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INTERGOVERNMENTAL OCEANOGRAPHIC
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JOINT WMO/IOC TECHNICAL COMMISSION FOR
OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)
EXPERT TEAM ON MARINE CLIMATOLOGY

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REPORT OF THE CHAIRMAN OF THE TEAM

(Submitted by Dr M. Mietus, Chairman of the Expert Team on Marine Climatology)

Summary and Purpose of Document

This document contains a report by the chair of the ETMC on the activities of the Team, since its establishment.

ACTION PROPOSED

The Expert Team on Marine Climatology is invited to note and comment on the report as appropriate. Specific issues raised will be addressed under the appropriate agenda items.

Appendix: Work plan of the Expert Team on Marine Climatology

DISCUSSION

Report of the Chairman of the Expert Team on Marine Climatology

1. The Expert Team on Marine Climatology was established by Resolution 4 (JCOMM-I) (Akureyi, June 2001). The terms of reference of the Team were defined in the Annex to the resolution (see ETMC-I/Doc. 8.1 TOR of ETMC). This Expert Team is the successor of the former Subgroup on Marine Climatology of CMM. The membership of the former subgroup was generally limited to representatives of Responsible Members of MSSC. However JCOMM-I decided that, taking geographical balance into account, the membership of this Expert Team should be extended. Representatives of 12 national weather services were selected as members of the Expert Team on Marine Climatology. Argentina, Chile, Ghana and Poland designated persons to work in the Expert Team apart from the traditional representatives of the Responsible Members e.g. Germany; Hong Kong, China; India; Japan; Netherlands; Russian Federation, United Kingdom and USA.
2. The members of the Expert Team changed due to the decisions of their national services. They were shifted to the other tasks or left their services. Mr Chris Hall (United Kingdom) was replaced by Miss E. Gowland (United Kingdom) in 2002, Mr M. Kaneda (Japan) was replaced by Mr Takashi Yoshida (Japan) in April 2003, Dr C. Tam (Hong Kong, China) was replaced by Dr W.T. Wong (Hong Kong, China) in this same year and finally Dr V. Wagner (GCC Germany) retired and left the German Weather Service (DWD) in autumn 2003 was replaced by Mr R. Zöllner (GCC Germany).
3. The Third Project Meeting of the VOSclim Project was held in the Southampton Oceanographic Centre (SOC), Southampton, United Kingdom in January 2002. Several aspects related to the project were discussed in detail. Some concerned the practice which is in use by VOS and MCSS (real-time and no-real-time data transmission, extended layout of data record for VOSclim's ships, metadata particularly WMO-No. 47 and ship's inspection form). During the meeting the review of the new contents of the catalogue was made. It was agreed that vessel types and type of meteorological reporting ship, as well as abbreviations used, should be further reviewed. Dr Elizabeth Kent (SOC, United Kingdom) agreed that she would prepare and circulate a revised list of vessel types, based on the Lloyds register data.
4. The Workshop on Advances in the Use of Historical Marine Climate Data was held in Boulder (USA), 29 January-1 February 2002. More than 45 people attended the workshop, more than 30 presented problems related to marine climatology. Several significant problems were identified and discussed in detail by three working groups. The technical aspects related to data archeology, rescue, digitalization, management on global scale etc. were discussed by the Working Group on Technical Aspects (WG2). The significant value of metadata was also underlined. The WG2 stressed the importance of international cooperation particularly within JCOMM and the Expert Team on Marine Climatology pointed out some common interest e.g. IMMA format, metadata, history of CMM decisions concerning VOS and MCSS, bilateral data exchange within GCCs etc. Several recommendations were made. The recommendation from the Working Group on mean sea level pressure and wind (WG3) was to adjust the wind force data back to about 1854 using an improved equivalence scale (most likely the implementation should produce a separate field, so that the present WMO 1100-based values can still be archived and made available). Almost all presentations and conclusions from all working groups' discussions were available on WWW. The WMO Bulletin published an extended report including all recommendations of this workshop.
5. Taking into account the above recommendation, the chairman of the Expert Team decided to invite, in agreement with the WMO Secretariat, the external expert, Dr Ralf Lindau (University of Bonn, Germany) to be responsible for the realization of this task. The invitation was kindly accepted by Dr Lindau, who cooperated successfully with the former Subgroup on Marine Meteorology in the field of the Beaufort equivalence scale in the past.

6. Dr Lindau gave a talk on this general subject at the Second Workshop on Advances in Marine Climatology (CLIMAR-II). As presented in Brussels, the wind correction according to the method recommended (by individual pressure differences) was completed for the North Atlantic. The full version of his presentation was published on CD-ROM in the Proceedings of CLIMAR-II, WMO Technical Document No. 1199 (JCOMM Technical Report No. 22) in early 2004. He also prepared the full version of his talk for publication as a peer reviewed paper in the International Journal of Climatology. This special issue of IJC will for the update of the Dynamical Part of the WMO Guide to the Applications of Marine Meteorology.

7. At the First Session of the Ship Observing Team (Goa, India, 25 February to 2 March 2002) chairman of the JCOMM Expert Team on Marine Climatology, presented a review of the history and development of the Marine Climatological Summaries Scheme (MCSS) since its inception. Participants in SOT-I agreed that the data collected under the MCSS have proven to be invaluable over the years. In addition to operational meteorology and services for marine users, the data are used in global climate studies and in calibrating algorithms determining sea surface temperatures and other variables from satellites. It was also noted that there was an increasing interest in global marine climatological data due to global warming and intensification of investigations concerning the role of the ocean in global processes. Intensification of efforts to digitize marine meteorological observations made before 1960 is highly recommended by the marine climatological research community, while the accompanying metadata also represent an important issue. It was also stressed that the accuracy of data is of primary importance for the MCSS and scientific research. It is important that marine climatological data are controlled for quality before they are exchanged. To ensure the quality of the marine climatological database, Contributing Members should apply MQCS before dispatching data to GCCs. Several aspects related to metadata were discussed during the meeting. It was agreed that the WMO ship catalogue (WMO-No. 47) was an invaluable and unique source of metadata concerning the ships participating in the VOS Scheme. The efforts made by the CMM Subgroup on Marine Climatology to develop the revised contents and format of WMO-No. 47 were stressed. During the meeting the WMO Secretariat informed that a new electronic database of the ship catalogue, in accordance with the revised format, had been developed and that the updating process for this database had been completed. The database, with on-line access and downloading functions, will be made available on the WMO website very shortly.

8. On the basis of JCOMM-I recommendations and discussions which took place after the JCOMM-I between chairman of the Expert Team, the WMO Secretariat and some members of the Expert Team, a draft version of the working plan of the Expert Team on Marine Climatology was prepared and persons in charge were assigned. This version was circulated among the Expert Team members through e-mail in early spring 2002 requesting comments and suggestions. The Expert Team members were also requested to inform the chairman if they could not accept their responsibility for realization of any particular task, as it was proposed by chairman. Because there was no negative response, it was assumed that the proposed plan of Expert Team activity had been accepted by all their members.

9. The draft version of the working plan was presented by the chairman of the Expert Team during the First Session of the Data Management Coordination Group (DMCG) which was held in the IOC headquarters in May 2002. After a long discussion, the DMCG agreed that the MCSS is an important and highly developed system of marine meteorological data management with a distributed structure. However, there is a lack of a so-called "route map" for users looking for data and assistance. This element was considered as very important and to be implemented as soon as possible.

10. Taking into account conclusions of the above mentioned meetings as well as the recommendations of the DMCG-I, the final version of the working plan of the Expert Team on Marine Climatology was circulated by e-mail to all members on 2 August 2002. The final version of the intersessional working plan is attached to this report as an Appendix.

11. In association with the seminar to celebrate the 150th anniversary of the Brussels Maritime Conference, the Second JCOMM Workshop on Advances in Marine Climatology (CLIMAR-II) took place in Brussels from 17 to 22 November 2003, at the kind invitation of the Royal Meteorological Institute of Belgium. The organizing committee was composed of D. Dehenauw (Belgium), D.E. Harrison (USA), M. Mietus (Poland), D. Parker (United Kingdom), V. Swail (Canada), S. Woodruff (USA), T. Manabe (WMO Secretariat). Mr Scott Woodruff was elected as a chairman of this committee.

12. The preparation to CLIMAR-II started in late 2002 and the exact date and place of the workshop were decided. In March 2003 an announcement on the workshop was sent via e-mail from the organizing committee to 135 scientists, plus letters to WMO/IOC Members. Updated information for CLIMAR-II was made available at the website. In response more than 100 abstracts were submitted and almost 80 were accepted by the organizing committee as either oral or poster presentations.

13. More than 80 people from 20 Members countries from all the WMO Regional Associations attended CLIMAR-II. Overall, 46 oral presentations and 28 poster presentations were given. The meeting was very successful with a wide overview of contemporary marine climatology. The proceedings were published by the WMO Secretariat on CD-ROM as mentioned above. A summary report of CLIMAR-II including its recommendations was prepared by the Organizing Committee and the rapporteurs of the sessions (L. Kent (United Kingdom), V. Swail and S. Worley (USA)) and published in the WMO Bulletin (Vol. 53 No. 2) (April 2004). The selection of papers planned for publication in a special issue of the International Journal of Climatology will form an update of the Dynamic Part of the Guide to the Applications of Marine Climatology.

14. The Forth Project Meeting for the VOSclim Project was held in London in July 2003. This meeting was accompanied by the Second Session of the Ship Observing Team. Both meetings were attended by Dr Volker Wagner (GCC Germany). Dr Wagner presented a recommendation to the VOSclim-IV and SOT-II meetings. This suggested an amendment to the MQCS to include QC guidelines for the extra VOSclim elements (the extension of IMMT-1 to IMMT-The VOSclim). The meeting agreed that the GCCs should submit this proposal to the next session of the ETMC for their consideration. It noted that if the ETMC agreed with the revision, a proposal to revise the Manual on Marine Meteorological Services (WMO-No. 558) would be submitted to JCOMM-II for consideration.

15. The Expert Team on Data Management Practice (ETDMP) at its informal session in Brussels, 28 November 2002, reviewed the data management procedures under JCOMM with the goal of their integration and reconstruction according to a JCOMM end-to-end data management. Inter alia the MMS- and VOS/VOSclim- data management procedures were under review. Two main tasks were identified here with respect to setting up an integrated end-to-end JCOMM data management, which needs to be coordinated with ETMC and the VOSclim project (see also Summary of Informal Session of the JCOMM Expert Team on Data Management Practices, ETDMP, Brussels, 28 Nov 2002 – IOC/INF-1177):

- a. Analyzing and presenting generalized MMS data management requirements which will be used for the JCOMM end-to-end data management requirements.
- b. Doing the analogue analysis with respect to marine meteorological data management within the VOS based MCSS data management and the VOSclim project.

16. In September 2003 Miss Elanor Gowland (GCC United Kingdom) attended the first session of the ETDMP, where the issues below were addressed; with respect to a JCOMM E2EDM:

- Data generation. Reporting of VOSclim additional data by all VOS.
- Data transmission. Sending extra fields and metadata in real time, new transmission codes (BUFR, XML, etc), worldwide accounting system for fair sharing transmission costs, security (no corruption).
- Data dissemination. Speed up delayed mode data, better availability of GTS and MCSS data, reducing the time gap between real time and delayed mode.

- Data quality. Agreement on standards (instrumentation/methodology) identified by VOSClm, standardization of quality checks at observing sites, all necessary metadata available with each observation, reliable maintenance regimes for automated data acquisition systems.
- Data Archival. All data readily available (like from VOSClm DAC website) but not necessarily from a central source, data tagging, to avoid problems with duplicate data, transparent quality levels ensuring there is a complete "original " set of observations.

The data management of the marine meteorological data stream can be summarized in three areas: data flow, quality control and access to uncorrupted database. Improvements must be considered in a JCOMM E2EDM context, liaising with ETMC, VOSClm project, SOT and CBS.

17. Realization of task 4 concerning the review and assessment of the climatological elements by the Commission, including the operation of the MCSS, and the development of required oceanographic and marine meteorological products required several consultations and a strong interdisciplinary exchange of opinions. To achieve success several talks were carried out during the CLIMAR-II with participants representing a wide scope of users (scientists representing meteorology/climatology and oceanography, marine authority, navy etc.). Extended discussion including consultations with users was also carried out by Dr W.T Wong (Hong Kong, China). An ad hoc working meeting was held in this respect in Hamburg, 11-13 May 2004. Some of the staff of GCC users from the university and the German marine authority took part. During this meeting MCSS was discussed and proposals for modification of the above system were considered. Details are presented under item 4.4 of ETMC-I.

18. Several members of the ETMC regularly reported on progress achieved in the implementation of the Expert Team on Marine Climatology working plan. The systematic reports were sent by Mr S. Woodruff (USA), Mr T. Yoshida (Japan), Dr W.T. Wong (Hong Kong, China), representatives of the GCCs (Dr V. Wagner, Mr R. Zöllner, Mr C. Hall and Miss E. Gowland). From these reports an annual report concerning Expert Team activity was prepared, at the request of Professor Lin Shaohua (China), chair of the Data Management Programme Area,. However some of the Expert Team members never replied to my requests on information concerning progress. The lack of communication is a very critical issue and makes realization of some tasks impossible.

19. Due to lack of action taken by Mr Andrey Vorontsov (Russia) and Mr Carreño Campos (Chile) in 2002-2003 the task number 3, concerning compilation of a catalogue of global storm surge data holdings, was not realized. Since the Expert Team on Wind Waves and Storm Surges (ETWS) and its chairman Mr Val Swail (Canada) expressed an interest in this task, it was agreed with Mr Swail and the Secretariat that this task would be transferred to the ETWS.

20. In case of the task number 5, concerning investigation of the possibility to re-establish global wave metadata archive centres, Mr Chris Hall contacted persons who were responsible in the past (mid 80's) for the global wave metadata archive. The ETMC chair received detailed information on the metadata archive, namely the " catalogue of instrumentally measured Wave Data" from Lesley Rickards (British Ocean Data Centre) through Mr Hall. The information was passed to the Secretariat. Due to lack of experience within the ETMC, the chairman discussed with the Secretariat and Mr V. Swail (chair of the Expert Team on Wind Waves and Storm Surges (ETWS)) for a next step to be taken. It was agreed that ETWS would take a responsibly on this issue.

21. The Expert Team on Marine Climatology was not successful in realization of task number 7, concerning the support to CCI and assigning experts to assist CCI in preparing the revised Guide to Climatological Practices. Mr Pierre Bessemoulini (Météo France) is the person responsible for the Guide to Climatological Practices. He was contacted by e-mail in respect to ETMC support in preparing the Guide by the chairman of the ET. No specific tasks/subjects have been defined by Mr Bessemoulini. This item will be discussed under agenda item 7.3 in ETMC-I.

22. Regular working contact within the WMO Secretariat was realized in practice through e-mail. Exchange of documents, in the form of booklets, reports and other publications was done by regular surface mail. Consultancy by Dr Peter Dexter and Ms Teruko Manabe were very helpful.

23. Summarizing, it should be pointed out that, so far the plan of activity of the Expert Team on Marine Climatology has not been fully implemented and not all planned tasks will be completed before JCOMM-II.

Appendix: 1

The Work Plan of the Expert Team on Marine Climatology

List of tasks:

1. Finalize the International Maritime Meteorological Archive (IMMA) format with a view to eventual submission to the Commission for formal adoption.

Assignment: Mr Scott D. Woodruff (USA), rapporteur

2. Metadata are as important as the data themselves. It was recommended to verify if all the WMO Manuals on Codes (WMO-No. 306) and IMMT formats documenting the history of the marine ship codes and exchange formats are available. This task was previously considered and reported to the 8th Session of Subgroup on Marine Climatology by Ms Teruko Manabe (Japan), but was not finalized. Therefore JCOMM-I decided to continue the study to verify the availability of documentation relating to the history of marine ship codes.

Assignment: Mr M. Kaneda (Japan) + Mr S.D. Woodruff (USA) and Secretariat

3. Under the auspices of the former Subgroup on Marine Climatology, some actions have been taken to compile a catalogue of global storm surge data holdings. Taking into account that substantial amounts of storm surge data are archived in a number of countries, there is some interest in a global catalogue of data holdings. There is also some interest in the eventual international exchange of these data. There is thus a need to reactivate and finalize the compilation of a catalogue of global storm surge data holdings and work closely, working closely with IODE and also with ITSU. Data Management Coordinating Group agreed that storm surge datasets should be duly included in the comparative study of existing metadata systems.

Assignment: Mr A. Vorontsov (Russian Federation), Mr J Carreño Campos (Chile) + Secretariat

4. Review and assess the climatological elements of the Commission, including the operation of the MCSS, and the development of required oceanographic and marine meteorological products.

Assignment: Dr C. Tam (Hong Kong, China), Dr Miroslaw Mietus+ Secretariat

5. Investigate the possibility to re-establish global wave metadata archive centre.

Assignment: Action will be taken after contact with Mr Val Swail (Canada) chairman of the ET on Wind Waves and Storm Surges + Secretariat

6. Keep under review and propose procedures for the preparation and/or updating of relevant technical publications.

Assignment: Mr A. Lal, Ms C. Rössler and Mr K. Wurodu (Ghana)

7. Provide support to CCI and assign experts to assist CCI in preparing the revised Guide to Climatological Practices.

Assignment: Dr Miroslaw Mietus, Secretariat and the Management Committee of CCI.

8. Continue with the digitization of non-electronic earlier versions of WMO-No. 47.

Assignment: Secretariat and Mr S.D. Woodruff (USA)

9. The recent version of TurboWin automatically converts wind speed to the standard level of 10m. This may affect now existing databases by causing inhomogeneity if climatological marine data will be used without information concerning this version of TurboWin software (available since 1st January 2003 from IMMT-2). However information on reduction of wind speed is not automatically available from IMMT-2 records. Therefore it is essential to recognize the scale of this problem and eventually to initiate appropriate changes in used software.

Assignment: Mr Fritz Koek (Netherlands)

10. Keep under review IMMT format and MQCS

Assignment: Dr Volker Wagner (Germany) + Mr Chris Hall (United Kingdom)

11. Participate in the work of the organizing/scientific committee of the Workshop on Advances in Marine Climatology – CLIMAR-II (Brussels, late 2003).

Assignment: Mr D. Dehenauw (Belgium), Mr D.E.Harrison (USA), Mr M. Mietus (Poland), Mr D. Parker (United Kingdom), Mr V. Swail (Canada), Mr S. Woodruff (USA), Ms T. Manabe (Secretariat)

12. The Workshop on Advances in the Use of Historical Marine Climate Data was held in Boulder (USA), 29 January - 1 February 2002. The recommendation from the Working Group on Mean Sea Level Pressure and Wind (WG3) is to adjust the wind force data back to about 1854 using an improved equivalence scale (most likely the implementation should produce a separate field, so that the present WMO 1100-based values can still be archived and made available).

Assignment: Dr Ralf Lindau (Germany) - external expert, Mr S.D. Woodruff (USA)

13. The Data Management Coordinating Group on its first meeting in Paris (22-25 May 2002) agreed that MCSS is an important and highly developed system of marine meteorological data management with a distributed structure. However, there is a lack of a so called "route map" for users looking for data and assistance. This element was considered as very important and to be implemented as soon as possible.

Assignment: Dr Miroslaw Mietus (rapporteur), representatives of RMs, GCCs and Secretariat