

# Quality control for BGC-Argo radiometry

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<https://archimer.ifremer.fr/doc/00513/62466/>

- This test applies a gross filter on each observed value for DOWN\_IRRADIANCExxx and DOWNWELLING\_PAR vertical profiles.
  - Minimal values are set to -1 for all variables.
- Maximal values are specific to each variable and represent the maximum value that is expected on the Earth, at the ocean surface under clear sky, regardless of the time of the year.
  - These values have been derived from the theoretical model by Gregg and Carder (1990). These values have been finally multiplied by 2 to remove also additional effects on radiometric values such as the wave focusing.

	Min	Max
DOWN_IRRADIANCE380	-1	1.7
DOWN_IRRADIANCE412	-1	2.9
DOWN_IRRADIANCE443	-1	3.2
DOWN_IRRADIANCE490	-1	3.4
DOWNWELLING_PAR	-1	4672

Table 1 : Range values of the global range test.

- DOWN\_IRRADIANCE is  $\text{W.m}^{-2}.\text{nm}^{-1}$
- DOWNWELLING\_PAR is  $\mu\text{molQuanta.m}^{-2}.\text{s}^{-1}$

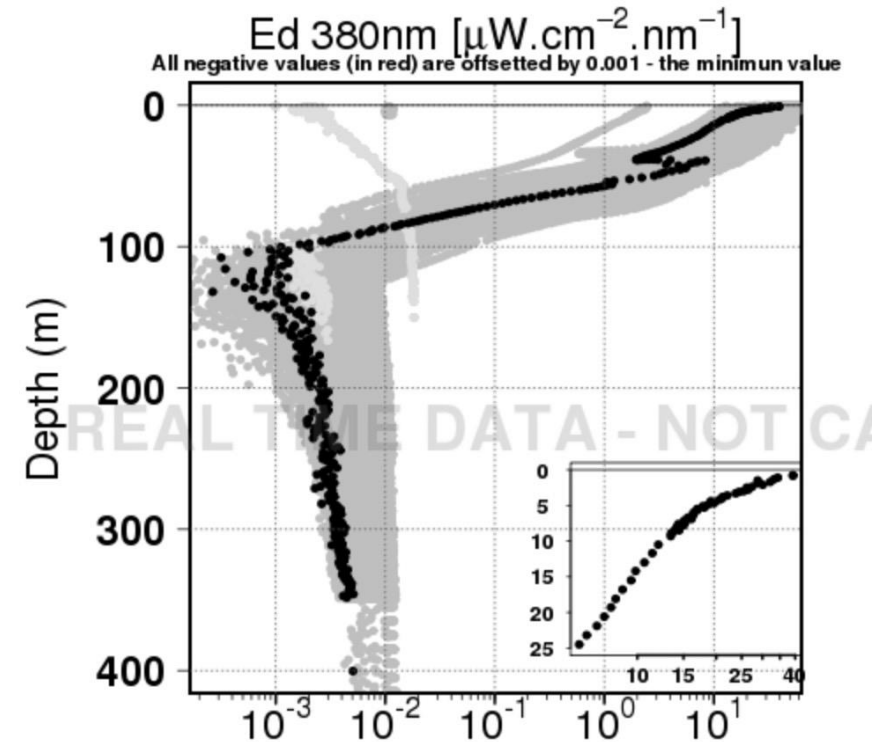
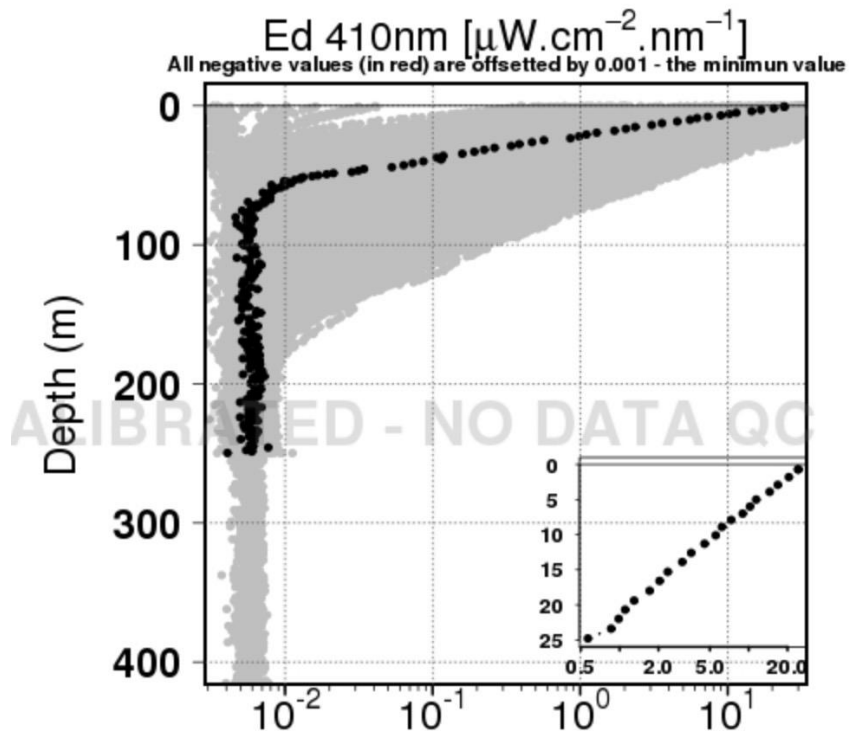
PARAMETER	NB VALUE	NB VALUE QC=2	% QC=4	MIN before QC	MAX before QC	MIN after QC	MAX after QC
DOWN_IRRADIANCE380	8892018	8889437	0,03%	-4,6196	4,3118	-0,9541	1,4148
DOWN_IRRADIANCE412	9107436	9049007	0,64%	-6,7893	6,3650	-0,8021	2,6241
DOWN_IRRADIANCE443	215418	215418	0,00%	-0,0021	2,7591	-0,0021	2,7591
DOWN_IRRADIANCE490	9107436	9060517	0,52%	-17228304	298833215488	-0,9989	3,1826
DOWNWELLING_PAR	9107436	9025518	0,90%	-10812	4236	-1,0000	4236

Table 2 : The impact of the global test range on the global radiometric database on July 25, 2019.

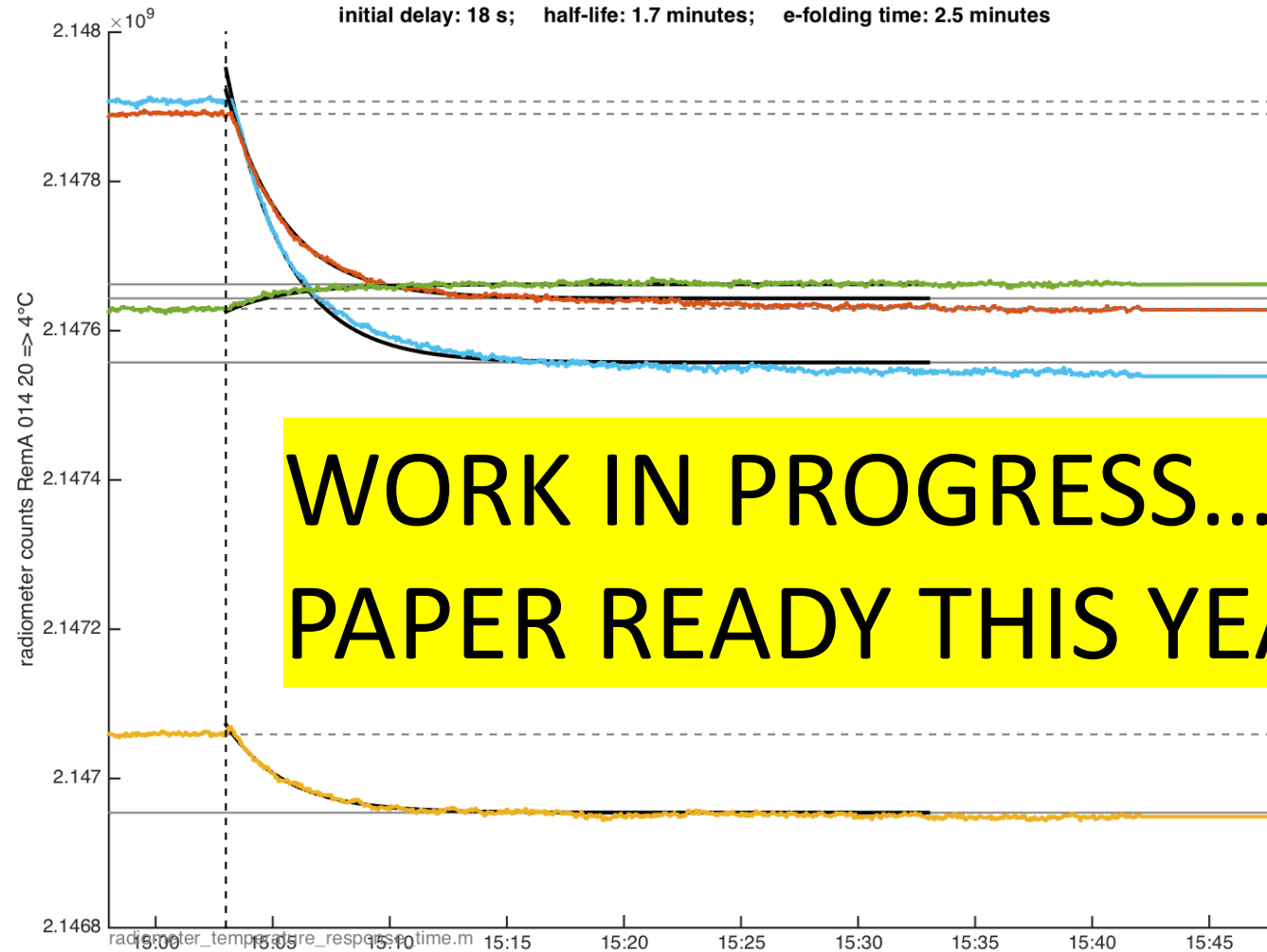
DAC	WMO	PI	Nb	DOWN_IRRADIANCE380	DOWN_IRRADIANCE412	DOWN_IRRADIANCE443	DOWN_IRRADIANCE490	DOWNWELLING_PAR
:-----	:-----	:-----	:-----	:-----	:-----	:-----	:-----	:-----
bodc	3901497	Giorgio Dall'Olmo	138600	3 -	3 -	-	3 -	3 -
coriolis	4901805	Marcel Babin	28023	1 -	1 -	-	1 -	1 -
coriolis	6901004	Herve CLAUSTRE	92903	- 4	-	-	-	1 -
coriolis	6901439	Herve CLAUSTRE	125465	298 -	296 -	-	296 -	298 -
coriolis	6901473	Herve CLAUSTRE	121005	2233 -	2313 -	-	2232 -	2233 -
coriolis	6901475	Herve CLAUSTRE	26917	17 -	17 -	-	29 -	29 -
coriolis	6901489	Fabrizio D'ORTENZIO	30097	-	-	-	-	19107 -
coriolis	6901514	Herve CLAUSTRE	10459	-	-	-	-	7013 -
coriolis	6901518	Herve CLAUSTRE	26169	-	-	-	-	17699 -
coriolis	6901522	Fabrizio D'ORTENZIO	1626	-	-	-	-	1102 -
coriolis	6901526	Fabrizio D'ORTENZIO	5943	-	-	-	-	4180 -
coriolis	6901653	Pascal CONAN	67133	5 -	5 -	-	110 -	110 -
coriolis	6901766	Fabrizio D'ORTENZIO	60896	2 1	-	-	-	1 -
coriolis	6901860	Pierre-Marie POULAIN	19095	-	19095 -	-	19095 -	19095 -
coriolis	6901866	Pierre Marie Poulain	137170	-	3 -	-	8 -	8 -
coriolis	6902666	Marcel Babin	18040	-	-	-	-	11020 -
coriolis	6902671	Marcel Babin	36685	-	- 36685	-	-	-
coriolis	6902734	Herve Claustre	82327	-	1 -	-	1 -	7 -
coriolis	6902737	Herve Claustre	91525	1 3	-	-	-	1 -
coriolis	6902740	Herve Claustre	31161	2 2	-	-	-	1 -
coriolis	6902896	Marcel Babin	28515	1 -	1 -	-	1 -	1 -
coriolis	6902901	Laurent Coppola	18145	-	1 -	-	-	-
coriolis	6902909	Elodie Martinez	18494	-	-	-	3218 15276	-
coriolis	6902953	Marcel Babin	3953	5 -	5 -	-	6 -	5 -
coriolis	6902969	Herve Claustre	10857	1 -	1 -	-	1 -	1 -

Table 3 : 25 WMO impacted by the range test in July 25, 2019

# Radiometry : Pressure and Temperature dependance



# OCR Radiometer dark count response to sudden temperature change (aluminum)



**WORK IN PROGRESS....**  
**PAPER READY THIS YEAR ...**

### Recommendation:

- At least 1 midnight profile per year per float with OCR radiometers.
- Preferred timing: at end of summer, when T dynamic range is near maximum.