WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

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

ETMC-II/Doc. 2.1
(1.II.2007)

SECOND SESSION

ITEM 2.1

GENEVA, SWITZERLAND, 26 TO 27 MARCH 2007

Original: ENGLISH

JCOMM ASPECTS

Report by the Chairperson of the ETMC

(Submitted by Mr Scott Woodruff)

Summary and purpose of document

This document contains a report by the Chairperson of the ETMC, summarizing ideas for new directions of the Team, as well as providing background information on the Team, including an update of activities since the First Session of Marine Climatology, (ETMC-I, Gdynia, Poland, from 7 to 10 July 2004).

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.

Appendices: A. ETMC Website
B. Revised Preliminary Discussion: Intersessional Work Programme

DISCUSSION

1. Overview of Proposed New Task Directions

1.1 The ETMC falls within the JCOMM Data Management Programme Area (DMPA), and its intersessional work programme has been articulated in part by the Second Session of the DMPA Coordination Group (DMCG-II; JCOMM 2007a) and the Third Session of the Services Programme Area (SPA) Coordination Group (SCG-III; JCOMM 2007b). This meeting, while brief, should allow us to finalize the work plan, and establish new directions for the Team.

1.2 The Marine Climatological Summaries Scheme (MCSS), which was defined in the 1960s and has represented the core of ETMC's work to date, ties together two major important functions:

(a.) Delayed-mode (DM) Voluntary Observing Ship (VOS) data management; and
(b.) The production of the MCSS (tabular/graphical) Summaries (MCS).

1.3 Partly due to the longevity of the overall Scheme, the two separate functions possess a variety of strengths. On the other hand, as JCOMM seeks to define a new, overall data management strategy, plus the establishment of new linkages with other WMO Commissions, including for Climatology (CCl) and Basic Systems (CBS), a review and restructuring of the MCSS is needed. As an initial step, the DMCG-II is establishing a self-funded, cross-cutting Task Team on DMVOS, which is proposed to include members both from the ETMC and the Ship Observations Team (SOT). The SOT falls within the Observations Program Area (OPA), and thus TT-DMVOS will also interconnect the DMPA and the OPA (see ETMC-II/Doc. 3.1).

1.4 An important parallel task, which should be initiated during the two days of the ETMC-II, will be to establish a new direction for the secondary MCSS function—the tabular/graphical MCS. A JCOMM questionnaire in 2005 (ETMC-II/Doc. 6.1) provided information about the potential customer base and purposes of the MCS products. However, these justifications need to be more broadly agreed upon, to the extent that the MCS products will be managed and officially sanctioned by ETMC, as opposed to produced and offered nationally. The JCOMM-II also recommended that the ETMC explore how oceanographic and ice climatologies could be coordinated with the marine meteorological data, so that the results could be viewed as an integrated product.

1.5 In response, new task interconnections also need to be established between the DMPA/ETMC and SPA, including its Expert Teams for Wind Waves and Storm Surges (ETWS) and Sea Ice (ETSI); and, as appropriate, to other commissions and organizations including CCl and the joint CCl-CLIVAR-JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI). One suggested approach, following along the lines of the TT-DMVOS, may be to establish a parallel self-funded, cross-cutting Task Team on Marine and Oceanographic Climatological Summaries (TT-MOCS) (see ETMC-II/Docs. 6.1 and 6.2).

1.6 Finally, a variety of continuing or proposed tasks less directly related to MCSS, but still important for ETMC, JCOMM, and the international community, are also discussed in general in Section 2, and described in detail in the remaining ETMC-II background documents.

2. Team Background and Recent Activities

2.1 The Expert Team on Marine Climatology (ETMC) was originally established by JCOMM-I (WMO 2001), and re-established under Resolution 4 of JCOMM-II (JCOMM 2005). The Terms of Reference (ToR) of the Team, which remained essentially unchanged from JCOMM-I, were re-defined by the Annex to Resolution 4 (see ETMC-II/Doc. 9.1). This Expert Team is the successor of the former Subgroup on Marine Climatology of the Commission on Marine Meteorology (CMM, JCOMM 2000), whose membership was generally limited to representatives of the eight Responsible Members (RMs) of the Marine Climatological Summaries Scheme (MCSS): Germany, Hong Kong, China, India, Japan, the Netherlands, the Russian Federation, the UK, and the USA.

2.2 Under the Terms of Reference defined by JCOMM (WMO 2001, JCOMM 2005), the

membership of ETMC was expanded to include up to 12 experts from Members/Member States, representative of the range of responsibilities of the Expert Team and to maintain an appropriate geographical representation. The First Session of the ETMC was held in Gdynia, Poland in July 2004 (JCOMM 2004). Among a variety of actions taken from that meeting was a JCOMM questionnaire that was circulated in 2005 concerning the future of the MCS (see ETMC-II/Doc. 6.1).

2.3 From JCOMM-II (JCOMM 2005), the Chairperson of the Team was rotated from Poland to the USA, and, in addition to the continuing representatives from Poland (Dr M. Miętus) and USA (Mr S. Woodruff), 10 others representatives were selected to complete the Team. Six of these members had previously represented the RMs (i.e., Ms E. Gowland (United Kingdom), Mr F. Koek (Netherlands), Mr A Vorontsov (Russian Federation), Dr W. Wong (Hong Kong), Mr T. Yoshida (Japan), and Mr R. Zöllner (Germany)), and the remaining members were new representatives (i.e., Dr E. Kent (United Kingdom), Dr K. Liu (China), Mr M. Rutherford (Australia), and Ms. Y. Ünal (Turkey)). (The eighth RM (India) did not put forward a candidate for ETMC at JCOMM-II).

2.4 Following the ETMC-I and JCOMM-II, a website for Team was developed (see Appendix A), which provides documents, membership and contact information, plus selected JCOMM and other links. Documents and presentations from ETMC-I are also available. The website (icoads.noaa.gov/etmc/) is presently hosted by the US National Oceanic and Atmospheric Administration (NOAA), under the International Comprehensive Ocean-Atmosphere Data Set (ICOADS) web portal. However, appropriate portions of the website are planned for migration in due course to reside under the official JCOMM web hosting. The ETMC website also links to another website, hosted under the ICOADS, of interest to the ETMC and the JCOMM, for the "RECovery of Logbooks And International Marine data" (RECLAIM) Project (see ETMC-II/Doc. 4.4).

2.5 The Second Workshop on the Advances in the Use of Historical Marine Climate Data (MARCDAT-II), was held Exeter, United Kingdom, October 2005. This Workshop was the latest in a series held approximately every two years since 1999. The MARCDAT (first in 2002) alternates with the CLIMAR Workshops on Advances in Marine Climatology (1999, 2003, and planned for Poland in 2008). All of these workshops (Kent. et al., 2007b) brought together a wide spectrum of marine data users and managers of marine data and products, with extensive participation by ETMC Members, and have included an underlying focus on the continuing evaluation, utilization, and improvement of the ICOADS (Worley, et al., 2005, Woodruff, et al., 2005). In addition to published outcomes (including Diaz, et al., 2002, WMO 2003a, 2003b, Parker, et al., 2004, Gulev 2005, Rayner, et al., 2006), the previous workshops produced and tracked a consolidated set of scientific and technical recommendations (www.marineclimatology.net) to help guide the work of this group and provide feedback for the broader research community (see ETMC-II/Doc. 7).

2.6 In April 2006, information regarding the ETMC website, including a document providing a preliminary discussion of the intersessional work programme, was circulated to the ETMC via e-mail. Since then, a limited number of comments and updates have been received, which, coupled together with some actions taken from the DMCG-II and SCG-III, have been incorporated into Appendix B - an updated version of the discussion document.

2.7 By mid 2006, discussions began regarding the timing, venue, and organizers for a self-funded CLIMAR-III Workshop. CLIMAR-III, is currently planned for 6-9 May 2008 in the 3-city complex of Gdansk/Sopot/Gdynia, Poland, following Poland's kind offer made in October 2006 to host the Workshop (see: http://www.trojmiasto.pl/mapa/index.phtml?). Currently, Poland has local arrangements under active consideration, and the scientific organizing committee has been partially formed (see ETMC-II/Doc. 7).

2.8 A website for the United Kingdom's Global Collecting Centre (GCC) (www.metoffice.gov.uk/research/interproj/gcc/index.html), was established in July 2006 (complimenting the pre-existing German GCC website: www.dwd.de/gcc), and the Minimum Quality Control Standards (MQCS) Software, version 3 was completed in September 2006. This software provides a Fortran 90 implementation of the MQCS-V, which was approved by the JCOMM-II. Also approved by JCOMM-II was the revised IMMT-3 format for the exchange of ships' electronic or keyed logbook observations,

which is to be used generally for all such VOS data collected from 1 January 2007 (see ETMC-II/Docs. 3.2-3.6).

2.9 In September 2006, a revised draft was completed, summarizing the results from the 2005 questionnaire concerning the future of the MCS (ETMC-II/Doc. 6.1). Also at that time, a WMO website link was made, and other action taken by the WMO Secretariat, to finalize the CLIMAR-II special issue of the *International Journal of Climatology* (Gulev 2005) as a Dynamic Part of the WMO *Guide to the Applications of Marine Climatology* (WMO 1994). The special issue was one outcome from CLIMAR-II, and a similar approach is suggested for the upcoming CLIMAR-III (see ETMC-II/Docs. 7 and 8.1).

2.10 The ETMC was tasked by the DMCG-II and SCG-III to consider the possibility of developing an Extreme Wave Event Archive, working together with ETWS and appropriate International Oceanographic Data and Information Exchange (IODE) or meteorological centers where, *in situ*, extreme wave (measured; e.g., significant wave height ≥ 14m) and meteorological data exist (e.g., Holliday et al., 2006). The objective is to develop a database of high-quality measured (e.g., ship, buoy, OceanSITES) data, especially in the open ocean far removed from the coast. This archive would form an invaluable data set of measurements that could be used to validate wind wave models and also satellite altimeter wave estimates, which have largely unknown characteristics at these heights. Expressions of interest in contributing to, or possibly hosting such a facility, will be solicited from the Team (see ETMC-II/Doc. 4.3).

2.11 Two ETMC members, Dr E. Kent and Mr S. Woodruff, agreed to serve as the JCOMM Representatives on the Joint CCl-CLIVAR-JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI), and participated in its Second Session (Niagara-on-the-Lake, Canada, 14-16 November 2006), together with two additional JCOMM Representatives, Mr C. Folland and Mr V. Swail. As an outcome of the meeting, and in cooperation with the ETWS, development of a new set of marine climate indices was planned (see ETMC-II/Doc. 6.2). Additional past interactions between the ETMC and CCl on the *Guide to Climatological Practices* (WMO, 1983) are discussed in ETMC-II/Doc. 8.3.

2.12 Requirements for the tabular MCS (annual and decadal, for Areas of Responsibility) are still documented in the *Manual on* and *Guide to Marine Meteorological Services* (WMO-No. 558 and WMO-No. 471; see ETMC-II/Doc. 8.2). Of the eight RMs, some have not produced these summaries for many years (e.g., USA), if ever, and there are a variety of views (e.g., ETMC-II/Doc. 6.1) on the value and need for modernization (e.g., transition to web-based technologies). As part of this discussion, it should be noted that ICOADS, for example, already provides near-global year-month summaries (10 statistics, such as the mean, median, and number of observations) using a 2°×2° or 1°×1° spatial resolution for 23 observed and derived marine variables. Potential tie-ins with the work of the ETCCDI should also be considered (see ETMC-II/Doc. 6.2).

2.13 Furthermore, the JCOMM (2005): "…noted that the work carried out by ETMC was strongly focused on marine meteorology. It urged the ETMC to include in its work plan for the inter-sessional period, an examination of how both oceanographic climatologies and ice climatologies could be coordinated so as to be seen as an integrated product." Clearly this recommendation should have strong linkage with considerations of the future of the MCS (see ETMC-II/Docs. 6.1-6.2). In addition, a complimentary activity might also consider the feasibility of a further knitting together of the basic marine, oceanographic, and sea-ice observational data, in addition to higher-level climatological products, as has already been accomplished, to a limited degree in ICOADS, with the blending together of surface marine and selected near-surface ocean profile temperatures.

2.14 The entire set of ICOADS observational data (presently covering 1784-2005) is already made freely available to the international climate research community in International Maritime Meteorological Archive (IMMA) format. This is a highly flexible ASCII format, suitable for storage of historical or contemporary marine meteorological data from ships, buoys, and other Ocean Data Acquisition Systems (ODAS). Some near-surface oceanographic profile temperatures have also been blended into the ICOADS from the Levitus World Ocean Database (WOD). The IMMA format has not yet been thoroughly reviewed within the ETMC, which should be a useful step prior to proposed JCOMM publication, or, potentially, formal adoption as an international format standard (see ETMC-II/Doc. 4.1).

2.15 WMO–No. 47, Ship Platform and Instrumental Metadata for 1973-2005, have been blended into the ICOADS, using the IMMA format, with the extensive cooperation of Dr E. Kent and colleagues (see ETMC-II/Docs. 5.1-5.2). WMO–No. 47 metadata back to 1955 (Kent, et al., 2007a), which were recently imaged and digitized by NOAA's Climate Database Modernization Program (CDMP), will likely be blended, as proves feasible, into the ICOADS in the future (see ETMC-II/Doc. 5.2). Another logical extension of this important work would be the assembly and blending into the ICOADS of ODAS platform and instrumental metadata, both operationally and historically. Unfortunately, ODAS metadata are currently largely fragmented and possibly unavailable for some historical platforms, with a unified JCOMM repository only recently under development by China (see ETMC-II/Doc. 5.3).

2.16 The ETMC has had a longstanding connection with other marine data and metadata archeology activities, including documenting the history of the marine ship codes (see ETMC-II/Doc. 4.2), and broadly based international activities now under development to image and digitize historical ship logbook data and metadata (see ETMC-II/Doc. 4.4).

2.17 Under the new WMO Information System (WIS) the requirement has been expressed to move all observational GTS traffic (and possibly some other data exchanges) to use Table-Driven Codes TDC such as BUFR (and CREX) (see ETMC-II/Doc. 3.3). In view of the success of the IMMA format in the research community, one future direction for the JCOMM and the ETMC might be to explore the possibility of some convergence of that format with features of TDCs.

2.18 The MQCS provides a well-tested basis for members to QC their VOS data. However, not all members have been able to take advantage of this approach, due to resource constraints and other factors, such as pre-existing national QC procedures. Possible areas for MQCS augmentation could include the following items: (a.) Expansion, where possible nationally or internationally, to include the integration and archival (e.g., in the IMMA format) of QC feedback flags supplied by operational weather models and *Global Atmospheric and other Reanalyses* (e.g., Compo et al., 2006), and (b.) The Convergence of MQCS with QC procedures used for non-VOS marine data and in the oceanographic community. As an initial step, the DMCG-II (JCOMM 2007a) requested completion around mid-2007 of a document bringing together, in general terms, information regarding the QC procedures of the VOS, Global Surface Underway Data (GOSUD), and the Shipboard Automated Meteorological and Oceanographic System (SAMOS) Initiative.

References

†: Available from the following web address:
www.wmo.ch/web/aom/marprog/Publications/publications.htm
*: Available from the following web address: icoads.noaa.gov

Compo G.P., J.S. Whitaker, and P.D. Sardeshmukh, 2006: Feasibility of a 100-year reanalysis using only surface pressure data. *Bull. Amer. Meteor. Soc.*, **87**, 175-190.

Diaz, H., C. Folland, T. Manabe, D. Parker, R. Reynolds, and S. Woodruff, 2002: Workshop on advances in the use of historical marine climate data. *WMO Bulletin,* **51**(4), 377–380.*

Gulev, S., Ed., 2005: Advances in marine climatology. *Int. J. Climatol.,* **25,** 821–1022 [Dynamic part of WMO–No. 781].†

Holliday, N.P., M.J. Yelland, R.W. Pascal, V.R. Swail, P.K. Taylor, C.R. Griffiths, and E.C. Kent, 2006: Were extreme waves in the Rockall Trough the largest ever recorded? *Geophysical Research Letters*, **33**, L05613, doi:10.1029/2005GL0 25238.

JCOMM, 2000: Subgroup on Marine Climatology, Eighth Session, Asheville, NC, USA, 10 to 14 April 2000, Final Report. JCOMM Meeting Report No. 2.†

JCOMM, 2004: Expert Team on Marine Climatology, First Session, Gdynia, Poland, 7-10 July 2004, Final Report. JCOMM Meeting Report No. 32.†

JCOMM, 2005: *Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, Second Session, Halifax, Canada, 19-27 September 2005*. Abridged Final Report with Resolutions and Recommendations, WMO–No. 995 (available from: ioc.unesco.org/jcomm/).

JCOMM, 2007a: JCOMM Data Management Programme Area Coordination Group (DMCG), Second Session, Geneva, Switzerland, 10-12 October 2006, Summary Report. JCOMM Meeting Report No. 43.†

JCOMM, 2007b: Services Programme Area Coordination Group, Third Session, Exeter, United Kingdom, 7-10 November 2006, Final Report. JCOMM Meeting Report No. 44 (in press).

Kent, E.C., S.D. Woodruff and D.I. Berry, 2007a: WMO Publication No. 47 metadata and an assessment of observation heights in ICOADS. *J. Atmos. Oceanic Technol.*, **24**, 214-234.

Kent, E., S. Woodruff, N. Rayner, T. Arbetter, C. Folland, F. Koek, D. Parker, R. Reynolds, R. Saunders, V. Smolyanitsky, S. Worley, and T. Yoshida, 2007b: Second International Workshop on Advances in the Use of Historical Marine Climate Data. *Bull. Amer. Meteor. Soc.* (in press).

Parker, D., E. Kent, S. Woodruff, D. Dehenauw, D.E. Harrison, T. Manabe, M. Mietus, V. Swail, and S. Worley, 2004: Second JCOMM Workshop on Advances in Marine Climatology (CLIMAR-II). *WMO Bulletin*, **53**(2), 157-159.*

Rayner, N., E. Kent, S. Woodruff and D. Parker, 2006: 2nd International Workshop on Advances in the Use of Historical Marine Climate Data (MARCDAT-II), Meeting Report.*

WMO, 1983: *Guide to Climatological Practices* (2nd edition). WMO–No. 100, World Meteorological Organization, Geneva (available from: www.wmo.ch/web/wcp/ccl/guide/guide.2e.shtml).

WMO, 1994: *Guide to the Applications of Marine Climatology*. WMO–No. 781, World Meteorological Organization, Geneva.

WMO, 2001: *Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, First Session, Akureyri, 19-29 June 2001*. Abridged Final Report with Resolutions and Recommendations, WMO–No. 931, World Meteorological Organization, Geneva, 157 pp.

WMO, 2003a: *Proceedings of CLIMAR99-WMO Workshop on Advances in Marine Climatology, Vancouver, Canada, 1999*. JCOMM Tech. Rep. 13, CD-ROM.

WMO, 2003b: *Advances in the Applications of Marine Climatology—The Dynamic Part of the WMO Guide to the Applications of Marine Meteorology*. WMO/TD–No. 1081 (JCOMM Technical Report No. 13), World Meteorological Organization, Geneva, 246 pp.†*

Woodruff, S. D., H. F. Diaz, S. J. Worley, R. W. Reynolds, and S. J. Lubker, 2005: Early ship observational data and ICOADS. *Climatic Change,* **73,** 169–194.

Worley, S. J., S. D. Woodruff, R. W. Reynolds, S. J. Lubker, and N. Lott, 2005: ICOADS release 2.1 data and products. *Int. J. Climatol.,* **25,** 823–842.

———————

Appendices: 2

Appendix A

JCOMM Expert Team on Marine Climatology (ETMC) Website **(icoads.noaa.gov/etmc/)**

(Note: this website is currently hosted by the US NOAA, under the ICOADS; relevant portions of the website are planned for migration to the JCOMM in due course)

JCOMM Expert Team on Marine Climatology (ETMC)

ETMC Home
Meetings
ETMC-I
Documents
Membership
Contact
JCOMM Links
GCC Germany
GCC UK
JCOMM (IOC)
JCOMM (WMO)
MQC-3
JCOMMOPS
SOT
WMO Pub. 47
Other Links
CBS
CCI
ETCCDI
ICOADS
RECLAIM

The Expert Team on Marine Climatology, in close collaboration with IODE, GOOS, GCOS, CCI and CBS subsidiary bodies and related experts, shall:

a. Determine procedures and principles for the development and management of global and regional oceanographic and marine meteorological climatological data sets;
b. Review and assess the climatological elements of the Commission, including the operation of the MCSS and the GCCs, and the development of required oceanographic and marine meteorological products;
c. Review the GOOS and GCOS requirements for climatological data sets, taking account of the need for quality and integration;
d. Develop procedures and standards for data assembly and the creation of climatological data sets, including the establishment of dedicated facilities and centres;
e. Collaborate and liaise with other groups as needed to ensure access to expertise and ensure appropriate coordination;
f. Keep under review and update as necessary relevant technical publications in the area of oceanographic and marine meteorological climatologies.

(From Annex to Resolution 4 (JCOMM-II))

Appendix B

JCOMM Expert Team on Marine Climatology
Preliminary Discussion:
Intersessional Work Programme

(by Mr Scott Woodruff, Revised 14 February 2007)

This document provides a brief summary of existing (Table 1) and possible new (Table 2) tasks for consideration by the ETMC Intersessional Work Programme.

The original version of this document was circulated to the ETMC in April 2006, as an initial step in formulating the final Work Programme, and to solicit tentative interest in commitments by Members to undertake or participate on individual task items. Some elements of the ETMC Work Programme were also finalized as an outcome from the JCOMM DMCG-II and the SCG-III. The Consolidated MARCDAT/CLIMAR Recommendations (www.marineclimatology.net) should also be considered when continuing to develop the Work Programme.

Table 1. Existing and ongoing ETMC tasks (proposed). Numbers listed in [brackets] refers to relevant sections in JCOMM (2004). For more information, please see the Progress Reports as of July 2004 and Action Items from the ETMC-I that appeared in JCOMM (2004), Annexes XI and XII, respectively.

No.	*Task*	*Responsibility*	*Schedule*
1	Continue review of the IMMT format, MQCS, and the MQCS software.	GCCs/ETMC	Ongoing
2	Continue review and cross-validation of electronic logbooks (QC, codes, future electronic submission, etc.). [3.1.3, 3.3.3]	ETMC and developers	Ongoing
3	Continue implementation and review of the IMMA format, leading to publication in a JCOMM Technical Report. [4.3.1]	ETMC Chairperson and interested Members	Ongoing
4	Enhance the GCC Germany website, and external linkages to it, and implement a GCC UK website [3.4.2.2, 3.4.3.1]. Generally, an improved "route map" to distributed MCSS data and products was noted as an important requirement by the DMPA-CG in 2002.	GCCs and ETMC	(GCC United Kingdom website initiated: July 2006)
5	MCSS Summaries: Make available on the GCC Germany website example recent decadal Summaries. [3.4.3.1]	GCC Germany	
6	MCSS Summaries: questionnaire analysis and issuance of report. [3.4.3.1]	Miętus et al.	(revision draft, 23 September 2006)
7	MCSS Summaries: continue discussion of future requirements, possible modernization, and relationships to the proposed expanded involvement of the ETMC with oceanographic and ice climatologies (ref. Table 2, item 14).	ETMC	
8	Continue review of the BUFR template for SHIP (and BUOY) data, if requested [3.2.2]. Note: Recently emerging possibilities for shipboard transmission of BUFR data (e.g., from TurboWin), including enhanced metadata, might usefully be tied into this general task.	ETMC Chairperson and Members	(No CBS request)
9	Continue imaging and website availability of	Mr Yoshida,	Ongoing

No.	Task	Responsibility	Schedule
	historical marine publications from WMO and other sources (e.g., WMO Manual on Codes, IMMPC/IMMT, MQCS). [4.2.3]	ETMC, and NOAA/CDMP	
10	Further action, if required, to finalize the CLIMAR-II special issue of the *International J. Climatology* (2005, **25**(7)) as the Dynamic Part of the WMO *Guide to the Applications of Marine Climatology* (WMO–No. 781). [7.1.1]	Secretariat and ETMC Chairperson	(WMO link, and other steps initiated, September 2006)
11	Plan a self-funded CLIMAR-III Workshop in 2008.	ETMC Chairperson and organizing committee (to be finalized)	CLIMAR-III is planned for 6-9 May 2008 in the 3-city complex of Gdansk/Sopot/Gdynia, Poland. As of February 2007, Poland has local arrangements under active consideration, and the scientific organizing committee is partially formed.
12	Representation on Joint CCl/CLIVAR/JCOMM Expert Team on Climate Change Detection Indices (ETCCDI).	ETMC Chairperson and Members as selected by the JCOMM	Dr E. Kent and Mr S. Woodruff
13	Other interaction, as appropriate, with the WMO Commission for Climatology (CCl) (e.g., feedback for the WMO *Guide to Climatological Practices* (WMO–No. 100)). [7.3.2]	ETMC	

Table 2. New ETMC tasks proposed by the JCOMM (14-15), plus other suggestions.

No.	Task	Responsibility	Schedule
14	The JCOMM (2005) (sec. 7.1.18): "The Commission noted that the work carried out by ETMC was strongly focused on marine meteorology. It urged the ETMC to include in its work plan for the intersessional period, an examination of how both oceanographic climatologies and ice climatologies could be coordinated so as to be seen as an integrated product. "A potential initial step would be to use an expanded IMMA format (i.e., with new attachments) as a vehicle towards operational integration of selected oceanographic profile measurements (e.g., near-surface ocean temperature and salinity), with marine meteorological (ship and buoy) data from the GTS.		
15	Proposed the development of a JCOMM Extreme Wave Event Archive. The ETMC has been requested to consider this possibility, working with the Expert Team on Wind Waves and Storm Surges (ETWS) and appropriate, the IODE or meteorological centers where, *in situ*, extreme waves (measured; e.g., significant wave height ≥ 14m) and meteorological data exist (e.g., Holliday et al., 2006). The objective is to develop a		In December 2006, a strawman proposal was developed by the Chairperson of the DMPA, together with the Chairpersons of the ETWS and the ETMC, and in January 2007 a preliminary

No.	*Task*	*Responsibility*	*Schedule*
	database of high-quality measured (e.g., ship, buoy, OceanSITES) data, especially in the open ocean far removed from the coast. This archive would form an invaluable data set of measurements that could be used to validate wind wave models and also satellite altimeter wave estimates, which have largely unknown characteristics at these heights.		extraction was made of extreme NDBC 1970-2005 data.
16	Continue past the CMM/SGMC and JCOMM work (JCOMM 2000; Lindau, et al.), 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).		
17	MQCS augmentation: (a.) Expansion of the MQCS, where possible nationally, to include the integration and archival of QC feedback flags supplied operationally by weather models, and (b.) Convergence of MQCS with QC procedures used in the oceanographic community.		DMCG-II tasked the Chairpersons of the ETMC, SAMOS, GOSUD, & DMCG to prepare a document (by May 2007) on common issues of QC of surface marine variables. Discussion was initiated among the Chairpersons (January 2007), and is to be continued at the upcoming SOT-IV (April 2007).
18	ODAS platform and instrumental metadata: Contribute towards the assembly of historical metadata for buoys, ocean platforms, and other Ocean Data Acquisition Systems (ODAS), and submission to appropriate archive repositories including the ODAS metadata centre (China).		
19	Ship platform and instrumental metadata: Contribute towards the assembly of additional historical national and international ship metadata, and submission to appropriate archive repositories.†		
20	Historical ship data rescue: Interactions with the RECovery of Logbooks And International Marine data (RECLAIM) project, with the WMO/CCl Expert Team on the Rescue, Preservation, and Digitization of Climate Records, etc. Related: further development and expansion of the IMMA format for unified storage of old historical data elements.		

† WMO–Publication No.47 metadata for 1955-72 were recently imaged and digitized, and for 1973-98 imaged, by NOAA's Climate Database Modernization Program (CDMP), with the extensive assistance of the National Oceanography Centre, Southampton.