DNA4.1
Listing of European EO data policy bodies of interest for GENESI-DR

Activity:	NA4	GENESI-DR Data and Resources Access Policies	
Task:	TNA4.1	Relation with European and National Policy Bodies	
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Abstract:
This document identifies European Bodies concerned in the management of Earth science data and provides a survey of National, European and International Interest Groups involved in Data and Resources Access Policy.

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EXECUTIVE SUMMARY

Aim of GENESI-DR is to achieve following objectives:

- To provide a base for (establishing) a world-wide e-infrastructure for Earth Science with European leadership
- To provide guaranteed, reliable, easy, effective, and operational access to a variety of data sources, and demonstrate how the same approach can be extended to provide access to all Earth Science data
- To harmonise operations at key Earth Science data repositories limiting fragmentation of solutions
- To demonstrate effective curation and prepare the frame for approaching long term preservation of Earth Science data
- To validate the effective capabilities required to access distributed repositories for new communities, including education, and assess benefits and impacts
- To integrate new scientific and technological derived paradigms in operational infrastructures in responds to the latest Earth Science requirements

Realisation of GENESI-DR is not only a technical challenge. Only in conjunction with the solving of political issues the project will have success in the future. Network Activity 4 (NA4) is responsible for covering these political issues. It will deal with data policy aspects and contacts with national and international organisations and provide the usage policy input for Service Activities (SA1, SA2).

In the frame of sub-task TNA4.1 - Relation with European and National Policy Bodies- NA4 has to identify European Bodies concerned in the management of Earth science data.

In a first step it will compile a survey of National, European and International Interest Groups involved in Data and Resources Access Policy. From these existing data policies it will derive and update as needed the overall GENESI-DR access policies for Earth science data. This survey is the content of this document.

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Section 1 Introduction

1.1 Background

GENESI-DR (Ground European Network for Earth Science Interoperations – Digital Repositories) is a 2 year project part funded under the EC Seventh Framework Programme to establish the basis for open access to Earth Science Digital Repositories. The planned work is described in AD-1. Further reading gives RD-1.

1.2 Scope

NA4 will deal with data policy aspects and contacts with national and international organisations and provide the usage policy input for Service Activities (SA1, SA2).
In the frame of sub-task TNA4.1 - Relation with European and National Policy Bodies- NA4 has to identify European Bodies concerned in the management of Earth science data.
In a first step it will compile a survey of National, European and International Interest Groups involved in Data and Resources Access Policy. From these existing data policies TNA4.2 ”Development of Data Archiving and Dissemination Policy” will derive and update as needed the overall GENESI-DR access policies for Earth science data. The mentioned survey is the content of this document.

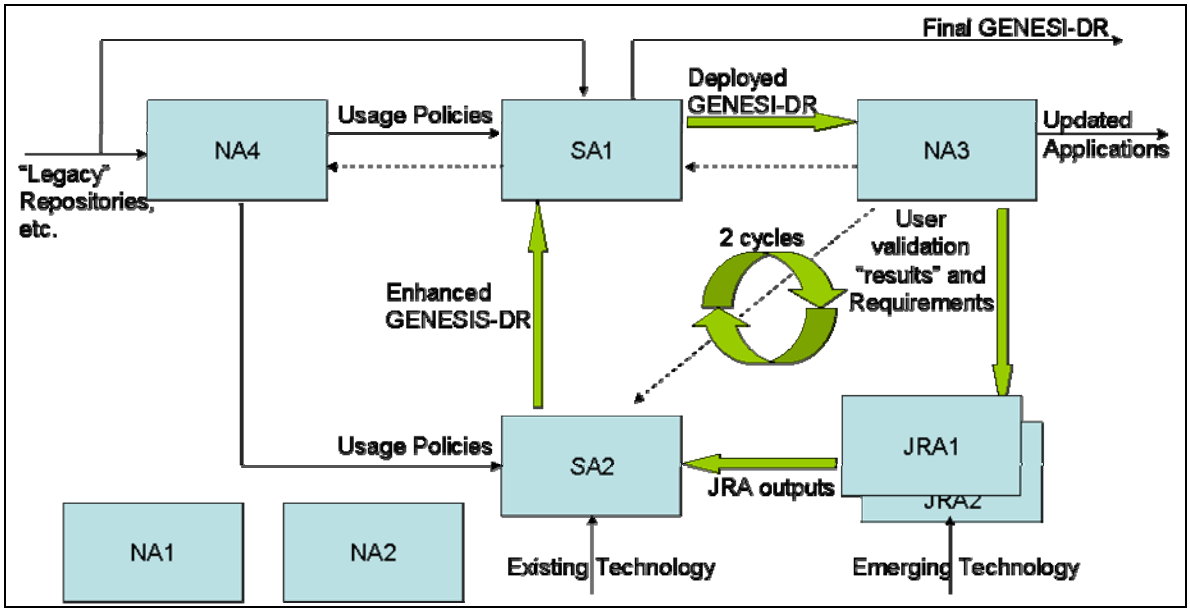

Figure 1 Activity Graph of GENESI-DR

In Figure 1 is shown the interrelationship to other GENESI-DR activities.

1.3 Purpose of the Listing of European EO data policy bodies

The notion of data policy is not defined precise neither than the notion of policy. Data policy contains rules about the accessibility of data. Most commonly it can be generalized as

"*who gets what, when, why, and how*."

EO data policy also takes care that reliable and continuously updated geospatial information is accessible to respond to the challenges identified in the ESS(2003)[RD-2].

Data policies refer to following aspects:

scope of application	Global, European, National/ Regional, Company
field of activity	interdisciplinary, earth observation, geology, meteorology, …
policy facets	• consideration of expenses for data collection and provision There are several political facets to characterize data policies. A comprehensive investigation and definition of terms is made in [RD-10]. To simplify understanding and to go one step forward to reach GENESI-DR objectives this document keeps to the wording of [RD-10]: • **ownership**- Often owners of data sets grants a licence for using the data and does not pass ownership to the customer. • **intellectual property rights(IPR)**- In contrast to "ownership" of data the holder of these "intellectual properties" has certain exclusive rights to the creative work. These two facets influences the **legal access** - security relevant, (company-)internal, public - commercial, scientific, open • **standards and metadata** – power the variety of existing applications for data sets • **licensing –** How ownership and IPR is realized. • **pricing policy** • **archiving policy** - integrity - readability, archiving rules, backup… - interpretability - curation rules

Table 1 Data Policy Aspects

Because European space data repositories (and so data policies) are very fragmented there is a need to rationalise the activities of different national entities

- to complement each other's capabilities
- to avoid unwanted duplication of capabilities
- to wide and simplify the use of EO data.

This survey is prerequisite for further actions in NA4. Beside a short characterization of relevant bodies and listing of contact points this synopsis refers to several data policy documents which have to taken into account for NA4 activities.

1.4 Approach and Document Structure

As a multitude of noteworthy organizations exists in the EO as a multitude of data policies exist. So a selection of few but influential organizations is necessary.
Selection criterions are:

- only documented policies (a survey of pspace policies can be found in [RD-24])
- only with externality (in contrast to plain internal importance, this brings also national, non-European organization (e.g. USGS) with international influence into the focus)
- application as broad as possible

During the information gathering for this document two issues were realized:

- A first version of this survey can only be a snapshot, i.e. during the project duration a **permanent update is needed**. Existence and importance of organizations and other bodies will change. New initiatives could come.

– A strong hierarchical approach is impossible. Organizations, Initiatives, Infrastructures etc. are interwoven. Nevertheless a rough classification in "Characterization of EO Organizations", "Existing Infrastructures", "Data Policy Initiatives" and "Data Standardization Initiatives" (section 2 to 5) was carried out.

For better reading the characterization of considered bodies was separated from plain technical information (e.g. addresses, phone numbers etc.). The latter is listed in the appendix. To make the huge amount of information usable hypertext functionality is used. So the context between section 2 to 5 and appendix is realized by numbers in brackets (e.g. [6]) which link to the corresponding line in the appendix table. The same technique is used for linking references (e.g. RD-1) to appendix information. The characteristics in section 2 to 5 can only be a starting point. So all bodies are associated with a link to the official web pages. The conclusion gives some recommendations for next steps in GENESI-DR especially NA4.

1.5 Applicable Documents and Reference documents

1.5.1 Applicable Documents

AD-1	SEVENTH FRAMEWORK PROGRAMME, The Capacities Programme Research Infrastructures, Grant agreement no.: 212073, GENESI-DR, Annex I - "Description of Work" 19/11/2007 - Version: 1.8

1.5.2 Reference Documents

RD-1	http://www.genesi-dr.eu/
RD-2	http://www.consilium.europa.eu/cms3_fo/showPage.ASP?id=266&lang=EN&mode=g
RD-3	Preserving Digital Information: Report of the Task Force on Archiving of Digital Information. Washington, D.C.: Commission on Preservation and Access, May 1996.
RD-4	IEEE Guide to the POSIX® Open System Environment (OSE). IEEE 1003.0-1995. Piscataway, NJ: IEEE, February 1995.
RD-5	IEEE Storage System Standards Working Group. Reference Model for Open Storage Systems Interconnection—Mass Storage System Reference Model Version 5. New York: IEEE, September 1994.
RD-6	Department of Defense Technical Architecture Framework for Information Management. Vol. 2, Technical Reference Model. Version 2. Arlington, VA: DISA, 1994.
RD-7	Charter on Cooperation to achieve the Coordinated Use of Space facilities in the Event of Natural or Technological Disasters, Rev.3 (25/4/2000).2
RD-8	THE FREEDOM OF INFORMATION ACT 5 U.S.C. § 552
RD-9	David F. Strong, and Peter B. Leach, National Consultation on Access to Scientific Research Data, Final Report, January 31, 2005
RD-10	R Harris and R Browning, DATA POLICY ASSESSMENT FOR GMES, INTERIM REPORT, Department of Geography, University College London, 26 Bedford Way, London WC1H 0AP, UK, Date: 23 May 2003, EC contract number: EVK2-CT-2002-80012-DPAG
RD-11	G. Kohlhammer, The Envisat Exploitation Policy, ESA Directorate of Earth and Environment Monitoring from Space, ESRIN, Frascati, Italy, esa bulletin 106 — june 2001
RD-12	European Space Agency, EXTRACT OF THE EARTH EXPLORER DATA POLICY, EEXP-MMAN-EOPG-PD-03-0001, 1.0, 18 December 2003
RD-13	Report from the Workshop on Developing a Strategy for Global Agricultural Monitoring in the framework of Group on Earth Observations (GEO), 16-18 July 2007, FAO, Rome
RD-14	EUMETSAT BASIC DOCUMENTS, VOLUME 2, July 2006
RD-15	INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS, PANEL ON WORLD DATA CENTRES, (Geophysical, Solar and Environmental), GUIDE to the WORLD DATA CENTER SYSTEM, General Principles World Data Centers Data Services, April 1996
RD-16	A Strategic Plan for the International Council for Science, 2006-2011
RD-17	A Strategy for Developing an Improved Global Roads Data Set Developed by Participants at

	The Global Roads Workshop, 1-3 October 2007, Lamont Campus, Columbia University Palisades, New York, USA
RD-18	EUROPEAN SPACE AGENCY, EARTH OBSERVATION PROGRAMME BOARD, GMES EARTH OBSERVATION DATA AND INFORMATION POLICY, INFORMATION NOTEESA/PB-EO(2008)XX, Paris, 1 May 2008
RD-19	Approach for the Definition of a Data Policy for Global Monitoring for Environment and Security (GAC-10-03), GMES Bureau, Meeting of the GAC on 2 April 2008
RD-20	LTER Network Data Access Policy, Data Access Requirements, and General Data Use Agreement, April 6, 2005
RD-21	Group on Earth Observations (GEO), Furthering the Practical Application of the Agreed GEOSS Data Sharing Principles, 22 October 2006, Beijing Resources Hotel, China A Satellite Meeting of the 20th International CODATA Conference
RD-22	WHITE PAPER AND IMPLEMENTATION GUIDELINES FOR THE GEOSS DATA SHARING PRINCIPLES EXECUTIVE SUMMARY, [Preliminary Draft], CODATA, Paris 2007
RD-23	Ikuko Kuriyama, Supporting multilateral environmental agreement with satellite Earth observation, Space Policy 21 (2005) 151–160, ELSEVIER, 12 April 2005
RD-24	survey of international space laws, http://www.jaxa.jp/library/space_law/contents_e.html
RD-25	EXCHANGING METEOROLOGICAL DATA GUIDELINES ON RELATIONSHIPS IN COMMERCIAL METEOROLOGICAL ACTIVITIES - WMO POLICY AND PRACTICE, WMO – No. 837, © 1996, World Meteorological Organization, ISBN 92-63-10837-4, http://www.wmo.ch/pages/about/documents/WMO837.pdf
RD-26	National Academy of Sciences, Bits of Power: Issues in Global Access to Scientific Data, National Academy Press, Washington, D.C., 1997, ISBN 0-309-05635-7
RD-27	Michel Duplaa, Overview on Data Archiving and Dissemination Policy in CNES (Draft), DCT/PS/CM, 12/06/2008

1.6 Glossary

abbreviation	
ASI	Agenzia Spaziale Italiana
BNSC	British National Space Centre
CASPAR	Cultural, Artistic and Scientific knowledge for Preservation, Access and Retrieval
CCSDS	Consultative Committee for Space Data Systems
CEOS	Committee on Earth Observation Satellites
CNES	Centre National d'Etudes Spatiales
CSA	Canada Space Agency
DIMS	Data Information and Management System (DLR)
DLR	Deutsches Zentrum für Luft- und Raumfahrt
ECSL	European Centre for Space Law
EEA	European Environmental Agency
EDUSPACE	The European Earth Observation WEB SITE for Secondary Schools
EGEE	Enabling Grids for E-sciencE project
e-IRG	e-Infrastructure Reflection Group
EO	earth observation
EOPOLE	EARTH OBSERVATION DATA POLICY AND EUROPE
ESA	European Space Agency
ESFRI	European Strategy Forum for Research Infrastructures
ESS	European Security Strategy
EUFAR	European Fleet for Airborne Research
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
EURIMAGE	Eurimage is a Finmeccanica/Thales Company of Telespazio S.p.A. & EADS Astrium GmbH
FAO	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
GCOS	Global Climate Observing System
GEANT	multi-gigabit pan-European data communications network, reserved specifically for research and education use

GEO	Group on Earth Observations
GEOSS	Global Earth Observing System of Systems
GMES	Global Monitoring for Environment and Security
GML	Geographical Markup Language
GOOS	Global Ocean Observing System
GRID	In this document used in the sense of Grid computing as a metaphor for making computer power as easy to access as an electric power grid (see Ian Foster and Carl Kesselmans seminal work, "The Grid: Blueprint for a new computing infrastructure").
GSCB	Ground Segment Coordination Body
GTOS	Global Terrestrial Observing System
HiSEEN	High-Speed ESA Earth Observation Network
HMA	Heterogeneous Mission Accessibility
IGBP	International Geosphere-Biosphere Programme
IGOS	Integrated Global Observation System
IMAGI	Interministerieller Ausschuss für Geoinformationswesen
INSPIRE	Infrastructure for Spatial Information in Europe
IPR	intellectual property rights
IT	Information technology
JRAx	Joint Research Activities of GENESI-DR
JRC	Joint Research Centre
MMFI	Multimission Facility Infrastructure
MOIMS-DAI	Data Archive Ingestion Working Group
MOIMS-IPR	Information Packaging & Registries Working Group
NAx	Networking Activities of GENESI-DR
NASA	National Aeronautics and Space Administration
OAIS	Open Archival Information System- Reference Model
OASIS	Optimising Access to SPOT Infrastructure for Science
OGC	Open Geospatial Consortium
OGIS	Open GIS
OPeNDAP	Open-source Project for a Network Data Access Protocol
SAx	Services Activities of GENESI-DR
SAFE	Standard Archive for Europe
SDI	Spatial Data Infrastructure
SeaDataNet	Pan-European infrastructure for Ocean & Marine Data Management
THREDDS	Thematic Realtime Environmental Distributed Data Services
UNEP	United Nations Environment Programme
WFP	World Food Programme UN Agency
WSRF	Web Services Resource Framework
WSSD	World Summit on Sustainable Development

Section 2 Characterization of Organizations with relevance to EO

2.1 International Organizations

The Consultative Committee for Space Data Systems (CCSDS) was formed by the major space agencies of the world to provide a forum for discussion common problems, specially related to standards, of space data systems. **Two CCSDS groups are of interest for GENESI-DR:**
a) the Data Archive Ingestion Working Group (**MOIMS-DAI**) responsible of the Open Archival Information System (OAIS) (In "Reference Model for an Open Archival Information System (OAIS)" **policy relevant terms** and **services are defined**. An example is given).
b) The Information Packaging & Registries Working Group (**MOIMS-IPR**) is working on a registry/repository model and on a Certification standard which could help to recognize trusted repositories. In these groups it has been also approved the SAFE format (Standard Archive for Europe), proposed by ESA as archive Earth Observation "curated" format products.
ASI, BNSC, CNES, DLR and ESA (beside CSA, FSA, INPE, JAXA, and NASA) are members of this organization, which is also a candidate for potential standardization request of a general data policy at the end of GENESI-DR. [9]

The Committee on Earth Observation Satellites (CEOS) is an international coordinating mechanism charged with coordinating international civil space borne missions. CEOS is recognized as the major international forum for the coordination of Earth observation satellite programs and for interaction of these programs with users of satellite data worldwide. The CEOS Working Group on Information Systems and Services supports the development of interoperable systems including data format standards for products exchange. CEOS is fully involved in supporting the future interoperability for GEOSS. CEOS is in contact inter alia with CCSDS, GEO, Global Map Project, Global Spatial Data Infrastructure, ICSU, Open Geospatial Consortium.
Inside the worldwide member community are several European members: **ASI, BNSC, CNES, DLR, EC, ESA, EUMETSAT** and **SNSB**. [10]

CODATA (Committee on Data for Science and Technology) is an interdisciplinary committee of the International Council of Science (ICSU). It seeks to improve the compilation, critical evaluation, storage, and retrieval of data of importance to science and technology. **CODATA's Web pages contain a survey of for GENESI-DR relevant Scientific Data Policy Statements of organisations. Their working group "Global Roads Data Development" can give inputs for GENESI-DR data policy.** In 1997 CODATA published the results of study on Transborder Flow of Scientific Data touching the subject of data access for science [RD-26].
[13]

The European Space Agency (ESA), established in 1974, is an intergovernmental organisation dedicated to the exploration of space, currently with 17 member states. The EU's new Treaty of Lisbon, expected to come into force in 2009, makes space policy an area for voting in the European Council. This might lead to a more united stance on space policy, and make new cooperations between the EU and ESA more relevant. Digital repositories, operated by ESA, are belonging to the largest world wide. Data policy of ESA is example for a multitude of

organisations and projects. The EO data policy distinguishes on the use of the data- research and commercial use.
[26]

The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) is an intergovernmental organisation with the main purpose to deliver weather and climate-related satellite data, images and products. It provides services under "24h- 7 days a week" conditions. Information is supplied to the European National Meteorological Services of the 21 organisation's Member and 9 Cooperating States in Europe, as well as other users world-wide. It manages a Working Group on Distribution and Charging Policy (WGP). WGP's task is to consider issues related to EUMETSAT Distribution and Charging Policy concerning use of the EUMETSAT satellite data and products.
[28]

The FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS(FAO) of the United Nations leads international efforts to defeat hunger. Serving both developed and developing countries FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information. To accomplish its activities:

- Putting information within reach
- Sharing policy expertise
- Providing a meeting place for nations
- Bringing knowledge to the field

FAO

- supports an opensource , standardized and decentralized spatial information management environment GeoNetwork to enhance the data exchange and sharing between the organizations to avoid duplication
- founds the Global Terrestrial Observing System(GTOS)
- **initiates development of data policies (GEO)**[RD-13]

Because of the broad sphere of activity of FOA **GENESI-DR should take into account the FOA data policy activity and stay in contact with involved actors**.
[30]

The Group on Earth Observations (GEO) is coordinating efforts to build a Global Earth Observation System of Systems, or GEOSS. GEO is a voluntary partnership of governments and international organizations.
GEO's current Members include 72 (23 European countries) countries and the European Commission and 52 Participating Organizations.
It provides a framework within which these partners can develop new projects and coordinate their strategies and investments. GEO is constructing GEOSS on the basis of a 10-Year Implementation Plan for the period 2005 to 2015. GEO has established four Committees (Architecture and Data, Science and Technology, User Interface, and Capacity Building Committees) and one Working Group to guide the implementation of the 10-Year Plan. **The GEO has agreed on a strong set of data sharing principles** [RD-21, RD-22]. **GEOSS plans a Workshop on Data Policy issues in Sep 14, 2008**.
[33]

GMES (Global Monitoring for Environment and Security) is a **European initiative** for the implementation of information services dealing with environment and security. GMES will be

based on observation data received from Earth Observation satellites and ground based information. These data will be coordinated, analysed and prepared for end-users. GMES is a set of services for European citizens helping to improve their quality of life regarding environment and security. An Assessment Working Groups (WG3) was composed to develop a Data Policy [RD-18, RD-19]. **In the frame of GMES a study "Data Policy Assessment for GMES"(DAPAG) was made which can provide essential inputs for GENESI-DR data policy developments. Contacts to GMES WG3 are envisaged.** [RD-10]
[34]

The Ground Segment Coordination Body (GSCB) is a coordination body of **ESA member-state agencies**[26] and made significant contributions to the definition of interoperability and interaccessibility standards to meet the challenges of **GMES**[34]. GSCB initiated various studies like **HMA** (Heterogeneous Mission Accessibility). The body coordinates and shares its findings with other coordination and standardisation entities such as **CEOS** (Committee on Earth Observation Satellites) [10], **OGC** (Open Geospatial Consortium) [71] and **CCSDS** (Consultative Committee for Space Data Systems) [9], and it plans for regular consultation with industry and commercial missions. **Because of its closed connectivity to the above organizations GSCB is predestined for closed cooperation to GENESI-DR.**
[35]

The International Council for Science (ICSU) is an international non-governmental organization devoted to international co-operation in the advancement of science. Its members are national scientific bodies, and international scientific unions. The Council acts as a focus for the exchange of ideas, the communication of scientific information and the development of scientific standards. The ICSU community (often on request of or according to UN) organizes scientific conferences, congresses and symposia all around the world and also produces a wide range of newsletters, handbooks, learned journals and proceedings. The Council has worked closely with various UN agencies to establish coordinated global observation systems and is actively involved in the planning for a new Global Earth Observation System of Systems. A strategic goal is:
"DATA AND INFORMATION – to facilitate a coordinated global approach to scientific data and information that ensures equitable access to quality data and information for research, education and informed decision-making." detailed described in "6.2 A UNIVERSAL PUBLIC DOMAIN FOR DATA AND INFORMATION" [RD-16]
ICSU has several interdisciplinary bodies, whose principal focus is the management and use of large scientific data sets:

- the Committee on Data for Science and Technology (CODATA) [13],
- the Panel of the World Data Centres (WDC) [95] and
- the Federation of Astronomical and Geophysical Data Analysis Services (FAGS).

[41]

The International Geosphere-Biosphere Programme (IGBP) is a research programme that studies the phenomenon of Global Change. The vision of IGBP is to provide scientific knowledge to improve the sustainability of the living Earth. IGBP studies the interactions between biological, chemical and physical processes and interactions with human systems and collaborates with other programmes to develop and impart the understanding necessary to respond to global change. It unites representatives of more the 70 countries and keeps up partnerships to ESSP, GEO, IGOS, CEOS, IGBP, SCOR, ICSU.
[42]

The International Organization for Standardization (ISO) is an international-standard-setting body composed of representatives from various national standards organizations. The organization promulgates world-wide proprietary industrial and commercial standards. While ISO defines itself as a non-governmental organization, its ability to set standards that often become law, either through treaties or national standards, makes it more powerful than most non-governmental organizations. Also because ISO has 157 national members, out of the 195 total countries in the world. In practice, ISO acts as a consortium with strong links to governments. **The definition of a harmonized, coordinated and comprehensive data policy (of GENESI-DR) can be the starting point of a standardization process.** [49]

International Long Term Ecological Research (ILTER) consists of networks of scientists engaged in long-term, site-based ecological and socioeconomic research. The mission is to improve understanding of global ecosystems and inform solutions to current and future environmental problems. ILTER's ten-year goals are to:

- Foster and promote collaboration and coordination among ecological researchers and research networks at local, regional and global scales
- **Improve comparability of long-term ecological data from sites around the world, and facilitate exchange and preservation of this data**
- Deliver scientific information to scientists, policymakers, and the public and develop best ecosystem management practices to meet the needs of decision-makers at multiple levels
- Facilitate education of the next generation of long-term scientists

[43]

The Organisation for Economic Co-operation and Development (OECD) is an international organisation. It provides a setting in which governments can compare policy experiences, seek answers to common problems, identify good practices, and co-ordinate domestic and international policies. The mandate of the OECD is broad, covering economic, environmental, and social issues. Among other areas, the OECD has taken a role in co-ordinating international action. The European Commission participates in the work of the OECD, alongside the EU Member States. Already in January 1991 in a Ministerial Communiqué was formulated:
"OECD governments should strengthen their efforts to support and encourage the international science community to assess environmental risks to human health and natural ecosystems, and to promote a full and open exchange of environmental data and information."
[70]

The United Nations Economic Commission for Europe (UNECE) is one of five regional commissions under the administrative direction of United Nations headquarters. It has 56 member States, and reports to the UN Economic and Social Council (ECOSOC).
Relevant for GENESI-DR are the activities in the field E-government (esp. appropriate format and easy access) and the policy on the content, quality and availability of public spatial data sets (geodata policy).
[90]

The UN Environment Programme (UNEP) coordinates United Nations environmental activities, assisting developing countries in implementing environmentally sound policies and encourages sustainable development through sound environmental practices. UNEP is the designated authority of the United Nations system in environmental issues at the global and regional level. Its activities cover a wide range of issues regarding the **atmosphere, marine**

and terrestrial ecosystems. It is involved in the development of international environmental conventions and works on the development and implementation of policy with national governments, regional institution and Non-Governmental Organizations. [91]

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED). The treaty is aimed at stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC is also the name of the United Nations Secretariat charged with supporting the operation of the Convention.
[92]

The United Nations Office for Outer Space Affairs (UNOOSA) is the United Nations office responsible for promoting international cooperation in the peaceful uses of outer space. UNOOSA serves as the secretariat for the General Assembly's only committee dealing exclusively with international cooperation in the peaceful uses of outer space: the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). Activities of this organisation should be taken into consideration for GENESI-DR. [93]

The World Data Center (WDC) system was created to archive and distribute data collected from the observational programs of the 1957-1958 International Geophysical Year. The WDC system now includes 52 Centers in 12 countries:

WDC for Remote Sensing of the Atmosphere [96]	WDC for Airglow [97]	WDC for Astronomy [98]
WDC for Atmospheric Trace Gases [99]	WDC for Aurora [100]	WDC for Biodiversity and Ecology [101]
WDC for Climate Modelle und Daten [102]	WDC for Cosmic Rays [103]	WDC for Earth Tides [104]
WDC for Geology [105]	WDC for Geomagnetism, Copenhagen [106]	WDC for Geomagnetism, Edinburgh [107]
WDC for Geomagnetism, Kyoto [108]	WDC for Geomagnetism, Mumbai [109]	WDC for Glaciology, Boulder [110]
WDC for Glaciology, Cambridge [111]	WDC for Glaciology and Geocryology, Lanzhou [112]	WDC for Human Interactions in the Environment [113]
WDC for Ionosphere [114]	WDC for Land Cover Data [115]	WDC for Marine Environmental Sciences [116]
WDC for Marine Geology & Geophysics, Boulder [117]	WDC for Marine Geology & Geophysics, Moscow [118]	WDC for Meteorology [119]
WDC for Meteorology, Beijing [120]	WDC for Meteorology, Obninsk [121]	WDC for Nuclear Radiation [122]
WDC for Oceanography, Obninsk [123]	WDC for Oceanography, Silver Spring [124]	WDC for Oceanography, Tianjin [125]
WDC for Paleoclimatology [126]	WDC for Remotely Sensed Land Data [127]	WDC for Renewable Resources and Environment [128]
WDC for Rockets and Satellites [129]	WDC for Satellite Information [130]	WDC for Space Science Satellites [131]
WDC for Rotation of the Earth, Obninsk [132]	WDC for Rotation of the Earth, Washington [133]	WDC for Seismology, Denver [134]
WDC for Seismology, Beijing [135]	WDC for Soils [136]	WDC for Solar Activity [137]
WDC for Solar Radio Emissions [138]	WDC for Solar Terrestrial Physics, Boulder [139]	WDC for Solar Terrestrial Physics, Chilton [140]
WDC for Solar-Terrestrial Physics, Moscow [141]	WDC for Solar-Terrestrial Science, Sydney [142]	WDC for Geophysics, Beijing [143]
WDC for Solid Earth Geophysics,	WDC for Solid Earth Physics,	WDC for Space Science [146]

Boulder [144] Moscow [145]
WDC for Sunspot Index [147]

Table 2 survey of WDCs (European green underlaid)

All data held in WDCs are available for the cost of copying and sending the requested information. Principles of data policy [RD-15] are legal for all Centers.
Because of the huge amount of geophysical data and their data policy experience WDC have to be included in GENESI-DR dialogs about data policy. It is not necessary to include each center in the beginning. A concentration of a few (European) WDCs(green) can simplify this coordination dialog.
[95]

The World Health Organization (WHO) is a specialized agency of the **United Nations** that acts as a coordinating authority on international public health. WHO is coordinating international efforts to monitor outbreaks of infectious diseases and sponsors programs to prevent and treat such diseases, and supports the development and distribution of safe and effective vaccines, pharmaceutical diagnostics, and drugs. To fulfil this task WHO operates Environment and health information systems and is important user of geophysical data. Several WHO programs (e.g. The WHO/Europe programme, Environment and Health Information System (EHIS)) aim to establish a harmonized and evidence-based system to support public health and environmental policies.
Contacts to WHO are envisaged. [148]

The World Meteorological Organization (WMO) is a specialized agency of the **United Nations** with a membership of 188 Member States and Territories. WMO facilitates the free and unrestricted exchange of data and information, products and services in real- or near-real time on matters relating to safety and security of society, economic welfare and the protection of the environment. It contributes to policy formulation in these areas at national and international levels.
WMO has formulated principles to facilitate the full, open and prompt availability of quality assured data. They were prepared in consonance with the goals of the relevant WMO Programmes, and the WMO policy on international data exchange, as set out in Resolution 40 (Cg_XII) - WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities.

- WMO World Data Centres (WDCs) are coordinated through the relevant WMO bodies. The Centres themselves are established, organized, supported and managed entirely within national and international entities, as their contribution to the relevant WMO Programmes.
- WMO Members have a common ownership of the data held in the WMO WDCs.
- WMO WDCs should provide data on a free and unrestricted basis, at the lowest possible cost which should be no more than the cost of reproduction and distribution. No charge will be made for the data themselves.
- WMO WDCs shall not accept in their holdings data for which there are restrictions for free and open access.
- Members participating in the relevant WMO Programmes are urged to endeavor to submit data to the relevant WMO WDCs as promptly as possible in accordance with the procedures defined by the Centres.
- Procedures and criteria for data reporting to the WMO WDCs should be developed by each of the Centres.
- Data archives of WMO WDCs must include readily accessible and comprehensive information describing the datasets, including quality assessments.

- WMO WDCs should, to the greatest extent possible, use media as well as processing and communication systems which are compatible with internationally accepted standards and protocols.
- Long-term preservation of all data submitted to the WMO WDCs should be ensured.

Contacts to WMO are envisaged. [149]

2.2 National Organizations

2.2.1 European

Administration de l'Aéroport de Luxembourg is the Luxembourg meteorological service. [1]

Agencia Estatal de Meteorología (Spain) (AEMET) is the Spanish meteorological service. [2]

Agenzia Spaziale Italiana(ASI) is the Italian Space Agency to coordinate all of Italy's efforts and investments in the space sector. ASI Science Data Center (ASDC) supports ASI scientific missions for all matters concerning the management and the archival of scientific space data, generates and maintains a permanent data archive of all ASI scientific missions, supports the Italian (and the general) community in the field of data analysis and archival research, provides on-line access to the data hosted.[5]

British National Space Centre (BNSC) is at the heart of UK efforts to explore and exploit space. Formed from 10 Government Departments and research councils, it:
co-ordinates UK civil space activity; supports academic research; nurtures the UK space industry; and work to increase understanding of space science and its practical benefits.[8]

Centre National d'Etudes Spatiales(CNES) is the government agency responsible for shaping and implementing France's space policy in Europe. Its task is to invent the space systems of the future, bring space technologies to maturity and guarantee France's independent access to space. An Overview on Data Archiving and Dissemination Policy in CNES is in preparation [RD-27]. [12]

Czech Hydrometeorological Institute (CHMI) is the Czech meteorological service. [11]

Danish Meteorological Institute (DMI) is the Danish meteorological service. [22]

Deutscher Wetterdienst (DWD) is the German meteorological service. [24]

Deutsches Zentrum für Luft und Raumfahrt(DLR) is Germany's national research centre for aeronautics and space. DLR operates large-scale research facilities for the center's own projects and as a service provider for clients and partners. In this context it operates the National Remote Sensing Data Library (NRSDL) and facilities of ESA's MMFI and provides data services for several cooperation partners and data owners. These **data owner define the policy in all aspects** for the corresponding EO data sets. Data policy for data sets with DLR ownership is **orientated by ESA data policy for ERS und ENVISAT and by recommendation of EC and is based on the UN resolution (41/65) of 1986 "Principles Relating to Remote Sensing of the Earth from Space" and CEOS "SATELLITE DATA EXCHANGE PRINCIPLES IN SUPPORT OF GLOBAL CHANGE RESEARCH"**.
[19][20][96][21]

Environmental Agency of the Republic of Slovenia (ARSO) is the Slovenia meteorological service. [3]

Finnish Meteorological Institute (FMI) is the Finnish meteorological service. [31]

Hellenic National Meteorological Service Greece (HNMS) is the Greek meteorological service. [39]

Hungarian Meteorological Service (HMS) is the Hungarian meteorological service. [37]

Instituto de Meteorologia (Portugal) (IM) is the Portugal meteorological service. [44]

Institute of Meteorology and Water Management (Poland) (IMGW) is the Poland meteorological service. [46]

Icelandic Met. Office (IMO) is the Iceland meteorological service. [47]

Koninklijk Nederlands Meteorologisch Instituut (KNMI) is the Nederland meteorological service. [56]

Latvian Environmental, Geological and Meteorological Agency (LEGMA) is the Latvian meteorological service. [57]

Lithuanian Hydrometeorological Service (LHMS) is the British meteorological service. [58]

Met. Éireann Irish Meteorological Service is the Irish meteorological service. [59]

Météo-France (meteofrance) is the France meteorological service. [60]

Met Office is the British meteorological service and member of BNSC. [62]

Meteorological and Hydrological Service of Croatia (HMS) is the Croatian meteorological service. [38]

National Institute of Meteorology and Hydrology of Bulgaria (NIMH) is the Bulgarian meteorological service. [65]

National Institute of Meteorology and Hydrology (Romania) (INMH) is the Romania meteorological service. [48]

Norwegian Meteorological Institute (NMI) is the Norwegian meteorological service. [66]

Royal Meteorological Institute of Belgium (RMI) is the Belgium meteorological service. [73]

Servizio Meteorologico Centro Nazionale di Meteorologia e Climatologia Aeronautica (Italy) is the Italia meteorological service. [76]

Slovak Hydrometeorological Institute (SHMU) is the Slovak meteorological service. [78]

Swedish Meteorological and Hydrological Institute (SMHI) is the Swedish meteorological service. [79]

Swiss national weather service (MeteoSwiss) is the Swiss meteorological service. [61]

Devlet Meteoroloji Isleri (Turkey) (TSMS) is the Turkey meteorological service. [89]

Austria Zentralanstalt für Meteorologie und Geodynamik (ZAMG) is the Austria meteorological service. [150]

2.2.2 non-European

Canada Space Agency (CSA) has to promote the peaceful use and development of space, to advance the knowledge of space through science and to ensure that space science and technology provide social and economic benefits for Canadians. [14]

The Indian Space Research Organisation (ISRO) is India's national space agency. With its headquarters in Bangalore, the ISRO employs approximately 20,000 people, with a budget of around US$866 million at June 2008 exchange rates. Its mandate is the development of technologies related to space and their application to India's development. In addition to domestic payloads, it offers international launch services. ISRO is member of several international space organizations. Its explicit documentation about space policy is rare but under development. [53]

The Japan Aerospace Exploration Agency (JAXA) is Japan's national aerospace agency. JAXA is responsible for research, development and launch of satellites into orbit, and is involved in many missions such as asteroid exploration and a possible human mission to the moon. While space development and utilization, and aviation research and development are the measures to achieve the nation's policy objectives JAXA is pursuing great possibilities in various aerospace fields. [55]

National Aeronautics and Space Administration (NASA) is an agency of the United States government, responsible for the nation's public space program. In addition to the space program, it is also responsible for long-term civilian and military aerospace research.
NASA manages several of the hugest data repositories of the world. NASA's Earth system science data component of the Earth Science Division provides more than 2,400 data products and associated services for interdisciplinary studies. The Earth Observing System Data and Information System (EOSDIS) manages and distributes these products. EOSDIS supports the daily production of over 2 terabytes (TB) of interdisciplinary Earth system science data. An excess of 4 petabytes (PB) of data products that cover a wide range of physical, geophysical, biochemical, and other parameters are archived at the nine EOSDIS data centers.
In 2004 alone, over 34 million Earth science data products, 640 TB (~1.8 TB daily) of data and information about NASA missions, instruments, and data products, was disseminated to over 2 million distinct users within the science, government, industry, education, and policy maker communities. These data are collected by approximately 65 instruments onboard more than 40 satellite and aircraft platforms. [67]

The National Oceanic and Atmospheric Administration (NOAA) is a scientific agency within the United States Department of Commerce focused on the conditions of the oceans and the atmosphere. NOAA conducts an end-to-end sequence of activities, beginning with scientific

discovery and resulting in a number of critical environmental services and products. The core activities are:

- Monitoring and observing Earth systems with instruments and data collection networks.
- Understanding and describing Earth systems through research and analysis of that data.
- Assessing and predicting the changes of these systems over time.
- Engaging, advising, and informing the public and partner organizations with important information.
- Managing resources for the betterment of society, economy and environment.

In NOAA Data Centers (NCDC, NODC, NGDC, CLASS), which archive appr. 95% of NOAA's data, similar standards are used for data/metadata and NARA policies are implemented. [68]

The Norwegian Space Centre (NSC) is a government agency under the Ministry of Trade and Industry. NSC promotes the development, co-ordination and evaluation of national space activities as well as supports Norwegian interests in the European Space Agency (ESA). [69]

The United States Geological Survey (USGS) is a scientific agency of the United States government. The scientists of the USGS study the landscape of the United States, its natural resources, and the natural hazards that threaten it. The organization has four major science disciplines, concerning biology, geography, geology, and hydrology. The USGS is a fact-finding research organization with **no regulatory responsibility**. [94]

2.2.3 National Bodies without explicit Data Policy

During information gathering for several bodies no explicit published data policy statements were found. These bodies also considered in the attachment if they are European

- Austrian Space Administration (ASA)- [4],
- Belgian Institute for Space Aeronomy (BIRA-IASB) [6]
- Bulgarian Academy of Sciences - Space Research Institute (SRI)[83]
- Czech Space Office (CSO)- [15]
- Danish National Space Institute (DTU Space)-[23]
- Hungarian Space Office (HSO) – [40]
- Greece Institute for Space Applications and Remote Sensing (ISARS)- [51]
- INSTITUTO NACIONAL DE TECNICA AEROESPACIAL (INTA)-[54]
- Netherlands Institute for Space Research (SRON)-[84]
- Romanian Space Agency (ROSA) - [74]
- Space Research Centre of the Polish Academy of Sciences (SRC) – [85]
- Swedish National Space Board (SNSB) - [80], Swedish Space Cooperation (SSC) - [86]
- State Secretariat for Education and Research –Space Division (SER) - [77]
- Finnish Funding Agency for Technology and Innovation (TEKES) – [94]

or with international Importance (China national Space Administration (CNSA) - [16]).

They could be involved in further discussions about data policy items.

2.3 Commercial Bodies

The European Association of Remote Sensing Companies (EARSC) is a non-profit organisation but is devoted to the promotion of the European remote sensing industry.
Beside technical expertise EARSC provides policy guidance, and has contributed to establish industry contact with European institutional bodies. The Association maintains close links with key European Institutions, including EC-DG Research, EC DG-JRC, European Space

Agency and National Space Agencies. **GENESI-DR data policy will not exist in a commercial free world. European remote sensing industry could benefit from such policy development. So this organization is an effortless gate to this industry.**
[25]

Open Geospatial Consortium(OGC) and OGC Europe are international industry consortium of 339 companies, government agencies and universities participating in a consensus process to develop publicly available interface specifications. OpenGIS® Specifications support interoperable solutions that "geo-enable" the Web, wireless and location-based services, and mainstream IT. Great progress has been made by OGC for the standardisation of geospatial data (as for the Geographical Markup Language -GML).
[71]

Satellite Pour l'Observation de la Terre(SPOT) is the worldwide distributor of geographic information products and services derived from the Spot Earth observation satellites. Spot Image was appointed by CNES as sole commercial operator of the SPOT satellites, and from ESA to distribute data world-wide from the ERS and Envisat, partly with special conditions for scientific use.
[81]

EURIMAGE is a provider of global satellite digital and photographic data, both directly to end customers and through a network of more than 150 expert Application Providers world-wide. Products include visible and infrared optical data and radar, offering a variety of mission and sensor types to meet the widest range of user needs, partly with special conditions for scientific use. As the European Space Agency's partner in several Missions Eurimage provides easy access to the free catalogues of its data.
[29]

Section 3 Existing Infrastructures

Infrastructures are closed connected to data policy and vice versa. For an establishment of the GENESI-DR data policy (during the project) existing infrastructure prescribes the frame of realizability. Future infrastructures have to support new data policy developments. Following should be taken into account in the first project phase. If necessary additional infrastructures would be considered in following versions of this document.

The Global Change Data and Information System (GCDIS) is the set of individual agency data and information systems that supports global change research supplemented by a minimal amount of crosscutting new infrastructure, and made **interoperable by the use of standards, common approaches, technology sharing, and data policy coordination.** Through the GCDIS, these users are able to learn about the existence and location of relevant data and information resources, have key holding available in useful forms, and be assured of their quality and continued availability. **The web presence hosts a survey of data policy documents and a forum.** Since 1987, data and information management experts from the USGCRP agencies have been collaborating through a Data and Information Working Group (DIWG) to develop interagency data management in support of global change research. [32]

The MMFI (Multimission Facility Infrastructure) infrastructure, based on the OAIS (Open Archival Information System) standard, which is operated in the ESA EO ground segment facilities, unifying the handling of data from different satellite missions within a single framework (ingestion, archival, inventorying, systematic and on/demand processing, online data access and distribution). This is the common infrastructure over which ESA continues to build its future payload data ground segments and gives technical prerequisites for GENESI-DR data policy. [64]

The **DIMS** (Data Information and Management System) environment of DLR provides the core components to handle earth observation data of multiple missions. It supports a set of comprehensive services and basic workflows of digital data management like data product inventory and archiving, ordering control and production control. Architecture and principles are similar to MMFI. [18]

The **HMA** (Heterogeneous Mission Accessibility) project defines the governance and management principles for operational interoperability in the technical areas of data discovery, catalogue, instrument programming, data access and data delivery standards. Objective of this project is to involve the stakeholders (national space agencies, satellite or mission owners and operators) in a harmonization and standardization process of their ground segment services and related interfaces. This project prepares technical prerequisites for GENESI-DR data policy between different stakeholders.
[36]

OASIS, Optimising Access to SPOT Infrastructure for Science, is a European programme financed by the European Commission.. It aimed at enlarging the access to SPOT services in order to provide a free access for the European scientific communities.
SeaDataNet, the Pan-European infrastructure for Ocean & Marine Data Management (2006-2011), which is constructing a standardised and distributed system for managing the large and diverse data sets collected by the oceanographic fleets and the new automatic observation

systems. OASIS covers access cost to SPOT services, thus providing free access to European scientific communities.
[72]

European Fleet for Airborne Research **(EUFAR)** is an Infrastructure Cooperation Network under FP5/FP6. EUFAR aims at coordinating the operations of the European fleet of instrumented aircraft in the field of environmental research in the atmospheric, marine, and terrestrial and sciences.
[27]

SEADATANET is a standardized system for managing data sets collected by the oceanographic fleets and the new automatic observation systems. The objective is to network and enhance the currently existing infrastructures, which are the national oceanographic data centres and satellite data centres of 35 countries, active in data collection. The networking of these professional data centres, in a unique virtual data management system will provide integrated data sets of standardized quality on-line.
The SEADATANET Virtual Data Centre will be developed by the adoption and use of common standards and new communication technology inter alia:

- Standards development and adoption for communication and Quality Assurance issues on data, meta-data and products
- A core of data management platforms equipped with adapted data processing software, archiving systems and fast communication network
- A network of multidisciplinary data centres from 35 countries and links with other major data sources

[75]

Section 4 Data Policy Initiatives

Several Initiatives on data policy were pushed with different importance. GENESI-DR could cooperate with current initiatives and absorb experiences from these.

4.1 International

4.1.1 Non-Earth Observation

The UNECE [90] Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters was adopted on 25th June 1998 in the Danish city of Aarhus at the Fourth Ministerial Conference in the 'Environment for Europe' process.
This Convention was a new kind of environmental agreement. It links environmental rights and human rights. It establishes that sustainable development can be achieved only through the involvement of all stakeholders.
It links government accountability and environmental protection. It focuses on interactions between the public and public authorities in a democratic context and it is forging a new process for public participation in the negotiation and implementation of international agreements.

4.1.2 Earth Observation

The **INSPIRE** initiative intends to trigger the creation of a European spatial information infrastructure that delivers to the users integrated spatial information services and is focussed on improved access to information related to the environment in Europe. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an inter-operable way for a variety of uses. It is complementary to other initiatives like GMES. [50]

G3OS Data and Information Plan is an initiative for observations, modelling, and analysis of global observing to support sustainable development. The plan defines the context and establishes the overall principles to guide data and information management, and identifies the policies and proposed actions needed to move towards practical operations in the future.

4.2 National

IMAGI (in Germany) as example of geo-information initiatives in various countries, which are tightly related to the Spatial Data Infrastructure (SDI) to handle objects and information relating to the environment in geo-context.
[45]

The Executive order on "Coordinating Geographic Data Acquisition And Access: The National Spatial Data Infrastructure" instructed federal agencies to use the Federal Geographic Data Committee's (FGDC) Content Standards for Digital Geospatial Metadata to document their geospatial data sets and to provide access to their metadata via a National Geospatial Data Clearinghouse.

Section 5 Conclusion

Development of data policy with international focus is an issue of our time. So a multitude of organizations make initiatives resp. projects or programs in this field. This survey efforts to compile an overview and an assessment of these in contrast to GENESI-DR:

ESA and its **GSCB** offer themselves as special partner because via this organization GENESI-DR can carry on dialog an exchange of information also to **GMES, CEOS, OGC and CCSDS.**
Contacts to **GMES** WG3 are envisaged.
International bodies such as IOC, ICSU, WMO, and UNEP support plans to take the hurdle of data access. Reference to their programs and bodies will be important to help decision makers understand the motivation and position of GENESI-DR data policy.
Because of the huge amount of geophysical data and their data policy experience **WDC** have to be included in GENESI-DR dialogs about data policy. It is not necessary to include each center at the beginning. A concentration of a few (European) WDCs can simplify this coordination dialog.
WMO and national Weather Services as a powerful stakeholder in geo data field must be considered by GENESI-DR policy development. But also for this group a concentration of WMO and selected national services can simplify the initial work.
Data policy development of the large US-repository owner USGS and NASA has to be intensified.
Data policy initiatives of FOA and GEO will have a big impact to GENESI-DR.

This survey needs an upgrade in the course of the project. It is planned to review and update this document quarterly. Possible candidates are listed in appendix 2. The attached table (appendix 1) planned as tool for further work of the project will be published project internal at BSCW server.

A.1 Survey of EO policy bodies

For better differentiation following lines of the table are coloured:

national	international	commercial	projects/ initiatives	infrastructure	national, no explicit policy

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
1.	Administration de l'Aéroport de Luxembourg			Claude Alesch claude.alesch@airport.etat.lu +35247982028				X		Meteorology						
2.	AEMET			Francisco Pascual fcopascual@inm.es +3491 5819642				X		Meteorology						
3.	ARSO			Gregor Gregoric gregor.gregoric@gov.si +3861 4784065				X		Meteorology						
4.	ASA	Agentur für Luft- und Raumfahrt Sensengasse 1 1090 Wien AUSTRIA			+43 (0)5 7755 - 3001 alr@ffg.at			X								
5.	ASI	ASI Science Data Center, ASDC, c/o ESRIN, via G. Galilei, 00044 Frascati, Italy	http://www.asdc.asi.it/	cristina.ananasso@asi.it tel. +39 06 8567354	asdc_helpdesk@asdc.asi.it +39 06 94188871		X	X		EO						
6.	BIRA-IASB	Belgian Institute for Space Aeronomy Ringlaan-3-Avenue Circulaire B-1180 Brussels			+32.2.373.04.04 info@aeronomie.be			X								

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		BELGIUM														
7.	CAA	Civil Aviation Administration Rodūnios kelias 2, LT-02188 Vilnius, Lithuania			+370 (5) 2739038 caa@caa.lt											
8.	BNSC	The British National Space Centre Kingsgate House 66-74 Victoria Street London SW1E 6SW	http://www.bnsc.gov.uk				X	X		EO						
9.	CCSDS	CCSDS Secretariat Space Communications and Navigation Office, 7L70 Space Operations Mission Directorate NASA Headquarters Washington, DC 20546-0001, USA		john.garrett@gsfc.nasa.gov +1.301.286.3575 lreich@csc.com +1 301 794-2060 FAX: +1 301 937 0818 □	moims-dai@mailman.ccsds.org moims-ipr@mailman.ccsds.org	X					X	X	X	X	"Reference Model for an Open Archival Information System (OAIS)"	RD-3, RD-4, RD-5, RD-6
10.	CEOS	Earth Observation Coordination Office 8-10 rue Mario Nikis 75738 Paris Cedex 15 France	http://www.eoc.csiro.au/ceos/wgiss-10/day2/08/08_pchurchill.ppt		eoriol@esa.int +33-15-3697-203 werner.balogh@eumetsat.int +49-6151-807-603	X					X	X				
11.	CHMI			Martina Lacinová lacinova@chmi.cz				X		Meteorology						

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
				+420 244033238												
12.	CNES	Centre national d'études spatiales 2 place Maurice Quentin 75 039 PARIS CEDEX 01 FRANCE	http://www.codata.org/taskgroups/WGglobalroads/index.html	maurice.winterholer@cnes.fr	michel.duplaa@cnes.fr			X		EO			X	X	http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V52-4FX23NG-2&_user=100058&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000007338&_version=1&_urlVersion=0&_userid=100058&md5=a7b078402a5a46455b789c0e108ca8cb	RD-7 RD-27
13.	CODATA	5 rue Auguste Vacquerie 75016 Paris, France	http://www.codata.org/taskgroups/WGglobalroads/index.html http://www.codata.org/data_access/policies.html http://www.codata.org/GEOSS/GEOdataPolicyBriefingMar07dist.pdf	olivier.cottray@wfp.org +39-340-574-3962 andrew.nelson@jrc.it +39-0332-786744	+33 1 45250496 codata@dial.oleane.com										RD-17	
14.	CSA	Canadian Space Agency John H. Chapman Space Centre 6767 Route de l'Aéroport Saint-Hubert,	http://www.space.gc.ca/asc/eng/resources/publications/default.asp#strategy		Catherine.Casgrain@space.gc.ca			X		EO	X	X	X	X		RD-7, RD-9

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Quebec J3Y 8Y9														
15.	CSO	Czech Space Office Katerinska 10 128 00, Praha 2 Czech Republic			infoczechspace.cz +420 224 918 288			X		EO						
16.	CNSA	CNSA: China Academy of Space Technology 104 Youyi Street, Haidian, PO box 5142-2, Beijing 100094 Beijing, CHINA	only general statements: http://www.cnsa.gov.cn/n615709/n620681/n771967/69198.html http://www.cnsa.gov.cn/n615709/n620681/n771967/79970.html	Dr Li Ming (liming@cast.cn) +86 10 68746012				X		EO						
17.		Department Contact Details Department of Enterprise, Trade & Employment, 23 Kildare Street, Dublin 2.			+353 1 631 2121 info@entemp.ie											
18.	DIMS	Deutsches Zentrum für Luft- und Raumfahrt (DLR) Deutsches Fernerkundungsdatenzentrum, Informationstechnik Oberpfaffenhofen-Wessling		Eberhard Mikusch +49 8153 28-2721 Eberhard.Mikusch@dlr.de					X		X	X	(X)	(X)		
19.	DLR	DLR Space		Helmut.Staudenrausc			X	X		EO	X			X		GMES data

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Agency		h@dlr.de												policy
20.	DLR	DLR DFD D-82234 Weßling, Germany	http://www.dlr.de/caf/en/desktopdefault.aspx/tabid-2668//4024_read-6012/	Gunter.Schreier@dlr.de +49 8153 28 1375	Helpdesk-DFD@dlr.de +49 8153 28-2802				X	EO	X	X	X	X	Datenpolitik des Deutschen Zentrums für Luft und Raumfahrt (DLR) zur raumgestützten Fernerkundung Dok. Nummer: DLR EODP V6.0 August 2001	ESA, EC, UN, CEOS
21.	DLR	DLR Kalkhorstweg 53 17235 Neustrelitz Germany	http://w3swaci.dlr.de/html-seiten/warranty.html	Norbert.Jakowski@dlr.de +49(0) 3981 480 151	Norbert.Jakowski@dlr.de +49(0) 3981 480 151				X	EO-ionosphere			X			
22.	DMI			Henrik Steen Andersen hsa@dmi.dk +4539 157256				X		Meteorology						
23.	DTU Space	The National Space Institute Juliane Maries Vej 30 Copenhagen DK-2100			office@space.dtu.dk (+45) 3532 5700											
24.	DWD			Kurt Winkler kurt.winkler@dwd.de +4969 80624460				X		Meteorology						
25.	EARCS				secretariat@earsc.org + 34 639584684		X			EO			X	X		
26.	ESA		http://eopi.esa.int/esa/esa;jsessionid=67348F466E253B0202866BA777197EC	Josef.Aschbacher@esa.int Gunther.Kohlhammer@esa.int	EOPI@esa.int eohelp@esa.int +39 06 94180777	X	X			EO	X	X	X	X	RD-11, RD-12	RD-7

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
			A?filename=esadatapolicy.html&ts=1208529119082&cmd=staticfile&header=ESA+Data+Policy													
27.	EUFAR	EUFAR Office Météo-France CNRM/GMEI 42, Avenue Coriolis 31057 Toulouse Cedex		Jean-Louis BRENGUIER +33.5.61.07.98.38	bureau@eufar.net		X						X	X		
28.	EUMETSAT	EUMETSAT Am Kavalleriesand 31 D-64295 Darmstadt Germany	http://www.eumetsat.int/Home/Basic/Legal_Information/SP_LEGAL_DATA_POLICY	Graeme.Mason@eumetsat.int lillian.svendsen@met.no +47 22 963151			X			Meteorology	X	X	X	X	RD-14	Meteorology, WMO
29.	EURIMAGE	Viale E. D'Onofrio, 212, 00155 Rome, Italy	http://www.eurimage.com/products/research.html http://www.eurimage.com/products/docs/standard_terms.pdf http://www.eurimage.com/products/docs/eurimage_price_list.pdf		(+39) 06 40 694 1 info@eurimage.com (+39) 06 40 694 302-3-4/320-1 help.desk@eurimage.com				X	EO			X	X		
30.	FAO	FAO HEADQUARTERS Viale delle Terme di Caracalla 00153 Rome, Italy		Mr David Sedik REUP-chief@fao.org	FAO-HQ@fao.org +39 06 57051	X				also EO						
31.	FMI			Lea Leskinen				X		Meteorolog						

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
				lea.leskinen@fmi.fi +35891 9293380						y						
32.	GCDIS	U.S. Global Change Research Information Office, Suite 250, 1717 Pennsylvania Ave, NW, Washington, DC 20006.	http://globalchange.gov/policies/		information@gcrio.org +1 202 223 6262.	X				also EO	X	X	X	X		
33.	GEO/ GEOSS	GEO Secretariat 7 bis, avenue de la Paix Case postale 2300 CH-1211 Geneva 2 Switzerland	http://www.earthobservations.org/documents.shtml	Jose.achache@geosec.org	secretariat@geosec.org	X				EO	X	X	X	X	RD-21	Global Earth Observations
34.	GMES	n/a		r.harris@geog.ucl.ac.uk +44 20 7679 4283			X			EO	X	X	X	X	RD-10, RD-18, RD-19	
35.	GSCB	n/a		Gunter.Schreier@dlr.de +49 8153 28 1375	eohelp@esa.int					EO						
36.	HMA	Earth Observation Application Department Via Galileo Galilei Casella Postale 64 00044 Frascati Italy	n/a	n/a	Pier.Giorgio.Marchetti@esa.int		X				X	X	(X)	(X)		
37.	HMS			Gabor Kis Kovacs kiskovacs.g@met.hu +3613464616				X		Meteorology						
38.	HMS			Dr S.C. Bojan Lipovscak				X		Meteorology						

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
				lipovscak@cirus.dhz.hr +385 1 4565733												
39.	HNMS			Chrysoula Rousioti nwpapa@hnms.gr +30210 9699054				X		Meteorology						
40.	HSO	Hungarian Space Office Elérhetőségünk: 1024 Budapest II. Kitaibel Pál u. 1. postacím: 1394 Budapest, Pf. 351. HUNGARY			hso@hso.hu (1) 346-4887			X								
41.	ICSU	51, boulevard de Montmorency 75016 Paris, France	http://www.icsu.org/1_icsuinscience/DATA.html		+33 (0)1 45 25 03 29 secretariat@icsu.org	X				scientific data	X	X	X	X	RD-16	
42.	IGBP	IGBP, Royal Swedish Academy of Sciences | Box 50005, 104 05 Stockholm	http://www.igbp.net/congress/downloads/Data_Management.pdf		charlottew@igbp.kva.se (46-8) 673 9593					also EO	X	X				Global Earth Observations
43.	ILTER	Global Institute of Sustainability Brown University Box 1943 Providence, RI 02912-1943 USA	http://www.lternet.edu/data/netpolicy.html	Steven "Steve" P Hamburg +1(401) 863-1261 steven_hamburg@brown.edu						general scientific data	X	X	X	X		
44.	IM			Ana Marques ana.marques@meteo.pt +351 21 8447000				X		Meteorology						
45.	IMAGI	Geschäfts- und Koordinierungsstelle des	http://www.gdi-de.org/de/download/Leitfaden_geodien		imagi@bkg.bund.de			X			X	X	X	X		

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		Interministeriellen Ausschusses für Geoinformationswesen (IMAGI) im Bundesamt für Kartographie und Geodäsie Richard-Strauss-Allee 11 D-60598 Frankfurt am Main	ste.pdf													
46.	IMGW			Piotr Struzik piotr.struzik@imgw.pl +4812 6398125				X		Meteorology						
47.	IMO			Magnús Jónsson magnusj@vedur.is +3545226000				X		Meteorology						
48.	INMH			Andrei Diamandi diamandi@meteo.inmh.ro +4021 3163116 - 105				X		Meteorology						
49.	ISO	International Organization for Standardization (ISO) 1, ch. de la Voie-Creuse, Case postale 56 CH-1211 Geneva 20, Switzerland			+41 22 749 01 11	X				Standards						
50.	INSPIRE		http://inspire.jrc.it/ http://inspire.jrc.it/directive.cfm	inspire-info@jrc.it	alessandro.annoni@jrc.it		X					X	X			European Geo standard and legislation
51.	ISARS	National Observatory of			daglis@space.noa.gr +30-2108109182,		X			EO, Geophysics						

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		Athens Institute for Space Applications and Remote Sensing Vas. Pavlou & I. Metaxa, 15236 Penteli, Greece														
52.	ISPRS		http://www.isprs.org/structure/ipac.html	r.harris@geog.ucl.ac.uk		X										
53.	ISRO	Space Science Office ISRO Headquarters, Antariksh Bhavan New BEL Road, Bangalore 560 094 India.	http://www.isro.org/announcement-opportunity/rdsp.pdf		scc@isro.org +91- 80-2341 5275			X		EO						
54.	INTA	INSTITUTO NACIONAL DE TECNICA AEROESPACIAL Carretera de Ajalvir, Km 4 28850 E - 28850 Torrejón de Ardoz - Madrid SPAIN			info@inta.es (34) 915 20 21 25			X								
55.	JAXA	Japan Aerospace Exploration Agency (JAXA) Marunouchi Kitaguchi Building, 1-6-5 Marunouchi,	http://www.isas.ac.jp/e/enterp/missions/hayabusa/policy.shtml		+81-3-6266-6400 proffice@jaxa.jp			X		EO					RD-23	

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Chiyoda-ku, Tokyo 100-8260 JAPAN														
56.	KNMI			Ton W. Donker ton.donker@knmi.nl +3130 2206463				X		Meteorology						
57.	LEGMA			Andris Leitass lhma@meteo.lv +371 7 144390				X		Meteorology						
58.	LHMS			Juozas Karkozas contact@meteo.lt +370 5 271 5060				X		Meteorology						
59.	Met. Éireann			Joseph Bourke joseph.bourke@met.ie +3531 8064246				X		Meteorology						
60.	meteofrance			Philippe Veyre philippe.veyre@meteo.fr +331 45567025				X		Meteorology						
61.	MeteoSwiss			Alex Rubli Alex.Rubli@meteoswiss.ch +411 2569263				X		Meteorology						
62.	MetOffice	Met Office, FitzRoy Road, Exeter, Devon, EX1 3PB, United Kingdom	http://www.metoffice.gov.uk/corporate/legal/	Colin Cuthbert colin.cuthbert@metoffice.gov.uk +44139 2884678	enquiries@metoffice.gov.uk +44 (0)1392 885680			X		EO-atmosphere			X	X	Met Office data policy – POLOS	
63.		Luxembourg Ministry of Culture, Higher Education and Research 20, Montée de la Pétrusse L-2273 Luxembourg			+352 478 1											

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64.	MMFI	Earth Observation Application Department Via Galileo Galilei Casella Postale 64 00044 Frascati Italy	n/a	n/a	+39 06 94180 644 GianMaria.Pinna@esa.int		X				X	X	(X)	(X)		
65.	NIMH			christo.georgiev@meteo.bg +3592 9753986/87 Ext.397				X		Meteorology						
66.	NMI			Lillian Svendsen lillian.svendsen@met.no +47 22 963151				X		Meteorology						
67.	NASA		http://nasascience.nasa.gov/earth-science/earth-science-data-centers/data-and-information-policy					X		EO			X	X	NASA EOS Handbook, 2007	RD-8
68.	NOAA	National Oceanic and Atmospheric Administration 1401 Constitution Avenue, NW Room 6217 Washington, DC 20230	http://www.aoml.noaa.gov/hrd/data2.html#policy http://www.nndc.noaa.gov/phase3/freeaccess.html http://woce.nodc.noaa.gov/wdiu/wocedocs/datapol.htm#spec	Brent.Smith@noaa.gov		X		X		EO-atmosphere, ocean	X	X	X	X		NARA Code of Federal Regulations - 36 CFR 1222 RD-7, RD-8

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69.	NSC	Norwegian Space Centre, P.O. Box 113 Skoyen, 0212 Oslo, Norway.	http://www.spacecentre.no/english/?module=Articles;action=Article.publicShow;ID=20121		+47 22511800 spacecentre@spacecentre.no			X		EO						
70.	OECD	OECD 2, rue André Pascal F-75775 Paris Cedex 16 France		OECD GLOBAL SCIENCE FORUM (GSF)	+33 1.45.24.82.00	X							X			
71.	OGC		http://www.opengeospatial.org/ogc/policies	Martin Klopfer mklopfer@opengeospatial.org		X						X	X			Open Geospatial Consortium
72.	OASIS	http://medias.obs-mip.fr/oasis/pages/statique/license.pdf http://medias.obs-mip.fr/oasis/Faq.do			oasis@cnes.fr		X						X	X		
73.	RMI			marc.christiaens@oma.be +322 3730515				X		Meteorology						
74.	ROSA	Romanian Space Agencystr. Mendeleev 21-25, sector 1 010362 Bucuresti ROMANIA			piso@rosa.ro +40-21-3168722			X		EO						
75.	SEADATANET	SeaDataNet Project Office IDM/SISMER Centre IFREMER de Brest BP 70			manzella@santateresa.enea.it +39 0187 978215	X	X			EO, Ocean						

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		29280 PLOUZANE (France)														
76.	Servizio Meteorologico Centro Nazionale di Meteorologia e Climatologia Aeronautica			Roberto Tajani tajani@meteoam.it +3906 91293806				X		Meteorology						
77.	SER	Staatssekretariat für Bildung und Forschung Hallwylstrasse 4 CH-3003 Bern Switzerland		daniel.fuerst@sbf.admin.ch T +41 31 322 96 72				X		EO						
78.	SHMU			Klaudia Samkova klaudia.samkova@shmu.sk +42125 9415106				X		Meteorology						
79.	SMHI			Gunlög Wennerberg Gunlog.Wennerberg@smhi.se +4611 4958365				X		Meteorology						
80.	SNSB	Swedish National Space Board Solna strandväg 86 Box 4006, 17104 Solna, Sweden			+46-8-6276480 spaceboard@snsb.se					EO						
81.	SPOT	Spot Image 5, rue des	http://www.spot.com/web/SICORP/15		sales@spotimage.fr +33 5 62 19 40 40				X	EO						

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Satellites BP 14 359 F 31030 Toulouse cedex 4 France	47-general-supply-conditions.php http://www.spot.com/web/SICORP/1427-licensing.php													
82.																
83.	SRI	Bulgarian Academy of Sciences Space Research Institute 6 "Moskovska" str., Sofia 1000, BULGARIA			+3592)9883503, office@space.bas.bg			X								
84.	SRON	SRON Netherlands Institute for Space Research Sorbonnelaan 2, 3584 CA Utrecht			030 253 5600 info@sron.nl			X		EO						
85.	SRC	Space Research Centre of the Polish Academy of Sciences Bartycka 18A 00-716 Warszawa POLAND			cbk@cbk.waw.pl bpop@cbk.waw.pl +48 22 840-37-66											
86.	SSC	Swedish Space Corporation Box 4207 SE-171 04 SOLNA Sweden			info@ssc.se +46 8 627 62 00			X		EO						
87.	TEKES	Tekes, P.O.Box 69 (Kyllikinportti 2), FIN-00101			info@tekes.fi +358 10 191 480.											

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Helsinki Finland.														

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
88.	TID	Technology and Innovation Division of the Economic Development Department of the Estonian Ministry of Economic Affairs and Communications Harju 11, Tallinn 15072			+372 62 56 342 info@mkm.ee											
89.	TSMS			Meral Leman Cukurcayir mlcukurcayir@meteor.gov.tr +90312 3022621				X		Meteorology						
90.	UNECE	UN Economic Commission for Europe Information Service Palais des Nations CH - 1211 Geneva 10 Switzerland	http://www.unece.org/stats/documents/ces/2002/25.e.pdf http://www.unece.org/env/eia/documents/links_between_conventions/linklrtpandeiaconventions.pdf		+41 (0) 22 917 12 34 info.ece@unece.org	X					X	X	X			
91.	UNEP	United Nations Environment Programme (UNEP) Avenue, Gigiri PO Box 30552, 00100 Nairobi, Kenya		+254 (0)20 762 3084 nick.nuttall@unep.org		X				EO						
92.	UNFCCC	UNFCCC Haus Carstanjen Martin-Luther-	http://unfccc.int/kyoto_mechanisms/registry_systems/item		(49-228) 815-1000 unfccc.int	X				climate data						

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		King-Strasse 8 53175 Bonn Germany	s/3683.php													
93.	UNOOSA	Office for Outer Space Affairs United Nations Office at Vienna Vienna International Centre, P.O. Box 500, A-1400 Vienna AUSTRIA	Starting point: http://www.unoosa.org/oosa/en/SpaceLaw/index.html		+43-1-260 60 4950 oosa@unvienna.org	X							X			
94.	USGS	U.S. Department of the Interior || U.S. Geological Survey 1400 Independence Road, Rolla, MO 65401 information call: (573)308-3500	beside http://ask.usgs.gov/prices/digital_data.html several infos for special product groups: http://landsat.usgs.gov/images/squares/Landsat_Data_Policy.pdf http://mcmcweb.er.usgs.gov/sdts/pricing.html http://www.pwrc.usgs.gov/bbL/resources/datrela1.htm http://ut.water.usgs.gov/pricing.html http://in.water.usgs.gov/newreports/datamgt.pdf http://www.usgs.gov/info_qual/	John Cullen jcullen@usgs.gov	custserv@usgs.gov EROS Data Center Customer Services Sioux Falls, SD 57198 Telephone: 605-594-6151			X		EO	X		X	X	POLICY AND PROCEDURES FOR THE MANAGEMENT AND ARCHIVAL STORAGE OF DATA COLLECTED FOR HYDROLOGIC INVESTIGATIONS, U.S. GEOLOGICAL SURVEY, INDIANA DISTRICT U.S. GEOLOGICAL SURVEY Open-File Report 94–61	RD-8

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
95.	WDC	WDC Coordination Office, USA National Research Council, KC-670 500 Fifth Street, NW Washington, DC 20001 USA WDC Coordination Office, Russia National Geophysical committee Molodeznaya, 3 117296 Moscow Russia WDC Coordination Office, China Bureau of Science and Technology for Resources and Environment Chinese Academy of Sciences 52 Sanlihe Road Beijing, 100864 CHINA	http://www.ngdc.noaa.gov/wdc/guide/wdcguide.pdf	Dr. Anne M. Linn, +1 202 334 2744 alinn@nas.edu Prof. Yuri Tyupkin, +7 095 930 5629 tyupkin@wdcb.ru Prof. CHEN Panqin, Director Dr. FENG Renguo +86 10 685 97 538 pqchen@office.cashq.ac.cn or rgfeng@cashq.ac.cn		X					X	X	X	X	RD-15	
96.	WDC for Remote Sensing	DLR DFD D-82234 Weßling, Germany	http://wdc.dlr.de/data_products/data_use_policy.html	kathrin.hoeppner@dlr.de +49 (0)8153 281163	wdc@dlr.de +49 8153 28 1312	X				EO-atmosphere			X			

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	of the Atmosphere															
97.	WDC for Airglow	National Astronomical Observatory Mitaka, Tokyo 181-8588 JAPAN	http://solarwww.mtk.nao.ac.jp/en/db_intro.html	Dr. Takashi Sakurai +81 422 34 3716 sakurai@solar.mtk.nao.ac.jp		X				Solar Activity Database			X	X		
98.	WDC for Astronomy	Beijing Astronomical Observatory Chinese Academy of Sciences Beijing, 100080 CHINA	http://badc.lamost.org/website/modules/wfchannel/	Prof. ZHAO Yongheng Tel: +86 10 648 77 301 yzhao@lamost.bao.ac.cn		X				Astronomy			X	X		
99.	WDC for Atmospheric Trace Gases	Carbon Dioxide Information Analysis Center Oak Ridge National Laboratory P.O. Box 2008 OAK RIDGE TN 37831-6335 U.S.A.		Mr. Thomas Boden +1 423 241 4842 tab@ornl.gov	cdp@ornl.gov	X				Atmosphere						
100.	WDC for Aurora	National Institute of Polar Research Kaga 1-9-10, Itabashi-ku TOKYO, 173-8515 JAPAN	http://www.nipr.ac.jp/~aurora/datacatalog/sec1/introduction.html	Dr. Akira Kadokura +81 3 3962 6482 kadokura@nipr.ac.jp	aurora@nipr.ac.jp	X				upper atmosphere phenomena associated with aurora						
101.	WDC for Biodiversity and	U.S. Geological Survey Center for Biological Informatics		Dr. John Hill +1 303 202-4220 jhill@usgs.gov		X										

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
	Ecology	Building 810 DFC, MS302 Denver, CO 80225 USA														
102.	WDC for Climate Modelle und Daten	Max-Planck-Institut fur Meteorologie Bundesstrasse 55 D-20146 HAMBURG Germany		Dr. Michael Lautenschlager +49 40 41173 297 lautenschlager@dkrz.de	data@dkrz.de	X				data for climate research						
103.	WDC for Cosmic Rays	Solar-Terrestrial Environment Laboratory Toyokawa 442-8507 JAPAN		Prof Takashi Watanabe +81 533 89 5189	wdccr@env.sci.ibaraki.ac.jp	X				Cosmic-Ray Neutron Observations						
104.	WDC for Earth Tides	Observatoire Royal de Belgique Avenue Circulaire 3 Brussels, B-1180 BELGIUM		Dr. Bernard Ducarme +32 2 373 0248 ducarme@oma.be		X				Data from about 360 worldwide tidal gravity stations						
105.	WDC for Geology	Chinese Academy of Geological Sciences Ministry of Geology and Minerology 26 Baiwanzhuang Road Beijing, 100037 CHINA		Prof. WANG Anjian Tel: +86 10 689 92 604 Mr. Dai Aide, Vice Director +86 10 689 99 637 daiad@cags.net.cn		X				geology						
106.	WDC for Geomag	Lyngbyvej 100 DK-2100, Copenhagen		Dr. Juergen Matzka +45 39157475 jmz@dmi.dk		X				analog and digital geomagneti						

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
	netism, Copenhagen	DENMARK								c data as well as indices of geomagnetic activity						
107.	WDC for Geomagnetism, Edinburgh	British Geological Survey Murchison House, West Mains Road Edinburgh, EH9 3LA UNITED KINGDOM	http://www.geomag.bgs.ac.uk/gifs/on_line_gifs.html	Dr. David Kerridge +44 131 650 0234 d.kerridge@bgs.ac.uk		X				analog and digital geomagnetic data as well as indices of geomagnetic activity			X			
108.	WDC for Geomagnetism, Kyoto	Data Analysis Center for Geomagnetism and Space Magnetism Graduate School of Science Kyoto University Kyoto, 606-8502 JAPAN		Prof. Toshihiko Iyemori, +81 75 753 3929 iyemori@kugi.kyoto-u.ac.jp		X				analog and digital geomagnetic data as well as indices of geomagnetic activity						
109.	WDC for Geomagnetism, Mumbai	Indian Institute of Geomagnetism Colaba, Mumbai 400 005 INDIA	Data not available online	Prof. Archana Bhattacharyya +91 22 215 0293 abh@iigs.iigm.res.in		X				analog and digital geomagnetic data as well as indices of geomagnetic activity						
110.	WDC for Glaciology, Boulder	CIRES, Campus Box 449 University of Colorado Boulder, CO 80309	http://nsidc.org/data/wdc.html	Dr. Roger G. Barry +1 303 492 5488 rbarry@kryos.colorado.edu		X				agriculture atmosphere biosphere frozen ground glaciers/ice			X	X		

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		USA								sheets hydrosphere land surface oceans spectral/engineering sea ice snow & land ice solid earth						
111.	WDC for Glaciology, Cambridge	Scott Polar Research Institute Lensfield Road Cambridge, CB2 1ER UNITED KINGDOM		Mr. Rick Frolich 44 1223 336565 rf101@cam.ac.uk	+44 (0)1223 336565 - wdcgc@spri.cam.ac.uk	X				agriculture atmosphere biosphere frozen ground glaciers/ice sheets hydrosphere land surface oceans spectral/engineering sea ice snow & land ice solid earth						
112.	WDC for Glaciology and Geocryology, Lanzhou	Lanzhou Institute of Glaciology and Geocryology Chinese Academy of Sciences Lanzhou, 730000 CHINA	http://wdcdgg.westgis.ac.cn/	Prof. CHENG Guodong +86 931 882 2818 gdcheng@izb.ac.cn		X				agriculture atmosphere biosphere frozen ground glaciers/ice sheets hydrosphere land surface oceans spectral/engineering sea ice snow &			X			

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
										land ice solid earth						
113.	WDC for Human Interactions in the Environment	CIESIN/Columbia University P.O. Box 1000 61 Rt 9W Palisades, NY 10964 USA	http://sedac.ciesin.columbia.edu/wdc/datapolicy.jsp	Dr. Roberta Balstad +1 914 365 8988 roberta@ciesin.columbia.edu	ciesin.info@ciesin.columbia.edu Tel.: +1(845)365-8988	X				environmental data			X	X		
114.	WDC for Ionosphere	Communications Research Laboratory 4-2-1 Nukui-kitamachi Koganei-shi Tokyo, 184-8795 JAPAN	http://wdc-c2.nict.go.jp/ComQueReq-E.html	Mr. Kiyoshi Igarashi +81 42 327 7478 igarashi@nict.go.jp		X				ionosphere			X			
115.	WDC for Land Cover Data	U.S. Geological Survey, EROS Data Center 47914 252nd Street Sioux Falls, SD 57198 USA		Mr. Christopher A. Barnes +1 605 594 6917 barnes@usgs.gov		X				EO						
116.	WDC for Marine Environmental Sciences	Alfred Wegener Institute for Polar and Marine Research Klagenfurter Str. D-28359 Bremen GERMANY		Prof. Dr. Gerold Wefer, +49 421 218-3389 gwefer@uni-bremen.de		X				marine data						
117.	WDC for Marine Geology	NOAA Code E/GC 325 Broadway Boulder, CO	http://www.ngdc.noaa.gov/mgg/aboutmgg/aboutwdcmgg.html	Dr. Christopher Fox +1 303 497 6345 Christopher.G.Fox@noaa.gov	1 (303) 497-6478 Susan.McLean@noaa.gov	X				geology, geophysics			X	X		

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
	& Geophysics, Boulder	80303-3328 USA														
118.	WDC for Marine Geology & Geophysics, Moscow	Glav NIVC MNR RF 32A, Marshal Tukhachevski Street Moscow, 123585 RUSSIA		Valeri S. Shcherbakov +7 095 192 8018 vshcher@gbdgi.ru		X				geology, geophysics						
119.	WDC for Meteorology	, Asheville National Climatic Data Center 151 Patton Avenue Asheville, NC 28801-5001 USA	http://www.ncdc.noaa.gov/oa/wdc/index.php	Mr. August L. Shumbera +1 828 271 4445 august.l.shumbera@noaa.gov	wdcamet@noaa.gov	X				meteorology						
120.	WDC for Meteorology, Beijing	National Meteorological Information Center 46 Zhongguanchun Nandajie Road Beijing, 100081 CHINA		Prof. SHI Peiling Wang Guofu +86 10 6840 7074 shipl@cma.gov.cn		X				meteorology						
121.	WDC for Meteorology, Obninsk	All-Russian Research Institute of Hydrometeorological Information 6 Korolev Str Obninsk		Dr. Marsel Z. Shaimardonov +7 08439 25 181 marsel@meteo.ru		X				meteorology						

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Kaluga Reg., 249020 RUSSIA														
122.	WDC for Nuclear Radiation	Atmospheric Environment Division Japan Meteorological Agency 1-3-4 Otemachi, Chiyoda-ku Tokyo, 100-8122 JAPAN		Mr. Hideyuki Sasaki +81 3 3287 3439 hsasaki@met.kishou.go.jp		X				Nuclear Radiation						
123.	WDC for Oceanography, Obninsk	All-Russian Research Institute of Hydrometeorological Information 6 Korolev Str Obninsk Kaluga Reg., 249020 RUSSIA		Dr. Vyacheslav I. Smirnov +7 084 392 5925 wdcb@meteo.ru		X				marine data						
124.	WDC for Oceanography, Silver Spring	NOAA/NODC, E/OC5 1315 East-West Highway Silver Spring, MD 20910-3282 USA	http://www.nodc.noaa.gov/General/NODC-dataexch/NODC-wdca.html http://www.nodc.noaa.gov/General/NODC-Submit/submit-guide.html	Mr. Sydney Levitus +1 301 713 3294 sydney.levitus@goaa.gov		X				marine data	X	X	X	X		
125.	WDC for Oceanography, Tianjin	National Marine Data & Information Service State Oceanic		Prof. Lin Shaohua +86 22 2401 0803 shlin@mail.nmdis.gov.cn		X				marine data						

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Administration 93 Liu Wei Road, Hedong District Tianjin, 300171 CHINA														
126.	WDC for Paleoclimatology	NOAA/NGDC Code E/GC3 325 Broadway Boulder, CO 80303 USA	http://www.ncdc.noaa.gov/paleo/contribfaq.html	Dr. David Anderson +1 303 497 6237 david.m.anderson@noaa.gov		X					X	X	X	X		
127.	WDC for Remotely Sensed Land Data	U.S. Geological Survey EROS Data Center Sioux Falls, SD 57198 USA	http://edc.usgs.gov/wdcguide.html	Mr. Lyndon Oleson +1 605 594 6555 oleson@usgs.gov	+1 605-594-6151 + 1-800-252-4547 (8:00-4:00 pm CT) custserv@usgs.gov	X				EO						
128.	WDC for Renewable Resources and Environment	Commission for Integrated Survey of Natural Resources Chinese Academy of Sciences P.O. Box 9717 Beijing, 100101 CHINA		Prof. SUN Jiulin +86 10 648 89 266 sunjl@igsnrr.ac.cn		X										
129.	WDC for Rockets and Satellites	All-Russian Research Institute of Hydrometeorological Information 6 Korolev Str Obninsk Kaluga Reg., 249020		Dr. Alex M. Sterin +7 095 255 2467 sterin@meteo.ru		X				information about rocket, satellite, and space probe launches						

	Name	Address	Policy in Web	Policy person to turn to (email/phone)	Technical person to turn to (email/phone)	policy scope of application				field of activity	policy facets to guaranty				Documentation	Heritage
						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		RUSSIA														
130.	WDC for Satellite Information	NSSDC Code 633 NASA Goddard Space Flight Center Greenbelt, MD 20771 USA	http://nssdc.gsfc.nasa.gov/archive/pdmp/NHDMAP01_R2_200501.pdf	Dr. Edwin J. Grayzeck +1 301 286 7355 grayzeck@mail630.gsfc.nasa.gov		X				information about rocket, satellite, and space probe launches						
131.	WDC for Space Science Satellites	Institute of Space & Astronautical Science 3-1-1 Yoshinodai Sagamihara Kanagawa, 229-8510 JAPAN	http://www.darts.isas.jaxa.jp/acknowledgements.html	Dr. Iku Shinohara +81 427 59 8404 iku@stp.isas.ac.jp		X				information about rocket, satellite, and space probe launches			X			
132.	WDC for Rotation of the Earth, Obninsk	All-Russian Research Institute of Hydrometeorological Information World Data Center (RIHMI-WDC) 6 Korolev Str Obninsk, Kaluga Reg., 249020 RUSSIA		Dr. Nikolai P. Kovalev +7 095 255 2194 kovlev@meteo.ru		X										
133.	WDC for Rotation of the Earth, Washington	U.S. Naval Observatory 3450 Mass Ave., NW Washington, DC 20392-5100 USA		Ms. Merri Sue Carter +1 202 762 1434 msc@nofs.navy.mil		X										
134.	WDC	U.S. Geological		Dr. Stuart Sipkin		X				Seismologic						

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
	for Seismology, Denver	Survey Denver Federal Center MS 967 P.O. Box 25046 Denver, CO 80225-0046 USA		+1 303 273 8415 sipkin@usgs.gov						al data						
135.	WDC for Seismology, Beijing	China Earthquake Networks Center No. 63, Fuxing Avenue Beijing, 100036 CHINA		Dr. LIU Refeng +86 10 880 15 249 liufr@csndmc.ac.cn		X				Seismological data						
136.	WDC for Soils	Intl Soil Reference and Information Center P.O. Box 353 6700 AJ Wageningen THE NETHERLANDS		Dr. David L. Dent +31 317 471715 soil.isric@wur.nl		X										
137.	WDC for Solar Activity	Observatoire de Meudon 5 place Janssen 92195 Meudon Cedex FRANCE		Dr. Jean Aboudarham +33 1 4507 7784 jean.aboudarham@obspm.fr		X				solar terrestrial data						
138.	WDC for Solar Radio Emissions	Nobeyama Solar Radio Observatory National Astronomical Observatory Minamimaki, Minamisaku Nagano, 384-1305	http://solar.nro.nao.ac.jp/norp/html/policy.html	Assoc. Prof. Kiyoto Shibasaki, +81 267 98 4488 shibasaki@nro.nao.ac.jp		X				solar terrestrial data			X	X		

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		JAPAN														
139.	WDC for Solar Terrestrial Physics, Boulder	NOAA/NGDC E/GC2 325 Broadway Boulder, CO 80303 USA		Dr. William Denig +1 303 497 6323 William.Denig@noaa.gov						solar terrestrial data						
140.	WDC for Solar Terrestrial Physics, Chilton	Rutherford Appleton Lab Chilton Didcot Oxon, OX11 0QX UNITED KINGDOM	http://www.ukssdc.ac.uk/Help/General/Policy.html	Matthew Wild +44 1235 446579 m.wild@rl.ac.uk						Ionosphere measurements, SolarGeophysical Indices			X	X		
141.	WDC for Solar-Terrestrial Physics, Moscow	Molodezhnaya 3 Moscow, 117296 RUSSIA		Dr. Evgeny P. Kharin +7 095 930 5619 kharin@wdcb.ru						solar terrestrial data						
142.	WDC for Solar-Terrestrial Science, Sydney	IPS Radio and Space Services PO Box 1386 Haymarket, NSW 1240 AUSTRALIA	http://www.ips.gov.au/Category/World%20Data%20Centre/ips_data_policy_v3.pdf	Dr. David Cole +61 2 9213 8001 david@ips.gov.au						solar terrestrial data	X	X	X	X		
143.	WDC for Geophysics, Beijing	Institute of Geology and Geophysics Chinese Academy of Sciences P.O. Box 9825		Prof. TANG Keyun +86 10 6200 7408 kytang@mail.igcas.ac.cn		X										

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		19 Beitucheng West Road, Chaoyang District Beijing, 100029 CHINA														
144.	WDC for Solid Earth Geophysics, Boulder	NOAA/NGDC E/GC1 325 Broadway Boulder, CO 80305-3328 USA		Ms. Susan McLean +1 303 497 6478 susan.mclean@noaa.gov												
145.	WDC for Solid Earth Physics, Moscow	Molodezhnaya 3 Moscow, 117296 RUSSIA	http://www.wdcb.ru/sep/data.html	Dr. Natalia A. Sergeyeva +7 095 930 1762 nata@wdcb.ru		X							X	X		
146.	WDC for Space Science	Chinese Academy of Sciences P.O. Box 8701 Beijing, 100080 CHINA		Prof. ZOU Ziming +86 10 625 82 857 mzou@earth.sepc.ac.cn		X										
147.	WDC for Sunspot Index	Observatoire Royal de Belgique 3 Avenue Circulaire Brussels, B-1180 BELGIUM	http://sidc.oma.be/sunspot-data/SIDCpub.php	Dr. Ronald van der Linden +32 2 373 0276 ronald.vanderlinden@oma.be		X				solar terrestrial data			X	X		
148.	WHO	World Health Organization Avenue Appia 20 CH - 1211 Geneva 27 Switzerland			whosis@who.int infobase@who.int +41 22 791 2111	X				Environment, (Health)						
149.	WMO	World Meteorological Organization, 7bis, avenue de la	http://www.nws.noaa.gov/im/wmocovr.htm http://www.wmo.ch		wmo@wmo.int + 41(0) 22 730 81 11	X				Meteorology					RD-25	

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						Global	European	National/ Regional	Company		archiving	standards and metadata	archiving legal access/ licensing	pricing		
		Paix, Case postale No. 2300, CH-1211 Geneva 2, Switzerland	/pages/governance/policy/index_en.html http://www.wmo.ch/pages/about/Resolution40_en.html http://www.wmo.ch/pages/about/Resolution25_en.html													
150.	ZAMG	Zentralanstalt für Meteorologie und Geodynamik (ZAMG) 1190 Wien, Hohe Warte 38 AUSTRIA	http://www.zamg.ac.at/wir_ueber_uns/datenmanagement/datenpflege/	Martin.kober@zamg.ac.at +431 36026 2009	georg.kaindl@zamg.ac.at +43 1 36026 2601 +43 1 36026 2620			X		Meteorology			X			

Table 3 EO Policy Bodies

A.2 Candidates for further information gathering

	abbreviation		Web	Type
1.	CASPAR	Cultural, Artistic and Scientific knowledge for Preservation, Access and Retrieval	http://www.casparpreserves.eu/	Integrated Project co-financed by the EU 6th FP
2.	ECSL	European Centre for Space Law	http://www.esa.int/SPECIALS/ECSL/	international body
3.	EEA	European Environmental Agency	http://www.eea.europa.eu/	international body
4.	EGEE	Enabling Grids for E-sciencE project	http://www.eu-egee.org/	Integrated Project
5.	e-IRG	e-Infrastructure Reflection Group	http://www.e-irg.org/	international body
6.	EOPOLE	EARTH OBSERVATION DATA POLICY AND EUROPE	http://www.isprs.org/publications/highlights/highlights0402/eopole.html	**former** Integrated Project co-financed by the EU 4th FP
7.	ESFRI	European Strategy Forum for Research Infrastructures	http://cordis.europa.eu/esfri/	international body
8.	EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites	http://www.eumetsat.int/Home/index.htm	international body
9.	GCOS	Global Climate Observing System	http://www.wmo.ch/pages/prog/gcos/index.php?name=news	international body
10.	GOOS	Global Ocean Observing System	http://www.ioc-goos.org/component/option,com_frontpage/Itemid,1/	international program
11.	GSCB	Ground Segment Coordination Body	http://earth.esa.int/gscb/	international body
12.	GTOS	Global Terrestrial Observing System	http://www.fao.org/gtos/	international program
13.	IGOS	Integrated Global Observation System	http://www.igospartners.org/over.htm	International Initiative
14.	IMAGI	Interministerieller Ausschuss für Geoinformationswesen	http://www.gdi-de.org/de/imagi/f_imagi.html	national body, Germany

15.	JRC	Joint Research Centre	http://ec.europa.eu/dgs/jrc/index.cfm	international body
16.	OAIS	Open Archival Information System- Reference Model	http://public.ccsds.org/publications/archive/650x0b1.pdf	Standard
17.	ODC		http://www.opendataconsortium.org/	International Project
18.	OGIS	Open GIS		
19.	OPeNDAP	Open-source Project for a Network Data Access Protocol	http://www.opendap.org/	international project
20.	SeaDataNet	Pan-European infrastructure for Ocean & Marine Data Management	http://www.seadatanet.org/	Infrastructure international
21.	THREDDS	Thematic Realtime Environmental Distributed Data Services	http://www.unidata.ucar.edu/projects/THREDDS/	international project
22.	WFP	World Food Programme UN Agency	http://www.wfp.org/english/	international body
23.	WSRF	Web Services Resource Framework	http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wsrf	international body
24.	WSSD	World Summit on Sustainable Development	http://www.unep.fr/outreach/wssd/home.htm	