

SESAR

Registering Samples with SESAR

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CZ HUB Data Management Mini Workshop
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Agenda

- Motivations for sample management
- What is an IGSN
- Introduction to SESAR
- Demo
- Discussion/Questions

Why Talk About Sample Management?

Samples are fundamental research products and research resources

Samples need to be Findable, Accessible, Interoperable, & Reusable (=FAIR) for the same reasons that data and software need to be FAIR

- Open, transparent, and reproducible science
- Broader impacts and return on investment

Following best practices in sample management allows you to

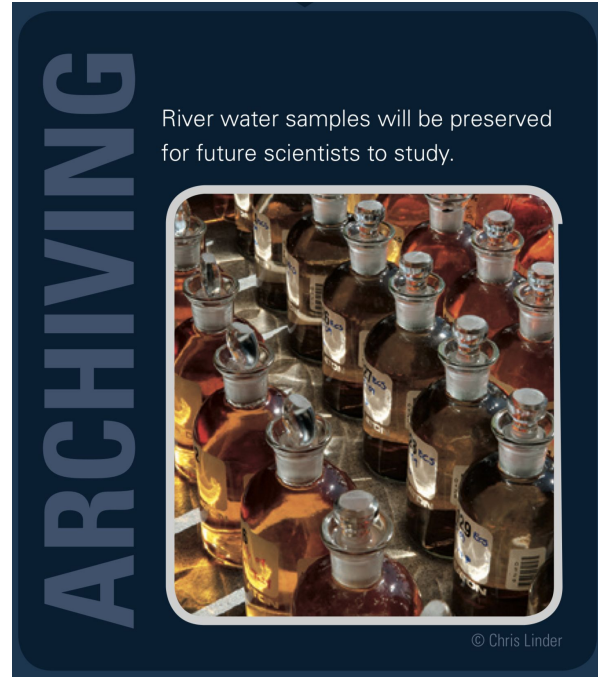
- Work more efficiently with samples (track, share, and cite samples)
- Grow the scientific impact of the samples

The Need for FAIR Samples

“Maybe ten years from now, you want a sample of 2010 Fraser River water. Where do you go? How do you get it? ...

... I would give a lot for a 1930 or 1960 water sample from the Mississippi! But it’s gone.”

From “RiverQuest – Sampling the world’s rivers to assess our planet’s health” by Kate Madin



Why CZNet Needs to Talk about Samples

NSF data policy includes samples!

“All NSF proposals must include a document of no more than two pages uploaded under “Data Management Plan” in the supplementary documentation section of the proposal. This supplementary document should describe what data/samples will be collected, what analyses will be done, and how the project will provide open and rapid access to samples, data, derived data products (e.g., models and model output), and other information on the project during and after the project's completion.”

Sharing samples across clusters can augment scientific insights

ENABLING FAIR DATA PROJECT

[HOME](#) / ENABLING FAIR DATA PROJECT

Individual Researchers will strive to:

- Make research outputs FAIR and, whenever possible, open by depositing research outputs (e.g., data, software, physical sample information, etc.) in trustworthy, community-accepted, FAIR-aligned repositories that support:

- Cite data, software, physical samples, and other products created or reused for your research in your publications.

- Persistent identifiers for data (and other research outputs as is possible) and consistently using these in citations.
- Licenses for data (and other research outputs as is possible) that is as open as possible to enable the widest potential reuse.
- Cite data, software, physical samples, and other products created or reused for your research in your publications.
- Include a data availability statement in your publication to make it clear where the data (and other research outputs as is possible) that supports the paper can be accessed along with any other access information.
- Prepare, use, and manage data management plans for your data and other research outputs. Keep the plan updated as research progresses.
- Educate colleagues in practices that enable open and FAIR research outputs.
- Support development of open and FAIR standards and practices in your institutions and organizations, and in scholarly publishing as authors, reviewers, and editors.

Requirements for FAIR Research Outputs

- unique and persistent identifiers
- metadata appropriate to assist discovery
- citation in a form equivalent to other scholarly outputs.
- accessible through a standard, web-based protocol (technical interoperability)
- provenance information
- usage license
- well curated & persistently accessible
- linked securely to associated publications and other resources.

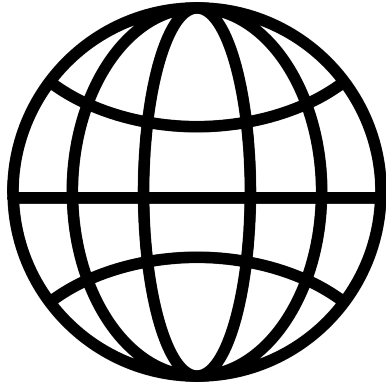
Requirements for FAIR Research Outputs

- unique and persistent identifiers ↗ International Generic Sample Number (IGSN)
- metadata appropriate to assist discovery ↗ SESAR metadata profiles
- citation in a form equivalent to other scholarly outputs.
- accessible through a standard, web-based protocol ↗ SESAR web services
- provenance information ↗ SESAR metadata profiles
- usage license
- well curated & persistently accessible ↗ SESAR metadata catalog & profile pages
- linked securely to associated publications and other resources. ↗ IGSN & EarthChem

IGSN is a globally unique, persistent identifier for samples

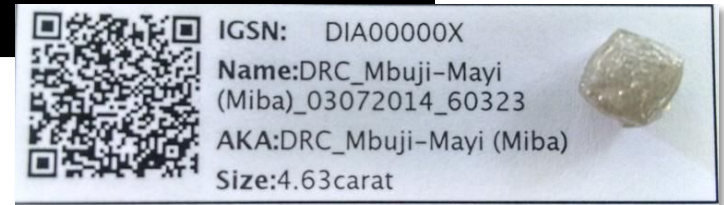
10M sample IDs issued

Community demand to scale to billions to support unique identification and discoverability of samples and collections



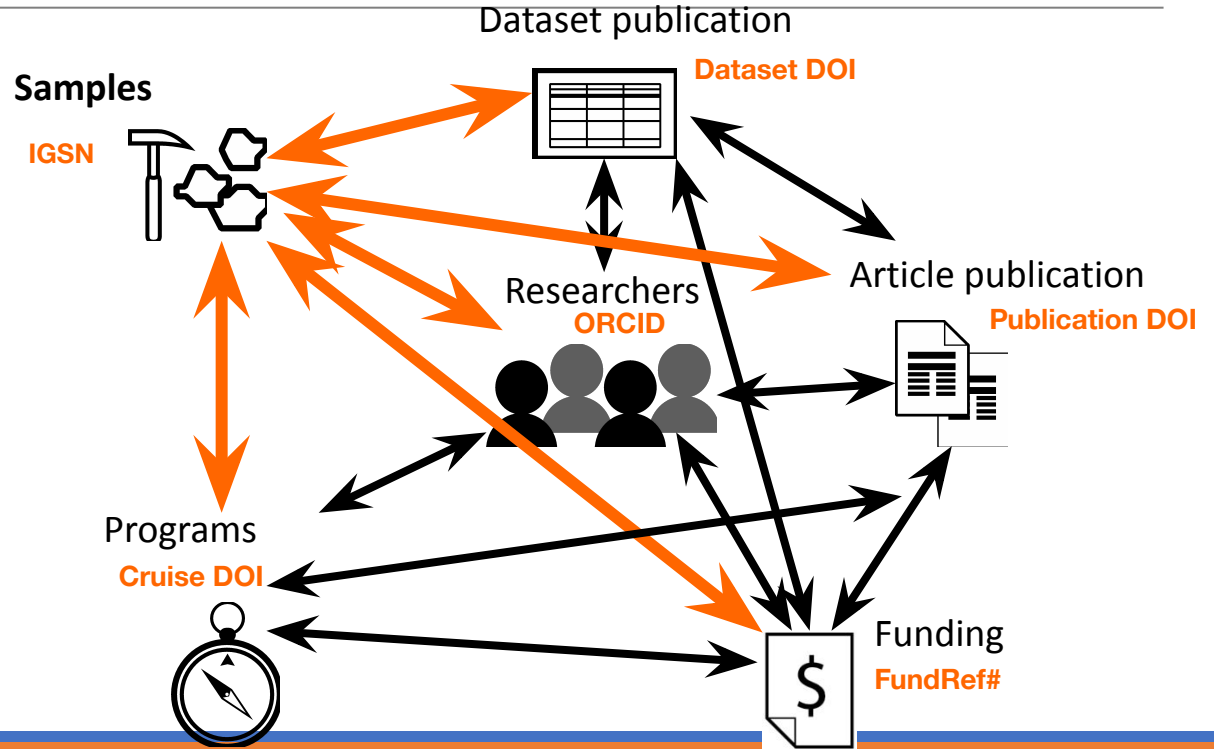
Global participation
Adoption in geosciences driving interest in archaeology, biodiversity, materials science, genomics, planetary sciences

Value
Combine leadership in PID registration technology, core metadata, and communities of practice



Best Practice for Sample Identification: IGSN

- Locate (Find)
- Access
- Link (Interoperate)
- Cite

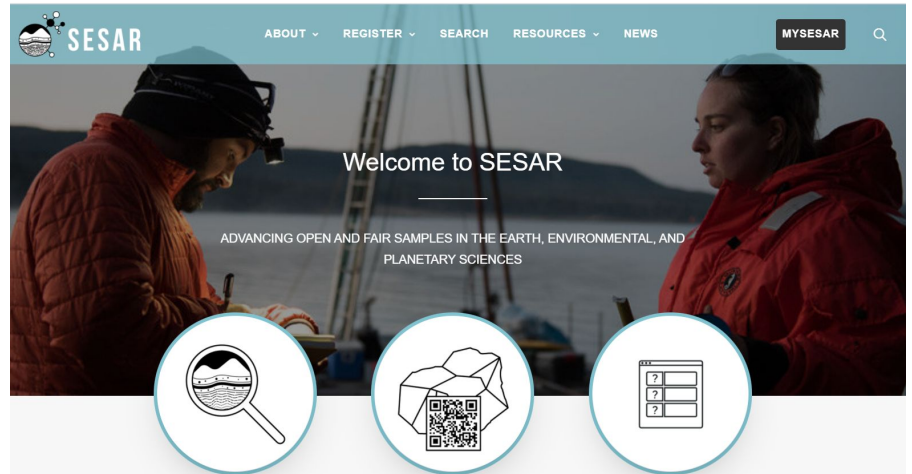


What is SESAR?

SESAR is a community platform that helps make samples more discoverable, accessible, and reusable, and connects samples with the knowledge ecosystem derived from them.

Primary services

- Metadata management system
- Registration of sample metadata and minting of IGSN
- Catalog for discovery/access



www.geosamples.org

Management System for Sample Metadata

The screenshot shows the MySESAR user interface. At the top is a navigation bar with the following items: Back to SESAR Home, My Home (active), My Samples, Shared Samples, My Groups, Register/Update Samples, Transfer Ownership, Search, My Account, and Help. Below the navigation bar is a 'My Home' section with a welcome message for Sarah Ramdeen. There are three main content areas: REGISTRATION, SAMPLES, and MY ACCOUNT. The REGISTRATION area lists actions like 'Register an individual sample' and 'Download batch registration template'. The SAMPLES area lists actions like 'Search sample catalog' and 'View/Edit my samples'. The MY ACCOUNT area lists actions like 'Edit my account' and 'Transfer my samples to another user'. Below these is a 'Pending Batch Registrations' section with two entries. At the bottom is a 'My Samples' section showing a total of 588 registered samples and a list of sample types with counts. On the right side, six callout boxes point to specific features: 'Register Sample metadata (individually and in bulk)', 'View and Edit Metadata', 'Bulk update Metadata', 'Upload files or images', 'Manage permissions and access', and 'Export metadata into EarthChem Library templates'.

MySESAR

Back to SESAR Home My Home My Samples Shared Samples My Groups Register/Update Samples Transfer Ownership Search My Account Help

My Home

Welcome, Sarah Ramdeen

REGISTRATION

- > Register an individual sample
- > Download batch registration template
- > Upload my batch samples
- > Update my existing samples profile

SAMPLES

- > Search sample catalog
- > View/Edit my samples
- > View/Edit shared samples
- > View/Edit my groups
- > Upload files or images to samples

MY ACCOUNT

- > Edit my account
- > Transfer my samples to another user
- > Set permissions for my user code

Pending Batch Registrations

There is a total of 2 batch registration(s) awaiting processing

- batch_IE753_983_1605541766.xls submitted on 2020-11-16 15:49:26Z
- batch_IESER_934_1605552543.xls submitted on 2020-11-16 18:49:03Z

My Samples

You have a total of 588 registered samples in SESAR.

- 📁 9 Grab
- 📁 1 Hole
- 📁 13 Core
- 📁 1 Core Half Round
- 📁 25 Core Piece
- 📁 1 Core Sub-Piece
- 📁 1 Dredge
- 📁 497 Individual Sample

Register Sample metadata (individually and in bulk)

View and Edit Metadata

Bulk update Metadata

Upload files or images


Manage permissions and access

Export metadata into EarthChem Library templates

IGSN registration

As part of our registration services we:

- Provide IGSN during the sample registration process
- Maintain metadata profile pages that IGSN 'resolve' to
- Collect and maintain descriptive metadata unique to the SESAR community

IGSN: IAC000009    



KI-04 hand sample.JPG
(primary image)



IGSN: IAC000009
Sample Name: KI-04-112710
Other Name(s):
Sample Type: Individual Sample
Parent IGSN: Not Provided

Description	
Material:	Rock
Classification:	Igneous>Volcanic>Mafic
Field Name:	basanite
Description:	Xenolith-bearing mafic lava with large (1cm) crystals. Low vascularity.
Age (min):	Not Provided
Age (max):	Not Provided
Collection Method:	rock hammer
Collection Method Description:	Not Provided
Size:	5 kg
Geological Age:	Not Provided
Geological Unit:	Not Provided

Catalog for Discovery and Access

The SESAR Catalog Search allows users to:

- Search the SESAR catalog by geospatial information, sample type, sample classification, archive, and other criteria.
- View individual sample profiles.
- View samples locations on maps.
- Download lists of samples.

Sample Search

Set Location: Clear Not set.

Set Classification: Clear Not set.

Field name (informal classification): search

Set Name/IGSN: Clear Not set.

Sample Name/Number: equals IGSN: equals
Search by multiple IGSNs: (Copy/Paste your sample IGSNs here. The IGSNs need to be comma ", " separated.)
 search

Set Registration Dates: Clear Not set.

Registration date between and search

Advanced Settings: Clear Not set.

Registrant: View list
Enter name (full or partial) of the person that registered the sample. Example: John Smith

Collector: View list
Enter name (full or partial) of the person who collected the sample. Example: John Smith

Archive: View list
Enter name (full or partial) of the repository where the sample is archived. Example: Lamont-Doherty Earth Observatory (Note: Names might be given as acronyms, e.g. WHOI for Woods Hole Oceanographic Institution).

Field Program / Cruise: View list
Enter name (full or partial) of cruise, expedition, or field program during which the sample was collected. Example: TN152; OOP

Platform Name: View list
Enter name (full or partial) of ship, drill rig, submarine, or other platform that was used to collect the sample. Example: Vema; Alvin

SESAR Demo

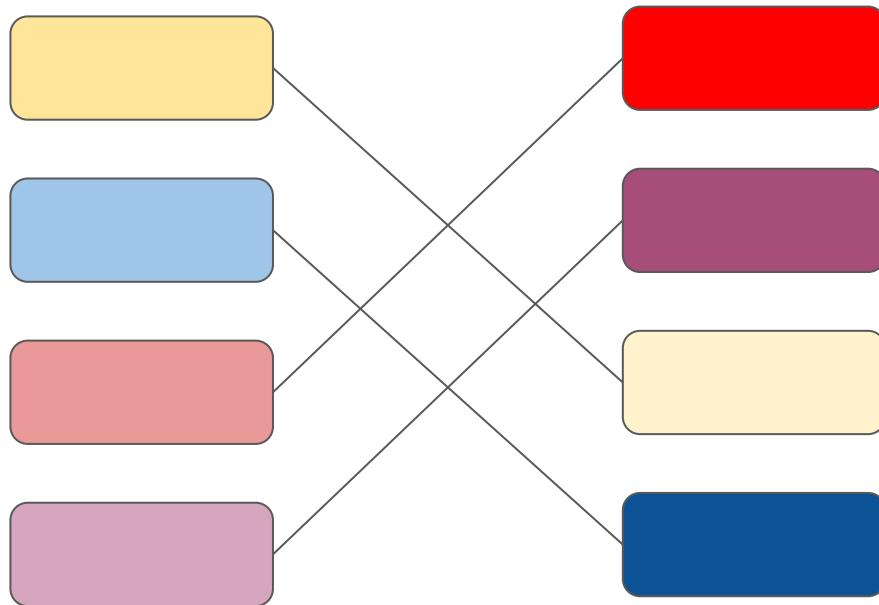
- Accessing MySESAR
- Account management
 - Creating a user code
 - Sharing a user code
- Batch template creation (for bulk registration)
- Registering a sample
 - Individual Sample
 - Batch Template
 - *Demonstration of web services can be scheduled*

Metadata mapping

AVO	SESAR
StationID	NA
SampleID	Sample Name
Latitude	Latitude
Longitude	Longitude
Geologist	Collector/Chief Scientist
DateVisited	Collection date
Volcano	Primary physiographic feature
Location	
Description	Location description
Sample	
Description	Sample description
SampleType	Field name (informal classification)
AT GMC	Current archive
	Current archive contact
Material	Material
NA	Classification
NA	Country
NA	State/Province
NA	Collection method

Repository Metadata Fields

SESAR Metadata Fields



Metadata mapping

A	B	C	D	E	F	G	H	I	J	K	L
StationID	SampleID	Latitude	Longitude	Geologist	DateVisited	Volcano	Location Description	Sample Description	SampleType	AT GMC	Material
05LSCN001	05LSCN001A	51.9585	178.51265	Neal Christina A	09/28/05	Little Sitkin	Block and ash flow s	Dense clasts from inc	Lava	yes	Whole-rock
05LSCN001	05LSCN001B	51.9585	178.51265	Neal Christina A	09/29/05	Little Sitkin	Block and ash flow s	Pumiceous juvenile	Pumice	yes	Whole-rock
05LSCN001	05LSCN001C	51.9585	178.51265	Neal Christina A	09/30/05	Little Sitkin	Block and ash flow s	Dense clast from pyn	Pyroclastic flow	yes	Whole-rock
05LSCN007	05LSCN007A	51.95359	178.48427	Neal Christina A	10/01/05	Little Sitkin	West Cove lava flow	No description avail	Lava	yes	Whole-rock
05LSJL001	05LSJL001A	51.935217	178.518933	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Large dark black bon	Bomb	yes	Whole-rock
05LSJL001	05LSJL001B	51.935217	178.518933	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Sample collected fr	Lava	yes	Whole-rock
05LSJL002	05LSJL002	51.93495	178.5172	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Sample from a clear	Lava	yes	Whole-rock
05LSJL003	05LSJL003	51.934267	178.5144	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Juvenile sample fr	Bomb	yes	Whole-rock
05LSJL005	05LSJL005	51.926133	178.517033	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Juvenile clast from fr	Lapilli	yes	Whole-rock
05LSJL008	05LSJL008	51.9225	178.526483	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Andesite lava flow, h	Lava	yes	Whole-rock
05LSJL009	05LSJL009	51.921217	178.528233	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks	Andesite lava flow s	Lava	yes	Whole-rock
05LSJL013	05LSJL013	51.904117	178.5313	Larsen Jessica Faust	09/29/05	Little Sitkin	south flanks beach	Light gray sugary an	Lava	yes	Whole-rock

Object Type:	Site	User Code:	IEAVO						
Sample Name	IGSN	Parent IGSN	Release Date	Other name(s)	Latitude	Longitude	ary physiographic feat	of physiographic f	
05AMJL001	IEAVO0002			249	51.40488	179.28092	volcano		Amchitka NW
K-11H	IEAVO0003			33797	58.0272	-155.6642	volcano		No latitude/lon Latitude/longit volcano.
K-12B	IEAVO0004			33798	58.0272	-155.6642	volcano		No latitude/lon Latitude/longit volcano.
K-12C	IEAVO0005			33799	58.0272	-155.6642	volcano		No latitude/lon Latitude/longit volcano.

Convert original data file to the SESAR Batch template

Discussion and Questions

- FAQs:
 - SESAR supports pre-registration of samples (before collection)
 - You can register a sample that has been or will be destroyed
 - Samples can be kept private for up to 2 years after registration
- Metadata mapping
 - Consider which metadata is important for search and discovery (re-use)
 - Should there be
 - CZ community specific metadata?
 - CZ Cluster specific metadata?

We are available for one on one meetings to discuss individual needs!

Thank you!

Explore the link below for more information about using SESAR

<https://bit.ly/3kVJeQ6>

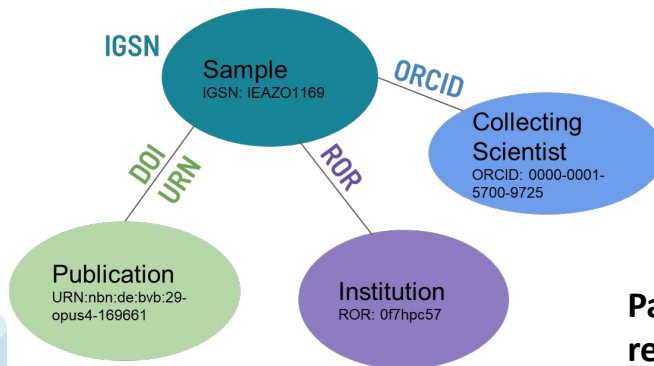
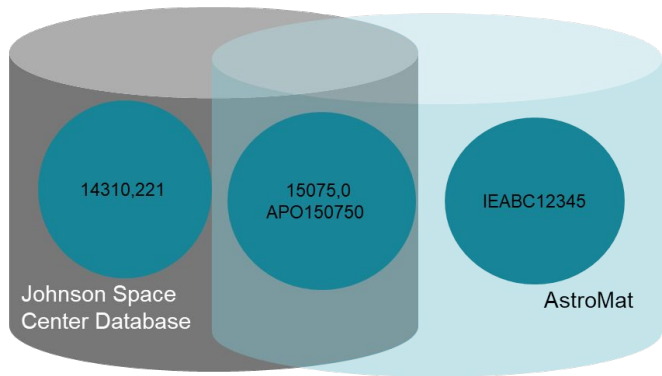
Questions? Contact us at:
info@geosamples.org



Supporting relationships

Linking to other digital objects

Same sample-different system



Parent-child relationships

