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Report on IODE global project: GOSUD

Petit de la Villéon Loïc -Ifremer-France-
and the GOSUD steering team

Summary of the document

This document summarizes the GOSUD –Global Ocean Surface Underway Data– progress accomplished during the 2007-2008 reporting period. It provides also the working plan for the 2009-2010 period.

Appendices:

- A. 2nd Joint GOSUD/SAMOS Workshop summary report.
Seattle, 10-12 June 2008.
- B. List of working documents and technical documentation

DRAFT TEXT FOR INCLUSION IN THE SUMMARY REPORT

During the Sixteenth Session, November 2000, of the IOC Committee on International Oceanographic Data and Information Exchange (IODE), the Committee adopted Recommendation IODE XVI.10 establishing the Underway Sea Surface Salinity Data Archive Pilot Project and its steering group.

The objectives of the Pilot Project were to (i) Acquire, quality control, store in standard format, and disseminate the collected, mostly by cargo vessels, underway sea surface salinity data; (ii) Establish close co-operation with relevant data centres to build a database and develop data management procedures and standards; (iii) Build a comprehensive archive for underway sea surface salinity data including appropriate metadata; (iv) Develop and implement procedures for quality assessment of real-time

and delayed-mode data based on the Global Temperature-Salinity Profile Program experience; (v) Provide data and information online to users in a timely fashion; (vi) Ensure safeguarding of high-resolution delayed-mode data; (vii) Co-operate with data collectors to improve the data acquisition systems and to provide information on the data they provide; (viii) Maintain close links with other data collection and management programmes such as JCOMM and SOOP; and (ix) Prepare proposals for the archiving of all potentially available underway data types.

Later, IODE and GOSUD decided to expand the project to other parameters with salinity as the priority

In 2006, considering that there is a strong complementary interest between the US Shipboard Automated Meteorological and Oceanographic System (SAMOS project) and GOSUD, it was decided to joint effort to improve access to to high quality underway meteorological and near-surface data collected by research vessels and merchant ships and to identify common potential data providers.

The GOSUD data structure is based on a GDAC –Global Data Assembling Center– which centralizes and distributes the data. The data are provided to the GDAC either directly through national contributions or through the GTS (trackob format). The GOSUD GDAC is operated by the Coriolis data centre hosted by Ifremer-France. The US-NODC (Silver Spring, Maryland) holds the data in their long-term ocean archive. In addition, the US-NODC continuously mirrors the GDAC FTP data server.

ISDM (Canada) provides a monitoring function, comparing what is circulating on the GTS and what is available at the GDAC. The objective is to identify new potential sources of data.

In 2008, the data (960,086 locations) from 67 vessels have been gathered at the GOSUD-GDAC. In 2007, the data (598,330 locations) from 40 vessels were available at the GDAC. The amount of data that have been collected has significantly increased from 2007 to 2008. That means that the GOSUD effort to enlarge the network to new data providers produced positive results. For the moment, most of the data that are archived in the GDAC are near real-time data. One of the challenges of years 2009-2010 will be the ability of the project to produce a delayed mode dataset

The GOSUD team met five times. GOSUD held their first three meetings in conjunction with the Argo Data Management meetings. In 2006, it was decided to hold the 1st joint meeting with the US Shipboard Automated Meteorological and Oceanographic System (SAMOS) Project (see <http://samos.coaps.fsu.edu>). The primary SAMOS objective is improving access to high-quality underway meteorological and near-surface ocean data collected at high-temporal frequency on research vessels and merchant ships.

The 2nd joint meeting was held in Seattle –June 2008- See Summary report on Annex A.

From the meeting, eight recommendations were directly linked to GOSUD activities. (i) Expand access to underway meteorological and TSG observations in remote ocean regions and marginal seas. The scientific users community must determine critical regions for increased monitoring (ii) Encourage efforts to develop new and make available historical upper-ocean and meteorological observations for use by developing nations (iii) Develop a global data discovery system to identify which research and selected merchant vessels are participating in GOSUD/TSG, SAMOS, PCO², radiation and other underway ocean and atmospheric sampling programs (iv) Vessels providing underway TSG data should routinely report both intake temperature (sea temperature) and the salinometer temperature (used to calculate salinity) (v) Initiate effort for vessels making underway TSG measurements to collect daily bottles samples of water to monitor TSG performance and to elaborate a delayed-mode data set (vi) Promote the recognition of underway sea water sampling (via GOSUD and AOML) as a critical of the Global Ocean Observing System (vii) Maintaining and distributing metadata for meteorological and TSG measurements (e.g., height/depth) is critical for all applications (e.g., data assimilation, satellite validation, etc.) (viii) Assess the impact of TSG data in forecast models (ix) Collect results of past and current research to evaluate the importance of TSG observations (x) Build best practice guides and continuing education materials to support the needs of technical personnel on the front lines of data collection at sea.

One strong conclusion from the meeting was that GOSUD should form a closer relationship with the scientific community to identify which observational parameters GOSUD should acquire and from which oceanic regions to acquire them. CLIVAR is one such scientific community.

In March 2007, Dr. Thierry Delcroix resigned from his GOSUD co-chair position. Mr. Loïc Petit de la Villéon was nominated as co-chair of GOSUD assuming the chair position with Mr. Bob Keeley.

The Work Plan for 2009-2010 will focus on (i) Continue to enlarge the network of data collectors and providers; (ii) Start the process of elaborating a delayed-mode dataset; and (iii) Take in account the scientific needs and the satellite community requirements (SMOS and AQUARIUS validation).

DRAFT ITEMS FOR THE 2009-2011 WORK PLAN AND BUDGET

<i>Action item description</i>	<i>To be implemented</i>	<i>Deadline date</i>	<i>Requested from UNESCO</i>	<i>Requested from other</i>
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	<i>by</i>		<i>RP</i>	<i>sources</i>
<i>Continue to collect TSG data and find new data providers</i>	<i>Co-chairs</i>	<i>Continuous</i>	<i>Assist in identifying candidates</i>	<i>GDAC</i>
<i>Achieve the annual report for 2008</i>	<i>Co-chairs</i>	<i>April 2009</i>	<i>None</i>	<i>None</i>
<i>Review the proposal for a New Format</i>	<i>All</i>	<i>March 2009</i>	<i>None</i>	<i>None</i>
<i>Organize the 1st transfer of Ferry Box data to GDAC</i>		<i>March 2009</i>		
<i>Set up effectively the data transfer from AOML to GDAC</i>		<i>March 2009</i>		
<i>Implement the New format</i>	<i>GDAC</i>	<i>May 2009</i>	<i>None</i>	<i>GDAC</i>
<i>Distribute the first delayed mode dataset</i>	<i>GDAC and IRD</i>	<i>June 2009</i>	<i>None</i>	<i>GDAC</i>
<i>Identify existing products which integrate ocean surface data</i>	<i>All</i>	<i>Continuous</i>	<i>None</i>	<i>None</i>
<i>Make the project more visible</i>	<i>Co-chairs</i>	<i>Continuous action and OceanObs 09 (September 2009)</i>		
<i>Look into the next steps to have GOSUD as a permanent program instead of a pilot project</i>	<i>Co-Chairs (Keeley)</i>			

DRAFT RESOLUTION OR RECOMMENDATION

Considering the importance of an high-quality surface data set that could serve both needs of operational community, scientific community and satellite community, the

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Committee invites all potential contributors to serve the GDAC. This could include near real-time data and/or historical data.

ANNEXE A

2nd Joint GOSUD/SAMOS Workshop executive summary Seattle, 10-12 June 2008.

Executive Summary

On 10-12 June 2008, the NOAA Climate Observation Division sponsored the 2nd Joint Global Ocean Surface Underway Data (GOSUD)/Shipboard Automated Meteorological and Oceanographic System (SAMOS) Workshop in Seattle, WA, USA. The workshop focused on the ongoing collaboration between GOSUD and SAMOS and addressing the needs of the research and operational community for high-quality underway oceanographic and meteorological observations from ships. The SAMOS initiative is working to improve access to calibrated, quality-controlled, surface marine meteorological data collected in-situ by automated instrumentation on research vessels (primarily) and select merchant ships. GOSUD is an IODE project which focuses on the collection, quality evaluation, and distribution of near surface ocean parameters (for the moment mainly salinity and sea temperature) from vessels.

The workshop organizing committee (Shawn Smith, Mark Bourassa, Loic Petit de la Villéon, David Forcucci, and Phillip McGillivray) brought together a panel consisting of operational and research scientists, educators, marine technicians, and private sector and government representatives to address several key topics (see below). Participants from the U.S. government represented NOAA (AOML, COD, ESRL, NDBC, NODC, NWS, PMC, and PMEL) and the United States Coast Guard. CIRES, LUMCON, Florida State University, Moss Landing Marine Laboratories, Oregon State University, Scripps Institution of Oceanography, Stony Brook University, and the Universities of Delaware, Maryland, Miami, and Rhode Island represented the United States university community. A significant international presence included representatives from the Bureau of Meteorology (Australia); Environment Canada (Canada); LEGOS, IFREMER, and Meteo France (France); the University of Hamburg (Germany); the Directorate of Civil Aviation (Kuwait); the Nigerian Institute for Oceanography and Marine Research (Nigeria), University of Santiago de Compostela (Spain); and the NOCS (UK). Educators were present from ACT, IIRP, and MATE. Finally, Earth and Space Research, the RMR Company, and two consultants represented the private sector.

The workshop was comprised of invited and contributed talks, poster presentations, plenary discussions, and the SAMOS and GOSUD technical working group meetings. Broad topic areas included new opportunities for international collaboration, emerging technologies, scientific application of underway measurements, and data and metadata issues. New sessions included a technician's round-table discussion and developing educational initiatives.

Scientific discussion centered around the need for high-quality meteorological and thermosalinograph observations to support satellite calibration and validation, ocean data assimilation, polar studies, air-sea flux estimation, and improving analyses of precipitation, carbon, and radiation. Determining the regions of the ocean and observational parameters necessary to achieve operational and research objectives requires input by the scientific user community. The CLIVAR community should be one way to approach the scientific community. This input will allow SAMOS and GOSUD to target their limited resources on vessels operating in the high priority regions. The vessel operators and marine technicians were very supportive of the activities of SAMOS and GOSUD. They requested a clear set of guidelines for parameters to measure, routine monitoring activities, and calibration schedules. The operators also desire additional routine feedback on data flow and data quality. A clear need for training and educational material was noted by the technical community. The dissemination of best practices guides for existing techs and pre-cruise training for new techs were suggested. The result of the workshop was a series of action items) and ten recommendations.

ANNEXE B

GOSUD

List of recently updated documents or most relevant

The whole GOSUD documentation is available online at <http://www.gosud.org> under the documentation heading.

- GOSUD Project Plan
- GOSUD 2007 Annual report
- GOSUD 2008 Annual report (on going)
- 2nd GOSUD / SAMOS joint meeting report (Seattle June 2008)
- GOSUD User Manual (version 1.41) Proposal for a new format
- Present GOSUD distribution format
- GOSUD submission format