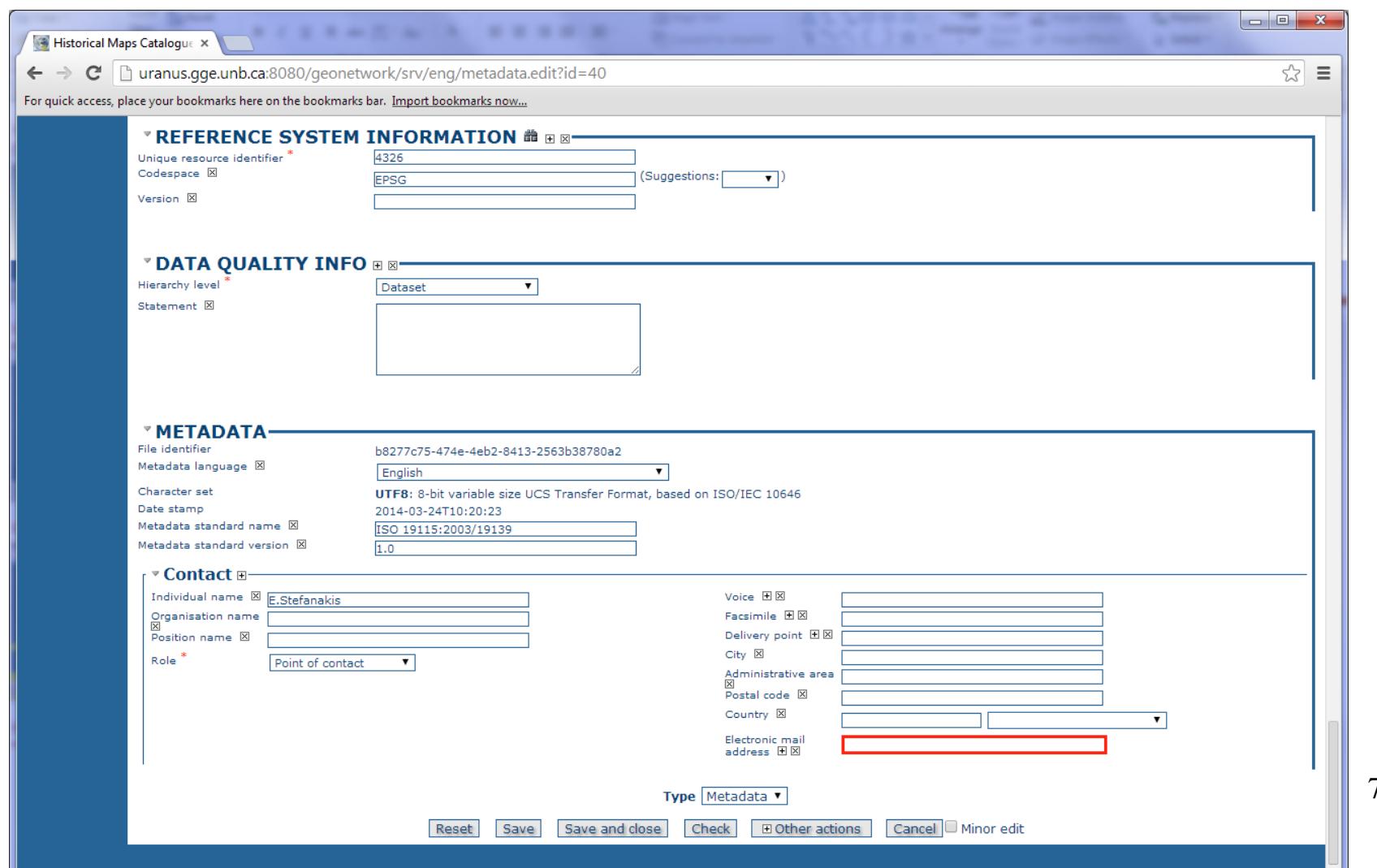
Contact

Individual name E Stefanakis
Organisation name
Position name
Role * Point of contact

Voice
Facsimile
Delivery point
City
Administrative area
Postal code
Country
Electronic mail address

Type Metadata

Minor edit



Catalog Server

The screenshot shows the GeoNetwork OpenSource interface. At the top, there is a header bar with the title "Historical Maps Catalogue", a URL field showing "uranus.gge.unb.ca:8080/geonetwork/srv/eng/main.home", and a user login "User: edugi edugi Logout". The interface includes a "Simple Search" and "Advanced Search" section with fields for "WHAT?" and "WHERE?", a map viewer with a world map, and a search results section for "HERAKLION TOWNS". A red arrow points to the "Interactive Map" button in the search results.

Historical Maps Catalogue

uranus.gge.unb.ca:8080/geonetwork/srv/eng/main.home

For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

GeoNetwork™
opensource
Geographic data sharing for everyone

English

User: edugi edugi Logout

Home | Administration | Contact us | Links | About | Help |

Simple Search Advanced Search

WHAT?

WHERE?

Search

Reset Options

Applications
Audio/Video
Case studies, best practices
Conference proceedings
Datasets
Directories
HistoricalMaps
HistoricalMapsFeatures
Interactive resources
Maps & graphics
Other information resources
Photo
Physical Samples
Registers
Z3950 Servers

Layer tree

Base Layer
Overlays
Borders

Map viewer

Print

Legend

1000 km
500 mi

1 : 7500000

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-1/1 (page 1/1) , 0 selected Select : all, none [actions on selection](#)

HERAKLION TOWNS

Logo

Abstract
Keywords
Schema
Extent

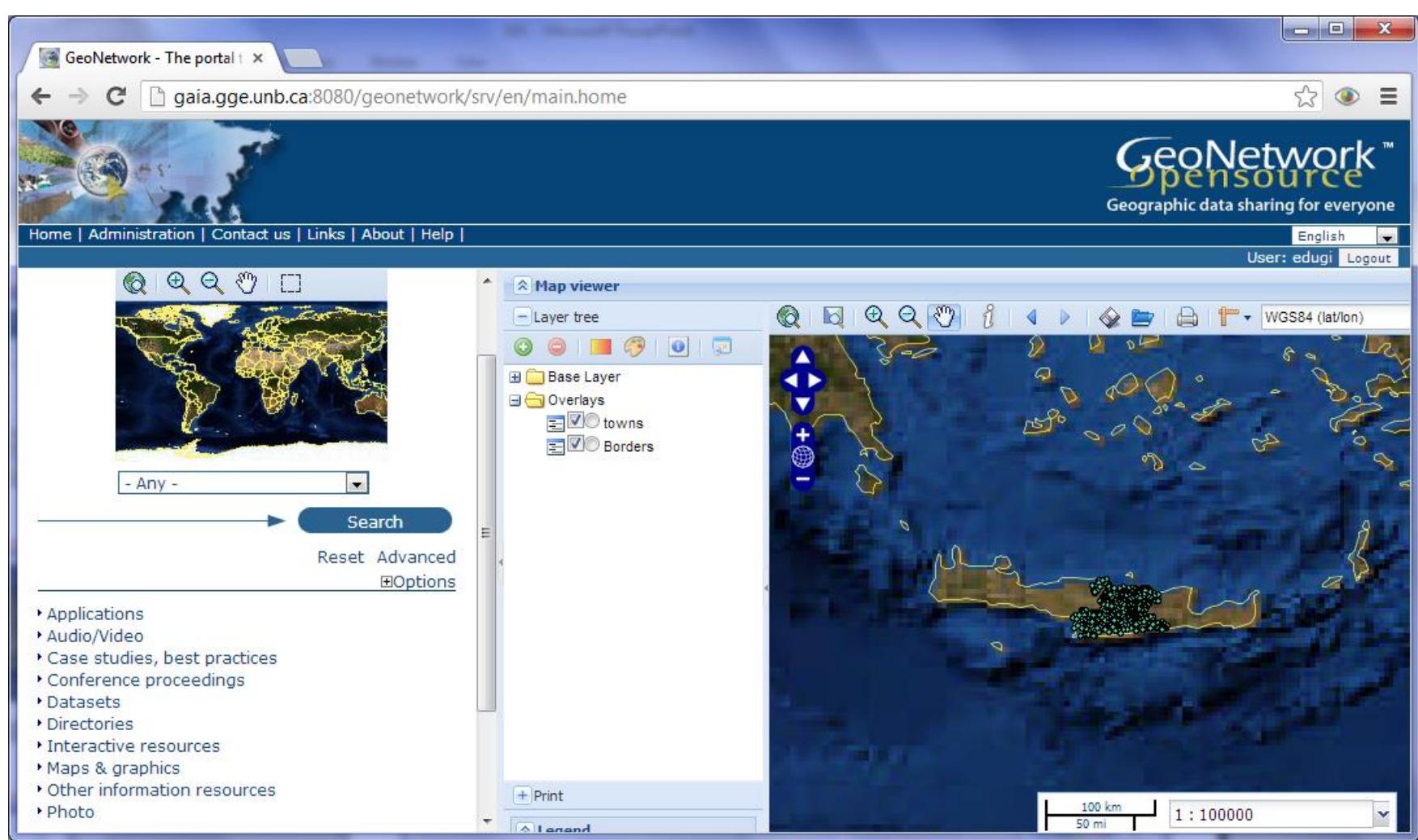
Towns and villages of Heraklion Prefecture in Crete Island, Greece
town, village, Crete, Greece
iso19139
24.64 34.88 25.5 35.5 2006-09-01 2006-09-01

[Metadata](#) [Interactive Map](#) [Create](#) [Edit](#) [Delete](#) [Other actions](#) Owner: edugi

1

80

Catalog Server



Catalog Server

GeoNetwork - The portal

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home

GeoNetwork™
Geographic data sharing for everyone

Home | Administration | Contact us | Links | About | Help | English User: edugi Logout

WHAT?

WHERE? 

Show map

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-2/2 (Page1/1), 0 selected
Select : all, none
Sort by

HERAKLION TOWNS
GGE5403
Abstract: Towns and villages of Heraklion prefecture in Crete Island, Greece
Keywords: town, village, city, Crete, Greece
 Owner: edugi 

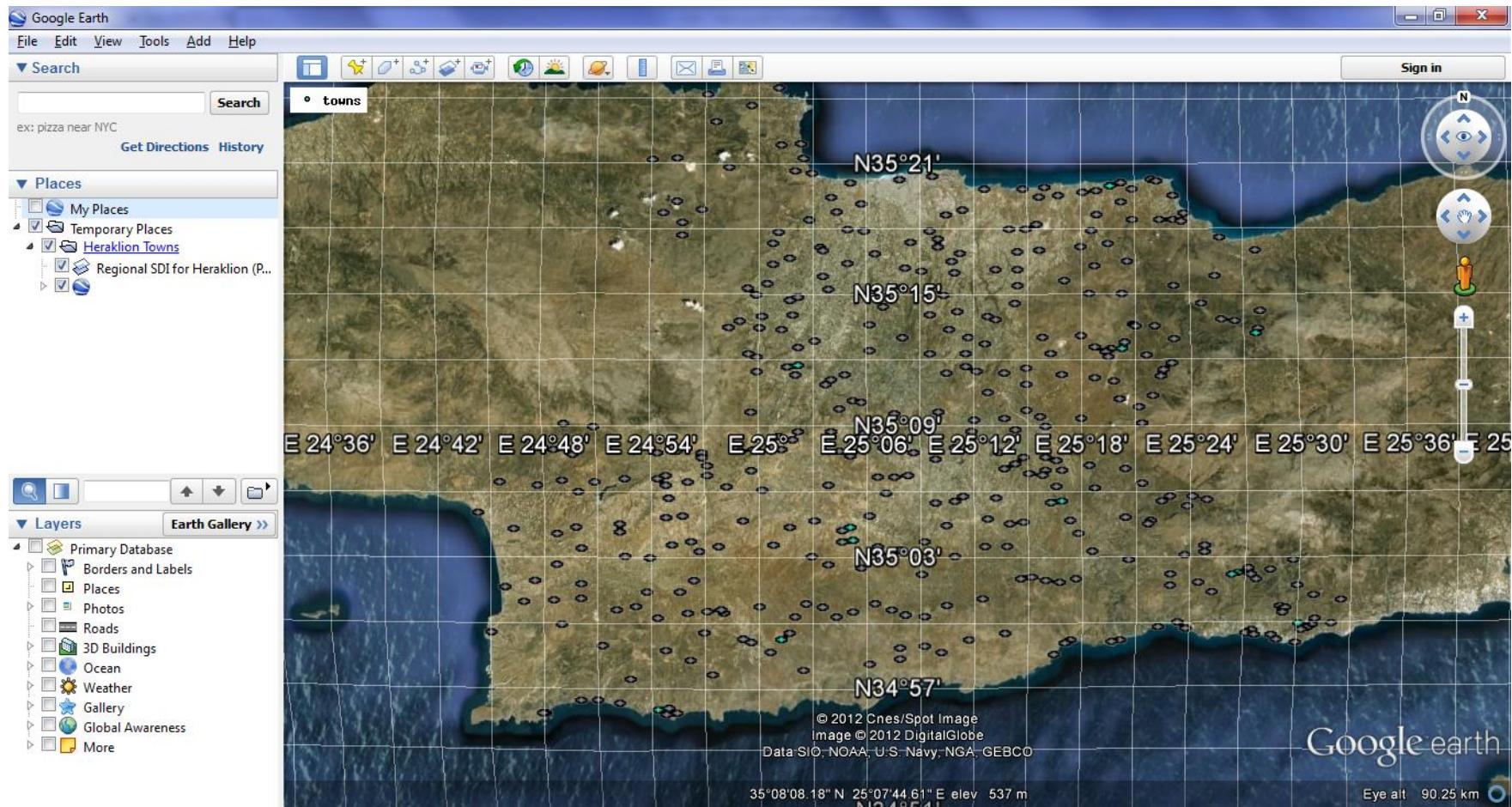
HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD, PLEASE REMOVE!)
GGE5403
Abstract: Major hydrological basins and their sub-basins. This dataset divides the African continent according to its hydrological characteristics. The dataset consists of the following
 Owner: edugi 

Applications
Audio/Video
Case studies, best practices
Conference proceedings
Datasets
Directories
Interactive resources
Maps & graphics

google (9).kml google (8).kml google (7).kml google (6).kml Show all downloads...

2

Catalog Server



Catalog Server

GeoNetwork - The portal

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home

GeoNetwork™
Geographic data sharing for everyone

Home | Administration | Contact us | Links | About | Help | English User: edugi Logout

WHAT?

WHERE? 
- Any -

Show map

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-2/2 (Page1/1), 0 selected
Select : all, none
Sort by

HERAKLION TOWNS
GGE5403
Abstract: Towns and villages of Heraklion prefecture in Crete Island, Greece
Keywords: town, village, city, Crete, Greece
 Owner: edugi

HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD PLEASE REMOVE!)
GGE5403
Abstract: Major hydrological basins and their sub-basins. This dataset divides the African continent according to its hydrological characteristics. The dataset consists of the following 

Applications
Audio/Video
Case studies, best practices
Conference proceedings
Datasets
Directories
Interactive resources
Maps & graphics

google (9).kml google (8).kml google (7).kml google (6).kml Show all downloads... x

4

Catalog Server

GeoNetwork - The portal x

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home

Heraklion Towns

Categories	Assigned
Applications	<input type="checkbox"/>
Audio/Video	<input type="checkbox"/>
Case studies, best practices	<input type="checkbox"/>
Datasets	<input checked="" type="checkbox"/>
Directories	<input type="checkbox"/>
Interactive resources	<input type="checkbox"/>
Maps & graphics	<input type="checkbox"/>
Other information resources	<input type="checkbox"/>
Photo	<input type="checkbox"/>
Conference proceedings	<input type="checkbox"/>

Submit

WHAT?

WHERE?

- Any -

Search

Reset Advanced [+Options](#)

Aggregations

GGE5403 Abstract

Keywords

+ Metadata Create Edit Delete + Other actions Owner: edugi

HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD, PLEASE REMOVE!)

Major hydrological basins and their sub-basins. This dataset divides the African continent according to its hydrological characteristics. The dataset consists of the following information:- numerical... watersheds, river basins, water resources, hydrology, AQUASTAT, AWRD, Africa

Geonetwork OpenSource™
Geographic data sharing for everyone
User: edugi Logout

Category and Related Applications
(Page 1/1), 0 selected
Select : all, none [+ actions on selection](#)
Sort by Relevance

lecture in Crete Island,

Hydrological basins in Africa

Catalog Server

GeoNetwork - The portal t x

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home

GeoNetwork™
Geographic data sharing for everyone

Home | Contact us | Links | About | Help | English | Username | Password | Login

WHAT?

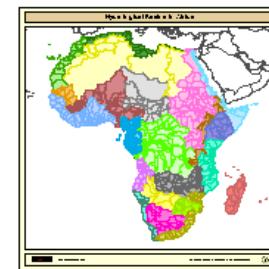
WHERE? 

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-1/1 (Page1/1), 0 selected
Select : all, none

GGE5403 HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD, PLEASE REMOVE!)

Abstract: Major hydrological basins and their sub-basins. This dataset divides the African continent according to its hydrological characteristics. The dataset consists of the following information:-numerical...
Keywords: watersheds, river basins, water resources, hydrology, AQUASTAT, AWRD, Africa



1

► Applications
► Audio/Video
► Case studies, best practices
► Conference proceedings
► Datasets 
► Directories
► Interactive resources
► Maps & graphics
► Other information resources
► Photo

Catalog Server

Screenshot of the GeoNetwork OpenSource portal interface:

Header: GeoNetwork - The portal | gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home | User: admin admin Logout

Left Sidebar (WHAT? WHERE?):

- WHAT? (Search bar)
- WHERE? (Map search interface with a world map and location input field: - Any -)
- Search button
- Reset, Advanced, Options buttons

Right Content Area:

Dataset 1: HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD, PLEASE REMOVE!)

- Abstract: Major hydrological basins and their sub-basins. This dataset divides the African continent according to its hydrological characteristics. The dataset consists of the following information:- numerical...
Keywords: watersheds, river basins, water resources, hydrology, AQUASTAT, AWRD, Africa
- Metadata, Download, Interactive Map, Create, Edit, Delete, Other actions buttons
- Thumbnail map of Africa showing hydrological basins.
- Owner: admin

Dataset 2: HERAKLION TOWNS

- Abstract: Towns and villages of Heraklion prefecture in Crete Island, Greece
Keywords: town, village, city, Crete, Greece
- Metadata, Interactive Map, Create, Edit, Delete, Other actions buttons
- Thumbnail map of Heraklion towns.
- Owner: edugi

Bottom Navigation: 1

A red arrow points to the "Logout" link in the top right corner of the header.

Catalog Server

Screenshot of the GeoNetwork interface showing the 'Heraklion Towns' dataset being made public.

The screenshot shows a modal dialog titled "Heraklion Towns" with a grid of checkboxes for permissions:

	Groups	Publish	Download	Interactive Map	Featured	Editing	Notify
All	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Intranet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Guest	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
GGE5403	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Buttons at the bottom of the dialog include "Submit" (highlighted with a red arrow) and "Cancel".

The right side of the interface shows the dataset details for "HERAKLION TOWNS":

- Abstract: Towns and villages of Heraklion prefecture in Crete Island, Greece
- Keywords: town, village, city, Crete, Greece
- Metadata, Interactive Map, Create, Edit, Delete, Other actions buttons
- Owner: edugi

A red circle highlights the top right corner of the interface, which includes the "GeoNetwork OpenSource" logo, language selection (English), user information (User: admin admin), and a Logout link.

Catalog Server

GeoNetwork - The portal

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home

WHAT?

WHERE?

Show map

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-2/2 (Page1/1), 0 selected
Select : all, none + actions on selection
Sort by Relevance

HERAKLION TOWNS

GGE5403
Abstract: Towns and villages of Heraklion prefecture in Crete Island, Greece
Keywords: town, village, city, Crete, Greece

HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD, PLEASE REMOVE!)

GGE5403
Abstract: Major hydrological basins and their sub-basins. This dataset divides the African continent according to its hydrological characteristics. The dataset consists of the following information:- numerical...
Keywords: watersheds, river basins, water resources, hydrology,

9

- Applications
- Audio/Video
- Case studies, best practices
- Conference proceedings
- Datasets **Datasets** ←
- Directories
- Interactive resources
- Maps & graphics
- Other information resources

Searching the content

Catalog Server

The screenshot shows the GeoNetwork OpenSource catalog server interface. A red circle highlights the search input field and the search button. An arrow points from the search input field towards the search button.

WHAT? town

WHERE?

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-1/1 (Page1/1), 0 selected
Select : all, none actions on selection

HERAKLION TOWNS

GGES03 Abstract Towns and villages of Heraklion prefecture in Crete Island, Greece
Keywords town, village, city, Crete, Greece

Metadata Interactive Map

Sort by Hits per page 10 Output Full

Applications
Audio/Video
Case studies, best practices
Conference proceedings
Datasets

Catalog Server

GeoNetwork - The portal X

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home

GeoNetwork™
Geographic data sharing for everyone

Home | Contact us | Links | About | Help | English | Username: Password: Login

WHAT?
Either of the words
Title
Abstract
Keywords
 Map type
 Search accuracy

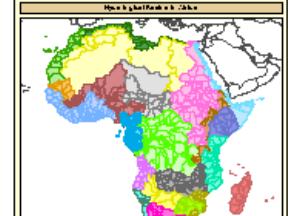
WHERE?
long (min) long (max)

lat (min) lat (max)
Type: overlaps
Region: - User defined -
 When?

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-2/2 (Page 1/1), 0 selected
Select : all, none actions on selection
Sort by Relevance

HERAKLION TOWNS
GGE5403 Abstract 
Keywords town, village, city, Crete, Greece
 

HYDROLOGICAL BASINS IN AFRICA (SAMPLE RECORD, PLEASE REMOVE!)
GGE5403 Abstract 
Keywords watersheds, river basins, water resources, hydrology, AQUASTAT, AWRD, Africa


Catalog Server

GeoNetwork - The portal

gaia.gge.unb.ca:8080/geonetwork/srv/en/main.home#

GeoNetwork™
Geographic data sharing for everyone

Home | Contact us | Links | About | Help | English | Username: [] Password: [] Login

WHERE?

lat (max) 90.0000
long (min) -180.00
long (max) 180.00

lat (min) -90.0000

Type: overlaps
Region: - User defined -

WHEN?

Anytime
Metadata change date
From: 2012-11-01T21: To: 2012-11-09T21:
Temporal Extent
From: [] To: []

FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS

Aggregated results matching search criteria : 1-1/1 (Page 1/1), 0 selected
Select : all, none | actions on selection

HERAKLION TOWNS

GGE5403
Abstract
Keywords: Towns and villages of Heraklion prefecture in Crete Island, Greece
town, village, city, Crete, Greece

[] Metadata | Interactive Map |

1

92

References

- Stefanakis, E., and Prastacos, P., 2008. Development of an Open Source Based Spatial Data Infrastructure. *Applied GIS Journal*, ISSN 1832-5505, Vol. 4, No. 4, pp. 1-26.
http://195.251.31.2/webmaps/appliedGIS_Stefanakis_Prastacos.pdf
- GSDI, 2009. The Spatial Data Infrastructure Cookbook
<http://gsdiassociation.org/index.php/publications/sdi-cookbooks.html>
- URL Encoding http://www.w3schools.com/tags/ref_urlencode.asp
<http://meyerweb.com/eric/tools/dencoder/>
- GeoNetwork Opensource OSW
http://geonetwork-opensource.org/stable/developers/xml_services/csw_services.html
http://dev.geonode.org/trac/wiki/CSW_GetRecords