





Voluntary Observing Ships (VOS) and Data Buoy (DBCP) Quality Control Monitoring Tools



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## **QUESTIONS:**

- 1. Why is data quality important?
- 2. How can I monitor data quality for VOS and DBCP platforms?
- 3. Who is responsible for taking follow-up actions to correct deficiencies?
- 4. Where can I go to get help with improving marine data quality from my network?



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## Why is data quality important?

Link to presentation by Darin Figurskey of the National Weather Service, Ocean Prediction Center on value of marine observations and the importance of ensuring good quality data.









### WIGOS Data Quality Monitoring System (WDQMS)









## WIGOS Data Quality Monitoring System (WDQMS)

The WDQMS webtool is a resource developed by the World Meteorological Organization <u>WMO</u>, and hosted by the European Centre for Medium-Range Weather Forecasts (<u>ECMWF</u>), to monitor the performance of all WMO Integrated Global Observing System (<u>WIGOS</u>) observing components.

It monitors the availability and quality of observational data based on near-real-time monitoring information from the four participating global Numerical Weather Prediction (NWP) centres: the German Weather Service (**DWD**), the European Centre for Medium range Weather Forecasts (**ECMWF**), the Japan Meteorological Agency (**JMA**) and the United States National Centers for Environmental Prediction (**NCEP**).

The webtool links availability and quality of surface-based observational data from those WIGOS Quality Monitoring Centres with the WIGOS metadata and user requirements from <u>OSCAR/Surface</u>, providing free and open access information on network/station issues to any user, in particular to WMO Members and to Regional WIGOS Centres (RWCs) for follow up.

Please click on the link below to navigate to the WDQMS webtool: <u>https://wdqms.wmo.int/nwp/marine\_surface/</u>







# ESURFMAR Marine Observation Monitoring Quality Control Tools (QC Tools)









#### **GROSS ERRORS (GE)**

A "gross error" in data refers to a large, obvious mistake in a measurement or data point, usually caused by human error like misreading an instrument, incorrect data entry, or a faulty experimental setup, making it significantly different from other data points in the set, essentially an outlier that stands out clearly from the rest.

#### **STANDARD DEVIATION (SD)**

When comparing the standard deviation of two data sets, a lower standard deviation indicates that the data points are more tightly clustered around the mean, signifying greater consistency within that data set, while a higher standard deviation means the data points are more spread out, indicating greater variability



## Station WMO 6LDRRAL VOS info

OC Statistics - Air Pressure

Date Origin	Coue centre	Lat	LOII	NODS	UL.	DIGS	- SU	1 10 5
20240829 AMMC	S CMM	-0.1	131.6	642	0	0.6	0.6	0.9
20241130 LFVW	H CMM	-1.4	100.3	169	0	0.7	1.1	1.3
20241231 LFVW	H CMM	-3.4	111.1	743	0	0.7	1.1	1.3
20250131 LFVW	H CMM	-1.1	129.8	744	0	0.7	1.0	1.2
Last position:	-1.1 129.8	۲						
20241130 LFVW 20241231 LFVW 20250131 LFVW Last position:	н СММ н СММ н СММ	-1.4 -3.4 -1.1	100.3 111.1 129.8	169 743 744	0 0 0	0.7 0.7 0.7	1.1 1.1 1.0	1.3 1.3 1.2

#### **ROOT MEAN SQUARE (RMS)**

Root mean square (RMS) is a statistical measurement that can be used to compare data sets. It's a standardized way to compare errors between different models or systems. The model with the lowest RMS value is usually considered the most accurate. RMS is sensitive to outliers because large errors have a disproportionate impact on the RMS value

#### BIAS

The difference between actual and expected values. Bias can be positive or negative. The smaller the value the more accurate the observation. Noting that the models may not always be correct.







From these forms, you will have access to monthly statistical information of the data provided by databuoys and Voluntary Observing Ships sending messages on the GTS. You can access the statistical indicators through several options :

- 1. By unique Identifier, which will show you either last 2 years of data if you choose the "Table" option, or the graphic representation corresponding to some of these statistical indicators if "Graphs" is chosen for display,
- 2. By country, where you will have acces for a given month to all the buoys or ships for that country

Please note that the country and station informations are based on updated metadata files from OceanOPS.

If values of indicators exceed warning thresholds, they appear in red in the tables. In the graphs, the red lines indicate the threshold value for the displayed statistical indicator if defined. Below are displayed the thresholds values used:

Parameters	Bias	Standard Deviation	RMS	Gross Errors
Pressure	Bias >1.2 hPa	SD > 1.5 hPa	1	Obs-Model ≥10 hPa
Temperature	Bias > 3 °C	1	RMS > 6 °C	Obs-Model ≥15 °C
Humidity	Bias >7 %	SD > 10 %	RMS > 10 %	Obs-Model ≥40 % (*)
Wind Speed	Bias >4 m/s	1	1	Obs-Model ≥15 m/s
Wind Direction	Bias >25 deg	SD > 60 deg	1	Obs-Model ≥100 deg
SST	Bias >3 °C	SD > 3 °C	RMS > 1.5 °C	Obs-Model ≥5 °C

The value for the number of Gross Errors (GE) threshold is 5.

(\*) : Before September 2021, the threshold for Humidity Gross errors was 15 %







# ESURFMAR Marine Observation Monitoring Quality Control Tools (QC Tools)

The ESURFMAR Marine Observation Monitoring Quality Control Tools (QC Tools) is developed and hosted by MeteoFrance to monitor the data quality performance of all vessel and buoys.

It monitors the availability and quality of observational data based on near-real-time monitoring information against the weather model from MeteoFrance, the European Centre for Medium range Weather Forecasts (ECMWF) and the Mercator model for SST.

The webtool links availability and quality of surface-based observational data from those WIGOS Quality Monitoring Centres with the WIGOS metadata from OceanOPS, providing free and open access information on network/station issues to any user, in particular to WMO Members and to Regional WIGOS Centres (RWCs) for follow up.

> Please click on the link below to navigate to the QC Tools: https://esurfmar.meteo.fr/qctools/









## E-SurfMar Drifter data QC

Sébastien Péré Meteo France CMM / buoys data QC

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#### I - DEPLOYMENT

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### Maintain the network / spatial strategy

- Ajust the drop to the net gape
- Avoid early grounding

### **3 GLOBAL TOOLS**

https://www.ocean-ops.org/share/DBCP/Maps/DBCP\_Density.png





aoml noaa phod gdp deployment value (kmz)

https://marine.copernicus.eu/access-data/ocean-visualisation-tools



**Copernicus ocean visualisation tools (expert)** 



#### **II - MONITORING - POLICY**

METEO FRANCE

- Detect anomalies
- Schedule controls
  - Weekly
  - Monthly
- Corrective actions

#### https://esurfmar.meteo.fr/qctools/

#### MARINE OBSERVATION MONITORING Quality Control Tools

Data Buoys	Monthly Statistics	Blacklists	Daily Data plots	Other Tools
T OD/S	BUOYS Blacklists Synthesis BUOYS Pressure (Global) BUOYS Pressure (Surfmar) BUOYS Pressure (MF) BUOYS SST (Global) BUOYS Positions (Global) BUOYS Ashore (Global) Some explanations here statistics		Plote of data and differences	Google Earth BUOYS map Nearest BUOYS BUOYS location on map Thermistor String BUOYS
VOS Ships	Statistics I NEW tool for Buoys and VOS monthly statistics (extended) Statistics of comparisons with models outputs established by different meteorological centres. Enter the parameter and the station(s) you wish.	VOS Blacklists Synthesis VOS Pressure (Global) VOS Pressure (Surfmar) VOS Positions (Global) VOS Wind (Surfmar) VOS Unknown (Global) VOS Pressure (US) VOS Timeliness (Surfmar) S-AWS Timeliness (Surfmar) Blacklists (daily updated): List of stations with dubious values for a given parameter ( wind, sst, pressure,) for all stations or E-SURFMAR stations only.	Plots of data and differences with model outputs for BUOYS and VOS Plots of data and plots of differences with some model outputs (QC plots) over the past 30 days for buoys or VOS.	VOS Indiv Control Panels VOS Observation Counters VOS European AWS list VOS European Conv. list VOS European platform list Location of a buoy on a map. Search for buoys close to another one or a given location. Access to Individual control panels for VOS and consult VOS observation counters.
Monitoring Metadata	Maps		Usefull Interne	at Links (select domain needed)
EUCOS Moni     E-PAP Portal     A link to send	itoring portal on eucos dwd de d feedbacks on dubious obs to data	a responsibles through JCOMM Qu	ality Control Relay	
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#### II - MONITORING - QCTools

Blacklists

### Daily data plot

Monthly stats

METEO FRANCE	MARINE C	DBSERVATION M uality Control To	IONITORING pols	
Data Buoys	Monthly Statistics	Blacklists BUOYS Blacklists Synthesis BUOYS Pressure (Global) BUOYS Pressure (Surfmar) BUOYS Pressure (MF) BUOYS SST (Global) BUOYS Positions (Global) BUOYS Ashore (Global) Some explanations here	Daily Data plots	Other Tools Google Earth BUOYS map Nearest BUOYS BUOYS location on map Thermistor String BUOYS
VOS Ships	Statistics I NEW tool for Buoys and VOS monthly statistics (extended) Statistics of comparisons with models outputs established by different meteorological centres. Enter the parameter and the station(s) you wish.	VOS Blacklists Synthesis VOS Pressure (Global) VOS Pressure (Surfmar) VOS Positions (Global) VOS Wind (Surfmar) VOS Unknown (Global) VOS Pressure (US) VOS Timeliness (Surfmar) S-AWS Timeliness (Surfmar) Blacklists (daily updated) : List of stations with dubious values for a given parameter ( wind, sst, pressure,) for all stations or E-SURFMAR stations only.	Plots of data and unerences and VOS Plots of data and plots of differences with some model outputs (QC plots) over the past 30 days for buoys or VOS.	VOS Indiv Control Panels VOS Observation Counters VOS European AWS list VOS European Conv. list VOS European platform list Location of a buoy on a map. Search for buoys close to another one or a given location. Access to Individual control panels for VOS and consult VOS observation counters.
Monitoring Metadata	Maps nitoring portal on eucos.dwd.de al nd feedbacks on dubious obs to data	a responsibles through JCOMM Qu	Usefull Internation	er Links (select domain needed)
			6	EUMETNET

#### II - MONITORING - QCTools Blacklists



#### II - MONITORING - QCTools control Panel



Link dataplot obs vs model





#### II – MONITORING – QCTools Blacklists dubious AP

QC Statistics - Air Pressure

#### Station WMO 1301622

0 0.0 0.5 0.5 0.4 0.9 1.0 0 -0.1 0.4 0.4 0.3 0.9 1.0 0.0 0.6 0.6 0.3 1.0 1.0 ECMWF 22.9 -84.8 743 10 -0.3 2.7 2.7 CMM 24.6 -85.5 744 26 0.2 2.0 2.0 0.5 0.5 0.5 0.9 1.0 B ECMWF 27.4 -88.6 671 0 0.1 0.5 0.5

#### II – MONITORING – QCTools Blacklist SST Dataplot obs vs model





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#### Leaving sea ice - correct SST

reflect necessarily the truth. Station data can be significantly different from model outputs in sparse areas, coastal areas (due to local effects), areas with strong gradient. If there is no data

#### II - MONITORING - QCTools

https://esurfmar.meteo.fr/qctools/

Monthly stats

Data Buoys	Monthly Statistics	Blacklists	Daily Data plots	Other Tools
I ODAS	Buoys and VOS monthly	BUOYS Blacklists Synthesis BUOYS Pressure (Global) BUOYS Pressure (Surfmar) BUOYS Pressure (MF) BUOYS SST (Global) BUOYS Positions (Global) BUOYS Ashore (Global) Some explanations here	Plote of data and differences	Google Earth BUOYS map Nearest BUOYS BUOYS location on map Thermistor String BUOYS
VOS Ships	<b>INEW tool</b> for Buoys and VOS monthly statistics (extended)	VOS Blacklists Synthesis	with model outputs for BUOYS and VOS	
	Statistics of comparisons with	VOS Pressure (Stodar) VOS Pressure (Sufmar) VOS Positions (Global) VOS Wind (Surfmar) VOS Unknown (Global) VOS Pressure (US) VOS Timeliness (Surfmar) S-AWS Timeliness (Surfmar) Blacklists (daily updated) : List of stations with dubious		VOS Indiv Control Panels VOS Observation Counters VOS European AWS list VOS European Conv. list VOS European platform list Location of a buoy on a map. Search for buoys close to
	models outputs established by different meteorological centres. Enter the parameter and the station(s) you wish.	values for a given parameter ( wind, sst, pressure, ) for all stations or E-SURFMAR stations only.	Plots of data and plots of differences with some model outputs (QC plots) over the past 30 days for buoys or VOS.	another one or a given location. Access to Individual control panels for VOS and consult VOS observation counters.
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	nitoring portal on eucos.dwd.de		Usefull Interna	t Links (select domain needed)
• E-PAP Port • A link to ser	al nd feedbacks on dubious obs to data	a responsibles through JCOMM Qu	uality Control Relay	
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#### II - MONITORING - QCTools monthly controls

		BU	OYS AND V	OS QC - MONTHI	LY STATISTICS	5		
s form to select the Ship or Bu	oy to display monthly sta	tistics over last 2 years :						
En	ter Platform id ( call sign or	WMO id ) :						
		Parameter : Air Pressure	~		OK			
		Display - Table	^		UK			
		Graphs	~					
s form to display monthly statis	stics by country :							
	Choose	a country :	~					
		Month : Feb 2025 V						
		MOORED BUOYS	^		ОК			
	Pla	tform Type : DRIFTING BUOYS						
		SHIPS	~					
		Display . Show all platforms		^				
		Show only platform	s exceeding thresholds	~				
Voluntary Observi several options : 1. By unique	ng Ships sending mess: • Identifier, which will s	ages on the GTS. You can ac	ccess the statistical inc	licators through the "Table" option, or				
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Voluntary Observi several options : 1. By unique the graph display, 2. By countr Please me OceanOP If values of indicat In the graphs, the are displayed the t Parameters Pressure Temperature Humidity Wind Speed Wind Direction	ng Ships sending mess: e Identifier, which will s ic representation corre- y, where you will have ote that the country and S. ors exceed warning thr red lines indicate the th hresholds values used: Bias  Bias > 1.2 hPa  Bias > 3 °C  Bias > 7 %  Bias > 4 m/s  Bias > 25 deg	ages on the GTS. You can ac show you either last 2 years sponding to some of these st acces for a given month to a d station informations are b resholds, they appear in red meshold value for the displa Standard Deviation SD > 1.5 hPa / SD > 10 % / SD > 60 deg	ccess the statistical ind of data if you choose atistical indicators if all the buoys or ships i ased on updated meta in the tables. yed statistical indicat RMS / RMS > 6 °C RMS > 10 % / /	licators through the "Table" option, or "Graphs" is chosen for for that country adata files from or if defined. Below Gross Errors  Obs-Model ≥ 10 hPa  Obs-Model ≥ 15 °C  Obs-Model ≥ 15 m/s  Obs-Model ≥ 15 m/s  Obs-Model ≥ 100 deg				



#### II - MONITORING - QCTools monthly stats 1 buoy





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**O EUMETNET** 

#### II - MONITORING - QCTools

https://esurfmar.meteo.fr/qctools/

Daily data plot

Data Buoys	Monthly Statistics	Blacklists	Daily Data plots	Other Tools
ODAS	Buoys and VOS monthly	BUOYS Blacklists Synthesis BUOYS Pressure (Global) BUOYS Pressure (Surfmar) BUOYS Pressure (MF) BUOYS SST (Global) BUOYS Positions (Global) BUOYS Ashore (Global) Some explanations here		Google Earth BUOYS map Nearest BUOYS BUOYS location on map Thermistor String BUOYS
VOS Ships	II NEW tool for Buovs and VOS		Plots of data and differences with model outputs for BUOYS and VOS	
	Statistics of comparisons with models outputs established by different meteorological centres. Enter the parameter and the station(s) you wish.	VOS Pressure ( Global ) VOS Pressure ( Surfmar ) VOS Positions ( Global ) VOS Wind (Surfmar) VOS Unknown ( Global ) VOS Pressure ( US ) VOS Timeliness ( Surfmar ) S-AWS Timeliness ( Surfmar ) Blacklists (daily updated) : List of stations with dubious values for a given parameter ( wind, sst, pressure, ) for all stations or E-SURFMAR stations only.	Plots of data and plots of differences with some model outputs (QC plots) over the past 30 days for buoys or VOS.	VOS Indiv Control Panels VOS Observation Counters VOS European AWS list VOS European platform list VOS European platform list Location of a buoy on a may Search for buoys close to another one or a given location Access to Individual control panels for VOS and consul VOS observation counters
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• A link to se	and feedbacks on dubious obs to data	a responsibles through JCOMM Qu	ality Control Relay	







parameter « all in the same page » Type « quality control plot »

facility to create a direct link

<u>https://esurfmar.meteo.fr/cgi-</u> <u>bin/dataplot\_surfmar.cgi?wmo=4101729&type=0&sns=all</u> <u>&period=30</u>



#### II – MONITORING – QCTools Dataplot obs vs model some tipical issue



#### II - MONITORING - QCTools Dataplot

create a direct link

https://esurfmar.meteo.fr/cgi-bin/dataplot\_surfmar.cgi?wmo=4101729&type=0&sns=all&period=30

wmo id

type=0 model vs obs type=1 obs type=11 obs (scaled)

sns={parameter} ap, sst, ..., all

period={nb of days}

Easy to make links for all the buoys of a network (website, excel, ...)



II – MONITORING – schedule controls

- Daily deployments, buoys under survey, blacklist AP
- Weekly all blacklists, date of last data, of last position control sensor stopped (90d.)
- Monthly presence of drogue, all stats



#### **II – MONITORING - CORRECTIVE ACTIONS / updating**

#### • Bad data > at least 4 days

- stop sensor / update metadata for community
- keep weekly controls on raw data (back to good data) during 90 days
- Constant bias on SLP (DBCP Technical Document No.37 v1.4 26 jan 2021 )
  - Put an offset on SLP before diffusion on GTS
  - Pay monthly attention to the evolution of biases
- Drogue presence detection
  - Submergence / Time to first fix (raw data)





LINKS

https://www.ocean-ops.org/share/DBCP/Maps/DBCP\_Density.png https://marine.copernicus.eu/access-data/ocean-visualisation-tools https://www.aoml.noaa.gov/phod/gdp/ge\_array.php









## QC - VOS stations

## ESURFMAR Marine Observation Monitoring Quality Control Tools (QC Tools)

Steffen.Steinmoeller@dwd.de







## ESURFMAR Marine Observation Monitoring Quality Control Tools (QC

https://esurfma	r.meteo.fr/actools/	Tools)	
MARINE OBSER Quality	VATION MONITORING Control Tools	EUMETNET	© ELMETN MARINE OBSERVATION MONITORING Quality Control Tools : EUMETNET VOS Blacklists QC Statistics - EUMETNET ships providing dubious AP values
Data Buoys       Monthly Statistics       E         Buoys and VOS monthly tatistics       Buoys and VOS Buoys Press Buoys Press Press Vos Pressur Vos	acklists     Daily Data plots       klists Synthesis sure (Global) sure (MF) (Global) tions (Global) re (Global) ations here     Plots of data and differences with model outputs for BUOYS and VOS       ts Synthesis e (Global) re (Global) e (US) ses (Surfmar) iness (Surfmar) iness (Surfmar) (daily updated): ons with dubious given parameter ( ressure,) for all SURFMAR stations only.     Plots of data and plots of differences with some model outputs (QC plots) over the past 30 days for buoys or VOS.       Usefull Interm       hrough JCOMM Quality Control Relay	Other Tools Google Earth BUOYS map Nearest BUOYS BUOYS location on map Thermistor String BUOYS VOS Indiv Control Panels VOS Observation Counters VOS Observation Counters VOS European AWS list VOS European AWS list VOS European Platform list Location of a buoy on a map. Search for buoys close to another one or a given location. Access to Individual control panels for VOS and consult VOS observation counters	Lid of De JD blags for which over than pased 30 days, phar worpy data hand the highest weight the Nachostania of dimensional burgene alkawingkong and for which is the analysis of dimensional burgene alkawingkong and for which is the analysis of dimensional burgene alkawingkong and for which is the analysis of dimensional burgene alkawingkong alkawing

The "VOS Indiv Control Panels" link brings you to the following site (page 2)







## ESURFMAR Marine Observation Monitoring Quality Control Tools (QC

**Tools)** https://esurfmar.meteo.fr/cgi-bin/display\_vos\_ext.cgi?callchx=**AZGM4MC** 



Change the bold letters to your known call sign/SOT-ID in the adressbar to check stations that are not on the blacklist.

Brings you to the QC plots for the different meassured parameters of a station. (page 3)







What could be the reason that a plotpoint is not on the 0-line?

A : Faulty barometer, which needs to be recalibrated or replaced

B : Door not opened prior to reading barometer to equalise pressure

C : Barometer reading and/or ships position were not taken at the observation time

D : The TurboWin (or TurboWeb) computer time settings are incorrect, and need to be checked

E : The observer has incorrectly read the barometer

F : The observer has manually added a height correction to the barometer reading not realising that the

TurboWin program automatically applies this correction (resulting in a double height correction) G : The observer has used the barograph, or an uncalibrated ships barometer, instead of the barometer designated to take the pressure readings

NB : Important is the possibility that model analysis is incorrect !



First guess from the plot is that an additional high correction is applied and then entered into TurboWin.









What we like to see. Many plotpoints around the 0-line.

And what we can encounter...









It's an common error that often an additional high correction is applied.









Could be an additional high correction or a faulty barometer, which needs to be recalibrated or replaced.

Get in contact with the vessel to find out more.

Here we are not so sure ourself at the moment, what results in too high reported pressure values of the automatic weather station. We probably have to deactivate and replace the sensor.















If the values deviate too often or are too high/low, the time has come to get to work. When visiting the vessel or contact the crew via e-mail, you inform them about the situation of the particular value on board.

It's often sufficient to inform the crew to rectify the additional high correction error. Sometimes it's necessary to determine a correction value for the used barometer. Ask the crew to send you their readings the next time they enter a harbour. Now you compare the values with an official weather station or airport and provide them with a "Barocheck certificate".

	Deutsche Wetter und P	er V Klim	Vetterdiens a aus einer Har	bwb	WMO				
Intergovernmental Oceanographic Commission		De	eutscher Wetterdienst		World Meteorological Organization				
Certificate of Barometer Check									
		Sh	ip Details						
Name of Ship		ASI	ATIC REUNION						
Call Sign		976	959						
IMO Number		9404	4728						
Ship Email									
	<u> </u>	nspe	ction Details						
Inspecting PMO		PMO	) Hamburg		(Name)				
Date of inspection		27.1	1.2024		(dd.mm-yyyy tttt UTC)				
Country &	hh	Gen	many						
Port of visit or remote o	ineck [	Baro	meter Details						
Make / Model / Type		SANOH INSTRUMENT CO. LTD - SBR 502							
Serial No.									
Default setting –		(Station Level [SLP] or							
SLP or MSLP		Mean Sea Level [MSLP])							
Condition of the instru	nent								
	On-E	Board	Barometer Data						
Baromete	r height		Correction for intrumental error = Station Level	Correction for: Station Level to Mean Sea Level	Total correction = Mean Sea Level				
In Ballast		m		hPa	hPa				
Full Load		m	-3.3 hPa	hPa	hPa				
Current Barometer reading	35.8	m bPa	Position	+4.3 hPa Port Name	+1.0 hPa ha (China)				
Darometer reading	1020.0	in a	Date / Time (UTC)	26.11.2024	15:00 UTC				
M	leteorological da	ta fro	om the nearest wea	ather station					
WMO Number	ZGSZ		Weather station	Airport Shen	zhen (China)				
Sea level pressure	1021.0	hPa	Date / Time (UTC)	26.11.2024	15:00 UTC				
Temperature	18.0 On bel	half o	of Deutscher Wette	erdienst					

Stay in contact with the vessel and update the crew about the status within the next 1-2 weeks. Are the values back on the 0-line or do you need to take further actions. Like replacing the barometer.







Generate a good looking QC Report when visiting or to inform the vessel

First report (1): 2024/01/22 Last report (1): 2025/03/15 Last position: <u>32.1S - 51.1W</u>				Google Kurzbefehle Kartendaten ©2025	Nutzungsbedingungen	Wave Height : 2.00 m Wave period : 9.0 s			
	<u>Generate automatically The Observation Monitoring Report for this VOS</u> (PDF <b>P</b> !! Improved report with new features) ( Complete report : Observations Map, Observations Counters, Monthly Statistics Graphs and Quality of Observations available )								
MONTHLY S	TATISTICS	MONTHLY STATISTICS PLOTS	DATA PLOTS	QUALITY CONTROLS PLOTS	OBS COUNTERS	OTHER LINKS			
Air Pre	<u>ssure</u>	Air Pressure	<u>Air Pressure</u>	Air Pressure (diff.)	Nb of obs. in 2002	Coorde			
OBSE	RVATIONS MO	ONITORING REPORT							

Date : Tue Mar 18 10:44:20 2025

#### **Report generated !!**

Access to the Observations Monitoring Report :

Download Observation Report for VOS call sign == VCDJG9K (PDF - 2605 Ko)

Adapt the Observations Monitoring Report to your need : you may select the parts contained in the report, add your comments or logo on the front page of the report. Procedure is consult report (or not),come back to this page using the previous page function on your internet navigator, fill in the sections below and confirm with OK (report will be generated again conformed to your choices).

• Select the logo to include (if yours not in list, mail us !) logo_DWI	).jpg	~
Possibility to add your logo on Monitoring Report front page :		
<ul> <li>Include only Quality Control Graphs with ECMWF model</li> </ul>	$\bigcirc$	0
<ul> <li>Include 'Quality Control Graphs of different measurements '</li> </ul>	0	$\bigcirc$
<ul> <li>Include 'QC Monthly Statistics graphs'</li> </ul>	$\bigcirc$	0
<ul> <li>Include 'Numbers of Observations Received graph'</li> </ul>	0	$\bigcirc$
<ul> <li>Include 'Map of the Locations of Received Observations'</li> </ul>	0	$\bigcirc$
	Yes	No

Possibility to add your comments on the front page of the report :

Choose from the options which parts you want to integrate into the report. Afterwards press confirm to generate the report.







## **OceanOPS QC Relay**

Martin Kramp OceanOPS WMO MKramp@wmo.int







- OceanOPS is the GOOS metadata repository and populates OSCAR, connected to WDQMS
- At least basic sensor information are mandatory for any OSCAR metadata submission
- Instrument operators are automatically alerted when their stations are on a blacklist

**Oceanops** 

• Data users can also submit a notification to operators when they identify doubful data

$\leftarrow$ C	https://www.ocea	an-ops.org/board/?t	=dbcp#				Q	⊙   ☆		¢
(ف) کر ج	Search		🖉 Submit	Charts	🛞 Maps	Met	rics			
Inspect Pla	atiosm 7801737			- 🗆 🗙		1 + AN	6. 7	6		- F
<i>i</i> n	3	<u>[.11]</u>	<b>V</b>	0	88	- ALLENNE	and the	-Th	2.	•
About	Event log	Data	QC	Operator	0 0	LOND!	CR.	12	1	°0 (
Main inforr	mation		Set as samp	ole   Set & View on map	° °			16 2	0	0
CREATED BY A	API ID CW3E/CDWR barometer sensor u	pgrade of GDP svp drifter			11 and	Se à	-	000	000	S C
Reference Internal ID Status Country Model	7801737 300534064901840 OPERATIONAL UNITED STATES (GDP) <u>SVP B SIO</u> (SVP)	WMO ID WIGOS ID Networks Ship	7801737 0-22000-0-7801737 <u>View in OSCAR</u> DBCP Global Drifter Array <u>C-130 AIRCRAFT (Unite</u>	ed States) 📕						
Tracking lif	fecycle						N <sup>M</sup>			
	Deployed	Latest	observation			888	•	•	8	<b>B</b>
Latitude	48.325	43.374			<u>ج</u> کی د	°8° °		8286	000	0 00 m
Longitude	-177.3264	-144.18	37		00 00 00	ິ‱ 8∞°		0000		38 0 %
Date	2023-11-17T00:00:00	2025-0	3-13T21:04:00			0° 80 80 0	°C		Page 6	3008















## As soon as such stations/platforms appear on the blacklist....









## ...contact persons from the program definition receive an automated email:

From: OceanOPS <noreply+oceanops-batchs@ifremer.fr> Sent: lundi 17 mars 2025 04:32 To: etpaluszkiewicz@gmail.com; jacharles@ucsd.edu; lbertero@ucsd.edu; Lance Braasch <lbraasch@ucsd.edu<u>>;</u> Centurioni, Luca <lcenturioni@ucsd.edu>; mschonau@ucsd.edu; ssolleveld@ucsd.edu; vhormann@ucsd.edu Cc: Support Ocean-ops <support@ocean-ops.org> Subject: [OceanOPS QC] BLK 7801737 AP 2025-03-17T04:30:04Z

DBCP platform 7801737 received the following QC feedback:

Origin: Météo France Buoys Platforms Blacklist Action: Blacklist

Message:

Air Pressure measurements blacklisted by MétéoFrance https://esurfmar.meteo.fr/qctools/track\_check\_black\_list/buoysblacksynthesis.html

View online:

https://www.ocean-ops.org/board/?t=DBCP&ptfref=7801737&fbid=1057912

Reply to feedback:

https://www.ocean-ops.org/board/?t=DBCP&ptfref=7801737&fbid=1057912&fbanswer=1



Ocean





## Links from the email lead to - the corresponding blacklist

- the corresponding OceanOPS QC tab of the blacklisted station/platform









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## In the OceanOPS QC tab, - the operator of the station/platform can provide feedback

$\leftarrow$	C https://www.ocean-ops.org/bo	oard/?t=dbcp			Q				
۲	Q Search	🖉 Submi	t 🔲 Charts 🛛 🔇	🗿 Maps 📊	Metrics		🛓 Martin 🗸	5	
	Q Search         Inspect Platform 7801737         Mabout         Event log         ✓ Quality control feedback         Image: Control feedback <th>Submit Submit Submit Data</th> <th>t Charts ( Charts ( C</th> <th>Maps I - C X Coperator Show details Show details Show details Show details</th> <th>Metrics</th> <th>QC Feedback Reply   Feedback details   Send a reply   Platform: 7801737   Fix Date:   2025-03-17   Fixed:   Answer: *   Correction type:   +   Correction value:   If original send</th> <th>Martin Martin</th> <th></th> <th></th>	Submit Submit Submit Data	t Charts ( Charts ( C	Maps I - C X Coperator Show details Show details Show details Show details	Metrics	QC Feedback Reply   Feedback details   Send a reply   Platform: 7801737   Fix Date:   2025-03-17   Fixed:   Answer: *   Correction type:   +   Correction value:   If original send	Martin Martin		
00	Action Blacklist Message Locations blacklisted by MétéoFrance (http://esurfmar.meteo.fr/qctools/track_check_black_list/buoys	blacksynthesis.html)			00°00	Extra recipients:	Submit	000000000000000000000000000000000000000	



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## In the OceanOPS QC tab, - Data users can alert an operator if they identify doubtful data

Search Submit Charts & Maps & Metri Submit Charts & Maps & Metri Submit Platform 7801737 -	S Martin V New QC Feedback From: mkramp@ocean-ops.org Platform: 7801737
nspect Platform 7801737 -	New QC Feedback From: mkramp@ocean-ops.org Platform: 7801737
Inspect Platform 7801737 About Event log Data QC Operator Quality connect feedback New feedback	From: mkramp@ocean-ops.org Platform: 7801737
Image: Control feedback     Image: Control feedback	Platform: 7801737
About Event log Data QC Operator	
Quality concel feedback         0           New feedback         0	Action: * Check
New feedback	
New feedback	GTS Bulletin Header: GTS CCCC: 🗸
	DAC:
• •	Variables:
ate Origin Subject Status Type	8 Frankting
125-03-17 [OceanOPS QC] BLK 7801737 AP 2025-03-17T04:30:04Z Open Météo France Buoys Platforms Blacklist Show details	• Error type:
125-02-12 [OceanOPS QC] BLK 7801737 LOC 2025-02-12T04:30:04Z Open Météo France Buoys Platforms Blacklist Show details	Message: * Dear platform operator,
125-01-08 [OceanOPS QC] BLK 7801737 LOC 2025-01-08T04:30:04Z Fixed Météo France Buoys Platforms Blacklist Show details	
•	Regards,
rom Unknown (2025-02-12)	Martin Kramp
ubject [OceanOPS QC] BLK 7801737 LOC 2025-02-12T04:30:04Z	
tatus Open	This email will be sent to:
rror type Location	mkramp@ocean-ops.org, lcenturioni@ucsd.edu, vhormann@ucsd.edu,
action Blacklist	mschonau@ucsd.edu, jacharles@ucsd.edu, lbertero@ucsd.edu, ssolleveld@ucsd.edu, lbraasch@ucsd.edu, etpaluszkiewicz@gmail.com
lessage orations blacklisted by MétéoFrance	Add email addresses seperated by commas
http://esurfmar.meteo.fr/qctools/track_check_black_list/buoysblacksynthesis.html)	e Extra
	Submit
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## The WDMQS will take metadata in OSCAR, which is populated by OceanOPS...

## ...<u>if mandatory metadata (eg basic sensor information) were submitted to OceanOPS</u>



### Quality of Marine Surface observations









## Example: Metadata from a drifter of the TRUSTED project: Meteo-France $\rightarrow$ OceanOPS $\rightarrow$ OSCAR $\rightarrow$ WDQMS

~	C	https://d	oscar.wmo.int/surf	ace/index.html#/search/station/stationRepor	tDetails/0-22000-0-1401601	AN 5		€ 5	Mettre à jour 🔏 😶
	World Morel Meteorological Organization Weather - Climate - Water			OSC	About Capability Analysis and Review Tool	News   Glo	ossary   FAQ	Links Support	Feedback Login nossenschaft era of Home Affairs FDHA seroology and Climatology MeteoSwiss
	Home S	Search	Critical review						Q Search
	Station			Homepage > Search > Station search > Stati	on report details				
	Station cluste	er							🕼 Edit 🛛 🛓 Download
	Instrument			1401601 ((inapplicable))				Last updated: 2024	-11-09 by DC OceanOPS
	Contact			✓ Station characteristics					
	Bibliographic	Referenc	ce	Name: Station alias: Date established: Date closed:	1401601 2024-11-08		-	F SnL	Camb
				Regional WIGOS Center: Station class(es): Declared reporting status: Assessed reporting status: Station type:	Surface marine meteorological sta Operational Unknown Sea (mobile)	ation		<u>2</u> 00	Sing mapbox© WM
				WIGOS Station Identifier(s):	WIGOS Station Identifier	Primary			

 $\checkmark$ 







## Example: Metadata from a drifter of the TRUSTED project: Meteo-France $\rightarrow$ OceanOPS $\rightarrow$ OSCAR $\rightarrow$ WDQMS (continued)

$\leftarrow$	С	Ô	https://oscar.wmo.int/surface/ir	ndex.htm	nl#/search/station/stationReportDeta	ils/0-22000-0-140160	1 A ☆	🗋 🗘 🕻	🗄 Mettre à jour 🔏 🔹
					Program / network affiliation	Program specific ID	Affiliation status	Declared status	Assessed status
				>	COPERNICUS-HRSST-FRM	1401601	Approved	Operational	Unknown
				✤ Ob	servations / measurements				
				~	Atmosphere > Pressure Atmospheric pressure - [Geometry: ]				
				~	Ocean > Physical properties	-			
				:	Pressure - [Geometry: Point]				
					<ul> <li>Sea surface temperature - [Geometry</li> </ul>	/: Point]			
					Variable:	Sea surface terr	perature		
					Geometry:	Point			
					Programs / network affiliations:	COPERNICUS	-HRSST-FRM		
					Last updated:	On 2023-05-13	by DC OceanOPS		
					✓ Deployments				
					✓ From 2023-05-08				
					Distance from reference surfa	ce (m): 0m			
					✓ Instrument characteristi	cs			
					Manufacturer:	unł	known		
					Model:	MC	DSENS		
					Serial number:	561	13		







## **ANSWERS:**

- 1. Why is data quality important?
  - Data we collect feeds into Numerical Weather Prediction models and is critical for improving the skill of these models
  - In-situ observations over the ocean are sparse and can prove to be a valuable tool for forecasters, particular in severe weather scenarios.

#### 2. How can I monitor data quality for VOS and DBCP platforms?

- WIGOS Data Quality Monitoring System (WDQMS)
- ESURFMAR Marine Observation Monitoring Quality Control Tools (QC Tools)
- 3. Who is responsible for taking follow-up actions to correct deficiencies?
  - VOS and Buoy Program Managers
  - Port Meteorological Officers
  - Buoy operators sharing data to the GTS
- 4. Where can I go to get help with improving marine data quality from my network?
  - Ship Observations Team (SOT) Task Team for Recruitment Promotion and Training (TT-RPT)
    - <u>sot-tt-rpt@groups.wmo.int</u>
  - Data Buoy Cooperation Panel Task Team on Impact and Value (TT-IV)
    - <u>dbcp-tt-div@groups.wmo.int</u>







## **REMINDER:**

## 13th Session of the Ship Observations Team Plouzane, France 1-4 April 2025

Hybrid – you can still register for remote participation

www.ocean-ops.org/sot/sot13