

Report of the

**Tropical Moored Buoy  
Implementation Panel**

to the

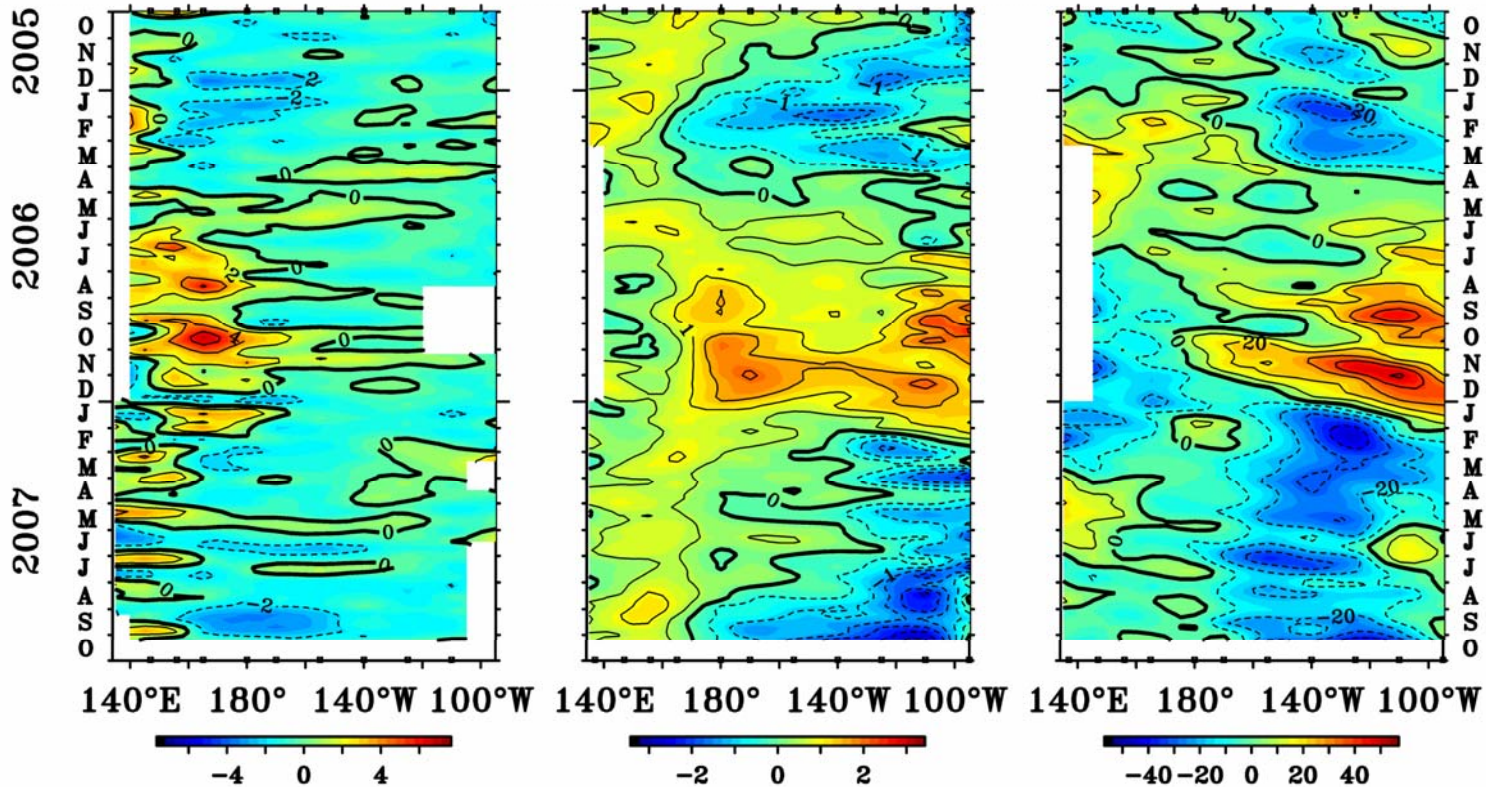
**23<sup>rd</sup> Session of the  
Data Buoy Cooperation Panel**

October 15-19, 2007  
Jeju, Korea

# Current Conditions

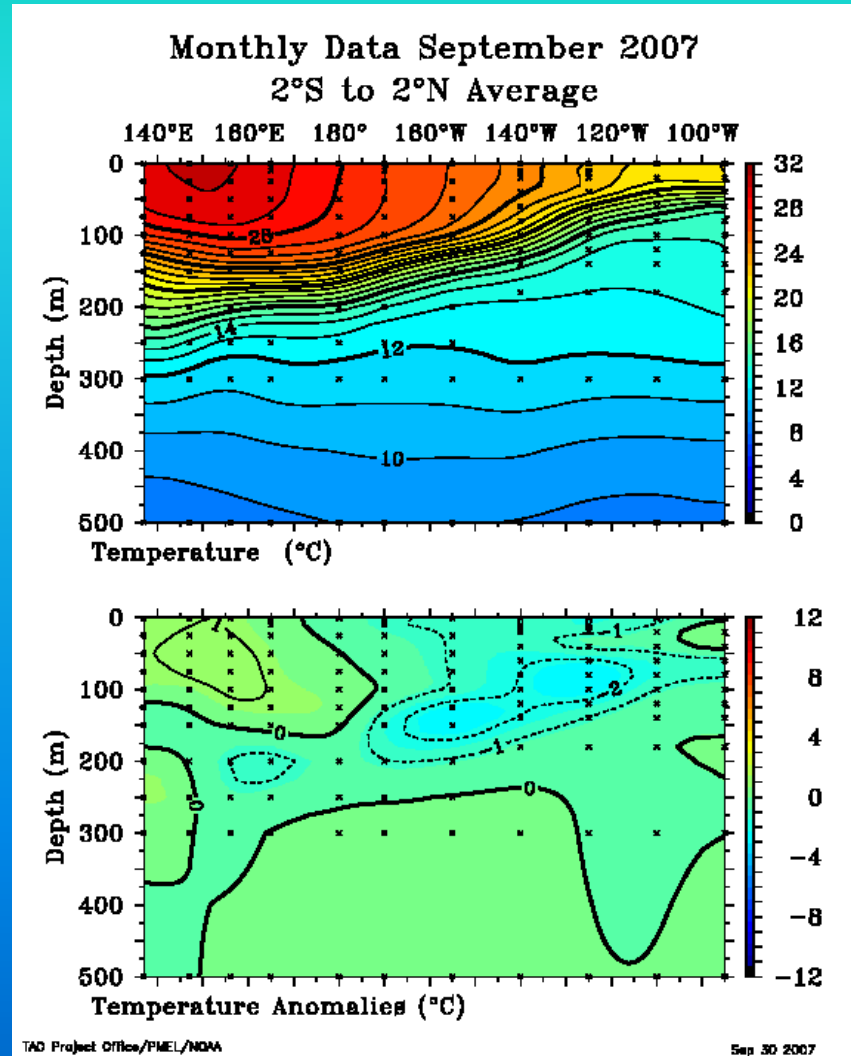
*SST is cooler than normal and the thermocline is shallower than normal in the central and eastern tropical Pacific.*

Five Day TAO/TRITON Anomalies 2°S to 2°N Average  
Zonal Wind ( $\text{m s}^{-1}$ )      SST ( $^{\circ}\text{C}$ )      20°C Depth (m)



# Current Conditions

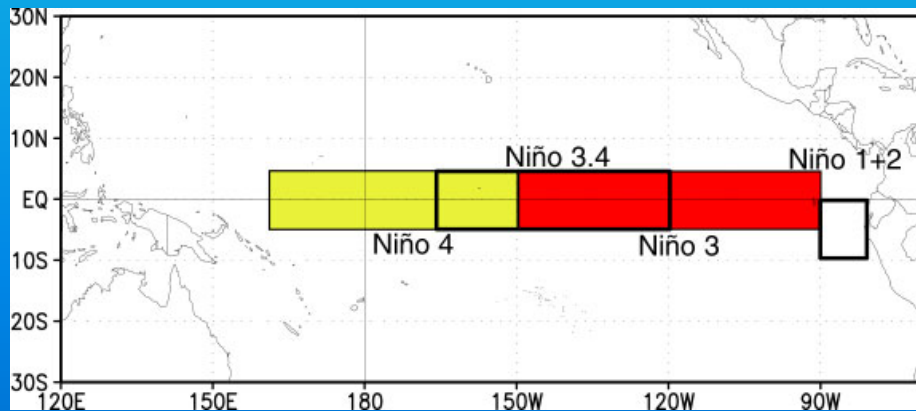
*Subsurface temperature is below normal over the eastern half of the basin.*



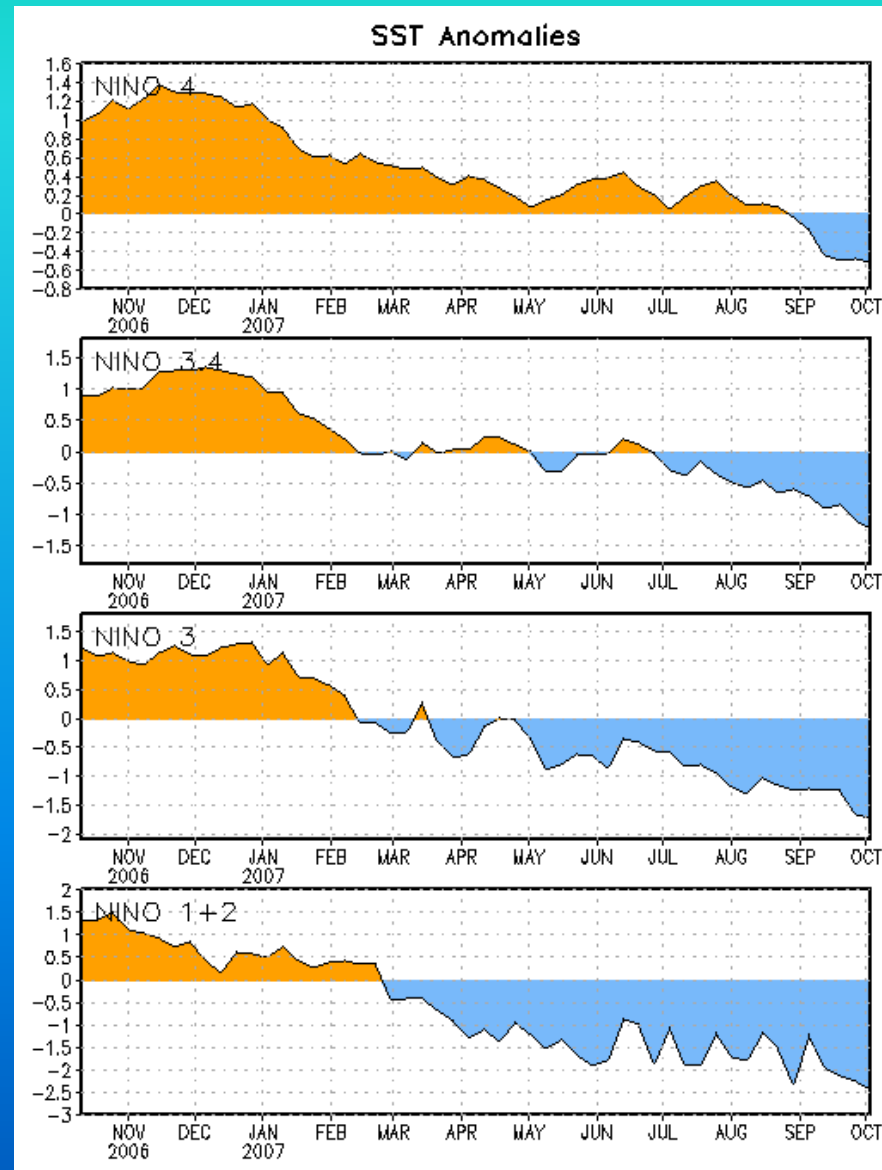


# Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are  $-1.7^{\circ}\text{C}$  in the Niño 3 region and  $-2.4^{\circ}\text{C}$  in the Niño 1+2 region. SST departures are  $-1.2^{\circ}\text{C}$  in the Niño 3.4 region and  $-0.5^{\circ}\text{C}$  in the Niño 4 region.



Climate Prediction Center / NCEP  
Weekly ENSO Update October 9, 2007







# Pacific Niño 3.4 SST Outlook

Most ENSO models predict that La Niña (cooler than  $-0.5^{\circ}\text{C}$  in the Niño 3.4 region) will persist through early 2008. Nearly all of the dynamical and statistical models predict a weak-to-moderate La Niña during the next several months.

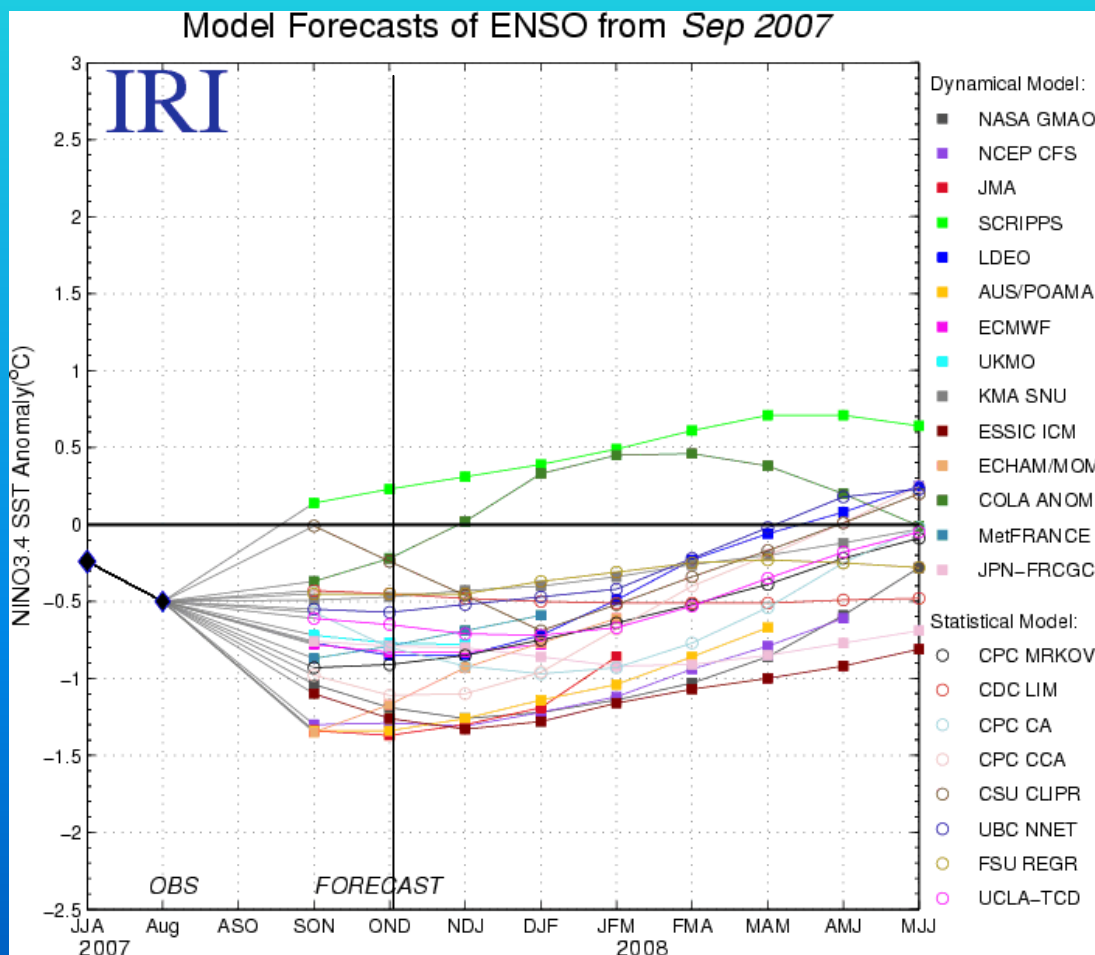


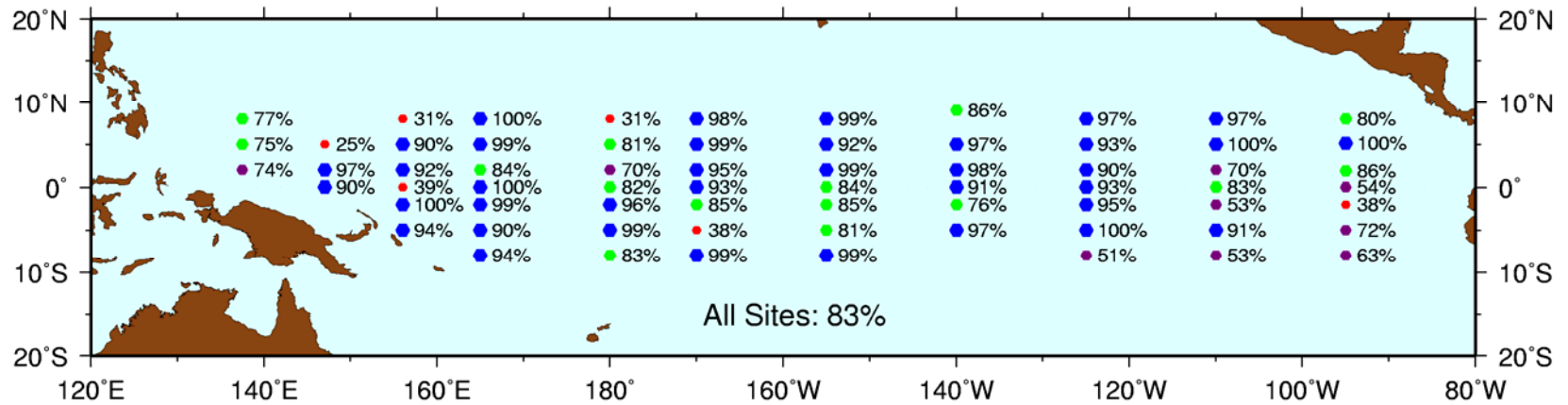
Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 September 2007).

Climate Prediction Center / NCEP  
Weekly ENSO Update  
October 9, 2007

# TAO STATUS

## TAO/TRITON Mooring Real-Time Data Return

October 2006 - September 2007



Primary Sensors

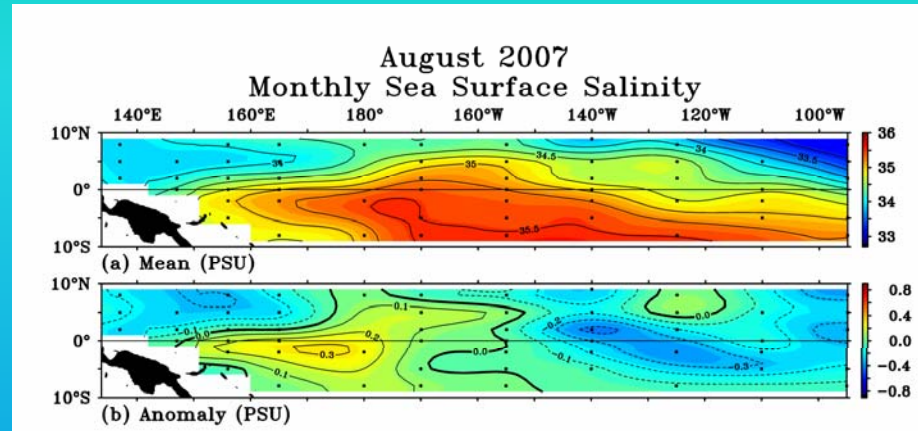
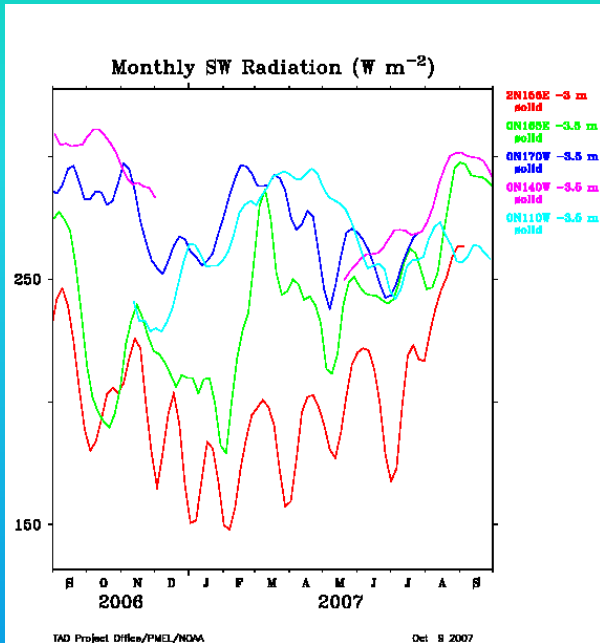
● 0% - 50%

● 50% - 75%

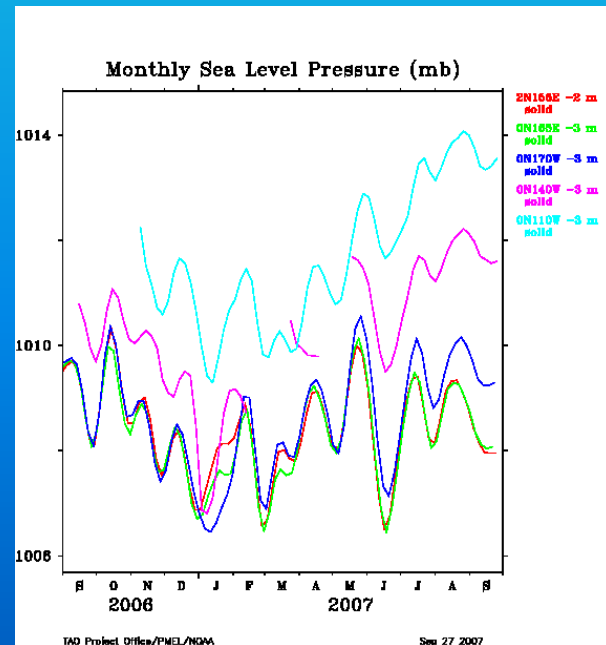
● 75% - 90%

● 90% - 100%

# TAO Enhancements

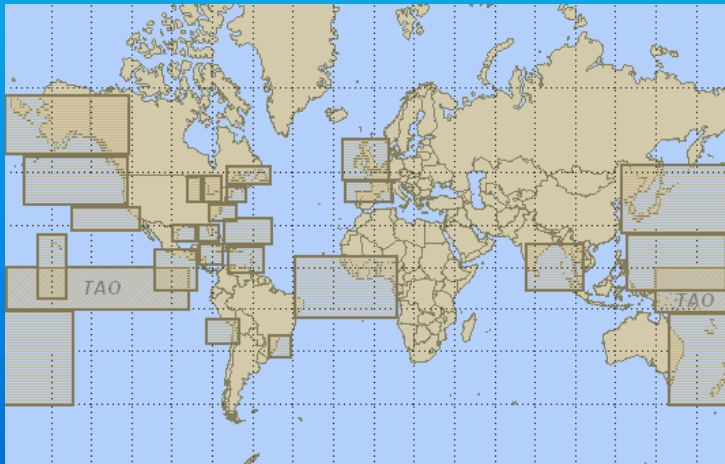


- SSS was established on nearly all TAO moorings in 2007
- Heat, fresh water and momentum flux measurements on 4 equatorial TAO sites ( $165^{\circ}E$ ,  $170^{\circ}W$ ,  $140^{\circ}W$ ,  $110^{\circ}W$ ) and one TRITON site ( $2^{\circ}N$   $156^{\circ}E$ ) in support of OceanSITES program



# TAO Transition

- TAO Data Processing and Distribution at NDBC since Oct 2005.
- Parallel Testing completed in Sep 2006.
- NDBC assumed responsibility for field operations in Jan 2007.
- PMEL responsible for preparation and maintenance of ATLAS instrumentation.
- NDBC deployed prototype “refreshed” ATLAS moorings in 2007. Several more are planned in 2008 within the TAO Array. Data from the legacy and refreshed systems will be compared to insure continuity of measurements.

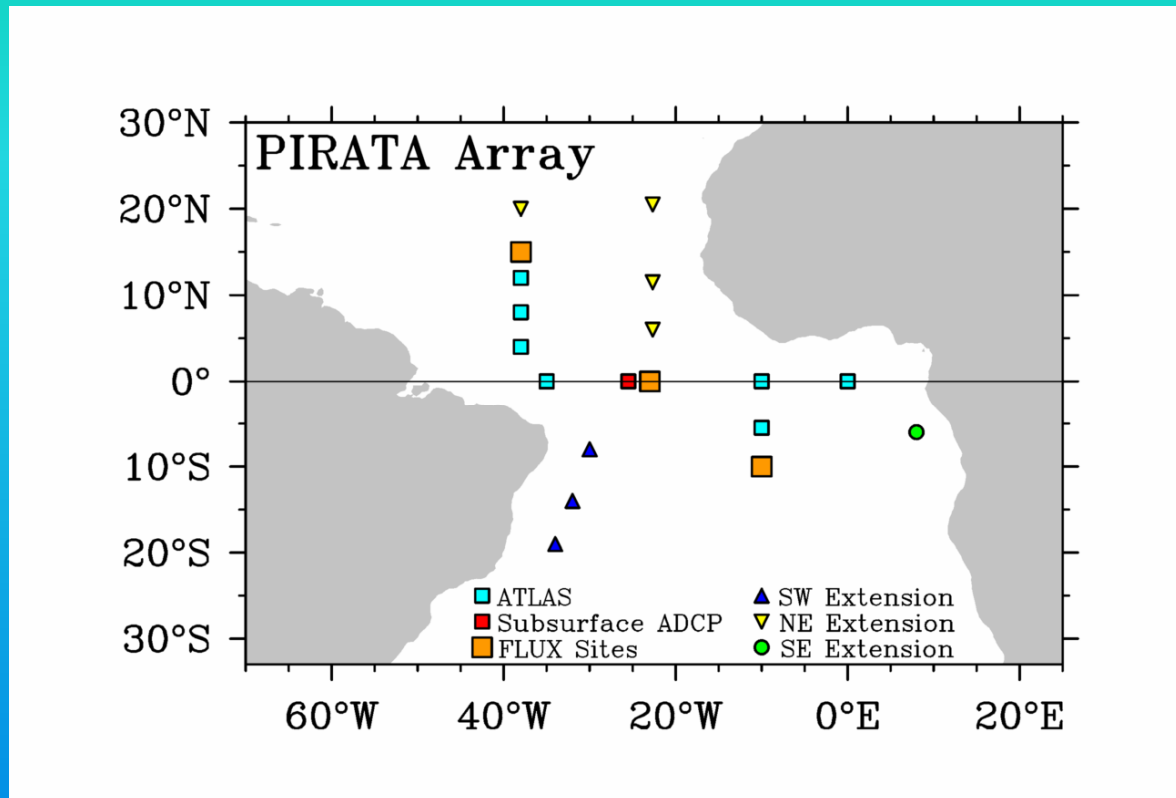


<http://tao.noaa.gov/>





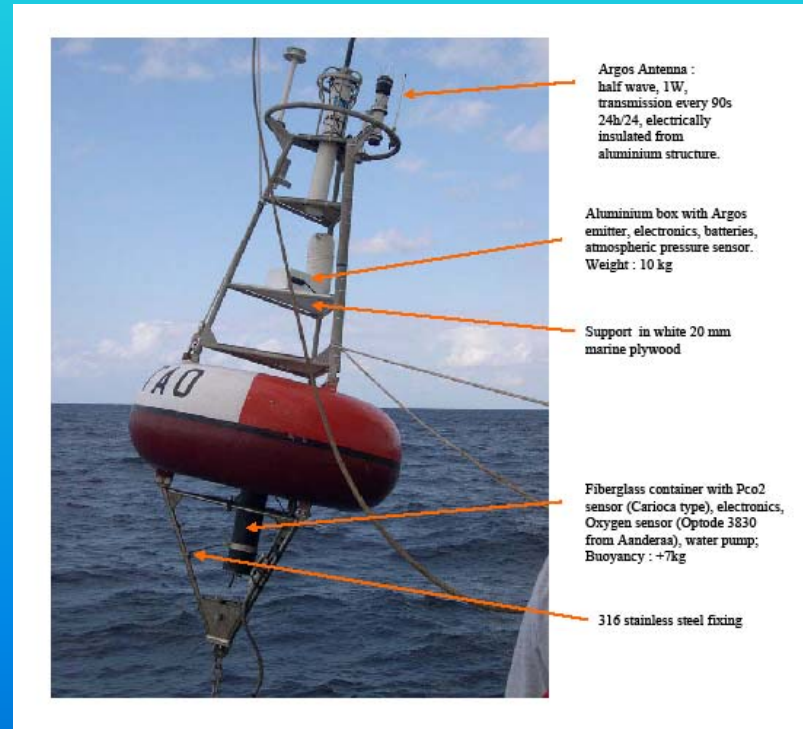
# PIRATA Enhancements and Extensions



- 2005: SW Extension – Brazil/US.
- 2006: Heat, momentum and fresh water flux measurements on 3 moorings.
- 2006: NE Extension - AOML/PMEL added 2 moorings. Additional 2 moorings in 2007.
- 2006: SE Extension. 1 year only. South Africa (U. Capetown). France and US
- September 2007 marked the 10<sup>th</sup> anniversary of the first PIRATA mooring deployment.

# PIRATA Collaborations

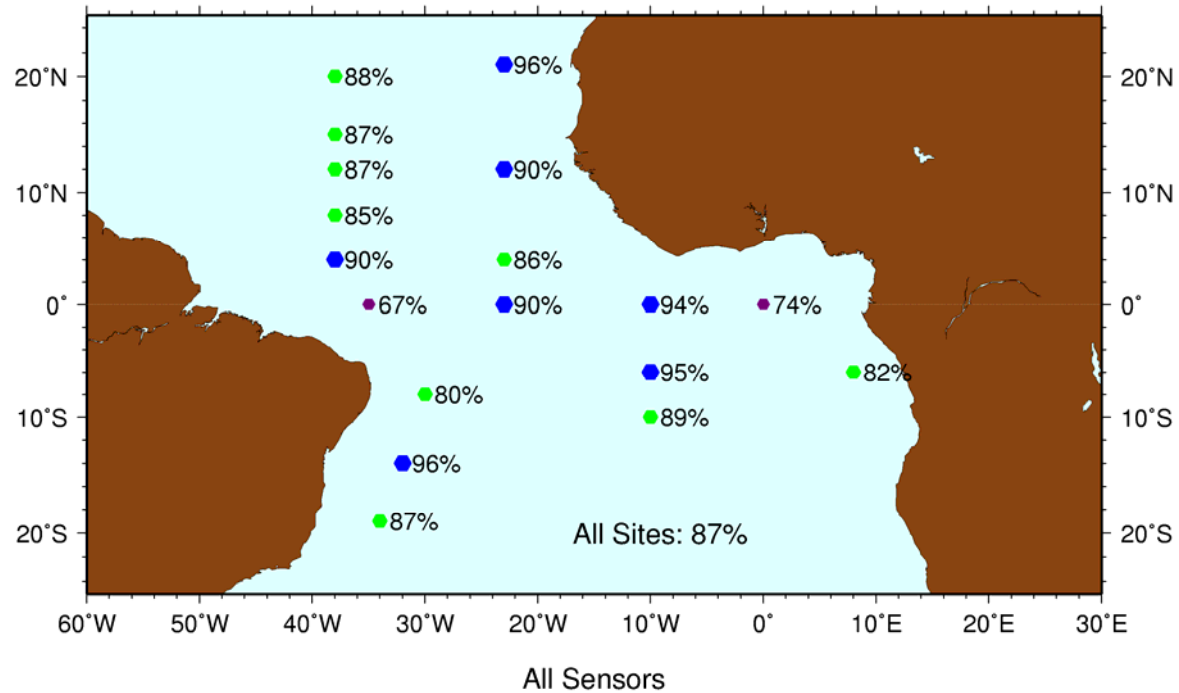
- France (LODYC/IFREMER) added CO<sub>2</sub> and O<sub>2</sub> measurements to the ATLAS mooring at 6°S 10°W in summer 2006. Redeployed in 2007. Plans to add sensors to 8°N 38°W in 2008.
- US Navy Africa Partner Station (APS) may provide repairs for some PIRATA moorings in 2008.
- Germany (IFM-Kiel) proposes to add O<sub>2</sub> measurements to the ATLAS moorings at 4°N and 11°N 23°W.



# PIRATA STATUS

## PIRATA Mooring Real-Time Data Return

October 2006 - September 2007



● 0% - 50%

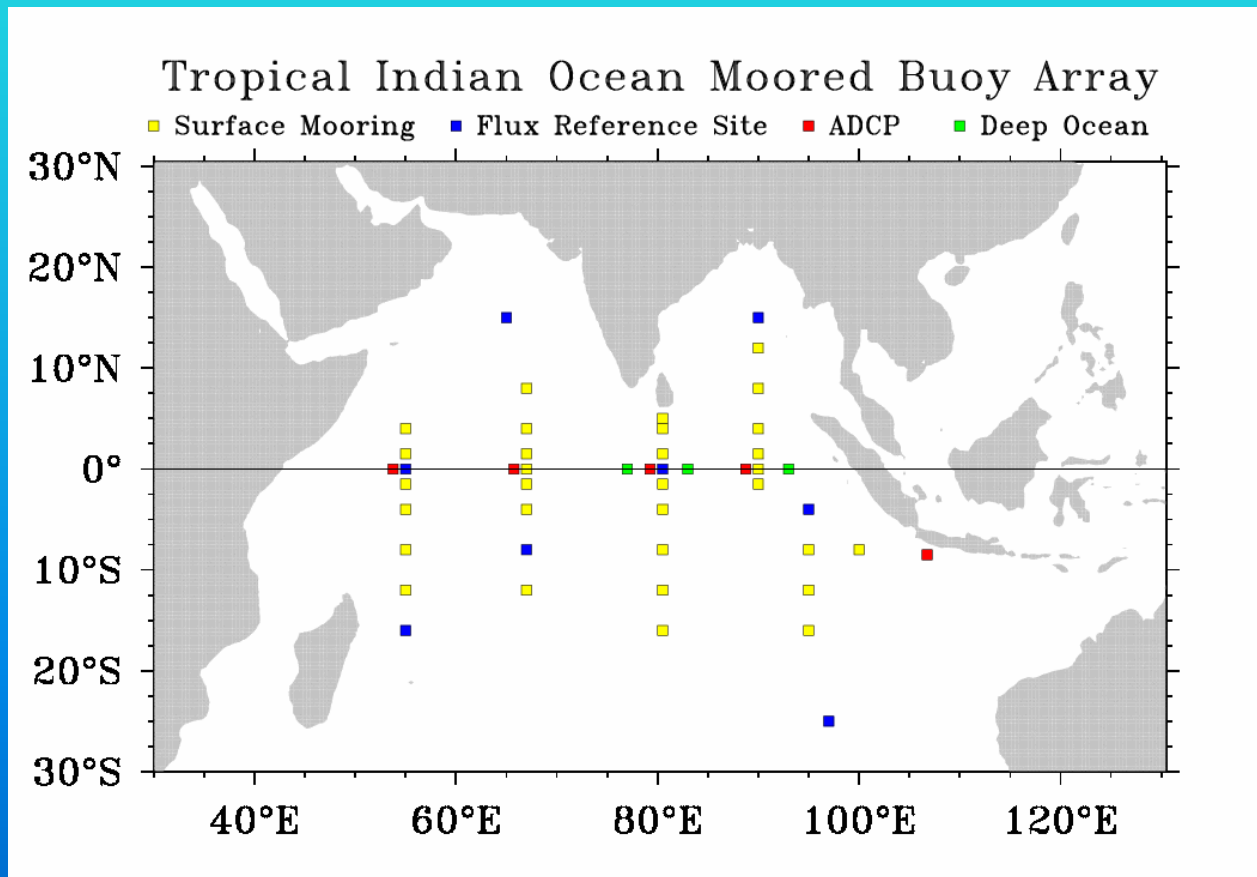
● 50% - 75%

● 75% - 90%

● 90% - 100%

# RAMA

Research moored Array for African/Asian/Australian Monsoon Analysis and prediction



- 47 Moorings Planned

# Indian Ocean Status and Plans

Cruises completed or **scheduled** and moorings deployed.

		ATLAS	ADCP
Sep 2006	US/India	5(1)	1
Nov 2006	US/Indonesia	2(2)	
Jan 2007	US/France	1(1)	1*
Sep 2007	US/Indonesia	4	
Nov 2007	China/Indonesia		1(1)
Nov 2007	US/India	2(2)	
Spring 2008	US/India	5(2)	10**
Summer 2008	US/France	1	

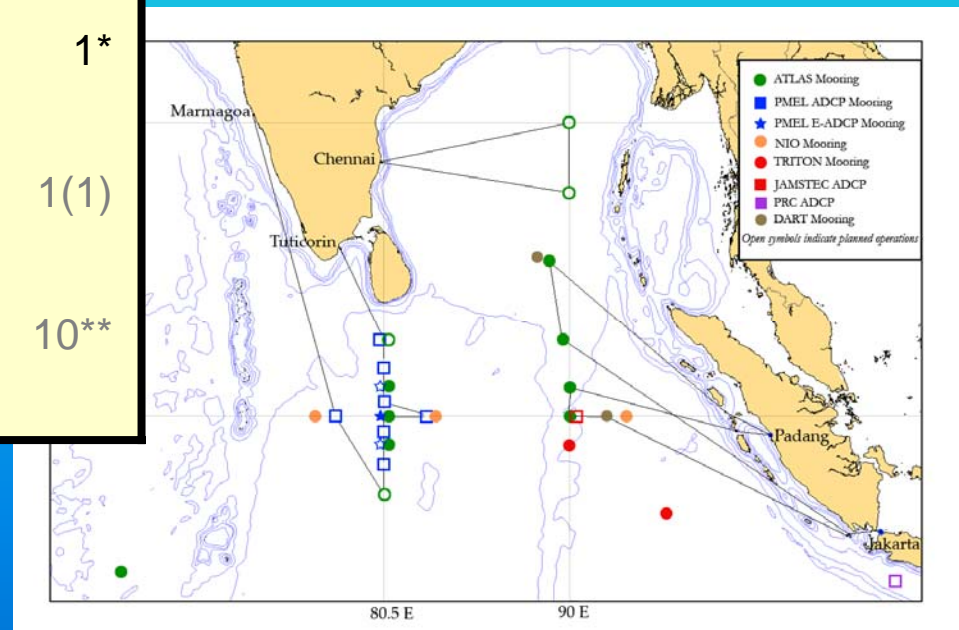
Number of sites which are new are in ( )

\* 1-month deployment for CIRENE Experiment. Not part of IOP plan.

\*\* 1 site part of IOP plan. 9 others are multi-year process study.

IOP Array is 32% complete in 2007.

2008 scheduled deployments will increase this to 43%.



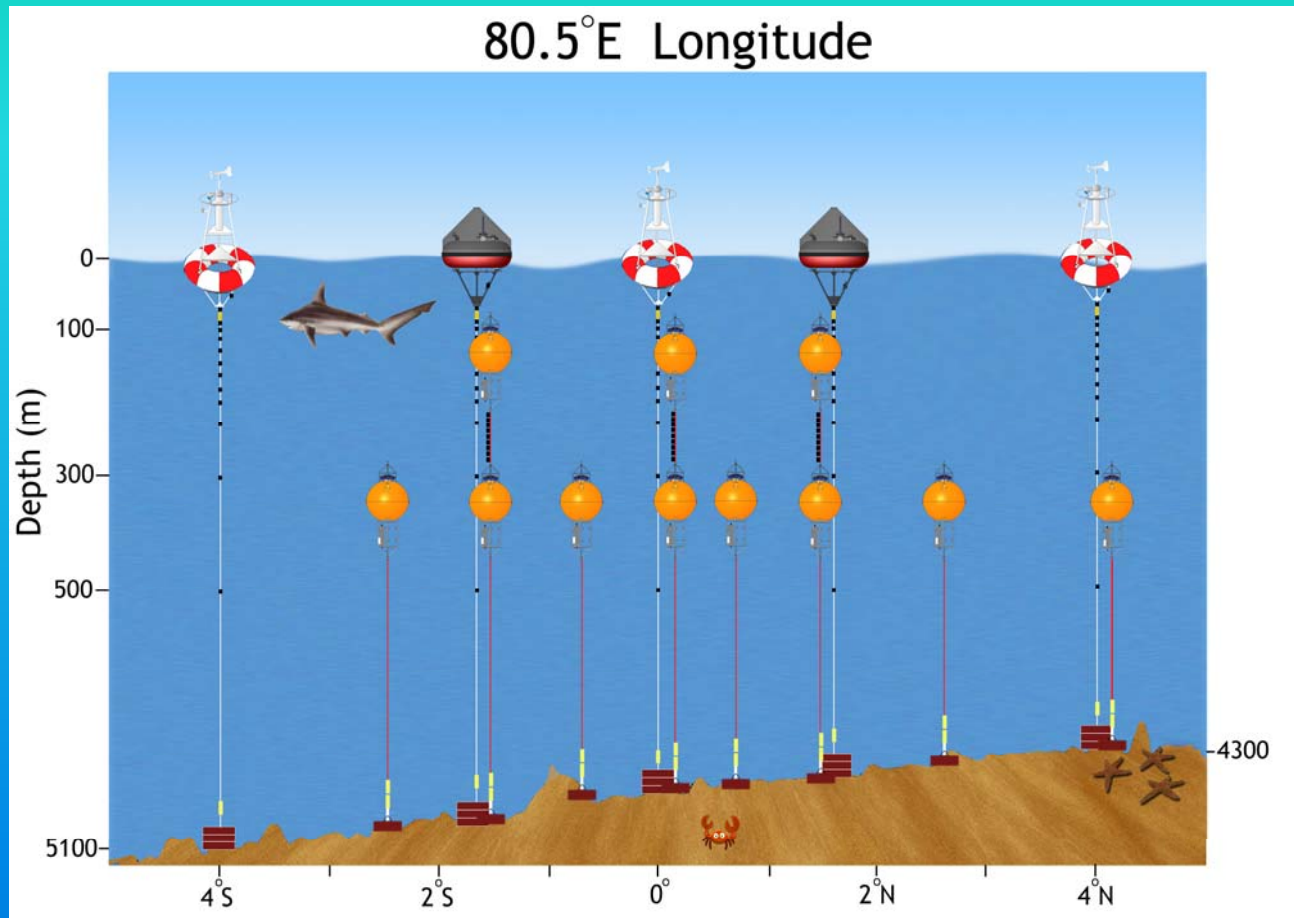


# ***Indian Ocean Mooring Design Modifications***

- **Make sensors and equipment more difficult to remove**
- **Remove vulnerable sensors**
- **Make buoys harder to board**
- **Remove buoy attachment points**
- **Deploy more subsurface moorings**
- **Enhance some subsurface moorings with temperature/salinity measurements**



# 2008 Indian Ocean Plans



Expanded ADCP array along 80.5 °E will include some moorings enhanced for upper ocean T and S measurements. Two surface moorings will have vandal resistant design.

# Indian Ocean International Cooperation and Capacity Building

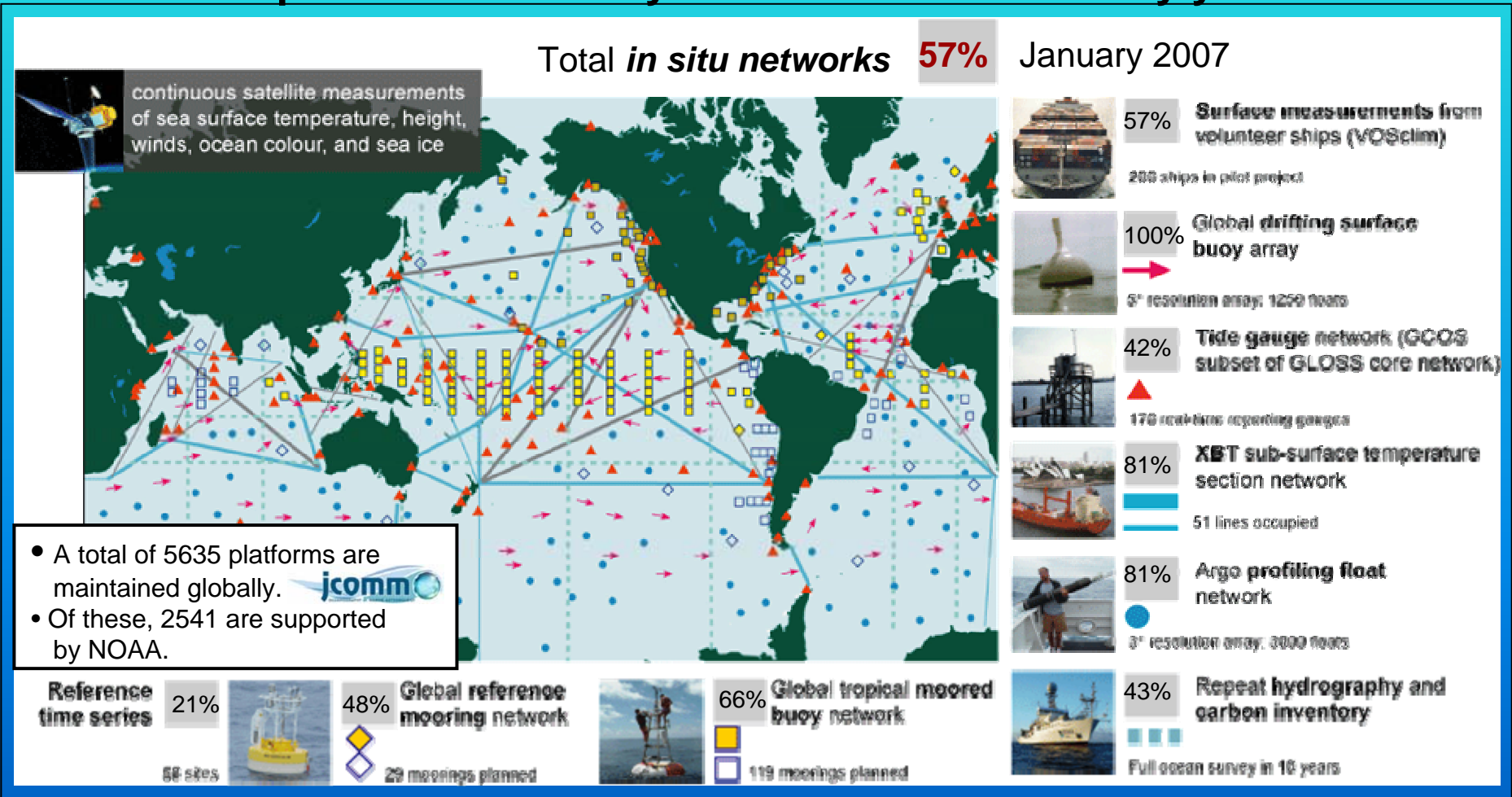


- NOAA, DKP, and BPPT have signed LOI and MOU.
- NOAA and JAMSTEC are drafting an updated MOU.
- MOU between NOAA and MoES to be signed in November 2007.
- French (LOCEAN) – US (PMEL) collaboration in CIRENE Experiment resulted in expansion of array into SW Indian Ocean.
- PRC/Indonesia to deploy ADCP mooring in IndOOS array

# Global Ocean Observing System

## Where is the project?

➤ 57% complete as of January 2007. Will reach 59% by year-end.

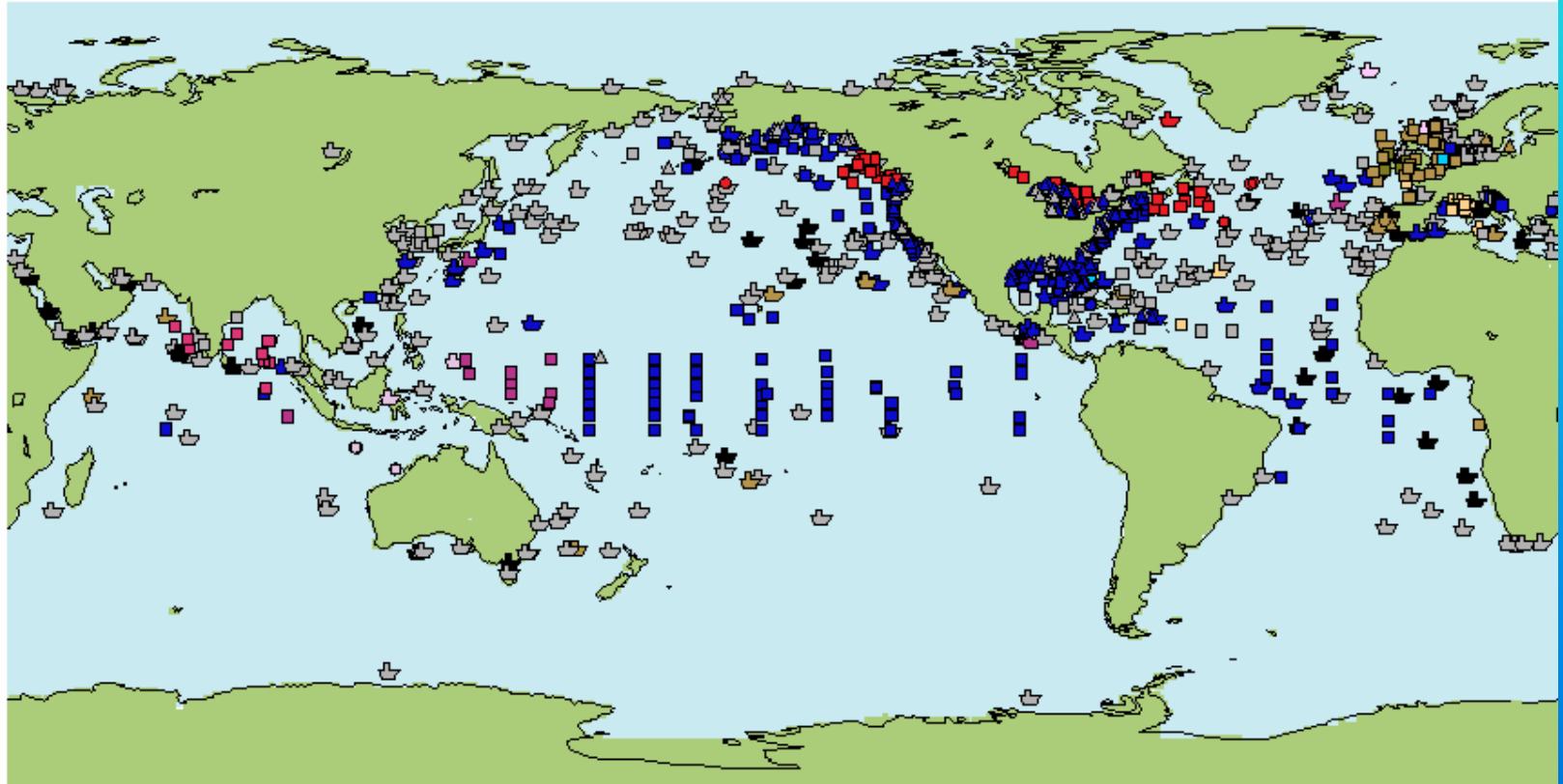


# Observing System Monitoring Center NOAA/OCO

*Wind Observations October 9-10, 2007*

Date: 09-Oct-2007 00:00:00 to 10-Oct-2007 23:59:59

Platforms Reporting: **1085**  
WINDSPD Observations: **28351**



Supressing ship observations for most recent 48 hours

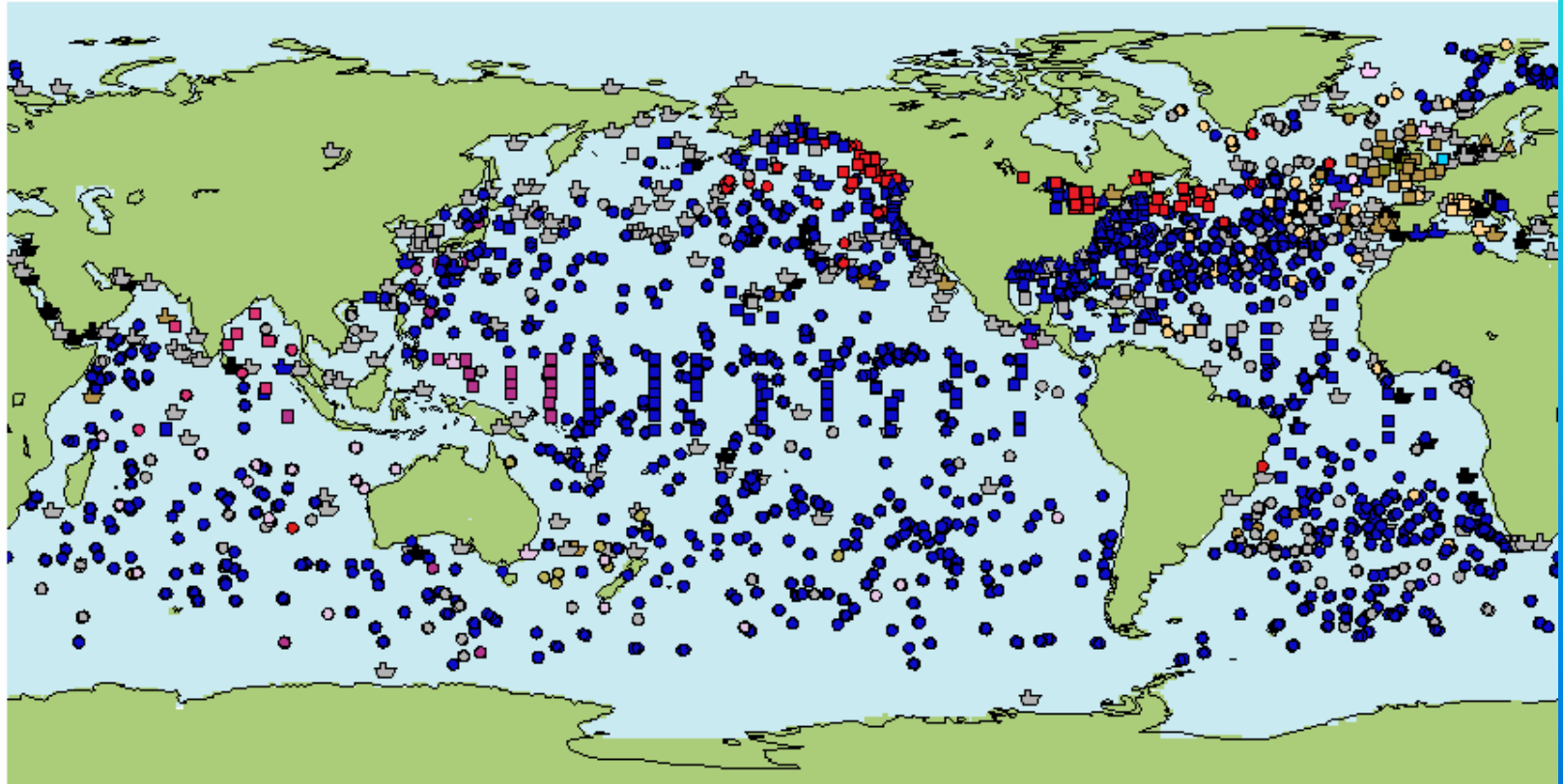


# Observing System Monitoring Center NOAA/OCO

*SST Observations October 9-10, 2007*

Date: 09-Oct-2007 00:00:00 to 10-Oct-2007 23:59:59

Platforms Reporting: **1840**  
SST Observations: **89673**



Suppressing ship observations for most recent 48 hours

# For More Information

<http://www.pmel.noaa.gov/tao/>

The screenshot shows a Netscape browser window titled "Tropical Atmosphere Ocean (TAO) Project Home Page - Netscape". The address bar contains "http://www.pmel.noaa.gov/tao/". The page header includes the NOAA logo, the text "Pacific Marine Environmental Laboratory", and the "Tropical Atmosphere Ocean project" logo with "Michael J. McPhaden, Director" below it. A navigation menu contains links for "Home", "Project overview", "Data display", "Data delivery", "El Niño & La Niña", and "Site map". A search box is present with the text "Find" and a search button. The date "Thursday October 13, 2005 (PDT)" is displayed. The main content area features a photograph of a research vessel and a buoy, with the text "Real-time data from moored ocean buoys for improved detection, understanding and prediction of El Niño and La Niña." Below this is a map titled "Sea Surface Temperature and Winds" showing a color-coded temperature scale from 19°C to 31°C and wind vectors. A "Data as of yesterday" label is next to the map. A link "The TAO Story" is provided. A "NEW!" announcement highlights "Warm Water Volume and ENSO". Another "NEW!" announcement states: "Try our new combined Display and Delivery Page which includes more comprehensive data and new features, like the ability to download what you view". A footer navigation bar repeats the site's main links. Contact information for the TAO Project Office is provided, including the address "7600 Sand Point Way NE, Seattle, WA 98115", the email "atlasr@noaa.gov", and links for "Credits", "Disclaimer", and "Privacy Policy".

Tropical Atmosphere Ocean (TAO) Project Home Page - Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.pmel.noaa.gov/tao/ Search

Home [M] Netscape Search The TAO proje... PIRATA Atlant...

Pacific Marine Environmental Laboratory

NOAA Tropical Atmosphere Ocean project TAO

Michael J. McPhaden, Director

Home Project overview Data display Data delivery El Niño & La Niña Site map

Find Thursday October 13, 2005 (PDT)

Real-time data from moored ocean buoys for improved detection, understanding and prediction of El Niño and La Niña.

Sea Surface Temperature and Winds

°C

31

28

25

22

19

Data as of yesterday

The TAO Story

**NEW!** [Warm Water Volume and ENSO](#)

**NEW!** Try our new combined [Display and Delivery Page](#) which includes more comprehensive data and new features, like the ability to download what you view

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