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**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

**Eighteenth Session of the IOC Committee on International Oceanographic Data
and Information Exchange (IODE-XVIII)
Oostende, Belgium, 26-30 April 2005**

**REPORT ON ACTIVITIES OF THE WORLD DATA
CENTRES**

WORLD DATA CENTRE FOR OCEANOGRAPHY - Obninsk

1. Name of World Data Centre: Research Institute of Hydrometeorological Information – World Data Centre (RIHMI-WDC), Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet), Russian Federation

2. Data Centre Director and Address

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3. Data Centre URL: <http://www.meteo.ru>

4. Data Centre on-line data access URL (if applicable):

<http://data.oceaninfo.ru/cruisecat/en/index.jsp>

5. Date of IODE Data Centre Designation: 1964

6. Description of World Data Centre data flow:

The scheme of oceanographic data management in WDC-B is shown in Fig.1.

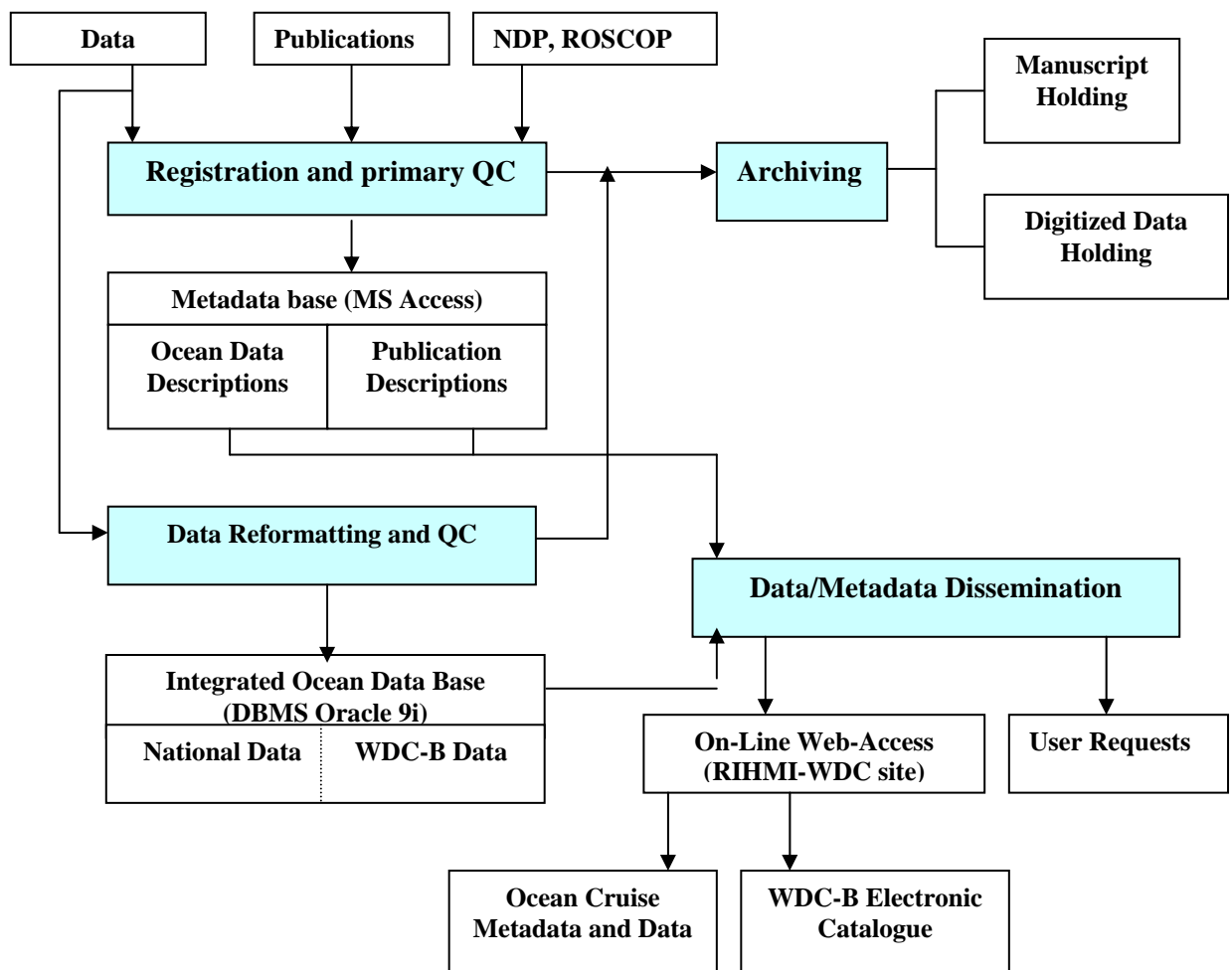


Fig.1. The overall scheme of oceanographic data management in WDC-B

Metadata management:

All data and information submitted to WDC-B (Declared National Programme - DNP, CSR, oceanographic data on various media, publications within WDC domain) are registered and after that descriptions of data and publications are placed in the metadata base managed by DBMS MS/Access. The metadata format being used is similar to that of MEDI and contains summarized characteristics of data, publications and other materials.

Metadata are used to prepare published and electronic WDC-B Catalogues. These are posted on RIHMI-WDC Web page (WDC section) on a regular basis (every month) and available at: http://www.meteo.ru/wdcb/ewdc_oce.htm

Quality control:

All data (in manuscripts and on technical media in original formats) submitted to WDC are processed for QC in the course of registration. This step of QC includes check for data and information structure and content.

Oceanographic data submitted on technical media (CDs, etc.) are reformatted to the Russian NODC formats for the integrated use. At this step oceanographic data are checked using QC procedures (GTSP/MEDAR type).

Data Archiving:

After registration (see the above scheme) all data and information submitted to WDC are permanently archived at RIHMI-WDC in the data (information) originator media and formats in two holdings: Manuscript Holding (publications, DNP, SCR) and Digitized Data Holding (oceanographic data on technical media).

All procedures used in RIHMI-WDC for long-term data storage (holdings with appropriate conditions, periodical check and recovery as necessary) are applied to WDC-B data and information along with national data and information. To ensure long-term and safe data storage the transfer of WDC-B digitized oceanographic data to SDLT-220 cartridges has begun in 2003.

WDC-B digitized oceanographic data reformatted to the Russian NODC format are loaded to the Russian NODC integrated oceanographic data base for subsequent use and are also held in the Digitized Data Holding in the form of oceanographic archived data sets along with national data.

Data dissemination:

Information on data and information submitted to WDC-B is published on a regular basis in the form of WDC-B Catalogues. They are issued 4 times a year and disseminated to 135 organizations of 55 countries. The electronic version of WDC-B Catalogues is posted on RIHMI-WDC Web site in WDC section and updated every month.

WDC-B oceanographic data and metadata digitized and reformatted to the Russian NODC format are available on-line at <http://data.oceaninfo.ru/cruiseat/en/index.jsp>. WDC-B oceanographic data are available by requests.

7. During the last intersessional period: 2003-2004**7.1 How many organisations sent data to your World Data Centre?**

During the intersessional period (2003-2004) WDC-B accumulated oceanographic data from over 500 R/V cruises for 1951-2004 from 8 countries – 50.000 oceanographic stations, 100.000 BT profiles. In this period 111 publications for 1993-2004 from 8 countries were received. Data arrive mainly on CDs (Annex 1). The total amount of data submitted to WDC-B decreased as compared with the previous intersessional period probably due to more intensive use of new information technologies.

During 1964-2004 WDC-B accumulated oceanographic data from over 15.000 R/V cruises for 1890-2001 from 64 countries - 2.000.000 oceanographic stations, 1.950.000 BT profiles and 95.000 CTD profiles; 800 current meter series, 35.000 pollution records (Fig.2).

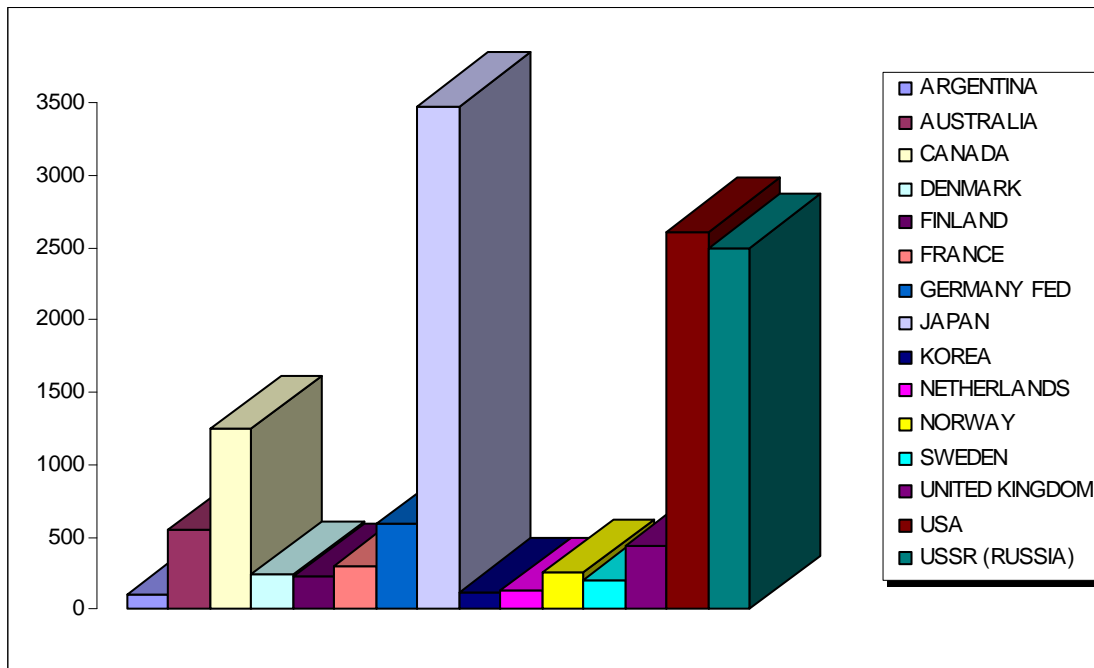


Fig.2. Ocean cruise data in WDC-B

7.2 What data products and publications were produced and distributed by your WDC?

WDC-B Catalogues issued 4 times a year and disseminated to 135 organizations of 55 countries. The electronic version of WDC-B Catalogues is posted on RIHMI-WDC Web site in WDC section and updated every month.

Data products: temperature and salinity climate fields for the North European basin (Barenz, Norwegian, Grenland Seas and adjusted North Atlantic).

7.3 Who (physically) visited your WDC (ie as a person, not on-line)?

Visitors from IFREMER (France), HNODC (Greece), IOS (Italy), BODC (Great Britain), MHI (Ukraine).

7.4 What kind and how many requests did your World Data Centre receive? Was this different from previous reporting periods?

After dissemination of World Atlases (WDC-A) a number of requests for oceanographic data and climate summaries has decreased significantly. At present users take more interest in operational data, prognostic and diagnostic information. WDC-B data are partly loaded to Oracle DBMS available at <http://data.oceaninfo.ru/resource/connector/main1.jsp>. Besides, these data may be made available after search of information on RV cruises (if data are included into DB). A number of daily visits is 10.

7.5. What data and information get passed on to other World Data Centres? Has there been any joint activity with other World Data Centres?

No

7.6 Do you have contacts with IODE RNODCs? (if so please specify)

WDC-B has contacts with WESTPACK. It submits to WDC-D regional oceanographic data (see Annex 1). These data are also used by FERRHI to build daily surface water temperature fields for North Pacific.

8. What are the strengths and problems of the present arrangements for the World Data Centre System?

The analysis of data flow allows for the conclusion that the conventional form of international oceanographic data exchange using the DNP mechanism tends to decrease. Besides, DNP data arrive at the WDC-B at a delay much exceeding a two-year period (3-5 years on the average) established by ICSU and IOC. At present the overwhelming majority of oceanographic data submitted to WDCs are generated under the IOC/IODE international programmes or the programmes where IOC/IODE is involved.

IODE WDCs network potentially is an effective mechanism providing accumulation, storage and dissemination of oceanographic data on a regular basis. This mechanism ensures data integrity and makes it possible to obtain the accumulated data for various research and applications.

However it should be noted that the guidelines and guides on activities of the IODE WDCs were formulated long ago – the latest edition of the Guide on International Data Exchange was published in 1992 and since that time approaches to data accumulation and management changed radically. In particular, as was mentioned above today the emphasis is clearly made on oceanographic data management under international global programmes, advanced information technologies are being developed rapidly, user requirements changed significantly, especially in the context of GOOS design and implementation as well as new initiatives such as GMA and GEOSS. In our opinion the key problem of WDC system is in its slow response to present-day user requirements. Besides the technological modification of the system is required to be able to comply with the rapid progress of computer facilities and advanced information technologies.

9. What improvements could be made to the World Data Centre System?

It is necessary to understand the role of IOC/IODE WDCs in a new context and to specify (m.b. to expand) its functions to be able to meet present-day challenges in terms of both World ocean study programmes being rapidly developed and new data management facilities. These aspects are closely connected with the overall modernization of IODE. To improve the WDC system it is necessary to:

- (i) more clearly define indicators of the WDC system operations (marine parameters, geareas, data/product types, etc.) within the IODE framework for the short-term and long-term periods on the basis of GOOS/GCOS/COOP requirements and requirements of new initiatives – GEOSS, GMA;
- (ii) establish a mechanism to flexibly aim WDCs at meeting present-day challenges in the field of metadata, data and product submission to IODE users as well as other activities;
- (iii) improve the IODE data management standards and technology on the basis of modern Web-oriented client-server technology to provide “end to end” data management process.

In fact these activities have already been started through the development of the IOC Strategic Plan on Oceanographic Data and Information Management that is seen as a very important step of the IODE system modernization, including operation of WDCc.

10. What future activities are planned by your WDC?

In the coming 2-3 years WDC-B is expected to:

- (i) rewrite all digitized oceanographic data submitted to WDC-B to data storage library cartridges to ensure long-term and safe WDC data storage;
- (ii) reduce the time for posting metadata on data submitted to WDC-B at RIHMI-WDC Web site;
- (iii) implement technology of quasi-operational reformatting of digitized data submitted to WDC-B to the unified data format and provide on-line user access to all WDC-B data;
- (iv) allow WDC-B users to make data retrieval and statistical processing including development of generalized parameter fields and product representation in the table-graphical form .

Annex 1

Data and information, submitted to WDC-B in 2003-2004

| Title | Vol. | Organization |
|---|------------------------------|---|
| Transmission Schedules. Vol. C2 | TS. Vol C2 | WMO |
| JODC Oceanographic Data. Vol.1 1965-2001, Vol.2 1994-2002 | JODC OD 1965-2001, 1994-2002 | Japan Oceanographic Data Center JODC |
| Oceanographic Normals and Analysis for the period 1971-2000 (revised edition) | ONA 1971-2000 | Japan Meteorological Agency (JMA) |
| Global Warning Projection Vol.5 | GWP. Vol.5 | Japan Meteorological Agency (JMA) |
| Information for Shipping. Vol.D | IFS. Vol.D | WMO |
| Transmission Schedules. Vol. C2 | TS. Vol C2 | WMO |
| Observing Stations. Vol.A 2003 | OS. Vol.A 2003 | WMO |
| Medatlas 2002 (Mediterranean, Black Seas) | 4 CD-ROMs, 2202 Mb | European Commission |
| Biological, hydrological and hydrochemical Indian Ocean observations | 1 CD-ROM, 51 Mb, 1951-1997 | Indian NODC, National Institute of Oceanography |
| Brief report on ARANDA RV cruise | 2 diskettes, 2004 | Institute of Marine Research, Finland |