

Quality Control Procedures

Data Center Facility
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Balearic Islands
Coastal Observing
and Forecasting
System

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SOCIB-Data Centre Facility

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1.1	2012-11-08	Definition of QC battery tests for Fixed Stations	Sebastián Lora	
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1.3	2013-03-14	Modify gradient value for <u>Air temperature, AIRT (°C)</u> to 0.9 °C in 1 minute. Meteo Vaisala	Kristian Sebastian	
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1. Introduction

1.1. Overview

This document describes the method developed in order to perform the Near Real Time Quality Control (NRTQC).

The methods of NRTQC of SOCIB data within this document are based on [MyOcean](#).

The Quality Control (QC) document from MyOcean/Eurogoos is “Recommendations for RTQC procedures_V1_2”, stored in the MyOcean intranet [RTQC procedures](#).

Despite our best efforts, SOCIB Quality Control procedures may contain undetected errors. Please feel free to contact us (data.centre@socib.es) if you find any mistake, we will be very grateful for your help.

1.2. Quality Control Flags

The quality control flags are applied by the processing application during the NRTQC procedure in order to indicate the data quality. Table 1 represents the SOCIB flag scale.

Code	Meaning
0	No QC was performed
1	Good data
2	Probably good data
3	Probably bad data
4	Bad data
6	Spike
8	Interpolated data
9	Missing data

Table 1. Quality Control Flags at SOCIB.

2. Quality control tests

At present, several QC tests are being implemented within the test battery for QC calculation of a concrete parameter given by a concrete platform. Specifically, these are the tests implemented by the SOCIB Data Center:

- Gradient
- Spike
- Stationary
- Valid range
- Surfacing dive

2.1. Global range

This test applies a gross filter on observed values. The ranges need to accommodate all of the expected extremes encountered in the oceans. If a value fails this test, it should be flagged as bad data ('4').

Check which measurements of the variable lie inside the defined **range**.

valid_range = minimum_range < V1 < maximum_range

where V1 is the current being test as a valid range.

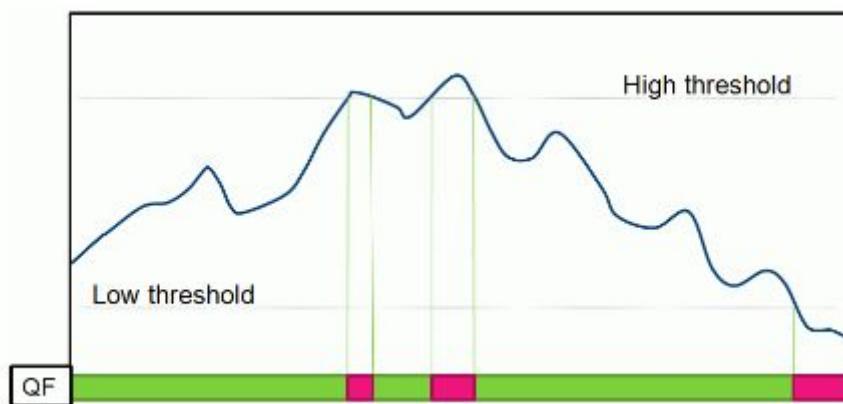


Figure 2. Illustration of valid range test.

2.2. Regional range

This test applies to certain regions of the world where conditions can be further qualified. The Mediterranean Sea is defined by the region 30N, 6W; 30N, 40E; 40N, 35E; 42N, 20E;

50N, 15E; 40N, 5W; 30N, 6W. Individual values that fail the ranges specified (Figure 2) should be flagged as Probably good data, flag 2.

Check which measurements of the variable lie inside the defined **range**.

valid_range = `minimum_range < V1 < maximum_range`

where V1 is the current being test as a valid range.

2.3. Spike

Calculate the **difference** between sequential measurements, where one measurement is quite different from adjacent ones, is a spike in both size and gradient. The test could be applied to the measurements vertically or horizontally, but not at the **same time**. The test does not consider the differences in vertical and horizontal coordinates, but assumes a sampling that adequately reproduces the temperature and salinity changes with depth.

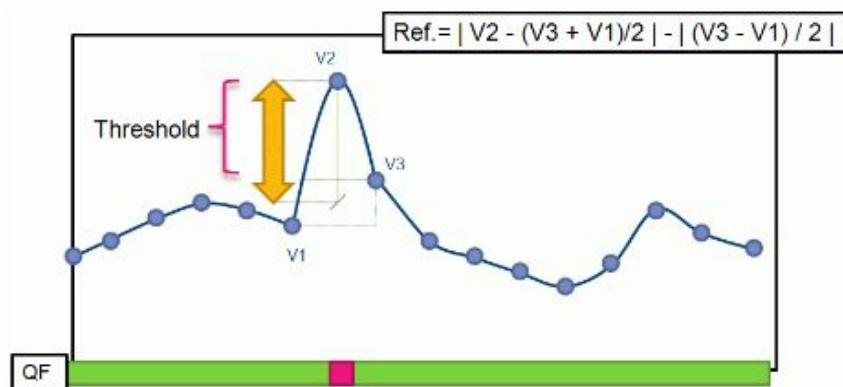


Figure 3. Illustration of spike test.

spike = $|V2 - (V3 + V1)/2| - |(V3 - V1)/2|$

where V2 is the measurement being tested as a spike, and V1 and V3 are the values above and below.

If the value V2 fails this test, it should be flagged as 6.

2.4. Gradient

Calculate the **difference** between adjacent measurements vertically (e.g., depth) or horizontally (e.g., time), but not at the same time. The test considers the difference in vertical and horizontal coordinate (time and depth). The test has three cases:

- Initial case, just using the good measurement above
 $\text{gradient} = (V1 - V2) / (C1 - C2)$
- Intermediate case, using the good measurements above and below
 $\text{gradient} = w1 * (V2 - V3) / (C2 - C3) + w2 * (V1 - V2) / (C1 - C2)$
 $w1 = (C1 - C2) / (C1 - C3)$
 $w2 = (C2 - C3) / (C1 - C3)$
- Final case, just using the good measurement below
 $\text{gradient} = (V2 - V3) / (C2 - C3)$

where $V2$ is the measurement being tested as a gradient, and $V1$ and $V3$ are the values above and below. $C2$, $C1$ and $C3$ are the coordinates values for $V2$, $V1$ and $V3$ measurements.

2.5. Stationary

Calculate the variability by searching the minimum and maximum measurements on a piece of data of specified length. The test consider the difference in time coordinate.

$$\text{stationary} = | \text{maximum}(Vn .. Vn-i) - \text{minimum}(Vn .. Vn-i) |$$

where $Vn .. Vn-i$ is the piece of data being test as stationary

2.6. Echo Intensity Velocity

This test is only applicable to Teledyne RDI ADCP's and is based on [IMOS QC Procedures](#).

Calculate the difference between sequential measurements, where one measurement is the current bin echo intensity and the other measurement is previous bin echo intensity. The difference between the first and the second must be minor than the echo amplitude threshold.

This test is applied over the velocity components of the water current.

$$\begin{aligned} \text{ABSIn(current bin)} - \text{ABSIn(previous bin)} &\leq \text{ea_threshold} = 30 \text{ count (WKH300 kHz)} \\ \text{ABSIn(current bin)} - \text{ABSIn(previous bin)} &\leq \text{ea_threshold} = 25 \text{ count (LR75 kHz)} \end{aligned}$$

2.7. Correlation Magnitude Velocity

This test is only applicable to Teledyne RDI ADCP's and is based on [IMOS QC Procedures](#).

Checks that there is sufficient signal to noise ratio to obtain good quality data via the measure of a pulse-to-pulse correlation in a ping. At each bin, if at least 2 beams see their correlation value greater than a threshold value then the sample at that bin passes the test.

CMag_n > cmag = 64 count (WKH300 kHz)

CMag_n > cmag = 110 count (LR75 kHz)

2.8. Error Velocity

This test is only applicable to Teledyne RDI ADCP's and is based on [IMOS QC Procedures](#).

Checks that the horizontal error velocity (difference between two independent estimates, basically two pair of beams) is smaller than a certain threshold so that the assumption of horizontal flow homogeneity is reasonable. This test is only available in 4 beams solution and shouldn't flag as bad any 3 beam solution.

This test is available at one's discretion who is fully aware of the algorithm and demands expertise to set relevant thresholds for each dataset.

| VEL_ERR | <= err_vel = 0.85 ms-1 (WKH300kHz)

2.9. Percent Good Velocity

This test is only applicable to Teledyne RDI ADCP's and is based on [IMOS QC Procedures](#).

Checks that the percentage of good 3 beams and 4 beams solutions is greater than a certain threshold. A percentage of bad solution is based on low correlation and fish detection.

This test is available at one's discretion who is fully aware of the algorithm and demands expertise to set relevant thresholds for each dataset.

PERG_VEL > pgood = 50% (WKH300 kHz)

PERG_VEL > pgood = 50% (LR75 kHz)d

PERG_VEL = PERG1 + PERG4

3. Test batteries

Actually, QC tests are being applied in **test batteries**, that is to say, a test may have different priority and number of executions depending on the **platform type** on which it is applied.

In the next tables, Dependencies column means “variables with the same QC”.

3.1. Fixed Stations

3.1.1. Sea level stations (pressure gauges)

Stations Andratx, Pollensa, Sa Rapita, Colonia Sant Pere, Porto Cristo

Air pressure, APRE (hPa)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	960 hPa 1050 hPa	2	SLEV	-
2	Valid range	Minimum Maximum	500 hPa 1100 hPa	4	SLEV	-
3	Spike	Peak threshold	10 hPa	6	SLEV	-
4	Gradient	Variance Time	3 hPa 1 min	4	SLEV	-
5	Stationary	Variance Time	0 hPa 6 hours	4	SLEV	-
6	Stationary	Variance Time	< 0.5 hPa 12 hours	4	SLEV	-

Sea water pressure, WPRE (psi)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	15 psi 36 psi	2	SLEV	-
2	Valid range	Minimum Maximum	0 psi 45 psi	4	SLEV	-
3	Spike	Peak threshold	3 psi	6	SLEV	-
4	Gradient	Variance Time	0.3 psi 1 min	4	SLEV	0.005 =0.3/60s
5	Stationary	Variance Time	0 psi 6 hours	4	SLEV	-
6	Stationary	Variance Time	< 0.05 psi 12 hours	4	SLEV	-

Sea level, SLEV (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m 2 m	4	-	-
3	Spike	Peak threshold	0.5 m	6	-	-
4	Gradient	Variance Time	0.3 m 1 min	4	-	-
5	Stationary	Variance Time	0 m 2 hours	4	-	-
6	Stationary	Variance Time	< 0.005 m 6 hours	4	-	-

3.1.2. Sea level stations (Radar sensor)

Station Sant Antoni

Air pressure, APRE (hPa)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	960 hPa 1050 hPa	2	SLEV	-
2	Valid range	Minimum Maximum	500 hPa 1100 hPa	4	SLEV	-
3	Spike	Peak threshold	10 hPa	6	SLEV	-
4	Gradient	Variance Time	3 hPa 1 min	4	SLEV	0.05=3/60
5	Stationary	Variance Time	0 hPa 6 hours	4	SLEV	-
6	Stationary	Variance Time	< 0.5 hPa 12 hours	4	SLEV	-

Sea level, SLEV (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m 2 m	4	-	-
3	Spike	Peak threshold	0.5 m	6	-	-
4	Gradient	Variance Time	0.3 m 1 min	4	-	0.005=0.3/60
5	Stationary	Variance Time	0 m 2 hours	4	-	-
6	Stationary	Variance Time	< 0.005 m 6 hours	4	-	-

3.1.3. Weather station

Stations Esporles, Galfi, Parc Bit, Mobims Playa de Palma, Mobims Son Bou, Mobims Cala Millor

Air pressure, APRE (hPa)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	960 hPa 1050 hPa	2	AIRP_NO_SLEV	-
2	Valid range	Minimum Maximum	920 hPa 1080 hPa	4	AIRP_NO_SLEV	-
3	Spike	Peak threshold	10 hPa	6	AIRP_NO_SLEV	-
4	Gradient	Variance Time	3 hPa 1 min	4	AIRP_NO_SLEV	0.05=3/60
5	Stationary	Variance Time	0 hPa 6 hours	4	AIRP_NO_SLEV	-
6	Stationary	Variance Time	< 0.6 hPa 12 hours	4	AIRP_NO_SLEV	-

Air temperature, AIRT (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 °C 40 °C	2		-
2	Valid range	Minimum Maximum	-30 °C 60 °C	4		-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	0.9 °C 1 min	4	-	0.015=0.9/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.2°C 12 hours	4	-	-

Relative humidity, RHUM (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	2	-	-
2	Spike	Peak threshold	4%	6	-	-
3	Gradient	Variance Time	3.6 % 1 min	4	-	0.06=3.6/60
4	Stationary	Variance Time	0 % 6 hours	4	-	-
5	Stationary	Variance Time	< 1 % 12 hours	4	-	-

Wind speed, WSPE_AVG (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	10 m/s	6	-	-
4	Gradient	Variance Time	7.2 m/s 1 m/s	4	-	0.12=7.2/60
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.3 m/s 12 hours	4	-	-

Wind speed of gust, WSPE_MAX (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 40 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	10 m/s	6	-	-
4	Gradient	Variance Time	7.2 m/s 1 min	4	-	0.12=7.2/60
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.4 m/s 12 hours	4	-	-

Acyclic wind direction, WDIR_AVG (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Spike	Peak threshold	100°	6	WDIR_AVG	-
2	Gradient	Variance Time	60° 1 m	4	WDIR_AVG	60/60
3	Stationary	Variance Time	0.15° 6 hours	4	WDIR_AVG	-
4	Stationary	Variance Time	< 1° 12 hours	4	WDIR_AVG	-

Wind from direction, WDIR_AVG (°)

Execution order	Name	Parameter	Value	QF	Dependencies
1	Valid range	Valid min Valid max	0° 360°	4	-
2	Stationary	Variance Time	0° 6 hours	4	-

Station Salines

Reference, REF (1)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	271 273	15	all variables	-

Northward wind, VWND (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-30 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	-79 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	7 m/s	6	-	-
4	Gradient	Variance Time	2.083 m/s 5 min	4	-	0.0069 =2.083/(5*60)
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.4 m/s 24 hours	4	-	-

Eastward wind, UWND (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-30 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	-79 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	7 m/s	6	-	-
4	Gradient	Variance Time	2.083 m/s 5 min	4	-	0.0069 =2.083/(5*60)
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.4 m/s 24 hours	4	-	-

Wind speed, WSPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	7 m/s	6	-	-
4	Gradient	Variance Time	m/s min	4	-	0.009
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.3 m/s 24 hours	4	-	-

Wind speed of gust, WGUS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 40 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	7 m/s	6	-	-
4	Gradient	Variance Time	4.5 m/s 5 min	4	-	0.015 $=4.5/(5*60)$
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.4 m/s 24 hours	4	-	-

Air temperature, AIRT (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 °C 40 °C	2	-	-
2	Valid range	Minimum Maximum	-30 °C 60 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	2.1 °C 5 min	4	-	0.007 $=2.1/(5*60)$
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.2°C 12 hours	4	-	-

Air pressure, APRE (hPa)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	960 hPa 1050 hPa	2	-	-
2	Valid range	Minimum Maximum	920 hPa 1080 hPa	4	-	-
3	Spike	Peak threshold	10 hPa	6	-	-
4	Gradient	Variance Time	1.5 hPa 5 min	4	-	0.005 $=1.5/(5*60)$
5	Stationary	Variance Time	0 hPa 12 hours	4	-	-
6	Stationary	Variance Time	< 1 hPa 24 hours	4	-	-

Net radiation, NRAD (W m-2)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-500 W/m2 1500 W/m2	2	-	-
2	Valid range	Minimum Maximum	2000 W/m2 -2000 W/m2	4	-	-
3	Spike	Peak threshold	700 W/m2	6	-	-
4	Gradient	Variance Time	510 W/m2 5 min	4	-	1.7 = $510/(5*60)$
5	Stationary	Variance Time	0 W/m2 12 hours	4	-	-
6	Stationary	Variance Time	< 100 W/m2 24 hours	4	-	-

Acyclic wind direction, WDIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Spike	Peak threshold	100°	6	WDIR	-
2	Gradient	Variance Time	105° 5 min	4	WDIR	0.35 $=105/(5*60)$
3	Stationary	Variance Time	0.15° 6 hours	4	WDIR	-
4	Stationary	Variance Time	< 1° 24 hours	4	WDIR	-

Wind from direction, WDIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Valid min Valid max	0° 360°	4	-	-
2	Stationary	Variance Time	0° 6 hours	4	-	-

Relative humidity, RHUM (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	4	-	-
2	Spike	Peak threshold	10%	6	-	-
3	Gradient	Variance Time	12 % 5 min	4	-	0.04 $=12/(5*60)$
4	Stationary	Variance Time	0 % 6 hours	4	-	-
5	Stationary	Variance Time	< 1 % 24 hours	4	-	-

Station Estellencs

Air pressure, APRE (hPa)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	960 hPa 1050 hPa	2	-	-
2	Valid range	Minimum Maximum	920 hPa 1080 hPa	4	-	-
3	Spike	Peak threshold	10 hPa	6	-	-
4	Gradient	Variance Time	1.5 hPa 5 min	4	-	0.005 =1.5/(5*60)
5	Stationary	Variance Time	0 hPa 6 hours	4	-	-
6	Stationary	Variance Time	< 0.6 hPa 12 hours	4	-	-

Air temperature, AIRT (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 °C 40 °C	2	-	-
2	Valid range	Minimum Maximum	-30 °C 60 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.015
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.2°C 12 hours	4	-	-

Relative humidity, RHUM (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	2	-	-
2	Spike	Peak threshold	4%	6	-	-
3	Gradient	Variance Time	% min	4	-	0.06
4	Stationary	Variance Time	0 % 6 hours	4	-	-
5	Stationary	Variance Time	< 1 % 24 hours	4	-	-

Wind speed, WSPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	10 m/s	6	-	-
4	Gradient	Variance Time	m/s min	4	-	0.12
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.3 m/s 12 hours	4	-	-

Wind speed of gust, WGUS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 40 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	10 m/s	6	-	-
4	Gradient	Variance Time	m/s min	4	-	0.12
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.4 m/s 12 hours	4	-	-

Wind from direction, WDIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Valid min Valid max	0° 360°	4	-	-
2	Stationary	Variance Time	0° 6 hours	4	-	-

Buoys Ibiza Channel and Palma Bay

Air temperature, AIRT (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 °C 40 °C	2	-	-
2	Valid range	Minimum Maximum	-30 °C 60 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.007
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.2°C 24 hours	4	-	-

Air pressure, APRE (hPa)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	960 hPa 1050 hPa	2	-	-
2	Valid range	Minimum Maximum	920 hPa 1080 hPa	4	-	-
3	Spike	Peak threshold	10 hPa	6	-	-
4	Gradient	Variance Time	hPa min	4	-	0.005
5	Stationary	Variance Time	0 hPa 12 hours	4	-	-
6	Stationary	Variance Time	< 0.4 hPa 24 hours	4	-	-

Relative humidity, RHUM (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	4	-	-
2	Spike	Peak threshold	10%	6	-	-
3	Gradient	Variance Time	% min	4	-	0.3
4	Stationary	Variance Time	0 % 6 hours	4	-	-
5	Stationary	Variance Time	< 1 % 24 hours	4	-	-

Wind speed, WSPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	7 m/s	6	-	-
4	Gradient	Variance Time	m/s min	4	-	0.009
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.3 m/s 24 hours	4	-	-

Wind speed of gust, WGUS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 30 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 79 m/s	4	-	-
3	Spike	Peak threshold	7 m/s	6	-	-
4	Gradient	Variance Time	m/s min	4	-	0.015
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.4 m/s 24 hours	4	-	-

Wind from direction, WDIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Valid min Valid max	0° 360°	4	-	-
2	Stationary	Variance Time	0° 6 hours	4	-	-

Wind from direction acyclic, WIN_DIR_ACY(°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Spike	Peak threshold	100 m/s	6	-	-
2	Gradient	Variance Time	m/s min	4	-	0.35
3	Stationary	Variance Time	0.15° 6 hours	4	-	-
4	Stationary	Variance Time	1° 24 hours	4	-	-

3.1.4. CTD Recorder

Station La Mola. SeaBird CTD Recorder

Sea water pressure, WPRE (dbar)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	15 dbar 25 dbar	2	-	-
2	Valid range	Minimum Maximum	0 dbar 45 dbar	4	-	-
3	Spike	Peak threshold	3 dbar	6	-	-
4	Gradient	Variance Time	0.3 dbar 1 min	4	-	0.05 = 0.3/60
5	Stationary	Variance Time	0 dbar 6 hours	4	-	-
6	Stationary	Variance Time	< 0.001 dbar 12 hours	4	-	-

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.006
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 °C 12 hours	4	-	-

Sea water conductivity, COND (S/m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 S/m 7 S/m	4	-	-

Sea water salinity, SALT (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	36 psu 39 psu	2	-	-
2	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-
3	Spike	Peak threshold	0.3 psu	6	-	-
4	Gradient	Variance Time		4	-	0.001
5	Stationary	Variance Time	0 psu 6 hours	4	-	-
6	Stationary	Variance Time	< 0.001 psu 12 hours	4	-	-

Station La Mola. Current profiler

Sea water pressure, WPRE (dbar)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	3 dbar 23 dbar	2	-	-
2	Valid range	Minimum Maximum	0 dbar 45 dbar	4	-	-
3	Spike	Peak threshold	3 dbar	6	-	-
4	Gradient	Variance Time		4	-	2880

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 35 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.003
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 °C 12 hours	4	-	-

Stations Son Blanc, Sa Rápita, Porto Cristo, Pollensa, Colonia Sant Pere, Andratx. SeaBird CTD Recorder

Sea water pressure, WPRE (psi)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	15 psi 36 psi	2	SLEV	-
2	Valid range	Minimum Maximum	0 psi 45 psi	4	SLEV	-
3	Spike	Peak threshold	3 psi	6	SLEV	-
4	Gradient	Variance Time	0.3 psi 1 min	4	SLEV	0.005 =0.3/60
5	Stationary	Variance Time	0 psi 6 hours	4	SLEV	-
6	Stationary	Variance Time	< 0.05 psi 12 hours	4	SLEV	-

Sea water temperature, WTR_TEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	0.18 °C 1 min	4	-	0.003 =0.18/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01°C 12 hours	4	-	-

Sea water electrical conductivity, COND (S/m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	4 S/m 6 S/m	2	-	-
2	Valid range	Minimum Maximum	0 S/m 75 S/m	4	-	-

Buoys Ibiza Channel and Palma Bay. SeaBird CTD Recorder

Sea water pressure, WTR_PRE_SBE37 (dbar)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	15 dbar 36 dbar	2	-	-
2	Valid range	Minimum Maximum	0 dbar 45 dbar	4	-	-
3	Spike	Peak threshold	3 dbar	6	-	-
4	Gradient	Variance Time	0.3 dbar 1 min	4	-	0.005 = 0.3/60
5	Stationary	Variance Time	0 dbar 12 hours	4	-	-
6	Stationary	Variance Time	< 0.05 dbar 12 hours	4	-	-

Sea water temperature, WTR_TEM_SBE37 (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	0.18 °C 1 min	4	-	0.003 = 0.18/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01°C 12 hours	4	-	-

Sea water conductivity, COND (S/m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	4 S/m 6 S/m	2	-	-
2	Valid range	Minimum Maximum	0 S/m 7.5 S/m	4	-	-
3	Spike	Peak threshold	0.005 S/m	6	-	-
4	Gradient	Variance Time	0.0048 S/m 1 min	4	-	0.00008 = 0.0048/60
5	Stationary	Variance Time	0 S/m 6 hours	4	-	-
6	Stationary	Variance Time	< 0.001 S/m 12 hours	4	-	-

Sea water salinity, SALT_SBE37 (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	36 psu 39 psu	2	-	-
2	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-
3	Spike	Peak threshold	0.2 psu	6	-	-
4	Gradient	Variance Time	0.001 psu 1 min	4	-	0.000167 = 0.001/60
5	Stationary	Variance Time	0 psu 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 psu 12 hours	4	-	-

Buoys Ibiza Channel and Palma Bay. YSI sonde

Sea water conductivity, COND_YSI (S/m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	40 mS/cm 3 mS/cm	2	-	-
2	Valid range	Minimum Maximum	0 mS/cm 75 mS/cm	4	-	-
3	Spike	Peak threshold	0.05 mS/cm	6	-	-
4	Gradient	Variance Time	min	4	-	0.0008
5	Stationary	Variance Time	0 mS/cm 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 mS/cm 12 hours	4	-	-

Sea water temperature, WTR_TEM_YSI (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	0.18 °C 1 min	4	-	0.003 = 0.18/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01°C 12 hours	4	-	-

Sea water salinity, SALT_YSI (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	36 psu 39 psu	2	-	-
2	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-
3	Spike	Peak threshold	0.2 psu	6	-	-
4	Gradient	Variance Time	psu min	4	-	0.0000167
5	Stationary	Variance Time	0 psu 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 psu 12 hours	4	-	-

Turbidity of sea water, TURB_YSI (NTU)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 NTU 15 NTU	2	-	-
2	Valid range	Minimum Maximum	0 NTU 25 NTU	4	-	-
3	Spike	Peak threshold	0.5 NTU	6	-	-
4	Gradient	Variance Time	0.03 NTU 1 min	4	-	0.0005 = 0.03/60
5	Stationary	Variance Time	0 NTU 12 hours	4	-	-
6	Stationary	Variance Time	< 0.1 NTU 12 hours	4	-	-

Chlorophyll, CHLO_YSI (rfu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-1 rfu 3 rfu	2	-	-
2	Valid range	Minimum Maximum	-2 rfu 20 rfu	4	-	-
3	Spike	Peak threshold	0.5 rfu	6	-	-
4	Gradient	Variance Time		4	-	0.0005
5	Stationary	Variance Time	0 rfu 12 hours	4	-	-
6	Stationary	Variance Time	< 0.1 rfu 12 hours	4	-	-

Buoy Ibiza Channel. 2D Currentmeter

Sea water temperature, WTR_TEM(°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	0.18 °C 1 min	4	-	0.003 = 0.18/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01°C 12 hours	4	-	-

Buoy Palma Bay. CTD_NH

Sea water temperature, WTR_TEM_CITAD (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	0.18 °C 1 min	4	-	0.003 = 0.18/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01°C 12 hours	4	-	-

Sea water conductivity, COND_CITAD (mS/cm)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	40 mS/cm 60 mS/cm	2	-	-
2	Valid range	Minimum Maximum	0 mS/cm 75 mS/cm	4	-	-
3	Spike	Peak threshold	0.05 mS/cm	6	-	-
4	Gradient	Variance Time	0.0048 mS/cm 1 min	4	-	0.0008 =
5	Stationary	Variance Time	0 mS/cm 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 mS/cm 12 hours	4	-	-

Sea water salinity, SALT_SBE37 (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	36 psu 39 psu	2	-	-
2	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-
3	Spike	Peak threshold	0.2 psu	6	-	-
4	Gradient	Variance Time	0.001 psu 1 min	4	-	0.000167 = 0.001/60
5	Stationary	Variance Time	0 psu 6 hours	4	-	-
6	Stationary	Variance Time	< 0.001 psu 12 hours	4	-	-

3.1.5. Wave recorder

Buoys Ibiza Channel and Palma Bay

Sea surface wave significant height, WAV_HEI_SIG (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 6 m	2	-	-
2	Valid range	Minimum Maximum	0 m 10 m	4	-	-
3	Spike	Peak threshold	3 m	6	-	-
4	Gradient	Variance Time	0.042 m 1 min	4	-	0.0007 = 0.042/60
5	Stationary	Variance Time	0 m 24 hours	4	-	-

Station Son Blanc

Sea surface wave max height, WAV_HEI_MAX (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 4 m	4	-	-

Sea surface wave significant height, WAV_HEI_SIG (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 4 m	4	-	-

Sea surface wave peak direction, WAV_PEA_DIR ($^{\circ}$)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 $^{\circ}$ 359.9 $^{\circ}$	4	-	-

Sea surface wave mean period, WAV_PER_MEA (s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	2 s 16 s	4	-	-
2	Stationary	Variance Time	10 s 1 hours	4	-	-

Sea surface wave peak period, WAV_PER_PEA (s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	3 s 20 s	4	-	-

Sea surface wave zero upcrossing period, WAV_PER_ZEROUP_CROS (s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 s 20 s	4	-	-

3.1.6. Currentmeter

Buoys Ibiza Channel and Palma Bay

Sea water speed, CUR_SPE (cm/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 cm/s 200 cm/s	2	VEL_EAS VEL_NOR	-
2	Valid range	Minimum Maximum	0 cm/s 300 cm/s	4	VEL_EAS VEL_NOR	-
3	Spike	Peak threshold	40 cm/s	6	VEL_EAS VEL_NOR	-
4	Gradient	Variance Time		4	VEL_EAS VEL_NOR	0.05
5	Stationary	Variance Time	0 cm/s 6 hours	4	VEL_EAS VEL_NOR	-
6	Stationary	Variance Time	< 0.4 cm/s 12 hours	4	VEL_EAS VEL_NOR	-

Direction of sea water velocity, CUR_DIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 ° 360 °	4	-	-
2	Spike	Peak threshold	140 °	6	-	-
3	Gradient	Variance Time		4	-	0.1
4	Stationary	Variance Time	0 ° 6 hours	4	-	-

3.1.7. Current profiler

Stations La Mola, Ciutadella

platform pitch angle, PLAT_PITCH (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-360 ° 360 °	4	-	-
2	Spike	Peak threshold	1 °	6	-	-

platform roll angle, PLAT_ROLL (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-360 ° 360 °	4	-	-
2	Spike	Peak threshold	1 °	6	-	-

voltage, VOLT (V)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	11.5 V 17 V	4	-	-
2	Stationary	Variance Time	0 V 53200 seg	4	-	-
3	Spike	Peak threshold	0.5 V	4	-	-

eastward sea water velocity, VEL_EAS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2m/s	2	-	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	0.6 m/s	6	-	-
4	Gradient	Variance Time		4	-	288
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.003 m/s 12 hours	4	-	-

upward sea water velocity, VEL_UPW (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2m/s	2	-	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	0.6 m/s	4	-	-
4	Gradient	Variance Time		4	-	288
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.003 m/s 12 hours	4	-	-

northward sea water velocity, VEL_NOR (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2m/s	2	-	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	0.6 m/s	6	-	-
4	Gradient	Variance Time		4		288
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.003 m/s 12 hours	4	-	-

Platform yaw angle, PLAT_YAW (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-360 ° 360 °	4	-	-
2	Spike	Peak threshold	1 °	4	-	-

speed of sound in sea water, WTR_SOU_SPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	1450 m/s 1650 m/s	2	-	-
2	Valid range	Minimum Maximum	1200 m/s 1800 m/s	4	-	-
3	Spike	Peak threshold	10 m/s	6	-	-
4	Gradient	Variance Time	min	4	-	2880
5	Stationary	Variance Time	0 m/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.1m/s 12 hours	4	-	-

Buoy Ibiza Channel and Palma Bay

direction of sea water velocity, CUR_DIR SONTEK (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 ° 360 °	4	-	-
2	Spike	Peak threshold	140 °	6	-	-
3	Gradient	Variance Time	min	4	-	0.1
4	Stationary	Variance Time	0 ° 6 hours	4	-	-
5	Stationary	Variance Time	< 0.1 ° 12 hours	4	-	-

sea water speed, CUR_SPE SONTEK (cm/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 cm/s 20 cm/s	2	-	-
2	Valid range	Minimum Maximum	0 cm/s 30 cm/s	4	-	-
3	Spike	Peak threshold	4 cm/s	6	-	-
4	Gradient	Variance Time	min	4	-	0.05
5	Stationary	Variance Time	0 cm/s 6 hours	4	-	-
6	Stationary	Variance Time	< 0.2 cm/s 12 hours	4	-	-

eastward sea velocity, VEL_EAS (mm/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 mm/s 200 mm/s	2	VEL_NOR	-
2	Valid range	Minimum Maximum	0 mm/s 300 mm/s	4	VEL_NOR	-
3	Spike	Peak threshold	40 mm/s	6	VEL_NOR	-
4	Gradient	Variance Time	min	4	VEL_NOR	0.05
5	Stationary	Variance Time	0 mm/s 6 hours	4	VEL_NOR	-
6	Stationary	Variance Time	< 0.2 mm/s 12 hours	4	VEL_NOR	-

3.1.8. Biogeochemical

Buoys Ibiza Channel and Palma Bay. Multiparameter probe

Turbidity of sea water, TURB_YSI (NTU)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 NTU 15 NTU	2	-	-
2	Valid range	Minimum Maximum	0 NTU 25 NTU	4	-	-
3	Spike	Peak threshold	0.5 NTU	6	-	-
4	Gradient	Variance Time	min	4	-	0.0005
5	Stationary	Variance Time	0 NTU 6 hours	4	-	-

mass_concentration_of_chlorophyll_in_sea_water, CHLO_YSI (rfu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-1 rfu 3 rfu	2	-	-
2	Valid range	Minimum Maximum	-2 rfu 20 rfu	4	-	-
3	Spike	Peak threshold	0.5 rfu	6	-	-
4	Gradient	Variance Time	min	4	-	0.0005
5	Stationary	Variance Time	0 rfu 6 hours	4	-	-
6	Stationary	Variance Time	0.1 rfu 12 hours	4	-	-

3.2. Surface drifters

3.2.1. WOCE SVP Argos - Drogue depth 15m

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 40 °C	4	-	-
2	Spike	Peak threshold	2 °C	6	-	-

Voltage, VOLT (V)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 V 14 V	4	-	-

Latitude, LAT (° North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90° 90°	4	-	-
2	positionGradient	maxgradient	3	4	-	-

Longitude, LON (° East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180° 180°	4	-	-

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.5 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 2.5 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.0 m/s	6	LAT, LON	-

3.2.2. ClearSat-1 - CODE

Voltage, VOLT (V)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 V 17 V	4	-	-

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 40 °C	4	-	-
2	Spike	Peak threshold	2 °C	6	-	-

Location class, LOC_CLASS (1)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 3	4	-	-

3.2.3. Albatros marine instruments MD03 - MD03

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

Number of satellites, NUM_SAT (1)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 12	2	-	-
2	Valid range	Minimum Maximum	0 20	4	-	-

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 40 °C	4	-	-
2	Spike	Peak threshold	2 °C	6	-	-

Gps positioning mode, FIX (1)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	2 3	4	-	-

Voltage, VOLT (V)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 V 10 V	4	-	-

Latitude, LAT (° North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90° 90°	4	-	-

Longitude, LON (° East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180° 180°	4	-	-

3.2.4. Marine Instruments MLi - MLi

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

Longitude, LON ($^{\circ}$ East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 $^{\circ}$ 180 $^{\circ}$	4	-	-

Latitude, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 $^{\circ}$ 90 $^{\circ}$	4	-	-

Sea water temperature, WTEM ($^{\circ}$ C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 $^{\circ}$ C 40 $^{\circ}$ C	4	-	-
2	Spike	Peak threshold	2 $^{\circ}$ C	6	-	-

3.2.5. Albatros marine instruments ODi - ODi

Latitude, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 $^{\circ}$ 90 $^{\circ}$	4	-	-

Longitude, LON ($^{\circ}$ East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 $^{\circ}$ 180 $^{\circ}$	4	-	-

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

Sea water temperature, WTEM ($^{\circ}$ C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 40 °C	4	-	-
2	Spike	Peak threshold	2 °C	6	-	-

3.2.6. ICM PK 1 - ODI

Latitude, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 $^{\circ}$ 90 $^{\circ}$	4	-	-

Longitude, LON ($^{\circ}$ East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 $^{\circ}$ 180 $^{\circ}$	4	-	-

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

3.2.7. Trident Sensors TRIG - Spill track ST

platform course direction, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 $^{\circ}$ 359 $^{\circ}$	4	-	-

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

Voltage, VOLT (V)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 V 15 V	4	-	-

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 40 °C	4	-	-
2	Spike	Peak threshold	2 °C	6	-	-
4	Gradient	Variance Time	0.18 °C 1 min	4	-	0.003 = 0.18/60
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 °C 12 hours	4	-	-

Longitude, LON (° East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180° 180°	4	-	-

Latitude, LAT (° North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90° 90°	4	-	-

3.2.8. SPOT PK-1

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.8 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1.3 m/s	6	LAT, LON	-

Latitude, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 $^{\circ}$ 90 $^{\circ}$	4	-	-

Longitude, LON ($^{\circ}$ East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
2	Valid range	Minimum Maximum	-180 $^{\circ}$ 180 $^{\circ}$	4	-	-

3.2.9. SVP DBi (ERDAPP NOAA)

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 40 °C	4	-	-
2	Spike	Peak threshold	2 °C	6	-	-

Latitude, LAT (° North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90° 90°	4	-	-
2	positionGradient	maxgradient	3	4	-	-

Longitude, LON (° East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
0	Valid range	Minimum Maximum	-180° 180°	4	-	-

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.5 m/s	2	-	-
2	Valid range	Minimum Maximum	0.001 m/s 2.5 m/s	4	-	-
3	Spike	Peak threshold	1 m/s	6	-	-

3.2.10. Iridium SVP-XML

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.5 m/s	2	LAT, LON	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	LAT, LON	-
3	Spike	Peak threshold	1 m/s	6	LAT, LON	-

Longitude, LON ($^{\circ}$ East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 $^{\circ}$ 180 $^{\circ}$	4	-	-

Latitude, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 $^{\circ}$ 90 $^{\circ}$	4	-	-

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 35 °C	2	-	-
2	Valid range	Minimum Maximum	-2.5 °C 40 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.003
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 °C 12 hours	4	-	-

Voltage, VOLT (V)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 V 14 V	4	-	-

3.3. Argo profilers

3.3.1. Apex profiler drifter

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.5 m/s	2	-	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	1 m/s	6	-	-

3.3.2. ProvBiol profiler drifter

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 1.5 m/s	2	-	-
2	Valid range	Minimum Maximum	0.001 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	1 m/s	6	-	-

650nm_scattering_in_sea_water, BACKSCATTERING (counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
3	Valid range	Minimum Maximum	-1 counts 10 counts	4	-	-

mass_concentration_of_chlorophyll_in_sea_water, CHLO (mg/m3)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 mg/m3 10 mg/m3	4	-	-

colored_dissolved_organic_matter_in_sea_water, CHLO (PPB)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-10 PPB 10 PPB	4	-	-

Sea water temperature, WTEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-

Sea water salinity, SALT (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-

3.4. Glider

3.4.1. Slocum

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 1 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 1 m/s	4	-	-

Latitude, LAT ($^{\circ}$ North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 $^{\circ}$ 90 $^{\circ}$	4	-	-

Longitude, LON ($^{\circ}$ East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 $^{\circ}$ 180 $^{\circ}$	4	-	-

3.4.2. SeaGlider

Platform speed with respect to ground, PSPEED (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.001 m/s 0.5 m/s	2	-	-
2	Valid range	Minimum Maximum	0.001 m/s 1.5 m/s	4	-	-
3	spike	threshold	0.5 m/s	6	-	-

is surfacing dive, SURF_DIVE (1)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	is surfacing dive	-	1	4	-	-

3.5. Research Vessel

3.5.1. Rosette CTD

turbidity of sea water, TURB (FTU)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 FTU 15 FTU	2	-	-
2	Valid range	Minimum Maximum	0 FTU 25 FTU	4	-	-
3	Spike	Peak threshold	3 FTU	6	-	-
4	Gradient	Variance Time	min	4	-	0.0005
5	Stationary	Variance Time	0 FTU 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 FTU 12 hours	4	-	-

sea water practical salinity, SALT_01 (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	36 psu 39 psu	2	-	-
2	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-
3	Spike	Peak threshold	0.2 psu	6	-	-
4	Gradient	Variance Time	0.001 1 min	4	-	0.000167 = 0.001/60
5	Stationary	Variance Time	0 psu 6 hours	4	-	-
6	Stationary	Variance	< 0 psu	4	-	-

		Time	12 hours		
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sea water practical salinity, SALT_02 (psu)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	36 psu 39 psu	2	-	-
2	Valid range	Minimum Maximum	0 psu 45 psu	4	-	-
3	Spike	Peak threshold	0.2 psu	6	-	-
4	Gradient	Variance Time	0.001 1 min	4	-	0.000167 = 0.001/60
5	Stationary	Variance Time	0 psu 6 hours	4	-	-
6	Stationary	Variance Time	< 0.05 psu 12 hours	4	-	-

Sea water temperature, WTR_TEM_01 (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.003
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0.01 °C 12 hours	4	-	-

Sea water electrical conductivity, COND_01 and COND_02 (mS/cm)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 mS/cm 70 mS/cm	4	-	-

Sea water temperature, WTR_TEM_02 (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 35 °C	4	-	-
3	Spike	Peak threshold	3 °C	6	-	-
4	Gradient	Variance Time	°C min	4	-	0.003
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	< 0 °C 12 hours	4	-	-

3.5.2. Ocean Surveyor ADCP

Bottom Track Direction of sea water velocity on the sea floor, BT_CUR_DIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 ° 359.9 °	4	-	-

Bottom Track Sea water velocity on the sea floor, BT_CUR_SPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 2 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 3 m/s	4	-	-

Bottom Track error sea water velocity on the sea floor, BT_VEL_ERR(m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_ErrorVelocity	err_vel	0.15 m/s	4	-	-

Bottom Track Depth from Beam 1, BT_DEPTH_BEAM1 (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 600 m	4	-	-

Transducer depth, PLAT_DEPTH (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 3 m	4	-	-

Bottom track eastward water velocity, BT_VEL_EAS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2 m/s	2	-	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	0.12 m/s	6	-	-

Bottom track northward water velocity, BT_VEL_NOR (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2 m/s	2	-	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	-	-
3	Spike	Peak threshold	0.12 m/s	6	-	-

Bottom track northward water velocity, BT_VEL_UPW(m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-0.4 m/s 0.4 m/s	2	-	-
2	Valid range	Minimum Maximum	-0.5 m/s 0.5 m/s	4	-	-

Bottom Track Depth from Beam 2, BT_DEPTH_BEAM2 (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum	0 m	4	-	-

		Maximum	600 m			
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Bottom Track Depth from Beam 3, BT_DEPTH_BEAM3 (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 600 m	4	-	-

sea water percent good velocity, PERG_VEL (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_PercentGood_Velocity	pgood	50 %	4	CUR_SPE, VEL_EAS, VEL_NOR, VEL_UPW	-

Bottom Track Depth from Beam 4, BT_DEPTH_BEAM4 (m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 600 m	4	-	-

Bottom Track minimum depth below surface among beams, BT_DEPTH_MIN(m)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m 600 m	4	-	-

eastward sea water velocity, VEL_EAS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2 m/s	2	CUR_SPE	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	CUR_SPE	-
3	Spike	Peak threshold	0.12 m/s	6	CUR_SPE	-

Sea water noise amplitude beam 1, AMP_BEAM1 (counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_EchoIntensityVelocity	echo_amplitude_threshold	25 counts	4	-	-

Sea water noise amplitude beam 2, AMP_BEAM2 (counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_EchoIntensityVelocity	echo_amplitude_threshold	25 counts	4	-	-

Sea water noise amplitude beam 3, AMP_BEAM3 (counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_EchoIntensityVelocity	echo_amplitude_threshold	25 counts	4	-	-

Sea water noise amplitude beam 4, AMP_BEAM4 (counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_EchoIntensity Velocity	echo_amplitude_threshold	25 counts	4	-	-

northward sea water velocity, VEL_NOR (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-2 m/s 2 m/s	2	CUR_SPE	-
2	Valid range	Minimum Maximum	-3 m/s 3 m/s	4	CUR_SPE	-
3	Spike	Peak threshold	0.12 m/s	6	CUR_SPE	-

Upward sea water velocity, VEL_UPW (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-0.4 m/s 0.4 m/s	2	-	-
2	Valid range	Minimum Maximum	-0.5 m/s 0.5 m/s	4	-	-
3	Spike	Peak threshold	0.12 m/s	6	-	-

correlation magnitude from beam 1, CORR_BEAM1(counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_CorrelationMagnitude	cmag	110 counts	4	CUR_SPE, VEL_EAS, VEL_NOR, VEL_UPW	-

correlation magnitude from beam 2, CORR_BEAM2(counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_CorrelationMagnitude	cmag	110 counts	4	CUR_SPE, VEL_EAS, VEL_NOR, VEL_UPW	-

correlation magnitude from beam 3, CORR_BEAM3(counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_CorrelationMagnitude	cmag	110 counts	4	CURR_PE, VEL_EAS, VEL_NOR, VEL_UPW	-

correlation magnitude from beam 4, CORR_BEAM4(counts)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_CorrelationMagnitude	cmag	110	4	CUR_SPE, VEL_EAS, VEL_NOR, VEL_UPW	-

error sea water velocity, VEL_ERR (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	RDI_ADCP_ErrorVelocity	err_vel	0.15 m/s	4	CUR_SPE, VEL_EAS, VEL_NOR, VEL_UPW	-

Platform First Latitude coordinate, PLAT_FLAT (° North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 ° 90 °	4	-	-

Platform First Longitude coordinate, PLAT_FLON (° East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 ° 180 °	4	-	-

Platform Last Latitude coordinate, LAT (° North)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-90 ° 90 °	4	-	-

Platform Last Longitude coordinate, LON (° East)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-180 ° 180 °	4	-	-

Sea water temperature, WTR_TEM (°C)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	10 °C 30 °C	2	-	-
2	Valid range	Minimum Maximum	-5 °C 45 °C	4	-	-
3	Spike	Peak threshold	0.12 °C	6	-	-
4	Gradient	max_gradient	0.003	4	-	-
5	Stationary	Variance Time	0 °C 6 hours	4	-	-
6	Stationary	Variance Time	0.01 °C 12 hours	4	-	-

Platform Pitch Angle, PLAT_PITCH (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 ° 5 °	4	-	-

Platform Roll Angle, PLAT_ROLL(°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-5 ° 5 °	4	-	-

Platform Orientation Angle, PLAT_ORI (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 ° 359.9 °	4	-	-

Platform Course Angle, PLAT_DIR(°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 ° 359.9 °	4	-	-

Platform speed magnitude with reference to sea water, PLAT_SPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 10	4	-	-

Platform Eastward velocity, PLAT_VEL_EAS (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum	-10	4	-	-

		Maximum	10			
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Platform Eastward velocity, PLAT_VEL_NOR (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-10 m/s 10 m/s	4	-	-

Direction of sea water velocity, CUR_DIR (º)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 º 359.9 º	4	-	-

Sea water velocity, CUR_SPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 m/s 2 m/s	2	-	-
2	Valid range	Minimum Maximum	0 m/s 3 m/s	4	-	-

Percentage of good three beam solutions, PERG1 (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	4	-	-

Percentage of transformations rejected, PERG2 (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	4	-	-

Percentage of measurements with more than one beam bad, PERG3 (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
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1	Valid range	Minimum Maximum	0 % 100 %	4	-	-
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Percentage of good four beam solutions, PERG4 (%)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0 % 100 %	4	-	-

3.6. Coastal HF radar (CODAR Ocean Sensors SeaSonde)

This test battery will complement the QC procedures applied previously by the CODAR software. Specifically, the test that is being applied by CODAR is the valid range test.

Difference Bearing Ideal- Meas GALF, RABA_DIFF_GALF(°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-1° 20 °	3	WSPE, WSPE_DIR	-

Difference Bearing Ideal- Meas FORM, RABA_DIFF_FORM (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-1° 20 °	3	WSPE, WSPE_DIR	-

Bearing avg Galf, RABA_GALF (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-130 ° -90 °	3	WSPE, WSPE_DIR	-

Bearing avg Form, RABA_FORM (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	-110 ° -70 °	3	WSPE, WSPE_DIR	-

Signal to noise, SSN (dBm)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	20 dBm 100 dBm	3	WSPE, WSPE_DIR	-

Radial vector count, RADV (number of vectors)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	500 3000	2	WSPE, WSPE_DIR	-

Direction of sea water velocity, WSPE_DIR (°)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0° 360°	4	U,V	-
2	directionSpike	Peak threshold	120.0 °	6	U,V	-
3	directionGradient	Variance Time	2° 1 min	4	U,V	0.0333=2/60

Sea water speed, WSPE (m/s)

Execution order	Name	Parameter	Value	QF	Dependencies	Comments
1	Valid range	Minimum Maximum	0.0000001 m/s 0.7 m/s	4	U,V	-
2	Spike	Peak threshold	0.20 m/s	6	U,V	-
3	Gradient	Variance Time	0.00416 m/s 1 min	4	U,V	0.0000694 = 0.00416/60

4. References

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