



Exchange and Manage realtime geospatial
data in a
Web-based Federate System

Dimitri Dello Buono

E-Mail : dimitri@dellobuono.eu

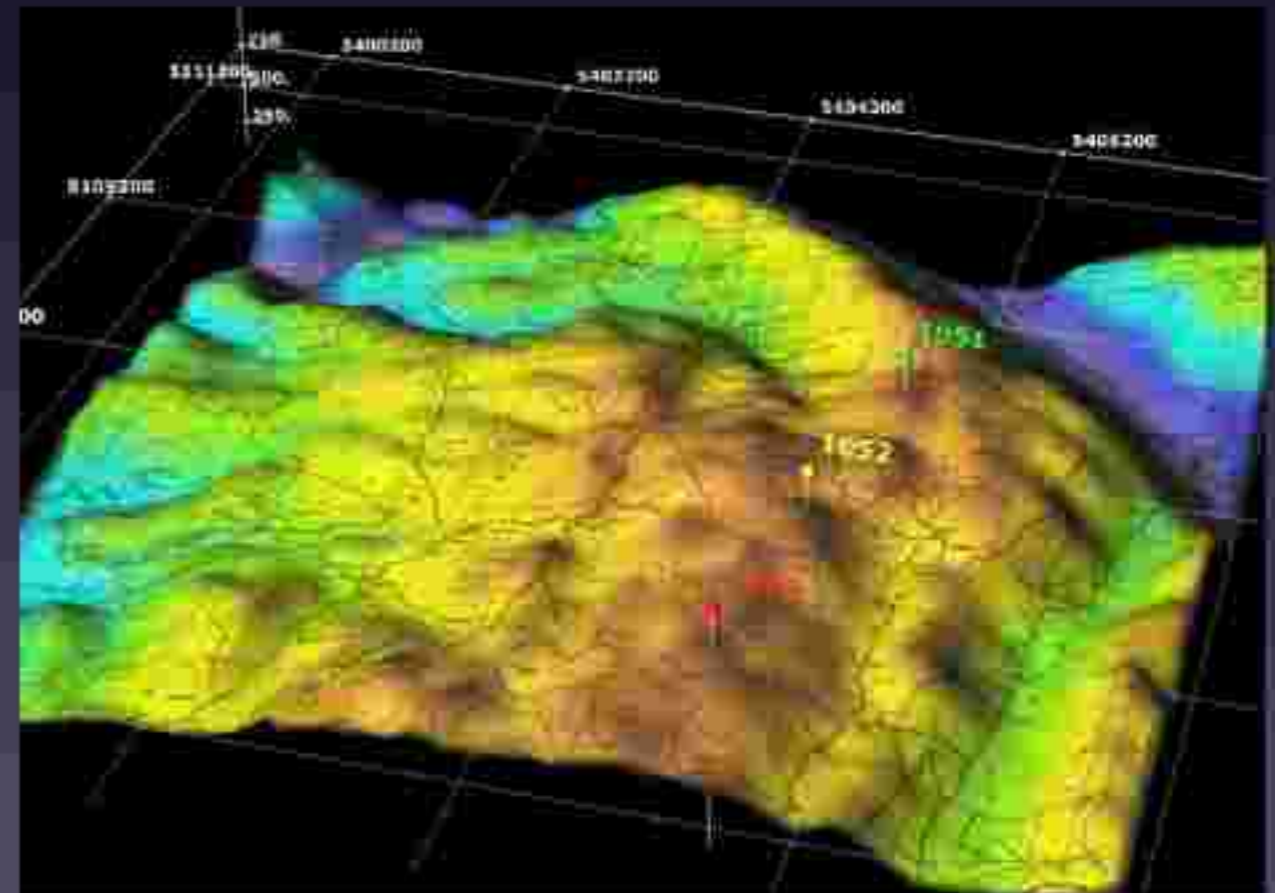
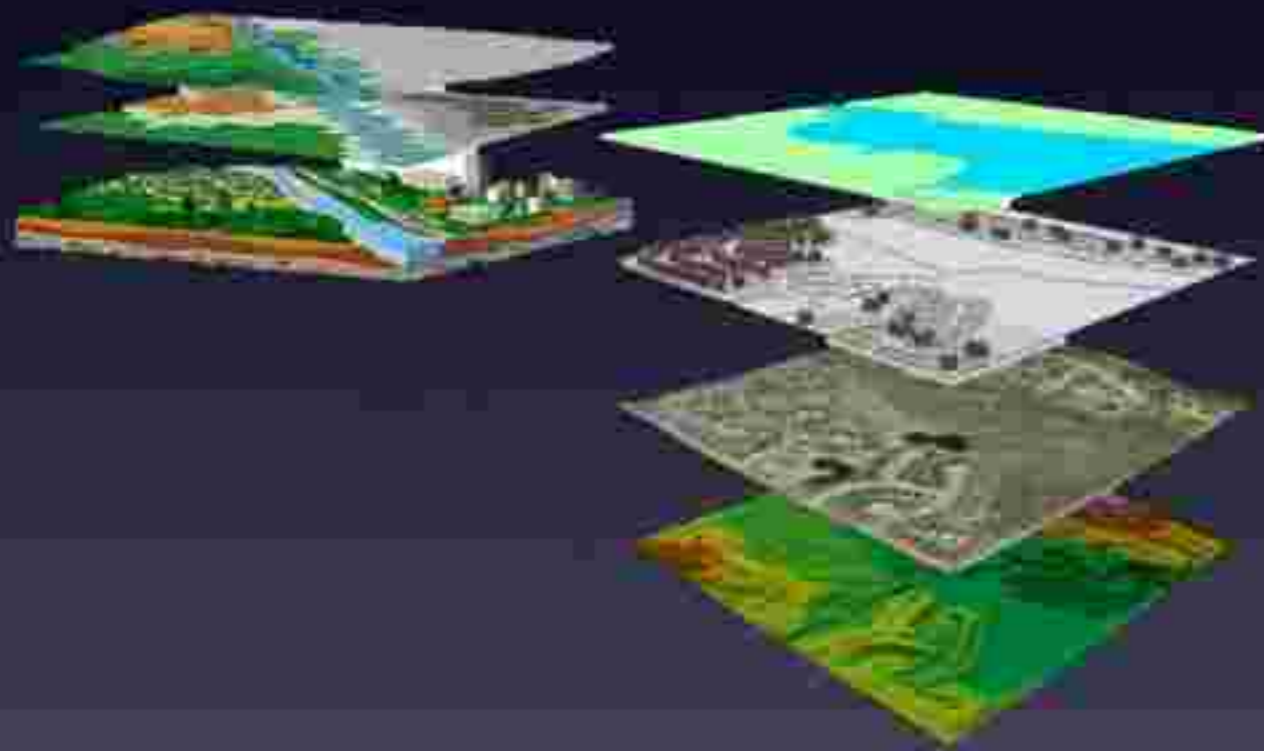


Dipartimento della
Protezione Civile Nazionale

Istituto di Metodologie
per l'Analisi Ambientale



GeoSpatial Data Interoperability



Digital Data



1,5 ExaByte Exchanged / day
140 ExaByte Shared / year

Principal Goals:

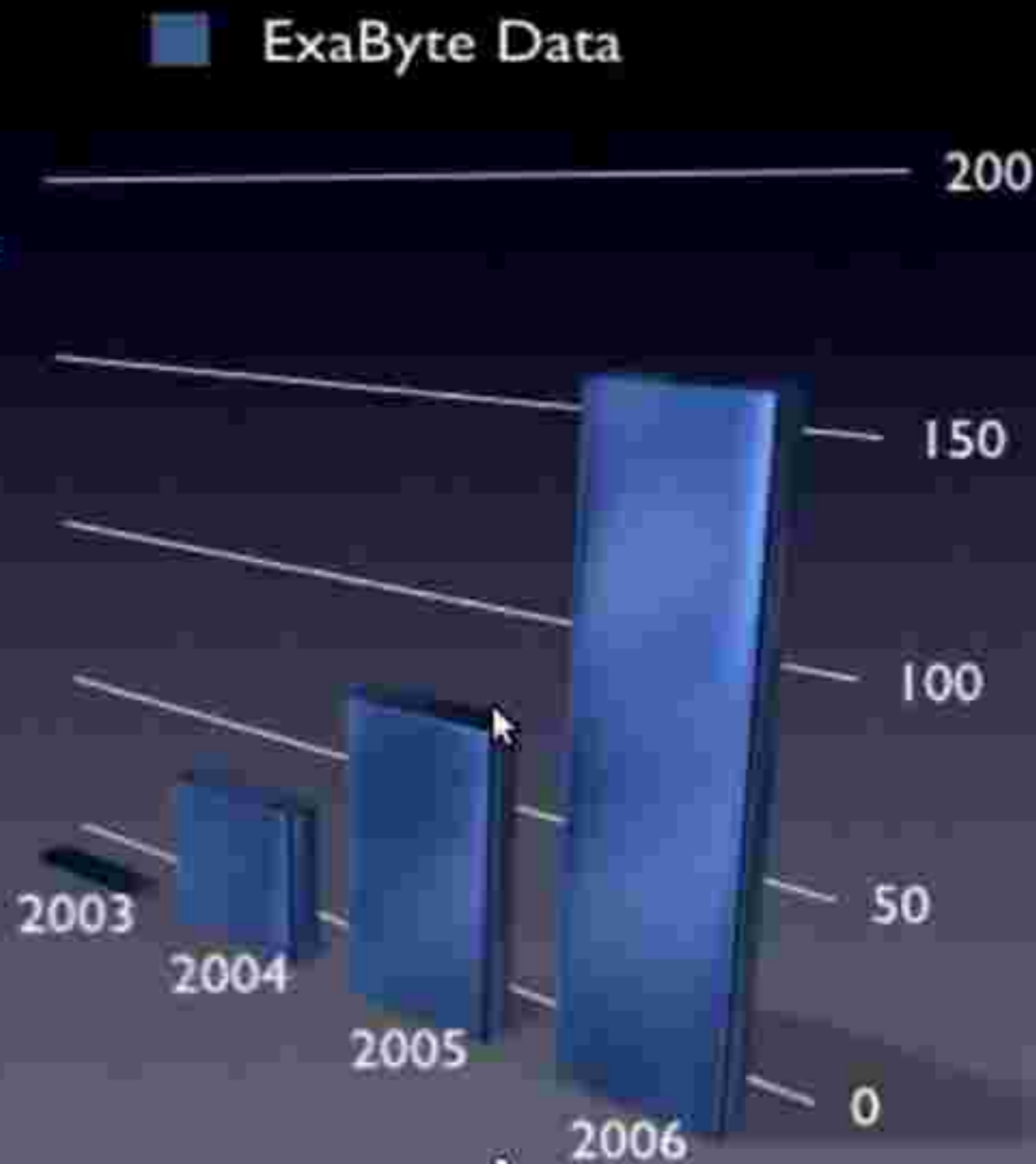
Find

Share

Manage

Domain

SDI, Data and Informations



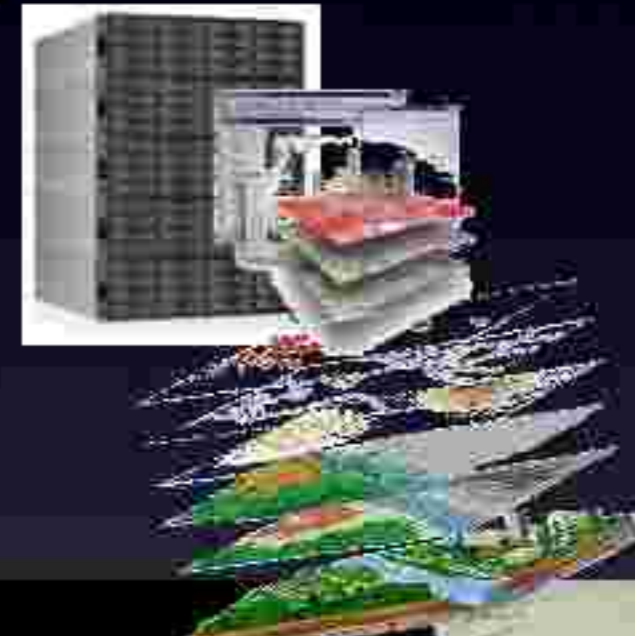
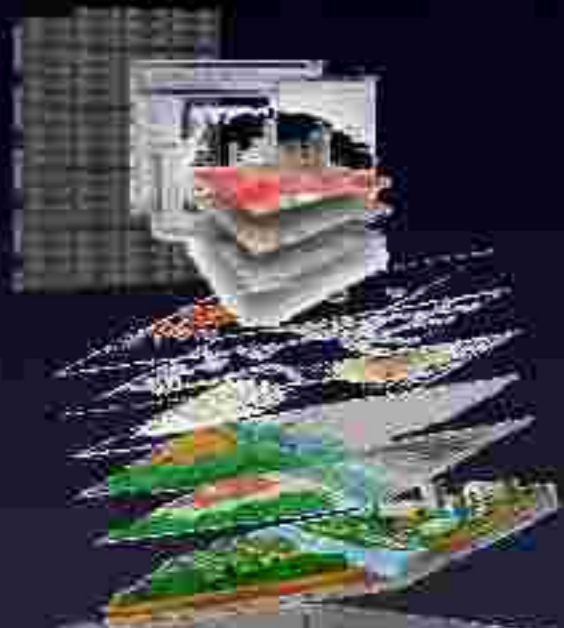
Data Access

File transfers



Web Services

Vs



GMES – The Risk Circle





Was born from



- Prime Minister's Office - Civil Protection Dept
 - Network of Functional Centers and Competence Centers



- Defence
 - DGIWG (Defence Geospatial Information Working Group)



- Agriculture
 - To Manage the European Found in Agriculture

geoSDI was born to allow the interoperability of geospatial data and informations in the real real time activities



overview

GeoSDI is the name of the five-years research programme (2008-2013) carried on by a group of Researcher of the Italian National Council of Researches (CNR - IMAA) on behalf of the **Prime Minister Office - Civil Protection Dept.**

The aim of the programme is to implement Open Software solutions for the Spatial Data Infrastructures Management.

To Share



GeoServer



GeoBatch

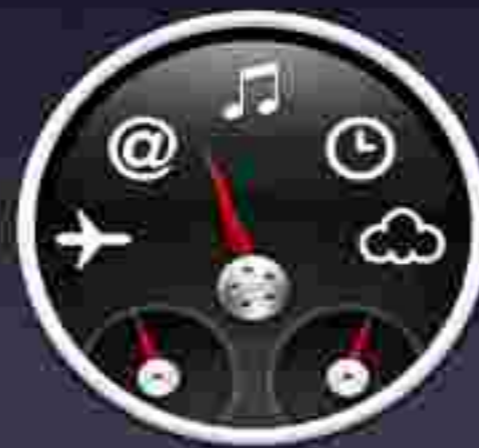




To Cooperate



Geo-Platform



Geo-Widget

To Find

GeoNetwork™
Opensource v2.1
Geographic data sharing for everyone



To Use



SLD-EDITOR



WFS-EDITOR



WPS



geo  STDI

*Requirement
Platform
Indipendent*



geo SDI *Requirement*

Browser Indipendent



geo SDI Requirement

Data Indexing



EptaDimensional DataBase Structure



stack

*Server OWS
DaaS*



GeoServer

*GeoNetwork
opensource*

Data as a Service

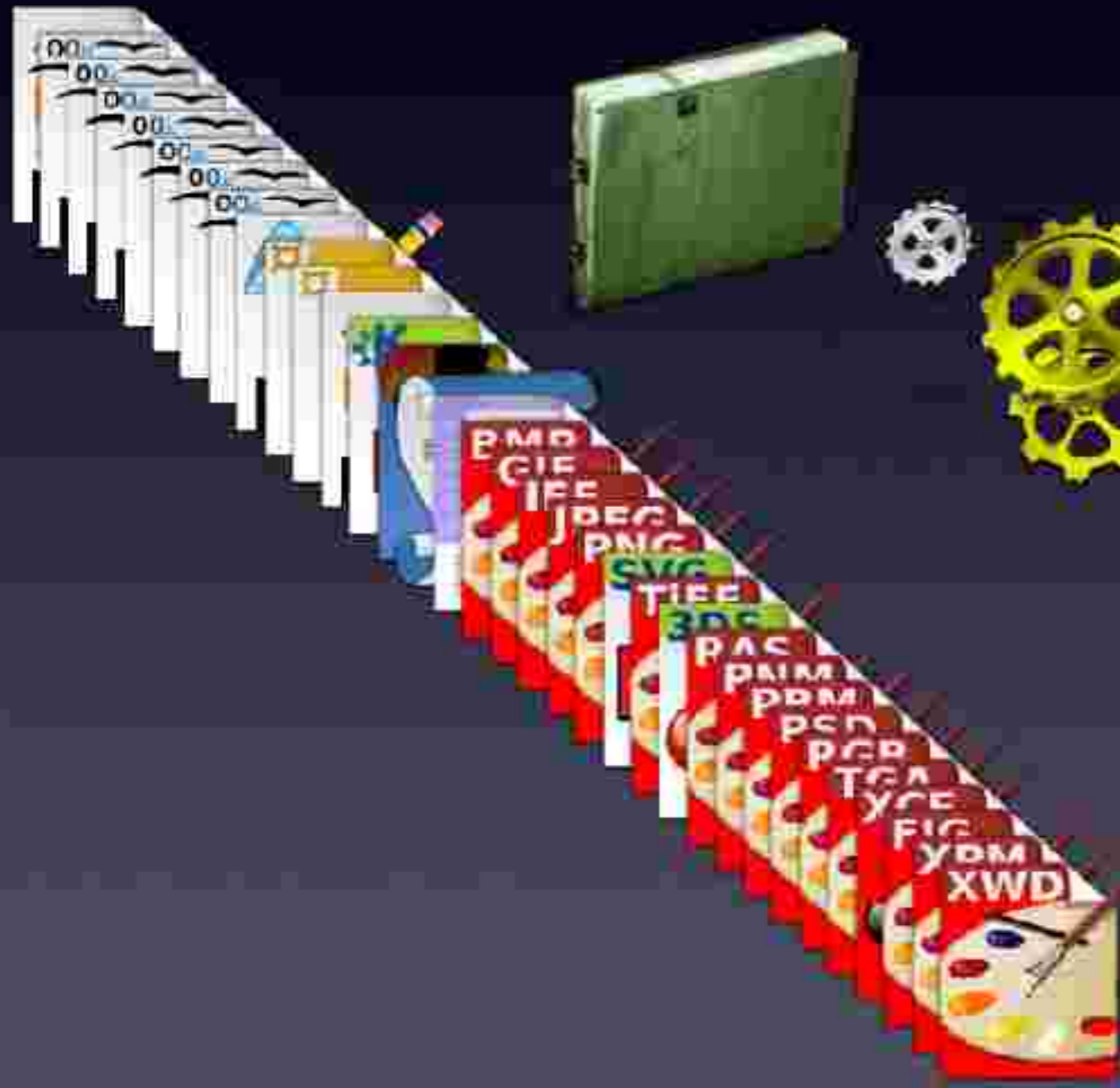
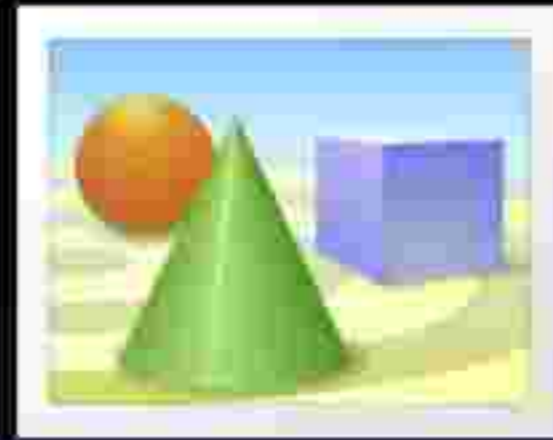
*Client OWS
SaaS*



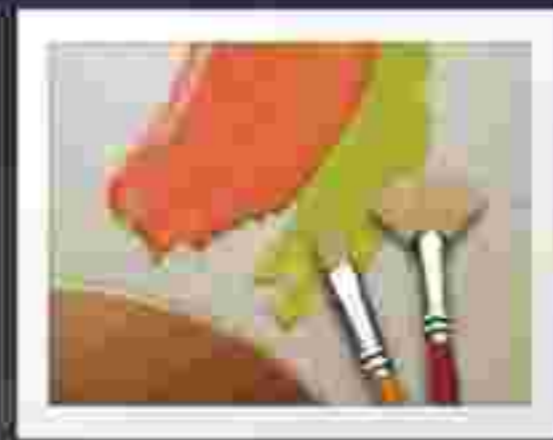
Software as a Service



Module Is



**On Fly OGC
Translator**



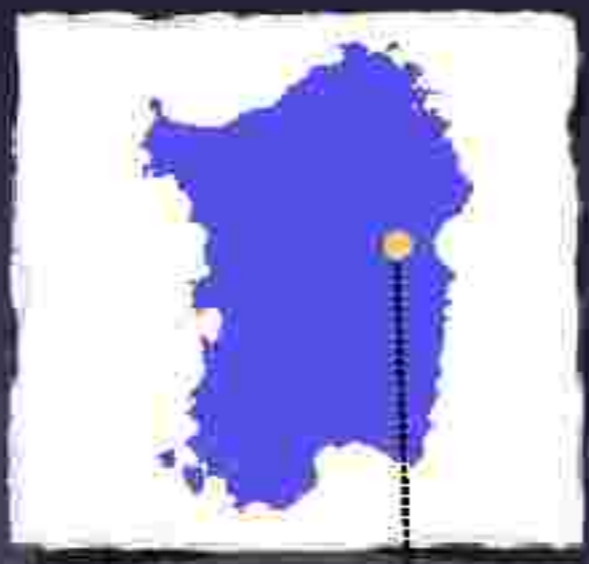


Module Is

WMS



**OGC
Web Services**



SARDEGNA_PROVINCE

FID	GM_LAYER	GM_TYPE	NAME	LAYER	LABEL	ISTATPROV	ISTATREG	SIGLAPROV	REGIONE	AREA	PERIMETER
sardegna_province.3	Unknown Area Type	Unknown Area Type	NUORO	Unknown Area Type	NUORO	91	20	NU	SAEDEGNA	7.041934519042E9	731857.104



Module Is

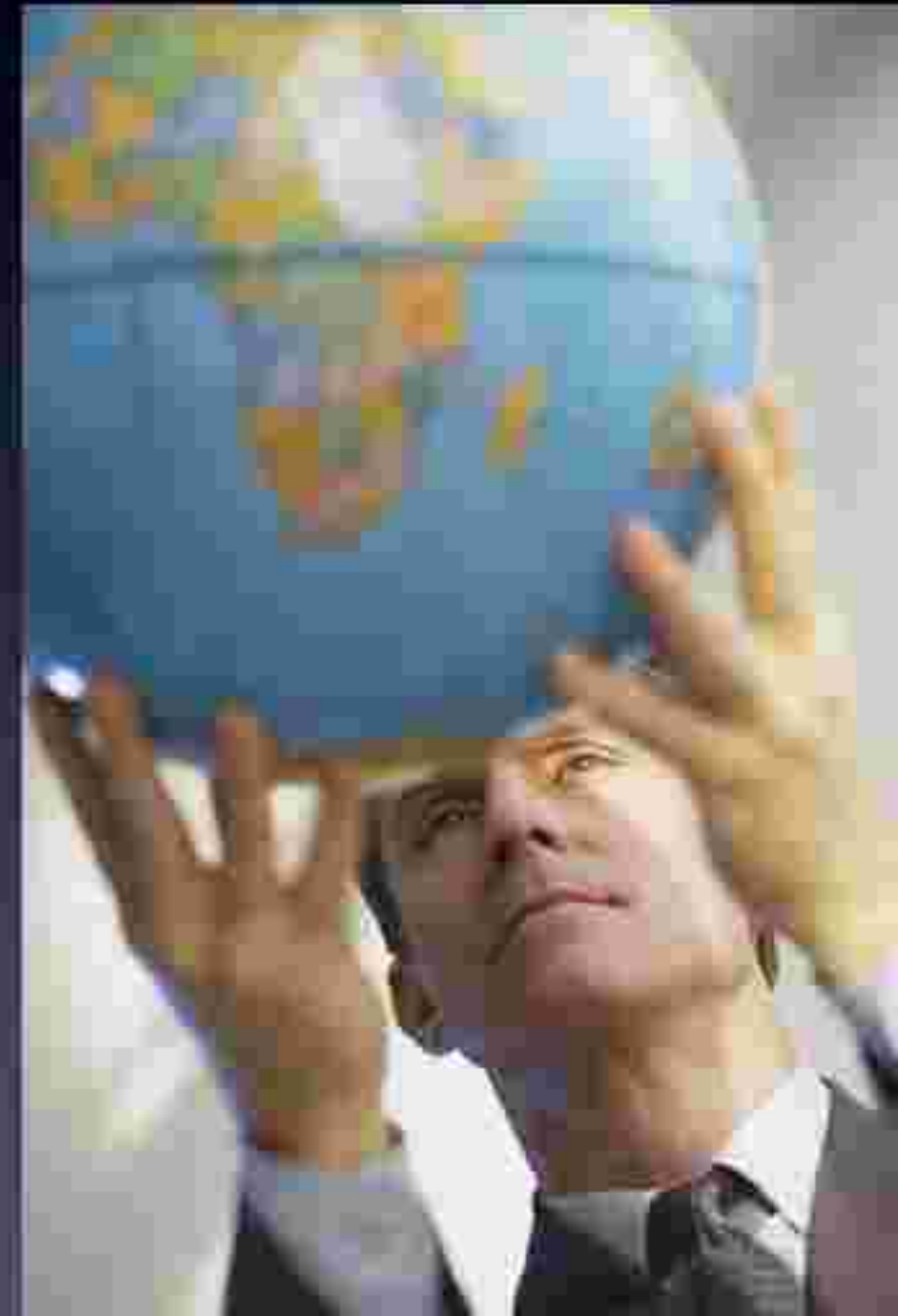
- *GeoSpatial enterprise gateway*
- *Vector and Grid Data Manager*
- *Standard compliant*
 - *OGC WCS 1.0 - 1.1.1 (RI)*
 - *OGC WFS 1.0 - 1.1 (RI)*
 - *OGC WMS 1.1.1*
- *Google support*
 - *KML, GeoSearch ...*
- *Enterprise ready*

GeoNetwork
OpenSource

Module Is

Discover Data

A screenshot of the GeoNetwork search interface. It features three main sections: 'What?' on the left with input fields for 'What', 'Where', 'When', and 'Keywords', and a 'What type?' section with radio buttons for 'Digital', 'Observation', 'Thematic map', and 'Observation'. The 'Where?' section in the center contains a map of the world with a search box above it and a 'Type' dropdown menu. The 'When?' section on the right includes a 'From' date field, a 'To' date field, and a 'Date range' dropdown menu. Below these are 'Sort by' and 'All set type' dropdowns, and a 'Date' dropdown menu. A 'Search' button is located at the bottom right of the search area.



GeoNetwork
OpenSource

Module Is

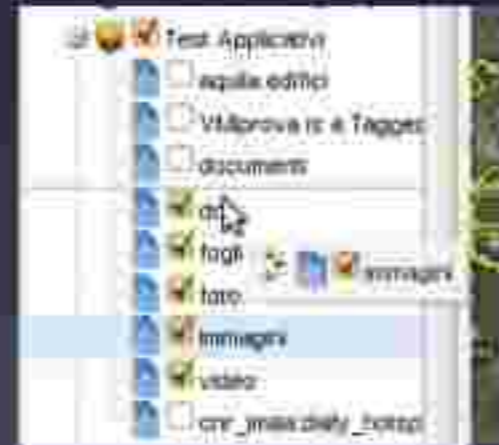
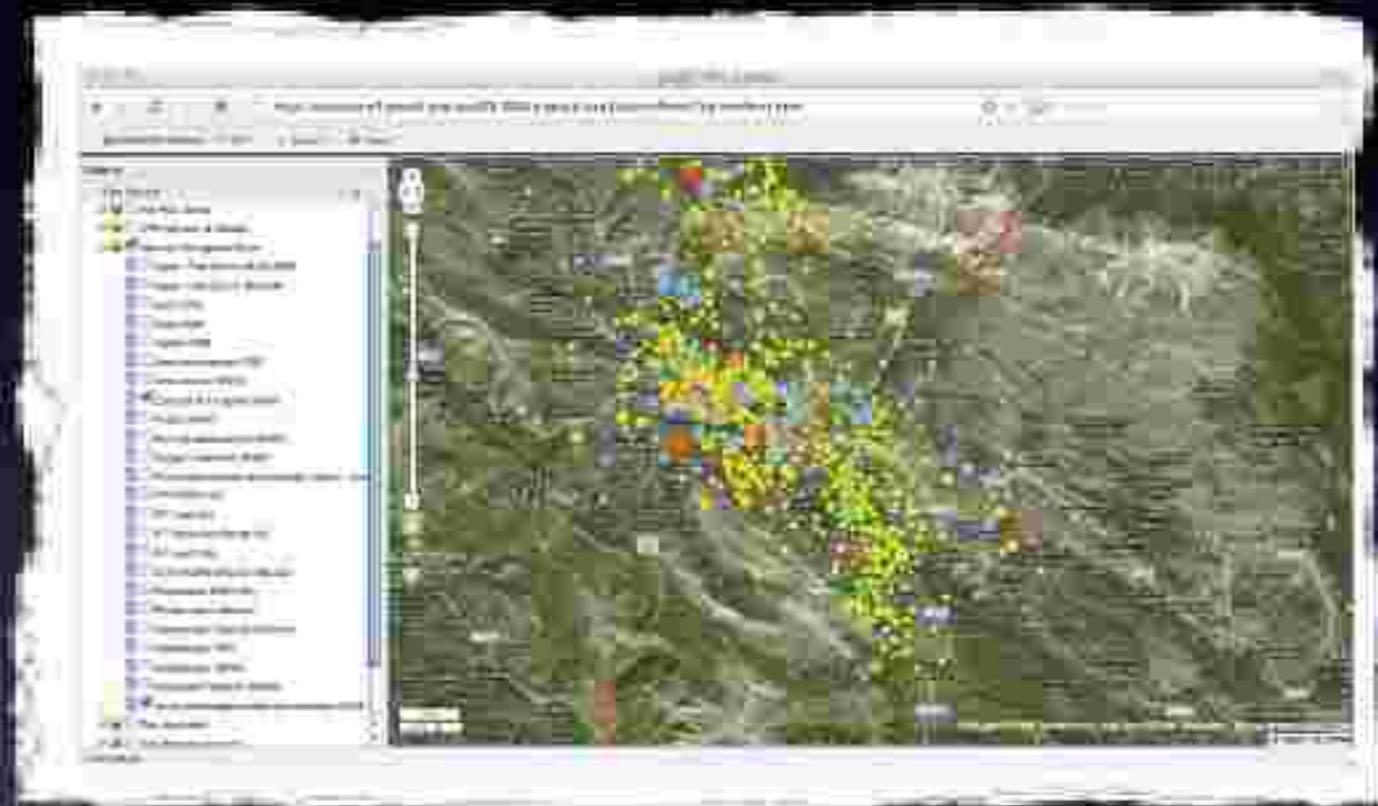
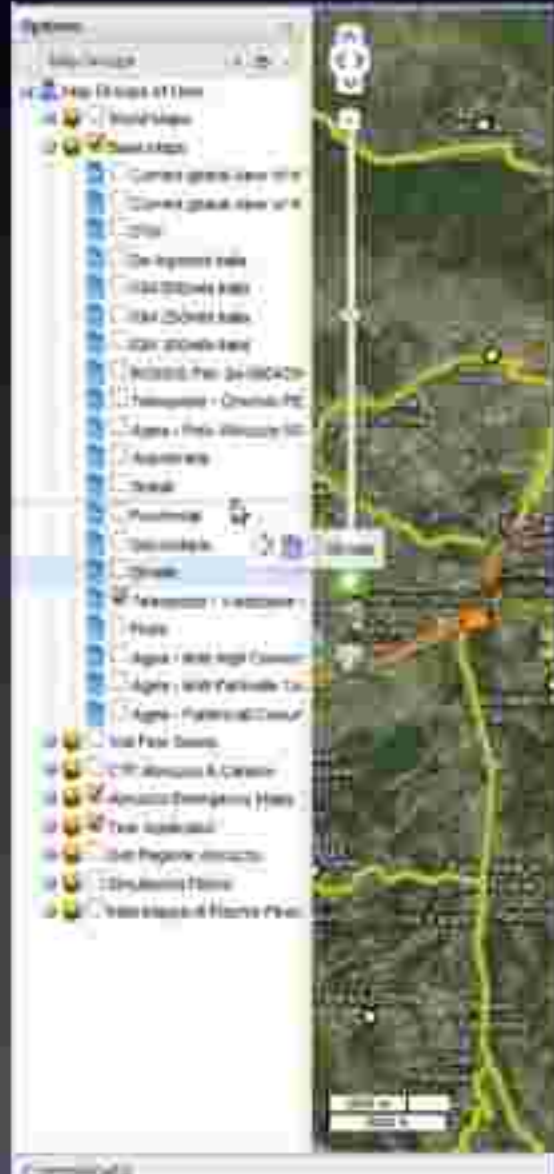
OGC Compliant





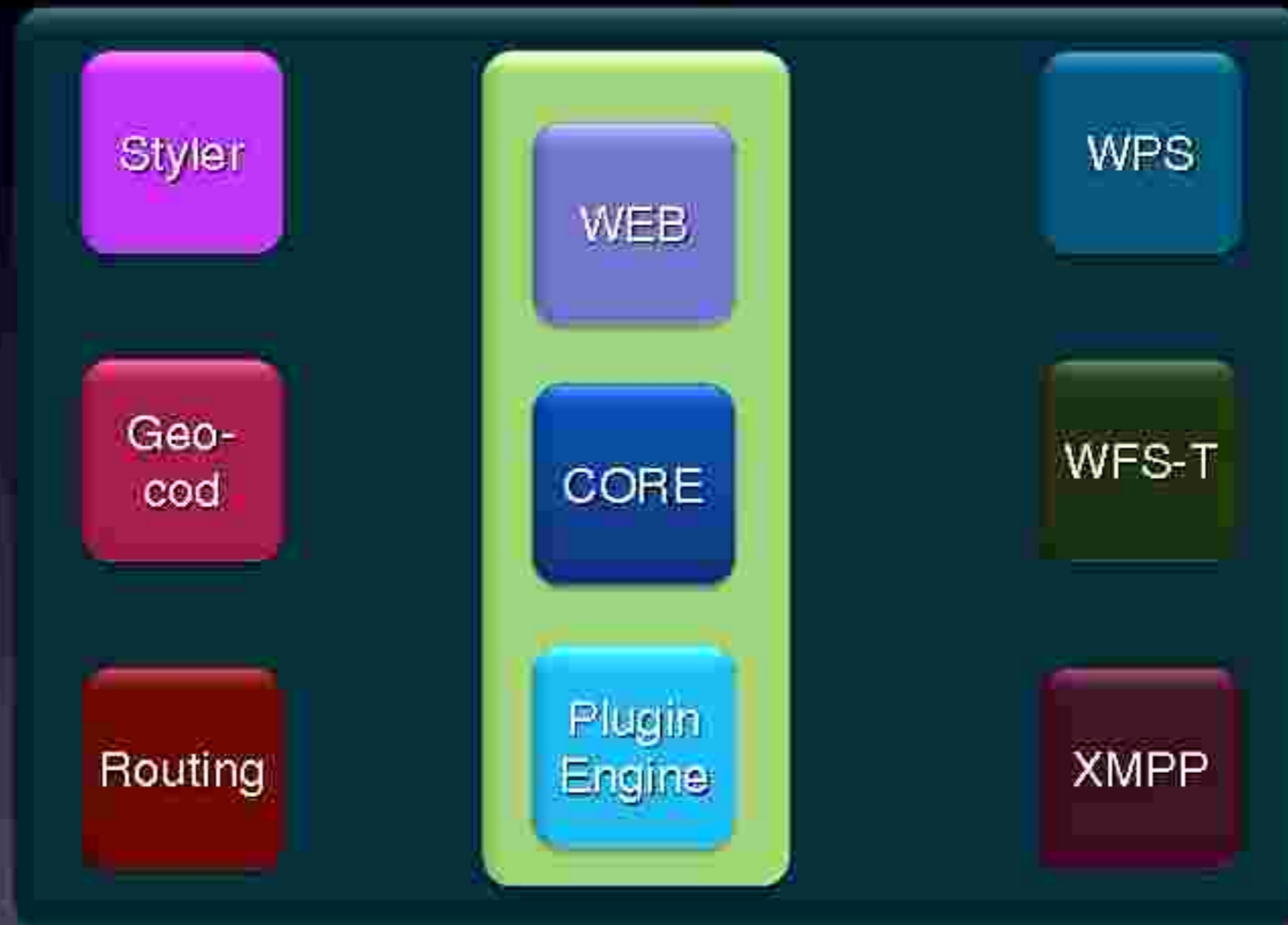
Module Is

Software as a Services



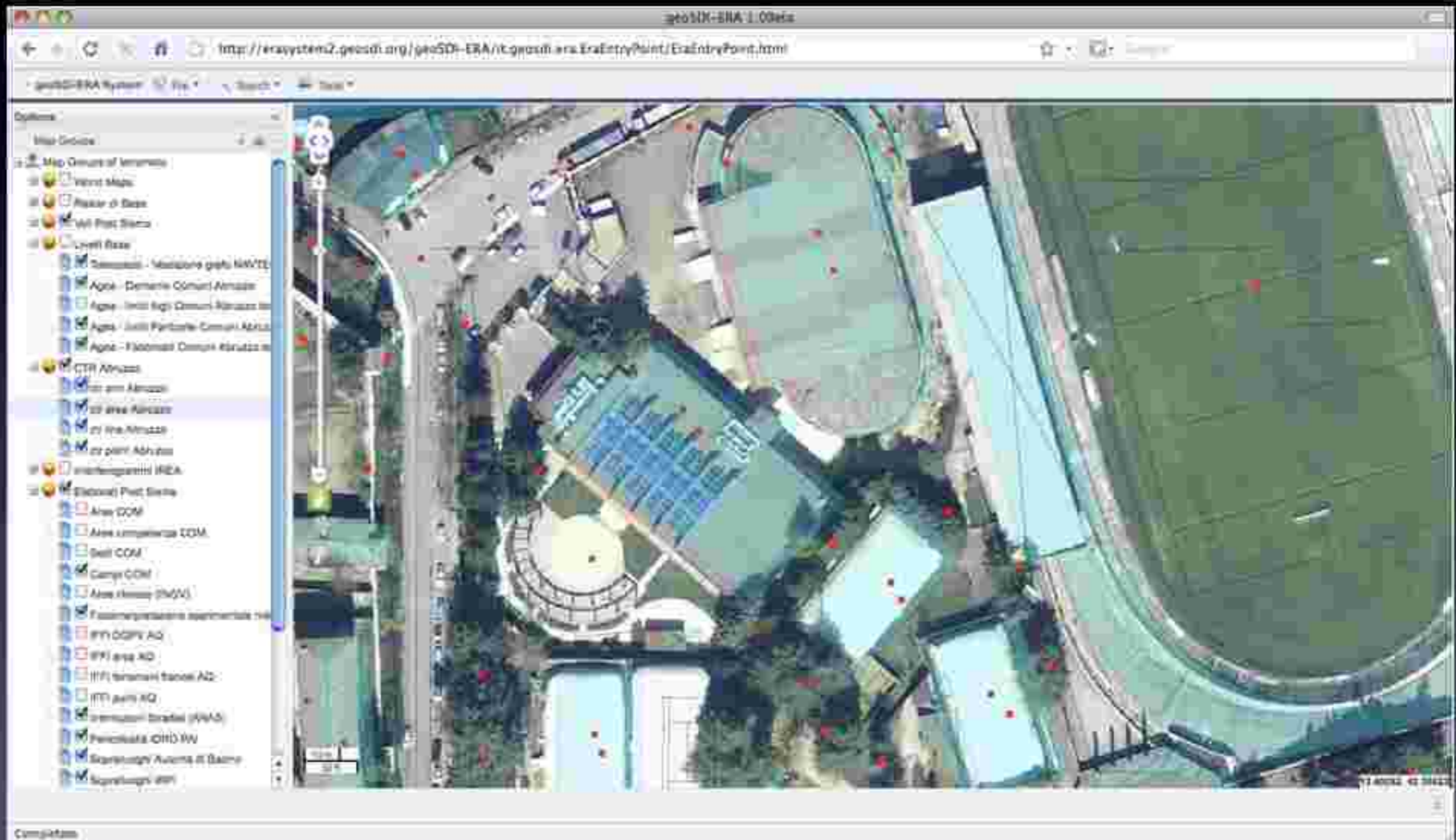
geoSDI - ERA

Modules and WidGet



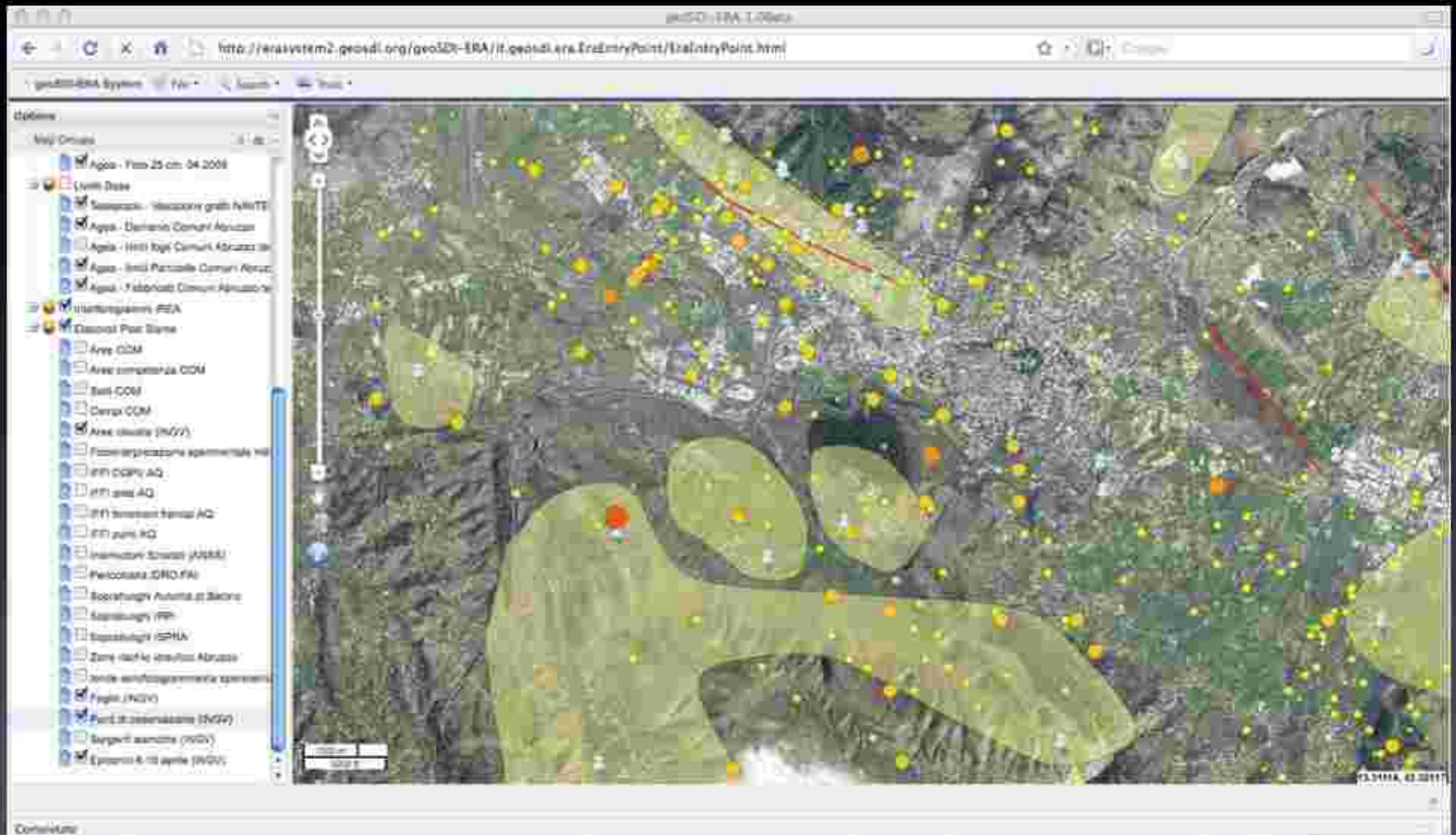
ERA - screenshot

Orthophoto post-earthquake (look at the tends!!) and regional technical Map



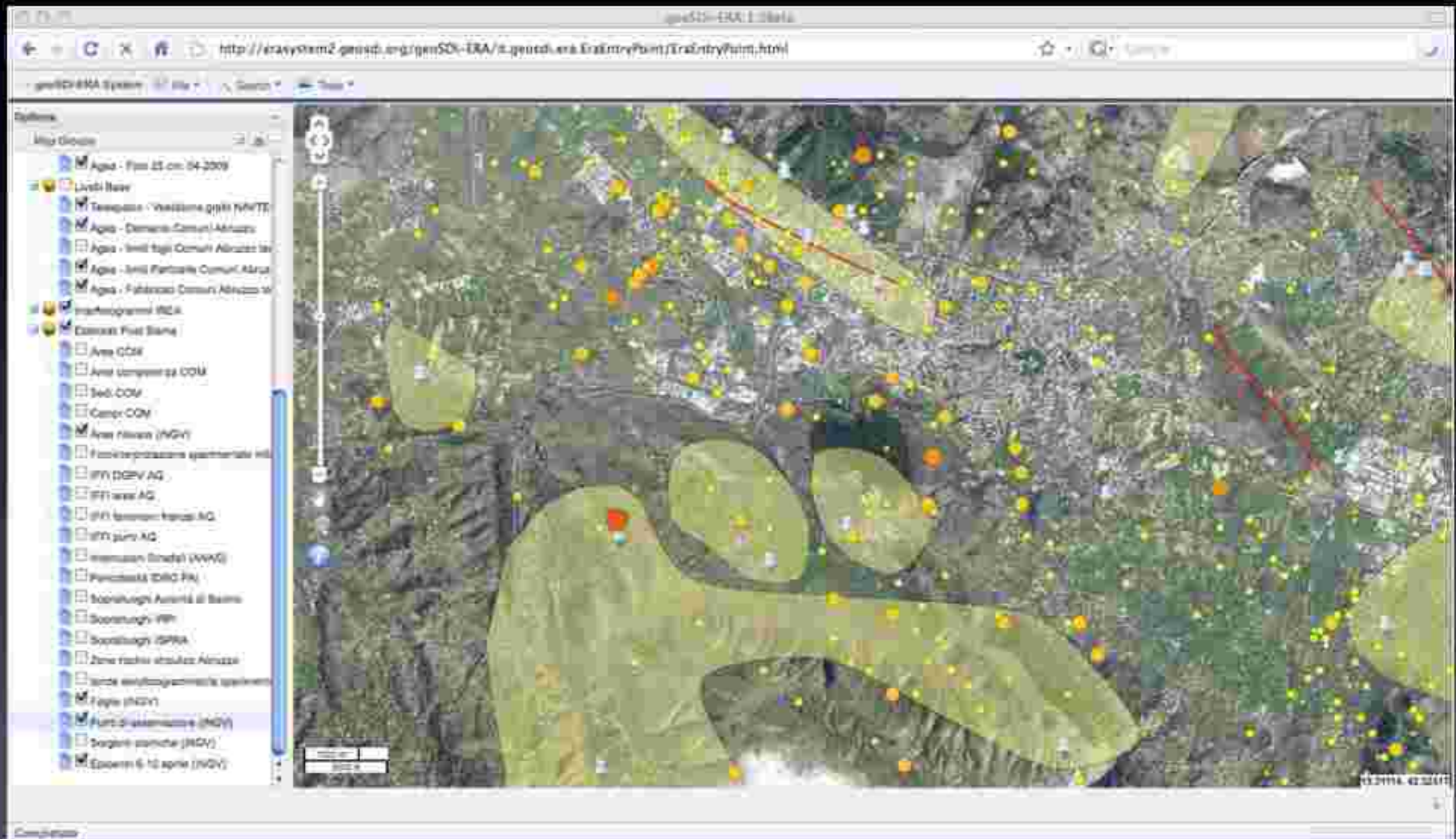
ERA - screenshot

Data from seismic sensors



ERA - screenshot

Data from seismic sensors (WFS related info request)



ERA - screenshot

Data from seismic sensors (WFS related info request)

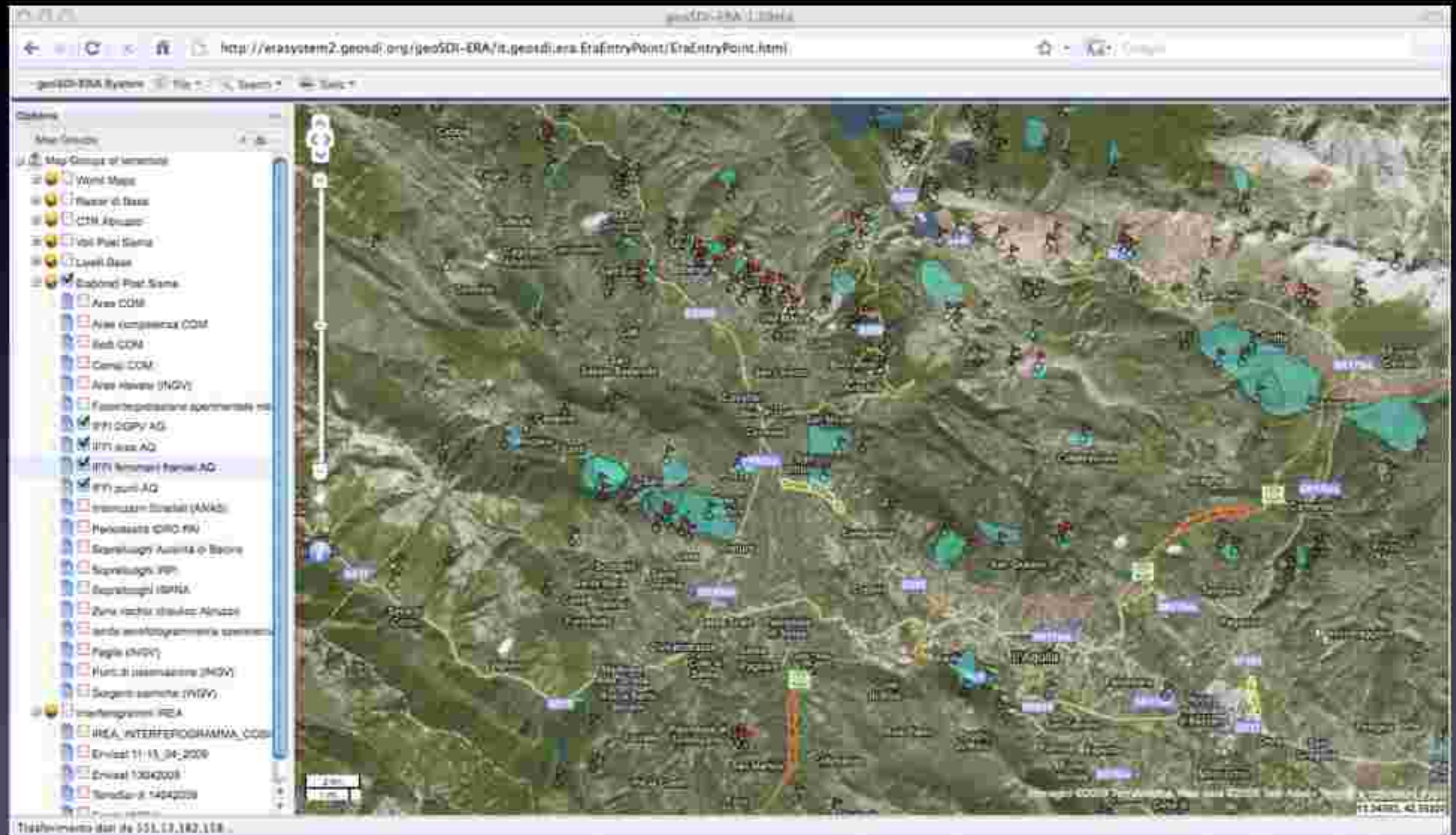
The screenshot displays the ERA web application interface. The browser address bar shows the URL: <http://erasystem2.geosdi.org/geoSDI-ERA/it/geosdi.era.EraEntryPoint/EraEntryPoint.html>. The main map area shows a satellite view with numerous yellow and orange dots representing seismic sensor locations. A popup window titled "Feature info" is open, displaying the following data:

PUVT_OSSERVAZIONE	PT	LAYER	ID	LOCALITA	STRUTTURA	OSSERVAZIONI	NOTE	QUOTA	DATA	POSIZIONE
2014-08-08-08:45:30	P10	P10	011			Senza dati		270000000-000		Permanente

The popup window also includes a "Close" button at the bottom right.

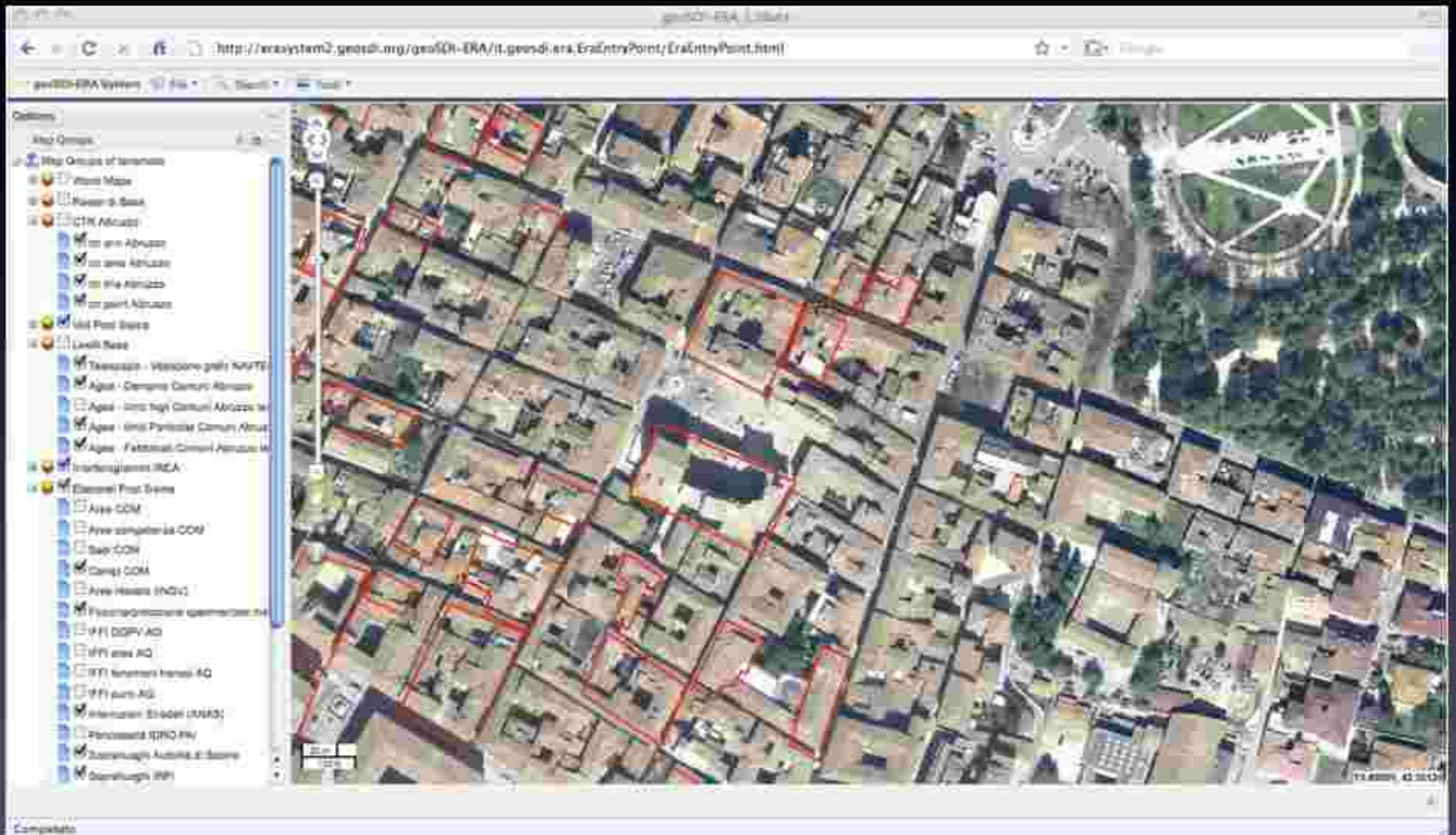
ERA - screenshot

Landslide phenomena



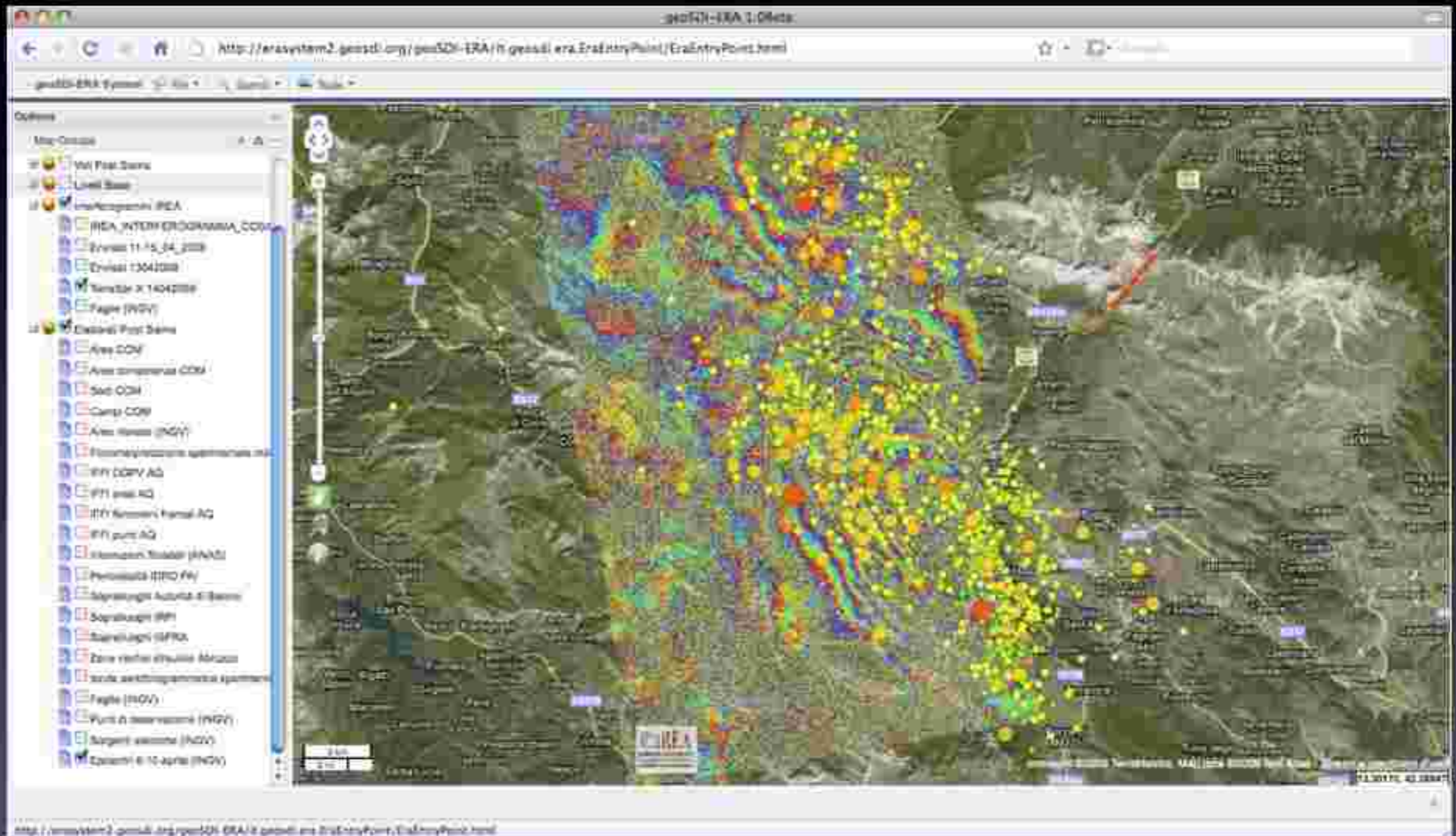
ERA - screenshot

Damaged Buildings



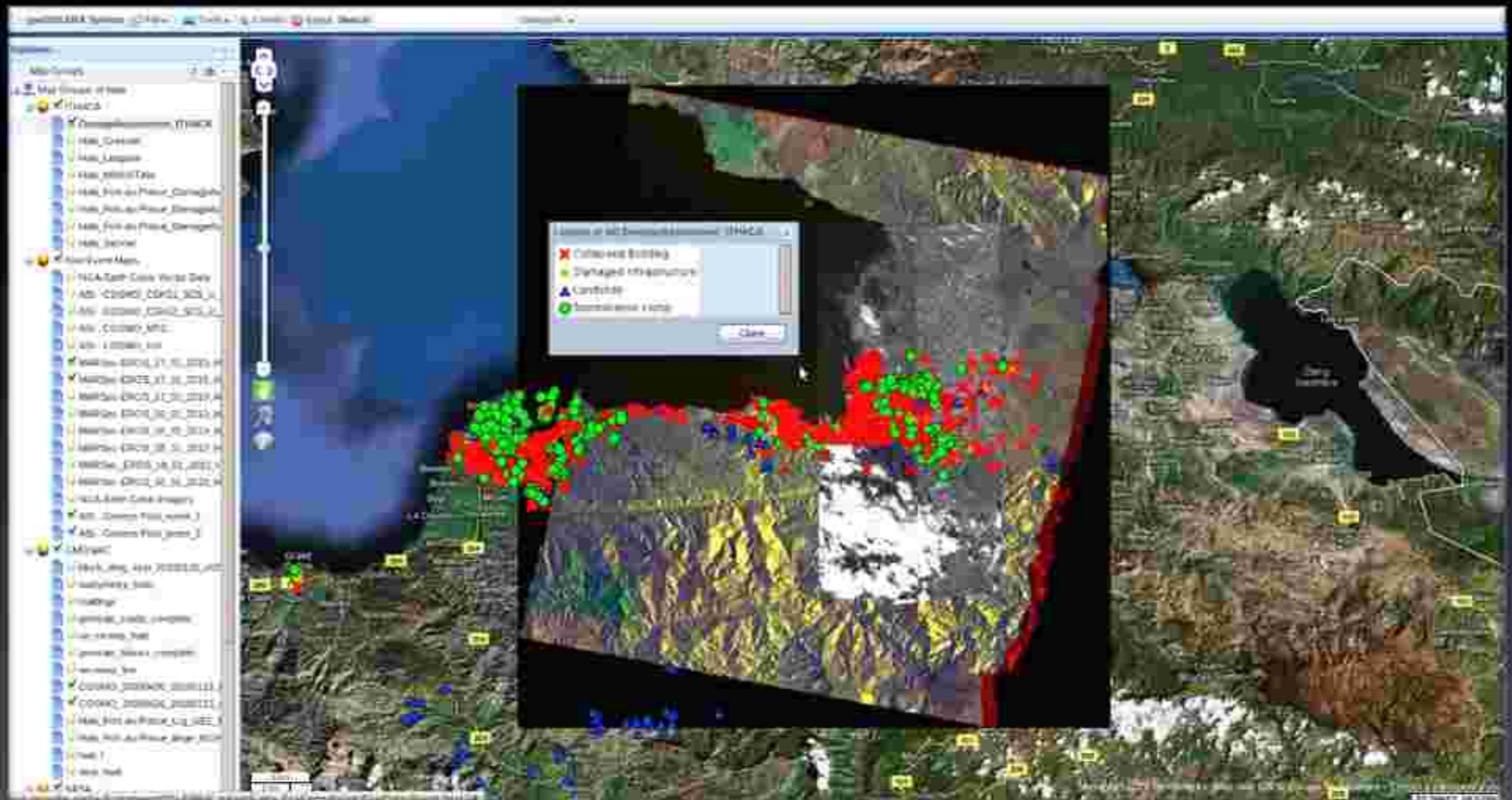
ERA - screenshot

Seismic sensor and terrain deformation from satellite image processing



ERA - screenshot

Haiti ERA Mosaic of Rapid Map : ONU – NGA – NASA – Eros - GMosaic



ERA - screenshot

Chile ERA Mosaic of Rapid Map : ONU – NGA – NASA – Eros



Recent geoSDI cases: GeoSpatial Support for the G8

Italian Civil and Military institutions used geoSDI components to share geospatial services concerning the **G8 Summit Area**

Dipartimento della Protezione Civile - geoSDI

Questa pagina offre l'accesso ai vari componenti delle piattaforme geoSDI in uso al Dipartimento della Protezione Civile.

Protezione Civile Nazionale - G8

Logos at the bottom:

- Logo with text: 112 - 800 200000 - 800 200000
- GeoServer - Server Open Source
- GeoServer - Client Open Source
- Logo with text: 112 - 800 200000



Who is the data user ?

2 rules, 2 directions

Admin side

User side



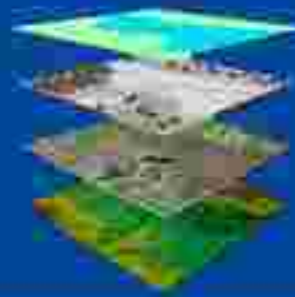
Administrator Side



User Side



Data



FTP
Storage

WMS
WFS-T
WCS

CSW
Discovery
Services

CSW
Federate
Discovery
Services

GeoSdi
ERA

GeoBatch

GeoServer

GeoNetwork

Federate GeoNetwork

Web Services Integrator



Emergency situations

The real time data management federate system

geoSDI in G8 event

The INSPIRE use of geoSDI in ESDI

The future developments

Use Case

Civil Protection Dept

Planning Managment

Forecast Management

Emergency Events

Government Applications

G8 Sharing System (Military Use = International DGIWG Net)

PPRD Euromed Mediterranean Network for Civil Protection

geoSDI future work

ERA-Styler

ERA-Routing

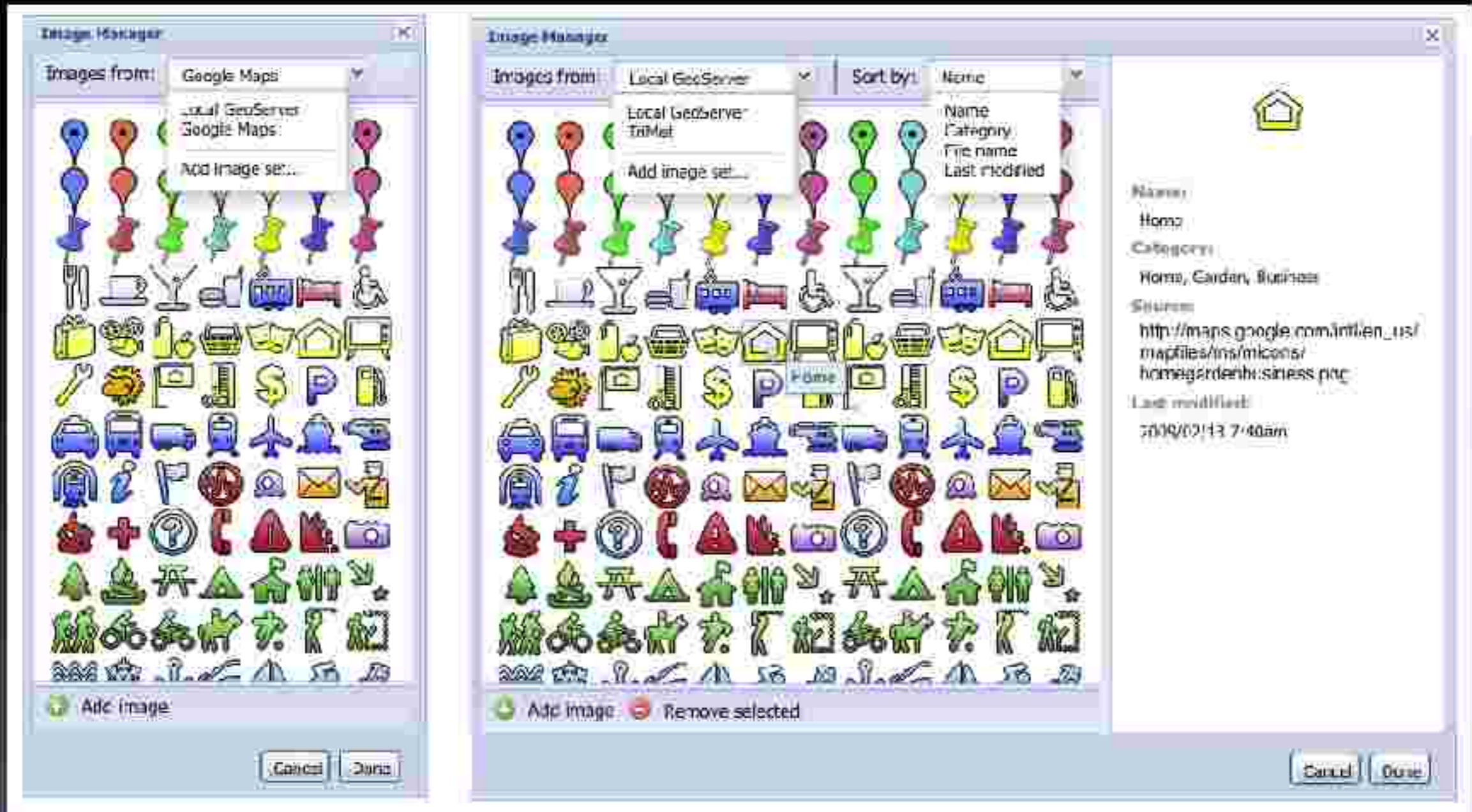
ERA-Editor (WFS-T)

geoSDI-Suite

ERA Styler



ERA Styler

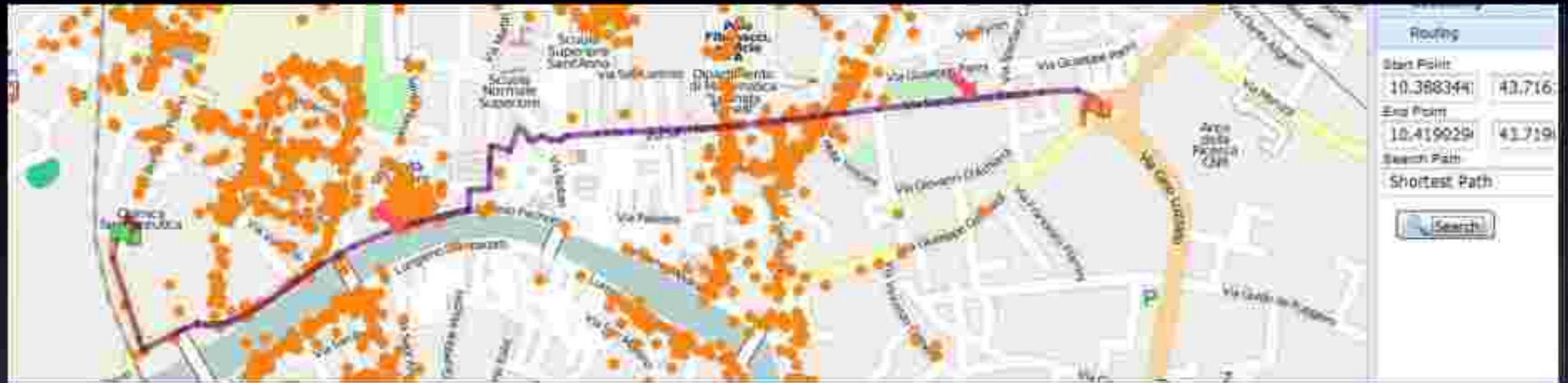


ERA Styler

The screenshot displays the ERA Styler interface, which is used for configuring map styles. It is divided into three main panels:

- Layer Styler:** This panel on the left contains a 'General' section with 'Name' (Population) and 'Thinner' (red) options. Below it is a 'Sampling' section with a histogram showing population distribution. At the bottom, there are checkboxes for 'Graduated colors' and 'Graduated symbols', and buttons for 'Cancel', 'Apply', and 'Save'.
- Classes:** The middle panel shows two lists of classes. The top list, titled 'Classes', has a 'Defaults' checkbox and four classes with population thresholds: ≥ 6000000 , > 4000000 , ≥ 2000000 , and < 2000000 . The bottom list, also titled 'Classes', has a 'Defaults' checkbox and four classes with population thresholds: ≥ 6000000 , ≥ 4000000 , ≥ 2000000 , and < 2000000 . Both lists include 'Add', 'Remove', and 'Edit' buttons.
- Style Properties:** The right panel is titled 'Style: ≥ 6000000 ' and has tabs for 'General', 'Popcorn', and 'Icons'. The 'General' tab is active, showing 'Legend properties' with 'Name' (4000000) and a checked 'Display this style in the legend' option. Below is a 'Limit by conditions' section with a checked checkbox and two conditions: 'PERSONS > 4000000' and 'PERSONS < 2000000'. At the bottom, there is a 'Limit by scale' section with 'Min scale' and 'Max scale' fields. A yellow note at the bottom left of this panel says 'Attributes are uneditable here.' Buttons for 'Cancel', 'Apply', and 'Save' are at the bottom right.

ERA GeoCoding & Routing



ERA Editor

Attribute Editing

Vector Editing

Versioning

Collaboration

Moderation

Vector Editor

The image displays a web-based Vector Editor interface. On the left, a sidebar lists various map layers under the heading "Map Groups". The main area shows a satellite map with a cluster of yellow and red points. A toolbar at the top contains icons for drawing tools. A dropdown menu is open, showing three options: "Draw points", "Draw lines", and "Draw polygons". The word "Active" is visible on the left side of the menu. The browser's address bar shows the URL "http://erastystem2.geosdk.org/geosdk-11".

Map Groups

- Val Fucine Dema
- CTI Abruzzo & Centro
- Abruzzo Emergency Maps
 - Agas - Foto Aerea 08-04-2008
 - Agas - Foto 28 set. 04-2008
 - Dist COM
 - Area COM
 - Campi COM
 - Area temporanea COM
 - Area Riserva (NGV)
 - Esportati & AC aprile (NGV)
 - Faglie (NGV)
 - Punti di osservazione (NGV)
 - Segnali sismiche (NGV)
 - Protezione civile sperimentale EMAS - Qu
 - IFI DOM AQ
 - IFI area AQ
 - IFI Sismici Abruzzo AQ
 - IFI Juni AQ
 - Zona Verde sismica Abruzzo
 - Pericolosità IDRO FM
 - Fila per Fucine Abruzzo
 - Superficie Aumento di Bacini
 - Superficie IRI
 - Superficie IDRA
 - Intenzioni Sismici (MMS)
 - Area sismologica sperimentale 08-04
- Terzi Apertivi
- Out System Movers

Active

- Draw points
- Draw lines
- Draw polygons

Map3

Versioning

5.1a

Feature Info: STATES.5

Attributes History

- 2009/06/20 at 16:45
- 2009/06/20 at 13:33
- 2009/06/19 at 05:47
- 2009/06/18 at 09:23

- Changed STATE_NAME from "State of Maryland" to "Maryland"
- Changed SUB_REGION from "M All" to "S All"
- Changed GEOMETRY, [compare current and previous](#).

Revision notes: Changed from the official state name to the more commonly-recognized name. Reverted changes to geometry made by jdoe.

[Revert](#)

- 2009/06/16 at 20:22
- 2009/06/14 at 04:01

Diffs
Is this the best way to show diffs of attribute value? How should diffs of geometry be displayed?

[Edit](#) [Cancel](#) [Save](#)

Collaboration

The screenshot displays a web-based GIS application interface. The browser address bar shows the URL: <http://erasytem2.geosdi.org/geosDI-ERA/it/geosdi.era.EraEntryPoint/EraEntryPoint.html>. The application features a map with several data windows overlaid, each showing a list of changes or events.

System Fiume STABILE - History

Time	User
2009/06/22 at 16:45	chirico
2009/06/22 at 16:45	control
2009/06/22 at 16:45	gibco
2009/06/22 at 16:45	chirico

System Fiume STABILE - History

Time	User
2009/06/22 at 16:45	chirico
2009/06/22 at 16:45	control
2009/06/22 at 16:45	gibco

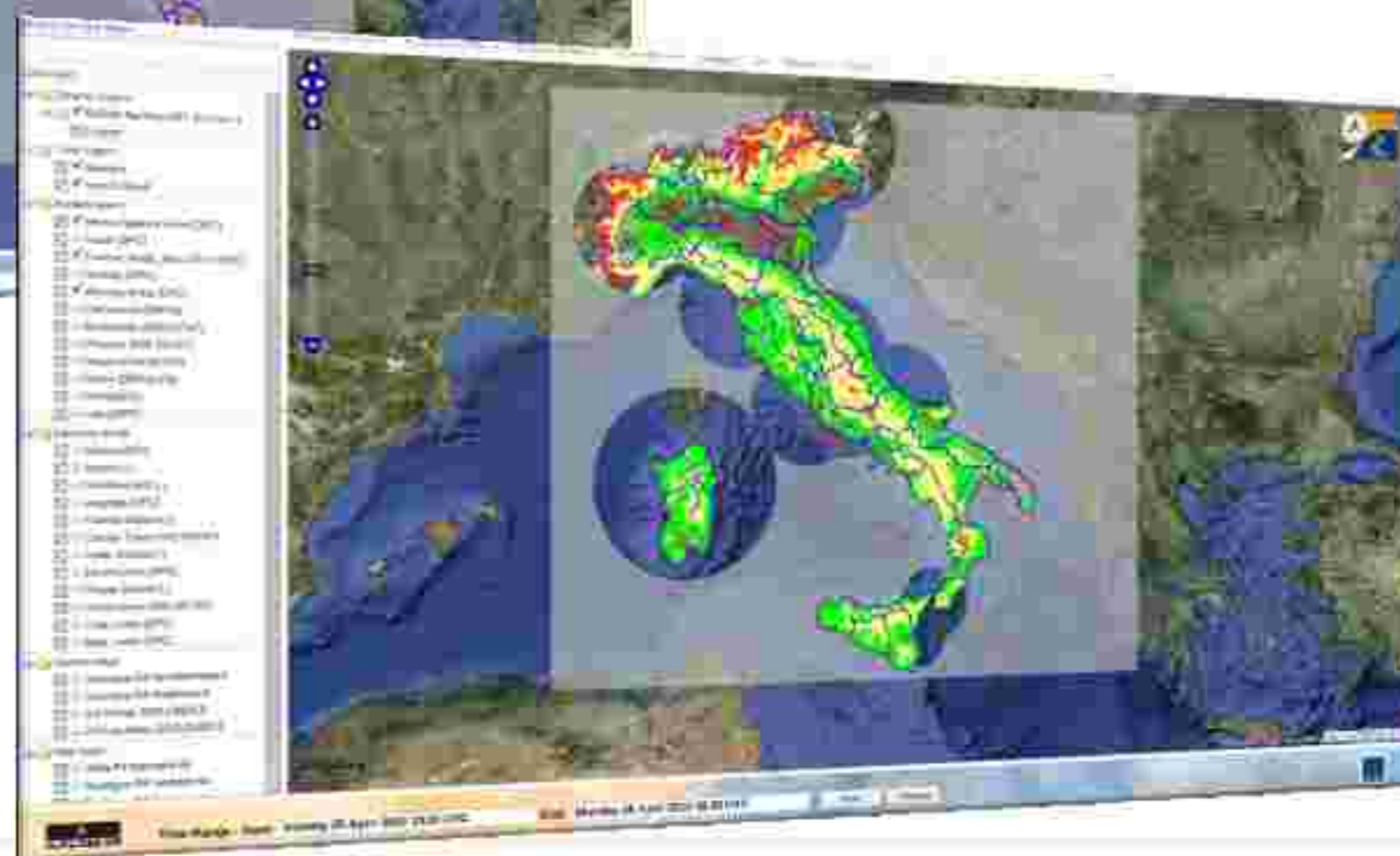
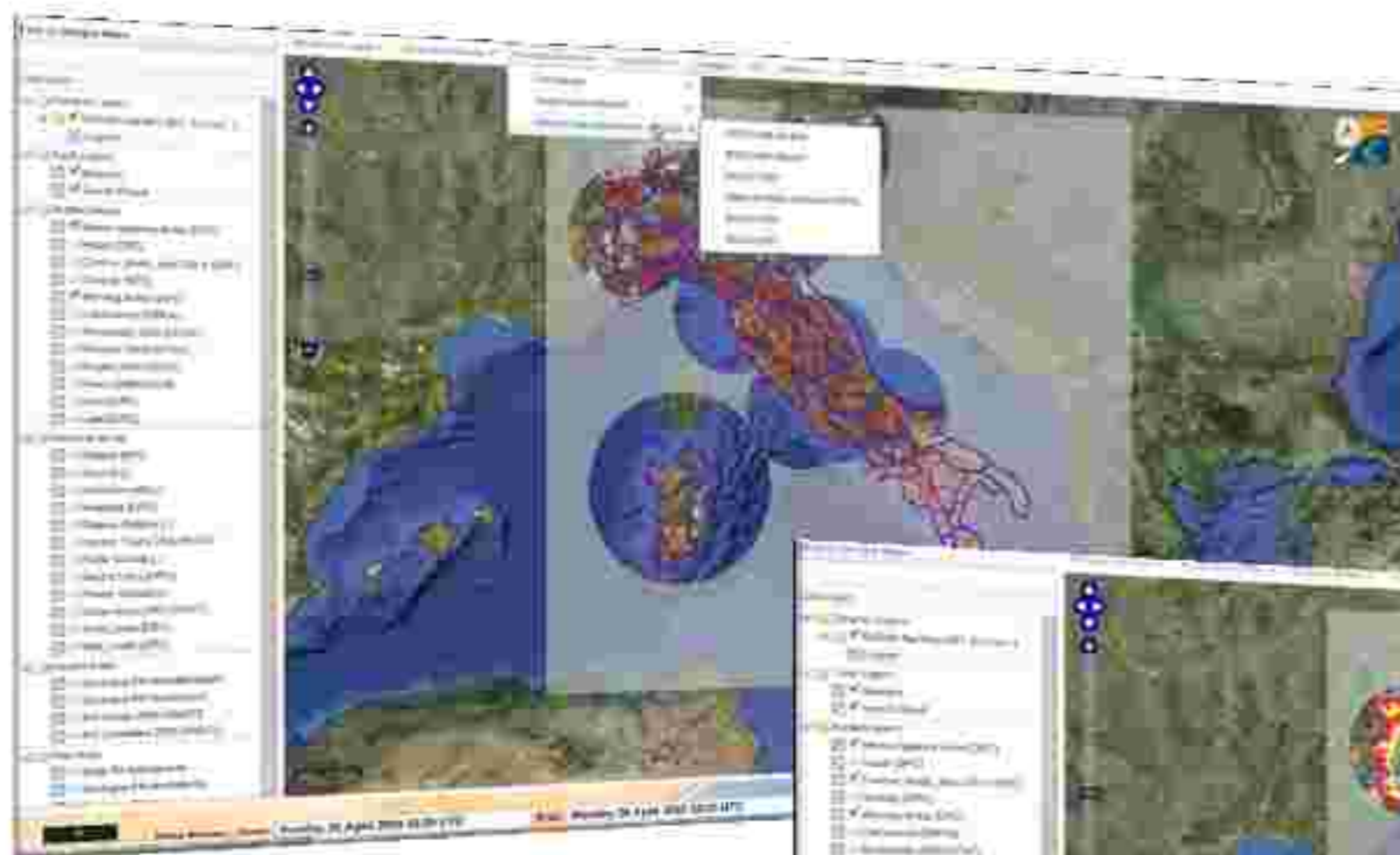
System Fiume STABILE - History

Time	User
2009/06/22 at 16:45	control
2009/06/22 at 16:45	gibco
2009/06/22 at 16:45	control
2009/06/22 at 16:45	gibco
2009/06/22 at 16:45	control

The interface also includes a sidebar with a tree view of folders and a bottom status bar.

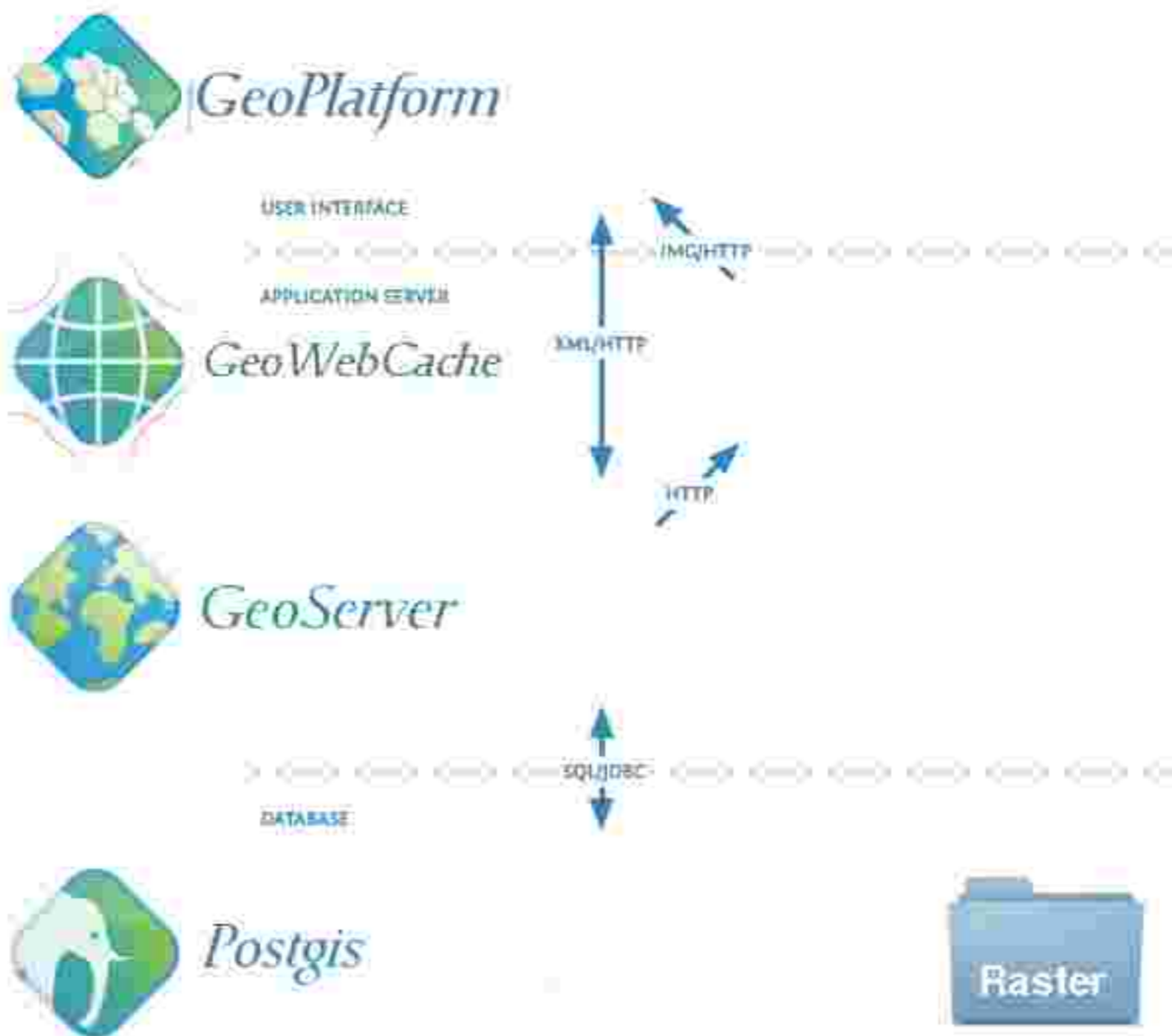


GEOSDI ADV USE: DEWETRA

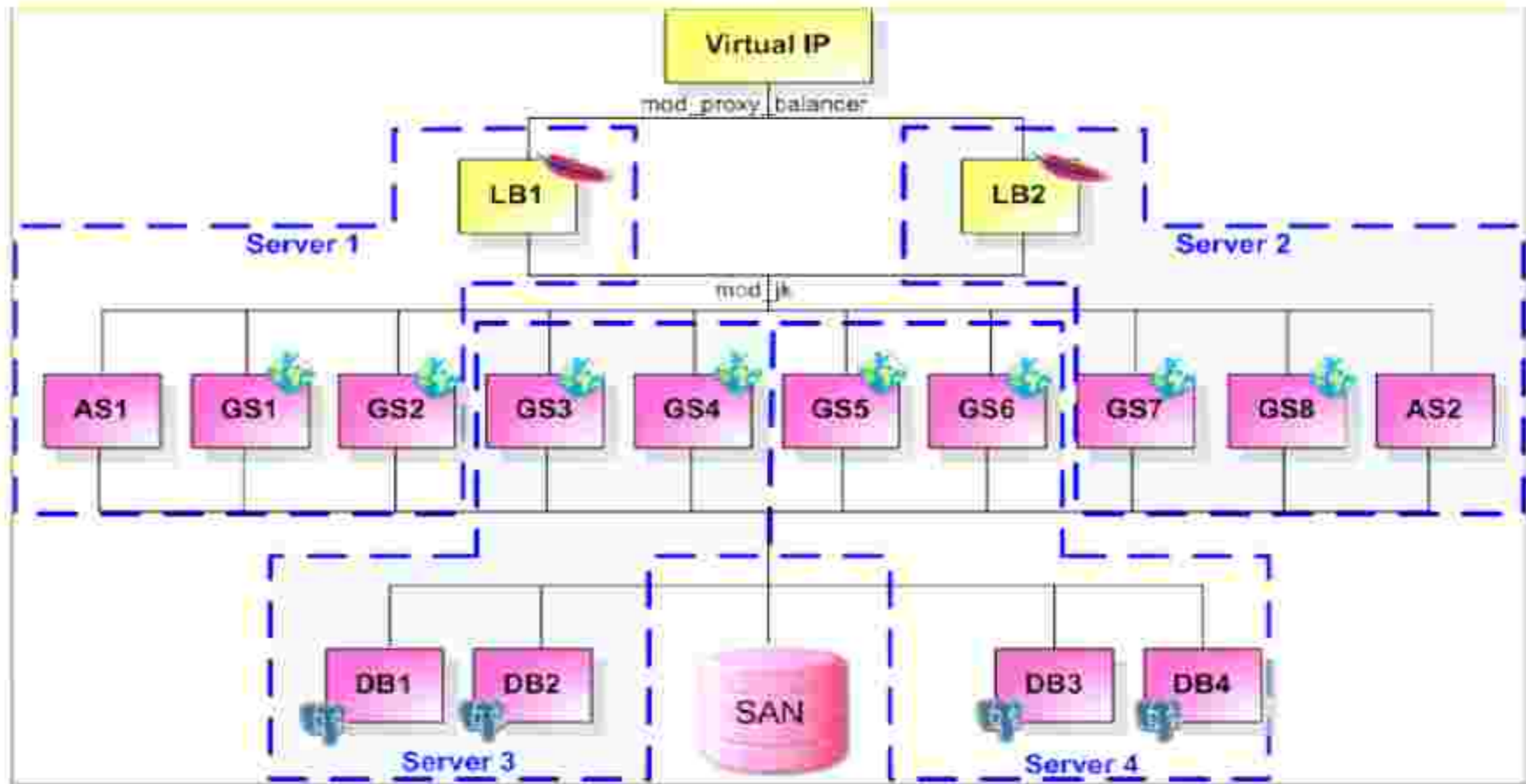




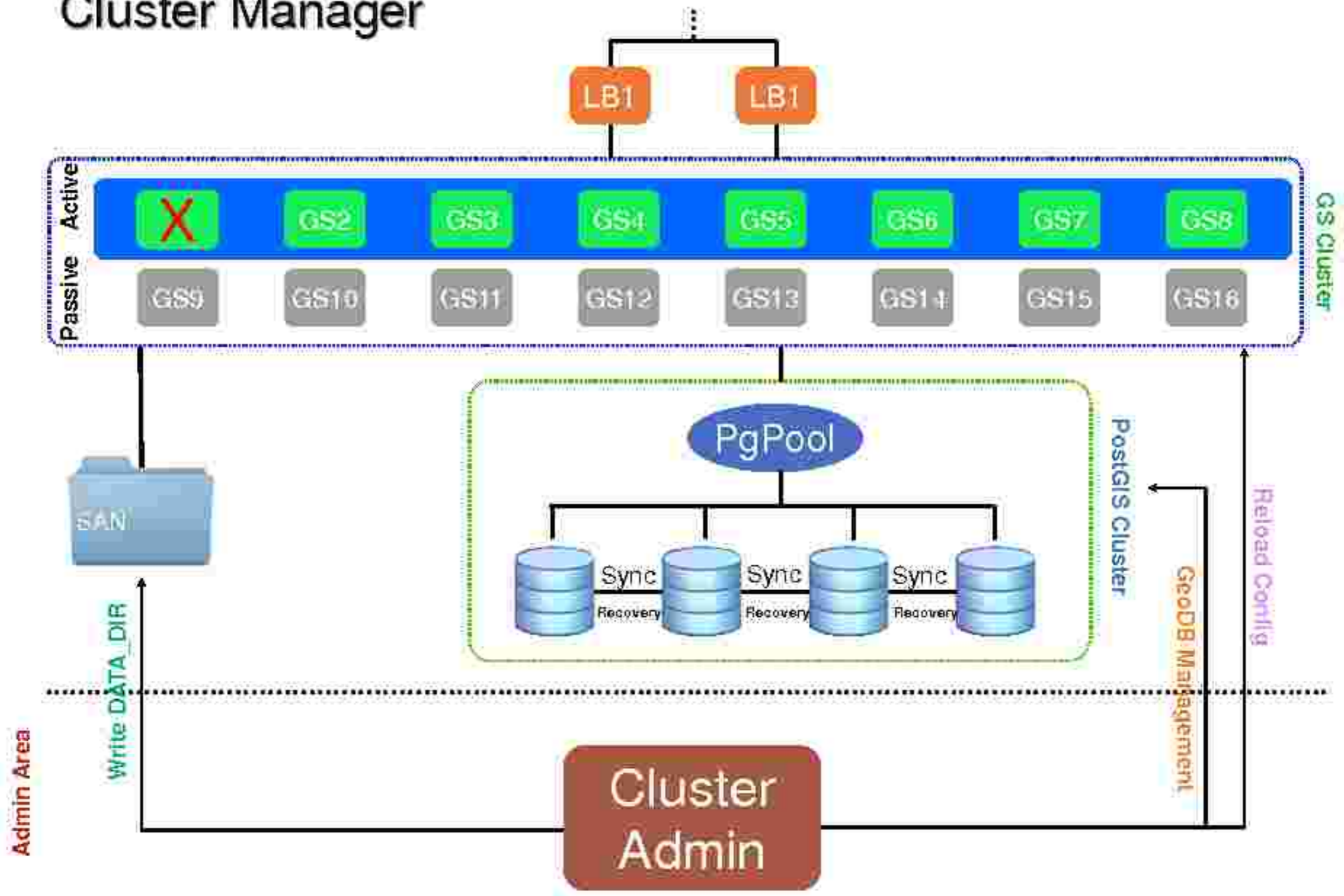
HOW GEOSDI PLAY



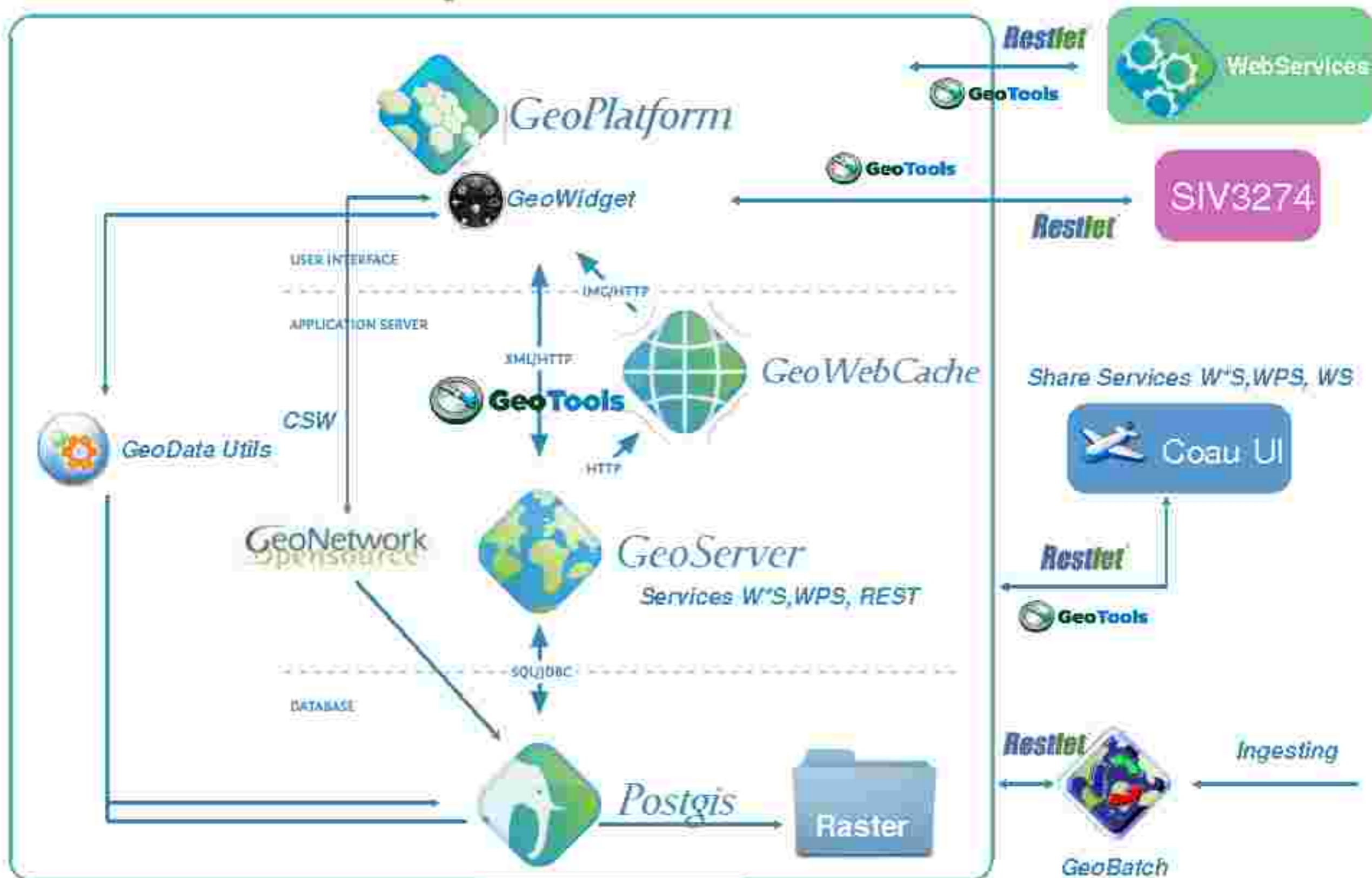
HA Cluster on Virtualized HW



Cluster Manager

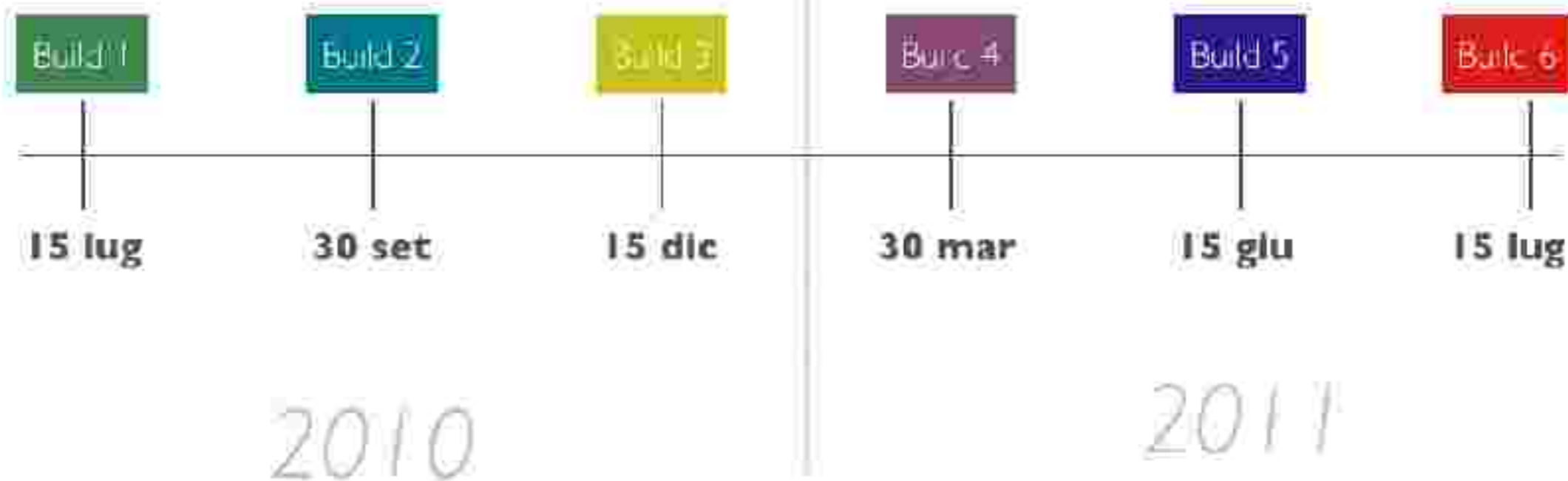


ROAD MAP 2010/2011 : SITDPC





RoadMap & Build





GEOSDI... AND EUROPE

INSPIRE - MONITOR & REPORTING DRAFTING TEAM





GEOSOL, EUROPE AND AFRICA

EUROMED PPRD GIS & EO TEAM





GEOSDI AND DEFENCE STAFF

DEFENCE GEOSPATIAL INFORMATION WORKING GROUP





GEOSDI AND UNITED NATIONS





Bilaterale Italia Svezia 25-26 Maggio 2010





CTS

Prof. Bernardo De Bernardinis

Prof. Vincenzo Cuomo

Team Manager

Dott. Dimitri Dello Buono

Develop Manager

Francesco Izzi

SaaS Manager

Dott. Giuseppe La Scaleia

DaaS manager

Dott. Lorenzo Amato

Dott. Donato Maio

<http://www.geosdi.org>



Arrivederci

Dimitri Dello Buono

