

e-SOTER

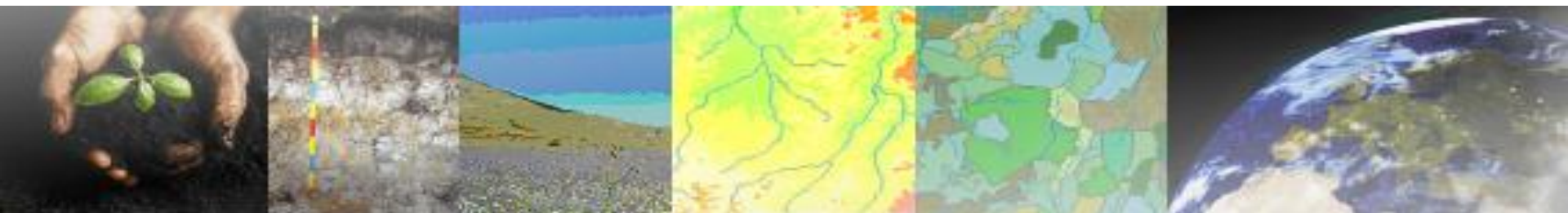
Regional pilot platform as EU contribution to a
Global Soil Observing System

WP6.

e-SOTER Web Services: Status and Way Ahead to a Global Soil Information Service

Yusuf YIGINI

EU Joint Research Centre



Reporting on behalf of e-SOTER Work Package 6 'Development of an e-SOTER dissemination platform'

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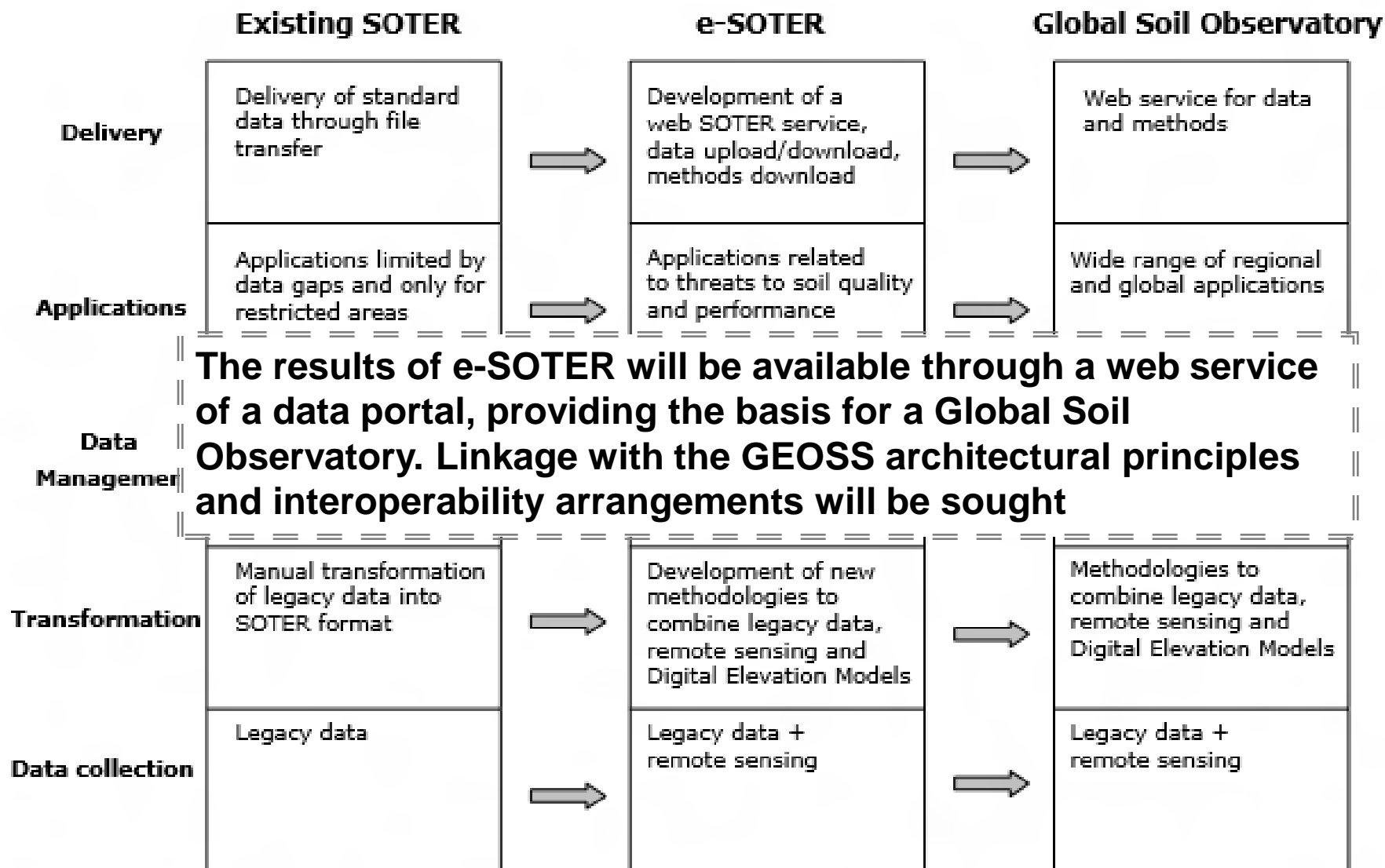
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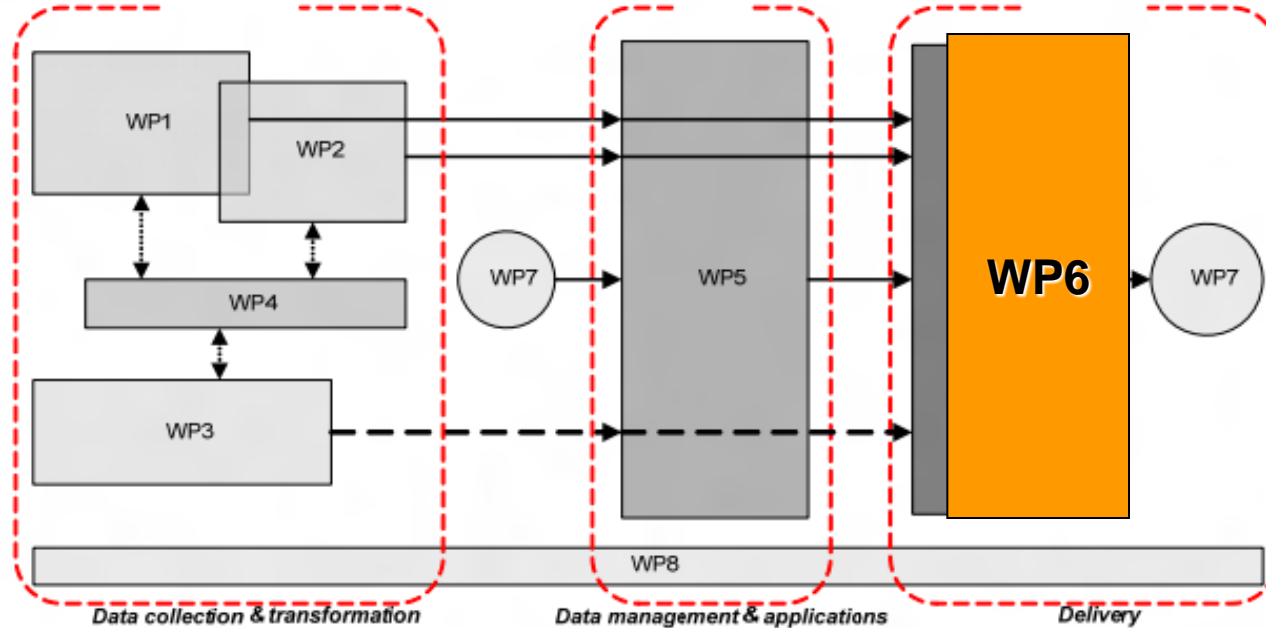
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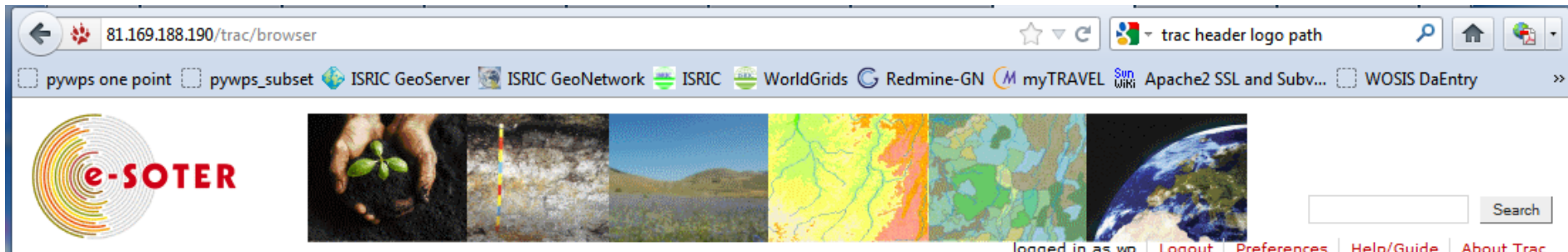
The Objective



Deliverables



Freely accessible
e-SOTER
operational Web
services and
RDBMS including
an algorithm
database
containing
methods
developed in
WP1-6



Overview of the installation and configuration process for the e-SOTER web portal

Server Preparation

- Confirm server specification
- Confirm root user and login; accessing server

Key software installation

- Install database management system
- Install web services systems

Software configuration

- Database configuration
- Integration of web services and schemas

Server Preparation



- **VPS or Dedicated Server**
- **Linux – Debian**

The Debian distribution of Linux is selected here by preference as it is generally considered a stable platform for building web services and is in common, widespread use for hosting such applications.

- It's Open Source
- It's Free
- It's more Stable
- It's more Secure
- Easy to get Help

- Disk capacity should be 100 Gb +
- Memory 1 Gb +

Key software installation



Java is a core requirement of the web portal. The server requires the Java Development Kit (JDK)



▪**Apache:** Apache is a freely available Web server that is distributed under an open source license. It is the most widely-installed Web server.



▪**Tomcat:** Provides a "pure Java" HTTP web server environment for Java code to run

PostgreSQL



▪**Postgres / PostGIS:** It's a suitable database manager because the final SoTer product is in vector format and PostgreSQL can provide full functionality with vector data (e.g. geographical querying, ...)

python™



▪**Python, Perl:** to be able to run the py, pl on server side

Key software installation



GeoServer is an open source software server written in Java that allows users to share and edit geospatial data. Designed for interoperability, it publishes data from any major spatial data source using open standards.

GeoServer is the reference implementation of the Open Geospatial Consortium (OGC)



Web Feature Service (WFS): provides an interface allowing requests for geographical features across the web.

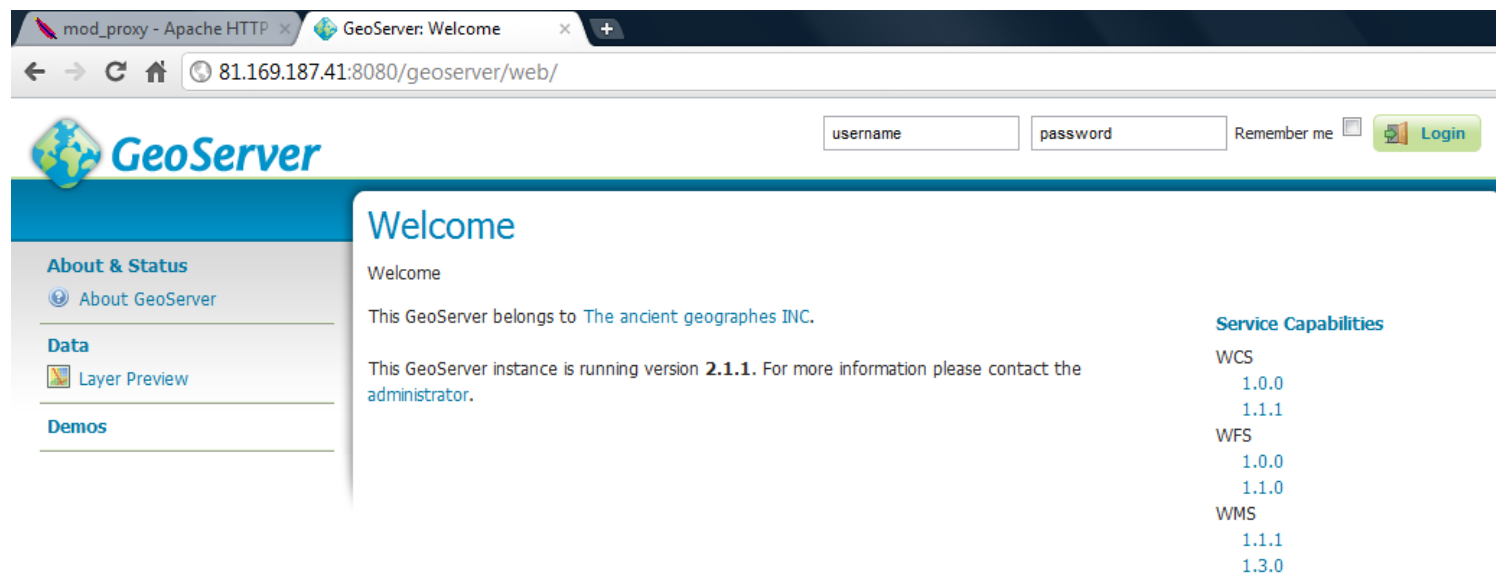
Web Coverage Service (WCS) : provides an interface allowing requests for geographical coverages across the web.

Web Map Service (WMS): is a standard protocol for serving georeferenced map images over the Internet that are generated by a map server using data from a GIS database.

Software configuration

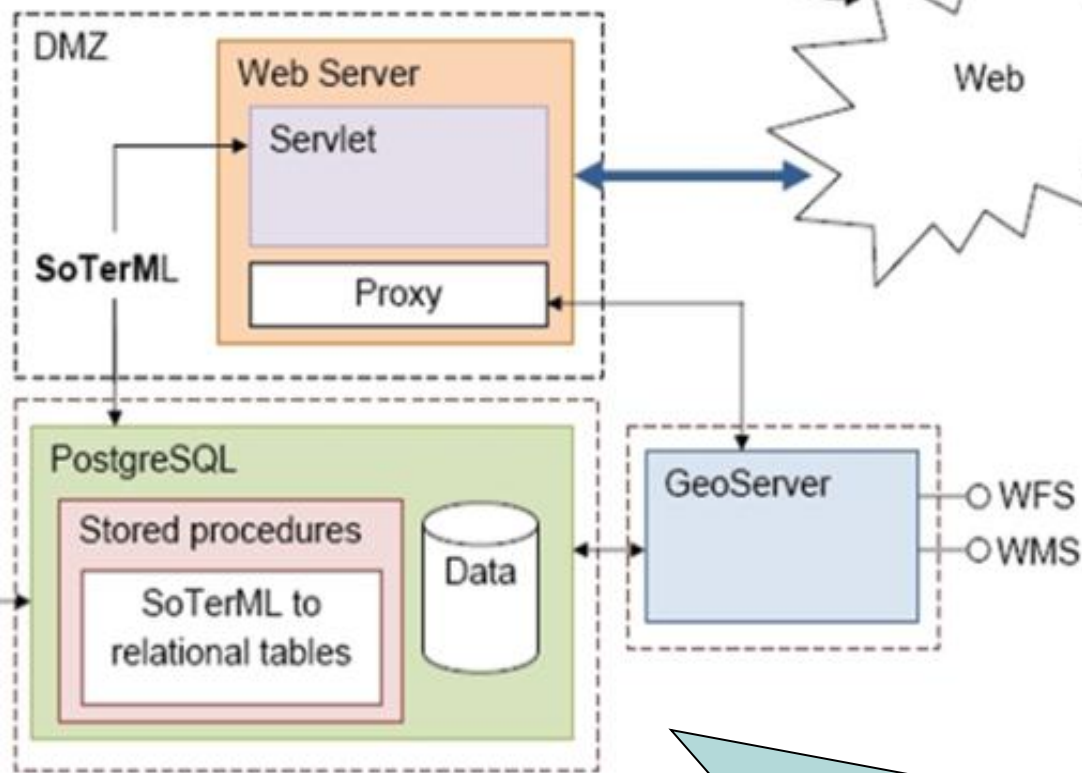
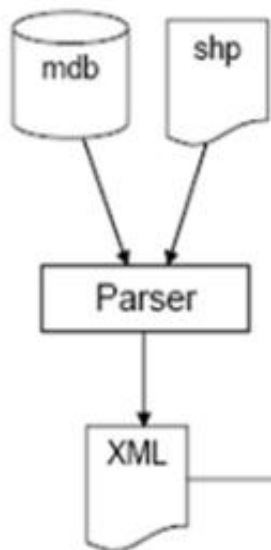
involves progressing through the steps required to configure the essential software components

Database creation, database preparation, configuring apache httpserver...



Architecture

The portal components are designed to receive SOTER data in the form of a valid SoTerML 'XML' file, derived from the legacy data sources and produced by a SoTerML parser



The portal can be accessible via the Internet directly to access the data sources provided.

The data is loaded into a database built using Postgres, which is accessed by the Geoserver tool to provide spatial web-based services to external client applications, such as environmental models and web-mapping applications.

MetaData Instance

E-Soter Metadata is stored by GeoNetwork



The screenshot shows the GeoNetwork metadata page for the 'SOIL AND TERRAIN OF SOUTHERN AFRICA' dataset. The page includes a search bar, a sidebar with navigation links, and a main content area with the following details:

- Title:** Soil and Terrain of Southern Africa
- Date:** 2003
- Publication:** Data identifies when the resource was issued
- Digital map:** Map represented in raster or vector form
- Abstract:** The compilation of a Soil and Terrain digital database for the South-African region forms a part of the ongoing activities of the Food and Agriculture Organisation of the United Nations (FAO) and the International Soil Reference and Information Centre (ISRIC) to update the world's baseline information on natural resources. The updating of world soil resources, using the Soil and Terrain (SOTER) digital database methodology, is part of a global SOTER programme and intended to replace the FAO/Unesco 1:5 million scale Soil Map of the World (1971-1981). The African sheet of this map was published in 1973 and has been compiled on basis of information and data available at that time. It is understandable that a substantial part does not reflect the present state of knowledge of the soils in that region. The national institutes, responsible for the natural resources inventories, have been collecting a wealth of new information on the distribution and occurrence of soils in their region, which has resulted in updating their national soil maps mostly at scale 1:1 million, often applying the Revised Legend (FAO, UNEP, ISRIC, 1985) for the description of the mapping units. The International Union of Soil Science (IUSS) adopted an important change in the classification used for the map by introducing lower levels of subunits of the World Reference Base for Soil Resources (IUSS, FAO, ISRIC, 1988). This, together with the new soil data available at national level, justified such an update of the soil resources for the Southern African region.
- Purpose:** Creation of a Soil and Terrain Database for Southern Africa
- Status:** Completed: Production of the data has been completed
- Point of contact:**
 - Individual name:** Nachtergaele Freddy
 - Organization name:** FAO - Land and Water Development Division
 - Position name:** Technical officer
 - Role:** Point of contact: Party who can be contacted for acquiring knowledge about or acquisition of the resource
 - Delivery point:** Viale delle Terme di Caracalla
 - City:** Rome
 - Administrative area:** 00153
 - Electronic mail address:** freddy.nachtergaele@hotmail.it
- Point of contact:**
 - Organization name:** FAO ML QIS Unit
 - Position name:** FAO GIS Manager
 - Role:** Point of contact: Party who can be contacted for acquiring knowledge about or acquisition of the resource
 - Electronic mail address:** GIS-Manager@fao.org
- Maintenance and update frequency:** As needed: Data is updated as deemed necessary

GeoNetwork is a catalog application to manage spatially referenced resources. It provides powerful metadata editing and search functions as well as an embedded interactive web map viewer. It is currently used in numerous Spatial Data Infrastructure initiatives across the world

E-Soter MetaData Website is live With Sample Data at: <http://81.169.188.190/geonetwork>

MetaData Instance









[Home](#) | [Administration](#) | [Contact us](#) | [Links](#) | [About](#) | [Help](#)

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

Create
 Edit
 Delete
 Other actions

SOTER DATABASE FOR ESOTER 1MILLION




Identification info
 Title
 Date
 Date type
 Edition
 Presentation form
 Abstract
 Purpose
 Status

Point of contact
 Individual name
 Organisation name
 Position name
 Role

Maintenance and update frequency
 Descriptive keywords
 Descriptive keywords
 Access constraints
 Use constraints
 Spatial representation type

Equivalent scale
 Denominator

SOTER Database for esoter 1million
 2012-03-15T07:50:00
 Publication: Date identifies when the resource was issued
 0.9
 Digital map: Map represented in raster or vector form
 In the context of the esoter.net project four areas in the scale of 1:1million have been generated data according to the esoter Methodology. Soil and terrain information is needed for many interpretations for example in the field of agriculture, environment, watershed management, infrastructure, etc. but ava Group on Earth Observations - GEO plans a Global Earth Observing System and, within this framework, the e-SOTER project addresses the felt need for a global soil an Observing System, it will deliver a web-based regional pilot platform with data, methodologies, and applications, using remote sensing to validate, augment and extend Applicatin of eSOTER methodology
 Completed: Production of the data has been completed

Vincent Van Engelen
 ISRIC
 project coordinator
 Principal investigator: Key party responsible for gathering information and conducting research

Voice +31 317 483 715
 Electronic mail address Vincent.vanEngelen@wur.nl

As needed: Data is updated as deemed necessary
 soter , (theme).
 Europe (place).
 Copyright: Exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or lab composer, artist, distributor
 Copyright: Exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or lab composer, artist, distributor
 Vector: Vector data is used to represent geographic data

1000000



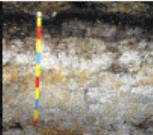

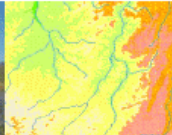
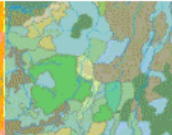

Example for a record for the 1:1million record created in the four windows in the e-soter project according to the ISO19139 standard

Algorithm Database



81.169.188.190/trac/browser

pywps one point pywps_subset ISRIC GeoServer ISRIC GeoNetwork ISRIC WorldGrids Redmine-GN myTRAVEL Apache2 SSL and Subv... WOSIS DaEntry





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[Last Change](#) [Revision Log](#)


root

Visit: View revision:

Name ▲	Size	Rev	Age	Last Change
 algDBtempl.docx	55.2 KB	39c506793c315d831810f8ef411bb904e7f31466	28 minutes	root <root@...>: Initial commit
 algDBWP3.docx	60.9 KB	39c506793c315d831810f8ef411bb904e7f31466	28 minutes	root <root@...>: Initial commit
 algDBWP5.docx	360.6 KB	39c506793c315d831810f8ef411bb904e7f31466	28 minutes	root <root@...>: Initial commit
 algDBWP6_CB.docx	1.0 MB	39c506793c315d831810f8ef411bb904e7f31466	28 minutes	root <root@...>: Initial commit

[View changes...](#)

<http://81.169.188.190/trac/browser> Note: See [TracBrowser](#) for help on using the browser.

 Powered by [Trac 0.11.7](#)
By [Edgewall Software](#).

Visit the Trac open source project at <http://trac.edgewall.org/>

Algorithm Database



Trac and Git environment

Projects created algorithms, but loose these due to bad maintenance.. E,g, colleagues leaving, hard disk crashed, by keeping in a repository we keep track of it and institutional memory is collected.

TRAC – is an [open source](#), web-based [project management](#) and [bug-tracking](#) tool.

GIT - is a [distributed revision control](#) and [source code management](#) (SCM) system. Every Git [working directory](#) is a full-fledged [repository](#) with complete [history and full revision tracking capabilities](#), not dependent on network access or a central server.

Current Status

- Currently, all the server environment and the services are ready and live for the team members
- The e-Soter web portal will become public and will be working fully functional on the ISRIC and ESDAC servers in april 2012.



THANK YOU

D.Simms, H.Reuter, S. Hallett, P.Tempel, Y.Yigini, D. Leibovici, A. Pourabdollah