European GEOSS Workshop on Water

Status-quo analysis

Michael Nyenhuis

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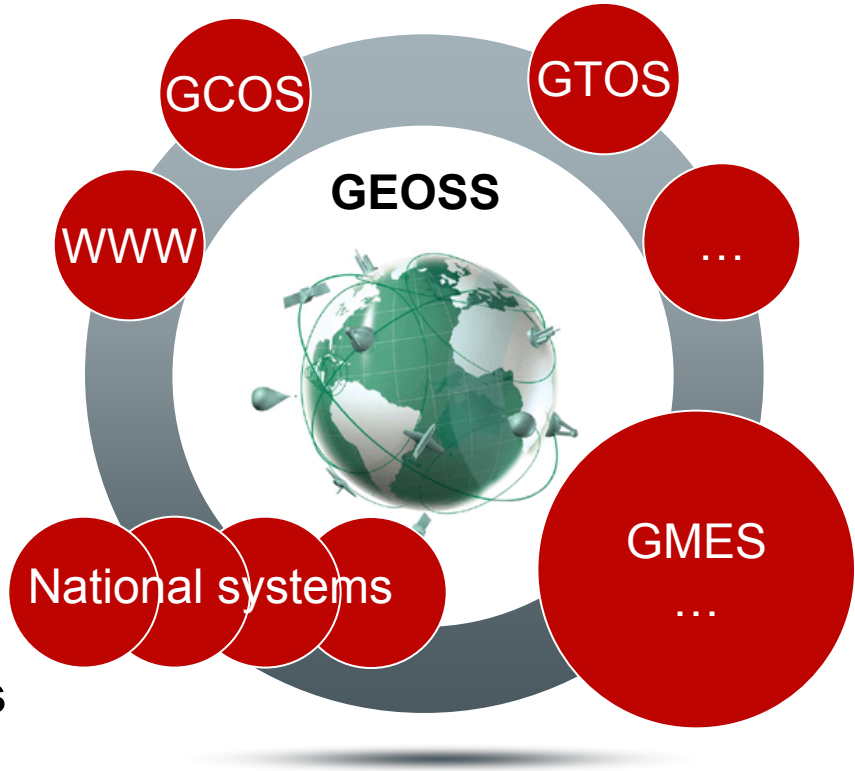
Background

Water

GEOSS – a system of systems

- **System of systems**
  - Powerful national and international systems already exist
  - Close EO gaps by consolidating complementary systems
- **Continued activities under the GEO umbrella**
  - Coordination on global level
  - Political support
  - International visibility
- **Objective of Status-quo analysis is to take stock of existing European EO activities and systems**



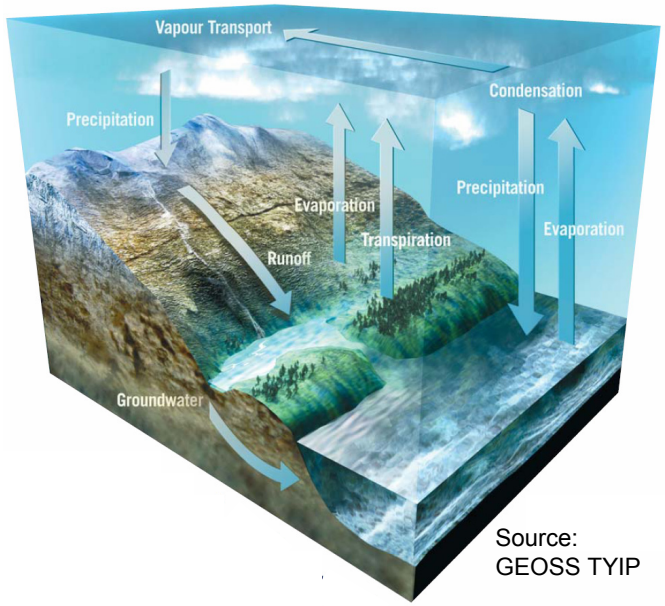
Background

Water

Scope of water work package

- **According to GEO *Water* SBA, emphasis lies on**
  - Terrestrial component of the water cycle
  - Water resource management
  - Observations of the terrestrial water cycle (in-situ / satellite) and models

- **Ocean observations & applications**
  - Substantial European contributions in the field of (operational) oceanography
  - Following the cross-cutting role of ocean obs. in GEOSS, they will be considered in WP4000, in case they are relevant for Water SBA specific applications



Source: GEOSS TYIP

Background

Water

Community of Practice

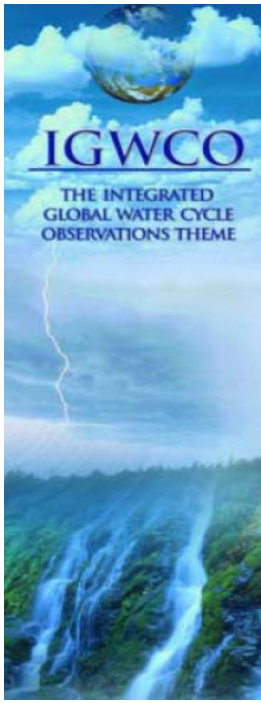
GROUP ON EARTH OBSERVATIONS

- **IGWCO / GEO Water Cycle CoP activities, e.g.**
  - GEO Tasks
  - Global level cooperation strategies
  - African Water Cycle Coordination Initiative (AWCCI)

- **Collaboration initiated in Feb 2010**
  - Harmonise activities (avoid double work)
  - Facilitate extension of European networks into GEO
  - Identify benefits of global level activities for Europe
  - Determine global requirements & promote EU capabilities

- **Water status-quo analysis partly based on *GEO user requirement study on Water SBA* from US-09-01a**

IGOS



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Methodology & content

Water

- **User requirements in GEO context form the basis of the analysis**
  - Focus the analysis on relevant Earth observation parameters
  - Determine the significance of an organisation/programme/initiative
  - Starting point for a discussion of EO gaps
- **Earth observation systems, programmes and data**
  - Catalogue of organisations, systems/programmes and projects
  - Catalogue of EO data & products
- **Assessment of Earth observation activities:**
  - Compliance with GEO strategic target Water and user requirements
  - Application of GEOSS data sharing principles and data standards
  - Continuity of data provision / long-term accessibility of data
  - Capacity building for EO / cooperation with developing countries
  - Active participation in GEO Tasks

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User requirements

Water

- **Based on existing user requirement studies**
  - GEOSS 10-Year Implementation Plan (TYIP), reference doc (2005)
  - IGWCO Assessment report (2007)
  - WMO Statement of Guidance “Hydrology” (2008)
  - GEO User Interface Committee (UIC): Critical EO priorities in the GEO Water SBA (2010)
- **66 priority Earth observation parameters identified**
- **Awaiting updates of UIC study on observation characteristics**
- **Specific European requirements not yet identified**
  - To be discussed at workshop
  - A questionnaire may identify further requirements

User requirements

Water

Product name	Content	Use (examples only)	Spatial resolution	Temporal resolution	Timelines
Discharge	Gridded runoff fields	Water balance computation	1° x 1°	Monthly	DT
Discharge	Point data	Weather and flow forecasting; model validation	N/A	Hourly to daily	NRT
Discharge	Point data	Global water cycle analysis	By station (river-basin)	Daily / Monthly	DT
Soil moisture	Gridded (preferably)	Weather and flow forecasting; assimilation in models	TBD	Daily to monthly	NRT
BGC flux into oceans	By major watershed	Global BGC cycles analysis	By watershed	Daily to monthly	DT
Isotope composition	$D^{18}O$, ^{2}H, ^{3}H	Various	By station	Weekly to monthly	DT
Precepitation	Solid and liquid seperately; point data	Regional water cycle analysis; Hydrological forecasting	1° x 1° globally, 0.5° x 0.5° regionally; point data	Daily to monthly	DT

from WMO SOG Hydrology

Existing and planned EO systems

Water

- **Around 30 EU organisations/programmes/initiatives are documented in the report**
- **10 GMES related projects (FP6/7) have been identified**
- **> 145 EO products in a catalogue [to be reviewed & amended]**

EuroGeoSurveys

EuroGeoSurveys	
Product name:	IHME1500
Framework:	UNESCO, IAH, CCGM, EuroGeoSurveys
Product description:	International Hydrogeological Map of Europe
Category:	Interactive Map
Timeframe:	[To be reviewed] n/s
Spatial resolution:	[To be reviewed] Scale 1: 1 500 000
Temporal resolution:	[To be reviewed] n/s
Coverage:	[To be reviewed] Europe
Latency:	[To be reviewed] n/s
Accuracy:	[To be reviewed] n/s
Data costs:	[To be reviewed] Free of charge
Data access:	[To be reviewed] Publidy available, protected by copyright
Data standard:	[To be reviewed] n/s

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Major Earth observation gaps

Water

- **Based on existing gap analyses, e.g.**
  - GEOSS TYIP, reference doc (2005)
  - WMO Statement of Guidance “Hydrology” (2008)
  - World Water Development Report (2009) – chapter on obs. gaps
  - GCOS progress report (2009)
  - JRC (2009): European capacity for monitoring and assimilating space based climate change observations – Status and prospects
- **Identified gaps**
  - Observational gaps: in-situ, satellite based, parameter specific
  - Gaps through data sharing restrictions (e.g. national data policies, insufficient communication infrastructure)
- **Specific European gaps not yet identified**

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Preliminary findings

Water

- **Abundant European involvement in all but one GEO Work Plan Tasks, but**
  - No strategic involvement or consolidated European contribution
  - European “Early achievements of GEO” (2007) have disappeared in current Task Sheets
  - Concrete contributions not always documented

- **European policy framework in water area imposes specific observational requirements, which need to be further elaborated**

- **Besides critical observational gaps, data sharing restrictions are a major issue in hydrology** (How can GEO help?)

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Next steps

Water

- **Water workshop to review & update Status-quo Report**
- **Questionnaires will be distributed in May-June timeframe**
  - Determine further European user requirements & gaps
  - Review catalogues and gather reliable information on European EO activities/organisations, data and products
- **Final Status-quo Report due end of July 2010**
- **GEO 2010 Ministerial Summit as a chance to present European achievements**

Workshop 'To do - list'

Water

Required information for status quo

- **European Earth observation user requirements & gaps**
  - Technological perspective on requirements
  - Emerging requirements from policy framework
  - Major gaps (i.e. unmet requirements)
- **Systems and programmes**
  - Missing systems and major actors
  - Information on planned systems and programmes
- **Available Earth observations**
  - Detailed information on EO services/products, e.g. spatial & temporal resolution, data policy
- **Associated strengths, challenges & opportunities, e.g.**
  - European systems addressing gaps in GEO work plan / Water SBA
  - Coordination issues on international level

Thank you !

Michael Nyenhuis, Gero Steup, Maren Salz
Department of Geography, University of Bonn
michael.nyenhuis@uni-bonn.de