

## README: Introduction

Marine geoscience is increasingly interdisciplinary and the integration and coordination of research activities plays a vital role. As such, the sharing of data and of the information that describes these data (“metadata”) serves two key functions for the mutual benefit of the scientific community: it improves the ability of researchers to learn of existing data sets and it helps to ensure the long-term preservation of data collected through tax-payers’ money.

The accompanying packet of digital forms has been developed by the data management group for the Ridge 2000 and MARGINS programs to facilitate the basic data and metadata reporting requirements defined in the published Data Policy for these programs. Investigators funded by Ridge 2000 and MARGINS are required to submit to the Marine Geoscience Data Management System (mgDMS) at Lamont Doherty Earth Observatory the data and metadata as described below. However, for the benefit of the wider earth sciences community, we encourage all investigators – from *any* marine geoscience experiment – to follow these reporting requirements. The packet of forms described here is available at [www.marine-geo.org/metadata\\_forms.html](http://www.marine-geo.org/metadata_forms.html)

This **README** contains the following four sections:

- i) **Timeline of PI responsibilities** – what PIs must report/submit and by when.
- ii) **Metadata** – how to submit metadata, cruise reports, cruise navigation.  
Discussion of format for latitude/longitude, definitions of stations and samples during vehicle dive operations.
- iii) **Data Sets** – how to submit data sets.
- iv) **Contact Us** – how to contact mgDMS.

### i) README: Timeline of PI responsibilities

**60 days:** Investigators funded under the Ridge 2000 and MARGINS initiatives are required to submit within sixty (60) days following the end of the field program:

- cruise metadata, science reports, trackline navigation, vehicle navigation
- data inventories, sample and station locations for their field program.

See section **README: Metadata**.

**2 years:** Investigators funded under the Ridge 2000 and MARGINS initiatives are required to submit all data collected during their field program within six (6) months to two (2) years following the end of the field program. See section **README: Data Sets**.

## ii) README: Metadata

Investigators funded under the Ridge 2000 and MARGINS initiatives are required to submit cruise information and data inventories (metadata), cruise reports and final cruise navigation for their field programs within **sixty (60)** days following the end of the field program. These are to be submitted to the Ridge 2000 and MARGINS database system, part of the Marine Geophysical Data Management System (mgDMS) at Lamont-Doherty Earth Observatory. Submissions should include:

- Cruise metadata: using the standardised forms contained in this packet.
- Cruise reports: as a file in PDF or Word format.
- Final, cleaned cruise navigation: as a documented ASCII file, e.g. mgd77 format.
- Vehicle navigation.

### A note about latitude and longitude

Based upon the feedback we have received, we ask for coordinates to be given in whole degrees and decimal minutes. However, if you prefer to use decimal degrees, simply edit the relevant column heading and make sure that you specify five or six decimal places. (For **B12: Vehicle Dive Samples**, please specify at least six decimal places.)

### A note about Alvin dives

The NDSF group at WHOI already creates comprehensive metadata to which we can link, so we do not require you to provide this information. However, if you use Alvin to collect any biology, rock, or fluid samples please ensure that you fill in form **B12: Vehicle Dive Samples**.

### A note about submersible vehicle dive station and sample numbers

For mgDMS database terminology, consider the following example to see how we classify stations and samples. Alvin descends through the water column, parks at one spot, and collects eight different specimens from various places around the base of a vent. Here, we consider there to be **one** station at which **eight** individual samples were collected. Alvin is then moved to a location not too far away and collects three fluid samples. This would comprise a **second** station at which **three** samples were obtained. For station nomenclature, we encourage researchers to use names of the form dive#\_station#\_SampleType\_sample#, for example: 3960\_21\_bio\_4.

### A note about log sheet columns

Add additional columns to the right-hand edge, as needed, for your field program. Ignore any columns that do not apply.

On the following page is listed the standardised metadata forms that are included in this packet.

**Standardised metadata forms enclosed in this packet:**

The Principal Investigator/Chief Scientist is asked to complete each of the mgDMS *overview\_forms*, along with the relevant mgDMS log sheet forms (ignore any columns that do not apply) from the *log\_sheets* folder. Submit the completed forms to mgDMS.

<u>Folder</u>	<u>File name</u>	<u>Format</u>
	README (this file)	Word
<i>overview_forms</i>	A01_expedition_overview	Word
	A02_science_party	Word
	A03_data_inventory	Word
<i>log_sheets</i>		
Station activities/operations:		
CTD	B01_station_log_ctd	Excel
Dredge ( <b>with B10</b> )	B02_station_log_dredge	Excel
Rock Core ( <b>with B10</b> )	B03_station_log_rock_core	Excel
Transponder	B04_station_log_transponder	Excel
Float	B05_station_log_float	Excel
Bottom instruments (OBS, marker, etc)	B06_station_log_bottom_instruments_markers	Excel
Expendable probes: XBT, etc	B07_station_log_expendable_probes	Excel
Samples (non-dive)*:		
Biological samples*	B08_sample_log_biology *	Excel
Fluid samples*	B09_sample_log_fluid *	Excel
Rock ( <b>with B02 or B03</b> )*	B10_sample_log_rock *	Excel
Sediment cores*	B11_sample_log_sediment_core	Excel
Samples from vehicle dives (e.g. from Alvin, JasonII dives):		
All dive sample types	B12_vehicle_dive_sample_log	Excel
Vehicle/instruments operations (e.g. Alvin, JasonII, TowCam):		
DSV--HOV--AUV--ROV	B13_vehicle_dive_log	Excel
Towed instruments e.g. TowCam, DSL120	B14_line_log_towed_instruments	Excel
Multi-Channel Seismic lines:	B15_line_log_multi_channel_seismics	Excel

\* **Note:** for all rock, fluid and biological samples collected from vehicles and platforms such as Alvin, JasonII, ABE, TowCam, use the **B12\_vehicle\_dive\_sample** log sheet.

Examples:

On a multibeam mapping cruise with XBT launches, the Chief Scientist/Investigator will complete the three *overview\_forms* along with the **expendable probes** (B07) log sheet.

On a dredging cruise, the three *overview\_forms* and the **dredge** (B02) and the **rock sample** (B10) forms are completed.

An Alvin cruise collecting biological and fluid samples from vents requires that the three *overview\_forms* and the **dive sample** (B12) and **dive operations** (B13) forms be submitted.

**Tectonic setting vocabulary** for use on the **A01 Expedition Overview form** and the **B02\_station\_log\_dredge** and **B03\_station\_log\_rock\_core** log sheets:

Abyssal_hill	Ocean_island
Aseismic_ridge	Off-axis_spreading_center (crust >1Ma)
Back-arc_basin	Old_oceanic_crust
Back-arc_volcano	Ridge-transform_interscetion
Failed_rift	Seamount
Forearc	Spreading_center (crust <1Ma)
Fossil_ridge	Trench
Fracture_zone	Trench_inner_wall
Incipient_rift	Trench_outer_wall
Intra-transform_spreading_centre	Triple_junction
Oceanic_plateau	

## SESAR Rock Sample Registry - overview

Rock samples from dredges, rock cores, and submersible dives are increasingly referenced according to their unique International Geo Sample Number (**IGSN**), obtained from SESAR, the Solid Earth Sample Registry ([www.geosamples.org](http://www.geosamples.org)).

Additionally, the sampling event – the dredge, rock core or sediment core – from which the samples are obtained is also assigned an IGSN number.

### a) Rock sample IGSN numbers

The IGSN numbers are obtained by registering the rock samples with SESAR. Although IGSN numbers may be pre-assigned for a cruise, in general these numbers will not be known until the samples are registered post-cruise. Requirements of the PI to register their rock samples in the SESAR database will be satisfied upon completion of the metadata fields on the rock sample forms **B10** and **B12** since this information allows us to automatically register on behalf of the cruise PI the rock samples in SESAR.

### b) Sampling event IGSN numbers

In addition to each rock sample having a unique IGSN number, the dredge, rock core or sediment core from which the samples were collected is also assigned a unique IGSN number. As with the sample IGSN numbers, an IGSN number for a dredge or rock/sediment core is also obtained by registering the sampling event with SESAR. Requirements of the PI to register their rock sampling events in the SESAR database will be satisfied upon completion of the metadata fields on the dredge, rock/sediment core forms **B02**, **B03** and **B11** since this information allows us to automatically register on behalf of the cruise PI the rock samples in SESAR.

The registered IGSN numbers will be added to the mgDMS database. Note: A three-character user code is assigned to all PIs registered with SESAR. Any PIs who wish us to automatically register samples or sampling events using this user code must send this code to mgDMS.

## SESAR Rock Sample Registry – standardised BGS rock classification

The SESAR database uses three levels of standardized rock sample classification. Level 1 classification is at the “Igneous”, “Metamorphic”, “Sedimentary” level. For virtually all cruises using these metadata forms, this level 1 entry will be “Igneous”. Level 2 refines the classification (see below) and level 3 is the name of the rock type given in the field, such as basalt, gabbro, and so on.

<u>Level 1</u>	<u>Level 2</u>	<u>Level 3 (examples)</u>
Igneous	Felsic, volcanic/subvolcanic	
	Felsic, plutonic	
	Intermediate, volcanic/subvolcanic	Andesite
	Intermediate, plutonic	
	Mafic, volcanic/subvolcanic	Doleritic basalt
	Mafic, plutonic	Gabbro
	Exotic, volcanic/subvolcanic	
	Exotic, plutonic	
	Ultramafic, volcanic/subvolcanic	
	Ultramafic, plutonic	Peridotite

## ii) README: Data Sets

We encourage all investigators to submit to us their digital data for incorporation immediately following a cruise. These data will be held with public access restrictions until explicit permission for public release is obtained from the investigators, normally following the timetables defined in the Ridge 2000 and MARGINS data policies.

Investigators funded under the Ridge 2000 and MARGINS initiatives are required to submit all data collected during their field program within **six months** to **two** years following the end of the field program depending upon the data type (see the Ridge 2000 and MARGINS Data Policy documents).

Digital data are to be submitted to the Ridge 2000 and MARGINS databases at mgDMS unless an alternative standard national data repository exists (e.g. NGDC, IRIS, UNAVCO, PetDB, GeoROC). If data are submitted to an alternative repository, mgDMS must be notified of this submission to ensure proper cross-cataloguing.

Sample analyses – analyses of rock, fluid, biological and sediment samples – are to be submitted to the appropriate national digital repository (e.g. PetDB for rock analyses, SedDB for sediment geochemistry) by the end of the grant period. If no such national analyses repository exists the analyses should be sent directly to mgDMS.

For further information on these submission requirements, please refer to the Ridge 2000 and MARGINS data policy documents that are included in this packet.

## iv) Contact Us

Send completed metadata forms, cruise reports, navigation files, and digital data files (and feedback!):

By e-mail to: [info@marine-geo.org](mailto:info@marine-geo.org)

Or on digital media (CD/DVD, USB memory key, etc) by mail to:

Marine Geoscience DMS  
c/o R. Arko  
Lamont-Doherty Earth Observatory  
61 Route 9W  
Palisades  
NY 10964.

Check the web for updated metadata forms at [www.marine-geo.org/metadata\\_forms.html](http://www.marine-geo.org/metadata_forms.html)

Thanks!