PyCAMA report generated by tropl2-proc

tropl2-proc

2025-03-18 (01:45)

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]	0.609 ± 0.385	19647625	5.000×10^{-3}	0.660	0.780	0.0	1.000
cloud fraction [1]	0.549 ± 0.346	19647625	0.995	0.734	0.498	5.199×10^{-3}	1.000
cloud top height [m]	$(0.399 \pm 0.280) \times 10^4$	19647625	1.575×10^3	3.669×10^3	3.314×10^3	0.0	2.000×10^4
cloud optical thickness [1]	18.9 ± 34.9	19647625	8.91	10.2	9.07	1.000	250
cloud fraction crb [1]	0.548 ± 0.346	19647625	0.995	0.733	0.497	2.502×10^{-3}	1.000
cloud height crb [m]	$(0.314 \pm 0.240) \times 10^4$	19647625	975	3.247×10^3	2.589×10^3	0.0	2.000×10^4
cloud albedo crb [1]	0.597 ± 0.217	19647625	0.995	0.285	0.577	0.0	1.000
surface albedo fitted [1]	0.265 ± 0.326	19647625	2.500×10^{-2}	0.537	5.102×10^{-2}	0.0	1.000
surface albedo fitted crb [1]	0.254 ± 0.314	19647625	1.500×10^{-2}	0.536	4.259×10^{-2}	0.0	1.000
fitted root mean square [1]	$(6.842 \pm 21.599) \times 10^{-4}$	19647625	5.000×10^{-5}	7.676×10^{-4}	4.186×10^{-4}	1.064×10^{-6}	1.62
fitted root mean square crb [1]	$(5.962 \pm 22.474) \times 10^{-4}$	19647625	5.000×10^{-5}	6.952×10^{-4}	3.055×10^{-4}	1.145×10^{-6}	1.36
wavelength shift [nm]	$(7.584 \pm 6.926) \times 10^{-3}$	19647625	9.000×10^{-4}	9.455×10^{-3}	7.082×10^{-3}	-5.424×10^{-2}	0.689
cloud fraction apriori [1]	0.556 ± 0.351	19647625	0.995	0.769	0.510	0.0	1.000
reflectance blue ocra [1]	0.578 ± 0.237	19647625	0.255	0.407	0.565	0.133	2.02
reflectance green ocra [1]	0.529 ± 0.264	19647625	0.175	0.482	0.525	7.848×10^{-2}	2.05
reflectance continuum aband [1]	0.482 ± 0.288	19647625	4.500×10^{-2}	0.498	0.498	1.271×10^{-2}	4.14

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	0.290	0.950	1.000	1.000	1.000	1.000
cloud fraction [1]	2.519×10^{-2}	6.522×10^{-2}	0.100	0.148	0.230	0.964	1.000	1.000	1.000	1.000
cloud top height [m]	229	772	1.124×10^{3}	1.412×10^{3}	1.820×10^{3}	5.489×10^{3}	6.859×10^{3}	8.052×10^{3}	9.503×10^{3}	1.222×10^{4}
cloud optical thickness [1]	1.000	2.67	3.82	4.69	5.66	15.9	24.6	37.3	63.2	250
cloud fraction crb [1]	2.487×10^{-2}	6.438×10^{-2}	9.998×10^{-2}	0.147	0.230	0.963	1.000	1.000	1.000	1.000
cloud height crb [m]	0.0	274	621	873	1.225×10^{3}	4.471×10^{3}	5.622×10^{3}	6.665×10^{3}	7.959×10^{3}	1.004×10^{4}
cloud albedo crb [1]	4.590×10^{-3}	0.229	0.349	0.413	0.463	0.748	0.836	0.907	0.989	1.000
surface albedo fitted [1]	0.0	8.942×10^{-3}	1.418×10^{-2}	1.870×10^{-2}	2.514×10^{-2}	0.562	0.739	0.822	0.901	0.992
surface albedo fitted crb [1]	1.475×10^{-4}	6.943×10^{-3}	1.075×10^{-2}	1.430×10^{-2}	1.962×10^{-2}	0.556	0.705	0.782	0.856	0.946
fitted root mean square [1]	1.637×10^{-5}	3.091×10^{-5}	4.877×10^{-5}	7.683×10^{-5}	1.367×10^{-4}	9.042×10^{-4}	1.235×10^{-3}	1.597×10^{-3}	2.156×10^{-3}	3.521×10^{-3}
fitted root mean square crb [1]	1.002×10^{-5}	2.118×10^{-5}	3.631×10^{-5}	5.659×10^{-5}	9.689×10^{-5}	7.921×10^{-4}	1.146×10^{-3}	1.527×10^{-3}	2.086×10^{-3}	3.333×10^{-3}
wavelength shift [nm]	-8.767×10^{-3}	-1.325×10^{-3}	9.524×10^{-5}	1.037×10^{-3}	2.570×10^{-3}	1.202×10^{-2}	1.434×10^{-2}	1.637×10^{-2}	1.913×10^{-2}	2.535×10^{-2}
cloud fraction apriori [1]	2.730×10^{-2}	6.329×10^{-2}	9.678×10^{-2}	0.144	0.231	1.000	1.000	1.000	1.000	1.000
reflectance blue ocra [1]	0.236	0.258	0.281	0.310	0.363	0.770	0.824	0.872	0.941	1.17
reflectance green ocra [1]	0.152	0.171	0.190	0.216	0.272	0.754	0.814	0.862	0.926	1.12
reflectance continuum aband [1]	2.917×10^{-2}	5.090×10^{-2}	8.078×10^{-2}	0.124	0.222	0.719	0.787	0.838	0.904	1.07

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]	0.549 ± 0.390	9754268	0.890	0.700	0.0	1.000	1.000×10^{-2}	0.900
cloud fraction [1]	0.519 ± 0.340	9754268	0.682	0.447	5.199×10^{-3}	1.000	0.218	0.900
cloud top height [m]	$(0.372 \pm 0.268) \times 10^4$	9754268	3.196×10^3	3.114×10^3	0.0	2.000×10^4	1.727×10^3	4.923×10^3
cloud optical thickness [1]	20.6 ± 40.8	9754268	9.32	8.62	1.000	250	5.68	15.0
cloud fraction crb [1]	0.519 ± 0.340	9754268	0.680	0.448	2.502×10^{-3}	1.000	0.219	0.899
cloud height crb [m]	$(0.286 \pm 0.224) \times 10^4$	9754268	2.966×10^3	2.376×10^3	0.0	2.000×10^4	1.098×10^3	4.065×10^3
cloud albedo crb [1]	0.625 ± 0.233	9754268	0.338	0.615	0.0	1.000	0.470	0.809
surface albedo fitted [1]	0.335 ± 0.326	9754268	0.623	0.205	0.0	1.000	3.527×10^{-2}	0.658
surface albedo fitted crb [1]	0.320 ± 0.310	9754268	0.609	0.203	0.0	1.000	2.824×10^{-2}	0.637
fitted root mean square [1]	$(7.803 \pm 27.969) \times 10^{-4}$	9754268	8.267×10^{-4}	4.877×10^{-4}	3.825×10^{-6}	1.62	1.713×10^{-4}	9.980×10^{-4}
fitted root mean square crb [1]	$(6.505 \pm 29.122) \times 10^{-4}$	9754268	7.340×10^{-4}	3.325×10^{-4}	1.886×10^{-6}	1.36	1.056×10^{-4}	8.395×10^{-4}
wavelength shift [nm]	$(8.181 \pm 7.085) \times 10^{-3}$	9754268	9.858×10^{-3}	7.763×10^{-3}	-5.424×10^{-2}	0.689	2.985×10^{-3}	1.284×10^{-2}
cloud fraction apriori [1]	0.531 ± 0.344	9754268	0.719	0.466	0.0	1.000	0.225	0.944
reflectance blue ocra [1]	0.595 ± 0.244	9754268	0.418	0.602	0.143	2.01	0.366	0.784
reflectance green ocra [1]	0.550 ± 0.270	9754268	0.492	0.573	7.848×10^{-2}	2.05	0.280	0.772
reflectance continuum aband [1]	0.510 ± 0.287	9754268	0.491	0.552	1.412×10^{-2}	4.14	0.251	0.742

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]	0.668 ± 0.372	9893357	0.590	0.880	0.0	1.000	0.400	0.990
cloud fraction [1]	0.578 ± 0.350	9893357	0.749	0.560	7.885×10^{-3}	1.000	0.245	0.994
cloud top height [m]	$(0.426 \pm 0.289) \times 10^4$	9893357	4.174×10^3	3.552×10^3	0.0	2.000×10^4	1.921×10^3	6.096×10^3
cloud optical thickness [1]	17.2 ± 27.8	9893357	10.9	9.55	1.000	250	5.64	16.6
cloud fraction crb [1]	0.577 ± 0.350	9893357	0.749	0.559	8.361×10^{-3}	1.000	0.244	0.994
cloud height crb [m]	$(0.342 \pm 0.252) \times 10^4$	9893357	3.630×10^3	2.818×10^3	0.0	2.000×10^4	1.355×10^3	4.985×10^3
cloud albedo crb [1]	0.570 ± 0.196	9893357	0.230	0.552	0.0	1.000	0.457	0.688
surface albedo fitted [1]	0.197 ± 0.311	9893357	0.210	3.498×10^{-2}	0.0	1.000	2.000×10^{-2}	0.230
surface albedo fitted crb [1]	0.188 ± 0.304	9893357	0.210	2.819×10^{-2}	0.0	1.000	1.526×10^{-2}	0.225
fitted root mean square [1]	$(5.895 \pm 12.385) \times 10^{-4}$	9893357	7.001×10^{-4}	3.534×10^{-4}	1.064×10^{-6}	0.622	1.110×10^{-4}	8.111×10^{-4}
fitted root mean square crb [1]	$(5.427 \pm 12.895) \times 10^{-4}$	9893357	6.590×10^{-4}	2.800×10^{-4}	1.145×10^{-6}	0.778	8.954×10^{-5}	7.485×10^{-4}
wavelength shift [nm]	$(6.995 \pm 6.713) \times 10^{-3}$	9893357	8.989×10^{-3}	6.470×10^{-3}	-4.549×10^{-2}	0.539	2.211×10^{-3}	1.120×10^{-2}
cloud fraction apriori [1]	0.580 ± 0.356	9893357	0.761	0.565	0.0	1.000	0.239	1.000
reflectance blue ocra [1]	0.562 ± 0.228	9893357	0.391	0.538	0.133	2.02	0.360	0.751
reflectance green ocra [1]	0.508 ± 0.257	9893357	0.459	0.490	8.335×10^{-2}	1.96	0.265	0.724
reflectance continuum aband [1]	0.454 ± 0.285	9893357	0.494	0.455	1.271×10^{-2}	4.07	0.191	0.686

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]	0.669 ± 0.368	13440624	0.580	0.890	0.0	1.000	0.400	0.980
cloud fraction [1]	0.561 ± 0.357	13440624	0.771	0.532	5.403×10^{-3}	1.000	0.218	0.988
cloud top height [m]	$(0.353 \pm 0.244) \times 10^4$	13440624	3.016×10^3	2.889×10^3	0.0	2.000×10^4	1.687×10^3	4.702×10^3
cloud optical thickness [1]	17.6 ± 28.4	13440624	9.75	9.69	1.000	250	6.50	16.2
cloud fraction crb [1]	0.560 ± 0.357	13440624	0.770	0.531	2.502×10^{-3}	1.000	0.217	0.987
cloud height crb [m]	$(0.283 \pm 0.221) \times 10^4$	13440624	2.913×10^3	2.250×10^3	0.0	2.000×10^4	1.114×10^3	4.026×10^3
cloud albedo crb [1]	0.565 ± 0.188	13440624	0.227	0.543	0.0	1.000	0.453	0.680
surface albedo fitted [1]	0.133 ± 0.245	13440624	3.501×10^{-2}	3.231×10^{-2}	0.0	1.000	1.965×10^{-2}	5.466×10^{-2}
surface albedo fitted crb [1]	0.122 ± 0.233	13440624	3.086×10^{-2}	2.575×10^{-2}	0.0	1.000	1.506×10^{-2}	4.592×10^{-2}
fitted root mean square [1]	$(5.672 \pm 24.348) \times 10^{-4}$	13440624	6.431×10^{-4}	2.841×10^{-4}	1.064×10^{-6}	1.62	9.307×10^{-5}	7.362×10^{-4}
fitted root mean square crb [1]	$(5.217 \pm 26.599) \times 10^{-4}$	13440624	5.814×10^{-4}	2.241×10^{-4}	1.145×10^{-6}	1.36	7.583×10^{-5}	6.572×10^{-4}
wavelength shift [nm]	$(7.013 \pm 7.065) \times 10^{-3}$	13440624	9.257×10^{-3}	6.286×10^{-3}	-4.701×10^{-2}	0.689	2.114×10^{-3}	1.137×10^{-2}
cloud fraction apriori [1]	0.564 ± 0.361	13440624	0.787	0.538	0.0	1.000	0.213	1.000
reflectance blue ocra [1]	0.531 ± 0.217	13440624	0.361	0.499	0.141	1.98	0.341	0.702
reflectance green ocra [1]	0.473 ± 0.244	13440624	0.437	0.443	8.335×10^{-2}	2.05	0.242	0.679
reflectance continuum aband [1]	0.406 ± 0.275	13440624	0.508	0.392	1.271×10^{-2}	4.14	0.137	0.645

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]	0.465 ± 0.398	4641321	0.840	0.610	0.0	1.000	0.0	0.840
cloud fraction [1]	0.514 ± 0.318	4641321	0.564	0.441	5.199×10^{-3}	1.000	0.252	0.816
cloud top height [m]	$(0.540 \pm 0.321) \times 10^4$	4641321	4.523×10^3	5.014×10^3	0.0	2.000×10^4	2.878×10^3	7.401×10^3
cloud optical thickness [1]	18.2 ± 40.3	4641321	8.09	6.51	1.000	250	4.47	12.6
cloud fraction crb [1]	0.514 ± 0.317	4641321	0.563	0.442	8.091×10^{-3}	1.000	0.252	0.816
cloud height crb [m]	$(0.413 \pm 0.264) \times 10^4$	4641321	3.833×10^3	3.779×10^3	0.0	2.000×10^4	1.976×10^3	5.809×10^3
cloud albedo crb [1]	0.658 ± 0.254	4641321	0.350	0.683	0.0	1.000	0.509	0.859
surface albedo fitted [1]	0.566 ± 0.290	4641321	0.565	0.611	0.0	1.000	0.272	0.837
surface albedo fitted crb [1]	0.553 ± 0.277	4641321	0.537	0.609	5.195×10^{-4}	1.000	0.270	0.807
fitted root mean square [1]	$(9.183 \pm 13.627) \times 10^{-4}$	4641321	7.950×10^{-4}	6.582×10^{-4}	1.322×10^{-6}	0.270	3.528×10^{-4}	1.148×10^{-3}
fitted root mean square crb [1]	$(7.393 \pm 8.038) \times 10^{-4}$	4641321	8.085×10^{-4}	4.733×10^{-4}	1.298×10^{-6}	3.096×10^{-2}	1.872×10^{-4}	9.957×10^{-4}
wavelength shift [nm]	$(8.327 \pm 6.264) \times 10^{-3}$	4641321	8.957×10^{-3}	8.080×10^{-3}	-3.479×10^{-2}	5.279×10^{-2}	3.552×10^{-3}	1.251×10^{-2}
cloud fraction apriori [1]	0.527 ± 0.323	4641321	0.599	0.458	0.0	1.000	0.258	0.858
reflectance blue ocra [1]	0.681 ± 0.252	4641321	0.398	0.765	0.133	2.02	0.452	0.850
reflectance green ocra [1]	0.650 ± 0.270	4641321	0.441	0.744	7.848×10^{-2}	1.96	0.403	0.843
reflectance continuum aband [1]	0.645 ± 0.242	4641321	0.371	0.689	1.774×10^{-2}	4.07	0.444	0.815

3 Granule outlines

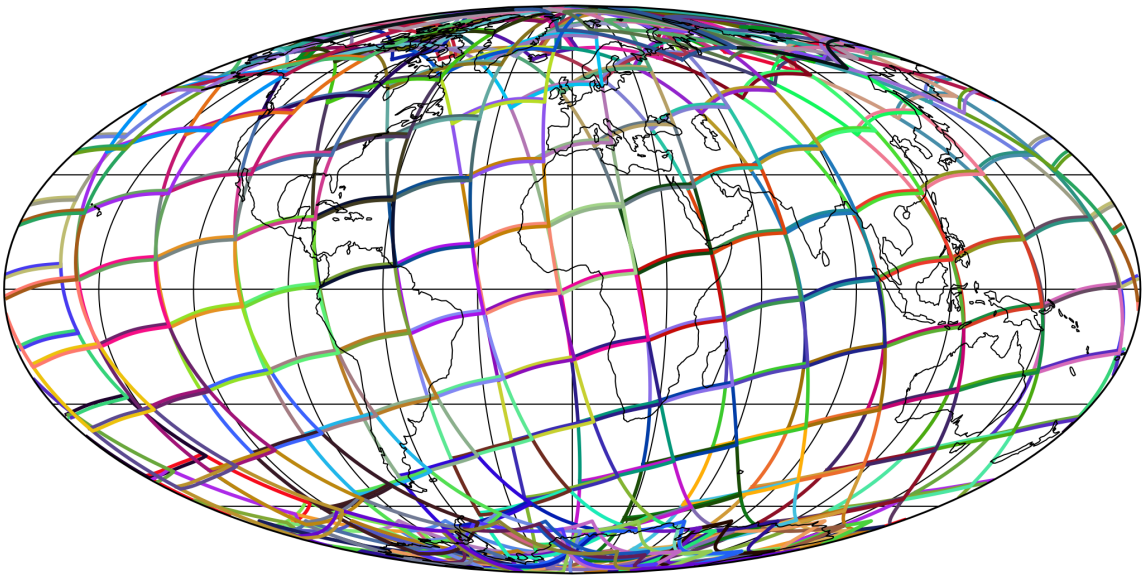

Figure 1: Outline of the granules.

4 Input data monitoring

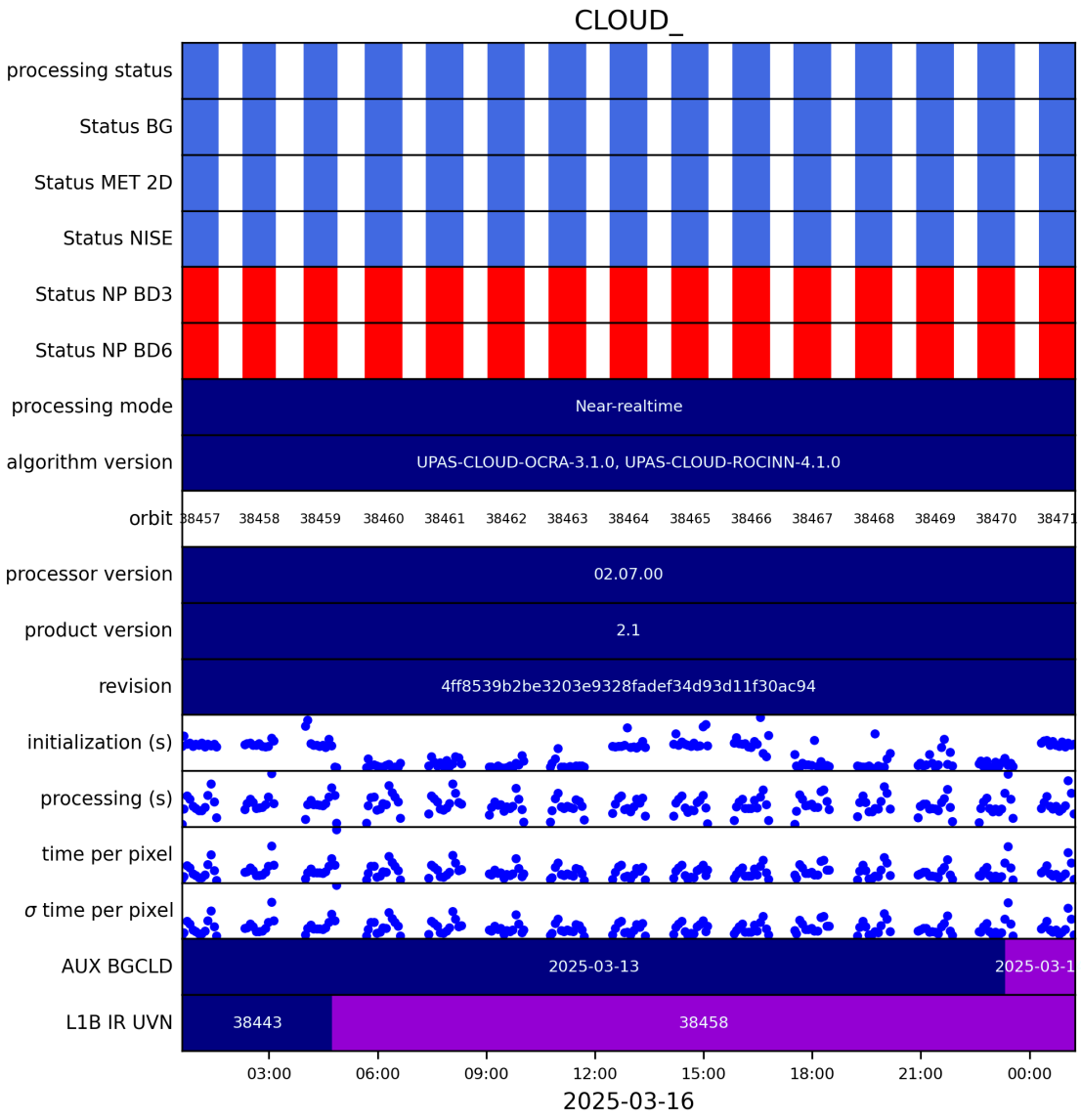

Figure 2: Input data per granule

5 Warnings and errors

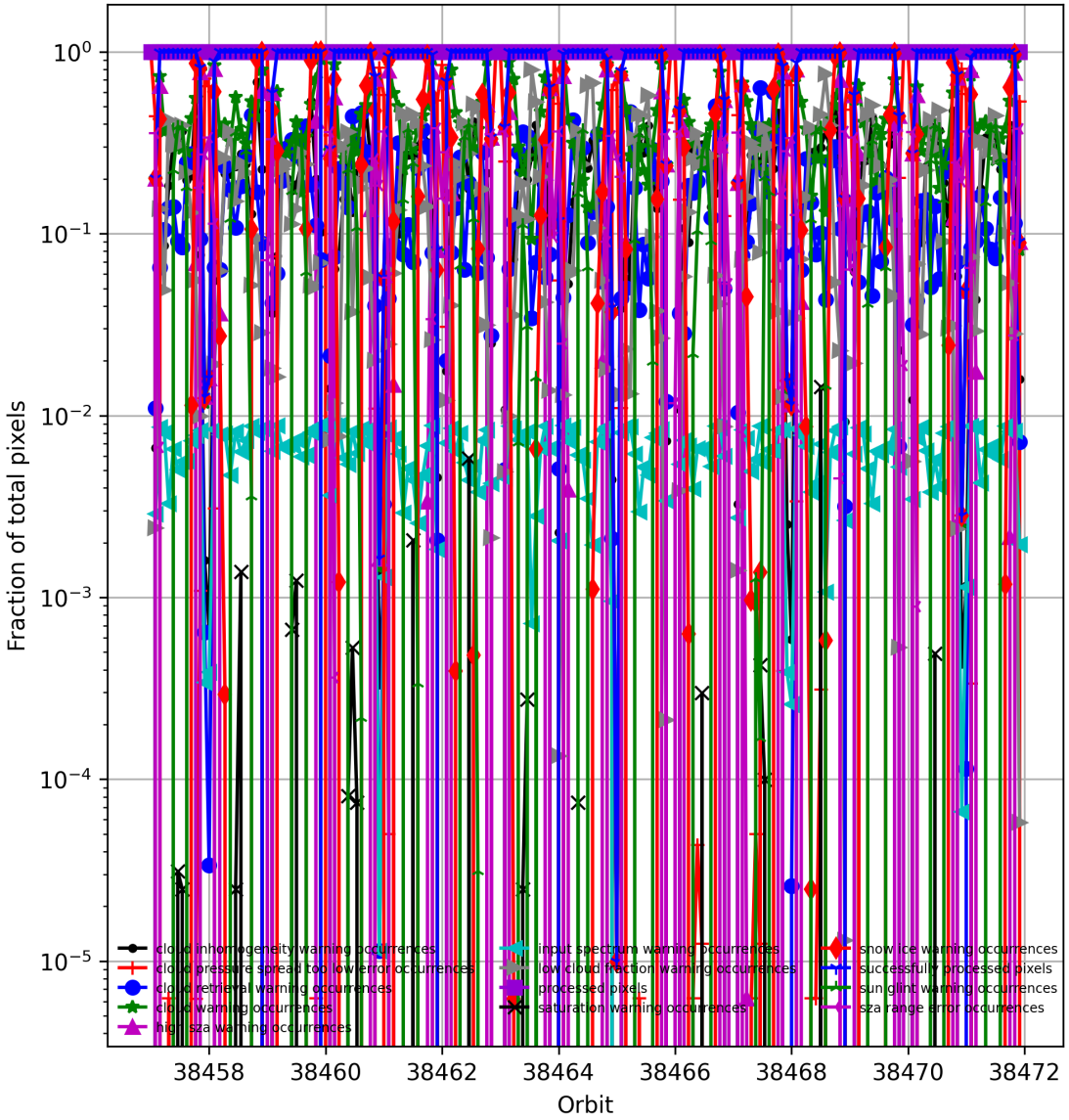

Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

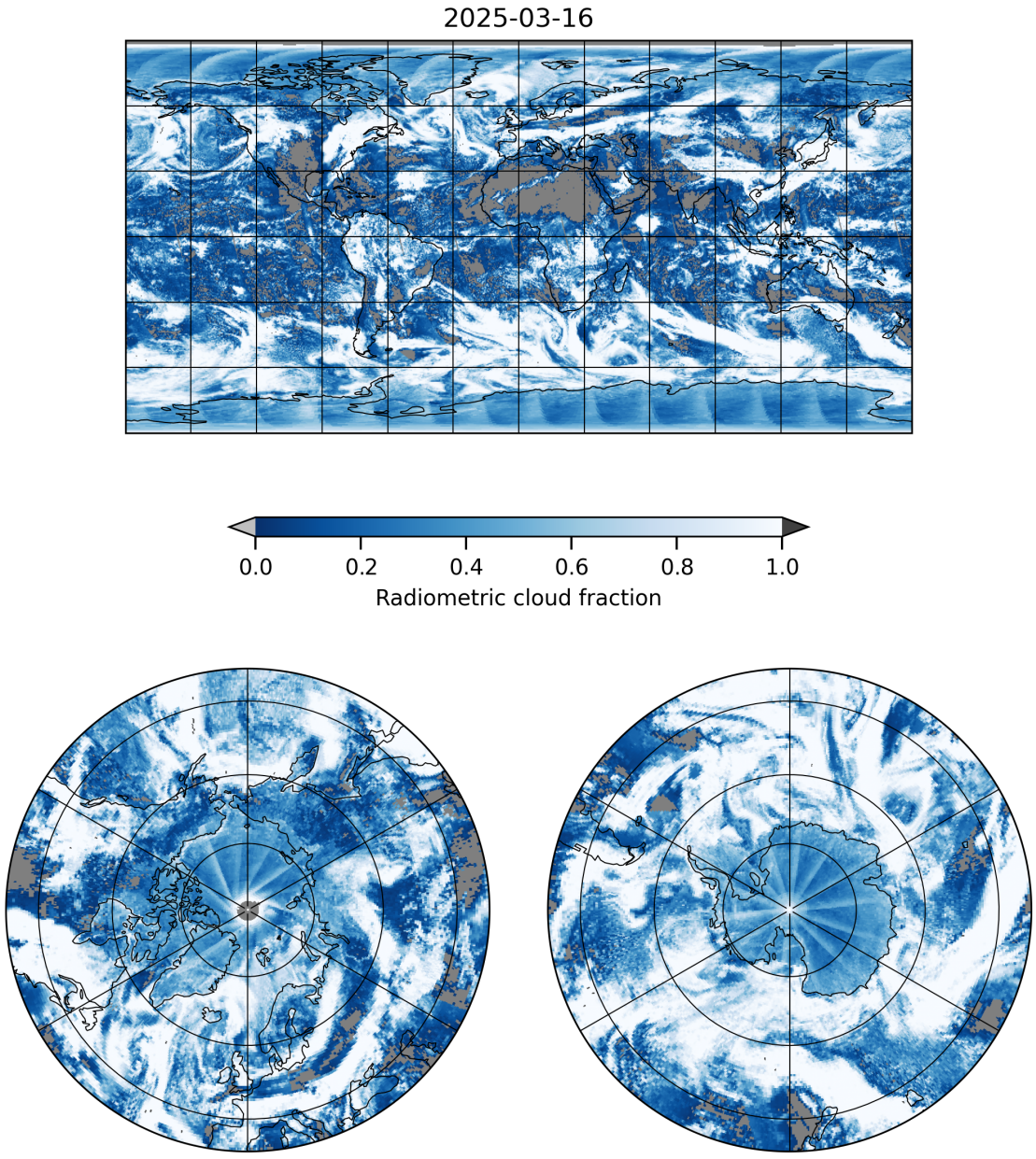

Figure 4: Map of “Radiometric cloud fraction” for 2025-03-16 to 2025-03-17

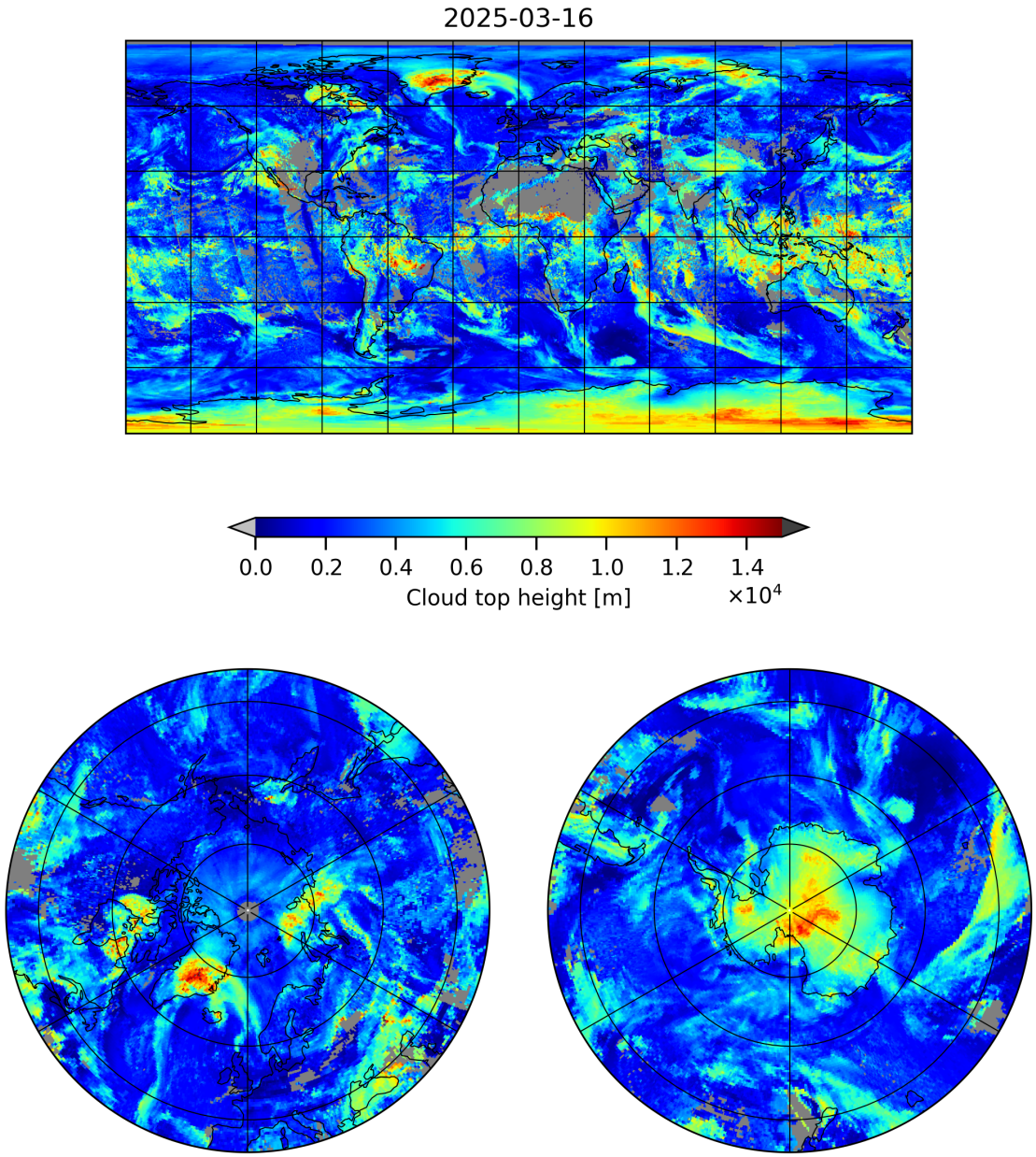

Figure 5: Map of “Cloud top height” for 2025-03-16 to 2025-03-17

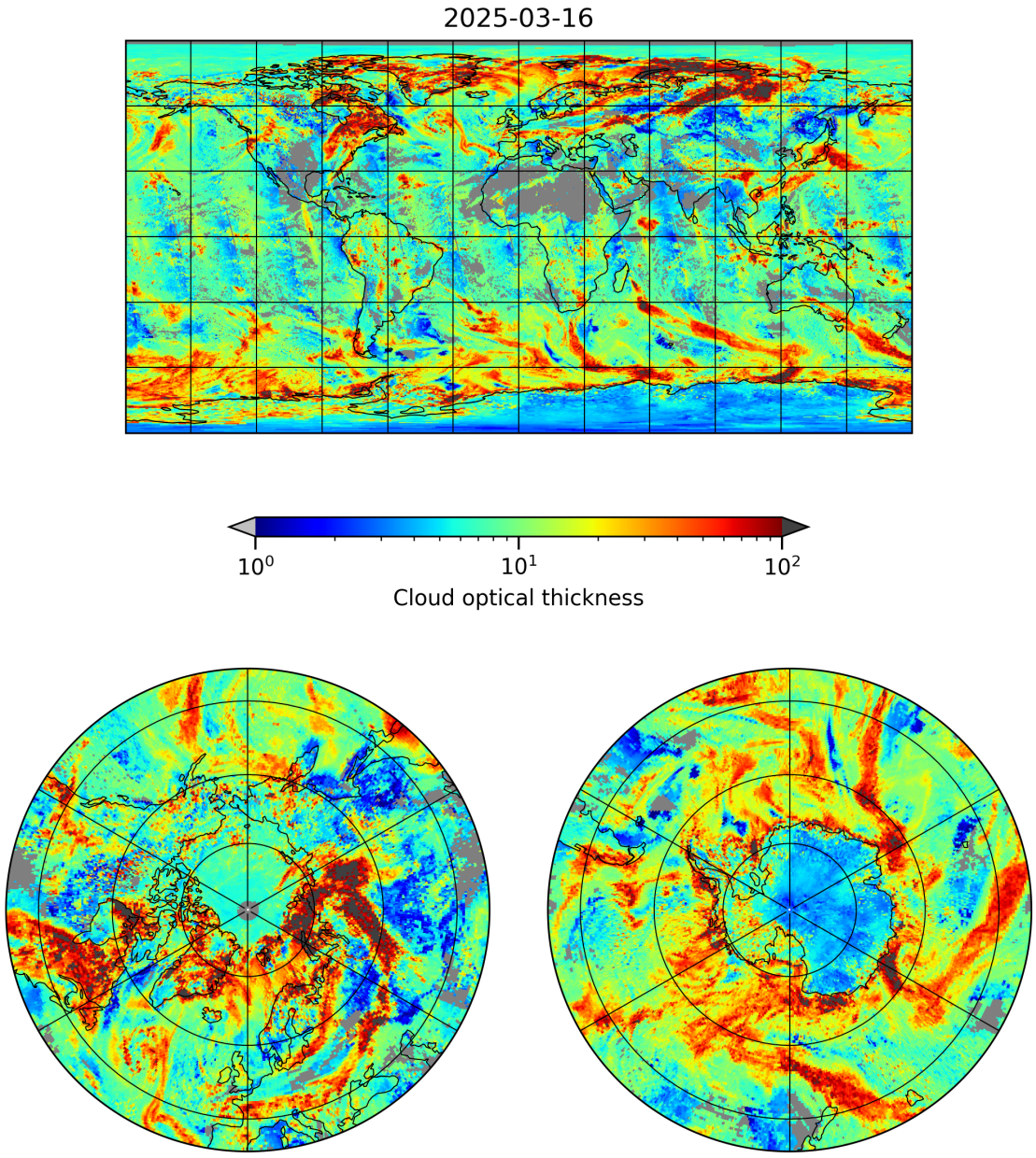

Figure 6: Map of “Cloud optical thickness” for 2025-03-16 to 2025-03-17

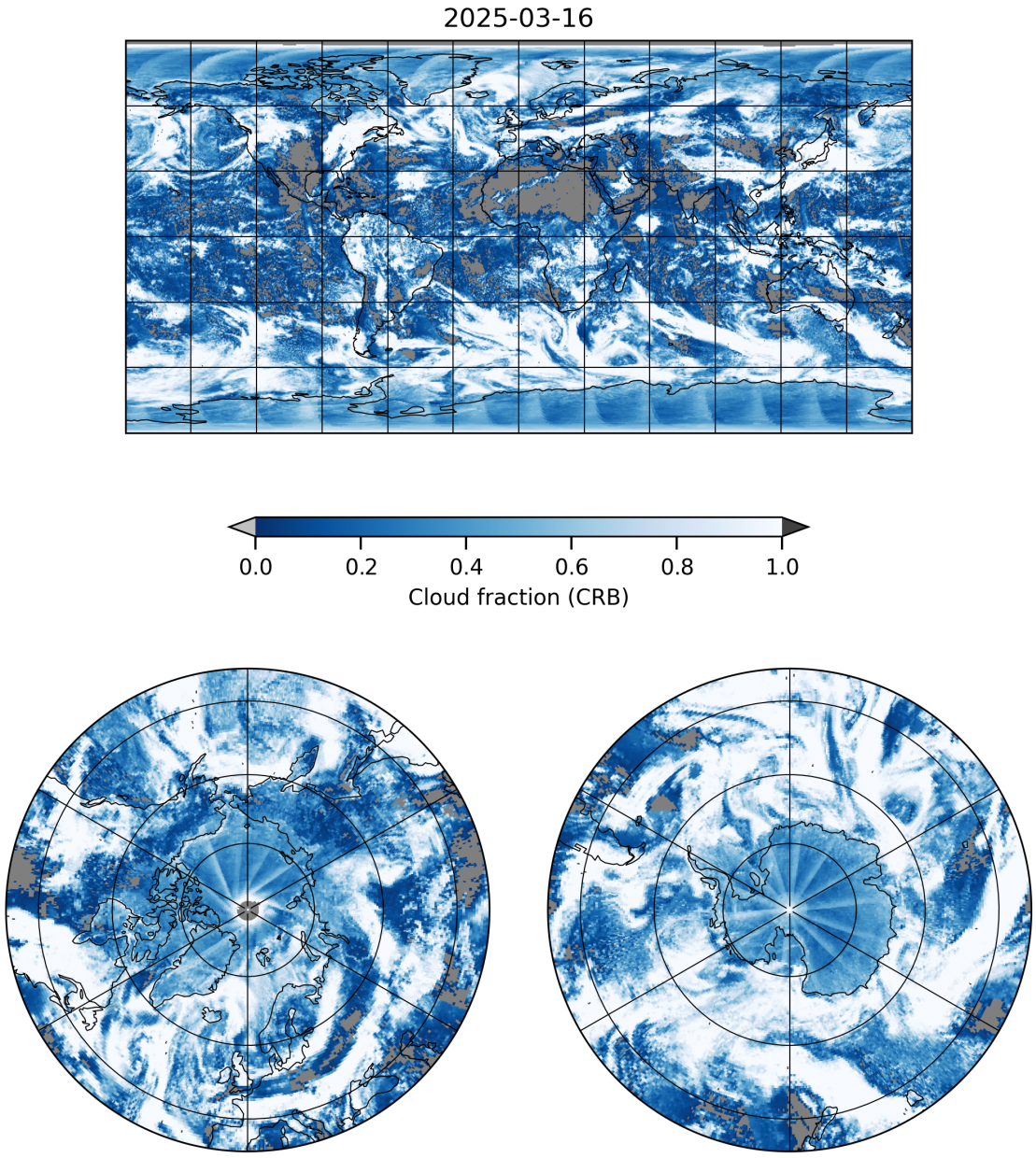

Figure 7: Map of “Cloud fraction (CRB)” for 2025-03-16 to 2025-03-17

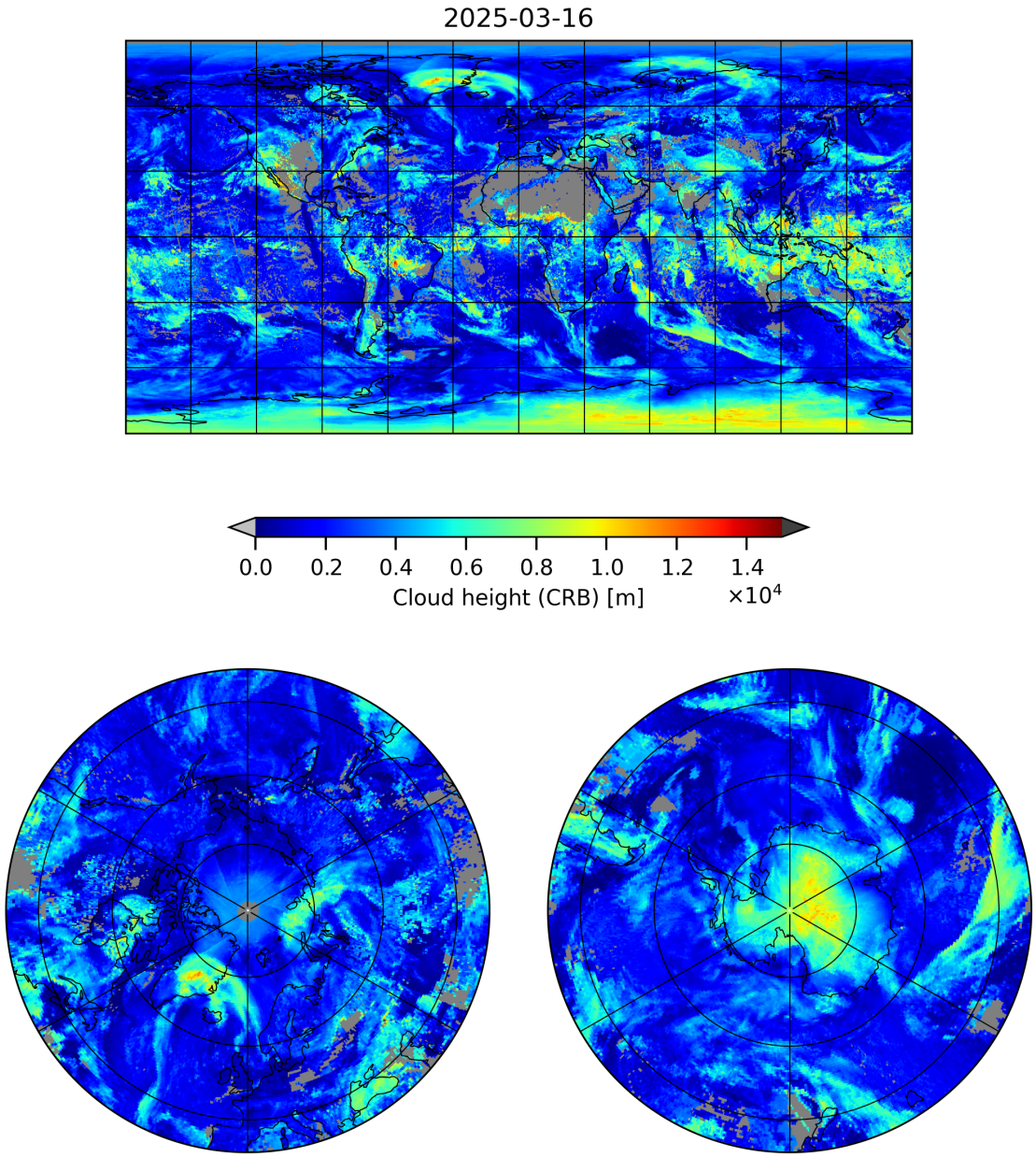

Figure 8: Map of “Cloud height (CRB)” for 2025-03-16 to 2025-03-17

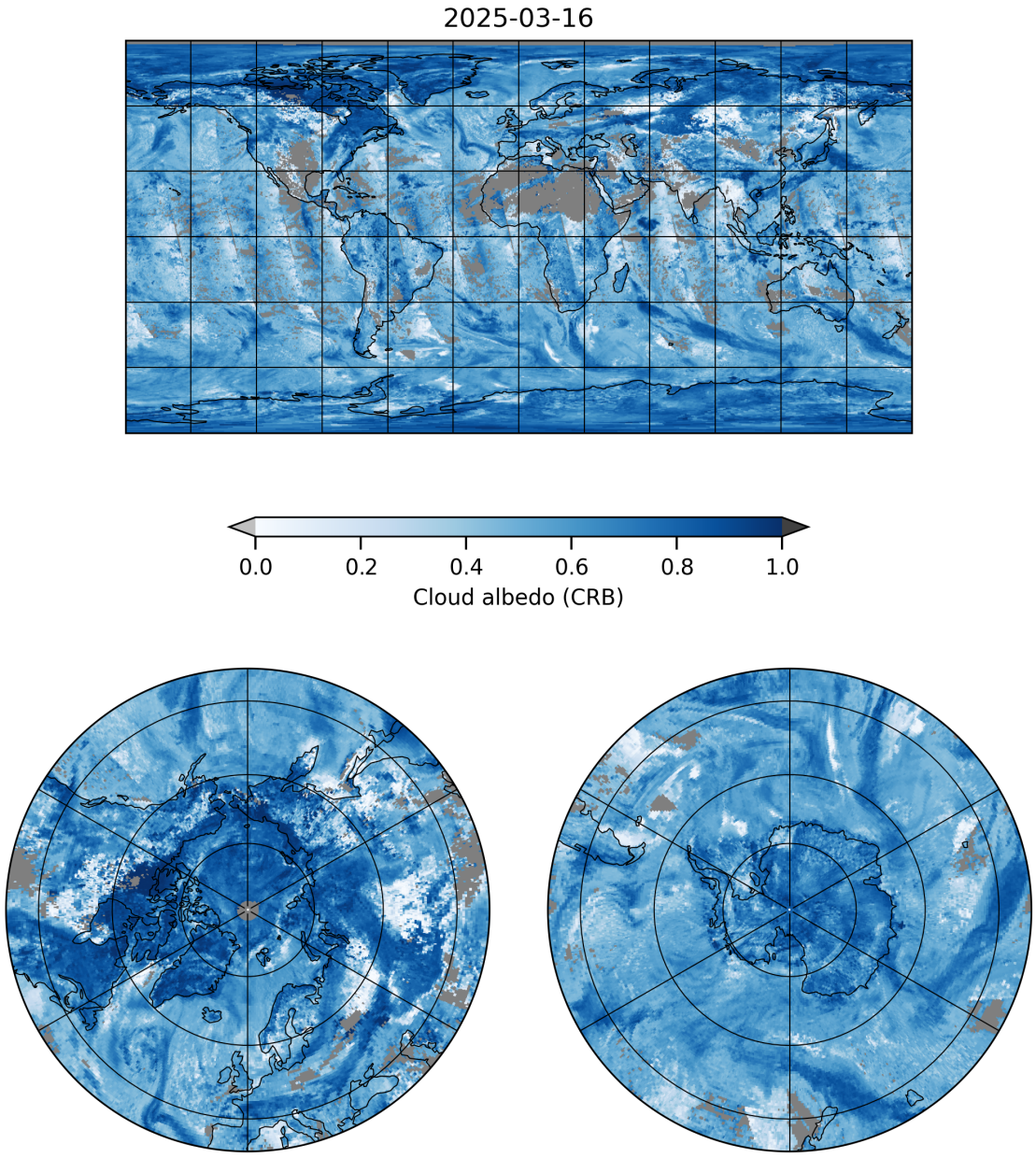

Figure 9: Map of “Cloud albedo (CRB)” for 2025-03-16 to 2025-03-17

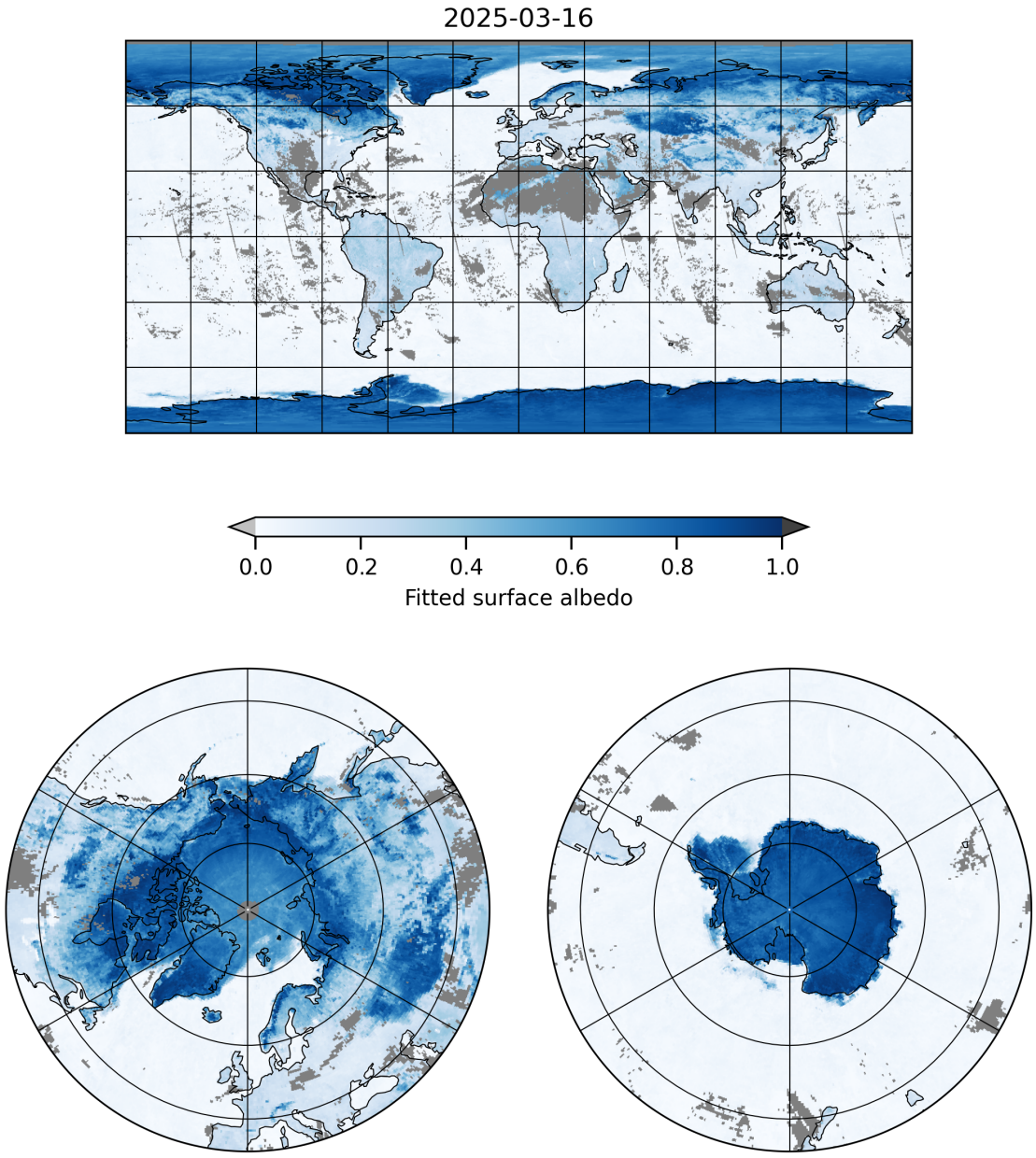

Figure 10: Map of “Fitted surface albedo” for 2025-03-16 to 2025-03-17

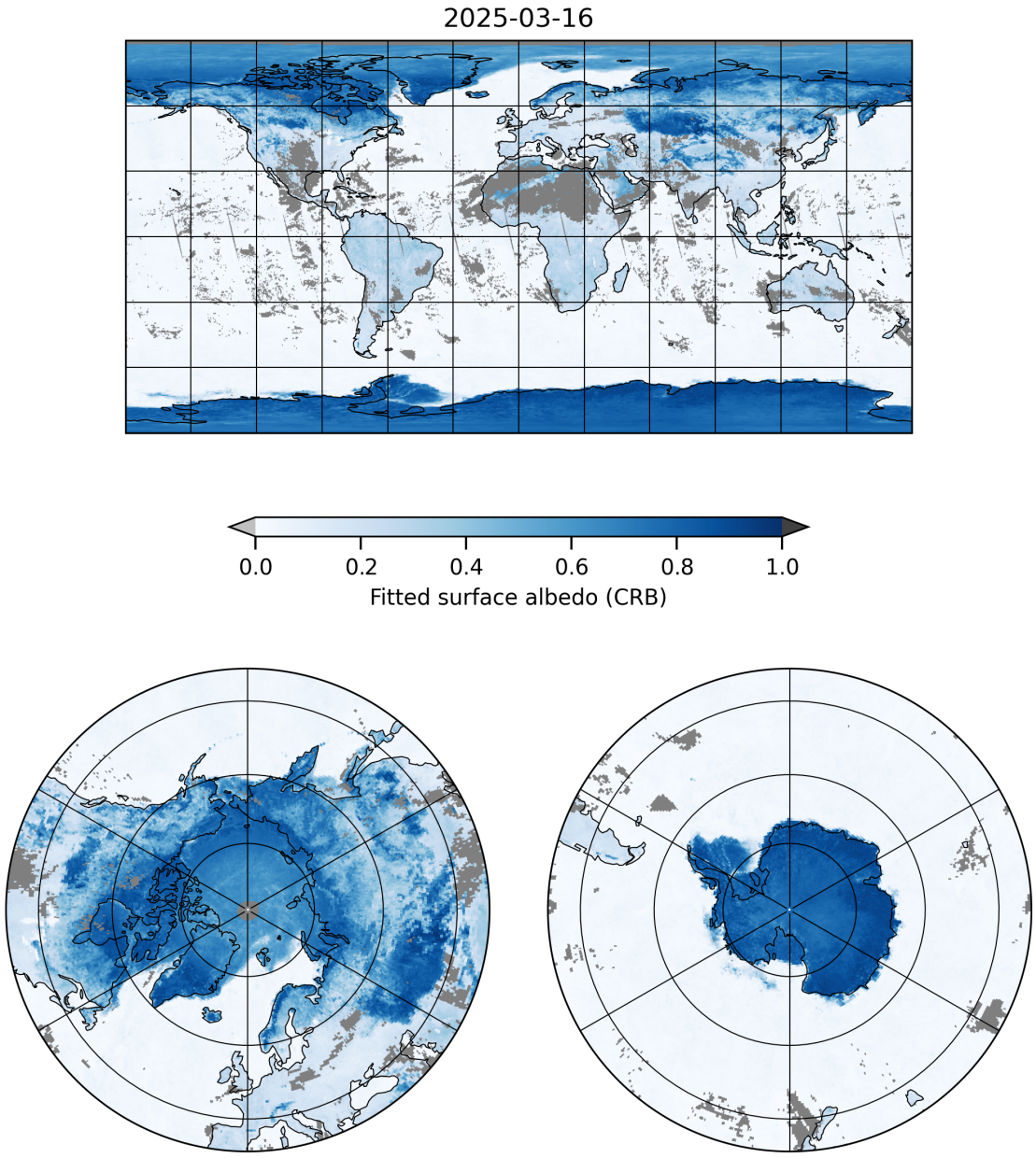

Figure 11: Map of “Fitted surface albedo (CRB)” for 2025-03-16 to 2025-03-17

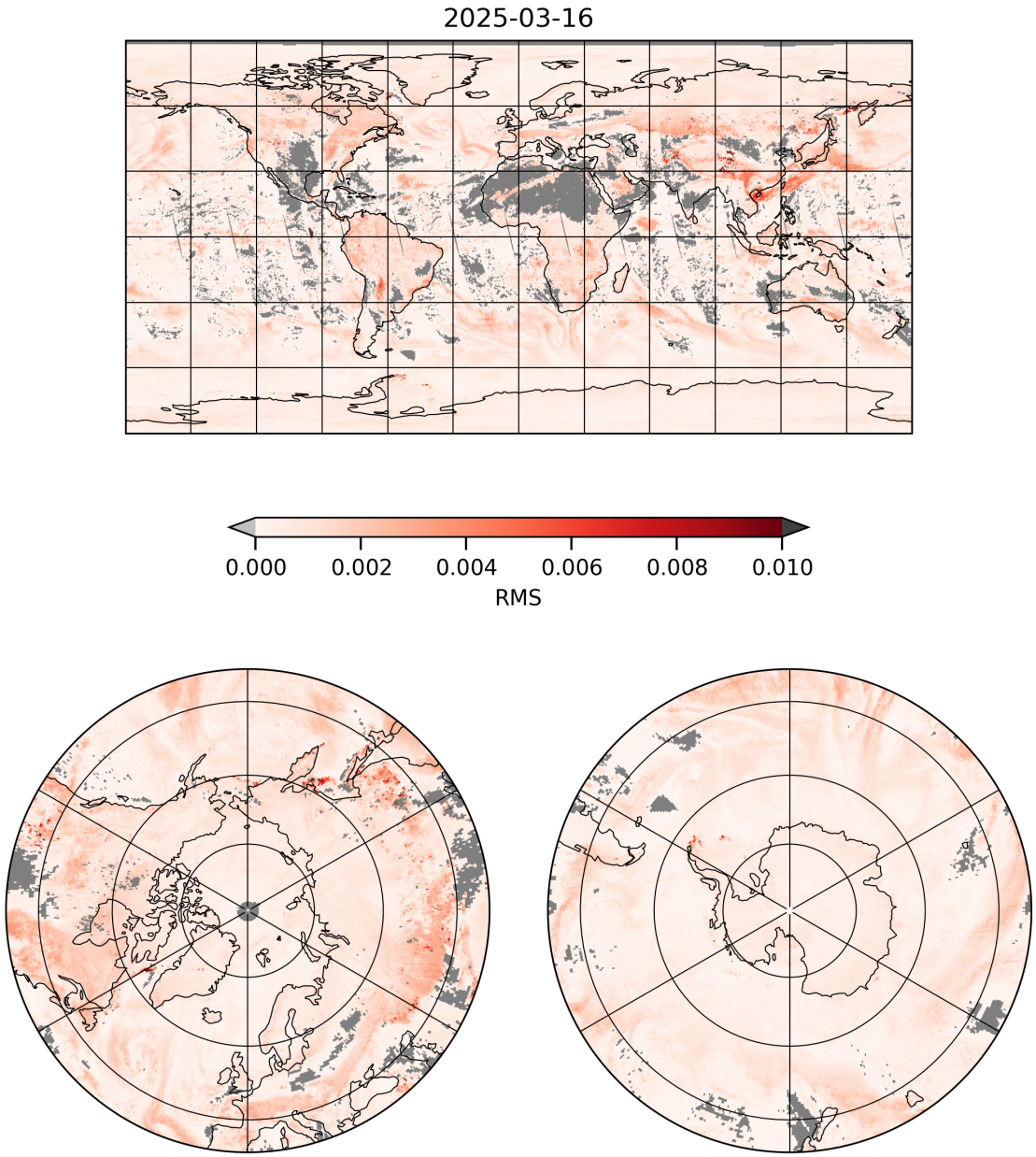

Figure 12: Map of “RMS” for 2025-03-16 to 2025-03-17

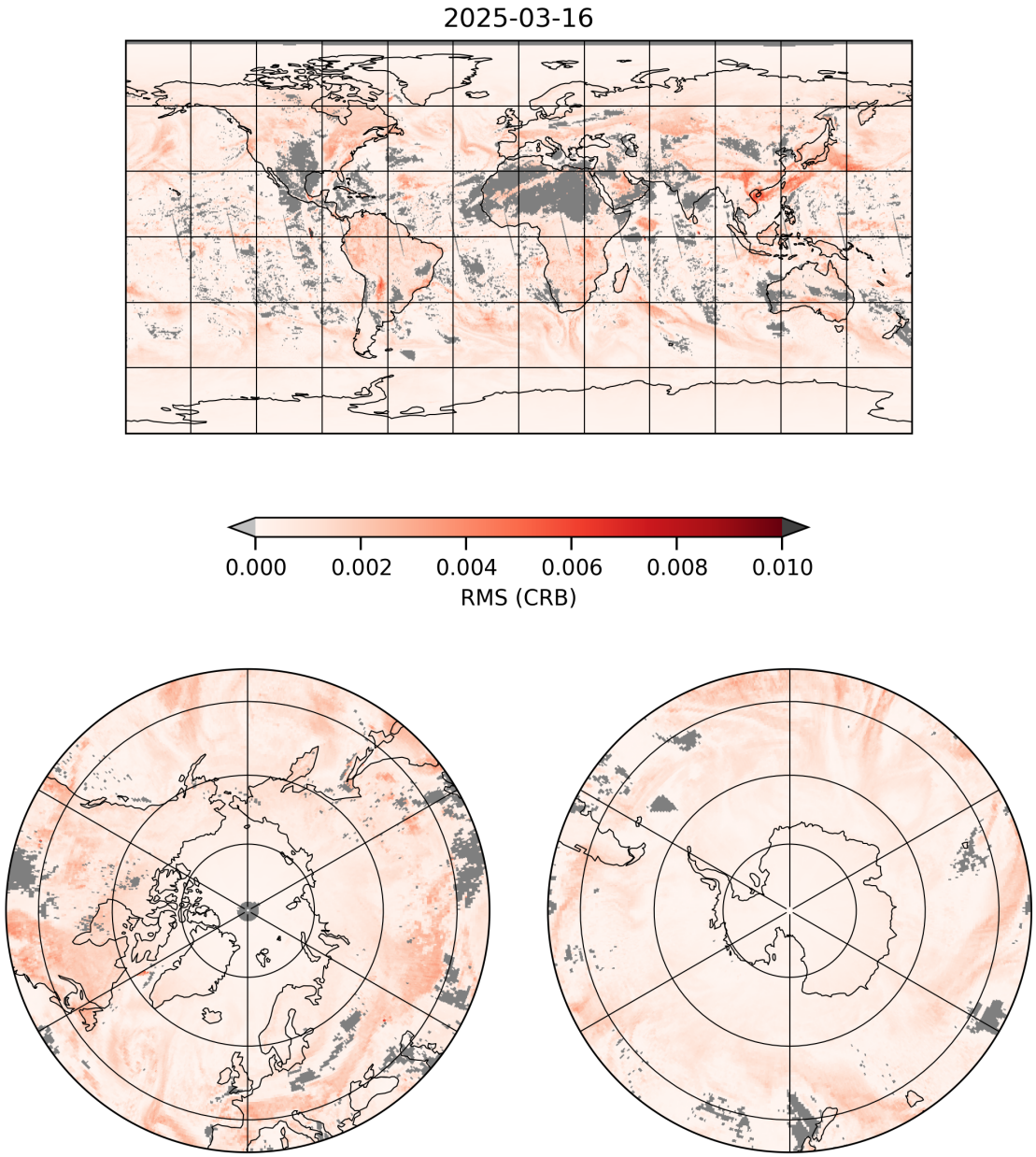

Figure 13: Map of “RMS (CRB)” for 2025-03-16 to 2025-03-17

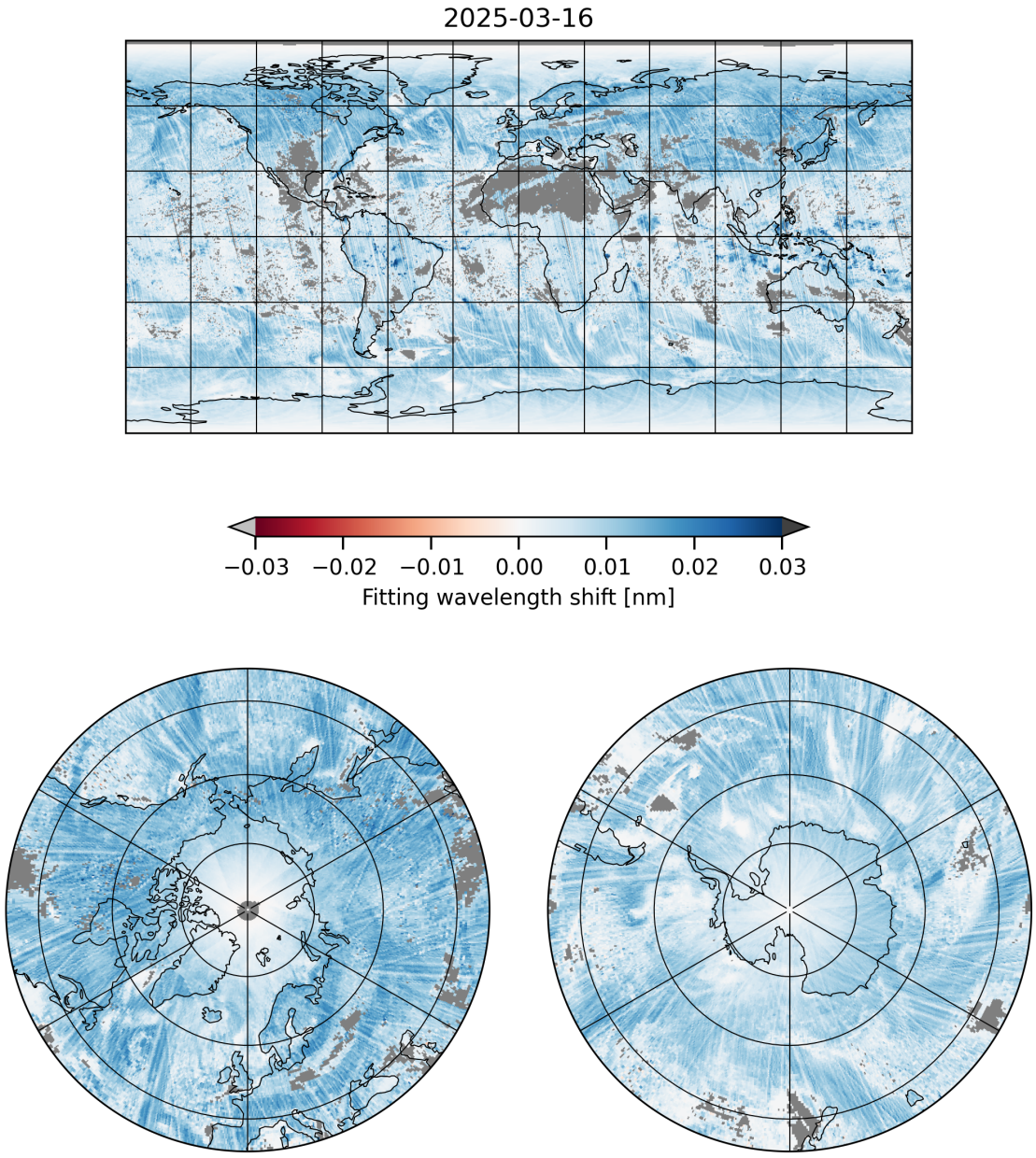

Figure 14: Map of “Fitting wavelength shift” for 2025-03-16 to 2025-03-17

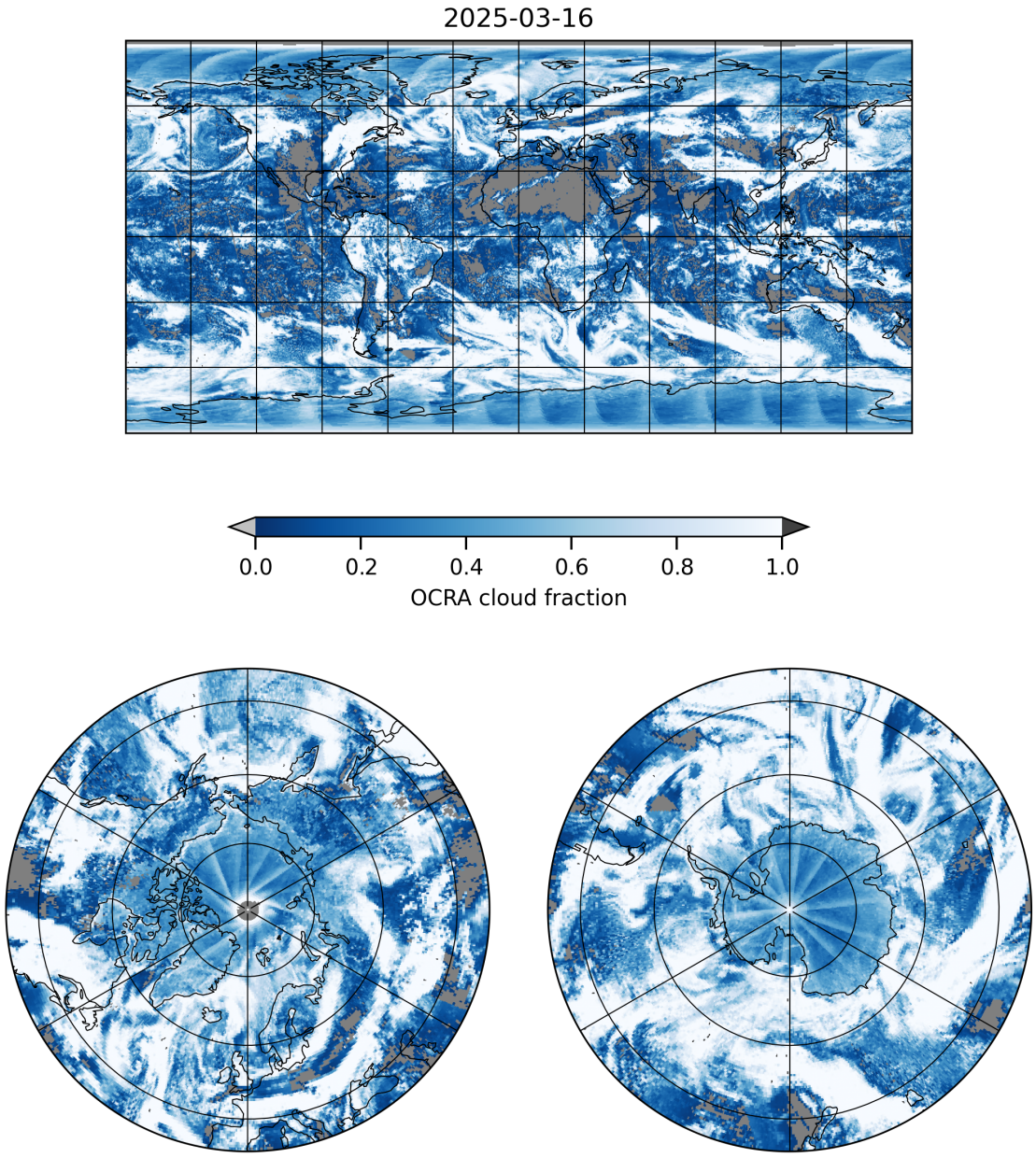

Figure 15: Map of “OCRA cloud fraction” for 2025-03-16 to 2025-03-17

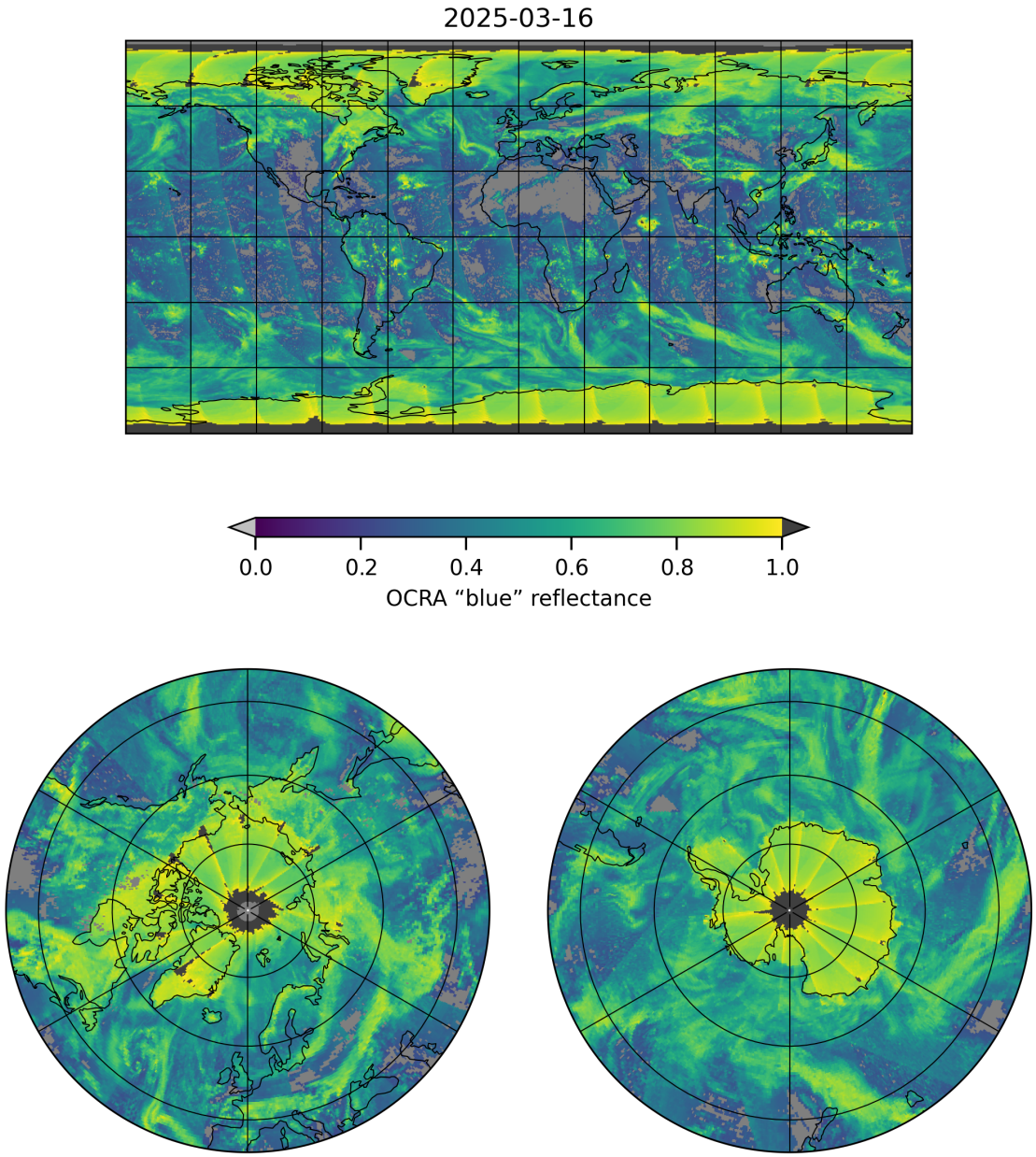

Figure 16: Map of “OCRA “blue” reflectance” for 2025-03-16 to 2025-03-17

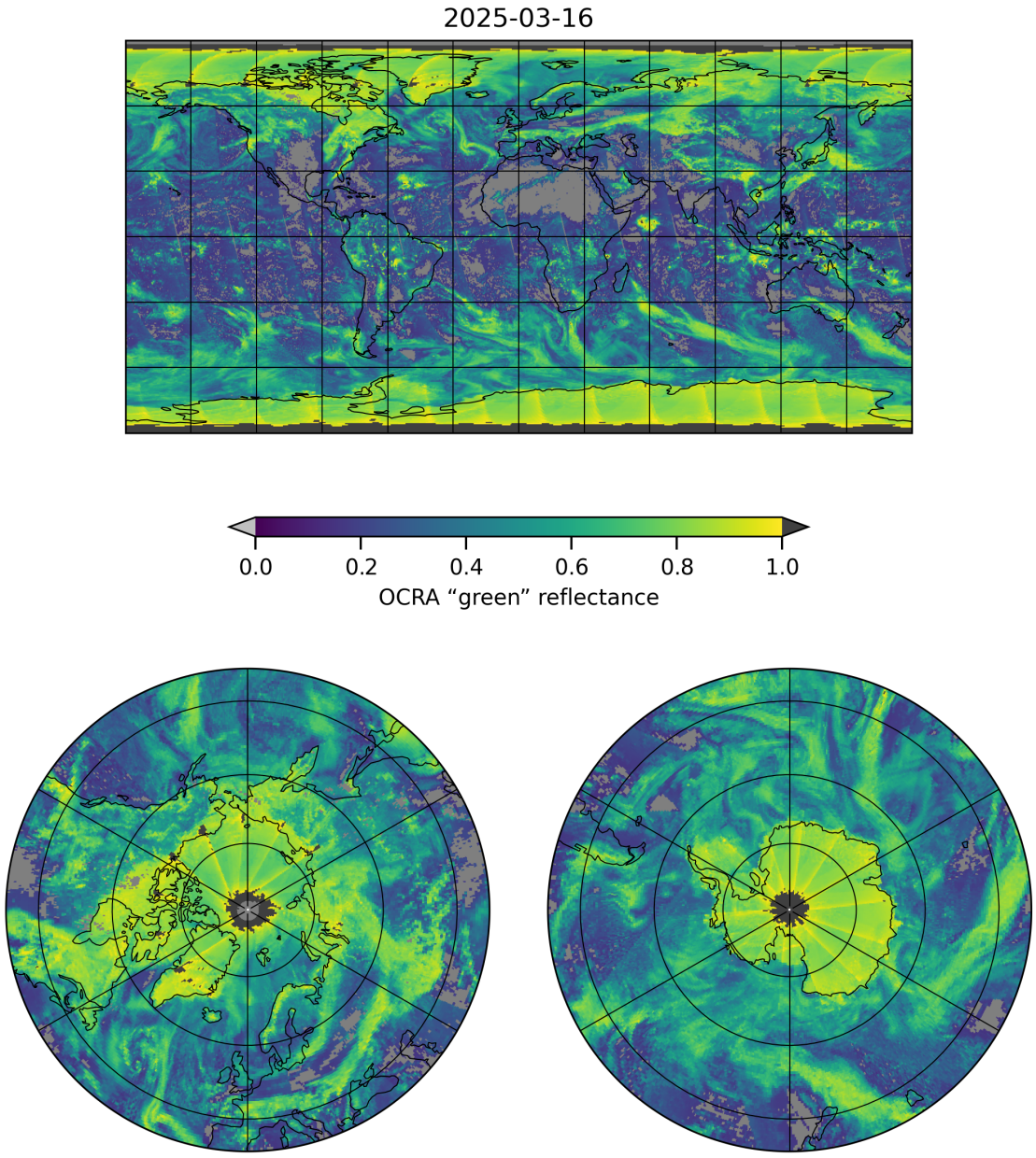

Figure 17: Map of “OCRA “green” reflectance” for 2025-03-16 to 2025-03-17

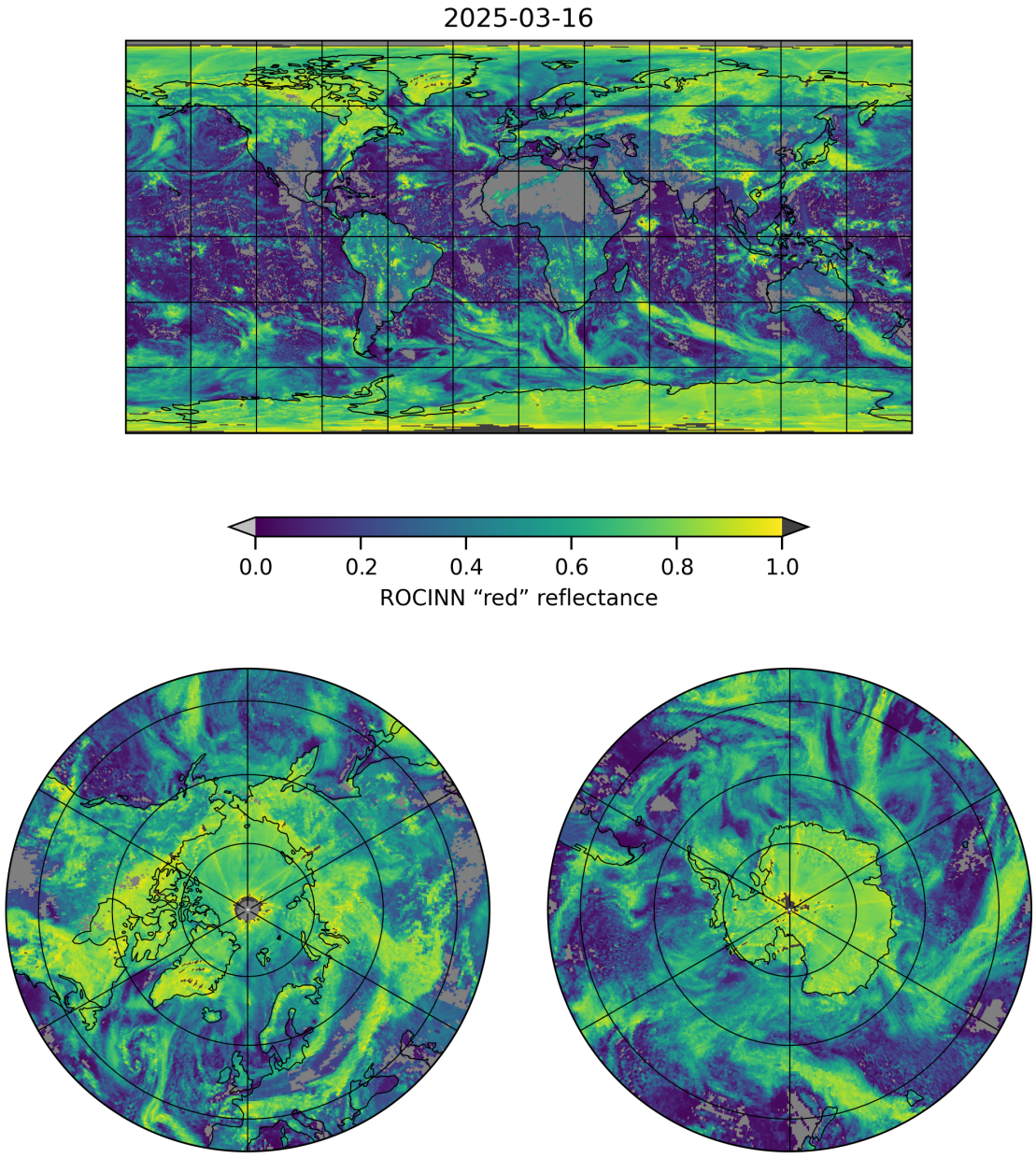

Figure 18: Map of “ROCINN “red” reflectance” for 2025-03-16 to 2025-03-17

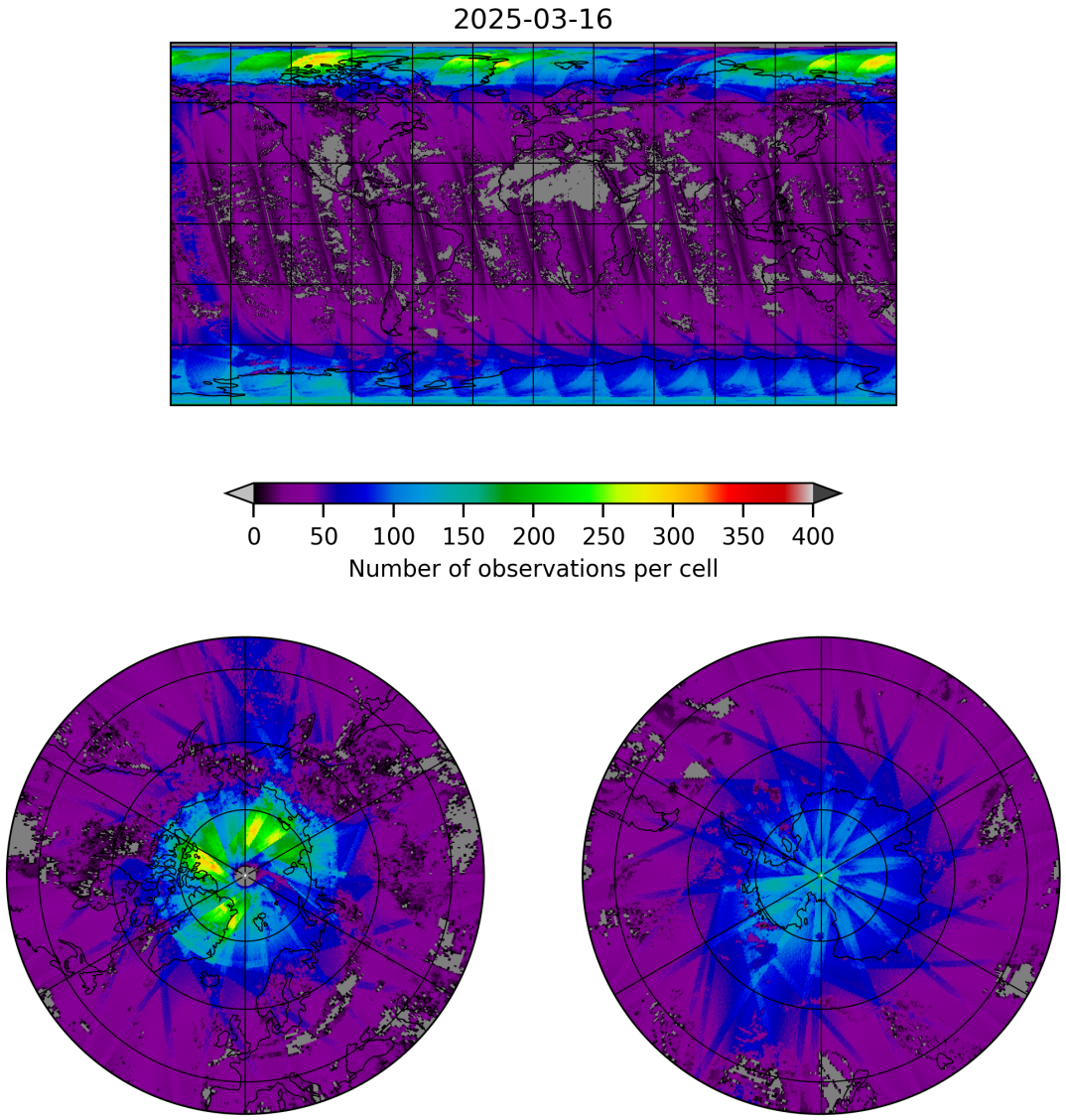

Figure 19: Map of the number of observations for 2025-03-16 to 2025-03-17

7 Zonal average

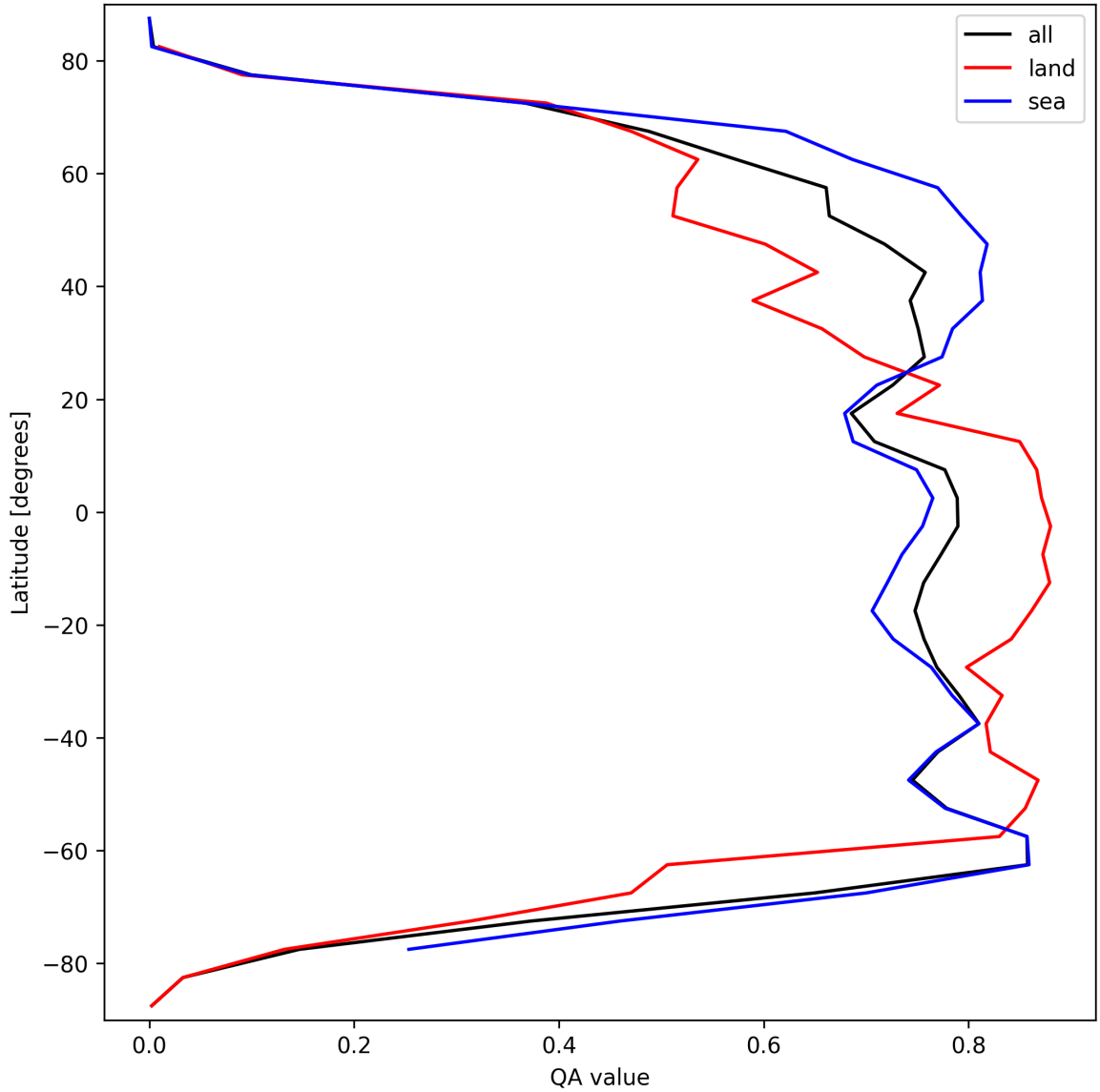

Figure 20: Zonal average of “QA value” for 2025-03-16 to 2025-03-17.

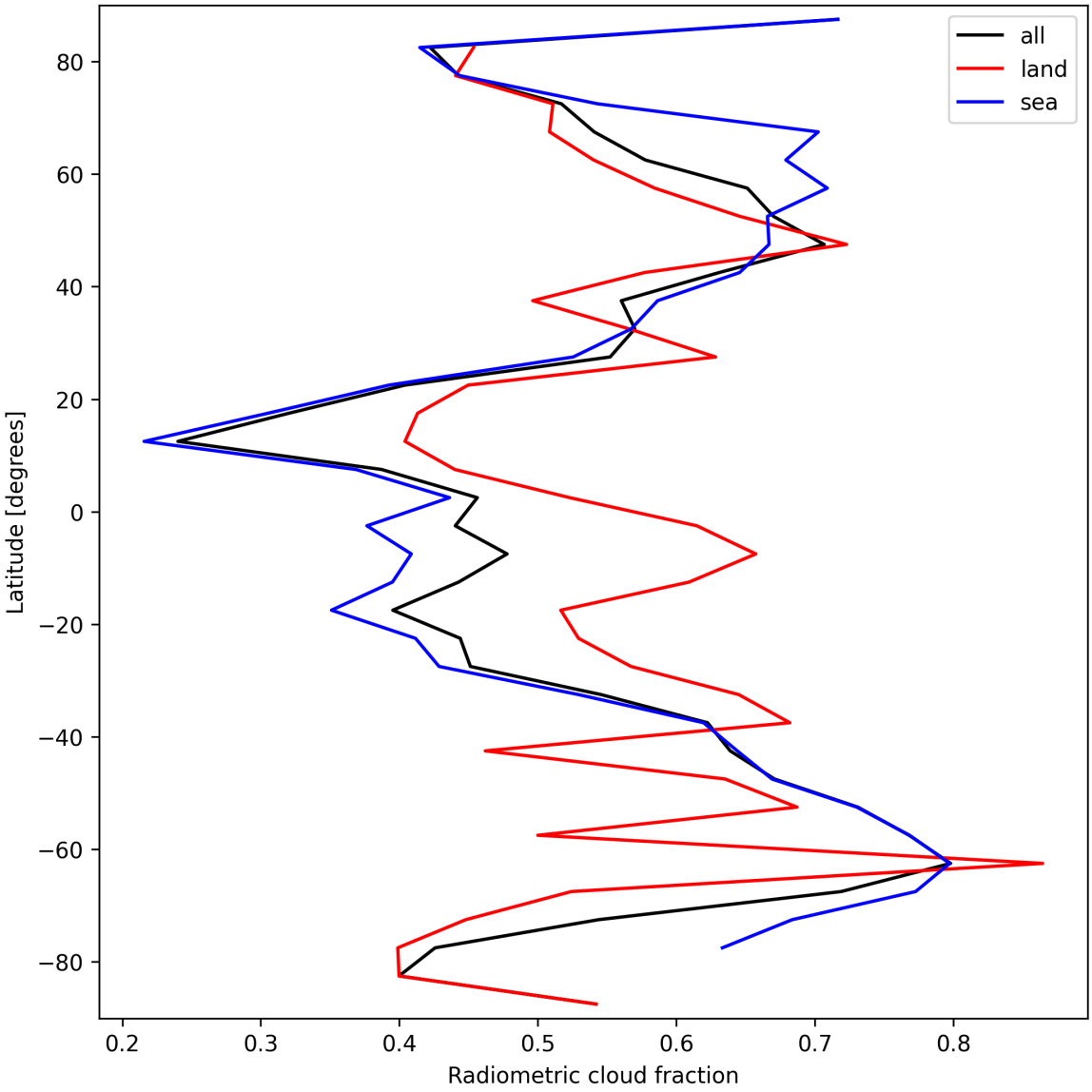

Figure 21: Zonal average of “Radiometric cloud fraction” for 2025-03-16 to 2025-03-17.

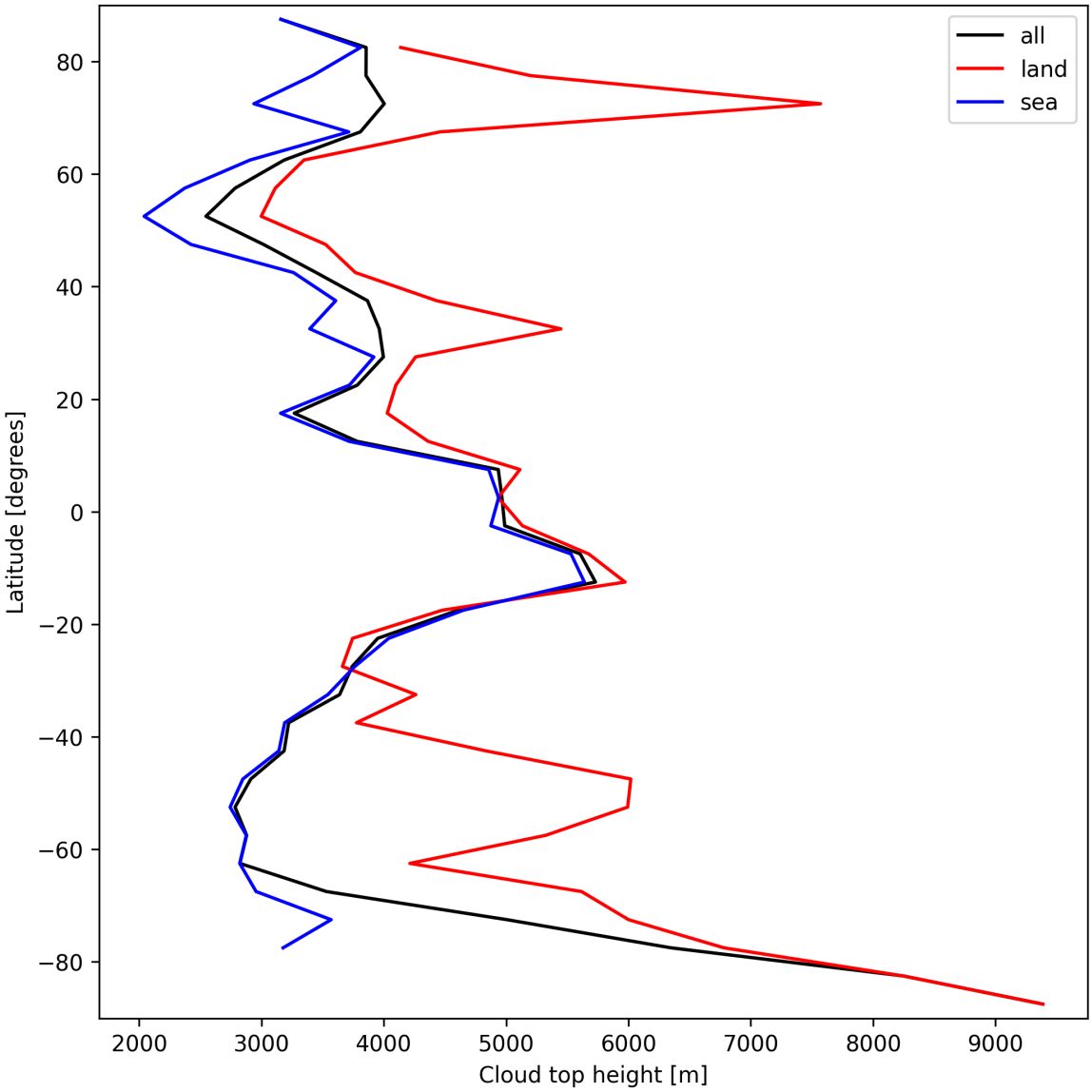

Figure 22: Zonal average of “Cloud top height” for 2025-03-16 to 2025-03-17.

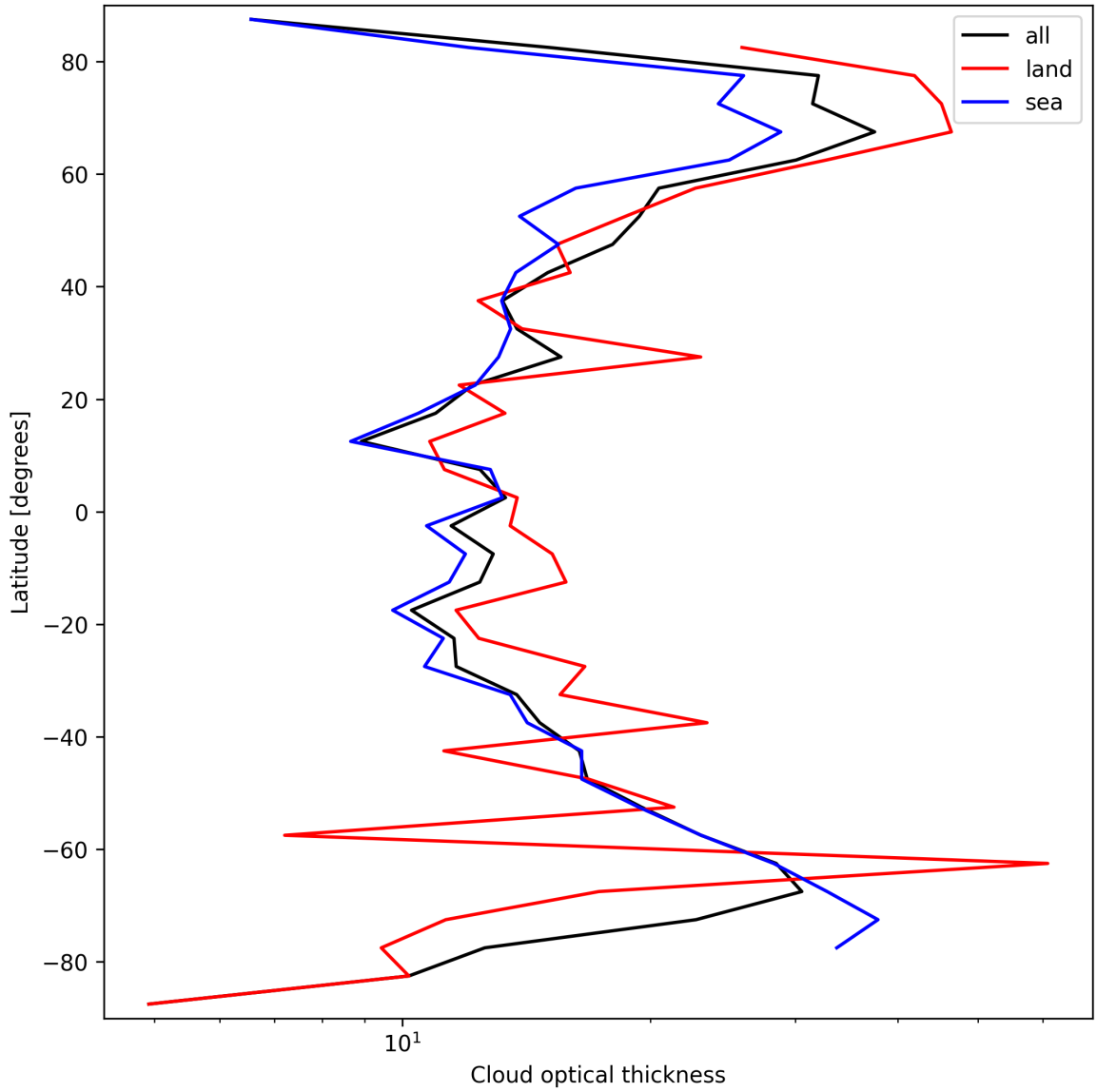

Figure 23: Zonal average of “Cloud optical thickness” for 2025-03-16 to 2025-03-17.

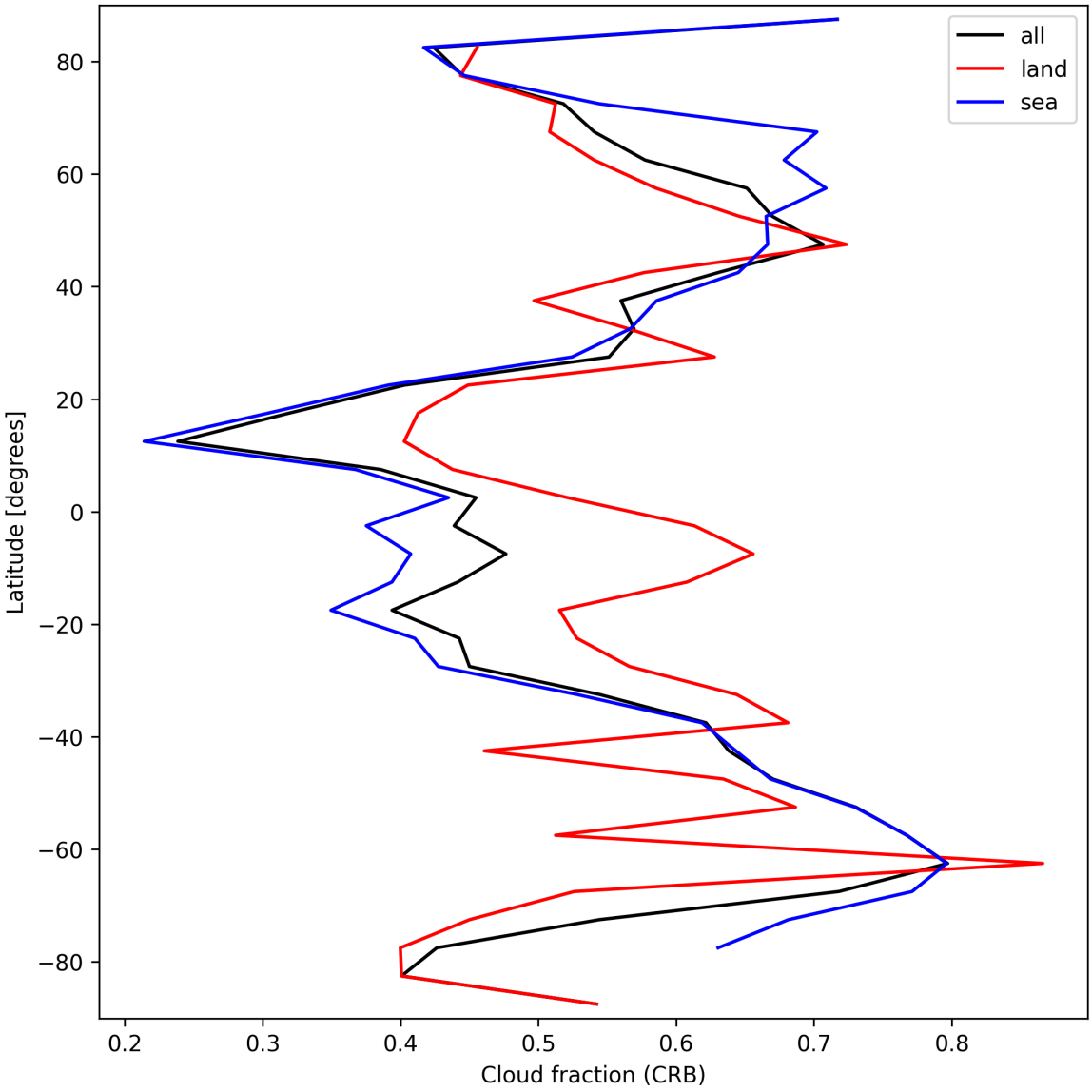

Figure 24: Zonal average of “Cloud fraction (CRB)” for 2025-03-16 to 2025-03-17.

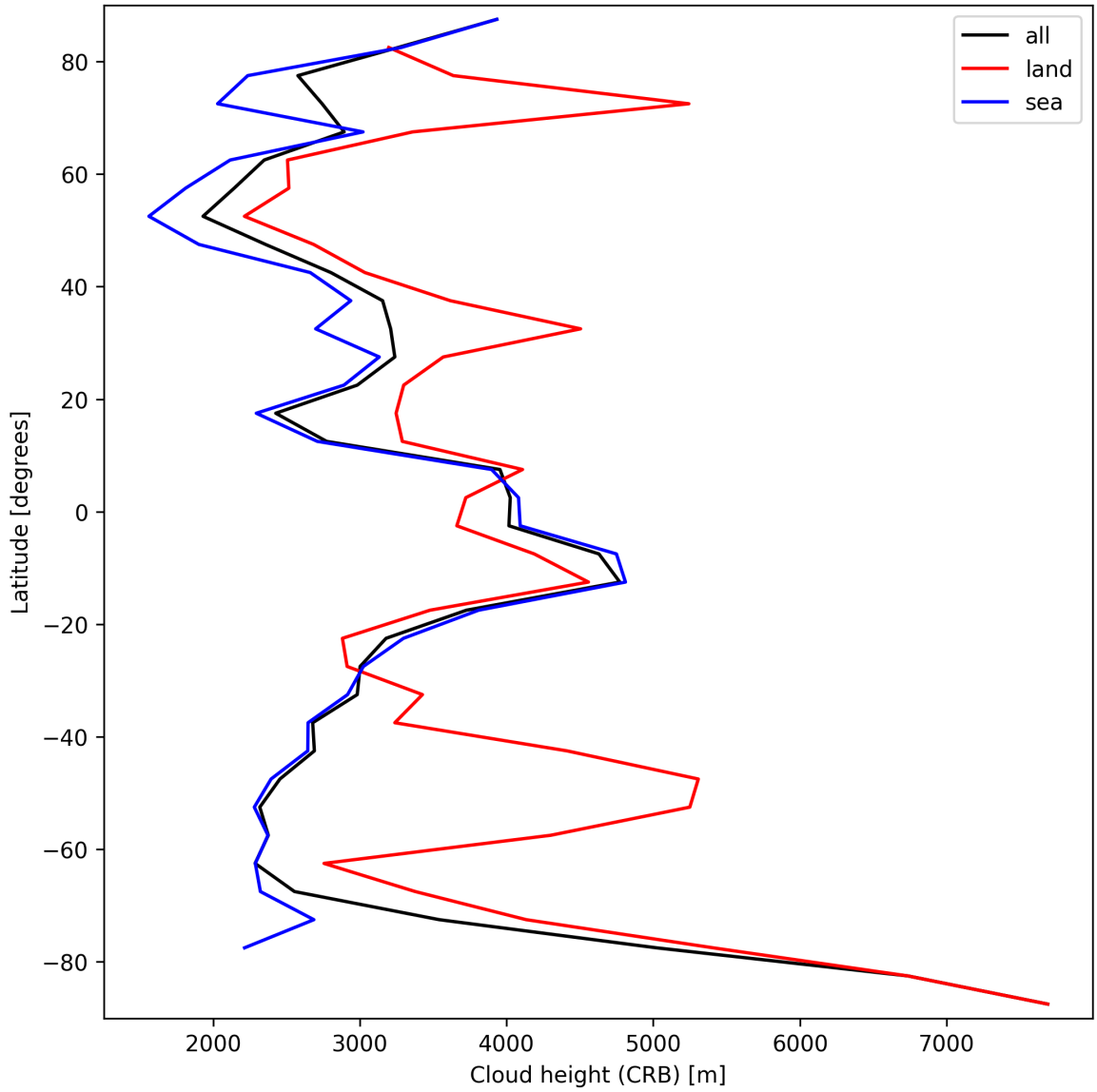

Figure 25: Zonal average of “Cloud height (CRB)” for 2025-03-16 to 2025-03-17.

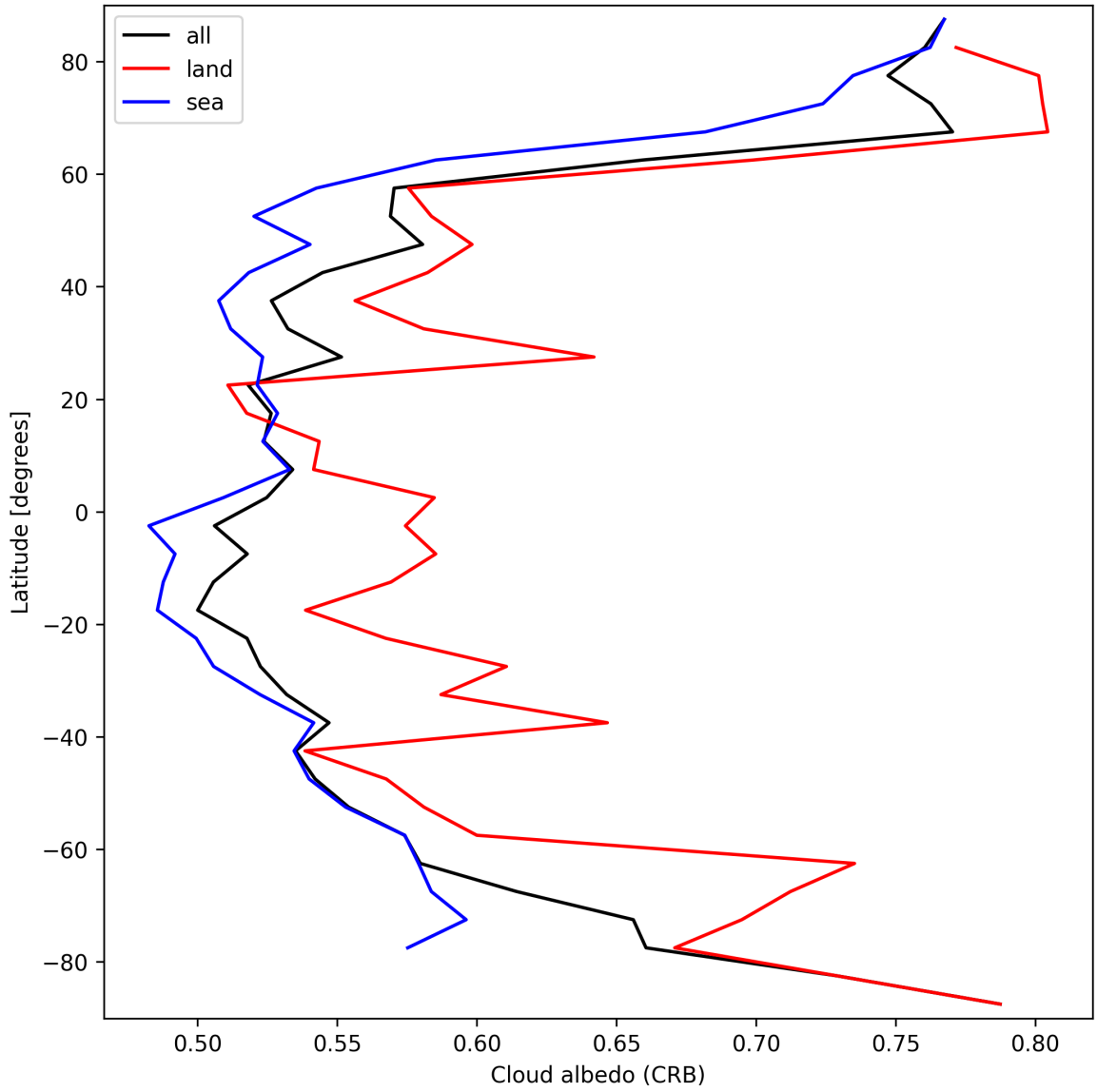

Figure 26: Zonal average of “Cloud albedo (CRB)” for 2025-03-16 to 2025-03-17.

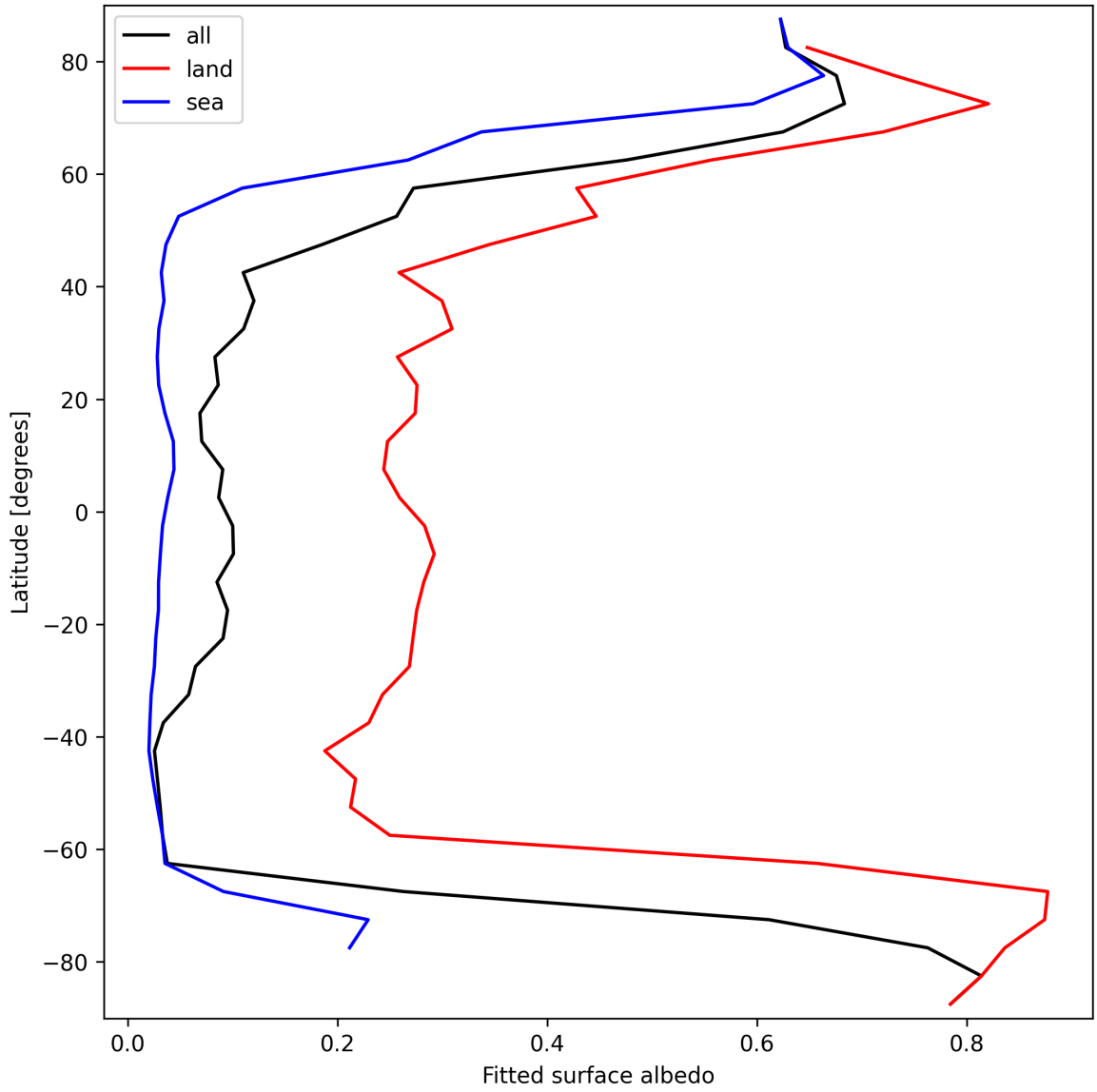

Figure 27: Zonal average of “Fitted surface albedo” for 2025-03-16 to 2025-03-17.

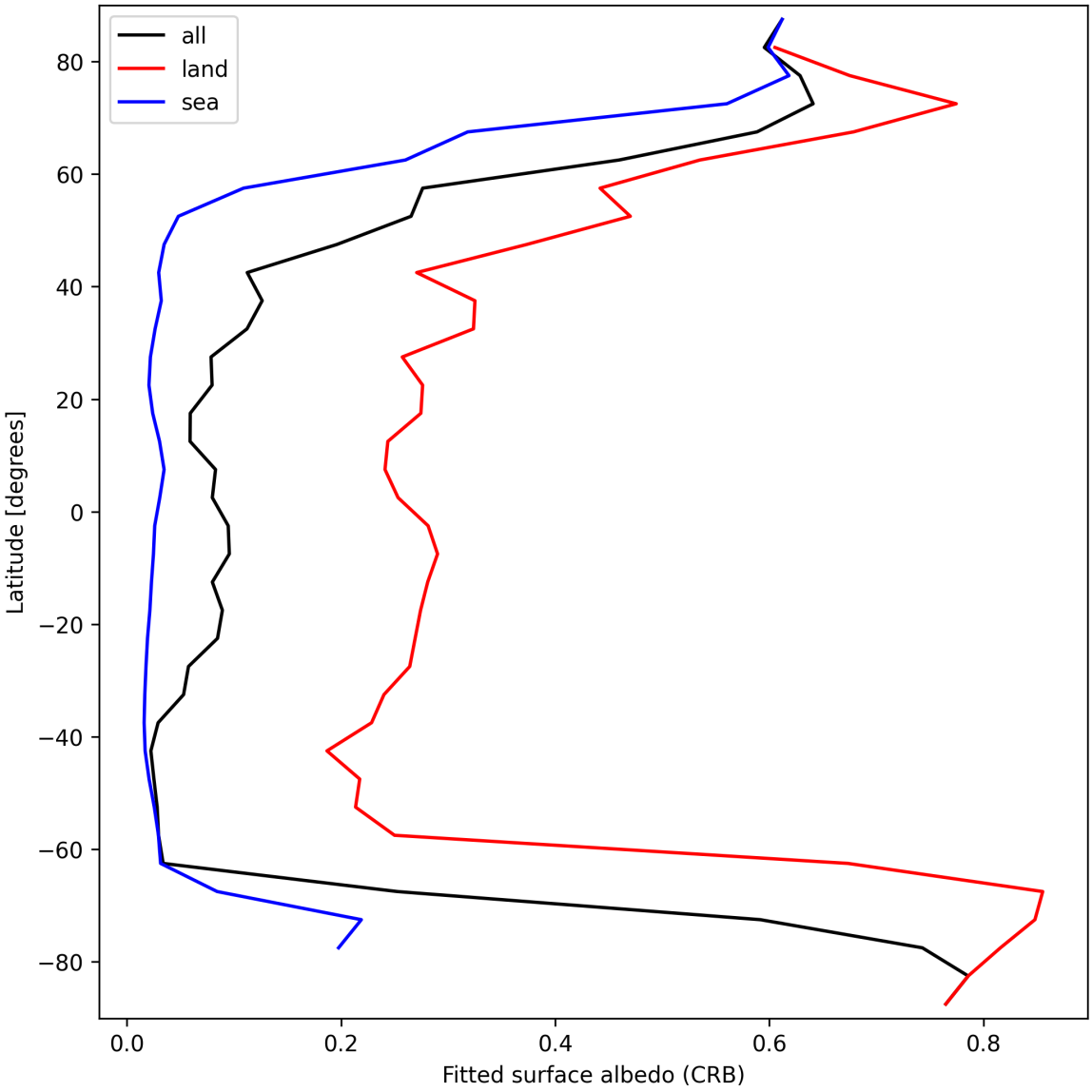

Figure 28: Zonal average of “Fitted surface albedo (CRB)” for 2025-03-16 to 2025-03-17.

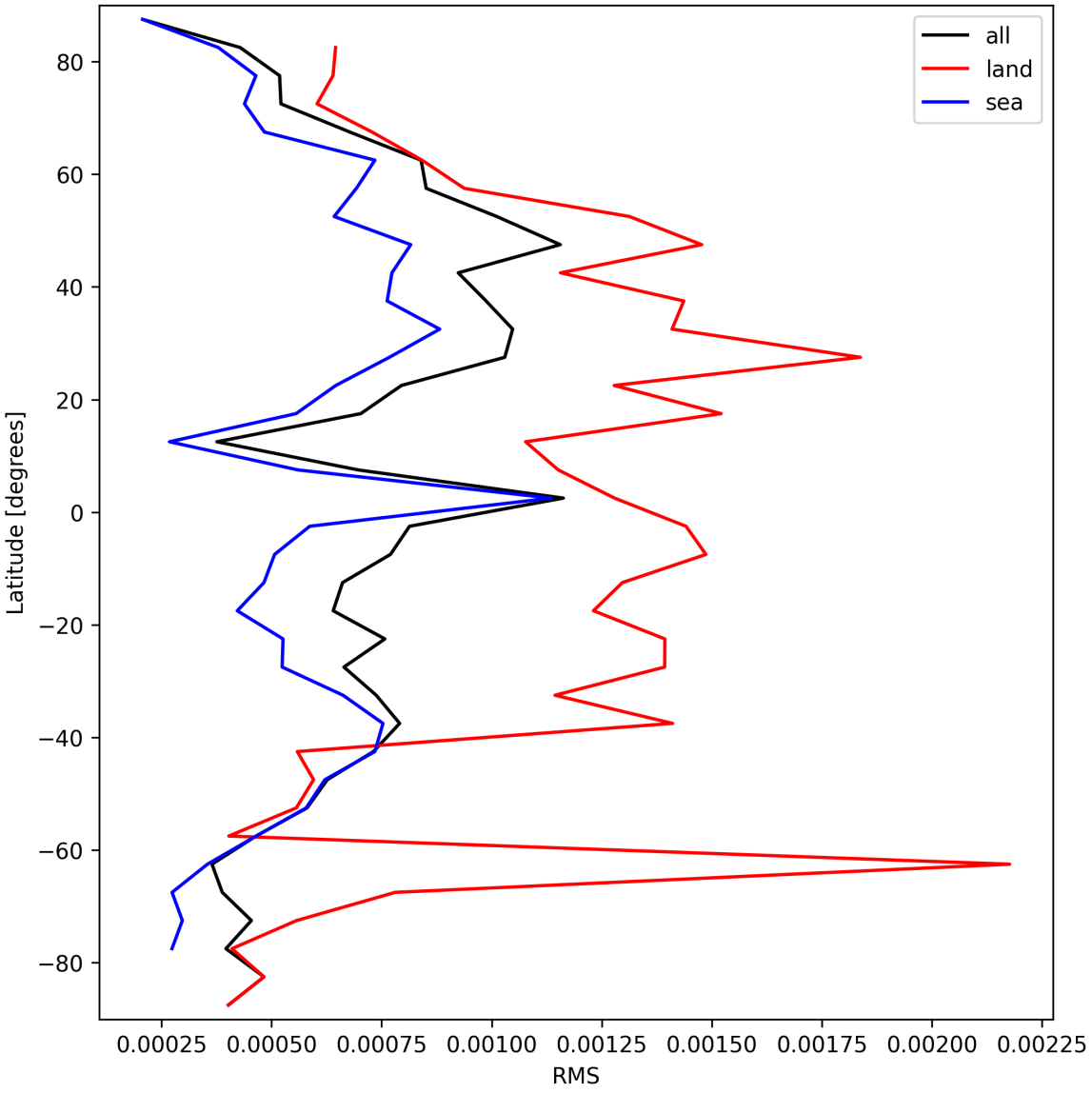

Figure 29: Zonal average of “RMS” for 2025-03-16 to 2025-03-17.

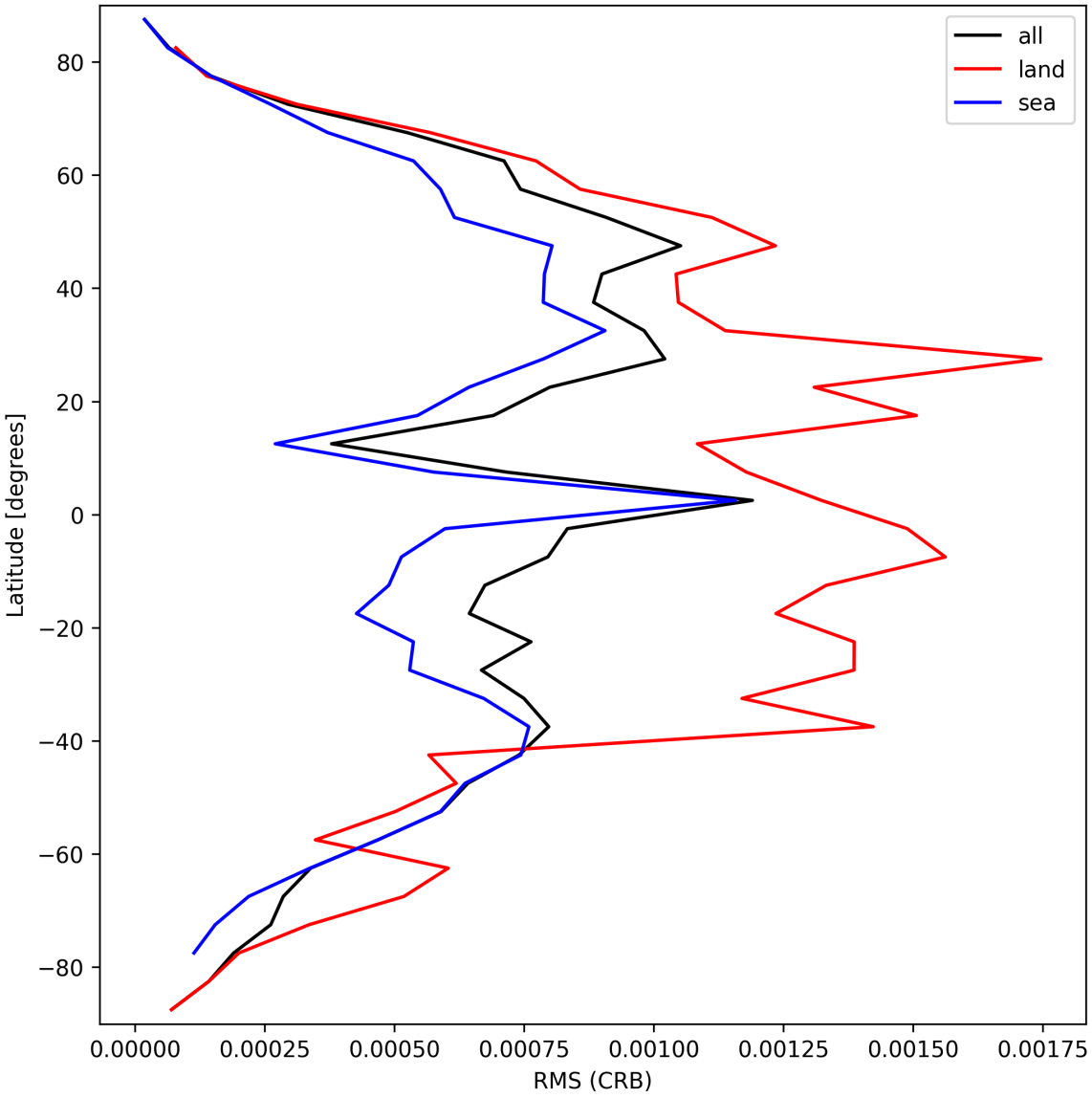

Figure 30: Zonal average of “RMS (CRB)” for 2025-03-16 to 2025-03-17.

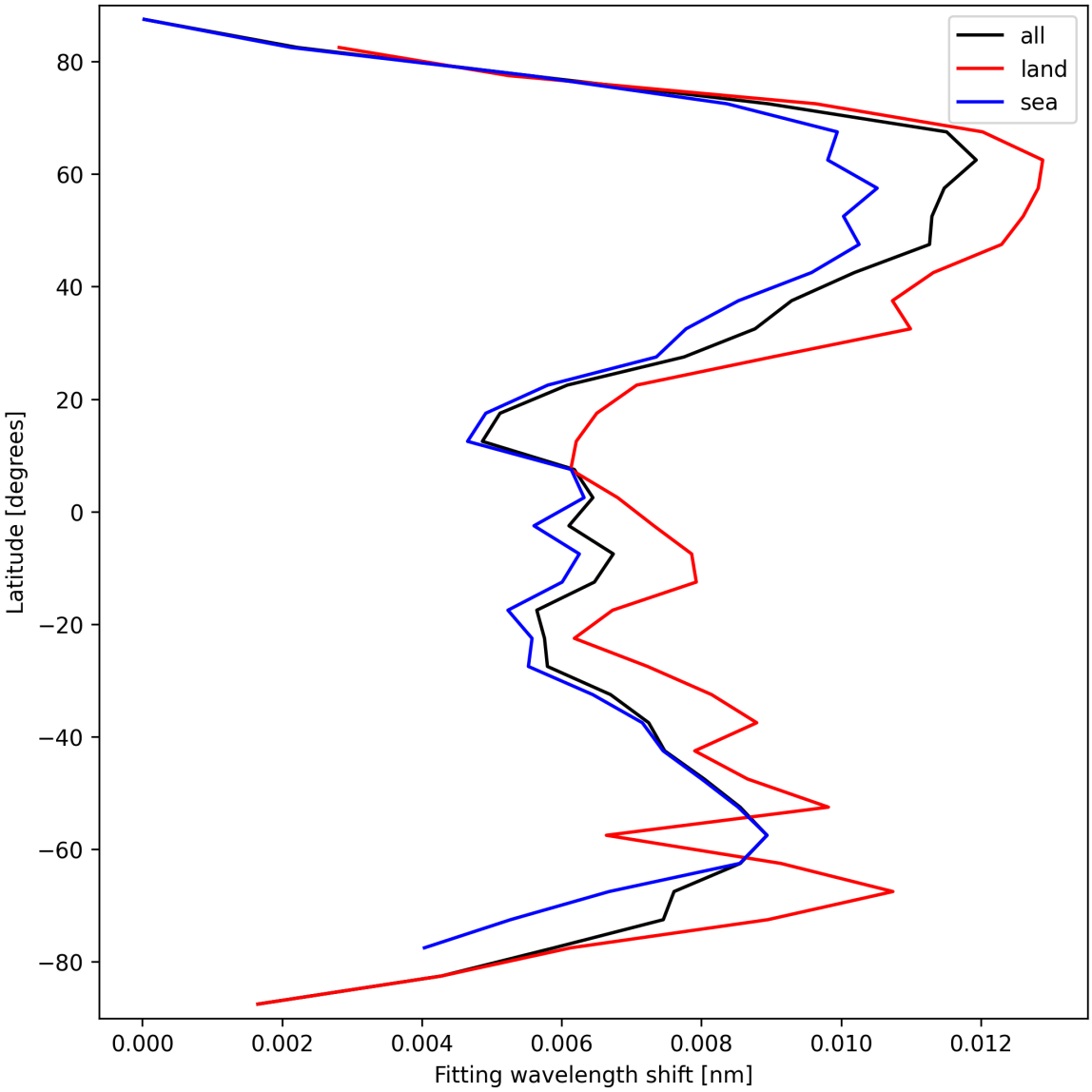

Figure 31: Zonal average of “Fitting wavelength shift” for 2025-03-16 to 2025-03-17.

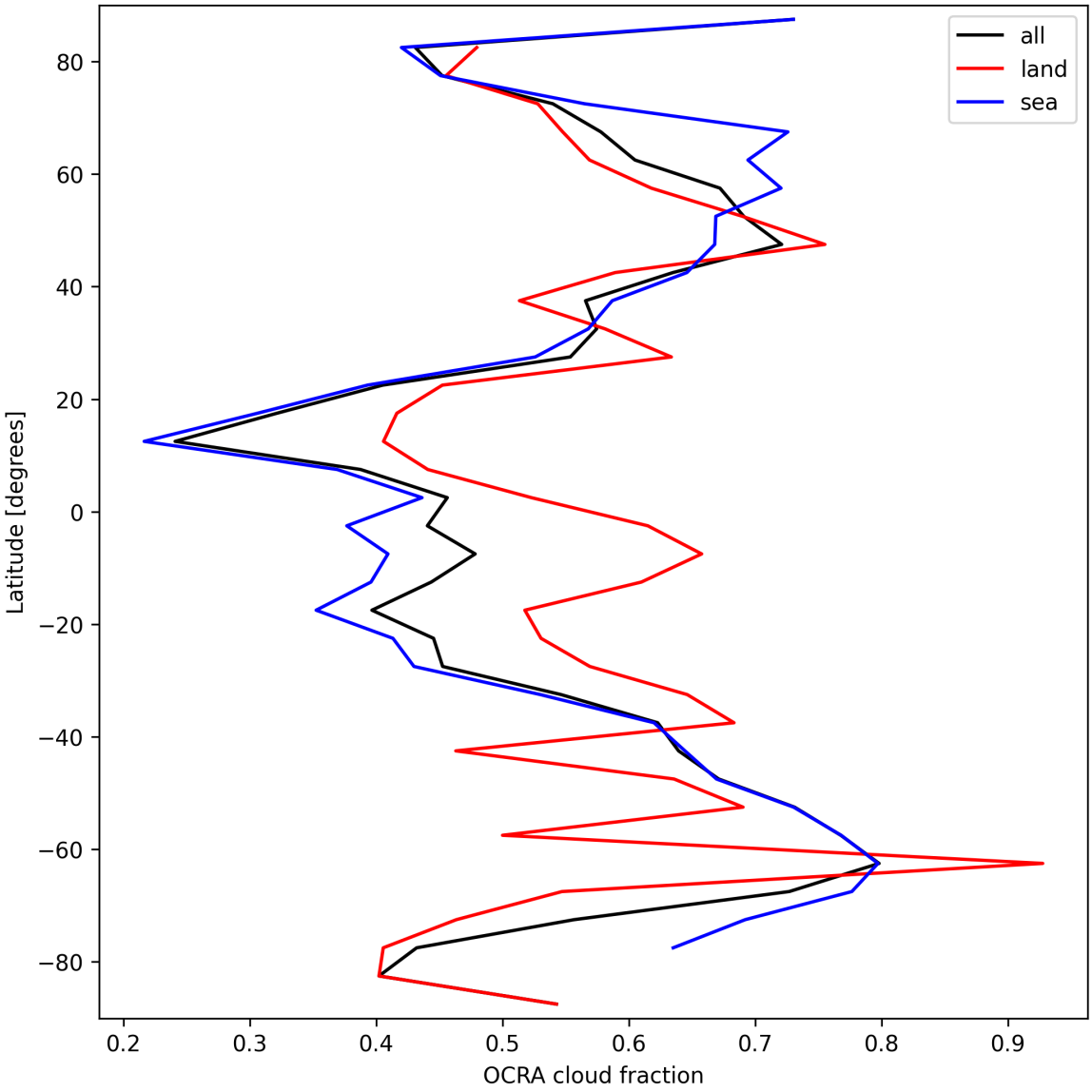

Figure 32: Zonal average of “OCRA cloud fraction” for 2025-03-16 to 2025-03-17.

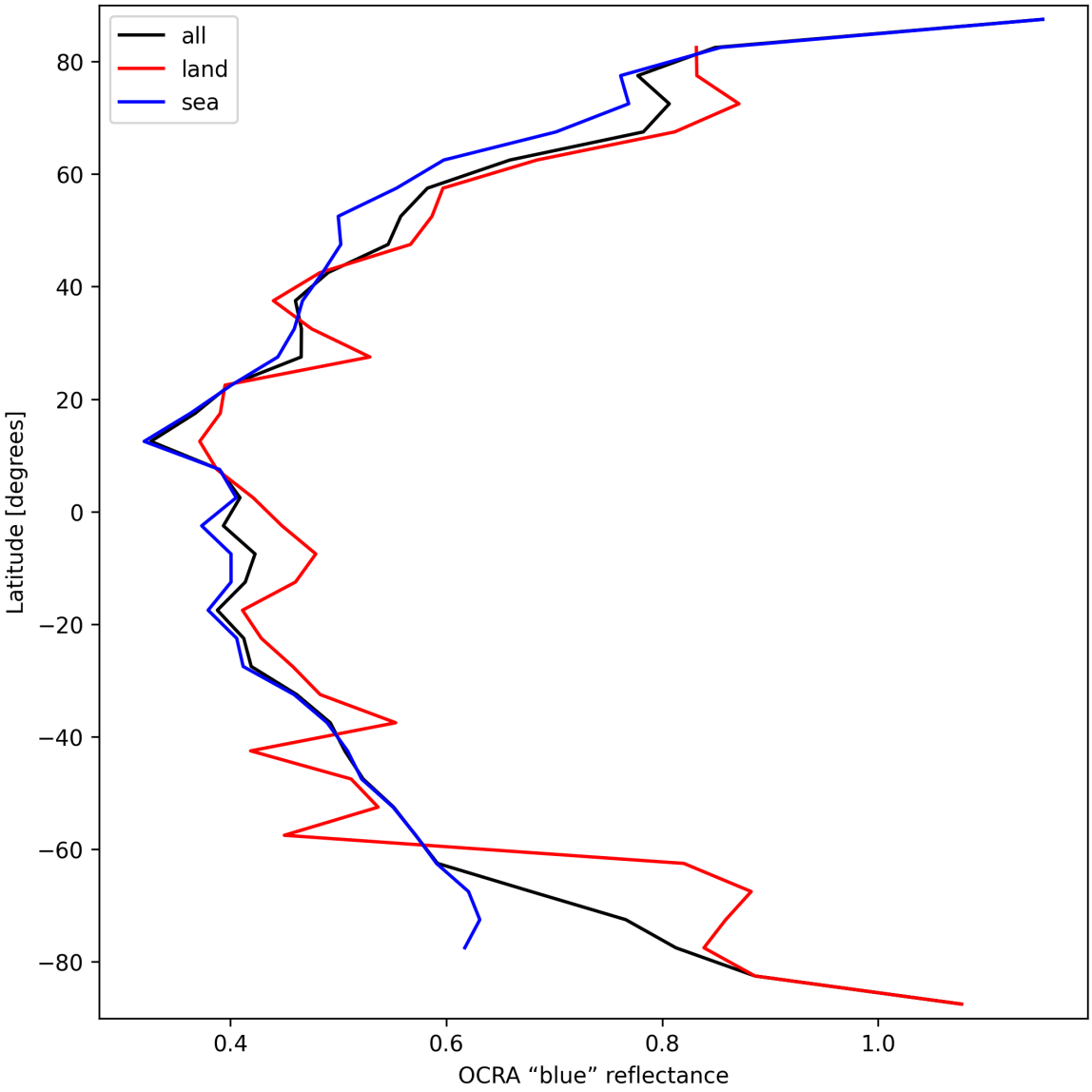

Figure 33: Zonal average of “OCRA “blue” reflectance” for 2025-03-16 to 2025-03-17.

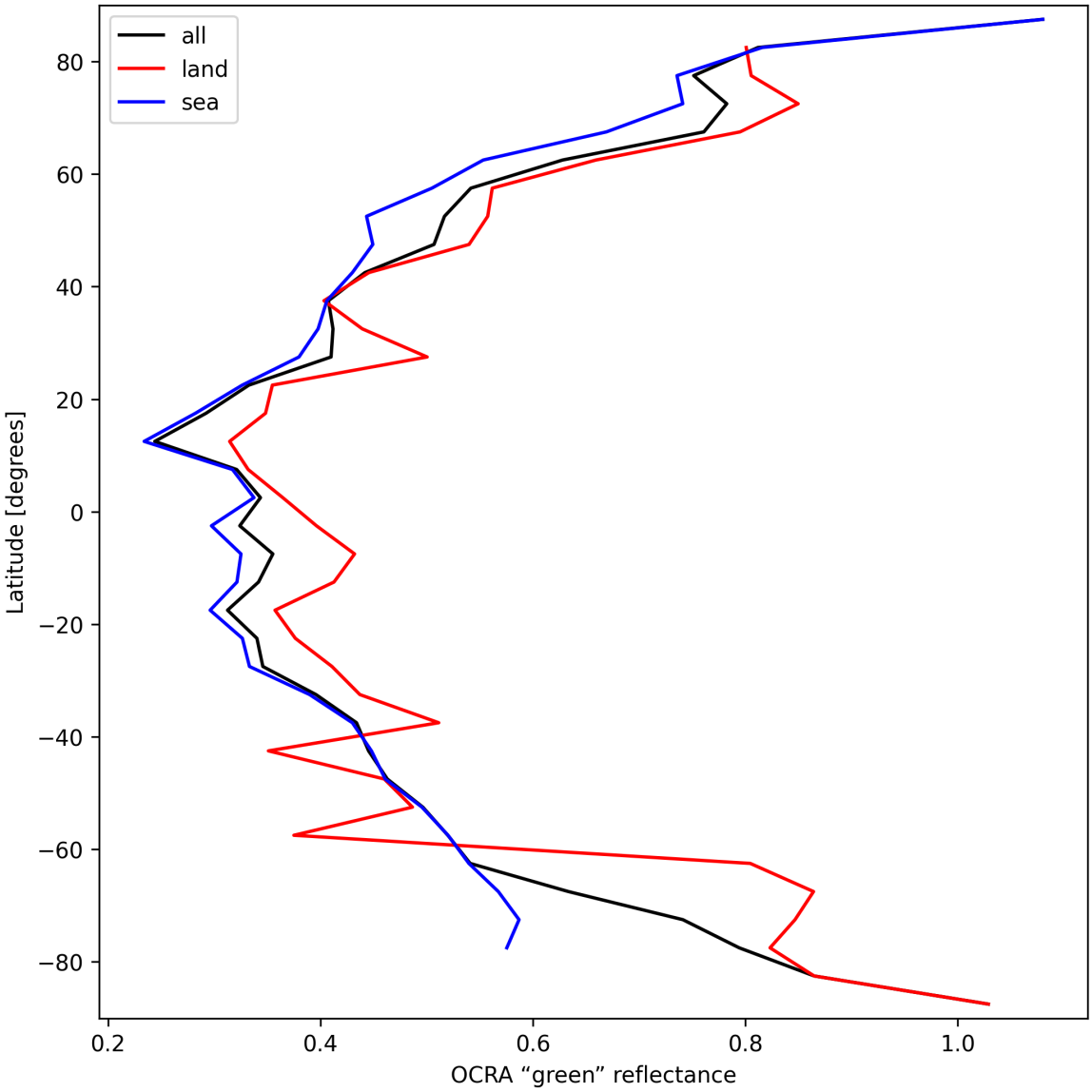

Figure 34: Zonal average of “OCRA “green” reflectance” for 2025-03-16 to 2025-03-17.

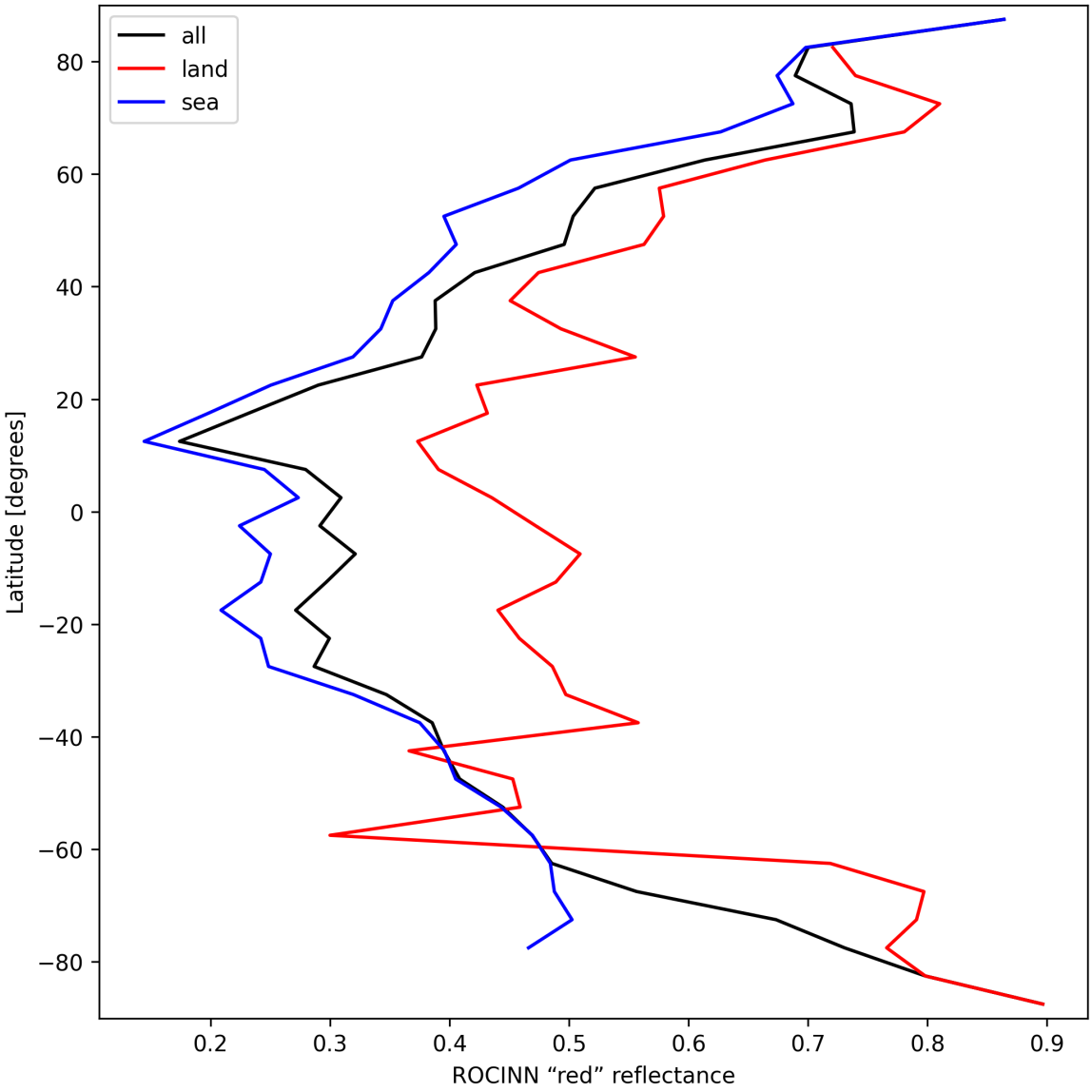

Figure 35: Zonal average of “ROCINN “red” reflectance” for 2025-03-16 to 2025-03-17.

8 Histograms

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

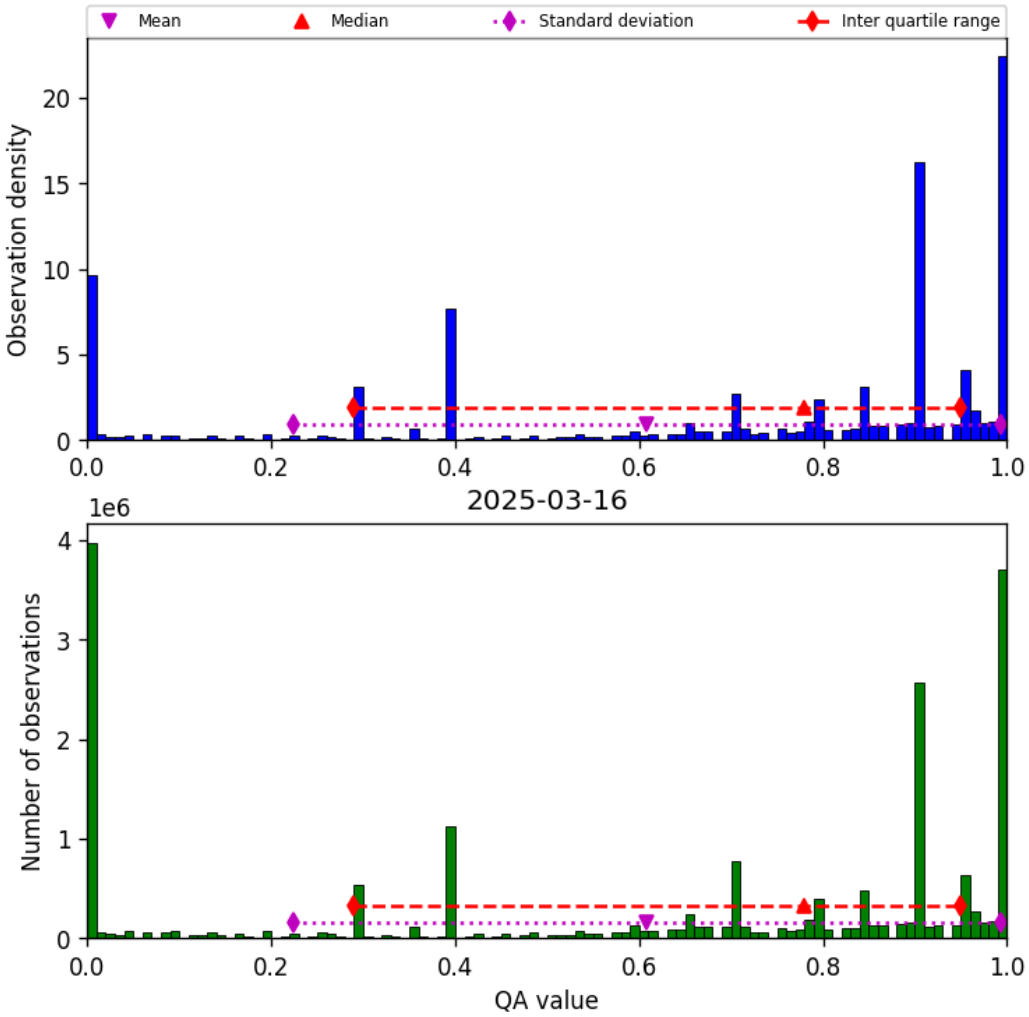

Figure 36: Histogram of “QA value” for 2025-03-16 to 2025-03-17

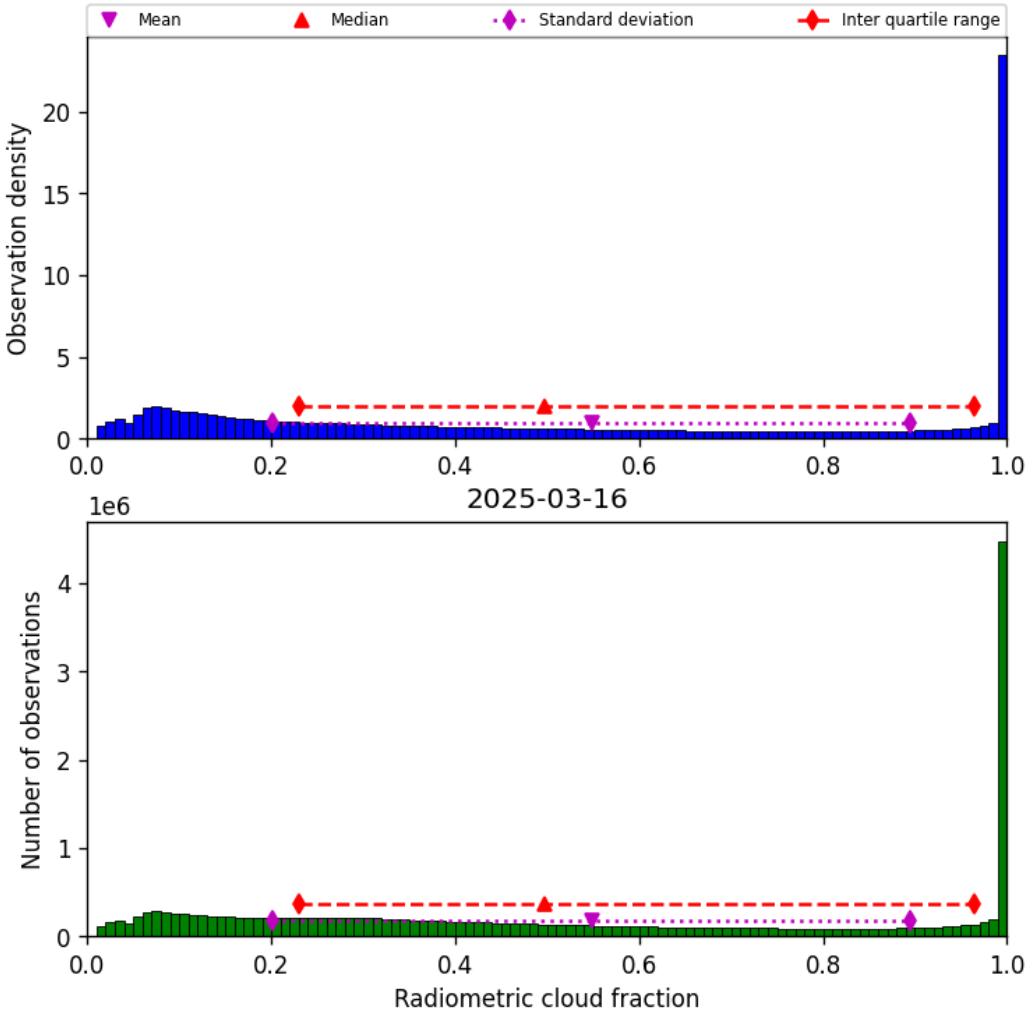

Figure 37: Histogram of “Radiometric cloud fraction” for 2025-03-16 to 2025-03-17

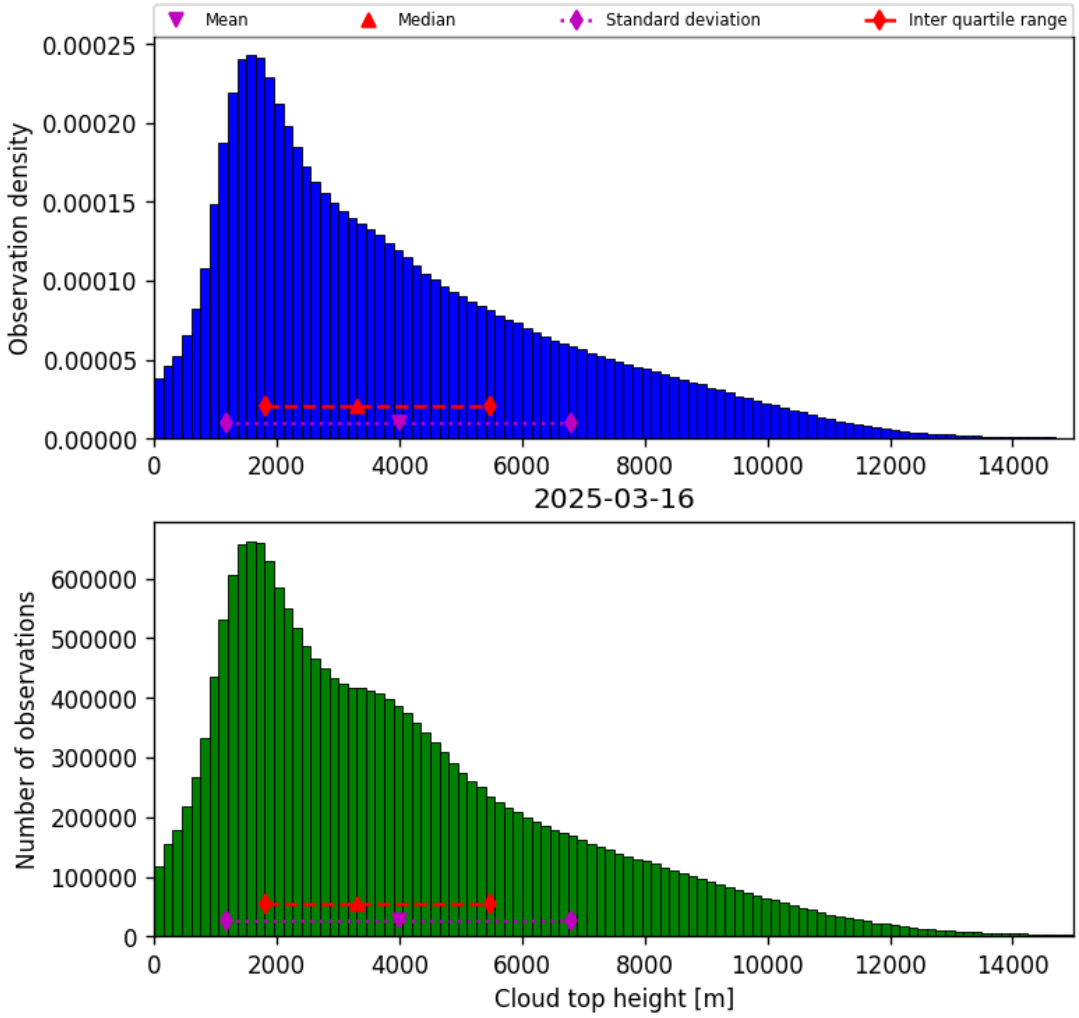

Figure 38: Histogram of “Cloud top height” for 2025-03-16 to 2025-03-17

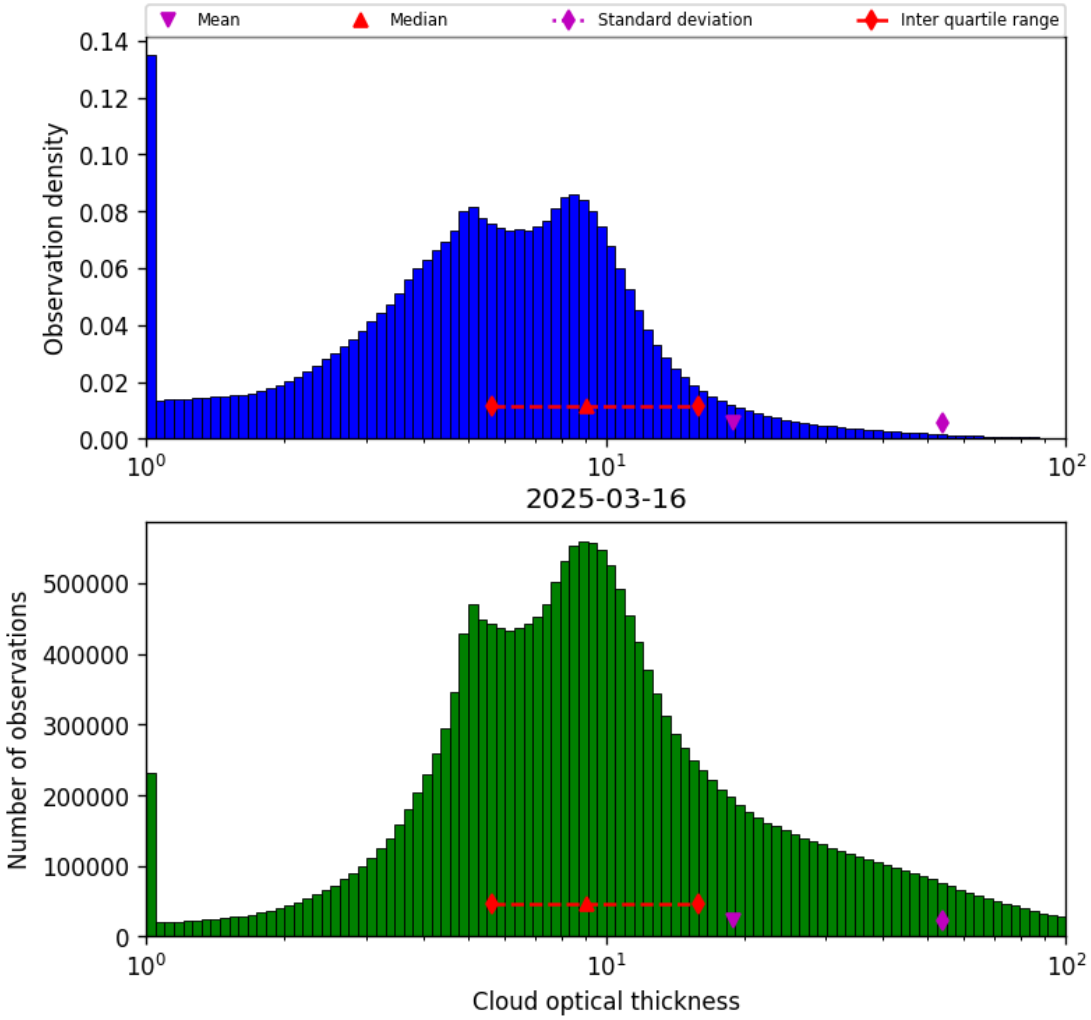

Figure 39: Histogram of “Cloud optical thickness” for 2025-03-16 to 2025-03-17

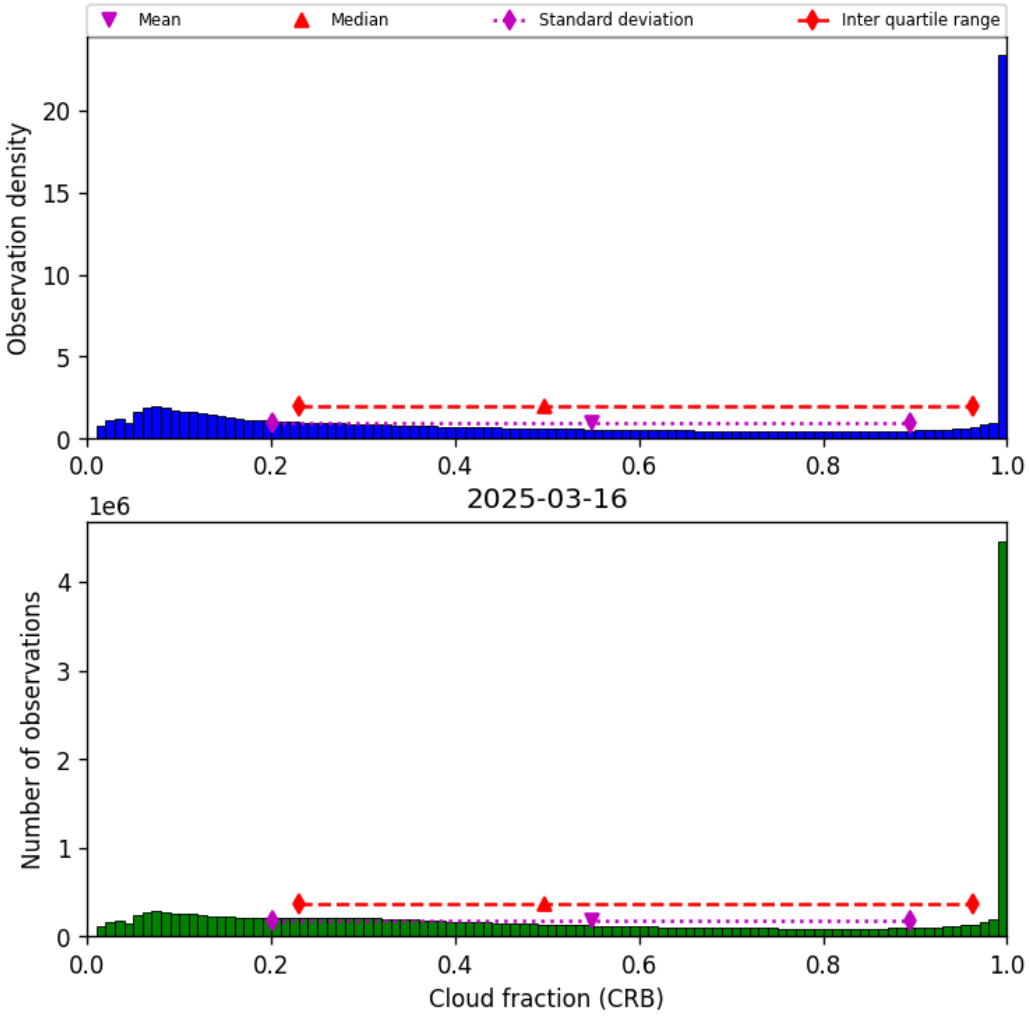

Figure 40: Histogram of “Cloud fraction (CRB)” for 2025-03-16 to 2025-03-17

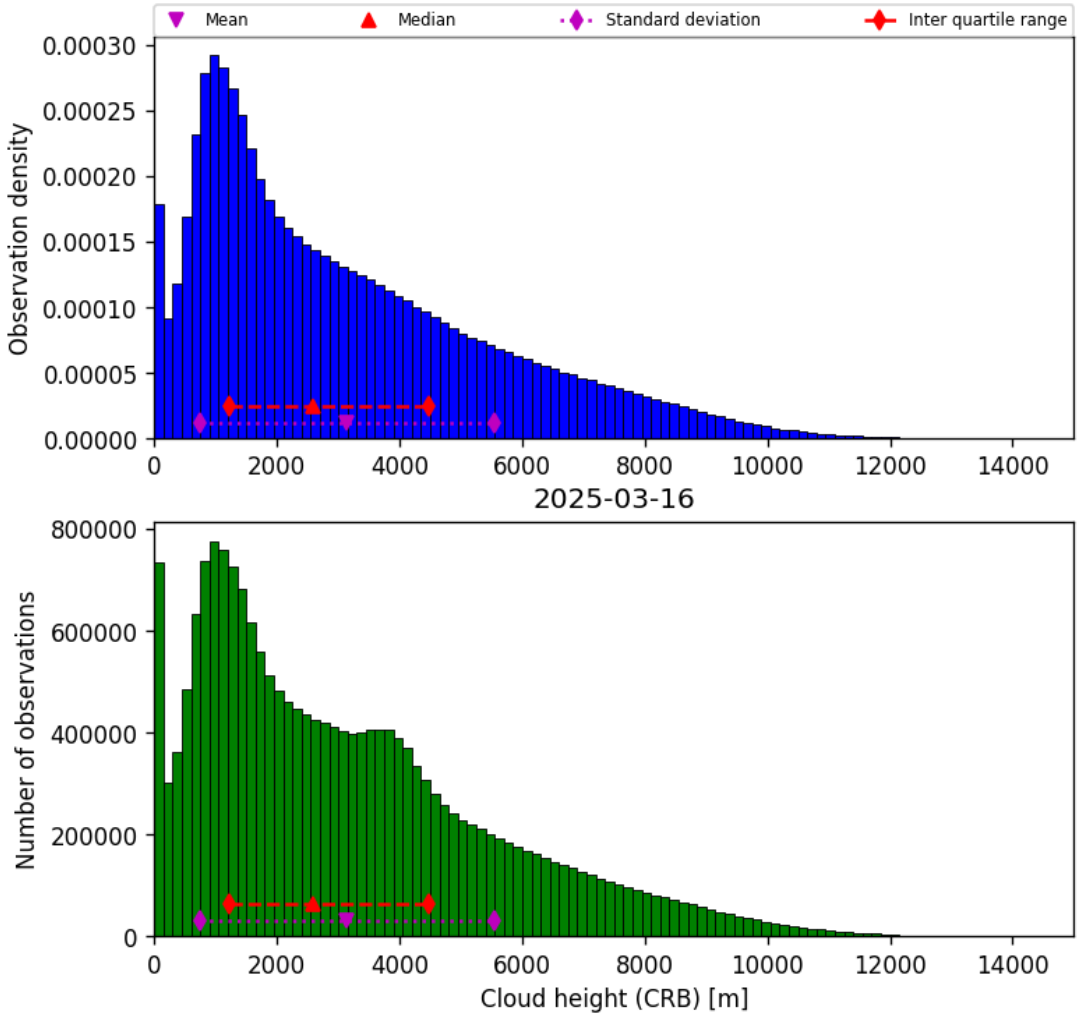

Figure 41: Histogram of “Cloud height (CRB)” for 2025-03-16 to 2025-03-17

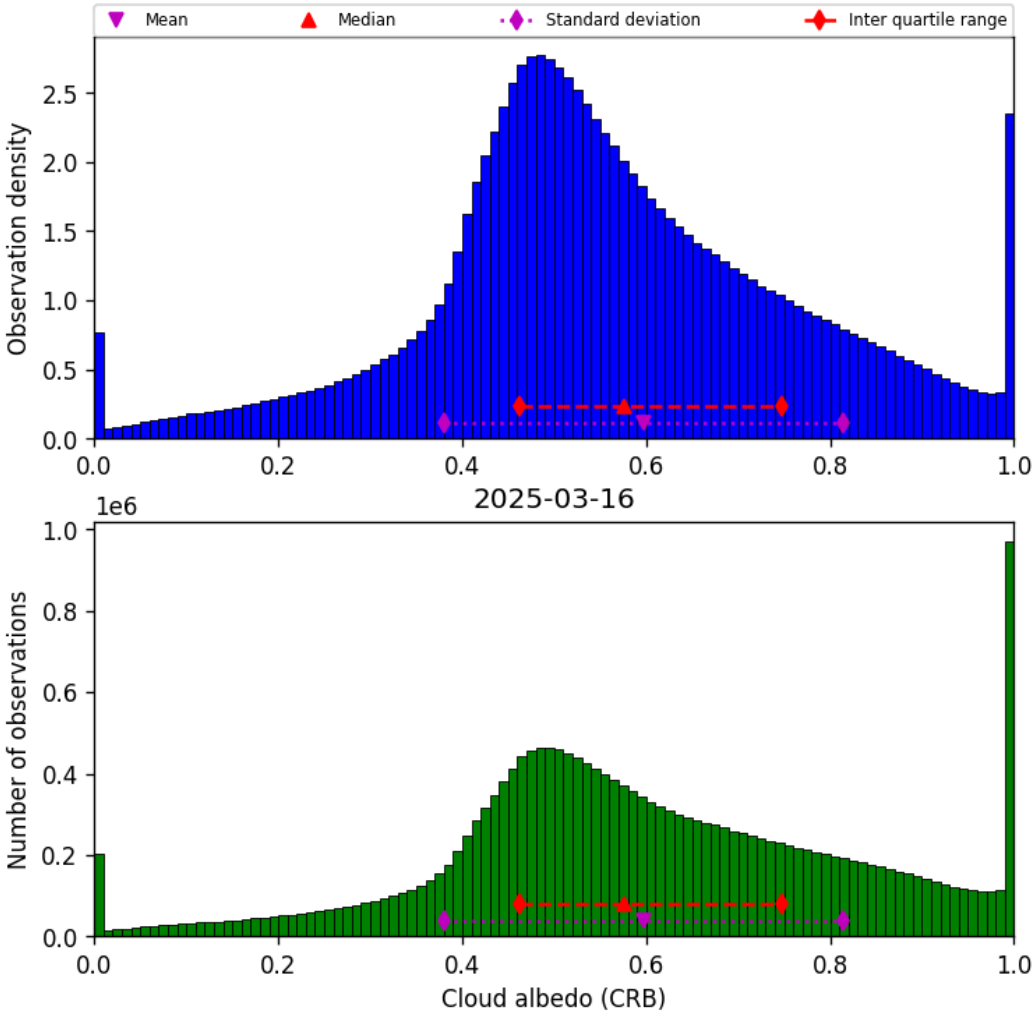

Figure 42: Histogram of “Cloud albedo (CRB)” for 2025-03-16 to 2025-03-17

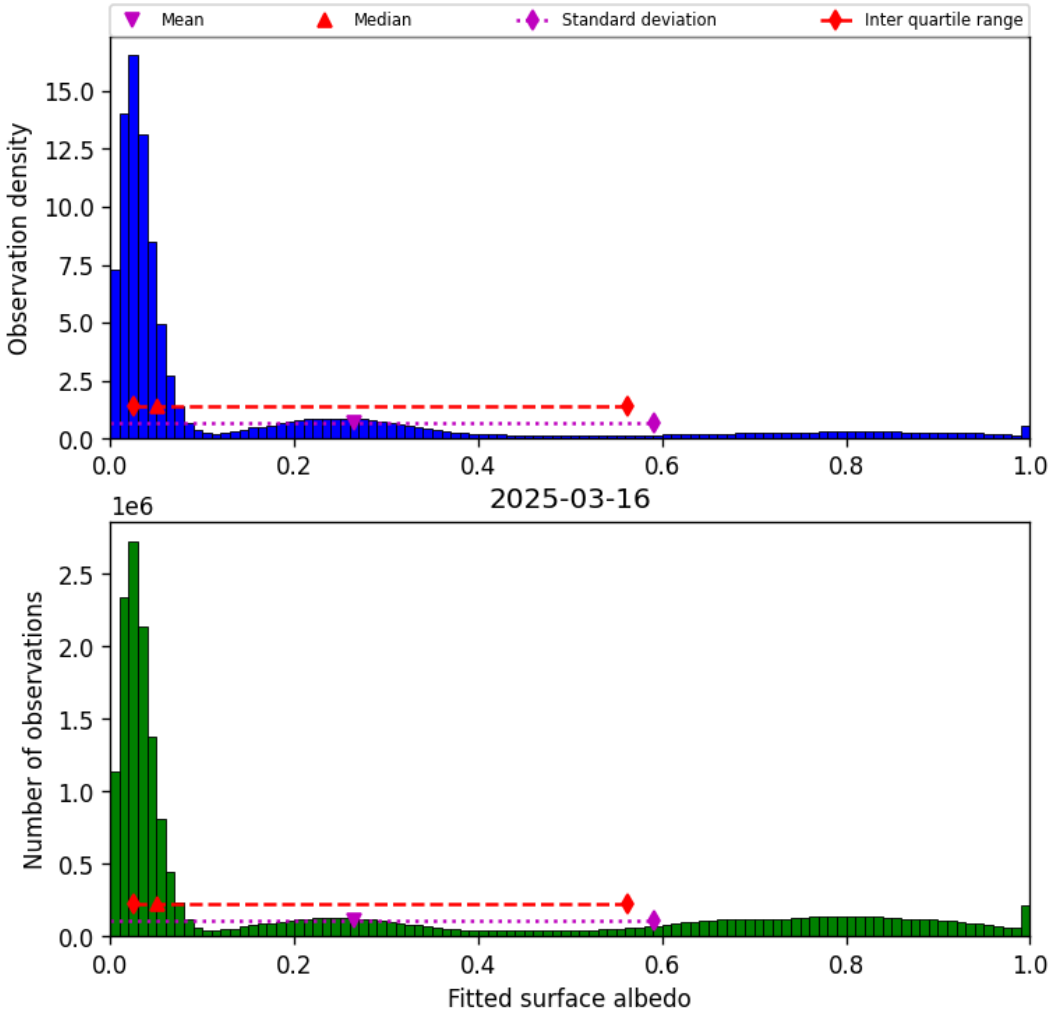

Figure 43: Histogram of “Fitted surface albedo” for 2025-03-16 to 2025-03-17

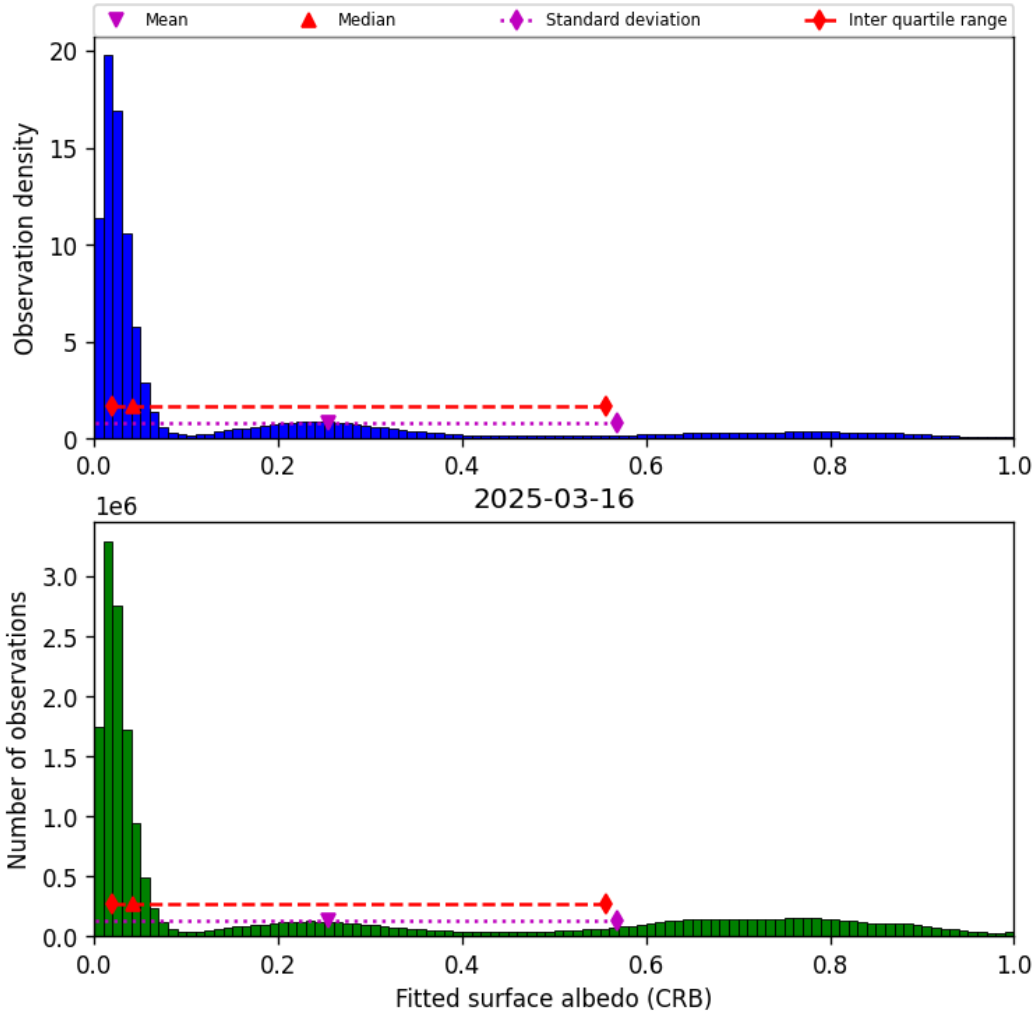

Figure 44: Histogram of “Fitted surface albedo (CRB)” for 2025-03-16 to 2025-03-17

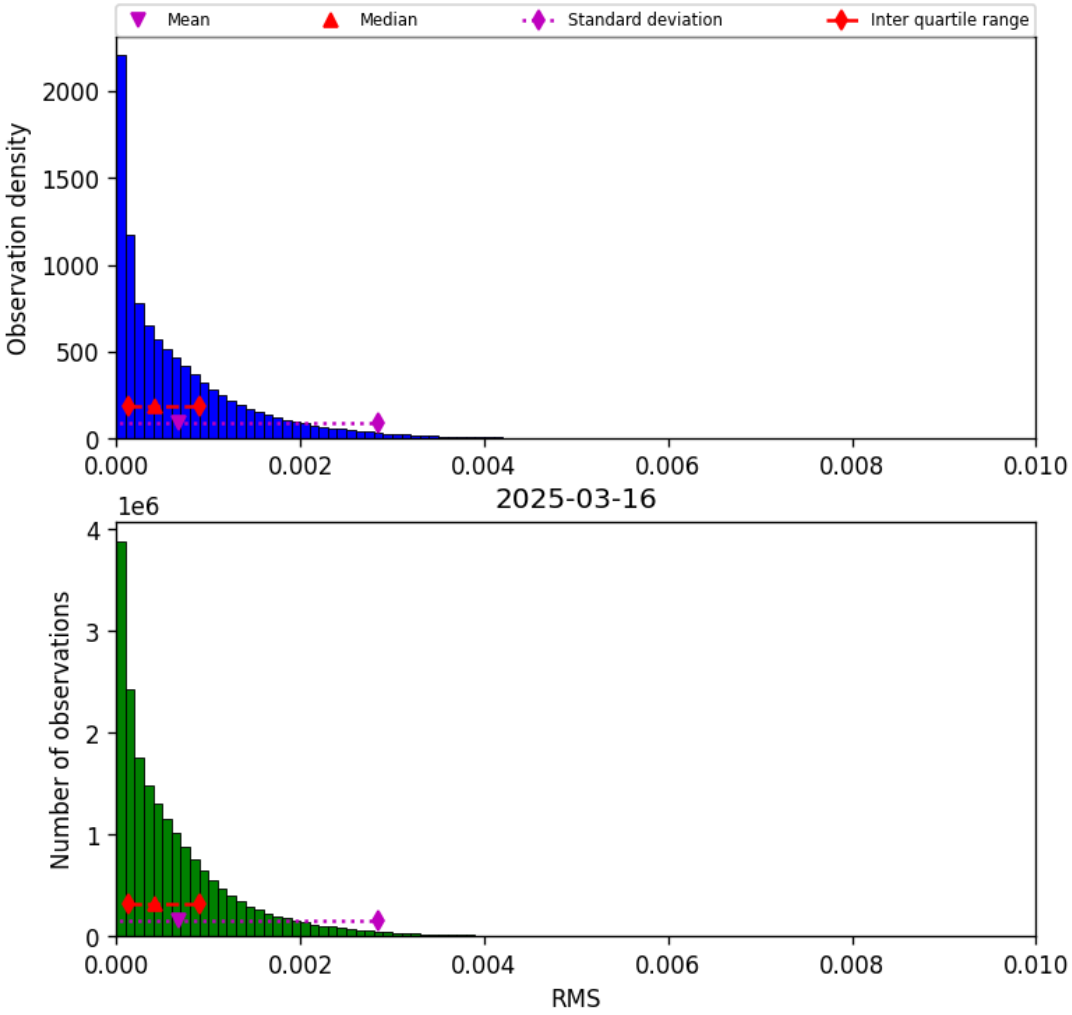

Figure 45: Histogram of “RMS” for 2025-03-16 to 2025-03-17

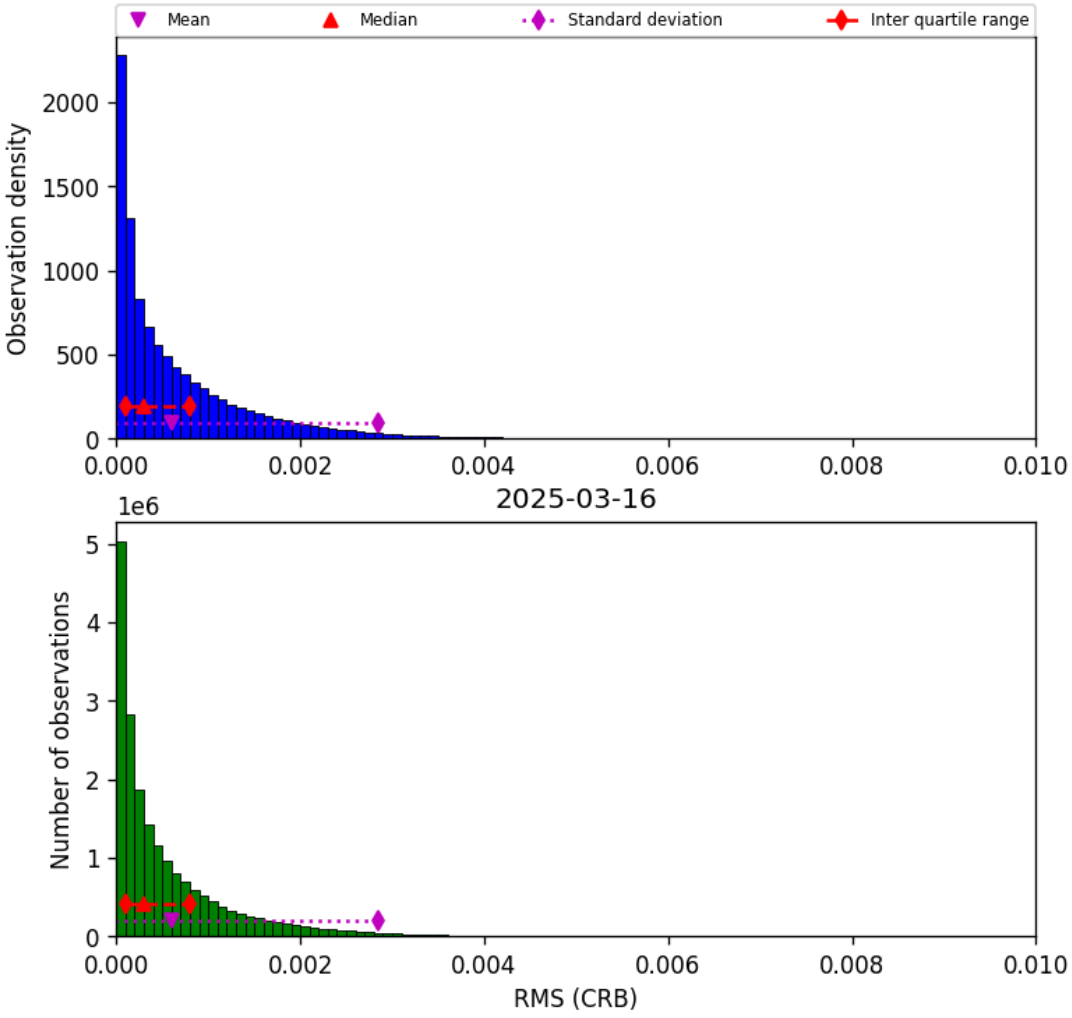

Figure 46: Histogram of “RMS (CRB)” for 2025-03-16 to 2025-03-17

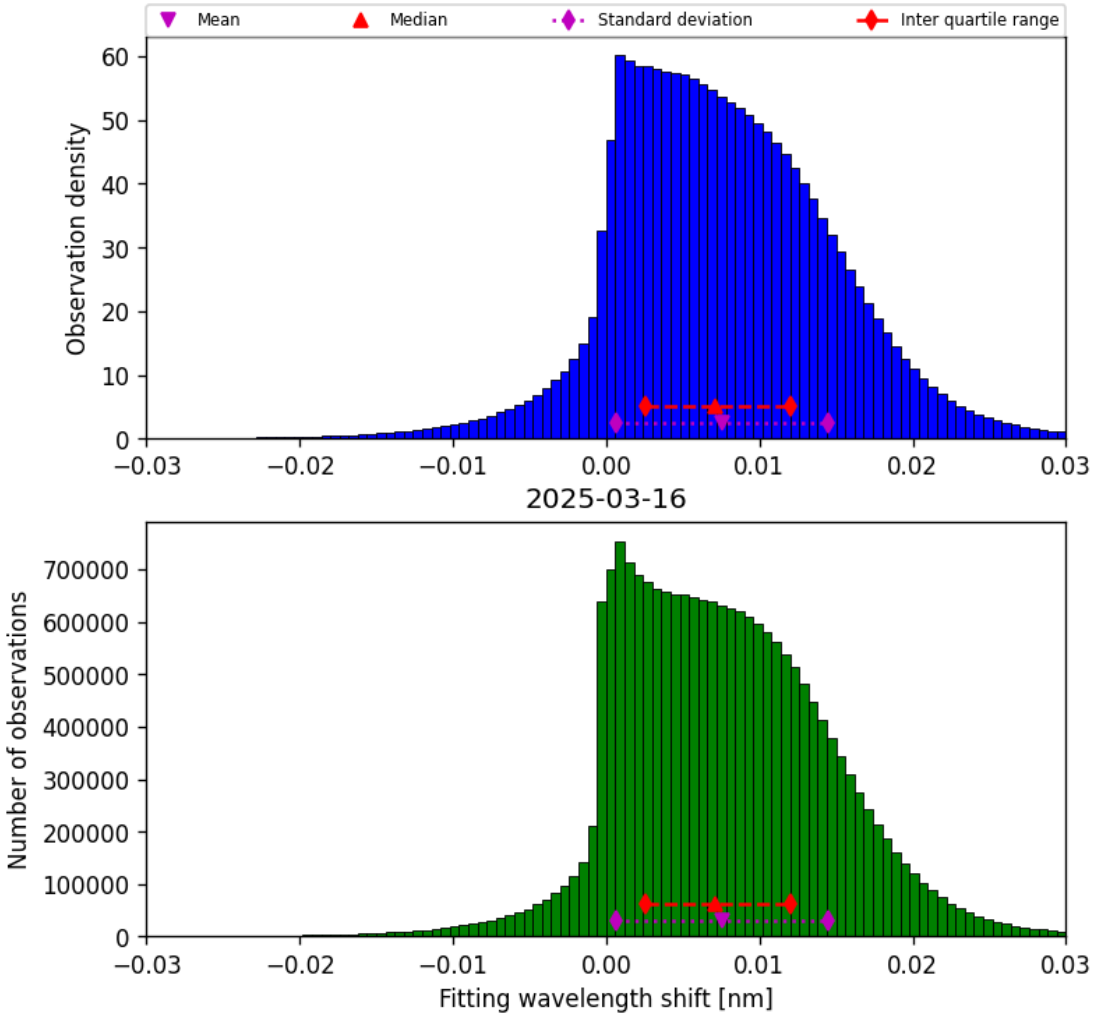

Figure 47: Histogram of “Fitting wavelength shift” for 2025-03-16 to 2025-03-17

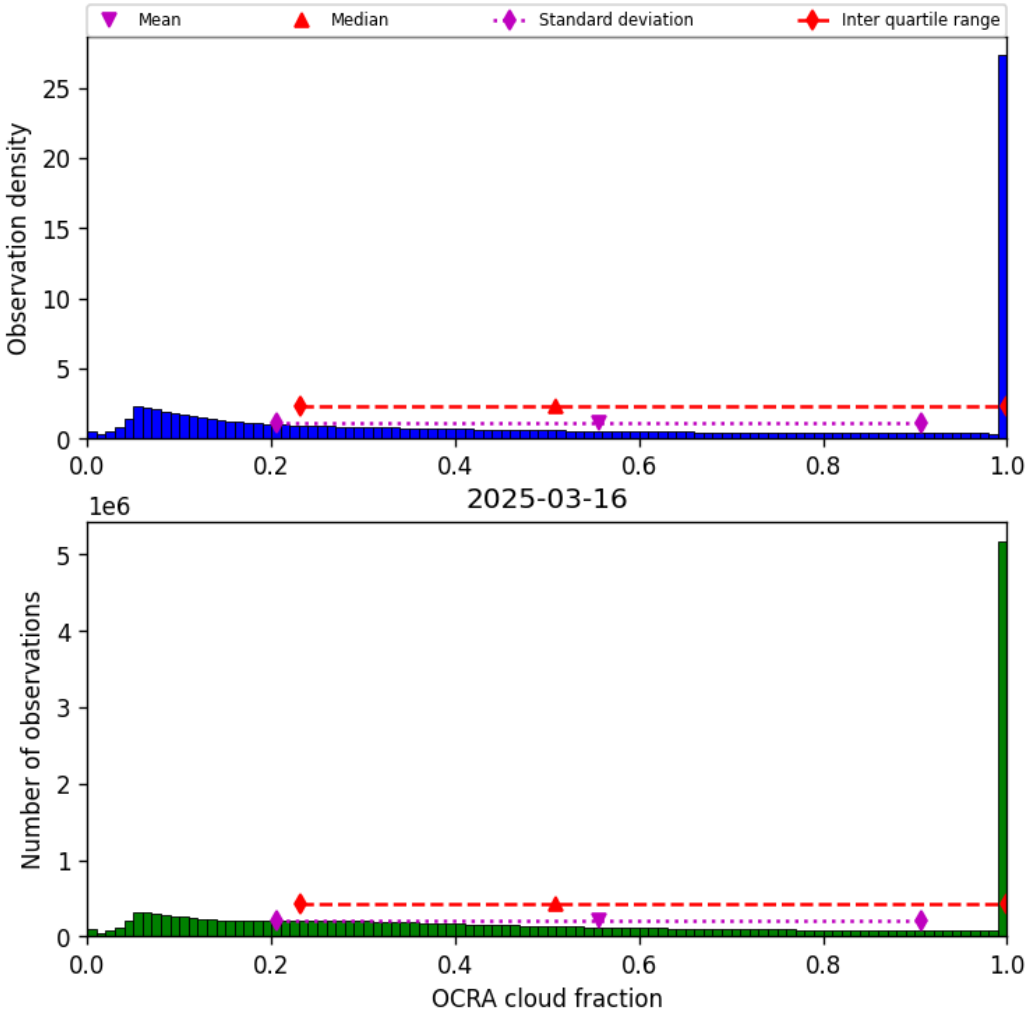

Figure 48: Histogram of “OCRA cloud fraction” for 2025-03-16 to 2025-03-17

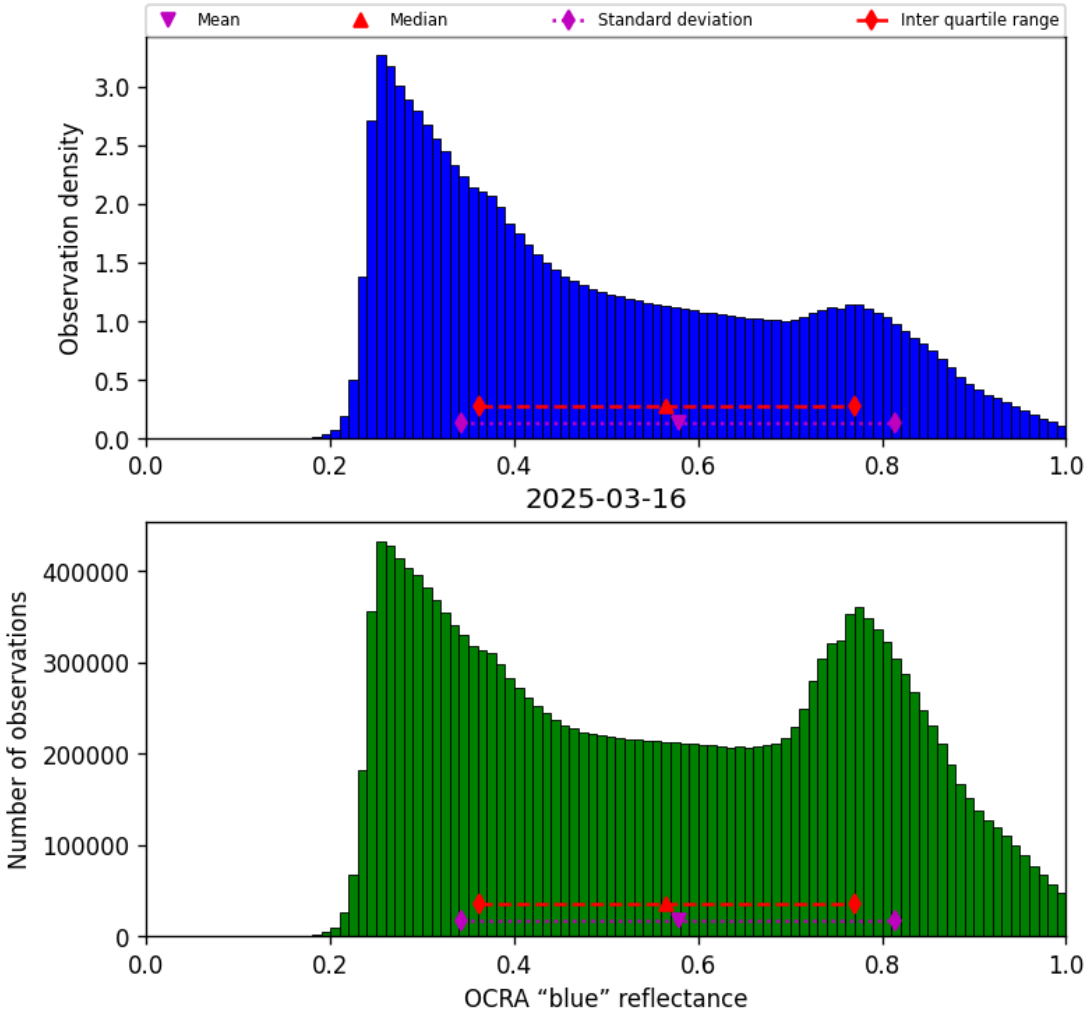

Figure 49: Histogram of “OCRA “blue” reflectance” for 2025-03-16 to 2025-03-17

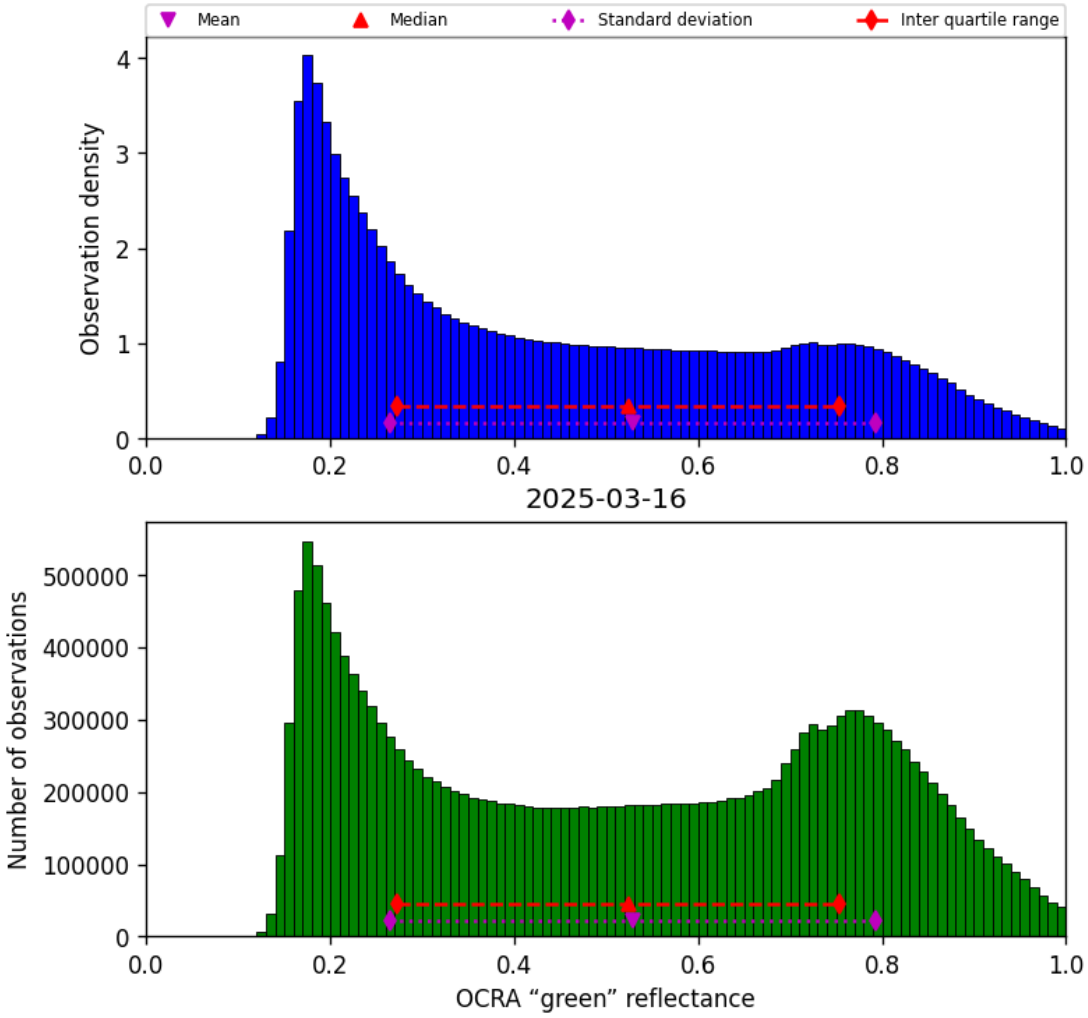

Figure 50: Histogram of “OCRA “green” reflectance” for 2025-03-16 to 2025-03-17

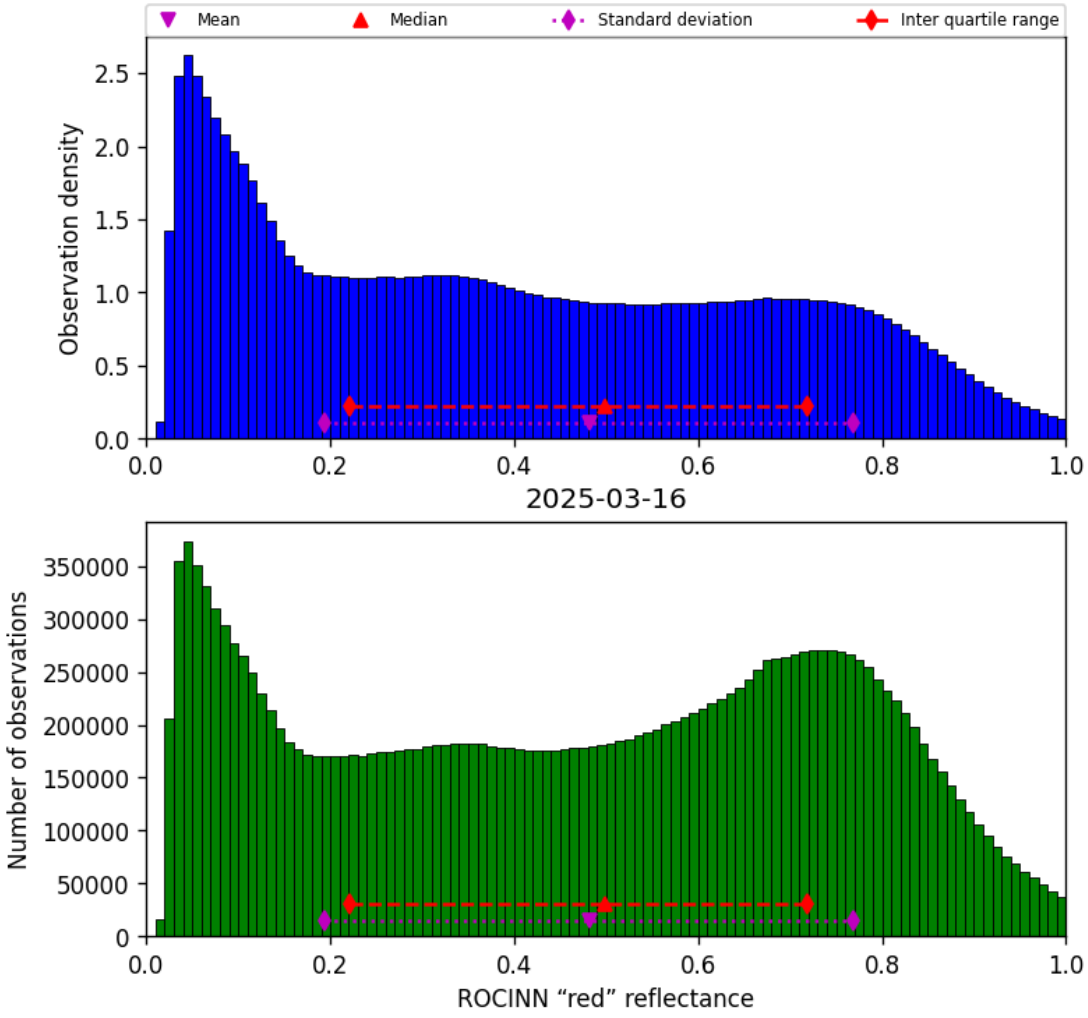

Figure 51: Histogram of “ROCINN “red” reflectance” for 2025-03-16 to 2025-03-17

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.

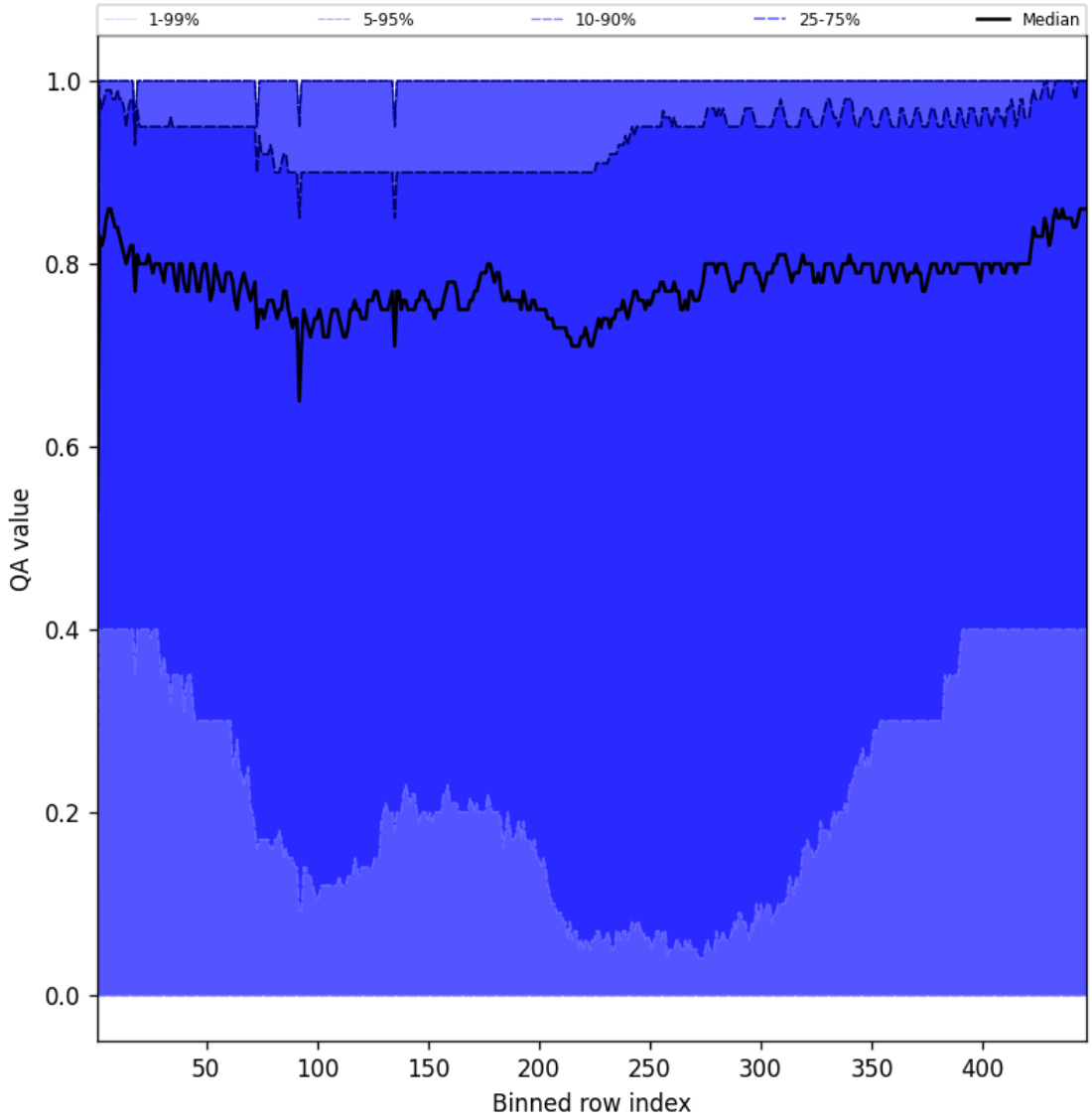

Figure 52: Along track statistics of “QA value” for 2025-03-16 to 2025-03-17

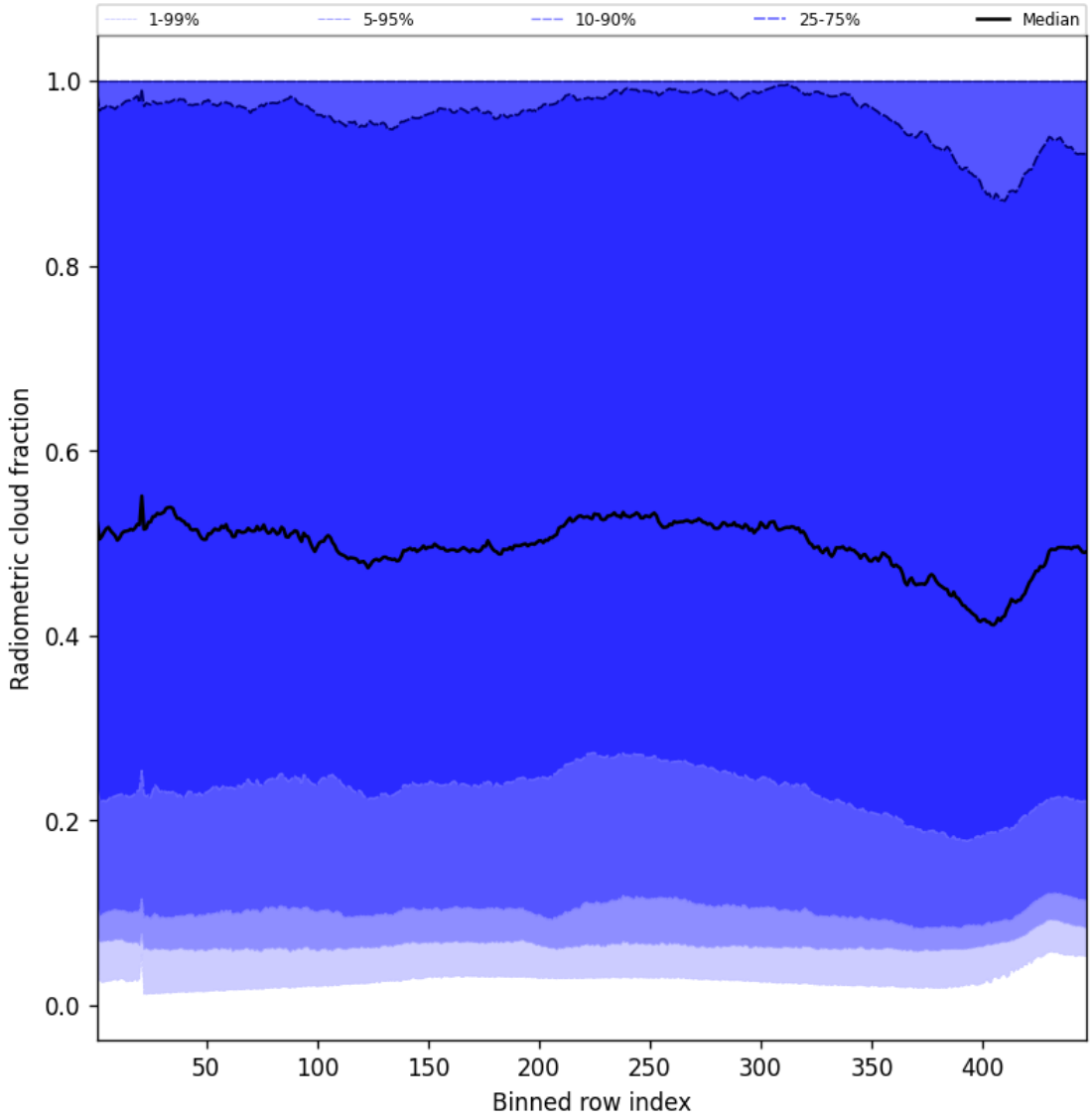

Figure 53: Along track statistics of “Radiometric cloud fraction” for 2025-03-16 to 2025-03-17

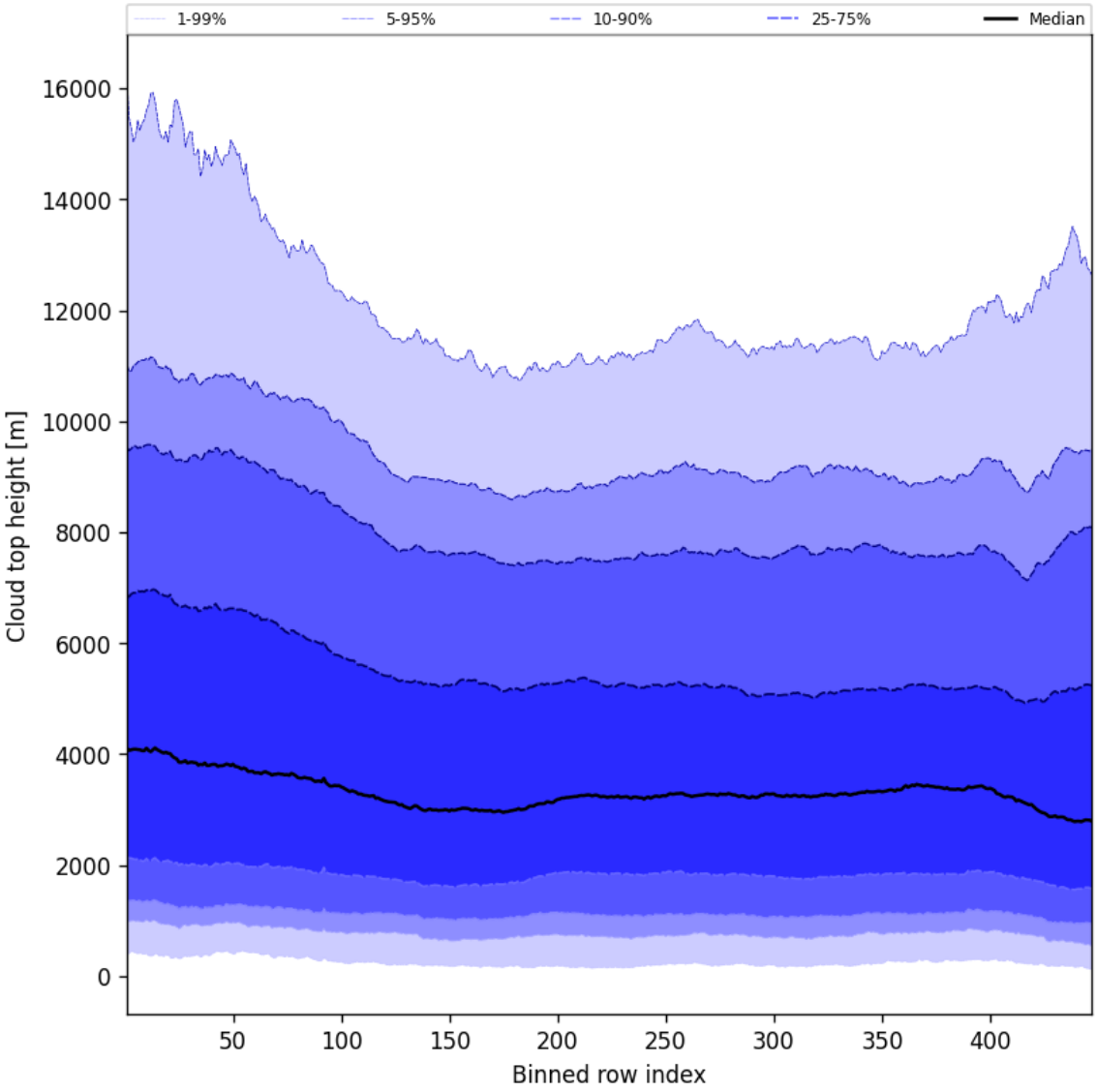

Figure 54: Along track statistics of “Cloud top height” for 2025-03-16 to 2025-03-17

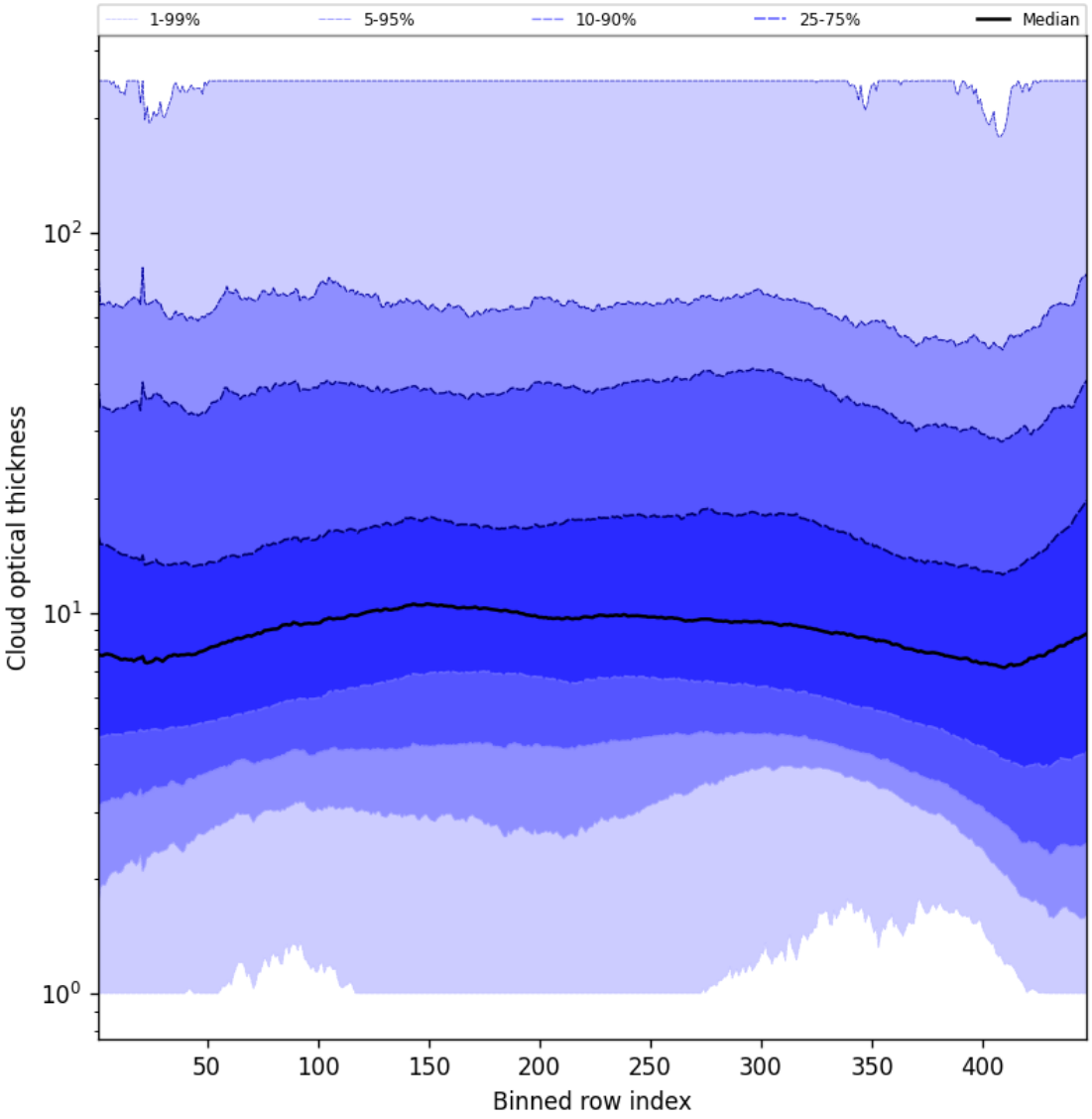

Figure 55: Along track statistics of “Cloud optical thickness” for 2025-03-16 to 2025-03-17

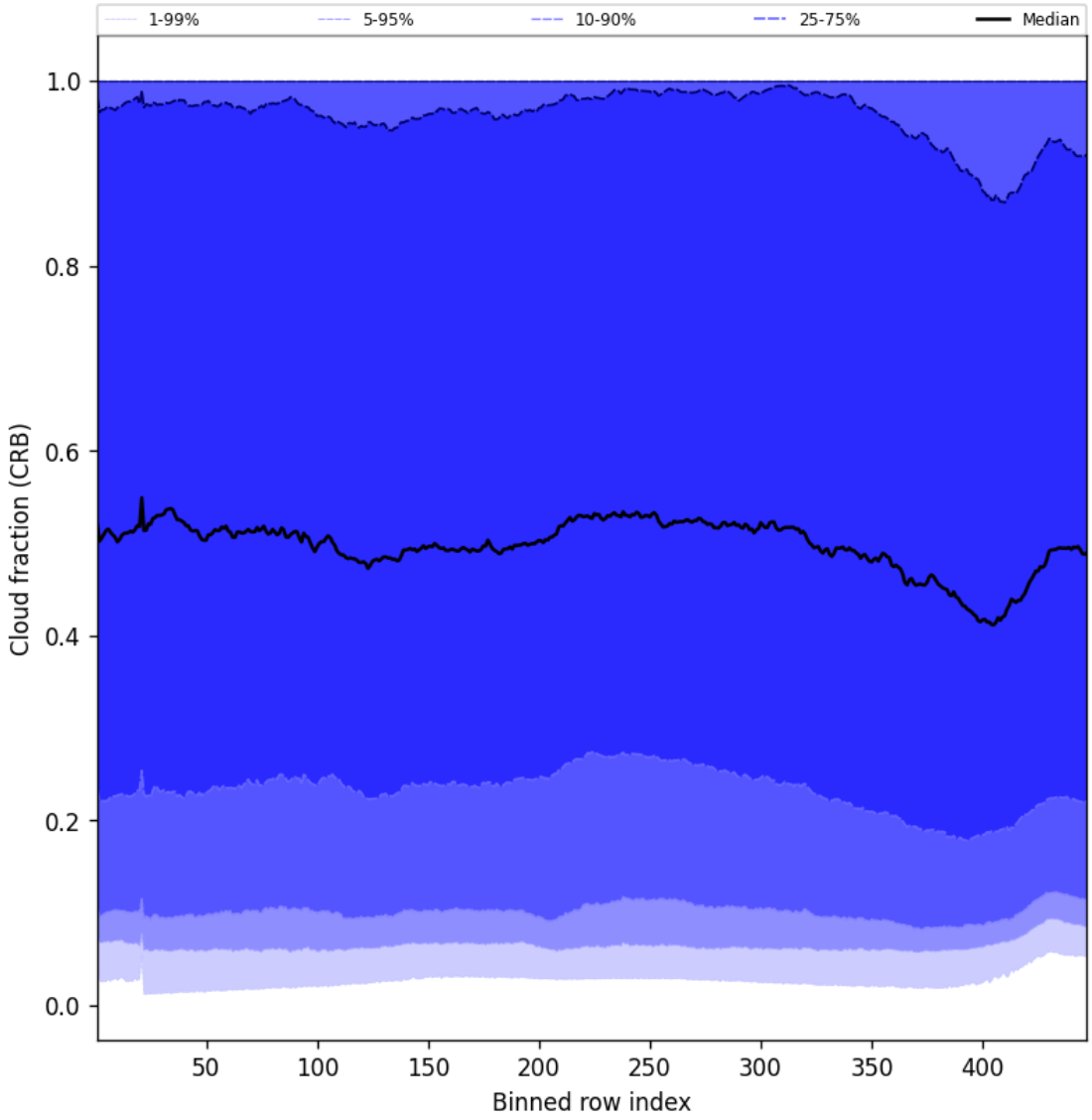

Figure 56: Along track statistics of “Cloud fraction (CRB)” for 2025-03-16 to 2025-03-17

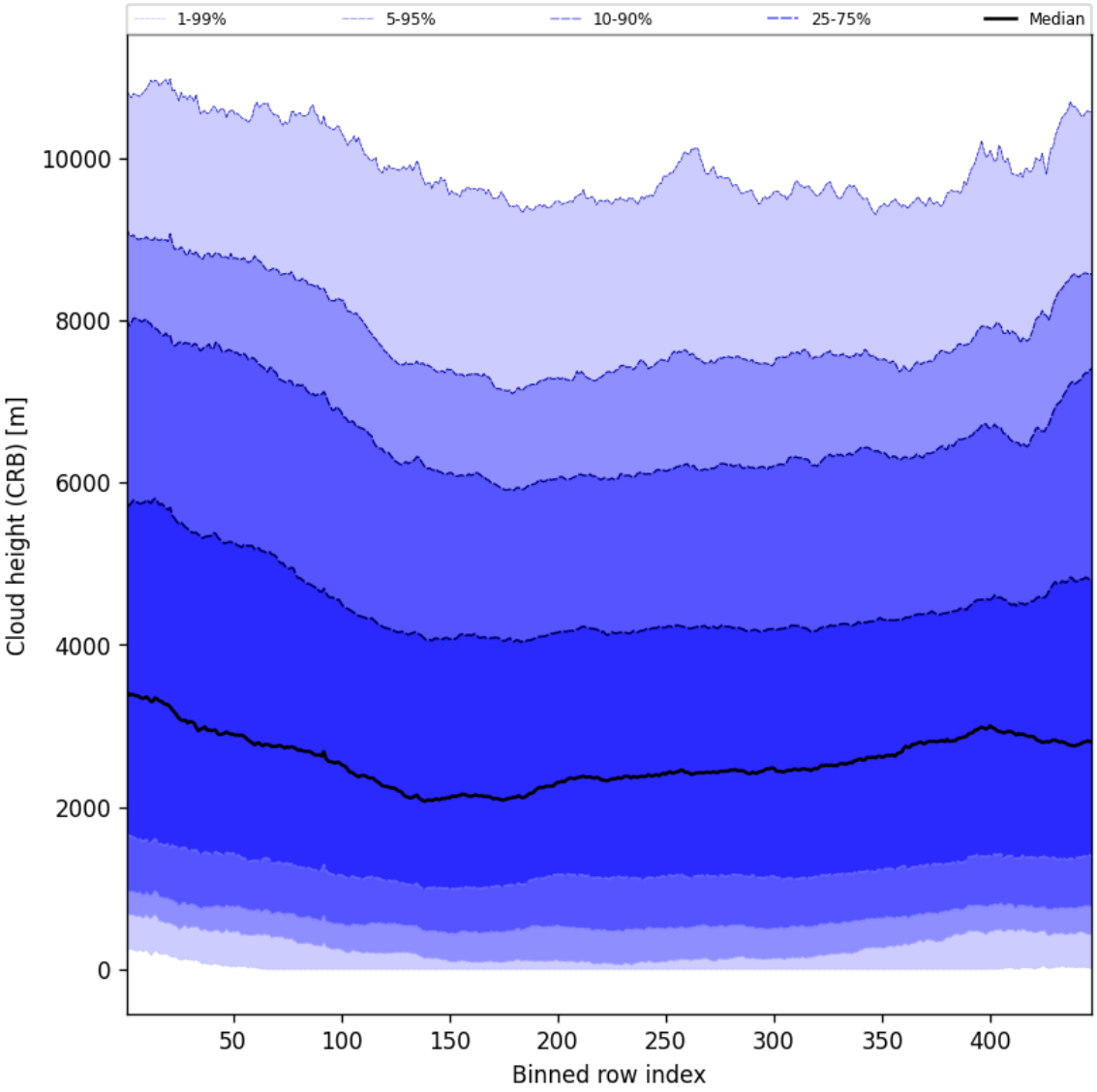

Figure 57: Along track statistics of “Cloud height (CRB)” for 2025-03-16 to 2025-03-17

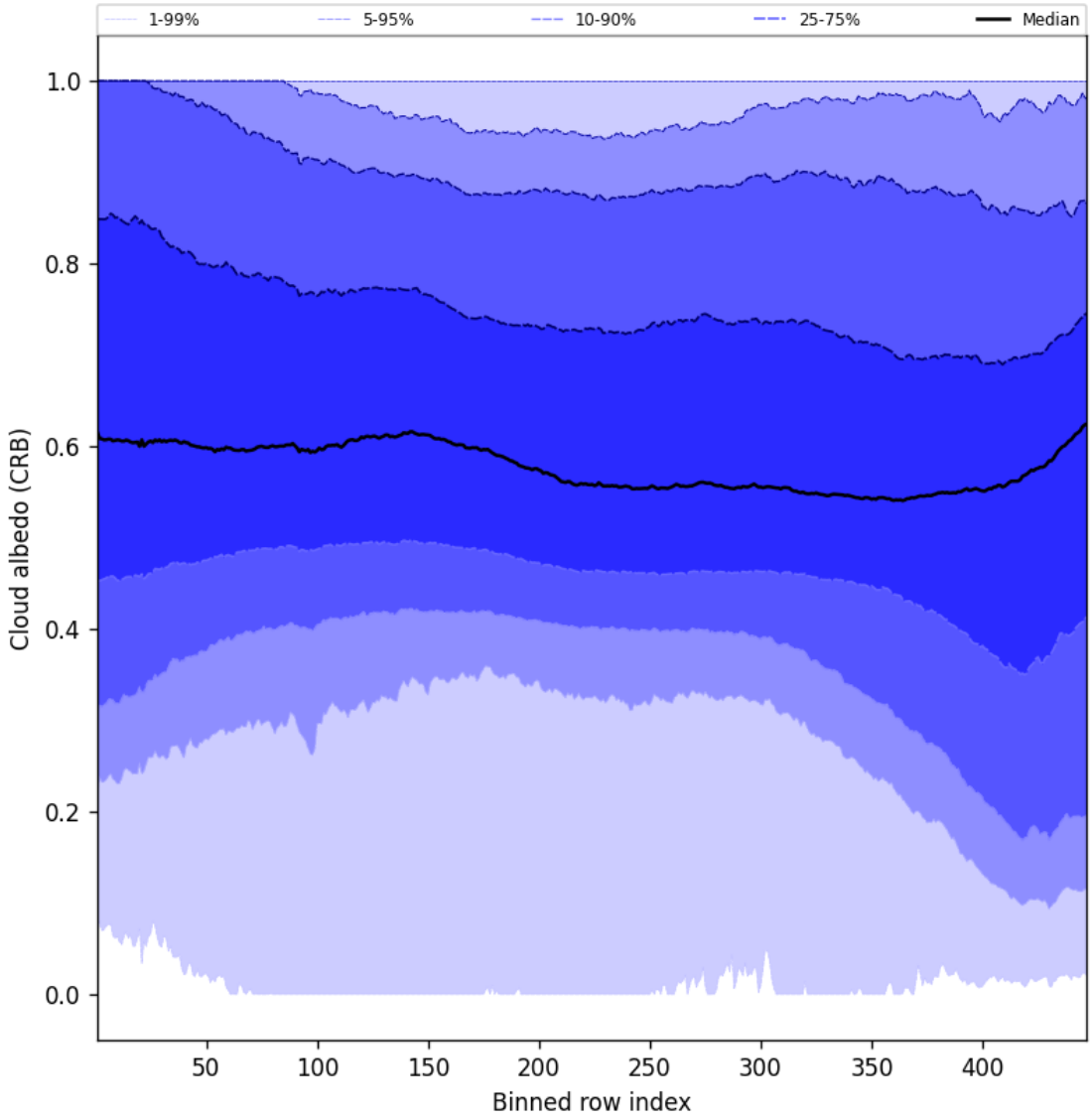

Figure 58: Along track statistics of “Cloud albedo (CRB)” for 2025-03-16 to 2025-03-17

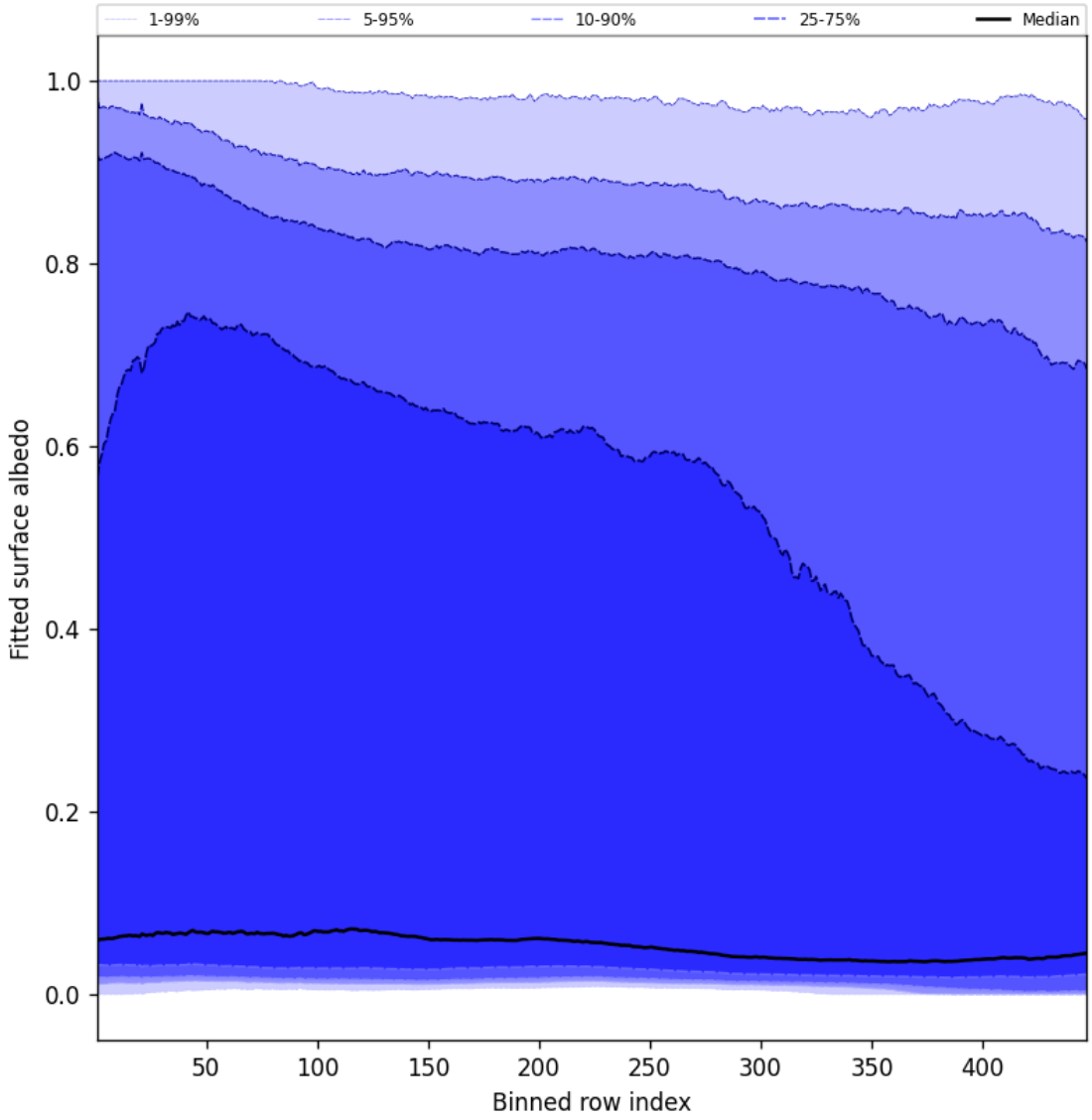

Figure 59: Along track statistics of “Fitted surface albedo” for 2025-03-16 to 2025-03-17

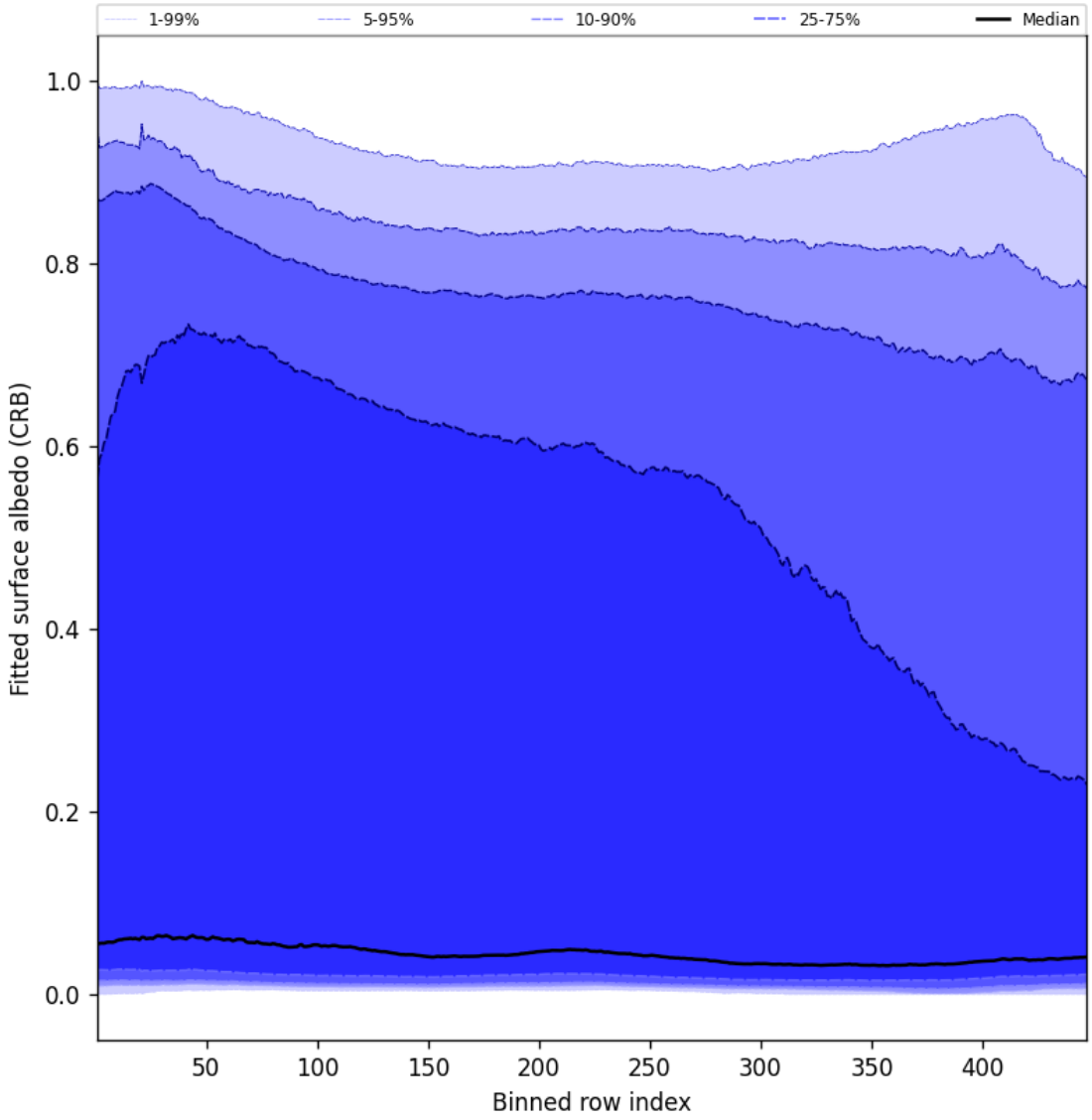

Figure 60: Along track statistics of “Fitted surface albedo (CRB)” for 2025-03-16 to 2025-03-17

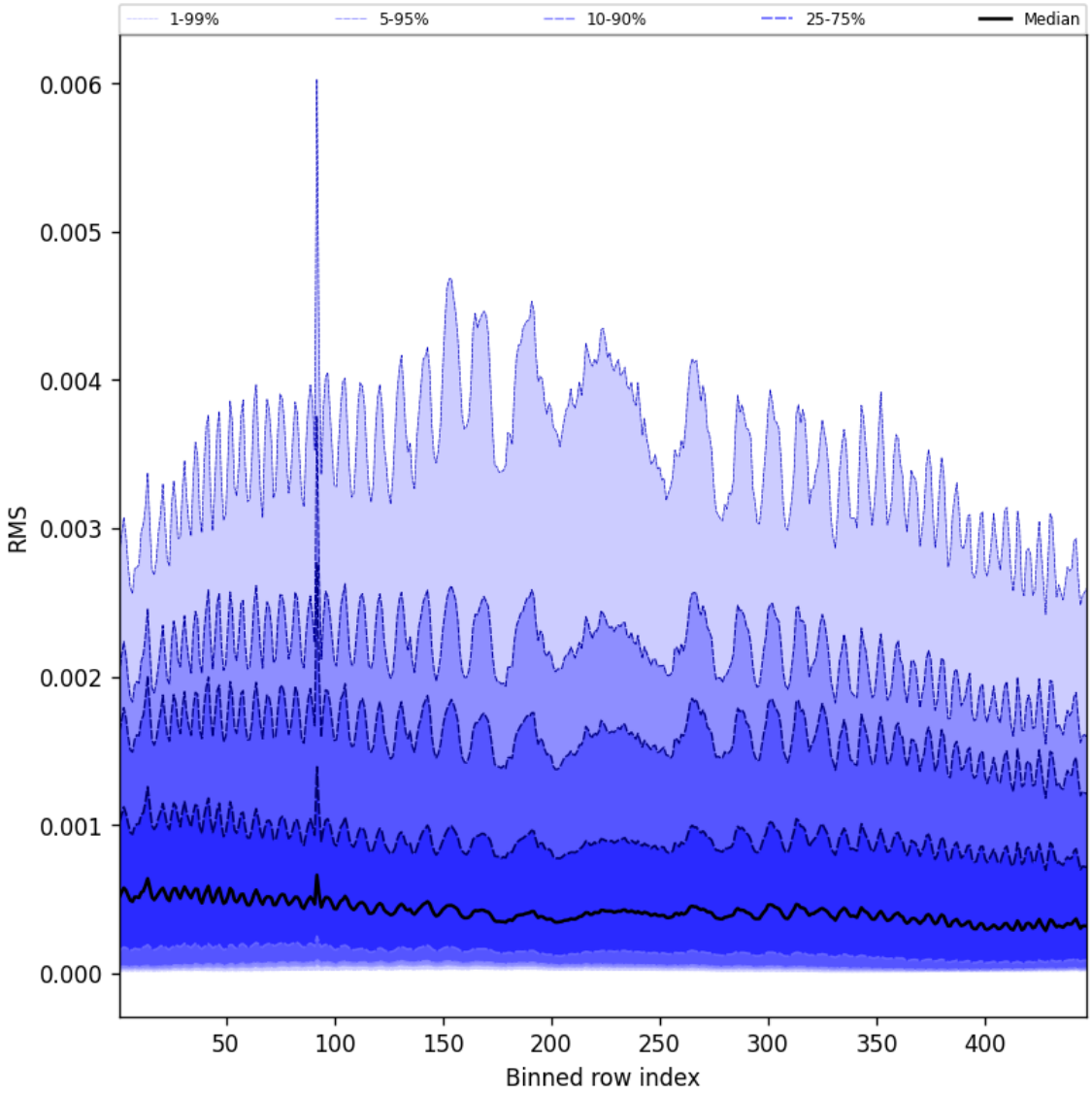

Figure 61: Along track statistics of “RMS” for 2025-03-16 to 2025-03-17

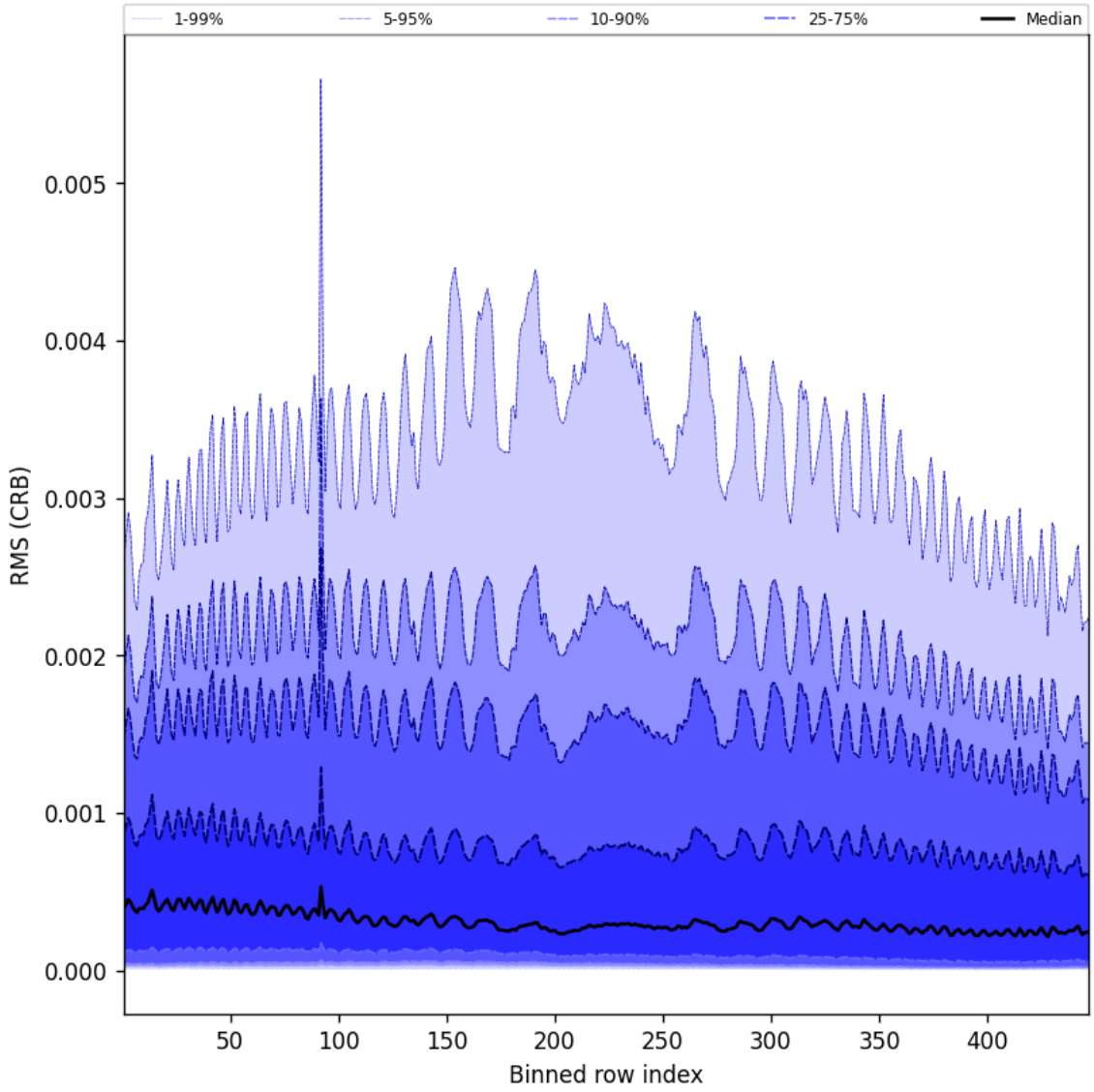

Figure 62: Along track statistics of “RMS (CRB)” for 2025-03-16 to 2025-03-17

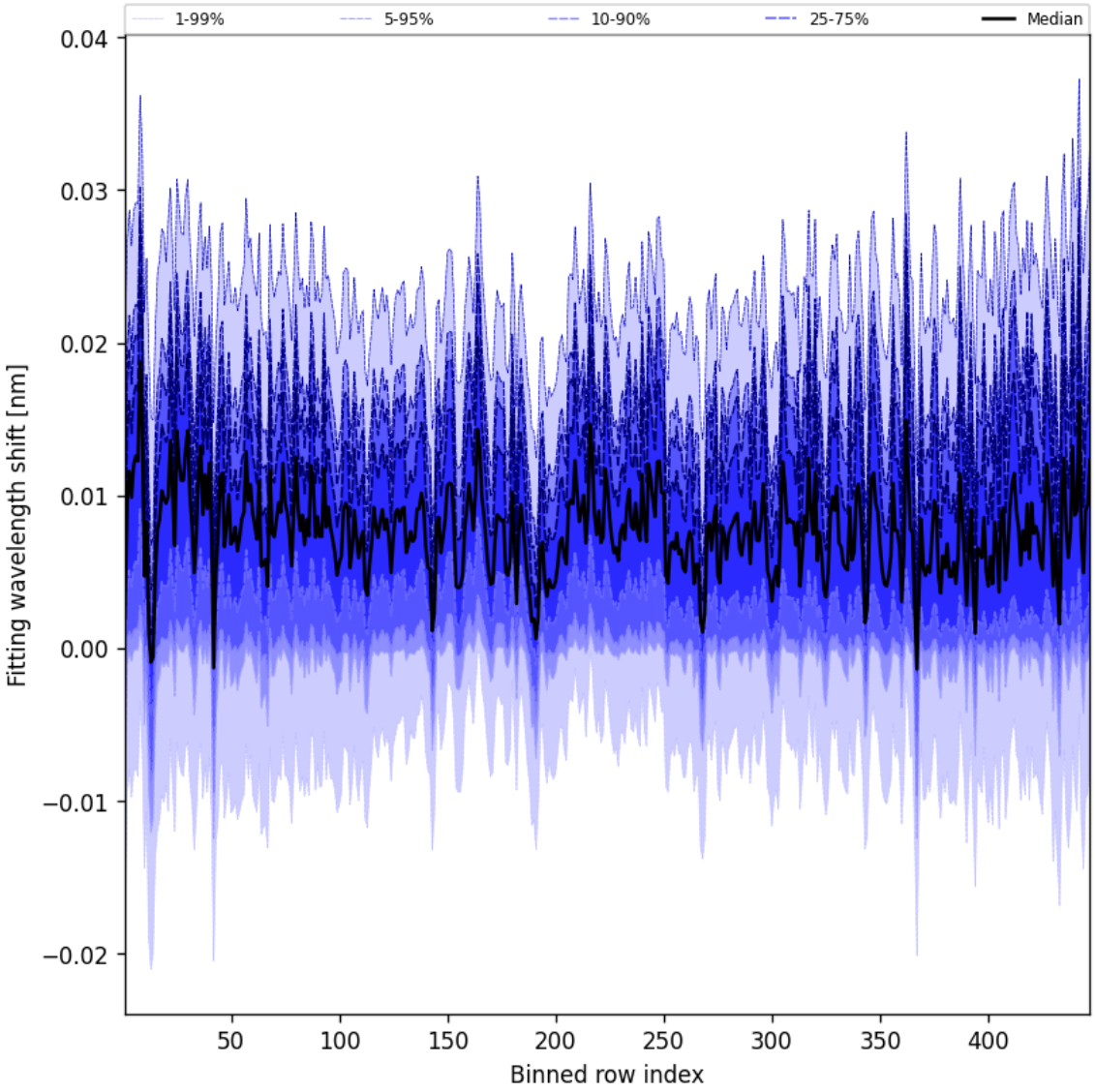

Figure 63: Along track statistics of “Fitting wavelength shift” for 2025-03-16 to 2025-03-17

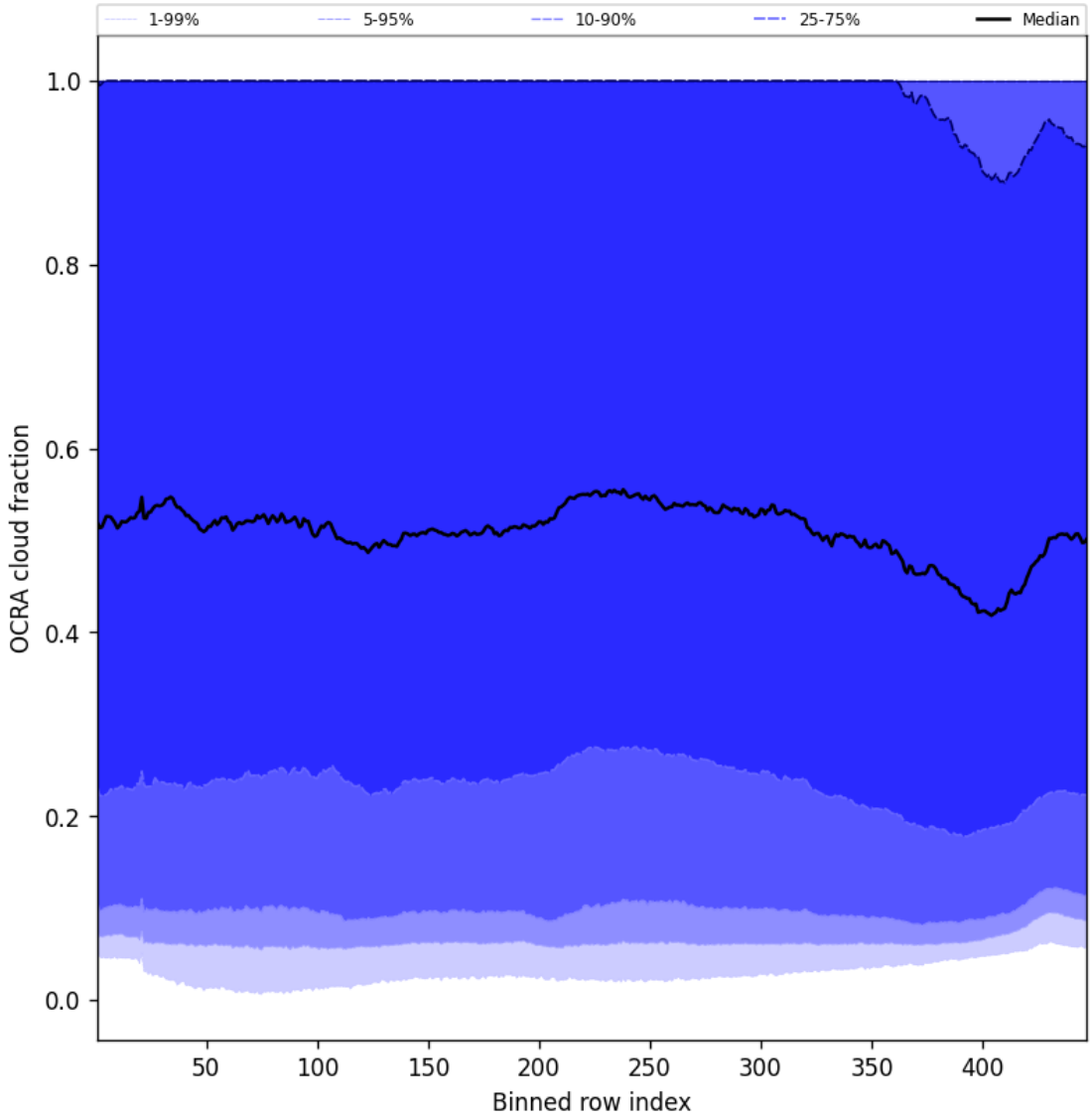

Figure 64: Along track statistics of “OCRA cloud fraction” for 2025-03-16 to 2025-03-17

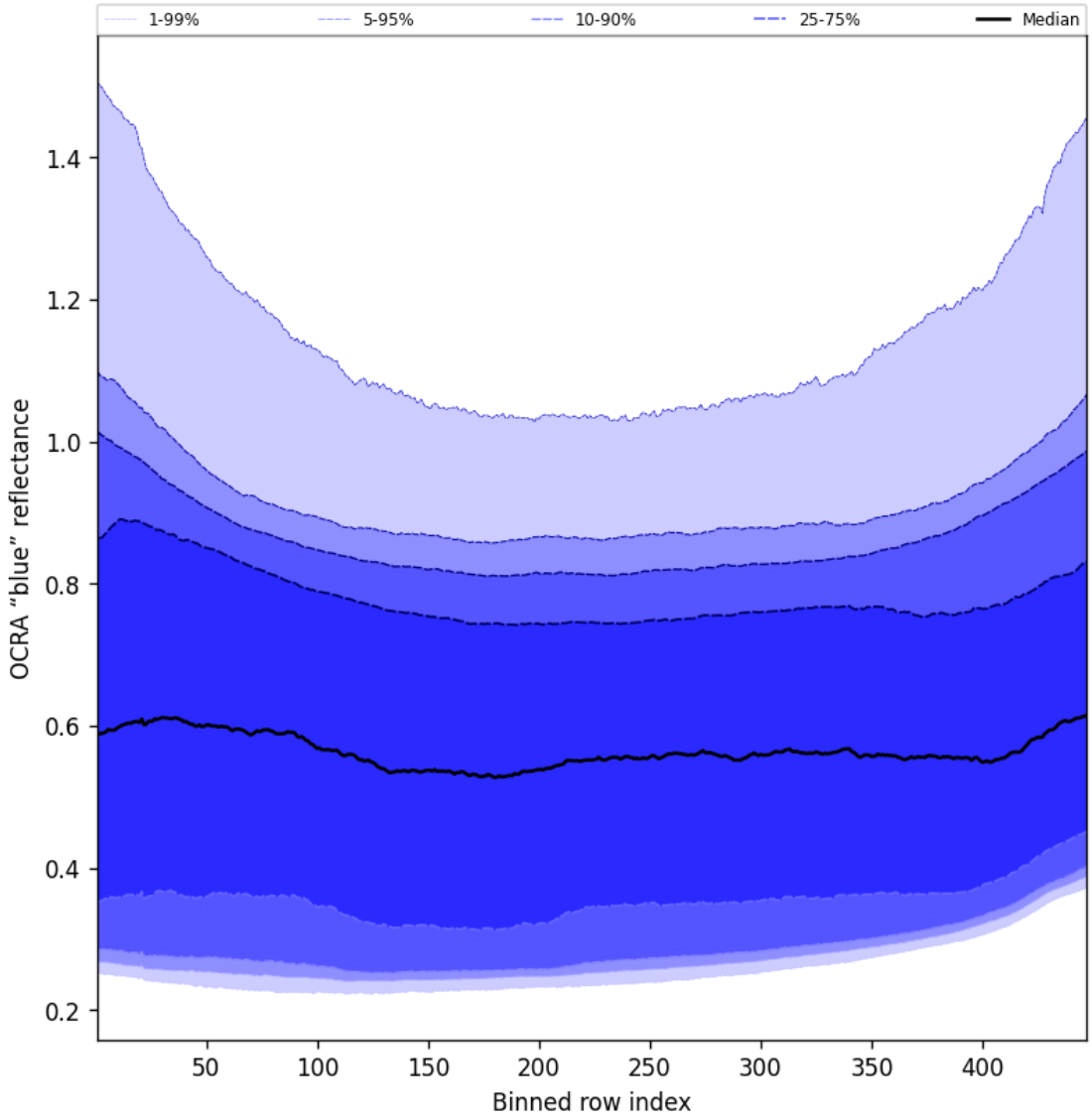

Figure 65: Along track statistics of “OCRA “blue” reflectance” for 2025-03-16 to 2025-03-17

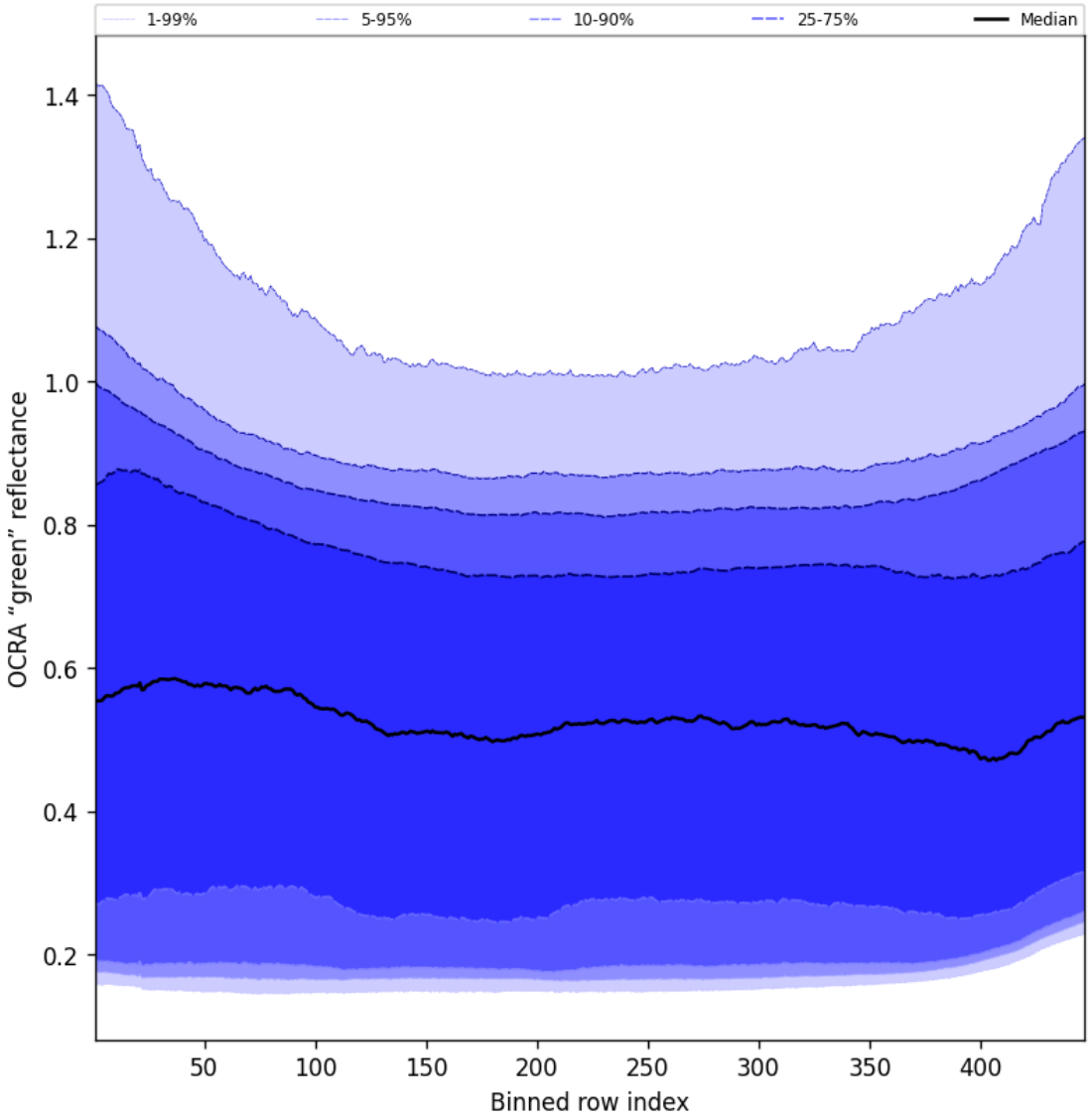

Figure 66: Along track statistics of "OCRA "green" reflectance" for 2025-03-16 to 2025-03-17

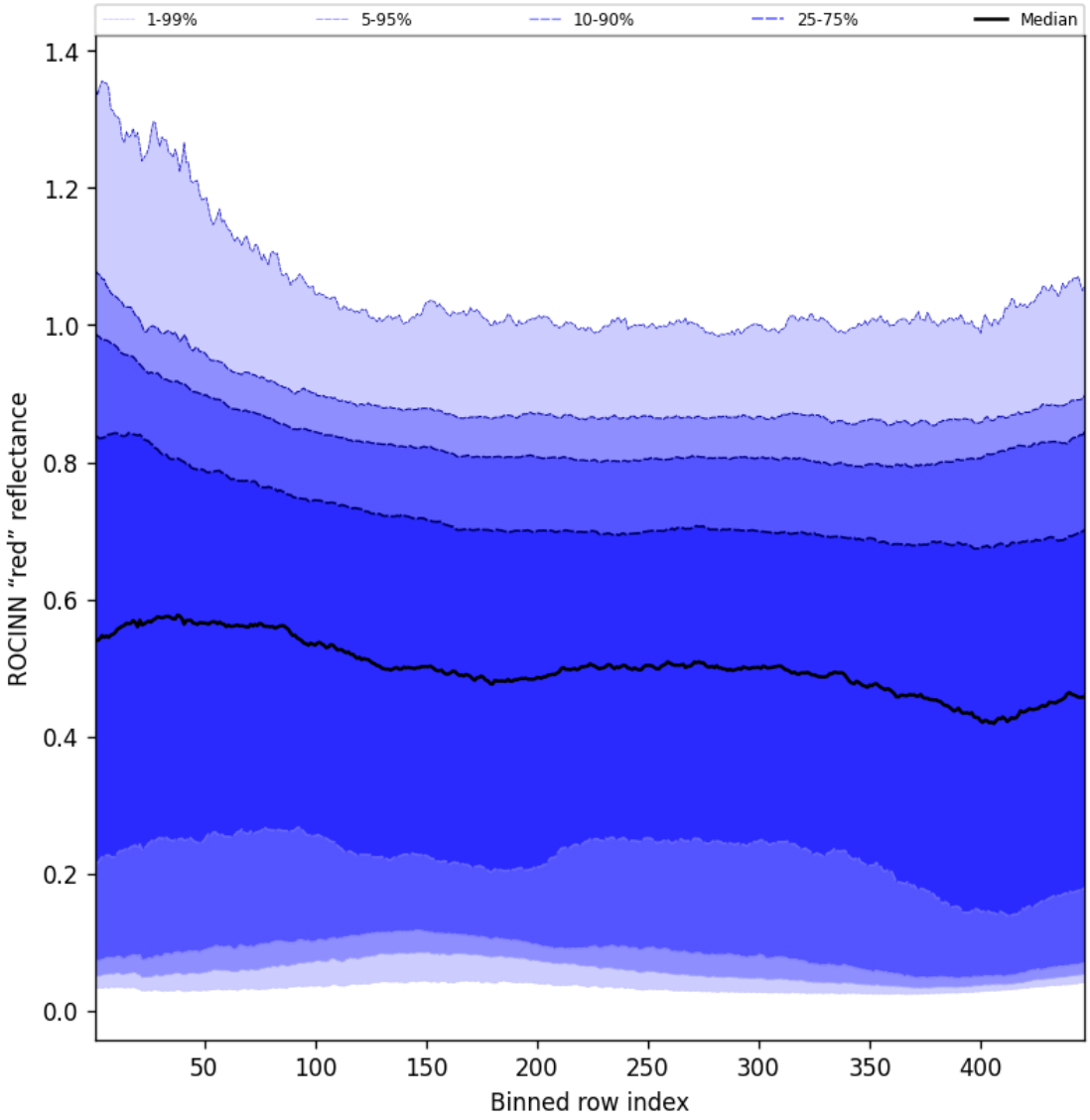

Figure 67: Along track statistics of “ROCINN “red” reflectance” for 2025-03-16 to 2025-03-17

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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