

ANNEX I

NATIONAL REPORTS ON DATA BUOY ACTIVITIES

The following pages contain national reports on data buoy activities submitted by the following countries:

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Country: Australia

Year: 2000/2001 (July 2000 – June 2001)

CURRENT PROGRAMMES

A. Agency or programme: Bureau of Meteorology

Number and type of buoys:

- (b) 9 drogued FGGE (2 with wind measuring capabilities) were deployed between 1 July 2000 – 30 June 2001
- (b) 9 buoys were operational at 31 August
- (c) 9 buoys were reporting on GTS at 31 August

Purpose of programme: support for the Bureau's operational forecasting and warning services

Main deployment areas: Southern and Indian Oceans

B. Agency or programme: Global Drifter Program

Number and type of buoys:

- (a) 9 SVP-B buoys were deployed between 1 July 2000 – 30 June 2001.
- (c) 8 buoys were operational at 31 August.
- (d) 8 buoys were reporting on GTS at 31 August.
- (e)

Purpose of programme: support for the Bureau's operational forecasting and warning services and oceanographic research

Main deployment areas: Southern and Indian Oceans

PLANNED PROGRAMMES

A. Agency or programme: Bureau of Meteorology

Number and type of buoys planned for deployment between 1 July 2001 – 30 June 2002:

- 6 FGGE
- 4 FGGE-W (to be deployed as 'moored' buoys)
- 1 SVP-B
- 2 SVP-BW

Purpose of programme: support for the Bureau's operational forecasting and warning services

Main deployment areas: Southern and Indian Oceans

B. Agency or programme: Global Drifter Program

Number and type of buoys planned for deployment between 1 July 2001 – 30 June 2002:

- 6 SVP
- 14 SVP-B (6 SVP-B buoys to be deployed with the assistance of Météo France from La Reunion, and 2 SVP-B buoys to be deployed with the assistance of the South African Weather Service from Cape Town)

Purpose of programme: support for the Bureau's operational forecasting and warning services and oceanographic research

Main deployment areas: Indian Ocean

TECHNICAL DEVELOPMENTS

Buoy design:

The Bureau has successfully moored FGGE-W buoys in the relatively benign waters of the Gulf of Carpentaria over the past several Tropical Cyclone seasons, with only minor modifications to the drogue. The Bureau is proposing to moor two FGGE-W buoys in the exposed waters along the southern coast of Australia using a modified mooring system.

PUBLICATIONS (on programme plans, technical developments, QC reports, etc.)

SPECIAL COMMENTS

Communications:

Between 0000 UTC 26 August 2001 and 1800 UTC 3 September 2001, NMOC Melbourne received 93312 individual BUOY messages. The delay between the time of observation and reception over the GTS was calculated for each message.

Almost 80% of the messages were received within 4 hours of the observation time, increasing to almost 90% within 6 hours. A small number of messages were delayed beyond 24 hours.

NATIONAL REPORT FOR CANADA

YEAR: 2000/2001 (Sept. 1/00 - Aug. 31/01)

CURRENT PROGRAMS:

A AGENCY OR PROGRAM: CANADA - Pacific and Yukon Region - North East Pacific Ocean

Number and type of buoys:

- a) **Deployed during year:**
 - 2 TOGA WSD drifters
 - 2 SVP/B drifters

- b) **Operational (31/08/01):**
 - 3 moored six meter NOMAD buoys
 - 13 moored three meter Discus buoys
 - 1 Developmental three metre Discus buoy
 - ? drifters

- c) **Reporting on GTS (31/08/01):**
 - 16 moored buoys
 - ???drifters

- Main deployment area:**
 - North Eastern Pacific Ocean

B AGENCY OR PROGRAM: CANADA - Prairie and Northern Region

Number and type of buoys:

- a) **Deployed during year:**
 - 4 moored buoys deployed inland lake's spring/summer 2001 (seasonal: deployed May into July, retrieved late September or October)
 - 1 moored buoy deployed Hudson Bay summer 2001 (seasonal: deployed July or August, retrieved late September or October)
 - 6 drifting buoys deployed Arctic Basin as a Participant of the International Arctic Buoy Programme (IABP)

- b) **Operational (31/08/01):**
 - 4 inland lakes moored buoys
 - 1 Hudson Bay moored buoy
 - 4 Arctic Basin drifting buoys

- c) **Reporting on GTS (31/08/01):**
 - all 5 inland lake / Hudson Bay moored buoys
 - 4 of the Arctic Basin drifting buoys

- Main deployment area:**
 - Great Slave Lake
 - Lake Winnipeg
 - Hudson Bay vicinity Churchill

- * **seasonal only (~May - October)**
 - Arctic Basin west of the Canadian Arctic Islands

C AGENCY OR PROGRAM: CANADA - Canadian Ice Service

Number and type of buoys:

- a) **Deployed during year:**
 - 6 CALIB, 2 having pressure sensor

- b) **Operational (31/08/01):**
 - None

- c) **Reporting on GTS (31/08/01):**
 - None

- Main deployment area:**
- West Baffin bay: to track southward motion of old ice.
 - Beaufort Sea: to add to the IABP network.
 - Labrador Coast: to validate sea ice and iceberg models.

D AGENCY OR PROGRAM: CANADA - Atlantic Region

Number and type of buoys:

- a) Deployed during year:**
- One six metre NOMAD
- b) Operational (31/08/01):**
- Eight 6 meter NOMAD buoys
 - One DATAWELL
- c) Reporting on GTS (31/08/01):**
- 8 six metre NOMADS

- Main deployment area:**
- North West Atlantic

E AGENCY OR PROGRAM: CANADA - Ontario Region

Number and type of buoys:

- a) Deployed during year:**
- 5 three meter buoys
 - 2 twelve meter buoys
 - 6 lightweight WatchKeeper buoys
- b) Operational (31/08/01):**
- 13 buoys
- c) Reporting on GTS (31/08/01):**
- all

- Main deployment area:**
- Great Lakes
 - Large Lakes and bodies of water other than the Great Lakes

F AGENCY OR PROGRAM: CANADA - Quebec Region

Number and type of buoys:

- a) Deployed during year:**
- 1 moored 3-meter discus buoy
- b) Operational (31/08/01):**
- 1 buoy
- c) Reporting on GTS (31/08/01):**
- 1

- Main deployment area:**
- Gulf of St. Lawrence

G AGENCY OR PROGRAM: CANADA - Fisheries and Oceans (BIO)

Purposes of the 2001 program:

Extensive programs continued on the ice fields of the Labrador Shelf and Gulf of St. Lawrence using beacons measuring drift, pressure, stress, convergence/divergence and wind profiles. Data were provided to the Canadian Ice Centre for forecasting and to the Canadian Coast Guard to support ice breaking. GPS beacons were used to empirically indicate and validate models of transport and dispersal pathways for salmon aquaculture sites in the Bay of Fundy. Beacons were used to measure drift on the Scotian Shelf for an investigation of possible ballast water discharge sites

Number and type of buoys:

- a) **Deployed during year:** · 17 GPS surface beacons
· 6 Argos surface drifters
- b) **Operational (31/08/01):** · 6
- c) **Reporting on GTS (31/08/01):** · ?
- Main deployment area:** · Labrador Shelf, Gulf of St. Lawrence,
· Bay of Fundy and Scotian Shelf

PLANNED PROGRAMS:

Purpose of programme and number and type of buoys planned for deployment in next 12 months:

A AGENCY OR PROGRAM: CANADA - Pacific and Yukon Region - North East Pacific Ocean

- a) **Operational:** · 0 additional moored buoys planned for deployment
· 3 TOGA WSD drifters.
· 10 SVP/B drifters.
· 3 SVP/BW wind speed and direction drifters.
- b) **Developmental:** · 1 updated developmental buoy to replace an earlier generation of optical sensor 3 metre discus buoy.
- c) **Met/Ocean research:** · As above.
- Deployment area:** · Drifting buoys will be deployed in the North East Pacific Ocean along approximately 160 degrees west between 43 to 52 degrees north.

B. AGENCY OR PROGRAM: CANADA - Prairie and Northern Region

- a) **Operational:** · Inland lakes: 3 to 5 buoys
· Hudson Bay: may not deploy 2002
· IABP: 3 to 5 buoys depending on "holes" in the buoy array and deployment opportunities
- b) **Developmental:** · IABP: experiment with the assembly of buoys in house including making combination battery / solar panel power supplies
- c) **Met/Ocean research:** · IABP: endeavouring to have oceanographic temperature/salinity profiles done at sites where buoys are deployed via Twin Otter landing on ice.
- Deployment area:** · Hudson Bay
· Great Slave Lake
· Lake Winnipeg
· Arctic Basin adjacent to Canada

C AGENCY OR PROGRAM: CANADA - Canadian Ice Service

- a) **Operational:** · ? Lithium Battery with air Pressure sensor CALIB to be deployed in Eastern Arctic to support Environment Canada data acquisition program.
· 1 CALIB to be deployed on request to support operations.
- b) **Developmental:** · N/A
- c) **Met/Ocean research:** · 4 Ice beacons with GPS for the research project called: "Improved Routing Methodologies in the St Lawrence System"
· 4-6 CALIBs for model verification off Labrador coast.
- Deployment area:** · Eastern Arctic. Gulf of St-Lawrence and Newfoundland/Labrador waters.

D AGENCY OR PROGRAM: CANADA - Atlantic Region

- a) **Operational:** · One 3 meter disc buoy (DND Project)
- b) **Developmental:** · None
- c) **Met/Ocean research:** · N/A
- Deployment area:** · North West Atlantic

E AGENCY OR PROGRAM: CANADA - Ontario Region

- a) **Operational:** · 0
- b) **Developmental:** · N/A
- c) **Met/Ocean research:** · One 12 meter buoy is equipped with a chemistry laboratory on board with several on going experiments (mass spectrometer). The buoy is powered by two diesel (6kw) engines and solar power.
- Deployment area:** · Experiments to examine the air-lake exchange of gaseous pesticides, of CO, water vapour, momentum and heat fluxes and a biological study of the isotope fixation during primary productivity involving phytoplankton.
· 12 meter buoy Lake Ontario

F AGENCY OR PROGRAM: CANADA - Quebec Region

- a) **Operational:** · N/A
- b) **Developmental:** · N/A
- c) **Met/Ocean research:** · Current meter to be installed in co-ordination with DFO Maurice Lamontagne Institute
- Deployment area:** · N/A

G AGENCY OR PROGRAM: CANADA - Fisheries and Oceans (BIO)

Purpose of program

- To provide data to the Canadian Ice Centre for forecasting and to the Canadian Coast Guard to support ice breaking.
- To validate models of transport pathways for salmon aquaculture sites in the Bay of Fundy.

- To investigate possible offshore sites for ballast water discharge.
 - a) **Operational:** · N/A
 - b) **Developmental:** · N/A
 - c) **Met/Ocean research:** · Extensive programs will continue on the pack ice of the Labrador Shelf and Gulf of St. Lawrence using beacons for measuring drift, pressure, stress, convergence/divergence and wind profiles to validate and provide inputs to operational ice forecasting models.
 - GPS beacons will be used to empirically indicate and validate models of transport pathways for salmon aquaculture sites in the Bay of Fundy.
 - Beacons will be used to measure drift on the Scotian Shelf for an investigation of possible ballast water discharge sites.

- Deployment area:** · Gulf of St Lawrence, Labrador Shelf, Bay of Fundy, Scotian Shelf

TECHNICAL DEVELOPMENTS:

A Moored Buoy Systems : CANADA - Pacific and Yukon Region - North East Pacific

- a) **Buoy design:** · No significant changes over past year.
- Improvements to wind mast design to simplify exchange of anemometers at sea completed.
- b) **Instrumentation:** · Ultrasonic anemometer continues on test at an operational buoy station and on the developmental buoy.
- Installation of transmitter reset circuits to begin on test buoy fall/01.
- Installation of backup ARGOS transmitters to be installed over next 3 years.
- Optical sensors for biological monitoring installed on 2 buoys.
- High Accuracy Water Temperature system (HATS) to be tested on developmental buoy.
- High Data Rate GOES transmitter to be tested on developmental buoy.

B Moored Buoys and drifting buoys: CANADA - Prairie and Northern Region

- a) **Buoy design:** · Nil
- b) **Instrumentation:** · Nil

C Drifting Buoy system : CANADA - Canadian Ice Service

- a) **Beacon design** · Using Lithium batteries for northern beacon deployments.
- Using Alkaline batteries for southern beacon deployments.
- b) **Instrumentation:** · Atmospheric Pressure and temperature sensors on 1 CALIB in North-western Baffin Bay (temperature sensor data is available on raw data only). Temperature data not included on GTS due to unreliability of data when beacon is insulated by increasing snow cover during fall / winter months.

D Moored Buoy Systems : CANADA - Atlantic Region

- a) **Buoy design:** · 11 NOMADS now have shortened fwd mast.

- 11 NOMADS now have reinforced 50 watt solar panels and are configured for solar power operation.
- b) **Instrumentation:**
 - Watchman 100 Payloads installed in 11 Nomads
 - ‘Blipper Radar Detectors’ installed on 6 buoys

E Moored Buoy Systems : CANADA - Ontario Region

- a) **Buoy design:**
 - NIL
- b) **Instrumentation:**
 - All buoys in the Buoy Program are being upgraded with the new Buoy Payload (Watchman 100).
 - All buoys have Global Positioning System installed.
 - Rain gauge has been added to the 12 metre in Lake Ontario

F Moored Buoy Systems : CANADA - Quebec Region

- a) **Buoy design:**
 - 3 Metre Discus
- b) **Instrumentation:**
 - Watchman 100

G AGENCY OR PROGRAM: CANADA - Fisheries and Oceans (BIO)

- a) **Buoy design:**
 - N/A
- b) **Instrumentation:**
 - N/A

PUBLICATIONS:

A CANADA - Pacific and Yukon Region - North East Pacific

- Monthly WMO Moored and Drifting Buoy Status Reports for all Canadian Buoys.
- On line Moored Buoy Status Reports at: <http://sebulba.pyr.ec.gc.ca/~wbs/>
- Buoy data available at: <http://weatheroffice.ec.gc.ca/>
- Annual ODAS Buoy Service Reports - Pacific and Yukon Region (Internal distribution)

B CANADA - Prairie and Northern Region

Inland lakes

- None

IABP

- International Arctic Buoy Programme Data Reports published by the Applied Physics Laboratory, University of Washington,
- Data is also available from the IABP web site <http://iabp.apl.washington.edu>.

C CANADA - Canadian Ice Service

- None.

D CANADA - Atlantic Region

- None

E CANADA - Ontario Region

- None

F CANADA - Quebec Region

- None

G AGENCY OR PROGRAM: CANADA - Fisheries and Oceans (BIO)

- None

SPECIAL COMMENTS:

A CANADA - Pacific and Yukon Region - North East Pacific

- a) **Quality of buoy data:** · Good
- b) **Communication:** · Good. Over 93% of all possible moored buoy data delivered to users
- c) **Buoy Lifetimes:** · New solar buoys should increase service interval for battery replacement up to 5 years.
· Drifting buoys - Over 2 years
- d) **Other.** · Nil

B CANADA - Prairie and Northern Region

- a) **Quality of buoy data:** · Inland lakes: Good and reliable.
· IABP: Good and reliable. Unreliable data is not put on GTS.
- b) **Communication:** · Inland Lakes and Hudson Bay - via GOES satellite
· Arctic Basin: from polar orbiting NOAA series weather satellites and processed in-house / put onto GTS at Meteorological Service of Canada's Local users terminal in Edmonton or via Service Argos.
- c) **Buoy Lifetimes:** · Inland lakes and Hudson Bay: seasonal moored buoys have up to 3 years between battery changes.
· IABP: about 2 years; summer ice melt and break-up of ice though the year factor into buoy survival.
- d) **Other.** · Nil

C CANADA - Canadian Ice Service

- a) **Quality of buoy data:** · Good and reliable.
- b)
- c) **Communication:** · Good and reliable.
- d) **Buoy Lifetimes:** · 3-4 months for Alkaline batteries, up to 1 year for Lithium batteries.
- e) **Other:** · All NFLD coast CALIB deployments provided good results.
· Gulf experiment cancelled due to lack of ice in early February.
· Will be conducted this coming winter (ice permitting).

D CANADA - Atlantic Region

- a) **Quality of buoy data:** · Good
- b) **Communication:** · 80% of transmitters operating
- c) **Buoy Lifetimes:** · N/A

d) **Other:** · N/A

E **CANADA - Ontario Region**

- a) **Quality of buoy data:** · Excellent this season - recent modifications to overcome lightning problems seem to be working.
- b) **Communication:** · 95 % plus
- c) **Buoy Lifetimes:** · The three meter buoys are deployed and retrieved annually with the battery system being replaced every 5 years. The 12 meter buoys are year round platforms, with the power system being replaced every 5 years. The lightweight buoys will follow the same cycle as the three meter buoys.
- d) **Other:** · N/A

F **CANADA - Quebec Region**

- a) **Quality of buoy data:** · 90%
- b) ·
- c) **Communication:** · GOES
- d) **Buoy Lifetimes:** · N/A
- e) **Other:** · Position by ARGOS beacon

G **AGENCY OR PROGRAM: CANADA - Fisheries and Oceans (BIO)**

- a) **Quality of buoy data:** · N/A
- b) **Communication:** · N/A
- c) **Buoy Lifetimes:** · N/A
- d) **Other:** · N/A

CONTACT POINTS

A **CANADA - Pacific and Yukon Region - North East Pacific**

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B **CANADA - Prairie and Northern Region**

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C CANADA - Canadian Ice Service

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G CANADA - Fisheries and Oceans (BIO)

Country: **FRANCE**

Year: **1 September 2000 - 31 August 2001**

This report concerns surface buoys only. Programmes using profilers (ARGO floats) are not described here.

PROGRAMMES

A. MÉTÉO-FRANCE

Number and type of buoys :

- (a) 34 drifting buoys (most of them drogued) were deployed in last 12 months :
 - (b) 13 SVP barometer drifters (including 2 with wind measurement capabilities and 5 with salinity) ;
 - 21 Marisonde GT (wind FGGE type fitted with a thermistor string) into the POMME¹ experiment (Multidisciplinary Programme on Mesoscale Oceanography) ;

In addition, 5 moored buoys were moored or replaced ;

- (b) 30 buoys² were operational at 31 August 2001 ;
- (c) 30 buoys¹ were reporting on GTS at 31 August 2001.

Purposes of programme :

- (b) Operational : to provide Weather Forecast Centres with oceanographic and meteorological observations in real time (EGOS programme, French West Indies, IBPIO programme...) ;
- (c) Research : to provide scientists with in-situ observations close to the air-sea interface (Marisondes GT - POMME experiment) ;
- (c) Technical : to improve present materials (tests of new buoys, new sensors: compasses, barometers, conductivity probes). To validate wind, bathythermal and salinity measurements.

Main deployment areas :

North Atlantic (Off France, Spain and Portugal - West Indies).
Western Mediterranean Sea.
Indian Ocean.

Plans for the next 12 months :

Meteo-France will continue to operate drifting buoys in the Atlantic and Indian oceans through its contribution to the DBCP regional action groups EGOS and IBPIO. The co-operation with the Global Drifter Center of NOAA and Navoceano will be pursued. Meteo-France will continue to operate three ocean weather stations (two in West Indies and one in the Mediterranean Sea) and a new station will be implemented in the Mediterranean Sea. The co-operation with the UK Meteorological Office to maintain the Brittany and Gascogne moored buoys will continue. The three waverider stations located in West Indies will be also maintained.

B. LODYC (DYFAMED, CARIOCA, IMCORP programmes)

Number and type of buoys :

- (a) 3 CARIOCA buoy and 1 prototype of Carbon buoy were deployed in last 12 months ;
 - (b) Four buoys were operational at 31 August ;
 - (c) Four buoys were reporting on GTS at 31 August.

¹ http://www.ipsl.jussieu.fr/POMME/site_gi_frame.html

² Including two DATAWELL waveriders in French West Indies and the two UK/French moored buoys.

Purposes of programmes :

- (a) Research : to understand, quantify and monitor the CO₂ fluxes exchanged at the air-sea interface ;
- (b) Technical : to develop a buoy able to measure CO₂ concentrations at the ocean-atmosphere interface (Programme CARIOCA) and another one to measure the distribution of carbon compounds at the same interface (Programme IMCORP). Such buoys will be used in the frame of GOOS.

Deployment areas :

North and Tropical Atlantic ;
Western Mediterranean Sea ;
Southern Indian Ocean.

Plans :

Five new buoys will be deployed in the next 12 months in the Southern Seas.

C. CETMEF (Centre d'Etudes Techniques Maritimes Et Fluviales)

Number and type of buoys :

- (a) CETMEF operates a network of 13 omnidirectional wave moored buoys and two directional (DATAWELL). In addition, CETMEF implemented wave measurement systems on two Aid-to-Navigation moored buoys ;
- (b) 17 buoys were operational at 31 August ;
- (c) One was reporting on GTS at 31 August.

Purpose of programme :

- (a) Operational : to maintain a long duration wave measurement network along the coast of the French mother and overseas territories coasts and to centralize the French wave data.

Deployment area :

French coasts and La Reunion Island.

Plans for the next 12 months :

The network will be maintained. CETMEF plan to complete it with four new directional wave buoys : two Datawell waveriders and two Triaxys. Developments are in progress at Meteo-France to report the CETMEF wave data onto the GTS in real time (WAVEOB code).

**D. IRD (ex ORSTOM) - French participation to PIRATA programme
co-operation with Meteo-France and CNRS)**

Number and type of buoys :

- (a) Two Atlas buoys were operational at 31 August ;
- (b) Two Atlas buoys were reporting on GTS at 31 August.

Purposes of programme :

The PIRATA programme is an extension of the TAO array in the Tropical Atlantic. Contributions are from Brazil, France and USA.

- (a) Operational : to provide oceanographical and meteorological observations in real time to Weather Forecast Centres ;
- (b) Research : to describe and understand the evolution of SST, upper ocean thermal structure and air-sea fluxes of momentum, heat and fresh water in the Tropical Atlantic.

Deployment area :
Tropical Atlantic Ocean

Plans for the next 12 months :
IRD will continue to maintain four stations after replacing two buoys which ceased to operate in 2001. Detailed information is available on
<http://www.ifremer.fr/orstom/pirata/pirataus.html>

E. IFREMER (MAREL programme)

Number and type of buoys :
(a) Three buoys were operational at 31 August ;
(b) None was reporting on GTS at 31 August.

Purposes of programme :
To provide coastal environmental data in order to study and monitor the direct or indirect effects of human activities on marine environment ;

Deployment area :
French coasts

Plans for the next 12 months :
Ifremer will continue to maintain three buoys in next 12 months : two in the Bay of Seine, one in the Bay of Brest.

F. SHOM (Hydrographic and Oceanographic Service of the Navy)

Number and type of buoys :
(a) 34 Surdrift buoys (lagrangian drifters drogued at 400m depth) and 12 CMOD XAN-3 drifters were deployed in last 12 months ;
(b) Ten buoys were operational at 31 August ;
(c) Six was reporting on GTS at 31 August.

Purposes of programme :
To get oceanic data (current and temperature in depth) that could be introduced in real time into prediction models for defence applications.

Deployment area :
North Atlantic

Plans for the next 12 months :
10 Surdrift buoys will be deployed in the next 12 months ;
Data will be reported on the GTS for some of them.

TECHNICAL DEVELOPMENTS

(b) Instrumentation

- (i) Meteo-France continues to participate in the evaluation of SVP pressure drifters developed by the Global Drifter Center (USA). In parallel to the use of drifters, Meteo-France continuously surveys the performances of air pressure measurement for almost of the drifters of that kind deployed over the World Ocean.
- (ii) Meteo-France is participating in the evaluation of the WOTAN technique (Wind Observation Through Ambient Noise) applied to SVP drifters. Three new SVP-BW

drifters reporting sound energy spectra will be deployed by Meteo-France over the next 12 months.

- (iii) Meteo-France also evaluates SVP-B drifters fitted with conductivity sensors in co-operation with LODYC (France). Five buoys were tested during the 12 past months, off France and Iceland. Four new drifters will be tested in 12 next months.
- (iv) The project of CO₂ concentration measurements from drifting buoys, managed by LODYC is continuing. Five buoys, called CARIOCA (CARbon Interface OCéan Atmosphère) and one Carbon buoy will be deployed in next 12 months.

PUBLICATIONS (programme plans, technical developments, QC reports...)

Météo-France - Centre de Météorologie Marine, Monthly statistics on buoys data transmitted on GTS in BUOY and SHIP codes (Air pressure, SST, wind speed and direction, air temperature).

Servain, J., Busalacchi, A. J., McPhaden, M. J., Moura, A. D., Reverdin, G., Vianna, M., and Zebiak, S.E., 1998a : A pilot research moored array in the tropical Atlantic (PIRATA). *The Bulletin of the American Meteorological Society.*, Vol. 79, No. 10, 2019-2031.

SPECIAL COMMENTS

(a) Buoy QC

- (i) The Centre de Meteorologie Marine of Meteo-France continues to operate quality control procedures on drifting buoys data. Warning messages are sent to the *buoy-qc@vedur.is* mailing list of Internet when a problem appears (e.g. bad location detected) or when a modification seems needed (i.e. to recalibrate or to remove a sensor from GTS). Statistics on comparisons with analysis fields are set up for each buoy and each LUT (when several are used for transmitting the data of a buoy). Monthly statistics are sent to the *buoy-qc@vedur.is* mailing list too.
- (ii) Buoy data QC tools developed by Meteo-France are available on the Internet (<http://www.shom.fr/meteo/qctools>) to help buoy operators to check their buoys : monthly statistics carried out by 4 meteorological centers for individual buoys ; plots of data and differences with model outputs ; blacklists of buoys reporting dubious air pressure values or being perhaps ashore can be seen.

(b) Other

For the sixth consecutive year, Meteo-France funded 10 barometers to be added to SVP drifters. These will be deployed in the Indian Ocean in November 2001. The action will be renewed in 2002 if possible.

Country: Iceland

Year 2001:

Current Programs:

A. Programme number 00588: Icelandic Met Office

Number and type of buoys deployed: The Met Office provides 1 PTT year for use in EGOS drifting buoy programme and this PTT is managed by the EGOS Secretariat in Bergen.

B. Programme number : 01119 Marine Reserch Institute.

Number and type of buoys deployed: No activety

Planned programmes.

- a) The Icelandic Met Office will as before provide one PTT year for use within the EGOS buoy programme in the North Atlantic
- b) The Marine Research Ibnsitute: No activety.

Reports and publications:

Recent developments in oceanographic research in Icelandic waters. Steingrímur Jónsson og Héðinn Valdimarsson, 2001. Submitted to Quaternary Science Reviews.

On the influence of freshwater runoff to Héraðsflói on currents and environmental conditions. Héðinn Valdimarsson, Steingrímur Jónsson, Gerða Geirsdóttir, Jóhannes Briem, Jón Ólafsson, Magnús Danielsen og Sólveig Ólafsdóttir, Marine Research Institute 2001.

Country : INDIA

Year : 1st September '2000 to 31st August 2001

I. MOORED BUOYS

CURRENT PROGRAMMES

A. Agency or Programme : National Data Buoy Programme (Moored Buoys)
National Institute of Ocean Technology
Department of Ocean Development
Government of India

Number and type of buoys : (a) deployed during the year : 12 Moored buoys
(b) operational at 31 August : 7 Moored buoys
(c) reporting on GTS at 31 August : 7 Moored buoys

Purpose of programme (a) Operational : √
(b) met/ocean research : √
(c) developmental : √

PLANNED PROGRAMMES

A. Agency or Programme: National Institute of Ocean Technology,
Department of Ocean Development

Number and type of buoys planned for deployment in next 12 months
: 6 – Moored buoys

Purpose of programme: (a) operational : √
(b) met/ocean research : √
(c) developmental : √

Main deployment areas : Bay of Bengal, Arabian sea, Indian Ocean

TECHNICAL DEVELOPMENTS

- (a) Buoy design : On going
- (b) Instrumentation : Nil
- (c) Others : Satellite communication (in the advanced development)

PUBLICATIONS (on programme plans, technical developments, QC reports etc)

- (b) Completion report on the implementation of NDBP with respect to the bilateral co-operation between Govt. of India and Govt. of Norway has been made.

- (c) A technical report on 'Laboratory calibration and field testing of Minitracka Chlorophyll and UV Aquatracka Hydrocarbon Sensors' has been made.

SPECIAL COMMENTS (if any)

- (a) Quality of buoy data : Good
- (b) Communications : Good
- (c) Buoy lifetime : Unable to decide, as frequent damages to data buoys due to acts of vandalism.
- (d) Others : Nil

II. DRIFTING BUOYS

A. Agency or programme: National Institute of Oceanography
Dona Paula, Goa, INDIA - 403 004

Purpose of programme Operational, research and technical improvements

Numbers and types of platforms: (a) deployed current year: SVP-B -10 Nos.
FGGE - 1 No

(b) planned next year SVP-B - 12 Nos.
SVP-BW - 2 Nos.
FGGE - 1 No

Estimated number of PTT years (a) current year 10 PTT years
(b) next year 10 PTT years

Publications:

Saji P.K., Shenoi S.C., Almeida A. and Rao G (2000) Inertial currents in the Indian Ocean derived from satellite traced surface drifters; *Oceanologica Acta*, 23, 635-640.

Country: JAPAN

Year: 2001

CURRENT PROGRAMMES

A. Japan Meteorological Agency (JMA)

Number and type of buoys:

(a) deployed during year:

(Type 1)

18 drifting buoys with 4 maritime meteorological and oceanographic sensors

(Type 2)

6 PALACE

(b) operational at 31 August:

(Type 1)

7

(Type 2)

11

(c) reporting on GTS at 31 August:

(Type 1)

7

(Type 2)

11

Purpose of programme:

(Type 1)

operational meteorological and oceanographic observation

(Type 2)

oceanographic research and operational observation

Main deployment areas:

(Type 1)

seas around Japan

(Type 2)

the western North Pacific

B. Meteorological Research Institute, JMA

Number and type of buoys:

(a) deployed during year:

6 isopycnal APEX floats

(b) operational at 31 August:

21 (10 PALACE, 5 APEX and 6 isopycnal APEX)

(c) reporting on GTS at 31 August:

21 (10 PALACE, 5 APEX and 6 isopycnal APEX)

Purpose of programme:

oceanographic research (subarctic intermediate circulation)

Main deployment areas:

Oyashio-Kuroshio mixed water region (seas east of Japan)

C. Japan Coast Guard

Number and type of buoys

(a) deployed during year:

32 surface drifters with holey sock drogues and SST sensors

(b) operational at 31 August:

31

(c) reporting on GTS at 31 August:

26

Purpose of programme:

operational observation

Main deployment areas:

the North Pacific and the Antarctic Oceans

D. Japan Marine Science and Technology Center

Number and type of buoys:

(a) deployed during year:

(Type 1)

2 meteorological and subsurface oceanographic drifters(J-CAD)

(Type 2)

11 meteorological and subsurface oceanographic surface moorings (TRITON buoys)

(Type 3)

18 profiling floats with CTD sensor (ARGO floats)

(b) operational at 31 August:

(Type 1)

2

(Type 2)

11

(Type 3)

20

(c) reporting on GTS at 31 August	
(Type 1)	2
(Type 2)	10
(Type 3)	20
Purpose of programme:	
(Type 1)	meteorological and oceanographic research
(Type 2)	meteorological and oceanographic research and ENSO monitoring
(Type 3)	oceanographic research
Main deployment areas:	
(Type 1)	the Arctic Ocean
(Type 2)	the western tropical Pacific
(Type 3)	the western tropical Pacific

E. Ocean Research Institute, University of Tokyo

Number and type of buoys:	
(a) deployed during year:	
(Type 1)	None (ALACE)
(Type 2)	None (PALACE)
(b) operational at 31 August:	
(Type 1)	1
(Type 2)	4
(c) reporting on GTS at 31 August:	
(Type 1)	None
(Type 2)	2
Purpose of programme:	
(Type 1 and 2)	oceanographic research
Main deployment areas:	
(Type 1)	the Japan Sea
(Type 2)	the Japan Sea and western North Pacific

F. Tokai University

Number and type of buoys:	
(a) deployed during year:	None
(b) operational at 31 August:	1 surface drifter with holey sock drogue and SST sensor
(c) reporting on GTS at 31 August:	None
Purpose of programme:	oceanographic research
Main deployment areas:	the North Pacific

G. Central Research Institute of Electric Power Industry

Number and type of buoys:	
(a) deployed during year:	6 ALACE
(b) operational at 31 August:	21 (1 ALACE, 20 PALACE)
(c) reporting on GTS at 31 August:	None
Purpose of programme:	observation of sub-surface circulation
Main deployment areas:	the western North Pacific

PLANNED PROGRAMMES**A. Japan Meteorological Agency**

Number and type of buoys planned for deployment in next 12 months: (Type 1)	12 drifting buoys with 4 maritime meteorological and oceanographic sensors
Purpose of programme: (Type 1)	operational meteorological and oceanographic observation
Main deployment areas: (Type 1)	seas around Japan

C. Japan Coast Guard

Number and type of buoys planned for deployment in next 12 months:	11 surface drifters with holey sock drogues and SST sensors
Purpose of programme:	operational observation
Main deployment areas:	the North Pacific and the Antarctic Oceans

D. Japan Marine Science and Technology Center

Number and type of buoys planned for deployment in next 12 months: (Type 1)	2 meteorological and subsurface oceanographic drifter (J-CAD)
(Type 2)	16 meteorological and subsurface oceanographic surface moorings (TRITON buoys)
(Type 3)	80 profiling floats with CTD sensor (ARGO floats)
Purpose of programme: (Type 1)	meteorological and oceanographic research
(Type 2)	meteorological and oceanographic research and ENSO monitoring
(Type 3)	oceanographic research
Main deployment areas: (Type 1)	the Arctic Ocean
(Type 2)	the western tropical Pacific (14 buoys), the eastern Indian Ocean (2 buoys)
(Type 3)	the western North Pacific, the eastern Indian Ocean

F. Tokai University

Number and type of buoys planned for deployment in next 12 months:	2 surface drifters with holey sock drogues and SST sensors
Purpose of programme:	oceanographic research
Main deployment areas:	the North Pacific

SPECIAL COMMENTS**A. Japan Meteorological Agency**

Type 1 buoys operated by the Japan Meteorological Agency

(b) Communications: ORBCOMM (bent-pipe mode)

- Purpose: Data collection. Transmission of commands for changing the operation mode.
- Available commands: 6

- Change the threshold of starting the hourly observation.
- Keep hourly observation regardless of the wave height.
- Change to 3-hourly observation.
- Inform of the operation situation (the latest data, voltage of batteries).
- Terminate operation.
- Sink (unscrew two bolts on top and bottom plate of the hull).
- Observation interval: 3-hourly (1-hourly when waves are higher than thresholds set beforehand or when commanded manually).
- Data collection interval: Immediately after each observation.
- Timeliness and reliability: Almost all (about 99%) data were received within 15 minutes after it had observed.

D. Japan Marine Science and Technology Center

Type 1 buoys (J-CAD) operated by the Japan Marine Science and Technology Center

(b) Communications: ORBCOMM (globalgram mode)

- Purpose: Data collection. Transmission of commands for changing the operation mode.
- Observation interval: Hourly. The observation data are stored till completion of transmission.
- Data collection interval: Each time when the transmitter catches a satellite.
- Timeliness: The monthly rates of data which received immediately after observation were from 20% to 90%. Delay time were between 0.2 hours to 10 hours, while the mean delay was about 6.2 hours.
- Reliability: 90% of all observation data were receivable with

Country : Republic of Korea

Year : 1st September 2000 to 31st August 2001

CURRENT PROGRAMMES

- A. Agency or Programme : National Data Buoy Programme (Moored Buoys)
Korea Meteorological Administration(KMA)
Division of Observation
Purpose of Programme: (a) Operational: Meteorology and oceanography
(b) Met/ocean research : verification of forecast model
Number and type of buoys: Four 3m DISCUS buoys and one 6m NOMAD buoy
Main deployment areas : Korean peninsula coastal and offshore areas
- B. Agency or Programme : Meteorological Research Institute(METRI)/KMA
Marine meteorology & Earthquake research Lab.
Purpose of Programme: (a) Operational: Meteorology and oceanography
(b) Met/ocean research : verification of forecast model
Number and type of buoys: Four 3m DISCUS buoys
Main deployment areas : Korean peninsula coastal area

PLANNED PROGRAMMES

- A. Agency or Programme : National Data Buoy Programme (Moored Buoys)
Korea Meteorological Administration(KMA)
Division of Observation
Purpose of Programme: (a) Operational: Meteorology and oceanography
(b) Met/ocean research : verification of forecast model
Number and type of buoys: 6m NOMAD buoy
Main deployment areas : Korean peninsula offshore areas
- B. Agency or Programme : Meteorological Research Institute(METRI)/KMA
Marine meteorology & Earthquake research Lab.
Purpose of Programme: (a) Operation: Meteorology and oceanography
(b) Met/ocean research : verification of forecast model
Number and type of buoys: Drift buoys
Main deployment areas : Korean peninsula coastal area and East China Sea
- C. Agency or Programme : METRI/KMA ARGO Programme
Meteorological Research Institute(METRI)/KMA
Marine meteorology & Earthquake research Lab.
Purpose of Programme: (a) Met/ocean research : Climate resarch
Number and type of buoys: Argo floats
Main deployment areas : East sea/Japan sea and North Pacific Ocean
- D. Agency or Programme : KORDI ARGO Programme
Korea Ocean Development and Research Institute
Purpose of Programme: (a) Met/ocean research : Climate resarch
Number and type of buoys: Argo floats
Main deployment areas : East sea/Japan sea and North Pacific Ocean

THE NETHERLANDS**Year:** 2001***CURRENT PROGRAMMES***

A	Agency or programme	Royal Netherlands Meteorological Institute
	Number and type of buoys	(a) deployed during year 3 SVP-B (b) operational at 31 August 3 (c) reporting on GTS at 31 August 3
	Purpose of programme	Participating in the EGOS drifting buoy programme for operational meteorology and oceanography
	Main deployment areas	North Atlantic

PLANNED PROGRAMMES

A	Agency or programme	KNMI
	Number and type of buoys planned for deployment in next 12 months:	3 SVP-B
	Purpose of programme	EGOS
	Main deployment areas	North Atlantic

PUBLICATIONS (on programme plans, technical developments, QC reports etc.)

1. Statistics of buoy data from buoys within EGOS programme are published in quarterly reports (UKMO) and monthly statistics (Météo-France); Monthly Report by the Technical Secretariat of EGOS.

SPECIAL COMMENTS (if any)

- | | | |
|-----|----------------------|---------------------------------------|
| (a) | Quality of buoy data | see under Publications |
| (b) | Communications | all buoys are tracked by Argos System |
| (c) | Buoy lifetimes | see relevant EGOS documents |
| (d) | Others | |

Country **NEW ZEALAND**
Year **2001**

CURRENT PROGRAMMES

A. Agency : **Meteorological Service of New Zealand Ltd**

Number and type of buoys:

- (a) deployed during the year : 4 FGGE Drifters
- (b) operational at 31 August : 6 Drifters
- (c) reporting on GTS as at 31 August : 6 Drifters

Purpose of programme: Real-time buoy data for Weather Forecasting

Main deployment areas: Tasman Sea

B. Agency : **Meteorological Service of New Zealand Ltd for Global Drifter Centre in support of Southern Ocean Buoy Programme**

Number and type of buoys:

- (a) deployed during the year : 2 SVPB (Technocean)
- (b) operational at 31 August : 2 SVPB
- (c) reporting on GTS as at 31 August : 2 SVPB

Purpose of programme: Weather Forecasting & Oceanographic Research

Main deployment areas: Southern Pacific Ocean

PLANNED PROGRAMMES

A. Agency : **Meteorological Service of New Zealand Ltd**

Number and type of buoys planned for deployment in next 12 months: 4 drifters – a mix of FGGE and SVPB types

Purpose of programme: Real-time buoy data for Weather Forecasting

Main deployment areas: Tasman Sea

B. Agency : **Meteorological Service of New Zealand Ltd for Global Drifter Centre in support of Southern Ocean Buoy Programme**

Number and type of buoys planned for deployment in next 12 months: 6 SVPB drifters

Purpose of programme: Weather Forecasting & Oceanographic Research

Main deployment areas: Southern Pacific Ocean

PUBLICATIONS Nil

SPECIAL COMMENTS

A. Quality of buoy data: see recovered buoys below

B. Communications: All buoys are tracked by the Argos system.

C. Buoy Lifetimes:

MetService still uses FGGE type buoys in its operational buoy programme. These buoys have given long service, with buoys being recycled through several deployments. MetService has an active Buoy

Recovery policy. Buoy positions are monitored as they near the NZ coast and where possible buoys are recovered just before, or after beaching. This has resulted in many buoys being recovered, refurbished and redeployed, with some buoys being deployed three or four times. All buoys are deployed in the Tasman Sea, where the prevailing westerly currents eventually carry buoys back towards New Zealand, enabling around 80% of buoys to be recovered.

Since 1988 (14 years) MetService has recycled 26 buoys through 54 deployments, whilst maintaining an operational network of 7 buoys. Of the six buoys operational on 1 October 2001, four buoys are on their first deployment and two are on their third deployment. The average lifetime from deployment until beaching for buoys deployed in the Tasman Sea is about eighteen months. To better assess the total lifetime per buoy it is more representative to look at the Cumulative Lifetime achieved by buoys over several deployments. Lifetime is counted until barometer failure, transmission failure or recovery. The Average Cumulative Lifetime of the twenty six buoys, including the six operational buoys at 1 October 2001 is 35.5 months. Looking at individual buoys, #8585 is on its third deployment and is still operational after 68 months of cumulative service and #22187 is six months into its third deployment with a cumulative lifetime of 36 months.

D. Recovered Buoys:

In the twelve months to 1 October 2001, three buoys (#7176, #21583 and #22188) have been recovered.

Buoy 7176 was recovered from its fifth deployment off Mackay, Queensland in December 2000. The buoy was still operational, transmitting good pressure and sea temperature data. Twelve months after the June 1999 deployment, a fishing boat took the buoy on board in mid ocean. MetService requested the ship to return the buoy to the sea but the air temperature sensor was damaged during this time. After recovery the buoy was refurbished with new batteries, drogue and a new temperature housing and sensor, and the buoy was redeployed for the sixth time in August 2001. Unfortunately after only two weeks a suspected lightning strike reduced all sensor data to base values.

Buoy 21583 was recovered by a fishing vessel west of Auckland in January 2001. This buoy had been deployed in May 1999, but failed prematurely after eleven months. Post recovery calibrations of the pressure and temperature sensors revealed they were almost identical to the pre-deployment calibrations. Because of problems with 'locked up' data during the operational period and the premature failure the electronics were returned to Metocean for investigation.

Buoy 22188 was on its second deployment when found east of Mackay, Queensland by a fisherman in April 2001. The buoy had been deployed in February 1999, and although it was still transmitting when recovered, the pressure data had been removed from GTS in June 2000 when sensor output went to top of range. This buoy will either have a new barometer or barometer card fitted, or will be used as spares to refurbish another buoy.

MetService would like to acknowledge the excellent co-operation received from the Bureau of Meteorology offices in Mackay, Brisbane and Sydney in getting the above buoys repatriated to New Zealand.

Country: South Africa**SOUTH AFRICAN WEATHER SERVICE:
PRESENT ACTIVITIES AND FUTURE PLANS**

South Africa started the year (inter-sessional period August 2000 - July 2001) with 21 drifters operational. The South African Weather Service SA(WS) drifter programme are maintained mainly to supply data for operational forecasting, but also to support the maintenance of drifters in the Indian Ocean for the Tropical Cyclone monitoring. The deployments are done in data sparse areas, but also where these positions compliment deployments by other agencies. The majority of deployments done are a mixture of SA(WS) and AOML drifters. This inter-sessional period we also deployed drifters on behalf of the Bureau of Meteorology - Australia (BOM) and NOAA/Scripps.

2000					2001						
Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	Jun	Jul
6	9	3	3	7	6	2	nil	2	3	nil	nil

DEPLOYMENT TEMPO OF 41 DRIFTERS

The majority of the above deployments were done from the SA Agulhas on its relief voyages to Gough and Marion Island as well as to Antarctica, while 15 of these deployments were done from ships of opportunity in the Tropical Indian Ocean - Nedlloyd Columbo and Safmarine Vaal and Oranje.

The Port Meteorological Officer in Cape Town and Durban also gave assistance to other organisations with the storage and the placing of drifters on board vessels for deployment in the Atlantic and Indian oceans. 15 drifters were deployed in the Indian ocean from Durban on behalf of AOML and 16 drifters in the Atlantic from Cape Town on behalf of NOAA and Scripps, 2 Drifters on behalf of BOM.

The South African Weather Service had a number of failures with the 10 SVPB drifters that were deployed in the South Atlantic Ocean during September and December 2000. One was never deployed after it was noticed that the pressure got stuck on one value. This drifter was returned to the manufacturer for investigation. One drifter failed soon after deployment while 3 other drifters pressure values became unstable between 90 and 200 days and was removed from the GTS.

The anchored drifter on Tristan da Cunha Island is operating well. The SA(WS) also attempted to re-install the AWS on Southern Thule Island at the beginning of January 2001. The AWS worked fine for approximately 3 months and suddenly stopped transmitting. It was clear that the mast was severely damaged in a storm. Due to the difficult terrain and weather conditions it remains a challenge to erect a AWS on the Island as a 10 m mast can not be properly stabilized on the Island.

Although the Weather Service experience some failures with the latest 10 SVPB drifters, they continue to have, in general, a good life span from the drifters averaging at 450 days. 4 drifters are still operating on average between 1300 and 1400 days. 3 are moving around the sub-tropical high pressure belt in the South Atlantic ocean, while the other drifter has moved well into the Indian Ocean.

The LUT's on Gough and Marion Islands are still operational and are transmitting processed buoy data to South Africa. Due to present bandwidth limitations the raw data can not be send to Argos for processing and distribution on the GTS.

FUTURE PLANS

SA(WS) has ordered 10 SVPB drifters with additional 8 upgrades of SVP drifters from AOML. These drifters will mainly be used to maintain the existing network of drifters in the South Atlantic. AOML has also committed to send an additional 8 SVPB and 5 SVP drifters. These drifters will be deployed during the routine voyages to Gough Island in September 2001 and Antarctica in December 2001 and January 2002. During these voyages it is planned to replace the drifter on Tristan da Cunha, while the present drifter on the Island, which is still operational will be deployed in the ocean. During the voyage to Antarctica in December the damaged AWS on Southern Thule will be removed, while a drifter will be anchored in the Island.

13 SVP drifters will also be deployed from Durban in the Indian Ocean, to monitor the Tropical Cyclone season. 6 Drifters will be deployed by August and the remaining by October 2001.

SA(WS) also committed to support and deploy drifters in the South Atlantic for the ARGO program. The SA(WS) will continue, as in the past, provide support by means of the Port Meteorological Officer in Cape Town and Durban.

The SA(WS) will continue to find solutions for the communications with Gough and Marion Island, so that the buoy data can be send directly to Toulouse for processing. Various options are investigated.

DATA BUOY COOPERATION PANEL
UK NATIONAL REPORT - 2001

Institute: The Met Office

Programmes: Moored buoys (programme 0309)
 Drifting buoys - EGOS, IABP, ISABP, IPAB (programmes 0484, 9484)
 ARGO floats

	Moored Buoys	Drifters	ARGO Floats
Total deployed during 2001	12***	34*	13 [†] (expect 25+ by end 2001)
Total operational at 31/8/2001	11**** open ocean buoys	27**	12 (1 failure)
Total reporting on GTS 31/8/2001	11	22 (fully reporting) 5 (partially reporting)	12
Status	Operational	Operational	Operational
Total planned for 2002	Redeployments only	~15 new deployments	~50 new deployments

Notes

- * includes 1 Arctic (White Trident) Ice buoy and 1 South Atlantic buoy; excludes 3 additional SVP-B drifters deployed by NERC.
- ** 2 additional drifting buoys were deployed in September 2001 and a further 3 are planned for deployment in October.
- *** includes new deployments of joint operated Irish buoys M1 and M2 buoys and redeployments of existing open ocean buoys.
- **** includes joint operated buoys - Irish M1 and M2 buoys and French Brittany and Gascogne buoys;
 K3 and K7 were not operational at 31/8/2001;
 excludes 3 inshore buoys.
- † float deployments include: 5 in Irminger Sea (Jan), 3 in north-east Atlantic (May), 5 in south-west Indian Ocean (July/Aug). Other floats expected to be deployed in 2001 include 5 in Arabian Sea, 2 in Norwegian Sea, 5+ in Irminger Sea (this to be made up from 5 NERC research (non-UK Argo) and 5 MARTEC (UK Argo) floats).

Estimated number of PTT-years:

- a) current year: 62
 b) next year: 71

Institute: CEFAS

Programme: 0526

Total buoys deployed during 2001: 27
 Total buoys operational at 31 August: 10
 Total buoys on GTS at 31 August: 0
 Status of programme: Ocean Research
 Main deployment areas: Central North Sea, West Coast of Ireland
 Total buoys planned for 2002: 20
 Status of programme: Ocean Research
 Main deployment areas: Eastern Central North Sea

Technical developments: Use of SERPE-IESM GPS drifters

Publications:

Brown, J., Fernand, L., Horsburgh, K.J., Hill, A.E. and Read, J.W., 2001. Paralytic shellfish poisoning on the east coast of the UK in relation to seasonal density-driven circulation. *Journal of Plankton Research*, 23,105-116.

Horsburgh, K.J., Hill, A.E., Brown, J., Fernand, L., Garvine, R.W. and Angelico, M.M.P., 2000. Seasonal Evolution of the cold pool gyre in the western Irish Sea. *Progress in Oceanography*, 46, 1 - 58.

Posters:

Brown, J., Fernand, L., Carrillo, L., Horsburgh, K.J., Hill, A.E., Read, J.W., Medler, K.J., Nolan, G.D. and Norris, S.W. 2000. Observations of the seasonal jet-like circulation of the Celtic Sea & St. George's Channel. UK Marine Science 2000. University of East Anglia.

Brown, J. Fernand, L., Hill, A.E., Horsburgh, K.J., Garvine, R.W. and Angelico, M.M.P., 2000. Circulation of the western Irish Sea. Irish Sea Forum, Douglas, Isle of Man.

Parker, R., L. Fernand, J. Brown, S. Malcolm, D. Mills, D. Sivyver, E. Tinton, K. Medler, J. Read, T. Jickells and K. Weston. Transport and fate of UK nutrient input to the southern North Sea. UK Marine Science 2000. University of East Anglia.

Institute: British Antarctic Survey

Programme: 2264
 Total buoys deployed during 2001: 4
 Total buoys operational at 31 August: 0
 Total buoys on GTS at 31 August: 0
 Status of programme: Sea ice research
 Main deployment areas: Bellingshausen Sea
 Total buoys planned for 2002: 0

Programme: Antarctic krill transport
 Total buoys deployed during 2001: 0
 Total buoys operational at 31 August: 0
 Total buoys on GTS at 31 August: 0
 Status of programme: Research
 Main deployment areas: Scotia Sea
 Total buoys planned for 2002: 20

Institute: Proudman Oceanographic Laboratory

Programme: 1347
 Total buoys deployed during 2001: 1
 Total buoys operational at 31 August: 0
 Total buoys on GTS at 31 August: 0
 Status of programme: Ocean research
 Main deployment areas: Southern Ocean
 Total buoys planned for 2002: 0

Institute: Plymouth Marine Laboratory

Programme: 1966

Total buoys deployed during 2001: 1
 Total buoys operational at 31 August: 0
 Total buoys on GTS at 31 August: 0
 Status of programme: Ocean research
 Main deployment areas: Southern Ocean
 Total buoys planned for 2002: 1

Institute: **Scottish Association for Marine Science
 Scott Polar Research Institute**

Programme: 9484 (Met Office)
 Total buoys deployed during 2001: 3
 Total buoys operational at 31 August: 2
 Total buoys on GTS at 31 August: 1
 Status of programme: Sea ice research
 Main deployment areas: Bellingshausen Sea
 Total buoys planned for 2002: 0

Institute: **Southampton Oceanography Centre**

Programme: 1644
 Total buoys deployed during 2001: 3
 Total buoys operational at 31 August: 3
 Total buoys on GTS at 31 August: 3
 Status of programme: Ocean research
 Main deployment areas: Northern seas
 Total buoys planned for 2002: 5

Publications:

Bacon, S, Centurioni, L.R., Gould J.W, 2000, The evaluation of salinity measurements from PALACE floats, J. Atm. Oc. Techn.. 18, 1258.

Country: United States of America (USA)

Year: 2001

CURRENT PROGRAMMES

A. Agency or programme: National Data Buoy Center (NDBC) (NWS/NOAA) Marine Observing Net.

Number and type of buoys: (a) deployed during year: 2 moored buoys
(b) operational at 31 August: 69 moored buoys
(c) reporting on GTS at 31 August: 69 moored buoys

Purpose of programme: (a) operational: 67 moored buoys
(b) met/ocean research: 0
(c) developmental: 2 moored buoys

Main deployment areas: Pacific and Atlantic Oceans- coastal and offshore; Gulf of Mexico; Great Lakes

B. Agency or programme: TAO Project, Pacific Marine Environmental Labs (PMEL) (OAR/NOAA)

Number and type of buoys: (a) deployed during year: 0
(b) operational at 31 August: 58 surface moorings;
4 Sub-surface moorings.
(c) reporting on GTS at 31 August: 58 surface moorings

Purpose of programme: (a) operational: 58
(b) met/ocean research: 62
(c) developmental: 0

Main deployment area: Tropical Pacific Ocean

C. Agency or programme: PIRATA Project (PMEL/OAR/NOAA)

Number and type of buoys: (a) deployed during year: 0
operational at 31 August: 10 surface moorings
reporting on GTS at 31 August: 10

Purpose of programme: (a) operational: 10
.1 met/ocean research: 10
.2 developmental: 0

Main deployment area: Tropical Atlantic Ocean

D. Agency or programme: NOAA Atlantic Oceanographic and Meteorological Laboratories (AOML)
2001 Plans - Plans for the deployment of 419 Drifters in the period between October 2000 and September 2001.

<u>Tropical Oceans</u>	<u>Planned/Deployed</u>
∃	Tropical Pacific 205 / 119 ENSO + 107 CORC
∃	Tropical Atlantic 78 / 50 (6 old SVP upgraded with Barometers by NOAA/SIO)
∃	Tropical Indian 50 / 35 (10 SVP upgraded with Barometers by Meteo-France)

10 WOCE BP/WSD (Tropical Atlantic) drifters have been deployed in the Hurricane formation Region

<u>Southern Oceans</u>	<u>Planned/Deployed</u>
∃	Pacific 35 / 28 (13 SVP upgraded with Barometers by NOAA/SIO, 1 SVP upgraded by New Zealand Met Service)
∃	Atlantic 20 / 32 (8 SVP upgraded with Barometers by NOAA/SIO)
∃	Indian 22 / 21 (7 SVP upgraded with Barometers by Australian Bureau of Meteorology)

E. Agency or programme: Naval Oceanographic Office (NAVO)

Number and type of buoys: (a) deployed during year: 101 (SVP-B, SVP-W-S, XAN, floats)

(b) operational at 31 Aug: 59 drifters, 9 floats

Purpose of programme: Operational, real-time in situ environmental data distributed on GTS

Main deployment areas: Northern Hemisphere for drifters

PLANNED PROGRAMMES (2002)

A. Agency or programme: NDBC (NWS/NOAA) Marine Observing Network

Number and type of buoys planned for deployment in next 12 months: 4 moored buoys

Purpose of programme: (a) operational: 73 moored buoys

(b) met/ocean research: 0

(c) developmental: 3 moored buoys

Main deployment areas: Pacific and Atlantic Oceans - coastal and offshore; Gulf of Mexico; Great Lakes

B. Agency or programme: NDBC Drifting Buoy Augmentation

Number and type of buoys planned for deployment in next 12 months: 4 TOGA drifters (50% chance)

Purpose of programme: (a) operational: (4) supplementing moored buoys

Main deployment areas: North Pacific Ocean

C. Agency or programme: TAO Project (PMEL/OAR/NOAA)

Number and type of buoys planned for deployment in next 12 months: 0

Purpose of programme: (a) operational: 58
 (b) met/ocean research: 58 surface moorings, 4 sub-surface moorings (Pacific)
 (c) developmental: 0

Main deployment area: Tropical Pacific Ocean

D. Agency or programme: PIRATA (PMEL/OAR/NOAA)

Number and type of buoys planned for deployment in next 12 months: 0

Purpose of programme: (a) operational: 10
 (b) met/ocean research: 10
 (c) developmental: 0

Main deployment area: Tropical Atlantic Ocean

E. Agency or programme: GDP (AOML/OAR/NOAA)
 Plans are for the deployment of 446 Drifters in the period between October 2001 and September 2002.

<u>Tropical Oceans</u>	<u># of Drifters</u>
∃	Tropical Pacific 223 (100 CORC)
∃	Tropical Atlantic 79
∃	Tropical Indian 54 (10 SVP upgraded with Barometers by Meteo-France)

10 WOCE BP/WSD (Tropical Atlantic) drifters will be deployed in the Hurricane formation region during the 2002 Hurricane Season.

<u>Southern Oceans</u>	<u># of Drifters</u>
∃	Pacific 44 (20 SVP upgraded with Barometers by NOAA/SIO, 6 SVP upgraded with Barometers by New Zealand Met Service).
∃	Atlantic 22 (10 SVP upgraded with Barometers by NOAA/SIO, 8 SVP upgraded with Barometers by South African Weather Service)
∃	Indian 24 (10 SVP upgraded with Barometers by NOAA/SIO/10 SVP upgraded with Barometers by Australian Bureau of Meteorology).

F. Agency or Programme: NAVO

Number and type of buoys: 120 surface drifters (SVP-B, SVP-WS), 20 floats

Purpose of programme: operational, real-time in situ environmental data

Main deployment areas: global