NFMS web portals – Focus on monitoring functions

National Forest Monitoring System web portal to disseminate forest-related geospatial data on the web

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NFMS web portal is an Open data portal

End-users browse national maps, display charts, read papers related to forest assessment and redd+ initiatives

Management of Data (1/3)

NFMS web portal is focused on Geospatial data, both Raster and Vector
- **it is not** a **wiki** or a **document management system** -

Time series dataset (data available on several points in time)

- landcover, land use
- forests masks

Auxiliary data: feature info(1), documents(2), Charts(3)

Static dataset

- admin boundaries & cities (mandatory)
- Infrastructure roads, powerlines
- natural parks and protected areas
- biophysical maps (Vegetation, Soils, Geology)
- redd+ initiatives/projects

Auxiliary data: feature info(1), documents(2), photos

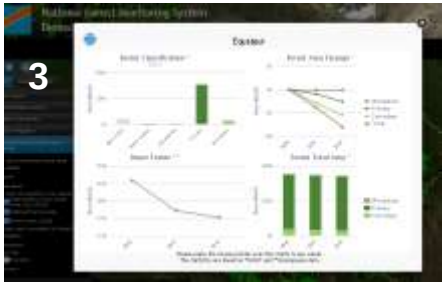
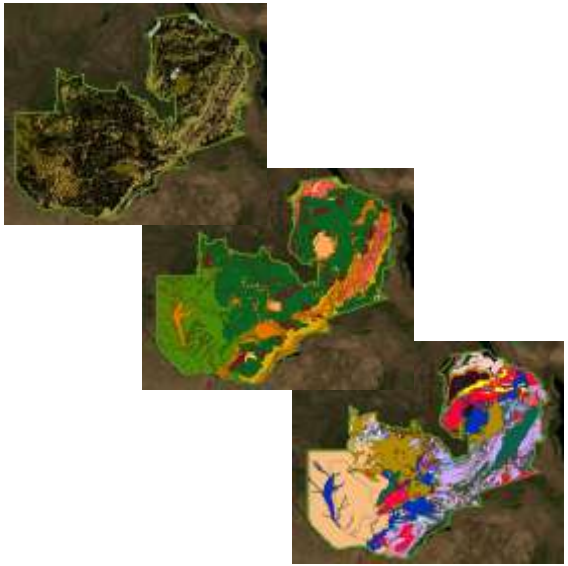
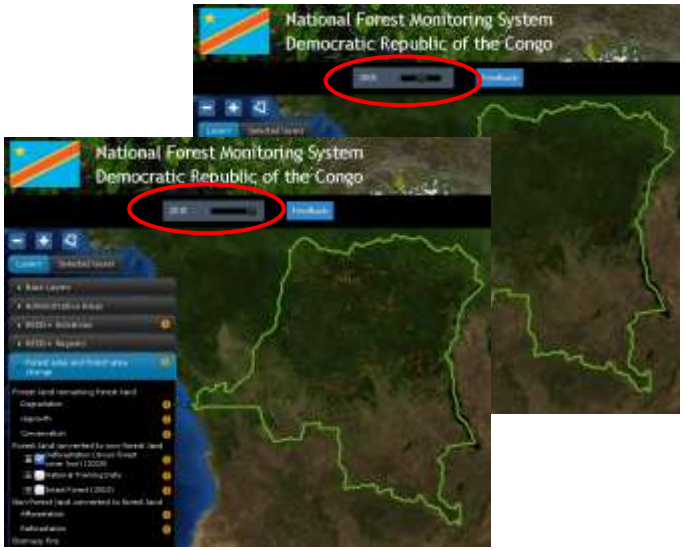


Fig.1, 2, 3 - Examples of auxiliary data

Management of Data (2/3) examples



STATIC DATASET
REDD+ initiatives



STATIC DATASET
Biophysical Maps:
Zambia Vegetation, Soil and Geology layers

TIME SERIES DATA
Forest cover loss 2000 - 2005 - 2010
(Time can changed with the slider on the top menu)

Management of Data (3/3) Stats/Charts

In order to a have a better understanding of the **time series** database, the portal can be configured with user-defined statistics to perform Raster Algebra computations.

The results of the computation are available in a raw CSV format and are displayed on the **website as charts**.

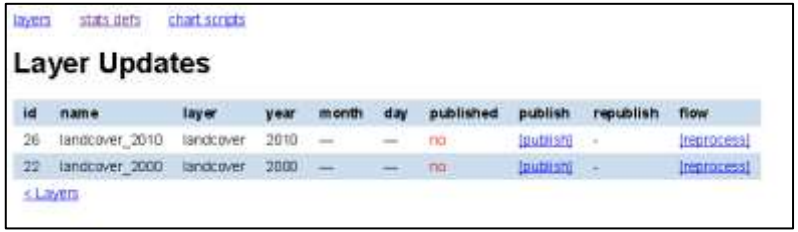
Audience

Country citizens are able to get acquainted about forest status without read long technical reports

Policy makers can use the tool (and statistics) for decision support for their legislative initiatives

International GIS-RS experts can use the platform to have a glance on the overall national forest dataset available

System administration

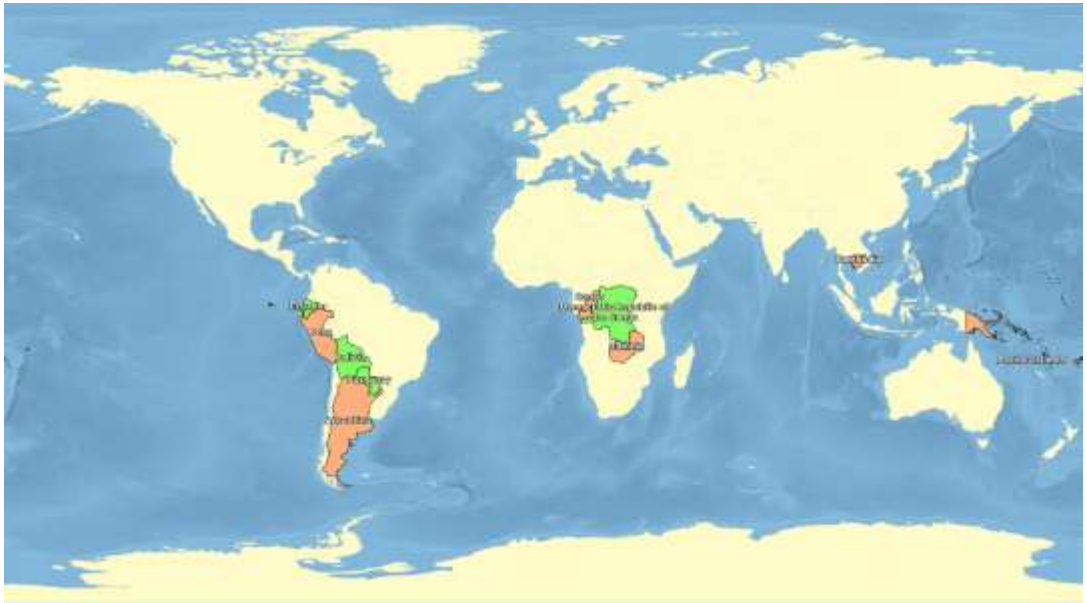


1) WebConsole to easy define/(re)compute statistics and charts based on timeseries data

2) Automatic stats computation and chart generation each time a new granule is added to a timeseries dataset

3) Ingest and publish new data uploading via ftp a tiff or a shp file

Supported countries



- Democratic Republic of congo
  - http://www.rdc-snsf.org/
- Paraguay
  - http://84.33.1.31/
- Ecuador
  - http://geoportal.ambiente.gob.ec/portal/
- Papua New Guinea
  - http://png-nfms.org/
- Zambia
  - coming soon
- Argentina
- Bolivia
- Perù
- Congo
- Cambodia
- Pacific Islands

See more at http://nfms4redd.org/nfms-overview/

Core Technologies / Protocols

WEB protocols

- HTTP
- OGC Web Services: WMS and WFS protocols
  - http://www.opengeospatial.org/standards

Technologies and programming languages

- Linux(Ubuntu LTS, CentOS6.x)
- Java7
- Tomcat
- javascript
- Chef
- VMware virtualization systems
  - although any other virtualization system can be used

Geospatial data management

All the geospatial processing is performed with the following **Open Source** softwares:

GeoServer is an Open Source server for sharing geospatial data. Designed for interoperability, it publishes data from any major spatial data source using open standards.

GeoBatch is an Open Source Java enterprise application for the collection, processing and publication of geospatial data.

GeoTools is an open source Java library that provides tools for geospatial data.

PostGIS is a spatial database extender for PostgreSQL object-relational database. It adds support for geographic objects allowing location queries to be run in SQL.

The client application (what the end-user see) has been developed internally by the FAO Forestry Department.
It is built on top of:

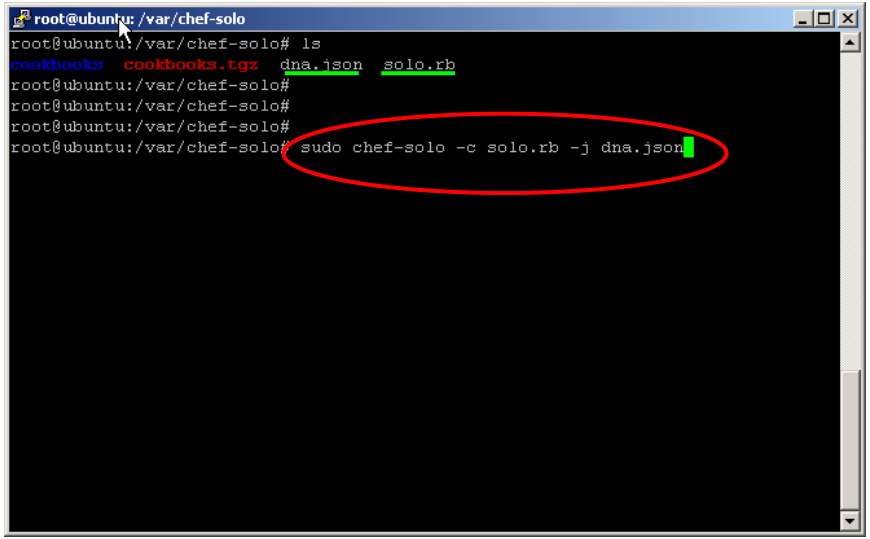
OpenLayers is an open source JavaScript library for displaying map data in web browsers. It provides an API for building rich web-based geographic applications similar to Google Maps and Bing Maps.

Automatized Deployment

NFMS architecture is modular and made of several software components, which implies that it require lot of time to be deployed on a new server.

Each country needs autonomous environment so an automatized deployment system has been developed using the **chef** technology.

Manual configuration and further tuning are required only for **high-traffic** needs



Deplyment of NFMS in 3 quick steps:

1. **Copy a directory from github to the server**
2. **Review the files solo.rb dna.json changing default passwords**
3. **Run the chef-solo command and drink a coffee while chef is working for you**

Skills required to get involved

In order to get involved as...

- **System Administrator**(GIS/RS expert, junior GIS software engineer)
  - Basic knowledge of geospatial data format: shapefiles, postgis, geotiff
  - Basic knowledge of linux shell

- **Stats/Charts developer**(GIS/RS expert, junior GIS software engineer)
  - Basic knowledge of geospatial data format: shapefiles, postgis, geotiff
  - Knowledge of XML and an interpreted language as python or groovy

- **System Engineer**(GIS software engineer)
  - Deep knowledge of javaEE and spring framework
  - Deep knowledge of the javascript language
  - Knowledge of HTTP, WMS and WFS protocols
  - Deep knowledge of Linux OS

NFMS web portal Summary

- Open data Web portal useful both for expert and generic users
- Handle the most common raster and vector data formats
- Handle time series datasets
- Compute statistics and generate charts using an XML document as statistic definition
- Provide a system administration back-end to update data and define statistics through a web GUI
- Built on top of widely used OpenSource software components
- Easy production-deploymemnt of the platform using a chef-cookbook

UN-REDD PROGRAMME

Thank you!

www.nfms4redd.org

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