PyCAMA report generated by tropl2-proc

tropl2-proc

2025-01-16 (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]	0.604 ± 0.363	19048652	5.000×10^{-3}	0.590	0.700	0.0	1.000
cloud fraction [1]	0.579 ± 0.341	19048652	0.995	0.717	0.570	3.432×10^{-3}	1.000
cloud top height [m]	$(0.402 \pm 0.265) \times 10^4$	19048652	1.725×10^3	3.638×10^3	3.554×10^3	0.0	2.000×10^4
cloud optical thickness [1]	19.0 ± 35.5	19048652	9.34	10.4	9.08	1.000	250
cloud fraction crb [1]	0.579 ± 0.341	19048652	0.995	0.717	0.569	8.377×10^{-3}	1.000
cloud height crb [m]	$(0.304 \pm 0.225) \times 10^4$	19048652	1.125×10^3	3.040×10^3	2.604×10^3	0.0	2.000×10^4
cloud albedo crb [1]	0.610 ± 0.218	19048652	0.995	0.308	0.594	0.0	1.000
surface albedo fitted [1]	0.289 ± 0.348	19048652	2.500×10^{-2}	0.510	5.979×10^{-2}	0.0	1.000
surface albedo fitted crb [1]	0.277 ± 0.335	19048652	1.500×10^{-2}	0.507	4.891×10^{-2}	0.0	1.000
fitted root mean square [1]	$(7.867 \pm 9.945) \times 10^{-4}$	19048652	5.000×10^{-5}	9.880×10^{-4}	4.684×10^{-4}	9.013×10^{-7}	0.385
fitted root mean square crb [1]	$(6.921 \pm 8.171) \times 10^{-4}$	19048652	5.000×10^{-5}	9.419×10^{-4}	3.566×10^{-4}	1.028×10^{-6}	0.217
wavelength shift [nm]	$(8.291 \pm 7.007) \times 10^{-3}$	19048652	9.000×10^{-4}	1.027×10^{-2}	7.975×10^{-3}	-4.851×10^{-2}	6.750×10^{-2}
cloud fraction apriori [1]	0.587 ± 0.345	19048652	0.995	0.736	0.588	0.0	1.000
reflectance blue ocra [1]	0.591 ± 0.235	19048652	0.255	0.417	0.579	0.138	1.96
reflectance green ocra [1]	0.544 ± 0.265	19048652	0.175	0.488	0.541	7.900×10^{-2}	1.95
reflectance continuum aband [1]	0.498 ± 0.291	19048652	4.500×10^{-2}	0.499	0.507	1.060×10^{-2}	4.26

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	0.310	0.900	0.980	1.000	1.000	1.000
cloud fraction [1]	2.779×10^{-2}	7.068×10^{-2}	0.109	0.161	0.261	0.978	1.000	1.000	1.000	1.000
cloud top height [m]	232	747	1.104×10^{3}	1.441×10^{3}	1.906×10^{3}	5.544×10^{3}	6.627×10^{3}	7.661×10^{3}	9.135×10^{3}	1.165×10^{4}
cloud optical thickness [1]	1.000	2.47	3.63	4.56	5.51	15.9	24.2	36.1	64.5	250
cloud fraction crb [1]	2.737×10^{-2}	6.992×10^{-2}	0.108	0.160	0.261	0.978	1.000	1.000	1.000	1.000
cloud height crb [m]	0.0	270	569	854	1.256×10^{3}	4.296×10^{3}	5.341×10^{3}	6.268×10^{3}	7.468×10^{3}	9.529×10^{3}
cloud albedo crb [1]	1.832×10^{-2}	0.243	0.359	0.420	0.467	0.775	0.857	0.911	0.978	1.000
surface albedo fitted [1]	0.0	7.789×10^{-3}	1.302×10^{-2}	1.771×10^{-2}	2.487×10^{-2}	0.534	0.829	0.922	0.965	1.000
surface albedo fitted crb [1]	0.0	6.243×10^{-3}	9.853×10^{-3}	1.353×10^{-2}	1.935×10^{-2}	0.527	0.805	0.872	0.910	0.952
fitted root mean square [1]	1.577×10^{-5}	3.098×10^{-5}	5.201×10^{-5}	8.379×10^{-5}	1.472×10^{-4}	1.135×10^{-3}	1.568×10^{-3}	1.970×10^{-3}	2.486×10^{-3}	3.664×10^{-3}
fitted root mean square crb [1]	9.210×10^{-6}	2.054×10^{-5}	3.480×10^{-5}	5.448×10^{-5}	9.689×10^{-5}	1.039×10^{-3}	1.461×10^{-3}	1.847×10^{-3}	2.365×10^{-3}	3.485×10^{-3}
wavelength shift [nm]	-7.645×10^{-3}	-7.239×10^{-4}	2.144×10^{-4}	1.140×10^{-3}	2.866×10^{-3}	1.313×10^{-2}	1.536×10^{-2}	1.726×10^{-2}	1.977×10^{-2}	2.560×10^{-2}
cloud fraction apriori [1]	3.277×10^{-2}	6.750×10^{-2}	0.104	0.157	0.264	1.000	1.000	1.000	1.000	1.000
reflectance blue ocra [1]	0.234	0.259	0.286	0.320	0.377	0.794	0.865	0.903	0.938	1.08
reflectance green ocra [1]	0.153	0.174	0.196	0.226	0.289	0.778	0.856	0.900	0.935	1.05
reflectance continuum aband [1]	2.934×10^{-2}	5.507×10^{-2}	9.235×10^{-2}	0.141	0.244	0.744	0.825	0.871	0.914	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]	0.548 ± 0.397	7089631	0.850	0.670	0.0	1.000	5.000×10^{-2}	0.900
cloud fraction [1]	0.529 ± 0.340	7089631	0.679	0.490	3.432×10^{-3}	1.000	0.210	0.889
cloud top height [m]	$(0.435 \pm 0.279) \times 10^4$	7089631	4.013×10^3	3.753×10^3	0.0	2.000×10^4	2.082×10^3	6.095×10^3
cloud optical thickness [1]	27.9 ± 49.5	7089631	16.3	10.0	1.000	250	5.98	22.3
cloud fraction crb [1]	0.527 ± 0.340	7089631	0.677	0.487	8.470×10^{-3}	1.000	0.209	0.886
cloud height crb [m]	$(0.358 \pm 0.236) \times 10^4$	7089631	3.588×10^3	3.173×10^3	0.0	2.000×10^4	1.591×10^3	5.179×10^3
cloud albedo crb [1]	0.591 ± 0.213	7089631	0.265	0.578	0.0	1.000	0.463	0.728
surface albedo fitted [1]	0.197 ± 0.219	7089631	0.303	6.781×10^{-2}	0.0	1.000	2.920×10^{-2}	0.333
surface albedo fitted crb [1]	0.188 ± 0.214	7089631	0.303	5.750×10^{-2}	0.0	1.000	2.203×10^{-2}	0.325
fitted root mean square [1]	$(4.417 \pm 6.137) \times 10^{-4}$	7089631	4.578×10^{-4}	2.431×10^{-4}	9.013×10^{-7}	0.123	9.724×10^{-5}	5.551×10^{-4}
fitted root mean square crb [1]	$(3.503 \pm 5.164) \times 10^{-4}$	7089631	3.629×10^{-4}	1.509×10^{-4}	1.028×10^{-6}	4.526×10^{-2}	5.437×10^{-5}	4.173×10^{-4}
wavelength shift [nm]	$(6.232 \pm 6.453) \times 10^{-3}$	7089631	8.724×10^{-3}	5.250×10^{-3}	-4.851×10^{-2}	6.460×10^{-2}	1.440×10^{-3}	1.016×10^{-2}
cloud fraction apriori [1]	0.534 ± 0.345	7089631	0.706	0.497	0.0	1.000	0.207	0.913
reflectance blue ocra [1]	0.546 ± 0.215	7089631	0.325	0.522	0.138	1.96	0.367	0.692
reflectance green ocra [1]	0.489 ± 0.239	7089631	0.393	0.469	8.366×10^{-2}	1.95	0.273	0.665
reflectance continuum aband [1]	0.439 ± 0.271	7089631	0.415	0.425	1.060×10^{-2}	3.76	0.218	0.633

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]	0.638 ± 0.337	11959021	0.500	0.700	0.0	1.000	0.400	0.900
cloud fraction [1]	0.609 ± 0.338	11959021	0.698	0.619	6.619×10^{-3}	1.000	0.301	0.999
cloud top height [m]	$(0.382 \pm 0.254) \times 10^4$	11959021	3.475×10^3	3.447×10^3	0.0	2.000×10^4	1.792×10^3	5.268×10^3
cloud optical thickness [1]	13.8 ± 22.0	11959021	8.38	8.70	1.000	250	5.30	13.7
cloud fraction crb [1]	0.609 ± 0.338	11959021	0.698	0.620	8.377×10^{-3}	1.000	0.301	0.999
cloud height crb [m]	$(0.272 \pm 0.212) \times 10^4$	11959021	2.684×10^3	2.359×10^3	0.0	2.000×10^4	1.050×10^3	3.733×10^3
cloud albedo crb [1]	0.621 ± 0.220	11959021	0.331	0.607	0.0	1.000	0.469	0.800
surface albedo fitted [1]	0.344 ± 0.396	11959021	0.800	5.522×10^{-2}	0.0	1.000	2.250×10^{-2}	0.823
surface albedo fitted crb [1]	0.329 ± 0.380	11959021	0.783	4.500×10^{-2}	0.0	1.000	1.773×10^{-2}	0.800
fitted root mean square [1]	$(9.912 \pm 11.134) \times 10^{-4}$	11959021	1.241×10^{-3}	7.287×10^{-4}	1.280×10^{-6}	0.385	2.256×10^{-4}	1.466×10^{-3}
fitted root mean square crb [1]	$(8.947 \pm 8.916) \times 10^{-4}$	11959021	1.197×10^{-3}	6.347×10^{-4}	1.056×10^{-6}	0.217	1.694×10^{-4}	1.367×10^{-3}
wavelength shift [nm]	$(9.512 \pm 7.036) \times 10^{-3}$	11959021	9.936×10^{-3}	9.719×10^{-3}	-4.622×10^{-2}	6.750×10^{-2}	4.391×10^{-3}	1.433×10^{-2}
cloud fraction apriori [1]	0.619 ± 0.341	11959021	0.689	0.643	0.0	1.000	0.311	1.000
reflectance blue ocra [1]	0.618 ± 0.242	11959021	0.455	0.633	0.143	1.90	0.386	0.841
reflectance green ocra [1]	0.577 ± 0.273	11959021	0.526	0.604	7.900×10^{-2}	1.88	0.306	0.832
reflectance continuum aband [1]	0.532 ± 0.296	11959021	0.527	0.571	1.258×10^{-2}	4.26	0.270	0.797

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]	0.703 ± 0.330	11449173	0.550	0.870	0.0	1.000	0.400	0.950
cloud fraction [1]	0.610 ± 0.365	11449173	0.769	0.666	5.453×10^{-3}	1.000	0.231	1.000
cloud top height [m]	$(0.341 \pm 0.246) \times 10^4$	11449173	3.057×10^3	2.681×10^3	0.0	2.000×10^4	1.588×10^3	4.645×10^3
cloud optical thickness [1]	17.2 ± 26.0	11449173	9.91	10.0	1.000	250	6.91	16.8
cloud fraction crb [1]	0.609 ± 0.366	11449173	0.770	0.664	8.538×10^{-3}	1.000	0.230	1.000
cloud height crb [m]	$(0.270 \pm 0.222) \times 10^4$	11449173	2.848×10^3	2.011×10^3	0.0	2.000×10^4	1.011×10^3	3.860×10^3
cloud albedo crb [1]	0.548 ± 0.174	11449173	0.215	0.531	0.0	1.000	0.447	0.662
surface albedo fitted [1]	$(8.165 \pm 16.655) \times 10^{-2}$	11449173	3.095×10^{-2}	2.939×10^{-2}	0.0	1.000	1.715×10^{-2}	4.810×10^{-2}
surface albedo fitted crb [1]	$(7.710 \pm 16.912) \times 10^{-2}$	11449173	2.609×10^{-2}	2.313×10^{-2}	0.0	1.000	1.308×10^{-2}	3.916×10^{-2}
fitted root mean square [1]	$(7.260 \pm 10.509) \times 10^{-4}$	11449173	9.761×10^{-4}	3.327×10^{-4}	9.013×10^{-7}	9.451×10^{-2}	9.430×10^{-5}	1.070×10^{-3}
fitted root mean square crb [1]	$(6.842 \pm 8.440) \times 10^{-4}$	11449173	9.600×10^{-4}	3.055×10^{-4}	1.028×10^{-6}	4.526×10^{-2}	7.836×10^{-5}	1.038×10^{-3}
wavelength shift [nm]	$(7.786 \pm 7.390) \times 10^{-3}$	11449173	1.053×10^{-2}	7.145×10^{-3}	-4.622×10^{-2}	6.750×10^{-2}	2.246×10^{-3}	1.278×10^{-2}
cloud fraction apriori [1]	0.611 ± 0.370	11449173	0.778	0.671	0.0	1.000	0.222	1.000
reflectance blue ocra [1]	0.509 ± 0.198	11449173	0.318	0.477	0.149	1.94	0.338	0.656
reflectance green ocra [1]	0.449 ± 0.226	11449173	0.389	0.418	8.232×10^{-2}	1.91	0.240	0.629
reflectance continuum aband [1]	0.386 ± 0.264	11449173	0.466	0.364	1.258×10^{-2}	3.91	0.136	0.602

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]	0.469 ± 0.352	6203069	0.700	0.590	0.0	1.000	0.0	0.700
cloud fraction [1]	0.526 ± 0.289	6203069	0.464	0.499	3.432×10^{-3}	1.000	0.294	0.758
cloud top height [m]	$(0.495 \pm 0.257) \times 10^4$	6203069	2.962×10^3	4.740×10^3	0.0	2.000×10^4	3.264×10^3	6.225×10^3
cloud optical thickness [1]	17.5 ± 39.1	6203069	7.22	6.30	1.000	250	4.57	11.8
cloud fraction crb [1]	0.527 ± 0.289	6203069	0.465	0.500	8.470×10^{-3}	1.000	0.295	0.760
cloud height crb [m]	$(0.346 \pm 0.212) \times 10^4$	6203069	2.535×10^3	3.200×10^3	0.0	2.000×10^4	2.033×10^3	4.569×10^3
cloud albedo crb [1]	0.713 ± 0.241	6203069	0.330	0.773	0.0	1.000	0.571	0.901
surface albedo fitted [1]	0.655 ± 0.309	6203069	0.621	0.802	0.0	1.000	0.318	0.938
surface albedo fitted crb [1]	0.628 ± 0.290	6203069	0.573	0.782	0.0	1.000	0.313	0.885
fitted root mean square [1]	$(9.467 \pm 9.090) \times 10^{-4}$	6203069	9.892×10^{-4}	7.005×10^{-4}	1.642×10^{-6}	0.385	3.324×10^{-4}	1.322×10^{-3}
fitted root mean square crb [1]	$(7.759 \pm 7.853) \times 10^{-4}$	6203069	9.620×10^{-4}	5.229×10^{-4}	1.847×10^{-6}	0.217	1.837×10^{-4}	1.146×10^{-3}
wavelength shift [nm]	$(9.678 \pm 6.169) \times 10^{-3}$	6203069	9.031×10^{-3}	9.837×10^{-3}	-3.420×10^{-2}	6.476×10^{-2}	5.014×10^{-3}	1.405×10^{-2}
cloud fraction apriori [1]	0.548 ± 0.293	6203069	0.475	0.530	0.0	1.000	0.315	0.790
reflectance blue ocra [1]	0.731 ± 0.230	6203069	0.331	0.815	0.141	1.94	0.568	0.899
reflectance green ocra [1]	0.706 ± 0.254	6203069	0.369	0.806	8.366×10^{-2}	1.94	0.530	0.899
reflectance continuum aband [1]	0.688 ± 0.236	6203069	0.355	0.763	1.060×10^{-2}	4.26	0.511	0.866

3 Granule outlines

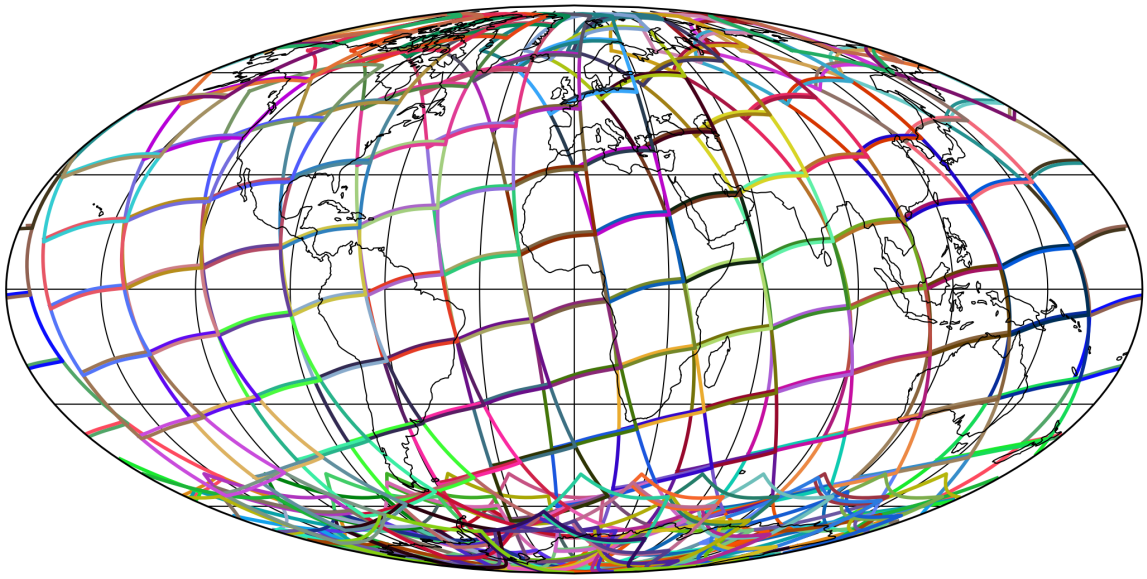

Figure 1: Outline of the granules.

4 Input data monitoring

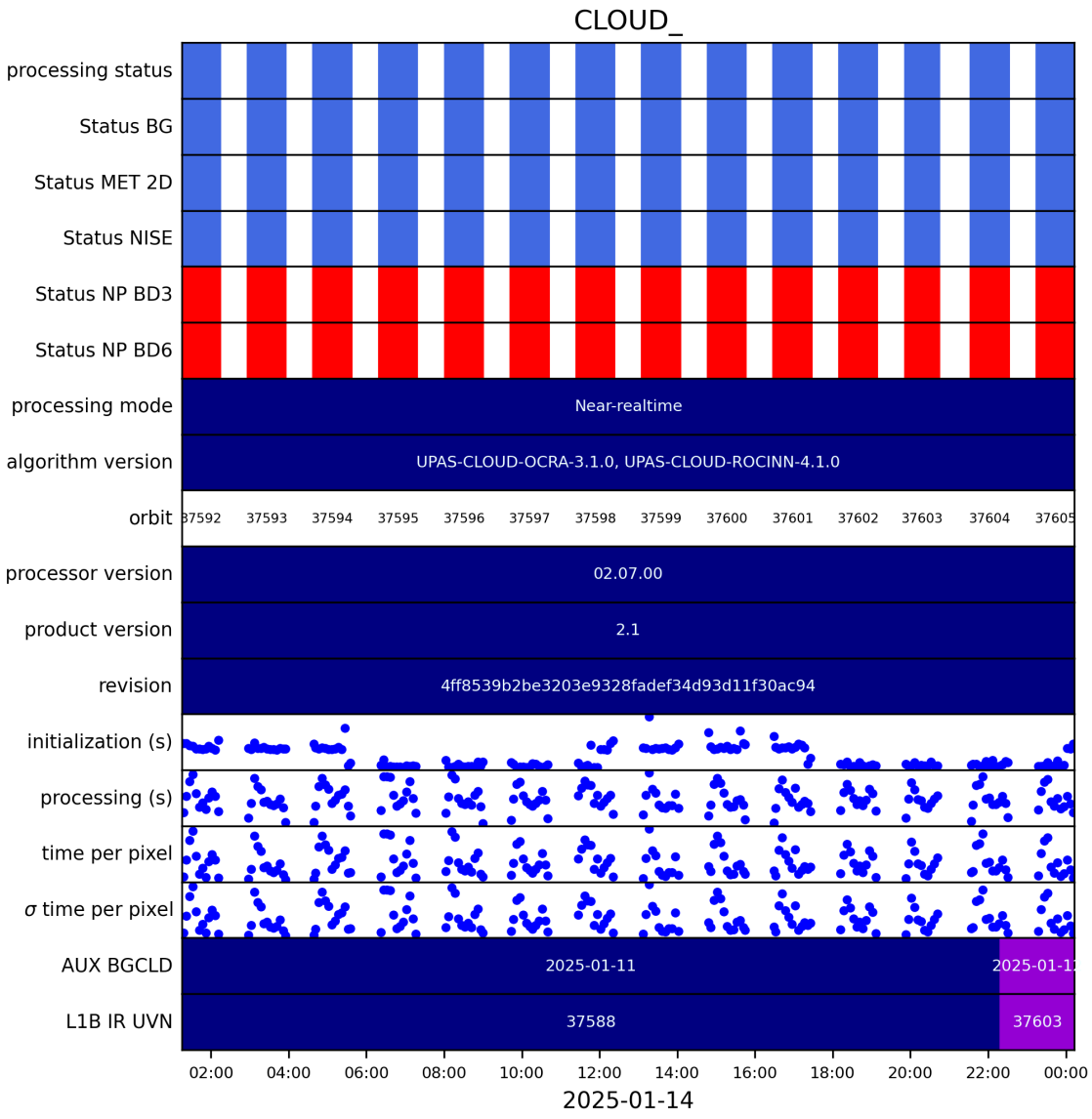

Figure 2: Input data per granule

5 Warnings and errors

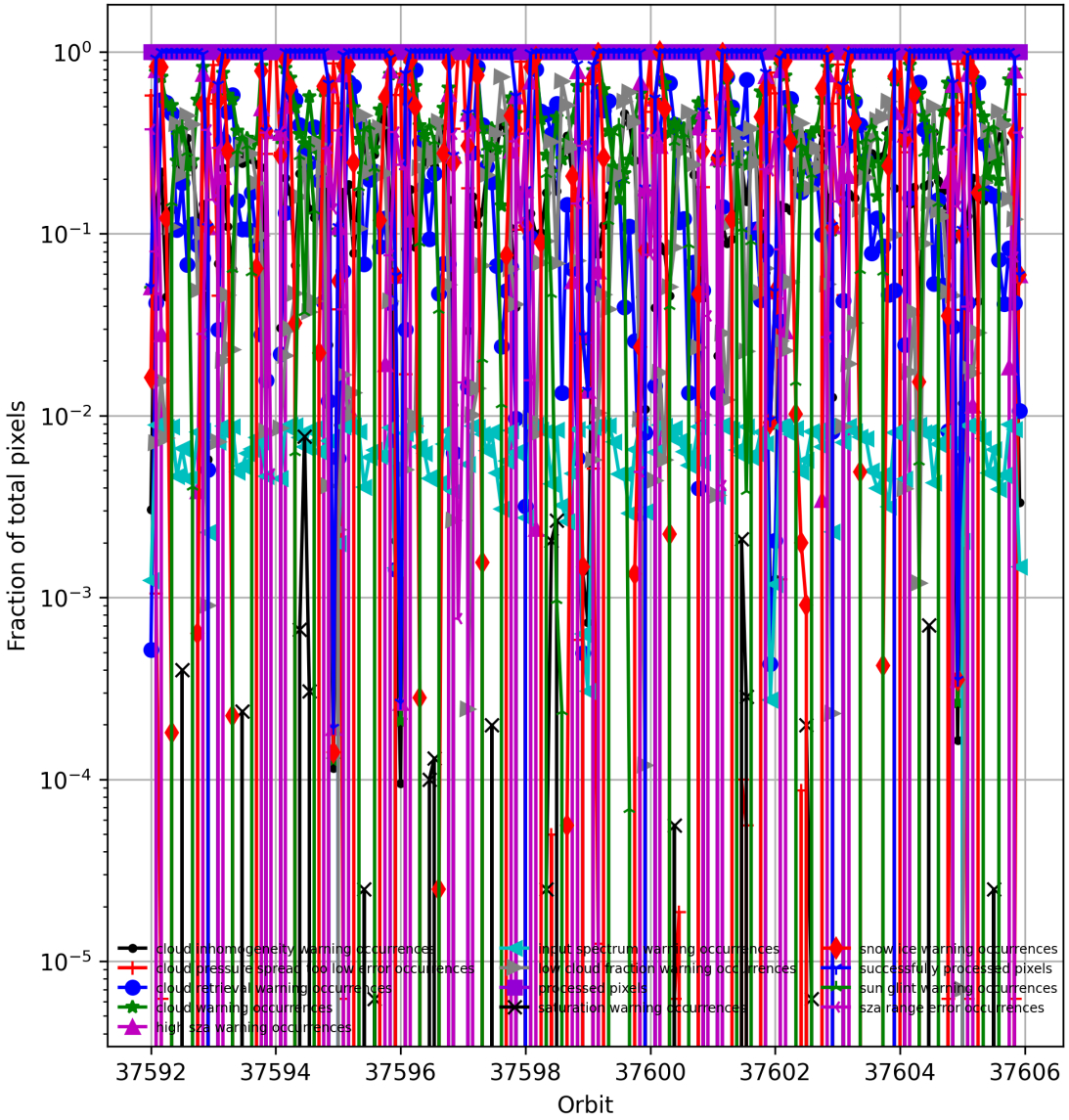

Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

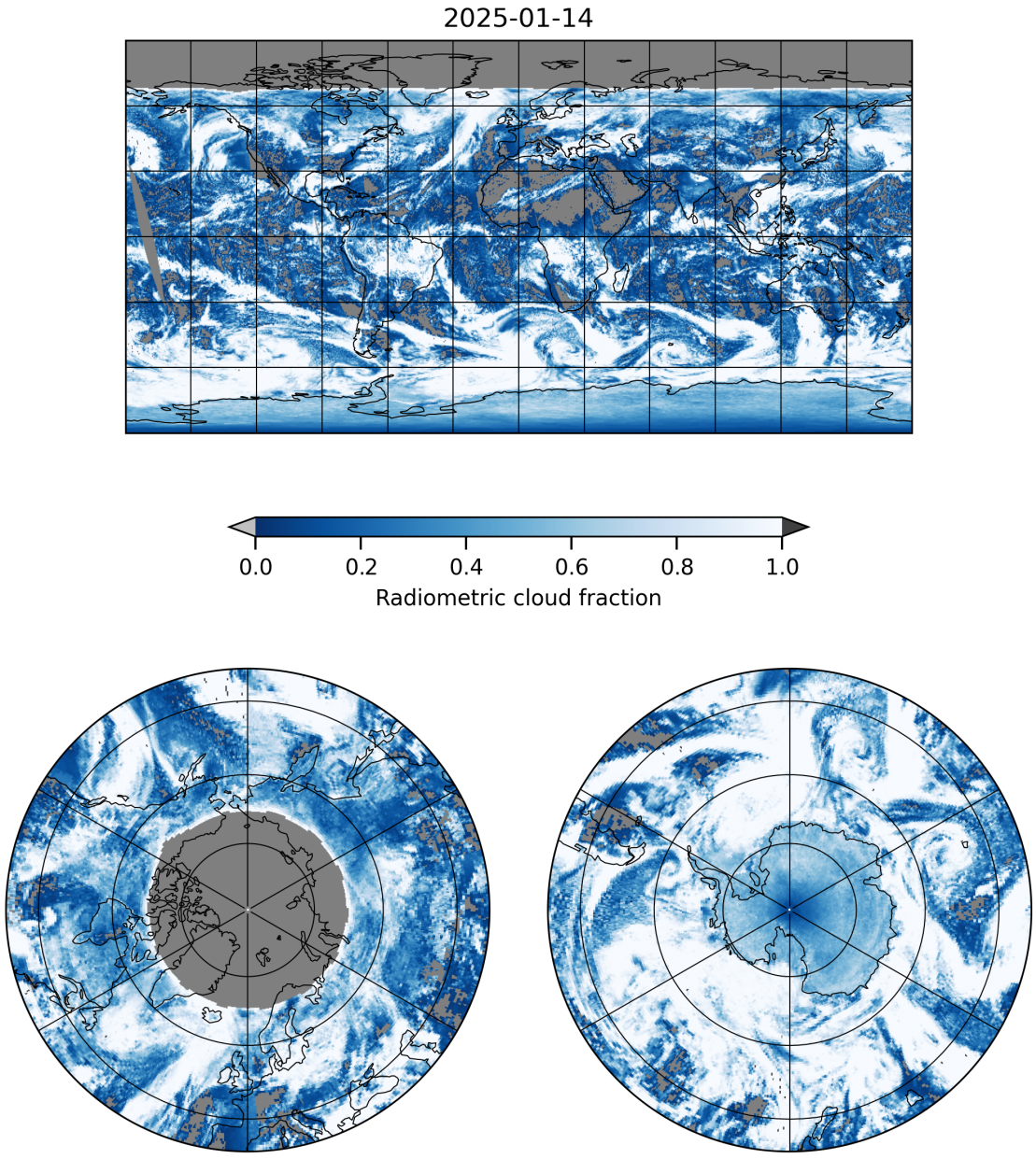

Figure 4: Map of “Radiometric cloud fraction” for 2025-01-14 to 2025-01-15

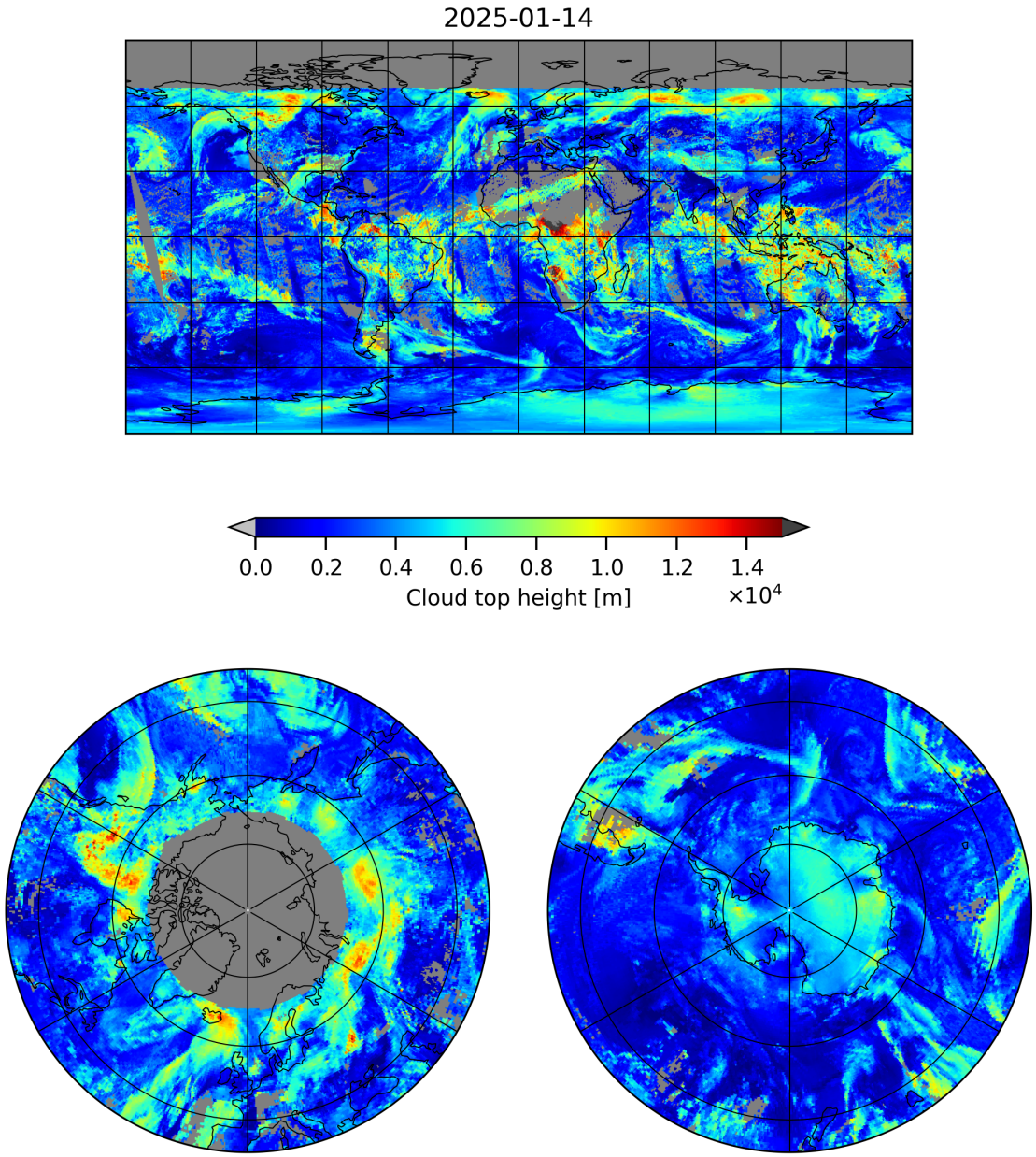

Figure 5: Map of “Cloud top height” for 2025-01-14 to 2025-01-15

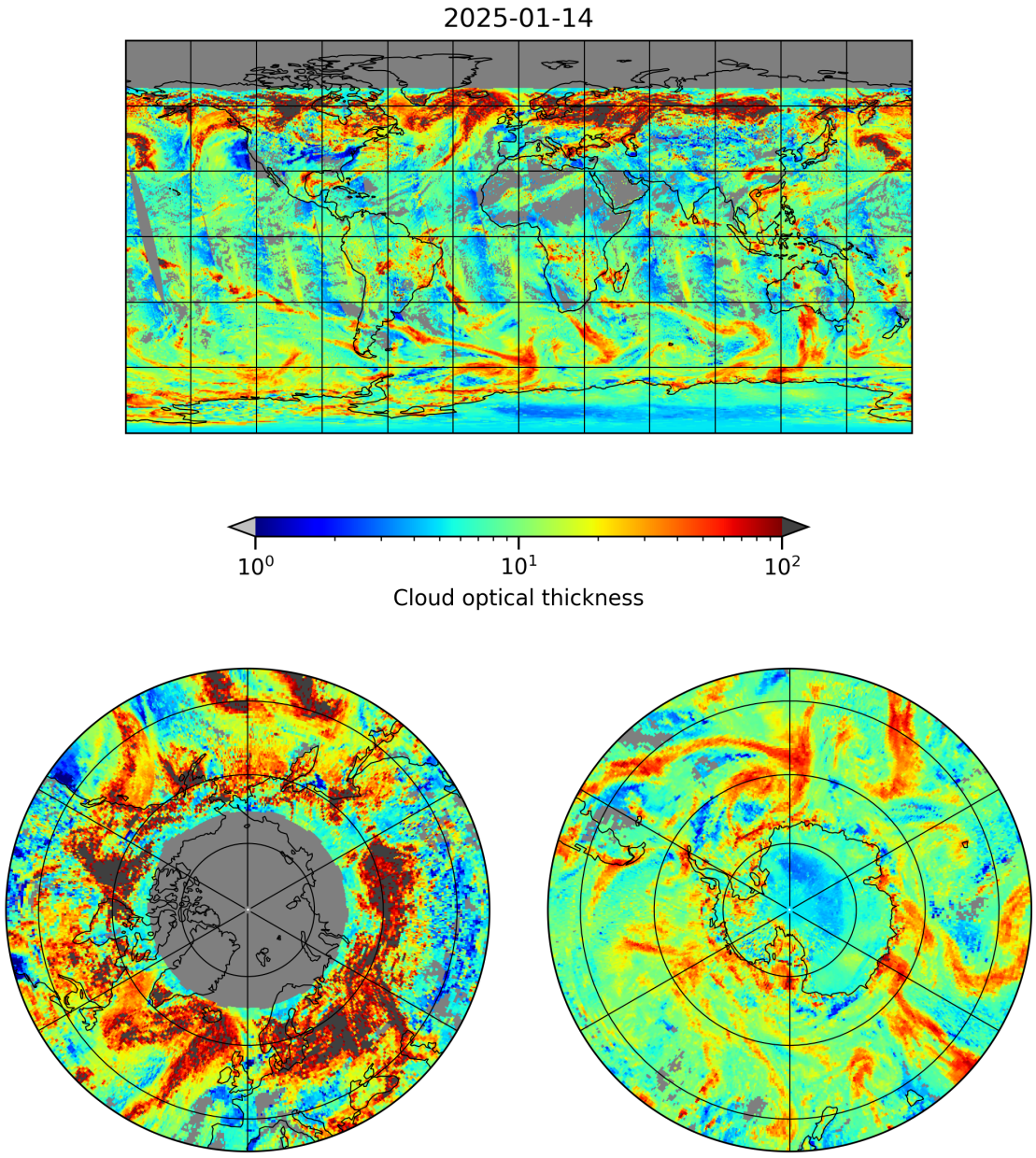

Figure 6: Map of “Cloud optical thickness” for 2025-01-14 to 2025-01-15

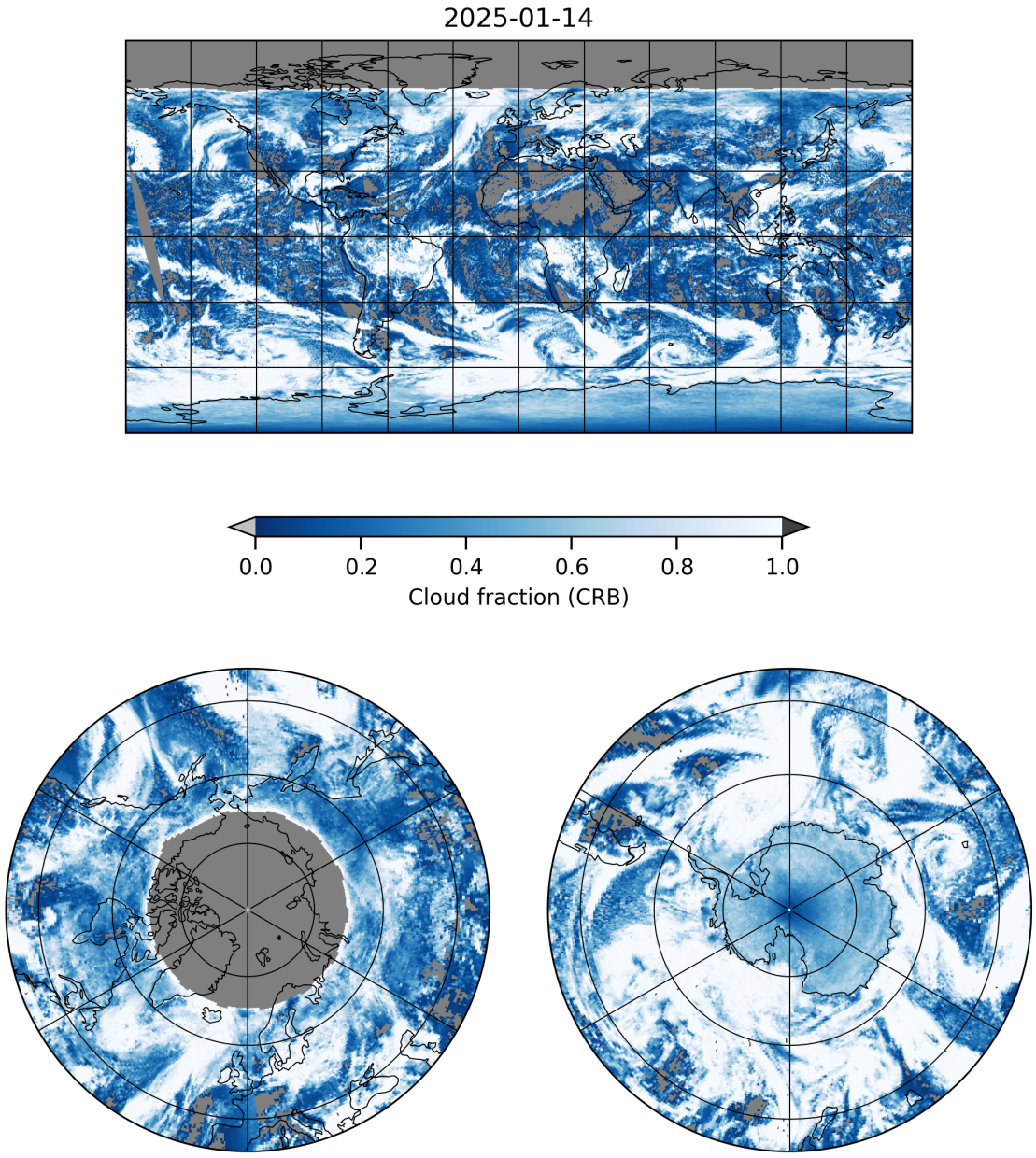

Figure 7: Map of “Cloud fraction (CRB)” for 2025-01-14 to 2025-01-15

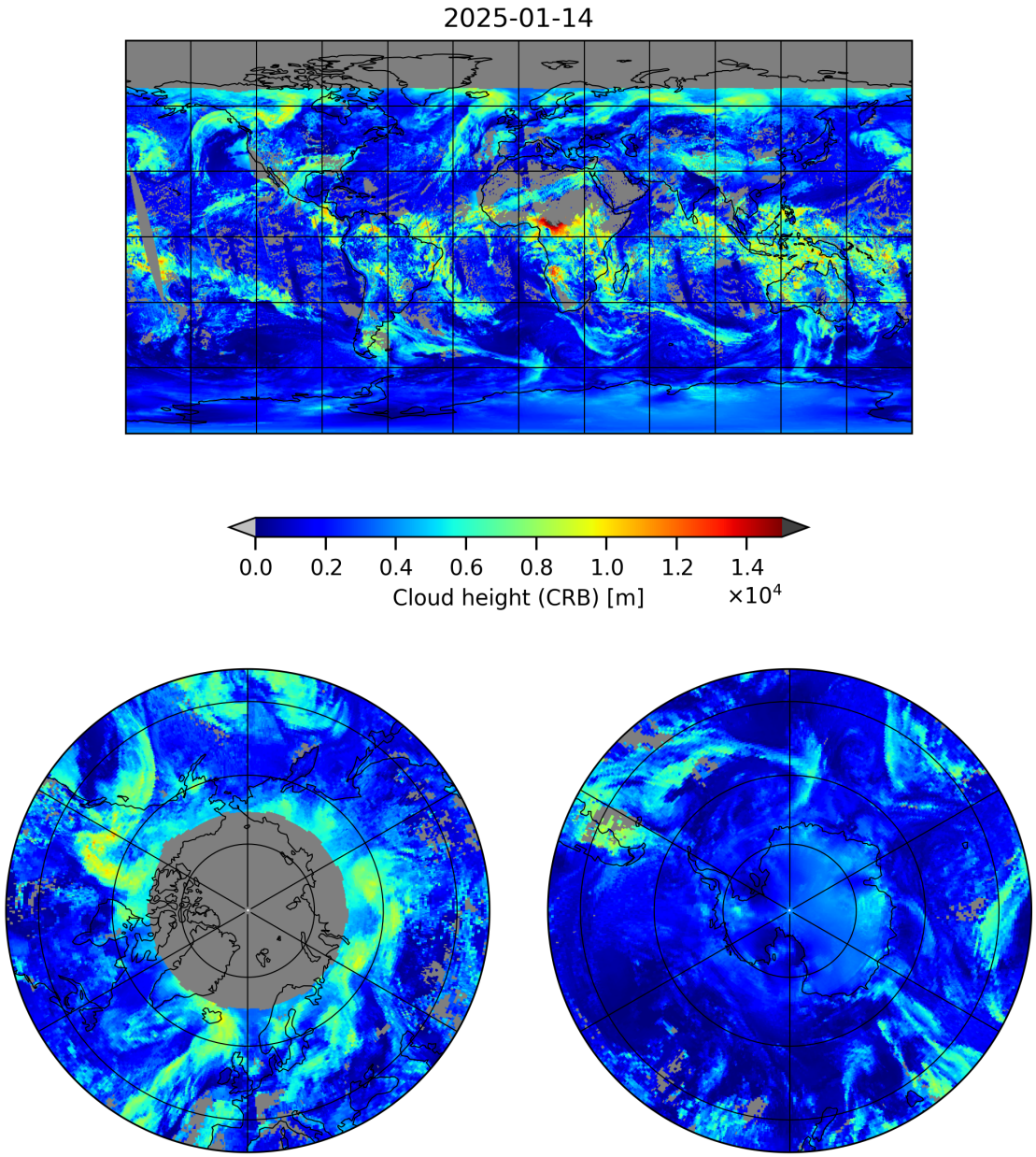

Figure 8: Map of “Cloud height (CRB)” for 2025-01-14 to 2025-01-15

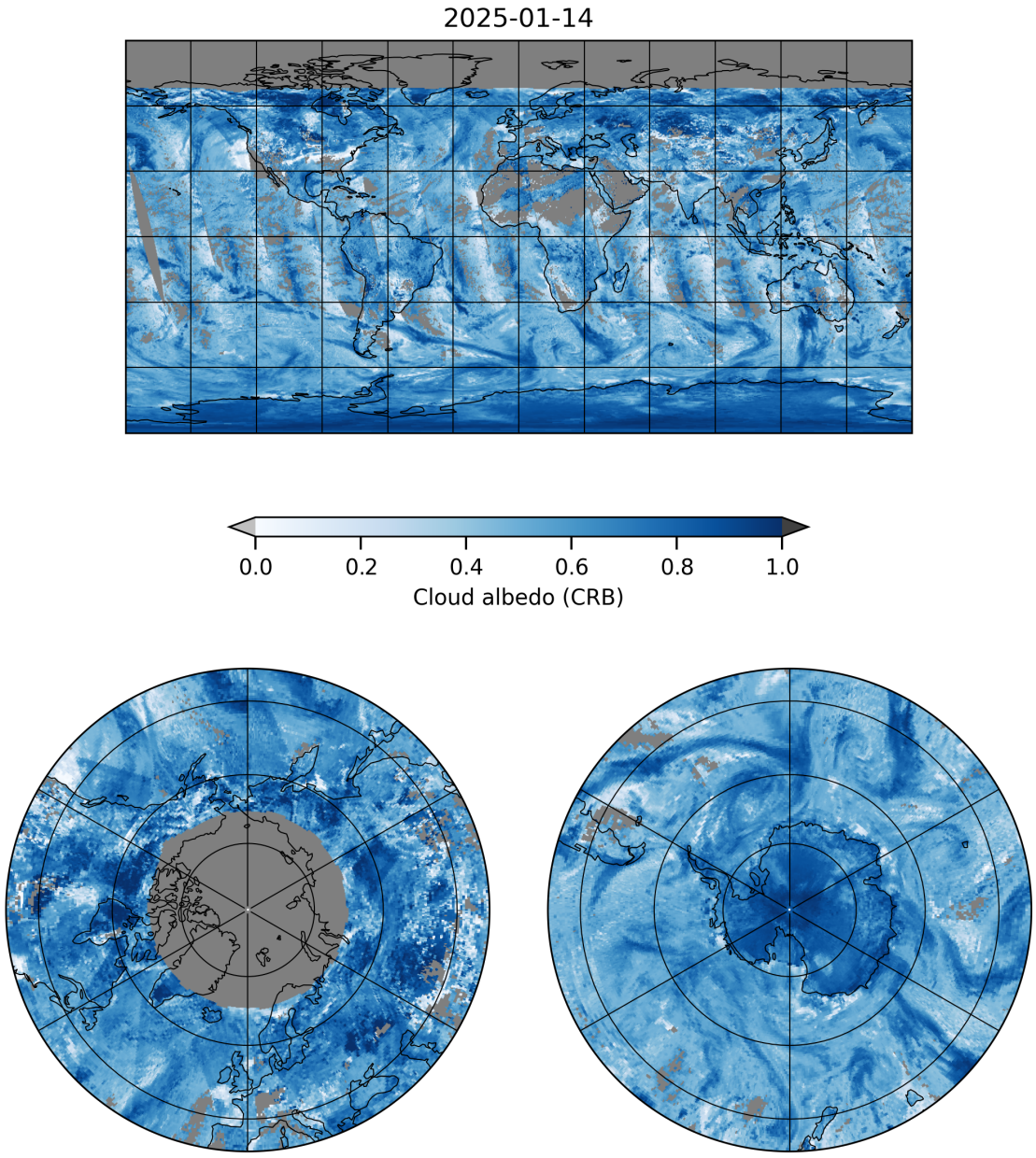

Figure 9: Map of “Cloud albedo (CRB)” for 2025-01-14 to 2025-01-15

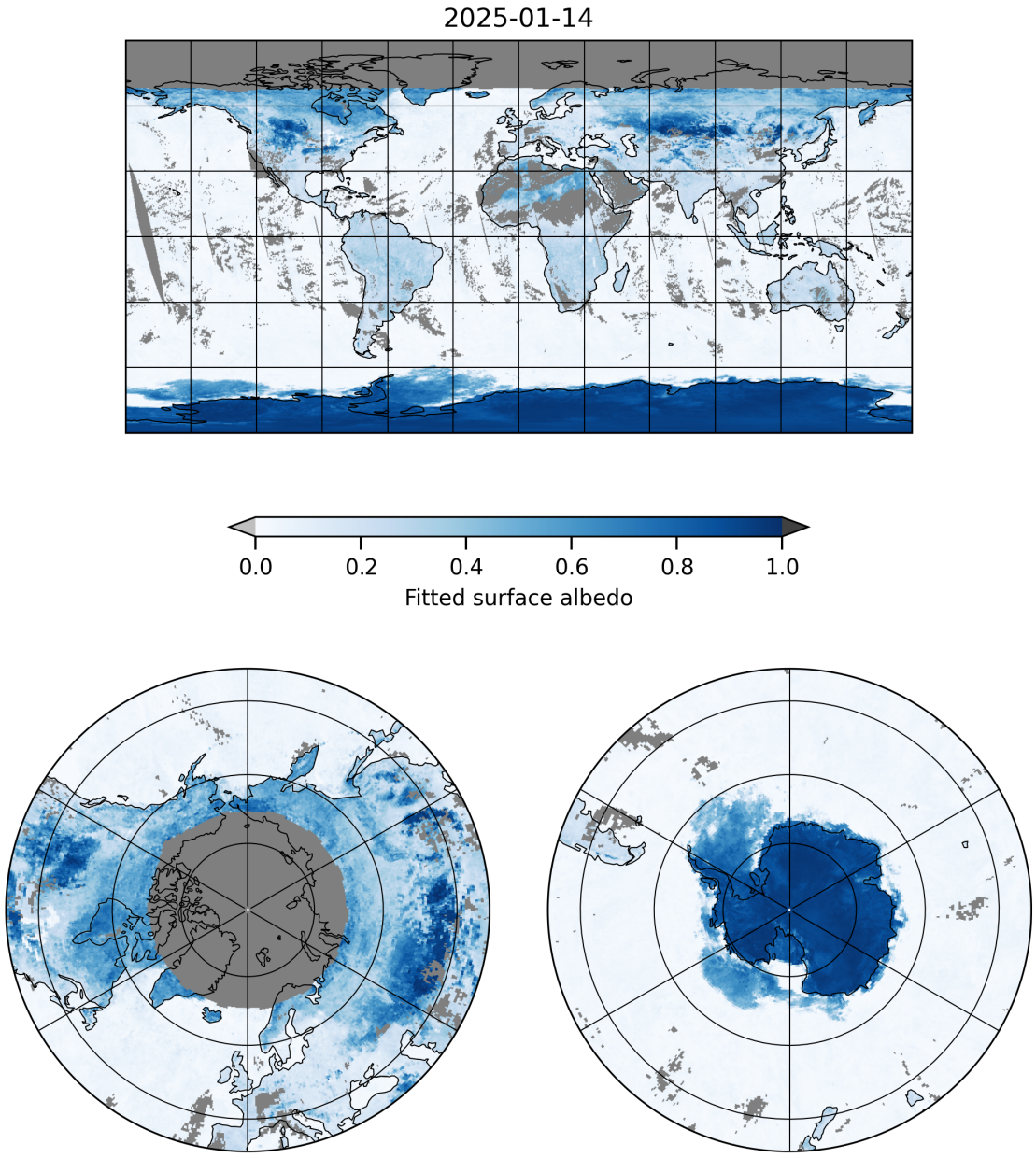

Figure 10: Map of “Fitted surface albedo” for 2025-01-14 to 2025-01-15

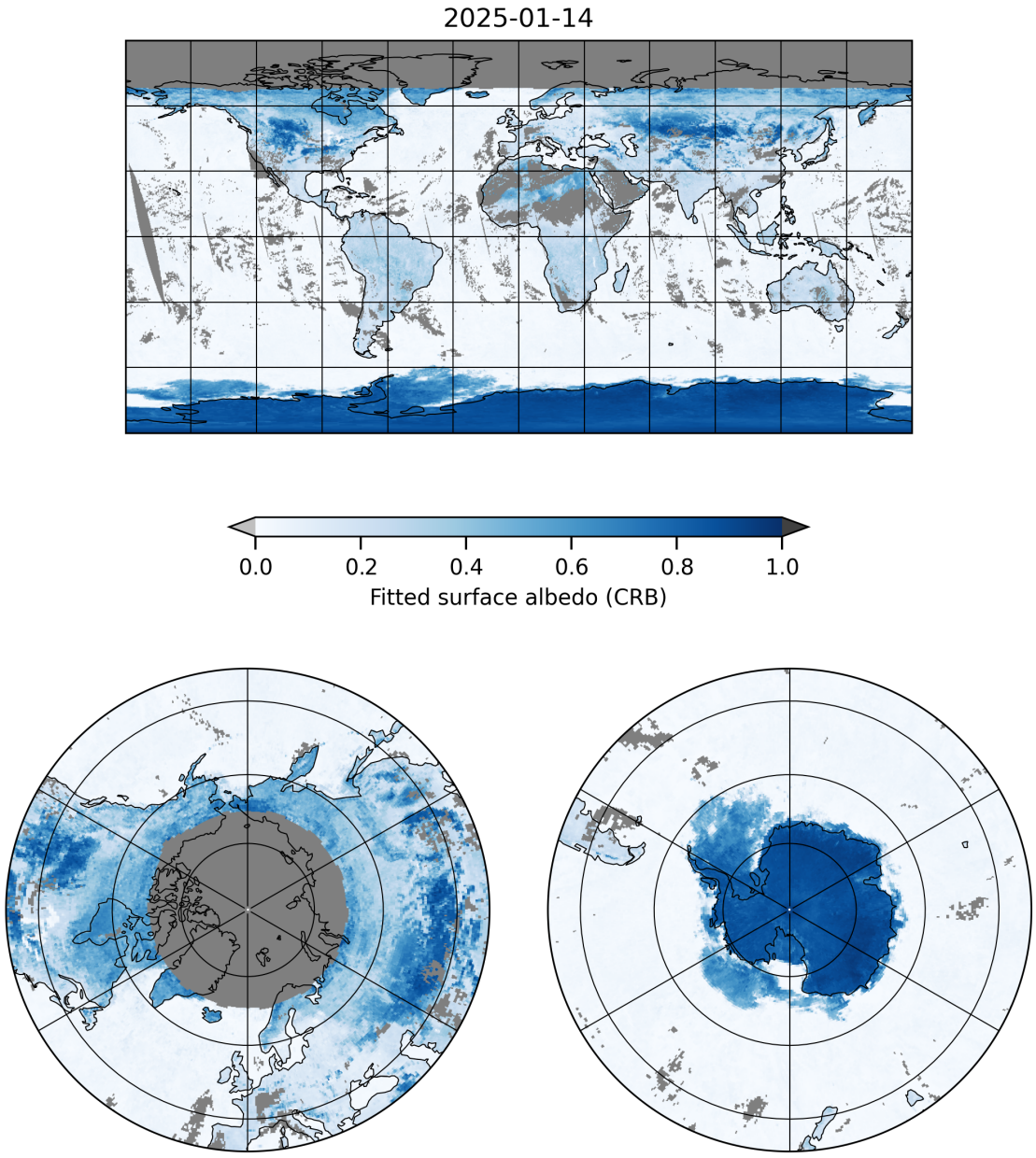

Figure 11: Map of “Fitted surface albedo (CRB)” for 2025-01-14 to 2025-01-15

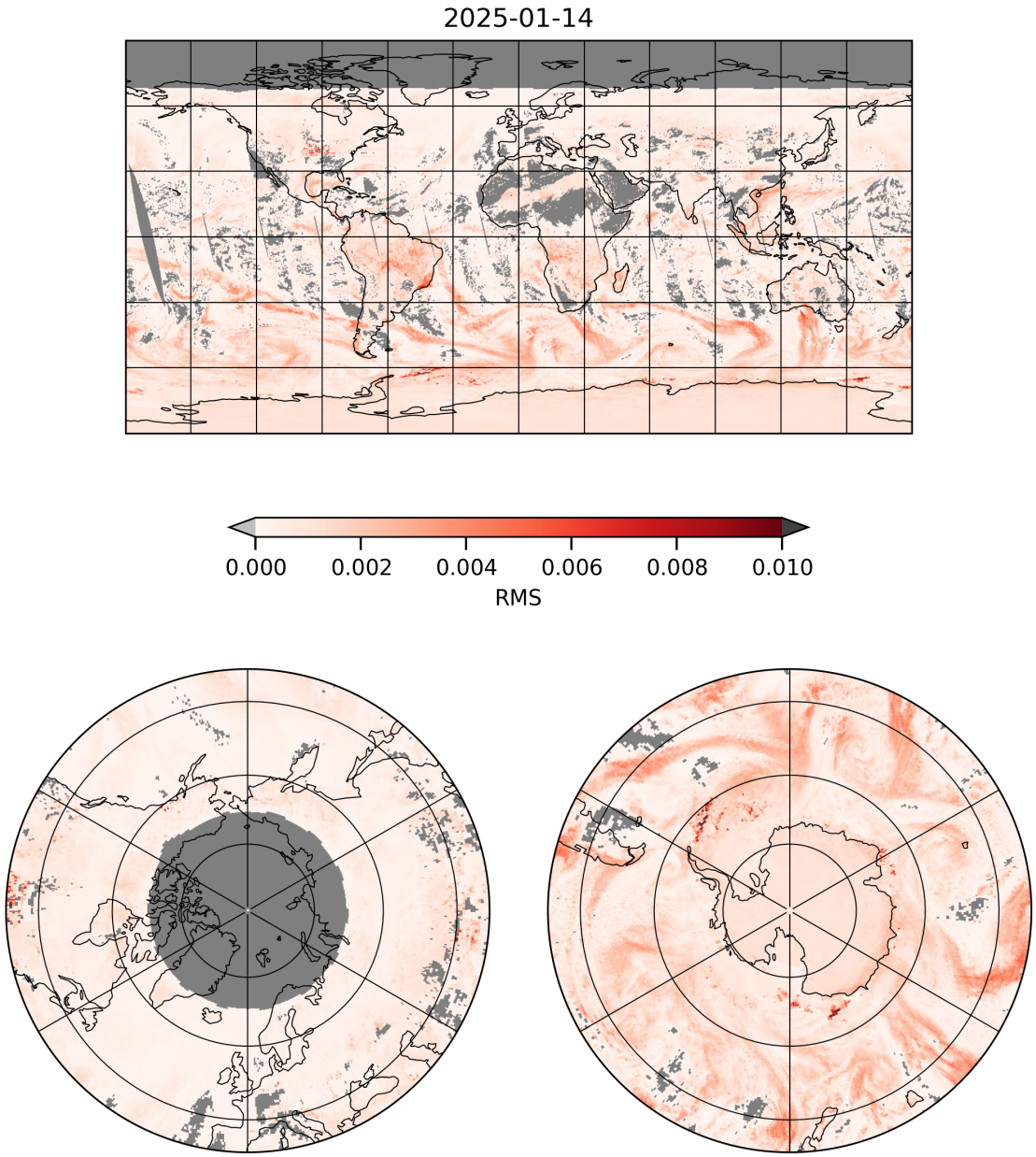

Figure 12: Map of “RMS” for 2025-01-14 to 2025-01-15

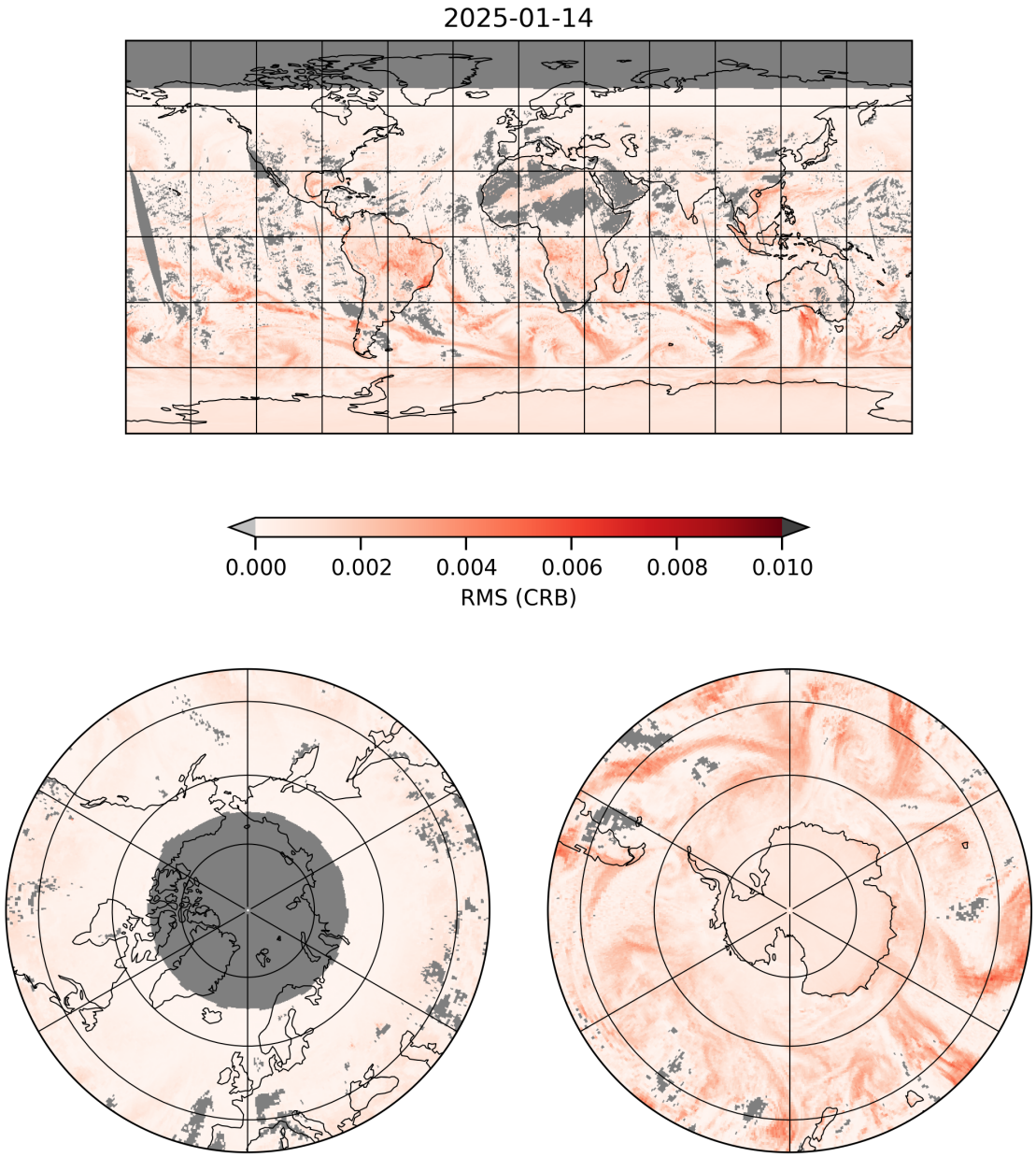

Figure 13: Map of “RMS (CRB)” for 2025-01-14 to 2025-01-15

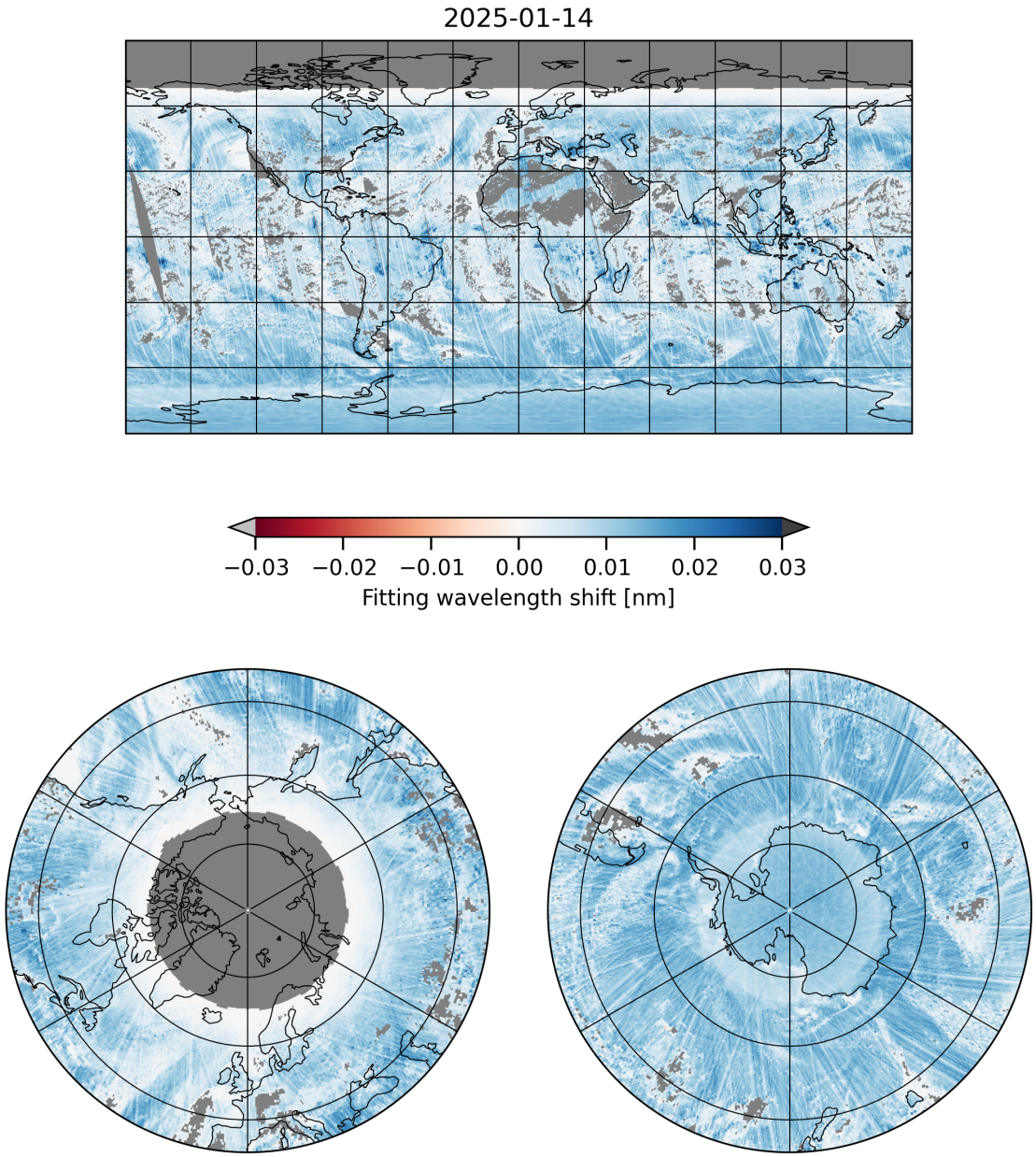

Figure 14: Map of “Fitting wavelength shift” for 2025-01-14 to 2025-01-15

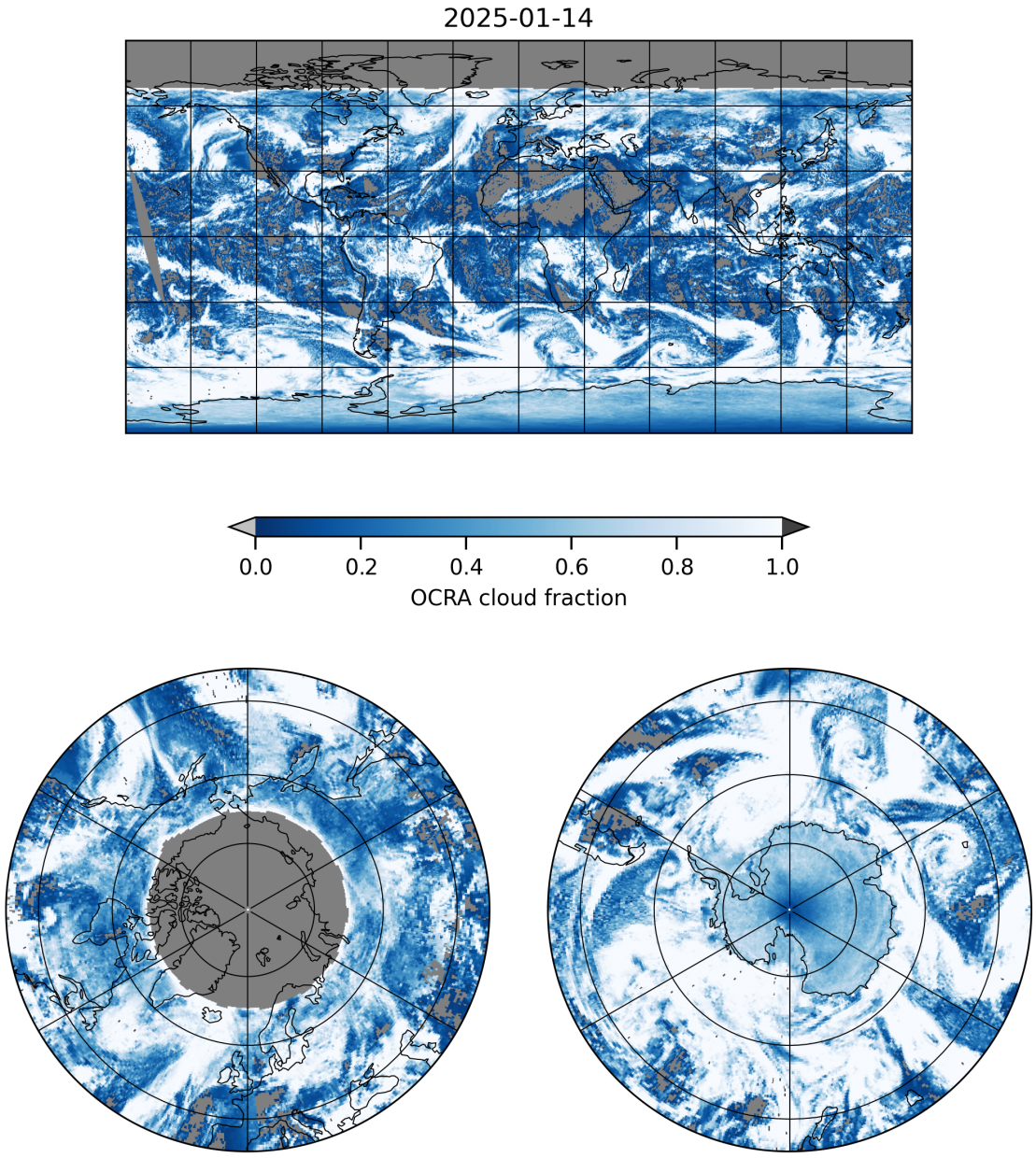

Figure 15: Map of “OCRA cloud fraction” for 2025-01-14 to 2025-01-15

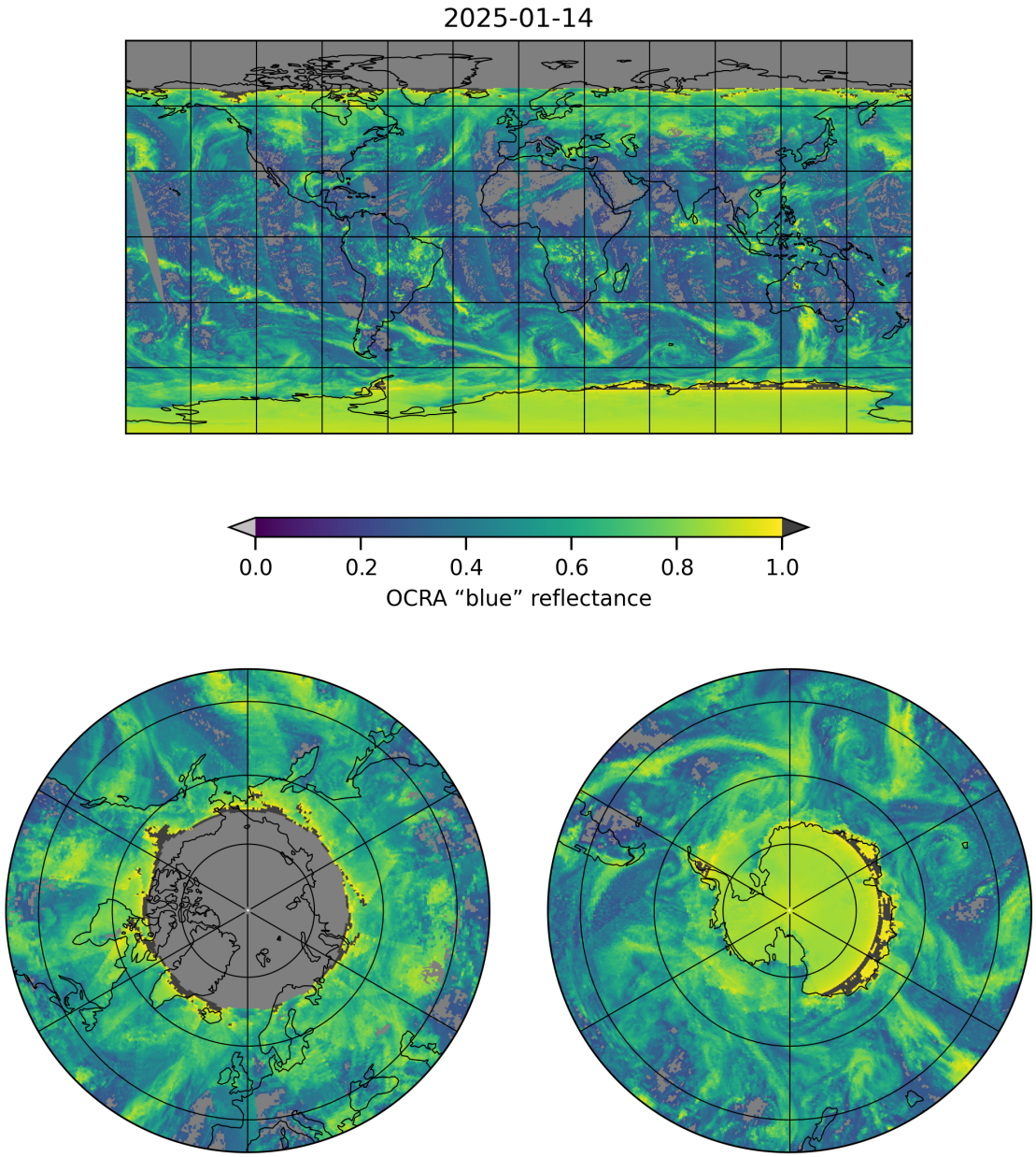

Figure 16: Map of “OCRA “blue” reflectance” for 2025-01-14 to 2025-01-15

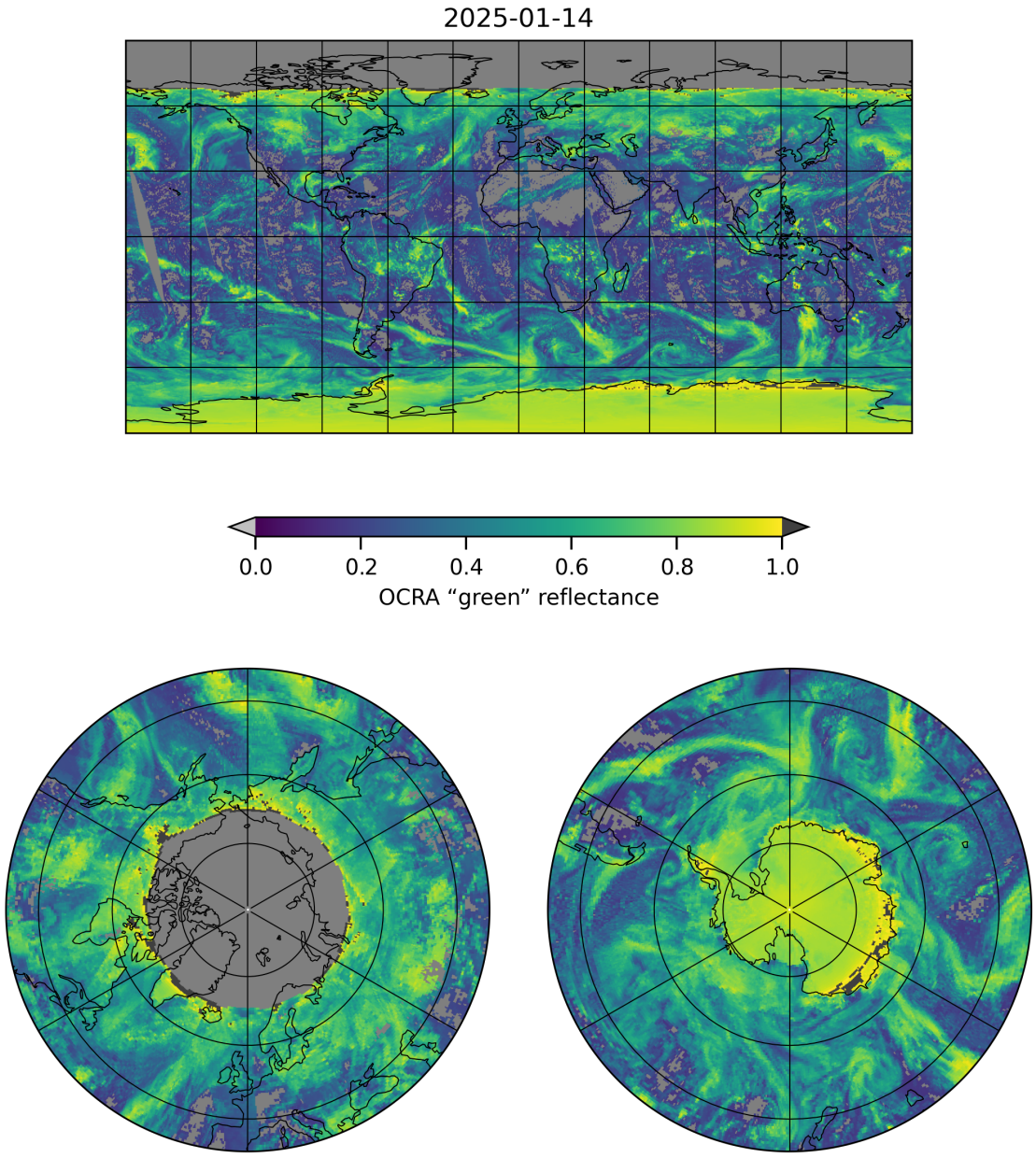

Figure 17: Map of “OCRA “green” reflectance” for 2025-01-14 to 2025-01-15

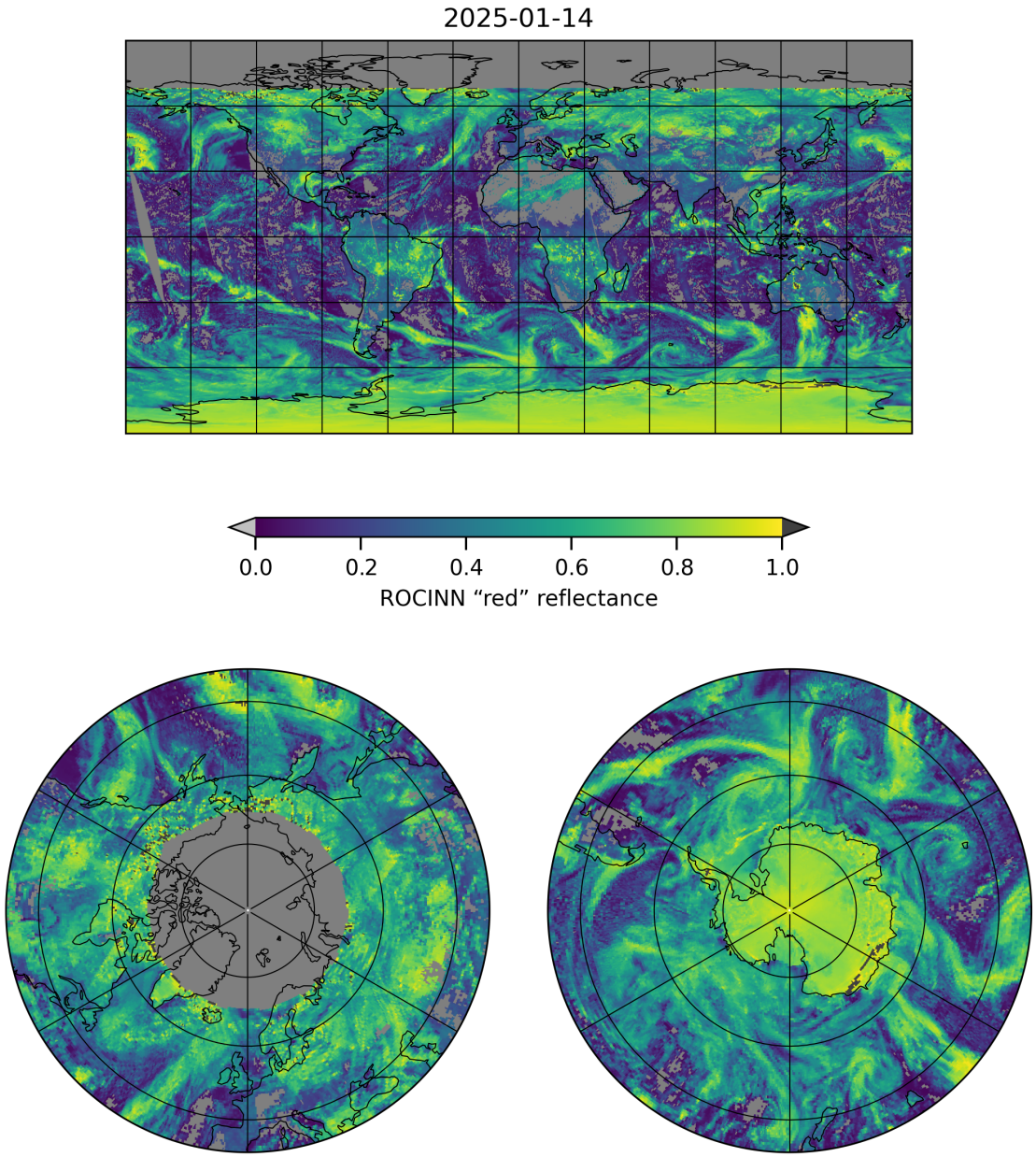

Figure 18: Map of “ROCINN “red” reflectance” for 2025-01-14 to 2025-01-15

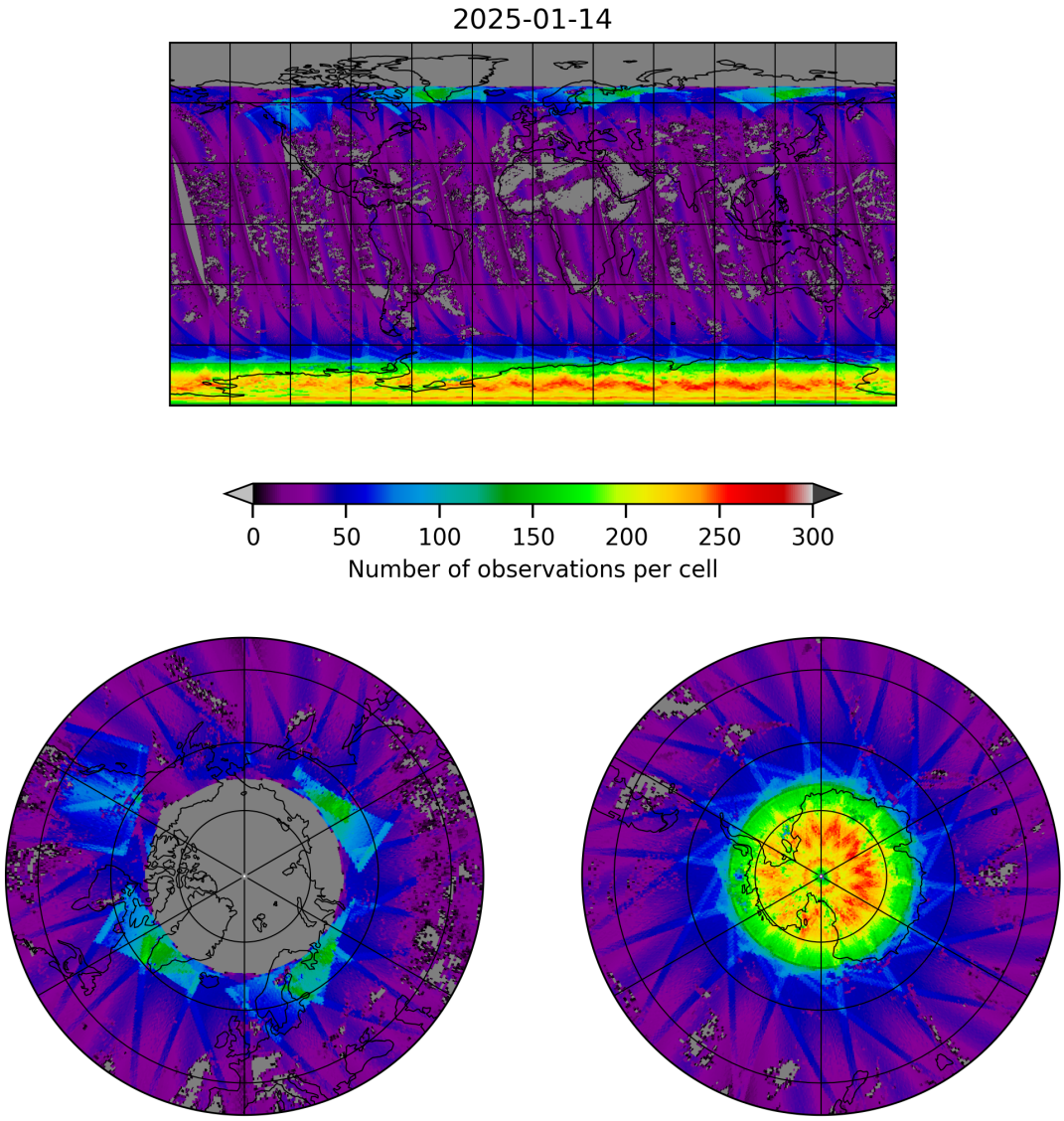

Figure 19: Map of the number of observations for 2025-01-14 to 2025-01-15

7 Zonal average

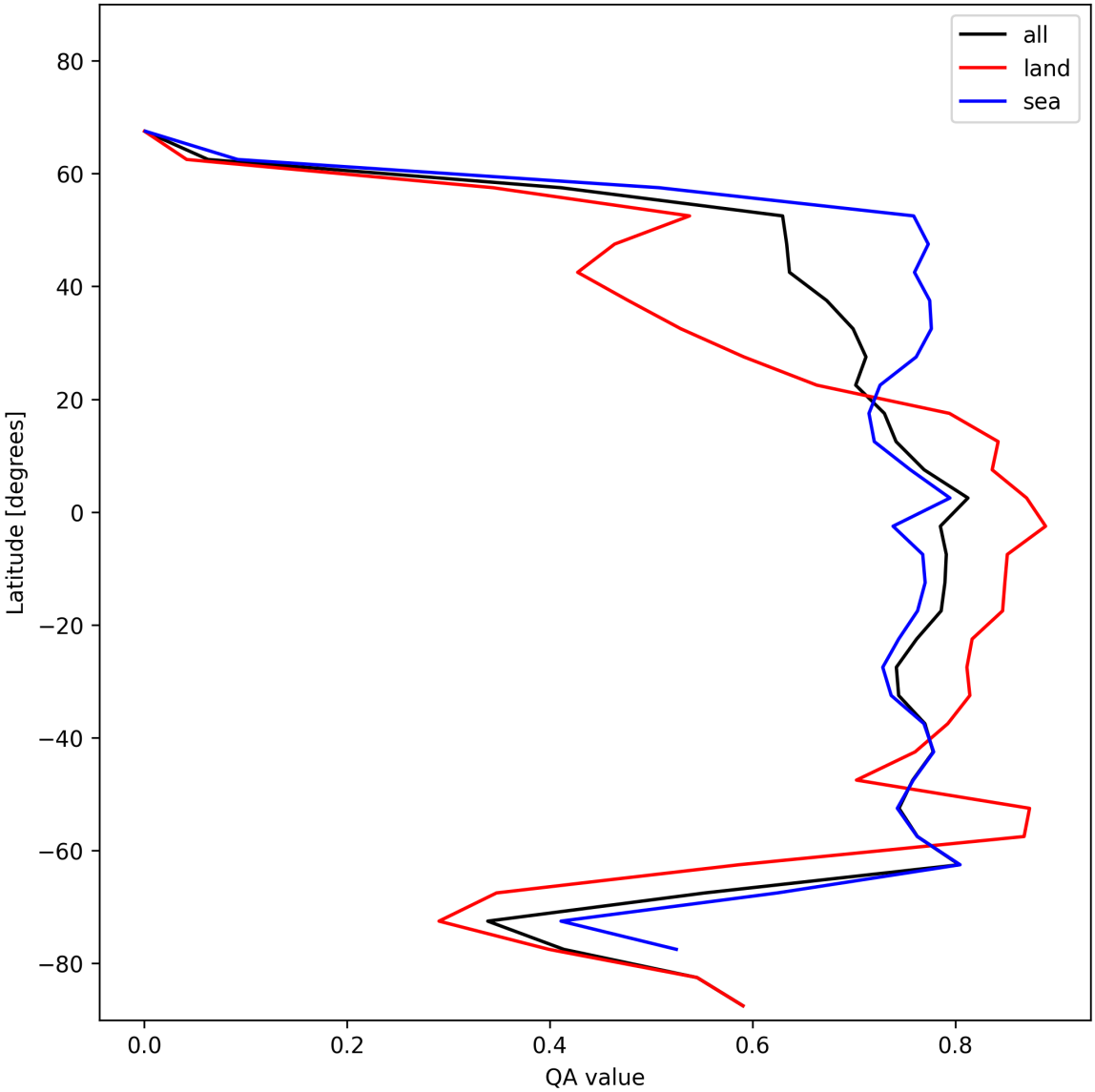

Figure 20: Zonal average of “QA value” for 2025-01-14 to 2025-01-15.

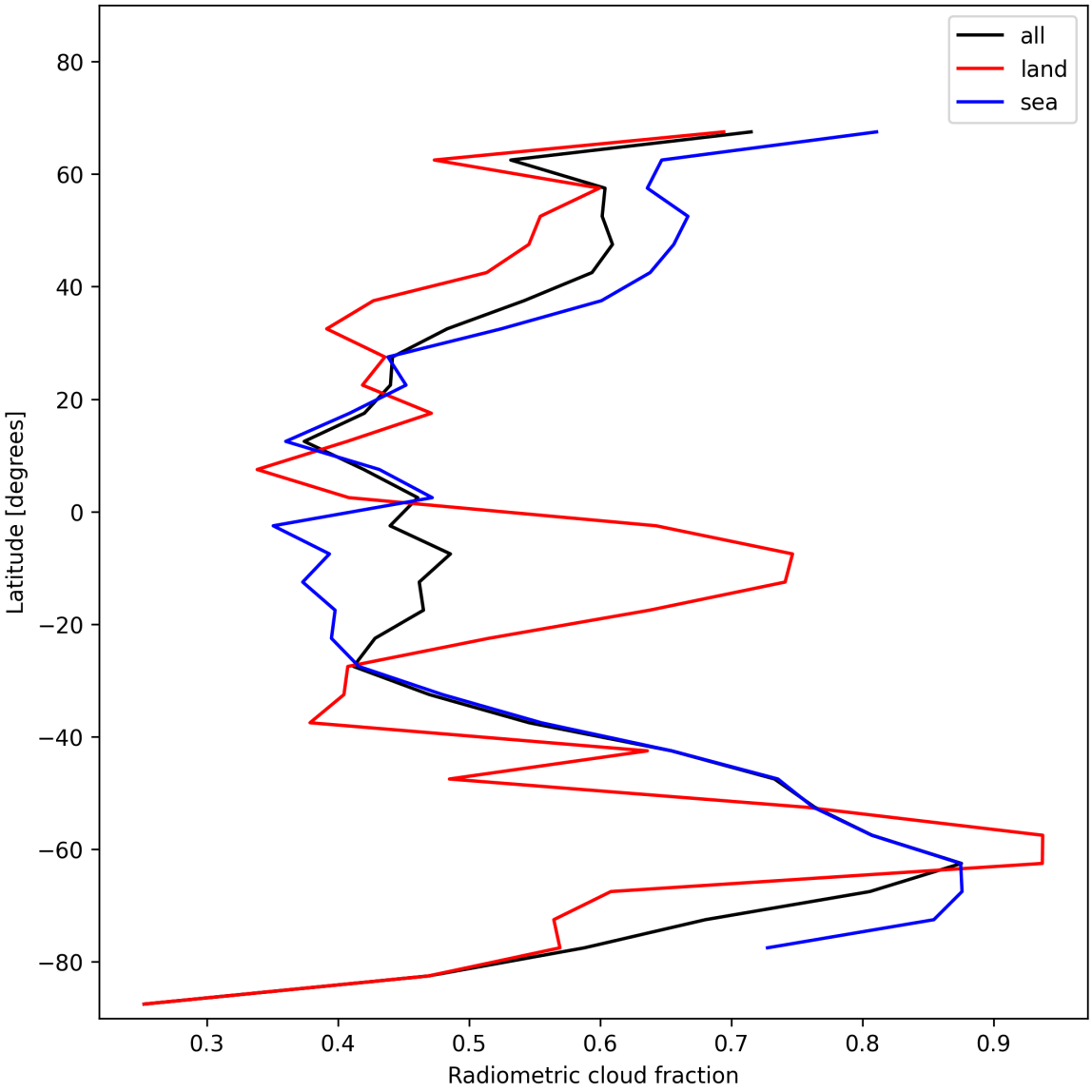

Figure 21: Zonal average of “Radiometric cloud fraction” for 2025-01-14 to 2025-01-15.

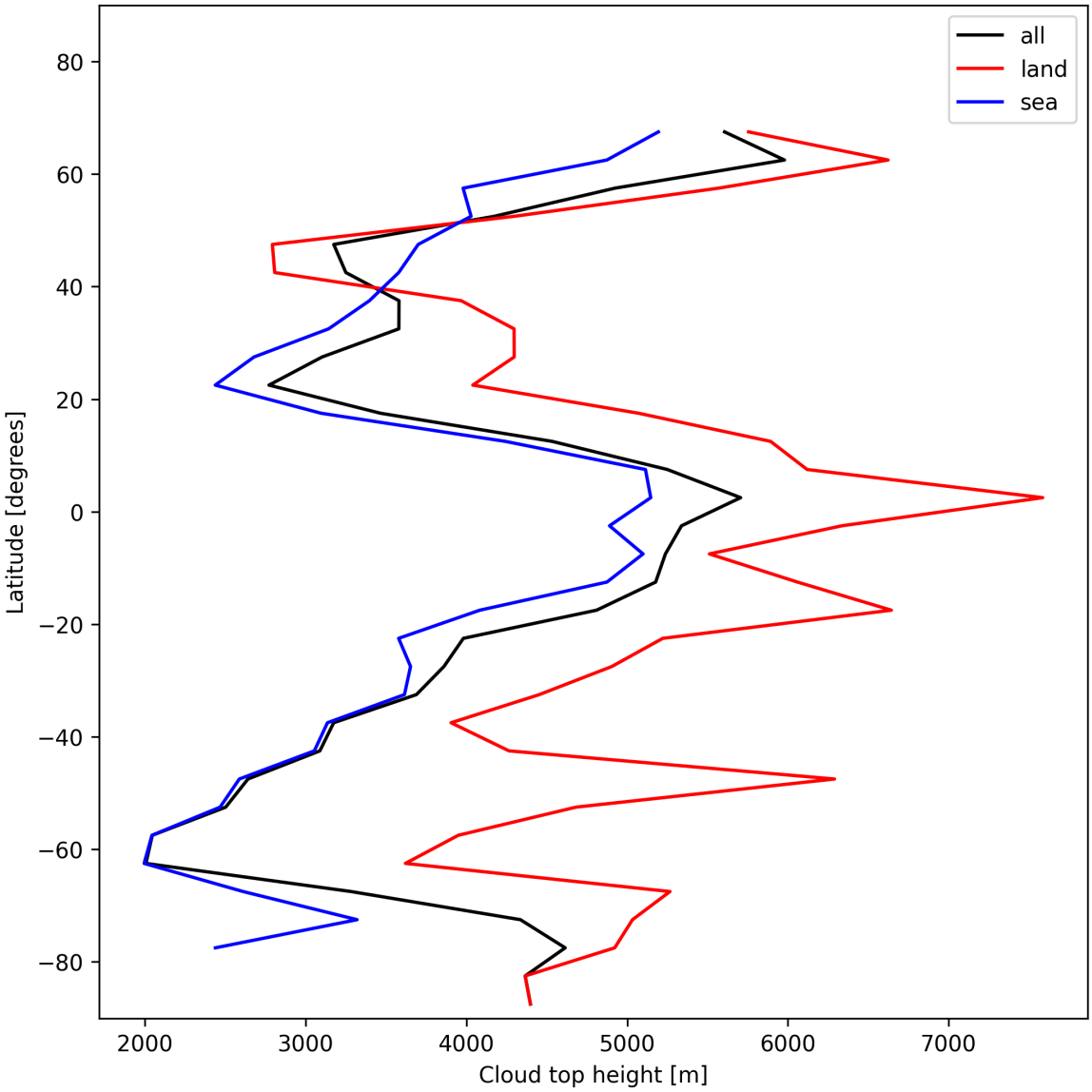

Figure 22: Zonal average of “Cloud top height” for 2025-01-14 to 2025-01-15.

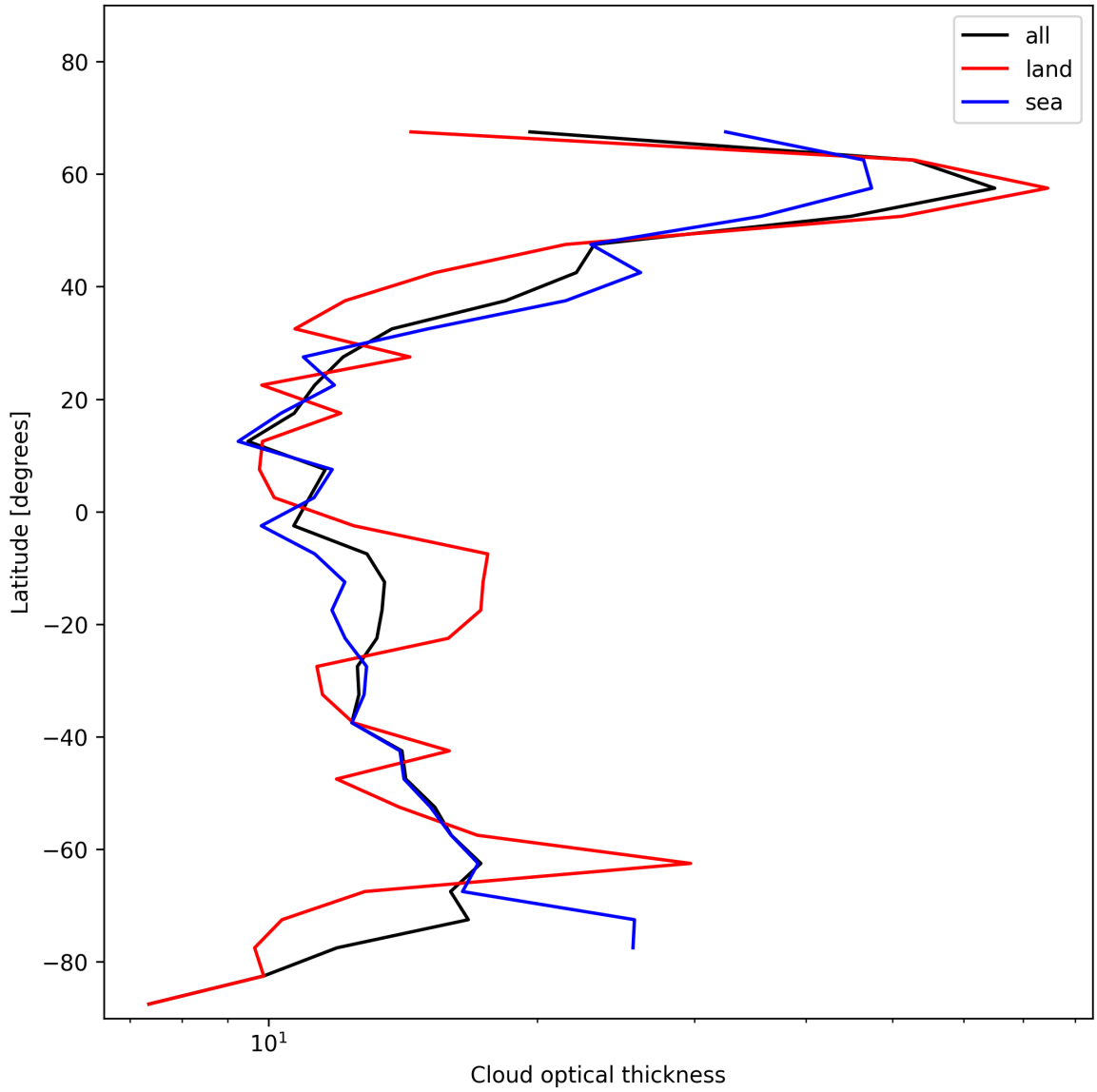

Figure 23: Zonal average of “Cloud optical thickness” for 2025-01-14 to 2025-01-15.

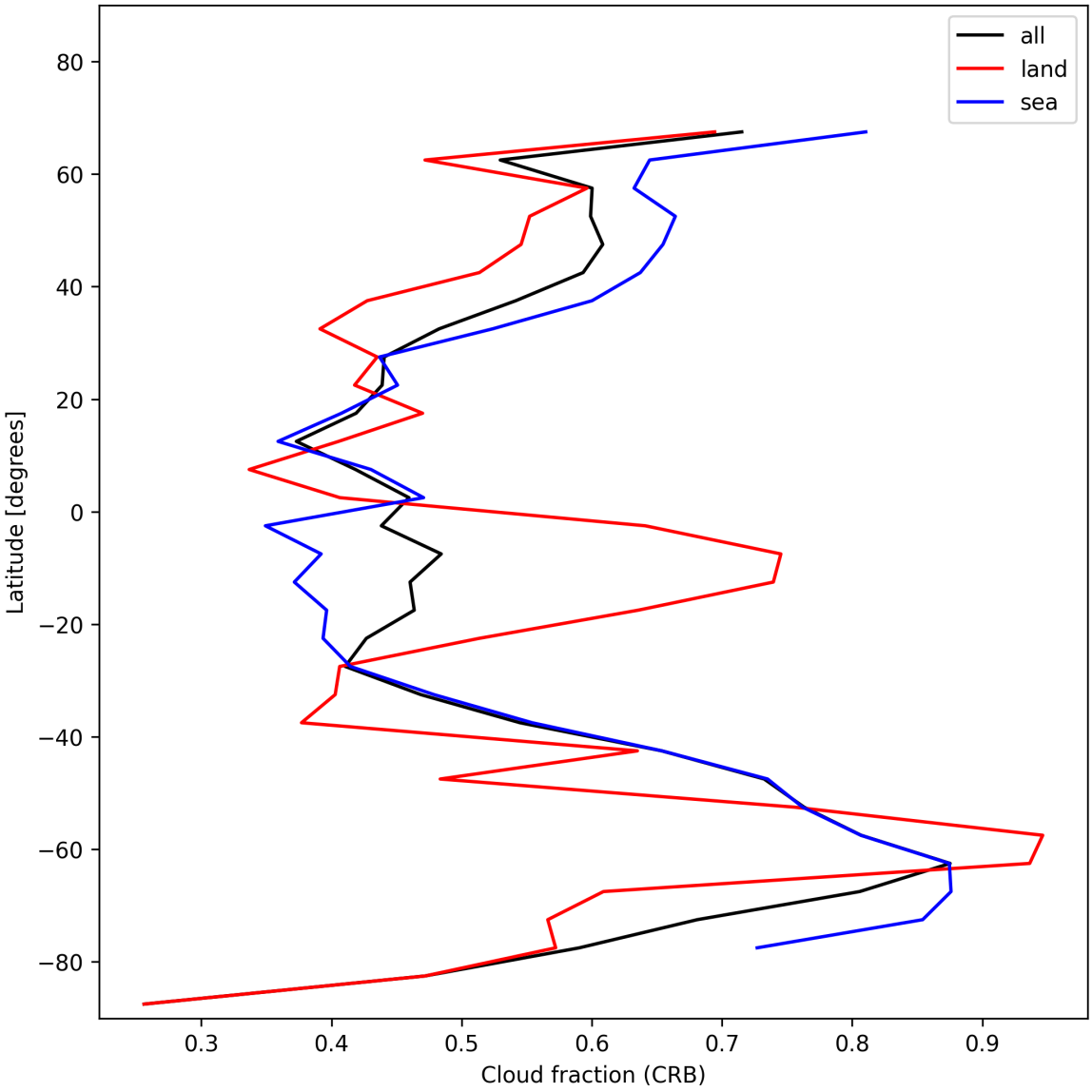

Figure 24: Zonal average of “Cloud fraction (CRB)” for 2025-01-14 to 2025-01-15.

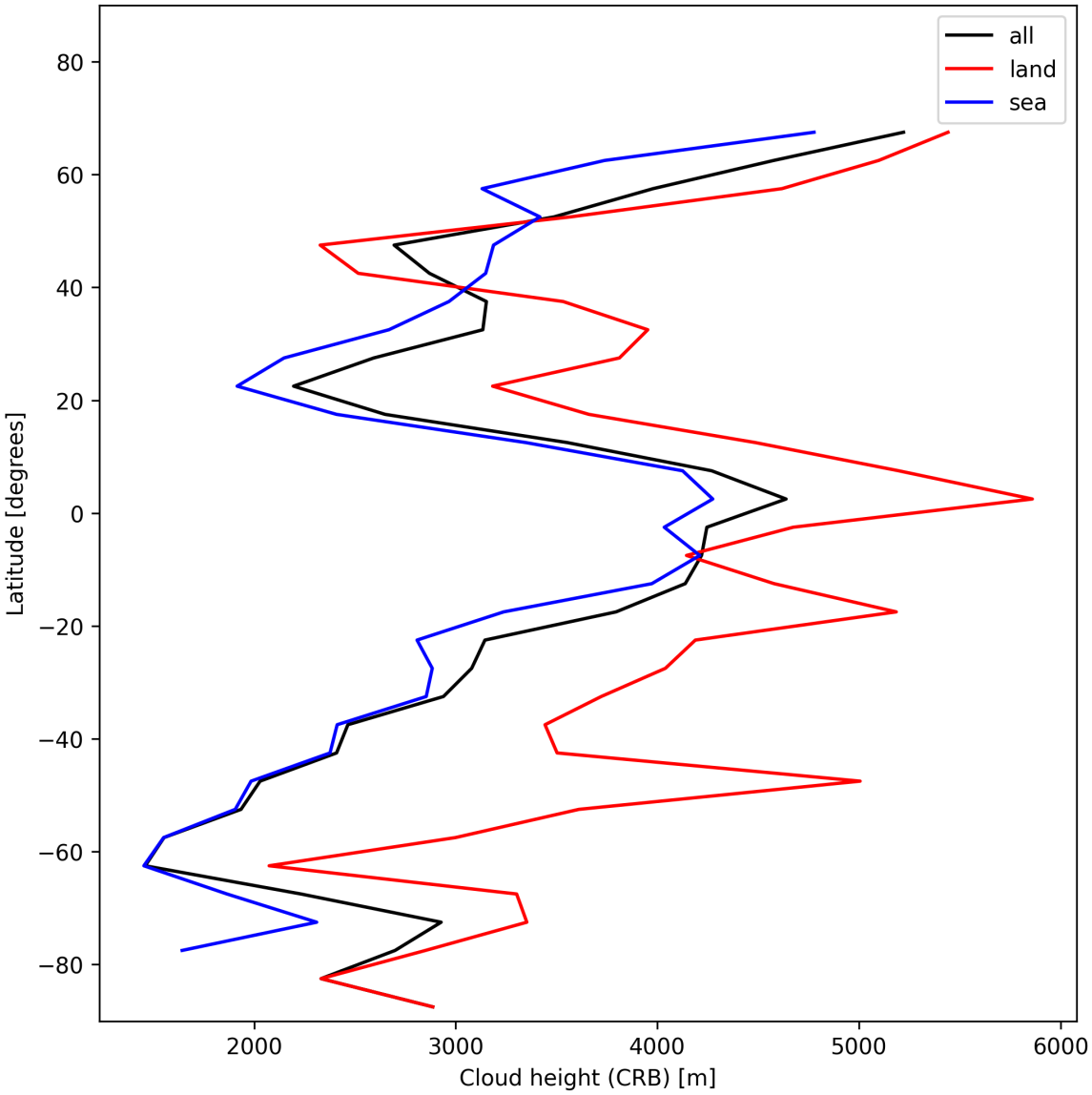

Figure 25: Zonal average of “Cloud height (CRB)” for 2025-01-14 to 2025-01-15.

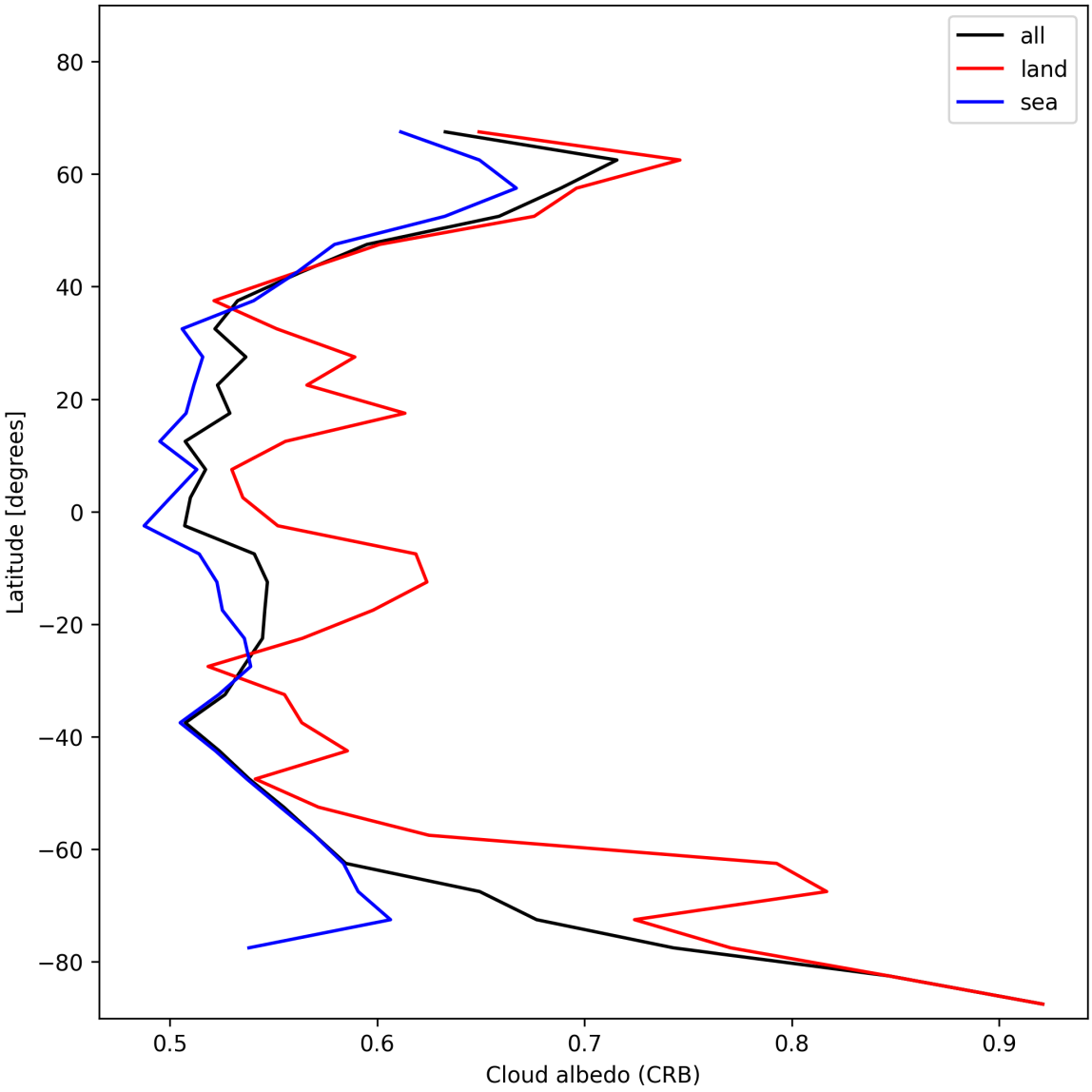

Figure 26: Zonal average of “Cloud albedo (CRB)” for 2025-01-14 to 2025-01-15.

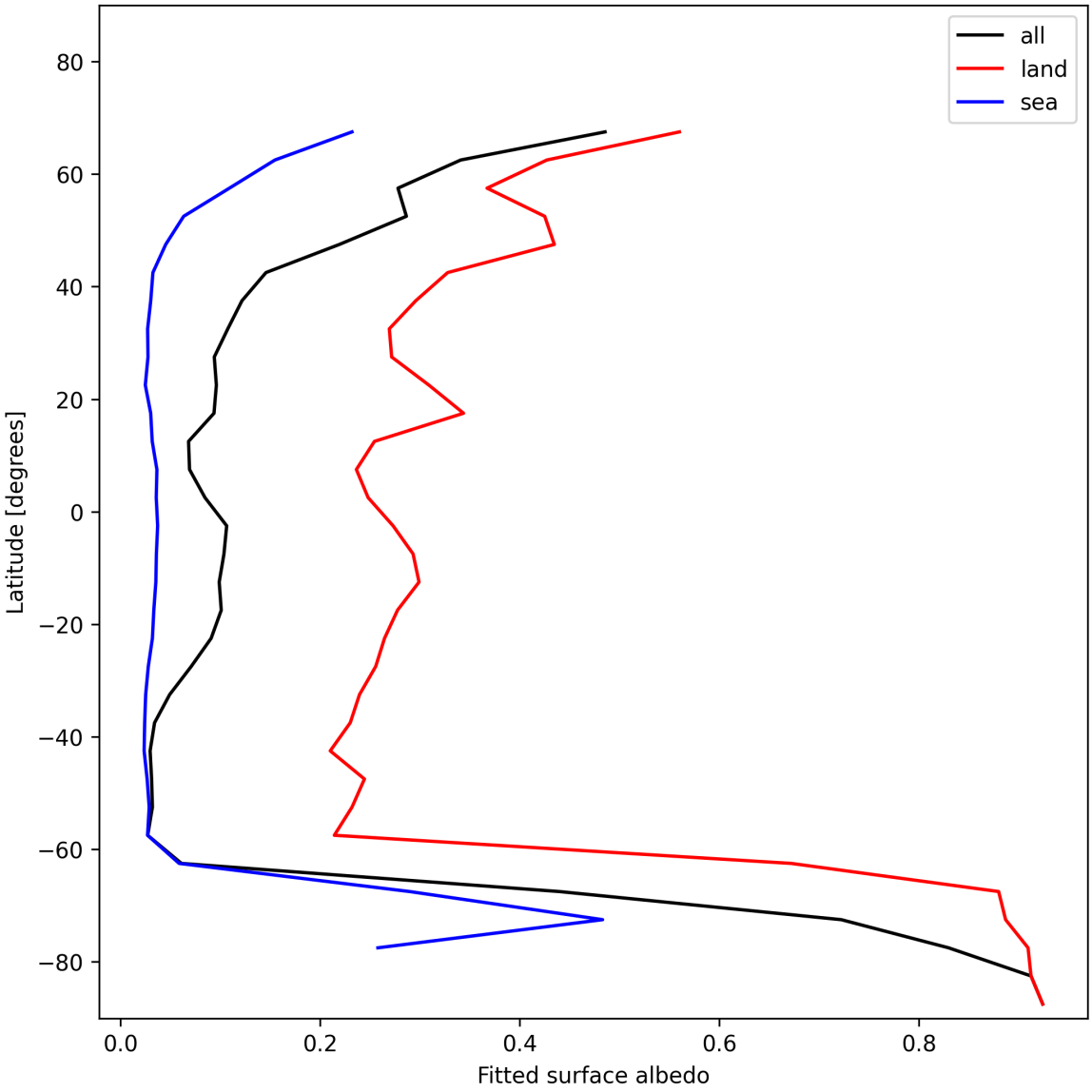

Figure 27: Zonal average of “Fitted surface albedo” for 2025-01-14 to 2025-01-15.

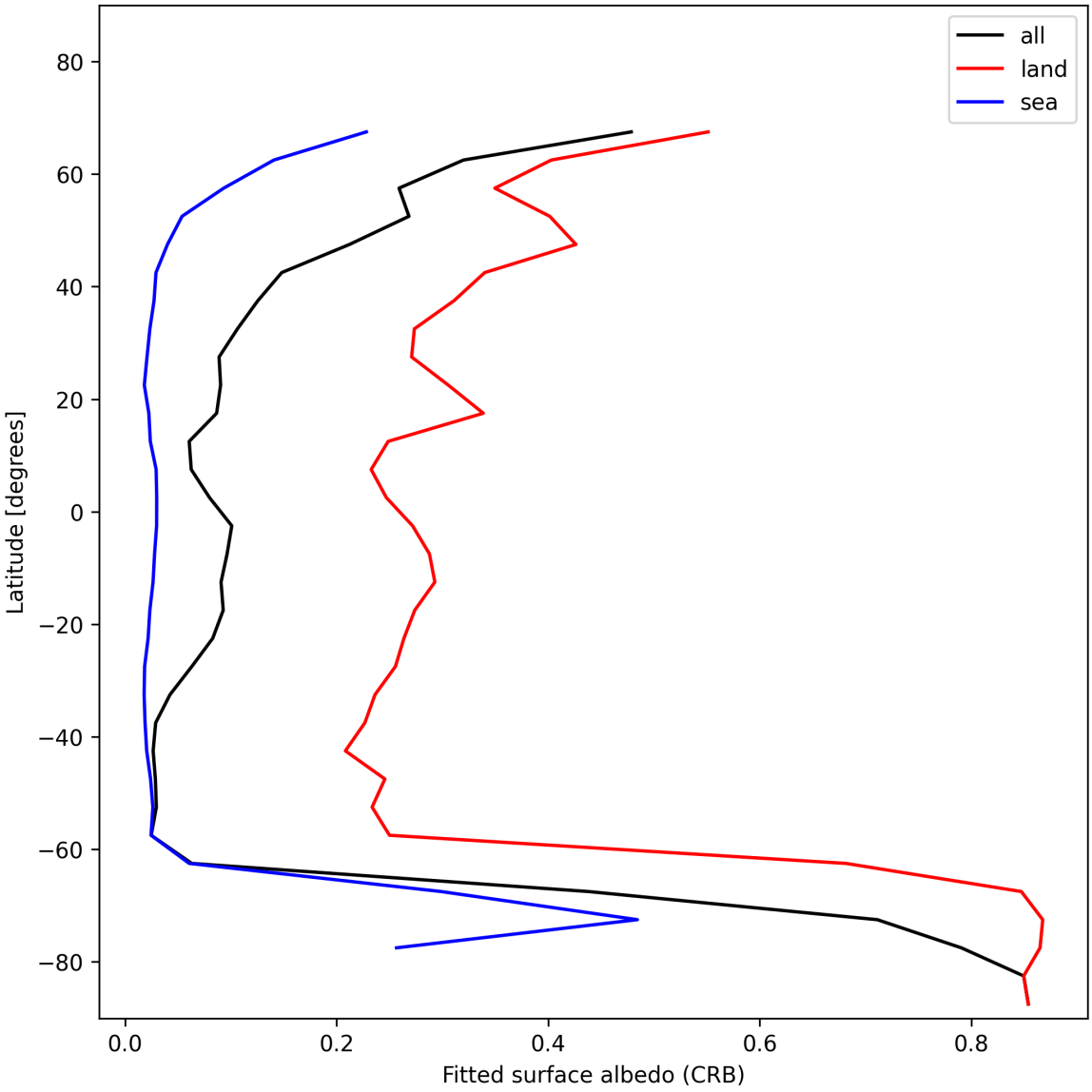

Figure 28: Zonal average of “Fitted surface albedo (CRB)” for 2025-01-14 to 2025-01-15.

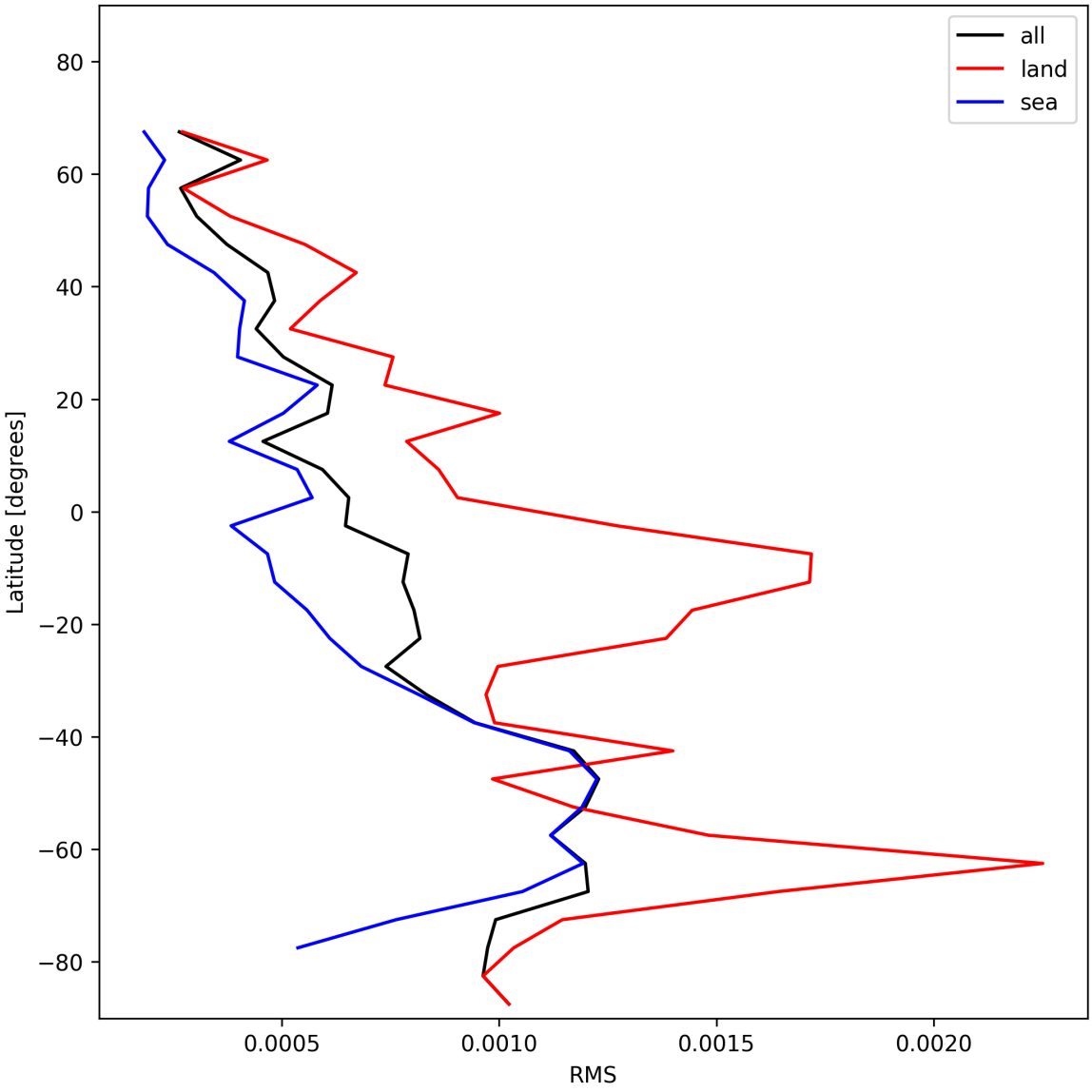

Figure 29: Zonal average of “RMS” for 2025-01-14 to 2025-01-15.

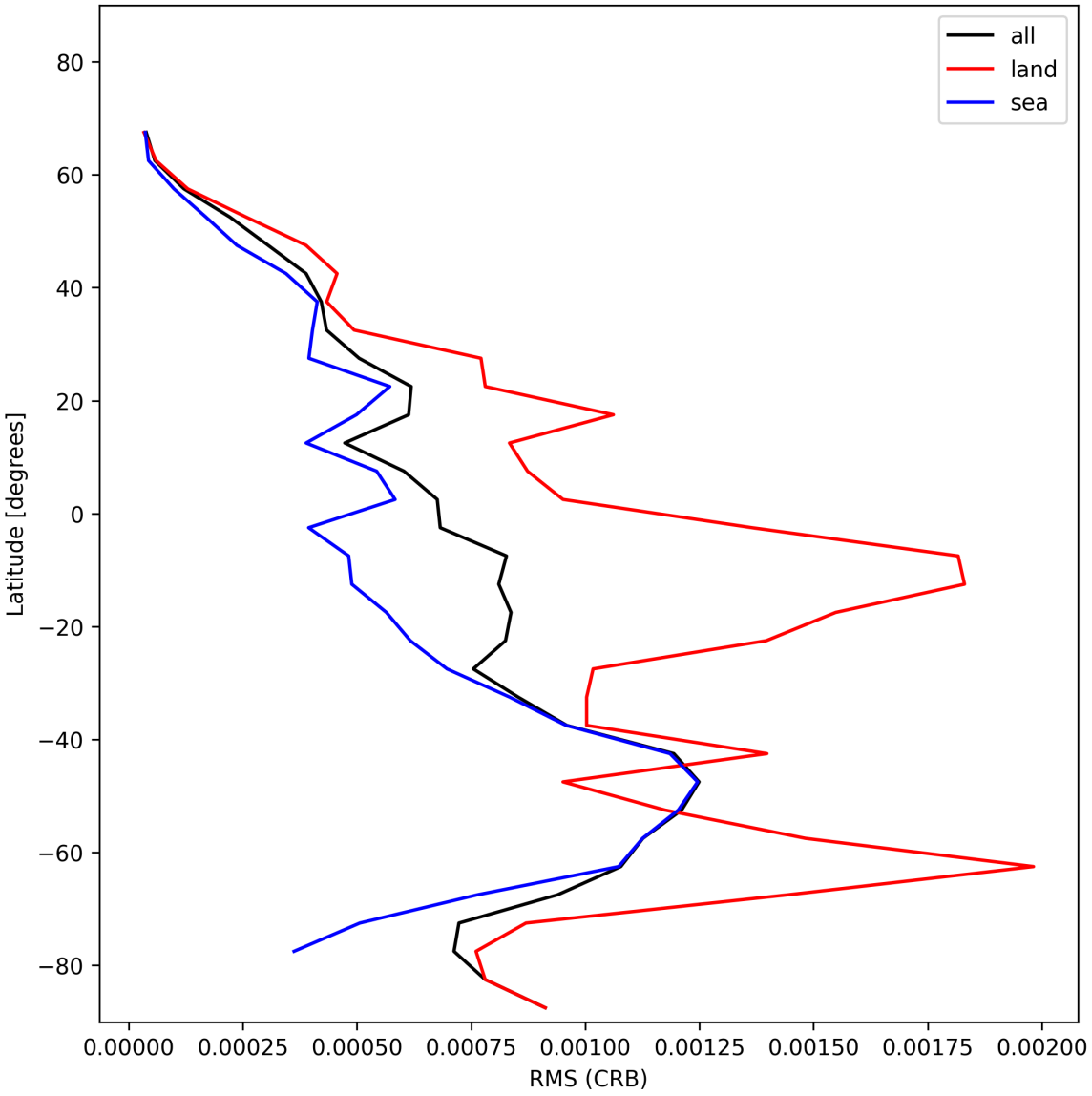

Figure 30: Zonal average of “RMS (CRB)” for 2025-01-14 to 2025-01-15.

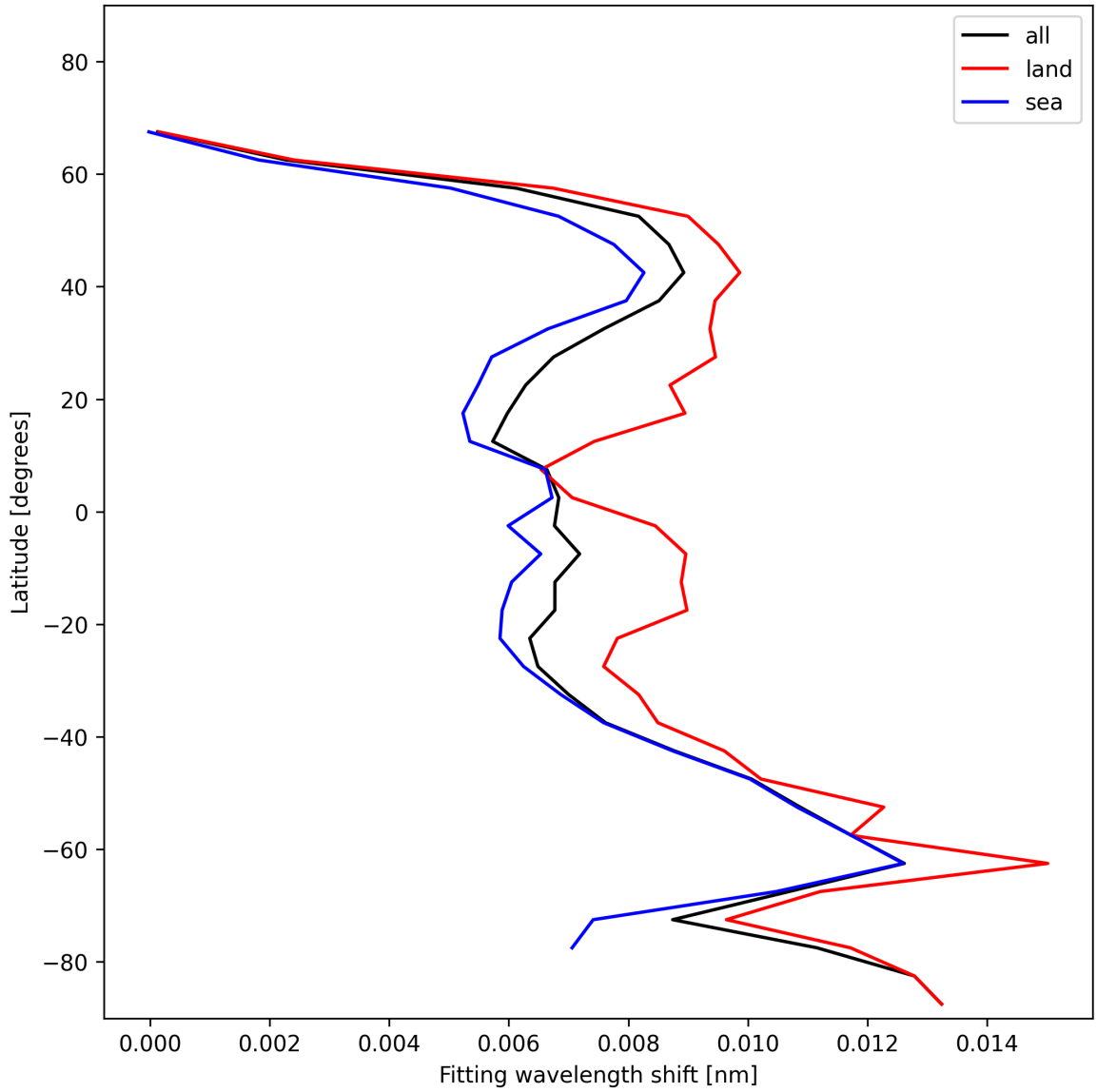

Figure 31: Zonal average of “Fitting wavelength shift” for 2025-01-14 to 2025-01-15.

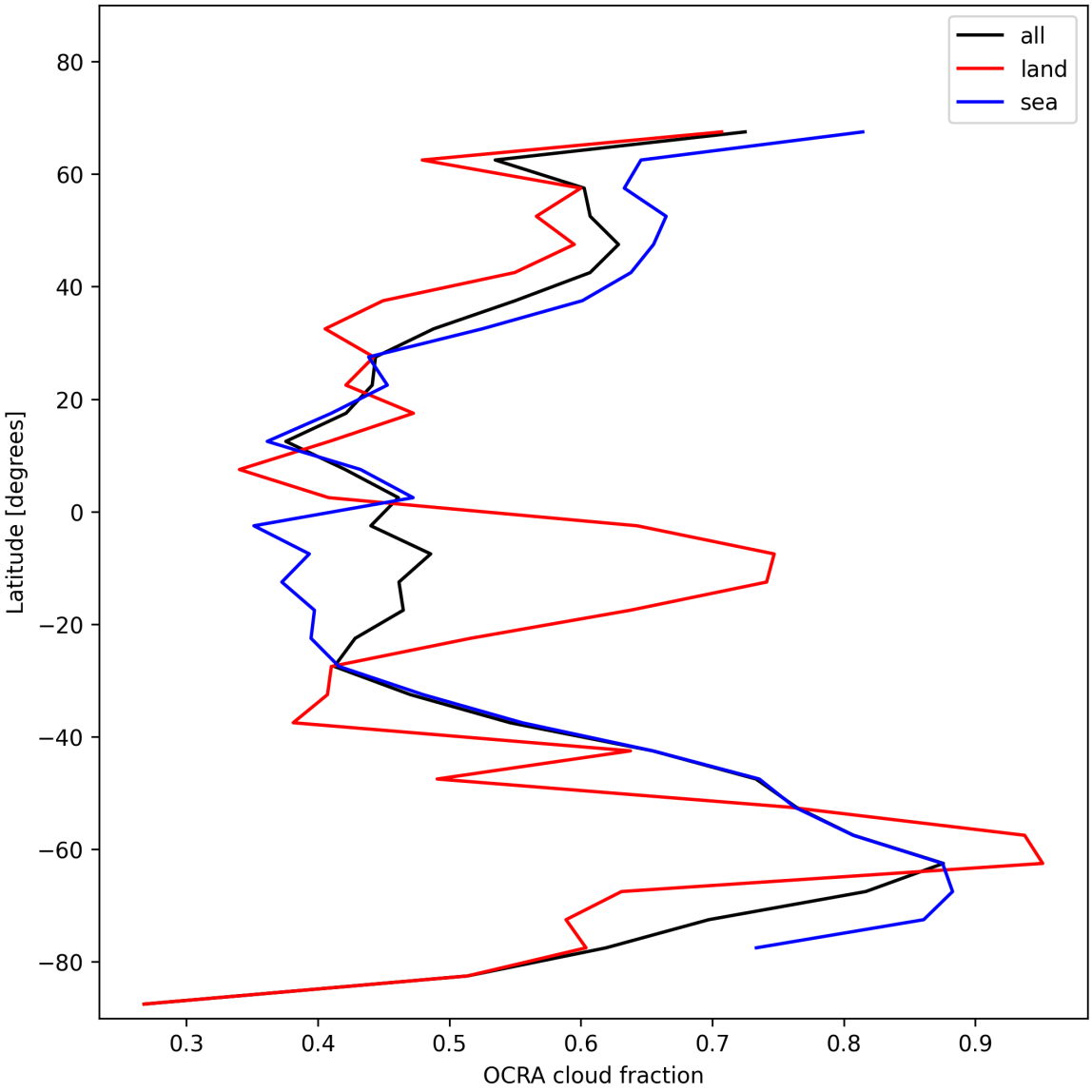

Figure 32: Zonal average of “OCRA cloud fraction” for 2025-01-14 to 2025-01-15.

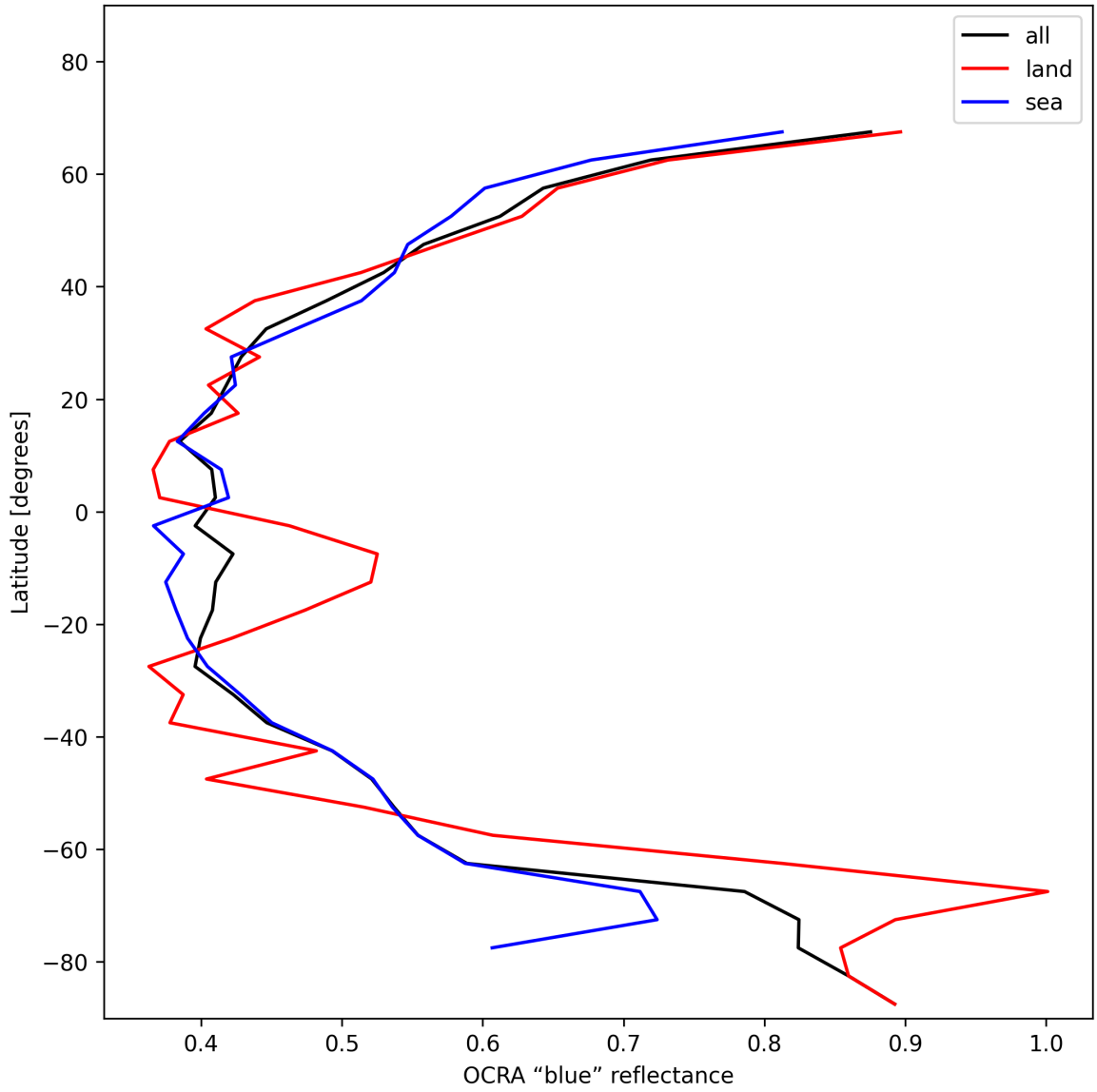

Figure 33: Zonal average of “OCRA “blue” reflectance” for 2025-01-14 to 2025-01-15.

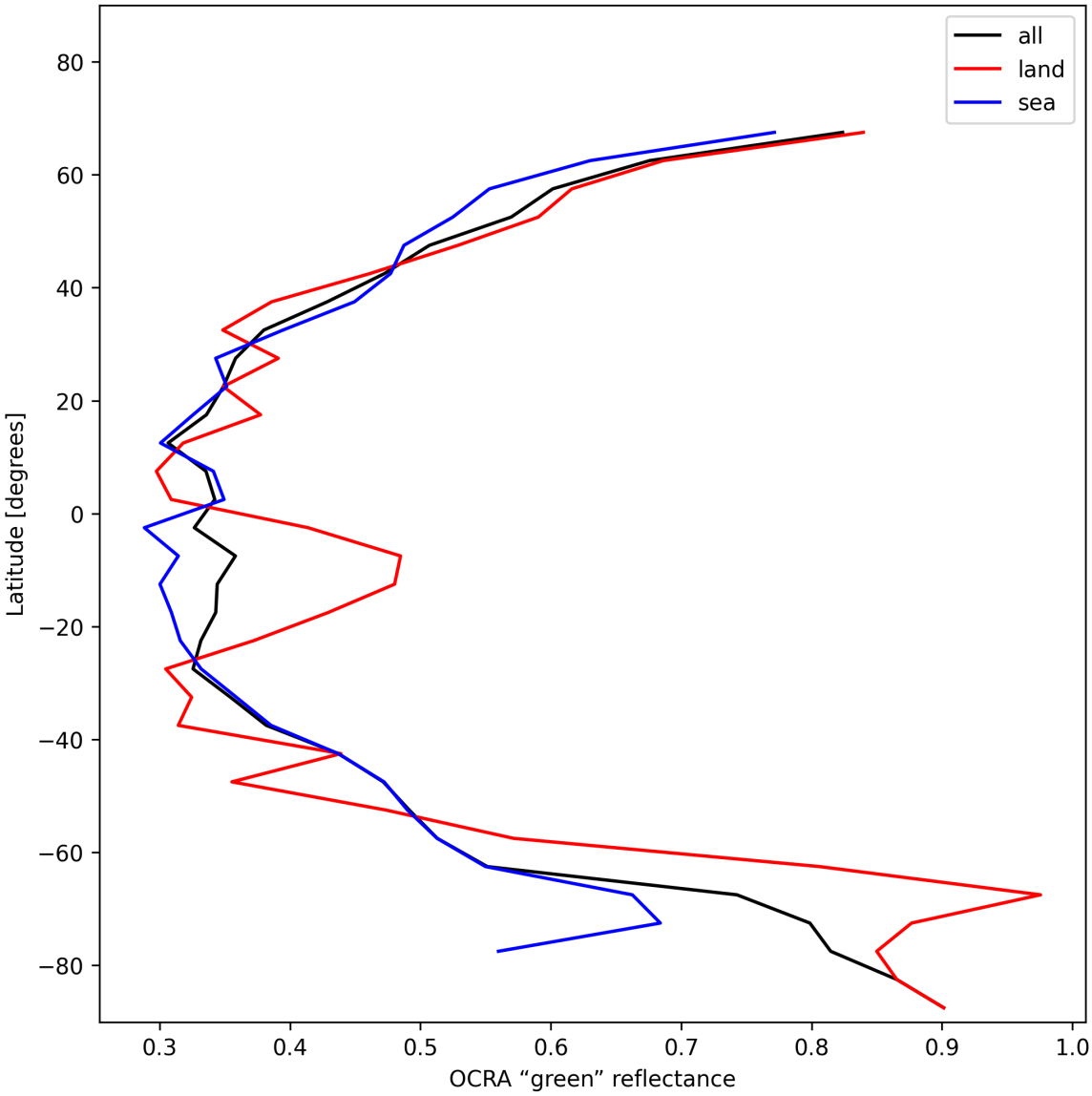

Figure 34: Zonal average of “OCRA “green” reflectance” for 2025-01-14 to 2025-01-15.

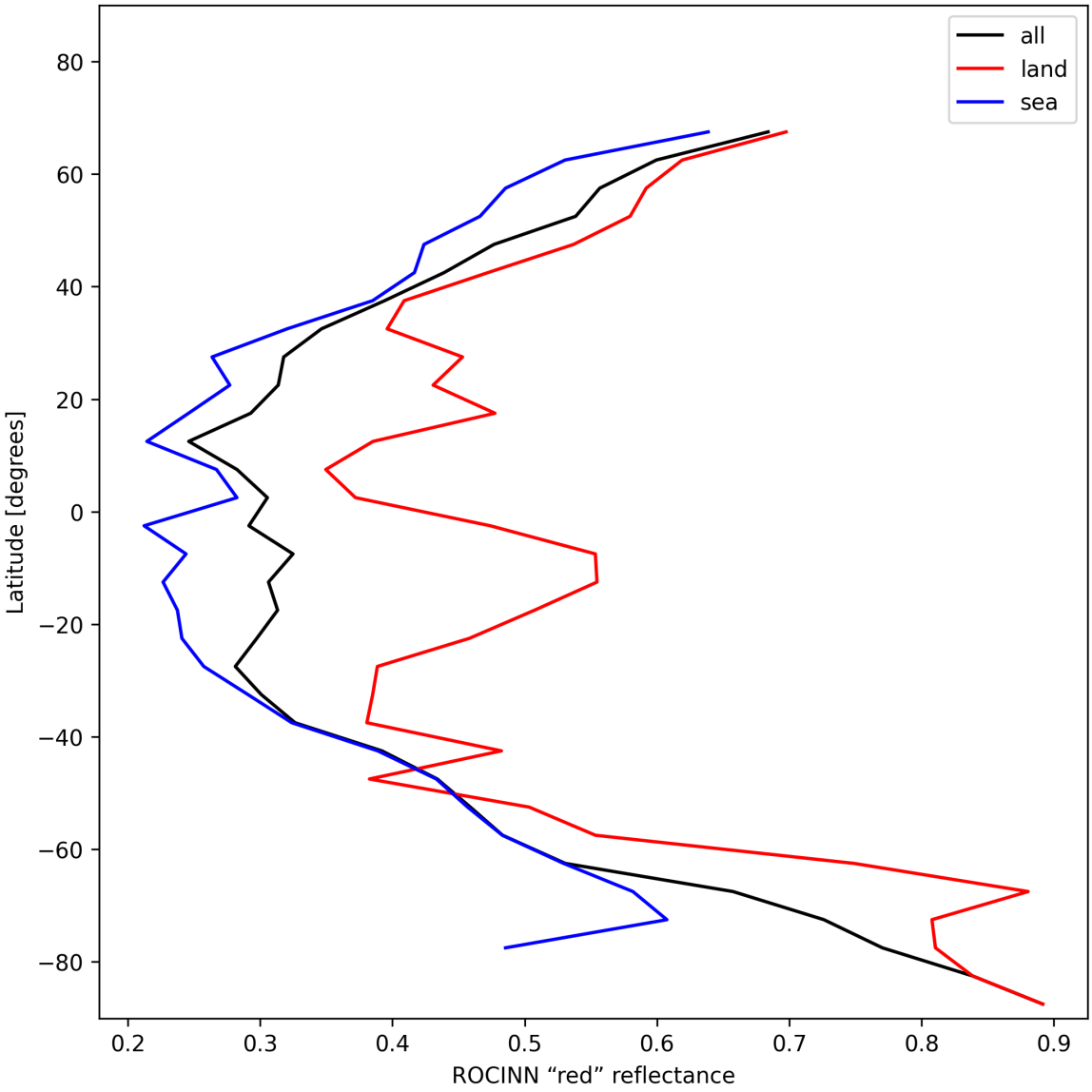

Figure 35: Zonal average of “ROCINN “red” reflectance” for 2025-01-14 to 2025-01-15.

8 Histograms

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

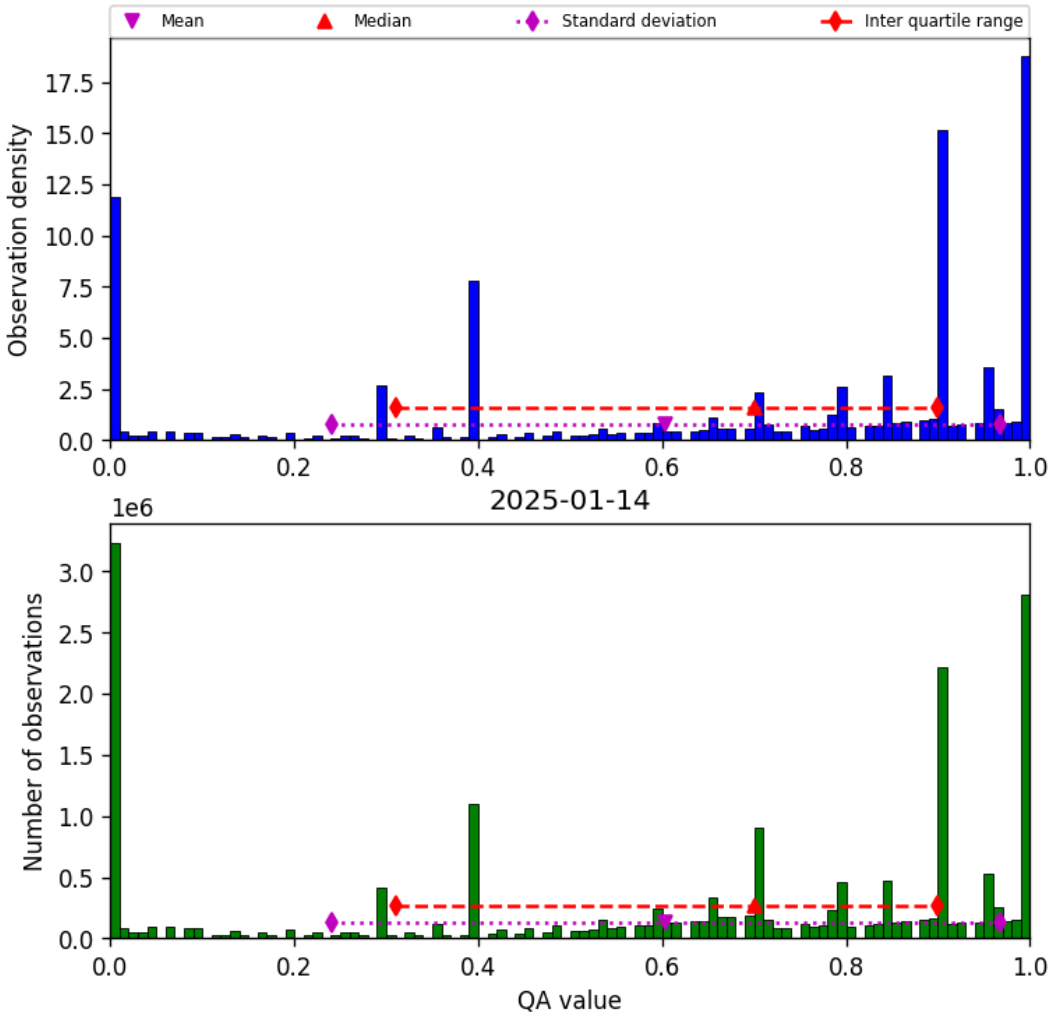

Figure 36: Histogram of “QA value” for 2025-01-14 to 2025-01-15

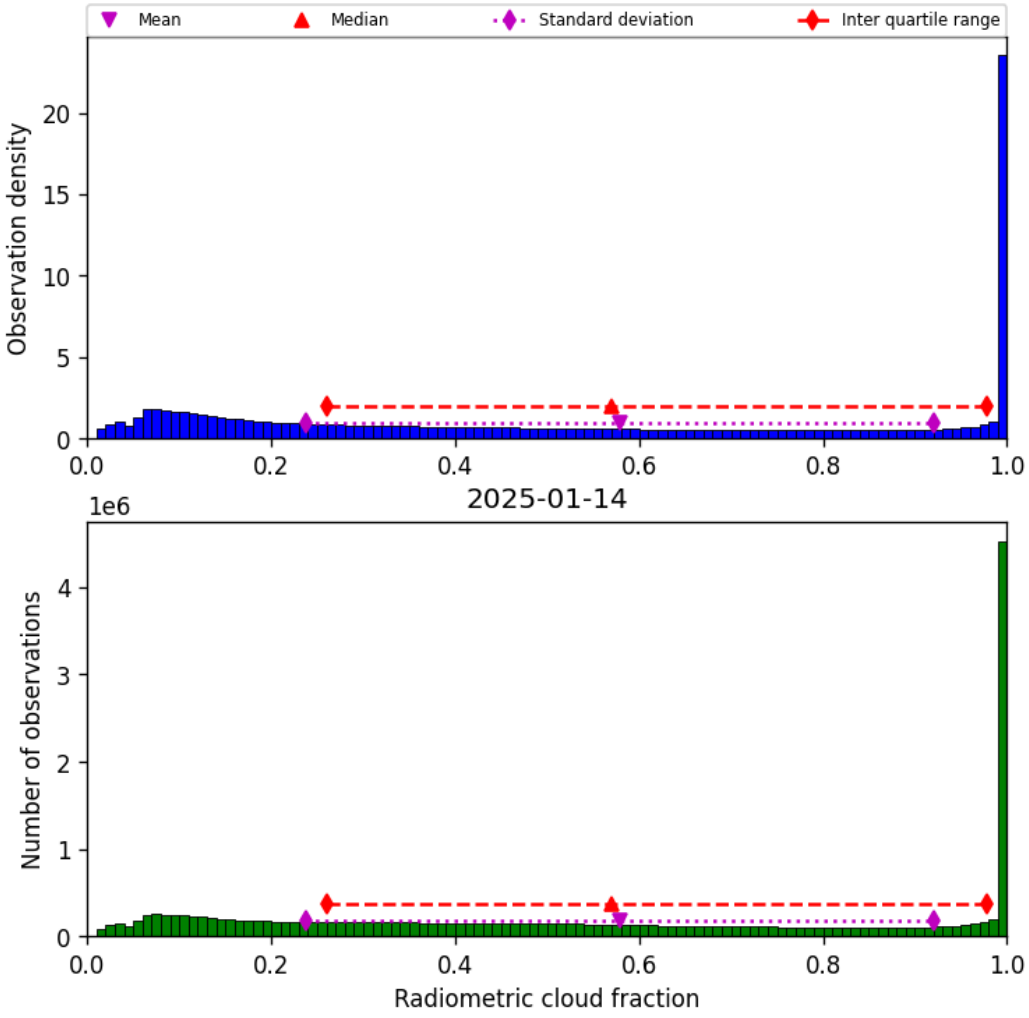

Figure 37: Histogram of “Radiometric cloud fraction” for 2025-01-14 to 2025-01-15

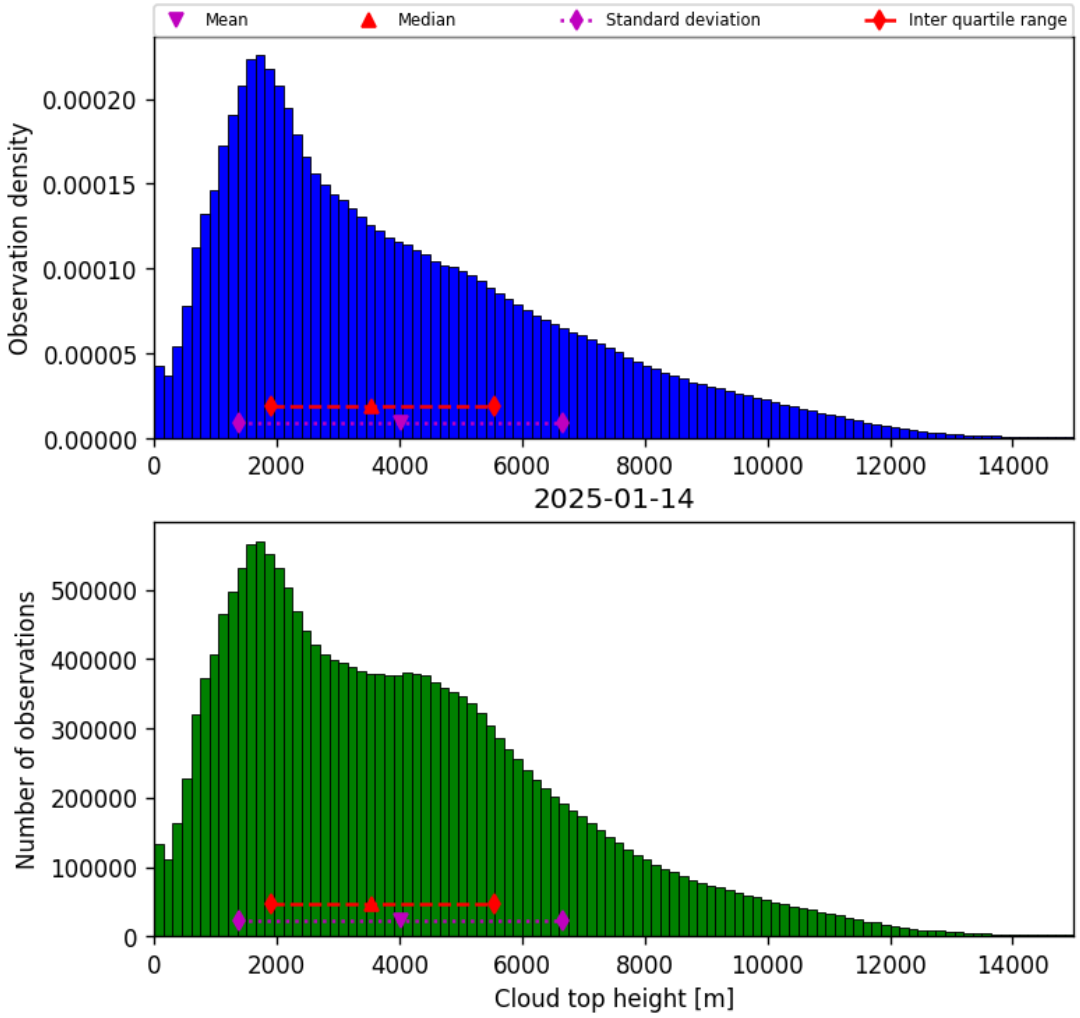

Figure 38: Histogram of “Cloud top height” for 2025-01-14 to 2025-01-15

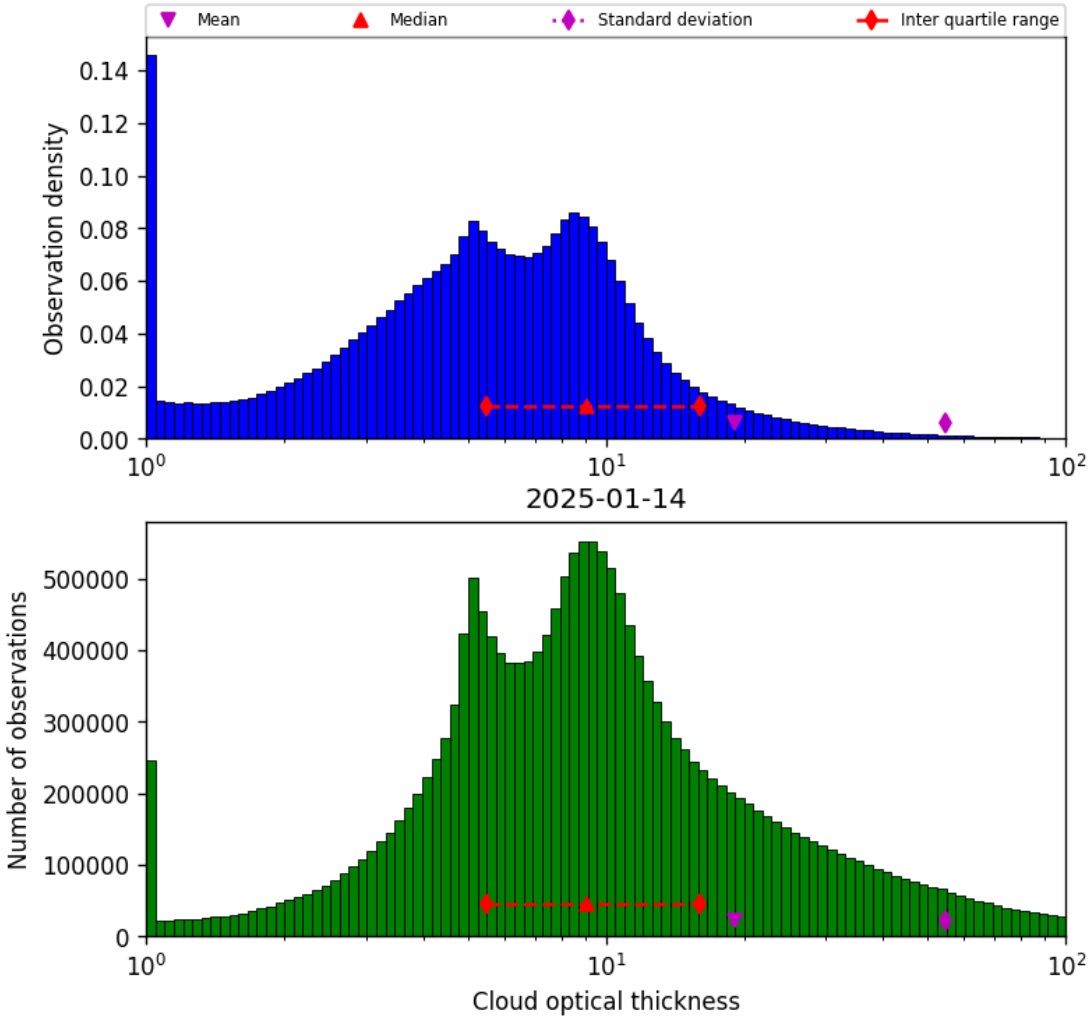

Figure 39: Histogram of “Cloud optical thickness” for 2025-01-14 to 2025-01-15

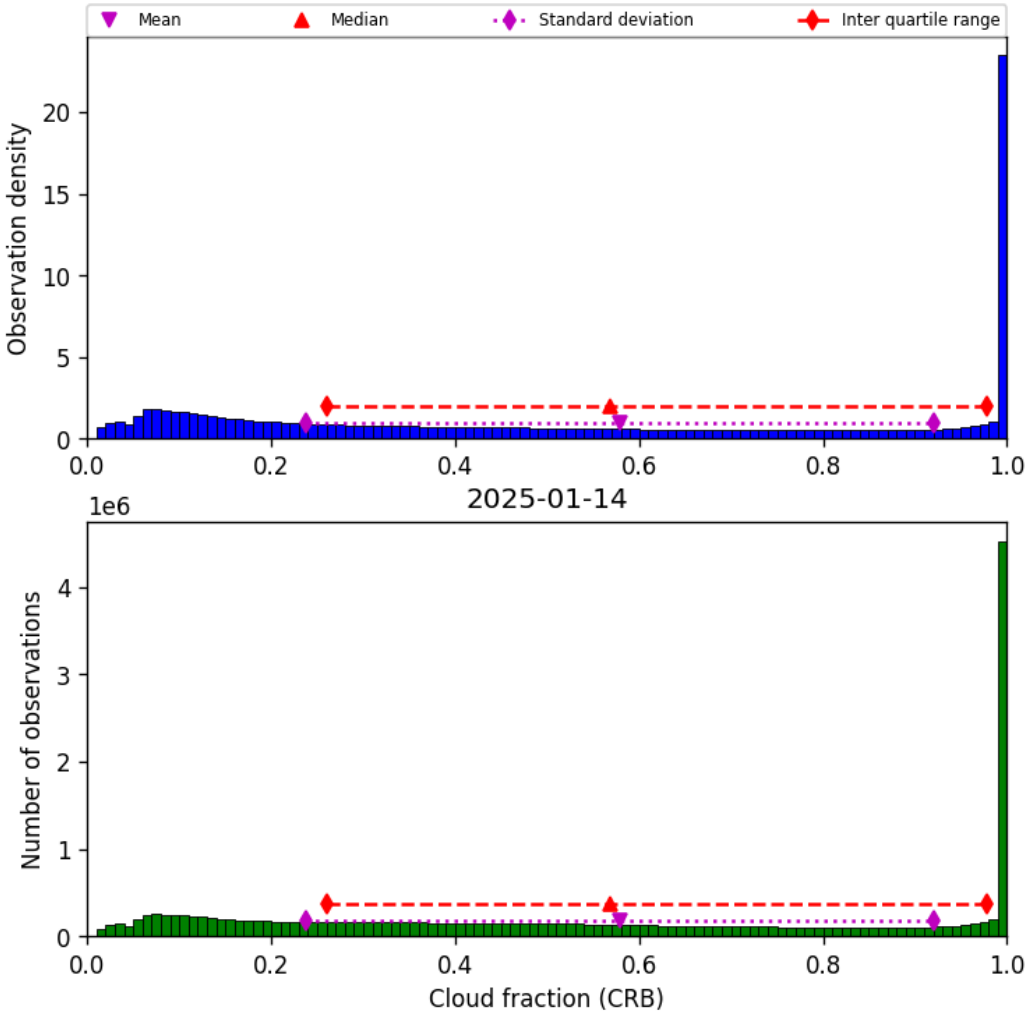

Figure 40: Histogram of “Cloud fraction (CRB)” for 2025-01-14 to 2025-01-15

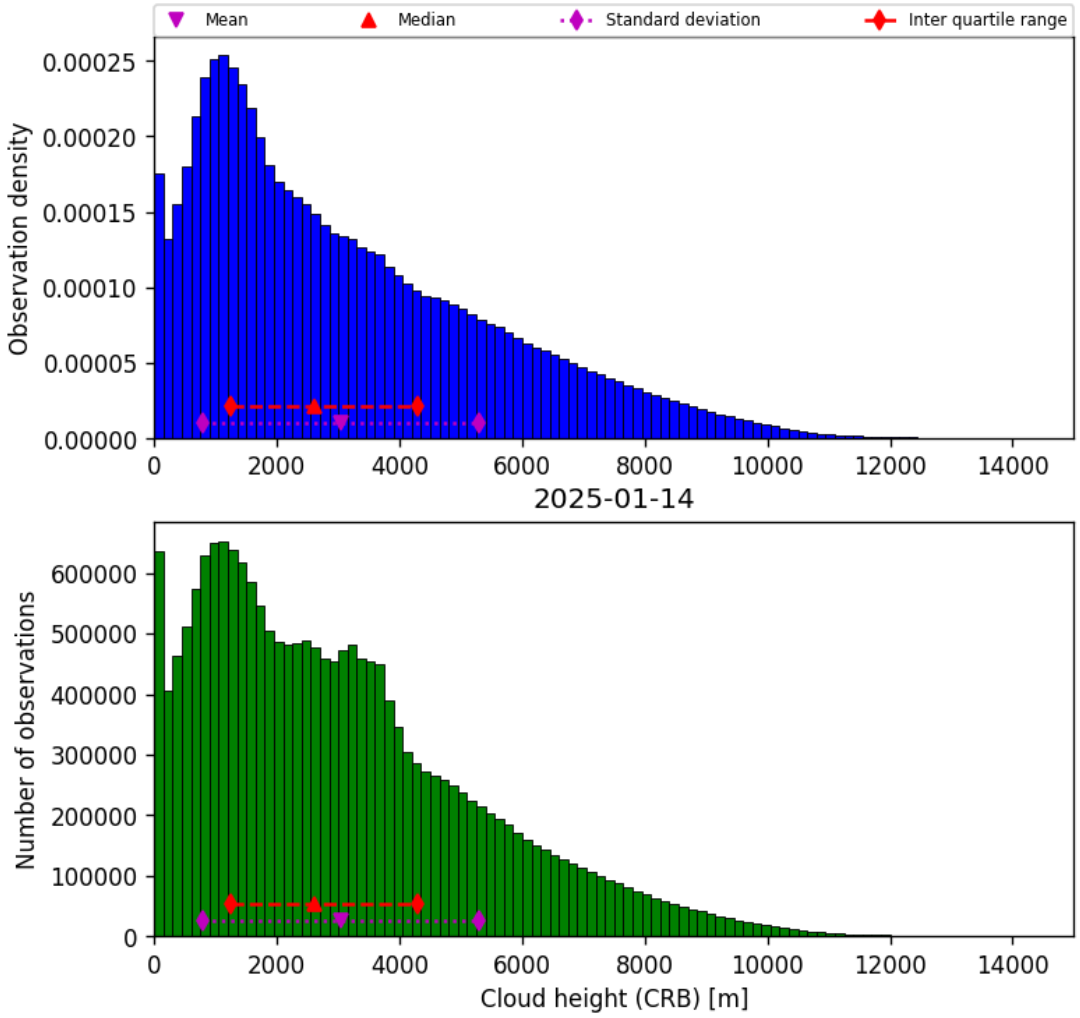

Figure 41: Histogram of “Cloud height (CRB)” for 2025-01-14 to 2025-01-15

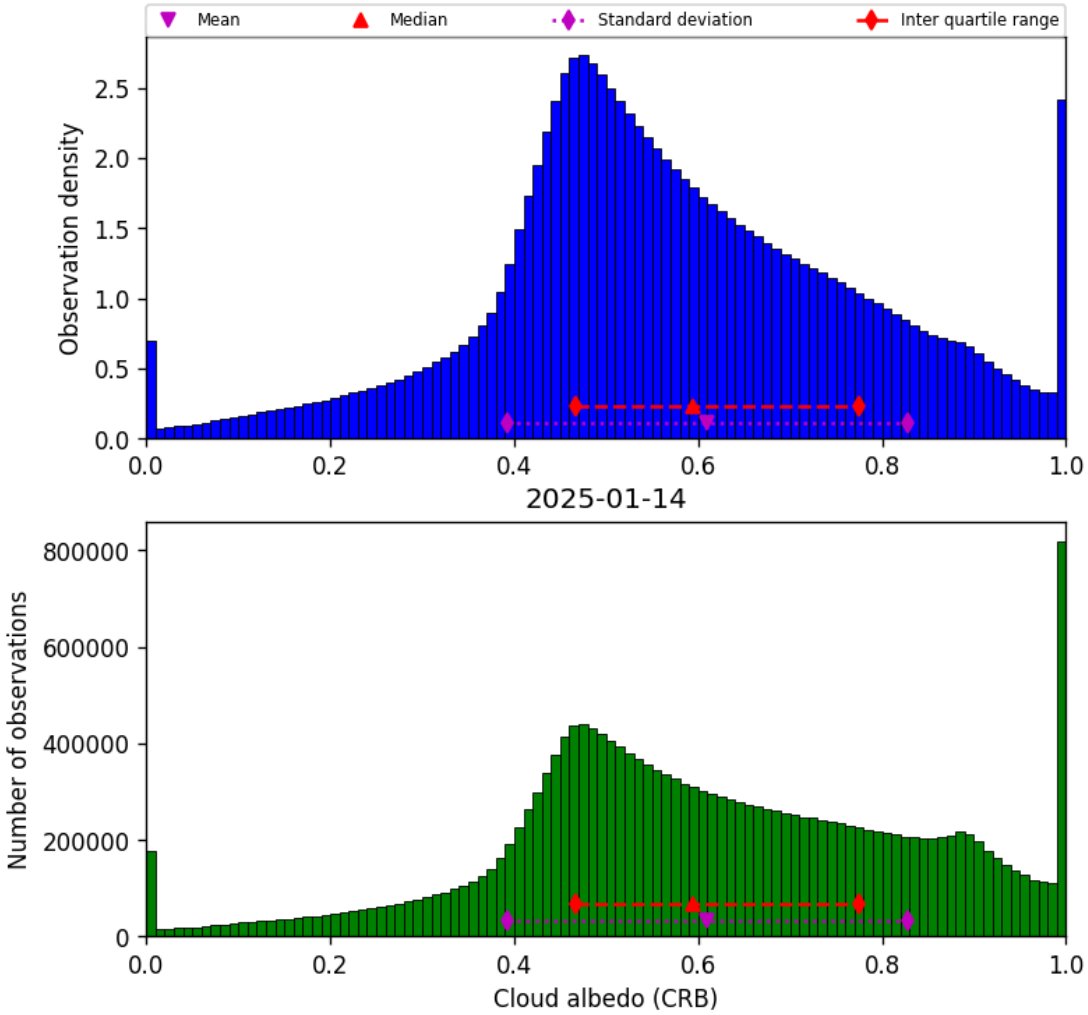

Figure 42: Histogram of “Cloud albedo (CRB)” for 2025-01-14 to 2025-01-15

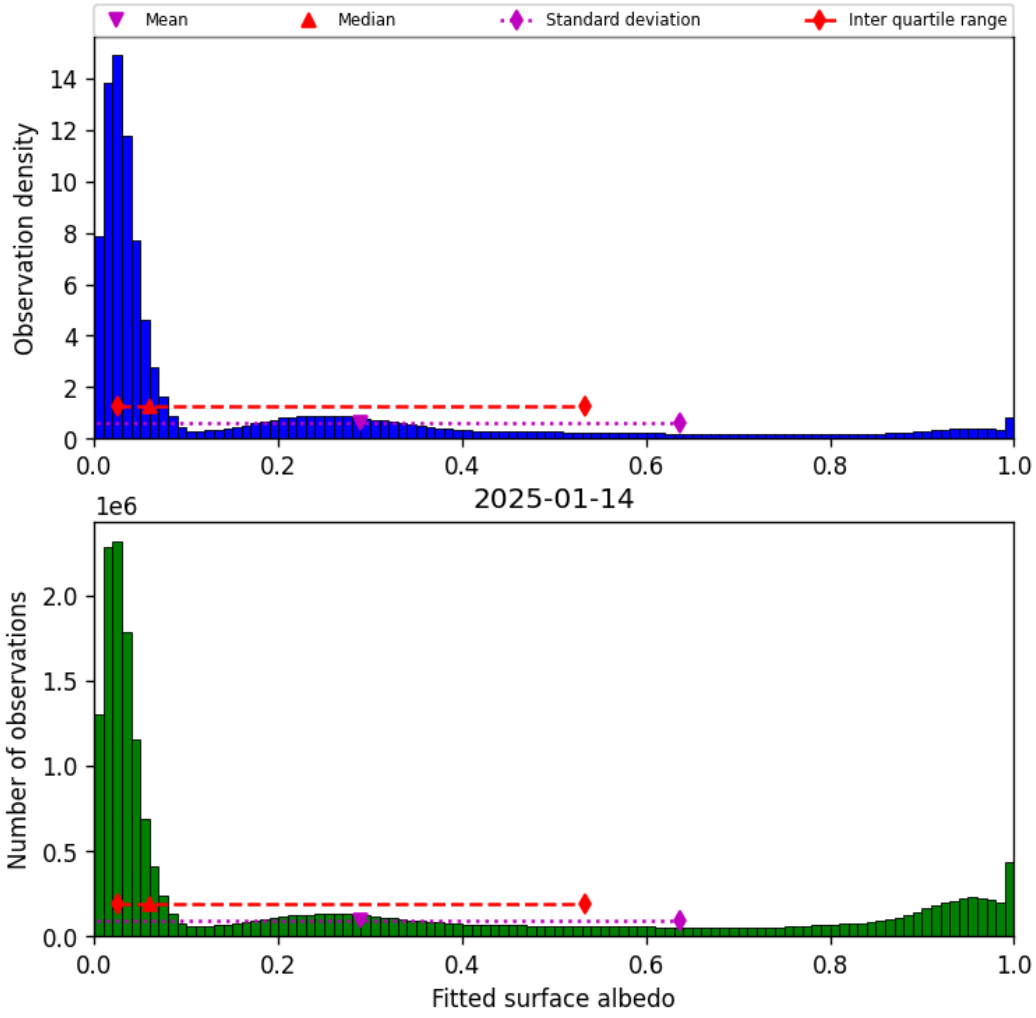

Figure 43: Histogram of “Fitted surface albedo” for 2025-01-14 to 2025-01-15

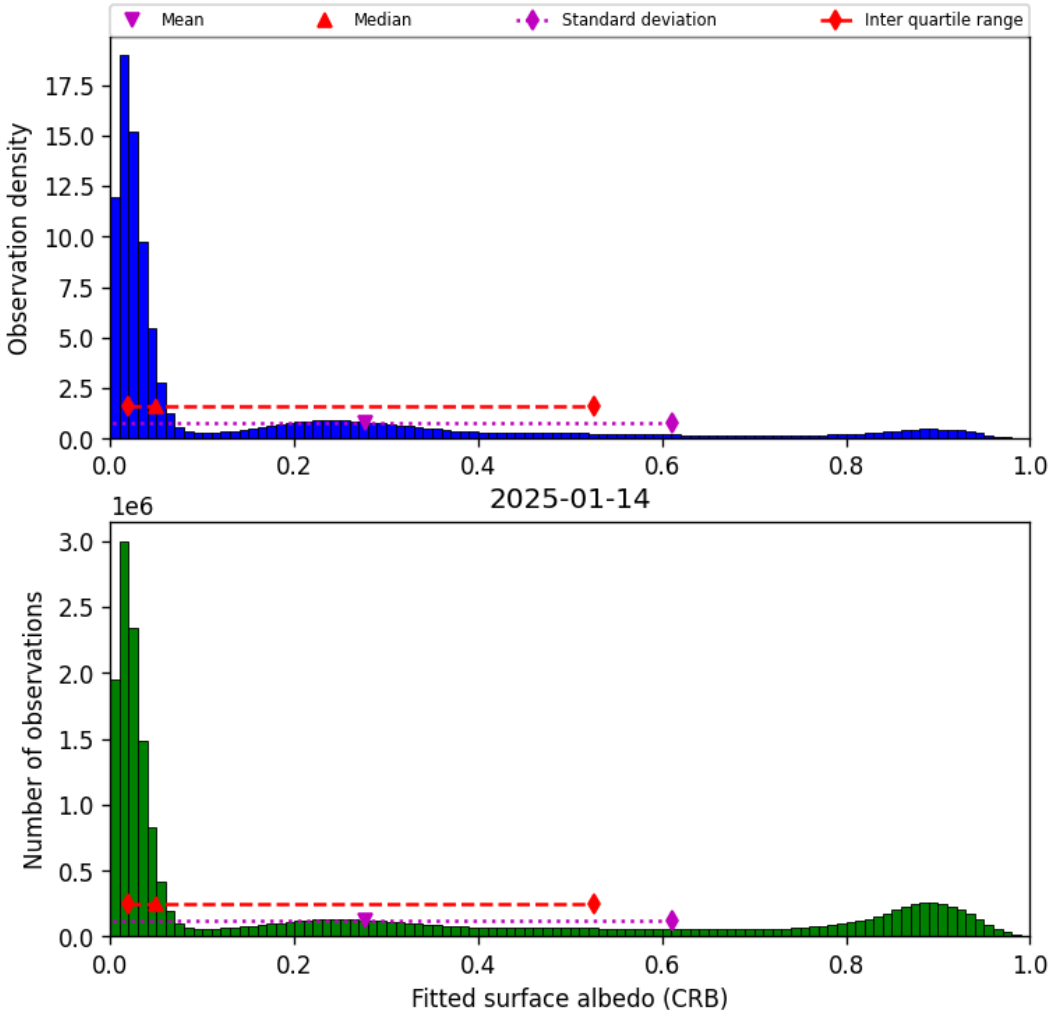

Figure 44: Histogram of “Fitted surface albedo (CRB)” for 2025-01-14 to 2025-01-15

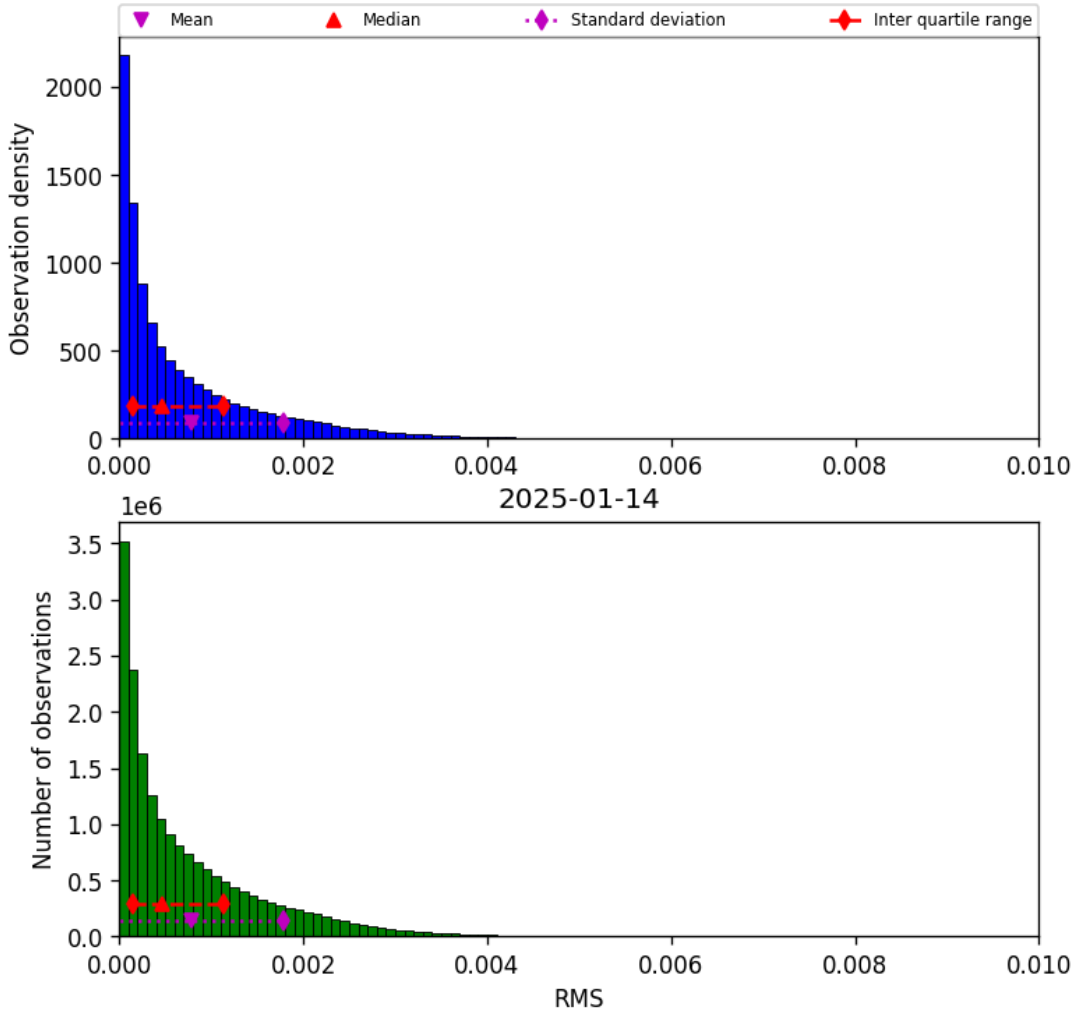

Figure 45: Histogram of “RMS” for 2025-01-14 to 2025-01-15

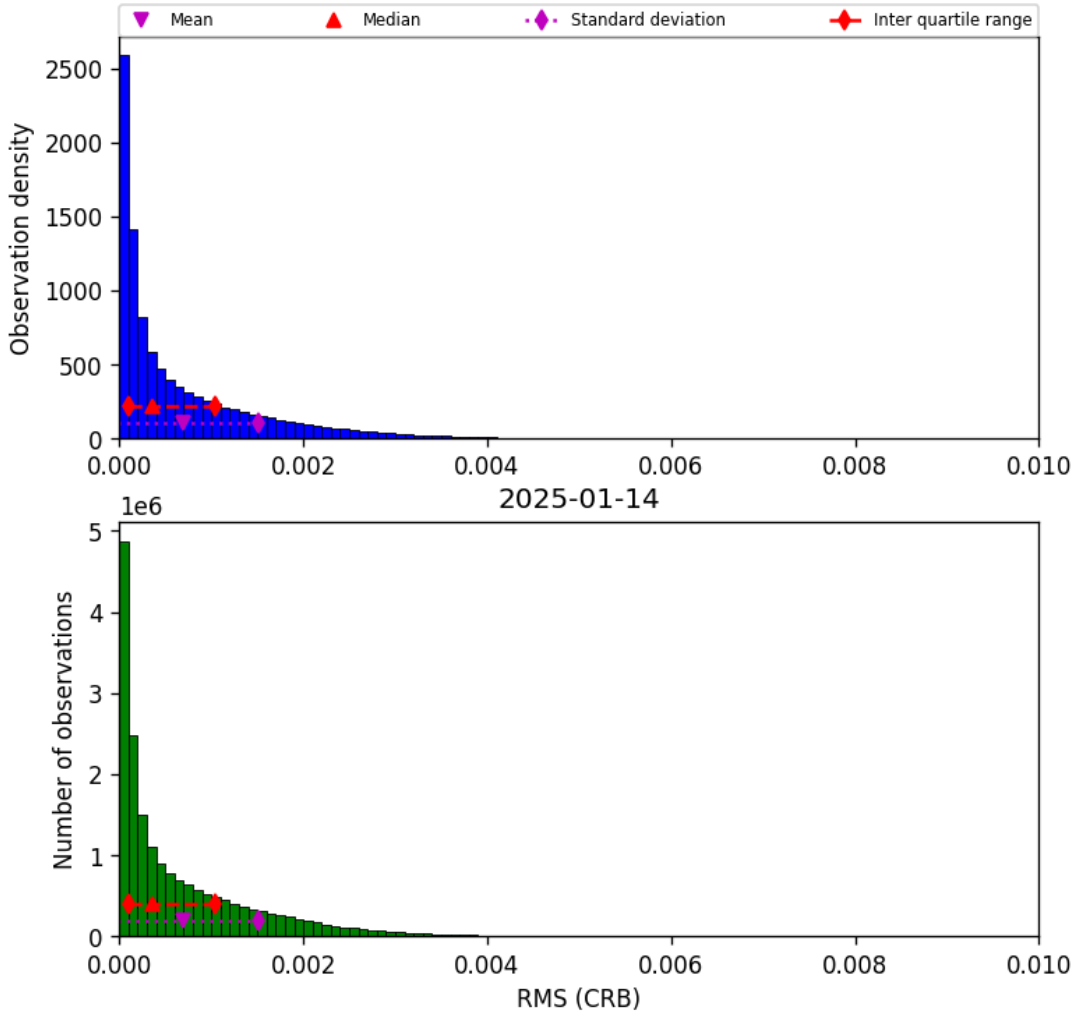

Figure 46: Histogram of “RMS (CRB)” for 2025-01-14 to 2025-01-15

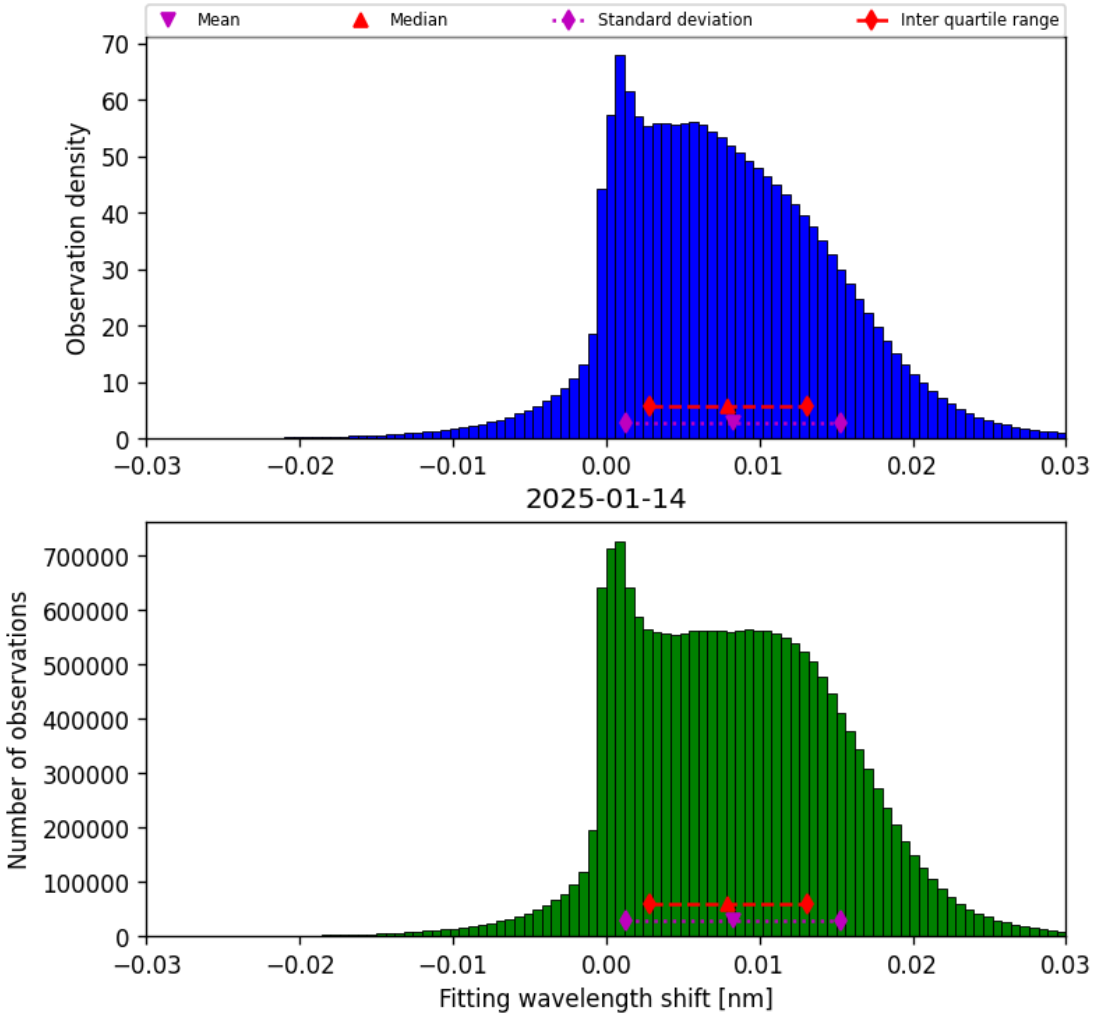

Figure 47: Histogram of “Fitting wavelength shift” for 2025-01-14 to 2025-01-15

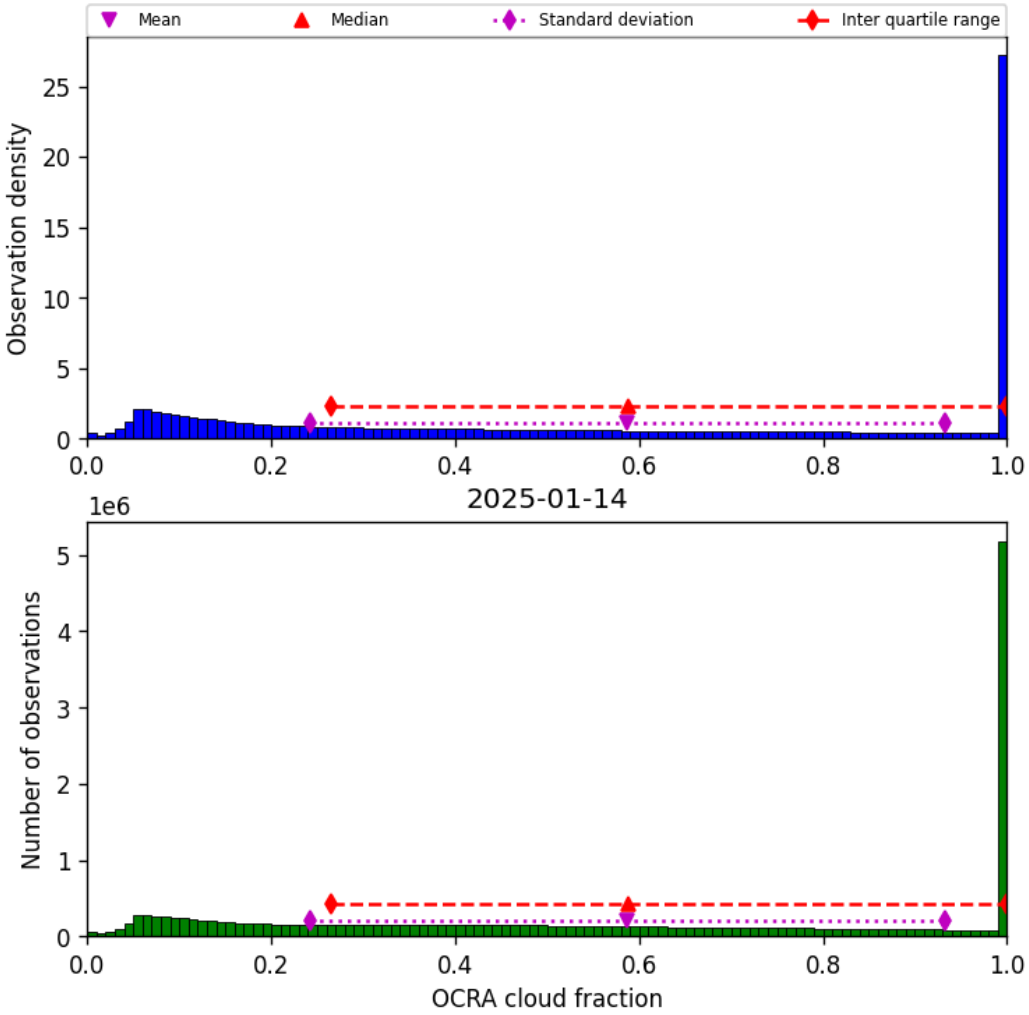

Figure 48: Histogram of “OCRA cloud fraction” for 2025-01-14 to 2025-01-15

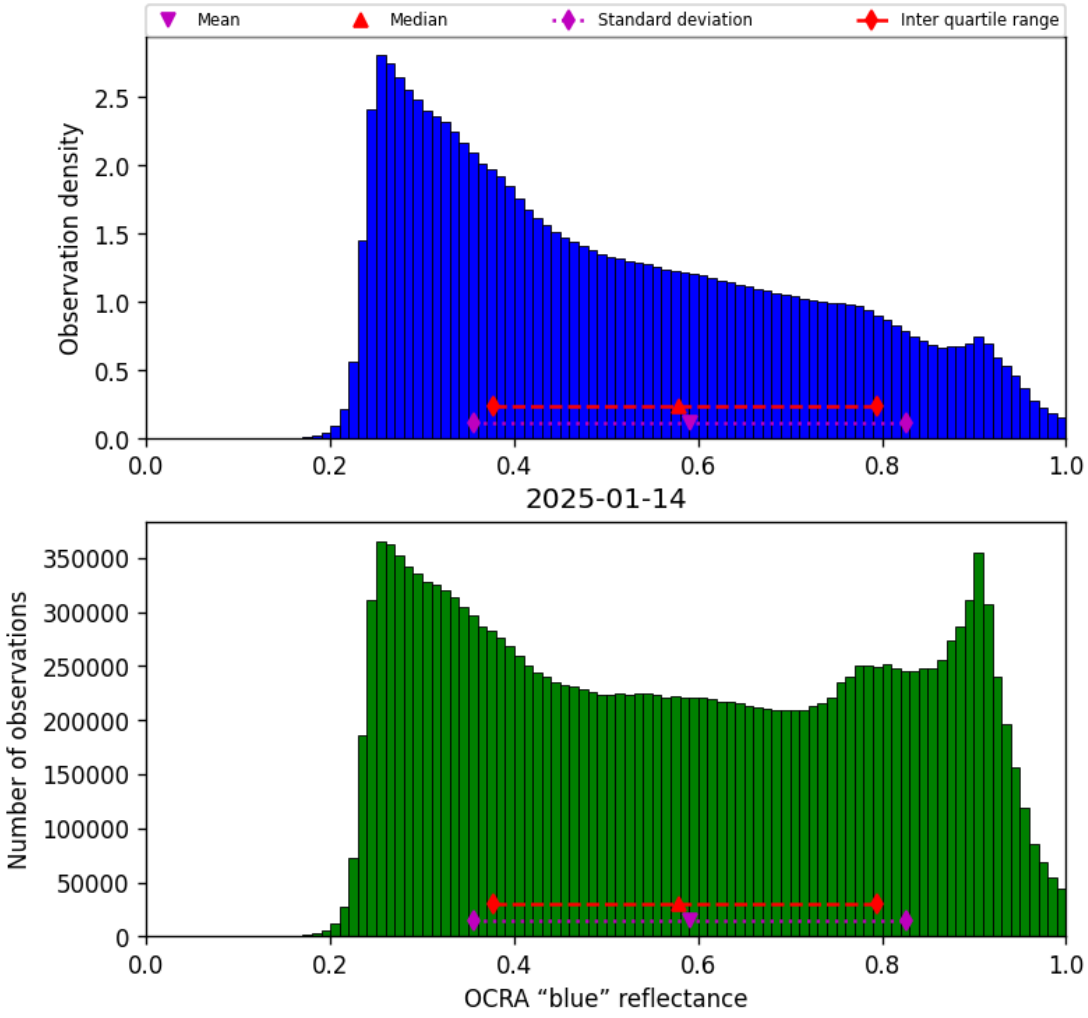

Figure 49: Histogram of “OCRA “blue” reflectance” for 2025-01-14 to 2025-01-15

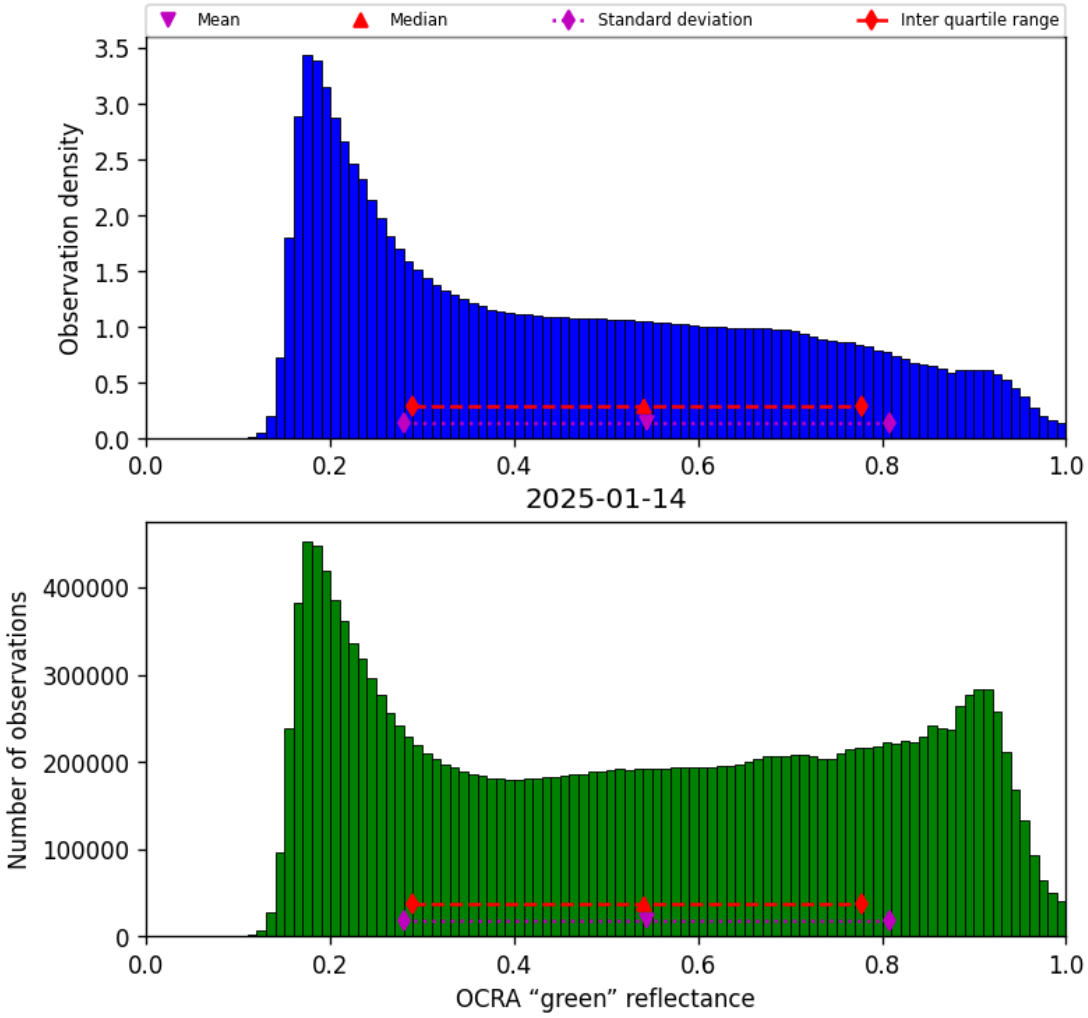

Figure 50: Histogram of “OCRA “green” reflectance” for 2025-01-14 to 2025-01-15

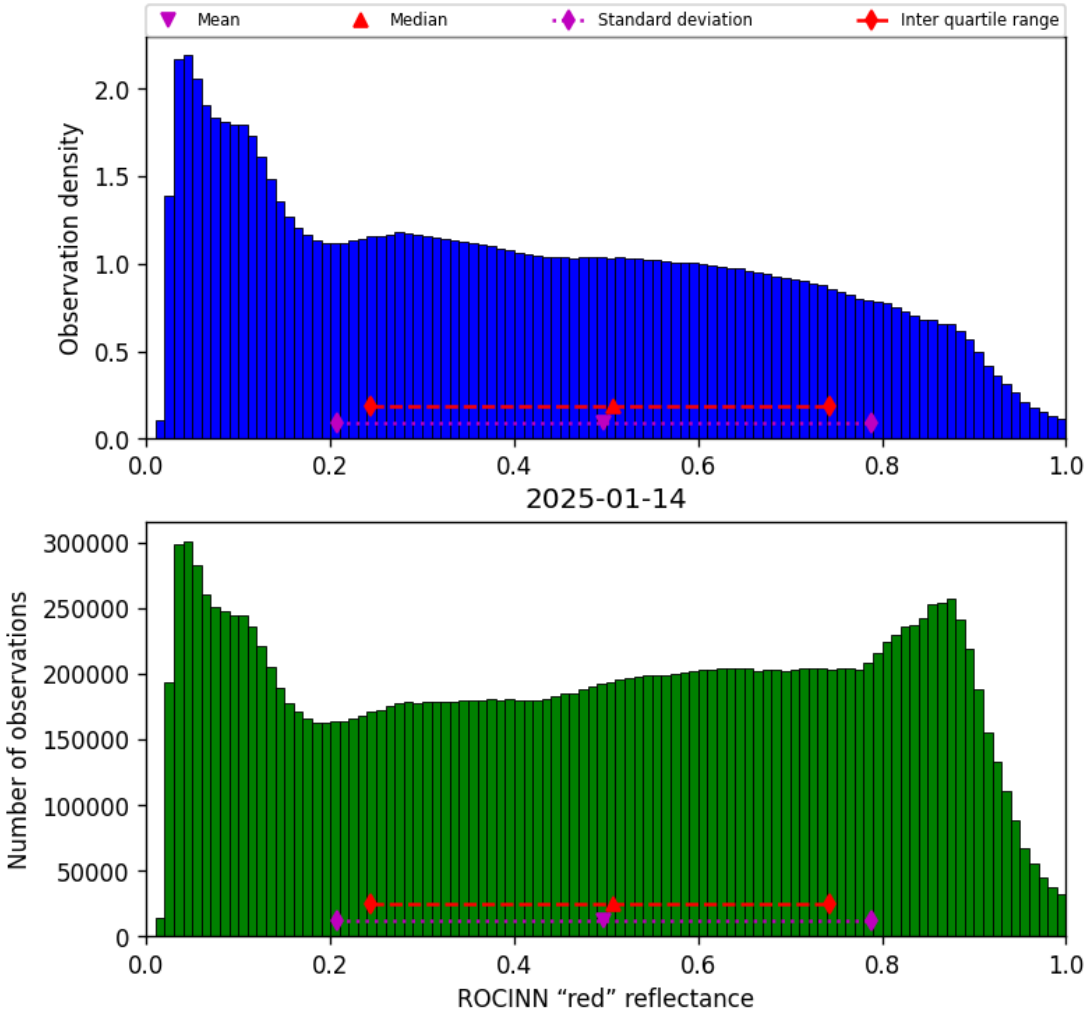

Figure 51: Histogram of “ROCINN “red” reflectance” for 2025-01-14 to 2025-01-15

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.

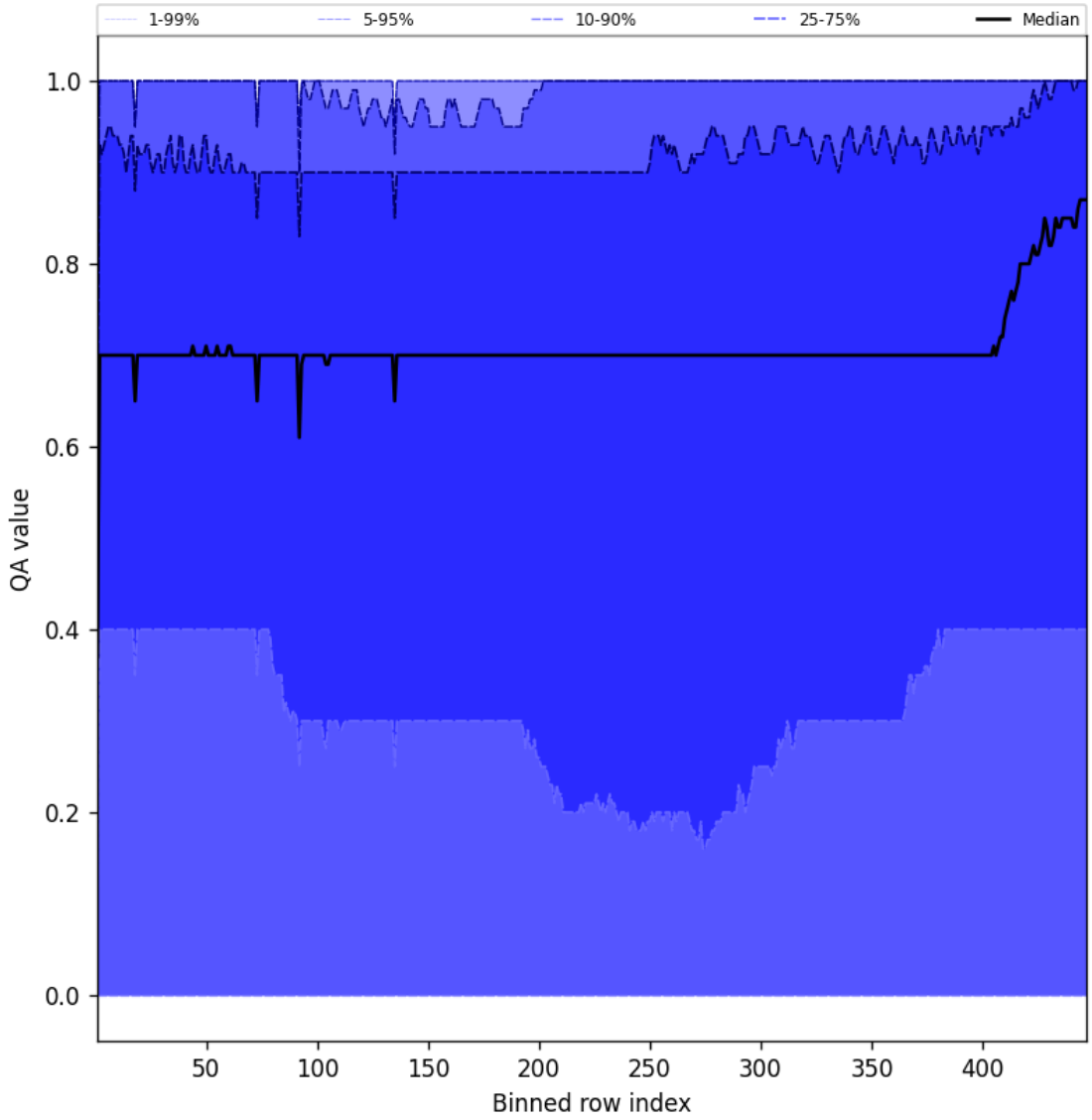

Figure 52: Along track statistics of “QA value” for 2025-01-14 to 2025-01-15

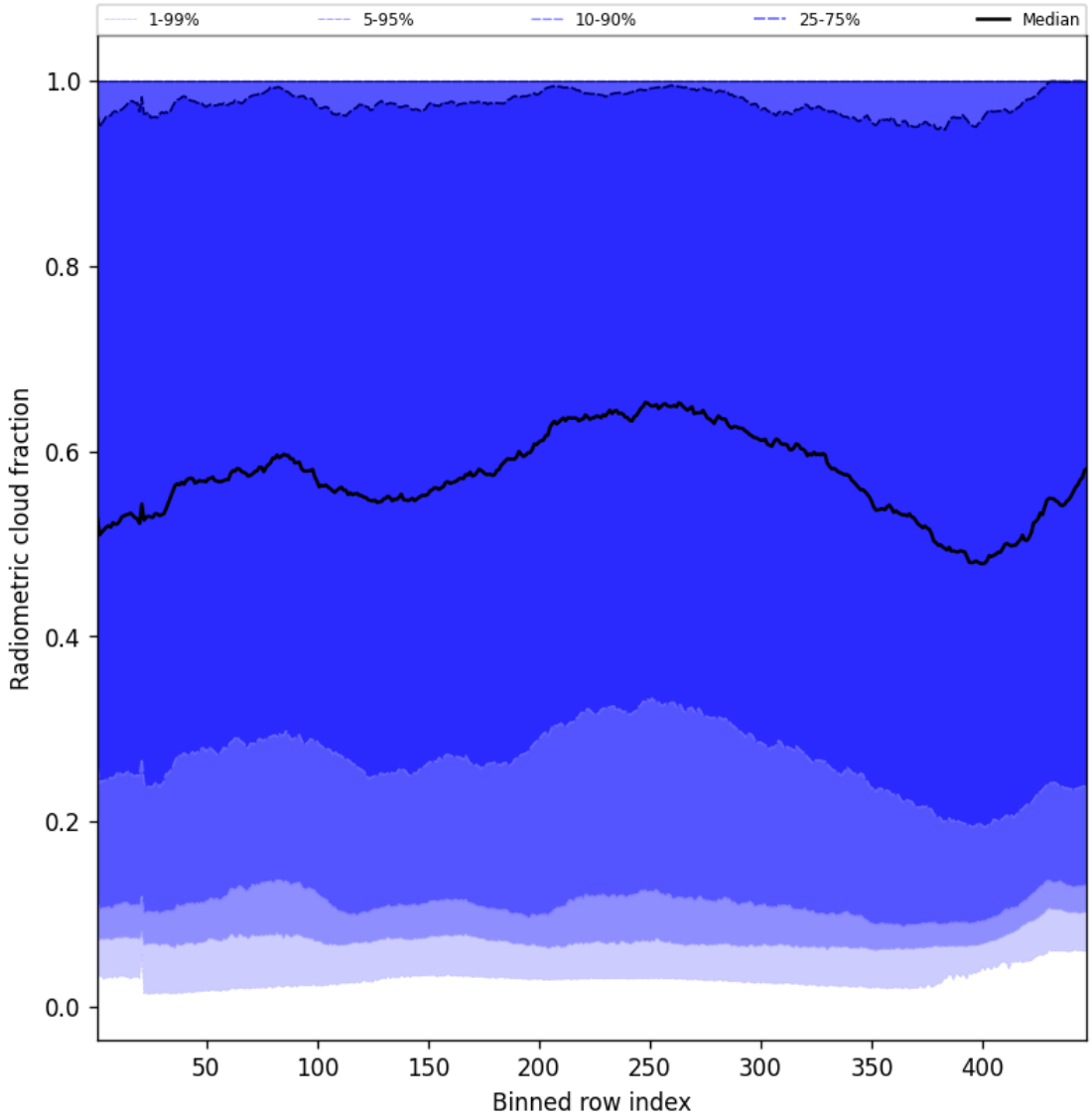

Figure 53: Along track statistics of “Radiometric cloud fraction” for 2025-01-14 to 2025-01-15

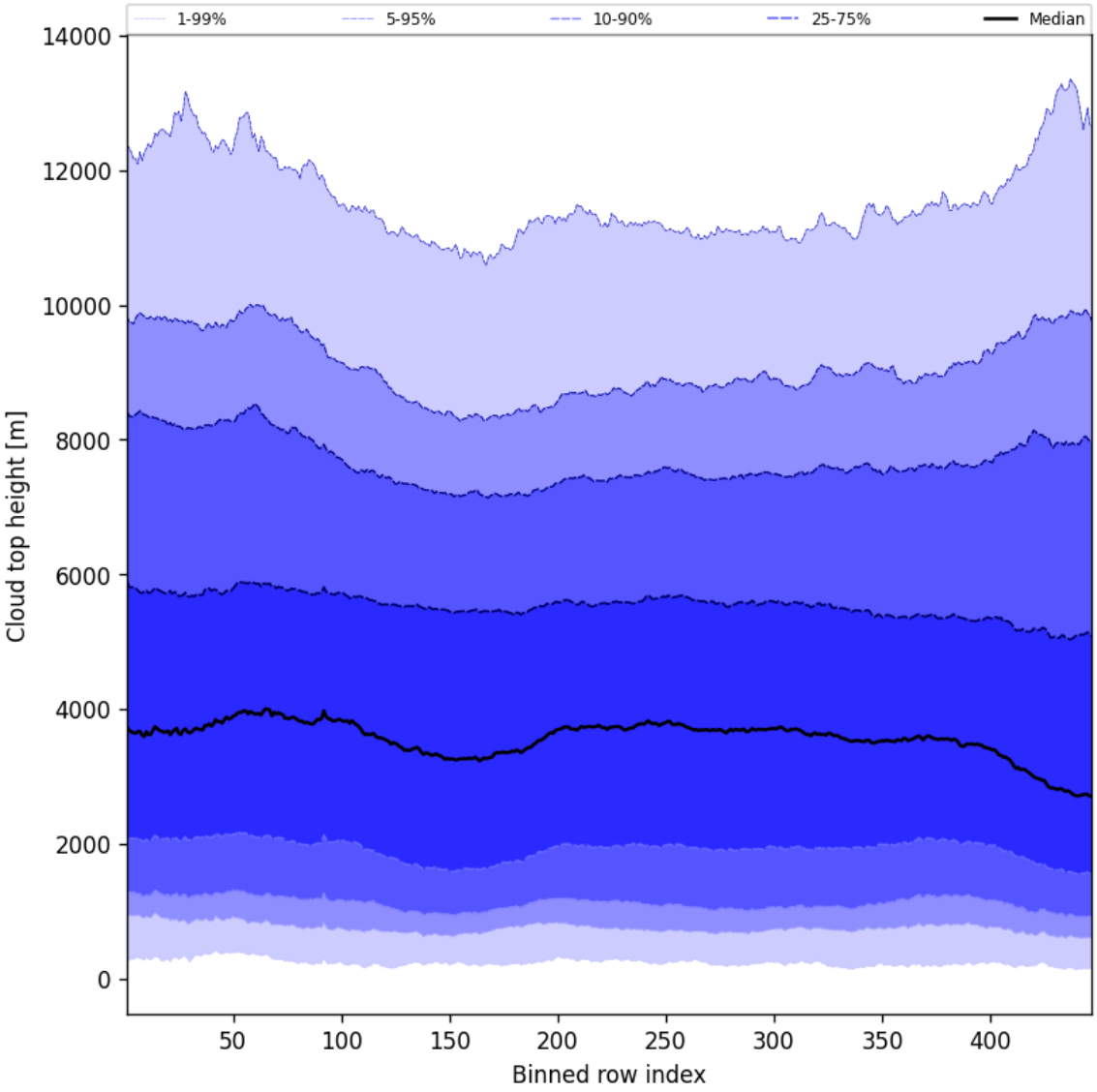

Figure 54: Along track statistics of “Cloud top height” for 2025-01-14 to 2025-01-15

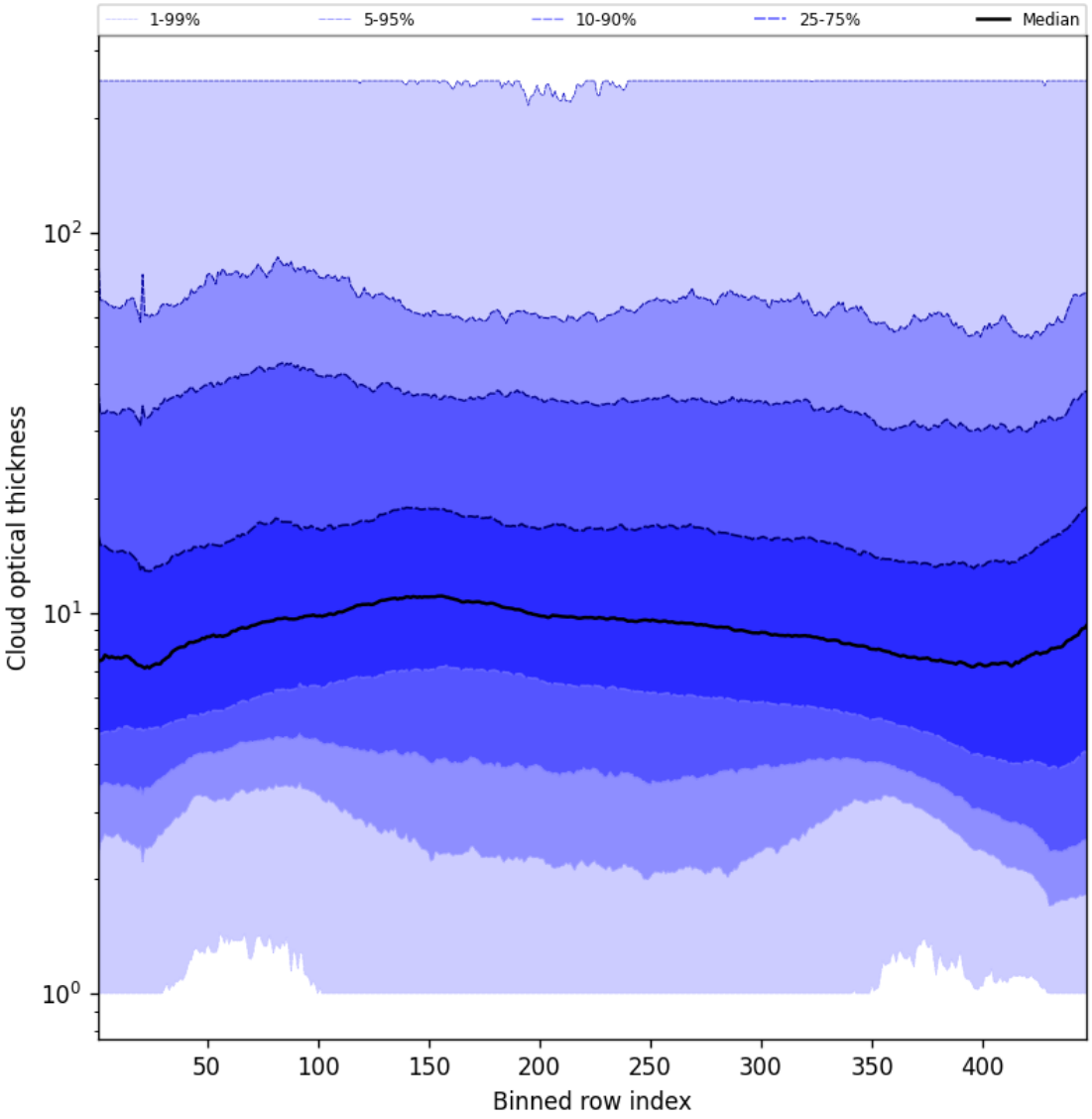

Figure 55: Along track statistics of “Cloud optical thickness” for 2025-01-14 to 2025-01-15

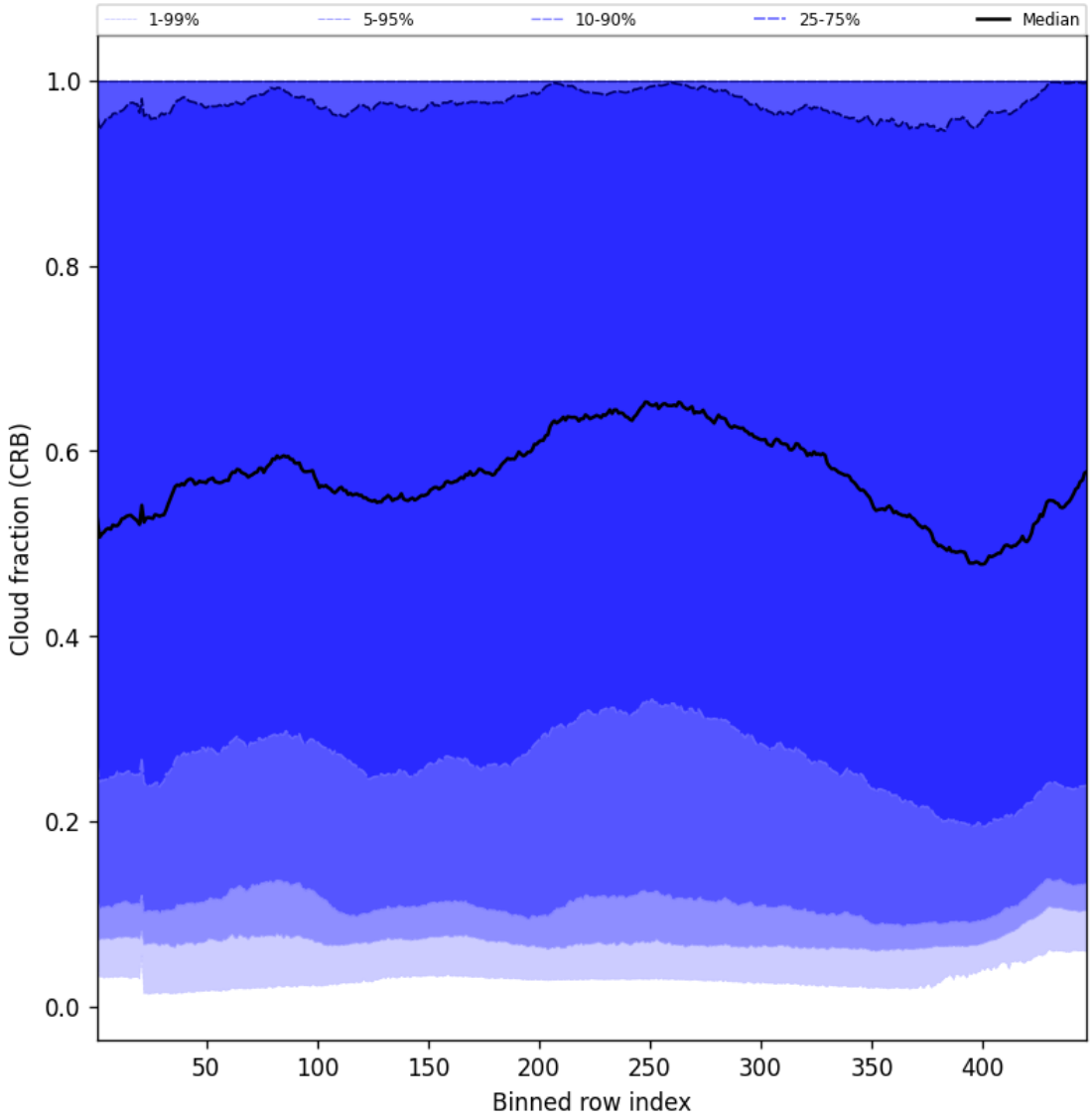

Figure 56: Along track statistics of “Cloud fraction (CRB)” for 2025-01-14 to 2025-01-15

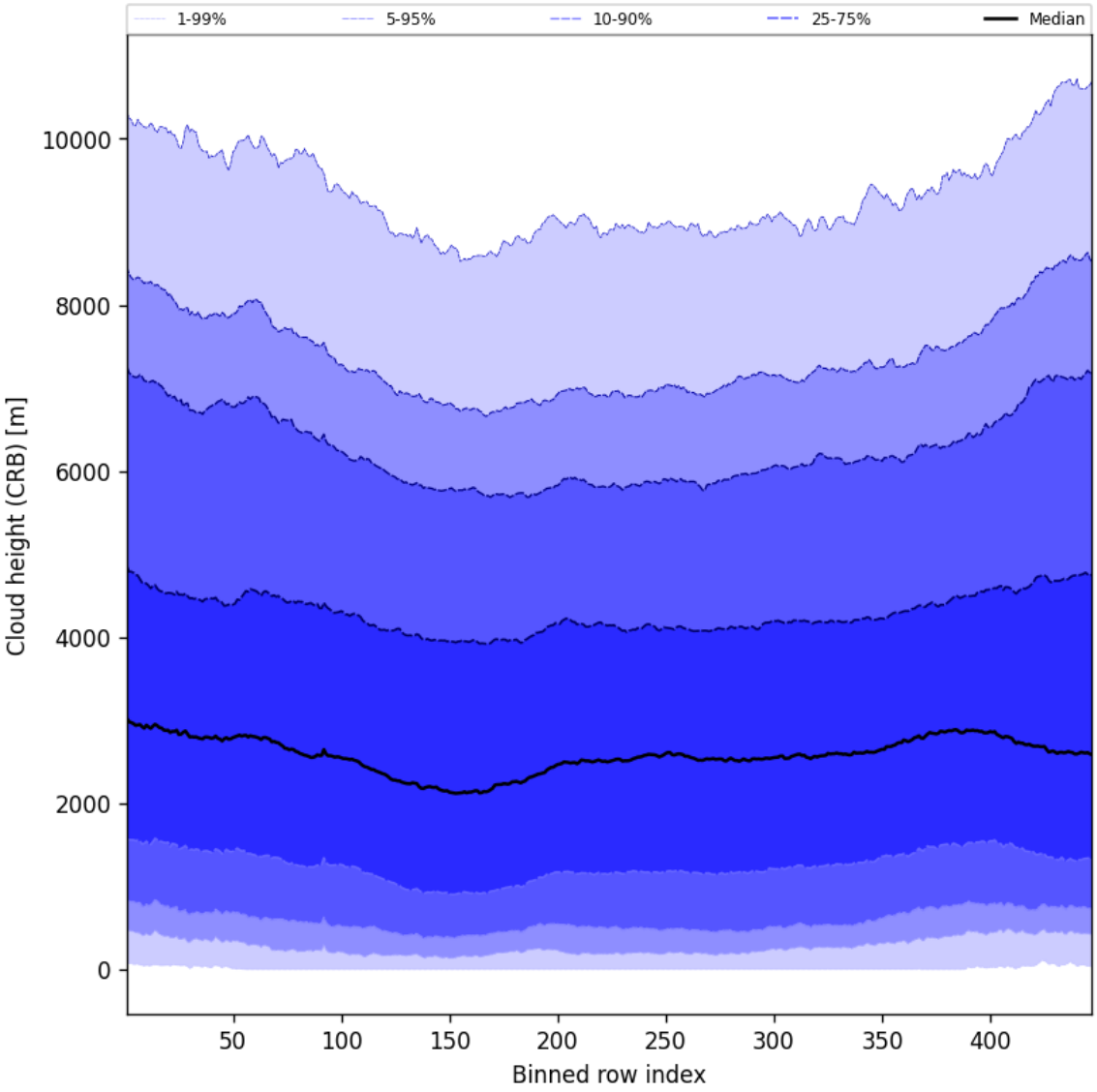

Figure 57: Along track statistics of “Cloud height (CRB)” for 2025-01-14 to 2025-01-15

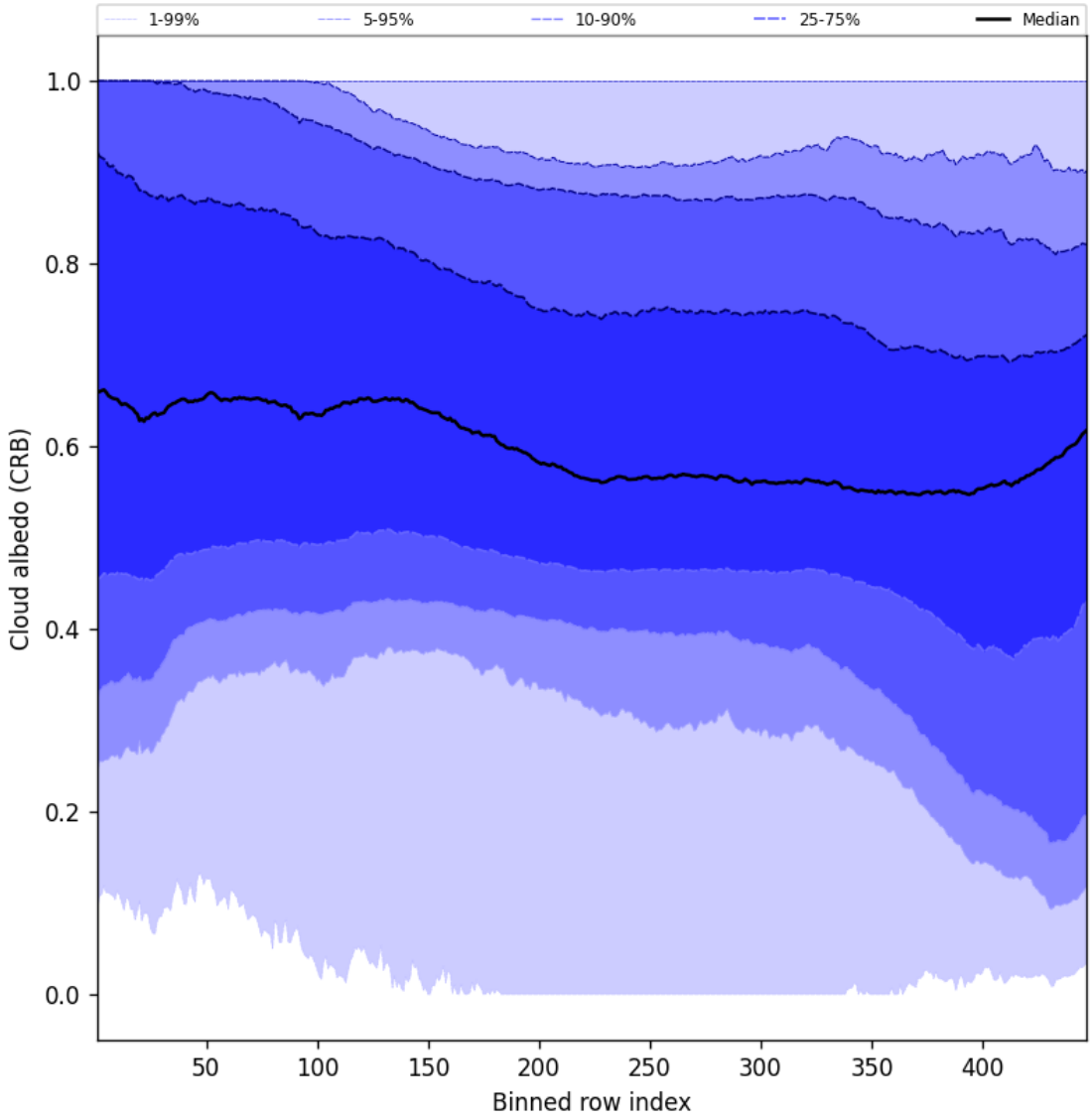

Figure 58: Along track statistics of “Cloud albedo (CRB)” for 2025-01-14 to 2025-01-15

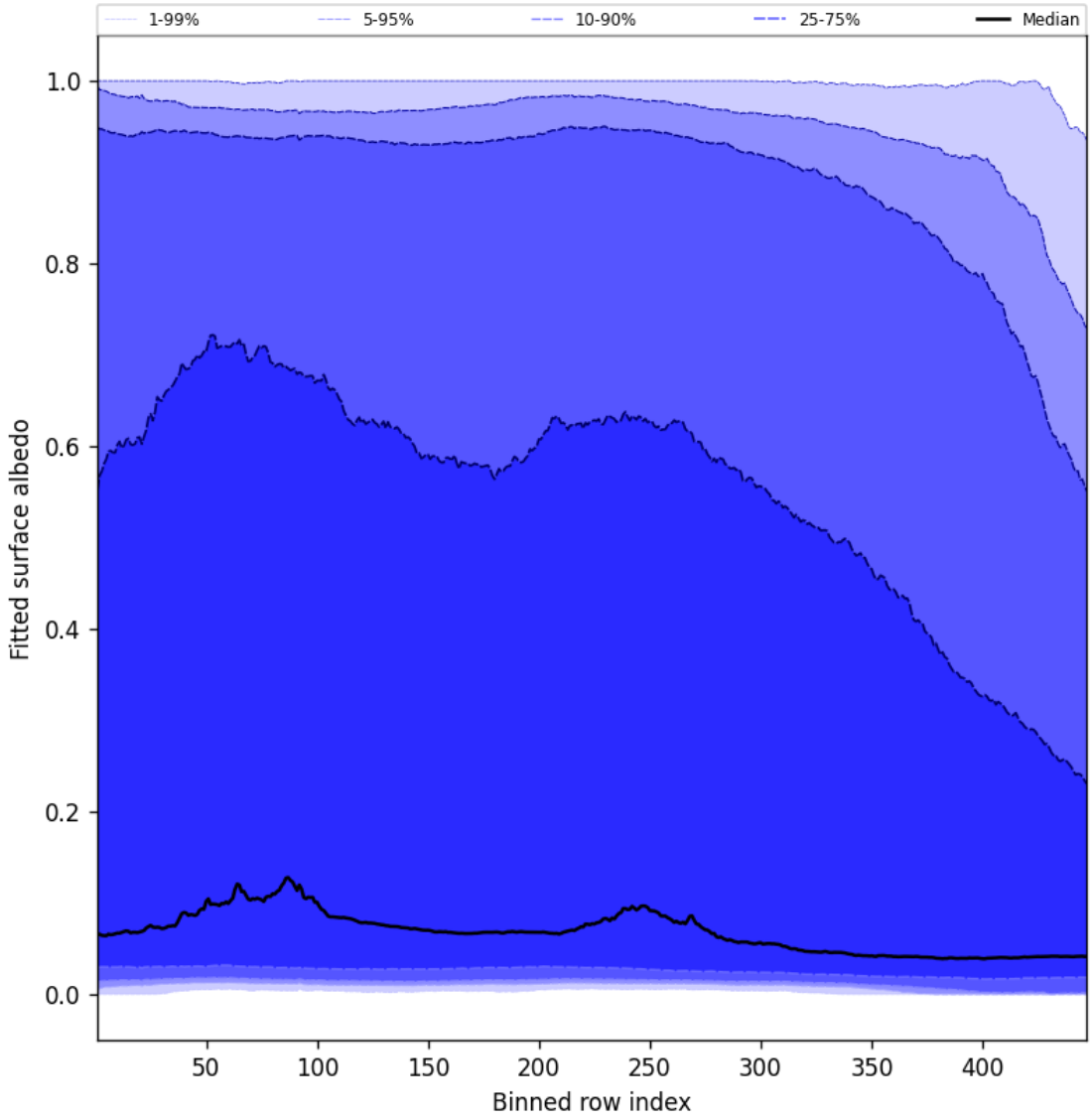

Figure 59: Along track statistics of “Fitted surface albedo” for 2025-01-14 to 2025-01-15

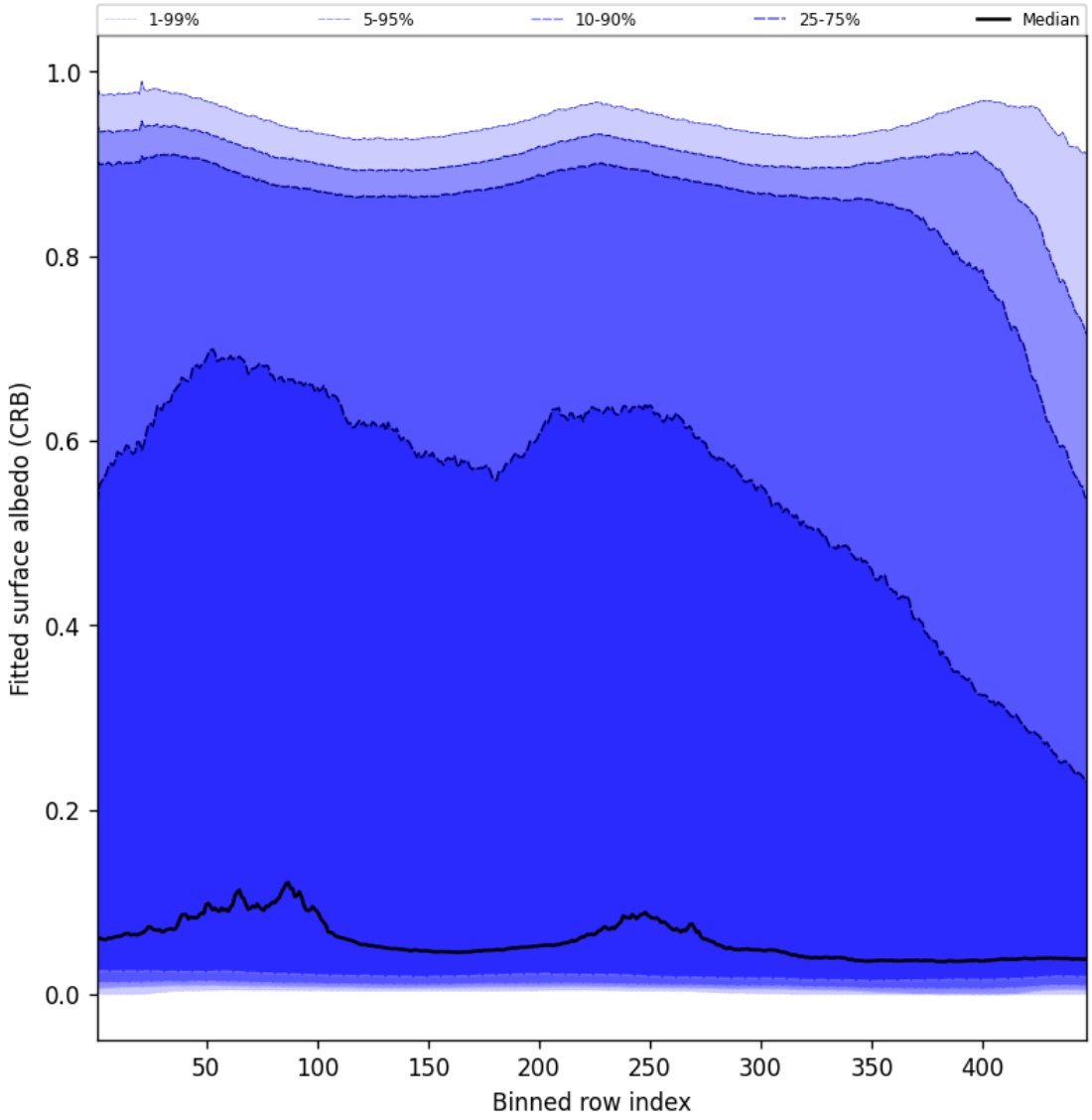

Figure 60: Along track statistics of “Fitted surface albedo (CRB)” for 2025-01-14 to 2025-01-15

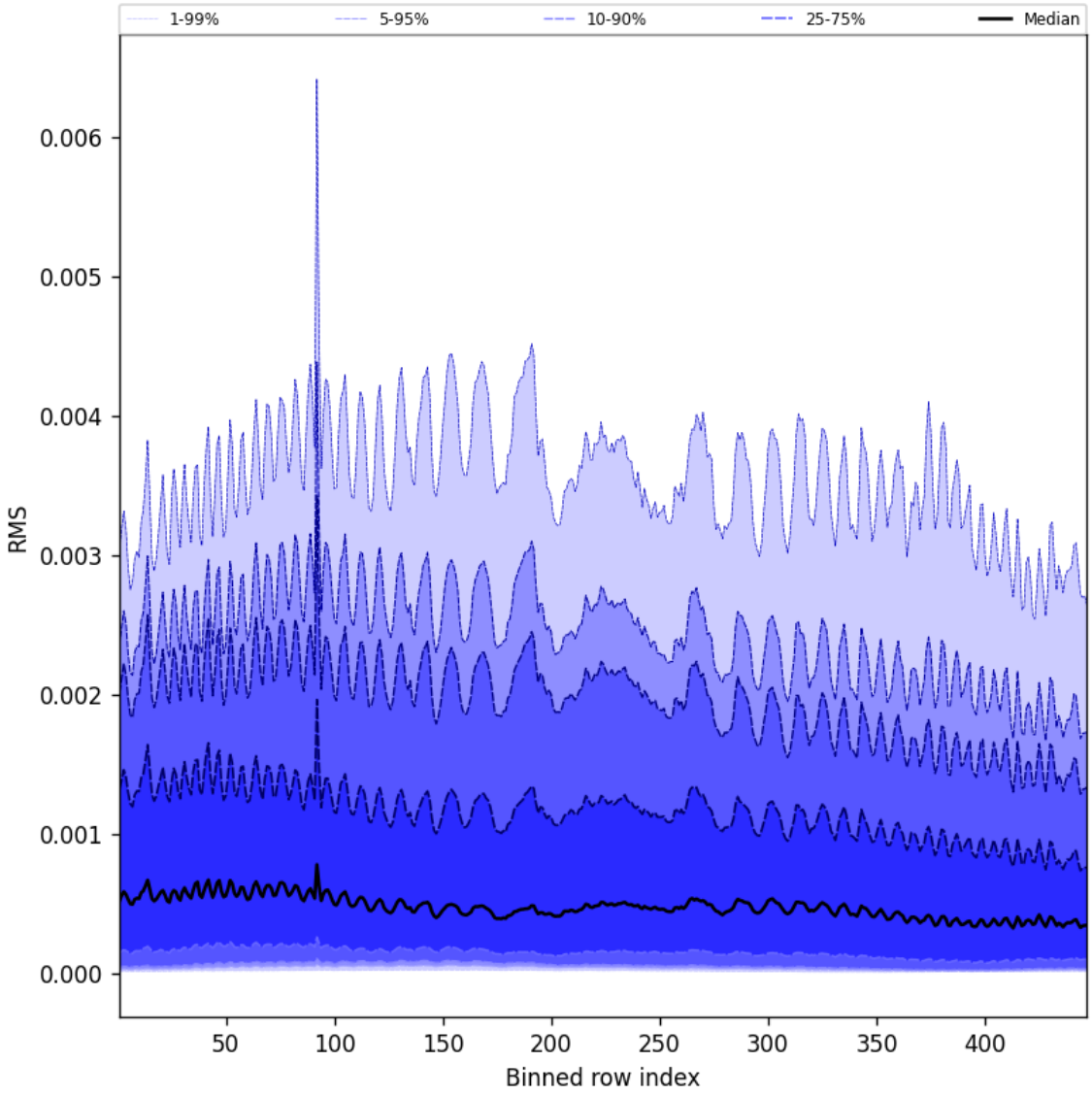

Figure 61: Along track statistics of “RMS” for 2025-01-14 to 2025-01-15

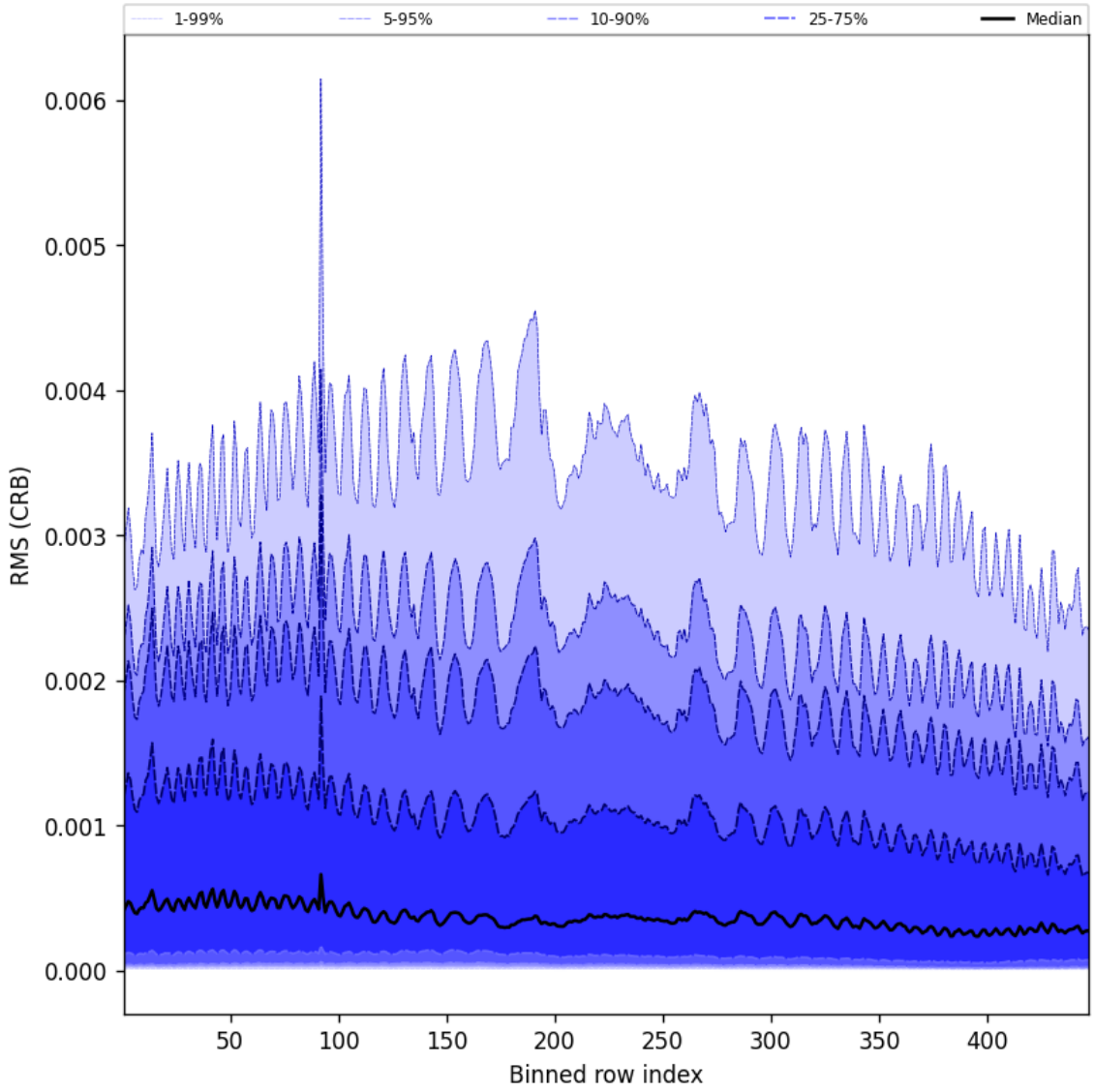

Figure 62: Along track statistics of “RMS (CRB)” for 2025-01-14 to 2025-01-15

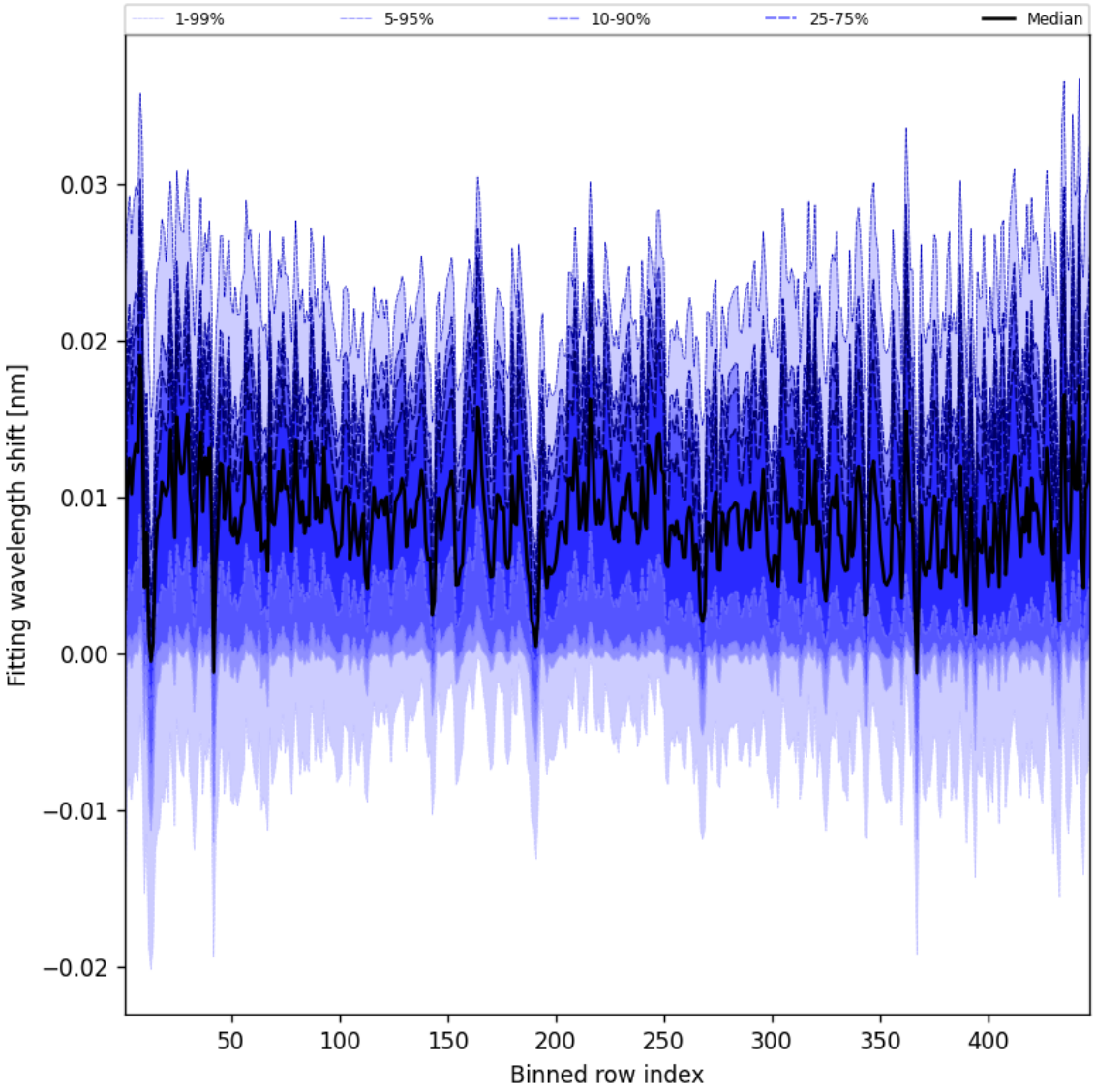

Figure 63: Along track statistics of “Fitting wavelength shift” for 2025-01-14 to 2025-01-15

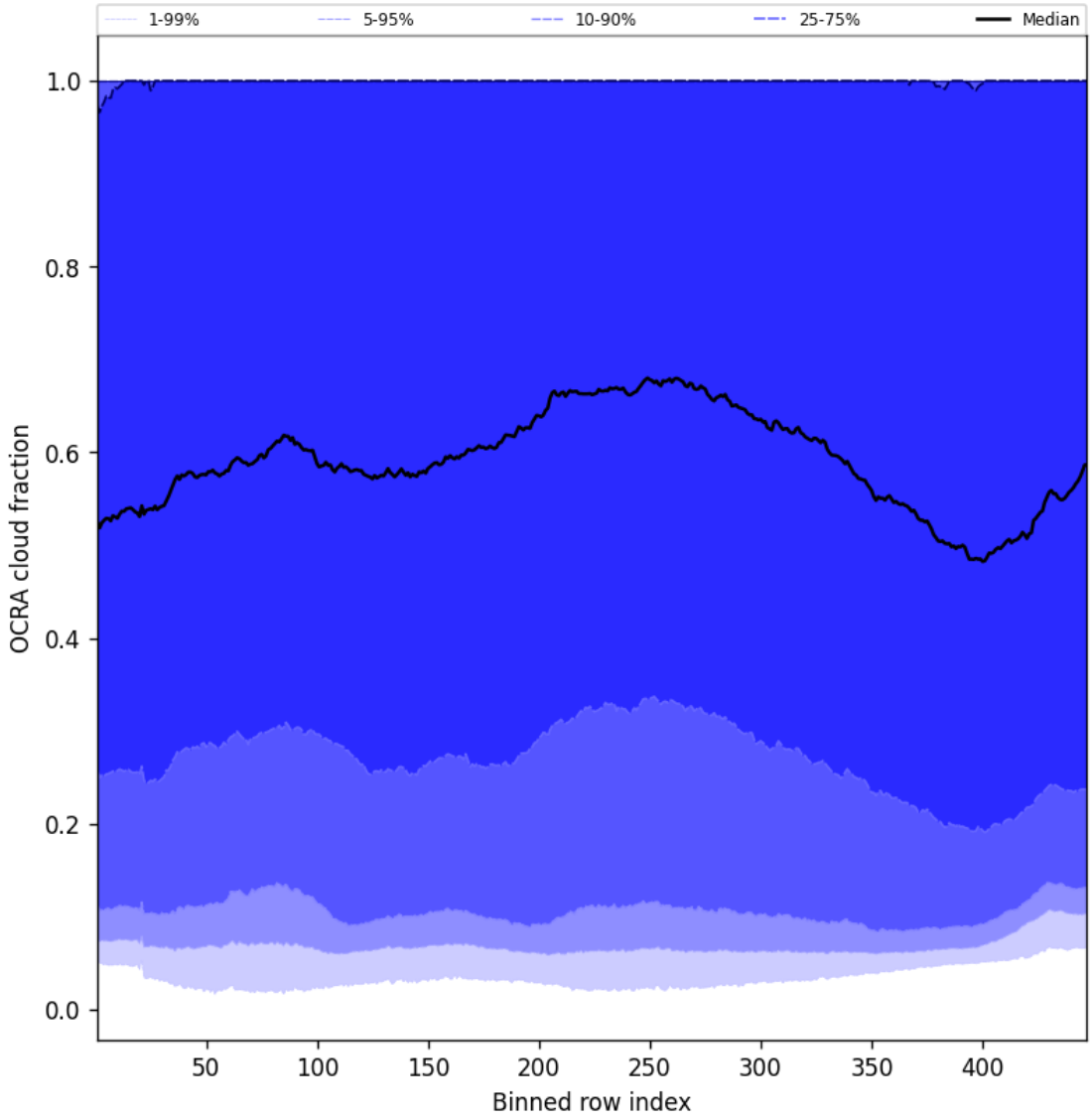

Figure 64: Along track statistics of “OCRA cloud fraction” for 2025-01-14 to 2025-01-15

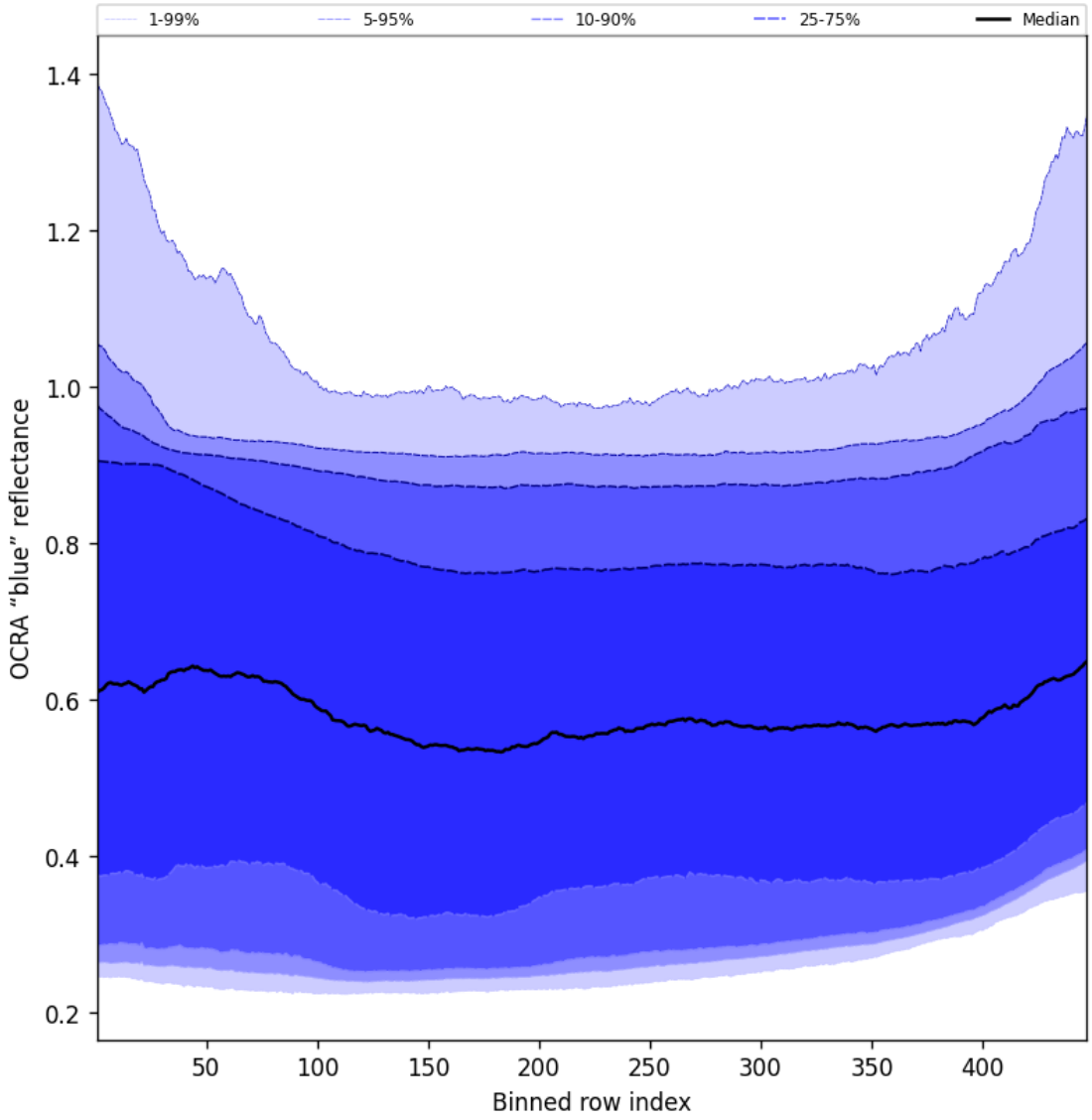

Figure 65: Along track statistics of “OCRA “blue” reflectance” for 2025-01-14 to 2025-01-15

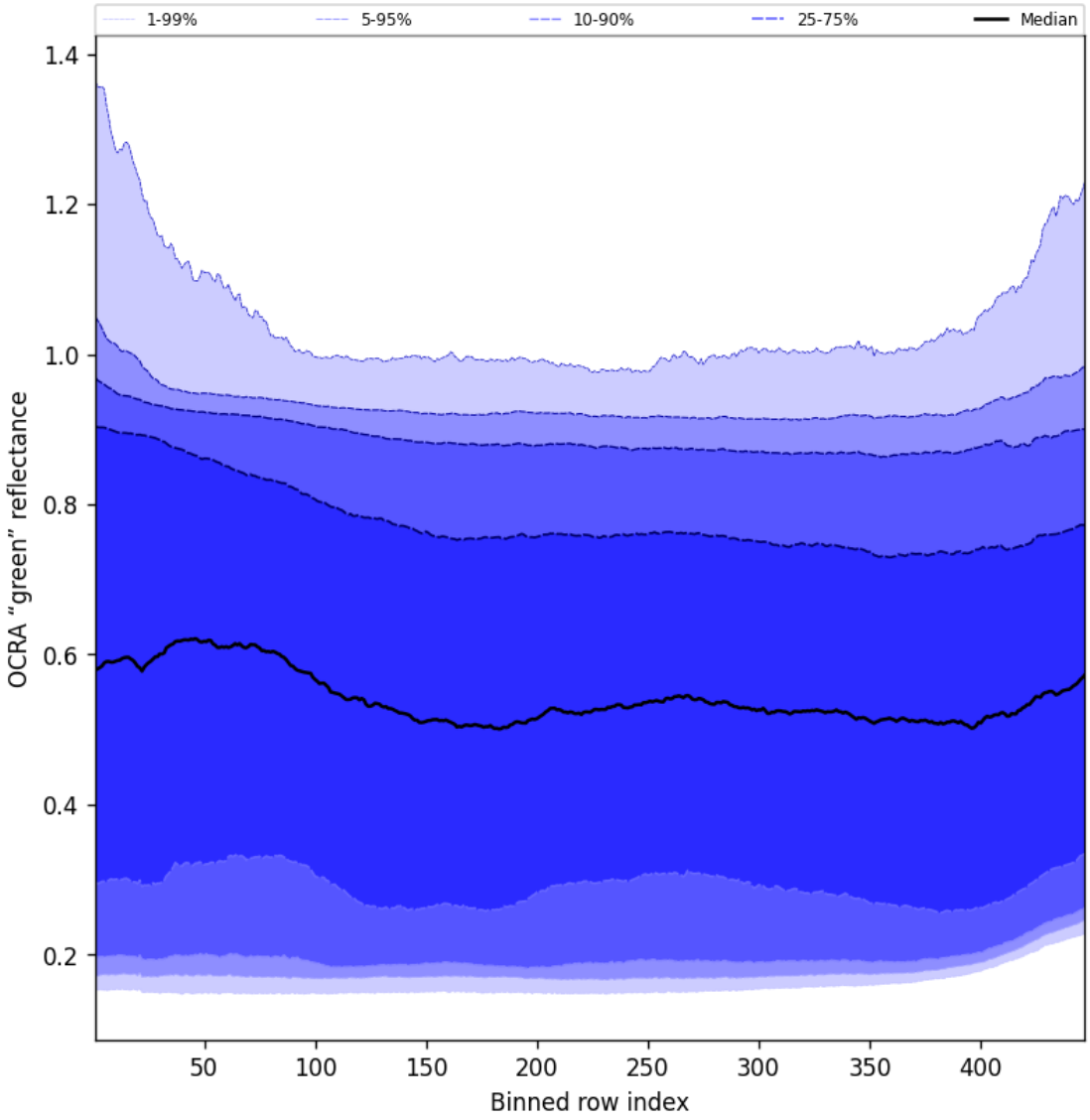

Figure 66: Along track statistics of "OCRA "green" reflectance" for 2025-01-14 to 2025-01-15

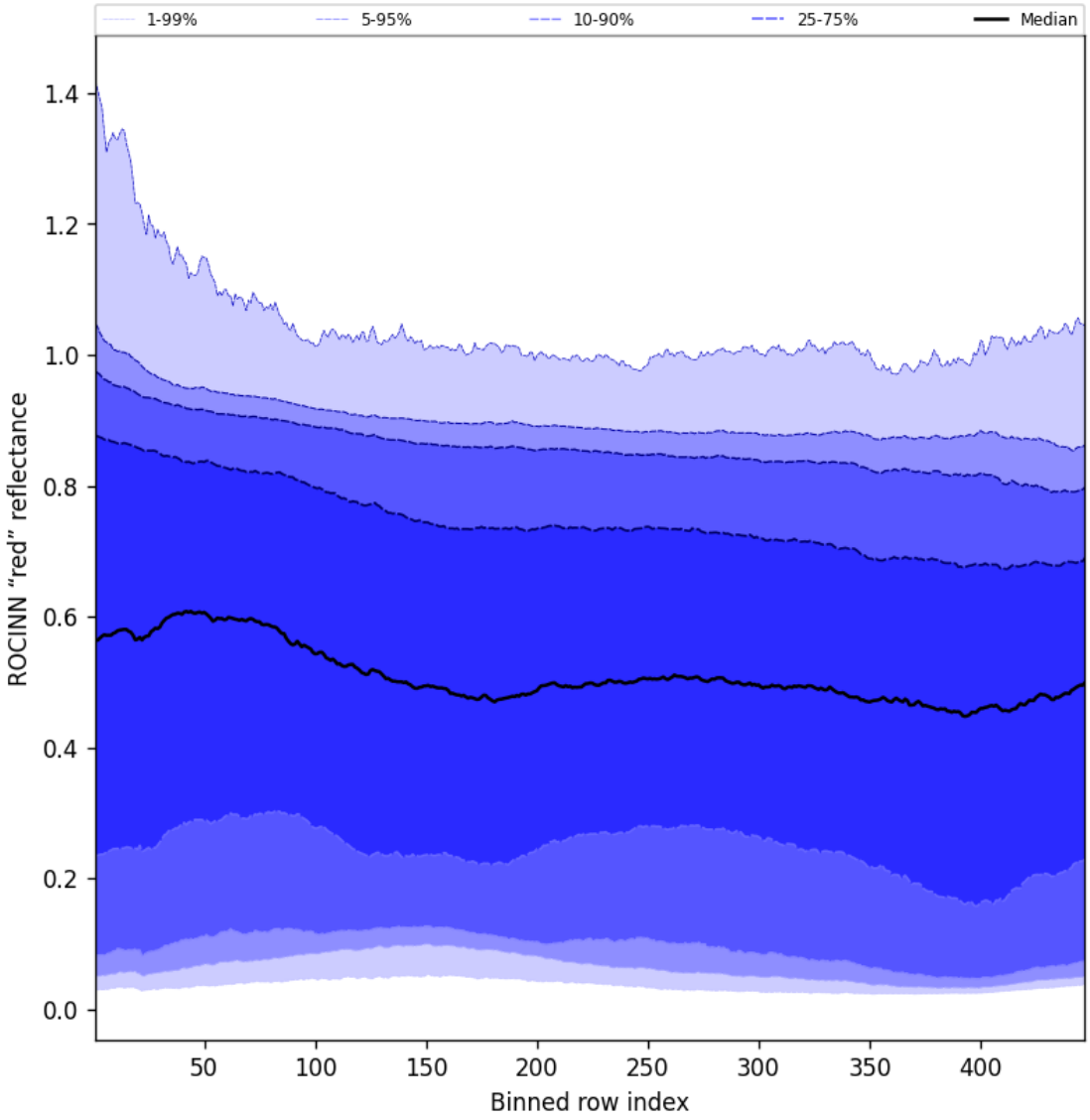

Figure 67: Along track statistics of “ROCINN “red” reflectance” for 2025-01-14 to 2025-01-15

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.

Contents

List of Figures

List of Tables

11 Copyright information of ‘PyCAMA’

3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided by the copyright holders and contributors "as is" and any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall the copyright holder or contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

Maarten Sneep (maarten.sneep@knmi.nl).