



## Using IGSN IDs in Geosciences Sample Management with RSpace: Use Case & Workflows

Vaida Plankytė<sup>1</sup>, Rory Macneil<sup>2</sup>, Rorie Edmunds<sup>3</sup>, and Noortje Haugstvedt<sup>4</sup>

<sup>1</sup>Research Space, United Kingdom (vaidaplankyte@gmail.com)

<sup>2</sup>Research Space, United Kingdom (rmacneil@researchspace.com)

<sup>3</sup>DataCite, Japan (rorie.edmunds@datacite.org)

<sup>4</sup>University Library of Tromsø, UiT The Arctic University of Norway, Tromsø, Norway (noortje.haugstvedt@uit.no)

### Overview

The International Generic Sample Number (IGSN ID), functionally a DataCite DOI, enables material samples from any discipline to be identified with a globally unique and persistent ID.

This scalable FAIRification of samples enables transparent and traceable connections between a sample and other research entities, including (sub)samples, collections, instruments, grants, data, publications, people, and organizations. In 2023, support for the registration, metadata input, and publication of IGSN IDs was incorporated into the RSpace sample management system.

After introducing IGSN IDs, we overview the use case developed in collaboration with UiT The Arctic University of Norway regarding research workflows involved in geosciences field studies, and the corresponding IGSN ID and sample management functionality required to support these research workflows.

We then present our incorporation of IGSN IDs into RSpace as part of an institutional deployment solution for FAIR samples, detailing features and their various design considerations based on researcher needs.

### Geosciences Use Case – UiT The Arctic University of Norway

A research group within the Department of Geosciences plans to assign IGSN IDs to samples collected during their 2024 field campaign in a remote Arctic area. The group needs to record basic structured sample information offline, while in the field. The institutional research data managers wish to increase sample visibility within the greater research community, ensure metadata format standardization, and facilitate metadata management by using an ELN with IGSN ID capabilities.

An offline field data collection tool, FieldMark, can be used to design powerful templates for metadata capture, and links IGSN IDs scanned from physical labels with rich metadata, including geolocation capture. Once back from the field, the sample metadata and templates, and their

associated IGSN IDs, can be imported into RSpace, preserving format.

What is more, by assigning IGSN IDs to samples as well as features-of-interest, using instrument PIDs, and linking related entities, researchers model a rich PID graph that accurately portrays these relationships.

The samples are then utilized in active research: metadata editing as well as underlying template editing, linking experimental records and materials with samples, and inclusion of optional metadata fields are supported in RSpace.

Finally, the samples can be published alongside other materials, with RSpace generating a public metadata landing page for each sample containing both IGSN ID and domain-specific metadata. The IGSN ID metadata also becomes findable in DataCite's records and API.

### ***RSpace IGSN ID Features***

We present the IGSN ID implementation in RSpace, including recent functionality:

- Assigning ROR (Research Organization Registry) IDs to an RSpace instance, automatically populating IGSN metadata with affiliation information
- Geolocation support for dynamic point, box, and polygon map previews alongside the coordinates on the public landing page
- Ability to display domain-specific sample fields on the landing page to enable comprehensive metadata sharing

As well as upcoming work:

- Integrating with other DataCite Service Providers to facilitate deposit of sample metadata into domain-specific repositories, analogous to ELN document export to repositories
- Facilitating the use of singleton samples alongside batches of subsamples, while retaining the system's ease of navigation and conceptual clarity