WORLD METEOROLOGICAL ORGANIZATION

JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)
EXPERT TEAM ON SEA ICE - FORTH SESSION

STEERING GROUP FOR THE PROJECT GLOBAL DIGITAL SEA ICE DATA BANK (GDSIDB) - TWELTH SESSION

ST.PETERSBURG, RUSSIAN FEDERATION,
1 TO 5 MARCH 2010

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

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ITEM 1.2

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ANNOTATED PROVISIONAL AGENDA

1. OPENING OF THE MEETING

1.1 Opening

The Fourth Session of the JCOMM Expert Team on Sea Ice (ETSI) of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), and the Twelfth Session of the Steering Group for the JCOMM project "Global Digital Sea Ice Data Bank" (GDSIDB) will open at 0930 hours on Monday, 1 March 2010, at the Arctic and Antarctic Research Institute, in Minor Hall, St. Petersburg, Russian Federation, by Dr Vasily Smolyanitsky (Russian Federation), Chairperson of the Expert Team on Sea Ice.

1.2 Adoption of the Agenda

The Team will be invited to adopt the agenda for the session on the basis of the provisional agenda prepared by the Secretariat.

1.3 Working arrangements

The Team will agree on its hours of work and other practical session arrangements. The documentation will be introduced by the Secretariat and Chairperson. It is expected that the documentation, as well as the meeting itself, will be conducted in English only.

The ETSI Chairperson or any other members of the Team may request the consideration of additional issues. In such a case, they would be requested to prepare the relevant documentation and submit it to the Secretariat in due time. Examples of such issues are listed below. In addition, a few sub-items will require separate discussions, and are identified as such.

2. FOURTH SESSION OF THE JCOMM ETSI

2.1 Report of the Services and Forecast Systems Programme Area Coordinator

Under this Agenda Item, the Team will be presented with a report by the Services and Forecast Systems Programme Area (SFSPA) Coordinator on the SFSPA Work Plan for the JCOMM intersessional period 2010 – 2012. This work plan includes all priority activities for SFSPA Expert Teams as they are listed in the Section 8.4 of the JCOMM-III (November 2009) document. The Team is expected to discuss appropriate sections, estimate the results and provide input for the SFSPA coordination group meeting scheduled for the week of May 10-15.

2.2 Report by the Chairperson of the ETSI
2.3 Report by the Secretariat

The Team will be presented with reports by the Chairperson of the Team, and the Secretariat on the activities and actions taken since the Third Session of the JCOMM Expert Team on Sea Ice (ETSI-III, Geneva, Switzerland, March 2007). These reports will also touch the overall results of JCOMM-III (Marrakesh, Morocco, November 2009), and the Fourth Session of the JCOMM Services Coordination Group (SCG-IV, Geneva, Switzerland, March 2009), as well as actions taken since these sessions. Based on general discussion under this and preceding agenda item, the Team will provide recommendations and suggestions for its future workplan and possible amendments to the ToR (agenda item 2.11).

2.4 National and regional reports

National sea ice services and their alliances maintain a scope of practices to support a wide range of marine user groups, including operational users, climate modelers and other parties. The requirements of these users have been established and maintained in the past by relevant bodies of the JCOMM and GOOS. They serve as a foundation to maintain up-to-date Terms of Reference (ToR) and working plans of the ETSI and other relevant parts of JCOMM.

2.4.1 Reports by the Members of the ETSI

Reports by the national sea ice services, specifically from Argentina, Canada, China, Denmark, Finland, Germany, Japan, Norway, Russian Federation, Sweden, United Kingdom and United States, presented under this item, will deal with the national and multinational activities related to JCOMM during the intersessional period since ETSI last meeting in March 2007. The national reports will include new developments in collecting and processing of multi-source natural data within the ice information systems, compilation, exchange and relay to the users of different sea ice operational information and climatological products, as well as the training of experts in the field of sea ice activities.

2.4.1 BSIM, EIS, NAIS and IICWG Reports

Three regional alliances successfully cooperated in recent years in the harmonization and integration of regional ice and navigation support systems and services, namely the Baltic Sea Ice Meeting (BSIM: Baltic countries), the North American Ice Service (NAIS: Canada, USA) and European Ice Service (EIS: Denmark, Finland, Norway, Sweden). Such joint experience is essential for JCOMM practices, and under this item, the Session will be presented with reports from the BSIM, NAIS and EIS on relevant activities since the last ETSI meeting in March 2007.

The International Ice Charting Working Group (IICWG) includes most of the national sea ice institutions operating in the Northern Polar Region. The IICWG facilitates the development of new sea ice information products and provides effective linkages with a number of commercial bodies (i.e., shipping companies, remotely sensed data suppliers, etc.). The IICWG activities include development of a variety of sea ice technical information for consideration by the ETSI. The report on these activities will be submitted by the IICWG representative in the ETSI. The Session will have a general discussion on this report, including the future cooperation between the ETSI and the IICWG. The WIS and International Polar Decade will be discussed further under agenda items 2.7.2 and 2.9.

2.5 Provision of Marine Safety Information (MSI) related to sea ice

2.5.1 Report by the ETMSS chairperson

In accordance with the ToRs, the JCOMM Expert Team on Maritime Safety Services liaises with and gathers input from other SFSPA teams - ETSI, ET on waves and surges (ETWS) and ET on Operational Ocean Forecasting Systems (ETOOFS), on all aspects of sea ice, sea state, storm

surge and ocean circulation relevant to the operation and improvement of maritime safety services and maritime accident emergency support. Under this item the Team will be presented with a concise report by the chairperson of the ETMSS on the activities and actions relevant to ETSI and taken since the ETMSS second session (Angra dos Reis, Brazil, January 2007), the ETMSS Task Group on MSI session (March 2009, Geneva, Switzerland) or planned by the ETMSS in cooperation with the ETSI for the next JCOMM intersessional period 2010-2012. Based on general discussion under this and preceding agenda item, the Team will provide additional recommendations and suggestions for its future workplan (agenda item 2.11).

2.5.2 Report of the Joint IMO/IHO/WMO Correspondence Group on MSI services

During the last years the International Maritime Organization (IMO) took the decision of expanding the Global Maritime Distress and Safety System (GMDSS) into the whole Arctic Ocean and established (IMO/COMSAR-10, London, March 2006) a joint IMO/IHO/WMO correspondence group on Arctic MSI services to address this expansion. During 2006-2008 the definition and endorsement of the boundary limits of 5 new Arctic NAV/METAREAs XVII - XXI and the selection of the NAVAREA coordinators (IMO MSC-83, October 2007) and METAREA Issuing Services (WMO EC-LX, June 2008) have been achieved. Under this agenda item, the Team will be presented with a brief report by the chairperson of the joint IMO/IHO/WMO correspondence group on Maritime Safety Information Services on recent activities of this Group.

2.5.3 Intentionally Blank

2.5.4 Requirements for sea ice MSI (mandatory sea ice information for MSS)

The ETMSS-II (Angra dos Reis, Brazil, 24-27 January 2007) and the ETMSS Task Group on MSI (March 2009, Geneva, Switzerland), reviewed the IHO publication S-53, Appendix 1, and the joint IMO/IHO/WMO Manual on Marine Safety Information (MSI), in particular the MSI related to sea ice and noted that the information provided and recognized as MSI, in particular meteorological warnings, should be better defined and included in this publication. The Team will be invited to review this and other relevant sections in the IHO/IMO/WMO publications and submit a proposal for clear definitions of the existing technical levels or classes of sea ice information, possibly including sea ice information for efficiency of marine operations, sea ice MSI (or mandatory sea ice information for MSS) and sea ice information for monitoring.

As a background information, the Team will be invited to use the existing requirements for sea ice information and services developed jointly by the IICWG, ETSI, GCOS SST and IGOS (“Ice Information Services: Socio-Economic Benefits and Earth Observation Requirements”, “Summary of Current/Planned Capabilities and Requirements for Space-based Remote-Sensing of Sea Ice and Iceberg Parameters” etc.). The Team may also consider taking responsibilities for ice accretion definitions for MSI.

2.5.5 Updates to guidelines for sea ice MSI in WMO manuals and guides (WMO-No. 471, WMO No. 558, GMDSS Guides, Navtex, SafetyNet, etc.)

The ETSI-III (March 2007, Geneva, Switzerland) adopted recommendation to the Navtex manual that sea ice information should be defined in plain language. The JCOMM-III (November 2009, Marrakesh, Morocco) adopted Recommendation 8.3/1 (JCOMM-III) IMO/WMO World-wide met-ocean information and warning service) to the Manual on Marine Meteorological Services (WMO-No. 558) and Recommendation 12/3 (JCOMM-III) - Amendments to the WMO Technical Regulations, including the Manual on Marine Meteorological Services (WMO-No. 558) and the Guide to Marine Meteorological Services (WMO-No. 471), specifying clearer definitions for the provision of MSI related to sea ice through the GMDSS.

The Team is invited to review these and other possible WMO manuals and guides in relation to contents of sea ice warnings, synopsis and forecasts on weather and sea bulletins and develop a proposal to ETMSS for corrections and changes to the documents which may be further formally implemented by ETMSS using the new fast track procedure.

2.5.6 Progress reports of the Arctic METAREAs coordinators
2.5.7 Coordination of sea ice MSI provision and implementation of the Arctic GMDSS

The WMO Executive Council (WMO EC-LX, June 2008) finalized definitions of the Issuing Services for the new Arctic METAREAs, with Canada (Environment Canada / Canadian Ice Service) for METAREAs XVII and XVIII, Norway (Norwegian Meteorological Institute) for METAREA XIX, Russian Federation (Roshydromet / Arctic and Antarctic Research Institute) for METAREAs XX and XXI, in cooperation with supporting services from other countries, in particular Denmark and USA. In addition to the Arctic METAREAs, provision of sea ice MSI within the GMDSS should be implemented within the other METAREAs with sea ice occurrence (I, IV, XIII etc). The implementation of operational GMDSS is to be organized by the Issuing Services in 2009-2010, with the support and coordination of ETMSS (the estimated date for IMO, IHO and WMO to simultaneously declare the system operational is 2010/2011).

The Team will review 3 reports of the METAREAs XVII – XXI coordinators (reports for METAREAs I, IV, XIII are also anticipated) on the status on the implementation of GMDSS, with particular emphasis on coordination actions within the intersection zones that may need to be initiated by the Team. Under this item the Team will also briefly discuss and summarize the status and perspectives of formats/systems of transmission of sea ice and other information for Arctic waters, including both HF radio and satellite means.

2.6 WMO sea ice documents and publications

Under the following sub-items, the Team will review WMO sea ice publications related to sea ice, and submit corrections and amendments to be issued by the Secretariat during the next intersessional period.

2.6.1 Harmonizing Sea Ice Nomenclature, SIGRID-3 and the ENC Ice Objects Catalogue

The ENC Ice Objects Catalogue Version 4.0 was approved at ETSI III. It was intended that this Catalogue should be completely compatible with the Sea Ice Nomenclature and SIGRID-3. However, it was noted that a number of issues were left unresolved relating to the harmonization of the three standards (Ref: Annex XII of the ETSI-III Final Report). The Canadian Ice Service has undertaken to resolve these outstanding issues by proposing amendments to all three standards - the Sea Ice Nomenclature and Symbology, SIGRID-3 and the Ice Objects Catalogue. The ET will be invited to review and approve or amend these proposals. It should be noted that there is a subsequent agenda item to amend the Ice Objects Catalogue (2.6.5). These items are being kept separate in the interest of clarity and because there is little overlap between them.

2.6.2 Sea ice nomenclature and illustrated glossary

The Team will review the status of the current *WMO Sea Ice Nomenclature* (WMO No. 259, volume 1 – Terminology and Codes, Volume II – Illustrated Glossary and III – International System of Sea-Ice Symbols). Following activities since ETSI-II, the WMO Sea ice Nomenclature is available in electronic form in 4 four WMO languages (English, French, Russian and Spanish - http://www.aari.ru/gdsidb/XML/wmo_259.php).

Based on the output from the implementation of the “Ice Objects Catalogue“ for the Electronic Navigational Charts (ENCs), the “Ice Analysts Workshops” (June 2008, June 2009) and recommendations from ETSI-III, corrections to the existing 193 terms and definitions and proposals for new terms and definitions are anticipated from the national ice services. The team will be also invited to discuss an option of electronically extending the existing 4 linguistic equivalents by a subset of linguistic terms for the Baltic Sea ice maintained by BSIM. The Team is also invited to discuss the perspectives of a new updated version of the Nomenclature (by Dr Andrey Bushuev).

The Team will be invited to discuss and provide “best guess” updates to the existing 176 photos in

the “Illustrated Glossary” which are mostly based on experience from aircraft reconnaissance and may need to be amended by modern photos, e.g. satellite. An approach to harmonization of the documents is discussed under item 2.6.5 in the interest of clarity and workload.

2.6.3 Sea Ice Services in the World (WMO No. 574)

The WMO publication ‘Sea Ice Services in the World’ (WMO No. 574) is intended to provide to the customers including that at the sea, the latest snapshot of the sea ice services available world-wide, by this efficiently extending the WMO publication No. 9, Volume D – Information for Shipping. In 2007 the ETSI-III finalized the 3rd edition and agreed on the further update of the electronic copy of the publication on annual scale. By April 2009, updates for the 4th edition were provided to the ETSI chair by the national ice services and included into the next annual 2009 edition of the publication. The Team will be invited to review the status, make suggestions and agree on resources and further technical mechanism for the provision of regular annual updates of this publication.

2.6.4 Sea ice in Electronic Navigational Charts (ENC): Progress Report

The ETSI-III in March 2007 adopted the “Ice Objects Catalogue Version 4.0” as the sea ice extension of the IHO S-57 format for the ENCs and agreed on a formal mechanism for its maintenance and development with JCOMM ETSI recognized as the competent international technical group on sea ice and icebergs by the WMO, IOC and IHO Committee on Hydrographic Requirements and Information Systems (CHRIS), the WMO Secretariat as Register Owner and Manager, Register Users as anyone interested in sea ice or iceberg MIOs, the Control Body as the ETSI ENC Ice Objects Task Group (TG ENCIO), the Submitting Organization as WMO and proposers as ETSI Members from Canada, Germany, Russian Federation and USA. In May 2008 the TG ENCIO finalized inclusion of the “Ice Objects Catalogue Version 4.0” into the IHO Register, so that presently the S-57 sea ice extensions are freely available within the Open Geospatial Consortium (OGS) Geospatial Data Abstraction Library (GDAL). The JCOMM-III session noted this unique situation, with ETSI being a bridge between CHRIS and WMO, as being stimulating for JCOMM.

The introductory, progress report on the implementation of the “Ice Objects Catalogue” for customer support will be presented by the TG ENCIO chair with national ice services reporting on their activities during navigation seasons 2008-2010, in particular the Canadian Ice Service in cooperation with CARIS, the Arctic and Antarctic Research Institute in cooperation with TRANSAS and German Ice Service.

The WMO Sea Ice Nomenclature volume III and its extension the “Ice Chart Colour Code Standard” provide standards for the sea ice presentation schemes on the level of the WMO. The similar level of standard for ENCs is covered by the IHO S-52 format and the next S-100 format. TG ENCIO chair will present for discussion summarized amendments to the “Ice Objects Catalogue” and MIO/S-52 from Canada and Russia. In addition to agenda item 2.6.1 the Team may return to the harmonization issues of the Catalogue and the current and updated versions of the WMO Sea Ice Nomenclature.

Under this item the Team is also invited to discuss the prototypes of presentation of the sea ice information and services as marine meteorological layer on ENC for demonstration during JCOMM-IV (2012).

2.6.5 Sea ice in Electronic Navigation Charts (ENC): Ice Objects Catalogue, presentation schemes and support for other MSI

In the course of its work to implement the Ice Objects Catalogue for customer support, AARI has developed an extensive proposal for amendments and additions to the Ice Objects Catalogue. The ET will be invited to review and approve or amend the proposal for the ENC Ice

Objects Catalogue Version 5.0 together with accompanying documents for proposed presentation libraries. In the course of this review, the ET will have to keep in mind its previous decisions under agenda item 2.6.1.

2.6.6 Updates to SIGRID-3 and ice chart color standards formats

Two technical documents, the *SIGRID-3: A Vector Archive Format for Sea Ice Charts* (WMO/TD No. 1214) and the *Ice Chart Colour Code Standard* (WMO/TD No. 1215), both finalized and published in 2004 in JCOMM Technical Reports, now extend to the *WMO Sea-Ice Nomenclature* by providing standards for ice chart coding and operational and delayed-mode presentation in additional to existed raster *SIGRID* (WMO, 1989) and *SIGRID-2* (WMO, 1994) formats primarily intended to support sea ice climatology.

Based on the output from the national practices and the “Ice Analysts Workshops” (June 2008, June 2009), proposals for amendments to SIGRID-3 and the Color Standard are anticipated from the national ice services. It is also anticipated that the Team will review the status of implementation of SIGRID-3 among the services and discuss the capabilities and problems of export/import of ice charts in SIGRID-3 between the ice services.

2.6.7 Vision and strategy for the standards for sea ice coding and presentations

During the last years a swift progress was made by ETSI in developing and formally adopting new formats for sea ice information exchange, namely “SIGRID-3 – A vector archive format for sea ice charts” (WMO/TD-No.1214, April 2004) “Ice Chart Colour Standard” (WMO/TD-No.1215, April 2004) and “Ice Objects Catalogue“ (March 2007). Efforts have been made to keep these standards harmonized with each other and with the Sea Ice Nomenclature, although in a somewhat ad-hoc fashion. In this respect the Team is invited to discuss a formal approach of harmonization of the documents with the *WMO Sea Ice Nomenclature* (WMO No. 259) as the leading document.

It is expected that under this Agenda Item the Team will elaborate its vision and strategy on development of the next generation of open standards for sea ice coding and presentation, including development of SIGRID-4 in alignment with the ISO and OGS while the S-57 format will serve in the interim to carry ice information in Electronic Ice Systems. Reports/discussions on perspectives of using the new formats, in particular the GeoPDF and the Geography Markup Language (GML), for sea ice information are also anticipated under this agenda item.

2.6.8 Other JCOMM sea ice related publications

Under this agenda item the Team is invited to review and discuss other sea ice related publications. Proposed documents may include standards for sea ice observations, guides for sea ice analysis etc.

2.7 Sea ice information systems and products delivery

2.7.1 Ice analysis harmonization issues (based on Ice Analysts Workshops)

The first and the second joint ETSI/IICWG/GCOS Ice Analysts Workshops (IAW) were held respectively in Rostock, Germany, in June 2008, and in Tromsø, Norway, in June 2009, with the primary objectives to enhance the capability of national ice services to provide harmonized sea ice services and to understand historical variations in sea ice charting. The Team will be invited to review the report by the ETSI chair and workshop hosts on the key differences between current practices of ice analysis and charting at the national Ice Services and estimated accuracies of ice charts to meet both operational and climate needs and agree on further actions towards harmonization of the ice informational products and their delivery, in particular for the new Arctic METAREAs.

2.7.2 Ice Logistics Portal and WIS

IICWG jointly with ETSI contributed to the development of the Ice Logistics Portal (http://ipy-ice-portal.com/) as a joint initiative with the European Space Agency through the EarthWatch GMES Service Element PolarView in support of the IPY 2007/2008. This Portal provides a single interactive website to operational sea ice information from National Ice Services for regions in the northern and southern hemispheres. The Portal has been active since May 2007. and utilizes a provider-flexible operative scheme resembling another WMO End-to-End Data Management project (E2EDM). It contributes to the Global Cryosphere Watch (GCW) and the MyOcean project, funded by the European Commission. The IICWG-X session agreed on the actions to transfer the Portal from PolarView to the German ice service as a host. Currently this process is under development. The Team is invited to review a status report from the PolarView/BSH on the Portal and agree on the Team's further actions towards the Portal maintenance and integration with WIS.

2.7.3 Assimilation of ice charts into numerical now and forecasting systems

Under this item the Team is invited to review status reports on the existing problems and perspectives of ice chart assimilation into the numerical now and forecasting systems, in particular from the MyOcean project and the Canadian Ice Service.

2.8 Requirements for sea ice information

2.8.1 Updates for sea ice in the WMO Rolling Requirements Review

The WMO Rolling Requirements Review (RRR) Process jointly reviews users' evolving requirements for observations and the capabilities of existing and planned observing systems. Statements of Guidance, as to the extent to which such capabilities meet requirements, are produced as a result. Initially, the process was applied to the requirements of global NWP and the capabilities of the space-based subsystem but more recently the range of requirements has been expanded and the technique has begun to be applied successfully to surface based observing systems and other application areas. The Team is invited to review and provide amendments to the "Statement of guidance for ocean applications" document (November 2009 - available at http://www.wmo.int/pages/prog/sat/documents/SoG-Ocean.doc) as well as WMO RRR database sections related to sea ice and to elaborate a proposal for the JCOMM Point of contact (Ali Mafimbo, Kenya).

The Team will be also invited to review the existing requirements for sea ice information and services developed jointly by the IICWG, ETSI, GCOS SST and IGOS ("Ice Information Services: Socio-Economic Benefits and Earth Observation Requirements", "Summary of Current/Planned Capabilities and Requirements for Space-based Remote-Sensing of Sea Ice and Iceberg Parameters" etc.) as an input to the well-articulated JCOMM Services *User Requirement Document* (URD)and if necessary agree on its further actions.

2.8.2 JCOMM Questionnaire and user feedback

Direct interaction with and feedback from users is an essential part of the provision of high quality and valuable marine services in particular in the Polar areas. A marine meteorological monitoring programme was initiated by the CMM in 1981, and user surveys have been conducted every four years. The ETSI-III and ETMSS-II sessions proposed extensions to marine questionnaire to cover indicators specific to provision of Polar MSI, which were further agreed by the JCOMM-III. The Team will be invited to review the progress report from the Secretariat on the status of distribution and feedback from these questionnaires, and to agree on its further actions in this direction.

2.9 Polar Decade activities (GCW, SAON etc)

Under this Agenda Item, the Team will be invited to review and discuss reports from the WMO and IICWG Secretariats on the proposed and planned Polar Decade activities, provided for

the IICWG-X session and agree on additional actions towards successful implementation of the projects.

2.10 Relations to other JCOMM bodies

2.10.1 Relations with other SFSPA bodies

Following recommendations during the JCOMM-III, the Team will be invited to review collaboration with other JCOMM Expert Teams, in particular ETMSS, ETOOFS, ETMC and SOT.

2.10.2 Support for JCOMM CB

Following general JCOMM commitment to ETs, the Team has being requested to develop e-learning modules, such as OceanTeacher and/or Bilko lessons. In a general discussion, the Team will be invited to review its strategy and implementation plan to developing and maintain these e-learning modules. It is also expected that under this Agenda Item, the Team will develop the main themes for the 3rd "Ice analysts Workshop", planned to be convened in June 2010 (Denmark).

2.11 ETSI future activities and working plan for the next intersessional period

It is expected that under this Agenda Item, and based on the previous reports under item 2, the Team will discuss and review its Terms of Reference (ToR), relationships to the regional and international sea ice alliances (IICWG, BSIM, NAIS, EIS), strategic goals of the ETSI based on JCOMM-III recommendations and the role of the Team in influencing the direction being taken towards development of ice services and product delivery within ENCs, sea ice research, remote-sensing, etc.

Based on discussions during the session, and upon requests and proposals from other bodies and programmes inside and outside the WMO and IOC, the Team will be invited to adopt a comprehensive work plan for the ETSI for the upcoming intersessional period as an integral part of the SFSPA Work Plan for the JCOMM intersessional period 2010 – 2012.

3. TWELFTH SESSION OF THE STEERING GROUP FOR THE GDSIDB

3.1 Reports of the GDSIDB centers
3.2 Report of the ETMC chair
3.3 GCOS Report on SST & SI activities

Reports from the two GDSIDB centres at the Arctic and Antarctic Research Institute (AARI, St. Petersburg, Russian Federation) and USA National Snow and Ice Data Center (NSIDC, Boulder, CO, USA) will cover activities during the intersessional period since the previous meeting in Geneva, Switzerland, in March 2007, according to the work plan. It is planned that a special section in the reports will deal with the interaction with the users, their requests, relay of data, Internet presentations, etc. The reports will also provide an introduction to the overall strategy and vision for the GDSIDB in the future and its tighter integration with the ETMC activities, as guidance to subsequent discussions on this important topic. It will be followed by a report from the ETMC chair.

The GCOS Sea Surface Temperature and Sea Ice (SST & SI) Working Group was recently reformed with the decision to form a specific subgroup on sea ice (SI). A number of relevant groups had been identified as participants to the initial core group of the GCOS SST & SI SG: ESA, ASPeCt, IICWG, JCOMM ETSI, NSIDC and NASA. It is planned that under this item, the Team will be presented with the concise report of the GCOS SST & SI SG Chairperson, Dr Leif Pedersen, on the status of the group, specifically on its Terms of Reference and activities on sea ice reanalysis, inter-comparison and climatology issues.

The Team should have a general discussion of these reports, review GDSIDB Internet sites, and then refer specific components to the relevant technical items.

3.4 Development of sea ice historical data processing

It is expected that participants in the GDSIDB project will provide separate overview reports on sea ice historical data processing maintained in their services, including the preparation of historical archives on the basis of operational sea ice products, QC, use of climatic data in operational practice, requests from the users for historical ice products, etc. It is anticipated that the Team will review the current specifications for sea ice data the International Maritime Meteorological Tape (IMMT) and agree on necessary actions for its update. The Team will also discuss the progress in developing new formats for sea ice gridded data exchange, in particular perspectives of extending netCDF for these purposes.

3.5 Submission of new sea ice and iceberg data to the GDSIDB

It is planned that under this item, representatives of the GDSIDB centres will provide detailed information on new sea ice data sets, submitted to the GDSIDB project during the intersessional period, to include such items as: description of data quality, temporal and spatial coverage, etc.

3.6 Sea ice products based on GDSIDB data

3.6.1 Sea ice atlases
3.6.2 Sea ice climatology

The GDSIDB project now incorporates the most extensive amount of historical sea ice information for the 20th Century, and it is able to provide vital information for numerical modeling, testing of remotely-sensed data, as well as for an estimation of global changes or oscillation of sea ice cover. It is expected that representatives from the GDSIDB centres and GDSIDB Steering Group, the GCOS SST & SI SG and the ETMC will provide reports on sea ice climatic products, based on GDSIDB data, including comparison of sea ice statistics assessed on different sources such as test ice charts, SSM/I and AMSR imagery processing and numerical ice cover models. The Session will be invited to discuss the reports and investigate the means aimed to facilitate utilization of the GDSIDB data within the WCP and WCRP.

3.6.3 Arctic Marine Shipping Assessment (AMSA)

The AMSA was an initiative of the Arctic Council, to characterize and quantify the nature of Arctic shipping in the coming decades. It is similar in scope to the Arctic Climate Impact Assessment. Significant input to the AMSA has been based on information from sea ice charts and sea ice experts. A status report on the AMSA will be presented.

3.7 New Contributions to the GDSIDB from Member States

It is planned that the members of the Steering Group for the GDSIDB will provide proposals on new sea ice data sets to be submitted to the bank during the next intersessional period. One source could be updated collections of regional and hemispheric sea ice data in SIGRID-3 format from ice charts for the Northern and Southern Polar Regions to the present (Canada, Denmark, Norway, Russia, USA, etc.). Others sources could include: historical sea ice data for the Sea of Bohai (State Oceanic Administration, China); the Baltic Sea (BSIM and German Federal Maritime and Hydrographic Agency (BSH) Germany); the Arctic (pre to 1950s) and Antarctic (AARI, Russian Federation; British Antarctic Survey, United Kingdom; Australia through the Antarctic Sea-ice Processes, Ecosystems and Climate (ASPeCT) Programme). Additional sea ice data sources are identified as Denmark for Greenland waters in the 20th Century; Chile and South Africa for the Antarctic, etc.

3.8 Working plan for the next intersessional period

It is expected that under this Agenda Item, the Session will discuss and the review Terms of Reference of the SG for GDSIDB, its further interaction with ETMC, and adopt a comprehensive work plan for the GDSIDB project for the next intersessional period, based on requests and proposals from other bodies and programmes inside and outside the WMO and IOC, which are included in the overall JCOMM work plan. This work plan will be implemented through the steering group for the project under ETSI supervision.

4. RELATIONS TO OTHER WMO/IOC AND INTERNATIONAL PROGRAMMES

The ETSI and GDSIDB project are an integral part of the JCOMM, and thus are influenced by, and need to advise, other JCOMM bodies in items related to sea ice, in particular the DMPA ETMC. It is expected that GDSIDB Co-chairs, as well as the members of the GDSIDB Steering Group and ETSI members, will provide overview reports on the past and current relationships with other WMO/IOC programmes, and other international programmes such as the GCOS, CliC, GMES, and SCAR, etc.

5. DATE AND PLACE OF THE NEXT SESSION

It would be advantageous if the participants attending the meeting could present an invitation from their institutions for the next meeting to be held in one of their countries. The Team may wish to consider any such invitations or suggestions regarding the date and venue of the next session.

6. CLOSURE OF THE SESSION

The Fourth Session of the JCOMM Expert Term on Sea Ice (ETSI-IV) and the Twelfth Session of the Steering Group for the JCOMM Project “Global Digital Sea Ice Data Bank” (GDSIDB-XII) is expected to close by 17:00 on Friday, 5 March 2010.

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