Ship Observations Team

~ integrating & coordinating international ship-based observing programmes for JCOMM ~

VOS Inspections

PMO-IV and Support to Global Ocean Observations using Ship Logistics
8-10 December 2010, Orlando, FL, USA

Julie Fletcher
Chair VOS Panel

Ship Inspections Outline

1 Why, When, How

2 Improving Inspections of Foreign VOS

3 Differences in National Practices

4 Visits to non-VOS

Aim: To get all PMOs conversant with the available VOS Monitoring Tools and differing National Practices so they can carry out the most effective Inspection Visits

Inspections – Why, When, How ?

Why make Inspections ?

An Inspection Programme is needed to maintain an active VOS

- To thank and encourage
- To maintain instrument accuracy
- To provide training on Obs preparation
- To provide feedback on Obs
- To update the metadata
- To learn about potential changes to ship route or charter

When to make Inspections

Guidance:

- WMO Pub 471 – 3 monthly intervals if possible
- New VOSClim Class – less than 6 monthly

Practice:

- As often as practicable
- More visits to ‘new recruits’
- More visits to ships with data problems
- Try to maintain regular contact with VOSClim class ships in order to ensure instrument standards, collect the delayed mode data, and update metadata

How to make the Best Inspections

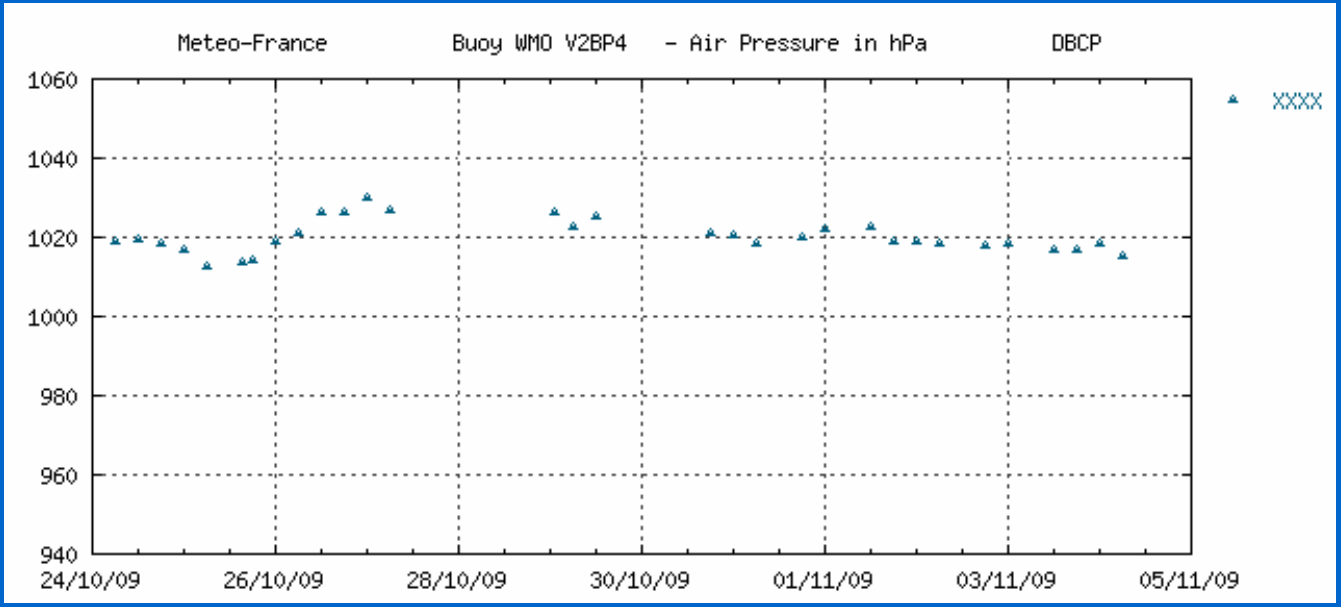
- Being prepared is the key to making a good inspection
  - » Identify the ship?
  - » Is it reporting?
  - » Use monitoring tools to check Ob quality
  - » Date of last inspection, problems since?
- Having knowledge of ship to be inspected
  - » National VOS
  - » Foreign VOS

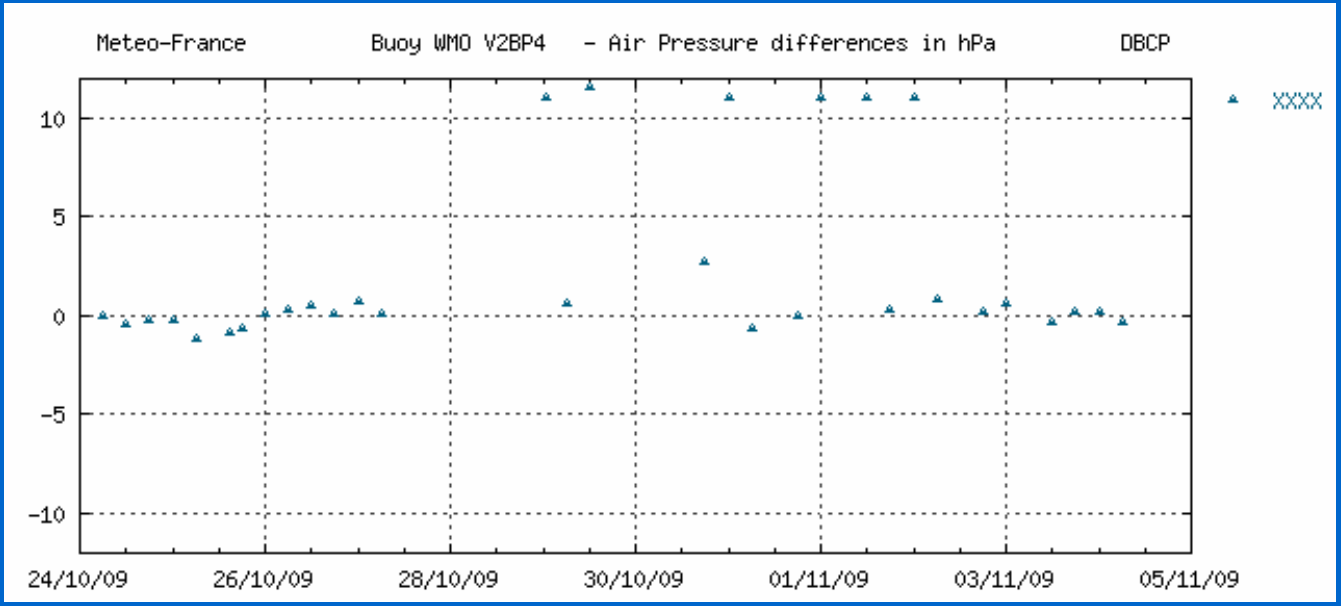
To visit a ship unprepared means the opportunity to provide feedback on Obs and improve reporting practices is lost

Preparation for Inspection Visit

- Pre-Inspection Briefing Notes

Quality Monitoring





http://www.meteo.shom.fr/qctools/

Ship Observations from **MV VEGA GOTLAND**

Ship reports from 0000Z 15-SEP-2010 to 0000Z 20-SEP-2010

V2BP4 15004 99315 31656 41298 60324 10170 20135 40140 58040 70311 86761
22272 00170 20302 332// 40302 80150 =

V2BP4 15064 99311 31645 41598 73533 10190 20165 40038 57060 76061 87897
22273 00190 20304 333// 40305 80175 =

V2BP4 15124 99307 31635 41598 52936 10180 20172 40036 56010 70311 85445
22272 00190 20405 333// 40405 80175 =

V2BP4 15194 99303 31626 41598 52229 10185 20122 40095 52070 70311 85445
22272 00190 20305 323// 40305 80150 =

V2BP4 16004 99300 31607 41598 40222 10205 20136 40145 53030 70311 84145
22272 00190 20405 327// 40405 80165 =

V2BP4 16064 99296 31605 41598 43111 10200 20130 40137 54000 70311 84145
22273 00190 20304 323// 40304 80160 =

V2BP4 16124 99291 31584 41598 42924 10200 20130 40148 51010 70311 84145
22273 00190 20304 323// 40304 80160 =

V2BP4 16184 99287 31582 41498 52112 10195 20144 40156 54000 70311 85145
22273 00190 20303 323// 40304 80165 =

V2BP4 17004 99282 31570 41598 70613 10210 20142 40172 51000 70311 87468
22273 00190 20302 322// 40302 80170 =

V2BP4 17064 99277 31557 41298 71621 10195 20103 40188 51000 70311 87778
22273 00200 20302 322// 40303 80145 =

V2BP4 17124 99272 31544 41298 71109 10200 20130 40206 56010 70311 87778
22273 00200 20302 323// 40302 80160 =

V2BP4 19004 99283 31538 41298 72011 10200 20109 40212 53020 70311 87728
22243 00200 20303 317// 40303 80150 =

Thanks for all the Obs.

After Inspection

- Record visit details in national database
- Record barometer comparison to monitor drift
- Update/correct any changes to metadata
- Follow up on any ship questions
- Send out supplies as required

Foreign Inspections and National Practices

Inspections of Foreign VOS

- PMOs know inspection process on their national VOS
  - » do it regularly
  - » know the instrumentation
  - » know the NMS documentation requirements

- But less familiar with Foreign VOS, and need to:
  - » use Pub 47 (or ESURFMAR) to identify country of recruitment
  - » know the procedures & instrumentation of that country
  - » document the inspection visit using Foreign Inspection Form
  - » email Foreign Inspection Form to VOS FP in country of recruitment

Foreign Inspection Form

- The form can be downloaded from VOS web site, found under Resources/ Forms and Tools

http://www.bom.gov.au/jcomm/vos/resources.html

- Completed Foreign Inspection Form

Differences in National Practices

- Individual countries have differing practices in:
  - » instrumentation
  - » paper and electronic logbooks
  - » reporting practices - designated areas and times to report
- PMOs need to be familiar with these practices to do a good inspection, i.e. know the barometer setting etc
- SOT TT on Instrument Standards maintains a list of national instrument practices:

http://www.bom.gov.au/jcomm/vos/national_practices_pressure.html

VOS Barometer Types and Settings

National VOF	Barometer Type	Barometer setting	Type of Correction Tables used
Australia	Precision Aneroid Barometer	Station Level	Table A - Pressure/temperature correction Table B - Drift correction Table E - Correction to Sea-Level pressure *
	Vaisala PTB220B	Station Level	Table E - Correction to Sea-Level pressure *
	Vaisala PTB220B (on AWS)	Station Level	Correction to MSL applied at BOM
Equador	Aneroid Barometer	Mean Sea Level	Nil
France	Vaisala PTB220/PTU200	Station Level	Correction to MSL applied by BATOS/MINOS software
Germany	Fuess Aneroid	Mean Sea Level	Nil
Greece	Aneroid Barometer	Station Level	Correction to MSL
Hong Kong, China	Precision Aneroid Barometer	Station Level	UK Met O.740 *
	Ship's Aneroid	Station Level	UK Met O.740 *
Japan	Aneroid Barometer	Station Level	Correction to MSL
	Digital Barometer	Station Level	Correction to MSL
New Zealand	Precision Aneroid Barometer	Station Level	Instrument correction (Table A) Correction to Sea Level (Table B) *
	Vaisala PTB330	Station Level	Correction to Sea Level *
	Fuess Aneroid Barometer	Mean Sea Level	Nil
South Africa	Fuess Aneroid Barometer	Mean Sea Level	Nil
United Kingdom	Precision Aneroid Barometer	Station Level	Instrument & Height correction * Table Met O.740
United States	Aneroid Barometer	Mean Sea Level	Nil

Note * For ships using TurboWin the height correction is applied by the TurboWin software

VOS Barograph Types and Settings

National VOF	Barograph Type	Barograph Setting
Australia	Open-Scale Marine	Station Level
Equador	Micro-barograph	Mean Sea Level
Germany	Lambrecht & Mueller/Fuess Small Scale	Mean Sea Level
Greece	Belfort	Station Level
Hong Kong, China	Small Scale	Station Level
Japan	One day & seven day barographs	Station Level
New Zealand	Open-Scale Marine	Mean Sea Level
	Vaisala PTB330 digital display	Station Level
South Africa	Mason	Mean Sea Level
United Kingdom	Open-Scale Marine	Mean Sea Level
United States	Belfort	Mean Sea Level

Using the National Practices Information

- Knowing the Foreign VOS barometer type and setting allows PMO to make an accurate barometer comparison and inform the observer of the correct procedure for obtaining MSL for the OB.

- For example, a UKVOS precision aneroid outputs station level pressure, so a correction for barometer height above sea level must be applied from a Correction Table, either manually or by E-software to produce MSL for the OB

Using the Information (2)

- Knowing the Foreign VOS barometer type and setting means a PMO will know how the electronic logbook software should be configured eg. SEAs or TurboWin.

- Eg. a UK VOS precision aneroid outputs station level pressure so the TurboWin barometer screen must read “NO” to question ‘barometer reading indicates pressure at mean sea level’. TurboWin will then add the correction for height to sea level.
- Eg. A US VOS using an Aneroid set to MSL must enter MSL pressure in SEAS, or if using TurboWin, answer YES to question ‘barometer reading indicates pressure at mean sea level’.

TW Configuration details

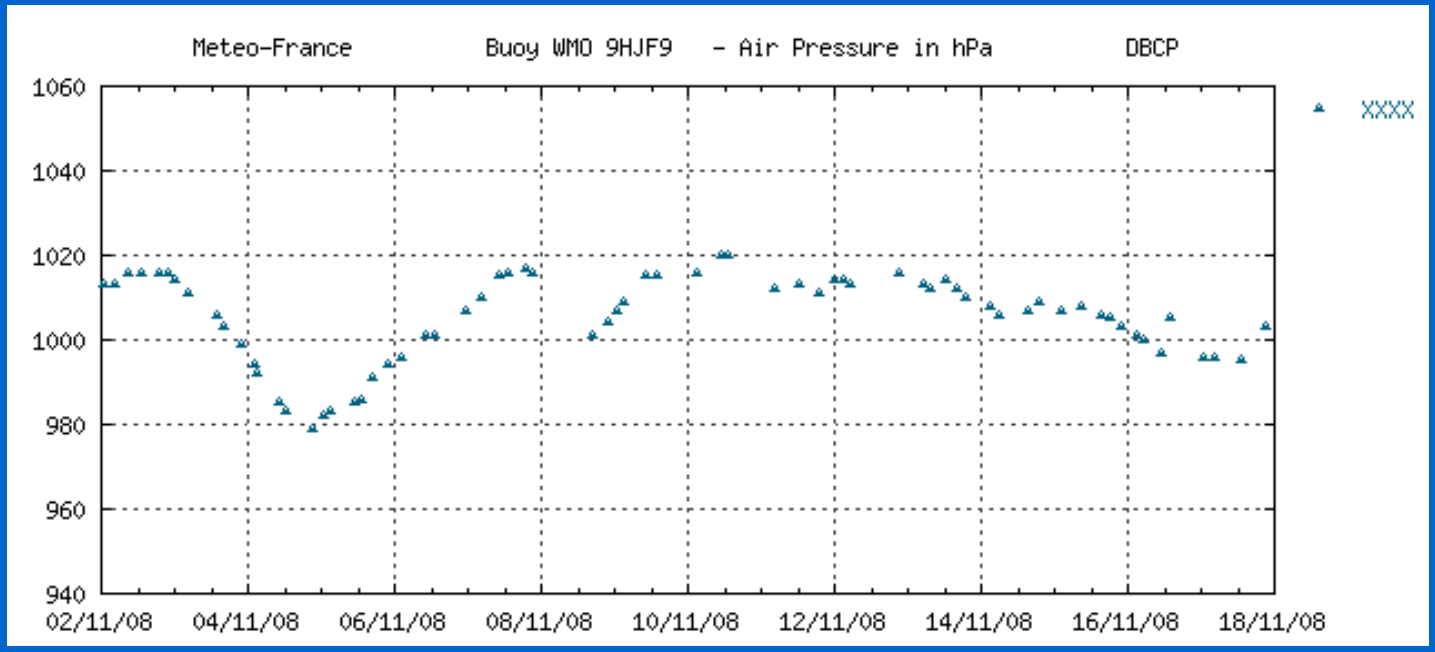
- Australia developed a TurboWin Configuration sheet which is now used by Australia & NZ PMOs
- The sheet records details of the station settings entered when TurboWin is set up
- A copy is left on board ship, so same values can be entered if TurboWin has to be reinstalled, eg after a computer crash
- Use of this sheet ensures consistency in the metadata and makes it easy for a ship to set up TW again

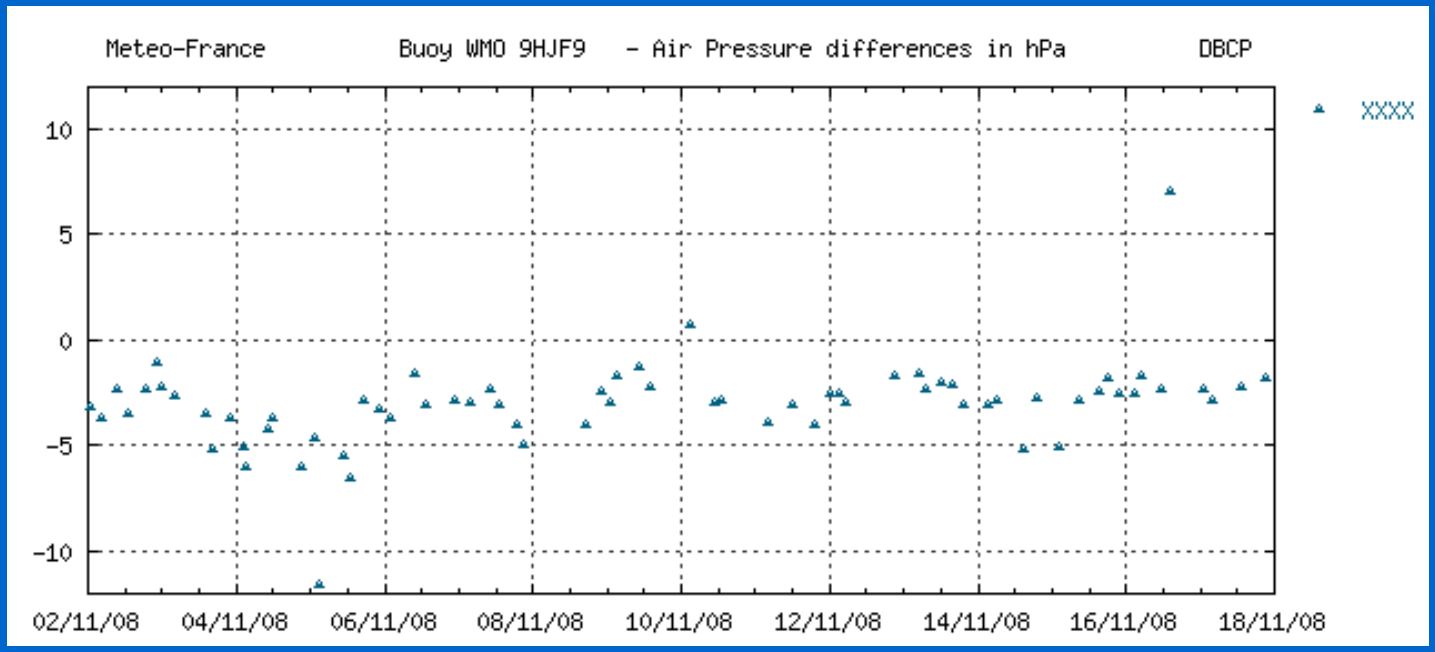
TurboWin Configuration Sheet

Foreign VOS Inspection Example

- Forecasters identified AP from MV MILLENNIUM too low
- Ship identified from MeteoFrance VOS monitoring site as US VOS
- Lots of recent Obs filed for 9HJF9
- MeteoFrance monitoring stats confirmed AP 3.0 hPa low
- Courtesy visit made in Wellington 22 Jan 2009
- Observers thanked for Obs
- Reason for low pressure identified

MV MILLENIUM AP too Low

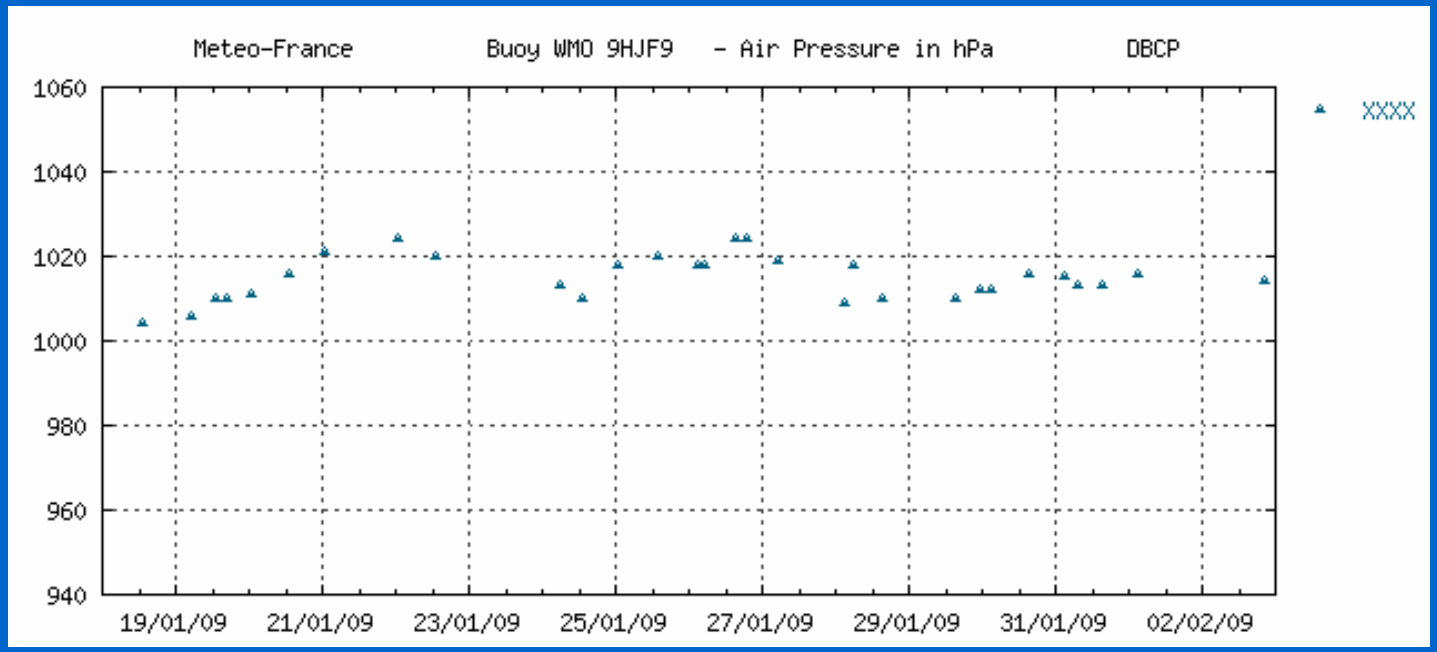


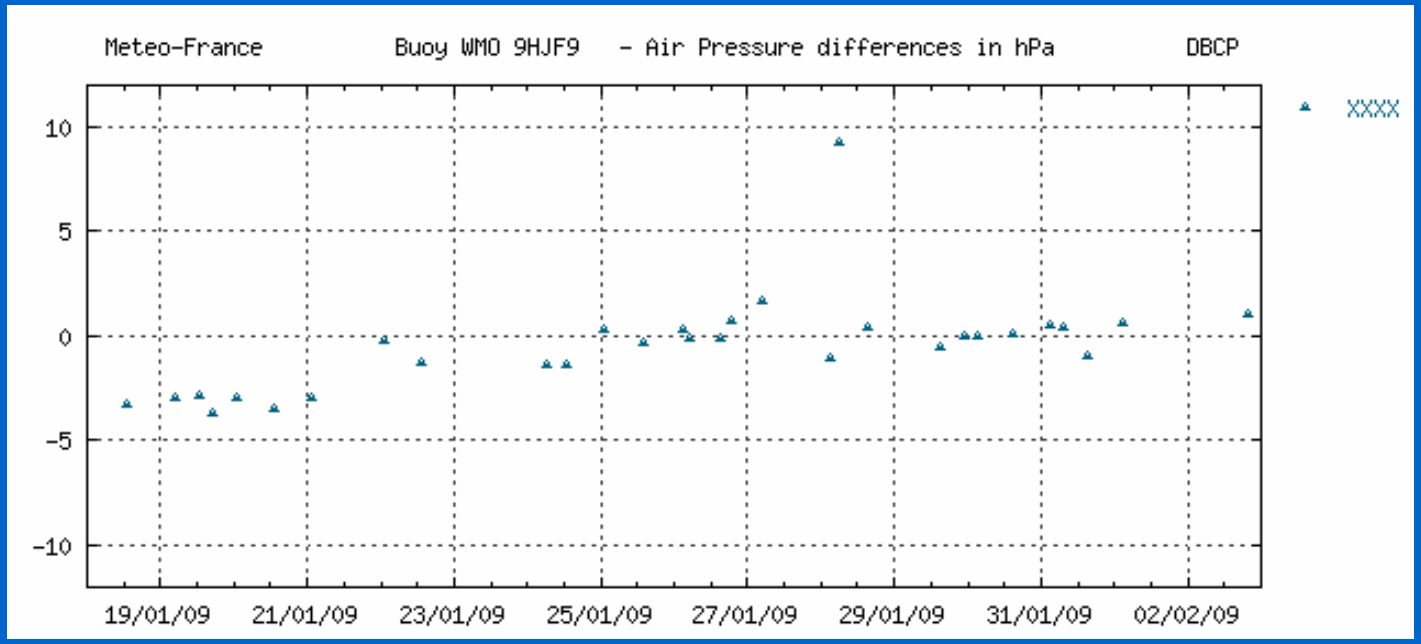


MV MILLENNIUM Foreign Inspection form

- MV MILLENNIUM Foreign Inspection form
- AP Monitoring Statistics before and after

AP Corrected





Successful Inspection

MV Millennium inspection was successful because :

- Ship was thanked for their Obs
- Ship received help with some coding issues
- The barometer was set to display MSL pressure

The Monitoring Stats identified an AP problem and then confirmed the fix

- PMO sent Foreign Inspection form to US

Ship Inspections Summary

- A well prepared Inspection Visit provides:
  - » useful feedback to shipboard observers
  - » successful detection and correction of problems
  - » an accurate visit record

  so that the NMS has confidence in what has been done.

- PMO Inspection Visits can have a significant impact on data quality and done well can produce significant results

Visits to non-VOS

Visits to non-VOS

- PMOs receive requests from non-VOS ships for assistance from time to time
  - » Barometer comparisons
  - » Forecast enquiries
- Handling of these requests will differ from NMS to NMS dependent on resources
- Should these services be charged for?
- Maybe these enquiries should be seen as opportunities
  - » To promote VOS
  - » To gain new recruits

Actions for PMOs

- Use the excellent VOS monitoring tools, provided by UKMO & Meteo France when preparing for a visit
- Become familiar with practices and instrumentation on Foreign VOS
- Provide or update your NMS VOS instrument details to Julie for publication under ‘National Practices’ on web
- Use the Foreign Inspection Form when visiting foreign VOS
- Email the completed Foreign Inspection Form to the Country of Recruitment
- Consider requests from non-VOS as “Opportunities”

Questions?