

**INTERGOVERNMENTAL OCEANOGRAPHIC
COMMISSION (of UNESCO)**

**WORLD METEOROLOGICAL
ORGANIZATION**

NINTH SESSION OF THE DATA BUOY CO-OPERATION PANEL

Athens, 25-27 October 1993

FINAL REPORT

(This page left intentionally blank.)

GENERAL SUMMARY OF THE WORK OF THE MEETING

1. ORGANIZATION OF THE SESSION (agenda item 1)

1.1 Opening of the session (agenda item 1.1)

1.1.1 The ninth session of the Data Buoy Co-operation Panel (DBCP) was opened by the chairman of the Panel, Mr. D. Painting, at 10.00 a.m. on Tuesday, 19 October 1993, in the Auditorium of the Greek Ministry of Foreign Affairs, Athens. After welcoming the participants, Mr. Painting called on the Vice Director-General of the Hellenic Meteorological Service, General P. Kyriakos, to address the Panel.

1.1.2 On behalf of the Director-General of the Hellenic National Meteorological Service, General Kyriakos welcomed all participants in the session to Athens. He expressed the pleasure of his service in being able to host the present session, noting that Greece placed great value in the work of the Panel and had for several years been supporting this work directly, both through participation in Panel sessions and otherwise. The Hellenic National Meteorological Service is presently in the process of reorganizing and modernizing, particularly in the marine area with the installation of several coastal marine stations and possibly eventually moored buoys. The present Panel session therefore provided a good opportunity for the Service to obtain valuable advice and experience for these developments. Finally, General Kyriakos wished participants a successful meeting and an enjoyable stay in Athens.

1.1.3 On behalf of the Secretary-General of WMO, Professor G.O.P. Obasi, and the Secretary IOC, Dr. G. Kullenberg, the WMO Secretariat representative also welcomed participants to the session. He expressed the sincere appreciation of WMO, IOC and the Panel itself to the Hellenic National Meteorological Service for hosting the session, and in particular to Mr. George Kassimidis for his very considerable efforts in organizing the meeting. The WMO representative then noted the substantial success of the Panel so far in achieving its objectives and in gaining recognition amongst both operational and research institutions as the competent international body dealing with operational buoy activities. In this context, it was therefore important that the Panel should begin to expand its horizons, within its terms of reference, in particular in being more active in the co-ordination and implementation of new operational buoy programmes, such as that being planned for the South Atlantic.

1.1.4 The list of participants in the session is given in Annex I.

1.2 Adoption of the agenda (agenda item 1.2)

1.2.1 The Panel adopted unchanged the provisional agenda. This final session agenda is given in Annex II.

1.3 Working arrangements (agenda item 1.3)

1.3.1 Under this agenda item, the Panel decided on its hours of work and other relevant arrangements for the session. The list of documents for the session was also introduced by the Secretariats.

2. REPORTS (agenda item 2)

2.1 Report of the chairman of the Data Buoy Co-operation Panel (agenda item 2.1)

2.1.1 The chairman gave a brief summary of the work of the Panel through the intersessional period. In particular, he drew attention to the following achievements:

- (a) Introduction into operational service of Stage 1 of the new Argos GTS processing chain in February 1993 and Stage 2, ahead of schedule, in September 1993;
- (b) Successful completion of the first evaluation phase of the new low cost SVP barometer drifter;
- (c) Assistance to the WCRP in the implementation of a pilot phase for an International Programme for Antarctic Buoys (IPAB);
- (d) Organization of a planning meeting for a South Atlantic Drifting Buoy Programme to be held in Buenos Aires in December 1993.

2.1.2 The chairman further reported on some specific activities he had undertaken on behalf of the Panel. These included attending the IOC Assembly (Paris, March 1993) at which he gave a technical description of the SVP "pressure" drifter as well as a report on the work of the Panel; participating in the Planning Meeting for the IPAB (Hobart, April 1993); participating in a workshop on the SVP barometer drifter (La Jolla, May 1993), accompanied by the technical co-ordinator; and participating in the WOCE/TOGA SVP planning meeting (September 1993).

2.1.3 In conclusion, the chairman expressed his appreciation to Panel members, the technical co-ordinator and the Secretariats of WMO and IOC for their hard work in supporting the Panel over the intersessional period.

2.2 Report of the technical co-ordinator (agenda item 2.2)

2.2.1 The technical co-ordinator presented his activities during the last intersessional period. He was employed by UCAR and based in Landover until 31 May 1993 and was then employed by UNESCO and based in Toulouse. The new Argos GTS sub-system for processing GTS data was implemented operationally in February 1993 (Phase 1) and September 1993 (Phase 2). Except for a 10-day data loss period at the implementation of Phase 1, operating the system so far has been very successful. More data are actually being distributed on the GTS for a constant number of buoys reporting through the system. The technical co-ordinator spent roughly 50% of his time working on this issue, as well as Quality Control and User Assistance issues (Principal Investigators, Local User Terminals, Meteorological Services). He attended the joint DBCP-SVP workshop on combined meteorological and oceanographic drifting buoys (La Jolla, May 1993) and the third session of the IABP (Toulouse, June 1993). Thanks mostly to the WOCE, TOGA, EGOS, IABP programmes, the number of buoys reporting through Argos as well as the number of buoys reporting on the GTS increased steadily in the

last three years. The proportion of buoys reporting on the GTS remains however constant at a level of approximately 45%. A few platforms can probably be gained thanks to the improved flexibility of the new GTS sub-system. However, the technical co-ordinator stressed that new kinds of actions should be initiated by the Panel in order for this figure to increase substantially. Examples of such steps will be discussed later at the meeting. A status report on buoys reporting on the GTS in August 1993 showed that emphasis should be put upon buoy deployments in the Indian Ocean, Equatorial and South Atlantic Ocean, Pacific Ocean (Air Pressure, excluding Equatorial and NE Pacific Ocean).

2.2.2 Regarding the question of buoys reporting wind data on the GTS at non-standard heights, the technical co-ordinator provided the WMO Secretariat with the list of such buoys, including actual anemometer height. The list was then published in the May 1993 WWW Operational Newsletter. In the same document was also included the list of land stations reporting air pressure at station level using the DRIFTER code. The technical co-ordinator is encouraging the owners of the stations to use a more appropriate code form (e.g. SYNOP). Three such stations are now reporting on the GTS, using the SYNOP code form.

2.2.3 In addition to regular work done by the technical co-ordinator as detailed in his full report (see Annex III), some work was also done in conjunction with the development of a low cost Lagrangian drifter equipped with a barometer port, orbitography simulations and reprocessing raw data. Comments and reports were also forwarded to concerned people regarding the Global Ocean Observing System (GOOS).

2.3 Report by the Secretariats (agenda item 2.3)

2.3.1 The representative of the WMO Secretariat reported to the session that the major activity of the WMO Secretariat during the past year in support of the Panel had continued to be concerned with the management of the Panel's funds and related administrative support, as agreed at the eighth session of the Panel. Full details of these are discussed under agenda item 3. In addition to these, the WMO Secretariat had also undertaken a variety of other administrative and technical tasks in support of the work of the Panel, or of data buoy programmes generally. These included the preparation of various documents for the Panel session and for other WMO bodies, including the Executive Council, which, at its forty-fifth session, expressed its continuing satisfaction with the work of the Panel and approved its proposal to change its name and terms of reference to cover also moored buoys; continuing support to the Panel's action groups; joint supervision of the work of the technical co-ordinator; maintenance of various lists, including the register of Buoy Identifier Numbers, the list of National Focal Points for drifting buoy programmes and for buoy logistics facilities; preparation for the first Preparatory Meeting for the International South Atlantic Buoy Programme; liaison with other relevant organizations and bodies.

2.3.2 The representative of the IOC Secretariat reported that the IOC Assembly, at its seventeenth session, was presented with an actual SVP drifter. The Assembly commended the Panel on its achievements so far and endorsed the proposed changes in name and terms of reference. With regard to the study of legal aspects of ODAS, the Assembly had before it the second revised version of the draft Convention on the Legal Status of ODAS, and

decided to go on with its previous decisions on this topic, viz basically to entrust a group of experts designated by ICSPRO to prepare a further revised version. According to DECP-VIII decisions, the IOC Secretariat had taken the necessary steps to recruit the technical co-ordinator as a "UNESCO Fund-in-Trust Expert" financed by the money transferred from WMO to the IOC Trust Fund. Further details on this topic are given under agenda item 3.

2.3.3 The Panel acknowledged with appreciation the report by the Secretariats. Questions were raised about the present formulation of some articles of the draft Convention on the Legal Status of ODAS, which may well prove unrealistic from the technical point of view. The Panel requested that its members keep abreast, to the maximum extent possible, of national discussions on this topic, in order to voice, when and as necessary, the technical limits that might render any legal provision meaningless. In so doing, the Panel recalled that two of the main items to be considered in the Convention were dealing with (i) the protection of automated equipment against vandalism and theft, and (ii) the rights of coastal states with regard to the waters under national jurisdiction.

2.3.4 Discussion on any of the other topics dealt with was deferred to further agenda items, as necessary.

2.4 Reports by the action groups of the Panel (agenda item 2.4)

International Arctic Buoy Programme (IABP)

2.4.1 On behalf of the chairman of the International Arctic Buoy Programme (IABP), the Canadian representative, Dr. D. O'Neill summarized highlights of the third annual meeting of that body. He noted that the IABP will strive to maintain a buoy network spacing of 500 km and will archive meteorological data transmitted on the GTS with the RNODC for Drifting Buoys, the Marine Environmental Data Service (Canada). An annual newsletter will be prepared by the Programme Co-ordinator reporting on specific activities during the preceding year. This newsletter, along with a brochure outlining Programme objectives, principles, participants and products, will be distributed in October 1993.

2.4.2 Reference was made to the chairman's intent to establish a special trust fund, or "bank account", for the IABP at an early date and it was noted that the WMO Secretariat was prepared to facilitate the establishment of such an account.

2.4.3 During the IABP third annual meeting, a presentation on water-borne and airborne pollutants and on the establishment of the Arctic Monitoring and Assessment Programme (AMAP) was given by Manfred Lange. During his talk, he proposed that the role of the IABP be expanded to have a broader environmental focus by using IABP buoys to collect pollutant-related data. This suggestion was received positively by participants.

2.4.4 In looking to the future, participants in the meeting agreed that additional effort should be directed towards:

- Improving measurement accuracy of variables, notably air temperature;

- Standardizing buoy design;
- Adding other meteorological variables to the collection effort;
- Broadening the Programme objectives to include monitoring of additional environmental elements, such as contaminants;
- Improving liaison with other programmes, such as AMAP, GCOS and GOOS.

2.4.5 Finally, it was noted that the next meeting of the IABP was tentatively scheduled for the first week of June 1994 in St. Petersburg, Russian Federation, subject to later confirmation by the Executive Committee.

2.4.6 The Panel expressed its appreciation to the IABP for the considerable amount of work accomplished so far. It was noted that some buoys were not able to forward their data onto the GTS in real time, since they were not equipped with Argos PTTs. But it was made clear that the data would eventually be archived by the RNODC (drifting buoys) operated by MEDS, since they were made available to the IABP co-ordinator.

European Group on Ocean Stations (EGOS)

2.4.7 The Icelandic delegate, Mr. F. Sigurdsson, vice-chairman of the European Group on Ocean Stations (EGOS), gave an oral report on the activities of EGOS and the operation of drifting and moored EGOS buoys during the last year. He referred to and highlighted several items of a written report on EGOS (EGOS Technical Document No. 83, to be published as usual in the DBCP annual report). He informed that 13 drifting buoys were now operational in EGOS North and 3 in EGOS South. He further informed on data reception and pointed out the benefit of using three Local Users' Terminals (50-100% increased data reception) and of adding air pressure information at the last synoptic hour to asynoptic buoy observations. He demonstrated the impact of EGOS buoy data on actual weather maps, commented on the generally good quality and the necessary control of the data and showed graphs of the diurnal variation of data availability in EGOS North and EGOS South. Finally, Mr. Sigurdsson mentioned that the Management Committee of EGOS discussed a proposal to hold a Seminar on Technical and Operational Aspects of Drifting Buoys. Two possibilities were discussed:

- (a) A one-day seminar within EGOS held in conjunction with one of the semi-annual EGOS meetings;
- (b) A seminar with wider scope, held jointly with other DBCP Action Groups under the auspices of DBCP.

The members of EGOS were more in favour of the second alternative and would welcome the views of the DBCP on this matter.

2.4.8 The Panel thanked Mr. Sigurdsson for his very interesting report. The Panel's views regarding the proposed seminar are recorded under agenda item 6.6.

3. FINANCIAL AND ADMINISTRATIVE MATTERS (agenda item 3)

3.1 Financial situation (agenda item 3.1)

3.1.1 The Panel considered financial statements provided by WMO, as follows:

- (a) Interim DBCP account as at 30 September 1993;
- (b) Provisional statement of anticipated income and expenditure to 31 May 1994.

These statements are reproduced in Annex IV.

3.1.2 The Panel accepted and approved these statements, noting that an operating surplus of around US\$ 6,000 was expected for the year 1993/1994, and that this should be transferred to the 1994/1995 budget.

3.1.3 The Panel considered and approved the final financial report from UCAR for the year 1 June 1992 to 31 May 1993, which is also reproduced in Annex IV. In doing so, the Panel expressed its considerable appreciation to UCAR for the very efficient and co-operative way in which it had supported the work of the Panel, through its employment of the technical co-ordinator and management of the funds for his employment and official travel. In noting that these arrangements were now formally terminated, with the transfer of the technical co-ordinator to Toulouse, the Panel nevertheless hoped that there might be an opportunity again in the future to undertake other co-operative activities with UCAR.

3.2 Review of contracts (agenda item 3.2)

3.2.1 The Panel reviewed and approved the arrangements agreed between WMO and IOC, on the basis of an exchange of letters, for the funding of the employment, travel and logistic support for the technical co-ordinator. The Panel also reviewed and approved the terms of the IOC/UNESCO employment contract for the technical co-ordinator, as well as the contract between IOC/UNESCO and CLS/Service Argos for his logistic support. All these documents are reproduced in Annex V.

3.3 Employment status of the technical co-ordinator and commitments for future funding (agenda item 3.3)

3.3.1 The Panel recalled the agreement made with Mr. Charpentier at DBCP-VIII, that he would be willing to remain as technical co-ordinator, located in Toulouse and employed by IOC/UNESCO, until at least 31 May 1996. It therefore decided to continue existing arrangements for the next financial period, 1 June 1994 to 31 May 1995, subject to availability of funds.

3.3.2 The Panel then reviewed draft estimates provided by UNESCO for the cost of the technical co-ordinator employment contract for 1994/1995 and 1995/1996. These estimates are reproduced in Annex VI. It noted the uncertainties inherent in these estimates, and therefore agreed that it should budget a total of US\$ 90,000 for the technical co-ordinator's employment contract for 1994/1995.

3.3.3 The Panel further agreed that it should further budget, for 1994/1995:

- (a) US\$ 15,000 for official travel for the technical co-ordinator;
- (b) US\$ 15,000 to cover a logistic support contract of FF 77,000 with CLS/Service Argos, representing a 2.5%, inflation-related, increase on the 1993/1994 contract of FF 75,000, due account being taken of possible US\$-FF exchange rate fluctuations;
- (c) US\$ 10,000 for travel of the Panel chairman on Panel business, and related expenditures;
- (d) US\$ 10,000 for other sundry expenditures and for contingencies, such as unexpected cost increases, DBCP ties and other promotional items and unfavourable exchange rate fluctuations for the US \$, this sum representing approximately 9% of the overall projected expenditures. The table of projected expenditures for 1994/1995 is given in Annex VII (I).

3.3.4 In recalling the expected carry-forward from 1993/1994 to 1994/1995 of around US\$ 6,000, the Panel noted that a total of US\$ 134,300 would be required to be recouped from Member country contributions in 1994/1995 in order to balance the estimated expenditures. The table of estimated required income for 1994/1995 is given in Annex VII (II).

3.3.5 The Panel noted that contributions for 1993/1994 had totalled approximately US\$ 136,450. It further noted that two countries had already informed of intended variations in their 1994/1995 contributions. With these variations, and taking into account the variation of the US\$-FF exchange rate from September 1992 to September 1993, the Panel noted that it could recoup the required amount from contributions by maintaining all other national contributions unchanged from their 1993/1994 value, which would give a total of approximately US\$ 134,650. The Panel therefore agreed on the draft table of provisional contributions for 1994/1995 as given in Annex VIII, and requested the WMO Secretariat to invoice potential contributors according to this table and, if possible, before 31 December 1993.

3.3.6 Finally, the Panel emphasized once more the importance of additional Member states participating actively in the Panel's work, and contributing financially to its support, if all its present and potential projects are to be successfully implemented. It noted the good example provided by Ireland, in increasing its contribution because of the perceived benefits it has gained through Panel activities. It therefore urged all existing Panel Member states, as

well as the Secretariats, to make further efforts to convince other potential Member countries of the value of the Panel's work and of the importance to themselves of being actively involved.

4. RELATIONSHIP WITH OTHER ORGANIZATIONS/PROGRAMMES (agenda item 4)

4.1 World Climate Research Programme (WCRP) (agenda item 4.1)

4.1.1 The chairman reported on the main conclusions of the recent SVP Planning Committee meeting. For some six years, the SVP Planning Committee has been putting together a global measuring system for surface velocity, SST and atmospheric pressure from drifting buoys. There are now over 470 drogued buoys in the Atlantic and Pacific Oceans reporting data to the WOCE Data Assembly Centre at AOML; another 60-120 buoys report atmospheric pressure and SST through various meteorological agencies. Funds are now available to implement the Southern Ocean and Indian Ocean arrays in 1994. The first data set of five years' length is now available to Principal Investigators for the tropical Pacific Ocean.

4.1.2 The chairman noted that future support from the science funding agencies was expected to be directed to data products, ocean surface modelling and assimilation of SVP data into climate prediction models. It was suggested that the planning for the continuation of the operational array after 1995 be carried out under the Global Climate Observing System. In this connection, it is hoped that the development and use of the SVP barometer drifter, which will meet the needs of oceanographic and meteorological agencies, both for research and operations, will facilitate the transition of the current WCRP array into an operational long-term array under GCOS.

4.2 World Weather Watch (WWW) (agenda item 4.2)

4.2.1 The Panel noted that the WWW requirements for buoy data remained unchanged from those given at previous Panel sessions, and that various matters related to the DBCP which were considered at the tenth session of the WMO Commission for Basic Systems (Geneva, November 1992) were dealt with under specific agenda items at the present session.

4.2.2 The Panel noted further that the eleventh session of the WMO Commission for Marine Meteorology (Lisbon, April 1993) had considered drifting and moored buoys as a separate agenda item, and had specifically expressed its appreciation to the DBCP for its excellent work in this field. CMM had, at the same time, noted that efforts were required to maintain operationally in the future the drifting buoy deployments now funded through TOGA, as well as to effectively exploit the new low-cost combined meteorological/oceanographic buoy, and had adopted a recommendation on this topic, which is addressed, *inter alia*, to the DBCP. This recommendation is given in Annex IX.

4.2.3 Finally, on this agenda item, the Panel noted that WMO was presently in the process of redefining its long-standing policy on the exchange of meteorological and oceanographic data and products, in the light of recent developments related to the

establishment of commercial activities by national Meteorological Services in some countries. This work was being undertaken by an Executive Council working group established for this purpose, which was to develop a draft policy for consideration by EC-XLVI (June 1994) on the basis of guidelines provided by EC-XLV (Geneva, June 1993). The final policy statement on the issue was expected to be adopted by Cg-XII in June 1995. The Panel requested the WMO Secretariat to provide further information on this important topic, as appropriate, to DBCP-X.

4.3 Integrated Global Ocean Services System (IGOSS) and International Oceanographic Data and Information Exchange (IODE) (agenda item 4.3)

4.3.1 The Panel was presented with the reports of the IGOSS Specialized Oceanographic Centre (SOC) and the IODE Responsible National Oceanographic Data Centre (RNODC) for drifting buoys, which are reproduced in Annexes X and XI respectively. It expressed appreciation for the work of both centres. Some discrepancies were noted with regard to the percentage of buoys transmitting data over the GTS, between the RNODC figures and those already provided by the technical co-ordinator in his report. It was explained that the basic figures used were slightly different, the former taking into account the Argos concept of PTT/days and the latter the number of buoys reporting at least once in a one-week period.

4.3.2 The Panel further encouraged the SOC for drifting buoys to pursue its efforts initiated in October 1992 to collect and archive wave observation reports from the world ocean, in consideration of the general value of such an archive.

4.4 Global Ocean Observing System (GOOS) and Global Climate Observing System (GCOS) (agenda item 4.4)

Global Ocean Observing System (GOOS)

4.4.1 The Panel was presented with a report on the state of development of GOOS, especially as far as it relates to buoy activities. It noted the main relevant outcomes of the first session of the IOC Committee for GOOS (I-GOOS) (February 1993) which included:

- (a) The recognition of the amount of work performed by existing systems/programmes/bodies, such as the DBCP, on which GOOS is to build;
- (b) The request therefore that all concerned chairmen establish working relationships to harmonize the various activities involved in GOOS development;
- (c) The highlighted principle: "Think global, implement regional", which is already well applied within the DBCP and its present and (possibly) future action groups.

4.4.2 The Panel was further informed that a Memorandum of Understanding (MOU) had eventually been signed by IOC, WMO and ICSU to co-sponsor the Joint GOOS Scientific and Technical Committee (J-GOOS), whose main duty will be to "be responsible for all the

scientific and technical aspects of GOOS design, and undertake appropriate activities to support the design process". The composition of J-GOOS (basically twelve "ordinary Members") is at present being discussed by the co-sponsoring organizations.

4.4.3 The Panel expressed its continuing support to the development of GOOS. It recognized that it will be mainly involved in two of the so-called GOOS modules, viz the modules on (i) climate monitoring, assessment and prediction, and (ii) marine meteorological and oceanographic operational services. It expressed readiness to take action, within the limits of its terms of reference, on any requirements that J-GOOS, or one of its specialized panels, might express.

Global Climate Observing System (GCOS)

4.4.4 The Panel was presented with a report on new developments within GCOS. It noted in particular that, at the second meeting of the Joint Scientific and Technical Committee (JSTC) for GCOS (January 1993), the first priorities for GCOS were defined as to co-ordinate and facilitate the critical observational tasks necessary to address:

- (a) Seasonal and inter-annual climate prediction;
- (b) Early possible detection of climate trends and climate change due to human activities;
- (c) Reduction of the major uncertainties in climate prediction.

4.4.5 The Panel noted further that it was invited to provide specific suggestions and input to future JSTC meetings for consideration. It expressed the view that an invitation along these lines could not be accepted as such, since it was more the role of the JSTC (as well as of J-GOOS) to express requirements, and of the Panel to take measures to meet them. More generally, it considered it had to work closely with GOOS and GCOS in such undertakings as e.g. the transition from present experimental observing systems towards operational ones. Its very role is to provide for a tool to support GOOS and GCOS developments. The Panel indeed recalled that its terms of reference begin with: "... consider the expressed needs of the international meteorological and oceanographic communities for ...".

5. REPORT ON CURRENT AND PLANNED DATA BUOY PROGRAMMES (agenda item 5)

5.1 The Panel was informed that written reports had been received by the Secretariats from Australia, Canada, France, Greece, Iceland, India, Japan, Korea, Netherlands, New Zealand, South Africa*, Sweden, United Kingdom, USA, as well as EGOS, IABP and the WOCE/TOGA SVP. Some of those were verbally presented by the Panel members attending the session.

* (Standard disclaimer South Africa)

5.2 The Panel recalled that a standard format had been suggested for reports, according to its request at its ninth session. It expressed the hope that the reports would follow the suggested format, while making clear that this format was to be considered as guidelines rather than as a mandatory presentation. As in previous years, the Panel agreed that the reports should be included as annexes to the DBCP annual report.

5.3 Under this item, the Panel was given presentations on the French SEMAPHORE project and the TOGA TAO array in the Pacific. Summaries of these are given in Annex XII. The Panel expressed its appreciation for the presentations and requested that, if possible, full details should be published in the 1993 Annual Report.

6. CO-ORDINATION ACTIVITIES (agenda item 6)

6.1 Quality control of buoy data (agenda item 6.1)

6.1.1 The Quality Control Guidelines for drifting buoy data which were formally implemented in January 1992, have now attracted a fair level of participation from the various PMOCs involved. Presently acting as PMOCs are the Australian Bureau of Meteorology (BOM), Meteo-France, the European Centre for Medium-range Weather Forecasts (ECMWF), the Icelandic Meteorological Office (IMO), the Japan Meteorological Agency (JMA), the National Data Buoy Centre (NDBC) (USA), the Meteorological Service of New Zealand Ltd (NZMS), the Ocean Products Centre (OPC) (USA) and the United Kingdom Meteorological Office (UKMO). An average number of approximately 30 status change proposals per month have been posted onto the BUOY.QC bulletin board since its creation. The Panel recognized that this initiative has been very successful. The Guidelines substantially speed up the implementation of status changes necessary for those buoys reporting bad data onto the GTS. For the period 1 July 1993 to 30 June 1993, 134 buoys had their status changed thanks to the operation of the Guidelines. In November 1992, these were formally adopted at the tenth session of CBS as a part of the WWW system.

6.1.2 Regarding the question of support for the cost of the bulletin board, the US delegation offered that OPC would continue to do so for a further year. The Panel accepted this offer and thanked again the OPC. The technical co-ordinator was asked to study possible alternatives such as using INTERNET instead of OMNET for the bulletin board in the future, and to report on the matter to DBCP-X. As far as Automatic Quality Control checks implemented in the Argos GTS sub-system are concerned, the Panel expressed the view that the existing tests presently implemented are entirely satisfactory and sufficient.

6.2 Code matters (agenda item 6.2)

6.2.1 The Panel noted with appreciation that CBS-X (Geneva, November 1992) had adopted the BUOY code (containing some modifications to the existing DRIFTER, including change of name, as proposed originally by the DBCP) for implementation as from 2 November 1994. Details of BUOY, as adopted, are given in Annex XIII. The Panel noted further that CMM-XI (Lisbon, April 1993) had requested it to investigate possible requirements for additions to BUOY to cover buoy data exchange at the regional or national level. The

Panel, however, was not aware of any such requirements and agreed strongly that no further modifications should be proposed to BUOY in the immediate future, although as a matter of policy this subject should be kept under continuing review.

6.2.2 With regard to future developments in buoy technology and the possible requirement to transmit new buoy data, as well as existing variables, over the GTS in BUFR code, the Panel noted that encoding into BUFR could be accommodated within the new Argos GTS processing sub-system, but to do so would require considerable work (and some expense) on the part of the technical co-ordinator, CLS/Service Argos and possibly others. The Panel therefore asked the Secretariat to request the next (extraordinary) session of CBS, scheduled for August 1994 in Helsinki, to specify possible requirements for the GTS transmission of drifting and/or moored buoy data in BUFR. In the event that such a requirement exists, the Panel further requested CBS to identify ways in which the Panel might be assisted to implement BUFR encoding within the Argos GTS processing sub-system.

6.3 New Argos GTS processing sub-system (agenda item 6.3)

6.3.1 The technical co-ordinator was pleased to report that Phase 1 of the project was implemented in February 1993, and Phase 2 in September 1993. Except for a 10-day data loss period at the implementation of Phase 1 (mostly due to an ambiguous interpretation of the HL field of section 4 of the DRIFTER reports) and for a short 36-hour data loss period at the implementation of Phase 2 (due to routing problems when the US centre was placed in backup mode), the operation of the system has been successful and essentially meets present requirements. The quantity of data distributed onto the GTS began to increase as a result of the possibility of the new system to process synoptic hours of observation.

6.3.2 The Panel recognized that emphasis should now be placed upon promoting the system in order to take full advantages of its new possibilities. In that regard, it recommended the following steps:

- (a) To update the WMO report on Marine Meteorology and Related Oceanographic Activities, No. 10 (Guide to Data Collection and Location Services Using Service Argos) to reflect the dramatic improvements of the system;
- (b) To publish a reference guide to be distributed widely to National Focal Points, buoy operators and manufacturers;
- (c) To encourage distribution of Argos station data on the GTS using appropriate GTS code forms such as SYNOP for land stations, SHIP, BATHY or TESAC for ships, and DRIFTER for buoys;
- (d) That NFP encourage research programmes deploying buoys to make the data available on the GTS as a transition from research to operational programmes (e.g. as part of the GOOS and GCOS);

- (e) That the technical co-ordinator continues to establish contacts with Principal Investigators with a view to convincing them to allow GTS distribution of the data.

6.3.3 Noting that the present system meets stated requirements and that efforts should be placed upon promoting the system, the Panel decided that development of Phase 3 was not necessary at this stage. However, it requested the technical co-ordinator to study how location information encoded in an Argos message could be handled by the GTS sub-system (as a part of the existing Phase 2), and requested CLS/Service Argos to undertake such a minor modification, in view of the importance to system users of being able to include such reported location information in GTS reports.

6.3.4 Finally, the Panel expressed its sincere appreciation to CLS/Service Argos for its close co-operation with and support for the Panel in achieving the objective of improving the flow of buoy data onto the GTS.

6.4 **Combined meteorological/oceanographic drifting buoys** (agenda item 6.4)

6.4.1 The Panel was briefed on the state of the art regarding the development of a low cost Lagrangian drifter equipped with a barometer port, and a full report of the joint DBCP SVP workshop that was held in La Jolla in May 1993 was presented. The design of the drifter is considered successful although a few modifications proposed at the workshop remain to be tested at sea. These tests will be conducted early in 1994 with deployments of new prototypes by AES, BOM, Meteo-France, the UK Meteorological Office and GDC. In addition, a joint NOAA-GDC programme will deploy up to 80 such devices in the Southern Ocean in 1994 as part of the WOCE/TOGA programmes. The Panel was pleased to hear of this high level of commitments and expressed the view that these should encourage other operational agencies to purchase and deploy such buoys at a time when research oceanographic programmes come to an end, noting also that the final cost of each buoy was estimated to be of the order of US \$ 5,000 in early 1994. It is very fortunate that the low cost Lagrangian drifter equipped with a barometer port meets requirements set down by both Oceanographic/Research and Meteorological/Operational communities. Hence the Panel urged DBCP participants, and all others involved in drifting buoy programmes, to look as much as possible for opportunities of co-operation at the national level between oceanographers and meteorologists. To facilitate this co-operation, the Panel requested the technical co-ordinator and the Secretariats to circulate to NFPs the full list of current drifting buoy programmes, both operational and research, together with their PIs or other relevant contact information.

6.4.2 The technical co-ordinator estimated that significant benefits could be gained on both sides for the same cost if both communities would create common programmes. Such common programmes could well be incorporated into the GOOS and GCOS structures. In the context of such a co-operation, the Panel requested its chairman to put forward the question of discussing a special Argos tariff rate for those drifting buoy programmes authorizing GTS distribution, to the thirteenth session on the Joint Tariff Agreement (Athens, 25-27 October 1993).

6.4.3 As a means of helping to publicize the low cost barometer drifter developments, the Panel requested the technical co-ordinator and the Secretariats to include a report on the topic in its 1993 Annual Report.

6.5 Formation of other action groups (agenda item 6.5)

South-west Indian Ocean project

6.5.1 The Panel noted that, although no major activity on this project had taken place since DBCP-VIII, nevertheless funds were now available to implement the project and a Project Manager (Mr. Y. Valadon) has been appointed, with an office in La Reunion. Mr. Valadon had recently indicated that the buoy component of the overall project (designed to improve tropical cyclone analysis and forecasting in the region) might be implemented initially as a pilot project, to assess the impact and value of drifting buoy atmospheric pressure reports to tropical cyclone analyses during the course of one tropical cyclone season, perhaps 1994/1995. Mr. Valadon had further, informally, requested the Panel to consider assisting the project to define such a pilot project, including hardware, deployment strategy, communications, etc. The Panel agreed that it could indeed continue to provide assistance in this way, and therefore requested its chairman, in co-operation with Mr. F. Gerard (Meteo-France) to liaise directly with Mr. Valadon, with a view to establishing exact requirements and constraints and, eventually, to arranging for the preparation of the required pilot project plan.

International Programme for Antarctic Buoys (IPAB)

6.5.2 A first planning meeting for an IPAB had taken place in Hobart (Australia) in April 1993, in which the DBCP chairman had participated. This meeting had agreed to establish such a programme, as a research activity under the WCRP, beginning with a pilot phase in April 1993. Data from IPAB buoys will be distributed on the GTS and archived by MEDS, and in this context it is likely that IPAB will require some continuing assistance from the DBCP, although it is unlikely that the IPAB will become operational, and therefore move to be a DBCP action group, in the near future. In this context, the Panel therefore requested its chairman to participate in the next IPAB planning meeting (tentatively June 1994), if invited to do so. It also requested the WMO Secretariat representative to endeavour to include a liaison visit to the pilot programme co-ordinator, Dr. I. Allison, in Hobart, during his mission to Australia in January 1994, with a view to determining what operational assistance might be welcome by the project during its initial stages.

International South Atlantic Buoy Programme (ISABP)

6.5.3 The Panel noted with appreciation that, as a result of its proposal at DBCP-VIII, a first planning meeting for an ISABP was scheduled to take place in Buenos Aires, Argentina, from 13 to 15 December 1993, hosted by the Argentinian National Meteorological Service and co-sponsored by the DBCP and GCOS. It was expected that participants from a number of countries with South Atlantic interests would attend the meeting, including several from interested organizations and agencies in Argentina, Uruguay and Brazil, while the chairman and a WMO Secretariat representative would take part on behalf of the Panel.

6.5.4 The Panel further noted the request from the Permanent Representative of Argentina with WMO, Comodoro S. Alaimo, that consideration be given to the provision of English-Spanish interpretation for the meeting, with a view to facilitating the participation of local Spanish-speaking experts. During the course of a lively debate on this topic, the following points were made:

- The provision of English-Spanish interpretation at the first planning meeting would certainly facilitate local participation and was thus likely, on balance, to help in the establishment of an eventual ISABP;
- The Panel's rules of procedure state clearly that its work shall be in English only, although there are precedents for some limited activities being undertaken in other languages (e.g. certain contractual documents in French);
- The Panel's funds are very limited, and are intended primarily to support the work of the technical co-ordinator. At the same time, however, certain "contingency" funds are now available in the Panel budget, with the chairman being authorized to allocate these, as appropriate, to activities within the Panel's work programme and/or terms of reference. At the present time, there are sufficient funds available to support the quoted estimated cost of the interpretation for the meeting (US\$ 2124 for equipment and US\$ 2000 for interpreters);
- The planned meeting is a Panel initiative, and fully within the Panel's terms of reference. On the other hand, as a matter of principle and following the examples of EGOS and the IABP, any future ISABP should be entirely self-supporting, apart from possible technical and limited Secretariat assistance. Thus, future activities agreed at the first planning meeting, including any future interpretation requirements of this type, would necessarily be the responsibility entirely of the participants themselves.

6.5.5 After carefully balancing these considerations, the Panel agreed to accede to this request, at the same time indicating clearly that this agreement should be regarded as one-off support only, and should definitely not set a precedent for the future. It reiterated that its work should continue to be conducted in English and that, in general, its very limited funds should not be used for this type of activity. The Panel also requested its chairman to investigate with the JPO for GCOS whether GCOS, as a co-sponsor, might be able to assist in the provision of the agreed interpretation facilities for the meeting.

6.5.6 Finally on this topic, the Panel noted the importance of the meeting being presented with clear statements of requirements for buoy data from the South Atlantic to support GCOS and the WWW. It requested the Secretariats to ensure the preparation of this documentation, in co-operation with GCOS.

6.6 Other co-ordination activities (agenda item 6.6)

6.6.1 The Panel noted with interest a tentative proposal from EGOS that it might consider organizing, perhaps in conjunction with some future Panel session, a technical seminar on buoy technology, operations and related matters. It was agreed that there was no pressing need for such a seminar at the present time, but that it should review requirements at future Panel sessions.

6.6.2 The Panel agreed that the list of National Focal Points for drifting buoys had provided a valuable set of national contact points for Panel-related activities in the past. It therefore agreed that, in view of the change in terms of reference of the DBCP, this list should be updated so as to cover moored buoys and all other aspects of Panel activities. The Secretariats were therefore requested to undertake this updating, with the suggestion that in future the NFPs should be formally designated as DBCP national contact points.

6.6.3 With regard to the newly-established list of National Focal Points for Logistic Support, the Panel requested the Secretariats to try once more to expand the existing list, in view of its potential value, and report on the matter to DBCP-X.

6.6.4 The Panel recalled that, at DBCP-VIII, it had identified an action item for its technical co-ordinator and certain Panel members to endeavour to develop a summary compilation and assessment of new developments in communications technology and facilities, relevant to the collection of sensor and location data from buoys. Unfortunately, due to pressure of other activities, this work could not be undertaken during the past intersessional period. The Panel nevertheless regarded this as an important issue for the immediate future. It therefore requested its vice-chairman to co-ordinate a small expert group (to include the technical co-ordinator), to prepare a report on this topic for the consideration of DBCP-X.

6.6.5 The Panel noted the potential value to its own work, in co-ordinating and expanding buoy deployments, of having available documented assessments of the value of data from drifting and moored buoys in support of WWW, GCOS and GOOS, as well as other major programmes. It therefore requested the technical co-ordinator to compile a compendium of such assessments, for publication in summary form in the Annual Report.

6.6.6 The Panel noted with interest the initial contact which had been established between the technical co-ordinator and the Central Design Office of Hydrometeorological Instrument Production, Obninsk, Russian Federation, on the development of low-cost drifters. The Panel regarded such contact as potentially useful, and therefore requested the technical co-ordinator to continue passing on to the Russian centre technical information on the low-cost drifter published by Scripps, as well as relevant manufacturer contacts. The Panel also encouraged Member States to assist the Russian centre, through the technical co-ordinator, since it was agreed that these contacts may eventually lead to the production in Russia of a Lagrangian pressure drifter, of acceptable quality, at even lower cost than now.

7. **PUBLICATIONS** (agenda item 7)

Annual Report

7.1 The Panel agreed that the 1993 Annual Report should have the same basic format as in previous years. It noted that this year's report would be produced by IOC and that the cut-off date for contributions of whatever nature will be 15 November 1993. The Panel encouraged inclusion of reports on technical developments in the Annual Report and noted that the technical co-ordinator would provide an article on low-cost meteorological-oceanographic drifters. Some other items were already included within the US national report and might well be expanded a little to give some more substantial input in the Annual Report.

Guide to moored buoys

7.2 The Panel noted with appreciation that the French translation of the Guide was currently under way and might be available in early 1994. It requested the Secretariats to check the status of the Spanish translation.

Brochure on DBCP

7.3 The Panel recalled it had, at its eighth session, requested the chairman, in collaboration with the Secretariats, to make a cost-benefit study for such a brochure. For various reasons, it had not proved possible to undertake such a study during the past intersessional period. The Panel decided that the topic should, for the foreseeable future, be kept in mind, but not given a very high priority, especially in consideration of the next document (see paragraph 7.4).

Reference Guide on the new GTS processing system

7.4 The Panel considered the Reference Guide was worthy of publication under an appropriate cover by the Secretariats (see agenda item 6.3 above). It requested its chairman to provide for a one-two page preface/foreword to introduce the Panel and its activities, thereby achieving more or less what the afore-mentioned Brochure was expected to do.

Guide to Data Collection and Location Services Using Service Argos (WMO Report on Marine Meteorology and Related Oceanographic Activities No. 10)

7.5 The Panel considered the Guide had definitely to be updated, since the part dealing with GTS transmission of data was *de facto* out of date and the others required review since they were more than 5 years old. It therefore accepted the kind offer of Mr. R. Kozak (USA) to prepare a revised version of the Guide, in co-operation with the technical co-ordinator and the Secretariats, for review by DBCP-X.

8. REVIEW OF THE PANEL'S OPERATING PROCEDURES AND OF THE TECHNICAL CO-ORDINATOR'S TASKS (agenda item 8)

8.1 The Panel first reviewed its operating procedures as prepared at its previous session, to incorporate its change of name and terms of reference. It did not see any need to amend them and therefore decided to retain them for the next intersessional period. The Panel's operating procedures are reproduced in Annex XIV.

8.2 The Panel next reviewed its workplan as adopted at its eighth session. In the light of discussions under previous agenda items, of achievements during the past intersessional period and of future expected developments, it decided to modify some items listed in the workplan and to introduce a few new ones that would, *inter alia*, take care of its duties regarding the Panel's action groups, as well as other bodies engaged in data buoy activities. The revised workplan is given in Annex XV.

8.3 Finally on this item, the Panel authorized its chairman to offer the services of the technical co-ordinator, to act as project technical co-ordinator during the initial stages of formation of the ISABP, if this was desired by participants in the first planning meeting.

9. ELECTION OF THE CHAIRMAN AND THE VICE-CHAIRMAN OF THE PANEL (agenda item 9)

9.1 The Panel unanimously re-elected Mr. D. Painting and Mr. M. Szabados as its chairman and vice-chairman, respectively, for the coming intersessional period.

10. DATE AND PLACE OF THE NEXT SESSION (agenda item 10)

10.1 The Panel was informed that, due to the date at which the IOC Executive Council was to be held in 1994 (19-29 October), it had to meet later than usual, if it was to benefit from the assistance of the IOC Secretariat. Subject to agreement by the Thirteenth Meeting of Argos Joint Tariff Agreement, the Panel decided to hold its tenth session from 1 to 4 November 1994.

10.2 Subject to agreement by JTA-XIII, the Panel accepted with appreciation the kind offer by the USA to host the tenth session of the DBCP in the USA in La Jolla, California.

11. CLOSURE OF THE SESSION (agenda item 11)

11.1 In closing the session, the Panel chairman expressed his thanks to participants for the excellent discussions and results achieved, which clearly demonstrated the continuing success of the Panel and its activities. He also thanked the Hellenic National Meteorological

Service, and in particular its representative at the session, Mr. George Kassimidis, for the excellent facilities and support provided to the Panel, both at the session and in all its work throughout the year. The chairman finally expressed his thanks to the Secretariats for their continuing support to the Panel and Panel members.

11.2 The ninth session of the Data Buoy Co-operation Panel closed at 12.15, on Friday, 22 October 1993.

(This page left intentionally blank.)

LIST OF PARTICIPANTS

1. PARTICIPANTS FROM MEMBER STATES

AUSTRALIA

Mr. G. Brough
Bureau of Meteorology
G.P.O. Box 1289K
MELBOURNE, Vic. 3001
Australia
Tel.: +613 669 4163
Telex: AA 304 34
Fax: +613 669 4168

CANADA

Dr. D. O'Neill
Regional Director General
Atmospheric Environment Service
1496 Bedford Highway
BEDFORD, Nova Scotia B4A 1E5
Canada
Tel.: +1 902 426 9120
Fax: +1 902 426 9158
Tmail: D.ONEILL.AES (OMNET)

FRANCE

Mr. P. Blouch
Centre de meteorologie marine
(CMM)
c/o IFREMER
B.P. 70
29280 PLOUZANE Cedex
France
Tel.: +33 98 22 44 54
Tlx: 940 627 F
Fax: +33 98 22 45 36
Tmail: J.ANDRE (OMNET)

Mr. F. Gerard
METEO-FRANCE, MN/CMG
1, quai Branly
75340 PARIS Cedex 07
France
Tel.: +33 1 46 04 91 51
Fax: +33 1 45 56 70 05

GREECE

Mr. G. Kassimidis
Hellenic National Meteorological
Service
P.O. Box 73502
GR 16603 Hellinikon Athens Hellas
Greece
Tel.: 01 76 21 116
Fax: 01 96 28 952
Tlx: 215105

Mr. A. Theocharis
National Centre for Marine
Research
Aghios Kosmas
Helliniko 16604
Greece
Tel.: + 1 9815703

ICELAND

Mr. F.H. Sigurdsson
Chief, Division of
Instruments and Observations
Icelandic Meteorological Office
Bustadavegur 9
150 REYKJAVIK
Iceland
Tel.: + 354 1 600600
Telex: 3000 SIMTEX IS METEO
Fax: + 354 1 28121

NETHERLANDS

Mr. A.F.T. Grooters
Royal Netherlands Meteorological
Institute
P.O. Box 201
3730 AE DE BILT
The Netherlands
Tel.: + 31 30 206 691
Fax: + 31 30 210 407
Telex: 47 096 KNMI NL

UNITED KINGDOM

Mr. D. Painting
Meteorological Office
Beaufort Park
Easthampstead
WOKINGHAM, Berkshire RG11 3DN
United Kingdom
Tel.: + 44 344 85 56 00
Telex: 849801 WEABKG G
Fax: + 44 344 85 58 97
Tmail: UKMO.BPARK (OMNET)

**UNITED STATES
OF AMERICA**

Mr. M.W. Szabados
Oceanographer
Observing Networks Branch-N/OES42
NOAA National Ocean Service
1315 East-West Highway
Silver Spring, MD 20910
USA

Tel.: +1 301 713 2790
Fax: +1 301 713 4499
Tmail: M.SZABADOS (OMNET)

Mr. T.E. Bryan
Argos JTA Programme Manager
NOAA Office of Global Programmes
Suite 1225
1100 Wayne Avenue
SILVER SPRING, MD 20910-5603
USA

Tel.: +1 301 427 2089
ext. 702
Fax: +1 301 427 2073
Tmail: T.BRYAN (OMNET)

Mr. R. Kozak
Drifting Buoy Programme Manager
Programme Management Division
W/DB4
NOAA National Data Buoy Centre
Stennis Space Centre
SSC, MS 39529-6000
USA

Tel.: +1 601 688 1711
Fax: +1 601 688 3153
Tmail: NDBC.CENTER

2. REPRESENTATIVES AND OBSERVERS OF ORGANIZATIONS AND PROGRAMMES

CLS/Service Argos

Mr. M. Taillade
Director-General
CLS/Service Argos
18, avenue E. Belin
F-31055 Toulouse Cedex
Tel.: +33 61 39 47 20
Fax: +33 61 75 10 14

**Data Buoy
Co-operation Panel
(DBCP)**

**Mr. D. Painting
Chairman of the DBCP
Meteorological Office
Beaufort Park
Easthampstead
WOKINGHAM, Berkshire RG11 3DN
United Kingdom
Tel.: +44 344 85 56 00
Telex: 849801 WEABKG G
Fax: +44 344 85 58 97
Tmail: UKMO.BPARK (OMNET)**

**Mr. M.W. Szabados
Vice-chairman of the DBCP
Observing Networks Branch-N/OES42
NOAA National Ocean Service
1315 East-West Highway
Silver Spring, MD 20910
USA
Tel.: +1 301 713 2790
Fax: +1 301 713 4499
Tmail: M.SZABADOS (OMNET)**

**Mr. E. Charpentier
Technical co-ordinator of the DBCP
c/o Service Argos
18, avenue E. Belin
F-31055 TOULOUSE
Tel.: +33 61 39 47 82
Fax: +33 61 75 10 14
Tmail: DBCP.TC (OMNET)**

**European Group on
Ocean Stations
(EGOS)**

**Mr. F.H. Sigurdsson
Vice-chairman of
EGOS Management Committee
Icelandic Meteorological Office
Bustadavegur 9
150 REYKJAVIK
Iceland
Tel.: + 354 1 600600
Telex: 3000 SIMTEX IS METEO
Fax: +354 1 28121**

Scientific Committee on
Antarctic Research (SCAR)

Mr. P. LeRoux
South African Weather Service
Private Bag X97
PRETORIA 0001
South Africa
Tel.: 012 290 2998
Tlx.: 322 770
Fax: 012 290 2170
Tmail: P.LEROUX (OMNET)

Service Argos Inc.

Mr. A. Shaw
President, Service Argos Inc.
1801 McCormick Drive, Suite 10
LANDOVER, MD 20785
USA
Tel.: + 1 301 925 4411
Fax: +1 301 925 8995
Tmail: A.SHAW (Omnet)

3. **SECRETARIATS**

WORLD METEOROLOGICAL
ORGANIZATION

Dr. P.E. Dexter
Chief, Ocean Affairs Division
World Weather Watch Department
WMO
Case Postale No. 2300
CH-1211 GENEVA 2
Switzerland
Tel.: 41 22 730 8237
Tlx.: 23 260 OMM CH
Fax: 41 22 734 09 54
Tmail: P.DEXTER (Omnet)

INTERGOVERNMENTAL
OCEANOGRAPHIC
COMMISSION

Mr. Y. Treglos
Assistant Secretary, IOC
UNESCO
1, rue Miollis
F-75732 PARIS Cedex 15
France
Tel.: + 33 1 45 68 39 76
Tlx.: 204461 PARIS
Fax: + 33 1 40 56 93 16
Tmail: IOC.SECRETARIAT
(Omnet)

(This page left intentionally blank.)

AGENDA

- 1. ORGANIZATION OF THE SESSION**
 - 1.1 Opening of the session
 - 1.2 Adoption of the agenda
 - 1.3 Working arrangements
- 2. REPORTS**
 - 2.1 Report by the chairman of the Data Buoy Co-operation Panel
 - 2.2 Report by the technical co-ordinator
 - 2.3 Report by the Secretariats
 - 2.4 Reports by the action groups of the Panel
- 3. FINANCIAL AND ADMINISTRATIVE MATTERS**
 - 3.1 Financial situation
 - 3.2 Review of contracts
 - 3.3 Employment status of the technical co-ordinator and commitments for future funding
- 4. RELATIONSHIP WITH INTERNATIONAL PROGRAMMES/ORGANIZATIONS**
 - 4.1 World Climate Research Programme (WCRP)
 - 4.2 World Weather Watch (WWW)
 - 4.3 Integrated Global Ocean Services System (IGOSS) and International Oceanographic Data and Information Exchange (IODE)
 - 4.4 Global Ocean-Observing System (GOOS) and Global Climate Observing System (GCOS)
- 5. REPORT ON CURRENT AND PLANNED DATA BUOY PROGRAMMES**
- 6. CO-ORDINATION ACTIVITIES**
 - 6.1 Quality control of buoy data
 - 6.2 Code matters
 - 6.3 New Argos GTS processing sub-system
 - 6.4 Combined meteorological/oceanographic drifting buoys
 - 6.5 Formation of other action groups
 - 6.6 Other co-ordination activities
- 7. PUBLICATIONS**
- 8. REVIEW OF THE PANEL'S OPERATING PROCEDURES AND OF THE TECHNICAL CO-ORDINATOR'S TASKS**

9. ELECTION OF THE CHAIRMAN AND THE VICE-CHAIRMAN OF THE PANEL

10. DATE AND PLACE OF THE NEXT SESSION

11. CLOSURE OF THE SESSION

REPORT OF THE TECHNICAL CO-ORDINATOR

1. Introduction

This report covers the period 1 October 1992 to 30 September 1993. For the period 1 October 1992 to 31 May 1993, the Technical Co-ordinator (TC) of the Data Buoy Co-operation Panel (DBCP) was based in Landover at Service Argos Inc. (SAI), and was employed by the University Corporation for Atmospheric Research (UCAR). For the period 1 June 1993 to 30 September 1993, he was based in Toulouse at CLS, Service Argos, and was employed by United Nations Educational, Scientific and Cultural Organization (UNESCO). The time the TC DBCP spent on his tasks could be estimated as following:

Topic	days	%
New GTS Sub-System (travel excepted):	55	21.1
Monitoring, Quality Control, Bulletin board :	45	17.3
User assistance :	35	13.5
Vacation :	28	10.8
Travel, Missions (+prepare):	20	7.7
Combined Oceano-Meteo drifting buoys:	15	5.8
Anemo. Heights, misc. rationalization	13	5.0
TC monthly report, stats., regular letters (e.g. WMO list) :	12	4.6
Requests for GTS :	10	3.8
GOOS (status report, questionnaire)	5	1.9
Miscellaneous DBCP	5	1.9
Departure USA	5	1.9
Arrival France	5	1.9
Quarterly report :	4	1.5
Argos monthly report :	3	1.1
	-----	-----
Total (52 weeks) :	260	100%

The following paragraphs describe in detail the various activities of the TC DBCP during the period.

2. Missions, Visits, Meetings

2.1. 13 October 1992, Informal Workshop on SVP drifters equipped with barometer ports, at UNESCO, Paris.

2.2. 14-17 October 1992, UNESCO, Paris, Eighth session of the Drifting Buoy Cooperation Panel.

2.3. 19-21 October 1992, UNESCO, Paris, Twelfth session of the Joint Tariff Agreement (JTA).

2.4. 22 October to 9 November 1992: Vacation.

2.5. 4-6 May 1993, Joint DBCP-SVP (global Surface Velocity Program) workshop on SVP drifters equipped with barometer ports, La Jolla.

2.6. 8-31 May 1993: Vacation.

2.7. 8-10 June 1993: Third session of the International Arctic Buoy Program, Toulouse.

3. Monitoring

Below are detailed the different monitoring activities that the TC DBCP undertook during this intercessional period:

3.1. To check the BUOY.QC bulletin board on Omnet, and to read status change proposals as stated by Principal Meteorological or Oceanographic Centres responsible for drifting buoy data quality control (PMOC). For rationalization purposes, all the proposals are stored and archived in a data base.

3.2. After normally waiting 7 days for each proposal, the TC DBCP contacts the Principal GTS Coordinator (PGC), and then suggests him to implement the proposed change. The PGC should normally contact Service Argos and/or Local User Terminal (LUT) operators and request implementation of the proposed change. In case the PGC disagrees, the TC DBCP immediately deposits a denial message on the bulletin board.

3.3. To check Argos files and/or GTS data in order to ascertain whether suggested modifications have actually been implemented or not.

3.4. Possibly to deposit feed back information on the bulletin board on behalf of Service Argos for sensors actually recalibrated.

3.5. Before the implementation of the new Argos GTS data processing system, I checked, on a bi-weekly basis, for bad "User limits" introduced in the Argos system, in order to automatically remove certain bad sensor data from GTS. Since the 17 February 1993, this operation is no more necessary.

3.6. To resolve specific problems related to GTS for given buoys, such as looking carefully at the data and the transfer functions. For example, I could be investigating why delays are too important, or find why only a few messages are received at Meteorological Centers...

3.7. To update TC files: list of the operational platforms and programs (on GTS or not), new programs, WMO numbers, ECMWF statistics...

3.8. It was noticed that many image positions were distributed on GTS. Argos guarantees that less than 1% of the computed locations are image positions. For all DRIFTER messages received from the GTS in October 1992, it appeared that the number of image positions detected was in the order of 50 messages for a total of 70000 messages distributed. The ratio (0.07%) is therefore well within Argos specifications.

3.9. The National Data Buoy Center (NDBC) noticed that for certain TOGA buoys deployed in the Southern Ocean, no Argos location was computed for

certain days. Hence even though Argos messages were received and contained valuable data, no message was distributed on GTS for these days. The most likely cause seems to be unstable oscillator installed onboard the buoys.

It also appeared that by relaxing certain Argos quality control criteria good location fixes could be obtained with an accuracy in the order of 10 km, which is quite acceptable for meteorological purposes, but this would also increase the probability to have an image position.

CLS, Service Argos recognized that there was here a real requirement which could be easily implemented in conjunction with the new location algorithms due for the end of 1993.

In the mean time, the New GTS sub-system is allowed to make use of older location fixes (up to 48 hours) knowing that a drifting buoy could hardly move of more than 10 km in such a period.

4. User assistance

As usual, the TC DBCP answered specific questions and resolved specific problems as needed or requested by users.

4.1. Principal Investigators (PI):

4.1.1. In order to facilitate GTS distribution of certain buoys, the TC DBCP obtained WMO numbers on behalf of Principal Investigators, and studied in detail Argos message formats and transfer functions of the platforms and their sensors.

4.1.2. At several occasions, PIs requested the TC DBCP to look at specific problems regarding one of their buoys.

4.2. Local User Terminals: From time to time, LUT operators asked the TC DBCP to provide them with the transfer functions used with specific platforms so that they can also report to the GTS via their LUT.

4.3. Meteorological Centers contacted the TC DBCP when they needed information on given platforms drifting in an area which they are interested in.

4.4. Directly or through the BUOY.QC bulletin board, the TC DBCP acted as a focal point between the Meteorological Centres and the Principal Investigators when a specific action was needed on a buoy reporting to the GTS (e.g. remove the data from the GTS, recalibrate a sensor...).

4.5. Investigate various data loss problems (e.g. at the implementation of the new GTS system). See also paragraph 3.9.

5. Drifting Buoy Quarterly Report

Unfortunately, errors were included in the April 1992 version of the report: some of the indicated "Last positions" were bad. A problem was found in the automatic application generating the report, and was fixed for the following issues. No problem has been reported later.

6. Global Telecommunication System (GTS)

6.1. Status for drifting buoys reporting onto the GTS:

In July 1991, 718 buoys were operational, 264 of these reporting on GTS (i.e. 36.8%).

In July 1992, 1162 buoys were operational, 474 of these reporting on GTS (i.e. 40.8%).

In early August 1993, 1269 buoys were operational, 548 of these reporting on GTS (i.e. 43.2%).

Thanks mostly to the implementation of the World Ocean Circulation Experiment (WOCE) and the Tropical Ocean and Global Atmosphere program (TOGA) this number continued to increase.

DBCP action groups such as the European Group on Ocean Stations (EGOS) for the North Atlantic, and the International Arctic Buoy Program (IABP) also permit GTS distribution of a substantial amount of Air Pressure data.

A Status on Buoys reporting to the GTS using DRIFTER code and received at Météo-France, valid for the period 23 August 1993 to 29 August 1993 has also been produced. Data from 573 different buoys were received during that period at Météo-France. The maps on figures 6.1.1 to 6.1.8 show the positions of the drifting buoys that reported data on GTS during that period (at least once) and the positions of these reporting certain variables (Air Temperature, Air Pressure, Air Pressure Tendency, Sea Surface Temperature and Wind).

The following ocean areas are now well covered:

- 1- North Atlantic Ocean (Air Pressure, EGOS, USA, Canada)
- 2- Equatorial Pacific Ocean (ATLAS buoys, TOGA)
- 3- North East Pacific Ocean (Air Pressure, Canada)
- 4- Arctic Ocean (Air Pressure, IABP)
- 5- Pacific Ocean (SST, WOCE)

The Southern Ocean is seeded with a few TOGA buoys measuring Air Pressure. The number of buoys deployed is however probably insufficient.

Considering the fact that practically no other source of in situ data than buoys is available from these area, it seems particularly important to put emphasis upon the following ocean area:

- 1- Indian Ocean
- 2- Equatorial and South Atlantic Ocean

-3- Pacific Ocean excluding Equatorial and North East Pacific Ocean (Air Pressure).

From the same set of data, I could also estimate, for each LUT source, the delays taken for the observations to reach the users, i.e. Receive time at Météo-France minus Observation Time:

LUT	Nb. of Obs.	Median(Min.)	Average(Min.)	% in 2 hours or less
KWBC	1016	108	123	64 (i.e. 650 obs.)
ENMI	393	59	82	79 (i.e. 312 obs.)
BGSF	808	20	21	100 (i.e. 808 obs.)
CWEG	586	20	21	100 (i.e. 586 obs.)
KARS	12042	124	169	48 (i.e. 5780 obs.)
LFPW	6174	102	133	56 (i.e. 3457 obs.)

The LUT column corresponds to the following processing centers or LUTs:

BGSF: the Sondre Stromfjord LUT;

CWEG: the Edmonton LUT;

ENMI: the Oslo LUT;

KARS: the US Argos Global Processing Center (USGPC), Landover;

LFPW: the French Argos Global Processing Center (FRGPC), Toulouse, and the Centre de Météorologie Marine (CMM, via the FRGPC), Brest;

KWBC: the National Data Buoy Center (NDBC), Mississippi, and the Navy/NOAA Joint Ice Center (JIC), Washington DC, via the USGPC, Landover.

The following information must be considered:

BGSF (Sondre Stromfjord) and CWEG (Edmonton) show very good delays because (1) they only process stations in direct visibility (via the satellite), and (2) they do not process the synoptic times or other kind of data stored on-board the buoy.

ENMI (Oslo) processes buoys in direct visibility only but considers synoptic times. A substantial proportion of the data is already old at the time of PTT transmission. Hence delays are not as good as with BGSF or CWEG.

KARS (Landover), LFPW (Toulouse, Brest), and KWBC (NDBC, JIC) do process the direct visibility data (local) and show similar delays for this sub-set of data than BGSF or CWEG. However orbital delays are added for the global data which are here processed. In addition many stations encode synoptic data in the Argos message as well as the previous hours data. This also adds substantial delays for the considered sub-set of data (time between observation time and PTT transmission time). This is particularly true for the ATLAS moored buoys making regular observations at 00h00 UTC and therefore increasing the delays for KARS. The number of observations

reaching the users in less than 2 hours remains however very high for the Argos centers.

6.2. GTS bulletin headers:

All Local User Terminal sources now comply with WMO regulations regarding GTS bulletin headers. An updated list of GTS bulletin headers used for drifting buoys was published in the monthly letter on the operation of the World Weather Watch (WWW) and Marine Meteorological Services (MMS) of January 1993.

See annex 6.2 for a complete list of GTS bulletin headers used to date.

6.3. Quality Control.

The work of the TC DBCP concerning Drifting Buoy data Quality Control was related to the following topics:

- Actually monitor the bulletin board, and contact PGCs accordingly.

While the Technical Coordinator was in mission or in vacation the following PMOCs could replace him very effectively on a rotating basis:

- The Centre de Météorologie Marine (CMM), Brest.
- The Ocean Products Center (OPC).
- The National Data Buoy Center (NDBC).

See the annex regarding Quality Control for details.

6.4. Non-standard wind sensor heights:

A list of drifting buoys making wind measurements and reporting on GTS using the DRIFTER code was published in the WWW Operational Newsletter of May 1993. This list is kept up to date by the Technical Coordinator and can be issued regularly. The list includes the WMO and Argos ID numbers, the height of the anemometers and whether or not a correction to 10 meters is applied.

6.5. Non-standard air pressure measurements for stations in altitude.

Similarly, a list of fixed stations reporting Air Pressure data at station level using the DRIFTER code was also published in the WWW Operational Newsletter of May 1993. This list includes the WMO, and Argos ID numbers, the Position and Altitude of the stations and whether or not Air Pressure is reduced to sea level.

6.6. Thanks to the facilities offered by the new Argos GTS sub-system, it is now possible to make land stations report in SYNOP code, and ships report in either SHIP, BATHY or TESAC codes. I started an action to convince principal investigators operating such platforms to make them report using the adequate code form instead of the present DRIFTER code. For various reasons, this process might however take time (e.g. declare land stations via WMO, implement new GTS bulletin headers, etc..).

7. Combined Meteorological and Oceanographic Drifting Buoys

The work of the Technical Coordinator concerning combined Meteorological and Oceanographic Drifting Buoys is mostly related to the following topics:

- Follow the development and tests on an air pressure port being mounted on SVP drifters. These are being operated by the Global Drifter Center at Scripps Institution of Oceanography, La Jolla, California.
- Liaise with Principal Investigators of Meteorological Services participating in the field-test of SVP drifters equipped with barometers (Atmospheric Environment Service (AES), Bureau Of Meteorology (BOM), United Kingdom Meteorological Office (UKMO), Centre de Météorologie Marine (CMM) of Météo-France).
- Attend DBCP-SVP workshop on the subject.
- Compute Orbitography simulations for various possible duty cycles.
- Re-Process raw data and submit these to the UKMO and CMM for computing consistent monitoring statistics.

See the annex regarding Combined Meteorological/Oceanographic Drifting Buoys for details.

8 New Argos GTS Sub-System

The work of the Technical Coordinator concerning the New Argos GTS Sub-System is mostly related to the following topics:

Phase 1:

- Review and make amendments to the GTS Manager User's guide.
- Finalize the development and tests of the following GTS code forms: SYNOP, SHIP, HYDRA, BATHY, TESAC. A complete documentation has been written too.
- Run simulations and test on the actual new system (in test mode). Track bugs and propose solutions.
- Monitor operational implementation of phase 1 (mid February 1993). Look for possible problems. Monitor data flow. Propose solutions to data loss problem.
- Monitor closely the operational system.
- Define and implement in the new system platforms with complicated formats (e.g. BODEGA, EGOS, Land stations).
- Write a Troubleshooting Guide.
- Modify the routines for the DRIFTER code in order to consider the new interpretation of the HL field.

Phase 2:

- Liaise with Service Argos and Digital Equipment Corporation (DEC), France, and answer specific questions raised during the development of the system.
- Attend project review meetings with CLS and DEC (teleconferences).
- Review specifications for phase 2.
- Review and make amendments to the GTS Manager User's guide.

- Modify and create new "help" screens for the GTS Manager.
- Prepare a serie of tests to validate phase 2.
- Draft a "Reference Guide".
- Run simulations and test on the actual new system (in test mode). Track bugs and propose solutions.
- Monitor operational implementation of phase 2 (mid September 1993). Look for possible problems. Monitor data flow.
- Monitor closely the operational system.
- Develop and test specific modules for the ATLAS buoys.
- Define and implement in the new system the ATLAS buoys.
- Monitor closely the ATLAS buoys.

See the annex regarding the New Argos GTS Sub-System for details.

10. TC statistics

10.1. Using Argos files and data provided by LUT operators, I computed on a monthly basis, by country and by organization, graphs showing the distribution of GTS and non-GTS drifting buoys. It is particularly useful to see the evolution of the total number of drifting buoys deployed by the various countries involved, and the percentage of these reporting to the GTS. See figures 10.1.1 and 10.1.2.

10.2. I Computed on a monthly basis, the graph showing the distribution of the RMS (of Observation minus First Guess Field) of Air Pressure data according to ECMWF monthly monitoring statistics. This graph, which uses 6 months of data, gives a good estimate of the quality of the drifting buoy Air Pressure data. The graph is included in the TC monthly report. See figure 10.2.

10.3. I Computed the graphs showing the distribution of life times of Air Pressure measurements, using the ECMWF monthly monitoring statistics. See figure 10.3.

10.4. I Produced a status on drifting buoys actually reporting onto the GTS in August 1992 (see paragraph 6.1, and figures 6.1.1 to 6.1.8).

11. Miscellaneous

11.1. I checked the Quarterly Report on Drifting Buoy and gave approval before CLS could send it to WMO and IOC.

11.2. I assisted CLS in preparing the Argos monthly status report to WMO.

11.3. I updated my files on a PC, using a data base management system (Paradox) and getting the data from Argos files, and various status reports. I kept up to date an history file on each Argos drifting buoy programme (contacts with PIs, PI authorizing GTS distribution, information on types of sensor installed, etc...).

11.4. I issued, on a monthly basis, the WMO/Argos cross reference list, and sent it to various Meteorological Centers. I send a floppy disk containing the list to the MEDS, Canada. The list also includes the WMO numbers managed by the Oslo and Edmonton Local User Terminals (LUT) and indicates for each WMO number, the Argos number, the drifting buoy owner, and the dates the WMO numbers have been introduced and removed from the system (Argos or LUT). Attached to it is also included the list of Principal GTS Coordinators (PGC) designated by Principal Investigators for asking Service Argos to implement status changes on buoys reporting onto the GTS.

11.5. I provided the South African* Weather Bureau (SAWB) and the European Group on Ocean Stations (EGOS) technical secretariat with ECMWF statistics, or graphs regarding their respective buoys.

11.6. I provided the Chairman of the DBCP as well as the WMO and IOC Secretariats with my bi-monthly report.

11.7. I provided the IOC secretariat with documents and graphs for inclusion in the GOOS status report for 1992.

11.8. I provided Dr. N. Flemming (IOS, UK) with comments regarding "The case for GOOS" document.

11.9. On behalf of the DBCP, I provided Dr. James Baker (JOI, USA) with an answer regarding the "Questionnaire on Enabling Technologies for a Global Ocean Observing System".

11.10. I provided users with documentation or status reports concerning specific programs or experiments; I answered specific questions regarding the Argos System.

11.11. I prepared the various missions or meetings I had to attend.

11.12. I prepared specific documents and the TC report for the DBCP IX session:

- Report of the Technical Coordinator
- Report on drifting buoy data Quality Control
- Report on Combined Meteorological/Oceanographic Drifting Buoys.
- Report on the New Argos GTS Sub-System.

* The Government of the Republic of South Africa has been suspended by Resolutions 38 (Cg-VII) and 2/74/4 (Twentieth Session of the General Conference of Unesco) from exercising its rights and enjoying its privileges as a Member of WMO and Member State of IOC, respectively.

Figure 6.1. Status on Operational GTS buoys received at Météo-France during the period 23 August 1993 to 29 August 1993

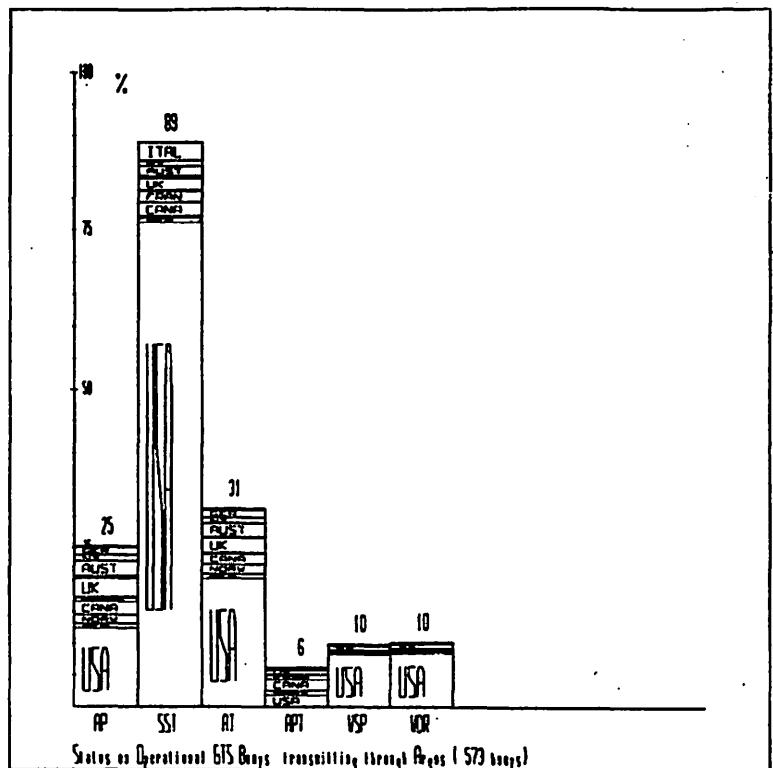


Figure 6.1.1. Distribution by country and by variable

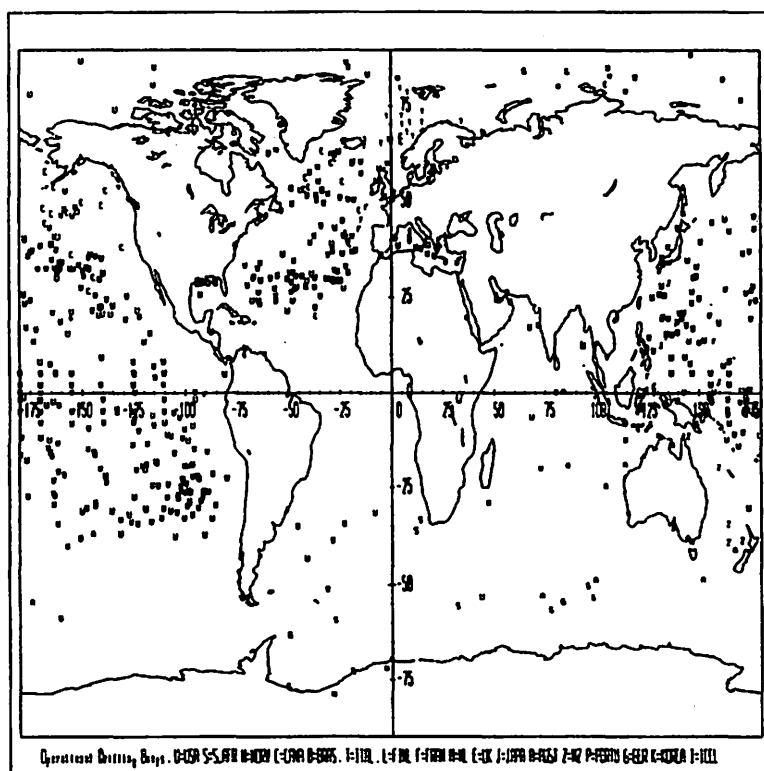


Figure 6.1.2. Positions by country

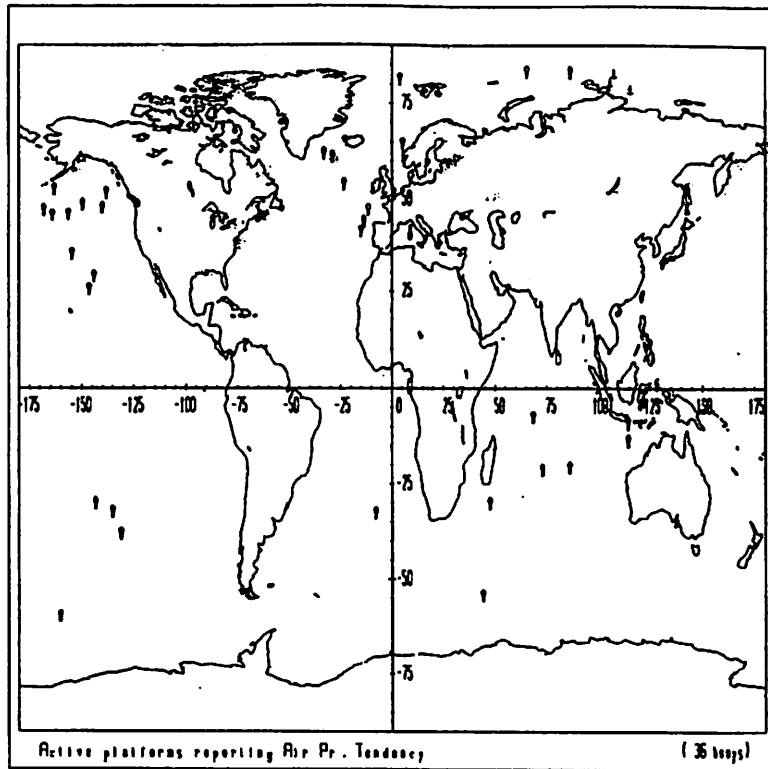


Figure 6.1.3. Positions for Air Pressure Tendency data

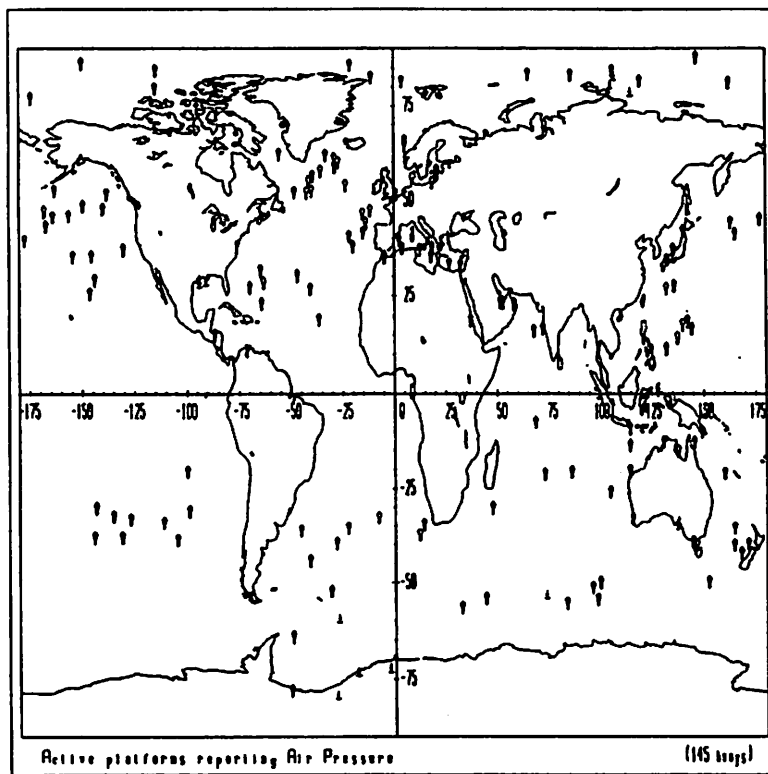


Figure 6.1.4. Positions for Air Pressure

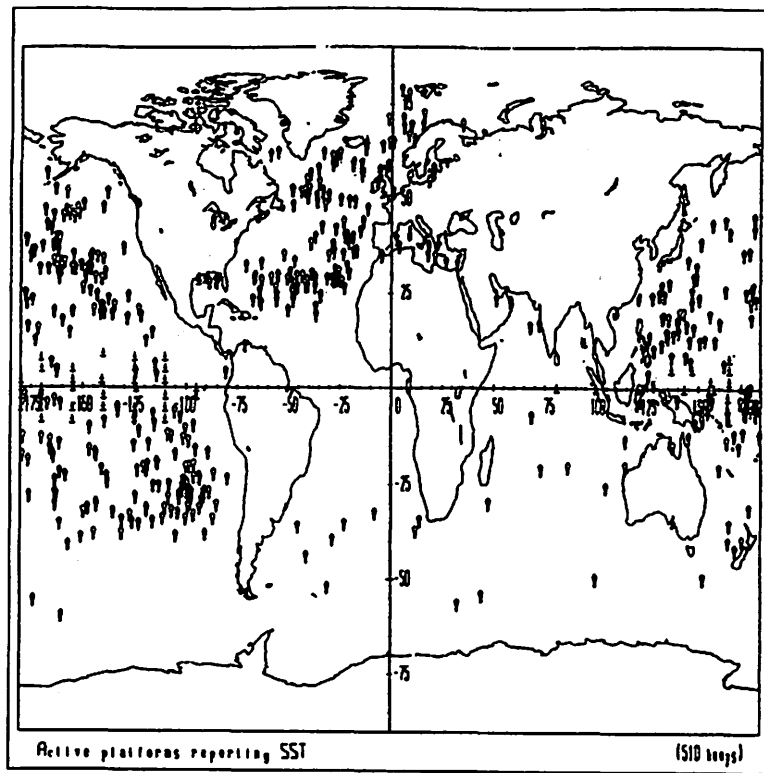


Figure 6.1.5. Positions for Sea Surface Temperature

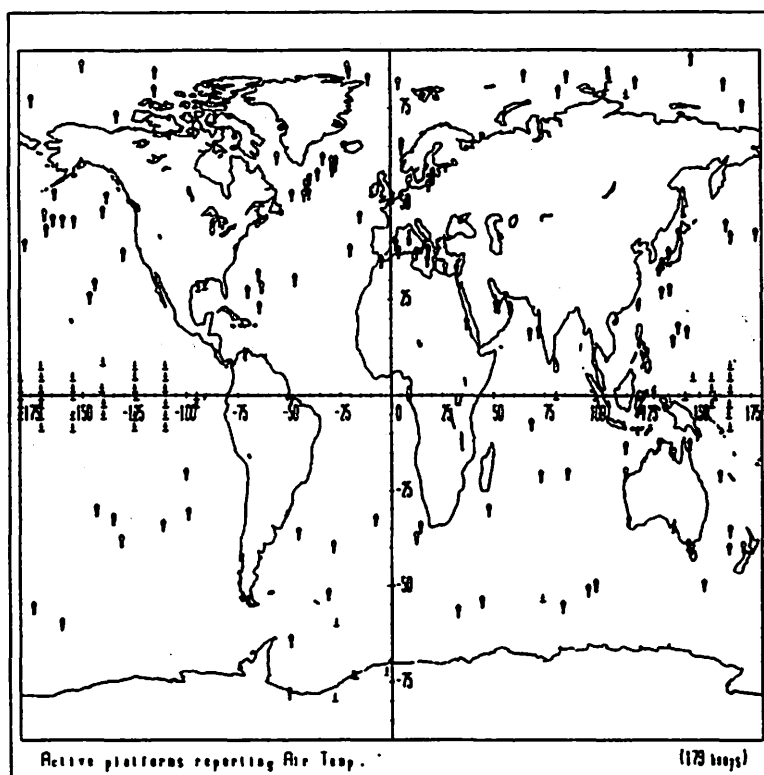


Figure 6.1.6. Positions for Air Temperature

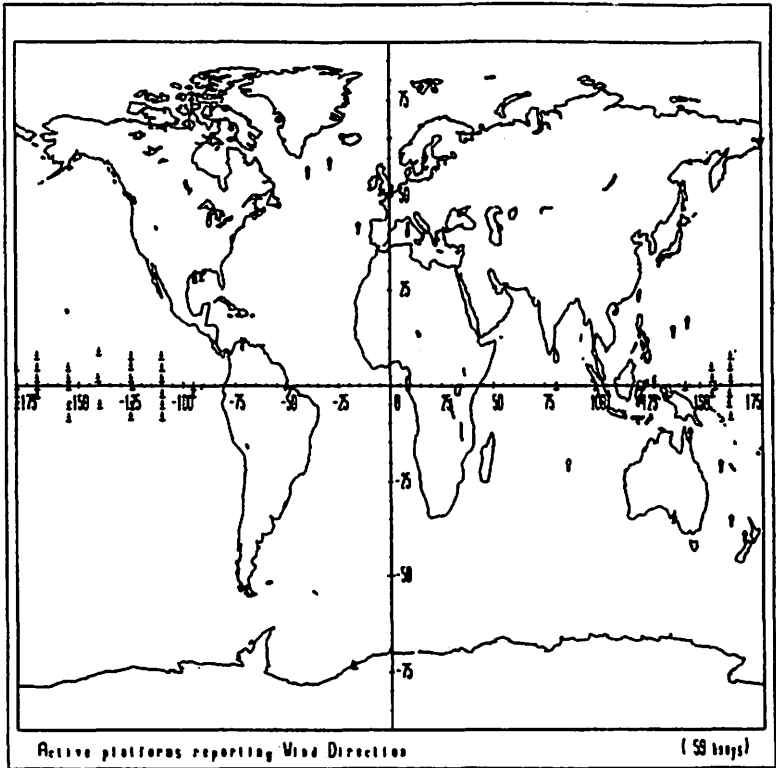


Figure 6.1.8. Positions for Wind Direction

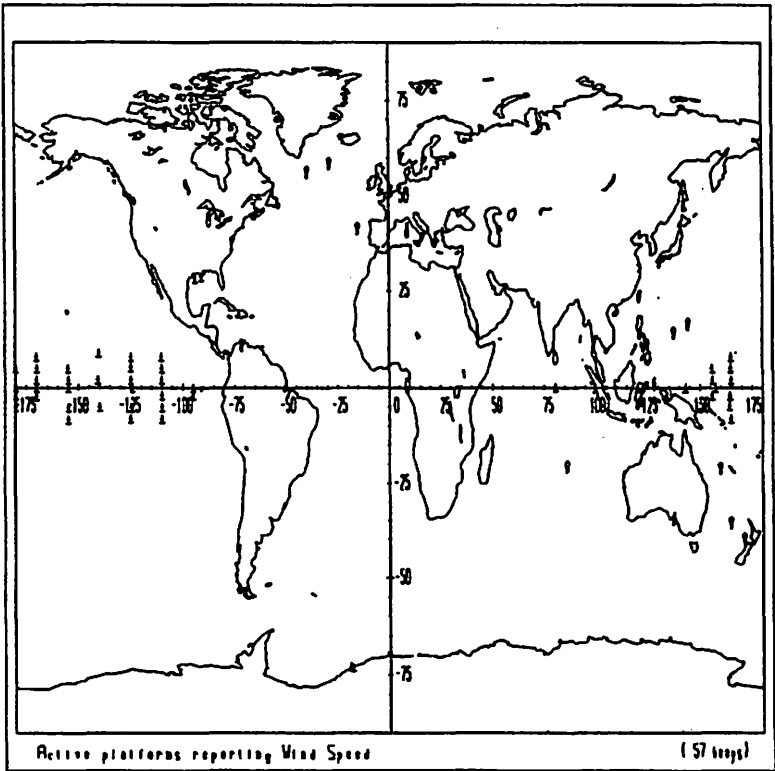


Figure 6.1.8. Positions for Wind Speed

Table 6.2. List of GTS bulletin headers being used for drifting buoy data.

T₁T₂A₁A₂ii	Approximate region of deployment or Programme
USGPC (Service Argos Inc., Landover, USA):	
SSVX04 KARS	North Atlantic Ocean;
SSVX06 KARS	Northern Hemisphere;
SSVX10 KARS	Southern Hemisphere;
SSVX12 KARS	Arctic Ocean;
SSVX14 KARS	Antarctic area;
SSVX16 KARS	Specific experiments. Buoys from various ocean area;
SSVX40 KARS	ATLAS moored buoys in the Equatorial Pacific Ocean;
SSVX96 KARS	Specific experiment conducted by the NDBC.
QC by NDBC (Mississippi, USA) based on data received from the USGPC:	
SSVX02 KWBC	Southern Hemisphere;
SSVX08 KWBC	Northern Hemisphere.
JIC (Washington-DC, USA) based on data received from the USGPC:	
SSVX18 KWBC	Arctic Ocean.
FRGPC, (CLS, Service Argos, Toulouse, France):	
SSVX01 LFPW	North Atlantic Ocean;
SSVX03 LFPW	Southern Hemisphere;
SSVX05 LFPW	Northern Hemisphere;
SSVX07 LFPW	Arctic Ocean;
SSVX09 LFPW	Antarctic area;
CMM (Brest, France) based on data received from the FRGPC:	
SSVX51 LFPW	North Atlantic Ocean;
SSVX55 LFPW	Equatorial Pacific Ocean.
Oslo LUT (NMI, Oslo, Norway):	
SSVX01 ENMI	North Atlantic Ocean (for the EGOS Programme);
Sondre Stromfjord LUT (DMI, Greenland):	

SSVX01 BGSF North Atlantic Ocean (for the EGOS programme);

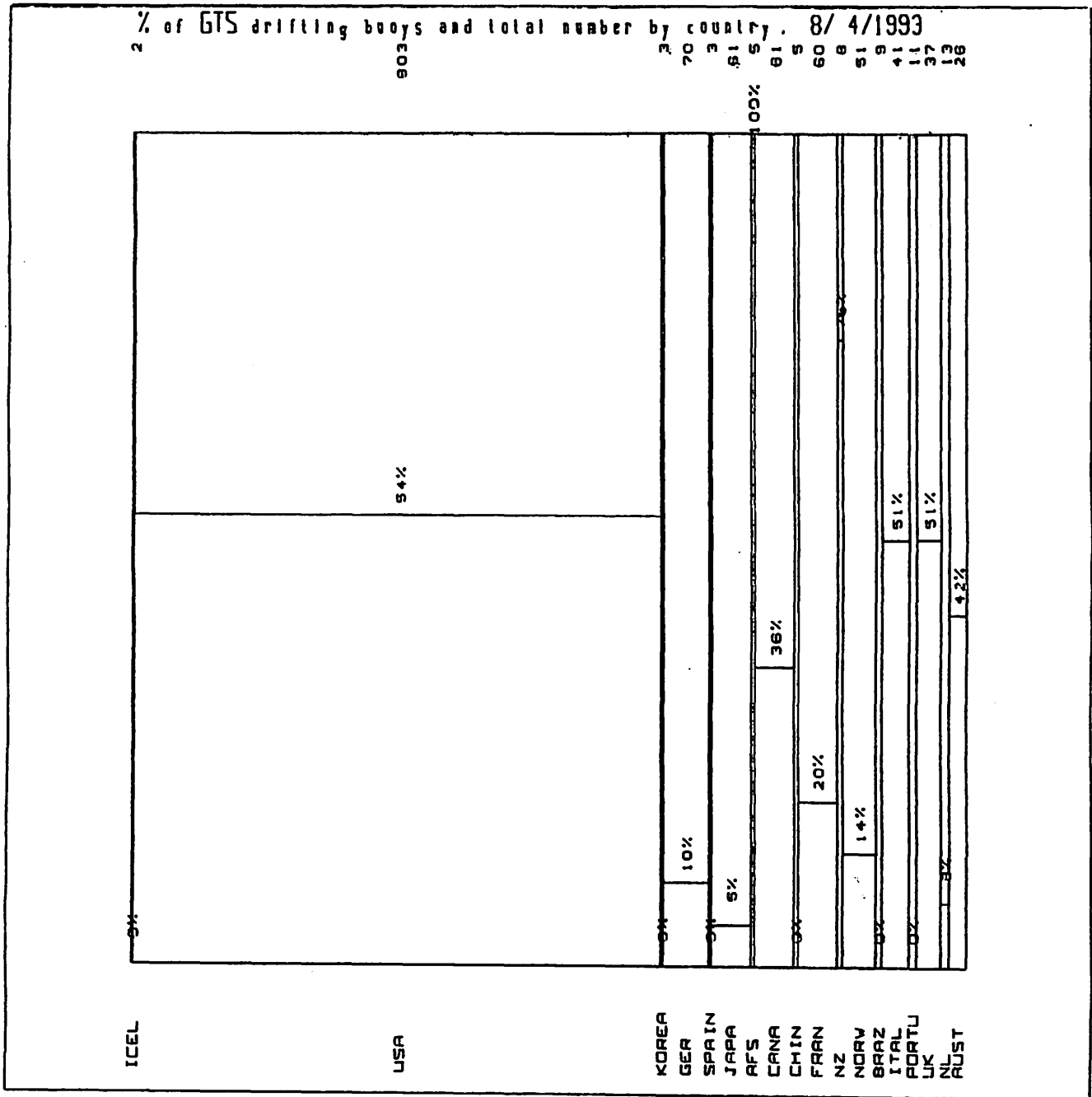
Toronto LUT (AES, Canada):

SSVX01 CWTO North-West Atlantic Ocean.

Edmonton LUT (AES, Canada):

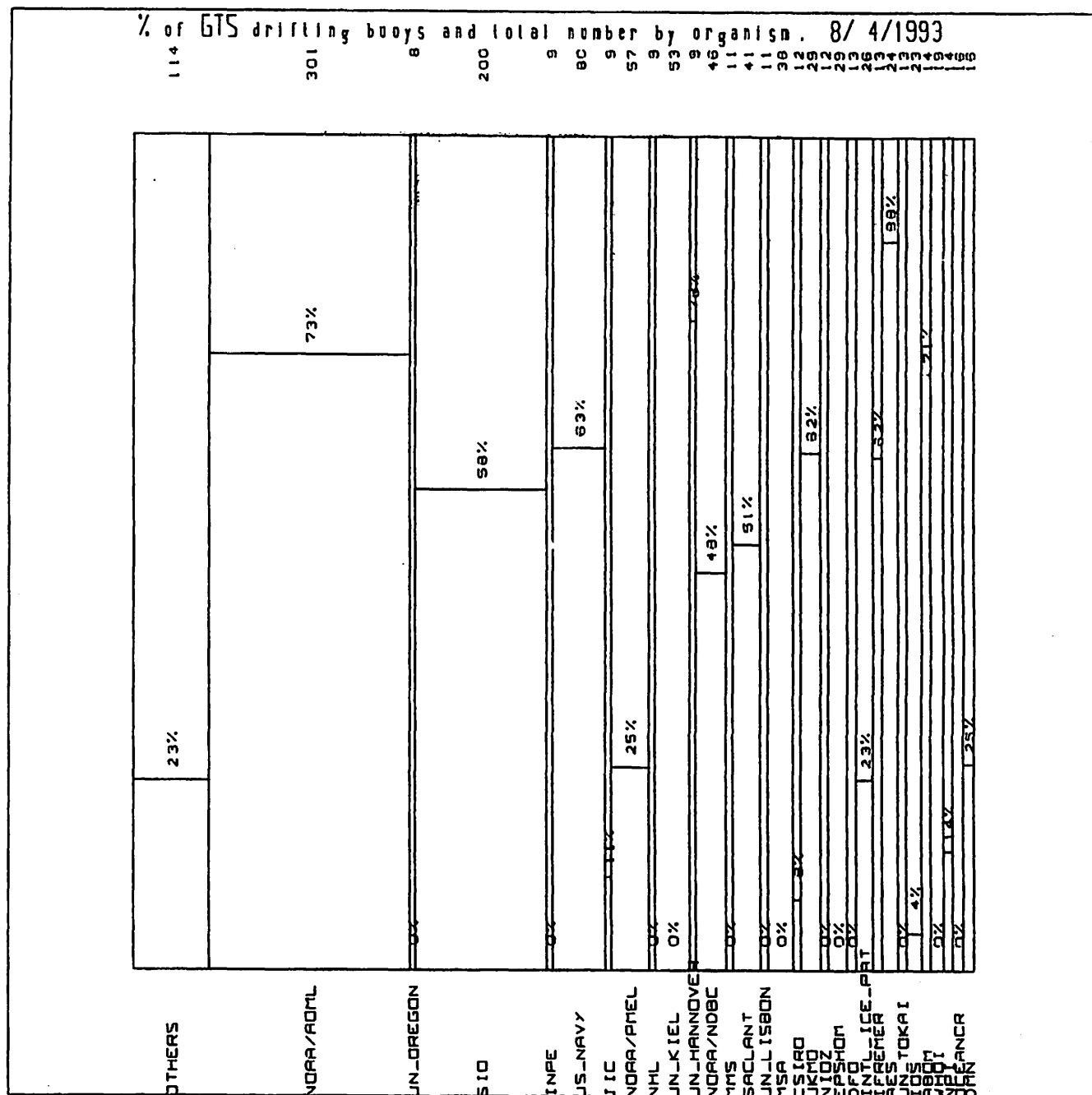
SSVX02 CWEG Arctic Ocean;
SSVX03 CWEG Hudson Bay;
SSVX04 CWEG NorthEast Pacific Ocean.

Figure 10.1.1. Distribution of GTS and non-GTS platforms by country:



Total number of drifting buoys: 1269
 Total number of drifting buoys reporting to the GTS: 548= 43.2%

Figure 10.1.2. Distribution of GTS and non-GTS platforms by organization:



Total number of drifting buoys: 1269
 Total number of drifting buoys reporting to the GTS: 548= 43.2%

Figure 10.2. Distribution of RMS (Obs. - First Guess Field. for Air Pressure data:

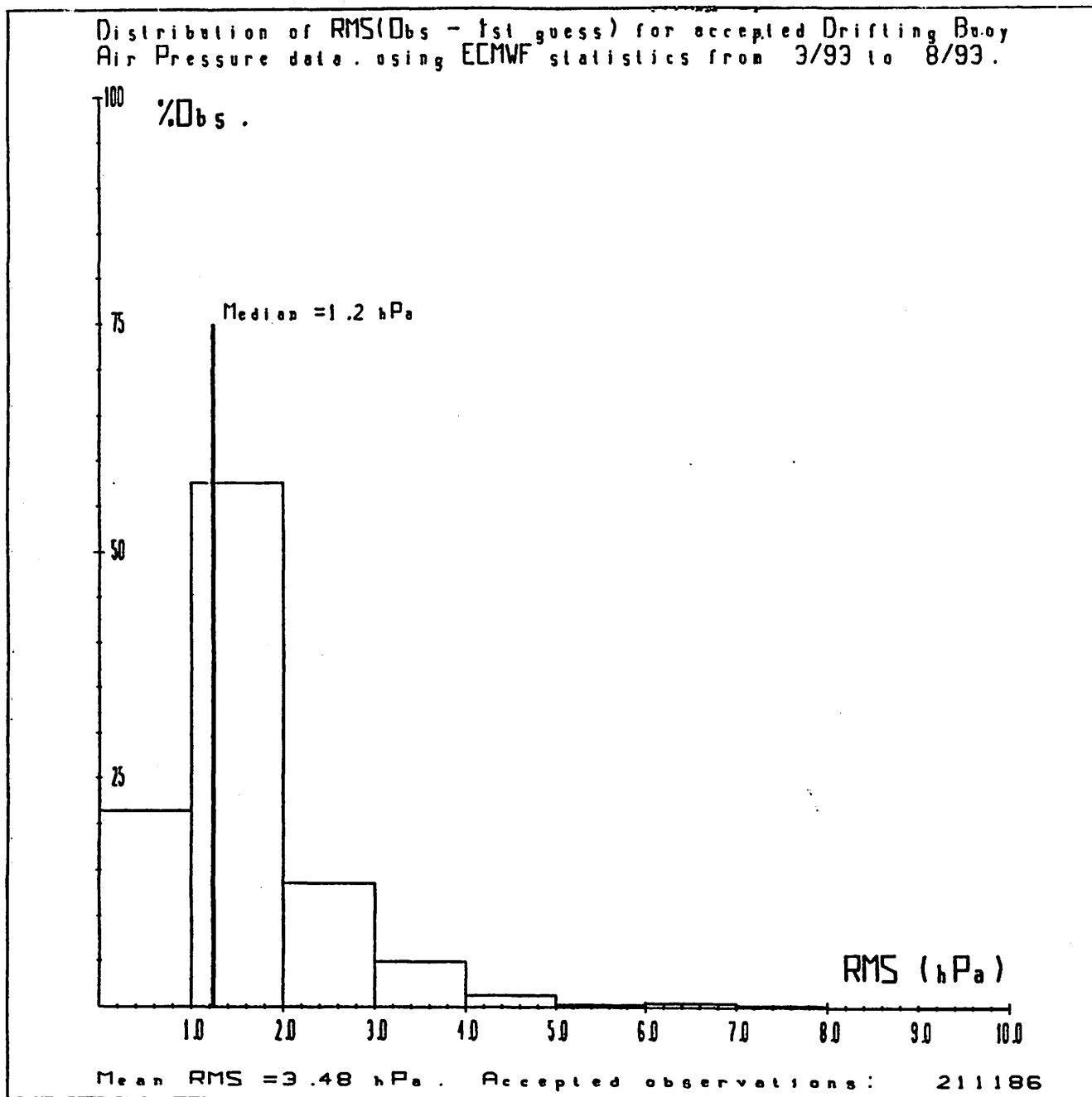
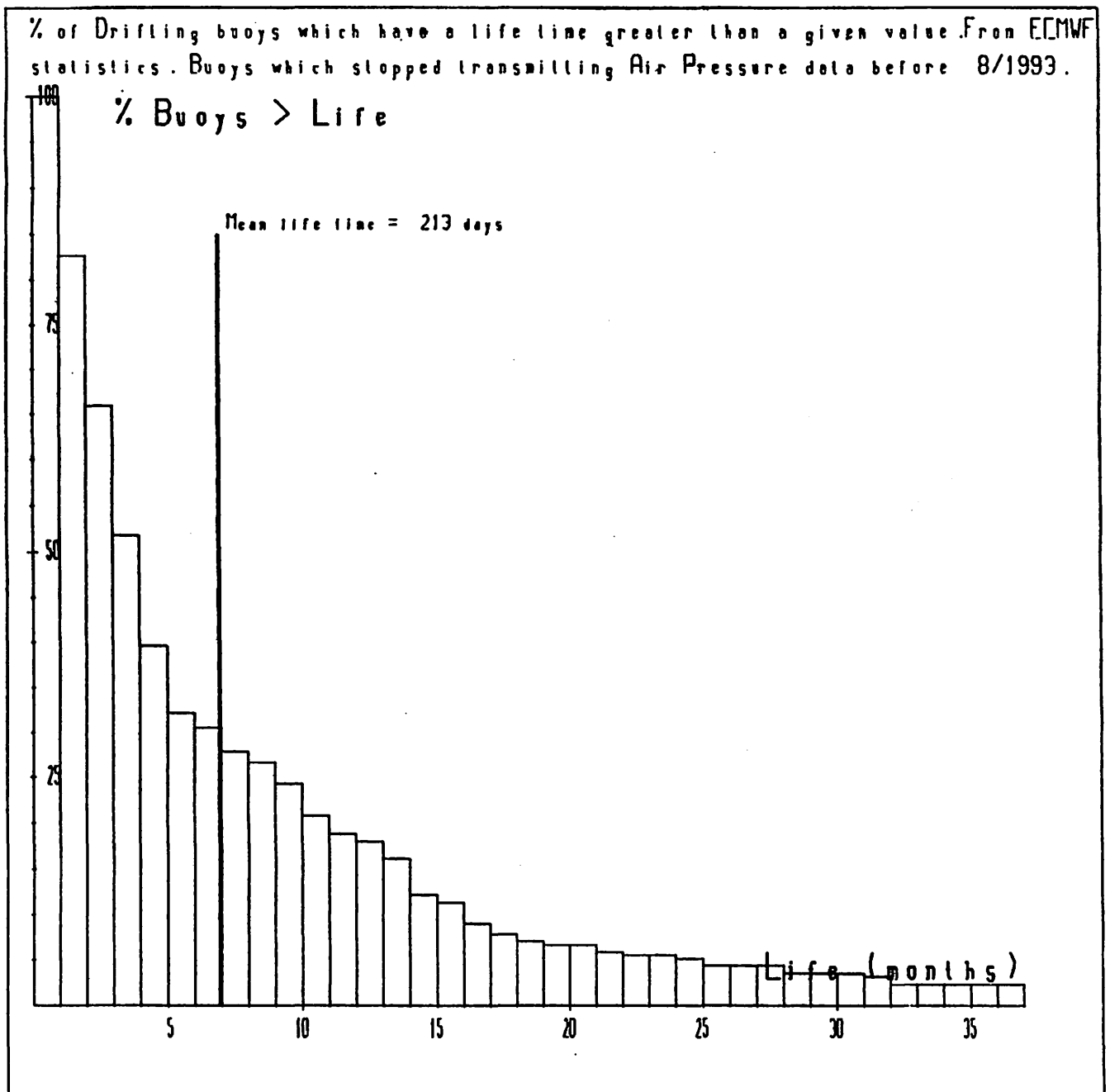


Figure 10.3. Distribution of the Life Time of the Air Pressure sensor:

(This page left intentionally blank.)

World Meteorological Organization

Drifting Buoy Co-operation PanelInterim Account as at 30 September 1993

	<u>US\$</u>	<u>US\$</u>
Balance from 1991	6,585	
Contributions Paid for Prior Biennium	15,000	
Contributions Paid for Current Biennium	<u>246,048</u>	
Total Funds Available		267,633
Obligations Incurred		
UCAR	109,000	
Technical Co-ordinator	104,500	
Service Argos	14,500	
Prep Meeting South		
Atlantic Buoy System	5,918	
Experts	1,035	
Travel	24,264	
DBCP Ties	(961)	
Administration direct	<u>768</u>	<u>259,024</u>
Balance of Fund	US \$	<u><u>8,609</u></u>

Represented by.

Cash at Bank		14,527
less: Unliquidated Obligations		<u>5,918</u>
	US \$	<u><u>8,609</u></u>

Contributions received for prior years

Canada	US \$	15,000	
<u>Contributions</u>	<u>Received</u>		
		US \$	
	1992	1993	
		Total	
Australia	11,000	12,500	23,500
Canada	16,500	18,000	34,500
France	11,513	13,028	24,541
Greece	2,100		2,100
Iceland	2,100	2,100	4,200
Ireland	499	516	1,015
Netherlands	1,575	1,575	3,150
Norway	1,575	1,575	3,150
UK	11,000	15,000	26,000
USA	55,000	68,000	123,000
GTS CHAIN FUND		892	892
TOTAL	<u>112,862</u>	<u>133,186</u>	<u>246,048</u>

**PROVISIONAL STATEMENT
ANTICIPATED INCOME AND EXPENDITURE TO 31 MAY 1994**

Income	US \$
Balance of fund from Interim Account	8,609
Balance of fund from UCAR	19,918
Contribution from Greece 1993	2,100
	<hr/>
TOTAL	<u>30,627</u>
Expenditure	
Balance of TC travel	5,000
CLS/Service Argos Contract (FF 75.000 at September rate US\$ 1 = FF 5.85)	12,821
Support to ISABP meeting	4,000
Additional travel of chairman	2,806
	<hr/>
TOTAL	<u>24,627</u>
Anticipated balance to transfer to 1994/1995 account	<u>6,000</u>

Final Financial Report

For Year 1 June 1992 - 31 May 1993

C030-WMO - DRIFTING BUOY TECHNICAL COORDINATOR

	92-93 Effective Budget	92-93 Expense	Year End Balance
<i>TC Salary</i>	44,506	40,767	3,738
<i>UCAR Salary</i>	1,844	965	880
<i>Benefits</i>	17,174	14,320	2,854
<i>M & S</i>	95	0	95
<i>PS</i>	1,967	297	1,670
<i>Relocation</i>	10,573	4,263	6,311
<i>Travel</i>	13,891	12,313	1,578
<i>Indirect</i>	17,400	18,934	-1,535
<i>Interest Credit</i>	3,653	-674	4,328
Total	111,103	91,185	19,918

Previous Year, 1991-'92

	91-92 Effective Budget	91-92 Expense	Year End Balance	92-93 Funding	92-93 Effective Budget
<i>TC Salary</i>	43,119	45,309	-2,189	46,695	44,506
<i>UCAR Salary</i>	976	382	594	1,250	1,844
<i>Benefits</i>	14,735	11,225	3,510	13,664	17,174
<i>M & S</i>	70	0	70	25	95
<i>PS</i>	1,579	376	1,203	764	1,967
<i>Relocation</i>	10,573	0	10,573	0	10,573
<i>Travel</i>	14,593	14,674	-81	13,972	13,891
<i>Indirect</i>	17,028	17,259	-230	17,630	17,400
<i>Interest Credit</i>	838	-2,815	3,653		3,653
Total	103,511	86,409	17,103	94,000	111,103

Notes:

TC Salary and UCAR administrative salaries are shown separately. TC Salary for the year was agreed at \$46,695. Actual expense of \$40,767 is less because UCAR vacation entitlement is charged when accrued, not when paid. (The expense shown here suggests that the TC took a significant portion of accrued vacation entitlement during the

year; his salary for that vacation time would not appear as a current charge to the Salary category)

UCAR salaries are up from the previous year, but less than budgeted. The increase is due both to relocation travel at the end of the appointment, and to final close-out work and reporting.

Benefits apply equally to the TC and UCAR salaries. Although under budget, they are up from the previous year due to a change in the way non-work time (vacation, sick leave, holidays, etc.) are accounted in the UCAR financial system, effective 1 October 1992.

Materials & Supplies remain inconsequential, and Purchased Services continue to run below budget estimates.

Travel is separated into Relocation and Business Travel. Relocation reflects the costs of repatriating the TC and his family. Business travel has been authorized travel by the TC. A summary of TC travel is attached.

Indirect costs were applied to all expenditures in FY92 (ended 30 Sep 92) at the rates shown for FY92 in the budget--19.5% and 3% fee. During FY93 the National Science Foundation approved an indirect cost rate of 24% to which the 3% fee is added. The increase was due to a restructuring of the UCAR organization and indirect cost rationale.

Additional detail on any of these expenditures is available upon request.

UCAR credits the WMO DBCP TC account with interest UCAR receives on WMO funds on deposit in UCAR's name. This credit amounted to \$674 during the year, for a cumulative total of \$4,328. It is shown here as a credit to expenses rather than an addition to funds in order to avoid confusing it with funding received from WMO under the contract.

The result for the period ending 31 May 93 was a positive balance in all categories except Indirect Costs. Incremental funding for the year was \$94,000 against expenditures of \$91,185 for a 1992-'93 year-end surplus of \$2,815. The cumulative total surplus of funds (including interest credits) over expenditures at the end of the year was \$19,918.

This balance is being refunded to WMO by UCAR. To accommodate the needs of the UCAR Finance Office, the check will be issued in October after the accounting books are closed on UCAR's fiscal year.

Respectfully submitted,



Jon Rush
UCAR

Joint Climate Projects/Planning Office

DBCP Technical Coordinator Travel, 1992-'93

<u>Trip</u>	<u>Purpose</u>	<u>Begin</u>	<u>End</u>	<u>Cost</u>
1. WDC-Oslo, Norway, return	International Arctic Buoy Program Meeting	31-May-92	5-Jun-92	3,862
2. WDC-Toulouse; Strasbourg-WDC*	Development of New Argos GTS Chain	27-Jun-92	11-Jul-92	2,141
3. WDC - Toulouse, France - WDC	Discussions at Service Argos	12-Sep-92	19-Sep-92	2,407
4. WDC-Paris, return	IDBCP Meeting	10-Oct-92	22-Oct-92	3,104
5. WDC-San Diego, CA, return	DBCP/SVP Workshop	3-May-93	6-May-93	800
				<u>\$12,313</u>

** TC on vacation from 4-11 July; he was responsible for his own travel from Toulouse to Strasbourg and for all travel expenses incurred as a result of that extension.*

Does not include Relocation Travel and end of U.S. tour of duty.

(This page left intentionally blank.)

ORGANISATION MÉTÉOROLOGIQUE MONDIALE



WORLD METEOROLOGICAL ORGANIZATION

Téléphone: National (022) 730 81 11
 International + 41 22 730 81 11
 Télégrammes: METEOMOND GENÈVE
 Téléc: 41 41 99 OMM CH
 Facsimilé: 41 22 734 23 26

SECRETARIAT
 GENÈVE - Suisse

41, Giuseppe-Motta
 Case postale N° 2300
 CH - 1211 Genève 2

No. 38.802/W/O/OB

GENEVA, 15 January 1993

Annexes: 2

Dear Dr. Kullenberg,

You will recall that the WMO/IOC Drifting Buoy Co-operation Panel, at its recent eighth session (Paris, October 1992), agreed to the relocation of its technical co-ordinator from his present assignment with Service Argos Inc. in Landover, USA, to CLS/Service Argos in Toulouse, France. In doing so, the panel recognized that in this case the technical co-ordinator could no longer continue to be employed on its behalf by the University Corporation for Atmospheric Research, USA, on the basis of a contract between WMO and UCAR. The panel therefore agreed that, as from 1 June 1993, the technical co-ordinator should be employed on its behalf by UNESCO/IOC, with funding to be provided as before by the panel Member countries through WMO.

I am writing to you now to confirm that WMO is agreeable to these new arrangements. We have already issued invoices to contributing Member countries, as specified by the panel, to a total amount of US dollars 136,450.-. To the extent of the receipt of funds for this WMO trust fund account in response to these invoices, WMO will incur expenditures on behalf of the panel, as specified in the relevant annex to the final report of the eighth session of the Drifting Buoy Co-operation Panel, a copy of which is attached herewith for reference. Specifically with regard to the employment and travel for the technical co-ordinator, WMO will transfer to IOC the funds to cover the IOC salary, installation grant and official travel as specified in the annex, provided always that sufficient money has been made available by panel contributors to cover these expenditures. Subject to the availability of cash balance in the trust fund, the transfers to cover both IOC salary and installation grant will be made on or before 30 April 1993, to allow IOC to establish the necessary contract with the technical co-ordinator before 31 May 1993.

Dr. G. Kullenberg
 Secretary IOC
 UNESCO
 1, rue Miollis
 F-75732 Paris Cedex 15
 France

cc: D. Painting, chairman of the DBCP, Wokingham

- 2 -

It is noted that the dollar figures for IOC salary and installation grant given in the annex to this letter are estimates only, based on the official UN exchange rate for the French franc in July 1992. The final transfers to IOC will be made on the basis of the official UN exchange rate at the time of the transfer. To facilitate this, it would be appreciated if you could inform me in due course of the exact French franc figures for both salary and installation grant. In addition, I would appreciate to be informed of the way in which you would like the money transfer to be effected e.g. bank transfer or cheque to a specified account. If a bank transfer is preferred, please let me know the bank's name, address and the account number.

I hope these arrangements are satisfactory to you and I look forward to our continued close co-operation on this and the many other matters of mutual interest.

Yours sincerely,

(G.O.P. Obasi)
Secretary-General

DBCP-VIII/3 prov.

Annex ..

ANNEX ..

ESTIMATES OF EXPENDITURES FOR 1993-1994
(in US\$)

IOC salary	89,700
Installation grant	10,500
Travel Technical Co-ordinator	15,000
CLS	15,000
WMO costs	300
Sundries	5,000
	<hr/>
T O T A L	135,500
	=====

[Basis: official UN rate in July 1992; \$1 = FF5.18]

DBCP-VIII/3 prov.
Annex ...

ANNEX ...

DRAFT TABLES OF CONTRIBUTIONS FOR 1993-1994
(in US\$)

	1992-1993	1993-1994
Australia	11,000	12,500
Canada	16,500	18,000
France	11,513 (FF63,000)	[15,000 (FF75,000)]
Greece	2,200	2,200
Iceland	2,100	2,100
Ireland	499 (IRE 315)	500
Netherlands	1,575	1,575
Norway	1,575	1,575
United Kingdom	11,000	15,000
USA	55,000	68,000
T O T A L	112,962 =====	136,450 =====



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
 COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
 COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
 МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
 اللجنة الدولية الحكومية لعلوم المحيطات
 政府间海洋学委员会

UNESCO - 1, rue Miollis - 75732 Paris cedex 15
 cable address: UNESCO Paris - telex: 204461 Paris-fax: (33) (1) 40 56 93 16 - contact phone: (33) (1) 45 68 39 76

Your reference

In reply refer to IOC/6/O.6.1.O/YT/ig

21 January 1993

Dear Professor Obasi,

I acknowledge receipt of your letter No.38.802/W/O/OB of 15 January 1993 dealing with the new arrangements for the employment of the Technical Co-ordinator of the Drifting-Buoy Co-operation Panel. I would like to thank you for the very co-operative way in which you have agreed to support these arrangements and for the practical measures you suggest to take.

On the other hand, I would propose to go one step further. The Technical Co-ordinator will indeed be located in France, and it would certainly be easier for IOC/UNESCO than for WMO to deal with all items that will have to be funded in French Francs. In my opinion, this is the case for the contract for logistic support of the Technical Co-ordinator to be signed with CLS/Service Argos. Such a contract was already negotiated and eventually signed for the periods 1987-1988 and 1988-1989. We only have to introduce relevant changes in the amount and the dates.

I would therefore suggest that you transfer to IOC/UNESCO, in addition to the funds assigned to the IOC salary, installation grant and official travel of the Technical Co-ordinator, the sum of FF75,000 to cover also the contract with CLS/Service Argos. Pending your answer on this suggestion, I shall enquire with our administration officers on the most practical way to transfer the money and ensure that you are informed in due course of the exact French Franc figures which are needed.

It remains clear that WMO will go on managing the "Sundries" item, along with the approval procedures agreed upon between us some years ago.

I sincerely hope you will be able to agree again on these supplementary arrangements and I look forward to our continued close co-operation in our fields of common interest.

Yours sincerely,

Reed. WMO
 REGISTRY (3) 28 JAN. 1993

28 324

No 81.432/W/O/OB

SG	DSG
Revised to: OCA ce FIN - Lent	
Filed:	

Gunnar Kullenberg
 Gunnar Kullenberg
 Secretary IOC

Professor G.O.P. Obasi
 Secretary-General
 World Meteorological Organization
 Case postale n° 2300
 CH-1211 Geneva 2
 Switzerland

cc: Mr. D. Painting, Chairman DBCP

Chairman

Dr Manuel M. Murillo
 Director
 Centro de Investigación en Ciencias
 del Mar y Limnología (CIMAR)
 Universidad de Costa Rica, San José (Costa Rica)

Vice-Chairmen

Dr. John A. Knauss
 Under Secretary for Oceans & Atmosphere
 US Department of Commerce
 15th Street & Constitution Avenue NW
 Washington DC 20230 (USA)

Dr. Hussein Kamel Badawi
 President
 National Institute of Oceanography & Fisheries
 Ministry of Scientific Research
 101 Kasr El-Ainy Street, Cairo (Egypt)

Secretary

Dr. Gunnar Kullenberg
 Intergovernmental Oceanographic Commission
 UNESCO
 7, place de Fontenay
 75700 Paris (France)

Dr. Alexandre P. Metalnikov
 Deputy Chairman
 USSR State Committee for Hydrometeorology
 12 Pavlik Morozova Street
 Moscow 123376 (USSR)

Dr. Ghulam Salahuddin Quraishie
 Director-General
 National Institute of Oceanography (NIO)
 37-K, Block 6, P.E.C.H.S.
 Karachi 29 (Pakistan)

ORGANISATION MÉTÉOROLOGIQUE MONDIALE



WORLD METEOROLOGICAL ORGANIZATION

Téléphone: National (022) 730 81 11
International + 41 22 730 81 11
Télégrammes: METEOMOND GENÈVE
Télex: 41 41 99 OMM CH
Facsimilé: 41 22 734 23 26

SECRETARIAT
GENÈVE - Suisse

41, Giuseppe-Motta
Case postale N° 2300
CH - 1211 Genève 2

No. 38.824/W/O/OB

GENEVA, 12 February 1993

Dear Dr. Kullenberg,

Thank you for your letter IOC/6/0.6.1.0/YT/ig of 21 January 1993 concerning the new arrangements for the employment of the technical co-ordinator for the Drifting Buoy Co-operation Panel. I look forward to hearing from you, in due course, concerning practical arrangements for the transfer of the necessary funds for this purpose.

With regard to the contract with CLS/Service Argos for the logistic support for the technical co-ordinator of the Drifting Buoy Co-operation Panel, it is perfectly acceptable to WMO that IOC/UNESCO should also establish this contract on the basis of the one previously in force during 1987-1989. In this case WMO agrees to the transfer of the necessary funds, when available, under the same conditions as specified in my letter No. 38.802/W/O/OB of 15 January 1993. The funds involved in this case will be FF 75,000.-, or the French francs equivalent of US dollars 15,000.-, whichever is the lesser amount as agreed to by the Drifting Buoy Co-operation Panel at its eighth session in October 1992.

Yours sincerely,

(G.O.P. Obasi)
Secretary-General

Dr. G. Kullenberg
Secretary IOC
UNESCO
1, rue Miollis
F-75732 Paris Cedex 15
France

cc: D. Painting, chairman of the DBCP, Wokingham



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
 COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
 COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
 МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
 اللجنة الدولية الحكومية لعلوم المحيطات
 政府间海洋学委员会

Deadline: 30 APRIL 1993

UNESCO - 1, rue Miollis - 75732 Paris cedex 15

cable address: UNESCO Paris - telex: 204461 Paris-fax: (33) (1) 40 56 93 16 - contact phone: (33) (1) 45 68 39 76

Your reference

In reply refer to

IOC/6/O.6.1.0/YT/ig

Recd WMO
 REGISTRY (1) 15 APR 1993
 No 82.6651 WI
 SG
 cc: SG, FIN

6 April 1993

OK. Actem John

Dear Professor Obasi,

I refer to our previous exchange of correspondence regarding the new arrangements for the employment of the Technical Co-ordinator of the Data Buoy Co-operation Panel (indeed, the IOC Assembly has adopted Resolution XVII-6 to change the name of the Panel and, slightly, its terms of reference, with the expectation that the WMO Executive Council will do the same at its forthcoming session). I can now provide you with the following information:

- The cost of the salary of the Technical Co-ordinator (as P-3/O1), including his installation grant (amounting to US\$18,980), is estimated at US\$104,500, viz roughly FF575,000, for the period 1 June 1993 - 31 May 1994. It is of course impossible to compute at this stage a precise, definitive figure, since we do not know the evolution of the exchange rate of the French Franc versus the US dollar during that period, and since that this rate impinges upon, *inter alia*, the computation of the post adjustment. In the event that unfavourable variations in the US\$ to FF exchange rate are likely to lead to a future shortfall in the funds made available by the Panel for the employment of the Technical Co-ordinator for 1993-1994, it will clearly be necessary to consult the Panel to determine an appropriate course of action.
- At its eighth session, the Panel agreed to foresee a budget of US\$15,000 for the travels of the Technical Co-ordinator, and I believe we can stick to this amount, at least on an in principle basis;
- As far as the contract with CLS/Service Argos for the logistic support of the Technical Co-ordinator is concerned, I fully agree with the content of your letter No. 38.824/W/O/O/B dated 12 February 1993. Under present exchange rate conditions, FF75,000 amount to roughly US\$13,500.

The total amount involved may therefore be estimated at US\$133,000, viz roughly FF731,500. I have no problem with whatever of these two currencies you may choose to actually transfer the funds from WMO to IOC, provided we agree to make the necessary adjustments in due time, as the case may be. The only two important points are the following:

- (i) as a minimum, a sum of US\$104,500 (or FF575,000) should reach me by 30 April at the latest, if we are to be able to recruit the Technical Co-ordinator for a one-year period beginning 1 June 1993 as we ought to;

.../..

Professor G.O.P. Obasi
 Secretary-General
 World Meteorological Organization
 Case postale n° 2300
 CH-1211 Geneva 2
 Switzerland

cc: Mr. D. Painting, Chairman DBCP

Chairman

Dr Manuel M Murillo
 Director
 Centro de Investigacion en Ciencias
 del Mar y Limnologia (CIMAR)
 Universidad de Costa Rica, San Jose (Costa Rica)

Vice-Chairmen

Dr John A Knauss
 Under Secretary for Oceans & Atmosphere
 US Department of Commerce
 15th Street & Constitution Avenue NW
 Washington DC 20230 (USA)

Dr Hussein Kamel Badawi
 President
 National Institute of Oceanography & Fisheries
 Ministry of Scientific Research
 101 Kasr El-Ainy Street, Cairo (Egypt)

Secretary

Dr Gunnar Kullenberg
 Intergovernmental Oceanographic Commission
 UNESCO
 7, place de Fontenoy
 75700 Paris (France)

Dr Alexandre P. Metalnikov
 Deputy Chairman
 USSR State Committee for Hydrometeorology
 12 Pavlik Morozova Street
 Moscow 123376 (USSR)

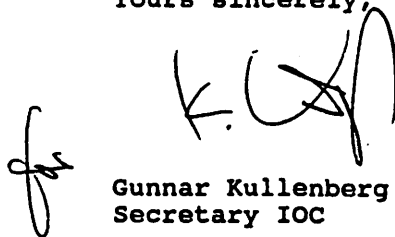
Dr. Ghulam Salahuddin Quraishie
 Director-General
 National Institute of Oceanography (NIO)
 37-K, Block 6, P.E.C.H.S
 Karachi 29 (Pakistan)

- 2 -

(ii) this payment should take the form of a cheque made out to the order of the Intergovernmental Oceanographic Commission, and indicating "IOC Trust Fund 412 INT 43 - Charpentier". It is indeed not possible to have such details recorded under a bank transfer, which would lead to increased delays in the recovery of the funds under the right budget code within our administration.

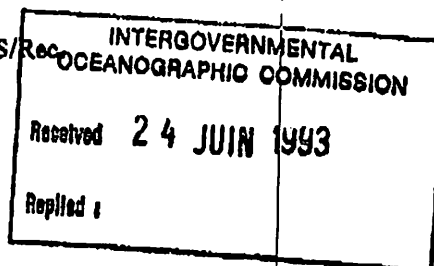
Let us hope now that the necessary funds will have reached WMO in time!

Yours sincerely,

A handwritten signature in black ink, appearing to be 'G. Kullenberg', written over a printed name and title. The signature is stylized and somewhat cursive.

Gunnar Kullenberg
Secretary IOC

c.c.: Délégation permanente de la France
 ADG/SC
 Secretary, IOC
 SC/AO
 BOC/PR
 BOC/SPID
 BER/CSF
 PER/ADM/OPS/Rec



PER/ADM/OPS/93/441

21 juin 1993

RECOMMANDERLettre d'engagement

Cher Monsieur,

J'ai le plaisir de vous informer que votre nomination au poste ci-dessous a été approuvée par le Directeur général de l'UNESCO :

Poste : Coordonnateur technique du Groupe pour les programmes de bouées de mesure (EU/VC/FRA/SC/0901)

Programme : Contributions volontaires

Lieu : Toulouse, France

Durée : Un an à partir du : 1er juin 1993
 (sous réserve d'une période probatoire de neuf mois)

Classe : P-3 Echelon : 1

Rémunération soumise à retenue pour pension équivalente à : \$ 60,902.-

Traitement annuel brut équivalent à : \$ 55,753.-

Traitement annuel net équivalent à :

- avec personnes à charge \$ 38,014.-
- sans personnes à charge \$ 35,520.-

Ajustement de traitement équivalent à :

- avec personnes à charge \$ 19,083.-
- sans personnes à charge \$ 17,831.-

.../...

Monsieur Etienne CHARPENTIER
 C/o CLS/Service Argos
 18 avenue Edouard Belin
 31 055 TOULOUSE Cedex

L'ajustement de traitement varie pour chaque classe et échelon en fonction du coût de la vie au lieu d'affectation et du taux de change du dollar.

Tous les engagements sont régis par les Statut et Règlement du personnel de l'UNESCO, dont vous trouverez ci-joint un exemplaire accompagné des documents suivants :

- Règlement de la Caisse d'assurance-maladie de l'UNESCO ;
- Statuts et règlements de la Caisse commune des pensions du Personnel des Nations Unies ;
- Règlement du régime d'indemnisation du personnel ;
- Rapport sur les normes de conduite requises des fonctionnaires internationaux.

J'attire votre attention en particulier sur l'Article 1.2 du Statut du personnel qui prévoit que les membres du personnel de l'UNESCO peuvent être affectés par le Directeur général, compte dûment tenu de leurs titres et aptitudes et de leur expérience, à l'un quelconque des postes de l'Organisation y compris les postes hors-Siège.

Je vous invite à lire attentivement les documents, ci-dessus mentionnés afin d'être parfaitement informé des conditions d'emploi et des facilités qui vous sont offertes. Les points qui présentent un intérêt immédiat sont exposés ci-après, d'autres renseignements figurant dans les annexes à la présente lettre.

Les traitements, allocations et indemnités versés par l'UNESCO sont normalement exonérés de l'impôt sur le revenu. Toutefois, si les autorités du pays dont vous êtes ressortissant prélevaient un impôt sur les émoluments que vous recevez de l'UNESCO, l'Organisation vous rembourserait les sommes ainsi payées, sur présentation des documents pertinents (Disposition 103.18).

Vous serez affilié à la Caisse d'assurance-maladie de l'UNESCO (Disposition 106.3). Vos cotisations à la Caisse seront déduites chaque mois de votre traitement, conformément au Règlement de la Caisse (cf. Article 24 et Annexe VI de la brochure ci-jointe).

.../...

- 3 -

Vous serez également affilié à la Caisse commune des pensions du personnel des Nations Unies (Disposition 106.4 ; brochure ci-jointe). Votre cotisation à la Caisse, qui représente 7,90% de votre rémunération soumise à retenue pour pension, sera déduite chaque mois de votre traitement. De son côté, l'UNESCO versera à la Caisse une cotisation égale à 15,80% de ladite rémunération.

Vous voudrez bien signer l'Annexe I et me la renvoyer dans les meilleurs délais, accompagnée des formulaires ci-après, dûment complétés, joints à cette lettre :

- Questionnaire d'Etat civil
- Désignation, Changement ou Révocation de bénéficiaires (F.171)
- Formulaires de la Caisse commune des pensions du personnel des Nations Unies (IMP/760 et Pens.A/2-Rev.2).


Vous trouverez également ci-joint une notice explicative concernant le plan d'assurance-groupe facultative sur la vie. Si vous désirez être couvert par cette assurance dès le jour de votre entrée en service, vous devrez remplir les formulaires ci-joints et les retourner en même temps que votre lettre d'acceptation d'engagement. La somme assurée ne peut excéder six fois le montant du traitement soumis à retenue pour pension (voir plus haut), avec un plafond de 300.000 dollars des Etats-Unis.

Je vous serais reconnaissant de nous faire parvenir un extrait de naissance pour vous-même, votre épouse et vos enfants, ainsi qu'un extrait de mariage et une photocopie de votre carte d'identité.

Nous aurions également besoin de vos coordonnées bancaires (joindre un relevé d'identité bancaire) pour le virement de votre salaire.

C'est avec plaisir que nous vous accueillerons parmi les membres du personnel de l'Organisation. Si vous acceptez cette offre d'emploi, toute correspondance devra être adressée à votre administrateur du personnel (M. N. Dioulo).

Je vous prie d'agréer, cher Monsieur, l'assurance de mes sentiments distingués.



John P. Herakovich
 Chef,
 Division de l'administration du
 personnel
 Bureau du personnel

Réf. Secteur/Bureau :
Réf. BOC :

P R O J E T
CONTRAT D'HONORAIRES

entre
L'ORGANISATION DES NATIONS UNIES POUR
L'ÉDUCATION, LA SCIENCE ET LA CULTURE
(ci-après dénommée « l'UNESCO »),
ayant son siège à Paris
(pour la Commission océanographique
intergouvernementale (COI))
d'une part

et
Collecte-Localisation Satellites
.....(CLS)/Service Argos.....
.....18, avenue Edouard Belin.....
.....F-31055 Toulouse Cédex.....
.....
(ci-après dénommé(e) « le contractant »)
d'autre part

Il a été convenu ce qui suit :

Article premier.

Le contractant s'oblige à : (Description du travail demandé)

1. fournir au Coordonnateur technique du "Data Buoy Co-operation Panel" le soutien logistique suivant :

- (i) un bureau (espace et mobilier), mis gracieusement à disposition ;
- (ii) le soutien dactylographique requis, mis gracieusement à disposition ;
- (iii) le libre accès aux divers moyens de télécommunication en usage (téléphone, télex, télégramme, télécopie, courrier électronique, etc.) ;
- (iv) l'accès aux moyens informatiques du Service Argos, y compris la libre jouissance : (a) d'un terminal donnant accès au centre de traitement Argos, et (b) d'un micro-ordinateur avec les logiciels usuels ;
- (v) les fournitures de bureau et les moyens de fonctionnement (photocopies, affranchissement postal, etc.) usuels ;

ce, du 1er juin 1993 au 31 mai 1994.

2. En collaboration avec la division ou l'unité concernée, et en vue de la rédaction des exposés d'évaluation, fournir, par écrit, des données (*quantitatives* dans toute la mesure du possible) sur : a) les principales réalisations de la mise en œuvre de l'activité ou des activités ainsi que sur les résultats tangibles obtenus grâce à ces réalisations ou produits finals de l'activité ou des activités (par exemple : formation, innovations, promotion de recherches ou de politiques, amélioration et transfert des connaissances, échanges d'expériences et d'information, amélioration de la participation des femmes, renforcement de la coopération régionale ou internationale, autres); b) les résultats non prévus; c) les difficultés rencontrées dans la mise en œuvre des activités; d) les enseignements tirés (meilleure adéquation aux besoins de l'État membre ou des États membres, amélioration de l'efficacité, effets sur les groupes-cibles, autres modalités de mise en œuvre des activités); e) autres informations sur l'évaluation des activités mises en œuvre.

Article II.

L'UNESCO versera au contractant la somme suivante : *[Indiquer le montant total en lettres et en chiffres, la monnaie dans laquelle il sera payé, le nombre de versements et les conditions de paiement s'il y a lieu.]*

Au maximum, 75 000 FF (soixante quinze mille francs français), en un versement effectué au terme de ce contrat et après soumission par le contractant et approbation par l'UNESCO d'un état financier des dépenses encourues au titre des services indiqués à l'Article premier, 1, paragraphes (iii), (iv) et (v).

Article III.

Le solde définitif ne pourra être versé qu'après approbation du travail par l'UNESCO.

Article IV.

Sous réserve de dispositions contraires du présent contrat, le contractant prendra à sa charge toutes les dépenses afférentes à l'exécution du travail.

Article V.

Ni le contractant ni aucune personne employée par lui en vue de l'exécution du travail ne sera considéré comme un agent ou un membre du personnel de l'UNESCO, ne pourra jouir d'aucun avantage, immunité, rétribution ou remboursement qui ne soit expressément prévu dans le présent contrat, et ne sera autorisé à engager l'UNESCO dans quelque dépense que ce soit, ni à lui faire assumer d'autres obligations.

Article VI.

Le contractant assume l'entière responsabilité des dispositions qu'il jugerait bon de prendre pour s'assurer contre tous préjudices, pertes ou dommages survenant pendant l'exécution du travail.

Article VII.

Toute contestation relative à l'exécution ou à l'interprétation du présent contrat sera réglée à l'amiable. Toutefois, si à l'expiration d'un délai de six mois à compter de la date de la survenance du litige, les parties ne parvenaient pas à un tel règlement ou si, avant l'expiration de ce délai, l'UNESCO faisait savoir par écrit qu'à son avis il n'y a pas de possibilité raisonnable de parvenir à un tel règlement, l'une ou l'autre des parties pourra soumettre le litige à un arbitre choisi par les parties d'un commun accord. A défaut d'un accord sur le choix de l'arbitre, la désignation sera faite par le Président du Tribunal de grande instance de Paris sur simple requête à lui présentée par la partie la plus diligente. L'arbitrage aura lieu à Paris, conformément aux règles et à la procédure adoptées par l'arbitre. L'arbitre déterminera les frais de l'arbitrage en se référant aux barèmes établis par la Chambre de commerce internationale dans les cas similaires. Les frais d'arbitrage pourraient être répartis entre les parties ou mis à la charge de l'une d'entre elles. La sentence arbitrale sera définitive et sans appel.

Pour l'UNESCO(COI)..... Date

Le contractant Date

LA

Date

BOC

Date

(This page left intentionally blank.)

COST SHEET FOR FUNDS-IN-TRUST EXPERTS (in US\$)

Grade and Step: P-3/01

Duty Station: 269/92

Category: H

Calculated on the basis of: Expt. + Spouse + 2 Children
\$1 = FF 5.85 (September 1993)

Salary and Allowances	Standard	Year 1 June 93- May 94	Year 2 June 93- May 95	Year 3 June 95- May 96
1. Basic Pay	38,014			
2. Family Allowances (S+2)	2,550			
3. Post Adjustment (Multiplier 50.2)	19,083			
4. Mobility & Hardship Allowance	1,310			
5. Medical Benefits Fund (3.75% of 1+3)	2,141			
6. UN Joint Staff Pension Fund (15.8% of Pensionable Remuneration)	9,623			
7. Terminal Benefits Fund + Insurance (10% of Basic Pay)	3,800			
Sub-Total Salary & Allowances	76,521	76,500	82,600	89,200
8. Assignment Grant a) DSA Portion b) Lump Sum Portion*	{ 14,175 { 4,760 { 5,550	24,500	--	--
9. Recruitment & Repatriation Travels + Transportation Personal Effects**	11,000	5,000	--	6,400
10. Home Leave Travel (Home-Leave Cycle: 24 months)	1,000	--	--	1,200
11. Provision for AL, EG, etc.	--	--	--	--
TOTAL EXP. COST PER YEAR		106,000	82,600	96,800
GRAND TOTAL	285,400			

* : Paras. 13 and 14 of Administrative Circular N° 1728 of 12 July 1990.

** : 6 round trips (Expt.+Wife+2 Children), Personal Effects Included,
50% beginning and 50% end of mission.

(This page left intentionally blank.)

{

(I)

ESTIMATES OF EXPENDITURES FOR 1994/1995

(in US \$)

IOC salary	90,000
Travel technical co-ordinator	15,000
CLS	15,000
WMO costs	300
Travel of chairman and related costs	10,000
Sundry expenditures and contingencies	<u>10,000</u>
TOTAL	140,300

(Basis: Official UN rate in September 1993, \$1 = FF5.85)

(II)

ESTIMATES OF REQUIRED INCOME FOR 1994/1995

Contributions	134,300
Carry-over 1993/1994	<u>6,000</u>
TOTAL	140,300

(This page left intentionally blank.)

DRAFT TABLE OF PROVISIONAL CONTRIBUTIONS FOR 1994/1995

(in US \$)

	1993/1994	1994/1995
Australia	12,500	12,500
Canada	18,000	18,000
France	~ 15,000 (FF 75,000)	~ 12,800 (FF 75,000)
Greece	2,200	2,200
Iceland	2,100	1,500
Ireland	500 (IR £315)	1,500 (IR £1000)
Netherlands	1,575	1,575
Norway	1,575	1,575
UK	15,000	15,000
USA	<u>68,000</u>	<u>68,000</u>
TOTAL	136,450	134,650

(This page left intentionally blank.)

RECOMMENDATION 6 (CMM-XI)

DRIFTING BUOYS IN SUPPORT OF METEOROLOGICAL AND OCEANOGRAPHIC OPERATIONS AND RESEARCH

THE COMMISSION FOR MARINE METEOROLOGY,

NOTING:

- (1) Resolution 10 (EC-XXXVII) — Drifting Buoy Co-operation Panel,
- (2) The *Third WMO Long-term Plan*, Part II, Volume 1 — The WWW Programme (WMO-No. 761),
- (3) The *Third WMO Long-term Plan*, Part II, Volume 4 — The Applications of Meteorology Programme (WMO-No. 764),
- (4) The TOGA International Implementation Plan,
- (5) The WOCE Implementation Plan, WMO/TD No. 242 and No. 243,
- (6) Annual Reports of the DBCP for 1991 and 1992,

FURTHER NOTING:

- (1) That not all drifting buoys carry sensors for atmospheric pressure and/or sea-surface temperature,
- (2) That the majority of drifting buoy deployments now taking place or planned over the next few years are funded through research programmes and that these deployments are therefore likely to cease with the termination of the research programmes,

CONSIDERING:

- (1) That drifting buoys represent a very cost-effective means for acquiring surface meteorological and oceanographic data from remote ocean areas,

NOTE: This recommendation replaces Recommendation 4 (CMM-X) which is no longer in force.

- (2) The stated requirements for operational drifting buoy data in support of the WWW, marine meteorological services and climate analysis and forecasting,

RECOMMENDS:

- (1) That agencies, institutions, and organizations involved in the acquisition and deployment of drifting buoys be urged to equip these buoys with at least atmospheric pressure and air temperature sensors so as to enhance their potential value to a wide variety of WMO Programmes;
- (2) That the WOCE community also be urged to continue to make the data from their drifting buoys available for real-time distribution over the GTS and for later permanent archival;
- (3) That Members and the Data Buoy Co-operation Panel continue their efforts to ensure funding of drifting buoy deployments on a long-term, operational basis following the termination of the TOGA and WOCE projects, and in known data-sparse areas, such as the Indian and South Atlantic Oceans;

REQUESTS the Secretary-General and the Data Buoy Co-operation Panel to bring this recommendation to the attention of Members and others concerned and to assist whenever possible in the implementation of the recommendation.

(This page left intentionally blank.)

SOC for Drifting Buoy Report

1992-1993

A daily collection and archiving of buoy reports from the world ocean is performed by the French Meteorological service.

As usual the french SOC produces monthly graphic products for buoys, moored buoys, drifting buoys, ships.

Figures 1, 2, 3, 4, show the time evolution of reports for wind (direction and speed) and for pressure respectively for all buoys, moored buoys, drifting buoys and ships since the 1st of January 1992.

Each month mapping position plot charts and Marsden square distribution are produced for Drifter and Ship and are sent to 70 users in the world. Figures 6, 7, 8, 9 show products for August 1993.

The SOC has increased its activities, a daily collection and archiving of waveobs reports from the world ocean is performed since the 11th October 1992. Figure 5 shows the time evolution of waveobs reports since the beginning of this new work.

French SOC Representative

Joël POITEVIN

Omnet : J. POITEVIN

(This page left intentionally blank.)

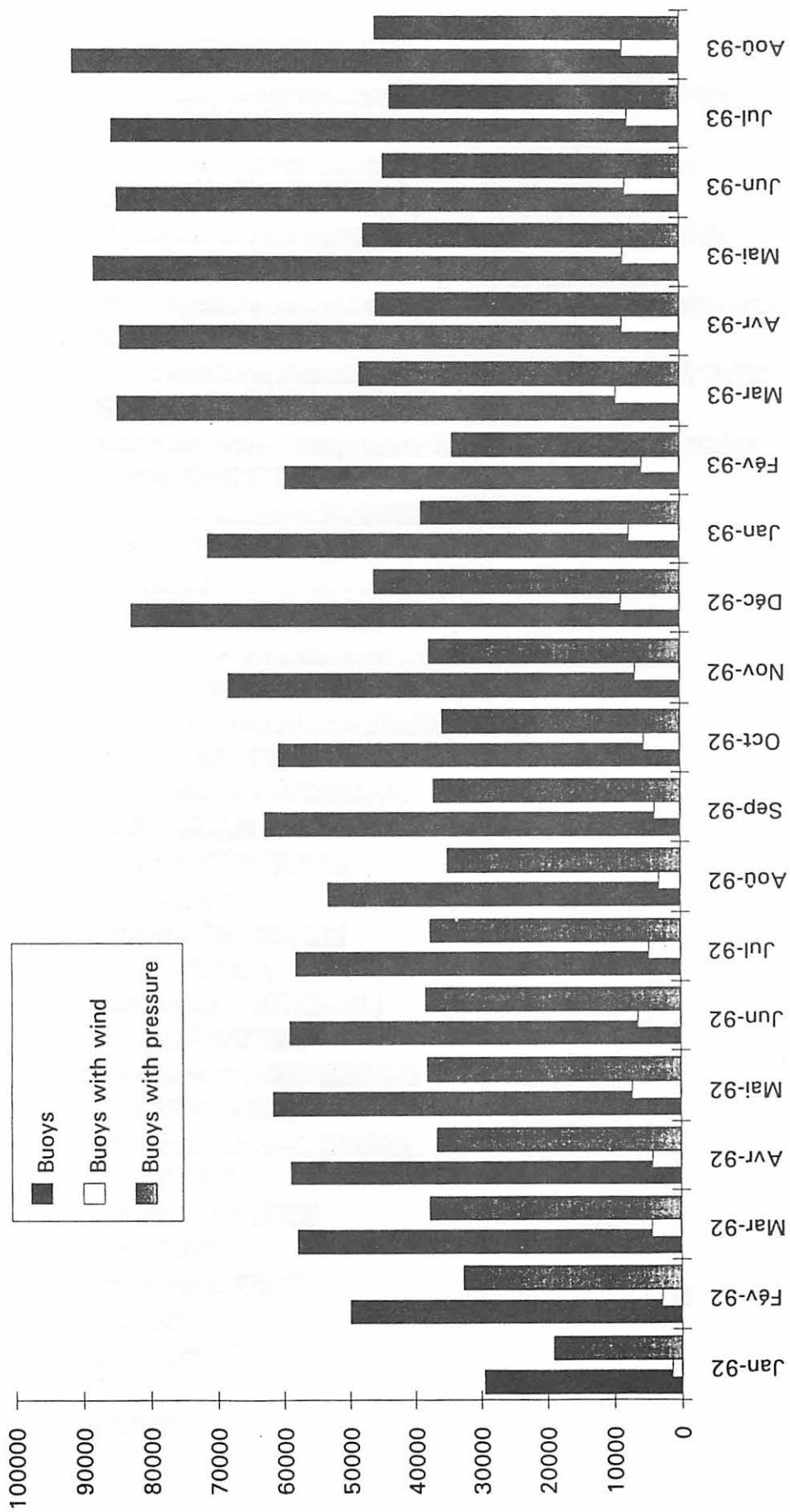


Figure 1

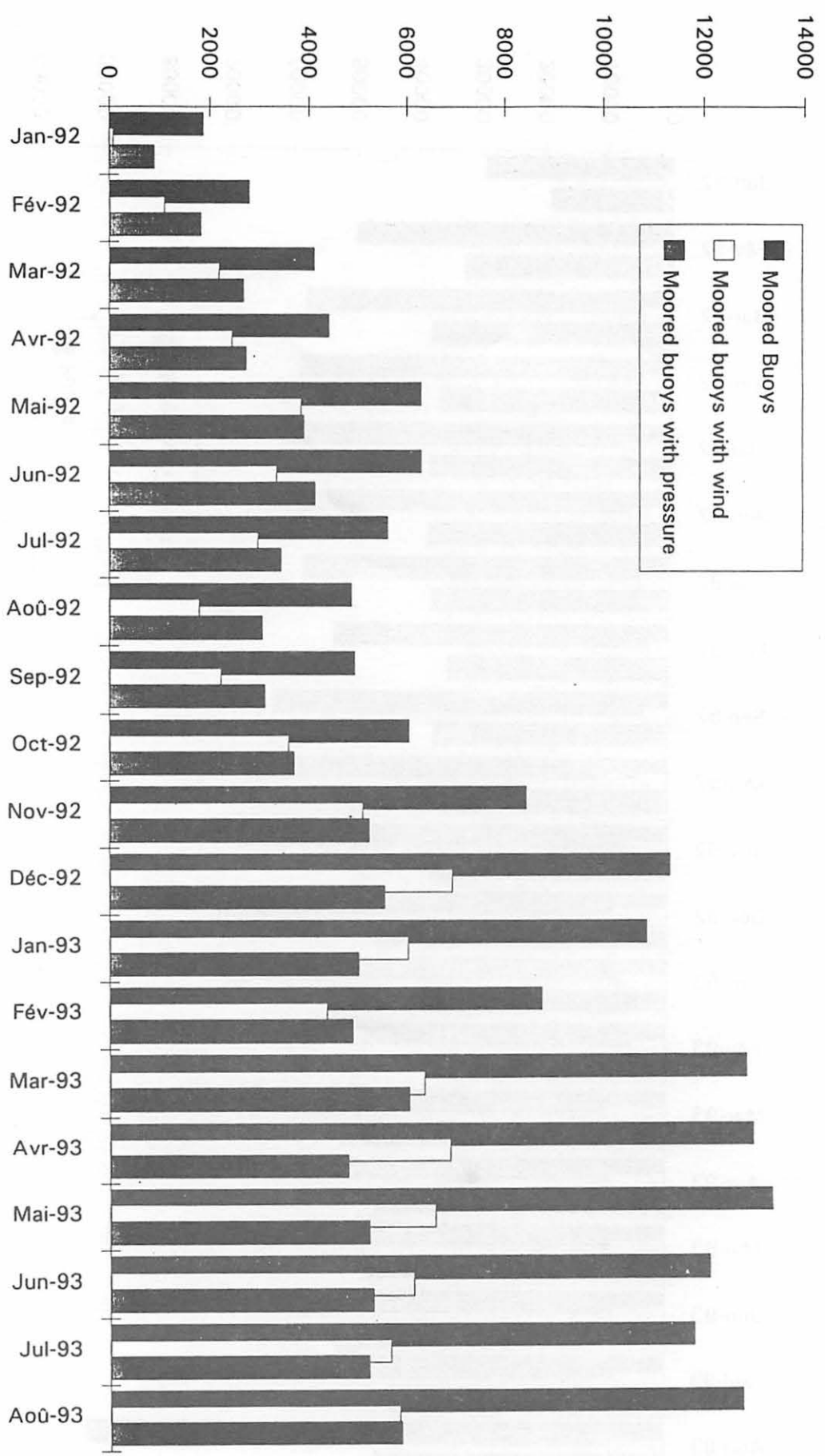


Figure 2

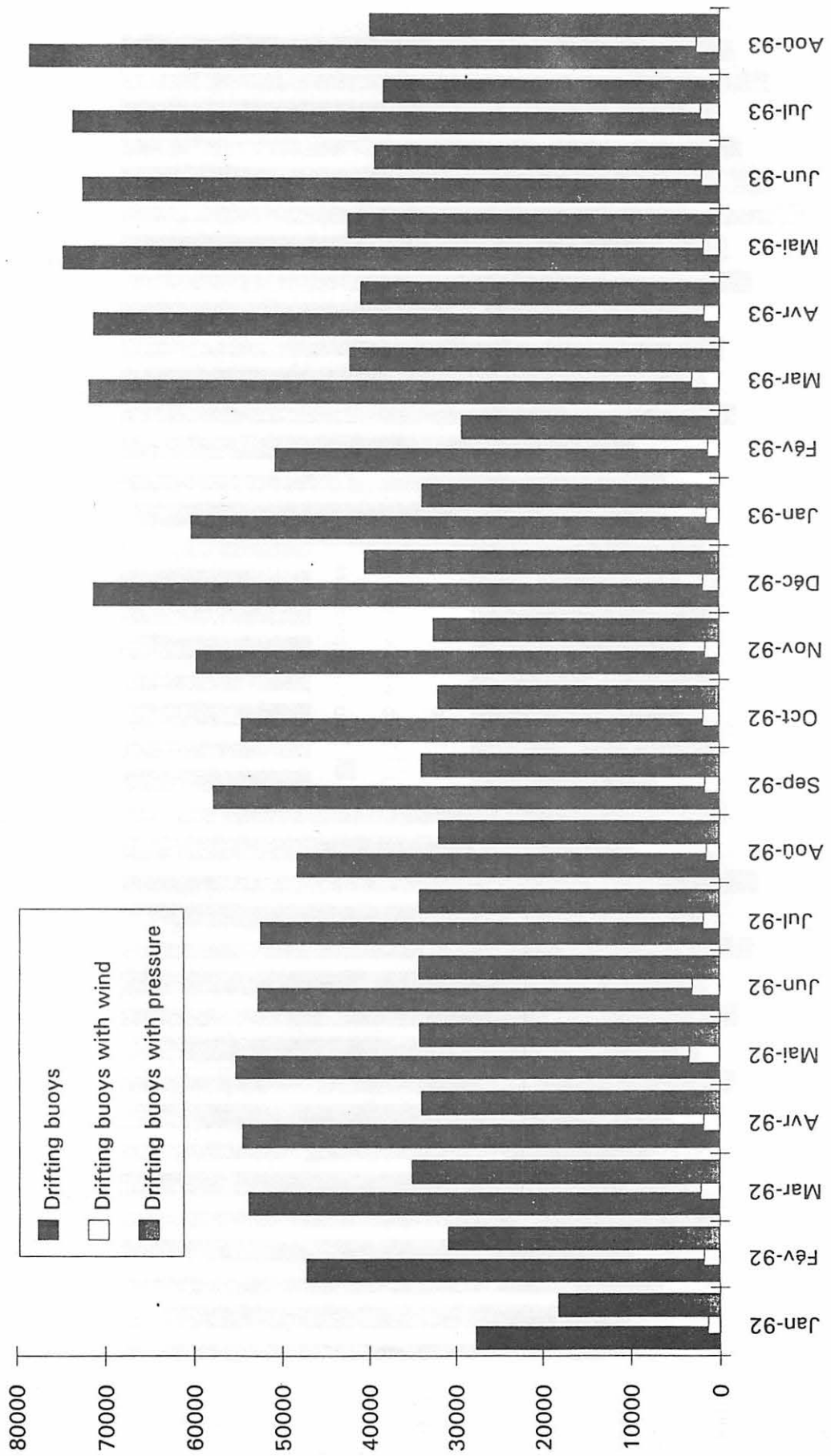


Figure 3

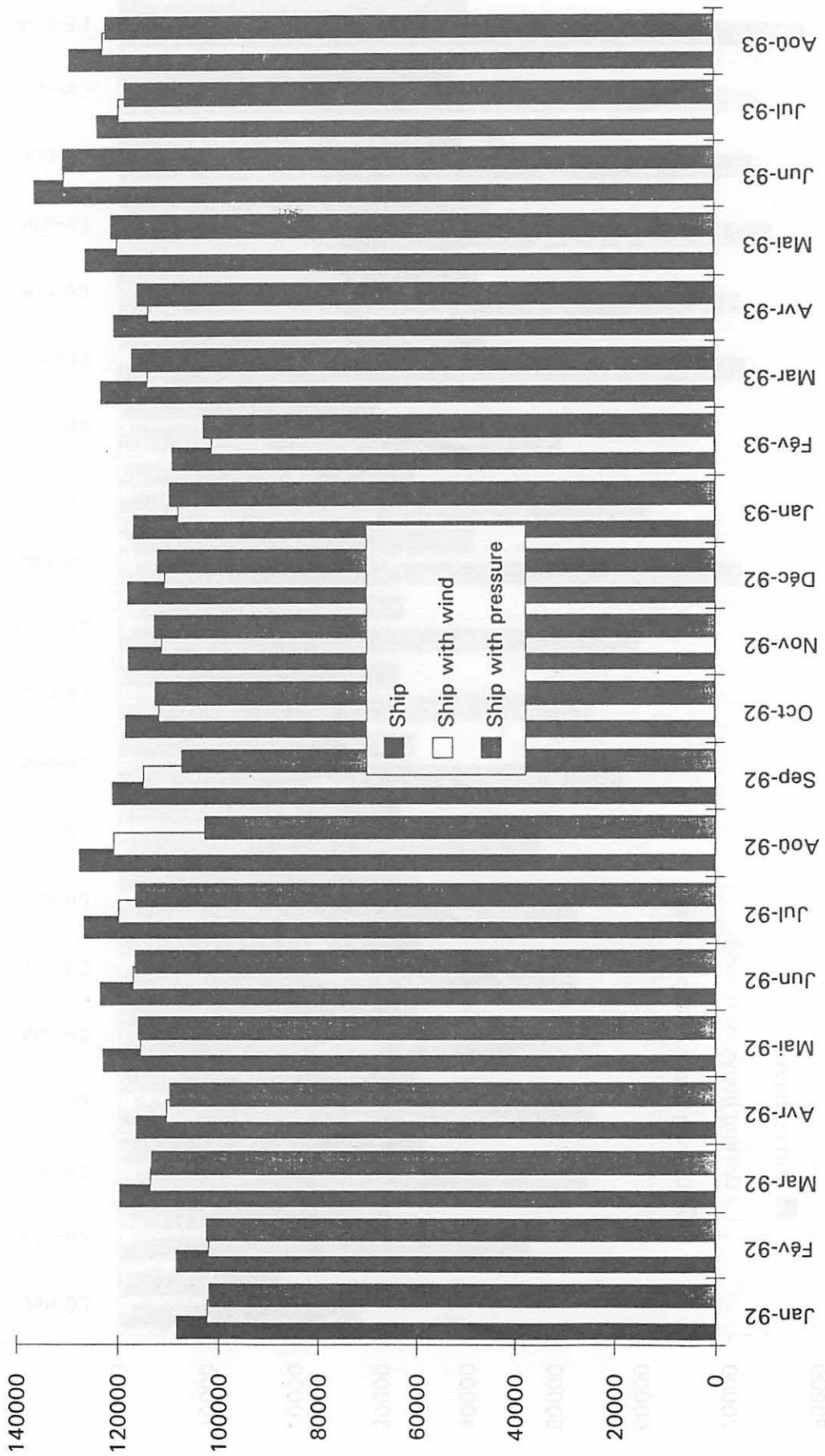


Figure 4

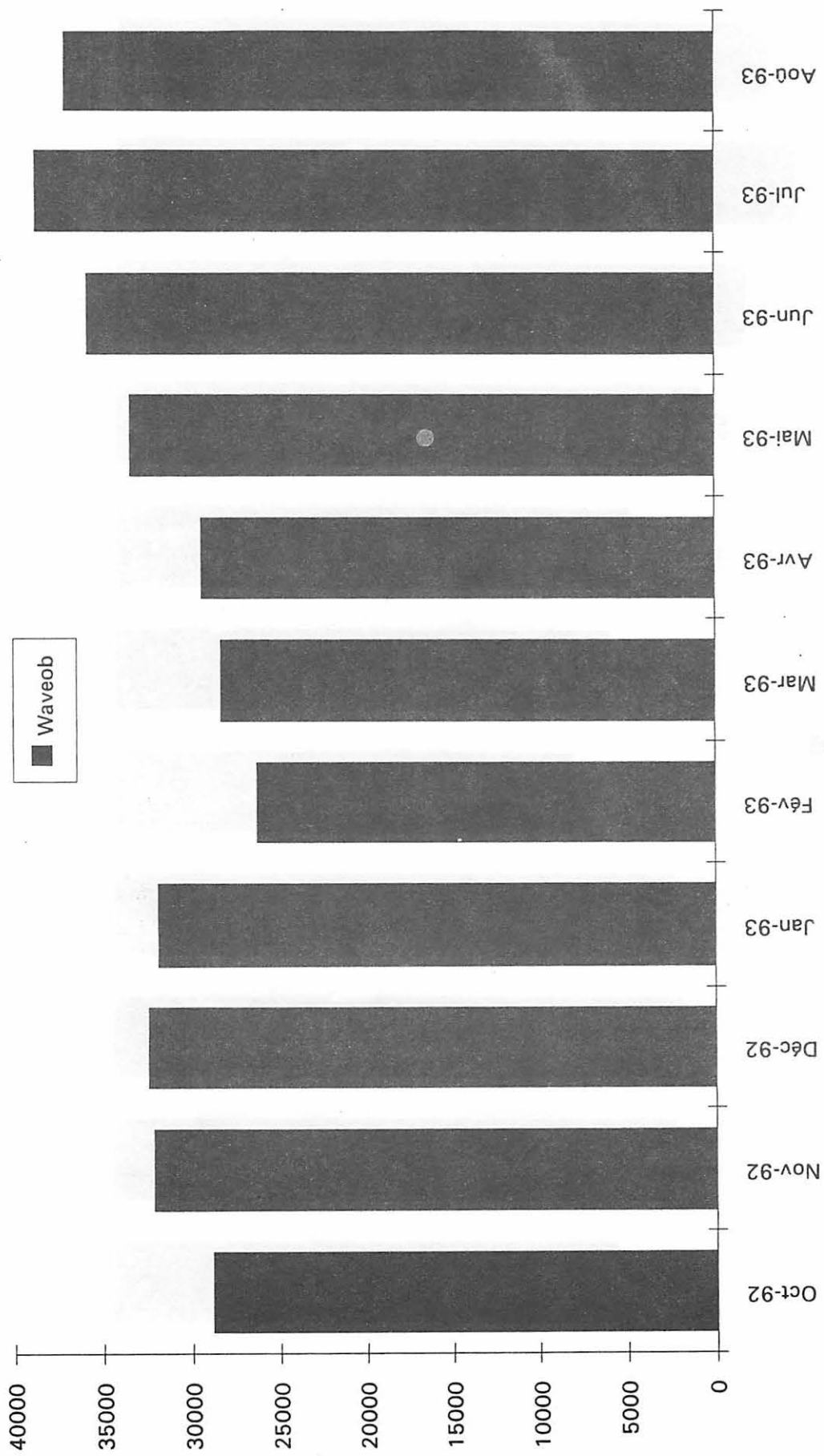


Figure 5

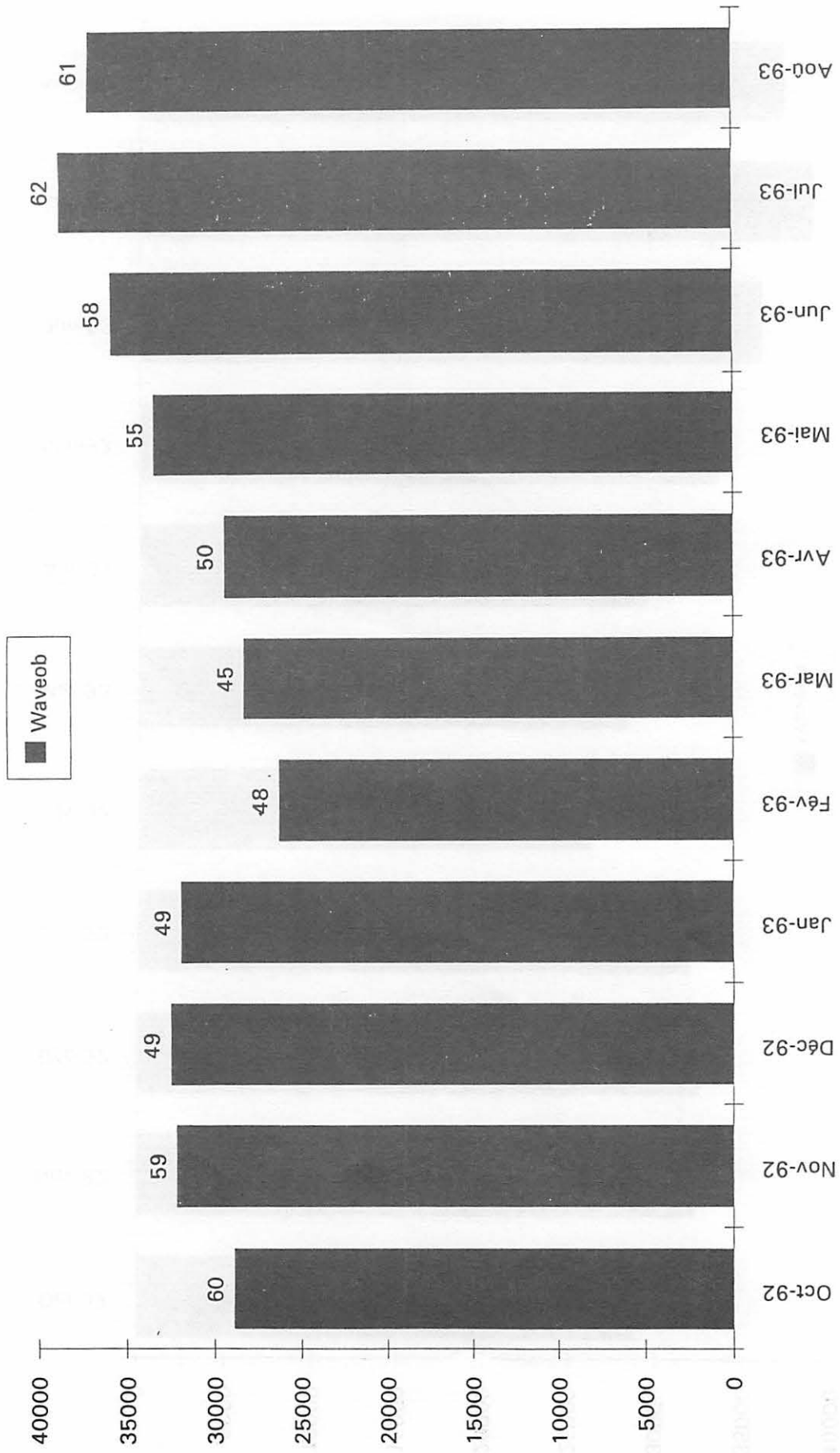


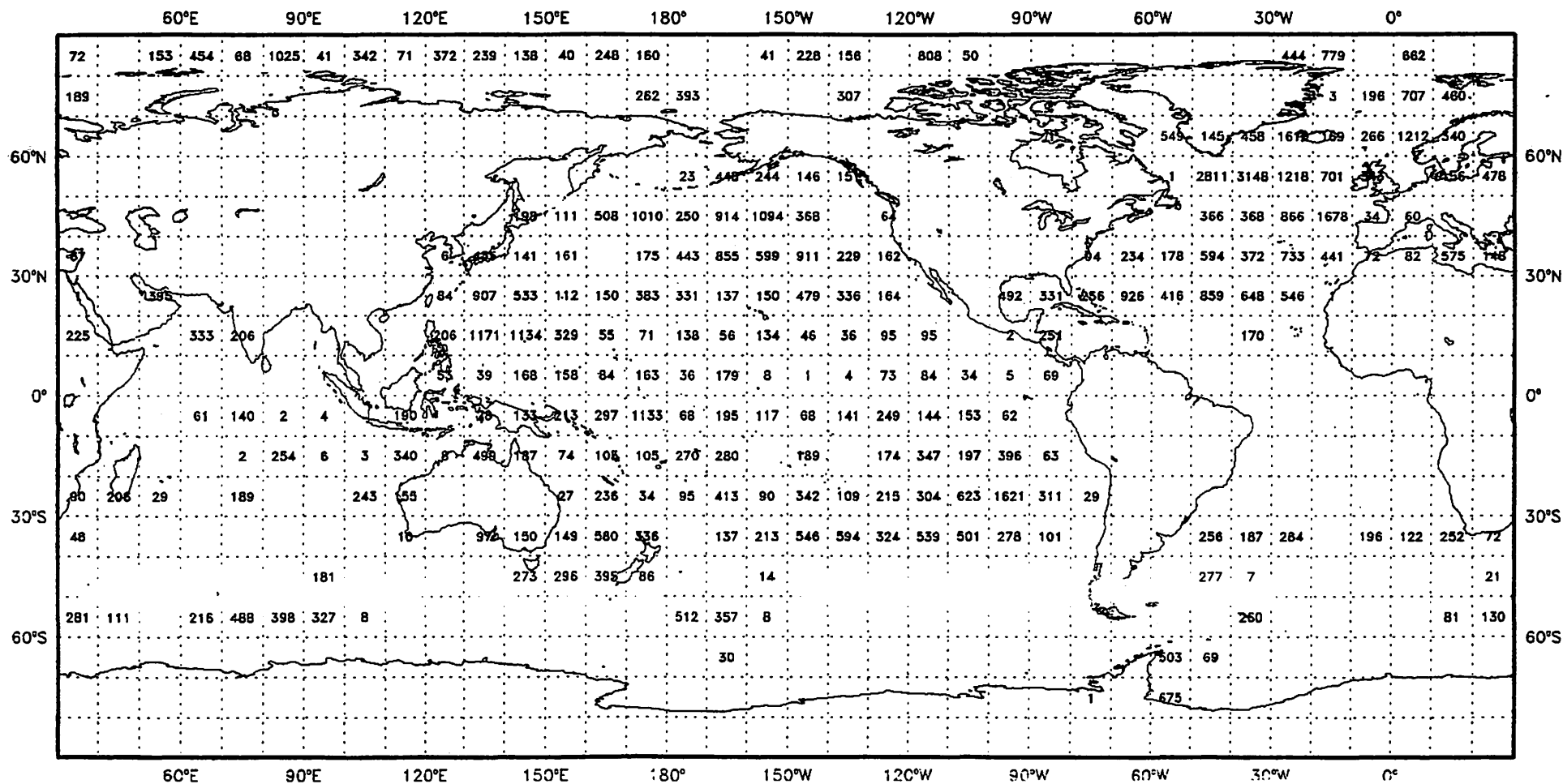
Figure 5

Repartition par carre Marsden des observations recues en Aout 1993

Marsden square distribution chart of data received during August 1993

Messages : DRIFTER

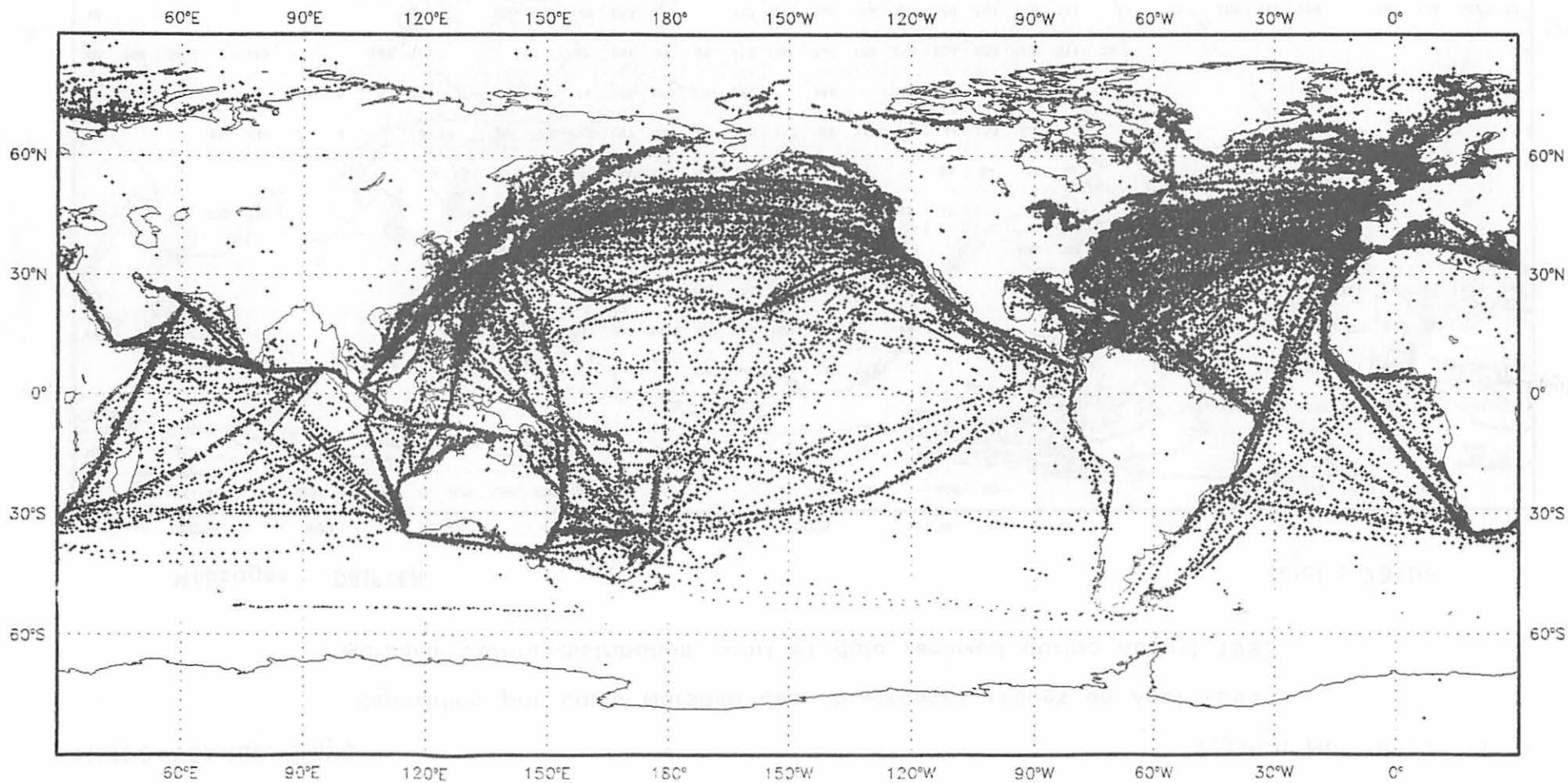
Total : 78106



Carte de pointage des observations recues en Aout 1993
Mapping position plot chart of data received during August 1993

Messages : SHIP

Total : 129048

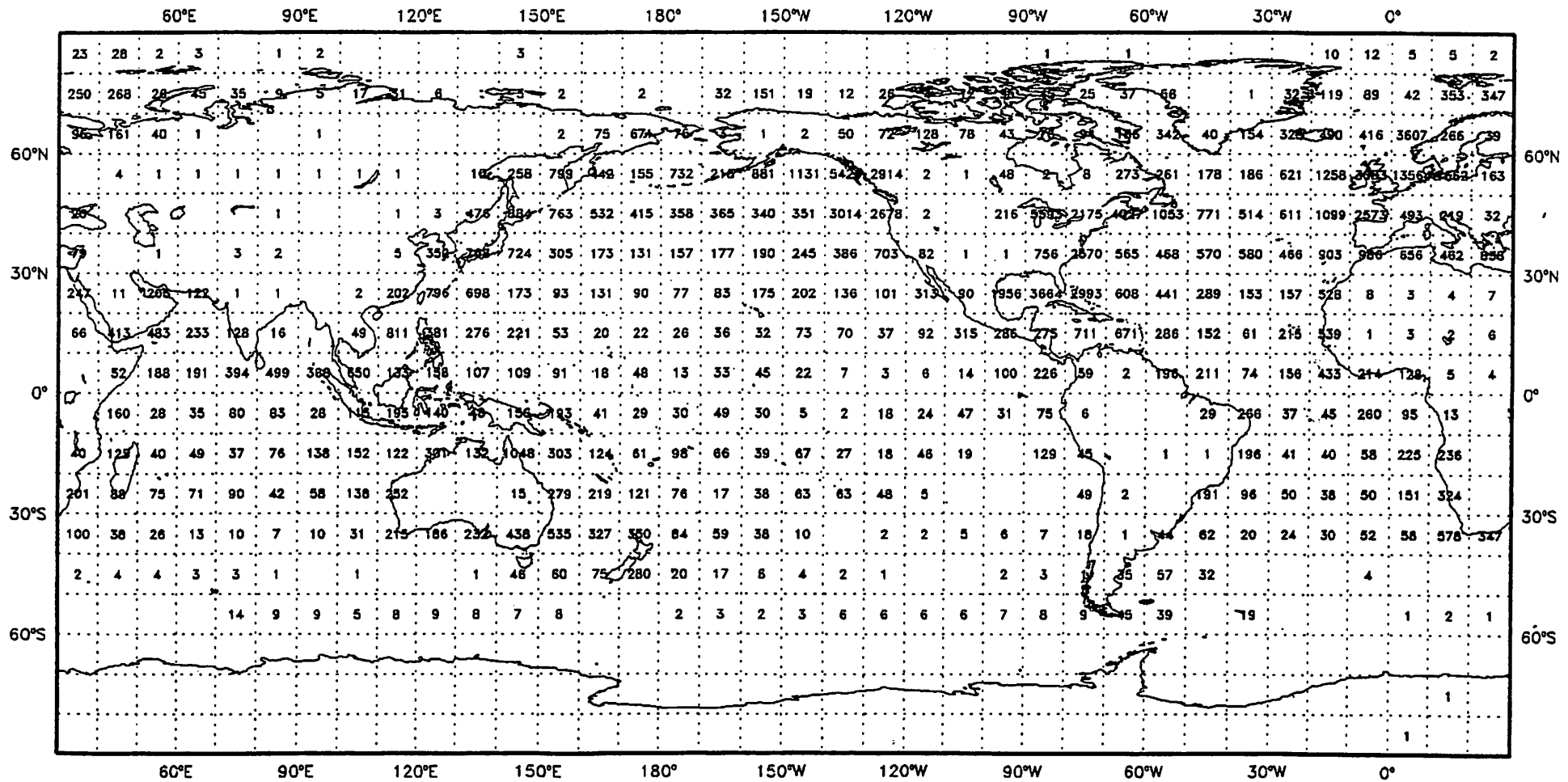


Repartition par carre Marsden des observations recues en Aout 1993

Marsden square distribution chart of data received during August 1993

Messages : SHIP

Total : 129048

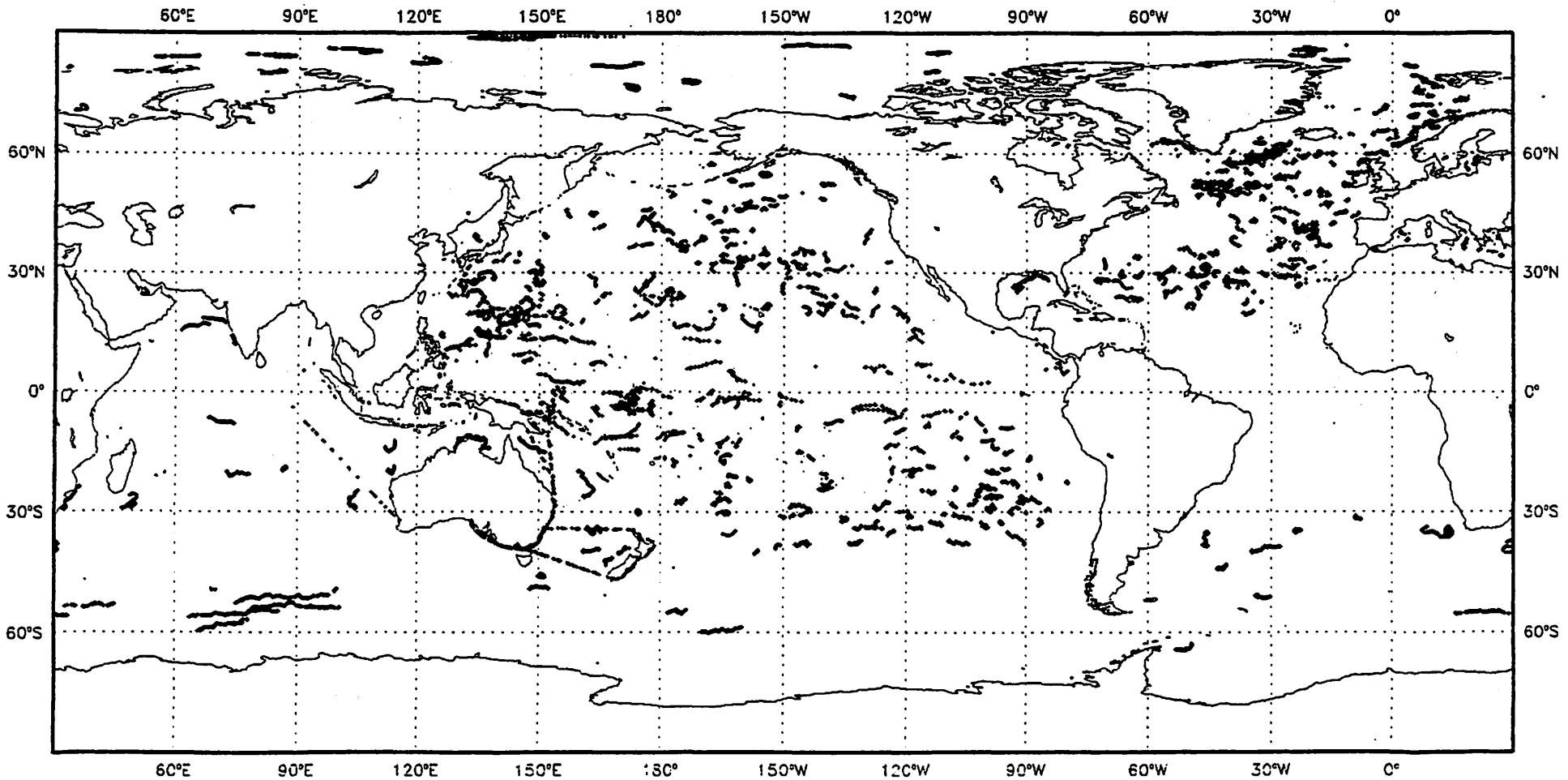


Carte de pointage des observations recues en Aout 1993

Mapping position plot chart of data received during August 1993

Messages : DRIFTER

Total : 78106



RNODC FOR DRIFTING BUOY DATA

Introduction

1. The Marine Environmental Data Service (MEDS) in Canada became a Responsible National Oceanographic Data Centre (RNODC) for Drifting Buoy Data on behalf of the Intergovernmental Oceanographic Commission (IOC) and the World Meteorological Organization (WMO) in January 1986. The purpose of this report is to describe the activities of the RNODC-MEDS in acquiring and making drifting buoy data available to the scientific community during the last nineteen months (January 92 - July 93).

Data Flow

2. We show in the table which is displayed at the end of the report various statistics derived for this 19-month period. The first column of the table gives the month and year number, the second column provides the number of messages received by MEDS for this particular month-year. The next two columns provide the statistics on the buoys themselves; it shows first the number of buoys reporting on the GTS and for which MEDS is receiving the data while the second one gives the number of operating drifting buoys according to Service ARGOS. The last column gives an estimate of the success by MEDS in acquiring the drifting buoy data. Figure 1 is an illustration of the same information as it displays on the left Y-axis the number of buoys for which MEDS receives the data (continuous line) while the right Y-axis illustrates the number of messages received each month (bar chart) by MEDS.

3. During this 19-month period, MEDS received a total of 1,416,970 messages transmitted from drifting buoy platforms and sent through the GTS (average of 74,577 per month). The average number of messages per month (90,619) for the seven months being reported for 1993 has increased by 38.9 % from the 1992 monthly average which shows that more and more data are being transmitted through the GTS and received by MEDS.

4. The number of buoys reporting data through the GTS has also increased significantly during the first seven months of 1993. The average number of buoys reporting on the GTS (according to ARGOS statistics) has increased from 963 in 1992 to 1157 in 1993, a 20 % increase. The percentage of data for which MEDS receives the data through the GTS has also increased as shown by Figure 2 of this report. The upward trend is very encouraging and shows that more and more Principal Investigators choose the GTS route for transmitting their data.

5. Following a recommendation made by the Surface Velocity Program Data Management Committee on WOCE, MEDS has also been receiving Drifting Buoy data from AOML. Data for the 18-month period (July 1991 to December 1992) have been received so far. The data for the last 6-month are now being processed and, as the other data tapes received before ZIT contains the original ARGOS data, the P-file which is the edited buoy position file, the S-file which is the edited temperature file, the KRIG-file which is the 6-hour interpolated position being performed by AOML using their latest algorithm and one more administrative file relating buoy numbers together.

Historical Data Acquisition

6. From the FGGE program and since January 1986 when MEDS became the RNODC for Drifting Buoy data, the archive has grown constantly. It now contains a total of 6,286,468 messages from 4,837 different drifting buoys of which more than 84 % has passed MEDS critical quality control procedures. Figure 3 shows the geographical distribution by slice of 60 degrees of latitude the entire Drifting Buoy database.

Services

7. MEDS issues an annual report summarizing the data received and processed during the previous year and showing the locations of the buoys. The 1992 annual report has already been published and distributed. Every month, global maps are issued displaying the location for the buoys reporting over the GTS. In addition MEDS also deliver data for a user specified area, time and range of buoys on computer magnetic tape in GF-3 format. If the volume of data requested is small enough, it can be obtained on computer diskette (5 1/4 or 3 1/2-inch). Displays of buoy tracks can be made for any ocean area and time frame. The MEDS monthly DRIBU track chart is also published in the IOC/WMO IGOSS Products Bulletin quarterly publication.

8. MEDS has completed the development and installation of a computer file containing information about the operators of the buoys as well as the program under which the buoy has been deployed. Other information, such as the program manager or organization and characteristics of the buoy are also kept if this information is made available to MEDS.

9. MEDS has developed an archiving mechanism for the Drifting Buoys Bulletin Board messages available each day on ScienceNet. For a particular buoy or set of buoys, all messages (if any) regarding its operational behaviour are available upon request on paper or on computer diskette.

Table

**Monthly statistics on number of buoys and
number of messages received at MEDS
from January 92 to July 93**

Month/Year	# Messages received In MEDS	# Buoys reporting on GTS	# Buoys according to ARGOS	% received in MEDS
Jan 92	53,787	473	848	55.8
Feb 92	61,099	469	900	52.1
Mar 92	64,377	503	893	56.3
Apr 92	60,659	479	896	53.5
May 92	66,232	513	904	56.7
Jun 92	63,820	542	983	55.1
Jul 92	61,904	532	925	57.5
Aug 92	52,112	573	965	59.4
Sep 92	65,863	647	1,078	60.0
Oct 92	70,435	665	1,090	61.0
Nov 92	74,990	664	1,060	62.6
Dec 92	87,359	691	1,012	68.3
Jan 93	76,445	688	1,027	67.0
Feb 93	63,463	690	1,632	42.3
Mar 93	95,015	688	1,097	62.7
Apr 93	98,311	703	1,103	63.7
May 93	102,554	717	1,053	68.1
Jun 93	98,353	673	1,096	61.4
Jul 93	100,192	666	1,088	61.2

Report prepared by: Paul-Andri Bolduc
Marine Environmental Data Service
August 1993

FIGURE 1

Drifting Buoys

of Buoys vs # of Messages

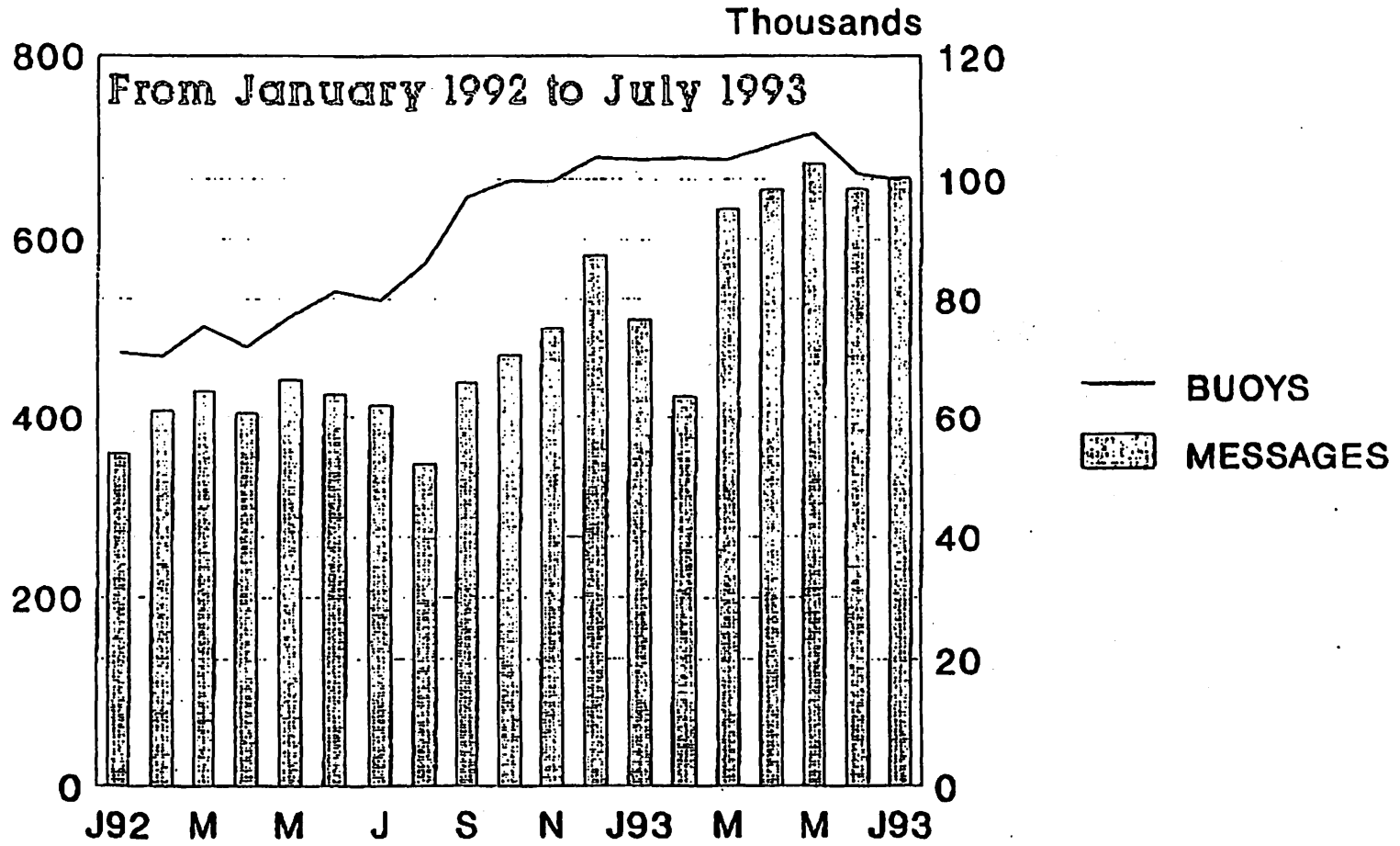


FIGURE 2

RNODC for Drifting Buoys

% Buoys Data received at MEDS

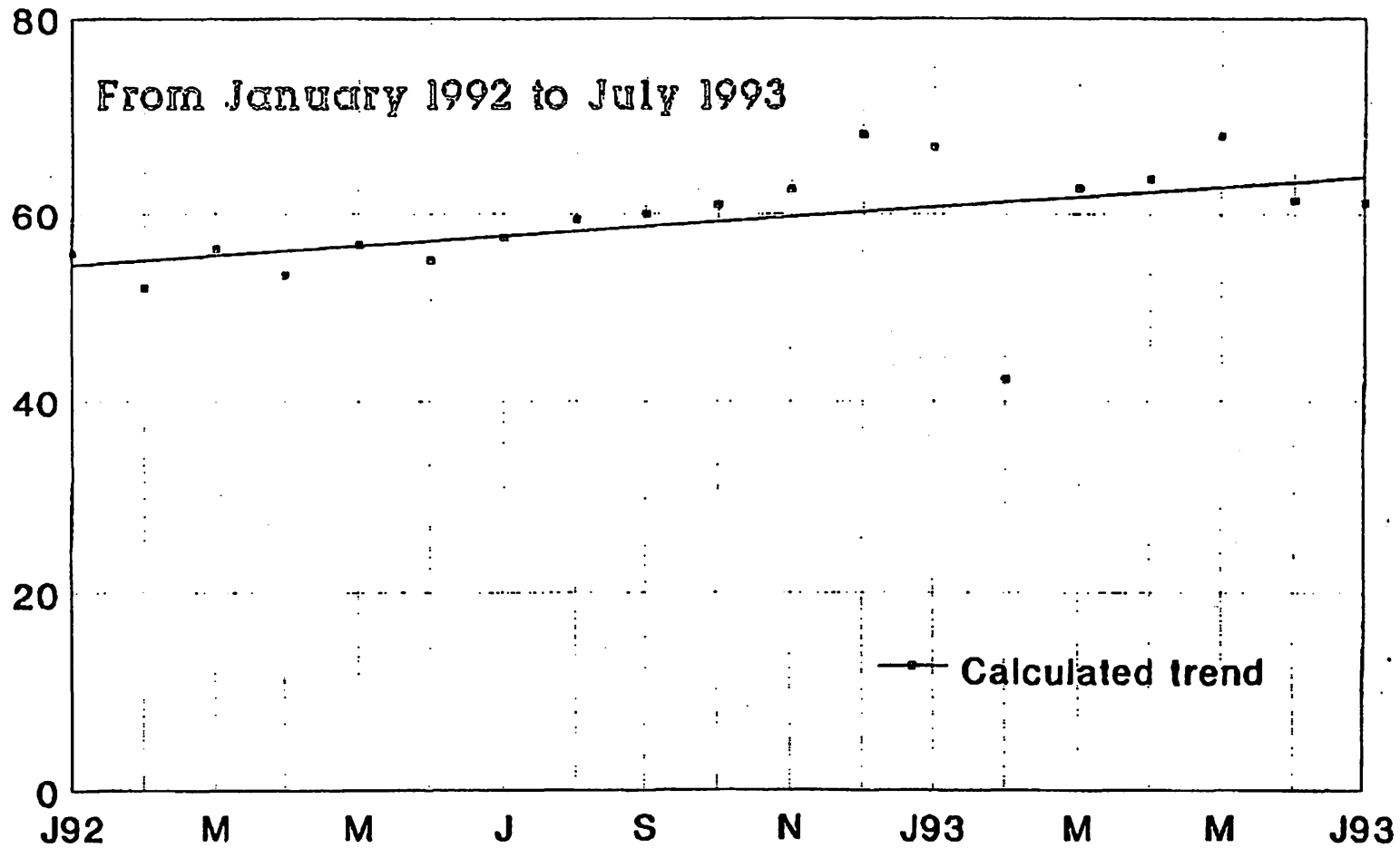
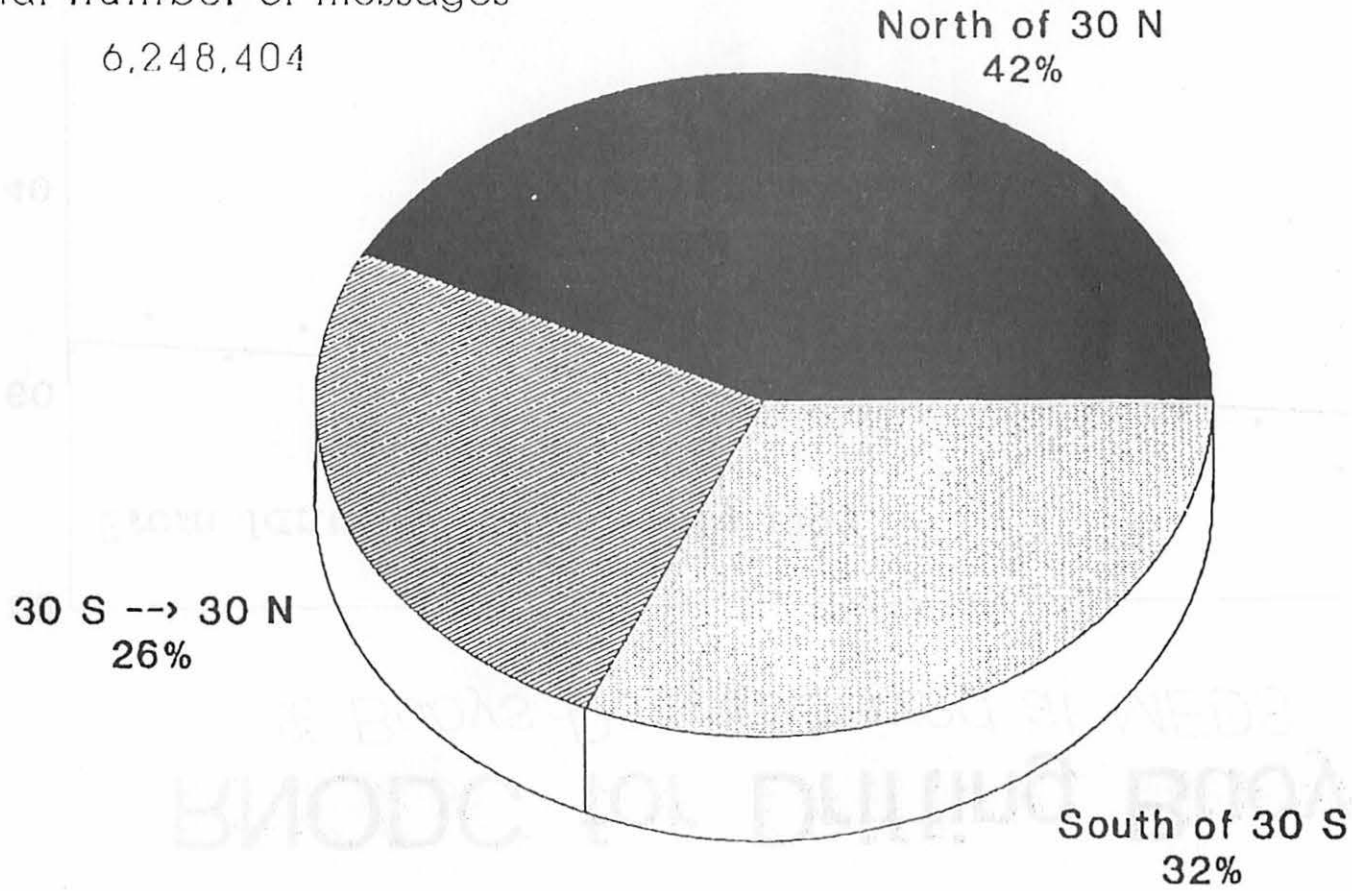


FIGURE 3

RNODC Historical Database Size

by Geographical Area (60 deg. slices)

Total number of messages
6,248,404



SEMAPHORE

The Panel was presented by Mr. P. Blouch with a French meteo-oceanographic campaign currently carried out in the South of the Azores. Among several observation systems (ships, aircrafts, ...), 135 drifting buoys, including 25 standard SVP drifters, were deployed for this campaign called SEMAPHORE, over an area of 500 x 500 km. Most data are sent on the GTS. The data provided by 35 marisonde GT buoys allow to produce, in quasi real-time, sea temperature fields down to 150 meters depth and wind fields. The fields are used by the research ships participating in the campaign in order to make valuable complementary observations.

THE ATLAS MOORING, THE TAO MOORING ARRAY & THE PRICE OF SOYBEANS IN CHICAGO

About every four to seven years there is a significant disruption of the atmospheric and oceanographic circulation patterns in the equatorial Pacific. These changes may manifest themselves in complex ways ranging from the cost of poultry in the market to the modification of global scale weather. The disruption's two components, El Nino and its atmospheric complement the Southern Oscillation, are the focus of the international Tropical Ocean and Global Atmosphere (TOGA) program. Through an ambitious program in the equatorial Pacific, TOGA is investigating the oceanic and atmospheric dynamics relating to the El Nino/Southern Oscillation phenomenon and its importance in the year to year variability of global climate. As part of the TOGA program, efforts have been made to enhance the real-time ocean observing system in the tropical Pacific Ocean. One element of this improved system is the TOGA-Tropical Atmosphere Ocean (TAO) array of ATLAS moorings. The ATLAS mooring, developed at NOAA's Pacific Marine Environmental Laboratory (PMEL) Seattle, WA in the 1980's, is a taut wire surface mooring with a toroidal float and is deployed in water depths of up to 6000 meters. Measurements from the mooring include surface parameters (wind, air and sea surface temperature) as well as subsurface temperatures down to a depth of 500 meters. These data are transmitted to shore in real-time using the ARGOS system on NOAA's polar orbiting satellites, processed by Service ARGOS, and placed on the Global Telecommunications System. Post recovery processing and analysis of the data is performed at PMEL. This array and its planned expansion is the result of international collaboration with scientists from France, Japan, Korea and USA. The ATLAS mooring, TAO array, their development and characteristics are discussed.

(This page left intentionally blank.)

Annex to Recommendation 10 (CBS-X)

FM 18-X BUOY — Report of a buoy observation to replace FM 18-IX EXT. DRIFTER

New code: BUOY (the new features relative to the DRIFTER code appear in bold).

New title: FM 18-X BUOY — Report of a buoy observation

CODE FORM:

SECTION 0 $M_i M_i M_i M_i A_1 b_w n_b n_b n_b Y Y M M J G G g g i_w$
 $Q_c L_a L_a L_a L_a L_a$
 $L_o L_o L_o L_o L_o (6 Q_i Q_i //)$

SECTION 1 $111 Q_d Q_x O d d f f 1 s_n T T T 2 s_n T_d T_d T_d (or 29 U U U)$
 $3 P_o P_o P_o P_o 4 P P P P 5 a p p p$

SECTION 2 $222 Q_d Q_x 0 s_n T_w T_w T_w 1 P_{wa} P_{wa} H_{wa} H_{wa}$
 $20 P_{wa} P_{wa} P_{wa} 21 H_{wa} H_{wa} H_{wa}$

SECTION 3 $(333 Q_{d1} Q_{d2} (8887 k_2 2 z_0 z_0 z_0 z_0 3 T_0 T_0 T_0 4 S_0 S_0 S_0$
 $..... 2 z_n z_n z_n z_n 3 T_n T_n T_n T_n 4 S_n S_n S_n S_n)$
 $(66 k_6 9 k_3 2 z_0 z_0 z_0 z_0 d_0 d_0 c_0 c_0 c_0$
 $..... 2 z_n z_n z_n z_n d_n d_n c_n c_n c_n)$

SECTION 4 $444 (1 Q_p Q_2 Q_{TW} Q_A) (2 Q_N Q_i //) (Q_c L_a L_a L_a L_a L_a L_o L_o L_o L_o L_o L_o$
 $(8 V_i V_i V_i V_i) (9 i_d Z_d Z_d Z_d) or (Y Y M M J G G g g //) (7 V_b V_b d_b d_b)$

NOTES:

- (1) BUOY is the name of the code for reporting buoy observations.
- (2) A BUOY report, or a bulletin of BUOY reports, is identified by the group $M_i M_i M_i M_i = Z Z X X$.
- (3) The inclusion of the group $9 i_d Z_d Z_d Z_d$ is strongly recommended for buoys which have been deployed with drogues.
- (4) The group $9 i_d Z_d Z_d Z_d$ should not be used in reports from a buoy on which a drogue has never been installed.
- (5) The code form is divided into five sections, the first being mandatory in its entirety and the remainder optional as data are available:

Section	Symbolic figure group	Contents
0	-	Identification, time and position data
1	111	Meteorological and other non-marine data
2	222	Surface marine data
3	333	Temperatures, salinity and current (when available) at selected depths
4	444	Information on engineering and technical parameters, including quality control data

REGULATIONS:

18.1

General

The code name BUOY shall not be included in the report.

18.2

Section 0

18.2.1

All groups in Section 0 are mandatory and shall be included in each report, even if no other data are reported. A minimum BUOY report shall consist of all groups in Section 0.

18.2.2

Each individual BUOY report, even if included in a bulletin of such reports, shall contain as the first group the identification group $M_i M_i M_i M_i$.

18.2.3

Group A₁b_wn_bn_bn_b

Only buoy numbers (n_bn_bn_b) 001 through 499 are assigned. In the case of a drifting buoy, 500 shall be added to the original n_bn_bn_b number.

NOTES:

- (1) A₁b_w normally corresponds to the maritime zone in which the buoy was deployed. The WMO Secretariat allocates to Members, who request and indicate the maritime zone(s) of interest, a block or blocks of serial numbers (n_bn_bn_b) to be used by their environmental buoy stations.
- (2) The Member concerned registers with the WMO Secretariat the serial numbers actually assigned to individual stations together with their geographical positions of deployment.
- (3) The Secretariat informs all concerned of the allocation of serial numbers and registrations made by individual Members.

18.2.4

Groups Q_cL_aL_aL_aL_a L_oL_oL_oL_o

Position shall be reported in tenths, hundredths or thousandths of a degree, depending on the capability of the positioning system. When the position is in tenths of a degree, the groups shall be encoded as Q_cL_aL_aL_a// L_oL_oL_o//. When the position is in hundredths of a degree, the groups shall be encoded as Q_cL_aL_aL_aL_a/ L_oL_oL_oL_o/.

18.2.5

Group (6Q₁Q_t//)

Q₁Q_t are quality control indicators. Q₁ applies to position and Q_t to time.

18.3

Section 1

18.3.1

Each of the groups in Section 1 shall be included for all parameters that have been measured, when data are available.

18.3.2

When data are missing for all groups, the entire section shall be omitted from the report.

18.3.3

Group 111Q_dQ_x

Q_d is a quality control indicator for the section. If all the data group(s) have the same quality control flag value, Q_d shall be coded with that value and Q_x shall be set to 9. If only one data group in the section has a quality control flag other than 1, Q_d shall be coded with that flag and Q_x shall indicate the position of this group within the section. If more than one data group have a quality control flag greater than 1, Q_d shall be set to the greater flag value and Q_x shall be set to 9.

NOTE: When Q_x shows the position of the data group it should be relative to the group containing Q_x. For example, Q_x = 1 refers to the data group immediately following.

18.4

Section 2

18.4.1

Each of the groups in Section 2 shall be included for all parameters that have been measured, when data are available.

18.4.2

When data are missing for all groups, the entire section shall be omitted from the report.

18.4.3

Group 222Q_dQ_x

Regulation 18.3.3 shall apply.

18.5

Section 3

18.5.1

General

Section 3 is in two parts. The first part, identified by the indicator group 8887k₂, shall be used to report temperatures and/or salinity at selected depths. The second part, identified by the indicator group 66k₆9k₃, shall be used to report current at selected depths. Either or both parts shall be transmitted, depending on the availability of the temperature and/or salinity data for the first part and of current data for the second part.

18.5.2

Temperatures shall be reported in hundredths of a degree Celsius. When accuracy is limited to tenths of a degree, data shall be encoded using the general form 3T_nT_nT_n/.

18.5.3

Group 333Q_{d1}Q_{d2}

Q_{d1}Q_{d2} are two quality control indicators. Q_{d1} is used to indicate the quality of the temperature and salinity profile and Q_{d2} is used to indicate the quality of the current speed and direction profile.

18.6

Section 4

18.6.1

General

Additional groups in this section shall be included as data are available or required.

18.6.2

Group (1Q_pQ₂Q_{TW}Q₄)

When Q_p, Q₂, Q_{TW}, and Q₄ = 0, the corresponding group shall not be transmitted. Its absence thus indicates a satisfactory general operation.

18.6.3

Group (2Q_NQ_L/I)

When Q_N and Q_L = 0, the corresponding group shall not be transmitted.

Old 18.6.4 deleted (see 18.6.7 hereafter). 18.6.5 and 18.6.6 renumbered as 18.6.4 and 18.6.5 (hereafter).

18.6.4

Group (Q_cL_aL_aL_aL_aL_a)

This group shall be transmitted only when Q_L = 2 (location over one pass only). It gives the latitude of the second possible solution (symmetrical to the satellite sub-track).

NOTE: Same coding as in Section 0.

18.6.5

Group (L_oL_oL_oL_oL_oL_o)

This group shall be transmitted only when Q_L = 2 and it gives the longitude of the second possible position, the latitude being indicated by the previous group.

NOTE: Same coding as in Section 0.

18.6.6

Groups YYMMJ GGgg/

The groups YYMMJ GGgg/ give the exact time of the last known position and shall be transmitted only when Q_L = 1 together with the following group (7V_BV_Bd_Bd_B).

18.6.7

Group (7V_BV_Bd_Bd_B)

This group shall be transmitted only when Q_L = 1.

Example: At the last location the true direction of the buoy is 47° and its speed is 13 cm s⁻¹ — the group is coded 71304.

18.6.8

Group (8V_iV_iV_iV_i)

The number of groups 8V_iV_iV_iV_i containing information on the engineering status of the buoy shall not exceed three.

NOTES:

- (1) The physical equivalent of the value V_iV_iV_iV_i will be different from one buoy to another.
- (2) Interpretation of these groups will not be necessary to permit use of the meteorological data.

Add the following specifications:

Q _d	Quality control indicator (Code table 3334) (FM 18-X)
Q _{d1}	Quality control indicator for temperature/salinity profile. (Code table 3334) (FM 18-X)
Q _{d2}	Quality control indicator for current profile. (Code table 3334) (FM 18-X)
Q _i	Quality control indicator for position. (Code table 3334) (FM 18-X)
Q _t	Quality control indicator for time. (Code table 3334) (FM 18-X)
Q _x	Indicator of position of group (see Regulation 18.3.3) (FM 18-X)

Add code table 3334:

	3334
Q _d —	Quality control indicator
Q _{d1} —	Quality control indicator for temperature/salinity profile
Q _{d2} —	Quality control indicator for current profile
Q _i —	Quality control indicator for position
Q _t —	Quality control indicator for time
Code figure	
0	Data not checked
1	Data good
2	Data inconsistent
3	Data doubtful
4	Data wrong
5	Data value has been changed
6-9	Not used

NOTE: These flags are the same as the IGOSS quality control flags.

Replace title in code table 2267 by:

k₆ — Method of removing the velocity and motion of the ship or buoy from current measurement.

Add NOTE at end of code table 2267:

NOTE: Code figures 0, 1, 2 and 6 are also used for drifting buoys.

OPERATING PROCEDURES FOR THE DATA BUOY CO-OPERATION PANEL

1. To the extent that the Panel is a formally established body of the WMO and IOC, Panel Members will be the representatives of Members of WMO or Member States of IOC which expressed a willingness to participate in the Panel activities.
2. The Panel will meet annually. Representatives of any institution or programme actively involved in the use, development or deployment of data buoys, or which specifically require buoy data, may participate in the meetings.
3. The Panel will elect a Chairman and a Vice-Chairman, from among Panel members, to carry out the work of the Panel between sessions. The Chairman will prepare reports for WMO and IOC, as required, and act as the focal point for communications amongst the Panel members.
4. The Chairman may call on individual Panel members for assistance in matters such as representing the Panel at meetings of other bodies, preparing of reports on specific topics, etc.
5. The Panel requires the support of a full-time Technical Co-ordinator. The costs associated with this position will be supported through voluntary contributions to a trust fund specifically designated as being for the purpose. These arrangements will be reviewed annually.
6. The Panel requires support from the Secretariats of WMO and IOC in the dissemination of invitations to Panel meetings and the preparation of documents and reports related to meetings.
7. The terms of reference for the Panel are those given in WMO Executive Council Resolution 9 (EC-XLV) and IOC Assembly Resolution XVII- 6. The Panel also adopts as terms of reference for its Technical Co-ordinator those suggested by the WMO Executive Council in Resolution 9 (EC-XLV) and the IOC Assembly in Resolution XVII- 6.
8. The working language of the Panel, including for correspondence, will be English.
9. The Panel's operating procedures will be revised as required at the annual meeting. The Chairman will prepare recommendations to be distributed before the meeting.

(This page left intentionally blank.)

**DATA BUOY CO-OPERATION PANEL WORKPLAN AND OBJECTIVES
FOR THE NINTH YEAR**

10

PART A

Summary of the tasks

1. Maintain summary of requirements for buoy data to meet expressed needs of the international meteorological and oceanographic communities.
2. Maintain a catalogue of existing on-going ocean data buoy programmes.
3. Maintain a list of national contact points for the DBCP and within other relevant bodies with potential for involvement in DBCP activities.
4. Identify sources of buoy data not currently reported on the Global Telecommunication System and determine the reason for their non-availability.
5. If deemed necessary, make proposals for co-ordination activity as a result of the above actions to address items 2 to 6 and 8 in the terms of reference for the Data Buoy Co-operation Panel.
6. Arrange for the circulation of information on the Panel's activities, current and planned buoy programmes and related technical developments/evaluations.
7. Monitor the operation of the new Argos GTS processing system and arrange for modifications as necessary.
8. Continue the arrangements (including finance) to secure the services of a technical co-ordinator.
9. Review programme and establish working priorities of the technical co-ordinator.
10. Prepare annual report of the Data Buoy Co-operation Panel.
11. Assist the South-west Indian Ocean Tropical Cyclone Committee to implement a planned drifting-buoy programme in the South-west Indian Ocean. *initiate...*
12. Support, as appropriate, efforts by participants to establish an International South Atlantic Buoy Programme (ISABP). *ISABP, IPAP*
13. Support, as required, existing DBCP Action Groups (EGOS and the IABP) and, on request, provide assistance to other internationally co-ordinated buoy programme developments, such as the IPAB.

investigate potential support for an Indian Ocean Program and include as appropriate...

14. Investigate requirements for initiating new co-ordinated buoy deployments in other ocean areas.
15. Assist in the planning and implementation of the ocean data buoy component of the Global Ocean Observing System and of the Global Climate Observing System.
16. Keep up-to-date with the latest buoy technical developments and in particular participate in the evaluation and introduction into operational use of the new low-cost drifter developed under the WOCE/TOGA SVP.
17. Co-ordinate operating guidelines for buoy data quality control as agreed by the Panel at its seventh session. *+ Internet*
18. Investigate new developments in communication technology and facilities, relevant to the collection of sensor and/or location data from buoys.

establish a DBCP Technical Subgroup on Technical Development for a LCBD.

19. Coordination of SVP.

Internet Server.

PART B

TASK	CARRIED OUT BY*	SUPPORTED/ ASSISTED BY	REPORTED TO/ ACTION BY	RELEVANT TERMS OF REFERENCE OF THE PANEL
1	Technical co-ordinator (1, 8)	Panel members and WMO/IOC Secretariats	Chairman for presentation to the Panel	1, 2
2	Technical co-ordinator (1, 3, 8)	Panel members and WMO/IOC Secretariats	Chairman and Panel for information	1, 2
3	WMO/IOC Secretariats	Panel members	Chairman and Panel for information	1, 2, 8
4	Technical co-ordinator (1, 7)	Panel members and WMO/IOC Secretariats	Chairman and Panel for information	6
5	Chairman and technical co-ordinator (1, 3, 4, 5, 8, 9)	WMO/IOC Secretariats and others as appropriate	To Panel for consideration and appropriate action or for direct action by Chairman	1, 2, 3, 5
6	Technical co-ordinator (1, 3, 4, 5, 8, 9)	Chairman, WMO/IOC Secretariats and CLS/Service Argos	Wide circulation by WMO/IOC Secretariats and CLS/Service Argos	7, 8
7	Technical co-ordinator (1, 2, 3, 7) and chairman	WMO/IOC Secretariats	Panel and users	1, 2, 6
8	Chairman and sub- committee	WMO/IOC Secretariats	WMO/IOC Secretariats	9
9	Chairman/Panel		Panel (at next session)	9
10	Chairman	Technical co-ordinator	Executive Councils of WMO and IOC	10

* When the technical co-ordinator is involved in carrying out a task, the figures in parenthesis relate to the terms of reference for the technical co-ordinator.

TASK	CARRIED OUT BY*	SUPPORTED/ ASSISTED BY	REPORTED TO/ ACTION BY	RELEVANT TERMS OF REFERENCE OF THE PANEL
11	Chairman	Technical co-ordinator and WMO/IOC Secretariats	Panel	3, 5, 6, 7
12	Chairman and WMO/IOC Secretariats	Technical co-ordinator (1, 5, 8)	Panel	4
13	Chairman and WMO/IOC Secretariats	Technical co-ordinator (1, 5, 8)	Panel	1
14	Chairman and WMO/IOC Secretariats	Panel members	Panel	4
15	Chairman and technical co-ordinator (1, 4, 5, 8)	Panel members	Panel	7, 8
16	Operational services, chairman and technical co-ordinator (1, 4, 5, 8)	Panel members	Panel	1, 2, 3, 7, 8
17	Operational services	Panel members and technical co-ordinator (1, 2)	Panel	2, 3, 6
18	Vice-chairman and technical co-ordinator (1, 7, 8)	Chairman and Panel members	Panel	1, 2, 6, 7

* When the technical co-ordinator is involved in carrying out a task, the figures in parenthesis relate to the terms of reference for the technical co-ordinator.