



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

**Eleventh Intergovernmental Session of the IOC Sub-
Commission for the Western Pacific (WESTPAC-XI)**
Qingdao, China, 21-23 April 2017

Item 5.1.1 of the Provisional Agenda

**PROGRESS REPORT ON
NORTH EAST ASIAN REGIONAL - GOOS
(May 2015–April 2017)**

In accordance with Terms of Reference of IOC Sub-Commission for the Western Pacific, the report is provided to facilitate the consideration by the Sub-Commission on the progress made on the WESTPAC programme – North East Asian Regional-GOOS (NEAR-GOOS).

The report presents a summary of the activities and results of NEAR-GOOS over the last intersessional period. The Sub-Commission is invited to consider its workplan for the next intersessional period.

I. Programme

1. North East Asian Regional-GOOS (NEAR-GOOS)

2. NEAR-GOOS is a regional pilot project of GOOS in the North-East Asian Region, implemented by China, Japan, the Republic of Korea and the Russian Federation as one activity of IOC Sub-Commission for the Western Pacific (WESTPAC). NEAR-GOOS was conceived in 1995 and initiated in 1996 upon the formal adoption of the NEAR-GOOS Implementation Plan and Operational Manual by the 29th Executive Council of the Intergovernmental Oceanographic Commission following a recommendation from the WESTPAC Regional Sub commission of IOC earlier in the year. It became one of the first regional pilot projects of GOOS.

II. Programme Objectives and Expected Outputs/Outcomes

3. The primary aim of NEAR-GOOS in its first phase was to facilitate the sharing of oceanographic data gathered by agencies of the partner countries using the internet, to support the daily mapping of conditions in the marginal seas bordered by the partner countries.

4. Although it was anticipated that this should eventually lead to improvement in the availability of information and ocean services for all kinds of beneficial purposes (in particular maritime weather and storm forecasting, fishing operations, pollution monitoring and coastal management), it is important to note that these flow-on outcomes were not specific goals for the first phase.

5. The most important successes of NEAR-GOOS in its first phase have been:

- i. The consolidation of a functional two-mode 'distributed' Internet-based database structure in the partner countries as a workable model for the enhancement and coordinated handing of oceanographic data at national level;
- ii. The linking of this structure with two Regional Databases that are responsible for the receipt and merging of data concerning the NEAR-GOOS region as a whole, thus creating a regional database system which is part of GOOS;
- iii. The adoption and practice of a free and open data exchange policy, predating the formulation of such a policy for GOOS as a whole;
- iv. The implementation of coordinated and approved data exchange management training for regional participants.

6. As it enters its second phase greater attention needs to be placed on how NEAR-GOOS should be strategically developed to deliver benefit and utility of its ocean data-gathering effort to its member states. This might involve a greater range of data types and the deriving of generic 'products' such as model analyses and synthesized maps. For this to be possible, it will also require more direct involvement of the agencies concerned and the recruitment of a wider range of organizations and disciplines.

7. The mission of NEAR-GOOS in its second phase is "to develop a comprehensive and sustained ocean observing network in the North-East regional seas and coastal regions, especially focused on observations, monitoring and other activities that cannot be easily implemented by countries acting independently. This network will embrace a wide range of data types and will be accompanied by the participating members and as a contribution to the GOOS and other global observing initiatives."

8. The goals of NEAR-GOOS in its second phase is to "development of a basic integrated ocean observing and operational forecasting system in the NEAR-GOOS area adhering to the GOOS Principles and building on the data management and exchange mechanisms developed in the first

phase through the inclusion of additional parameters, increased coverage in space and time, the generation of a generic suite of data products and adequate quality control and quality assurance procedures”.

9. The operation of NEAR-GOOS has been coordinated and managed by the IOC/WESTPAC Coordinating Committee for NEAR-GOOS which operates with the following general Terms of Reference (revised at the seventh session of the Coordinating committee in Vladivostok, 2002, Recommendation SC-WESTPAC-NEAR-GOOS-VII.1).

10. Committee shall consist of representatives of all member countries. Each country shall designate two members, preferably with one person coming from the operational meteorological/oceanographic community. The committee shall elect a Chairperson among the members. The Chairperson of the Coordinating committee will act as NEAR-GOOS expense of the participating countries. Other countries and appropriately affiliated organizations can attend the sessions as observers. In case a Member is unable to attend, his or her government will try to send a suitable replacement, so that there is continuity of representation.

III. Project Investigator (Chairperson) and Programme Steering Group

11. The committee currently consists of:

Dr. Ting YU (NMDIS, China),

Dr. Zhihua ZHANG (NMEFC, China)

Mr. Norio BABA (JODC, Japan)

Mr. Hiroshi OHNO (JMA, Japan)

Dr. Hee-dong JEONG (NFRDI, Rep. of Korea),

Dr. Heeyoon PARK (KHOA, Rep. of Korea)

Dr. Vyacheslav LOBANOV (POI, Russian), Chairperson of the Committee

Dr. Oleg SOKOLOV (FERHRI, Russian)

IV. Terms of Reference of the Programme Steering Groups

1. Terms of Reference on the IOC/WESTPAC Coordinating Committee for NEAR-GOOS

12. Revised and adopted at the Seventh Session of the IOC/WESTPAC Coordinating Committee for the North-East Asian Regional-Global Ocean Observing System NEAR-GOOS CC-VII, Vladivostok, Russian Federation, 2-4 October 2002

Revised Terms of Reference

13. As part of the revised organizational structure for NEAR-GOOS in its second phase, the NEAR-GOOS Coordinating Committee will operate with the following general Terms of Reference:

Composition:

14. The Committee shall consist of representatives of all member countries. Each country shall designate two members, preferably with one person coming from the operational meteorological/oceanographic community. The Committee shall elect a Chairperson among the members. The Chairperson of the Coordinating Committee will act as NEAR-GOOS Coordinator. The Committee shall meet to the extent possible in regular annual sessions at the expense of the participating countries. Other countries and appropriately affiliated organizations can attend the sessions as observers.

15. In case a Member is unable to attend, his or her government will try to send a suitable replacement, so that there is continuity of representation.

Responsibilities:

- a) Coordinate the development of applications in operational oceanography that demonstrate the usefulness of regional collaboration;
- b) Encourage the increase the volume of quality-controlled data available to the NEAR-GOOS Community through the respective national and regional databases, where possible with the smallest time delay possible;
- c) Inventory and analyze existing activities relevant to NEAR-GOOS including operational systems and programmes, organizations, scientific programmes, services and products, commercial interests, and training and capacity building;
- d) Coordinate to produce integrated comprehensive data sets and data products that conform to the principle of end-to-end data management;
- e) Prepare a NEAR-GOOS Strategic Plan that highlights the direction of NEAR-GOOS over the next five years that incorporates the economic, social and environmental protection needs of the region with a clear approach to enhancing the coordinating mechanism of NEAR-GOOS;
- f) Publicize and disseminate NEAR-GOOS plans and information to regional governments and the general public;
- g) Recommend scientific and technical activities to support NEAR-GOOS implementation by coordinating new pilot projects and providing linkages to existing projects and programmes;
- h) Produce guiding documents for the near real time data collection and exchange in the NEARGOOS region;
- i) Advise and consider sources of funding for pilot project development with various funding agencies and in consultation with pilot project leaders;
- j) Liaison with national NEAR-GOOS committees, J-COMM, GOOS Project Office and other GOOS-related bodies as appropriate;
- k) Develop linkages with existing relevant organizations, programmes and projects in the region.

2. Terms of Reference on the NEAR-GOOS Working Group on Products

Composition:

16. The membership will include one or more experts from the participating agencies or organization, selected based on their expertise in the subject area. Membership can be extended to experts outside the participating agencies or organization by consensus, if their contributions are deemed necessary for the working group.

17. The working group will select a chairperson from its members by consensus, for a term mutually agreed. The chairperson will be responsible for representing the working group and reporting to the NEAR-GOOS Coordinating Committee at its regular sessions.

Operation of the working group:

18. The working group will conduct its business largely by correspondence. It may organize meetings and workshops where necessary and possible, in order to facilitate discussion among members.

Responsibilities:

- To review the present status of NEAR-GOOS products provided by the respective RTDBs and DMDBs, and identify the deficiencies and suggest possible improvements;
- To carry out user analysis, for the knowledge on the application of the NEAR-GOOS products and better understanding of their needs;
- To advise and/or report to the Coordinating Committee on the improvement of the NEAR-GOOS products.

19. The Data Products Working Group is currently headed by Mr. Hiroshi Ohno (JMA, Japan)

3. Terms of Reference on the NEAR-GOOS Working Group on Data Management

20. Adopted at the Ninth Session of IOC/WESTPAC Coordinating Committee for the North-East Asian Regional-Global Ocean Observing System (NEAR-GOOS CC-IX, Sendai, Japan, 3-5 November 2004)

Composition:

21. The membership will include initially representatives of all agencies and/or institutes that operate national and regional NEAR-GOOS databases. Membership can be expanded to include participants from agencies and/or institutes who are willingly to participate in and whose contribution is necessary to the NEAR-GOOS data management.

Chairperson:

22. The working group shall elect a Chairperson among the working group members for a term mutually agreed. The Chairperson will be responsible for representing the working group and reporting to the NEAR-GOOS Coordinating Committee at its regular sessions.

Operation of the working group:

23. The working group will conduct its business largely by correspondence and will meet where possible.

Terms of reference:

- To maintain and develop the database network established in the first phase of NEAR-GOOS
- To review the present database network and develop a plan to improve it
- To prioritize the tasks on NEAR-GOOS data management identified in the past and future CC meetings and develop implementation plans
- To work together with other NEAR-GOOS groups in order to maximize the outcome of the groups' activities through appropriate links between the database network and the activities
- To keep contact with other data management initiatives with a view to introducing new data management method to NEAR-GOOS data management in order to develop and

maintain the regional data management capacity to meet the national, regional and international requirements

24. The Data Products Working Group is currently headed by Mr. Manchun Chen (NMDIS, China).

4. Terms of Reference on the NEAR-GOOS Working Group on Ocean Forecasting Systems

25. Adopted at the Sixteenth Session of IOC/WESTPAC Coordinating Committee for the North-East Asian Regional-Global Ocean Observing System (NEAR-GOOS CC-XVI, Tokyo, Japan, 8-9 December 2015)

Composition:

26. The membership will include one or more experts from the participating agencies or organization based on their expertise in the subject area. Membership can be extended to experts outside the participating agencies or organization by consensus, if their contributions are deemed necessary for the working group.

Chairperson:

27. The working group shall select a chairperson from its members by consensus for a term mutually agreed. The Chairperson will be responsible for representing the working group and reporting to the NEAR-GOOS Coordinating Committee at its regular sessions.

Operation of the working group:

28. The working group will conduct its business largely through correspondence. It may organize meetings and workshops where necessary and possible, in order to facilitate discussion among members.

Term of references:

- To review the present status of operational ocean forecasting systems in the NEAR-GOOS region and set a plan to develop operational ocean forecasting systems for NEAR-GOOS region.
- To promote the cooperation on the joint research and development of operational ocean forecasting systems in the NEAR-GOOS region.
- To implement of NEAR-GOOS Products and Data Managements and try to identify the deficiencies and suggest constructive comments for improvements.

29. The Operational Ocean Forecasting System Working Group is currently headed by Mr. Kwang-Soon Park (KIOST), Republic of Korea.

V. Activities carried out and/or to be carried out during the last Intersessional period (May 2015 – April 2017)

1. Further Development of the project

1.1 A side meeting of NEAR-GOOS CC during IOC/SC WESTPAC X (May 14, 2015,

Cape Panwa Hotel, Phuket, Thailand) has been arranged to reconfirm of the CC members, strengthen collaboration and intensify the activity; most of the CC current members were identified and were then confirmed by correspondence.

- 1.2 16th NEAR-GOOS CC meeting was organized on 8-9 December 2015 in Tokyo, Japan to discuss the status and further plans of the project.
- 1.3 New composition of the Working Group on NEAR-GOOS Products was completed and this WG started its work by correspondence.
- 1.4 New Working Group on NEAR-GOOS Ocean Forecasting Systems has been formed. Its first workshop was held in Vladivostok, Russia on December 14, 2016.
- 1.5 17th NEAR-GOOS CC meeting was organized on 15-16 December 2016 in Vladivostok, Russia to discuss the status and further progress of the project. In addition, it was a celebration of the 20th anniversary of NEAR-GOOS. So, the session reviewed major achievements of the project over last two decades, identified major challenges it has being faced with, and come up with practical action plans in order to achieve the mission of NEAR-GOOS.
- 1.6 NEAR-GOOS pilot project on Cross Basin Climate Monitoring Section (since 2011) has being continued during 2015, 2016 and 2017. Research vessels of JMA (Japan) and POI (Russia) has been implemented synchronized surveys crossing the sea from land to land with CTD observations and chemical sampling. The data is available at <http://ds.data.jma.go.jp/gmd/goos/data/rrtdb/cross-section/cross-section.html>

2. Regional Real Time Data Base (RRTDB)

2.1 General status

30. RRTDB has operated in good condition in this intersessional period. The URL of RRTDB changed in October 2014 due to the replacement of JMA's data server (<http://ds.data.jma.go.jp/gmd/goos/data/database.html>). For the new website, users can obtain the data with a web browser without user registration; only the users who access the FTP server need to be registered.

2.2 Contribution to RRTDB

31. In addition to the data from the Global Telecommunication System (GTS), JMA, and the Integrated Science Data Management (ISDM, Canada) have contributed to RRTDB.

2.3 Changes in products

32. RRTDB started in June 2014 to provide the observation data of the NEAR-GOOS cross-basin climate monitoring section which has been jointly conducted by JMA and the Pacific Oceanographic Institute (POI) of the Russian Academy of Sciences since 2011. The products include the cross-sections of temperature and salinity as well as text data.

33. Reanalysis products of MGDSST and MOVE has been extended back to 1982

Table 2.1 List of Data/Products available at RRTDB (as of Nov. 2016)

Data			
Description of data	Source	Type	Remarks
1) WMO international codes for oceanographic and marine meteorological data (NEAR-GOOS region and global)	GTS	in situ data	FM13 SHIP, FM18 BUOY, FM62 TRACKOB,
2) Decoded data (temperature, salinity and wind data: NEAR-GOOS region and global)	GTS	in situ data	FM63 BATHY, FM64 TESAC
3) GTSP quality controlled temperature and salinity data	GTSP	in situ data	
Products			
Description of data	Source	Type	
1) Daily SSTs (MGDSST *1: Global and the seas adjacent to Japan)	JMA	Images and analyzed GPVs	
2) 10 day mean SSTs (MGDSST: western North Pacific and the seas adjacent to Japan)			
3) Monthly mean SSTs (COBE-SST *2: Global)			
4) Daily subsurface temperatures and surface currents (MOVE/MRI.COM *3: the seas adjacent to Japan)			
5) 10 day mean subsurface temperatures and surface currents(MOVE/MRI.COM: the seas adjacent to Japan)			
6) Monthly mean subsurface temperatures (MOVE/MRI.COM: the seas adjacent to Japan)			
7) Monthly mean subsurface temperatures (Optimum interpolation: Pacific)			
8) Monthly mean sea surface height anomalies (Jason etc., Pacific) --- Reanalysis products only			
9) Sea ice concentrations (north-east Asian marginal seas)			
10) JMA research vessels cruise plan			
11) Cross-basin climate monitoring section			

*1 MGDSST: Merged satellite and in-situ data Global Daily Sea Surface Temperature

*2 COBE-SST: Centennial in-situ Observation-Based Estimates of variability of SST and marine meteorological variables

*3 MOVE/MRI.COM: Meteorological Research Institute Multivariate Ocean Variational Estimation system/Meteorological Research Institute Community Ocean Model

2.4 Results of user's survey

- The number of the registered FTP users is 50 as of November 2016.
- The registered users are from China, Japan, the Republic of Korea, the Russian Federation and the United Kingdom.
- Many of the users are engaged in weather, marine and fishery associated research or service.
- The grid point values (GPVs) of "daily sea surface temperatures" and "daily subsurface temperatures and surface currents" are in high demand.
- These GPVs are mainly used as the boundary conditions of numerical models or as the reference materials for monitoring of ocean conditions.

2.5 Future plan

- Release of High resolution Merged satellite and in situ daily SST (HIMSST, 0.1 deg. x 0.1 deg.)
- Release of predicted surface and subsurface temperature data (MOVE/MRI.COM)
- Update of monthly mean sea surface height anomalies on the routine basis
- Develop monitoring system for access number and downloaded volume (in progress)
- Provision of BUFR format data:
 - Traditional Alphanumeric Codes(TAC) will be replaced by the Table driven Code Forms
 - Considering ways to provide BUFR format data

3 Regional Delayed Mode Data Base (RDMDB)

34. Japan Oceanographic Data Center (JODC) has been operating RDMDB (Regional Delayed Mode Data Base) since October 1996, based on the recommendation of the first session of the NEAR-GOOS Coordinating Committee held in Bangkok in September 1996.

35. RDMDB contains the 59 different types of data files as of October 2016 (Table 3.1).

36. The total volume of oceanographic/marine and meteorological data available on RDMDB is more than 182GB and has increased about 12GB for the last 18 month (since May 2015). 41 types of data have been transferred from RRTDB (Regional Real Time Data Base) operated by JMA. Others are from Japan Coast Guard, Tohoku University and Ministry of Land, Infrastructure, Transport and Tourism.

37. Figure 3.1 shows annual variation of the number of hits on English and Japanese top pages of RDMDB website. The number on the Japanese top page is constant level around 3,000 to 5,000 a year from 2006. The number on the English top page in 2015 was counted the maximum number of 30,883 in the past years. Recently, the access by web crawlers for the English top page is increasing remarkably.

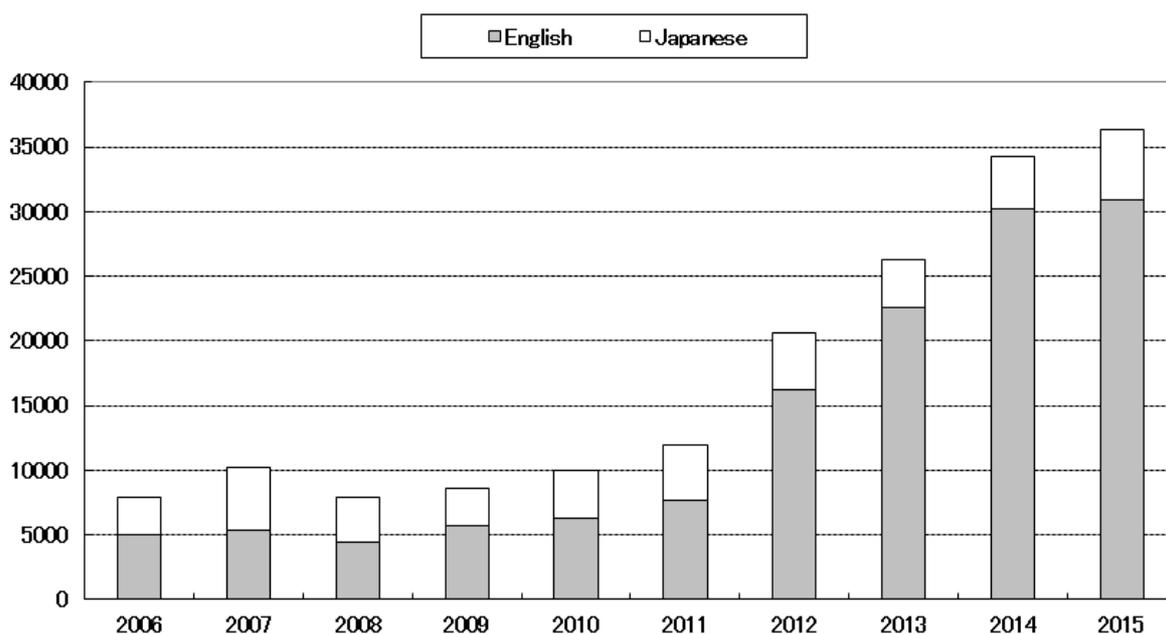


Fig. 3.1 Annual variation of the number of hits on English and Japanese top pages of

RDMDB website

38. Figure 3.2 shows Annual variation of the number and volume of downloaded data files from RDMDB. About 159,626 files and 122.8GB data were downloaded from RDMDB in 2015.

39. Thus, one can note a significant increase in the operation of the RDMDB over last 18 months in the following:

Types of data files – 15

Total volume of data, GB – 12

Volume of downloaded data, GB – 34.9

Number of downloaded files - 124875

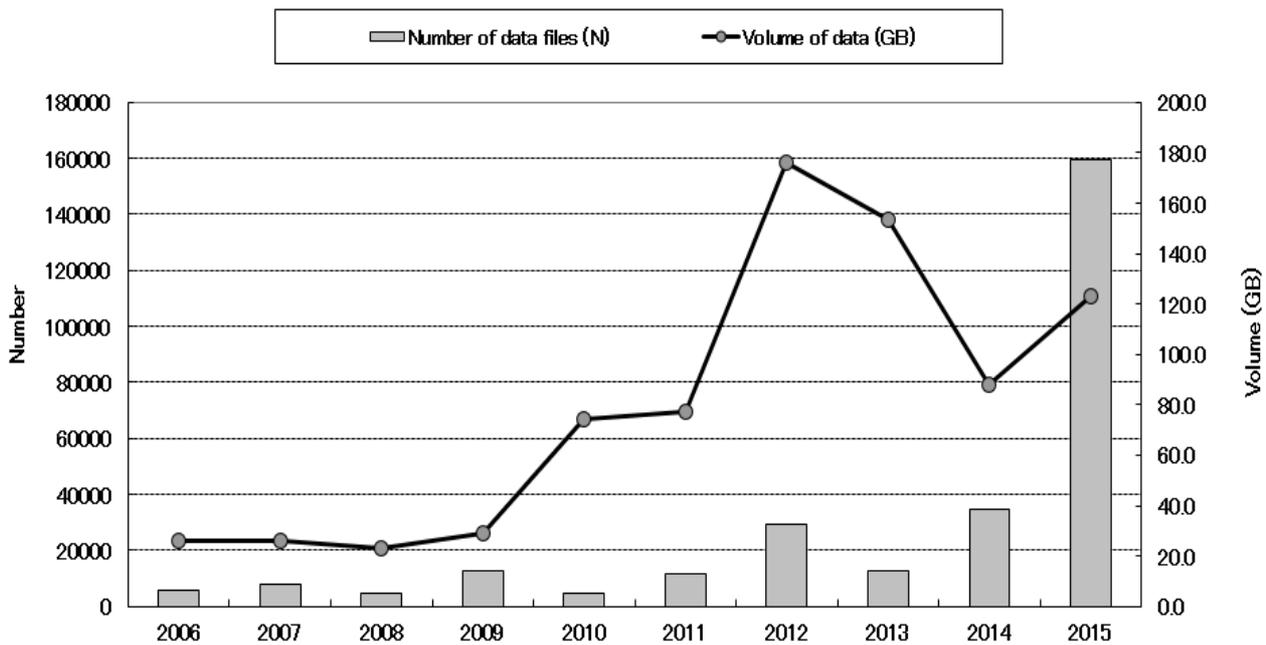


Fig. 3.2 Annual variation of the number and volume of downloaded data files from RDMDB

4 National Data Bases

4.1 China NEAR-GOOS Delayed Mode Database

40. In 2016 China NEAR-GOOS Delayed Mode Data Base (CDMDB) operationally carries out data exchange and sharing, website maintenance and update, and established effective communication with other regional/global projects/programs. Progress of the CDMDB has been made in the following aspects.

4.1.1 Operational Running of the CDMDB

- (a) **Website Maintenance:** CDMDB system has been routinely maintained and upgraded to guarantee the operational running of the website, and to provide data and data product to users. The website was updated early this year to make it more user friendly, and meanwhile to meet the new requirements of data and information management of CDMDB.
- (b) **Data Upload:** In accordance with the objectives of NEAR-GOOOS in its second phase, temperature, salinity, wave, wind, and sea level data have been uploaded into the

CDMDB for sharing with the member states. Since December 2015, quality-controlled data that have been uploaded are listed as follows:

- ❖ Delayed mode temperature and wind-wave data (July 2015-present, updated quarterly) from 3 China Oceanographic Stations: Shidao, Xiaomaidao, and Lianyungang.
 - ❖ Monthly mean sea level data (July 2015-present, updated monthly) from 6 China Oceanographic Stations: Dalian, Lvsi, Kanmen, Zhapo, Xisha, and Nansha.
 - ❖ Marine meteorological data, wave, sea surface temperature and salinity data (July 2015-present, updated monthly) from 13 China Oceanographic Stations: Xiaochangshan, Dalian, Yantai, Xiaomaidao, Lianyungang, Lysi, Shengshan, Zhenhai, Dachen, Nanji, Beishuang, Dongshan, and Zhelang.
- (c) Data Processing and quality control: Standardized part of the data in CDMDB, and developed the corresponding database.
- (d) Product R&D: Developed data products and/or graphic products to enrich the NEAR-GOOS CDMDB. Products have been released on the website. 2°×2° and 5°×5° global surface level, 1000m, 1500m, and 2000m current distribution maps based on the Argo observations, had been developed and updated to October 2015 online.

4.1.2 Information exchange with other international or regional projects

41. As a public welfare institution directly subordinates to the State Oceanic Administration (SOA), China, National Marine Data and Information Service (NMDIS) fulfills the national obligations in international marine information exchange and relating activities. On behalf of China, NMDIS participates in many international ocean-related organizations and programs such as IOC and JCOMM. Besides the CDMDB, it hosts the China ARGO Data Center, China GTSP Data Center, WMO-IOC Center for Marine-Meteorological and Oceanographic Climate Data China Center (CMOC/China), and the International Ocean Institute - China Regional Center for the Western Pacific Regional. It is also the Ocean Data and Information Exchange Node of Western Pacific (ODINWESTPAC), Ocean Data Portal (ODP) China node, and many national centers or national nodes. In the mean time, the efficient communication with other relevant international and regional projects resulted in fruitful outcomes.

4.1.3 The overall progress

(a) CMOC/China

42. Since it was officially approved by WMO and IOC in 2015, CMOC/China has been focusing on the WMO and IOC members needs for high quality marine meteorology and oceanographic climate data, contributing to improve availability, rescue and archival of contemporary and historical data, metadata and products and obtain standardized and high quality marine data and products in a more timely manner.

43. According to the work plan of 2015-2016 approved by the JCOMM expert team, from January-July 2016, CMOC/China has collected and processed temperature and salinity profiles from multiple sources, as well as the marine meteorological obs from the region, such as NEAR-GOOS and ICOADS. Meanwhile, research on the temperature and salinity data integration methodology was carried out, and the experimental version of T&S integration dataset derived from Argo, GTSP and WOD were published online.

44. From 29 August to 1 September, 2016, the First CMOC/China Workshop was successfully held in Tianjin, China. The workshop was hosted by NMDIS, over 30 participants from China, US, UK, Canada, Australia presented the workshop. The 4-day workshop reviewed the progress of CMOC/China in the past two years, discussed current problems in historical data rescue, collection, processing, data products R&D, regional capacity building, and exchanged views on the problems facing by CMOCs in its development on regional and international level.

(b) ODINWESTPAC/IODE

45. Based on the agreement reached on the ODINWESTPAC side meeting held during WESTPAC-X (May 14, 2015, Cape Panwa Hotel, Phuket, Thailand), the First Session of the Advisory Group for Ocean Data and Information Network for the Western Pacific Region (ODINWESTPAC) was held in Tianjin, China, from 27 to 28 January 2016. The main goals of the meeting were to discuss the vision for ODINWESTPAC in the next 2 years to better facilitate the project addressing actual scientific needs of the WESPAC region related to marine data and information.

46. NMDIS, as the host center of the project, proposed the project focus on 5 issues in the future: (i) data products (reanalysis, forecast with special focus on WESTPAC); (ii) marine information (marine expert, institutions, marine library, etc.); (iii) ocean knowledge (such as blue economy and sea level products); (iv) user-oriented services (GIS, 3D sphere); (v) data processing, quality control, product development.

4.2 China NEAR-GOOS Real Time Data Base

47. China National Real Time Data Base system also has been routinely maintained and upgraded to guarantee the operational running of the website (<http://neargoos.nmefc.gov.cn>).

4.3 Korea NEAR-GOOS Real Time Data Base

48. Korea National Real Time Data Base for NEAR-GOOS has been transferred from KORDI to Korea Hydrographic and Oceanographic Administration (KHOA) due to the reshuffle of Korean Government in 2008. KHOA has been constructing and will put in operation the Korea National RTDB for NEAR-GOOS. Prior to its operation, the current Korea national RTDB for NEAR-GOOS has been maintained at website: <http://www.khoa.go.kr/koofs/eng>. At the moment 20 real-time offshore/coastal observing stations has been operating by KHOA with oceanographic and marine meteorological data observed and transmitted by satellite or CDMA in real-time mode

4.4 Korea NEAR-GOOS Delayed Mode Data Base

49. Korea National Delayed Mode Data Base (DMDB) for NEAR-GOOS has been maintained and updated by the Korean Oceanographic Data Center (KODC) of the National Fisheries Research and Development Institute (NFRDI). The coastal and offshore observation data from 1961 to 2016 in the Korean Seas are provided at KODC website (http://kodc.nfrdi.re.kr/page?id=eng_index). Currently, the NFRDI/KODC is developing new website for NEAR-GOOS Korea National DMDB which applies the GeoNetwork open source metadata catalogue system, and this work will be finished before the 17th Session of NEAR-GOOS Coordinating Committee meeting.

4.5 Russia NEAR-GOOS Real Time Data Base

50. The Far Eastern Regional Hydrometeorological Research Institute (FERHRI) continued to maintain the national Real Time Data Base (RTDB) for NEAR-GOOS in Russian (<http://rus.ferhri.ru/esimo/Projects/Neargoos/>) with provision of operational and archived oceanographic and marine meteorological data from 3 coastal stations (located in Vladivostok, Posyet and Nakhodka) and ship reports. The data may be obtained through

<ftp://rus.ferhri.ru/pub/neargoos>. 30 days ship observations data in FM 13-VII SHIP format are located at <ftp://rus.ferhri.ru/pub/neargoos/shipV/>. Coastal stations data on wind speed and direction, visibility, air temperature, surface water temperature, wave direction and period, sea ice extent are located at <ftp://rus.ferhri.ru/pub/neargoos/stationV/>. These information is also available at the Russian World Data Center (WBC-B) at <http://public.feerc.obninsk.org/remac/kav/index.html>. It is planned to expand the data by including atmospheric indices calculated by FERHRI:

- Blinova circulation index for the northern and the southern hemispheres [Blinova, 1967] characterizing the intensity of the west-eastern mid-troposphere transportation in middle latitudes with a month resolution;
- Integrated zonal (Kz) and meridian (Km) air transport (Kats index) calculated for several latitudinal zones of the II natural synoptic region: 35-50 N, 50-70 N, 35-70 N and the areas of marginal seas.

4.6 Russia NEAR-GOOS Delayed Mode Data Base

51. Russian National Delayed Mode Data Base (DMDB) for NEAR-GOOS has been maintained by V.I.Ilichev Pacific Oceanological Institute (POI) at (<http://pacificinfo.ru/near-goos/>) with renewal and provision of historical oceanographic data observed by national and foreign organizations in the Northwest Pacific including NEAR-GOOS seas, and the data set of POI, FERHRI and TINRO marine expeditions (hydrology, chemistry and biology). The information on recent POI oceanographic cruise in the NEAR-GOOS area is located at <http://pacificinfo.ru/near-goos/?show=catalogue&org=POI&orgs=Select>. Information on current cruises could be found at <http://pacificinfo.ru/rv/>. New information on coastal observations is added at http://pacificinfo.ru/data/cdrom/11/html/r_4_1.html. Other new information related to NEAR-GOOS has been also added to the data base.

52. Additionally, in 2016 POI has been deployed an oceanographic data buoy in the southwestern part of Peter the Great Bay providing hourly data on main meteorological and oceanographic parameters. At the moment, the data transmission system is in testing mode. After completion, the data will be available for NEAR-GOOS operational data bases.

5 Future plans

- Increase of a visibility and a funding status of the project. Take necessary actions to stress the importance of NEAR-GOOS to all its member countries, keep close communications with their national delegations to IOC, briefing them of the importance of NEAR-GOOS and suggesting them engaging in the debate at the IOC Sessional Financial Committee meeting on the IOC Biennial Program and Budget, in order to increase financial support for NEAR-GOOS activity.
- Increase an efficiency of the NEAR-GOOS data bases. Recognizing the importance of data quality assurance and quality control (QA/QC) process conducted for the NEAR-GOOS data exchange system, the communications and interactions among Regional databases and national databases and especially a leading function of two Regional data bases should be enhanced. Accessibility of national data bases should be also enhanced. In particular it is necessary to upgrade China national NEAR-GOOS Real Time Database (by early 2017), to start operation of new Korea National Delayed Mode Database (early 2017), to improve two Russian databases in 2017.
- Enhance an activity of the NEAR-GOOS Working Group on Products with the goal to

improve the NEAR-GOOS products in a comprehensive manner. Complete the user analysis and discuss necessary actions.

- Implement an activity of NEAR-GOOS Working Group on data management to improve NEAR-GOOS data bases networking system. The WG shall focus on two major activities over the next intersessional period: i. collection of QA/QC technical manuals, protocols or plans used by each Database, and conduct, if time allows, relevant technical analysis towards the development of a standard format for all data in the NEAR-GOOS data exchange system; ii. Development an inventory for all data and products in NEAR-GOOS data exchange system.
- Implement an activity of just formed NEAR-GOOS Working group on Ocean Forecasting Systems to enhance an efficiency of the existing forecasting capability in the region and cooperation between national operational forecasting systems. It is planned that towards the development of NEAR-GOOS Ocean Forecasting Systems, i. the geographic coverage of NEAR-GOOS Ocean Forecasting Systems shall refer to the NEAR-GOOS region; ii. forecast parameters at this initial stage shall be focused on circulation, temperature, wind and wave; iii, four technical task forces shall be formed on these parameters respectively, with one country volunteering to lead one or more task forces.
- Continue NEAR-GOOS Climate Monitoring Section as a pilot project implemented by JMA (Japan) and POI (Russia) with aim to understand long-term variability of the water mass structure cause by climate change in the region since 2011. To keep the Committee and the WESTPAC Office informed of their activities in order to enhance the visibility of this pilot project and generate more impacts.
- Start ferry based monitoring between Korea and Russia and possibly Korea and Japan in near future using the existing ferry boats' routes between Donghae (Korea) and Vladivostok (Russia) and Donghae and Sakaiminato (Japan). The first cruise and kickoff meeting should be conducted in 2017 as scheduled. The possibility of attracting other NEAR-GOOS countries is currently under discussion.
- Continue development of regional observing capacity through the improvement of the national observing systems as well as communication of operational data when it is possible.
- Expand NEAR-GOOS plot projects activity. To implement the NEAR-GOOS strategy in its second phase to engage wider observation communities and provide information available on the past, present and future of marine environment, ecosystem and climate it is planned to encourage strongly all members to reach out to their observation communities with a view to developing more pilot projects within the framework of NEAR-GOOS.
- Enhance communication with other GOOS Regional Alliances (GRAs) and took participation in the activity of the GRAs including presentation of the NEAR-GOOS at

the 8th GOOS Regional Forum (September 2017, Singapore)

- Strengthen collaboration with other regional and organizations and programs (e.g. PICES, PAMS, others). Prepare presentations on NEAR-GOOS activity and plans, organize joint sessions, workshops, training courses etc.
- Organize the NEAR-GOOS Coordinating Committee meetings on the annual base.

VI. Problems encountered and actions to be considered by the 11th Intergovernmental Session, tentatively scheduled for April 21-23, 2017, Qingdao, China

53. Further support for the activity of NEAR-GOOS CC, its working groups and planned workshops.

VII. Workplan and Budget for May 2017 – May 2019

Project/Programme					Funding Required		Remark
	Activities	Objectives	Expected outputs	Date and place	IOC (Regular and Extrabudget)	Other sources (national or international)	
North East Asian Regional-GOOS (NEAR-GOOS)	1. Communications with member states in the region for their involvement in the project	To increase visibility and awareness on NEAR-GOOS activity	Increase national commitment and support for the project and financial support for its activity through IOC/WESTPAC and directly	During the intersessional period		In kind by China, Japan, Korea and Russia	
	2. Convene the WG on new NEAR-GOOS products	To improve oceanographic data products and services in the region	Recommendation on new products	During the intersessional period		In kind by all member countries	
	3. Convene the WG on Data Management	To operate NEAR-GOOS databases efficiently and effectively	Improvement of databases operating	During the intersessional period		In kind by all member countries	
	4. Convene the WG on NEAR-GOOS Ocean Forecasting System	To improve ocean forecasting capacity in the NEAR-GOOS region	Start activity of the 4 task teams to develop the best practice of ocean forecasts	During the intersessional period, Workshop in Summer 2017, KIOST, Ansan, Korea		In kind by KIOST, Korea	

Project/Programme					Funding Required		Remark
	Activities	Objectives	Expected outputs	Date and place	IOC (Regular and Extrabudget)	Other sources (national or international)	
	5. Preparatory workshop on ferry based monitoring	To discuss a program of ferry based monitoring in the NEAR-GOOS region	Start ferry based monitoring between Korea and Russia and possibly Korea and Japan	Summer 2017, NIFS, Donghae, Korea		In kind by NIFS, Korea	
	6. Continue NEAR-GOOS Climate Monitoring Section	To understand long-term variability of the water mass structure cause by climate change	Continuous time series of CTD and hydrochemical data along the section since 2011	Field work by Japan (JMA) and Russia (POI) research vessels, October-December period of 2017 and 2018		In kind by JMA, Japan and POI, Russia	
	7. Participation in the VIII GOOS Regional Forum and closer communication within the GRA	Strengthen collaboration with other GOOS projects by participation in the GOOS Regional Alliances (GRAs) activity	Further development of NEAR-GOOS through Integration into the Global GOOS	September 2017, Singapore, and on-line during the intersessional period		In kind by the Chairman	
	8. Keep closer connections with PICES and other regional marine science organizations	Strengthen collaboration with other marine science organizations	Presentation on NEAR-GOOS activity and plans, organization of joint sessions, workshops, training courses	During the intersessional period		In kind by the member countries	

Project/Programme					Funding Required		Remark
	Activities	Objectives	Expected outputs	Date and place	IOC (Regular and Extrabudget)	Other sources (national or international)	
	9. 18th NEAR-GOOS CC meeting	To review the implementations of action points agreed upon at the previous sessions and decide work plan and budget for the next session	Action plans and recommendations on new activities	October-December 2017, Beijing, China		In kind by host country/agency	
	10.19th NEAR-GOOS CC meeting	To review the implementations of action points agreed upon at the previous sessions and decide work plan and budget for the next session	Action plans and recommendations on new activities	November 2018, Korea (will be discussed in the 18th CC meeting)		In kind by host country/agency	