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Task Team to Establish and Maintain Co-operation Between IODE and Research Programmes

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Introduction

Over the last two decades, the number and complexity of international cooperative programmes has increased. We are just completing WOCE, and JGOFS, but there is the IGBP, CLIVAR, GOOS, GCOS and GTOS among others. Many of these programmes originated in the research community. Using WOCE as an example, the programme organized 13 Data Assembly Centres (DACs) whose jobs were to assemble, quality control, and prepare the data for the final archive. IODE data centres participate in 4 of these DACs while another 4 DACs (non-IODE) handle data that are also managed by many IODE data centres, thus duplicating the effort. The remainder of the DACs dealt with data outside of traditional IODE data centre responsibility.

The TOGA/TAO centre at PMEL is an example of a facility that started up in the research community and exists outside of an IODE data centre but which performs many elements that an IODE centre does. TOGA/TAO is a complete program carrying out scientific research, design of an observation programme, building and deploying instrumentation, archiving and disseminating data. It is often cited as a model of what the research community thinks of how a data collection and archive facility should run.

If IODE data centres were doing their jobs, the 4 new DACs built to handle oceanographic data in WOCE would not have been created. Likewise, the data management functions now performed by the TOGA/TAO centre would have been sited in an IODE centre.

By and large, IODE centres operate independently of each other. The result is that each data centre designs, builds and operates data processing routines that carry out fundamentally the same functions as done by others. Because of variations in available resources, each of these processing systems has variations, some of which enhance the quality of the data from the archives, and some that do not perform so well. The result is that what a user sees from an archive depends on which archive provided the results. Of greater concern is that the data derived from the same source but in two different archives may be different.

The working relationship between data centres and researchers tends to be distant. All data centres receive and process data from researchers, but few have a day-to-day working relationship with them. Data centres need scientific advice to ensure that data and information are handled by appropriate procedures. The purpose of data centres is not just to archive the data, but to be sure the data are available to users. Data value increases when additional information about the data collection is also available. Research programs are in the forefront of important uses and requirements of data. Collaboration gives data centres a clientele that is demanding and useful in recommending what needs to be done.

Challenges

Data centres are in place to safeguard data for future use and provide those data to users. They operate by acquiring data for which they have archive responsibilities, and provide the data and products to users. Since they are national agencies, they operate in a political framework that demands they provide a valuable service to their country. At the same time, the data centres are a part of an international community that needs volunteer support to function.

Data acquisition has many challenges. These range from maintaining connections to the data collection programmes in the country, to data exchange with other countries. From the perspective of data providers,

- Data centres must have the confidence of the providers that the data and accompanying information will be preserved.
- Submission of data must not be too difficult. If a data centre insists on data being submitted in one way only, they run the risk of not receiving valuable data.
- Data centres must acknowledge receipt of data and provide feedback to providers in a timely way. Confidence in a data centre is not improved if a collection of data is provided at one time, but the data centre does nothing with it for many years.
- Data centres must be able to respond quickly to changing needs in the community that provides the data. New initiatives often place new or changed demands for processing, data and information handling.

Data provision has its own challenges. Again, from the perspective of users,

- Data centres must respond quickly to requests for data. The pressure is to provide on-line search and data download capability.
- Data centres must respond to problems encountered by their users when they examine the data or information. Despite best efforts, problems will escape detection by data centre staff. These problems need to be addressed in a timely way.
- Data centres must make their data processing systems transparent to users. If a user does not know what a data centre does, they are unlikely to trust what they produce.

Much of the oceanographic data collected today is through research programmes. As well, many of our clients are researchers. Because researchers both provide data and request data they have a special status. If a data centre loses the confidence of data users, they may also lose a source of data. It is important, therefore, for data centres to pay special attention to research programmes.

All of this must function inside of the national goals and pressures under which a data centre operates. An active member of IODE is one that both provides value to the international community, but also receives value by being part of the community.

A Strategy for the Future

IODE needs to respond to its data providers and users. IODE members must do this in a way that enhances their own national programmes and so demonstrate the value of the national data centre.

An adjustment to the way IODE operates would help. One of the key goals for a data centre is to become a valued partner in any new data collection programme. In research programmes this is best accomplished by developing a close working relationship with scientists. For this to be successful, the data centre must provide a valued service and not simply impose more “overhead” on research programme resources. This is an effective way to learn about the concerns researchers have regarding data management activities and to teach them what is involved in data management.

Having made this connection to data providers and scientists at the national level, IODE as an organization can also do something. We are seeing a number of new observational programmes started and each of these will have a data management component, with or without IODE help. IODE must takes steps to ensure that it provides the data management required by these projects.

A strategy to pursue is to re-organize how IODE addresses these programmes. Instead of responding on a national basis, let it respond collectively. Take GOOS for example. This programme has a number of goals, some of which are pretty clearly defined and some that are still under going refinement. A significant part of the data to be collected for GOOS is within the mandates of one or more IODE data centres. IODE needs to discuss how to reorganize around groups interested and needing to handle specific types or classes of data relevant to GOOS. IODE members may choose to take part in the group projects that address problems of interest. The groups organize the data management function so that a collective archiving strategy is built. They design, build and operate the archives. Work must be shared between members such that each one contributes to the solution.

IODE forms as many groups as it needs to address the requirements of the observational programmes being developed. There will be many commonalities between observational programmes so that one group may be able to meet the requirements of many programmes. As groups achieve their goals, the resulting data management function passes from a development activity to an on-going IODE programme. The development group changes to a maintenance function, and the group is dissolved. If new requirements come along that can be met by changes in an existing data management programme, developments are spun up with current members and the requirements addressed. Members of a group may drop out, and new members be added.

The organization of the project and functions performed by each member of the group is developed in the project. It is entirely feasible to share computer processing functions, or build archives that are electronically accessible by all members.

If this re-organization is made, IODE must do something more. It is clear that the problems one project faces will have commonalties to those faced by other projects. IODE must organize a mechanism that bridges projects so that solutions arrived at by one can be shared with others. This could be accomplished by hosting meetings

where chair persons come together to discuss their projects. It could be at IODE meetings where each project gets some allotted time for an oral presentation, accompanied by a written report to describe the project and how it works. It is not sufficient to meet once in 4 years.

What does such an organization do for IODE and members?

1. Project members will need to work much more closely together than is the rule in IODE today. This promotes idea sharing, and technological advancement for centres.
2. The task of meeting the many requirements for international programmes will be broken into smaller sized pieces. This will allow the collective resource of IODE to be brought to bear on the problem rather than each IODE centre responding on its own.
3. IODE members will be able to choose the projects to work on and so can choose those that respond to national pressures. They can utilize more resources to getting a solution to their problem than they can do individually.
4. Members will be able to demonstrate tangible benefits of participation in IODE. They will be able to show a contribution in one area is more than compensated by benefits gained in another.
5. If one project member has established good relationships with the scientific or more general user community and the project is meeting the needs of the community, then other members will benefit by association with the project.
6. As a group there will be more flexibility to respond to changing requirements of an observational programme simply because more assets can be brought to bear on the problem.
7. It should be possible for IODE to respond to requirements of a new observational programme more quickly. A group can be formed when needed from IODE members with interest in participating.

Recommendation

- The first day of the IODE meeting, announce that the IODE members before the end of the session would need to bring forward an action plan to reorganize IODE to meet the changed demands and invite members to join a Sessional Group which will hold a series of special meetings, evenings or mornings or noon, etc.
- IODE appoint an interim coordinator for the Task Team.
- Members discuss data management projects that they wish to collaborate on. As a starting point, the discussions could be oriented around GOOS requirements and classes of data.
- Discuss each of these projects in separate sessions and appoint an interim coordinator and a draft time table for action.
- During the second week of IODE, discuss these in plenary, approve the action plan.
- The Sessional Group should develop the Terms of Reference for a Task Team, a plan for coordination and overseeing of the projects and recommend membership of the Task Team.

In preparation for the sessions, IODE needs to provide the latest requirements documents available and to make a initial division into discussion groups. Each discussion will have the same goals. Draft goals for the discussion need to be proposed by IODE but could include the following

- To determine the level of interest of participants in developing a joint project.

- To come up with clear objectives of a joint project. As much as possible, the success or failure to meet the objectives should be able to be assessed objectively.
- To describe the initial contributions and tasks of each project member.
- To identify contributions that need to be sought outside of IODE. Such contributions should include scientific advice and participation in many cases.
- To develop an initial timetable for project development.
- To designate an interim chair person for the project