



Proposed Implementation Guidelines for the Data Sharing Principles of GEOSS: Report of GEOSS Task DA-06-01

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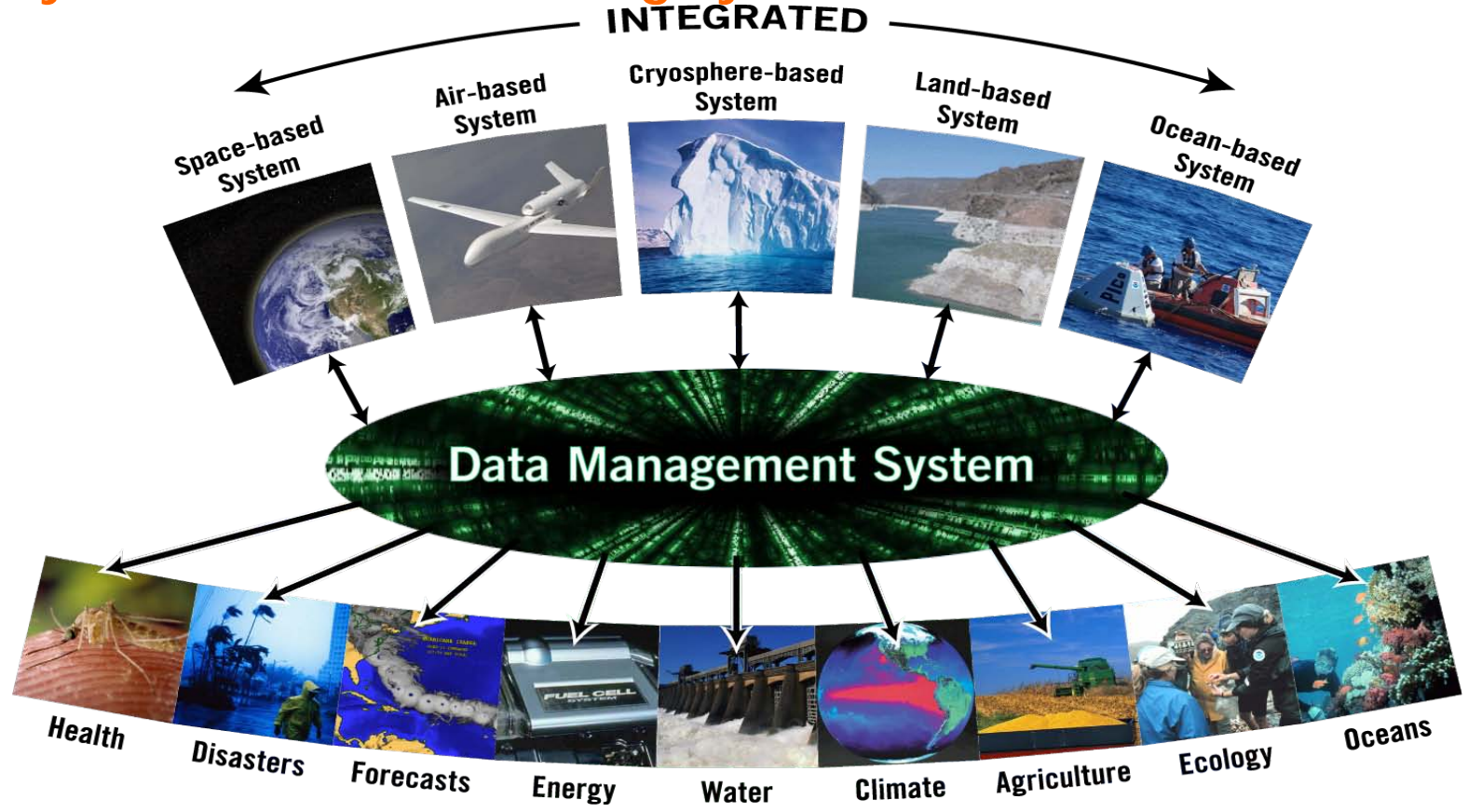
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A Global, Coordinated, Comprehensive and Sustained System of Earth Observing Systems



Address the need for timely, quality, long-term, global information as a basis for sound decision making.



Agreed GEO Data Sharing Principles



- There will be **full and open exchange of data, metadata, and products** shared within GEOSS, *recognizing relevant international 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.**

GEOSS 10-Year Implementation Plan, adopted 16 February 2005
(*emphasis added*)



Overview of Activities 2006-2007



- **2006: CODATA agreed to take lead**

- Held initial expert meeting at the CODATA Conference in Beijing in October 2006 to solicit inputs
- Task extended into 2007-09 GEO Work Plan

- **2007: Developed Initial White Paper**

- Reviewed past experience with data sharing principles & policies
- Identified options for implementing the GEOSS data sharing principles
- Included illustrative case studies
- Addressed implementation issues
- Recommended guidelines for implementing the Data Sharing Principles

- **2007: Participated in November 2007 Plenary and Ministerial**

- Draft white paper circulated for information
- Held side event
- Revised white paper based on various inputs and comments



- Core Author Group
 - Paul F. Uhler, Chair of Core Author Group
 - Robert Chen, DA-06-01 lead
 - Joanne Irene Gabrynowicz
 - Katleen Janssen
 - Charles Barton
 - Jack Hill
- Review Group
 - Santiago Borrero
 - Dora Ann Lange Canhos
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 - Yukiko Fukasaku
 - Huadong Guo
 - Alexei Gvishiani
 - Bernard Minster
 - Steve Rossouw
 - Fraser Taylor



Declaration in Cape Town



The GEO Ministerial Summit in Cape Town noted:

" We support the establishment of a process with the objective to reach a consensus on the implementation of the Data Sharing Principles for GEOSS to be presented to the next GEO Ministerial Summit "



Overview of Activities 2008



- **January:** White Paper updated. Presented at ADC-6 (Uhlir).
- **February:** White paper updated and sent to Reviewers and Task Participants. Added Appendix E to track written comments received (six) and changes made.
- **May:** White paper split into Draft Implementation Guidelines and supporting white paper. Guidelines updated based on comments. Presented at ADC-7 (Cass). Both documents circulated to GEO Members, POs, and Committees.
- **July-August:** 6 more sets of comments received from Members in response to May version (Australia, Canada, EC, Germany, Japan, U.S.)
- **September:** Guidelines updated based on comments. Presented at STC (Cass), ICEO workshop (Gabrinowicz), ADC-8 (Chen). Update memo prepared for GEO Executive Committee, including schedule and Task Group responses to all written comments



Proposed Guidelines in 8 Areas



- 1) Promoting implementation of the principle of **full and open exchange of data** in accordance with the GEOSS Data Sharing Principles
- 2) Encouraging GEOSS users to **reuse and re-disseminate** shared data, metadata, and products
- 3) Ensuring **consistency** in the implementation of the GEOSS Data Sharing Principles with relevant international instruments and national policies and legislation
- 4) Implementing **pricing policies** consistent with the GEOSS Data Sharing Principles
- 5) Reducing the **time delays** for making data available through GEOSS
- 6) Promoting **research and education uses** of GEOSS data
- 7) Developing **metrics and indicators** for GEOSS data sharing activities
- 8) Developing effective **coordination and outreach mechanisms** for implementing the GEOSS Data Sharing Principles



1) Full & Open Exchange of Data



- *For GEOSS to realize its vision and potential, it is essential to promote the **full and open exchange of metadata, data and products** in accordance with the Data Sharing Principles.*
 - “Full and open access” means that data and information derived from publicly funded activities are made available with as few restrictions as possible, on a nondiscriminatory basis, for no more than the cost of reproduction and distribution
 - For GEOSS to work as a “system of systems” that can deliver integrated data and information as rapidly as possible to meet important user needs, it is important that the component systems of GEOSS interoperate seamlessly with each other and with the fewest possible constraints on the sharing and integration of needed data and information (i.e., metadata and data products).
 - The emphasis should be on promoting the benefits of full and open access to GEOSS data through a process that engages directly both data providers and data users.



2) Reuse & Redissemination of Data - 1



- *The full and open exchange of data called for in the Data Sharing Principles should apply to GEOSS data, metadata, and products **even after such shared information is disseminated to users.** Users need to be able to integrate, reuse, and re-disseminate the shared information with minimal restrictions in order to achieve maximum results in the GEOSS societal benefit areas.*
 - Users of GEOSS data need the flexibility to reuse and re-disseminate the resulting shared information in order to maximize their own uses, as well as the relevant secondary applications of such data and information for the broad societal benefits



2) Reuse & Redissemination of Data - 2



- a. *GEO should encourage all GEOSS components that are developed and operated by **governmental, public-sector organizations** to provide most, if not all, of their data, metadata, and products without any reuse or re-dissemination restrictions.*
 - GEOSS needs a critical mass of digital resources
- b. *To meet the full range of user needs identified as priorities by GEO, **private-sector or hybrid public-private sector systems** should be encouraged to contribute at least a useful subset of their data and information on a full and open basis, without any reuse or re-dissemination restrictions.*
 - It is in the interest of all GEOSS components and participants to ensure that the range and use of GEOSS data continues to expand, especially in developing countries
- c. ***Attribution requirements** should include recognition of all significant data sources or authors, as well as the GEOSS component that enabled access to and delivery of the data.*
 - Recognition of contributions through attribution will help provide incentives to participate in GEOSS



3) Consistency with International Instruments & National Policies & Legislation



- *All GEO Member States and Participating Organizations must abide by various specific restrictions on the dissemination and use of data, metadata, and products based on international instruments and national policies and legislation. Such restrictions pertain mainly to concerns regarding the protection of: national security, proprietary interests, privacy, confidentiality, indigenous rights, and conservation of sensitive ecological, natural, archaeological, or cultural resources.*
 - a. *In order to promote these goals and to help provide greater knowledge about these issues within the GEOSS community, GEO should establish an online compendium of the relevant international instruments and national policies and legislation.*
 - b. *GEO should establish an overall focal point for coordinating the application of these restrictions to avoid the development of a confusing array of vague and inconsistent use policies and approval procedures.*
 - c. *Consistent with sections 3.a and b. above, each GEO Member State and Participating Organization also should consider establishing a focal point to coordinate information on and interpretation of any restrictions applicable to its GEOSS elements.*
 - d. *GEO should consider utilizing machine-readable, common-use licensing approaches for copyrighted data products that place primary responsibility for compliance on the users rather than enforcing compliance through technical controls on data access.*



4) Consistent Pricing Policies



- *The pricing of GEOSS data, metadata, and products should be based on the premise that the data and information within GEOSS is a **public good for public-interest use** in the nine societal benefit areas. GEO, together with its GEOSS data providers, should set standards for “minimum cost” based on this premise.*
 - a. *The costs of data collection and system development and integration into GEOSS should be considered a previously incurred cost and an unallowable part of cost recovery.*
 - b. *Although the Data Sharing Principles in theory allow for recovery of minimum costs for access to metadata, in practice, **metadata** generally should be made available openly at no cost, to enable users to discover sources of data and information without restriction.*
 - c. *GEO should encourage development of flexible, **online cost recovery mechanisms** that allow different types of users to understand their access costs.*
 - d. *GEO should encourage cost recovery models that **waive or minimize costs for developing country applications and users** not covered by the research and education Data Sharing Principle.*
 - e. *Cost recovery approaches and licensing arrangements for data and products contributed to GEOSS that require **payments for reuse of data and products** already acquired by users are not consistent with the GEOSS Data Sharing Principles.*



5) Reducing Time Delays



- *GEO should promote “minimal time delay” to data within GEOSS, depending on the type of data and application and the need for appropriate quality control, and data should be transmitted on a real-time basis whenever necessary or practicable.*
 - a. For operational systems, time delays should be minimized through **automated quality control procedures**.*
 - b. For research data, time delays may need to include a **limited period of quality control and exclusive use** by the data provider. These should reflect the norms of the relevant scientific communities or data processing centers.*



6) Promoting Research & Education Uses



- *GEO should develop and adopt clear definitions of “research” and “education,” focused on the **planned use of the information shared through GEOSS**, rather than the status of the user.*
 - a. Cost reductions provided for research and educational activities (and for support of developing country applications, consistent with section 4.d) should be documented, if possible.*
 - b. Users receiving data at reduced or no cost should be strongly encouraged to provide **impact metrics and information** regarding their use of GEOSS data, metadata, and products.*
- The institutional affiliation of the user is not necessarily a good indicator of the use of GEOSS data, metadata, and products (and related services) by the user.
- Whether or not the GEO principle on research and education should apply to educational and scientific publishing is an important policy issue that the GEO community should explicitly consider.



7) Developing Metrics & Indicators



- *GEO should develop **minimum standards for data usage metrics and indicators** to ensure that the overall utility and impact of GEOSS data, metadata, and products can be objectively documented*
 - a. *Usage metrics should capture the **quantitative and qualitative results** of GEOSS data, products, and services across the nine societal benefit areas and in other important realms, as well as the “throughput” of data, metadata, and products enabled by GEOSS.*
 - b. *GEO should devote significant effort toward making the collection, analysis, and interpretation of impact metrics and indicators an integral part of the system of systems.*
- Planning for assessments that use metrics and indicators in a systematic manner at an early stage, rather than as an afterthought, will help GEOSS evolve more quickly and effectively.



8) Coordination & Outreach Mechanisms



- *In order to implement the GEOSS Data Sharing Principles successfully, GEO needs to establish an **internal organizational structure** for promoting the established policies vis-à-vis the data providers and users.*
 - a. GEO should **consider** developing **procedures to encourage the adherence** of GEOSS elements to the GEOSS Data Sharing Principles.



Selected Comments and Issues



- Need to emphasize the voluntary nature of GEO and for non-binding approaches to increase participation and compliance
 - Terminology: some concerned about use of terms that may imply binding commitments such as “Memorandum of Understanding” and “policy”
- Concerns about consistency between existing practices and the proposed guidelines, e.g., regarding reuse and redissemination
- Need for evolution of guidelines and approaches based on experience and new developments
- Clarification of role of national focal points
- Importance of real-time data access in some situations
- Suggestions for new guideline text:
 - Liability
 - Data quality



Tentative Schedule



- Initiate discussions on data sharing issues with GEO initiatives such as GEONetcast, Global DEM, CBERS data distribution, GEO BON, and GAM and with GCI and IOC
- Data Sharing presentation & discussion at CODATA conference in Kiev in October
- Report and side event at GEO-V in Bucharest in November
- Possible merging of tasks DA-06-01 and DA-06-02 (data quality) into DA-09-01 (2 subtasks)
- Possible session at GSDI-11 in Rotterdam, June 2009
- Further discussion at GEO-VI in fall 2009
- Possible adoption at GEO Ministerial in 2010



GEO Secretariat's Summary to CEOS SIT-22 in September 2008



- Success of GEOSS is contingent upon
 - Manner in which the GEOSS Data Sharing Principles are implemented
 - Both by the individual elements of GEOSS and by GEO Members
- No single set of rules will apply to all types, sources, and uses of data
 - Clear set of guidelines, definitions, and minimum expectations will help to improve the sharing of data within GEOSS
- GEOSS Data Sharing Principles
 - Facilitate the application of data by diverse users in the key societal benefit areas
 - Establish overarching strategic policy goals
 - For data access and use
- Implementation Guidelines for GEOSS Data Sharing Principles
 - Designed to facilitate the development of clear, balanced, and workable data sharing policies and procedures
 - Consistent with the GEOSS Data Sharing Principles
- Policies and procedures will be vital to the effective and efficient operation of GEOSS and its long-term sustainability



Inputs Welcome!



Comments should be sent to:

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Background information available at:

- <http://www.codata.org/GEOSS>