PyCAMA report generated by tropl2-proc

tropl2-proc

2025-01-31 (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]	0.603 ± 0.376	19302688	5.000×10^{-3}	0.600	0.700	0.0	1.000
cloud fraction [1]	0.553 ± 0.340	19302688	0.995	0.704	0.518	2.930×10^{-3}	1.000
cloud top height [m]	$(0.401 \pm 0.256) \times 10^4$	19302688	1.575×10^3	3.603×10^3	3.579×10^3	0.0	2.000×10^4
cloud optical thickness [1]	18.1 ± 34.3	19302688	9.34	9.21	8.83	1.000	250
cloud fraction crb [1]	0.553 ± 0.340	19302688	0.995	0.703	0.517	7.576×10^{-3}	1.000
cloud height crb [m]	$(0.308 \pm 0.221) \times 10^4$	19302688	825	3.069×10^3	2.694×10^3	0.0	2.000×10^4
cloud albedo crb [1]	0.600 ± 0.218	19302688	0.995	0.295	0.582	0.0	1.000
surface albedo fitted [1]	0.291 ± 0.345	19302688	2.500×10^{-2}	0.547	5.916×10^{-2}	0.0	1.000
surface albedo fitted crb [1]	0.279 ± 0.334	19302688	1.500×10^{-2}	0.538	4.872×10^{-2}	0.0	1.000
fitted root mean square [1]	$(7.066 \pm 8.464) \times 10^{-4}$	19302688	5.000×10^{-5}	8.560×10^{-4}	4.262×10^{-4}	7.778×10^{-7}	0.169
fitted root mean square crb [1]	$(6.190 \pm 7.450) \times 10^{-4}$	19302688	5.000×10^{-5}	7.915×10^{-4}	3.184×10^{-4}	8.900×10^{-7}	6.332×10^{-2}
wavelength shift [nm]	$(8.023 \pm 6.881) \times 10^{-3}$	19302688	9.000×10^{-4}	9.899×10^{-3}	7.592×10^{-3}	-4.624×10^{-2}	6.788×10^{-2}
cloud fraction apriori [1]	0.560 ± 0.344	19302688	0.995	0.742	0.533	0.0	1.000
reflectance blue ocra [1]	0.590 ± 0.236	19302688	0.265	0.416	0.580	0.137	1.98
reflectance green ocra [1]	0.542 ± 0.265	19302688	0.175	0.485	0.541	8.428×10^{-2}	1.97
reflectance continuum aband [1]	0.493 ± 0.288	19302688	4.500×10^{-2}	0.492	0.504	1.265×10^{-2}	6.84

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	0.900	1.000	1.000	1.000	1.000
cloud fraction [1]	2.720×10^{-2}	6.926×10^{-2}	0.106	0.154	0.240	0.944	1.000	1.000	1.000	1.000
cloud top height [m]	332	843	1.195×10^{3}	1.480×10^{3}	1.925×10^{3}	5.528×10^{3}	6.523×10^{3}	7.537×10^{3}	8.896×10^{3}	1.137×10^{4}
cloud optical thickness [1]	1.01	2.63	3.76	4.59	5.42	14.6	22.1	33.3	60.5	250
cloud fraction crb [1]	2.676×10^{-2}	6.843×10^{-2}	0.105	0.153	0.240	0.943	1.000	1.000	1.000	1.000
cloud height crb [m]	36.5	379	663	903	1.291×10^{3}	4.360×10^{3}	5.273×10^{3}	6.192×10^{3}	7.447×10^{3}	9.476×10^{3}
cloud albedo crb [1]	2.362×10^{-3}	0.224	0.347	0.416	0.464	0.760	0.844	0.903	0.974	1.000
surface albedo fitted [1]	0.0	8.740×10^{-3}	1.381×10^{-2}	1.849×10^{-2}	2.559×10^{-2}	0.572	0.800	0.905	0.956	1.000
surface albedo fitted crb [1]	0.0	6.541×10^{-3}	1.008×10^{-2}	1.376×10^{-2}	1.962×10^{-2}	0.557	0.787	0.866	0.904	0.950
fitted root mean square [1]	1.580×10^{-5}	3.108×10^{-5}	5.036×10^{-5}	7.941×10^{-5}	1.398×10^{-4}	9.958×10^{-4}	1.378×10^{-3}	1.758×10^{-3}	2.285×10^{-3}	3.450×10^{-3}
fitted root mean square crb [1]	8.769×10^{-6}	2.063×10^{-5}	3.604×10^{-5}	5.614×10^{-5}	9.599×10^{-5}	8.875×10^{-4}	1.271×10^{-3}	1.644×10^{-3}	2.172×10^{-3}	3.288×10^{-3}
wavelength shift [nm]	-7.671×10^{-3}	-7.876×10^{-4}	1.872×10^{-4}	1.163×10^{-3}	2.796×10^{-3}	1.270×10^{-2}	1.495×10^{-2}	1.688×10^{-2}	1.946×10^{-2}	2.531×10^{-2}
cloud fraction apriori [1]	3.009×10^{-2}	6.578×10^{-2}	0.101	0.149	0.241	0.983	1.000	1.000	1.000	1.000
reflectance blue ocra [1]	0.235	0.259	0.284	0.316	0.374	0.791	0.857	0.899	0.937	1.12
reflectance green ocra [1]	0.153	0.174	0.194	0.224	0.287	0.772	0.848	0.894	0.933	1.08
reflectance continuum aband [1]	3.017×10^{-2}	5.590×10^{-2}	9.168×10^{-2}	0.139	0.241	0.733	0.816	0.864	0.911	1.06

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]	0.536 ± 0.406	7908840	0.900	0.690	0.0	1.000	0.0	0.900
cloud fraction [1]	0.521 ± 0.344	7908840	0.698	0.457	2.930×10^{-3}	1.000	0.204	0.902
cloud top height [m]	$(0.417 \pm 0.262) \times 10^4$	7908840	3.598×10^3	3.715×10^3	0.0	2.000×10^4	2.098×10^3	5.696×10^3
cloud optical thickness [1]	25.1 ± 46.5	7908840	13.3	9.47	1.000	250	5.76	19.1
cloud fraction crb [1]	0.520 ± 0.343	7908840	0.696	0.455	8.091×10^{-3}	1.000	0.204	0.900
cloud height crb [m]	$(0.343 \pm 0.226) \times 10^4$	7908840	3.235×10^3	3.102×10^3	0.0	2.000×10^4	1.576×10^3	4.811×10^3
cloud albedo crb [1]	0.602 ± 0.216	7908840	0.271	0.588	0.0	1.000	0.473	0.744
surface albedo fitted [1]	0.243 ± 0.255	7908840	0.402	0.116	0.0	1.000	3.218×10^{-2}	0.434
surface albedo fitted crb [1]	0.233 ± 0.248	7908840	0.404	0.111	0.0	1.000	2.428×10^{-2}	0.428
fitted root mean square [1]	$(4.882 \pm 6.414) \times 10^{-4}$	7908840	5.130×10^{-4}	2.771×10^{-4}	7.778×10^{-7}	0.169	1.078×10^{-4}	6.208×10^{-4}
fitted root mean square crb [1]	$(3.838 \pm 5.467) \times 10^{-4}$	7908840	4.052×10^{-4}	1.768×10^{-4}	8.900×10^{-7}	5.271×10^{-2}	6.561×10^{-5}	4.708×10^{-4}
wavelength shift [nm]	$(6.831 \pm 6.563) \times 10^{-3}$	7908840	9.104×10^{-3}	5.869×10^{-3}	-4.624×10^{-2}	6.593×10^{-2}	1.901×10^{-3}	1.101×10^{-2}
cloud fraction apriori [1]	0.526 ± 0.348	7908840	0.727	0.465	0.0	1.000	0.201	0.929
reflectance blue ocra [1]	0.571 ± 0.224	7908840	0.351	0.562	0.137	1.93	0.379	0.730
reflectance green ocra [1]	0.519 ± 0.247	7908840	0.415	0.516	8.428×10^{-2}	1.86	0.292	0.707
reflectance continuum aband [1]	0.469 ± 0.274	7908840	0.423	0.469	1.283×10^{-2}	6.84	0.245	0.669

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]	0.649 ± 0.347	11393848	0.520	0.770	0.0	1.000	0.400	0.920
cloud fraction [1]	0.575 ± 0.335	11393848	0.694	0.556	7.646×10^{-3}	1.000	0.274	0.968
cloud top height [m]	$(0.390 \pm 0.251) \times 10^4$	11393848	3.601×10^3	3.479×10^3	0.0	2.000×10^4	1.815×10^3	5.416×10^3
cloud optical thickness [1]	13.1 ± 20.9	11393848	7.51	8.48	1.000	250	5.24	12.7
cloud fraction crb [1]	0.575 ± 0.335	11393848	0.694	0.557	7.576×10^{-3}	1.000	0.274	0.968
cloud height crb [m]	$(0.284 \pm 0.214) \times 10^4$	11393848	2.807×10^3	2.445×10^3	0.0	2.000×10^4	1.117×10^3	3.924×10^3
cloud albedo crb [1]	0.599 ± 0.219	11393848	0.312	0.577	0.0	1.000	0.460	0.772
surface albedo fitted [1]	0.325 ± 0.392	11393848	0.784	4.728×10^{-2}	0.0	1.000	2.209×10^{-2}	0.806
surface albedo fitted crb [1]	0.311 ± 0.379	11393848	0.778	3.898×10^{-2}	0.0	1.000	1.703×10^{-2}	0.795
fitted root mean square [1]	$(8.582 \pm 9.338) \times 10^{-4}$	11393848	1.069×10^{-3}	6.061×10^{-4}	1.110×10^{-6}	0.119	1.840×10^{-4}	1.253×10^{-3}
fitted root mean square crb [1]	$(7.823 \pm 8.172) \times 10^{-4}$	11393848	1.030×10^{-3}	5.160×10^{-4}	9.234×10^{-7}	6.332×10^{-2}	1.435×10^{-4}	1.173×10^{-3}
wavelength shift [nm]	$(8.850 \pm 6.975) \times 10^{-3}$	11393848	9.831×10^{-3}	8.841×10^{-3}	-4.438×10^{-2}	6.788×10^{-2}	3.751×10^{-3}	1.358×10^{-2}
cloud fraction apriori [1]	0.584 ± 0.339	11393848	0.722	0.575	0.0	1.000	0.278	1.000
reflectance blue ocra [1]	0.603 ± 0.244	11393848	0.459	0.599	0.149	1.98	0.371	0.829
reflectance green ocra [1]	0.559 ± 0.276	11393848	0.536	0.566	8.663×10^{-2}	1.97	0.282	0.819
reflectance continuum aband [1]	0.509 ± 0.297	11393848	0.543	0.537	1.265×10^{-2}	5.20	0.237	0.779

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]	0.725 ± 0.327	11399891	0.580	0.900	0.0	1.000	0.400	0.980
cloud fraction [1]	0.592 ± 0.363	11399891	0.780	0.623	7.646×10^{-3}	1.000	0.220	1.000
cloud top height [m]	$(0.354 \pm 0.251) \times 10^4$	11399891	3.184×10^3	2.790×10^3	0.0	2.000×10^4	1.618×10^3	4.802×10^3
cloud optical thickness [1]	17.5 ± 28.0	11399891	8.95	10.0	1.000	250	7.09	16.0
cloud fraction crb [1]	0.591 ± 0.363	11399891	0.781	0.621	7.576×10^{-3}	1.000	0.219	1.000
cloud height crb [m]	$(0.284 \pm 0.228) \times 10^4$	11399891	3.013×10^3	2.159×10^3	0.0	1.579×10^4	1.045×10^3	4.058×10^3
cloud albedo crb [1]	0.547 ± 0.167	11399891	0.199	0.530	0.0	1.000	0.451	0.649
surface albedo fitted [1]	$(7.079 \pm 14.734) \times 10^{-2}$	11399891	2.888×10^{-2}	2.953×10^{-2}	0.0	1.000	1.773×10^{-2}	4.661×10^{-2}
surface albedo fitted crb [1]	$(6.503 \pm 14.747) \times 10^{-2}$	11399891	2.469×10^{-2}	2.299×10^{-2}	0.0	1.000	1.314×10^{-2}	3.783×10^{-2}
fitted root mean square [1]	$(6.494 \pm 8.824) \times 10^{-4}$	11399891	8.266×10^{-4}	3.076×10^{-4}	7.778×10^{-7}	0.111	9.070×10^{-5}	9.173×10^{-4}
fitted root mean square crb [1]	$(6.243 \pm 7.853) \times 10^{-4}$	11399891	8.151×10^{-4}	2.842×10^{-4}	8.900×10^{-7}	1.850×10^{-2}	8.095×10^{-5}	8.960×10^{-4}
wavelength shift [nm]	$(7.645 \pm 7.294) \times 10^{-3}$	11399891	1.024×10^{-2}	7.006×10^{-3}	-4.438×10^{-2}	6.788×10^{-2}	2.259×10^{-3}	1.250×10^{-2}
cloud fraction apriori [1]	0.593 ± 0.368	11399891	0.788	0.625	0.0	1.000	0.212	1.000
reflectance blue ocra [1]	0.501 ± 0.197	11399891	0.309	0.465	0.170	1.92	0.332	0.642
reflectance green ocra [1]	0.440 ± 0.224	11399891	0.378	0.403	9.463×10^{-2}	1.82	0.235	0.613
reflectance continuum aband [1]	0.376 ± 0.261	11399891	0.457	0.345	1.265×10^{-2}	6.84	0.131	0.588

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]	0.451 ± 0.366	6197745	0.700	0.590	0.0	1.000	0.0	0.700
cloud fraction [1]	0.501 ± 0.288	6197745	0.444	0.455	2.930×10^{-3}	1.000	0.272	0.716
cloud top height [m]	$(0.477 \pm 0.245) \times 10^4$	6197745	2.958×10^3	4.676×10^3	0.0	2.000×10^4	3.102×10^3	6.060×10^3
cloud optical thickness [1]	15.6 ± 35.7	6197745	6.11	5.93	1.000	250	4.48	10.6
cloud fraction crb [1]	0.502 ± 0.288	6197745	0.445	0.456	8.089×10^{-3}	1.000	0.273	0.717
cloud height crb [m]	$(0.340 \pm 0.204) \times 10^4$	6197745	2.512×10^3	3.193×10^3	0.0	2.000×10^4	1.980×10^3	4.492×10^3
cloud albedo crb [1]	0.683 ± 0.255	6197745	0.349	0.738	0.0	1.000	0.536	0.885
surface albedo fitted [1]	0.653 ± 0.299	6197745	0.601	0.773	0.0	1.000	0.325	0.926
surface albedo fitted crb [1]	0.630 ± 0.282	6197745	0.556	0.763	0.0	1.000	0.325	0.881
fitted root mean square [1]	$(8.458 \pm 7.917) \times 10^{-4}$	6197745	8.571×10^{-4}	6.318×10^{-4}	1.110×10^{-6}	0.169	3.025×10^{-4}	1.159×10^{-3}
fitted root mean square crb [1]	$(6.814 \pm 6.972) \times 10^{-4}$	6197745	8.267×10^{-4}	4.583×10^{-4}	1.374×10^{-6}	6.332×10^{-2}	1.606×10^{-4}	9.873×10^{-4}
wavelength shift [nm]	$(9.159 \pm 6.083) \times 10^{-3}$	6197745	8.940×10^{-3}	9.145×10^{-3}	-3.974×10^{-2}	6.098×10^{-2}	4.483×10^{-3}	1.342×10^{-2}
cloud fraction apriori [1]	0.519 ± 0.292	6197745	0.460	0.481	0.0	1.000	0.285	0.745
reflectance blue ocra [1]	0.728 ± 0.230	6197745	0.310	0.804	0.137	1.98	0.582	0.892
reflectance green ocra [1]	0.703 ± 0.252	6197745	0.348	0.791	8.428×10^{-2}	1.97	0.542	0.890
reflectance continuum aband [1]	0.680 ± 0.232	6197745	0.349	0.742	1.731×10^{-2}	5.20	0.509	0.857

3 Granule outlines

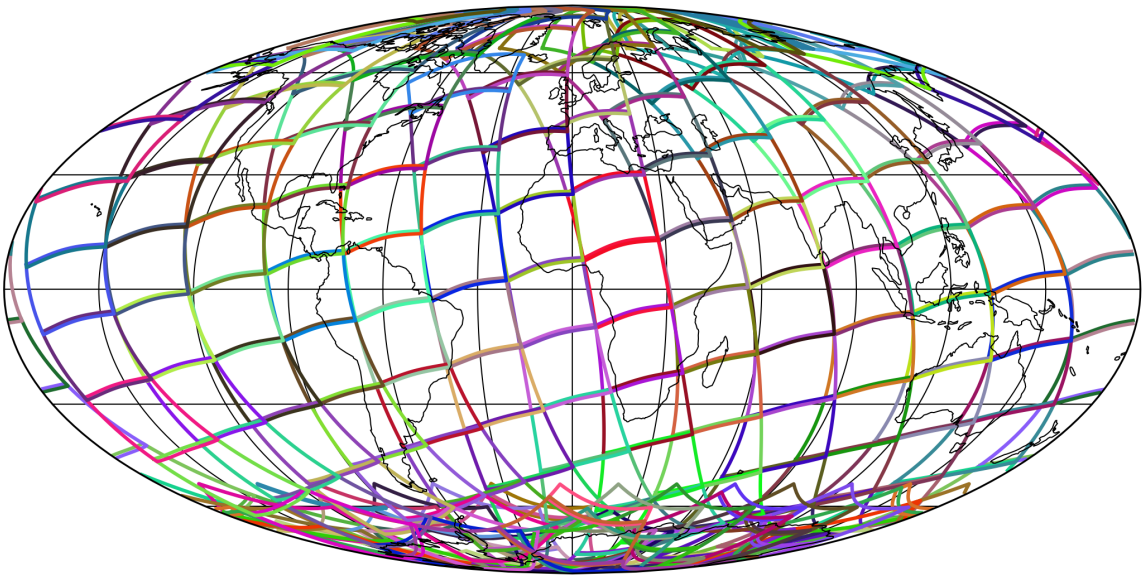

Figure 1: Outline of the granules.

4 Input data monitoring

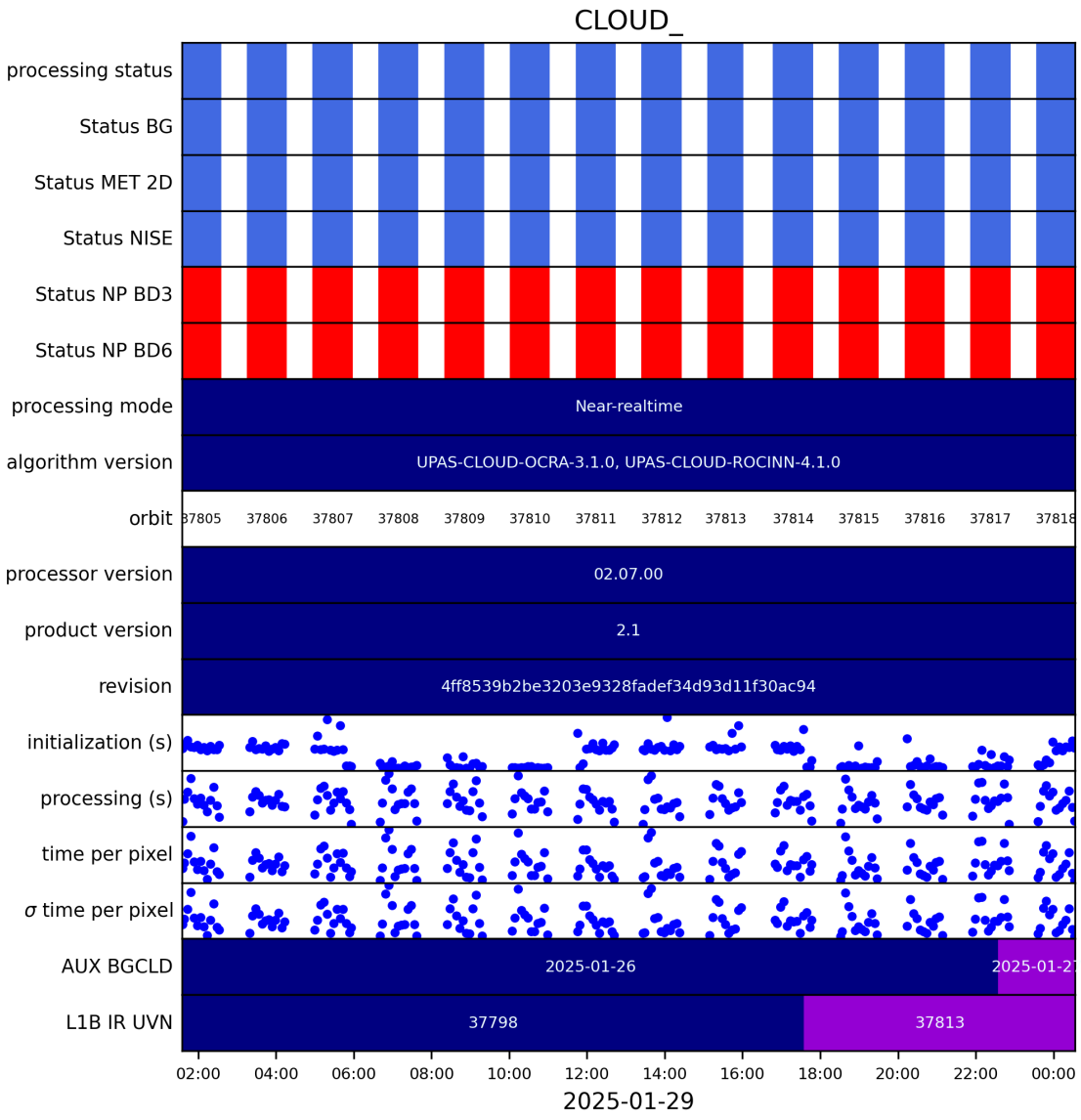

Figure 2: Input data per granule

5 Warnings and errors

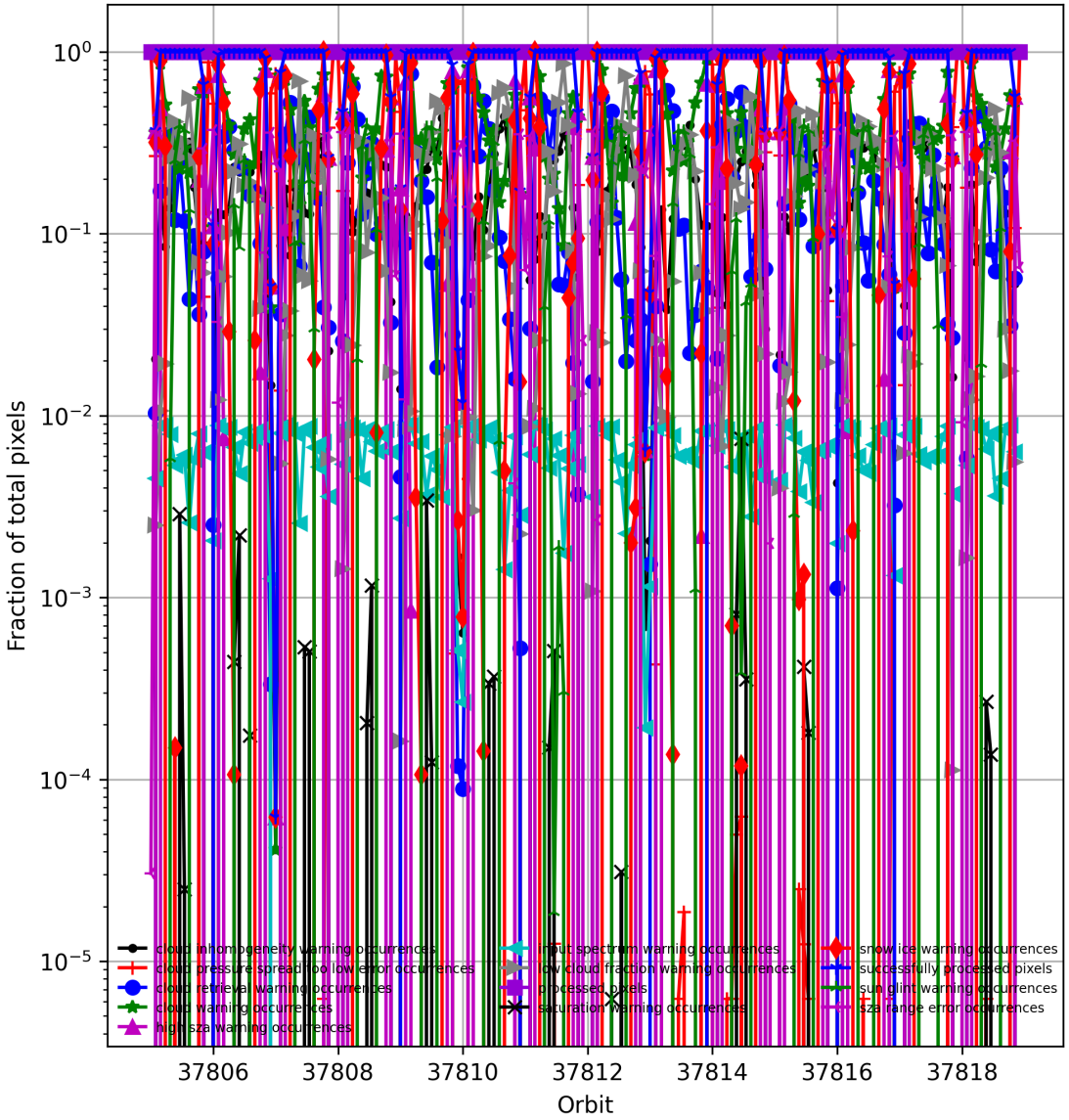

Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

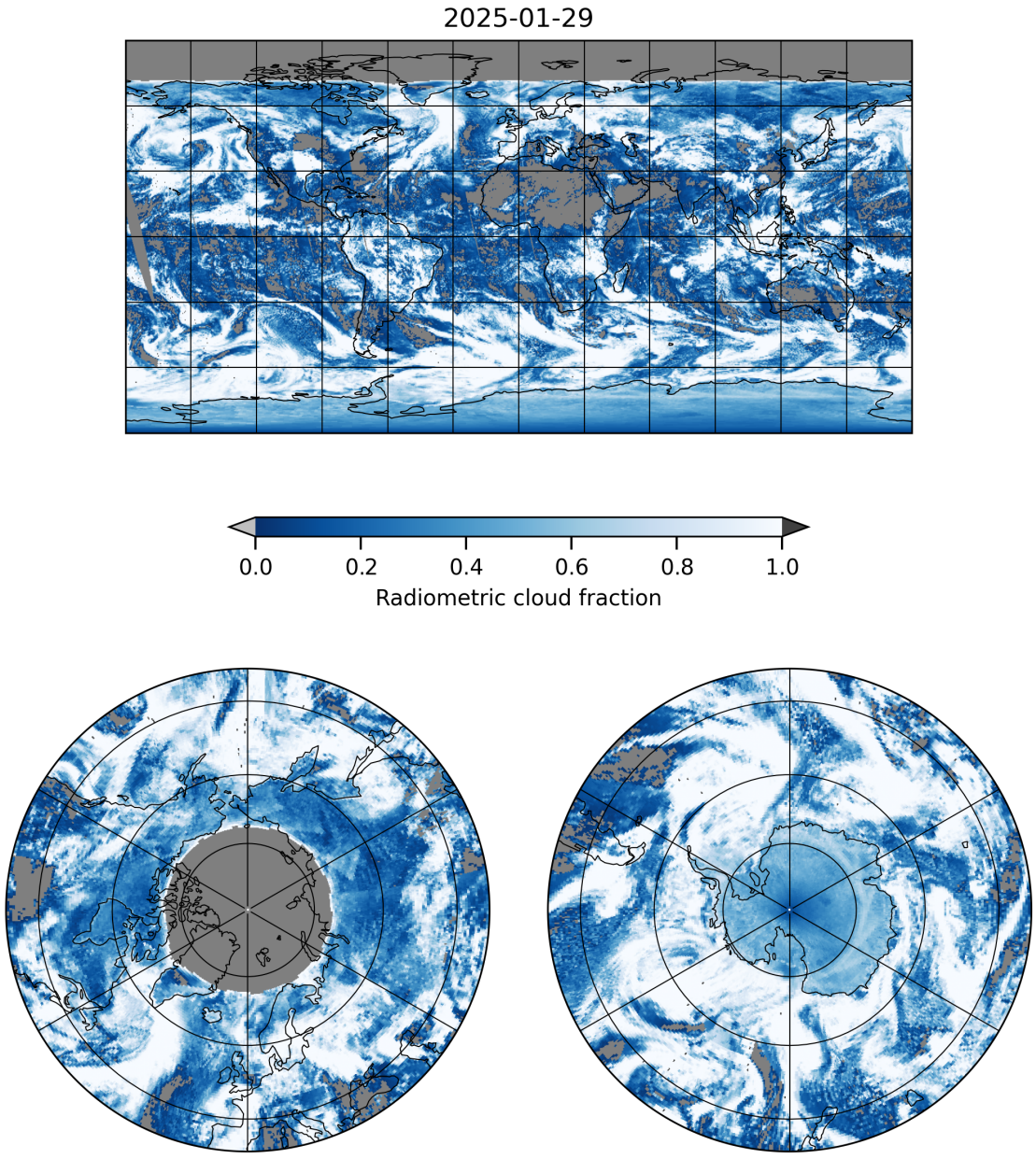

Figure 4: Map of “Radiometric cloud fraction” for 2025-01-29 to 2025-01-30

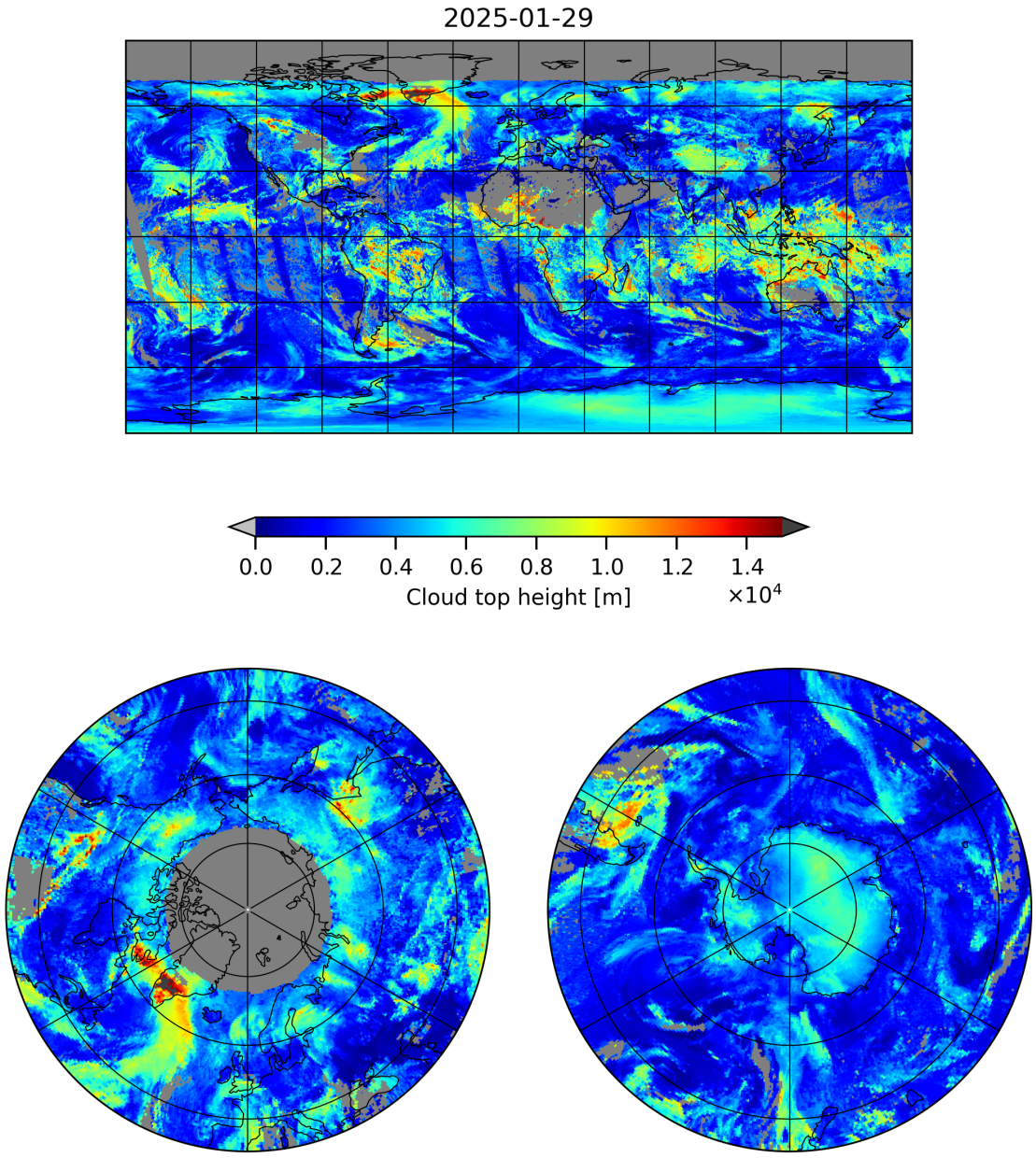

Figure 5: Map of “Cloud top height” for 2025-01-29 to 2025-01-30

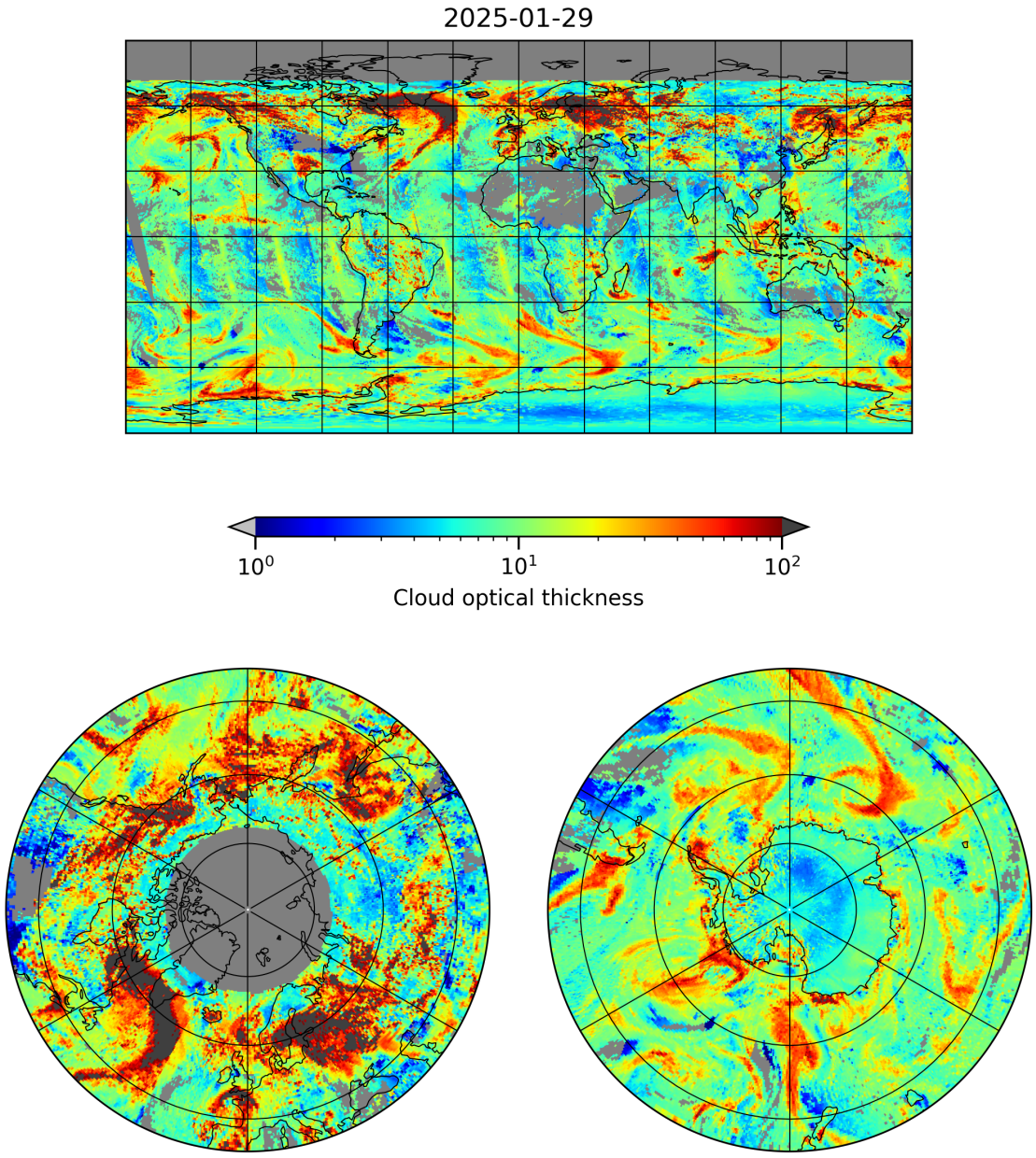

Figure 6: Map of “Cloud optical thickness” for 2025-01-29 to 2025-01-30

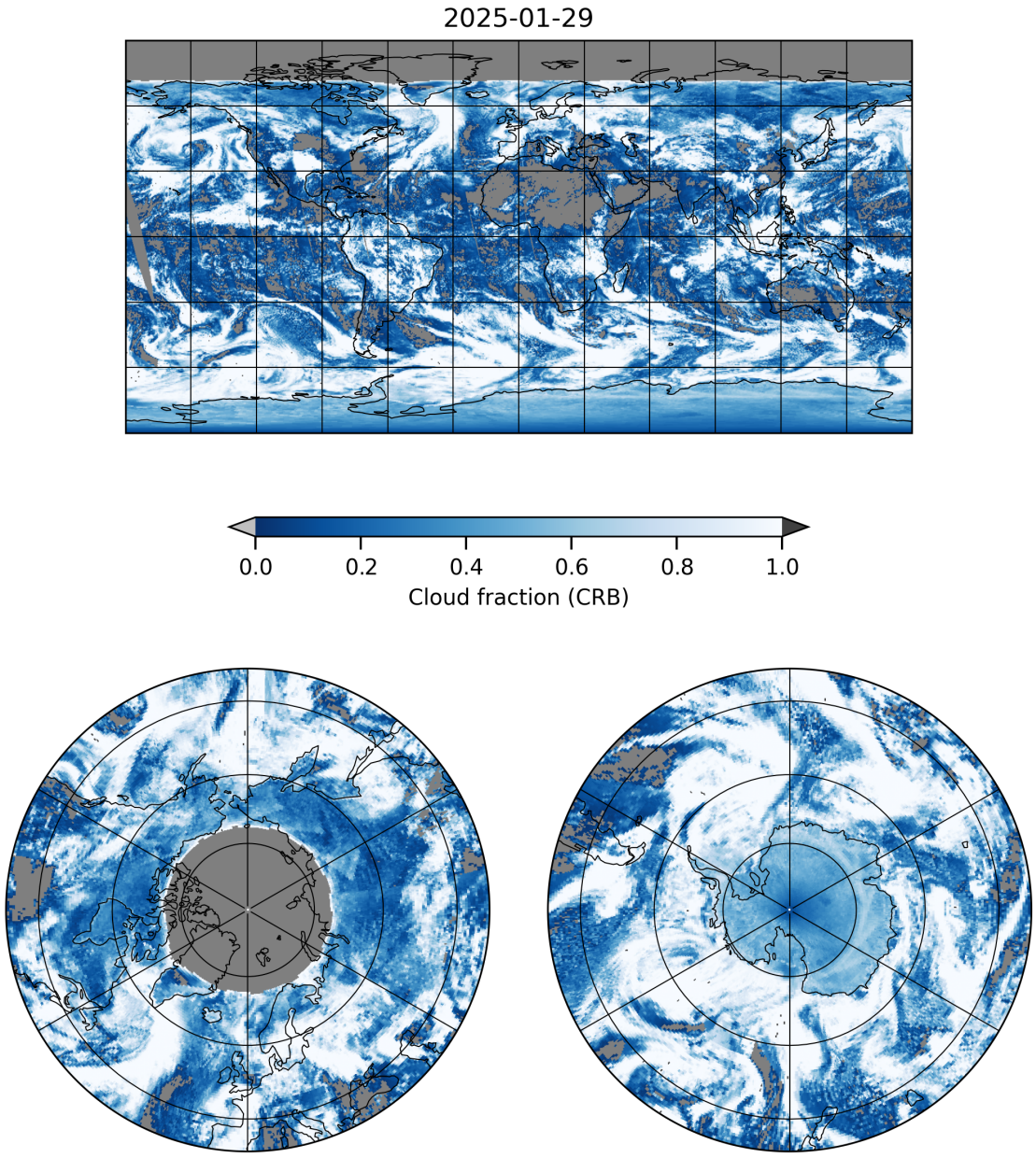

Figure 7: Map of “Cloud fraction (CRB)” for 2025-01-29 to 2025-01-30

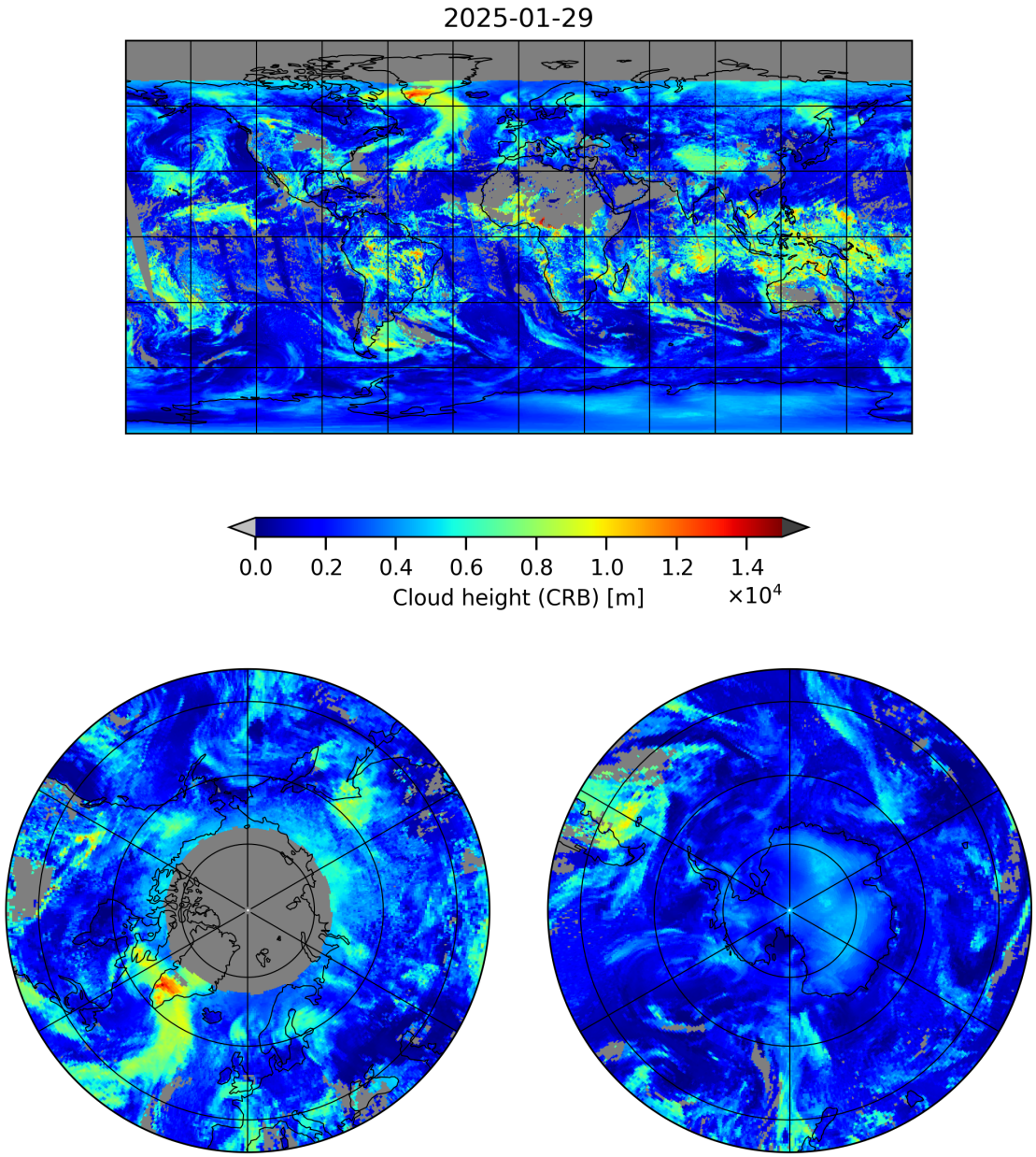

Figure 8: Map of “Cloud height (CRB)” for 2025-01-29 to 2025-01-30

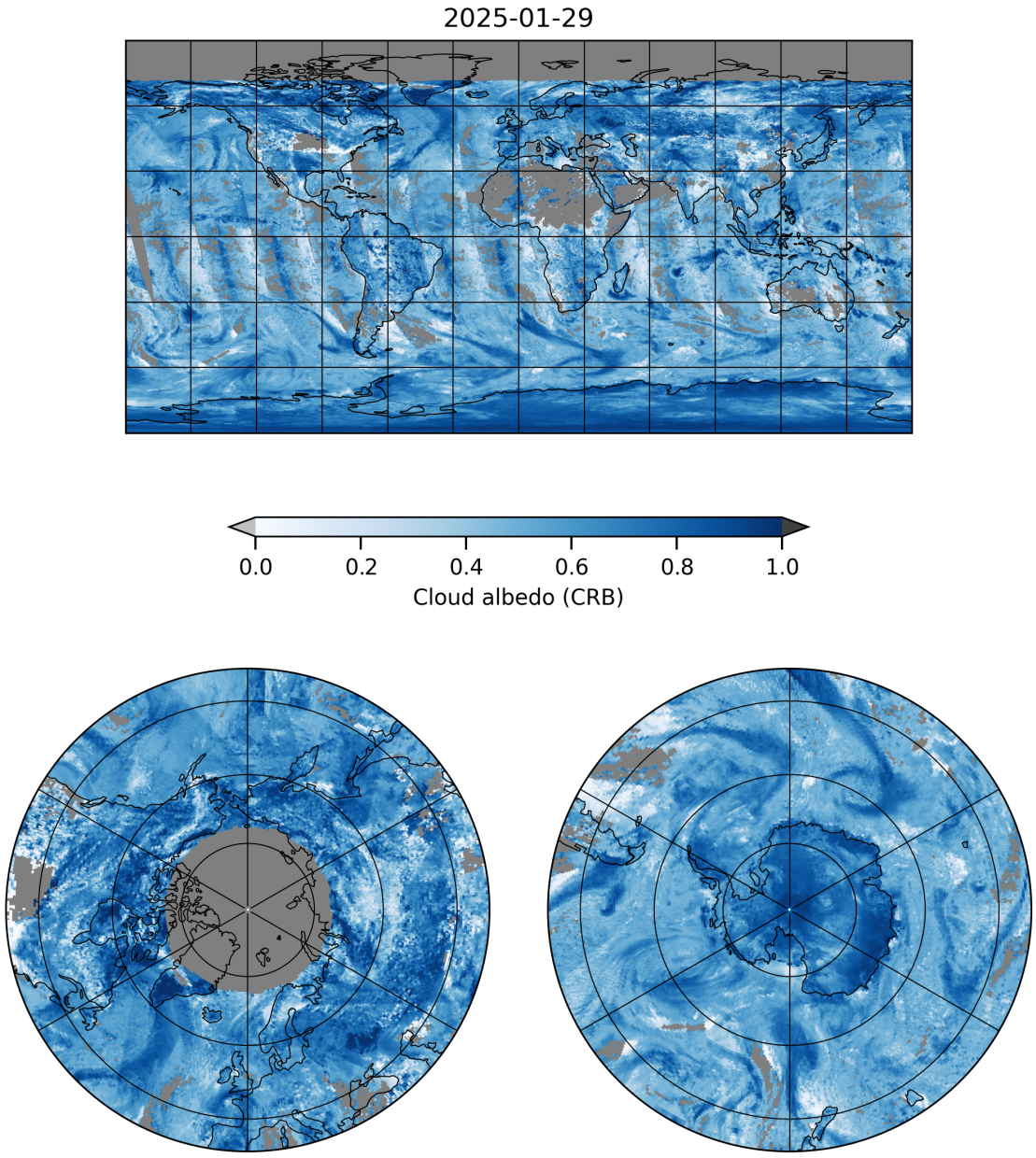

Figure 9: Map of “Cloud albedo (CRB)” for 2025-01-29 to 2025-01-30

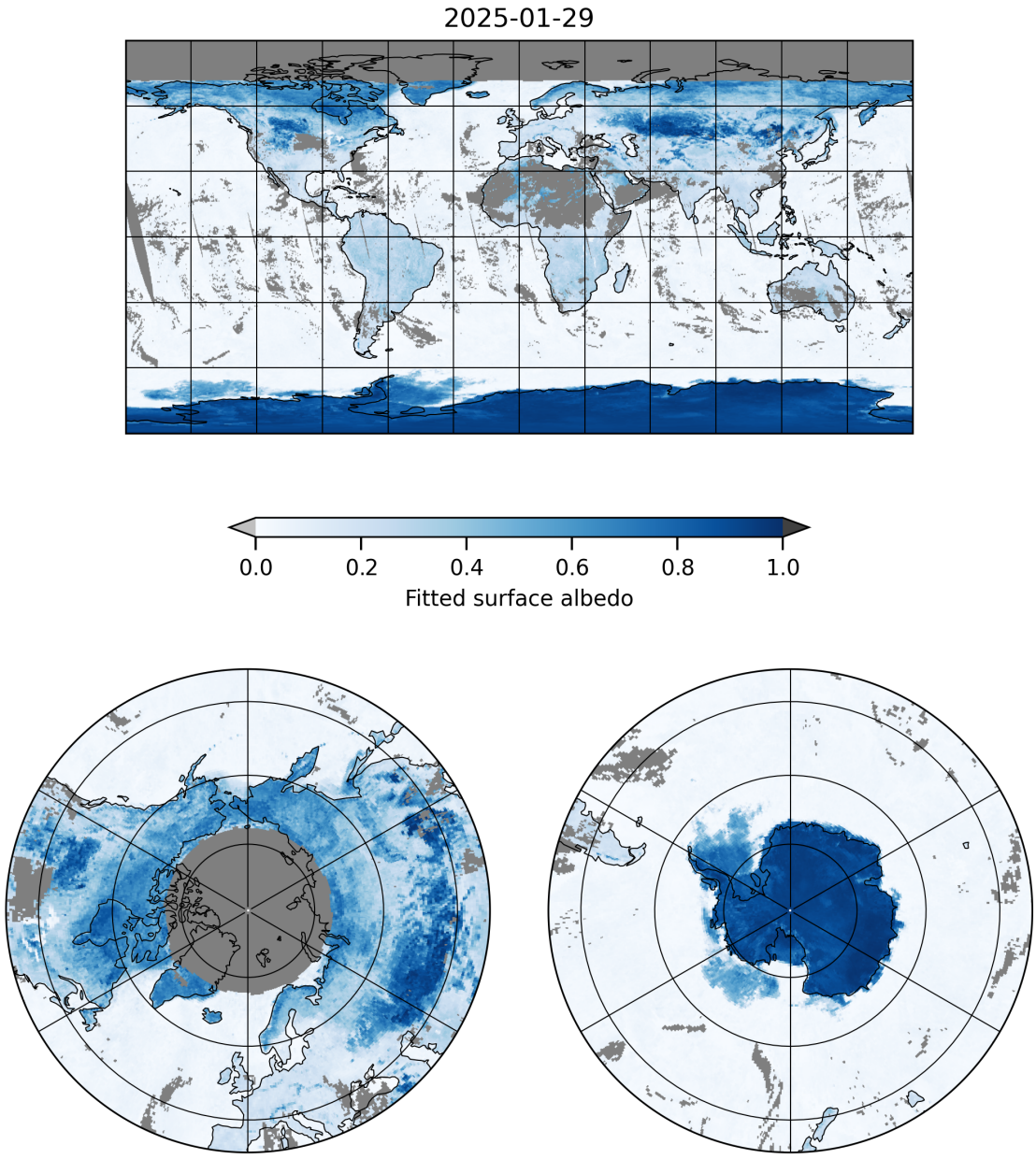

Figure 10: Map of “Fitted surface albedo” for 2025-01-29 to 2025-01-30

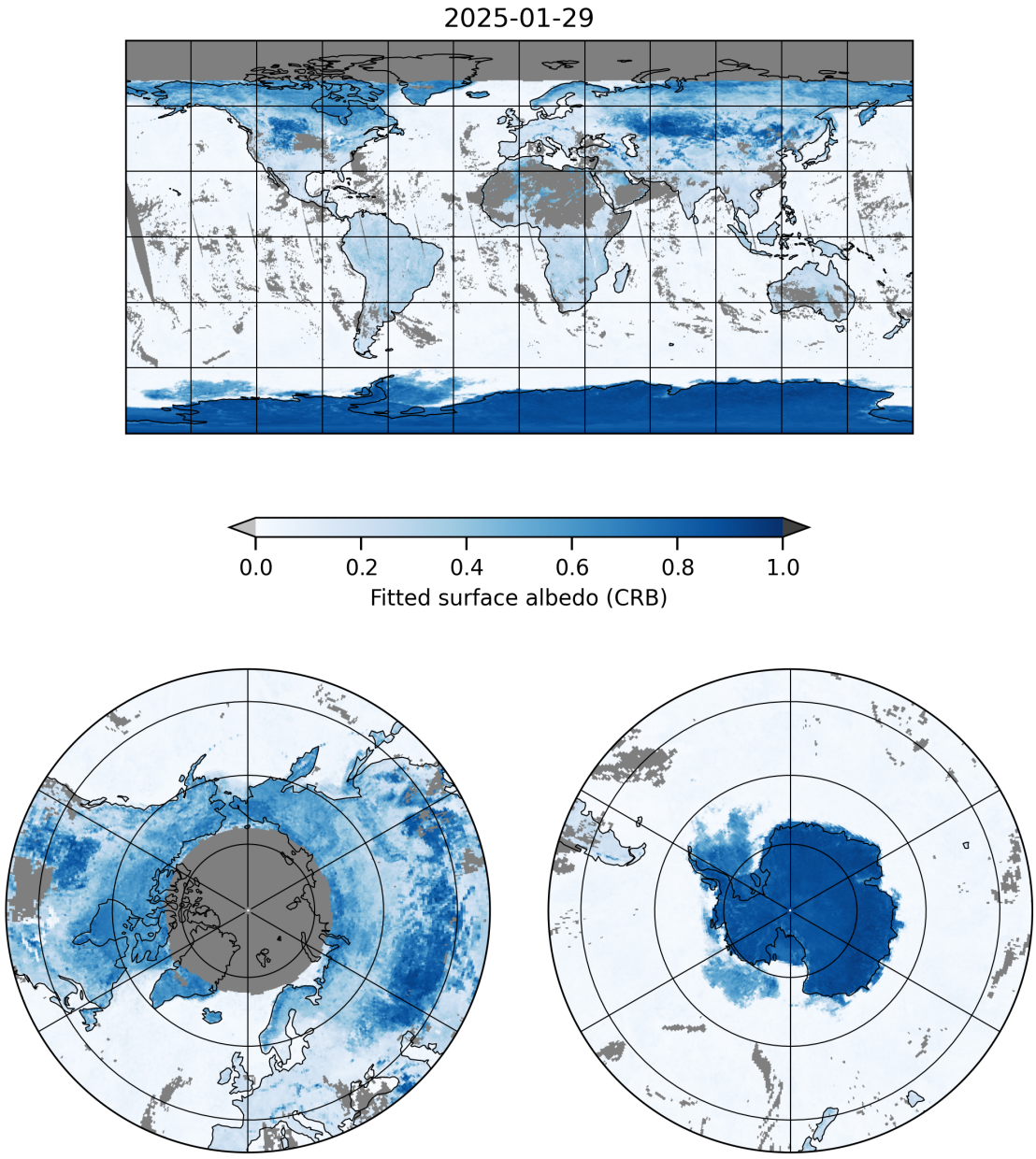

Figure 11: Map of “Fitted surface albedo (CRB)” for 2025-01-29 to 2025-01-30

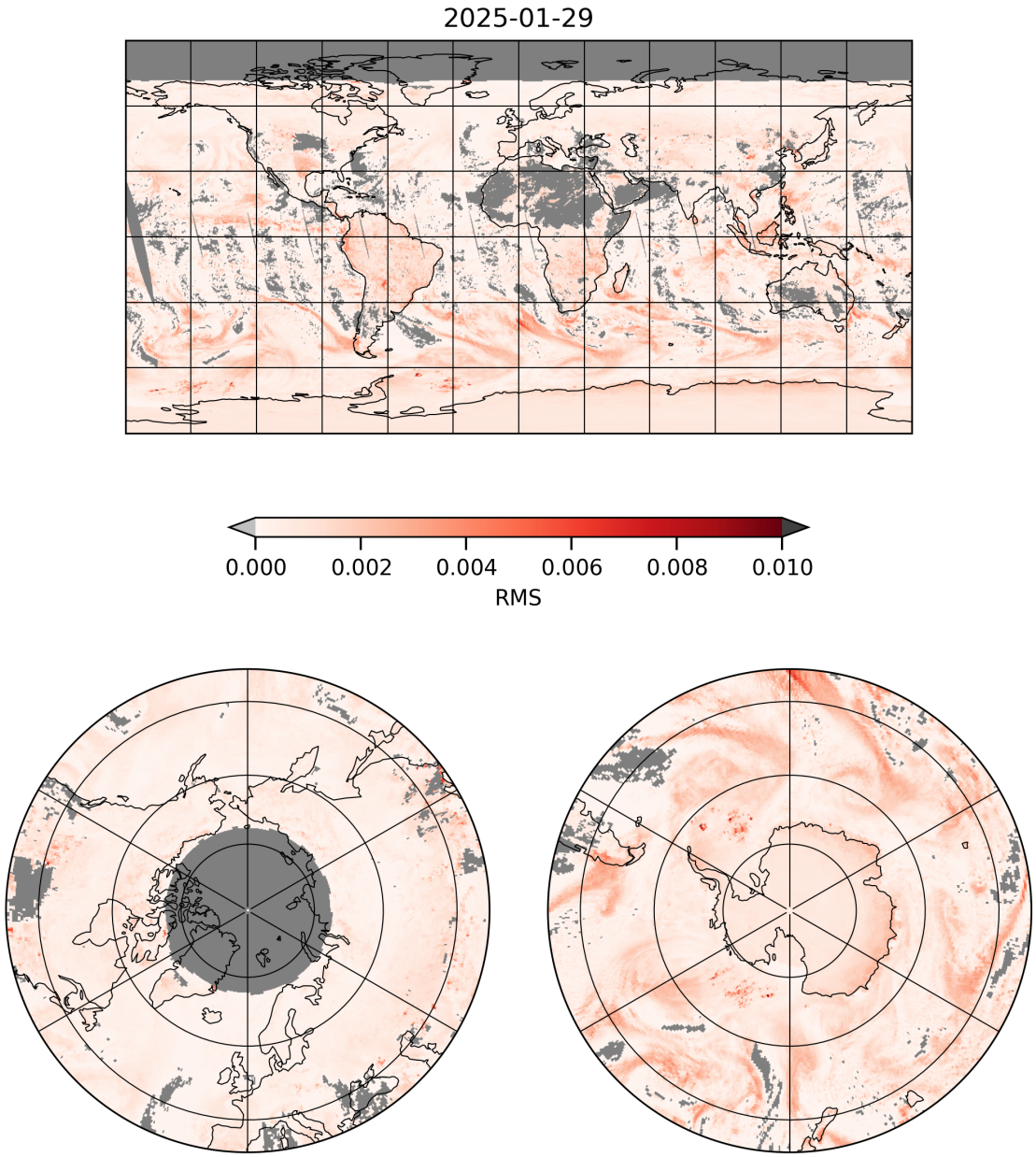

Figure 12: Map of “RMS” for 2025-01-29 to 2025-01-30

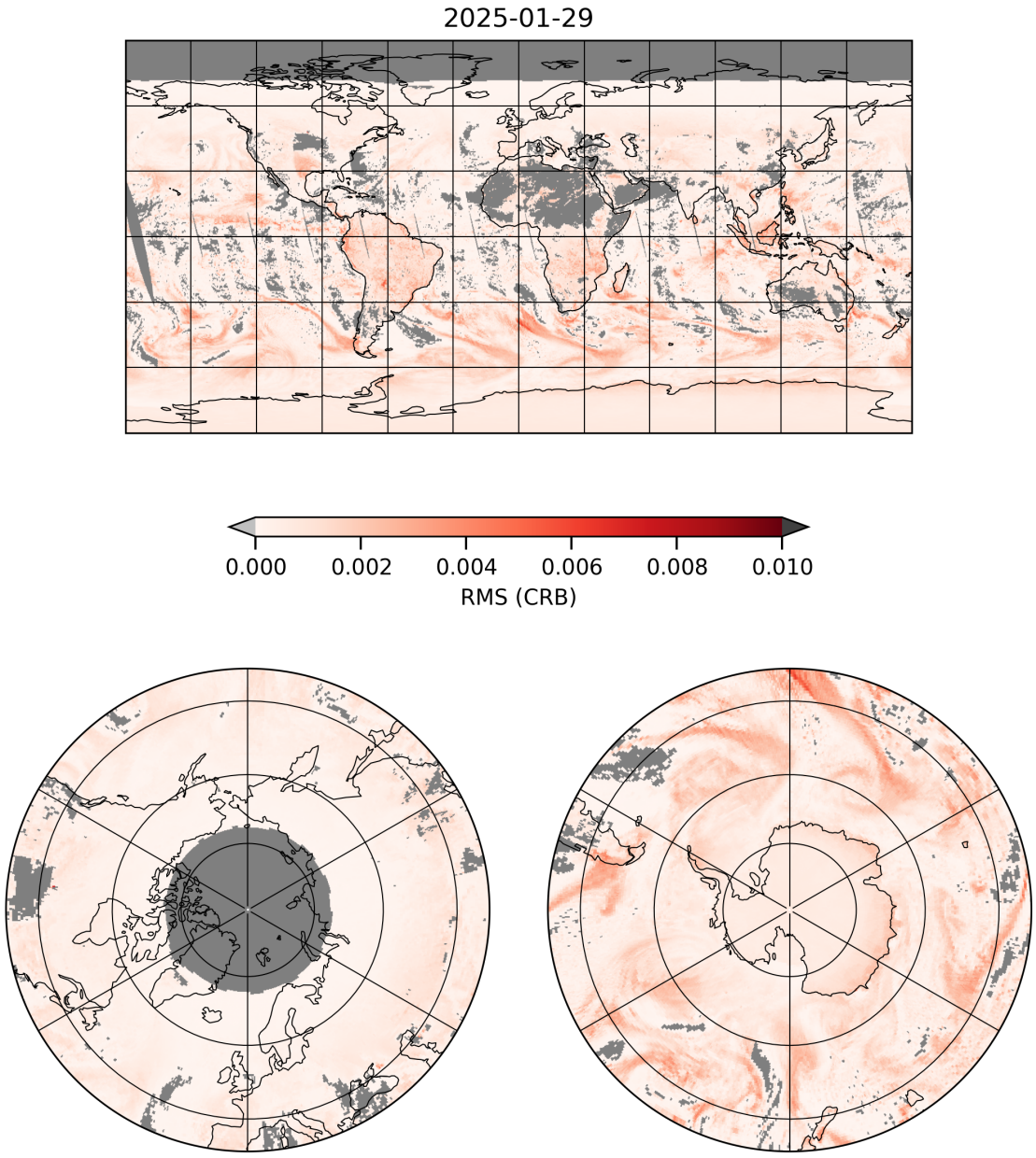

Figure 13: Map of “RMS (CRB)” for 2025-01-29 to 2025-01-30

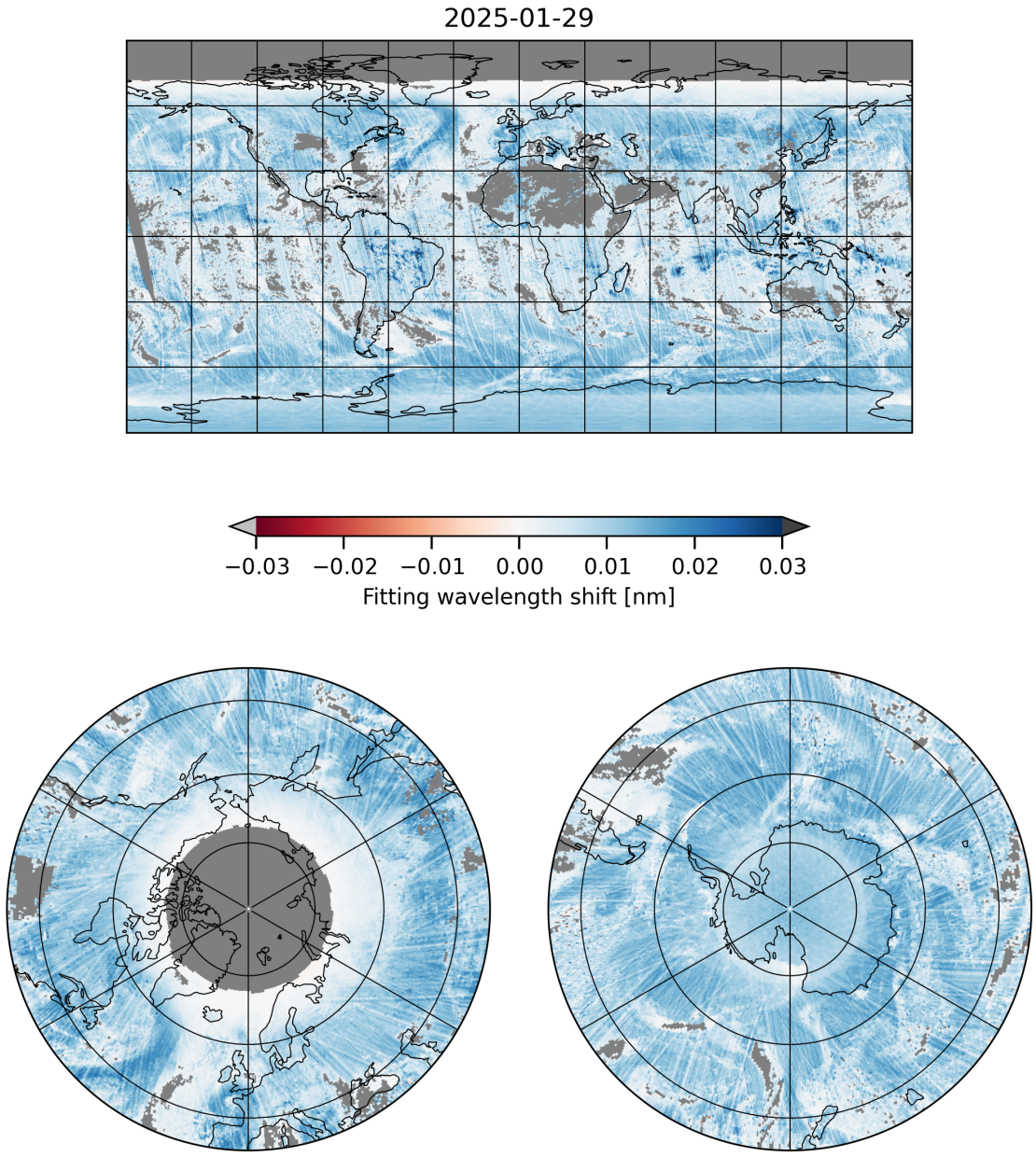

Figure 14: Map of “Fitting wavelength shift” for 2025-01-29 to 2025-01-30

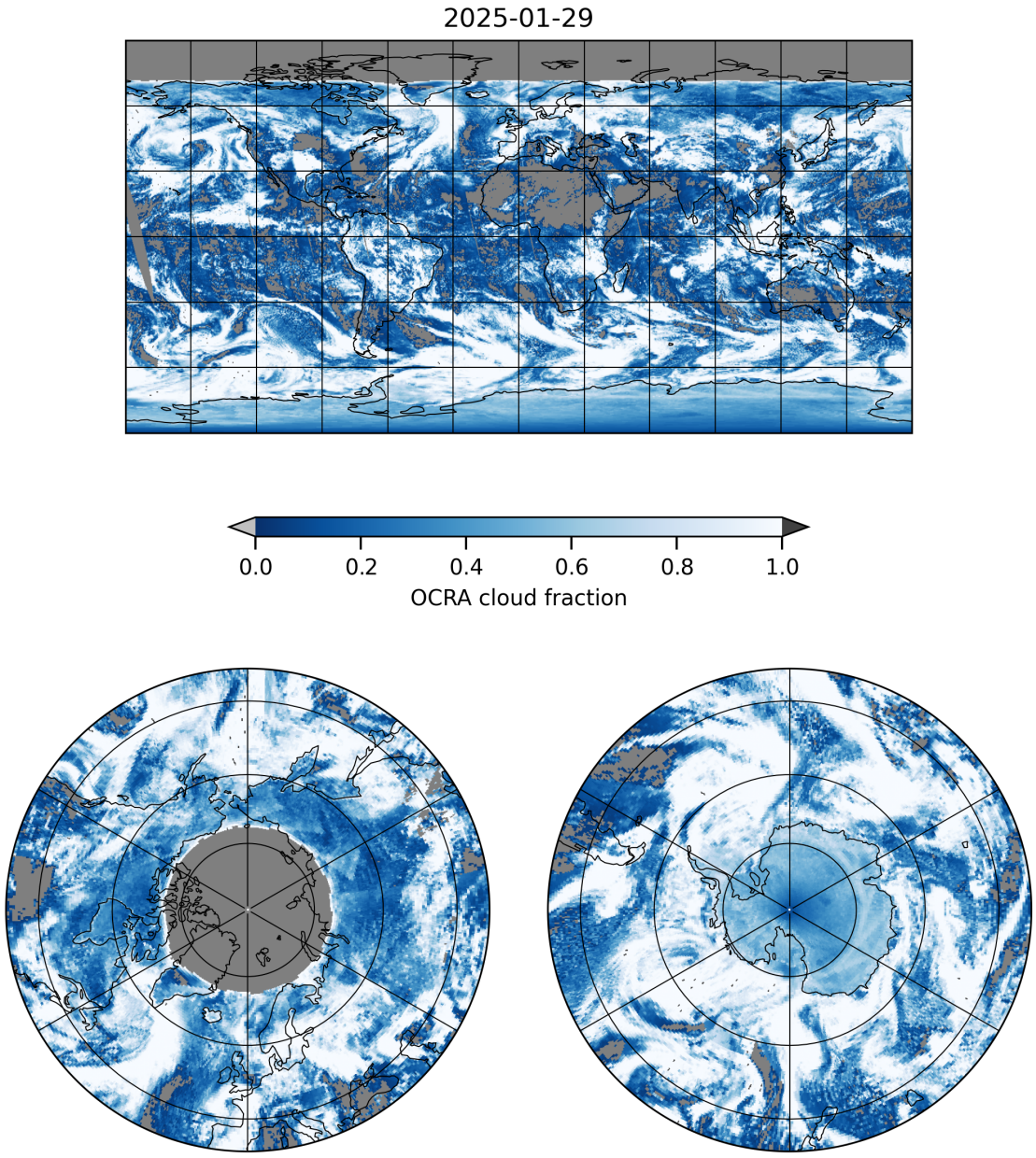

Figure 15: Map of “OCRA cloud fraction” for 2025-01-29 to 2025-01-30

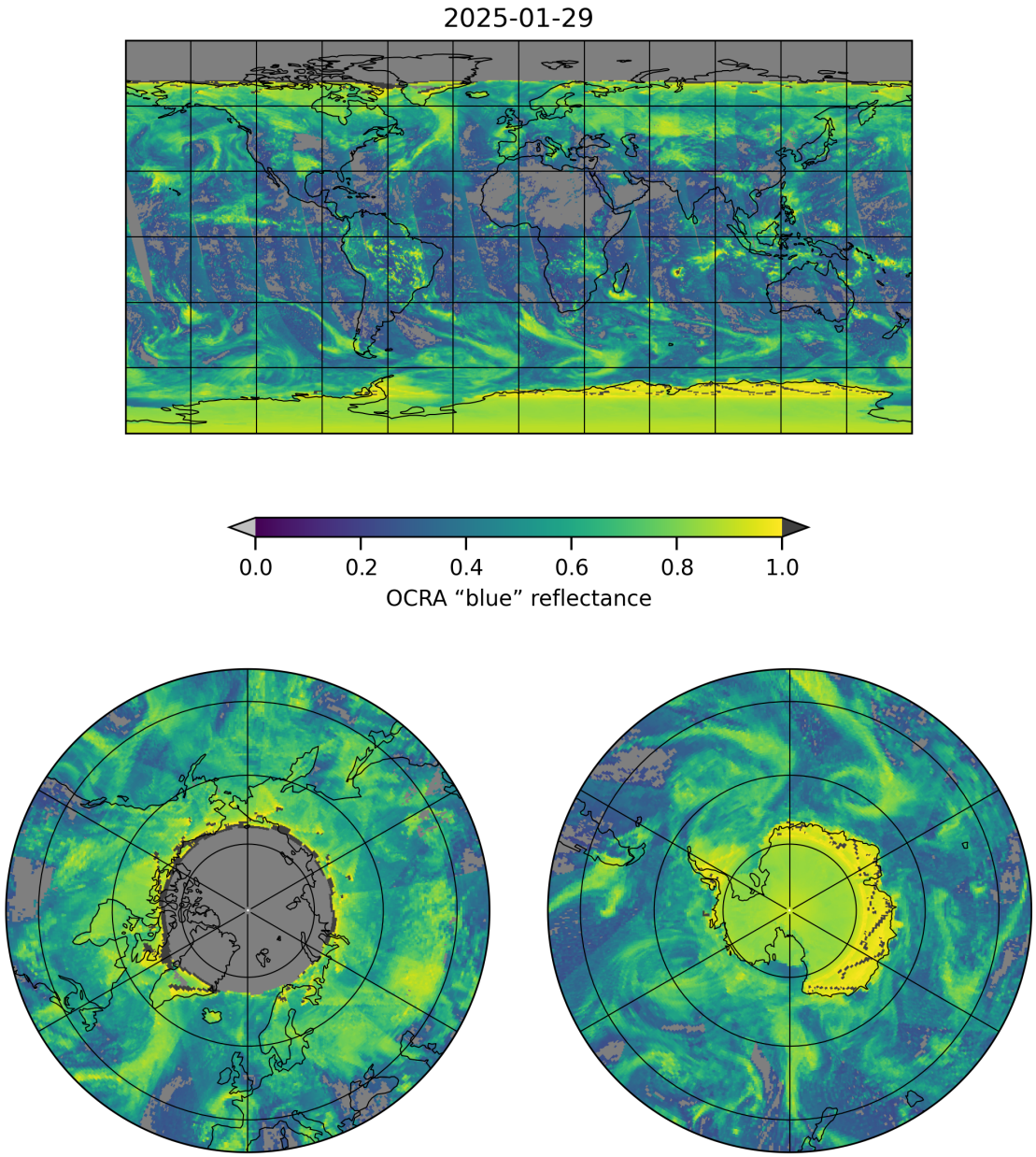

Figure 16: Map of “OCRA “blue” reflectance” for 2025-01-29 to 2025-01-30

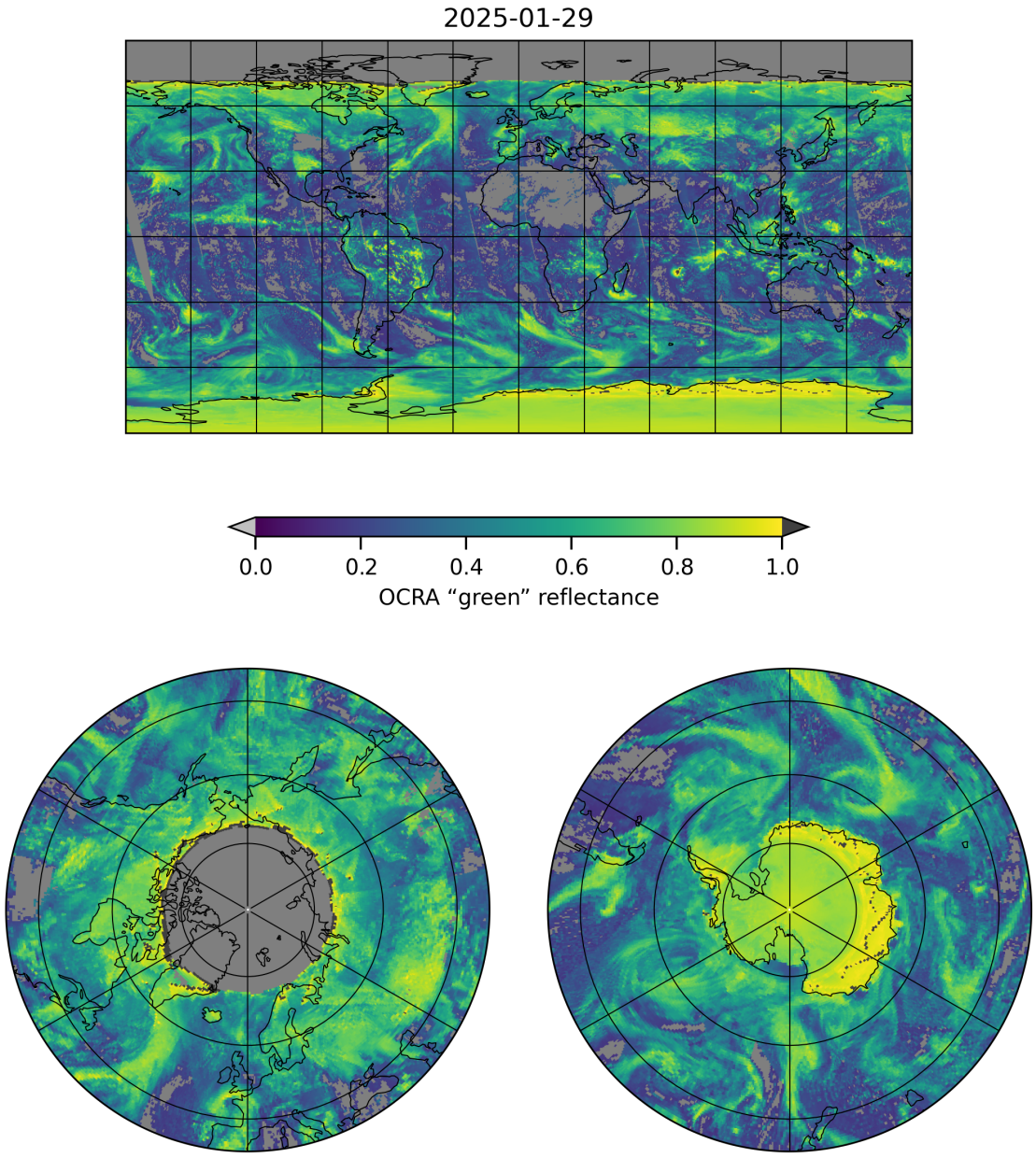

Figure 17: Map of “OCRA “green” reflectance” for 2025-01-29 to 2025-01-30

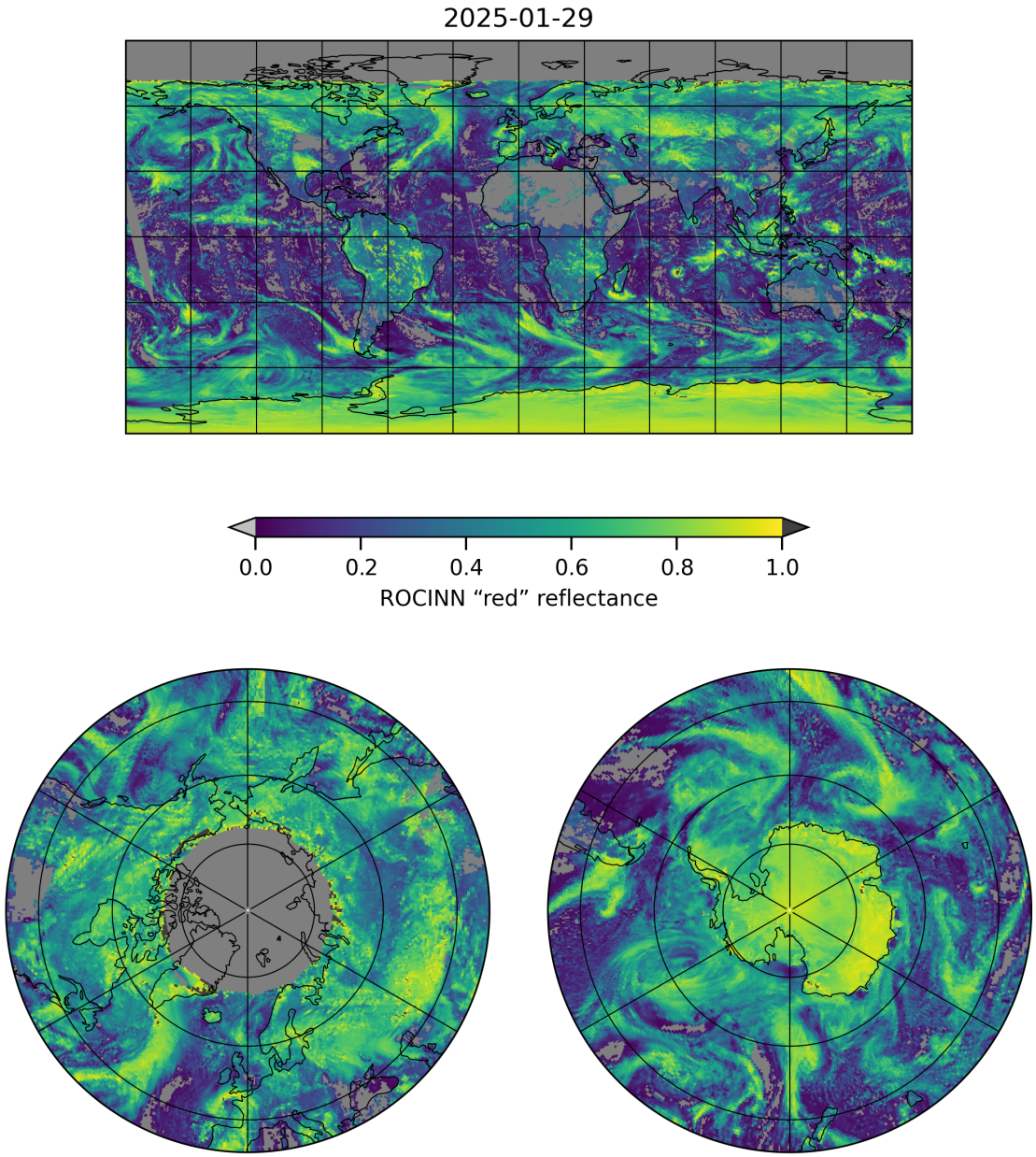

Figure 18: Map of “ROCINN “red” reflectance” for 2025-01-29 to 2025-01-30

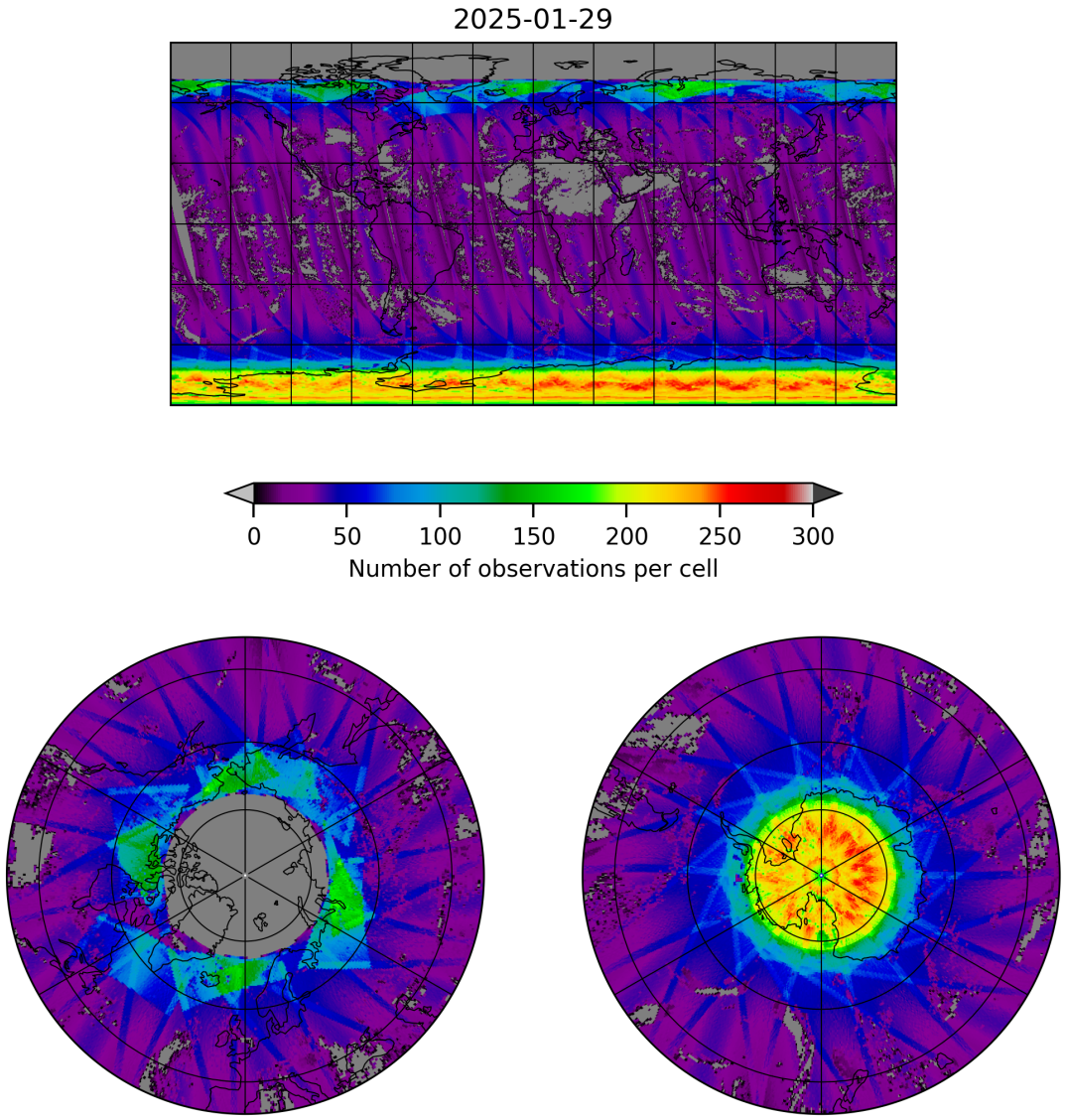

Figure 19: Map of the number of observations for 2025-01-29 to 2025-01-30

7 Zonal average

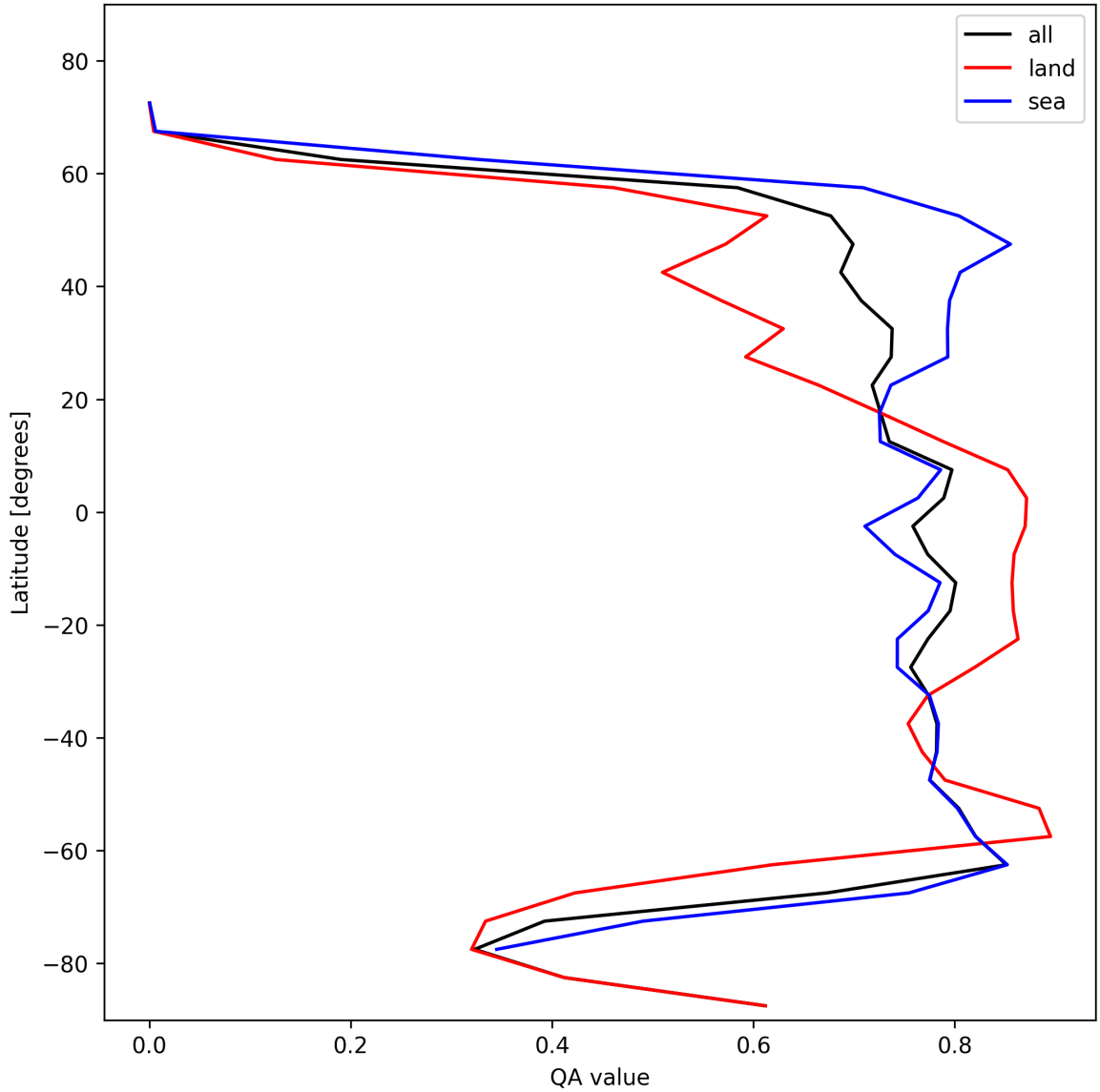

Figure 20: Zonal average of “QA value” for 2025-01-29 to 2025-01-30.

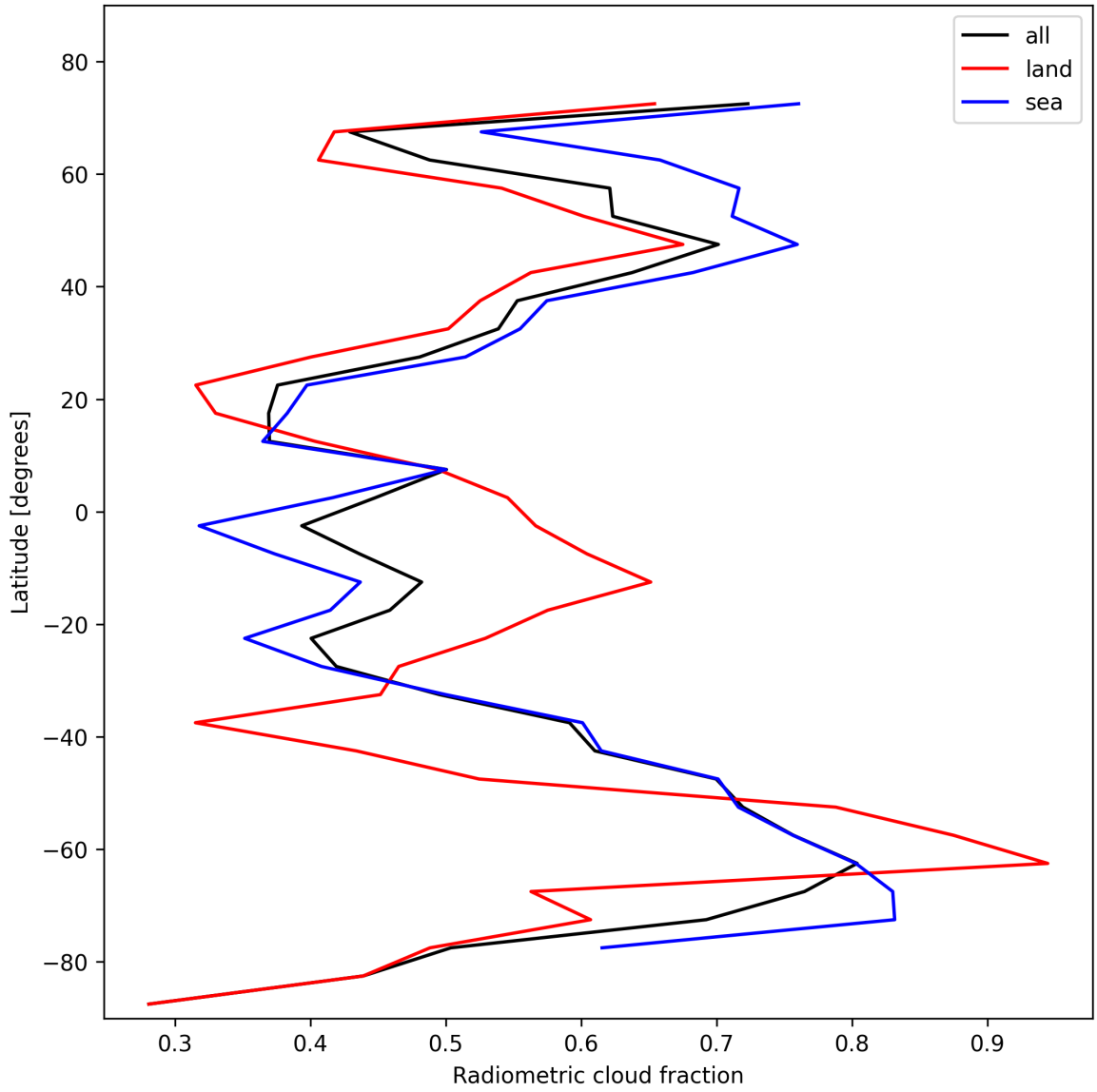

Figure 21: Zonal average of “Radiometric cloud fraction” for 2025-01-29 to 2025-01-30.

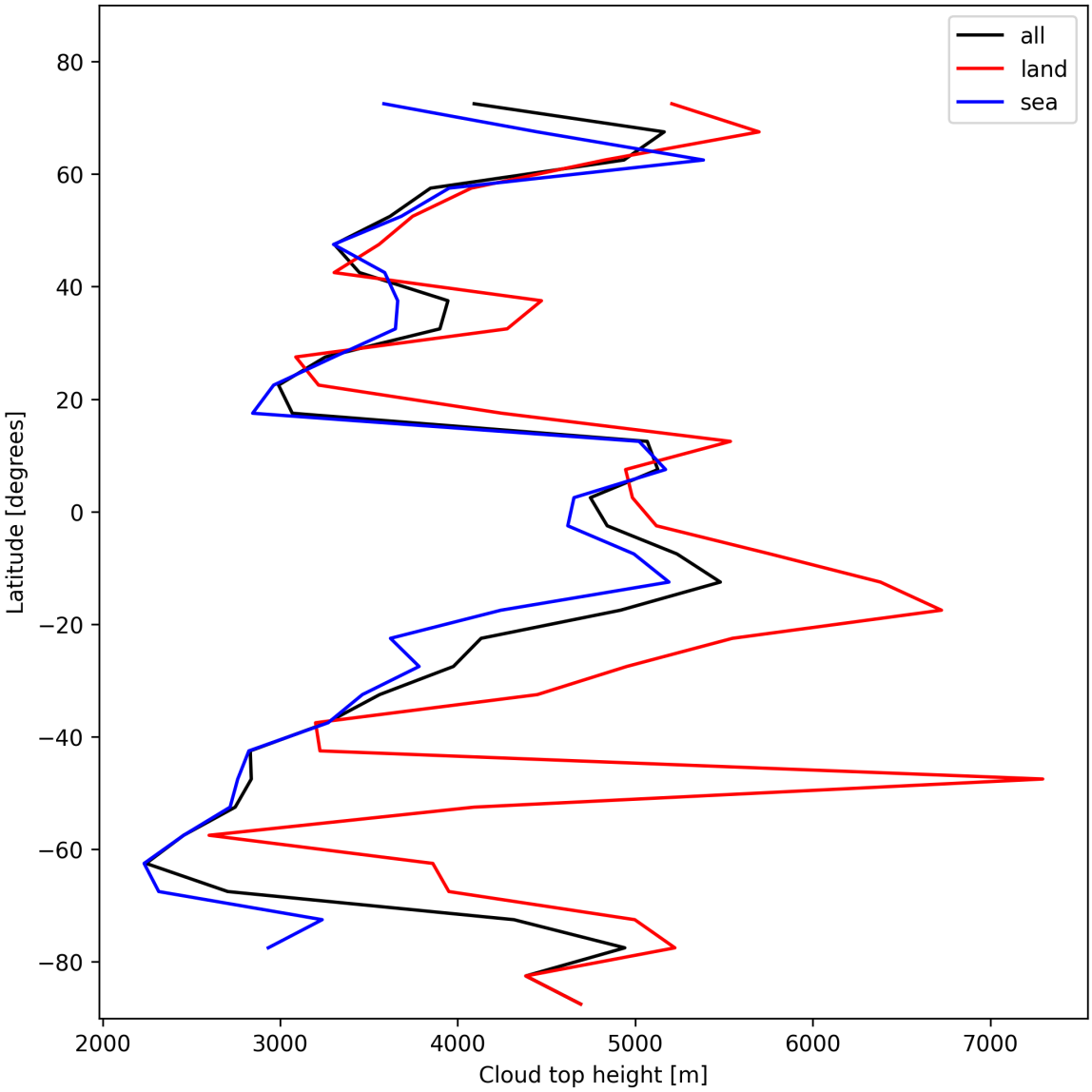

Figure 22: Zonal average of “Cloud top height” for 2025-01-29 to 2025-01-30.

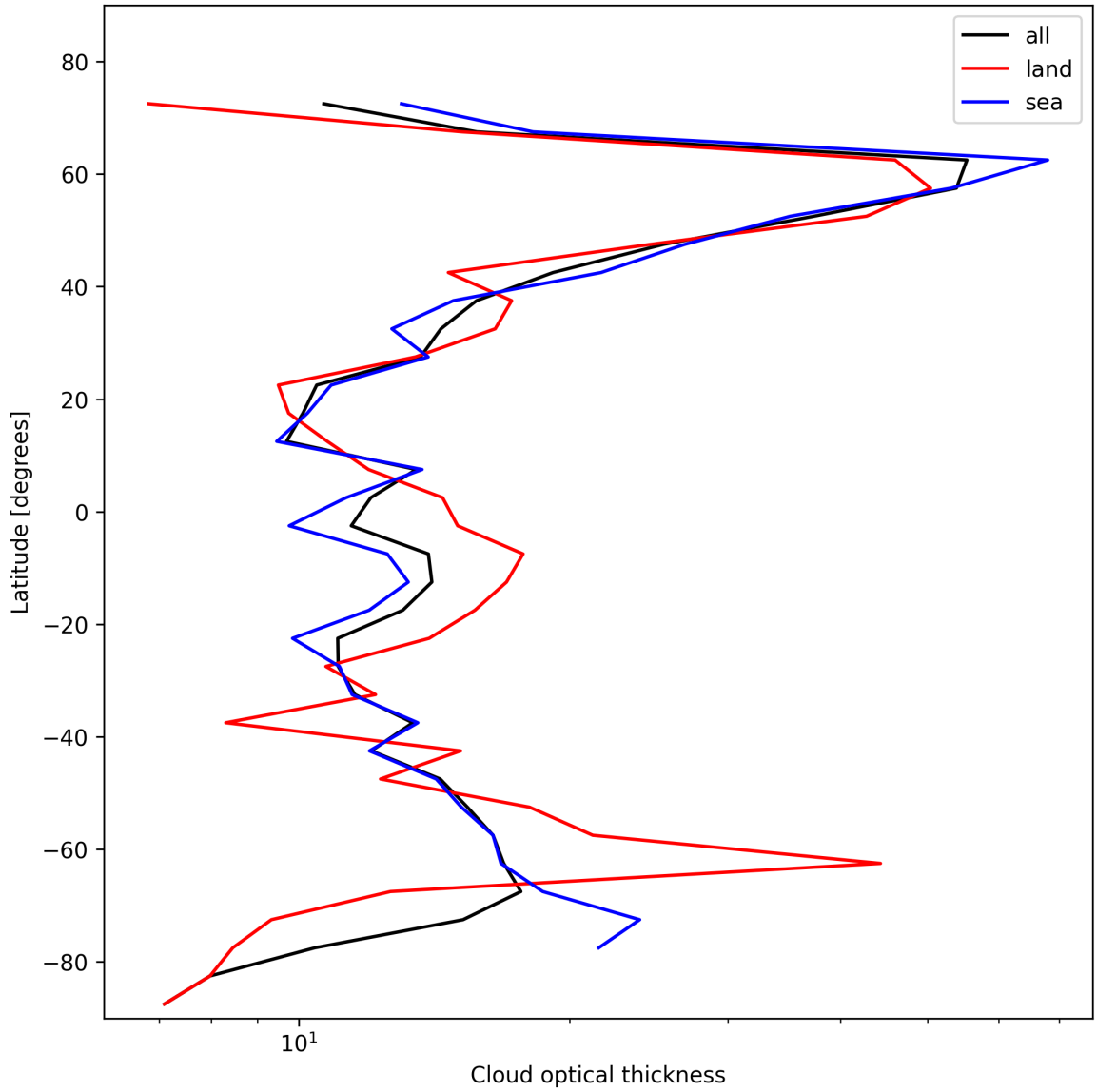

Figure 23: Zonal average of “Cloud optical thickness” for 2025-01-29 to 2025-01-30.

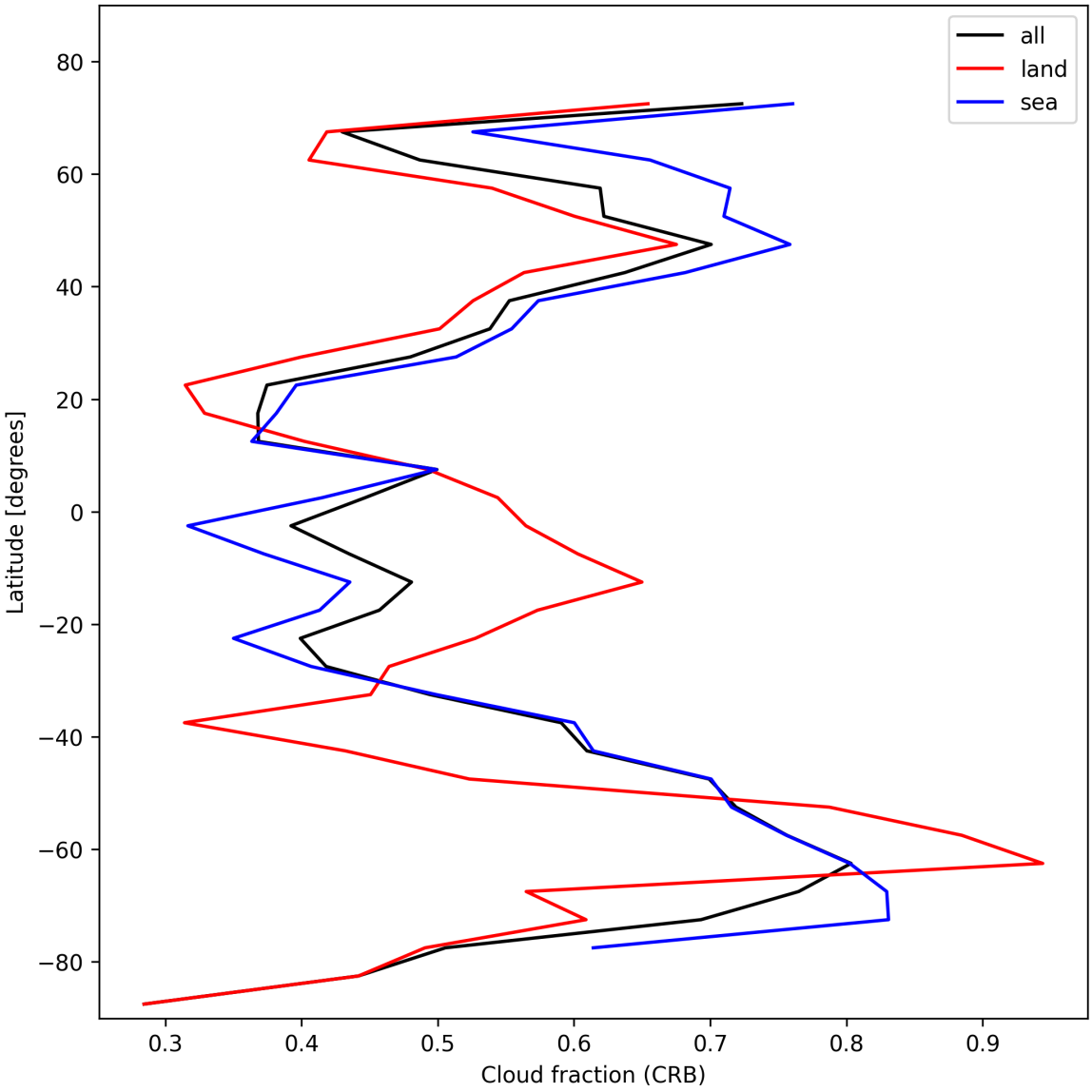

Figure 24: Zonal average of “Cloud fraction (CRB)” for 2025-01-29 to 2025-01-30.

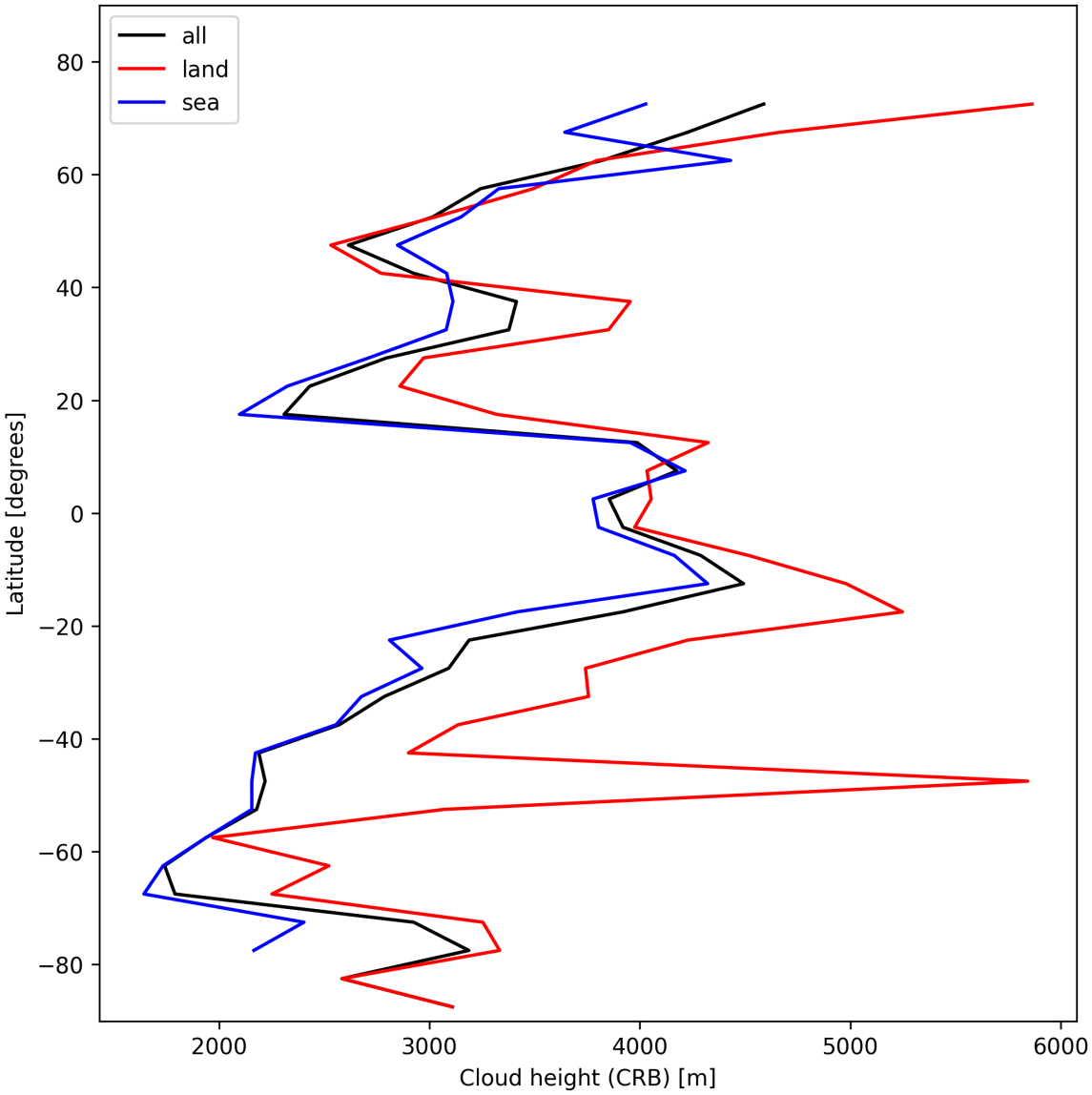

Figure 25: Zonal average of “Cloud height (CRB)” for 2025-01-29 to 2025-01-30.

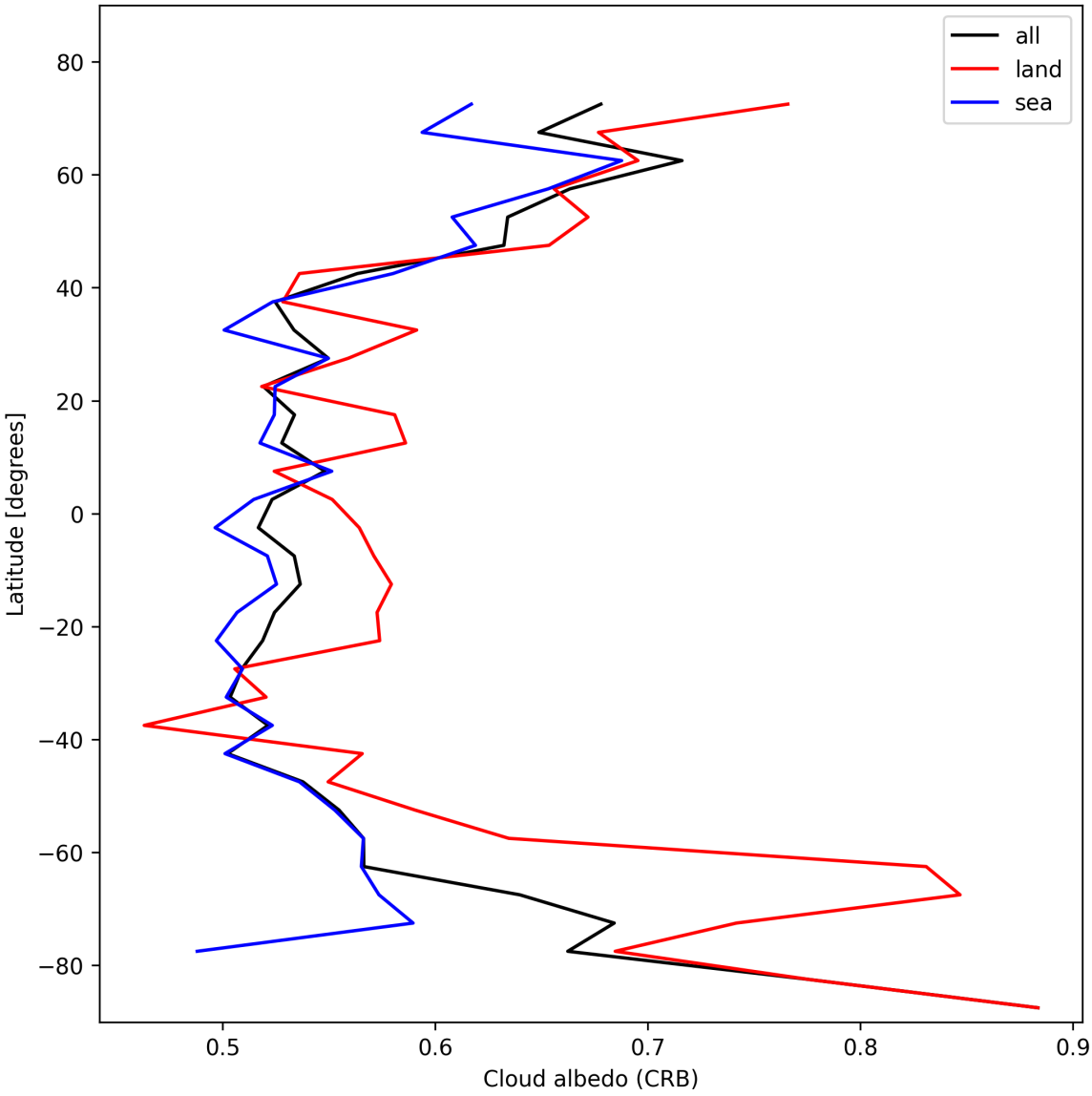

Figure 26: Zonal average of “Cloud albedo (CRB)” for 2025-01-29 to 2025-01-30.

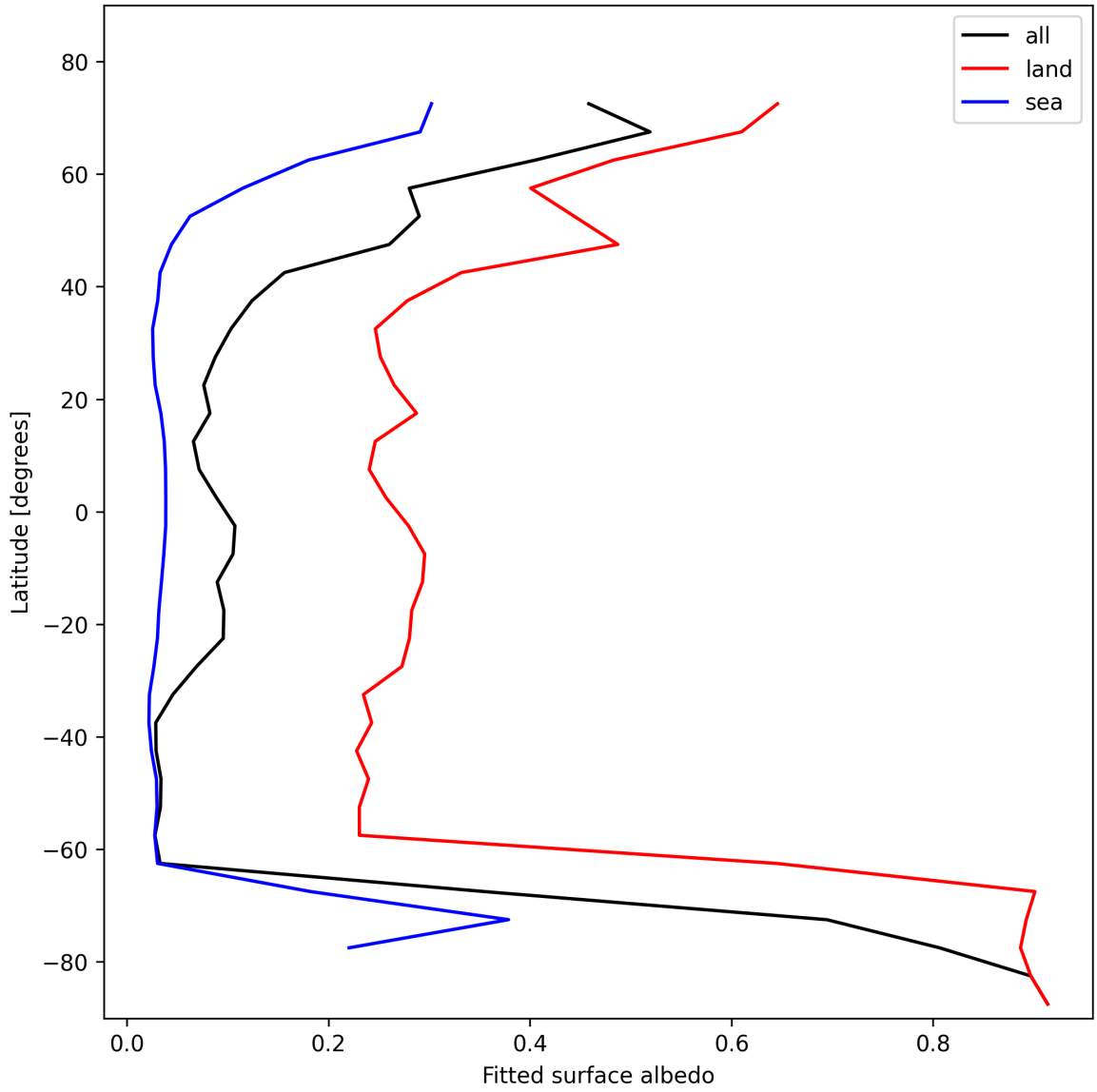

Figure 27: Zonal average of “Fitted surface albedo” for 2025-01-29 to 2025-01-30.

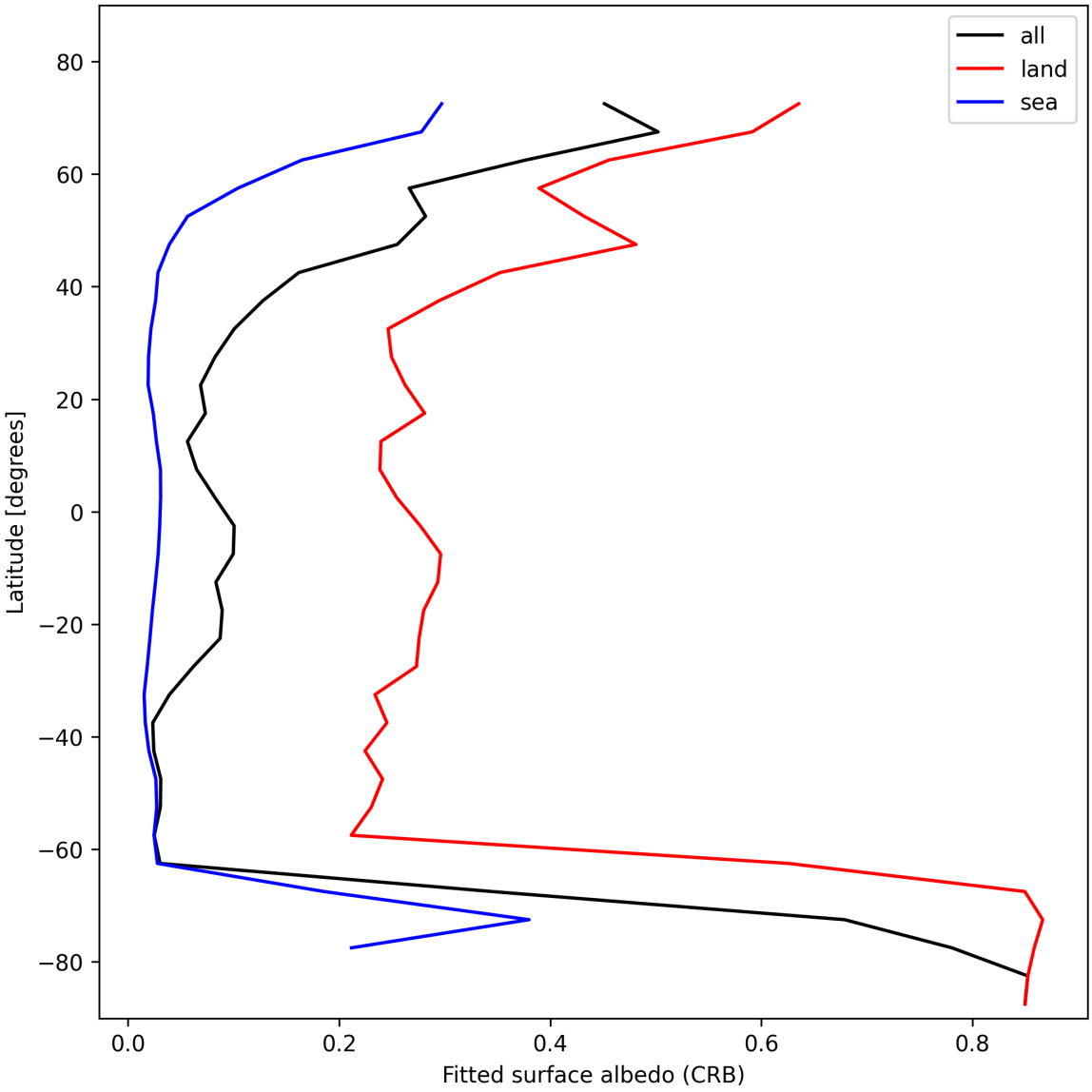

Figure 28: Zonal average of “Fitted surface albedo (CRB)” for 2025-01-29 to 2025-01-30.

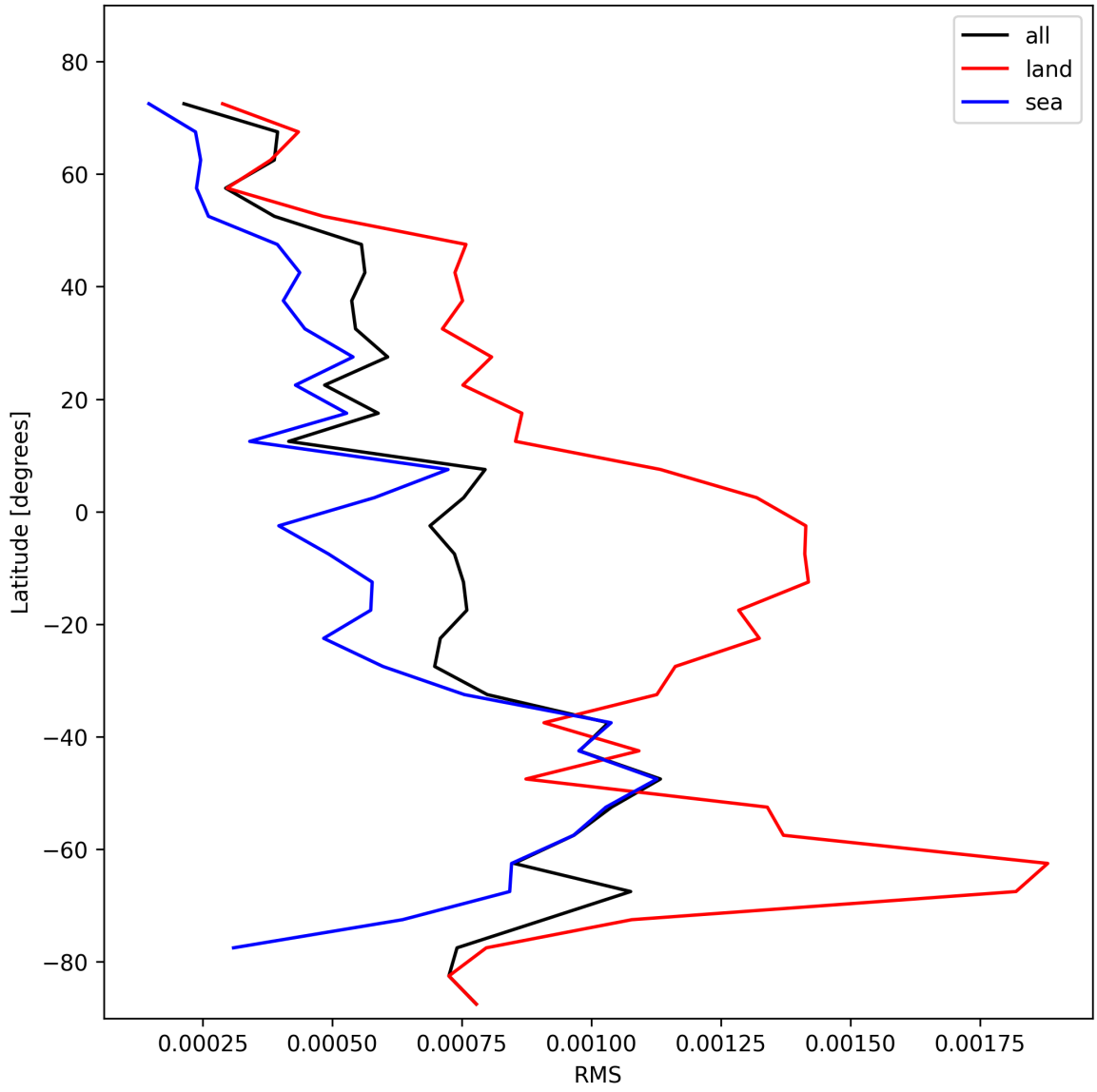

Figure 29: Zonal average of “RMS” for 2025-01-29 to 2025-01-30.

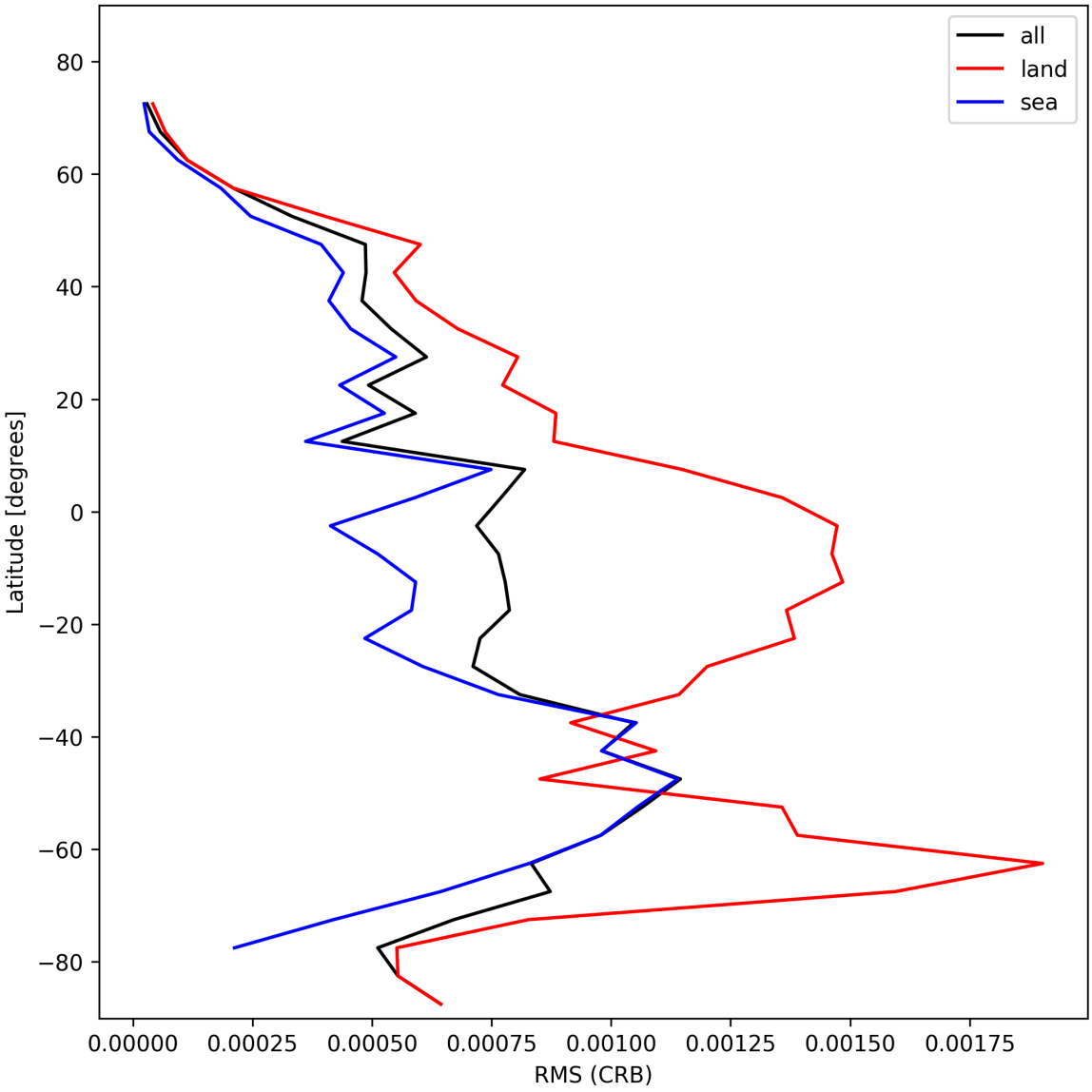

Figure 30: Zonal average of “RMS (CRB)” for 2025-01-29 to 2025-01-30.

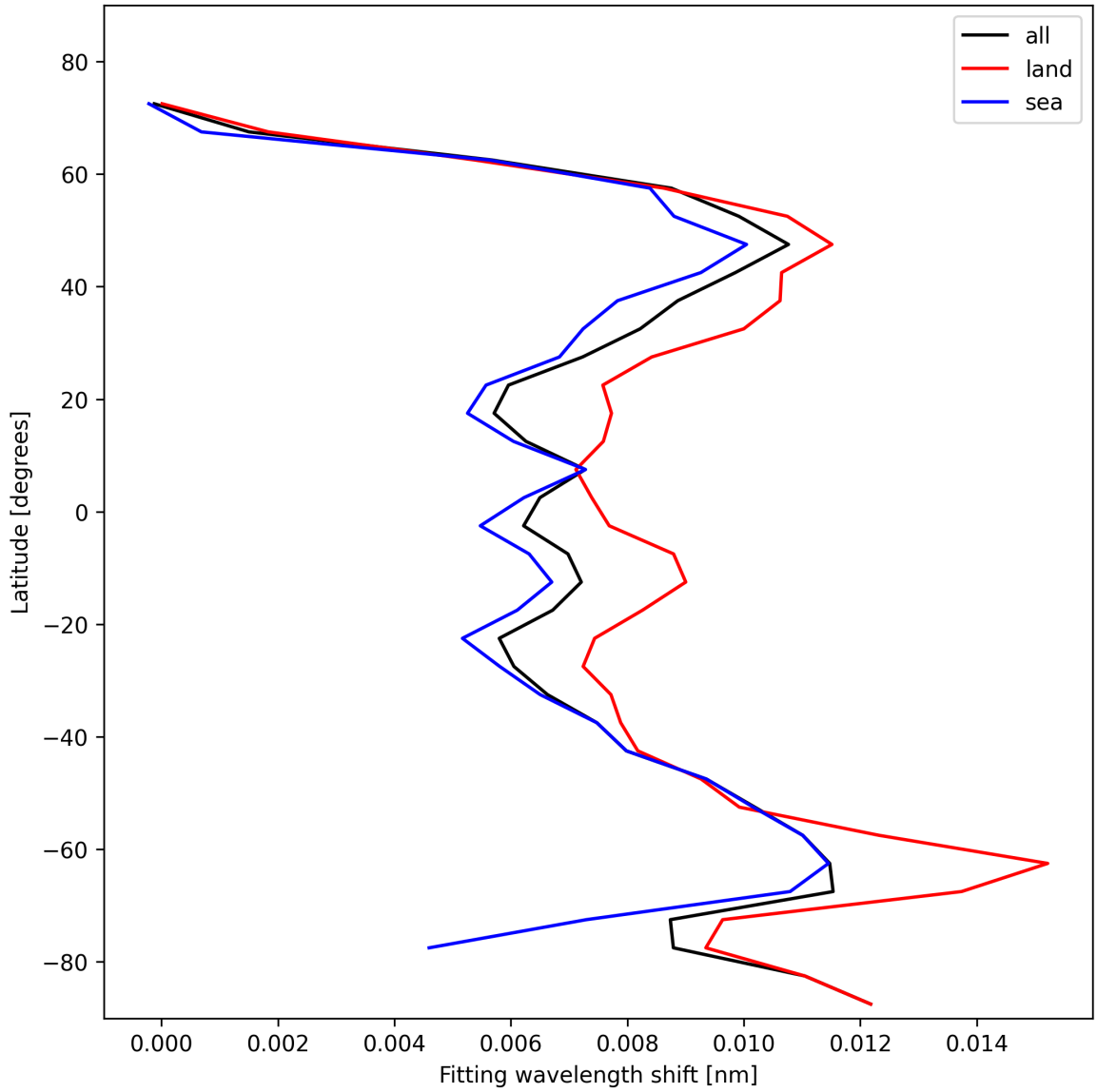

Figure 31: Zonal average of “Fitting wavelength shift” for 2025-01-29 to 2025-01-30.

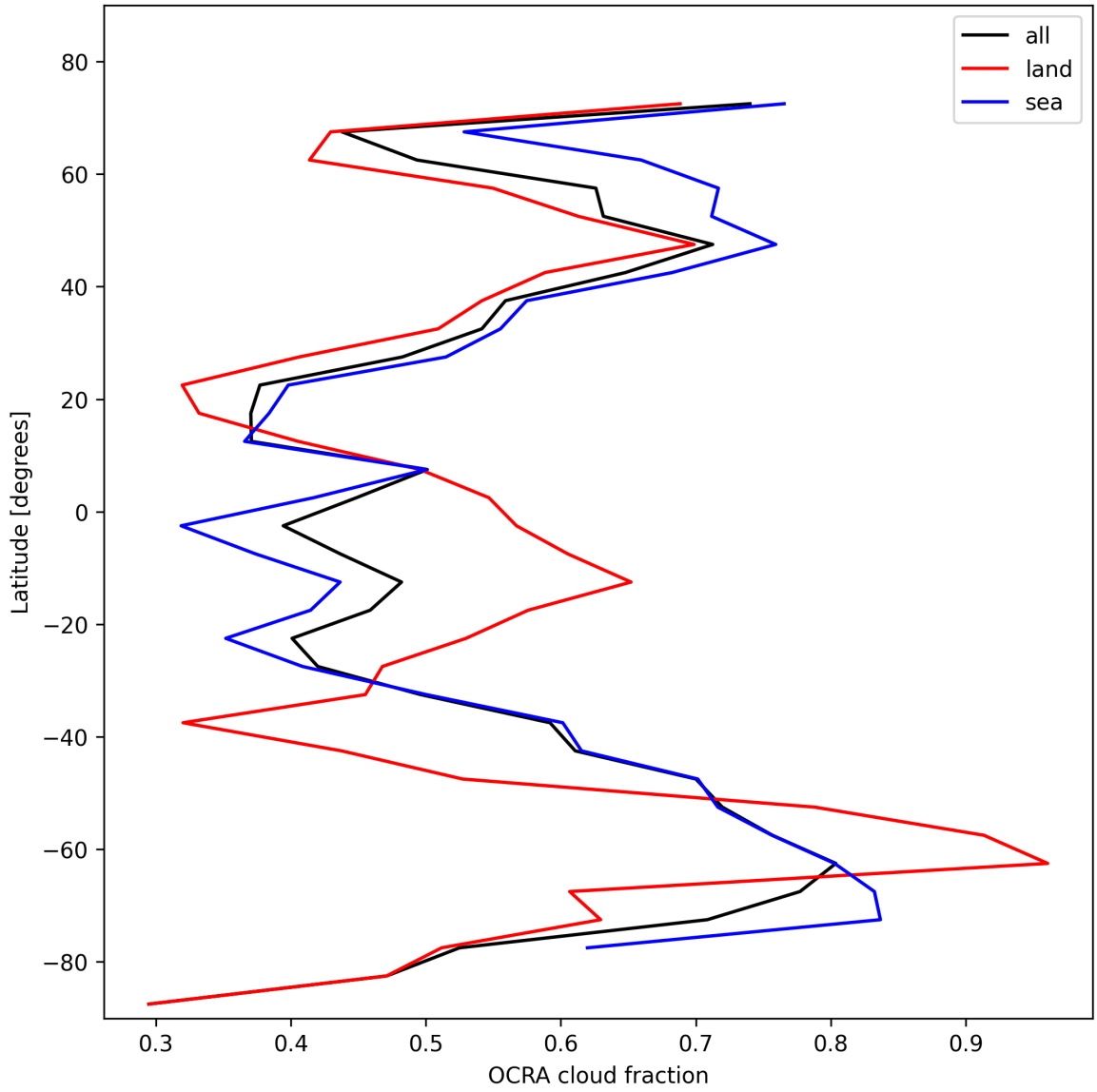

Figure 32: Zonal average of “OCRA cloud fraction” for 2025-01-29 to 2025-01-30.

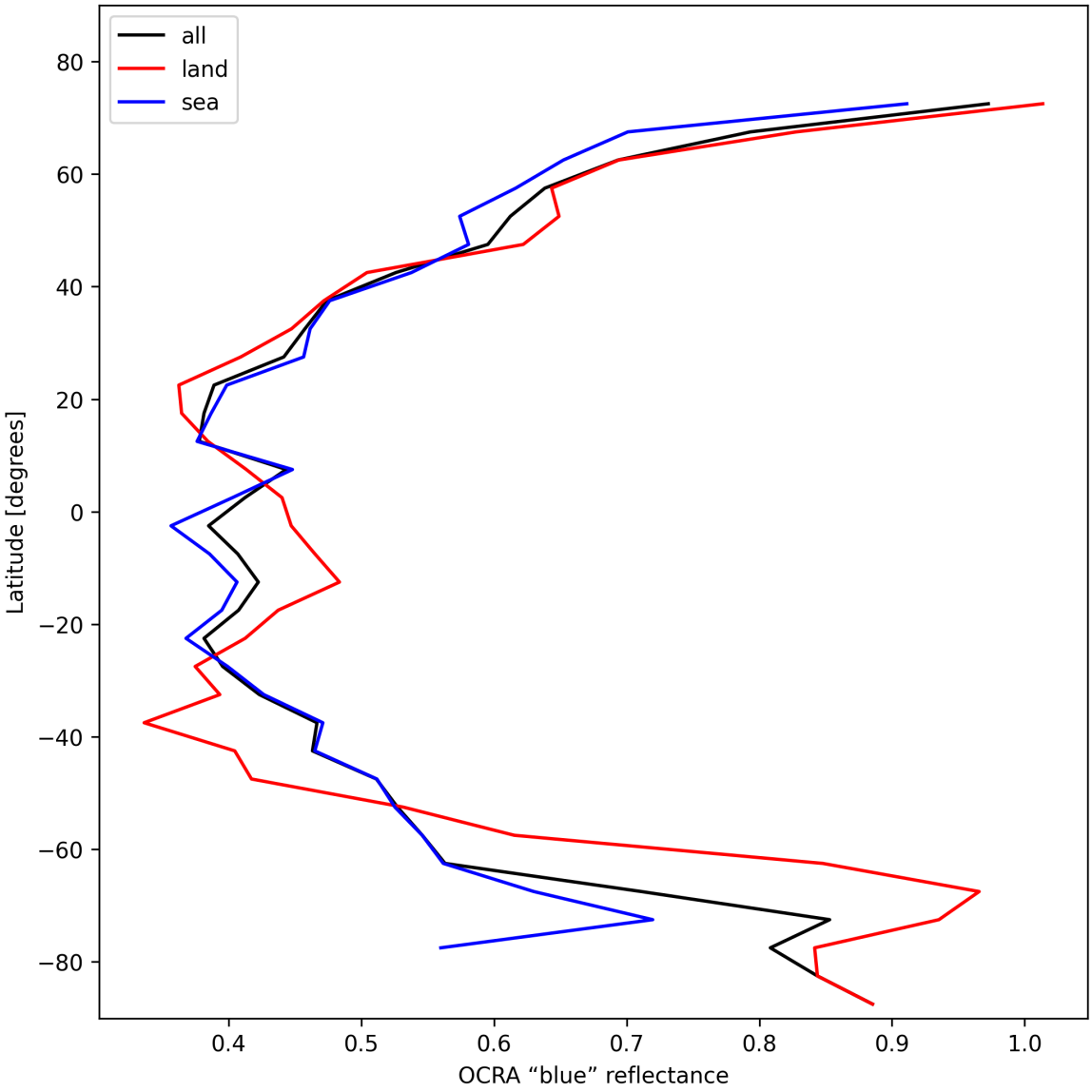

Figure 33: Zonal average of “OCRA “blue” reflectance” for 2025-01-29 to 2025-01-30.

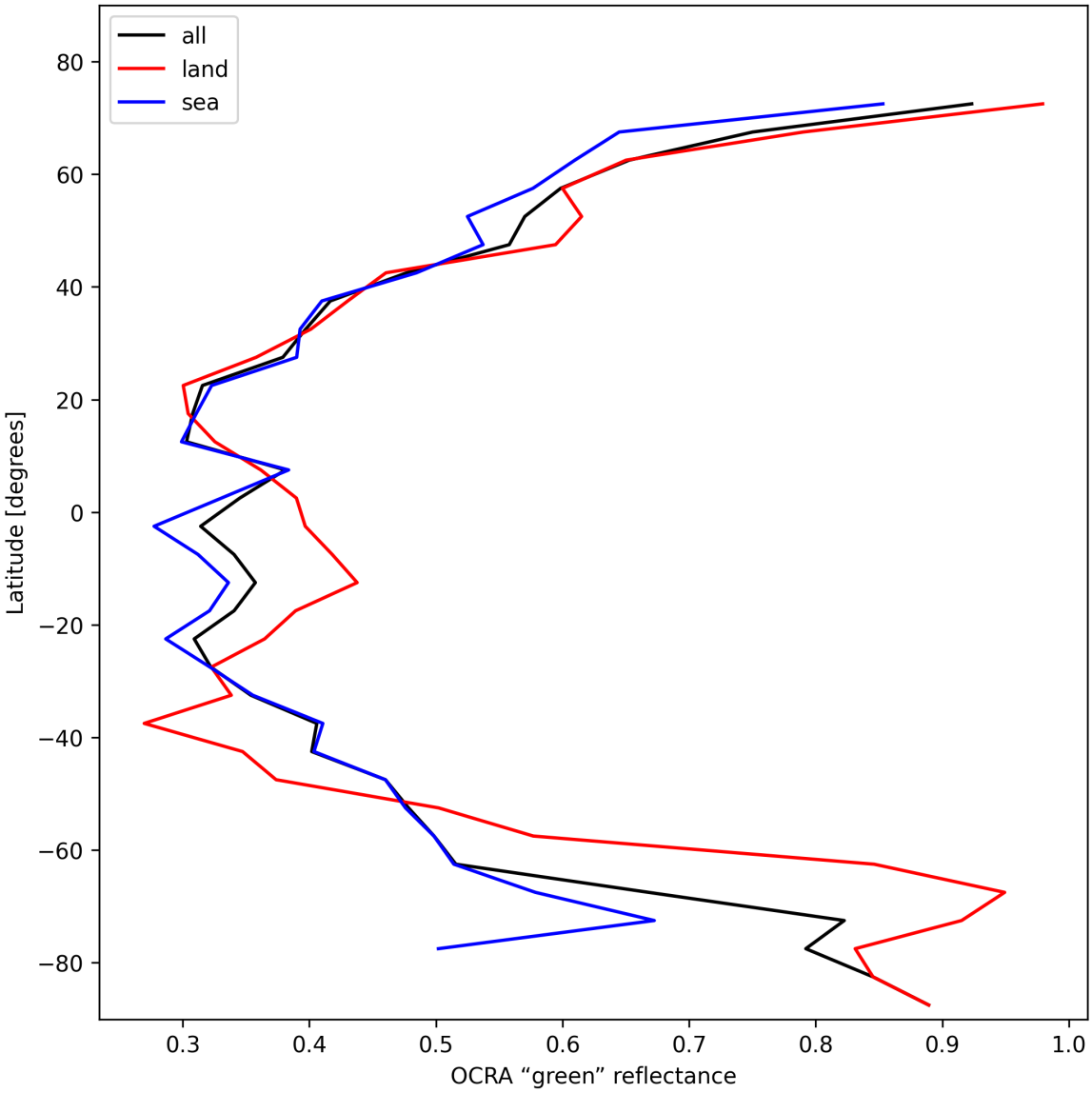

Figure 34: Zonal average of “OCRA “green” reflectance” for 2025-01-29 to 2025-01-30.

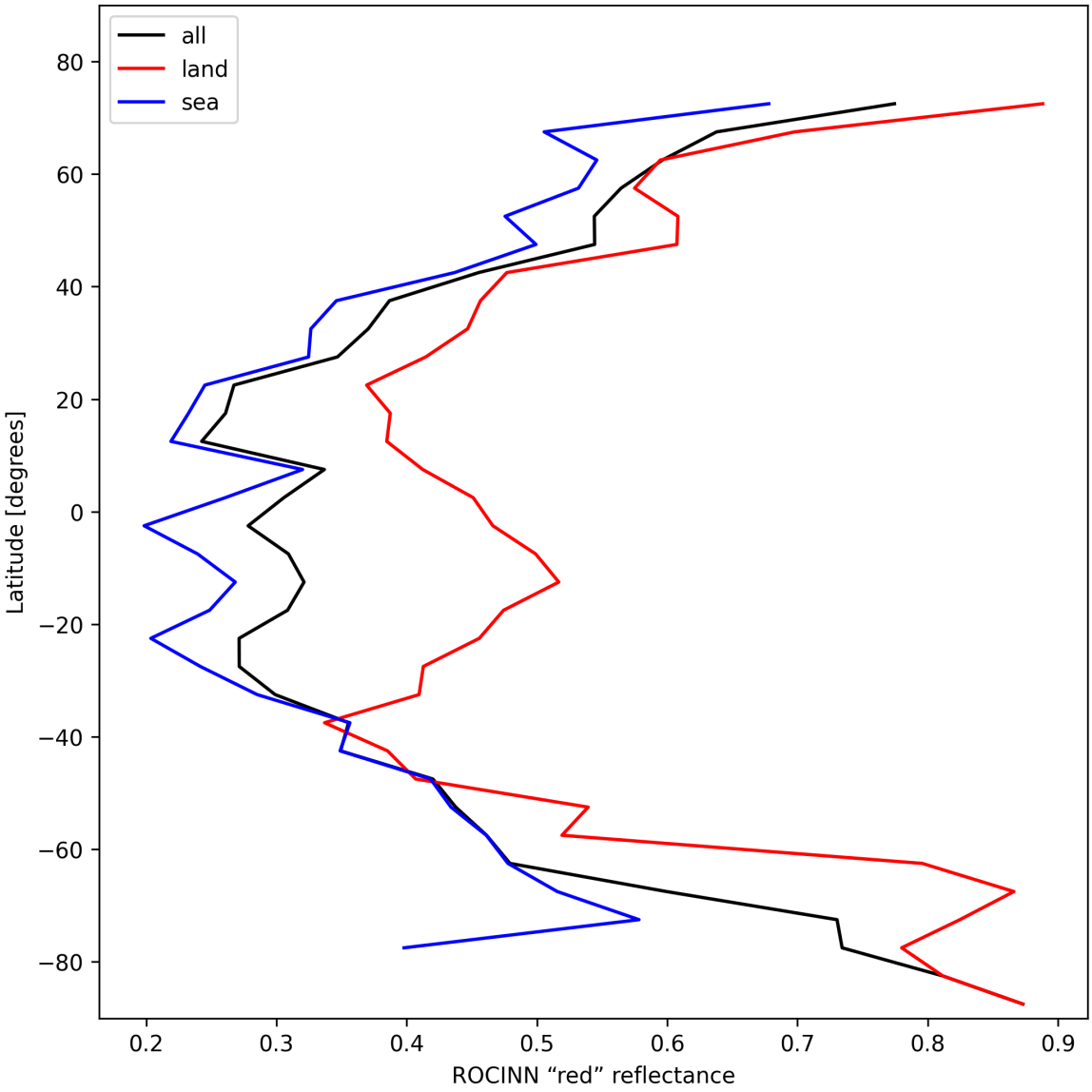

Figure 35: Zonal average of “ROCINN “red” reflectance” for 2025-01-29 to 2025-01-30.

8 Histograms

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

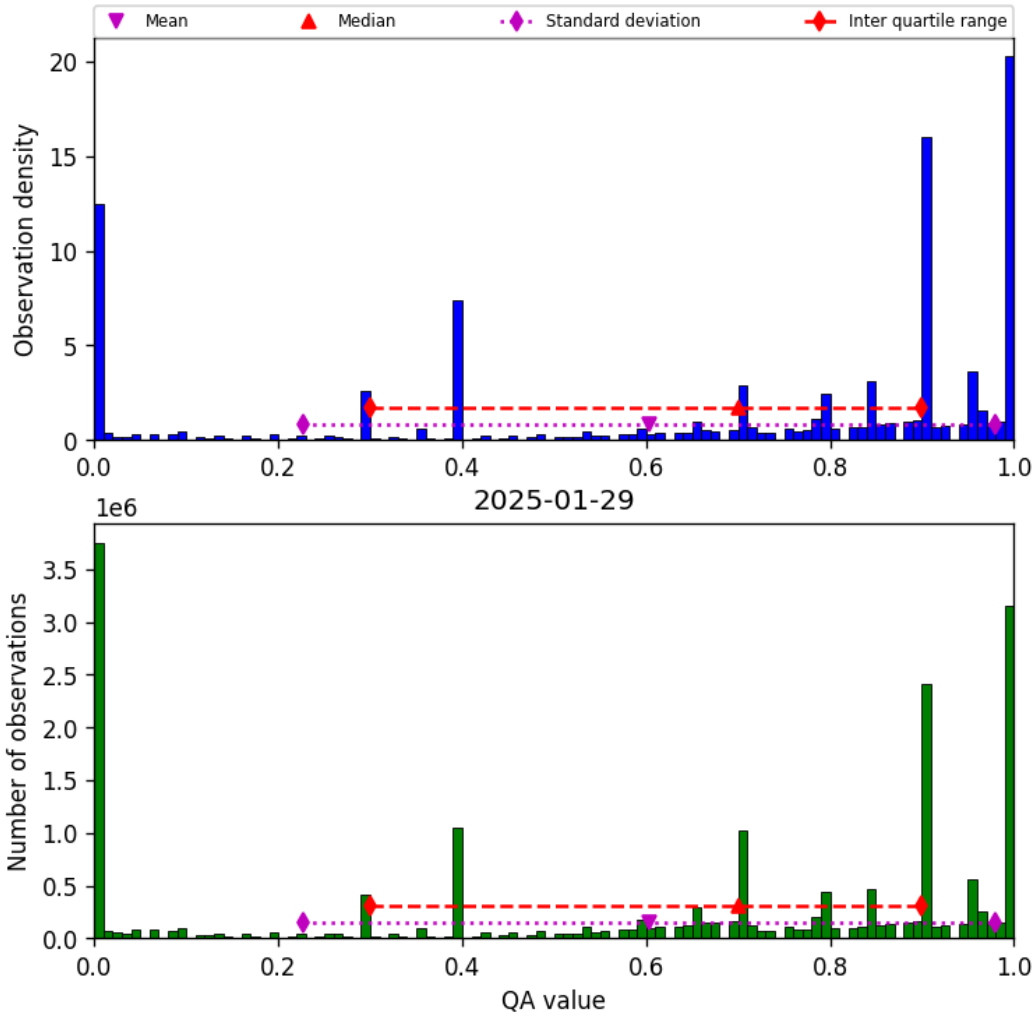

Figure 36: Histogram of “QA value” for 2025-01-29 to 2025-01-30

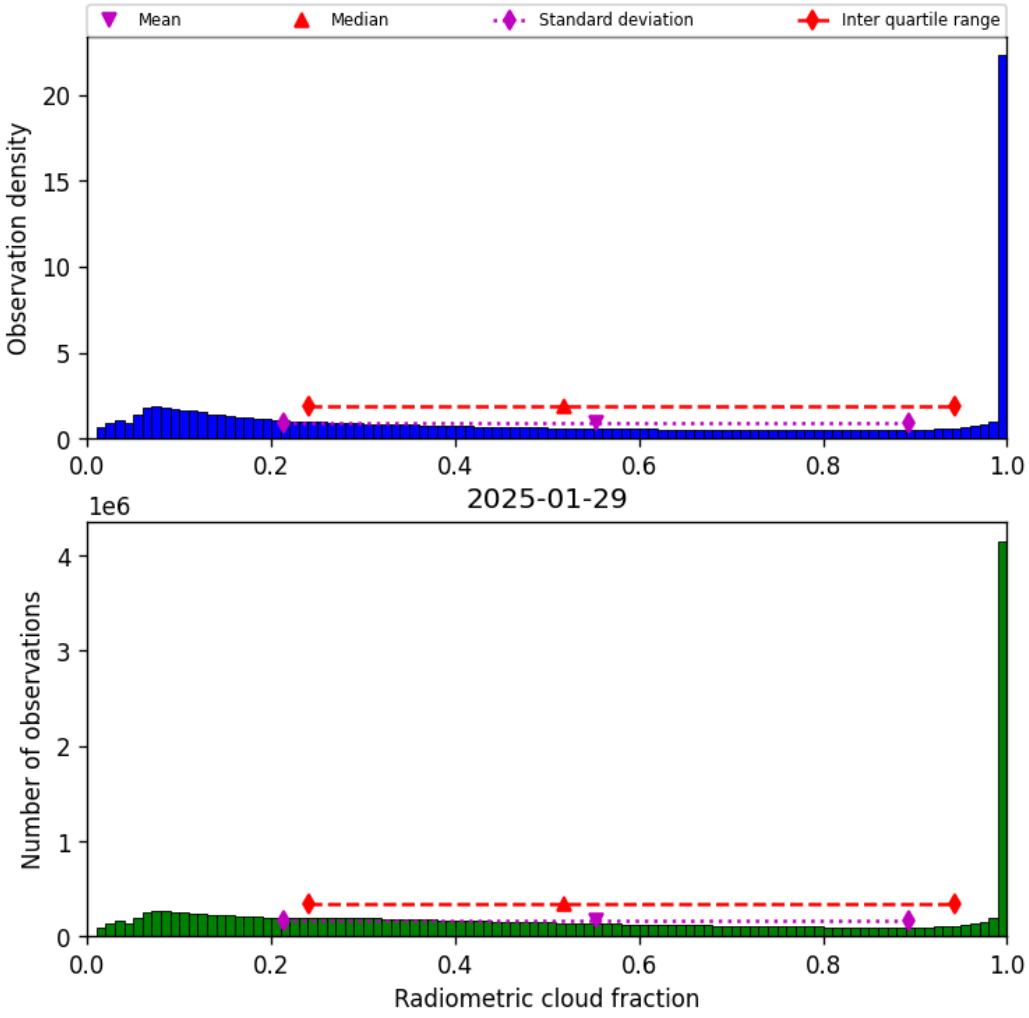

Figure 37: Histogram of “Radiometric cloud fraction” for 2025-01-29 to 2025-01-30

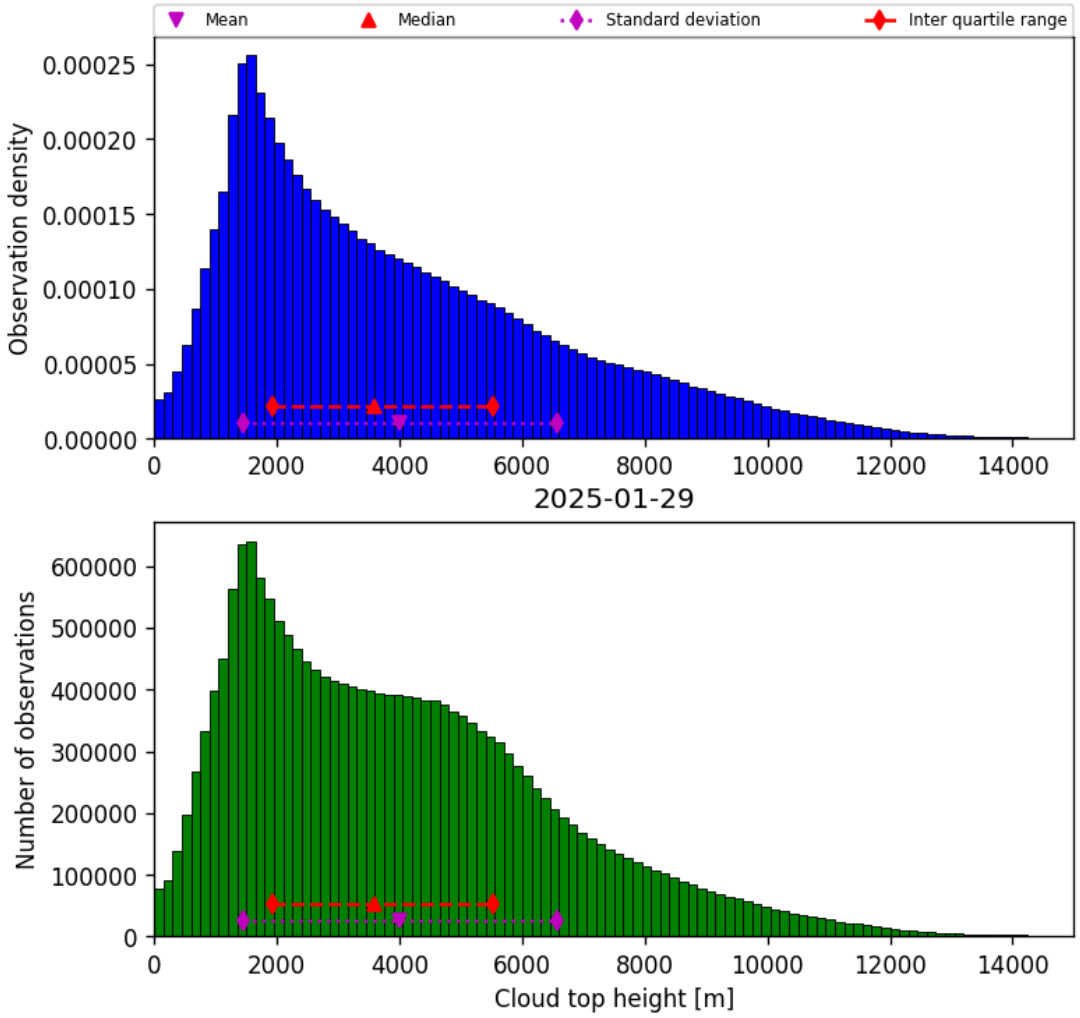

Figure 38: Histogram of “Cloud top height” for 2025-01-29 to 2025-01-30

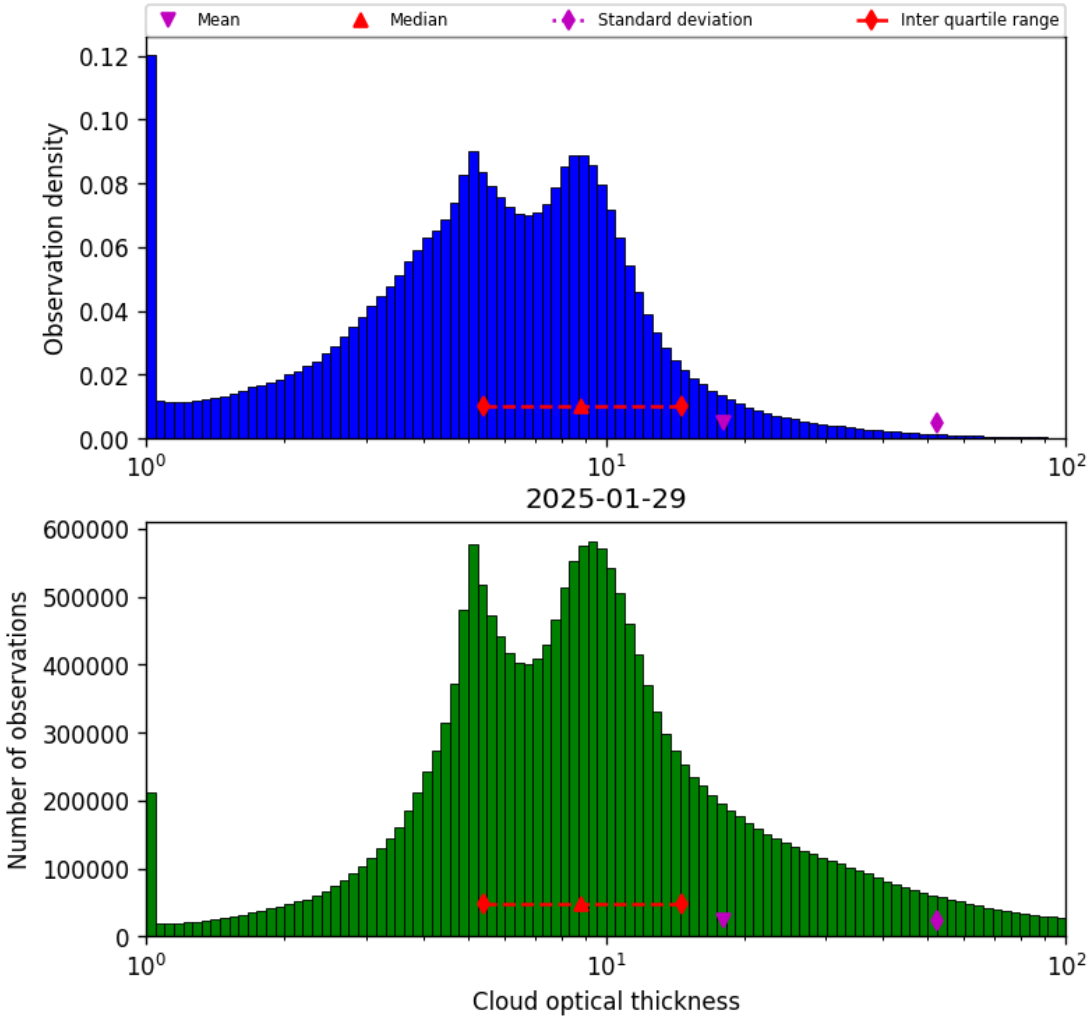

Figure 39: Histogram of “Cloud optical thickness” for 2025-01-29 to 2025-01-30

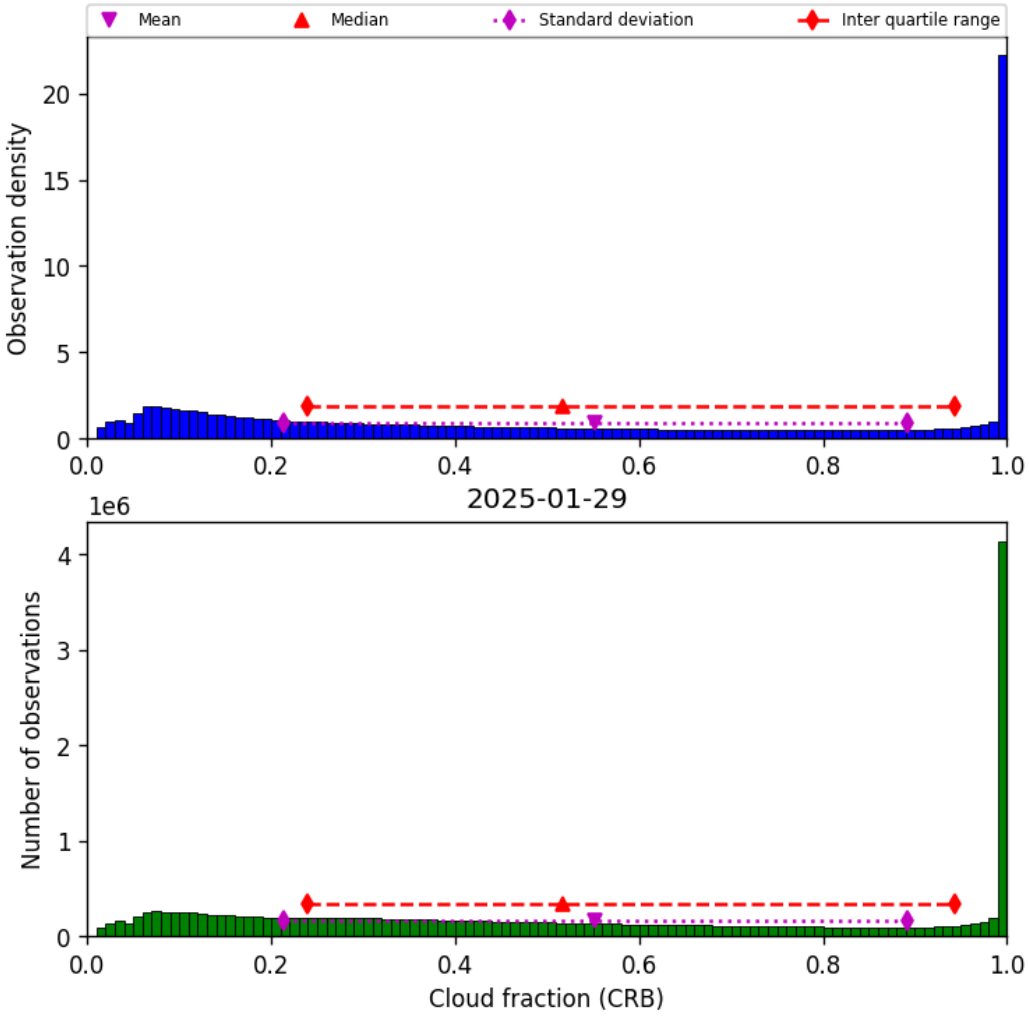

Figure 40: Histogram of “Cloud fraction (CRB)” for 2025-01-29 to 2025-01-30

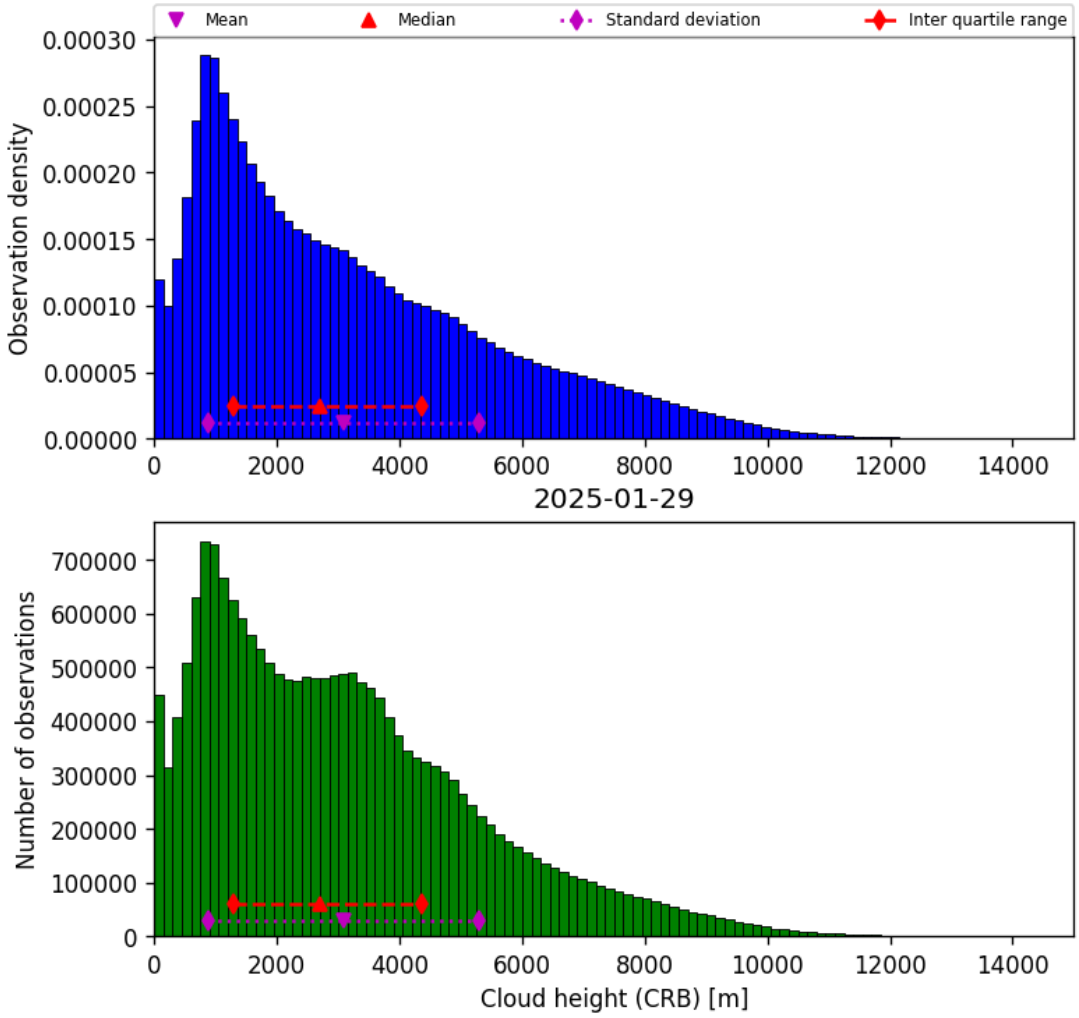

Figure 41: Histogram of “Cloud height (CRB)” for 2025-01-29 to 2025-01-30

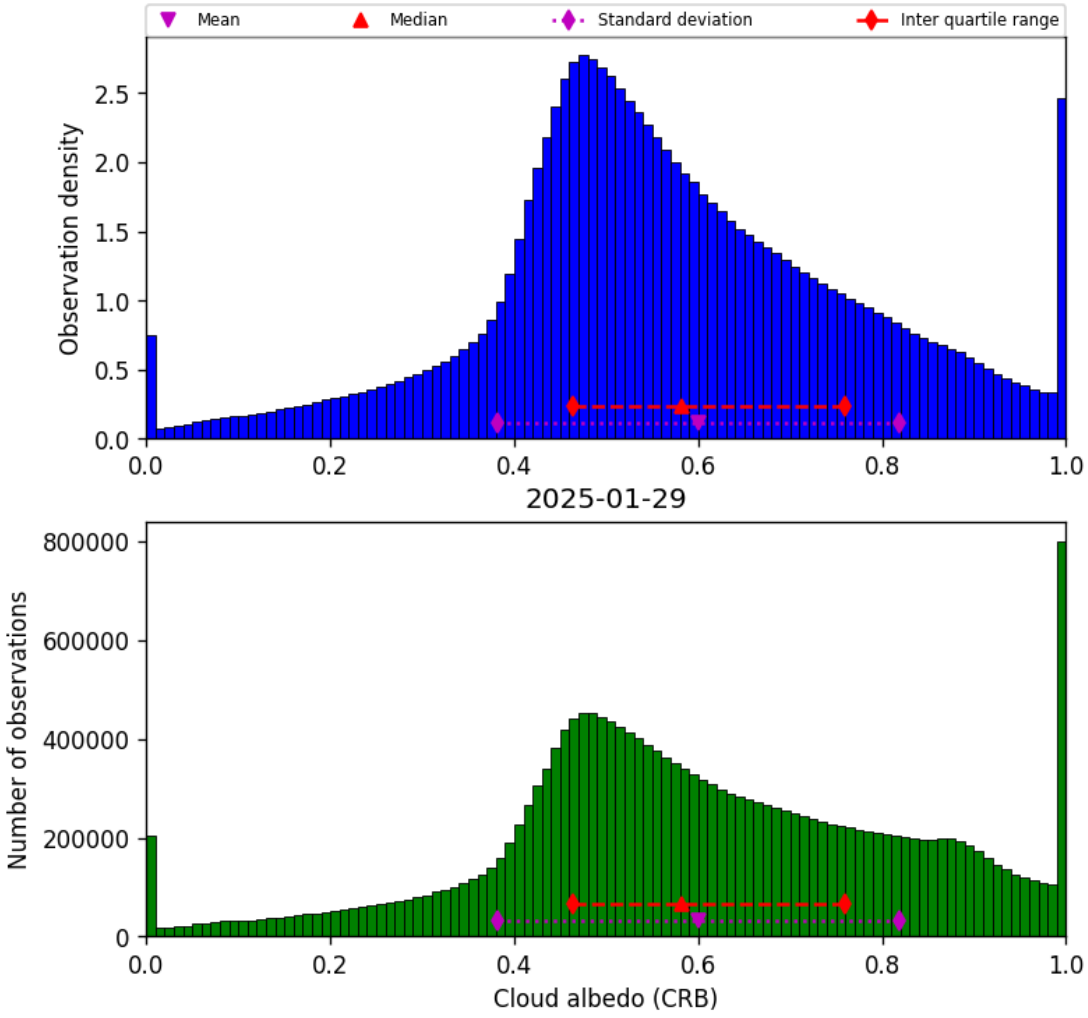

Figure 42: Histogram of “Cloud albedo (CRB)” for 2025-01-29 to 2025-01-30

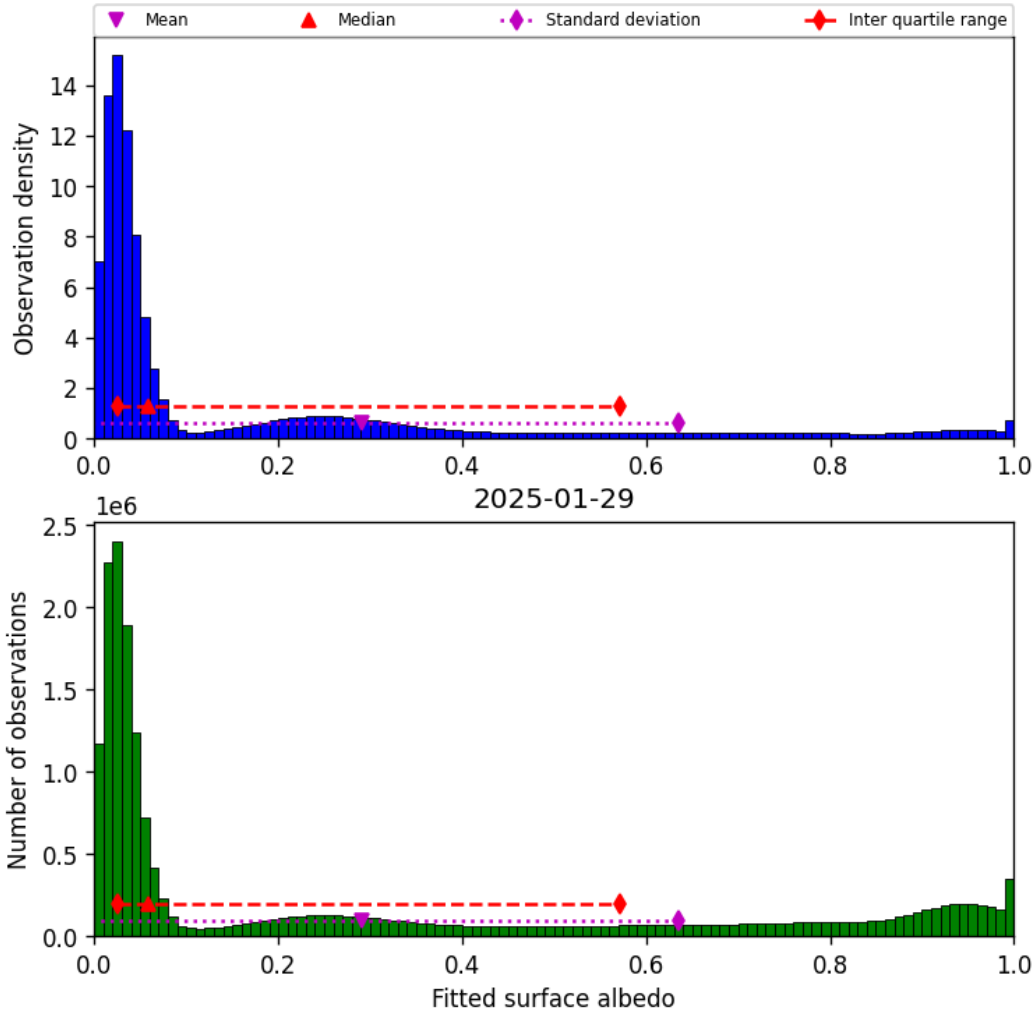

Figure 43: Histogram of “Fitted surface albedo” for 2025-01-29 to 2025-01-30

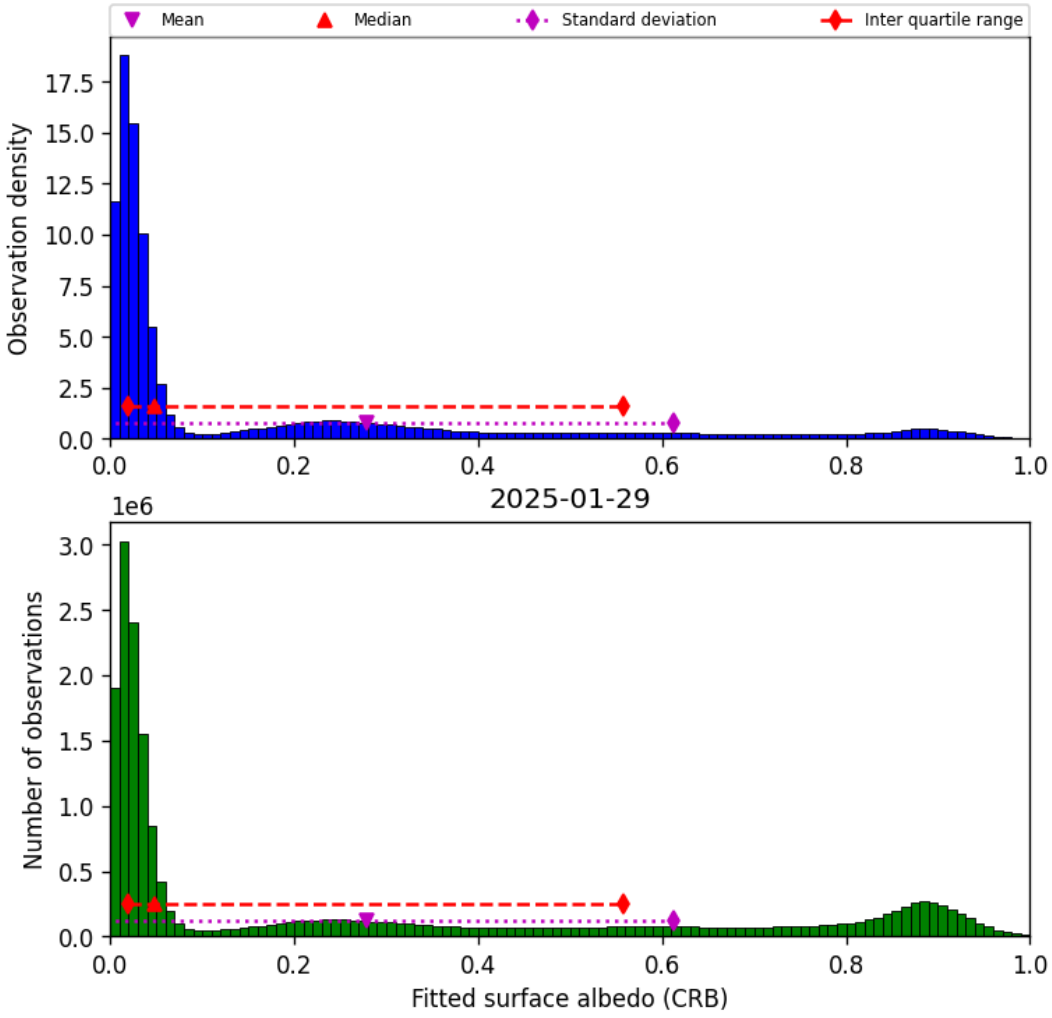

Figure 44: Histogram of “Fitted surface albedo (CRB)” for 2025-01-29 to 2025-01-30

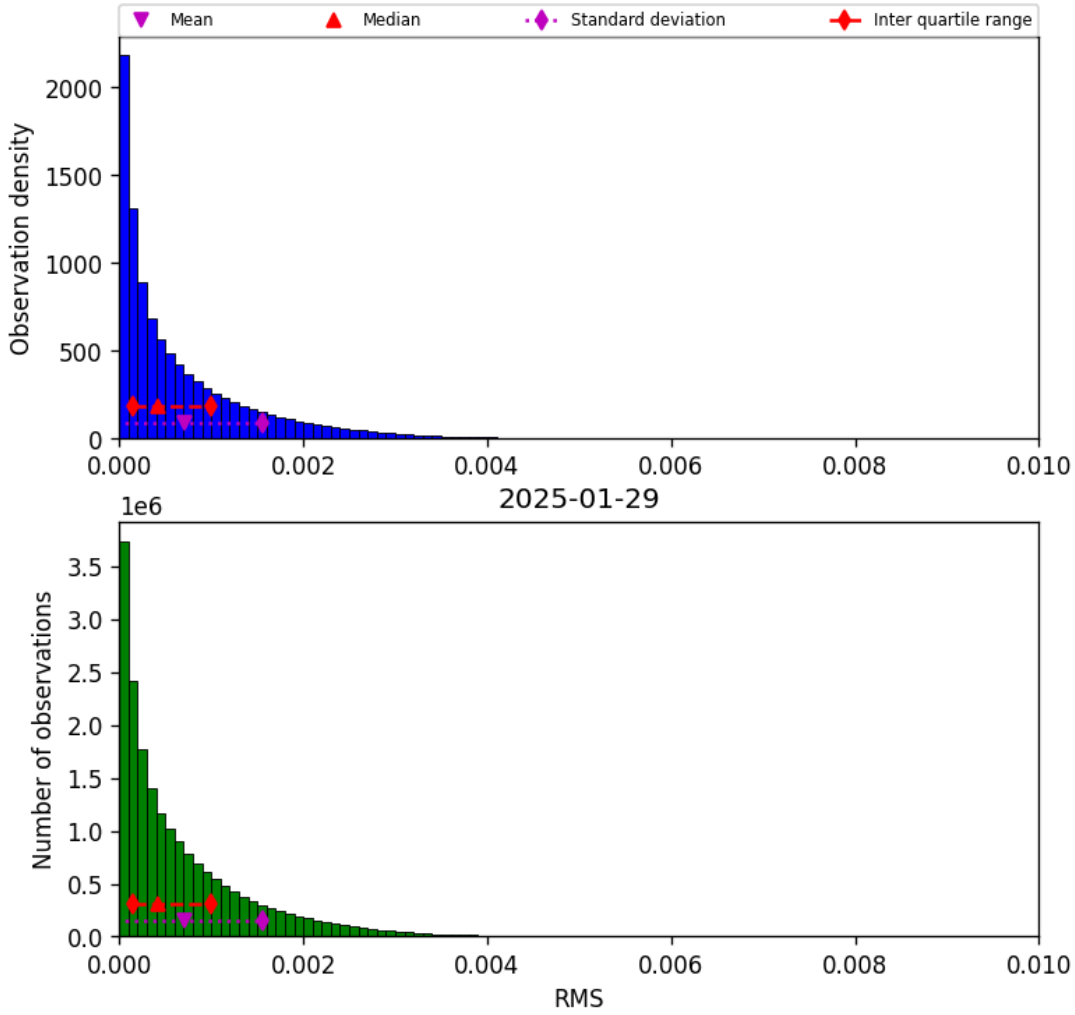

Figure 45: Histogram of “RMS” for 2025-01-29 to 2025-01-30

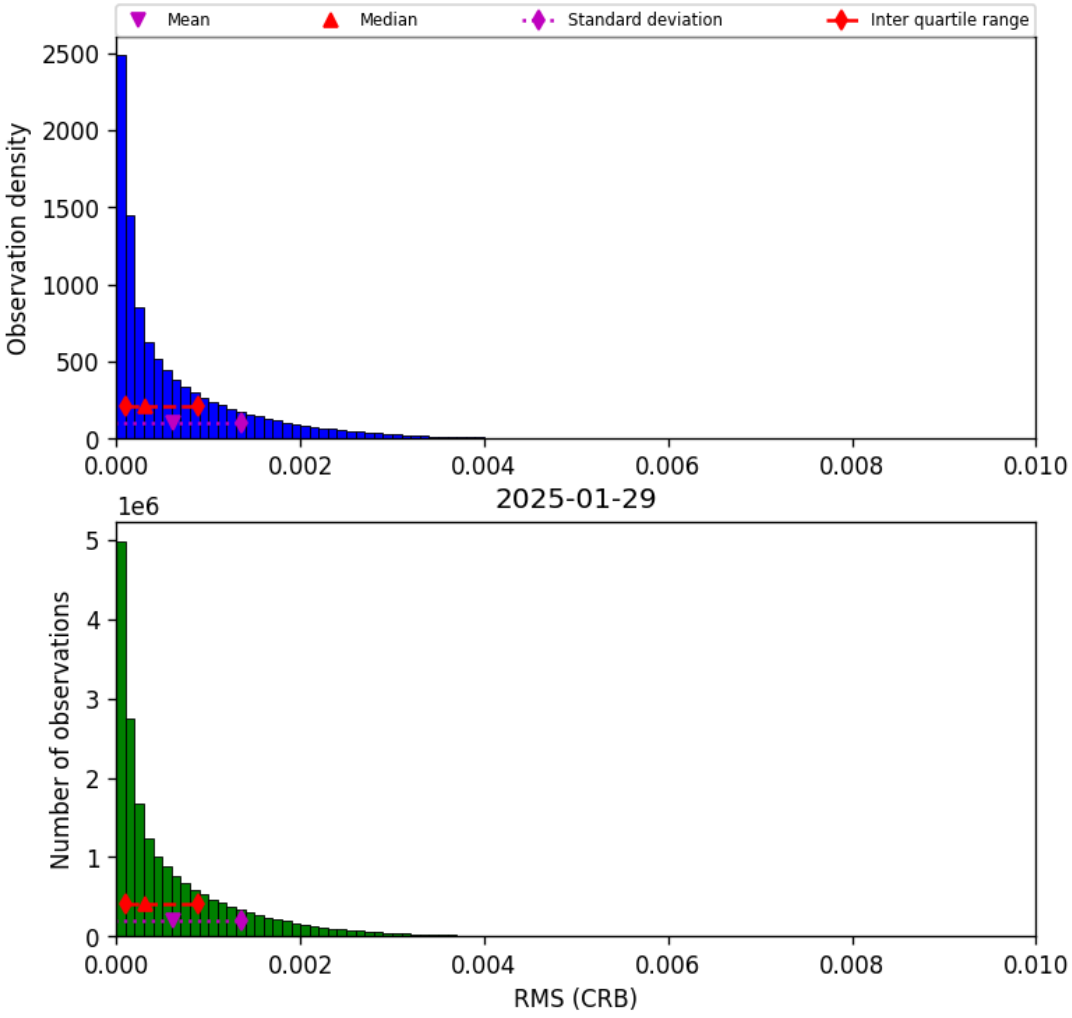

Figure 46: Histogram of “RMS (CRB)” for 2025-01-29 to 2025-01-30

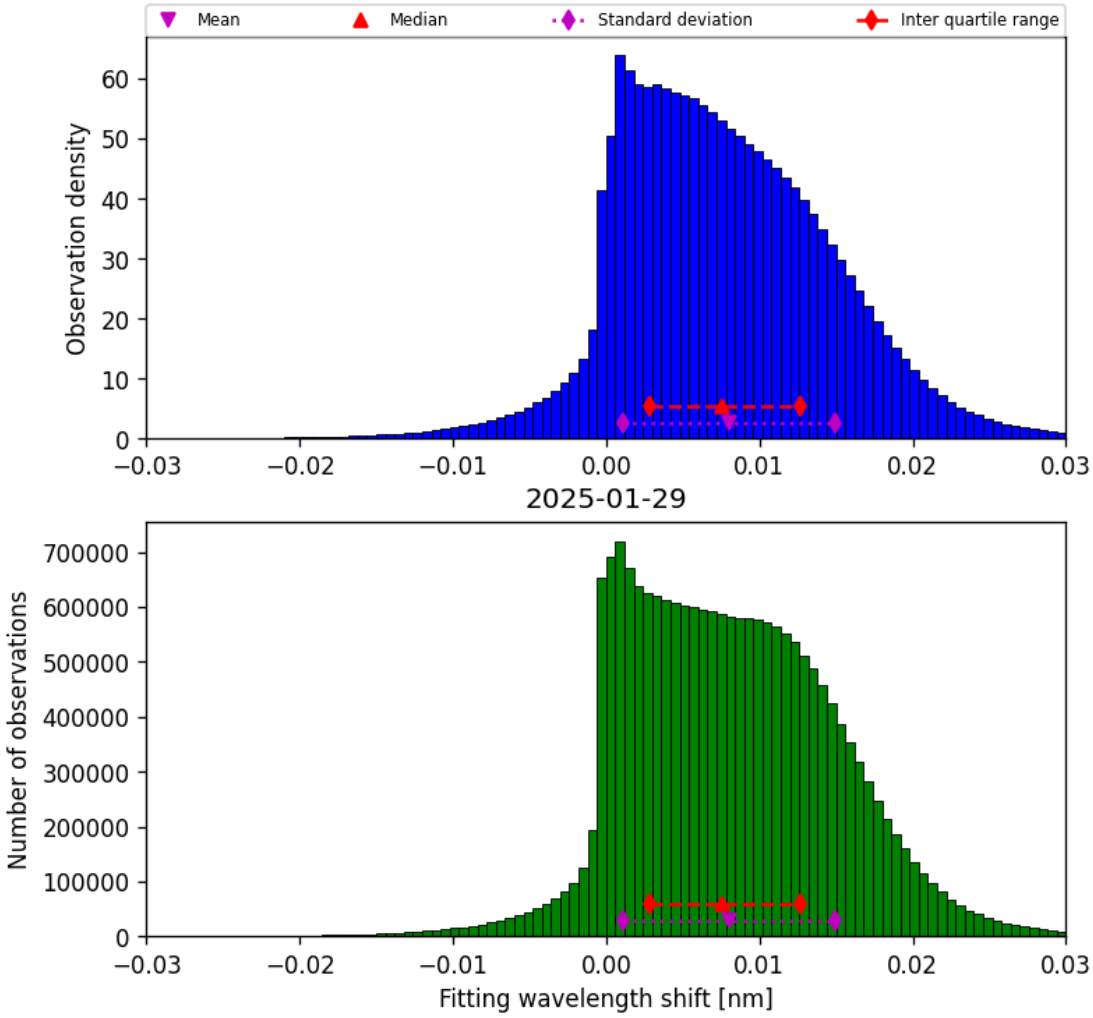

Figure 47: Histogram of “Fitting wavelength shift” for 2025-01-29 to 2025-01-30

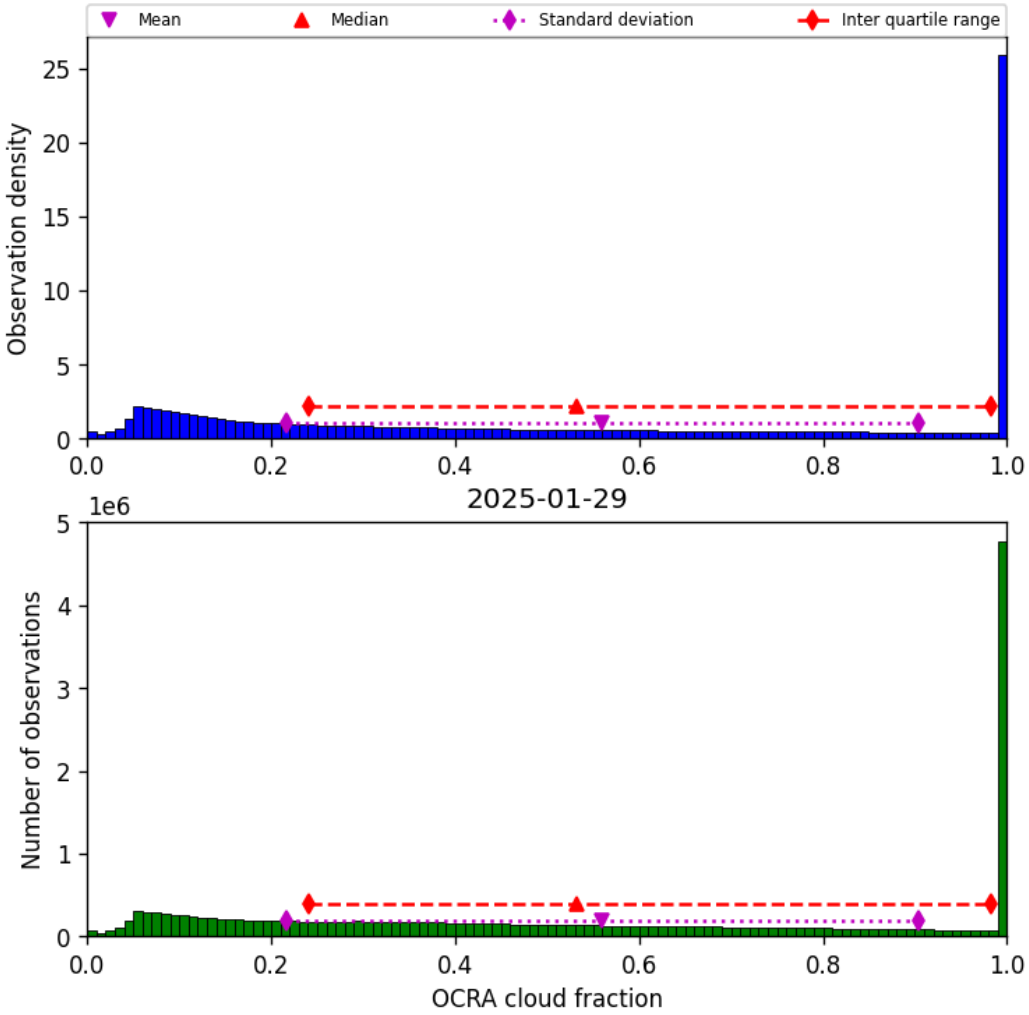

Figure 48: Histogram of “OCRA cloud fraction” for 2025-01-29 to 2025-01-30

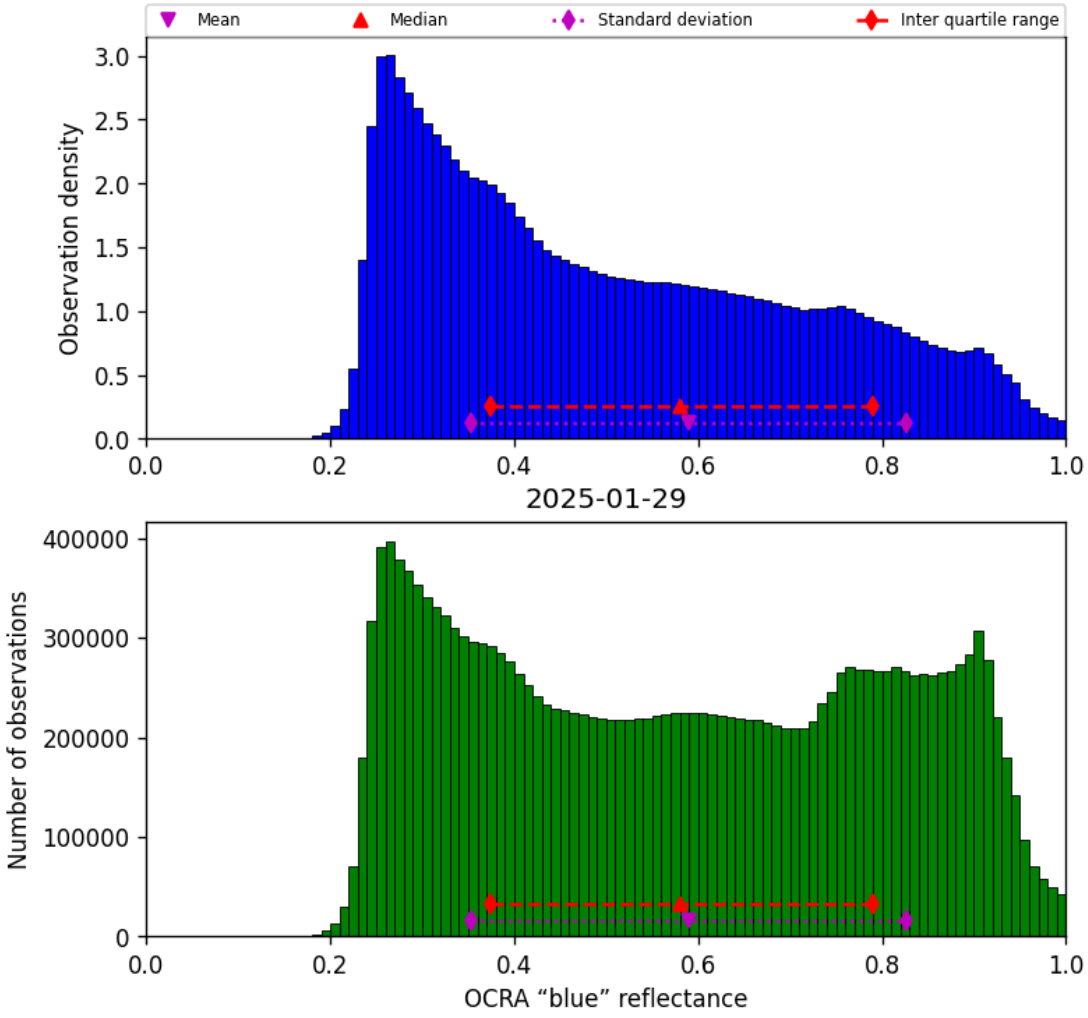

Figure 49: Histogram of “OCRA “blue” reflectance” for 2025-01-29 to 2025-01-30

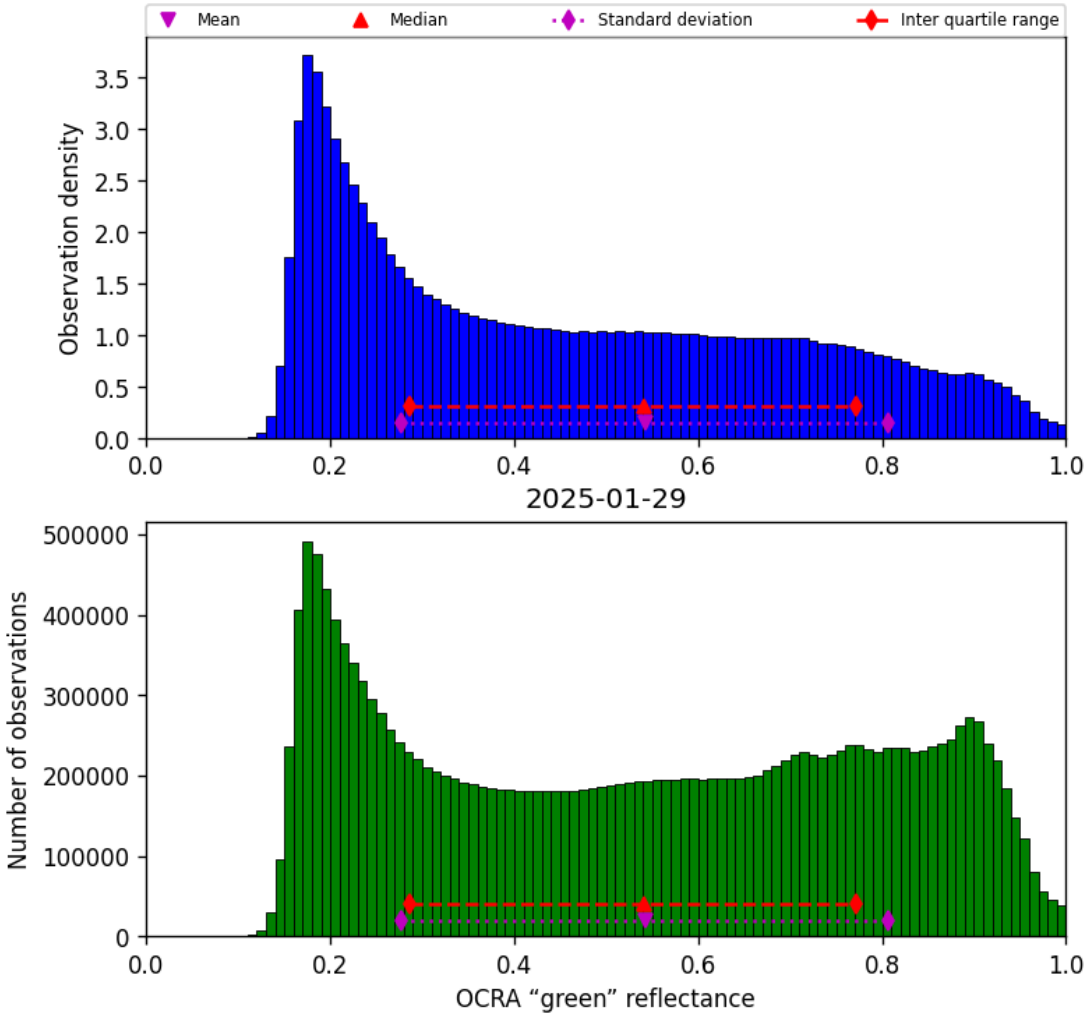

Figure 50: Histogram of “OCRA “green” reflectance” for 2025-01-29 to 2025-01-30

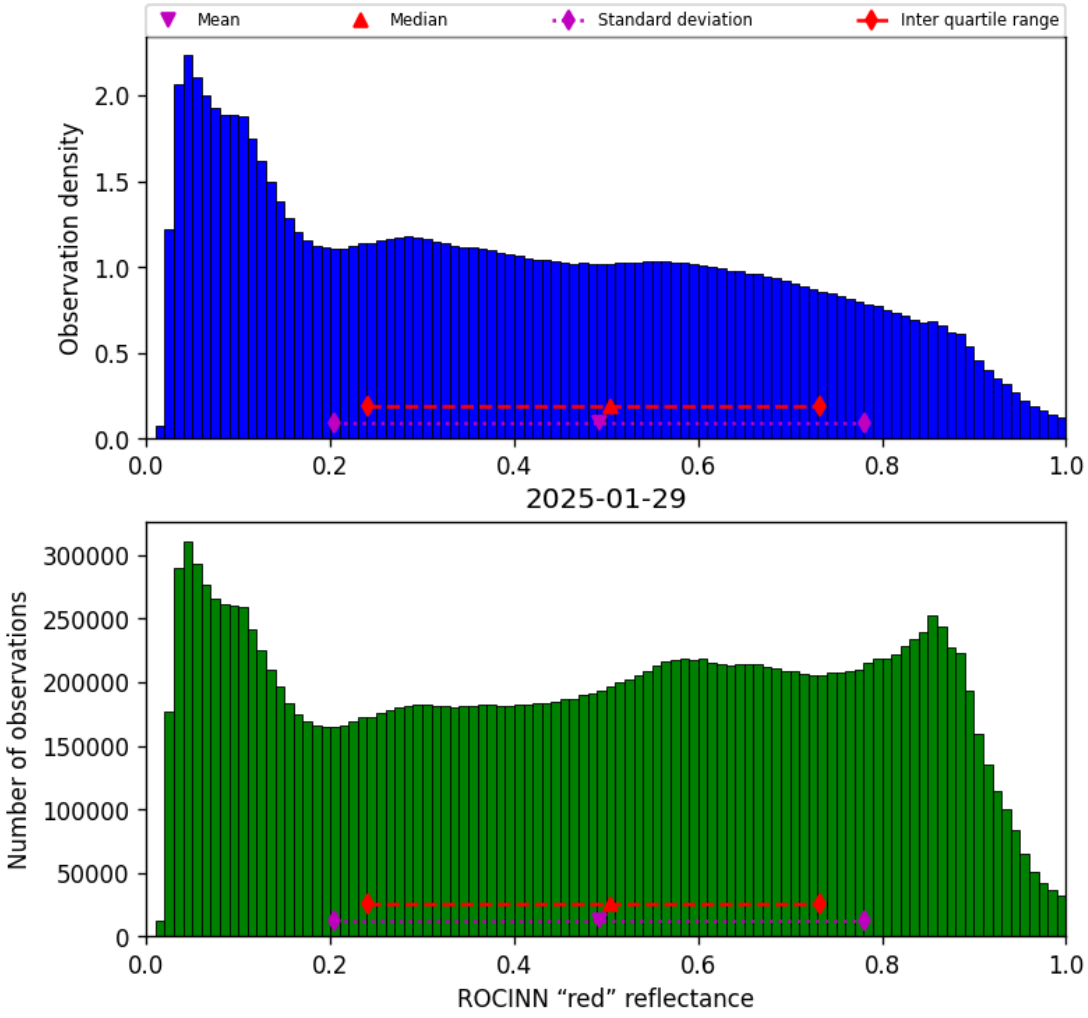

Figure 51: Histogram of “ROCINN “red” reflectance” for 2025-01-29 to 2025-01-30

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.

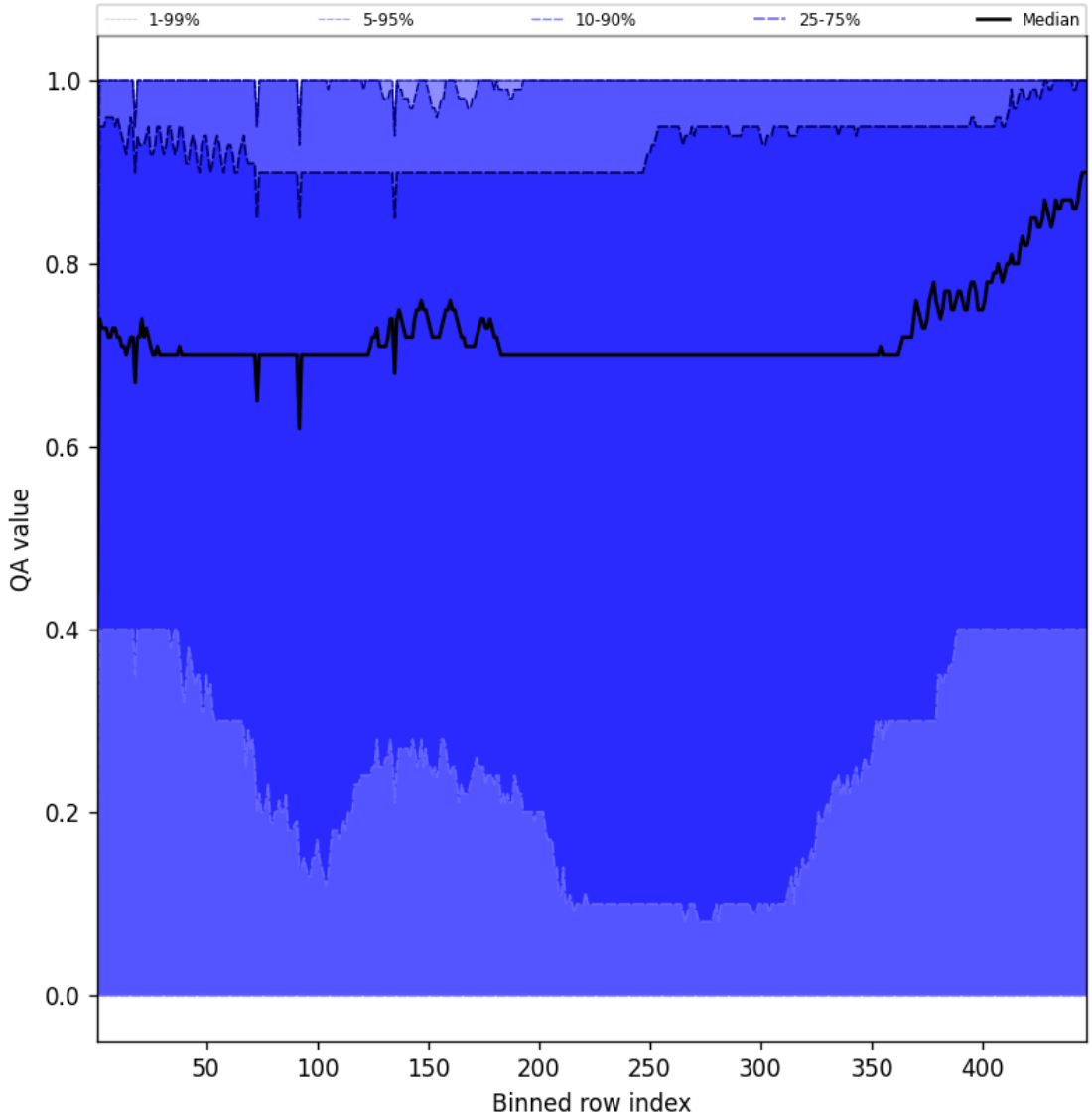

Figure 52: Along track statistics of “QA value” for 2025-01-29 to 2025-01-30

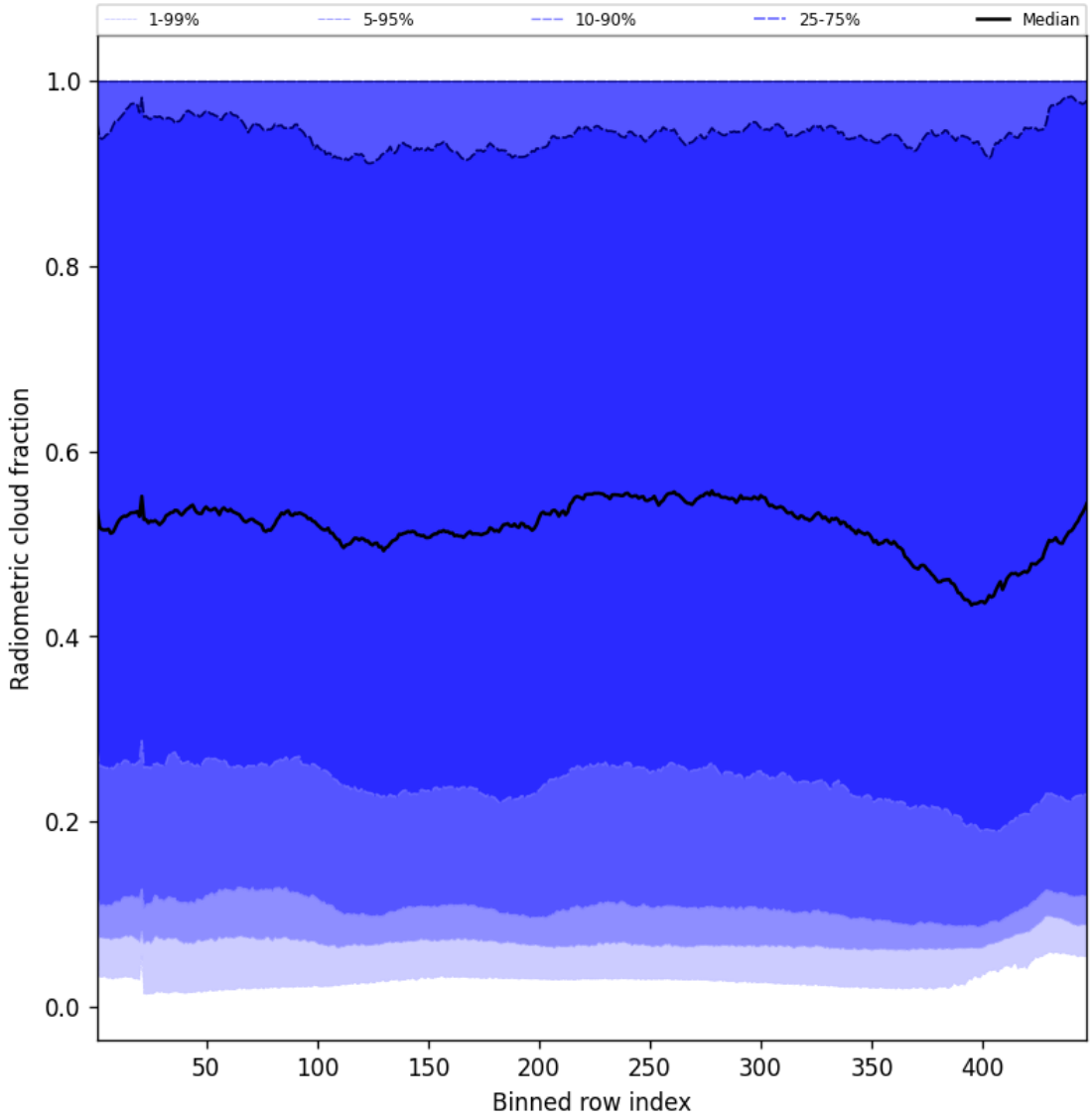

Figure 53: Along track statistics of “Radiometric cloud fraction” for 2025-01-29 to 2025-01-30

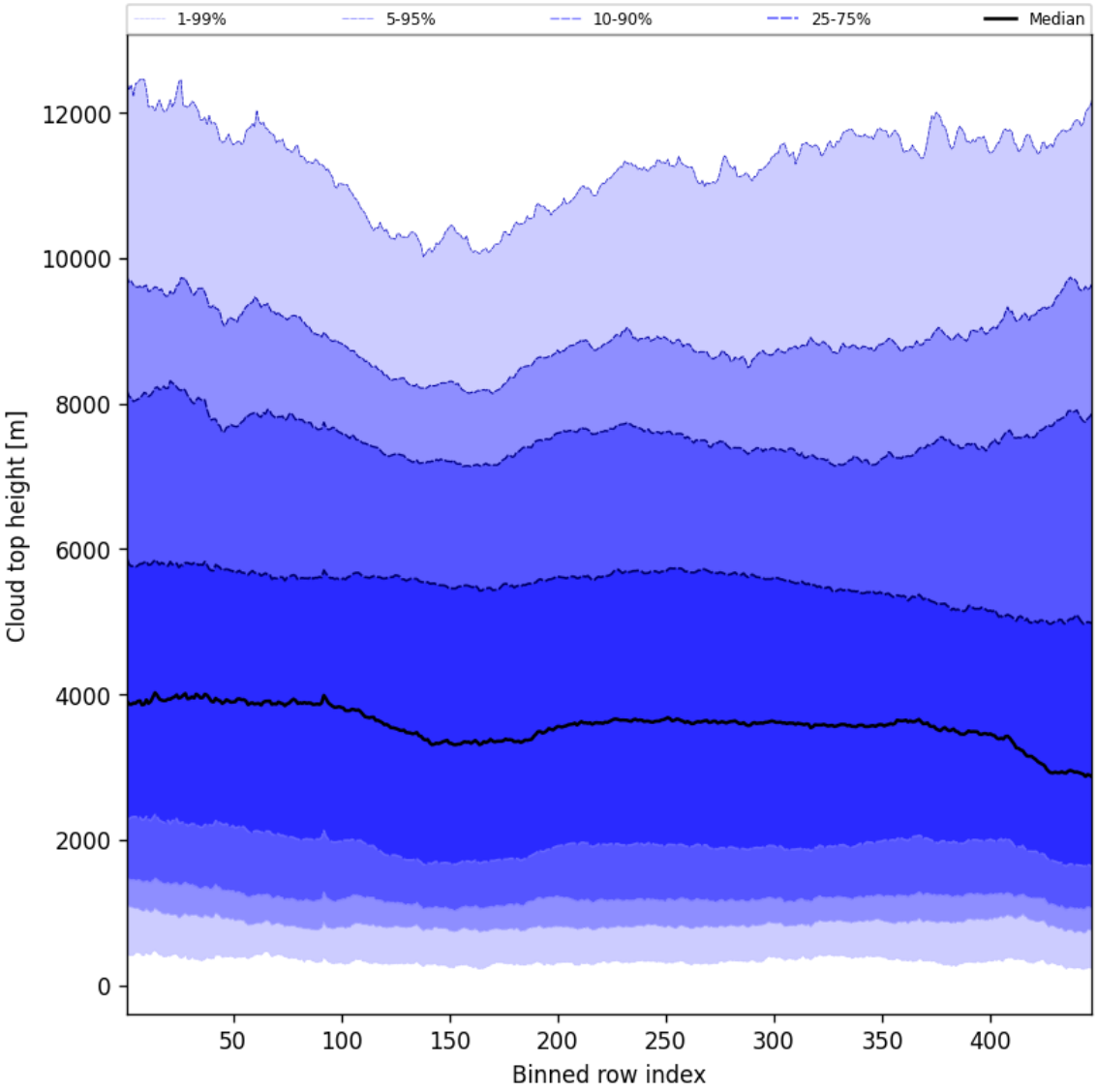

Figure 54: Along track statistics of “Cloud top height” for 2025-01-29 to 2025-01-30

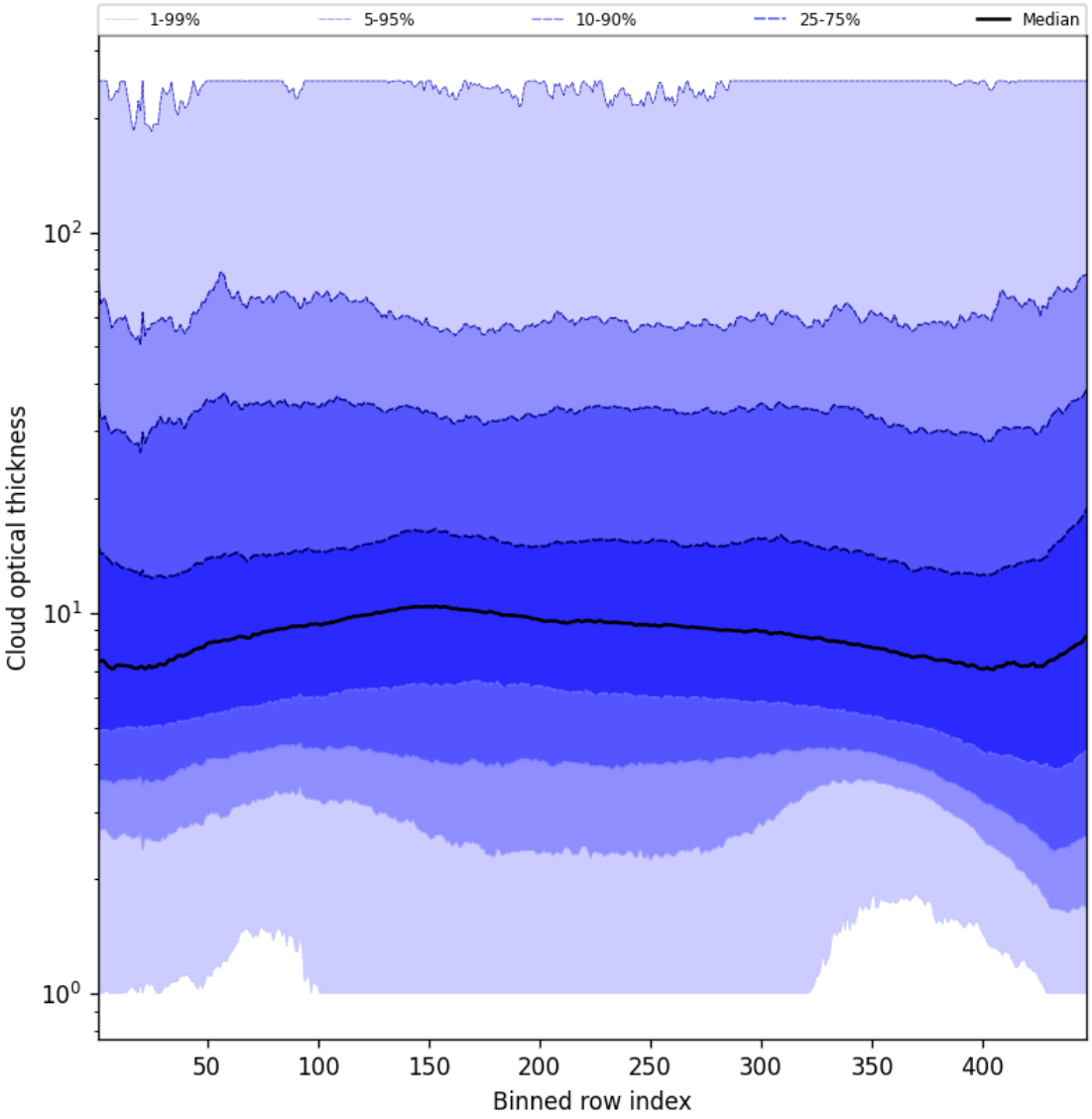

Figure 55: Along track statistics of “Cloud optical thickness” for 2025-01-29 to 2025-01-30

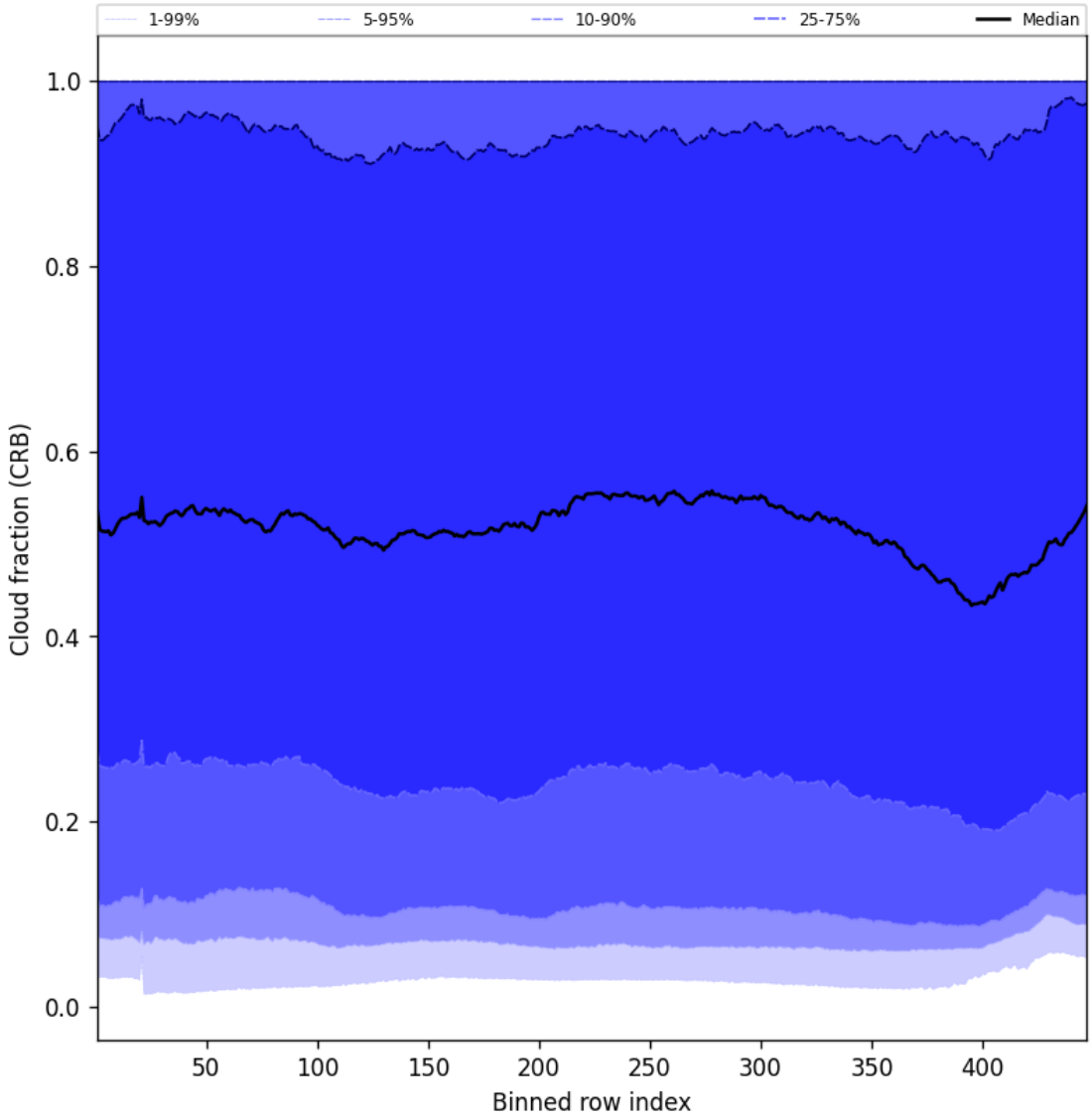

Figure 56: Along track statistics of “Cloud fraction (CRB)” for 2025-01-29 to 2025-01-30

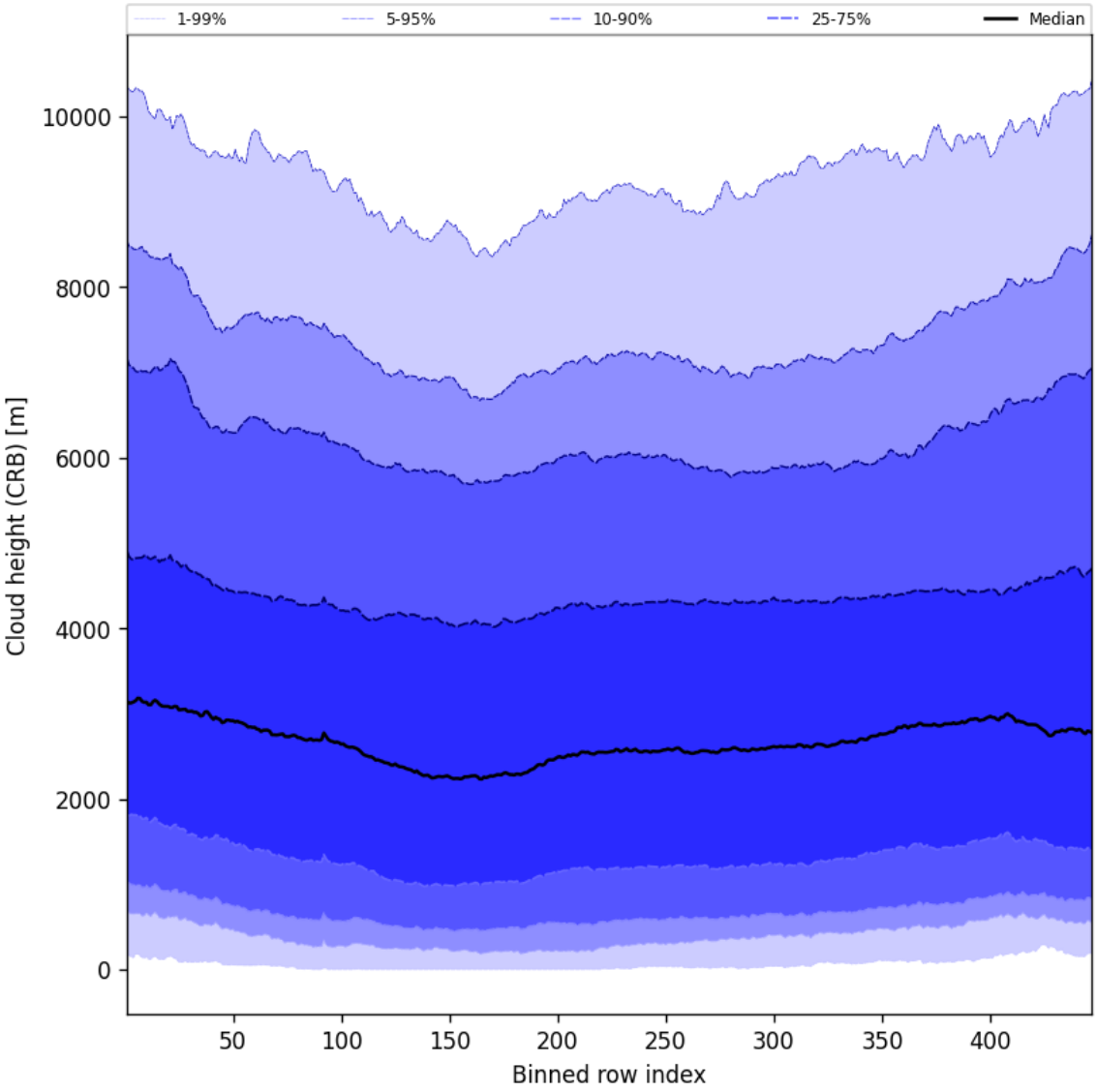

Figure 57: Along track statistics of “Cloud height (CRB)” for 2025-01-29 to 2025-01-30

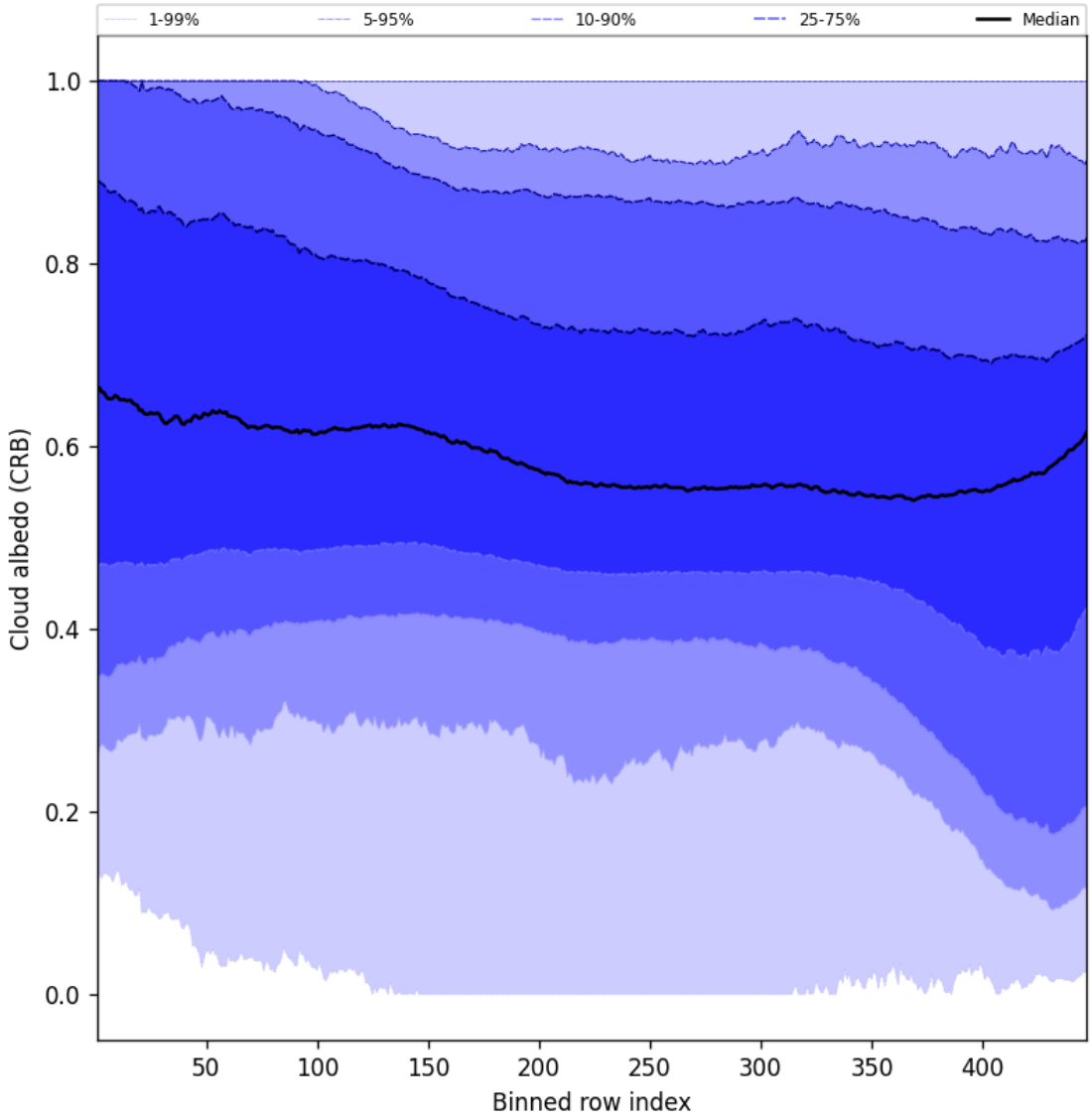

Figure 58: Along track statistics of “Cloud albedo (CRB)” for 2025-01-29 to 2025-01-30

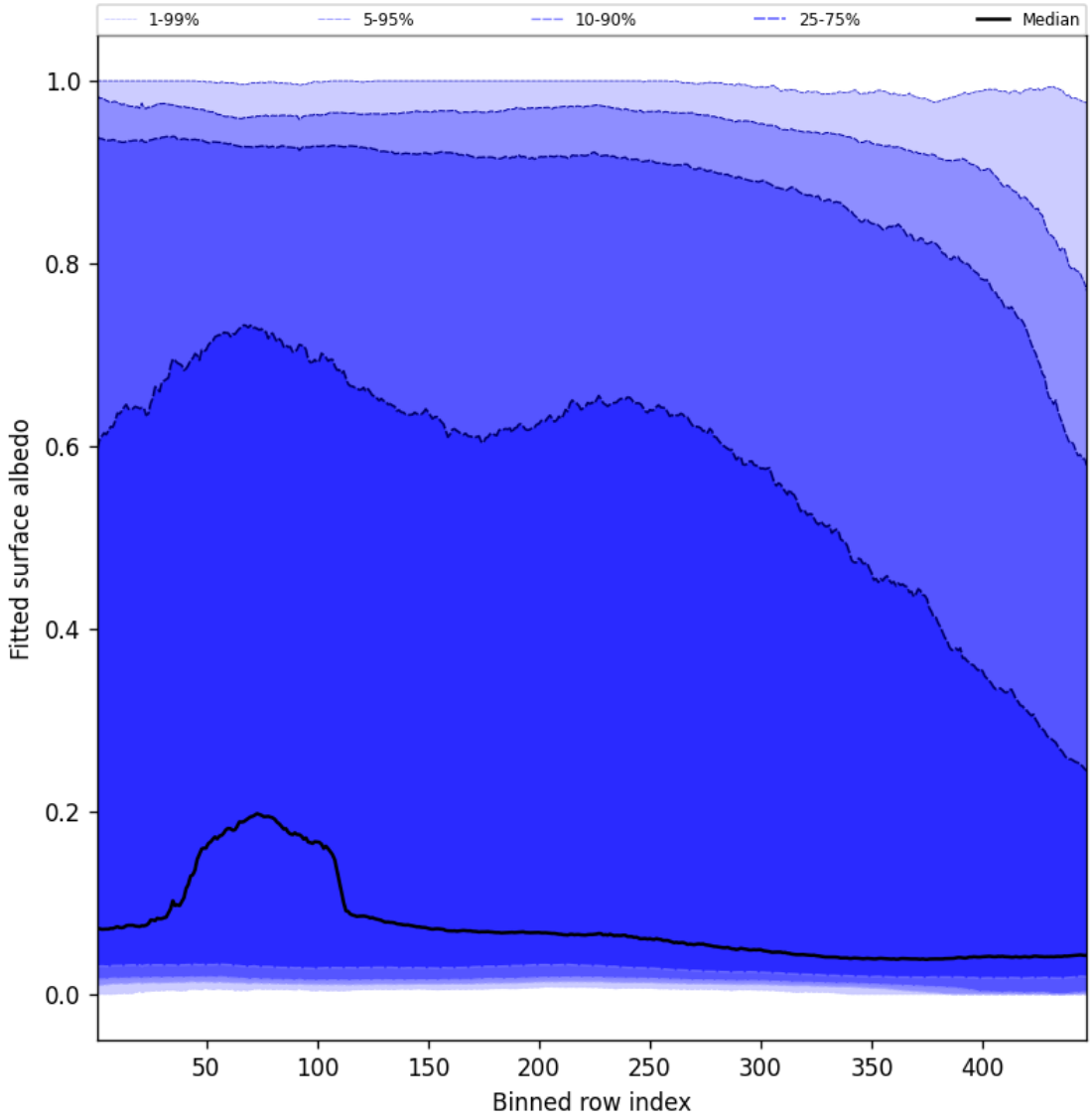

Figure 59: Along track statistics of “Fitted surface albedo” for 2025-01-29 to 2025-01-30

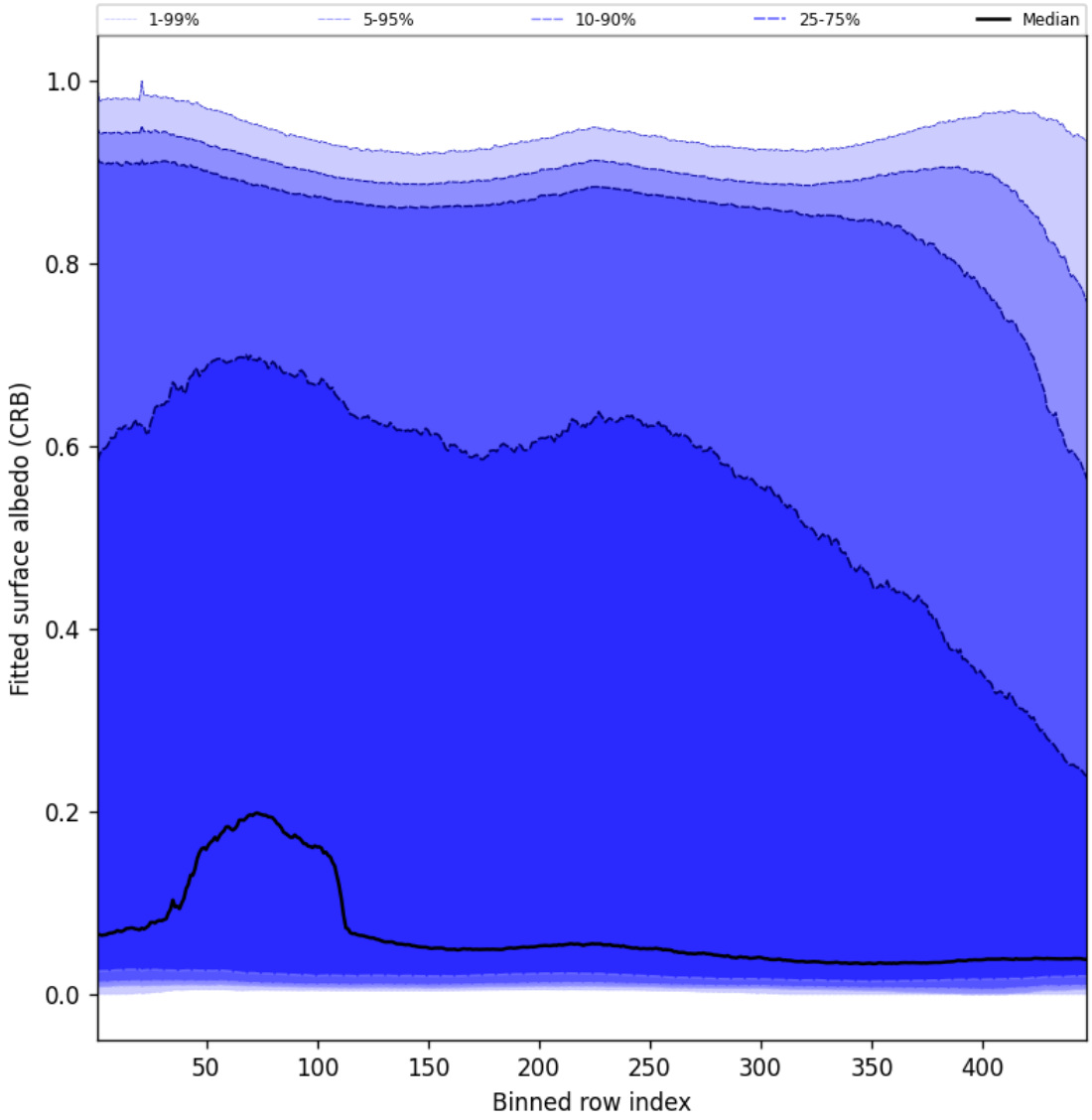

Figure 60: Along track statistics of “Fitted surface albedo (CRB)” for 2025-01-29 to 2025-01-30

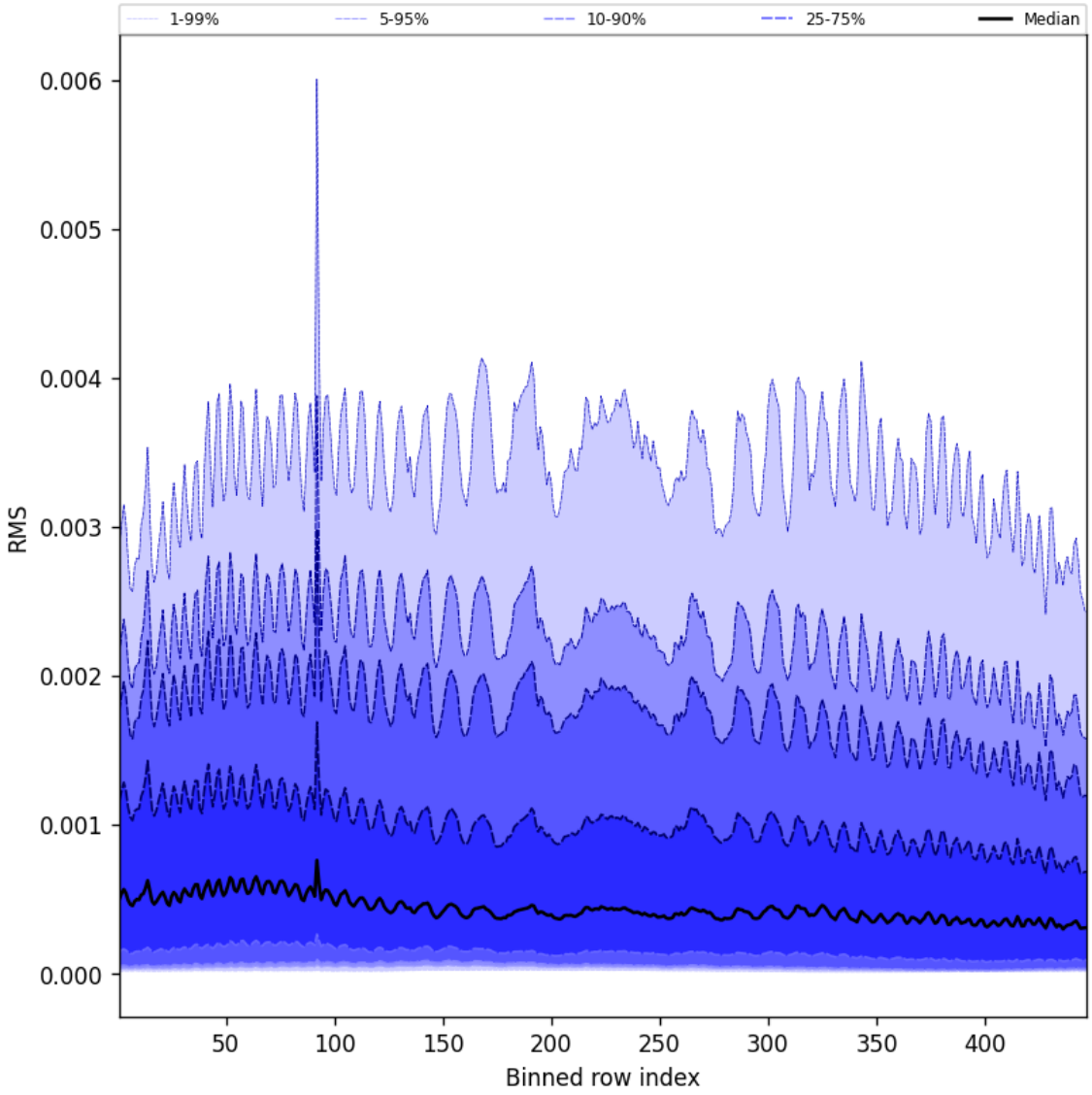

Figure 61: Along track statistics of “RMS” for 2025-01-29 to 2025-01-30

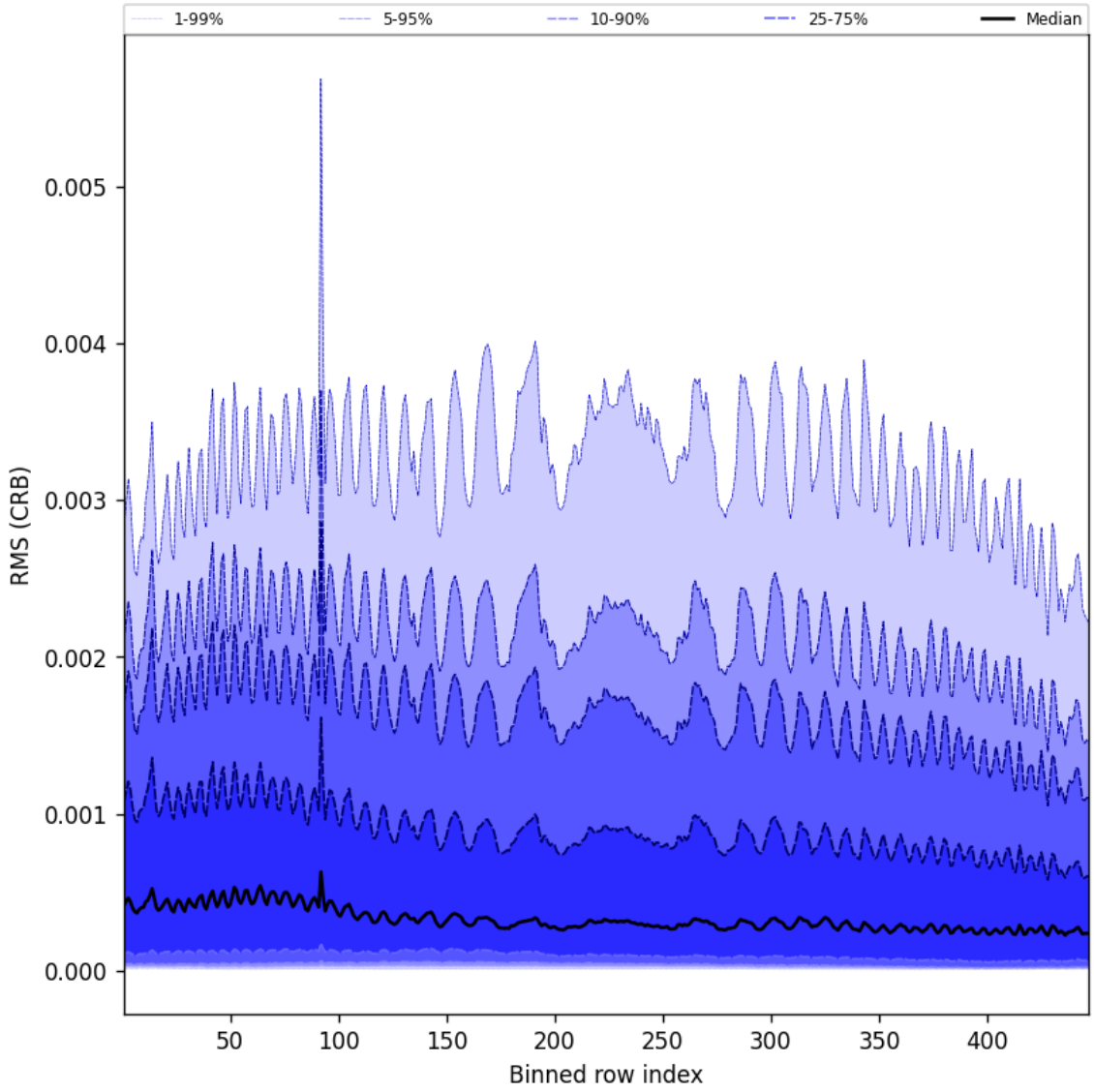

Figure 62: Along track statistics of “RMS (CRB)” for 2025-01-29 to 2025-01-30

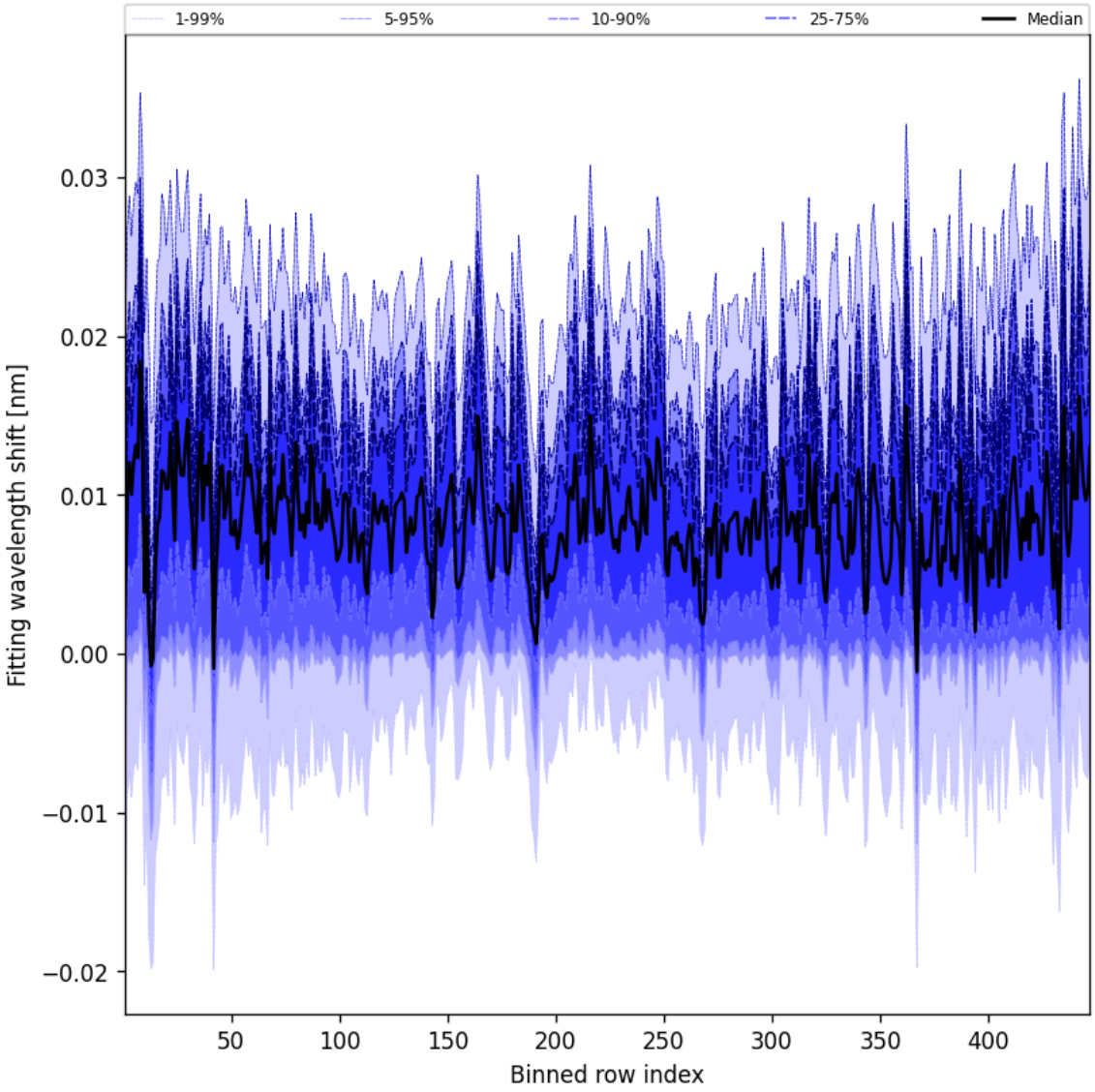

Figure 63: Along track statistics of “Fitting wavelength shift” for 2025-01-29 to 2025-01-30

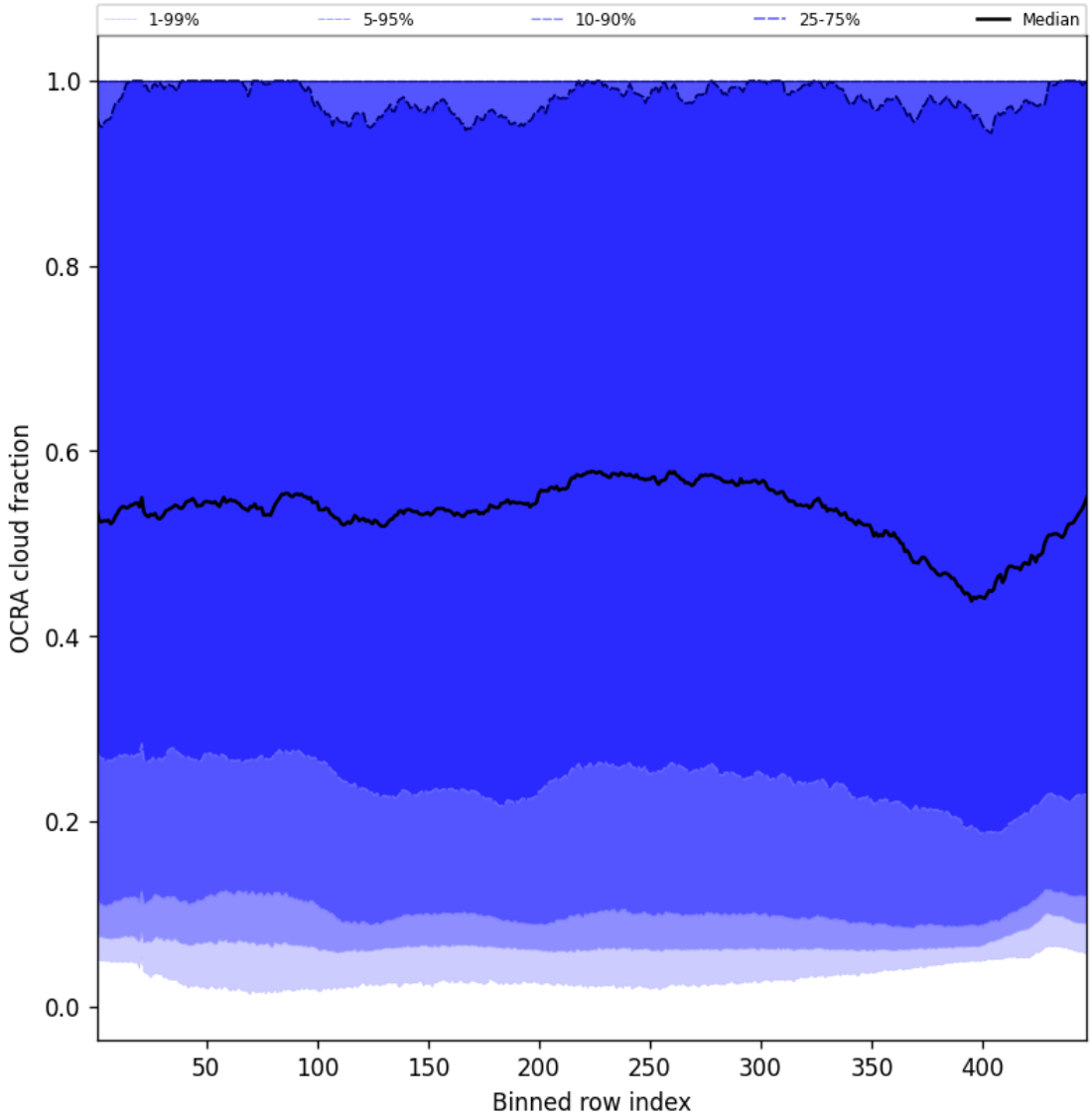

Figure 64: Along track statistics of “OCRA cloud fraction” for 2025-01-29 to 2025-01-30

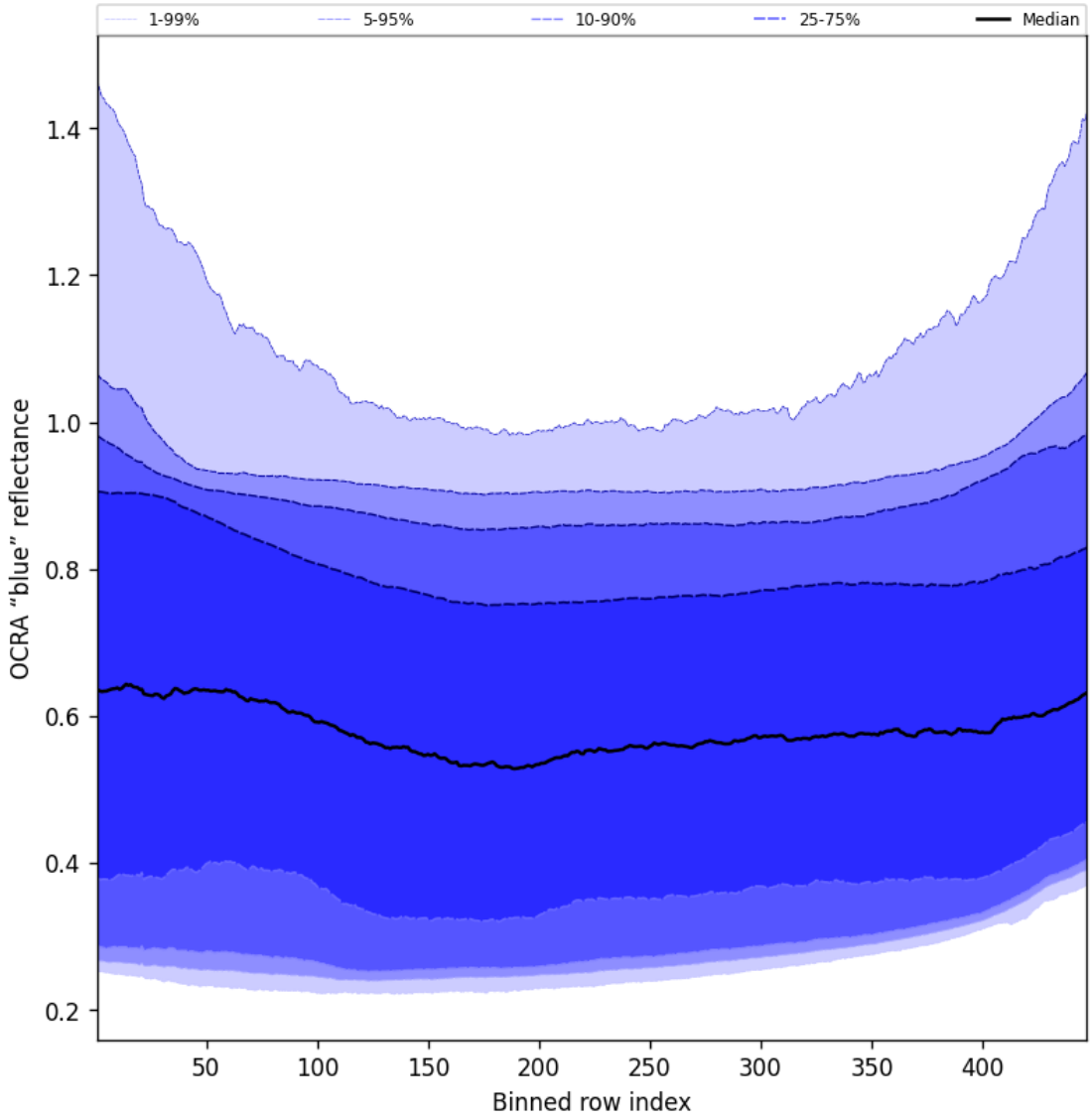

Figure 65: Along track statistics of “OCRA “blue” reflectance” for 2025-01-29 to 2025-01-30

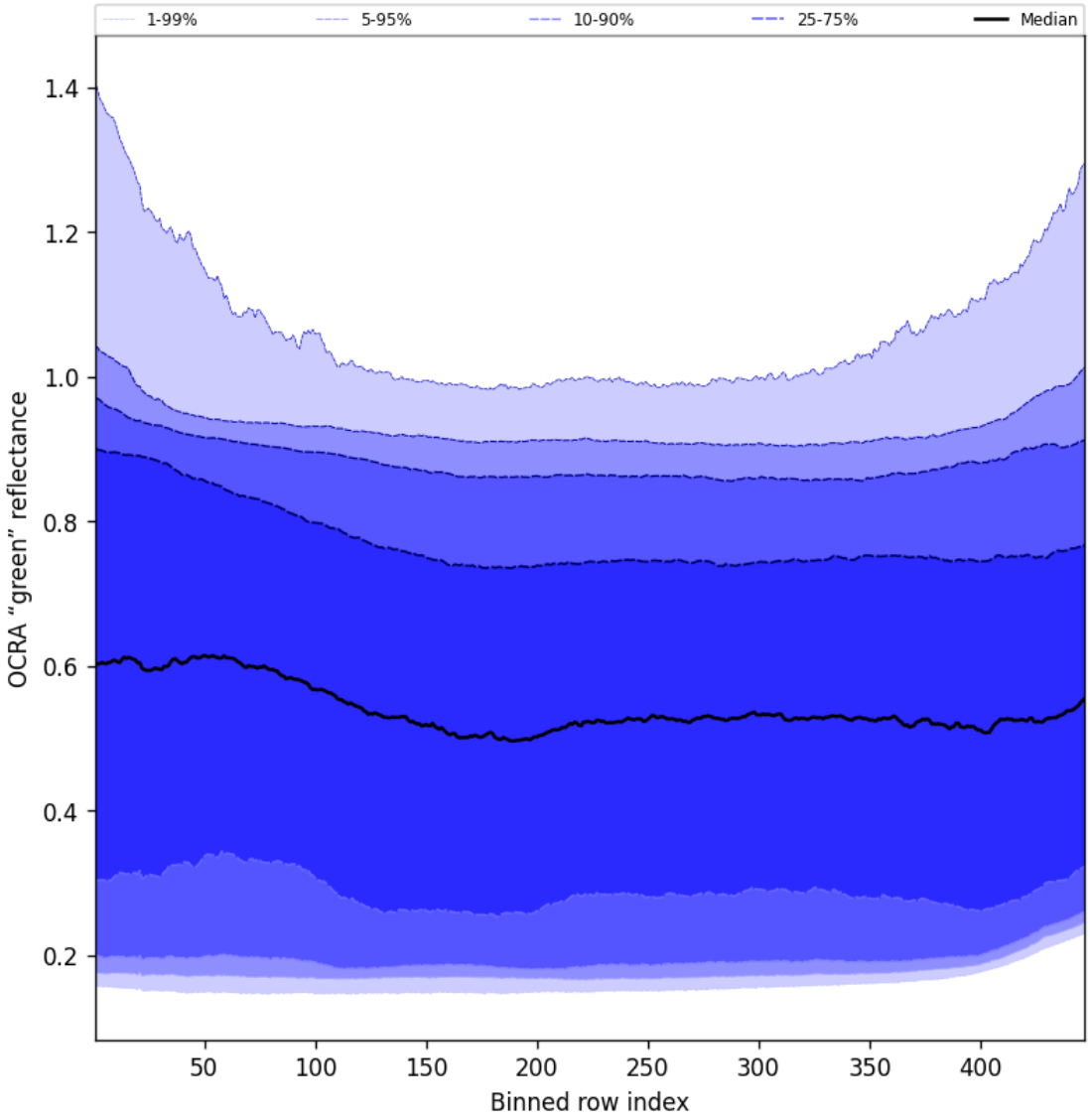

Figure 66: Along track statistics of "OCRA "green" reflectance" for 2025-01-29 to 2025-01-30

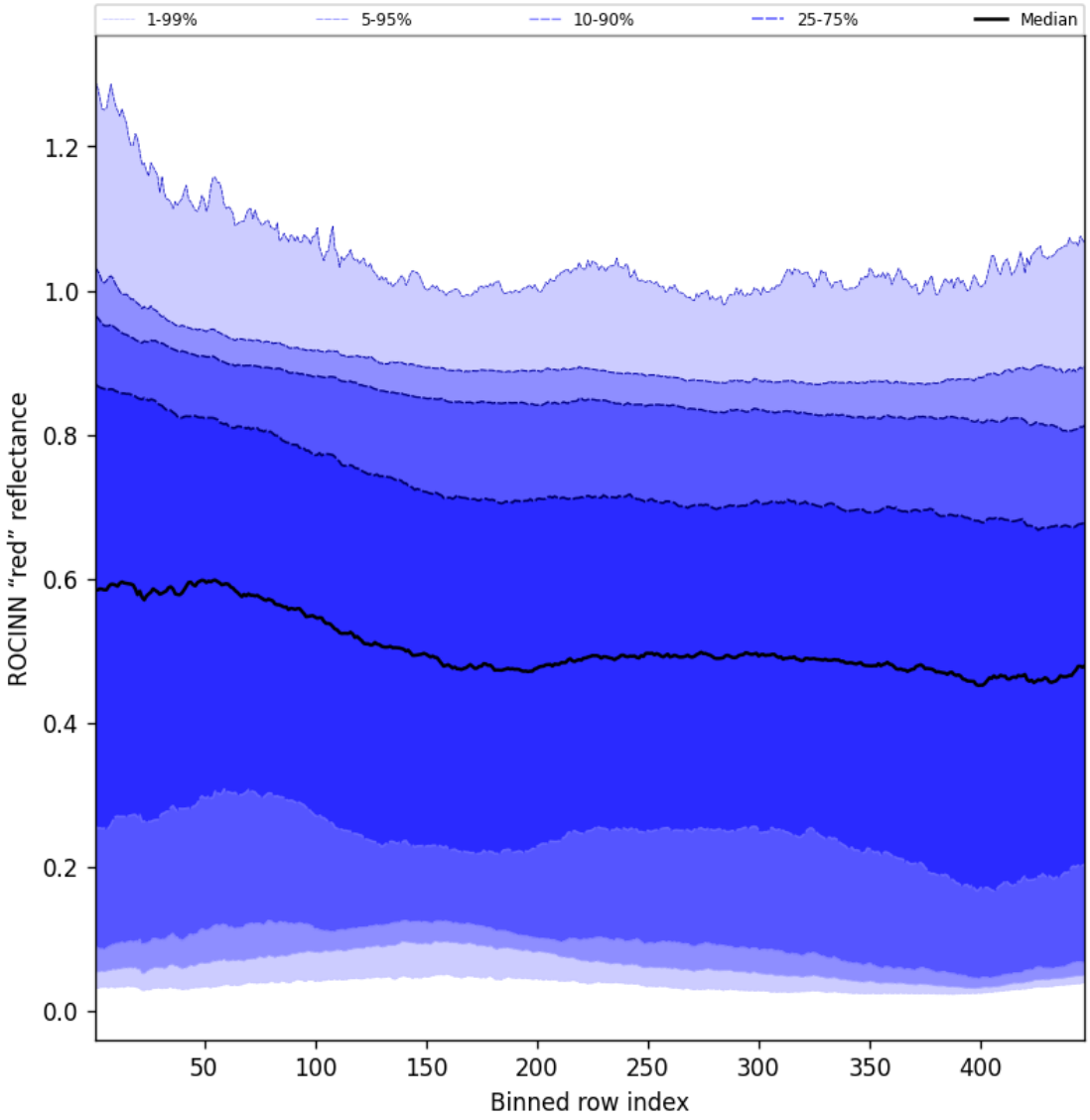

Figure 67: Along track statistics of “ROCINN “red” reflectance” for 2025-01-29 to 2025-01-30

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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