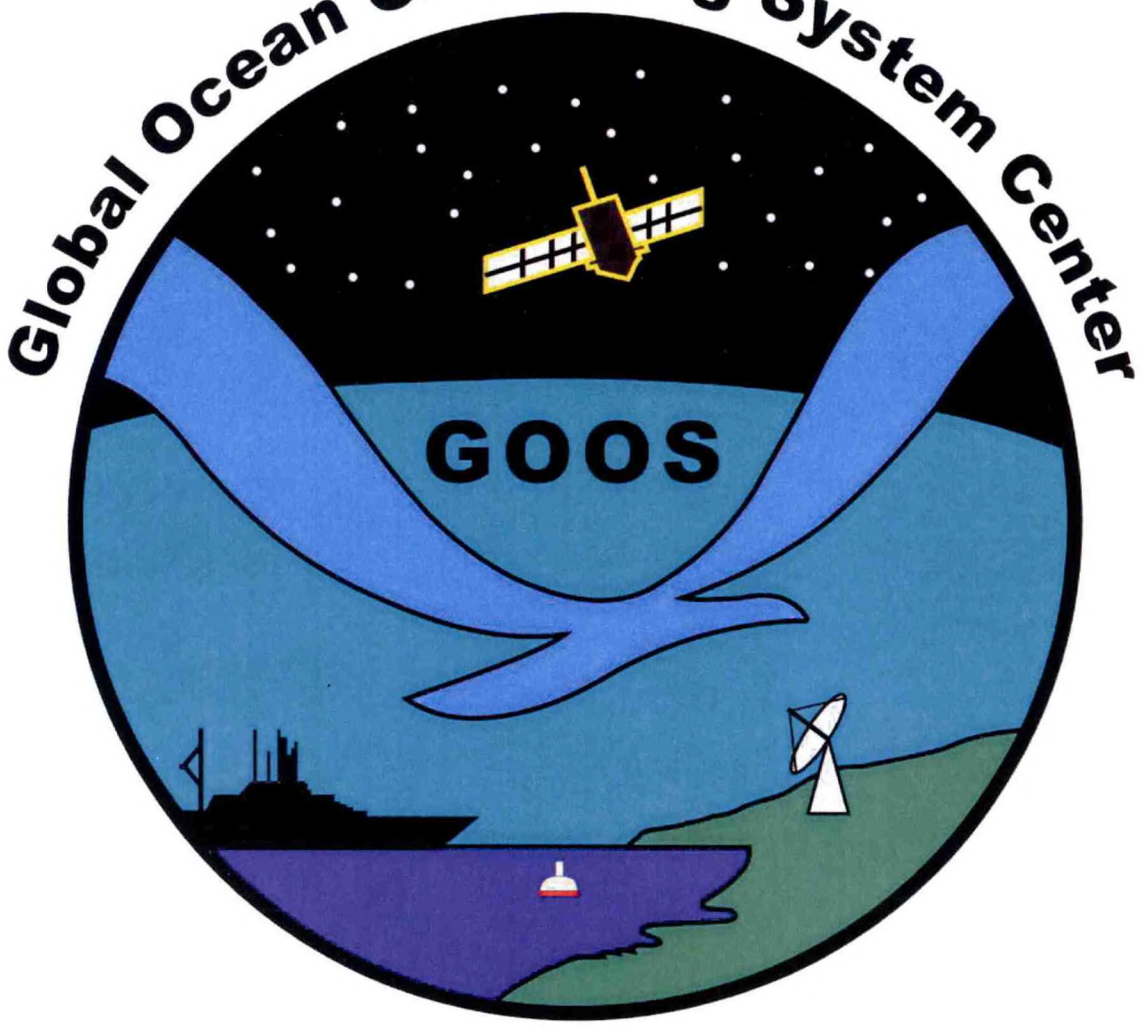

GLOBAL OCEAN OBSERVING SYSTEM (GOOS) CENTER

2001 ANNUAL REPORT

2001

The Global Ocean Observing System (GOOS) Center

Annual Report

January through December 2001

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www.aoml.noaa.gov/goos

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Executive Summary

Steven K. Cook
GOOS Center Manager
NOAA/AOML

During the calendar year 2001 the GOOS Center Global Drifter Program deployed 444 Drifting Buoys, 231 in the Pacific Ocean, 45 in the Indian Ocean, 71 in the Atlantic, and 97 in the southern oceans. At the end of 2001 the global array totaled 671 Drifters reporting approximately 3000 sea surface temperatures daily. The Upper Ocean Thermal Center SEAS Program globally collected more than 113,000 sea surface meteorological and more than 10,000 Expendable Bathythermograph (XBT) observations from approximately 400 participating Voluntary Observing Ships (VOS). The GOOS Center XBT observations represented more than 50% of the total inserted by all groups onto the Global Telecommunications System. There were 31 successful deployments of ARGO Floats in the Atlantic Ocean conducted from Voluntary Observing Ships and our own research vessels. GOOS Center real-time data tracking activities of subsurface observations monitored more than 189,000 observations consisting of Bathy, Buoy, Float, TAO and TESAC data.

The Data Assembly Center of the Global Drifter Program continued to successfully update the research quality database at two-month intervals and develop new and improved products for web distribution. The Atlantic XBT Data Assembly Center, a component of the Global Temperature and Salinity Profile Program, continued to import real-time data into the AOML database at monthly intervals. The research quality database (i.e., consisting of both real and delayed mode data), which began in 1990, is current to 1998 and consists of approximately 110,000 observations.

The GOOS Center, with the assistance of NOAA's Office of Global Programs was able to continue XBT support and the upgrading of 53 Drifting Buoys with barometer capability for our international colleagues. The GOOS Center continues to be represented on the Data Buoy Cooperation Panel, Ship of Opportunity Implementation Panel, Ship Observations Team, VOSCLIM and the Working Group on Automated Systems. The development and improvement of AMVER/SEAS 2000 shipboard software with its associated deployment into the VOS network continues.

This report summarizes our activities during calendar year 2001 for several purposes. It will provide our user community, particularly those without web access, with the data collected during 2001. It will also acknowledge the critical contributions made to the GOOS effort by the VOS fleet.

GOOS Center Mission

To provide high quality ocean data and products in a timely and cost-effective manner to satisfy NOAA now-cast, forecast, detection, attribution and research mission requirements.

Major GOOS Center Operations

Voluntary Observing Ship (VOS) Program

The Global Ocean Observing System (GOOS) Center at NOAA's Atlantic Oceanographic and Meteorological Laboratory presently co-manages, with NWS, a global VOS fleet of about 400 domestic and foreign commercial vessels. The GOOS global fleet represents a subset of the larger National Weather Service Voluntary Observing Ship (VOS) fleet consisting of over 1000 vessels. These vessels voluntarily collect sea surface meteorological. A portion of this fleet also collects sub-surface expendable bathythermograph, and shipboard thermosalinograph observations, deploy Drifting Buoys and highly instrumented P-ALACE type floats and sometimes tow Continuous Plankton Recorders. The GOOS global VOS fleet is the mechanism used to collect observations and deploy instrumentation that transmit, in real-time, data to National Centers such as the National Center for Environmental Prediction. In any given year this network provides the following approximate number of observations:

1,000,000	Sea Surface Temperature Observations from Drifting Buoys
110,000	Meteorological Observations from VOS
30,000	Thermosalinograph Observations from VOS
15,000	Expendable Bathythermograph Observations from VOS

Global Drifter Program (GDP)

The GOOS Center presently operates in cooperation with the Scripps Institution of Oceanography a global Drifting Buoy Center that annually deploys, via the VOS Program, research vessels and U.S. Navy aircraft, over 400 Drifters in all three ocean basins. These drifters are tracked daily via the ARGOS satellite system. Their positions and sea surface temperatures (and sometimes other parameters) are processed and inserted on to the Global Telecommunications System (GTS) for global distribution. Over 1,000,000 sea surface temperatures are collected annually via this program. Additionally, the GOOS

Center operates the Data Assembly Center (DAC) for the Global Drifter Program (GDP). When the deployed Drifters are verified as operational data are forwarded to the DAC. This effort insures that research quality Drifter data are available from other organizations and countries programs. The Global Drifter Program is a participating member of the Intergovernmental Oceanographic Commission (IOC) - World Meteorological Organization (WMO), Data Buoy Co-operation Panel (DBCP) and as such represents NOAA in this international forum.

Expendable Bathythermograph (XBT) Program

The GOOS Center operates a global XBT Program that utilizes approximately 40 VOS to monitor, on an approximately monthly basis, 26 transects in all three ocean basins. The XBT program is coordinated internationally by the IOC - WMO, Ship of Opportunity Program Implementation Panel (SOOPIP), and Ship Observations Team (SOT). Participating countries select transects of importance to the national programs and manage the efforts along these lines. The United States has selected the 22 transects shown in Figure 1 to operate in high, low and frequently sampled mode.

The GOOS Center utilizes Shipboard Environmental data Acquisition Systems (SEAS) hardware/software to collect, quality control and transmit in real-time subsurface oceanographic observations (about 10,000 - 15,000 per year) and sea surface meteorological observations (about 110,000 per year). The XBT is an expendable temperature probe that is launched from the bridge wings or sterns of commercial vessels approximately 4 - 12 times per day, along certain scientifically selected shipping lanes. The data are collected via a wire link by ship personnel from the XBT probe to the SEAS computer where it is processed and formatted for satellite transmission. The transmitted data are routed to the GOOS Center where it is inserted on to the Global Telecommunication System (GTS) for global distribution. The National Center for Environmental Predication (NCEP) and other national and international operational groups uses these data for weather and climate forecasting, and the international scientific community for decadel climate research as well as for seasonal, interannual and decadel climate research.

Argo Program

AOML has been funded by the National Oceanographic Partnership Program (NOPP) as part of a larger group to develop the data management infrastructure for the Argo experiment. Specifically, AOML is to develop the information management methodology for the profiling float experiment. This methodology takes the data from the sensor through a real-time quality control to submission onto the GTS for dissemination to the user community. In addition, data accessibility and network evaluation issues will be addressed and procedures developed and implemented. The principle NOAA user for the float data is the climate forecast group of NCEP. To satisfy a diverse group of users, data must be provided within 12 hours of collection, 24

Principle GOOS XBT Routes during 2001

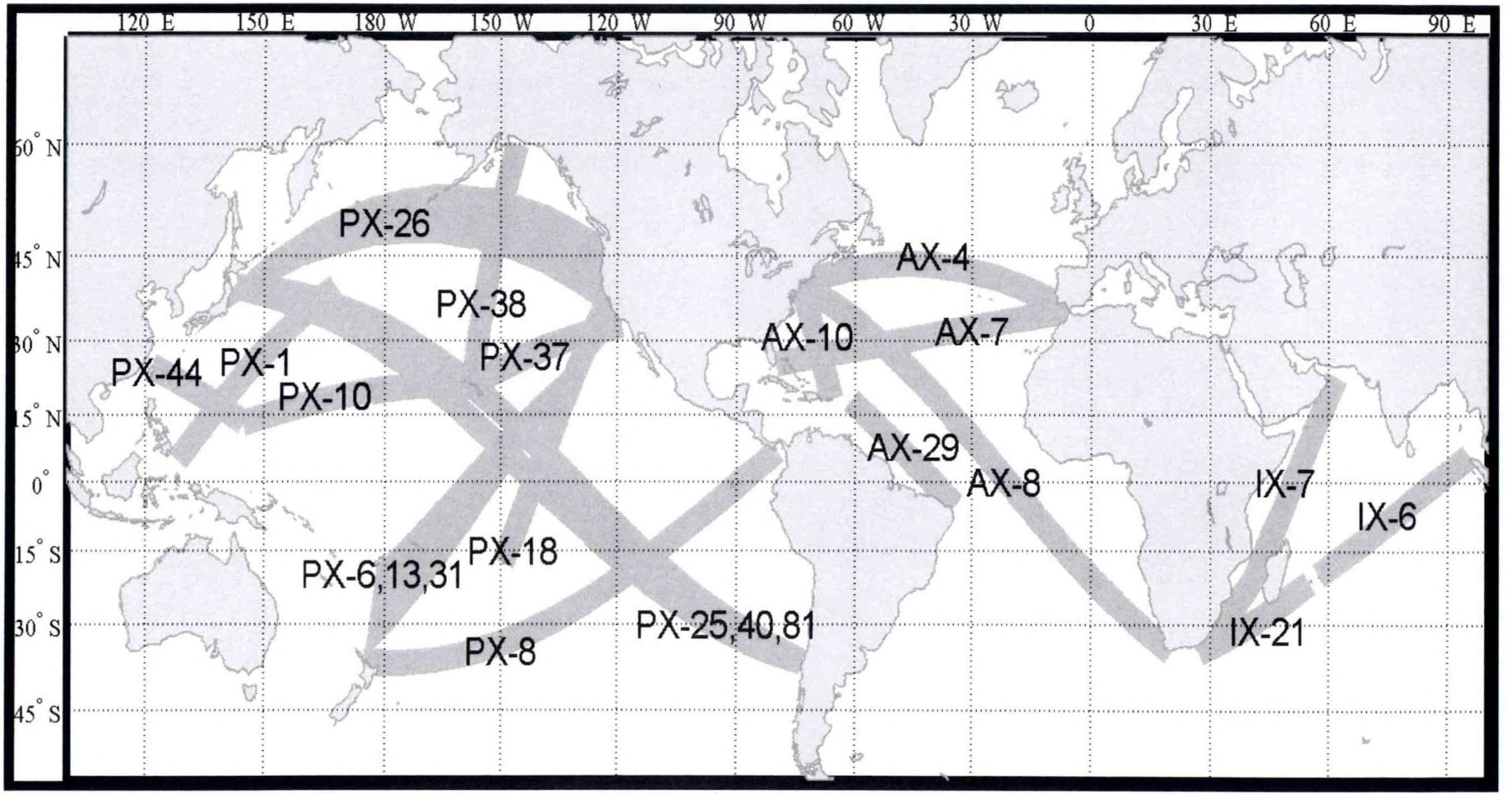


Figure 1. Only principle XBT routes are shown in this schematic.

hours a day, 7 days a week. Automatic control procedures have been implemented to meet these requirements.

High Density XBT

AOML presently operates a research and development High Density XBT/Autolauncher Program utilizing the VOS Program. Three routes: 1) Mediterranean Sea to Miami, FL; 2) New York, NY to San Juan, Puerto Rico; and 3) Cape Town, South Africa to New York City, New York are sampled four times per year by placing ship riders on board to collect XBT temperature data. The XBT probe observations are collected at closely spaced intervals. To enable the ship riders to conduct their operations continuously for the duration of a cruise, engineers at AOML designed an XBT Autolauncher which allows the XBT probes to be launched automatically at preset times and/or positions. In addition to allowing around the clock operations, by deploying XBT probes off the fan tail we reduce potential XBT probe failures. The mission is to measure the seasonal to interannual temperature variability in the upper ocean heat content and transport across the center of the subtropical gyre. This effort will improve our ability to predict important climatic fluctuations such as the North Atlantic Oscillation. Plans are to integrate the Autolauncher System with (Shipboard Environmental data Acquisition System) SEAS 2000 shipboard software to improve positioning via GPS and facilitate the real-time transmission of these data to the GOOS Center.

Future Plans

Data Sparse Areas:

The GOOS Center is working closely with the Naval Oceanographic Office planning air deployments of Drifting Buoys into those traditionally difficult areas to service with Voluntary Observing Ships. The Gulf of Guinea, mid Indian Ocean, western south Atlantic and eastern south Pacific are areas we are focusing on to increase deployments. Additionally, we have increased our efforts to work with the South African Weather Service, the U.K. Met Office, the Australian Bureau of Meteorology and the Argentina Hydrographic Office to locate VOS that consistently operate in those data sparse regions.

Insufficient XBT sampling:

The GOOS Center is concentrating on improving the XBT sampling both within the Low and High Density networks by integrating hardware and logistical requirements. Increased cooperation with South Africa and Argentina has already produced improvements in the south Atlantic. Additionally, as SEAS 2000 Phase II software is implemented within the VOS fleet we expect an increase in the quality and quantity of real-time tem-

perature observations.
Enhancements to the database have lead to improvements in the production of real-time and delayed mode monitoring products that will assist in identifying under sampling problems in a timely fashion.

Data Availability and Web Products

Websites for obtaining GOOS data and information:

Real Time Products:
http://seas.amverseas.noaa.gov/seas/seas.html

AOML ARGO Floats:
http://www.aoml.noaa.gov/phod/ARGO/HomePage/

Global Drifter Center/Data Assembly Center:
http://www.aoml.noaa.gov/phod/dac/dacdata.html

AOML High Density XBT:
http://www.aoml.noaa.gov/phod/hdenxbt/

Interactive Plots:
http://www.aoml.noaa.gov/phod/trinanes/SEAS/SEAS.html

GOOS database queries:
http://seas.amverseas.noaa.gov/seas/goosplots.html

ACKNOWLEDGEMENTS

The GOOS Center would like to acknowledge the following people and thank them for their generous support of the GOOS Center monitoring efforts. We greatly appreciate the time and effort that these people have donated toward making these activities a success and look forward to their continued cooperation in the future.

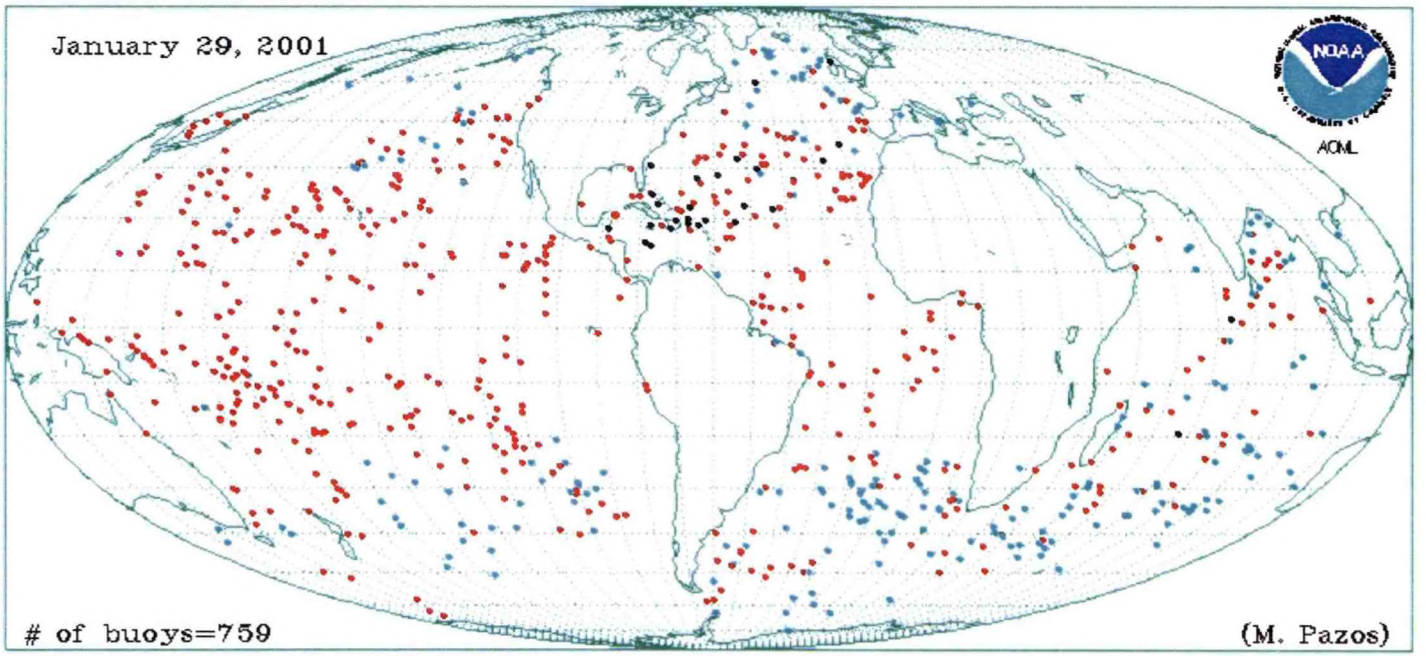
The Captain and crewmembers of all of the participating VOS ships
NOAA's Office of Global Programs
The many Shipping companies who lend us the use of their vessels

GOOS Center Products

Status of Global Drifter Arrays from January-December 2001

The number in the lower left corner of the plot indicates the number of drifters that were in the water as of the date listed in the upper left corner.

STATUS OF GLOBAL DRIFTER ARRAY

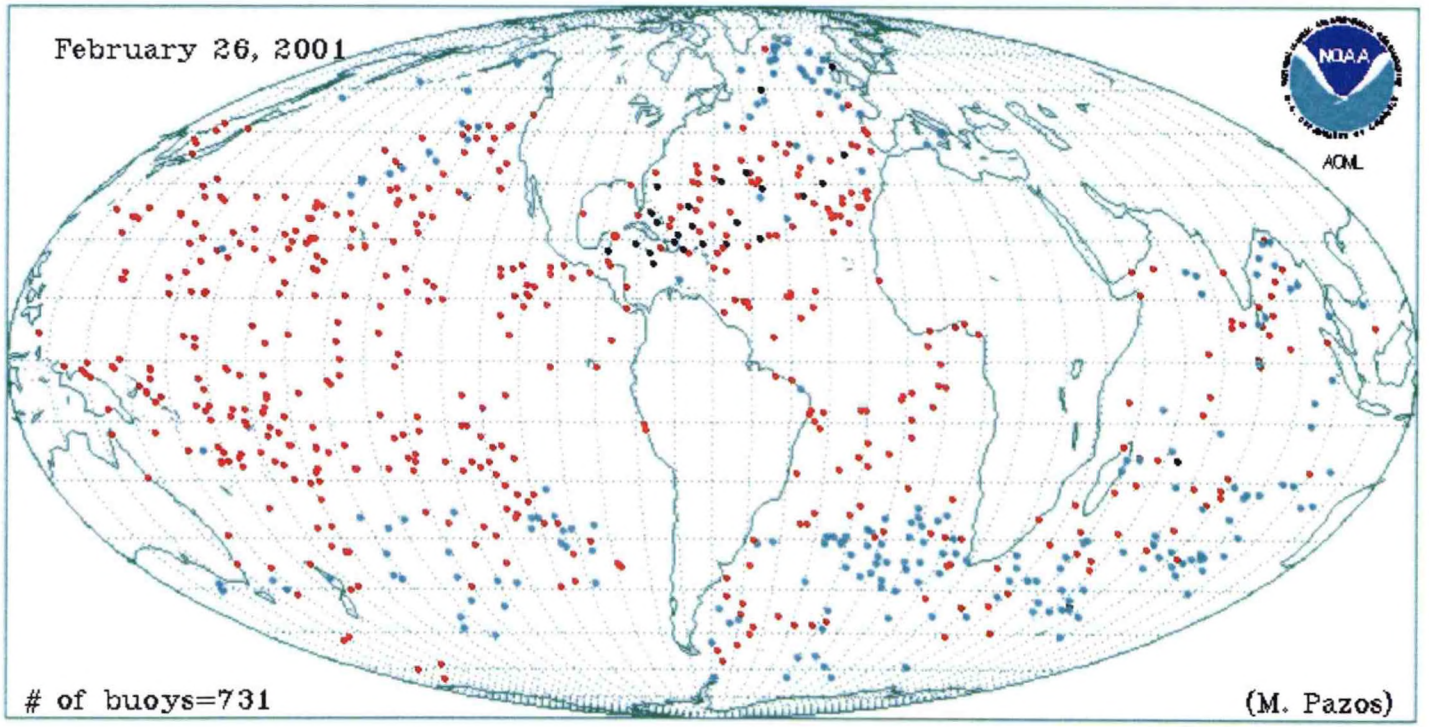


- SST ONLY
- SST AND BAROMETRIC PRESSURE
- SST/SLP/WIND

GLOBAL DRIFTER PROGRAM

Status of Global Drifter Arrays *(cont'd)*

STATUS OF GLOBAL DRIFTER ARRAY

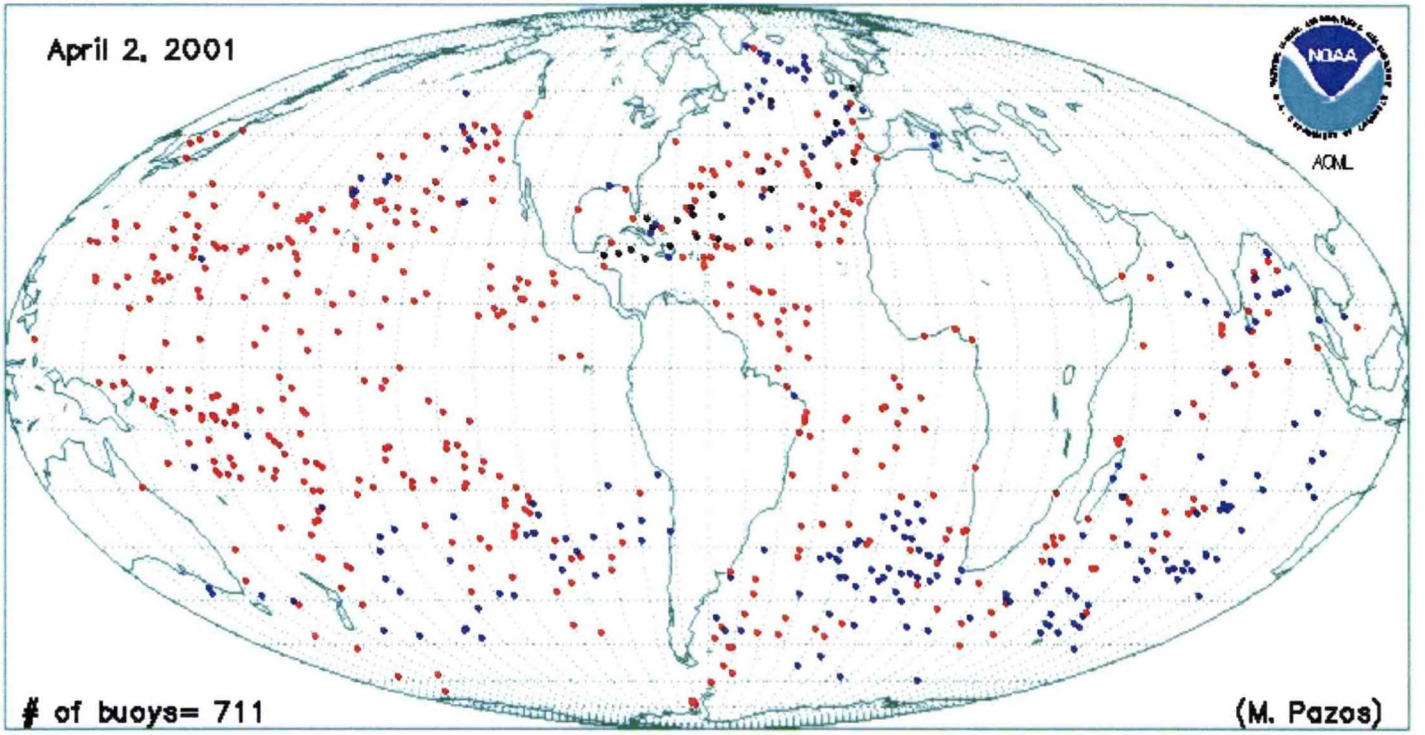


- SST ONLY
- SST AND BAROMETRIC PRESSURE
- SST/SLP/WIND

GLOBAL DRIFTER PROGRAM

Status of Global Drifter Arrays *(cont'd)*

STATUS OF GLOBAL DRIFTER ARRAY



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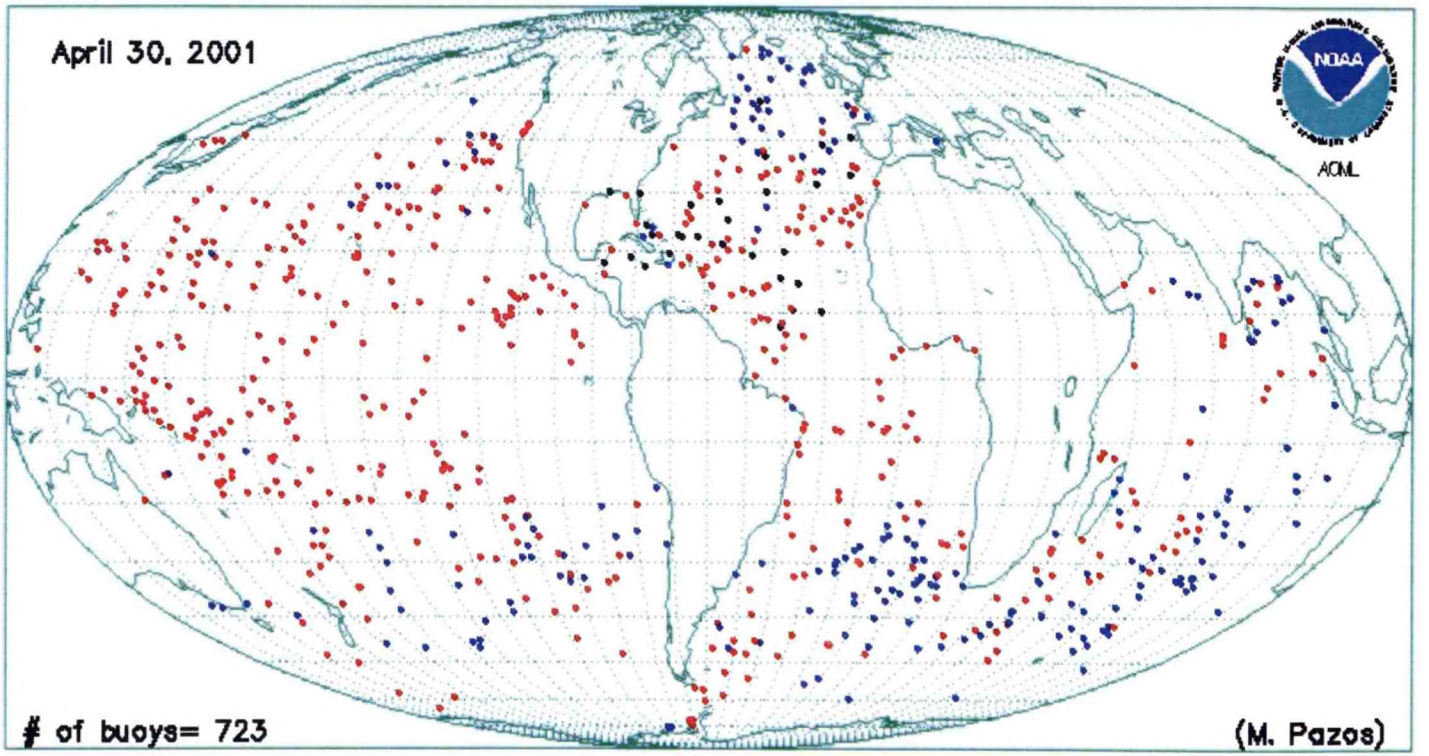
- SST AND BAROMETRIC PRESSURE
- SST/SLP/WIND

GLOBAL DRIFTER PROGRAM

Status of Global Drifter Arrays *(cont'd)*



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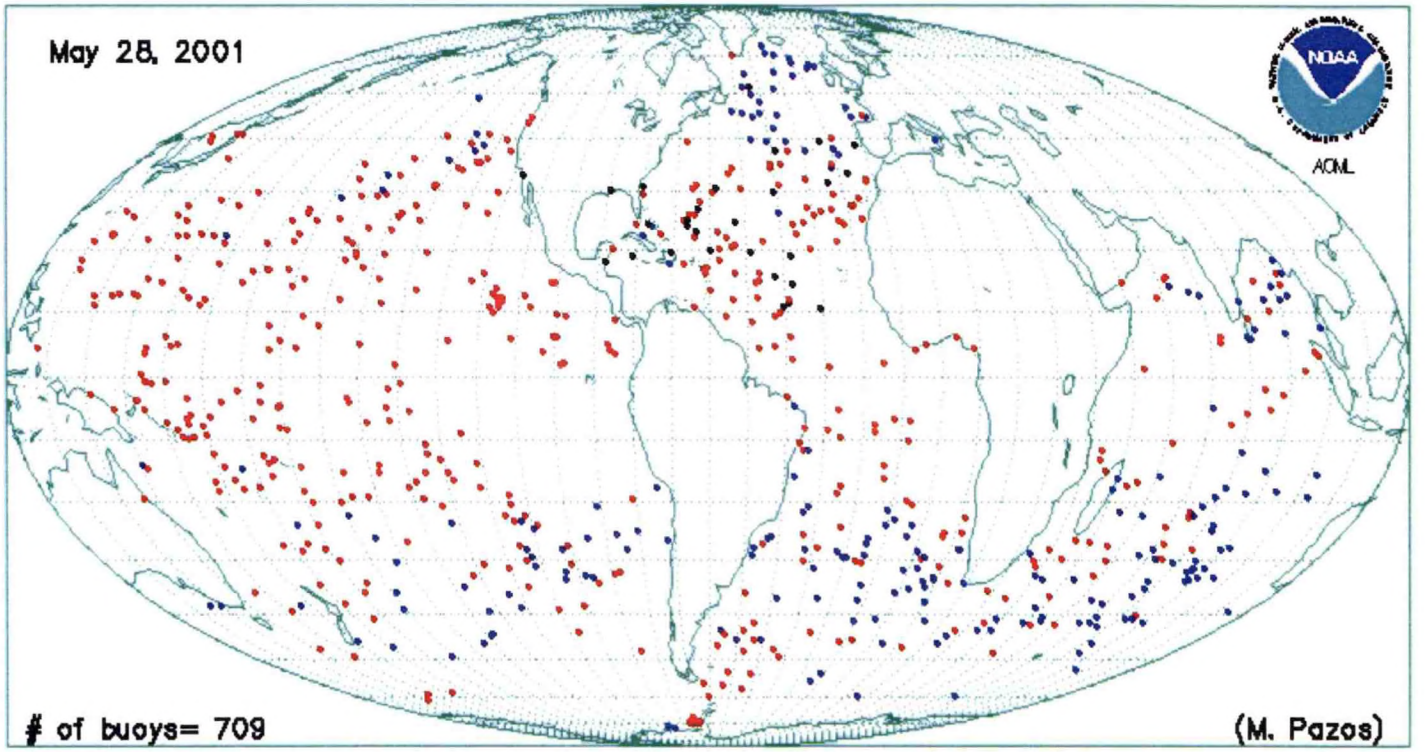
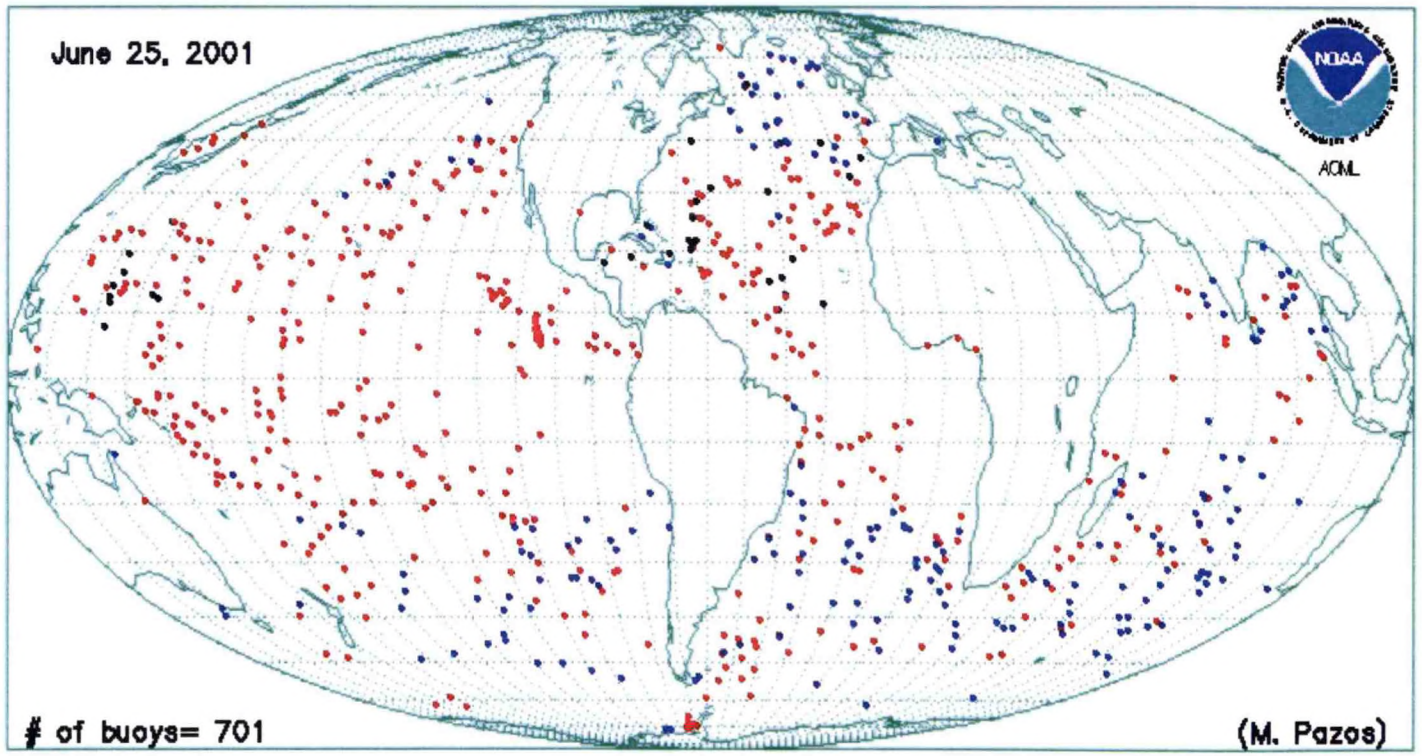
STATUS OF GLOBAL DRIFTER ARRAY



- SST ONLY
- SST AND BAROMETRIC PRESSURE
- SST/SLP/WIND

GLOBAL DRIFTER PROGRAM

Status of Global Drifter Arrays *(cont'd)*



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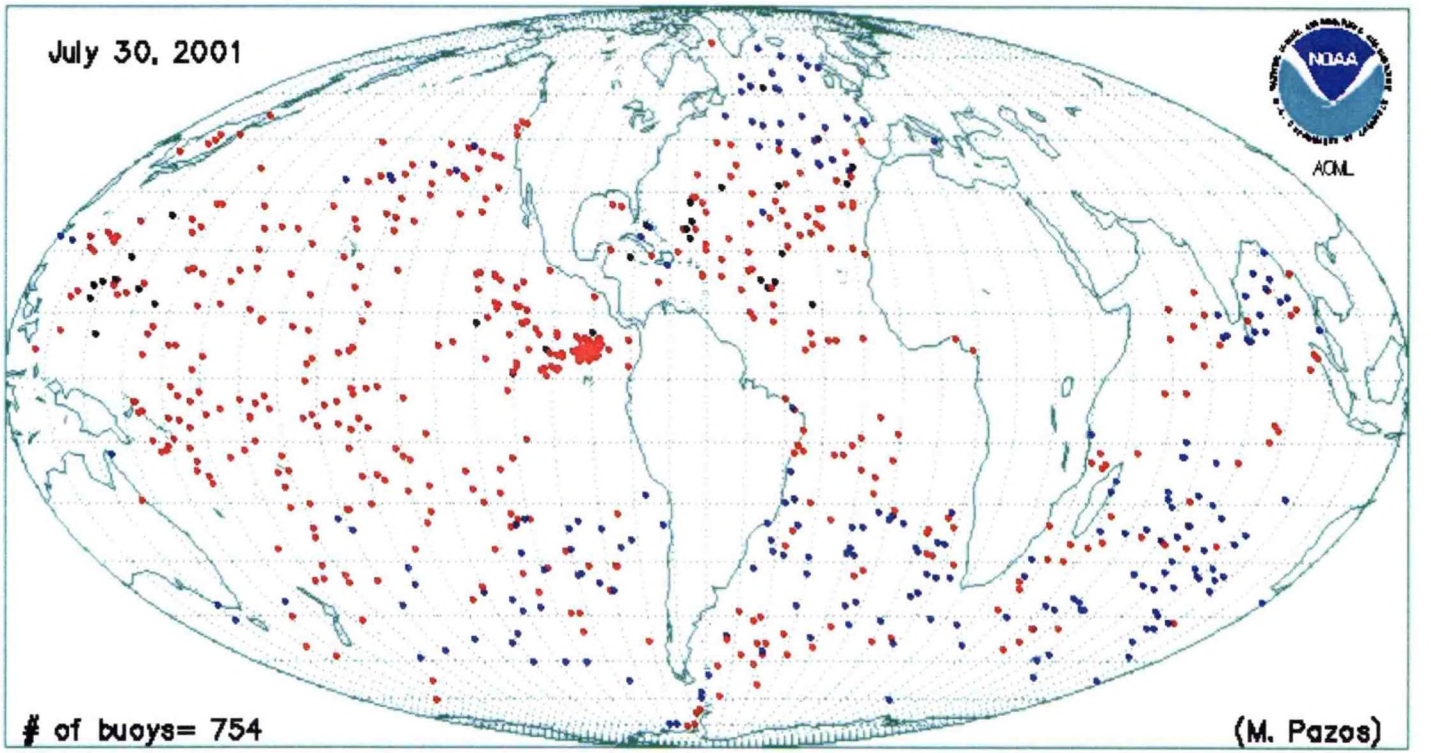

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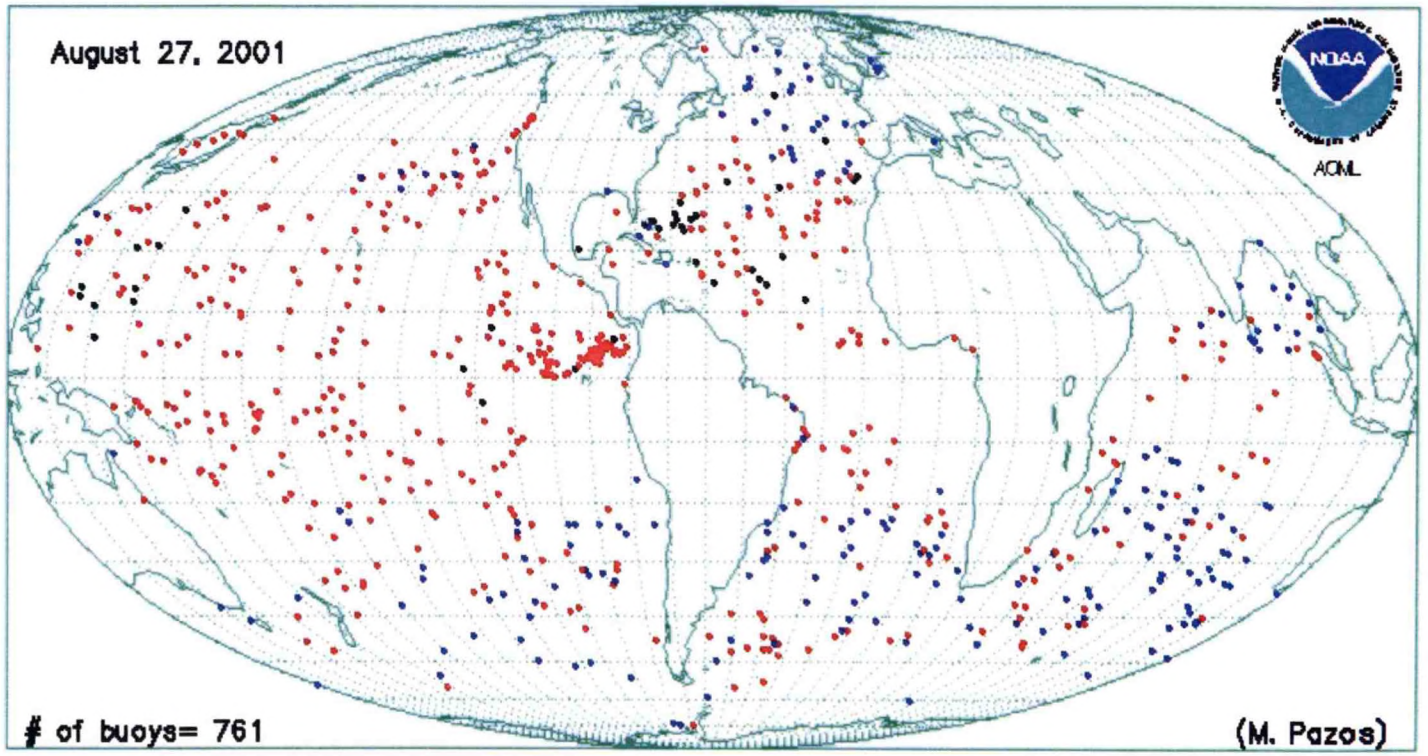

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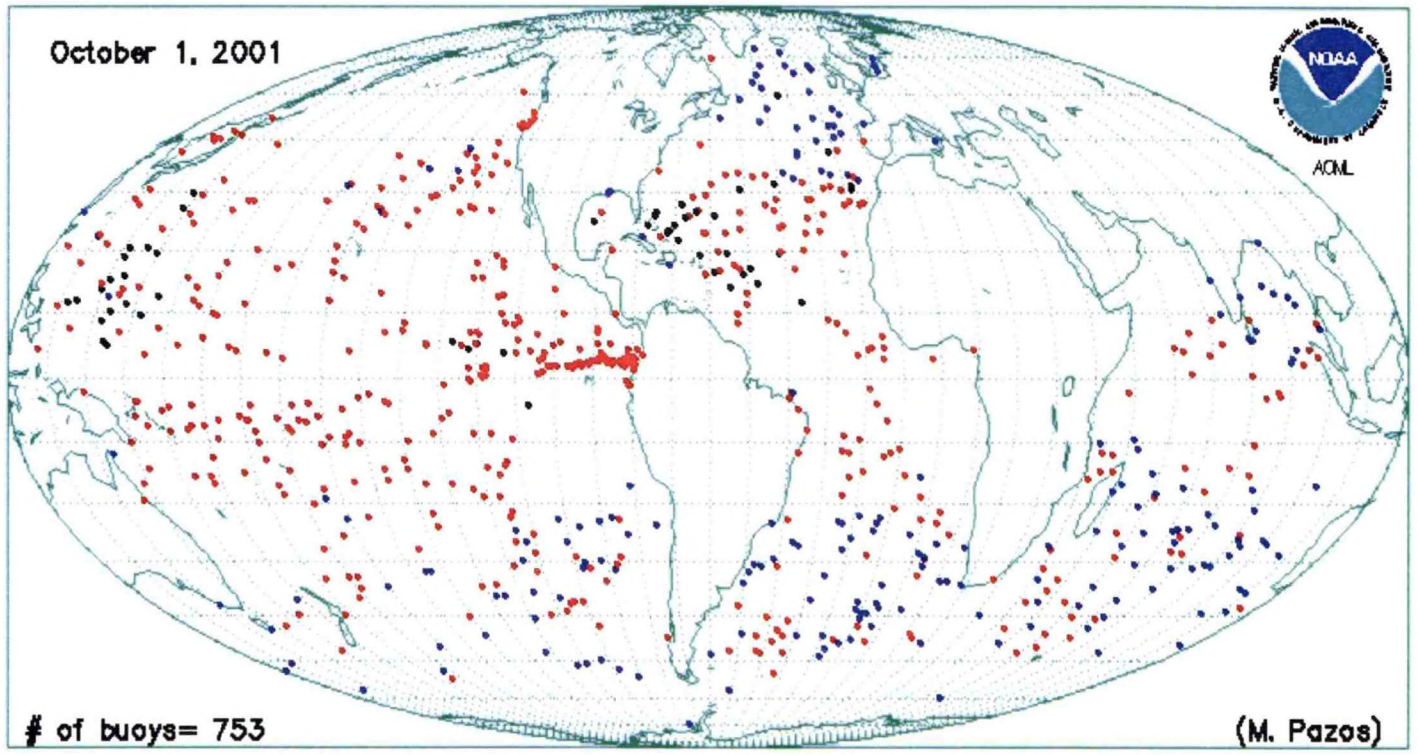

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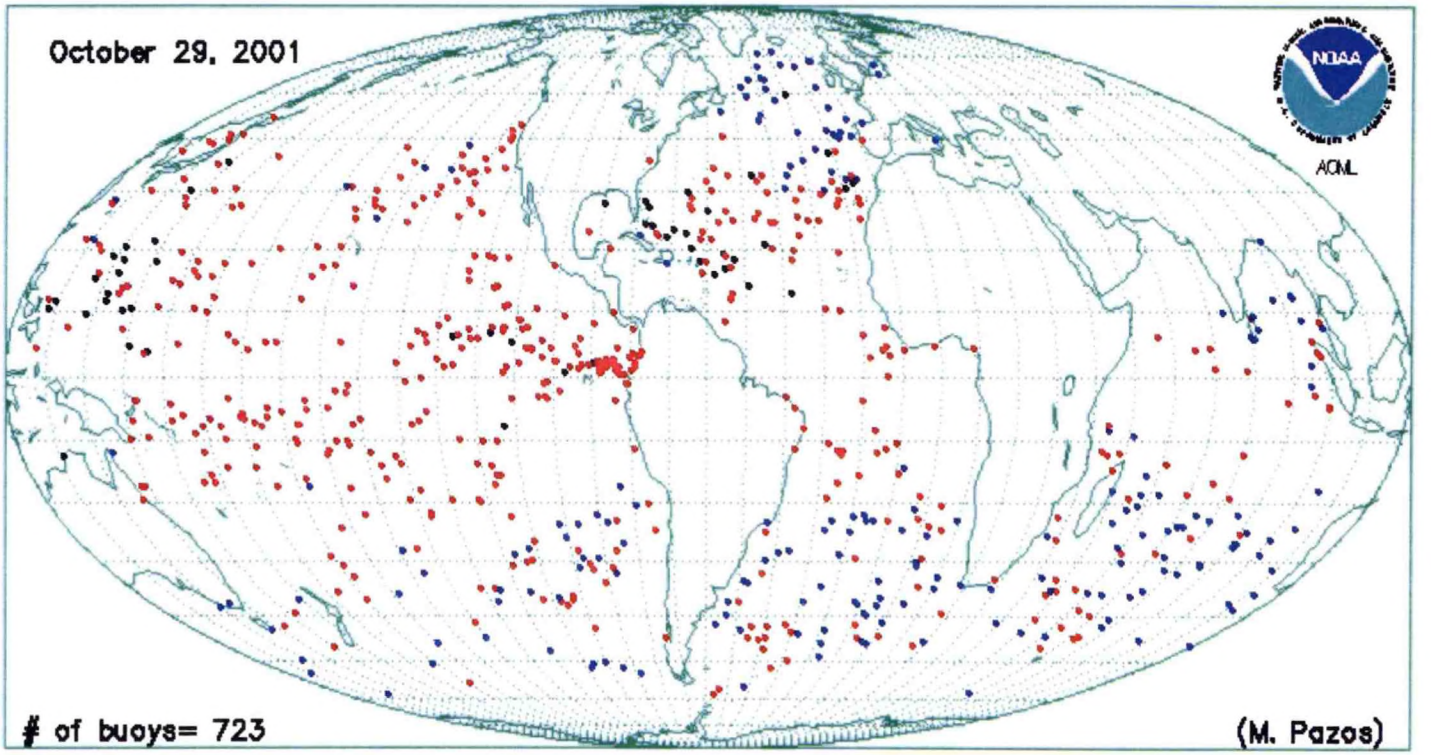
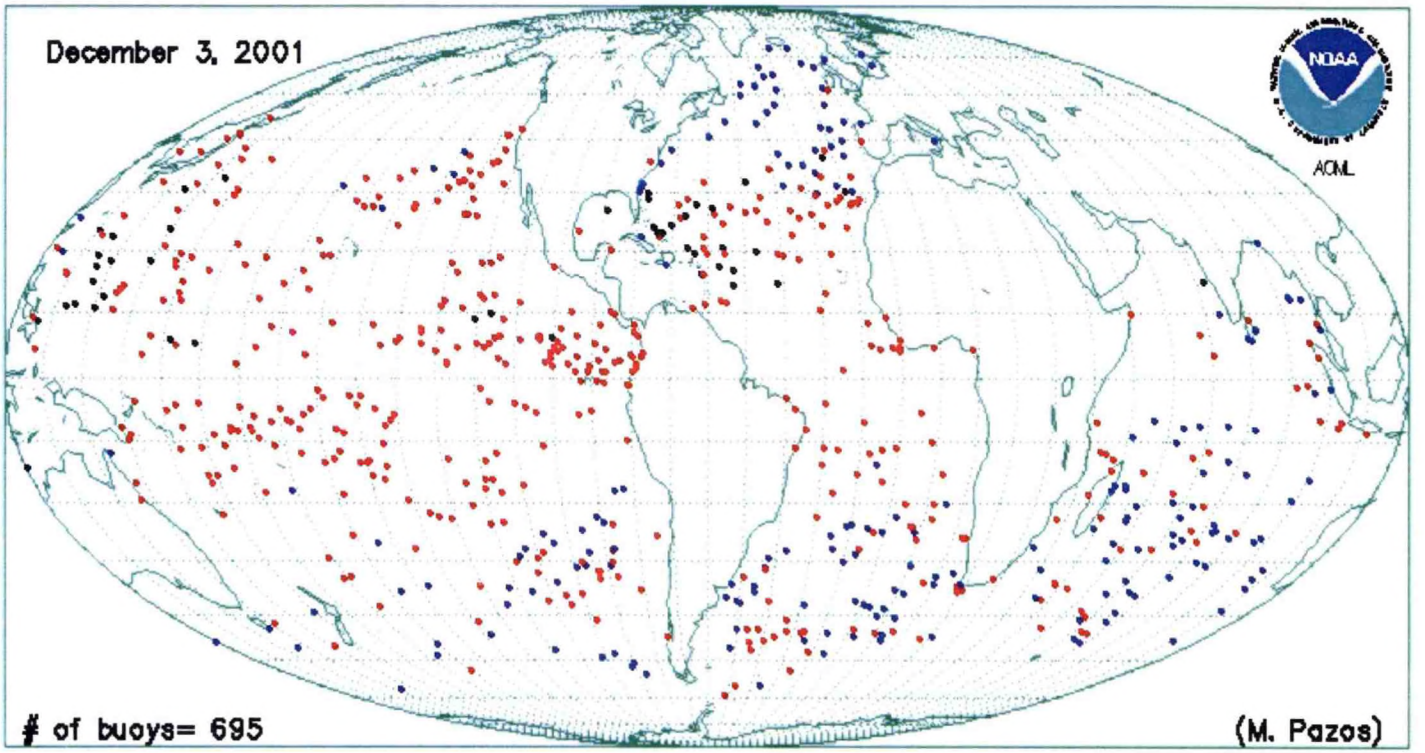


- SST ONLY
- SST/SLP
- SST/SLP/WIND

GLOBAL DRIFTER PROGRAM

Status of Global Drifter Arrays *(cont'd)*

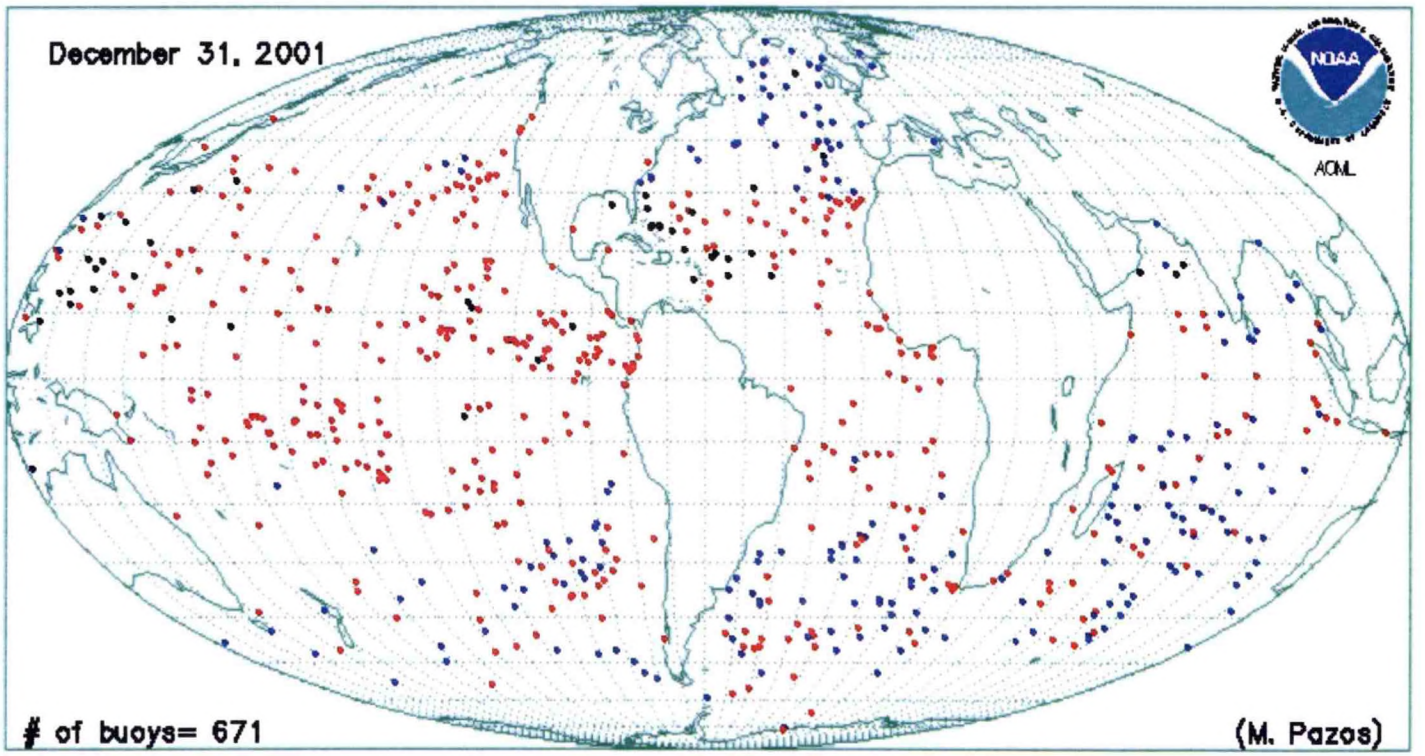
STATUS OF GLOBAL DRIFTER ARRAY



- SST ONLY
- SST/SLP
- SST/SLP/WIND

GLOBAL DRIFTER PROGRAM

Status of Global Drifter Arrays *(cont'd)*



Drifter Deployment Plan from October 2001 through September 2002

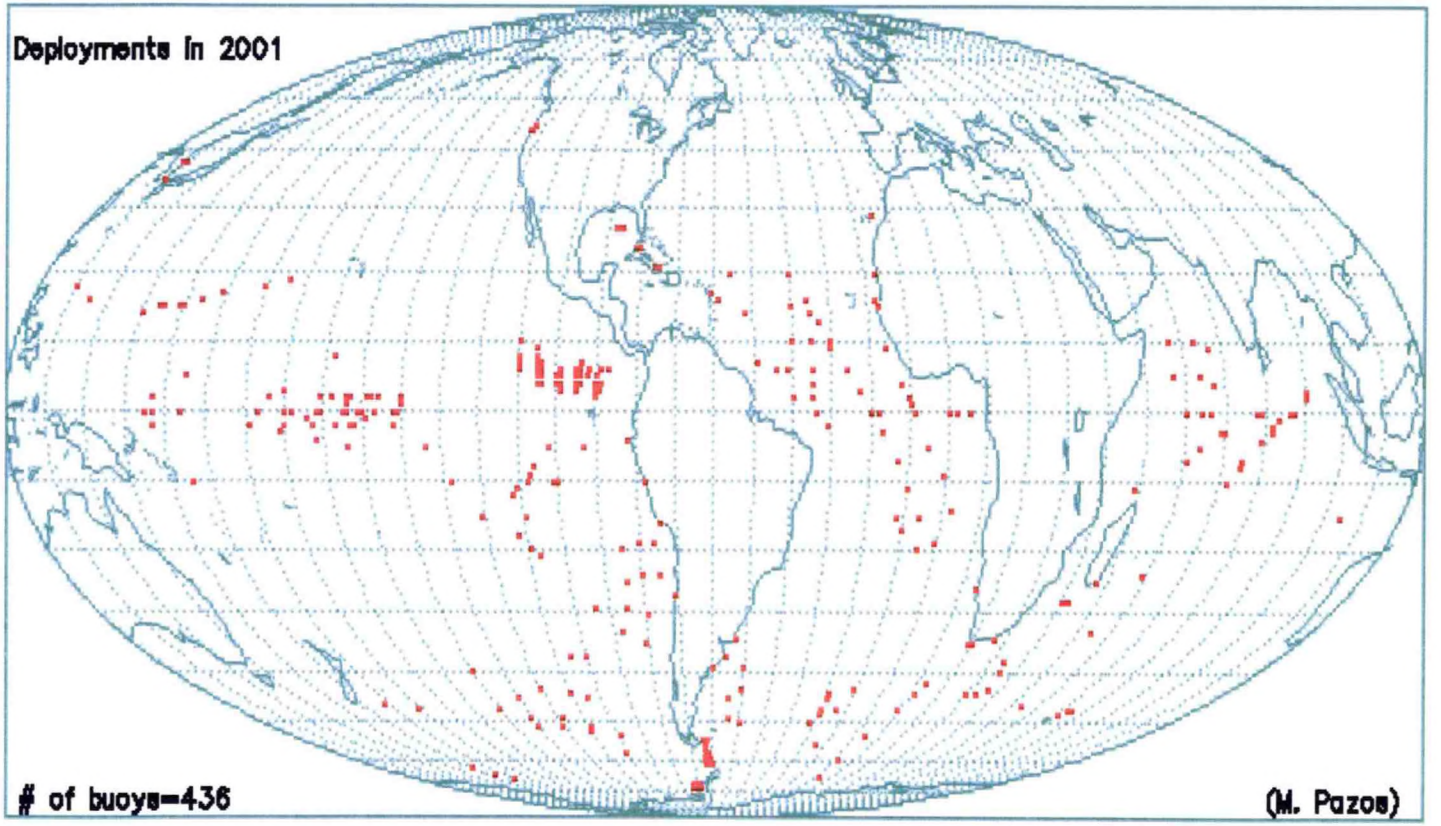
Tropical Oceans:	**Planned**	**Actual Drifters Deployed CY2001**
Pacific	223	231
Atlantic	79	71
Indian	54	45

10 buoys upgraded with Barometers by Meteo-France
10 buoys upgraded with Barometers by Australian Bureau of Meteorology

Southern Oceans	**Planned**	**Actual Drifters Deployed CY2001**
Pacific	44	97
Atlantic	22	
Indian	24	

6 buoys upgraded with Barometers by New Zealand Met Service
8 buoys upgraded with Barometers by South African Weather Service
40 buoys upgraded with Barometers by NOAA / SIO
10 WOCE BP/WSD (Tropical Atlantic) drifters will be deployed in the Hurricane formation Region during the 2002 Hurricane Season.

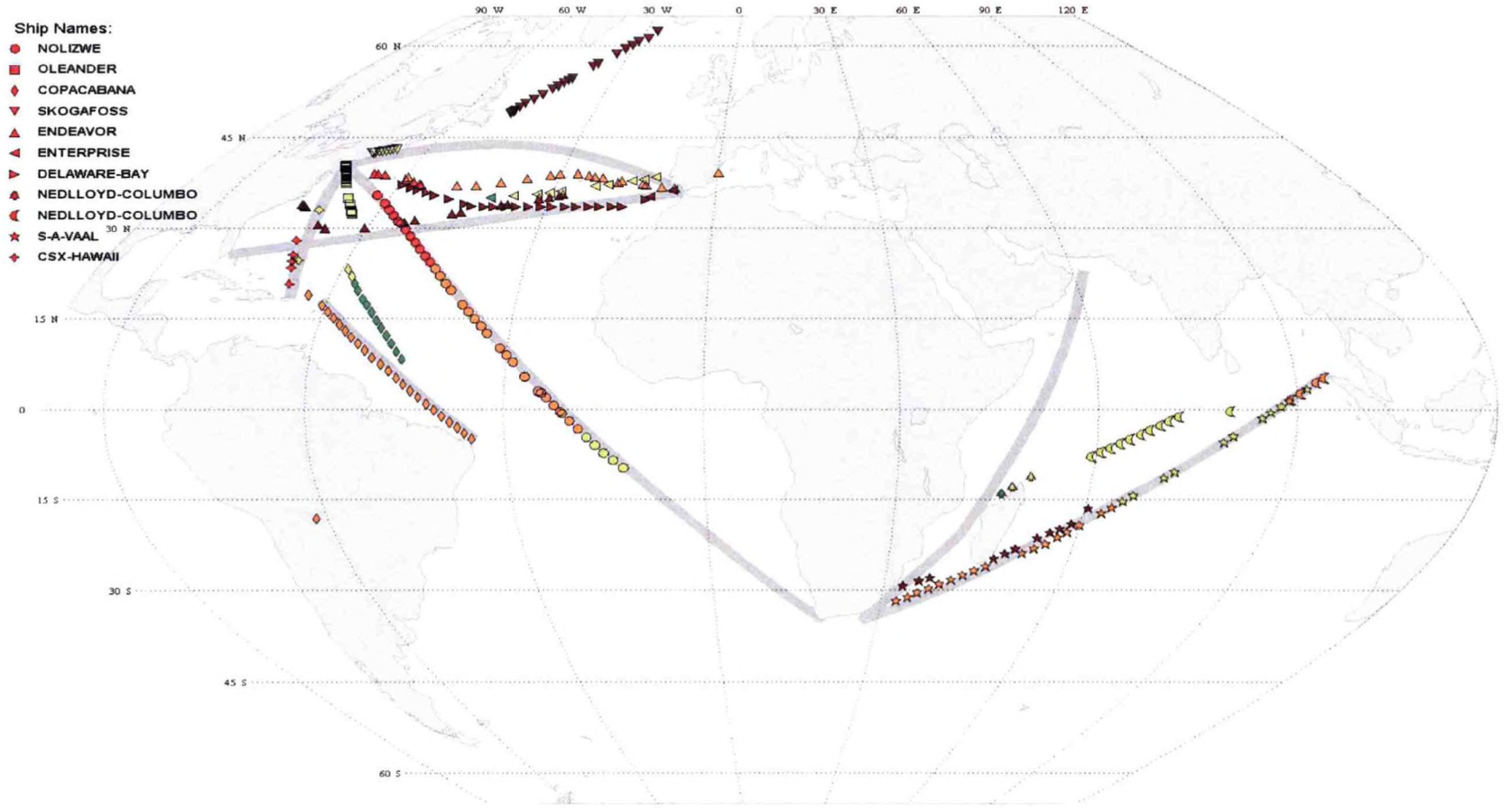
Deployments by Global Drifter Center in 2001



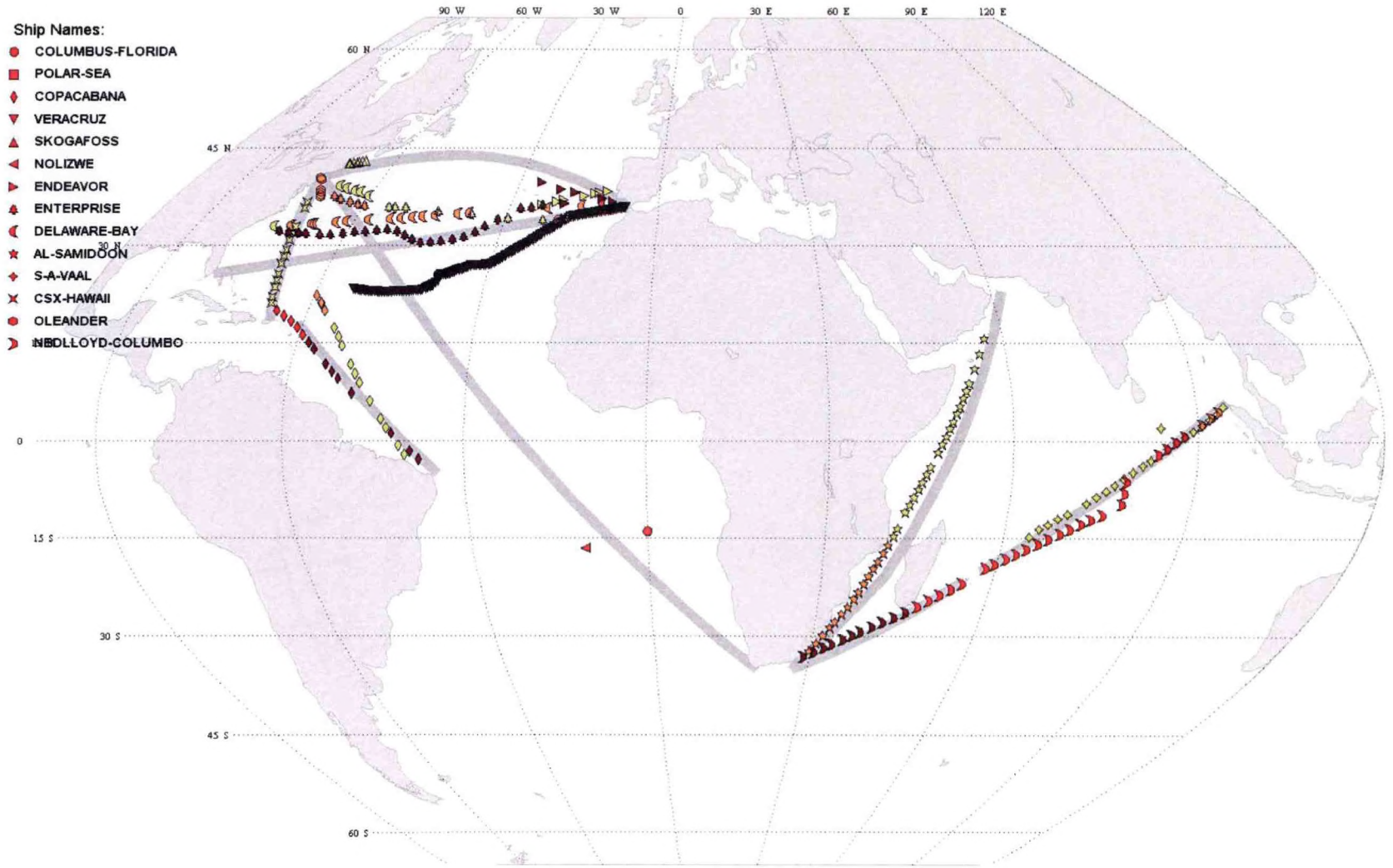
DRIFTER DATA ASSEMBLY CENTER

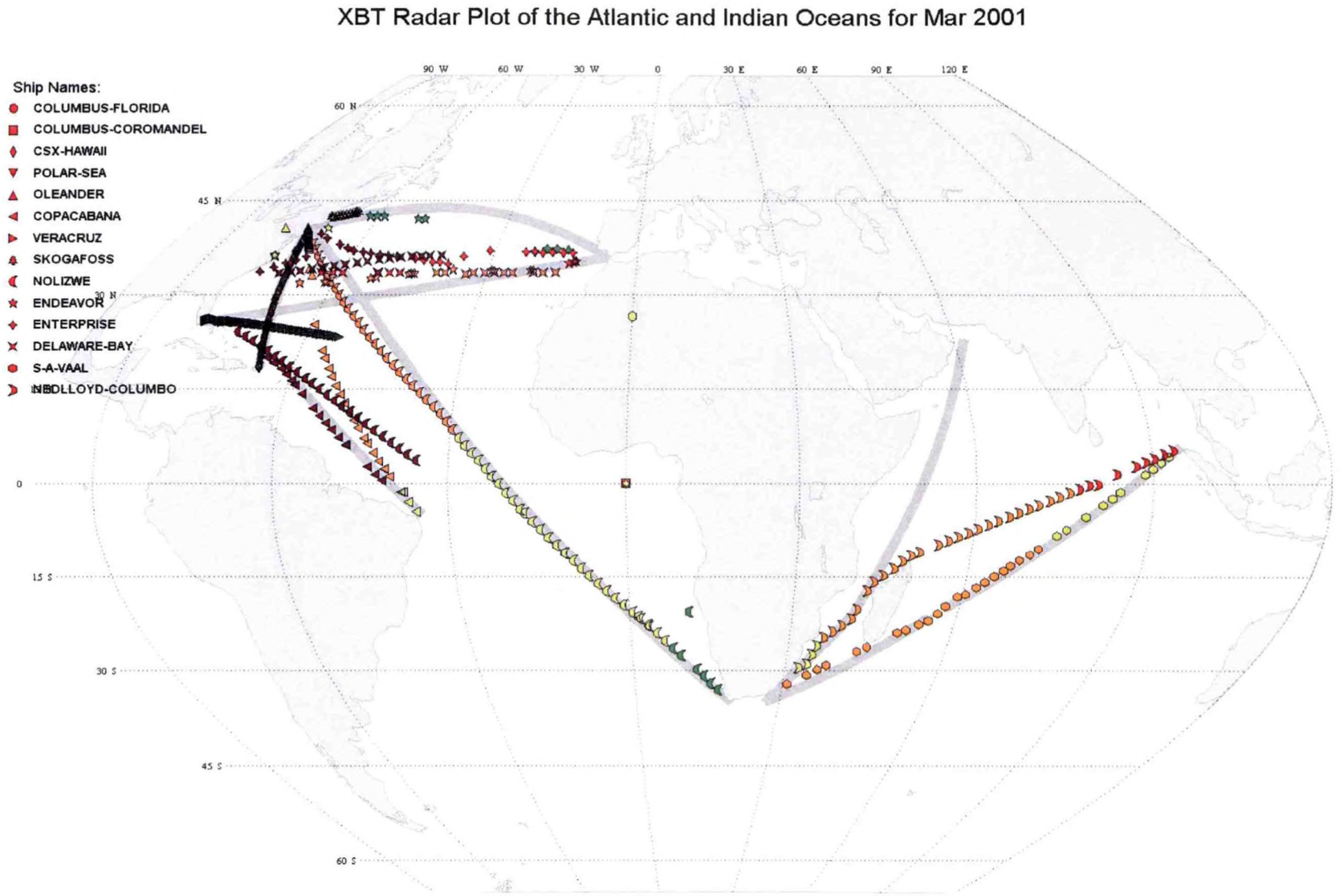
Monthly Radar plots of the XBT network (January through December 2001)

XBT Radar Plot of the Atlantic and Indian Oceans for Jan 2001

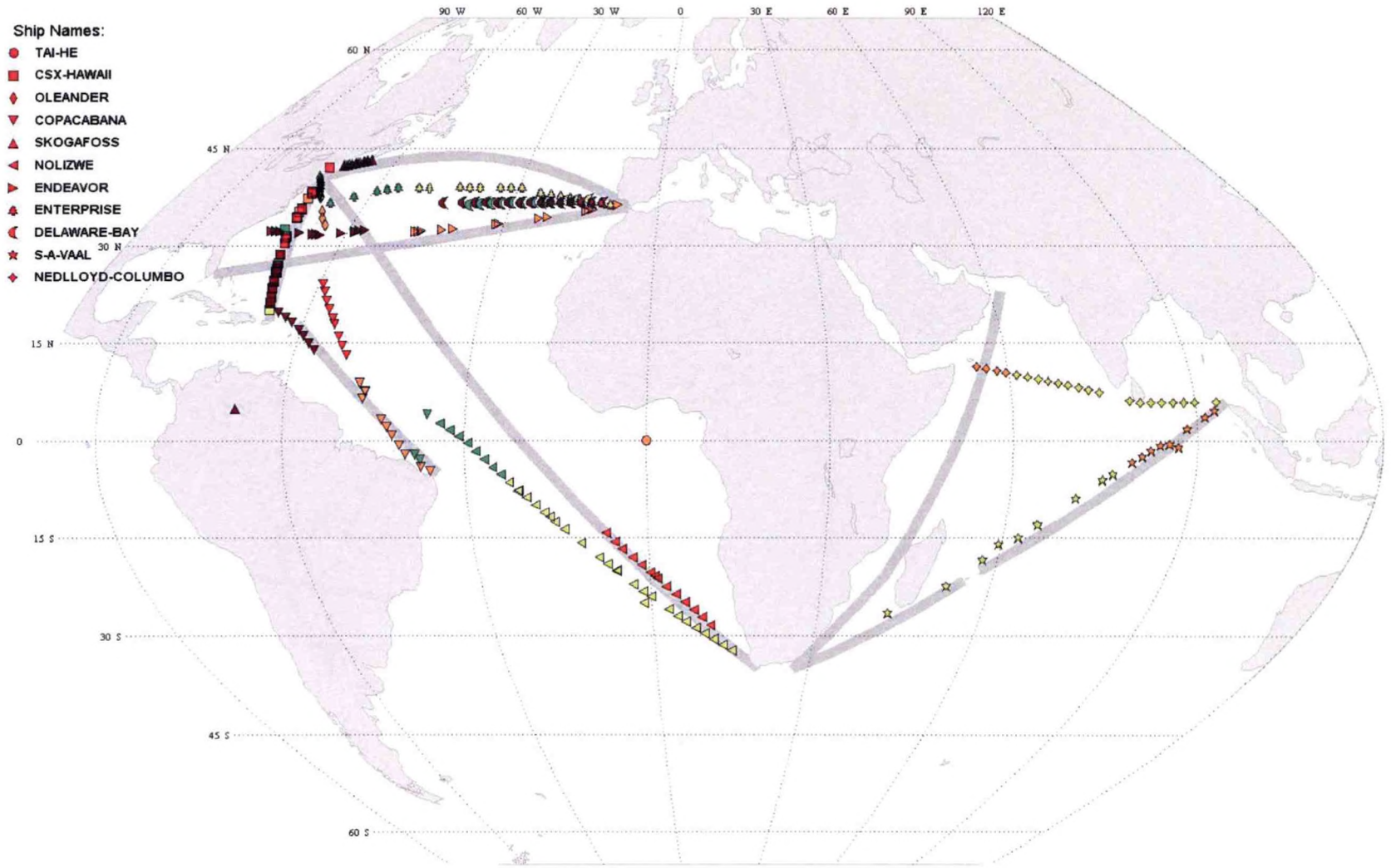


XBT Radar Plot of the Atlantic and Indian Oceans for Feb 2001

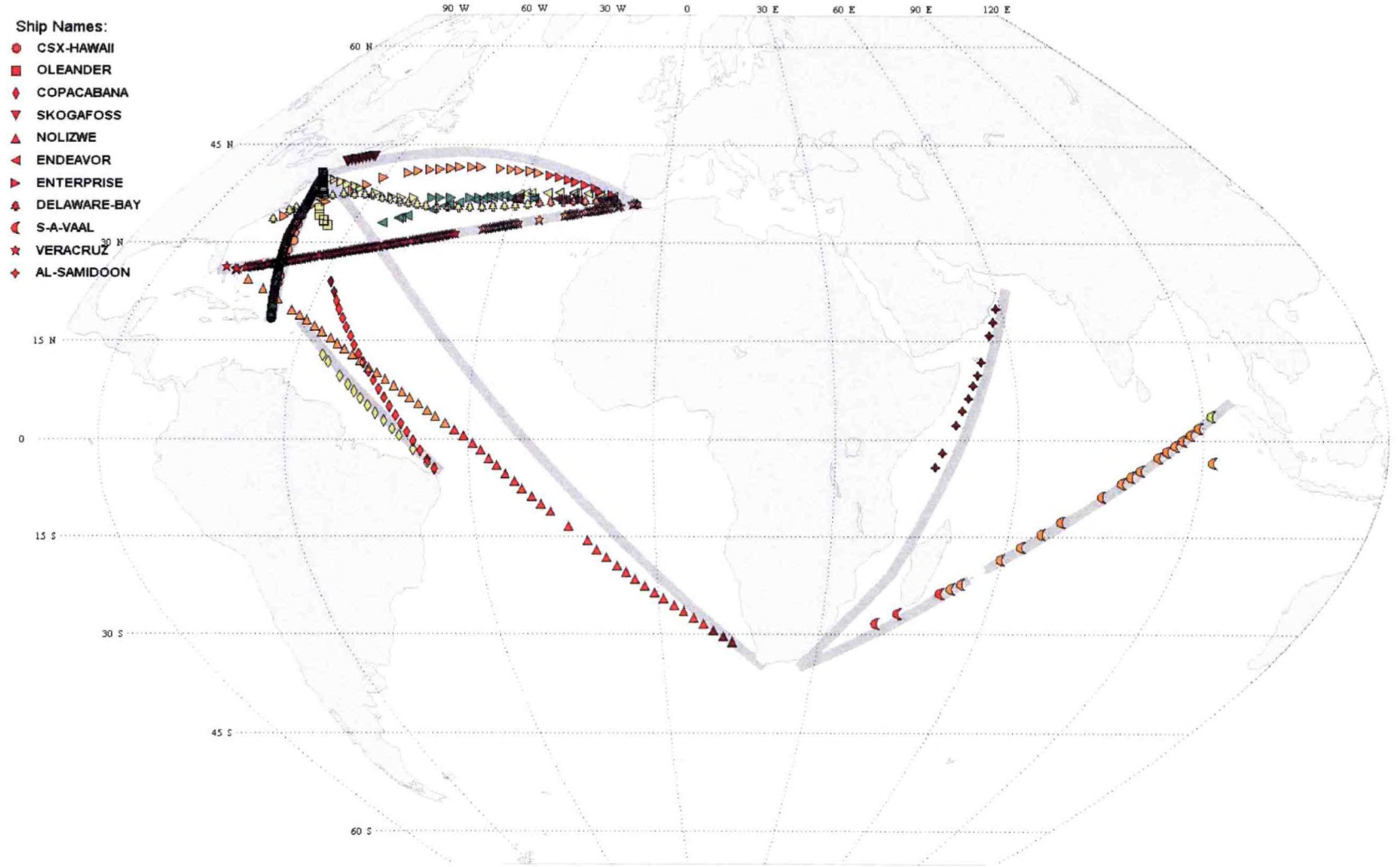



XBT Radar Plot of the Atlantic and Indian Oceans for Mar 2001
Ship Names:
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
CSX-HAWAII
POLAR-SEA
OLEANDER
COPACABANA
VERACRUZ
SKOGAFOSS
NOLIZWE
ENDEAVOR
ENTERPRISE
DELAWARE-BAY
S-A-VAAL
NEDLLOYD-COLUMBO
90 W
60 W
30 W
0
30 E
60 E
90 E
120 E
60 N
45 N
30 N
0
15 S
30 S
45 S
60 S

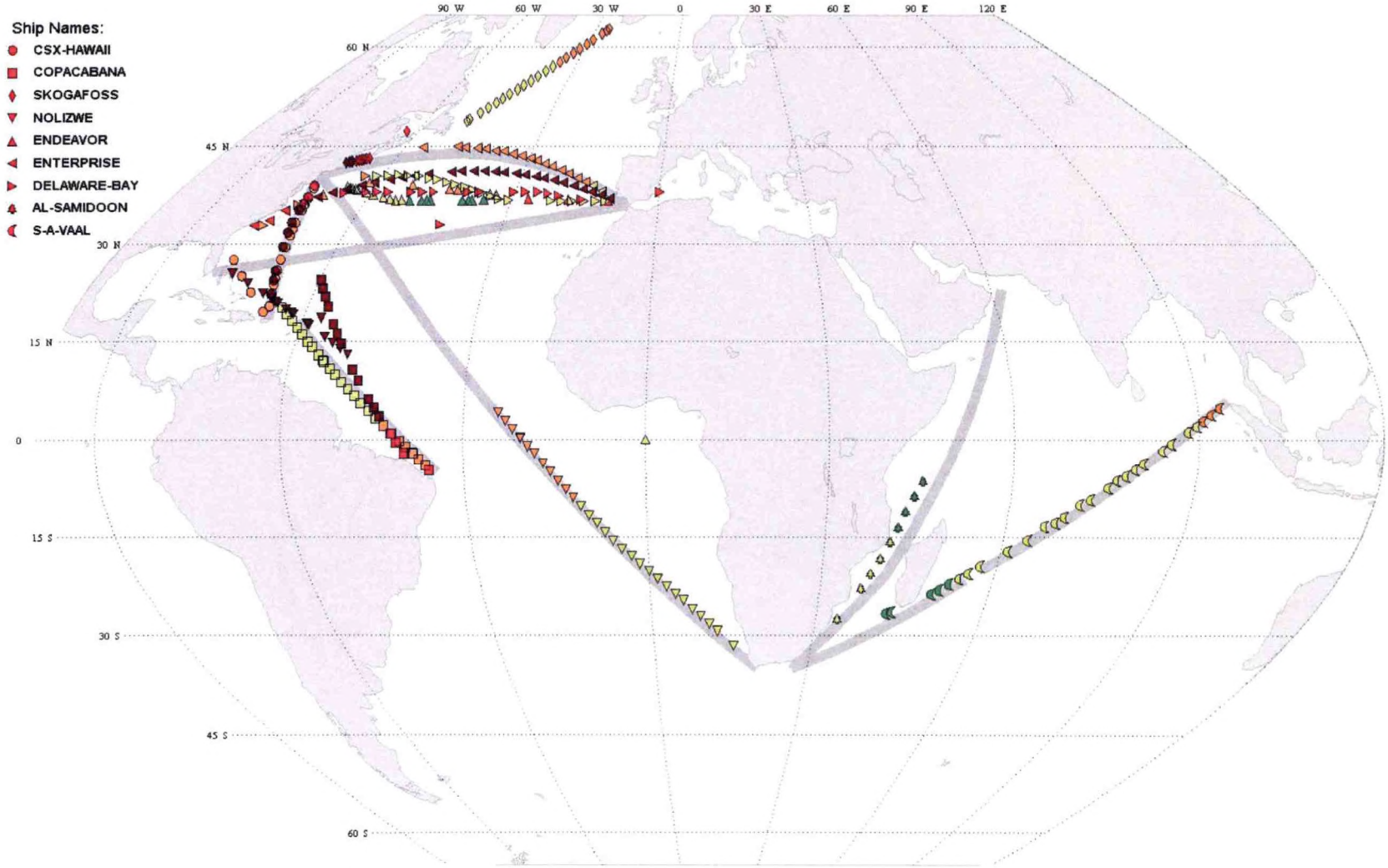
XBT Radar Plot of the Atlantic and Indian Oceans for Apr 2001

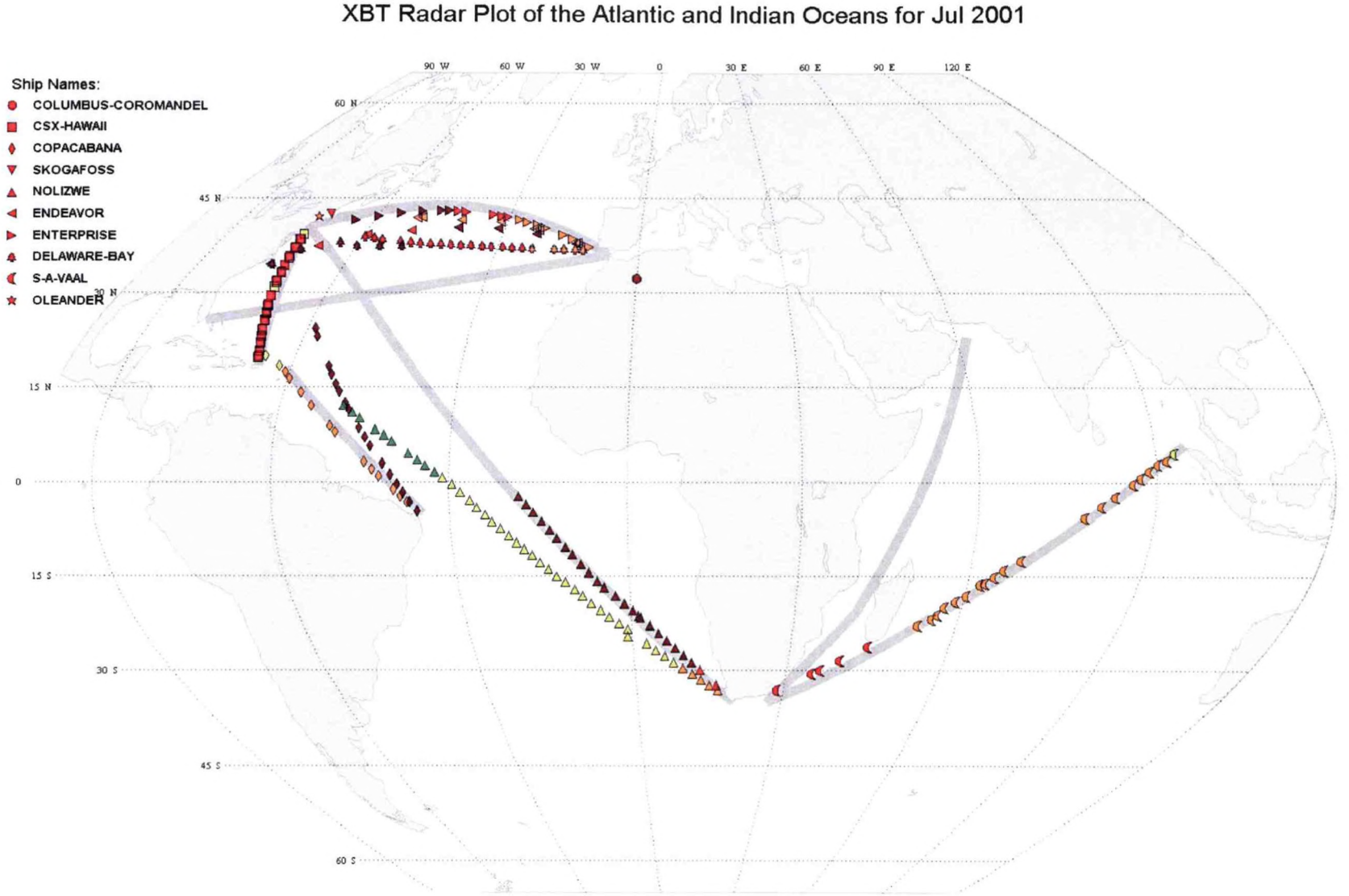


XBT Radar Plot of the Atlantic and Indian Oceans for May 2001

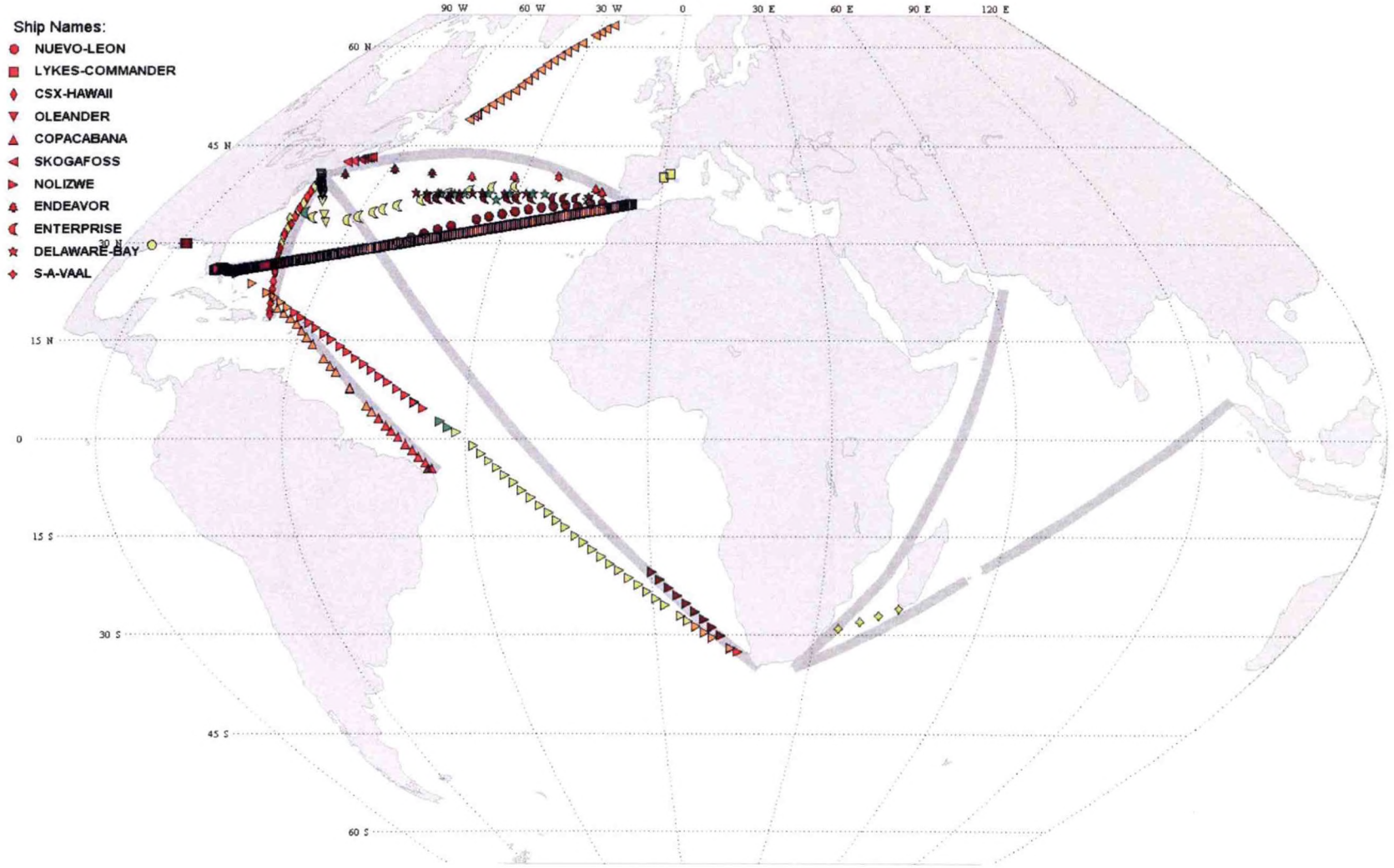


XBT Radar Plot of the Atlantic and Indian Oceans for Jun 2001

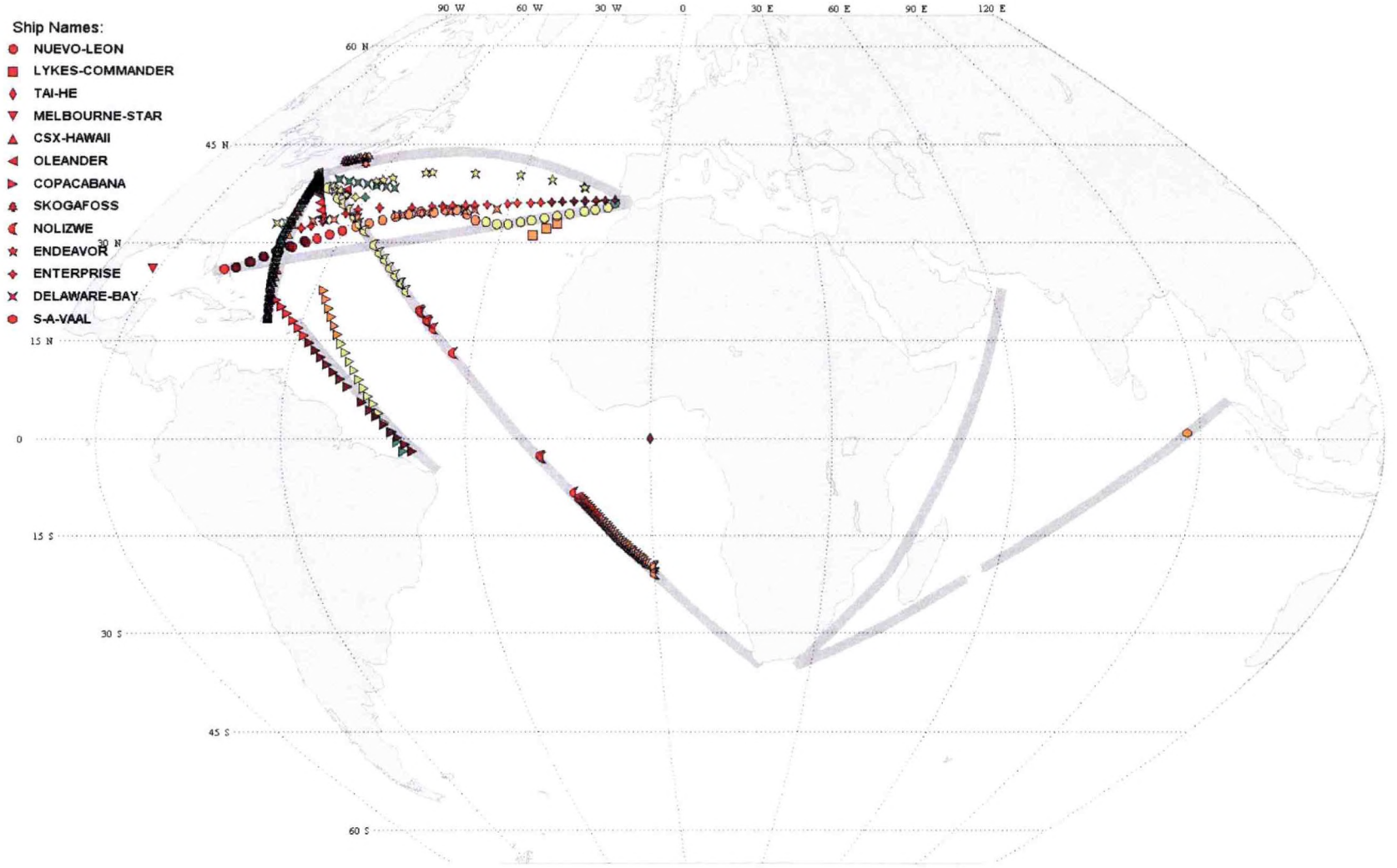



XBT Radar Plot of the Atlantic and Indian Oceans for Jul 2001
Ship Names:
COLUMBUS-COROMANDEL
CSX-HAWAII
COPACABANA
SKOGAFOSS
NOLIZWE
ENDEAVOR
ENTERPRISE
DELAWARE-BAY
S-A-VAAL
OLEANDER
90 W
60 W
30 W
0
30 E
60 E
90 E
120 E
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

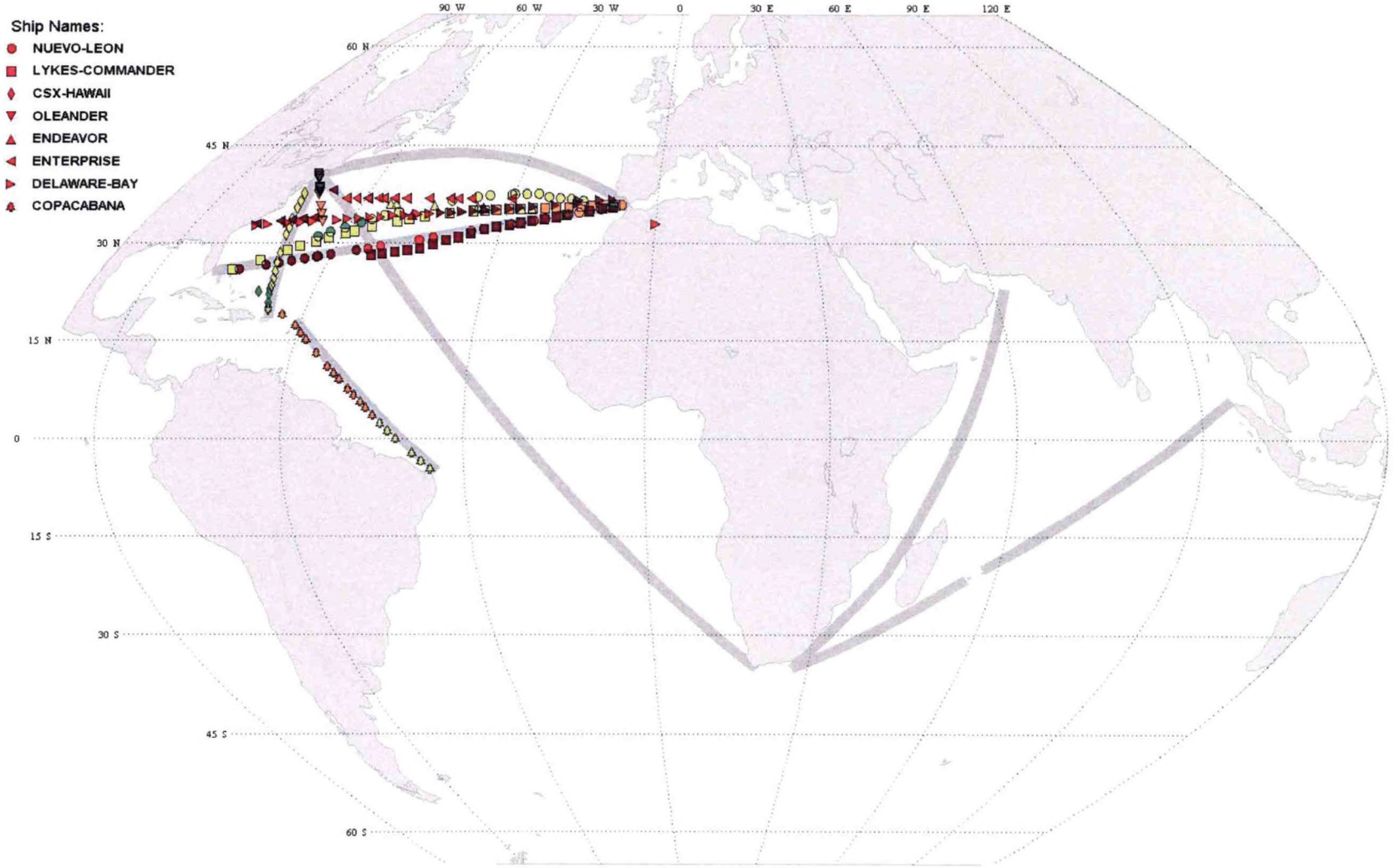
XBT Radar Plot of the Atlantic and Indian Oceans for Aug 2001

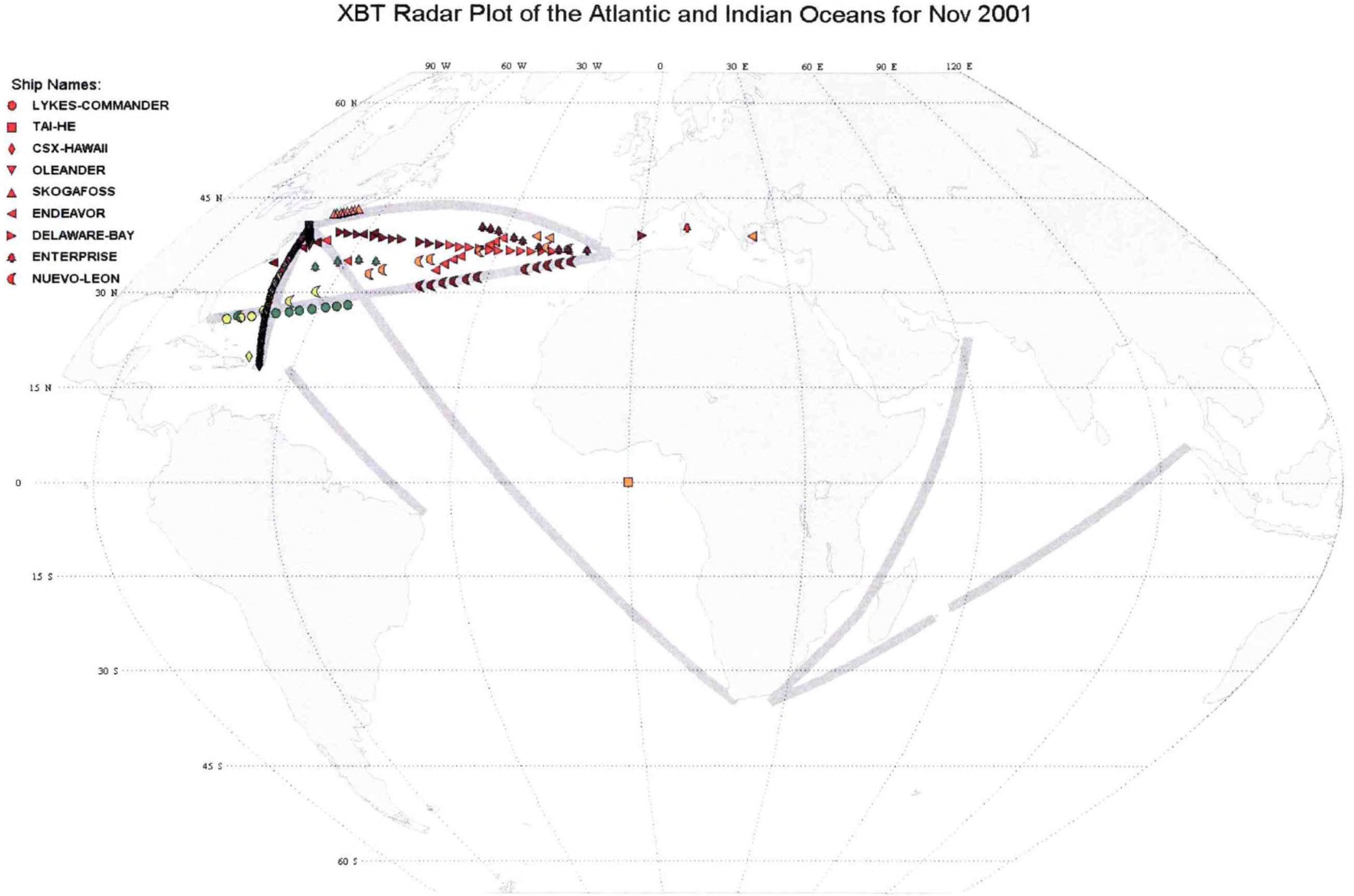


XBT Radar Plot of the Atlantic and Indian Oceans for Sep 2001

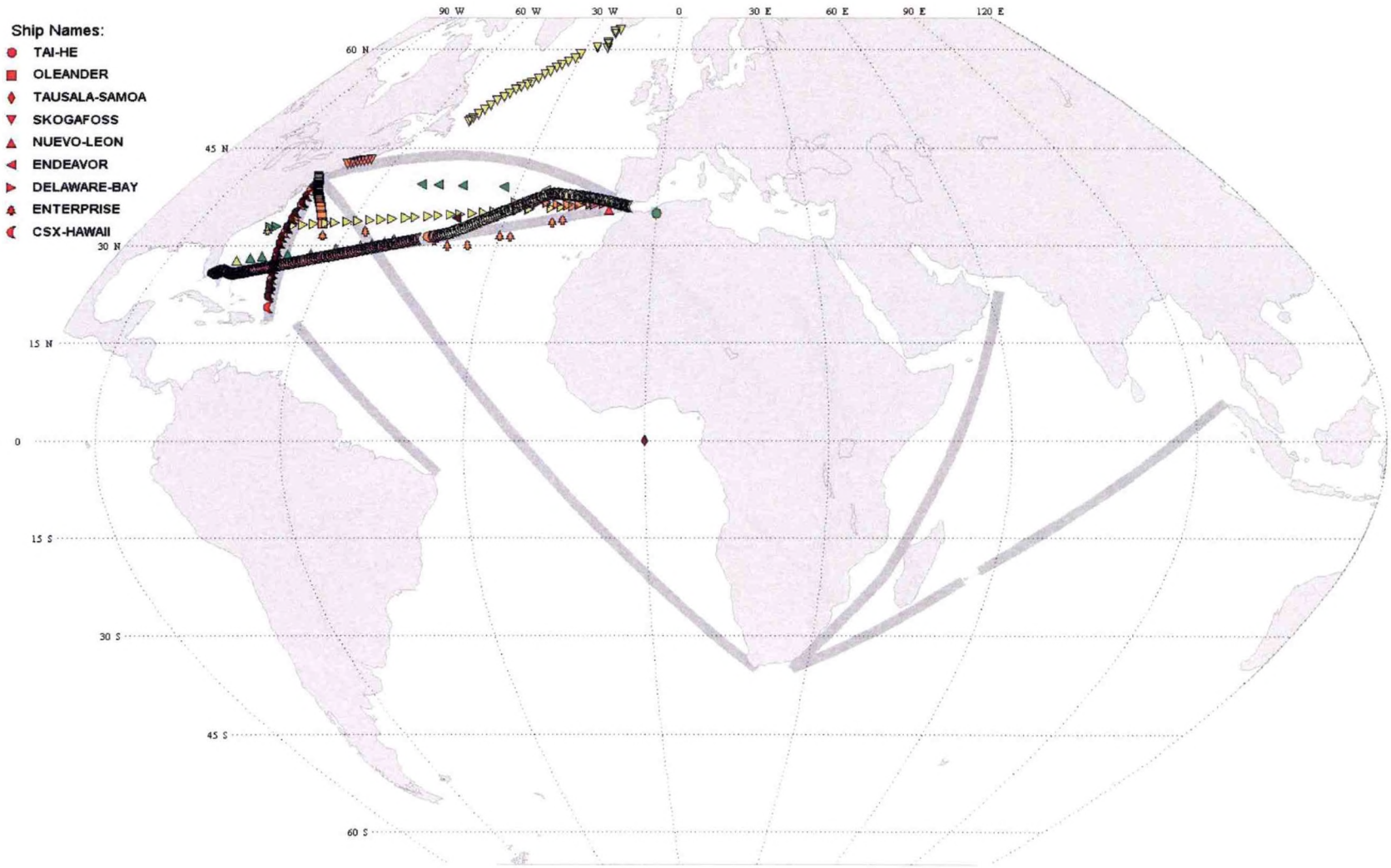


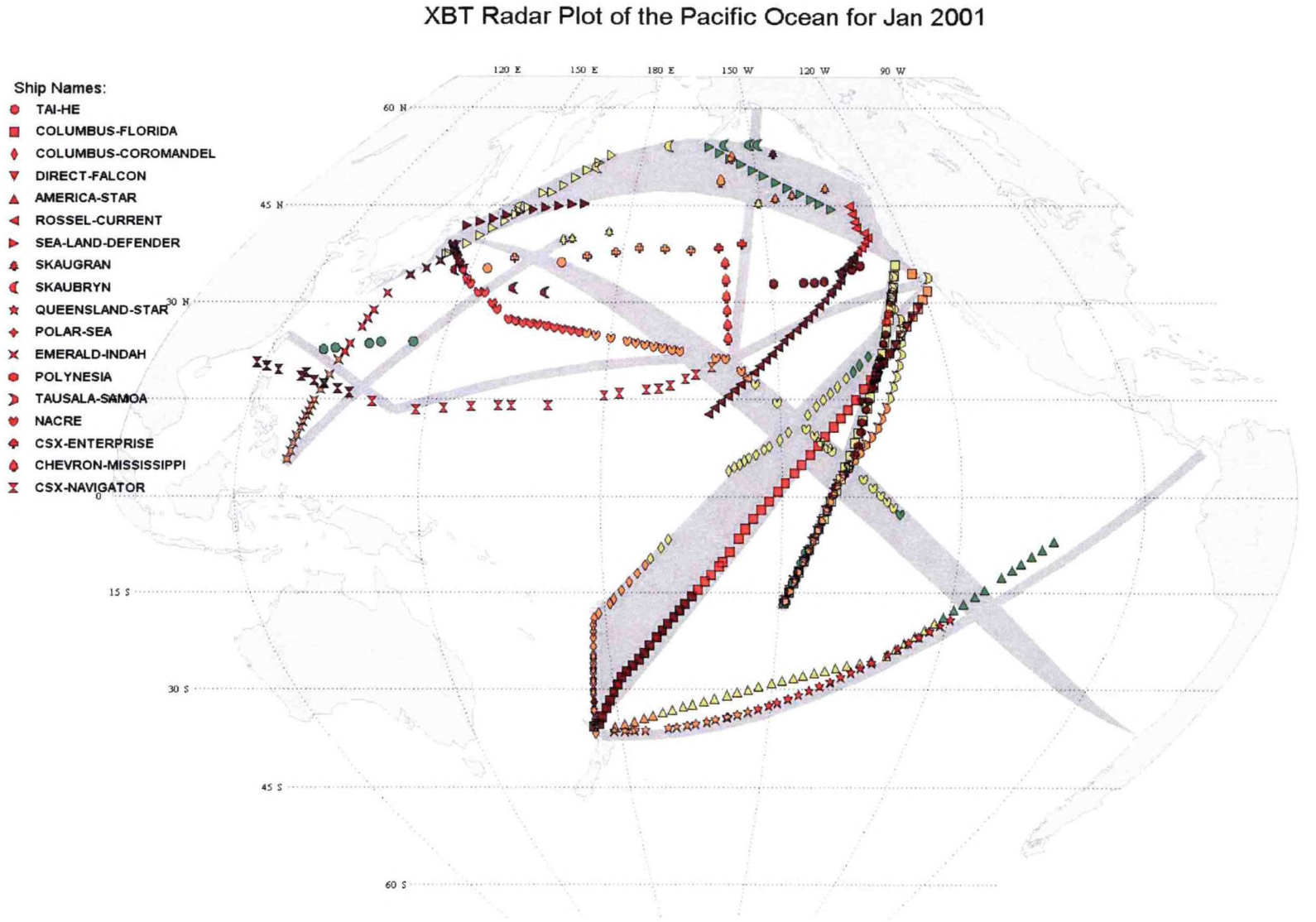
XBT Radar Plot of the Atlantic and Indian Oceans for Oct 2001

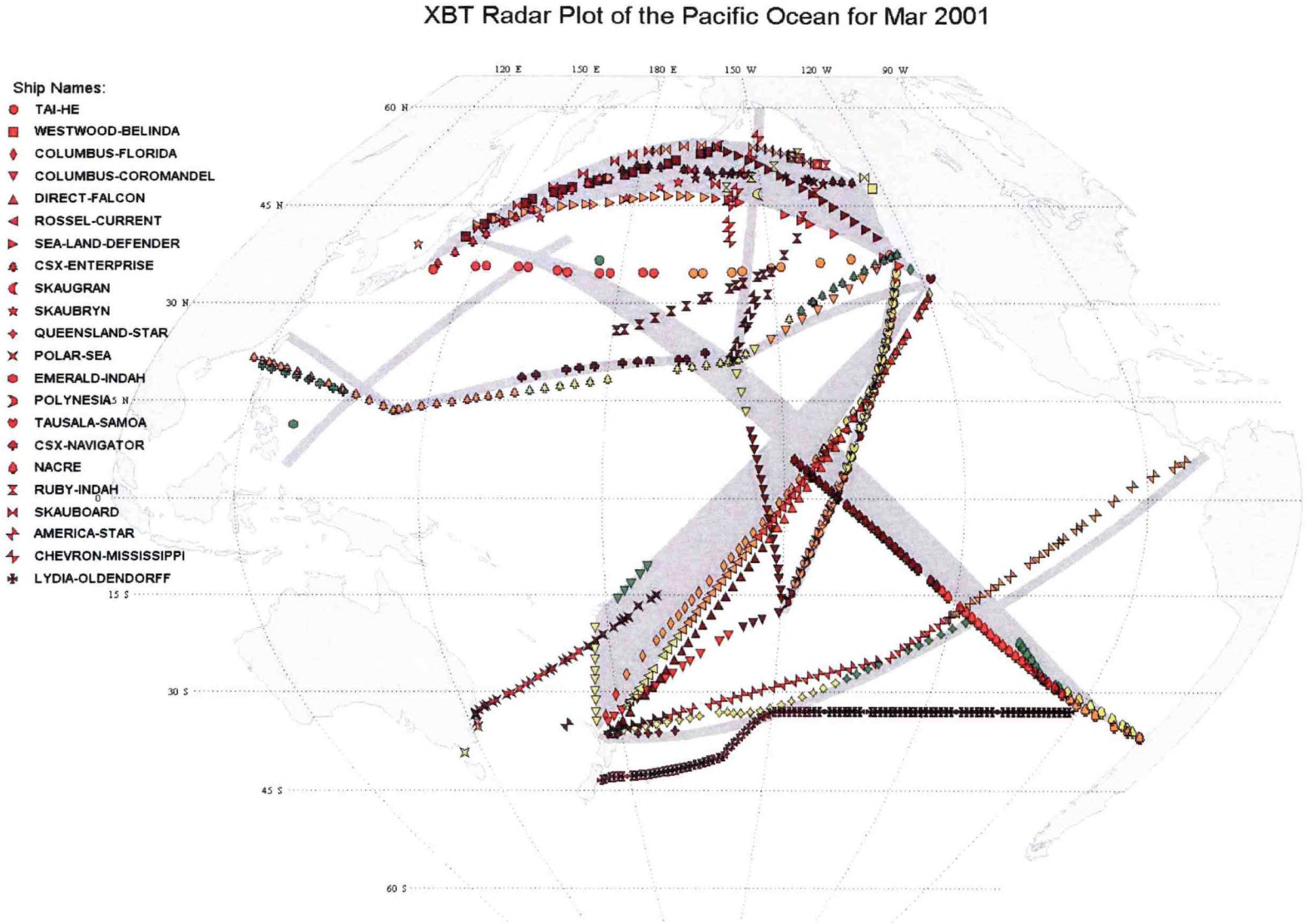



XBT Radar Plot of the Atlantic and Indian Oceans for Nov 2001
Ship Names:
LYKES-COMMANDER
TAI-HE
CSX-HAWAII
OLEANDER
SKOGAFOSS
ENDEAVOR
DELAWARE-BAY
ENTERPRISE
NUEVO-LEON
90 W
60 W
30 W
0
30 E
60 E
90 E
120 E
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

XBT Radar Plot of the Atlantic and Indian Oceans for Dec 2001




XBT Radar Plot of the Pacific Ocean for Jan 2001
Ship Names:
TAI-HE
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
AMERICA-STAR
ROSSEL-CURRENT
SEA-LAND-DEFENDER
SKAUGRAN
SKAUBRYN
QUEENSLAND-STAR
POLAR-SEA
EMERALD-INDAH
POLYNESIA
TAUSALA-SAMOA
NACRE
CSX-ENTERPRISE
CHEVRON-MISSISSIPPI
CSX-NAVIGATOR
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
0
15 S
30 S
45 S
60 S


XBT Radar Plot of the Pacific Ocean for Mar 2001
Ship Names:
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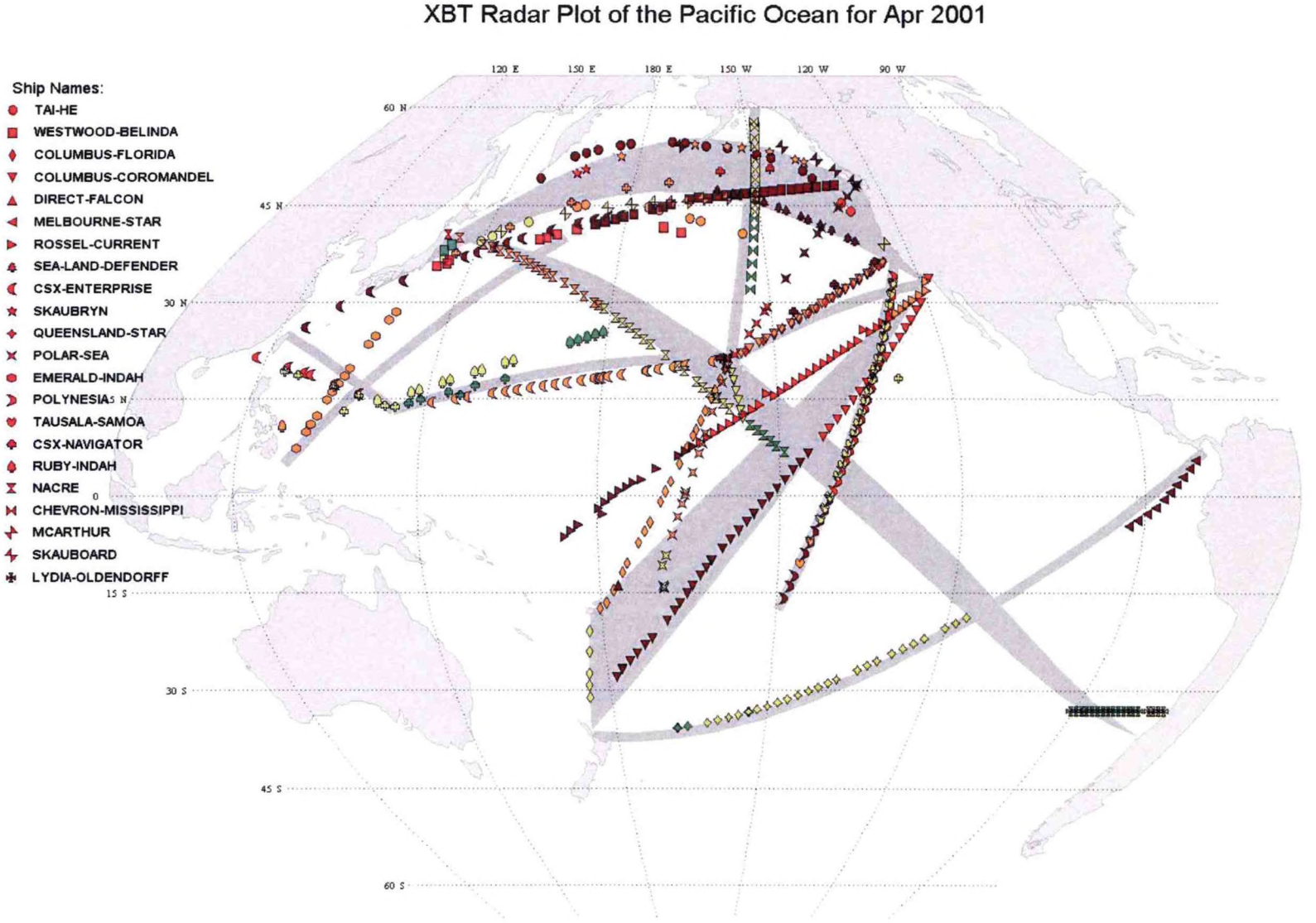
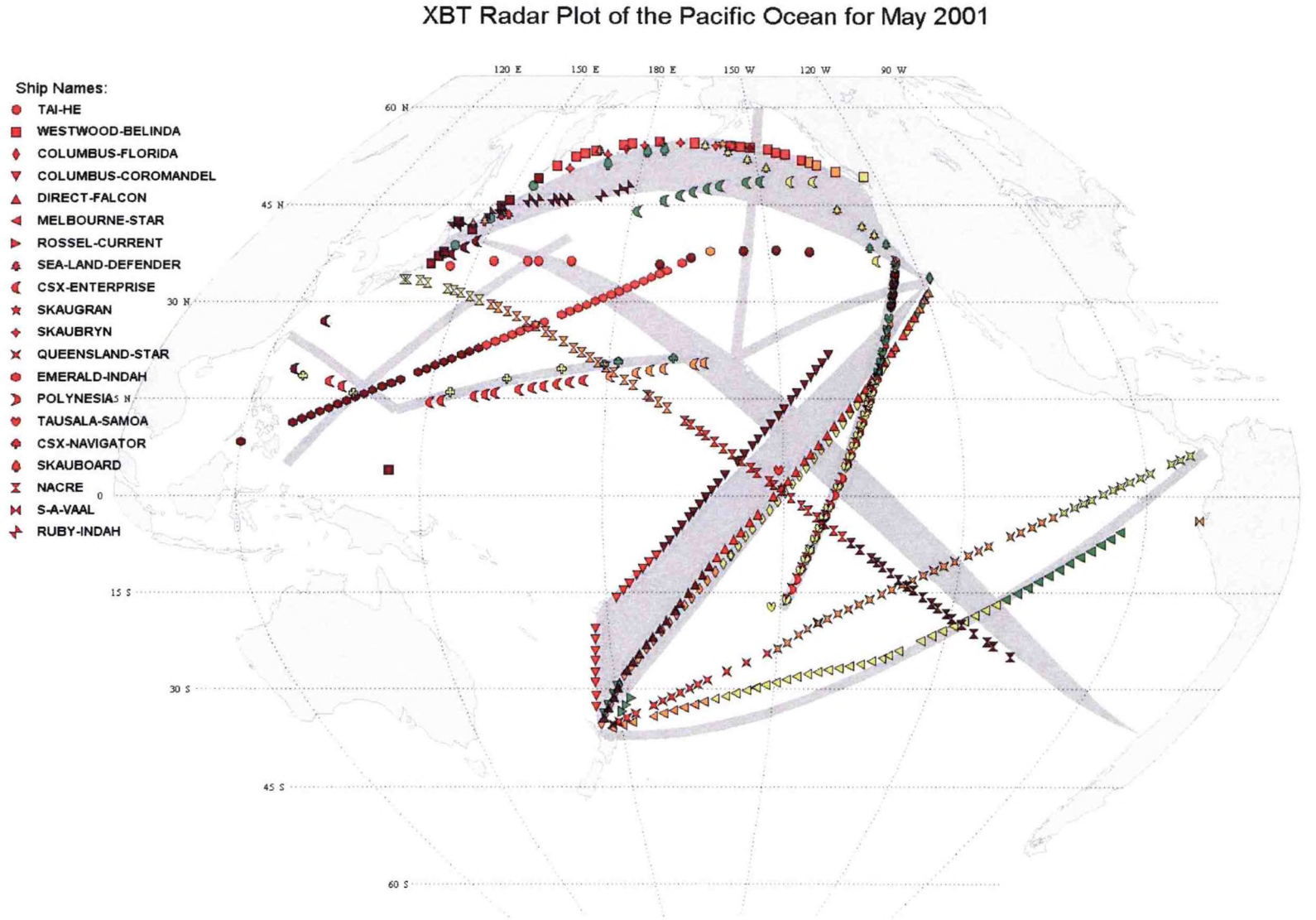
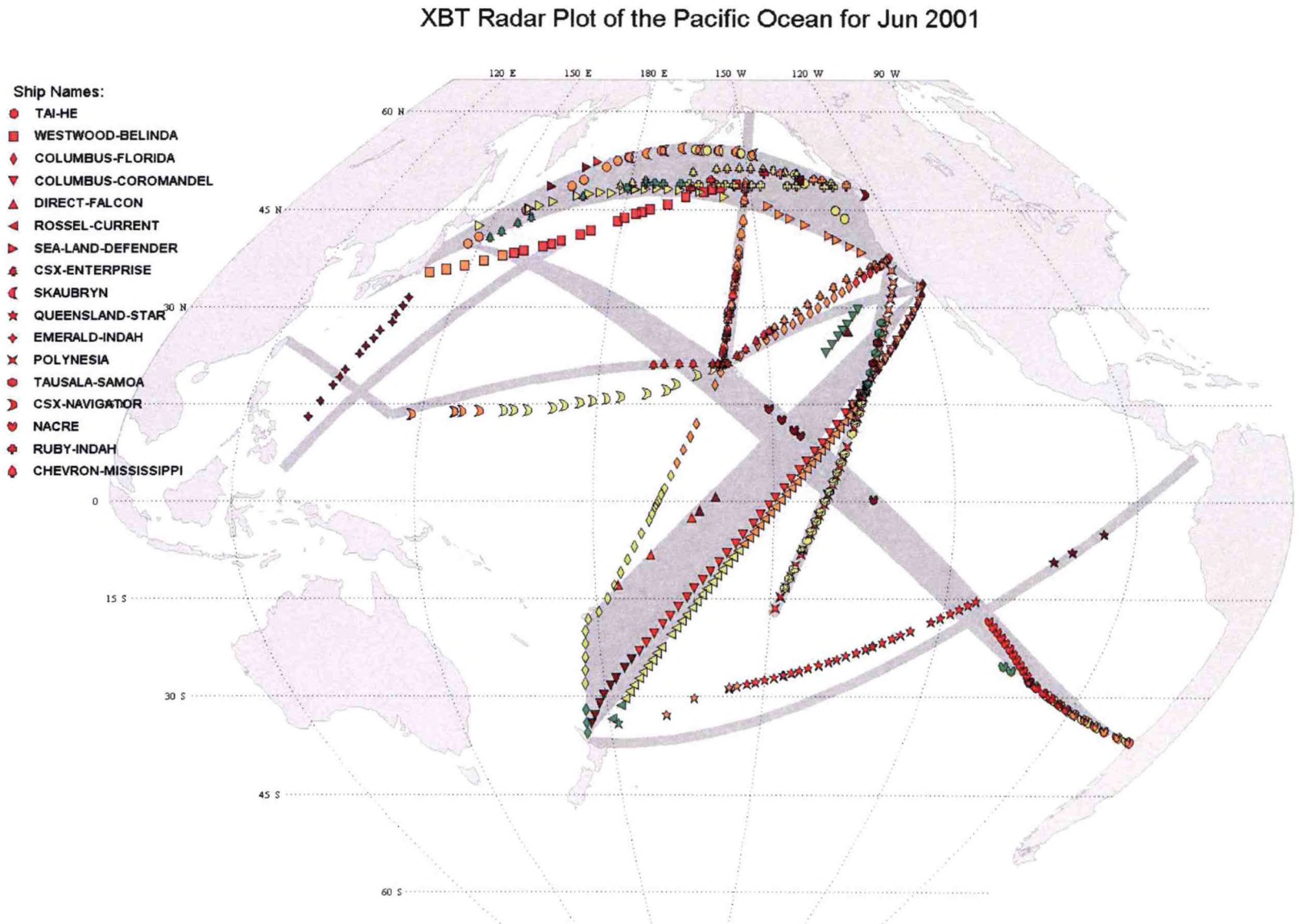
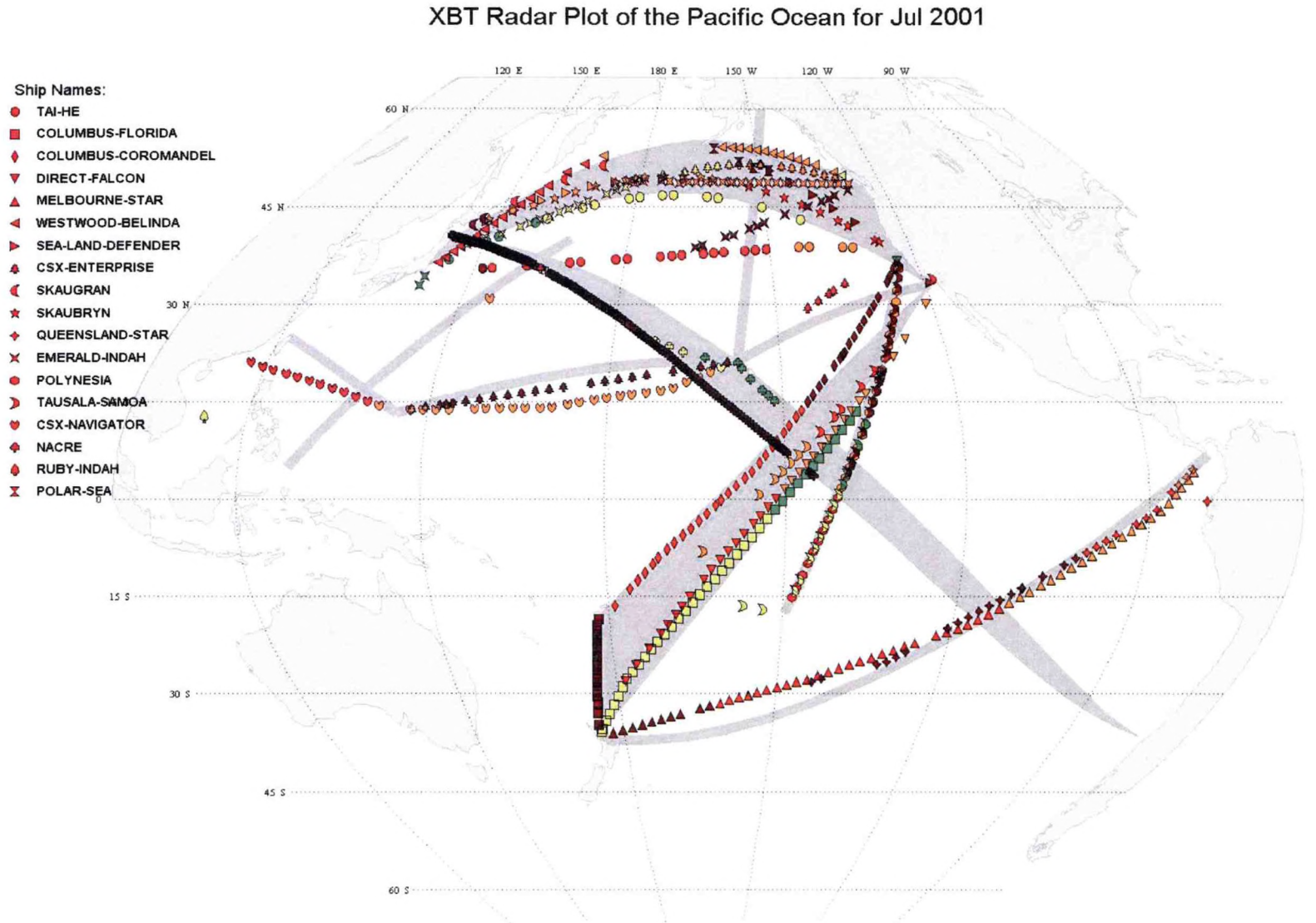
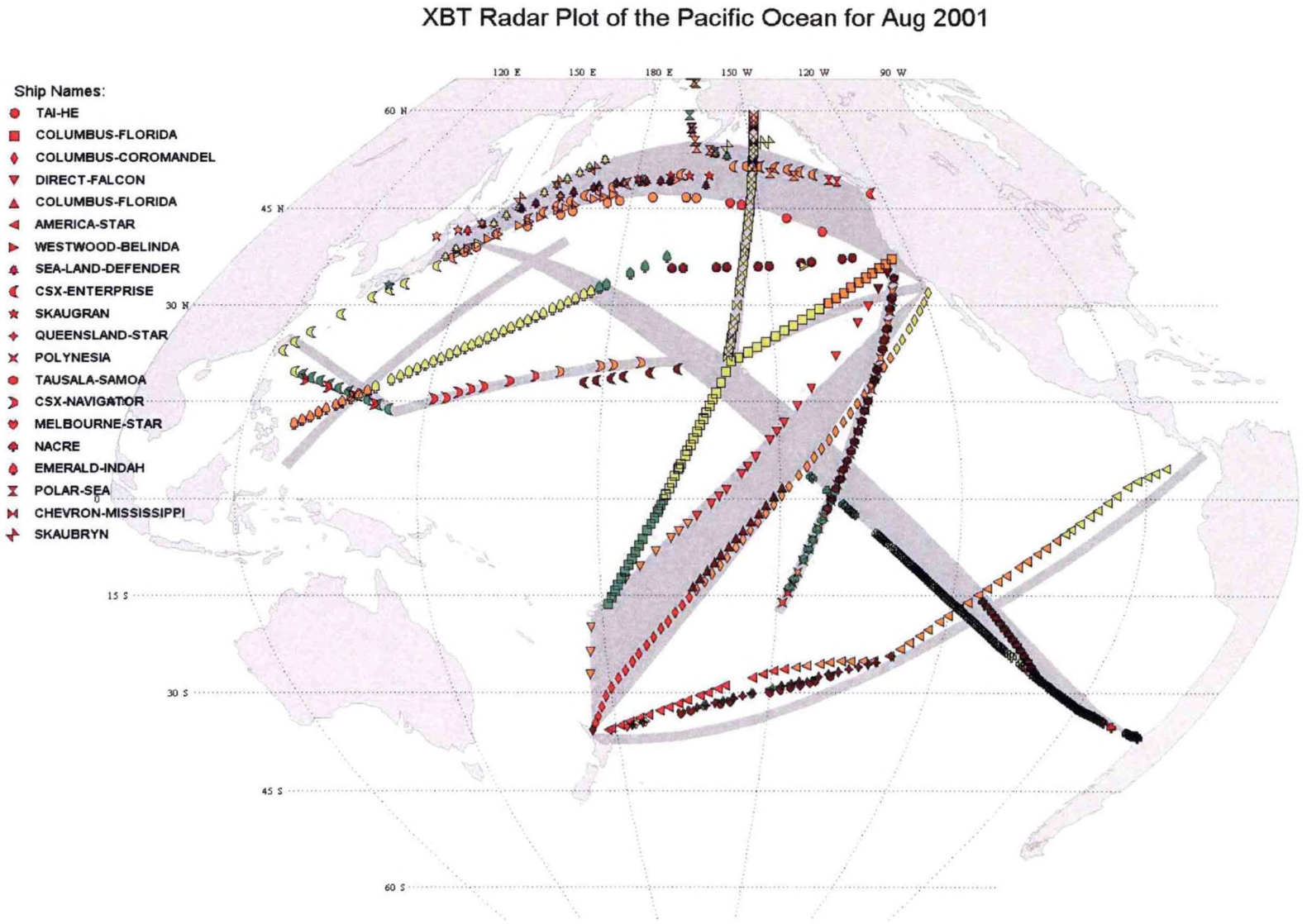
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
ROSSEL-CURRENT
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUGRAN
SKAUBRYN
QUEENSLAND-STAR
POLAR-SEA
EMERALD-INDAH
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
NACRE
RUBY-INDAH
SKAUBOARD
AMERICA-STAR
CHEVRON-MISSISSIPPI
LYDIA-OLDENDORFF
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

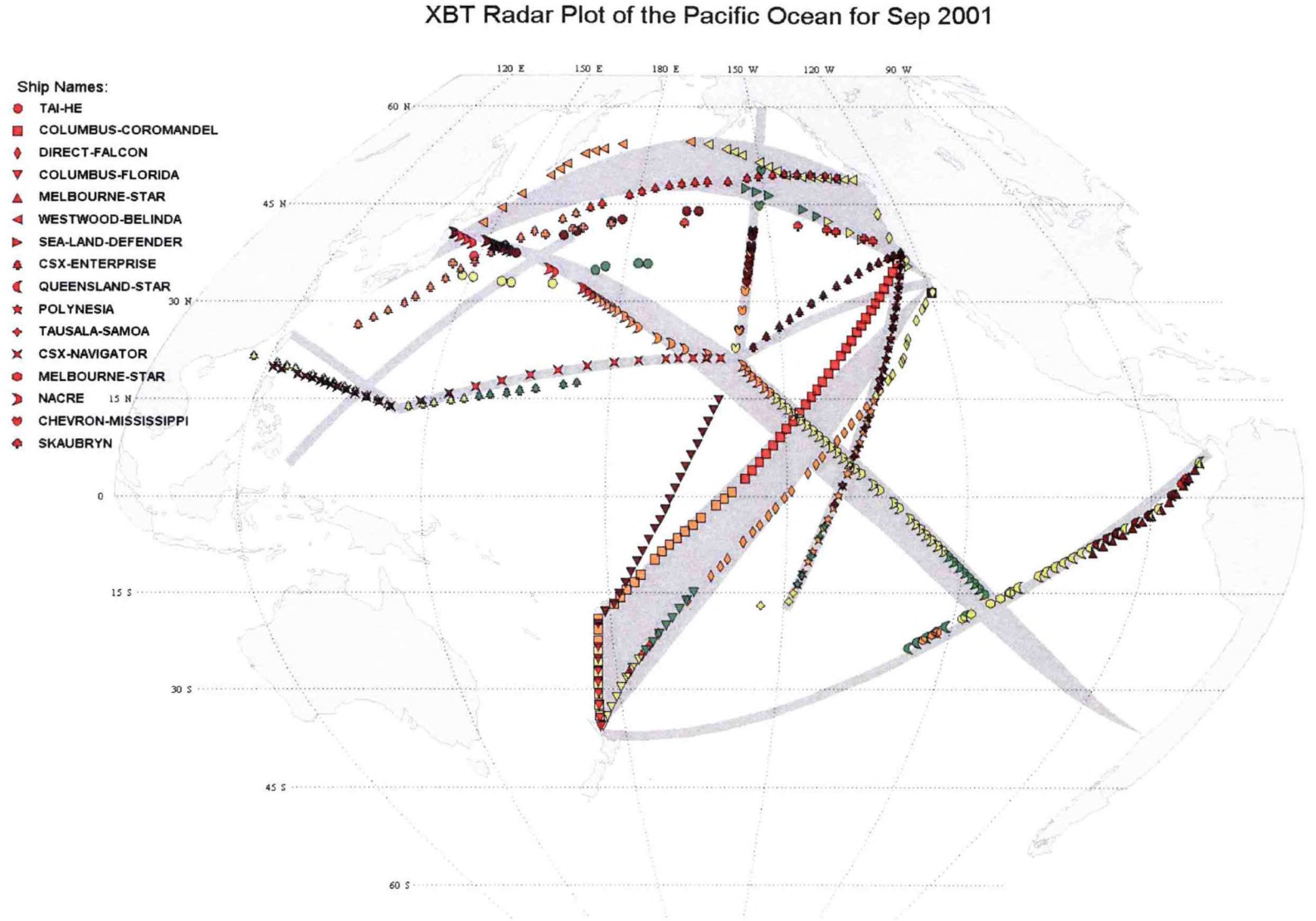

XBT Radar Plot of the Pacific Ocean for Apr 2001
Ship Names:
TAI-HE
WESTWOOD-BELINDA
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
MELBOURNE-STAR
ROSSEL-CURRENT
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUBRYN
QUEENSLAND-STAR
POLAR-SEA
EMERALD-INDAH
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
RUBY-INDAH
NACRE
CHEVRON-MISSISSIPPI
MCARTHUR
SKAUBOARD
LYDIA-OLDENDORFF
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

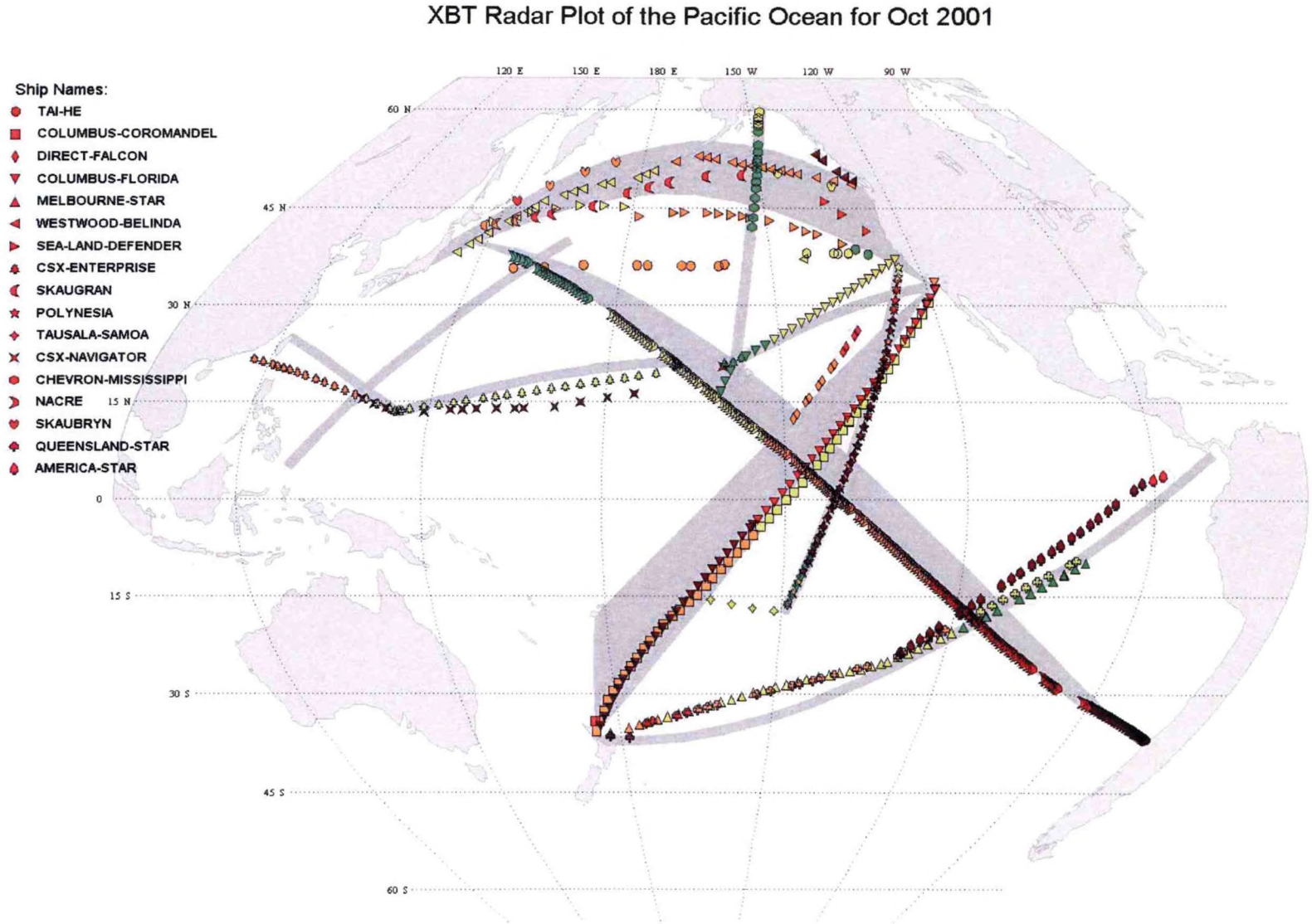

XBT Radar Plot of the Pacific Ocean for May 2001
Ship Names:
TAI-HE
WESTWOOD-BELINDA
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
MELBOURNE-STAR
ROSSEL-CURRENT
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUGRAN
SKAUBRYN
QUEENSLAND-STAR
EMERALD-INDAH
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
SKAUBOARD
NACRE
S-A-VAAL
RUBY-INDAH
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

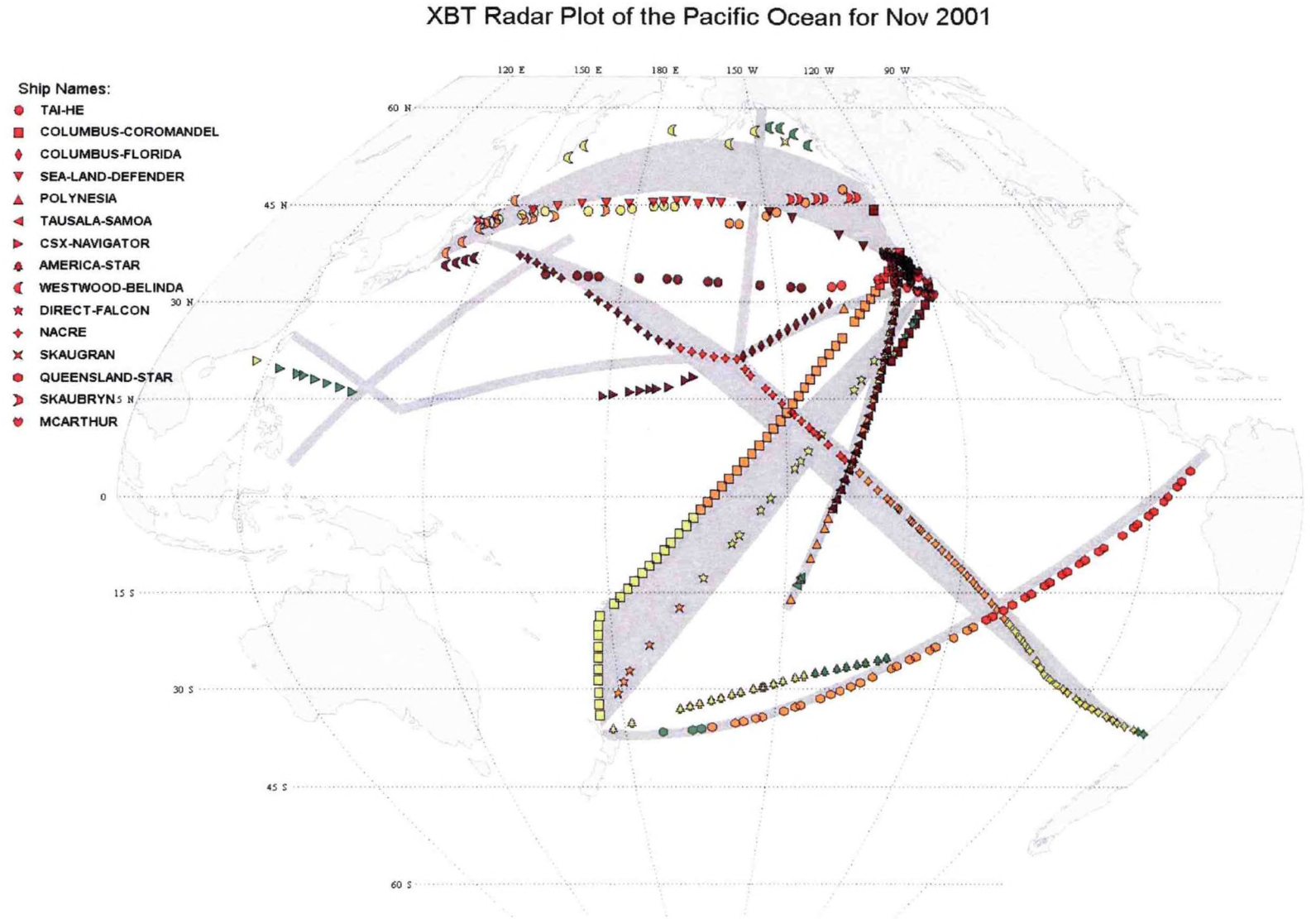

XBT Radar Plot of the Pacific Ocean for Jun 2001
Ship Names:
TAI-HE
WESTWOOD-BELINDA
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
ROSSEL-CURRENT
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUBRYN
QUEENSLAND-STAR
EMERALD-INDAH
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
NACRE
RUBY-INDAH
CHEVRON-MISSISSIPPI
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
0
15 S
30 S
45 S
60 S

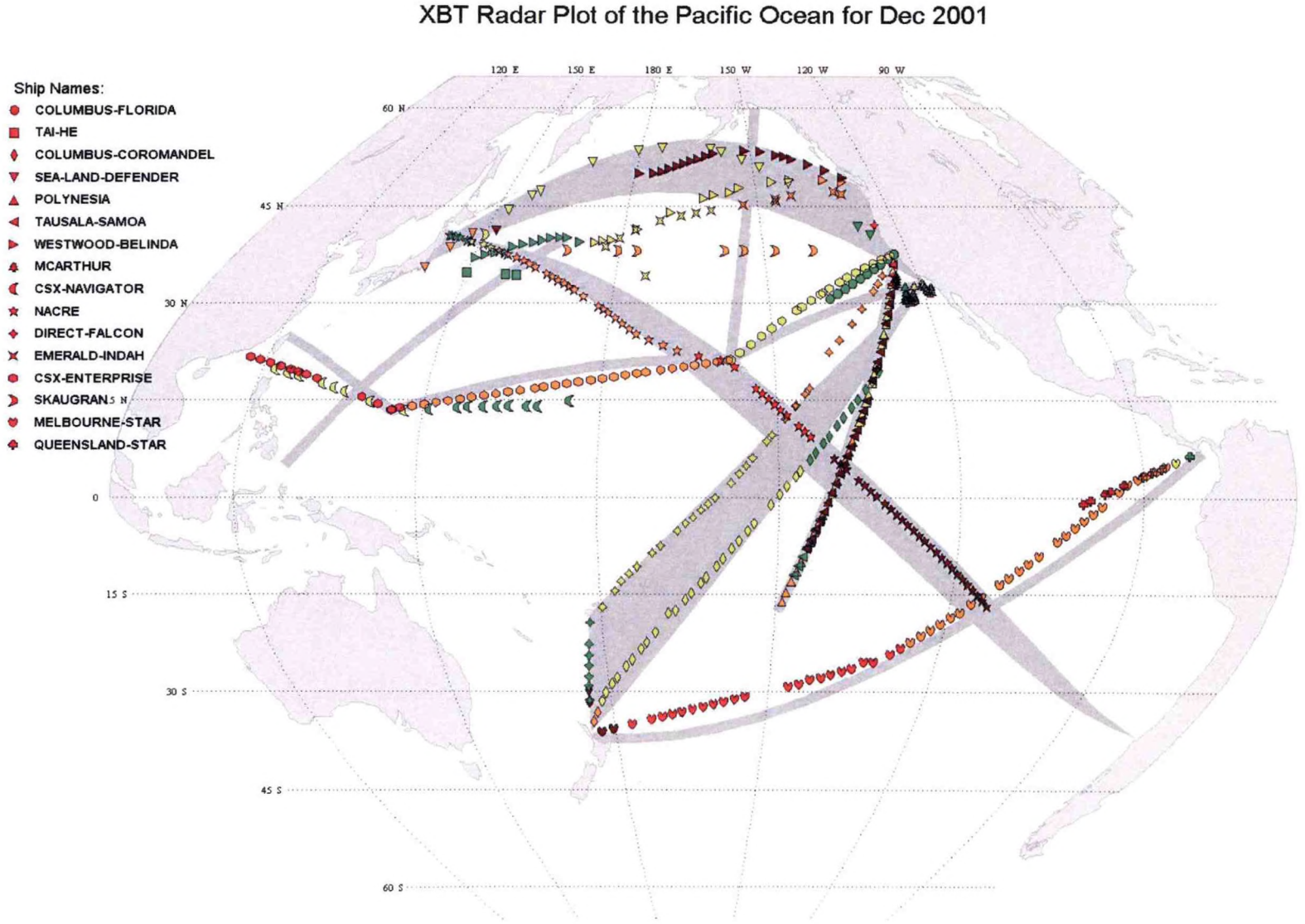

XBT Radar Plot of the Pacific Ocean for Jul 2001
Ship Names:
TAI-HE
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
MELBOURNE-STAR
WESTWOOD-BELINDA
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUGRAN
SKAUBRYN
QUEENSLAND-STAR
EMERALD-INDAH
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
NACRE
RUBY-INDAH
POLAR-SEA
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 S
30 S
45 S
60 S


XBT Radar Plot of the Pacific Ocean for Aug 2001
Ship Names:
TAI-HE
COLUMBUS-FLORIDA
COLUMBUS-COROMANDEL
DIRECT-FALCON
COLUMBUS-FLORIDA
AMERICA-STAR
WESTWOOD-BELINDA
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUGRAN
QUEENSLAND-STAR
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
MELBOURNE-STAR
NACRE
EMERALD-INDAH
POLAR-SEA
CHEVRON-MISSISSIPPI
SKAUBRYN
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 S
30 S
45 S
60 S


XBT Radar Plot of the Pacific Ocean for Sep 2001
Ship Names:
TAI-HE
COLUMBUS-COROMANDEL
DIRECT-FALCON
COLUMBUS-FLORIDA
MELBOURNE-STAR
WESTWOOD-BELINDA
SEA-LAND-DEFENDER
CSX-ENTERPRISE
QUEENSLAND-STAR
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
MELBOURNE-STAR
NACRE
CHEVRON-MISSISSIPPI
SKAUBRYN
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S


XBT Radar Plot of the Pacific Ocean for Oct 2001
Ship Names:
TAI-HE
COLUMBUS-COROMANDEL
DIRECT-FALCON
COLUMBUS-FLORIDA
MELBOURNE-STAR
WESTWOOD-BELINDA
SEA-LAND-DEFENDER
CSX-ENTERPRISE
SKAUGRAN
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
CHEVRON-MISSISSIPPI
NACRE
SKAUBRYN
QUEENSLAND-STAR
AMERICA-STAR
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

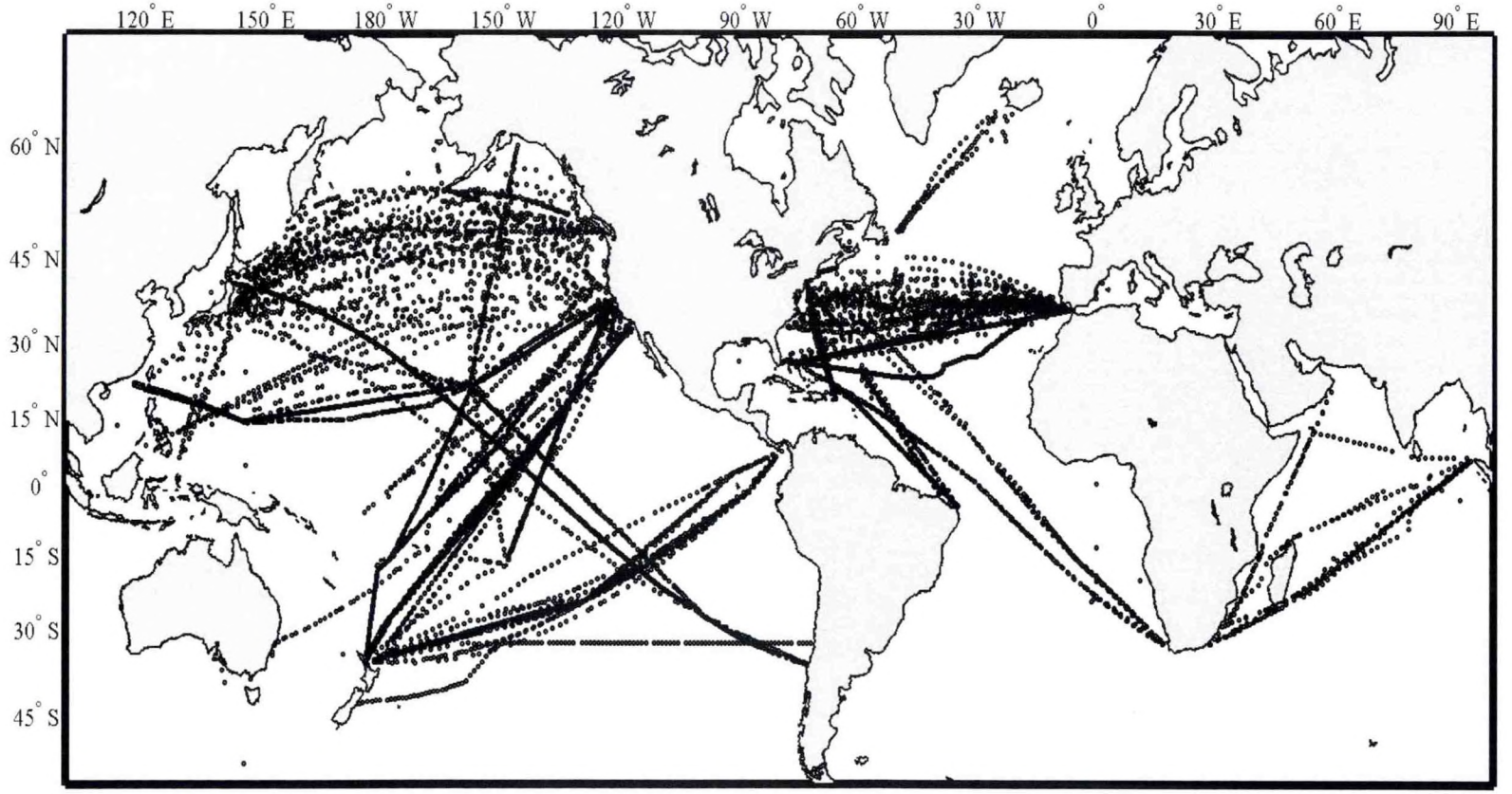

XBT Radar Plot of the Pacific Ocean for Nov 2001
Ship Names:
TAI-HE
COLUMBUS-COROMANDEL
COLUMBUS-FLORIDA
SEA-LAND-DEFENDER
POLYNESIA
TAUSALA-SAMOA
CSX-NAVIGATOR
AMERICA-STAR
WESTWOOD-BELINDA
DIRECT-FALCON
NACRE
SKAUGRAN
QUEENSLAND-STAR
SKAUBRYN
MCARTHUR
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S


XBT Radar Plot of the Pacific Ocean for Dec 2001
Ship Names:
COLUMBUS-FLORIDA
TAI-HE
COLUMBUS-COROMANDEL
SEA-LAND-DEFENDER
POLYNESIA
TAUSALA-SAMOA
WESTWOOD-BELINDA
MCARTHUR
CSX-NAVIGATOR
NACRE
DIRECT-FALCON
EMERALD-INDAH
CSX-ENTERPRISE
SKAUGRAN
MELBOURNE-STAR
QUEENSLAND-STAR
120 E
150 E
180 E
150 W
120 W
90 W
60 N
45 N
30 N
15 N
0
15 S
30 S
45 S
60 S

Data Collection

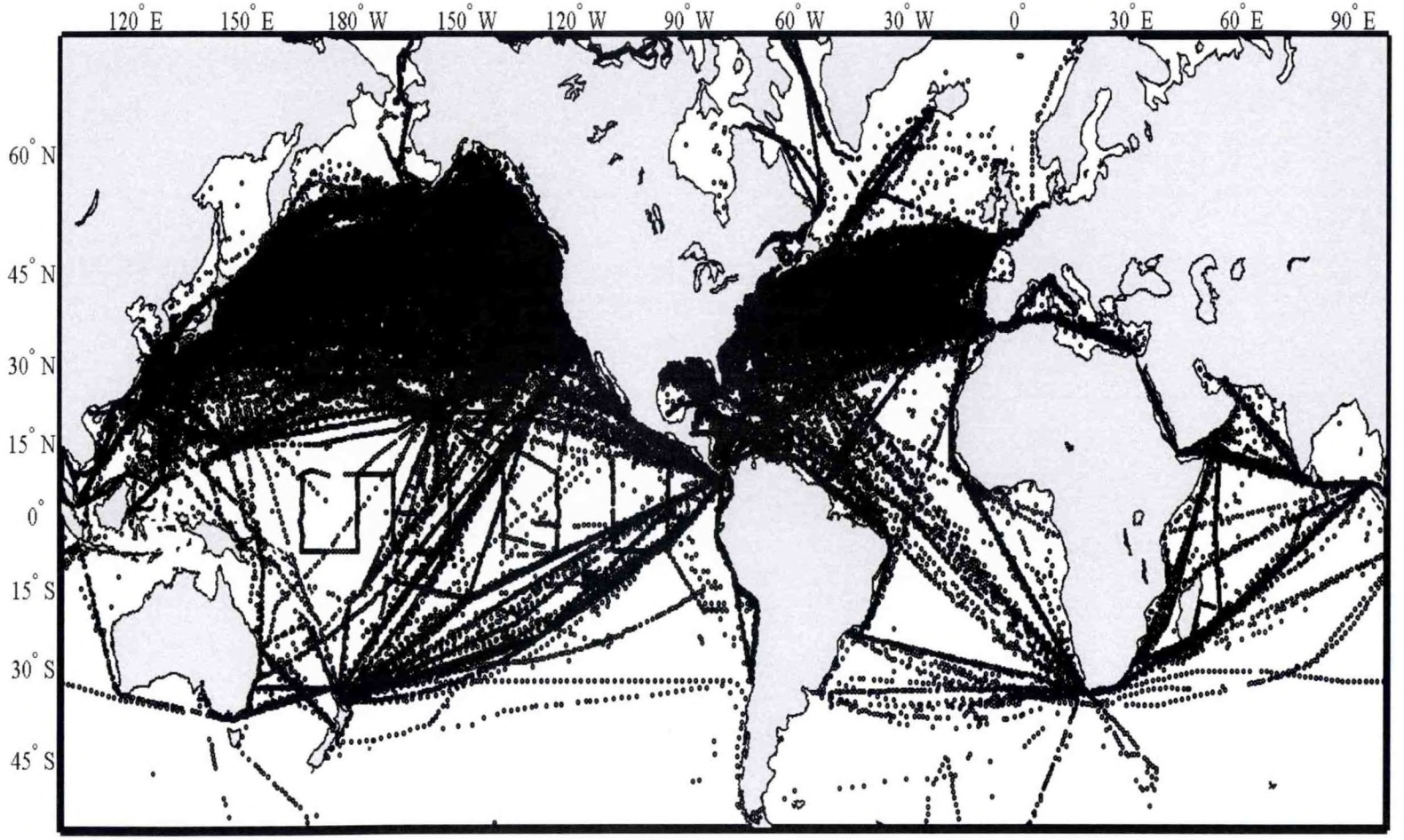
"Dot" plot of all XBT observations collected via SEAS during the year 2001

Total number of XBT observations = 10,256



"Dot" plot of all Meteorological observations collected via SEAS during the year 2000

Total number of SEAS Meteorological observations = 113,744



Key to Call Signs for the ships listed in the 2001 XBT Counts by Route tables:

3EZI6	NACRE
3FPA9	NUEVO LEON
3FRY9	LYKES COMMANDER
9KKF	AL SAMIDOON
9VND	RUBY INDAH
BOAB	TAI HE
C6CE7	WESTWOOD BELINDA
C6JY6	MELBOURNE STAR
DDFG	COLUMBUS FLORIDA
DDGY	COLUMBUS COROMANDEL
ELTZ3	COLUMBUS FLORIDA
ELXD6	LYDIA OLDENDORFF
ELYT5	DIRECT FALCON
FDAM	NEDLLOYD COLUMBO
GOVL	MELBOURNE STAR
GZKA	AMERICA STAR
J8FI6	ROSSEL CURRENT
KGJB	SEA-LAND DEFENDER
KIRF	CSX HAWAII
KRGB	CSX ENTERPRISE
LACF5	SKAUBOARD
LADB2	SKAUGRAN
LAJV4	SKAUBRYN
MQLN7	NOLIZWE
MZBM7	QUEENSLAND STAR
NRUO	POLAR SEA
PGDL	NEDLLOYD COLUMBO
PJJU	OLEANDER
PPXI	COPACABANA
S6ID	EMERALD INDAH
V2CA2	POLYNESIA
V2FA2	TAUSALA SAMOA
V2KS	TAUSALA SAMOA
V2PC4	VERACRUZ
V2XM	SKOGAFOSS
V7CW2	SAFMARINE NOLIZWE
WAUW	ENDEAVOR
WAUY	ENTERPRISE
WMLG	DELAWARE BAY
WPGK	CSX NAVIGATOR
WTEJ	MCARTHUR
WXBR	CHEVRON MISSISSIPPI
ZSDS	S A VAAL

The Chart below is a list showing the XBT routes and the number of XBTs collected by each VOS ship for each month during the year 2001. The number per year indicates the required number of XBTs that should be collected per year as mandated by the SOOPIP. The number per month indicates the required number of XBTs that should be collected per month per ship, for 4 samples collected per day and monthly resolution. The monthly totals indicate the actual number of XBTs collected per month.

2001 SEAS XBT COUNTS BY ROUTE

AS OF 10 FEB 2002

ATLANTIC OCEAN

Route AX02 Newfound to Iceland #/Year = 200 #/Mon = 17

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
V2XM	32	7	13	17	10	32	1	30	10	0	8	37	197

Route AX04 New York to Gibraltar/Lisbon #/Year = 440 #/Mon = 37

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
WAUW	43	13	28	28	43	30	17	9	11	10	18	10	260
WAUY	12	40	32	30	46	49	19	24	30	19	13	12	326
WMLG	22	23	34	28	35	41	27	19	23	28	22	38	340
Total	77	76	94	86	124	120	63	52	64	57	53	60	926

Route AX07 Gulf of Mexico to Gibraltar #/Year = 520 #/Mon = 43

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
3FPA9								30	41	49	22	10	152
3FRY9								231	3	43	11	202	490
V2PC4		153	94	0	130								377
Total	0	153	94	0	130	0	0	261	44	95	33	212	1019

Route AX08 New York to Cape of Good Hope #/Year = 960 #/Mon = 80

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
MQLN7	41												41
V7CW2		1	95	49	55	48	77	71	63				459
Total	41	1	95	49	55	48	77	71	63	0	0	0	500

Route AX10 New York to Trinidad/Caracas #/Year = 200 #/Mon = 17

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
KIRF	7	13	111	28	114	30	31	28	126	18	126	28	660

Route AX29 New York to Brazil #/Year = 360 #/Mon = 30

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
PPXI	36	29	40	33	37	44	33	26	40	19			337

Route AX32 New York to Bermuda #/Year = 120 #/Mon = 10

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
PJJU	33	6	24	23	28	0	1	23	31	20	18	25	232

INDIAN OCEAN

Route IX06 Maur./La Reunion to Malacca Strait #/Year = 340 #/Mon = 40

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
PGDL	4	22											26
ZSDS	17	22	21	15	16	20	20	0	1				132
Total	21	44	21	15	16	20	20	0	1	0	0	0	158

Route IX07 Cape of Good Hope to Persian Gulf #/Year =480 #/Mon = 40

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
9KKF		37	0	0	11	9							57
PGDL			13										13
Total	0	37	13	0	11	9	0	0	0	0	0	0	70

Route IX21 Cape of Good Hope to Mauritius #/Year = 300 #/Mon = 25

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
PGDL		16											16
ZSDS	22	0	11	3	5	7	5	4					57
Total	22	16	11	3	5	7	5	4	0	0	0	0	73

Route PX01 Seattle/Vancouver to Indonesia #/Year = 860 #/Mon = 72

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
9VND		3	5										8
KRGB		15	0	0	0	0	0	11	12				38
S6ID	23	0	0	14	47	13	5	42	0	0	0	3	147
WPGK		11											11
Total	23	29	5	14	47	13	5	53	12	0	0	3	204

Route PX06 Suva (Fiji) to Auckland #/Year = 160 #/Mon = 13

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
DDFG		9	0	5	0	10	23						47
DDGY	24	5	8	0	10	0	7	0	11	0	10	2	77
ELTZ3								0	9				9
ELYT5								3	0	0	0	7	10
Total	24	14	8	5	10	10	30	3	20	0	0	7	143

Route PX08 Auckland to Panama #/Year = 700 #/Mon = 58

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
C6JY6								11	8				19
GOVL		65	0	11	50	0	61	0	16	50	0	50	303
GZKA	43	0	53	0	0	0	0	58	0	25	24	0	203
MZBM7	34	22	40	29	55	36	38	31	31	33	50	9	408
Total	77	87	93	40	105	36	99	100	55	108	74	59	933

PX09 Hawaii to Fiji/Auckland #/Year = 440 #/Mon = 37

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
DDFG		23	0	22	0	24	0	44					113
ELTZ3									22	3			25
Total	0	23	0	22	0	24	0	44	22	3	0	0	138

Route PX10 Hawaii to Guam/Saipan #/Year = 440 #/Mon = 37

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
KRGB		18	22	21	17	7	24	6	13	20	0	30	178
WPGK	14	25	12	7	7	22	27	11	14	12	9	10	170
Total	14	43	34	28	24	29	51	17	27	32	9	40	348

Route PX13 New Zealand to California #/Year = 770 #/Mon = 64

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
DDFG	57	0	48	0	55	15	42						217
DDGY	0	0	0	52	5	50	0	52	0	51	8	39	257
ELTZ3	0	0	0	0	0	0	0	15	16	60	0	0	91
ELTY5	10	32	48	1	49	0	35	0	39	0	22	2	238
J8FI6			45	0	3	55							103
Total	67	32	141	53	112	120	77	67	55	111	30	41	906

Route PX18 Tahiti to California #/Year = 900 #/Mon = 75

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
DDFG	34												34
V2CA2	37	34	32	37	33	36	30	34	31	36	31	34	405
V2FA2	0	0	36	28	38	31	55	33	30	45	30	36	362
V2KS	35	34											69
Total	106	68	68	65	71	67	85	67	61	81	61	70	870

Route PX25 Valparaiso to Japan/Korea #/Year = 1,320 #/Mon = 110

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
3EZI6			49	40	69	15	160	151	8	222			714

Route PX26 Transpac to Transpac #/Year = 5,500 #/Mon = 458

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
9VND					12	24							36
BOAB	15	23	22	29	15	19	36	24	19	15	32	3	252
C6CE7	0	0	22	37	27	24	31	16	27	38	19	42	283
KGJB	38	41	47	13	15	33	15	28	10	22	20	17	299
KRGB	8	0	25	14	15	22	18	19	23	0	0	0	144
LACF5	0	0	25	15	3	0	0	0	0	0	0	0	43
LADB2	8	1	2	0	1	0	5	9	0	11	2	8	47
LAJV4	11	21	15	9	9	9	23	6	13	6	12	0	134
NRUO				0	0	0	4	16	0	0	0	0	20
S6ID				0	0	0	50	0	0	0	0	11	61
WPGK				7	0	2							9
Total	80	86	158	124	97	133	182	118	92	92	85	81	1328

Route PX28 Tahiti to Sydney/Auckland #/Year = 240 #/Mon = 20

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
DDGY			21										21

Route PX31 California to Noumea/Suva #/Year = 880 #/Mon = 73

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
DDFG						22							22
DDGY	29	79	5	0	36	7	47	0	49	0	45		297
ELYT5						6	1	26	0	12	0	31	76
Total	29	79	5	0	36	35	48	26	49	12	45	31	395

Route PX36 New Zealand to Antarctica #/Year = 400 #/Mon

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
NRUO	14	24	9										47

Route PX37 Hawaii to California #/Year = 250 #/Mon = 21

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
9VND			6										6
DDFG		17	0	19	0	0	0	23					59
DDGY			10	20	0	0	0	0					30
ELTZ3			0	0	0	0	0	0	0	21	13	13	47
KRGB			14	0	0	17	5	0	15	3	0	19	73
WPGK					4								4
Total	0	17	30	39	4	17	5	23	15	24	13	32	219

Route PX38 Hawaii to Alaska #/Year = 320 #/Mon = 27

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
WXBR	8	0	17	18	0	28	0	34	18	18			141

Route PX40 Hawaii to Japan #/Year = 450 #/Mon = 38

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
3EZI6	33	35	0	0	0	0	32	0	21	0	19	34	174

Route PX44 Taiwan to Guam #/Year = 160 #/Mon = 13

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
KRGB		7	14	8	3	0	0	11	13	17	0	11	84
WPGK	10	3	8	7	2	0	13	4	15	3	9	7	81
Total	10	10	22	15	5	0	13	15	28	20	9	18	165

Route PX50 Valparaiso to Auckland #/Year = 720 #/Mon = 60

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
ELDX6			91	18									109

Route PX81 Honolulu to Coronel (Chile) #/Year = 800 #/Mon = 67

Ship	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
3EZI6	16	35	18	0	0	28	7	26	40	0	65	38	273

Delayed Mode XBT Data Received at AOML from January through December 2001 and forwarded to the National Oceanographic Data Center (NODC) for archival

Call sign	Ship Name	Dates	# of Drops
3FRY9	LYKES COMMANDER	8/11/2001 - 8/19/2001	226
3FRY9	LYKES COMMANDER	8/27/2001 - 11/3/2001	65
3FPA9	TMM NUEVO LEON	8/24/2001 - 9/19/2001	74
3FPA9	TMM NUEVO LEON	9/24/2001 - 10/27/2001	56
BOAB	TAI HE	11/8/2000 - 12/13/2000	35
BOAB	TAI HE	12/20/2000 - 1/17/2001	32
BOAB	TAI HE	1/29/2001 - 3/1/2001	32
BOAB	TAI HE	3/11/2001 - 4/15/2001	35
BOAB	TAI HE	4/23/2001 - 5/29/01	31
BOAB	TAI HE	6/5/2001 - 7/9/2001	34
BOAB	TAI HE	7/16/2001 - 8/20/01	38
BOAB	TAI HE	8/27/2001 -10/3/2001	31
BOAB	TAI HE	10/8/2001 - 11/13/2001	31
C6CE7	WESTWOOD BELINDA	8/8/2000 - 8/17/2000	22
C6CE7	WESTWOOD BELINDA	3/8/2001 - 4/30/2001	65
C6CE7	WESTWOOD BELINDA	5/5/2001 - 6/25/2001	52
DDFG	COLUMBUS FLORIDA	11/26/2000 - 1/12/2001	115
DDFG	COLUMBUS FLORIDA	1/16/2001 - 3/2/2001	110
DDFG	COLUMBUS FLORIDA	3/6/2001 - 4/22/2001	94
DDFG	COLUMBUS FLORIDA	5/2/2001 - 6/18/2001	80
DDFG	COLUMBUS FLORIDA	6/27/2001 - 8/13/2001	82
DDGY	COLUMBUS COROMANDAL	8/5/2000 - 9/21/2000	124
DDGY	COLUMBUS COROMANDAL	10/10/2000 - 11/9/2000	68
DDGY	COLUMBUS COROMANDAL	11/14/2000 - 12/28/2000	123
DDGY	COLUMBUS COROMANDAL	1/16/2001 - 2/15/2001	61
DDGY	COLUMBUS COROMANDAL	2/19/2001 - 4/14/2001	115
DDGY	COLUMBUS COROMANDAL	4/1/2001 - 6/2/2001	115
DDGY	COLUMBUS COROMANDAL	6/14/2001 - 7/30/2001	104
DDGY	COLUMBUS COROMANDAL	8/9/2001 - 9/23/2001	110
DDGY	COLUMBUS COROMANDAL	9/26/2001 - 11/18/2001	109
DNMR	POLYNESIA	11/25/2000 - 12/23/2000	31
ELYT5	DIRECT FALCON	12/8/2000 - 12/23/2000	53
ELYT5	DIRECT FALCON	1/29/2001 - 2/8/2001	44
ELYT5	DIRECT FALCON	3/18/2001 - 4/26/01	49
ELYT5	DIRECT FALCON	5/17/2001 - 7/1/2001	56
ELYT5	DIRECT FALCON	7/12/2001 - 9/4/2001	67
ELYT5	DIRECT FALCON	9/6/2001 - 10/18/2001	48
ELZT3	COLUMBUS FLORIDA	8/28/2001 - 10/8/2001	87
ELZT3	COLUMBUS FLORIDA	10/17/2001 - 12/3/2001	86
GOVL	MELBOURNE STAR	9/14/2000 - 9/29/2000	58
GOVL	MELBOURNE STAR	11/30/2000 - 12/15/00	57
GOVL	MELBOURNE STAR	2/13/2001 - 2/28/01	65
GOVL	MELBOURNE STAR	4/28/2001 - 5/13/2001	61
GOVL	MELBOURNE STAR	7/12/2001 - 7/27/2001	61
GOVL	MELBOURNE STAR	9/22/2001 - 10/12/2001	66

Call sign	Ship Name	Dates	# of Drops
GZKA	AMERICA STAR	10/12/2000 - 10/27/2000	59
GZKA	AMERICA STAR	12/28/2000 - 1/12/01	59
GZKA	AMERICA STAR	8/8/2001 - 8/22/2001	58
H9IM	WESTWOOD BELINDA	7/10/2001 - 8/16/2001	47
H9IM	WESTWOOD BELINDA	9/5/2001 - 10/16/2001	60
J8FI6	ROSSEL CURRENT	11/4/2000 - 12/24/2000	108
J8FI6	ROSSEL CURRENT	1/22/2001 - 3/23/2001	102
J8FI6	ROSSEL CURRENT	4/14/2001 - 6/16/01	109
KGJB	SEA-LAND DEFENDER	11/19/2000 - 12/20/2000	46
KGJB	SEA-LAND DEFENDER	12/30/2000 - 2/7/2001	69
KGJB	SEA-LAND DEFENDER	2/11/2001 - 3/21/2001	45
KGJB	SEA-LAND DEFENDER	3/25/2001 - 5/1/2001	32
KGJB	SEA-LAND DEFENDER	5/3/2001 - 6/17/2001	42
KGJB	SEA-LAND DEFENDER	6/30/2001 - 7/20/2001	13
KGJB	SEA-LAND DEFENDER	7/26/2001 - 9/4/2001	44
KGJB	SEA-LAND DEFENDER	10/5/2001 - 10/15/2001	19
KGJB	SEA-LAND DEFENDER	10/21/2001 - 11/17/2001	23
KIRF	CSX HAWAII	8/3/2000 - 8/15/2000	20
KIRF	CSX HAWAII	10/28/2000 - 11/28/2000	38
KIRF	CSX HAWAII	3/3/2001 - 3/6/2001	99
KIRF	CSX HAWAII	3/17/2001 - 5/14/2001	55
KIRF	CSX HAWAII	5/26/2001 - 5/29/01	101
KIRF	CSX HAWAII	6/9/2001 - 7/24/2001	61
KIRF	CSX HAWAII	8/4/2001 - 8/21/2001	28
KIRF	CSX HAWAII	9/1/2001 - 9/4/2001	112
KIRF	CSX HAWAII	9/13/2001 - 10/7/2001	32
KIRF	CSX HAWAII	11/17/2001-11/20/2001	111
KRGB	SEALAND ENTERPRISE	1/14/2001 - 2/23/2001	62
KRGB	SEALAND ENTERPRISE	3/22/2001 - 3/30/2001	25
KRGB	SEALAND ENTERPRISE	4/10/2001 - 5/4/2001	53
KRGB	SEALAND ENTERPRISE	5/10/2001 - 6/8/2001	46
KRGB	SEALAND ENTERPRISE	6/17/2001 - 7/13/2001	19
KRGB	SEALAND ENTERPRISE	7/20/2001 - 8/17/2001	71
KRGB	SEALAND ENTERPRISE	8/18/2001 - 9/21/2001	70
KRGB	SEALAND ENTERPRISE	10/14/2001	1
KVWA	TEXAS CLIPPER	6/17/2000 - 6/29/2000	24
LADB2	SKAUGRAN	11/16/2000 - 3/23/2001	25
LADB2	SKAUGRAN	5/16/2001 - 10/23/2001	26
LAJV4	SKAUBRYN	11/8/2000 - 3/28/2001	53
LAJV4	SKAUBRYN	4/10/2001 - 7/21/2001	51
MQLN7	SAFMARINE NOLIZWE	12/7/2000 - 1/21/2001	198
MZBM7	QUEENSLAND STAR	9/28/2000 - 11/19/2000	125
MZBM7	QUEENSLAND STAR	12/21/2000 - 1/22/2001	92
MZBM7	QUEENSLAND STAR	2/1/2001 - 4/9/2001	91
MZBM7	QUEENSLAND STAR	5/6/2001 - 6/27/2001	91
MZBM7	QUEENSLAND STAR	7/14/2001 - 9/9/2001	96
NURO	USCGC POLAR SEA	11/3/2000 - 4/28/2001	164
PJJU	OLEANDER	1/6/2001 - 1/8/2001	33
PJJU	OLEANDER	3/9/2001 - 3/14/2001	24
PJJU	OLEANDER	4/7/2001 - 4/10/2001	22
PJJU	OLEANDER	5/4/2001 - 5/8/2001	28
PJJU	OLEANDER	8/3/2001 - 8/8/2001	23

Call sign	Ship Name	Dates	# of Drops
PJJU	OLEANDER	9/14/2001 - 9/19/01	31
PJJU	OLEANDER	10/11/2001 - 10/17/2001	12
PJJU	OLEANDER	11/10/2001 - 11/10/01	18
PPXI	COPACABANA	12/10/2000 - 2/8/2001	90
PPXI	COPACABANA	2/20/2001 - 3/15/01	37
PPXI	COPACABANA	3/27/2001 - 4/19/01	43
PPXI	COPACABANA	4/28/2001 - 5/25/2001	44
PPXI	COPACABANA	6/5/2001 - 6/28/2001	43
PPXI	COPACABANA	7/10/2001 - 7/31/2001	34
PPXI	COPACABANA	8/14/2001 - 9/11/2001	45
S6ID	EMERALD INDAH	11/24/1999 - 12/4/1999	17
S6ID	EMERALD INDAH	8/30/2000 - 10/14/2000	58
S6ID	EMERALD INDAH	12/20/2000 - 4/14/2001	131
S6ID	EMERALD INDAH	5/17/2000 - 7/17/2001	102
V2CA2	POLYNESIA	12/24/2000 - 1/2/2001	34
V2CA2	POLYNESIA	1/24/2001 - 1/31/2001	31
V2CA2	POLYNESIA	2/20/2001 - 2/28/2001	35
V2CA2	POLYNESIA	3/21/2001 - 3/29/2001	32
V2CA2	POLYNESIA	4/18/2001 - 4/26/01	49
V2CA2	POLYNESIA	5/16/2001 - 5/24/01	35
VC2A2	POLYNESIA	6/13/2001 - 6/22/2001	36
V2CA2	POLYNESIA	7/12/2001 - 7/20/01	30
V2CA2	POLYNESIA	8/10/2001 - 8/18/2001	34
V2CA2	POLYNESIA	9/9/2001 - 9/17/2001	31
V2CA2	POLYNESIA	10/9/2001- 10/17/2001	34
V2CA2	POLYNESIA	11/7/2001 - 11/15/2001	31
V2FA2	TAUSALA SAMOA	3/5/2001 - 3/13/2001	37
V2FA2	TAUSALA SAMOA	3/31/2001 - 4/10/2001	30
V2FA2	TAUSALA SAMOA	5/1/2001 - 5/19/01	34
V2FA2	TAUSALA SAMOA	5/31/2001 - 6/7/2001	32
V2FA2	TAUSALA SAMOA	6/30/2001 - 7/20/2001	35
V2FA2	TAUSALA SAMOA	7/24/2001 - 8/3/2001	33
V2FA2	TAUSALA SAMOA	8/26/2001 - 9/4/2001	31
V2FA2	TAUSALA SAMOA	9/24/2001 - 10/5/2001	37
V2FA2	TAUSALA SAMOA	10/24/2001 - 11/1/2001	35
V2KS	TAUSALA SAMOA	12/10/2000 - 12/18/2000	35
V2KS	TAUSALA SAMOA	12/27/2000 - 1/16/2001	42
V2KS	TAUSALA SAMOA	2/5/2001 - 2/13/2001	34
V2PC4	TMM VERACRUZ	2/22/2001 - 3/4/2001	248
V2XM	SKOGAFOSS	1/6/2001 - 1/7/2001	8
V2XM	SKOGAFOSS	1/8/2001 - 2/4/2001	33
V2XM	SKOGAFOSS	3/4/2001 - 3/4/2001	10
V2XM	SKOGAFOSS	3/5/2001 - 4/1/2001	10
V2XM	SKOGAFOSS	4/28/2001 - 4/29/01	9
V2XM	SKOGAFOSS	4/30/2001 - 5/27/01	11
V2XM	SKOGAFOSS	6/7/2001 - 6/24/2001	32
V2XM	SKOGAFOSS	7/23/2001 - 8/19/2001	31
V2XM	SKOGAFOSS	9/15/2001 - 9/16/2001	10
V2XM	SKOGAFOSS	11/10/2001 - 11/11/2001	8
V7CW2	SAFMARINE NOLIZWE	2/15/2001 - 3/17/2001	69
V7CW2	SAFMARINE NOLIZWE	3/26/2001 - 4/23/2001	76

Call sign	Ship Name	Dates	# of Drops
V7CW2	SAFMARINE NOLIZWE	5/11/2001 - 6/12/2001	85
V7CW2	SAFMARINE NOLIZWE	6/27/2001 - 7/30/2001	95
V7CW2	SAFMARINE NOLIZWE	8/16/2001 - 9/8/2001	87
WAUW	ENDEAVOR	9/11/2000 - 12/5/2000	76
WAUW	ENDEAVOR	12/12/2000 - 1/19/2001	51
WAUW	ENDEAVOR	1/25/2001 - 3/4/2001	39
WAUW	ENDEAVOR	1/25/2001 - 4/19/2001	77
WAUW	ENDEAVOR	4/28/2001 -6/4/2001	79
WAUW	ENDEAVOR	6/12/2001 - 7/13/2001	118
WAUW	ENDEAVOR	6/12/2001 - 8/27/2001	37
WAUW	ENDEAVOR	9/3/2001 - 11/22/2001	35
WAUY	ENTRPRISE	8/13/2000 - 11/3/2000	103
WAUY	ENTRPRISE	12/27/2000 - 2/13/2001	31
WAUY	ENTERPRISE	2/22/2001 - 3/28/2001	53
WAUY	ENTERPRISE	3/30/2001 - 5/6/2001	54
WAUY	ENTERPRISE	5/12/2001 - 6/16/2001	47
WAUY	ENTERPRISE	6/23/2001 - 9/9/2001	79
WAUY	ENTERPRISE	9/18/2001 - 10/25/2001	39
WMLG	DELAWARE BAY	11/3/2000 - 12/13/2000	52
WMLG	DELAWARE BAY	12/23/2000 - 2/2/2001	52
WMLG	DELAWARE BAY	3/28/2001 - 6/10/2001	107
WMLG	DELAWARE BAY	6/16/2001 -7/22/2001	40
WMLG	DELAWARE BAY	7/26/2001 - 9/2/2001	33
WMLG	DELAWARE BAY	9/9/2001 - 11/26/2001	66
WPGK	CSX NAVIGATOR	12/2/2000 - 12/23/2000	29
WPGK	CSX NAVIGATOR	1/17/2001 - 2/5/2001	43
WPGK	CSX NAVIGATOR	2/21/2001 - 3/2/2001	36
WPGK	CSX NAVIGATOR	3/24/2001 - 4/18/2001	33
WPGK	CSX NAVIGATOR	4/26/2001 - 5/9/2001	13
WPGK	CSX NAVIGATOR	6/5/2001 - 6/30/2001	25
WPGK	CSX NAVIGATOR	7/10/2001 - 7/21/2001	40
WPGK	CSX NAVIGATOR	8/16/2001 - 8/24/2001	15
WPGK	CSX NAVIGATOR	9/19/2001 - 9/30/2001	29
WPGK	CSX NAVIGATOR	10/24/2001 - 11/3/2001	24
WTDM	MILLER FREEMAN	8/5/2000	1
WZJF	SEALAND CRUSADER	3/18/2000 - 3/22/2000	19

Delayed Mode Meteorological Data Received at AOML and submitted to the National Climatic Data Center (NCDC) from January through December 2001

January 2001

Call Sign	Ship Name
BOAB	TAI-HE
ELYT5	DIRECT FALCON
KGJB	SEA LAND DEFENDER
PJJU	OLEANDER
S6ID	EMERALD INDAH
V2KS	TAUSALA-SAMOA
WPGK	CSX NAVIGATOR

February 2001

GOVL	MELBOURNE STAR
GZKA	AMERICA STAR
KGJB	SEALAND DEFENDER
KIRF	CSX HAWAII
KRGB	SEALAND ENTERPRISE
MQLN7	SAFMARINE NOLIZWE
MZBM7	QUEENSLAND STAR
PPXI	F/C COPACABANA
V2KS	TAUSALA SAMOA
WAUW	ENDEAVOR
WPGK	CSX NAVIGATOR

March 2001

BOAB	TAI HE
ELYT5	DIRECT FALCON
KGJB	SEA-LAND DEFENDER
PJJU	OLEANDER
V2CA2	POLYNESIA
V2KS	TAUSALA SAMOA
WPGK	CSX NAVIGATOR

CALL SIGN	SHIP NAME
APRIL 2001	
BOAB	TAI HE
KRGB	SEALAND DEFENDER
LAJV4	SKAUBRYN
PJJU	OLEANDER
V2FA2	TAUSALA SAMOA
V2XM	SKOGAFOSS
WPGK	CSX NAVIGATOR
MAY 2001	
C6CE7	WESTWOOD BELINDA
ELYT5	DIRECT-FALCON
KGJB	SEA-LAND DEFENDER
KRGB	CSX-ENTERPRISE
LADB2	M/V SKAUGRAN
PJJU	OLEANDER
S6ID	EMERALD INDAH
V2CA2	POLYNESIA
V2FA2	TAUSALA SAMOA
WPGK	CSX-NAVIGATOR
JUNE 2001	
BOAB	TAI-HE
KGJB	SEALAND DEFENDER
JULY 2001	
BOAB	TAI-HE
C6CE7	WESTWOOD BELINDA
ELYT5	DIRECT FALCON
GOVL	MELBOURNE STAR
GZKA	AMERICA STAR
KGJB	SEALAND DEFENDER
KIRF	CSX HAWAII
KRGB	SEALAND DEFENDER
LAJV4	SKAUBRYN
MZBM7	QUEENSLAND STAR

CALL SIGN	SHIP NAME
NRUO	USCGC POLAR SEA
PPXI	COPACABANA
S6ID	EMERALD INDAH
V2FA2	TAUSALA SAMOA
V7CW2	SAFMARINE NOLIZWE
WAUW	ENDEAVOR
WAUY	ENTERPRISE
WMLG	DELAWARE BAY
WPGK	CSX NAVIGATOR
WTDM	MILLER FREEMAN R-223

AUGUST 2001

BOAB	TAI-HE
H9IM	WESTWOOD BELINDA
KRGB	CSX-ENTERPRISE
V2FA2	TAUSALA-SAMOA
WPGK	CSX-NAVIGATOR

SEPTEMBER 2001

3FPA9	TMM NUEVO LEON
ELYT5	DIRECT FALCON
GOVL	MELBOURNE STAR
KGJB	SEALAND DEFENDER
MZBM7	QUEENSLAND STAR
PJJU	OLEANDER
V2FA2	TAUSALA SAMOA
V7CW2	SAFMARINE NOLIZWE
WAUW	ENDEAVOR
WAUY	ENTERPRISE
WMLG	DELAWARE BAY
WZJF	SEALAND CRUSADER

OCTOBER 2001

BOAB	TAI-HE
C6CE7	WESTWOOD BELINDA
KGJB	SEALAND DEFENDER

CALL SIGN	SHIP NAME
KRGB	SEALAND ENTERPRISE
NRUO	USCGC POLAR SEA
PJJU	OLEANDER
V2FA2	TAUSALA SAMOA
V7CW2	SAFMARINE NOLIZWE
WPGK	CSX NAVIGATOR
WTDM	MILLER FREEMAN R-223

NOVEMBER 2001

3FPA9	TMM NUEVO LEON
BOAB	TAI-HE
C6CE7	WESTWOOD BELINDA
ELYT5	DIRECT FALCON
H9IM	WESTWOOD BELINDA
KGJB	SEALAND DEFENDER
KRGB	SEALAND ENTERPRISE
V2FA2	TAUSALA SAMOA
V7CW2	SAFMARINE NOLIZWE
WPGK	CSX NAVIGATOR

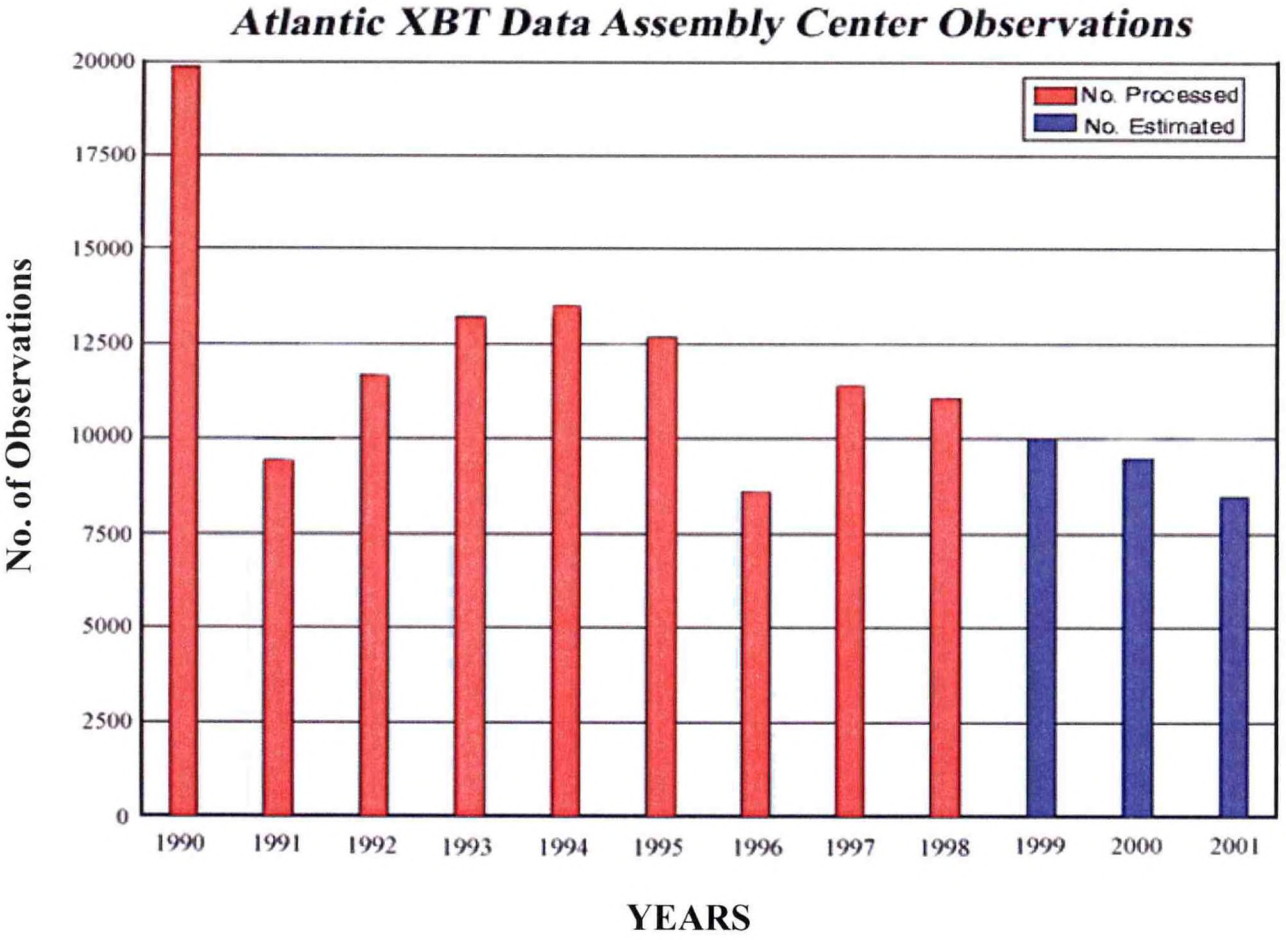
DECEMBER 2001

GOVL	MELBOURNE-STAR
GZKA	AMERICA-STAR
H9IM	WESTWOOD BELINDA
KIRF	CSX-HAWAII
KRGB	SEALAND ENTERPRISE
LADB2	M/V SKAUGRAN
MZBM7	QUEENSLAND STAR
PPXI	COPACABANA
WAUW	ENDEAVOR
WAUY	ENTERPRISE
WMLG	DELAWARE BAY
WPGK	CSX NAVIGATOR

Statistics

Atlantic XBT DAC review of delayed mode data

The Atlantic XBT Data Assembly Center at AOML is a component of the Global Temperature and Salinity Profile Program (GTSPP). The AOML DAC receives delayed mode data from NODC annually. It quality controls the data and returns the edited data to NODC for archiving. Scientific quality control of the delayed mode data has been completed for the years 1990 through 1998. Data collected in 1999 are currently being processed. Data collected from 2000 and 2001 are presently being collated at NODC. Since 1990, the Atlantic XBT DAC has processed and quality controlled over 110,000 observations (see figure below).



VOS/XBT VESSEL SAMPLING SCHEME FOR 2001

ATLANTIC

Line ID	Ship/Call Sign	Tran/Yr.	Mon. Req.	Ann. Req.	Trans.	Start
AX-4	Endeavor - WAUW	12	37	440	Std. C	>1990
	Delaware Bay - WMLG				Std. C	
AX-7	Contship America - 3EIP3	12	43	520	Std. C	>1990
	Morelos - PGBB	**HD/4**		920	GOES	
AX-8	Nolizwe - MQLN7	12	80	960	Std. C	>1990
	Nomzi - MTQU3				Std. C	
AX-10	CSX Hawaii - KIRF	12	17	200	Std. C	1992
		HD/4		400		
AX-29	Copacabana - PPXI	12	48	580	Std. C	>1990
AX-32	Oleander - PJJU	12	10	120		1971
AX-33	Skogafoss - V2XM	12	10	12		1974

Atlantic Total **4152**

Indian Ocean

Line ID	Ship/Call Sign	Tran/Yr.	Mon. Req.	Ann. Req.	Trans.	Start
IX-6	S. A. Oranje - ZSDN S.A. Vaal - ZSDS	12	28	340	GOES Std. C	1995
IX-7	Al Awdah - 9KWA Al Samidoon - 9KKF	12	40	480	Std. C Std. C	1995
IX-21	S. A. Oranje - ZSDN S.A. Vaal - ZSDS	12	15	180	GOES Std. C	1995
	Indian Ocean Total	**1000**				

Pacific Ocean

PX-1	Emerald Indah - S6ID Ruby Indah - 9VND	12	72	860	Std. C	>1975
PX-8	Melb. Star - GOVL Queen. Star - MZBM7	12	58	700	Std. C Std. C	>1975
PX-9	Col. Coromandel - PDGY	12	37	440	Std. C	>1975

Pacific Ocean (cont'd)

Line ID	Ship/Call Sign	Tran/Yr.	Mon. Req.	Ann. Req.	Trans.	Start
PX-10	CSX Enterprise - KRGB	12	37	440	Std. C	>1975
	CSX Navigator - WPGK	**SIO/HD**			Std. C	
PX-13	Col. Florida - DDFG	12	64	770	Std. C	>1975
	Col. Coromandel - PDGY				Std. C	
PX-18	Polynesia - V2CAZ	18	24	440	Std. C	>1975
	Tausala Samoa - V2KS				Std. C	
PX-25	Nacre - 3EZI6	12	110	1320	Std. C	1998
		SIO/HD				
PX-26	Tai He - BOAB	18	306	5500	Std. C	>1975
	S/L Defender - KGJB JMA				Std. C	
	West. Belinda - C6CE7	JMA			Std. C	
	Skaubryn - LAJV4	JMA			Std. C	
	Skaugran - LADB2	JMA			Std. C	
	Skaubord - LACF5	JMA				
PX-31	Col. Coromandel - PDGY	12	73	880	Std. C	>1975
PX-37	CSX Enterprise - KRGB	12	21	250	Std. C	>1975
	CSX Navigator - WPGK	**SIO/HD**			Std. C	
PX-38	Chev. Miss. - WXBR	12	27	320	Std. C	1998
		SIO/HD				
PX-40	Nacre - 3EZI6 12	38	450		Std. C	1999

Pacific Ocean (cont'd)

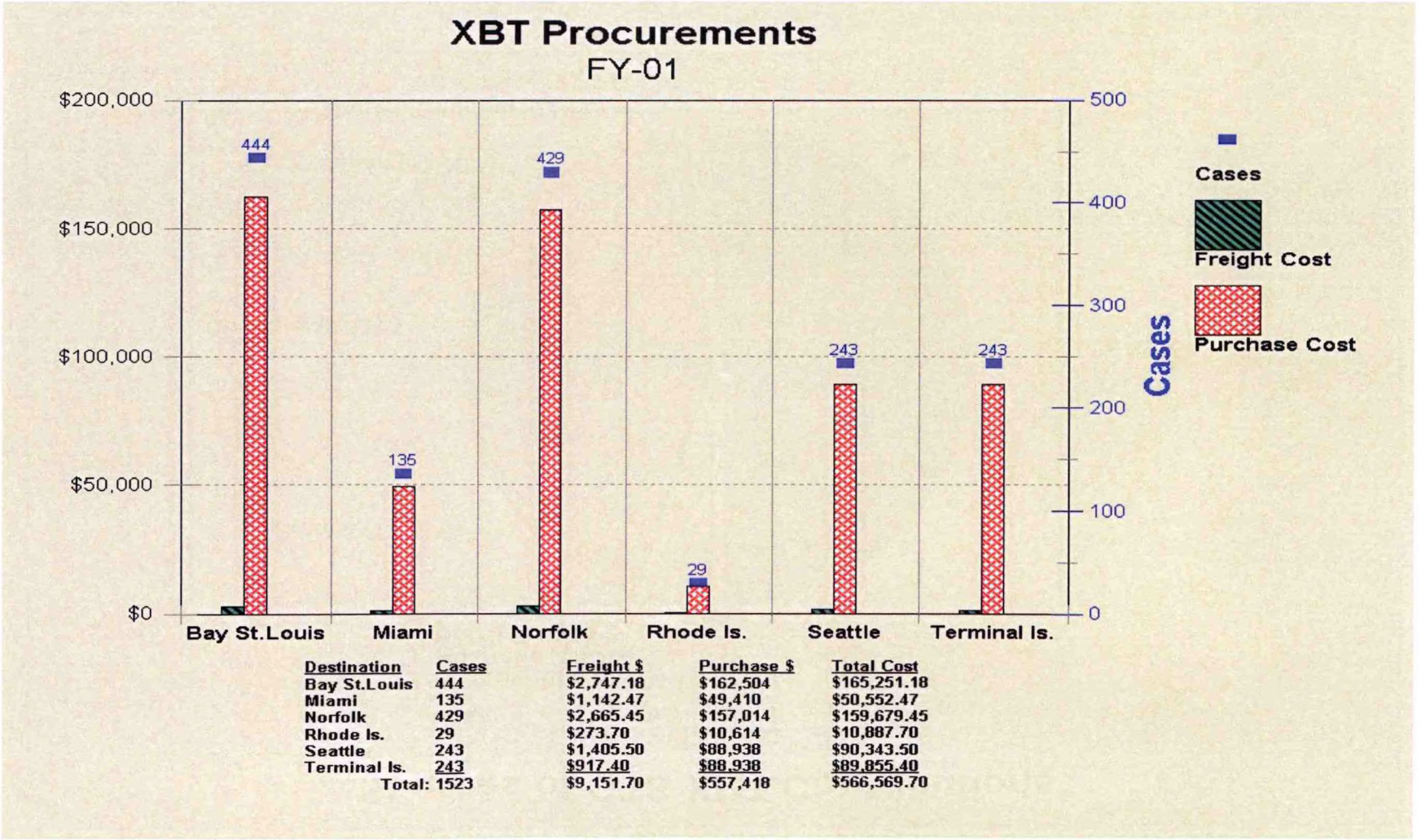
Line ID	Ship/Call Sign	Tran/Yr.	Mon. Req.	Ann. Req.	Trans.	Start
PX-44	CSX Enterprise - KRGB CSX Navigator - WPGK	12 **SIO/HD**	13	160	Std. C Std. C	1992
PX-38	Chev. Miss. - WXBR	12 **SIO/HD**	27	320	Std. C	1998
PX-40	Nacre - 3EZI6	12	38	450	Std. C	1999
PX-44	CSX Enterprise - KRGB CSX Navigator - WPGK	12 **SIO/HD**	13	160	Std. C Std. C	1992
PX-81	Nacre - 3EZI6	12 **SIO/HD**	67	800		

Pacific Total **7,830**

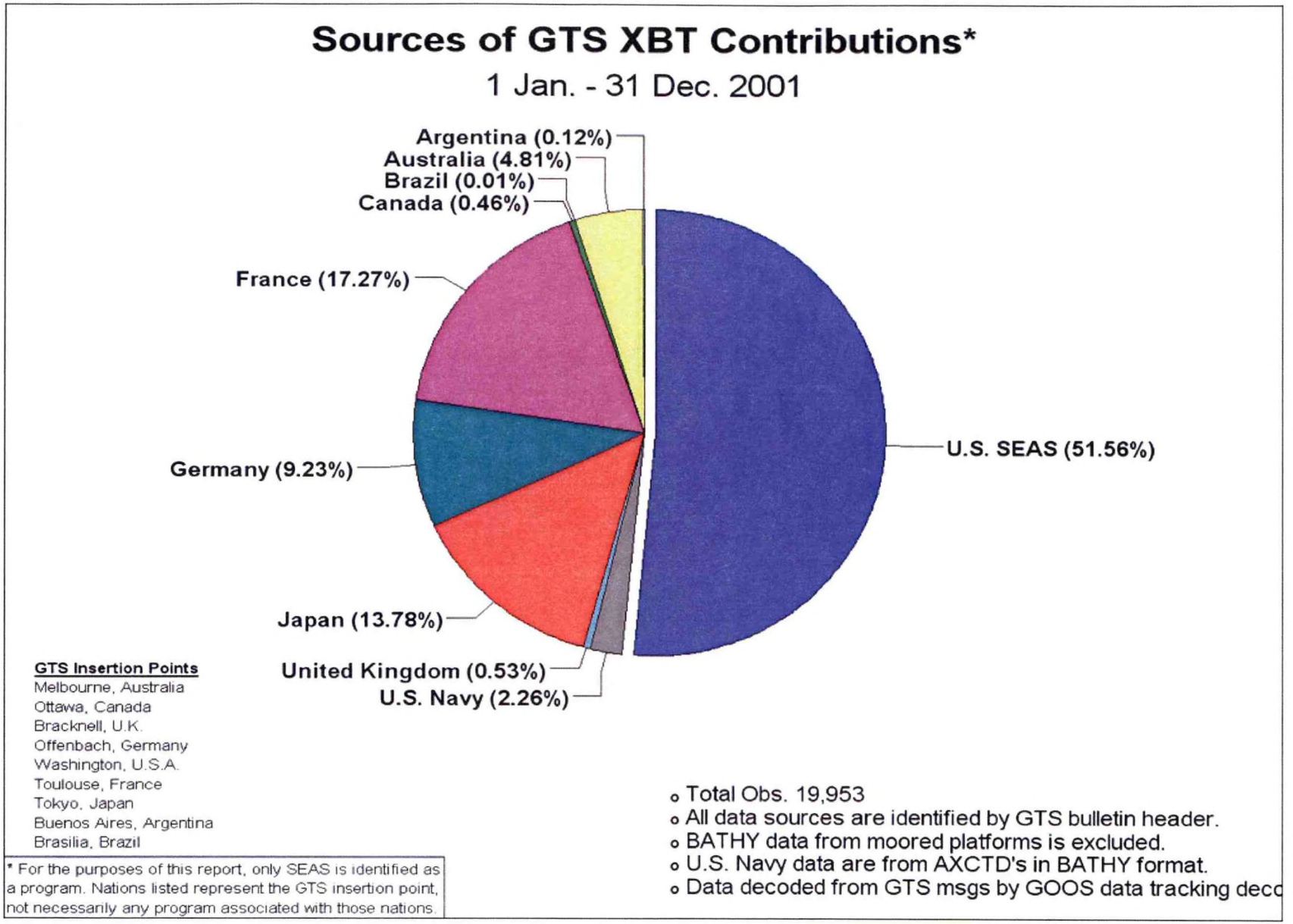
Total all Oceans **12,982**

XBT Procurements

XBT purchases and shipment costs for FY 2001. The GOOS Center purchases and ships XBTs to several national and international logistic centers to facilitate the re-supplying of our participating vessels. Additionally, the GOOS Center acts as the COTR (Contracting Officer Technical Representative) for these purchases thereby obtaining the most beneficial return for NOAA.

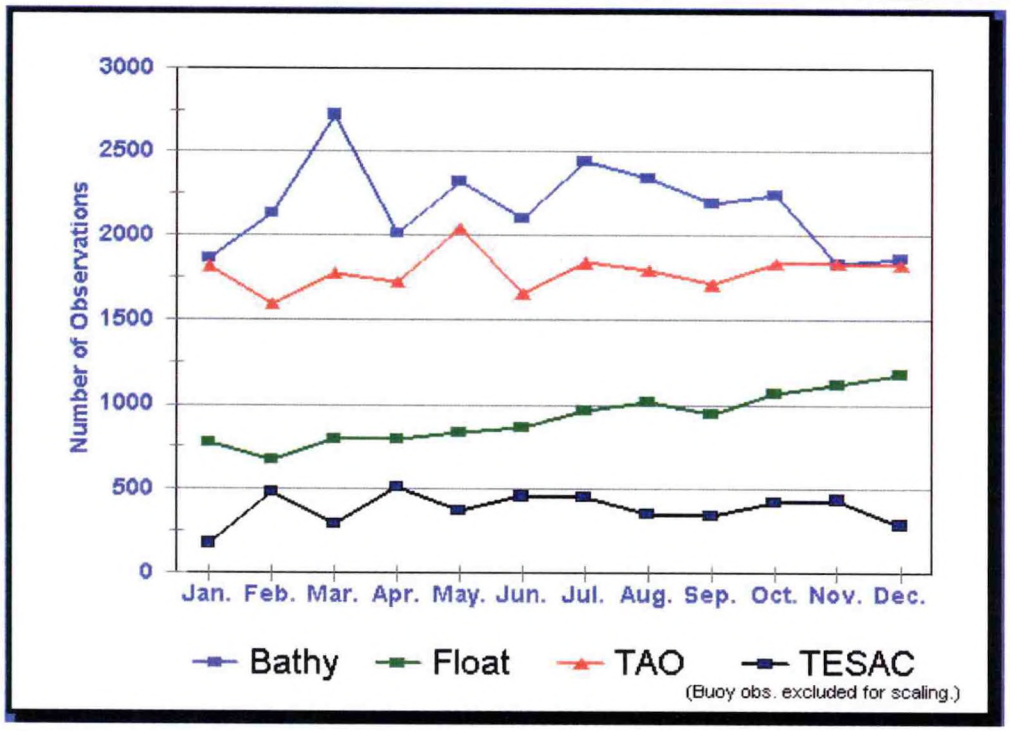


Destination	Cases	Freight $	Purchase $	Total Cost
Bay St.Louis	444	$2,747.18	$162,504	$165,251.18
Miami	135	$1,142.47	$49,410	$50,552.47
Norfolk	429	$2,665.45	$157,014	$159,679.45
Rhode Is.	29	$273.70	$10,614	$10,887.70
Seattle	243	$1,405.50	$88,938	$90,343.50
Terminal Is.	243	$917.40	$88,938	$89,855.40
Total:	1523	$9,151.70	$557,418	$566,569.70


Sources of GTS XBT Contributions*
1 Jan. - 31 Dec. 2001
Argentina (0.12%)
Australia (4.81%)
Brazil (0.01%)
Canada (0.46%)
France (17.27%)
Germany (9.23%)
Japan (13.78%)
United Kingdom (0.53%)
U.S. Navy (2.26%)
U.S. SEAS (51.56%)
GTS Insertion Points
Melbourne, Australia
Ottawa, Canada
Bracknell, U.K.
Offenbach, Germany
Washington, U.S.A.
Toulouse, France
Tokyo, Japan
Buenos Aires, Argentina
Brasilia, Brazil
* For the purposes of this report, only SEAS is identified as a program. Nations listed represent the GTS insertion point, not necessarily any program associated with those nations.
o Total Obs. 19,953
o All data sources are identified by GTS bulletin header.
o BATHY data from moored platforms is excluded.
o U.S. Navy data are from AXCTD's in BATHY format.
o Data decoded from GTS msgs by GOOS data tracking decc

2001 Summary of GTS Subsurface Data

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Bathy	1862	2130	2720	2014	2322	2104	2445	2345	2190	2239	1834	1864	26069
Buoy	2147	6837	13478	15219	15248	12004	14449	12177	8383	8415	8786	9285	126428
Float	775	671	795	796	834	868	963	1016	949	1068	1114	1180	11029
TAO	1815	1586	1771	1721	2040	1654	1835	1793	1705	1834	1828	1821	21403
TESAC	176	486	287	513	371	458	452	350	340	423	437	286	4579
Totals:	6775	11710	19051	20263	20815	17088	20144	17681	13567	13979	13999	14436	189508



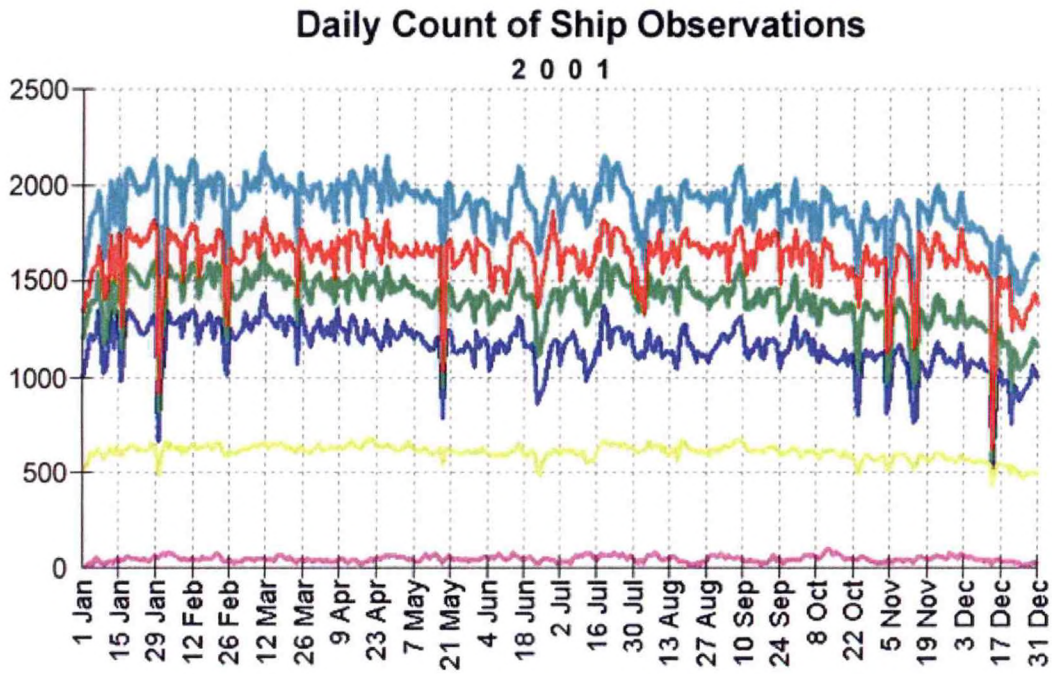
The Global Telecommunications System (GTS) is the source of all marine data displayed on these plots. In order to facilitate the exchange of data, observations are encoded into a set of internationally agreed upon formats. Knowledge of these formats and the operational data collection programs enable database designers to classify incoming records.

The terms BATHY, BUOY, and TESAC refer to the World Meteorological Organization (WMO) coded formats for data exchange. All of the subsurface data identified in this report originates in one of these formats. TAO and Float program observations are received in BUOY and TESAC format respectively. They are distinguished from other observations arriving in these formats because more is known about the programs supporting those data.

BATHY format is typically associated with XBT observations and is characterized by five digit depth/temperature groups. It is important to recognize that not all BATHY observations are from XBT's. Fixed platforms equipped with thermistors also report in BATHY format. The format has only limited meteorological information associated with it.

BUOY format is the most comprehensive format decoded. It permits an extensive list of atmospheric variables as well as oceanographic information. The oceanographic variables include depth/temperature/salinity as well as surface temperature and drift. TAO observations are received in BUOY format.

TESAC format is used when any combination of depth/temperature/salinity/current data is known. There is no accommodation for atmospheric information in the code. TESAC observations are associated with CTD's and profiling floats.



Legend values are decoded from various GTS formatted messages by the GOOS decoders.