JGOFS Data Management: Accomplishments and Lessons Learned



Margarita Conkright (WDC, US), Bernard Avril (JGOFS IPO, Norway), Cyndy Chandler (US JGOFS, USA), Brian Griffiths (CSIRO, Australia), Joachim Herrmann (German JGOFS, Germany), Roy Lowry (BODC, UK), Takeharu Miyake (Japan JGOFS, Japan), Donald Spear (MEDS, Canada), Marie-Paule Torre (CNRS/OOV/PROOF, France), Jaswant Singh Sarupria (NIO, India)

Abstract: The JGOFS Data Management Task Team (DMTT) was charged with implementing timely data exchange between national groups participating in JGOFS, encourage and develop data management at the national level, and provide access of JGOFS data to the international scientific community. Over the life of the project, the DMTT and national groups have made JGOFS data at the regional scale (process studies), global scale (carbon survey) and from long-term measurements at key ocean sites (time-series), available online and on CD-ROMs.

Because of the complexity of interdisciplinary data and the extent of JGOFS itself, much remains to be done to secure the accessibility of all data collected in the project. The lack of a centralized International Project Data Center severely hampers the use of JGOFS data for synthesis and model validation, now and in the future. It is only recently that the JGOFS Data Management Task Team (DMTT) began working to compile a single database (the International JGOFS Master Dataset), in a single format and in a single location (in the WDC system, thanks to an initiative of PANGAEA/WDC-MARE; and on CDs or DVDs) before the end of the project (Dec. 2003).

As new programs are being designed or implemented, we must learn from the JGOFS data management experience. The major, past and current DMTT activities and achievements are presented, along with a set of recommendations regarding the data management in future international projects, which should result in the rapid and full availability of data, and its long-term preservation and accessibility.

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ACCOMPLISHMENTS: The first meeting of a JGOFS Working Group on Data Management occurred in Halifax, Nova Scotia in1988. This meeting laid the foundation for a solid and workable data policy for JGOFS. Since that meeting, the JGOFS Data Management Task Team has

- Changed the attitude of data managers and scientists regarding the management of non-physical data,
- > Given data management a high profile throughout JGOFS,
- > Contributed to the establishment and maintenance of a data sharing culture in JGOFS,
- Generated an extensive portfolio of data sets published on CD-ROM,
- > Required all data be submitted to the WDC system for long term archive,
- > Documented the published data sets in NASA's Global Change Master Directory,
- > Contributed data to the production of the World Ocean Database products,
- Provided recommendations to funding agencies and science managers on data management for future international projects,
- ► Worked toward integrated data products in collaboration with WDC MARE,
- > Encouraged and promoted exchange between data managers and scientists,
- Assisted the OCEANS Transition Team in the preparation of their data management component,
- Incorporated JGOFS data from countries not represented by the DMTT into this final product,
- Integrated Data Products (delivered)
 - ► Arabian Sea CTD CD-ROM
 - ► JGOFS Cruise Inventory
 - International JGOFS Data Collection

The JGOFS International Data Collection. Volume 1: Discrete Datasets is an assembly of existing datasets produced by countries participating in JGOFS. This DVD product is a compilation of individual data sets that were acquired and compiled by data managers from those countries. In some countries, data were published on CD-ROMs and these were copied "as is" onto the DVD. In other countries, data were placed online. Therefore, each dataset will have its own unique format, documentation, citation policy, and machine compatibility limitations (some products are designed for single platform use). This product was created to facilitate access to the numerous data sets collected by the international scientific community and to ensure they are preserved for future generations. This type of multi-national, multi-variable project would not have been possible without the support of numerous funding agencies, national institutions, data managers, and principal investigators. The DMTT and IPO wishes to acknowledge the data managers and scientists, from countries not represented on the DMTT, for their help in acquiring some of the datasets included in this product



Recommendations: The DMTT offer the following set of recommendations for data management (DM) in future project, to ensure the rapid dissemination of data and its long-term preservation and accessibility:

- Establish a coherent, suitable DM framework for the project (DM objectives, activities, timeline specified in the implementation plan);
- Establish and support an International Project Data Center, designed to provide end-to-end DM by establishing guidelines, providing advice, and facilitating exchange of knowledge and expertise among data managers and all agencies / bodies;
- Establish & support experienced, full-time national data managers / coordinators;
- Set a time limit for data submission at the national and international levels;
- Establish a coherent set of data delivery and exchange standards for reporting / exchanging data and metadata;
- Work with funding agencies to insure compliance with data policies.

Acknowledgements: It is not possible to acknowledge all who have supported the DMTT activities through the years, and we have tried to list as many as possible in the DVD documentation. We do wish to acknowledge the Principal Investigators, Data Managers, and Funding agencies from: Australia, Canada, France, Germany, India, Japan, Netherlands, New Zealand, Norway, Pakistan, Spain, United States, and United Kingdom. We would also like to thank Bernard Avril and Beatriz Bealiño (former AEO) from the International Project Office for their invaluable support and without whom the DMTT would not have been able to accomplish as much. We also hope future projects have the benefit of leaders like Hugh Ducklow who has recognized from the start the importance of data management, and supported us in all our endeavors.

International Collection