Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies

IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional - Global Ocean Observing System (NEAR-GOOS)

Second Session

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1. OPENING

Mr. Hasegawa, Chairman of IOC/WESTPAC Co-ordinating Committee for NEAR-GOOS, called the meeting to order at 09:00 hours on 14 May 1997. He welcomed all members of the Committee from the participating countries and the invited experts to the meeting (The list of the participants is attached as Annex II). While reviewing the development of NEAR-GOOS, he emphasized that NEAR-GOOS has made substantial progress during the last intersessional period. He indicated that after thorough consideration by expert groups and others on a workable exchange system of oceanographic data and products, NEAR-GOOS started its function last year. Now was the right time to review the data exchange system and to modify, as required, the Operational Manual for the system, to make the operation more effective and to attract more users. He further indicated that there was a need to share experience, knowledge, views and ideas in order to make the operation of the system more successful.

The Chairman then introduced Dr. Suvit Vibulsresth, Secretary-General of the National Research Council of Thailand (NRCT) and invited the Secretary-General to give his address to the meeting. Dr. Suvit welcomed all participants attending the Second Session of the NEAR-GOOS Co-ordinating Committee to Thailand. He expressed his satisfaction on the development of NEAR-GOOS as the first regional operational programme in the field of oceanography. He reminded all participants that the final goal of the project is to expand it to the entire region of WESTPAC. Bearing this aspect in mind, the Secretary-General noted that marine scientists in Thailand were interested in co-operating with those from the NEAR-GOOS region to expand NEAR-GOOS to the whole WESTPAC region.

Dr. Suvit informed the meeting that the office of the IOC Regional Secretariat would move to a new building where the SEAWATCH THAILAND project offices would be located. This would ensure the effective co-ordination of programmes involving marine environmental observation and monitoring. The Committee expressed great appreciation for the generous support provided by NRCT.

Prof. Keisuke Taira, Chairman of IOC/WESTPAC, told the meeting that he was pleased to see the development of NEAR-GOOS, in particular the establishment of the Real Time Data Base and the Delayed Mode Data Base, as a mechanism to facilitate co-operation in the NEAR-GOOS region. He further emphasized that the NEAR-GOOS project could be considered as an example or model which could be expanded to other parts of WESTPAC region.

Mr. Yihang Jiang, the IOC Assistant Secretary for WESTPAC, on behalf of Dr. Gunnar Kullenberg, Executive Secretary IOC, and his colleague Dr. S. Mitsumoto welcomed all participants to the IOC Regional Secretariat and expressed appreciation to the experts who have been involved in the development of NEAR-GOOS since the last meeting of the Co-ordinating Committee. He reviewed the development of the system, in particular the relevant decision made by the 29th Session of the IOC Executive Council, and briefly reviewed the progress made in operating the NEAR-GOOS system.

On behalf of the Director of the GOOS Project Office, Dr. Colin Summerhayes, Ms. Naoko Ichiyama informed the meeting about the development of the Global Ocean Observing System(GOOS), including the proposed combination of J-GOOS and the I-GOOS Strategic Sub-Committee to form a Steering Committee for GOOS and, the creation of a new permanent post for the director of the GOOS Project Office.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

The Chairman introduced the Provisional Agenda. The Committee adopted the Agenda attached as Annex I.

2.2 DESIGNATION OF RAPPORTEUR

The Delegate of Korea nominated Dr. Alexander Tkalin as the Rapporteur for this meeting and this proposal was seconded by the Delegations of China and Japan. Dr. Tkalin was designated as the

Rapporteur.

2.3 WORKING ARRANGEMENTS

The Technical Secretary informed the meeting about the working arrangements. The meeting agreed that the Committee would work in plenary as far as possible. Drafting Groups for special issues would be formed as required.

3. REPORT ON THE OPERATION OF THE SYSTEM

3.1 REPORT OF CHAIRMAN, NEAR-GOOS

The Chairman of the NEAR-GOOS Co-ordinating Committee, Mr. Hasegawa, presented the report to the Committee by indicating that the NEAR-GOOS system started its operation upon the adoption of the Implementation Plan and the Operational Manual by the 29th Session of the IOC Executive Council. The oceanographic data were downloaded from the GTS system and contributed from various countries. He further indicated that, in order to get wider participation of oceanographic societies in the region, more efforts would have to be considered in the future development of the system. The Report of the Chairman is attached as Annex III.

3.2 REPORT OF THE TECHNICAL SECRETARY FOR NEAR-GOOS

Mr. Yihang Jiang presented his report by indicating that the system was really in the initial phase of the operation, with oceanographic data provided via the NEAR-GOOS system, which consisted of a Real-Time Database and a Delayed Mode Database, as well as Associate Databases prepared by the participating countries. For the further development of the system, he indicated that more efforts were needed to get more oceanographic data observed and exchanged in the system. He wished all participants a successful meeting and a nice stay in Bangkok. The report is attached as Annex IV.

The Committee expressed its appreciation to the Chairman and the Technical Secretary for their continued efforts to develop the system and accepted the reports with minor modifications.

4. REPORT ON NATIONAL ACTIVITIES

All participating countries were invited to provide information on their national activities in developing the NEAR-GOOS operational system.

The Committee was informed about the progress which has been made in developing national infrastructures for the operation of NEAR-GOOS, providing oceanographic data to the system, developing formats and structures of the database, and about the continued efforts to encourage all potential institutions to provide oceanographic data to the system. The reports are attached as Annex V.

The Committee expressed its appreciation to all participating countries for their contribution, and its satisfaction with the development of NEAR-GOOS.

5. REVIEW OF OPERATIONAL MANUAL AND FUTURE DEVELOPMENT

5.1 DATA FLOW AND REGISTRATION PROCEDURES

The Committee reviewed the operation of NEAR-GOOS databases, including the RTDB, DMDB and Associate Databases, and agreed that the system has started to provide data to users. However, the Committee recognized that further efforts needed to be made to increase the data being contributed to and flowing through the system. In consulting how to achieve this goal, extensive discussion was focused on the following aspects:

(i) the ways to encourage more data producers to provide their data to the system, including increase of the number of means to provide oceanographic data;

(ii) the potential increase in environmental data, including dissolved oxygen, nutrients, and heavy metals etc;

(iii) the procedure for registration enabling users to join the system as described in the Operational Manual (version 1.0).

The Committee requested the DMDB Manager to make efforts to collect, and to make available to all users not only the data from RTDB, but also the detailed oceanographic data which are not reported in real time, even in the initial phase.

The Committee decided that marine environmental parameters which are not defined by the Operational Manual should not be excluded from the NEAR-GOOS data exchange, considering that additional parameters would then increase the public awareness of the system and will show much more usefulness of the system to various users. However, the physical parameters identified should be the priority parameters for the current phase of the NEAR-GOOS operation.

The Committee agreed the Operational Manual (version 1.0) should not be changed at this time, but efforts should be given during the intersessional period, and the necessary revision should be considered at the next meeting of the Committee. The Committee requested Dr. D. Y .Lee to prepare a draft revision in close consultation with other members of the Committee, and to provide the draft well in advance of the next meeting. Taking this into consideration, and recognising the importance of encouraging national, institutional and individual contributions of oceanographic data to the system, the Committee agreed to clarify the functions and roles of the Associate Databases defined in the Operational Manual, in an Appendix attached as Annex VI.

To streamline the registration procedure, wich existed for the security of the databases, it was agreed that all institutions which the members of the Committee come from should be exempted from authorization by the NEAR-GOOS Co-ordinator and from registration for all databases related to NEAR-GOOS.

The Committee realized that the real-time data exchange was a relatively new concept to oceanographic community in the region and it would be unrealistic to expect that all data producers in the region would provide oceanographic data to the NEAR-GOOS Data Bases according to the manual in the early stage of NEAR-GOOS development.

During the initial phase, data producers are allowed to submit their data to the NEAR-GOOS system by various routes, including by direct transfer to the NEAR-GOOS Databases. Data producers can maintain their own data bases, and are strongly encouraged to make them available to the NEAR-GOOS community through the Internet. National real-time data centres in each participating country may establish national database(s) by collecting the available data in the country so as to provide a more efficient service to users. The role of the NEAR-GOOS Co-ordinating Committee is to provide guidelines for the efficient exchange of data.

The Committee noted that the Real Time, Delayed Mode, and Associate Data Bases should make available the data retrieved from these data producers to the registered users, to maximise the benefit to the users.

The Committee agreed the section as described in the Appendix (Annex VI) should be a supplement to the NEAR-GOOS Operational Manual.

In order to get more information on available, or potentially available, data for the system, the Committee agreed to carry out a survey in participating countries on the status of oceanographic data. The format for the survey will be prepared by the IOC Regional Secretariat for WESTPAC, and the survey will be carried out by the members of the Committee in their respective countries .

It was also suggested that in order to promote data contribution and exchange, database managers should be encouraged, for example, to suspend the password protection for a short period

of time, and to report the result of the exercise to the next meeting of the Committee.

The Committee expressed its appreciation to the operators of the RTDB and the DMDB for promoting the operation of the system.

5.2 DATA PRESENTATION AND QUALITY CONTROL

The Chairman introduced this agenda item by indicating that part of this agenda item has been covered by item 5.1 and previous discussion. He indicated that the multi-format of data presentations will increase the benefits of the system to different users, including professional and public ones.

The Committee welcomed the effort of the RTDB in the development of new formats and related software to convert the current data format to user-friendly formats, and requested the manager of the RTDB to further refine the formats in consultation with registered and potential users, and report the results to the next session of the Committee. The Committee noted that each provider does not have to produce the data in the proposed or the existing WMO formats. The Committee welcomed the effort of the RTDB Manager to convert retrieved data into the proposed format.

The Committee realized the importance of data presentation for different users, and encouraged all participating countries and database managers to take this aspect into consideration when developing formats for data presentations.

The Committee agreed that data quality control is essential and decided to discuss the procedures for data quality assurance and data quality control in future meetings.

5.3 DEVELOPMENT OF DATA PRODUCTS

Recognizing the importance of oceanographic data products to various users, the Committee felt that it is necessary to modify the wording in section 3.3 of the Implementation Plan of the project to read :

"The oceanographic data for NEAR-GOOS are temperature, salinity, currents, waves and other environmental elements."

This will enable NEAR-GOOS to take into account the development of GOOS-HOTO module.

As NEAR-GOOS is a pilot project, it was felt that more data and products for end-users should be developed and made available. The Committee emphasized that useful products could attract not only more users but also more attention from governmental decision-makers.

5.4 TECHNICAL CO-OPERATION

Technical co-operation is an important element of the NEAR-GOOS system. The Committee encouraged all possible means for technical co-operation and designated the IOC Regional Secretariat as the contact point for requesting technical assistance and co-operation. The Secretariat should find all possible ways to facilitate technical co-operation.

It was also suggested that a section on technical co-operation should be added to the IOC Homepage on NEAR-GOOS, with emphasis on technical aspects of oceanographic data exchange via Internet, software available for data format conversion, and other share software available for the operation of the system.

Information on the IOC/WESTPAC Training Course on NEAR-GOOS, planned for 13-24 October 1997, in the Japan Oceanographic Data Centre, was provided to the Committee. The Committee expressed its appreciation to the Government of Japan for supporting this important activity, and it suggested to the IOC that the priority should be given to applicants from the NEAR-GOOS participating countries.

5.5 MEASURES FOR ATTRACTING MORE USERS

The Committee discussed this agenda item and decided that all actions to encourage wider participation of users should be taken, including:

(i) publication of a NEAR-GOOS brochure and provision of information to the WESTPAC Newsletter;

(ii) translation of the Operational Manual and the NEAR-GOOS brochure to all languages used in the region;

(iii) design of a more attractive NEAR-GOOS homepage and other related homepages, in particular the first page of each Web server for the system.

5.6 POTENTIAL EXTENSION TO OTHER PARTS OF WESTPAC REGION

The Committee was informed of the relevant activities in other sub-regions of WESTPAC, in particular the South East Asia region, including the IOC/WESTPAC project on Co-operative Study in the Gulf of Thailand, and the joint initiative of WMO and IOC on South East Asian Centre for Atmospheric and Marine Prediction (SEACAMP). The Committee considered that SEACAMP would be beneficial to all member countries in the WESTPAC region, but the present meeting was not an appropriate place to discuss this matter. Exchange of experiences and knowledge with other efforts in developing regional GOOS components, such as the proposed South East Asian - GOOS (SEA-GOOS), should be encouraged.

5.7 RELATIONSHIP TO THE GOOS IN GENERAL

Ms. Ichiyama informed the Committee about the Joint GCOS/GOOS/GTOS Data and Information Management Panel (J-DIMP) which would meet in Tokyo in July 1997 and be charged with developing a data and information management plan for GOOS.

The Committee felt that the regional components of GOOS were very important vehicles for developing GOOS globally, and that the experiment of the NEAR-GOOS data exchange system would provide a useful example for planning an integrated international data network for GOOS. Such a data network should be constructed from regional and national data bases, and implementation of regional activities such as NEAR-GOOS should be encouraged to be implemented as originally envisaged. In this respect, the Committee expressed its satisfaction with the progress made by NEAR-GOOS. The Committee emphasized that, considering the importance of the operational aspects of GOOS, operational oceanographic organizations should be involved in the development of the data and information network.

Dr. N. Flemming, Director Euro GOOS, expressed his thanks for the invitation from WESTPAC to attend this meeting , and remarked that GOOS would be constructed largely on the bases of regional projects such as NEAR-GOOS, EuroGOOS and others by using raw data or assimilated data. The recent meetings of the Coastal GOOS Workshop (Miami, February 1997) and the Joint Scientific and Technical Committee of GOOS (J-GOOS) (Miami, April 1997) had both stressed the importance of regional co-ordination in GOOS. The Ocean Observing Panel for Climate (OOPC) has proposed a programme for Global Ocean Data Assimilation Experiment to run from 2003-2005, and this experiment will rely also on strong regional structure within GOOS.

The Committee felt that the regional components of GOOS are very important aspects for developing GOOS globally. As far as the data exchange and management are concerned, NEAR-GOOS should have confidence in developing its format and system as a contribution to the global ocean observing system.

6. CO-OPERATION WITH OTHER PROGRAMMES AND ORGANIZATIONS

6.1 NOWPAP

Mr. Yihang Jiang informed the Committee about the development and future implementation of the North West Pacific Action Plan (NOWPAP) of UNEP, with emphasis on the NOWPAP priority projects 1 and 3, for which IOC has been designated as the implementing agency. These projects are dealing with a marine and coastal environment database and monitoring system and are closely related to the NEAR-GOOS operation.

The Committee noticed with appreciation that NEAR-GOOS has been included in the NOWPAP project document as providing a useful means for the exchange of oceanographic data, especially physical parameters. The Committee expressed its willingness to co-operate with NOWPAP and contribute necessary data and information to the development of NOWPAP.

6.2 EuroGOOS

Dr. N. Flemming informed the Committee about the development of EuroGOOS, which is an association of governmental agencies in European countries. The driving forces of the system are the requirements from industries and the economic development needs of the countries concerned, together with the needs for environmental management. He further informed the Committee about the strategy and technical approaches of EuroGOOS.

The Committee agreed that it would be beneficial for regional components of GOOS to exchange knowledge and experience by inviting experts to attend meetings organized by NEAR-GOOS and EuroGOOS, exchanging documents, and by other means as appropriate.

6.3 CREAMS

Dr. A. Tkalin provided information on the Circulation Research of the East Asian Marginal Seas (CREAMS) programme. He indicated that this research programme provides useful results on numerical modelling in the region, as well as accurate data on temperature, salinity, currents and other parameters

The Committee welcomed the efforts made by CREAMS , and called for close co-operation with this programme.

6.4 OTHERS

Co-operation with other organizations and programmes was also mentioned during the meeting, including the APEC programmes on earth observations, the Marine Resources Conservation Working Group, relevant PICES programmes and others.

The Committee felt that co-operation with all these organizations and programmes should be encouraged to facilitate more effective operation of the system. Noting the benefit of the exchange of information with these programmes, the Technical Secretary was requested to keep all members of the Committee informed of the activities of these programmes.

7. ADOPTION OF EXECUTIVE SUMMARY REPORT

The Committee adopted the Summary Report with some modifications.

It was suggested that the next annual meeting of the Committee should be organized in one of the participating countries in order to improve the exchange of experience and knowledge. The Chinese Members offered to host the next meeting in China. The Committee expressed its appreciation for the generous offer of China, and decided to have the next session in China, in the first half of 1998.

8. CLOSURE

Mr. Hasegawa thanked Prof. Taira, Chairman of WESTPAC, for his guidance and assistance for

developing NEAR-GOOS and for attending the meeting. He also thanked Dr. Flemming for introducing the experiences of EuroGOOS. He expressed sincere appreciation to all members of the Committee for their hard and constructive work during this meeting. He thanked the National Research Council of Thailand and IOC Regional Secretariat for organizing the meeting.

On behalf of all members, Dr. Sangbok Hahn thanked the Chairman for his effective leadership of the meeting, and for his continued efforts in supporting the operation of the system. The Chairman closed the meeting at 12:00 hours, on 16 May 1997.

ANNEX I

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ANNEX II

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ANNEX III

REPORT OF THE CHAIRMAN NEAR-GOOS CO-ORDINATING COMMITTEE

1. First Session of the Co-ordinating Committee

The NEAR-GOOS Co-ordinating Committee, at its first session (4-6 September 1996, Bangkok, Thailand), adopted the Implementation Plan for the Initial Phase of NEAR-GOOS and the Operational Manual for the NEAR-GOOS Data Exchange (version 1.0). The Chairman of WESTPAC, with the assistance of the WESTPAC and IOC Secretariats, reported the results of the first session to the 29th Session of the IOC Executive Council (24 September - 2 October, Paris, France), and the Council encouraged the early implementation of the NEAR-GOOS project.

2. Operation of the Data Bases

The Real Time Data Base (RTDB) and Delayed Mode Data Base (DMDB) are now operational according to the Operational Manual. As of 31 March 1997, however, only two users have requested the authorizations for the access to the NEAR-GOOS databases. This is, at least partly, due to the fact that the Implementation Plan and the Operational Manual were distributed only very recently, and more users are expected to request the authorization after the publication is delivered to potential users in each country. The chairman has already been approached by several organizations and the formality procedures are now in process in some of them. However, efforts should continue to be made to make the data exchange system more attractive to the operational oceanographic services and research community to promote the exchange of oceanographic data.

The data available in the framework of RTDB and DMDB are, as of 30 April 1997, only those which the Japan Meteorological Agency (JMA) retrieves from the Global telecommunication System of the World Meteorological Organization, and the daily sea surface temperature analysis by JMA. They are first available at RTDB for real time or quasi real time use, and after 30 days, they are moved to DMDB for long time archive.

The Chairman notes with pleasure that progress has been made in the establishment of Associate Data Bases, particularly at National Marine Data and Information Service in China and Korea Ocean Research and Development Institute in the Republic of Korea. They are built as a WWW server to provide their data and products. Such national activities are important to promote the oceanographic data exchange and are further encouraged.

3. Support Activities

The IOC Secretariat created the homepage of NEAR-GOOS shortly after the first session of the Co-ordinating Committee. It contains useful information and has links to RTDB and DMDB as well as other IOC activities.

The Implementation Plan and the Operational Manual were printed together with the summary report of the first session of the Committee by the IOC Secretariat and distributed to the Member States of the IOC.

The IOC Secretariat is producing a brochure for the promotion of the NEAR-GOOS activities. A draft of the brochure will be presented to the Committee for its comments and it will reflect the discussion of the present session of the Co-ordinating Committee and is planned to be distributed at the Nineteenth Session of the IOC Assembly to be held in July 1997.

The first training course on the NEAR-GOOS data management is planned for October 1997 by the Japan Oceanographic Data Center (JODC) in co-operation with JMA, Tokyo University and the Ministry of Education, Science, Sports and Culture of Japan. Around five participants will be invited for the two week training course.

4. Other Related Programmes and Organizations

NOWPAP

The 2nd Intergovernmental Meeting on the Northwest Pacific Action Plan (NOWPAP) was held in Tokyo on 20 November 1996 and the representative of the WESTPAC Secretariat participated in the Meeting. The activities of NOWPAP include establishment of a comprehensive data base and information management system and regional monitoring programme, which are closely related to the activities of NEAR-GOOS.

APEC

The Earth Observation Information Network (EOIN) is one of the APEC activities aiming at the distribution of wide ranging earth observing data such as satellite observations. In the APEC Seminar on Earth Observation for Users held from 3 to 5 March 1997 in Tokyo, the IOC Secretariat presented the status of GCOS and GOOS and the Chairman participated as an observer. Though EOIN is only at the preparatory stage, the data required for and available through EOIN will be of great interest to NEAR-GOOS.

CREAMS

Circulation Research of the East Asian Marginal Seas (CREAMS) program, whose target area is similar to the NEAR-GOOS area, had its 2nd International Symposium in Fukuoka, Japan, from 28 to 30 January 1997. Dr. Tkalin and the Chairman participated in this symposium and the Chairman made a brief introduction of the NEAR-GOOS data exchange system. It is beneficial for NEAR-GOOS to learn the data and products required for the research community through CREAMS and to provide necessary data and data products in the future operation.

5. Acknowledgment

The Chairman would like to express his appreciation for the support of WESTPAC Secretariat and IOC Secretariat to promote NEAR-GOOS. The sincere thanks also go to members of Co-ordinating Committee and others who have kept abreast of the national development in the NEAR-GOOS activities and who have given useful suggestions on the planning and implementation of NEAR-GOOS during this intersessional period.

ANNEX IV

REPORT OF THE TECHNICAL SECRETARY FOR NEAR-GOOS

1. DECISIONS OF THE 29TH SESSION OF THE IOC EXECUTIVE COUNCIL

As adopted by the First Session of the IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional- Global Ocean Observing System (NEAR-GOOS), Bangkok, Thailand, 4-6 September 1996, the Report of the First Session of the NEAR-GOOS Co-ordinating Committee was submitted to the Twenty-ninth Session of the IOC Executive Council (Paris, 24 September- 2 October 1996), together with the Implementation Plan for the Initial Phase of NEAR-GOOS and the Operational Manual for NEAR-GOOS (version 1.0).

The Executive Council approved the report by its Resolution EC-XXIX.5. With regard to the NEAR-GOOS, the EC:

(i) Approves the Recommendation;

(ii) Agrees to initiate the NEAR-GOOS operational phase as soon as possible, accompanied by relevant training activities;

(iii) Instructs the Executive Secretary IOC to provide necessary resources to ensure the effective implementation of the NEAR-GOOS project;

(iv) Urges all participating countries to make further efforts in supporting the implementation of the system, including provision of oceanographic data and facilities necessary for the on-line data exchange required by the NEAR-GOOS operation.

With regard to the implementation of the NEAR-GOOS, the Executive Council noted with great interest and satisfaction the progress achieved. For the implementation and further improvement of the system, it was suggested that:

(i) due consideration should be given to extend its activities from data exchange to other aspects, such as provision of necessary services to various user communities;

(ii) while implementing the initial phase of NEAR-GOOS, focusing on the physical parameters, additional measurements need to added; this concerns, in particular, the chemical parameters, so as to develop a GOOS-HOTO Pilot Project in the region in the near future;

(iii) training activities should be an important aspect of NEAR-GOOS, not only for the participating countries, but also for scientists from other WESTPAC countries so as to further the possible extension of NEAR-GOOS to the entire WESTPAC region;

(iv) co-ordination and co-operation with other regional and national components of GOOS should be ensured, e.g. SEACAMP, SEAWATCH.

2. PROGRESS SINCE THE LAST SESSION

The NEAR-GOOS implementation was officially started after the EC meeting, with the operation of the Real Time Database (RTDB), Delayed Mode Database (DMDB) and Associate Databases. Oceanographic data and some data products, e.g. SST map, have been provided on the daily basis. The homepages of the NEAR-GOOS, RTDB and DMDB have been developed and put on-line.

Further efforts in developing Associate databases are also carried out by participating countries, in particular the Members of the Committee.

2.1 NEAR-GOOS REAL TIME DATABASE

The report of the NEAR-GOOS RTDB is provided separately by the manager. There is no separate report from the Technical Secretary.

2.2 NEAR-GOOS DELAYED MODE DATABASE

The report of the NEAR-GOOS DMDB is also prepared by the manager. There is no separate report from the Technical Secretary.

The Technical Secretary expressed his appreciation to the manager of the RTDB, also to the Chairman of the Committee, and the DMDB for their hard work and their continued technical advice and guidance in the operation of the system.

2.3 ASSOCIATED DATABASES

Associated databases for NEAR-GOOS have been established, or are in the process of being established, together with their respective homepages.

The Korean Ocean Research and Development Institute has established a NEAR-GOOS database providing oceanographic data on some parameters and products, e.g. storm surge forecasting.

The National Marine Data and Information Service of China established its homepage, and the linkage between the homepage and database to provide delayed mode oceanographic data and data products has been carried out. It is expected that the database will become operational shortly.

The National Marine Environment Forecasting Centre is actively working on the establishment of the real time database. It will serve as national centre for providing real time oceanographic data.

As agreed by the First Session of the Committee, these activities are to be encouraged and will become an important part of the NEAR-GOOS operation.

2.4 NEAR-GOOS BROCHURE

A draft of a NEAR-GOOS brochure has been prepared and circulated by the GOOS Project Office of GOOS, and comments from members of the committee and secretariat have been put together. It was recognized that the government will help to publicize the system and to get wider participation of various users and data producers. The design of the NEAR-GOOS brochure will be further discussed in the Second Session of the Committee. It is expected that the brochure could be available before the next session of the IOC Assembly.

3. STATUS OF THE NEAR-GOOS DEVELOPMENT AND IMPLEMENTATION

3.1 REGISTRATION OF THE USERS

Few application forms were received by the managers of databases, as indicated in the respective reports provided by the managers of the databases. The reasons could be:

* Lack of information distributed with regard to the operation of the system;
* Limitation of scientific and geographic coverage of available oceanographic data;
* Constraint caused by the complicated procedure for registration; and
* Few products provided on line.

3.2 DATA CONTRIBUTION TO THE SYSTEM

Thanks to the efforts made by JMA, oceanographic data down-loaded from GTS is available in the system on a daily basis; following the WMO coding system. Other data on certain parameters are also provided by the associated databases, e.g. wind and wave. However, it is important to enlarge the number of data providers in order to ensure wider participation in the system.

Discussions on and decision about the data provision and exchange should be effected by the Second Session of the Committee.

3.3 PUBLIC AWARENESS OF THE SYSTEM

Several activities were taken with regard to the public awareness of the system, such as:

* Japanese version of the NEAR-GOOS Operational Manual has been published and distributed;
* Chinese version of the workshop report and the Manual were also made available;
* Operation of the system was presented in several meetings, workshop, etc., organized by different organizations;
* An article on NEAR-GOOS operation has been published in WESTPAC Information, the Newsletter for IOC/WESTPAC;

However, to broaden the implementation and operation of the system further effort is needed.

4. ACTIVITIES CARRIED OUT BY THE WESTPAC SECRETARIAT

For implementation of NEAR-GOOS, the Technical Secretary has on several occasions discussed various matters with members and experts concerned.

. Discussion with Prof. Yu on the technical aspects of establishment of the real time databases and relevant homepage in China, Beijing, China, November 1997, during the 33rd CCOP Annual meeting;

. Phone discussion with Dr. D.Y. Lee in Beijing, on matters related to wider participation of NEAR-GOOS, especially data exchange;

. Discussion with Prof. Taira, Chairman, WESTPAC, Mr. Hasegawa, Chairman, NEAR-GOOS and Ms. Miyuki Kuranishi, on recent development of NEAR-GOOS, Tokyo, December 1996 during the Second Intergovemmental Meeting for NOWPAP. A short visit to the server of NEAR-GOOS RTDB was introduced by Mr. Hasegawa.

. Meeting with Prof. Yu and Mr. Song on the situation of development of the real time database for NEAR-GOOS, Beijing, China, March 1997, on the occasion of the GOOS-HOTO mission. A short introduction on data and data products collected and produced by the National Marine Environment Forecasting Centre was given to all members of the GOOS-HOTO mission;

. Dinner meeting with Drs. D.Y. Lee and Kim on various matters related to NEAR-GOOS, Anshan, Korea, April 1997, on the occasion of the GOOS-HOTO mission. Relevant NEAR-GOOS database, numerical models and some products were shown in a previous meeting in Seoul;

. Discussion with Mr. Hasegawa, Chairman of NEAR-GOOS on the NEAR-GOOS implementation and preparation of the Second Session of NEAR-GOOS Co-ordinating Committee, Tokyo, Japan, April 1997, on the occasion of the GOOS-HOTO mission.

An article on the NEAR-GOOS operation was published in the 5th issue of WESTPAC Information, a newsletter of WESTPAC, with an example on the data list and SST chart obtained from RTDB.

The Technical Secretary provided information on NEAR-GOOS at various meetings, workshops, etc. since the last session:

* 33rd Annual Meeting of CCOP, Shanghai, China, November 1996;
* 2nd Intergovernmental Meeting of NOWPAP, Tokyo, Japan, December 1996;
* 12th Session of COBSEA, Manila, Philippines, December 1996;
* IOC/WESTPAC Workshop on Co-operative Study in the Gulf of Thailand, Bangkok, Thailand, February 1997.

ANNEX V

NATIONAL REPORTS

China

1. OCEAN OBSERVATION AND MONITORING IN CHINA

Ocean observation and monitoring in China include coastal station observation, repeated section observation, buoy observation, remote sensing monitoring, and airplane observation.

China has established a system of coastal observation stations along its coast. The parameters observed include wind waves, swell, sea surface temperature, salinity, tides, and meteorological parameters. The observations are made four times a day, and the real time data are transmitted to the National Marine Environment Forecasting Center for forecasting use. The data are also transferred to the National Marine Data and Information Service in the delayed mode for archiving.

The repeated section observations are made on a routine basis. The parameters observed include wind waves, currents, salinity, temperature, meteorological elements and other chemical parameters. The data collected are directly transferred to the National Marine Data and Information Service for archiving and public use.

Several buoys had been deployed, but right now only three buoys are in operation. The collected data are first transmitted to NMEFC for real-time use, and then transferred to NMDIS for archiving.

The remote sensing in the National Marine Environment Forecasting Center is mainly for real-time monitoring of sea state, especially Typhoon behavior and sea ice condition, and the remote sensing in other institutions is mainly for research use.

The airplane observation is carried out only for sea ice investigation, and the data are used in operational forecast.

In addition to the real-time forecasting use, all data collected by the China observation system are stored in the National Marine Data and Information Service. The NMDIS is an authorized professional organization in the state level responsible for delayed mode marine data management and international exchange. The other institutions in China engaged in ocean research make contributions to the accumulation of data in NMDIS by provision of data they collect, and get access to the database in NMDIS to get the data they need for their research or other use. According to the regulations of data management set by the relevant Chinese government agency, the international exchange of delayed mode marine data between China and other countries is generally carried out through NMDIS.

2. PROGRESS IN NEAR-GOOS PROJECT IN CHINA

The State Oceanic administration (SOA) is the government agency under the State Council responsible for the integrated management of ocean affairs in China. SOA will supervise the implementation of the NEAR-GOOS project in China by organizing and co-ordinating the relevant Chinese institutions to participate in the activities of NEAR-GOOS. SOA has designated the National Marine Environment Forecasting Center in Beijing as the unit responsible for Associated RTDB of NEAR-GOOS, and National Marine Data and Information Service in Tianjin as the unit responsible for the Associated DMDB of NEAR-GOOS.

2.1 CHINA MARINE INFORMATION NETWORK

For better support of the implementation of the NEAR-GOOS project, a marine information network has been established by the National Marine Data and Information Service in Tianjin, so that more marine information can be used for the operation of NEAR-GOOS. The development of such a marine information network means the increase in capacity for carrying out NEAR-GOOS in

China. Right now, the information contained in the network includes: (1) brief introduction of institutions engaged in ocean science, technology and relevant activities; (2) newspapers and magazines related to oceans; (3) marine data and information; (4) discussion of issues; (5) marine laws, policies, and regulations; (6) marine information products; (7) problems on the ocean research frontier; (8) important events and activities related to the oceans.

2.2 ASSOCIATED DELAYED MODE DATA BASE FOR NEAR-GOOS PROJECT

The Associated Delayed Mode Data Base for the NEAR-GOOS project has been preliminarily established in NMDIS in Tianjin. Part of the historical data collected in coastal stations and R/V stations are experimentally loaded into the database, and the users can get access to the database to obtain the data and relevant products.

The Homepage for the Associated DMDB has been set up and the FTP function has been developed. The Homepage contains the following information:

(1) Introduction of NEAR-GOOS
(2) Principles
(3) Data and Data Products
(4) News and Recent Progress
(5) Area Coverage for NEAR-GOOS

The users can use the FTP function to get information from the entry "Data and Data Products".

A scientist group has been designated for the associated DMDB, responsible for the operation of the database, renewal of the data, expansion of the functions, and dealing with the comments and suggestions from users.

The preparation of Operational Manual for the Associated DMDB is in process. It will be published in the electronic version and in the printed version.

2.3 ASSOCIATED REAL TIME DATABASE FOR NEAR-GOOS PROJECT.

The establishment of the Associated Real Time Database for NEAR-GOOS project is in progress, and it will be in operation by the end of August. Loaded into the Database will be the following data and information:

(1) Real time data collected from Chinese coastal stations;
(2) Real time data collected from the buoy deployed in the East China Sea (29.50 N, 124.00 E);
(3) Data from ship reports;
(4) Sea-ice data collected from airplane observations;
(5) Forecasting products (winds, waves, sea surface temperature, storm surge, sea ice, etc.)
(6) Marine meteorological data and oceanic data abstracted from the GTS data.

3. SOME REMARKS

The NEAR-GOOS project is very helpful for our operational forecasting of the marine environment, oceanographic research, and ocean development and utilization, so we will do our best, in cooperation with the member countries, to make as much contribution as possible to the implementation of the project by actively participating in the relevant activities.

We appreciate the efforts made by the secretariat of WESTPAC and member countries, and expect the successful operation of the NEAR-GOOS system in the near future.

Japan

1. DATA BASES

According to the Operational Manual for the NEAR-GOOS Data Exchange adopted by the NEAR-GOOS Coordinating Committee (CC) at its first session (Bangkok, 4-6 September 1996), the Japan Meteorological Agency (JMA) and the Japan Oceanographic Data Center (JODC) started the operation of the Real Time Data Base and the Delayed Mode Data Base, respectively. Details of the operation of the two data bases are covered in separate papers. No Associate Data Base is planned in Japan so far.

2. NATIONAL WORKING GROUP ON NEAR-GOOS

Since the first session of CC, the National Working Group on NEAR-GOOS established under the National Committee for IOC, composed by JMA, the Hydrographic Department of the Marine Safety Agency, the Fisheries Agency, the Science and Technology Agency, and the Ocean Research Institute of the University of Tokyo, with secretary service by Ministry of Education, Science, Sports and Culture has met once and discussed how Japan should contribute to the project. The outcome of the 1st session of CC and the 29th session of IOC Executive Council was reported in the meeting.

3. USER REGISTRATION AND DATA AVAILABILITY

As of 30 April, no direct input, through the Internet, of observational data to the NEAR-GOOS data bases has been made from Japanese organizations. Apart from organizations operating RTDB and DMDB, only the Ocean Research Institute of Tokyo University has requested the authorization to access the databases. However, several organizations have contacted the CC members to know how the data bases can be used. Moreover, it should be noted that several organizations in Japan already contribute their data to the NEAR-GOOS data through the Global Telecommunication System of the World Meteorological Organization.

The Fisheries Agency has expressed its wish to contribute the data collected by their research vessels to NEAR-GOOS through GTS. JMA has given the Fisheries Agency information on the oceanographic data exchange via GTS on some occasions.

4. ACTIVITIES TOWARD NEAR-GOOS AT THE UNIVERSITIES

NEAR-GOOS has been selected as a central subject for international cooperative activity for Japanese universities. R/V Hakuho Maru is scheduled to occupy the NEAR-GOOS area for 35 days from 21 September to 25 October 1999, and for 45 days from 5 September to 19 October 2000. Hydrographic survey and current measurement will be made. The submarine telephone cables between Hamada and Pusan, Okinawa and Taiwan, and Okinawa and Luzon, are to be transferred to the University of Tokyo, Seoul National University, and Philippine National University for measurement of volume transport of ocean currents. The cruises of R/V Hakuho Maru will be devoted to direct measurement of volume transport by moored current meters and ship borne Acoustic Doppler Current Profiler.

An International Cooperative Research Programme on the Global Ocean Observing System, sponsored by the Ministry of Education, Science, Sports and Culture, is carried out at the universities from 1993 to 1997. After the programme, a new Research Programme on NEAR-GOOS is planned and proposed to be conducted in 1998 through 2002. Tracking of drifters and pop-up floats, utilization of satellite data, development of numerical models for ocean forecasting, and other relevant subjects are selected for the programme.

NEAR-GOOS is one of the important pragrammes for the Center-Of-Excellence of Ocean Research Institute, and Dr. Guo Xinyu has been hired for two years to develop a dynamic model of eco-system in the area, and data assimilation for NEAR-GOOS.

5. TRAINING FOR NEAR-GOOS DATA MANAGEMENT

A Training course for NEAR-GOOS Data Management is planned for October 1997 by JODC in cooperation with JMA, University of Tokyo, and Ministry of Education, Science, Sports and Culture. Around five participants will be invited for the training course. The training course will include introduction of WESTPAC activities including NEAR-GOOS, lectures on real time data exchange and quality control, practices on data processing for various oceanographic data, etc. Some introductory scientific lectures on oceanography will be given as well.

6. OPERATIONAL MANUAL

The Japan Meteorological Agency translated the Operational Manual for the NEAR-GOOS Data Exchange into Japanese and printed 1,000 copies for distribution to various relevant organizations in Japan.

Korea

As a new Ministry of Marine Affairs and Fisheries(MOMAF) has been established recently, NEAR-GOOS activity in Korea will be active soon. The Korea Oceanographic Data Center(KODC) shall be responsible body for Delayed Mode Data Base(DMDB). Four web sites have become operational under following URLs:

- National Fisheries Research and Development Institute (NFRDI) http://haema.nfrda.re.kr/kodc
- National Oceanographic Research Institute (NORI) http://www.nori.go.kr
- Korea Ocean Research and Development Institute (KORDI) http://www.kordi.re.kr
- Korea Meteorological Administration (KMA) http://www.kma.go.kr

NFRDI is responsible for repeated oceanographic observation with bi-monthly intervals in the area covered 32N-38N, 124E-132E; mapping real time SST charts in the area covered 25N-45N, 120E-140E derived from NOAA-AVHRR; coastal environment monitoring and harmful algal bloom monitoring. NORI is responsible for tide and current monitoring. KORDI is responsible for research and development with monitoring waves around Korea. KMA is responsible for marine meteorology with experimental buoy monitoring.

Web services at NFRDI, NORI KORDI and KMA are being actively operation through their own URLs. However, a coastal environment data access and service system is under construction.

A Korea NEAR-GOOS Working Group shall be established under the Ministry of Marine Affairs and Fisheries in the near future, and the electronic communication system will be expanded to small coastal stations and ships to enable effective implementation of NEAR-GOOS. This will take some time.

Permanent and systematic observations are essential for monitoring environmental variables to make time series data as long as possible. It is recommended that research groups and academic groups should support operational groups.

Russia

The NEAR-GOOS project is the North-east Asia Regional component of GOOS (Global Ocean Observing System). This project became operational after approval of the "Implementation Plan" and "Operational Manual" at the 29th Session of IOC Executive Council (Paris, 24 September - 2 October 1996). NEAR-GOOS project covers the Yellow Sea, East-China Sea and Japan Sea. Japan, People(s) Republic of China, Republic of Korea and Russian Federation participate in project implementation. From the Russian side, at least two agencies are involved: Federal Service of Russia on Hydrometeorology and Environmental Monitoring (ROSHYDROMET), and Russian Academy of Sciences. ROSHYDROMET is responsible for collection, processing and storage of oceanographic and meteorological data in Russia. These data are stored in the Russian National Oceanographic Data Center (NODC, World Data Center B) in Obninsk and in the Regional Oceanographic Data Center (RODC) in Vladivostok. The RODC was designated as Associate Data Base for NEAR-GOOS implementation.

1. NATIONAL NETWORK OF OCEAN OBSERVATION AND MONITORING

During the initial stage of NEAR-GOOS implementation, data on water temperature and salinity, currents and wind waves have been collected. In Russia, meteorological and oceanographic data are collected from research vessels, voluntary observing ships and coastal hydrometeorological stations (no oceanographic buoys are available in the Russian Far East). Data from ships are transmitted by radio communication to the main hydrometeorological centers (Vladivostok, Khabarovsk, Yuzhno-Sakhalinsk) every 3-6 hours using WMO code FM 13-VII SHIP. Reported oceanographic parameters include sea surface temperature and waves

There are 15 Russian hydrometeorological stations along the Japan sea coast. At most of these stations observations of sea water temperature and salinity as well as wind waves are implemented. Unfortunately, these measurements are carried out not automatically, but by observers (i.e., taking samples for salinity measurements, using thermometers for temperature measurements and observing wind waves by naked eye and graduated poles). The time interval between measurements may vary from 1 to 24 hours. Measured data are transmitted by radio communication to the regional offices of Russian hydrometeorological service located in Vladivostok, Khabarovsk and Yuzhno-Sakhalinsk regularly using WMO code FM 12-VII SYNOP. Time delays between measurement and reporting data may vary from 0 to 90 min.

2. DATA ACCESS AND SERVICE

Data from coastal hydrometeorological stations and from ships are collected and used (after quality control) by regional offices of the Russian hydrometeorological service in Vladivostok, Khabarovsk and Yuzhno-Sakhalinsk for weather forecasts over the Japan Sea, and different kinds of services. In FERHRI, a few techniques of oceanographic forecasts were developed. For example, storm surges, sea waves (wind waves and swell) can be forecast. There is also a system of objective analysis of sea surface temperature data. Techniques and methods developed in FERHRI are used in regional hydrometeorological centers to prepare forecasts of sea waves and sea ice (in winter). Tide tables are also provided to Russian users.

3. NATIONAL REQUIREMENTS AND FUTURE PLAN

There are a few main problems regarding NEAR-GOOS implementation in Russia (most of them are caused by insufficient funding during the last decades). First, the lack of modern equipment to observe oceanographic parameters (automatic measurements of temperature and salinity, parameters of currents, waves and sea level). Second, the lack of telecommunication equipment and services. Third, poor development of computer networking (i.e., lack of Internet servers/connections, etc.). And last, but not least, oceanographic data from coastal hydrometeorological stations are still closed for international exchange. Because of these reasons, access of potential users to oceanographic data and services is very limited.

To overcome these problems the following activities are planned for the nearest future.

1. Development of a National Program of involvement of the Russian Federation in GOOS (including Euro-GOOS and NEAR-GOOS).
2. Approval of this National Program by Federal Service of Russia on Hydrometeorology and Environmental Monitoring, Russian Academy of Sciences and National Oceanographic Committee of Russian Federation.
3. Approval by appropriate authorities of the release of oceanographic data from some coastal hydrometeorological stations for international exchange (i.e., for inclusion in the NEAR-GOOS data bases).
4. Test data exchange with the NEAR-GOOS data bases (RTDB and DMDB).
5. Operational transfer of oceanographic data from ships and from a few coastal hydrometeorological stations (tentatively - Vladivostok, Nakhodka and Posiet) to the NEAR-GOOS data bases (RTDB and DMDB).

4. SUMMARY OF NATIONAL AND INTERNATIONAL EXPERIENCES OF OPERATIONAL OCEANOGRAPHY

At least three operational oceanographic systems exist at present time. First is the SEAWATCH system developed by OCEANOR (Norway) and located in the North Sea (Anon, 1990;

OCEANOR, 1994 OCEANOR 1996). The system consists of oceanographic buoys with sensors measuring atmospheric pressure, air temperature, humidity, solar radiation, wind speed and direction, wave parameters, currents, vertical temperature and salinity profiles, sea level oxygen saturation, nutrient contents, particle or algae concentrations, radioactivity, etc. New sensors are under development. Data are transmitted from buoys to the shore center via satellite communication (INMARSAT, ARGOS). After data quality control and processing, different kinds of information and forecasts are distributed among users (fishing industry, oil and gas development, marine transportation, tourist industry universities, etc.).

A Similar system, SEAWATCH THAILAND, also developed by OCEANOR, is working in the Gulf of Thailand (NRCT, 1994). Data from oceanographic buoys (with similar sensors) are transmitted to the central data base via ARGOS satellite communication. In particular these data are used for modeling possible oil spill trajectories. Among users are the Meteorological Department, Hydrographic Department, Fisheries Department, Port Authority as well as universities and research institutes of Thailand.

The German operational coastal monitoring network (MARUM - Marine Environmental Monitoring Network) is situated in the North Sea and the Baltic Sea. This network consists of oceanographic buoys measuring atmospheric pressure, air temperature, humidity, solar radiation, rain, wind speed and direction, wave parameters, currents, vertical distribution of temperature and conductivity, water depth, oxygen saturation, chlorophyll and nutrient contents, particle or algae concentrations, radioactivity, etc. (Knauth et al., 1996).Special equipment to take samples of sea water and suspended solids for further analysis of trace metals and organic pollutants is also available. Data from buoys are transmitted to the shore (to the Federal Maritime and Hydrographic Agency, BSH, and GKSS-Research Centre) via radio or satellite communication. Different kinds of information and forecasts are available for users.

Experience collected in these operational oceanographic systems can be used during the NEAR-GOOS implementation.

ANNEX VI

APPENDIX TO THE OPERATIONAL MANUAL (version 1)

Function of Associate Databases

The Associate Databases, as defined in the present version of the Operational Manual, play an essential role in facilitating the data exchange. The Associate Data Bases should retrieve the data from the data producers in the country, and make them available to the NEAR-GOOS community. Associate Databases may also retrieve data from other databases so that the users in the country can access the data more efficiently without access to all the data producers. The procedures with regard to the establishment of Associate Databases or National Databases should be defined by the member country.

To reflect the importance of such databases, the terminology to refer to them may have to be changed during the revision of the Operational Manual in the near future.