



A collaborative project aimed at pre-validation of a GMES Global Water Scarcity Information Service

glowasis

GLOBAL WATER SCARCITY INFORMATION SERVICE



Venezia, 13-14 October 2011



Meeting of the EC Expert Group on Water Scarcity and Drought
Venezia, 13-14 October, 2011

Sharing water scarcity research with the world





Duration: January 2011 – December 2012

Participants:

No	Name	Short name	Country
1	STICHTING DELTARES	DELTARES	Netherlands
2	CONSIGLIO NAZIONALE DELLE RICERCHE	CNR	Italy
3	EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS	ECMWF	United Kingdom
4	JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION	JRC	Belgium
5	NETHERLANDS GEOMATICS & EARTH OBSERVATION B.V	NEO	Netherlands
6	UNIVERSITEIT UTRECHT	UU	Netherlands
7	TECHNISCHE UNIVERSITAET WIEN	TU Wien	Austria
8	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK - TNO	TNO	Netherlands
9	UNIVERSIDADE DE SANTIAGO DE COMPOSTELA	USC	Spain
10	INSTYTUT METEOROLOGII I GOSPODARKI WODNEJ	IMGW	Poland
11	UNIVERSITY OF KWAZULU-NATAL	UKZN	South Africa



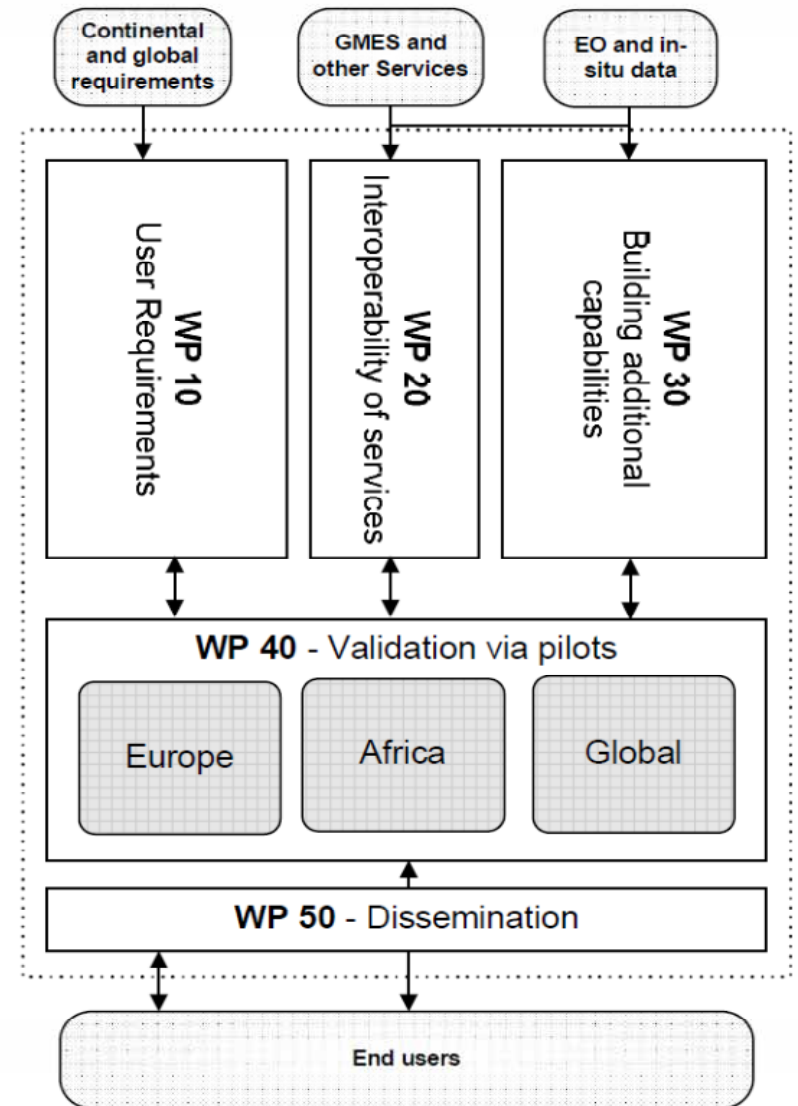
SUMMARY

GLOWASIS will be a dedicated water scarcity information portal where governmental and statistical water demand data are combined with standardized in-situ and satellite data and hydrological forecasting models.

OBJECTIVES

In three pilot studies, a one-stop-shop portal must strengthen the manager's water scarcity countermeasures with additional EO and in-situ data. This results in three pillars of R&D goals:

- User requirements
- IT interoperability
- Additional capabilities





GLOBAL WATER SCARCITY INFORMATION PORTAL

The main objective of the project GLOWASIS is to pre-validate a GMES Global Service for Water Scarcity Information. It will be set up as a one-stop-shop portal for water scarcity information, in which focus is put on:

- monitoring data from satellites and in-situ sensors
- improving forecasting models with improved monitoring data
- linking statistical water data in forecasting
- promotion of GMES Services and European satellites



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GLOBAL WATER SCARCITY INFORMATION PORTAL

In European and global pilots on the scale of river catchments it will combine hydrological models with in-situ and satellite derived water cycle information, as well as government ruled statistical water demand data.

By linking water demand and supply in three pilot studies with existing platforms (European Drought Observatory and PCR-GLOBWB) for medium- and long-term forecasting in Europe, Africa and worldwide, GLOWASIS' information will contribute both in near-real time reporting for emerging drought events as well as in provision of climate change time series.

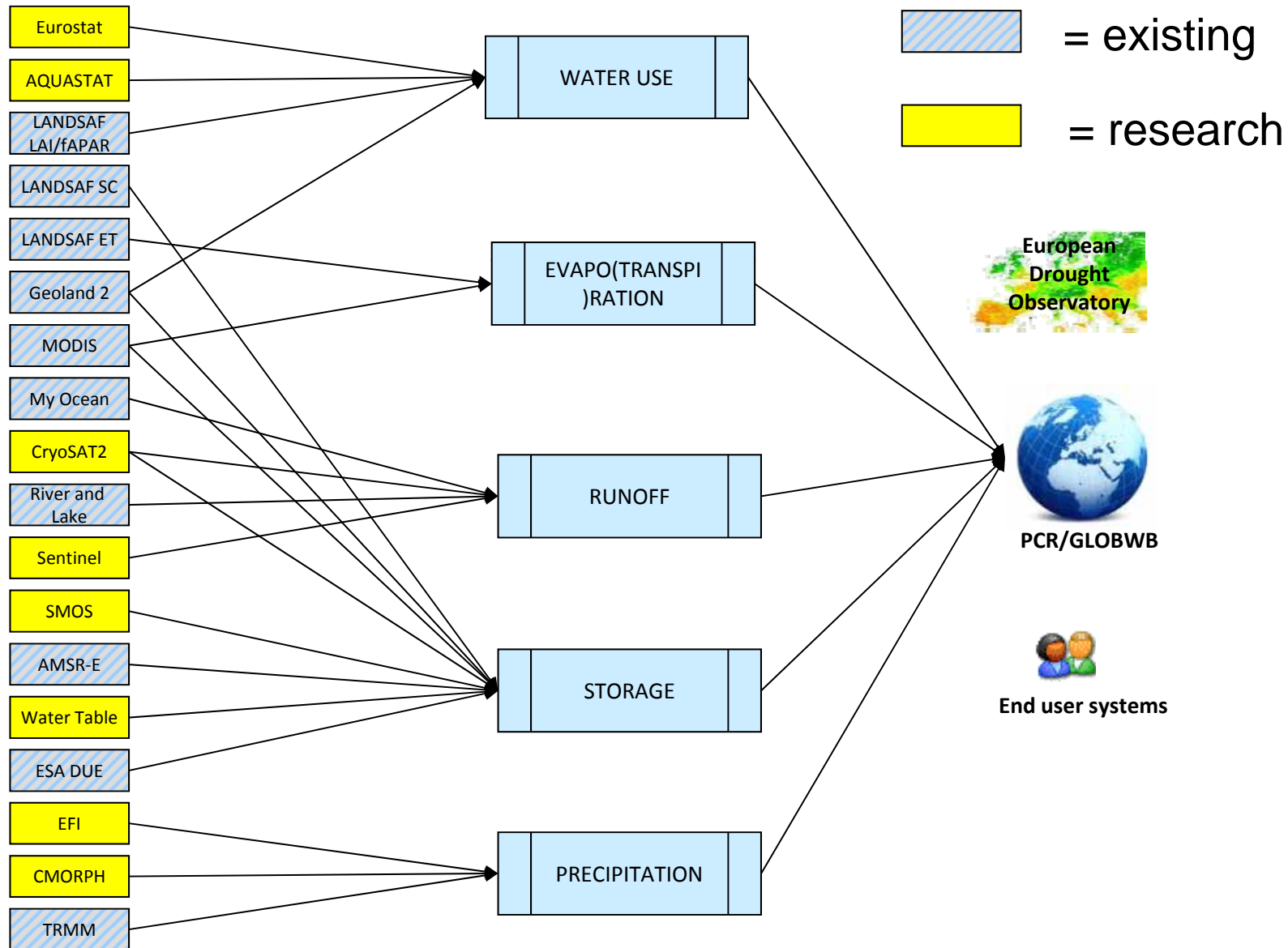
By combining complex water cycle variables, governmental issues and economic relations with respect to water demand, GLOWASIS will aim for the needed streamlining of the wide variety of important water scarcity information. More awareness for the complexity of the water scarcity problem will be created and additional capabilities of satellite-measured water cycle parameters can be promoted.





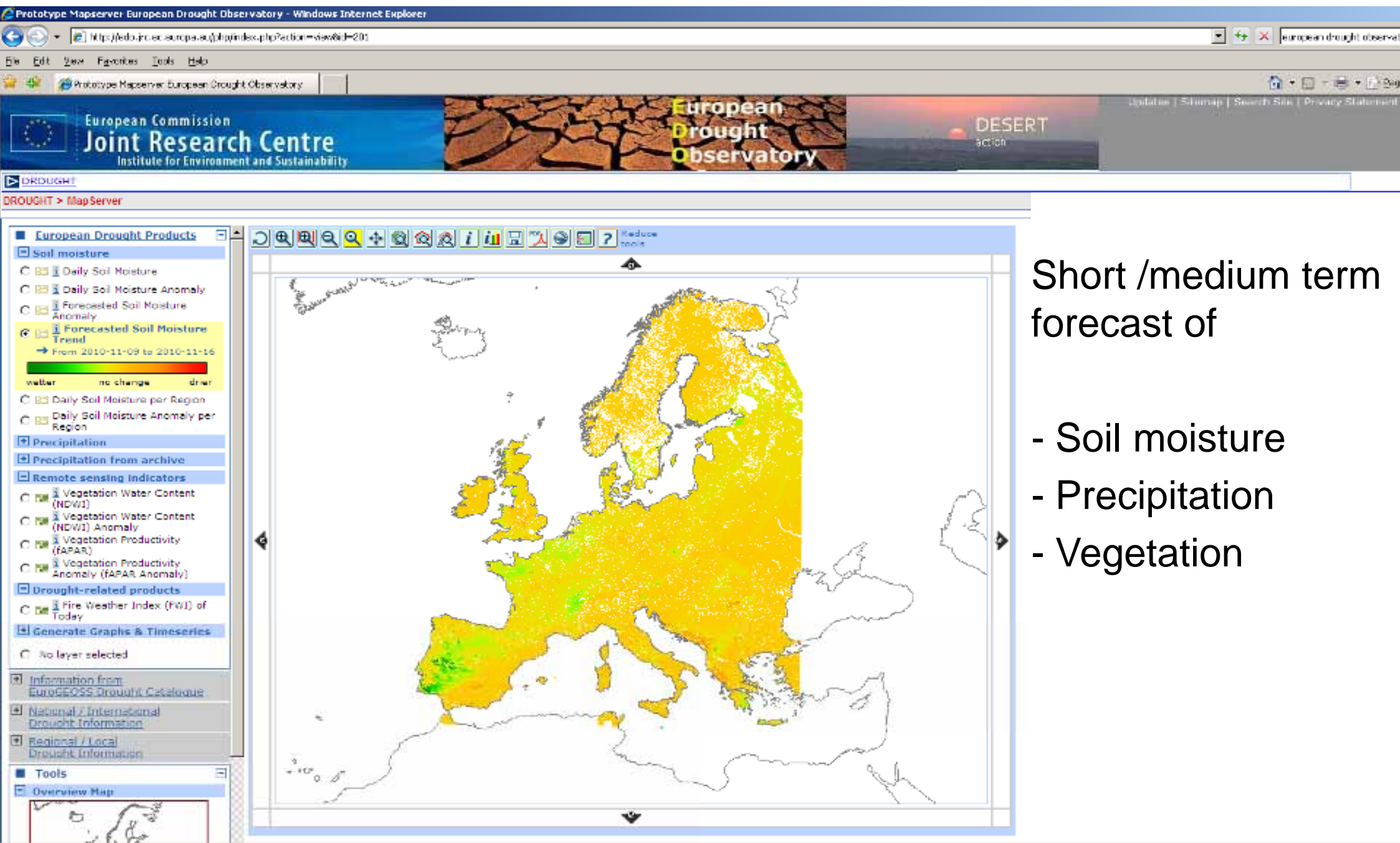
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Do not reinvent the wheel





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Short /medium term forecast of

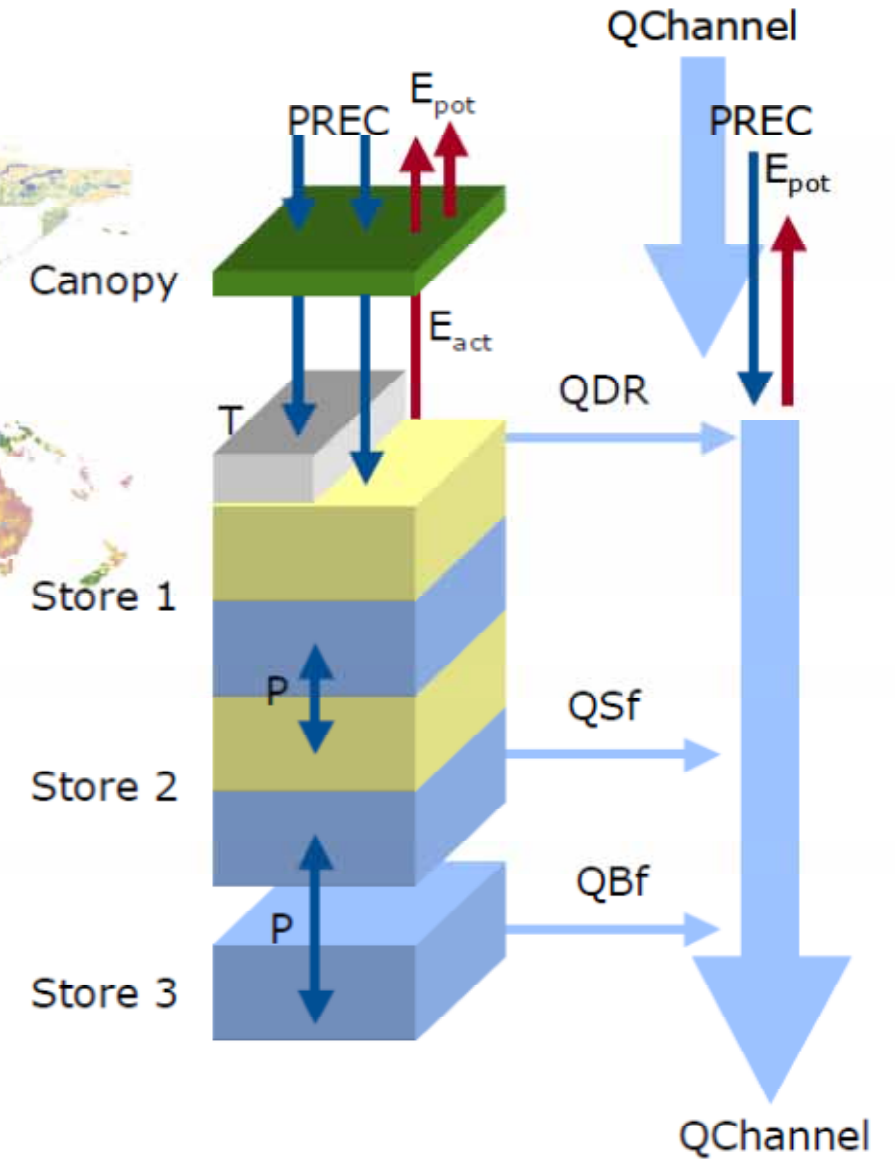
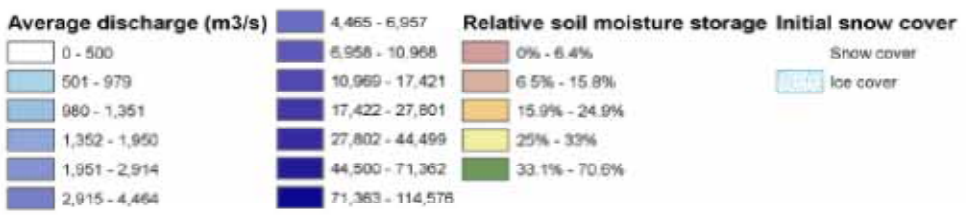
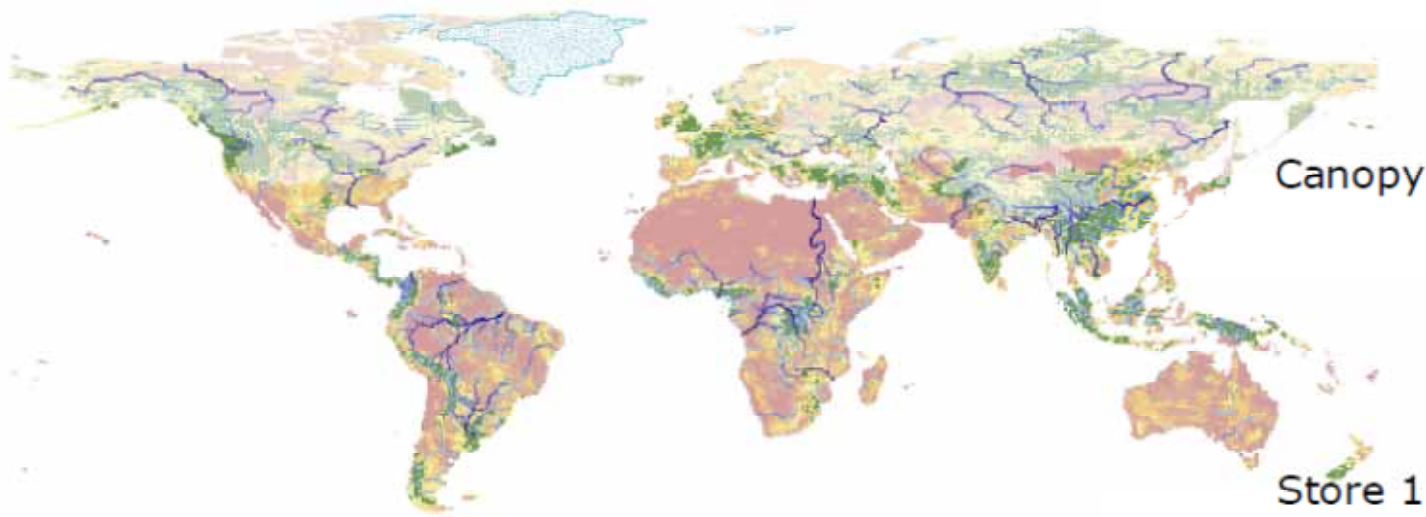
- Soil moisture
- Precipitation
- Vegetation



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PCR-GLOBWB

PC Raster Global Water Balance





- A popular portal that is used many times by many users
- Make sure users can really use the data and not only look at it
- Show the complexity of water scarcity research
- Sharing free data is the key to succes
 - Use open standards
 - Data: NetCDF
 - Server: OPeNDAP
 - Viewer(s): WMS / KML



Vision in all work packages

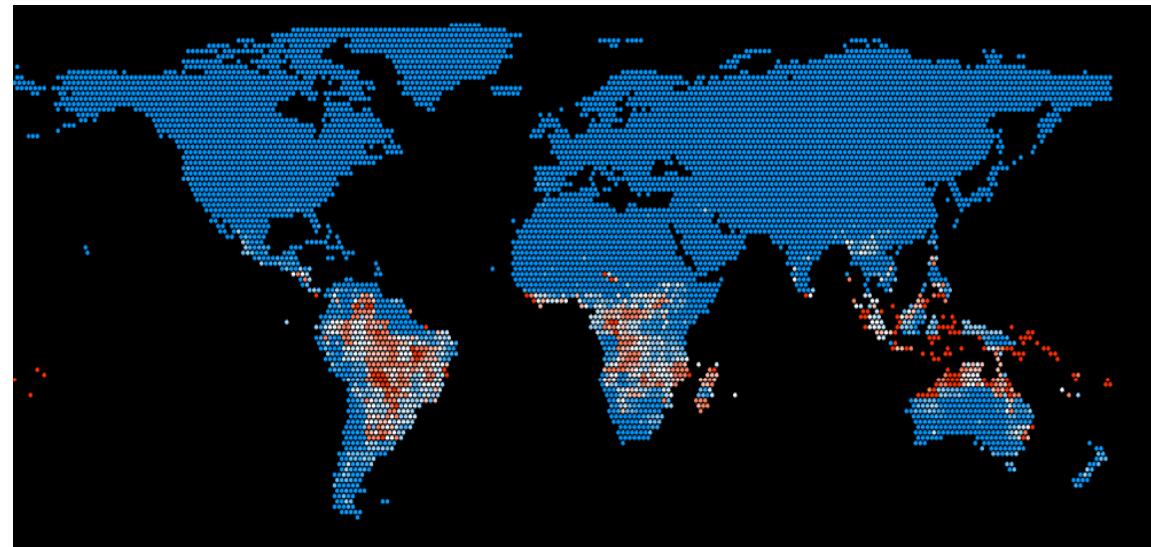
Open standards and open source





- Water scarcity seasonal forecast
- Seasonal forecasts PCR-GLOBWB
- Global groundwater table (0.5 x 0.5 deg => 0.1 x 0.1 deg)
- Extreme Forecast Index
- Satellite precipitation (rain and snow)
- Soil moisture

- More.....?
- Population growth vs. water scarcity outlook....





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End goal

A portal showing a popular water scarcity map on main page. Historical, current and forecast (only quantity, not quality)

Clicking will bring you to

- Full data portal
- EDO and other portals



NOTE: viewing and **downloading**



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What do we have now?

The screenshot shows a Mozilla Firefox browser window displaying a catalog page. The address bar shows the URL: <http://glowasis.deltares.nl/thredds/catalog/opendap/opendap/catalog.html>. The page content includes a table with the following structure:

Dataset	Size	Last Modified
opendap		--
Water_demand/		--
River_and_Lake/		--
Precipitation/		--
PCRGLOBWB_nowcast/		--
PCRGLOBWB_inputs/		--

At the bottom of the page, there are links for [Initial TDS Installation at My Group](#) and [THREDDS Data Server \[Version 4.2.5 - 20110302.2315\] Documentation](#).





User-science-policy interface

- Translating to user friendly results;
 - Popular portal
 - Daily Water Scarcity and Drought News
- Information on existing drought indices
- Policy briefs
- Stakeholder consultation





Identify gaps of knowledge

- (i) Lack of appropriate capabilities for accurate water accounting hinder developments in hydrological forecasting;
- (ii) Water budget only from satellites and in-situ measurements or estimations based on state-of-the-art weather assimilation systems (so called re-analysis) do not accurately assess the amount of water available on and in the land;
- (iii) Space based precipitation lacks the accuracy to feed forecasts, extrapolating errors in models.



Through pilot studies GLOWASIS:

- makes more reliable estimates of water availability by combining measurements (soil moisture, precipitation, evaporation, snow etc) and models at regional and global scale;
- makes seasonal water demand data available at global and regional scale;
- addresses water demand estimation issue with open data that will stimulate faster solutions and economical opportunities;
- works with improved satellite and reanalysis precipitation to solve the global precipitation stalemate;
- interlinks with all relevant stakeholders at national and community level and has close collaboration with the European Environment Agency, other European entities, CSIRO, BoM, GEWEX and GEO.



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Explaining, sharing and improving water scarcity data

Seasonal forecasting of water scarcity

Observations and forecasts of

- Precipitation
- Water Demand
- Soil Moisture
- Hydrology
- etc.

in a popular web portal AND
scientific download portal



<http://www.glowasis.eu>





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FULL DATA PORTAL

The results on the data portal will be viewed and downloaded in user-friendly and open standard data formats. They consist of:

- forecasts: seasonal water scarcity outlook
- statistical data on water use: the most recent data on global water use
- historical data: all data used in the project for the time window 2000 – 2010
- climate outlooks: trying to explain the combined effects of population density, water supply and water demand

As the GLOWASIS project has started in January 2011, the portal will be accessible as from April 2012.

<http://www.glowasis.eu>

