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## Qingdao Open Science Meeting: A major landmark for GLOBEC

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The First GLOBEC Open Science Meeting was held in Paris, in March 1998. Four years later the GLOBEC science community met again in the coastal city of Qingdao for the Second Open Science Meeting. Qingdao was an excellent venue for the meeting with its pleasant surroundings and strong tradition of marine science. Over 250 scientists attended the GLOBEC meeting from 30 countries. The meeting preceded the PICES Eleventh Annual Meeting, and interaction between the two communities was one of the benefits of the co-location of the two meetings. The Paris meeting had a particular emphasis on seeking community input to the development of the GLOBEC Implementation Plan, published in 1999, as IGBP Report No. 47 and GLOBEC Report No. 13, 207 pp. In Qingdao, the presentations reflected the impressive developments in the programme since the publication of the Implementation Plan and provided examples of an exciting range of implementation activities.

Detailed session reports are given elsewhere in this Newsletter. Overall the 4-day meeting was structured around a series of Plenary Sessions with talks by invited speakers in the mornings, and with parallel sessions of Contributed Papers in the afternoons. The themes for the sessions mirrored the major components of GLOBEC research activity, the four foci and the regional programmes. The meeting began with an introductory session including a speech of welcome by Professor Jilan Su, Chairman of the Intergovernmental Oceanographic Commission (IOC), followed by a keynote presentation on “Progress of China GLOBEC” by Professor Qisheng Tang,

*Dr. Roger Harris is a research scientist at the Plymouth Marine Laboratory in the United Kingdom. He is past Chairman of the IGBP/SCOR/IOC GLOBEC Scientific Steering Committee, having led the GLOBEC programme for the last six years. In addition to a continuing and active interest in GLOBEC, Roger is also particularly involved in the work of the ICES Working Group on Zooplankton Ecology. He is currently helping to organise the 3<sup>rd</sup> International Zooplankton Production Symposium, co-sponsored by PICES, GLOBEC and ICES, to be held in Gijon, Spain, in May 2003. His current research interests include the control of biological production by physical processes, the role of water-column biology in global oceanic carbon flux, and the laboratory culture and ecology of marine zooplankton.*

Chairman of the Local Organising Committee. The subsequent Plenary Sessions addressed:

- *Decadal/centennial variability in marine ecosystems: A comparative approach*
- *Antarctic marine ecosystems and global change*
- *Regional and mesoscale coupled physical-biological models*
- *Comparative studies of North Atlantic ecosystems*
- *Linking zooplankton with fishery dynamics*
- *Modelling of transport processes and early fish life history*
- *Social impacts from changes in marine ecosystem structure*
- *ENSO and decadal scale variability in North Pacific Ecosystems (joint session with PICES)*

The themes for the Contributed Paper sessions were:

- *Novel mechanisms linking climate and fisheries*
- *Variability in Antarctic marine populations - physical and biological causes*
- *Biophysical ocean ecosystem modelling: New models, technologies and observing systems*
- *Zooplankton-climate linkages in different regions of the Northern Hemisphere*
- *Interactions between small, meso- and large scale physical and ecosystem processes*
- *Development and application of indices/ variables for the description/ prediction of ecosystem dynamics*
- *Coupled biophysical processes, fisheries and climate variability in coastal and oceanic systems of the North Pacific (jointly with the PICES CCCC Program)*

The standard of presentations was very high, the research approaches adopted were innovative, and many of the results reported were exciting. The Open Science Meeting showed that the GLOBEC community is active and dynamic. A prominent feature of the meeting was the advances that have been made in GLOBEC modelling over recent years. Many of the talks presented a range of impressive modelling approaches, particularly tackling problems of linking physical transport with population dynamics and life history of target species. Clearly, this is an area where GLOBEC is making significant advances. Similarly the results presented from the wide range of globally distributed ecosystems studied by the Regional and National Programmes and for a variety of target species populations provided many opportunities for comparative studies. Such ecosystem comparisons will be the basis of GLOBEC synthesis and the approaches to this were considered in a discussion session, “*Towards GLOBEC Synthesis: Ecosystem comparisons*”, on the final day of the meeting.

The air of enthusiasm and excitement in the discussions, both formal and informal, was a strong feature of the meeting in Qingdao. The venue of the Haitian Hotel was very conducive to interaction, and many GLOBEC initiatives were planned and reviewed in informal satellite meetings. In addition the GLOBEC Scientific Steering Committee held meetings before, during, and after the OSM, and three of the GLOBEC Working Groups, Focus 1 on *Retrospective Analysis and Time Series Studies*, Focus 2 on *Process Studies* and Focus 3 on *Predictive and Modelling Capabilities* met on the weekend before. The collocation of the Working Group meetings in Qingdao meant that joint meetings could be held and a number of promising future initiatives stem from these interactions. Further, the Focus 3 Working Group met with the PICES MODEL Task Team to discuss common modelling issues. On the weekend after the OSM the PICES/GLOBEC Data Management Workshop was held as part of PICES XI convened by Igor Shevchenko (PICES TCODE Chairman) and Hester Willson (GLOBEC Data Manager). 28 people attended the workshop from Canada, Denmark, Japan, Korea, P. R. China, UK, Ukraine, and U.S.A. A report on the Data Management Workshop is given elsewhere in this Newsletter.

The Census of Marine Life (CoML) held their own Steering Committee meeting in Qingdao and there was the opportunity for a joint session with the GLOBEC SSC to explore common interests and the possibility of future joint activities. A joint reception of PICES, GLOBEC and CoML helped further informal interactions.

The Qingdao Open Science Meeting came at a time when IGBP (International Geosphere-Biosphere Program) and

SCOR (Scientific Committee for Oceanic Research) are planning a major new OCEANS (Ocean Biogeochemistry and Ecosystem Analysis) initiative as part of Phase II of IGBP. Drs. Julie Hall (Co-Chairman) and Svein Sundby (Member of the OCEANS Transition Team) presented a very well attended Invited Lecture entitled “*OCEANS – linking biogeochemical cycles and ecosystem dynamics under global climate change and variability*”. This provoked a lot of interest and provided helpful background to the OCEANS Open Science Meeting in January 2003 in Paris.

The three co-sponsors of GLOBEC, IGBP, SCOR and IOC, were represented at the OSM by Drs. Wendy Broadgate, Ed Urban and Umit Unluata. The support of the co-sponsors contributed to the success of the OSM. The meeting was supported by The Ministry of Science and Technology, People’s Republic of China (MOST), Chinese Academy of Engineering (CAE), China Association for Science and Technology (CAST), National Natural Science Foundation of China (NSFC), Qingdao Municipal Government, P.R. China, the Scientific Committee on Oceanic Research, the US National Oceanic and Atmospheric Administration (NOAA) and the US National Science Foundation (NSF). The attendance of seven scientists from developing countries was partially supported by SCOR together with funds from GLOBEC. Some of those supported give their personal impressions of the Open Science Meeting elsewhere in this Newsletter.

The support of the Local Organising Committee was superb, and GLOBEC owes a particular debt of gratitude to Professor Qisheng Tang and Mr. Ling Tong who worked tirelessly to make the OSM the success it was, and to the student support team who helped so effectively in the Symposium Office. The smooth running of the OSM was entirely due to their hard work together with the careful joint planning with the GLOBEC International Project Office.

Selected papers from the Paris Open Science Meeting were published in a GLOBEC special issue of *Fisheries Oceanography* (1999, Vol. 7, pp. 175-390). Similarly, plans are well advanced for a similar special issue of *Fisheries Oceanography* based on papers presented at the Second Open Science Meeting to be published in August 2003. This will provide a lasting legacy, in the open scientific literature, of what was a very successful and memorable meeting.

The complete program for the Open Science Meeting (OSM) can be found at the GLOBEC International website at <http://www.globec.org> (under “OSM”). Selected highlights of the scientific sessions are given in other articles in this Newsletter.