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JOINT WMO/IOC TECHNICAL COMMISSION FOR  
OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)  
SHIP OBSERVATIONS TEAM

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GENEVA, SWITZERLAND, 16 TO 21 APRIL 2007

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## **SOOPIP-VII MONITORING AND DATA MANAGEMENT**

### **Reports by the Monitoring Centres (GTSP, GOSUD)**

*(Submitted by Mr Robert Keeley, Chairperson of the JCOMM Data Management Committee)*

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#### **Summary and purpose of document**

This document contains the information on the overview and future directions of the Global Temperature Salinity Profile Pilot Project (GTSP) and the Global Ocean Surface Underway Data (GOSUD) Project.

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#### **ACTION PROPOSED**

The SOOP Implementation Panel is invited to:

- (a) To review the information provided in the report;
  - (b) To advise on follow-up actions for the future development of the GTSP;
  - (c) To advise on follow-up actions for the future development of the GOSUD Project.
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## DISCUSSION

### 1. GTSP overview (December 2006)

The Global Temperature Salinity Profile Project (GTSP) continues to deal in greater volumes of data. The project began in 1990, with the goal of collecting and archiving all profile data from the oceans and providing the highest quality and resolution to users as soon as possible after collection. The last annual report prepared was for 2004. Since then, other work pressures have prevented completion of the report for 2005 and 2006.

The number of BATHYs reported in 2005 was 32,533 and to nearly the end of 2006 was 27,063. The number of TESACS is steadily increasing. In 2005, more than 868,000 were received, and more than 968,000 to nearly the end of 2006. Much of this increase is due to Argo exceeding the 90% level compared to the target of 3,000 floats and some moored platforms reporting profiles hourly. Delayed-mode data continued to be added to the archive, which now accounts for more than 3 million profiles and a significant number exist in real-time form (the delayed-mode versions have not yet arrived), particularly for data from the most recent years. The timeliness of real-time data delivery continues to improve. Nearly 80% of ship observations are processed within three days of receipt, and by the end of 2006 Argo was providing almost 90% of its observations to the GTS within 24 hours of collection.

The GTSP collaborates with a number of international programmes. In particular, it is the main support for the SOT/SOOP programme of the JCOMM. Additionally, the monitoring that is done to the real-time GTS data is an important contribution to Argo. The GTSP also offers the advantage of combining Argo profiles with all of profile data collected in a common data structure and with common processing. The GTSP is currently collaborating with the GODAE QC Intercomparison project along with colleagues from Coriolis and the GODAE Data Server in Monterey.

The GTSP has collaborated with the JCOMM OPA to develop an easy to understand metric of data collection for temperature and salinity profile sampling. These are updated quarterly, and are available at the following web address: [http://www.jcommops.org/network\\_status](http://www.jcommops.org/network_status). The most recent update was for the third quarter of 2006. Information for the last quarter will be produced in late January 2007.

A strategy for attaching a single unique identifier to both the real-time and delayed-mode versions of XBT data has been under development at the GTSP, and has been implemented by the US SEAS programme on a trial basis. Preliminary results are very positive. The GTSP will continue to monitor these results to test how well the unique identification scheme performs. Both France and Australia have expressed interest in implementing the same scheme for data originating from their platforms but thus far, there is no action to report.

The GTSP has developed a data dictionary to help identify different data and metadata identification schemes. It is hosted by the ISDM (Integrated Science Data Management formerly MEDS), and is available at: [http://www.meds-sdmm.dfo-mpo.gc.ca/meds/About\\_MEDS/standards/login\\_e.asp](http://www.meds-sdmm.dfo-mpo.gc.ca/meds/About_MEDS/standards/login_e.asp). Contributors to the data dictionary include: major oceanographic institutes of Canada, the US NODC, and the BODC. Other contributors are welcome. The GTSP is also collaborating with the Marine Metadata Initiative in the area of metadata issues.

The GTSP is moving forward in a number of directions. It has developed software to read and write BUFR messages. This is confined at present to the templates that support Argo, but as this is a replacement for TESAC code form, the use is broader than for Argo alone. Project participants intend to regularly reconcile the NODC and Coriolis databases, to: (i.) provide Argo participants profile data in an Argo GDAC-like format, (ii.) provide a hard copy source (DVD) of GTSP data, (iii.) continue work on the unique data identifier between real-time and delayed-mode data, (iv.) extend the data dictionary, and (v.) continue collaboration with the GODAE.

The GTSP is seeking assistance from the Argo Data Assembly Centres to fix the confusion of some

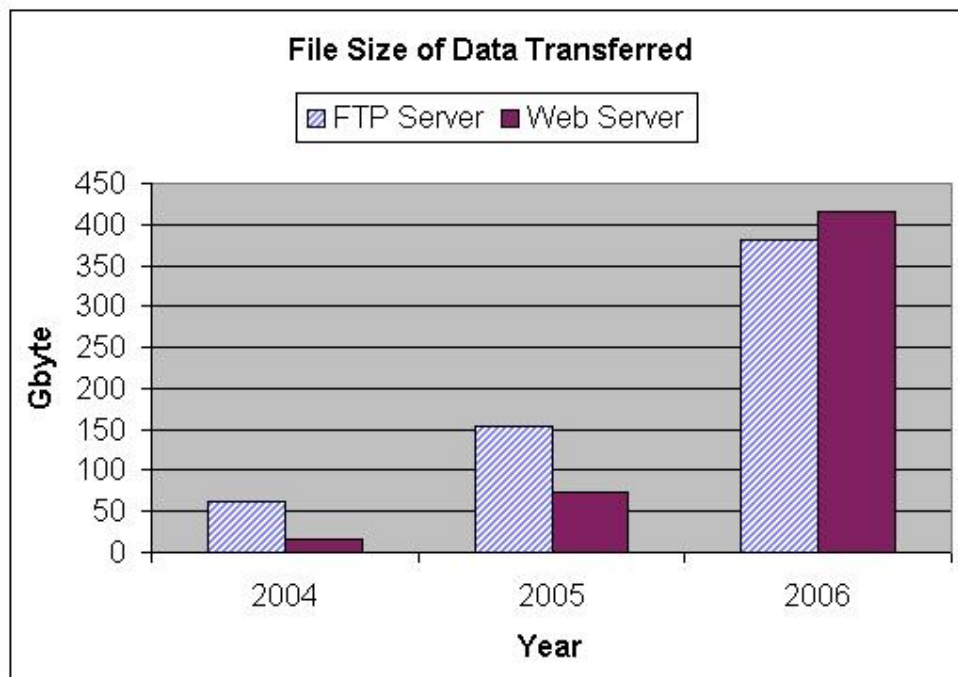
profiling floats reporting pressure as depth in the TESAC code form on the GTS.

The GTSP is also cooperating with the National Institute for Fisheries Research and Development to exchange the GTSP QC software, which was developed by Dr Norman Hall at the NODC.

The most serious setback of GTSP operations has been the withdrawal of centres from performing scientific quality assessments of the data. The project has been discussing with possible alternative organizations, but no final commitments have been made thus far. On 9 August 2005, Dr Charles Sun of the NODC met with Dr Peter Hacker of the International Pacific Research Center (IPRC) and invited the IPRC to participate in the GTSP as a Pacific Regional Science Center for QC of the Pacific data. Dr Hacker accepted the invitation and agreed to continue the QC editing until December 2007. The IPRC has Science QC'd the Pacific Ocean data for year 2000.

The Chairperson of the GTSP is currently looking for a successor. Part of the reason for the delay in the production of annual reports has been the increased workload associated with developments both in Canada and commitments to the JCOMM. This has reduced his attention to the GTSP, and the project has suffered. Interested participants are invited to notify the Chairperson accordingly.

The Web usage statistics of the Global Temperature-Salinity Profile Program (GTSP) data transferred for 2006 increased to 415.254GB from 74.354GB in 2005, a 558% increase; while the number of file size downloaded over the GTSP FTP server increased from 152.982 GB in 2005 to 381.554 GB. The following figure shows an increasing trend of the GTSP data usage from 2004 to 2006.



## Workplan

The tasks in 2007 listed as continuing are activities that are expected to continue into the future. They are listed in activities of year 2007 only.

Activities listed in 2007 may spill into 2008-2009 depending on competing work pressures.

Year: 2007

Tasks	Planned action	Help from the IODE
1	Continue to acquire, process and make available real-time and delayed-mode profile data.	None
2	Complete Annual Reports for 2005, 2006	None
3	Continue to collaborate with Argo in making profile data from other instruments available in Argo format	None
4	Continue to collaborate with the GODAE QC comparison	None
5	Continue production of metrics in support of the JCOMM OPA and support of the SOT	None
6	Evaluation of efficacy of CRC in real-time and delayed-mode duplicates identification	None
7	Continue discussions to find a Science centre that will take over scientific QC	Assist in identifying candidates
8	Reconcile the depth-pressure confusion in GTS reports from Argo floats	None
9	Set up stronger links to QC developments in SeaDataNet and US QARTOD programmes	None
10	Install a new Chairperson for the GTSP and hold a meeting	Assist in identification of candidates, some financial assistance to attend meeting (\$10K)

Years: 2008-2009

Tasks	Planned action	Help from the IODE
1	Implement a BUFR read-write capability for ocean profile data	None
2	Complete Annual Reports for 2007, 2008	None

## 2. GOSUD (February 2007)

The work of the past year of the Global Ocean Surface Underway Data (GOSUD) Project has been focused largely at IFREMER, which operates the Global Data Assembly Centre (GDAC) for the Project (see <http://www.ifremer.fr/gosud/>). The GOSUD Project is focused on acquiring data directly from data collectors rather than using the GTS TRACKOB messages as a primary source of real-time data. There were a couple of reasons for using these means. The first was, that although some data were being placed routinely on the GTS, this was not broadly so. Secondly, the GOSUD is interested in acquiring a five-minute data average to allow for the description of high spatial scale variability. Some vessels already do high frequency sampling, and in 2004 and 2005, some were reported on the GTS. However, the data volume is high and operators appeared to choose to stop reporting such high sampled data to the GTS in 2006. However, the number of ships reporting directly has not changed substantially.

After some delays, it appears that at least some of the data being collected by the SeaKeepers organization are at least making it to the GTS. These vessels mask their call signs, but all use a

consistent prefix on their call signs. There have been no direct data submissions to the GDAC so far. The GOSUD needs to further pursue this collaboration and improve the quantity of data coming directly to the GDAC and to the GTS.

In 2006, the GOSUD held a joint meeting with the SAMOS (Shipboard Automated Meteorological and Oceanographic System) Project in Boulder, Colorado, USA. The SAMOS Project has similar goals to the GOSUD, but in this case, it deals with meteorological data. It is common for both oceanographic and meteorological underway data to be collected at the same time, and thus collaboration with the SAMOS is logical endeavor. The Boulder meeting was the first for members of each Project to meet each other and to understand objectives. The meeting consisted of three sessions, separate sessions for the GOSUD, and for SAMOS and then a plenary where issues of common interest were discussed. A number of actions were identified, and these will contribute to the work of the GOSUD. The report is available through the SAMOS website at the following address:  
(see: [http://www.coaps.fsu.edu/RVSMDC/marine\\_workshop3/docs/report\\_final.pdf](http://www.coaps.fsu.edu/RVSMDC/marine_workshop3/docs/report_final.pdf)).

The JCOMM is currently taking up the task of changing real-time data reporting on the GTS from character-based codes to BUFR. For the GOSUD, this means changing from the TRACKOB code form to BUFR. The work is being lead by the Data Management Programme Area (DMPA). Currently, a draft BUFR template has been produced and is under discussion. The DMPA has formed a working group (lead by Mr Robert Keeley at present) to look at templates from TRACKOB, as well as other code forms, to look for opportunities to consolidate how information is reported. This is being done in cooperation with the META-T group of the JCOMM, and is looking at how to report SST and associated information regarding how the observations were made.

Although no formal meeting of the GOSUD is planned at this point-in-time, some members will be present at the upcoming Fourth Session of the JCOMM Ship Observations Team (SOT-IV, Geneva, Switzerland, 16-21 April 2007). It is expected that informal discussions will take place to refine what will be done during this year and into the future.

Mr Thierry Delcroix, one of the original Co-chairpersons of the GOSUD has recently resigned. It is been recommended by the other Co-chairperson, Mr Robert Keeley, that Loic Petit de la Villeon be confirmed as a Co-chairperson. Mr Petit de la Villeon works at the IFREMER and has been a member of the GOSUD from its inception. He is well versed in the issues, and is working at the GDAC location, and thus is able to influence its operations. It is also important for the IODE to begin looking for a replacement for Mr Robert Keeley, as the other Co-chairperson for the GOSUD, as his workload both at home and internationally has increased such that he is no longer able to find proper time required to devote to this project. Mr Keeley will remain as a Co-chairperson for another year, but then regrettably must withdraw from the position.

Year: 2007

Tasks	Planned action	Help from IODE
1	Continue to acquire, process and make available real-time and delayed-mode surface underway data.	None
2	Complete Annual Reports for 2005, 2006	None
3	Continue the collaboration with SeaKeepers to improve the direct submission of data to the GDAC and to encourage more data reported to the GTS	None
4	Collaborate with the SAMOS and address actions resulting from the Boulder meeting.	None
5	Collaborate with the DMPA WG on BUFR templates and META-T Project to transition reporting surface observations from character code forms to BUFR	None
6	Install a new Co-chairperson for GOSUD and hold a meeting	Ratify Mr Loic Petit de la Villeon as Co-chairperson, some financial assistance to attend meeting (\$10K)

Years: 2008-2009

Tasks	Planned action	Help from IODE
1	Identify a replacement for Mr Robert Keeley as Co-chairperson of the GOSUD	Assist in finding a replacement
2	Complete Annual Reports for 2007, 2008	None

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