GEOSS User Requirement Registry (URR)

- Connecting GEO/GEOSS to Society/Users
- GEOSS Registries and URR
- Individual URR Registries/Tables
- Status of Implementation
- Approach to Populating the URR
- Linking URR and Other GEOSS Registries
- Plans for 2011

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### Society and User needs:
- Many different needs in society and the nine SBAs
- Diversity in awareness and expressing of needs
- Needs are rapidly evolving

### GEO/GEOSS User Interface:
- The UI needs to reach out to the global user community (focus on decision making)
- The UI needs to enable users to express their needs
- GEO's UI needs to be flexible/adaptable/proactive/versatile

GEOSS needs infrastructure to **store and frequently analyse** the information provided by society.
GEOSS Registries and User Requirement Registry
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GEOSS Registries and User Requirement Registry

Elements and structure of the URR
**User Types:** Generic groups of users (not individuals or specific groups) of Earth observations or derived information; making decisions depending on this information.

**Applications:** Generic activities depending in one way or another on Earth observations or derived information, or results from other applications.

**Requirements:** Specification of information needs for quantities in the Earth system or impacting the Earth system, or products derived from such observations.

**Links:** Relationships between any pair of the entries in the above registries, indicating to what extent one entry in the pair depends on the other entry.

**Lexicon:** Collection of terms used for the entries in the URR. Terms that denote keywords and/or Earth observation quantities are marked as such.

**References:** Reference to publications and documents providing more information on any of the entries in the URR.
Individual URR Registries/Tables

Link concept has shown to be very powerful to capture connectivity between different elements in the value network from Earth observations to end users.

**Research Needs:** research and development needs that should be met in order to enable applications and that are hampered by R&D gaps.

**Planned: Technology Needs:** needs in terms of new technologies and methodologies (sensors, models, algorithms, ...) that would enable or support applications.

**Planned: Infrastructure Needs:** gaps in infrastructure (observation systems, services, data accessibility, ...) that are hampering or disabling applications.

**Planned: Capacity building Needs:** needs in terms of capacity building that would facilitate a better utilization of the benefits of Earth observations.

These new registries cross-link user requirements with STC, ADC, and CBC.
Status of Implementation

Home

The intergovernmental Group on Earth Observations (GEO) is implementing the Global Earth Observation System of Systems (GEOSS) and developing tools to help users better understand earth observation data for a variety of societal areas. A suite of GEOSS Registries is at the core of these tools. These registries provide the means to register GEOSS components, services, data sets, and other relevant information resources. They are designed to enable users of Earth observations to access, list, search, and use the data and services available through GEOSS.

GEO is building GEOSS as a user driven system. The GEO User Requirements Registry (URR), which is part of the GEOSS Registries allows users to publish their needs in terms of Earth information, and it enables users and providers to analyze the value chains from Earth observations to end-users. In order to collect and update information on user needs, GEO has established several processes to engage users depending directly or indirectly on Earth observations. The URR is one of the principal user engagement mechanisms in GEOSS. The core of the URR is a comprehensive database with information on user types, applications, and requirements as well as their inter-connectivity. Population of the URR is based on peer contribution similar to the Wikipedia system. Moreover, relevant information from the reports produced by the GEO Work Plan Task US-09-01a has been extracted and entered into the URR. Engineers, scientists and policy makers worldwide who contributed the US-09-01a reports are being asked to assist in populating the URR. As far as possible, information is also harvested from other databases with information on user needs. But the biggest contribution will have to come from individual users who publish their needs. View the full URR Brochure (pdf)

You are invited to visit and search the URR for information related to user needs, applications, and observational requirements. If you have information on these items, you are invited to publish your information and thus enrich the URR.

If you intend to publish information in the URR it is strongly recommended that you first visit the URR Tutorials. In particular, the tutorial on the general concept of the URR is designed to introduce you to the type of information that should be published in the URR. It is also very helpful to scroll through one of the specific tutorials on publishing information. Visit the URR Tutorials

See also the Brief Introduction to the URR.

GEOSS depends on user feedback, and so does the URR. Give us your feedback by filling out the Questionnaire.

Done
Status of Implementation

Publishing of
- User Types
- Applications
- Requirements
- Links
- Lexicon
- References
- Research Needs
Status of Implementation

*Lookups/searches*

- User Types
- Applications
- Requirements
- Links
- Lexicon
- References
- Research Needs

*Publishing of*

- User Types
- Applications
- Requirements
- Links
- Lexicon
- References
- Research Needs

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Search

Enter a search term. (e.g. air quality for general matches or "air quality" for exact matches)

**pollen**

Search

**User Types**

<table>
<thead>
<tr>
<th>User Types</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pollen and spore</td>
<td>person identifying and counting pollen and/or spores from air samplers</td>
</tr>
<tr>
<td>analyst</td>
<td></td>
</tr>
<tr>
<td>aerobiologist</td>
<td>Aerobiology is a branch of biology that studies biological particles, such</td>
</tr>
<tr>
<td></td>
<td>as bacteria, fungal spores, pollen grains and viruses, which are</td>
</tr>
<tr>
<td></td>
<td>passively transported by the air. Aerobiologists have traditionally been</td>
</tr>
<tr>
<td></td>
<td>involved in the measurement and reporting of airborne pollen and fungal</td>
</tr>
<tr>
<td></td>
<td>spores for the benefit of allergic individuals. Aerobiology is a rapidly</td>
</tr>
<tr>
<td></td>
<td>developing science, which also involves interactions with engineering and</td>
</tr>
<tr>
<td></td>
<td>meteorology.</td>
</tr>
<tr>
<td>aerobiological</td>
<td>person responsible for obtaining, collecting, dispersing information about</td>
</tr>
<tr>
<td>network manager</td>
<td>pollen and spore content of air and impact, management and quality control</td>
</tr>
<tr>
<td></td>
<td>of monitoring network and database.</td>
</tr>
<tr>
<td>air quality scientist</td>
<td>individuals performing research on air quality and factors that can influence</td>
</tr>
<tr>
<td></td>
<td>air quality (e.g., weather, pollen, particles, ozone, etc). They perform</td>
</tr>
<tr>
<td></td>
<td>the research on atmospheric processes, including emissions, transport,</td>
</tr>
<tr>
<td></td>
<td>chemical transformation, and removal processes on local, regional, and global</td>
</tr>
<tr>
<td></td>
<td>scales (HTAP, 2007). They develop and evaluate chemical transport models</td>
</tr>
<tr>
<td></td>
<td>that are used for forecasting and evaluation of control strategies and policy.</td>
</tr>
<tr>
<td>environmental health</td>
<td>health scientists (e.g., epidemiologists, immunologists, allergologists,</td>
</tr>
<tr>
<td>scientist</td>
<td>aerobiologists) who are involved in determining the effects of environmental</td>
</tr>
<tr>
<td></td>
<td>pollutants and biological particles (pollens and moulds) on health. This</td>
</tr>
<tr>
<td></td>
<td>research can be conducted at various organizations and at different levels</td>
</tr>
<tr>
<td></td>
<td>(e.g., State, County, or International).</td>
</tr>
</tbody>
</table>

The following results are from keyword association:

<table>
<thead>
<tr>
<th>User Types</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>air quality manager</td>
<td>They are responsible for the maintenance of healthy air quality by setting AQ</td>
</tr>
<tr>
<td></td>
<td>standards, monitoring the air quality, and if necessary, initiating control</td>
</tr>
<tr>
<td></td>
<td>actions. AQ policymakers are executive managers who provide general guidance</td>
</tr>
<tr>
<td></td>
<td>to AQ management.</td>
</tr>
<tr>
<td>allergic individual</td>
<td>person suffering from allergic diseases</td>
</tr>
</tbody>
</table>

Done
Status of Implementation

**Publishing of**
- User Types
- Applications
- Requirements
- Links
- Lexicon
- References
- Research Needs

**Lookups/searches**

**Feedback:**
- on-line questionnaire
- workshops
Status of Implementation

Publishing of
- User Types
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Lookups/searches

Feedback:
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Tutorials:
...
Status of Implementation

Welcome to the tutorials for the GEOSS User Requirements Registry (URR). The URR provides forms that allow you to publish User Types, Applications, and Requirements and their relation to Earth observations, as well as the terms used to describe these entities. In order to capture the information of how these entities fit into the value chains from Earth observations to the end users, a form to publish links between the entities is also made available. For a definition of the entities mentioned here, see the glossary.

In some cases, applications would be enabled or would benefit from further research, technology development, deployment of infrastructure, and capacity building. Therefore, the URR also provides forms for the publication of Research Needs, Technology Needs, Infrastructure Needs, and Capacity Building Needs. These needs can be linked to other entities, which allows URR users to analyze the impact of research, development, and capacity building on the value network between Earth observations and societal benefits (note that the forms for Technology Needs, Infrastructure Needs, and Capacity Building Needs are currently not active).

The tutorials provided here will walk you through the various steps of publishing User Types, Applications, Requirements, Links, Lexicon Terms, References, and Research Needs. By doing so, the tutorials explain the concepts behind the URR and give guidance on how to describe individual entities and distinguish them from other similar entities. A brief introduction to the URR provides the very basics for users who want to search the URR or start publishing their information, and this introduction is a must-read for those who cannot go through the tutorials in more detail.

The URR allows you to carry out qualified searches for information. The tutorial on searches gives guidance on how to specify the searches in order to ensure that the relevant information is actually discovered.

The URR will be complemented with analysis functions for the construction of value chains and networks, which illustrate the interdependence of applications and user types, as well as the use of Earth observations and derived information along the chains down to the end users. Once the analysis functions become available a tutorial will be added here.

The header of the tutorial pages contains several links. The link "home" brings you back to this first page of the tutorials. The link "Glossary" pulls up a list of selected terms central to the URR. "GEOSS URR" brings you back to the URR, and "GO" opens up the GEO Web page.

The following tutorials are currently available:

- **General**: General properties of forms and functions
- **User Types**: Publishing and editing information on generic types of users of Earth observations and derived information.
- **Applications**: Publishing and editing information on applications depending in one way or another on Earth observations.
- **Requirements**: Publishing and editing requirements for specific Earth observations or derived products.
- **Research Needs**: Publishing and editing research needs.
- **Links**: Publishing and editing links between any of the requirements, applications or user types.
- **Lexicon Terms**: Publishing and editing lexicon terms.
- **References**: Publishing and editing references of publications relevant for the URR and the information published in the URR.
- **Searches**: Searching for information in the URR.
- **Analyses**: Analyzing value chains and networks.

Additonal help information and documentation includes:

- Glossary,
Status of Implementation

Publishing of
- User Types
- Applications
- Requirements
- Links
- Lexicon
- References
- Research Needs

Lookups/searches

Feedback:
- on-line questionnaire
- workshops

Tutorials:
...

Planned work:
Implementation of analysis algorithms of Value Chains and Networks
Approach to Populating the URR

Approach has three elements:
1. Assessment Reports (e.g., US-09-01a)
2. Open peer contributions (Wikipedia approach)
3. Harvesting existing registries

For (1) and (2) considerable issues in understanding Applications, User Types, Requirements, Links emerged

Reaction: On-line Tutorials; WebEx tutorials. What else?

Large difference in the quality of the entries

Conclusion:
There is a need for reviewing and editing of entries.
**Analysis goals: Answer questions like:**

- Who is using my data for what?
- Are there data products that would meet my needs?
- I am doing interdisciplinary research and would like to know what data are used by my colleagues in other disciplines?
- What user types and applications depend on this requirement?
- What data products are needed for this application?

**It should be sufficient to:**

- link URR and the GEOSS services and GEOSS component registries
- map ontologies onto the URR Lexicon

Discussion with the other GEOSS registries needs to be continued to solve a number of issues hindering the comparison of needs and available entities (gap analysis) ...
Linking URR and Other GEOSS Registries
Linking URR and Other GEOSS Registries
The URR and the Eminent Gap Analysis

GEOSS Registries are "Yellow Pages"
If we assume that the URR eventually will capture the user needs, then a gap analysis boils down to comparing the requirements to the products.

Who is going to populate the Products registry?
Further developments of the URR:
- New forms (Technology Needs, Infrastructure Needs, Capacity Building Needs)
- Implementation of Analysis Algorithms
- Improved Presentation/Search/Export Tools

Populating the URR:
- Harvesting of existing data bases
- Expert-based input for additional SBAs (US-09-01a)
- Support for open peer contributions (Wikipedia-like approach)

Linkages between URR and other Registries:
- Integration into GCI
- Mapping of ontologies into the URR lexicon
Questions:
- What level of editing is needed?
- Who should be involved as editors?
- Will it be possible to use the URR for gap analysis?

Level of activity depends on available funding ...