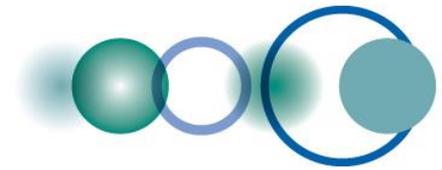


GEOSS Data Sharing: Achievements, lessons learnt and way forward

**GEO Programme Board meeting #1
WMO, Geneva, 2 February 2016**

**Simon Hodson & Michel Schouppe
on behalf of the DSWG co-chairs
(GEO Foundational Task GD-01)**





Data Sharing: the backbone of GEO

- **Promoting and enabling data sharing is one of GEO's significant achievements and a prerequisite for building a stronger GEOSS.**
- **Data sharing is the fundamental enabler for global, regional and national progress towards addressing global societal challenges.**
- **The Data Sharing Working Group (DSWG) has played a key role to date in building consensus on data sharing guidelines and implementation plans.**
- **Further advocacy of data sharing implementation and the articulation of evidence are necessary to achieve these objectives.**

First GEOSS decade (2005-2015)

Main driver:

GEOSS Data Sharing Principles (v. 2005)

There will be full and open exchange of data, metadata and products shared within GEOSS, recognizing relevant inter-national instruments and national policies and legislation.

All shared data, metadata and products will be made available with minimum time delay and at minimum cost.

All shared data, metadata and products being free of charge or no more than cost of reproduction will be encouraged for research and education.

First GEOSS decade (2005-2015)

Examples of **ACHIEVEMENTS**

First GEOSS decade (2005-2015)

2009 - GEOSS Data Sharing Implementation Guidelines

(Accepted by the GEO-VI Plenary, Washington D.C., Nov. 2009)

- Promote full and open exchange of data according to GEOSS Data Sharing Principles (DSP)
- Enable GEOSS users to reuse and re-disseminate shared data, metadata and products
- Ensure consistency with relevant international instruments and national policies and legislation
- Encourage pricing policies consistent with GEOSS DSP.
- Advocate minimum time delays for delivering data through GEOSS
- Promote research & education uses of GEOSS data, metadata and products.

First GEOSS decade (2005-2015)

2010 - GEOSS Data Sharing Action Plan

(Accepted by the GEO-VII Plenary, Beijing, 2010)

- Notes that the achievement of full and open exchange of, and access to, key datasets requires actions by:
 - ✓ GEO collectively
 - ✓ Members and Participating Organizations individually
 - ✓ GEOSS tasks and cross-cutting activities
- Create the **GEOSS Data-CORE** concept

First GEOSS decade (2005-2015)

Since 2010 - GEOSS Data-Core

The GEOSS Data Collection of Open Resources for Everyone is a distributed pool of “tagged” datasets with full, open and unrestricted access at no more than the cost of reproduction and distribution



<http://www.geoportal.org/>

- GEOSS Data-Core Tag: 
- DSWG Guideline document: *"Instructions for GEOSS Data Providers: How to place tags in the Metadata for GEOSS Data-CORE"*

First GEOSS decade (2005-2015)

2013 - GEOSS Data Quality Guidelines

(Accepted by the GEO-X Plenary, Geneva, 2014)

- Outlines data (quality and characteristics) documentation issues, including core metadata and quality tags for fitness-for-purpose for consideration by data providers.
- Calls for standardised mechanisms to allow data users to provide feedback on usability.
- Extended in current draft Data Management Principles Implementation Guidelines to include the scientific concept that, when applicable, data producers should publish, in the peer-reviewed literature, the methods used in creating and validating the data.

First GEOSS decade (2005-2015)

2013 - Review paper on legal interoperability

- Short review paper on the “Interpretation of the full and open access to and use of (geographic) data: existing approaches”.
- Focus on the comparison of the terms used as equivalents to ‘full and open’ concept for sharing data through GEOSS, and highlights the similarities and differences in the approaches, policies and their implementation in various jurisdictions.

First GEOSS decade (2005-2015)

2012 & 2014 – Two versions of a white paper on legal interoperability

(Latest version accepted by the GEO-X Plenary, Geneva, 2014)

- DSWG white paper on “Legal options for the exchange of data through the GEOSS Data-CORE” (2012)
- Insight on what legal interoperability of data means
- Promotes the use of legislative waivers of rights and the placing of data and information produced by government entities in the public domain
- Provides examples of standard waivers (e.g. PDM, CC0, PDDL, CC BY 4.0) or characteristics of common-use licenses that meet GEOSS Data-CORE conditions of access.

First GEOSS decade (2005-2015)

2014-2015 - Towards revised GEOSS Data Sharing Principles post-2015

- To consider the changing international landscape for data sharing over the past years, in particular the accelerating trend towards open data;
- To revisit the 2005 GEOSS Data Sharing Principles so as to clarify and improve the language;
- Above all, to ensure that they advance GEO's vision and objectives and that GEO continues to play a key role in accelerating the global trend towards truly open data sharing in support of society.

First GEOSS decade (2005-2015)

LESSONS LEARNT

First GEOSS decade (2005-2015)

Lessons learnt

- The development of an Action Plan has been very beneficial to clarify how to contribute to the Data Management Strategic Target of the previous GEO decade.
- The voluntary basis of our work brings a lot of flexibility and room for initiative.
 - As a consequence a lot of the pace of progress relies on few active individuals whose time resources can fluctuate.
- Data sharing implementation goes very much hand in hand with the development of the GEOSS infrastructure and the work conducted within each of the SBAs. Coordination between GEO Tasks needs to be rethought/improved.

First GEOSS decade (2005-2015)

Lessons learnt (continued)

- Actions depending on resources and expertise existing within the group could generally be conducted in a satisfactory way.
- Actions raised by the group to be achieved by the GEO Members or Participating Organisations were more difficult to implement/monitor.
- It is essential to improve visibility and access by the whole GEO community to the produced guidelines and to promote best practices.
- Permanent call to the GEO community for involvement of additional experts in order to cover all GEO Caucuses appropriately.

First GEOSS decade (2005-2015)

Lessons learnt (continued)

- The GEOSS data CORE concept has the potential to be one of the key success stories of GEOSS, distinguishing it from any other web-based infrastructure.
- Further effort is needed to increase awareness/use of the GEOSS Data-CORE
 - Too many members of the GEOSS community of users are not yet aware of / not yet using available GEOSS Data-CORE datasets;
 - Some thematic areas still poorly represented amongst the GEOSS Data-CORE;
 - Spatial extent and temporal resolution of available GEOSS Data-Core datasets often do not fit users' needs;
 - Need to collect usage metrics for GEOSS Data-CORE

Second GEOSS decade (2016-2025)

WAY FORWARD

Second GEOSS decade (2016-2025)

Main driver:

Revised GEOSS Data Sharing Principles (v. 2015)

Data, metadata and products will be shared as Open Data by default, by making them available as part of the GEOSS Data Collection of Open Resources for Everyone (Data-CORE) without charge or restrictions on reuse, subject to the conditions of registration and attribution when the data are reused;.

Where international instruments, national policies or legislation preclude the sharing of data as Open Data, data should be made available with minimal restrictions on use and at no more than the cost of reproduction and distribution

All shared data, products and metadata will be made available with minimum time delay.

Second GEOSS decade (2016-2025)

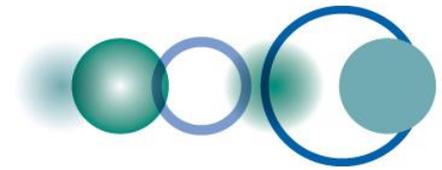
Data Sharing remains a fundamental GEO activity:

- Continued need to:
 - Promote open data sharing, and expansion of national coordination mechanisms
 - Monitor data policy "*readiness*" and data availability and usability in particular through the GEOSS architecture
 - Analyse impact / benefits, notably in relation to the upcoming SDGs / SBAs
 - Report, including through barometer style reports
 - Refine data sharing implementation guidelines
 - Explore data sharing implications from new observing systems (e.g. crowdsourcing or observing systems owned by the private sector)

Second GEOSS decade (2016-2025)

GEO Task GD-01: Priority activities for 2016

- Draft revised Implementation Guidelines on the GEOSS Data Sharing Principles
- Keep track of international Open Data trends and continue to evolve the next generation of Data Sharing Principles as necessary
- Analyze and Advocate the Benefits of Data Sharing, augment evidence base
- Promote National Coordination Mechanisms
- Analyze Data Commons in GEO SBAs that enable data sharing across various SBAs
- Monitor, interpret, and adjust the GEOSS data use metrics



Report on Value of Data Sharing

- CODATA Report for GEO (not directly DSWG, but very strongly related to that work programme).
- Published at: <http://dx.doi.org/10.5281/zenodo.33830>
- Concise but thorough survey of evidence in favour of open data sharing.
- Lays out value and benefits of data sharing:
 - to help underpin GEO's mission and the **Advocate** function.
 - to support the central message of the Ministerial Statement, and;
 - to encourage further contributions to GEOSS Data-CORE
- **Provides a framework which will help DSWG and GEO community marshal further evidence and case studies to support GEO's mission.**

In conclusion

The next GEO decade of data sharing will:

- require advocacy, engagement and delivery
- benefit from implementation of other GEO principles related to data management and GEOSS infrastructure

Revised GEO Data Sharing Principles:

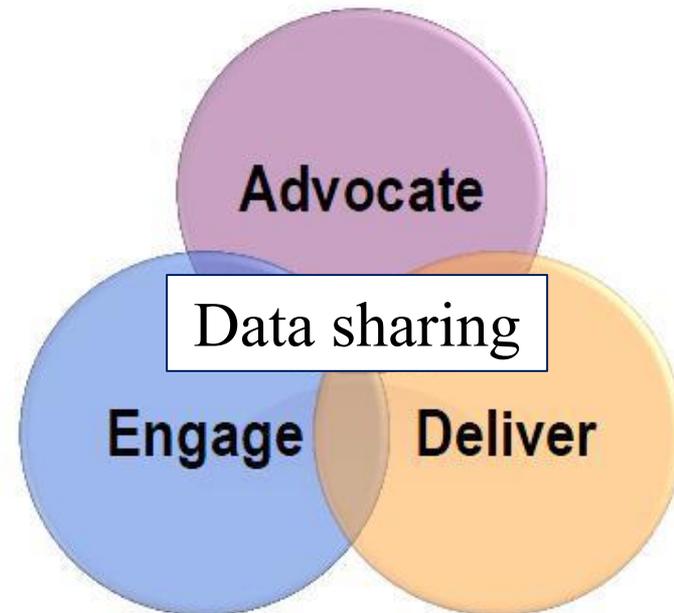
- **GEOSS data shared by default as open data**

GEO Data Management Principles:

- **Discoverability, accessibility, usability, preservation, curation**

GEOSS Architecture Principles

- **Openness, effectiveness, flexibility**



Thank you!

DSWG co-chairs:

- Robert Chen (ICSU)
- Catherine Doldirina (JRC consultant)
- David Halpern (COSPAR)
- Simon Hodson (CODATA)
- Michel Schouppe (EC)
- Zipho Tyoda (RSA)
- Paul Uhlir (ICSU)
- Greg Withee (US)

GEO Secretariat support: Wenbo Chu