

THE ANTARCTIC SEISMIC DATA LIBRARY SYSTEM FOR COOPERATIVE RESEARCH

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The Antarctic Seismic Data Library System for Cooperative Research (SDLS) was designed by members of the Antarctic geoscience community to facilitate open access to multichannel seismic reflection data, and to promote collaborative research based on those data. The SDLS was formally adopted in 1991 under the auspices of the Scientific Committee on Antarctic Research (SCAR) and mandates of Antarctic Treaty Consultative Meeting Recommendation XVI-12. By 1993, library branches had been established in 10 countries worldwide and more than 60,000 km of digital seismic reflection profile data were provided to the SDLS by data collectors.

The library system is a dynamic library where data resides for use by all members of the research community in collaboration with data collectors. Data are available at the SDLS during the period between 4 and 8 years following data collection, after which the data are sent to a World Data Center. The SDLS system protects intellectual property rights of data collectors and provides open access to data, as required by the Antarctic Treaty, to facilitate timely and multinational geoscience research products.

Since 1993, an additional 70,000 km of data have been submitted to the library and distributed to the branches on CD-ROM. Recent submissions by Australia, Russia, and Norway will boost the total amount of data in the SDLS library to 180,000 km of seismic reflection profiles. However, this total still only represents little over 50% of the more than 300,000 km of seismic data known to have been recorded in Antarctica. The goal of the SDLS is to be fully in accord with ATCM XVI-12, and have all data older than 4 years from data collection be submitted before the end of the International Polar Year.

Following discussions at an SDLS workshop during the ISAES X symposium, two complementary SDLS web-sites have been set up to meet the current and future needs of the Antarctic scientific community. One site is hosted by the Marine Geoscience Data Management System at Lamont Doherty Earth Observatory (LDEO) in the US, whilst the second is hosted by Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS in Trieste, Italy. Both sites incorporate a variety of new features and capabilities utilizing modern technology and current standards for the organization and dissemination of geospatial data, while retaining the basic tenets and guidelines upon which the library system was adopted.

Both web-sites allow not only unrestricted access to data over 8 years old, but also the possibility to download the navigation data and seismic stack datasets in SEG-Y format. Images of the profiles in standard formats (e.g. tiff) suitable for viewing and printing without specialized seismic processing software are available at the LDEO site along with spatially referenced location figures at a standard projection and scale to enable the convenient production of location maps. At OGS, the SDLS site is based on the SNAP⁽¹⁾ web portal framework. This utilizes the LAMP (Linux, Apache, MySQL, PHP) platform and open source software such as CWP/SU and GMT. Seismic data can be selected from the database using specific criteria, such as user-specific geographic areas or metadata parameters, and interactively displayed at any scale, with zoom or pan, directly from the SEG-Y files.

The updated SDLS, like its predecessor, will be a community research tool that relies on active data contribution and use by data collectors and geoscientists to achieve ultimate success.

Additional information about the SDLS is available at: <http://walrus.wr.usgs.gov/sdls/>

⁽¹⁾ **P. Diviacco**, "An Open Source, web based, simple solution for seismic data dissemination and collaborative research.", **Computer and geosciences**, Vol 31/5 pp 599-605