

PREFACE to Revision 1

Requirements for WHP Data Reporting

Central to the observation programme within the World Ocean Circulation Experiment (WOCE) is the measurement of the physical and chemical properties of the water column — the so-called hydrographic and tracer programme. These measurements will be made on a global basis by oceanographers from laboratories in many countries. The successful collection of this data set constitutes a major WOCE objective with the ultimate aim of understanding the role of the ocean in the world's climate system.

In 1989 the National Science Foundation of the U.S.A. set up the International WOCE Hydrographic Programme Office (WHPO) at Woods Hole to coordinate, oversee and ensure the quality of the hydrographic and tracer measurements made within WOCE. The Office is also to act as the centre through which the measurements are to be channelled.

In its role in ensuring the quality of the data gathered within the programme, in the one-time global survey to the highest achievable standards and in the repeat-hydrography to a standard adequate to meet regional requirements, the Office has published a manual entitled “WHP Operations and Methods” which is available to all participants and interested parties. The timely assessment of the quality of such data is also deemed important not only in order to recognize problems at an early stage but also to act promptly to recommend solutions. Providing resources permit, all data submitted to the WHP Office will be subject to an assessment of its quality.

This publication, “Requirements for WHP Data Reporting”, describes procedures for reporting hydrographic and tracer data to the Office and describes how quality assessment will be made. We urge all Chief Scientists, Principal Investigators and those responsible for data collection to communicate their data in timely fashion according to the schedules set out in the following pages. Furthermore in order to assist the Office in its heavy task we ask these same individuals to supply the data in a format which the Office deems will best suit the collection of a unified and comprehensive data set. These details too are set out in the following pages.

The activities of the Office in no way impinge on the proprietary rights of the Chief Scientists, Principal Investigators and cruise participants to the data. Within a two year period from the completion of the cruise, or in the case of shore based measurements within a two year period from analysis of the samples, data will be held to be strictly confidential. The duties of the Office do not include assembly of individual cruise data into regional data sets nor will it supply such data sets to the wider oceanographic community (after the two year period). Such acts are the responsibility of the Special Analysis Centre (set up in 1990) working with the National Oceanographic Data Centre at Hamburg, Germany.

It is surely self-evident that after the planning and commission of a WOCE cruise the construction of a global hydrographic and tracer data set is the next step. We, the chairman and the members of the oversight committee to the programme, urge you to cooperate with the WHP Office in carrying out this challenging and important task.

Peter M Saunders, Chairman, WHP Planning Committee, May 1, 1991

PREFACE to Revision 2

Two and one half years have elapsed following the publication of the previous revision to this document. Because our perspectives differ from those of the WHPO, because we run into novel and unforeseeable situations, and because we occasionally have difficulty dealing with the complex scientific requirements of the WOCE Hydrographic Program, many modifications and enhancements have been necessary, and these have now quadrupled the size of the original publication. However necessary this growing complexity of the data reporting manual might be, the WHP Planning Committee fears this may generate confusion regarding the priorities and focus of the WHP, and pose potential problems for the significant portion of the readership for whom English is not the primary language. There is a great amount of information that those fluent in English can sift through easily, but which must be translated more laboriously by others. This is regrettable, but it is partly the result of the WHPO responding to questions and problems.

The scientific requirements of the WHP have not changed, nor has the scope of the operational program. In short, we wish to construct a global CTD, hydrographic, and tracer data set of uniform composition and high standard, and which meets the requirements meted out by the various WOCE scientific planning groups. The WHP seagoing scientists, who must cope with competing demands for funds, time, and personnel, will do as always: complete their WHP work as best as they can. In this sense, the word “requirement” is overused in this manual. The WOCE requirements derive from the scientific objectives and are directed primarily at the types and quality of measurements, their coverage, spatial and temporal resolution, and their availability to the WOCE community. The WHPO requests that its guidelines for reporting be met because (1) they must deal with a great many expeditions, (2) these expeditions must at some point come together into a common WOCE data set, and (3) the WHPO resources are scarce. The WHP scientists must carry out the substantial portion of the information gathering and formatting.

I am a WHP chief scientist, too, and I have grappled with this document. The file types, formats, units, documentation structure, and the role of the chief scientist as chief of all data from the expedition were new to me. It took several iterations to get my files in the correct format, I have not yet completed merging the tracer and hydrographic data files, and I was asked by the WHP Office to reformat the documentation I sent with my data. This has not been easy for me, and so I assume that it is not easy for many others.

I suggest that expedition leaders focus on the following:

Before a cruise: Send a cruise plan to the WHPO well in advance of the cruise. The suggested guideline is 12 months before the cruise, and the WHPO here suggests a format (see Section 3.1 and Table 3.1), but timing and format are less important than the action of sending the plan. It is not possible to do this too early, and it causes no problem for the WHPO if you later send in revisions and amendments to the plan. This plan lets the WHPO [and the WOCE community] know of the cruise, permits them to establish communications, and helps them plan their workload.

At sea: Prepare a station summary file (—.SUM file) as the work progresses. The format of this file is important. The WHPO has tried in this revision to more clearly state and show the format requirements for the —.SUM files (see Section 3.3 and Table 3.5). It is worth the effort to try to get this correct.

Follow the WHPO sample identification hierarchy and insist that every WHP sampling and analysis program use the same identification scheme. All WHP data will be brought together

and so identification cannot be ambiguous.

Immediately after the cruise: Send the summary file to the WHPO along with a brief post-cruise report. It is helpful to the WHPO if you follow their content and format guidelines for the text (see Section 3.2 and Table 3.4), but, again, these are less important than the action of quickly getting this information to the WHPO.

When data are in final shape and the documentation is complete: Send your results to the WHPO. Remember that the documentation of the attained measurement quality provides long-term added value to your data. Please take the time to examine the protocols used to obtain your results, and determine whether or not these adversely affected the quality of your results. In general, it is less important to follow a certain "WOCE" protocol than to be able to document the quality of your results. After all, the WOCE requirements are aimed at the data, not the methodology. And do your best to follow the format guidelines. If the examples here are confusing, ask the WHPO to send sample files from which you can copy formats.

The WHP Planning Committee is watching the data submission process with great interest. The committee recognizes that the fixed structures suggested here are very helpful to standardize the reporting, and that it is correct that this manual stress use of the proposed reporting format. However, some committee members doubt whether all the requested information for cruise reports is relevant to the WHP. A more heated discussion has emerged regarding the assembly of the hydrographic and tracer data. In this manual, the WHPO places the burden for this crucial task entirely upon the chief scientist. While it is true that only the chief scientist is placed to know all the sampling programs, the committee also recognizes that if the WHPO succeeds in developing an in-house electronic database, as they propose, merging properly indexed data may one day be a trivial operation for them.

A much more important issue is the availability of WOCE data to WOCE scientists. One of the major and most central issues we face is that the people who are doing WOCE research must have access to WOCE data. This concept is not difficult, yet there has been a tendency to obscure this basic issue. Yes, it is important that the data be complete and of high quality, that they be documented, and that they be archived, but we are doing this experiment - WOCE - to learn something about the ocean. We can't do that without data. People must not be afraid to share their data. None of us want to be delivering our data to someone else who will make the big breakthrough. Each of us hopes that we will have enough of our own ideas that we will be able to share our data in a timely manner. But we must understand that our own good time is probably not soon enough for this big joint project. In order to get the most out of a very large experiment we must work together at least in terms of data sharing, and be very careful with each other about how we work on our individual ideas. The big challenge is to figure out how to keep the strength of our ideas and still use this accumulating data set, which is only rich if it is shared. This situation does not really have anything to do with this manual but does have very much to do with WOCE. I urge each scientist to think of how it might be resolved.

The Planning Committee would be pleased to hear from you. The committee may be reached at OMNET address WOCE.WHP, and at any time remarks can also be forwarded via the WOCE International Project Office (WOCE.IPO).

James H. Swift, Chairman, WHP Planning Committee, December 1993

PLEASE NOTE

Revision 2

This manual is expected to evolve according to experience within the WOCE program, as it does with this revision. As a technical manual intended for a wide range of users in many countries the text is frequently redundant with information in tables or other chapters. It is hoped that such redundancy will help users, particularly those whose native language is not English, understand what is requested and why it is required. Suggestions, comments, and criticisms should be sent to the WOCE Hydrographic Programme Office. Appropriate comments and suggestions will be incorporated in the next revision. While a number of people have kindly contributed portions of this manual, the responsibility for the final contents is solely the editors.

Major changes for Revision 2 include:

- Chapters are reordered and largely rewritten. The chapters on small and large volume sampling have been combined into one chapter on WHP cruise requirements.
- Added Section 1.1 summarizing reporting requirements.
- Added Section 1.7 and Table 1.1 showing where data are sent and data availability.
- Example cruise plan and cruise report have been replaced.
- Added Table 3.3 and Table 4.4.
- Added Section 4.2 on sample identification.
- Large volume sampling is to be reported in a separate —.LVS file.
- QUALT2 word is not used for CTD data.
- Added Chapter 5 to cover underway data formats and Table 1.1 identifying where various WOCE data sets go.
- Reordered and changed Appendix A to include information about WHP DACs, SACs, and the DIU and how and where data can be retrieved.
- Added Appendix D to provide reporting protocol for nonstandard measurements, Appendix E listing software the WHPO can read, Appendix F showing the ASCII character set, and Appendix G listing known parameters measured on WHP cruises.

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