



Met Office

UK National Report for SOT 5

Sarah North

SOT 5, Geneva May 2009



UK National Report for SOT 5

Contents

This presentation covers the following areas....

1. PMO Network and Marine Staff
2. Overview of Marine Networks
 - Voluntary Observing Ships (VOS)
 - VOS Climate Ships (VOSCLIM)
 - Offshore Platforms and Rigs
 - Shipborne AWS
 - Drifting Buoys
 - Moored Buoys
 - Argo Floats
 - ASAP
3. Future plans and strategy





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Scope of Met Office Marine Networks





Marine Networks Staff 2009

Li
1 F
(now vacant)



Exeter
1 Full time
Network
Coordinator
And



1 Full
Netw
Sara



Jon Turton
Ma
O
Ma




Aberdeen
Offshore
Adviser
(on Hendry
O duties)




Edinburgh
part time PMO
/ Eastham
(also RNM)



London
full time PMO
Steve Key



Southampton
Full time PMO
Namalarachchi





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- *the UK Fleet*



Selected ships

Offshore Platforms/Rigs

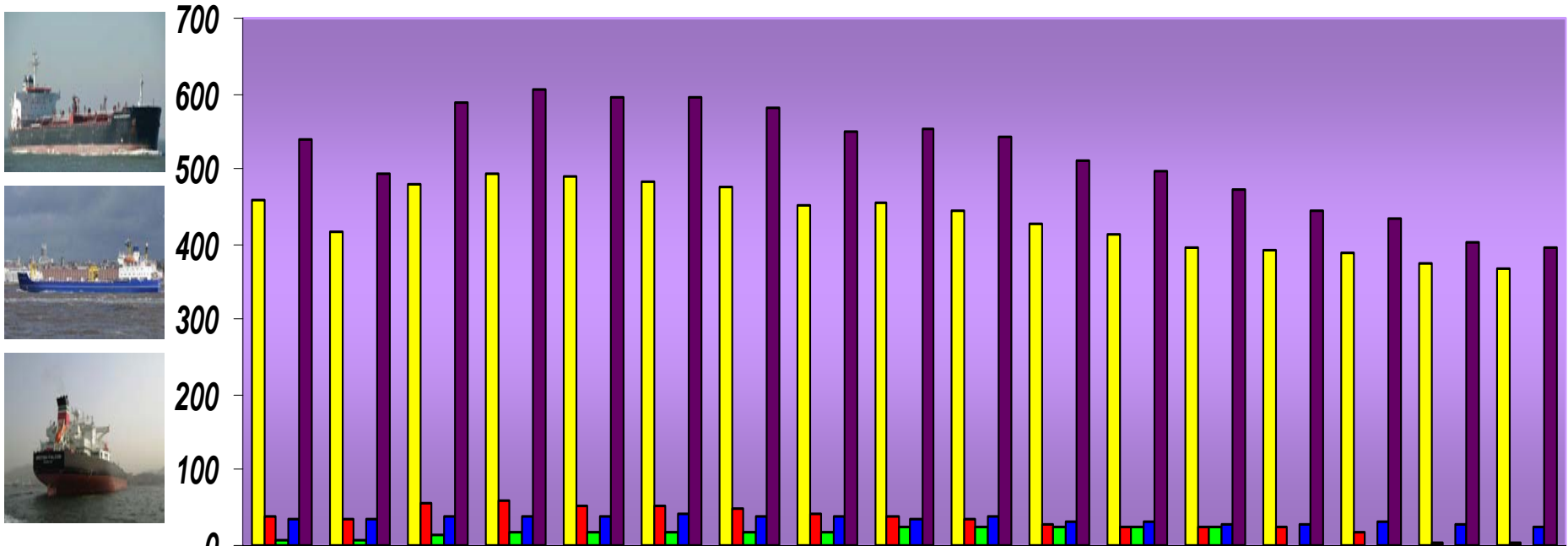
VOSClm ships

	Jan - 07	Jan - 08	Jan - 09
Selected ships	387	373	368 (Now 359)
Offshore Platforms/Rigs	28	28	25 (Now 24)
VOSClm ships	62	65	61 (Now 56)



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- Fleet trends 1992 - 2008



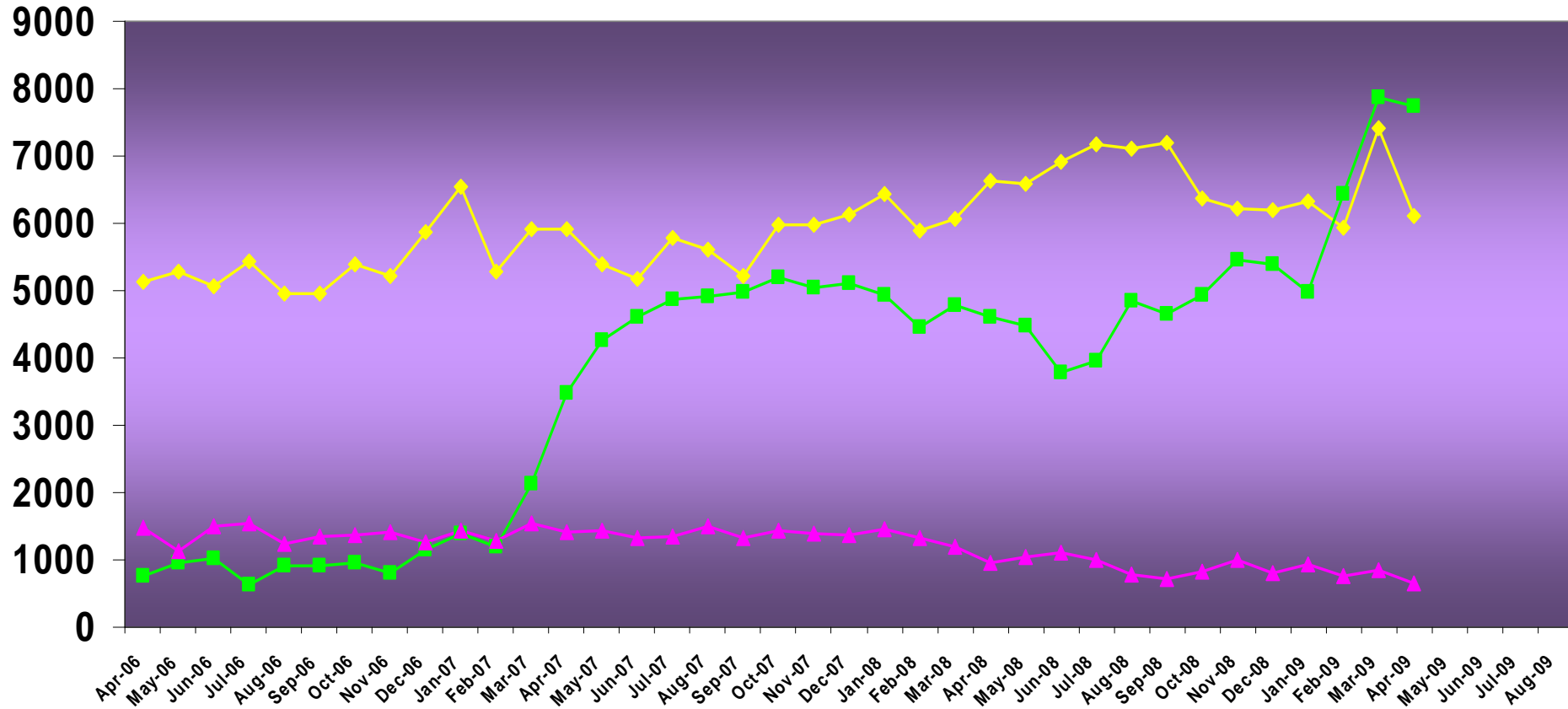
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Selected ships	460	417	480	493	489	483	475	453	454	445	426	413	395	392	387	373	368
MARIDs	39	36	55	59	52	53	49	43	39	34	28	26	25	23	17	2	2
Auxiliary ships	7	8	14	16	17	18	17	16	24	24	23	26	24	0	0	0	0
Offshore [manual]	34	34	38	37	37	41	39	39	35	40	33	31	29	29	30	28	25
Totals	540	495	587	605	595	595	580	551	552	543	510	496	473	444	434	403	395



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Observation trends 2006 - 2008

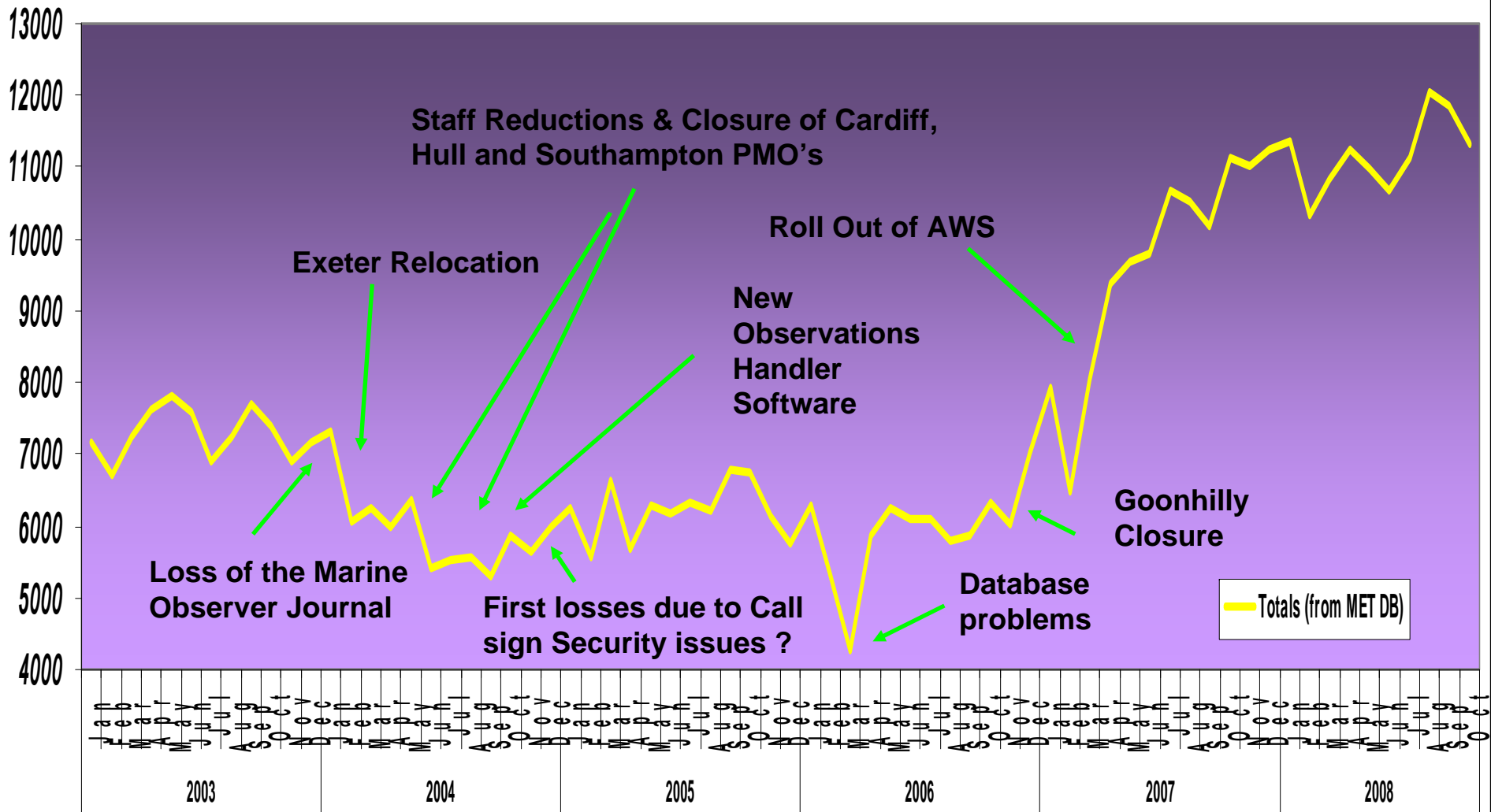
- ◆ Number of Manual SHIP Reports received in real time from Selected VOS
- Number of automatic SHIP reports received in real time from ship based AWS
- ▲ Number of manual SHIP reports received from rigs and platforms under the UK VOF





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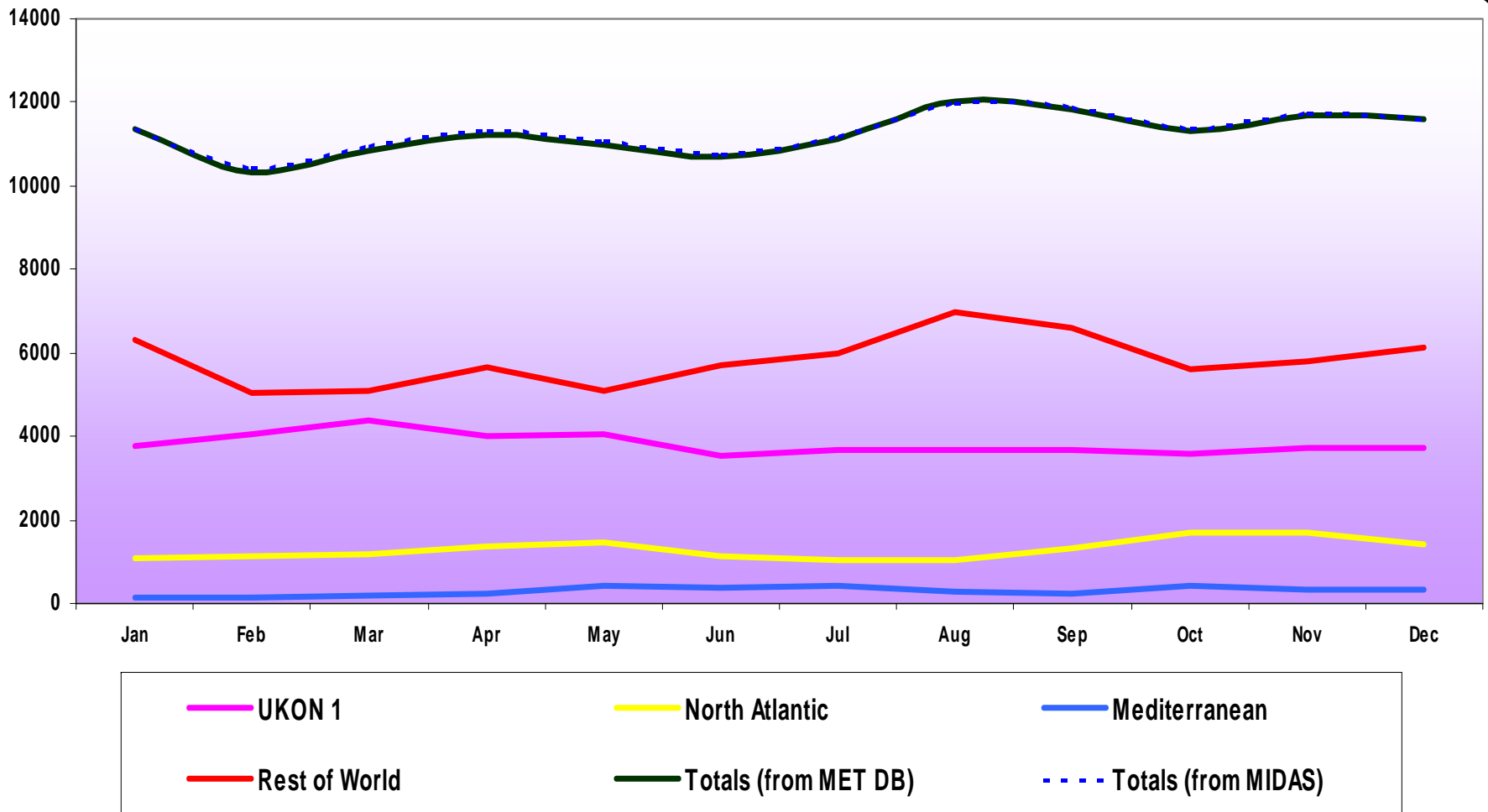
Observation trends (2003 – 2008)





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Observation trends – by area 2008

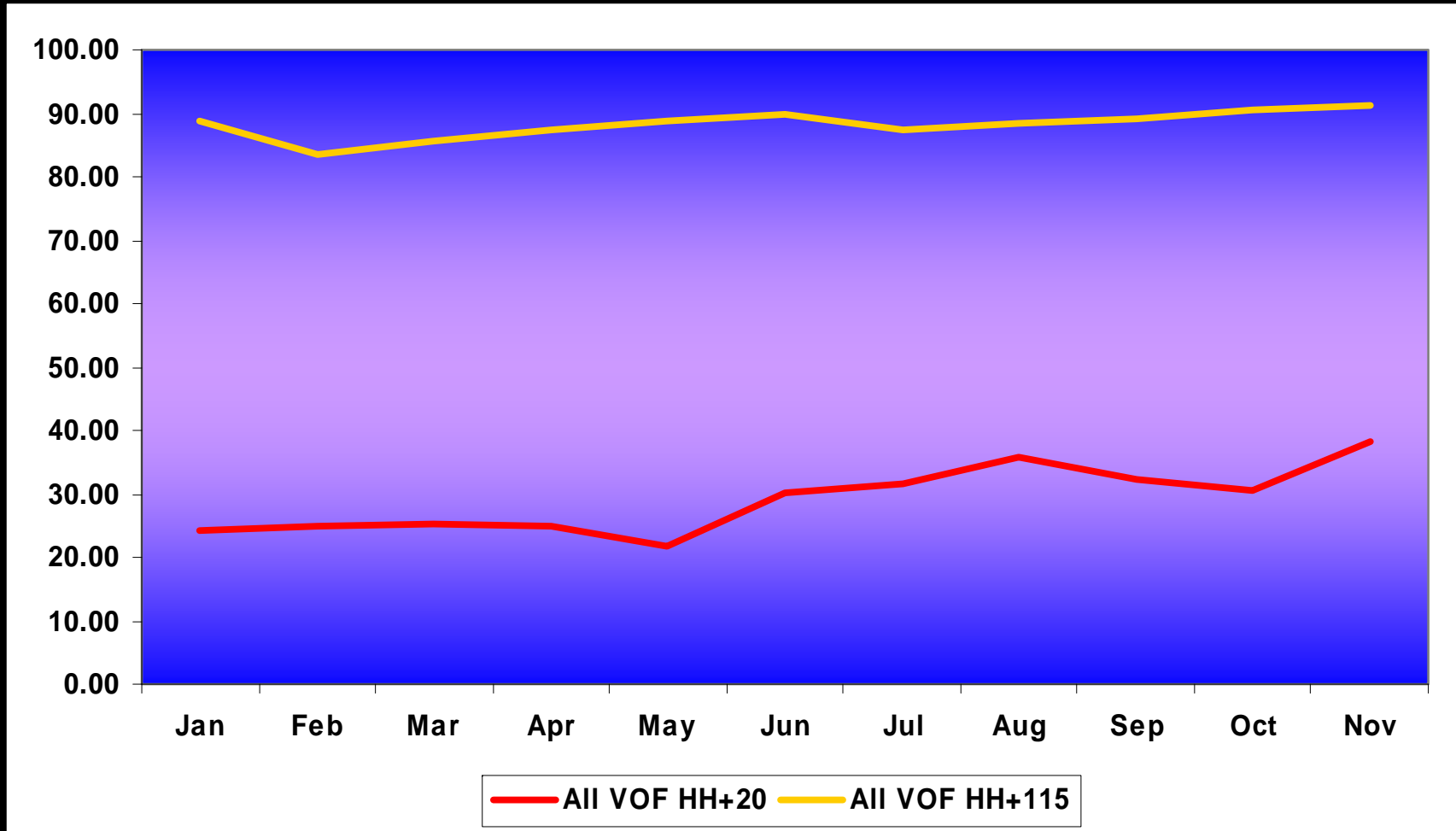




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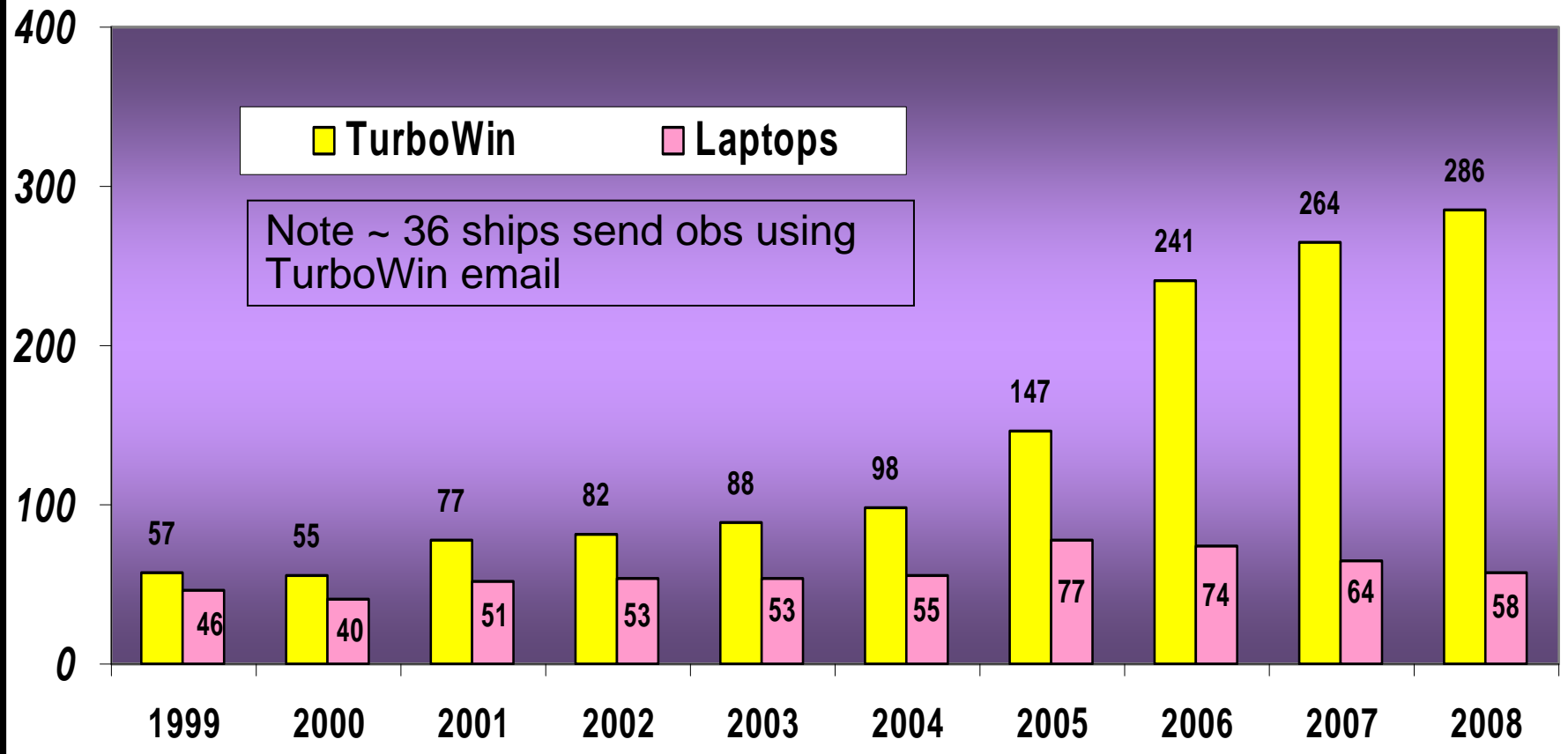
- Observation trends - Timeliness 2008



*Timeliness continues to be affected by Goonhilly
LES closure and by use of MINOS AWS*



UK National Report for SOT 5 Logbooks – *Electronic*



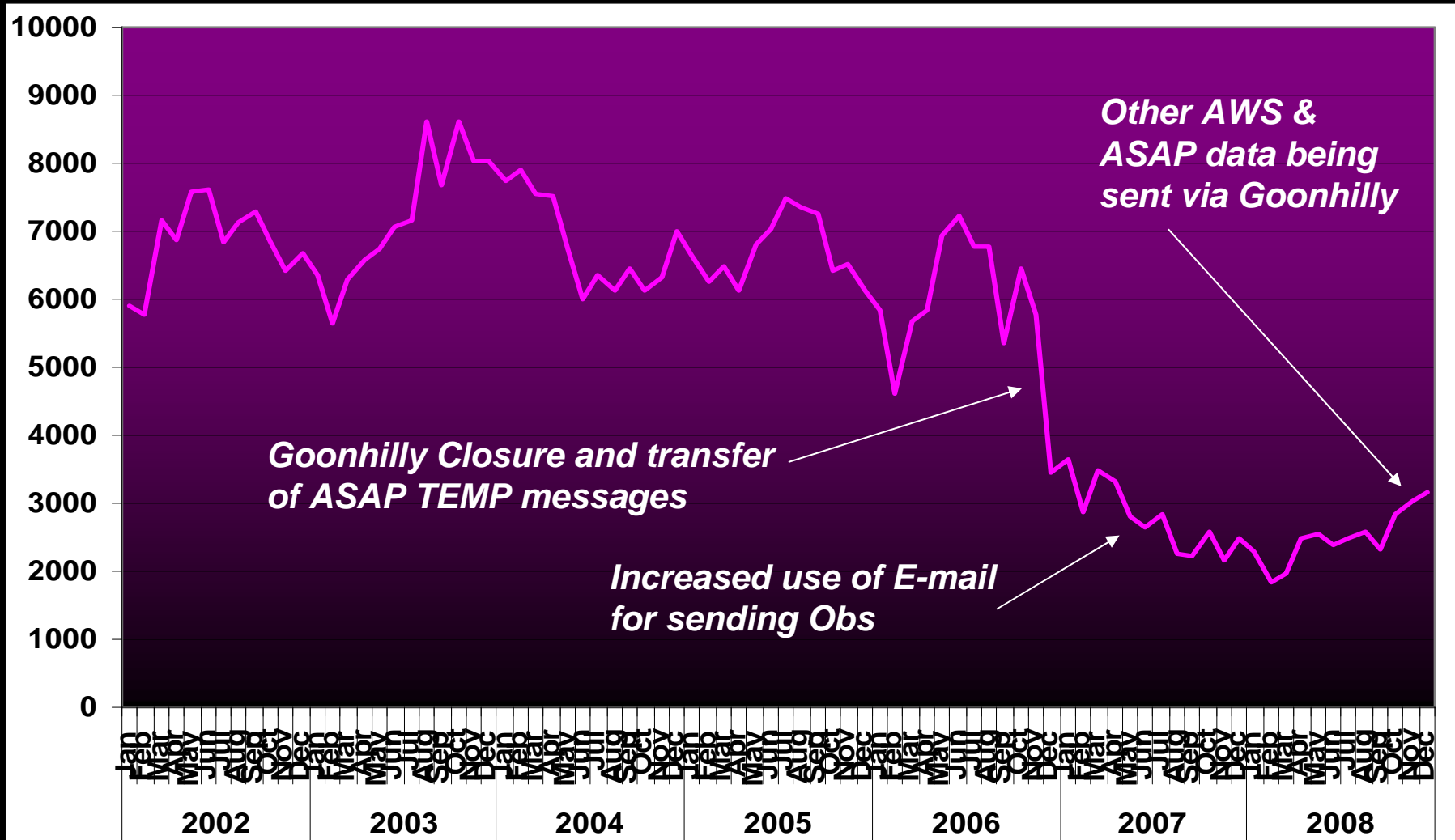
~ 80 % of fleet known to be using TurboWin (but supplied to all fleet now)

Figures for manually observing rigs supplied with TurboWin software are not included above.



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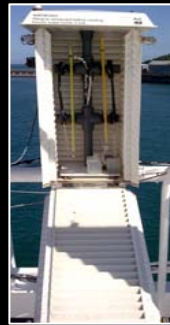
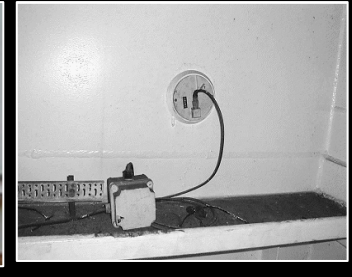
Communication Costs – Inmarsat 2004 -2008





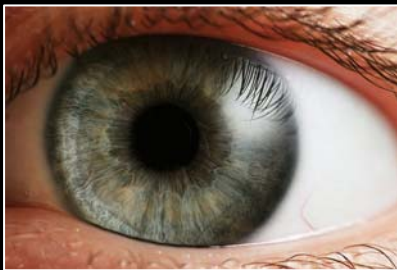
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Instruments for manually reporting ships



Measured parameters

- Atmospheric pressure
- Air temperature
- Humidity
- Sea Surface Temperature



Visual parameters

- Present & Past Weather
- Cloud Type, Height & Amount
- Sea & Swell.
- Wind Speed & Direction
- Visibility



UK National Report for SOT 5 - Data Security - Masking

- 36 manually reporting UK VOS ships now use masked call signs (from 2 shipping companies)
- 11 AWS UK VOS ships reporting under masked call signs (plus two E-SURFMAR BATOS ships installed on UK VOS)
- BP are no longer sending real time obs when in the Gulf of Aden security area (and are also likely to request masked call signs for up to 50 tankers)





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Offshore Installations – Platforms & Rigs



- We maintain and inspect met equipment on 25 manually reporting rigs & platforms - which now email their observations directly to FROST
- Under contract with Muir Matheson we also have access to third party data from a further ~37 offshore installations –amounting to more than 250,000 observations a year



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The Future of the UK VOS Fleet

The future of the UK VOS over the next decade will be dependant upon several key factors, including....

- **Increased levels of Automation**
- **Increased European / International collaboration and drive**
- **Maintenance of a core fleet for climate purposes**
- **Maintenance of funding streams (depends on user requirements etc)**
- **Reduction of transmission costs (Iridium, data compression etc)**
- **Overcoming data security issues (needs a harmonised approach)**
- **Migrating away from the use of mercury thermometers**
- **Enhancement of ship design standards (e.g. SOLAS Regs)**
- **Increased 'buy-in' and support from shipowners**



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Strategy for next 3 years

- Target of 200 Fully Active ships reporting to climate standards
- Deployment of 50 shipborne (Basic) AWS systems
- Phase out use of Mercury thermometry and replace with digital systems
- Migrate away from use of the PAB to more stable/accurate/reliable barometers (e.g. Viasala 220/330)
- Review of PMO network and necessary technical support
- Development project to design and build a basic modular AWS that is cost effective and easy to install
- Develop an enhanced moored buoy capability with spectral wave measurements



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Offshore Installations – Platforms & Rigs



- **We maintain and inspect met equipment on 25 manually reporting rigs & platforms - which now email their observations directly to FROST**
- **Under contract with Muir Matheson we also have access – at minimal cost- to third party data from a further ~37 offshore installations – which amounts to more than 250,000 observations a year**



UK AWS Status Report

– Basic AWS Systems on UK VOS



MINOS

5 MINOS GP AWS

Installed on ferries '*Stena Leader*', '*Stena Seafarer*', '*Hjaltland*', '*Dana Sirena*' and on Fishery research vessel '*Scotia*'

1 MINOS GPW AWS

Installed on ferry '*Princess of Norway*'

1 AUTOMET

Previously Installed on ferry '*Pride of Bilbao*' - currently inactive awaiting repair – now replaced by....

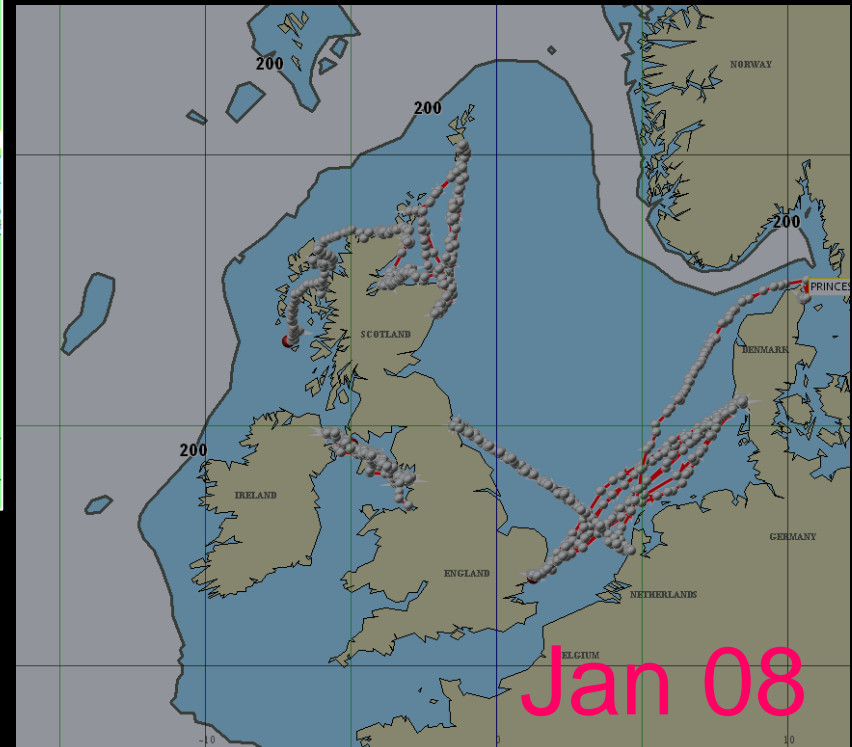
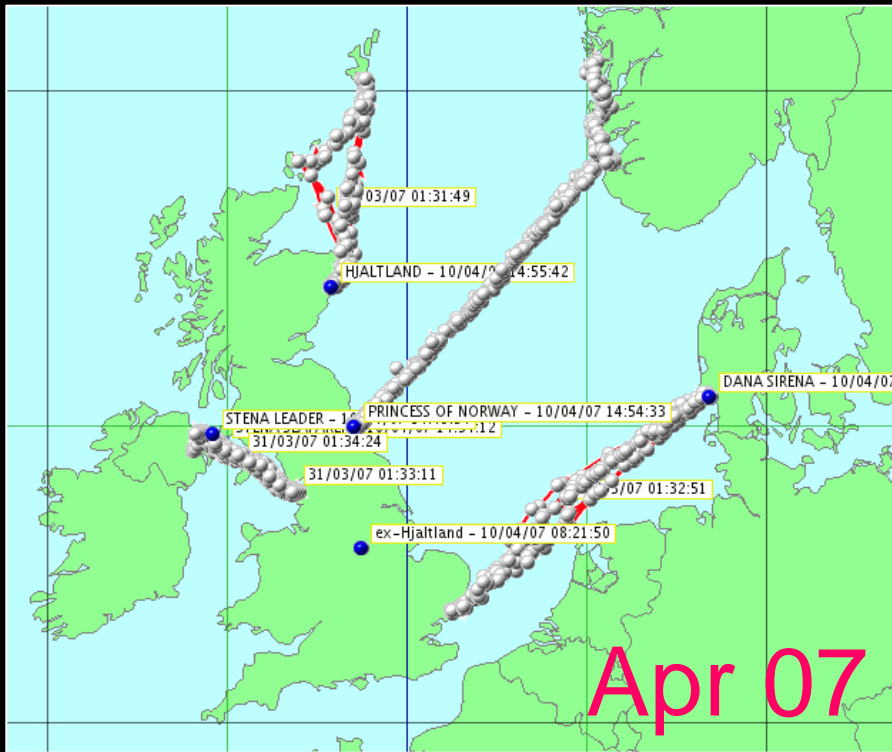
1 METPOD test system



AUTOMET



UK National Report for SOT 5 – *Basic AWS Systems on UK VOS*





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– *Other Basic AWS Systems on UK VOS*

1 Deck drifter

- installed on Research Ship *James Clark Ross*



1 Deck drifter

- installed on ferry *Stena Europe*



+ 2 more deck drifters to deploy

Note – problem with GPS position reporting



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Complex AWS Systems on UK VOS



AVOS

- 1 **AVOS** - installed on container ship '*OOCL Montreal*' (not working at present)
- 1 **BATOS** - installed on container ship '*Toronto Express*' *
- 1 **BATOS** - installed on container ship '*Montreal Express*'
- 1 **BATOS** - installed on Research ship '*James Cook*'
- 1 **BATOS** - installed on new build fishery protection vessel '*Hirta*' (not yet transmitting in real time)
- 1 **Viasala MAWS** - on test ashore - to be installed in 2009



BATOS

* Funded by E-SURFMAR

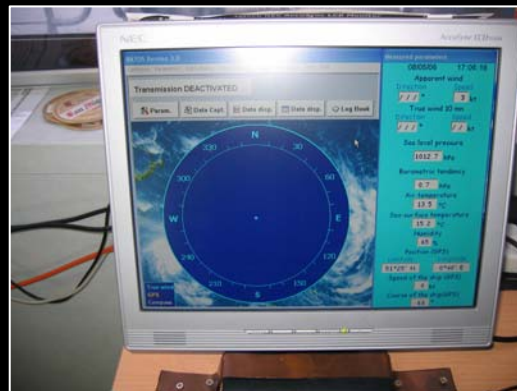


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– *Complex AWS Systems on UK VOS*



BATOS on Toronto Express





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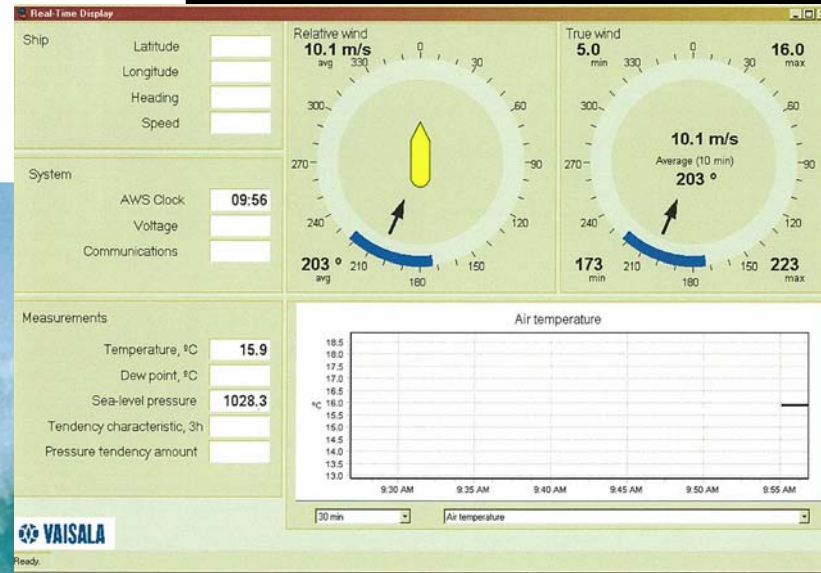
– *Complex AWS Systems*



AVOS on OOCL Montreal



UK National Report for SOT 5 – Complex AWS Systems on UK VOS



Ready:

Ship | Pressure | Temperature | Wind / Rain | Sea State | Weather | Past Weather | Cloud Cover | Low Cloud | Middle Cloud | High Cloud | Icing | Ice | Message

Date: Year, Month, Day

Latitude: Degree, Minute, Hemisphere

Longitude: Degree, Minute, Hemisphere

Ship movement: Heading, Ground course, Ground speed (kt)

Vertical data: Cargo height(m), Sign of level dif., Level dif. (m)

Direction of ship net movement during three hours

	Displacement of ship not reported
0	Stationary
1	NE
2	E
3	SE
4	S
5	SW
6	W
7	NW
8	N
9	Unknown

Average speed of ship during three hours

	Not applicable	Not applicable
0	0 knot	0 km/h
1	1.5 knots	1.10 km/h
2	6.10 knots	11.19 km/h
3	11.15 knots	20.28 km/h
4	16.20 knots	29.37 km/h
5	21.25 knots	38.47 km/h
6	26.30 knots	48.56 km/h
7	31.35 knots	57.65 km/h
8	36.40 knots	66.75 km/h
9	Over 40 knots	Over 75 km/h

General Information: Ship call sign, Country

Wind relative to ship: Direction, Speed



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AWS Evaluation - MetPod





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– *AWS Evaluation*

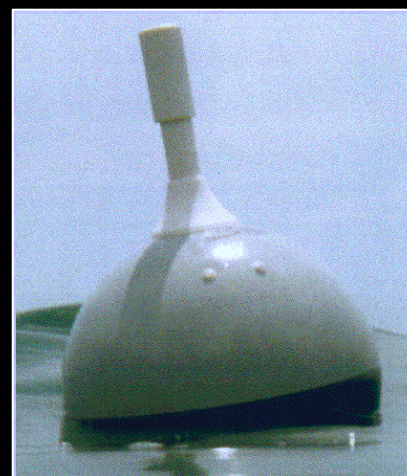
- Evaluating the different AWS systems deployed on UK VOS will help guide the Met Office plans for the future roll out of marine AWS systems (and may also help E-SURMAR)
- We looked at the Data Availability, Timeliness and Quality of the various systems, together with issues related to their ease of installation
- Our evaluation showed that there is a pressing need to develop a simple ‘plug and play’ AWS for the basic parameters (Pressure, Air Temp, Humidity) but with sufficient modularity to add other parameters when required (SST and Wind). Future systems should be
 - **Simple to install**
 - **Cheap to purchase/manufacture**
 - **Use low cost Comms. (e.g. Iridium)**
 - **Require minimal (or no) cabling**
 - **Independent of ships systems where possible (e.g. batteries or solar power)**
- We are about to start a project mandate for a new AWS system that will be compatible with the land based MMS system in use in the Met Office



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Drifting Buoys – Met Office

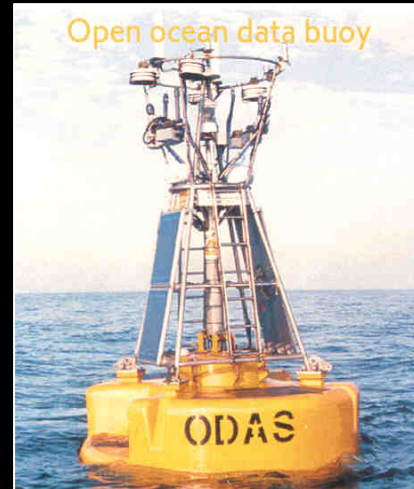
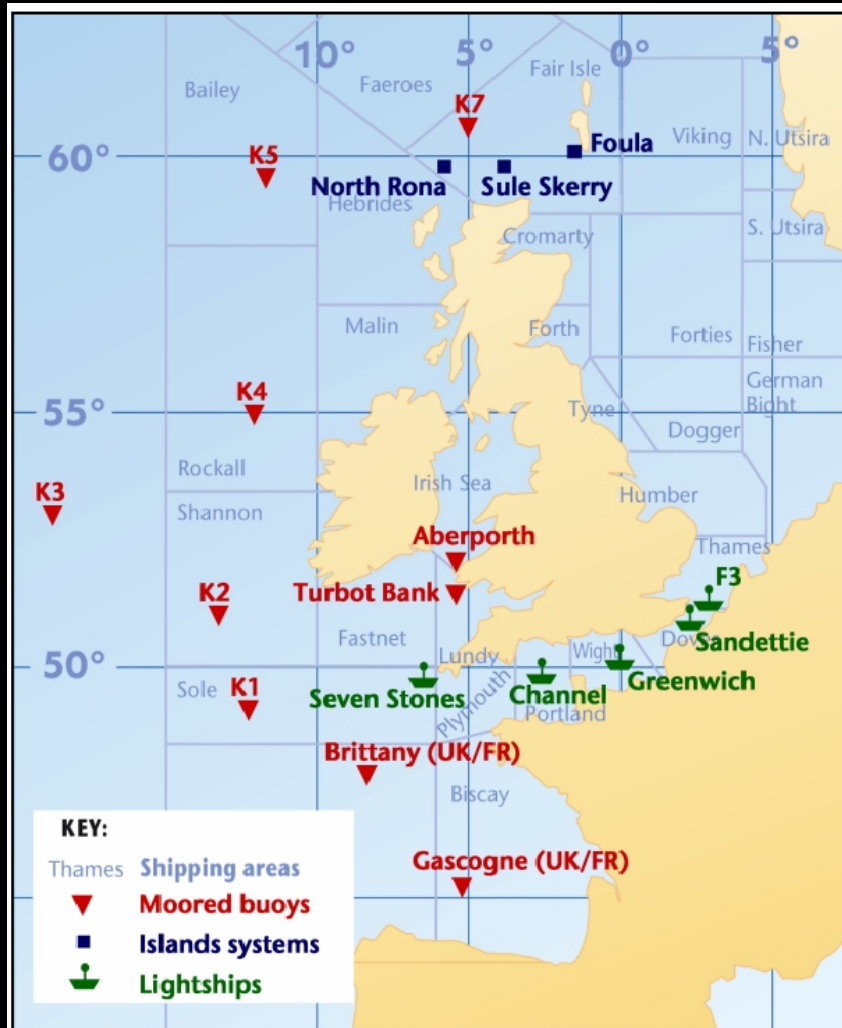
- **Main contribution is in North Atlantic via E-SURFMAR**
- **Approx 15 E-SURFMAR drifters are delivered to UK each year for deployment from UK VOS**
- **Met Office also deploys approx 7 SVP-B drifters each year from research ships in the Southern Ocean**





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The MAWS Network





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Argo Floats



- First ARGO deployments from UK VOS 'Contship Borealis' took place in 2005 in Somali basin. A further two floats were deployed from the 'Glasgow Maersk' in the Arabian Sea in May 2006
- Deployment training video made
- Majority of deployments continue to be made from UK research ships and Royal Navy ships.



- Met Office manages and coordinates the UK contribution to Argo, which is undertaken in partnership with National Oceanography Centre (NOC), British Oceanographic Data Centre (BODC) and the UK Hydrographic Office (UKHO)



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**UK ASAP was
managerially
integrated into
the E-ASAP
Programme on
1st October 2004**



'Mississauga Express'



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UK National Report for SOT 5 - Certificates and Awards



- Annual 'Excellent' Certificates & Awards (Ship Based)
 - ~ 100 Certificates to Top 100 Ships (based on quality/timeliness/number of observations)
 - ~ Book awards also sent to Top 3 Ships (for distribution by Master to Observers)
- Annual 'TurboWin' Awards (Observer Based)
 - ~ 30 Book awards to top TurboWin electronic logbook observers?
- Annual Long Service ('Barograph') Awards (Observer Based)
 - ~ Barograph Award Presentations to the top 4-8 Masters each year
- Annual Offshore Awards (Observer Based)
 - ~ 15 Book awards issued annually to top TurboWin observers
- Participation Certificates (Ship Based)
 - ~ VOSCLim Certificates of Participation presented to all UK project ships
 - ~ SOT Certificates presented to all new UK VOS
- Special Awards (Ship or Observer Based)
 - ~ Book Awards – for nominate staff for other work (e.g. buoy/float deployments)
 - ~ 'Marine Observer' Baseball Caps to encourage ongoing participation
 - ~ 'Marine Observer' Mugs to encourage ongoing participation



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Questions

