



Marine Geoscience  
Data Management System  
[www.marine-geo.org](http://www.marine-geo.org)

## Marine Geoscience Data Management System

Strategic decision in 2003 to consolidate five closely-related  
NSF OCE/OPP data management projects at LDEO:

*Ridge 2000 Data Management*  
OCE03-28117

*MARGINS Data Management*  
OCE03-05614

*Marine Seismic Reflection Data Management*  
OCE03-26354

*RIDGE Multibeam Bathymetry Synthesis*  
OCE92-15672, OCE95-30160, OCE99-11659

*Antarctic Multibeam Bathymetry Synthesis*  
OPP02-30502, OPP04-40655

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## Key aspects of mgDMS system design:

- unified backend database, schema, and Web portal
- unified team of scientific and technical staff
- unified hardware infrastructure and system admin
- development of true cross-platform desktop application (*GeoMapApp*©) to visualize integrated data sets

## Advantages of unified system:

- eliminates redundancy; huge cost and time savings
- drives standardization and shared vocabularies
- science users appreciate single integrated portal

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## Extensive interdisciplinary collection of **Data Types**:

- seafloor topography  
(*e.g. multibeam, subbottom, sidescan imagery, cameras*)
- seismic reflection and refraction  
(*e.g. single/multi-channel, OBS/OBH*)
- underway profiling  
(*e.g. gravity, magnetics*)
- physical samples  
(*e.g. rocks, sediments, fluids, biology*)
- physical/chemical oceanography  
(*e.g. water temperature, salinity, pH, fluorescence, oxygen*)
- meteorology  
(*e.g. air temperature, winds, currents*)

Data are submitted to appropriate national repositories where such exist, or else stored locally.

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Integrated mgDMS team with diverse skills and experience:

**S. Carbotte** - *Lead Investigator*

**W. Ryan** - *Investigator*

**D. Chayes** - *Investigator*

**K. Lehnert** - *Investigator*

**K. Kastens** - *Investigator*

**J. Diebold** - *Investigator*

**A. Goodwillie** - *Project Scientist*

**W. Haxby** - *Programmer*

**R. Arko** - *Programmer*

**S. O'Hara** - *Programmer*

**A. Fishman** - *Programmer*

**R. Weissel** - *Technician*

**D. Barone** - *Technician*

**K. Goodfellow** - *Technician*

**J. Alsop** - *Technician*

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Project partners:

**PetDB** - Ocean Floor Petrology Database (*Lehnert, LDEO*)

**SedDB** - Sediment Geochemistry Database (*Lehnert, LDEO*)

**SESAR** - Solid Earth Sample Registry (*Lehnert, LDEO*)

**NGDC** - National Geophysical Data Center (*Fox, NOAA*)

**SDC** - Seismic Data Center (*Shiple, UTIG*)

**IODP** - Integrated Ocean Drilling Program (*Becker, TAMU*)

**NDSF** - National Deep Submergence Facility (*Fornari, WHOI*)

**MEEL** - Molecular Ecology & Evolution Lab (*Shank, WHOI*)

**GDC** - SIO Geological Data Center (*Miller, UCSD*)

**SDSC** - San Diego Supercomputer Center (*Helly, UCSD*)

**MMI** - Marine Metadata Initiative (*Graybeal, MBARI*)

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Focus areas for mgDMS collaboration:

adopt **controlled vocabularies** and metadata standards

- expeditions (*cruise, dive, flight, transect, etc*)
- platforms (*ship, submersible, aircraft, etc*)
- acquisition events (*line, station, etc*)
- gazetteer names (*physiographic features, cities/ports, etc*)
- personnel (*name, role, institution, etc*)

integrate data from partner repositories into **GeoMapApp**©

deploy OGC **Web Services**

- Web Coverage Services  
(*raster layers e.g. global topography*)
- Web Feature Services  
(*vector layers e.g. ship/dive tracks, station locations*)
- Web Mapping Services  
(*fully composed images*)

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