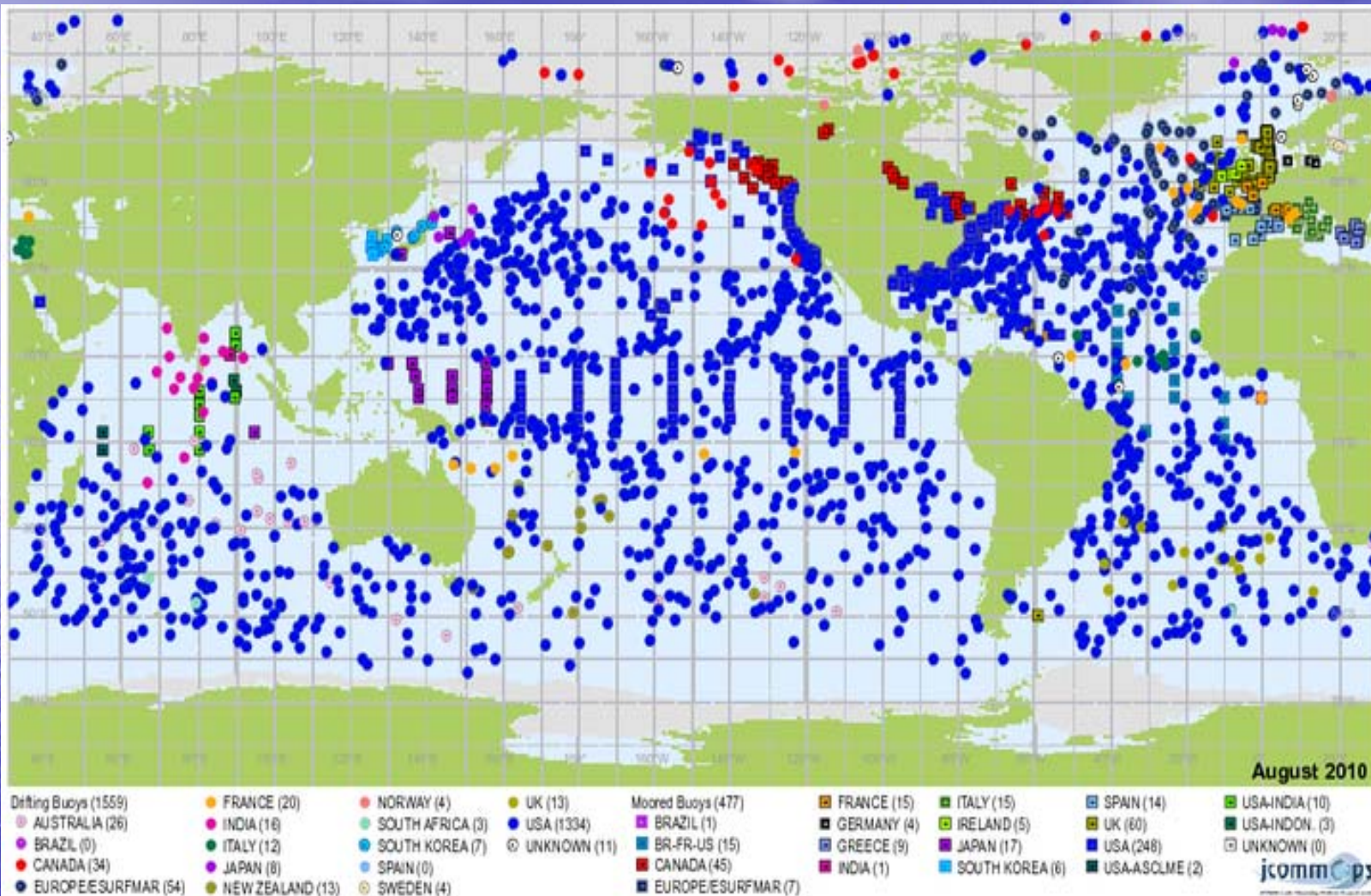


Port Meteorological Officer Conference (PMO-IV) Deployment Trends

Al Wallace, Chairperson
Data Buoy Cooperation Panel

Outline

- Data Buoy Cooperation Panel
- Ocean Observing
- Drifting Buoys
- Trends
 - Types and numbers
 - Ships
 - Drogues and Failures
- Data
- PMOs



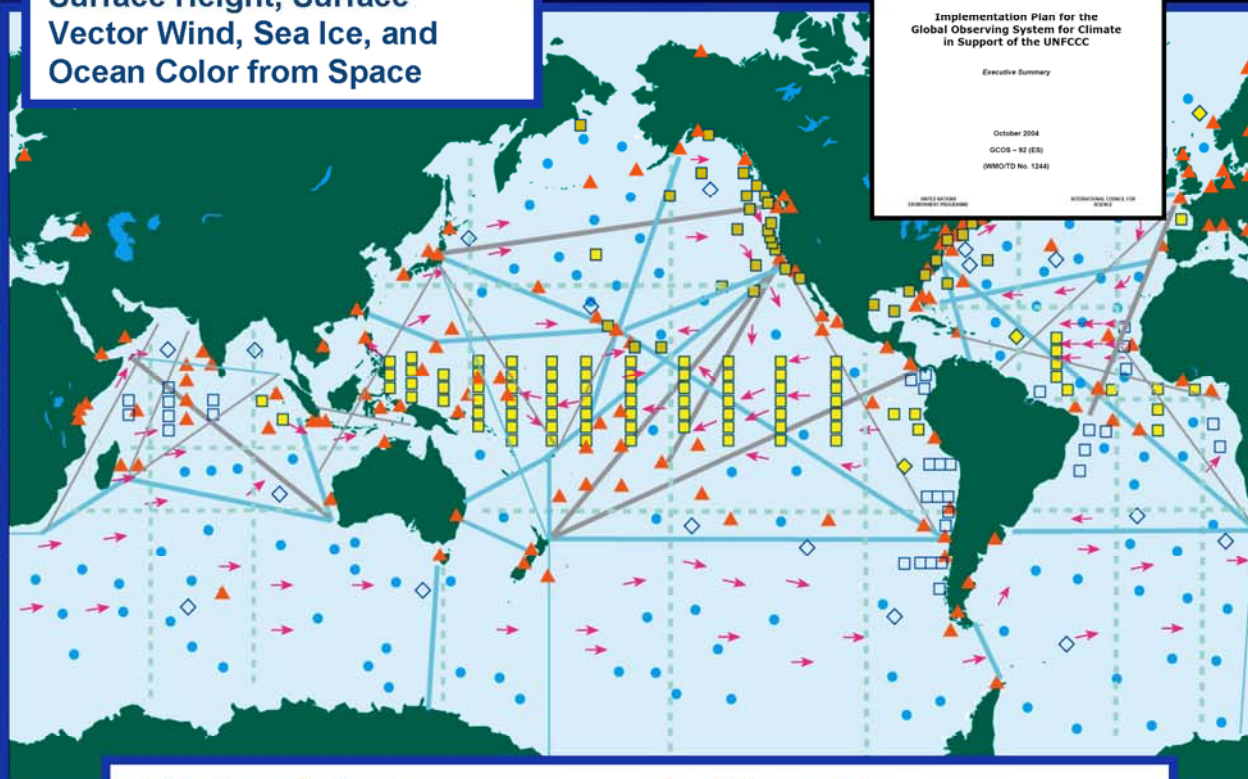
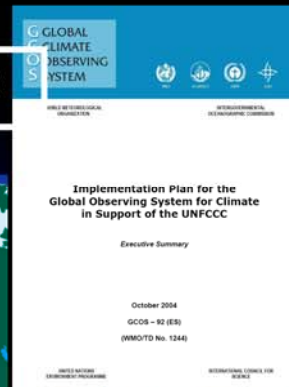
Data Buoy Cooperation Panel

- Established 1985 – a joint body of the WMO and IOC, data buoy component of JCOMM
- International program to coordinate the use of data buoys to observe, collect and distribute meteorological and oceanographic conditions in the world's oceans
- Improve quantity, quality, timeliness and coverage of observations for use in prediction programs
- Analyses requirements and provides international liaison and a forum for discussion
- Good working relationship with manufacturers
- > 1250 drifting buoys and > 400 moored buoys

Global Ocean Observing System for Climate Now 56% complete.

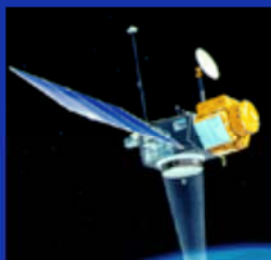
Sea Surface Temperature, Sea Surface Height, Surface Vector Wind, Sea Ice, and Ocean Color from Space

GCOS-92



Tide Gauge Network
 3°x3° Argo Profiling Float Array
 5°x5° Surface Drifting Buoy Array
 Moored Buoy
 Ocean Reference Station
 High Resolution XBT and Flux Line
 Frequently Repeated XBT Line
 Carbon Inventory & Deep Ocean Line

▲ 42% complete
 ● 81% complete
 → 100% complete
 ■ 66% Existing □ Planned
 ◆ 35% Existing ◇ Planned
 — Existing — Planned
 ■ ■ Global Survey @ 10 years



Drifting Buoy 1250 Deployment

September 18, 2005 Halifax Canada



2009



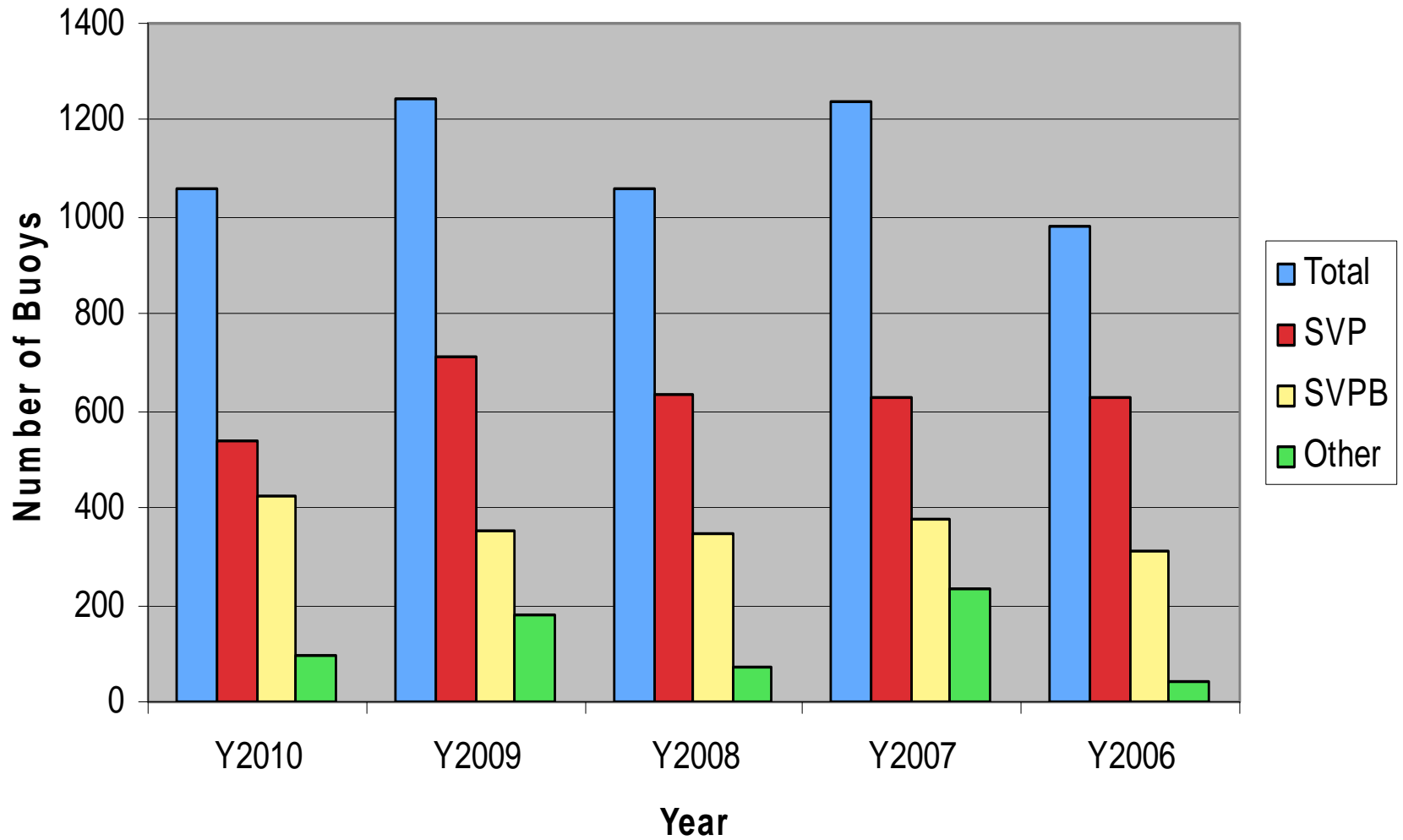
2010



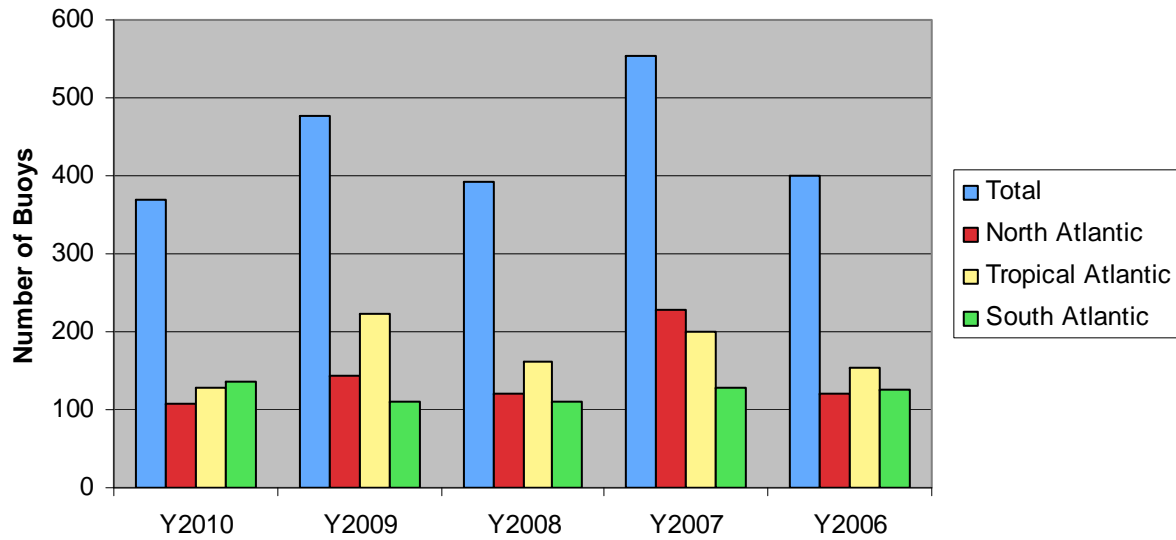
December 10, 2010

PMO-IV, Orlando FL

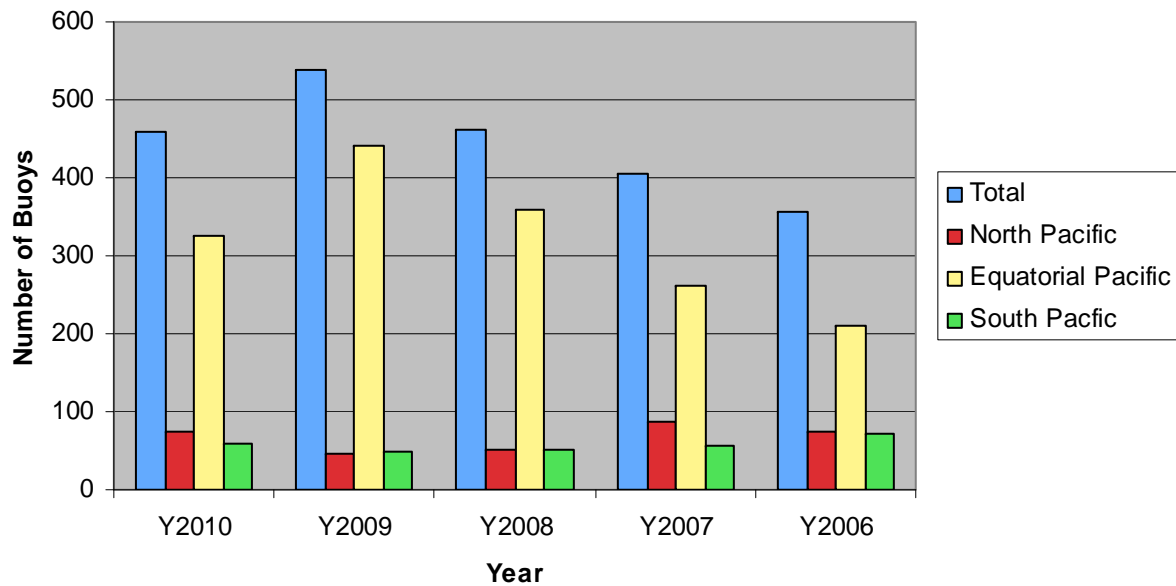
GDP Deployments 2006-2010

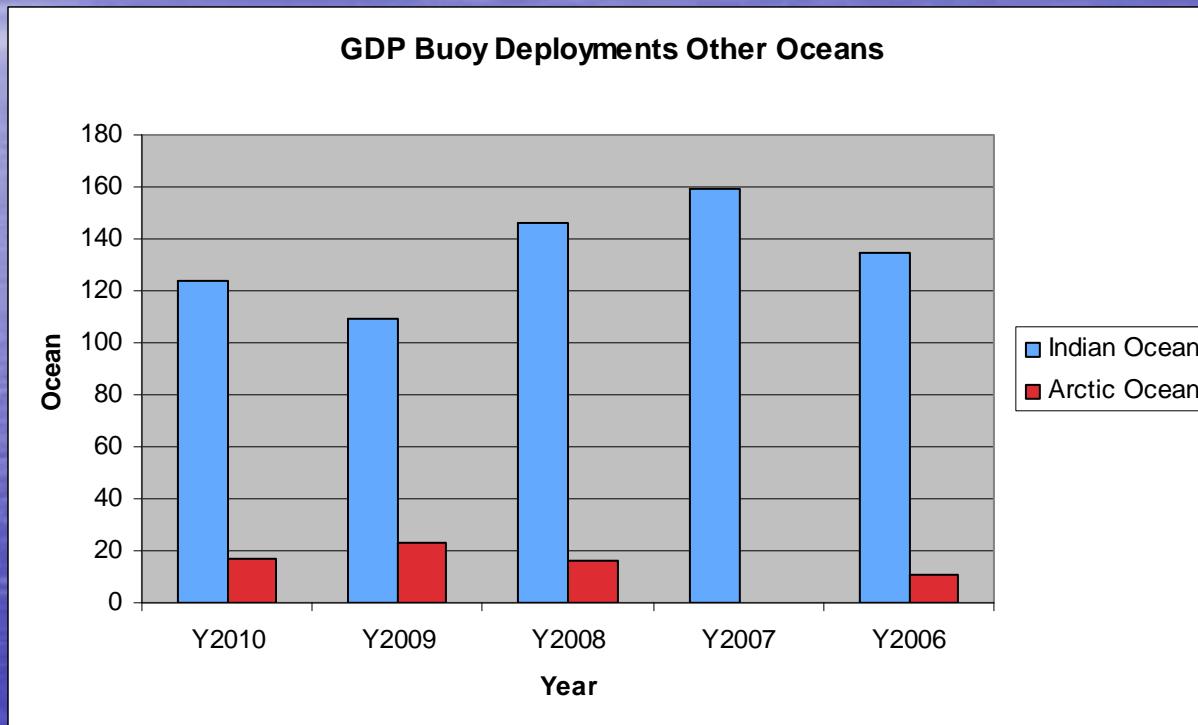


GDP Buoy Deployments Atlantic Ocean



GDP Buoy Deployments Pacific Ocean



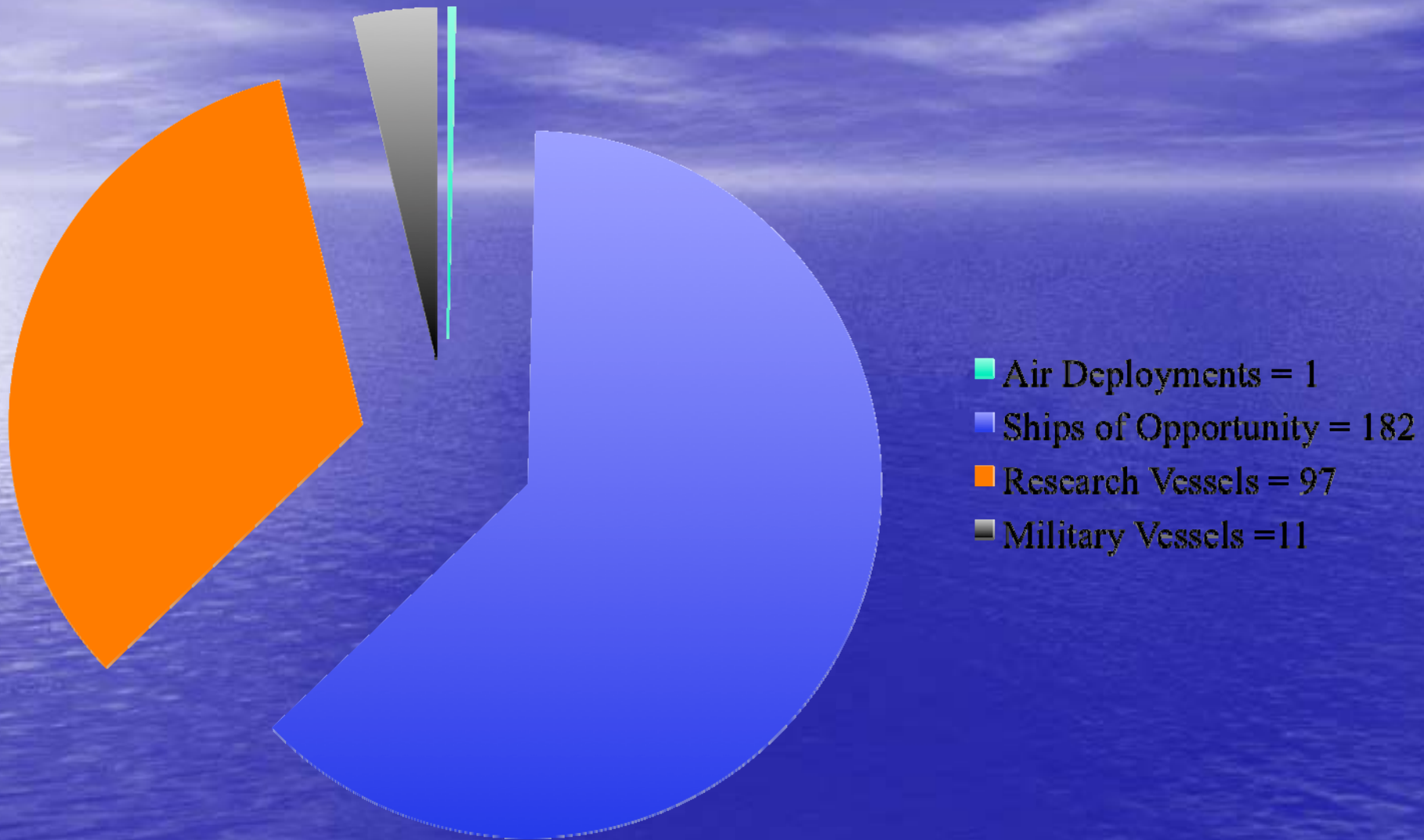


Drifter Deployments (CY06-CY10)

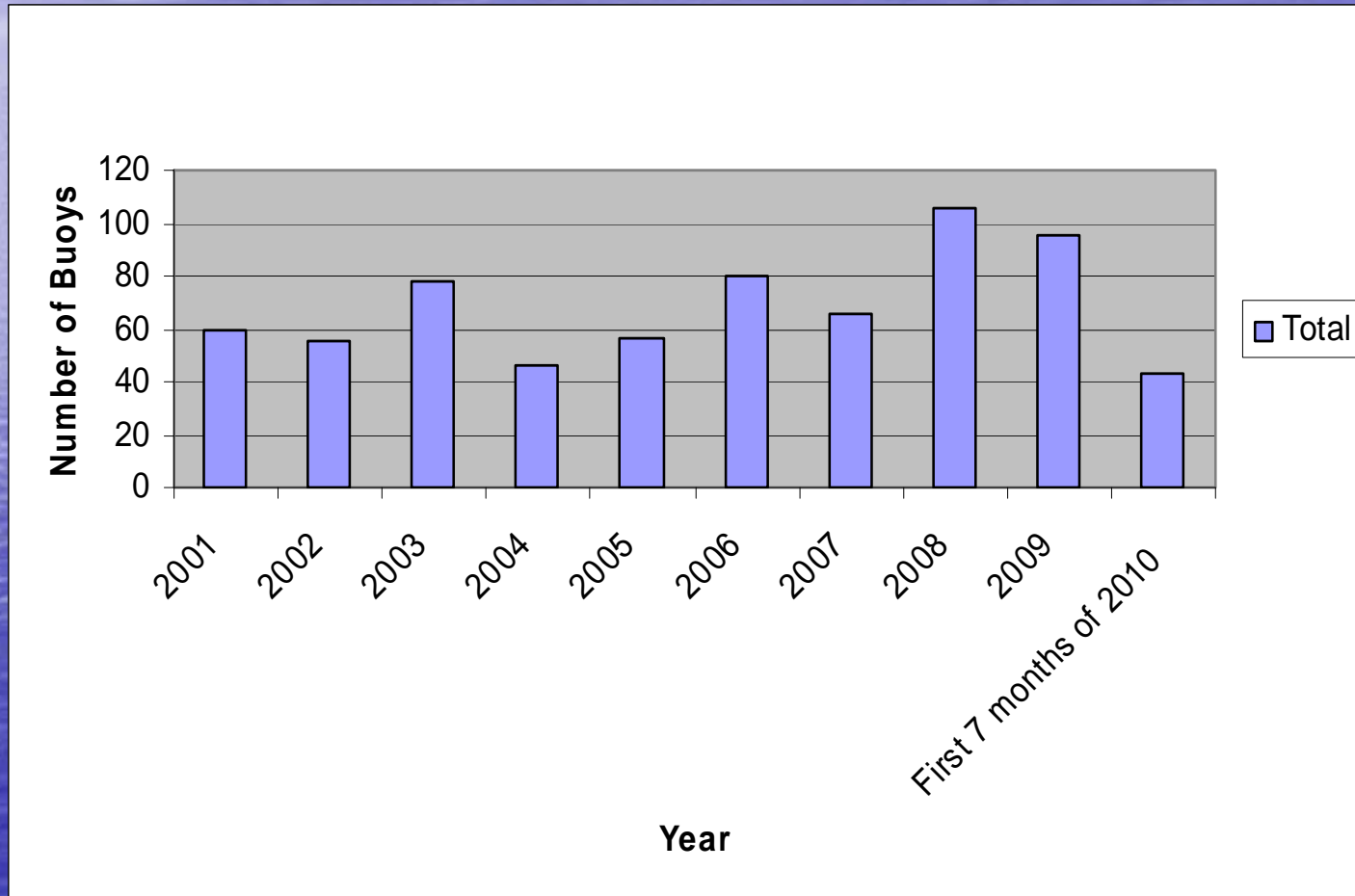


- Air Deployments = 45
- Ships of Opportunity = 1922
- Research Vessels = 2898
- Military Vessels = 400

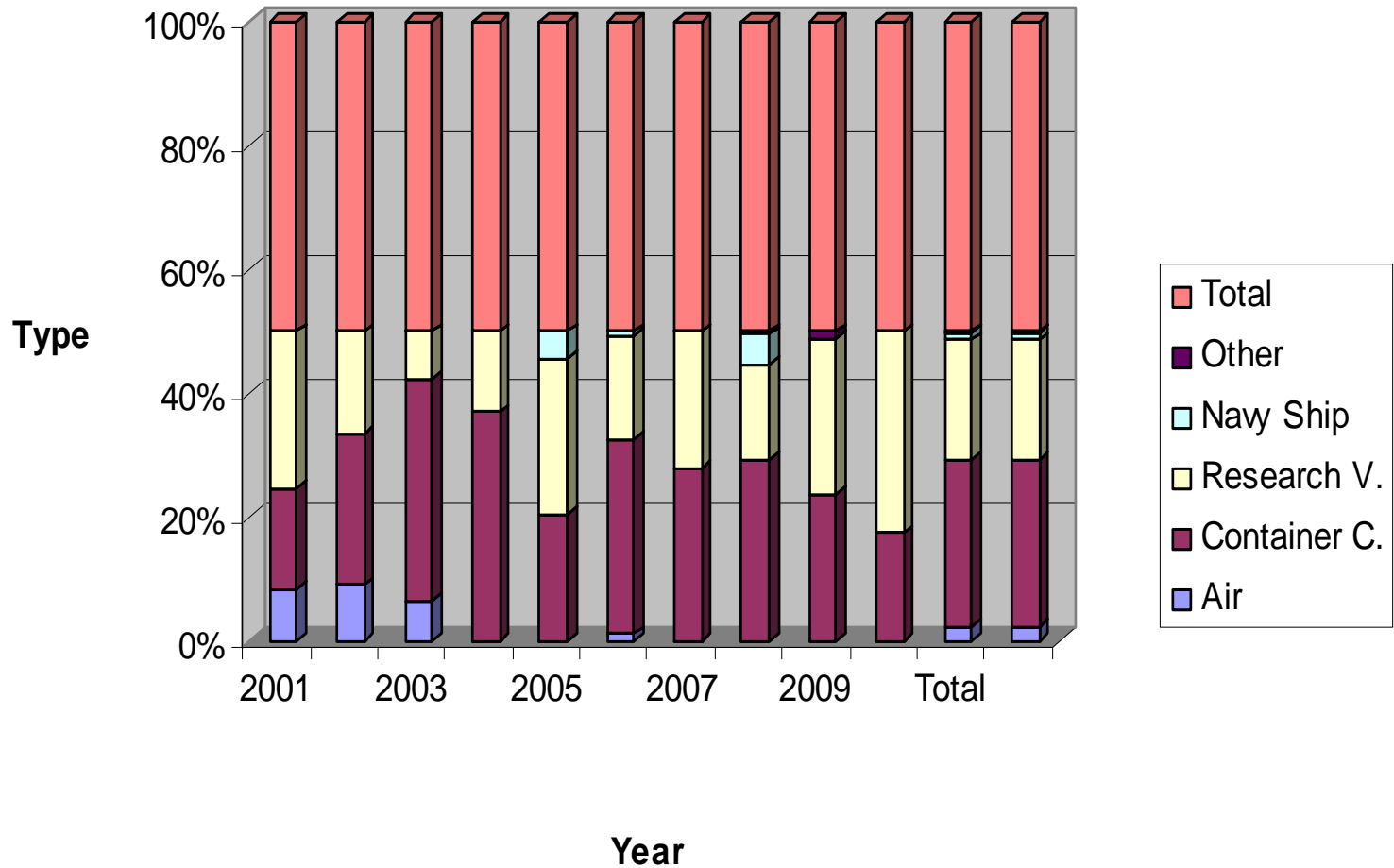
No. of Platforms



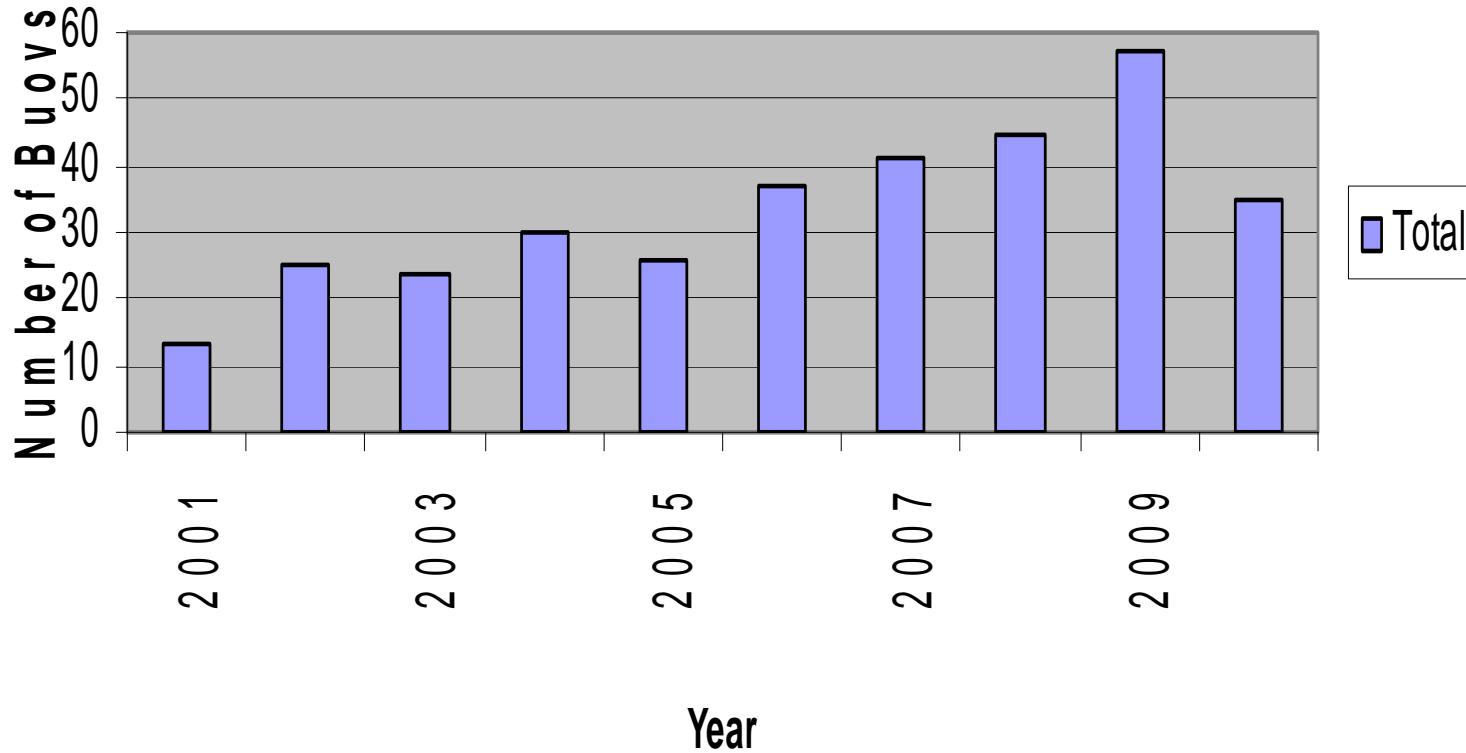
ESURFMAR Buoy Deployments



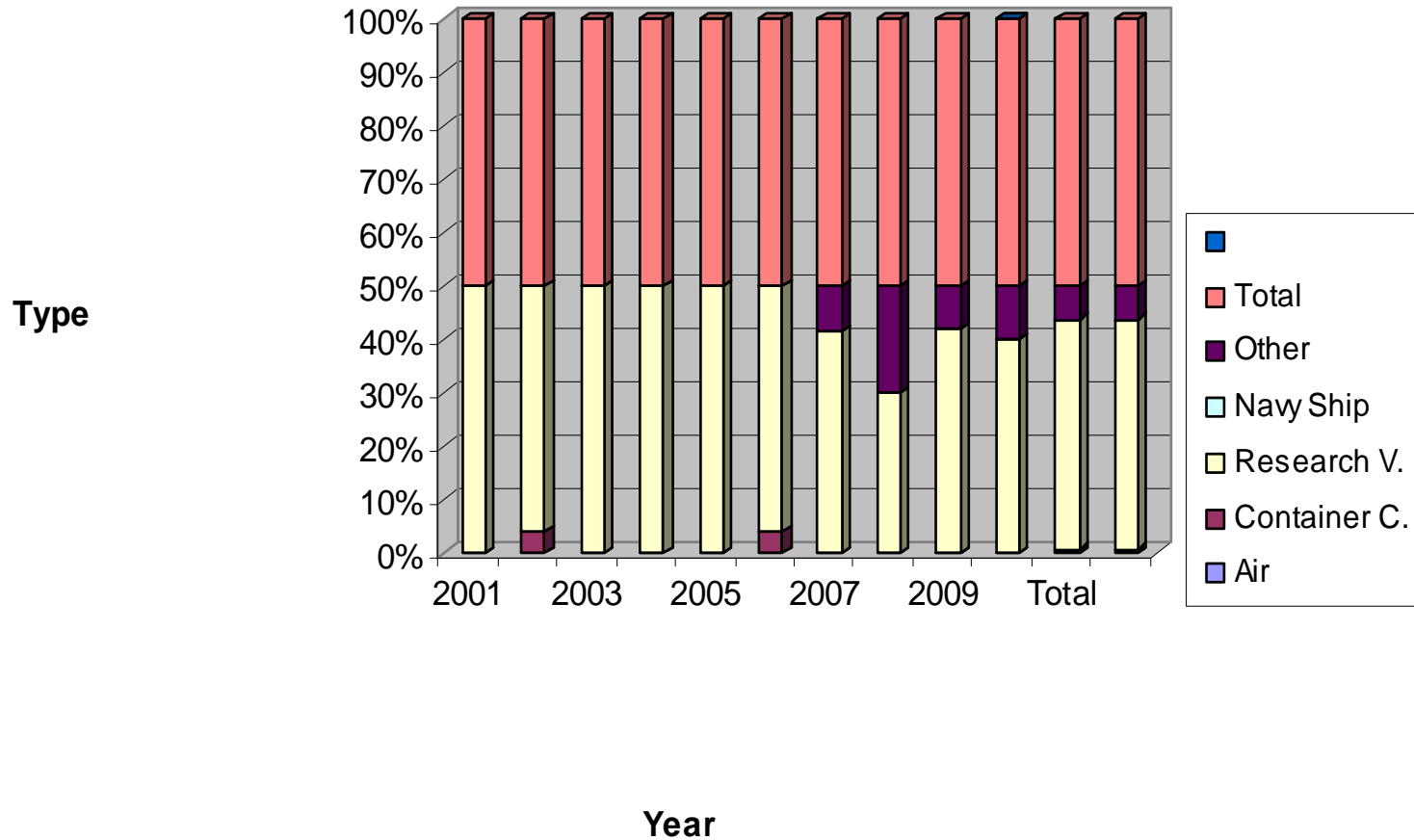
ESURFMAR Deployments



South African Buoy Deployments



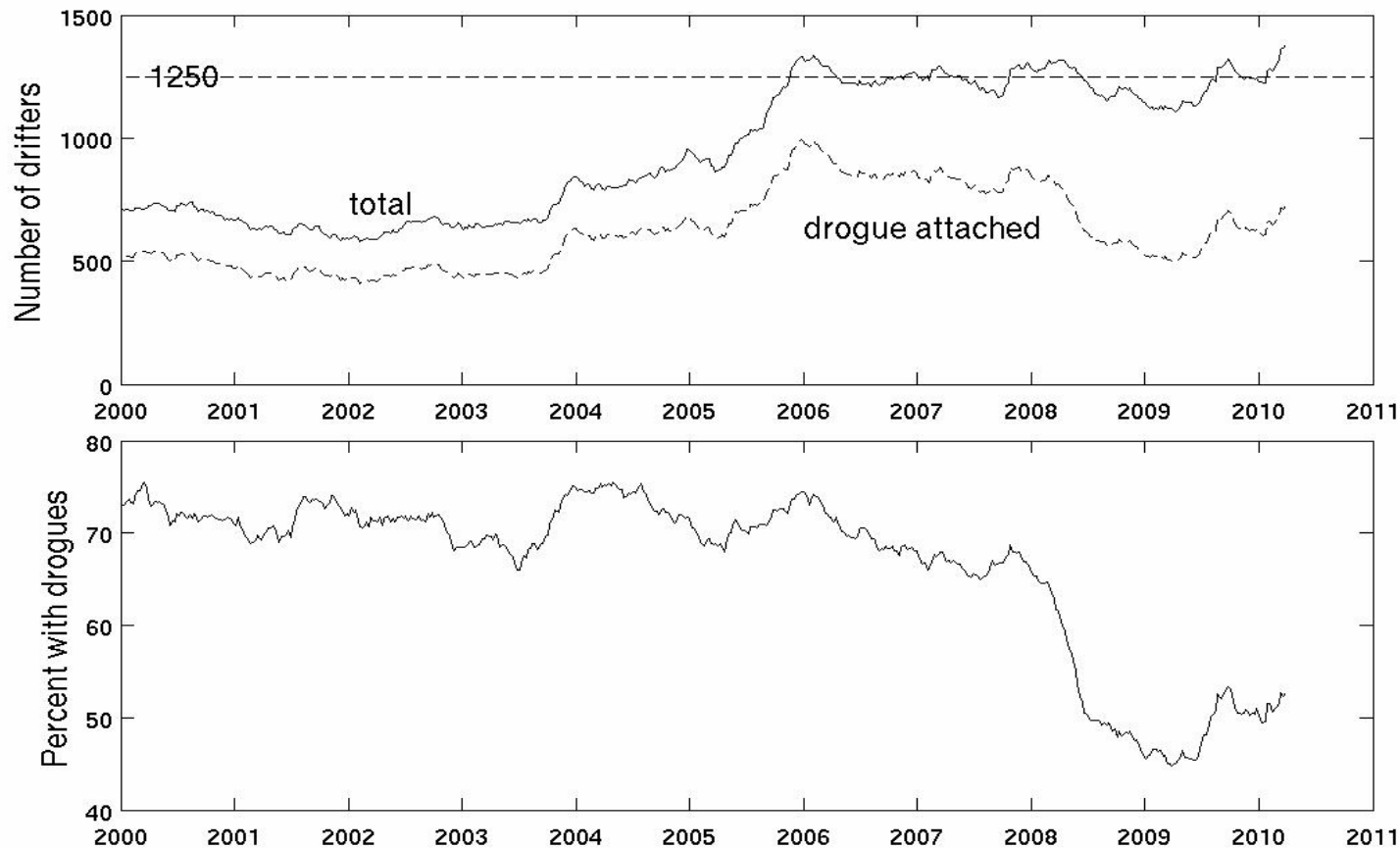
South Africa Deployments



Feedback/Comments

- SA – Deploy for a number of programs. Store drifters for deployment. Deploy drifters during XBT runs. Try to address data sparse areas.
- NZ – operate both national and deployments for southern ocean programme. PMO recruits, trains
 - Southern ocean – 50% by research vessels, 45% by eco-tourist vessels, and 5% commercial
- AU – commercial/container ships – 80%, research 10%
- CA – majority are commercial; also use Coast Guard; for Arctic use air deployments; SVPBs seem good; older generation wind buoys have problems; working with manufacturers

Drogue Attachment



The fraction of drifters identified as “drogue on” fell from around 70% to approximately 50% during this period.

Deployment Failures

July 08 - June 09

July 09 - June 10

Manufacturer	July 08 - June 09		July 09 - June 10	
	Total	Percentage	Total	Percentage
Clearwater	20	5.9%	45	9.9%
Technocean	7	3.2%	5	1.3%
Metocean	5	2.4%	2	0.9%
Pacific Gyre	12	4.9%	14	5.2%

Conclusions

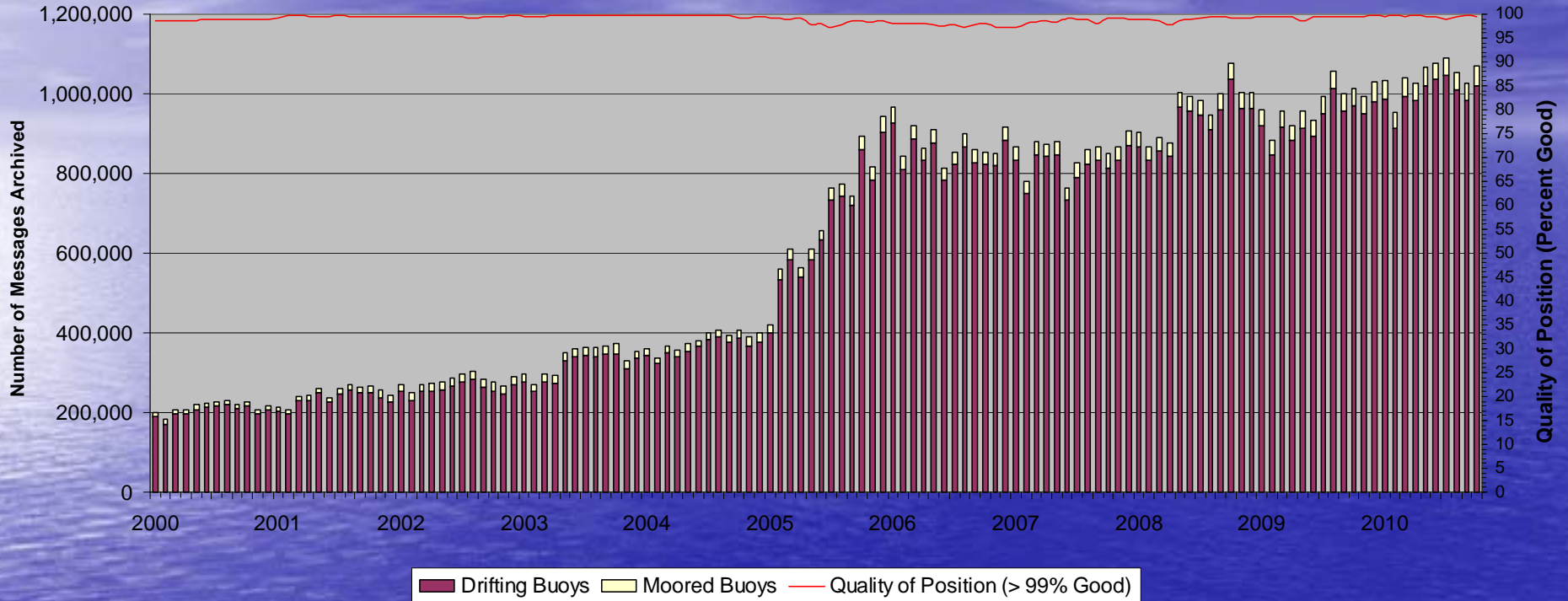
- Drogue loss detection has improved drastically, but improvement is needed for some manufacturers
- Technocean's delayed transmission issue was raised to the manufacturer and seems to be resolved.
- Deployment failures for Clearwater drifters has risen drastically in last couple of years and needs to be addressed. Individual batches have been stored for too long, but the problem is larger in scope.
- Metocean and Pacific Gyre buoys appear to have good drogue lifetimes. Pacific Gyre submergence sensors still "max out" and the GDP is waiting on strain gauge drifters to be deployed for evaluation.

Data Management

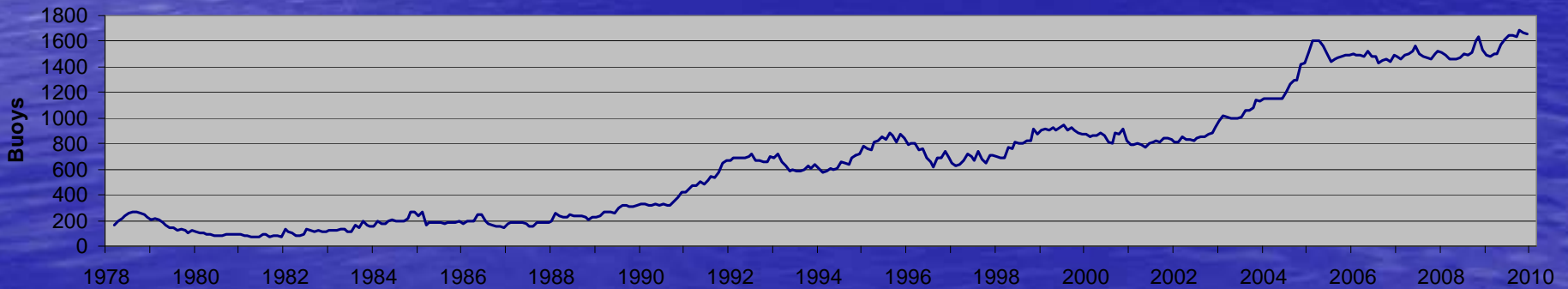
- [http://isdms.gc.ca/alphapro/rnodc/wallace/spin\(640x480\).wmv](http://isdms.gc.ca/alphapro/rnodc/wallace/spin(640x480).wmv)
- [http://isdms.gc.ca/alphapro/rnodc/wallace/RNODC-DB2010\(640x480\).wmv](http://isdms.gc.ca/alphapro/rnodc/wallace/RNODC-DB2010(640x480).wmv)
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GTS Data Trends

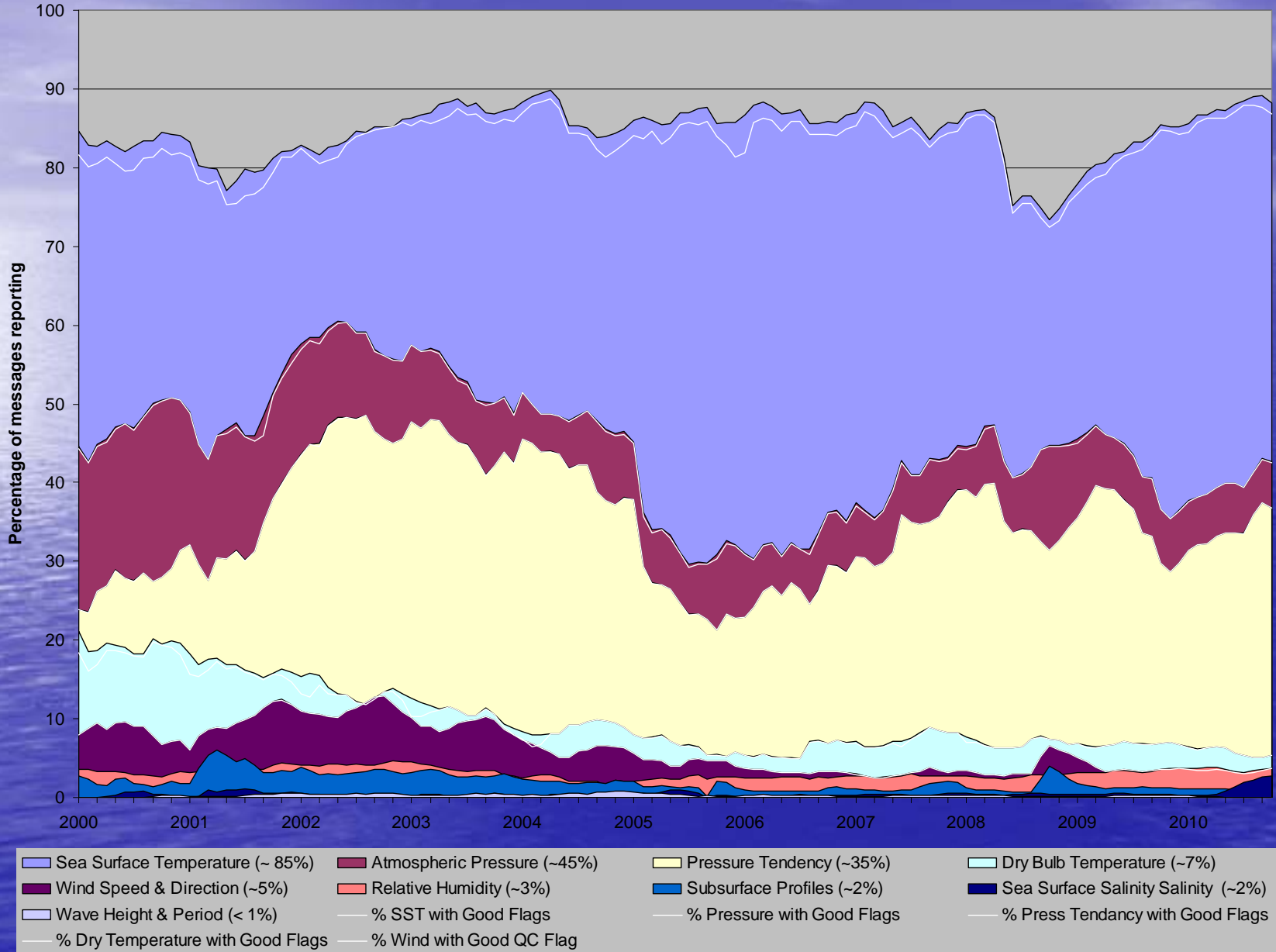
Number of Messages Archived from Drifting and Moored Platforms



Number of Buoys Archived



GTS Message Parameters



December 10, 2010

PMO-IV, Orlando FL

PMO Contribution

- Recruit ships
- Train crews and follow up
 - Address deployment and other issues
- Monitor data and address issues
 - Activation, instruction, locations, storage,
- Logistical work – buoy management
- Essential liaison and linkages
- Feedback on procedures
- Critical to success of program