Implementing the International Geo Sample Number (IGSN) in Australia

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What is IGSN and what does it do?

• Provides identifiers that are guaranteed to be unique via a hierarchical governance system (like assigning IP addresses)
• Facilitates internet-based discovery and access to physical samples:
  • Web applications and programmatic access to sample metadata catalogues
  • Networks with sample repositories and data centres
• Ensures preservation of, and access to sample data
• Aids in the identification of samples in the literature and of data derived from them

• Try it out: [http://igsn.org/ICDP5054ESYI201](http://igsn.org/ICDP5054ESYI201) or [http://igsn.org/AU1101](http://igsn.org/AU1101)
IGSN in Australia

• IGSN currently has three members in Australia:
  • CSIRO
  • Geoscience Australia
  • Curtin University
• Joint governance of the use of IGSN in Australia.
• Community building (e.g. workshops) to introduce sample identifiers to other institutions and other science disciplines.
CSIRO became a member of IGSN in 2013.

IGSN are currently used for:
- Collection of the Australian Resources Research Centre
- Mineral Reflectance Spectra Reference Collection
- Capricorn Distal Footprints minerals exploration project

Future use cases:
- Soils collection
- Insect collection
Tracking the sample life cycle

IGSN is used in CSIRO for tracking samples and to support sample logistics.

• In the field: unambiguous identification, metadata capture with mobile app.
• In the lab: identification and tying data to samples.
• Storage: identify collections and samples in storage, catalogue, manage sample logistics.
Linking Samples with Data and Publications

Specimen (Rock Store)

Spectrum (Data Access Portal)

Publication

cross-reference

cross-reference
IGSN @ Geoscience Australia

- GA became a member of IGSN in 2014.
- IGSN are currently used in the GA collection.
- 1.6 Million samples registered.
- GA is the IGSN Registration Agent for the geological surveys of the Australian states and territories.
Curtin University became a member of IGSN in 2015.
IGSN is currently used in the John de Laeter Centre for Geochemistry.
IGSN and data management are supported by the Curtin University Library.
JdLC, CSIRO, Univ. Western Australia and Geol. Survey of Western Australia work together in the Natural Resources Research Precinct.
Governance Model

• The governance model of IGSN is based on hierarchical delegation.
• IGSN identifiers are registered through IGSN agents.
• Each IGSN agent is given namespaces for the registration of IGSN.
• Examples:
  • AU... Geoscience Australia
  • CS... CSIRO
  • CSCAP... CDF Project (CSIRO)
Australian IGSN Portal

• A grant from the NCRIS Research Data Services programme made it possible to develop a demonstrator for a common Australia Geo Sample Portal.

• Metadata are harvested into a common metadata portal to facilitate the discovery of samples curated by Australian IGSN members.

• Samples are described in a common metadata schema based on the international IGSN description schema.
Technical Base

- IGSN builds upon an existing technical base and community.
- IGSN are based on the Handle System.
- The IGSN technical architecture is developed in close alignment with DataCite.
- [http://igsn.github.io](http://igsn.github.io) (documentation)
- [https://github.com/igsn](https://github.com/igsn) (repository)
Samples Moving Between Institutions

• What happens when samples move from one institution to another?

• Case 1: Laboratory
  • IGSN available: The laboratory uses the already assigned IGSN.
  • IGSN not available: The laboratory assigns a new IGSN.

• Case 2: Subsampling
  • A subsample should be identified by its own IGSN. This case depends on the details of the setting.
Future Outlook

• Build a developer community around IGSN, document best practices, build reference implementations of services.
• Expand identifying and linking to objects in other domains.
• Other domains start reusing IGSN technology.
Conclusions

• IGSN was introduced in Australia through a collaboration of national labs (CSIRO), government agencies (GA) and academia (Curtin Uni).
• CSIRO, GA and Curtin Uni work together to build a community of IGSN users, develop common sample descriptions and online catalogues.
• The use of IGSN is to be expanded to novel use cases.

• General info: http://www.igsn.org
• Technical info: http://igsn.github.io
• Demo portal: http://igsn.org.au