User Manual ARCMAP

ARCMAP is an online application for collecting and updating information about in situ observation systems. This enables the user to create and edit detailed descriptions of observational systems that are, have been or are planned to measure various environmental parameters in the Arctic. Observation system information is organized in a database so that it can be easily retrieved and updated, or used in the analysis of the environmental monitoring capacity for a given area and time period. Each user has access to the data they have registered. Administrators and customer / client (eg Ministry of Climate and Environment (KLD), Environment Directorate (MD)) have access to information about all registered systems and to extract new statistics and indicators.

ARCMAP is available at https://ci.nersc.no/.

There are four methods for retrieving information from ARCMAP:

1) automatically generated figures with overview data that is updated every day (open access)

2) access to questions and answers in the questionnaires (user account)

3) installation of client application with tailor-made presentation (needs user account)

4) direct data download from database (needs developer account)

1. Automatically generated figures with overview data (open access)

A number of overview figures are automatically generated and updated every day. These are publicly available at https://ci.nersc.no/client/plots.html. The figures cover a number of themes from the ARCMAP database (see Figure 1). Feedback about additional overview figures is welcome so that we can post more figures that are useful for monitoring developments and uncovering gaps in the observation systems. An overview map showing all registered observation systems is under development; this will also be posted at https://ci.nersc.no/client/plots.html.

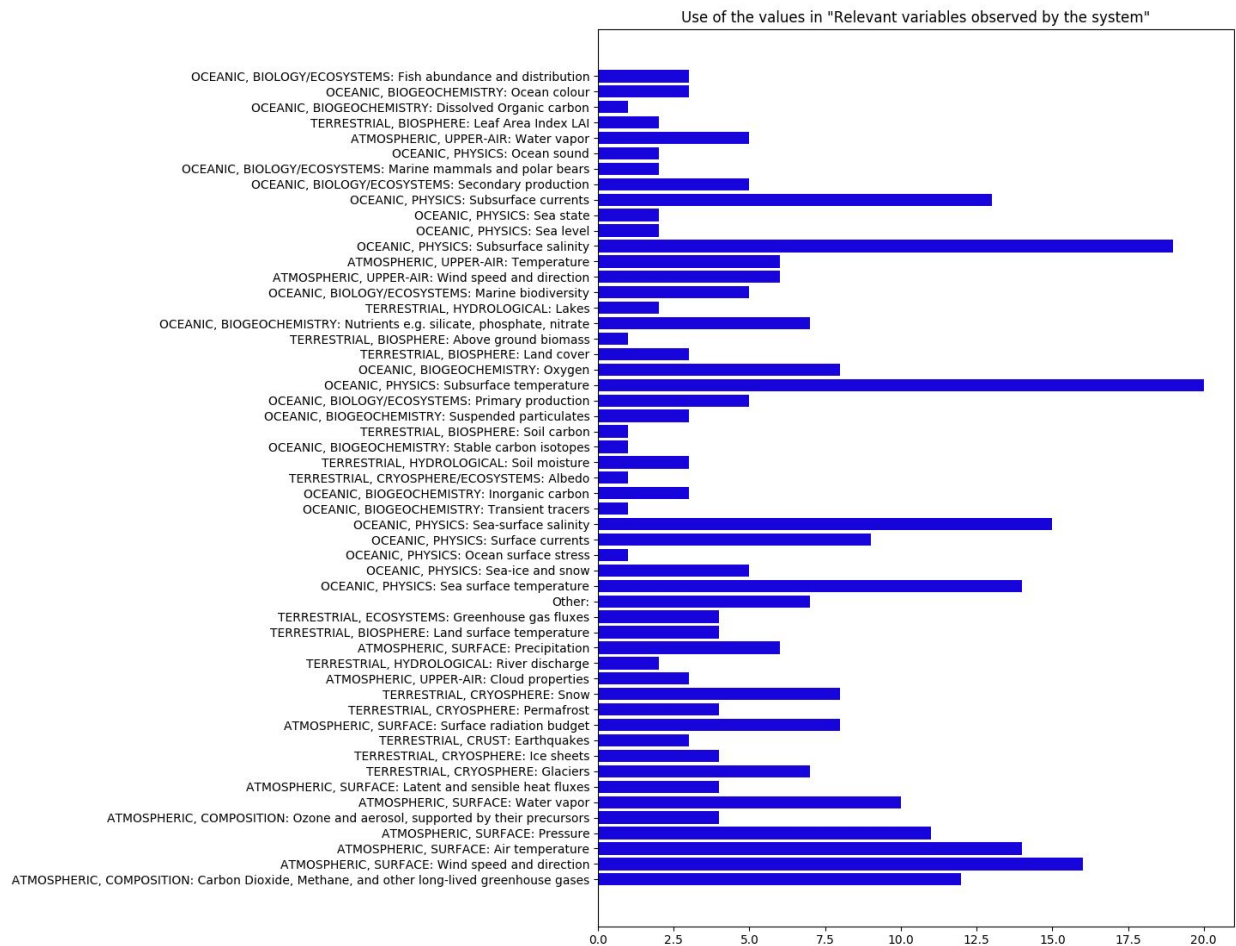Percentage of observing systems for each application area
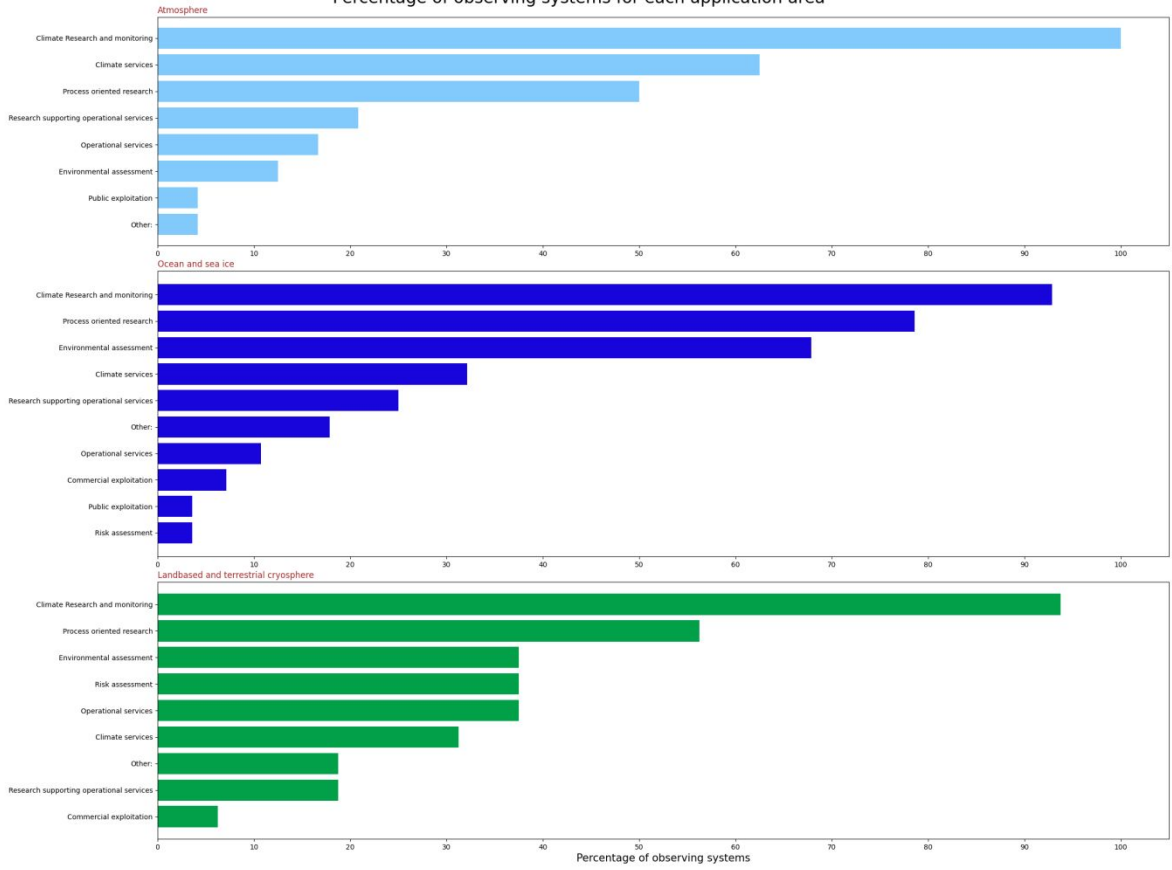
Figure 1. Two simple examples of extracting information from the ARCMAP database: which application areas the observation system serves (top) and overview of how many systems measure given parameters (bottom).

2. Access to questions and answers in the questionnaires (need user account)

Users, customers and administrators can log in on the main page https://ci.nersc.no/. Ordinary users will then see all the observation systems that they themselves have added into the system. They can create new observation systems or update the information for their existing observation systems. Users can see all the questions that underlie the ARCMAP system, and they can see their own answers to these questions. However, they do not have access to other users' observation systems.

Customers have read access to all observation systems. This way they can look at all the metadata collected in ARCMAP.

Administrators have full read and write access to all observation systems. They can also create accounts for new users.

Reference to 1A General Information

Hanne Sagen-Fram Strait Multipurpose Acoustic System	⌄

Chose a form name for an observing systems General information page to conncect this page to

Category of the observation network/system

- ☐ **Broad network (it includes a broad range of interdisciplinary observations and projects)**
- ☑ **Focused network (is confined to specific themes or disciplines)**
- ☐ **Commercial network (provide observational data for profit)**
- ☐ **Operational network (feeding data into weather service and forecasting entities)**
- ☐ **Resource-extraction network (conducts monitoring or baseline observations specifically for planned or ongoing resource extraction activities)**
- ☐ **Distributed data (from many local networks)**

Categories are defined according to Eicken et al, 2013, Dual-purpose Arctic observing networks: Lessons from SEARCH on frameworks for prioritiz...

Application areas

- ☑ **Climate Research and monitoring**
- ☑ **Process oriented research**
- ☐ **Research supporting operational services**
- ☐ **Operational services**
- ☐ **Climate services**
- ☐ **Public exploitation**
- ☐ **Commercial exploitation**
- ☑ **Environmental assessment**
- ☐ **Risk assessment**
- ☑ **Other:**

The ACOBAR moorings (2010-2012) were also used for glider navigation

Select the application area(s) that is(are) most relevant for your observing system

If you could not provide an answer to some of the questions of this section, please explain why. Include here eventual additional comments on this section.

⊙ **Back**	✔ **Save**

Log In	🔒

Questionnaire A: ARCTIC EXISTING IN SITU OBSERVING SYSTEMS

1A.GENERAL INFORMATION ON THE OBSERVING SYSTEM AND THE RESPONDENT	❯
1B.LOCATION INFORMATION	❯
2. OBSERVATIONS AND POTENTIAL ENVIRONMENTAL IMPACT	❯
3. SUSTAINABILITY OF THE OBSERVING SYSTEM	❯
4. DATA USAGE	❯
5. DATA MANAGEMENT	❯

How to fill in the questionnaire.

It consists of 6 sub-sections — pages — that are saved separately,
meaning you can save parts of the work and getting back to it later.

After login, press update data to activate your forms and return here.

For a new form, always start with page 1A (General Information).

To fill another page (1B, …, 5), press 'Next Page' to get to the next page for filling in.

Page 1B (Location Information) can be filled in several times in case of multiple locations
or deployments of an otherwise similar observation system.
Take care to provide a unique name in the field 'Spatial coverage: name of location' for each location.

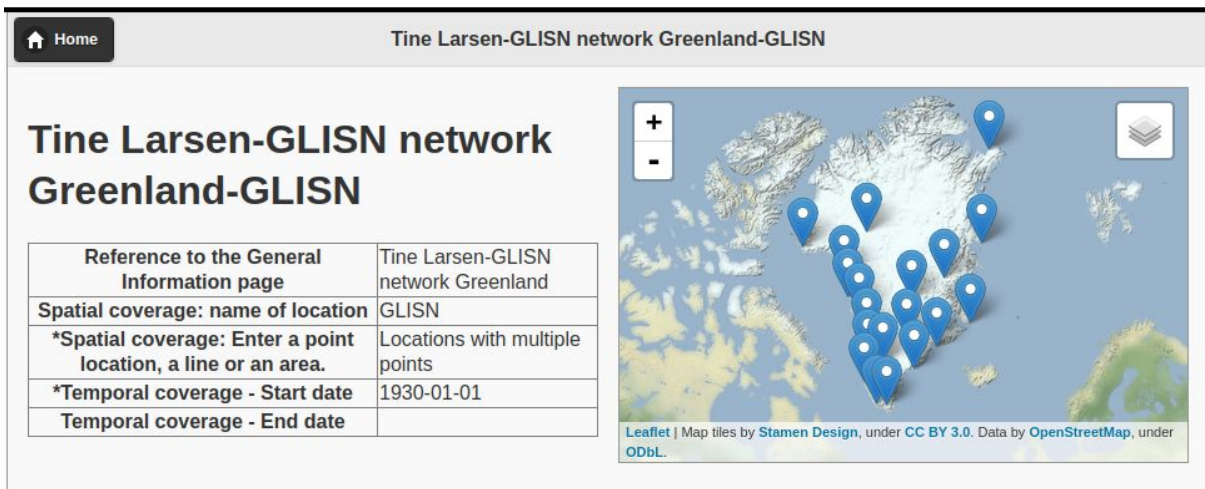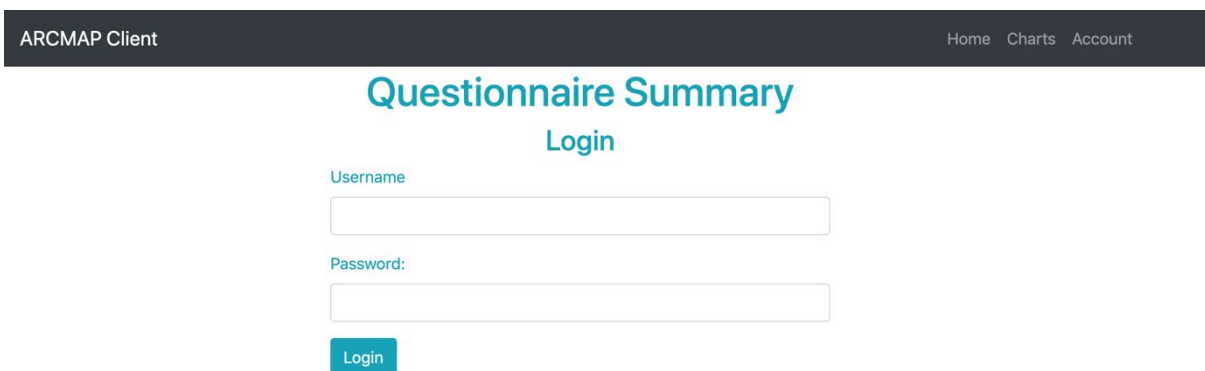For any questions, please contact kjetil.lygre@nersc.no

Figure 2. Selected screens from the ARCMAP application: overview of locations for land-based stations in a glacier monitoring network in Greenland (top), the front of the application (bottom left) and the applications of one of the marine observation systems from the INTAROS survey (bottom) right).

3. Installing client application with tailor made presentation (need developer account)

An example of a standalone client application that can be customized and installed on a local website is also created.

The client has no special requirements other than a user account and network access, and reads the data from ARCMAP:
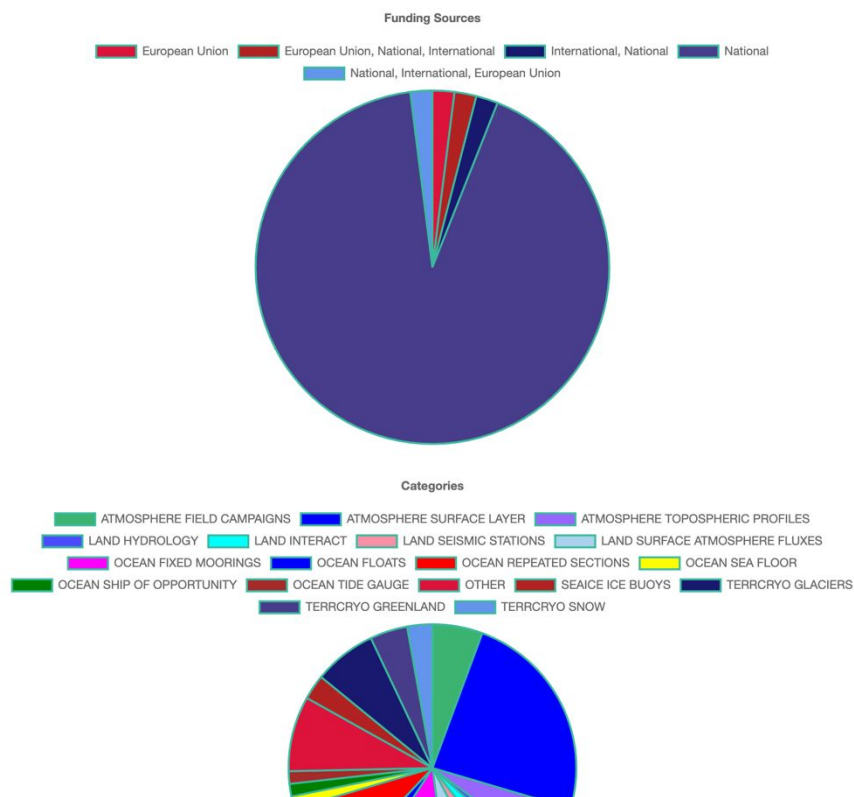

You can view raw data tables:

And plots:

This client make it possible to integrate ARCMAP in its own environment with its own data, while the data remains in the main ARCMAP system. This avoids duplication of data.

4. Direct data download from the database (needs developer account)

The frameworks on which ARCMAP is based, Django2 and WQ.IO, offer extraction of data from the database through a built-in interface (API). This makes the data available for further processing. The automatically generated figure presented under point 1 shows examples of some forms of analysis possible with the metadata in ARCMAP. The web page with the automatically generated plots uses the data retrieval APIs and generates presentations that are dynamically updated as users update the information in the database.

This kind of direct data access is made available to customers and service developers. With this, they will have the opportunity to create their own overview figures and analyzes based on the metadata in the ARCMAP database.