iAOS Components

Torill Hamre, NERSC

INTAROS Steering Committee meeting 27 May 2020

iAOS (Integrated Arctic Observation System)

iAOS Portal

[INTAROS Data Catalogue](#)

Links to **services**:

- ARCMAP survey application
- C-PAD (passive acoustic)
- TS-SIC (sea ice concentration stats)
- OpenSearch Catalog client (Sentinel-1)
- OpenDAP/THREDDS Catalog client
- Pangaea Catalog client

  ...

Links to **applications**:

- Risk management system (DnV)
- Arctic Acoustic Package (NERSC)

...

Links to **resources**:

- software tools, example scripts, tutorial
- data repositories, infrastructures, ...

ARCMAP

https://ci.nersc.no/

Survey:

- Questionnaire A
- Questionnare B

Analysis

- Plots of maturity, ...

iAOS Cloud Platform

Core services

(ref Pedro's talk; Deliverable D5.8)

Ellip tools

- Ellip Notebooks
- Ellip Workflows.
- Ellip Launchpads
- Ellip Infohubs

Installed **software libraries and tools**:

- pydap
- PAMGuide
- RGeostats

Data access services:

- OpenSearch Catalog client
- OpenDAP/THREDDS Catalog client
- PANGAEA data download service

  ...

Applications

- Risk management system (DnV)
  https://maps.dnvgl.com/arcticriskmap
- Arctic Acoustic Package (NERSC)

...

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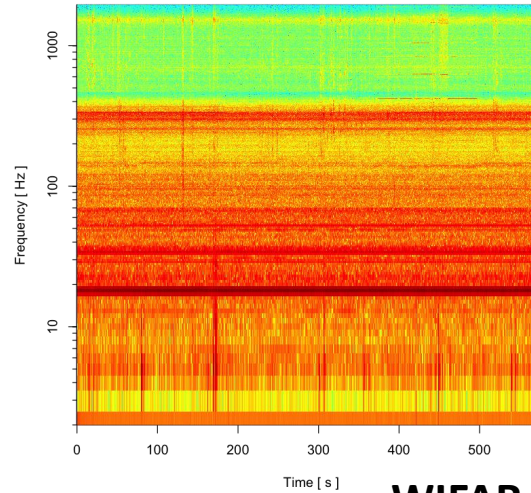
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C-PAD & TS-SIC services

C-PAD

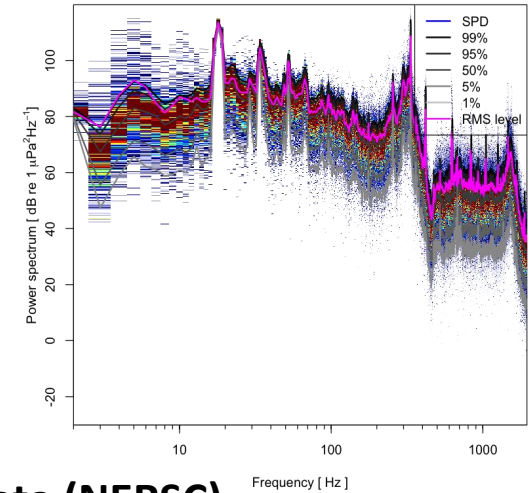Process and analysis of passive acoustic data; generates spectrograms and noise statistics

Implementation in R

Libraries: PAMGuide, tuneR, ncdf4

WIFAR data (NERSC)
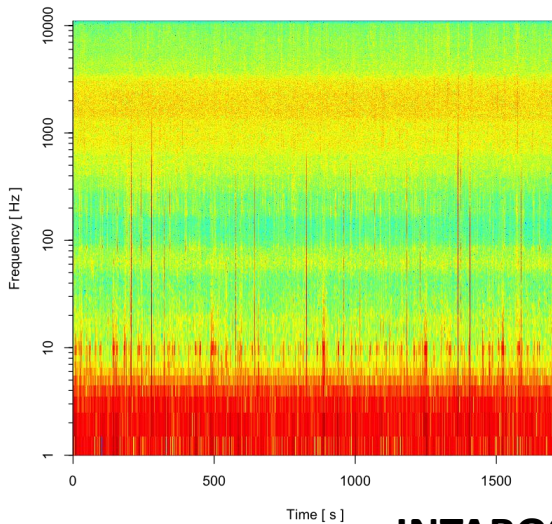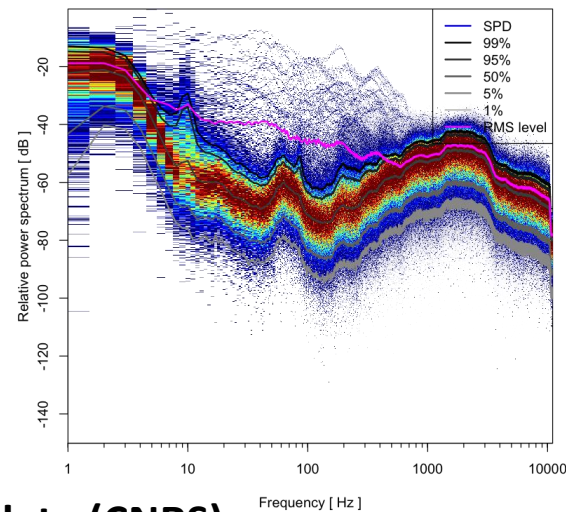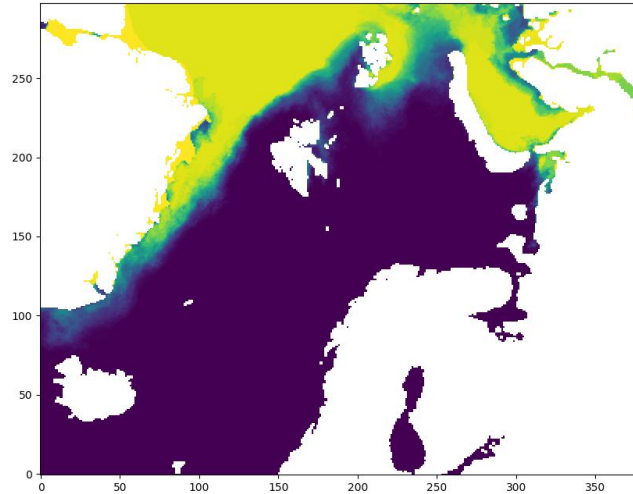

INTAROS data (CNRS)

C-PAD & TS-SIC services

TS-SIC

Generate monthly mean SIC
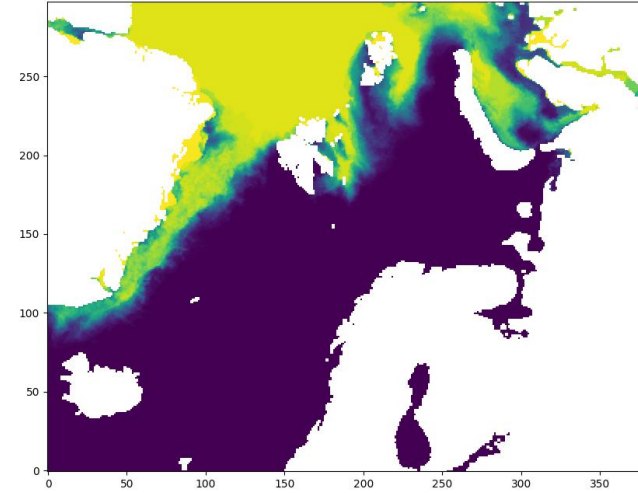(sea ice concentration) from
CMEMS daily SIC maps
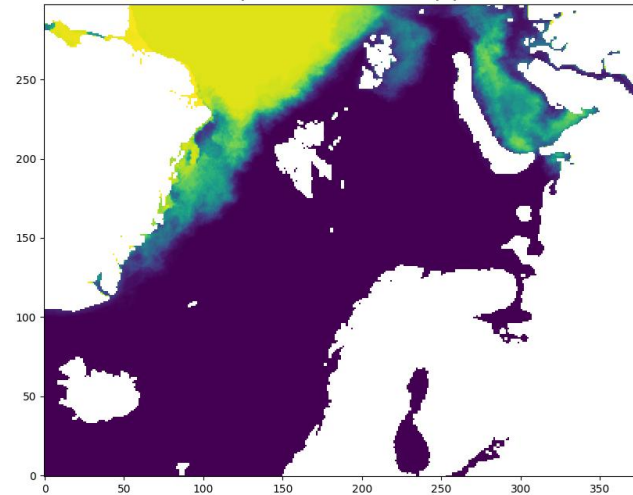
Implementation in Python
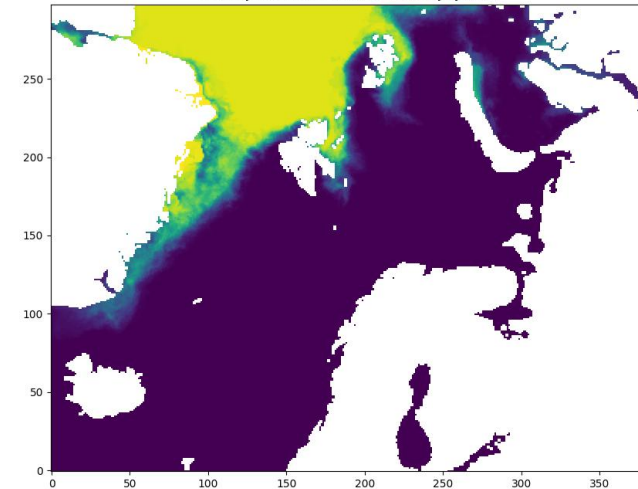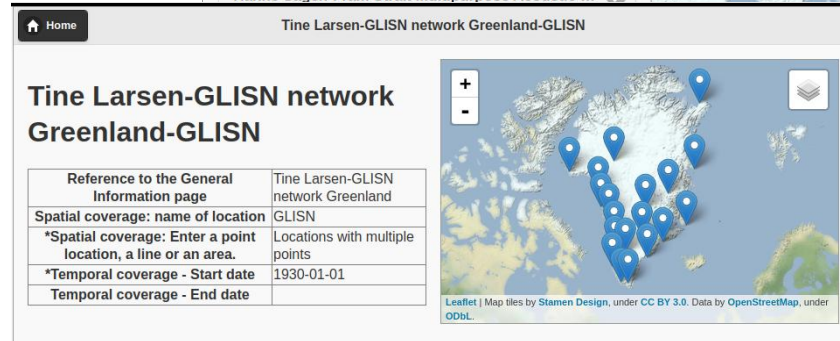
Libraries: netcdf4, matplotlib

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ARCMAP survey application

ARCMAP

Moved from Google Forms solution to Django REST and WQ.IO open source frameworks; data stored in database

Implementation in Python and JavaScript

Questionnaire A data from INTAROS (2018) imported ; respondents is updating now

QA data from Russian and Chinese partnes to be imported

QA from external parties to be imported

QB to be defined; simplify; data from INTAROS to be imported

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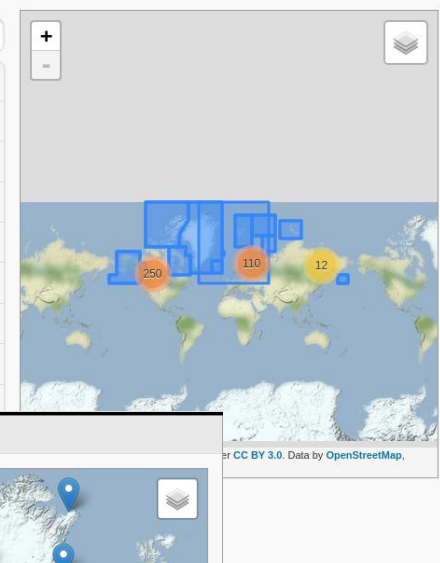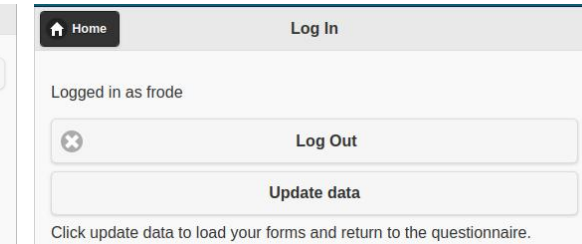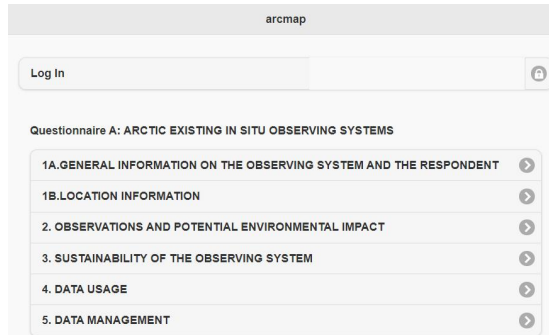
ARCMAP survey application

- **ARCMAP** is a survey application for in situ observation systems and their data collections

- Developed using open source frameworks wq and Django rest

- Runs in browser; no extra plugins needed

- Version 1 released mid Nov 2019 for Polar Data Forum 3

- Updated since with e.g. rich plotting capabilities

- **ARCMAP** can be accessed from https://ci.nersc.no/

- To get access please contact: kjetil.lygre@nersc.no

ARCMAP survey application

- Easy to register new systems and data collections; parts can be stored individually

ARCMAP survey application

- Easy to update information; just edit rel

ARCMAP survey application

- Information is stored in database; flexible extraction and presentation

ARCMAP survey application
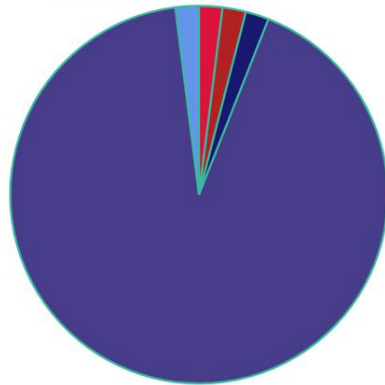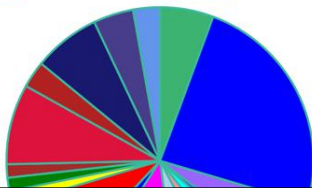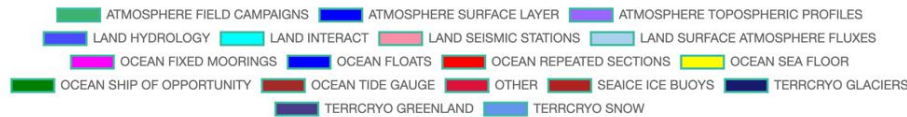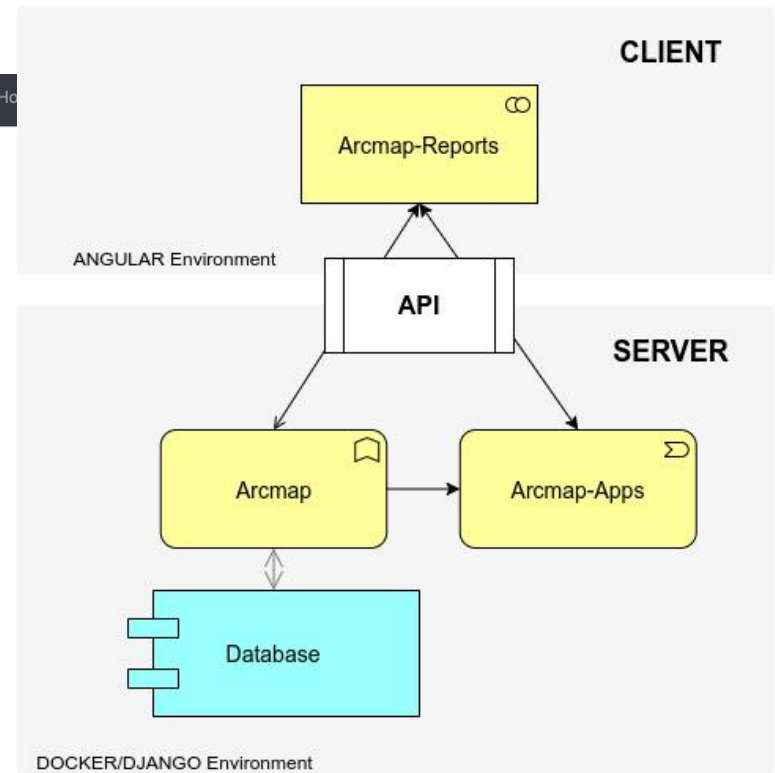
- **ARCMAP** provides statistics and aggregated information for the surveyed observation systems, e.g.

  – Domain (sphere)

  – Application area

  – Variables observed

  – System maturity

  – Data storage

  – Observation period

Atmosphere

24 systems (40.0%)

16 systems (26.7%)

28 systems (46.7%)

Land including terrestrial cryosphere

Ocean and sea ice
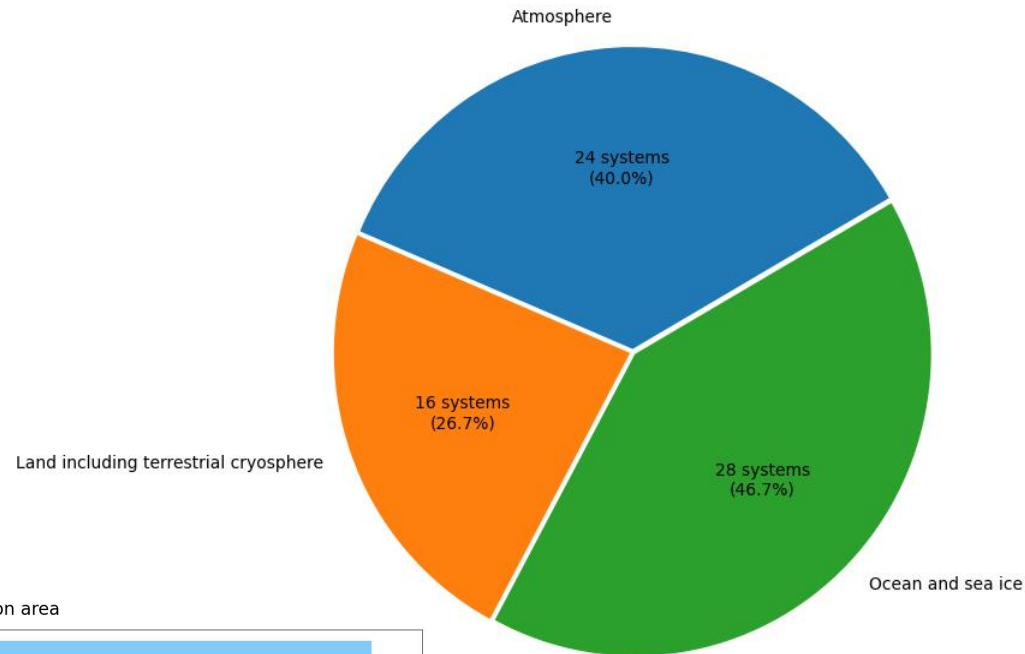
Percentage of observing systems for each application area

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ARCMAP survey application

Land including terrestrial cryosphere

Data Repository for each Observation system
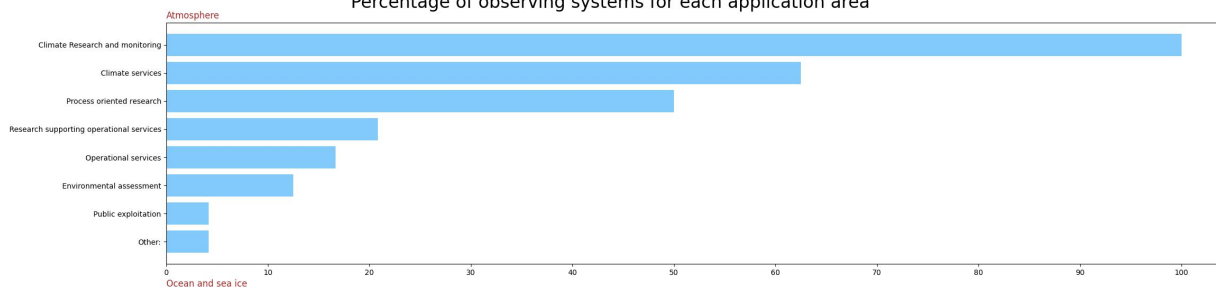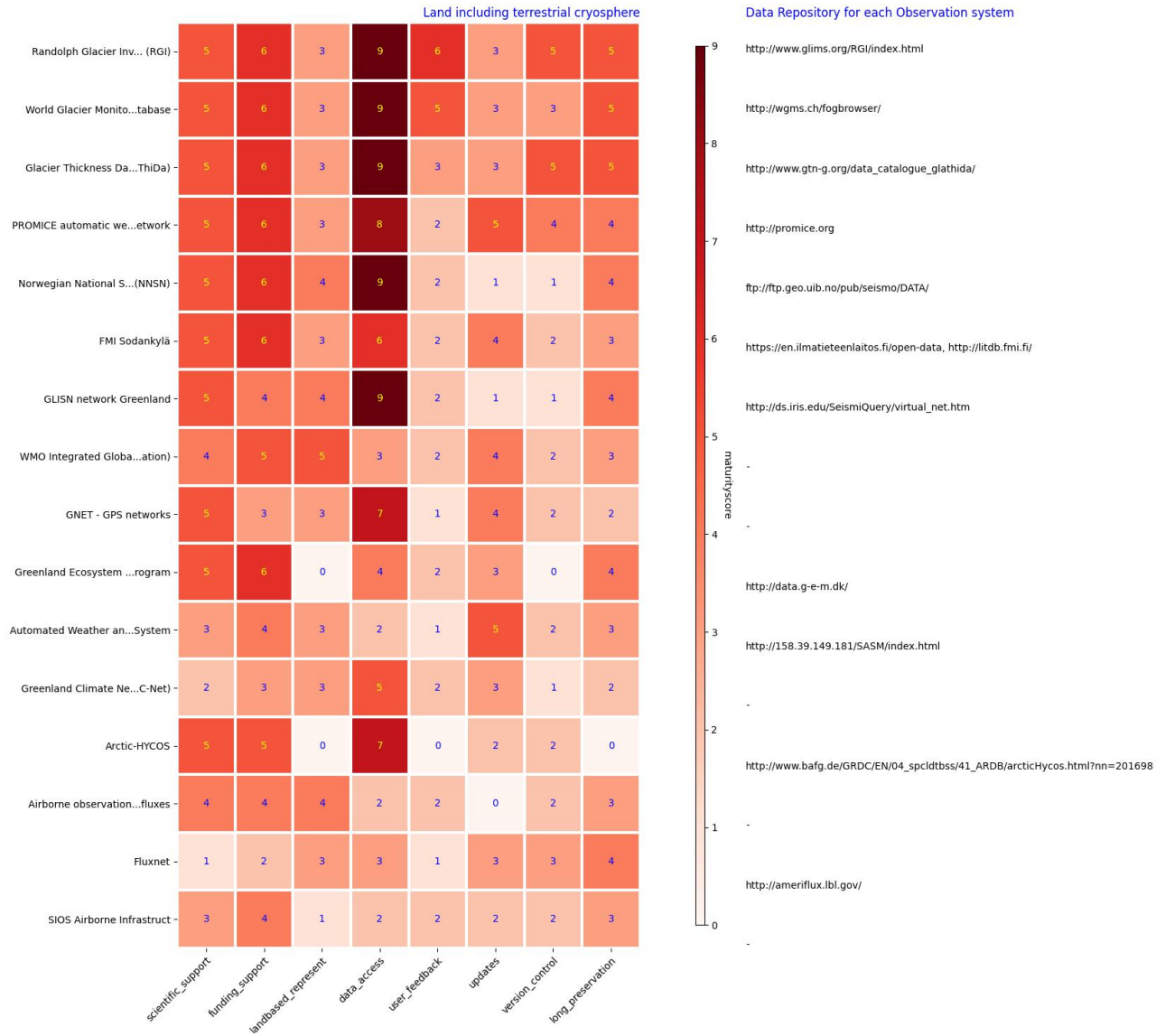
ARCMAP survey application

- **ARCMAP** planned extensions
  - Enhance map component and integrate in iAOS Portal

  - Develop new indicators and improve presentation capabilities further
  - Work with other projects and initiatives to develop exchange protocols for observing assets metadata
  - Ingest data from Russian and Chinese INTAROS partners

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ARCMAP survey application

Open issues

- ***Engaging external institutions*** in the assessment
  - Arctic Mapping focus on marine data (Norwegian institutions)
  - What about other spheres, other countries?
- ***Exchange*** of sensor/platform/network descriptions with external systems
  - Arctic Observing Viewer (AOV)
  - SIOS Observation Facility Catalogue
  - Use WIGOS (WMO Integrated Global Observing System) metadata standard?
- ***Data license***
  - What data to share with e.g. AOV or SIOS?
  - How to protect our investment? (and remain FAIR...)
  - Can some parts be shared openly? E.g. observing system name, parameters measured, location, time period, owner (institution)
  - What parts should be restricted (e.g. name, email - ref GDPR; assessment - the "core" of the survey)

2020-6-3

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Roadmap input

Data management

- base input on (revised) D1.6 Data Governance Framework, WIGOS, GEO, GEOSS, ENVRI-FAIR, SeaDataNet, SIOS

- *recommendations for standard data formats* for each sphere

- formats which can embed metadata inside file w data preferred

- still sphere/domains where standards are missing, e.g. for mooring data

- need to revive the Data Providers Working Group

- formats + best (common) practices for data processing and quality control

- have collected some standards / documents (in googledocs folder)

- *recommendations for data repositories*

- must provide DOI, and help desk/email support

- must have long-term funding

- documented procedures for data ingestion and curation, certified?

- *recommendations for best (common) practices*

- contribute to *operationalization of data delivery chain*

2020-6-3

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Roadmap input

iAOS Portal

- must ***build on INTAROS Data Catalogue***

     - several WP5 deliverables can provide material

     - technological solution (CKAN) is mature and widely used; many "plugins" available for reuse/modification

- extend with ***harvested metadata from other repositories***

- add ***new features***, e.g. data collections, a service catalogue

- ***run services*** through WPS (Web Processing Service)

- new sections can be added on tutorials, useful software tools

- documents, e.g.

- ENVRI-FAIR D5.1 Requirement analysis, technology review and gap analysis of environmental research infrastructures

- ENVRi-FAIR D8.1 Atmosphere subdomain FAIRness Assessment

- ENVRI-FAIR D9.1 Marine subdomain FAIRness roadmap

- ENVRI-FAIR D9.2 Marine subdomain implementation plan

availble from https://envri.eu/deliverables/

2020-6-3

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