WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

Informal Session of the JCOMM Expert Team on Data Management Practices (ETDMP)

Hosted by Research and Development Department, Scientific Technical and Cultural Affairs (OSTC), Belgium

Brussels, Belgium
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Abstract

The Informal Session of the JCOMM Expert Team on Data Management Practices (ETDMP) was held in Brussels, Belgium, on 28 November, 2002. The Session discussed in detail the JCOMM strategy for end-to-end data management and the document entitled "The Basic Elements of the End to End Data Management Strategy". The ETDMP draft work plan for 2003-2004 was reviewed and the Session discussed an extensive analysis of the tasks and assigned their implementation to members of the Group, as present during the Session. It was recommended that the First Session of the JCOMM Expert Team on Data Management Practices be held in September 2003 and it was proposed that the meeting should have a duration of 3 days.

TABLE OF CONTENTS

ANNEXES

1. ORGANIZATION

The Session was opened by Nick Mikhailov, Chair of the JCOMM Expert Team on Data Management Practices. He explained that this Session was being organized to take benefit from the participation of several members of the Expert Team in the "Colour of Ocean Data" Conference that took place in Brussels between 25 and 27 November 2002. As the Expert Team had a comprehensive list of tasks to complete and the first formal meeting could only be organized late 2003, it was therefore decided to have an informal, preparatory meeting, where some actions by member experts could be agreed upon.

The Chair noted that Kim Finney (Australia) had left her position and had therefore also resigned from the Expert Team. He reported that Australia had proposed Dr Tony Rees to replace Ms. Finney. Dr Rees is the Acting Head of CSIRO's Data Centre. The Chair of the JCOMM Data Management Coordination Group as well as the two JCOMM Co-Presidents had agreed with this replacement. Official endorsement of the replacement of Ms Finney by Dr Rees was now proceeding. The Chair then requested all participants to introduce themselves. The list of Participants is included in this report as Annex II.

The Chair of the JCOMM Data Management Coordination, Prof. Shaohua Lin, welcomed the participants and referred to the progress made during the First Session of the JCOMM DMCG held in Paris in May 2002.

The Session adopted a revised agenda, added to this report as Annex I.

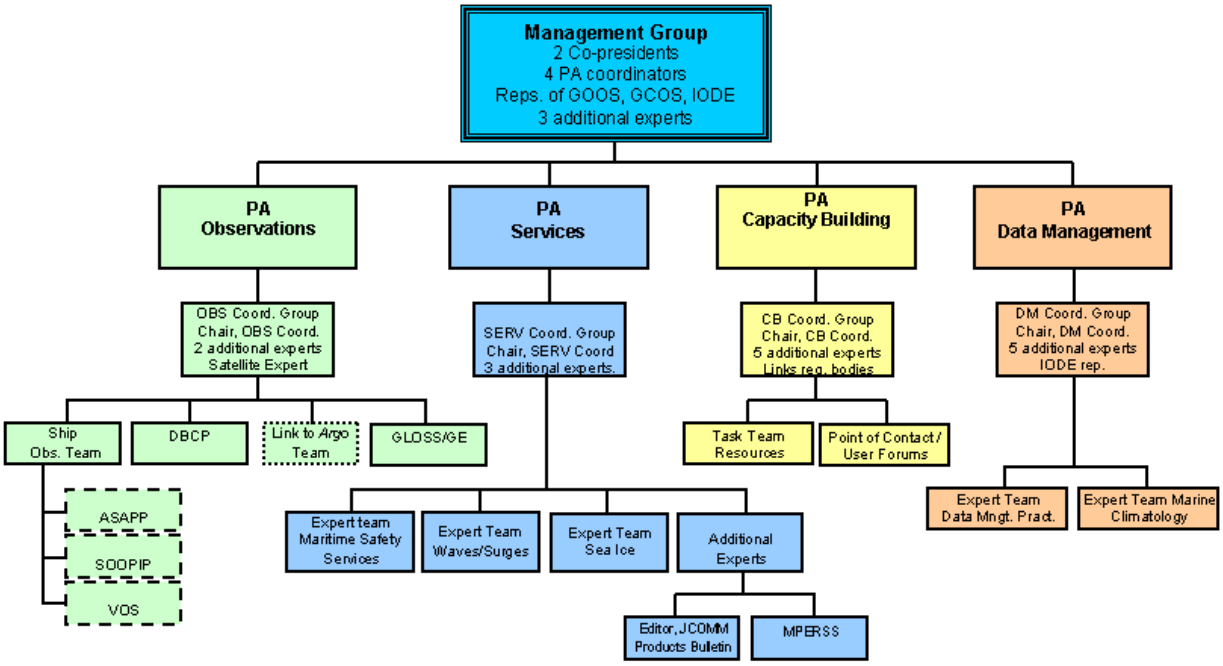
The JCOMM Co-President, Dr Savi Narayanan, welcomed the participants and provided a brief overview on JCOMM.

Vision statement of JCOMM

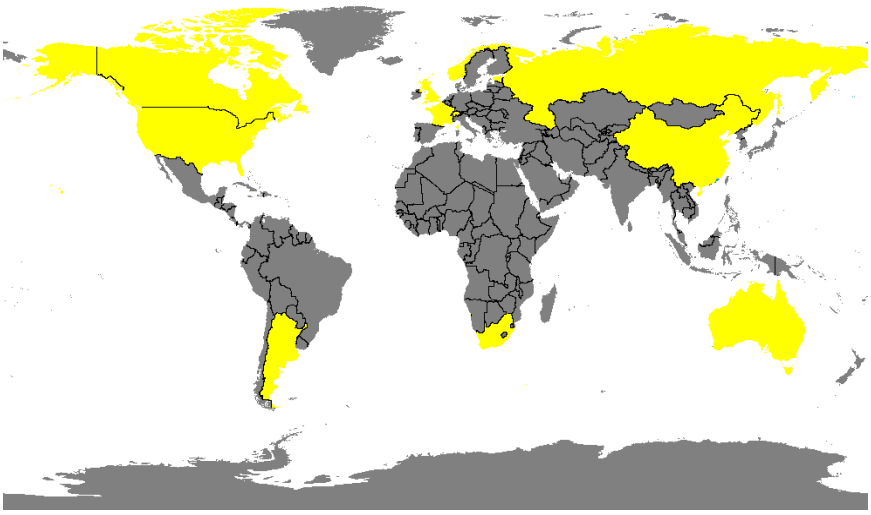
- The vision of JCOMM is to be the venue for a fully integrated marine observing, data management and services system,
- JCOMM will make use of state-of-the-art technologies and capabilities, as appropriate
- It should be responsive to the evolving needs of all users of marine data and products,

It must include a major outreach programme to enhance the capacity of all maritime countries to contribute to and benefit from JCOMM.

JCOMM Structure



JCOMM Management Team Geographic Distribution



The Management Committee consists of 12 members including chairs of other relevant bodies, such as GCOS, GSC and IODE. The assembly and subsequently, the co-presidents took every effort to make sure that the management team has the breadth of expertise necessary to lead JCOMM forward during its formative years.

Particular attention was given to balancing the membership between meteorological and oceanographic expertise.

- Stan Wilson, USA, Observations; Phil Parker, Australia, Services
- Miriam Andrioli, Capacity Building, Argentina
- Shaohua Lin, China, Data Management
- Philippe Dandin, France; Ivan Frolov, Russia
- Ian Hunter, South Africa, Worth Nowlin, USA, Chair of GSC,
- Ben Searle, Australia, Chair of IODE (now replaced by Efstathios Balopoulos)
- Paul Mason, UK, Chair of the GCOS Steering Committee
- Johannes Guddal, Norway; Savi Narayanan, Canada

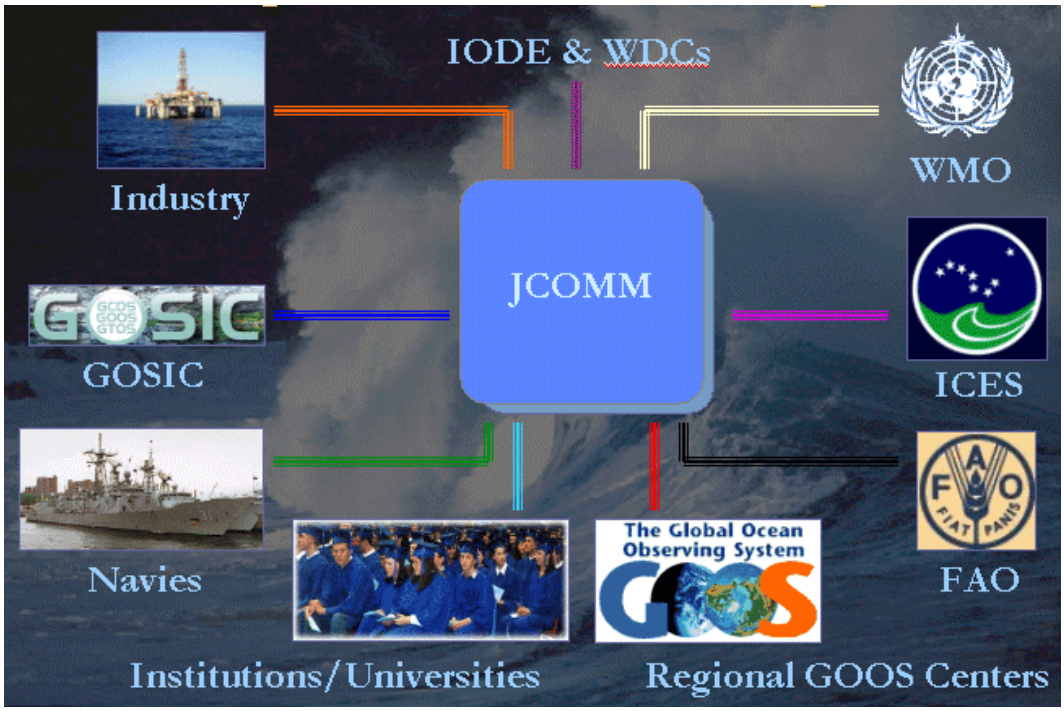
Where are we now?

We have a well-established observational program with many elements.

- 5000 merchant vessels observing meteorology.
- 120 vessels observing subsurface temperature and salinity.
- 1400 drifters observing meteorology.
- 100's of ocean buoys for meteorology and ocean parameters.
- Argo, up to 3000 diving profilers to collect synoptic temperature and salinity.
- 400 tidal stations for sea level climatology.
- Arctic and Antarctic ice monitoring.
- Satellite observations of altimeter/scatterometer/SAR data.

The numbers look impressive. However, if one looks at the geographical distribution, it will show that the coverage is denser in certain areas adjacent to countries with a history of oceanographic sampling.

Integrated Data Management



Currently data management is very fragmented. Many programs deal with data on completion of the projects and consequently, the resulting data sets are quite often not migrated to 'managed' data bases. It is often the case that such databases have major gaps in metadata, non-standard formats, and other problems to integrate them into managed databases. The fact that IOC needs a GODAR project is indicative of the urgent need to build data management as an integral part of all observational programs. JCOMM is working very hard to bring the integration and cultural change necessary for effective management of data (see figure above as a vision for the future).

JCOMM Products

- JCOMM web site and community portal. This community portal site provides news and background documents. (http://www.jcomm.net).
- JCOMM In Situ Observing Platform Support Centre (JCOMMOPS). JCOMMOPS is a centre to provide support at the international level for those in charge of developing and operating marine and oceanographic *in situ* observing systems.(http://www.jcommops.org.)
- JCOMM Electronic Products Bulletin (J-EPB). On-line global and regional data (weekly, monthly) and products (climatology). http://iri.ldeo.columbia.edu/climate/monitoring/ipb/

The Session noted that the ETDMP is still short of one member. It was recalled that this expert should have bring experience in non-physical data management. The Session suggested that Dr Edward Vanden Berghe, Chair of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BCDMEP) could be a suitable candidate and recommended that Dr Mikhailov and Dr Vanden Berghe discuss this in more detail.

Dr Narayanan referred to the JCOMM decision to review the network of Specialized Oceanography Centres (SOCs) and noted that the services required by GOOS and IODE were now very different from ten years ago. She noted that the presentations at the COD Conference had revealed many initiatives related to data products and services in the non-traditional data arena and that it would therefore be necessary to bring in additional centres in the SOC as well as IODE data centre networks.

In view of the relevance of the "Colour of Ocean Data Conference" to the mandate of the Expert Team, Dr Edward Vanden Berghe was requested to provide a short overview of the proceedings of COD. Dr Vanden Berghe stated that there are still two worlds: the physical oceanography data centres and the rest. The COD Conference therefore tried to identify the synergies between these two 'worlds'. He explained that the "Colour" in the title of the Conference referred to the "blue ocean data" (open ocean) and "green ocean data" (coastal). He also stated that data management should not be seen separate from user requirements and that these should push data management strategies. Dr Vanden Berghe reported that the Panel Discussion on 27 November, chaired by Dr. Narayanan, had been an important event as it had clearly revealed the "divide" between the data centre community and the biological/biodiversity/coastal research communities. The following important comments had come out of the Panel discussions:

- The research community does not like metadata systems that do not provide access to the data sets;
- Data and information management is generally not included in the academic curriculum of ocean research. This makes many researchers unaware of the importance of data and information management and are unwilling to participate in the process;
- Data centres are perceived as "archives' the same way libraries were seen in the past: dusty repositories of books, rather than dynamic, user-oriented information services.

The Session stated that data centres should not be seen as 'archives' but as dynamic service providers. An example should be taken from marine libraries that now provide comprehensive services that are fully user-oriented and often serve a wide range of users. The Session noted that data centres should embrace new technologies but should not "get carried away": the technology must be transparent to the user. Data Centres should be providers of data but also providers of products.

The Session also noted that whereas JCOMM is sub-divided in four Programme Areas, it should be recognized that data management is practised as a service oriented system. It is therefore important to ensure that JCOMM does not become segmented with the data management programme area as well as the other programme areas developing separately.

2. JCOMM STRATEGY FOR END-TO-END DATA MANAGEMENT

The Chair introduced Document ETDMP-Informal/5 entitled "The Basic Elements of the End to End Data Management Strategy". In his introduction Dr Mikhailov recalled that it is common practice that the content, regulation and other marine data management specifications should be dictated by user requirements or at least should be oriented to meet the requirements of the users, who employ data for marine environment study, exploration of marine living and non-living resources and making decisions in other marine activities. Here the term "marine data management" implies collection, accumulation, storage, processing (including product generation) and distribution of metadata, data and information products (hereinafter the general term "data" is used for data, metadata and information products if no details are required).

Traditionally, there is a certain disagreement between " data managers " and "users". The long-standing efforts of " data managers " to specify and structure the requirements of "users" failed to produce desired outcomes (except for the classical set of services such as marine forecasts, marine severe weather warning, etc.). The summary of those efforts is as follows: users need all, always and very quickly.

With this in view it was decided to give a thought to the development of the integrated information systems, which provide a complete data management cycle (from the performance of observations to the use of information resources by the end users) and are oriented on a wide range of end users.

However, it should be noted that so far there are no standard, commonly adopted definitions of the "end to end data management " (hereinafter referred to as E2EDM). Both teams of experts and

individuals give different interpretations of E2EDM itself as well as of methods method and tools of E2EDM implementation.

In his paper Dr Mikhailov recommended the following definition which he felt best defined E2EDM:

> *"E2EDM is the technology of integration of data management processes (through creation of such interfaces between the blocks of data systems, when an output data flow of one technology is a "transparent" input data flow of another technology) implemented under various international projects and programs to provide timely delivery, completeness, quality and availability of marine environment data for a wide range users".*

This definition is already used as a basis in a number of ongoing projects such as, *inter alia*, SeaSearch, DataOceanNet, DAC subsystem, ESIMO system.

In addition the E2EDM mission is to integrate data systems that allow users to exploit multiple data streams/datasets/databases from different sources as a "unified information space".

E2EDM Role

The main emphasis is made on inter-discipline and inter-level data integration) by means of the coordinated development and use of new information technologies in the existing and planned discipline/problem-oriented data systems;

E2EDM touches upon traditional data management functional aspects only to the extent required to ensure integration and information interaction between internal blocks of a data system and between blocks of different data systems.

E2EDM basic principles

i) E2EDM should be based on the existing national and international data observing and DM systems;
ii) E2EDM should be consistent with the objectives, needs and priorities of the JCOMM activities. The first E2EDM priority is data and information supporting the GCOC and MMS;
iii) E2EDM should be "operational" in terms of handling real-time data and product flows and access to delay-mode data and products;
iv) E2EDM should be a robust and accessible system to perform the following functions:
    a. To monitor the status, content and other specifications of data flows and information resources within the E2EDM data systems in the interrelated manner, including tagging of data from the points of collection to the end products and information on measurement and processing methods;
    b. To provide a single user logon to the data systems involved in E2EDM, maintaining navigation, search and access to information resources within the data systems;
    c. To maintain synchronization and updating of information resources within the data systems involved in E2EDM;
    d. To produce specific sets of data products and user interface functions for selecting combining and presenting data in the graphical/textual form as well as for making the required data available on the user computer;
    e. To provide the data and information on requests from a wide range of users in the request / replay and push mode.
v) E2EDM should provide interconnection (through monitoring of data flows/data sources and through data tagging):
    a. Between different observing networks to compose data sets of the required variables/group of variables from various types of measurements to make the utilization and processing easier - horizontal integration;

b. Between different data sources to provide multi-level coordinated data sets of observational data, products and outcomes of the analysis - vertical integration.

vi) The E2EDM methodology consists of establishing a distributed system of marine meteorological and oceanographic data and information. It means the following:
   a. The system includes, coordinates and manages data sources generated by observing systems and data processing centres;
   b. The data sources are maintained in operational conditions by IODE/WMO centres in accordance with the agreed upon rules and agreements and adopted standards/technologies;
   c. The interaction between the data sources and access to them are provided through international acquisition, processing and distribution standards and protocols;
   d. Data and product flows/sources monitoring, user interfaces for data access, data visualization and processing are provided through a special system of applications.

vii) The E2EDM establishing is provided through development and adoption of the new OIT on the basis of modern information tools such as client-server Web- technologies, XML and others.

E2EDM Model

i) Real-time data flows, datasets/databases developed within the existing and planned data systems are data sources integrated through the E2EDM establishing. The content of data sources is chosen to meet both JCOMM objectives and user requirements;
ii) The basic E2EDM mission is to integrate these data sources and to create the unified information space for both a wide range of users and data systems themselves to prepare derivative multidiscipline and multidimensional data sets;
iii) Technologically the E2EDM concept is based on the distributed system of marine meteorological and oceanographic data generated by data systems. Interaction between data sources and access to them are provided through the E2EDM integration standards and tools that should be developed;
iv) E2EDM technology (along with integration of information resources) should enable monitoring of data sources status, user interfaces for data access, data visualization and processing by special E2EDM applications.

E2EDM infrastructure

The E2EDM process should be based on currently existing observation, processing and data management systems created and developed under national and international programs with their observational networks, information resources, telecommunications, software and technologies, computers and other technical tools.

These data management systems (hereinafter data systems) have clearly expressed thematic features, i.e. they are oriented on either a specific discipline (hydrometeorology, sea level, ice, etc.) or a specific problem (monsoon forecast and diagnosis, dangerous marine event warning) and are operated under IOC, WMO, ICSU, GOOS, etc.

The Session proceeded with extensive discussions on revising the document. It was noted that a clear set of definitions and consistent terminology related to E2EDM should be included. It was also stated that JCOMM data management and E2EDM are not totally the same. Some aspects of E2EDM will be covered by JCOMM, whereas others will be dealt with by other bodies. As such the scope of JCOMM data management will be determined by the range of observations covered by JCOMM and the elements of the JCOMM data management strategy will include standard protocols and procedures needed for effective data flow. The functional units will be provided by the participating countries (e.g. telecommunication systems, data centres). The E2EDM approach will thus be a strategy that embraces all the above-mentioned thereby balancing technology and use.

It was noted that the current version of Document 5 already covers most of the required topics but that the approach may need some revision. The following table of contents for the revision was agreed upon:

- Background (review of existing activities)
- Vision and rationale (short)
- Scope (to obtain from other JCOMM documents)
- Objectives (available from current version)
- Approach (how to reach the objectives) (available from current version)
- Elements, units of the system

The Session also considered that it may be preferable to keep the different data streams together (e.g. fisheries, tides) rather than use the traditional method of splitting them after collection and bringing them back together at a later stage. This will be very important for COOP.

The Session stated that it would welcome close cooperation with WOCE especially to preserve its data management system.

The Session composed a drafting group: Catherine Maillard, Nick Mikhailov, Volker Wagner, Tony Rees and Neville Smith. The drafting group will revise Document 5 and circulate the revision amongst the members of the ETDMP for comments. It was also recommended that the revised document be shared with Argo and MFS (Nadia Pinardi) for comments as to its relevance and applicability to these programmes.

A final version of the revised document will then be submitted to the First (formal) Session of the ETDMP in 2003 for adoption. It should then also be provided to WMO's future systems group.

3. ETDMP WORK PLAN FOR 2003-2004

3.1 Review of draft work plan

It was recalled that in accordance with ETDMP Terms of Reference the group should:

i) develop, recommend and implement principles and practice of End to End Data Management (E2EDM) to be adopted by JCOMM;
ii) consider and assess efficiency of existing and planned data management (DM) practices, and recommend the best practice and related activities to be accepted by JCOMM. Related activities include in particular:
    - metadata standards and formats;
    - data quality control and integration;
    - flow of data and products.

The ETDMP fulfils its functions through:

i) Develop, recommend and implement principles and practice of End to End Data Management (E2EDM) to be adopted by JCOMM;
ii) preparation of reviews, analyses, guiding materials and other documents, which will help JCOMM to accept the best data management practices;
iii) Provision of data management consultations for Data Management Co-ordination Group (DMCG) and other JCOMM groups;
iv) Preparation of proposals on establishing projects and special ad hoc groups, and in case they are established, supervision of their activities with the purpose of developing effective data management practices;
v) Communication and collaboration with other groups to provide access to required expertise and relevant co-ordination tools, and to avoid duplication.

The 2001-2005 ETDMP work plan is based upon proposals and decisions of JCOMM-I (June 2001) related to the JCOMM Data Management Programme Area (DMPA) as well as on decisions of DMCG-I (22-25 May, 2002) and is aimed at fulfilling the following basic tasks:

- Task 1. The GOOS and MMS requirements to E2EDM
- Task 2. Assistance to existing and planned data management mechanisms and practices
- Task 3. Development of JCOMM E2EDM Strategy and E2EDM integration technology

3.2 Agreement on work assignments and timetable

The Session then proceeded with an extensive analysis of the Tasks and assigned their implementation to Members of the Group, as present during the Session.

Task 1. The GOOS and MMS requirements to E2EDM

GCOS/OOPC: Lee Dantzler: no response received. Savi Narayanan volunteered Bob Keeley to assist (as member DMCG). The Chair will contact Lee Dantzler and inform him that Bob Keeley will be able to assist.

COOP: Catherine Maillard agreed. In addition Savi Narayanan will assist Catherine Maillard

MMS: Volker Wagner: agreed

Regional GOOS: Roger Djiman: Chair to contact Roger Djiman to confirm.

Note: a lot of MMS is being dealt with by WMO/CBS. VOS data and fixed buoys are dealt with. So we need to ensure that we are not duplicating.

Task 1. Action 1: To analyze and give first presentation on the generalized GOOS and MMS DM requirements using existing GOOS/OOPC/COOP and MMS documents and other sources. Deadline: February 2003.

Authors: as detailed above under Task 1.

Task 1. Action 2: To revise the materials with E2EDM requirements in collaboration with OOPC, COOP and HMS and assess the GOOS and MMS DM requirements. Deadlines:

- June 2003: paper for consideration by Members ETDMP
- September 2003: first version of working document to consider at formal meeting. After: additional remarks by outside experts
- December 2003: final version

Authors as in Action 1

Task 2. Assistance to existing and planned data management mechanisms and practices

Subtask 2.1. Metadata management systems

From ETDMP – Ricardo Rojas: AGREED

From DMPA - Chair, Lin Shaohua: AGREED

Subtask 2.1. Action 1: To analyze the specifications existing and being developed for metadata systems (MEDI, EDMED, MCSS). Deadline: by ETDMP-I. The Chair reported that he received two papers (one from R. Rojas and one from S. Lin). The Chair will finalize the working document by email with the two authors. The working document will be sent to the Secretariat by 15 December 2002 for publishing on the JCOMM web site.

Subtask 2.1. Action 2: To define the functions and technological issues of ODAS metadata centre activity. Deadline: by ETDMP-I. The Group suggested to invite the Chair ETMC to participate in this Task and tasked the Chair ETDMP to discuss this with the Chair ETMC. The Group also invited GOSIC to participate and decided that the documents that were prepared will be shared with Ron Wilson for his input. The Group recommended that some editorial discussions, additional to email, could be held at other occasions that may present themselves such as IODE-XVII. The Group recommended that the final document would be distributed to ETDMP-I.

Subtask 2.1. Action 3: to generalize the specifications of metadata system and to develop the technical proposals. Deadlines:

- June 2003
- September: version to be considered by ETDMP-I
- December 2003: final document

Subtask 2.2. Ocean data management. Lee Dantzler: no response received

Subtask 2.2. Action 1: To analyze existing and planned oceanographic DM practices from the point of view of integration of technologies DM - specificity of the DM schemes, QC, dictionaries and codes, formats, software etc. Deadlines:

- June 2003 (first version working paper for distribution to Group members, including the first generalized view on the current status of JCOMM oceanographic DM practices, submit to ETDMP-I)
- September 2003: working version to consider at formal meeting
- December 2003: final proposal (document that we can send as guide to IODE and other relevant communities)

The Session expressed some concern about the size of the task and its assignment to one person. The Session suggested to invite IODE's GETADE or other members of the IODE community to participate in this Action and assist Lee Dantzler. The Session requested the Chair IODE to investigate this matter and identify possible candidates that can assist and report to the Chair ETDMP by January 2003. The Session also suggested that IOC/ICES SG-XML can also contribute. The Chair SG-XML will discuss this with the Chair ETDMP.

Subtask 2.2. Action 2: To continue the analysis of existing and planned oceanographic DM practices and to develop the recommendations for best of them on the basis of the analysis. This action is forwarded to ETDMP-I in 2003

Subtask 2.3:.Marine meteo data management. Volker Wagner and ETMC. AGREED

Subtask 2.3: Action 1: To consider the basic DM decisions in the MCSS and VOSClim projects and prepare the first proposals on DM integration. Deadline: February 2003 (first version working paper for distribution to Group members)

Subtask 2.3: Action 2: To develop technical decisions to implement end to end DM on basis MCSS and VOSClim DM technologies and make proposals on best marine meteo DM practices. Deadlines:

- July 2003: document for dissemination working paper among the ETDMP members
- September 2003: document for discussion by ETDMP meeting
- December 2003: Final version of document

Subtask 2.4. Satellite and spatial data management. Takashi Yoshida. still being discussed by mail with Dr Yoshida. Deadlines will therefore be identified later. The Group queried whether this task is not being dealt with by other groups. In this regard the Secretariat informed the Group of interest shown by CEOS WGISS in collaboration with OIT. The Group recommended that this Subtask should be further discussed at the upcoming MC so it can guide the ETDMP on further action, as well as between the Chair and Dr Yoshida.

Subtask 2.5. Management of non-physical data. Catherine Maillard. The Session was informed that a COOP DM plan has now been completed. There is now a data management team (Nadia Pinardi is chair). It is important for this Group to collaborate with COOP. Tony Knap is co-chair of Coastal Panel. Catherine Maillard could be the link or identify someone to work with A. Knap. The Session stated that it may be premature to work on this matter. The next COOP meeting is planned for early 2003 in Mexico and that meeting may make relevant decisions. In addition the Session was informed by the Chair GE-BCDMEP (Edward Vanden Berghe) that this Group of Experts was also very interested in this matter.

It was recommended that Catherine Maillard, together with the Chair GE-BCDMEP will contact Nadia Pinardi and Antony Knap to coordinate with COOP. Catherine Maillard was requested to prepare a

preliminary short paper for the COOP meeting and possibly participate in that meeting. Based upon discussions at COOP Catherine Maillard can then report to ETDMP-I. Catherine Maillard will prepare with Tony Knap, Nadia Pinardi and Edward Vanden Berghe proposal for actions on non-phys that will be submitted to next JCOMM Management Comittee meeting. The Management Committee will be requested to recommend further action.

Task 3. Development of JCOMM E2EDM Strategy and E2EDM integration technology

Subtask 3.1. Development of the JCOMM E2EDM Strategy (Nicolay Mikhailov, ETDMP members). By mail

Subtask 3.1. Action 1: To combine the ideas and views and develop the approach to E2EDM and conceptual E2EDM definitions using GOOS and IOC/WMO design documents, discussion results during SGXML, GETADE-9, DMCG-1 meetings. Deadline: September 2002 (working paper disseminated among the ETDMP, Ad hoc E2EDM group, DMCG members): **Completed.** The Chair reported that he had, in collaboration with Bob Keeley, finalized a paper (See Document 5). The Group commended the Chair with the prepared document but recommended that it be simplified and reworded to a strategy document (background could be added as an annex). The Group agreed that this would be undertaken by email. See earlier in report.

Subtask 3.1. Action 2: To prepare the consolidated JCOMM E2EDM Strategy (first version). Deadlines:

- June 2003: Based upon comments provided by members of the ETDMP the Chair will prepare a revised version by June 2003 for consideration at ETDMP-I.
- Deadline: November 2002: final document adopted by ETDMP-I.

Subtask 3.2. Design of the JCOMM E2EDM integration technology. Nicolay Mikhailov, Catherine Maillard, Tony Rees, other ETDMP members: Nick will invite all ETDMP members to participate.

Subtask 3.2. Action 1: To prepare the review existing and planned systems, technologies and other tools being developed with application of the new information technologies, including XML. To develop the conceptual decisions on JCOMM E2EDM integration technology. Deadline: November 2002 (working paper, submitted to ETDMP and OIT ST meetings)

Subtask 3.2. Action 2: To develop basic design decision on JCOMM E2EDM integration technology in close cooperation with Inter-Programme Task Team on Future WMO Information System, WMO CBS ET/IDM, ICES/IOC SGXML. Deadline: June 2003 (working document submitted to ETDMP-I, DMCG and above-mentioned groups)

Subtask 3.2. Action 3: To finalize basic design decisions on JCOMM E2EDM integration technology. Deadline: December 2003 (working document submitted to ETDMP-I)

Subtask 3.3. Participating in OIT pilot project. All ETDMP members: by correspondence

This item was referred to the First Session of the Steering Team for the Oceans Information Technology Pilot Project.

4. OCEAN INFORMATION TECHNOLOGY (OIT) PROJECT

Discussions on this matter were referred to the First Session of the Steering Team for the Oceans Information Technology Pilot Project, held on 29 November 2002.

5. FIRST FORMAL SESSION OF THE ETDMP

The Session recommended that the First Session of the JCOMM Expert Team on Data Management Practices be held in September 2003. Catherine Maillard offered to host the Session at IFREMER, Brest. It was proposed that the meeting should have a duration of 3 days.

6. CLOSURE

The informal Session of the JCOMM Expert Team on Data Management Practices was closed on 28 November 2002 taking into consideration that discussions on the technology elements were to be discussed at the First Session of the Steering Team for the Oceans Information Technology Pilot Project, held on 29 November 2002.

ANNEXE I

AGENDA

1. Organization
2. JCOMM Strategy for end-to-end data management
3. ETDMP work plan for 2003-2004
   3.1 Review of draft work plan
   3.2 Agreement on work assignments and timetable
4. Ocean Information Technology (OIT) Project
5. First formal session of the ETDMP
6. Closure

ANNEX II

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ANNEX III

JCOMM EXPERT TEAM ON DATA MANAGEMENT PRACTICES WORK PLAN

1. Work strategy for ETDMP

1.1. ETDMP responsibility

In accordance with ETDMP Terms of Reference the group should:

i) Develop, recommend and implement principles and practice of End to End Data Management (E2EDM) to be adopted by JCOMM;
ii) Consider and assess efficiency of existing and planned data management (DM) practices, and recommend the best practice and related activities to be accepted by JCOMM. Related activities include in particular:
    1. Metadata standards and formats;
    2. Data quality control and integration;
    3. Flow of data and products.

ETDMP fulfils its functions through:

i) Preparation of reviews, analyses, guiding materials and other documents, which will help JCOMM to accept the best data management practices;
ii) Provision of data management consultations for Data Management Co-ordination Group (DMCG) and other JCOMM groups;
iii) Preparation of proposals on establishing projects and special ad hoc groups, and in case they are established, supervision of their activities with the purpose of developing effective data management practices;
iv) Communication and collaboration with other groups to provide access to required expertise and relevant co-ordination tools, and to avoid duplication.

1.2. Basic tasks of ETDMP working plan

ETDMP working plan is based on proposals and decisions of 1st JCOMM Session related to JCOMM Data Management Programme Area (DMPA) as well as on decisions of 1st DMCG Session (22-25 May 2002) and is aimed at fulfilling the following basic tasks:

i) Development of requirements to E2EDM;
ii) Review of existing and planned DM practices and preparation of recommendations on best DM practices to be accepted by JCOMM;
iii) Preparation recommendations on the use of modern information technologies and integration technology of E2EDM;
iv) Development of JCOMM E2EDM strategy and E2EDM implementation plan.

1.3. Organisation of ETDMP work

The mechanism to implement the ETDMP working plan is as follows:

i) The working plan determines the tasks for ET for the JCOMM inter-session period of 2002-2005;
ii) The responsibility for fulfilling the tasks (subtasks) of the working plan is distributed between the members of group and assigned to them for the whole of the JCOMM inter-session period;
iii) The actions required to fulfil the tasks (subtasks) of the working plan are scheduled for the ETDMP inter-session period (1-2 years);
iv) ETDMP sessions consider the results of inter-session actions, revise the tasks of ETDMP in general and specify both measures to be taken by the experts in the next inter-session period and dates on which they should be taken. The working plan is made on the assumption that, two ETDMP meetings will be organised during 2002-2003: (the end of 2003 – 1st ETDMP meeting, end of 2003 - technical ETDMP meeting - see, 90 para DMCG-1 Report).

2. ETDMP working plan

Task 1. The GOOS and MMS requirements to E2EDM

Reference: para 7.2.11. JCOMM-1, para 66 DMCG-1

Responsibility:
GCOS/OOPC – Lee Dantzler
COOP – Catherine Maillard
MMS – Volker Wagner
Regional GOOS projects – Roger Djiman

Background: JCOMM activities in DM field should be based on requirements of a wide range of marine data and products users. However (following the decisions of JCOMM-I) the E2EDM priority is given to the requirements of GOOS components (OOPC and COOP) and MMS (provided, in general, by HMS).

Today some documents containing requirements of users in the field under consideration have been prepared. The requirements can be divided into two groups:

1. The requirements to observation data. In this part extensive proposals are given in the OOPC and COOP documents. WMO Secretariat maintains WMO/IOC/CEOS data base of observational data requirements for different programme areas (or user classes) of NWP, marine services, climate prediction. Data requirements for operational oceanography have been prepared by EuroGOOS. DMCG-1 considered the general principles of these requirements (this document was distributed among ETDMP members at May 2002 for remarks);
2. The requirements to DM. This problem has not received enough study yet. In the most compact form the requirements are in GOOS DM Plan. In the similar documents of GCOS and COOP the requirements to DM are given a more general form. It should be noted that the E2EDM concept, which serves as a basis of GOOS/GCOS/COOP requirements to DM, has somewhat various approach. The document on OIT provides more specific requirements to DM. As for MMS requirements to DM, so far they are not available.

There are a number of regional GOOS projects - BOOS, EuroGOOS, Near-GOOS, MFSPP, MedGOOS, BlackGOOS, PacificGOOS, IOCARIBE GOOS, which need to use real-time and delay-mode data flows to produce and disseminate diagnostic and prognostic products.

To make the design of JCOMM E2EDM reasonable it is necessary to specify more exactly the requirements to E2EDM (not only observation data) from above-mentioned programmes and projects.

Actions:

1. To analyze and give first presentation on the generalized GOOS and MMS DM requirements using existing GOOS/OOPC/COOP and MMS documents and other sources. Deadline: February 2003 (working papers submitted to ETDMP-I meeting);
2. To revise the materials with E2EDM requirements in collaboration with OOPC, COOP and HMS and assess the GOOS and MMS DM requirements. Deadline: June 2003 (dissemination working papers among the ETDMP members), December 2003 (working document "The GOOS and MMS requirements to JCOMM E2EDM " submitted on ETDMP Technical meeting.

Task 2. Assistance to existing and planned data management mechanisms and practices

Subtask 2.1. Metadata management systems (Reference: para 7.4.25., JCOMM-1, para 78 DMCG-1)

Responsibility:
From ETDMP – Ricardo Rojas
From DMPA - Chair, Shaohua Lin

Background: In marine data management field there are exist and developed a number of metadata systems (A=active, U-under development) - MEDI (A), EDMED (A), EDIOS (A), GCMD (A), SeaSeach (U), WMO CBS metadata standard (U), which basically provide description of databases/sets being prepared and make addresses of appropriate data sources available to users (at present they provide these services without synchronization with the current state of data flows, databases/sets and products).

The important metadata management issue is to implement a mechanizm to provide integrated (for tracking flows from observation data to output product), timely and accurate information on data and product. As a whole the integration and increase of metadata systems efficiency is key problem of JCOMM E2EDM construction.

Also there is an urgent necessity of consideration new developed metadata systems which are directly related to JCOMM - WMO metadata standard and ODAS.

Actions:

1. To analyze the specifications (content and structure metadata, basic classifications, terms, codes, access and management software etc.) existing and being developed of metadata systems (MEDI, EDMED). Deadline: December 2002 (working paper with analytical analysis and recommendations to be published on JCOMM web site);
2. To define the functions and technological issues of ODAS metadata centre activity. Deadline: Final document to be submitted to ETDMP-I meeting);
3. To generalize the specifications of metadata system and to develop the technical proposals on the integration and increase of metadata systems efficiency. Deadline: June 2003 (dissemination working paper among the ETDMP members), December, 2003 (working document "The integration of the marine metadata management system and recommendations" submitted to ETDMP Technical meeting.

Subtask 2.2. The oceanographic data management *(*Reference: para 7.2.5., 7.2.6., 7.3.9.1. 8.2.21. JCOMM-1)

Responsibility: Lee Dantzler

Background: Today a number of international programs (systems) are available, which provide operational and delayed oceanographic (temperature, salinity, current etc) data flows for various users: SOOP, IGOSS, DBCP, TIP, EOS, TAO, IODE. In the framework of GOOS these systems (except for IODE, which is responsible for data holdings) are identified as Initial Observation Systems (IOS).

IOS, basically, generate observational data flows. Subsequent data and products collection, processing, accumulation, storage and distribution (DM practices) is performed under a great number of projects and programs, most of which are organized jointly by IOC and WMO and related to JCOMM.

Depending on specifications (structure and content of data and products, geographical area) existing and planned projects and programs (A=active, U-under development) dealing with data management can be divided into several groups:

- IOC/WMO GTSPP (A), SSPP (U), Argo DM (U) projects, IODE Drifting Buoy Centre (MEDS) - providing operational and delayed data flows;
- IOC GODAR (A), MEDAR (A) projects, under which global/regional oceanographic data sets are produced, and on the basis of these sets climate products are prepared.

The above mentioned projects provide management and delivery to the users of the same group of parameters with use of the close DM practices (technological schemes, QC procedures, codes, formats etc.). Therefore it is important to identify to ways on the integration of these oceanographic data flows, to make proposals on best oceanographic DM practices, which can be recommended to JCOMM for the use at the international and national levels.

Actions:

1. To analyze existing and planned oceanographic DM practices from the point of view of integration of technologies DM - specificity of the DM schemes, QC, dictionaries and codes, formats, software etc. Deadline: November 2002 (working paper, including the first generalized view on the current status of JCOMM oceanographic DM practices, submitted to ETDMP-I meeting);
2. To continue the analysis of existing and planned oceanographic DM practices and to develop the recommendations for best of them on the basis of the analysis. Deadline: June, 2003 (dissemination working paper among the ETDMP members), December 2003 (document "The status of JCOMM oceanographic and marine data management and recommended best DM practices" submitted to ETDMP Technical meeting.

Subtask 2.3. Marine meteo data management (Reference: para 7.4.18., 7.5.1. JCOMM-1, para 27, 32 DMCG-1)

Responsibility: Takashi Yoshida in collaboration with Chair, ETMC

Background: The marine meteorological data management, received in frameworks of VOS program, is carried out in two projects:

1. MCSS - acquisition, accumulation and distribution of "classical" VOS data in the delayed-mode form;
2. VOSClim - acquisition, accumulation and use "classical" VOS data and a number of additional observational elements for climatic studies in real-time and delayed-mode.

The VOS marine meteorological data managed by MCSS and VOSClim should be organized under the end-to-end data management system. In this connection, there is a need to investigate ways of implementation of the integrated data management of the marine meteo both real-time and delayed-mode data and consolidation of the DM practices, carrying out same (or close) functions in MCSS and VOSClim projects.

Actions:

1. To consider the basic DM decisions in the MCSS and VOSClim projects and prepare the first proposals on DM integration. Deadline: February, 2003;
2. To develop technical decisions to implement end to end DM on basis MCSS and VOSClim DM technologies and make proposals on best marine meteo DM practices. Deadline: June 2003 (dissemination working paper among the ETDMP members). December 2003 (work report to ETDMP Technical meeting).

Subtask 2.4. Satellite and spatial data management (Reference: para 57, 58 DMCG-1)

Responsibility: Volker Wagner

Background: An integrated in-situ and remote sensing data is necessary to the success of GOOS and other programmes. Therefore, for JCOMM it is important to identify the coordinated procedures and standards which will provide satellite data management as integrated part of JCOMM E2EDM. It requires the adjustment of interaction and cooperation with Committee on Earth Observation Satellites (CEOS) which has led the development of an Integrated Global Observing Strategy (IGOS). IGOS partners have prepared Data and Information Systems and Services (DMSS) principles related end-to-end process from collecting satellite data to providing product.

It is known that the essential part of satellite data management is connected to processing, accumulation and analysis of the so-called spatial data in graphic (Jpeg, Gif etc.) and vector (shp ESRI, S57 etc.) formats and the usually joint processing of spatial data and in-situ of the data is carried out using GIS. In this connection, important E2EDM aspect is to consider the management spatial data -

remote sensing data and data derived from in-situ observations - thematic climatic, prognostic, diagnostic fields.

In this context, it is necessary to collaborate with the IGOS partners to insert satellite data block in JCOMM E2EDM as well as JCOMM Expert Team on Sea Ice (ETSI), which deals with space-oriented information management issues (representation of thematic ice fields in a vector form and digital form) under the GDSIDB project.

This DM aspect is also important for development of GIS applications providing joint representation of data and products in the form of digital sets and spatial (geo-related) information (e.g. applications for inter-comparison and geo-analysis of climatic (diagnostic and prognostic) water temperature field and results of current water temperature observations). The most important issues of spatial DM are the unification of parameter codes for spatial and digital data, review the status of GIS (Web map server, dynamic visualization of thematic shapes on electronic map etc.) and spatial data use in DM practices related to JCOMM E2EDM.

Actions:

1. To analyze IGOS DMSS principles and prepare proposals on satellite data block of JCOMM E2EDM as well as and ETSI experience on management digital and spatial data under GDSIDB project and others existing practice on presentation of the spatial marine data, including GIS issues. Deadline: November 2002 (working paper, submitted to ETDMP-I meeting);
2. To prepare the technical proposals on: i) satellite data management under JCOMM E2EDM; ii) joint management of the digital and spatial data and Web-based GIS functions related JCOMM E2EDM. Deadline: June 2003 (dissemination working paper among the ETDMP members), December 2003 (work report on ETDMP Technical meeting).

Subtask 2.5. Management of non-physical data (Reference: para 71 DMCG-1)

Responsibility: Catherine Maillard

Background: Most of the existing and planned DM practices provide collection, accumulation and dissemination data and products reflecting hydrometeorological, hydrological and hydrophysical conditions of marine environment (appropriate variables are called physical variables). Relevant DM practices were discussed and accepted under GODAR and MEDAR projects. At the same time, management of data on chemical marine conditions, marine pollution and biology (non-physical variables) is very important for COOP especially for the coastal area management tasks.

Therefore it is important to identify the issues and prepare the proposals on management of non-physical (chemical, biological, etc.) data in the interests of JCOMM. This activity should be carried out in close cooperation with JCOMM Reporter, Dr. Tony Knapp.

Actions:

1. To analyze experience GODAR and MEDAR and prepare generalized issues on non-physical data management. Deadline: November 2002 (working paper, submitted to ETDMP-1 meeting);
2. To prepare the technical proposals on not physical data management related to JCOMM activity taking account of the COOP DM requirements (see, task 1.). Deadline: June 2003 (dissemination working paper among the ETDMP members), December, 2003 (work report on ETDMP Technical meeting.

Task 3. Development of JCOMM E2EDM Strategy and E2EDM integration technology

Subtask 3.1. Development of the JCOMM E2EDM Strategy (Reference: para 7.5.1. JCOMM-1, para 90,91 DMCG-1)

Responsibility: Nicolay Mikhailov

Background: Document "The E2EDM Strategy" (N. Mikhailov), containing the first view on a conceptual approach to E2EDM, was disseminated among the members ETDMP in May 2002 before DMCG-I meeting. This document was briefly considered at the SGXML and GETADE-IX meetings (Helsinki, April, 2002). At DMCG-I meeting (Paris, May, 2002) it was recommended to create a small ad hoc group, made up of the chairs ETDMP (chair of the ad hoc group), ETMC and IODE and Mr Keeley, would work by correspondence to combine the ideas and decisions into a single consolidated draft strategic plan, for submission to the ETDMP, the DMCG and the JCOMM Management Committee

Actions:

1. To combine the ideas and views and develop the approach to E2EDM and conceptual E2EDM definitions using GOOS and IOC/WMO design documents, discussion results during SGXML, GETADE-9, DMCG-1 meetings. Deadline: September 2002 (working paper disseminated among the ETDMP, Ad hoc E2EDM group, DMCG members);
2. To prepare the consolidated JCOMM E2EDM Strategy (first version). Deadline: November 2002 (working paper, submitted to ETDMP-I meetings);
3. To finalize JCOMM E2EDM Strategy, using the proposals and remarks from ETPMP, DMCG, OIT ST sessions and basic design proposals of OIT pilot project, and develop JCOMM E2EDM Implementation plan. Deadline: June 2003 (dissemination working paper among the ETDMP members), December 2003 (work report on ETDMP Technical meeting).

Subtask 3.2. Design of the JCOMM E2EDM integration technology (Reference: para 7.5.1., 7.4.29., 7.4.34., rez. 16/4 JCOMM-1, para 90,91 DMCG-1)

Responsibility: Nicolay Mikhailov, Catherine Maillard and Tony Rees

Background: According to the DMCG-1 decisions the ETDMP should prepare a technical document regarding the integration technology to be used within the JCOMM E2EDM. E2EDM integration technology should to be directed on realization JCOMM E2EDM Strategy (see, subtask 3.1.) and to be based on existing and planned DP practices (see, subtask 2.1.), as well as the new Web-oriented informational technologies.

For development of the technical document it should be taken into account the current experience, initiatives and prospects of the various groups (organizations) (ICES/IOC SGXML, DODS/VODC, WMO CBS ET/IDM and EGOWS, MEDS, US Navy (OMF), Australian HMS (FichOnline) etc.) in the field of the advanced technologies of marine DM management of a various level: the centralized access, metadata, data and production exchange, distributed information systems.

Actions:

1. To prepare the review existing and planned systems, technologies and other tools being developed with application of the new information technologies, including XML. To develop the conceptual decisions on JCOMM E2EDM integration technology. Deadline: November 2002 (working paper, submitted to ETDMP-I and OIT ST meetings);
2. To develop basic design decision on JCOMM E2EDM integration technology in close cooperation with Inter-Programme Task Team on Future WMO Information System, WMO CBS ET/IDM, ICES/IOC SGXML. Deadline: June 2003 (working document submitted to ETDMP-I, DMCG and above-mentioned groups);
3. To finalize basic design decisions on JCOMM E2EDM integration technology. Deadline: December, 2003 (working document submitted on ETDMP technical meeting).

Subtask 3.3. Participating in OIT pilot project (Reference: para 7.4.43 JCOMM-1, para 52-56 DMCG-1)

Responsibility: All ETDMP members

Background: The DMGC-I approved the Ocean Information Technology Project proposal as a relevant initiative within the framework of the JCOMM DMPA and identified four components to be developed as "pilots" (work packages: Common protocols, Data serving, Data standards for XML and study of relevant technology, Telecommunication and computer technology study) for discussion during the first session of the OIT Steering Team (27-29 November, 2002, COD, Brussels).

ETDMP was invited to organize planning and realization two work packages - Data serving, Data standards for XML and study of relevant technology). The participation ETDMP in OIT Pilot Project should be considered as range for testing the design decisions developed for JCOMM E2EDM Strategy and JCOMM E2EDM integration technology.

Actions:

1. To develop the proposals on OITPP Work packages Data serving, Data standards. Deadline: October 2002 (working document submitted to ETDMP and DMCG for first consideration);
2. To develop technical specifications of OITPP work packages and their representation on ETDMP session or/and OIT Steering Team. Deadline: November 2002;
3. Realization of IOTPP Work packages, including representation of intermediate results of work packages realization on ETDMP technical meeting. Deadline: December, 2003 (working document submitted to OIT ST, ETDMP, DMCG and other groups for consideration on technical meeting), 2003 - (according to OIT PP plan).

[end]