

Data Services for Long Tail Science at the Integrated Earth Data Applications (IEDA) Data Facility

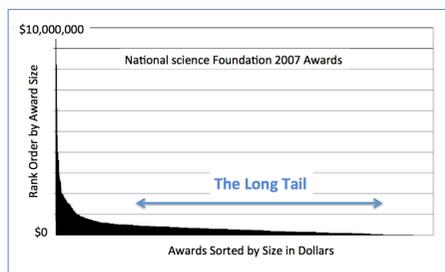
Leslie Hsu, Kerstin A. Lehnert, Suzanne Carbotte, Vicki Ferrini, Suzanne O'Hara, J. Douglas Walker, Robert Arko; Lamont-Doherty Earth Observatory, Columbia University, www.iedadata.org

What is IEDA?

IEDA, or **Integrated Earth Data Applications**, is a community-based data facility funded by the US National Science Foundation (NSF) to support, sustain, and advance the geosciences by providing data services for **observational solid earth data from the Ocean, Earth, and Polar Sciences**. IEDA is a partnership between EarthChem and the Marine Geoscience Data System.



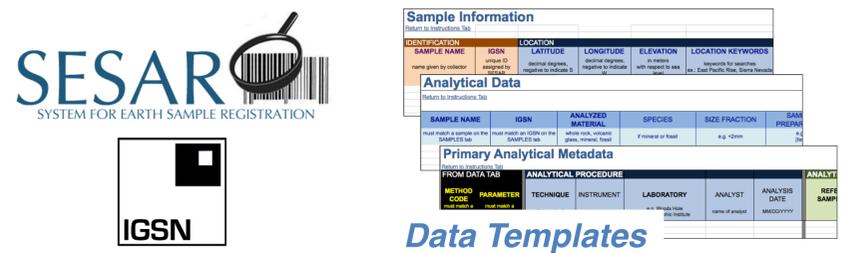
Long Tail Science encompasses that done by individual researchers and relatively small labs. They collectively produce the bulk of scientific knowledge, but due to their heterogeneous nature, tend to have the least developed data services and systems.



3. Data Management and Reporting

IEDA offers simple tools to help **investigators manage data and comply with funding agency data policies**.

1. The **Data Management Plan Tool** allows a user to create new plans, save, and retrieve past plans.
2. The **Data Compliance Reporting Tool** for demonstrating data products from U.S. NSF Grants
3. SESAR (System for Earth Sample Registration) is a **sample registry that distributes the International Geo Sample Number (IGSN)** unique sample identifiers.
4. **Data Templates** for organizing and documenting analytical lab data



1. Data Access

IEDA operates and **maintains a suite of data systems and data collections** that provide access to a wide variety of solid earth data from the marine, terrestrial, and polar environments.

Catalogs, maps, and data are delivered through standard programmatic interfaces, and a variety of OGC-enabled clients can be used to **directly access some of our content through web services**.

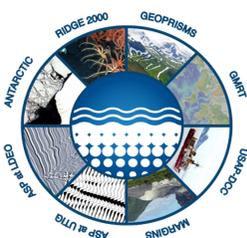
Sample-based data

- EarthChem Portal, PetDB, Geochron

Sensor-based data

- MGDS Data portals, Global Multi-Resolution Topography Portal

Images, videos, photos, diagrams



2. Data Analysis

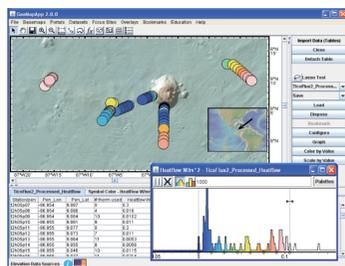
IEDA develops and **supports tools that facilitate data access and visualization, and that provide analytical capabilities to promote the use of data** within the scientific community and for educational purposes.

Visualization tools:

- Create maps, plots, animations
- GeoMapApp
- Virtual Ocean
- EarthChem Portal

Data Integration Tools:

- Synthesize, compare
- PetDB
- SedDB



GeoMapApp allows you to import, plot, and analyze your own data on a global topography and bathymetry map.



PetDB facilitates comparison of geochemical values for samples from all around the world.

Data Management Plan Tool

The screenshot shows a web form for creating a Data Management Plan. It includes sections for 'Proposal Information' (Lead PI, Institution, Project Title), 'NSF Submission' (NSF Program Info, Submission Deadline), and 'Data Acquisition/Processing Summary' (Overview, Data Description, Includes field work, Will existing data/samples be used?, Data Analysis Summary, Proposed Data Products). There are 'Save and Continue' and 'Save and Exit' buttons.

Data Compliance Reporting Tool

NSF Award Info

Award Title: Collaborative Research: A MCS Investigation to Study Axial Crustal Structure and Alteration of Upper Crust at the Juan de Fuca Spreading Center
Investigator(s): John Diebold, Suzanne Carbotte
Award ID: 0002488

Expedition/Completion	Data Type(s)	# of Data Instrument Sets	Investigator(s)	Release Information	Citation
EW0207	Geophysical	1	Maurice Ewing Gravimeter Suzanne Carbotte, Maurice Ewing	Released	Not Supplied
EW0207	Navigation:Primary	2	Maurice Ewing Navigation Suzanne Carbotte, Maurice Ewing	Released	Not Supplied
EW0207	LayerThickness:Crust LayerThickness:Seismic:Layer2A Seismic:Anchorage:MCS Seismic:Navigation Seismic:Reflection:MCS Seismic:Segy:History:MCS Seismic:ShotTimes:MCS Seismic:ShotTimes>Status	9	Seismic:MCS Alistair Harding, Kent, Graham Nedimovic, Miaden	Released	Canales, et al., 2005 Canales, et al., 2006 Carbotte, et al., 2008 Carbotte, et al., 2009 Nedimovic, et al., 2005 Van Arck, 2007 Nedimovic, et al., 2008
EW0207	Bathymetry:Swath	3	Maurice Ewing Sonar:Multibeam Suzanne Carbotte, Maurice Ewing	Released	Not Supplied

Collection ID	Data Type(s)	Data System	Instrument Info	Investigator(s)
EW0207	Bathymetry:Swath	NOAA:NGDS	Maurice Ewing Sonar:Multibeam	Carbotte, Suzanne
EW0207	Seismic:Reflection:MCS	UTIG	Seismic:MCS	Carbotte, Suzanne
EW0207	Underway Data and Final Navigation R2R			

4. Data Publication

IEDA offers **data publication services that registers primary scientific data in the DOI system**, making them citable as publications with attribution to their investigators as authors. IEDA assigns DOIs to dataset. Long-term availability is guaranteed through a collaboration with Columbia University Digital Libraries.

IEDA DOI Search

Identifier:	10.1594/IEDA/100054
Title:	Chemical composition of subducting sediment and its consequence
Date Available:	2010-12-31
Creator (Lead):	Plank, Terry
Format:	application/vnd.ms-excel
Download:	GRL # 66
Data Type:	Geochemistry
IsCitedBy:	doi: 10.1016/S0009-2541(97)00150-2

Search Data Sets Registered with DOIs
Manheim, F., et al. ferromanganese crusts in the world ocean 2011-04-16 View Data Download Data
Michael, Peter, et al. Gakkel Ridge Basalt Geochemistry (H2O, CO2, Cl, F, S, Ti) 2011-09-30 View Data DOI Details Download Data
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Reagan, Mark K., et al. Major Element, Trace Element, and Isotopic Data for Samples From Shinkai 6500 Dive Sites and DSDP Sites 447, 456, and 459a 2012-02-15 View Data DOI Details Download Data
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Reves-Sohn, Robert, et al. Seismic layer 2A thickness from East Pacific Rise (EPR) 9°50N 2006-04-17 View Data DOI Details Download Data
Reves-Sohn, Robert, et al. Microseismicity earthquake catalog from East Pacific Rise (EPR) 9°50N (1992) 2007-04-19 View Data DOI Details Download Data