Report on the workshop for the Antarctic Seismic Data Library System for Cooperative Research (SDLS): Santa Barbara, California --August 26, 2007

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Summary The Antarctic Seismic Data Library System for Cooperative Research (SDLS) operates under the aegis of the Scientific Committee on Antarctic Research (SCAR) and the Antarctic Treaty Consultative Meetings (ATCM) Recommendation XVI-12 with guidelines outlined in SCAR Report #9 (Cooper, 1991). The SDLS holds workshops every 1-2 years to review Antarctic multichannel seismic reflection (MCS) operations, to review SDLS operations and procedures, and to set directions for future SDLS operations. This report outlines discussions at the half-day SDLS workshop held in conjunction with the 10th International Symposium on Antarctic Earth Sciences (ISAES) in Santa Barbara. The next SDLS workshop will take place in St. Petersburg, Russia, on July 7, 2008.

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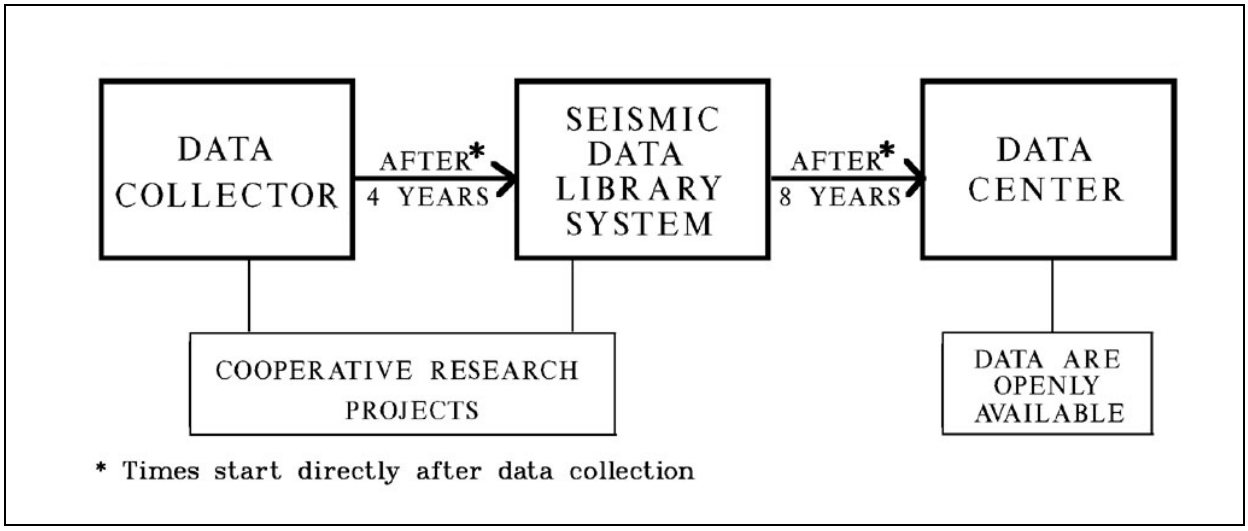
Introduction and background

The Antarctic Seismic Data Library System for Cooperative Research (SDLS) was established in Oslo, Norway in 1991 principally to foster, promote and facilitate earth science research and to bring the Antarctic MCS community into full compliance with Article III of the Antarctic Treaty via the Antarctic Treaty Consultative Meetings ATCM Recommendation XVI-12 (http://scar-sdls.org/ATCM.html) which adopted the guidelines proposed for SDLS in SCAR Report #9 (Cooper, 1991). Through providing access to multichannel seismic (MCS) data at SDLS library branches worldwide and via the World Wide Web, the SDLS helps to facilitate coordination of Antarctic MCS field and laboratory operations, assists in promoting Antarctic research drilling operations and other research activities. The science- and data-related functions of the SDLS are further outlined in (Cooper 1991, 2001; Cooper and Wardell (2006); and Wardell et al., 2007). SDLS workshops are held every 1-2 years to facilitate discussions in the geoscience community and enhance the viability and visibility of the SDLS as a research tool for multidisciplinary collaborative science projects. The agenda for the Santa Barbara workshop and the list of attendees is given in Appendix A.

The SDLS is unique in its phased data access guidelines, which were designed and implemented to help protect the intellectual property rights of data collectors while still making data openly accessible for research. These guidelines are best illustrated in the diagram from SCAR Report #9 (Cooper, 1991):



The SCAR Report #9 guidelines (Cooper, 1991) state:

1. MCS data collectors are to submit their MCS data to the SDLS within 4 years of the time of collection. During this first 4 years, data collectors have exclusive use of their data.

2. While MCS data are in the SDLS (i.e. are less than 8 years old), they can only be used by other investigators for cooperative research projects with the data collector. There are other important restrictions during the 4-8 year period:

- MCS data can only be used for research, and not for commerce;Data can be used only in cooperative research studies with the data collector;
- Copies of MCS data can only be made and removed from the SDLS branch with the consent of the data collector;
- The data collector must be offered authorship on papers using these data;
- The data collector must be given a copy of all research products based on these data including copies of reprocessed data;
- The source of data must be properly cited in all reports; and MCS data at each SDLS branch will be overseen by a librarian and a senior Antarctic research scientist residing at that branch.

SCAR Report #9 also states: "The above guidelines give the data collectors some 'rights' to control the use of their data. These 'rights' come with the implicit understanding that access to MCS data for cooperative research projects proposed by other scientists will only be denied when the proposed research project directly conflicts with active research projects currently being conducted by the data collector. Such 'rights' and restrictions on use of data in the SDLS will encourage timely contributions of data to the SDLS and will promote greater involvement in cooperative Antarctic seismic studies."

Current status of the SDLS

The SDLS is a science research tool and not a data bank, and as such it is organizationally within the Antarctic Climate Evolution (ACE) Program, which is currently one of the five major science programs in SCAR. The SDLS is overseen by an Executive Committee that currently includes

- Chair, Dr. Alan K. Cooper (no-salary position)
- SDLS Coordinator (OGS, Italy): Mr. Nigel Wardell
- SDLS Coordinator (USGS, U.S.): Mr. Jon Childs

The SDLS gets no funds from SCAR and relies on collection of data-submission fees from National Antarctic Programs, and from some additional funds from the U.S. and Italian National Antarctic Programs. The funds are used exclusively to clean-up, organize and prepare MCS for distribution to SDLS library branches via CD-ROMs and DVD-ROMs and via the world wide web. The SDLS has 12 library branches worldwide (Table 1, Plate 1), and operates two websites: http://dbserver.ogs.trieste.it/SDLS/ and http://scar-sdls.org/

Current SDLS data holdings

The SDLS currently holds approximately 223,100 km of Antarctic MCS data that have been collected on over 60 research cruises by 13 nations (Figure 1, Table 2). These data are held on 88 CD-ROM and DVD-ROM media that are kept at each of the SDLS library branches (Table 1) for access by the science community. These lists and maps can be seen and used interactively at the websites. A breakdown of MCS data collected more than 4 years ago by each country and that are now due to be submitted to the SDLS is shown in Figure 2. Approximately 81,000 km of data are overdue for submission to the SDLS (Table 3), and the SDLS International Polar Year (IPY) goal is to have these data submitted before the end of IPY.

Table 1. SDLS branches and host institutions

COUNTRY	LOCATION	INSTITUTION
Australia	Canberra	Geoscience Australia
Brazil	Rio de Janeiro	Universidade Federal Fluminense
France	Strasbourg	Universite Louis Pasteur
Germany	Hannover	Bundesanstalt fur Geowissenshaften und Rohstroffe
Germany	Bremerhaven	Alfred Wegener-Insitut fur Polar und Meeresforschung
Italy	Trieste	Instituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS)
Japan	Tsukuba	Geological Survey of Japan
Norway	Bergen	University of Bergen
Russia	St. Petersburg	VNIIOkeangeologia
UK	Cambridge	British Antarctic Survey
USA	Menlo Park , California	U.S. Geological Survey
USA	Reston, Virginia	U.S. Geological Survey (SCAR library)

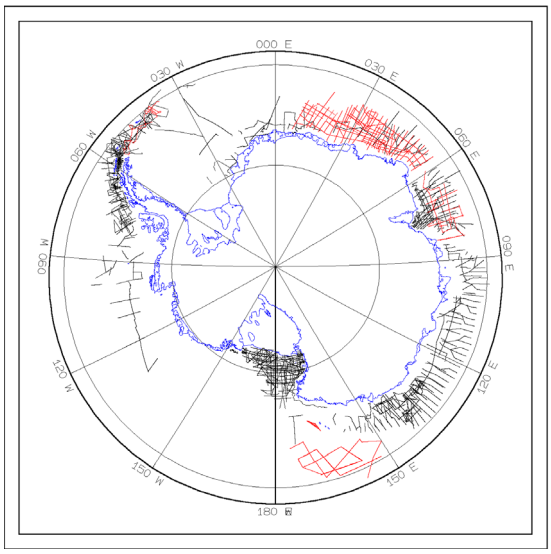


Figure 1. Map of Antarctica showing the tracklines for which MCS data are held in the SDLS. Red tracks show data distributed to SDLS branches last year.

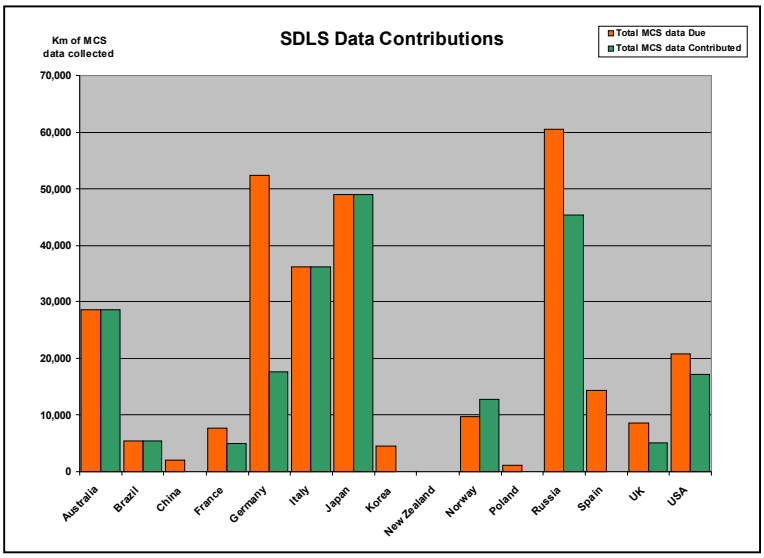


Figure 2. Histogram showing the amount of MCS data that are now due (in red) at the SDLS and the amount of MCS data that have been contributed (in green) by each country.

Table 2. List of CD-ROM and DVD-ROM media in the SDLS (see Plate 1 for explanation of acronyms)

Media No.	Area	Group		Season	MCS (km)
SDLS MF1 *	PB	SMG	USSR	85/86	930
SDLS MF1 *	PB	SMG	USSR	86/87	3,070
SDLS MF1 *	PB	SMG	USSR	87/88	3,710
SDLS 1	RS	USGS	USA	83/84	1,850
SDLS 2	RS	OGS	Italy	87/88	2,323
SDLS 3	RS	BGR	Germany	80	6,745
SDLS 4	RS	BGR	Germany	80	***
SDLS 5	RS	BGR	Germany	80	***
SDLS 6	PB	BMR	Australia	82	5,006
SDLS 7	PB	BMR	Australia	82	***
SDLS 8	PB	BMR	Australia	82	***
SDLS 9	RS	JNOC	Japan	82/83	1,670
**	WL	JNOC	Japan	82/83	680
SDLS 10	WL	JNOC	Japan	83/84	3,700
SDLS 11	WL	IFP	France	82	3,100
SDLS 12	RS	IFP	France	82	1,800
SDLS 13	RS	SMG	USSR	87	4,320
SDLS 14	RS	SMG	USSR	89	3,175
SDLS 15	WL	USGS	USA	83/84	1,800
SDLS 16	AP	BAS	UK	85	1,750
SDLS 17	WS	BGR	Germany	78	5,854
SDLS 18	WS	BGR	Germany	78	***
SDLS 19	WS	BGR	Germany	78	***

SDLS 20	**WS**	**UB**	**Norway**	**85**	**800**
**	**WS**	**UB**	**Norway**	**78/79**	**134**
SDLS 21	**PB**	**JNOC**	**Japan**	**84/85**	**2,350**
SDLS 22	**QML**	**JNOC**	**Japan**	**85/86**	**2,430**
SDLS 23	**AP**	**JNOC**	**Japan**	**86/87**	**2,655**
SDLS 24	**AP**	**JNOC**	**Japan**	**87/88**	**2,265**
SDLS 25	**AP**	**JNOC**	**Japan**	**88/89**	**2,200**
SDLS 26	**AP**	**PB**	**Brazil**	**88**	**552**
SDLS 27	**AP**	**PB**	**Brazil**	**87/88**	**4,914**
SDLS 28	**RS**	**OGS**	**Italy**	**88/89**	**4,202**
SDLS 29	**RS**	**OGS**	**Italy**	**88/89**	***
SDLS 30	**AP**	**BAS**	**UK**	**85**	**1,764**
SDLS 31	**AP**	**OGS**	**Italy**	**89/90**	**3,406**
SDLS 32	**AP**	**OGS**	**Italy**	**89/90**	***
SDLS 33	**AP**	**OGS**	**Italy**	**89/90**	***
SDLS 34	**RS**	**OGS**	**Italy**	**89/90**	**2,503**
SDLS 35	**AP**	**OGS**	**Italy**	**90/91**	**3,560**
SDLS 36	**AP**	**OGS**	**Italy**	**90/92**	***
SDLS 37	**AP**	**OGS**	**Italy**	**90/93**	***
SDLS 38	**AP**	**BAS**	**UK**	**92/93**	**1,520**
SDLS 39	**AP**	**OGS**	**Italy**	**91/92**	**3,423**
SDLS 40	**AP**	**OGS**	**Italy**	**91/92**	***
SDLS 41	**AP**	**OGS**	**Italy**	**91/92**	***
SDLS 42	**RS**	**OGS**	**Italy**	**90/91**	**554**
**	**RS**	**OGS**	**Italy**	**93/94**	**851**
SDLS 43	**AP**	**NSF:UT/LDEO**	**USA**	**91**	**2,880**
SDLS 44	**AP**	**NSF:UT/LDEO**	**USA**	**91**	***
SDLS 45	**RS**	**NSF:UC**	**USA**	**95/96**	**1,980**
SDLS 46	**RS**	**NSF:UC**	**USA**	**95/96**	***
SDLS 47	**AP**	**OGS**	**Italy**	**94/95**	**1,847**
SDLS 48	**AP**	**OGS**	**Italy**	**94/95**	***
SDLS 49	**AP**	**OGS**	**Italy**	**94/95**	***
SDLS 50	**AP**	**JNOC**	**Japan**	**80/81**	**3,280**
SDLS 51	**WS**	**JNOC**	**Japan**	**81/82**	**1,420**
SDLS 52	**BP**	**JNOC**	**Japan**	**89/90**	**1,835**
SDLS 53	**WL**	**JNOC**	**Japan**	**90/91**	**2,095**
SDLS 54	**WL**	**JNOC**	**Japan**	**90/91**	***
SDLS 55	**RS**	**JNOC**	**Japan**	**91/92**	**3,290**
SDLS 56	**RS**	**JNOC**	**Japan**	**91/92**	***
SDLS 57	**RS**	**JNOC**	**Japan**	**92/93**	**2,765**
SDLS 58	**RS**	**JNOC**	**Japan**	**92/93**	***
SDLS 59	**WL**	**JNOC**	**Japan**	**93/94**	**3,040**
SDLS 60	**WL**	**JNOC**	**Japan**	**93/94**	***
SDLS 61	**WL**	**JNOC**	**Japan**	**93/94**	***
SDLS 62	**WL**	**JNOC**	**Japan**	**94/95**	**2,375**
SDLS 63	**WL**	**JNOC**	**Japan**	**94/95**	***
SDLS 64	**RS**	**JNOC**	**Japan**	**95/96**	**1,980**
SDLS 65	**RS**	**JNOC**	**Japan**	**95/96**	***
SDLS 66	**RS**	**JNOC**	**Japan**	**95/96**	***
SDLS 67	**RS**	**JNOC**	**Japan**	**95/96**	***

SDLS 68	AP	JNOC	Japan	96/97	2,475
SDLS 69	AP	JNOC	Japan	96/97	***
SDLS 70	AP	JNOC	Japan	97/98	1,790
SDLS 71	AP	JNOC	Japan	97/98	***
SDLS 72	PB	JNOC	Japan	98/99	2,490
SDLS 73	PB	JNOC	Japan	98/99	***
SDLS 74	PB	JNOC	Japan	98/99	***
SDLS 75	PB	JNOC	Japan	99/00	2,195
SDLS 76	PB	JNOC	Japan	99/00	***
SDLS 77	WL	Geoscience Australia	Australia	00/01	3,427
SDLS 78	WL	Geoscience Australia	Australia	00/01	10,612
SDLS 79	WL	Geoscience Australia	Australia	00/01	***
SDLS 80	WL	Geoscience Australia	Australia	00/01	***
SDLS 81	WL	Geoscience Australia	Australia	01/02	9,607
SDLS 82	WL	Geoscience Australia	Australia	01/02	***
SDLS 83	WL	Geoscience Australia	Australia	01/02	***
SDLS 84	AP	PMGRE	Russia	91/92	2,900
**	PB	PMGRE	Russia	93/94	2,550
**	PB	PMGRE	Russia	94/95	3,429
SDLS 85	QML	PMGRE	Russia	95/96	3,451
**	QML	PMGRE	Russia	97/98	4,396
**	QML	PMGRE	Russia	98/99	4,492
SDLS 86	EL	PMGRE	Russia	99/00	4,390
**	EL	PMGRE	Russia	00/01	4,537
SDLS 87	QML	NPD/PMGE	Norway	01/02	2,600
**	QML	NPD/PMGE	Norway	02/03	2,440
**	QML	NPD/PMRE	Norway	03/04	2,950
SDLS 88	WL	OGS	Italy	88/89	3,053
**	WL	OGS	Italy	89/90	1,274
**	WL	OGS	Italy	90/91	1,924
				Total kms	197,335

Notes:
* These data are on microfilm only and not yet in digital format.
** Information is included on the above media number.
*** The amount of MCS data on this media is included in the number directly above.

A breakdown of the amount of MCS data collected in each region around Antarctica is shown in Table 3, and in greater detail in Plate 1.

Table 3. MCS data collected around Antarctica by region, with status of submission of these data to the SDLS.

Area	MCS data	In SDLS	Submitted	Due	Not yet due
Antarctic Peninsula	88136	43181	6321	33783	4851
Marie Byrd Land	7236	0	5009	0	2227
Ross Sea	58832	40008	8774	1900	8150
Wilkes Land	61576	46687	1827	0	13062
Prydz Bay	38931	27565	0	11366	0
Enderby Land	8927	8927	0	0	0
Queen Maud Land	22759	22759	0	0	0
Weddell Sea	46039	8208	3847	33984	0
Total (km)	332436	197335	25778	81033	28290

SDLS goal for IPY

At the SDLS workshop and SCAR meeting in Hobart, Tasmania in July 2006, a goal for the International Polar Year (IPY) was established (Cooper and Wardell, 2006):

SDLS Goal for IPY

In the spirit of Antarctic Treaty Article III and ATCM Recommendation XVI-12, the SDLS seeks to have all Antarctic multichannel seismic reflection data collected more than four years ago submitted to the SDLS before the end of IPY, to further enhance, facilitate and promote cooperative geoscience research efforts in offshore Antarctic regions.

The goal is realistic and achievable with the concerted help of the Antarctic MCS community.

Data collector reports

Workshop participants gave brief statements regarding their MCS field programs, data submissions and other data management. These included:

- *Stuart Henrys:* Stuart provided an update on Antarctic Drilling (ANDRILL) activities and the prior and planned use of MCS data in the site surveys for the drilling operations. Stuart also noted that he had completed a brief survey of researchers who hold Antarctic single-channel seismic data that might be incorporated into the SDLS (see below and Appendix B).
- *Tara Deen:* Tara is now the Geophysical Data Manager for the British Antarctic Survey (BAS). She reported that BAS has no plans to collect MCS data until at least 2010. BAS is now digitizing analog seismic records in their archives. She is planning to submit the last remaining outstanding MCS cruise (D172) as soon as funding permits.
- *Heinz Miller:* Heinz noted that Germany may again plan to collect MCS data in the Antarctic, pending the completion of a "risk analysis" in Spring 2008.
- *Wilfried Jokat:* Wilfried said that the Alfred Wegener Institute AWI is now acquiring the funds to submit their MCS data that are due at the SDLS, to achieve the SDLS IPY goal. He noted that there are plans pending for more refraction work in the Antarctic.
- *Travis Hayden:* Travis noted that he is not a data collector but uses the MCS data in his geologic backstripping studies for the ANDRILL project. He sees the SDLS as an important tool for his work.
- *Phil O'Brien:* Phil is the Coordinator for the SCAR action group on acoustics in the marine environment. He noted the great value of the SDLS in establishing the level of seismic work done in the Antarctic, to help in "risk analyses" and in minimizing re-surveying. He noted also that MCS data from the SDLS are being used in the evaluation of seafloor habitats of the continental margin in work for the Commission for the Conservation of Antarctic Marine Living Resources. He said that Australia collected some low-fold seismic reflection data from the Amery Ice Shelf.
- *Jong Kuk Hong, Young Keun Jin, Ki Young Kim:* They outlined a research program through 2014. Korea will build a new ice-breaker that will have MCS capabilities. They noted that prior MCS data sent to the SDLS had minor navigation problems and these data will be resubmitted. They also stated that the SDLS goal for IPY was realistic for submission of Korean MCS data.
- *Andres Maldonado:* Andres noted that Spain will continue work in the Antarctic Peninsula region. Next year there are plans for work in the Scotia and Weddell Seas. He also noted that the SDLS goal for IPY was realistic for submission of Spanish MCS data. He has submitted a request for funding and was confident that the request would be approved.

SDLS web-based systems

The SDLS maintains two WWW sites: http://dbserver.ogs.trieste.it/SDLS/ and http://scar-sdls.org/. Currently, the sites provide some different data presentations and download capabilities. The plan is to use the "scar-sdls.org" address as the primary entry portal that will go directly to the other site (i.e., to the OGS site). All data types will be available there (e.g., dynamic and static data displays; downloads). Combining the sites will require some reprogramming. Some specific topics were discussed:

- *Retention of SVG:* Both the scar-sdls.org and the OGS site use the SVG graphic format for which a "plug-in" from Adobe is required. Whereas Adobe does not plan to support the "plug-in" after January 1 2009, the SVG capability is now being incorporated into many browsers, although to date none have the full capabilities provided by Adobe. It should be noted however that Adobe will still continue to make available the "plug-in" even after they have stopped developing it.
- *Logging onto SDLS website:* The OGS website requires that users register (free) to get full access to the site and to download capabilities. The login is used for gathering statistics about users and for reminding users (via the agreement they sign) to always acknowledge the data collector when the data are used in publications. A question was raised as to whether we should share those statistics publicly. Most participants felt it would be helpful to make the statistics public to enhance further collaboration. A few people, however, felt that this information should remain private. The issue was tabled for further discussion at the next workshop. In the interim, the statistics will not be made public.

MCS discussion items

Geologic and biologic issues

Currently, seafloor habitat maps of the Antarctic continental margin are being compiled by Australian scientists (Phil O'Brien, pers. comm.) at the request of the biologic science community, to assist in the evaluation of habitats for seafloor life. MCS and other seismic data are being used to identify geomorphic provinces and, in some cases, seafloor types (e.g., hard rock, sediment cover). These maps will serve as a guide for future habitat studies. The SDLS is also being used in discussions on the possible impacts of noise on the marine environment. Navigation data in the SDLS can be used to indicate where there has been the most anthropogenic noise in the Antarctic. The SDLS is important in mitigating any impacts by minimizing the need for resurveying and identifying areas that have been surveyed recently to avoid repeated annual surveys. For more information, contact Phil O'Brien.

Law of the Sea (LOS) surveys: updates and impacts (if any)

There have been no changes since the last SDLS workshop and its report (SCAR Report #28, see Cooper and Wardell, 2006). MCS data collection activities around Antarctica continue to help advance geoscience research programs.

Circum-Antarctic Stratigraphy and Paleobathymetry (CASP) project: Technical needs and capabilities

The CASP project will use all existing MCS and other seismic data to create a consistent circum-Antarctic seismic stratigraphic framework. A separate CASP workshop was held following the 10th International Symposium on Antarctic Earth Sciences and a report of that workshop is given by Davey and Cooper (2007). At the SDLS workshop, participants discussed the various interpretive environments (e.g. Seisworks, Seisvision, SeisEarth, Kingdom Suite, Petrel, OpenDtect) and whether the SDLS could play a part in coordinating interpretive efforts through the addition of velocity datasets or interpretation-ready SEG-Y. Consensus was that the velocity information is subject to interpretation when the data are depth-converted, and that there is probably little value in capturing and archiving velocity information. Agreement on a single interpretive environment would not be possible but other solutions are possible and are discussed in Davey and Cooper (2007).

Other seismic discussion items

Single-channel seismic data (SCS) in the SDLS: status and plans

Stuart Henrys provided an oral and written report about his polling of the seismic community regarding the current SCS data holdings (Appendix B). A large amount of SCS data exist, and these data are important for high-resolution seismic studies. It was agreed that the data should be archived. But, the question remains unanswered whether these data should be archived by the SDLS and in what format? Can the analog records be digitized? Stuart Henrys agreed to continue the evaluation and gather additional information to be presented at the next SDLS workshop.

Land and ice-shelf seismic data

MCS data collected on land are to be included in the SDLS, as previously decided. However, a question was raised as to whether MCS data on ice shelves should also be included. John Behrendt agreed to investigate the extent of such ice-shelf data and report back at the next SDLS workshop.

Access to MCS data collected between 4 to 8 years ago

According to SDLS guidelines, MCS data collected between 4 to 8 years ago can only be used in collaborative studies with the data collector. Several researchers have asked if "degraded" images of these MCS data could be made available on the web to be used for planning purposes in writing proposals for funding agencies and for proposing collaborative studies with data collectors. Several ideas for securely making the images available were discussed and a

proposal to do so was made. Most were in favor, however, there was an objection to the proposal because it was noted that there would be no way to make images available in a fashion that could not potentially be abused. The issue was tabled until the next workshop. Jon Childs offered to investigate the issue and to explore other possible solutions. In the interim, researchers should contact data collectors and refer to recent publications for images of the data.

SDLS matters arising

There was renewed discussion on the role of the World Data Center (WDC) in maintaining the SDLS CD-ROM and DVD-ROM media that contain data older than 8 years. These data are available without restriction (other than the suggested acknowledgement of the data collector). Currently such MCS data can be downloaded from the SDLS websites. However, for long term distribution and stewardship of the MCS data, two participants (J. Behrendt and H. Miller) recommended depositing the SDLS CD-ROM and DVD-ROM media with the WDC. Doing so would not diminish the value and utility of the SDLS. To help ensure that data users acknowledge the data collectors, CD-ROM and DVD-ROM media sent to the WDC would have a sticker seal added with a printed reminder for the user's agreement to this tenet.

Reaffirmation of goals

At the close of the workshop, a brief discussion was conducted on the goals of the SDLS. Participants reaffirmed the SDLS goal for IPY (i.e., submitting all MCS data older than 4 years before the end of IPY) and reaffirmed the value to the community in retaining the SDLS as a tool for Antarctic research.

Next SDLS workshop

It was agreed that the next SDLS workshop will be held directly before the SCAR Open Science Conference in St. Petersburg, Russia in July 2008. Details of the workshop will be distributed in Spring 2008. As of this writing, the workshop date has been set for July 7.

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Appendix A: Agenda and participant list for the 2007 SDLS workshop in Santa Barbara

Agenda

Welcome and workshop objectives (SDLS Exec. Comm.)
SDLS review (Cooper)
Highlights of Hobart SDLS workshop: July 2006 (Cooper and Wardell)
Reports on MCS field programs, data submissions and data management (Workshop participants)
SDLS web-based systems: OGS and USGS (Wardell and Triezenberg)
MCS discussion items
- Geologic and biologic issues (O'Brien):
  - Seafloor biohabitats and MCS geomorphology studies
  - Hydroacoustics and marine life: status and future collaborative studies
- LOS surveys: updates and impacts (if any) (Childs)
- CAPS (Circum-Antarctic Paleobathymetry and Stratigraphy) project: Technical needs and capabilities (Childs)

Other seismic discussion items
- SCS data in the SDLS: status and plans (Henrys)
- Land and ice-shelf seismic data
- Other?

Data collectors: issues and suggestions
SDLS matters arising
Reaffirmation of goals
- SDLS goal for IPY
- Science-support goals of the SDLS

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Appendix B: Report on the feasibility of what would be required to incorporate SCS data into SDLS.

Prepared by Stuart Henrys

Introduction

During the last meeting of the Antarctic Seismic Data Library System for Cooperative Research (SDLS) held in Hobart, Australia, July 9, 2006, the question arose of whether single channel seismic reflection data (SCS) should be included in the SDLS. This brief report documents the results of surveying international institutions known to hold SCS data sets and makes a number of recommendations concerning how these collections could be integrated into the SDLS.

Survey

To determine the extent of SCS data collected by the community I emailed a questionnaire to the mail list used by SDLS. This mail list is not extensive but does include all research organisations who have lodged data with the SDLS. I also added other contacts where I knew the PIs have collected SCS data in the Ross Sea. The results of this survey are not likely to identify all digital SCS data collected. The questions asked were:

1. Do you or your group/organisation hold or obtain marine Single Channel Seismic (SCS) reflection data around the Antarctic continental margin
2. If you do then please identify in return email
    I. The ship,
    II. year,
    III. line kilometres recorded,
    IV. data format the data are stored in.
3. If data are already logged in a web accessible database please identify the database and the URL (eg http://www.ngdc.noaa.gov/)?
4. If data are not currently available can it be logged with the SDLS and identify the time frame contact person and email address?

Results

I received 6 responses (5 positive and 1 - AWI – confirmed that they did not collect SCS data). In addition I was able to identify a number of cruises from public data bases (UTIG) and from the historical surveys of the Nathaniel B Palmer. Details are given in Table B1. Twenty nine (29) SCS surveys are reported with nearly all of them recorded digitally (SEGY) but only housed in the PIs institutions. Two surveys were identified on a publicly accessed web site (http://www.ig.utexas.edu/sdc), where SEGY data can be digitally downloaded. The total number of line kilometres cannot be determined, but the BAS data sets alone exceed 50,000 km. In some instances I had responses saying their collections were large! However, for most of these cruises the navigation data are available at NGDC and so it is perhaps feasible to determine the total line kilometres – this has not been done. In addition, A number of institutions noted that they had also available deep-tow Huntec data and in some cases sparker and 3.5 kHz in digital form. The question of what to do with these other seismic datasets remains to be addressed in future.

Two institutions (Rice, BAS) identified that they were going to put there data sets up on the web but, in the case of Rice, lack dedicated resources.

Recommendations

The inclusion of legacy SCS data into the SDLS, in my view, remains an enormous undertaking. But in view of the large amount of data recorded, some of it in "hard-to-get-to-places", and the importance of having data density for determining future drilling targets, then it is important to capture some information about these cruises.

1. Request navigation data of SCS lines (identified in Table B1), where it is available, to be provided to the SDLS or sourced from NDGC and be made available on the SDLS site (one stop). MGD77 format contains a field identifying whether seismic data is recorded. Where this field is correctly filled then the task of identifying and plotting SCS data from lodged MGD77 files is straight forward. Where this field has not been used then this task requires more effort.
2. Construct metadata of these surveys to identify the PIs and contact information linked to the survey tracks. Links could also be made to web based databases, where available.
3. Encourage future SCS seismic surveys (including deep-tow) to lodge seismic line navigation and SEGY data to SDLS. Also encourage future surveys to make full use of the "seismic field options" in lodged MGD77 and MGD77+ formats in.
4. Encourage those institutions, who are thinking of launching web based databases, of SCS to do so.

Table B1. Details of SCS surveys provided in email survey and from other web databases.

Institute	Cruise number	Ship	Area	Year	Line km	Data format	Comment	Contact Person
British Antarctic Survey	Bran778	Bransfield		77-78	1787	SEGY		Tara Dean
	Bran789	Bransfield		78-79	1050	SEGY		
	Bran790	Bransfield		79-80	3771	SEGY		
	CD37_889	Charles Darwin		88-89	16564	SEGY		
	D154-845	Discovery		84-85	995		Shipboard monitors only	
	JR001	James Clark Ross		92		SEGY	Huntec deep-tow boomer	
	JR004	James Clark Ross		92-93	810	SEGY		
	JR009A	James Clark Ross		94-95	4779	SEGY		
	JR012	James Clark Ross		95-96	1006	SEGY		
	JR039A	James Clark Ross		98-99	1000	SEGY		
	JR039B	James Clark Ross		98-99	227	SEGY		
	JR071	James Clark Ross		01-02	219	SEGY		
	JR141	James Clark Ross		05-06	530	SEGY		
	Shack73	Shackleton		73	7300	SEGY		
	Shack75	Shackleton		75	6216	SEGY		
	Shack80	Shackleton		80	8300	SEGY		
					54554			
Hamilton College	NBP 94-1	Nathaniel B Palmer	Ross Sea	1994		SEGY	(all archived as paper records and on magneto optical disk)	Eugene Domack
	NBP95-2	Nathaniel B Palmer		1995		SEGY	(all archived as paper records and on magneto optical disk)	
	NBP96-1	Nathaniel B Palmer		1996		SEGY	(all archived as paper records and on magneto optical disk). Also UCSB	
	NBP99-03	Nathaniel B Palmer	Antarctic Peninsula, western side	1999		SEGY	(all archived as paper records and on magneto optical disk)	
	NBP01-01	Nathaniel B Palmer	East Antarctic margin	2001		SEGY	(all archived on CDs)	

	NBP01-07	Nathaniel B Palmer	Antarctic Peninsula N &S sides & Larsen B	2001		SEGY	(all archived on CDs)	
	NBP06-03	Nathaniel B Palmer	Antarctic Peninsula, NW Weddell Sea	2006		SEGY	(all archived on CDs)	
	LMG05-02	Laurence M. Gould	Antarctic Peninsula, NW Weddell Sea	2005		SEGY	(all archived on CDs)	
	LMG98-2	Laurence M. Gould	Antarctic Peninsula	1998		SEGY	Huntec deep-tow boomer. Stored on cassette tapes. Data quality is fair to good.	
	LMG92-1 ?	Laurence M. Gould	Antarctic Peninsula			SEGY	Huntec deep-tow boomer. Stored on cassette tapes. Data quality is fair to good.	
UCSB	NBP-9601	Nathaniel B Palmer		1996		SEGY		Chris Sorlein
	NBP-0301	Nathaniel B Palmer		2003		SEGY		
	NBP-0306	Nathaniel B Palmer		2003		SEGY		
Rice University	PD86	Polar Duke	Antarctic Peninsula	1986		SEGY		John Anderson
	PD88?	Polar Duke	Antarctic Peninsula	1988		SEGY		
	PD90		Ross Sea	1990		SEGY	Also at GNS Science	
	PD91	Polar Duke	Antarctic Peninsula	1991		SEGY		
	NBP94-1	Nathaniel B Palmer	Ross Sea	1994		SEGY	Also Hamilton College	
	NBP95-1	Nathaniel B Palmer	Ross Sea	1995		SEGY		
	NBP98-1	Nathaniel B Palmer	West Antarctica	1998		SEGY		
	NBP99-2	Nathaniel B Palmer	West Antarctica	1999		SEGY		
	NBP02-1	Nathaniel B Palmer	West Antarctica	2002		SEGY		
LSU	NBP03-1a	Nathaniel B Palmer	Ross Sea	2003		SEGY		
UTIG	PD8704	Polar Duke	Antarctic Peninsula	1987		SEGY	http://www.ig.utexas.edu/sdc/	
	PD8806	Polar Duke	Antarctic Peninsula	1988		SEGY	http://www.ig.utexas.edu/sdc/	