

DIAGTOOL REPORT



**Round Robin (GT cotier) : Ionospheric correction.
Nea. J2. Iono filtered vs Iono gim.**

11 avril 2022

Table of Contents

1	General description	7
2	Processing	7
2.1	sla formula	7
2.1.1	Iono_filtered product ' sla	7
2.1.2	Iono_gim product ' sla	7
2.2	Binning	8
2.3	Filtering	8
3	Spatial coherence analysis	9
3.1	sla	9
3.1.1	sla 's count	9
3.1.2	sla 's std	12
3.1.3	sla 's mean	15
3.2	Iono	18
3.2.1	Iono 's count	18
3.2.2	Iono 's std	21
3.2.3	Iono 's mean	24
4	Histograms	27
4.1	Iono	27
4.2	sla	30
5	Along-track analysis	31
5.1	Iono	31
5.1.1	Iono 's count	31
5.1.2	Iono 's std	32
5.1.3	Iono 's mean	33
5.2	sla	34
5.2.1	sla 's count	34
5.2.2	sla 's std	35
5.2.3	sla 's mean	36
6	Comparison with Insitu Data (Tide Gauge)	37
6.1	Station : HERBAUDIERE	37
6.1.1	correlation visualization in maps view % HERBAUDIERE tide gauge	37
6.1.2	rmsd visualization in maps view % HERBAUDIERE tide gauge	38
6.1.3	std visualization in maps view % HERBAUDIERE tide gauge	39
6.1.4	valid_data_percent visualization in maps view % HERBAUDIERE tide gauge	40
6.1.5	Valid data (%) in function of distance to coast/HERBAUDIERE station	40
6.1.6	Std in function of distance to coast/HERBAUDIERE station	42
6.1.7	Correlation in function of distance to coast/HERBAUDIERE station	43
6.1.8	Taylor Diagram	44
6.1.9	Mean statistics table of products comparison with HERBAUDIERE tide gauge data	44
6.1.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	45

6.2	Station : Llandudno	47
6.2.1	correlation visualization in maps view % Llandudno tide gauge	48
6.2.2	rmsd visualization in maps view % Llandudno tide gauge	49
6.2.3	std visualization in maps view % Llandudno tide gauge	50
6.2.4	valid_data_percent visualization in maps view % Llandudno tide gauge	51
6.2.5	Valid data (%) in function of distance to coast/Llandudno station	51
6.2.6	Std in function of distance to coast/Llandudno station	53
6.2.7	Correlation in function of distance to coast/Llandudno station	54
6.2.8	Taylor Diagram	55
6.2.9	Mean statistics table of products comparison with Llandudno tide gauge data	55
6.2.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	56
6.3	Station : Newhaven	57
6.3.1	correlation visualization in maps view % Newhaven tide gauge	58
6.3.2	rmsd visualization in maps view % Newhaven tide gauge	59
6.3.3	std visualization in maps view % Newhaven tide gauge	60
6.3.4	valid_data_percent visualization in maps view % Newhaven tide gauge	61
6.3.5	Valid data (%) in function of distance to coast/Newhaven station	61
6.3.6	Std in function of distance to coast/Newhaven station	63
6.3.7	Correlation in function of distance to coast/Newhaven station	64
6.3.8	Taylor Diagram	65
6.3.9	Mean statistics table of products comparison with Newhaven tide gauge data	65
6.3.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	66
6.4	Station : CALAIS	68
6.4.1	correlation visualization in maps view % CALAIS tide gauge	69
6.4.2	rmsd visualization in maps view % CALAIS tide gauge	70
6.4.3	std visualization in maps view % CALAIS tide gauge	71
6.4.4	valid_data_percent visualization in maps view % CALAIS tide gauge	72
6.4.5	Valid data (%) in function of distance to coast/CALAIS station	72
6.4.6	Std in function of distance to coast/CALAIS station	74
6.4.7	Correlation in function of distance to coast/CALAIS station	75
6.4.8	Taylor Diagram	76
6.4.9	Mean statistics table of products comparison with CALAIS tide gauge data	76
6.4.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	77
6.5	Station : Portpatrick	79
6.5.1	correlation visualization in maps view % Portpatrick tide gauge	80
6.5.2	rmsd visualization in maps view % Portpatrick tide gauge	81
6.5.3	std visualization in maps view % Portpatrick tide gauge	82
6.5.4	valid_data_percent visualization in maps view % Portpatrick tide gauge	83
6.5.5	Valid data (%) in function of distance to coast/Portpatrick station	83
6.5.6	Std in function of distance to coast/Portpatrick station	85
6.5.7	Correlation in function of distance to coast/Portpatrick station	86
6.5.8	Taylor Diagram	87
6.5.9	Mean statistics table of products comparison with Portpatrick tide gauge data	87
6.5.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	88
6.6	Station : Newlyn	90

6.6.1	correlation visualization in maps view % Newlyn tide gauge	91
6.6.2	rmsd visualization in maps view % Newlyn tide gauge	92
6.6.3	std visualization in maps view % Newlyn tide gauge	93
6.6.4	valid_data_percent visualization in maps view % Newlyn tide gauge	94
6.6.5	Valid data (%) in function of distance to coast/Newlyn station	94
6.6.6	Std in function of distance to coast/Newlyn station	96
6.6.7	Correlation in function of distance to coast/Newlyn station	97
6.6.8	Taylor Diagram	98
6.6.9	Mean statistics table of products comparison with Newlyn tide gauge data	98
6.6.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	99
6.7	Station : LE_CONQUET	101
6.7.1	correlation visualization in maps view % LE_CONQUET tide gauge	102
6.7.2	rmsd visualization in maps view % LE_CONQUET tide gauge	103
6.7.3	std visualization in maps view % LE_CONQUET tide gauge	104
6.7.4	valid_data_percent visualization in maps view % LE_CONQUET tide gauge	105
6.7.5	Valid data (%) in function of distance to coast/LE_CONQUET station	105
6.7.6	Std in function of distance to coast/LE_CONQUET station	107
6.7.7	Correlation in function of distance to coast/LE_CONQUET station	108
6.7.8	Taylor Diagram	109
6.7.9	Mean statistics table of products comparison with LE_CONQUET tide gauge data	109
6.7.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	110
6.8	Station : Holyhead	112
6.8.1	correlation visualization in maps view % Holyhead tide gauge	113
6.8.2	rmsd visualization in maps view % Holyhead tide gauge	114
6.8.3	std visualization in maps view % Holyhead tide gauge	115
6.8.4	valid_data_percent visualization in maps view % Holyhead tide gauge	116
6.8.5	Valid data (%) in function of distance to coast/Holyhead station	116
6.8.6	Std in function of distance to coast/Holyhead station	118
6.8.7	Correlation in function of distance to coast/Holyhead station	119
6.8.8	Taylor Diagram	120
6.8.9	Mean statistics table of products comparison with Holyhead tide gauge data	120
6.8.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	121
6.9	Station : LE_CROUESTY	123
6.9.1	correlation visualization in maps view % LE_CROUESTY tide gauge	124
6.9.2	rmsd visualization in maps view % LE_CROUESTY tide gauge	125
6.9.3	std visualization in maps view % LE_CROUESTY tide gauge	126
6.9.4	valid_data_percent visualization in maps view % LE_CROUESTY tide gauge	127
6.9.5	Valid data (%) in function of distance to coast/LE_CROUESTY station	127
6.9.6	Std in function of distance to coast/LE_CROUESTY station	129
6.9.7	Correlation in function of distance to coast/LE_CROUESTY station	130
6.9.8	Taylor Diagram	131
6.9.9	Mean statistics table of products comparison with LE_CROUESTY tide gauge data	131
6.9.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	132
6.10	Station : North_Shields	133
6.10.1	correlation visualization in maps view % North_Shields tide gauge	134

6.10.2	rmsd visualization in maps view % North_Shields tide gauge	135
6.10.3	std visualization in maps view % North_Shields tide gauge	136
6.10.4	valid_data_percent visualization in maps view % North_Shields tide gauge	137
6.10.5	Valid data (%) in function of distance to coast/North_Shields station	137
6.10.6	Std in function of distance to coast/North_Shields station	139
6.10.7	Correlation in function of distance to coast/North_Shields station	140
6.10.8	Taylor Diagram	141
6.10.9	Mean statistics table of products comparison with North_Shields tide gauge data	141
6.10.10	The most correlated sla altimetry Time series with the tide gauge sla time serie	142

Table des figures

1	Spatial coherence analysis of the count of the Iono_filtered version of sla variable	9
2	Spatial coherence analysis of the count of the Iono_gim version of sla variable	10
3	Spatial coherence analysis of the Difference in sla 's count between Iono_filtered and Iono_gim	11
4	Spatial coherence analysis of the std of the Iono_filtered version of sla variable	12
5	Spatial coherence analysis of the std of the Iono_gim version of sla variable	13
6	Spatial coherence analysis of the Difference in sla 's std between Iono_filtered and Iono_gim	14
7	Spatial coherence analysis of the mean of the Iono_filtered version of sla variable	15
8	Spatial coherence analysis of the mean of the Iono_gim version of sla variable	16
9	Spatial coherence analysis of the Difference in sla 's mean between Iono_filtered and Iono_gim	17
10	Spatial coherence analysis of the count of the Iono_filtered version of Iono variable	18
11	Spatial coherence analysis of the count of the Iono_gim version of Iono variable	19
12	Spatial coherence analysis of the Difference in Iono 's count between Iono_filtered and Iono_gim	20
13	Spatial coherence analysis of the std of the Iono_filtered version of Iono variable	21
14	Spatial coherence analysis of the std of the Iono_gim version of Iono variable	22
15	Spatial coherence analysis of the Difference in Iono 's std between Iono_filtered and Iono_gim	23
16	Spatial coherence analysis of the mean of the Iono_filtered version of Iono variable	24
17	Spatial coherence analysis of the mean of the Iono_gim version of Iono variable	25
18	Spatial coherence analysis of the Difference in Iono 's mean between Iono_filtered and Iono_gim	26
19	Histogram of each of Iono version	27
20	Histograms of difference of each Iono version and reference one	28
21	Histograms of the standard deviation of each Iono version	29
22	Histograms of the standard deviation of each sla version	30
23	Along-track analysis of Iono 's count	31
24	Along-track analysis of Iono 's std	32
25	Along-track analysis of Iono 's mean	33
26	Along-track analysis of sla 's count	34
27	Along-track analysis of sla 's std	35
28	Along-track analysis of sla 's mean	36
29	correlation visualization in maps view % HERBAUDIERE tide gauge	37
30	rmsd visualization in maps view % HERBAUDIERE tide gauge	38
31	std visualization in maps view % HERBAUDIERE tide gauge	39
32	valid_data_percent visualization in maps view % HERBAUDIERE tide gauge	40
33	Valid data (%) in function of distance to coast/HERBAUDIERE station	41

34	Std in function of the distance to the coast/HERBAUDIÈRE station	42
35	Correlation in function of the distance to the coast/HERBAUDIÈRE station	43
36	Taylor diagram	44
37	Mean statistics table of the common points in the altimetry products	45
38	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	46
39	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	47
40	correlation visualization in maps view % Llandudno tide gauge	48
41	rmsd visualization in maps view % Llandudno tide gauge	49
42	std visualization in maps view % Llandudno tide gauge	50
43	valid_data_percent visualization in maps view % Llandudno tide gauge	51
44	Valid data (%) in function of distance to coast/Llandudno station	52
45	Std in function of the distance to the coast/Llandudno station	53
46	Correlation in function of the distance to the coast/Llandudno station	54
47	Taylor diagram	55
48	Mean statistics table of the common points in the altimetry products	56
49	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	57
50	correlation visualization in maps view % Newhaven tide gauge	58
51	rmsd visualization in maps view % Newhaven tide gauge	59
52	std visualization in maps view % Newhaven tide gauge	60
53	valid_data_percent visualization in maps view % Newhaven tide gauge	61
54	Valid data (%) in function of distance to coast/Newhaven station	62
55	Std in function of the distance to the coast/Newhaven station	63
56	Correlation in function of the distance to the coast/Newhaven station	64
57	Taylor diagram	65
58	Mean statistics table of the common points in the altimetry products	66
59	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	67
60	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	68
61	correlation visualization in maps view % CALAIS tide gauge	69
62	rmsd visualization in maps view % CALAIS tide gauge	70
63	std visualization in maps view % CALAIS tide gauge	71
64	valid_data_percent visualization in maps view % CALAIS tide gauge	72
65	Valid data (%) in function of distance to coast/CALAIS station	73
66	Std in function of the distance to the coast/CALAIS station	74
67	Correlation in function of the distance to the coast/CALAIS station	75
68	Taylor diagram	76
69	Mean statistics table of the common points in the altimetry products	77
70	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	78
71	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	79
72	correlation visualization in maps view % Portpatrick tide gauge	80
73	rmsd visualization in maps view % Portpatrick tide gauge	81
74	std visualization in maps view % Portpatrick tide gauge	82
75	valid_data_percent visualization in maps view % Portpatrick tide gauge	83
76	Valid data (%) in function of distance to coast/Portpatrick station	84
77	Std in function of the distance to the coast/Portpatrick station	85
78	Correlation in function of the distance to the coast/Portpatrick station	86

79	Taylor diagram	87
80	Mean statistics table of the common points in the altimetry products	88
81	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	89
82	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	90
83	correlation visualization in maps view % Newlyn tide gauge	91
84	rmsd visualization in maps view % Newlyn tide gauge	92
85	std visualization in maps view % Newlyn tide gauge	93
86	valid_data_percent visualization in maps view % Newlyn tide gauge	94
87	Valid data (%) in function of distance to coast/Newlyn station	95
88	Std in function of the distance to the coast/Newlyn station	96
89	Correlation in function of the distance to the coast/Newlyn station	97
90	Taylor diagram	98
91	Mean statistics table of the common points in the altimetry products	99
92	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	100
93	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	101
94	correlation visualization in maps view % LE_CONQUET tide gauge	102
95	rmsd visualization in maps view % LE_CONQUET tide gauge	103
96	std visualization in maps view % LE_CONQUET tide gauge	104
97	valid_data_percent visualization in maps view % LE_CONQUET tide gauge	105
98	Valid data (%) in function of distance to coast/LE_CONQUET station	106
99	Std in function of the distance to the coast/LE_CONQUET station	107
100	Correlation in function of the distance to the coast/LE_CONQUET station	108
101	Taylor diagram	109
102	Mean statistics table of the common points in the altimetry products	110
103	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	111
104	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	112
105	correlation visualization in maps view % Holyhead tide gauge	113
106	rmsd visualization in maps view % Holyhead tide gauge	114
107	std visualization in maps view % Holyhead tide gauge	115
108	valid_data_percent visualization in maps view % Holyhead tide gauge	116
109	Valid data (%) in function of distance to coast/Holyhead station	117
110	Std in function of the distance to the coast/Holyhead station	118
111	Correlation in function of the distance to the coast/Holyhead station	119
112	Taylor diagram	120
113	Mean statistics table of the common points in the altimetry products	121
114	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	122
115	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	123
116	correlation visualization in maps view % LE_CROUESTY tide gauge	124
117	rmsd visualization in maps view % LE_CROUESTY tide gauge	125
118	std visualization in maps view % LE_CROUESTY tide gauge	126
119	valid_data_percent visualization in maps view % LE_CROUESTY tide gauge	127
120	Valid data (%) in function of distance to coast/LE_CROUESTY station	128
121	Std in function of the distance to the coast/LE_CROUESTY station	129
122	Correlation in function of the distance to the coast/LE_CROUESTY station	130
123	Taylor diagram	131

124	Mean statistics table of the common points in the altimetry products	132
125	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	133
126	correlation visualization in maps view % North_Shields tide gauge	134
127	rmsd visualization in maps view % North_Shields tide gauge	135
128	std visualization in maps view % North_Shields tide gauge	136
129	valid_data_percent visualization in maps view % North_Shields tide gauge	137
130	Valid data (%) in function of distance to coast/North_Shields station	138
131	Std in function of the distance to the coast/North_Shields station	139
132	Correlation in function of the distance to the coast/North_Shields station	140
133	Taylor diagram	141
134	Mean statistics table of the common points in the altimetry products	142
135	The 1st most correlated sla altimetry Time serie with tide gauge sla time serie	143
136	The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie	144

1 General description

- Figures and notes have been included in this report to evaluate different altimetry products.
- In order to test different version of the Ionospheric correction used to calculate the sea level anomaly. Each version has been compared with a reference version. In this case the Iono_gim is the reference one.
- The sea level anomaly has been calculated using each version of the variable and has been compared to the sea level anomaly calculated using the reference version.
- The region of study is Nea
- Mission : J2
- Git last tag : 0.7 Appliquer le flag à l'adaptive
- Git changeset number : b8633aa-2022-04-11

2 Processing

2.1 sla formula

2.1.1 Iono_filtered product ' sla

sla = ORBIT.ALT.POGE_GDR_E -
 RANGE.ALT -
 MEAN_SEA_SURFACE.MODEL.CNESCLS15 -
 SEA_STATE_BIAS.ALT.NON_PARAMETRIC -
 IONOSPHERIC_CORRECTION.ALT.FILTR_ITER -
 WET_TROPOSPHERIC_CORRECTION.RAD -
 DRY_TROPOSPHERIC_CORRECTION.MODEL.ECMWF_GAUSS -
 DYNAMICAL_ATMOSPHERIC_CORRECTION.MODEL.MOG2D_HR -
 OCEAN_TIDE_HEIGHT.MODEL.FES14B -
 SOLID_EARTH_TIDE_HEIGHT.MODEL.CARTWRIGHT_TAYLER_71 -
 POLE_TIDE_HEIGHT.MODEL.DESAI_2015_MPL2017

2.1.2 Iono_gim product ' sla

sla = ORBIT.ALT.POGE_GDR_E -
 RANGE.ALT -
 MEAN_SEA_SURFACE.MODEL.CNESCLS15 -
 SEA_STATE_BIAS.ALT.NON_PARAMETRIC -
 IONOSPHERIC_CORRECTION.MODEL.GIM -

WET_TROPOSPHERIC_CORRECTION.RAD -
DRY_TROPOSPHERIC_CORRECTION.MODEL.ECMWF_GAUSS -
DYNAMICAL_ATMOSPHERIC_CORRECTION.MODEL.MOG2D_HR -
OCEAN_TIDE_HEIGHT.MODEL.FES14B -
SOLID_EARTH_TIDE_HEIGHT.MODEL.CARTWRIGHT_TAYLER_71 -
POLE_TIDE_HEIGHT.MODEL.DESAI_2015_MPL2017

2.2 Binning

Each track has been divided to a set of sections, where the center of each section is separated by the sample frequency of the satellite times it's velocity.

The data located within the sections limits represent the altimetry time-series on which the statistics will be calculated and visualized in this report.

2.3 Filtering

- The sla has been filtered by a threshold of 3 m.
- Each sla time-serie has been filtered by a window of $[-4\sigma, 4\sigma]$, where σ is the standard deviation of the sla time serie

3 Spatial coherence analysis

3.1 sla

3.1.1 sla's count

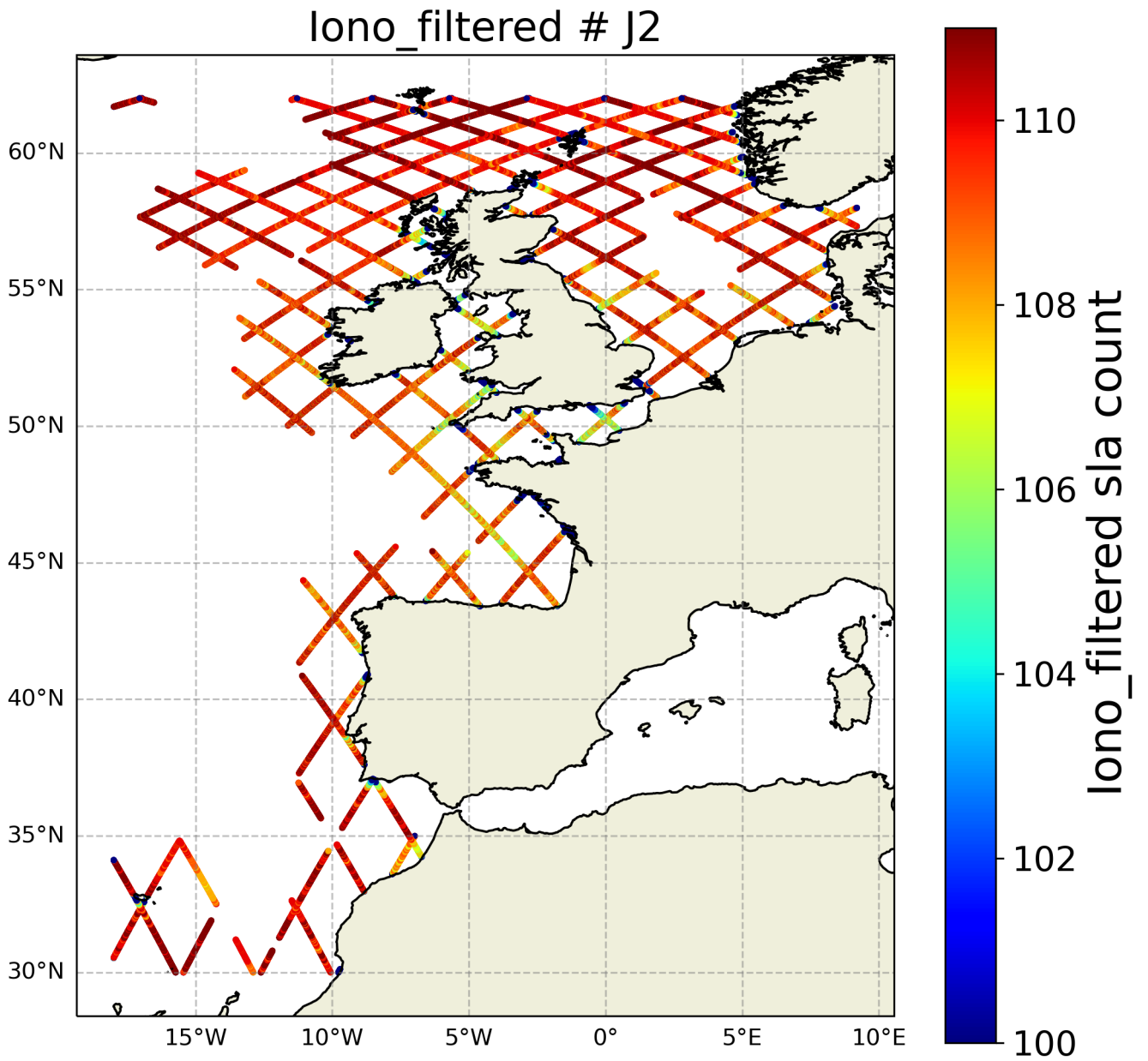


FIGURE 1 – Spatial coherence analysis of the count of the Iono_filtered version of sla variable

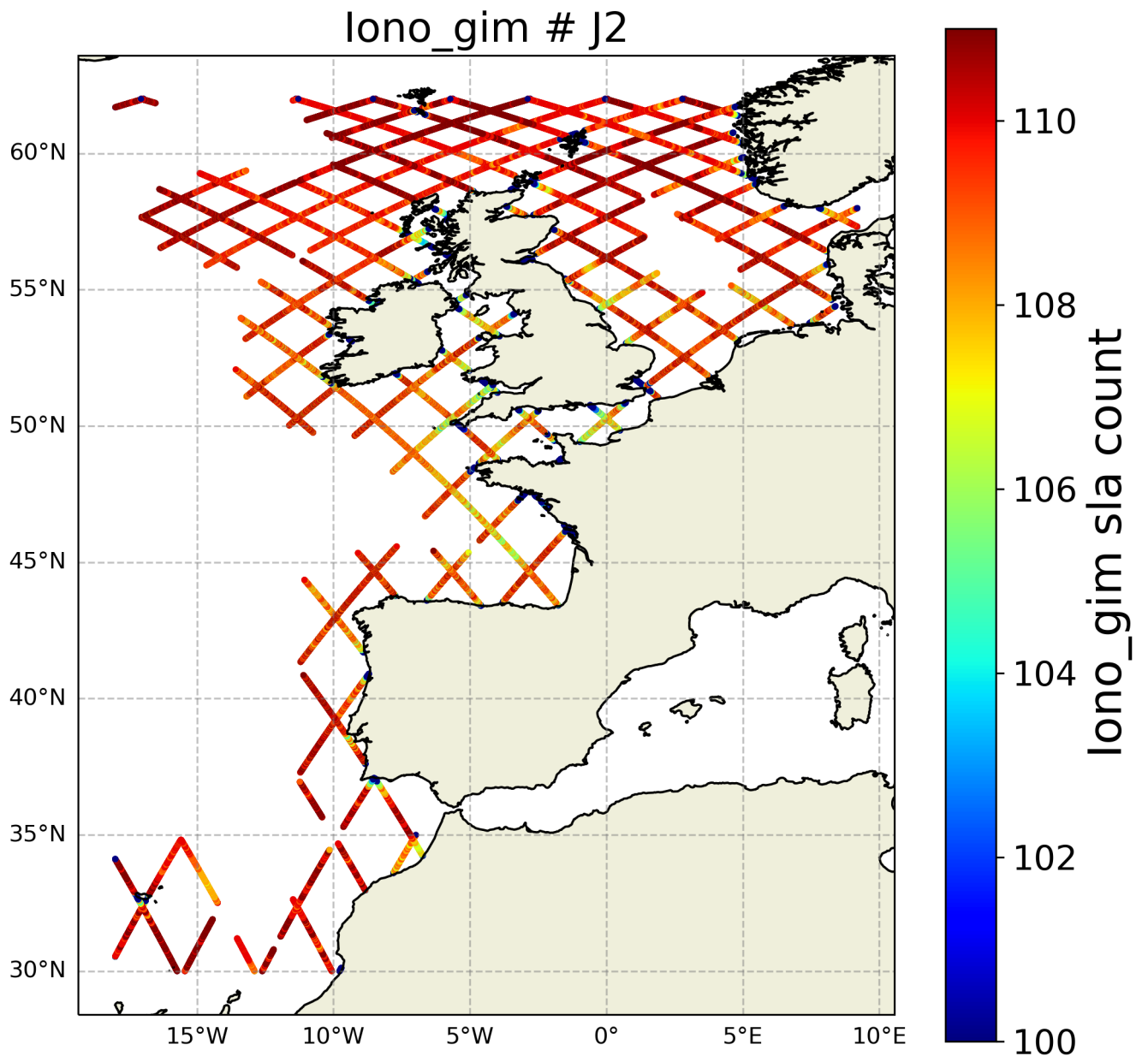


FIGURE 2 – Spatial coherence analysis of the count of the Iono_gim version of sla variable

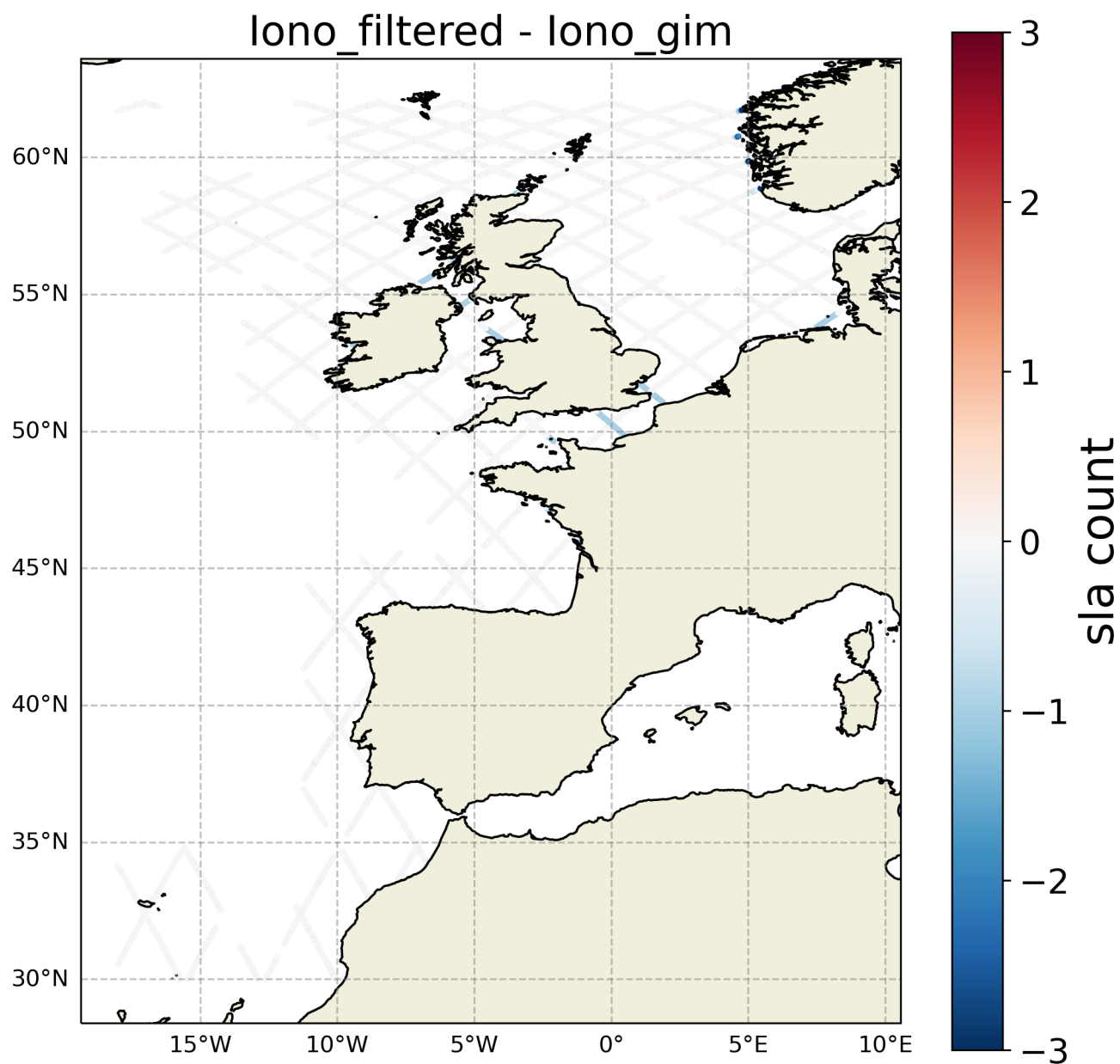


FIGURE 3 – Spatial coherence analysis of the Difference in sla 's count between Iono_filtered and Iono_gim

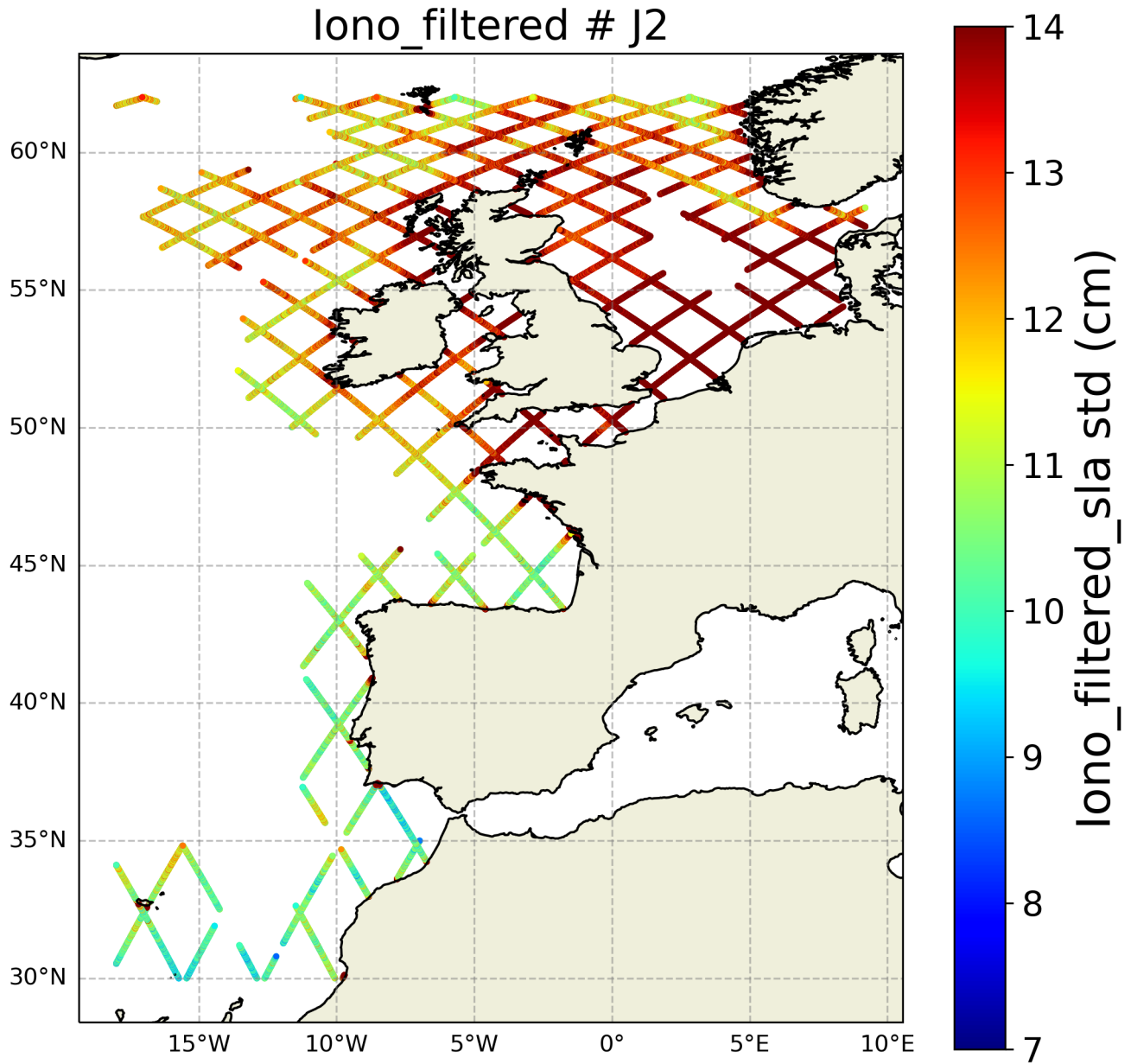


FIGURE 4 – Spatial coherence analysis of the std of the lono_filtered version of sla variable

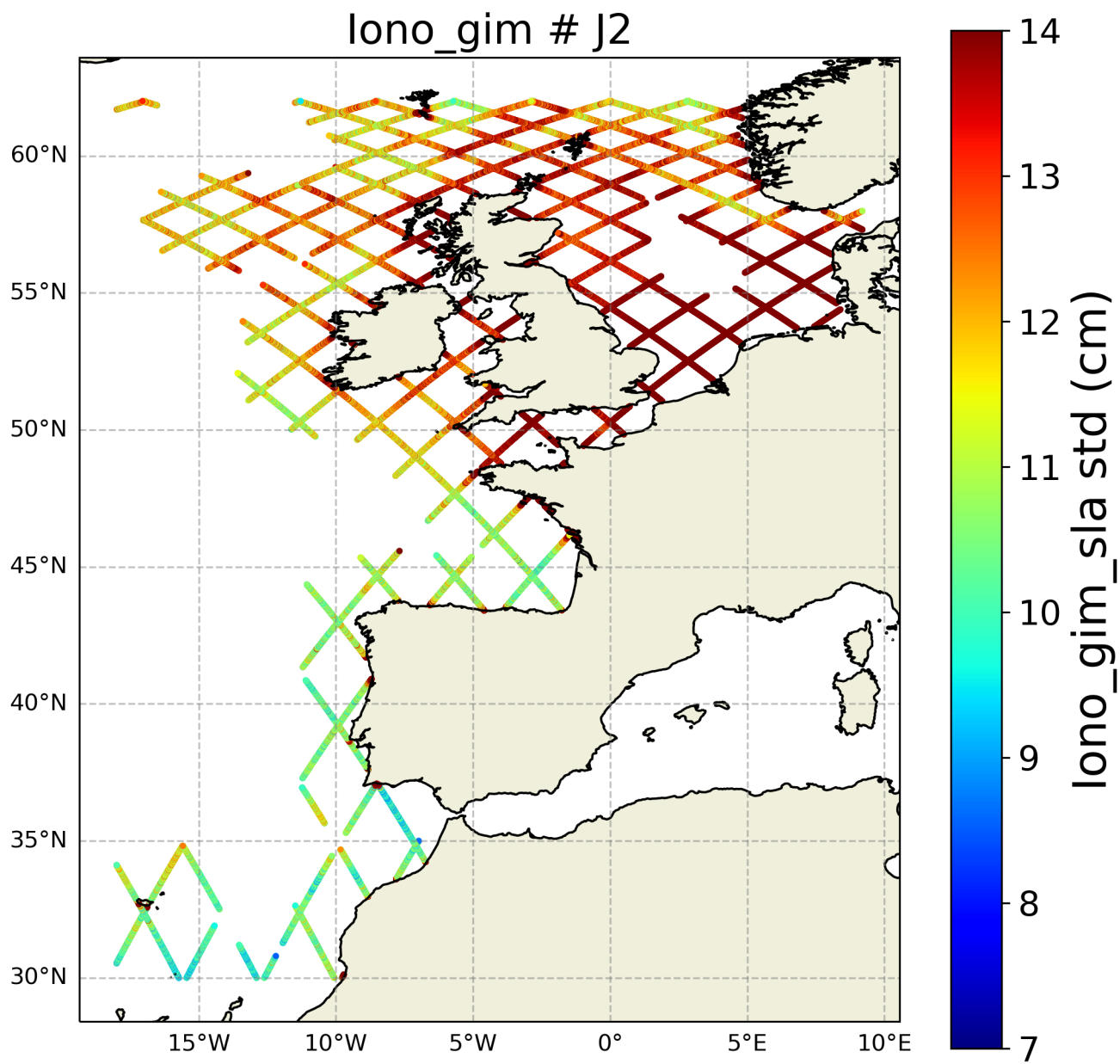


FIGURE 5 – Spatial coherence analysis of the std of the Iono_gim version of sla variable

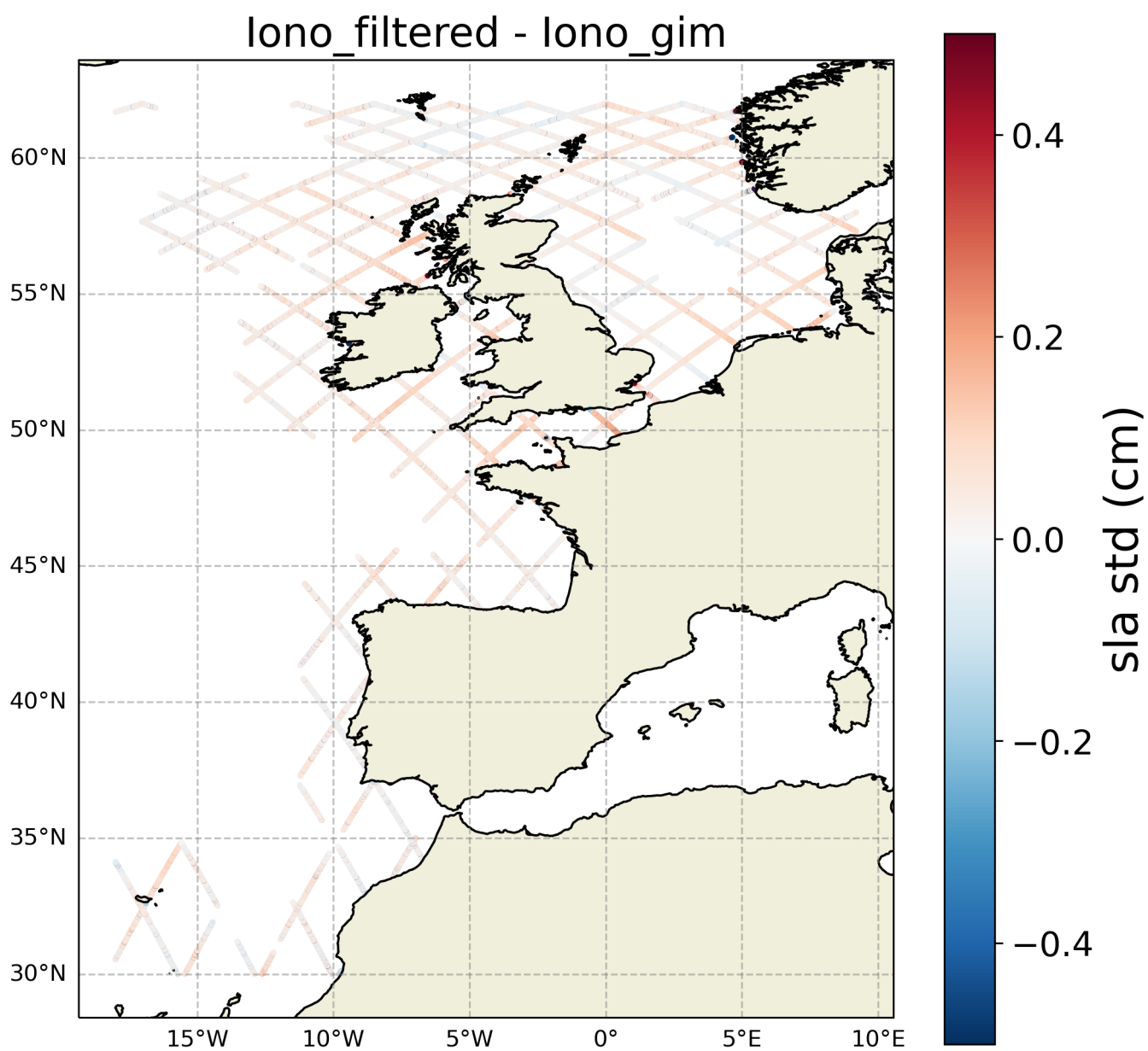


FIGURE 6 – Spatial coherence analysis of the Difference in sla 's std between Iono_filtered and Iono_gim

3.1.3 sla's mean

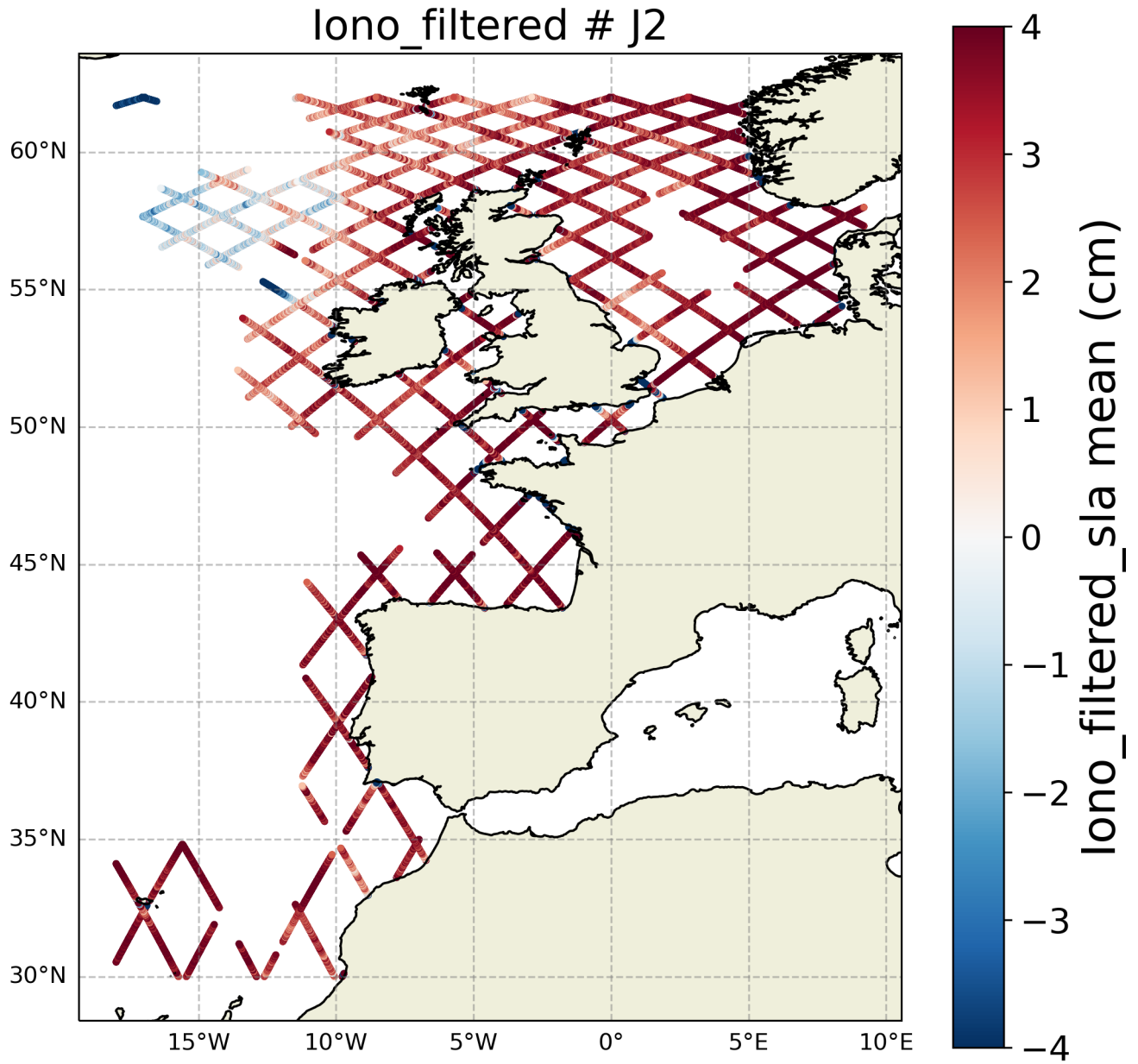


FIGURE 7 – Spatial coherence analysis of the mean of the Iono_filtered version of sla variable

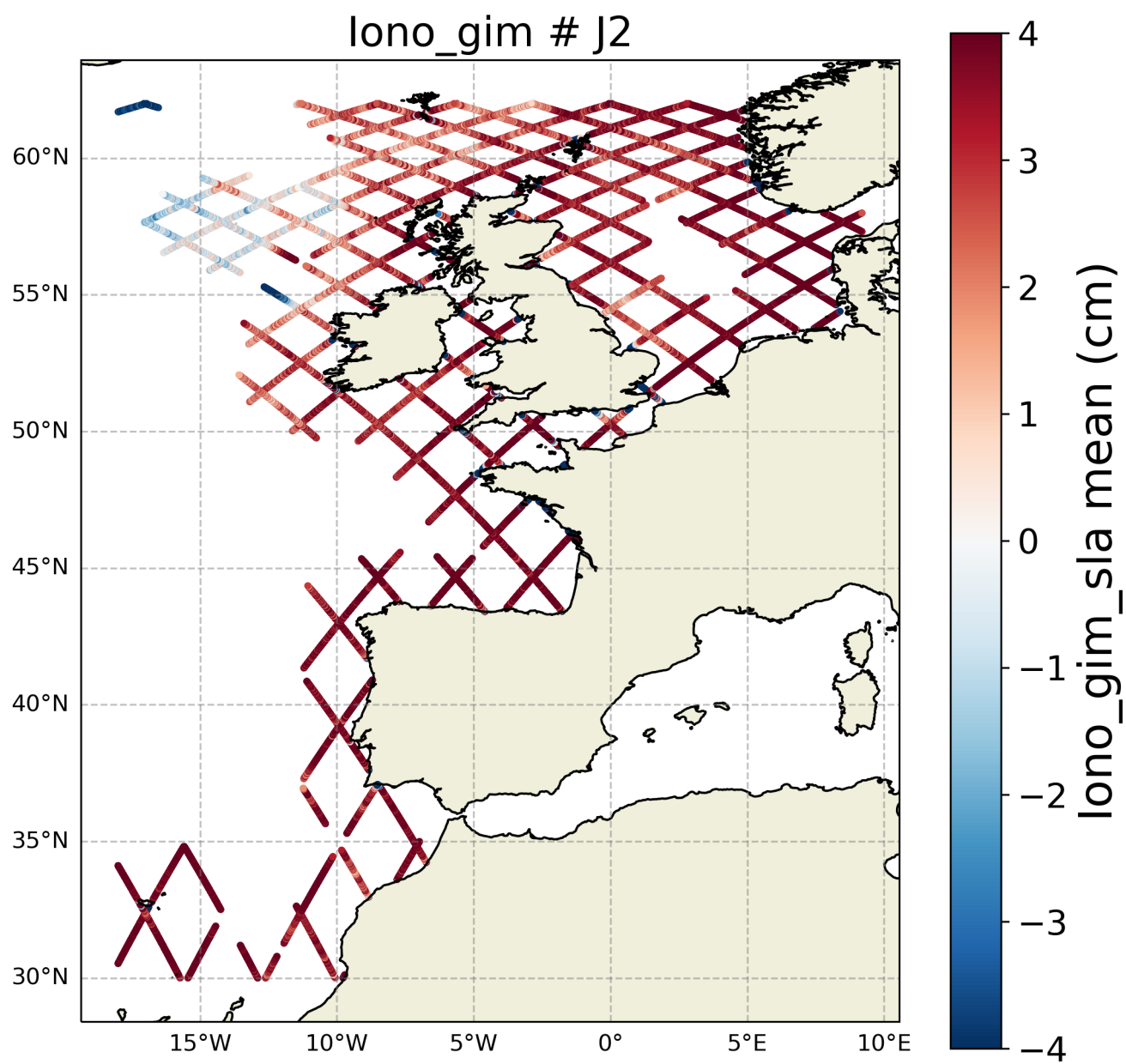


FIGURE 8 – Spatial coherence analysis of the mean of the Iono_gim version of sla variable

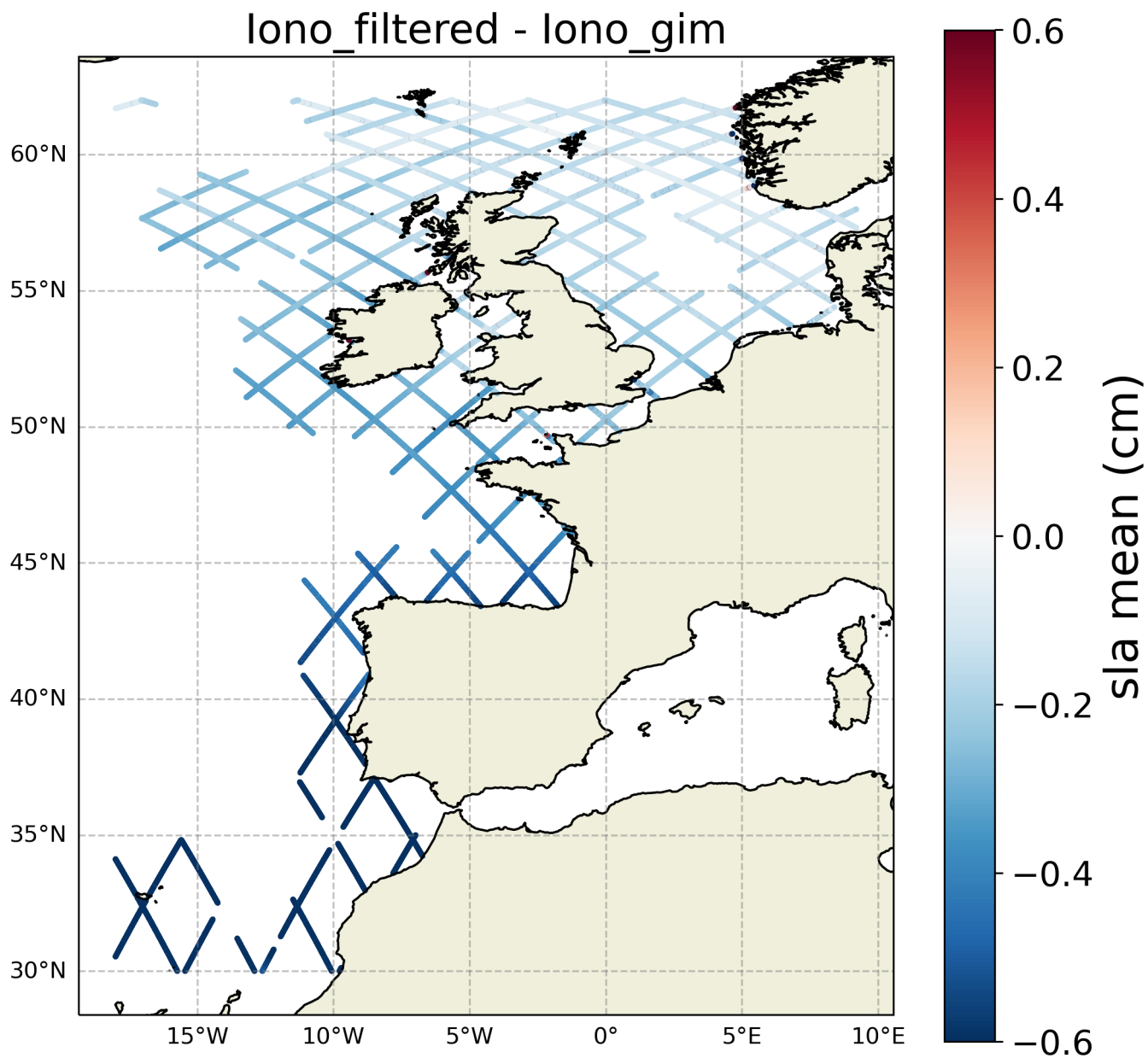


FIGURE 9 – Spatial coherence analysis of the Difference in sla 's mean between Iono_filtered and Iono_gim

3.2 Iono

3.2.1 Iono's count

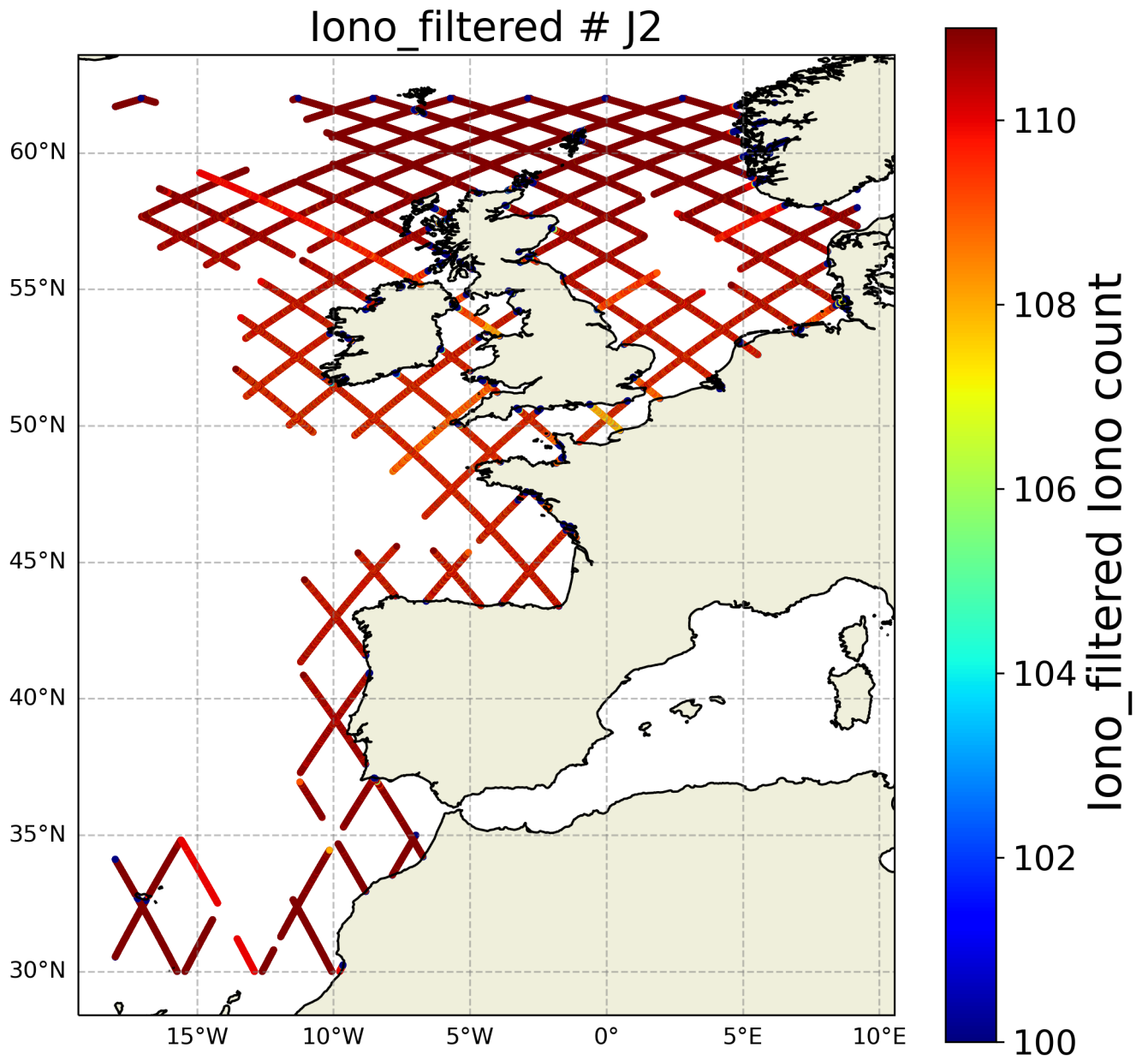


FIGURE 10 – Spatial coherence analysis of the count of the Iono_filtered version of Iono variable

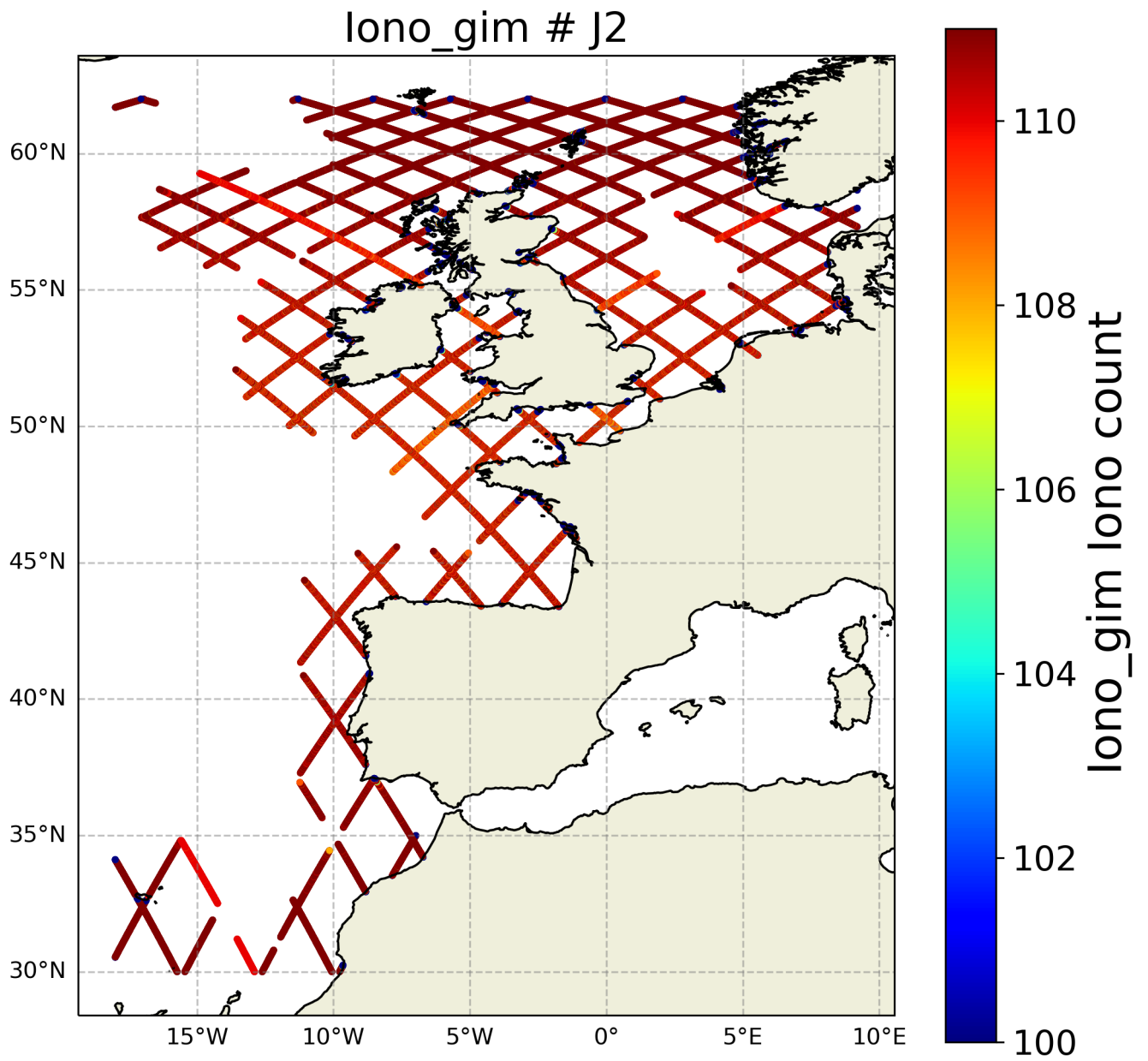


FIGURE 11 – Spatial coherence analysis of the count of the Iono_gim version of Iono variable

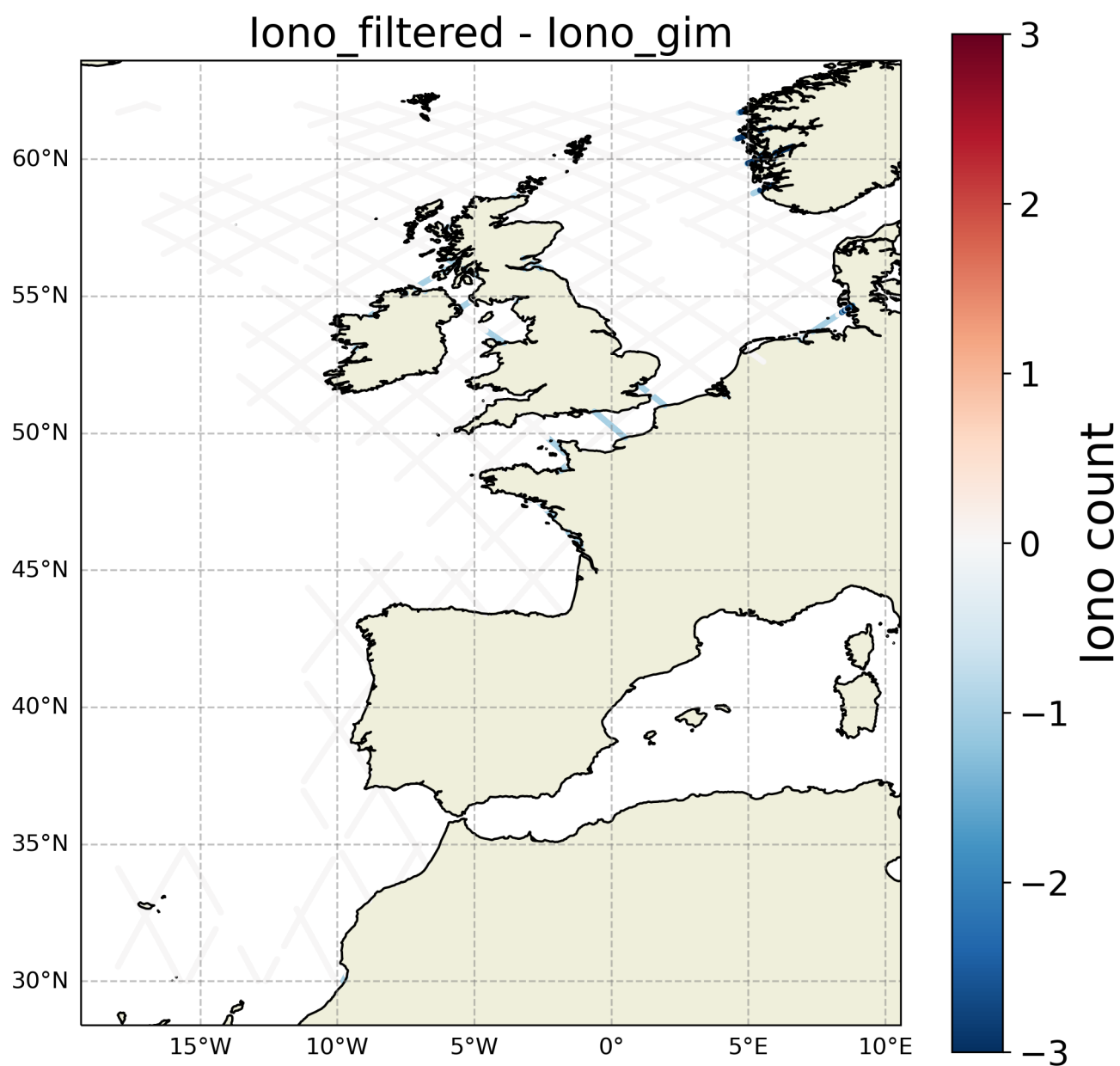


FIGURE 12 – Spatial coherence analysis of the Difference in Iono 's count between Iono_filtered and Iono_gim

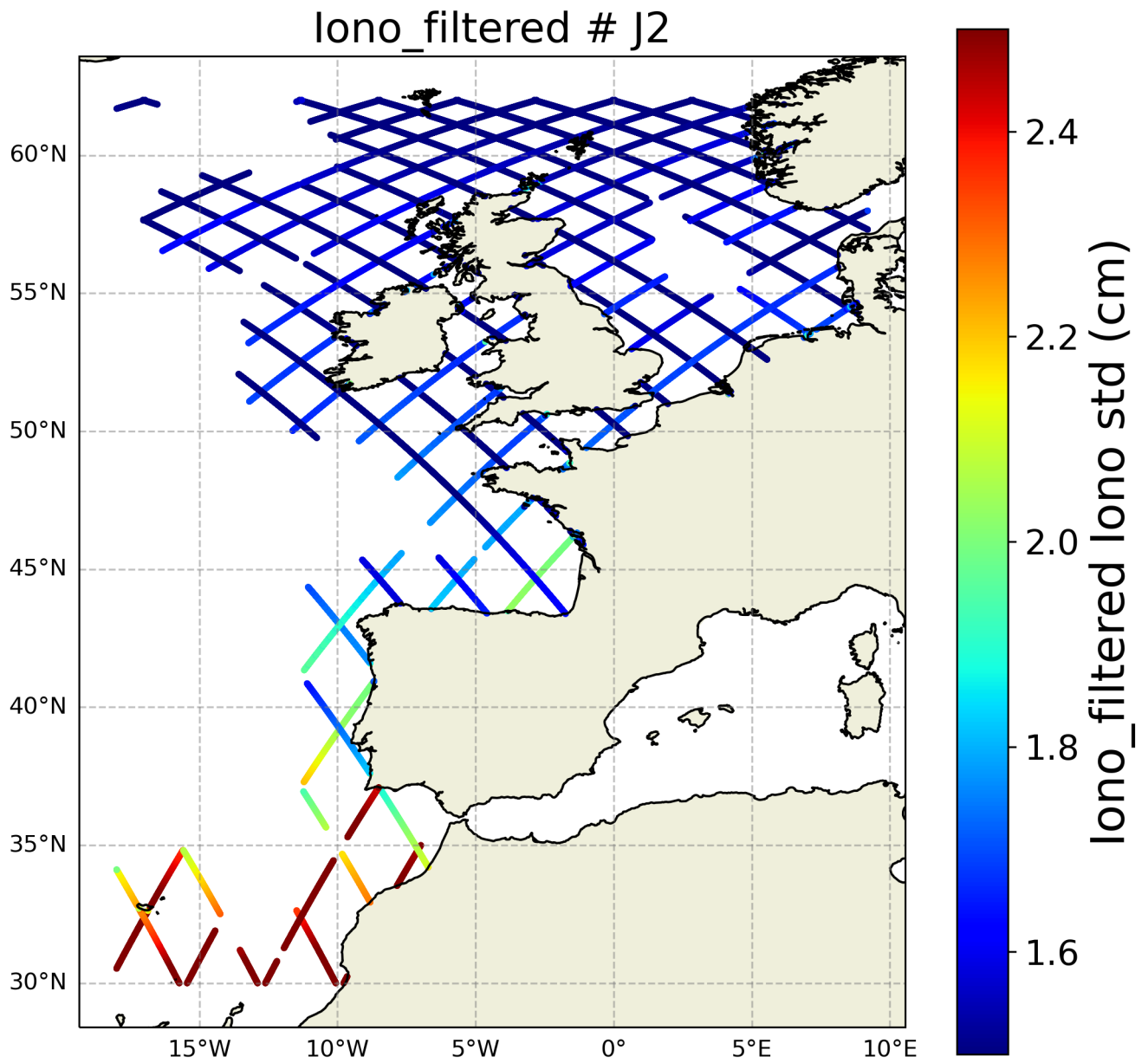


FIGURE 13 – Spatial coherence analysis of the std of the Iono_filtered version of Iono variable

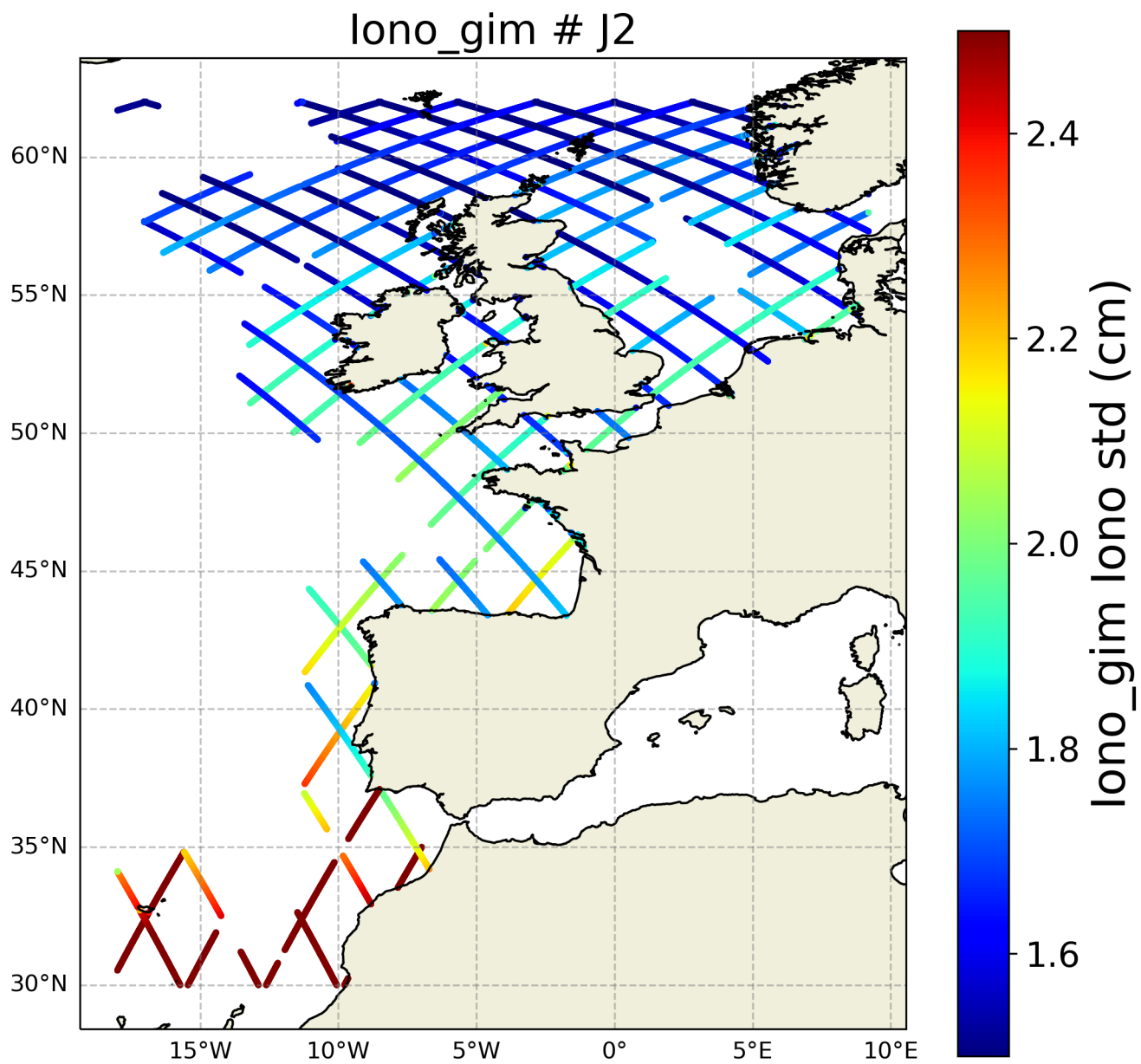


FIGURE 14 – Spatial coherence analysis of the std of the Iono_gim version of Iono variable

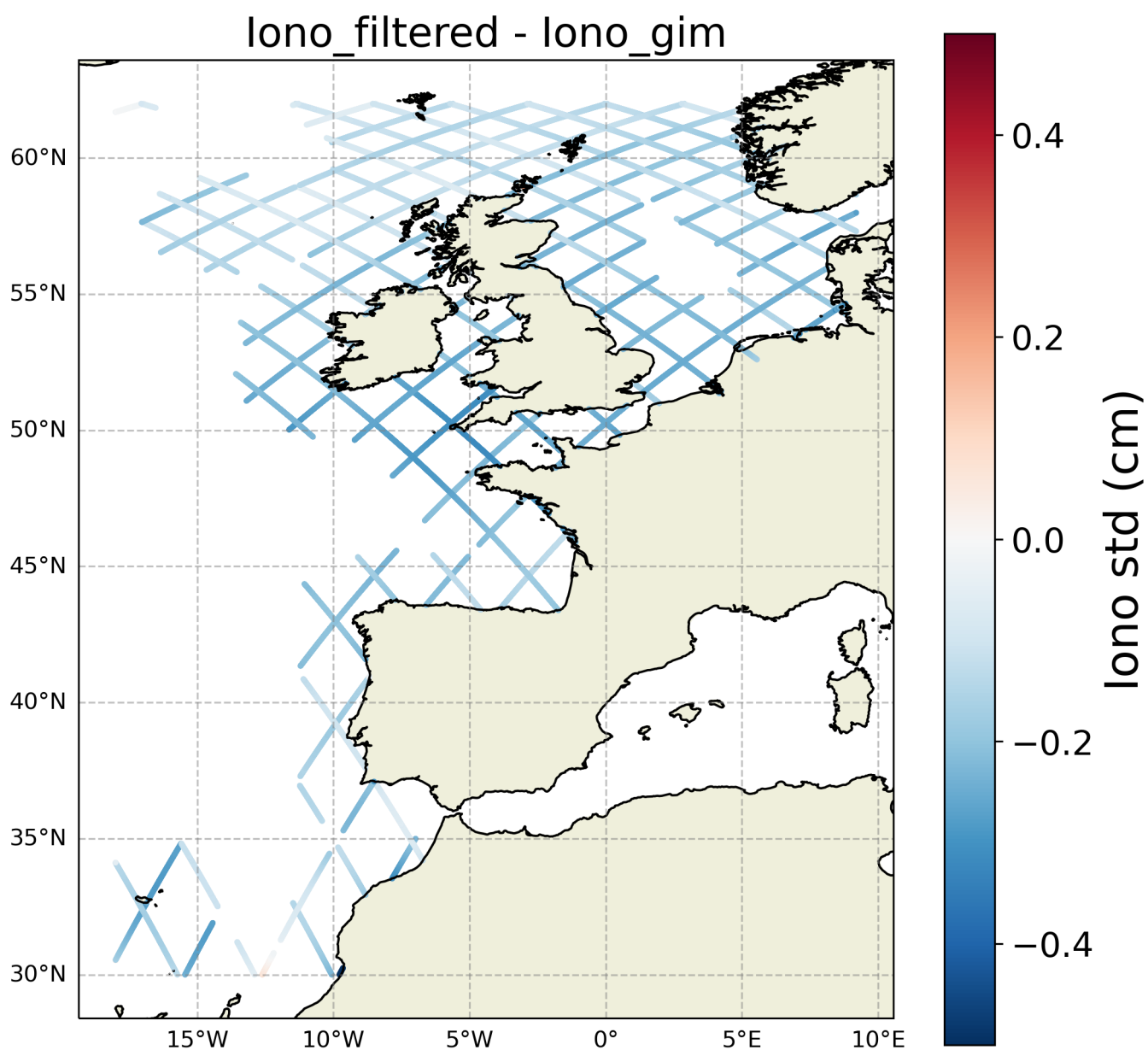


FIGURE 15 – Spatial coherence analysis of the Difference in Iono 's std between Iono_filtered and Iono_gim

3.2.3 Iono's mean

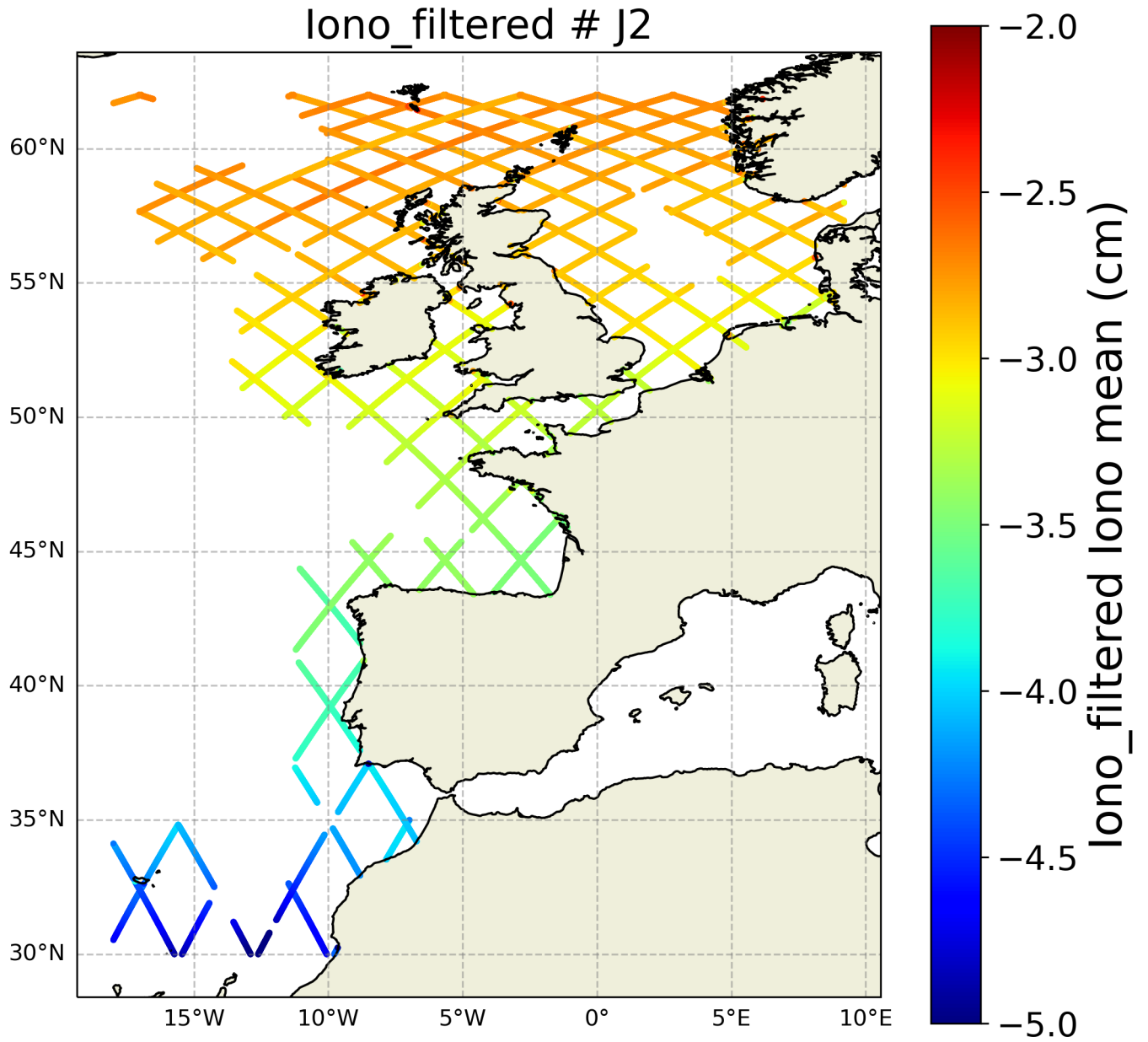


FIGURE 16 – Spatial coherence analysis of the mean of the Iono_filtered version of Iono variable

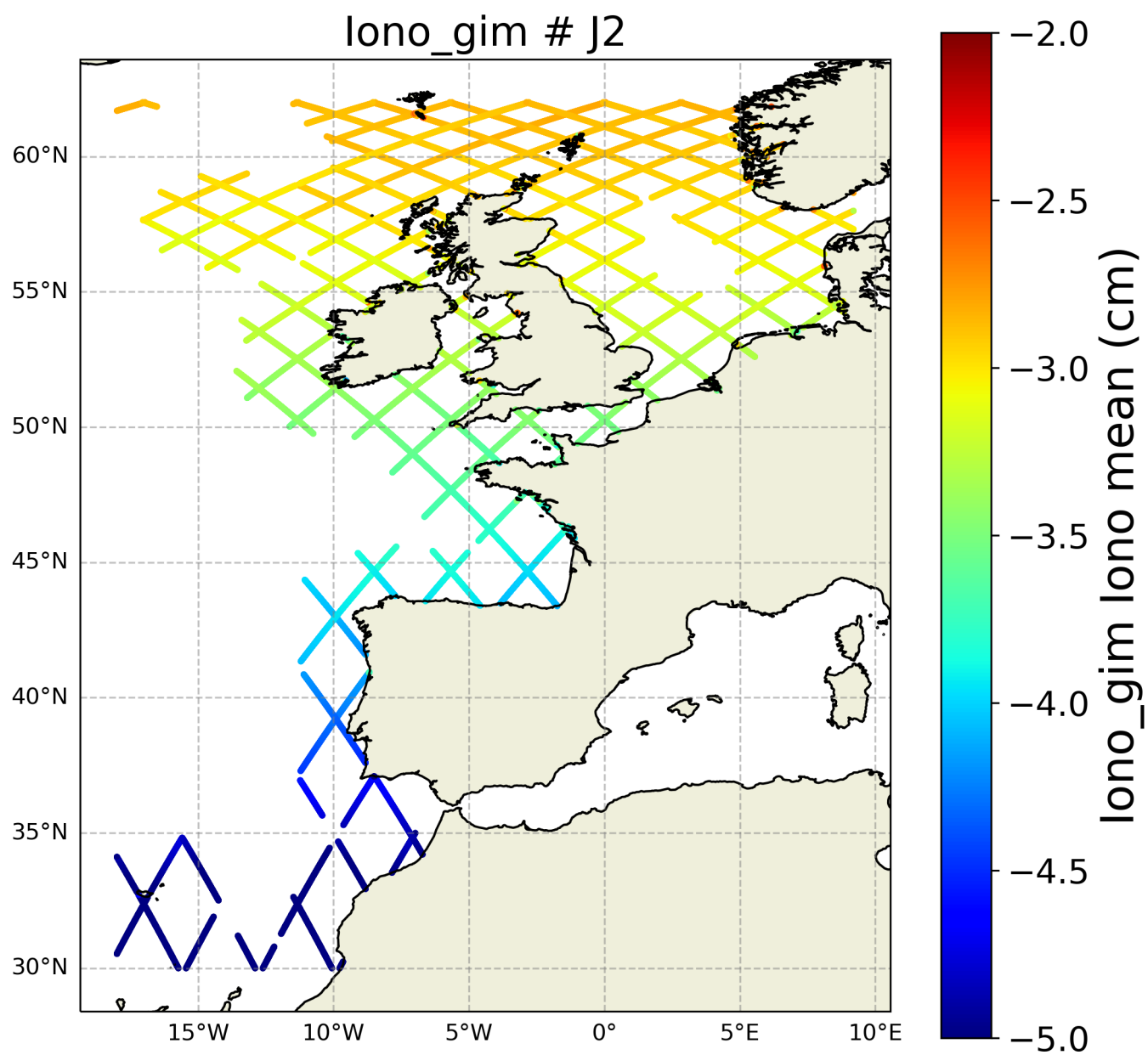


FIGURE 17 – Spatial coherence analysis of the mean of the Iono_gim version of Iono variable

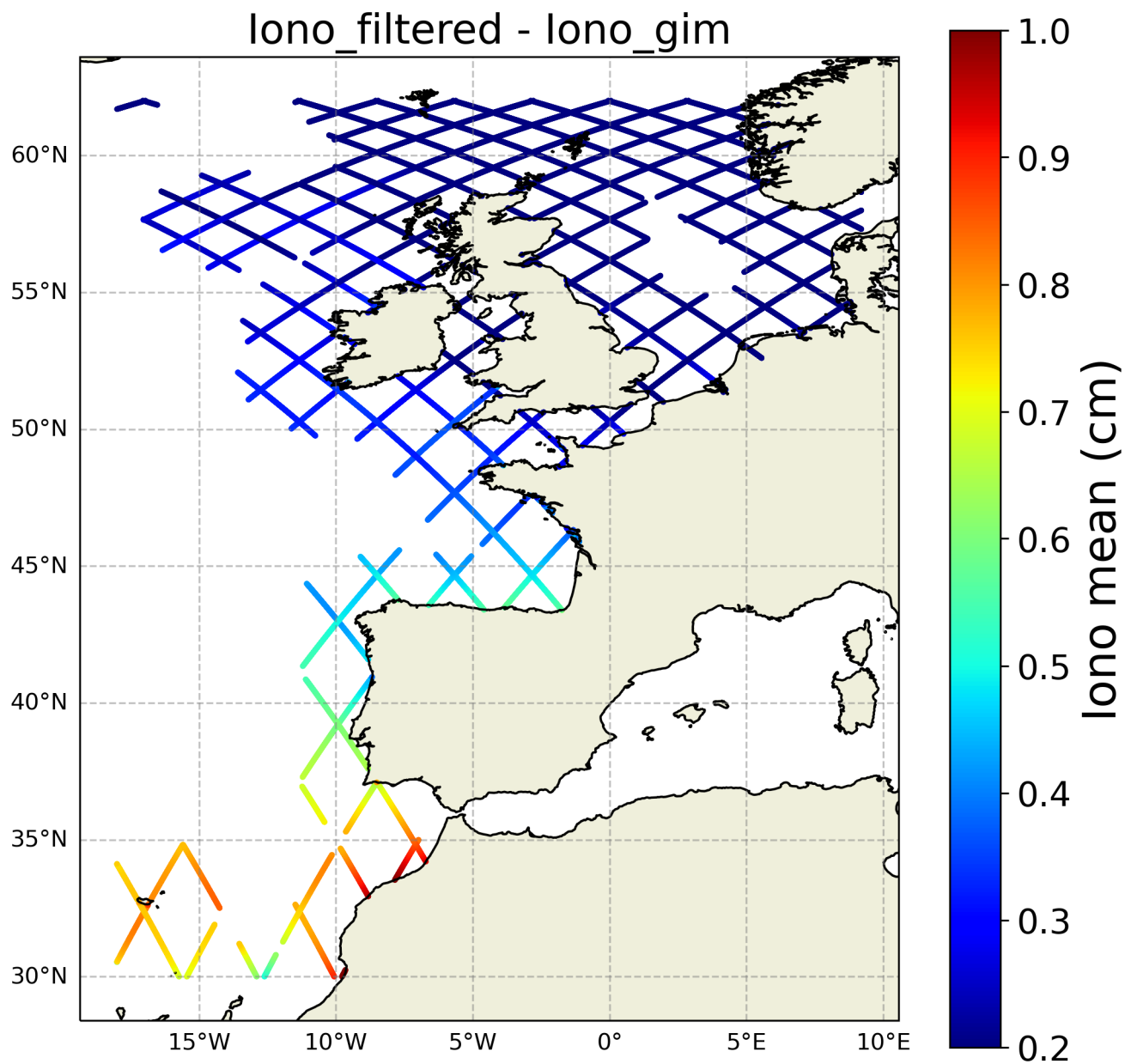


FIGURE 18 – Spatial coherence analysis of the Difference in Iono 's mean between Iono_filtered and Iono_gim

4 Histograms

4.1 Iono

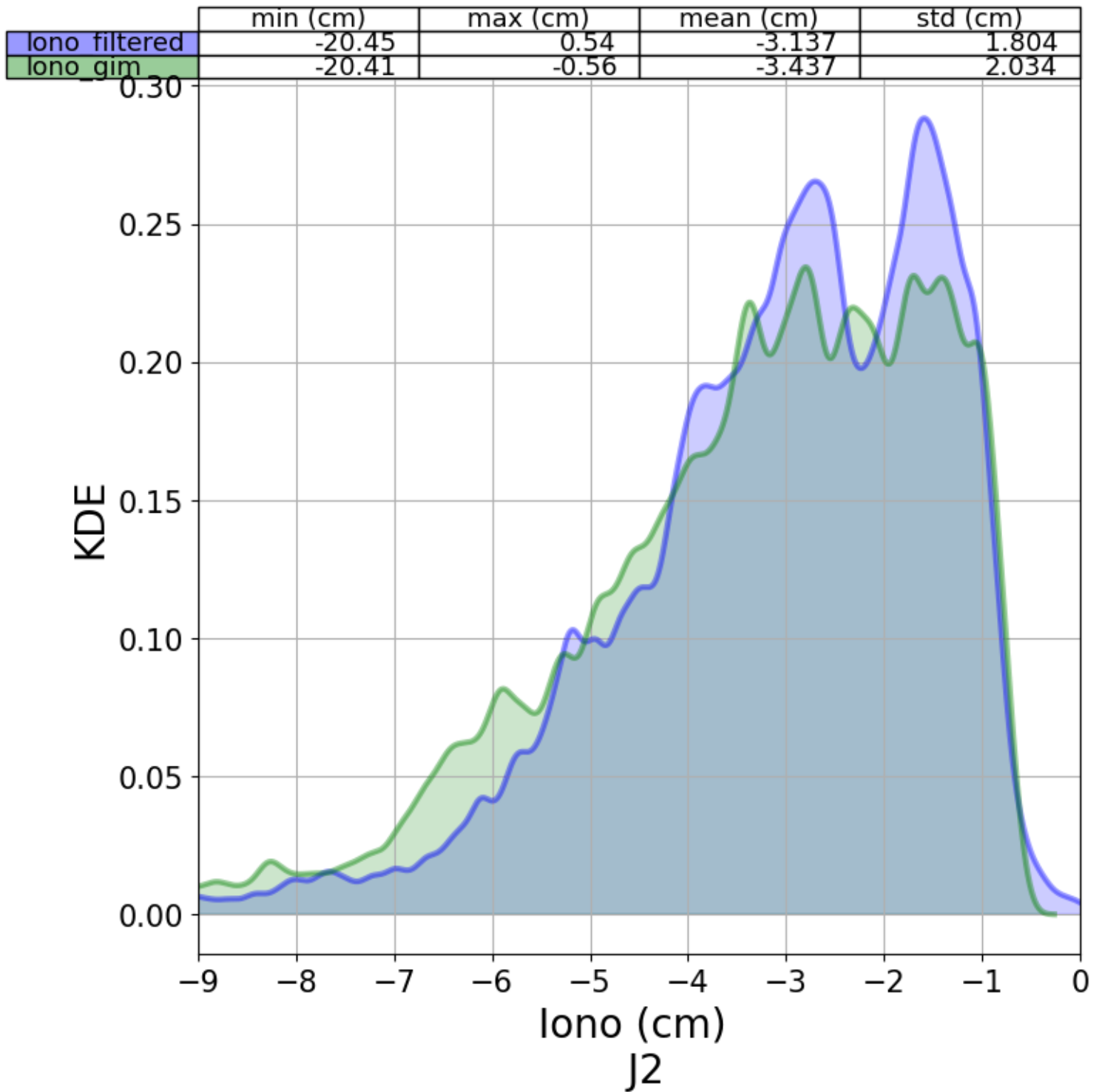


FIGURE 19 – Histogram of each of Iono version

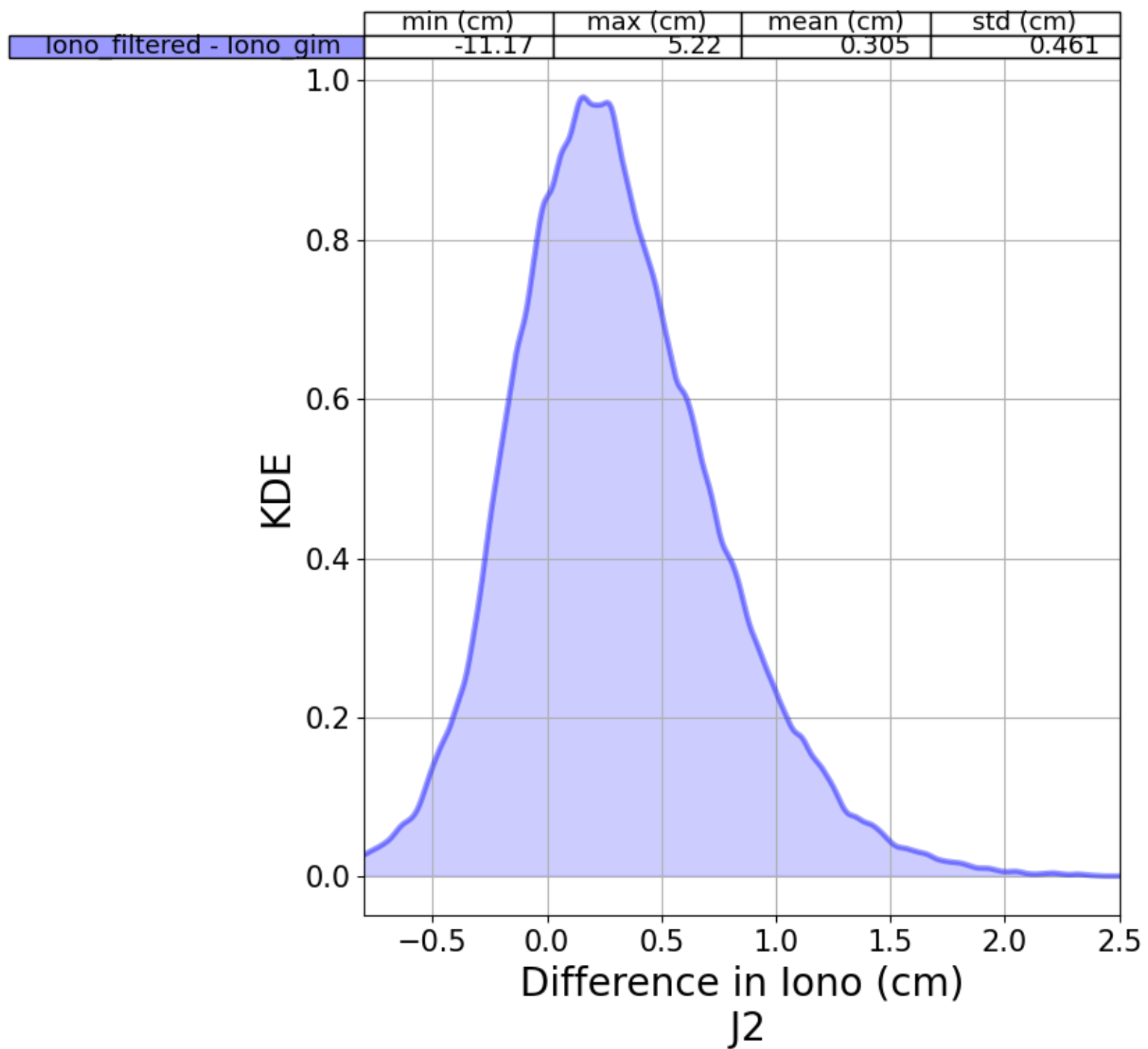


FIGURE 20 – Histograms of difference of each Iono version and reference one

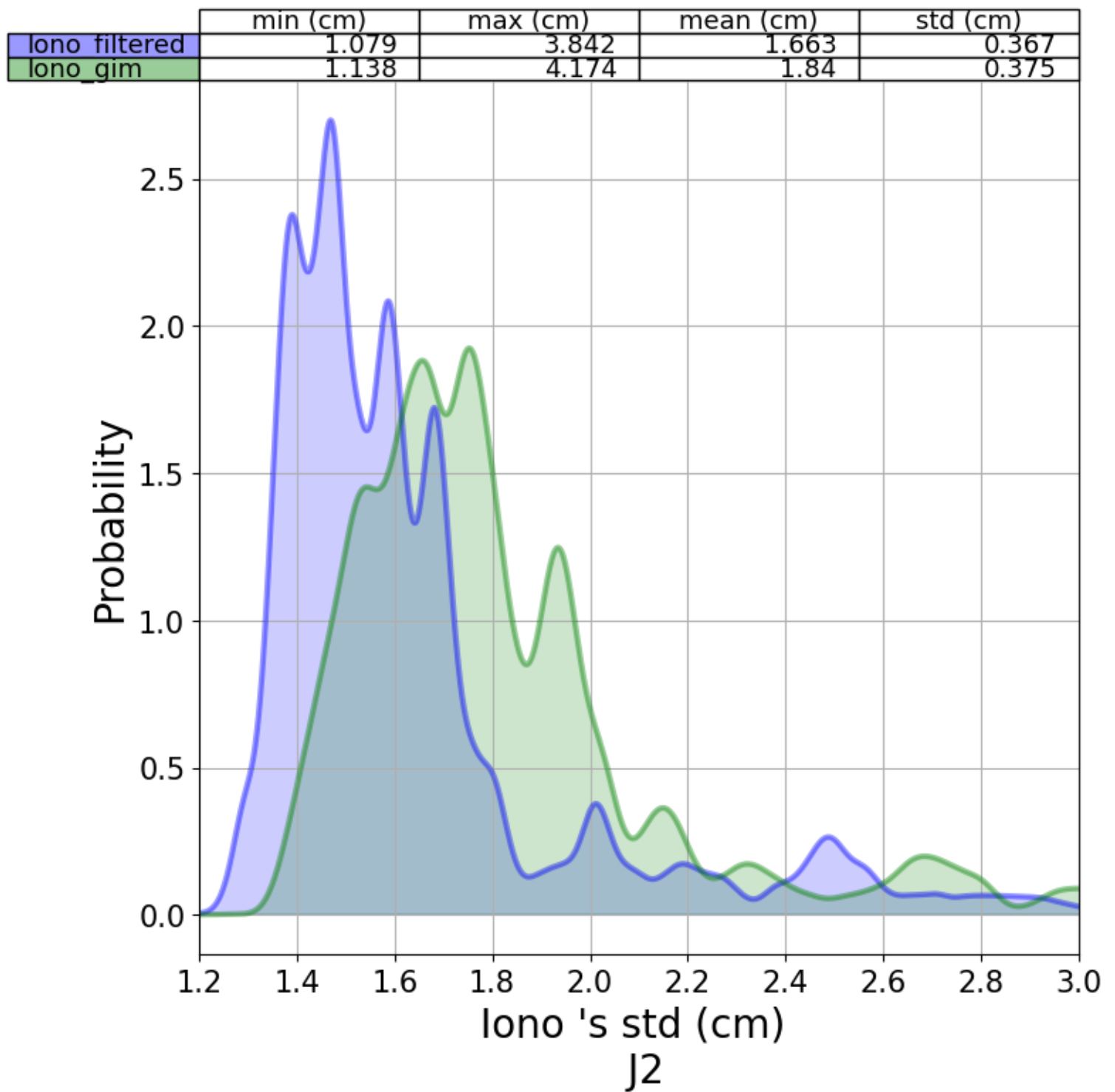


FIGURE 21 – Histograms of the standard deviation of each Iono version

4.2 sla

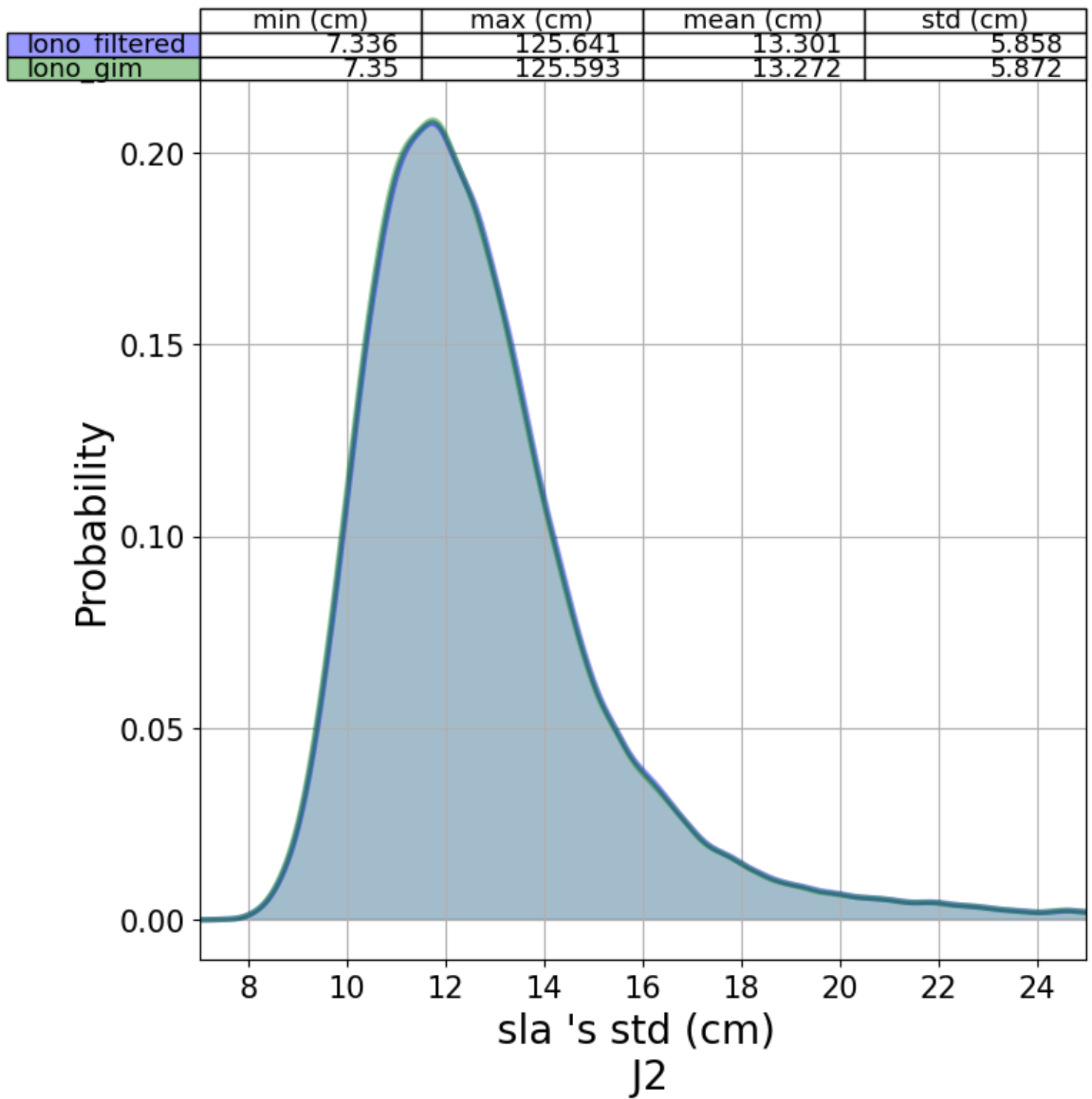


FIGURE 22 – Histograms of the standard deviation of each sla version

5 Along-track analysis

5.1 Iono

5.1.1 Iono's count

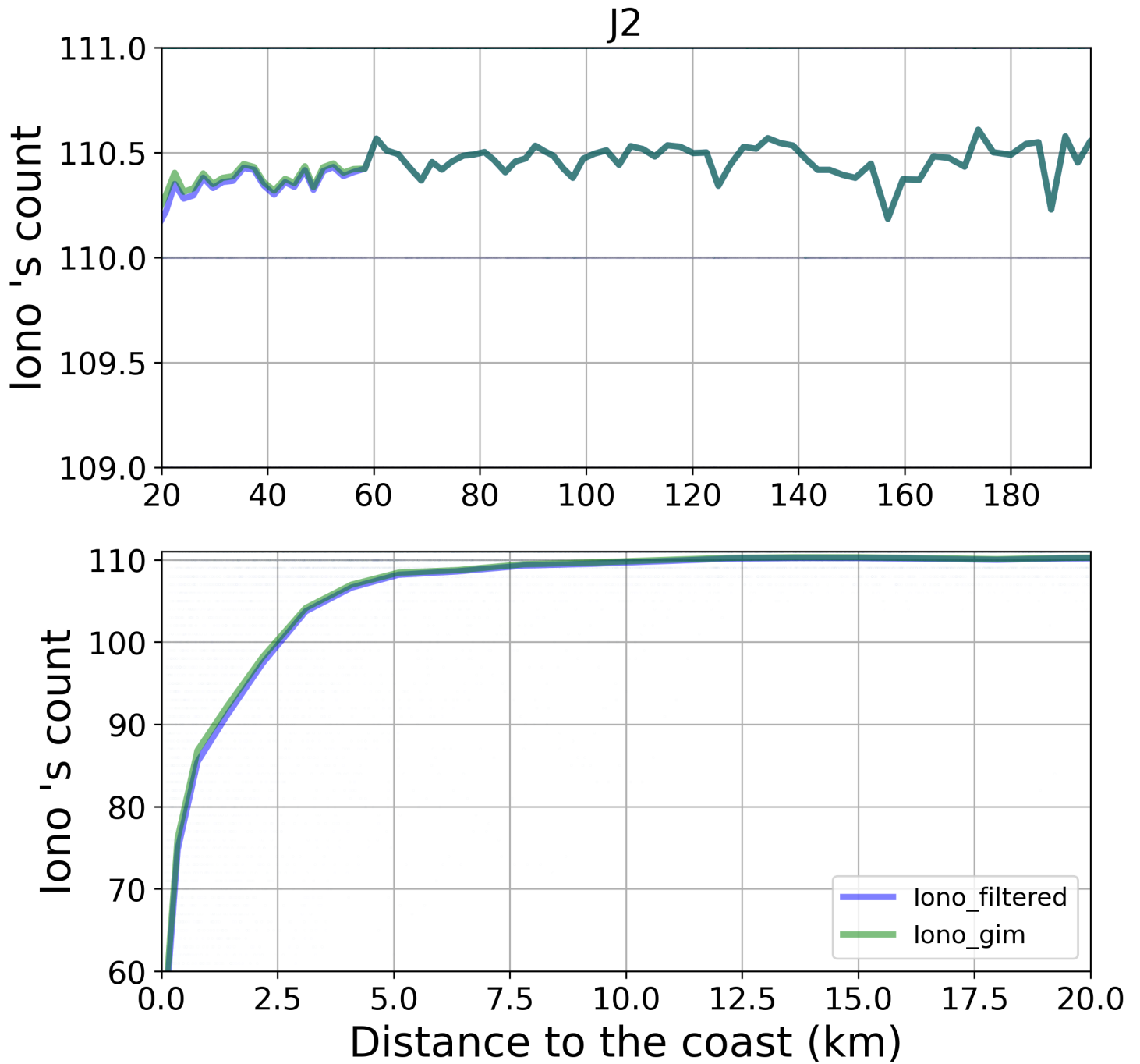


FIGURE 23 – Along-track analysis of Iono 's count

J2

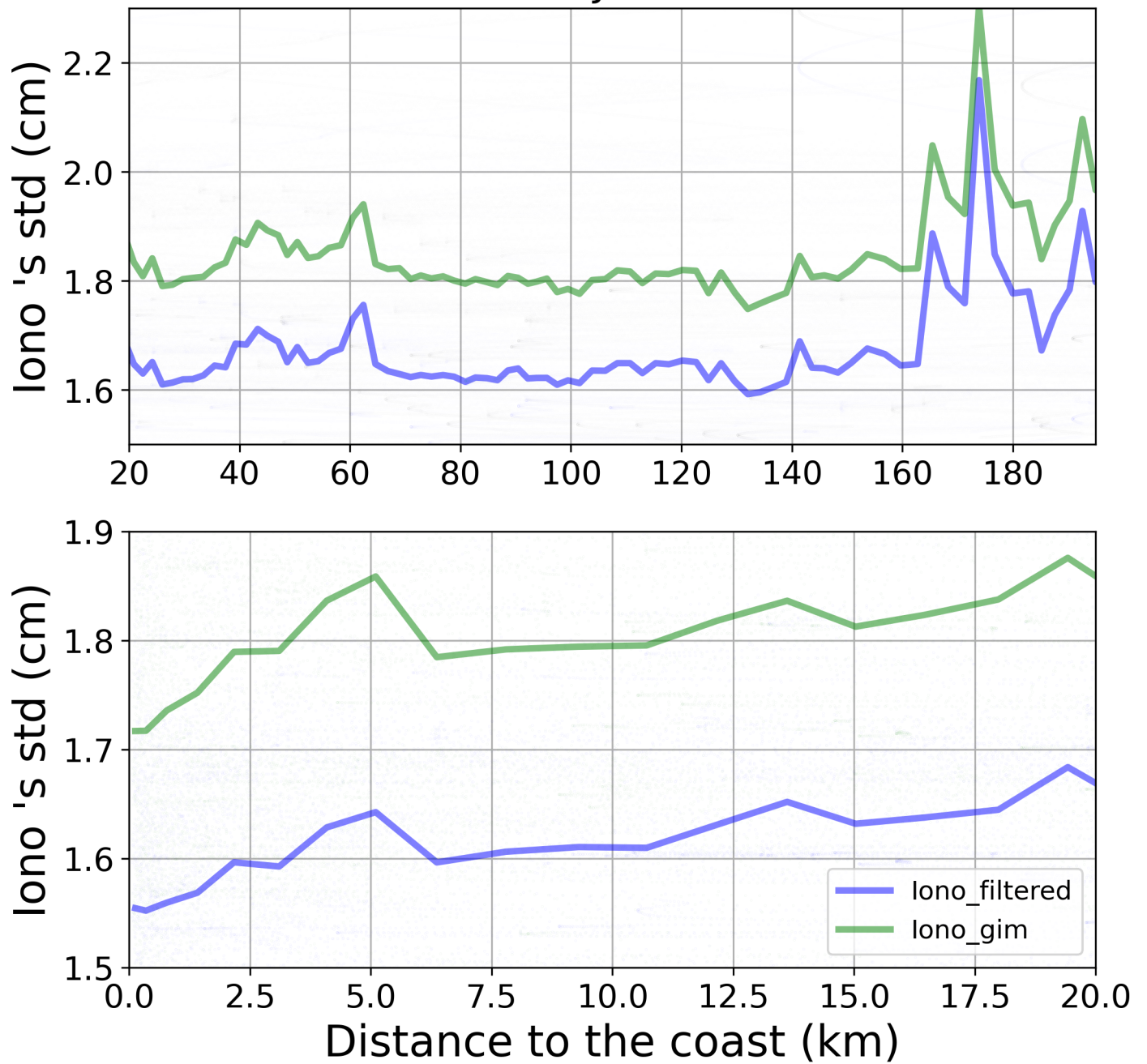


FIGURE 24 – Along-track analysis of Iono's std

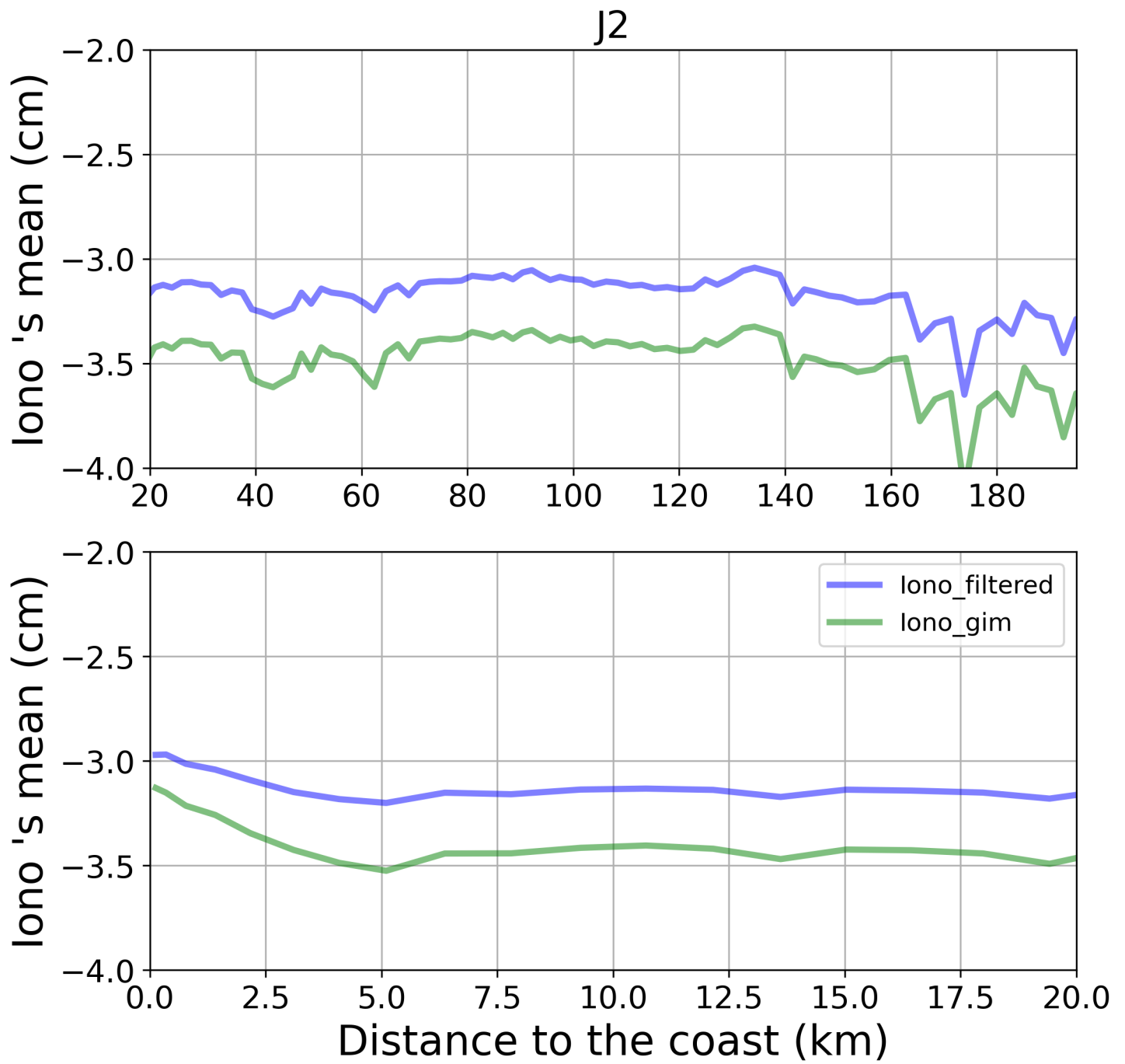


FIGURE 25 – Along-track analysis of Iono's mean

5.2 sla

5.2.1 sla 's count

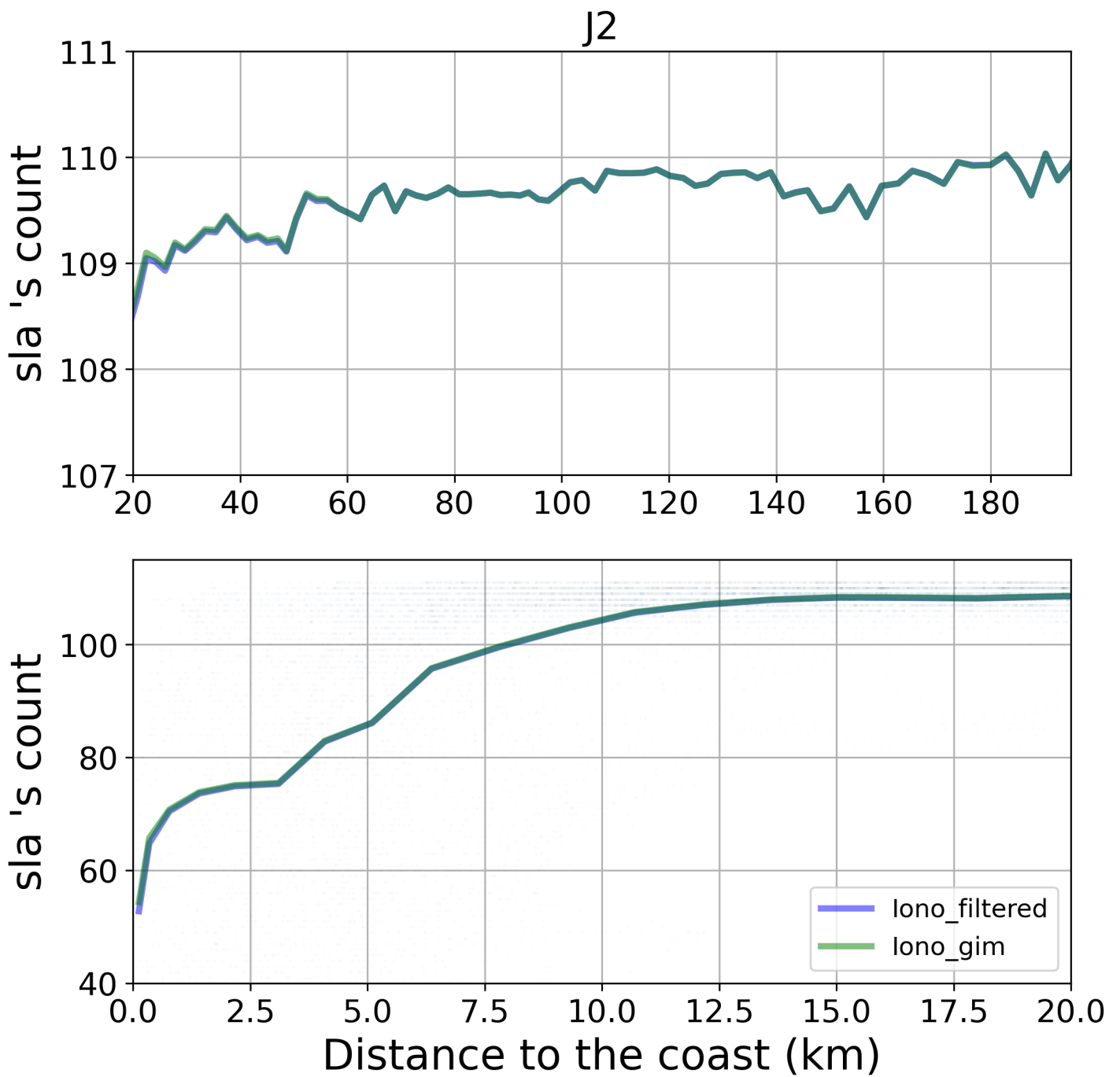


FIGURE 26 – Along-track analysis of sla 's count

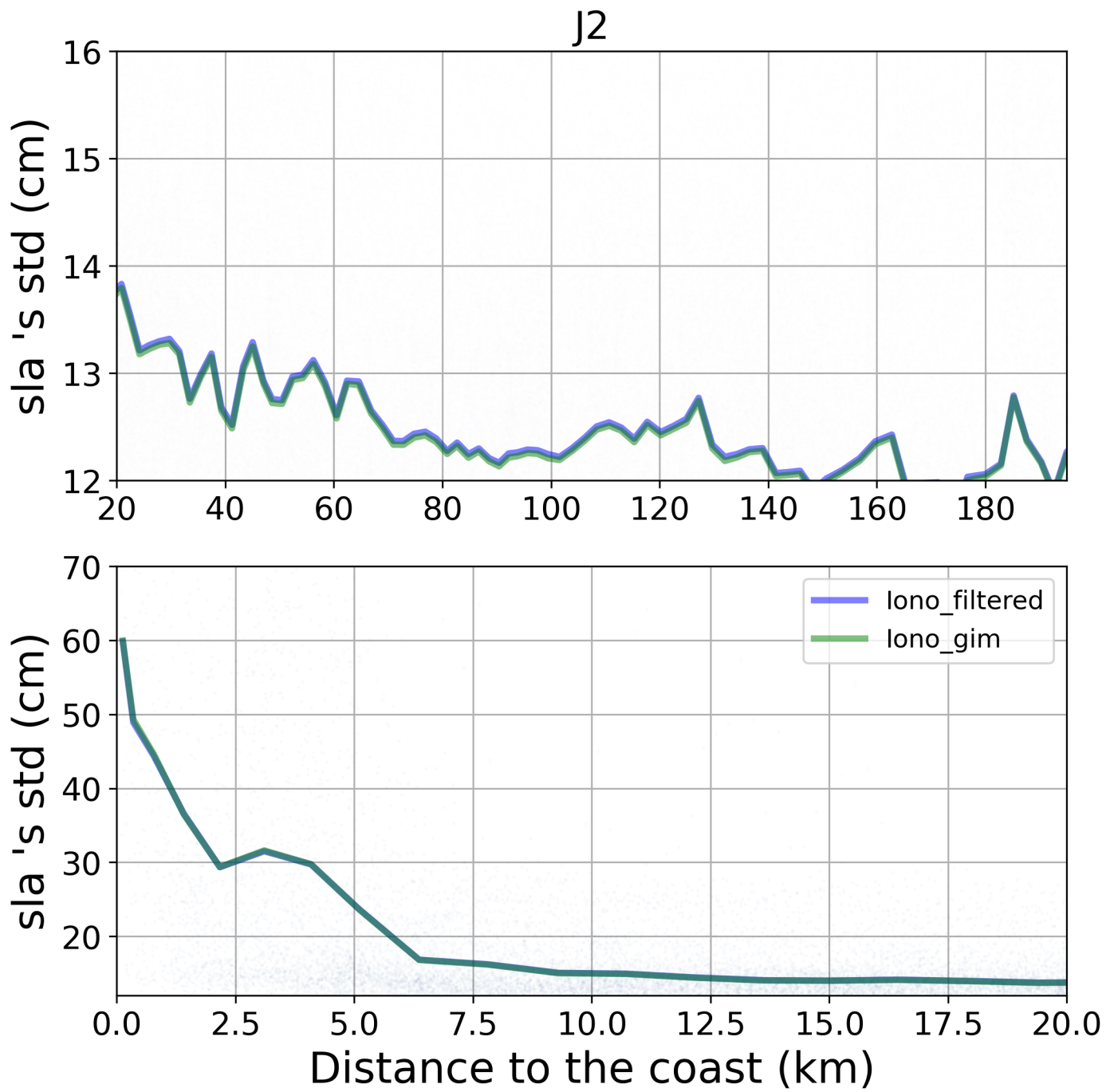


FIGURE 27 – Along-track analysis of sla 's std

J2

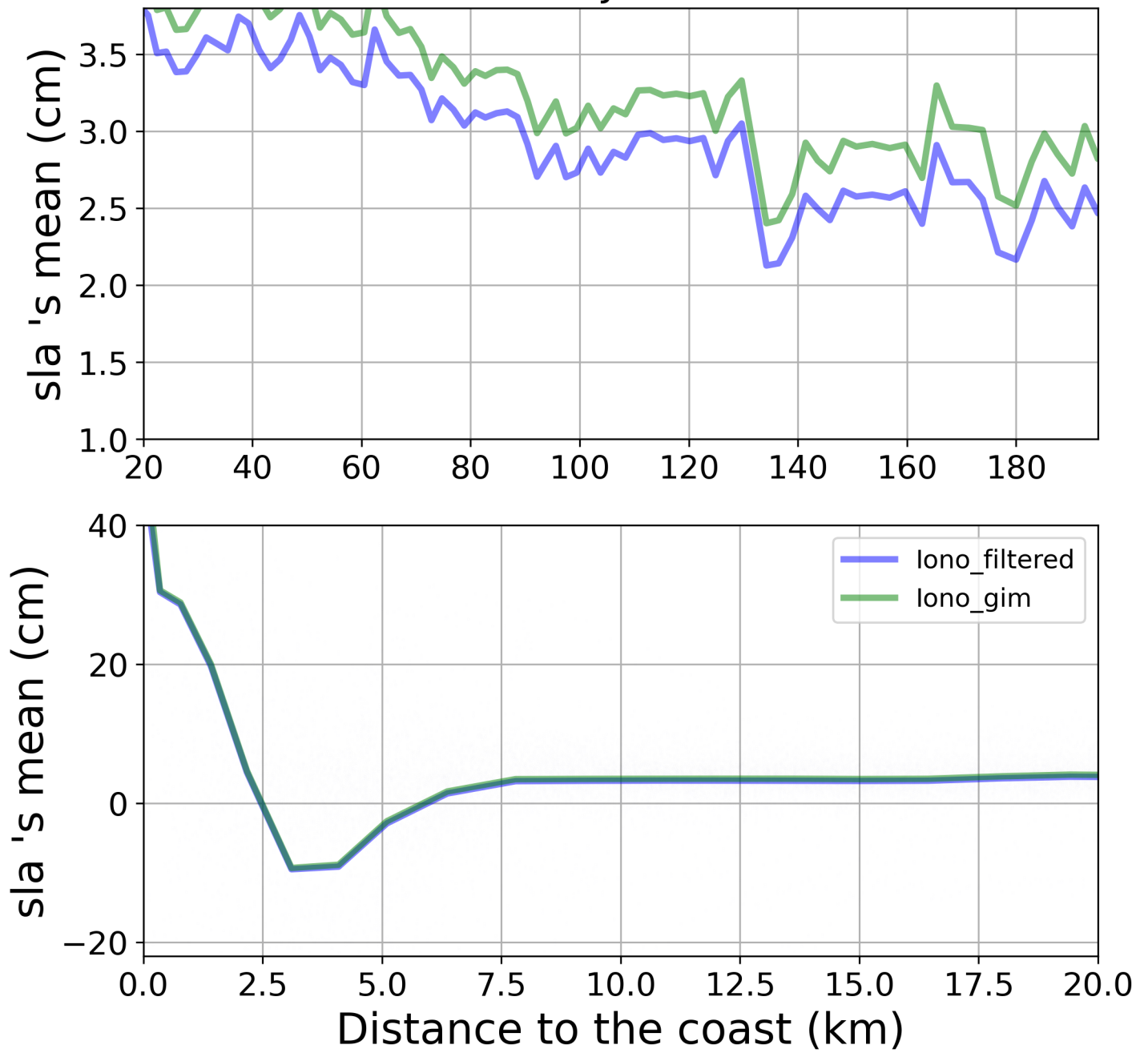


FIGURE 28 – Along-track analysis of sla 's mean

6 Comparison with Insitu Data (Tide Gauge)

The size of the marker representing each point in the figures below increase by getting closer to the tide Gauge station

6.1 Station : HERBAUDIERE

- Nearest track to HERBAUDIERE station is the track number track70
- The area of interest is limited by :
 - A circle which it's center is the HERBAUDIERE tide gauge station location and has a Radius of 40 Km
 - Maximum distance to the coast : 20 Km
 - Latitude limits : [None, 47.1] °

6.1.1 correlation visualization in maps view % HERBAUDIERE tide gauge

Correlation Altimetry data with respect to HERBAUDIERE Tide gauge data

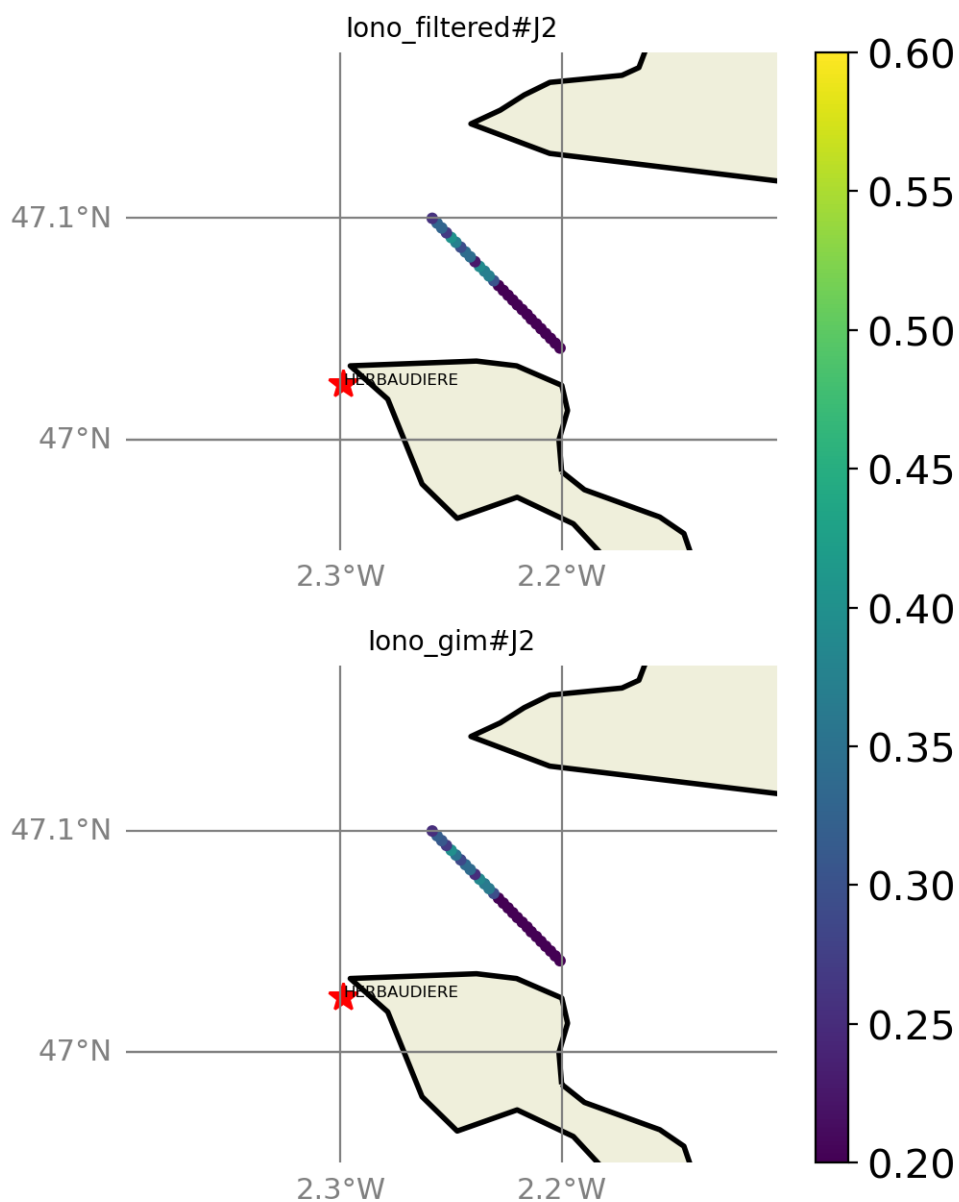


FIGURE 29 – correlation visualization in maps view % HERBAUDIERE tide gauge

6.1.2 rmsd visualization in maps view % HERBAUDIERE tide gauge

Rmsd (m) Altimetry data with respect to HERBAUDIERE Tide gauge data

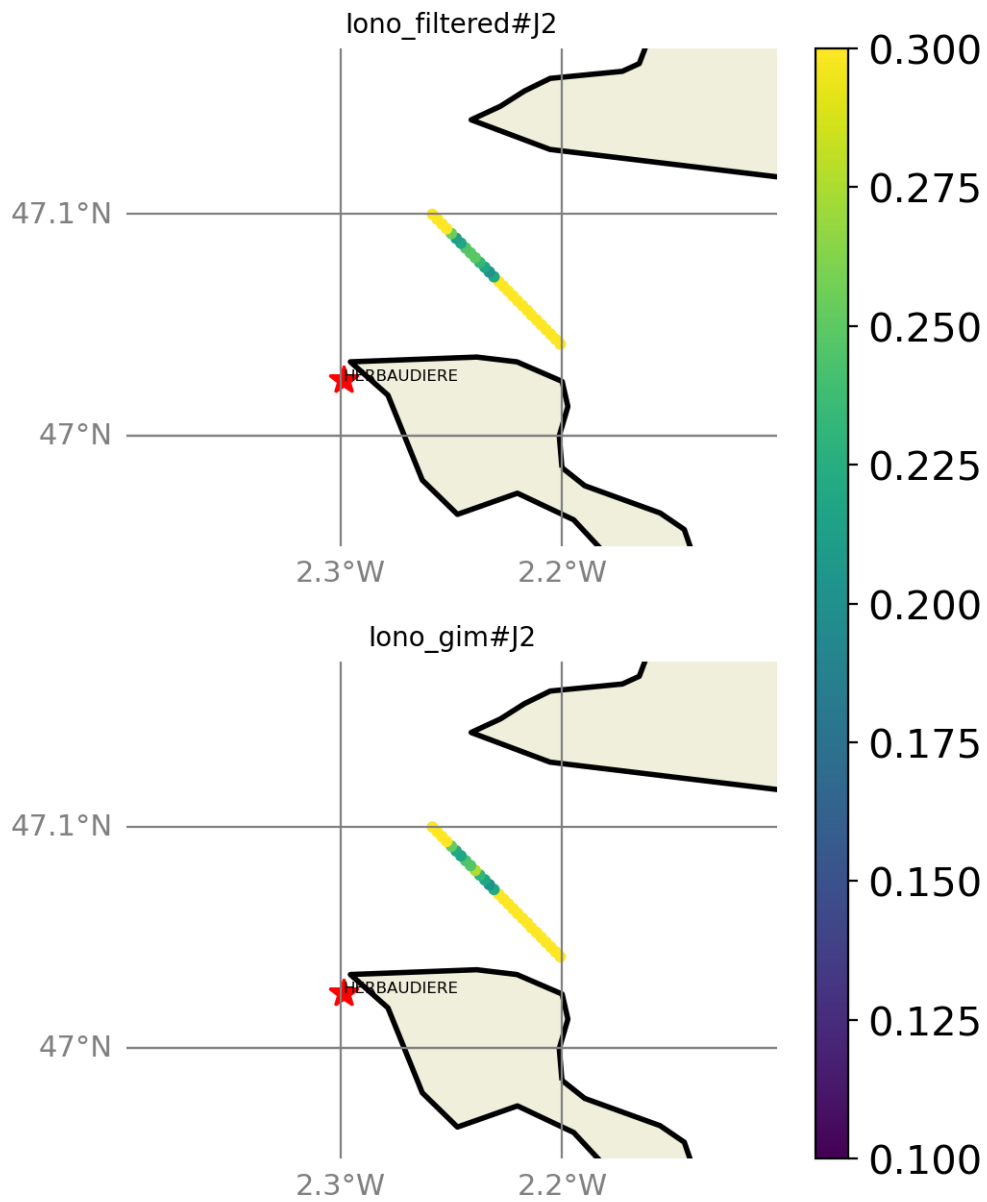


FIGURE 30 – rmsd visualization in maps view % HERBAUDIERE tide gauge

6.1.3 std visualization in maps view % HERBAUDIÈRE tide gauge

Std (m) Altimetry data with respect to HERBAUDIÈRE Tide gauge data

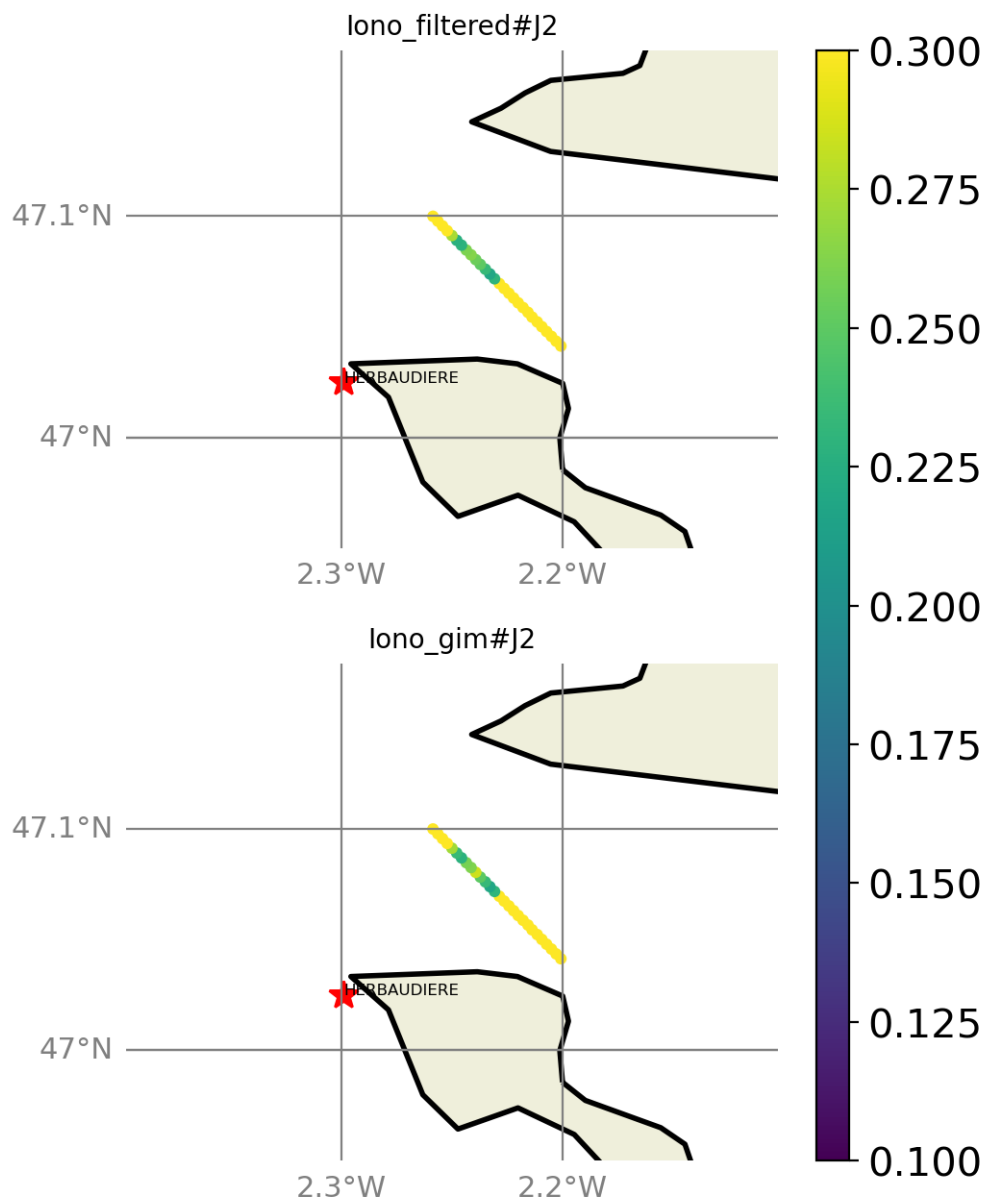


FIGURE 31 – std visualization in maps view % HERBAUDIÈRE tide gauge

6.1.4 valid_data_percent visualization in maps view % HERBAUDIERE tide gauge

Valid_Data_Percent (%) Altimetry data with respect to HERBAUDIERE Tide gauge data

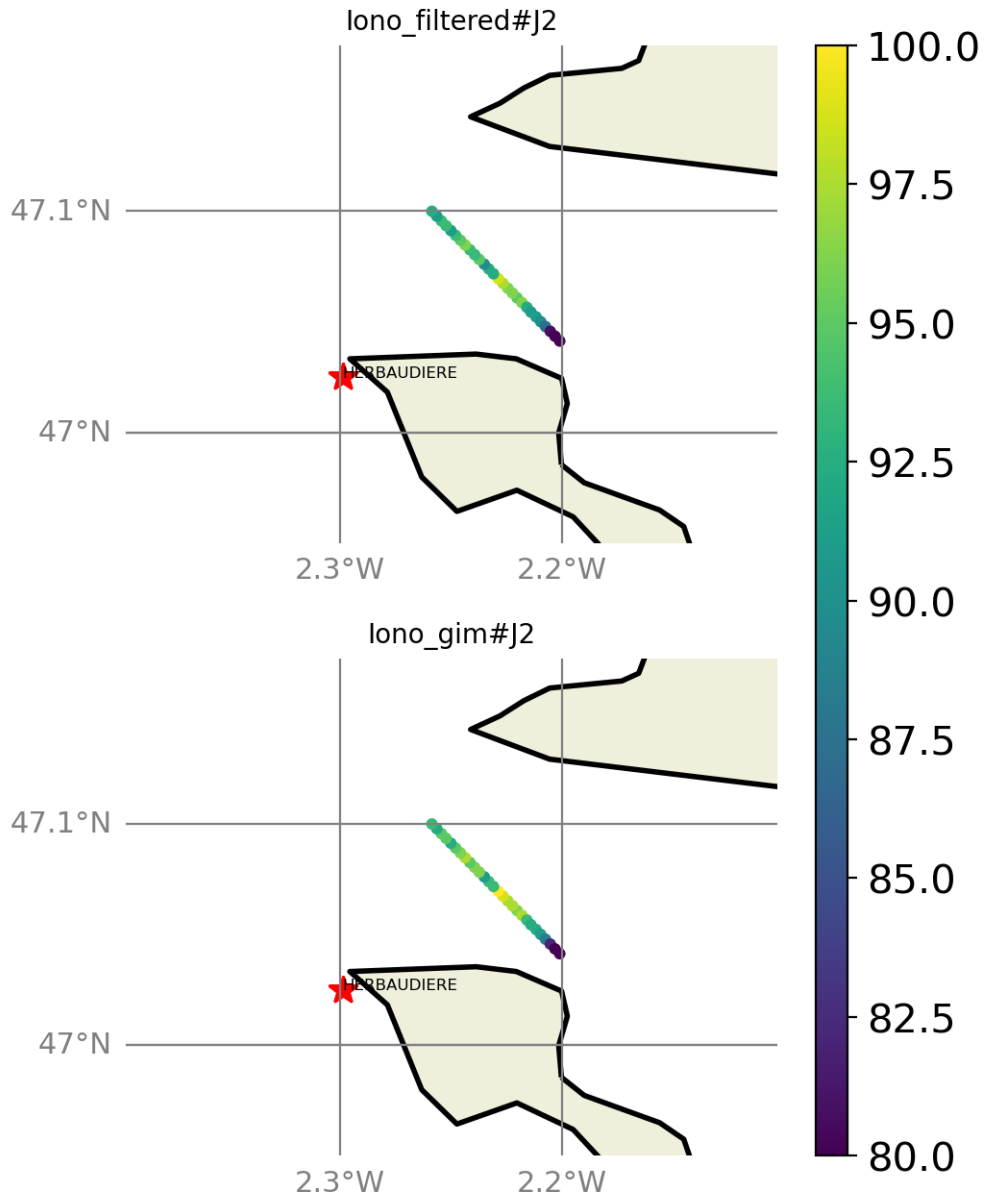


FIGURE 32 – valid_data_percent visualization in maps view % HERBAUDIERE tide gauge

6.1.5 Valid data (%) in function of distance to coast/HERBAUDIERE station

The formula to calculate the percentage of valid data in each time serie is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 78$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

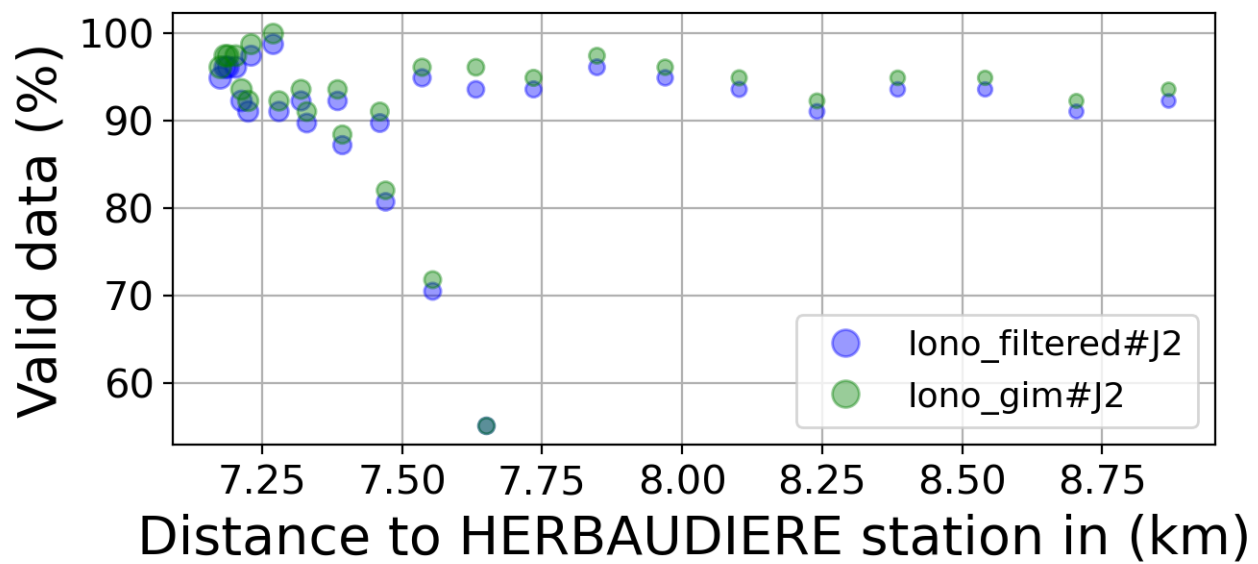
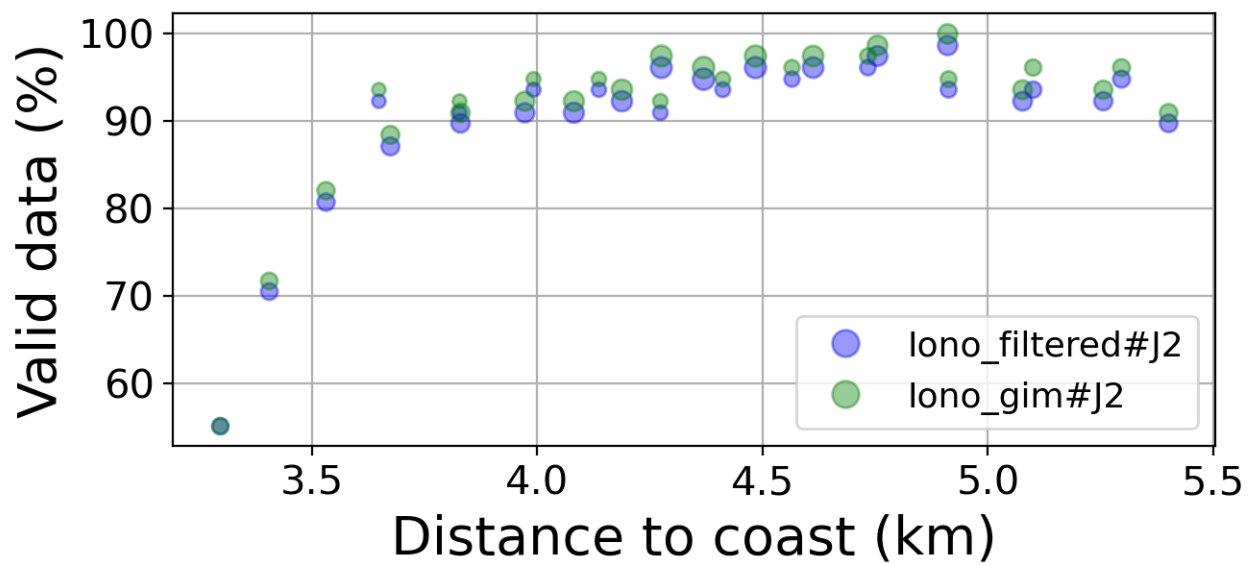


FIGURE 33 – Valid data (%) in function of distance to coast/HERBAUDIÈRE station

6.1.6 Std in function of distance to coast/HERBAUDIÈRE station

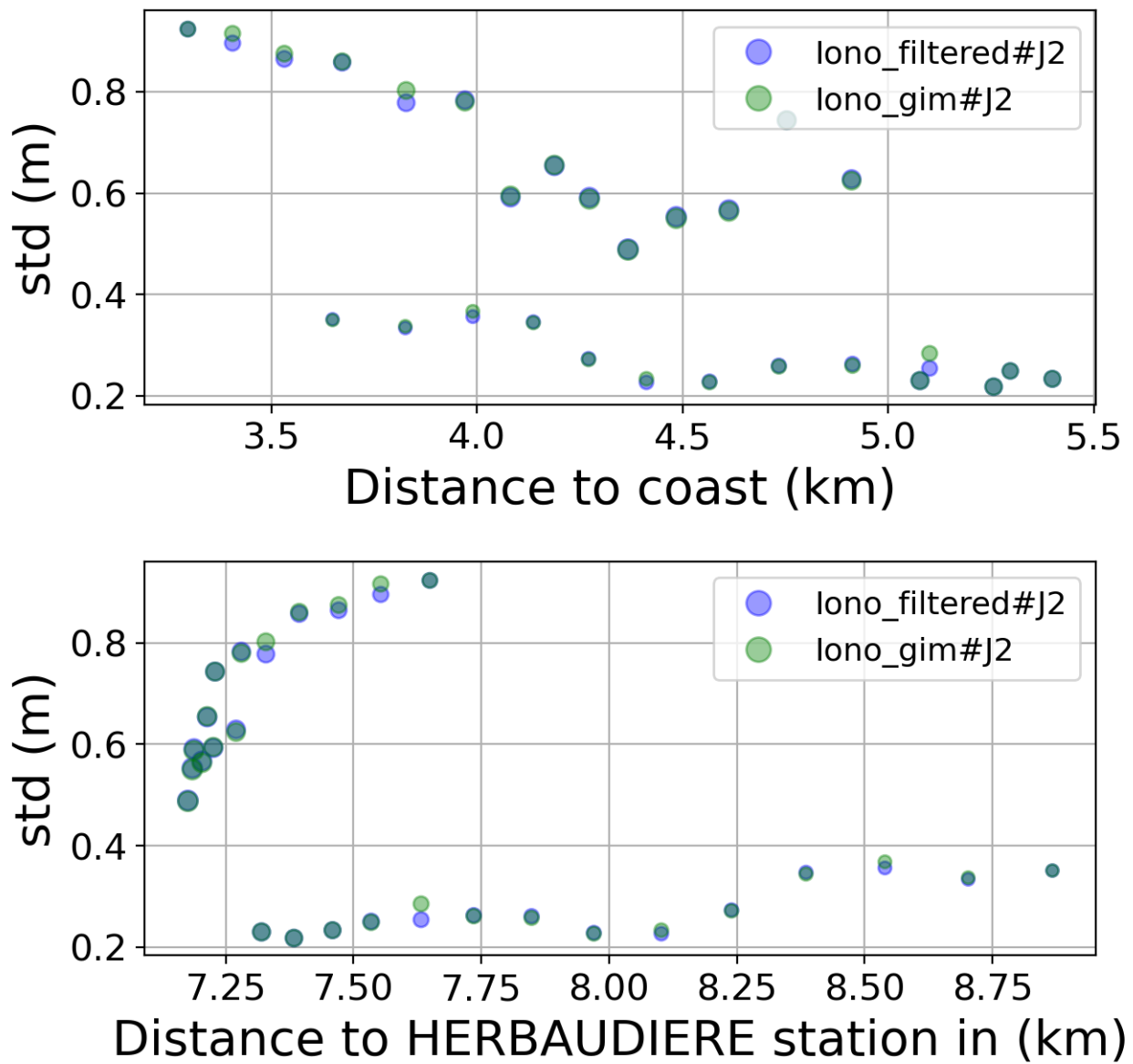


FIGURE 34 – Std in function of the distance to the coast/HERBAUDIÈRE station

6.1.7 Correlation in function of distance to coast/HERBAUDIERE station

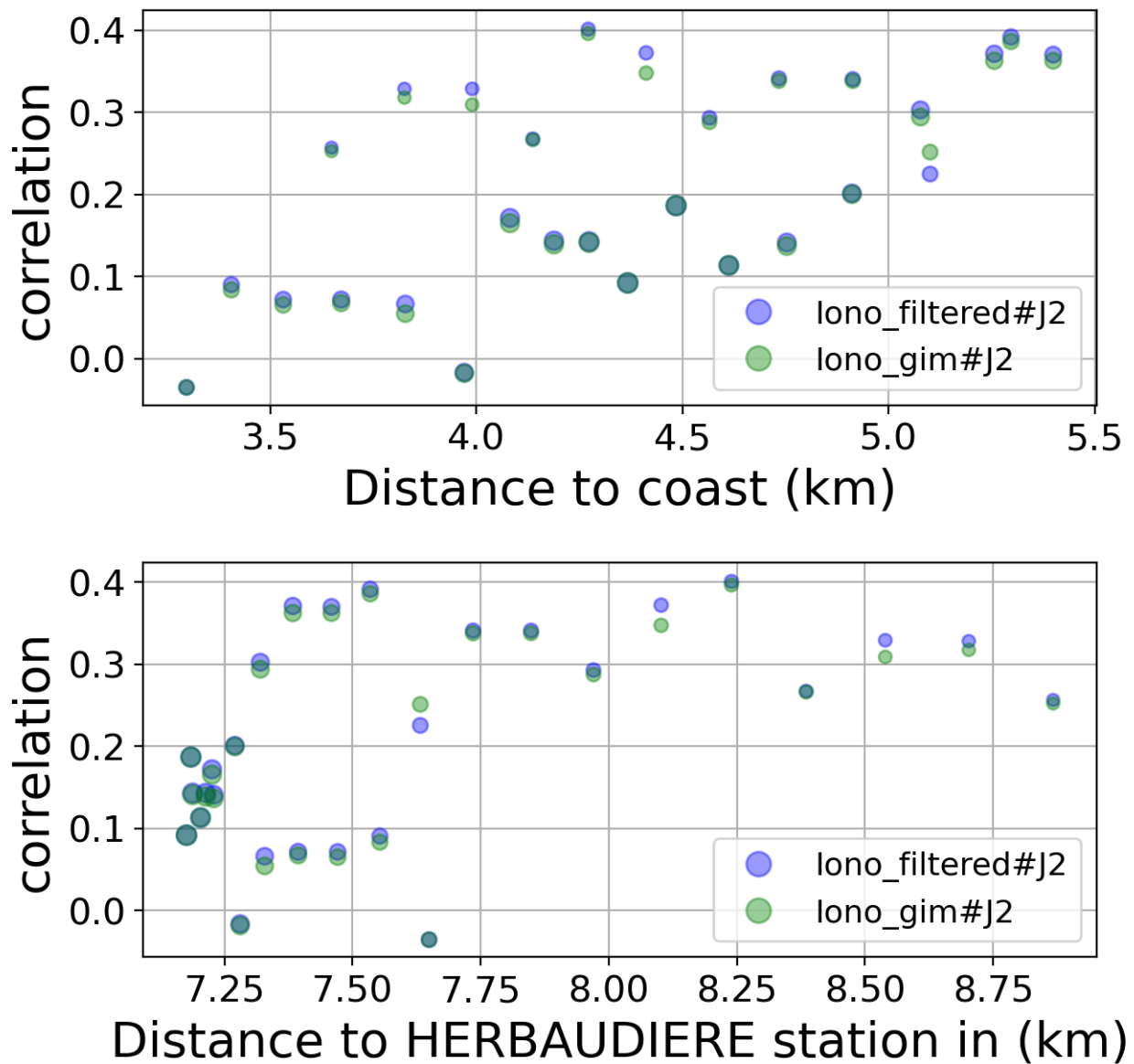


FIGURE 35 – Correlation in function of the distance to the coast/HERBAUDIERE station

6.1.8 Taylor Diagram

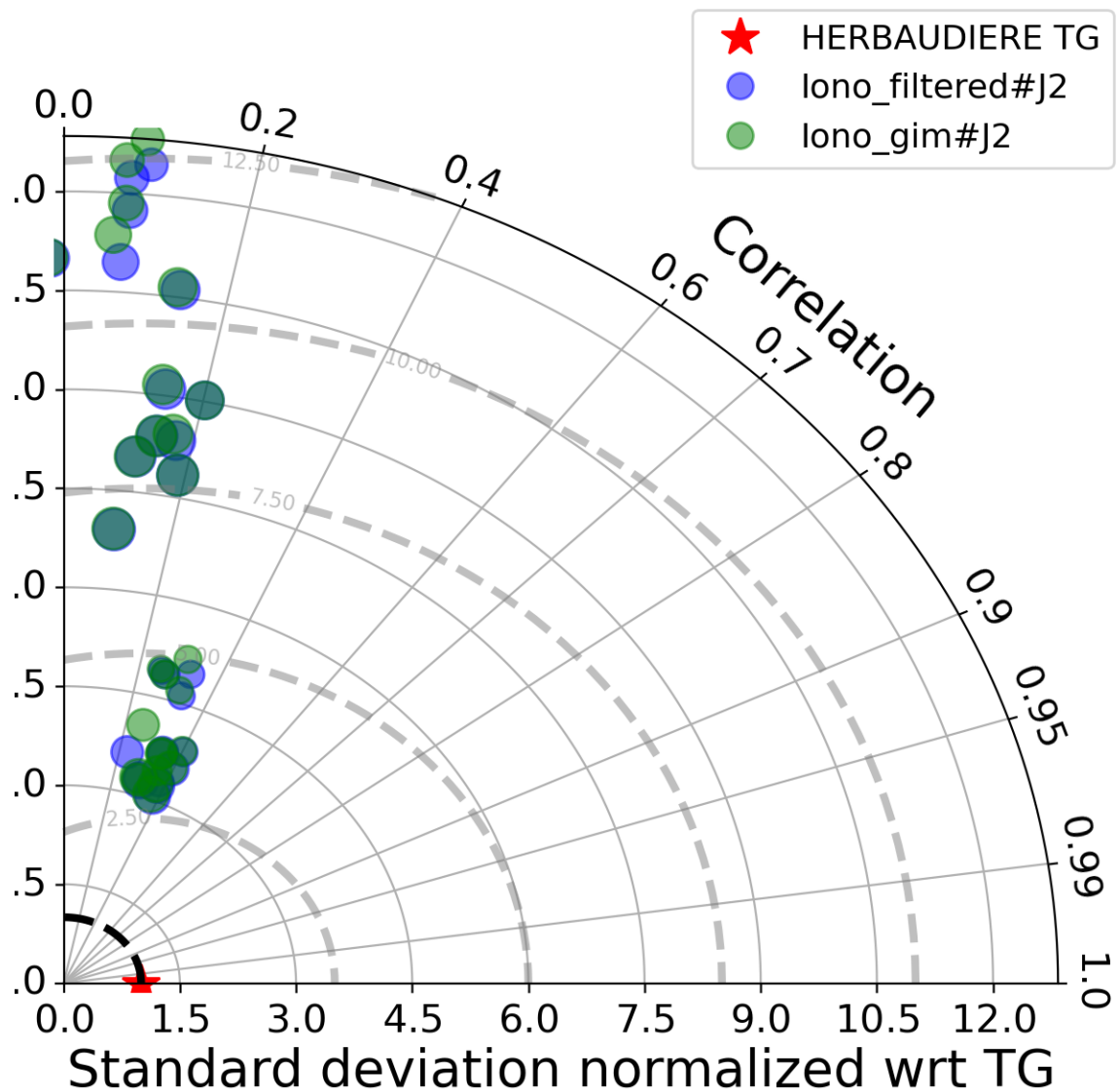


FIGURE 36 – Taylor diagram

6.1.9 Mean statistics table of products comparison with HERBAUDIERS tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	90.705	0.216	0.492	0.483
lono_gim#J2	91.987	0.211	0.494	0.486

FIGURE 37 – Mean statistics table of the common points in the altimetry products

6.1.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 78 point.

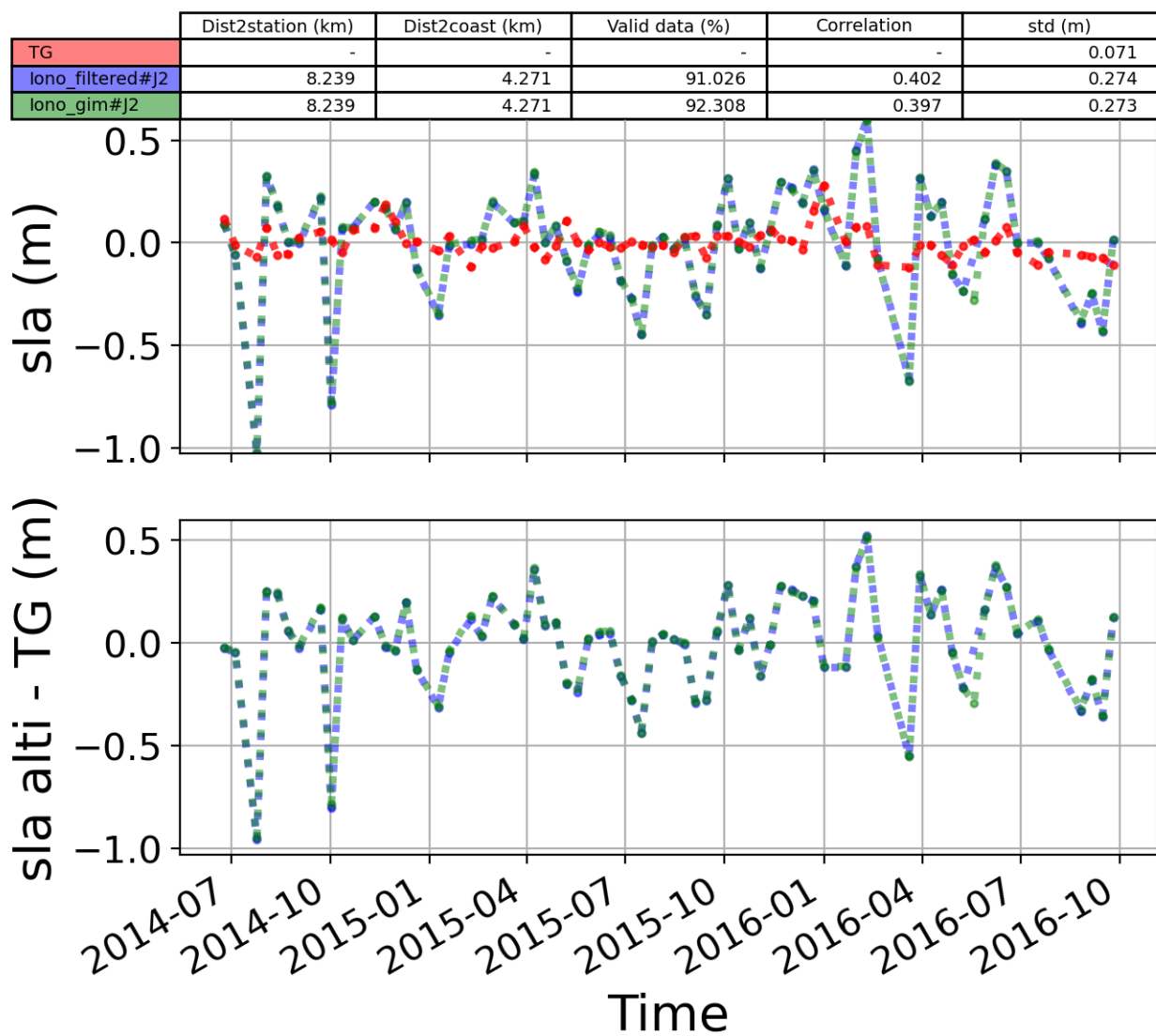


FIGURE 38 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

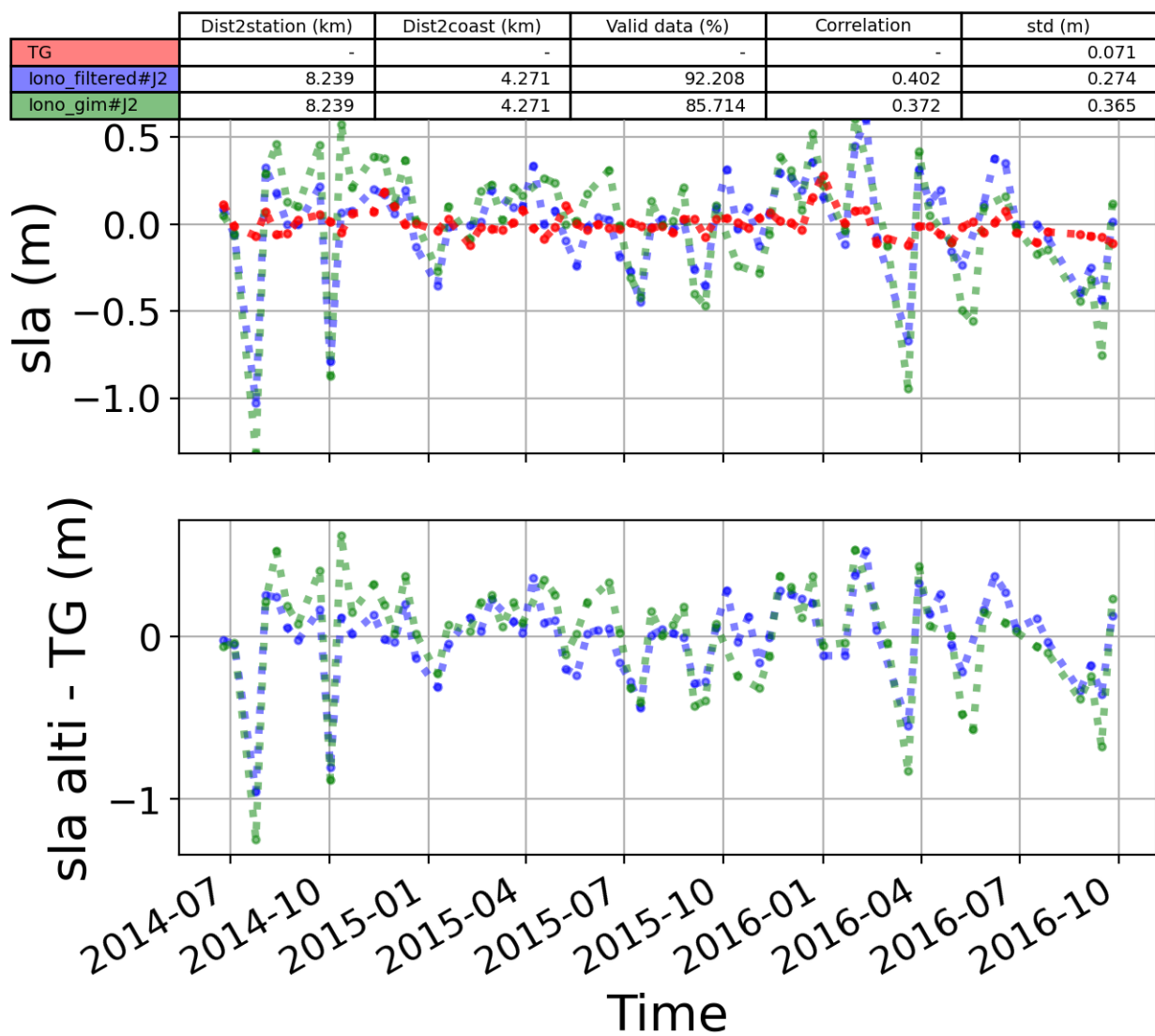


FIGURE 39 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.2 Station : Llandudno

- Nearest track to Llandudno station is the track number track222
- The area of interest is limited by :
 - A circle which it's center is the Llandudno tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km
 - Latitude limits : [None, 53.4] °

6.2.1 correlation visualization in maps view % Llandudno tide gauge

Correlation Altimetry data with respect to Llandudno Tide gauge data

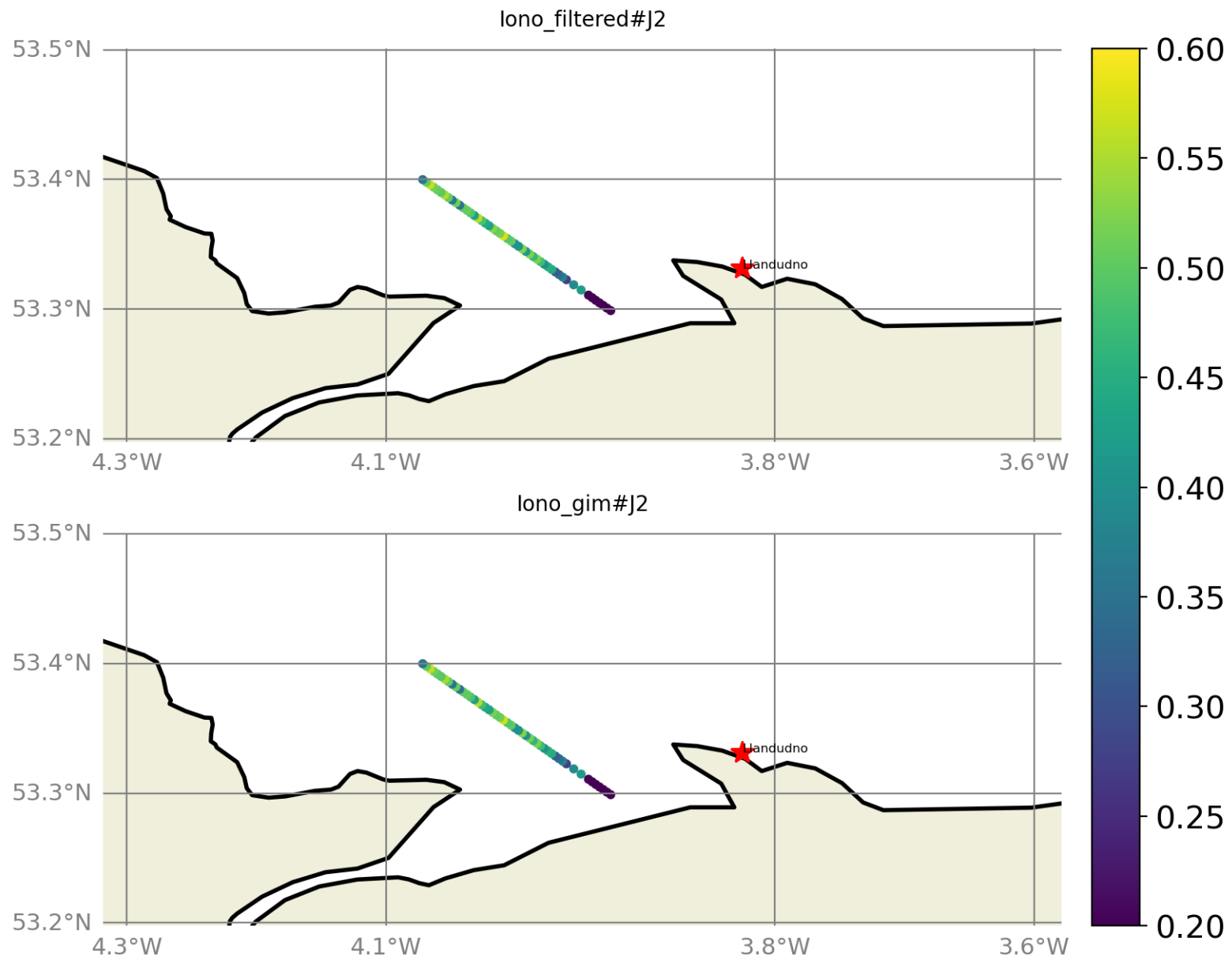


FIGURE 40 – correlation visualization in maps view % Llandudno tide gauge

6.2.2 rmsd visualization in maps view % Llandudno tide gauge

Rmsd (m) Altimetry data with respect to Llandudno Tide gauge data

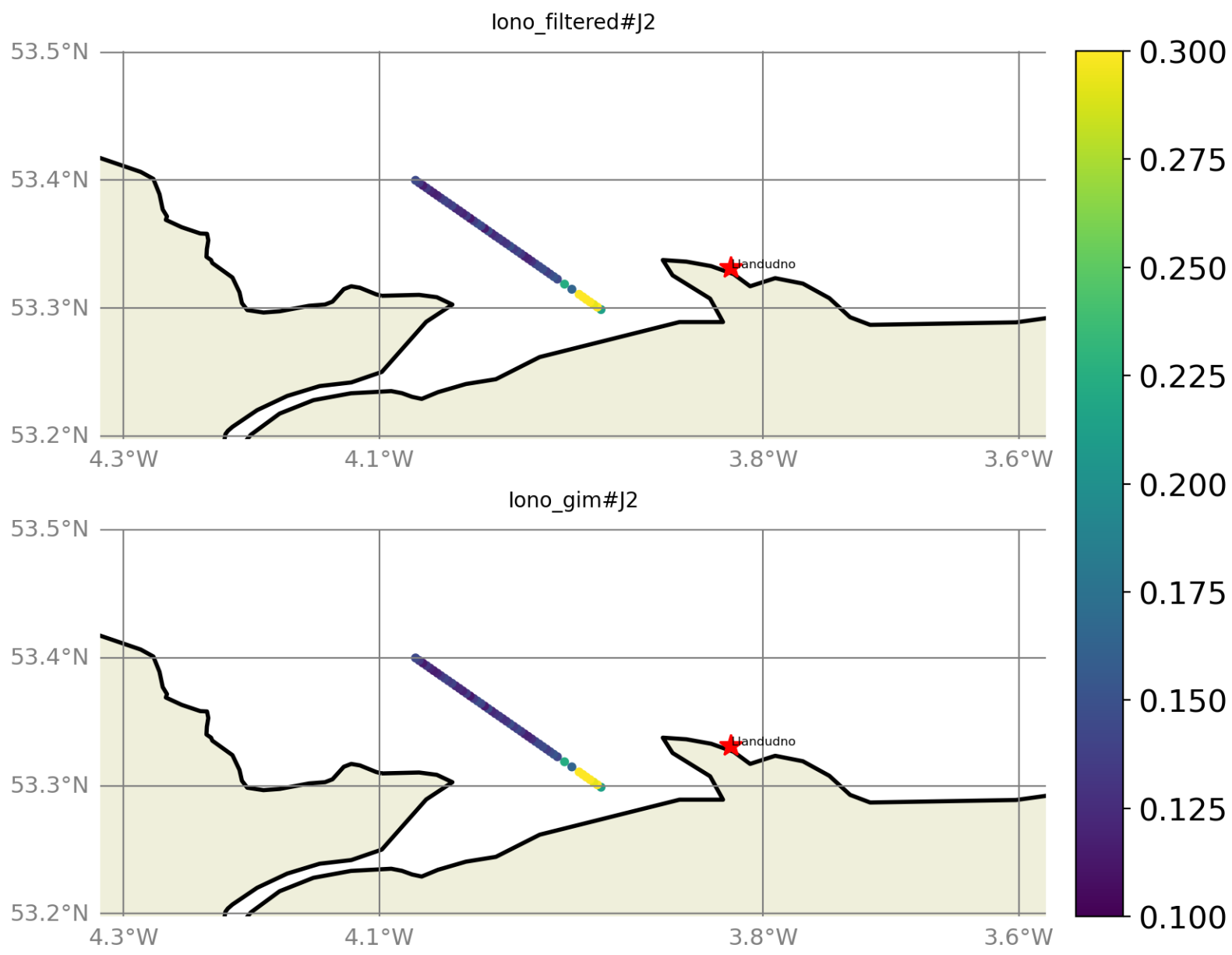


FIGURE 41 – rmsd visualization in maps view % Llandudno tide gauge

6.2.3 std visualization in maps view % Llandudno tide gauge

Std (m) Altimetry data with respect to Llandudno Tide gauge data

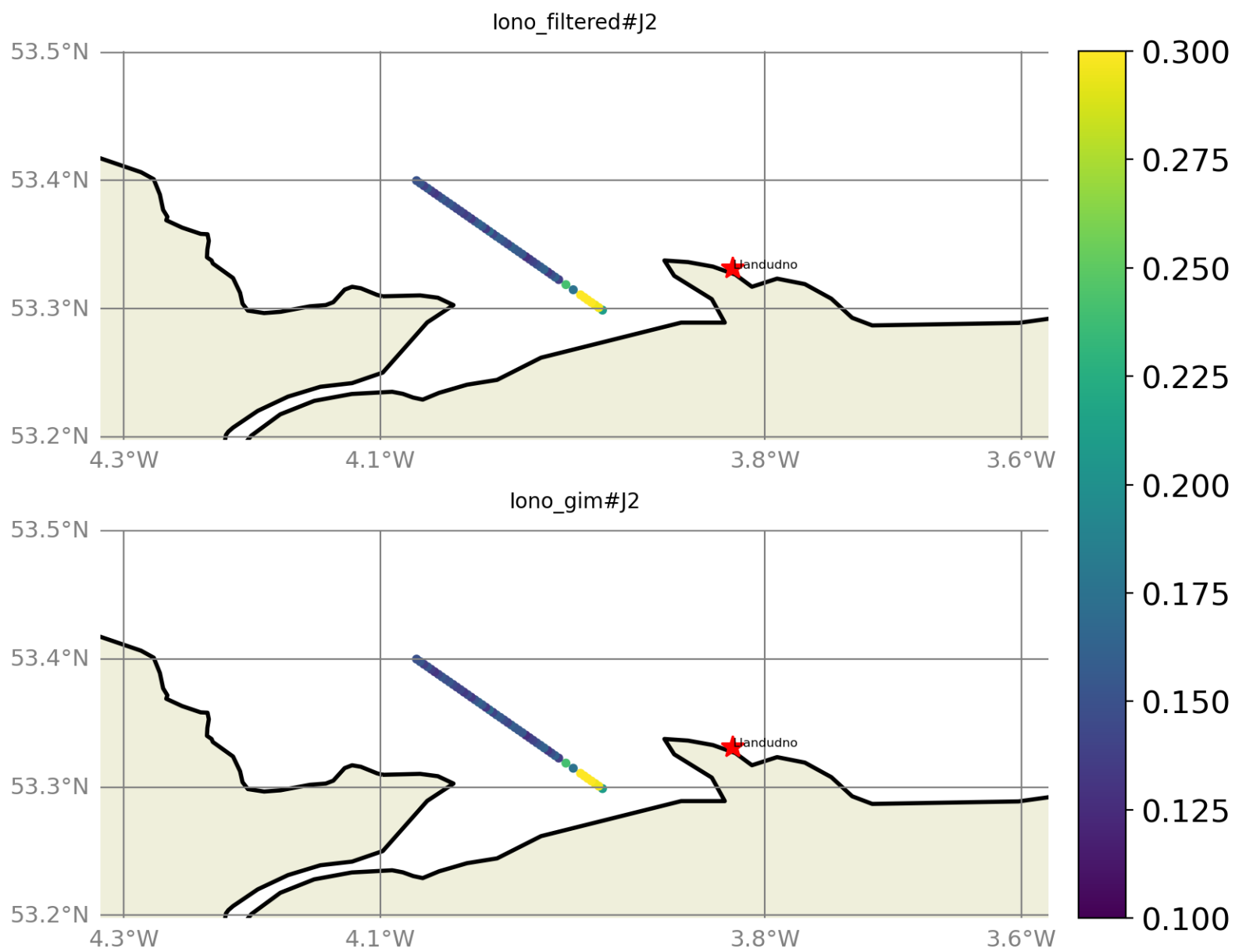


FIGURE 42 – std visualization in maps view % Llandudno tide gauge

6.2.4 valid_data_percent visualization in maps view % Llandudno tide gauge

Valid_Data_Percent (%) Altimetry data with respect to Llandudno Tide gauge data

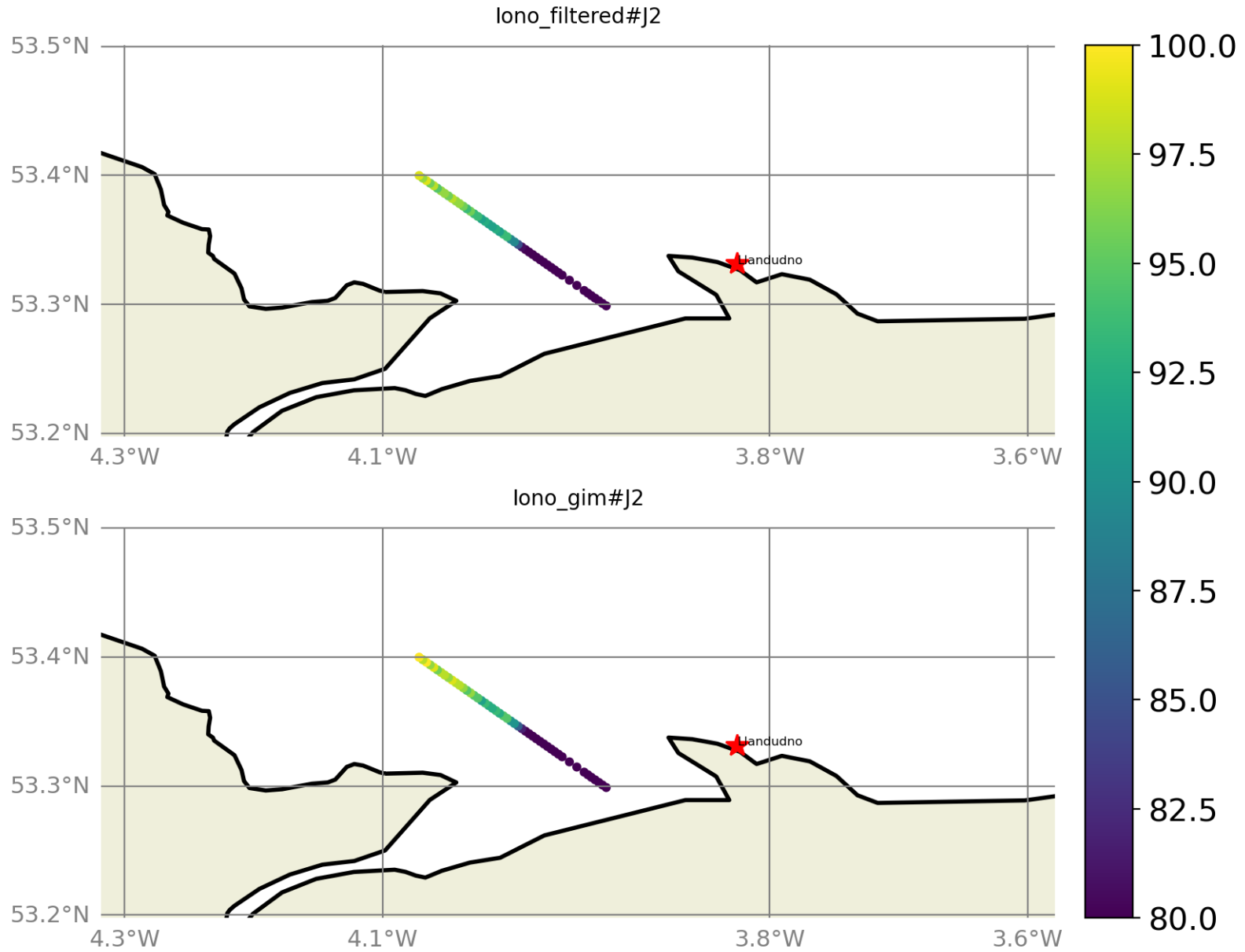


FIGURE 43 – valid_data_percent visualization in maps view % Llandudno tide gauge

6.2.5 Valid data (%) in function of distance to coast/Llandudno station

The formula to calculate the percentage of valid data in each time serie is ;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 93$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

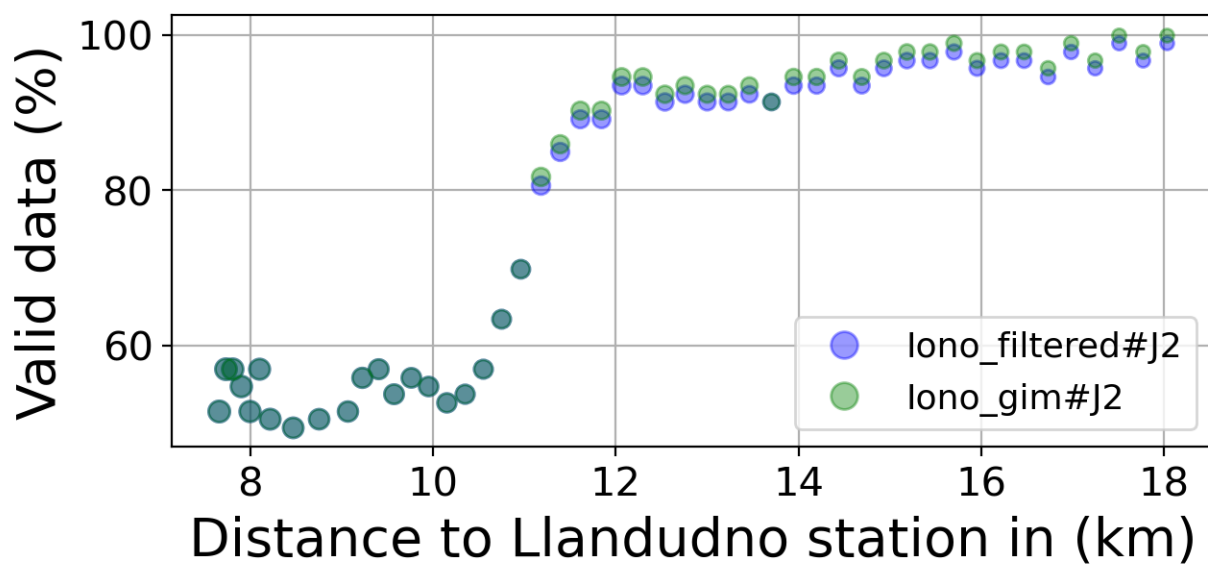
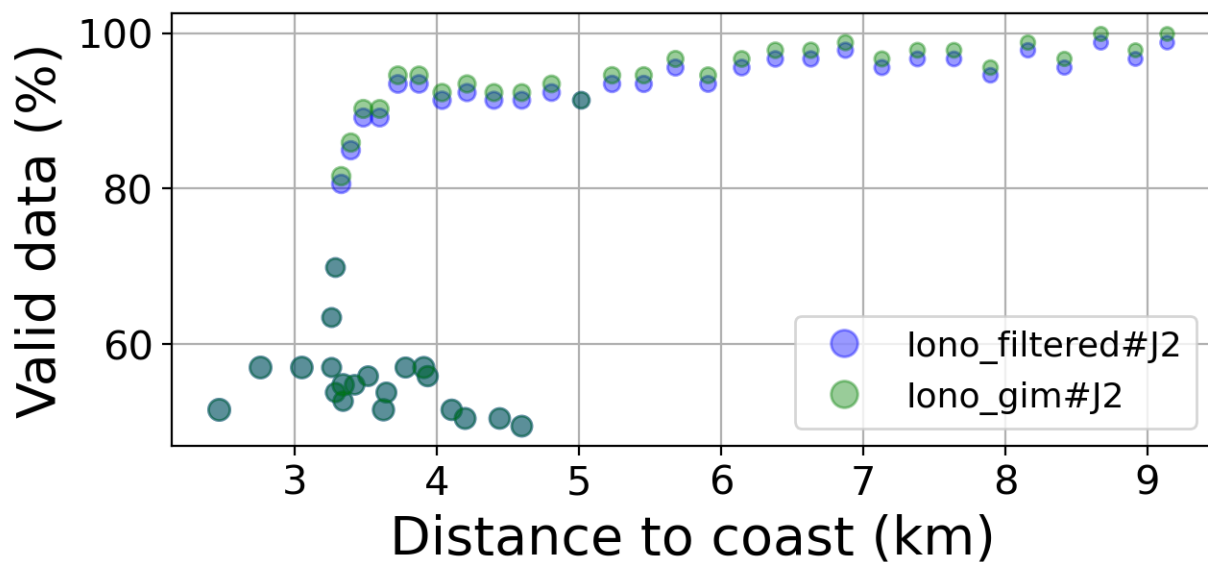


FIGURE 44 – Valid data (%) in function of distance to coast/Llandudno station

6.2.6 Std in function of distance to coast/Llandudno station

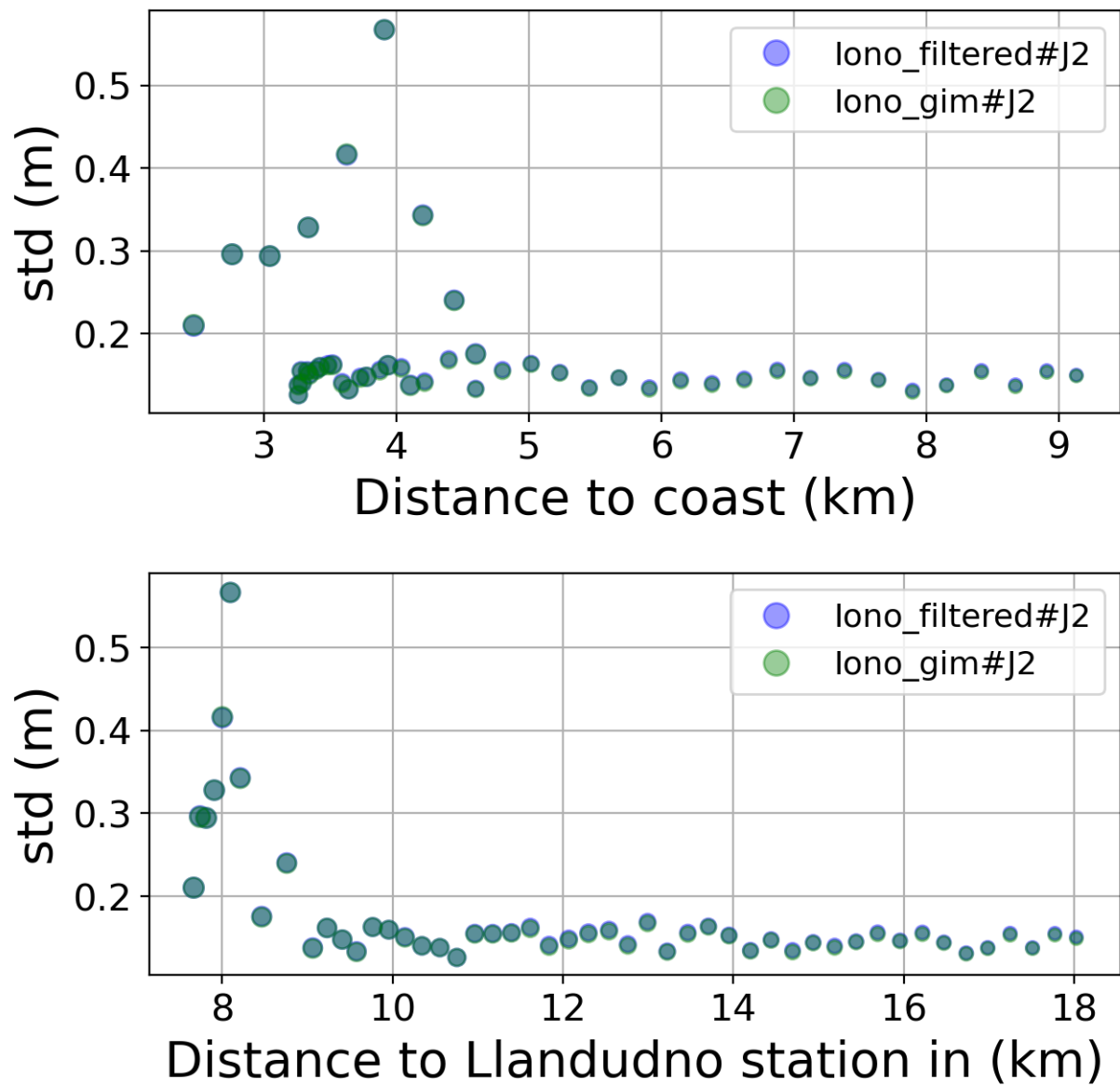


FIGURE 45 – Std in function of the distance to the coast/Llandudno station

6.2.7 Correlation in function of distance to coast/Llandudno station

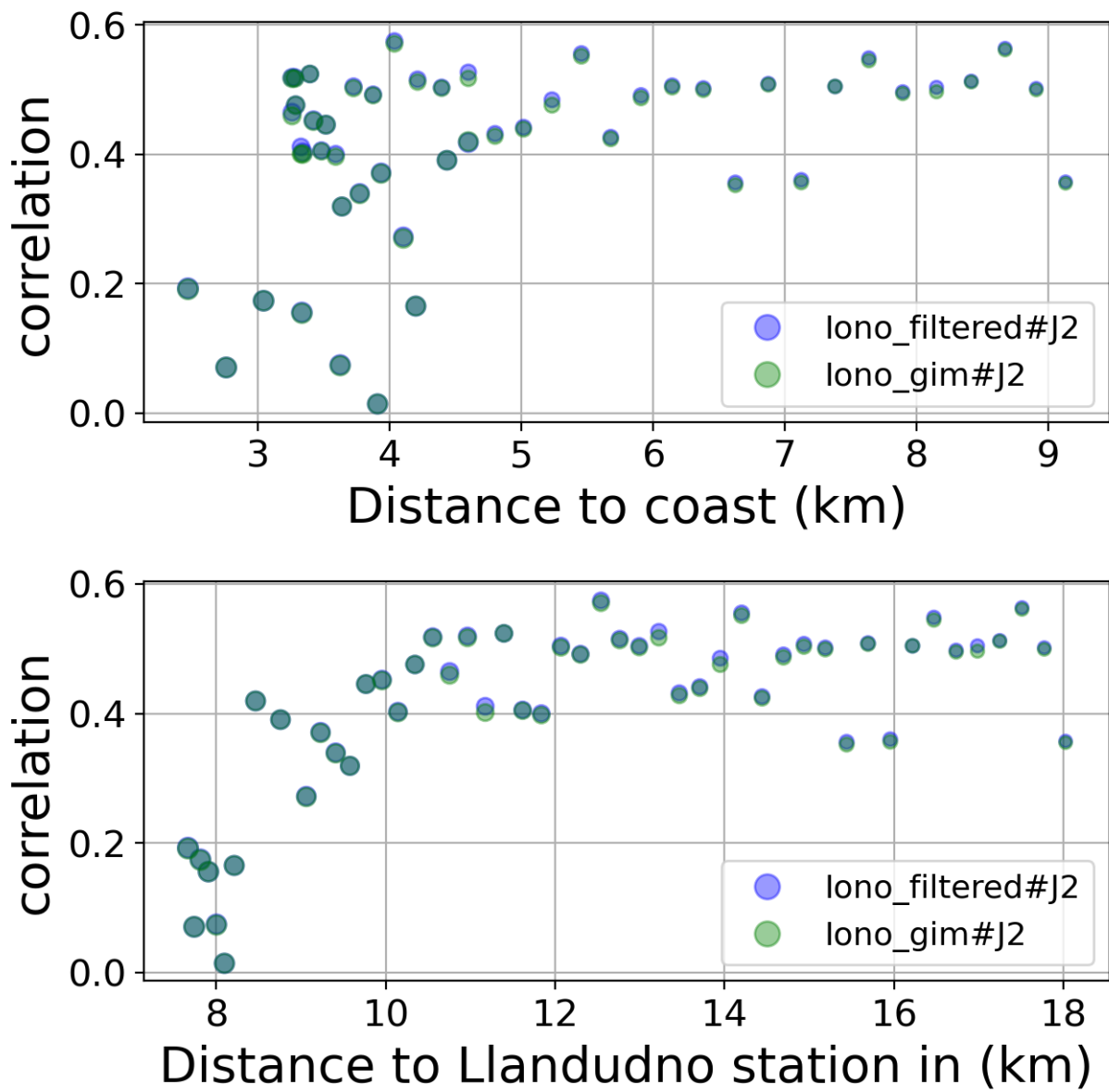


FIGURE 46 – Correlation in function of the distance to the coast/Llandudno station

6.2.8 Taylor Diagram

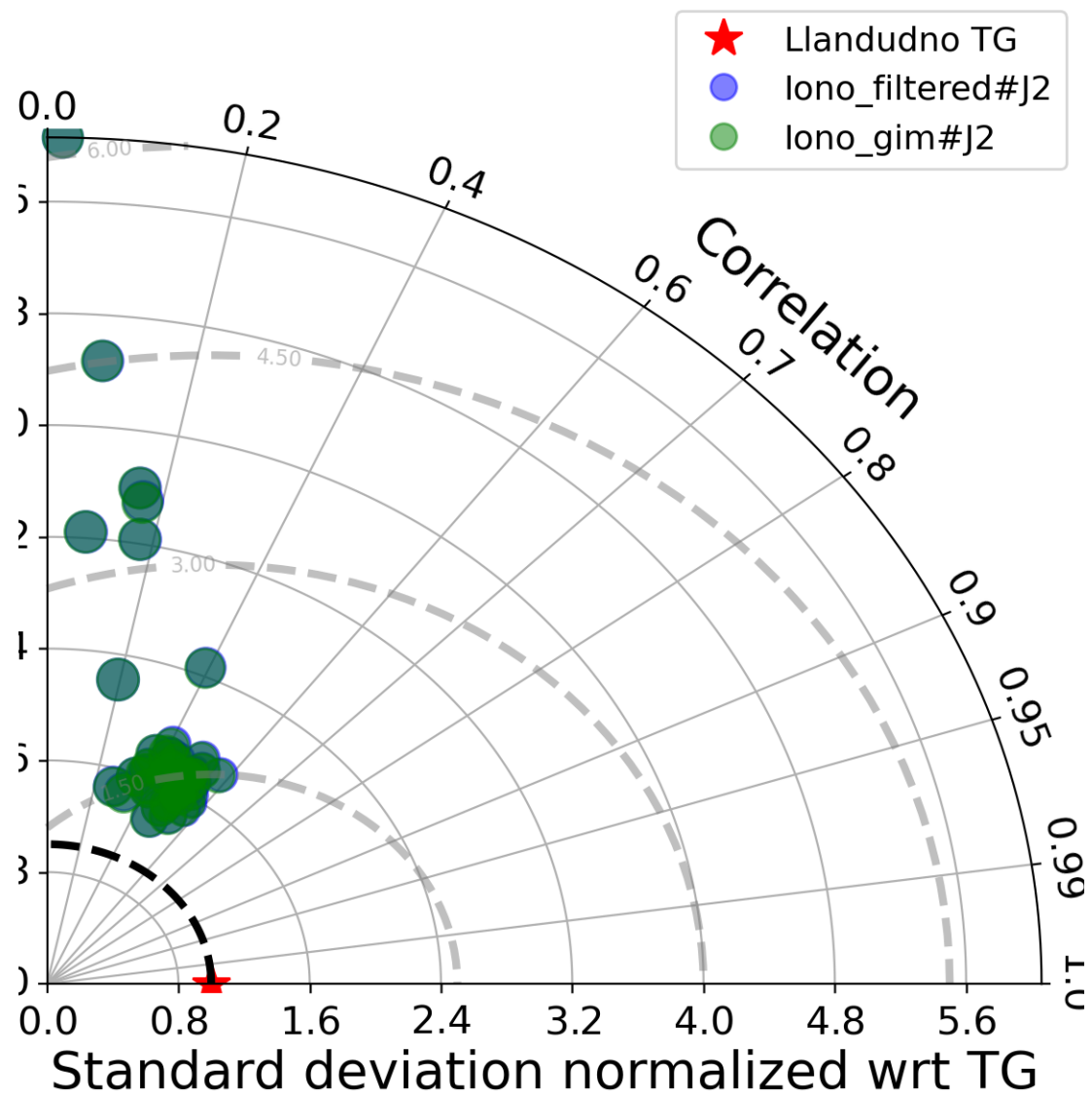


FIGURE 47 – Taylor diagram

6.2.9 Mean statistics table of products comparison with Llandudno tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	78.012	0.412	0.18	0.168
lono_gim#J2	78.626	0.409	0.179	0.167

FIGURE 48 – Mean statistics table of the common points in the altimetry products

6.2.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 93 point.

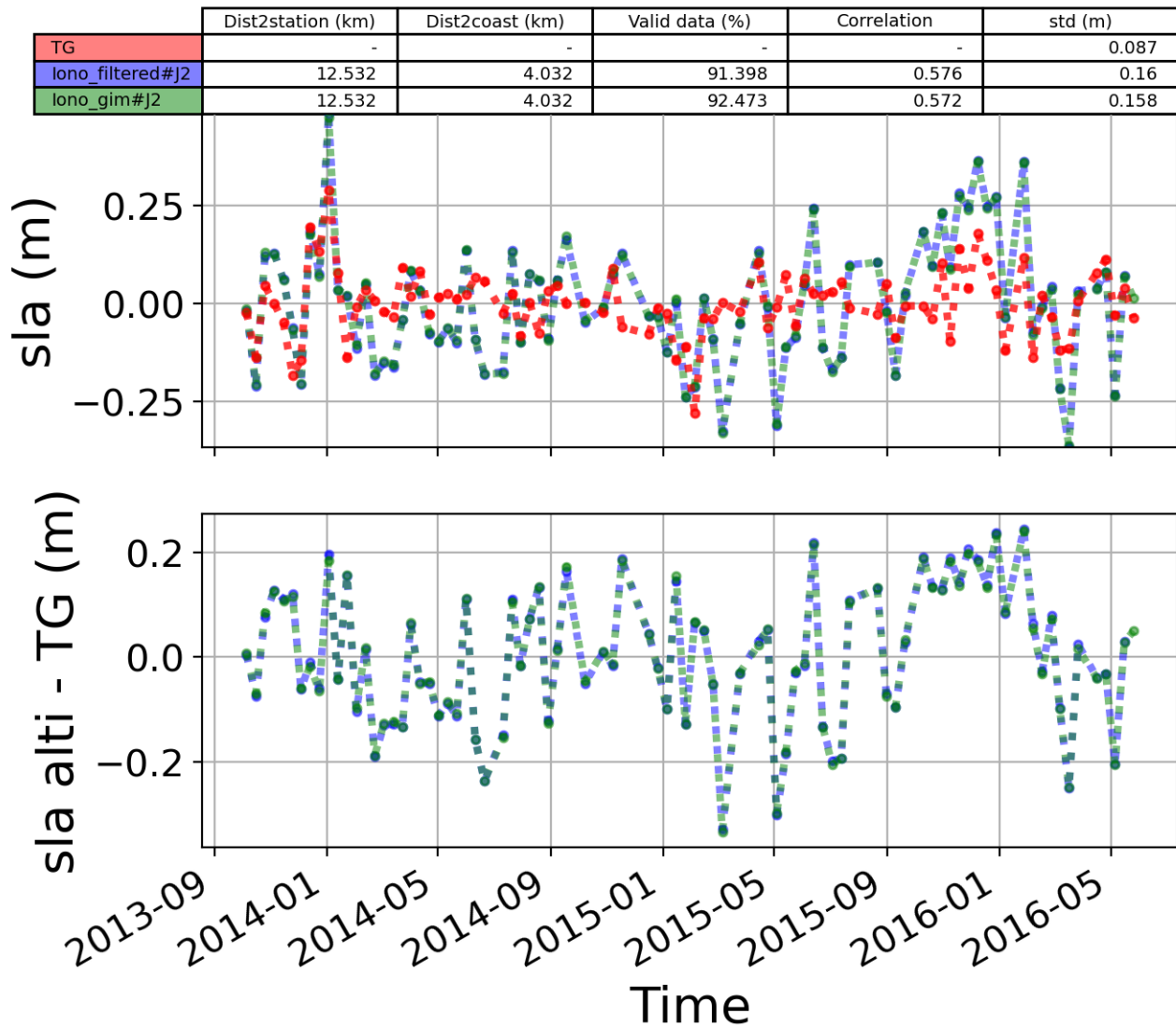


FIGURE 49 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

6.3 Station : Newhaven

- Nearest track to Newhaven station is the track number track137
- The area of interest is limited by :
 - A circle which it's center is the Newhaven tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km

6.3.1 correlation visualization in maps view % Newhaven tide gauge

Correlation Altimetry data with respect to Newhaven Tide gauge data

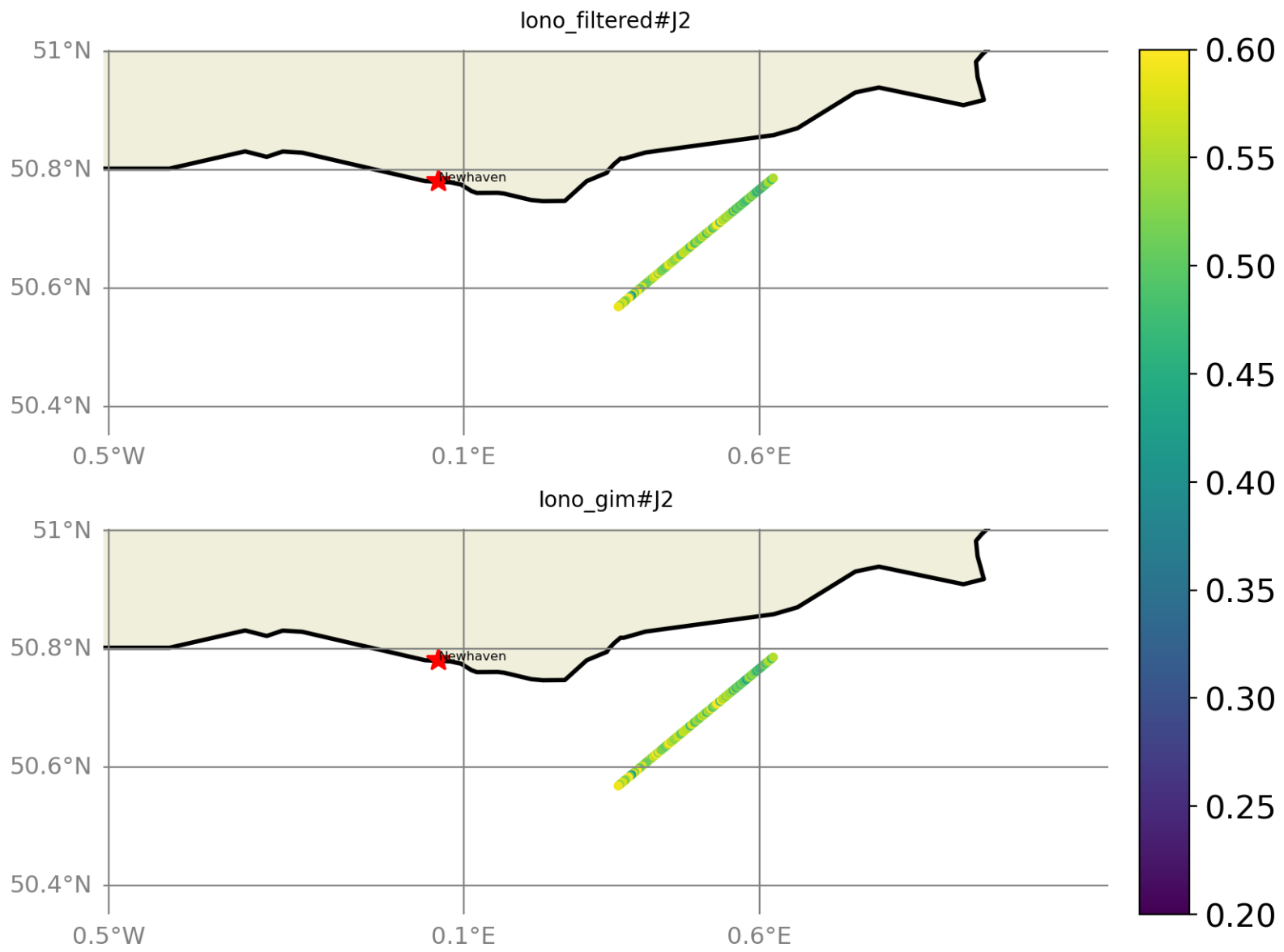


FIGURE 50 – correlation visualization in maps view % Newhaven tide gauge

6.3.2 rmsd visualization in maps view % Newhaven tide gauge

Rmsd (m) Altimetry data with respect to Newhaven Tide gauge data

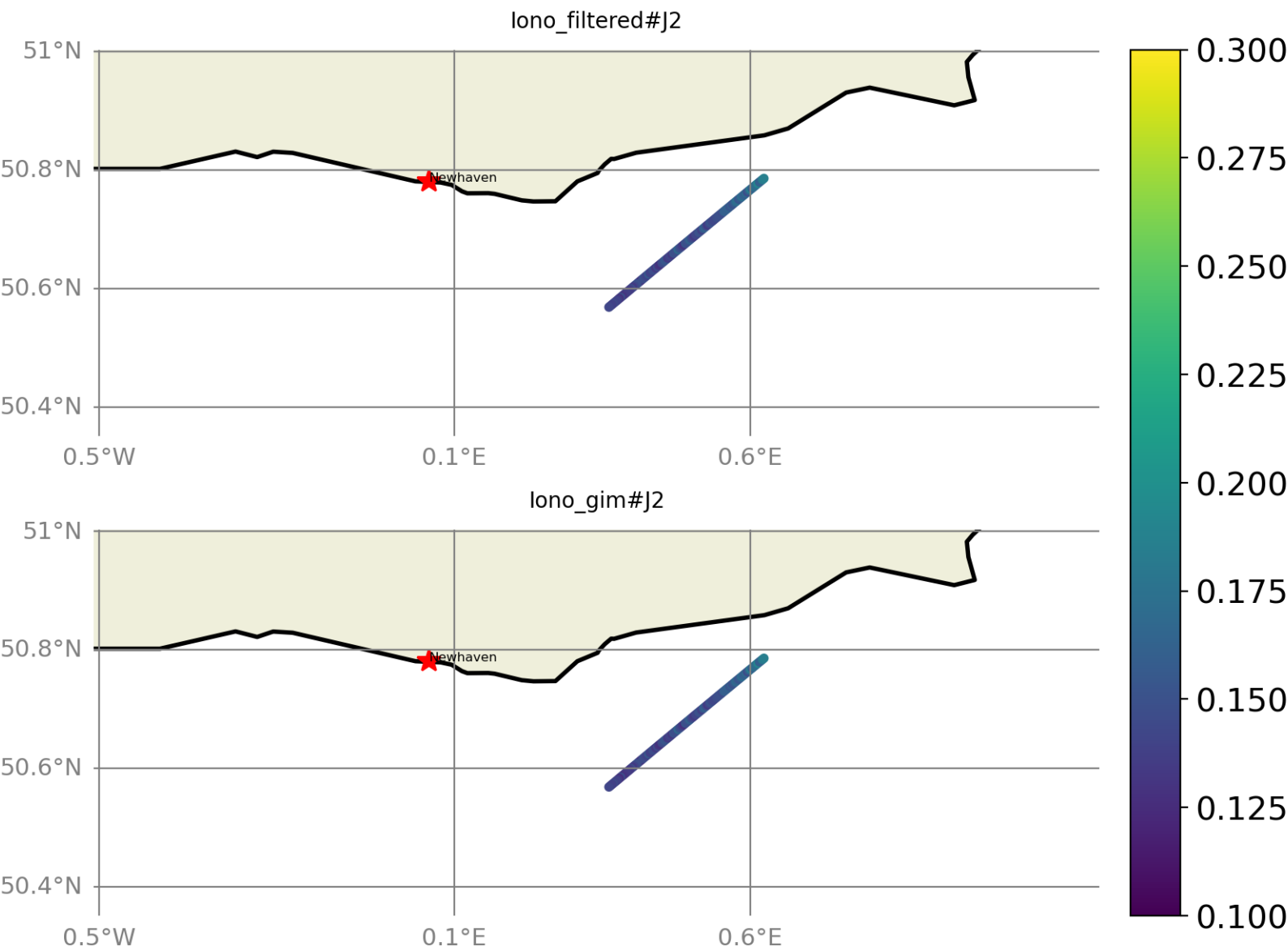


FIGURE 51 – rmsd visualization in maps view % Newhaven tide gauge

6.3.3 std visualization in maps view % Newhaven tide gauge

Std (m) Altimetry data with respect to Newhaven Tide gauge data

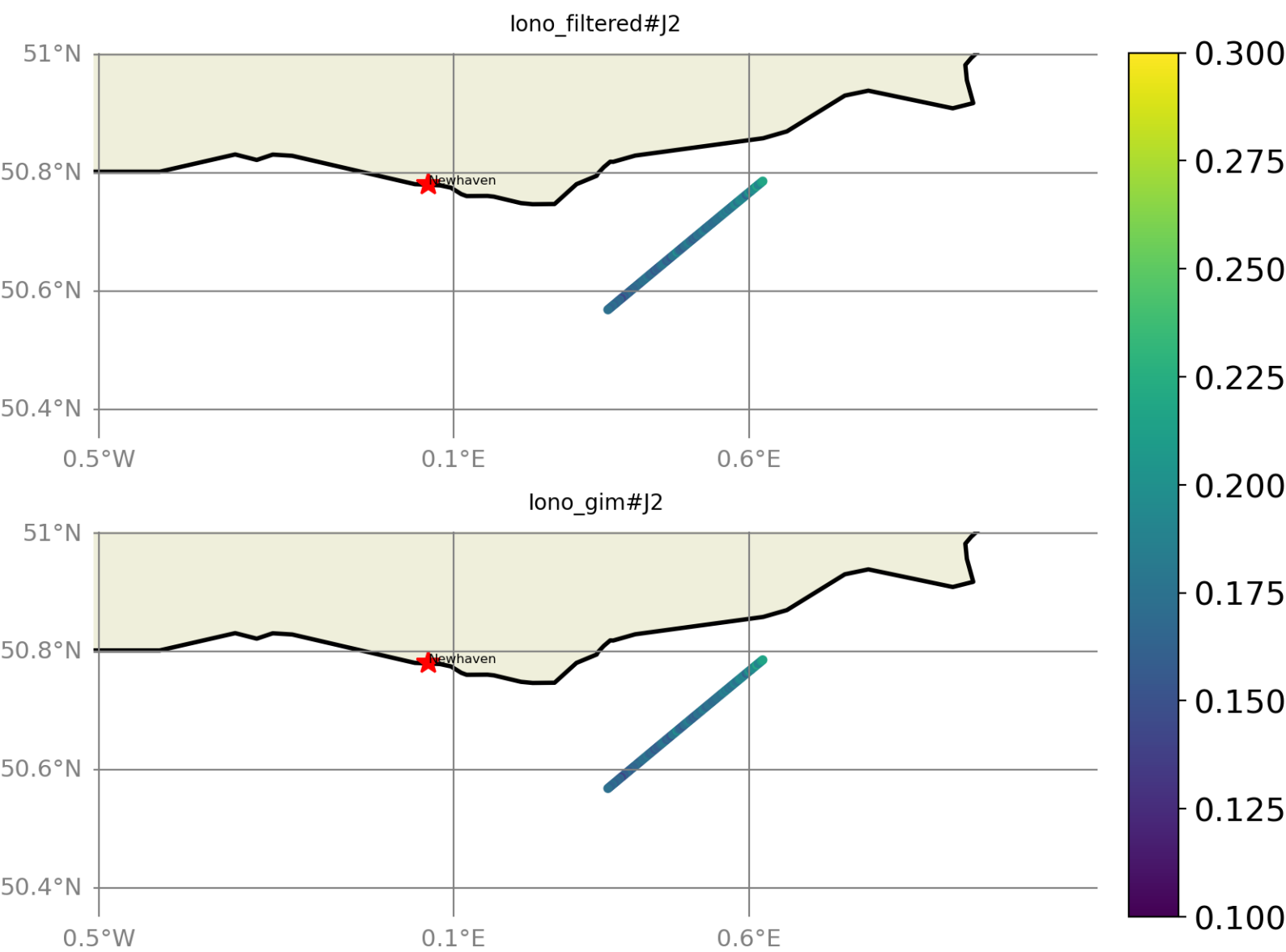


FIGURE 52 – std visualization in maps view % Newhaven tide gauge

6.3.4 valid_data_percent visualization in maps view % Newhaven tide gauge

Valid_Data_Percent (%) Altimetry data with respect to Newhaven Tide gauge data

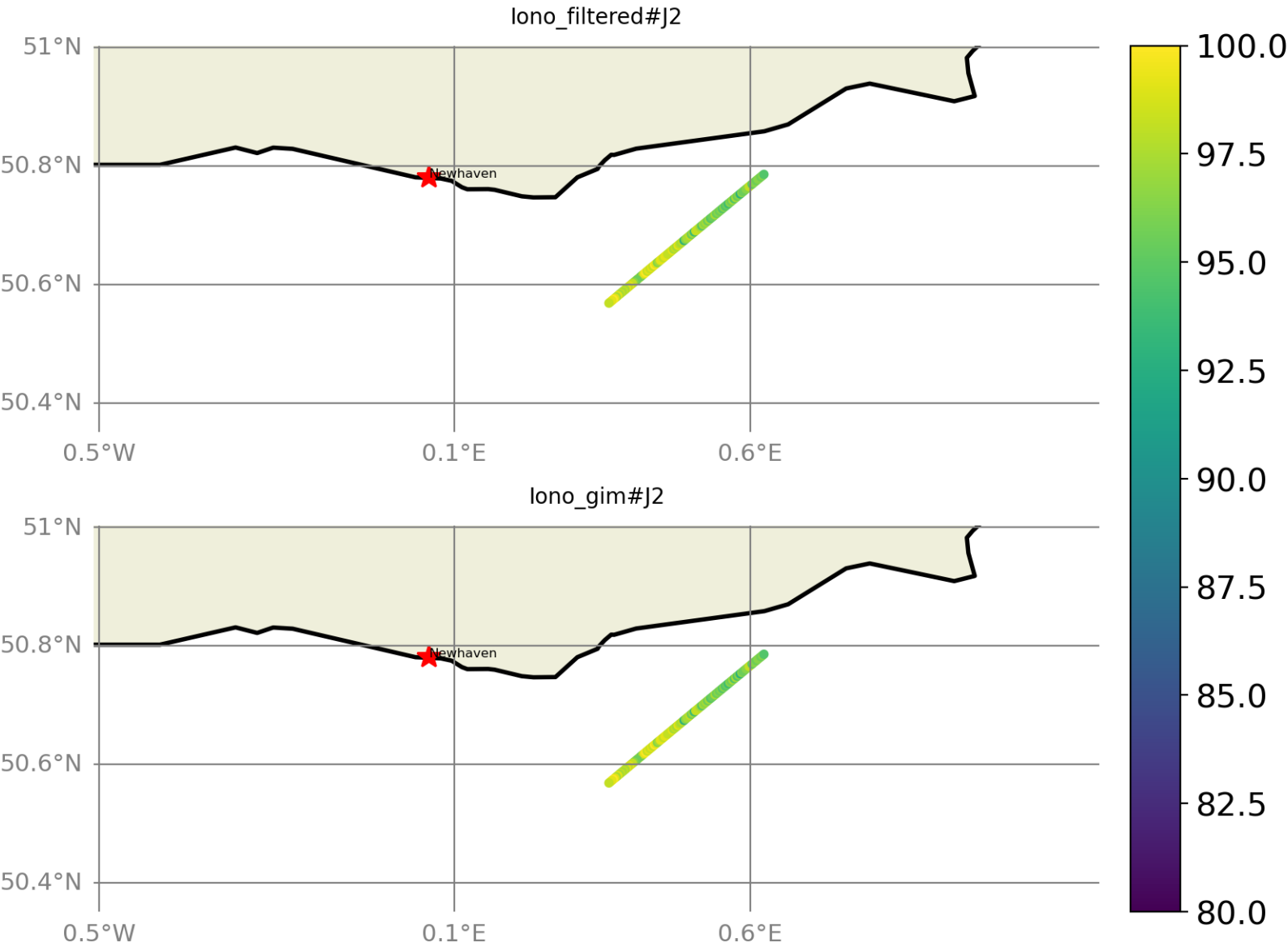


FIGURE 53 – valid_data_percent visualization in maps view % Newhaven tide gauge

6.3.5 Valid data (%) in function of distance to coast/Newhaven station

The formula to calculate the percentage of valid data in each time series is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time series, i is the index of the time series, np is the number of the selected altimetry time series. $maxNB = 111$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

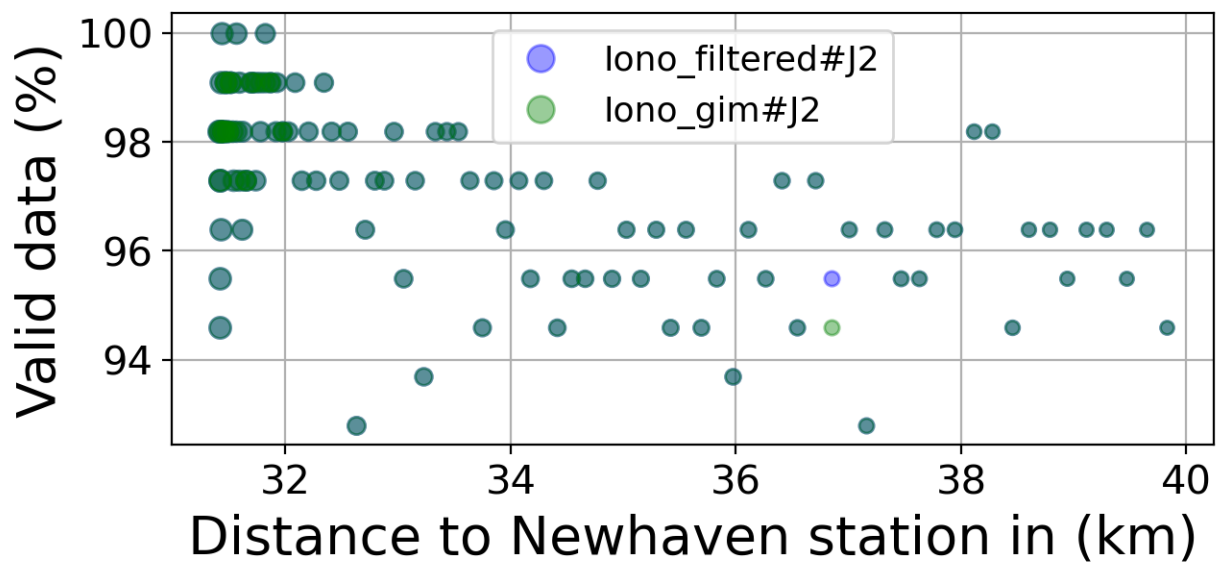
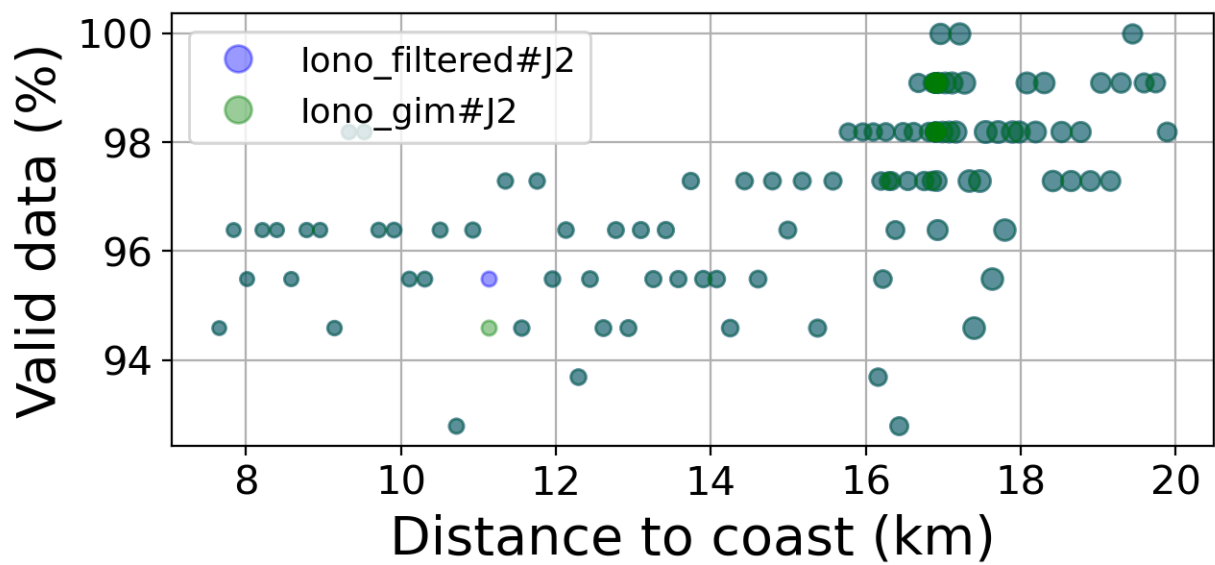


FIGURE 54 – Valid data (%) in function of distance to coast/Newhaven station

6.3.6 Std in function of distance to coast/Newhaven station

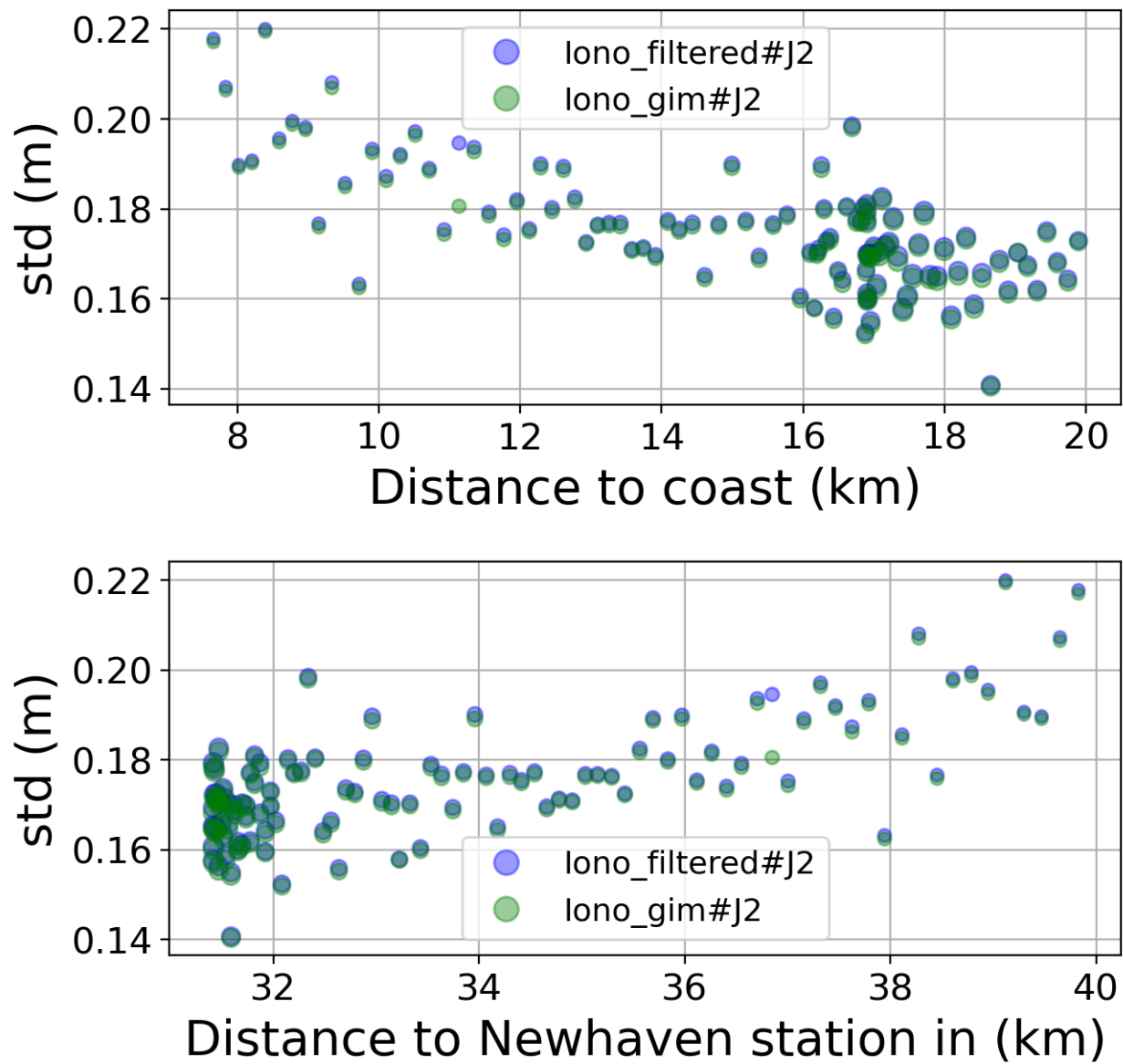


FIGURE 55 – Std in function of the distance to the coast/Newhaven station

6.3.7 Correlation in function of distance to coast/Newhaven station

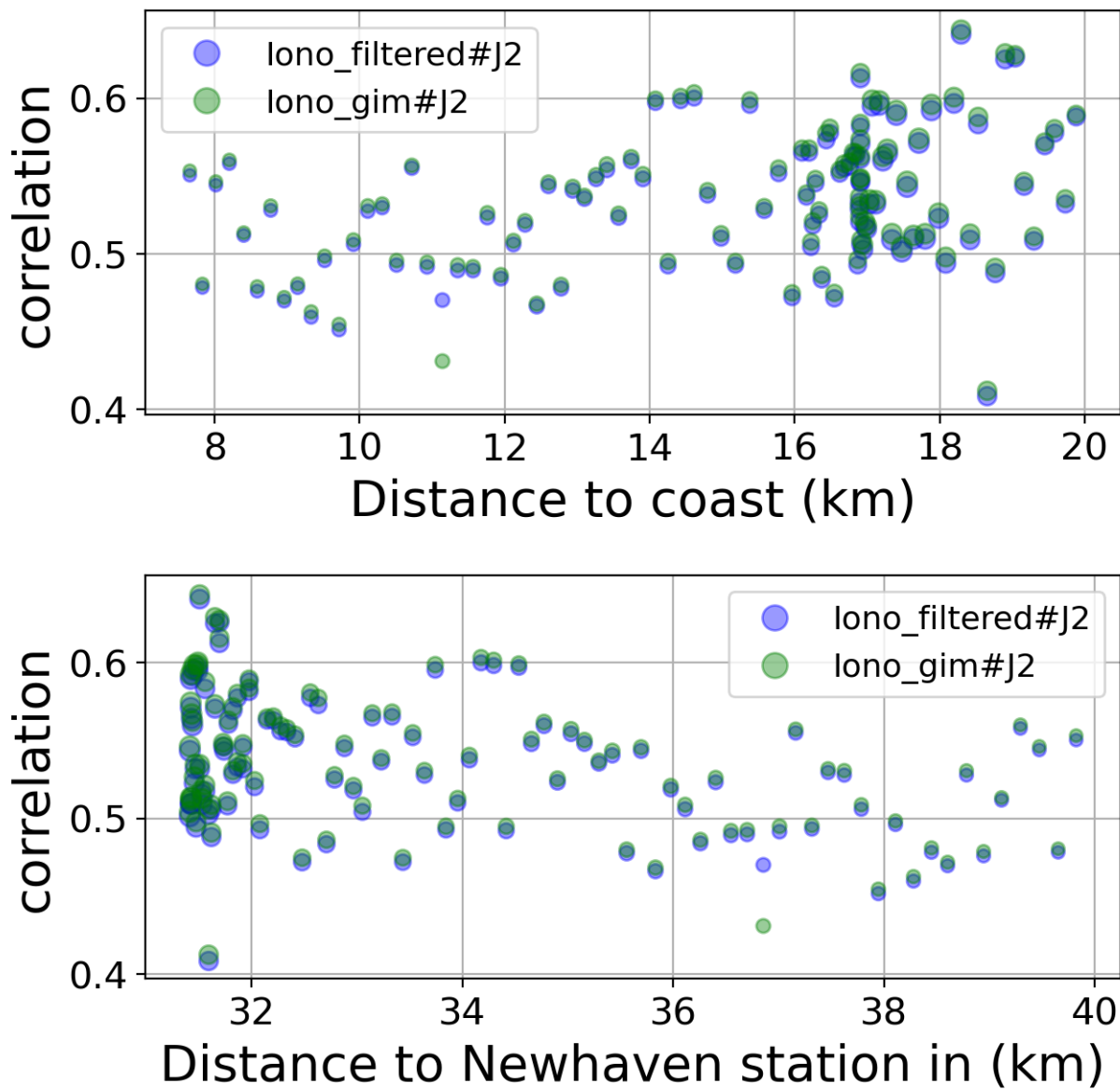


FIGURE 56 – Correlation in function of the distance to the coast/Newhaven station

6.3.8 Taylor Diagram

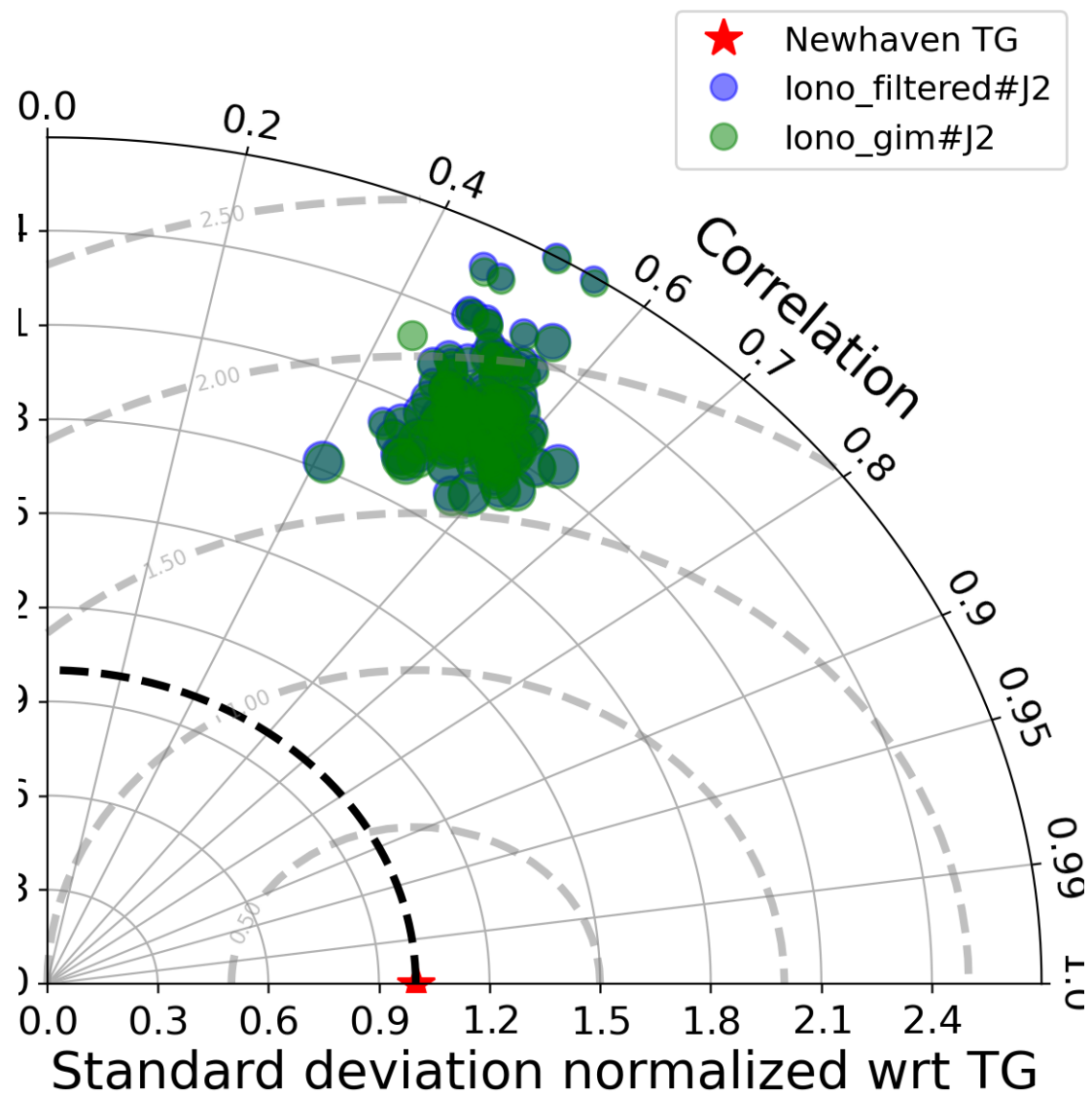


FIGURE 57 – Taylor diagram

6.3.9 Mean statistics table of products comparison with Newhaven tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	97.11	0.534	0.176	0.149
lono_gim#J2	97.102	0.536	0.175	0.148

FIGURE 58 – Mean statistics table of the common points in the altimetry products

6.3.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 111 point.

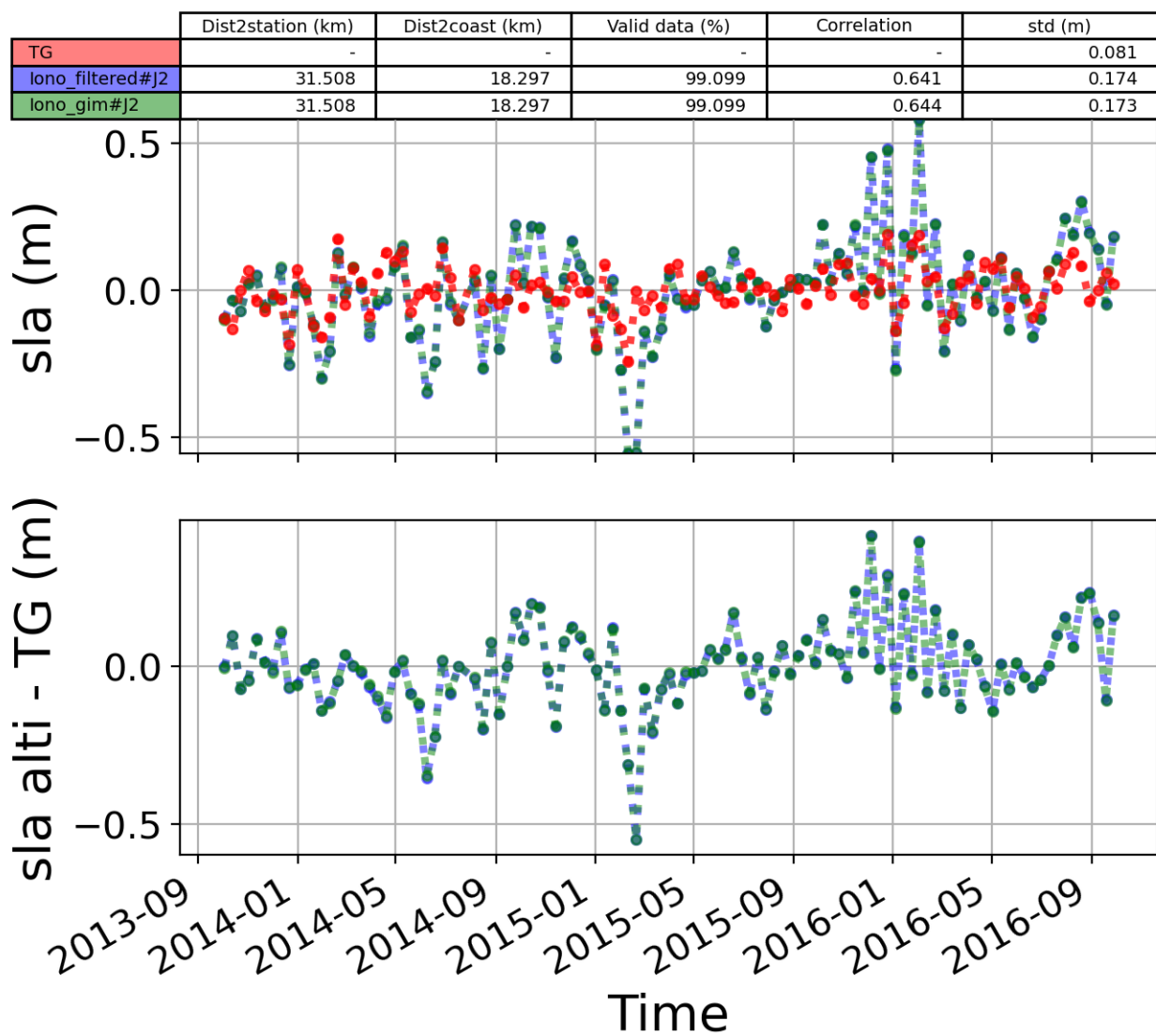


FIGURE 59 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

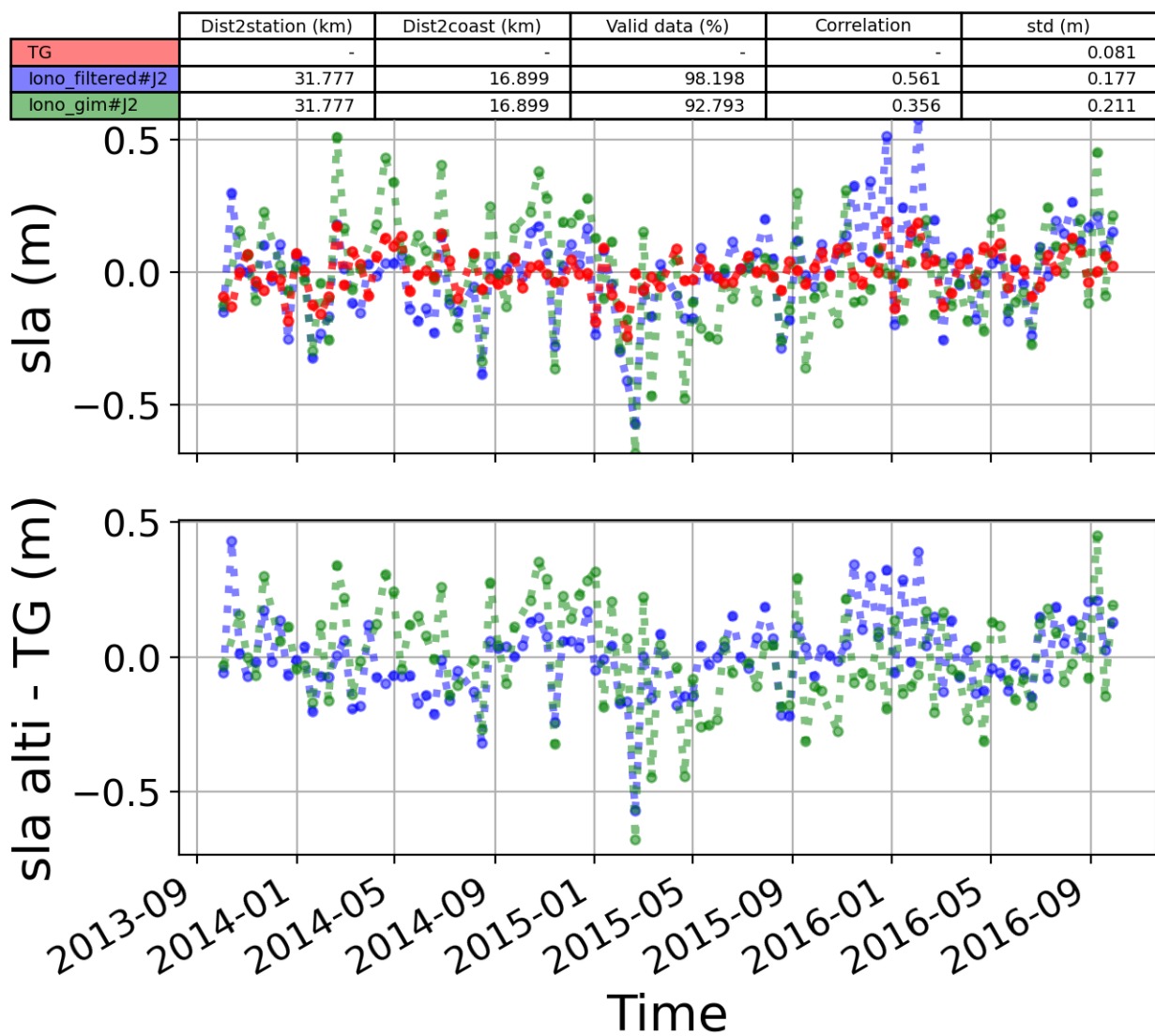


FIGURE 60 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.4 Station : CALAIS

- Nearest track to CALAIS station is the track number track44
- The area of interest is limited by :
 - A circle which it's center is the CALAIS tide gauge station location and has a Radius of 40 Km
 - Maximum distance to the coast : 14 Km
 - Latitude limits : $[50.8, 51.21]^\circ$

6.4.1 correlation visualization in maps view % CALAIS tide gauge

Correlation Altimetry data with respect to CALAIS Tide gauge data

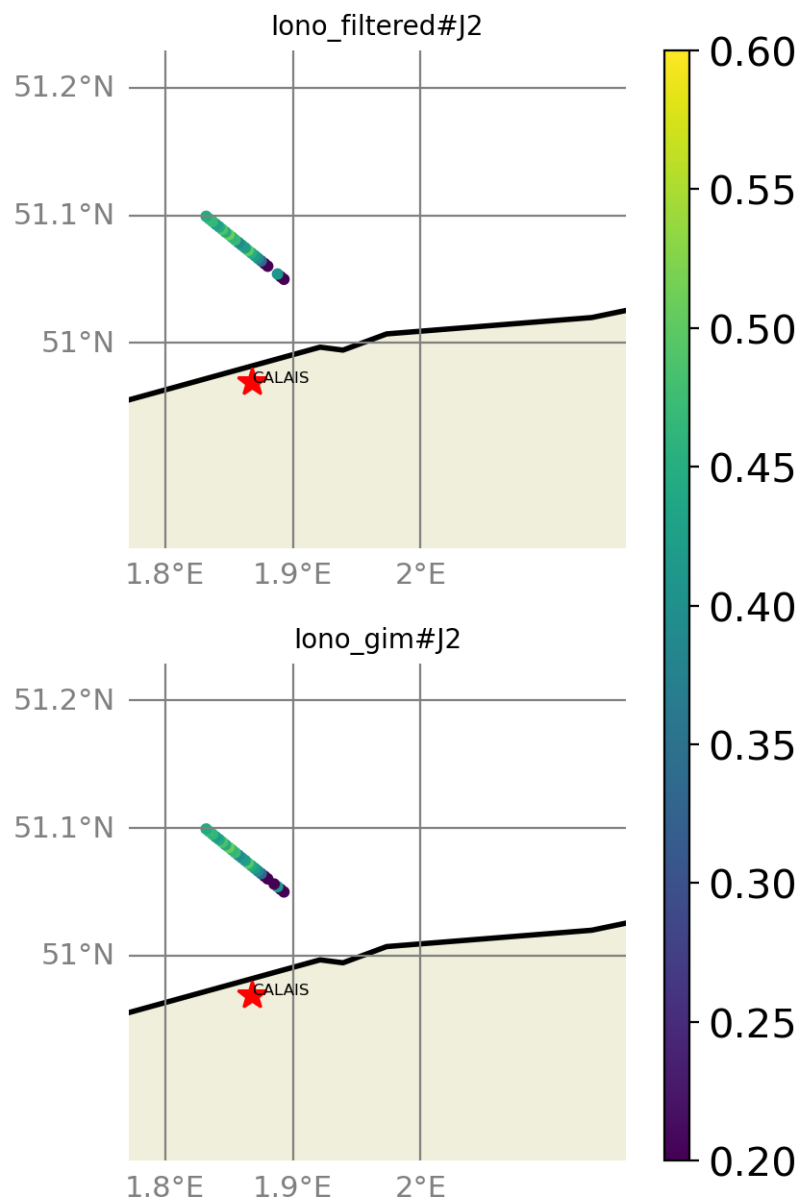


FIGURE 61 – correlation visualization in maps view % CALAIS tide gauge

6.4.2 rmsd visualization in maps view % CALAIS tide gauge

Rmsd (m) Altimetry data with respect to CALAIS Tide gauge data

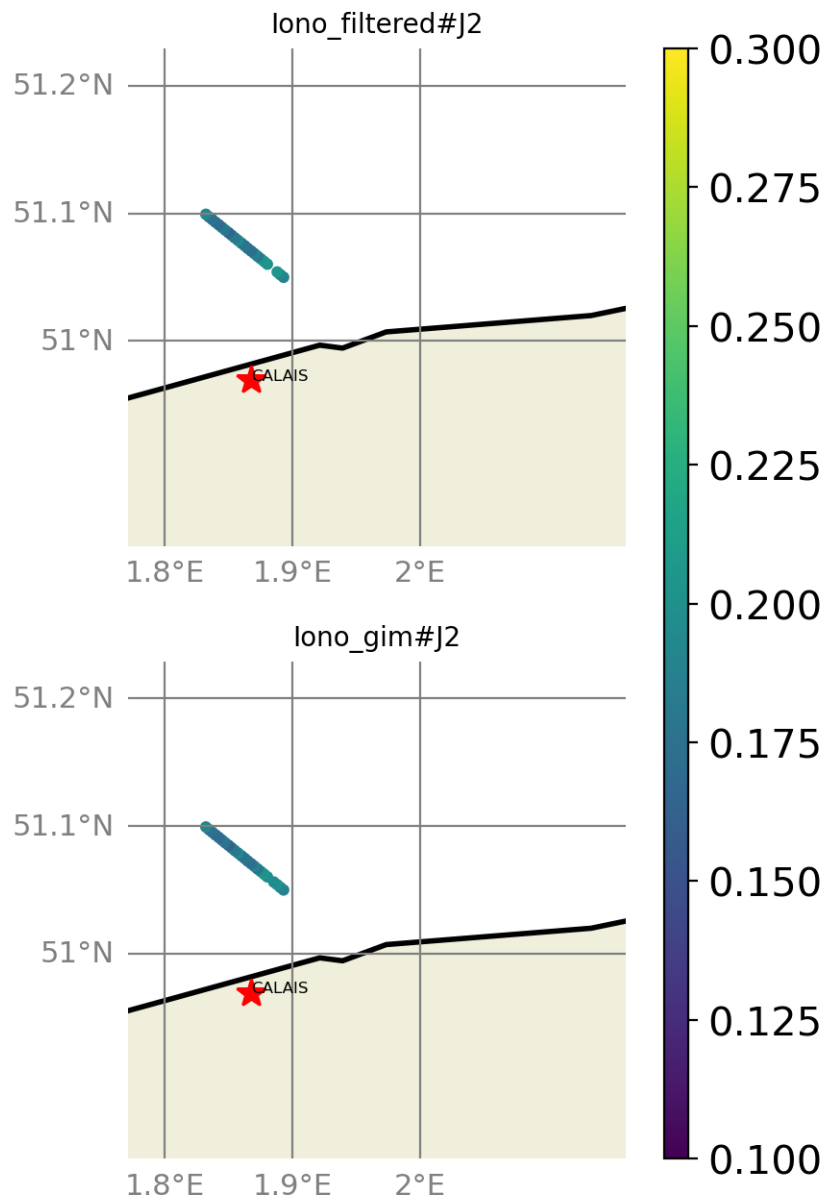


FIGURE 62 – rmsd visualization in maps view % CALAIS tide gauge

6.4.3 std visualization in maps view % CALAIS tide gauge

Std (m) Altimetry data with respect to CALAIS Tide gauge data

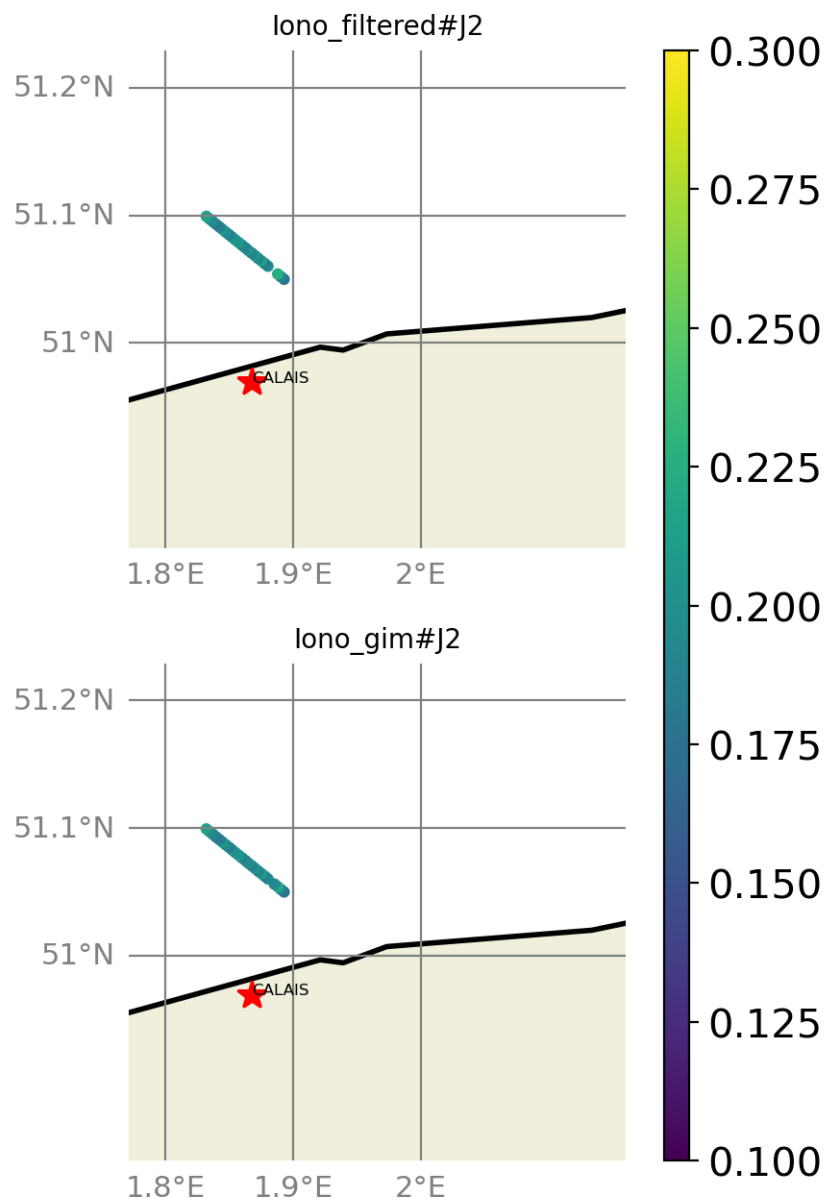


FIGURE 63 – std visualization in maps view % CALAIS tide gauge

6.4.4 valid_data_percent visualization in maps view % CALAIS tide gauge

Valid_Data_Percent (%) Altimetry data with respect to CALAIS Tide gauge data

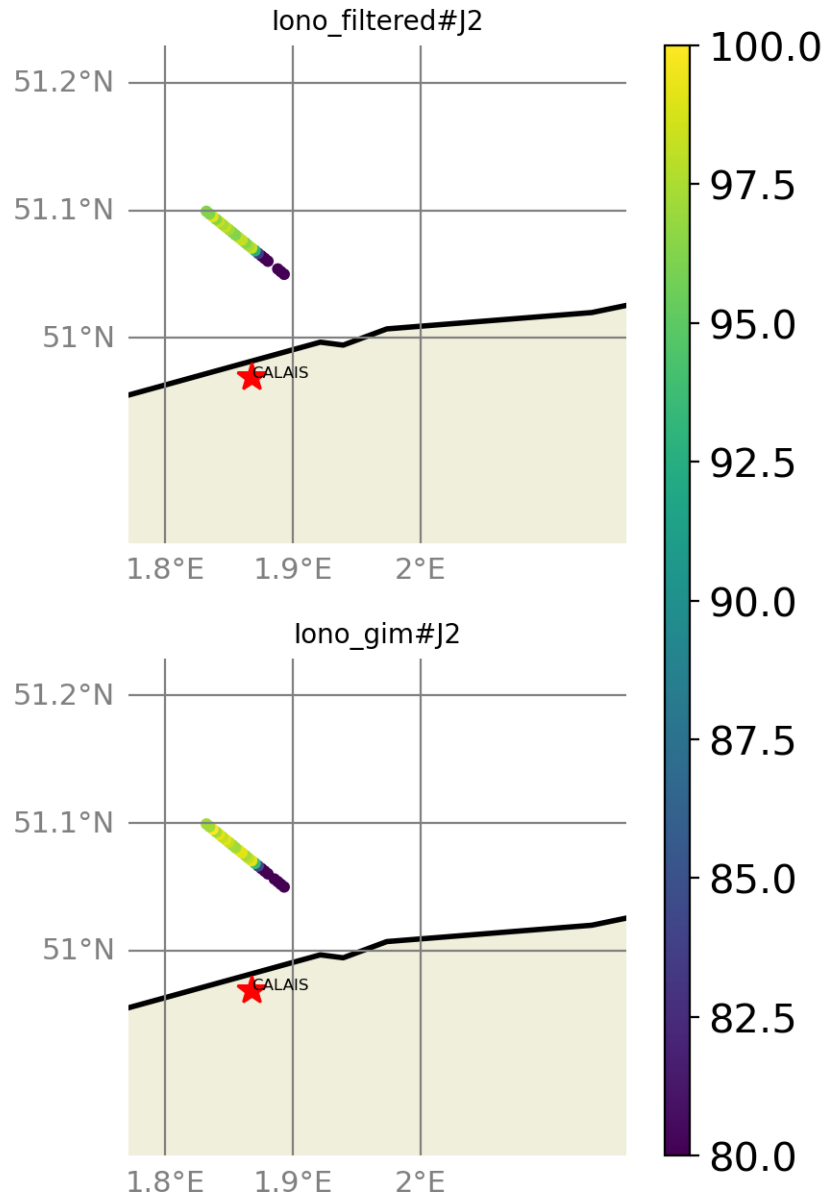


FIGURE 64 – valid_data_percent visualization in maps view % CALAIS tide gauge

6.4.5 Valid data (%) in function of distance to coast/CALAIS station

The formula to calculate the percentage of valid data in each time serie is ;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 108$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

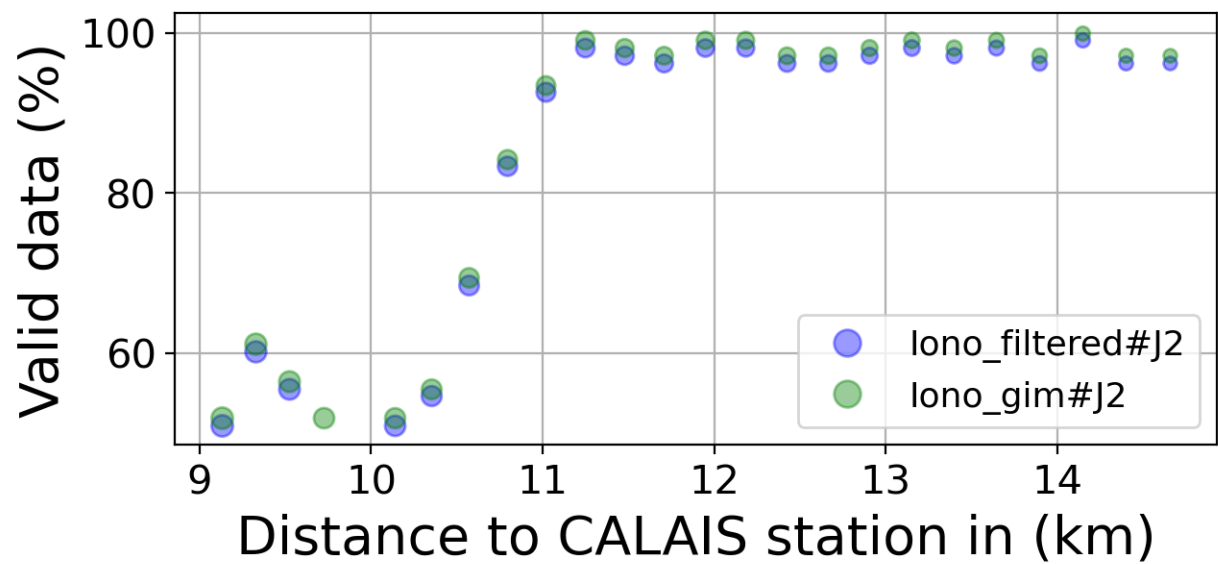
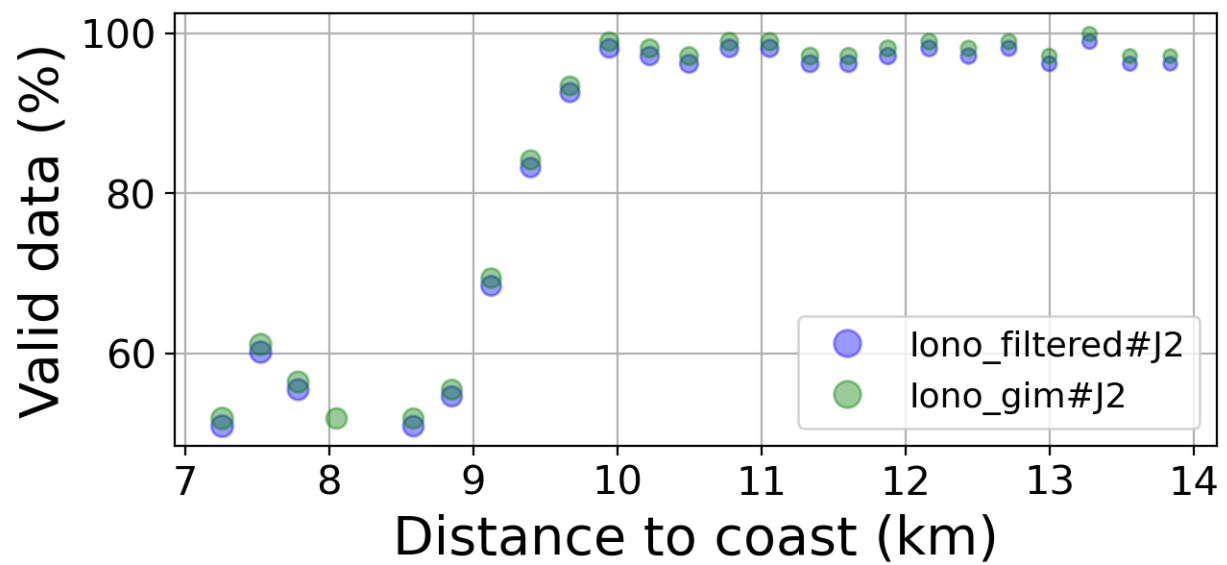


FIGURE 65 – Valid data (%) in function of distance to coast/CALAIS station

6.4.6 Std in function of distance to coast/CALAIS station

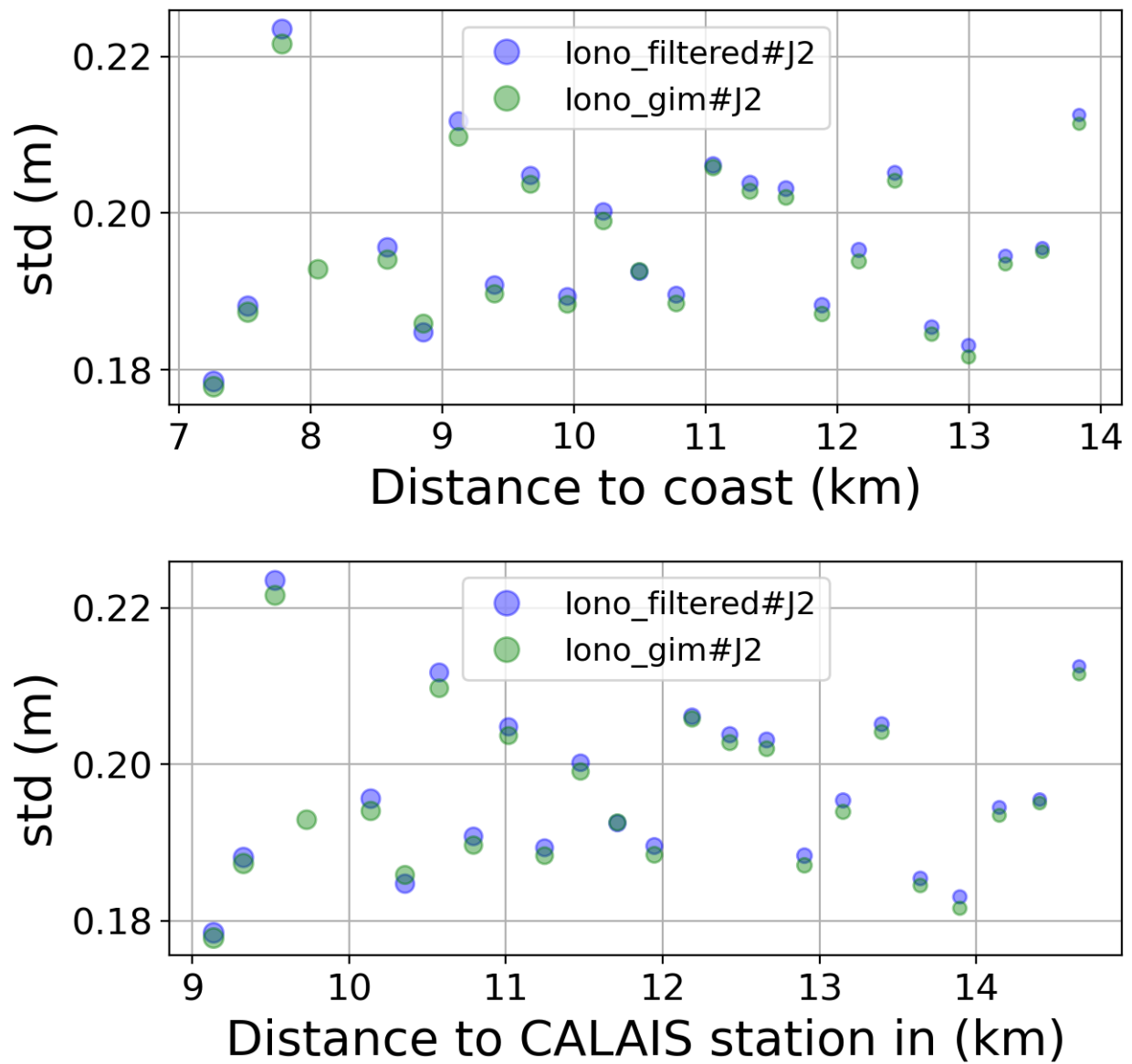


FIGURE 66 – Std in function of the distance to the coast/CALAIS station

6.4.7 Correlation in function of distance to coast/CALAIS station

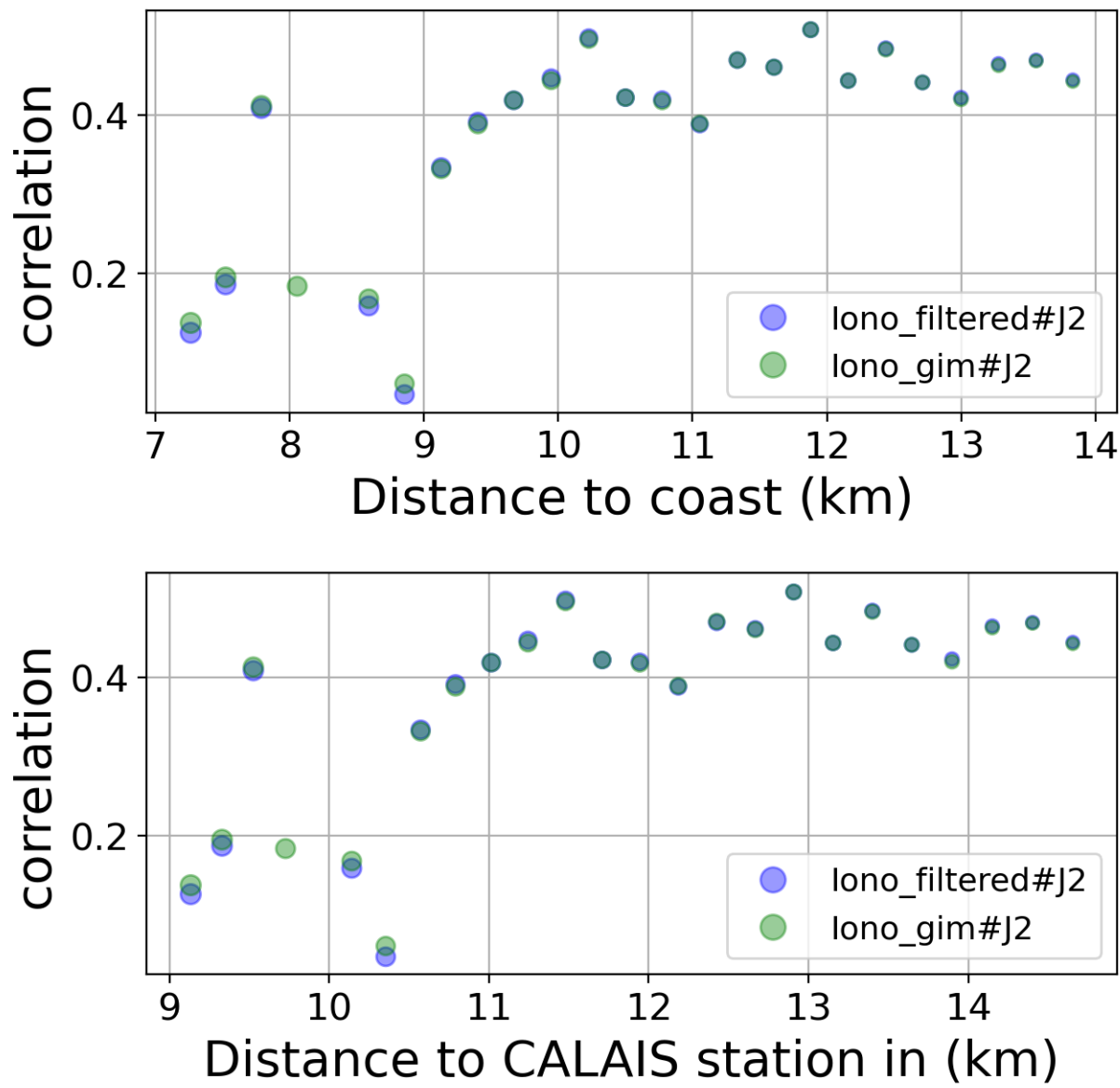


FIGURE 67 – Correlation in function of the distance to the coast/CALAIS station

6.4.8 Taylor Diagram

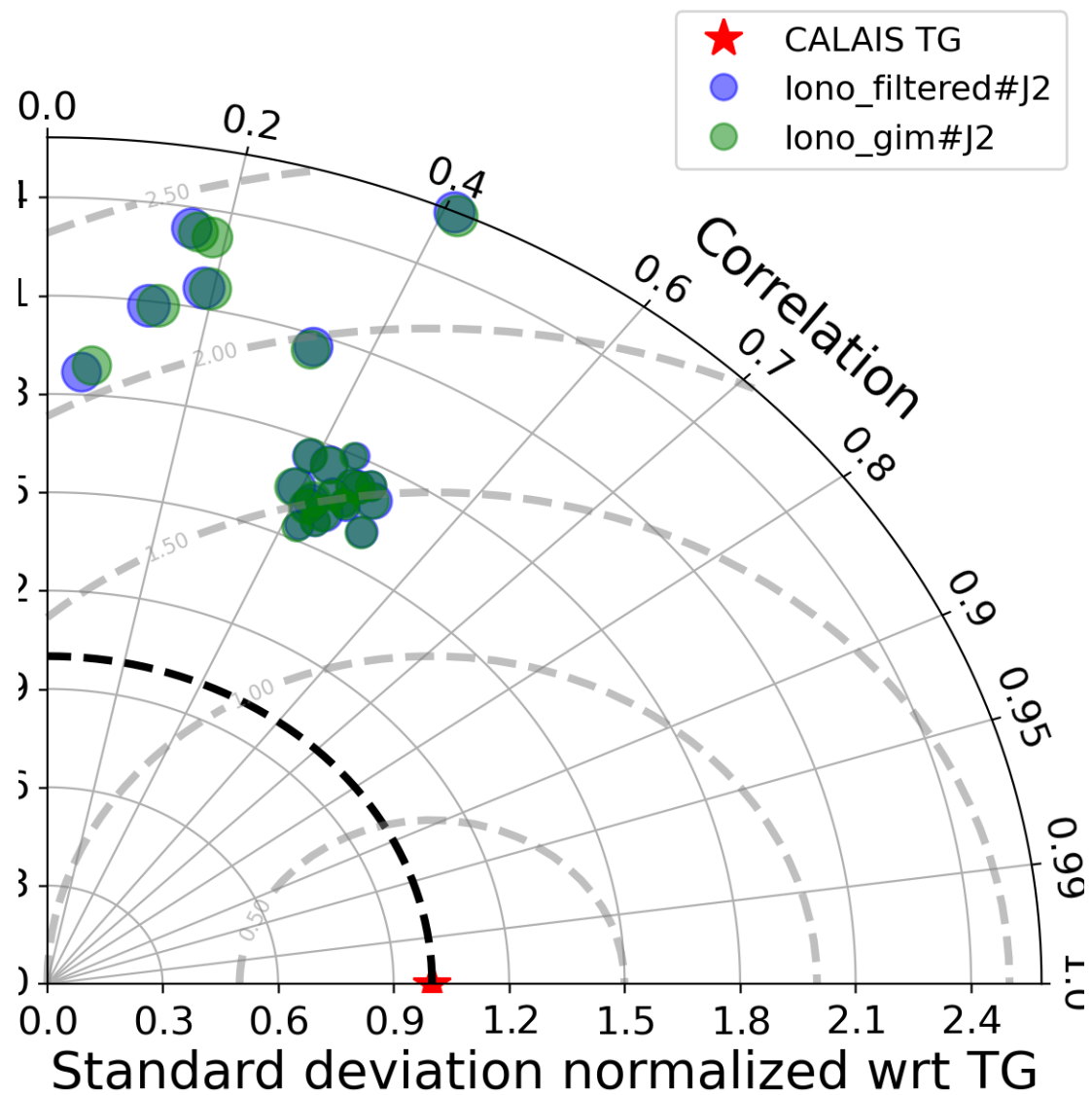


FIGURE 68 – Taylor diagram

6.4.9 Mean statistics table of products comparison with CALAIS tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	85.91	0.386	0.197	0.184
lono_gim#J2	86.836	0.387	0.196	0.183

FIGURE 69 – Mean statistics table of the common points in the altimetry products

6.4.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 108 point.

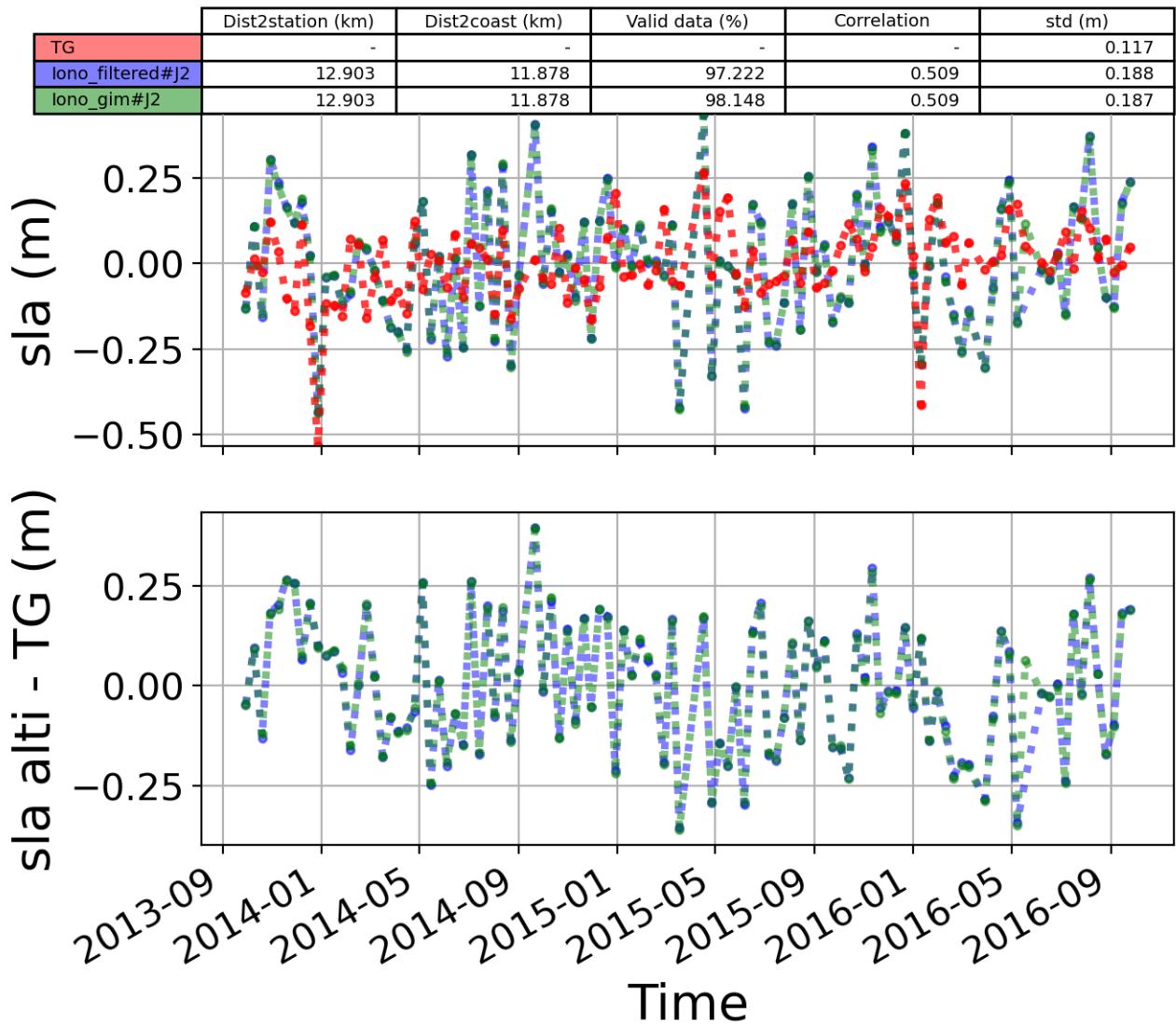


FIGURE 70 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

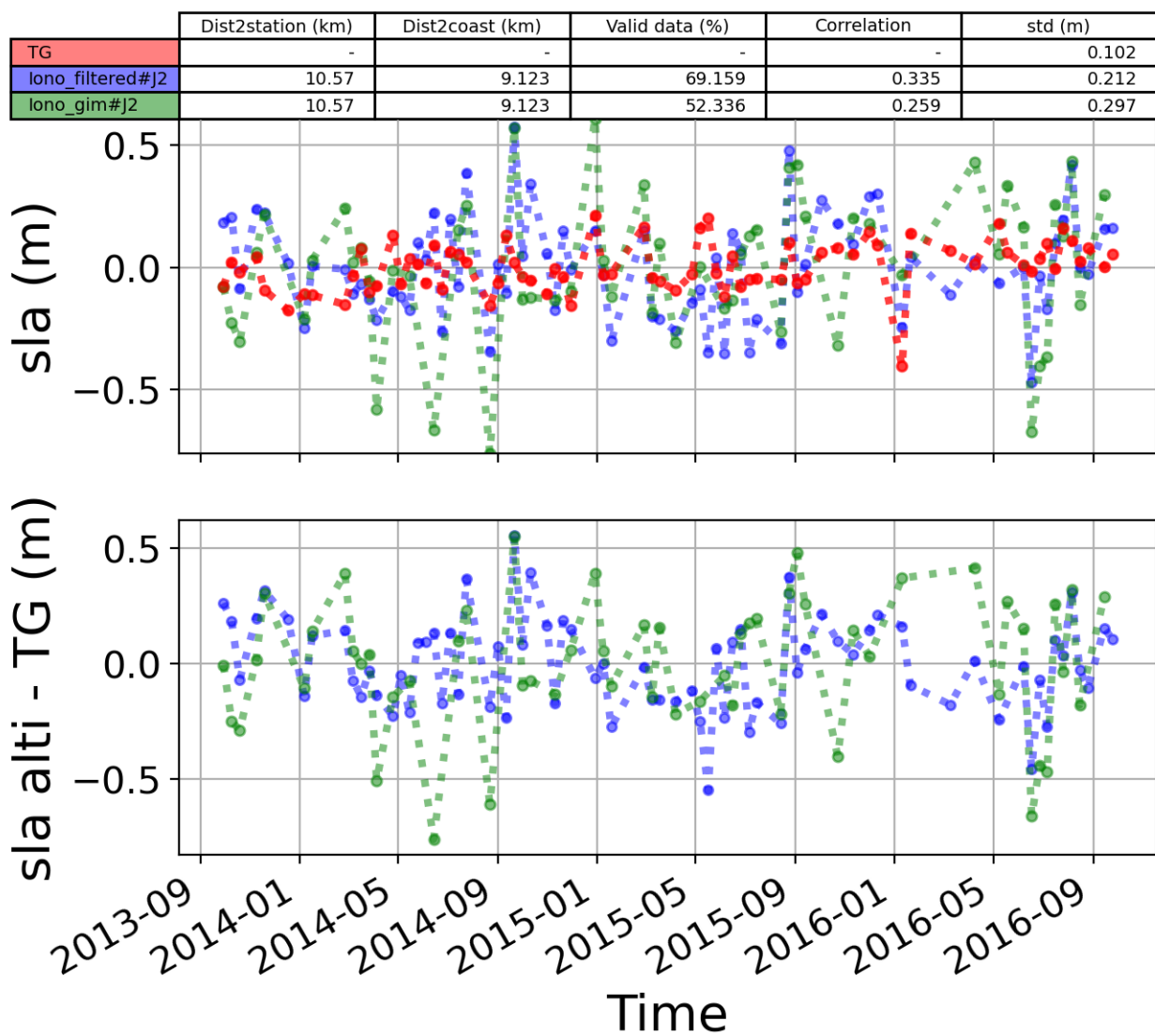


FIGURE 71 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.5 Station : Portpatrick

- Nearest track to Portpatrick station is the track number track87
- The area of interest is limited by :
 - A circle which it's center is the Portpatrick tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km

6.5.1 correlation visualization in maps view % Portpatrick tide gauge

Correlation Altimetry data with respect to Portpatrick Tide gauge data

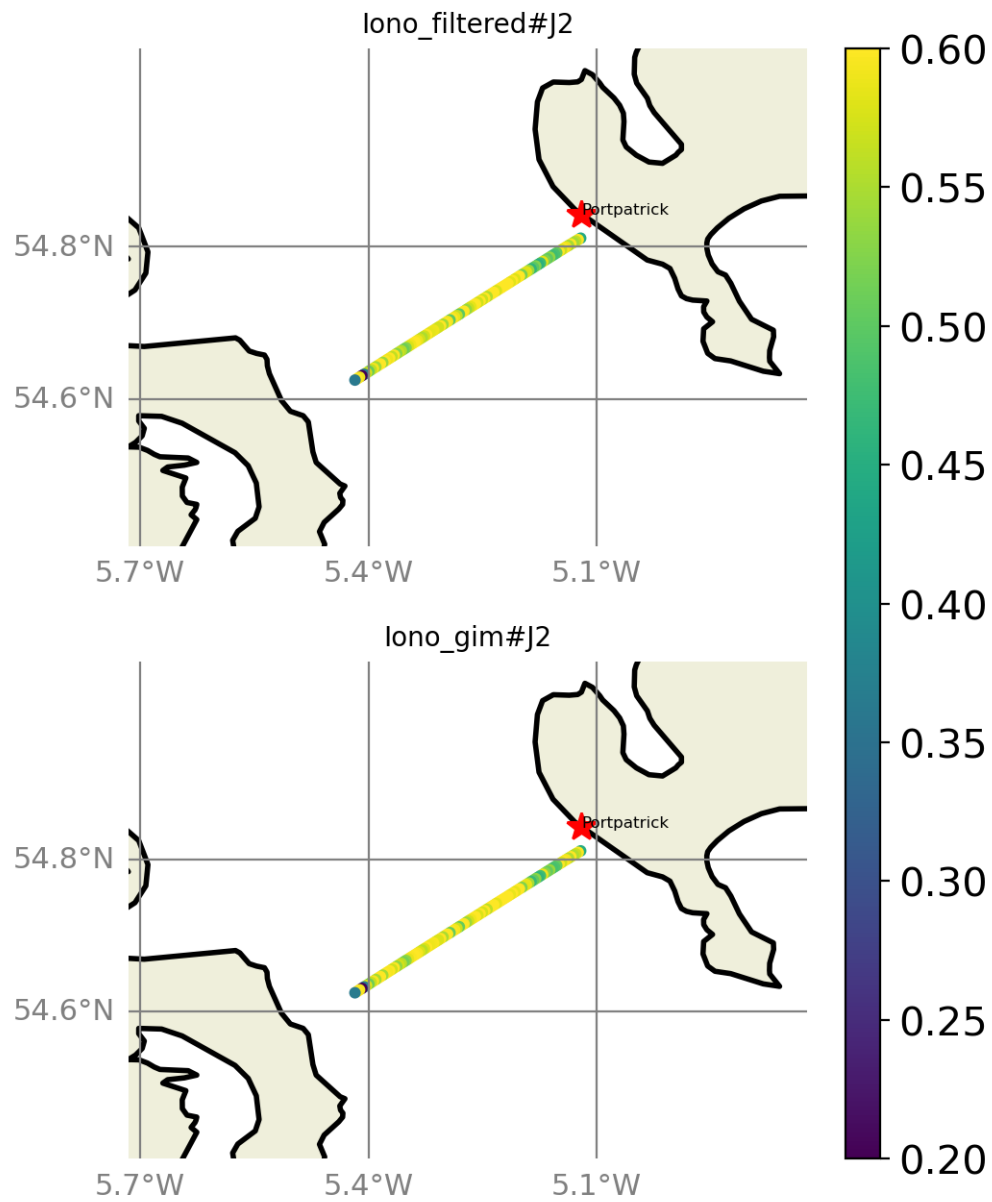


FIGURE 72 – correlation visualization in maps view % Portpatrick tide gauge

6.5.2 rmsd visualization in maps view % Portpatrick tide gauge

Rmsd (m) Altimetry data with respect to Portpatrick Tide gauge data

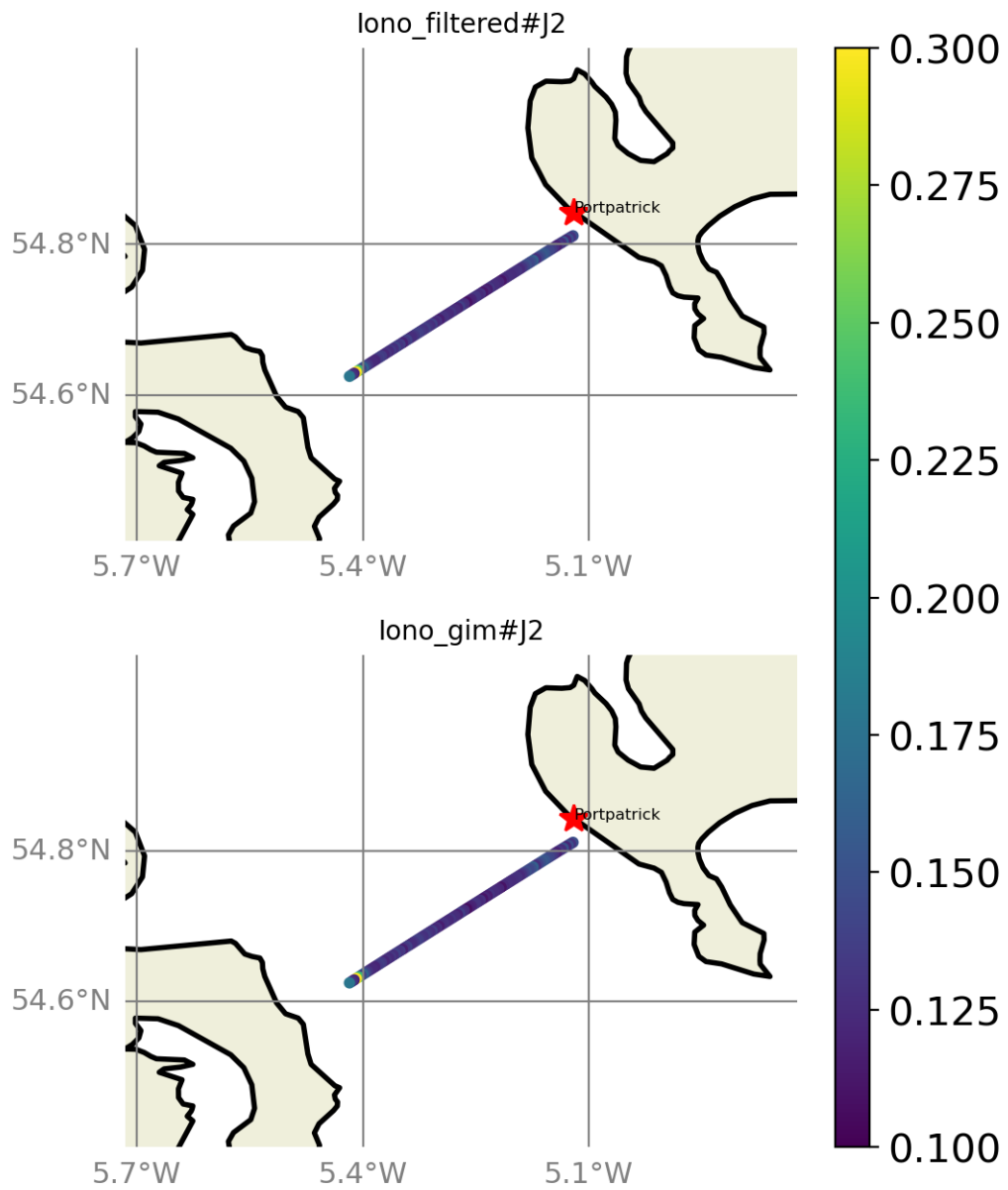


FIGURE 73 – rmsd visualization in maps view % Portpatrick tide gauge

6.5.3 std visualization in maps view % Portpatrick tide gauge

Std (m) Altimetry data with respect to Portpatrick Tide gauge data

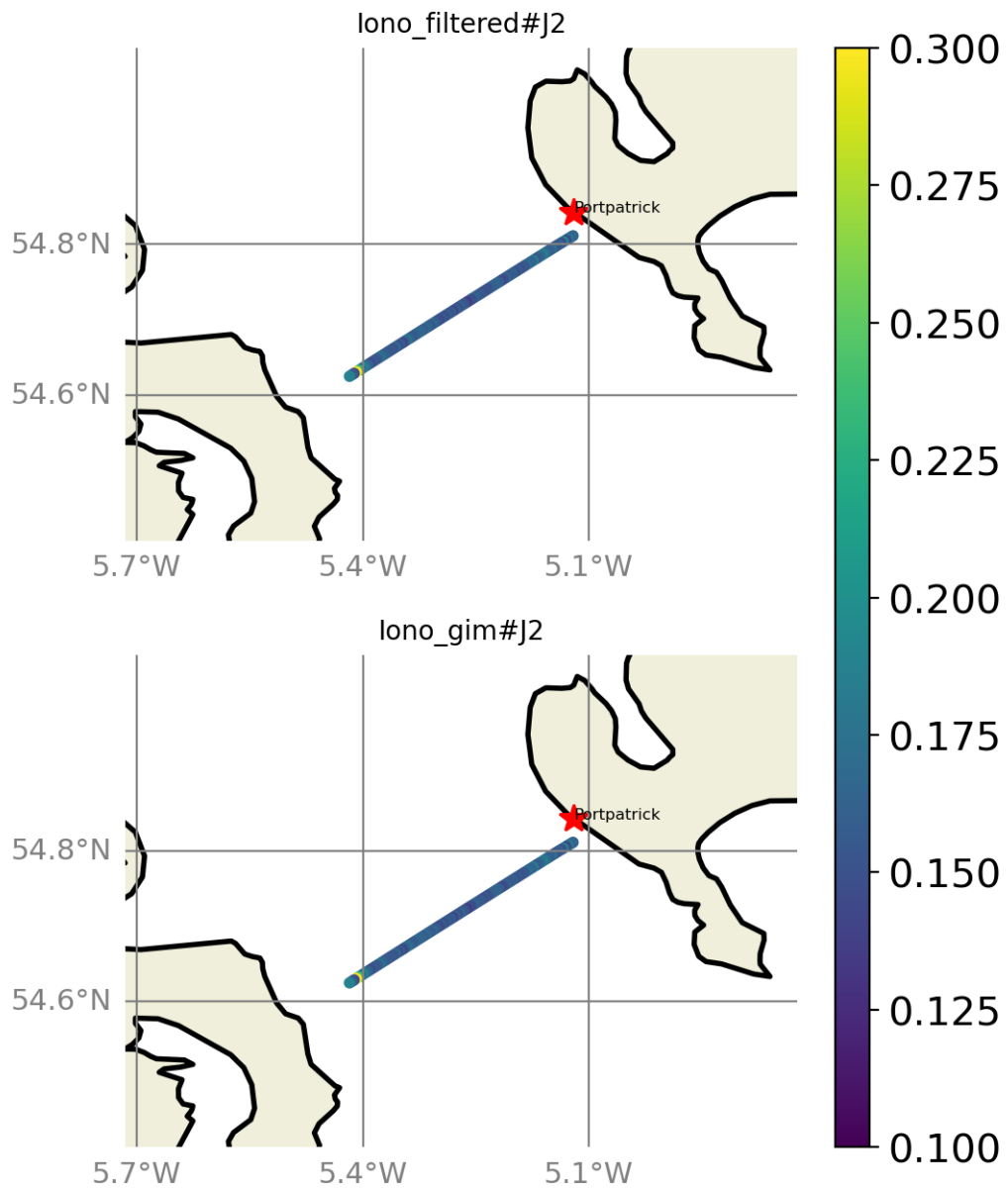


FIGURE 74 – std visualization in maps view % Portpatrick tide gauge

6.5.4 valid_data_percent visualization in maps view % Portpatrick tide gauge

Valid_Data_Percent (%) Altimetry data with respect to Portpatrick Tide gauge data

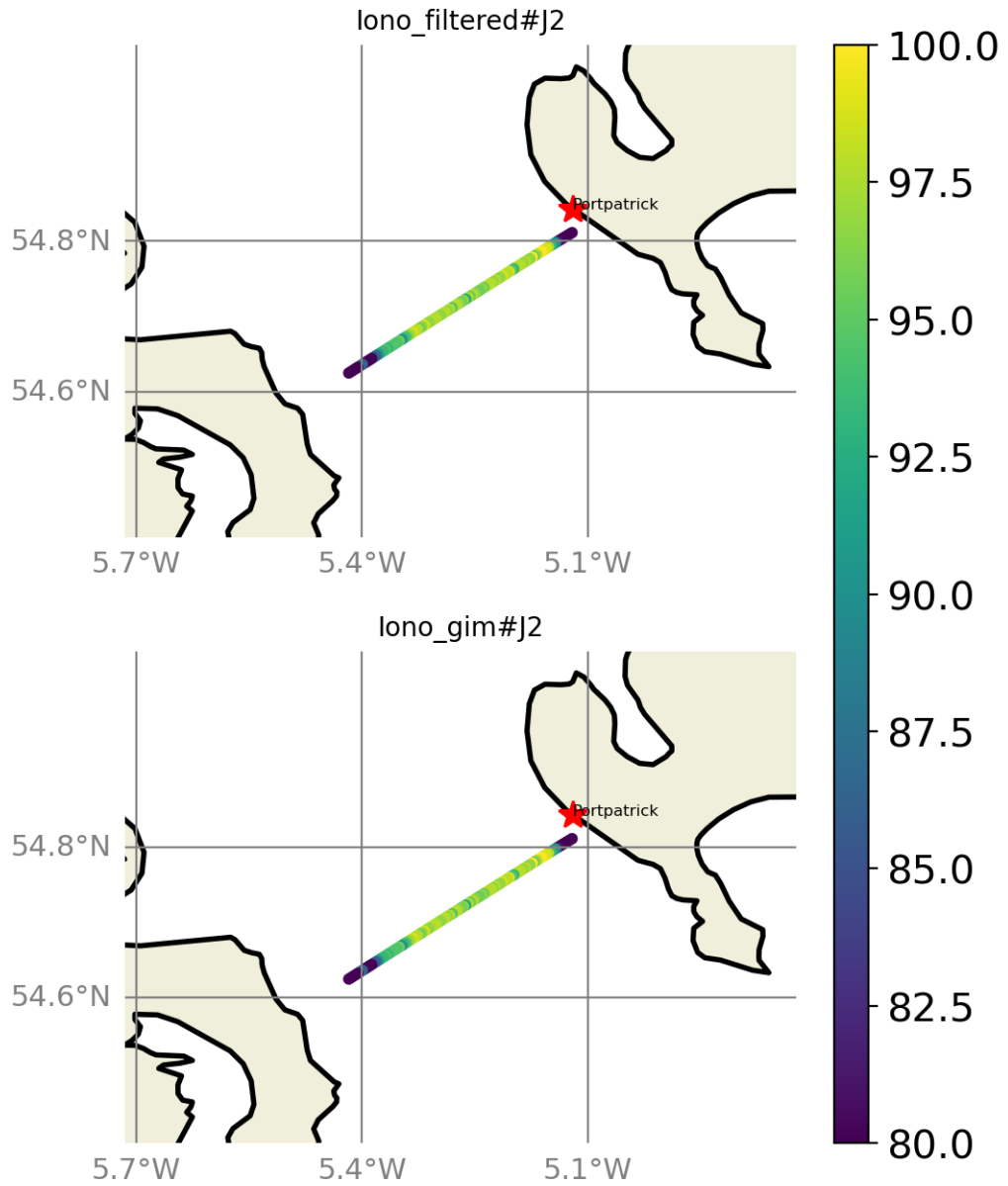


FIGURE 75 – valid_data_percent visualization in maps view % Portpatrick tide gauge

6.5.5 Valid data (%) in function of distance to coast/Portpatrick station

The formula to calculate the percentage of valid data in each time serie is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 91$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

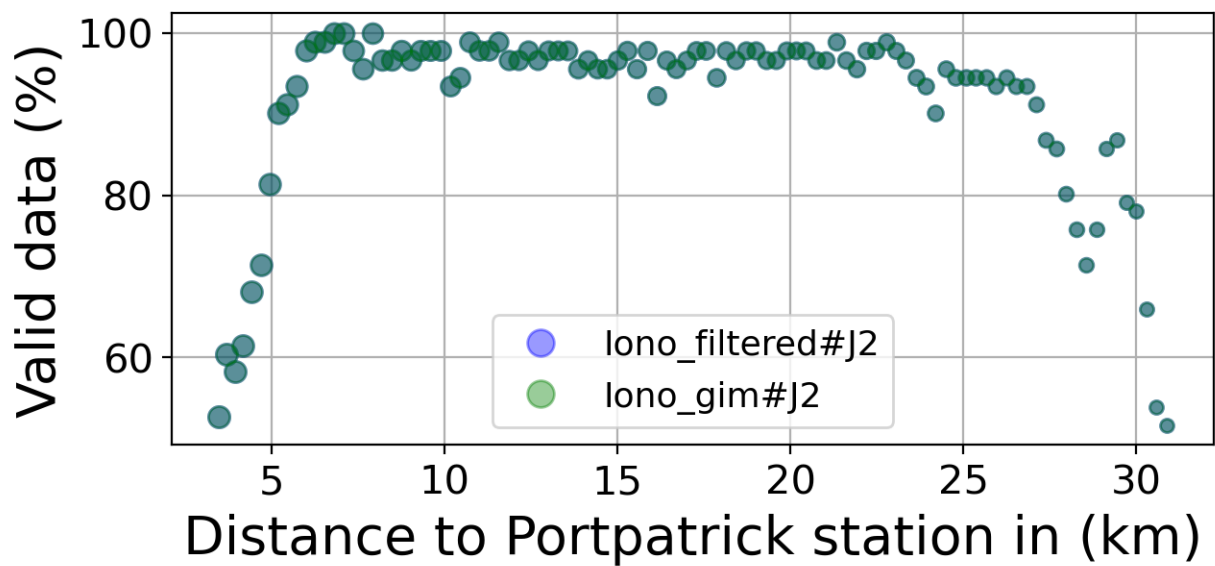
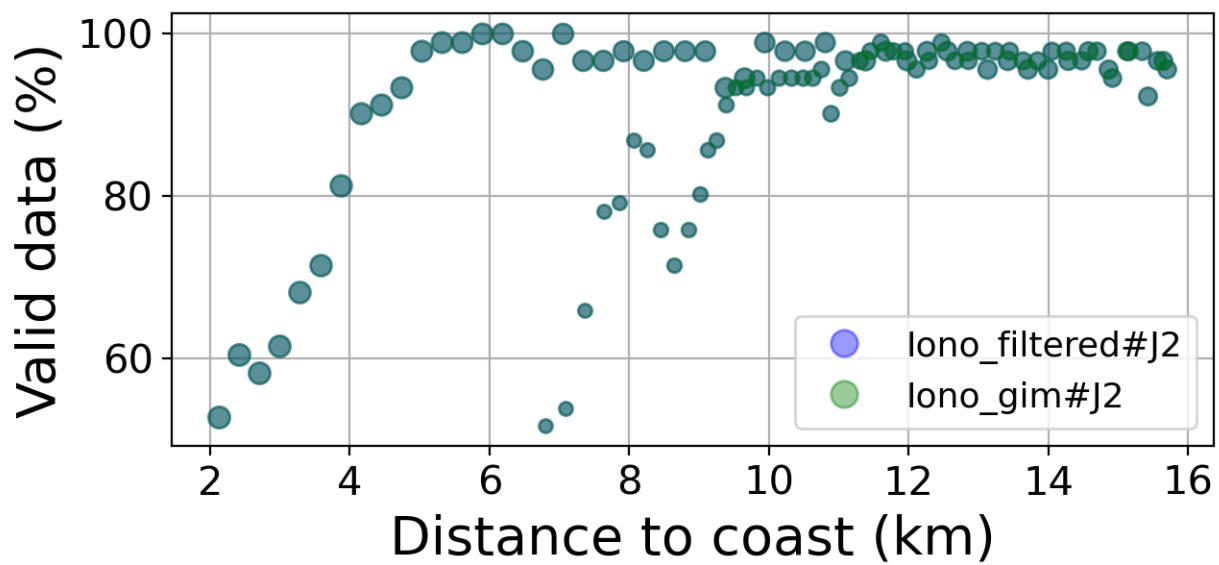


FIGURE 76 – Valid data (%) in function of distance to coast/Portpatrick station

6.5.6 Std in function of distance to coast/Portpatrick station

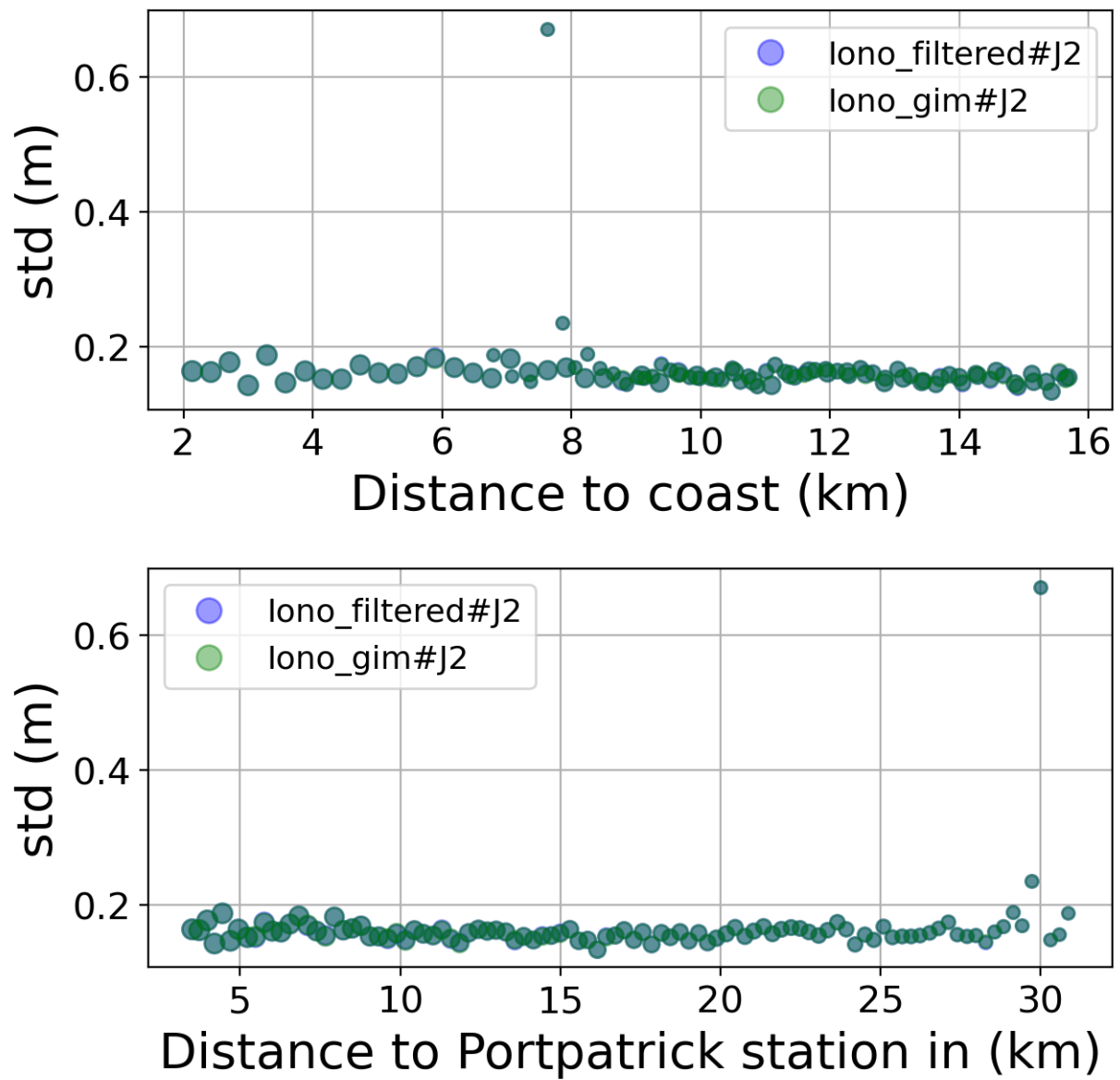


FIGURE 77 – Std in function of the distance to the coast/Portpatrick station

6.5.7 Correlation in function of distance to coast/Portpatrick station

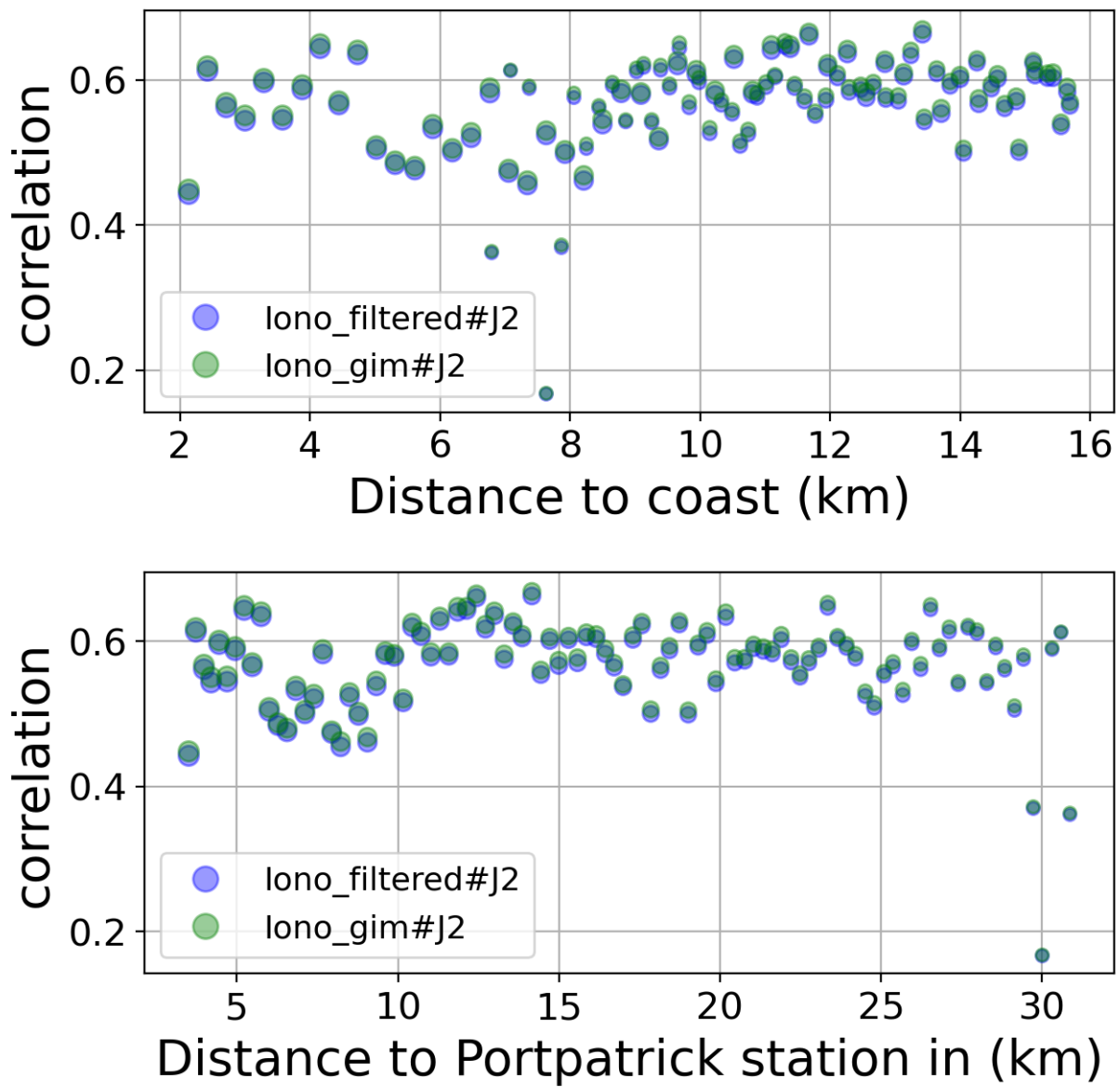


FIGURE 78 – Correlation in function of the distance to the coast/Portpatrick station

6.5.8 Taylor Diagram

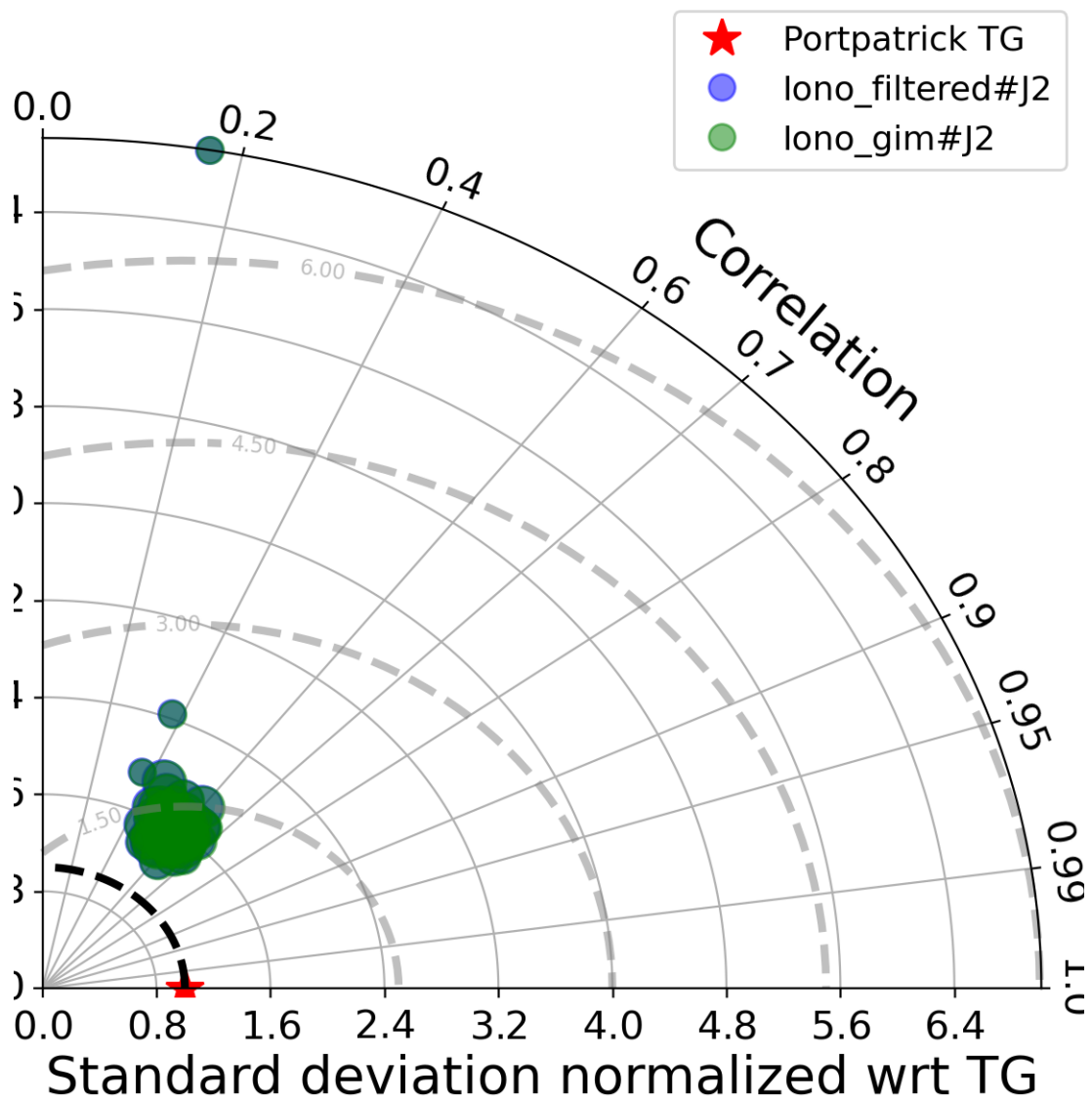


FIGURE 79 – Taylor diagram

6.5.9 Mean statistics table of products comparison with Portpatrick tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	91.321	0.565	0.166	0.138
lono_gim#J2	91.321	0.571	0.166	0.137

FIGURE 80 – Mean statistics table of the common points in the altimetry products

6.5.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 91 point.

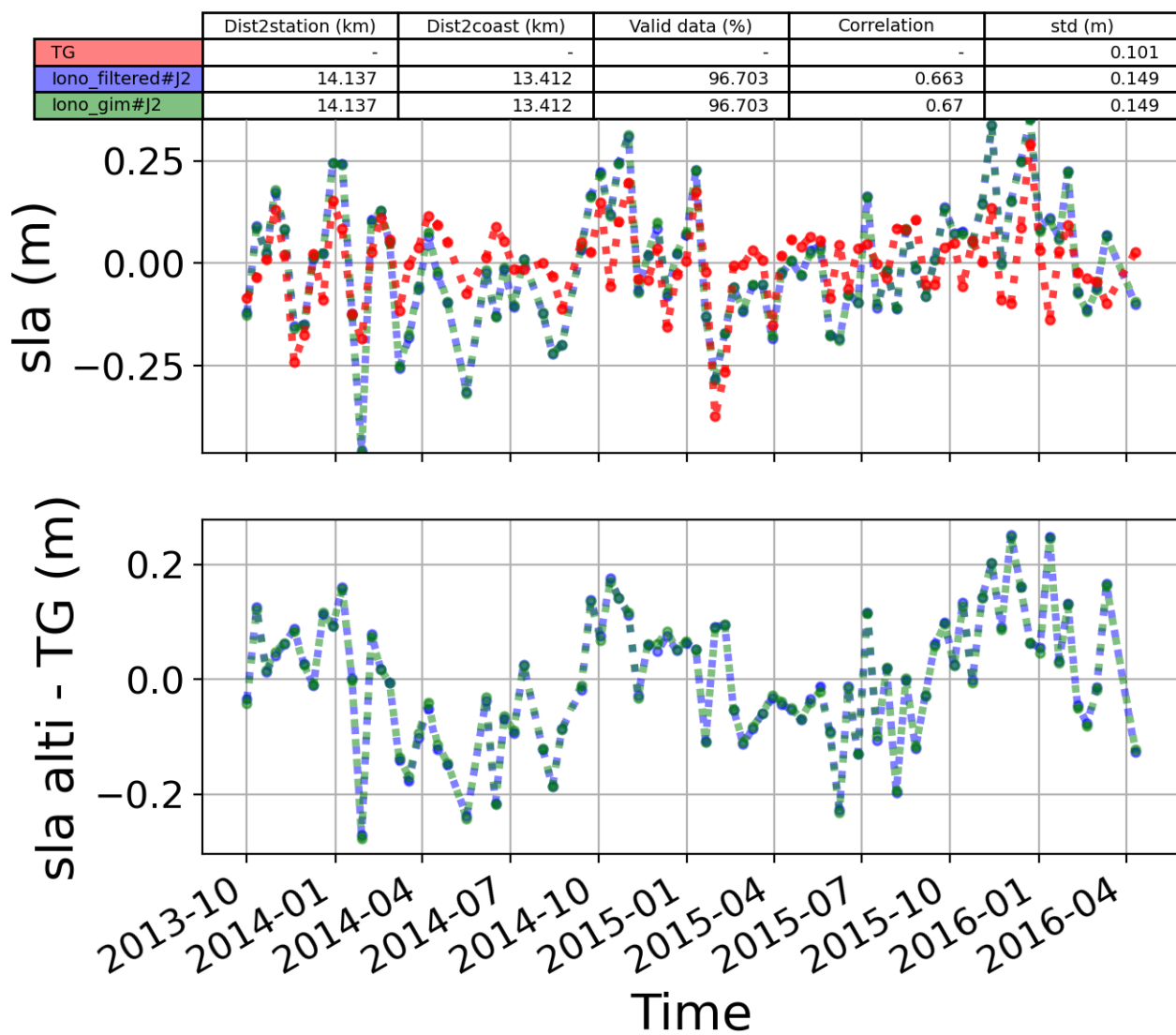


FIGURE 81 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

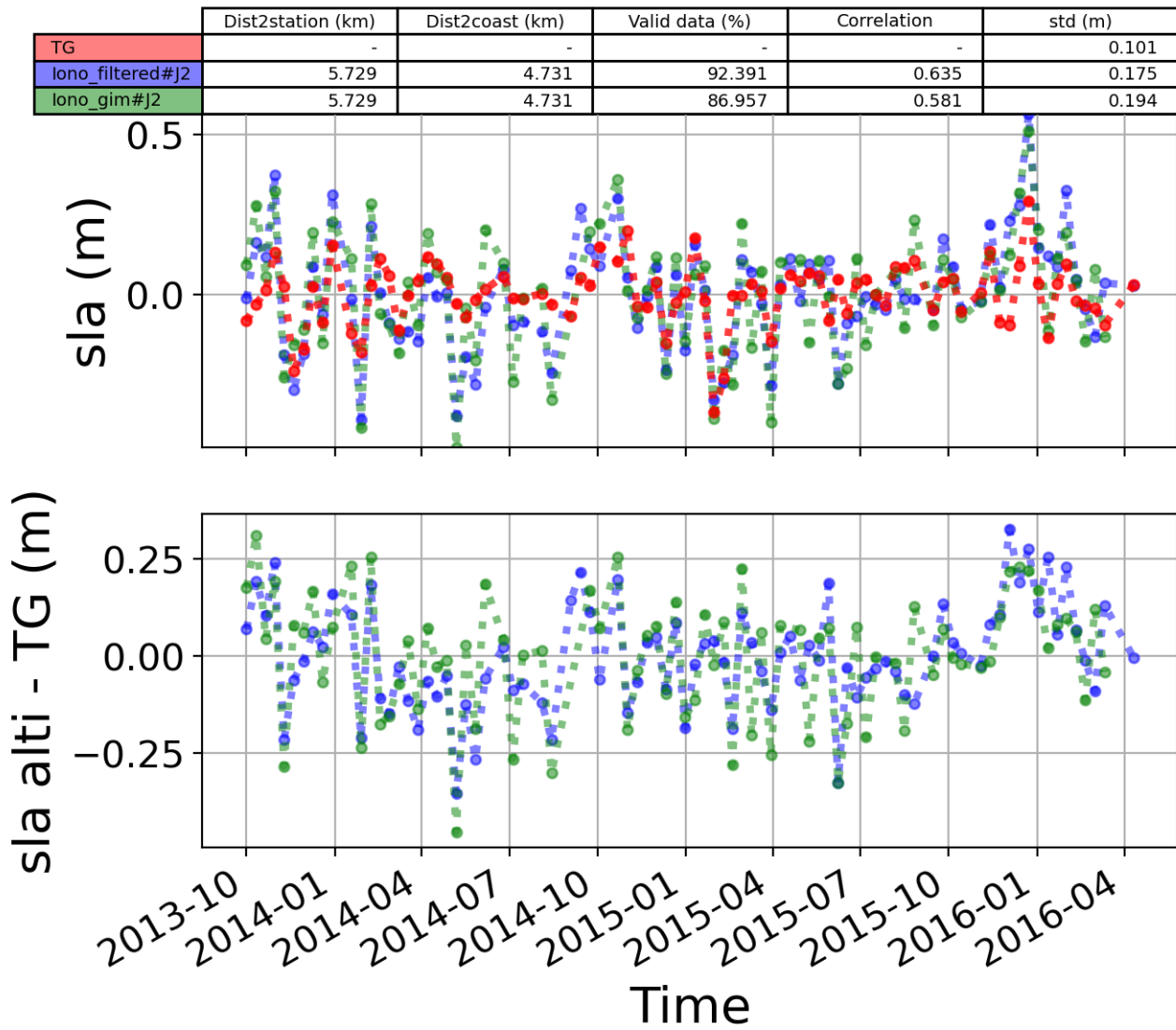


FIGURE 82 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.6 Station : Newlyn

- Nearest track to Newlyn station is the track number track70
- The area of interest is limited by :
 - A circle which it's center is the Newlyn tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km
 - Latitude limits : [49.8, 50.06] °

6.6.1 correlation visualization in maps view % Newlyn tide gauge

Correlation Altimetry data with respect to Newlyn Tide gauge data

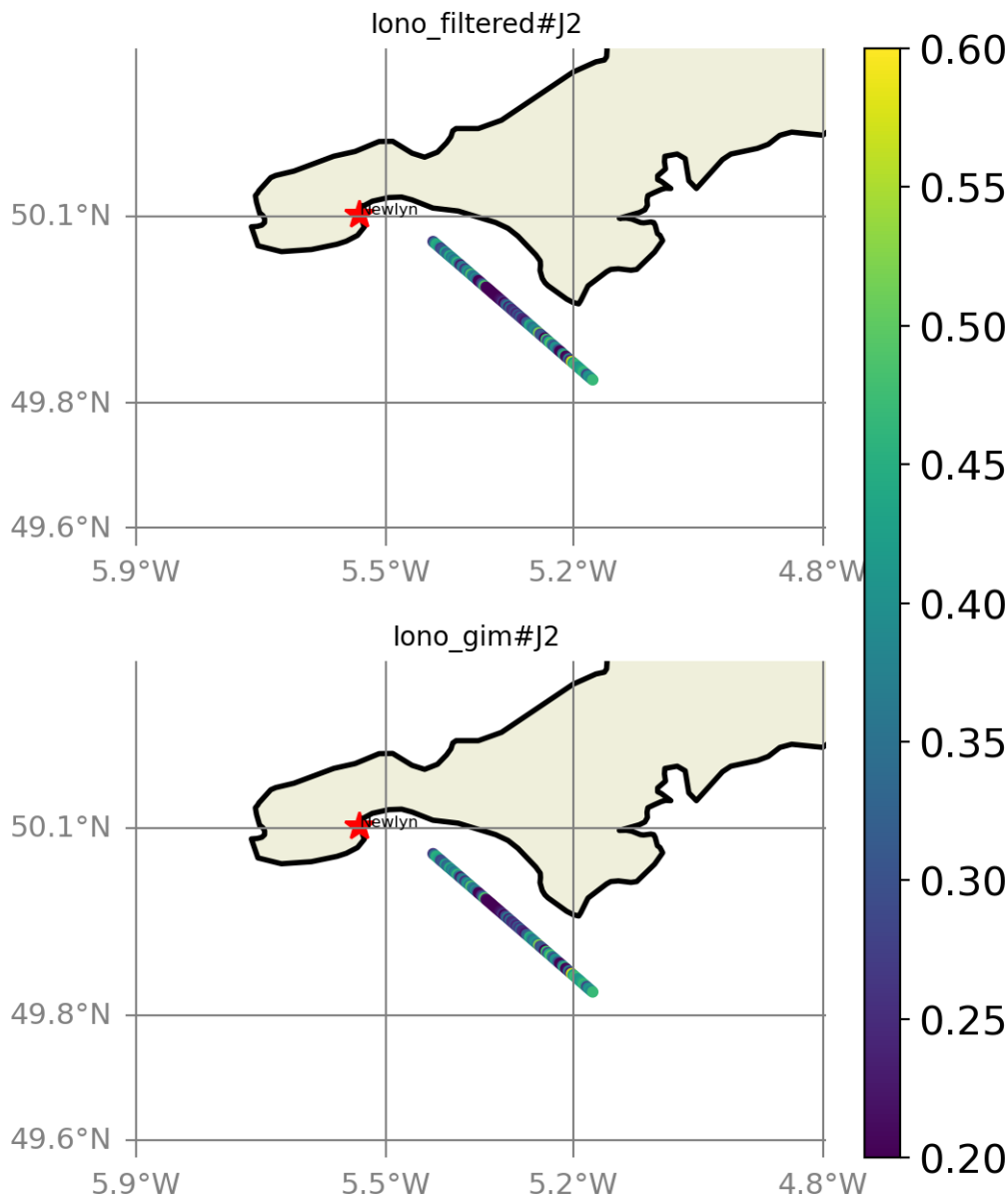


FIGURE 83 – correlation visualization in maps view % Newlyn tide gauge

6.6.2 rmsd visualization in maps view % Newlyn tide gauge

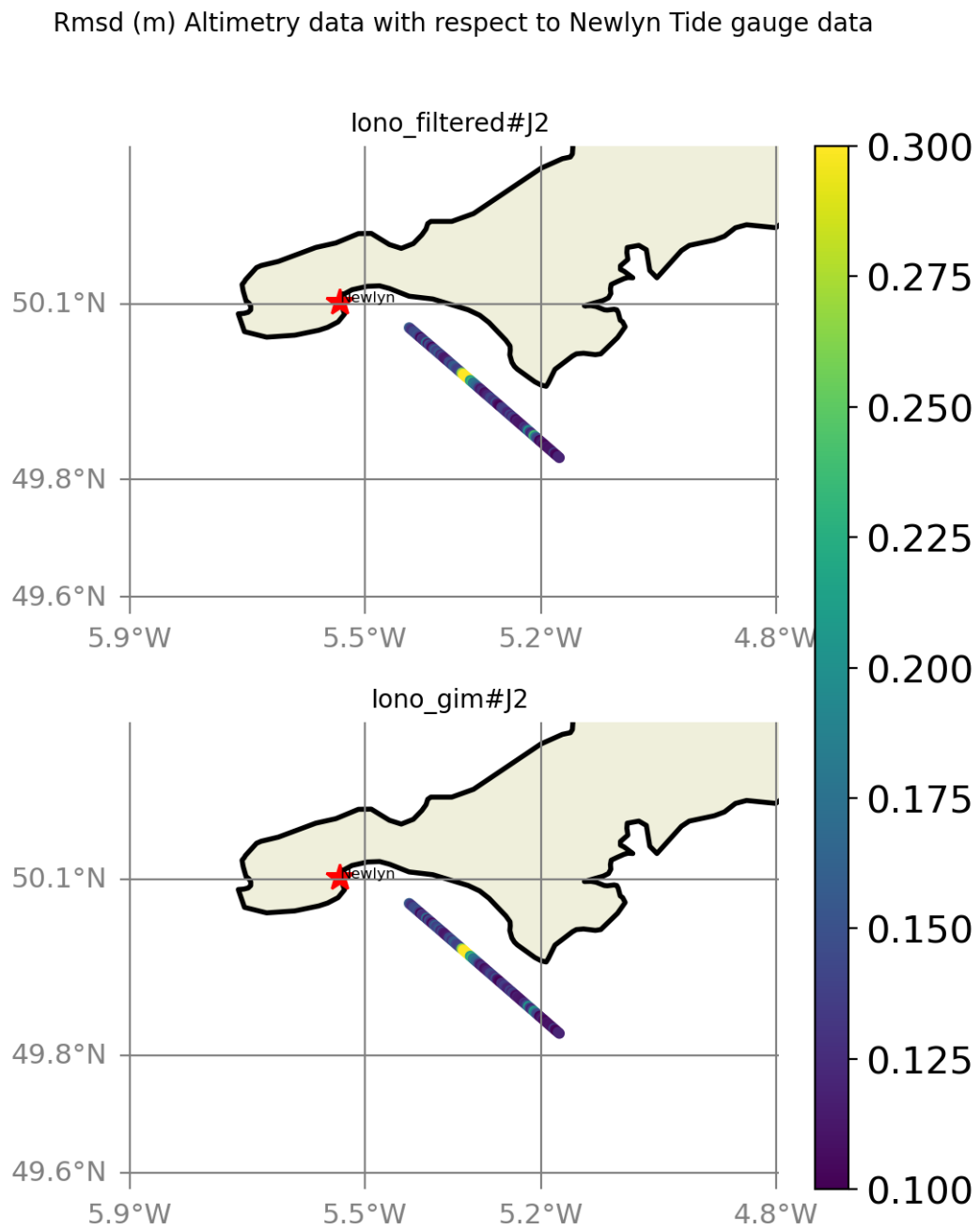


FIGURE 84 – rmsd visualization in maps view % Newlyn tide gauge

6.6.3 std visualization in maps view % Newlyn tide gauge

Std (m) Altimetry data with respect to Newlyn Tide gauge data

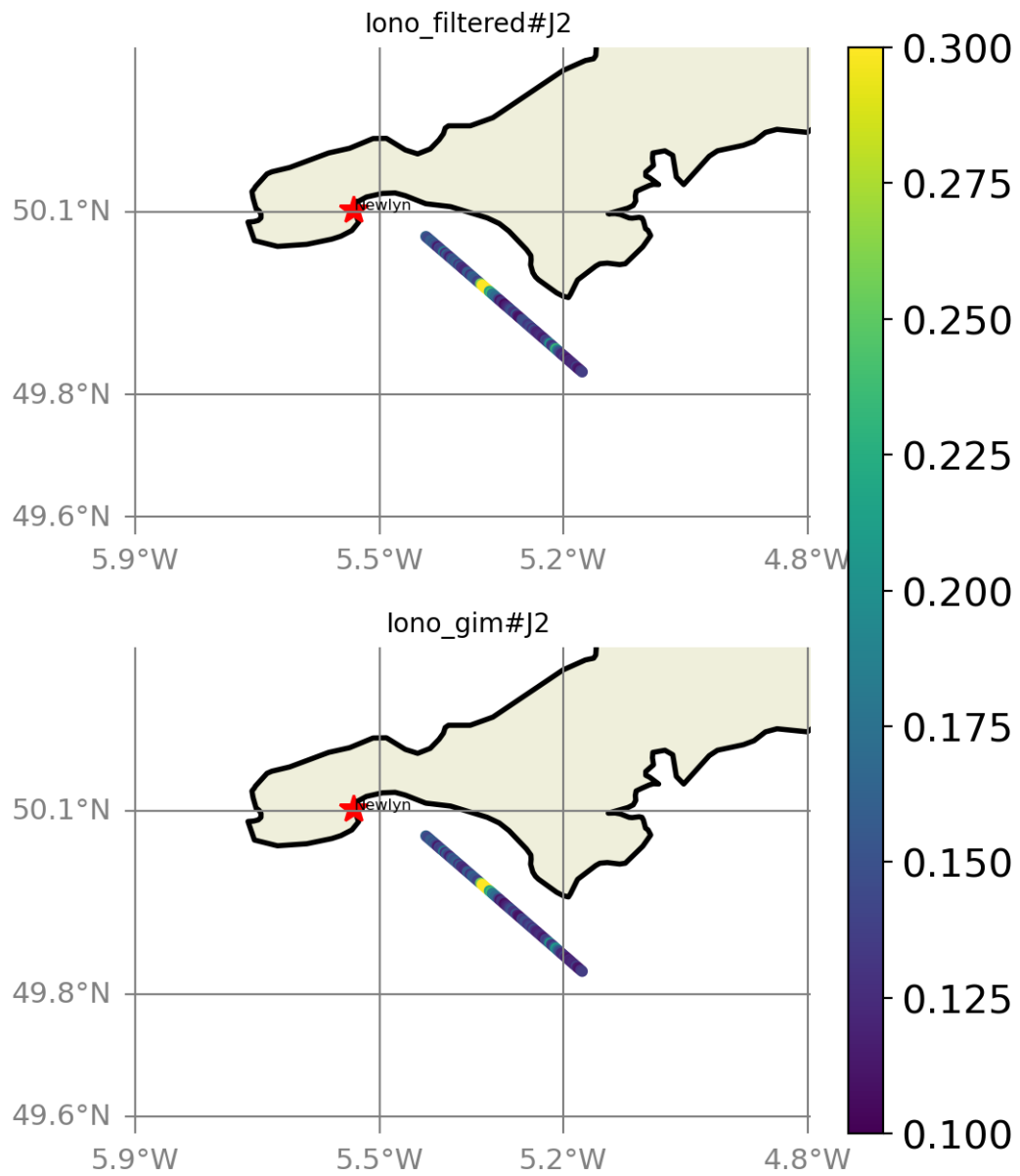


FIGURE 85 – std visualization in maps view % Newlyn tide gauge

6.6.4 valid_data_percent visualization in maps view % Newlyn tide gauge

Valid_Data_Percent (%) Altimetry data with respect to Newlyn Tide gauge data

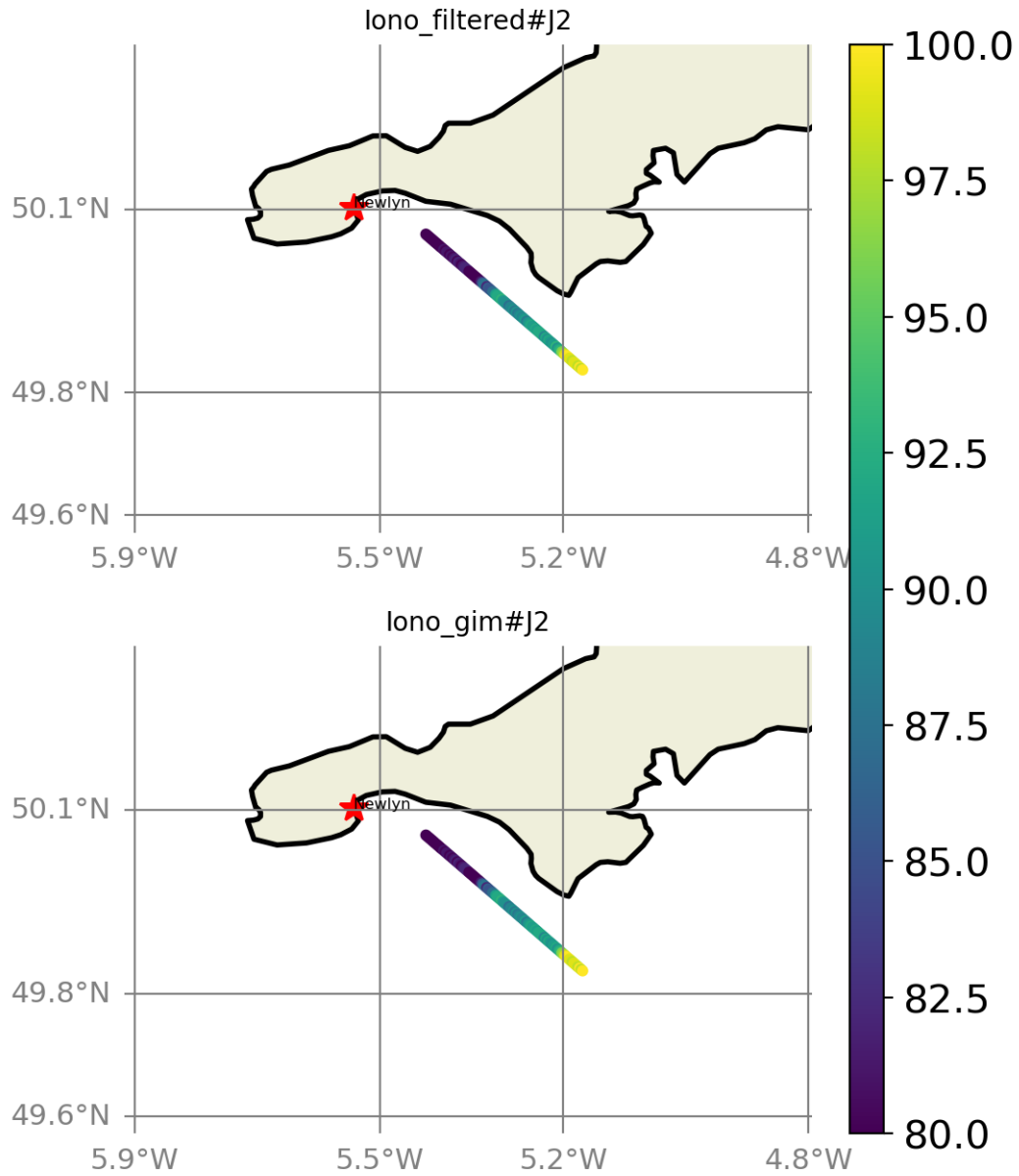


FIGURE 86 – valid_data_percent visualization in maps view % Newlyn tide gauge

6.6.5 Valid data (%) in function of distance to coast/Newlyn station

The formula to calculate the percentage of valid data in each time serie is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 101$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

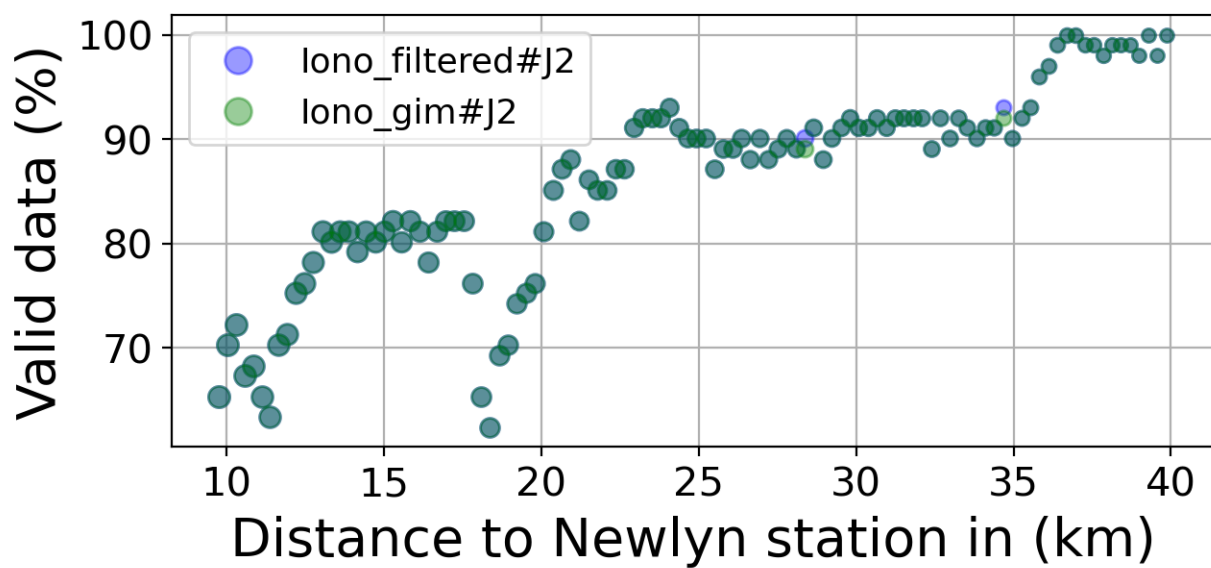
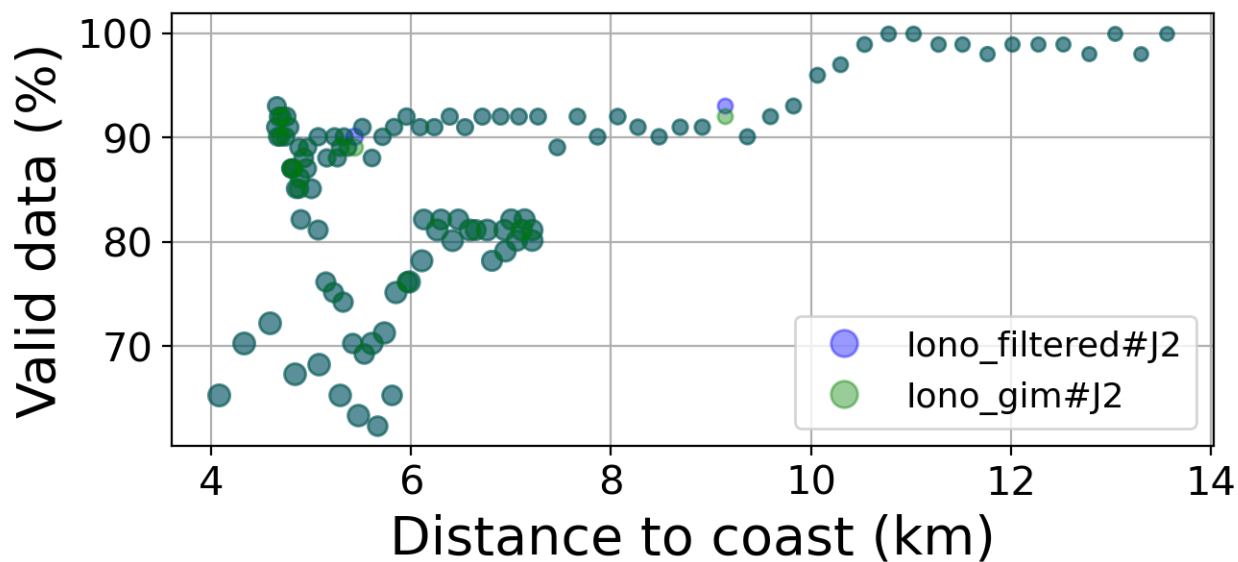


FIGURE 87 – Valid data (%) in function of distance to coast/Newlyn station

6.6.6 Std in function of distance to coast/Newlyn station

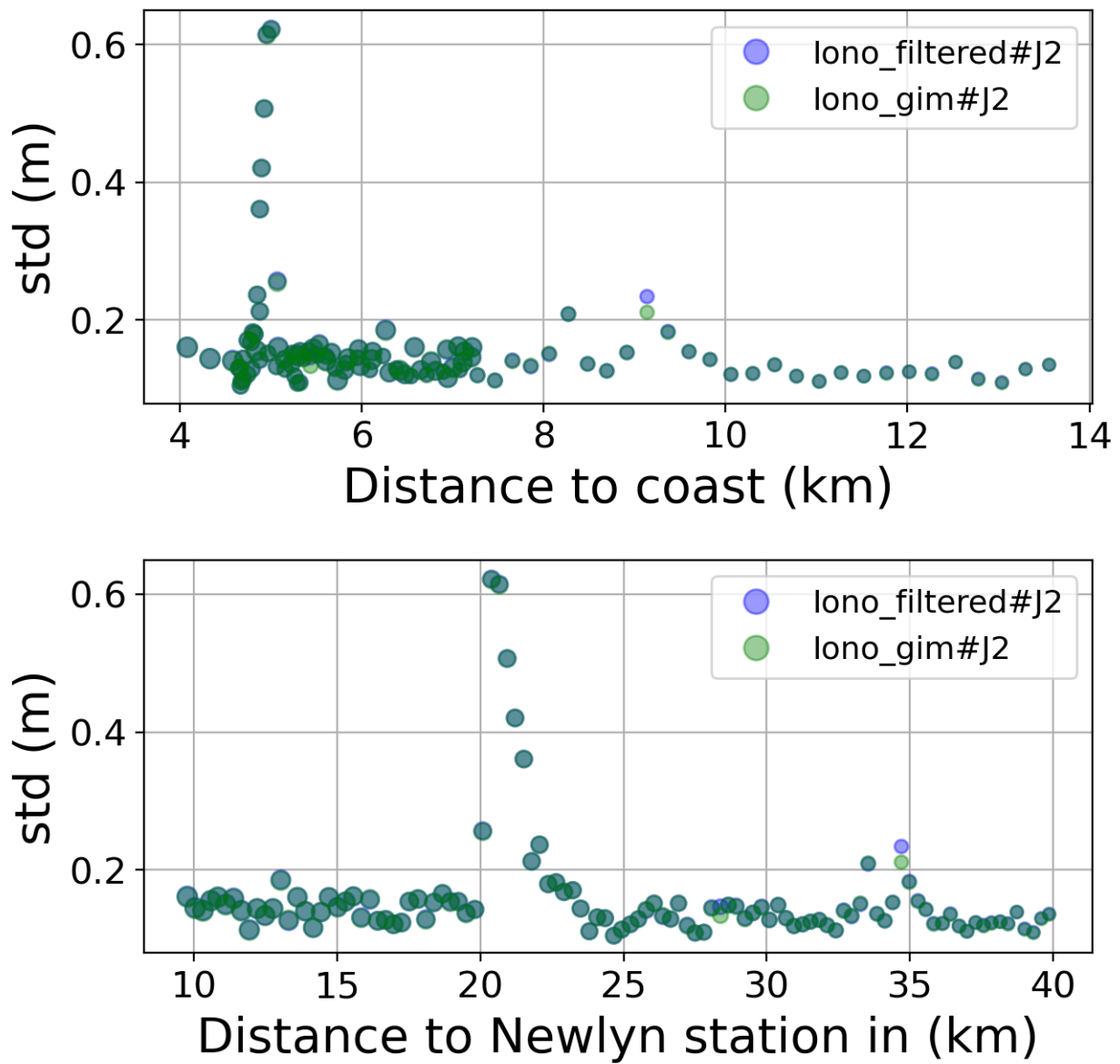


FIGURE 88 – Std in function of the distance to the coast/Newlyn station

6.6.7 Correlation in function of distance to coast/Newlyn station

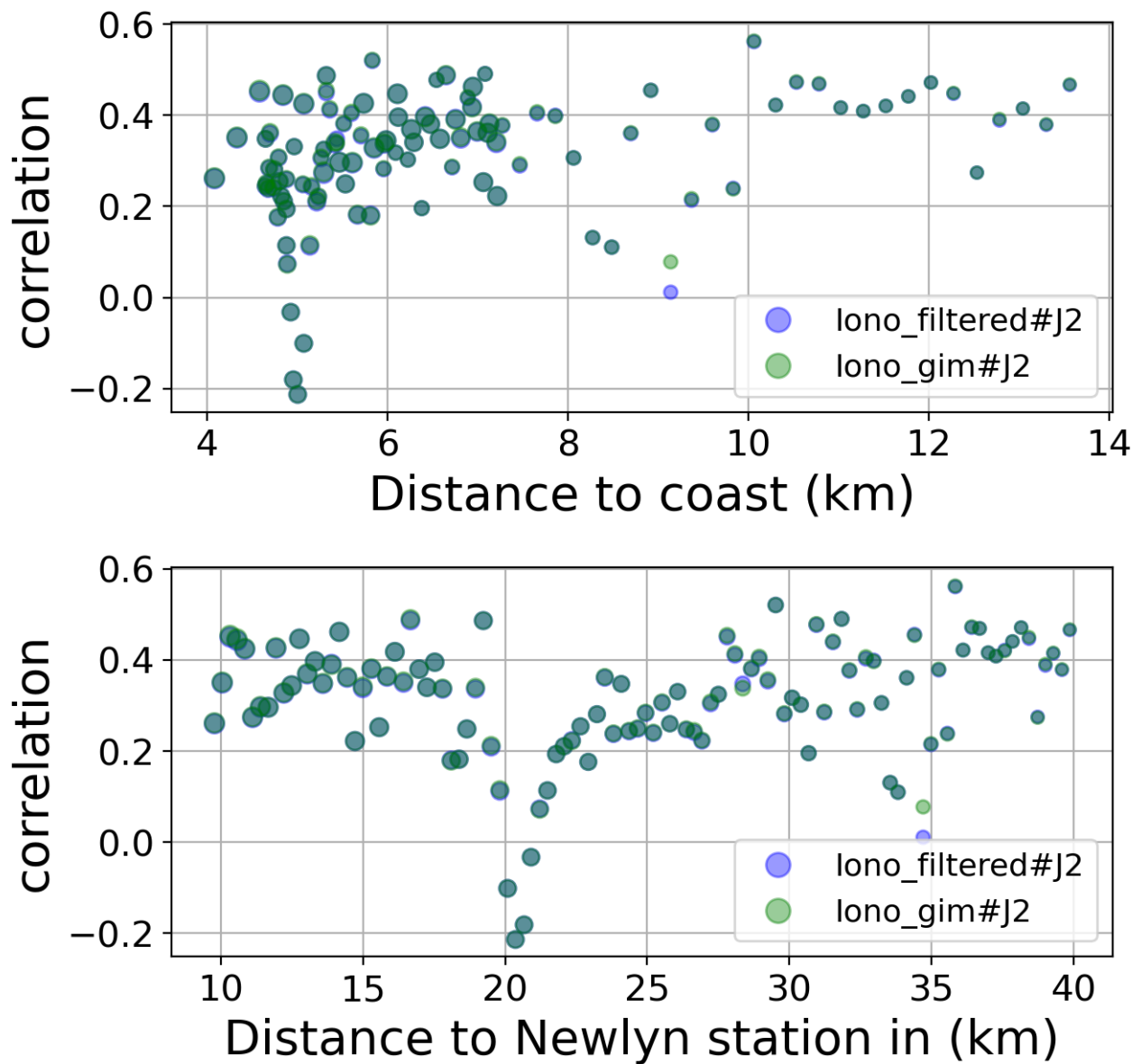


FIGURE 89 – Correlation in function of the distance to the coast/Newlyn station

6.6.8 Taylor Diagram

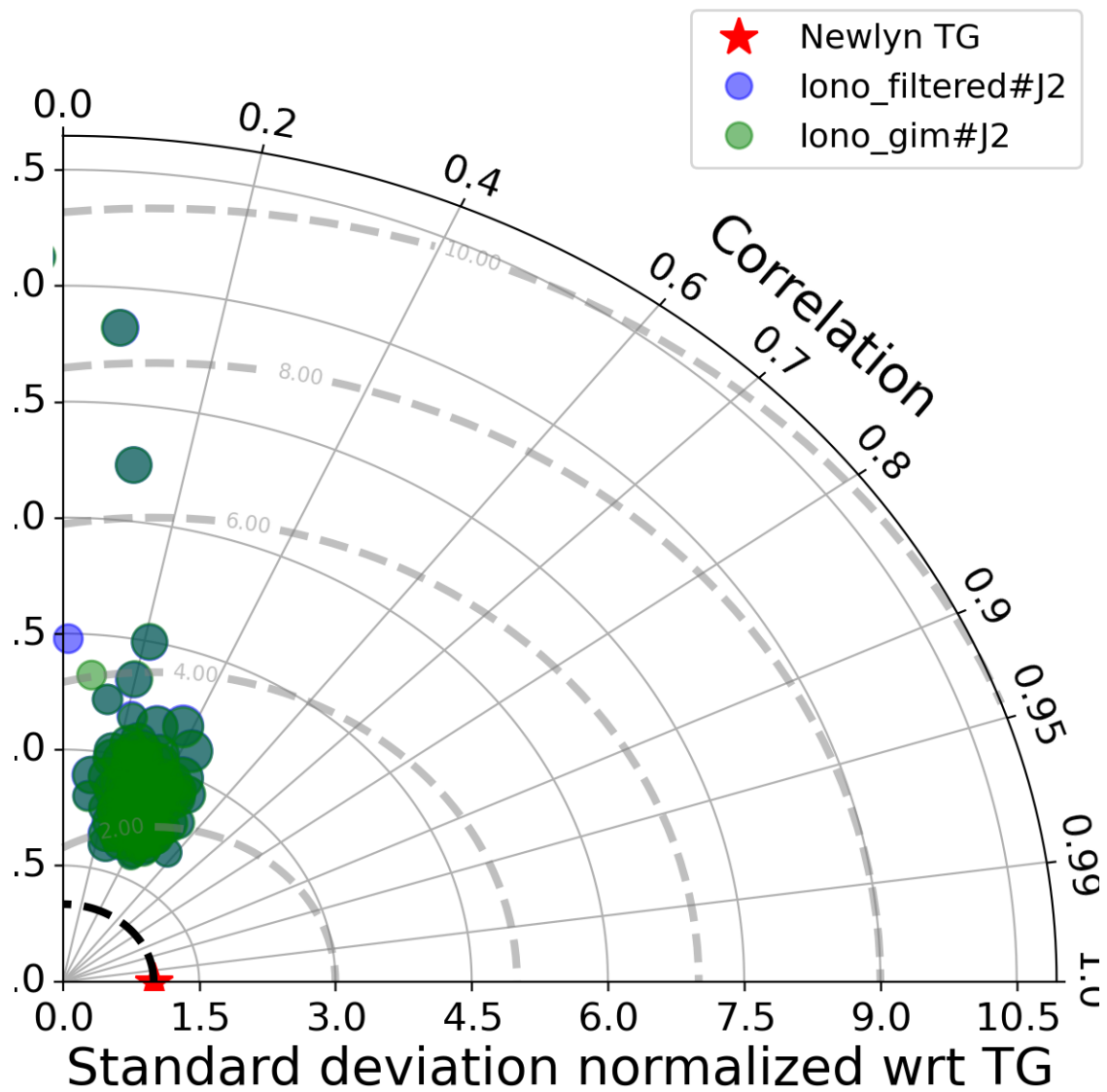


FIGURE 90 – Taylor diagram

6.6.9 Mean statistics table of products comparison with Newlyn tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	86.065	0.316	0.16	0.153
lono_gim#J2	86.046	0.317	0.159	0.152

FIGURE 91 – Mean statistics table of the common points in the altimetry products

6.6.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 101 point.

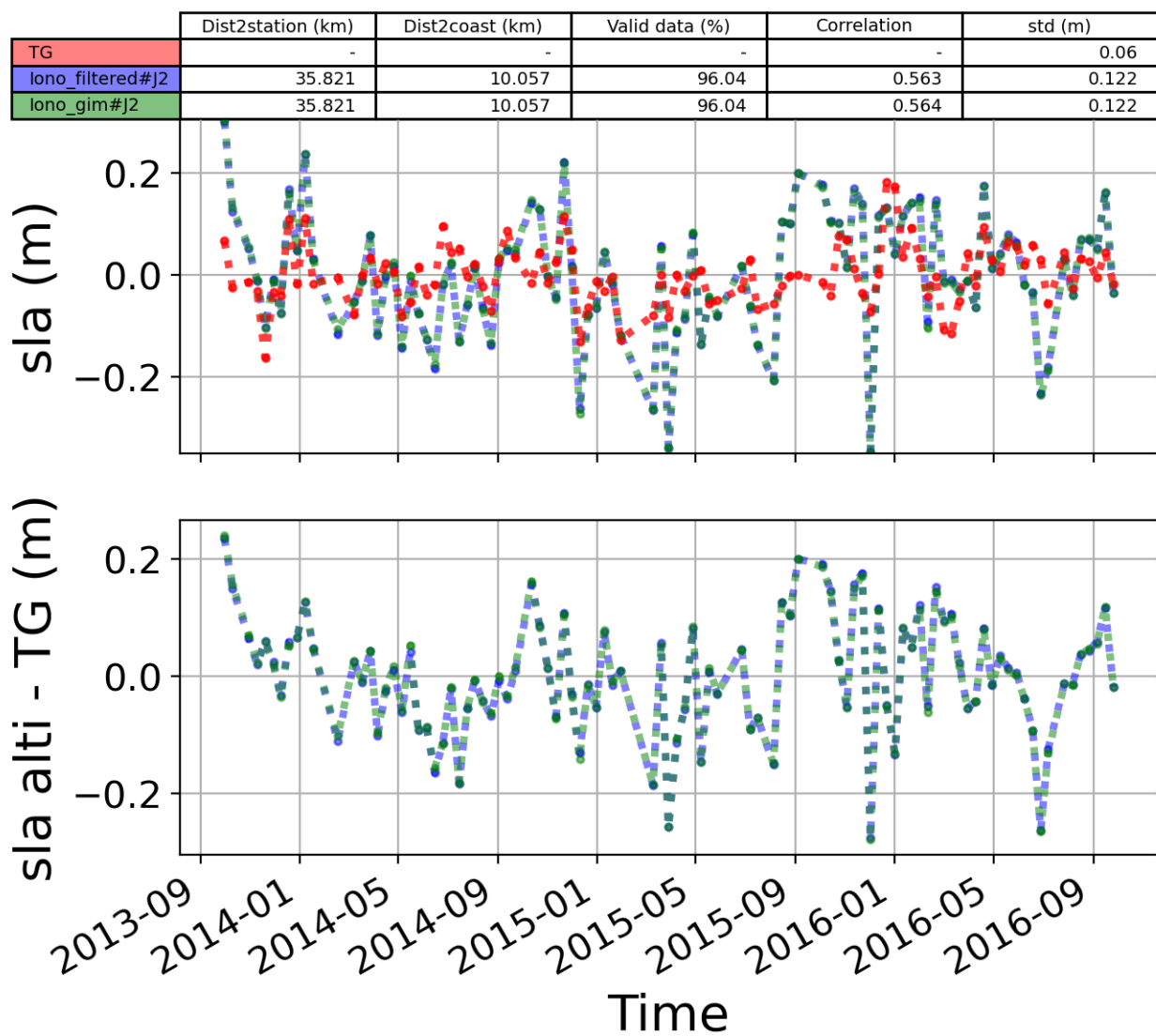


FIGURE 92 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

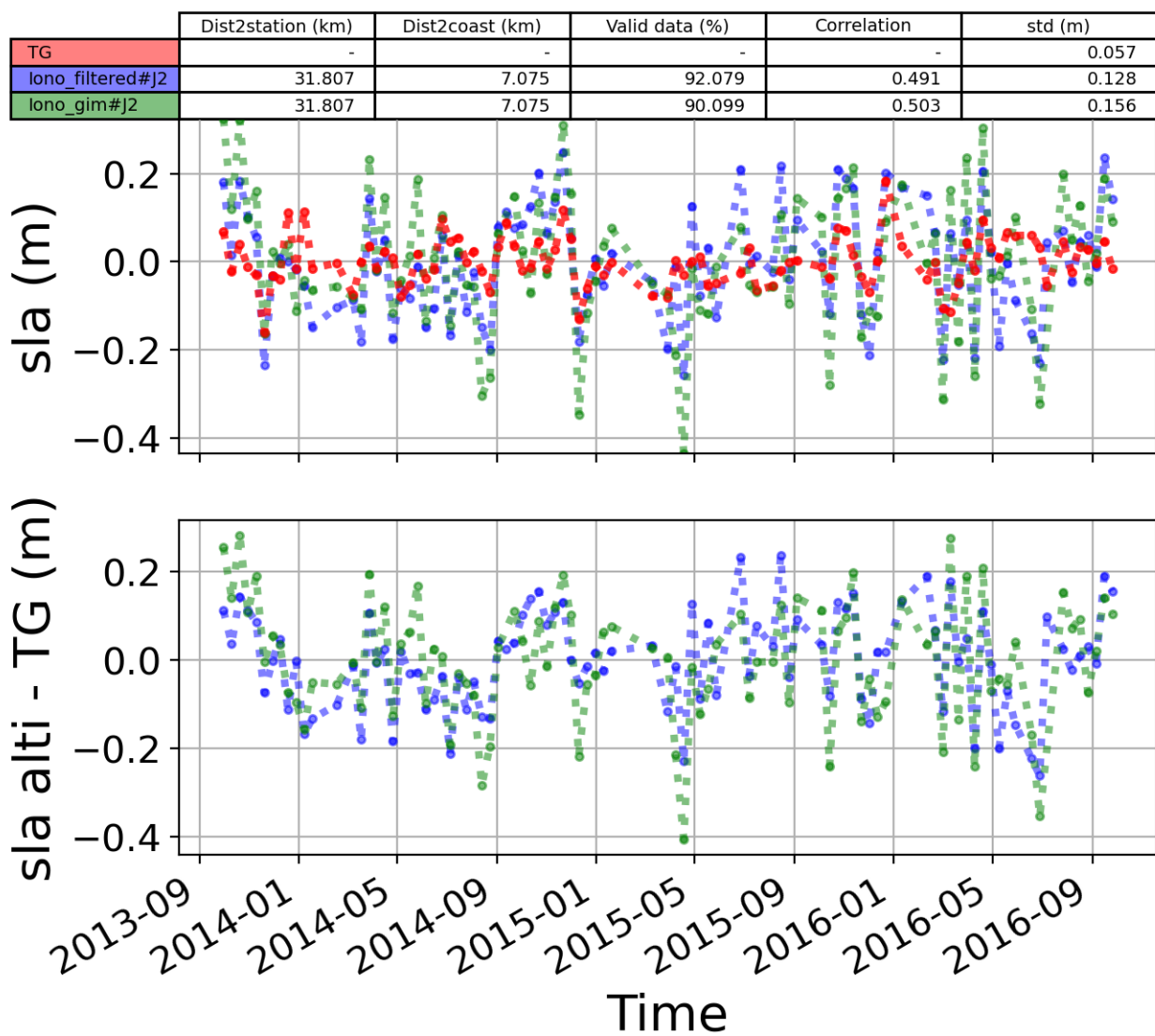


FIGURE 93 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.7 Station : LE_CONQUET

- Nearest track to LE_CONQUET station is the track number track61
- The area of interest is limited by :
 - A circle which it's center is the LE_CONQUET tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km

6.7.1 correlation visualization in maps view % LE_CONQUET tide gauge

Correlation Altimetry data with respect to LE_CONQUET Tide gauge data

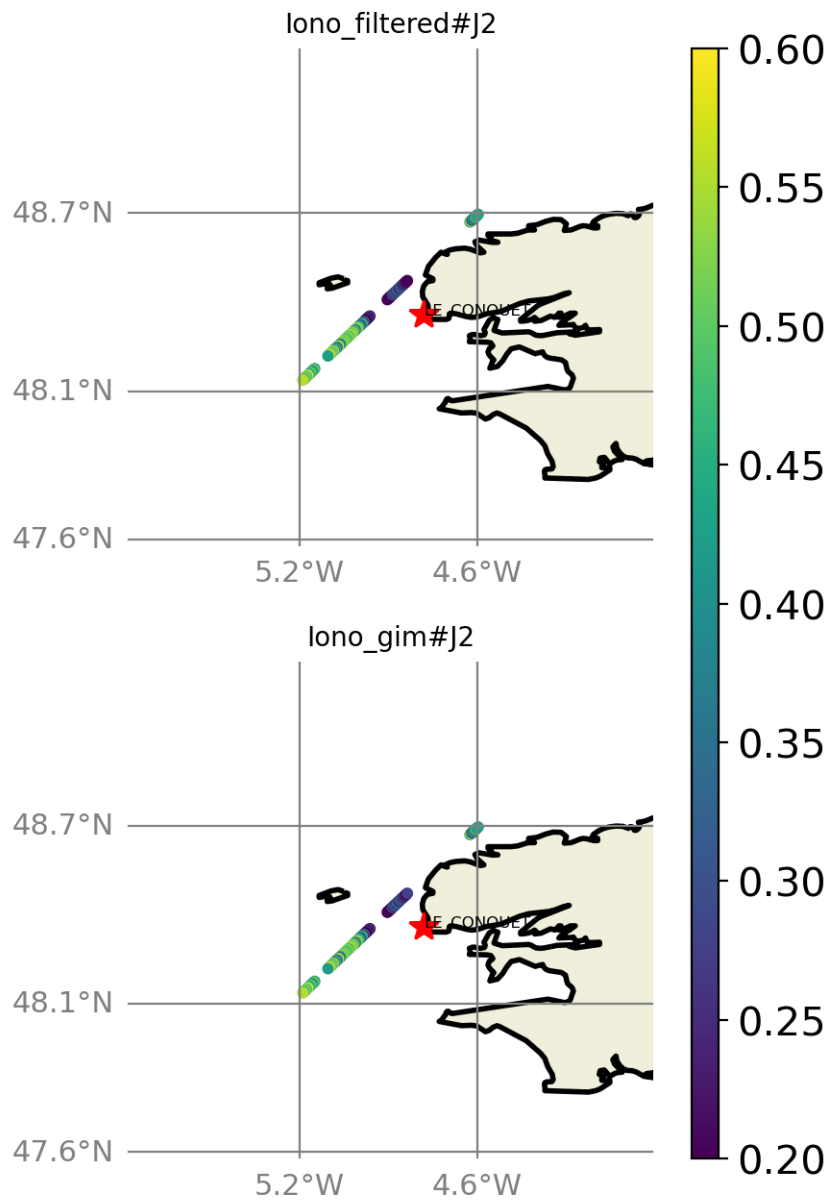


FIGURE 94 – correlation visualization in maps view % LE_CONQUET tide gauge

6.7.2 rmsd visualization in maps view % LE_CONQUET tide gauge

Rmsd (m) Altimetry data with respect to LE_CONQUET Tide gauge data

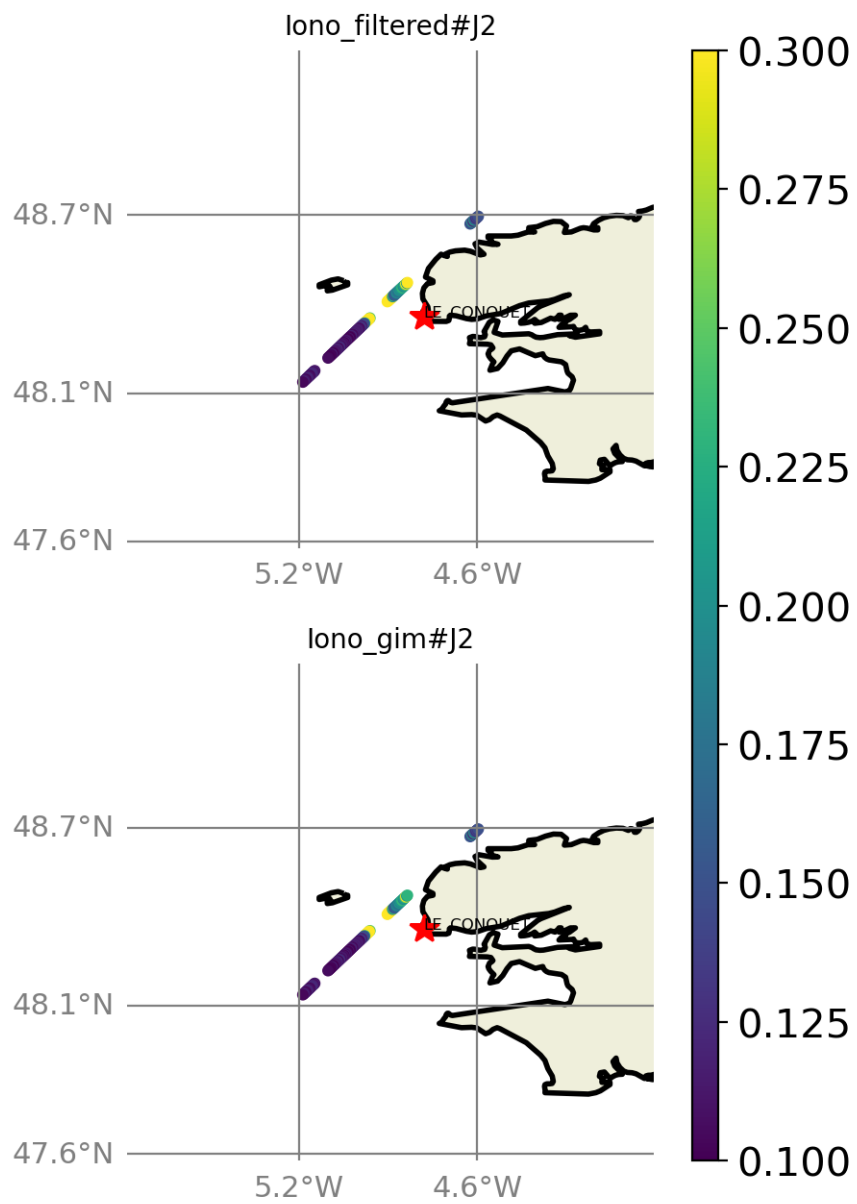


FIGURE 95 – rmsd visualization in maps view % LE_CONQUET tide gauge

6.7.3 std visualization in maps view % LE_CONQUET tide gauge

Std (m) Altimetry data with respect to LE_CONQUET Tide gauge data

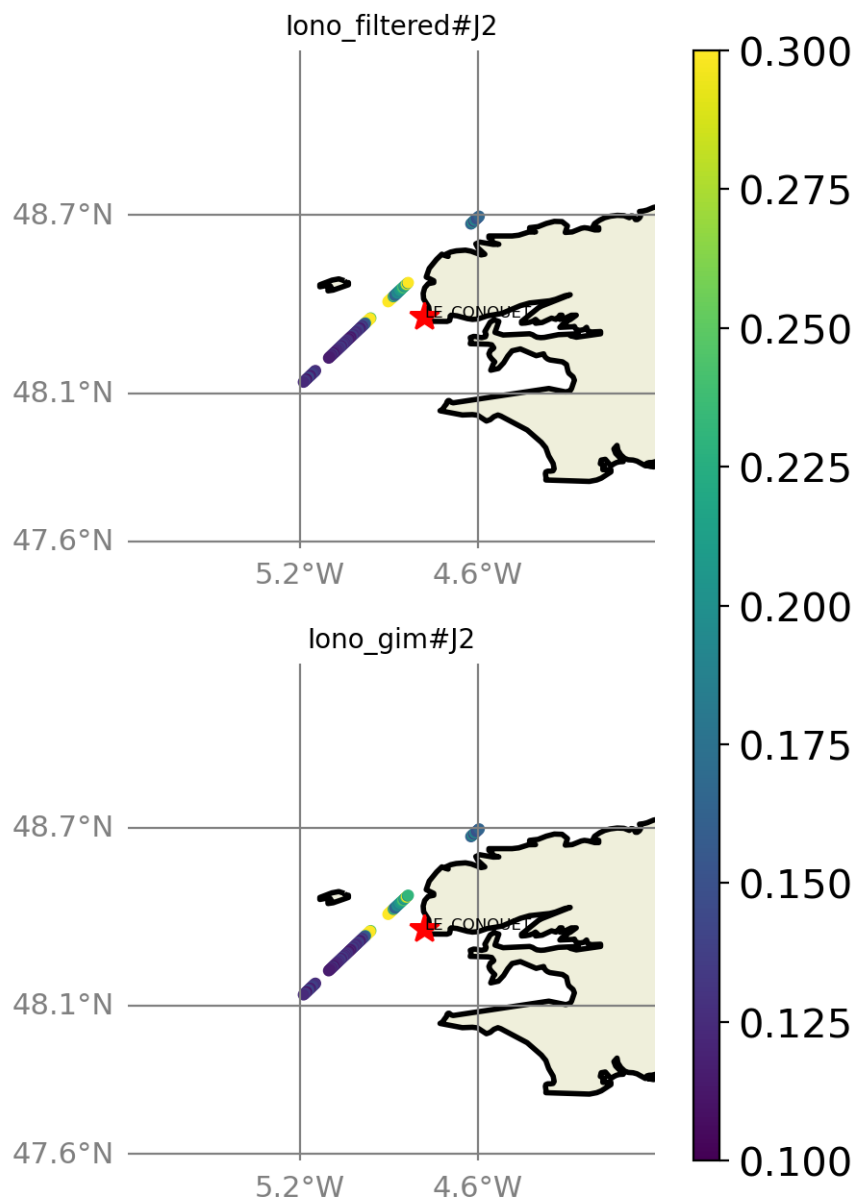


FIGURE 96 – std visualization in maps view % LE_CONQUET tide gauge

6.7.4 valid_data_percent visualization in maps view % LE_CONQUET tide gauge

Valid_Data_Percent (%) Altimetry data with respect to LE_CONQUET Tide gauge data

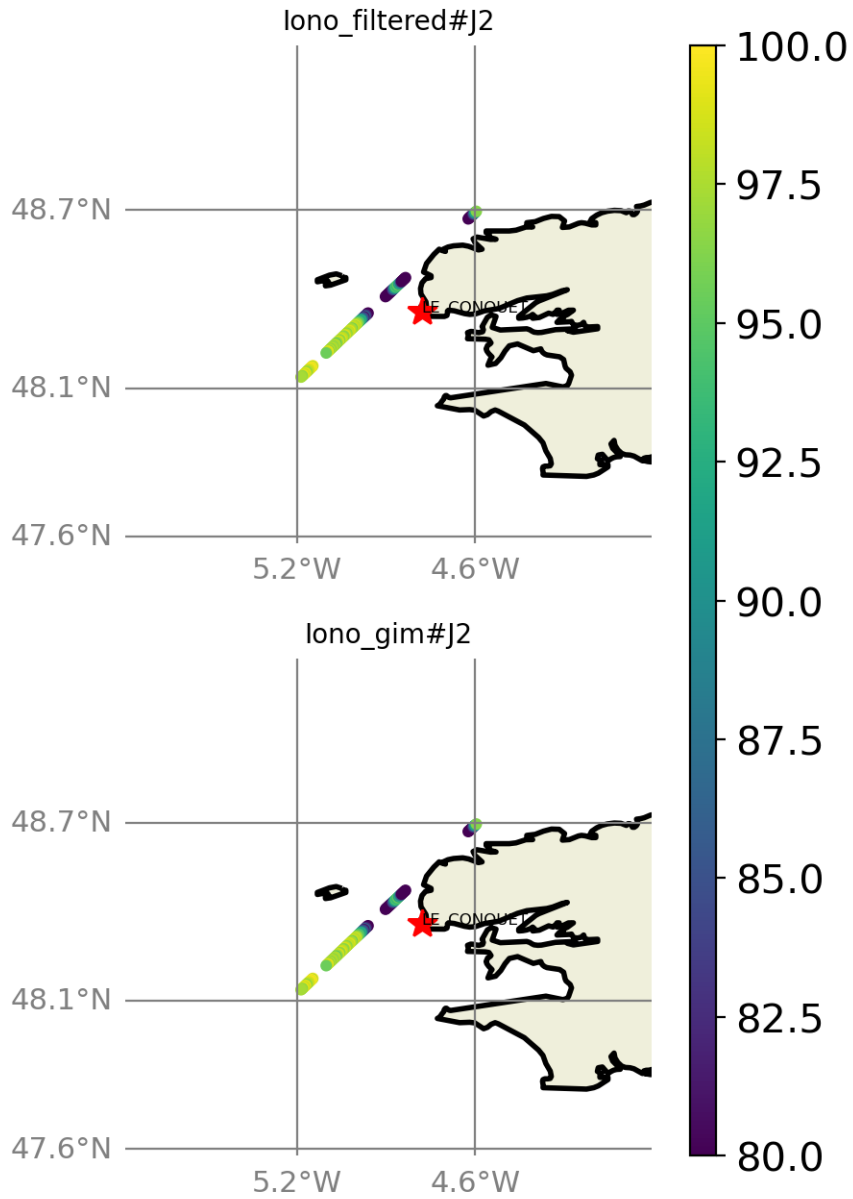


FIGURE 97 – valid_data_percent visualization in maps view % LE_CONQUET tide gauge

6.7.5 Valid data (%) in function of distance to coast/LE_CONQUET station

The formula to calculate the percentage of valid data in each time serie is ;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 111$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

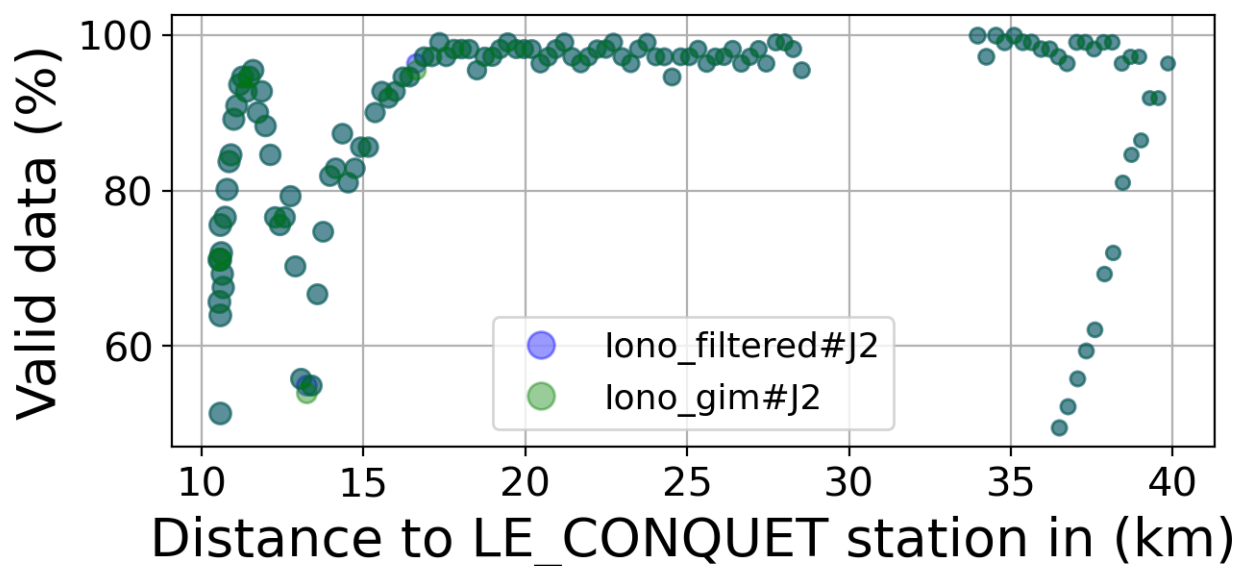
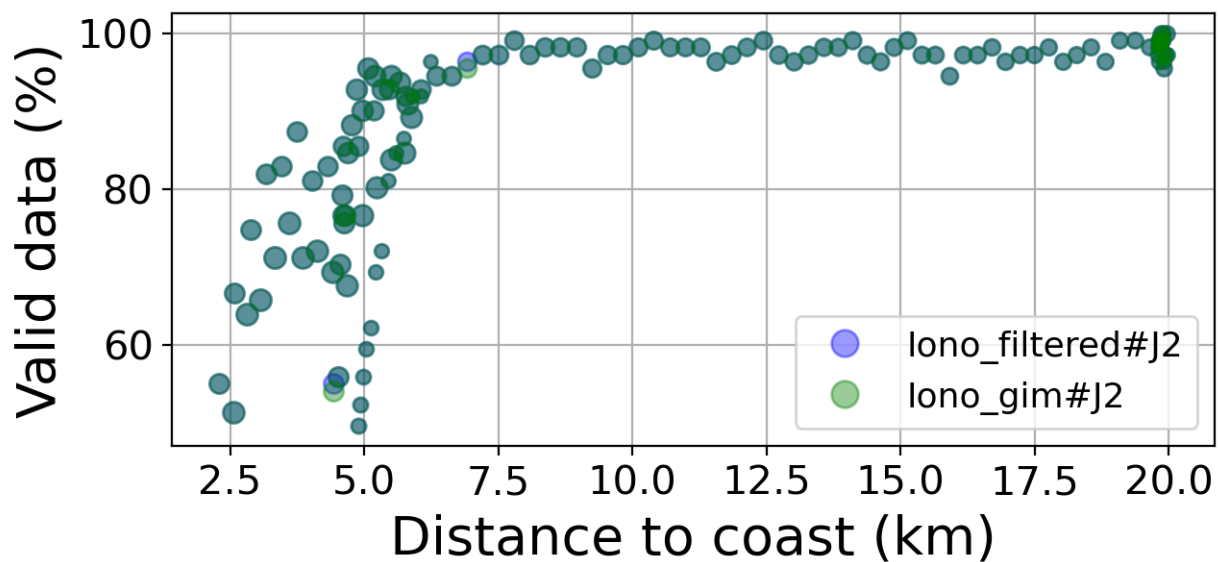


FIGURE 98 – Valid data (%) in function of distance to coast/LE_CONQUET station

6.7.6 Std in function of distance to coast/LE_CONQUET station

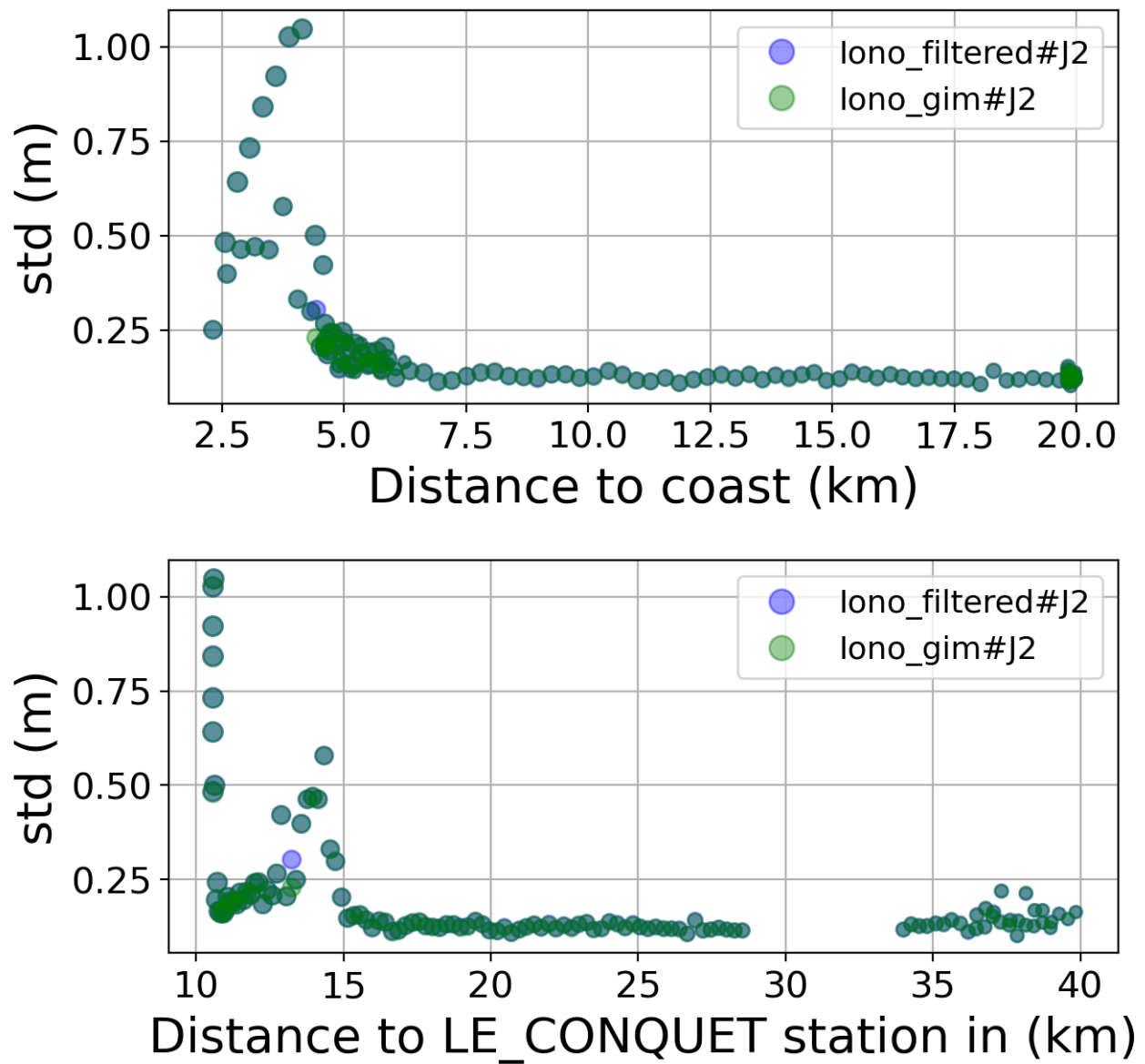


FIGURE 99 – Std in function of the distance to the coast/LE_CONQUET station

6.7.7 Correlation in function of distance to coast/LE_CONQUET station

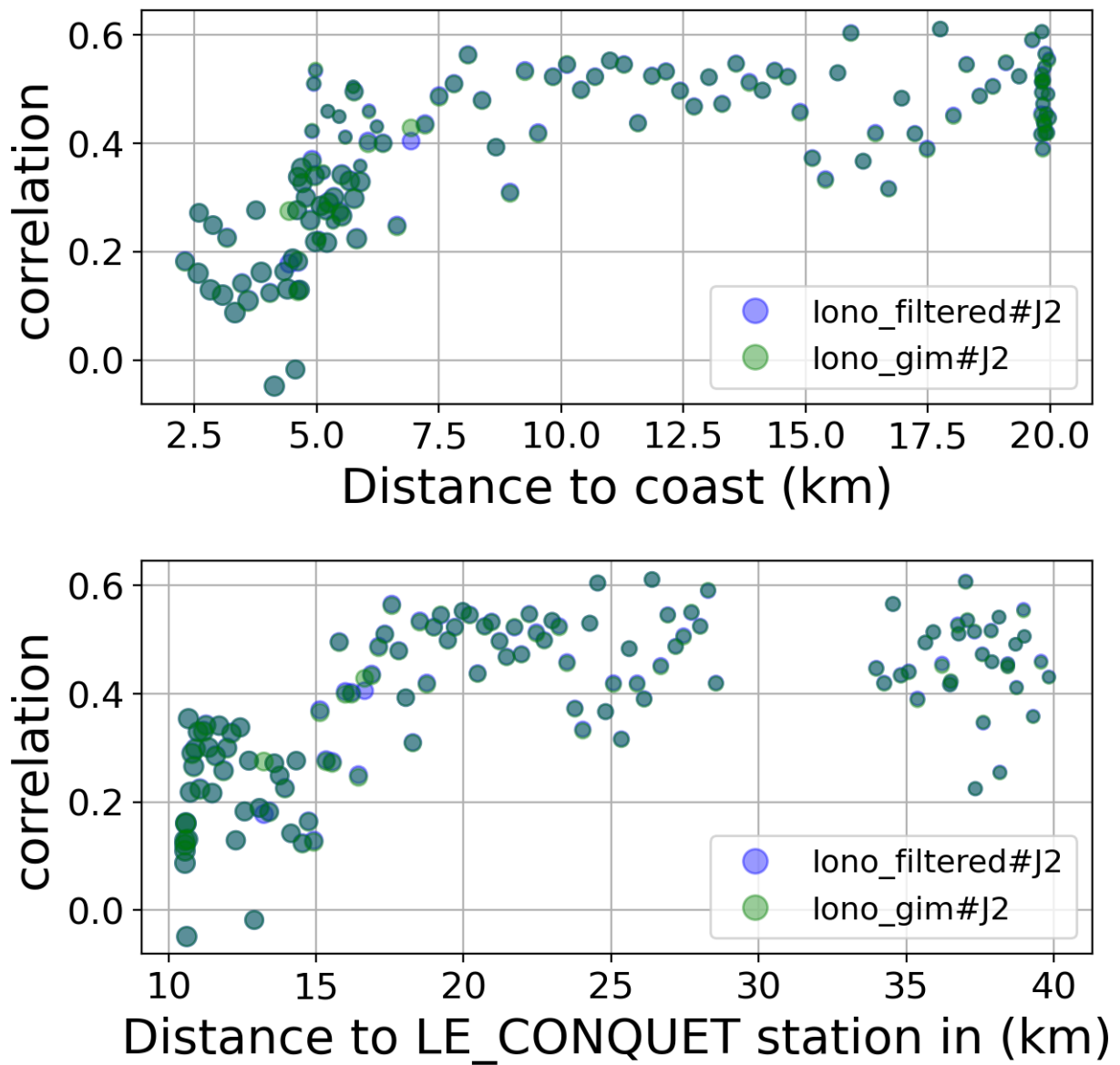


FIGURE 100 – Correlation in function of the distance to the coast/LE_CONQUET station

6.7.8 Taylor Diagram

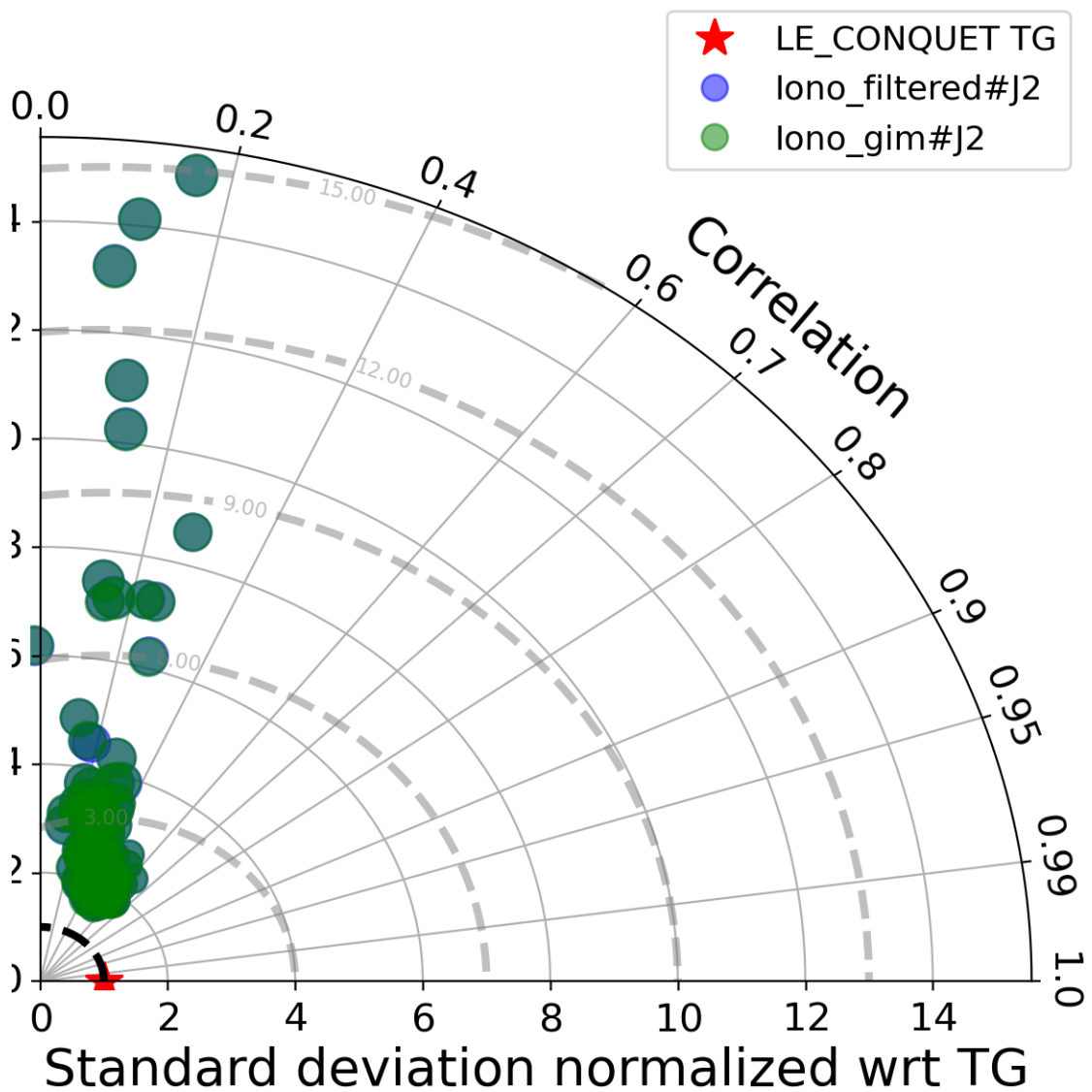


FIGURE 101 – Taylor diagram

6.7.9 Mean statistics table of products comparison with LE_CONQUET tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	88.799	0.386	0.207	0.196
lono_gim#J2	88.785	0.386	0.207	0.195

FIGURE 102 – Mean statistics table of the common points in the altimetry products

6.7.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 111 point.

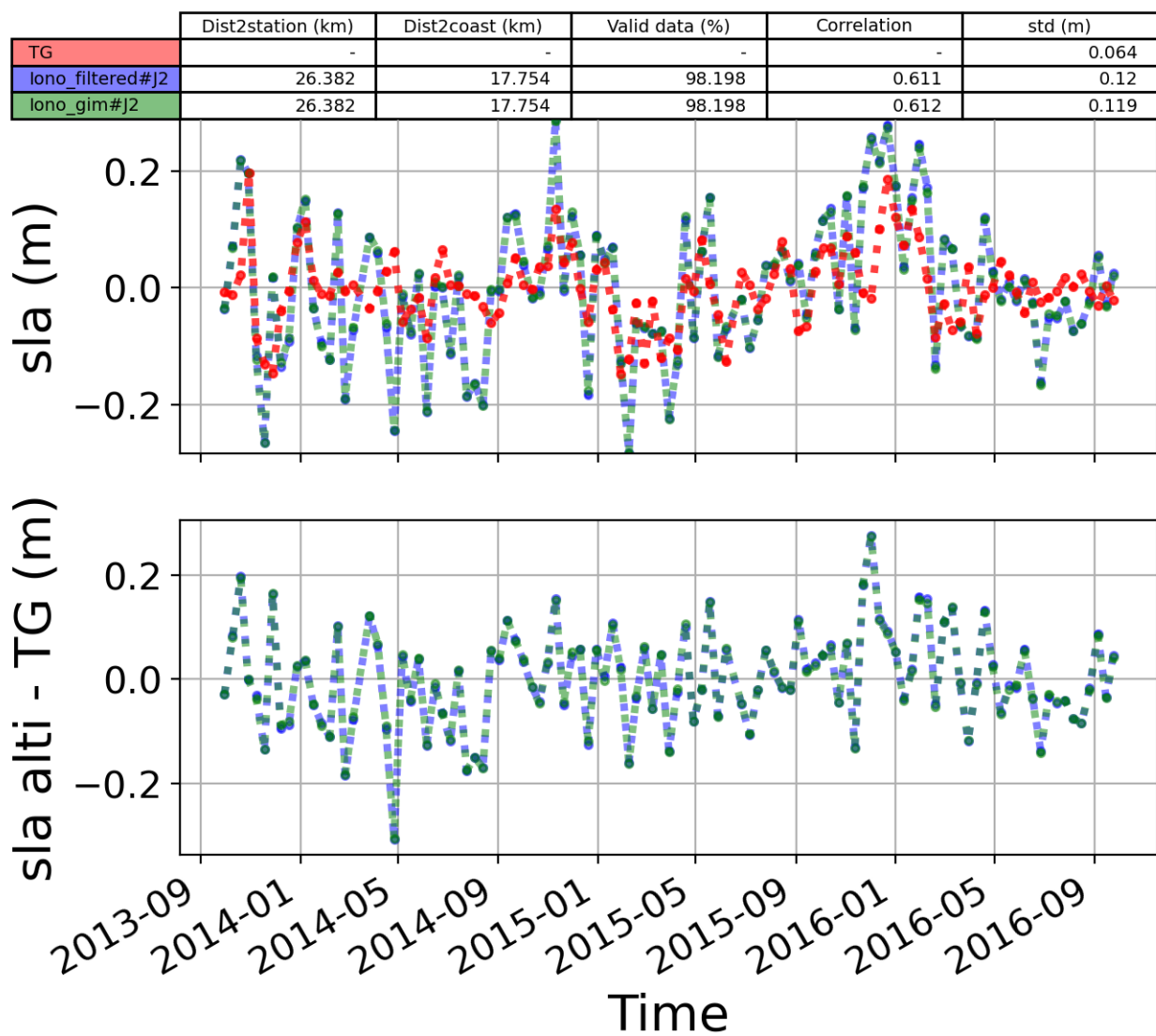


FIGURE 103 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

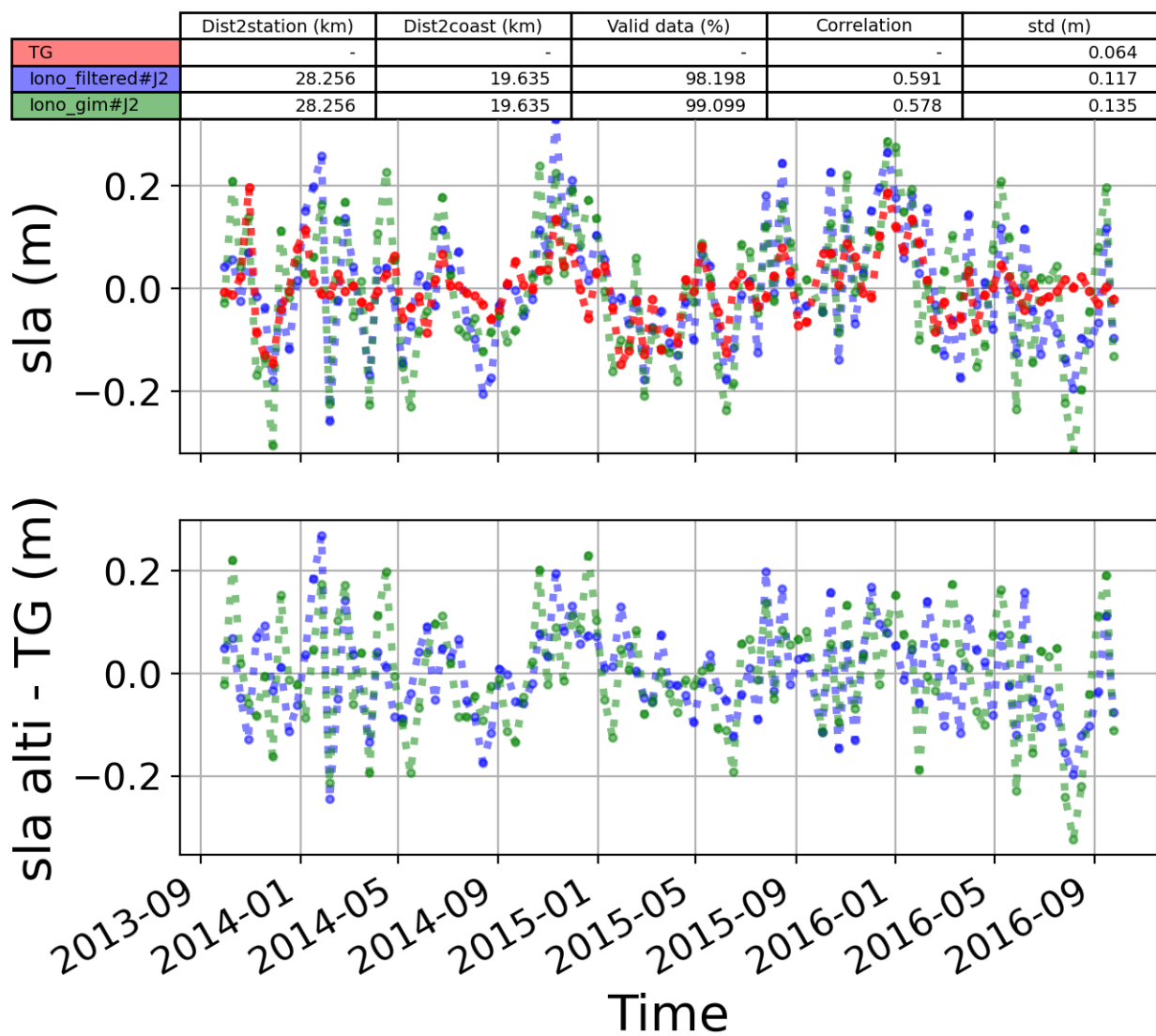


FIGURE 104 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.8 Station : Holyhead

- Nearest track to Holyhead station is the track number track163
- The area of interest is limited by :
 - A circle which it's center is the Holyhead tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km

6.8.1 correlation visualization in maps view % Holyhead tide gauge

Correlation Altimetry data with respect to Holyhead Tide gauge data

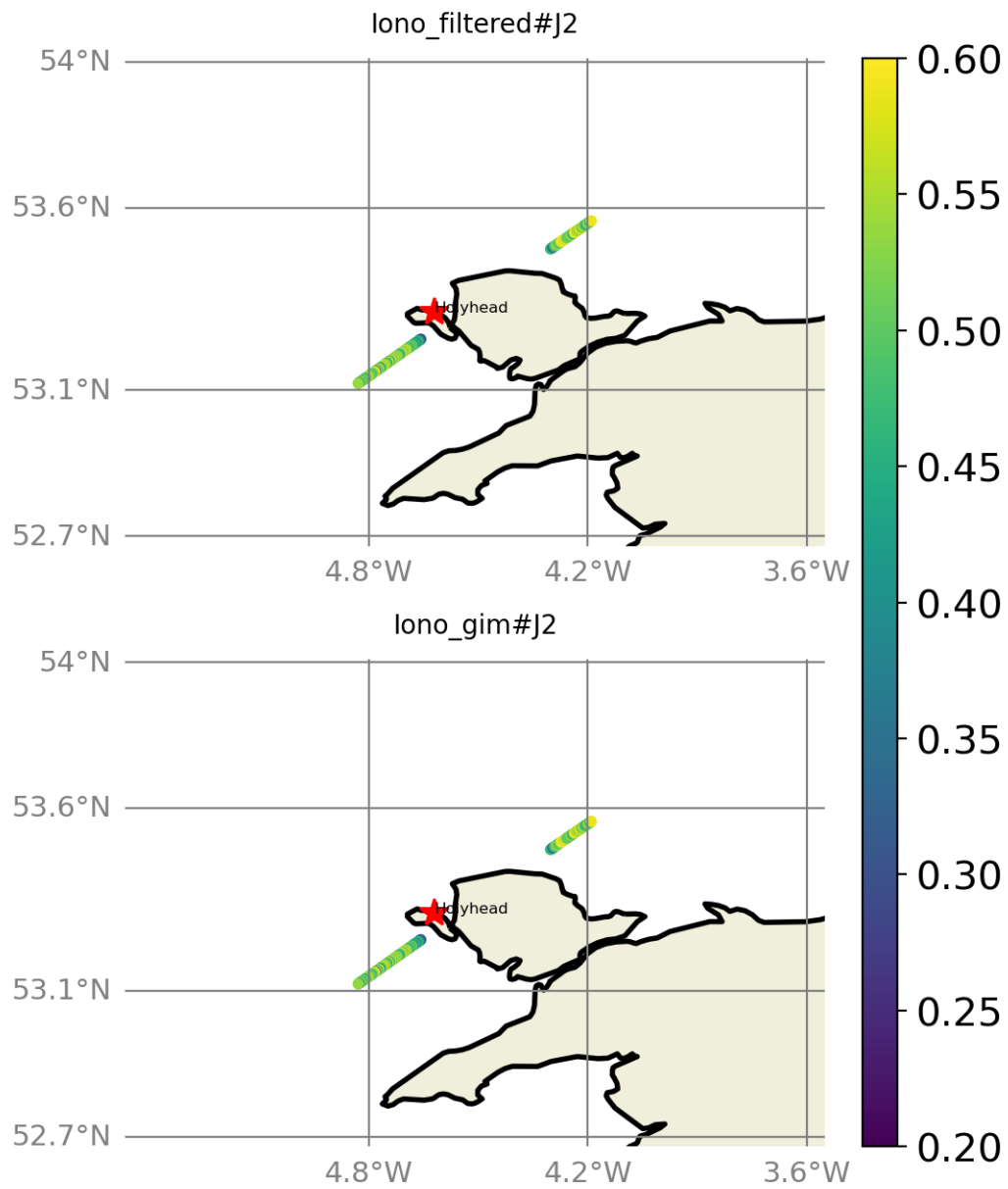


FIGURE 105 – correlation visualization in maps view % Holyhead tide gauge

6.8.2 rmsd visualization in maps view % Holyhead tide gauge

Rmsd (m) Altimetry data with respect to Holyhead Tide gauge data

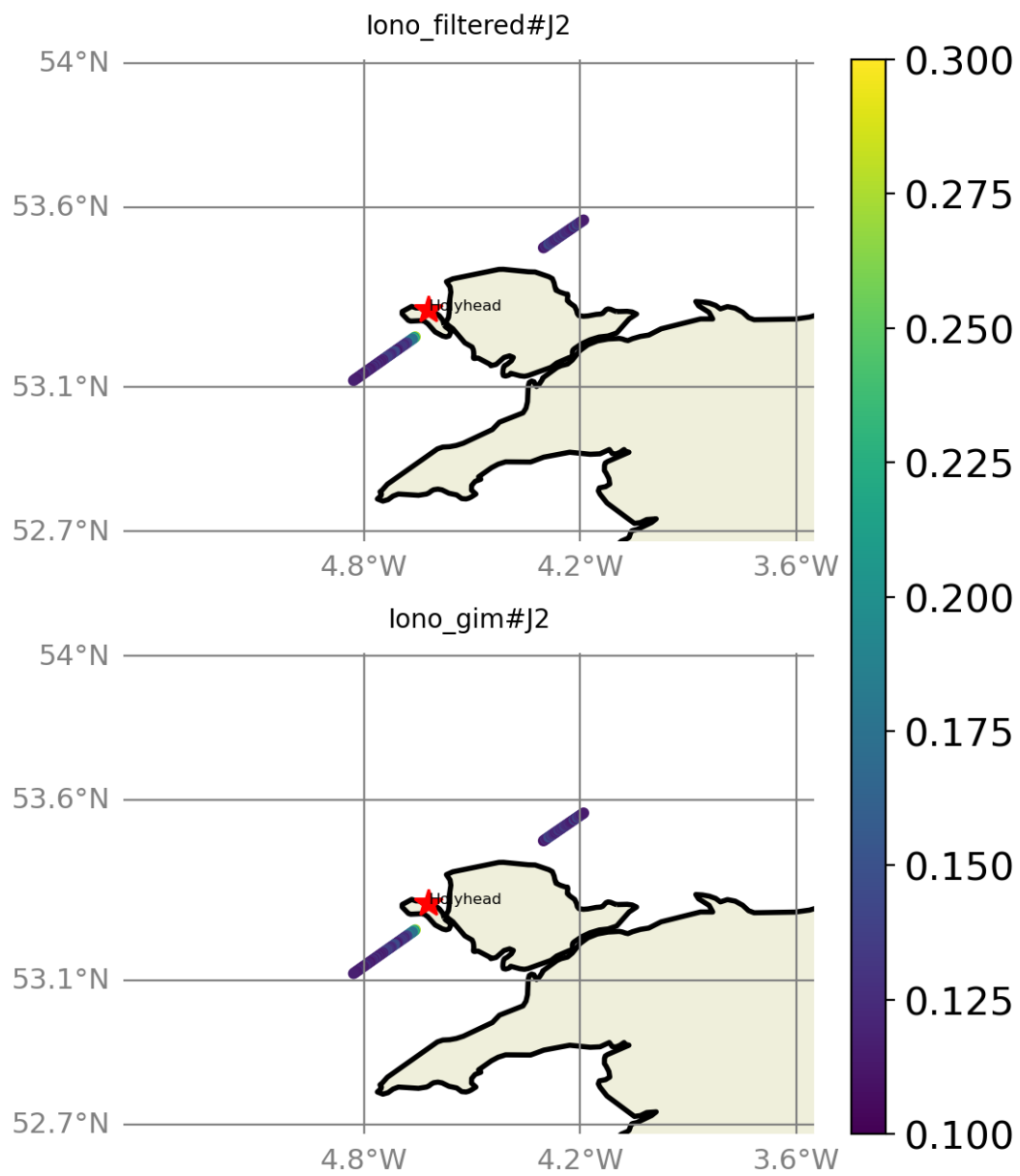


FIGURE 106 – rmsd visualization in maps view % Holyhead tide gauge

6.8.3 std visualization in maps view % Holyhead tide gauge

Std (m) Altimetry data with respect to Holyhead Tide gauge data

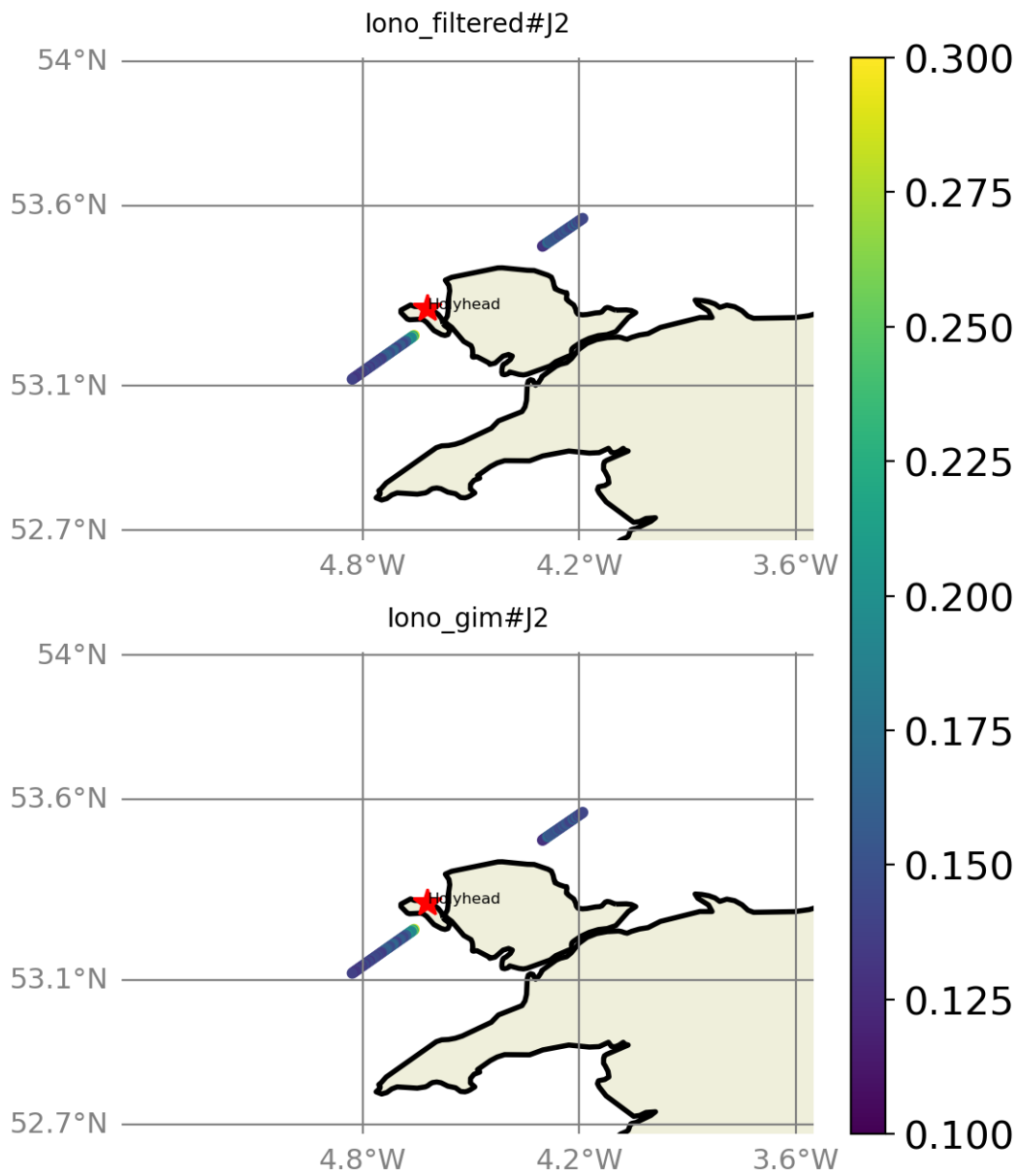


FIGURE 107 – std visualization in maps view % Holyhead tide gauge

6.8.4 valid_data_percent visualization in maps view % Holyhead tide gauge

Valid_Data_Percent (%) Altimetry data with respect to Holyhead Tide gauge data

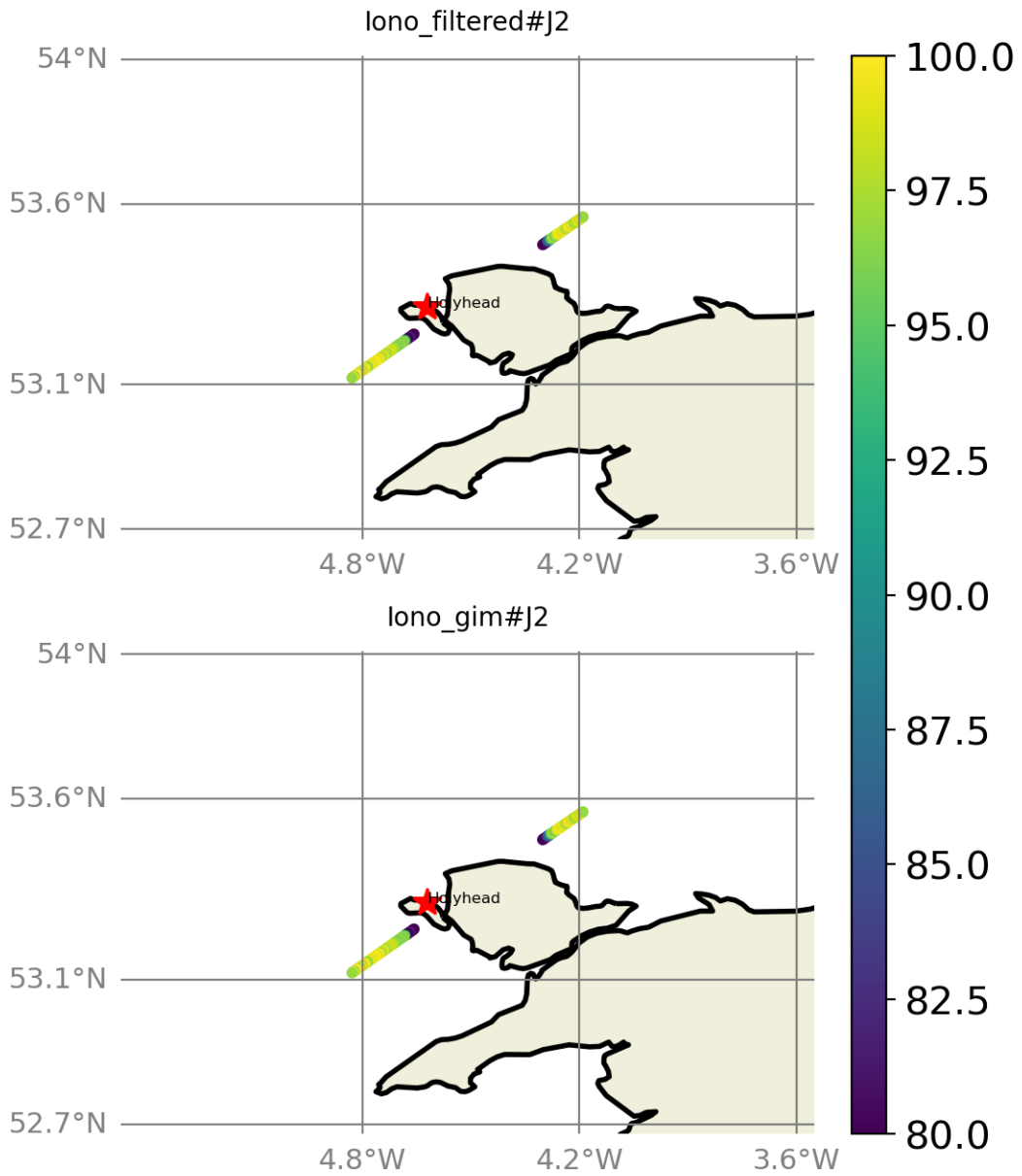


FIGURE 108 – valid_data_percent visualization in maps view % Holyhead tide gauge

6.8.5 Valid data (%) in function of distance to coast/Holyhead station

The formula to calculate the percentage of valid data in each time serie is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 95$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

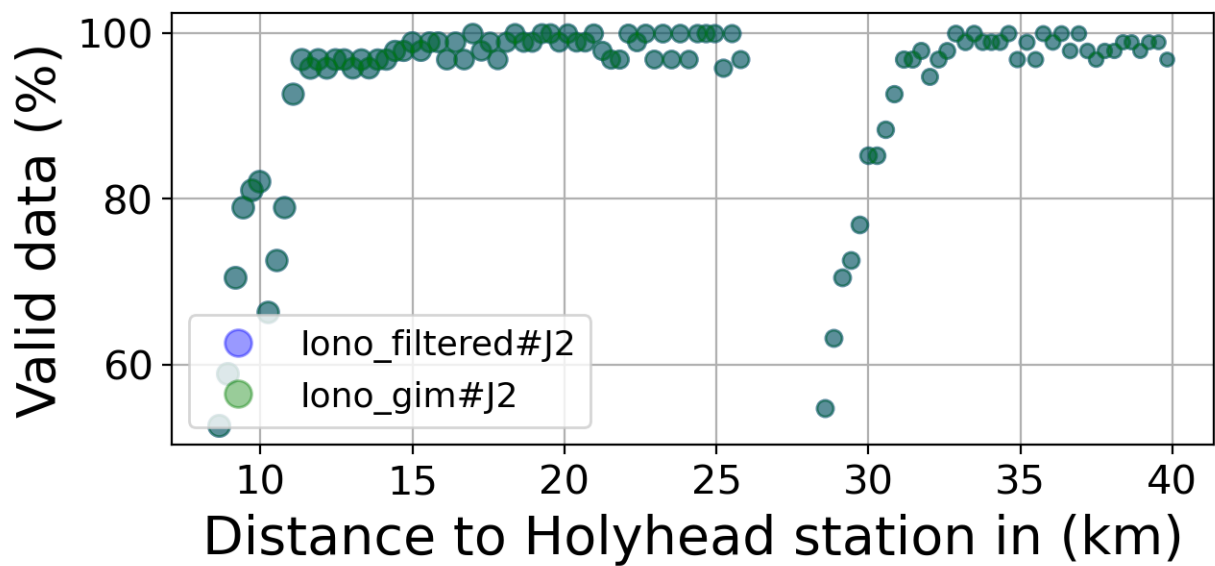
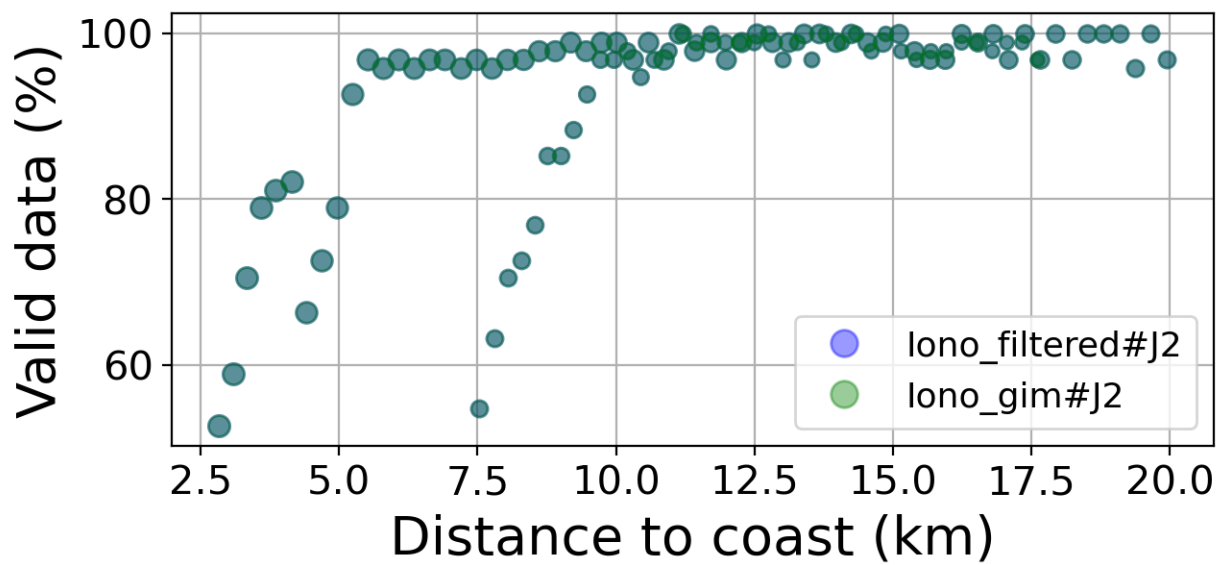


FIGURE 109 – Valid data (%) in function of distance to coast/Holyhead station

6.8.6 Std in function of distance to coast/Holyhead station

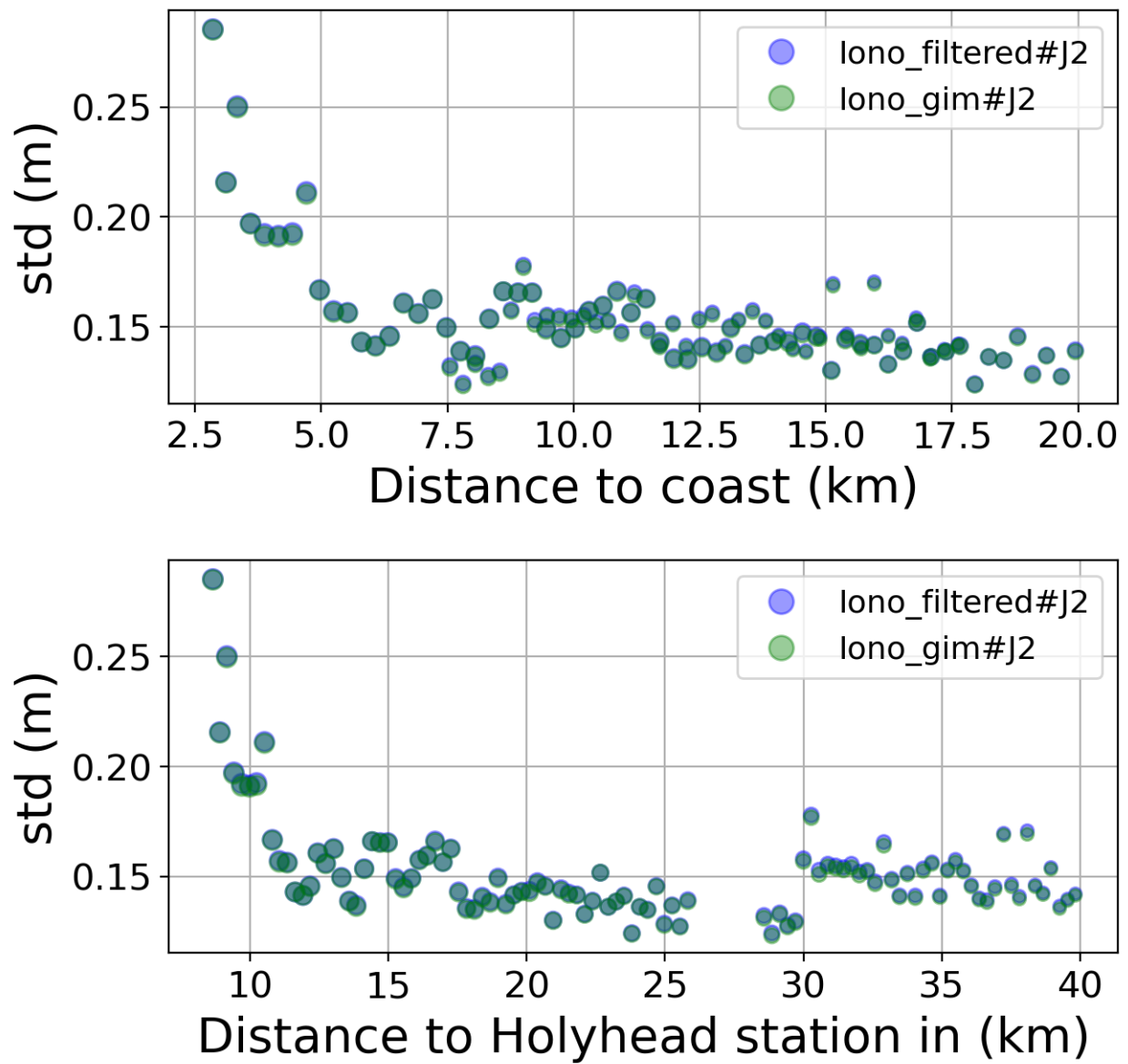


FIGURE 110 – Std in function of the distance to the coast/Holyhead station

6.8.7 Correlation in function of distance to coast/Holyhead station

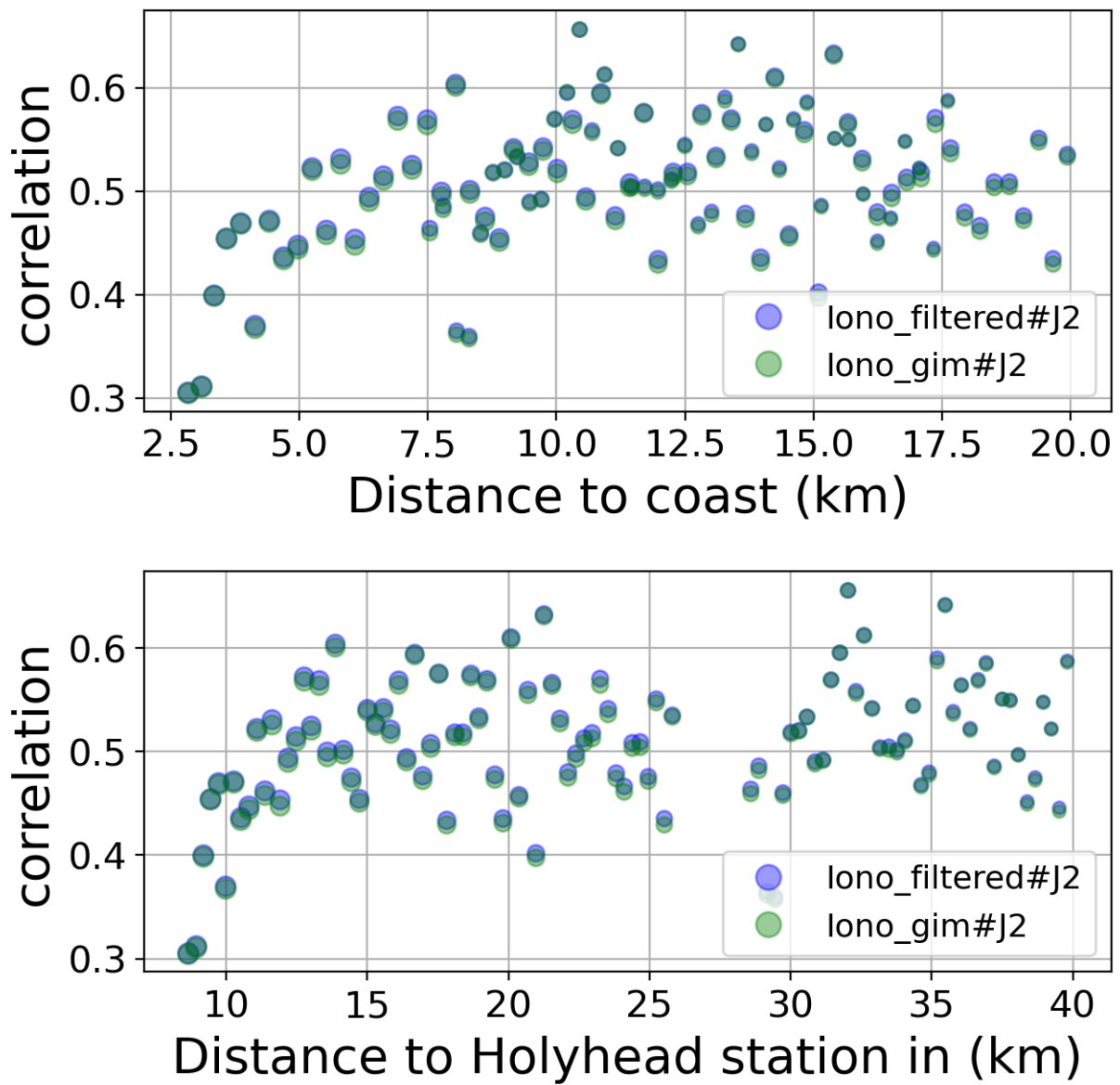


FIGURE 111 – Correlation in function of the distance to the coast/Holyhead station

6.8.8 Taylor Diagram

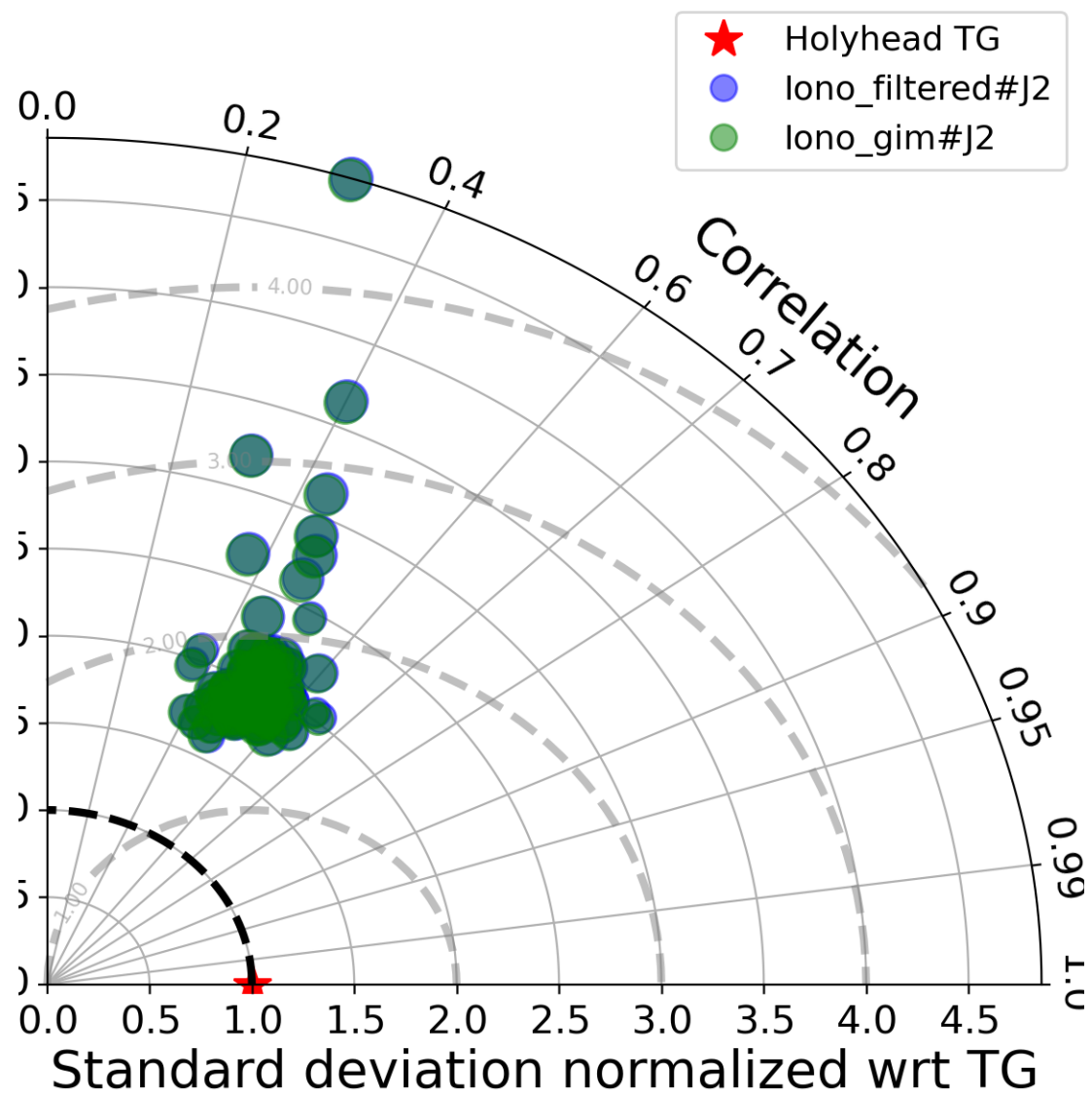


FIGURE 112 – Taylor diagram

6.8.9 Mean statistics table of products comparison with Holyhead tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	93.891	0.51	0.153	0.132
lono_gim#J2	93.891	0.507	0.152	0.131

FIGURE 113 – Mean statistics table of the common points in the altimetry products

6.8.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 95 point.

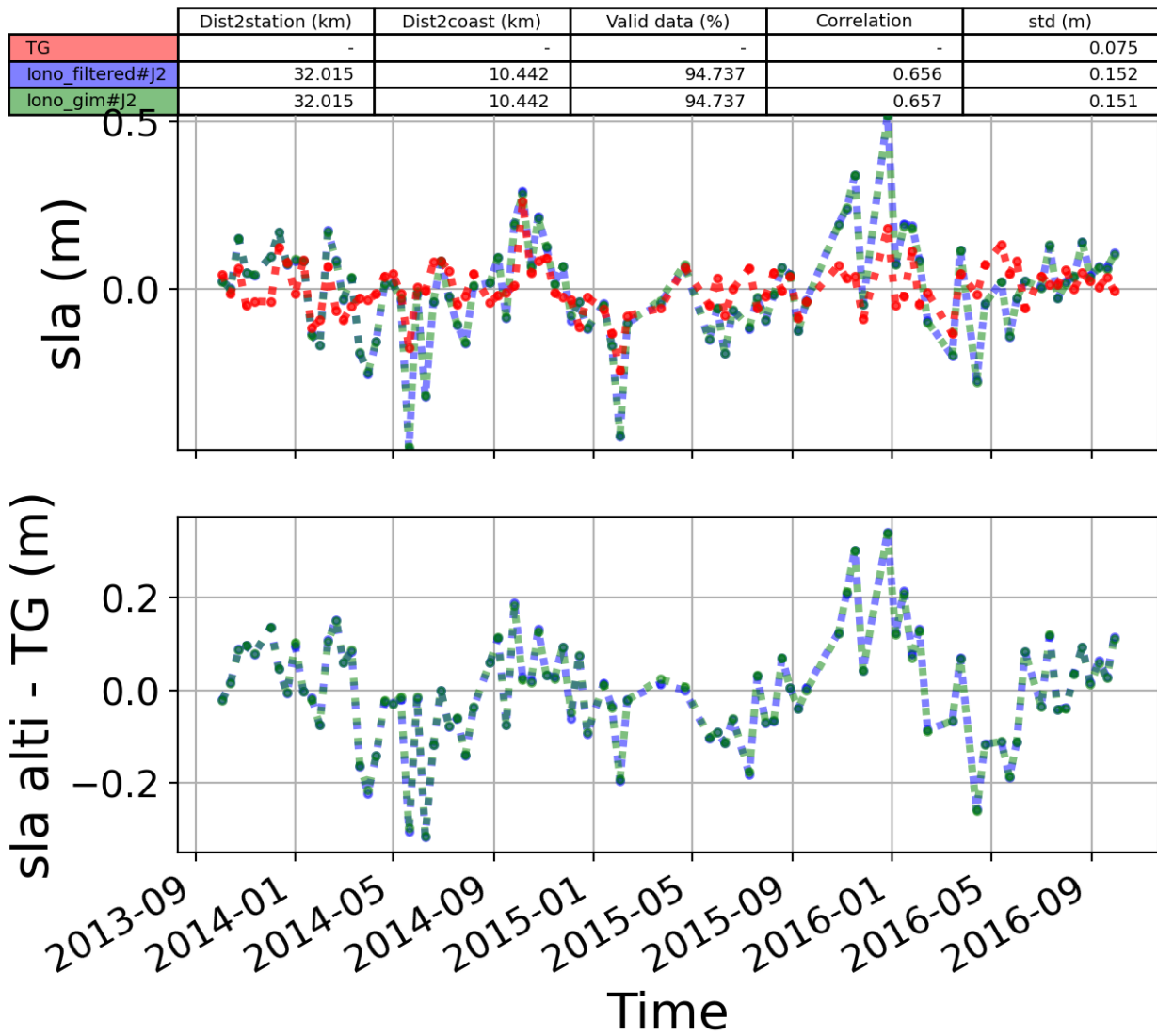


FIGURE 114 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

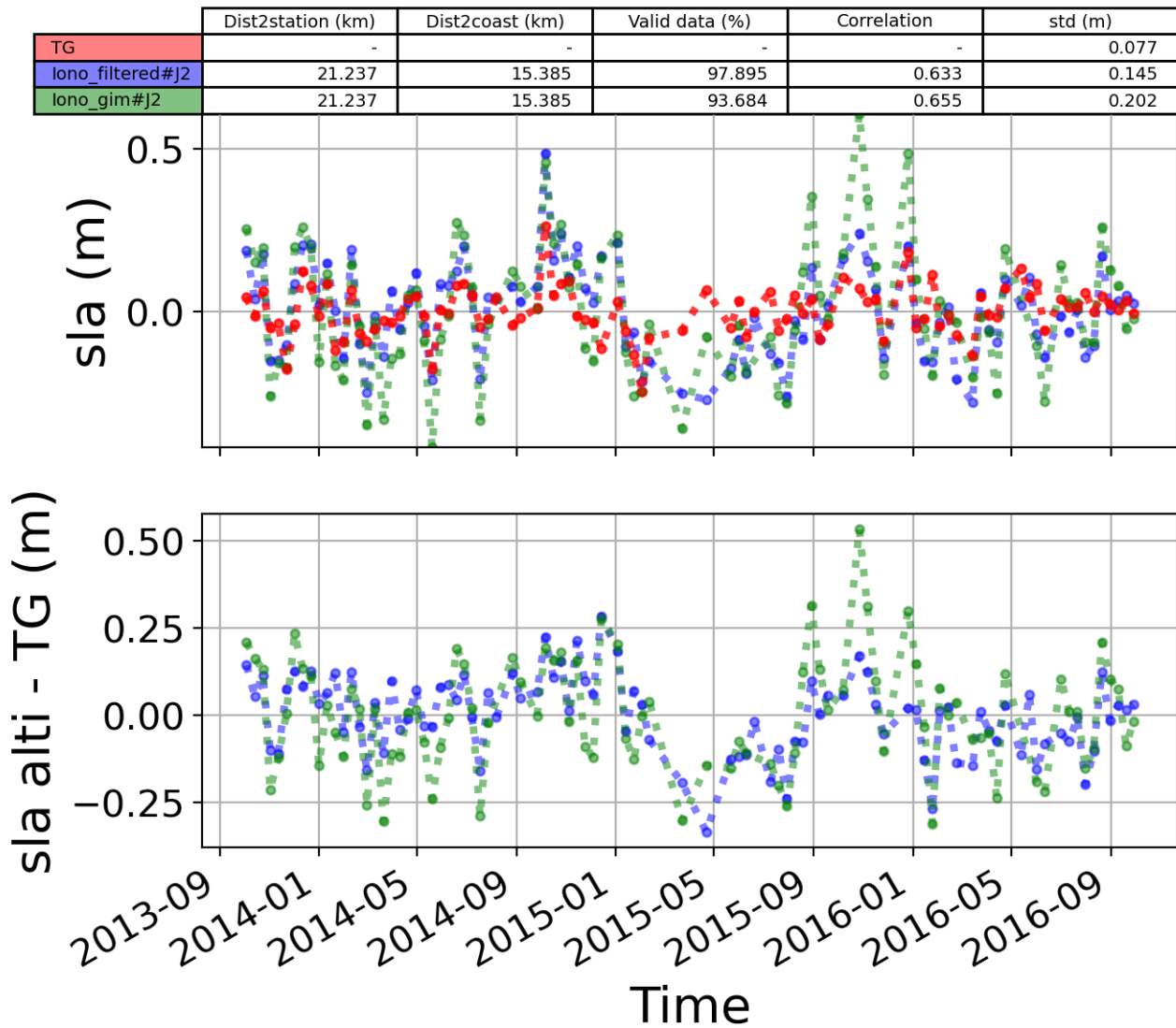


FIGURE 115 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie

6.9 Station : LE_CROUESTY

- Nearest track to LE_CROUESTY station is the track number track137
- The area of interest is limited by :
 - A circle which it's center is the LE_CROUESTY tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km

6.9.1 correlation visualization in maps view % LE_CROUESTY tide gauge

Correlation Altimetry data with respect to LE_CROUESTY Tide gauge data

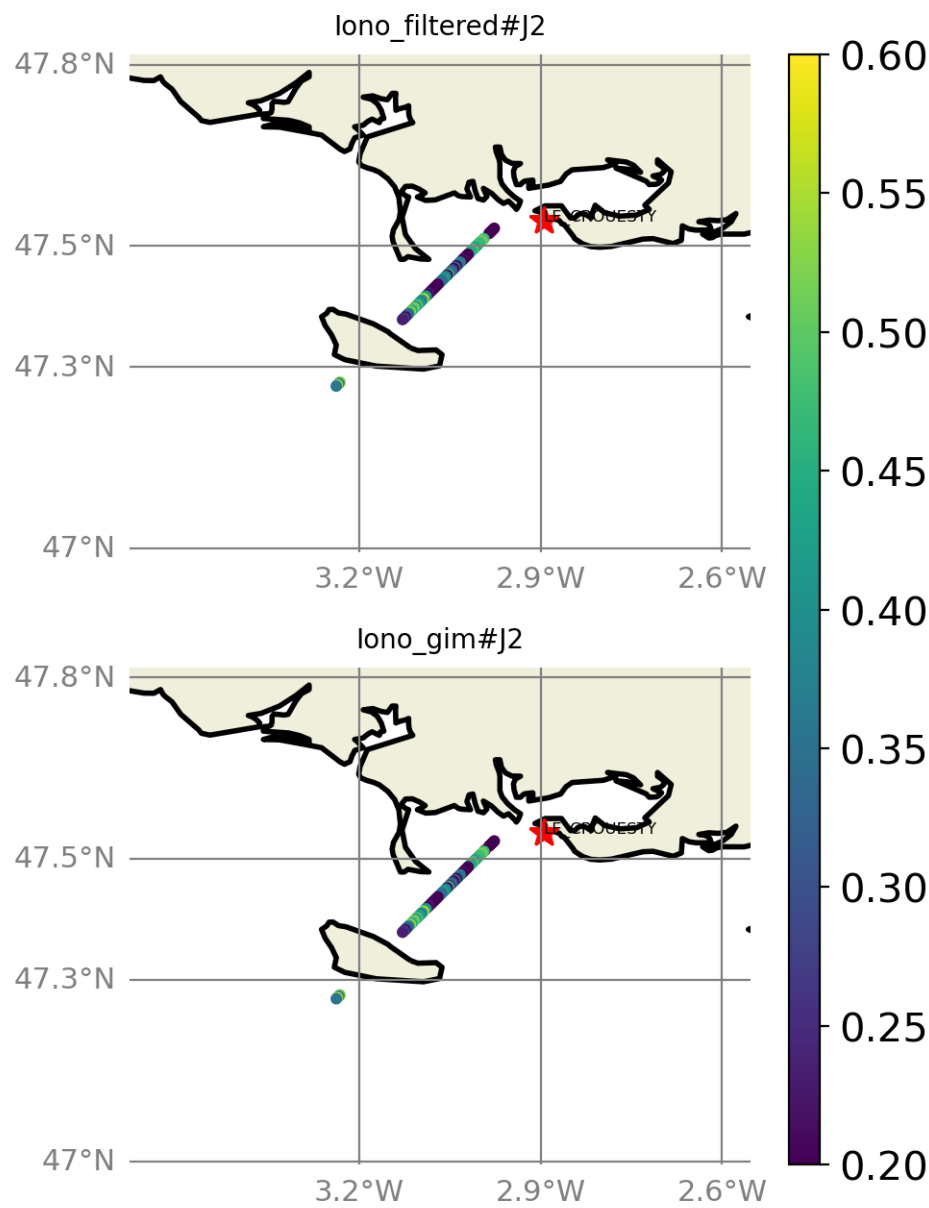


FIGURE 116 – correlation visualization in maps view % LE_CROUESTY tide gauge

6.9.2 rmsd visualization in maps view % LE_CROUESTY tide gauge

Rmsd (m) Altimetry data with respect to LE_CROUESTY Tide gauge data

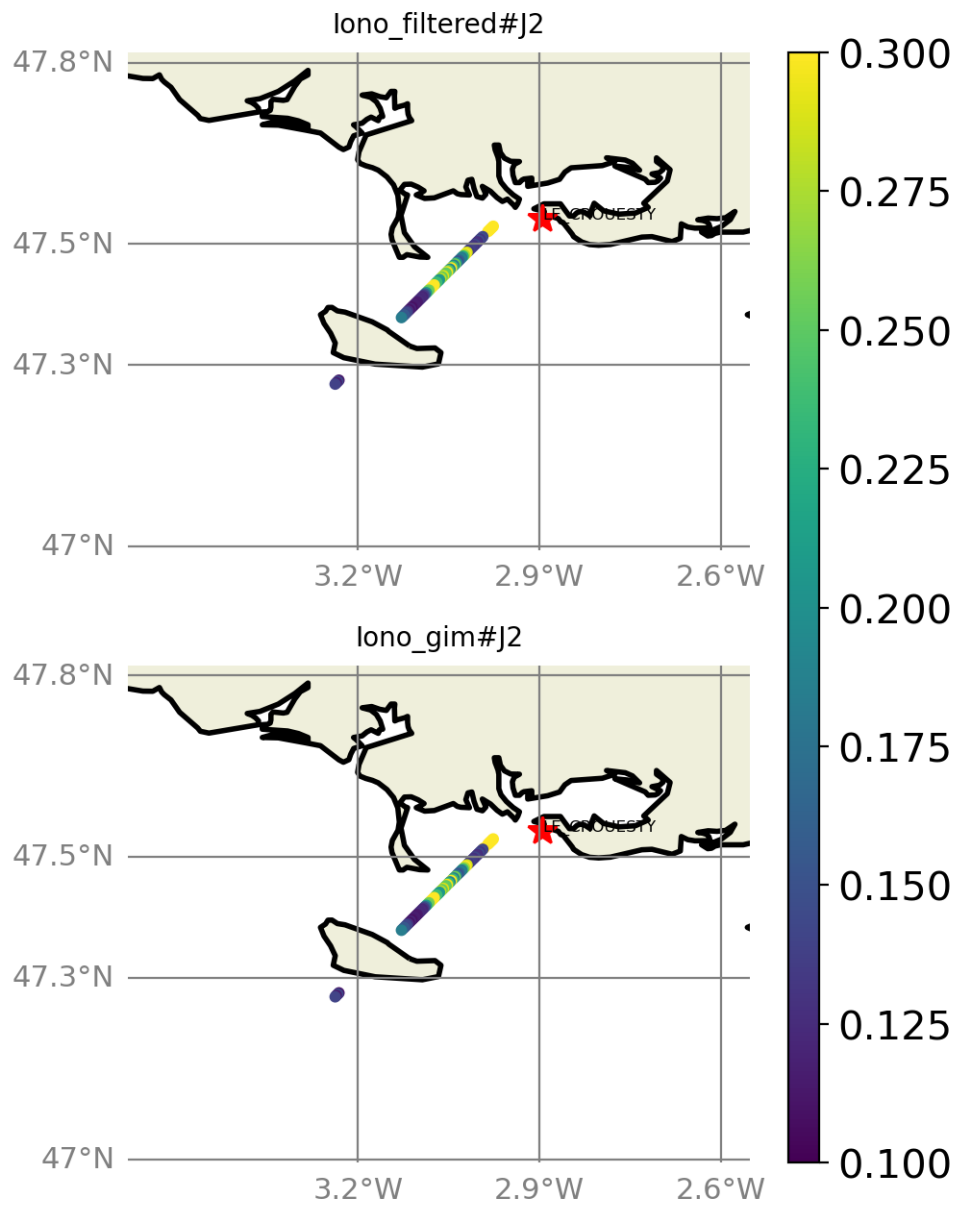


FIGURE 117 – rmsd visualization in maps view % LE_CROUESTY tide gauge

6.9.3 std visualization in maps view % LE_CROUESTY tide gauge

Std (m) Altimetry data with respect to LE_CROUESTY Tide gauge data

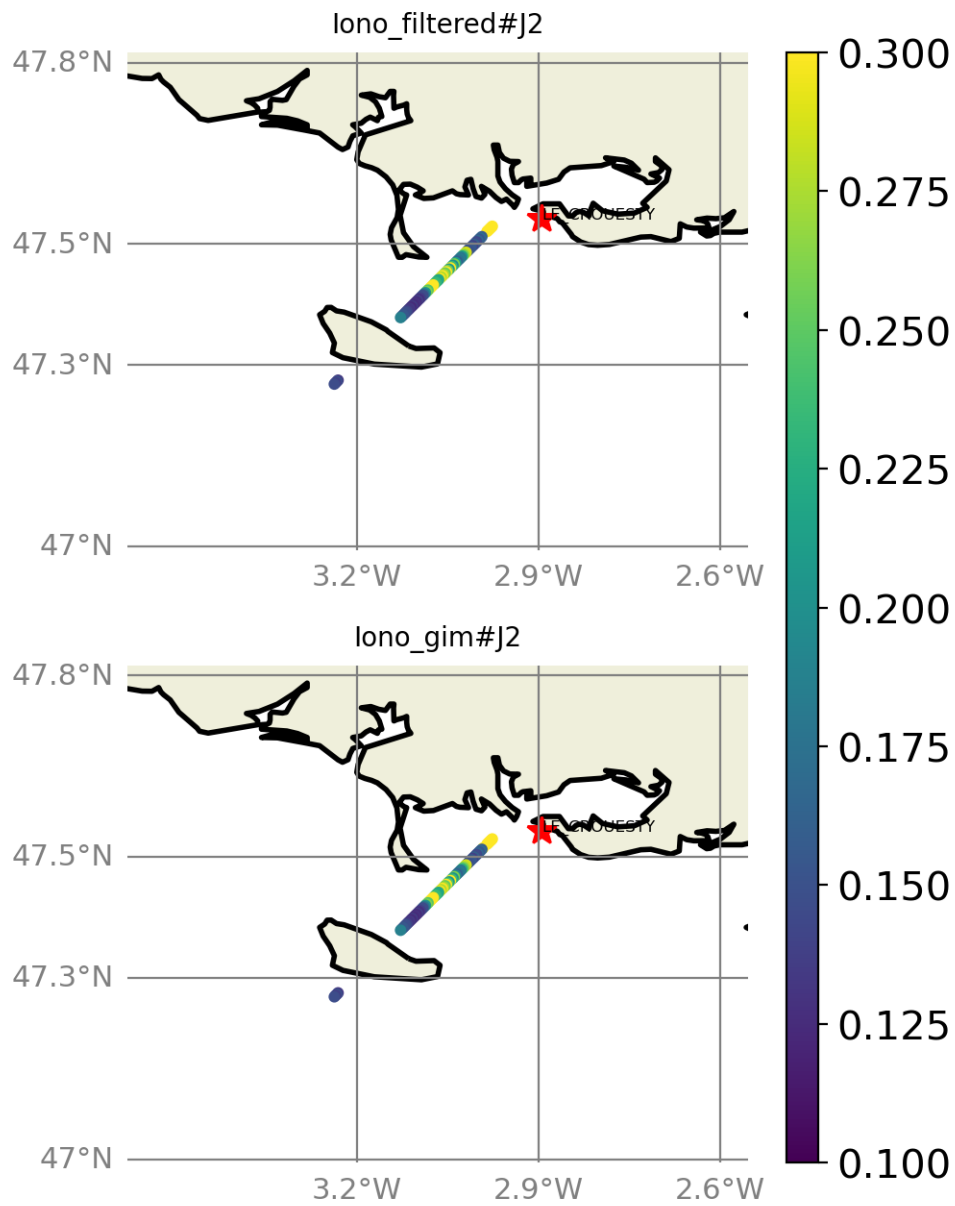


FIGURE 118 – std visualization in maps view % LE_CROUESTY tide gauge

6.9.4 valid_data_percent visualization in maps view % LE_CROUESTY tide gauge

Valid_Data_Percent (%) Altimetry data with respect to LE_CROUESTY Tide gauge data

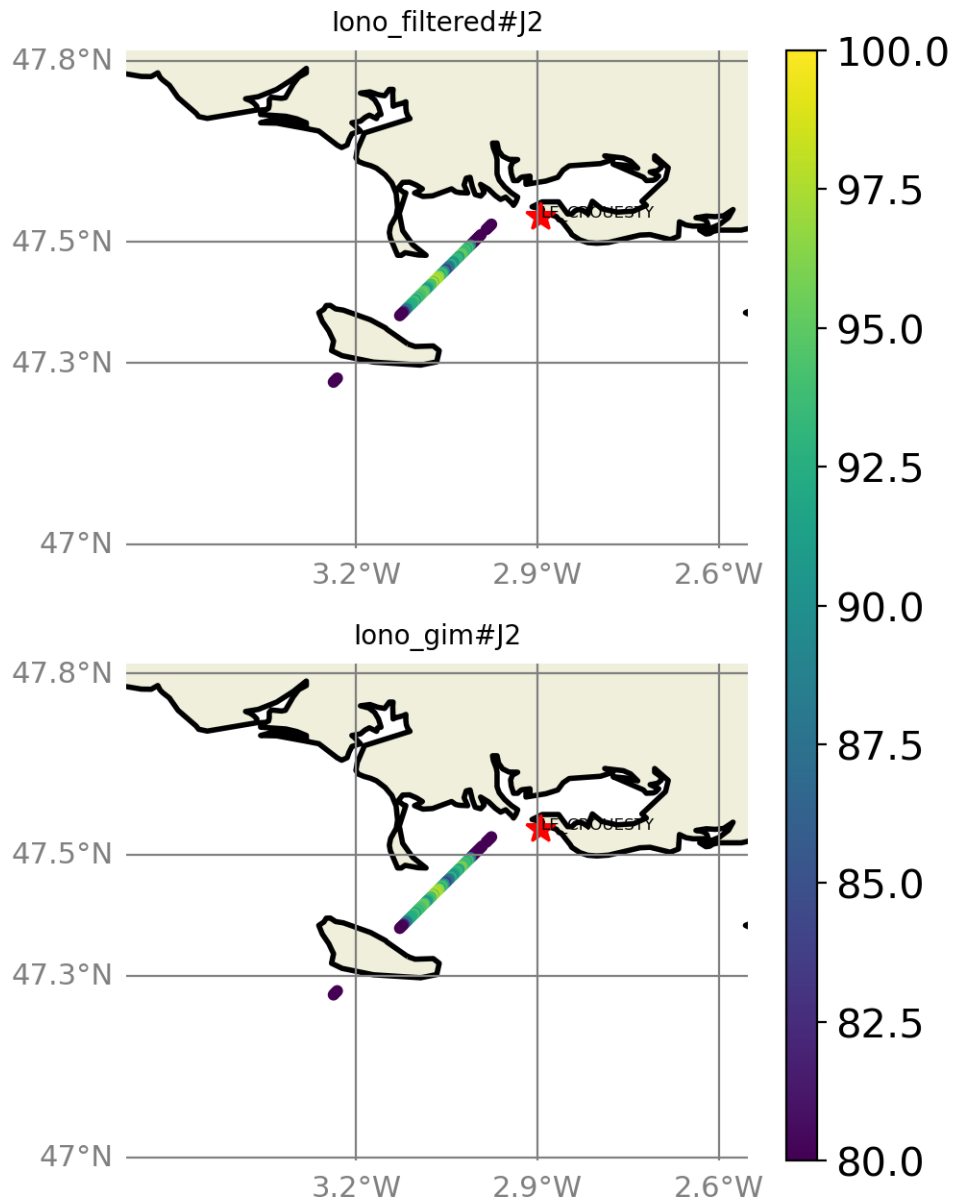


FIGURE 119 – valid_data_percent visualization in maps view % LE_CROUESTY tide gauge

6.9.5 Valid data (%) in function of distance to coast/LE_CROUESTY station

The formula to calculate the percentage of valid data in each time serie is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time serie, respectively in the time serie, i is the index of the time serie, np is the number of the selected altimetry time series. $maxNB = 105$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie.

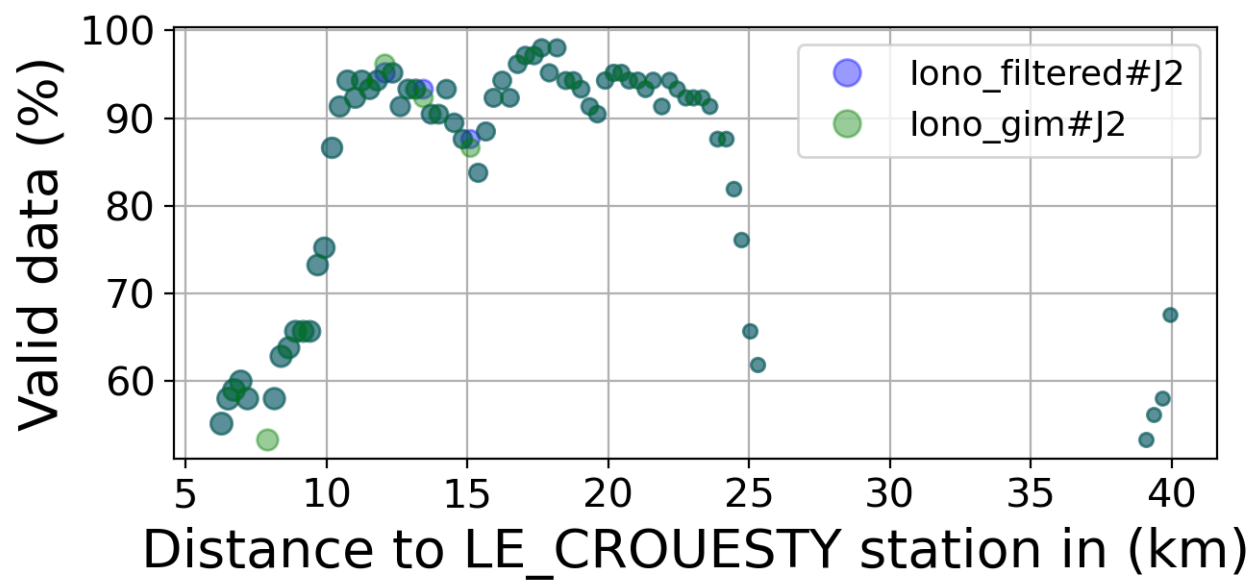
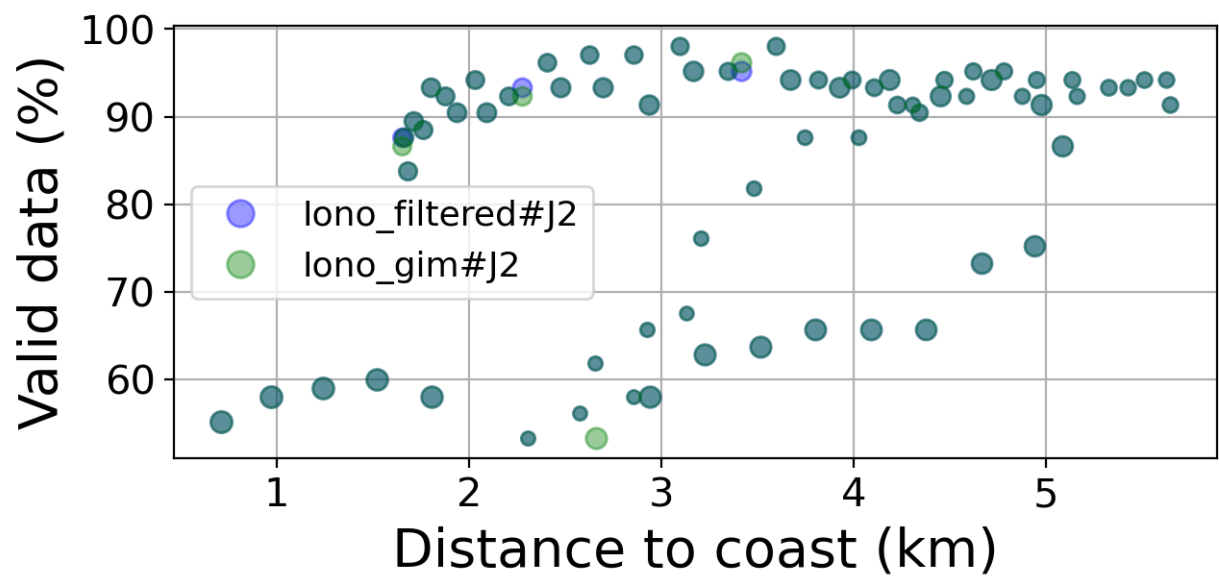


FIGURE 120 – Valid data (%) in function of distance to coast/LE_CROUESTY station

6.9.6 Std in function of distance to coast/LE_CROUESTY station

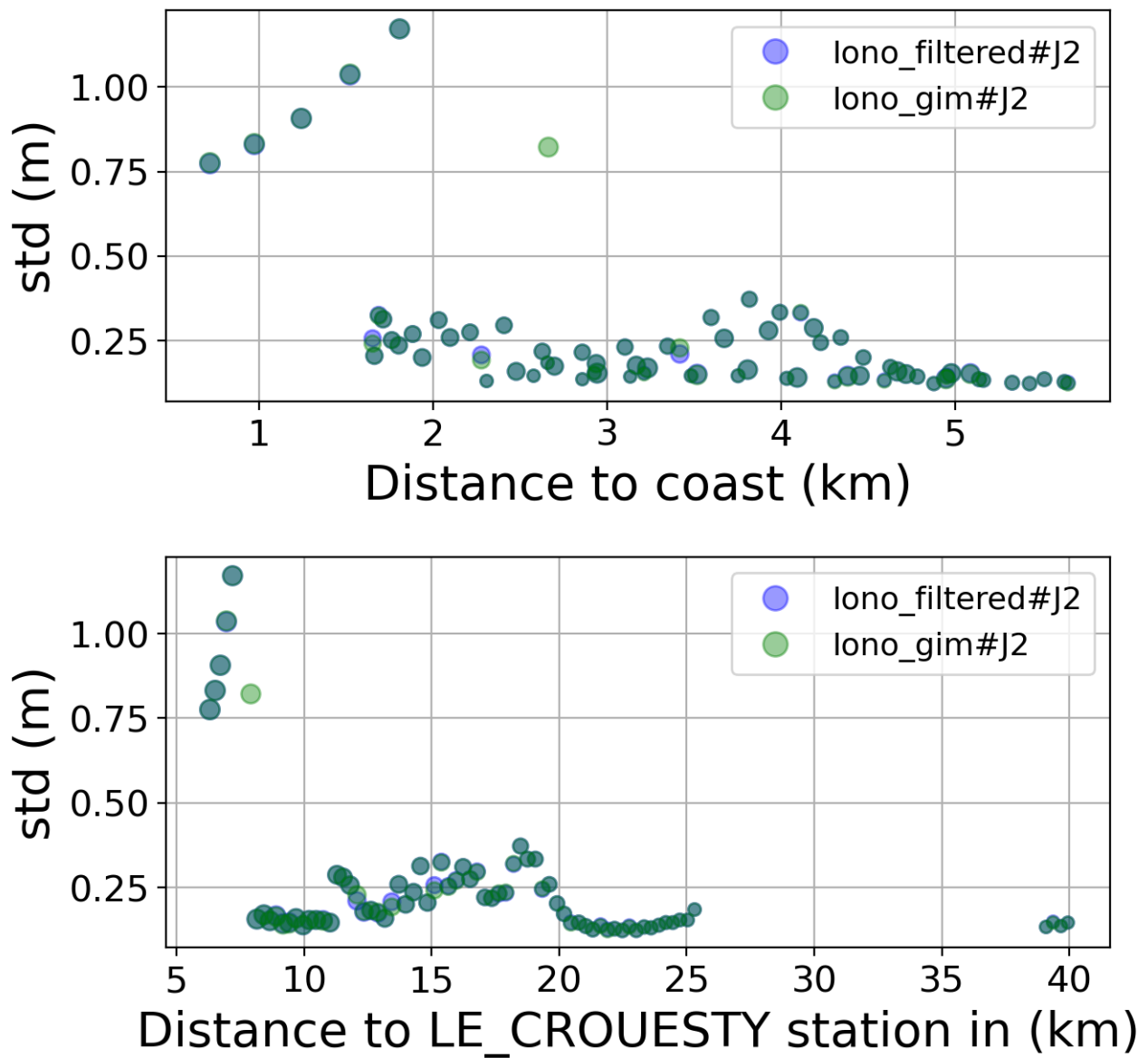


FIGURE 121 – Std in function of the distance to the coast/LE_CROUESTY station

6.9.7 Correlation in function of distance to coast/LE_CROUESTY station

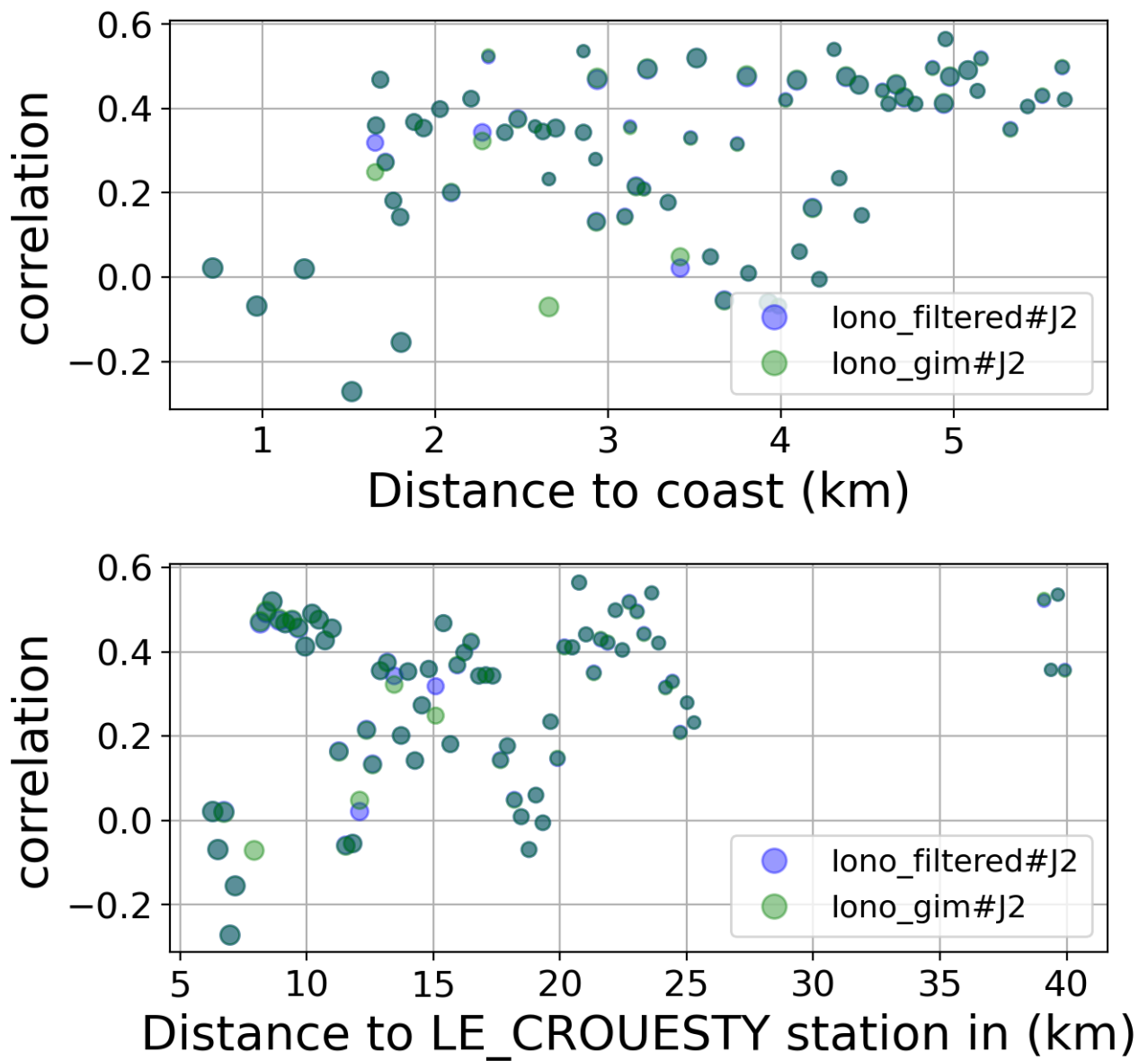


FIGURE 122 – Correlation in function of the distance to the coast/LE_CROUESTY station

6.9.8 Taylor Diagram

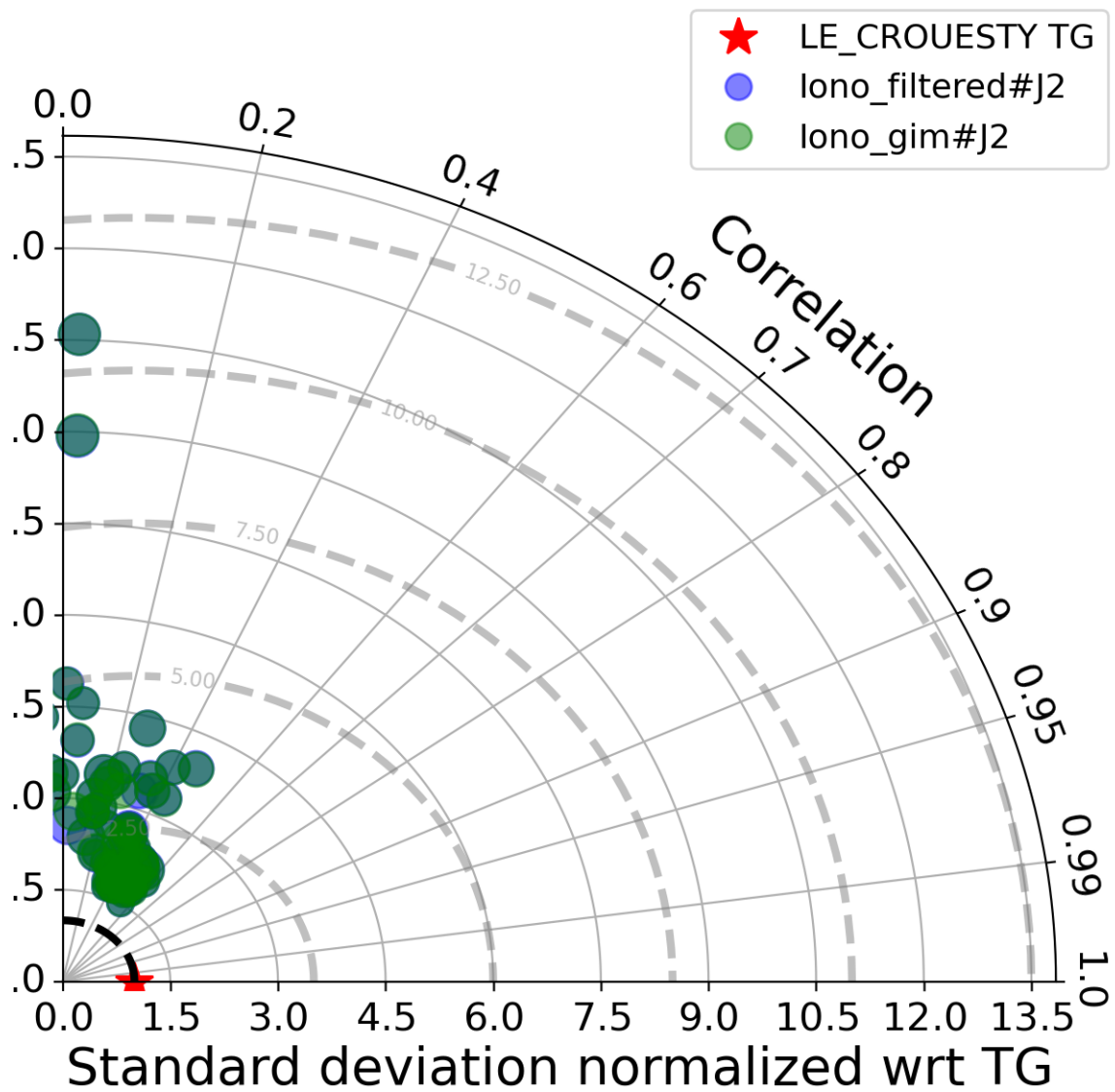


FIGURE 123 – Taylor diagram

6.9.9 Mean statistics table of products comparison with LE_CROUESTY tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	84.312	0.298	0.25	0.242
lono_gim#J2	84.299	0.298	0.25	0.242

FIGURE 124 – Mean statistics table of the common points in the altimetry products

6.9.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 105 point.

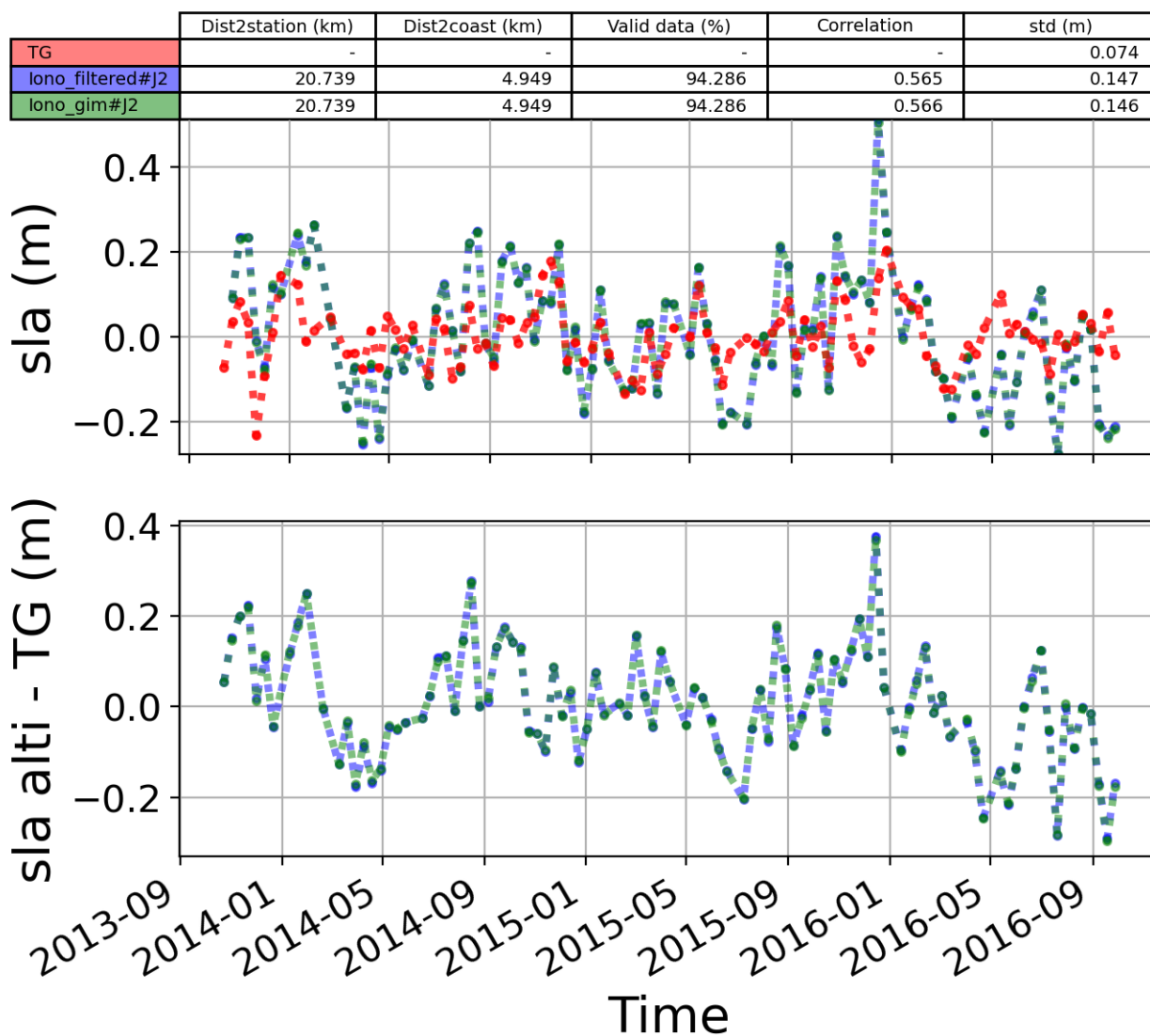


FIGURE 125 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

6.10 Station : North_Shields

- Nearest track to North_Shields station is the track number track120
- The area of interest is limited by :
 - A circle which it's center is the North_Shields tide gauge station location and has a Raduis of 40 Km
 - Maximum distance to the coast : 20 Km

6.10.1 correlation visualization in maps view % North_Shields tide gauge

Correlation Altimetry data with respect to North_Shields Tide gauge data

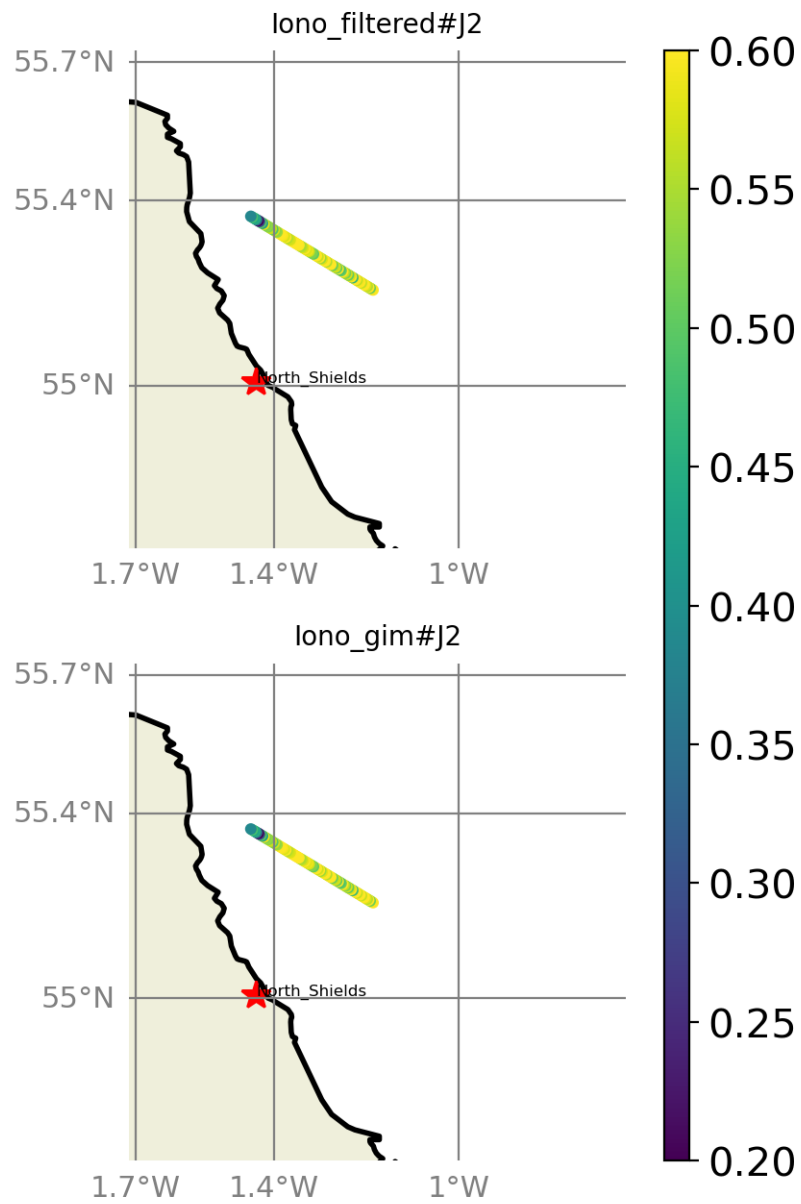


FIGURE 126 – correlation visualization in maps view % North_Shields tide gauge

6.10.2 rmsd visualization in maps view % North_Shields tide gauge

Rmsd (m) Altimetry data with respect to North_Shields Tide gauge data

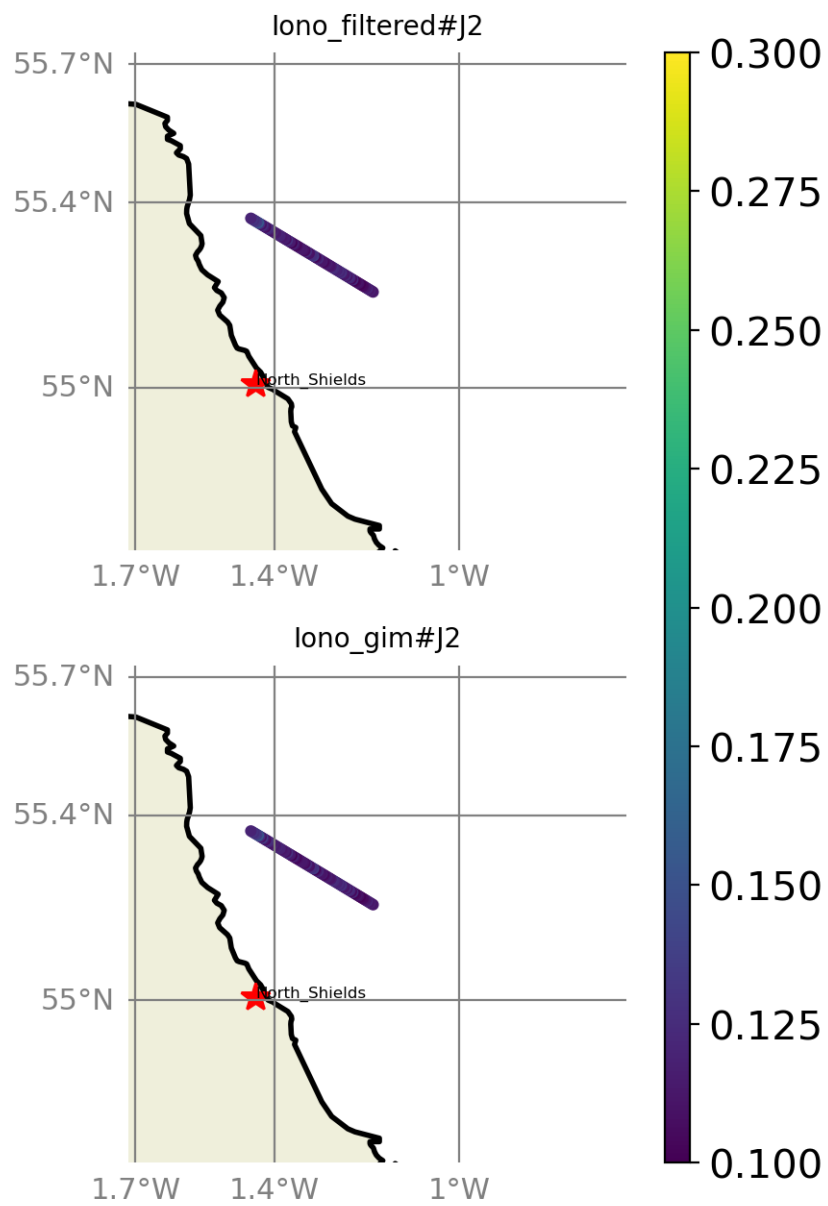


FIGURE 127 – rmsd visualization in maps view % North_Shields tide gauge

6.10.3 std visualization in maps view % North_Shields tide gauge

Std (m) Altimetry data with respect to North_Shields Tide gauge data

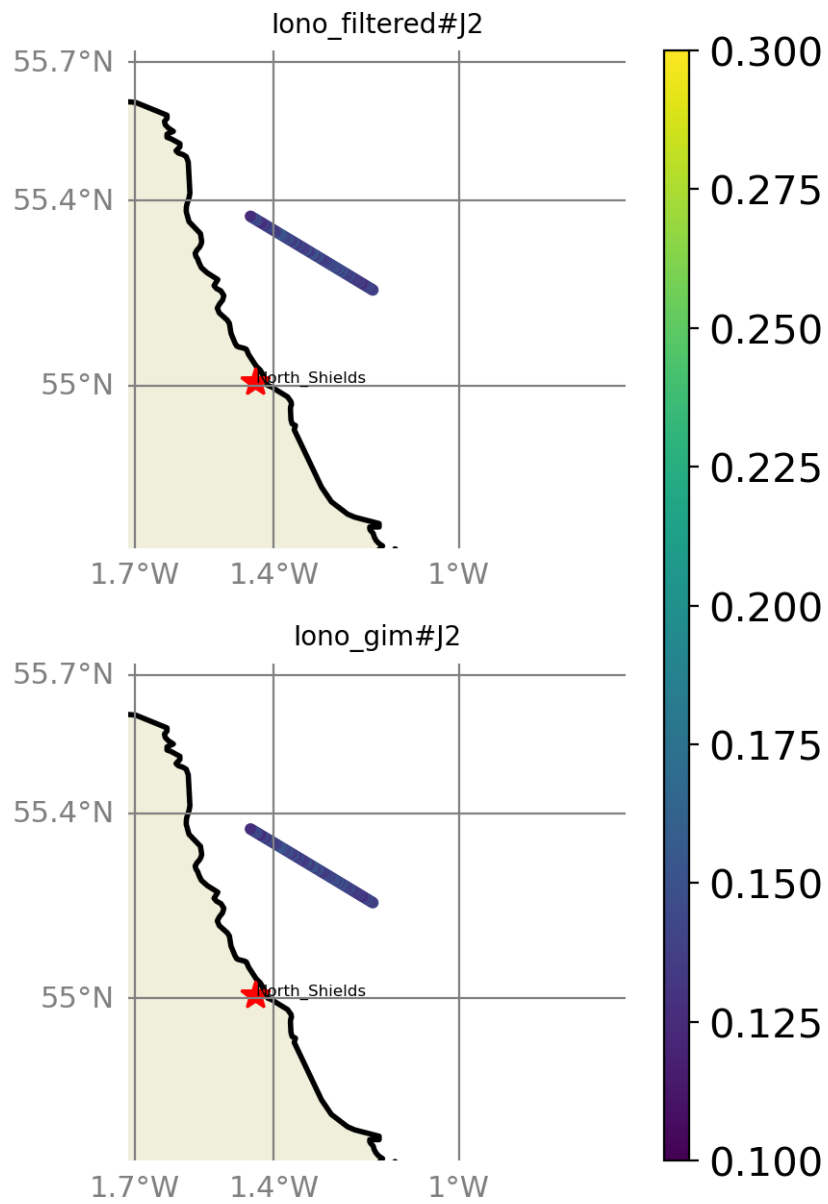


FIGURE 128 – std visualization in maps view % North_Shields tide gauge

6.10.4 valid_data_percent visualization in maps view % North_Shields tide gauge

Valid_Data_Percent (%) Altimetry data with respect to North_Shields Tide gauge data

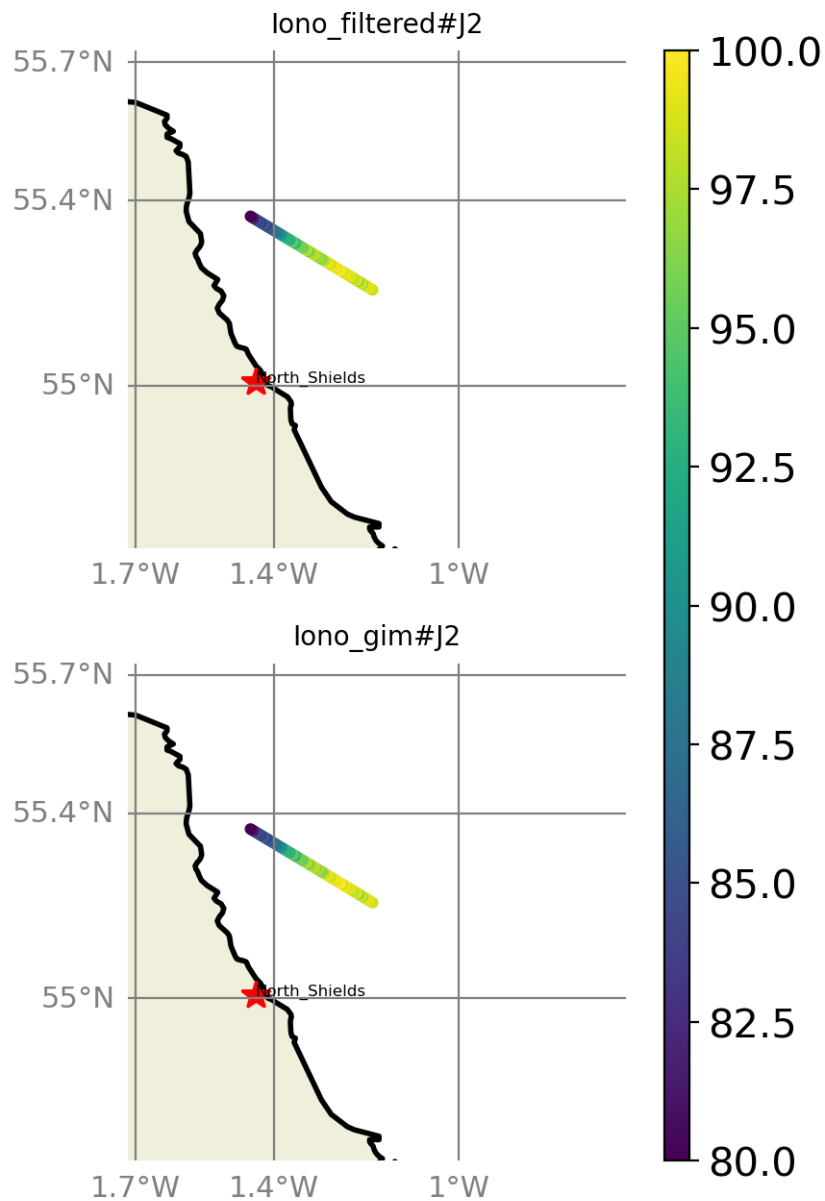


FIGURE 129 – valid_data_percent visualization in maps view % North_Shields tide gauge

6.10.5 Valid data (%) in function of distance to coast/North_Shields station

The formula to calculate the percentage of valid data in each time series is;

$$pvd_i = \frac{nvd_i}{maxNB}, i = 1, np$$

Where pvd and nvd are the percentage of data and the number of altimetry data in the period covered by the tide gauge sla time series, respectively in the time series, i is the index of the time series, np is the number of the selected altimetry time series. $maxNB = 105$ point is the maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time series.

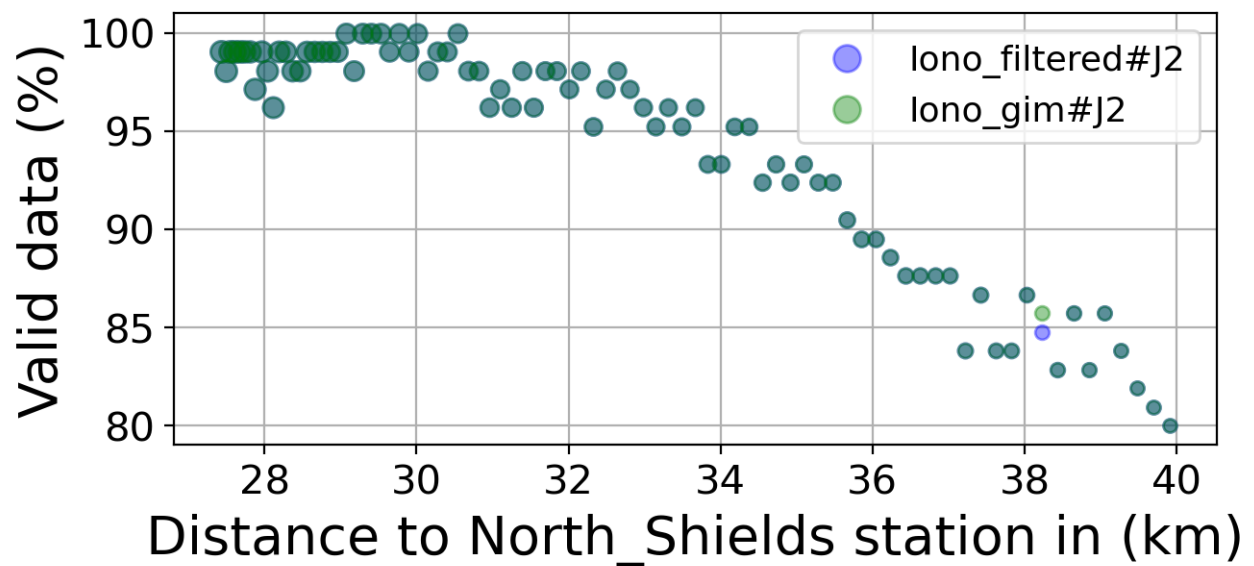
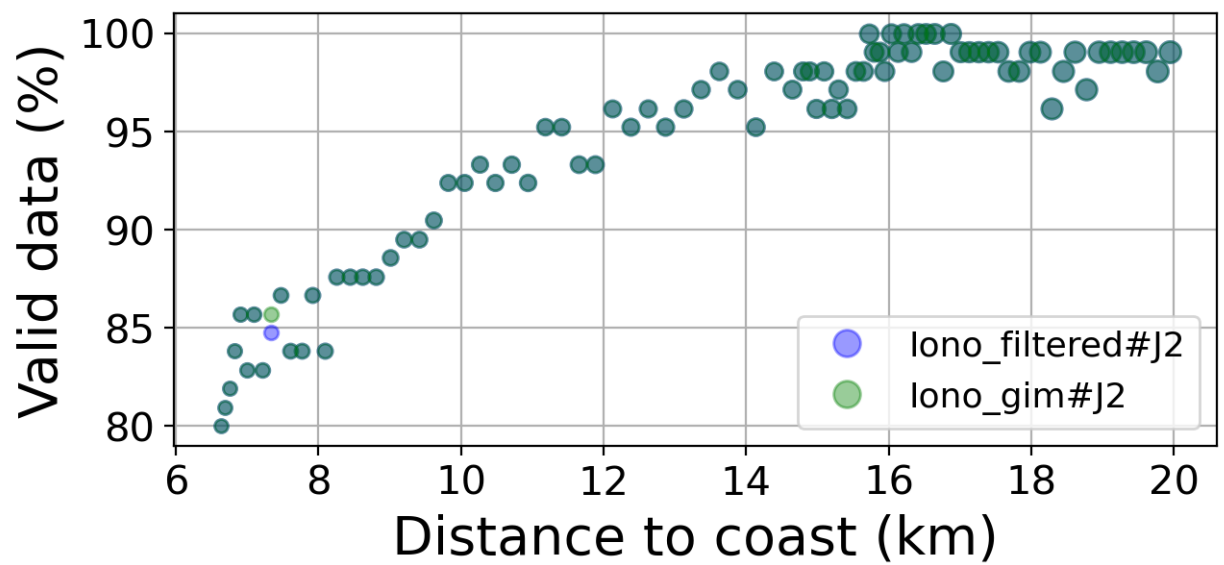


FIGURE 130 – Valid data (%) in function of distance to coast/North_Shields station

6.10.6 Std in function of distance to coast/North_Shields station

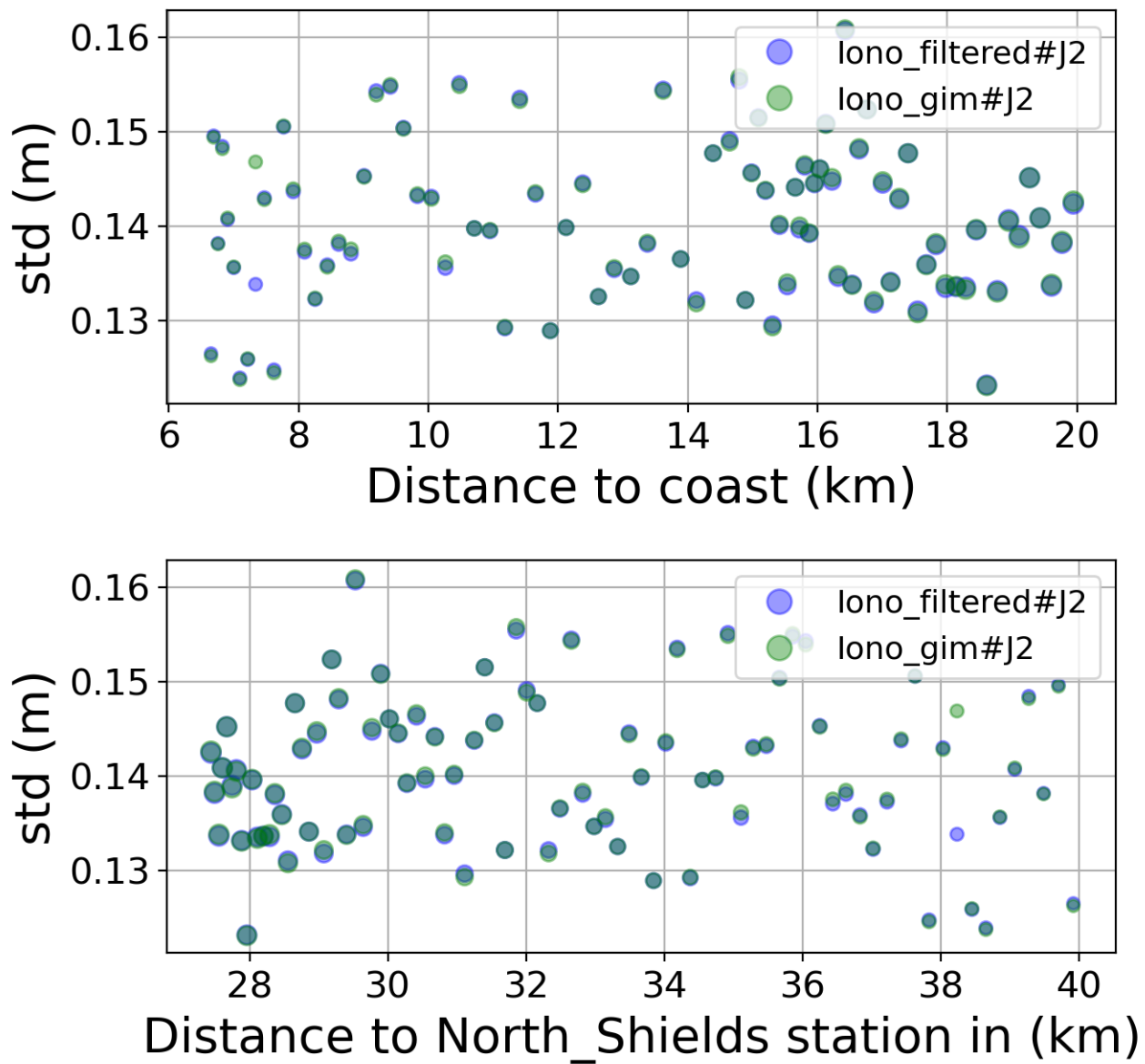


FIGURE 131 – Std in function of the distance to the coast/North_Shields station

6.10.7 Correlation in function of distance to coast/North_Shields station

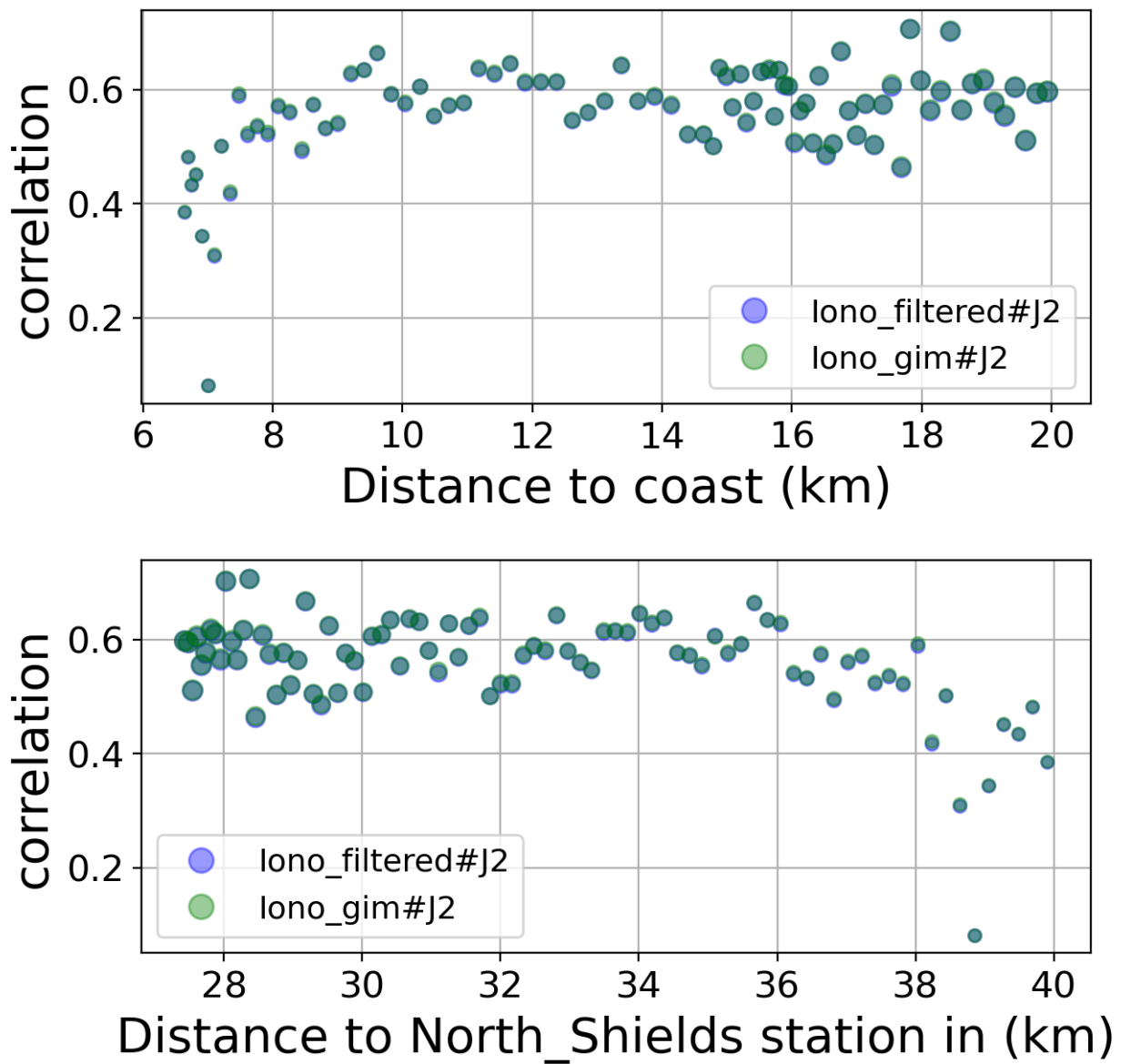


FIGURE 132 – Correlation in function of the distance to the coast/North_Shields station

6.10.8 Taylor Diagram

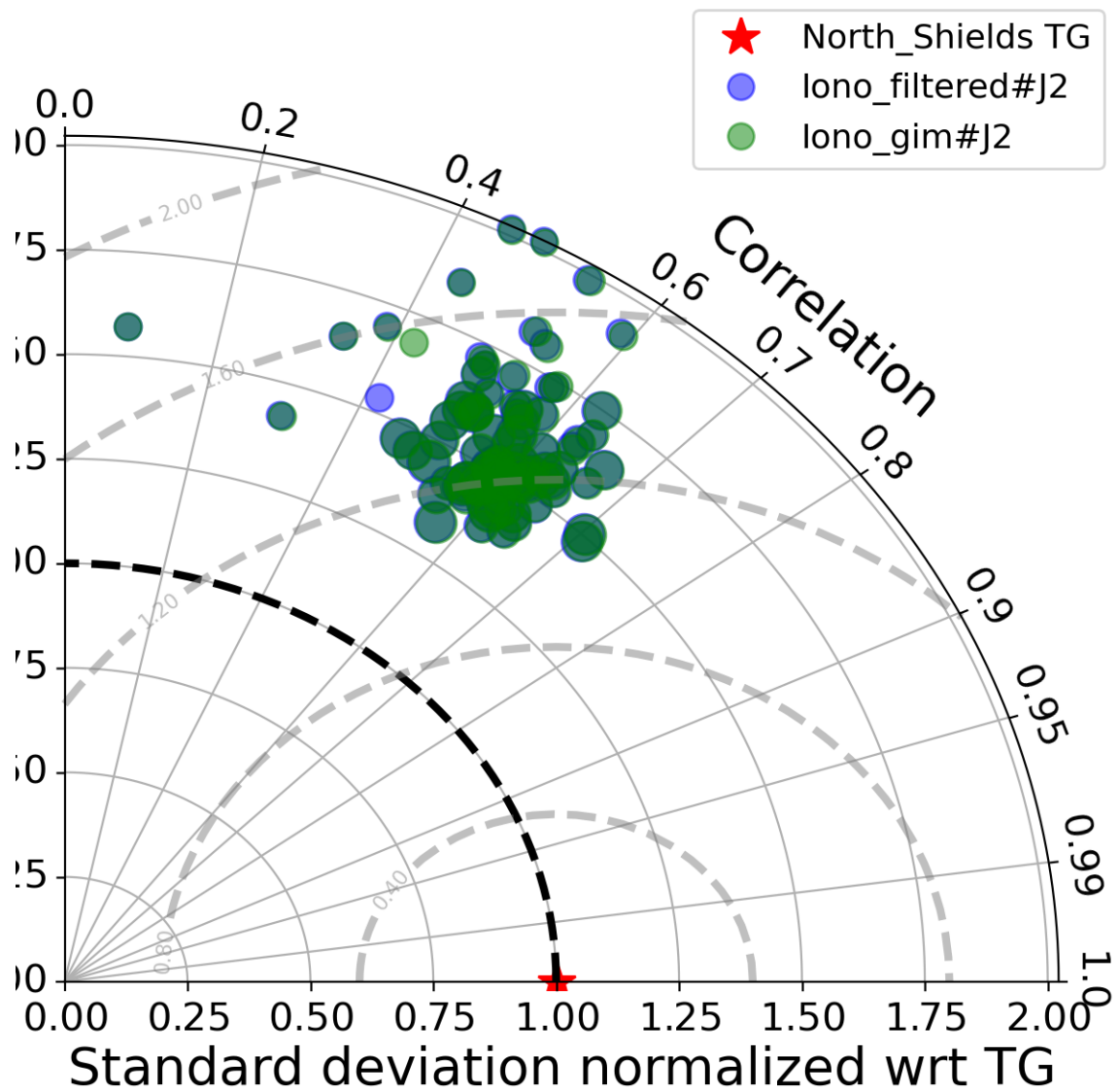


FIGURE 133 – Taylor diagram

6.10.9 Mean statistics table of products comparison with North_Shields tide gauge data

The table below contains the mean statistics of the common points between the different products in the selected area.

Product	Valid data (%)	Correlation	std (m)	rmsd (m)
lono_filtered#J2	94.331	0.559	0.14	0.117
lono_gim#J2	94.342	0.561	0.141	0.116

FIGURE 134 – Mean statistics table of the common points in the altimetry products

6.10.10 The most correlated sla altimetry Time series with the tide gauge sla time serie

The maximum number of valid altimetry points in the set of all the altimetry sla time series covered by the period of time of the Tide gauge sla time serie is 105 point.

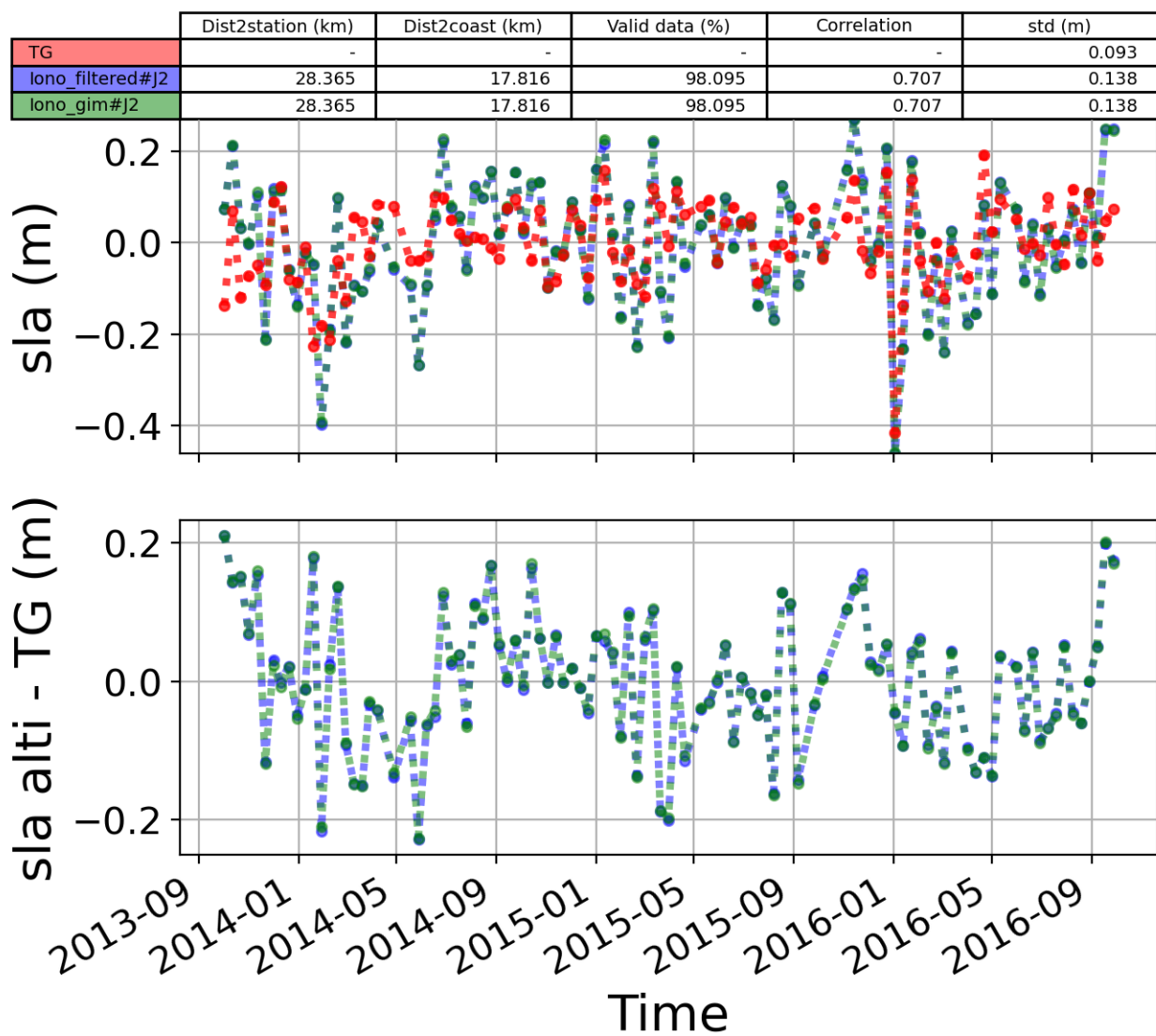


FIGURE 135 – The 1st most correlated sla altimetry Time serie with tide gauge sla time serie

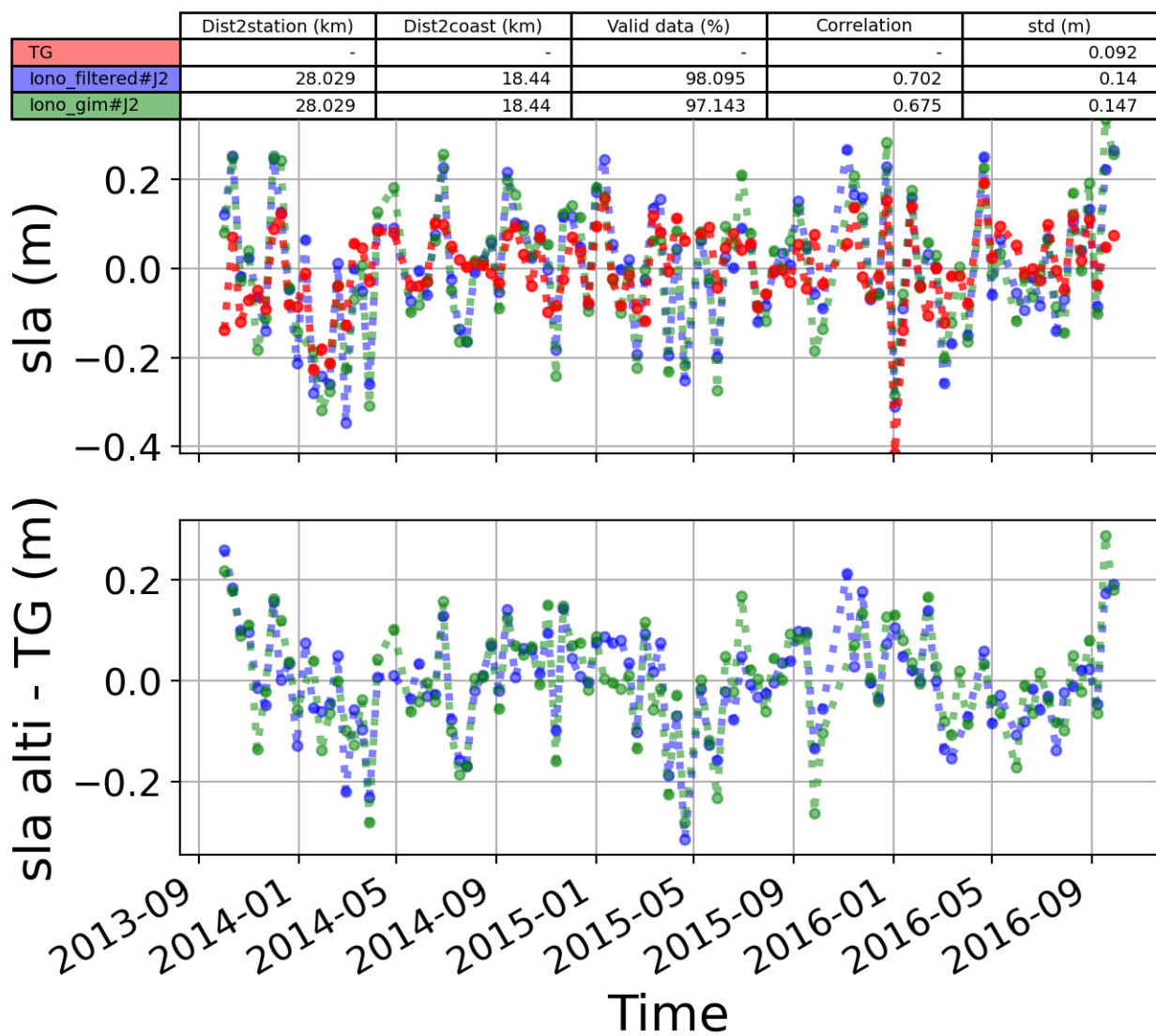


FIGURE 136 – The 2nd most correlated sla altimetry Time serie with tide gauge sla time serie