National Report by Australia

PMO-IV

8-10 December 2010, Orlando, FL, USA

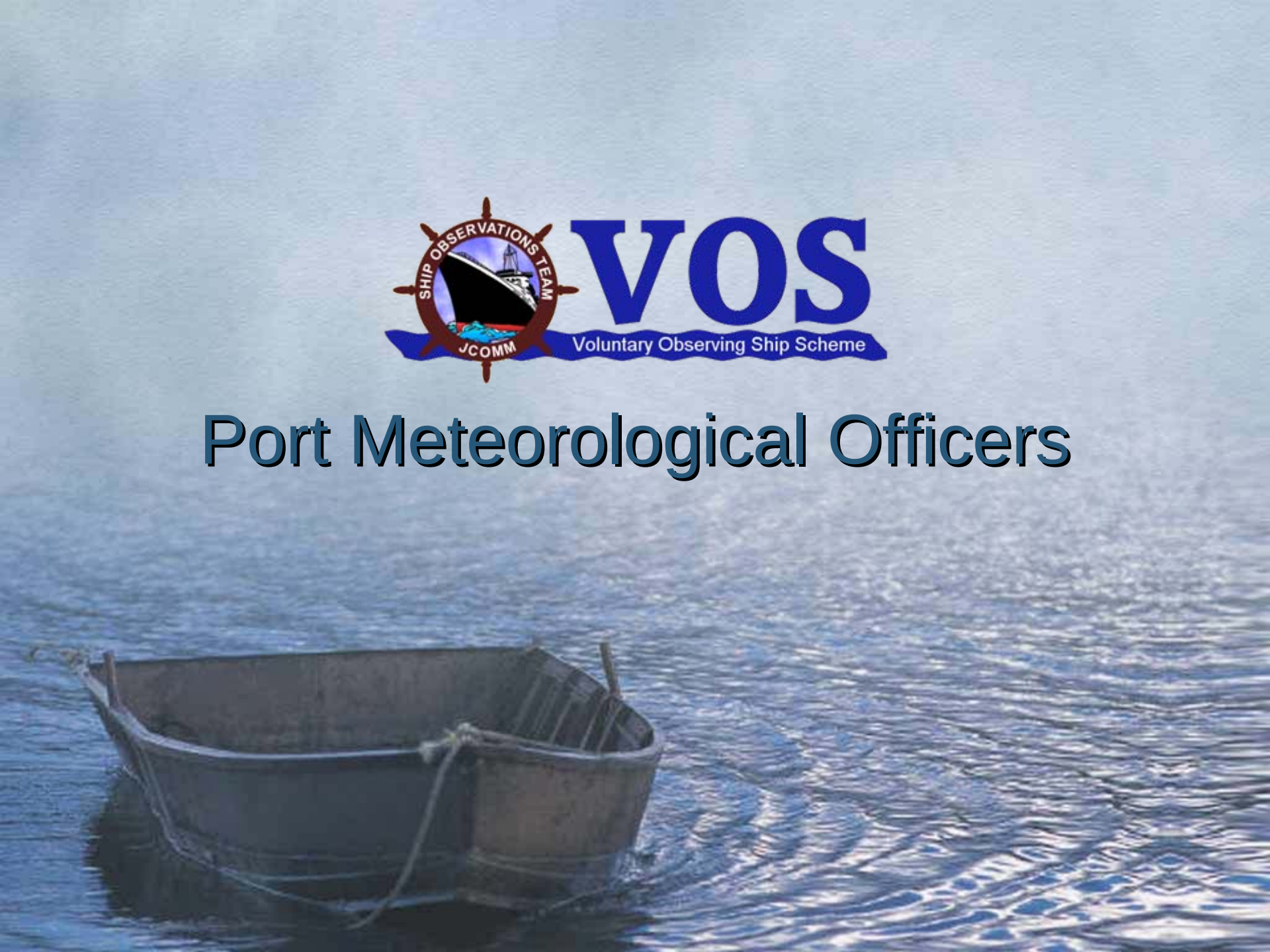
Graeme Ball

Manager, Marine Operations Group

Australian Bureau of Meteorology

Outline

- Port Meteorological Agents:
  - » Description / Network.
- Australian Voluntary Observing Fleet:
  - » Status / Description / Equipment / Monitoring.
- Support Activities
  - » XBT SOOP.
  - » Drifting Buoys.

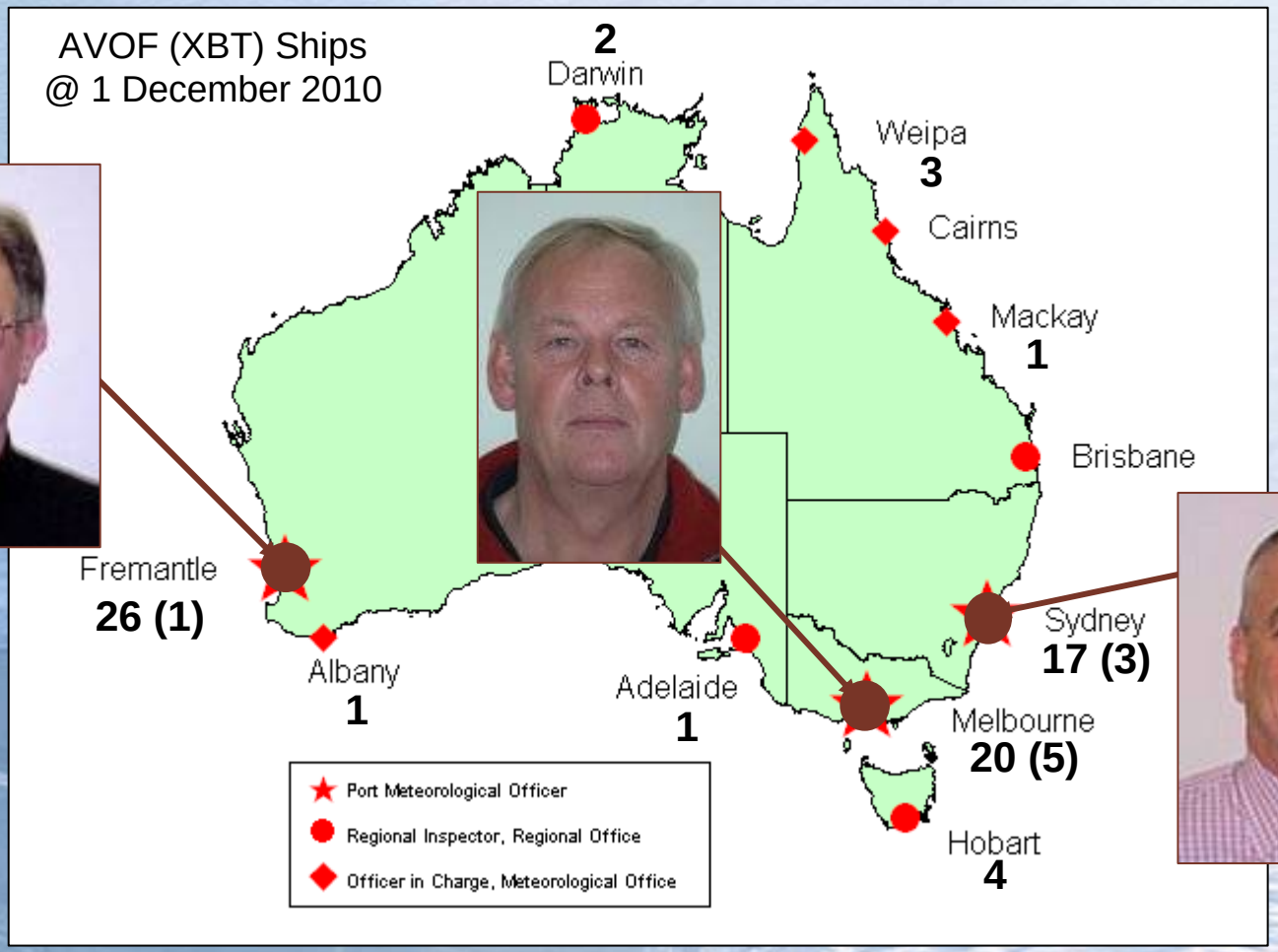


Port Meteorological Officers

Port Meteorological Agents (PMA)

- Fremantle, Melbourne & Sydney:
  - » Part-time contractors.
  - » Full range of PMO services to the AVOF & the global VOF.
  - » Ship-greetings to the ABOM's XBT SOOP.
  - » Regular support to the ABOM's other marine programs.
- Other capital city & provincial ports:
  - » Full-time ABOM Regional Office.
  - » Full-time Field Office staff, but limited opportunities due staffing.
  - » Limited range of PMO services, generally provided 'on-request'.
  - » Occasional support to the ABOM's other marine programs.

PMA Network


AVOF (XBT) Ships
@ 1 December 2010
2
Darwin
Weipa
3
Cairns
Mackay
1
Brisbane
Fremantle
26 (1)
Albany
1
Adelaide
1
Sydney
17 (3)
Melbourne
20 (5)
Hobart
4
Port Meteorological Officer
Regional Inspector, Regional Office
Officer in Charge, Meteorological Office

Australian Voluntary Observing Fleet

Status of the AVOF

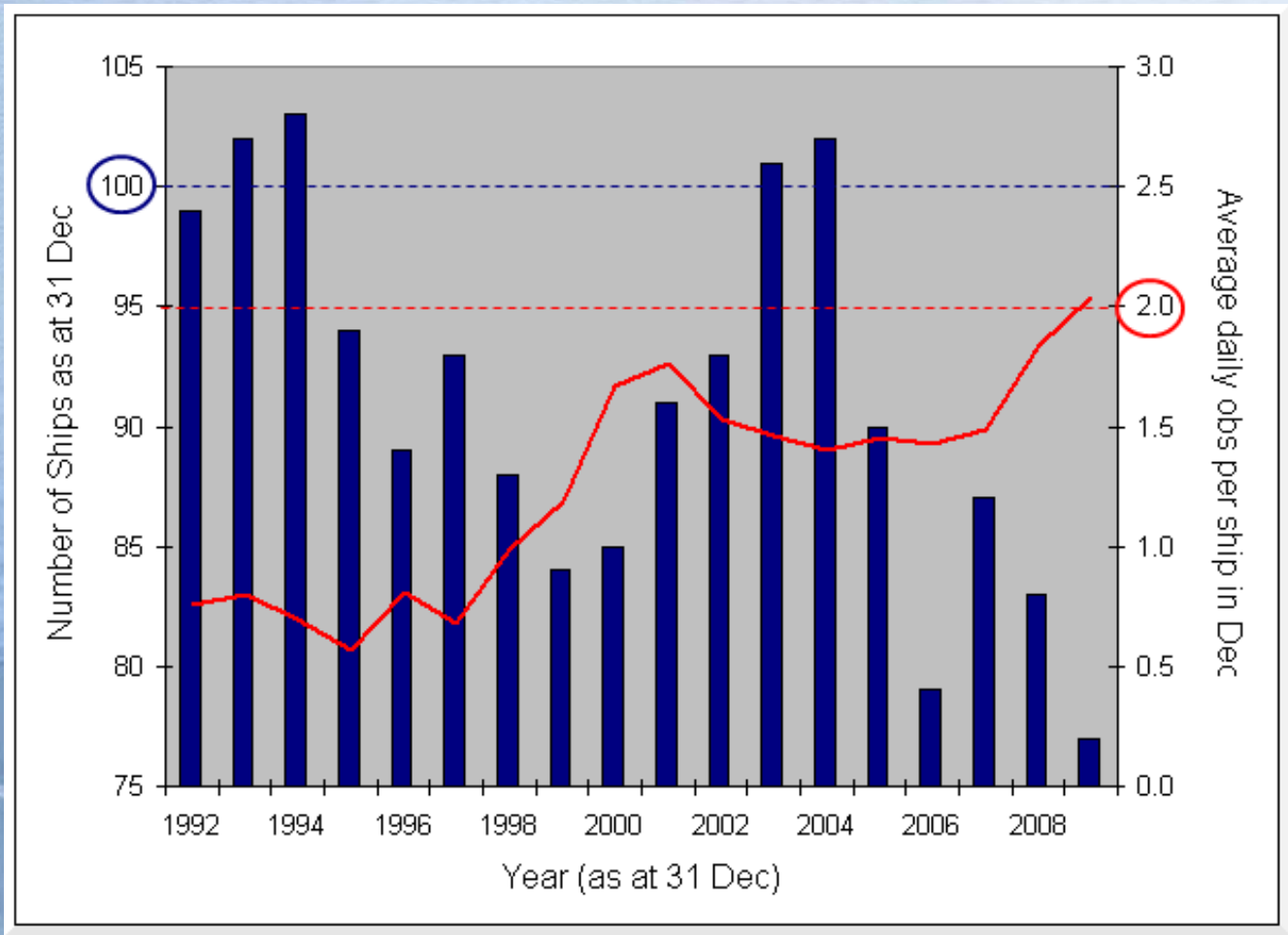
Class	Manual		AWS	
	Fully Manual	**TurboWin**	**ShipAWS**	**Other**
Selected	8	48	9	1
VOSClim	0	9	0	0
Supplementary	0	0	0	0
Auxiliary	0	1	0	0
Total	9	58	9	1
Target	100			

76

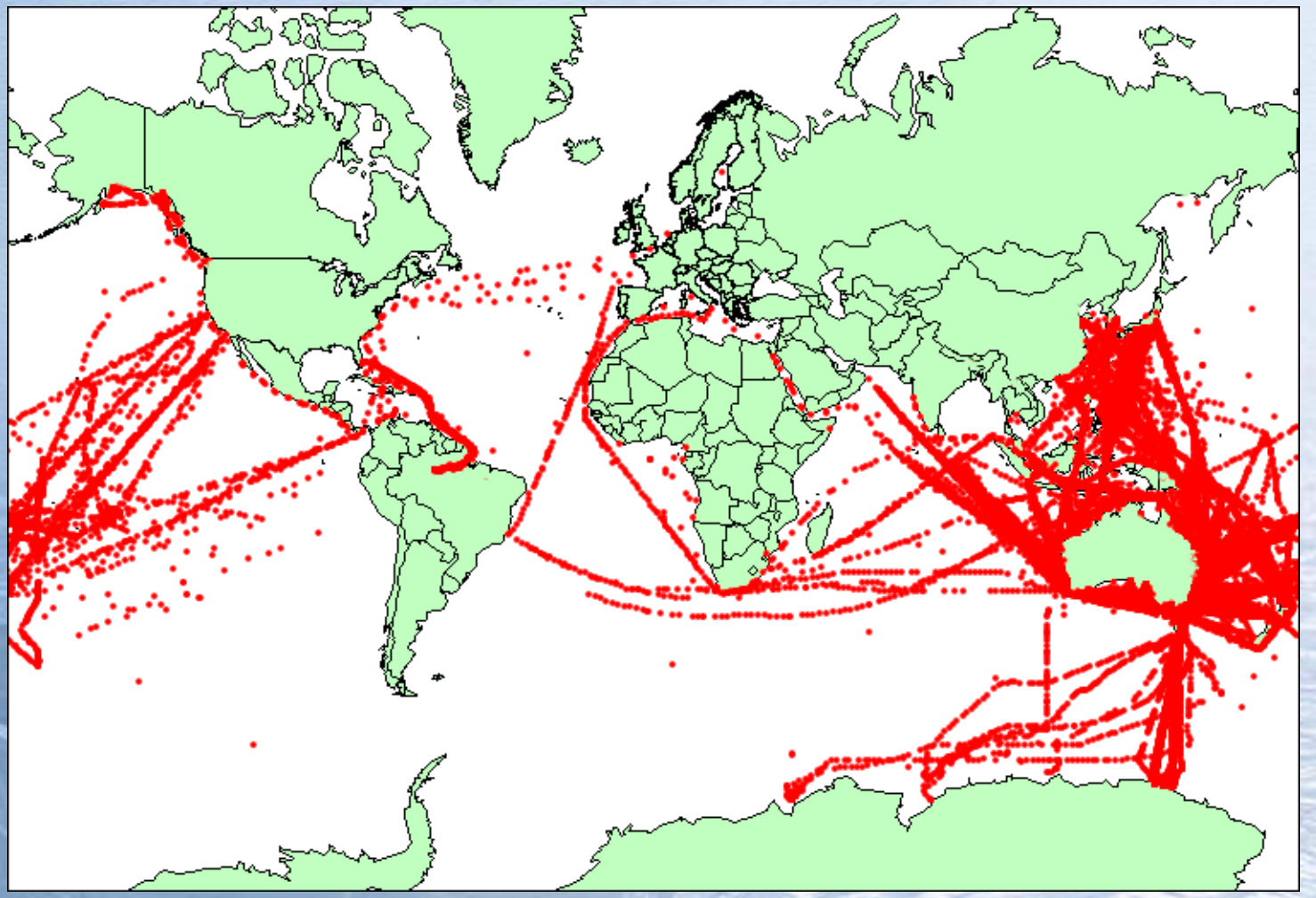
@ 1 December 2010

89 %

Fleet Size & Reporting



Real-time BBXX in 2009



~ 54,950 observations were made by the AVOF in 2009

AVOF Observing Program

Component	Manual Observation	ShipAWS Observation
Observation times	0000, 0600, 1200 & 1800 UTC	Configurable, but generally every 3 hours when moving
Recording	TurboWin (preferred) or paper logbook	Electronic
Transmission	Inmarsat to a LES using free service *SAC41* (*SAC1241* in the AU region)	Inmarsat *data reporting mode* to IOR 312 / POR 212 (formerly Perth)
Data format	BBXX	Binary subset of the BBXX which is converted to a full BBXX by the Bureau
Lodgement on GTS	NMS in the country hosting the receiving LES	Bureau

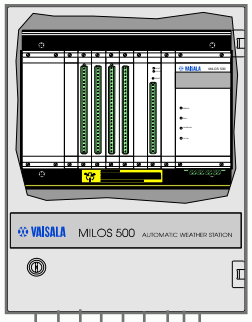
AVOF Meteorological Instrumentation

Instrument	Standard (VOSClim compliant)	ShipAWS
Barometer *	DA (Mk I or Mk II) or PTB220B	PTB220B
Barograph *	7-day Marine being phased out Developing s/w to interface to PTB	
Screen	Marine (generally 2 per ship)	Vaisala DTR13 radiation shield
Thermometers	2 x Mercury-in-glass (wet & dry bulb) per screen	Vaisala HMP45 humidity probe & RTD temperature probe
Anemometer	Beaufort Scale (preferred) or ship's-own anemometer	Vaisala WAA151 anemometer & WAV151 wind vane
Sea Temp	Engine intake (preferred) or bucket & sea thermometer	Engine intake or hull-contact sensor

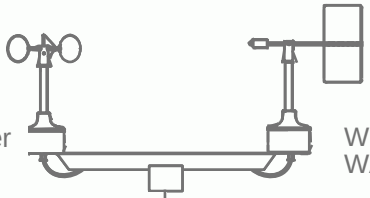
* Set to read station level pressure

ShipAWS

- Remotely sensed:
  - » AP, AT, RH, SST, Apparent WS & WD.
- Derived values:
  - » DP, WB, PT, True WS & WD.
- Manual input of visual elements:
  - » Cloud, weather, visibility, sea, swell.



MILOS 500
Data Collection and Processing System
INSIDE
BOX50S
Equipment Enclosure

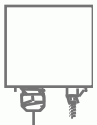


Anemometer
WAA 151

Wind Vane
WAV 151

Cross Arm
WAC 151

HMP 45D Humidity probe and RTD temperature probe inside DTR 13 Radiation Shield



PTB 220B
Barometric pressure transmitter installed on ship's bridge

RS232 Standard/RS422

Data from Ship's compass
Koden gyro interface GRA-20A

Gyro type _Tokyo Keiki Model 5000

RS232

RS232

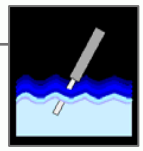
CapSat
TT-3020B

Iridium Modem

RS232

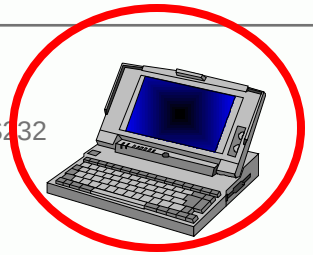
Inbuilt GPS

Inside the AWS



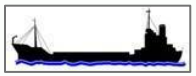
Sea Surface Temperature

RS232



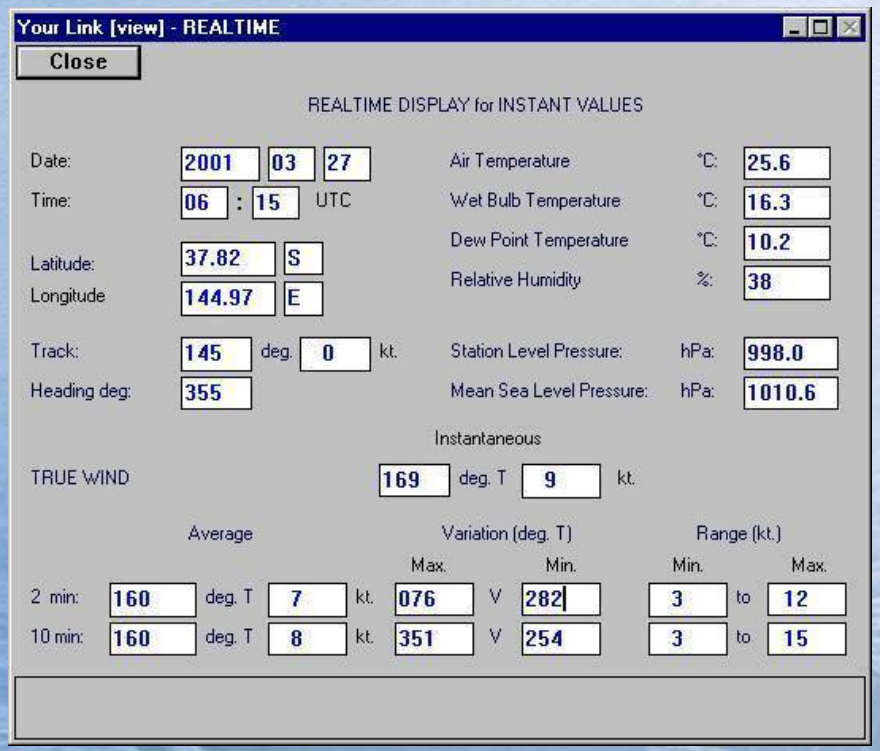
'Yourlink' console on Ships bridge

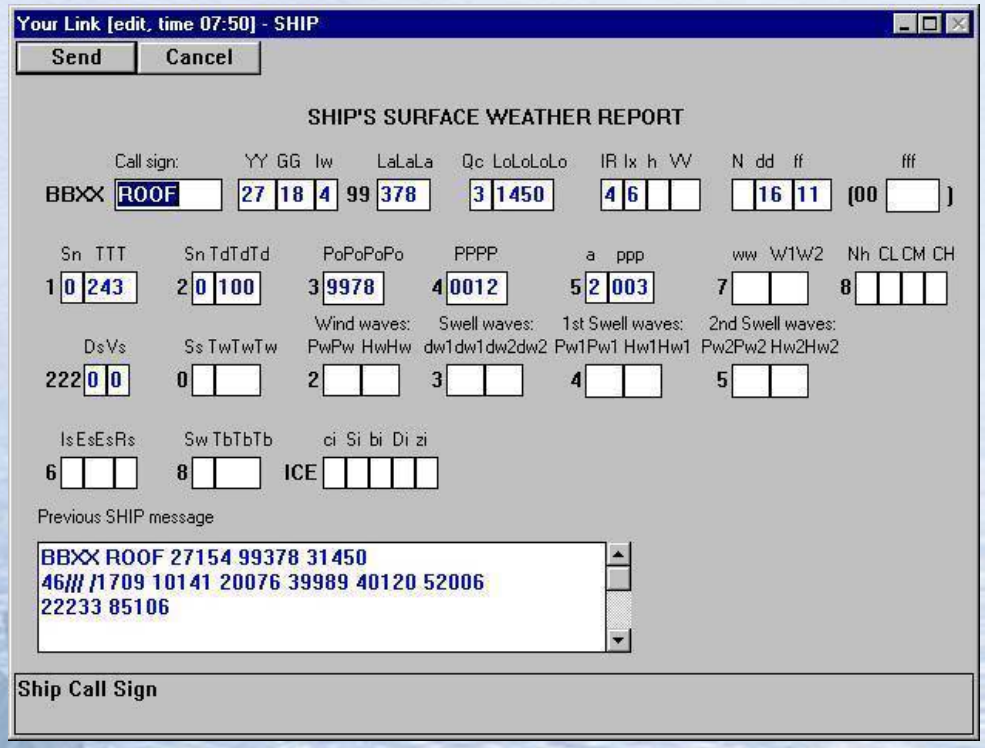
ShipAWS
SYSTEM DIAGRAM



UPPER AIR AND MARINE LAB, SRUM JULY 2004

ShipAWS Console





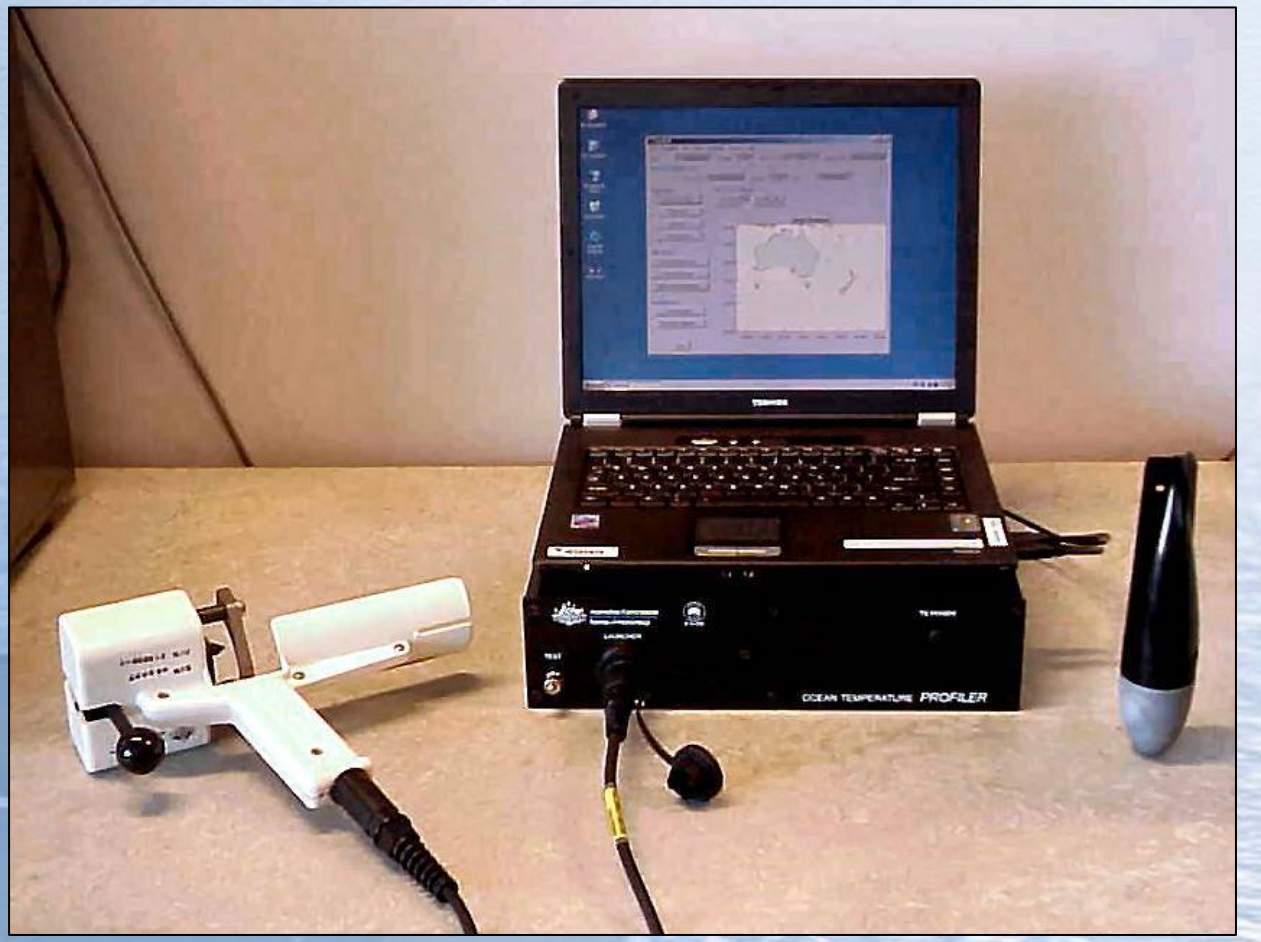
VOS Quality Monitoring

Source	Frequency	Parameters
Real-time feedback	Occasional	All parameters
Météo-France - VOS QM Tools	Weekly	AP
RSMC - QM Report	Monthly	AP, SST, AT, RH, WS, WD
RSMC - Suspect Ship List	Monthly	AP, SST, AT, RH, WS, WD
RTMC - VOSClim Suspect Ship List	Monthly	AP, SST, AT, RH, WS, WD
RSMC - Timeliness of Observations	Monthly	Timeliness of BBXX at RSMC
RSMC - Rejected Ship Reports	Monthly	Errors in BBXX at RSMC
ABOM - Performance Report	Monthly	Count of received BBXX

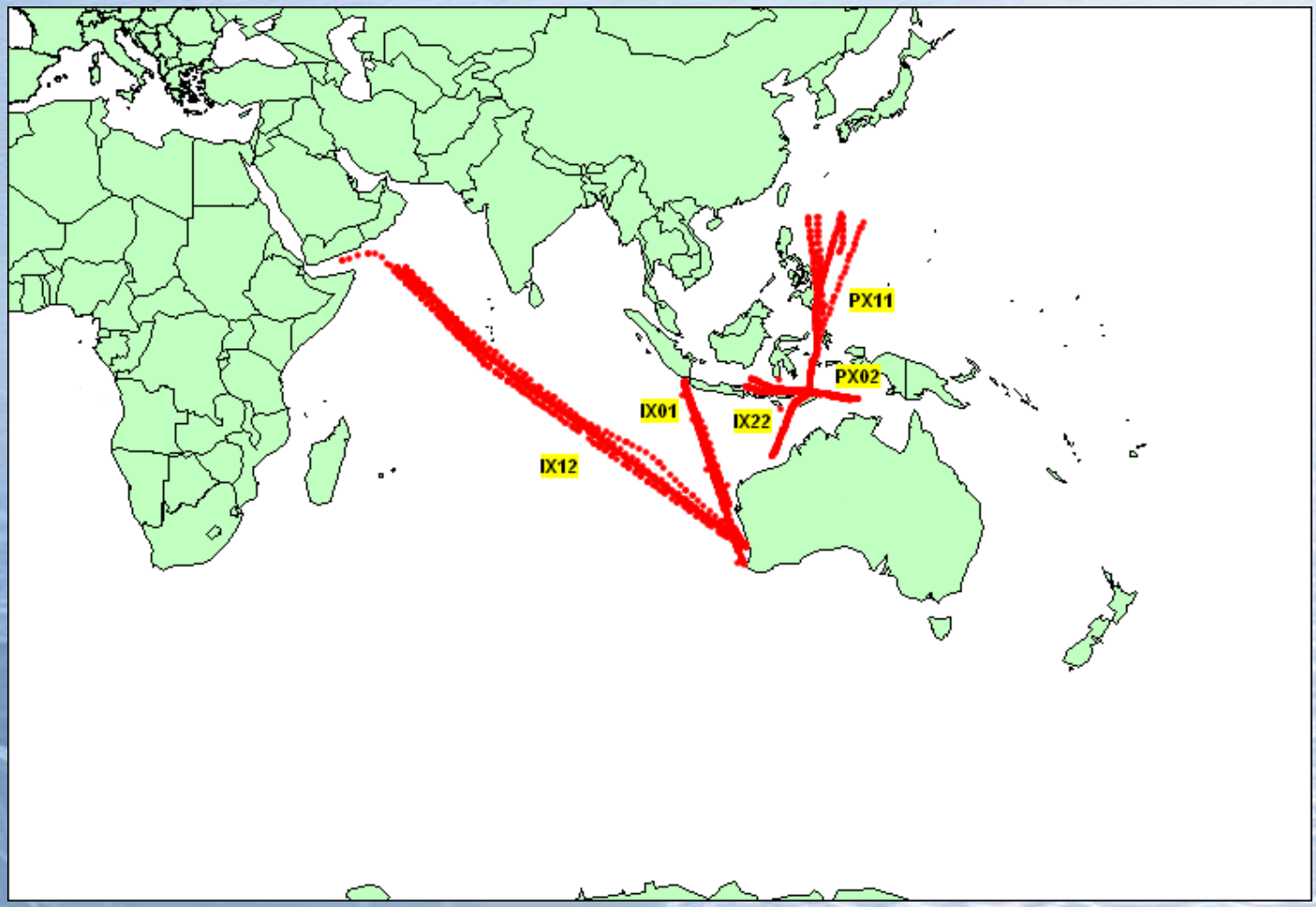

SHIP OBSERVATIONS TEAM
JCOMM
SOOP
Ship-of-Opportunity Programme

XBT SOOP

Devil XBT System



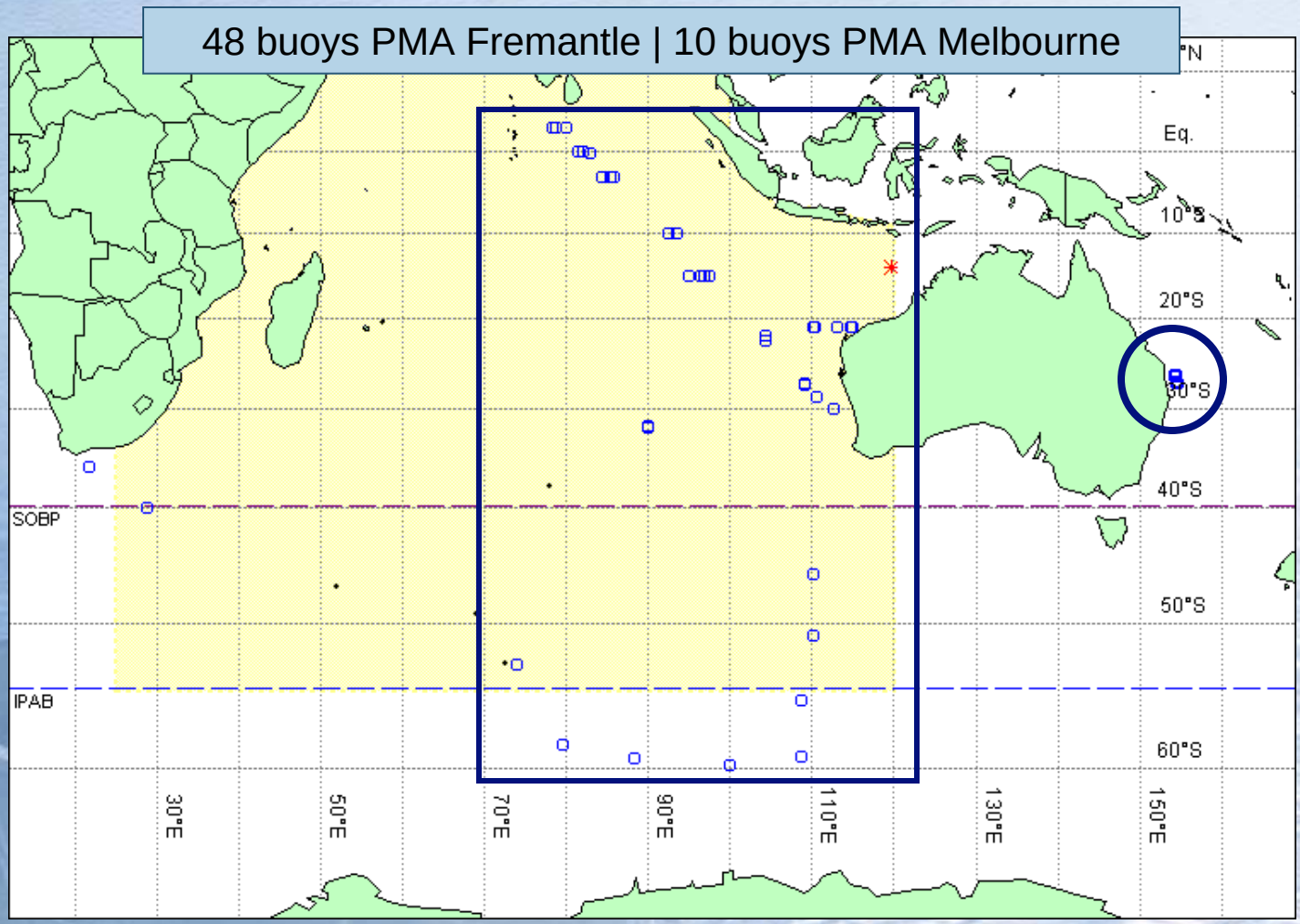
Delayed-Mode XBT Data in 2009



2,402 XBT profiles were made by the Bureau's XBT SOOP during 2009

Drifting Buoys

Drifting Buoy Deployments 2009/10




AUSTRALIA


"That's All, Folks!"