



**WCRP/SCAR International Program for Antarctic Buoy**

**WCRP/SCAR International Programme for Antarctic Buoy (IPAB)**

**Report of the fifth session of the WCRP/SCAR IPAB Participants**

**(Dunedin, New Zealand, December 3, 2005)**

January 2006

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## 1. Meeting venue and date

The 5<sup>th</sup> IPAB meeting was held on December 3, 2005, in Dunedin, New Zealand, in association with the ASPECT meeting on Antarctic Sea Ice in IPY on December 4, and the IGS Sea Ice Symposium December 5-9. All meetings were held at the University of Otago, and were kindly hosted by Pat Langhorn of the Department of Physics.

## 2. Report of the IPAB Co-ordinator

Alfred Wegener Institute (AWI) has taken over coordination of IPAB in the summer of 2005, and has assigned Christian Haas as the project manager. Apart from organizing the 5<sup>th</sup> IPAB meeting and communicating with IPAB participants and WCRP and SCAR, the main task has been to design and install a project web site. Unfortunately, the web site was not yet opened to the public due to delays in editing of the final content. Publication is now foreseen for early 2006. The web address will be either <http://ipab.awi-bremerhaven.de> or <http://www.awi-bremerhaven.de/IPAB>. However, an address in the Antarctic domain was also suggested by the meeting participants (see AI below).

The intent of the website is to provide a platform for information and communication for the IPAB community. Therefore, the website will publish recent and real-time data of Antarctic buoys, will provide updated maps of deployment opportunities and deployment plans, will host meeting and publication information, and will offer the opportunity for buoy manufacturers to publish their technologies and offers. The website will provide links to the main IPAB partner and host programs like DBCP, MEDS, and Aspect.

A recent coordination effort concerned a deployment opportunity at Peter I Island in the Bellingshausen Sea, which will be visited by German RV Polarstern. IPAB highly encourages a Norwegian or US installation of an Automatic Weather Station, and posting of its data in real time to the GTS.

A discussion at the end of the coordinators report pointed out the challenges IPAB faces due to different interests of the operational and scientific participants. IPAB seeks to provide data for both, operational services and sea ice research. However, most operational services are sufficiently satisfied with SLP data from buoys floating in open water, south of 55°S. It was pointed out that IPAB strongly encourages additional deployments in the sea ice zone, and the additional acquisition of air temperature data.

### **AI:**

Obtain Antarctic domain (.aq) for IPAB web site, at the tentative address <http://www.ipab.aq>



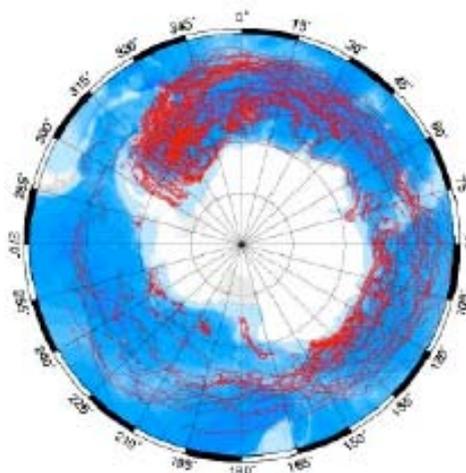
## IPAB

The Participants of WCRP/SCAR IPAB (World Climate Research Program/Scientific Committee for Antarctic Research International Program for Antarctic Buoy) work together to maintain a network of drifting buoys in the Southern Ocean, in particular over sea ice, to provide meteorological and oceanographic data for real-time operational requirements and research purposes.

IPAB data are used for many purposes, for example:

1. Research in Antarctic climate and climate change
2. Forecasting weather and ice conditions
3. Validation of satellite measurements
4. Forcing, validation and assimilation into numerical climate models
5. Tracking the source and fate of samples taken from the ice

IPAB is coordinated by the Alfred Wegener Institute (Germany) and chaired by "Parthenope" University (Italy).



## 3. Reports from Participants

Reports about activities since the last meeting in 2003 were given by 9 IPAB participants and are very shortly summarized below. The PowerPoint presentations will be made available on the IPAB website at <http://www.ipab.aq>.

### 3.1 Christian Haas, AWI, Germany

AWI main activities comprise a deployment of three buoys in April 2004 in the Lazarev Sea, at approximately 70°S, 0°W. These operated for more than 1.5 years, and followed nicely the Weddell Gyre.

AWI has also performed the Ice Station Polarstern (ISPOL) expedition in Nov. 2004-Jan 2005, and contributed 3 buoys to an internationally coordinated buoy array for the monitoring of small and meso-scale ice deformation during ISPOL. The coordination of the array was performed by Petra Heil (Ant CRC, Hobart) and Jenny Hutchings (IARC, Fairbanks).

AWI is displaying their near-real-time IPAB data on the homepage of the Sea Ice Section, as well as a browse-able archive of all past data based on a mapserver application.

AWI plans to deploy 3 buoys in June 2006 in the Lazarev Sea, and 3 buoys in 2007 in Pine Island Bay together with a US cruise led by Stan Jacobs.

### 3.2 Petra Heil, Antarctic CRC, Australia

Ant CRC has deployed 9 buoys for 18 days during the ARISE expedition, 26.9.-14.10.2003, at about 65°S, 118°E, to study meso-scale sea ice deformation. They have also coordinated the buoy deployments during ISPOL, and contributed xxx buoys to the array. One buoy was

left on the ice. A report about buoy activities during ISPOL was compiled and will be published at Ant CRC.

### **3.3 Jouko Launiainen, FIMR, Finland**

Petra Heil presented a movie of trajectories of the FIMR buoys deployed for the ISPOL buoy array. Two buoys were left on the ice after the experiment, showing interesting diverging drift trajectories after the buoys had left the Weddell Sea into the Scotia Sea / Bransfield Strait.

### **3.4 Cathleen Geiger, CRREL, USA**

CRREL can not apply at NSF for funding to support Antarctic research. However, CRREL is currently developing a seasonal ice mass balance buoy, which could also be deployed in the Southern Ocean to be frozen into the forming sea ice cover.

### **3.5 Sebastian Gerland, NPI, Norway**

NPI is not planning any buoy deployments, although they are enhancing their Antarctic activities with establishing over-wintering teams at Troll station. However, NPI offers to provide deployment opportunities during supply cruises to Troll at about 70.1°S, 5.3°E in December and January 2006 and 2007.

### **3.6. Steve Ackley, Clarkson University, USA**

Under the umbrella of Aspect and the Antarctic Sea Ice in IPY project, Steve Ackley has submitted an IPY proposal to NSF for funding of a 30-day drift camp supported by RV NB Palmer in the Bellingshausen/Amundsen Sea in September 2007 to perform investigations of physical and biological sea ice processes. The experiment will provide the logistics for the deployment of a buoy array to study meso-scale ice deformation.

NB palmer will deploy 3 AWI buoys in Pine Island Bay in February 2007.

### **3.7 Shuki Ushio, National Institute of Polar Research, Tokyo, Japan**

Since 2003, JARE has deployed 6 surface drifters with SLP sensors and 5 profiling floats in the ACC. The profiling floats also operate in the seasonal sea ice zone, avoiding surfacing in the presence of ice. Further deployments are planned during the coming years. There are also plans to deploy a POPS buoy on the fast ice at Lützow Holm Bay.

### **3.8. Graeme Ball, Bureau of Meteorology, Melbourne, Australia, on behalf of Etienne Charpentier, DBCP, France**

Graeme Ball presents the results of the 21st DBCP meeting in Buenos Aires in October 2005. DBCP defines the Southern Ocean as the region south of 45°S. It was noted that IPAB was unknown to most DBCP participants, as IPAB has never been represented on DBCP meetings. Attendance of DBCP meetings might in fact enhance the involvement of operational agencies in IPAB. The importance of posting buoy data on the GTS was again pointed out.

### **3.9. Steve Piotrovicz, Ocean.US, USA**

The CLS/Argos can now access Iridium data directly. Therefore, Iridium data can now easily be posted on the GTS if the users inform CLS about data formats and calibrations. IPAB participants are urged to contact CLS should they acquire data via Iridium. More information can be obtained from the Argo/JCOMM website at <http://argo.jcommobs.org>, or at <http://www.ocean.us/documents/iridium.jsp>

## **4. Related Research, Observational and Data Programmes**

Related research, observational and data programmes were discussed under 3. It was again pointed out that IPAB faces the challenge of serving both observational and sea ice research interests, where observational services are mostly satisfied with deployment of SLP sensors in the open water outside the sea ice zone.

An important development has been initialized by the National Ice Center and NOAA, in developing **inexpensive, Air-Droppable Ice Buoys Suitable for Marginal Ice Zone Deployment**. A Department of Commerce NOAA Small Business Innovation Research (SBIR) solicitation was released in November 2005. The topic was proposed by the NIC Polar Science Team. Given the difficulties with deploying and maintaining an adequate number as well as an even distribution of buoy arrays throughout the Southern Ocean with its mainly seasonal ice, developing an inexpensive Airborne Expendable Ice Buoy (AXIB) will allow for better coverage of the region. The full SBIR solicitation is available at: <http://www.fbo.gov/spg/DOC/NOAA/AGAMD/NRMC0009%2D6%2D00001/listing.html>

## **5. Review of IPAB progress to date and perspectives for the future**

In the past years, activities in IPAB did diverge between operational services and sea ice research. This was also due to the lack of the programmes coordination and profile, which will hopefully improve in the immediate future. IPAB should involve more operational services and upcoming countries.

### **5.1 IPAB and IPY**

In this respect, there is a large requirement to increase IPABs activities and profile during IPY. IPAB will recommend the IPAB/BEARS IPY proposal to WCRP/SCAR, and will outline the importance of the project and the different levels of contributions different partners can chose. These can be buoys, deployments, or data transmission costs, or several of those.

#### **AIs:**

- draft and circulate clear plan for IPY, with implementation and deployment plan for the 2007/2008 period.
- attend DBCP meetings on behalf of IPAB
- Support deployment plan with discussion of optimum buoy array obtained from studies of model and remote sensing drift fields.

- contact manufacturers for general and special IPY offers, and post them on the web site.
- communicate closely with NIC about status of development of inexpensive, air-droppable ice buoys suitable for marginal ice zone deployment (see 4.).
- Organize IPAB-IPY session at next SCAR conference in July 2006 in Hobart

## **6. Status of the Membership Role**

The coordinator noted that the list of email-addresses he was given was partially wrong and incomplete. It was discussed to not restrict membership by formal barriers, but to consider IPAB as an open and informal group encouraged to carry out buoy deployments and to discuss Southern Ocean sea ice drift, as well as sea level pressure and air temperature issues. The upcoming web site will also list contributions of different partners to acknowledge their active role. Therefore, the membership list was extended and updated as follows. Further members are actively sought and contacted at present.

### **CURRENT IPAB PARTICIPANTS:**

- Alfred Wegener Institut, Germany
- Australian Antarctic Division, Australia
- Australian Bureau of Meteorology
- British Antarctic Survey, UK
- Finnish Institute for Marine Research, Finland
- GI, University of Alaska Fairbanks, USA
- IARC, Hutchings
- Institut für Meteorologie und Klimaforschung, Universität Karlsruhe, Germany
- National Ice Center, USA
- National Snow and Ice Data Center, USA
- Met. Service NZ LTD, Fletcher
- Norwegian Polar Institute, Norway
- NSF, USA
- National Institute of Polar Research, Japan
- JAMSTEC, Japan
- Programma Nazionale di Ricerche in Antartide, Italy, Japan
- DAMTP, UK
- SAMS, UK
- CLS/Service Argos, France
- South African Weather Service, South Africa
- United Kingdom Meteorological Office, UK
- CRREL, USA

## **7. Review of the Operating Procedures of the Programme**

The operating procedures were shortly reviewed. They were considered complete and sufficient, concentrating on maintaining a network of buoys in the Antarctic sea ice zone to measure ice drift, sea level pressure, and air temperature in real time and transmit those to the GTS. The data are used for weather forecasting and reanalysis, and for climate monitoring.

Vicky Lytle from the CliC office pointed out that the new IGOS-Cryo-Document provides an overall WCRP/CliC umbrella for IPAB. While the program encourages the acquisition of SLP and air temperature data, it welcomes also other data obtainable by buoys, e.g. of other atmospheric data, of ice mass balance, and of ocean properties.

## **8. Activities to Improve the Visibility of the IPAB within the Scientific Community**

The upcoming IPAB web site will serve as information and communication platform for the community, and will largely raise IPABs profile. This includes information of a wider community about IPAB issues. In addition, enhanced deployments during IPY will enhance the activity and visibility of the programme.

## **9. Future Activities and any Other Business**

Included in the above.

## **10. Administrative Aspects of the IPAB**

Enrico Zambianchi will withdraw from the programmes chair for personal reasons. Ian Allison will leave the steering committee, as well as Christian Haas, who has become the coordinator.

Shuki Ushio from the National Institute of Polar Research, Tokyo, Japan, has been nominated as the new IPAB chairman. Petra Heil (Ant CRC, Hobart, Australia) and Cathleen Geiger (CRREL, Hanover, New Hampshire, USA), and Pablo Clemente-Colon (NIC, USA) have been nominated as members of the Executive Committee. Therefore, the composition of the Executive Committee for IPAB is as follows:

Chairman Dr S. Ushio

Vice-Chairman Dr J. Launiainen

Member Dr P. Heil

Member Dr C. Geiger

Member Dr P. Clemente-Colon

Dr. Christian Haas will continue his duties as IPAB Coordinator.

## **11. Venue and Date for the Next Meeting, meeting report**

It was agreed to have a small, dedicated IPY meeting during the SCAR Open Science Conference in Hobart, Juli 12-14, 2006. Endorsement was already granted by John Turner, Chief Officer of the SCAR Standing Scientific Group on Physical Sciences. The meeting will be held on Tuesday, July 11.

## Meeting participants

Petra Heil	<a href="mailto:petra.heil@utas.edu.au">petra.heil@utas.edu.au</a>
Martin Doble	<a href="mailto:majd@sams.ac.uk">majd@sams.ac.uk</a>
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Christian Haas	<a href="mailto:chaas@awi-bremerhaven.de">chaas@awi-bremerhaven.de</a>

## Meeting Agenda

9:00-10:00	1. Organisation of the Session 2. Report of the IPAB Co-ordinator
10:00-10:30	Coffee
10:30-12:30	3. Reports from Participants 4. Related Research, Observational and Data Programmes
12:30-14:00	Lunch
14:00-15:30	5. Review of IPAB progress to date and perspectives for the future 6. Status of the Membership Role
15:30-16:00	Tea
16:00-17:30	7. Review of the Operating Procedures of the Programme 8. Activities to Improve the Visibility of the IPAB within the Scientific Community 9. Future Activities and any Other Business 10. Administrative Aspects of the IPAB 11. Venue and Date for the Next Meeting, meeting report

## ANNEX 1: Recent activity report of Japan

### 1. Hydrographic and Oceanographic Department of Japan Coast Guard (JHOD)

In the framework of the activities of the Japanese Antarctic Research Expeditions (JAREs), surface drifters have been deployed en route the icebreaker SHIRASE in the Indian Sector of the Antarctic Circumpolar Current and high latitude area (the Antarctic Divergence). The deployments of drifters are summarized in the table below.

ARGOS ID	deployment date	Latitude(S) / Longitude(E)	end date
21853	06DEC2003	46.09 / 110.14	05DEC2004
21880	08DEC2003	55.44 / 109.40	07DEC2004
21847	09DEC2003	59.20 / 103.68	08DEC2004
49834	06DEC2004	45.77 / 110.07	17DEC2004
21869	08DEC2004	55.92 / 109.59	27MAR2005
29362	08MAR2005	64.03 / 111.56	16APR2005

The trajectories of these drifters are shown in the attached sheet. Usually, three surface drifters will be deployed every year.

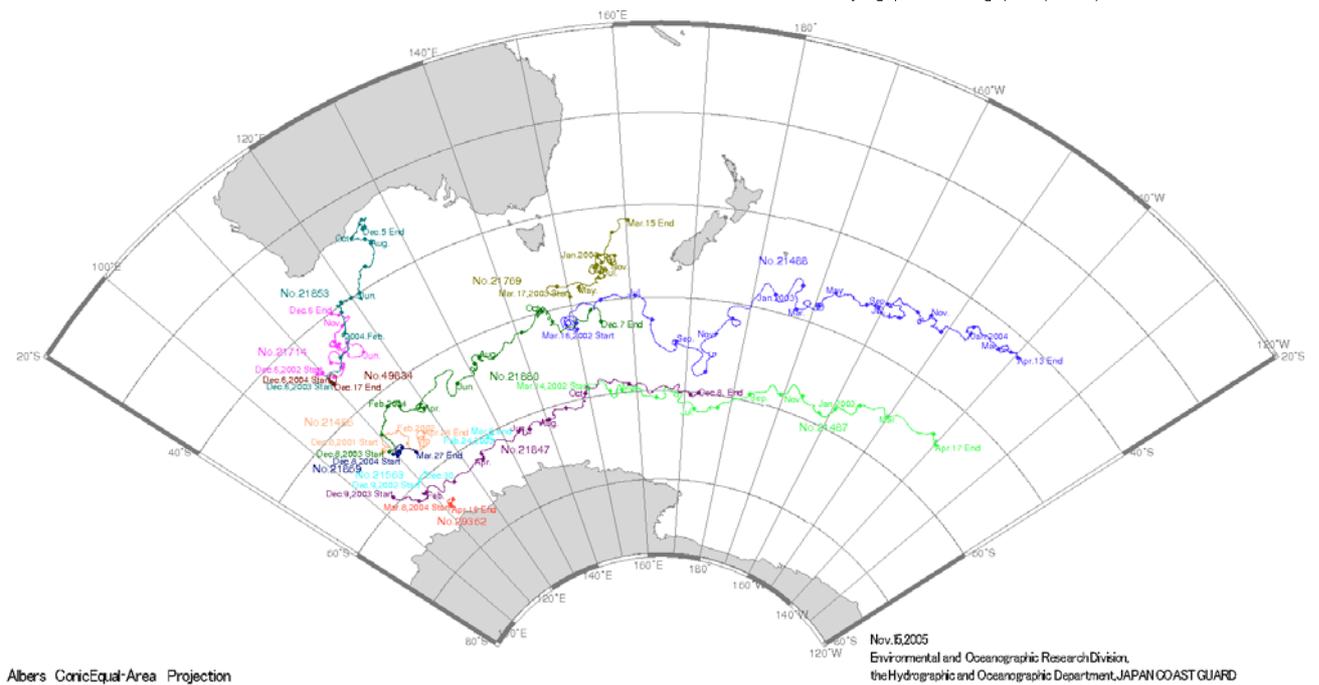
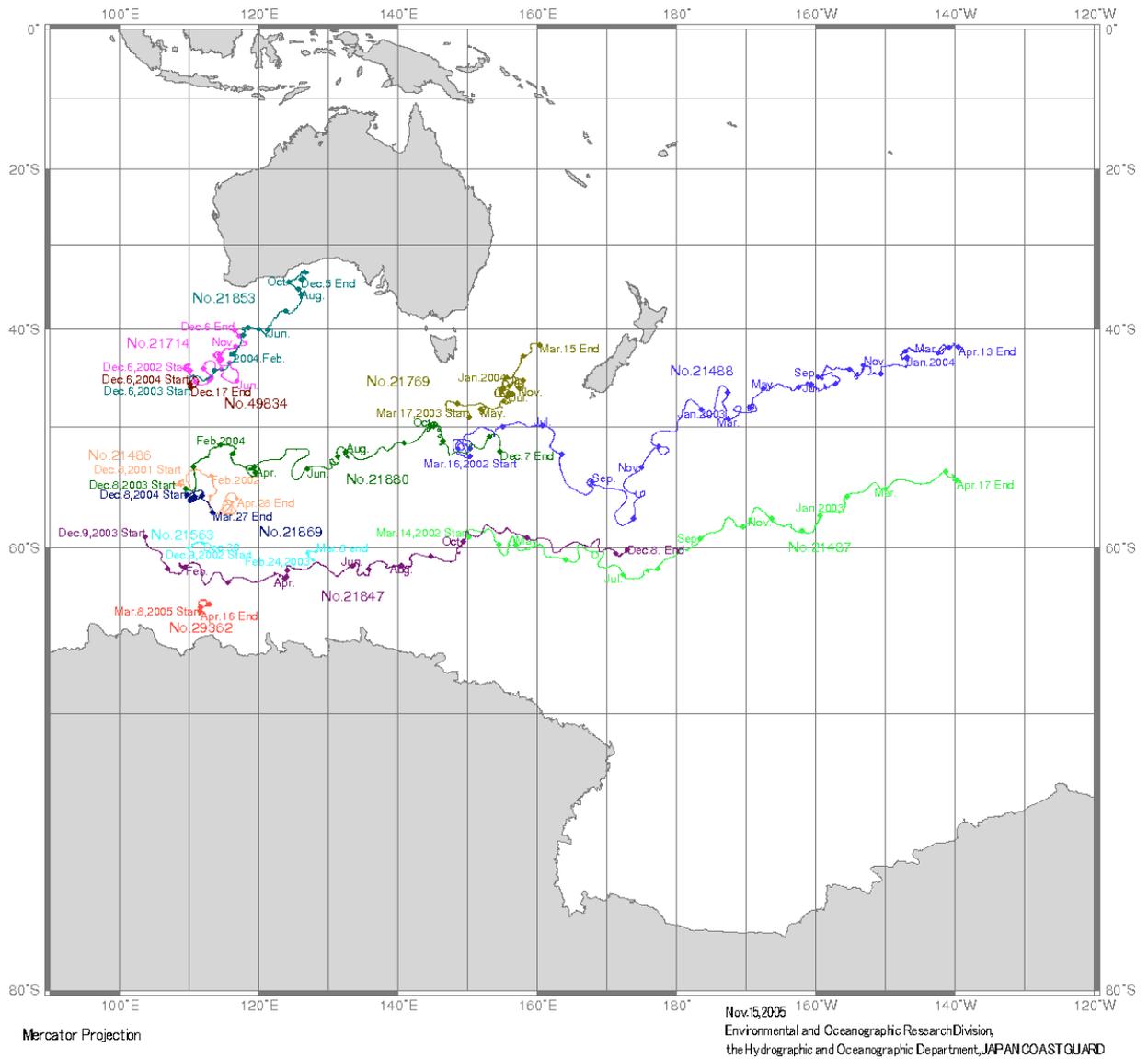
### 2. National Institute of Polar Research (NIPR)

NIPR has deployed profiling floats (type of APEX with SBE CTD sensor) from R/V Umitaka-Maru, which was chartered in the framework of JARE44 summer cruise off Adélie Land in 2005. The deployments of floats are summarized in the following table. All these floats have parking depth of 1500db and the mission interval is 10-day. These deployments are not under the International Argo programme and are done to collect data from high latitude area, south of 60S.

ARGOS ID / WMO ID	deployment date	Latitude(S) / Longitude(E)	end date
21148 / n/a	05FEB2005	64.50 / 110.01	_unknown ( <i>with ice detection</i> )
21150 / n/a	05FEB2005	64.08 / 110.45	_unknown ( <i>with ice detection</i> )
21152 / n/a	05FEB2005	64.42 / 110.13	_unknown ( <i>with ice detection</i> )
21153 / n/a	05FEB2005	63.94 / 110.64	_unknown ( <i>with ice detection</i> )
21165 / n/a	06FEB2005	63.53 / 111.22	_unknown ( <i>with ice detection</i> )

Four profiling floats will be deployed at the Antarctic Divergence zone off Wilkes Land in February 2006 from the icebreaker SHIRASE.

### Maps of drifters trajectories



## **ANNEX 2: Report by the Data Buoy Cooperation Panel DBCP**

**5<sup>th</sup> meeting of the WCRP/SCAR International Programme for Antarctic Buoys (IPAB) Dunedin, 3  
December 2005**

### **Report by the Data Buoy Cooperation Panel**

#### **21<sup>th</sup> DBCP session**

**Session:** 21<sup>th</sup> DBCP session was held in Buenos Aires, Argentina, 17-21 October 2005, at the kind invitation of the Servicio Meteorológico Nacional (SMN) and the Servicio de Hidrografía Naval (SHN). More than 50 people from 15 countries representing meteorological and oceanographic services or institutes attended the meeting. Buoy manufacturers, and satellite data telecommunication providers were also represented. A Technical and Scientific workshop was held during the first day and a half of the main session addressing a large number of issues such as technical developments, instrument evaluation, network performance, operational enhancements, data telecommunication and assimilation, best practices, research and operational applications. Ken Jarrott ([K.Jarrott@bom.gov.au](mailto:K.Jarrott@bom.gov.au)) will continue to act as workshop chair for 2006, assisted by Bill Scuba ([wscuba@ucsd.edu](mailto:wscuba@ucsd.edu)).

The Panel encouraged its Member Countries to ensure that each national coordination mechanism for GEO/GEOSS is fully informed of and consistent with existing and planned activities of JCOMM. It noted that the Panel would potentially contribute to GEO/GEOSS process for Tsunami monitoring system, either through JCOMM or through national coordination of each member country, and agreed to actively communicate with national coordination for GEO to fully inform the Panel's activities and capabilities in this regard. It agreed that synergies could be created with the Ship Observations Team (SOT) and DBCP in the deployment and use of multipurpose deep ocean moorings for marine hazard detection. K. Premkumar was designated by the Panel as its focal point for information on Tsunami monitoring systems.

The future role of the DBCP was discussed in depth, analysing past goals, current strengths and weaknesses of the Panel, future objectives, and strategy to achieve them. A small Task Team was established in this regard, including the Chair, Ariel Troisi, Ken Jarrott, Julie Fletcher, Jean Rolland, K. Premkumar, Elizabeth Horton, Sidney Thurston, and the Technical Coordinator. The Task Team will report on its findings and recommendations at the next Panel session.

It was with great sadness that we learned about the passing of Louis Vermaak on 30 May 2005. Louis had been involved with the DBCP since its 13th meeting in La Reunion, October 1997. He was very proactive and efficient in DBCP activities and both South Africa and DBCP Members benefited from his work in this regard. He showed a great sense of cooperation, dedication, understanding, and was always very responsive. He was particularly active and efficient in his role of Coordinator for the International South Atlantic Buoy Programme (ISABP), and helped greatly in gaining active participation from other countries in the programme. Louis also played an important role in the IBPIO. Thanks to Louis' and South Africa's participation in the DBCP, ocean area that were previously data sparse are now populated with barometer drifters to meet (i) Numerical Weather Prediction and Marine Forecast requirements, and (ii) global requirements, including scientific and operational for the Global Ocean Observing system (GOOS), the Global climate Observing system (GCOS), and the Ocean Observing Panel for Climate (OOPC).

The Panel reelected David Meldrum as Chair. K. Premkumar was reelected viceChair for Asia, Elizabeth Horton vicechair for North America. Ken Jarrott was elected Chair for Southern Hemisphere.

The next DBCP meeting is planned in Annapolis, Maryland, USA, 17-21 October 2006.

### **DBCP implementation strategy**

The strategy was reviewed and refined. Completion of the drifter array with 1250 operational units reporting from the world oceans was achieved on 18 September 2005 with the deployment of "Global Drifter 1250" off Halifax shores (annex C). Completion of the drifter array impacted significantly on the deployment strategy, as increased deployment opportunities were needed (the drifter array doubled in the last 3 years). The Panel agreed that air deployment opportunities offered by Member States navies were limited, while those offered through other means were expensive. The Panel is increasingly relying on ship deployment opportunities. The Panel further agreed that, provided dedicated commitments are forthcoming, its trust fund at WMO might be used to fund deployment opportunities, especially for the Southern Ocean.

As far as the Southern Ocean Buoy Programme (SOBP) was concerned, it is planned to deploy 126 drifting buoys with barometers in the region during the period September 2005 to August 2006, and to target about 300 units for the longer term.

700 drifting buoys equipped with barometers should eventually be deployed worldwide in extra tropical regions.

**Action Groups:** In January 2005, ESURFMAR replaced the former EGOS, and also replaced EGOS as a DBCP Action Group. Ocean Sustained Interdisciplinary Timeseries Environment observation System (OceanSites), was accepted as a new DBCP Action Group. There are now nine Action Groups with the DBCP (i.e. ESURFMAR, IABP, WCRPSCAR IPAB, DBCPPICES NPDBAP, TIP, GDP, ISABP, IBPIO, and OceanSites).

**Technological developments:** The Storm buoy concept was approved (i.e. higher sampling rate in storm conditions). The Smart buoy concept (i.e. reduced sampling rate in less sensitive conditions) was discussed at DBCP21 and the Panel agreed to organize a *Users and Technology Workshop*, 27-28 March 2006, at ECMWF, Reading, UK. The Workshop will promote dialogue with users and develop recommendations for the design of drifting buoys with variable sampling and transmission strategies that last longer and meet user requirements.

**Vandalism:** Vandalism on data buoys, and particularly on moored buoys remains a concern. Actions to prevent vandalism should be ongoing. These include distribution of a vandalism leaflet (available via DBCP web site), provision of information to mariners, and fishermen through other international organizations or commissions such as IMO, FAO, IHO and ITC. Also, vandalism proof designs could be shared confidentially through JCOMMOPS web site.

**JCOMMOPS:** The proposal to revise the JCOMMOPS Terms Of Reference to enable JCOMMOPS to eventually provide some coordination support to the JCOMM Ship Observations Team (SOT) as a whole was discussed and approved by JCOMM2, Halifax, 19-28 September 2005. The JCOMMOPS web site had been substantially upgraded in the last few months and new monitoring products added. Users are invited to visit new JCOMMOPS monitoring web pages (<http://www.jcommops.org/>).

### **BUFR**

As decided at DBCP19, developments for BUFR compression started at Service Argos in 2004. This was implemented operationally by Service Argos in September 2005. No changes were made to the BUFR template used for GTS distribution of buoy data.

The Panel agreed that a BUFR template for wave data should be defined in close cooperation with the users. Work in this regard took place during the last intersessional period between the Technical Coordinator and Météo France, which resulted in a draft template that was subsequently agreed to by the Panel. The template will be submitted to the CBS Expert Team on Data Representation and Codes for discussion, possible amendment, and approval.

### **Best practices and standards**

The DBCP evaluation group urged buoy operators to review Best Practices prior to purchasing drifting buoys, keeping in mind the safety of personnel tasked to carry out the deployments (e.g. drogues adequately secured). For operational applications (e.g. Hurricane drifters), satellite transmission, and proper GTS data processing

should be tested prior to deployment. Manufacturers are urged to provide Service Argos with list of the formats they utilize.

NDBC will coordinate the production of Best Practices and standards, in particular regarding calibration procedures. Existing EGOS (now ESURFMAR) documentation can be used as a starting point.

### **Metadata and buoy deployment notification scheme**

**The buoy metadata collection scheme** developed at JCOMMOPS and endorsed by the DBCP for global use and is now operational (<http://w4.jcommops.org/cgi-bin/WebObjects/meta>). The Panel thanked EGOS for its financial contribution to this effort. Manufacturers are required to enter information in the system upon buoy purchase, while buoy operators will enter information upon buoy deployment and during the buoy's operational lifetime. Only manufacturers and buoy operators are authorized to enter information in the system so they are invited to contact the Technical Coordinator of the DBCP for registration. Panel Members, Action Groups, and manufacturers are urged to make use of buoy metadata collection scheme developed by JCOMMOPS

**A proposal for the realtime distribution of metadata for SST and temperature profile data** was discussed and agreed to. As well as buoys, the proposal includes other insitu data collection systems (XBTs, VOS, floats). The JCOMM Observations Coordination Group will establish an *ad hoc* working group and organize a workshop at ECMWF, Reading, UK, 28-29 March 2006, to establish a pilot project and implement a practical solution.

### **Argos ground receiving stations**

The Panel was pleased to hear about a substantial reduction of data delivery delays to users by Service Argos. Since 2003, the percentage of data received within one hour increased from 20% to 70%. This was mainly due to the recent development of the Argos network of regional receiving stations. However, concerns remain regarding increased delays in certain regions such as the Indian Ocean, South Atlantic Ocean, and South East Pacific Ocean.

The Panel therefore agreed to monitor data availability delays and to investigate technical solutions for improving them. For example, installing and/or connecting Argos local receiving stations at Easter Island, and Saint Helenas (or Gough Island), to the Argos network of ground receiving stations will be investigated. Connection of existing LUT at Malvinas/Falkland will continue to be pursued by South Africa and UK. The Blind orbit problem, following the loss of the Lannion global Argos receiving station, will be solved as a result of a NOAA/NESDIS commitment to use the facilities at Svalbard.

### **Other technical issues**

- DBCP news is available from the JCOMMOPS website. Panel members are invited to provide input for the News section through the Technical Coordinator. News link: <http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/news?prog=DBC>
- The buoyqc mailing list was renamed to [buoyqir@vedur.is](mailto:buoyqir@vedur.is) on 10 January 2005 to avoid SPAM.
- Service Argos is developing a new sensor data processing system that will eventually replace the existing Argos GTS subsystem. Operational implementation is planned for mid 2006.
- NOAA18 (NOAAN) was successfully launched on 20 May 2005. The spacecraft carries Argos 2 technology.
- NOAAN satellite that was damaged at the contractor's facility will be refurbished for launch in December 2007 (Argos 3 technology plus downlink). METOP, which is planned for launch in mid 2006, will carry Argos 3 and downlink.
- Service Argos plans to develop in collaboration with CNES, for mid2007 and beyond, micro-satellites that would be equipped with Argos 3 and downlink capability. Cooperation with India is underway to eventually equip Indian Satellite MeghaTropic (20° inclination) with Argos 3 and downlink capability by the end of 2009.

**Argos JTA 25<sup>th</sup> session:**

The 25<sup>th</sup> Argos Joint Tariff Agreement meeting was held in Buenos Aires, Argentina, 24-26 October 2005.

Several recommendations were made by the DBCP and the following was agreed upon:

- (i) Service Argos to monitor data flow and delays through its LUTs, and improve timeliness for the Indian Ocean;
- (ii) CLS/Service Argos consider the feasibility of installing LUTs in Saint Helenas and Easter Island with a view to possibly including this activity within their development projects; and
- (iii) Additional ADS charges due to use of multi satellite service (provided free of charge) should be reduced.

About 2835 PTT\* years are planned to be committed to the JTA in 2006. There is no basic change in Argos tariff structure. The pilot project agreed upon at 24<sup>th</sup> JTA session will now to be applied to all countries. Any platform transmitting in a month will be charged €15 per month (coefficient A); in addition, full data collection & location platforms will be charged €6 per active day; €9 per active day for Argo floats and animals, and €3 per active day for fixed platforms (coefficient B). Hence a drifting buoy fully operational during a year will be charged €2370.

ESURFMAR (or other willing organizations) are authorized to participate in Argos Tariff negotiations as a Representative Organization (RO). Reduced rates are offered to countries or RO bidding more than 300 PTT x Years (PTT x Years >300: B=5€, >600: B=4€, >900: B=3€).

Time slots (in units of 6 hours) for platform transmission accounting is only applied to animals and floats. Applying time slot to drifters would lead to deficit in JTA revenues if the basic tariff coefficients A and B are not changed. The meeting agreed not to apply time slot to all types of platforms before 1/1/2007. Meanwhile, the impact of switching time slot to all platforms will be studied to assess whether adjustment in the B coefficient would have to be adjusted.

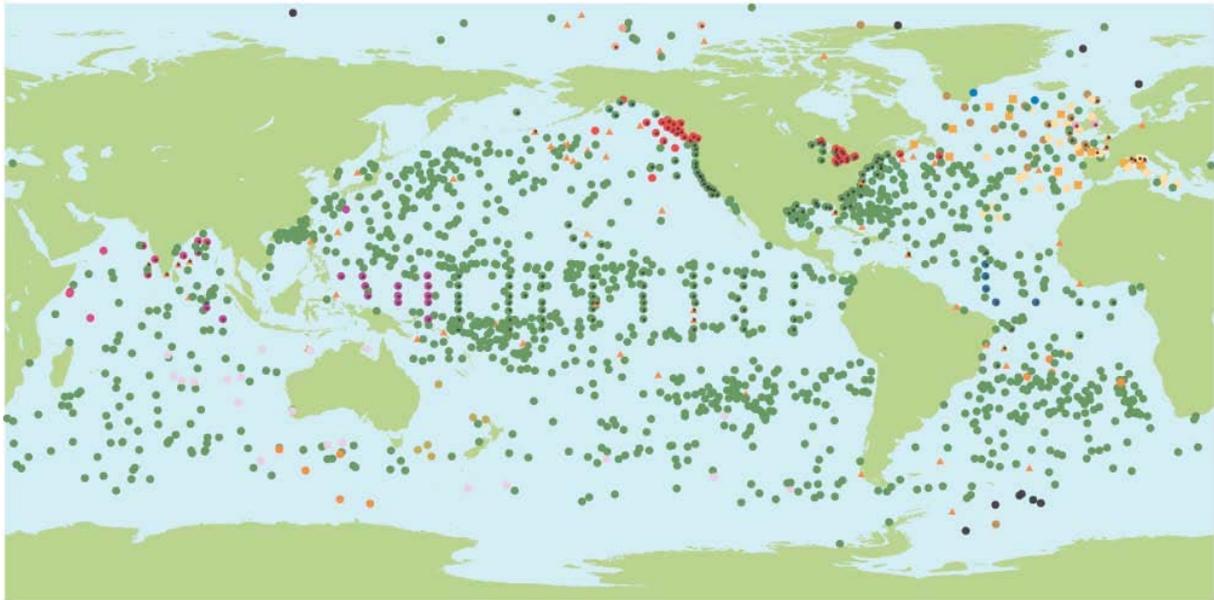
The tariff under the Pilot project had increased dramatically in 2005 for animal tracker platforms. The meeting agreed to provide “soft landing ” for tariff for such platform types; CLS, Service Argos will investigate solutions and negotiate directly with animal trackers.

The future of JTA and structure will be studied during the next intersessional period.

Next JTA meeting, Annapolis, Maryland, USA, 23-25 October 2006.

**Annex A DBCP monthly status map, October 2005.**

Following maps available from <http://wo.jcommops.org/cgi-bin/WebObjects/MapSeek>



**DBCP status by country, October 2005 (data buoys reporting on GTS)**

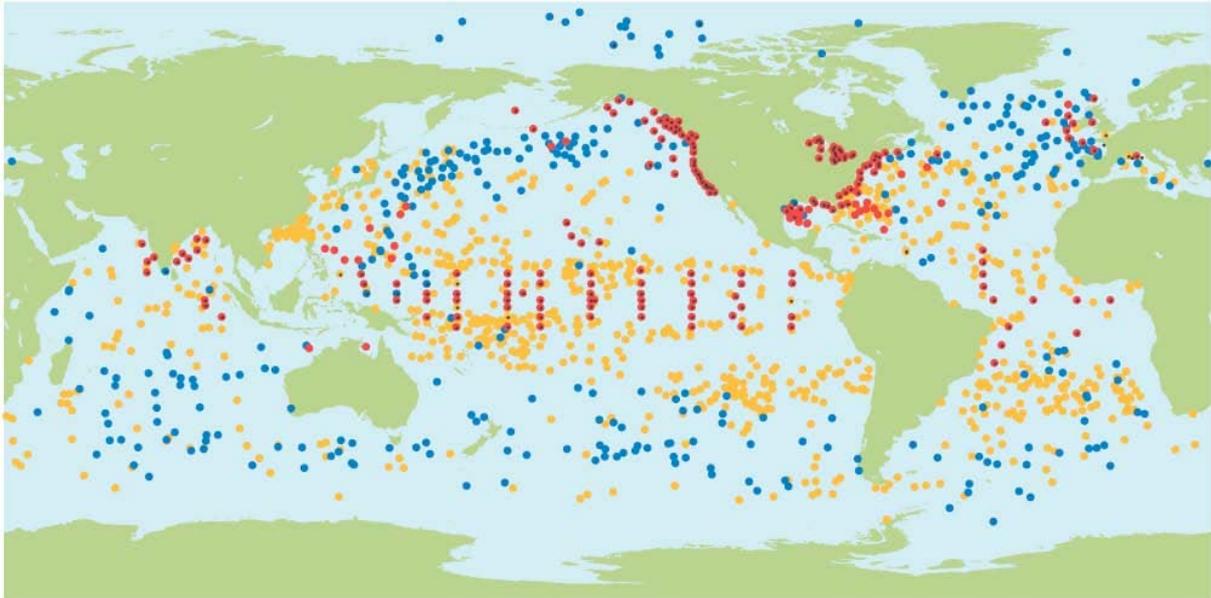
Drifting buoys: 1292

Moored buoys: 191

● AUSTRALIA (20)	● BRAZIL/France/USA (6)	● CANADA (5, 28)
■ EUROPEAN UNION (13)	● FINLAND (2)	● FRANCE (30, 1)
● GERMANY (10)	● INDIA (5, 7)	● IRELAND (2)
● JAPAN (2, 14)	● NETHERLANDS (2)	● NEW ZEALAND (6)
● NORWAY (4)	● SOUTH AFRICA (10)	● UNITED KINGDOM (13, 7)
● UNITED STATES (1170, 126)	⊙ MOORINGS	▲ UNKNOWN

Note: Data received from GTS at JCOMMOPS via Météo-France; number of drifting and moored buoys in brackets respectively

Direct access to latest map: [http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=DBM\\_CNTRY](http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=DBM_CNTRY)



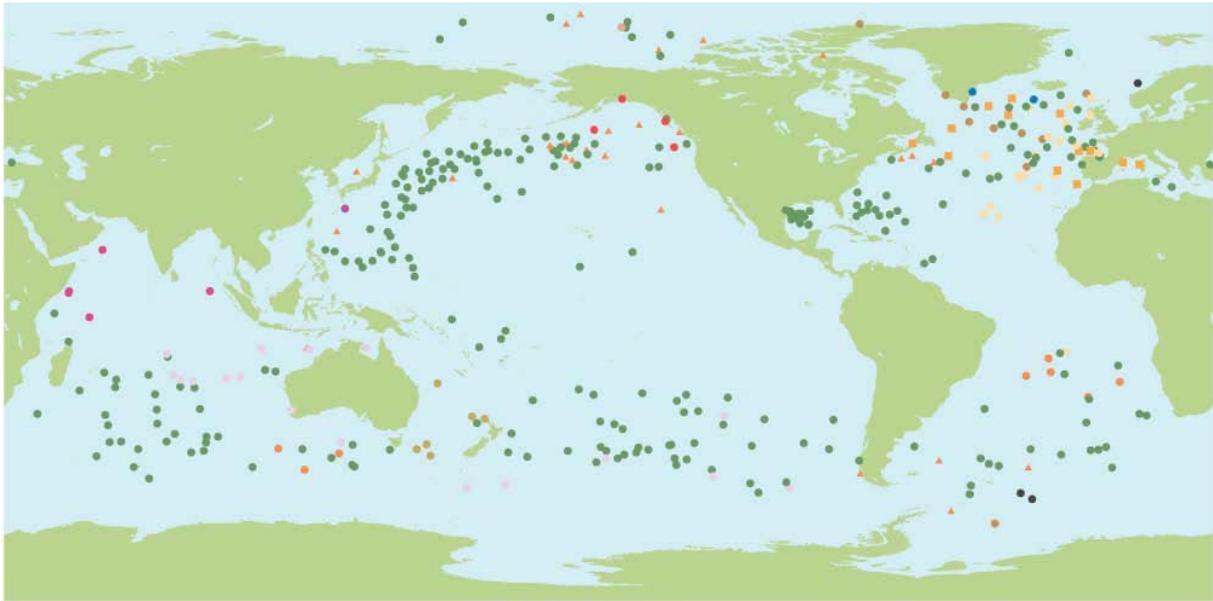
DBCPC status (SST, P, Wind), October 2005 (data buoys reporting on GTS)

- Air pressure
- SST
- Wind
- ⊙ Moorings

Note: Data received from GTS at JCOMMOPS via Météo-France

Direct access to latest map via [http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=DBM\\_SPW](http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=DBM_SPW)

See also <http://w3.jcommops.org/WebSite/DBCPC> (dynamic map, monthly) and [http://w3.jcommops.org/WebSite/DBCPC\\_RT](http://w3.jcommops.org/WebSite/DBCPC_RT) (dynamic map, daily).



**Barometer Drifting Buoy status by country, October 2005 (data buoys reporting on GTS)**

Drifting buoys: 343

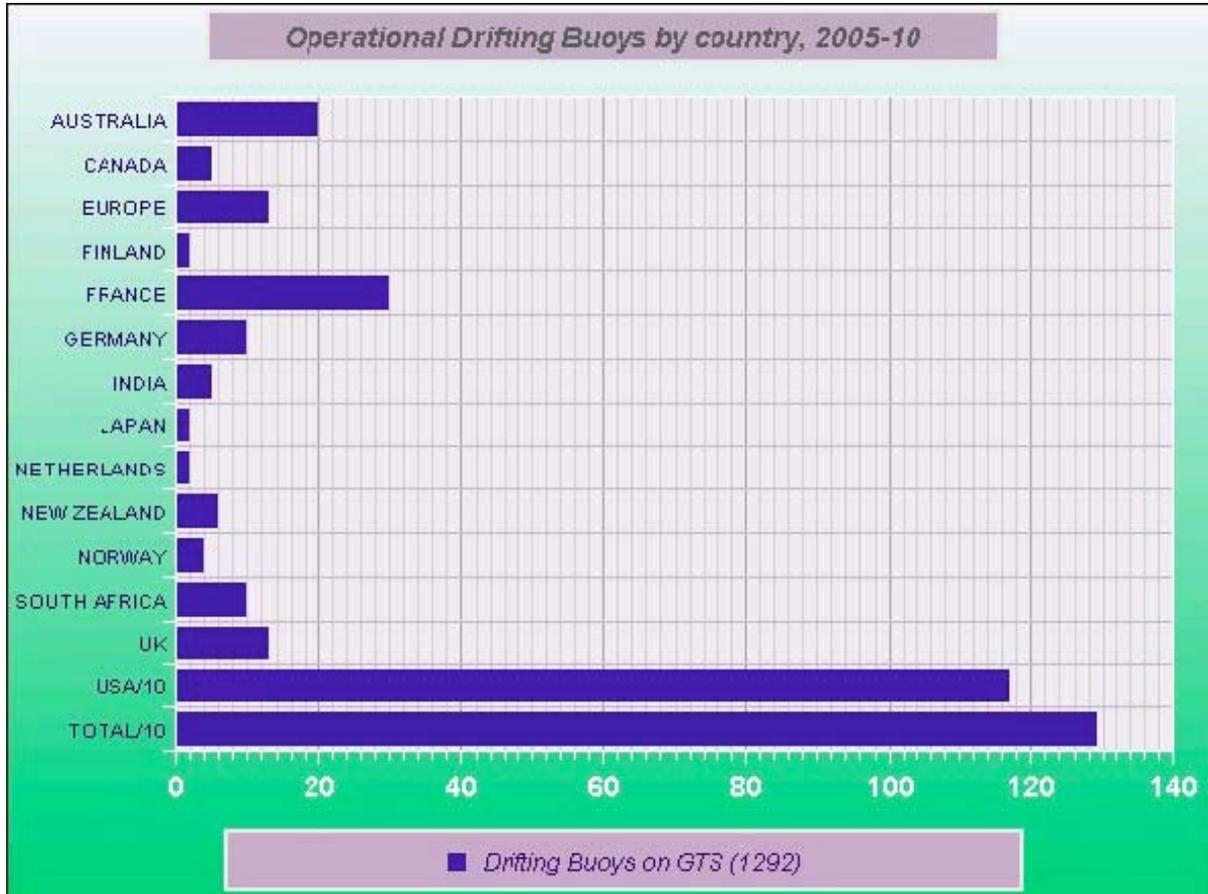
- |                      |                       |                      |
|----------------------|-----------------------|----------------------|
| ● AUSTRALIA (17)     | ● CANADA (4)          | ■ EUROPEAN UNION (0) |
| ● FINLAND (2)        | ● FRANCE (33)         | ● GERMANY (2)        |
| ● INDIA (5)          | ● JAPAN (1)           | ● NETHERLANDS (0)    |
| ● NEW ZEALAND (6)    | ● NORWAY (3)          | ● SOUTH AFRICA (8)   |
| ● UNITED KINGDOM (2) | ● UNITED STATES (260) | ▲ UNKNOWN            |

Note: Data received from GTS at JCOMMOPS via Météo-France; number of drifting buoys in brackets

Direct access to latest map: [http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=DBPM\\_CNTRY](http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa/wa/map?type=DBPM_CNTRY)

**Annex B Operational Drifting Buoys by country, August 2005**

Following histogram and table available from <http://wo.jcommops.org/cgi-bin/WebObjects/JCOMMOPS.woa.wa/PTFCountry>



**Annex C  
Deployment of drifter “1250”**



Onboard Tall ship Silva before deployment, from left to right, Michel Jarraud, Secretary General, WMO, Worth Nowlin, Texas A&M, Jeff Holland (retired), Larry Murray, Deputy Minister, Fisheries & Oceans, Canada, Patricio Bernal, Executive Secretary, IOC, Peter Niiler, Scripps Institution of Oceanography, Marc Denis Everell, Assistant Deputy Minister, Meteorological Services of Canada, Savi Naranayan, CoPresident, JCOMM



Peter Niiler (left) and Mike Johnson (right) deploying drifter