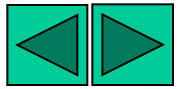
All You Wanted To Know About Drifters

Training CD

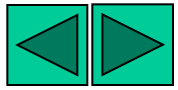
Prepared by: Mayra Pazos
Drifter Data Assembly Center
NOAA/ AOML, Miami, Florida

Contents

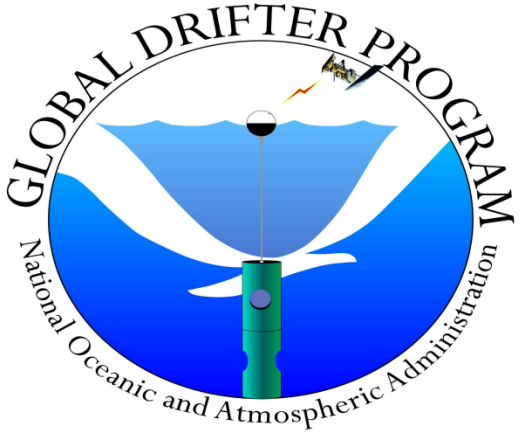


Global Drifter Program

The Global Drifter Program (GDP) is the principle component of the Global Surface Drifting Buoy Array, a branch of the National Oceanographic and Atmospheric Administration (NOAA) Global Ocean Observing System (GOOS) and a scientific project of the Data Buoy Cooperation Panel (DBCP)



Components of the Global Drifter Program

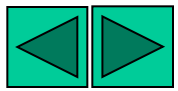


Manufacturers

Operational Partners

Drifter Operations Center (DOC)

Drifter Data Assembly Center (DAC)



Drifter Operations Center

Objectives:

To maintain a global 5x5 array of Argos tracked Lagrangian Drifters to meet the need for accurate and global in-situ observation of SST and surface circulation.

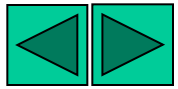
These data support:

- **Short term climate prediction**
- **Satellite observation calibration**
- **Climate research and monitoring**

Drifter Data Assembly Center

Objectives:

The goal of the Drifter Data Assembly Center is to assemble and provide uniform ***quality controlled*** data of ***research quality*** for sea surface temperature and surface velocity measurements.



The DOC and The DAC Work Together But …They Have Different Tasks

DOC

Takes care of logistics, from the request of the Argos IDS, to the deployment of the buoy

- Develops & coordinates drifter deployment plans
- Finds ships for deployments
- Distributes IDS to manufacturers
- Maintains Metadata

Shaun Dolk

DAC

Maintains a database with drifter data from deployment until buoy stops transmitting, and QC data

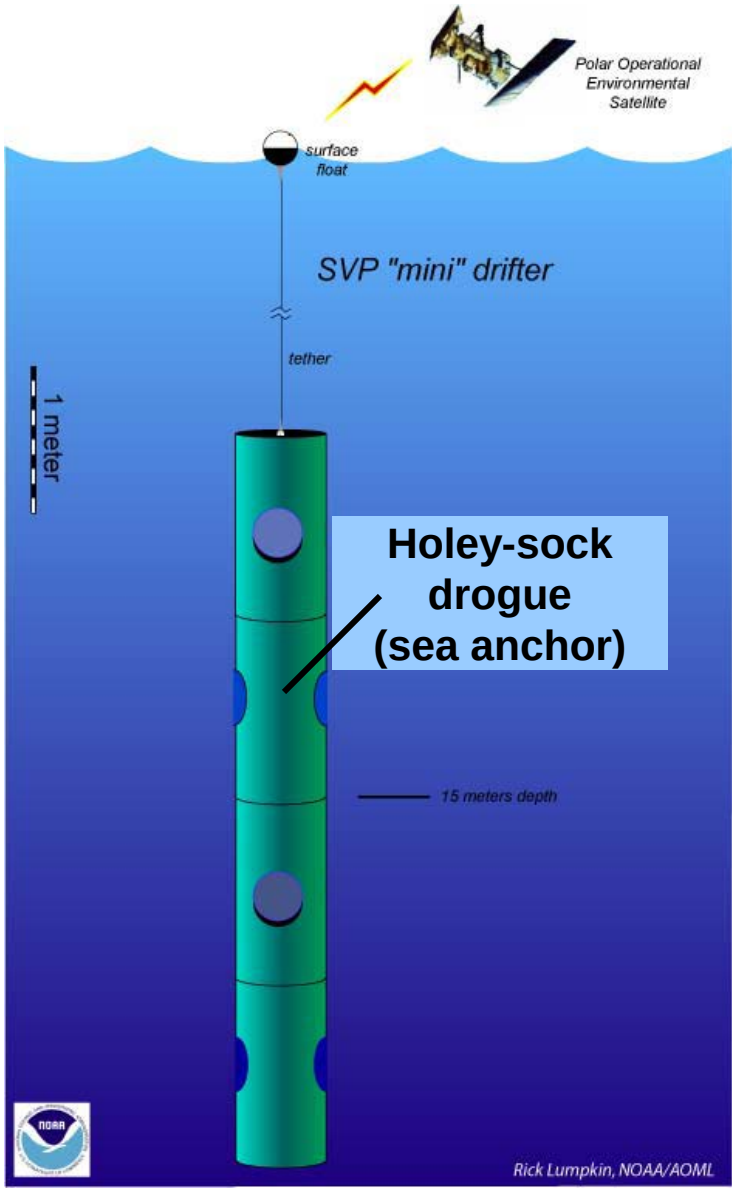
- Decodes raw data & applies calibrations
- Quality controls and interpolates data
- Makes data available through web and distributes for archiving
- Disseminate buoys going on/off GTS

Mayra Pazos,
Jessica Redman and Erik Valdes

What Is A Drifter?

The modern drifter is a high-tech version of the "message in a bottle". It consists of a surface buoy and a subsurface drogue (sea anchor), attached by a long, thin tether. The buoy measures temperature and other properties, and has a transmitter to send the data to passing satellites. The drogue dominates the total area of the instrument and is centered at a depth of 15 meters beneath the sea surface.

Basic SVP Drifter



Spherical plastic float

Poly Urethane impregnated wire

Holey Sock drogue centered at 15-m depth

D-cells batteries inside the float

Sensors:

Drogue: **Observes the submersion rate of the float. Float stays on the surface if drogue is lost.**

SST: **To measure Sea Surface Temperature**

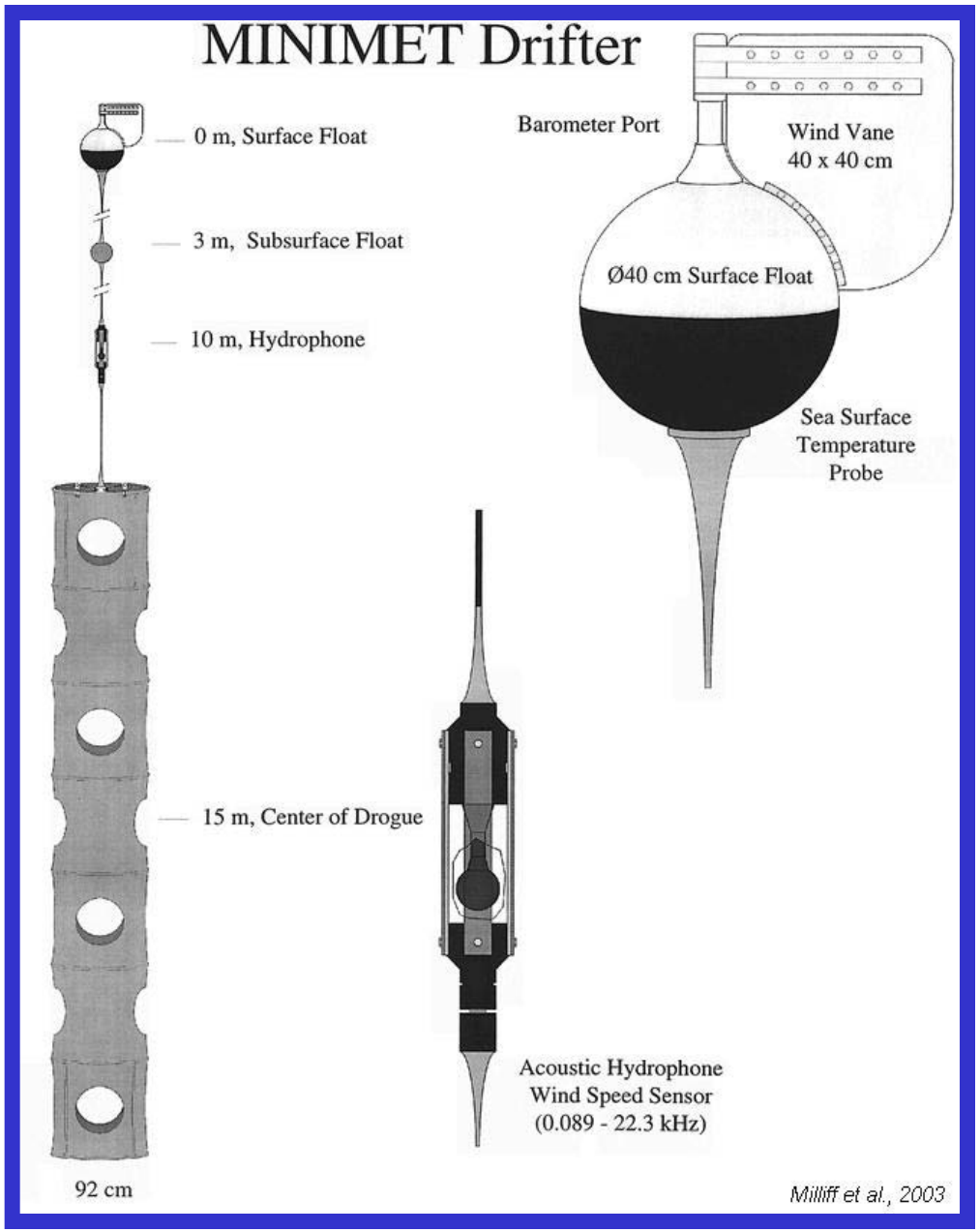
Voltage: **Indicates batteries' life**

Cost: **~$1800**

Other Sensors that can be added:

Barometric pressure, wind, salinity,etc

SVP + Barometer + Wind



Barometer to measure air pressure.

Wind Direction is measured by a vane on the surface float

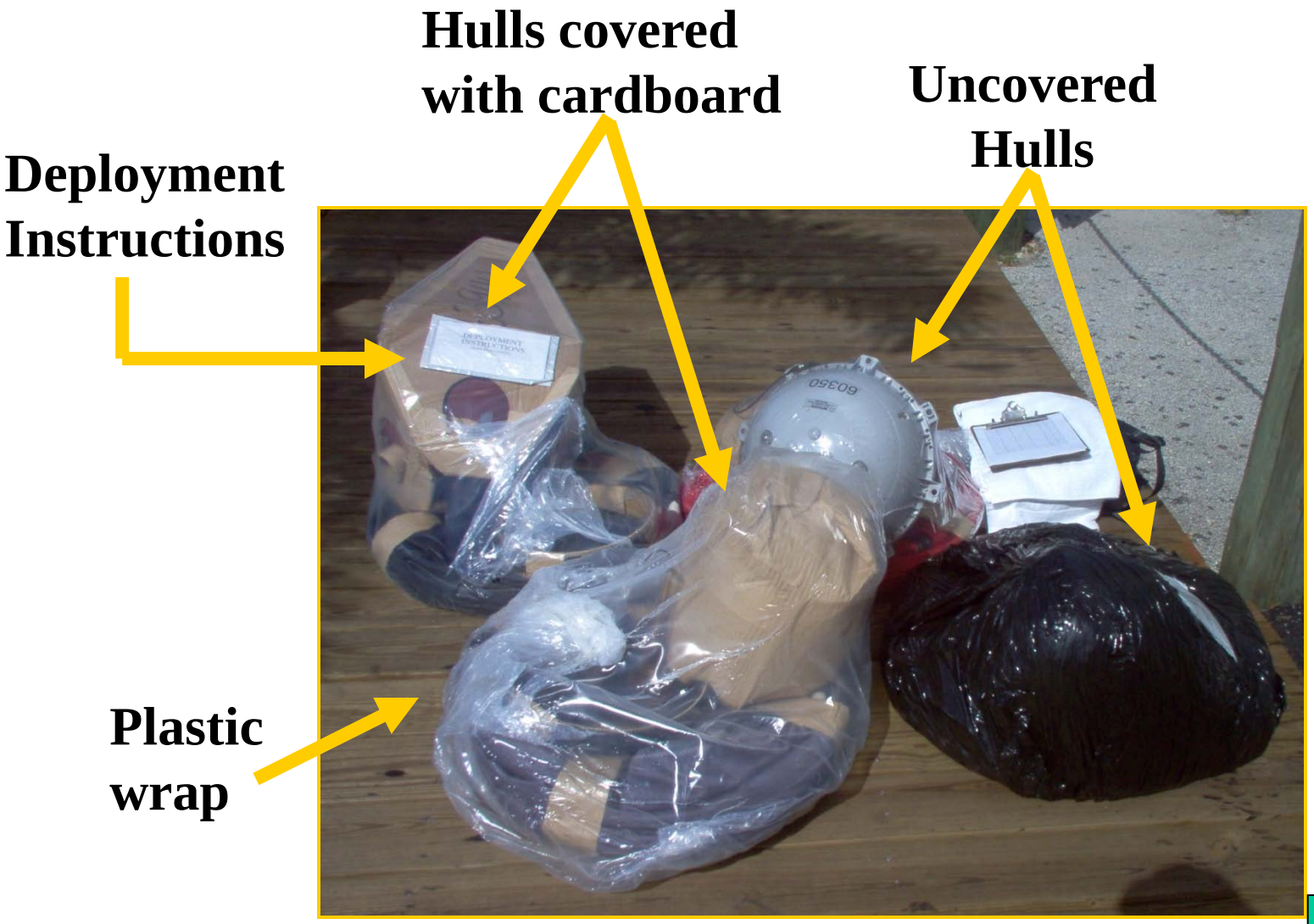
Wind speed by a subsurface hydrophone.

Cost: ~$3000.00

We offer option to upgrade!

SVP with Barometer

Drifter Packaging



Pull-Pin Activation Magnet

- Some drifters have a pull-pin magnet to activate the buoy.
- Without removal of the magnet, the buoy remains “off”.
- Some drifters have the magnet attached with water-soluble tape, that don’t require removal prior to deployment.

Drifter Ready To Be Deployed

How To Deploy A Drifter

1- Remove *ONLY* plastic shrink wrap

Some drifters have cardboard around the float. *DO NOT* remove the cardboard surrounding the surface float.

How To Deploy A Drifter (Cont.)

DANGER!

2- DO NOT remove the paper tape securing the tether and drogue

DANGER!

If you do, the drogue and/or tether can unfurl during deployment and cause injury!!!

How To Deploy A Drifter (Cont.)

3- Record the five digit ID number of the drifter. This number can be found on the shipping container, the plastic shrink wrap or the protective cardboard box. It is also inscribed on the surface float.

ID number on the surface float

How To Deploy A Drifter (Cont.)

4- If testing the buoy is desired prior to deployment, the magnet can be removed from the drifter by separating it from the surface float. This action will start the Argos transmitter for testing, reattaching the magnet in the same position, will turn off the transmitter.

magnet

Remove magnet through hole in the box.

Test if transmitting.

Hole in box to remove magnet

Some drifters don’t have a safety pin magnet to be removed, instead they have the magnet attached with soluble tape that will dissolve once the drifter is in the water.

Read instructions carefully to know if you need to pull the magnet manually or not.

How To Deploy A Drifter (Cont.)

5- Throw the drifter from the stern, lowest possible deck (preferably less than 10 meters including heave) into the sea. The ship may be traveling between 2-25 knots. The tether and drogue are secured with paper tape that will dissolve in the water.

Throw buoy from stern, lowest possible deck.

Tether and drogue secured with paper tape that will dissolve in water

Drogue starts sinking minutes after deployment

Drogue stretches vertically, when tape dissolves

How To Deploy A Drifter (Cont.)

6- Record the five(5) digit Buoy ID, Date of Deployment, Time (GMT) of Deployment, Longitude and Latitude of deployment and send this information to the Global Drifter Program.

Contact Persons:

Shaun.Dolk@noaa.gov

and

Mayra.Pazos@noaa.gov

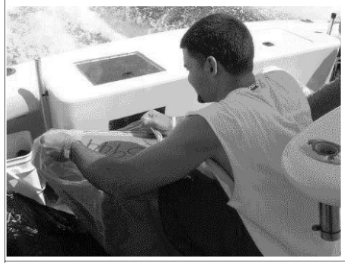
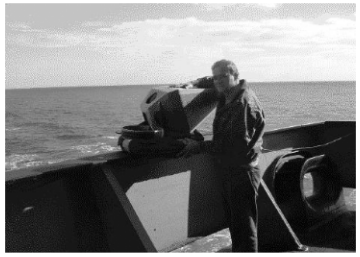
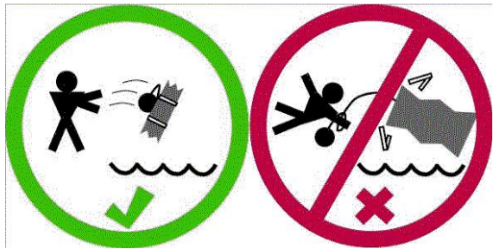
Instructions Included With Each Drifter

DEPLOYMENT INSTRUCTIONS

Read Carefully

(Page 1)

FOLD

1. Remove plastic wrap 	2. <u>DO NOT REMOVE</u> paper tape, cardboard, or anything BUT plastic. 
3. Throw buoy in water. 	

Deployment Instructions (Page 2)

1) Remove the buoys from the shipping container. **REMOVE <u>ONLY</u>** the plastic shrink-wrap.
2) **DO NOT REMOVE** paper tape securing the drogue and tether. **DO NOT REMOVE** cardboard surrounding the float.

***<u>DANGER</u>*: DO NOT REMOVE** the paper tape securing the tether and drogue. If you do, the drogue and/or tether can unfurl during deployment and cause injury!!!

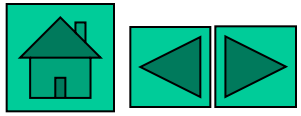
3) Record the five digit ID number of the drifter. This number can be found on the shipping container, the plastic shrink-wrap or the protective cardboard box. It is also inscribed on the surface float.

4) If testing the buoy is desired prior to deployment, the magnet can be removed from the buoy by separating it from the float through a hole in the box surrounding the float. This action will start the ARGOS transmitter for testing. Re-attaching the magnet in the same position will turn off the transmitter and reset the program starting point. The transmitter will restart on its original program when the magnet is again removed.

5) Throw the buoy from the stern, lowest possible deck (preferably less than 10 meters including heave), into the sea. The ship may be traveling between 2 - 25 knots. The tether and drogue are secured with paper tape that will dissolve in the water.

6) Record the date, time (GMT) and location of deployment as well as the five digit ID, and send this information to the Global Drifter Program.

Thank you very much for your help!
CONTACT PERSON



Drifters Are Deployed From:

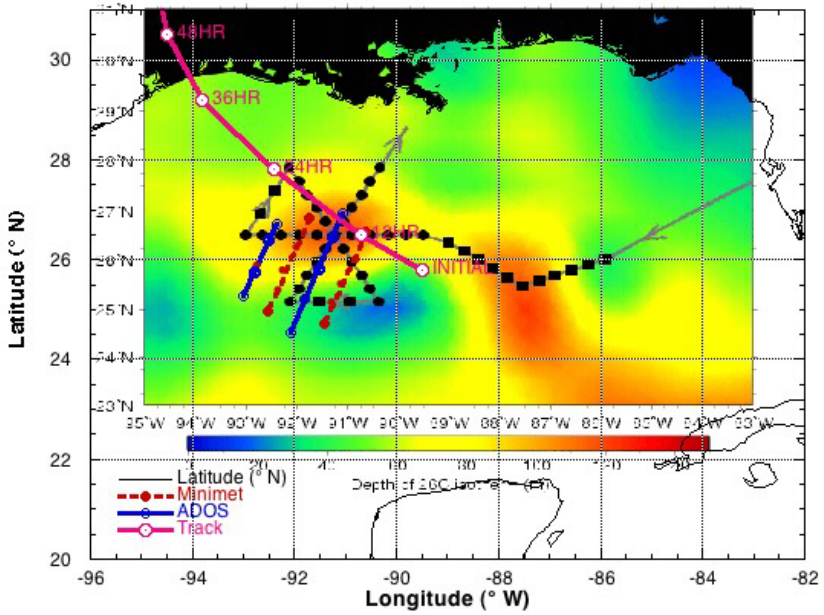
- Cruise ships
- Cargo ships
- Research Vessels
- Aircrafts

Assistance from national and international Governmental Agencies

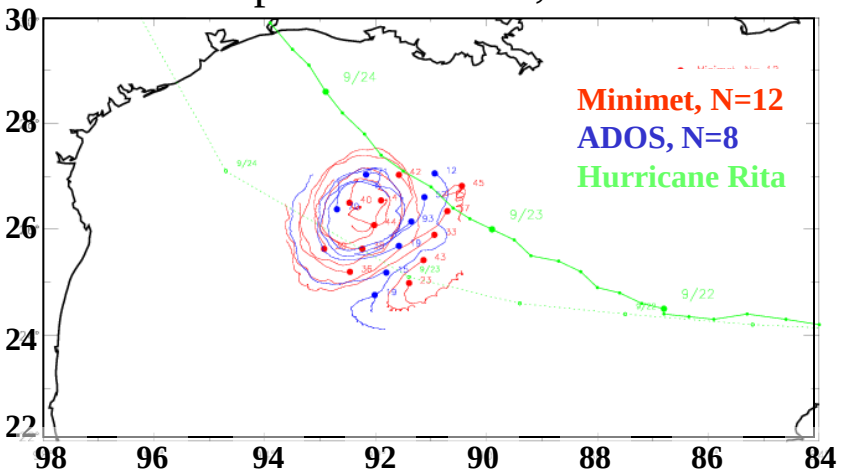
Drifters Deployed By Aircrafts

- **Drifters are also deployed by aircraft to help seed those regions that otherwise it would be hard to reach.**
- **Every year during the hurricane season in the Atlantic Ocean (June 1 – November 30) NOAA/AOML has coordinated Deployments with NAVOCEANO in the past, and also with the National Hurricane Center in Miami, Florida, to deploy drifters in front of hurricanes using the hurricane hunter planes from the air force to provide forecasters and researchers with surface meteorological data to help in the prediction and forecast of hurricanes.**
- **These drifters besides measuring SST, also measure:**
  - **Barometric pressure**
  - **Wind speed and wind direction**

Drifters in front of Hurricane Rita Sep 21, 2005



September 21-28, 2005



www.cora.nwra.com/~morzel/drifters.rita.html

A total of 20 drifters were deployed in front of the cat 5 hurricane Rita. All drifters survived and sent good data.

Air pressure, SST, wind direction and wind speed were reported and transmitted onto the GTS. The 8 ADOS drifters were also equipped with 100m thermister chains and measured temperature to 100m depth.

These data provided an excellent data set for improvements of wind speed algorithms from hydrophone observations. SST was measured at much higher resolution than many satellite products and helped calibrate these products.

Deployment Information On The Web

www.aoml.noaa.gov/phod/dac

The Global Drifter Program
Satellite-tracked surface drifting buoys

NOAA Home | AOML Home | PhOD Home | GOOS Center | **Global Drifter Program**

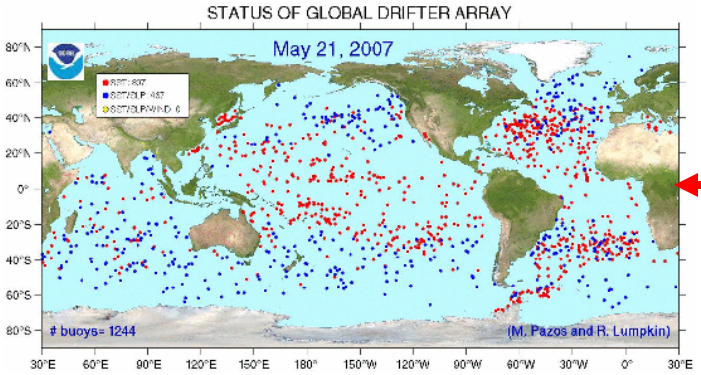
GOOS Center
- ARGO Center
- Global Drifter Program
- High Density XBT Lines
- Low Density XBT Lines

Global Drifter Program
- Information
- Data and Products
- Operations

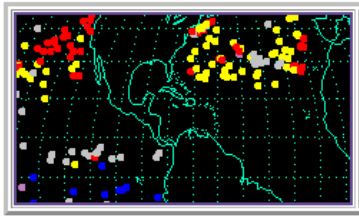
Contact
- Contact Information

The Global Drifter Program

Satellite-tracked surface drifting buoy observations of currents, sea surface temperature, atmospheric p
information ...



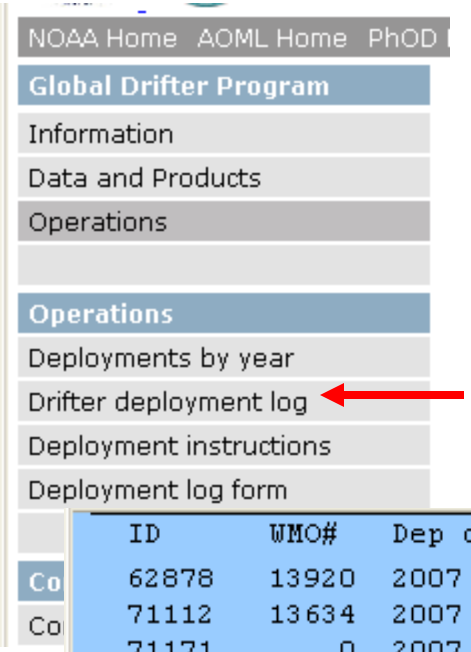
Click to see the current status of the array



The Drifter Data Assembly Center
Processing, Analysis, and Distribution
Data Products Available

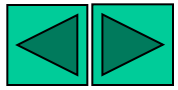
The Drifter Operations Center
World Wide Drifter Deployments

Enter DOC page



Sample Drifter Deployment Log

ID	WMO#	Dep date	Lat	Long	Ship	Manufacturer	Type	Prgm
62878	13920	2007 05 19 20	26.0N	025 00.4W	RONALD BROWN	!Pacific Gy	SVP3	6129
71112	13634	2007 05 19 20	29.6N	023 04.0W	RONALD BROWN	!Metocean	SVP3	6129
71171	0	2007 05 19 00	00.1N	086 12.4W	JOSEPHINE MAERSK	!Metocean	SVP3	6129
62892	13607	2007 05 15 14	00.3N	023 00.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
62875	13633	2007 05 14 11	28.7N	023 00.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
63269	0	2007 05 14 09	16.0S	006 22.8E	ATLANTIC ACTION	?Clearwater	SVP3	7325
63915	71697	2007 05 14 60	02 S	063 20.1W	LM GOULD	!Technocean	SVPBD2	7325
63920	33654	2007 05 14 59	00.2S	063 48.0W	LM GOULD	!Technocean	SVPBD2	7325
72184	13636	2007 05 14 11	28.7N	023 00.0W	RONALD BROWN	!Pacific Gy	SVPBD2	6129
36164	17656	2007 05 13 37	07 S	012 03.1W	Tristan	!Technocean	SVPBD2	9325
54355	15603	2007 05 13 05	00 S	004 33.3E	ATLANTIC ACTION	!Clearwater	SVP3	9325
59838	43538	2007 05 13 29	34.5N	128 28.1W	EXPLORER	!Pacific Gy	SVP3	8325
59863	43539	2007 05 13 29	58.6N	127 00.0W	EXPLORER	!Pacific Gy	SVP3	8325
59892	51630	2007 05 13 29	09.1N	130 00.0W	EXPLORER	!Pacific Gy	SVP3	8325
62884	13921	2007 05 13 10	00 N	023 00.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
62249	15601	2007 05 12 01	00 S	002 52.0E	ATLANTIC ACTION	!Clearwater	SVP3	6129
62885	13922	2007 05 12 06	00 N	023 00.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
62891	13924	2007 05 12 08	00.4N	022 59.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
62895	13926	2007 05 12 07	05.4N	023 00.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
62901	13929	2007 05 12 08	00.4N	022 59.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
62882	13925	2007 05 11 04	03.5N	022 59.0W	RONALD BROWN	!Pacific Gy	SVP3	6129
71170	0	2007 05 11 03	00 N	001 10.5E	ATLANTIC ACTION	!Metocean	SVP3	6129



Some Drifter's Facts

Drifters average life: **~450 days**

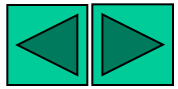
Longest Lived: **10 years, 4 months, 21 days**

Drogue average life: **~300 days**

Longest Drogue on : **5 years, 6 months, 21 days (and still on)**

Average failure on deployment: **~3%**

Death Reasons: **Run aground, picked up by fishermen, stop transmitting**

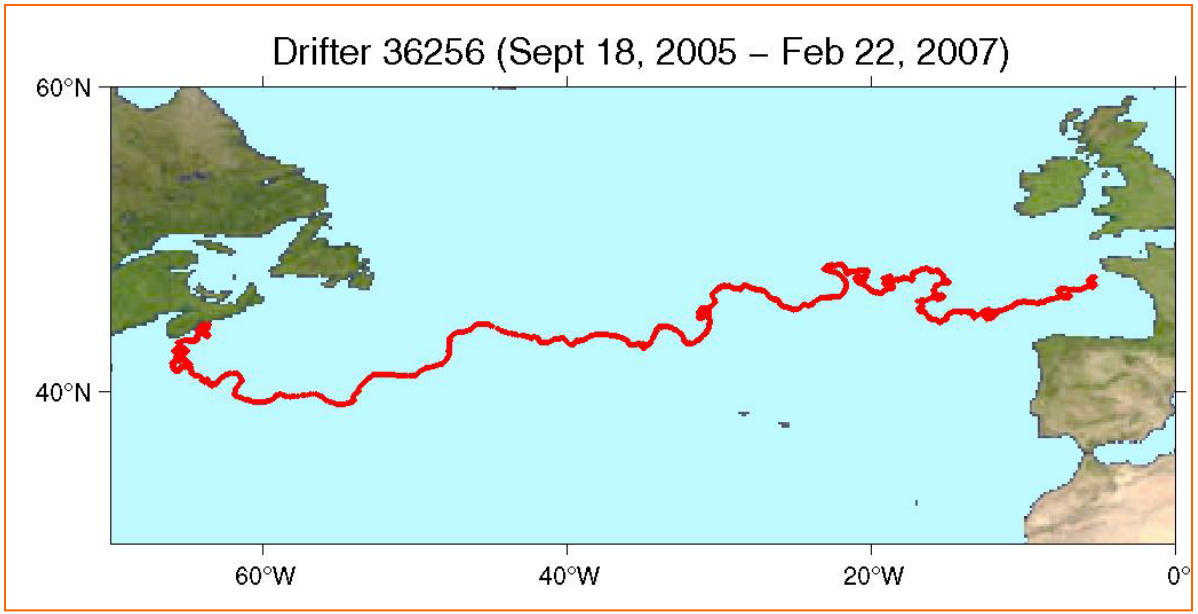


Global Drifter # 1250

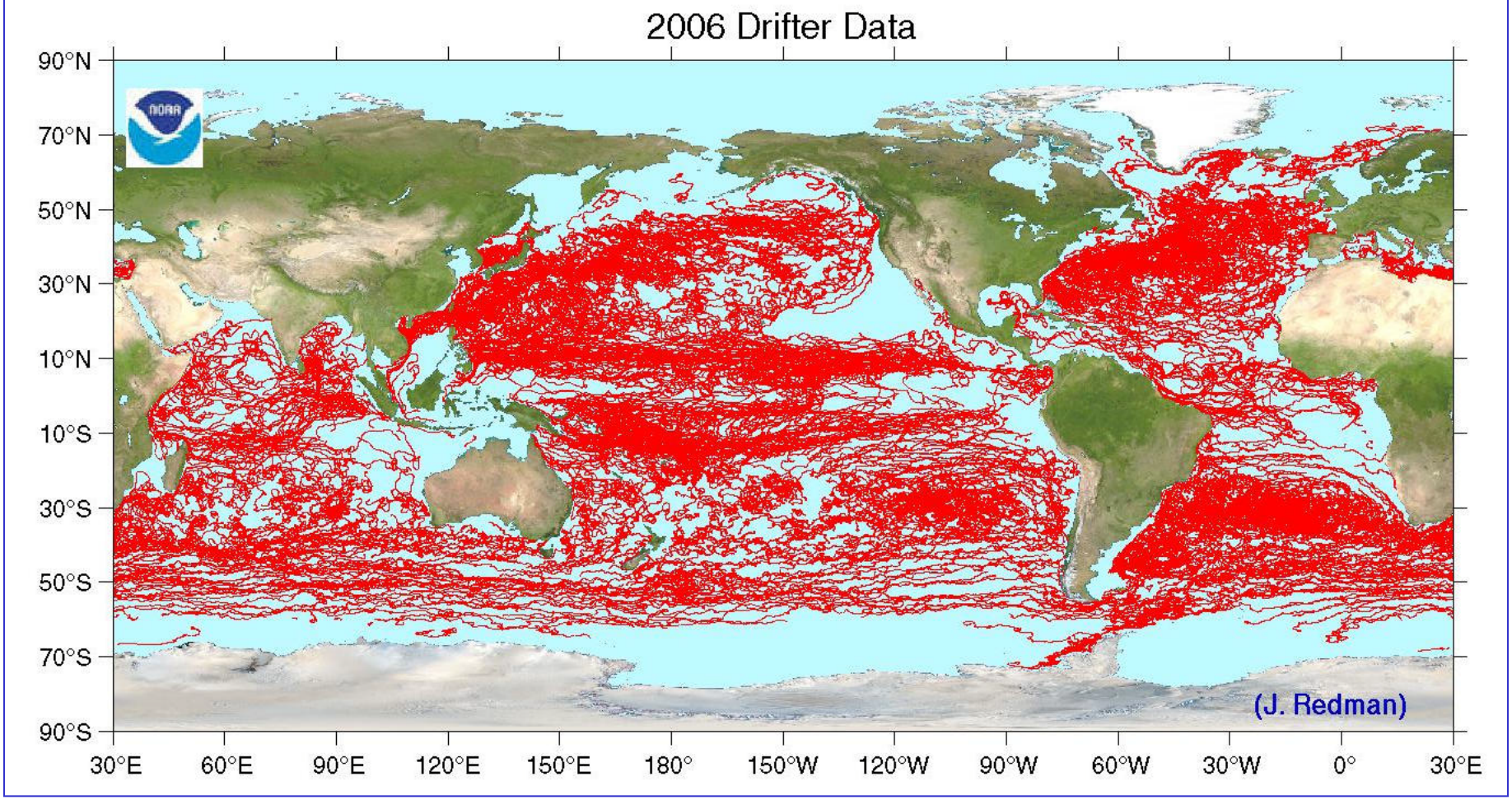
Scientific design of the global drifting network called for 1250 buoys to be deployed and maintained worldwide to ensure total coverage of the global ocean and to calibrate the satellites.

Retrieved after crossing North Atlantic, off the cost of Brest, France

Traveled for 521 days, with drogue on to the end, and transmitting good SST, and barometric pressure. All data went out on the GTS.

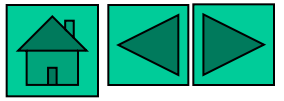


Tracks of Drifters During 2006



Our appreciation to the following Operational Partners for their contributions to GDP activities

Ships of Opportunity program
International Ice Patrol
Institut de Recherche pour le Développement; Météo-France (France)
New Zealand Met. Service
Australian Bureau of Meteorology
Fundação Universidade Federal do Rio Grande; Instituto Nacional de Metereologia; Centro de Hydrografia de Marinha; INPE (Nacional Space Institute); Brazilian Navy (Brazil)
Fisheries Research Institute; Servicio de Hidrografía Naval (Argentina)
Instituto Canario de Ciencias Marinas; Universidad de Las Palmas de Gran Canaria (Spain)
Instituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy)
Marine Fisheries Research Division – Ghana
Fisheries Department – Tristan Da Cunha
National Institute of Oceanography; National Institute of Ocean Technology (India)
Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (Mexico)
Ministry of Maritime Affairs and Fisheries NORI, NFRDI (Korea)
United Kingdom Met Office
Environment Canada
University of Cape Town; South African Weather Service (South Africa)
Scripps Institution of Oceanography
Woods Hole Oceanographic Institution
United States Air Force
Oregon State University
Marine Resources Research Institute
US Naval Oceanographic Office
United States Coast Guard
Raytheon Polar Services … and many others



Quality Control

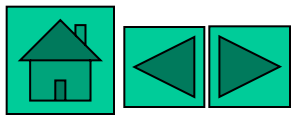
Practical implementation at the Drifter Data Assembly Center

Importance of Metadata

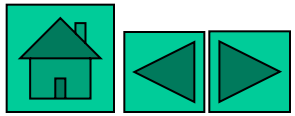
Delayed Mode Quality Control Procedures

Web Access to Data and Products

GTS Distribution



Importance of Metadata



Importance of Metadata

METADATA= DOCUMENTATION

Metadata ***describes*** the characteristics of the data. The drifter metadata describes:

- Argos ID number
- GDC unique ID
- WMO number
- Program number
- Contact Information
- Deployment time, latitude and longitude
- Manufacturer
- Buoy type
- Drogue type, length, and brief description of its characteristics
- Sensors transfer functions
- Track inventory of drifters, both in storage and in transit

Metadata helps ***share*** reliable information, and ***maintain*** homogeneity of the database

Without METADATA no data set is complete

Sample Specification Sheet

Manufacturers are required to send DAC specification sheets

Argos ID(s) 70850-70857

Manufacturer
Technocean

Sensor array
SVPB Battery voltage, drogue sensor, SST, barometer

Surface float description
41 cm. diameter, ABS plastic surface float.

Tether description
a) 0.32 cm OD polypropylene-impregnated wire rope between surface
float and drogue.
b) Tether attachment to 2.0 cm steel ring at base of surface float;
marine epoxy filled cavity surrounding ring for restraint.
c) 5 cm dia. by 32 cm long polyurethane strain relief molded below
surface float. Attachment point of tether to drogue hub covered by 5 cm
dia. by 32 cm long polyurethane strain relief.

Drogue description
a) Holey sock made from Cordura nylon cloth; diameter 61 cms, length 610
cms. construction consists of 5 cylindrical sections, each 122 cms long. Two
30 cm dia. holes cut opposite each other in each section. Axis joining holes
is rotated by 90 between successive sections. Drogue is centered at 15 m.

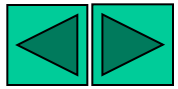
Drogue depth
15 m at center

Drogue length
6.1 meters

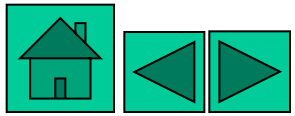
Message Length
56 bits

Message format

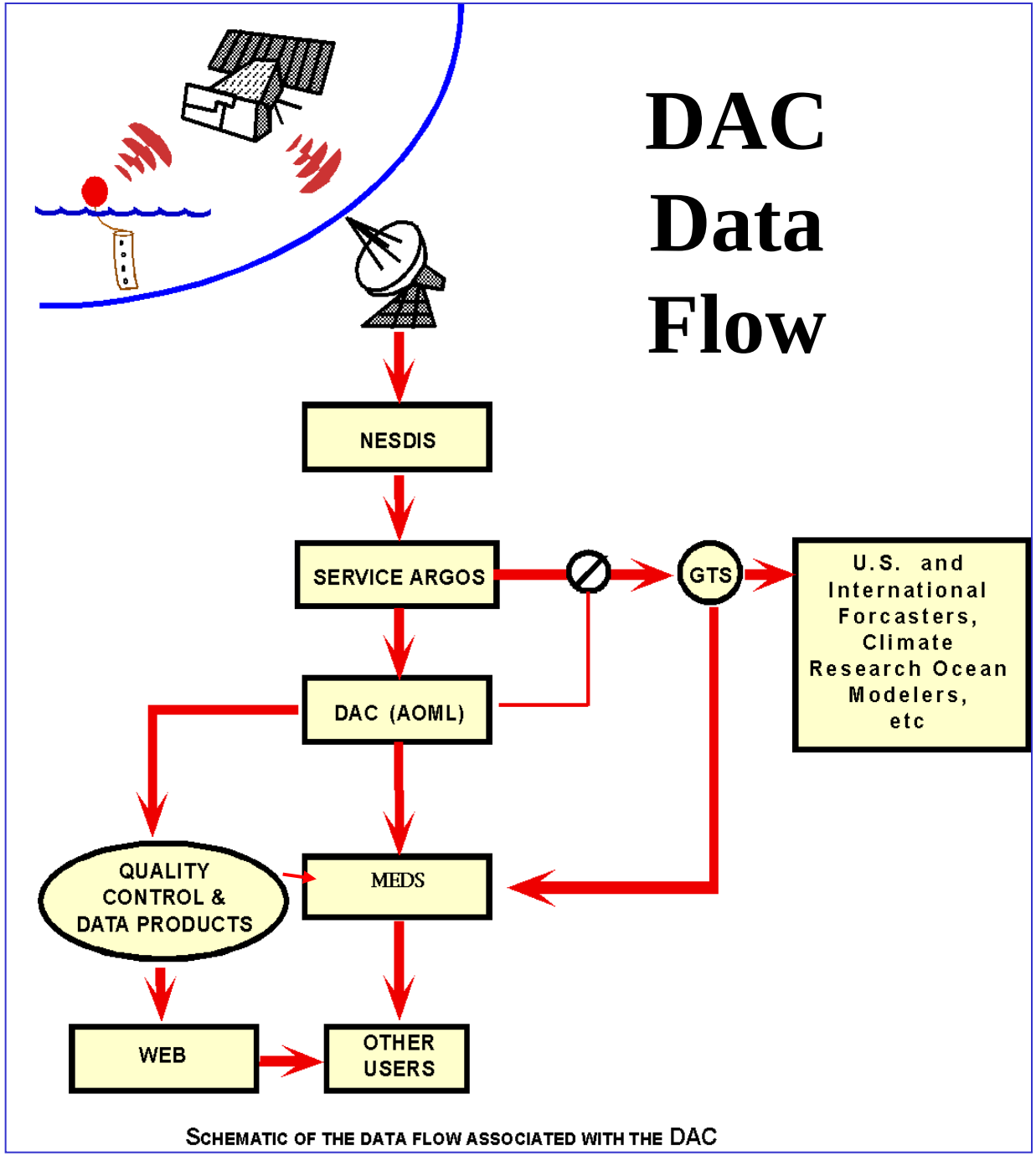
8 bits	Checksum
4 bits	Rank
6 bits	Age
11 bits	Barometric pressure
9 bits	Sea surface temperature
9 bits	Air pressure tendency
6 bits	Submergence count
3 bits	Battery voltage



Delayed Mode Quality Control Procedures



DAC Data Flow



SCHEMATIC OF THE DATA FLOW ASSOCIATED WITH THE DAC

Drifter Database Information Files

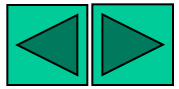
- Relational database using flat files linked by ARGOS ids
- Data starts in February 1979 and continues to present
- All buoys are standard WOCE/SVP drogued at 15 meters

DIRECTORY FILE
(information about ea. Drifter)

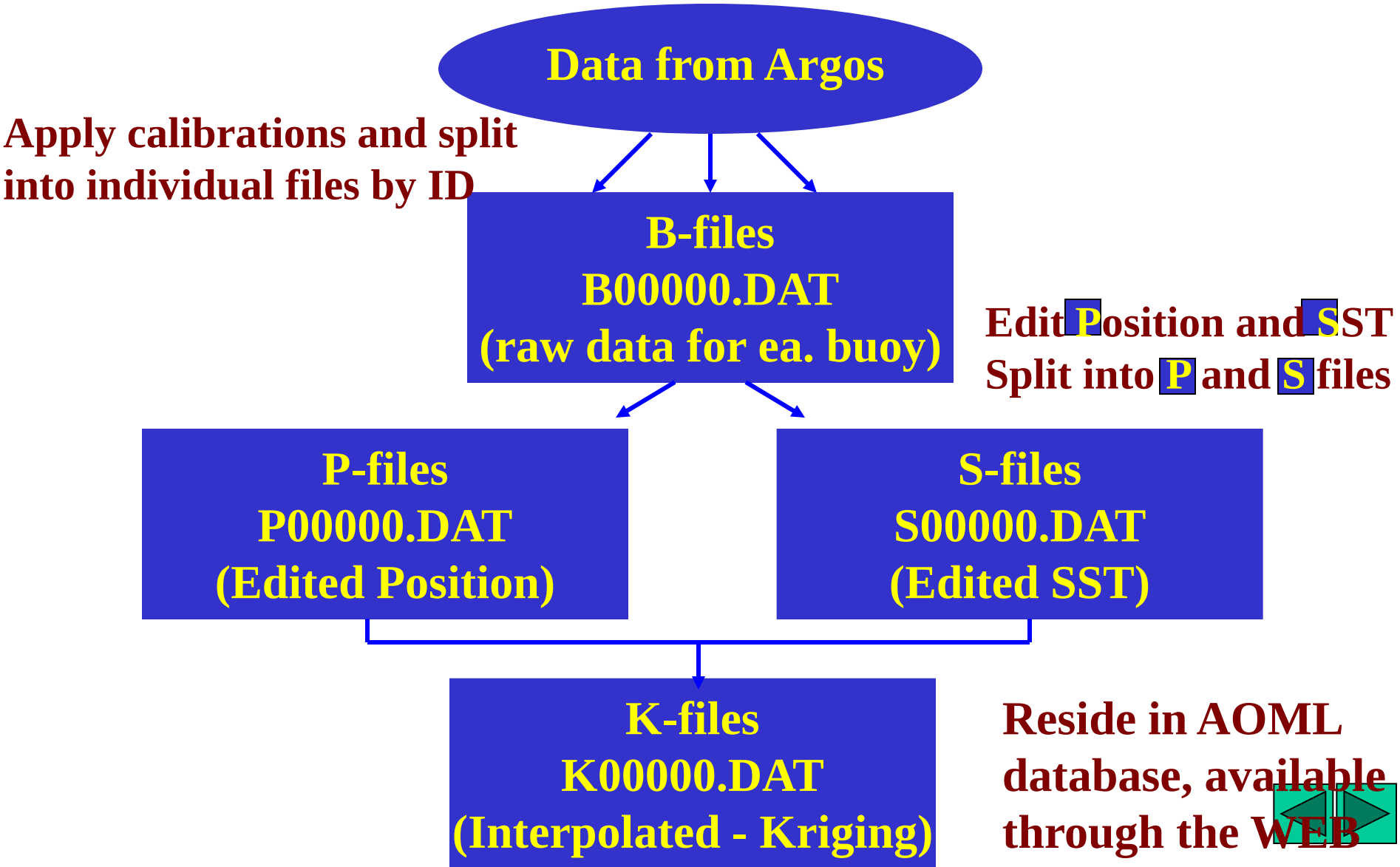
CALIBRATION FILE
(coefficients to calibrate each sensor)

GROUND FILE
(holds time interval not to be interpolated)

TEMPERATURE FILE
(holds last day SST is good)



Drifter Database Data Files



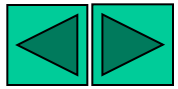
Quality Control Steps

- **Drifter data is downloaded from Argos daily and also received at AOML once a month on CDs**

- **Convert raw data into engineering units and add to individual B-file by ID**

- **Determine deployment time and position of first good transmission from the water**

- **Run programs that identify buoys that are dead:**
  a) Transmit from the same location after a successful deployment (grounded)
  b) Do not have any new data after last update (quit)
  Such dates and positions are entered into the DIRECTORY file



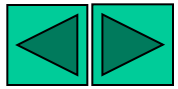
Quality Control Steps (Continuation)

- **Software are run to check bad locations from ARGOS raw data based on speed between consecutive locations, bad points are deleted (P-files)**

- **Deviant SST values are removed by applying a temperature change criterion relative to the recent temperatures measured by the buoy (S-files)**

- **SST's from each drifter are compared with Reynold's climatology to determine temperature sensor failure, last good day is entered into the TMPFL file. SST after this date will be discarded**

- **We decode, archive and handle GTS data transmissions and deletions of other sensor data like pressure and wind, but NO quality control is applied to them**



Quality Control Steps (Continuation)

- **Buoys that possibly lost their drogues are identified.**
  Drogue lost date is determined and entered in the DIRECTORY file

- **All active buoys are processed and interpolated to 6 hour intervals, using the Kriging method**

P (position edited) file + S (SST edited) file = K (interpolated) file

Refer to paper by Hansen and Poulain for details on the Editing and Kriging procedures:

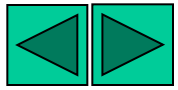
Hansen, D.V. and P.-Marie Poulain, 1996. Quality Control and Interpolations of WOCE/TOGA Drifter Data. J. Atomos. Oceanic Tec., 13, 900-909

- ***Kriged drifter data can be accessed through the WEB***

WWW.AOML.NOAA.GOV/PHOD/DAC/DACDATA.HTML

> Interpolated database

- **Database is updated every 2-3 months and sent to MEDS for distribution and archival**



Sample Directory file

http://www.aoml.noaa.gov/phod/dac/dacdata.html

> Details of all drifters in database

LIST AND DETAILS OF ALL BUOYS IN DATABASE AS OF OCTOBER 2006

ID	WMO	EXP	DEP. DATE	DEP. LAT	DEP. LON	END. DATE	DROG OFF DATE	DEATH CODES	MANUF.	TYPE
62228	32545	6129	12- 25- 2006	27.20	280.83	12- 31- 2006	12- 25- 2006	3	Clearwater	SVP
62274	33663	6129	10- 27- 2006	-38.48	307.48	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
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63116	32922	7325	10- 25- 2006	-25.00	286.40	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
62208	53593	9325	10- 24- 2006	2.98	92.66	11- 30- 2006	0- 0- 0	0	Clearwater	SVP
63058	51811	7325	10- 24- 2006	0.03	189.90	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
63122	32919	7325	10- 24- 2006	-19.68	285.19	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
63123	32920	7325	10- 24- 2006	-21.00	285.48	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
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63113	32623	7325	10- 22- 2006	-19.70	282.99	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
70249	0	1627	10- 22- 2006	37.44	11.31	10- 31- 2006	0- 0- 0	0	Clearwater	SVPB
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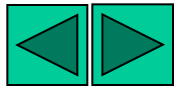
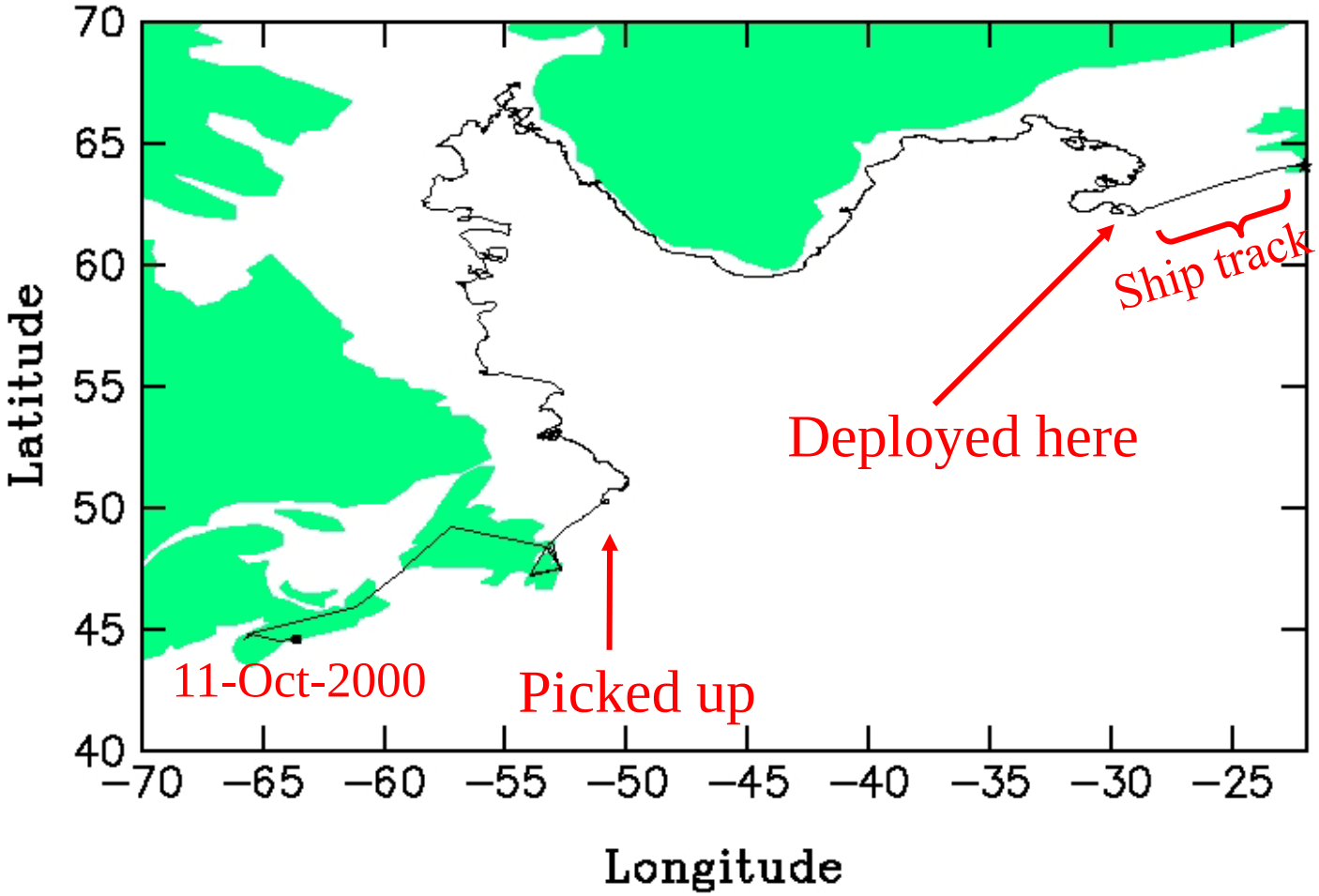


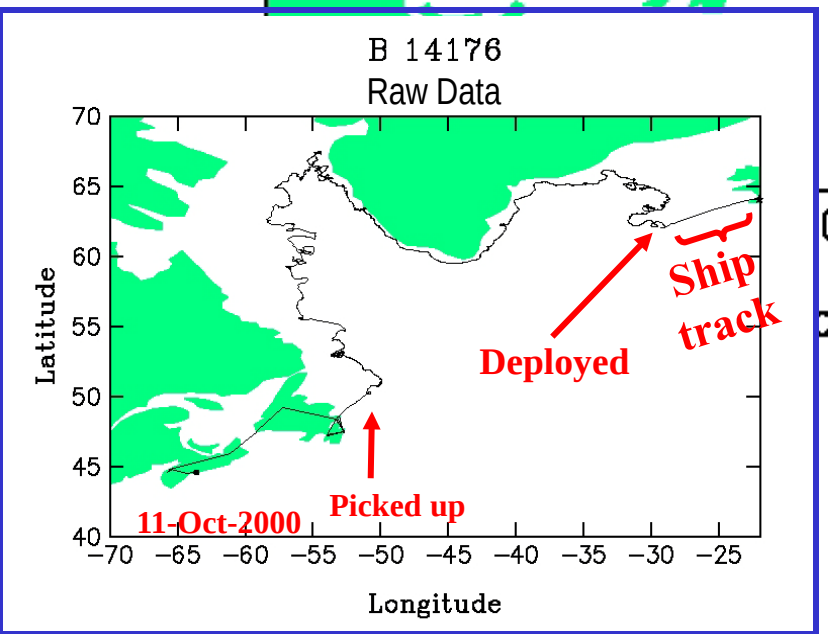
QC Examples

Drifter 14176 raw file



Drifter 14176 Cleaned and Interpolated File

After editing and interpolation procedures have been applied

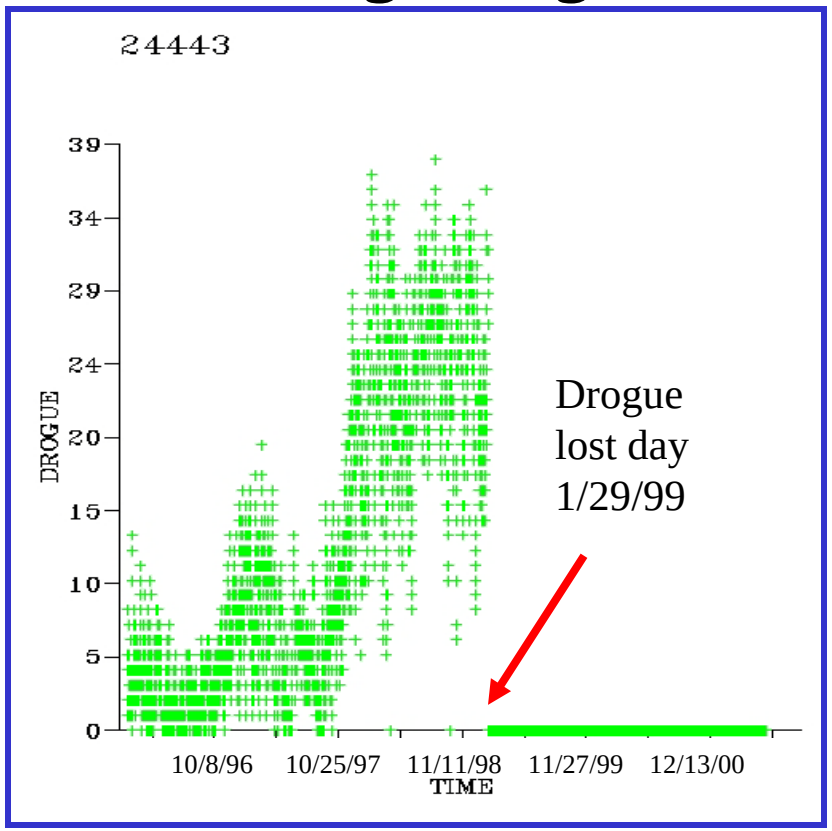


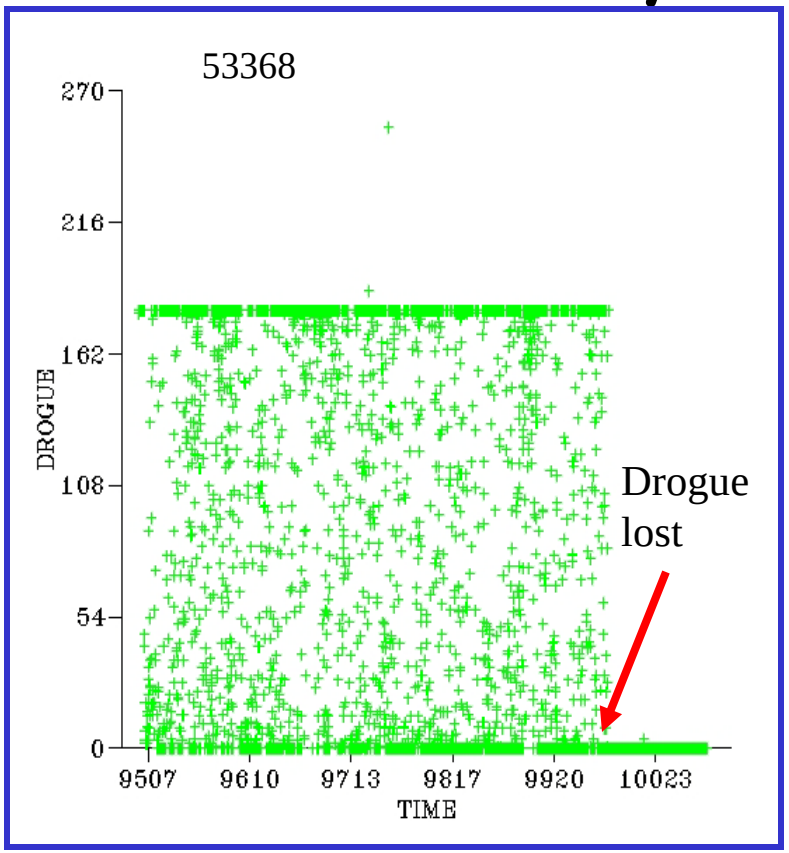
15-Mar-1999

30-Jul-2000

QC Examples

Determining drogue off time… NOT an easy task

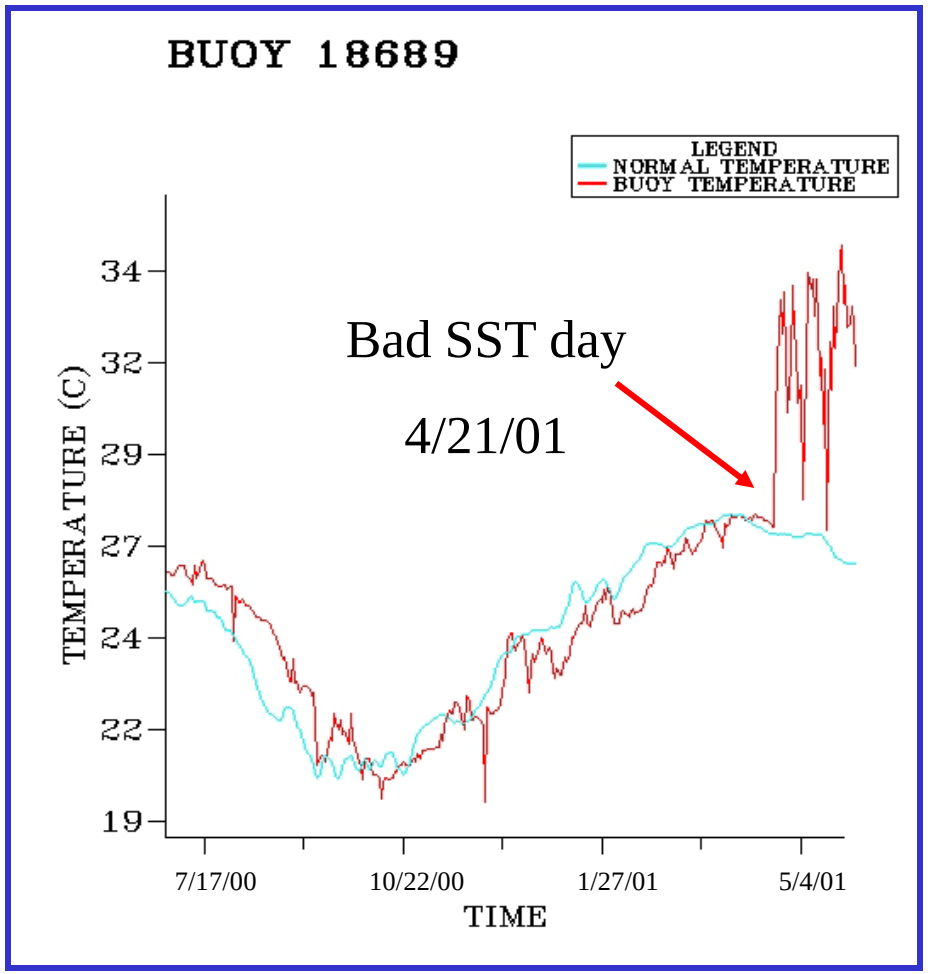


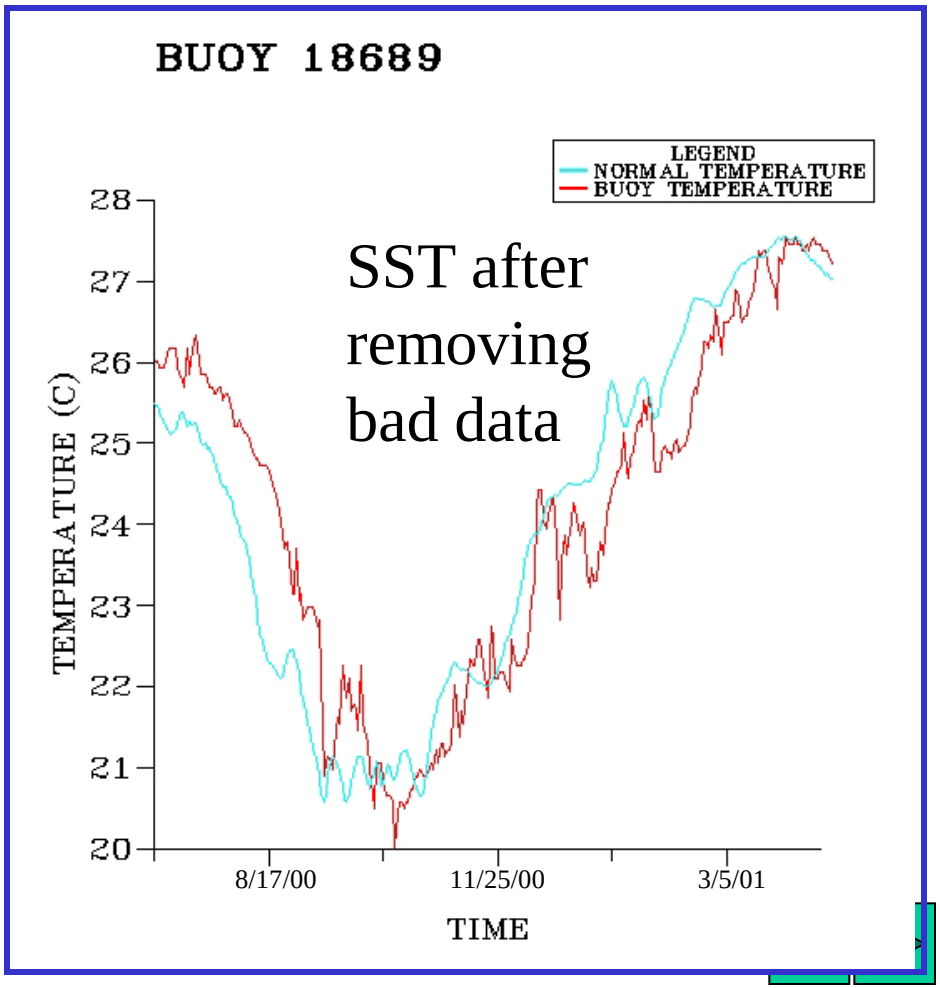


Typical submergence record for Technocean "drogue loss"
(sharp drop to zero when drifter is picked up).

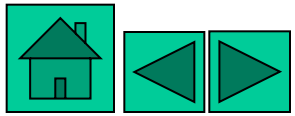
QC Examples

Compare SST with Reynold's Climatology





Web Access to Data and Products



Accessing Data and Products
www.aoml.noaa.gov/phod/dac

The Global Drifter Program
Satellite-tracked surface drifting buoys

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- ARGO Center
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- High Density XBT Lines
- Low Density XBT Lines

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- Operations

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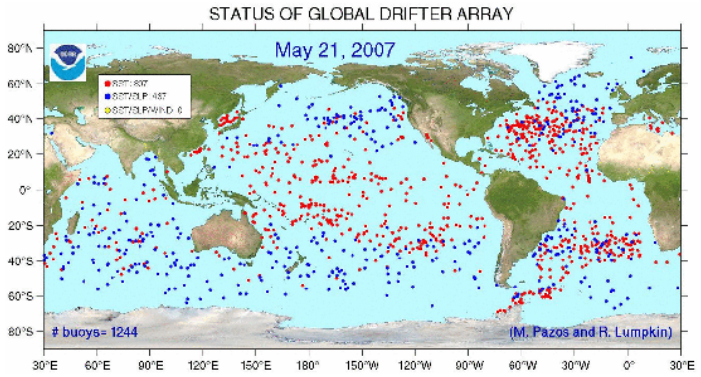
- Contact Information

The Global Drifter Program

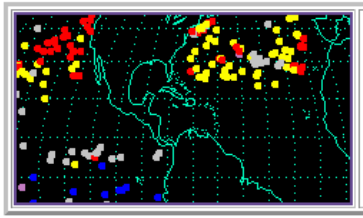
Satellite-tracked surface drifting buoy observations of currents, sea surface temperature, atmospheric p
information ...



Click to see the status of the array

Information
- What's a drifter?
- Track a particular drifter
- GDP Objectives
- Science: goals and programs
- Latest maps
- Bibliography
- Drifter Links

Contact
- Contact Information



The Drifter Data Assembly Center
Processing, Analysis, and Distribution
Data Products Available

The Drifter Operations Center
World Wide Drifter Deployments

Accessing Data and Products
www.aoml.noaa.gov/phod/dac

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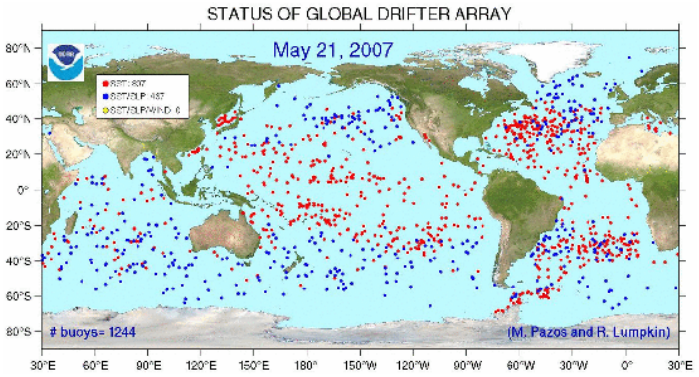
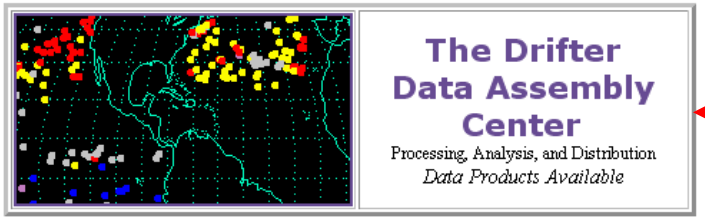


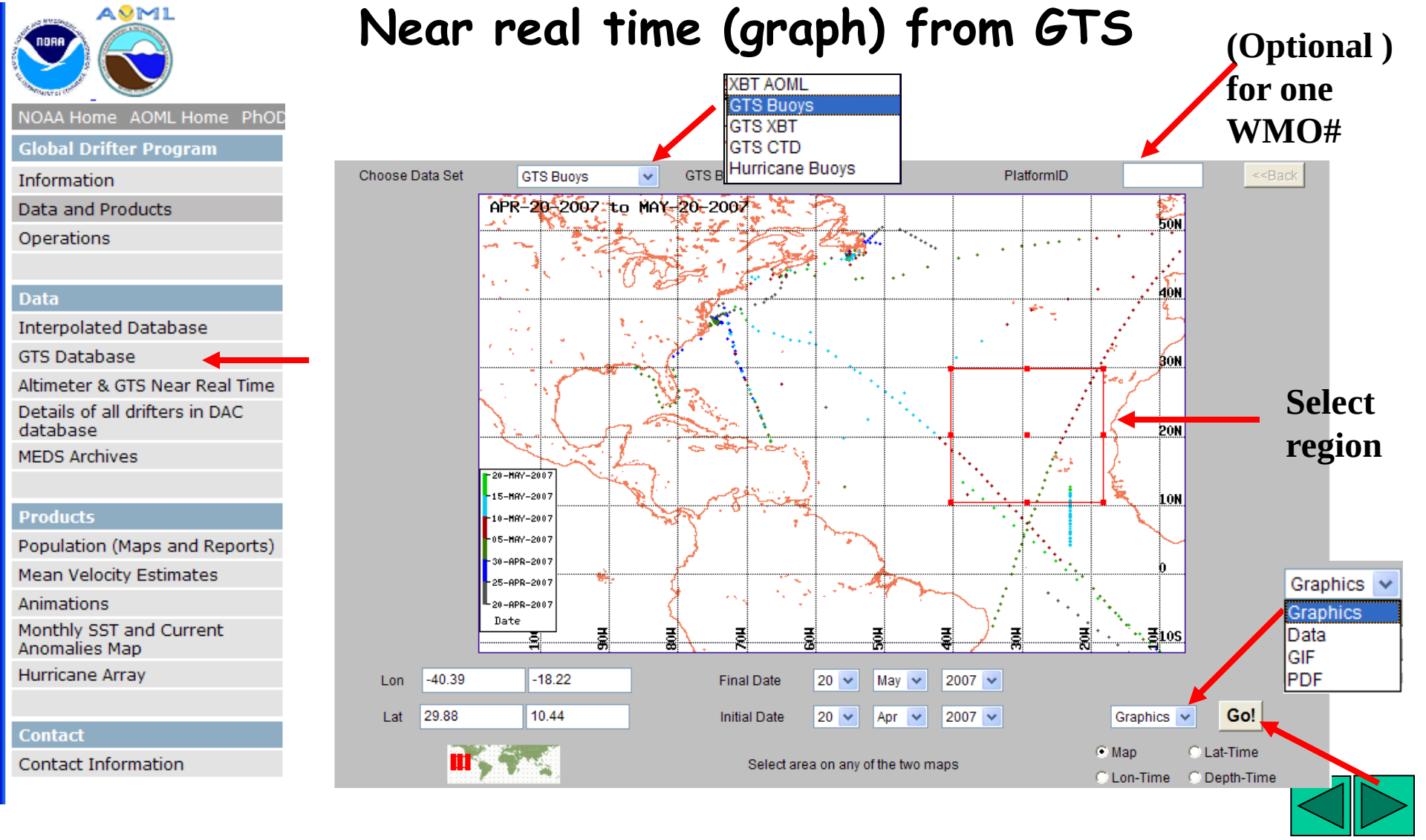


Enter DAC page

How To Access Drifter Data

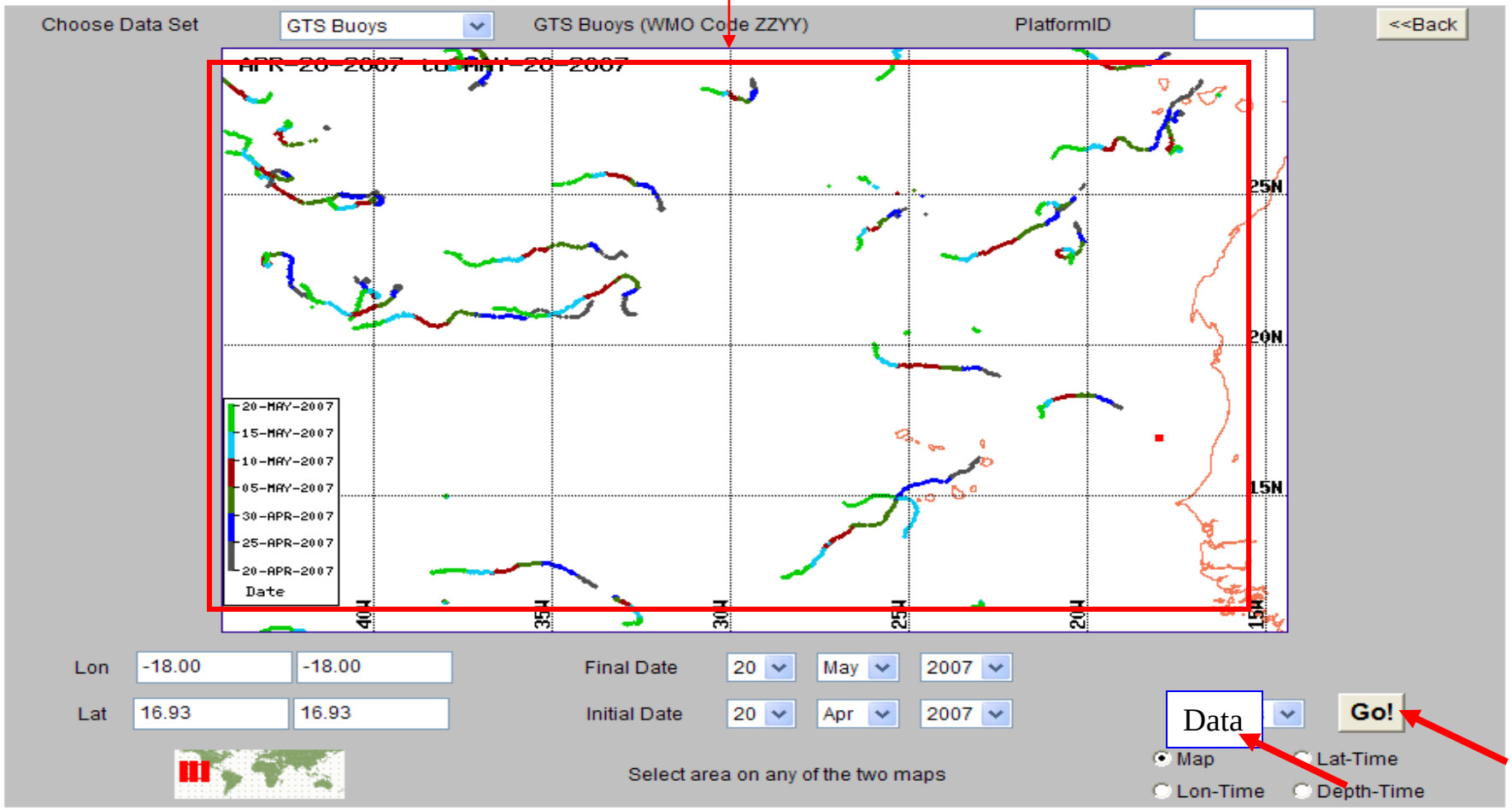
http://www.aoml.noaa.gov/phod/dac/dacdata.html

Near real time (graph) from GTS



Results

Select results to save data



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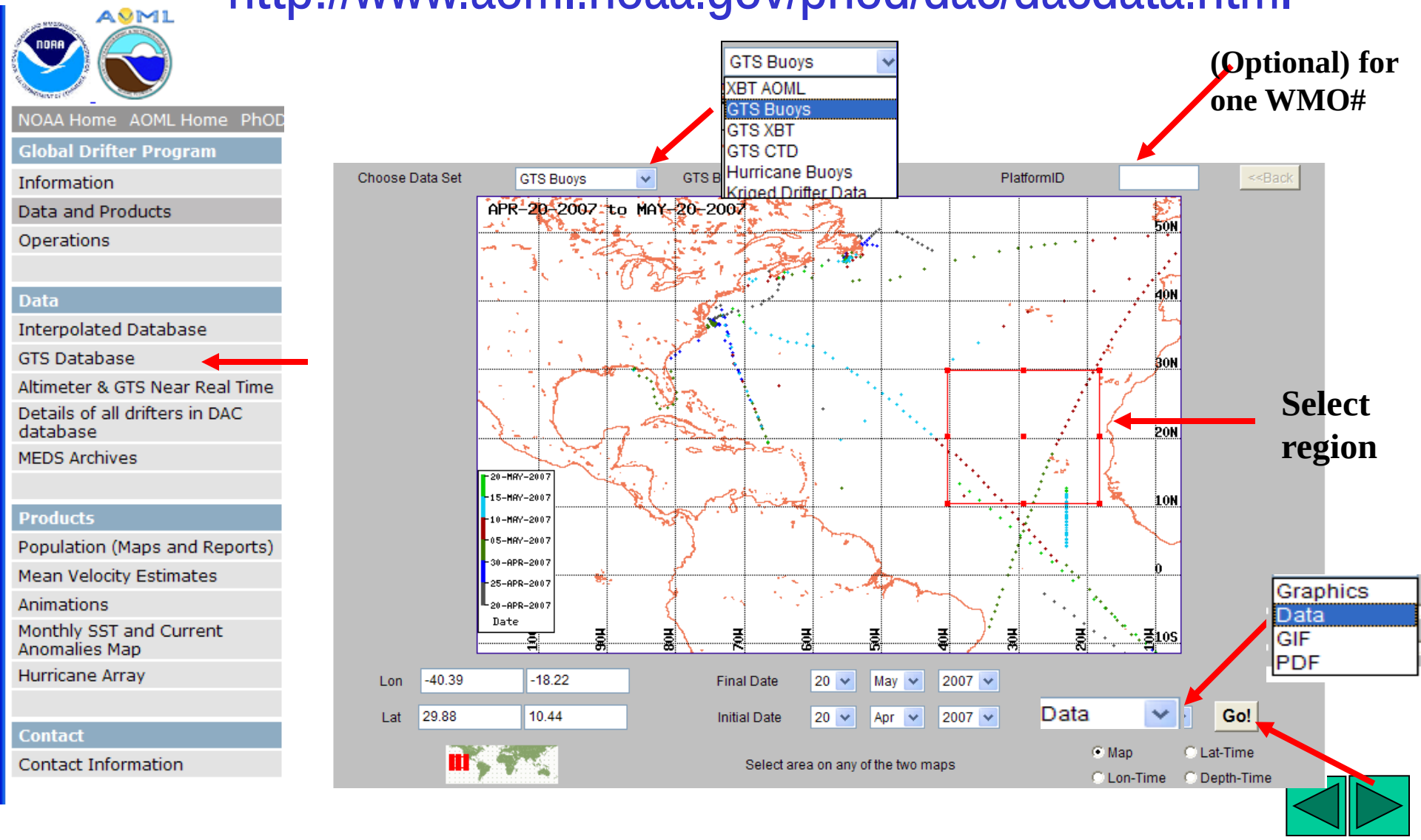
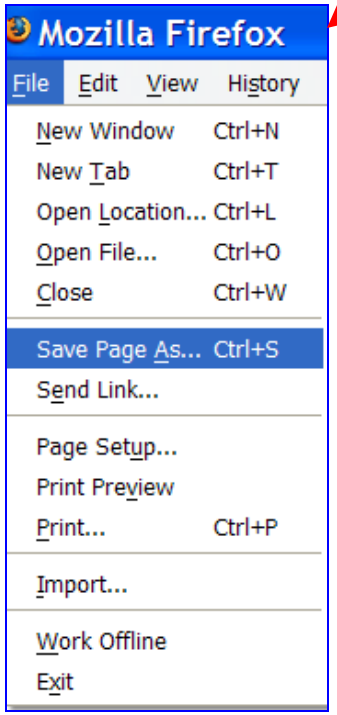
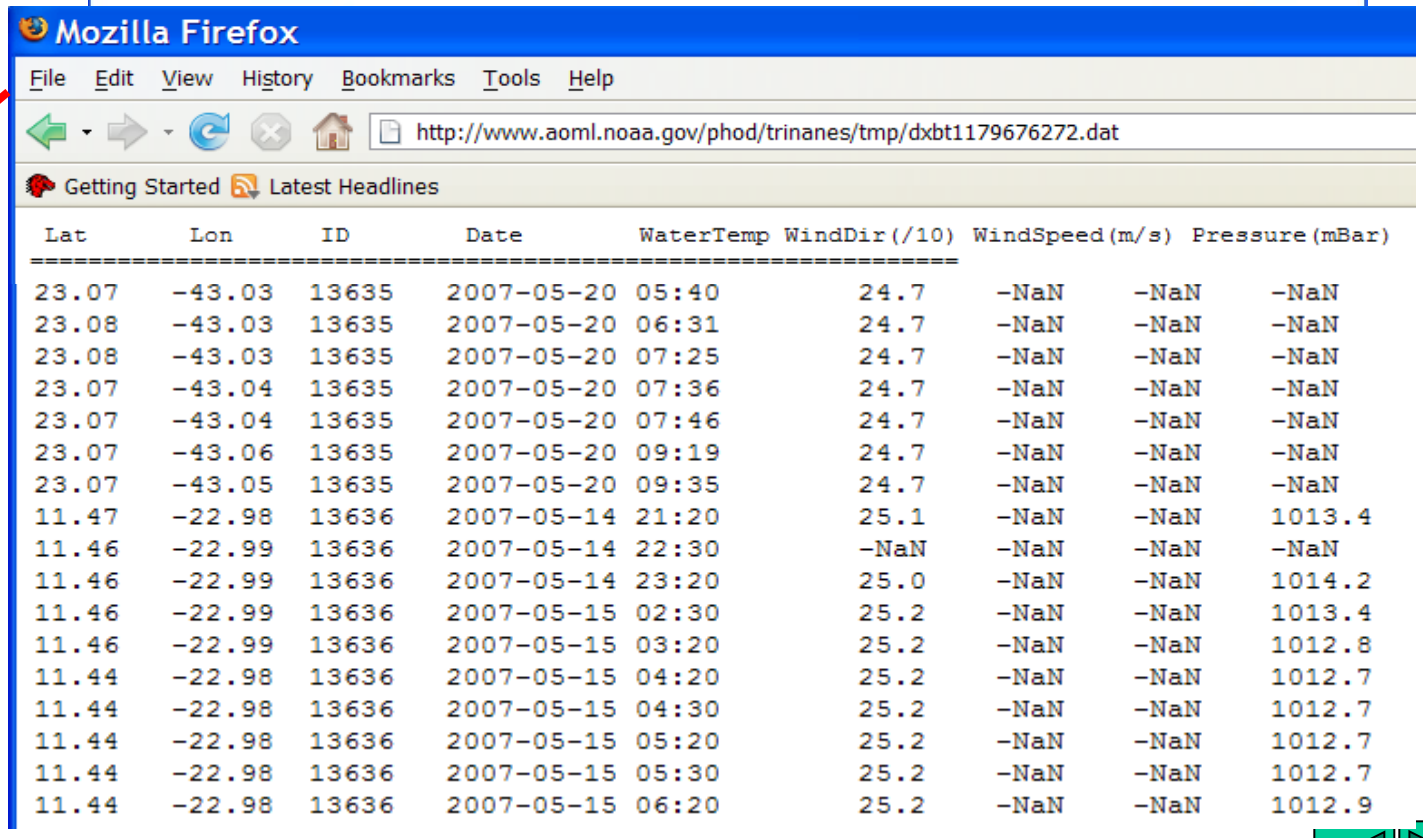


Results

Save file





Lat	Lon	ID	Date	WaterTemp	WindDir(/10)	WindSpeed(m/s)	Pressure(mBar)
23.07	-43.03	13635	2007-05-20 05:40	24.7	-NaN	-NaN	-NaN
23.08	-43.03	13635	2007-05-20 06:31	24.7	-NaN	-NaN	-NaN
23.08	-43.03	13635	2007-05-20 07:25	24.7	-NaN	-NaN	-NaN
23.07	-43.04	13635	2007-05-20 07:36	24.7	-NaN	-NaN	-NaN
23.07	-43.04	13635	2007-05-20 07:46	24.7	-NaN	-NaN	-NaN
23.07	-43.06	13635	2007-05-20 09:19	24.7	-NaN	-NaN	-NaN
23.07	-43.05	13635	2007-05-20 09:35	24.7	-NaN	-NaN	-NaN
11.47	-22.98	13636	2007-05-14 21:20	25.1	-NaN	-NaN	1013.4
11.46	-22.99	13636	2007-05-14 22:30	-NaN	-NaN	-NaN	-NaN
11.46	-22.99	13636	2007-05-14 23:20	25.0	-NaN	-NaN	1014.2
11.46	-22.99	13636	2007-05-15 02:30	25.2	-NaN	-NaN	1013.4
11.46	-22.99	13636	2007-05-15 03:20	25.2	-NaN	-NaN	1012.8
11.44	-22.98	13636	2007-05-15 04:20	25.2	-NaN	-NaN	1012.7
11.44	-22.98	13636	2007-05-15 04:30	25.2	-NaN	-NaN	1012.7
11.44	-22.98	13636	2007-05-15 05:20	25.2	-NaN	-NaN	1012.7
11.44	-22.98	13636	2007-05-15 05:30	25.2	-NaN	-NaN	1012.7
11.44	-22.98	13636	2007-05-15 06:20	25.2	-NaN	-NaN	1012.9

How To Access Drifter Data

Interpolated Historical Metadata

http://www.aoml.noaa.gov/phod/dac/dacdata.html

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Global Drifter Program
- Information
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- Operations

Data
- Interpolated Database
- GTS Database
- Altimeter & GTS Near Real Time
- Details of all drifters in DAC database
- MEDS Archives

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- Hurricane Array

Contact
- Contact Information

NOAA Home AOML Home AOML/E

Information
- Metadata
- Interpolated Data

Data Selection

Metadata
- All data
- Subset

Interpolated data
- All data
- One drifter
- Subset

Additional Resources
- Global Drifter Program
- MEDS
- NODC - GTSPP

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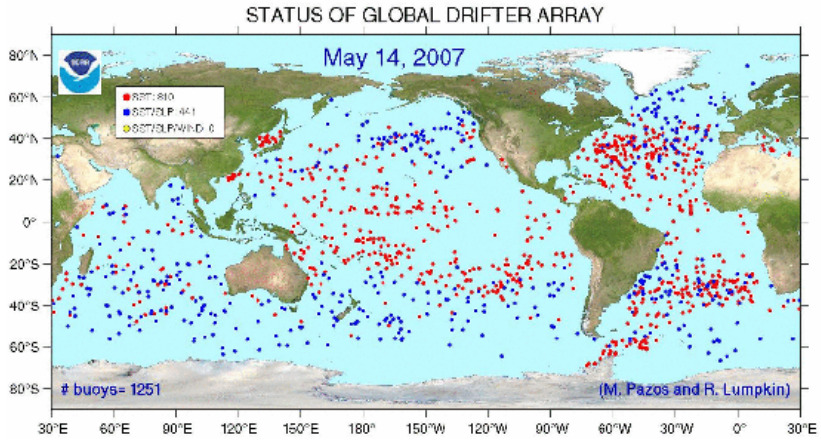
- Contact Information

NOAA Home AOML Home Discla

Data Availability
Latitude: [81 N, -73S]
Longitude: [-180 W, 180E]
Observation dates: 1979/02/15 to 2007/03/01



Check Box for Drogue On only data:

From Date
2006/11/01
(yyyy/mm/dd)

To Date
2006/12/31
(yyyy/mm/dd)

Northern Edge
81

Western Edge
-180

Eastern Edge
180

Southern Edge
-73

Enter your E-mail address
mayra.pazos@noaa.gov

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Interpolated Historical Data

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Data Availability

Latitude: [81 N, -73S]
Longitude: [-180 W, 180E]
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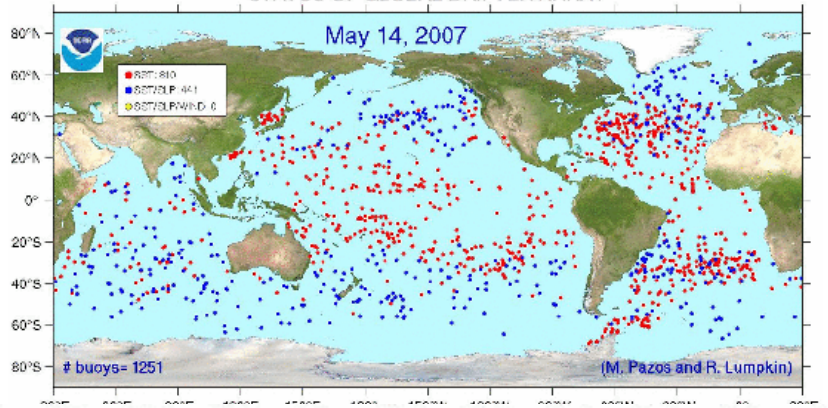
STATUS OF GLOBAL DRIFTER ARRAY



Check Box for Drogue On only data: ☑

From Date
2006/11/01
(yyyy/mm/dd)

To Date
2006/12/31
(yyyy/mm/dd)

Northern Edge
20

Western Edge
-30

Eastern Edge
-20

Southern Edge
15

Enter your E-mail address
mayra.pazos@noaa.gov

Submit!

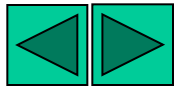
E-mail Received To Retrieve Data

To download the data files(s) proceed as follows: By clicking on the following hyper-link(s)

ftp://ftp.aoml.noaa.gov/od/pub/envids/metadata_gld.20070521_101943.zip
ftp://ftp.aoml.noaa.gov/od/pub/envids/interpolated_gld.20070521_101943.zip

Or By using the following ftp instructions :

1. **ftp ftp.aoml.noaa.gov**
2. **enter 'anonymous' for userid.**
3. **enter your 'email address' for password.**
4. **enter 'binary' to set the transfer type**
5. **enter 'cd /od/pub/envids'**
6. **enter 'get metadata_gld.20070521_101943.zip'**
7. **enter 'get interpolated_gld.20070521_101943.zip'**
8. **enter 'quit' to log off. NOTICE: files are removed 5 days after creation date.**



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63116	32922	7325	10- 25- 2006	-25.00	286.40	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
62208	53593	9325	10- 24- 2006	2.98	92.66	11- 30- 2006	0- 0- 0	0	Clearwater	SVP
63058	51811	7325	10- 24- 2006	0.03	189.90	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
63122	32919	7325	10- 24- 2006	-19.68	285.19	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
63123	32920	7325	10- 24- 2006	-21.00	285.48	10- 31- 2006	0- 0- 0	0	Clearwater	SVP
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62206	53591	9325	10- 22- 2006	-3.01	96.41	12- 1- 2006	0- 0- 0	0	Clearwater	SVP
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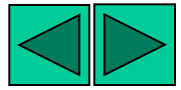
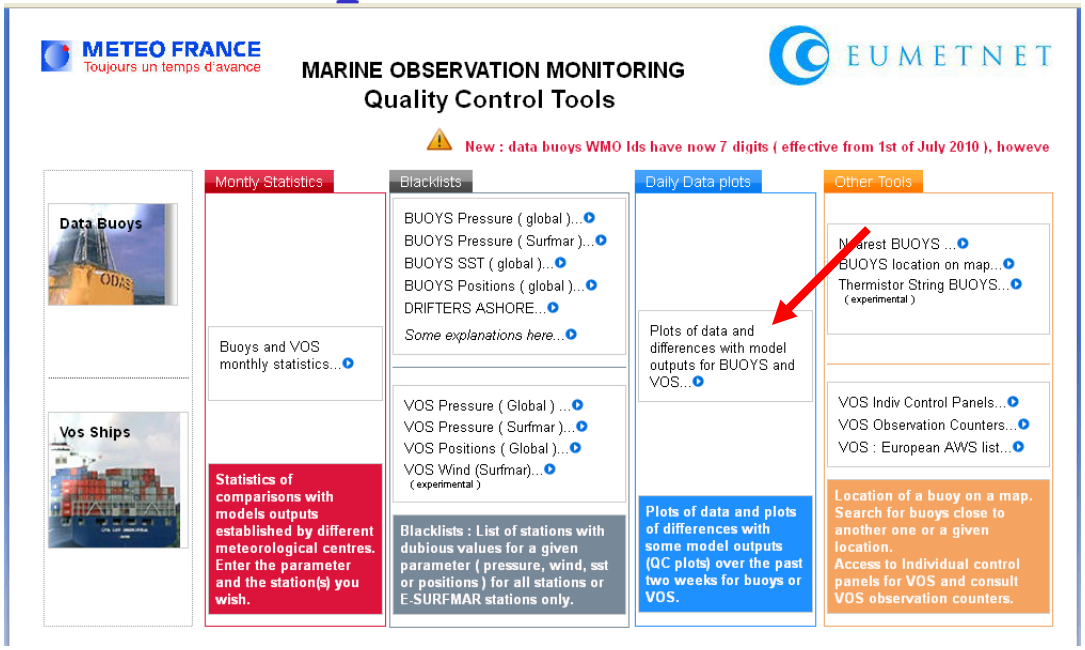
70249	0	1627	10- 22- 2006	37.44	11.31	10- 31- 2006	0- 0- 0	0	Clearwater	SVPB
63111	32622	7325	10- 21- 2006	-19.72	280.99	10- 31- 2006	0- 0- 0	0	Clearwater	SVP

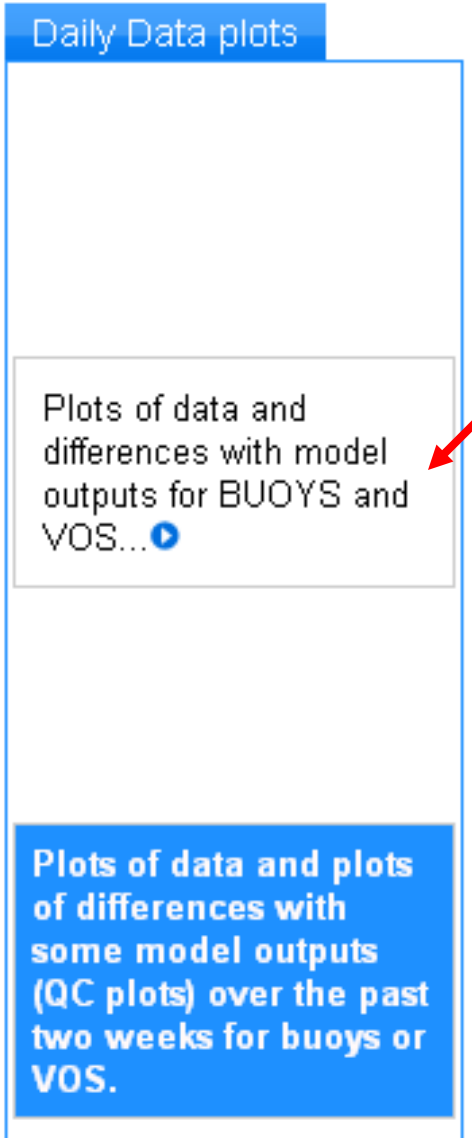


How To Access Drifter Data

Using QC Tools to check sensors on GTS

http://www.meteo.shom.fr/qctools





How To Access drifter Data

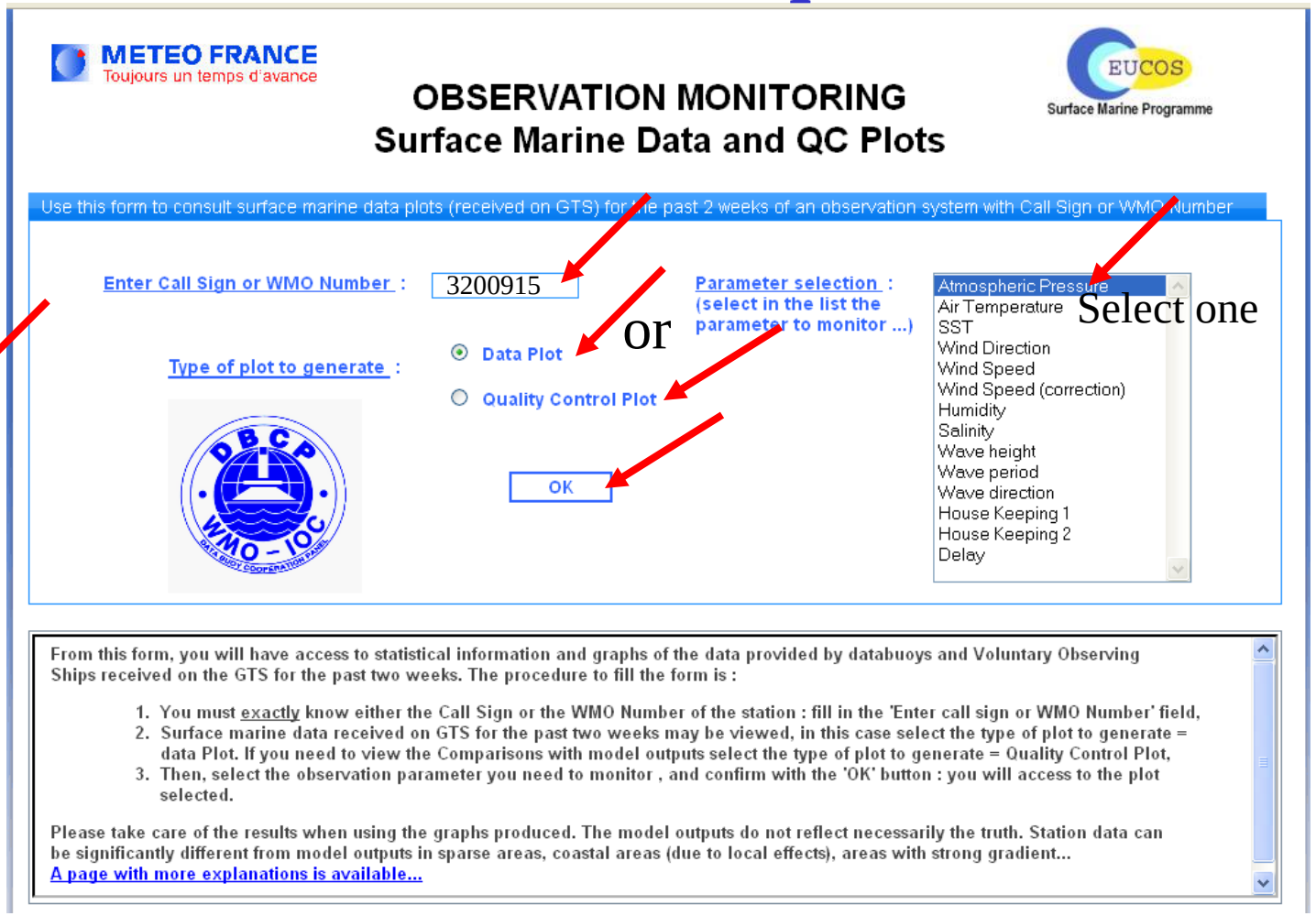
Using QC Tools to check sensors on GTS

http://www.meteo.shom.fr/qctools

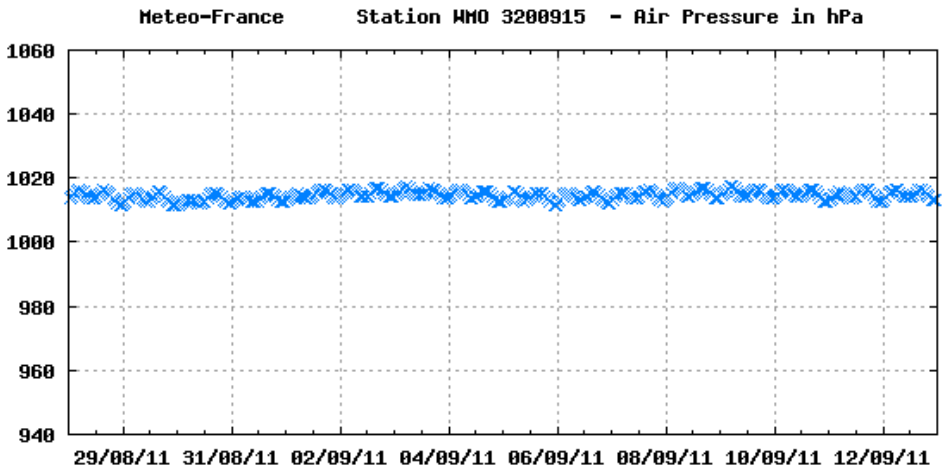
Daily Data plots

Plots of data and differences with model outputs for BUOYS and VOS...

Plots of data and plots of differences with some model outputs (QC plots) over the past two weeks for buoys or VOS.



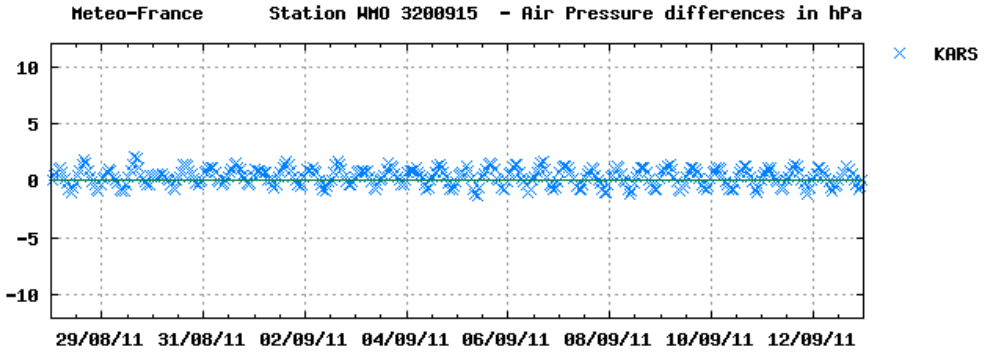
How To Access Drifter Data

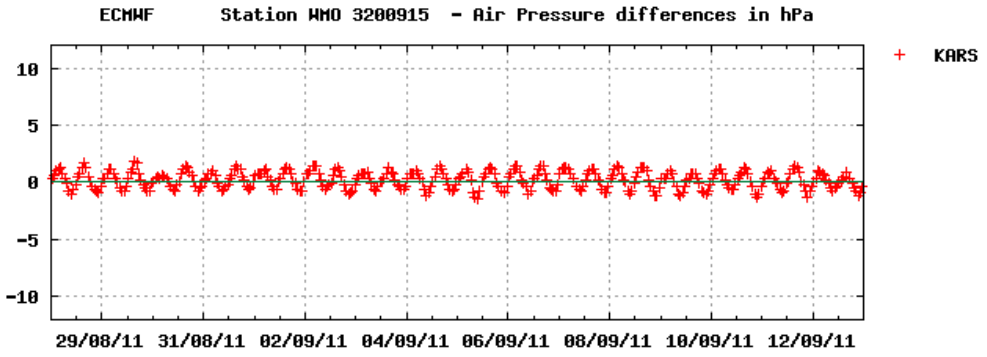


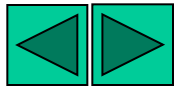
Data Plot

or

Model Differences Plot







How To Access Drifter Products

http://www.aoml.noaa.gov/phod/dac/dacdata.html

NOAA Home AOML Home PhO

Global Drifter Program
- Information
- Data and Products
- Operations

Data
- Interpolated Database
- GTS Database
- Altimeter & GTS Near Real Time
- Details of all drifters in DAC database
- MEDS Archives

Products
- Population (Maps and Reports
- Mean Velocity Estimates
- Animations
- Monthly SST and Current Anomalies Map
- Hurricane Array

Contact
- Contact Information

Global Drifter Population Maps

All Buoys *since April 1995*
SST Anomalies *since October 1995*
90 Days Prediction *since May 2005*
Drogue Status *since May 2005*
Postscript files available for download since

May. | 2007 | All Buoys | View GIF File

- All Buoys
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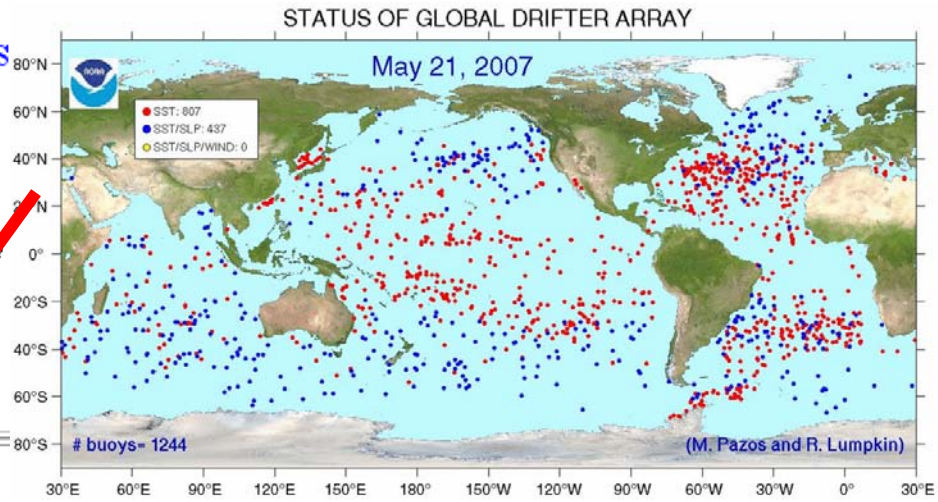
- Drifter Programs



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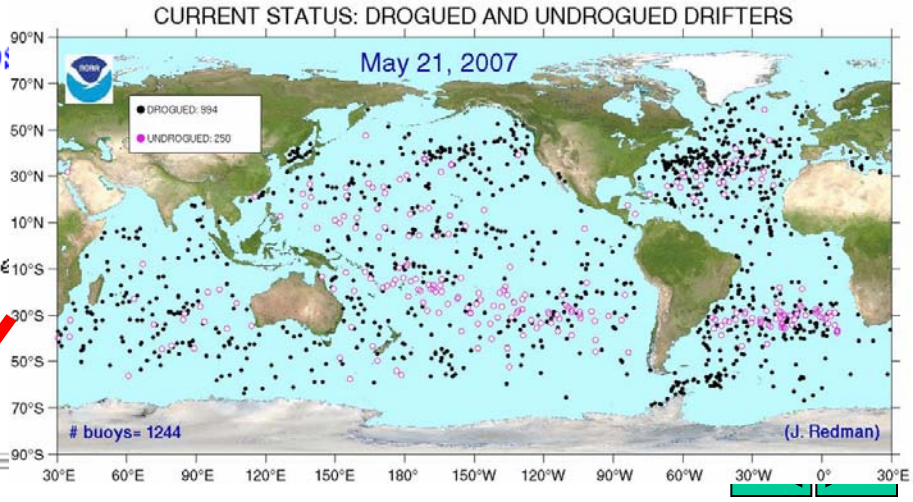

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Drifter Maps

Updated weekly

Trajectory *since August 1995*

Position and SST Anomalies *since Augu*

Postscript files available for download s

Tropical Atlantic Map new since June 19

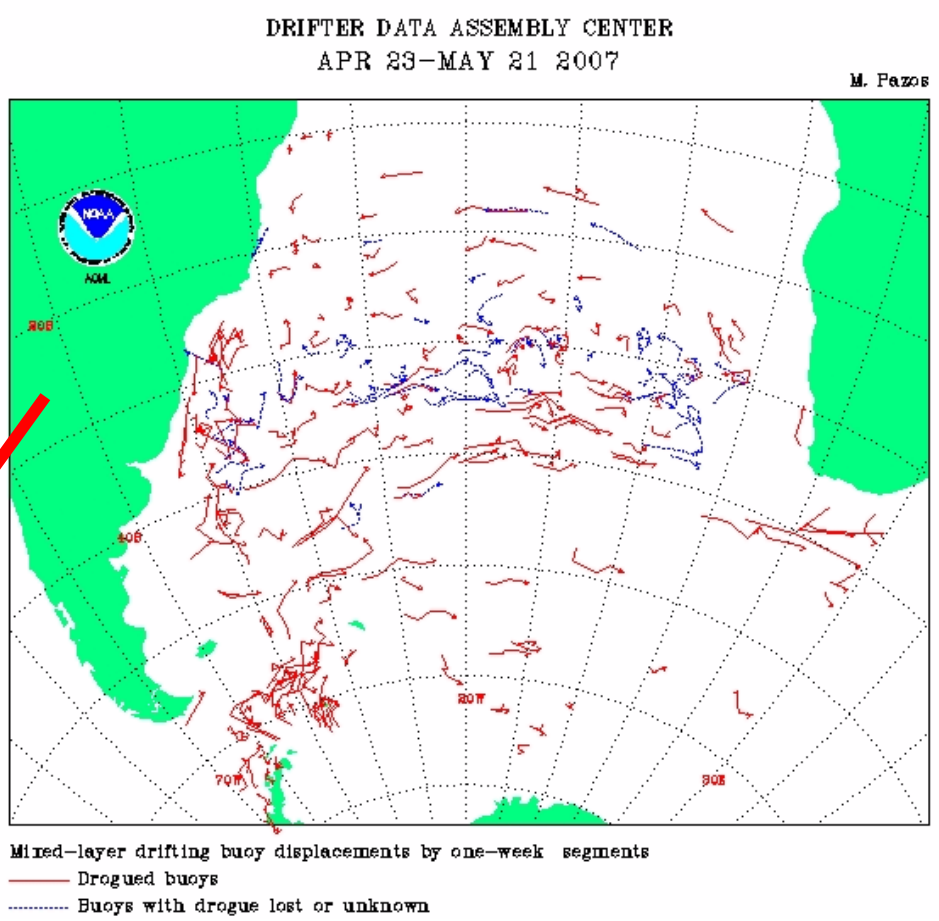
May | 2007 | South Atlantic

Trajectory

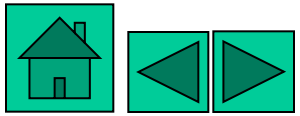
Equatorial Pacific
North Pacific
South Pacific
Indian
North Atlantic
South Atlantic
Tropical Atlantic

Drifter Reports

Mar. | 2007 | South Atlantic

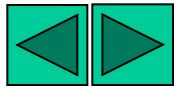


GTS Distribution



GTS Responsibilities

- **Insertion and deletion of buoy data onto the GTS**
- **Follow up and make sure data distributed through GTS goes out**
- **Monitor accuracy of data on the GTS and take off from GTS if sensor reports bad data**
- **Notify ARGOS after each database update of buoys that lost their drogues to be noted in the GTS message**



Contacts

Dr. Rick Lumpkin, Global Drifter Program Manager
e-mail: Rick.Lumpkin@noaa.gov

Mr. Shaun Dolk, Drifter Operation Center Manager
e-mail: Shaun.Dolk@noaa.gov

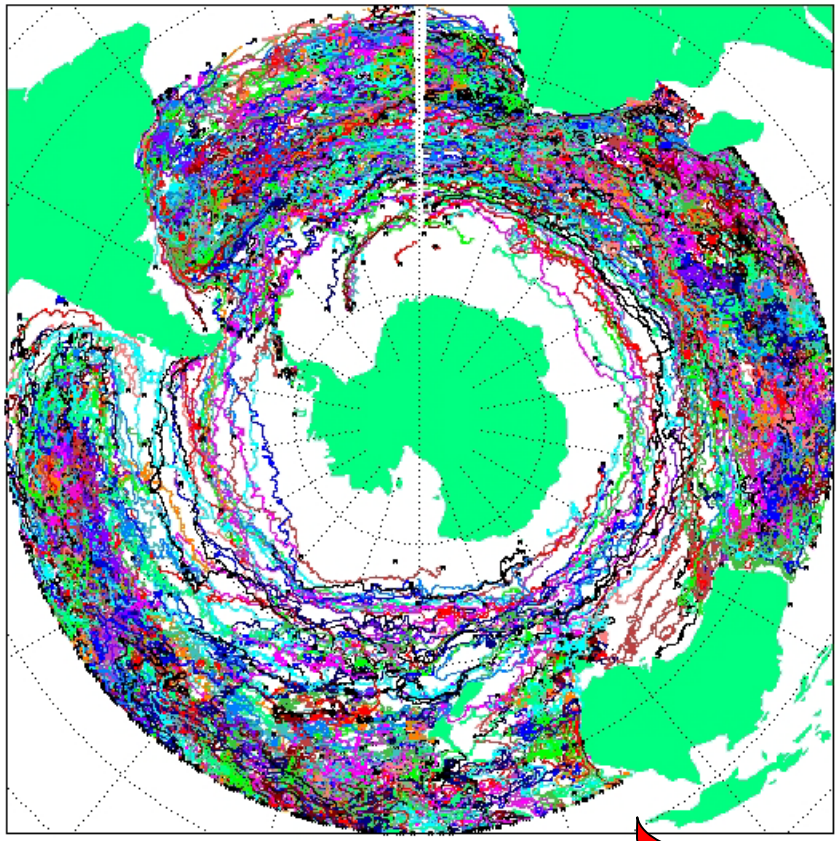
Mrs. Mayra Pazos, Drifter Data Assembly Center Manager
e-mail: Mayra.Pazos@noaa.gov

Ms. Jessica Redman, Drifter DAC, Research Assistant
e-mail: Jessica.Redman@noaa.gov

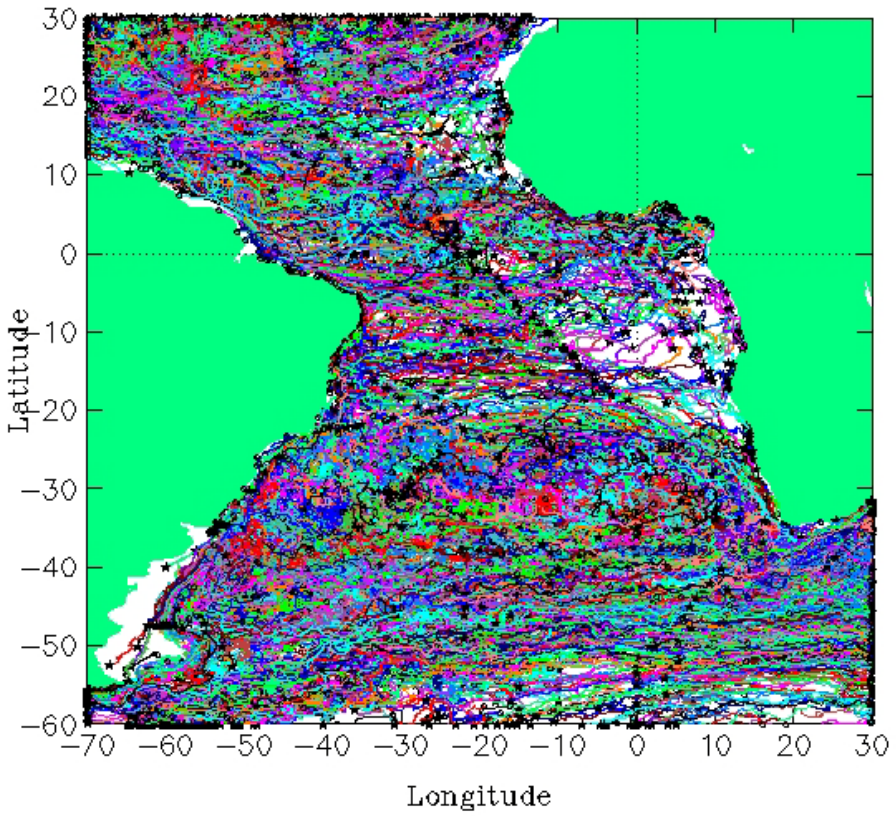
Mr. Erik Valdes, Drifter DAC, Research Assistant
e-mail: Erik.Valdes@noaa.gov

Drifter Tracks

BUOYS IN THE SOUTHERN OCEANS SINCE 1979



Drifter Data Through December 2006



Thank You!