

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
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The Global Directory of Marine and Freshwater Professionals:
OceanExpert

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1. INTRODUCTION

2.1 1997-2001: GLODIR

OceanExpert started as the Global Directory of Marine (and Freshwater) Professionals (GLODIR) in 1997 after the IODE Group of Experts on Marine Information Management (GE-MIM) had noted that the International Directory of Marine Scientists project, developed and maintained in the 1970s and 1980s by several UN agencies had been stopped despite its high appreciation by the ocean research community.

The first version of the new GLODIR was launched in 1997 as a web product enabling experts to enter and edit their information. Whereas the first version used the full ASFA subject descriptor set to enable experts to define their expertise, this was quickly dropped as experts showed little enthusiasm to spend the time required to pick descriptors from this extensive list. It was therefore decided to use a far more limited list of subject descriptors.

In 1999 a number of IAMSLIC members agreed to cooperate in GLODIR as national or regional 'input coordinators'. This led to a rapid increase (doubling!) in the number of entries and GLODIR passed the size of 10,000 records at the end of 1999. At that time it was decided to add the citation field enabling experts to include short descriptions of their most important and/or recent scientific publications. This also proved to be a success as within a year over 15,000 citations were added.

Once a year all experts registered in GLODIR received an email inviting them to update their record. On average 30-40% of the experts responded to this request. A big problem turned out to be the password required for editing records: in many cases the registered experts forgot this password and needed to obtain it from us.

Another problem was that experts who had not provided an email address (or who had been registered by the national/regional coordinators without an email address): although we attempted to send out printed update requests to over 3,000 experts this proved to be an impractical, expensive and time consuming exercise that could not be maintained. By the year 2002 the number of records reached 13,500, of which 3000 did not have an email address.

2.2 2002: OceanExpert

Early 2002 the need to re-engineer GLODIR was assessed. It was found that the technical solution on which GLODIR was based until then (Filemaker database served over the internet with Lasso as middleware) had reached its limits with response times of up to 2 seconds. In addition the mailing function of GLODIR (sending out email to all or part of GLODIR addresses) caused crashes or serious slowdown of the server when the number of addressees exceeded 1,000. It was therefore decided to migrate GLODIR to a more robust and flexible solution. A contractor was hired to re-engineer GLODIR during the summer of 2002.

The following new features were specified:

- (i) easy registration with 'forgot my password' function that emails the forgotten password;
- (ii) enable registered expert to send emails to others in the same country and/or with the same research interest ("community subscribe" function to receive such mails and "community mail" function to send such mails);
- (iii) citation alert: to receive an email alert when an expert with your research interest submit a citation. In addition, to respond to the request to also provide a 'directory of research institutions' the system now uses a 'controlled' institution list whereby new experts can choose from a list of institutions previously entered.

The technology solution chosen is based on the open source MySQL database management system and PHP programming language. Last but not least we decided to rename GLODIR to a more intuitive 'OceanExpert' and the domain name www.oceanexpert.net was registered. The new OceanExpert has been launched officially on 1 November 2002. The 3000 addresses that do not have an email address were also removed.

2.3 Recommendations of GEMIM-VIII related to OceanExpert

The Eighth Session of the IODE Group of Experts on Marine Information Management (GEMIM) was held at CSIRO, Hobart, Australia in September 2004. The Session reviewed the implementation of its 7th Session decisions and prepared a comprehensive work plan for the next inter-sessional period. One of the focuses of the session was the further development of the OceanExpert database.

It was noted that the most significant effects of the new OceanExpert are:

- Increased maintainability and flexibility: the code is now much simpler to understand and alter, making the implementation of new features much easier.
- Permissions system: members of OceanExpert can now be given permission to edit other people's records. This enables a user to take responsibility for editing a group of records, using only their own login.
- Groups system: members can be specified as members of multiple 'groups', allowing specialised views on the system which appear to be separate sites but operate from the same underlying database.

The application had furthermore been migrated to a new Linux server, significantly improving search speed. Several methods of searching the database are currently available. From the "Simple Search" page, users can run a quick query querying the database by Surname or Country. In addition users can browse by country or by Subject (area). The Advanced Search page provides more options and allows the user to combine criteria in order to achieve more specific results.

Discussions at IAMSLIC 2003 did not lead to volunteers offering to coordinate data entry and editing for individual institutions. As such data entry remained limited to voluntary entries by individual professionals. There was a considerable need for updating and validating of records. Ms. Suzie Davies reported 381 records for Australia. Many were out of date. Ms Davies has been promoting the product but the number of records remains unsatisfactory. There are a few marine related associations in Australia that jointly represent about 1500 experts. Few of the members are currently included in OceanExpert.

The Group noted that the system had not sent out update requests for the past five years (1999-2004) and this probably made people loose track of OceanExpert.

The Group had extensive discussions on the need of OceanExpert. It was observed that today's Internet enables people to easily find full address information of fellow experts, whereas such information, in the near to distant past, was only partially available from journal articles. In addition experts have access to electronic discussion lists that cover a wide variety of scientific subjects. It was observed that these new technologies have made a global directory, from the individual expert point of view, rather obsolete.

The Group noted however, that from the national science manager point of view, a directory is still very valuable as it will enable national scientific committees to monitor the number of experts in a given subject area. The Directory could also be useful for employers to identify available expertise. In this regard the Group recommended the addition of field "skills and expertise".

The Group summarized the OceanExpert's features (as were implemented in 2004) as follows:

OceanExpert provides:

- personal/contact information;
- information on job carried out by individual
- information on papers published by individual
- organizational contact information
- list of national organizations
- list of experts at country or regions level
- list of experts at subject level
- search ability by language

The group also stressed that OceanExpert needs to provide:

- information on individual expertise and skills
- possibility to search by region (draw a box? List of countries)
- facility to advertise job opportunities
- list of experts sorted by organizations
- general: set of standard reports, nicely formatted
- search and report on publications
- unique and universal expert identifier

The Group noted with regret that only the sub-directories (such as AFRIDIR, CARSADIR, HABDIR, etc.) had been maintained and updated regularly. The Group concluded that management of records can only be manageable if the directory is sub-divided in smaller groups by subject area or country, and that each of these groups is managed by individual managers.

The Group expressed its disappointment that the administrative function that allowed individuals to manage groups of records (institutional, national, regional) was no longer

available in the new version of the software, and instructed the Secretariat to re-instate this function.

The Group further instructed the Secretariat to enable searching OceanExpert by every field.

The Group stated that it should also be able to generate a variety of reports (eg list of organizations in country x). The Group **instructed** its Chair, in consultation with members, to identify necessary reports and send instructions to the Secretariat.

The Group noted that OceanExpert should also provide a “job opportunities” service on its web site and instructed the Secretariat to develop this feature.

The Group recommended that a link is added in OceanExpert to ASFA in each individual results page). Users can then manually search ASFA, if they are subscribing to it.

The Group considered that it would be useful to have unique identifiers for individual authors in ASFA as this would enable a link in OceanExpert to ASFA to generate a list of publications by that person.

The Group considered that OceanExpert could become an authority list for ocean experts providing each author with a unique and universal identifier. This identifier could then link to any content created by that author (eg data sets, publications, projects etc). The databases of such content could be created and maintained by any external content provider but the personal/contact information would be maintained in OceanExpert. MathSciNet can be used as an example of an authority list.

A similar approach may need to be applied for organizations.

With regard to subject categorization in OceanExpert, **the Group recommended** to add scope notes for the 12 top level categories. This could be done by a link to a document that provides the full list or as a mouse over for each category that then displays the scope notes (=sub-levels).

The Group further recommended adding a field “suggested category” on the record entry form to enable users to point out gaps in the top-level categories.

The Group established an inter-sessional working group, composed of Ms. Suzie Davies, Ms. Pauline Simpson, Mr. Peter Pissierssens and Mr. Benjamin Sims to (i) follow-up the implementation of the technical recommendations; (ii) prepare a brief management plan that will describe the terms of reference of OceanExpert, as well as a more detailed plan for future development. The inter-sessional group was tasked to complete its technical work (i) by April 2005. The document on future developments was going to be prepared early 2005 for submission to IODE-XVIII. (Due to the Indian Ocean Tsunami event and full occupation of Mr Peter Pissierssens by the related problems) this was delayed. Actual implementation of the above-mentioned items started in the second half of 2005 and early 2006).

The Group recommended to proceed with OceanExpert as described above and to evaluate the product at its next Session. The Group further recommended that financial resources be made available to maintain OceanExpert.

2. IMPLEMENTATION OF GEMIM-VIII RECOMMENDATIONS (2005-2007) AND OTHER NEW FEATURES.

2.1 Alumni database

OceanExpert was expanded to give it the functionality as an alumni database intended for tracking of past IODE training course participants. For this purpose a number of additional database fields were added to OceanExpert:

- **Expert comment field:** this allows the expert to add information about his personal career (e.g. changes of job, additional responsibilities). This field is visible for OceanExpert users.
- **Administrator comment field:** this allows the administrator to add information about an expert (e.g. the expert has left the marine science community). This field remains hidden (only visible for administrators).
- **Active/inactive field:** This checkbox allows the administrator to change the status from active to inactive. Active means: professionally active in the home country in a marine or oceanographic science related institute or organisation or temporarily studying abroad. Inactive means: formerly professionally active in a marine or oceanographic science related institute or organisation in the home country but now working abroad or working in a different sector.
- **Events:** the event module contains information about IODE and related events. The following fields are used:
 - Event type (mandatory)
 - Event title (mandatory)
 - Short event title (mandatory)
 - Summary
 - Start Date
 - End date
 - Address
 - City
 - Country
 - Host institution (OceanExpert list)
 - Website
 - Notes
 - Event entered by
 - Organisers (OceanExpert list)
 - Staff (OceanExpert list)
 - Participants (OceanExpert list)

Events attended by an expert (as organiser, staff or participant) appear in the event information. Experts can post events to be listed in OceanExpert but these have to be approved by the administrator.

2.2 Jobs

OceanExpert now includes posting and viewing of job opportunities. Only upcoming jobs are listed. Jobs have to be approved by the administrator before being made public.

2.3 Messages

Sending of emails to other experts: OceanExpert now includes the possibility to send emails to colleagues working in a research area (mailing list). Emails have to be approved by the administrator before being sent out to avoid spam and generic mails.

2.4 Watch list

OceanExpert includes the possibility to add expert's institutions or countries to a watch list. When an expert you are watching (or an expert associated with an institution or country that you are watching) adds a new citation, a notification by email is sent out.

2.5 Group management interface

A new interface is now included which allows the administrator to manage groups (e.g. AFRIDIR).

2.6 Region management interface

A new interface is new included which allows the administrator to define regions (e.g. ODINAFRICA).

2.7 People management database for IODE, GOOS and JCOMM

The OceanExpert database is now being used as the central people management database for the IODE, GOOS and JCOMM web sites. Information about experts, institutions and events entered in these websites is stored in the OceanExpert database. This enables a well organized and well maintained management of IOC related expert information.

3. SISTER WORKPLAN SHEET

The sheet is added as Annex II and contains also information on OceanPortal which is covered in a different report.

4. OCEANEXPERT MOVE TO OSTEND

OceanExpert was moved from the server at UNESCO in Paris to the new permanent server in Ostend in November 2005.

5. ADMINISTRATION

Wouter Rommens (IOC Project Office for IODE) is administrating OceanExpert since January 2006. Administration tasks include quality control of new experts, institutions, jobs and messages and the alumni management (events and people) and management of the site. Technical assistance is provided by Coldrose.

6. OCEANEXPERT USAGE STATISTICS

The information in the table is based upon server statistics information obtained from Estat (<http://www.estat.com>). A 6-fold increase in visits is observed in 2006 compared to 2005.

	Year 2005	Year 2006
Total number of visits	20.883	132.099
Average number of visits per month	1.740	11.008
Average number of visits per day	57	362
New approved records	195	1040
New approved institutional records	No data	414 *

* period 15/03/06 - 31/12/06

7. ALUMNI INFORMATION

All IODE alumni information (trainees, staff and organizers, their institutions and training or workshop events) since 1997 have been added to the OceanExpert database by the administrator. OceanExpert will now be used as Alumni Database. A separate alumni page with searchable fields will be created in 2007.

8. PROPOSED FUTURE ACTIVITIES

The proposed activities below are in addition to the regular administrator tasks: management of OceanExpert (approval of records, messages, jobs and events) and adding of alumni information.

2.1 Year 2007

(i) OceanExpert new features

It will be possible to add photos to OceanExpert and associate them with a member record.

(ii) OceanExpert Quality Control Mailing

A first mailing was carried out in January 2006 and resulted in +/- 3,000 returned mails. A second mailing will be carried out to all OceanExpert addresses using the IODE Project Office Sympa system to request update of the records. The bounce processing functionality of the Sympa system will be used to mark records with incorrect addresses as non-functioning. Records that were not updated after a period of two months will be marked.

(iii) Development of OceanExpert Quality Control Interface

An interface will be developed allowing the OceanExpert administrators to carry out quality control in the OceanExpert system. This interface will allow the following options: listing of institutions without attached experts, listing of institutions with the same name and automatic transfer of all members of one institution to another, listing institutions with the same activities as its members, listing of members with the same name or email address, deletion of users which lack essential information (name, email address, country, etc.) and batch deletion/disactivation of records detected in the above lists by the administrator.

(iv) IODE Training Alumni Tracking Interface

A system will be developed that enables to store information concerning alumni of IODE training courses or workshops within the OceanExpert system. This will involve the following features: creation of a new group for IODE alumni within the OceanExpert

system, association of past and future events (and associated participants) with this new IODE alumni group.

(v) IODE country report system (ANNEX I)

A new functionality will be installed in OceanExpert to serve as a reporting mechanism for the IODE/OceanTeacher programme. This will enable to store the following information on a per-country basis in OceanExpert: IODE subsidiary body membership, participants in IODE meetings, participants in IODE training courses or IODE workshops, travel/study grants provided, experts providing assistance to the IODE programme, contributions provided by and to the IODE programme.

(vi) Country Data entry

In order to be able to produce country reports new information will need to be added. This can be done through the hiring of a job student who can enter this information under supervision of the administrator. This should be finished by the end of 2007 and this will allow the OceanExpert system to produce the IODE country reports.

(vii) Quality control

There is a continuing and growing need for quality control of the OceanExpert records. The reason is that the database is now being used as the central database for person management in the new IODE website and also as the alumni database for IODE training activities. The quality control will be made easier by the new OceanExpert Quality Control Interface, but manual quality control will remain. This can be done by a job student under supervision of the administrators.

(viii) Geographic Extension of OceanExpert

Some regions are currently underrepresented in OceanExpert (e.g. Eastern Europe, Pacific area). There is therefore a need for input from these regions from local institutions and organizations. The administrator will therefore send out a mail to request institutions to enter information.

2.2 Period 2008-2009

(i) Publicity material

There is need for an updated poster and brochure on OceanExpert explaining the new features and functions of OceanExpert. This will be worked out early 2008.

(ii) Update request

Quality control will remain important in this period. We propose to send out update request yearly to keep information in OceanExpert up to date.

2.3 The future : 2008-2013

OceanExpert currently contains more than 12,000 expert records and 4,800 institutional records. Its popularity and visibility has drastically increased in 2006 with an observed rise in unique visits from several thousand per year prior to 2005, 20,000 in 2005 to over 130,000 visits in 2007. This means approximately 360 visits on a daily basis. 1,400 new records have been approved in 2006. There are several reasons for this increase in use. First of all, OceanExpert now has a number of attractive new functions (jobs, events, messages,...) and secondly, OceanExpert is now also being used by Google to search for experts and institutes.

OceanExpert has the potential to grow towards a globally recognized 'Clearing-House' on information on marine experts and institutions. The current OceanExpert system and database

provides a good basis for this. In order to comply as a Clearing-House it is essential that information in OceanExpert is accurate and quality controlled. A different approach will therefore be needed to guarantee this. Because input of expert and institution information now largely relies on the experts and institutions themselves, quality and reliability of the information is now not absolutely guaranteed.

A first step to improve quality is currently being elaborated with the development of the OceanExpert Quality Control Interface. This will help the administrators to clean up the database in a faster and more efficient way. However this will not guarantee accuracy of the OE records. There is always a risk that people enter fictive institutions for various reasons (example: e-mail harvesting, spam mail). It is not possible for the administrators to check accuracy of the records by themselves due to the amount of information in the system.

To avoid this quality monitoring of the Ocean Expert records should be done by Dedicated National Focal Points who have the authority to judge whether information on institutions is reliable. Quality checked records can be labeled, which indicates that provided information is accurate. Input and quality control has to a limited extent been done by regional coordinators (e.g. ODINAFRICA, Afridir list).

In addition to this experts should receive an unique identifier number which enables to create a link with e.g. ASFA. This will allow to produce a citation list of the expert and has the advantage for ASFA that contact information is kept up to date in OceanExpert.

9. BUDGETARY REQUIREMENTS

Budget requirements for the project are for the implementation of new features in the software and maintenance (\$6,000) yearly in the period 2007-2009. New publicity material will cost approximately \$2,000 in 2008. Entering of country information and quality control will require \$ 4,000 per year for period 2007-2009 (hiring of job student).

ANNEX I Proposed IODE country report

IOC country profile for [countryname]

1. Members of IODE Subsidiary Bodies

First name	Last Name	Institution	IODE Subsidiary Body
			National coordinator Data Management
			National coordinator Information Management
			GE-BICH member
			GE-MIM member
			ETDMP member
			... ?

Total number of members of IODE Subsidiary Bodies of [countryname]

2. Participants in IODE meetings

First name	Last Name	Institution	IODE meeting	Year
			IODE committee meeting	
			IODE conference	

Total number of participants of [countryname] to IODE Training Courses or IODE Workshops since 1997:

3. Participants in IODE training courses or IODE workshops¹

First name	Last Name	Institution	IODE Training Course/Workshop	Year

Total number of participants of [countryname] to IODE Training Courses or IODE Workshops since 1997:

4. Travel/study grants provided to [countryname]

First name	Last Name	Institution	Grant received	Year	Amount

Total number of grants received since 1997:

5. Experts of [countryname] providing assistance to the IODE program²

First name	Last Name	Institution	Activity	Year

Total number of number of experts providing assistance to the IODE program:

¹ Training courses and Workshops since 1997

² Contributions to the IODE Program since 1997

6. Contributions (financial or in kind) provided by [countryname] to the IODE program

Item	Year	Cost
e.g. Tide gauge	2007	\$10,000

7. Contributions (financial or in kind) provided by IODE to [countryname]

Item	Year	Cost
Tide gauge	2007	\$10,000

ANNEX II SISTER Workplan Sheet

Element type: ACTIVITY
Code: 32132303
Heading: Global accessible clearing-house service for oceanographic factual and intellectual information

Link to previous level: ER-5: Globally accessible clearing-house service for oceanographic factual and intellectual information (directories, portals, publications,...);

Justification/ identification of needs:

It is still observed that national decision makers have a limited and incomplete image of national ocean research and management capability, especially in developing countries. This often also translates in limited access by IOC and other organizations to national expertise in such countries. Similarly scientific results of researchers in developing countries are insufficiently accessible to the global ocean research community: researchers still have difficulties publishing in international journals, and “grey” literature is often impossible to discover or access. These problems further exacerbate the “digital divide”. The development of IODE products OceanExpert and ODINPub infobases aim to resolve this problem.

Expected results were defined:

Expected Result N° 1	OceanExpert directory upgraded and OceanPortal system updated		
	Performance Indicator(s)	Means of Verification (data source) (Optional)	Programmed Benchmark (where available baseline data so permit)
1	OceanExpert system upgraded *	http://www.oceanexpert.org	N° visits 2005: 20.883 N° visits 2006: 132.099
2	OceanPortal system updated	http://www.oceanportal.org	N° visits 2005: 132.216 N° visits 2006: 125.204

- see also under 2.3 Recommendations of GEMIM-VIII related to OceanExpert

Monitoring/reporting information:

Date	Overall progress assessment (progress in achieving the expected result with reference to performance indicator(s) and associated programmed benchmark(s))
30/06/2006	The OceanExpert system was upgraded and transferred to the IOC Project Office for IODE in Ostend, Belgium. A dedicated system manager has been identified. A comprehensive quality control exercise was implemented in January/February 2006.
01/10/2006	New features were implemented (recommendations of GEMIM-VIII). Unique author codes (e.g. ASFA) are under investigation.
31/12/2006	All IODE alumni (1997-2006) are entered into OceanExpert.
31/01/2007	A second comprehensive quality control exercise was done in January 2007. The OceanExpert data base was cleaned up using the results from the updating cycle in January/February 2006 and January 2007.
Date	Challenges/Lessons learned (including overall contribution to expected result(s))
30/06/2006	Challenges and success factors: The visibility and community awareness of the system will determine its value and long-term sustainability. The quality, reliability and accuracy of information in the system will

	determine the appreciation and use by the target communities.
31/12/2006	Keeping the alumni information up-to-date will require more effort in terms of management. There is also a growing need for more information on experts and institutions from regions which are currently underrepresented in OceanExpert (Eastern Europe, Pacific region).
30/06/2007	
31/12/2007	

Reach:

The developed products (information on experts and institutions) are aimed at national decision makers, international organizations, private sector and the global ocean research community.

Target groups:

Ocean Information Centres
 Ocean Scientists
 Decision Makers
 Academicians
 Scientists

Implementation strategy:

- sub-contracting

RP Budget:

2006	2007	Total
6700	12,000	16700

Breakdown by object of expenditure codes:

It is also required to breakdown the total budget is budget lines (eg participants travel, research contracts,...)

	2006	2007	2008	2009
Implementation of new features in OceanExpert *	\$6,700	\$6,000	\$6,000	\$6,000
New publicity material (poster, brochure) *			\$2,000	
Country data entry and Quality control **		\$4,000	\$4,000	\$4,000
Total per year	\$6,700	\$12,000	\$10,000	\$10,000

* outsourced

** hiring of job student

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