MACSUR CropM Deliverable 2.2

Operational database for storing and extracting data

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Prologue

This deliverable lays out the work as done as part of MACSUR CropM on data, with the focus on improving data management and have shared data curation for future use. The issue was tackled with help from the MACSUR central hub coordination in the form of Jason Jargenson from University of Reading. The data management as proposed and implemented in this deliverable is very much a bottom up process, in which partners in a meeting in Spring 2013 in Aarhus investigated the best way forward for data management across activities in CropM. As a follow up to this, the work was mainly divided in three parts:

1. The Open Data Journal for Agricultural Research, mainly focused on long term data archival and citation of data sets, as input and outputs to the modelling work, as part of MACSUR, lead by Wageningen UR
2. The Geonetwork data catalog hosted at Aarhus Universitet, that allows for operational access and storage of data sets as part of the ongoing work, also for restricted access of the consortium, and as a first step to visualization, lead by Aarhus Universitet.
3. The work on rating data sets, that provides a tool for improving data set access in an early phase for connecting them to models, lead by Reading University.

At the end of the deliverable some next steps are giving for data activities in the context of AgMIP and beyond.

Sander Janssen, Wageningen UR

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Towards an open data journal for international networks on Impact Research for Food Security and Climate Change

By Sander Janssen (Alterra, Wageningen UR), Cheryl Porter (University of Florida), Ioannis Athanasiadis (Democritus University of Thrace), Jappe Franke (Alterra, Wageningen UR), Yke van Randen (Alterra, Wageningen UR)

Aim

To present a proposal for a data journal as a possible outlet for dissemination of data sets collected as part of or resulting from research efforts in the context of international initiatives on food security.
While the current note focuses on the context of AgMIP, this can possible be extended with other relevant networks such as ILSI, Global Yield Gap Atlas or MACSUR.

Problem statement

Research uses and produces many relevant data sets (i.e. experimental data, surveys, model inputs, model outputs, derived indicators and statistics, data assimilation and mark-ups, maps, measured data points) through its efforts in investigating conditions of global food (in)security at different spatial scales (from regional to national to continental). Unlike journal articles describing the main new insights and the most important lessons learned, these data sets are often lost when the funding period ends or the research is published, leading to a situation where these are difficult to reuse for other purposes, or difficult to re-use in reproducing the results described.
At the moment, government institutions (USDA through data.gov, UK through data.gov.uk, NL through data.overheid.nl) and inter-governmental institutions (CGIAR is in discussion on a strategy, FAO through data.fao.org, UNEP through http://geodata.grid.unep.ch/) are rapidly opening up their data sets through open data portals, which serve masses of data, and almost solely the data 'owned' by the institutions. As useful as these open data portals might be, these do not yet offer the possibility to publish data generated and owned by researchers through their activities.
With the advance of Open Access, Linked Open Data and Open data portals of governments, there is increasing awareness of the value of sharing data with others for further investigation, increased innovation, creation of jobs and better services. Also, governments and science funders are increasing their pressure for science to open up its data, as it is paid with tax-payer financial resources, and should thus have a public benefit. For example, the UK government announced in 2012 as one of the first governments that all programs receiving its funding should adopt an open access policy starting in 2012. Although the DFID contract with AgMIP does not formally fall under this responsibility, it is considered valuable to show DFID that open access to data is feasible as part of AgMIP. At the same time, the Bill and Melinda Gates Foundations is considering ways to make more of its data available across projects its funding, for example, through their work with the aWhere platform.
On the technology side, developments are rapidly taking place to facilitate the publication of data relative to development of licences (for example, the Creative Commons) and software to facilitate citation of data sources (dataverse.org and datacite.org). Simultaneously, large infrastructure providers having masses of storage space demonstrate a willingness to store relevant data sets on their servers.
During several sessions of discussions with domain researchers, most notable at the data management sessions of the 2012 AgMIP Global workshop, the AgMIP IT team learned that there is a need for publishing the data sets with a good meta data record for researchers, as a value in itself of making these data sets available. Also, it was identified that there is currently a lack of trustworthy and easy-to-contact venue to ensure publication of such data sets, while recognising that a citation of the data set with a digital object identifier offers value for individual researchers. Governmental open data portals are useful to publish the data they own, but there is not yet a hub in the currently operating global

networks that publish the data the researchers generate and have copyright on. This need for such a mechanism is aggravated by the push by funding agencies to force the publishing of generated data as open access.

Idea

To develop a data journal for AgMIP (jointly with other international networks/communities) to provide citations to relevant data sets for food security research for researchers. Such data journals exist for other domains, for example Geoscience Data Journal. Such a journal could provide the following benefits for the different stakeholder groups involved:

- Researchers:
    - Benefit: Standard way of making data sets available
    - Benefit: Obtain a citation to their own data set, that could raise the scientific profile, including a digital object identifier
    - Benefit: Licensing issues and sharing conditions including liability solved at generic level, without requiring individual investigation
    - Drawback: need to provide a basic set of meta-data to describe the data set, for others to reliably use it.
    - Drawback: potentially, published data sets will be used without being appropriately cited in the derived research (even though the citation with doi exists in the data journal). This problem exists also with journal publications, where the knowledge and insights could be used without acknowledging the original authors, and this is mostly solved through a growing habit of authors to acknowledge their sources and editors of journals who can point authors to original sources. In principle, the authors must be cited as the source, given the publication and the copyrights, but others might not adhere to this.
- Research coordinators:
    - Benefit: outputs of projects in terms of data becomes easy visible and accessible by others
    - Benefit: Relevant data sets can easily be found and integrated
- Research funders:
    - Benefit: Research can easily fulfill requirements for Open Access, leading to a better availability of research data to the general public
    - Benefit: Re-use of data sets in projects other than in which it was produced lead to a higher impact of research projects
    - Drawback: funding will be used to make data sets available, leading to slightly less funding for carrying out research.
- IT developers (i.e. AgMIP IT team):
    - Benefit: data sets become available with meta-data
    - Benefit: data sets can be harvested with meta data and license to visualize and upload in other applications (for AgMIP, for example ACE/ACMO and translators)

Theoretical procedure for publication

A data journal is very comparable to a 'standard' scientific journal, and thus requires similar procedures. The work process follows the following steps:

1. An author identifies and describes a data set that he/she wants to make available according to a set of predefined fields (i.e. author, title, geographical or spatial scope, time scope, original purpose of data collection, variables included (incl. the measurement equipment if relevant), most usually on the basis of a published/accepted/in press article (so finalised research).
2. A group of lead editors receives the submission, and sends it out to one or two reviewers from the relevant domain (economics, climate, crop, livestock, water)
3. The reviewers submit their review, mainly checking if they understand the nature and the contents of the data set, not whether the data collection methods adopted makes sense from a scientific point of view (i.e. very light review). A light check on the content

of the data set could be part of this, and seeing whether it fits minimum standards of relevance (i.e. using grading system developed by AgMIP (copper-silver-gold-platinum) for the data. However, most likely it needs to be tested and evaluated whether this is really feasible. The content of the data set could be stored in many different ways, posing challenges in data inspection.

4. Based on the reviews, the editors make a decision, either to accept as is, request some more explanation or altered explanation or to reject and inform the author.
5. Final submission is uploaded by the editor (or a journal office) to the journal as a data set part of an issue part of volume, and associated with a doi and citation in the process. Final submission includes the data itself in any form and pdf with the meta-data description of about 1 to 2 A4.

The journal can organise itself in issues, with special issues stemming from a specific project, that can be somehow jointly considered (for example, the data sets of the different crop pilots or the data sets of the different regional assessments). Reviewers can be involved from the AgMIP community, assisting their fellow researchers in the network to publish well-documented and highly relevant data set.

A data journal is different from an ordinary journal:

1. as the data can be in any form and of any size (in particular the size leading to special requirements in terms of storage space and transfer mechanisms, for example of large climate files);
2. as open data journals have to be open access with the copyright held by the author (and his/her institute) through a public licence. By submitting the data as a submission, the author authorizes the release of the data, and a final confirmation is given once the review procedure is completed. The data journal itself does not hold copyrights, but merely acts as an intermediate to make the data available. Subscription to the data journal is not necessary and is open to everybody. Other open access journals charge the author (who submits) with an amount (around 2000 euros) per submission for their services (i.e. review, ICT infrastructure).
3. as open data journals are not necessarily published by the large publishers (Kluwer, Wiley, Elsevier) and a paper version is not required.

Operational suggestion for organisation

As a start, it seems realistic to try a data journal for AgMIP as a means for publishing data in an acceptable procedure for the different stakeholders available as a test for one year from AgMIP Global meeting 2013 in New York, to the next Global Meeting. This data journal could be an AgMIP alone initiative, or other international networks could be involved (for example, MACSUR, Global Yield Gap Atlas, ILSI).
On the side of personnel, it requires active involvement of researchers:

1. Editors-in-Chief could be delegates from the AgMIP IT team, that organise the issues, motivate the community and guide the publication process, for example, Sander Janssen, Cheryl Porter or Ioannis Athanasiadis
2. Editors could be three or four delegates from the domain teams crop, economics and climate, that identify relevant data sets, and motivate researchers to submit their data sets, for example, Peter Thorburn or Ken Boote, John Antle or Jerry Nelson, Alex Ruane (but other suggestions are also possible)
3. Journal office could be run from Wageningen for the first year, to track papers, lay-out, and communicate to authors
4. Reviewers: involved researchers from the AgMIP community

The Data journal could be launched at the Global AgMIP workshop 2013 in NYC as part of a plenary. A lot of motivating work at the meeting could lead to a first set of issues filled for publication on the basis of, for example:

1. Crop modelling pilots

2. Regional assessments
3. Global gridded modelling
4. Global economic models

For funding the efforts required, this is not yet part of the efforts or of current contracts, and could be understood as an emerging need of the network. A small amount grant (around 50.000 dollars) could be helpful to pay for some of the efforts (editors, journal office), to not require publication fees for this test year.

The AgMIP IT infrastructure (at the moment mainly ACE) could harvest relevant data from the data journal, by searching it based on file types (for example, crop experiment files in ACMO or ACE or ICASA formats) or other relevant key words. Through the harvesting mechanism ACE would receive a complete set of meta-data together with the data, preferably in a AgMIP harmonized format. ACE could then include a weblink to publication in the data journal, for researchers to get a full citation. Even if the format is not harmonized, researchers wanting to use the data will have an incentive to harmonize it, if the data is really valuable. In this way, with more data gradually becoming available, there will be a much better understanding of what data is out there, and what the effort is required to harmonize these to shared formats. Potentially other communities benefit from this, as they will have their own data formats, and can use the data journal as a resource to design their own translators, for example, researchers working on pest and diseases or soil carbon.
Similarly to harvesting data through ACE, data can also be harvested by standard viewers for spatial data, if the data adheres to certain formats (for example, netCDF files). This could be particularly relevant for large climate data files, that researchers want to inspect without downloading them and manually handling them. Within MACSUR it is being investigated by Alterra and University of Aarhus how to handle this.

Technical implementation with Open Journal System, a data archival facility in the Netherlands (3TU data centre) and integration in project websites

To improve the scholarly and public quality of research, new online tools are being developed. These (open source) tools focus on facilitating the sharing of knowledge and research data. Two of these are described below.

Open Journal Systems

To improve and facilitate the way researchers share knowledge, the Public Knowledge Project(http://pkp.sfu.ca/) has developed Open Journal Systems(OJS) which is a journal management and publishing system.
OJS assists with every stage of the refereed publishing process, from submissions through to online publication and indexing. Through its management systems, its finely grained indexing of research, and the context it provides for research, OJS seeks to improve both the scholarly and public quality of refereed research.
OJS is open source software made freely available to journals worldwide for the purpose of making open access publishing a viable option for more journals, as open access can increase a journal's readership as well as its contribution to the public good on a global scale.

Figure 1 OJS example

a data archival facility in the Netherlands : 3TU data centre

To share big versioned datasets, 3TU has developed http://datacentrum.3tu.nl to help archive data in a standardised, secure and well-documented manner. 3TU is a collaboration of the three technical universities in the Netherlands: Delft, Twente and Eindhoven, which Wageningen UR considers joining. It provides the research community with a long-term archive for storing scientific research data, permanent access to, and tools for reuse of research data, and it implements datacite, a service similar to dataverse.org for citation and DOI generation. Depositing research data increases the visibility of research output by embedding the metadata in repository networks and by assigning digital object identifiers (DOI) to the data. Research output is enhanced with a permanent link (DOI) in the publication to the underlying data.

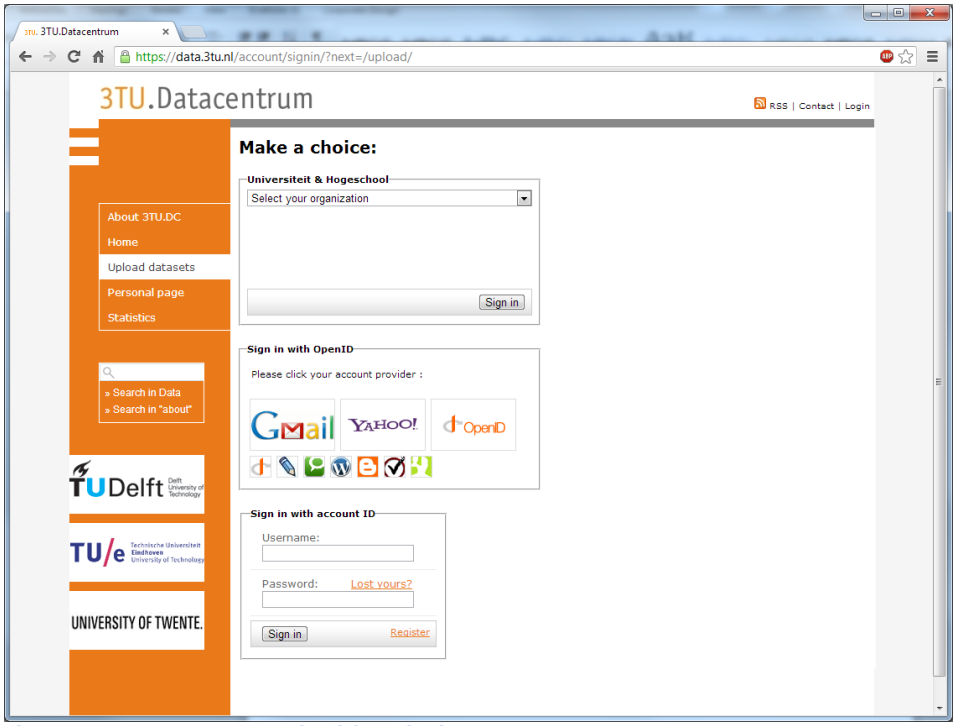


Figure 2 3TU Data centre upload form login

Integration into project websites

The tools described above are offered as stand-alone tools used online as web applications. To integrate these into project websites, some changes need to be made to both these tools and project websites.

Front-end integration

OJS

Both project websites and a OJS have the ability to login users. An example of project website and OJS integration can be a single sign-on procedure; for instance project website users can easily navigate to the connected OJS and vice versa using the login information from the initial login website.
Another example could be that from the website of the project articles can be found using the connected OJS article search via a URL query; results can be shown embedded in the project website using the same look and feel through dynamic CSS integration.

3TU data centre

The same goes basically for the 3TU data centre integration; users logged-in to project websites can directly access the upload form for big data sets. The data centre recognises the user and the website the user came from, thereby enabling it to start the upload process in the collection connected to the project. This integration in also possible between OJS and 3TU data centre. Articles can be directly linked to uploaded datasets and the upload wizard can be started using a collection belonging to the article.

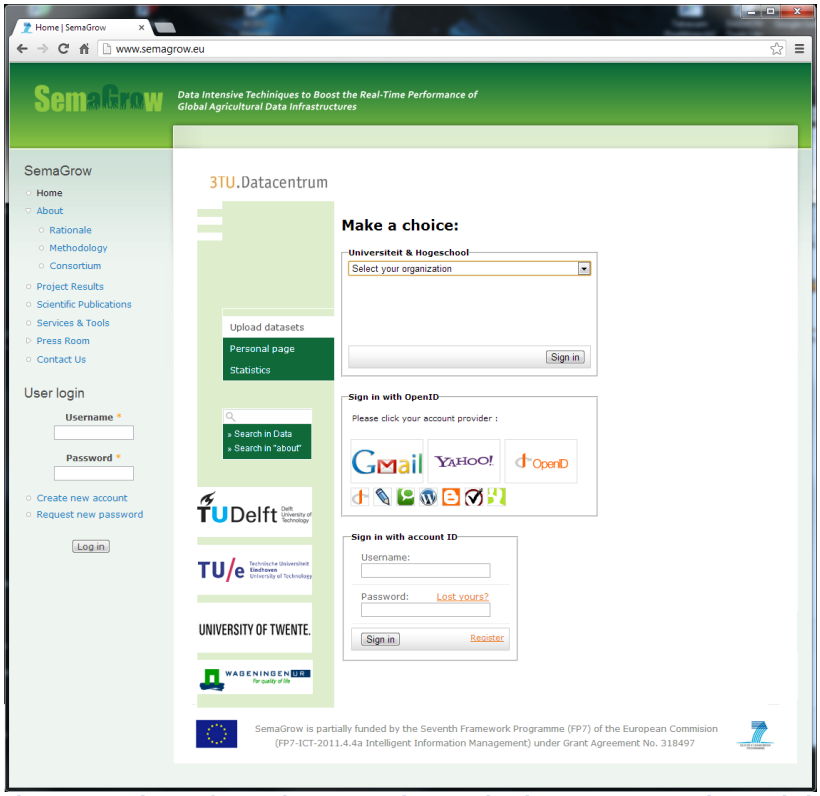


Figure 3 mock-up of 3TU data centre integration in SemaGrow project website

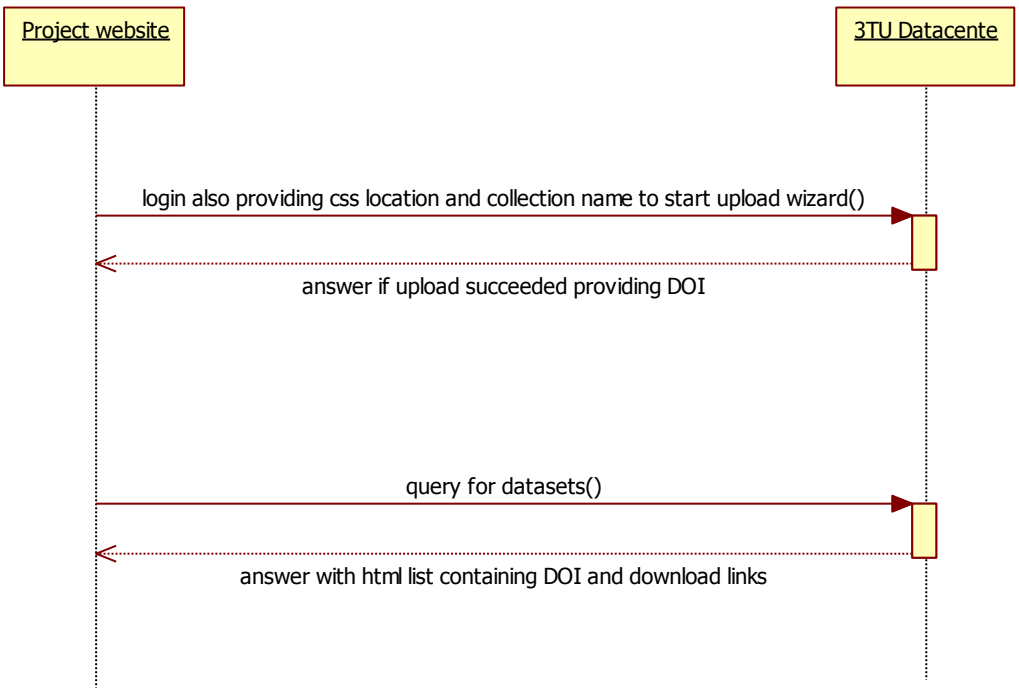


Figure 4 diagram of possible front-end integration via HTTP POST or GET

Web service integration

The examples described in the front-end integration paragraph can also be implemented as a web service. Typically a web service doesn't require human interaction and in this case can be used to communicate between the servers that house the different tools. An example of a web service used between project websites could be to automatically add a new dataset whenever new research data has been added to the project website. This can be conveniently scheduled during low traffic hours on the project webserver for instance.

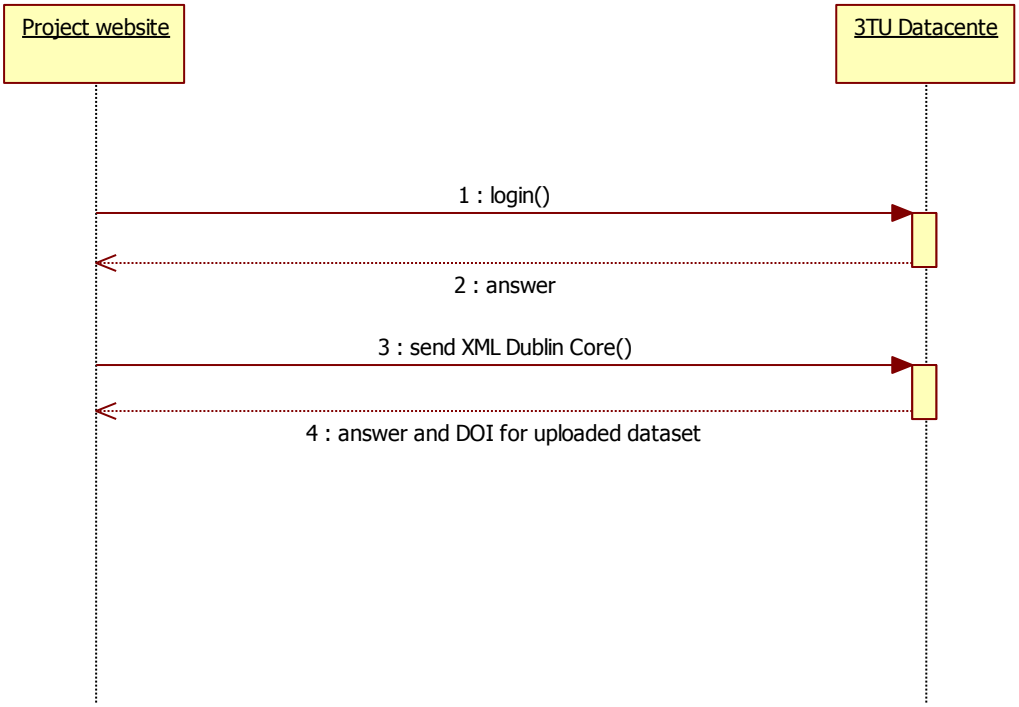


Figure 5 Example of possible web service integration to upload dataset

Tools	Components	Website
OJS	Website, PHP, MySQL	http://pkp.sfu.ca/?q=ojs
3TU Datacentre	Website	http://datacentrum.3tu.nl/en
DOI	Webservice	http://www.doi.org/
CSW Catalogue	Thredds	http://www.unidata.ucar.edu/projects/THREDDS/
	GeoNetwork	http://geonetwork-opensource.org/
Gi-CAT broker	Gi-Cat	http://essi-lab.eu/do/view/GIcat
Harvester	Java	http://www.java.com/en/
Triplifier	Java , sesame	http://code.google.com/p/triplifier/
RDF store	Openrdf-sesame	http://www.openrdf.org/
Project Websites	CMS tools, HTML5, PHP, Java	http://www.joomla.org/ http://drupal.org/

Table 1 Tools useful for big data sharing… (by no means complete)

Data repository for storage and operational access

About ISO Geospatial Metadata

The standard chosen for the metadata in the MACSUR catalog is the *ISO 19115 Geospatial Metadata:*

- current best practice standard for geospatial metadata. "Though this International Standard is applicable to digital data, its principles can be extended to many other forms of geographic data such as maps, charts, and textual documents as well as non-geographic data."

ISO 19115: Geographic information - Metadata

ISO 19115 is a standard of the International Organization for Standardization (ISO). The standard is part of the ISO geographic information suite of standards (19100 series). ISO 19115 and its parts defines how to describe geographical information and associated services, including contents, spatial-temporal purchases, data quality, access and rights to use.

The objective of this International Standard is to provide a clear procedure for the description of digital geographic datasets so that users will be able to determine whether the data in a holding will be of use to them and how to access the data. By establishing a common set of metadata terminology, definitions and extension procedures, this standard will promote the proper use and effective retrieval of geographic data.

ISO 19139 Geographic information Metadata XML schema implementation

ISO 19139 provides the XML implementation schema for ISO 19115 specifying the metadata record format and may be used to describe, validate, and exchange geospatial metadata prepared in XML. The standard is part of the ISO geographic information suite of standards (19100 series), and provides a spatial metadata XML (spatial metadata eXtensible Mark-up Language (smXML)) encoding, an XML schema implementation derived from ISO 19115, Geographic information – Metadata. The metadata includes information about the identification, constraint, extent, quality, spatial and temporal reference, distribution, lineage, and maintenance of the digital geographic dataset.

(http://en.wikipedia.org/wiki/Geospatial_metadata)

Reason for choosing Geonetwork

The use of International Standards

GeoNetwork has been developed following the principles of a Free and Open Source Software (FOSS) **and based on International and Open Standards** for services and protocols, like the **ISO-TC211** and the Open Geospatial Consortium (OGC) specifications. The architecture **is largely compatible with the OGC Portal Reference Architecture**, i.e. the OGC guide for implementing standardised geospatial portals. Indeed the structure relies on the same three main modules identified by the OGC Portal Reference Architecture, that are focused on spatial data, metadata and interactive map visualisation. The system is also **fully compliant with the OGC specifications for querying and retrieving information from Web catalogues (CSW).** It supports the **most common standards to specifically describe geographic data (ISO19139 and FGDC)** and the international standard for general documents (Dublin Core). It uses standards (OGS WMS) also for visualising maps through the Internet.

Standards Implemented

You will find support for a range of standards. Metadata standards (ISO19115/ISO19119/ISO19110 following ISO19139, FGDC and Dublin Core), Catalog interfaces (OGC-CSW2.0.2 ISO profile client and server, OAI-PMH client and server, GeoRSS server, GEO OpenSearch server, WebDAV harvesting, GeoNetwork to GeoNetwork harvesting support) and Map Services interfaces (OGC-WMS, WFS, WCS, KML and others) through the embedded GeoServer map server.

Contractual access restrictions implemented in MACSUR catalog

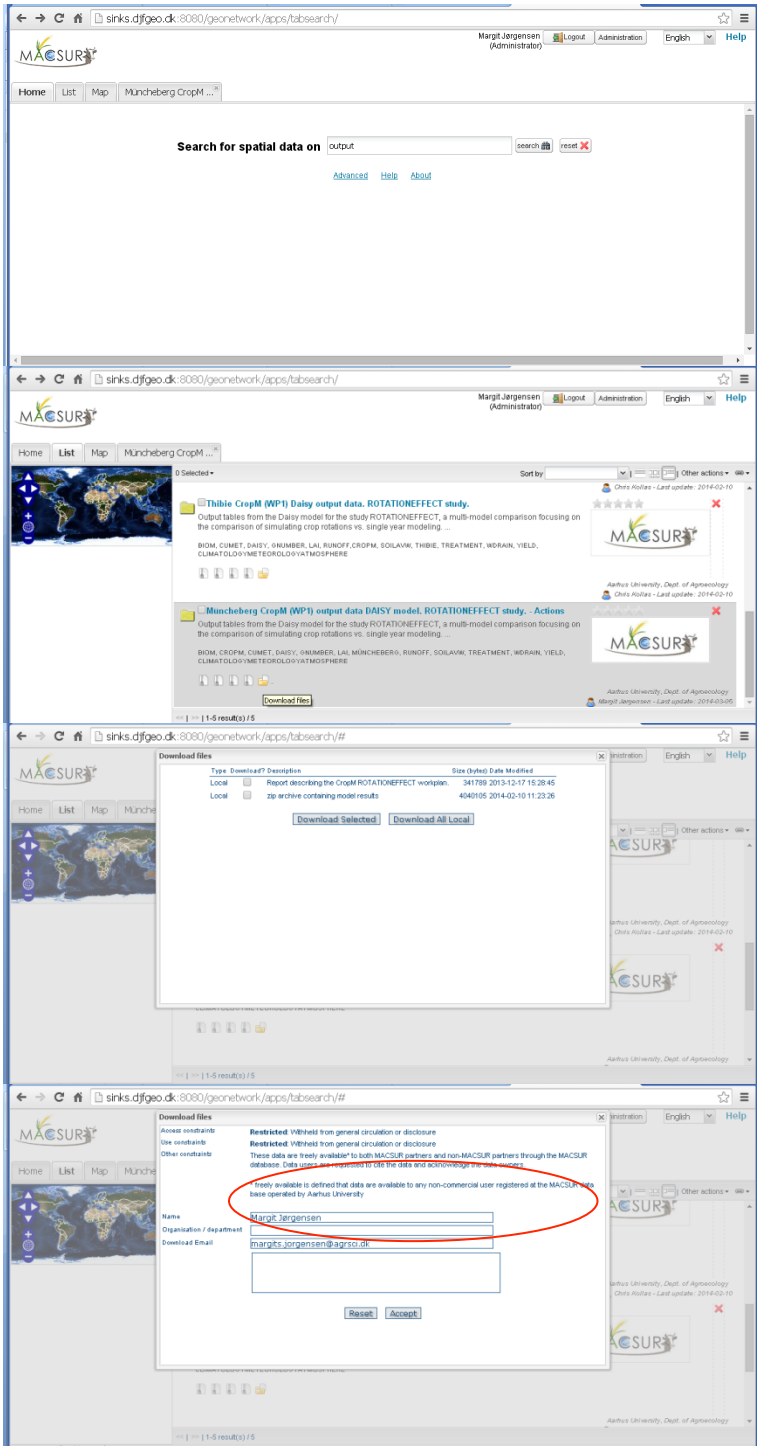
By signing the contract, data owners and data users agree to certain restrictions concerning download and use of data downloaded from the MACSUR catalog.

Data owners choose one of the following restriction options:

- I agree to make these data freely available* to both MACSUR partners and non-MACSUR partners through the MACSUR database. Data users are requested to cite the data and acknowledge the data owners.
- I agree to make these data freely available* through the MACSUR database, but only after …….. 201… . Until then, I agree to make the meta-data available.
- I agree to make the metadata for this set of data freely available* on the MACSUR web site. Those who wish to use the data should contact the following:
  ……
- I agree to make these data available to the following groups in MACSUR. I also agree that Aarhus University can store the data, and that it will respect the limitation to distribute
  only to the following MACSUR group: …… Data use by other MACSUR groups is possible on request to data providers.
- I agree to make these data freely available* through the MACSUR database for use in improving agricultural models. All users must cite the data source using the references given by the data providers. Those users who wish to publish part or all of the data before
  ……20…. are requested to obtain permission from the authors. Data providers request ……
  …….. In addition data providers should be given the opportunity to qualify themselves as co-authors according to the rules (see who is an author). If the provided data are essential for a research that results in a scientific project proposal, data providers should be given an opportunity to participate as partners in that proposal.

* freely available is defined that data are available to any non-commercial user registered at the MACSUR data base operated by Aarhus University

This is implemented in the MACSUR catalog so that users are presented with a similar statement when downloading data owned by a person who have signed the contract with a specific restriction option (Example is shown on next page)



Example of download restriction: Restriction option from signed contract is linked to dataset via ownership of data. In this case it is a guess because no signed contract can be linked to the dataset.

Ownership of existing MACSUR-data in MACSUR catalog:

Dataset	**Contact person (has signed contract?)**	**Publisher /author (has signed contract?)**
Thibie input	Chris Kollas – Contract: no	Constantin J (phD); Aubrion G (experimenter); Duval J (Database manager); N Beaudoin & B Mary (senior scientist) Contract: no
Thibie output		Several – depending on model Contract: no
Müncheberg input	Chris Kollas – Contract: no	W. Mirschel, Zalf e.V. Contract: no
Müncheberg output		Several – depending on model Contract: no
Braunsweig input	Chris Kollas – Contract: no	R. Manderscheid, H.-J. Weigel – Contract: no
Braunsweig output		Several – depending on model contract: no
Hirschstetten input	mirek_trnka@yahoo.com; josef.eitzinger@boku.ac.at Contract: no	mirek_trnka@yahoo.com; josef.eitzinger@boku.ac.at Contract: no
Hirschstetten output		Several – depending on model Contract: no
Foulum input	Jørgen Olesen	
Foulum output		Behzad Sharif and several others– depending on model contract: no
Foggia (Italy) input	Marco Bindi – Contract: no	Marco Bindi – Contract: no

The link between datasets and restriction options from contract is not established since no data owners have signed a contract.

MACSUR-Geonetwork users

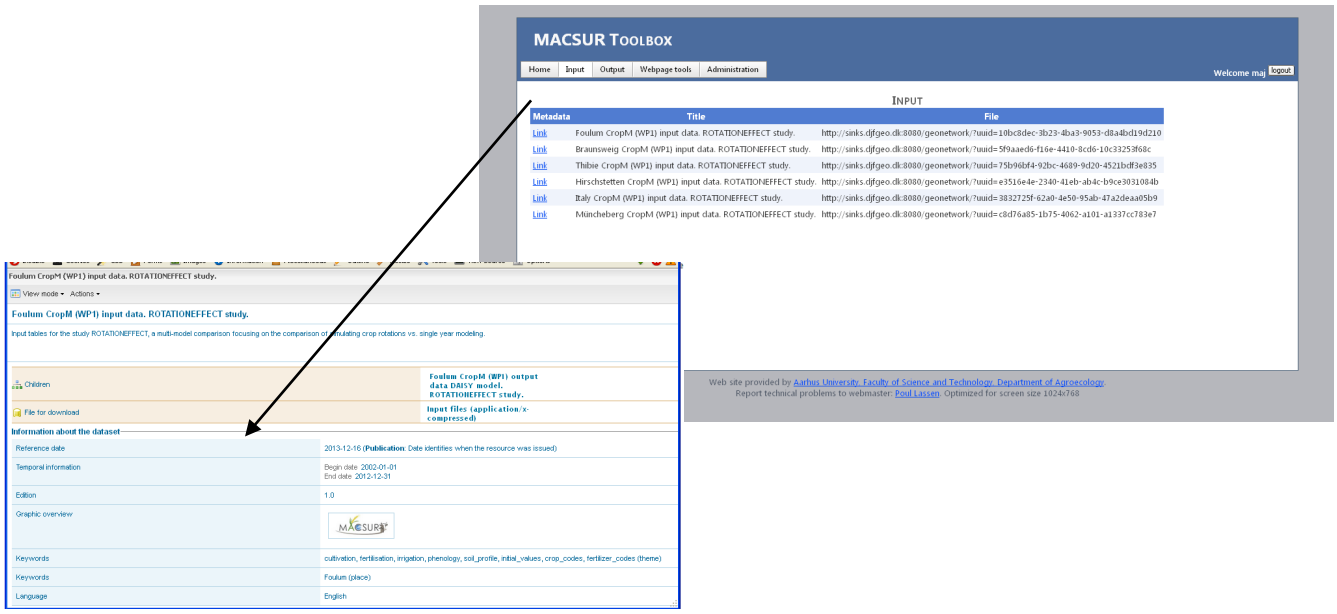
Name	Options by signed contract	User rights in MACSUR catalog	Mail addresse	Owner/user of data	Remarks
Chris Kollas:	Has not signed a contract	Can download files from input and output-data	Chris.Kollas@zalf.de	Owner of Muncheberg data?	Responsible for collection of input and output-data
Christoph Müller:	I agree to make these data freely available* to both MACSUR partners and non-MACSUR partners through the MACSUR database. Data users are requested to cite the data and acknowledge the data owners.	Download files from output-data	cmueller@pik-potsdam.de	?	Germany
Lianhai Wu:	I agree to make these data available to the following groups in MACSUR. I also agree that Aarhus University can store the data, and that it will respect the limitation to distribute only to the following MACSUR group: CropM…… Data use by other MACSUR groups is possible on request to data providers.	Download files from output-data	lianhai.wu@rothamsted.ac.uk	?	England
Stanislaw Twardy:	I agree to make these data freely available through thę MACSUR database for use in improving agricultural models. All users must cite the data source using the references given by the data providers. Those users who wish to publish part or all of the data beforę 2020 are requested to obtain permission from the authors. Data providers request the data to be cited and the data owners to be acknowledged in the following way: Source; dąta from the Institute of Technologł and Life Sciences at FalenĘ, Małopolska Reseąrch Centre in Kraków, Poland. We also request to quote the titles of Institute publication where those data come from. When needed we declare to provide those publication titles. In addition data providers should be given the opportunity to qualify themselves as co-authors according to the rules (see who is an author). If the provided data arę essential for a ręsearch that results in a scientific project proposal, data providęrs should be given an opportunity to participate as partners in that proposal	Download files from output-data	tepkrak@itep.edu.pl	?	Poland
Lutz Weihermüller:	I agree to make these data freely available* to both MACSUR partners and non-MACSUR partners through the MACSUR database. Data users are requested to cite the data and acknowledge the data	Download files from output-data	l.weihermueller@fz-juelich.de	?	Germany

	owners.				
Julien Minet:	I agree to make these data freely available* to both MACSUR partners and non-MACSUR partners through the MACSUR database. Data users are requested to cite the data and acknowledge the data owners.	Can download files from input and output-data	julien.minet@ulg.ac.be	Owner of output-data for the CARAIB model (not ready yet)?	Belgium. Results from CARAIB model Meteorological data from meteorological station in ARLON
Frank Ewert	Signed as data-user	Download files from output-data	tgaiser@uni-bonn.de	Data-user	Germany
Richard Nugent	Signed as data-user	CropMMinus	richard.nugent@rothamsted.ac.uk	Data-user	England
Domenico Ventrella	Option 3 I agree to make the metadata for this set of data freely available* on the MACSUR web site. Those who wish to use the data should contact the following: Domenico Ventrella (CRA-SCA). Option 5 I agree to make these data freely available* through the MACSUR database for use in improving agricultural models. Ali users must cite the data source using the references given by the data providers. In addition data providers should be given the opportunity to qualify themselves as co-authors according to the rules (see who is an author). If the provided data are essential for a research that results in a scientific project proposal, data providers should be given an opportunity to participate as partners in that proposal.	Can download files from input and output-data	domenico.ventrella@entecra.it	?	The contract has been edited slightly: The non-chosen options on page 5 has been deleted, and the chosen option 5 has been modified: The section with date for freeing the data, has been deleted
Jørgen Olesen:	Has not signed a contract	Can download files from input and output-data	jorgene.olesen@agrsci.dk	Owner of Foulum data	

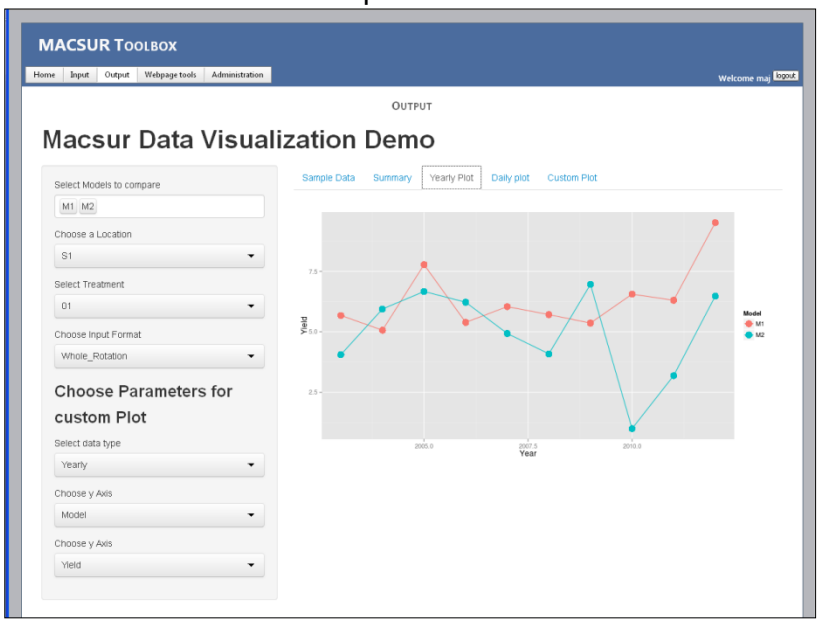
MACSUR Toolbox - platform for viewing data and visualization

agro.au.dk/macsur-toolbox

The metadata for the input-files are shown



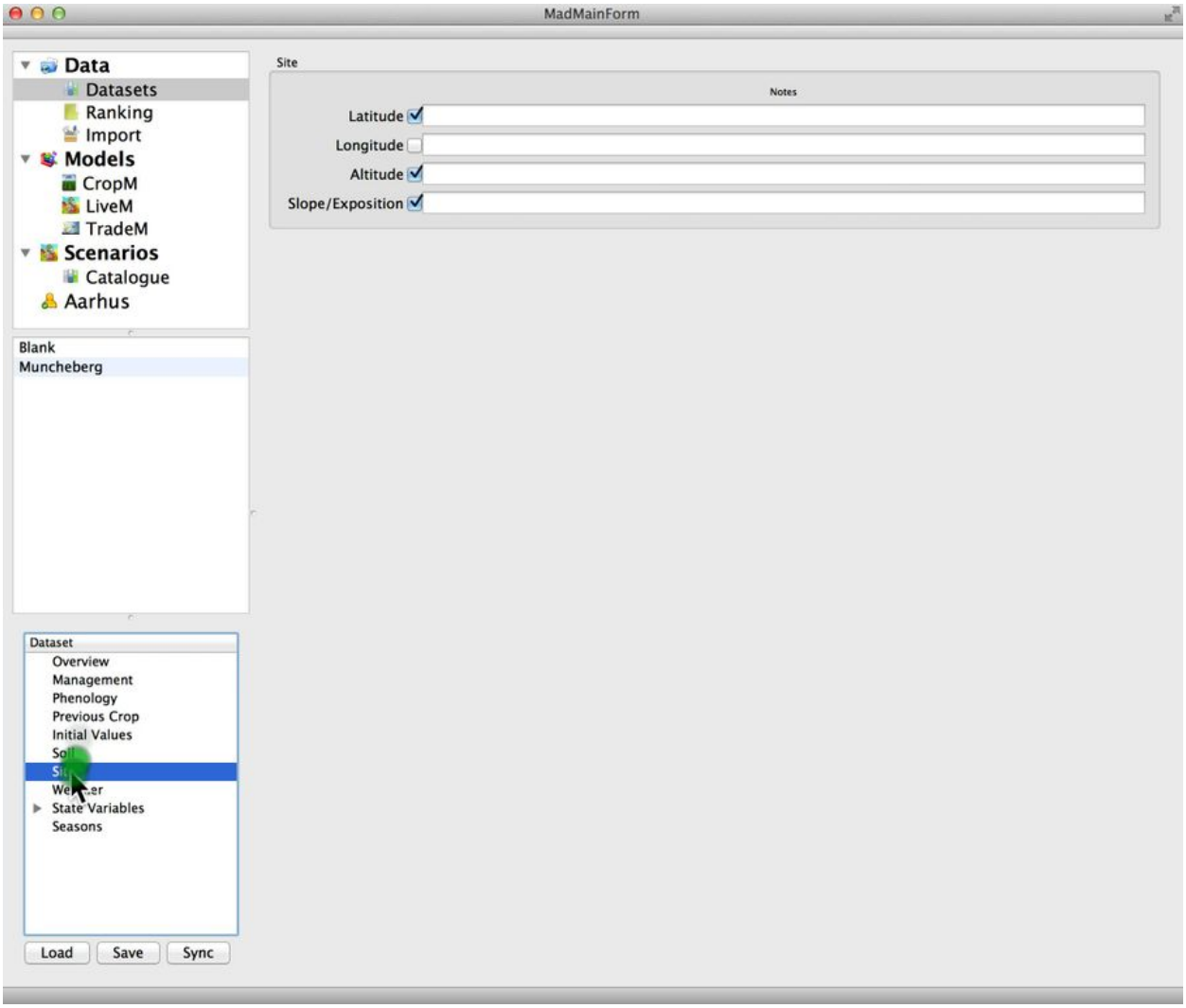
The visualization of the output data is shown



MACSUR Model Adapter

We hope to be able to replace the backend storage of the Model Adapter and to make it possible for MACSUR users to download and run the Model Adapter.

Short demo of the program:
https://www.dropbox.com/s/ikknieou1n0uehb/short_demo_Aarhus.mov


MadMainForm
Data
Datasets
Ranking
Import
Models
CropM
LiveM
TradeM
Scenarios
Catalogue
Aarhus
Blank
Muncheberg
Site
Notes
Latitude
Longitude
Altitude
Slope/Exposition
Dataset
Overview
Management
Phenology
Previous Crop
Initial Values
State Variables
Seasons
Load
Save
Sync

Questions - requirements

- In order to insert the correct access restrictions on the metadata, owners of the datasets have to sign a contract with the appropriate access rights selected.
- What determines the user groups mentioned in the contract access options:
    - MACSUR partners? Does this mean anyone connected to the MACSUR project?
    - Non MACSUR partners? Does this then mean anyone else? Should anyone be able to download the contract – sign it as a user, and then be given login access?
- What are the desired access restrictions for the visualization? Should it be visible only to input-data-owners?
- Do we need additional user-groups in the MACSUR catalog i.e.
    - Steering group?
    - Modellers?