# FAIR WISH

# FAR Workflows to establish IGSN for Samples in the Helmholtz Association



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### Samples & Science



Samples Record Unique Events in History







Archaean zircons in Miocene oceanic hotspot rocks establish ancient continental crust beneath Mauritius

Lewis D. Ashwal 🖾, Michael Wiedenbeck & Trond H. Torsvik

Article doi:10. Samples Provide Access to the Inaccessible

### **IGSN** International GeoSample Number

A globally unique and persistent identifier for physical objects in the **Earth Sciences** 

- guaranteed to be unique via a centralized control mechanism (unique name spaces)
- resolves to virtual sample representations (sample metadata profiles) managed at federated IGSN Allocating Agents.



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Not Provided Not Provided



	Rock
n:	lgneous>Plutonic>Mafic
	gabbro, hornblende gabbro
	mafic plutonic rock



Field Name:

Description:



# **Benefits of IGSN**

- unambiguously cite and track physical samples on a global scale:
  - allows previously impossible linking of samples to data and publications,
  - allows previously impossible linking and integration of sample-based observations across data systems, and
  - paves the road towards advanced data mining of samplebased data.
- persistently link to online digital representations of samples (landing pages)
  - builds a federated global sample catalog.
  - are citable in scholarly literature

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# IGSNs close the last gap of the full provenance of research results





### IGSN e.V.

https://www.igsn.org/

- established in 2011, registered as nonprofit organization in Germany
- Members are organizations that want to provide registration and catalogue services (Allocating Agents)
  - currently 15 members,
  - 6 affiliate members and
  - 10 active Allocating Agents



#### Number of IGSN by Allocating Agent



Total = 9,698,229 registered IGSNs

## **IGSN Metadata Levels**

#### **Registration Metadata**

- IGSN
- ResourceURI
- Registrant ID
- timeStamp
- status

#### mandatory

#### Descriptive Metadata

- names
- relatedIdentifier
- description
- Registrant
- collector
- contributors
- geolocation
- resourceTypes
- materials
- collectionMethods
- collectionTime
- sampleAccess
- supplementalMeta

#### recommended



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will

- develop standardised and discipline specific IGSN metadata schemes for different samples types within the research field Earth and Environment (EaE), complementing the core IGSN metadata schema
- (ii) develop workflows to generate machine-readable IGSN metadata from different states of digitisation (from templates to databases)
- (iii) develop workflows to automatically register IGSNs and
- (iv) prepare the resulting workflows for further use in the Earth Science community.





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### Potential Impact

- The possibility to include physical samples in modern data management is a major step and closes the last gap of the full provenance of research results (FAIR Samples).
- All Helmholtz Centres within the DataHub (EaE) and several partner universities in NFDI4Earth showed strongest interest in using IGSNs. This project is thus an important building block for the widespread use of IGSNs in Germany.
- Structured templates, developed in this project for different sample types, offer the opportunity to bridge gaps between scientists, data centres and the technical IGSN registration.
- Through the large variety of samples addressed in this project, it is possible to both develop and establish standards for different samples types and to evaluate their effectiveness.



