PyCAMA report generated by tropl2-proc

tropl2-proc

2025-03-30 (01:30)

1 Short Introduction

1.1 The list of parameters

You may want to keep the list given in table 1 at hand when viewing the results.

2 Definitions

The averages shown here are *unweighed* averages:

$$\overline{x} = \frac{1}{N}\sum_{i=1}^{N} x_i \tag{1}$$

with N the number of observations in the dataset.

The spread of the measurements is indicated with the variance $V(x)$, or rather the standard deviation $\sigma(x) = \sqrt{V(x)}$.

$$V(x) = \frac{1}{N-1}\sum_{i=1}^{N}(x_i - \overline{x})^2 \tag{2}$$

We also report the more robust statistics median, minimum, maximum, various percentiles and inter quartile range.

The median m is the value of parameter x for which half of the observations of x is smaller than m:

$$P(x \leq m) = P(x \geq m) = \int_{-\infty}^{m} f(x)\,\mathrm{d}x = \frac{1}{2} \tag{3}$$

with $f(x)$ the probability density function.

The median is a special case of a percentile. Instead of ½ in equation 3, other threshold values can be used. We report results for 1 %, 5 %, 10 %, 15.9 %, 25 %, 75 %, 84.1 %, 90 %, 95 % and 99 %. The inter quartile range is the difference between the 75 % and 25 % percentiles. Similarly the minimum and maximum values correspond to the 0 % and 100 % percentiles respectively.

For normally distributed parameters the mean and median are the same, while the $\mu \pm \sigma$ values and the 15.9 % and 84.1 % percentiles coincide.

To get a measure for the relation of one variable $x_{(k)}$ with another $x_{(l)}$, we calculate the covariance matrix C_{kl}.

$$C_{kl} = C(x_{(k)}, x_{(l)}) = \frac{1}{N-1}\sum_{i=1}^{N}(x_{(k),i} - \overline{x_{(k)}})(x_{(l),i} - \overline{x_{(l)}}) \tag{4}$$

Rather than a dimensionally dependent covariance, it is often easier to interpret a correlation matrix R_{kl}, a matrix of Pearson's r coefficients:

$$R_{kl} = R(x_{(k)}, x_{(l)}) = \frac{C_{kl}}{\sqrt{C_{kk}C_{ll}}} = \frac{C_{kl}}{\sqrt{V(x_k)V(x_l)}} \tag{5}$$

The diagonal elements of the covariance matrix are the variances of the elements, $V(x_{(k)}) = C_{kk}$ and obviously $R_{kk} = 1$.

Table 1: Parameterlist and basic statistics for the analysis

Variable	mean $\pm\sigma$	Count	Mode	IQR	Median	Minimum	Maximum
qa value [1]	0.614 ± 0.385	18393087	5.000×10^{-3}	0.650	0.800	0.0	1.000
cloud fraction [1]	0.554 ± 0.345	18393087	0.995	0.731	0.515	6.273×10^{-3}	1.000
cloud top height [m]	$(0.385 \pm 0.269) \times 10^4$	18393087	1.575×10^3	3.490×10^3	3.255×10^3	0.0	2.000×10^4
cloud optical thickness [1]	18.6 ± 33.0	18393087	8.91	10.7	9.39	1.000	250
cloud fraction crb [1]	0.553 ± 0.345	18393087	0.995	0.730	0.515	4.796×10^{-3}	1.000
cloud height crb [m]	$(0.301 \pm 0.238) \times 10^4$	18393087	75.0	3.041×10^3	2.466×10^3	0.0	2.000×10^4
cloud albedo crb [1]	0.598 ± 0.212	18393087	0.995	0.269	0.577	0.0	1.000
surface albedo fitted [1]	0.254 ± 0.315	18393087	2.500×10^{-2}	0.427	5.450×10^{-2}	0.0	1.000
surface albedo fitted crb [1]	0.243 ± 0.303	18393087	1.500×10^{-2}	0.446	4.466×10^{-2}	0.0	1.000
fitted root mean square [1]	$(6.727 \pm 12.163) \times 10^{-4}$	18393087	5.000×10^{-5}	7.856×10^{-4}	4.079×10^{-4}	1.196×10^{-6}	0.806
fitted root mean square crb [1]	$(5.953 \pm 12.176) \times 10^{-4}$	18393087	5.000×10^{-5}	7.199×10^{-4}	3.060×10^{-4}	9.055×10^{-7}	0.951
wavelength shift [nm]	$(7.522 \pm 6.785) \times 10^{-3}$	18393087	9.000×10^{-4}	9.307×10^{-3}	6.941×10^{-3}	-4.832×10^{-2}	0.554
cloud fraction apriori [1]	0.562 ± 0.349	18393087	0.995	0.769	0.530	0.0	1.000
reflectance blue ocra [1]	0.570 ± 0.232	18393087	0.255	0.394	0.551	0.136	2.00
reflectance green ocra [1]	0.520 ± 0.258	18393087	0.175	0.464	0.509	7.466×10^{-2}	1.94
reflectance continuum aband [1]	0.476 ± 0.280	18393087	4.500×10^{-2}	0.471	0.481	1.203×10^{-2}	5.24

Table 2: Percentile ranges

Variable	1 %	5 %	10 %	15.9 %	25 %	75 %	84.1 %	90 %	95 %	99 %
qa value [1]	0.0	0.0	0.0	0.0	0.300	0.950	1.000	1.000	1.000	1.000
cloud fraction [1]	2.607×10^{-2}	6.776×10^{-2}	0.103	0.148	0.229	0.961	1.000	1.000	1.000	1.000
cloud top height [m]	167	659	1.034×10^{3}	1.339×10^{3}	1.772×10^{3}	5.262×10^{3}	6.497×10^{3}	7.682×10^{3}	9.198×10^{3}	1.191×10^{4}
cloud optical thickness [1]	1.12	2.81	3.93	4.78	5.75	16.4	24.6	36.2	60.5	250
cloud fraction crb [1]	2.570×10^{-2}	6.700×10^{-2}	0.103	0.147	0.229	0.959	1.000	1.000	1.000	1.000
cloud height crb [m]	0.0	190	529	811	1.179×10^{3}	4.220×10^{3}	5.324×10^{3}	6.378×10^{3}	7.742×10^{3}	1.035×10^{4}
cloud albedo crb [1]	1.562×10^{-2}	0.242	0.361	0.421	0.469	0.738	0.828	0.905	0.991	1.000
surface albedo fitted [1]	0.0	9.420×10^{-3}	1.446×10^{-2}	1.897×10^{-2}	2.563×10^{-2}	0.452	0.709	0.805	0.900	0.993
surface albedo fitted crb [1]	7.246×10^{-4}	6.759×10^{-3}	1.044×10^{-2}	1.398×10^{-2}	1.949×10^{-2}	0.466	0.675	0.761	0.850	0.943
fitted root mean square [1]	1.628×10^{-5}	3.159×10^{-5}	4.972×10^{-5}	7.708×10^{-5}	1.338×10^{-4}	9.194×10^{-4}	1.251×10^{-3}	1.602×10^{-3}	2.165×10^{-3}	3.615×10^{-3}
fitted root mean square crb [1]	9.225×10^{-6}	2.087×10^{-5}	3.589×10^{-5}	5.578×10^{-5}	9.518×10^{-5}	8.151×10^{-4}	1.169×10^{-3}	1.535×10^{-3}	2.105×10^{-3}	3.449×10^{-3}
wavelength shift [nm]	-8.130×10^{-3}	-1.155×10^{-3}	6.536×10^{-5}	1.028×10^{-3}	2.580×10^{-3}	1.189×10^{-2}	1.423×10^{-2}	1.627×10^{-2}	1.905×10^{-2}	2.528×10^{-2}
cloud fraction apriori [1]	2.931×10^{-2}	6.541×10^{-2}	9.937×10^{-2}	0.145	0.231	1.000	1.000	1.000	1.000	1.000
reflectance blue ocra [1]	0.234	0.257	0.281	0.311	0.363	0.757	0.814	0.865	0.935	1.17
reflectance green ocra [1]	0.153	0.173	0.193	0.220	0.275	0.738	0.803	0.853	0.918	1.10
reflectance continuum aband [1]	3.023×10^{-2}	5.535×10^{-2}	8.965×10^{-2}	0.135	0.235	0.706	0.780	0.834	0.901	1.05

Table 3: Parameterlist and basic statistics for the analysis for observations in the northern hemisphere

Variable	mean $\pm\sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.552 ± 0.387	9620646	0.870	0.700	0.0	1.000	3.000×10^{-2}	0.900
cloud fraction [1]	0.526 ± 0.343	9620646	0.714	0.461	6.273×10^{-3}	1.000	0.211	0.926
cloud top height [m]	$(0.362 \pm 0.250) \times 10^4$	9620646	3.252×10^3	3.160×10^3	0.0	2.000×10^4	1.697×10^3	4.949×10^3
cloud optical thickness [1]	17.8 ± 34.9	9620646	8.81	8.59	1.000	250	5.48	14.3
cloud fraction crb [1]	0.526 ± 0.343	9620646	0.713	0.461	4.796×10^{-3}	1.000	0.212	0.925
cloud height crb [m]	$(0.270 \pm 0.211) \times 10^4$	9620646	2.820×10^3	2.300×10^3	0.0	2.000×10^4	1.050×10^3	3.870×10^3
cloud albedo crb [1]	0.624 ± 0.233	9620646	0.330	0.610	0.0	1.000	0.473	0.804
surface albedo fitted [1]	0.340 ± 0.329	9620646	0.627	0.213	0.0	1.000	3.724×10^{-2}	0.665
surface albedo fitted crb [1]	0.325 ± 0.312	9620646	0.612	0.211	0.0	1.000	3.013×10^{-2}	0.642
fitted root mean square [1]	$(8.154 \pm 15.599) \times 10^{-4}$	9620646	9.287×10^{-4}	5.444×10^{-4}	1.369×10^{-6}	0.806	1.794×10^{-4}	1.108×10^{-3}
fitted root mean square crb [1]	$(7.002 \pm 15.757) \times 10^{-4}$	9620646	8.562×10^{-4}	3.840×10^{-4}	9.055×10^{-7}	0.951	1.149×10^{-4}	9.711×10^{-4}
wavelength shift [nm]	$(8.281 \pm 6.873) \times 10^{-3}$	9620646	9.649×10^{-3}	7.870×10^{-3}	-4.832×10^{-2}	0.554	3.220×10^{-3}	1.287×10^{-2}
cloud fraction apriori [1]	0.540 ± 0.346	9620646	0.759	0.486	0.0	1.000	0.219	0.978
reflectance blue ocra [1]	0.589 ± 0.244	9620646	0.421	0.594	0.138	2.00	0.360	0.781
reflectance green ocra [1]	0.546 ± 0.267	9620646	0.490	0.566	7.841×10^{-2}	1.94	0.280	0.769
reflectance continuum aband [1]	0.513 ± 0.283	9620646	0.478	0.541	1.357×10^{-2}	3.84	0.266	0.744

Table 4: Parameterlist and basic statistics for the analysis for observations in the southern hemisphere

Variable	mean $\pm\sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.682 ± 0.370	8772441	0.600	0.900	0.0	1.000	0.400	1.000
cloud fraction [1]	0.584 ± 0.346	8772441	0.726	0.588	8.290×10^{-3}	1.000	0.254	0.981
cloud top height [m]	$(0.410 \pm 0.286) \times 10^4$	8772441	3.863×10^3	3.369×10^3	0.0	2.000×10^4	1.851×10^3	5.715×10^3
cloud optical thickness [1]	19.4 ± 30.9	8772441	12.4	10.4	1.000	250	6.25	18.6
cloud fraction crb [1]	0.583 ± 0.346	8772441	0.726	0.586	8.568×10^{-3}	1.000	0.253	0.979
cloud height crb [m]	$(0.335 \pm 0.261) \times 10^4$	8772441	3.447×10^3	2.663×10^3	0.0	1.668×10^4	1.315×10^3	4.763×10^3
cloud albedo crb [1]	0.569 ± 0.182	8772441	0.206	0.554	0.0	1.000	0.466	0.673
surface albedo fitted [1]	0.160 ± 0.269	8772441	0.119	3.464×10^{-2}	0.0	1.000	1.991×10^{-2}	0.139
surface albedo fitted crb [1]	0.152 ± 0.264	8772441	0.108	2.684×10^{-2}	0.0	1.000	1.448×10^{-2}	0.122
fitted root mean square [1]	$(5.161 \pm 6.218) \times 10^{-4}$	8772441	5.999×10^{-4}	2.977×10^{-4}	1.196×10^{-6}	0.164	1.043×10^{-4}	7.042×10^{-4}
fitted root mean square crb [1]	$(4.803 \pm 6.003) \times 10^{-4}$	8772441	5.794×10^{-4}	2.418×10^{-4}	1.446×10^{-6}	2.137×10^{-2}	7.989×10^{-5}	6.593×10^{-4}
wavelength shift [nm]	$(6.689 \pm 6.587) \times 10^{-3}$	8772441	8.690×10^{-3}	6.017×10^{-3}	-4.583×10^{-2}	5.928×10^{-2}	2.016×10^{-3}	1.071×10^{-2}
cloud fraction apriori [1]	0.586 ± 0.351	8772441	0.753	0.590	0.0	1.000	0.247	1.000
reflectance blue ocra [1]	0.549 ± 0.217	8772441	0.342	0.521	0.136	1.96	0.365	0.707
reflectance green ocra [1]	0.492 ± 0.245	8772441	0.409	0.468	7.466×10^{-2}	1.93	0.270	0.679
reflectance continuum aband [1]	0.437 ± 0.271	8772441	0.442	0.427	1.203×10^{-2}	5.24	0.203	0.645

Table 5: Parameterlist and basic statistics for the analysis for observations over water

Variable	mean $\pm\sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.653 ± 0.374	12767734	0.600	0.860	0.0	1.000	0.370	0.970
cloud fraction [1]	0.560 ± 0.352	12767734	0.755	0.538	8.302×10^{-3}	1.000	0.218	0.974
cloud top height [m]	$(0.350 \pm 0.244) \times 10^4$	12767734	3.103×10^3	2.909×10^3	0.0	2.000×10^4	1.637×10^3	4.739×10^3
cloud optical thickness [1]	18.8 ± 30.9	12767734	10.6	10.1	1.000	250	6.67	17.3
cloud fraction crb [1]	0.560 ± 0.352	12767734	0.754	0.536	4.796×10^{-3}	1.000	0.218	0.973
cloud height crb [m]	$(0.275 \pm 0.219) \times 10^4$	12767734	2.807×10^3	2.221×10^3	0.0	2.000×10^4	1.072×10^3	3.879×10^3
cloud albedo crb [1]	0.575 ± 0.191	12767734	0.224	0.551	0.0	1.000	0.461	0.686
surface albedo fitted [1]	0.149 ± 0.261	12767734	4.136×10^{-2}	3.377×10^{-2}	0.0	1.000	2.013×10^{-2}	6.149×10^{-2}
surface albedo fitted crb [1]	0.137 ± 0.248	12767734	3.583×10^{-2}	2.647×10^{-2}	0.0	1.000	1.491×10^{-2}	5.074×10^{-2}
fitted root mean square [1]	$(5.353 \pm 12.312) \times 10^{-4}$	12767734	6.131×10^{-4}	2.740×10^{-4}	1.196×10^{-6}	0.806	9.525×10^{-5}	7.083×10^{-4}
fitted root mean square crb [1]	$(4.775 \pm 13.300) \times 10^{-4}$	12767734	5.216×10^{-4}	2.104×10^{-4}	9.055×10^{-7}	0.951	7.473×10^{-5}	5.963×10^{-4}
wavelength shift [nm]	$(6.924 \pm 6.748) \times 10^{-3}$	12767734	8.930×10^{-3}	6.206×10^{-3}	-4.685×10^{-2}	0.554	2.186×10^{-3}	1.112×10^{-2}
cloud fraction apriori [1]	0.564 ± 0.356	12767734	0.785	0.544	0.0	1.000	0.215	1.000
reflectance blue ocra [1]	0.539 ± 0.215	12767734	0.354	0.513	0.160	1.95	0.352	0.706
reflectance green ocra [1]	0.481 ± 0.241	12767734	0.425	0.461	9.146×10^{-2}	1.86	0.254	0.679
reflectance continuum aband [1]	0.415 ± 0.272	12767734	0.485	0.409	1.203×10^{-2}	3.84	0.153	0.638

Table 6: Parameterlist and basic statistics for the analysis for observations over land

Variable	mean $\pm\sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.522 ± 0.403	4191644	0.900	0.670	0.0	1.000	0.0	0.900
cloud fraction [1]	0.526 ± 0.328	4191644	0.634	0.463	6.273×10^{-3}	1.000	0.244	0.878
cloud top height [m]	$(0.500 \pm 0.305) \times 10^4$	4191644	4.045×10^3	4.551×10^3	0.0	2.000×10^4	2.657×10^3	6.702×10^3
cloud optical thickness [1]	15.6 ± 32.4	4191644	7.91	6.77	1.000	250	4.57	12.5
cloud fraction crb [1]	0.526 ± 0.328	4191644	0.633	0.463	8.303×10^{-3}	1.000	0.244	0.877
cloud height crb [m]	$(0.391 \pm 0.277) \times 10^4$	4191644	3.504×10^3	3.324×10^3	0.0	2.000×10^4	1.813×10^3	5.317×10^3
cloud albedo crb [1]	0.642 ± 0.241	4191644	0.327	0.651	0.0	1.000	0.501	0.828
surface albedo fitted [1]	0.499 ± 0.291	4191644	0.553	0.362	0.0	1.000	0.242	0.794
surface albedo fitted crb [1]	0.489 ± 0.276	4191644	0.527	0.376	2.850×10^{-3}	1.000	0.239	0.766
fitted root mean square [1]	$(9.666 \pm 11.459) \times 10^{-4}$	4191644	8.758×10^{-4}	7.253×10^{-4}	3.591×10^{-6}	0.200	3.716×10^{-4}	1.247×10^{-3}
fitted root mean square crb [1]	$(8.518 \pm 8.598) \times 10^{-4}$	4191644	9.508×10^{-4}	6.172×10^{-4}	2.360×10^{-6}	3.062×10^{-2}	2.282×10^{-4}	1.179×10^{-3}
wavelength shift [nm]	$(8.431 \pm 6.515) \times 10^{-3}$	4191644	9.286×10^{-3}	8.058×10^{-3}	-4.832×10^{-2}	5.538×10^{-2}	3.472×10^{-3}	1.276×10^{-2}
cloud fraction apriori [1]	0.540 ± 0.332	4191644	0.678	0.483	0.0	1.000	0.250	0.928
reflectance blue ocra [1]	0.634 ± 0.261	4191644	0.448	0.674	0.136	1.96	0.382	0.830
reflectance green ocra [1]	0.602 ± 0.279	4191644	0.499	0.659	7.466×10^{-2}	1.93	0.325	0.824
reflectance continuum aband [1]	0.611 ± 0.244	4191644	0.405	0.636	1.647×10^{-2}	5.24	0.393	0.798

3 Granule outlines

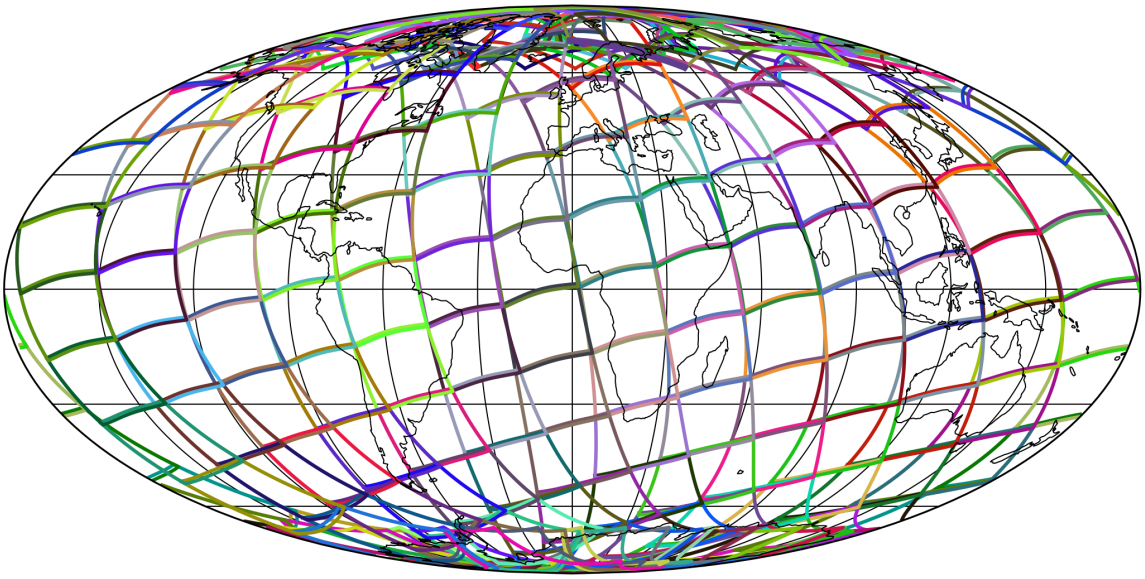

Figure 1: Outline of the granules.

4 Input data monitoring

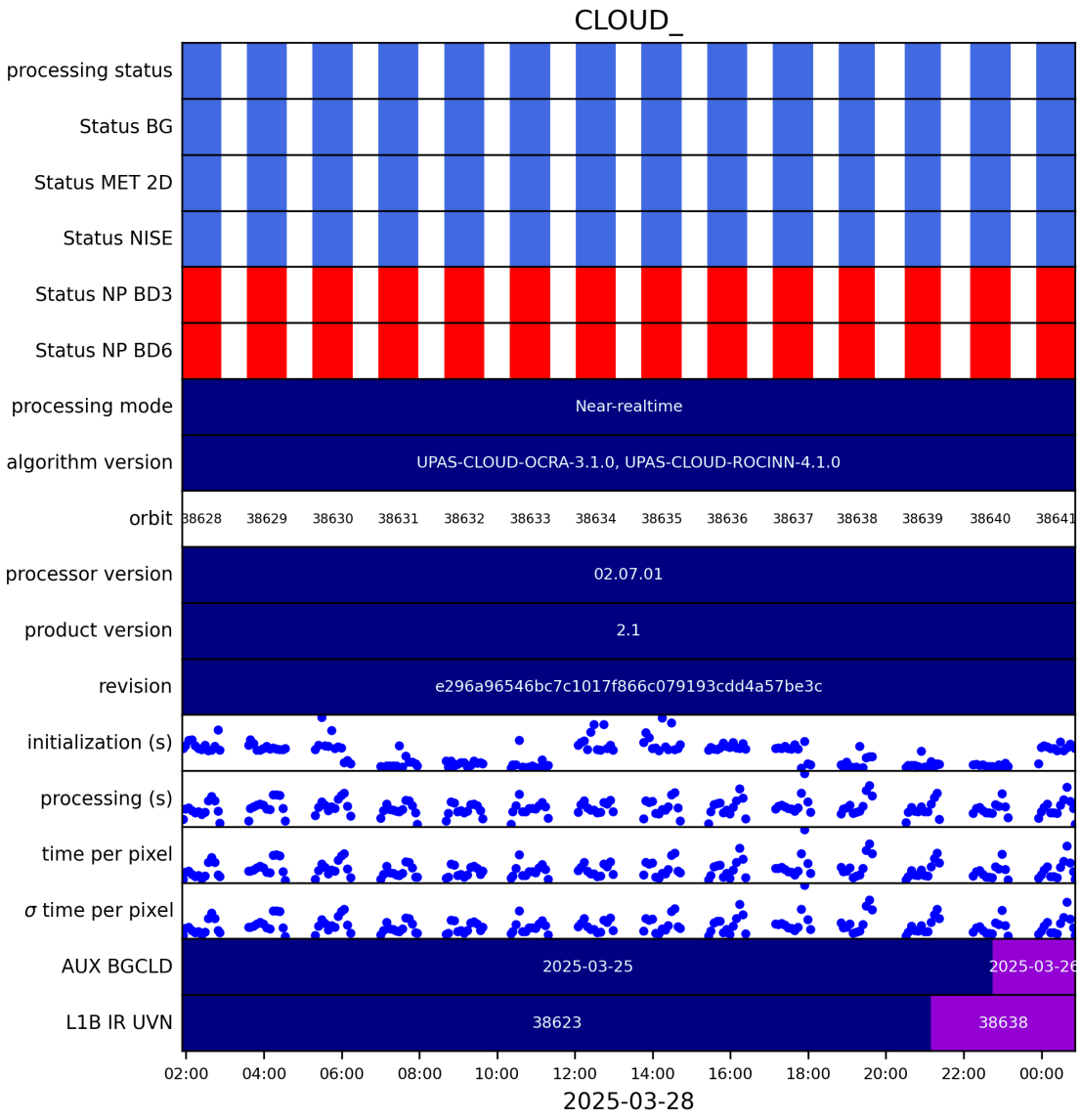

Figure 2: Input data per granule

5 Warnings and errors

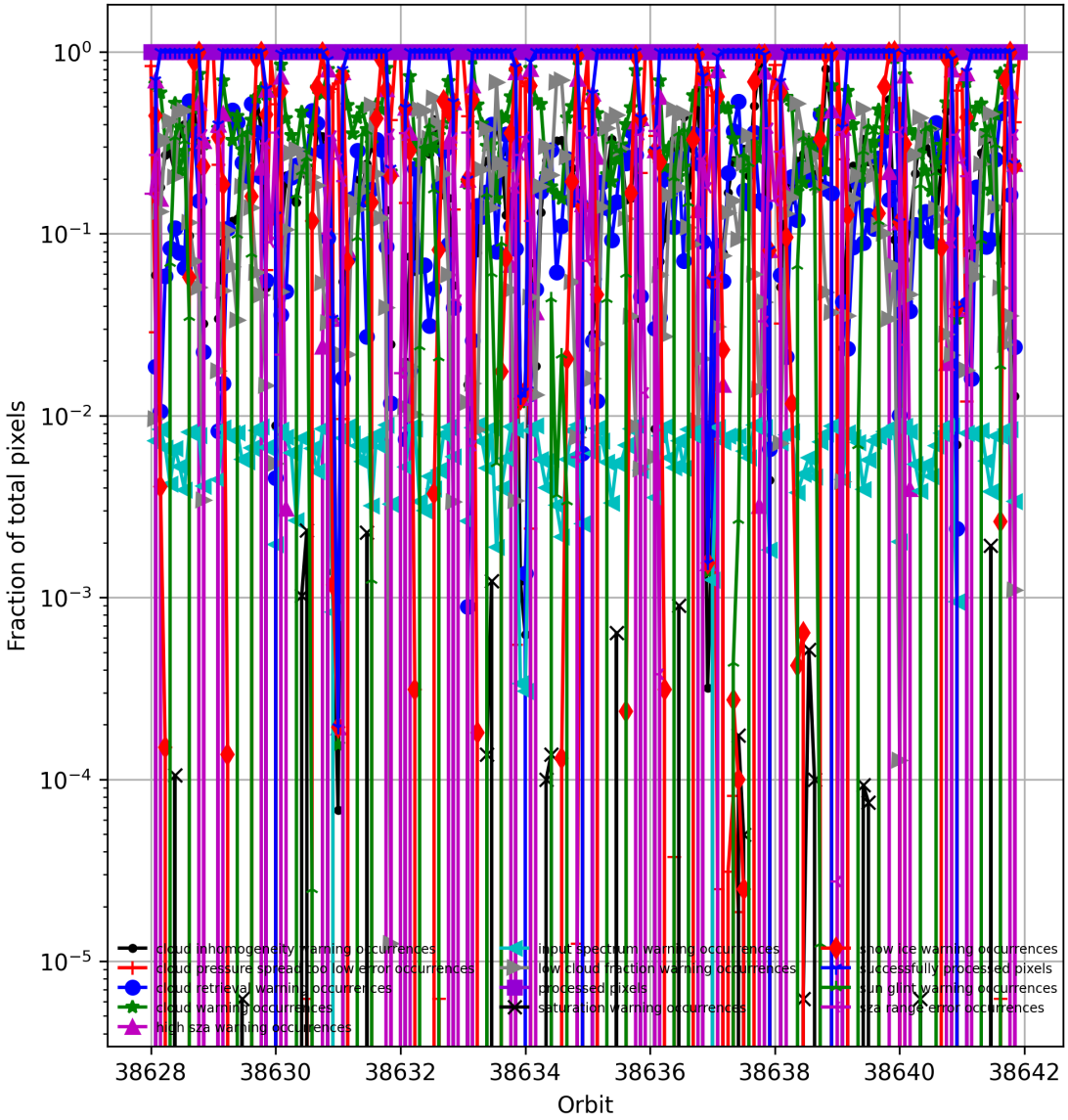

Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

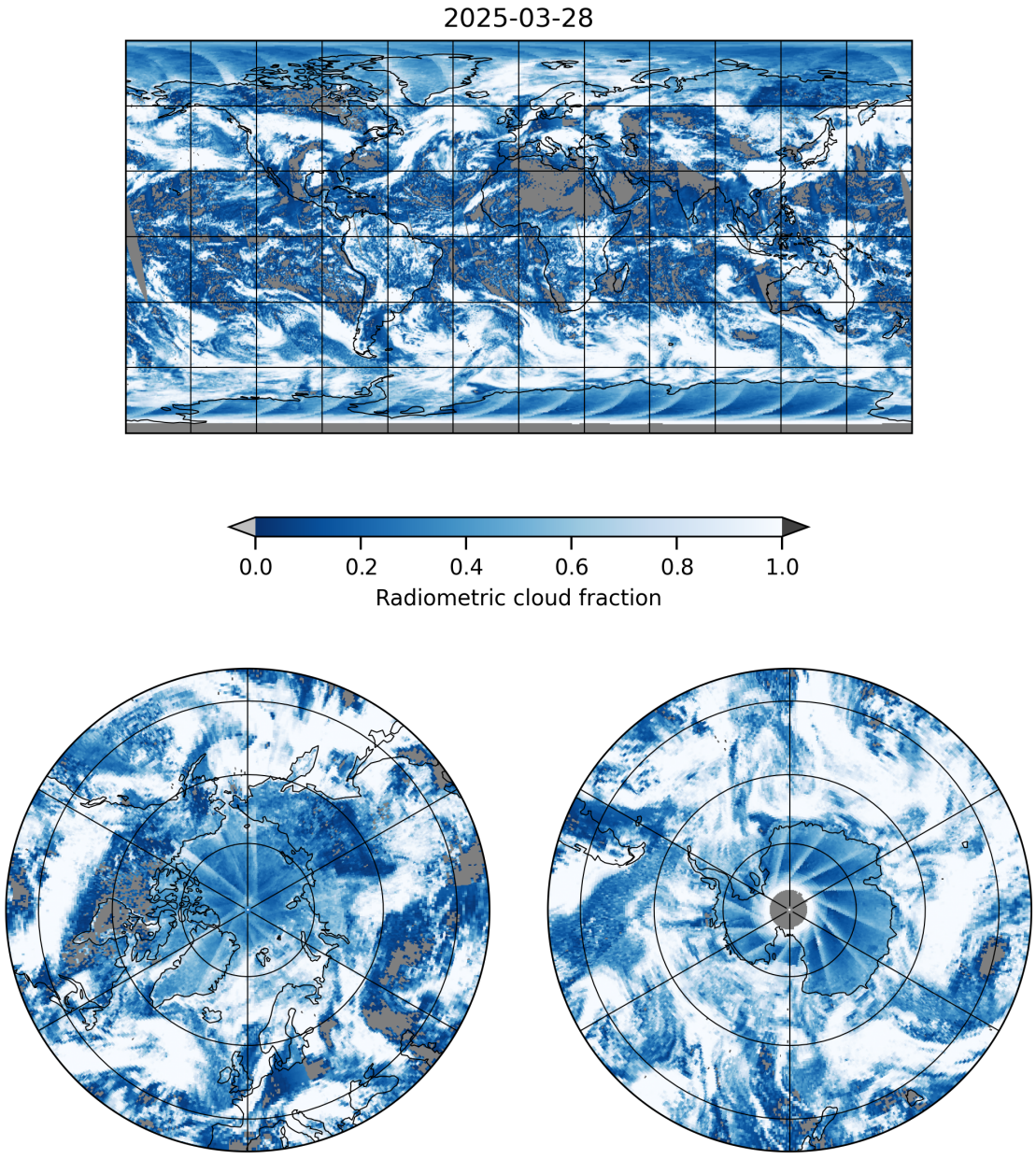

Figure 4: Map of “Radiometric cloud fraction” for 2025-03-28 to 2025-03-29

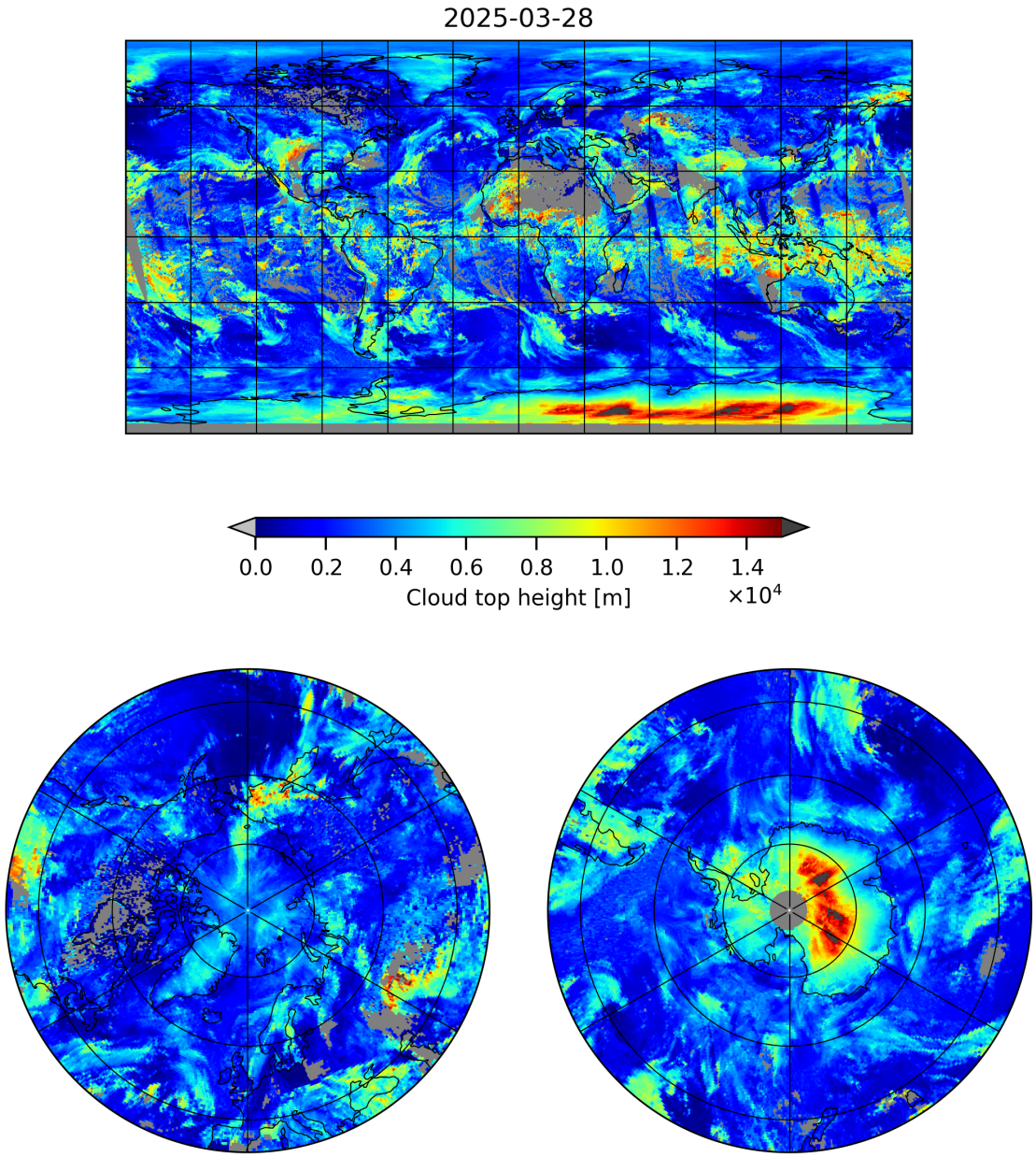

Figure 5: Map of “Cloud top height” for 2025-03-28 to 2025-03-29

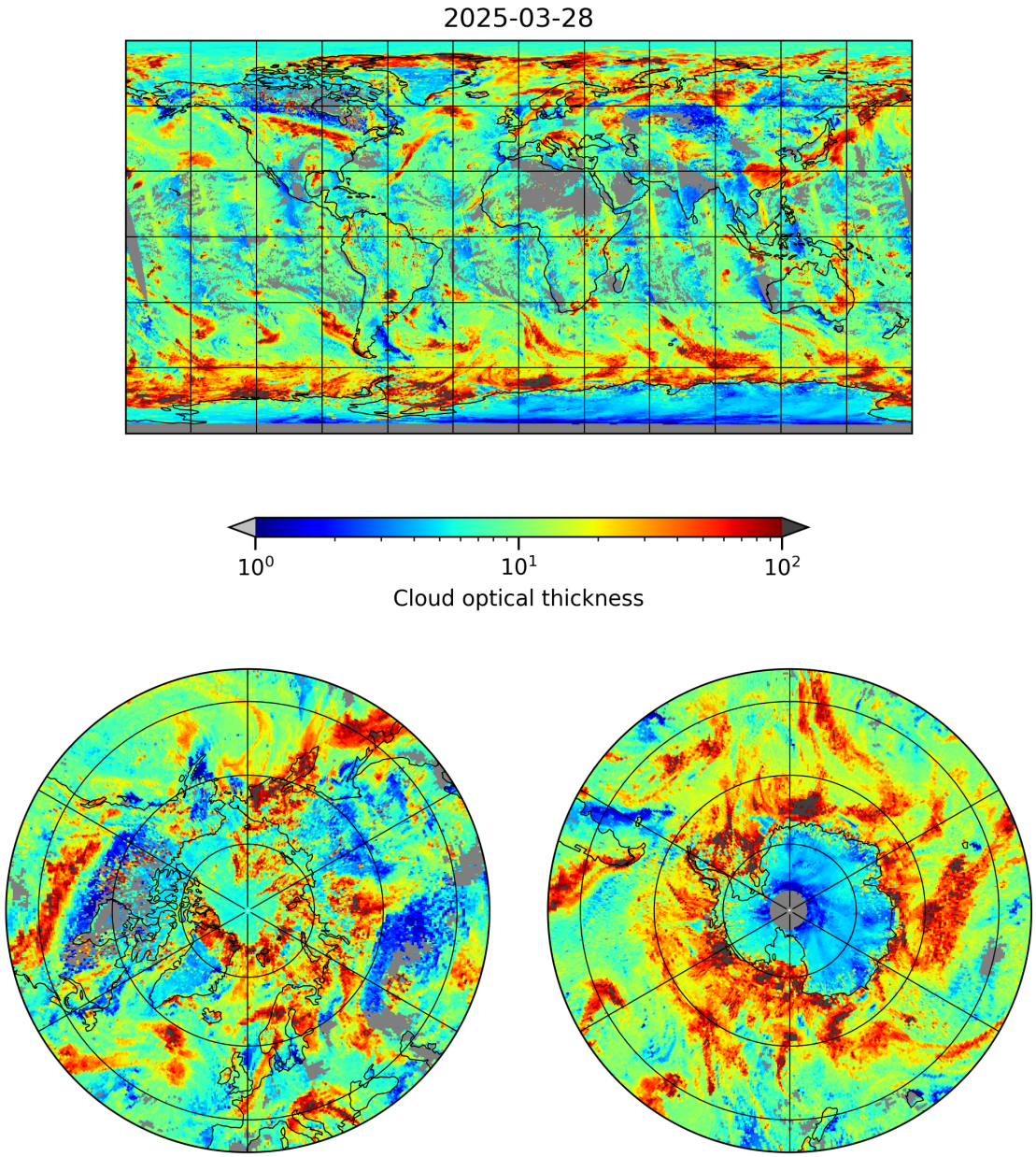

Figure 6: Map of “Cloud optical thickness” for 2025-03-28 to 2025-03-29

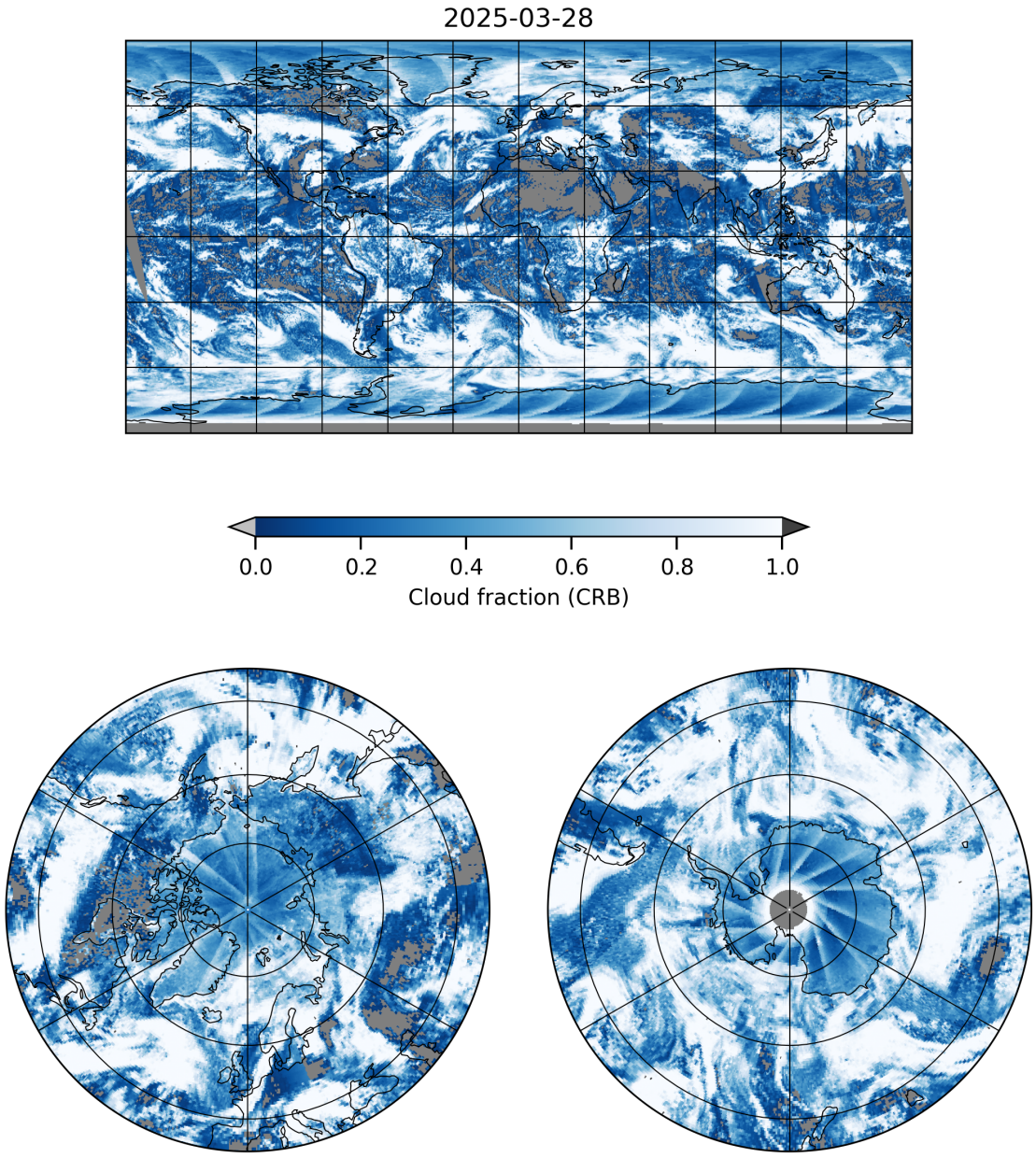

Figure 7: Map of “Cloud fraction (CRB)” for 2025-03-28 to 2025-03-29

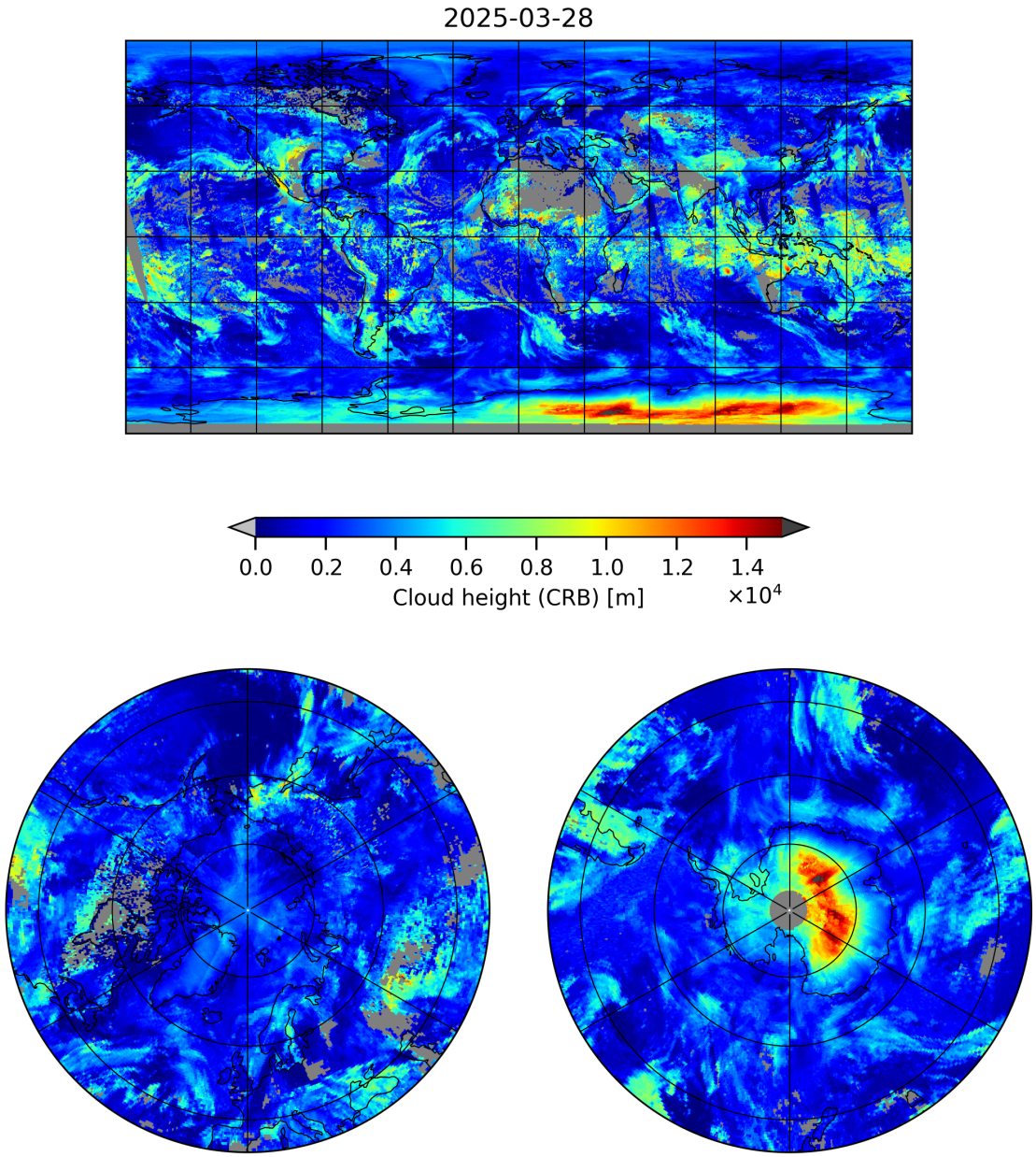

Figure 8: Map of “Cloud height (CRB)” for 2025-03-28 to 2025-03-29

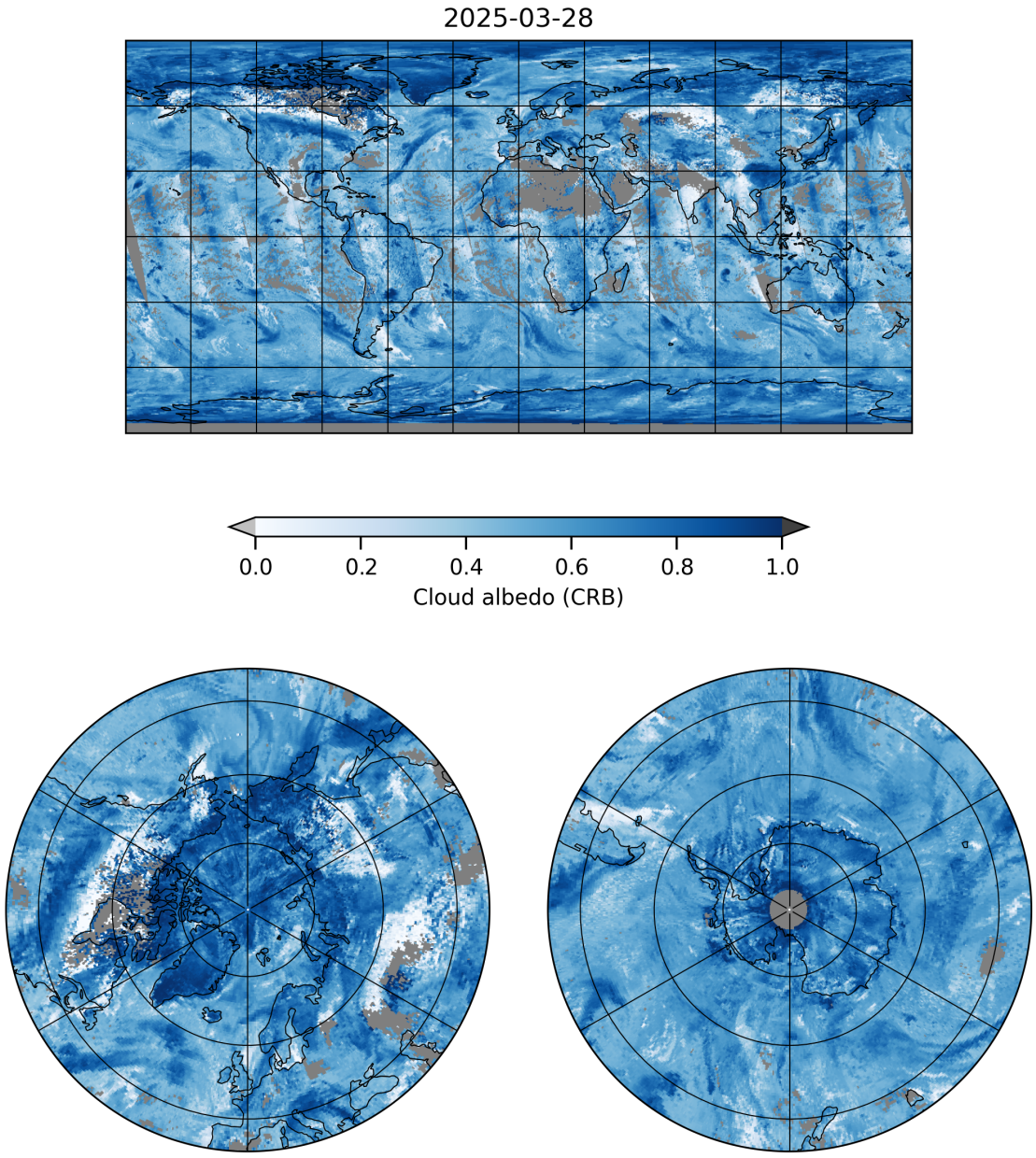

Figure 9: Map of “Cloud albedo (CRB)” for 2025-03-28 to 2025-03-29

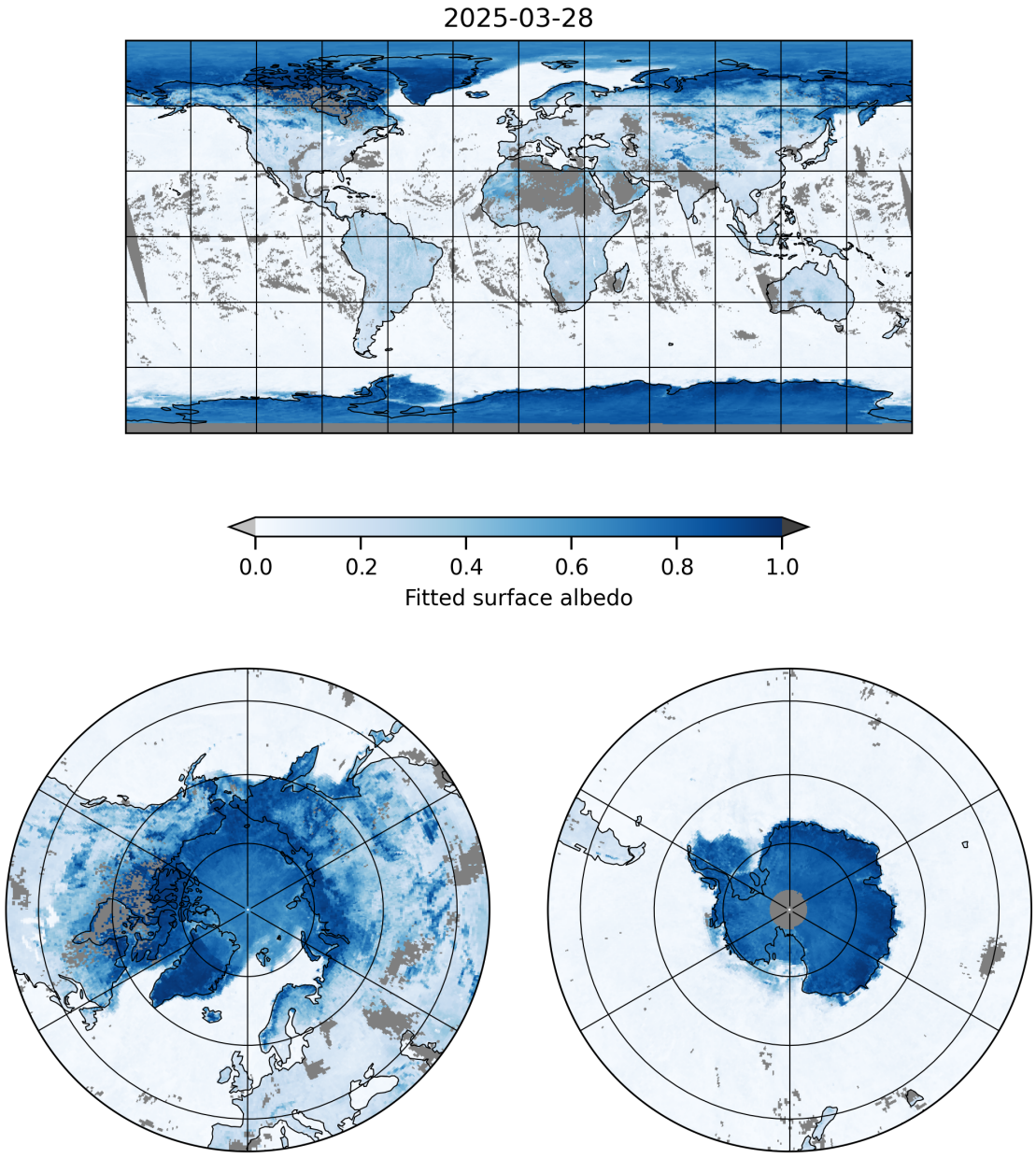

Figure 10: Map of “Fitted surface albedo” for 2025-03-28 to 2025-03-29

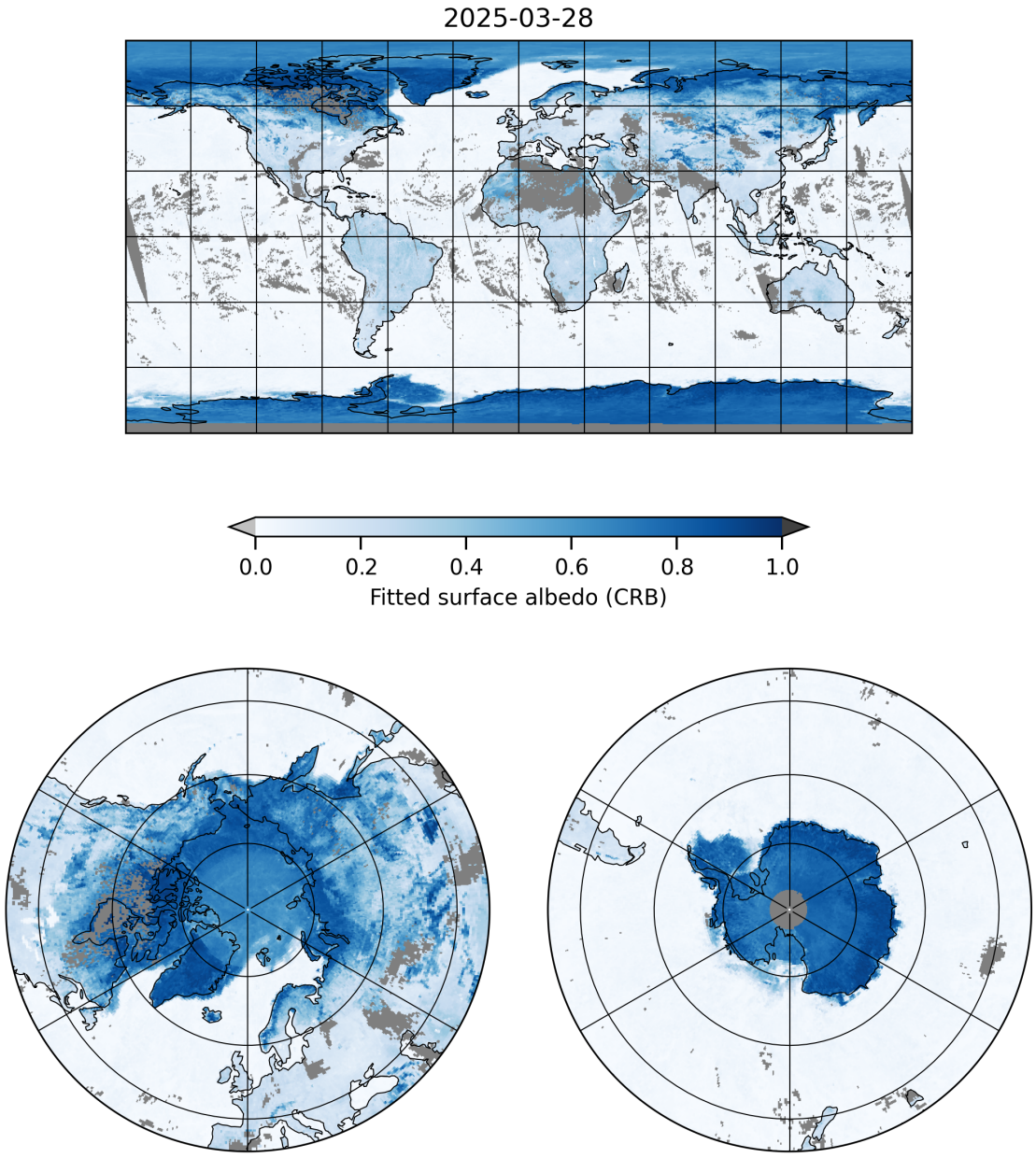

Figure 11: Map of “Fitted surface albedo (CRB)” for 2025-03-28 to 2025-03-29

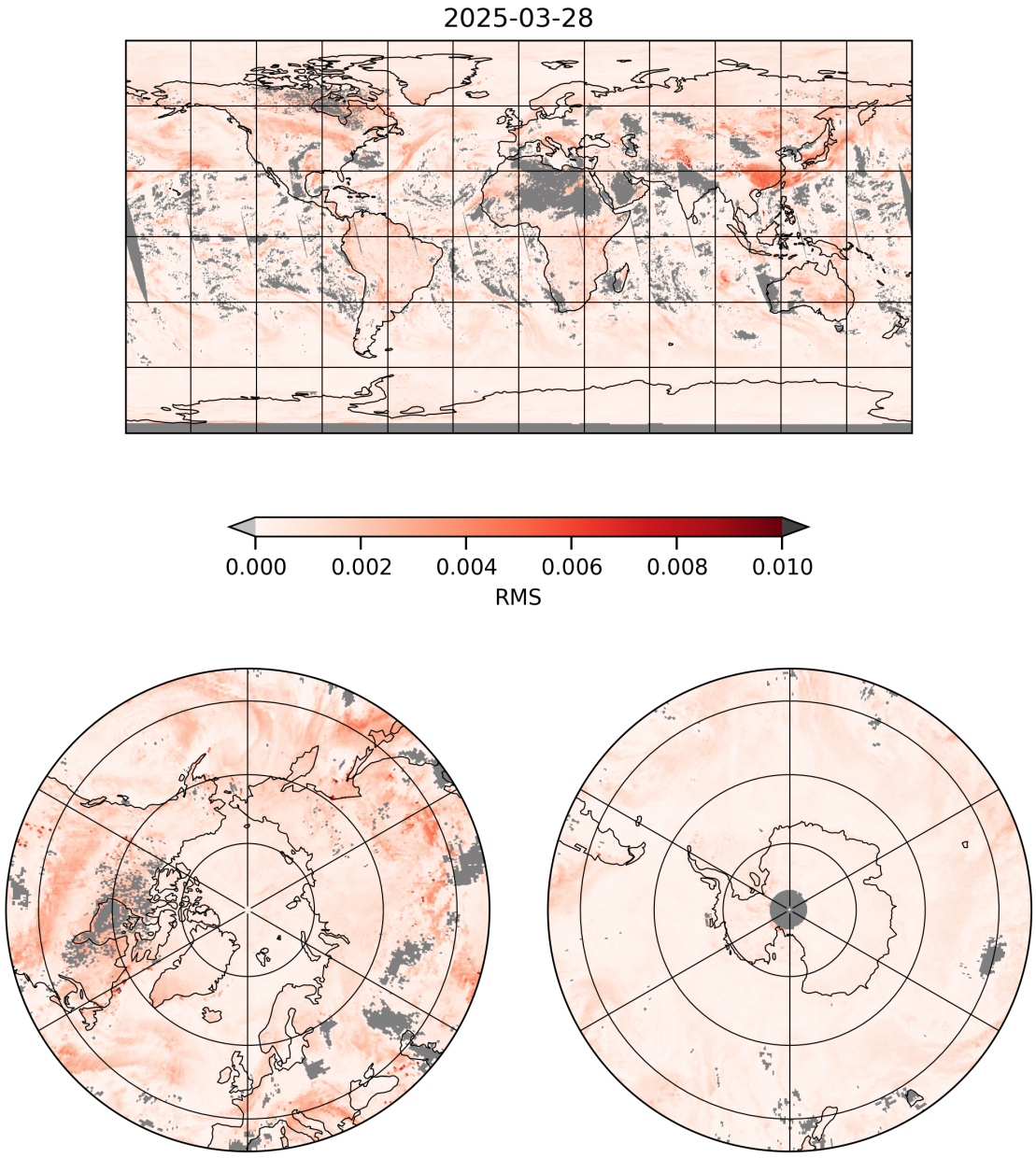

Figure 12: Map of “RMS” for 2025-03-28 to 2025-03-29

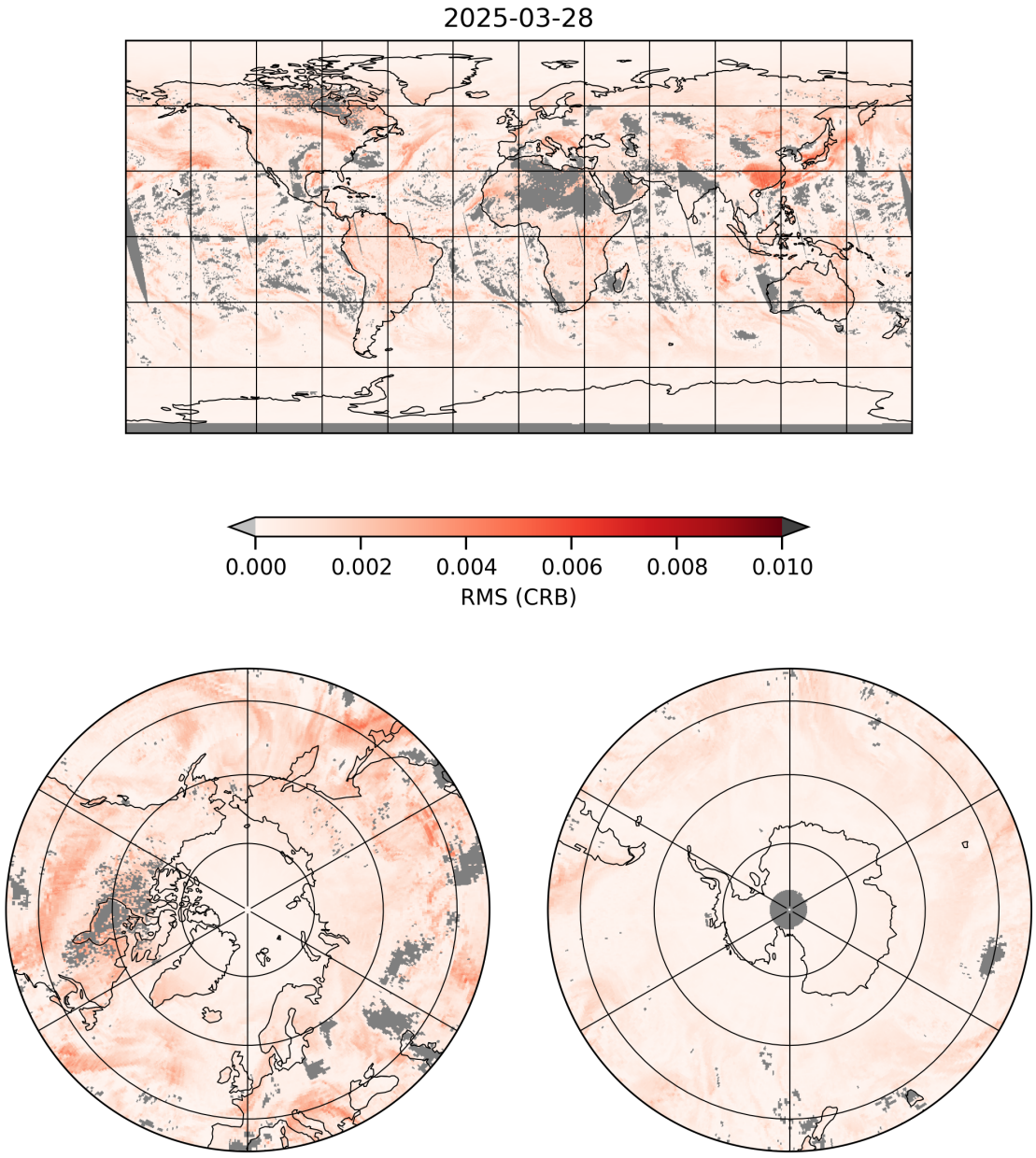

Figure 13: Map of “RMS (CRB)” for 2025-03-28 to 2025-03-29

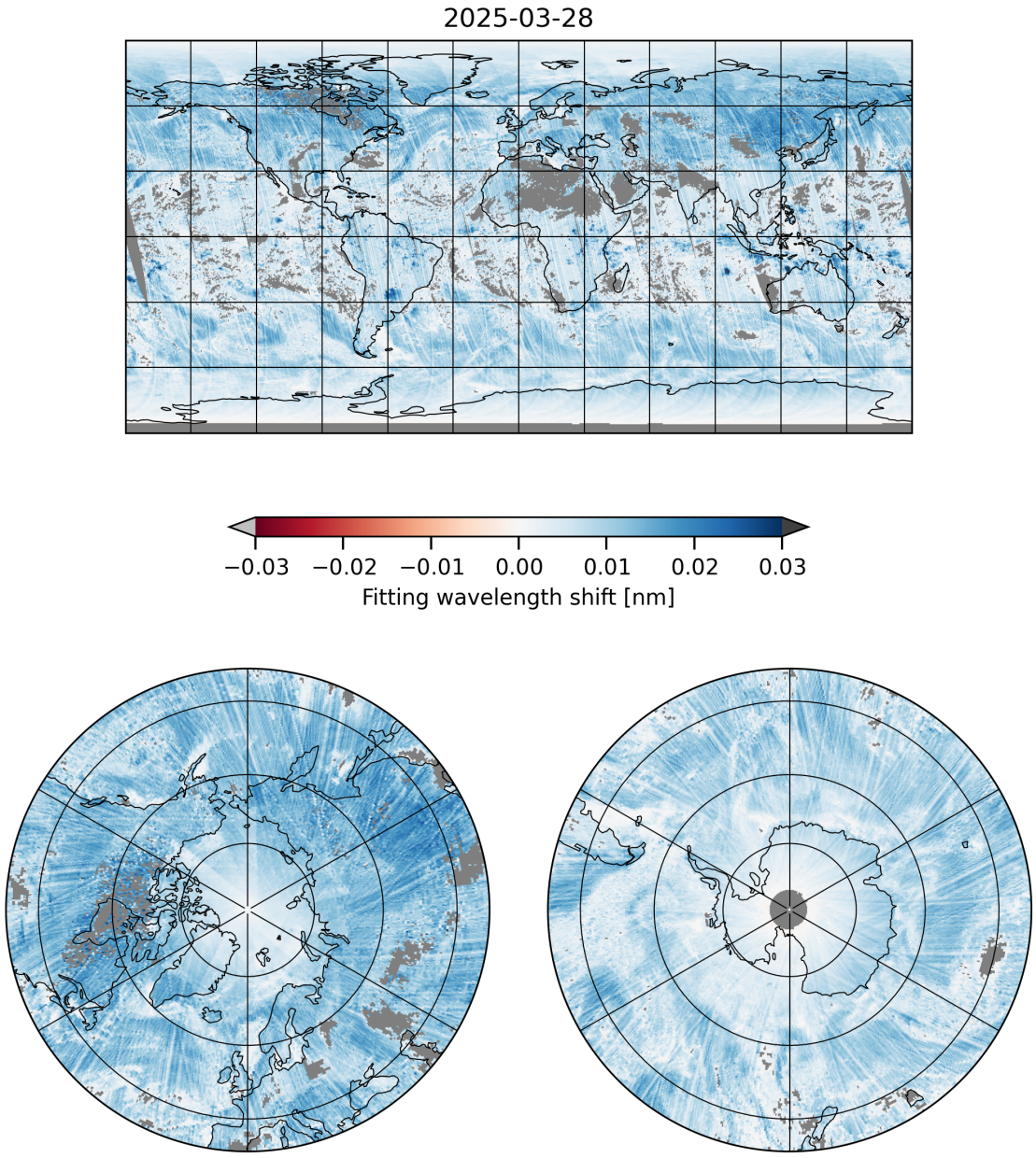

Figure 14: Map of “Fitting wavelength shift” for 2025-03-28 to 2025-03-29

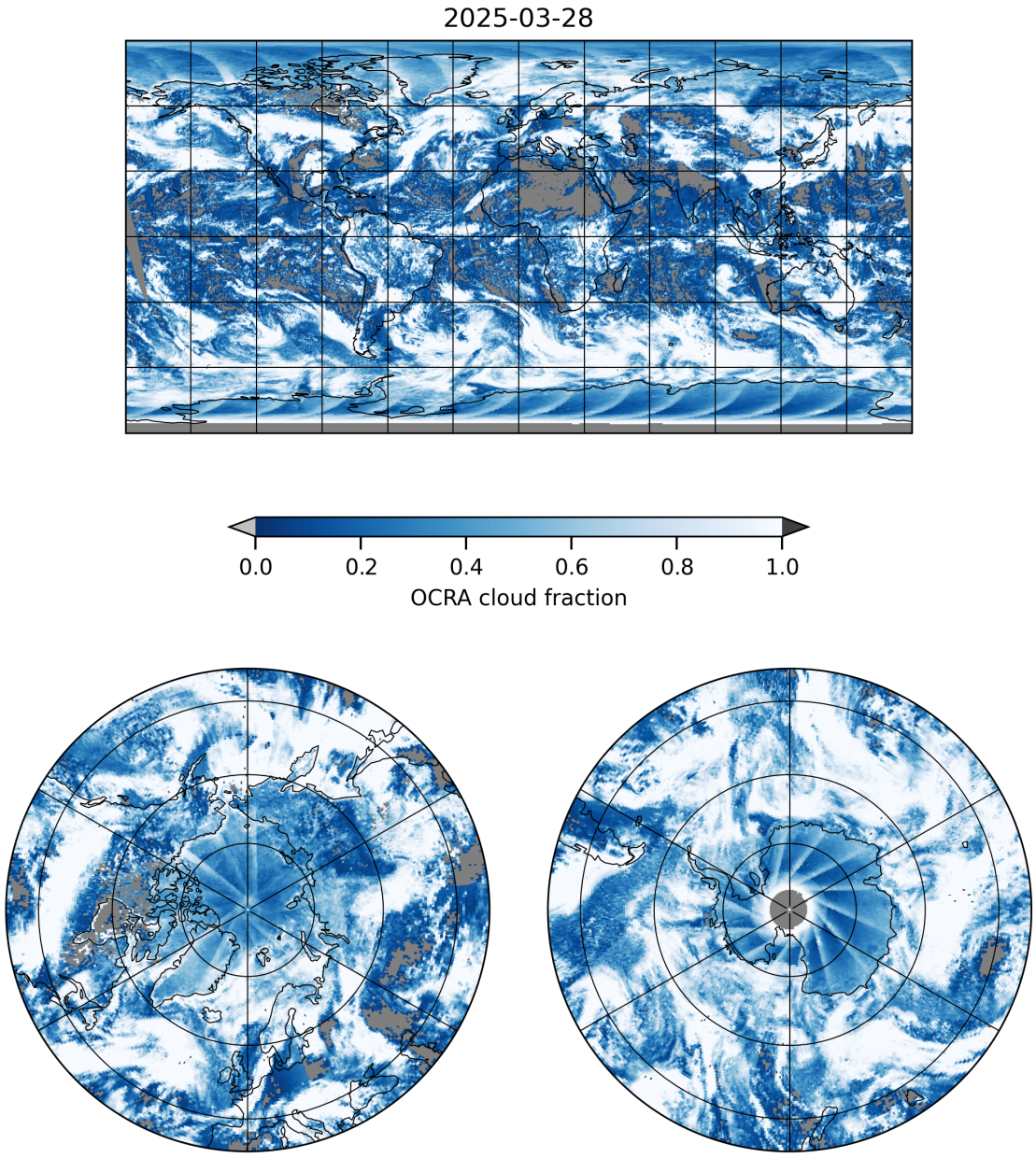

Figure 15: Map of “OCRA cloud fraction” for 2025-03-28 to 2025-03-29

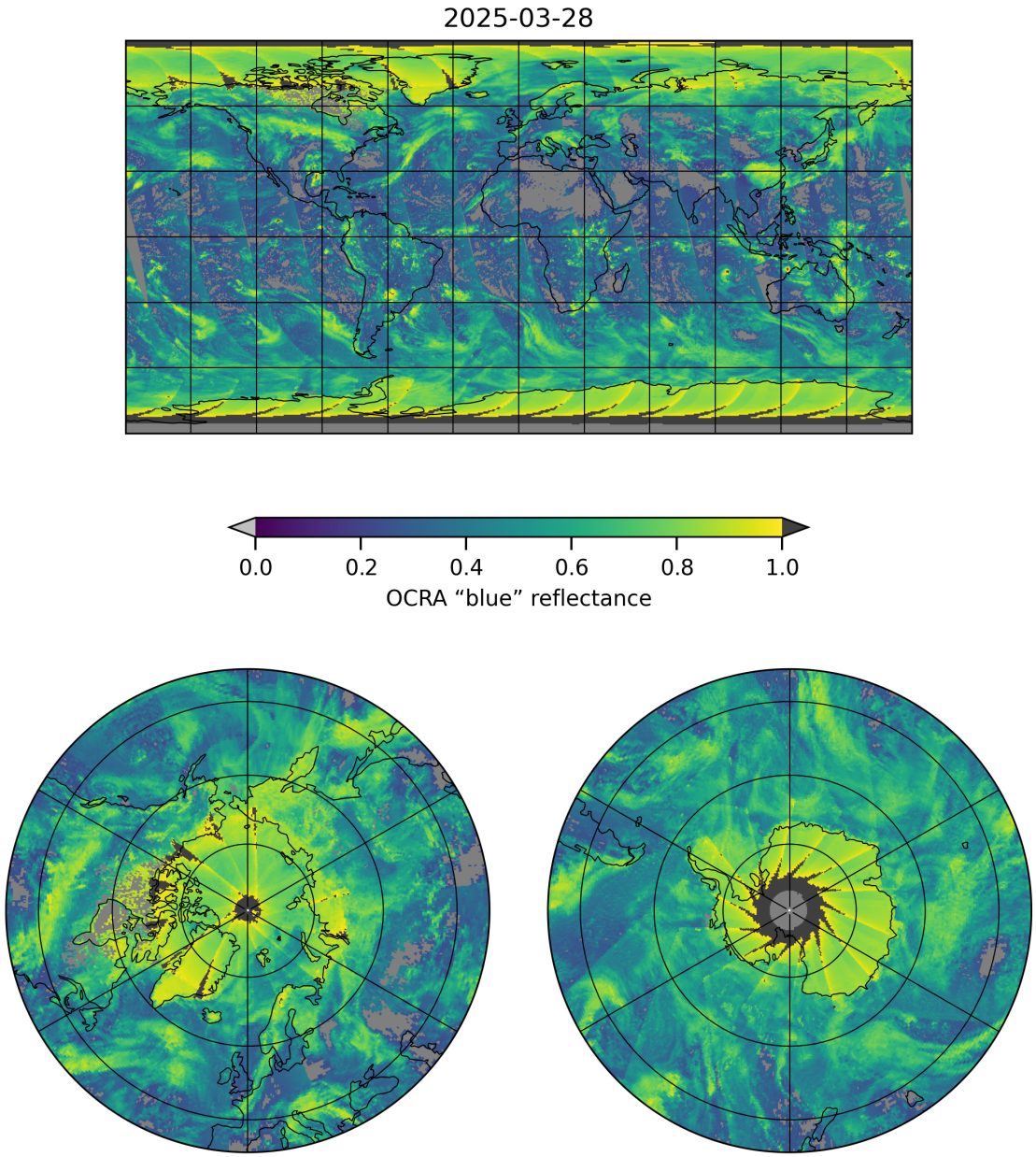

Figure 16: Map of “OCRA “blue” reflectance” for 2025-03-28 to 2025-03-29

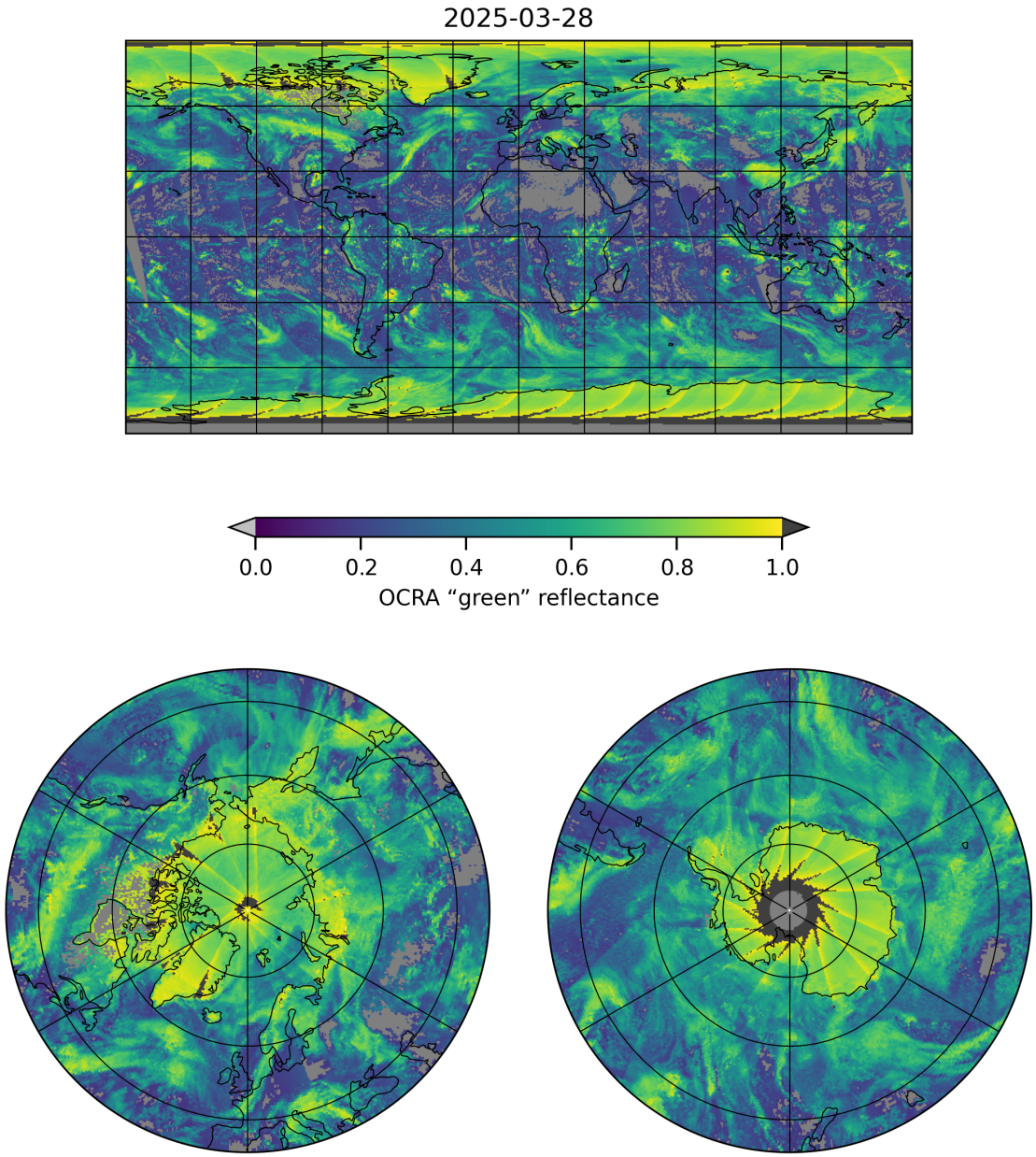

Figure 17: Map of “OCRA “green” reflectance” for 2025-03-28 to 2025-03-29

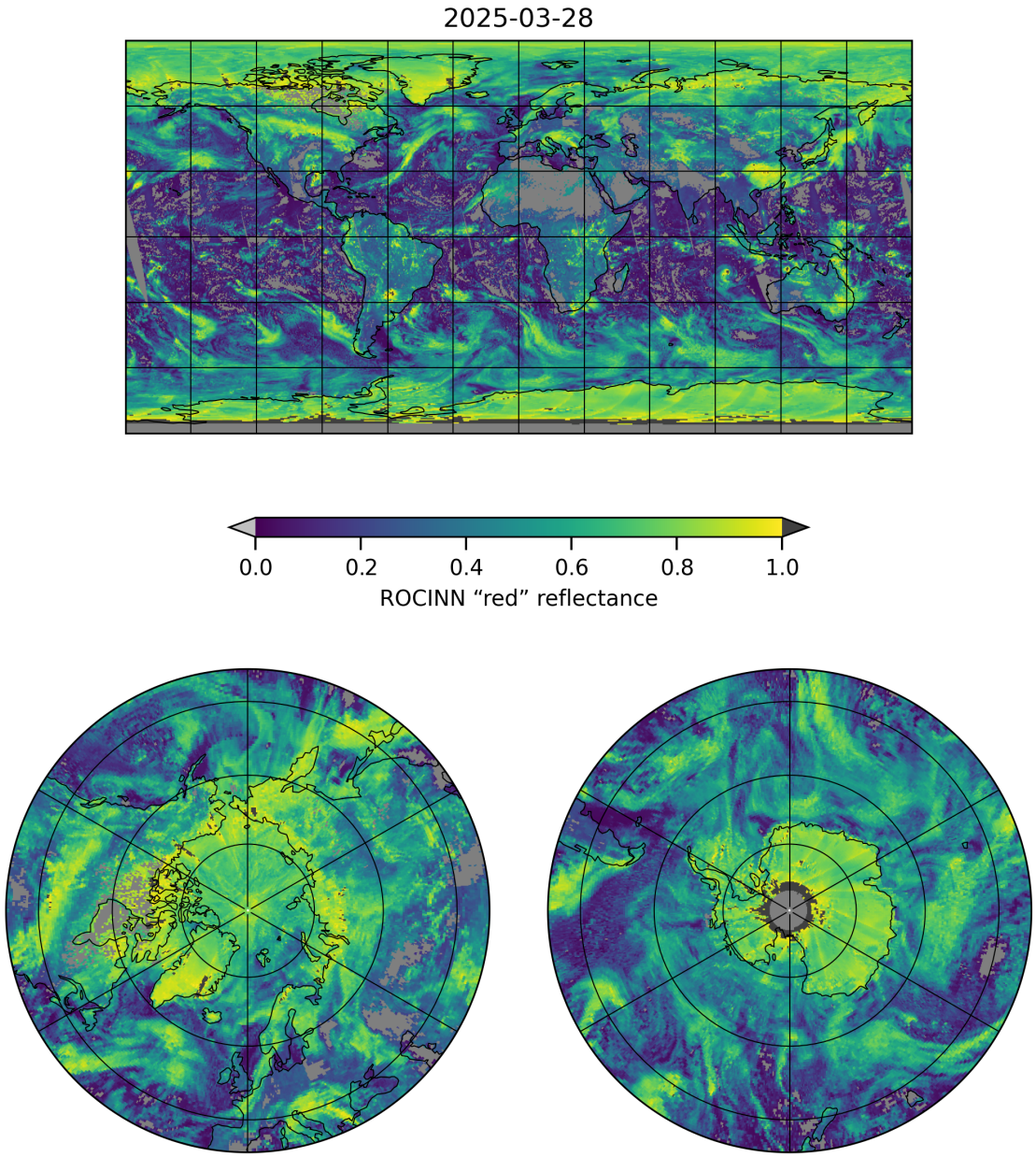

Figure 18: Map of “ROCINN “red” reflectance” for 2025-03-28 to 2025-03-29

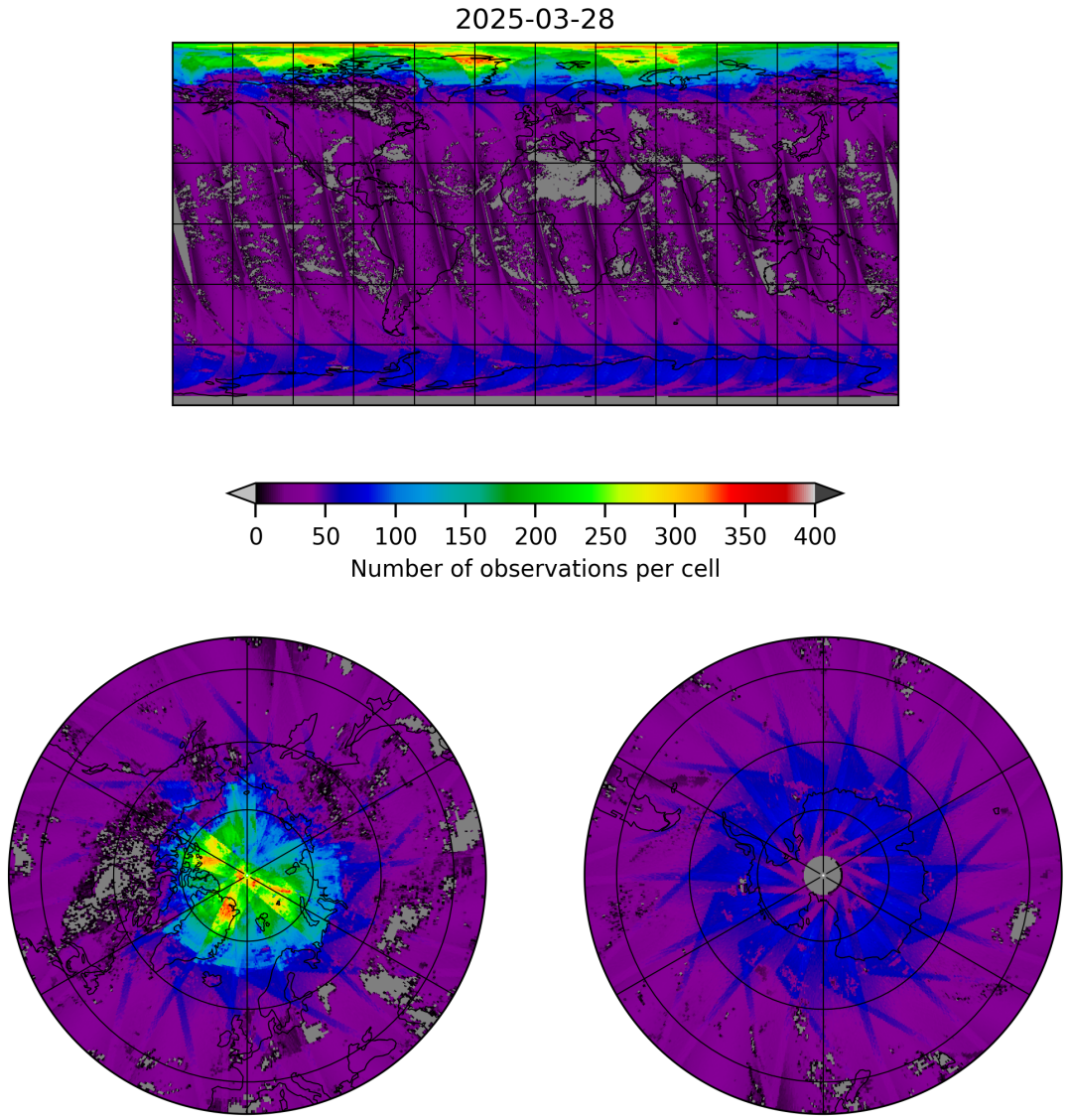

Figure 19: Map of the number of observations for 2025-03-28 to 2025-03-29

7 Zonal average

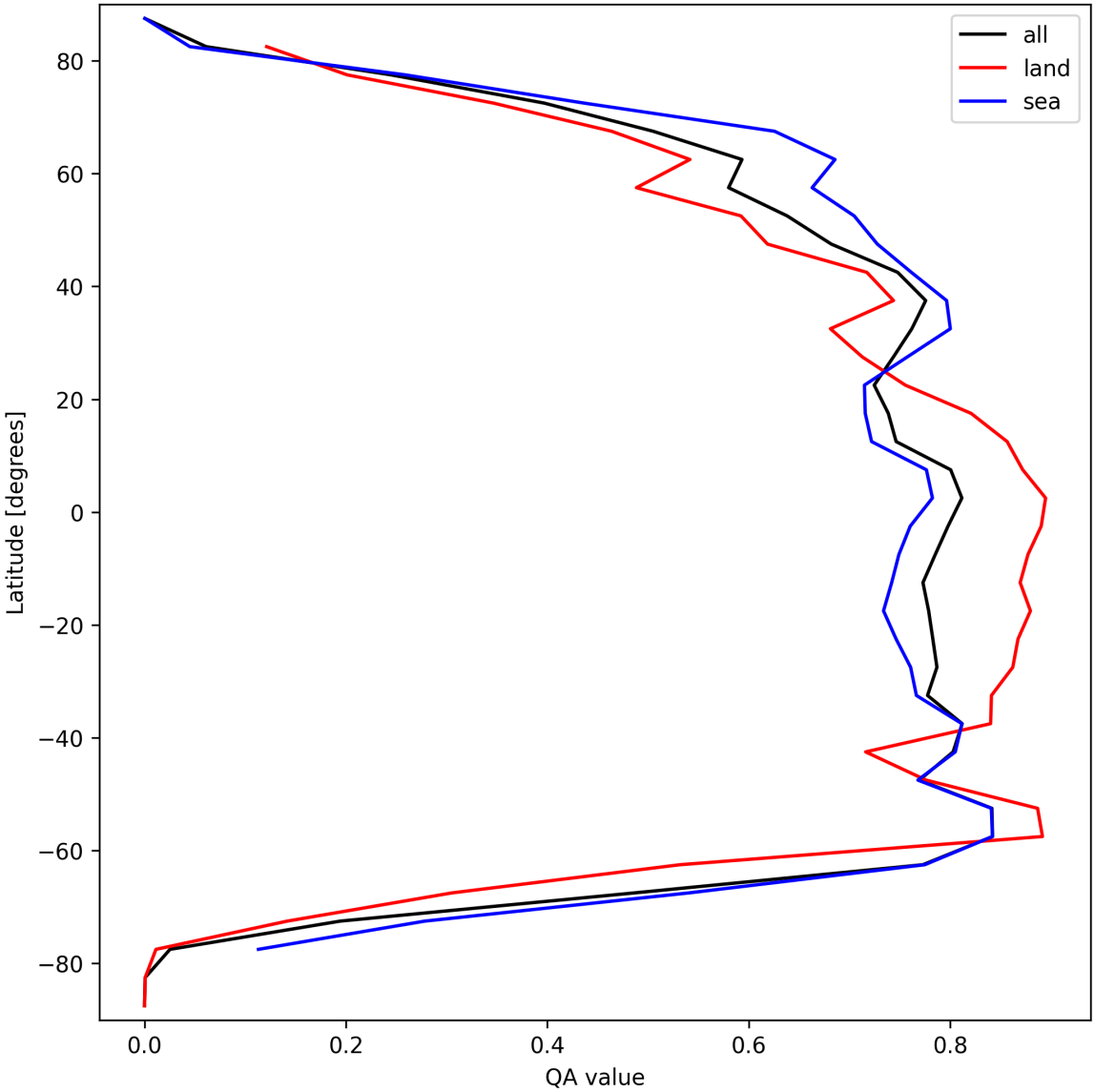

Figure 20: Zonal average of “QA value” for 2025-03-28 to 2025-03-29.

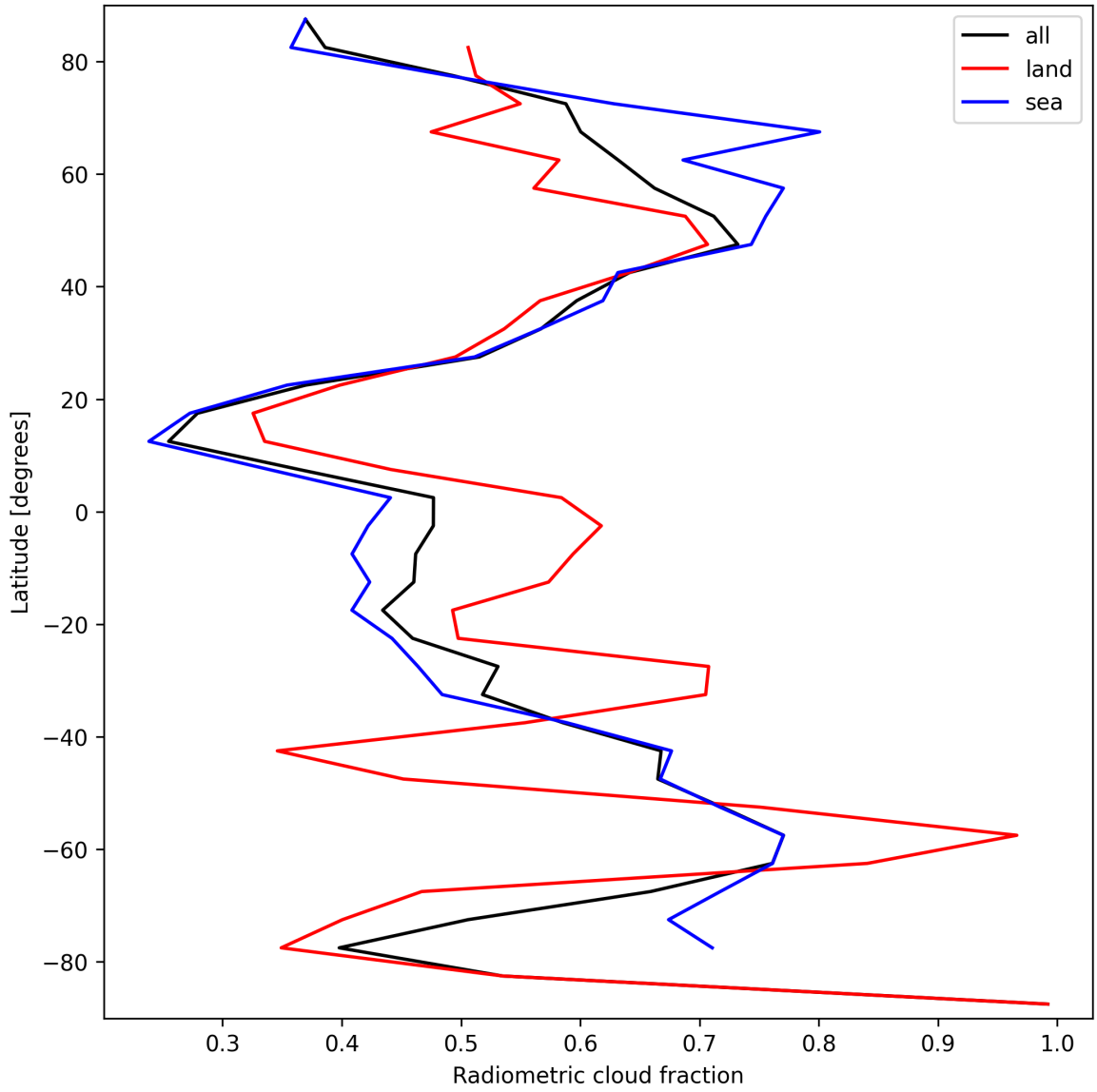

Figure 21: Zonal average of “Radiometric cloud fraction” for 2025-03-28 to 2025-03-29.

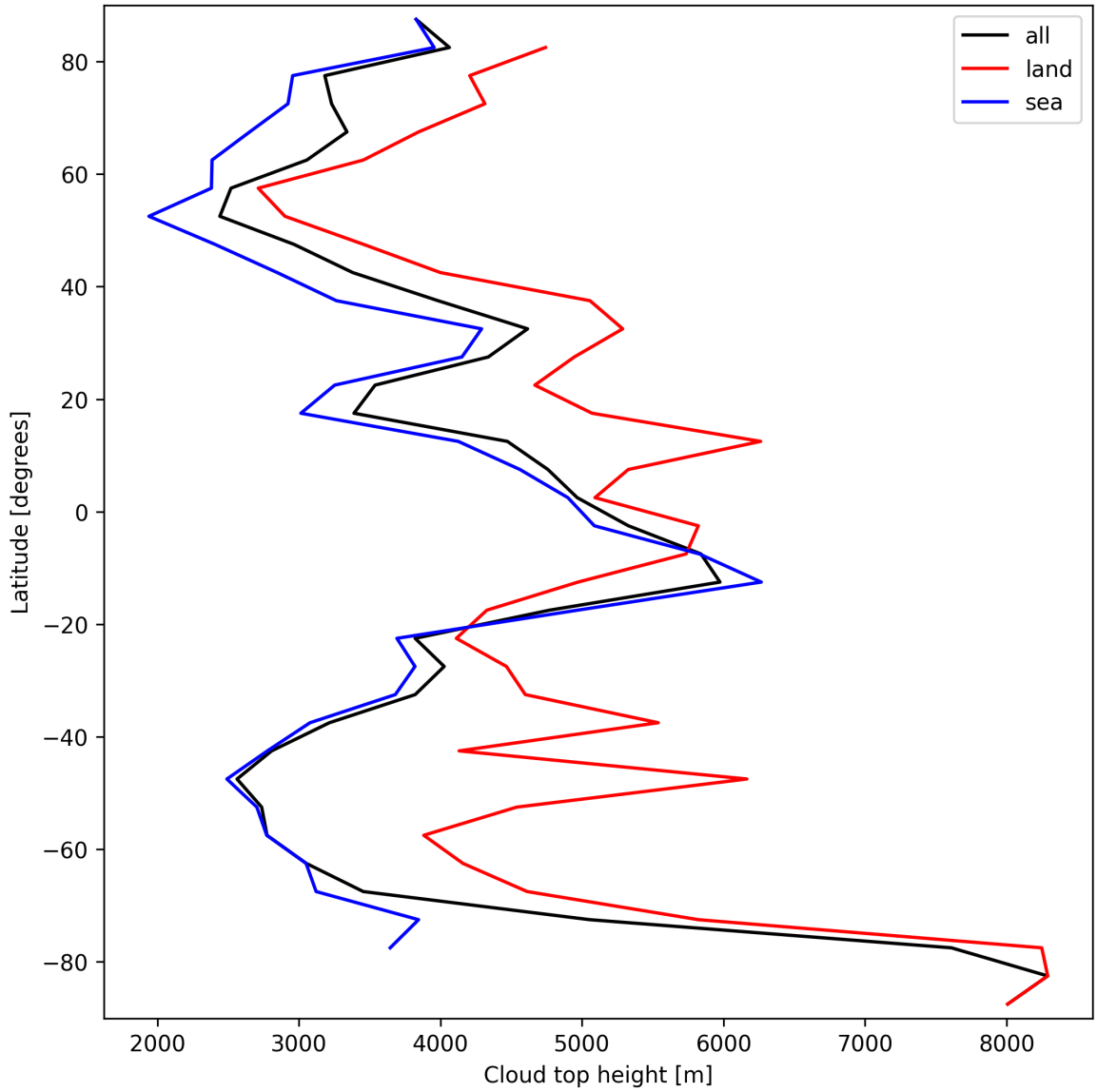

Figure 22: Zonal average of “Cloud top height” for 2025-03-28 to 2025-03-29.

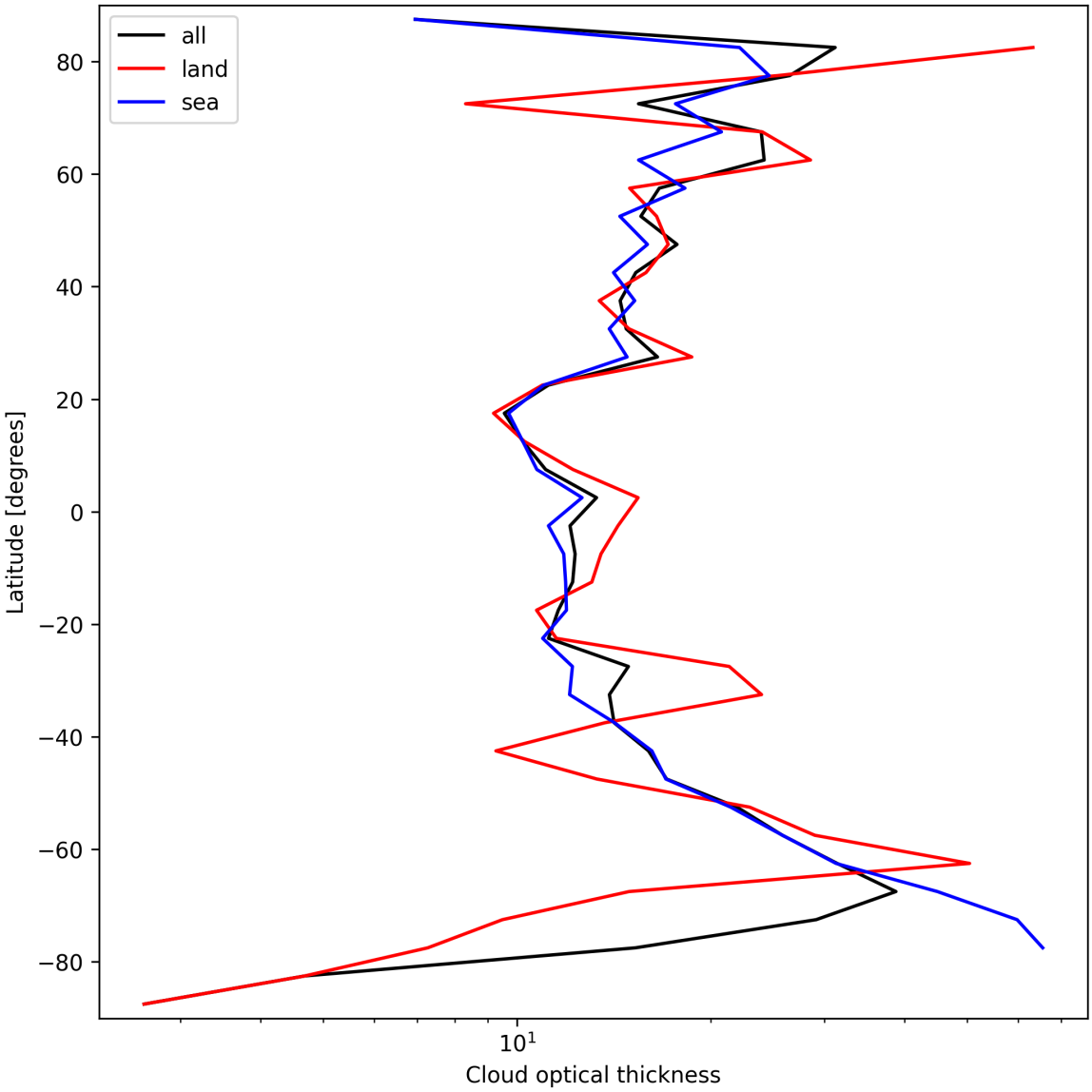

Figure 23: Zonal average of “Cloud optical thickness” for 2025-03-28 to 2025-03-29.

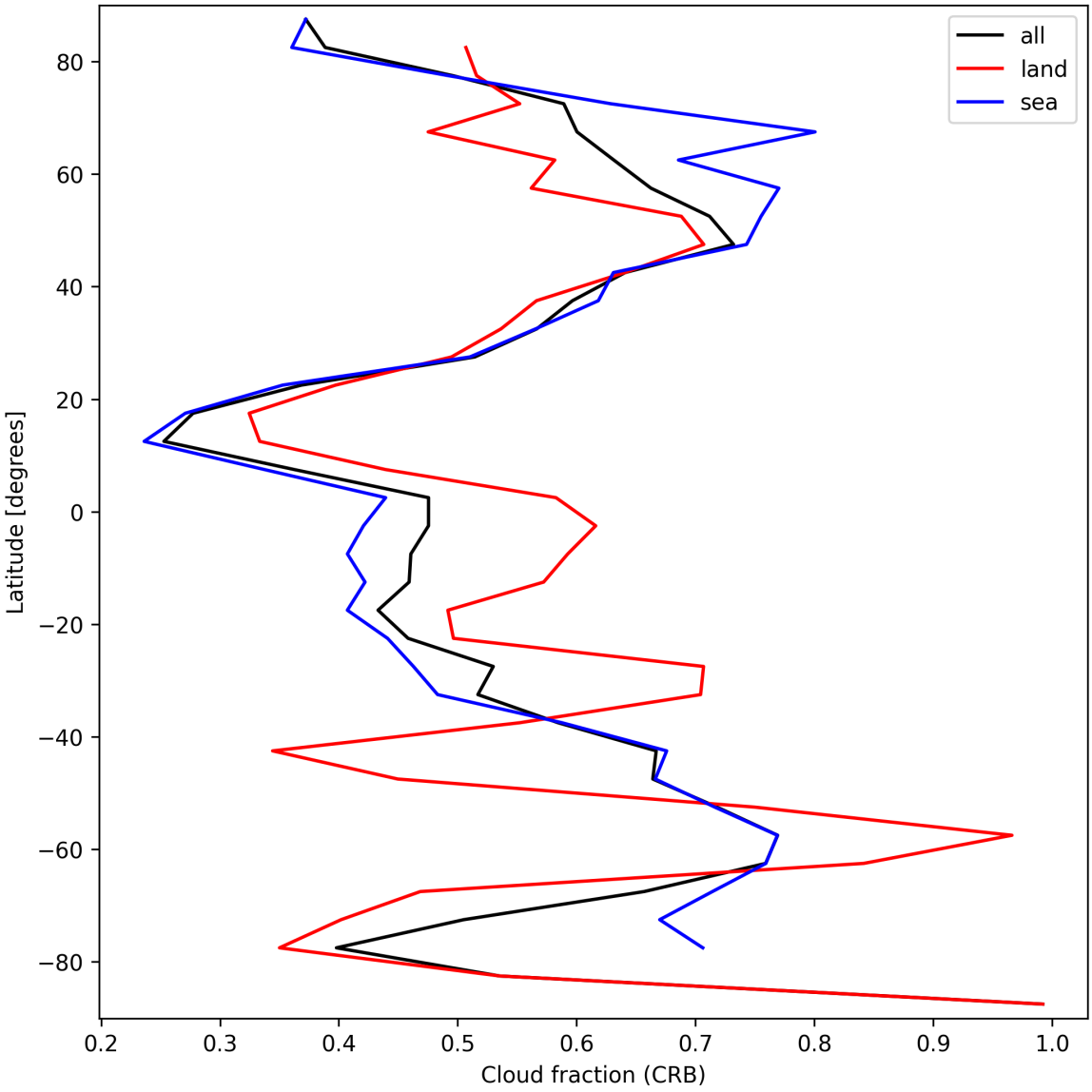

Figure 24: Zonal average of “Cloud fraction (CRB)” for 2025-03-28 to 2025-03-29.

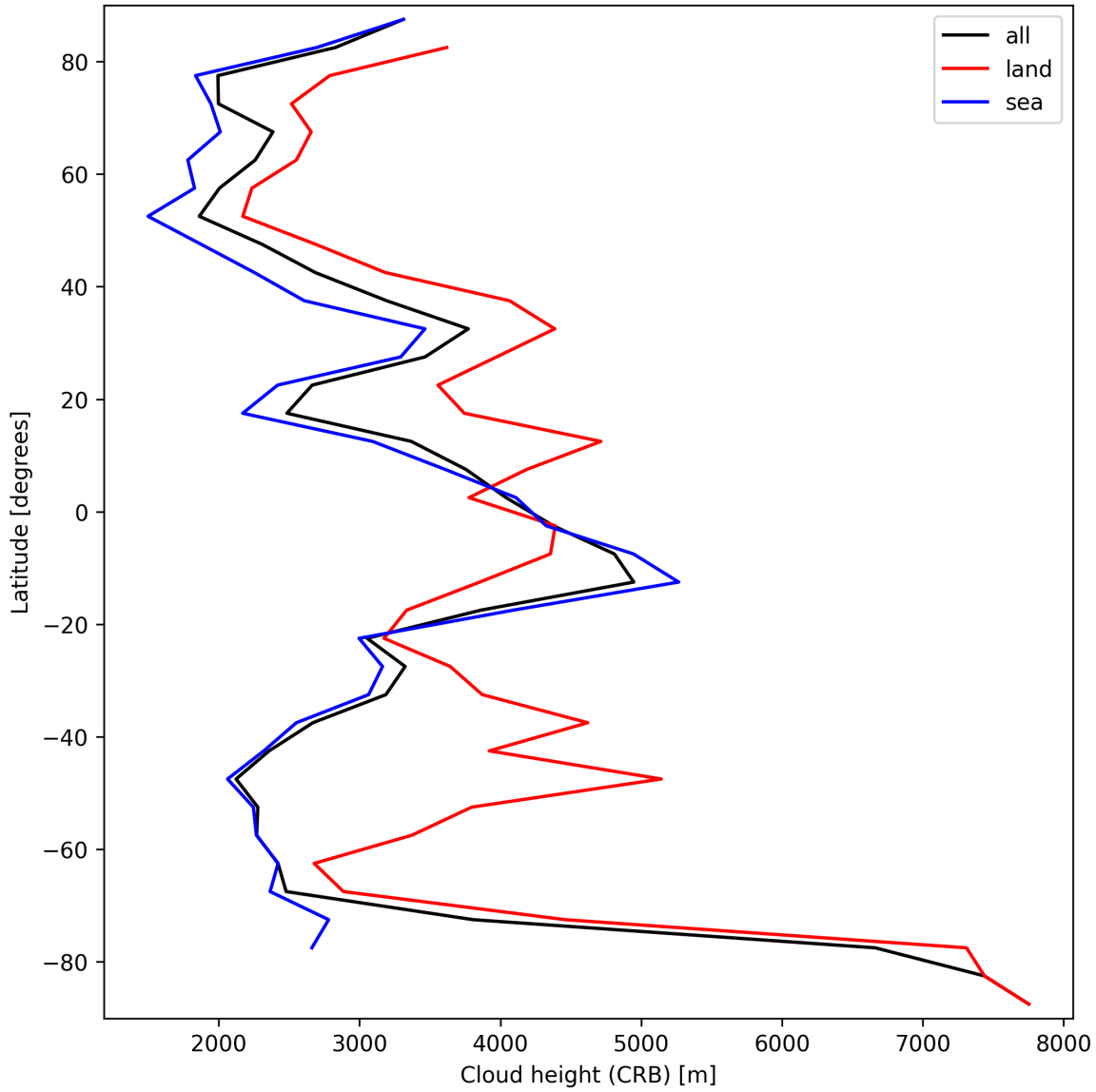

Figure 25: Zonal average of “Cloud height (CRB)” for 2025-03-28 to 2025-03-29.

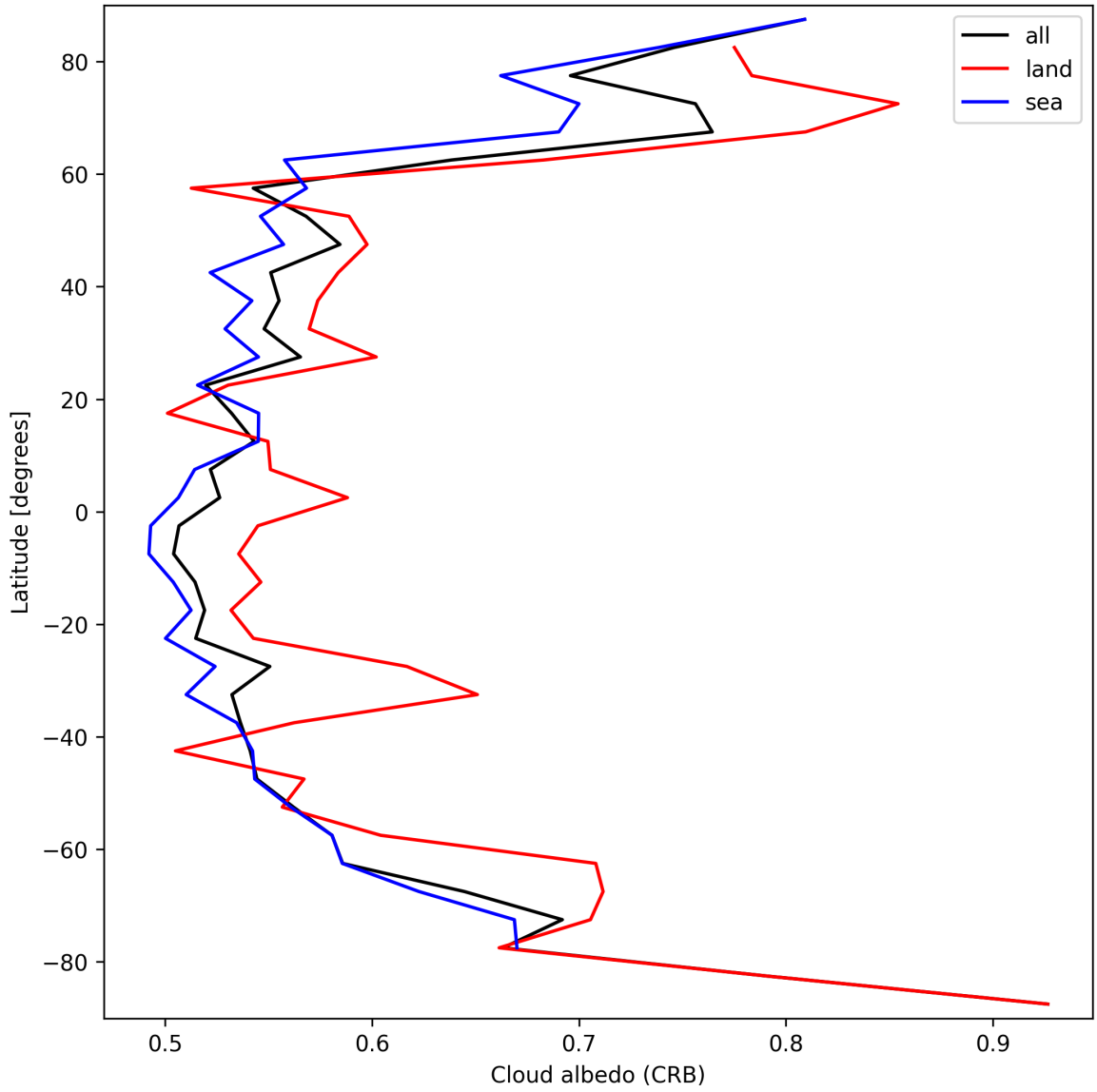

Figure 26: Zonal average of “Cloud albedo (CRB)” for 2025-03-28 to 2025-03-29.

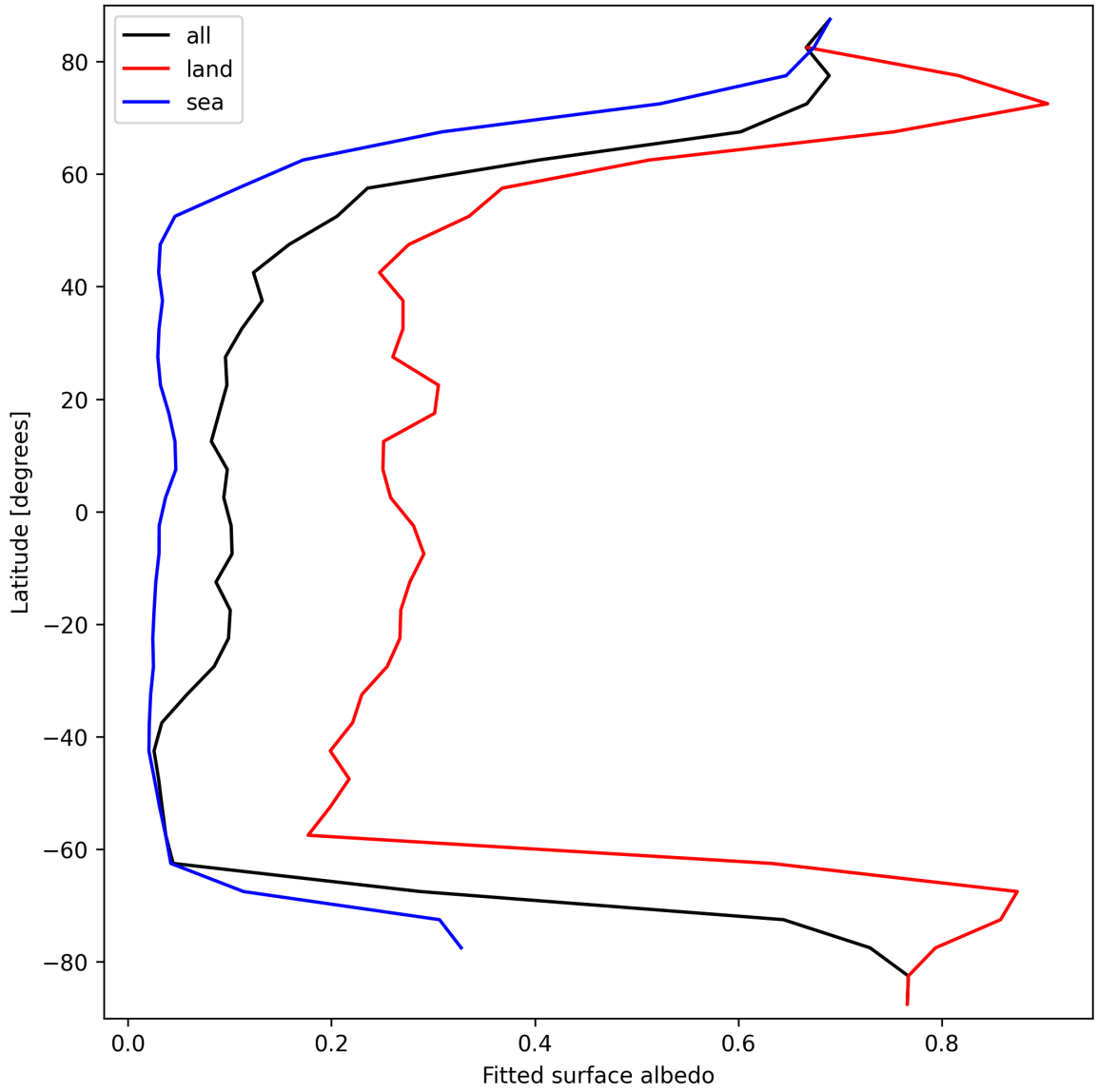

Figure 27: Zonal average of “Fitted surface albedo” for 2025-03-28 to 2025-03-29.

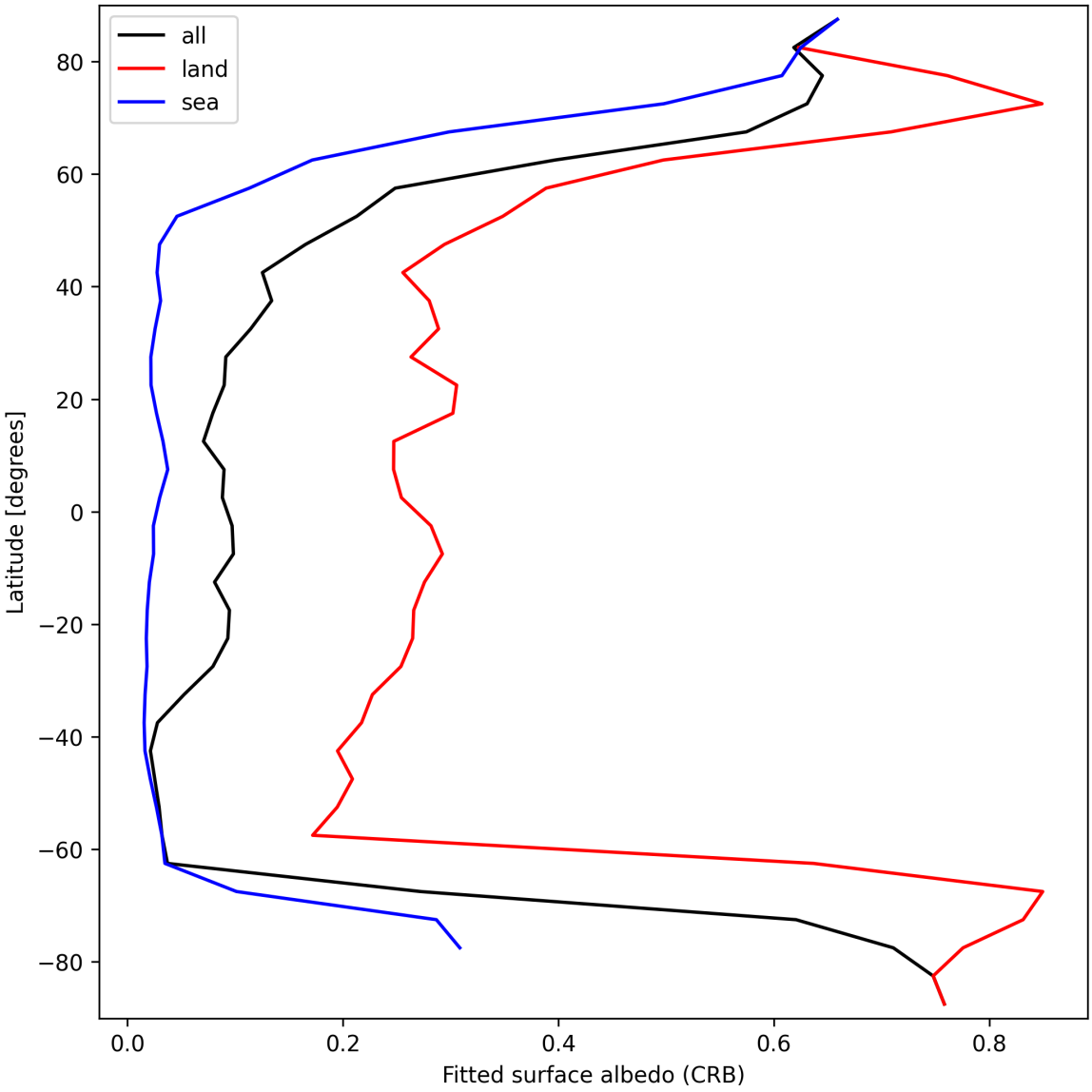

Figure 28: Zonal average of “Fitted surface albedo (CRB)” for 2025-03-28 to 2025-03-29.

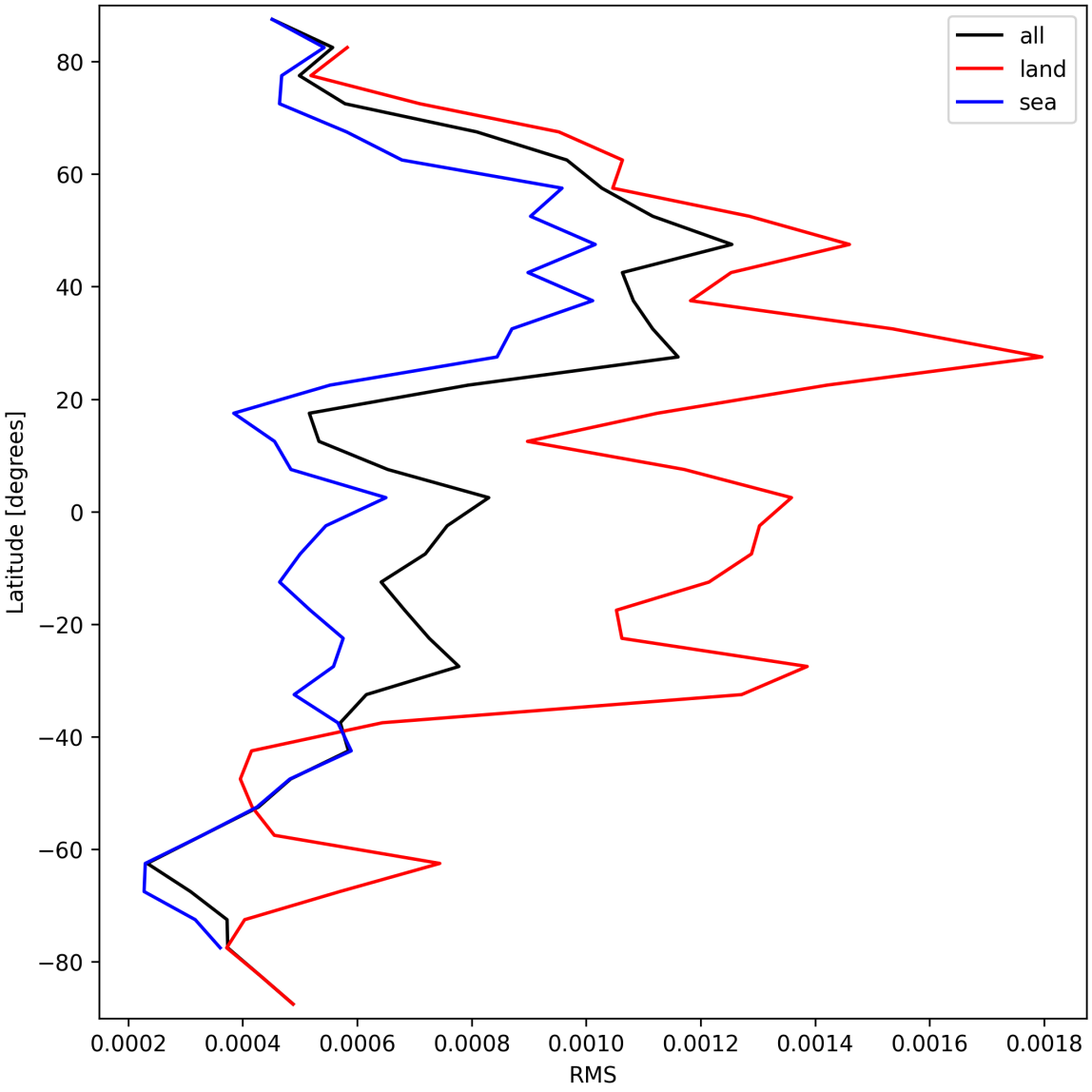

Figure 29: Zonal average of “RMS” for 2025-03-28 to 2025-03-29.

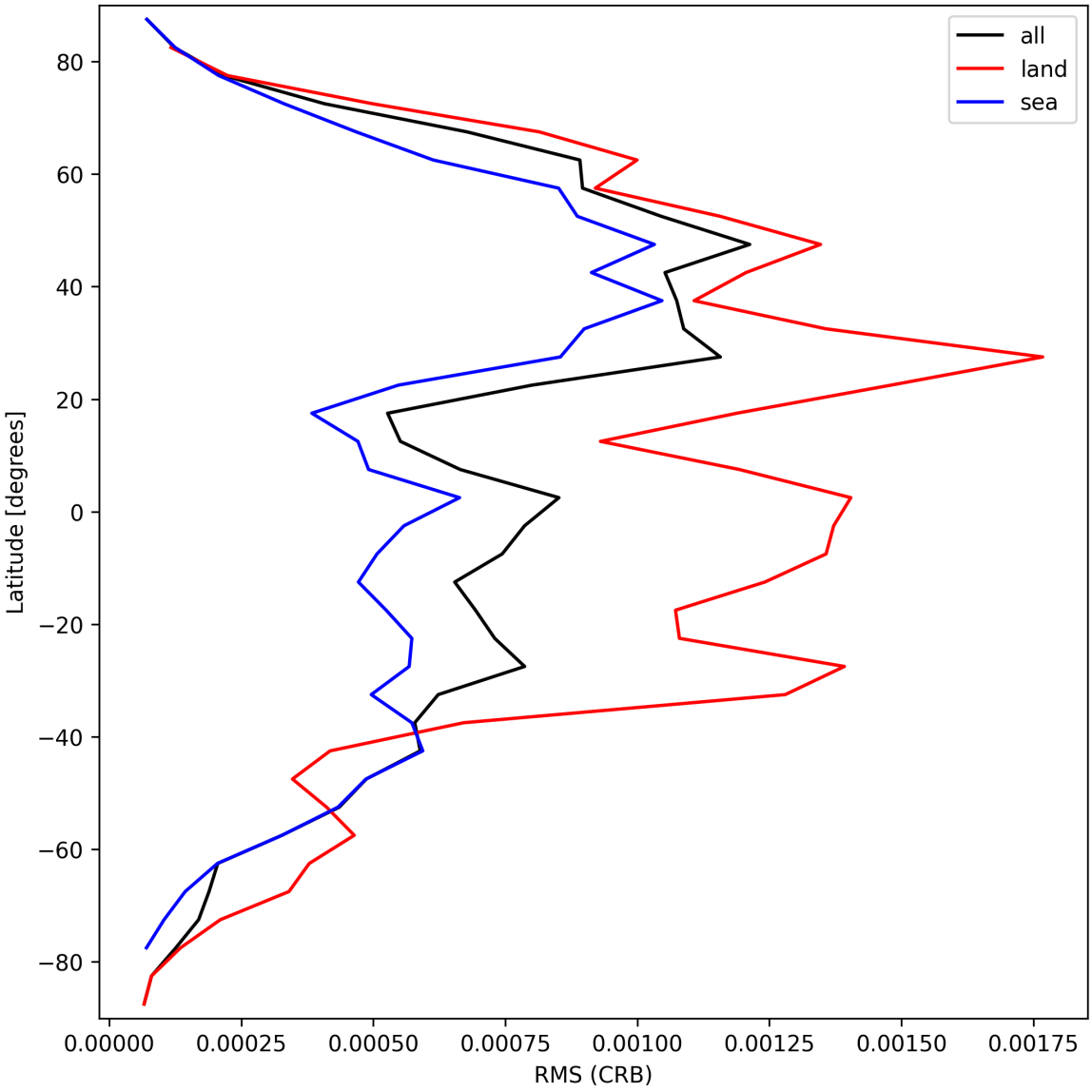

Figure 30: Zonal average of “RMS (CRB)” for 2025-03-28 to 2025-03-29.

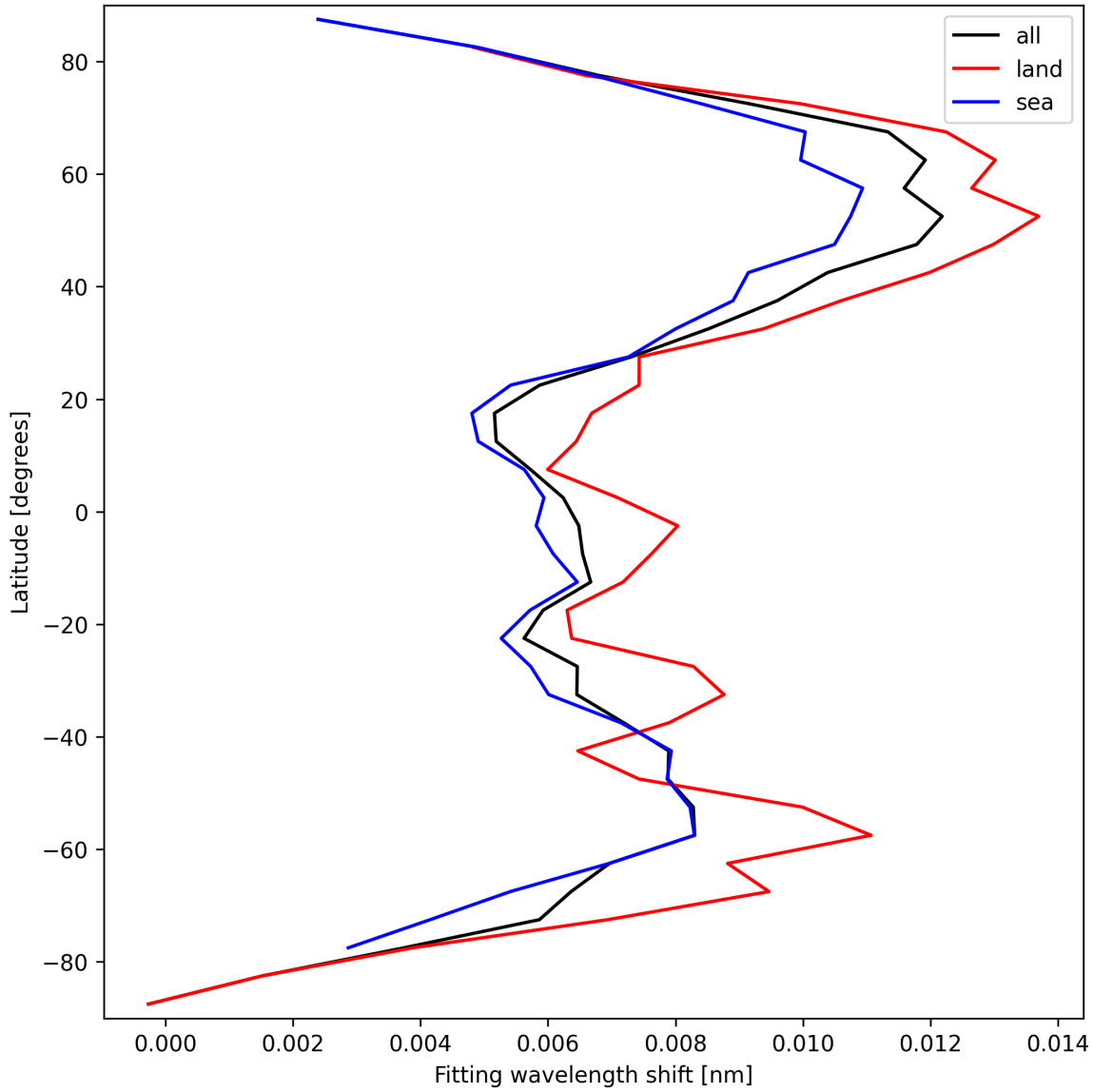

Figure 31: Zonal average of “Fitting wavelength shift” for 2025-03-28 to 2025-03-29.

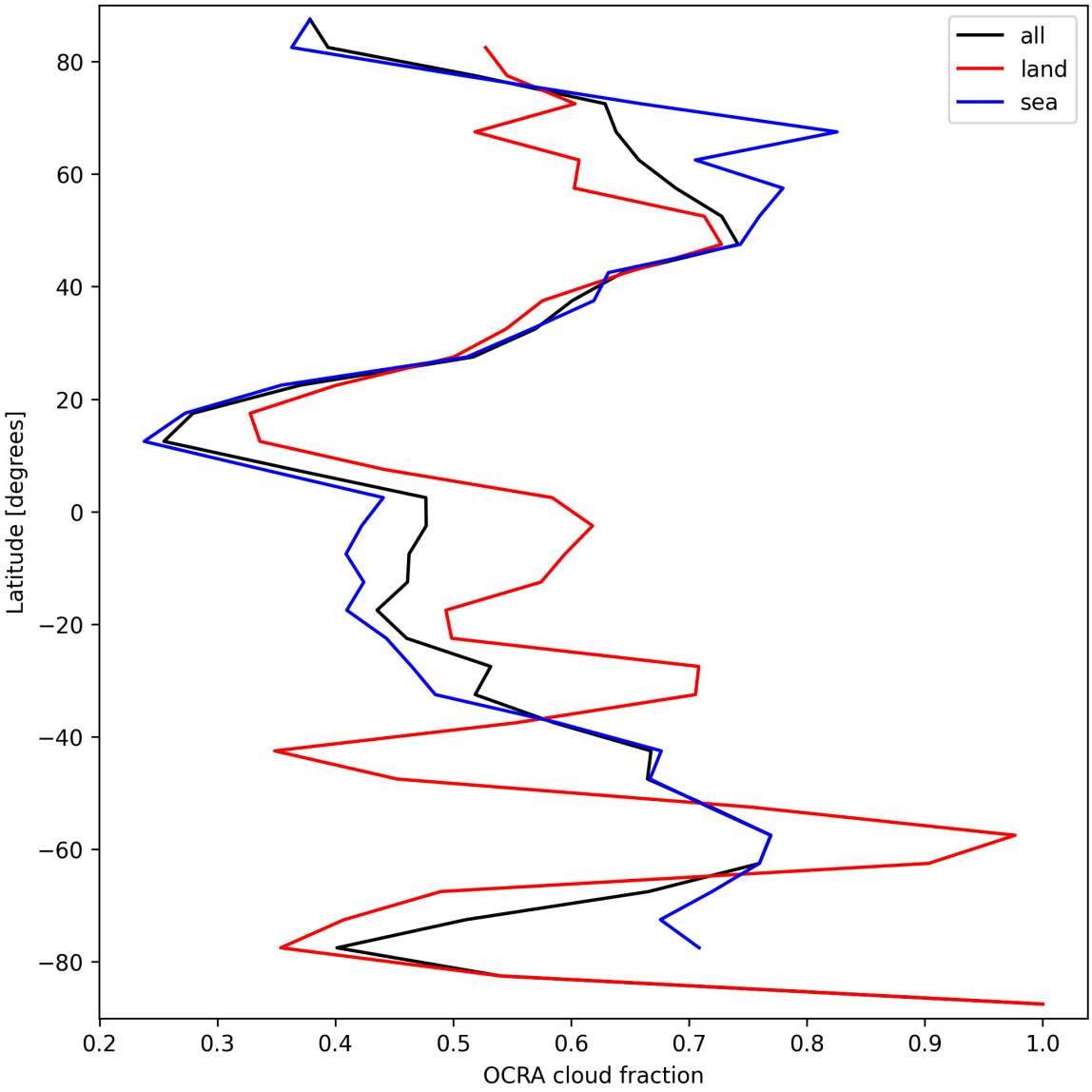

Figure 32: Zonal average of “OCRA cloud fraction” for 2025-03-28 to 2025-03-29.

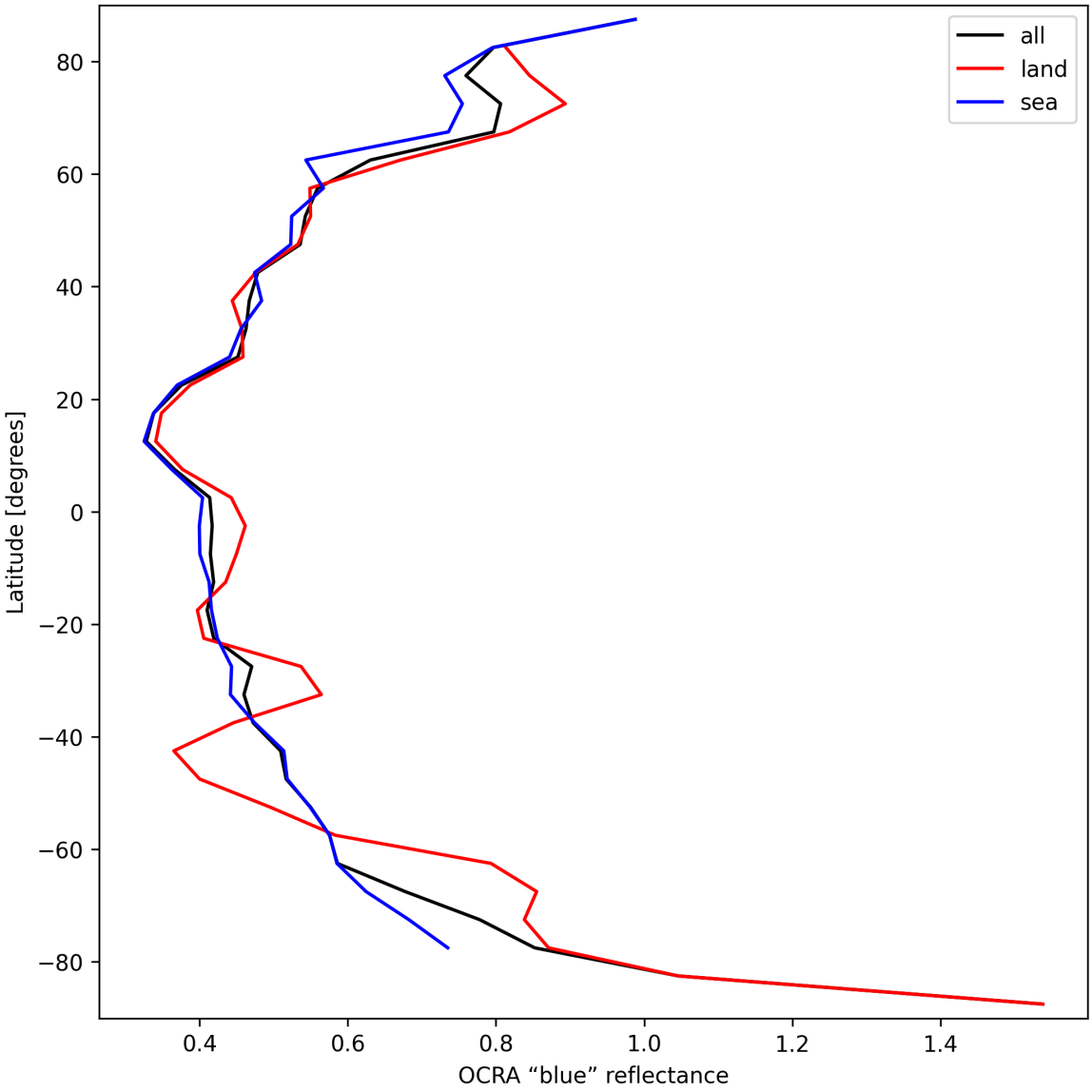

Figure 33: Zonal average of “OCRA “blue” reflectance” for 2025-03-28 to 2025-03-29.

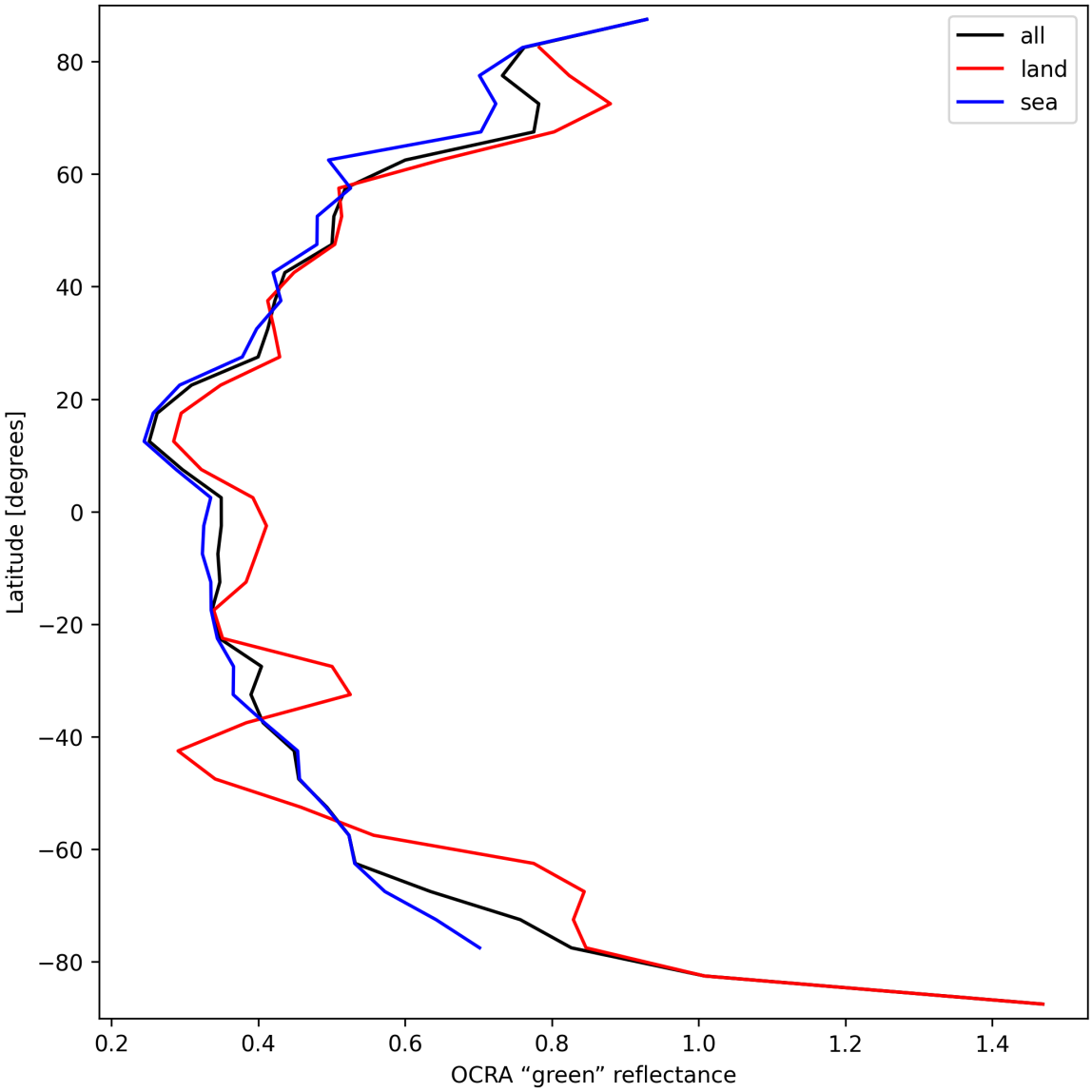

Figure 34: Zonal average of “OCRA “green” reflectance” for 2025-03-28 to 2025-03-29.

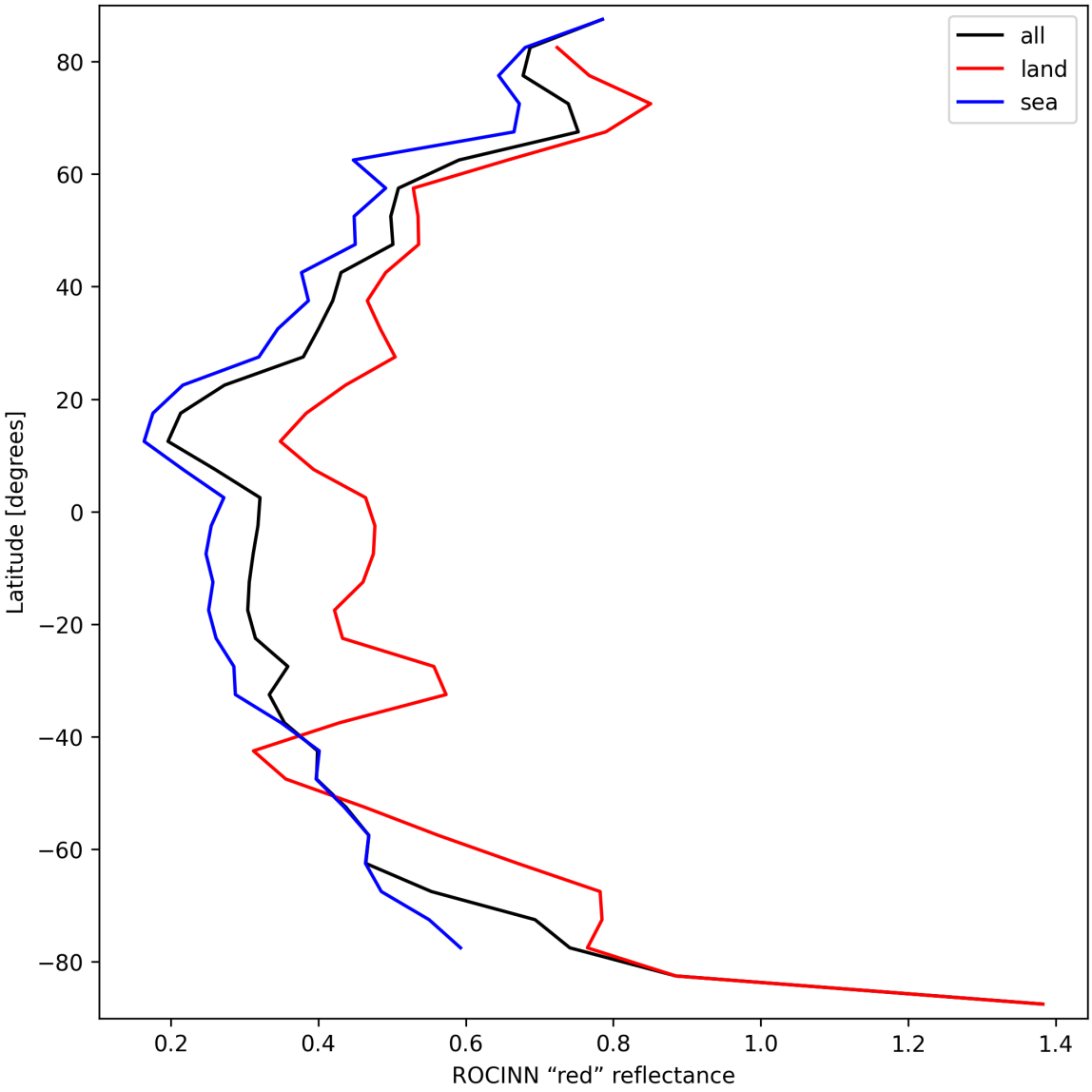

Figure 35: Zonal average of “ROCINN “red” reflectance” for 2025-03-28 to 2025-03-29.

8 Histograms

The definitions of the parameters given in this section can be found in section 2.

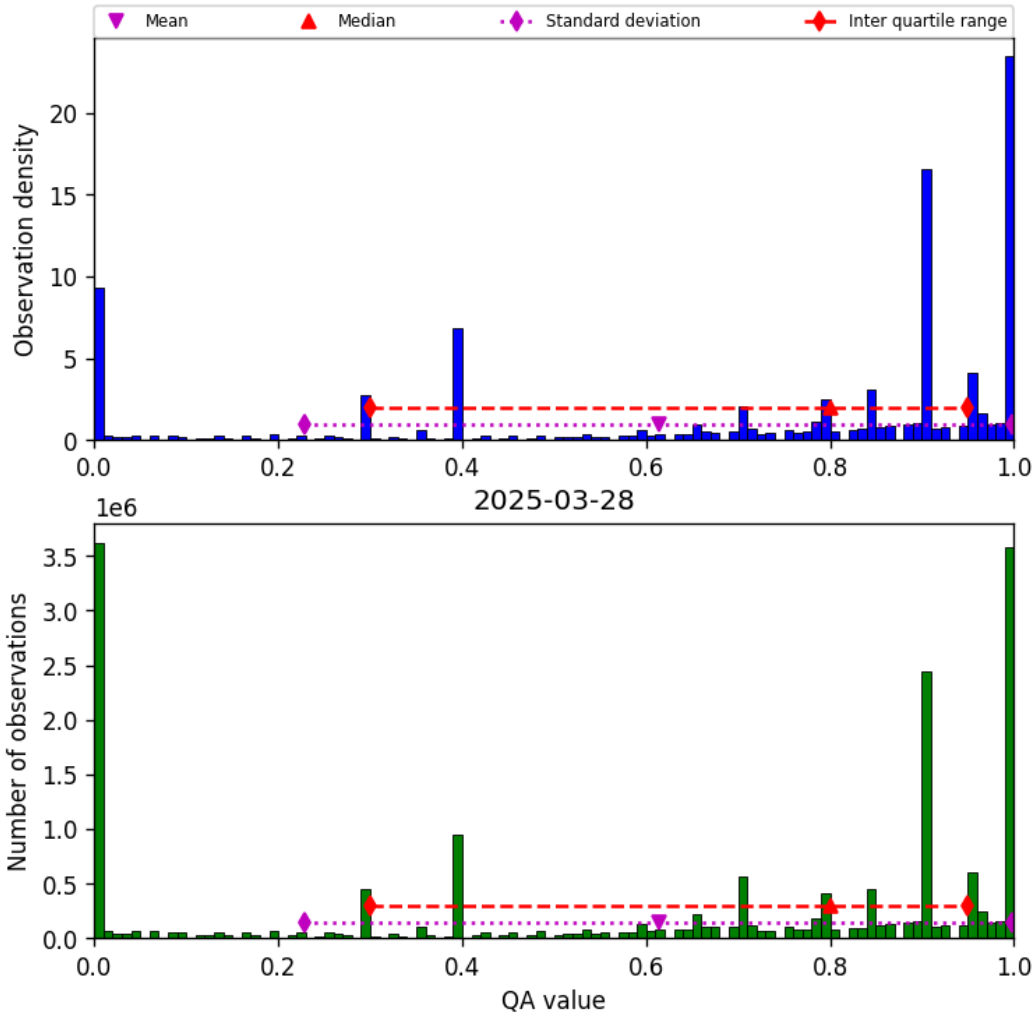

Figure 36: Histogram of “QA value” for 2025-03-28 to 2025-03-29

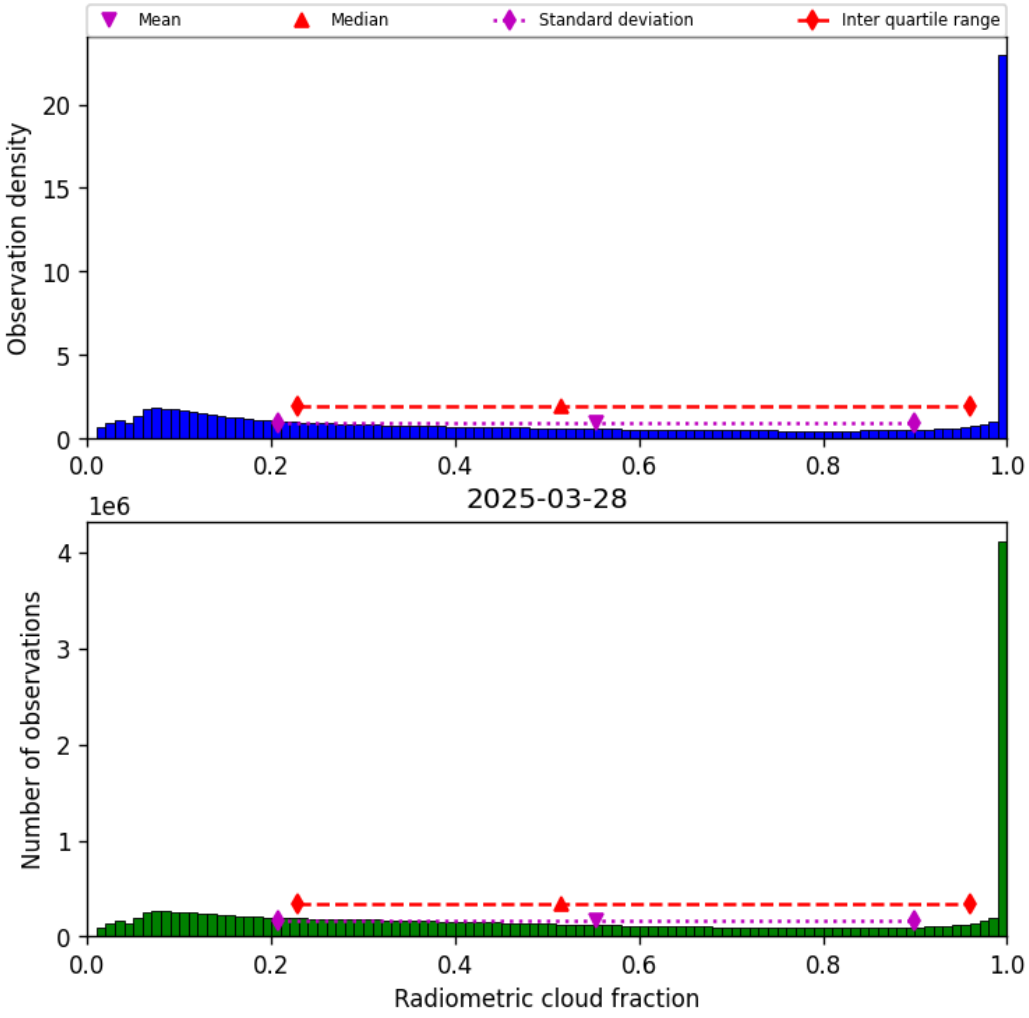

Figure 37: Histogram of “Radiometric cloud fraction” for 2025-03-28 to 2025-03-29

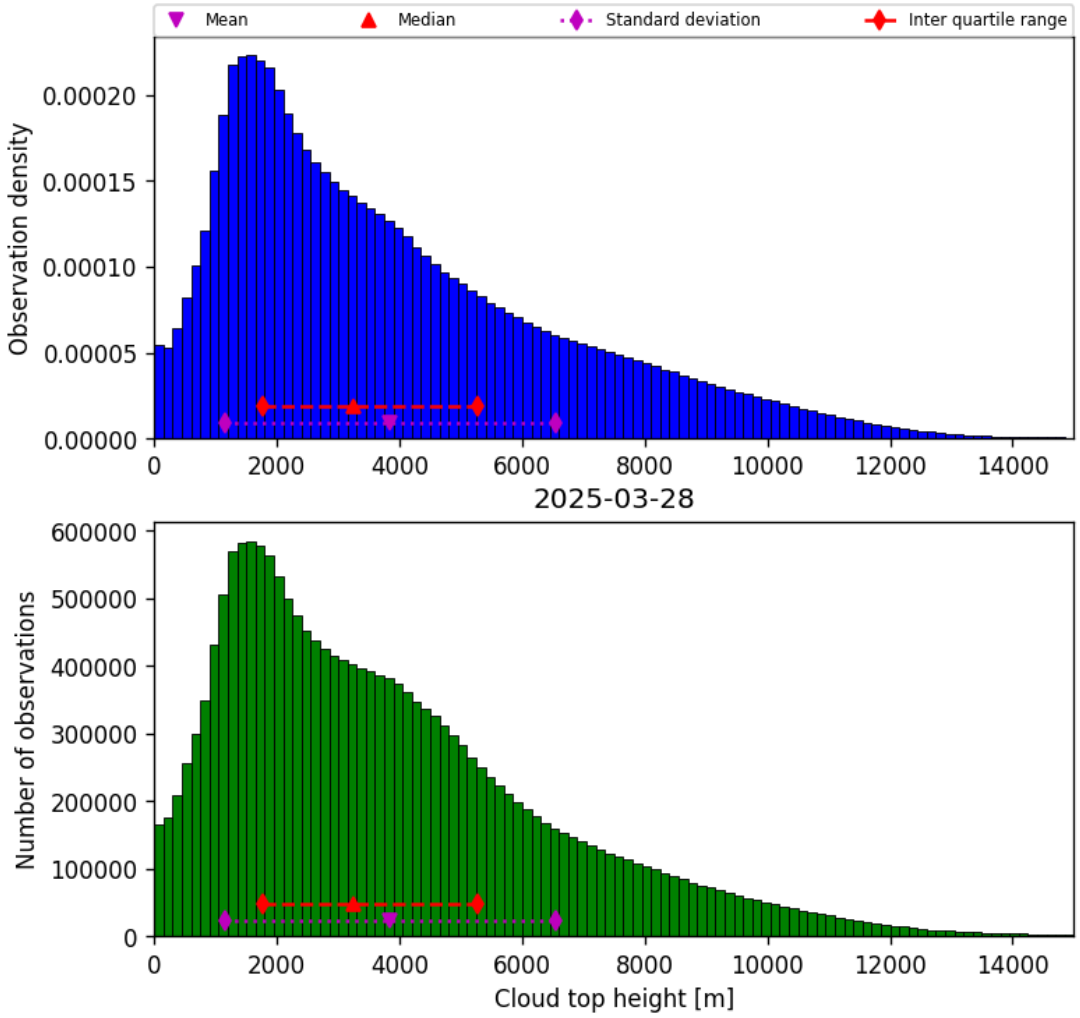

Figure 38: Histogram of “Cloud top height” for 2025-03-28 to 2025-03-29

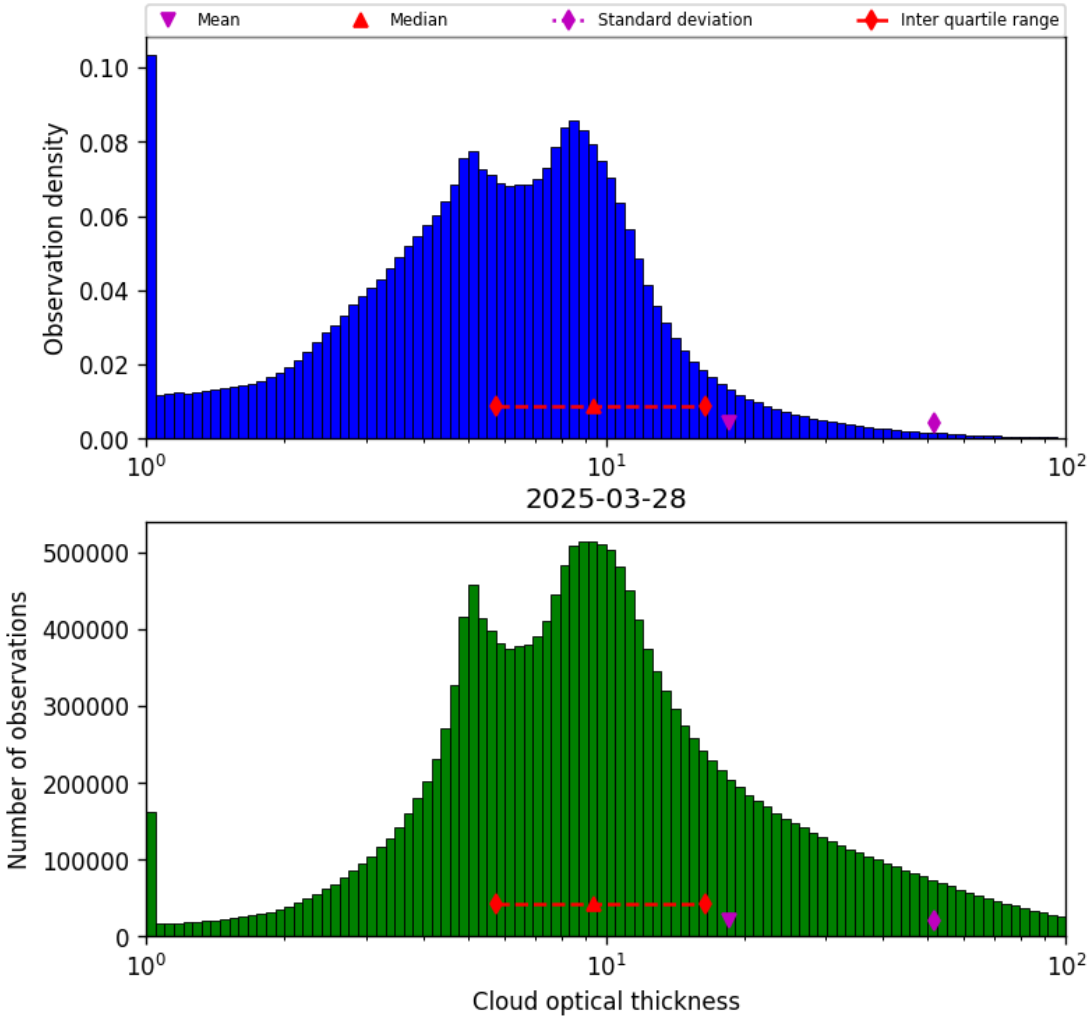

Figure 39: Histogram of “Cloud optical thickness” for 2025-03-28 to 2025-03-29

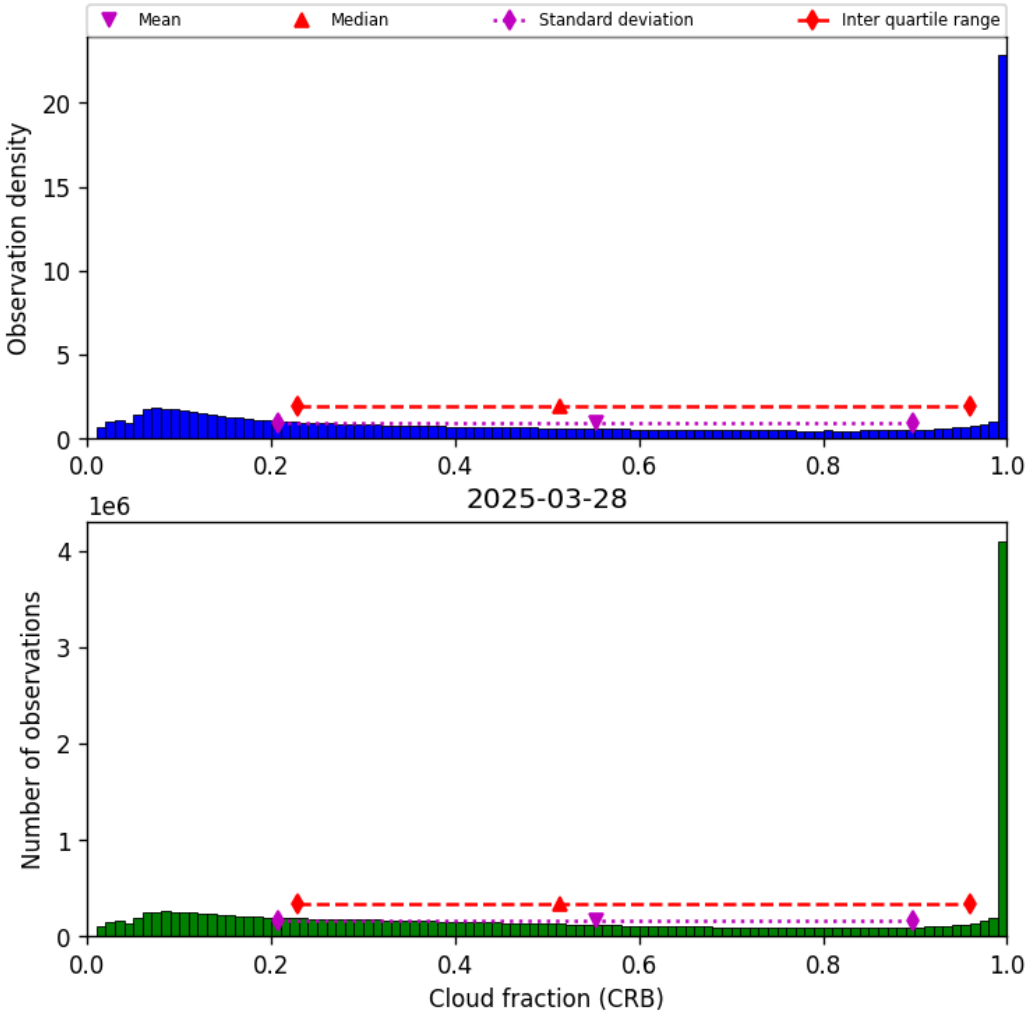

Figure 40: Histogram of “Cloud fraction (CRB)” for 2025-03-28 to 2025-03-29

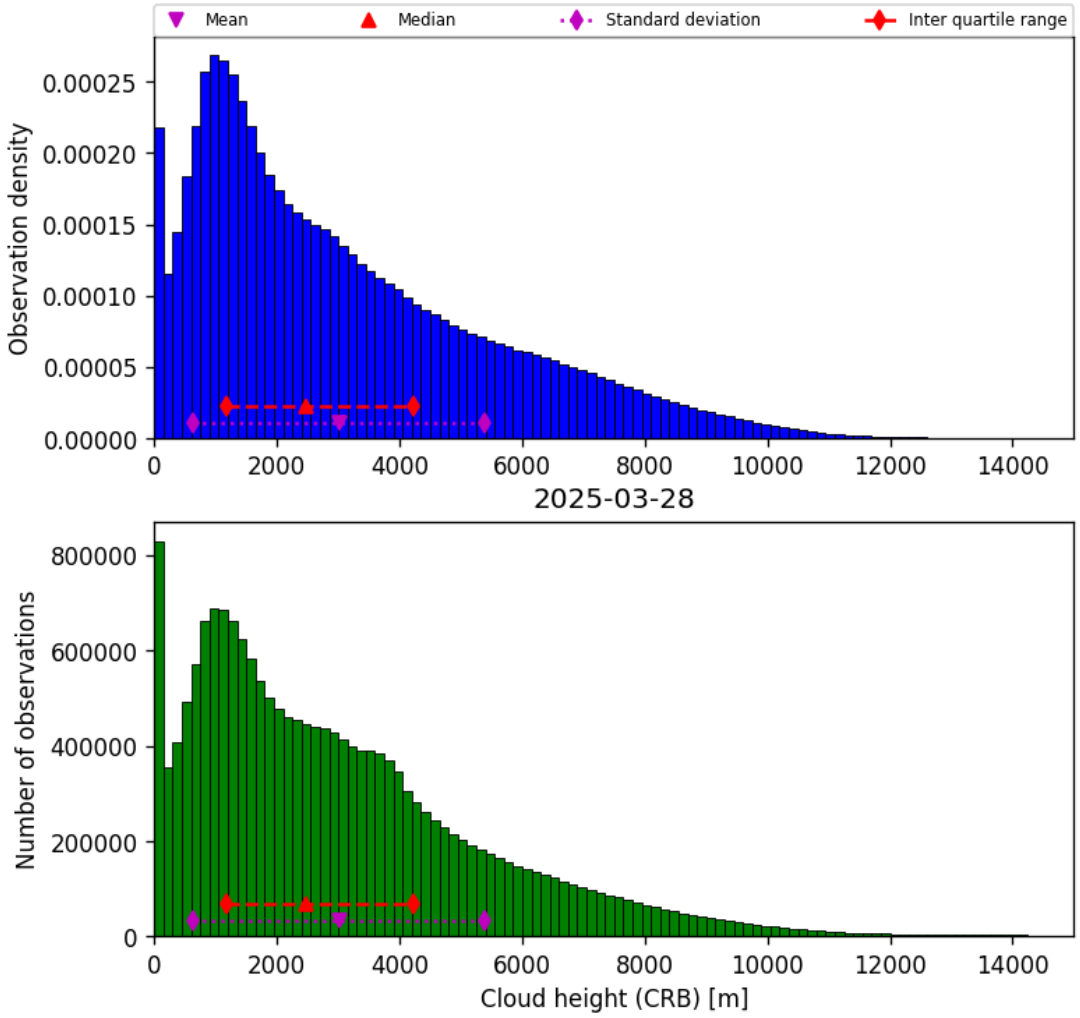

Figure 41: Histogram of “Cloud height (CRB)” for 2025-03-28 to 2025-03-29

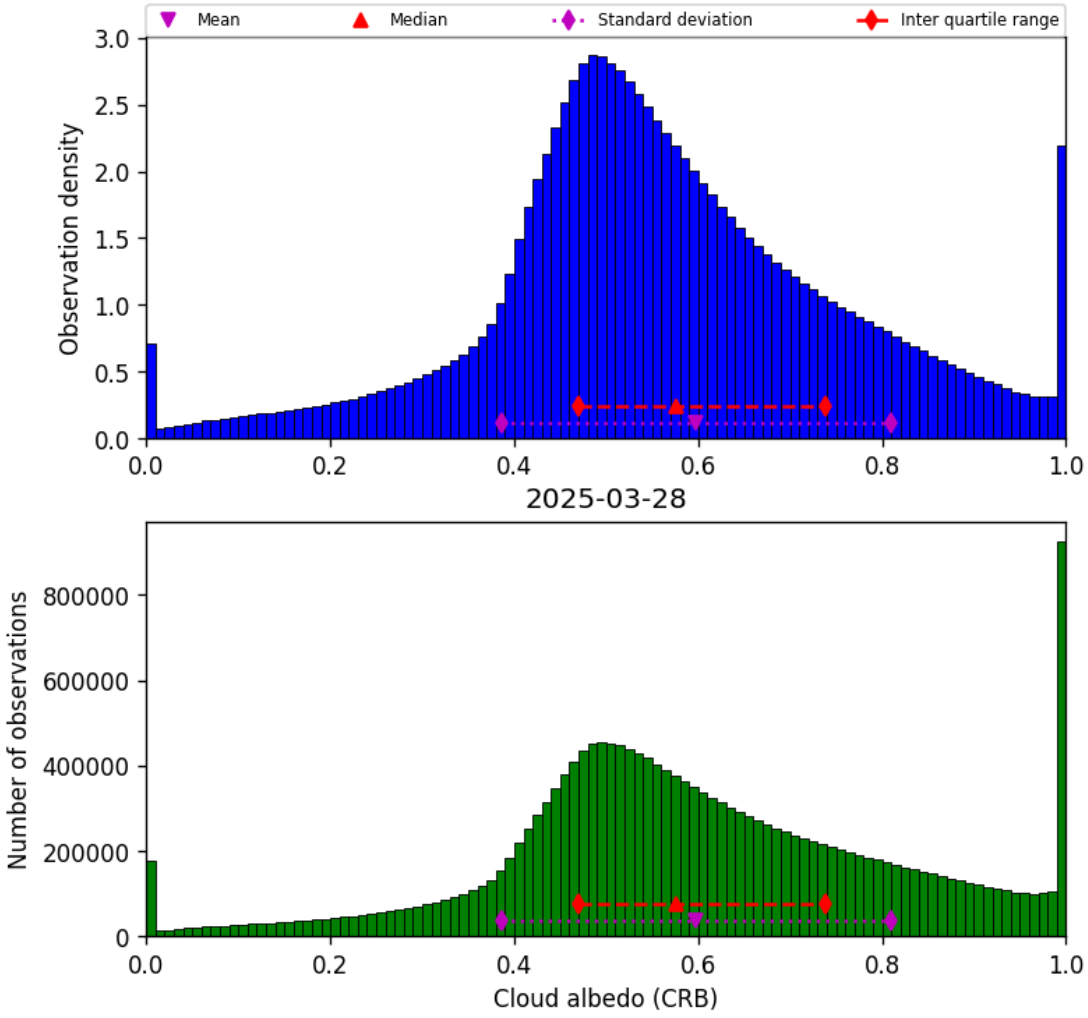

Figure 42: Histogram of “Cloud albedo (CRB)” for 2025-03-28 to 2025-03-29

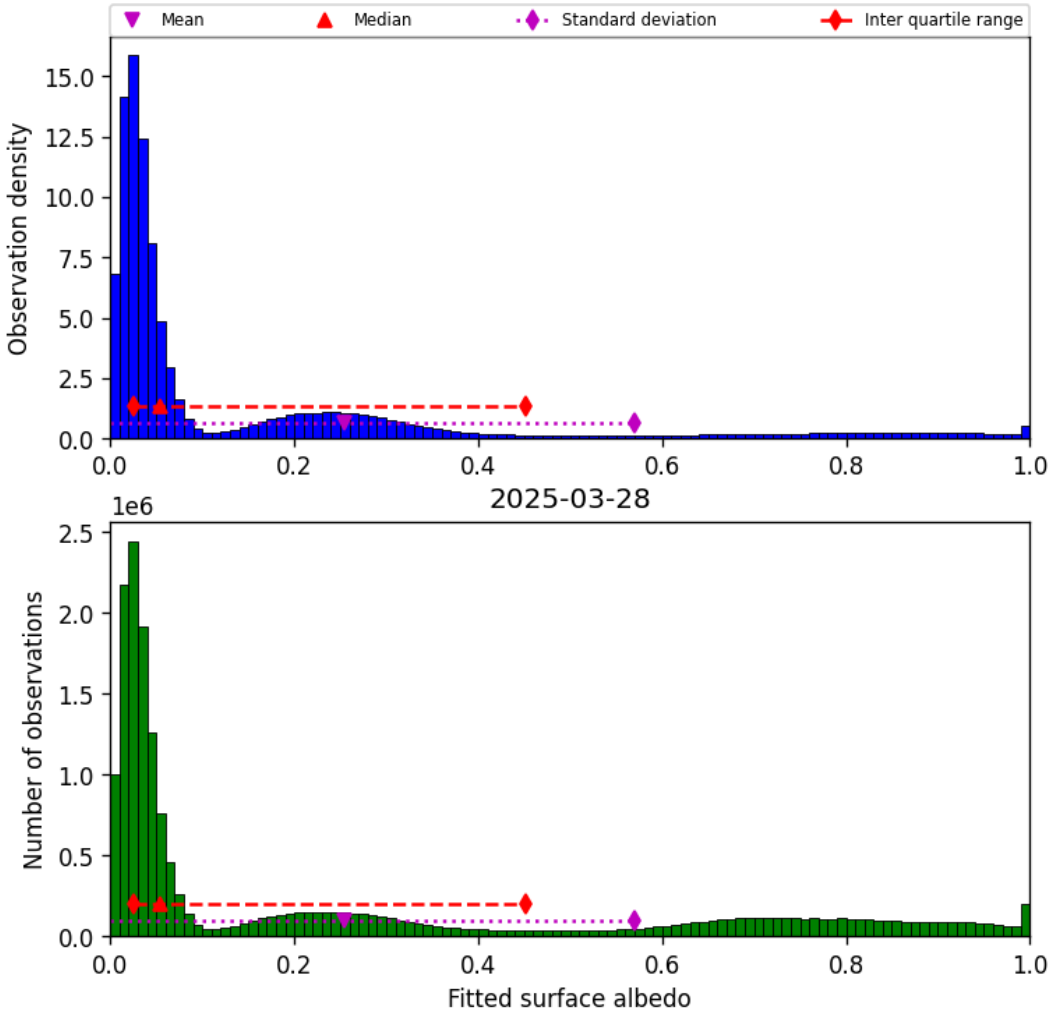

Figure 43: Histogram of “Fitted surface albedo” for 2025-03-28 to 2025-03-29

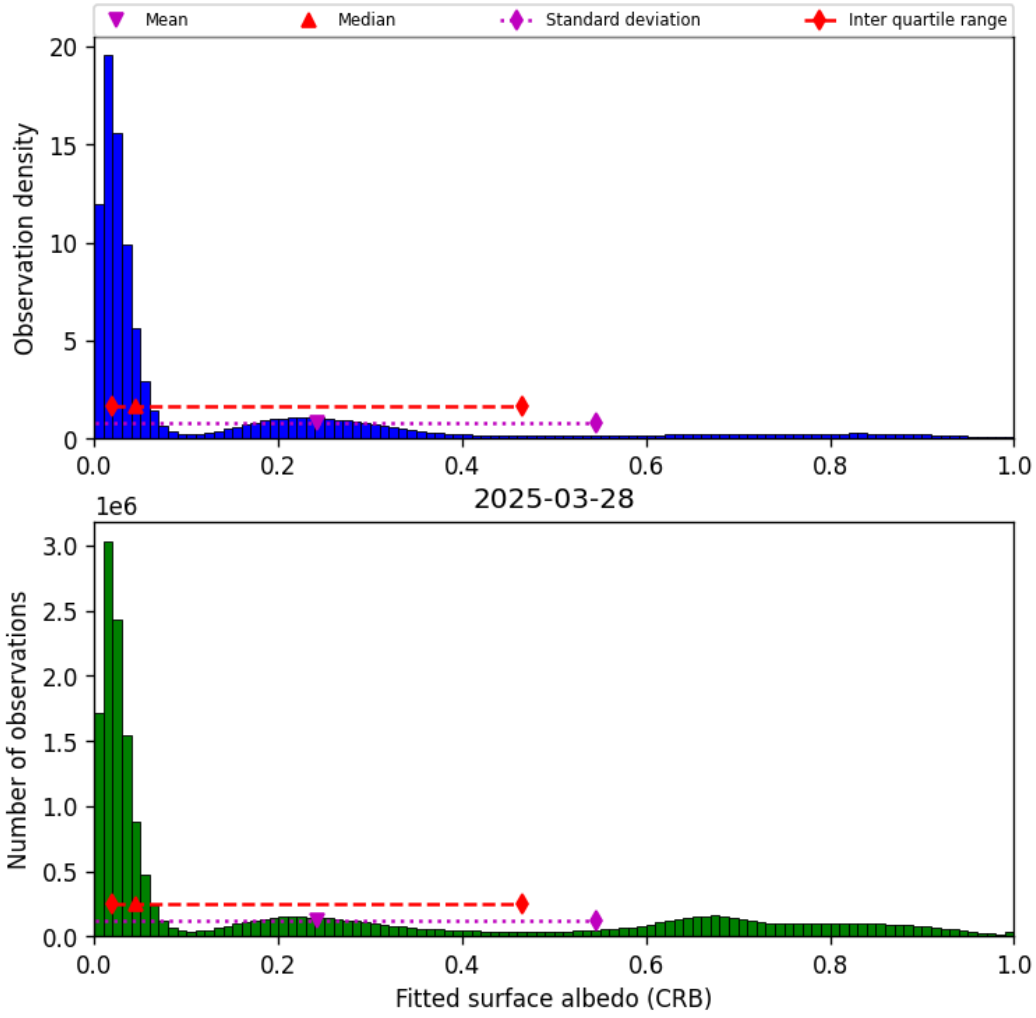

Figure 44: Histogram of “Fitted surface albedo (CRB)” for 2025-03-28 to 2025-03-29

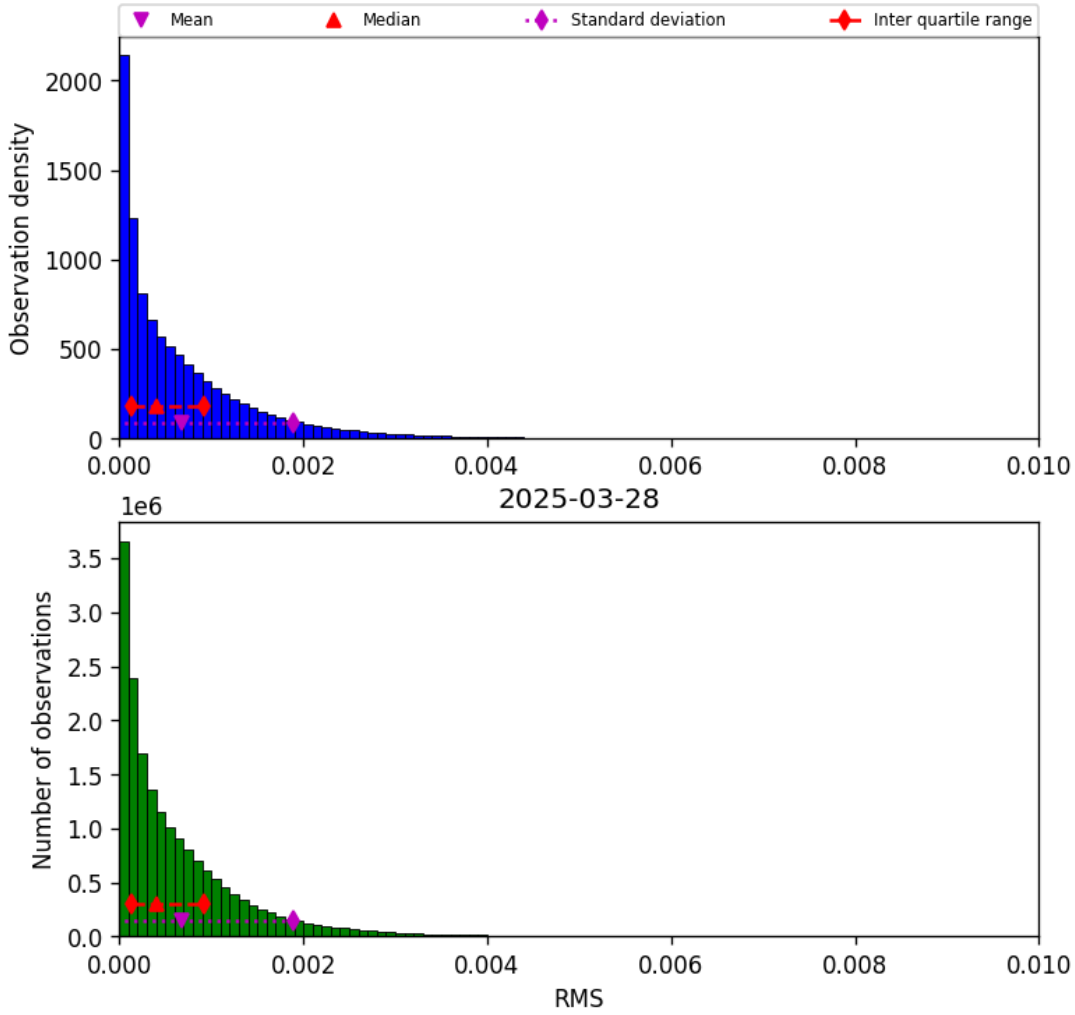

Figure 45: Histogram of “RMS” for 2025-03-28 to 2025-03-29

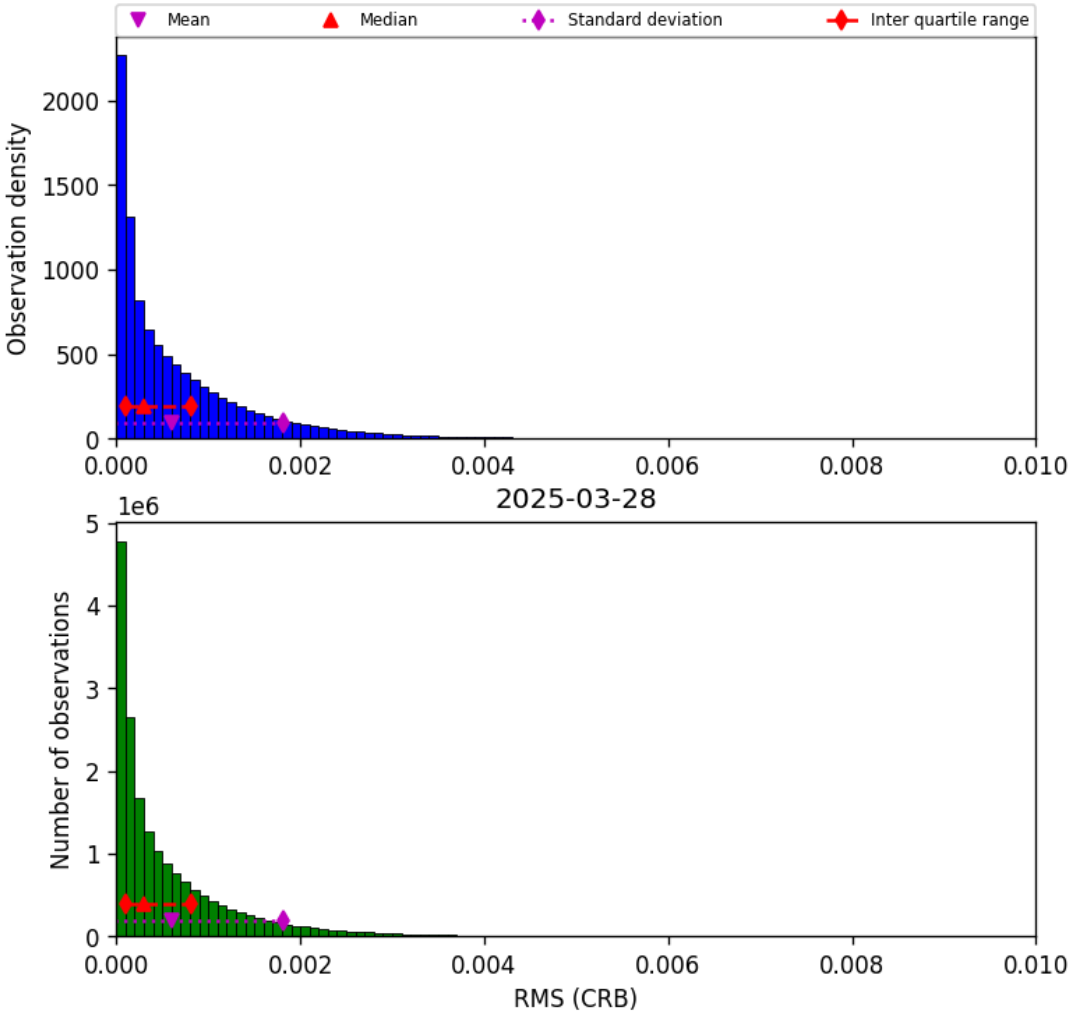

Figure 46: Histogram of “RMS (CRB)” for 2025-03-28 to 2025-03-29

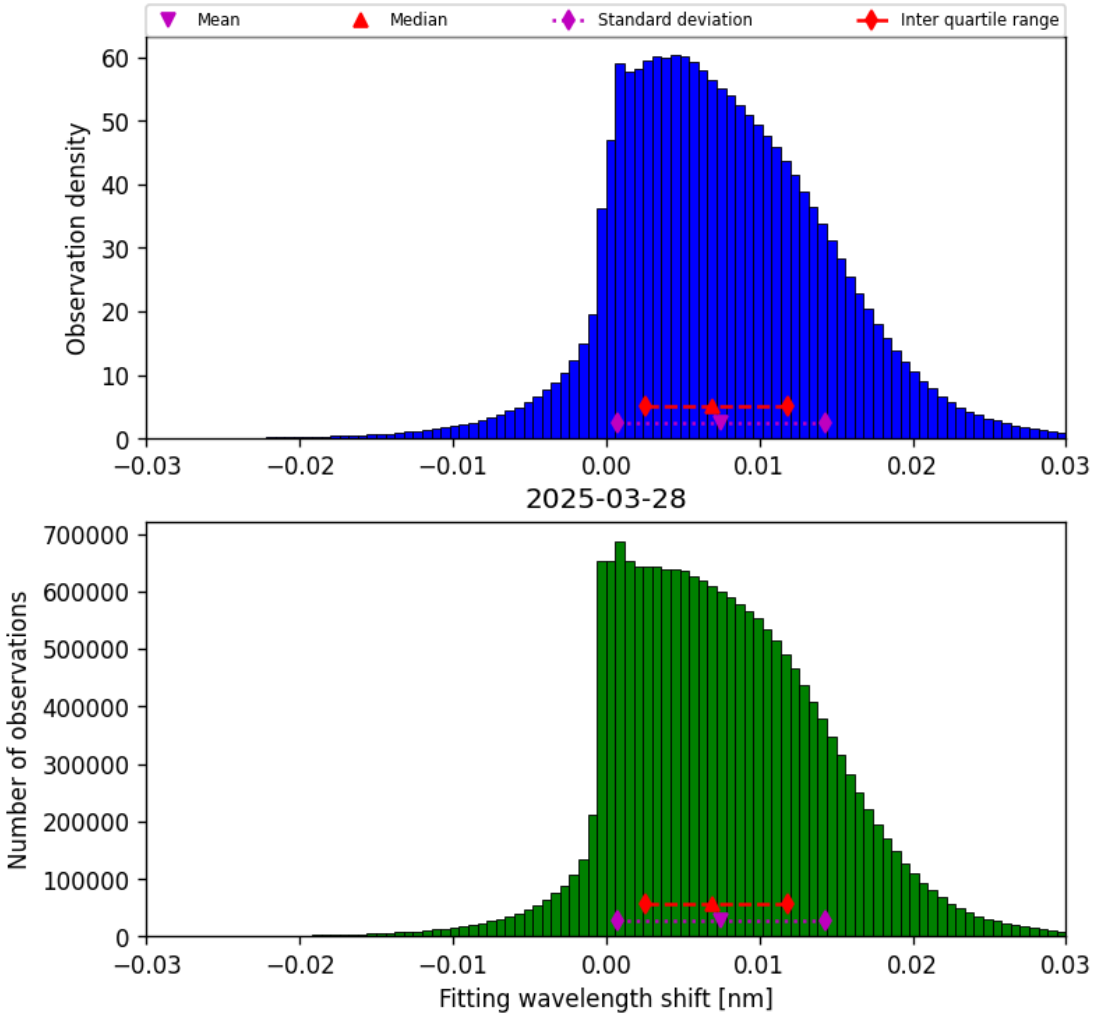

Figure 47: Histogram of “Fitting wavelength shift” for 2025-03-28 to 2025-03-29

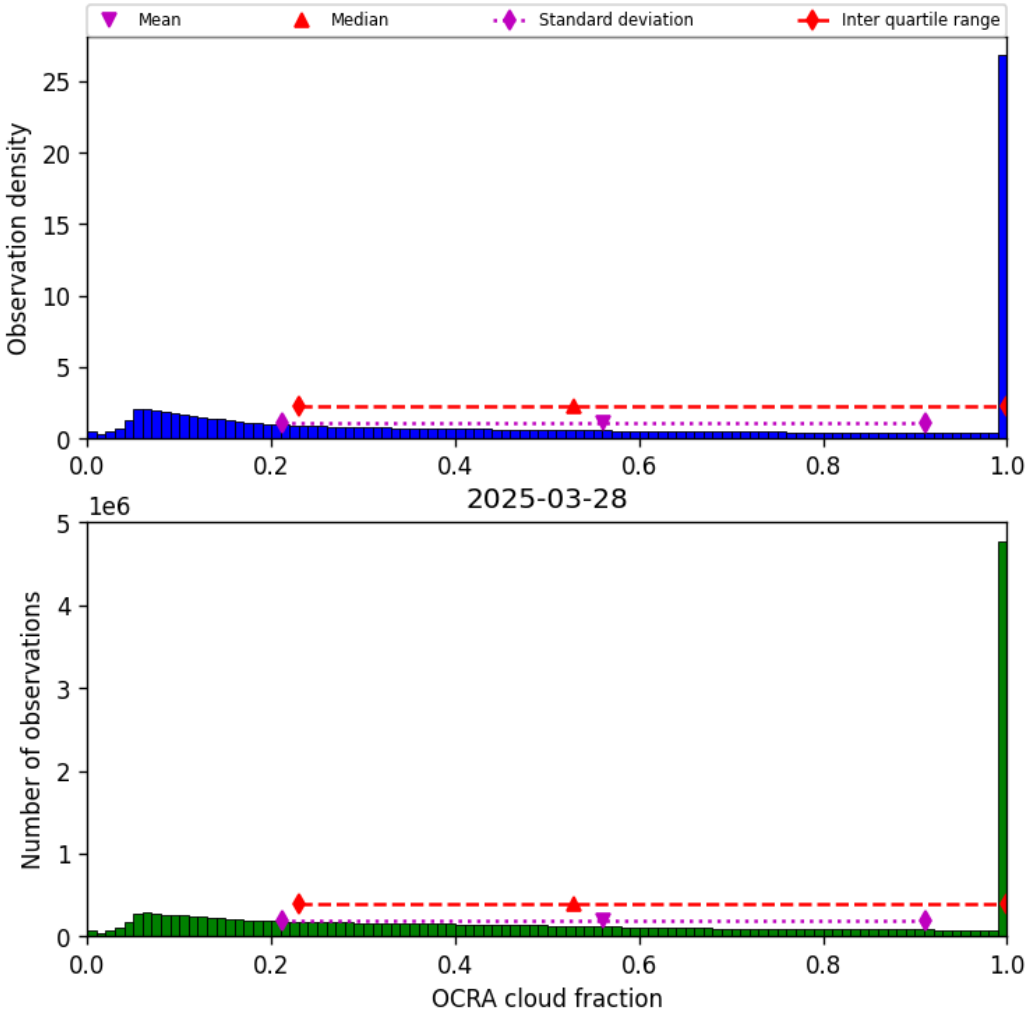

Figure 48: Histogram of “OCRA cloud fraction” for 2025-03-28 to 2025-03-29

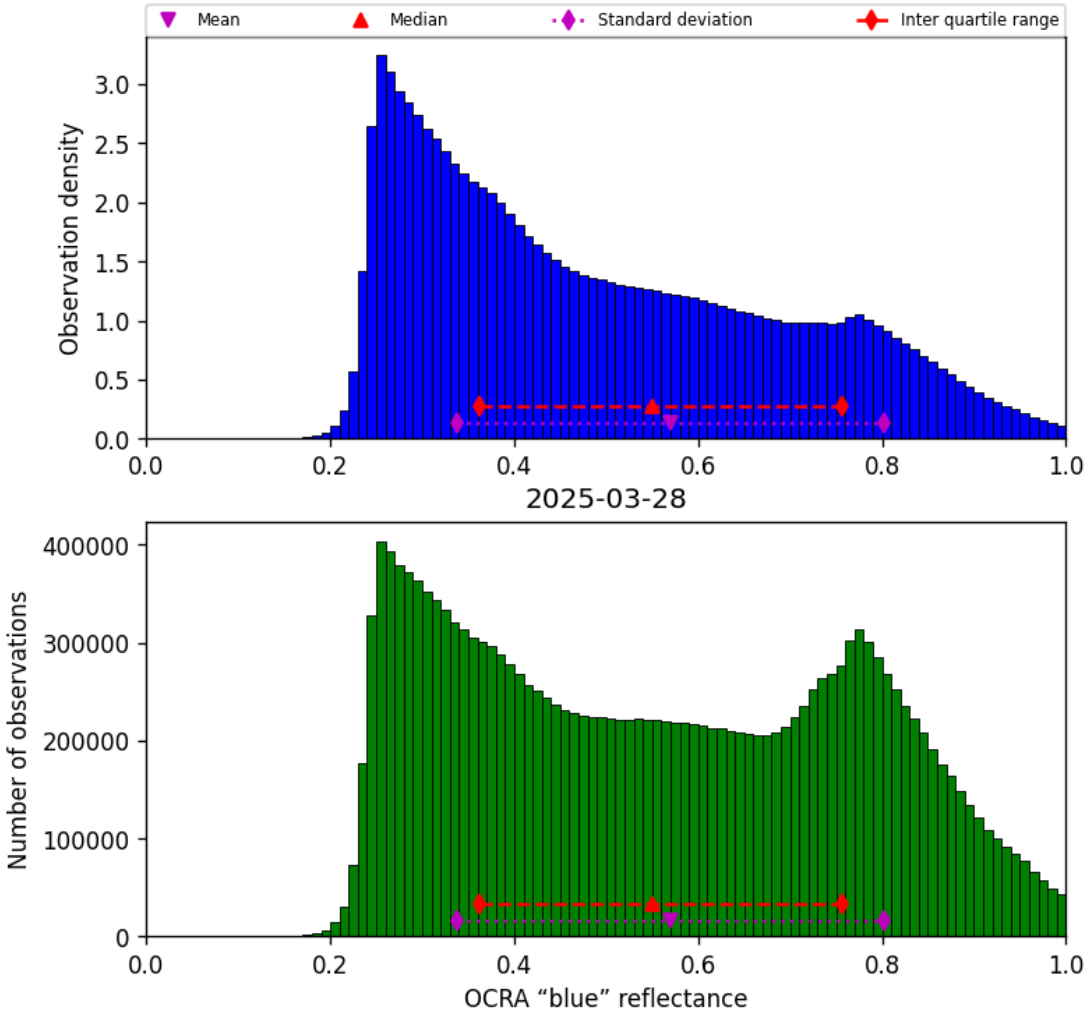

Figure 49: Histogram of “OCRA “blue” reflectance” for 2025-03-28 to 2025-03-29

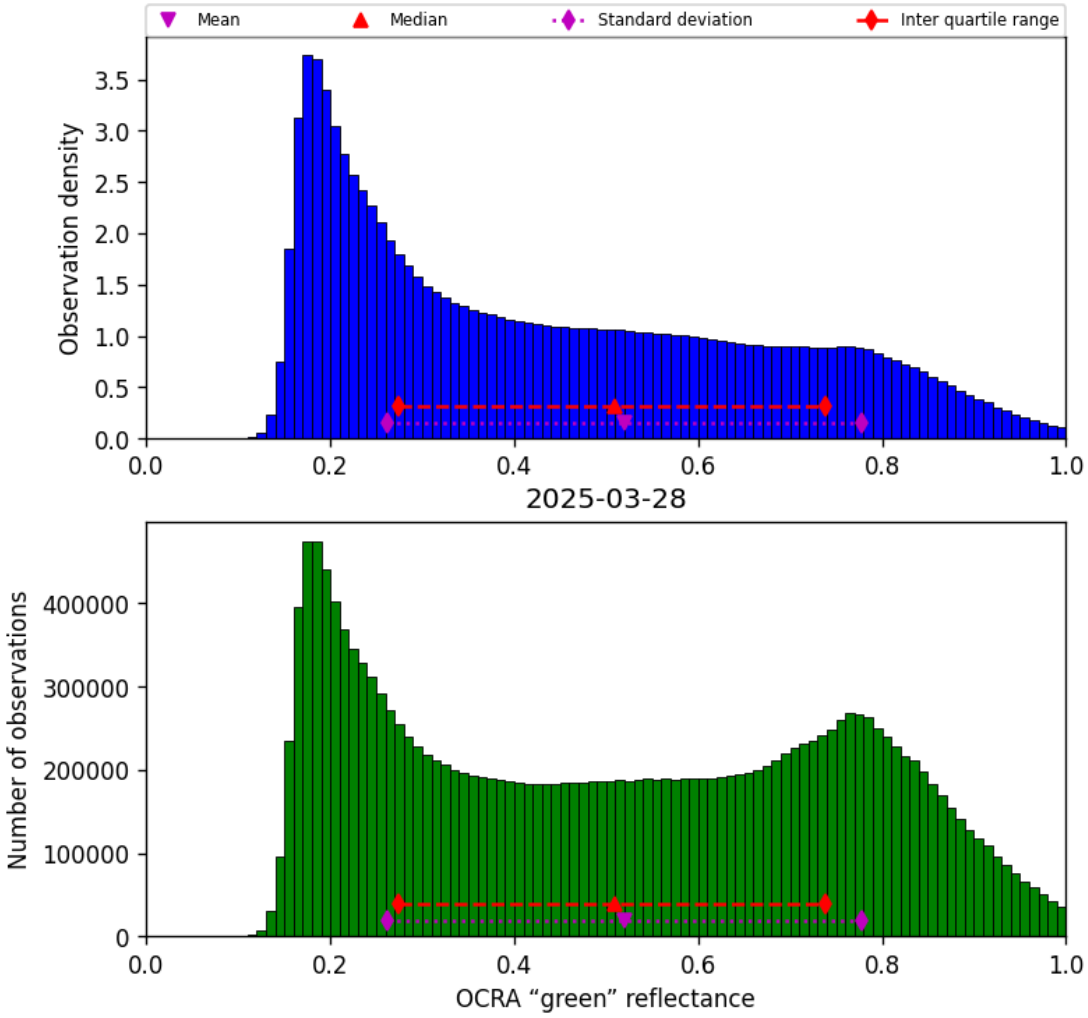

Figure 50: Histogram of “OCRA “green” reflectance” for 2025-03-28 to 2025-03-29

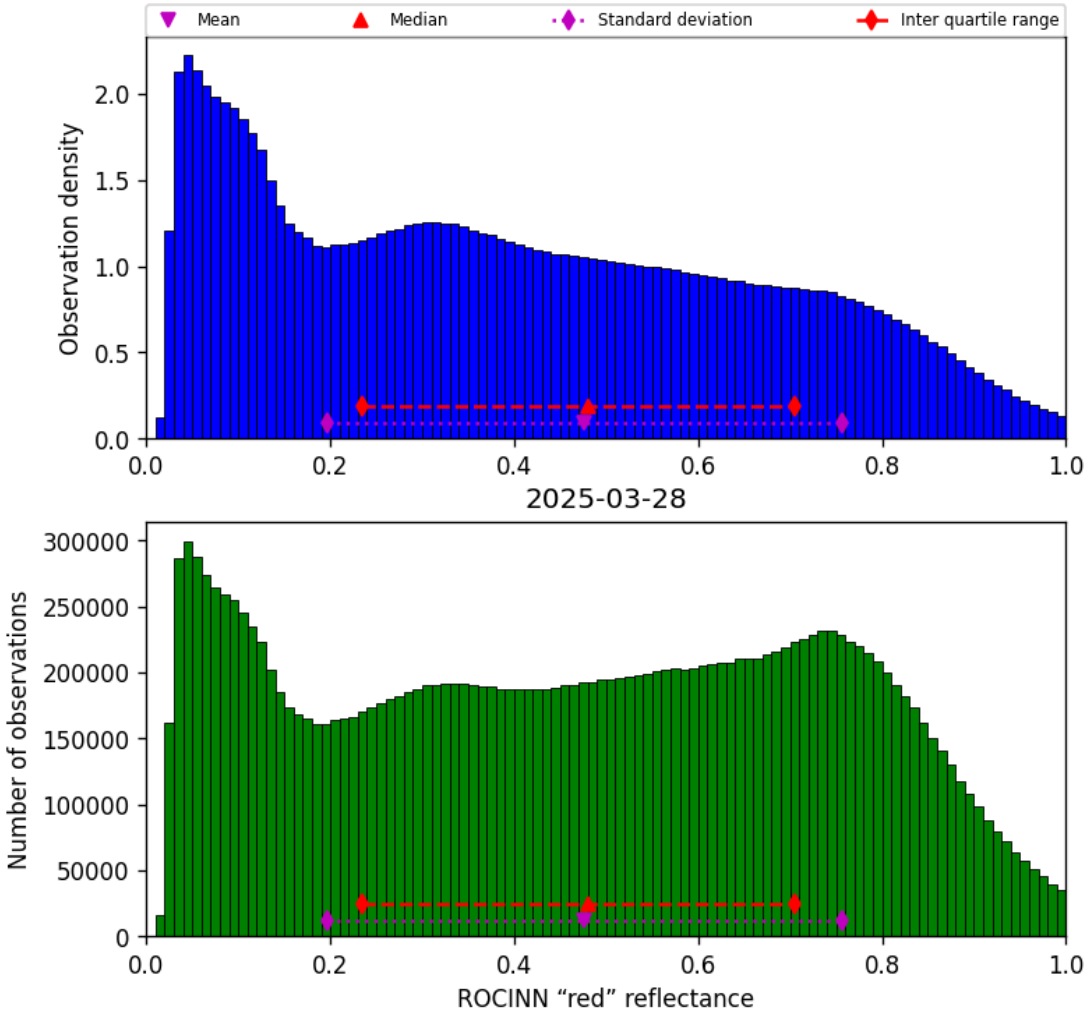

Figure 51: Histogram of “ROCINN “red” reflectance” for 2025-03-28 to 2025-03-29

9 Along track statistics

The TROPOMI instrument uses different binned detector rows for different viewing directions. In this section statistics are presented for each of the binned rows in the instrument.

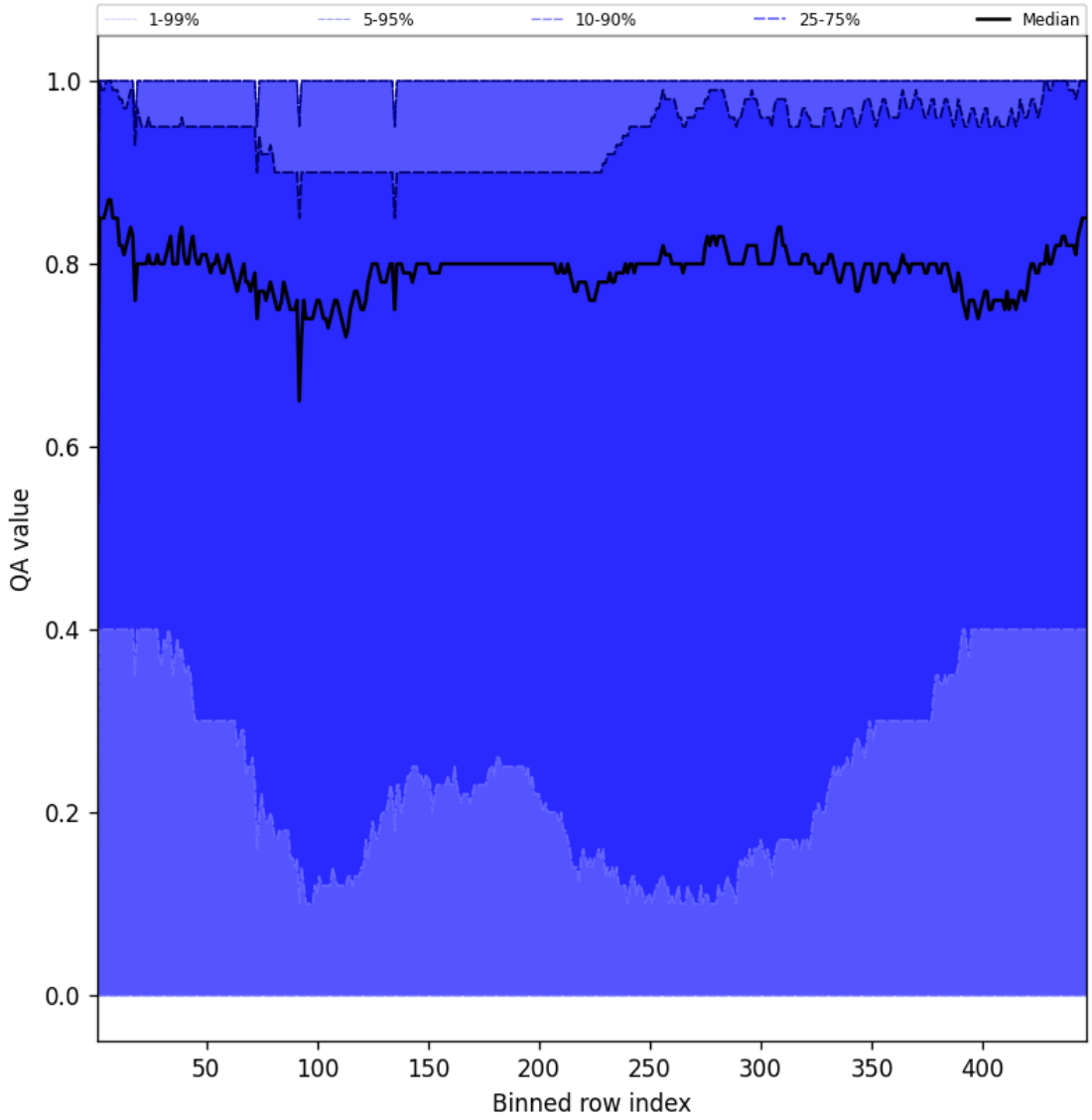

Figure 52: Along track statistics of “QA value” for 2025-03-28 to 2025-03-29

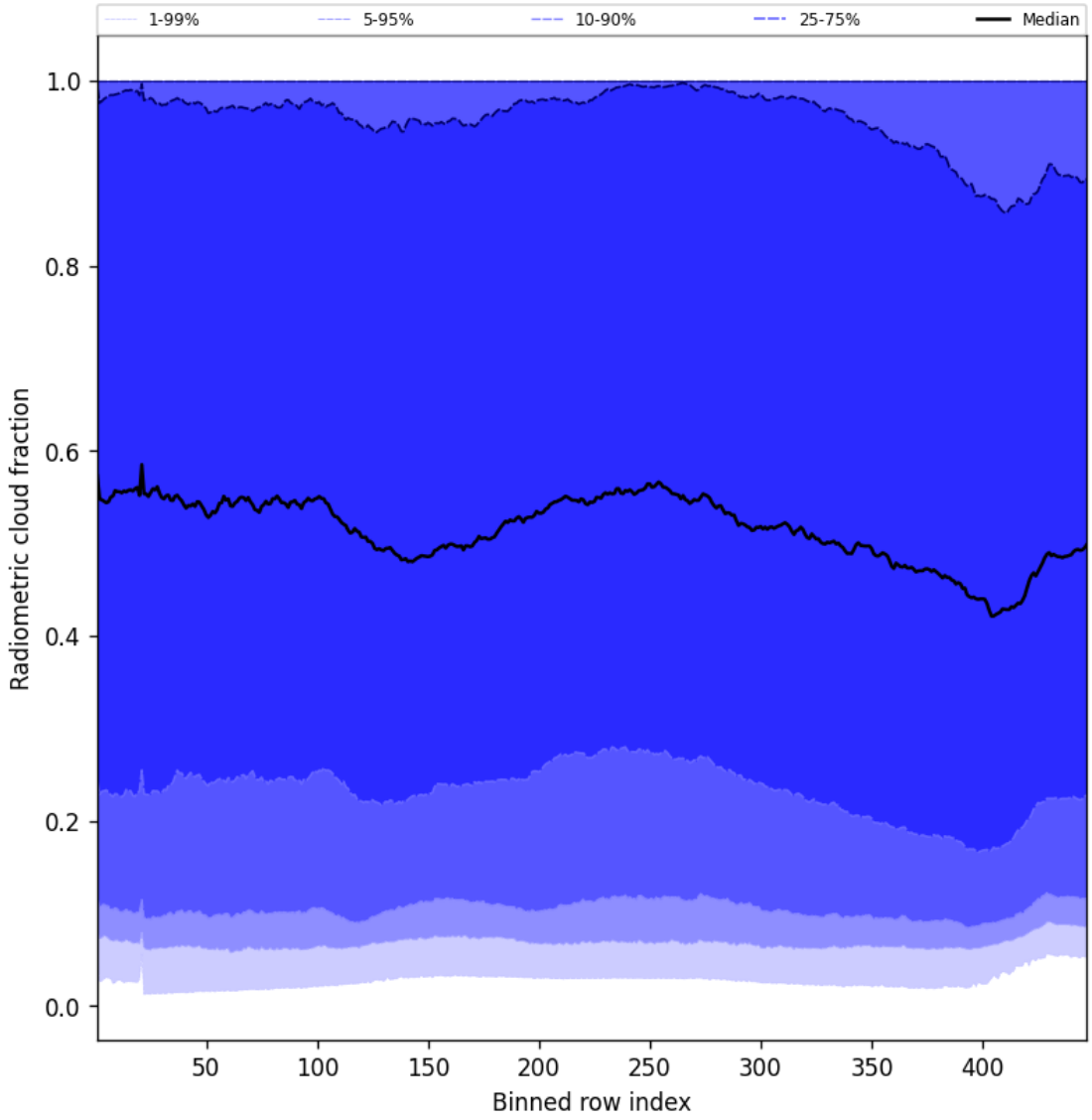

Figure 53: Along track statistics of “Radiometric cloud fraction” for 2025-03-28 to 2025-03-29

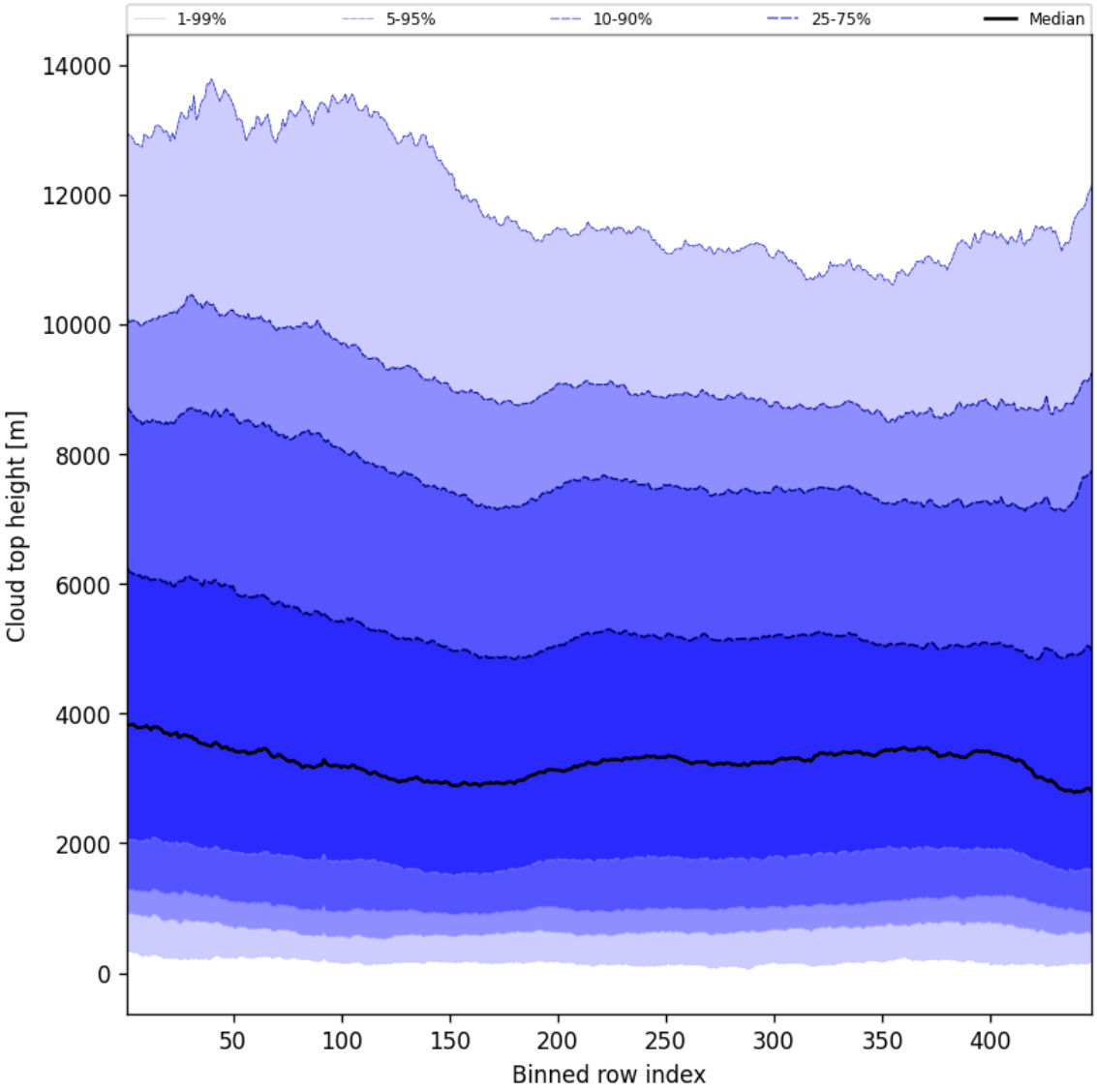

Figure 54: Along track statistics of “Cloud top height” for 2025-03-28 to 2025-03-29

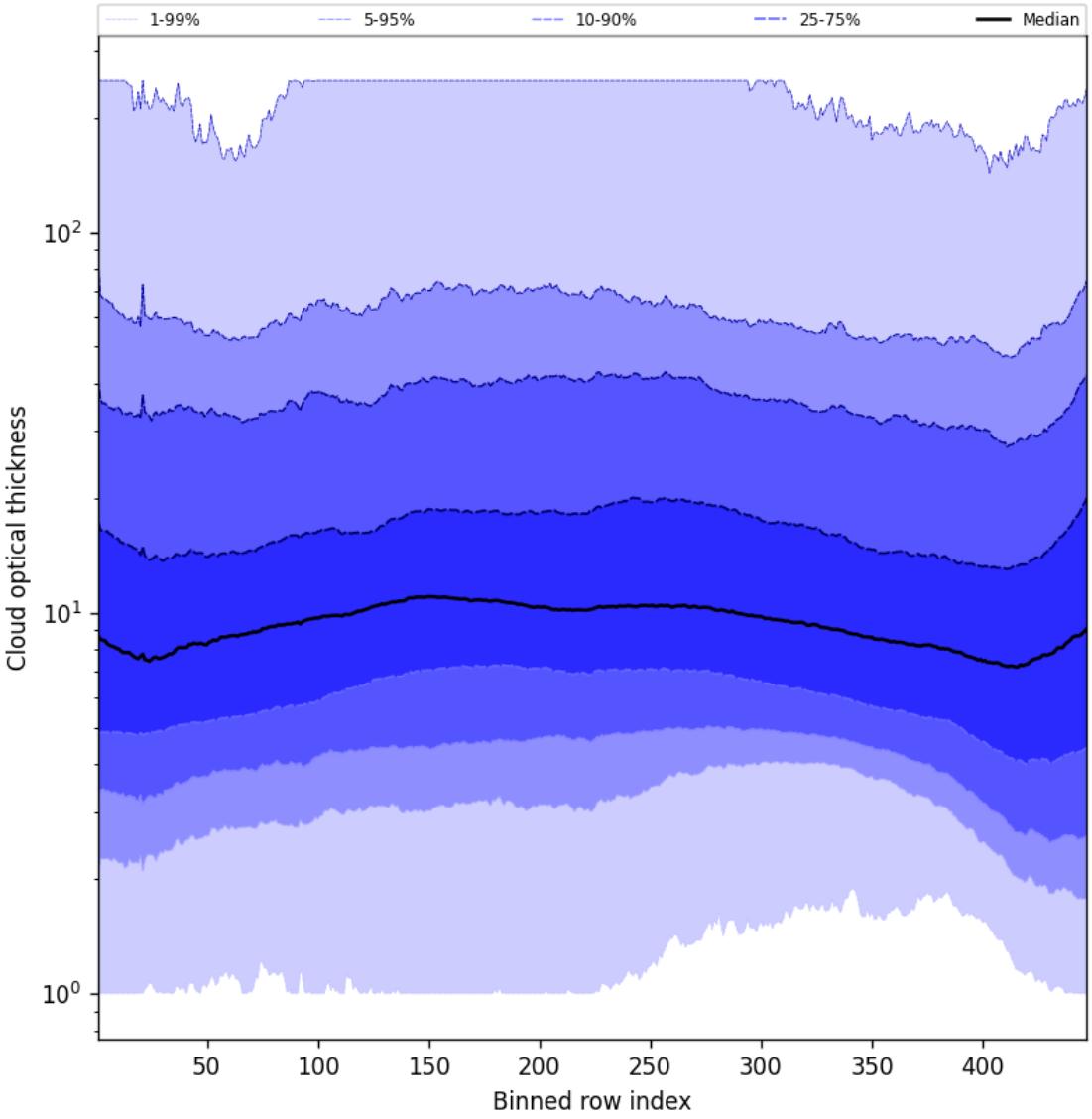

Figure 55: Along track statistics of “Cloud optical thickness” for 2025-03-28 to 2025-03-29

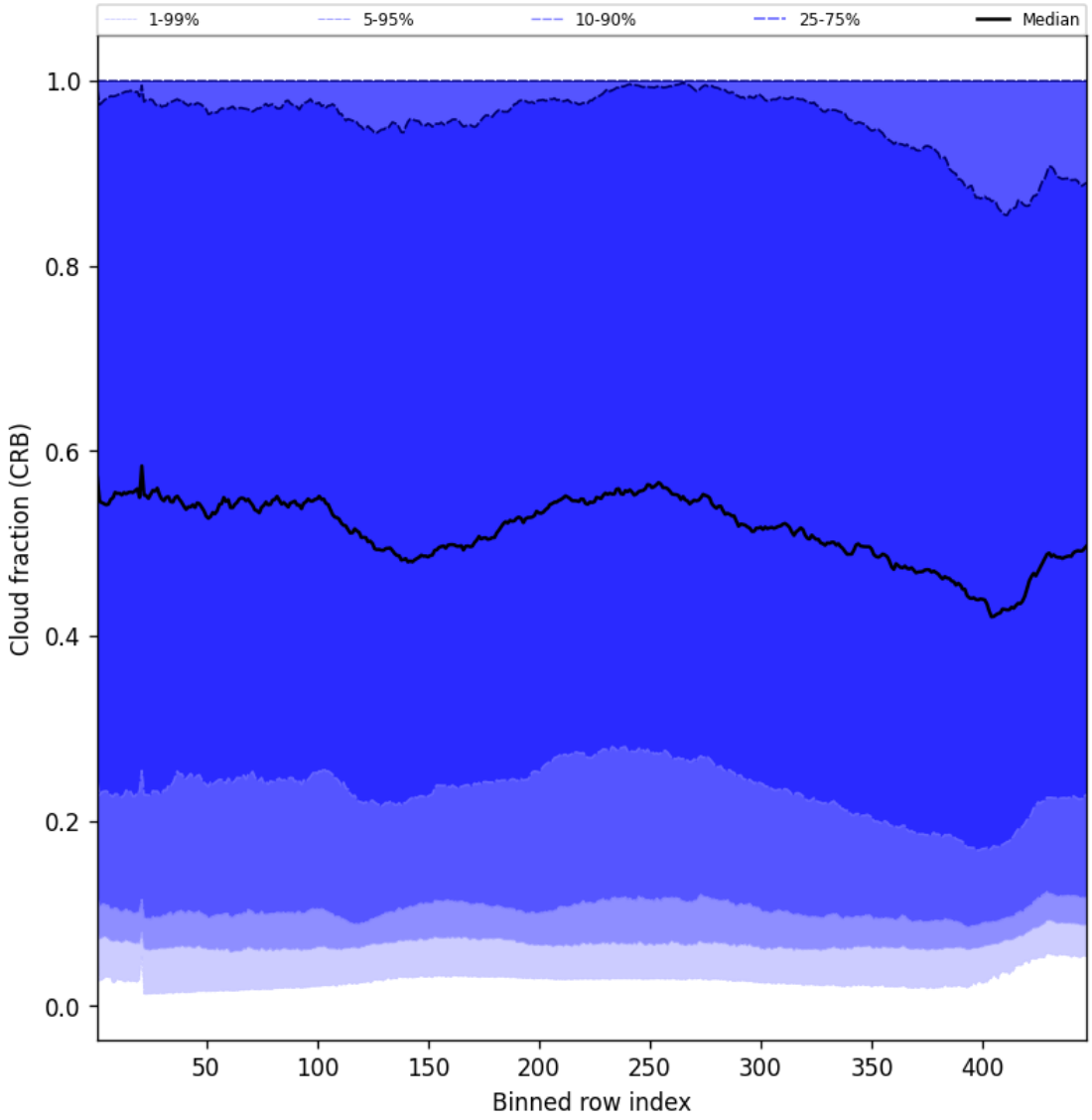

Figure 56: Along track statistics of “Cloud fraction (CRB)” for 2025-03-28 to 2025-03-29

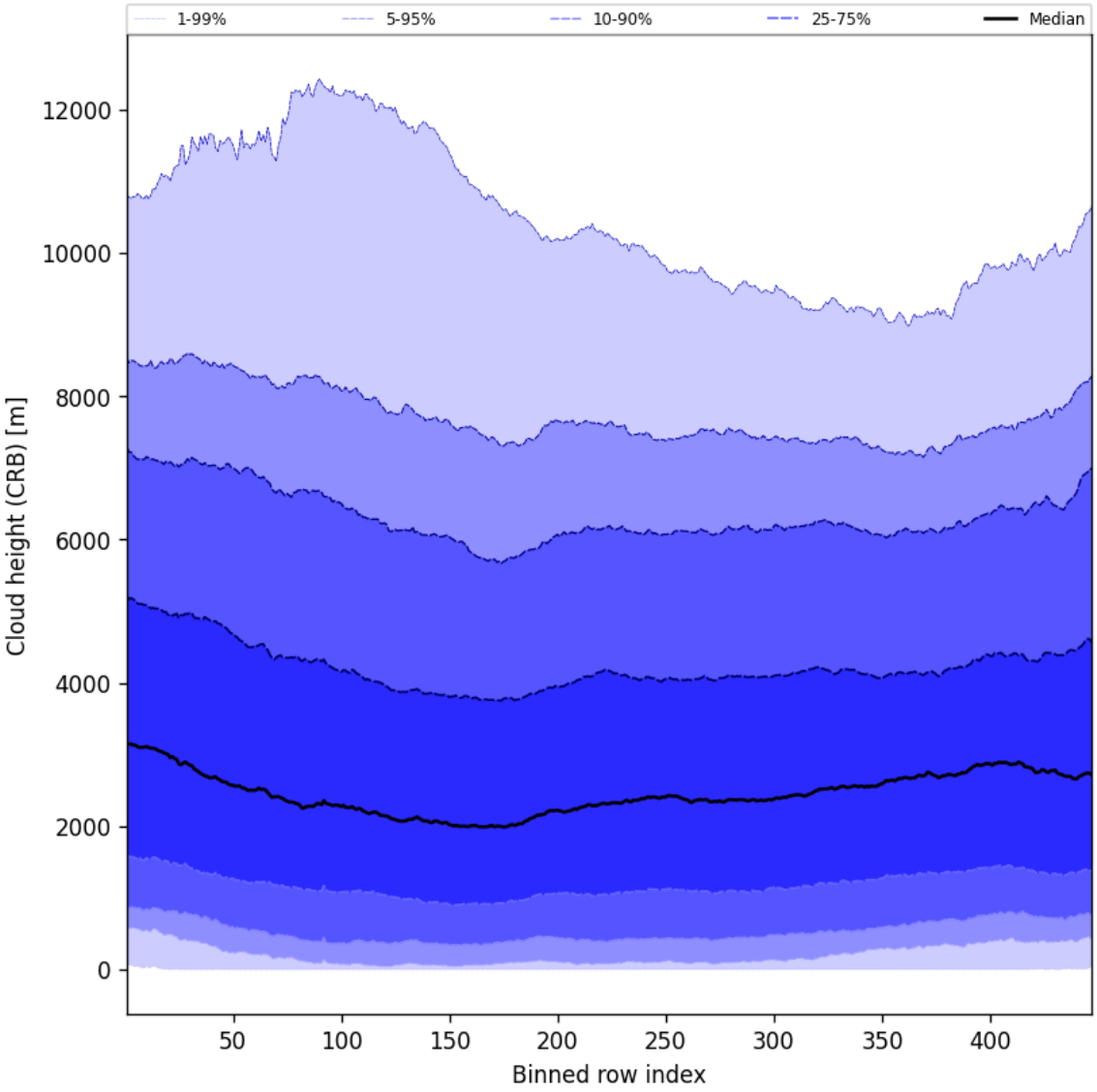

Figure 57: Along track statistics of “Cloud height (CRB)” for 2025-03-28 to 2025-03-29

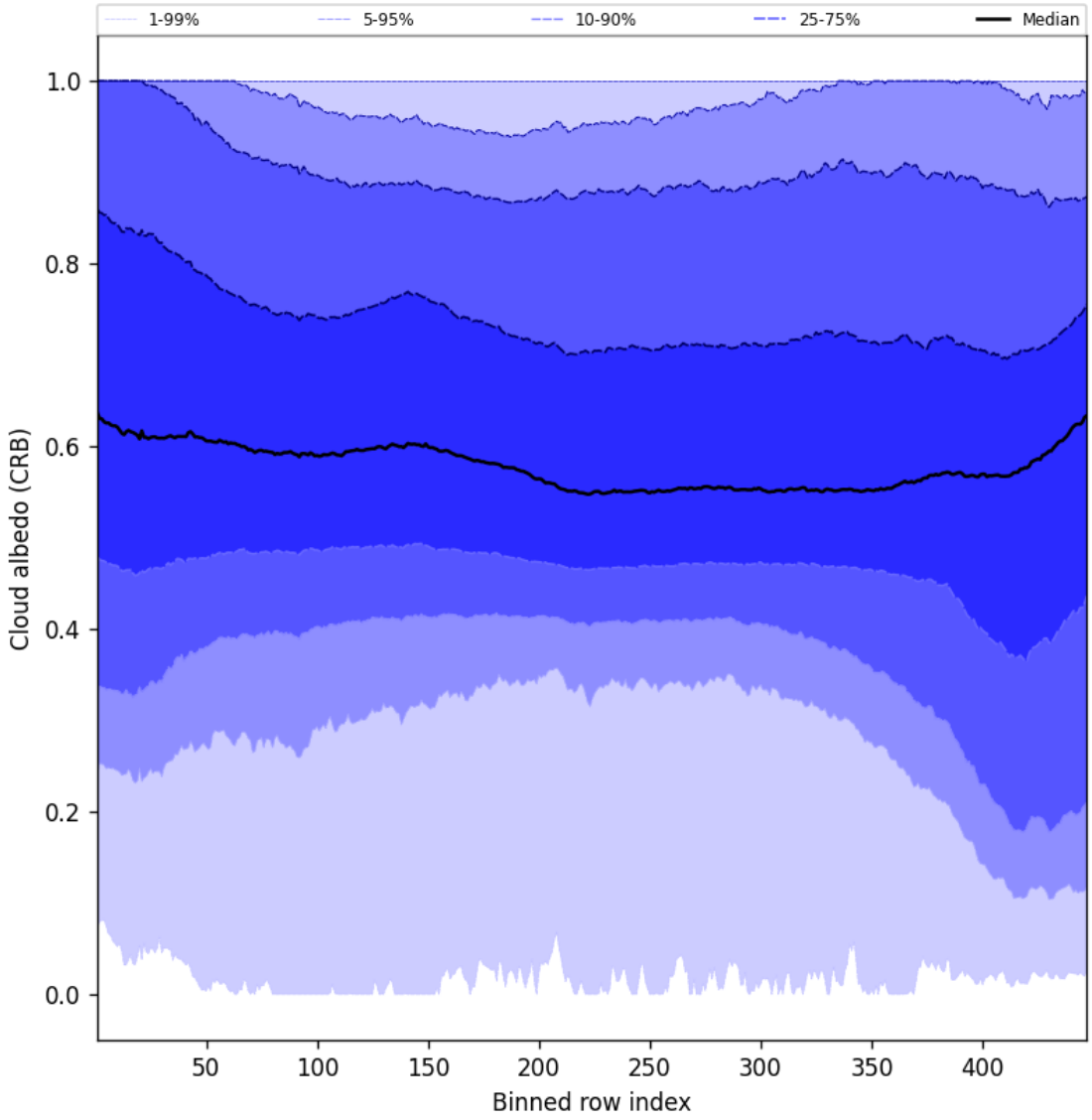

Figure 58: Along track statistics of “Cloud albedo (CRB)” for 2025-03-28 to 2025-03-29

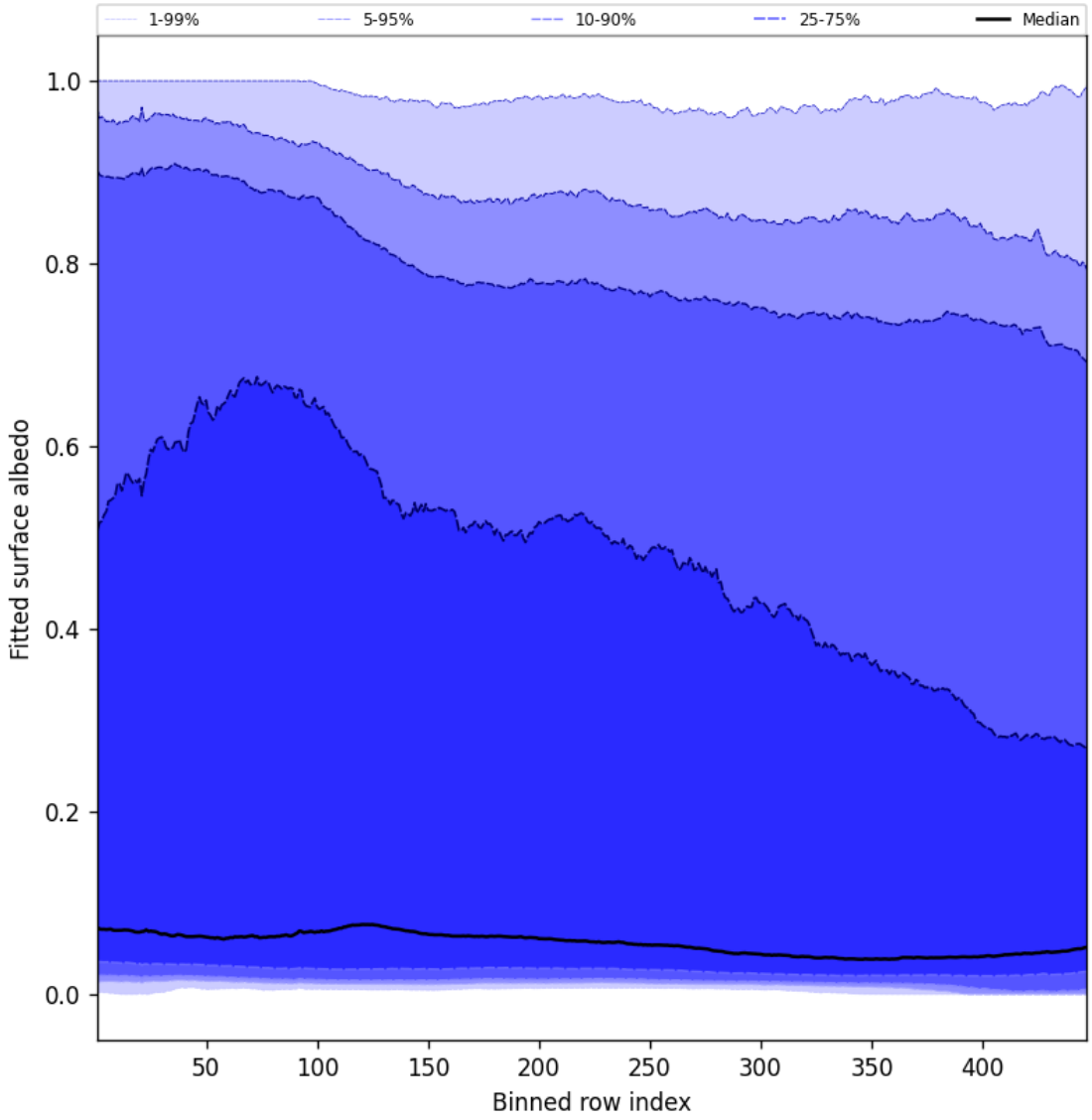

Figure 59: Along track statistics of “Fitted surface albedo” for 2025-03-28 to 2025-03-29

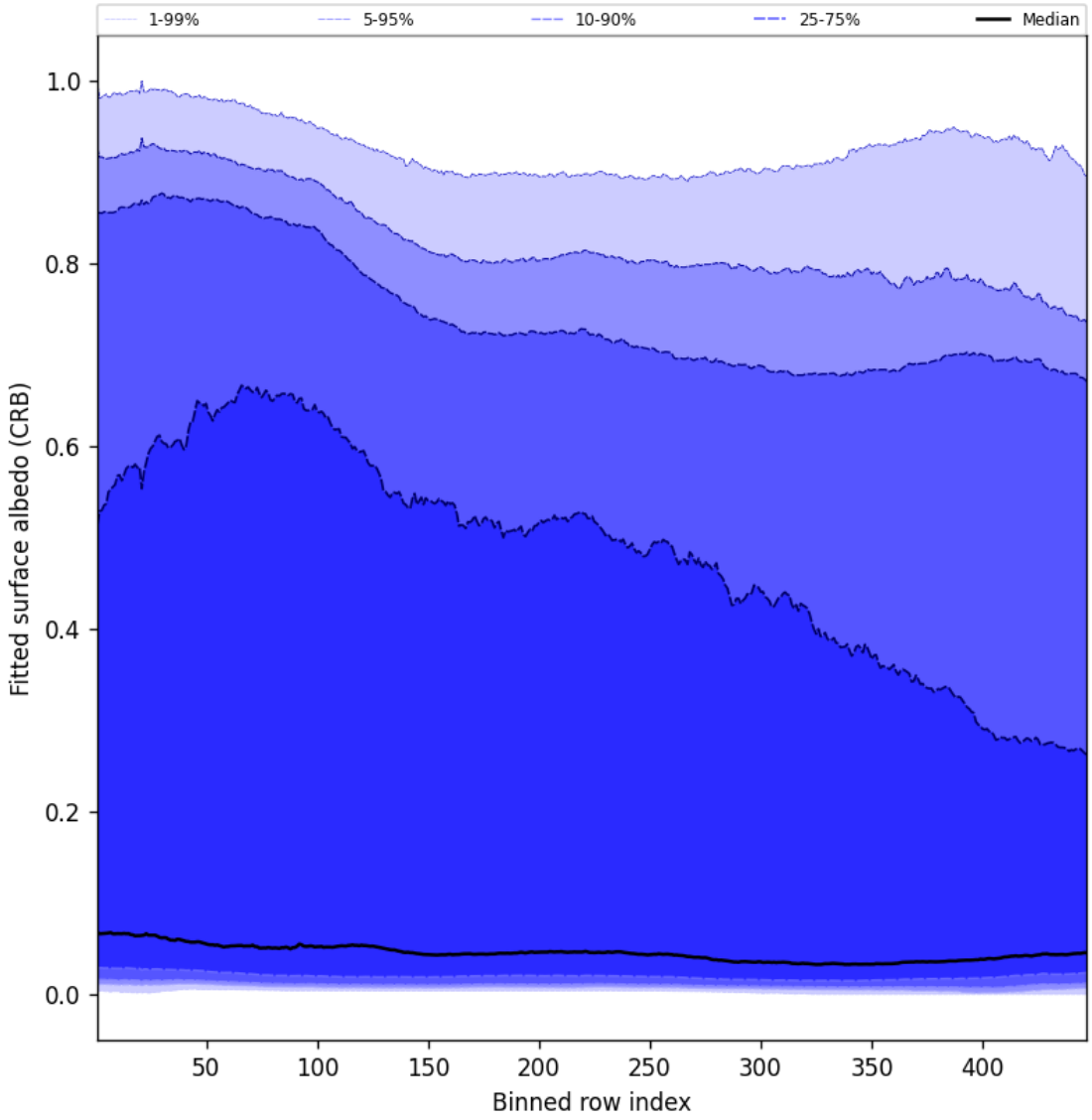

Figure 60: Along track statistics of “Fitted surface albedo (CRB)” for 2025-03-28 to 2025-03-29

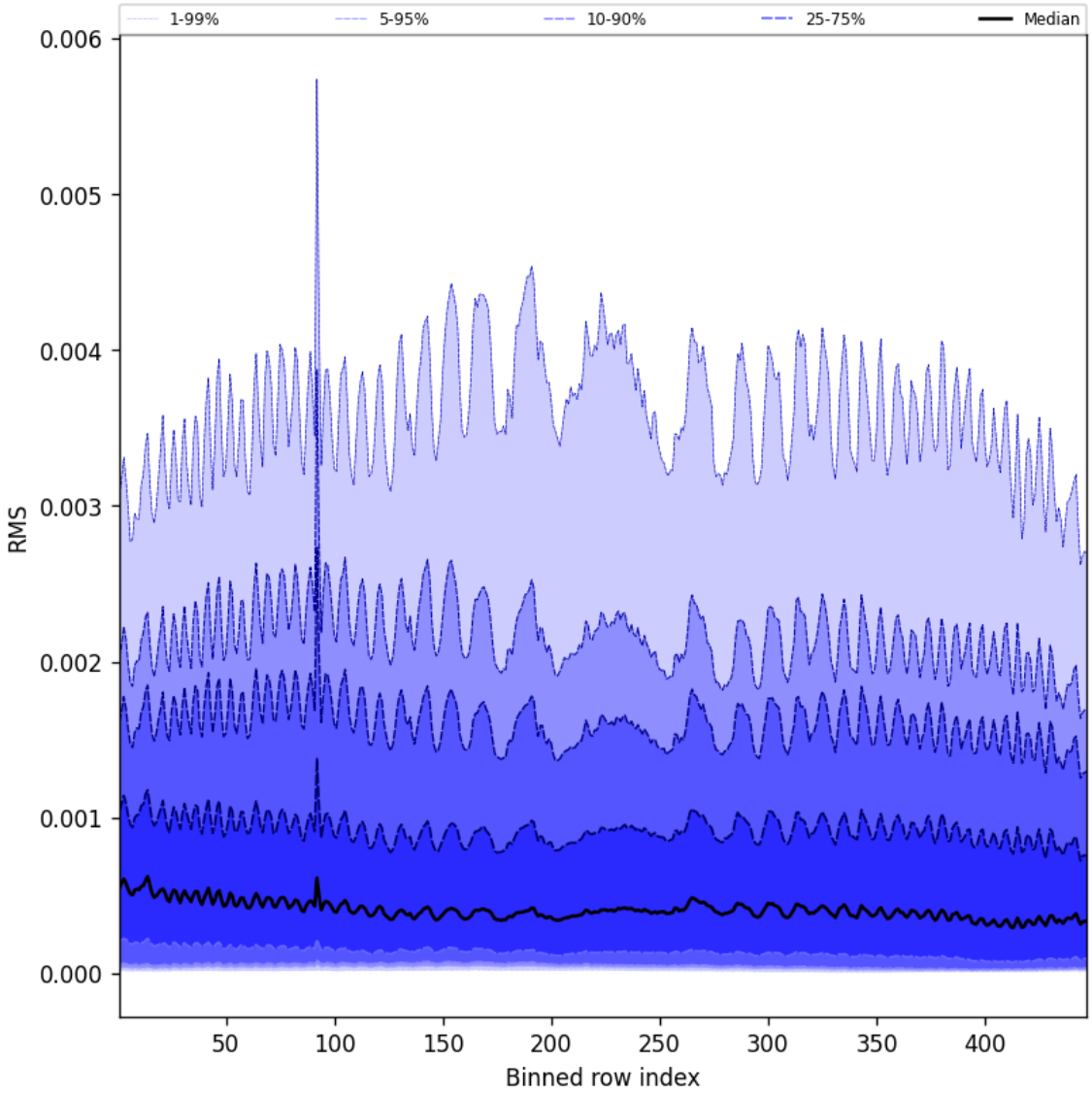

Figure 61: Along track statistics of “RMS” for 2025-03-28 to 2025-03-29

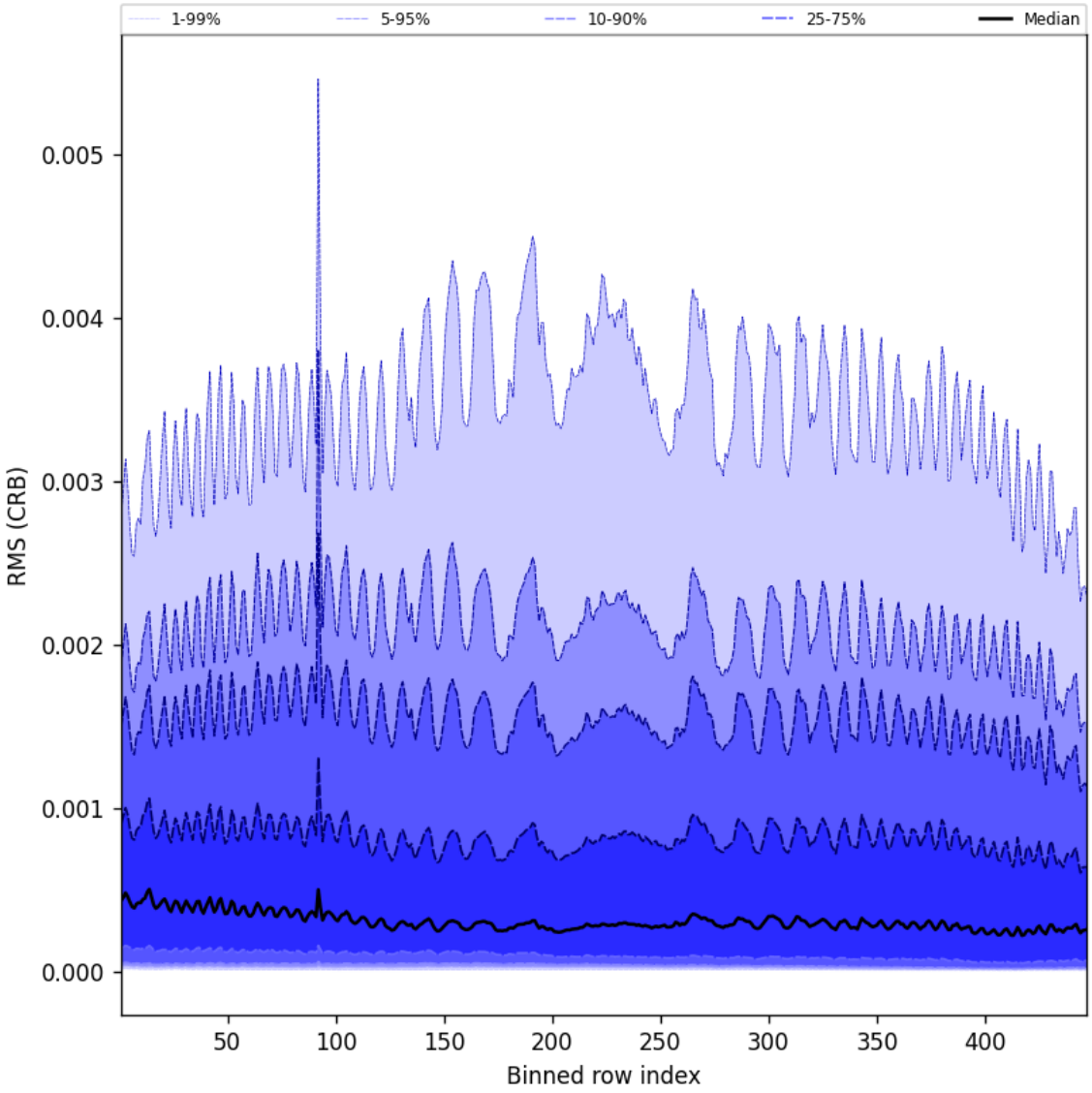

Figure 62: Along track statistics of “RMS (CRB)” for 2025-03-28 to 2025-03-29

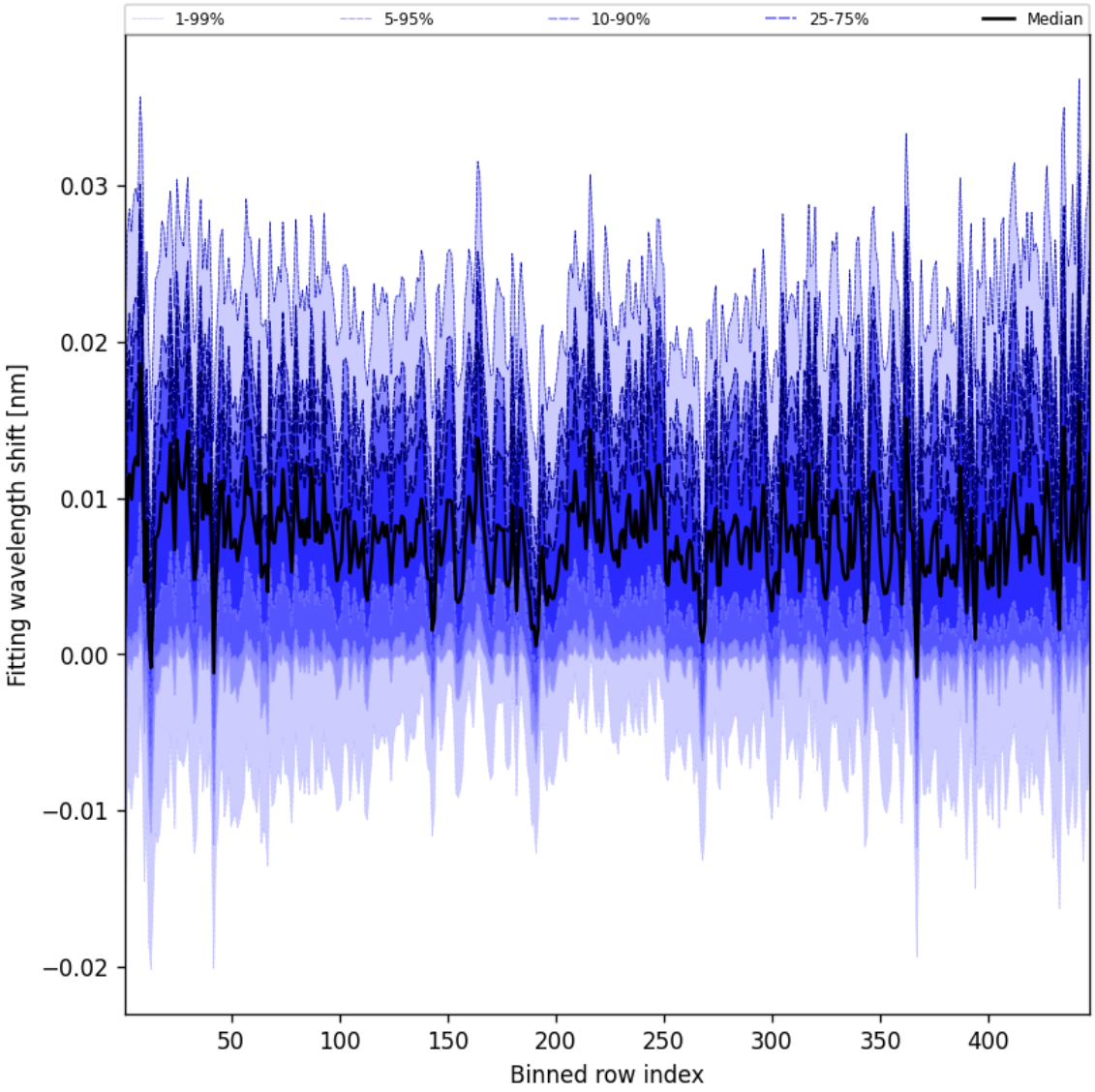

Figure 63: Along track statistics of “Fitting wavelength shift” for 2025-03-28 to 2025-03-29

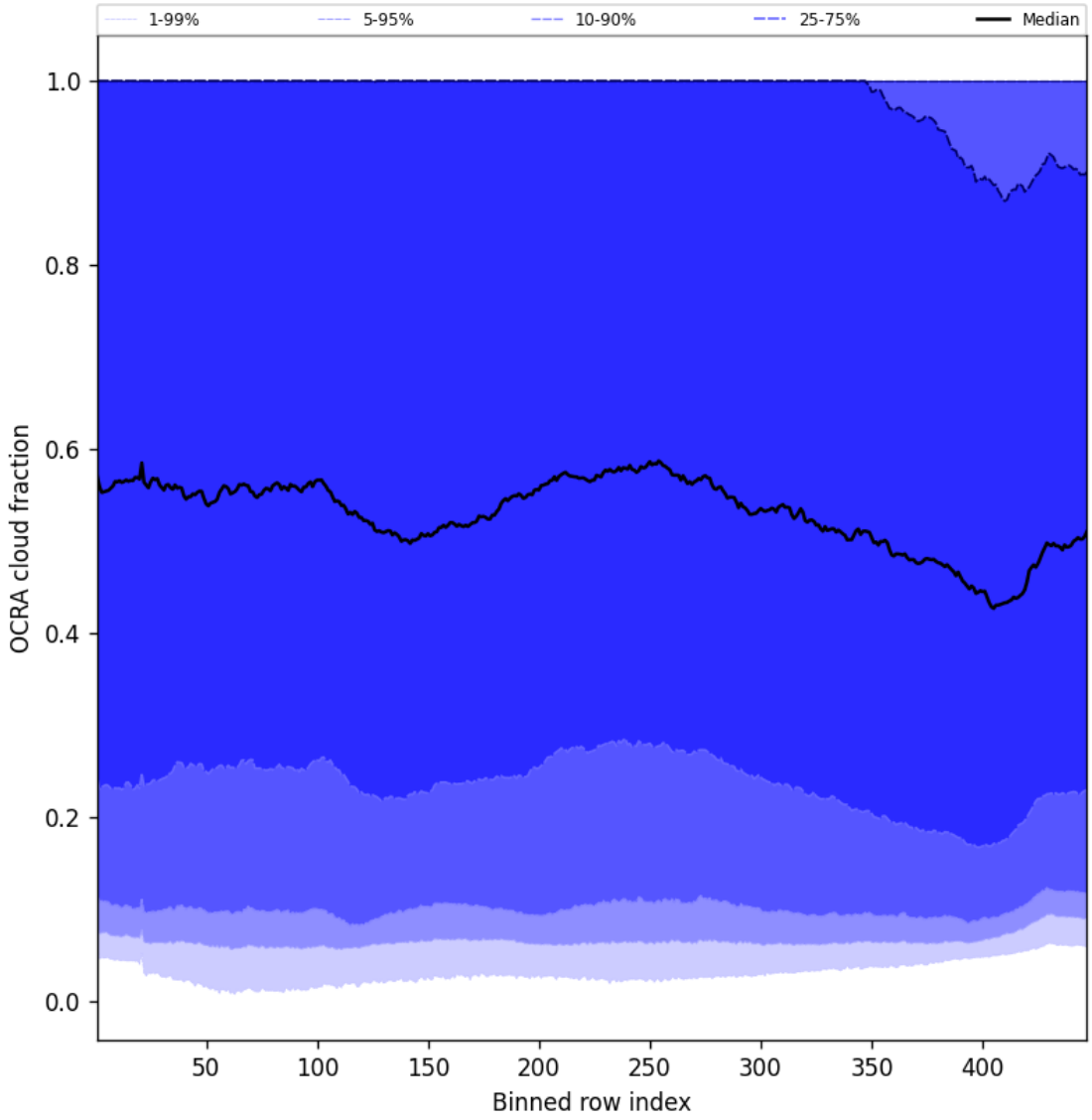

Figure 64: Along track statistics of “OCRA cloud fraction” for 2025-03-28 to 2025-03-29

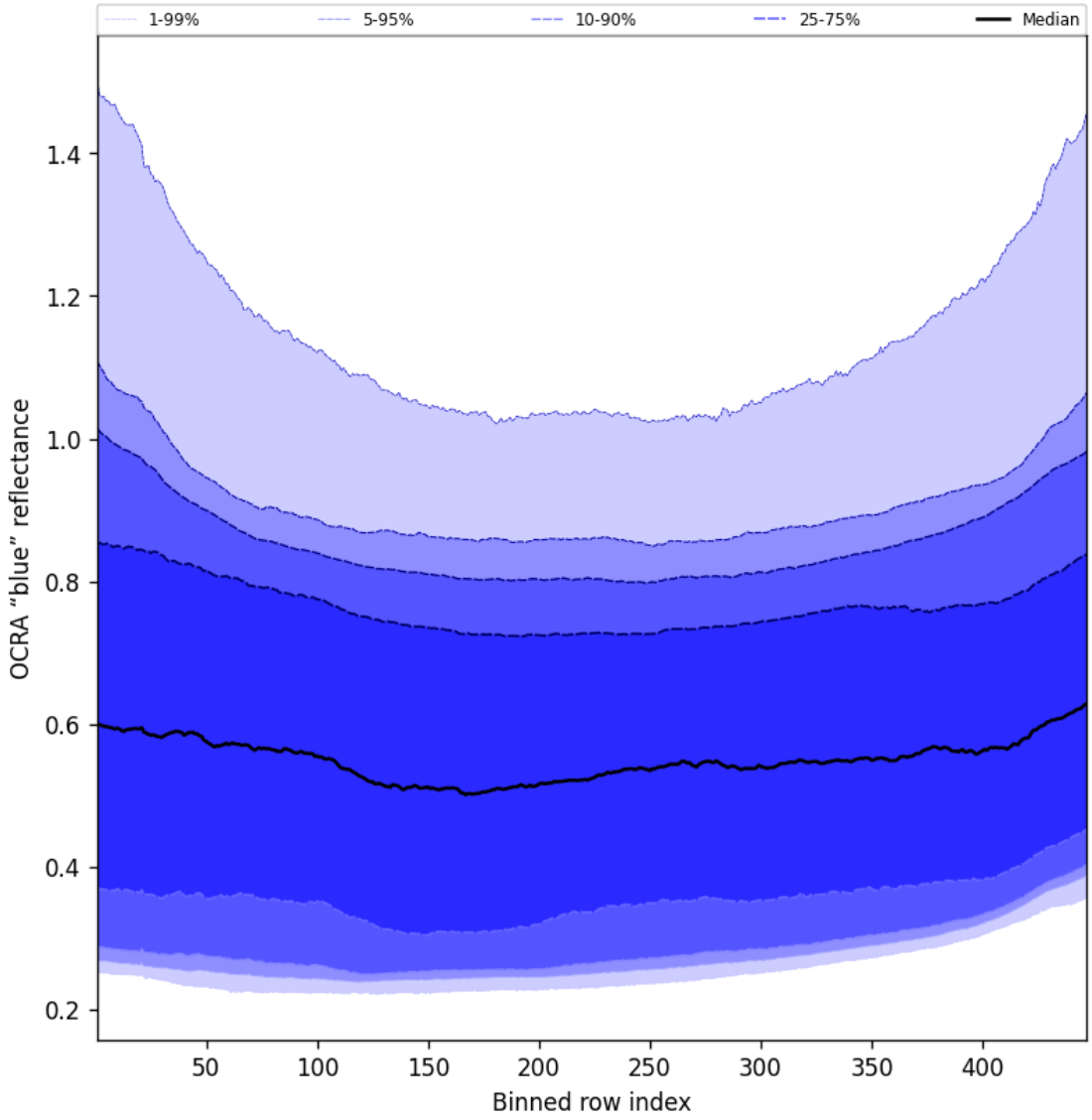

Figure 65: Along track statistics of "OCRA "blue" reflectance" for 2025-03-28 to 2025-03-29

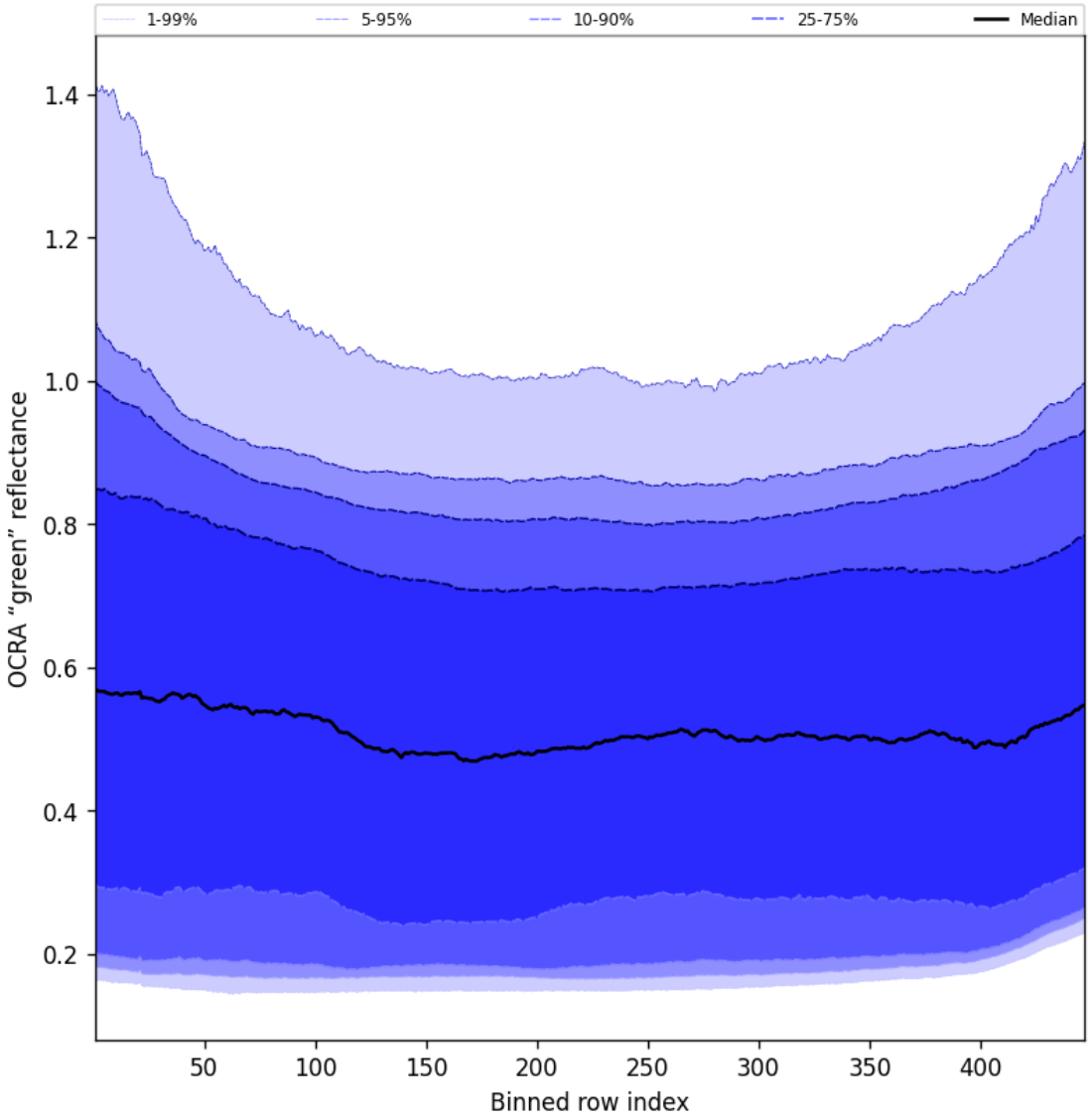

Figure 66: Along track statistics of "OCRA "green" reflectance" for 2025-03-28 to 2025-03-29

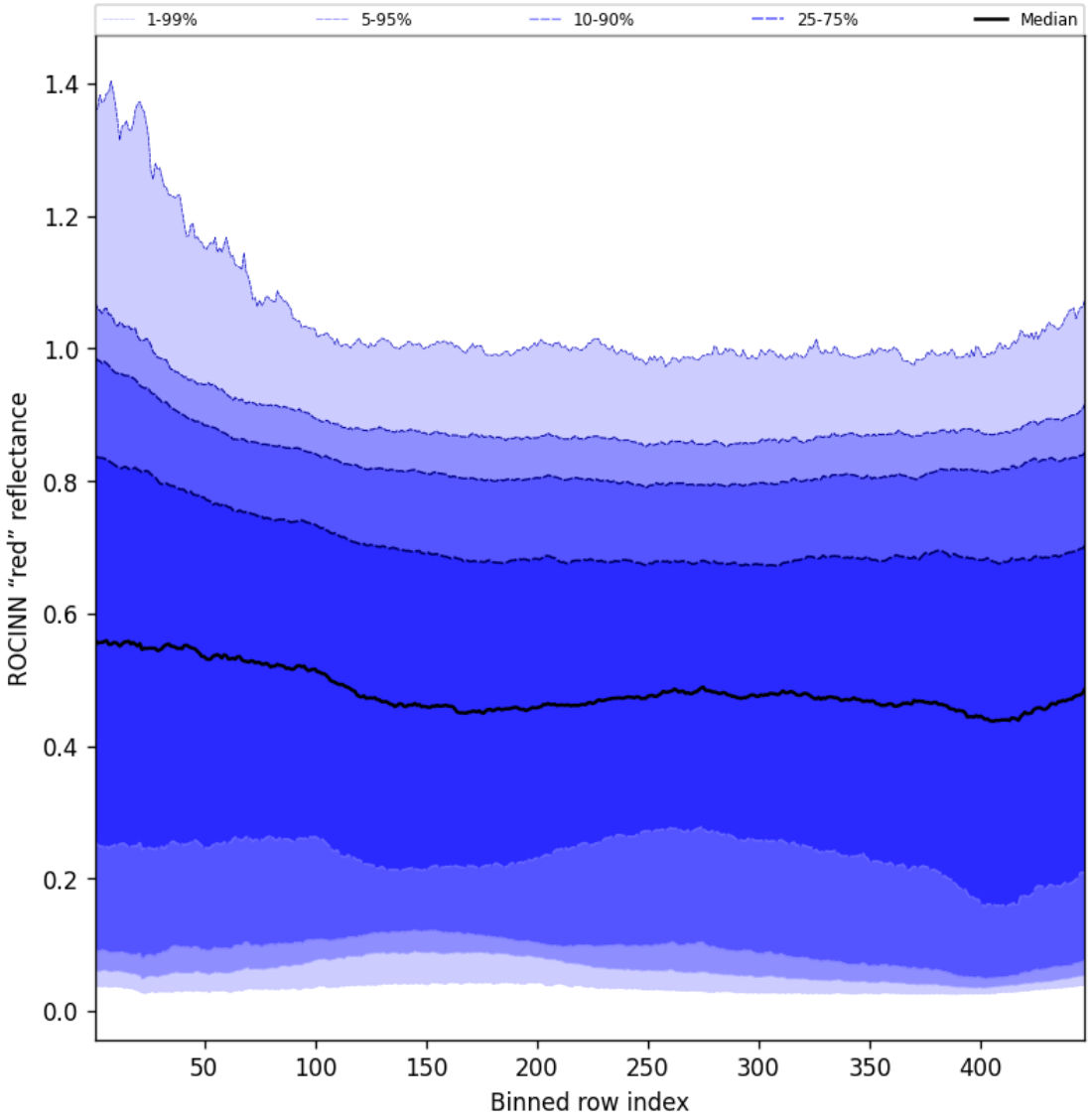

Figure 67: Along track statistics of “ROCINN “red” reflectance” for 2025-03-28 to 2025-03-29

10 Coincidence density

To investigate the relation between parameters scatter density plots are produced. These include some 'hidden' parameters, latitude and the solar- and viewing geometries, in addition to all configured parameters. All combinations of pairs of parameters are included *once*, in one direction alone.

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