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WG 10 Fukuoka Workshop

PICES WG 10 held an informal workshop in Fukuoka, Japan on Jan. 31 to Feb. 2, 1997, following the Second International CREAMS (Circulation of Regional East Asian Marginal Seas) Symposium. (The courtesy of the local hosts, Prof. Masaki Takematsu and Prof. Jong-Hwan Yoon, RIAM, Kyushu University, was highly appreciated.) The aim of the workshop was to advance the development of the WG 10 report, which is focused on the Circulation and Ventilation of the Japan/East Sea (JES) and its Adjacent Area. The outline of the report, writing assignments, and timetable for developing the report were updated. Most importantly, some of the summary material was developed in the plenary-mode, and a portion of which is summarized below. When established, WG 10 was asked to try to complete its work within two years. Hence, an attempt is being made to complete the report in advance of the PICES VI Annual Meeting in Pusan, Korea (Oct.14-26, 1997) if possible. Success in this regard depends upon the cooperation of a total of 15 members (and others) from all six PICES member countries. Thus, communications are non-trivial, and an attempt is being made to create the report dynamically and on-line through utilization of the Worldwide Web. If successful, the report will be immediately ready for electronic printing as soon as completed, reviewed, edited, and approved; obviously, it could also be kept available on the PICES Web Site.

As presently outlined, the WG 10 report will consist of the following elements: Executive Summary; Introduction; Summary of Present Knowledge; Summary of Ongoing and Planned Scientific Programs; Summary of Related Chemical, Biological, Geological, Geophysical, and Atmospheric Processes and the Potential for Interactive Multidisciplinary Studies; Scientific and Logistical Opportunities and Challenges for Research in the Japan Sea (East Sea); Possible Future Process Studies and Their Design; Status of Numerical Modeling for Japan/East Sea; and Findings & Recommendations, plus a Bibliography which emphasizes the recent literature. The Bibliography per se is expected to be maintained indefinitely on the PICES Web Home Page for periodic updating.

The preliminary Findings and Recommendations are paired (one against the other) and are listed below:

Findings

• F1. A high-level of scientific background information exists (especially due to CREAMS), but a comprehensive understanding of the general circulation and ventilation that is sufficient to support fully the needs of future studies regarding climate variability and change, pollution, fisheries, ecosystems, and biogeochemical fluxes has not yet been achieved.

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- F2. The level of regional scientific communication and cooperation is excellent.
- F3. Major scientific issues in ocean dynamics, in general, and marginal semi-enclosed seas, in particular, can be addressed in JES, especially with NEAR-GOOS in prospect.
- F4. Free access to EEZ-92s is the greatest limitation to international studies of the entire basin.
- F5. Access to Russian, North Korean, Japanese (NAVY), and American (NAVY) databases is a limiting factor.
- F6. JES circulation, chemistry, and biology are linked to adjacent seas and their river discharges, spawning grounds, etc.
- F7. Simulation and nowcast/forecast modeling JES circulation and ventilation to a broadly useful level of accuracy is a challenging but probably feasible task over the next decade.

Recommendations

- R1. Proceed to achieve the necessary level of understanding and encourage the coordination of PICES-GLOBEC, PICES-JGOFS, etc. activities with PAMS/JECSS, CREAMS II, NEAR-GOOS, and their follow-ones.
- R2. Future international studies should build upon recent CREAMS and fisheries science experience, expertise, and infrastructure.
- R3. Encourage development of such studies (e.g., CREAMS II) on an international basis.
- R4. PICES should endorse the general plan of research discussed in this report and use UNOLS to assure EEZ access. [Research vessels should possibly fly the PICES or UN (IOC) flag.]
- R5. PICES should work to improve the data exchange situation, e.g., through funding for Russian scientists.
- R6. Future multidisciplinary JES studies need to include links to adjacent seas, etc.
- R7. JES modeling activities should be evolved to interact well with observational studies and monitoring for mutual benefit; e.g., design of observational networks, hypothesis development, model evaluation, etc. An organized model-observations and model-model comparison activity should be considered to facilitate rapid progress.

Comments on the preliminary Findings and Recommendations will be welcomed, and suggestions for additional ones will be appreciated, as well. However, WG 10 will need to achieve a consensus on the final Findings and Recommendations.

For the PICES VI Annual Meeting, WG 10 is organizing the Physical Oceanography and Climate (POC) session on the Circulation and Ventilation of North Pacific Marginal and Semi-Enclosed Seas. In addition to presenting some of the highlights of the WG 10 report, this session will allow placing the Japan Sea/East Sea studies in the perspective of similar studies in the North Pacific region.

The summary report of PICES WG 10 workshop in Fukuoka was provided by the co-chairmen of WG 10, Drs. Sang-Kyung Byun and Christopher N. K. Mooers

Dr. Byun is Senior Research Scientist at the Korea Ocean Research and Development Institute (KORDI) and Manager of one of the biggest research projects at KORDI: "Study on Oceanographic Atlas in the Adjacent Seas to Korea - Southwest of the East Sea". His fields of interest include (1) hydrography, circulation and meso-scale eddies in the Japan/East Sea; (2) current measurements in the Korea Strait; and (3) ocean acoustic tomography. He received his B.Sc (1972) and Ph.D. (1980) in physical oceanography from the Seoul National University and the Universite de Bretagne Occidentale, France. Dr. Byun is a member of PICES' Physical Oceanography & Climate Committee.

Dr. Mooers is Professor of Applied Marine Physics (with secondary appointments in Meteorology and Physical Oceanography and in Marine Affairs and Policy) at the Rosenstiel School of Marine and Atmospheric Science (RSMAS) of the University of Miami (UM). He serves as Director of the UM Ocean Pollution Research Center and of the RSMAS Ocean Prediction Experimental Laboratory (OPEL: his own research group), and as the Coordinator of the Coastal Ocean Sciences Program at RSMAS. Most of his research has been focused on coastal ocean circulation dynamics. In recent years, OPEL has been developed to focus on circulation modeling of marginal and semi-enclosed seas and to engage in setting up experimental, real-time nowcast/forecast systems. Chris received his B.S. (1957) from the U.S. Naval Academy, M.S. (1964) from the University of Connecticut, and PhD (1969) in physical oceanography from the Oregon State University