Spatial Data Management

GeoNetwork opensource:
Geographic data sharing for everyone

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GeoNetwork Opensource
Geographic data sharing for everyone
GeoNetwork opensource provides:
Free and Open Source Software
The glue in a Spatial Data Infrastructure
InterMap opensource
A Desktop and Server installer for use on any platform
Community website
SDI Software Architecture
GeoNetwork Opensource | a major step towards faster and better responses to the complete information needs of decision makers

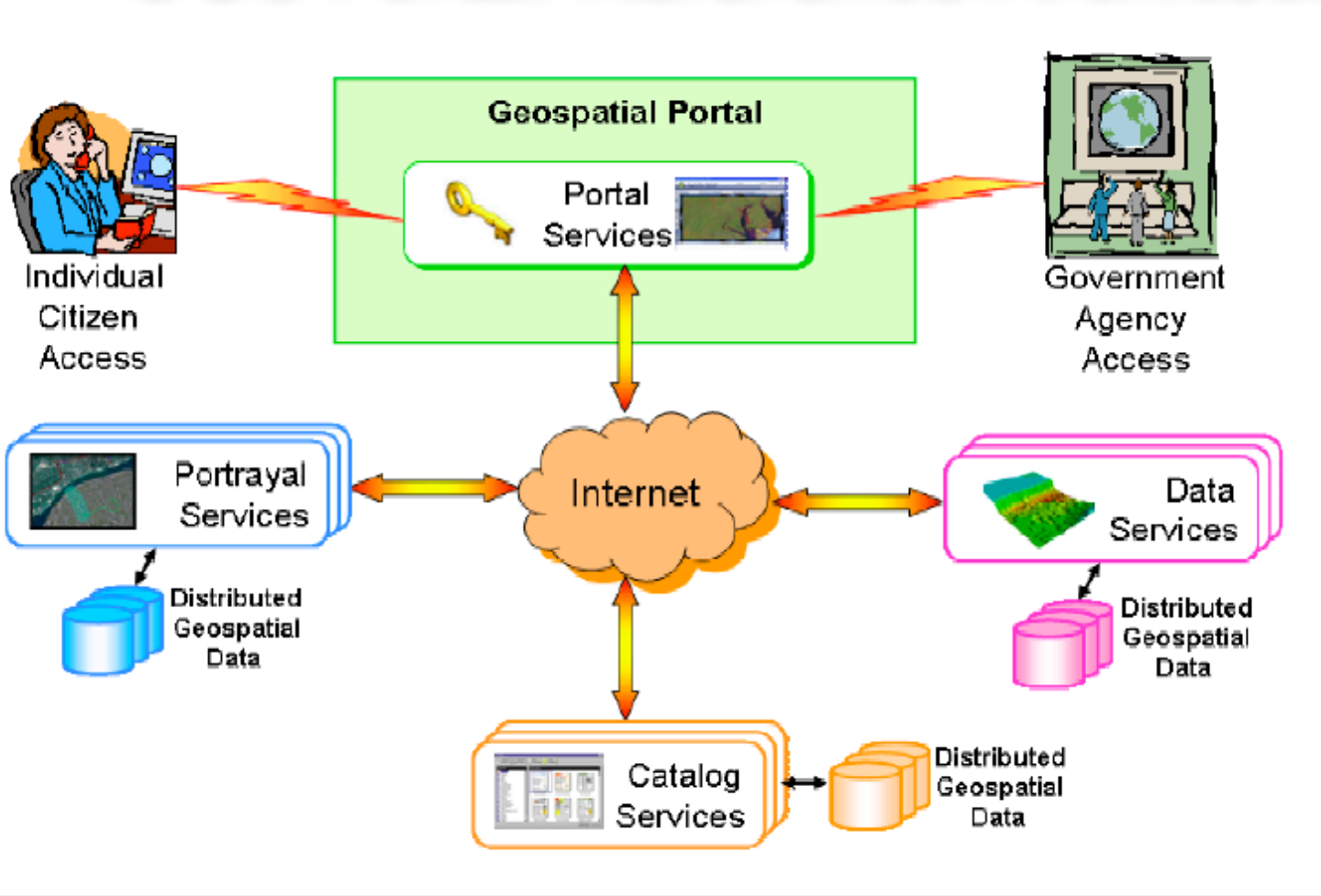
History at a Glimpse

- Prototyping by FAO
  2000-2001
- Version 1 by FAO & WFP
  2002-2003
- Version 2 by FAO, WFP & UNEP
  2004-2005
- Version 2.1 under active development

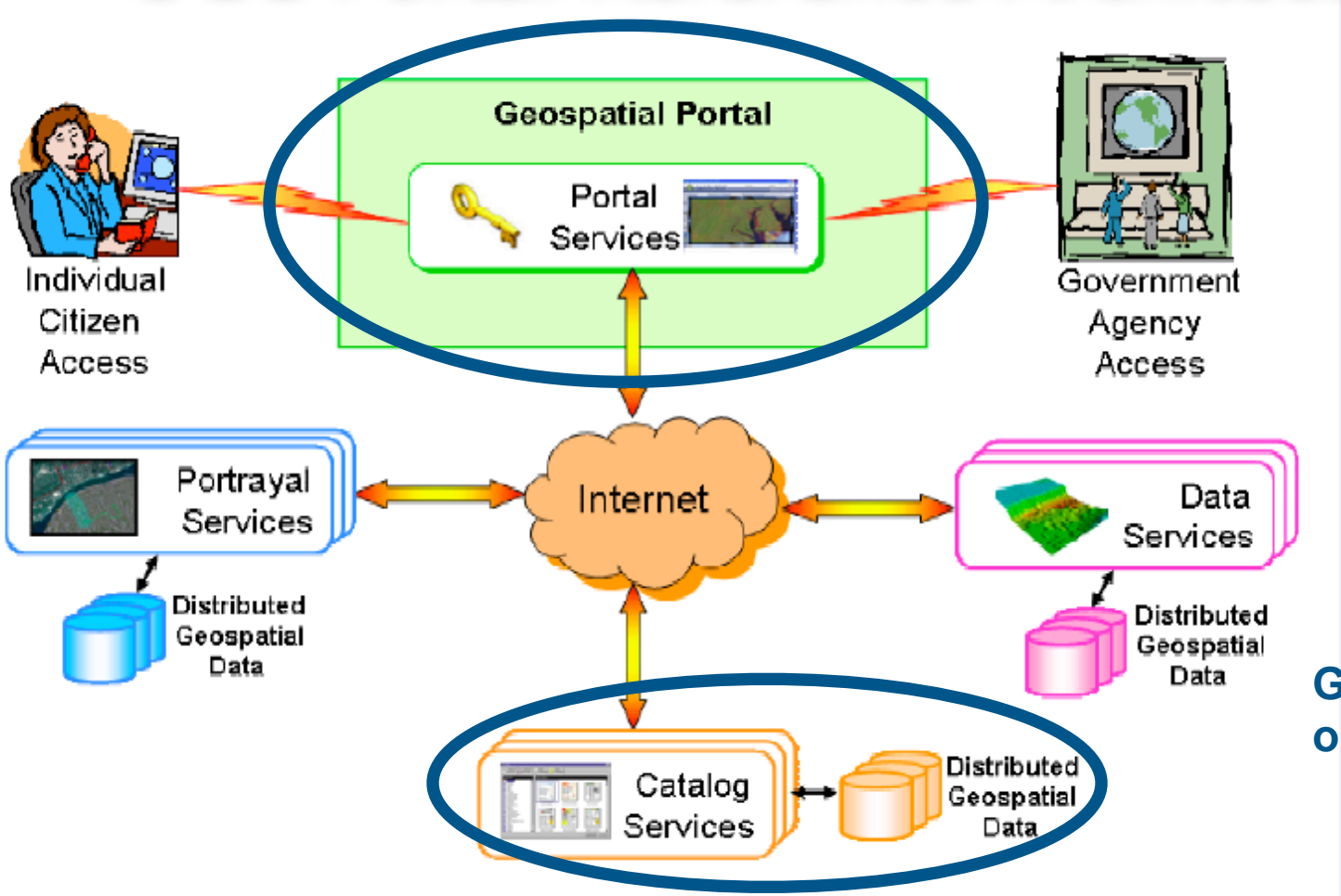
Users

- UN: FAO, WFP, UNEP, WHO, OCHA, UNHCR
- Other: CGIAR, ESA, GMFS, FEWSNET, FGDC
- Individual projects in Spain, France, Czech, UK, Australia, South Africa, …

OGC Portal Reference Architecture



OGC Portal Reference Architecture



GeoNetwork opensource

What is GeoNetwork opensource?

- A web based catalogue application
- A component in the Global Spatial Data Infrastructure
- The foundation of a custom site

http://193.43.36.137:8888 – GeoNetwork– The portal to spatial data and information

GeoNetwork opensource

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Username Password Login

Find Interactive Maps, GIS datasets, Satellite Imagery and Related Applications

Free Text

Map type ☐ Digital ☐ Paper

Hits per page 10

Advanced search

Remote search

search

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: GeoNetwork@fao.org or send us Feedback / comments

Info in interactive maps

You can find interactive maps by searching in GeoNetwork for digital data with an interactive map, or directly connet to a pre-configured map server.

Supported map servers are OpenGIS® Consortium compliant WMS Map Servers and ESRI® ArcIMS Map Servers.

Featured map

Sub-national administrative boundaries of Africa (1993).

National and sub-national administrative boundaries of Africa. Administrative map of Africa clipped with coastal line, contains water bodies,rivers and islands.

Recent Additions

- Hydrological basins in Africa
- Global limited yeld for rain-fed grain maize
- Global agro-climatically attainable yield for 120 day rain-fed grain maize
- Global expected output for all rain-fed grain-maize
- Global expected output for all rain-fed and irrigated grain-maize

Categories

- [Agriculture]
- [Base maps]
- [Climate]
- [Fisheries]
- [Forestry]
- [Livestock]
- [Population]

Functionality

- Searching of spatial data resources
- Finding services related to these resources
- Downloading of spatial data
- Online dynamic viewing through OGC compliant services
- Online Printing
- Feedback mechanism to data owners

http://193.43.36.137:8888 – GeoNetwork– The portal to spatial data and information

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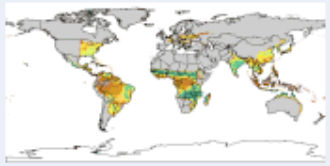
Default view
Advanced view
XML view

::Identification info



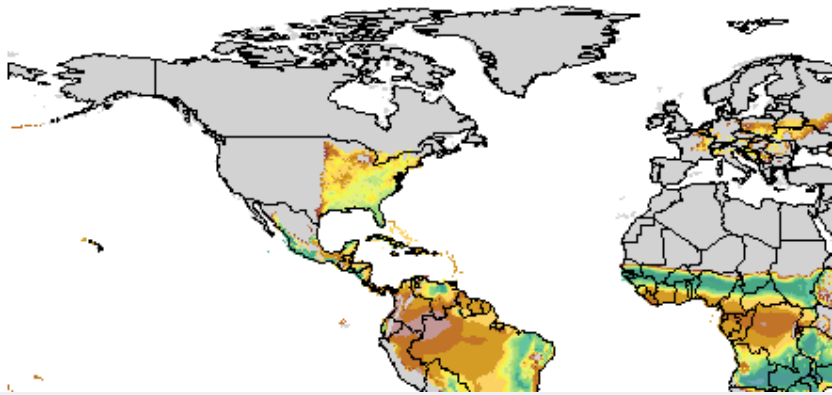
Title	Global agro-climatically attainable yield for 120 day rain-fed grain maize
Date	2000-05-01 (creation)
Edition	First edition.
Presentation form	documentDigital
Language	en
Character set	utf8
Abstract	The Food and Agriculture Organization of the United Nations (FAO) with the collaboration of the International Institute for Applied Systems Analysis (IIASA), has developed a system that enables rational land-use planning on the basis of an inventory of land resources and evaluation of biophysical limitations and potentials. This is referred to as the Agro-ecological Zones (AEZ) methodology.
Supplemental Information	
Purpose	The AEZ methodology for land productivity assessments follows an environmental approach; it provides a framework for establishing a spatial inventory and database of land resources and crop production potentials. This land resources inventory is used to assess, for specified management c rain-fed and irrigated conditions, and to quant agro-ecological context.
Status	onGoing
Topic category	farming
Descriptive keywords	MAIZE.
Descriptive keywords	AGROCLIMATIC ZONES.
Descriptive keywords	Agroecological zones.
Descriptive keywords	World (place).
Spatial representation type	grid

::Equivalent scale

::Geographic box

North bou

http://193.43.36.137:8888 –



FAO GeoNetwork- The portal to spatial data and information

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
helping to build a world without hunger

ENVIRONMENT AND NATURAL RESOURCES [SDRN]

What's new in SDRN | About SDRN | SDRN home

FAO home | SD-Dimensions home | Assessment & Monitoring | Environmental Management | Geo-Spatial Data & Info | Global Environmental Change

FAO //GeoNetwork

[Find and analyze **geo-spatial data**]

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About

GeoNetwork opensource allows to easily share geographically referenced thematic information between different FAO Units, other UN Agencies, NGO's and other institutions.

more..

GeoNetwork opensource Community website

Recent Additions

- Hydrological basins in Africa ...
- Physiographic Map of North and ...
- Forests and Drylands Programme:...
- Globally threatened species of ...
- Original Forest Cover: Global D...
- Natural polar ecosystems (SAMP...

News

- Maps and satellite images on the South Asia Earthquake 2005

Links

- UNGIWG United Nations Geographic Information Working Group
- UN Cartographic section
- Global Spatial Data Infrastructure (GSDI)
- Open Geospatial Consortium (OGC)
- ISO - TC211 Geographic information/Geomatics

more..

Login

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Password

Login

SEARCH

Find Interactive Maps, GIS datasets, Satellite Imagery and Related Applications

Search for Geo-Spatial Data and Information

Set area

Place Keyword

– Any –

SEARCH OTHER SERVERS (Z59.50)

Define criteria

Free Text africa

Map type Digital Paper

SHOW ADVANCED OPTIONS

Hits per page 10 OK

Display a map or create your own map composition with InterMap opensource

Create your interactive map

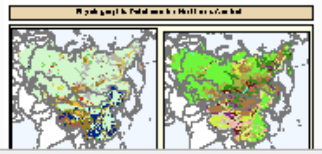
1 Choose a predefined map

- Landsat 7 Global Mosaic (pan sharpened)
- Landsat 7 Global Mosaic (not pan sharpened)
- Land Cover of the World in the Year 2000
- MODIS TERRA daily composite
- MODIS AQUA daily composite
- Soil Map of the World
- 1km elevation, seamless SRTM elevation

List of FAO's Web services

Featured map

Physiographic Map of North and Central Eurasia (SAMPLE DATA!)



Featured layer(s):

Physiography of North and Central Eurasia - Slope

Physiography of

2 or Select layers and a region/country

Base layers:

- [x] Administrative boundaries
- [x] Mayor Cities
- [ ] Rivers of the World
- [ ] Roads of the World
- [ ] Inland Water (perennial)
- [ ] Coastal Lines

Thematic layers: Global Map of Irrigated Areas

Backdrop images: Landsat 7 Global Mosaic (pan sharp

Zoom to Region/ Country: Asia

OK

Done

Functionality

- Management module for data and metadata
- User authentication on search (not required)
- User authentication on metadata and data management services
- Metadata template system
- Search on remote metadata databases (FAO, WFP, UNEP etc…)

Mixed search results

Abstract Montly water requirement for fish ponds during the dry season. Water requirement was computed using a water budget equation for each grid cell. The equation is based on the difference amongst precipi ...more...

Keywords Africa, Water balance, Pond, Fishery, Fish farming, Aquaculture, Africa

Metadata | Download | Interactive Map

Net annual water requirement for shallow ponds

Abstract Total amount of water required for fishponds during the dry season. This net annual water requirement was computed using a water budget equation for each grid cell. The equation is based on the diff ...more...

Keywords Africa, Water balance, Pond, Fishery, Fish farming, Aquaculture, Africa

Metadata | Download | Interactive Map

Utilization of Safe Drinking Water by District - Sierra Leone

Abstract The map is part of the VAM Report on Sierra Leone- "Rural Food Security, Livelihoods and Nutrition Survey & Household Food Security Profiles" - July 2003

Keywords Water, Sierra Leone

Metadata | Download

Water availability

Abstract Spatial distribution of water availability for fish ponds. Map derived from the combined suitability of annual rainfall with density of perennial streams and rivers. Annual rainfall interpreted as ra ...more...

Keywords Africa, Water balance, Pond, Fishery, Fish farming, Aquaculture, Africa

Metadata | Download | Interactive Map

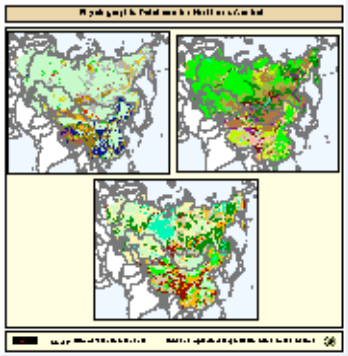
1 2 3 4 5 6

Default view
Advanced view
XML view

Reset | Save | Save and close | Save and Check | Thumbnails | Cancel

Template

::Identification info



Title: Physiographic Map of North and Central Eurasia

::Date

Date: 1999-10-01

Date type: publication

Edition: First

Presentation form: mapDigital

Language: en

Character set: utf8

Abstract:

Physiographic maps for the CIS and Baltic States (CIS_BS), Mongolia, China and Taiwan Province of China. Between the three regions (China, Mongolia, and CIS_BS countries) DCW boundaries were introduced. There are no DCW boundaries between Russian Federation and the rest of the new countries of the CIS_BS. The original physiographic map of China includes the Chinese border between India and China, which extends beyond the Indian border line, and the South China Sea islands (no physiographic information is present for islands in the South China Sea). The use of these country boundaries does not imply the

InterMap opensource

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

Layers

Rivers
info
opaque

Simplified world country boundary
Metadata -
opaque

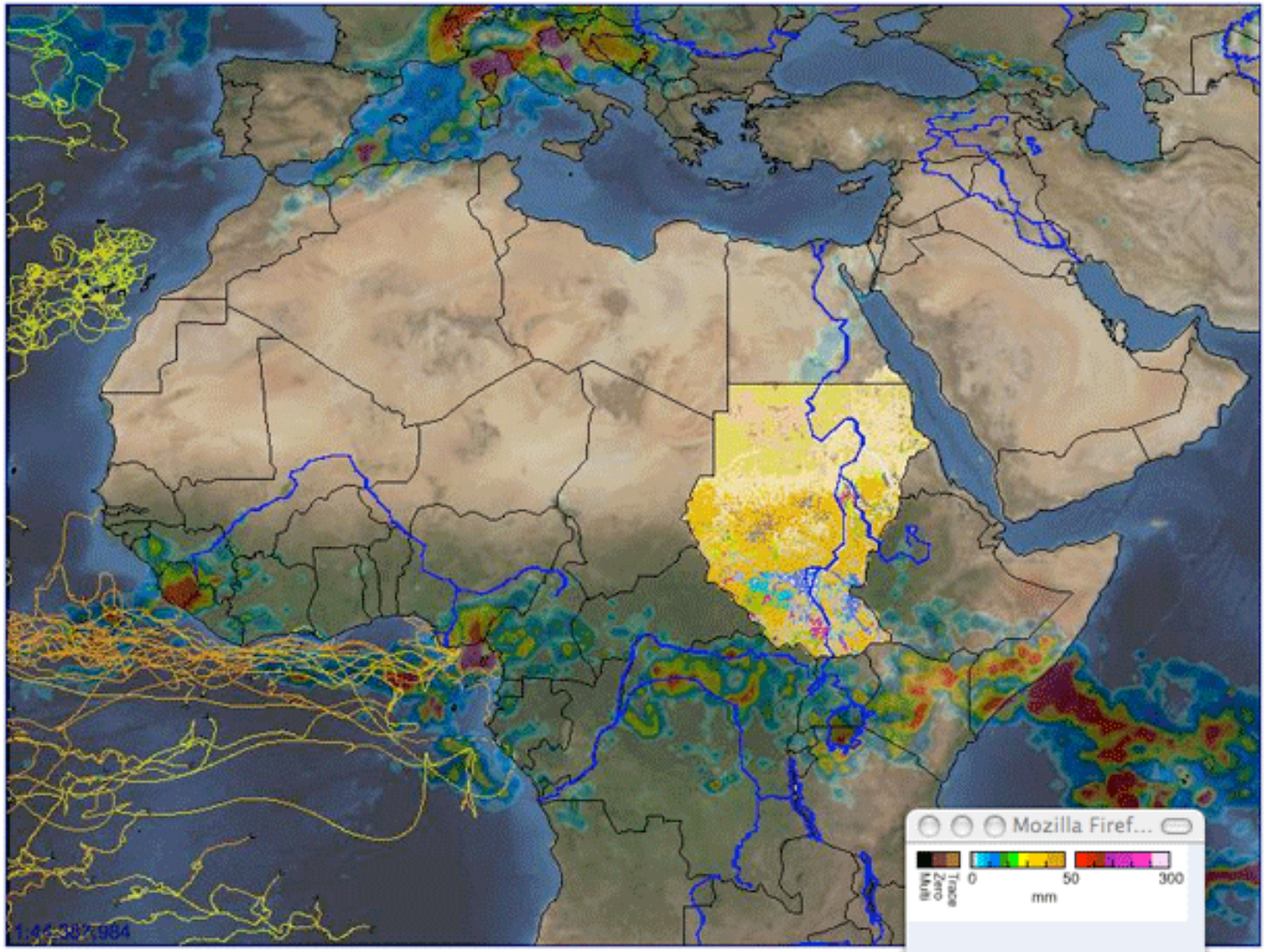
Aggregated Multipurpose Landcover database for Sudan (Africover)
Metadata -
80 %

Sea Surface Temperature
Selected time: 2003-05-01
info
70 %

Multi-Satellite Precipitation Estimate
Selected time: 2003-05-01
info
30 %

Blue Marble Next Generation, Global MODIS derived image
info
opaque

Refresh



The Basic Building Blocks

- ISO Standards (International Standards Organization)
- OGC Standards (Open Geospatial Consortium)

What is new in GeoNetwork opensource 2?

- Increase in metadata storage capacity
- Support for multiple metadata standards (e.g. ISO19115, FGDC, DC)
- Better validation of metadata

What is new in GeoNetwork opensource 2?

- Standalone, desktop version
- Full OGC Catalog v2.0 support (in v2.1)
- ISO 19139 compliant metadata
- Metadata synchronization

What is new in GeoNetwork opensource 2?

- Community website
  - Documentation center
    - FAQ, Exercises, Manuals
  - Software center
  - Mailing lists for Users & Developers

GeoNetwork opensource Community website

navigation

- Home
- Documentation
- Software
- Administrator
- Developer
- Version 1
- Related Stuff
- Workshops
- Gallery

Join the mailing lists:
geonetwork-users
geonetwork-devel
geonetwork-commit

Chat directly with developers on IRC:
#geonetwork on irc.freenode.net

Software project page:
SOURCEFORGE.net

log in

Name
ticheler

GeoNetwork opensource Community website

GeoNetwork opensource is a Free and Open Source catalog application to manage spatially referenced resources. It provides powerfull metadata editing and search functions as well as an embedded interactive web map viewer. This website contains information related to the use and development of the software.

Current software version: v2.0.2

The software is released under the GPL license and can be used and modified free of charge.

Software and flyer - NEW!!

We have recently created a flyer and CDROM with the GeoNetwork opensource desktop and server installers and all the required supporting software and manuals. The Flyer will give you a good overview of the capabilities of GeoNetwork opensource. The CD contains besides the GeoNetwork opensource software a wide range of other Free and Open Source Software for Windows, Linux and Mac OS X of interest to the geospatial community (GeoServer, MapServer, gvSIG, uDig,QGIS, GRASS, MapBuilder, MapLab, ka-map and PostGIS).

store

Visit the GeoNetwork opensource merchandise store! New!

search

search

news

GeoNetwork opensource 2.0.2 maintenance release is out!
2006-04-18

GeoNetwork opensource 2.0.0
2005-12-13

More...

Web Map Service - Style Layer Descriptor
Filter Encoding - Controlled vocabularies
Web Feature Service - RSS - Semantics
EPSG - Geography Markup Language
WSDL - Catalog Services for the Web
HTTP - Open Archive Initiative - FGDC
Web Coverage Service - SOAP - Web
Map Context - GeoTIFF - Web
Coordinate Transformation Service
Z39.50 - Web Pricing and Ordering
Service - ISO 19115 - XML/XSL/XSD
CSS - Web Processing Service - HTML

This Rail-track was a really cool driving experience!!!

Only one exploded suspension in the middle of nowhere!

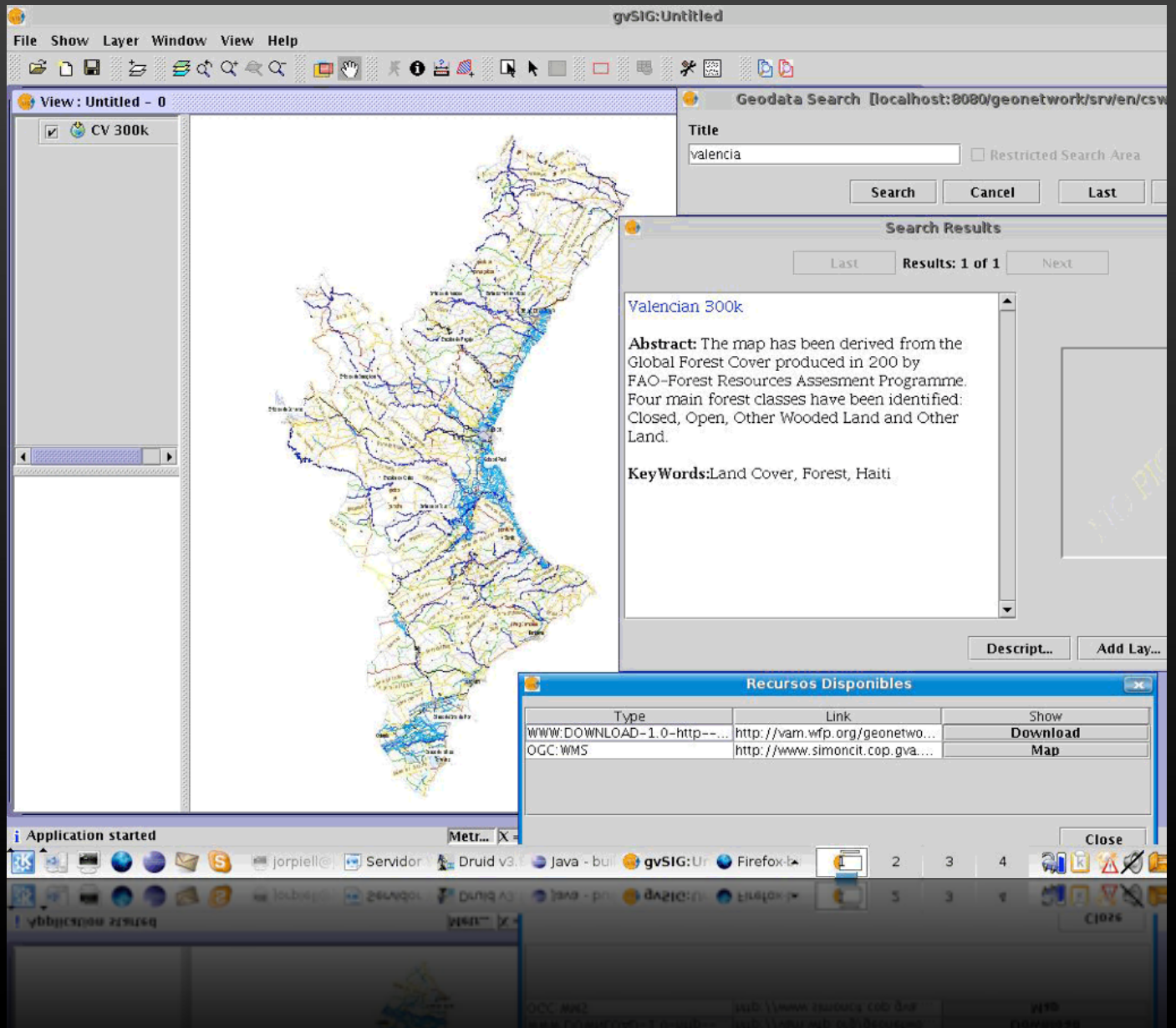
- Interpretation of standards can prevent things to nicely work together

Experts required!

Expanding Community

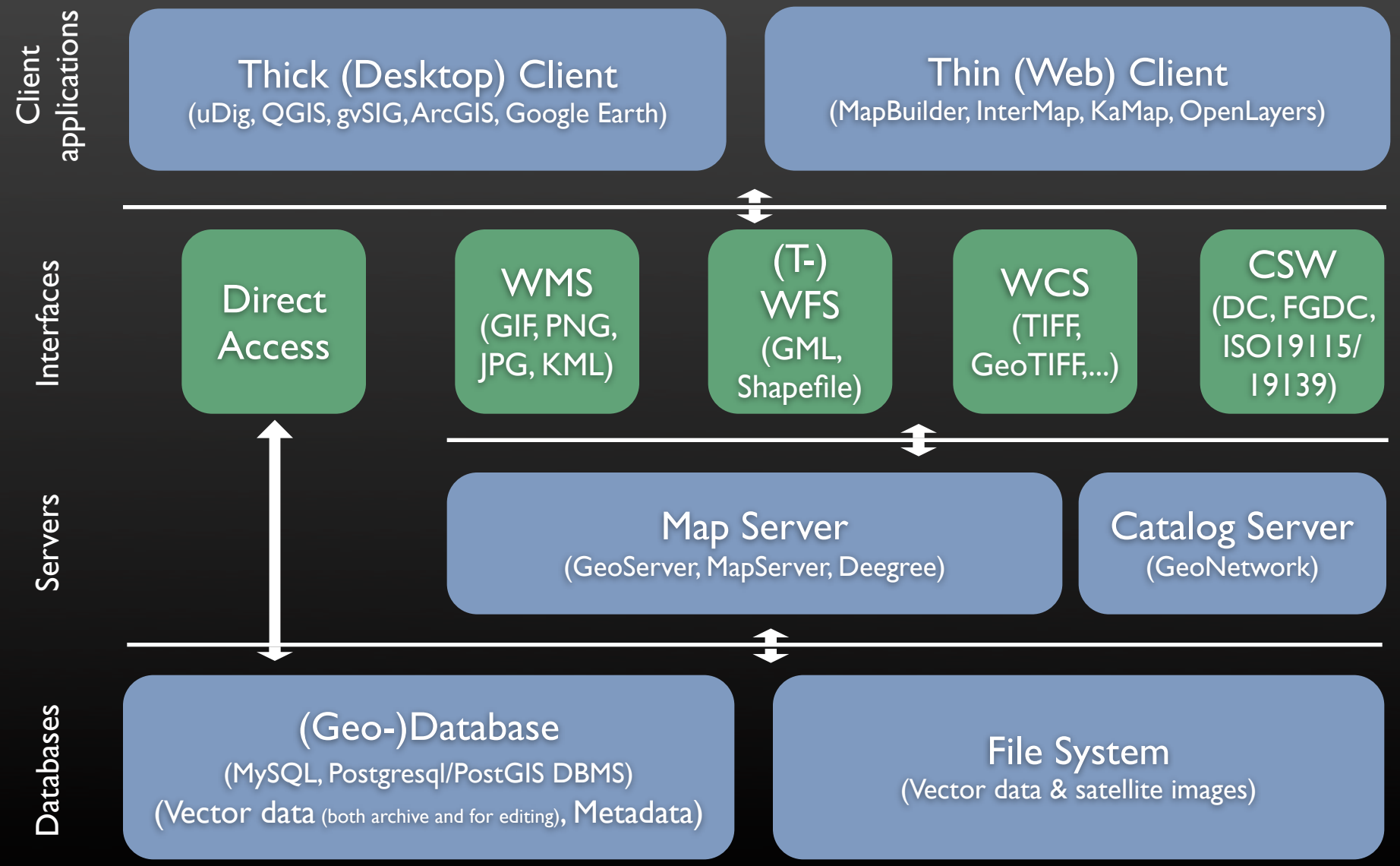
- Shift from “intentions” to “implementation” by community members
- Australia, France, UK, USA, Czech rep, South Africa all have funded projects & developers started
- Knowledge management - Community website maintenance
- Community building process

Tool interoperability testing



gvSIG

GEOFOSS based SDI Software Architecture



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GeoNetwork opensource Spatial Data Catalogue

Architectural overview

Basic requirements

- Development of XML/XSL based web application
- Platform independent
- Runs on JDBC compliant databases
- Freely available

Requirements

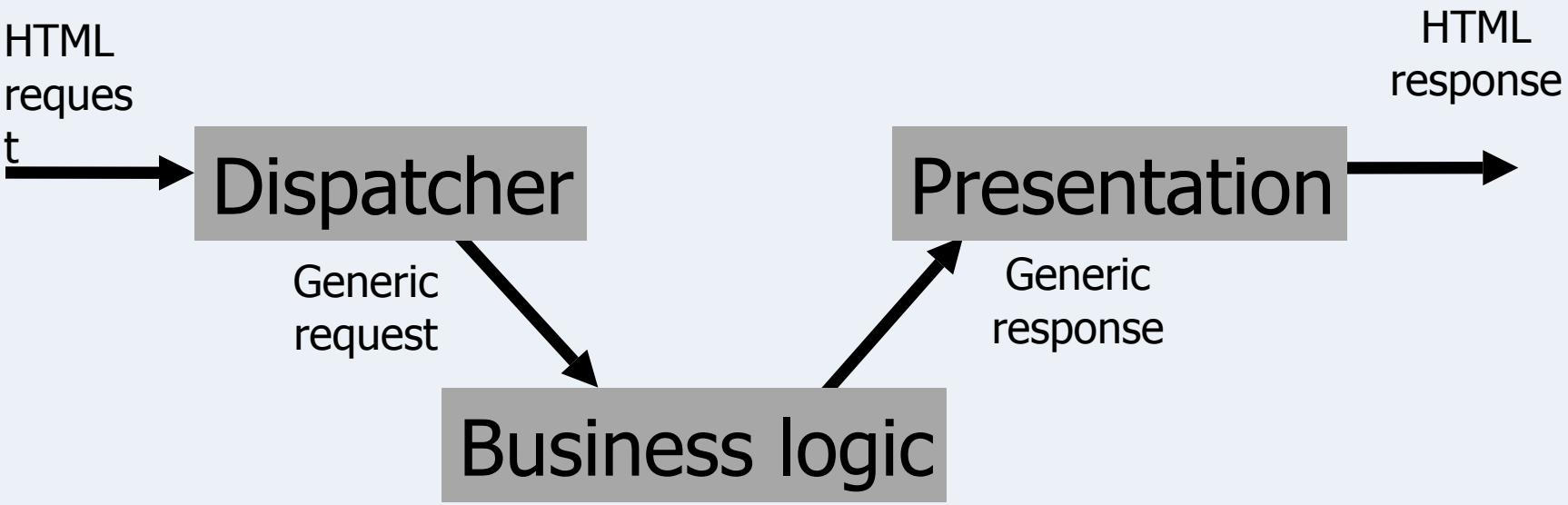
- Separation of presentation (pages) and business logic (services)
- Reusability
- Standard technologies
- Multiple access modes (HTML, XML)
- Multiple data sources
- Controlled team working environment

Solutions

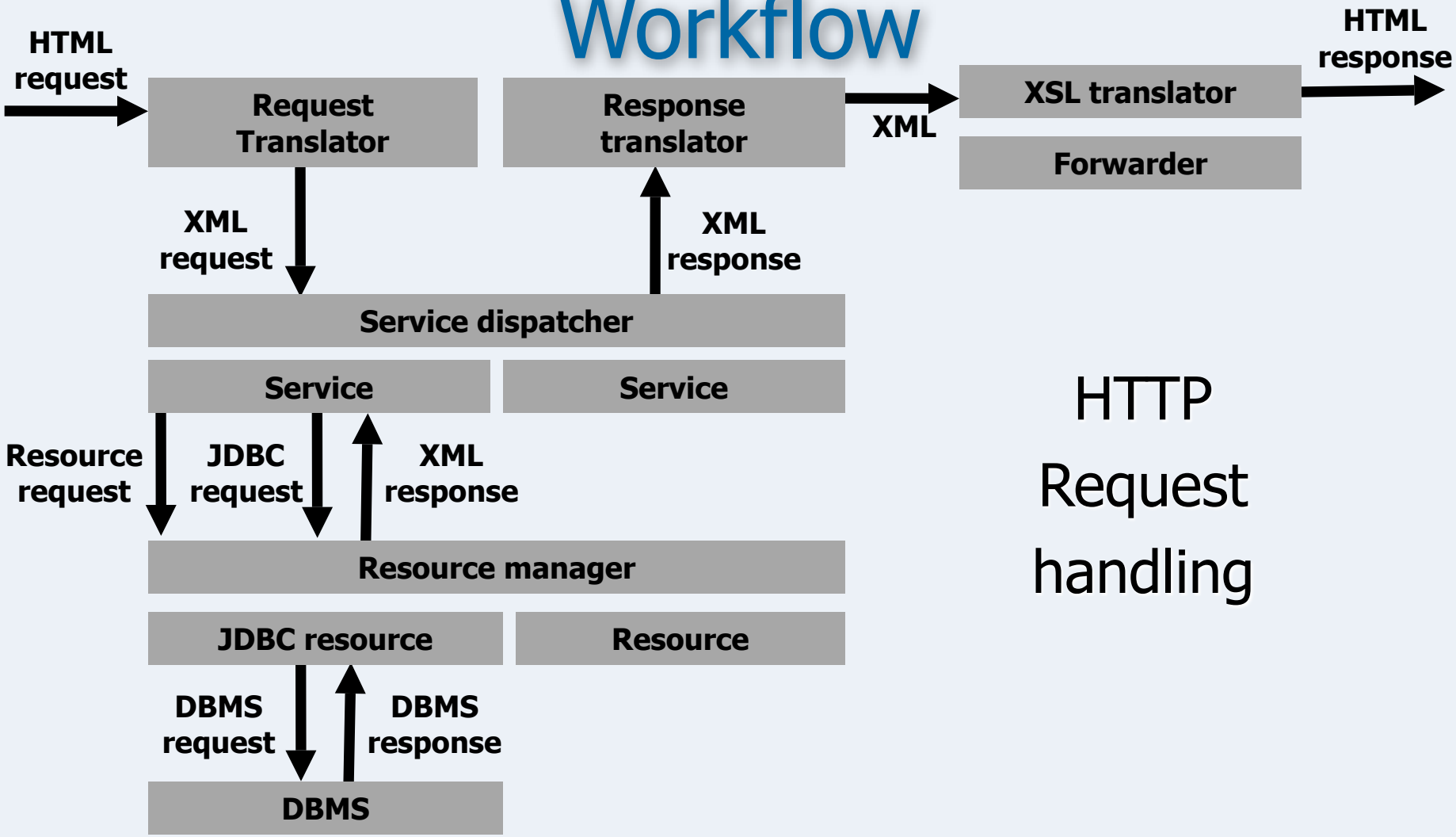
- Standard technologies
  - Java language
  - Servlet environment for web services (Tomcat & Jetty)
  - XML/JDOM data representation
  - XSL for presentation
  - JDBC for SQL database access
  - Multi platform

Solutions

Model 2 architecture



Workflow

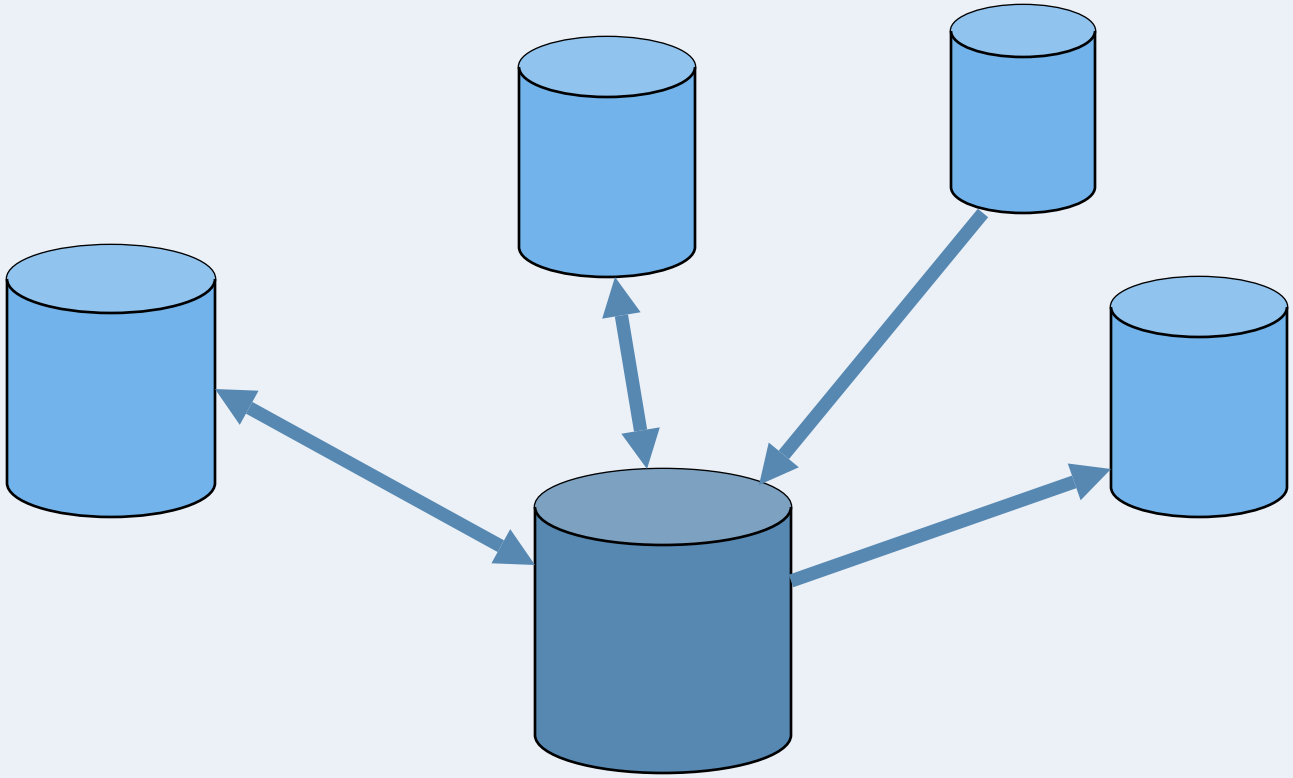


HTTP Request handling

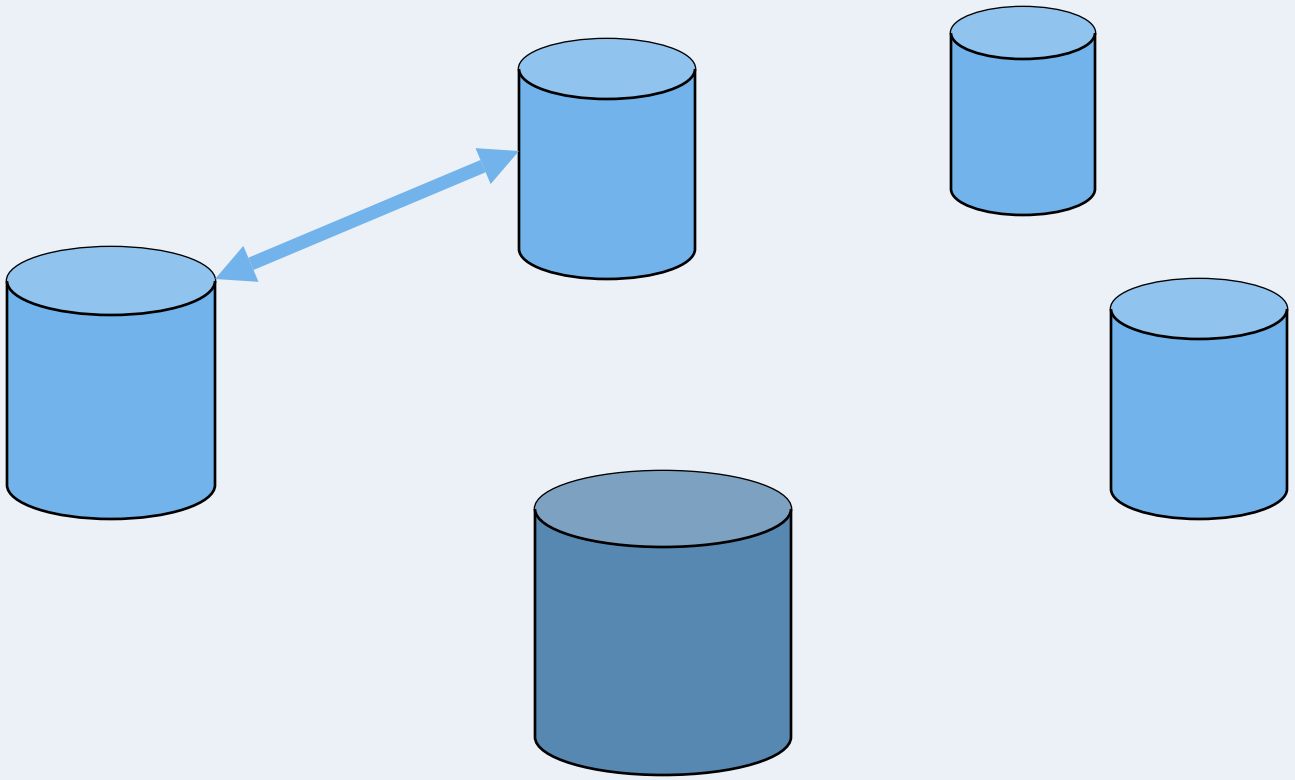
Search engine

- Uses Lucene to index metadata
- Unified search through stylesheets
- Scalable over big metadata sets
- Remote search using Z39.50 (GEO profile) and OGC Catalogue Services for the Web

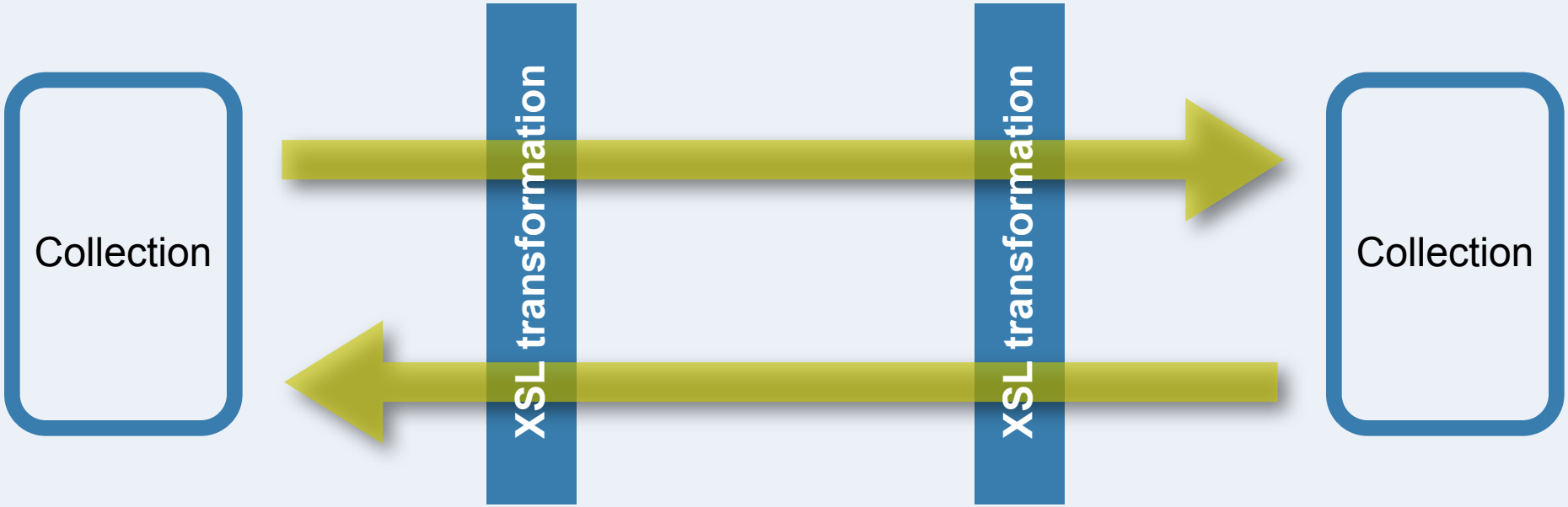
Metadata Synchronization



Metadata Synchronization



Harvesting



Custom protocol
CSW 1.0
CSW 2.0

Catalog interfaces

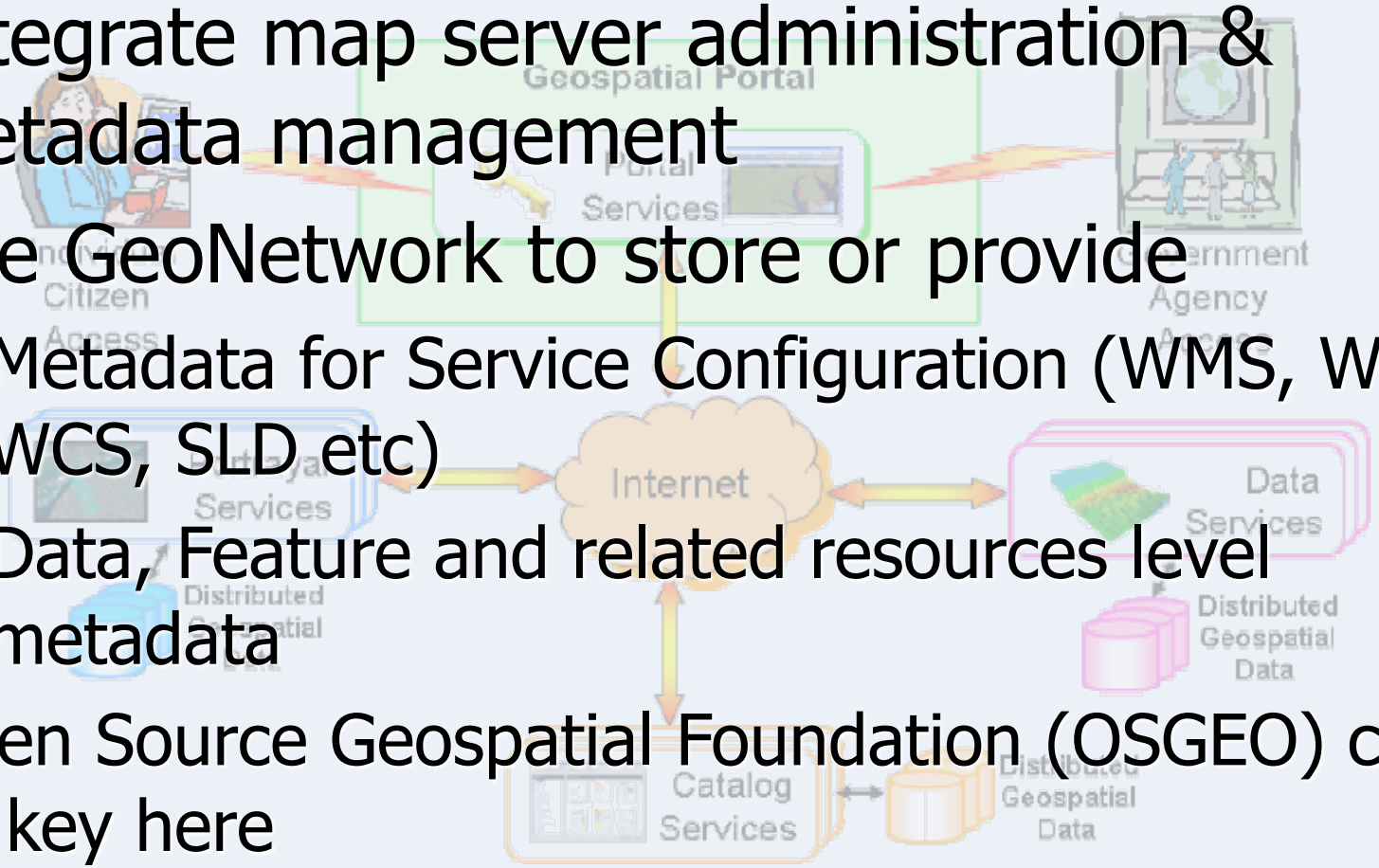
- Develop a user interface to administer harvesting
- Close collaboration with OGC, FGDC, UK (EDINA), JRC, ESA in implementing CSW 2.0
- Provide GeoNetwork opensource as an OGC CSW 2.0 reference implementation
- Implement Open Archive Initiative interface (OAI)

What is up for the future?

Towards an OpenSDI Toolkit

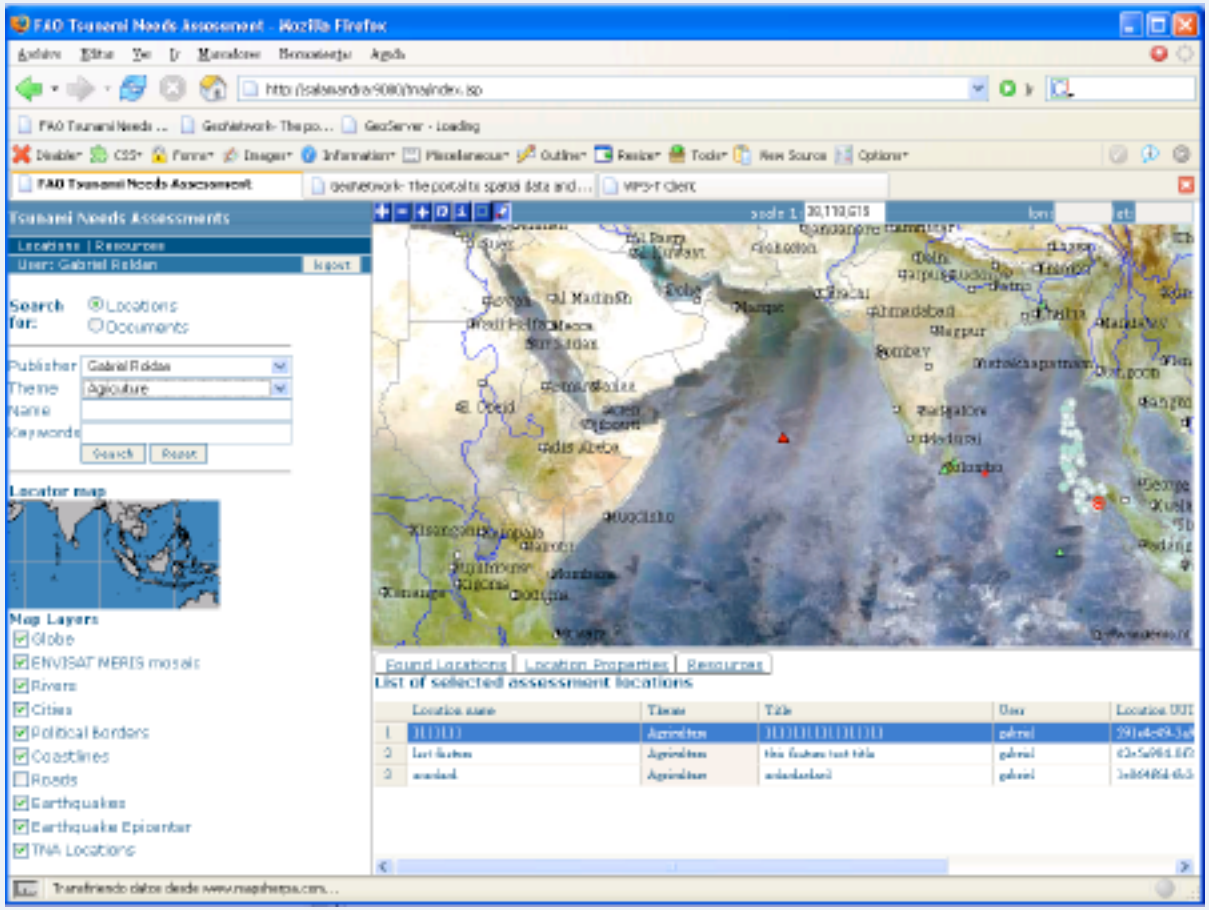
Open Spatial Data Infrastructure (OpenSDI)

- Integrate map server administration & metadata management
- Use GeoNetwork to store or provide
  - Metadata for Service Configuration (WMS, WFS, WCS, SLD etc)
  - Data, Feature and related resources level metadata
- Open Source Geospatial Foundation (OSGEO) can be key here



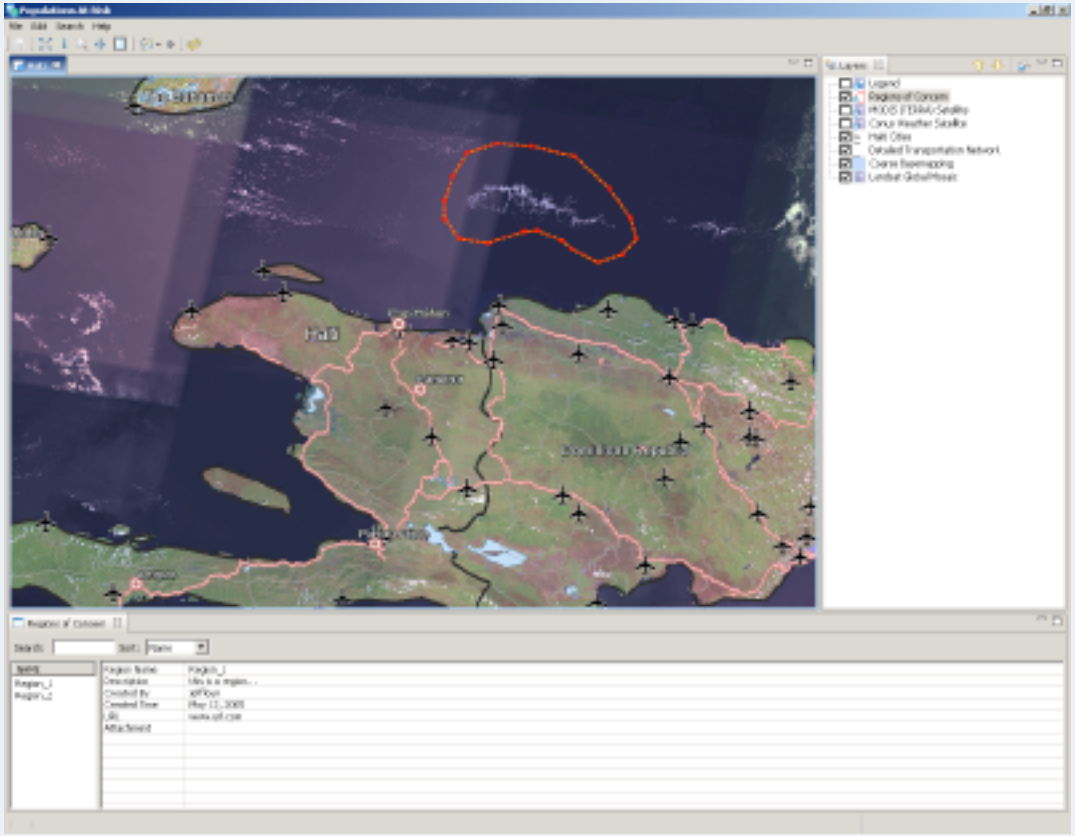
Open Spatial Data Infrastructure (OpenSDI)

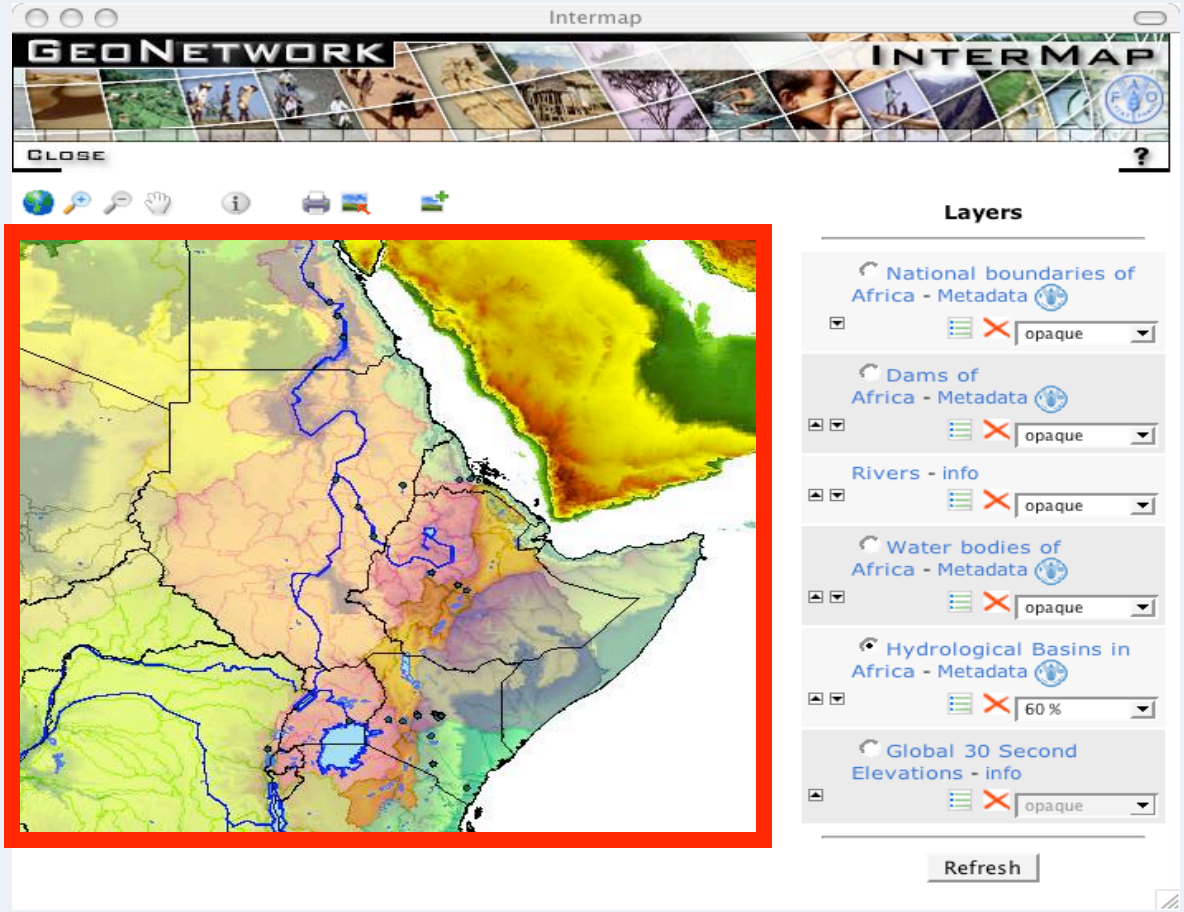
- Provide online spatial data editing
- Metadata closely integrated with GeoNetwork opensource



Open Spatial Data Infrastructure (OpenSDI)

- Provide offline spatial data and metadata editing
- Synchronize when back online



Open Spatial Data Infrastructure (OpenSDI)

- Provide efficient extraction of data
- Support Efficient data transfer protocols