

PyCAMA report generated by tropl2-proc

tropl2-proc

2024-12-08 (04:15)

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:

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i \quad (1)$$

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 $\sigma(x) = \sqrt{V(x)}$.

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

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 :

$$P(x \leq m) = P(x \geq m) = \int_{-\infty}^m f(x) dx = \frac{1}{2} \quad (3)$$

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

The median is a special case of a percentile. Instead of $\frac{1}{2}$ 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} .

$$C_{kl} = C(x_{(k)}, x_{(l)}) = \frac{1}{N-1} \sum_{i=1}^N (x_{(k),i} - \bar{x}_{(k)})(x_{(l),i} - \bar{x}_{(l)}) \quad (4)$$

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

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

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]	0.902 ± 0.190	22453966	0.995	0.1000	1.000	0.350	1.000
cloud pressure crb [hPa]	775 ± 197	22453966	1.015×10^3	292	826	130	1.071×10^3
cloud pressure crb precision [hPa]	2.24 ± 8.33	22453966	0.750	1.11	0.511	7.324×10^{-4}	1.279×10^3
cloud fraction crb [1]	0.497 ± 0.391	22453966	0.996	0.898	0.436	0.0	1.000
cloud fraction crb precision [1]	$(1.607 \pm 6.285) \times 10^{-4}$	22453966	2.500×10^{-4}	5.657×10^{-5}	8.334×10^{-5}	1.743×10^{-8}	0.449
scene albedo [1]	0.481 ± 0.341	22453966	1.500×10^{-2}	0.627	0.456	-3.092×10^{-2}	5.14
scene albedo precision [1]	$(8.374 \pm 9.308) \times 10^{-5}$	22453966	2.500×10^{-4}	6.501×10^{-5}	5.581×10^{-5}	1.072×10^{-5}	1.173×10^{-2}
apparent scene pressure [hPa]	803 ± 176	22453966	1.008×10^3	271	853	130	1.071×10^3
apparent scene pressure precision [hPa]	0.897 ± 1.560	22453966	0.500	0.457	0.414	6.752×10^{-2}	72.0
chi square [1]	$(0.250 \pm 4.794) \times 10^5$	22453966	0.150	2.829×10^4	1.608×10^4	62.4	5.557×10^8
number of iterations [1]	3.39 ± 1.04	22453966	3.23	1.000	3.00	1.000	14.0
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.879 \pm 6.382) \times 10^{-9}$	22453966	7.500×10^{-10}	5.315×10^{-9}	1.578×10^{-9}	-1.786×10^{-6}	1.593×10^{-6}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.748 \pm 0.708) \times 10^{-9}$	22453966	8.500×10^{-10}	1.063×10^{-9}	1.677×10^{-9}	4.042×10^{-10}	5.579×10^{-9}
chi square fluorescence [1]	$(0.496 \pm 0.954) \times 10^5$	22453966	1.250×10^3	4.531×10^4	1.397×10^4	96.1	2.044×10^6
degrees of freedom fluorescence [1]	6.00 ± 0.00	22453966	5.95	0.0	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	22453966	49.7	0.0	50.0	48.0	50.0
wavelength calibration offset [nm]	$(4.674 \pm 8.277) \times 10^{-3}$	22453966	4.400×10^{-3}	5.390×10^{-3}	4.689×10^{-3}	-0.165	0.147

Table 2: Percentile ranges

Variable	1 %	5 %	10 %	15.9 %	25 %	75 %	84.1 %	90 %	95 %	99 %
qa value [1]	0.500	0.500	0.500	0.500	0.900	1.000	1.000	1.000	1.000	1.000
cloud pressure crb [hPa]	246	383	479	566	647	938	971	992	1.009×10^3	1.019×10^3
cloud pressure crb precision [hPa]	0.171	0.228	0.248	0.266	0.299	1.41	2.50	4.31	8.81	28.3
cloud fraction crb [1]	1.417×10^{-3}	1.212×10^{-2}	2.696×10^{-2}	4.962×10^{-2}	0.102	1.000	1.000	1.000	1.000	1.000
cloud fraction crb precision [1]	2.082×10^{-5}	2.442×10^{-5}	2.742×10^{-5}	3.167×10^{-5}	4.343×10^{-5}	1.000×10^{-4}	1.390×10^{-4}	2.349×10^{-4}	5.651×10^{-4}	1.727×10^{-3}
scene albedo [1]	9.314×10^{-3}	2.326×10^{-2}	4.308×10^{-2}	7.609×10^{-2}	0.159	0.785	0.890	0.941	0.995	1.15
scene albedo precision [1]	1.342×10^{-5}	1.606×10^{-5}	1.968×10^{-5}	2.450×10^{-5}	3.301×10^{-5}	9.802×10^{-5}	1.263×10^{-4}	1.643×10^{-4}	2.501×10^{-4}	4.935×10^{-4}
apparent scene pressure [hPa]	336	456	544	613	678	950	978	996	1.010×10^3	1.019×10^3
apparent scene pressure precision [hPa]	0.210	0.234	0.251	0.268	0.295	0.752	1.18	1.89	3.35	7.74
chi square [1]	307	753	1.598×10^3	3.098×10^3	5.792×10^3	3.408×10^4	4.435×10^4	5.352×10^4	6.517×10^4	8.709×10^4
number of iterations [1]	2.00	2.00	2.00	3.00	3.00	4.00	4.00	5.00	5.00	7.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	-1.367×10^{-8}	-6.079×10^{-9}	-3.485×10^{-9}	-2.039×10^{-9}	-7.516×10^{-10}	4.563×10^{-9}	6.411×10^{-9}	8.190×10^{-9}	1.072×10^{-8}	1.608×10^{-8}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	6.920×10^{-10}	8.020×10^{-10}	8.814×10^{-10}	9.775×10^{-10}	1.157×10^{-9}	2.220×10^{-9}	2.507×10^{-9}	2.671×10^{-9}	2.965×10^{-9}	3.667×10^{-9}
chi square fluorescence [1]	358	907	1.511×10^3	2.259×10^3	3.853×10^3	4.917×10^4	8.469×10^4	1.327×10^5	2.299×10^5	4.924×10^5
degrees of freedom fluorescence [1]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
wavelength calibration offset [nm]	-2.199×10^{-2}	-7.540×10^{-3}	-2.617×10^{-3}	-5.352×10^{-5}	1.964×10^{-3}	7.354×10^{-3}	9.351×10^{-3}	1.196×10^{-2}	1.695×10^{-2}	3.139×10^{-2}

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]	0.989 ± 0.052	8657646	0.0	1.000	0.350	1.000	1.000	1.000
cloud pressure crb [hPa]	743 ± 219	8657646	350	803	130	1.071×10^3	577	927
cloud pressure crb precision [hPa]	3.32 ± 10.33	8657646	2.01	0.898	7.324×10^{-4}	1.279×10^3	0.435	2.44
cloud fraction crb [1]	0.373 ± 0.349	8657646	0.602	0.243	0.0	1.000	6.083×10^{-2}	0.663
cloud fraction crb precision [1]	$(1.569 \pm 5.583) \times 10^{-4}$	8657646	9.388×10^{-5}	9.337×10^{-5}	8.069×10^{-7}	0.449	5.041×10^{-5}	1.443×10^{-4}
scene albedo [1]	0.397 ± 0.301	8657646	0.469	0.348	-9.558×10^{-3}	5.14	0.138	0.608
scene albedo precision [1]	$(9.305 \pm 10.495) \times 10^{-5}$	8657646	7.191×10^{-5}	5.816×10^{-5}	1.155×10^{-5}	1.173×10^{-2}	3.582×10^{-5}	1.077×10^{-4}
apparent scene pressure [hPa]	788 ± 190	8657646	283	843	130	1.071×10^3	660	943
apparent scene pressure precision [hPa]	1.11 ± 1.80	8657646	0.587	0.528	6.752×10^{-2}	72.0	0.372	0.958
chi square [1]	$(0.136 \pm 0.915) \times 10^5$	8657646	1.531×10^4	9.733×10^3	62.4	1.057×10^8	3.802×10^3	1.911×10^4
number of iterations [1]	3.39 ± 1.04	8657646	1.000	3.00	1.000	14.0	3.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(9.507 \pm 43.120) \times 10^{-10}$	8657646	3.576×10^{-9}	1.036×10^{-9}	-1.254×10^{-6}	8.442×10^{-7}	-6.619×10^{-10}	2.914×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.468 \pm 0.599) \times 10^{-9}$	8657646	8.141×10^{-10}	1.364×10^{-9}	4.042×10^{-10}	5.526×10^{-9}	9.864×10^{-10}	1.801×10^{-9}
chi square fluorescence [1]	$(0.452 \pm 0.910) \times 10^5$	8657646	3.884×10^4	1.137×10^4	96.1	2.001×10^6	3.386×10^3	4.222×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	8657646	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	8657646	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.787 \pm 9.177) \times 10^{-3}$	8657646	6.660×10^{-3}	4.685×10^{-3}	-8.213×10^{-2}	9.372×10^{-2}	1.381×10^{-3}	8.041×10^{-3}

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]	0.847 ± 0.222	13796320	0.500	1.000	0.350	1.000	0.500	1.000
cloud pressure crb [hPa]	795 ± 179	13796320	275	842	130	1.033×10^3	668	943
cloud pressure crb precision [hPa]	1.56 ± 6.70	13796320	0.617	0.373	1.404×10^{-3}	494	0.271	0.888
cloud fraction crb [1]	0.575 ± 0.395	13796320	0.851	0.619	0.0	1.000	0.149	1.000
cloud fraction crb precision [1]	$(1.630 \pm 6.688) \times 10^{-4}$	13796320	5.994×10^{-5}	7.472×10^{-5}	1.743×10^{-8}	0.133	4.006×10^{-5}	1.000×10^{-4}
scene albedo [1]	0.534 ± 0.354	13796320	0.690	0.566	-3.092×10^{-2}	3.66	0.175	0.865
scene albedo precision [1]	$(7.790 \pm 8.426) \times 10^{-5}$	13796320	6.172×10^{-5}	5.446×10^{-5}	1.072×10^{-5}	5.494×10^{-3}	3.101×10^{-5}	9.273×10^{-5}
apparent scene pressure [hPa]	813 ± 166	13796320	267	860	130	1.033×10^3	686	953
apparent scene pressure precision [hPa]	0.765 ± 1.372	13796320	0.355	0.349	0.161	54.3	0.273	0.628
chi square [1]	$(0.321 \pm 6.071) \times 10^5$	13796320	3.517×10^4	2.384×10^4	91.3	5.557×10^8	8.479×10^3	4.365×10^4
number of iterations [1]	3.39 ± 1.04	13796320	1.000	3.00	1.000	14.0	3.00	4.00
fluorescence [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(2.461 \pm 7.331) \times 10^{-9}$	13796320	6.654×10^{-9}	2.229×10^{-9}	-1.786×10^{-6}	1.593×10^{-6}	-8.287×10^{-10}	5.825×10^{-9}
fluorescence precision [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(1.925 \pm 0.714) \times 10^{-9}$	13796320	1.107×10^{-9}	1.947×10^{-9}	4.392×10^{-10}	5.579×10^{-9}	1.331×10^{-9}	2.438×10^{-9}
chi square fluorescence [1]	$(0.524 \pm 0.980) \times 10^5$	13796320	4.902×10^4	1.589×10^4	105	2.044×10^6	4.240×10^3	5.326×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	13796320	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	13796320	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.603 \pm 7.657) \times 10^{-3}$	13796320	4.734×10^{-3}	4.691×10^{-3}	-0.165	0.147	2.277×10^{-3}	7.010×10^{-3}

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]	0.978 ± 0.063	13978017	0.0	1.000	0.350	1.000	1.000	1.000
cloud pressure crb [hPa]	812 ± 195	13978017	257	884	130	1.070×10^3	705	961
cloud pressure crb precision [hPa]	2.19 ± 8.40	13978017	1.12	0.582	1.404×10^{-3}	1.150×10^3	0.332	1.45
cloud fraction crb [1]	0.405 ± 0.348	13978017	0.632	0.308	0.0	1.000	7.976×10^{-2}	0.712
cloud fraction crb precision [1]	$(1.089 \pm 5.464) \times 10^{-4}$	13978017	6.858×10^{-5}	5.400×10^{-5}	2.984×10^{-8}	0.133	3.142×10^{-5}	1.000×10^{-4}
scene albedo [1]	0.356 ± 0.304	13978017	0.538	0.276	-3.092×10^{-2}	5.14	7.452×10^{-2}	0.612
scene albedo precision [1]	$(6.501 \pm 8.465) \times 10^{-5}$	13978017	4.350×10^{-5}	4.408×10^{-5}	1.072×10^{-5}	1.173×10^{-2}	2.437×10^{-5}	6.788×10^{-5}
apparent scene pressure [hPa]	830 ± 183	13978017	233	896	130	1.070×10^3	738	972
apparent scene pressure precision [hPa]	1.20 ± 1.91	13978017	0.863	0.525	6.752×10^{-2}	72.0	0.317	1.18
chi square [1]	$(0.212 \pm 5.980) \times 10^5$	13978017	2.561×10^4	1.063×10^4	62.4	5.557×10^8	3.159×10^3	2.876×10^4
number of iterations [1]	3.02 ± 0.85	13978017	0.0	3.00	1.000	14.0	3.00	3.00
fluorescence [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(9.277 \pm 55.146) \times 10^{-10}$	13978017	4.657×10^{-9}	5.670×10^{-10}	-1.254×10^{-6}	1.045×10^{-6}	-1.429×10^{-9}	3.228×10^{-9}
fluorescence precision [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(1.671 \pm 0.736) \times 10^{-9}$	13978017	1.162×10^{-9}	1.528×10^{-9}	4.042×10^{-10}	5.526×10^{-9}	1.034×10^{-9}	2.197×10^{-9}
chi square fluorescence [1]	$(0.490 \pm 0.894) \times 10^5$	13978017	4.802×10^4	1.666×10^4	96.1	1.830×10^6	4.837×10^3	5.286×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	13978017	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	13978017	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.618 \pm 9.792) \times 10^{-3}$	13978017	6.930×10^{-3}	4.631×10^{-3}	-0.165	0.147	1.121×10^{-3}	8.052×10^{-3}

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]	0.727 ± 0.254	6848462	0.500	0.500	0.350	1.000	0.500	1.000
cloud pressure crb [hPa]	715 ± 176	6848462	230	713	130	1.064×10^3	624	853
cloud pressure crb precision [hPa]	2.12 ± 7.86	6848462	0.823	0.334	7.324×10^{-4}	1.279×10^3	0.262	1.09
cloud fraction crb [1]	0.693 ± 0.404	6848462	0.775	1.000	0.0	1.000	0.225	1.000
cloud fraction crb precision [1]	$(2.508 \pm 7.391) \times 10^{-4}$	6848462	2.209×10^{-5}	1.000×10^{-4}	1.743×10^{-8}	0.449	1.000×10^{-4}	1.221×10^{-4}
scene albedo [1]	0.722 ± 0.288	6848462	0.479	0.828	2.851×10^{-3}	4.67	0.464	0.944
scene albedo precision [1]	$(1.149 \pm 0.934) \times 10^{-4}$	6848462	7.274×10^{-5}	9.269×10^{-5}	1.260×10^{-5}	2.450×10^{-3}	5.755×10^{-5}	1.303×10^{-4}
apparent scene pressure [hPa]	752 ± 148	6848462	237	744	130	1.059×10^3	644	881
apparent scene pressure precision [hPa]	0.381 ± 0.187	6848462	0.163	0.326	0.155	18.1	0.270	0.432
chi square [1]	$(0.337 \pm 1.342) \times 10^5$	6848462	2.870×10^4	2.626×10^4	169	9.367×10^7	1.419×10^4	4.288×10^4
number of iterations [1]	4.05 ± 1.00	6848462	0.0	4.00	1.000	14.0	4.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(3.738 \pm 7.181) \times 10^{-9}$	6848462	5.039×10^{-9}	3.487×10^{-9}	-1.786×10^{-6}	1.375×10^{-6}	1.305×10^{-9}	6.344×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.920 \pm 0.629) \times 10^{-9}$	6848462	8.566×10^{-10}	1.885×10^{-9}	4.310×10^{-10}	5.579×10^{-9}	1.462×10^{-9}	2.319×10^{-9}
chi square fluorescence [1]	$(0.453 \pm 0.965) \times 10^5$	6848462	3.371×10^4	8.713×10^3	119	2.044×10^6	2.611×10^3	3.632×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	6848462	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	6848462	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.729 \pm 4.225) \times 10^{-3}$	6848462	3.435×10^{-3}	4.735×10^{-3}	-7.415×10^{-2}	6.807×10^{-2}	3.014×10^{-3}	6.448×10^{-3}

3 Granule outlines

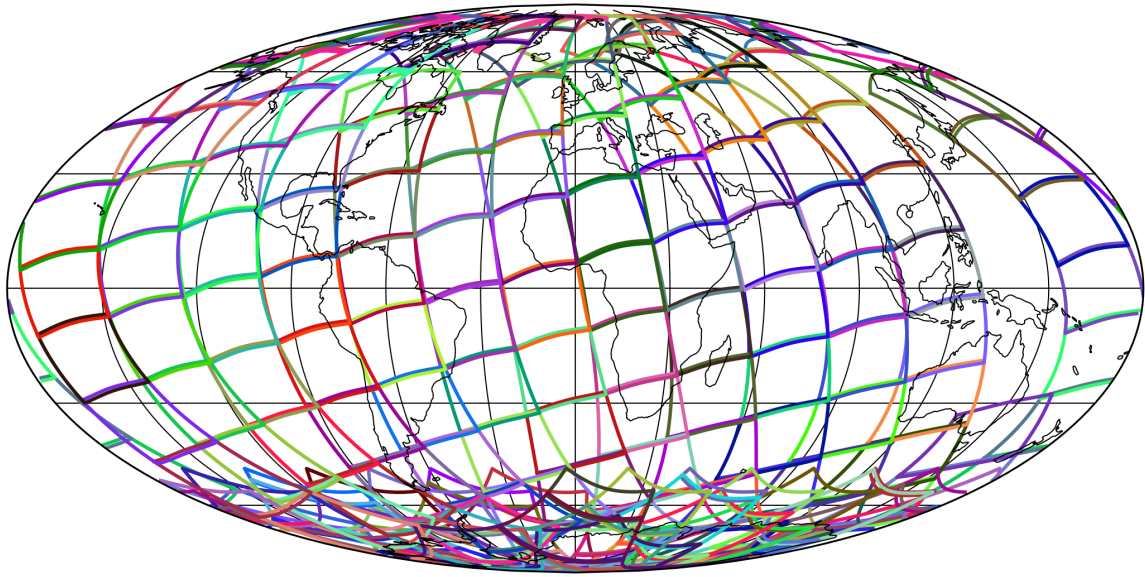


Figure 1: Outline of the granules.

4 Input data monitoring

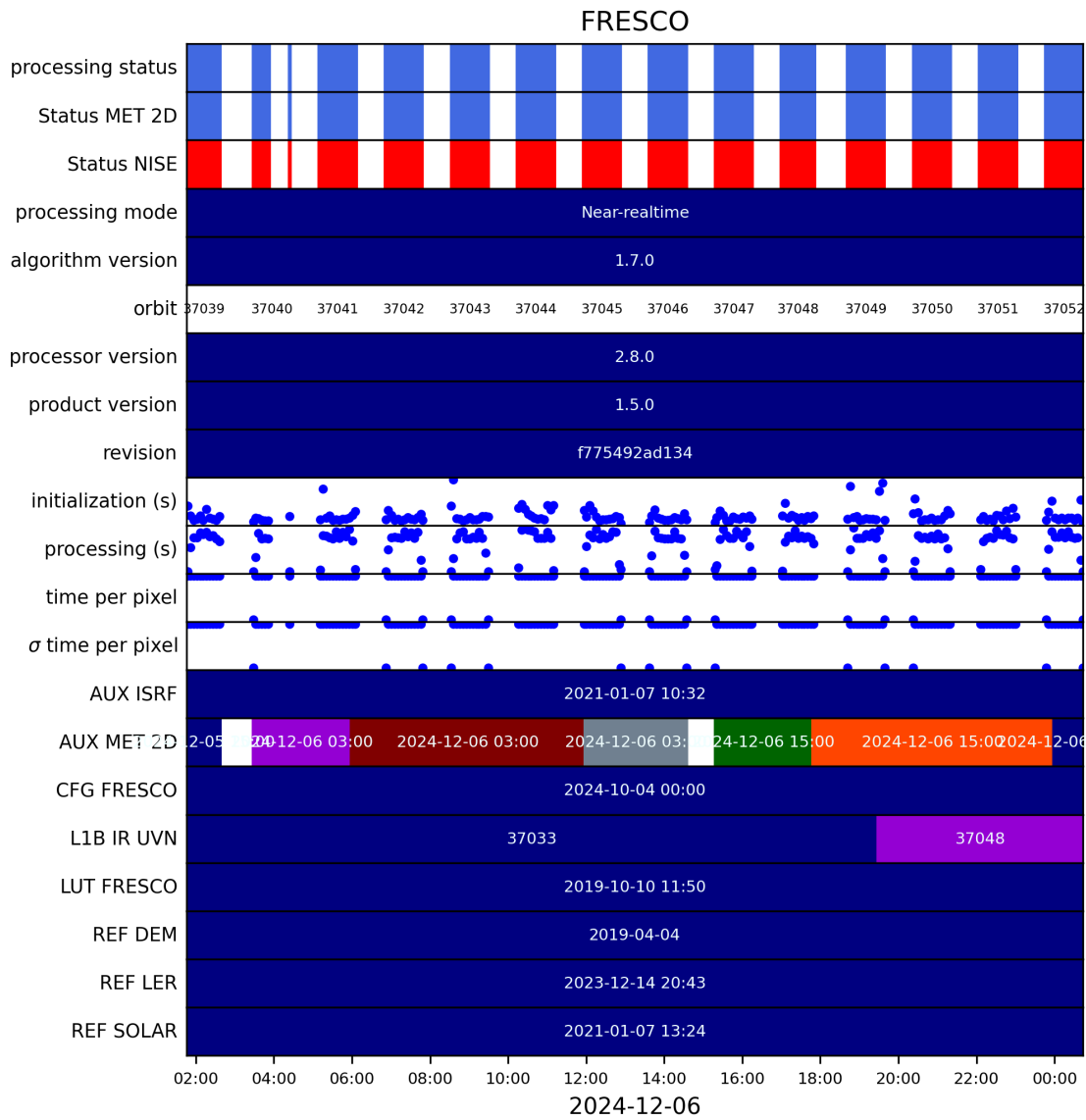


Figure 2: Input data per granule

5 Warnings and errors

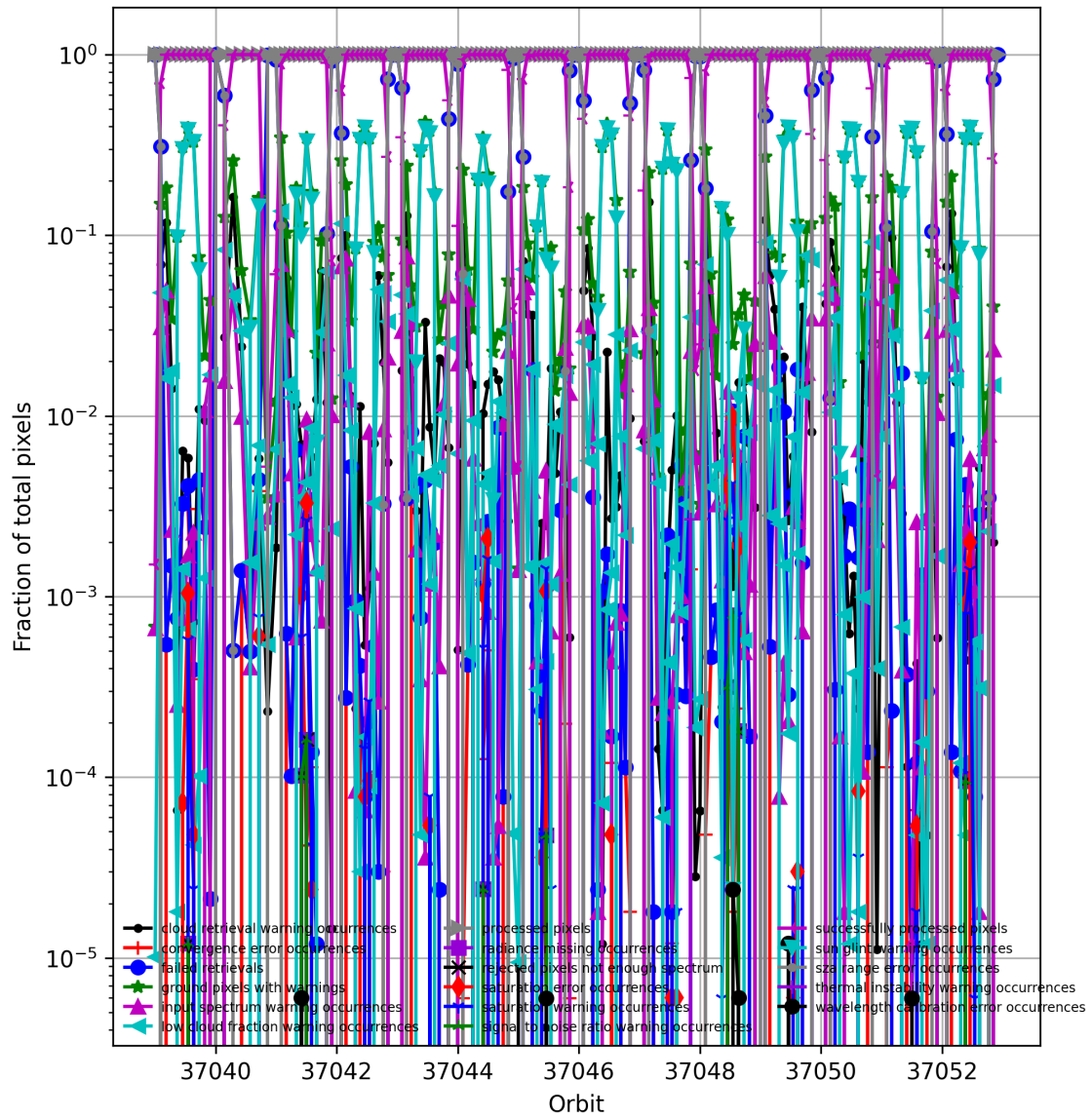


Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

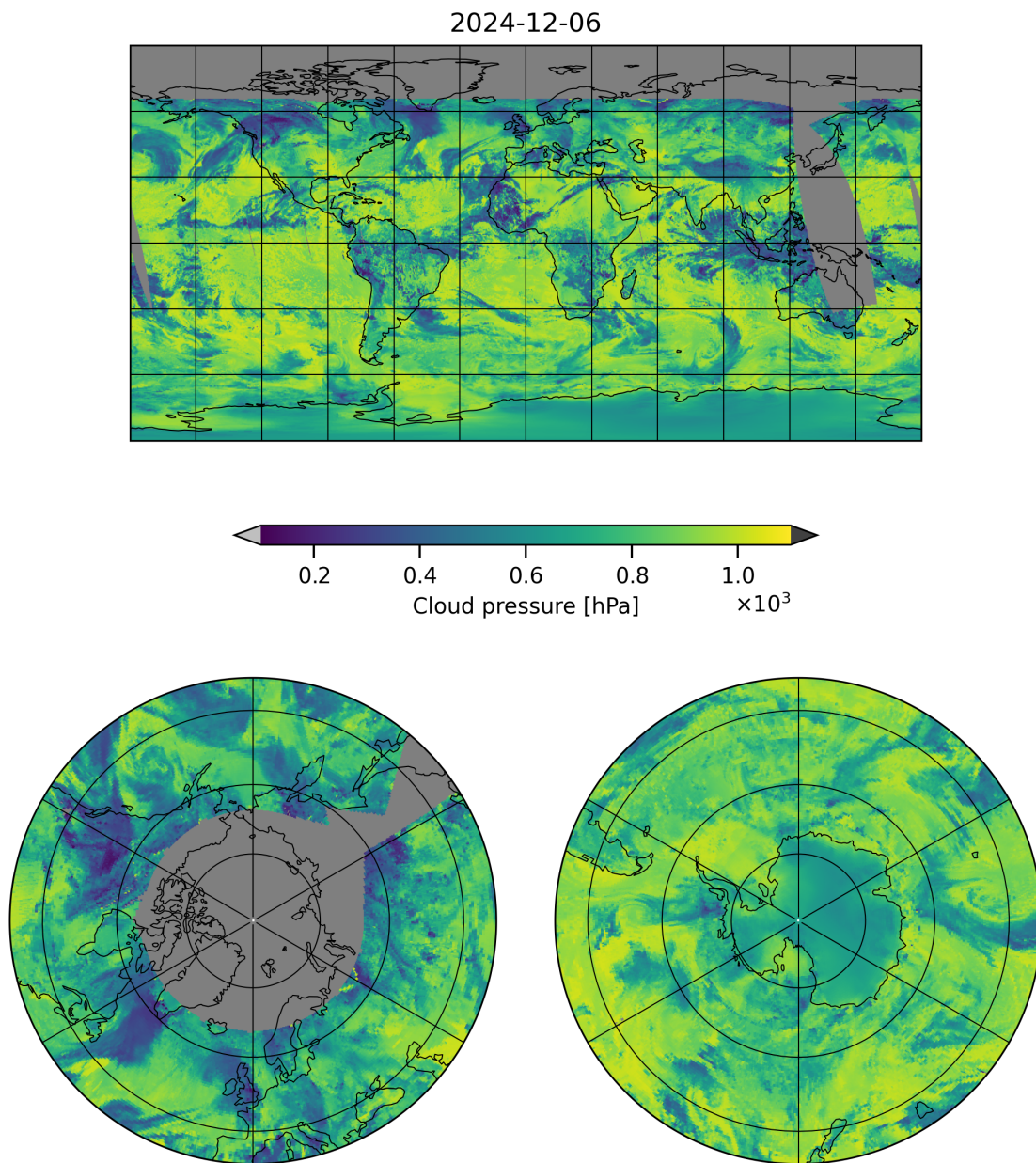


Figure 4: Map of “Cloud pressure” for 2024-12-06 to 2024-12-07

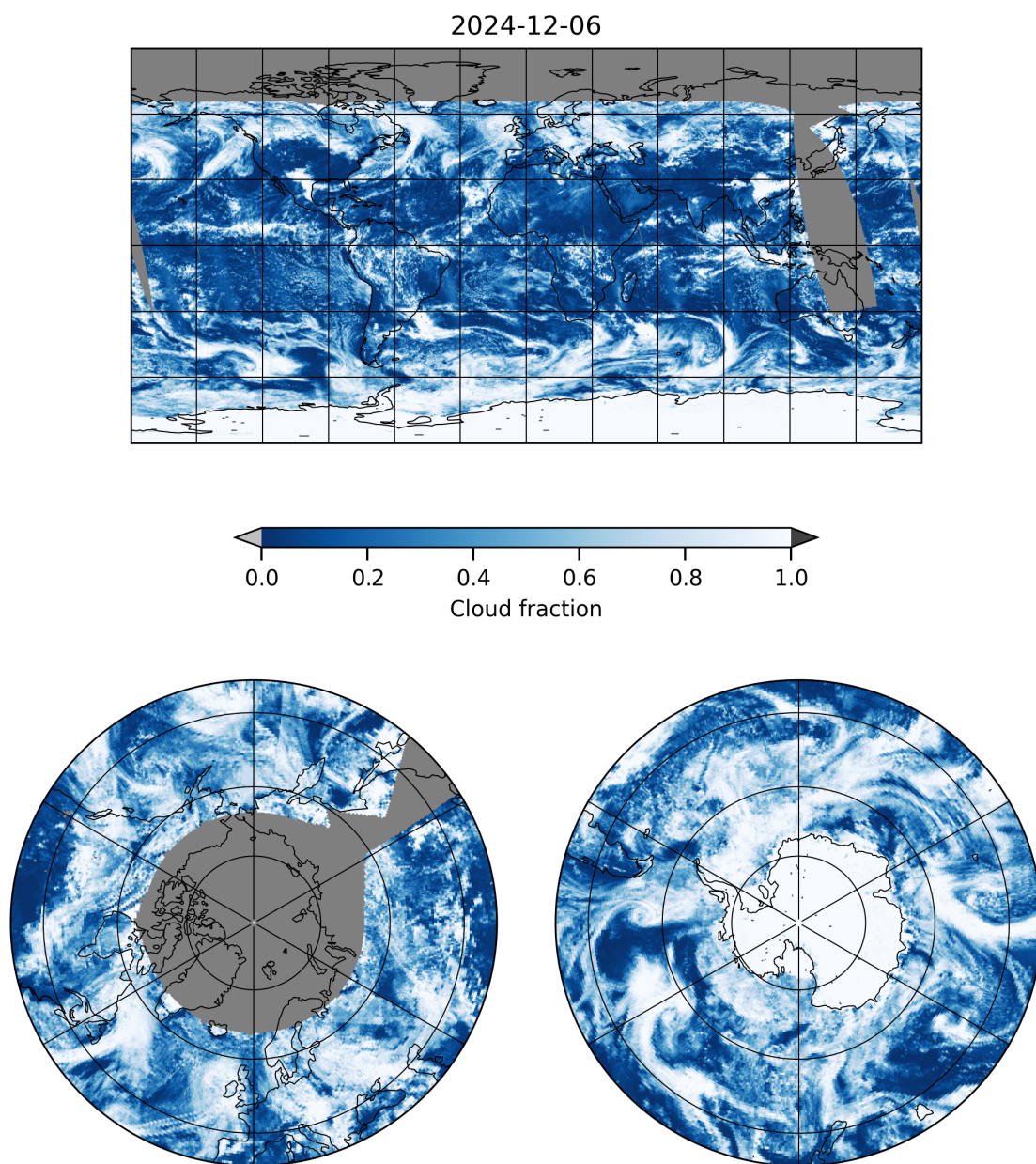


Figure 5: Map of “Cloud fraction” for 2024-12-06 to 2024-12-07

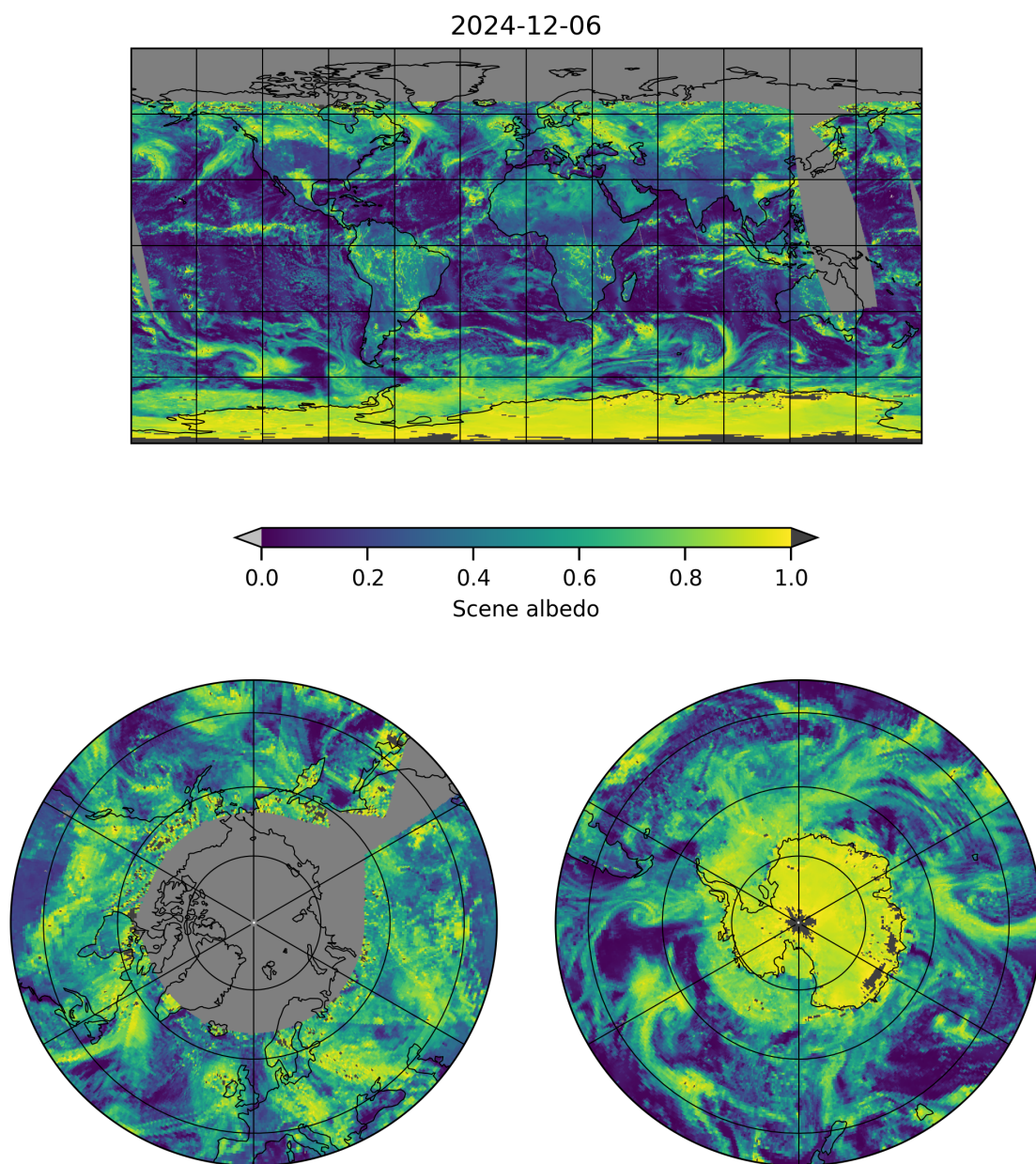


Figure 6: Map of “Scene albedo” for 2024-12-06 to 2024-12-07

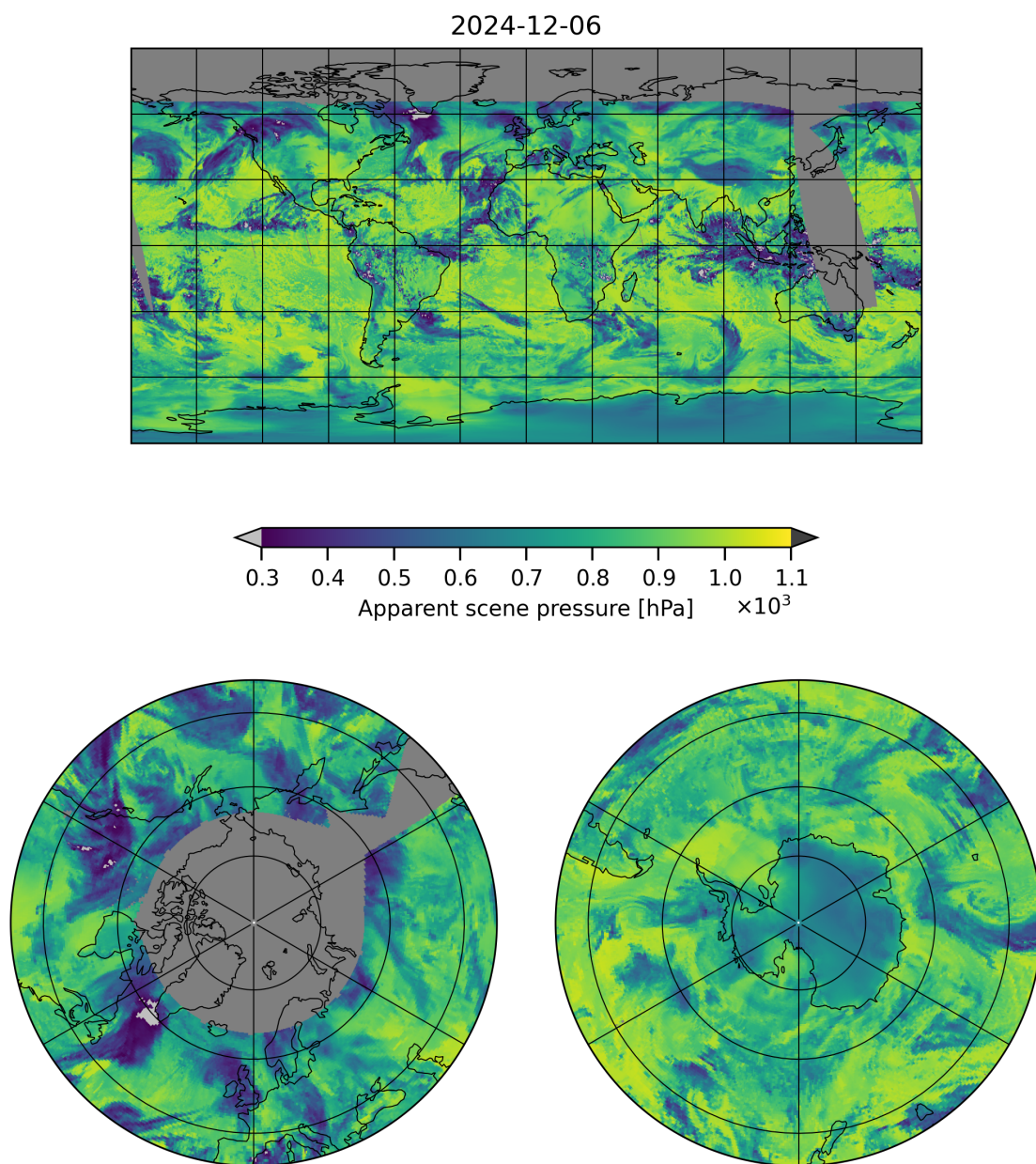


Figure 7: Map of “Apparent scene pressure” for 2024-12-06 to 2024-12-07

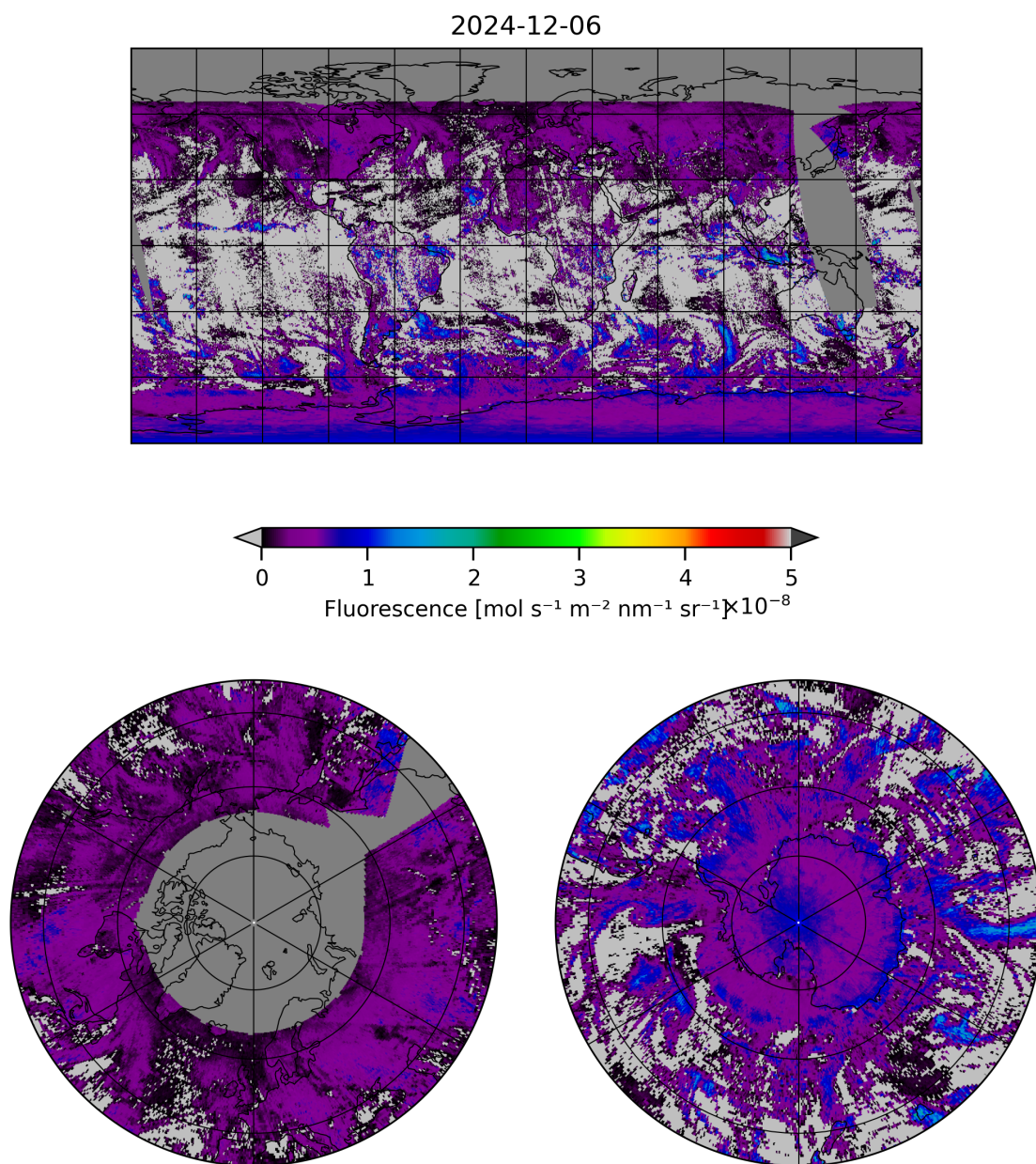


Figure 8: Map of “Fluorescence” for 2024-12-06 to 2024-12-07

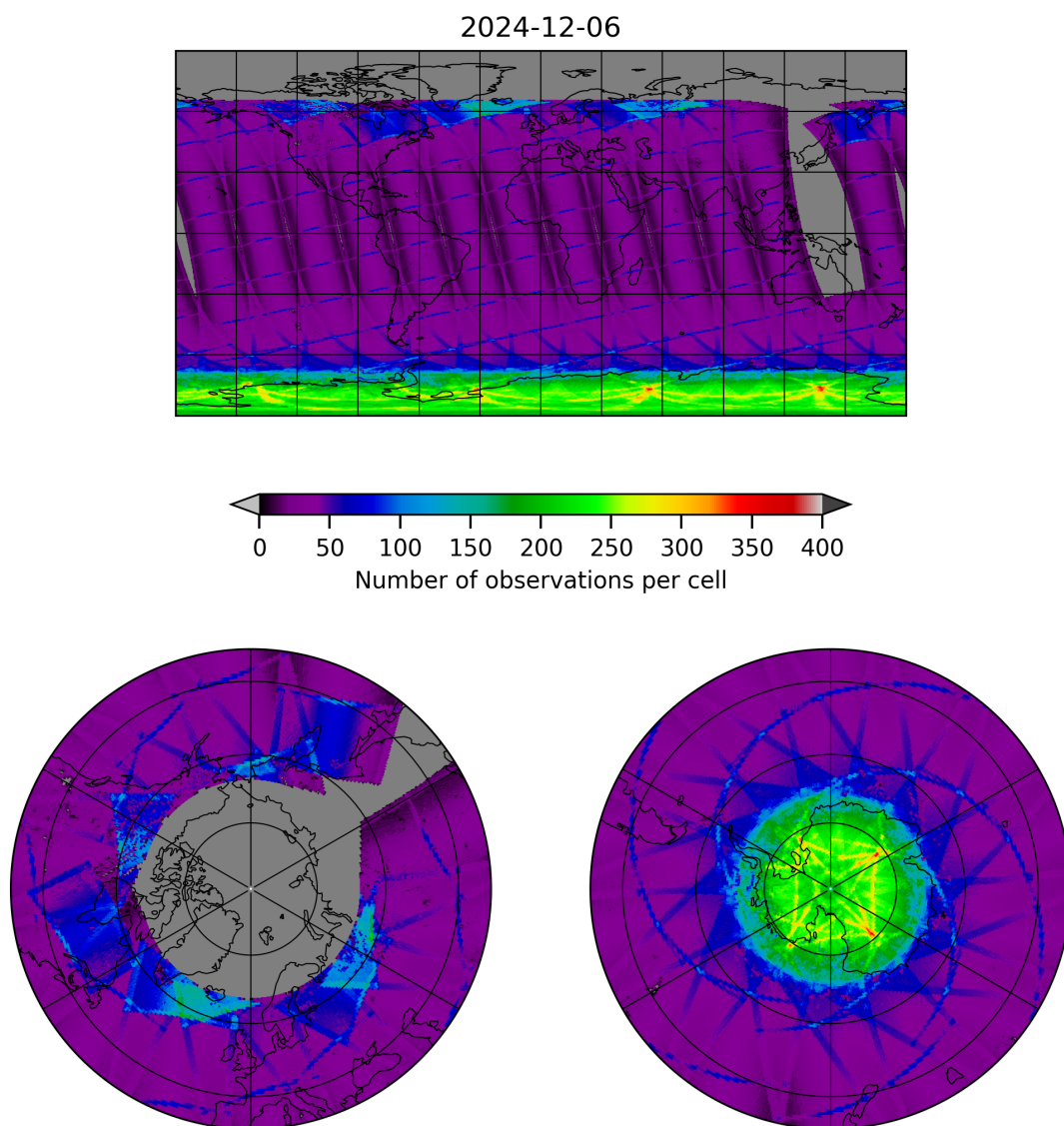


Figure 9: Map of the number of observations for 2024-12-06 to 2024-12-07

7 Zonal average

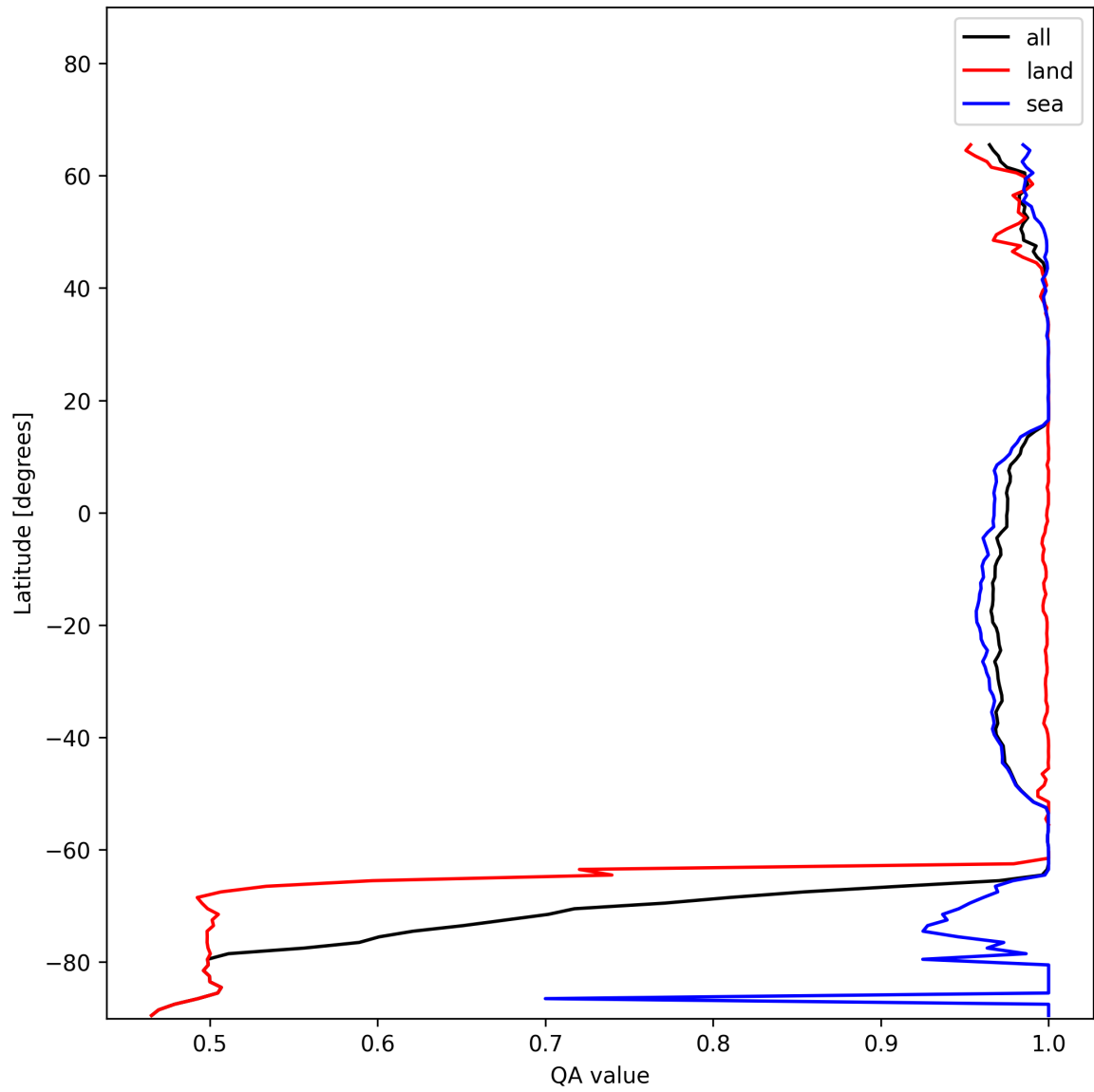


Figure 10: Zonal average of “QA value” for 2024-12-06 to 2024-12-07.

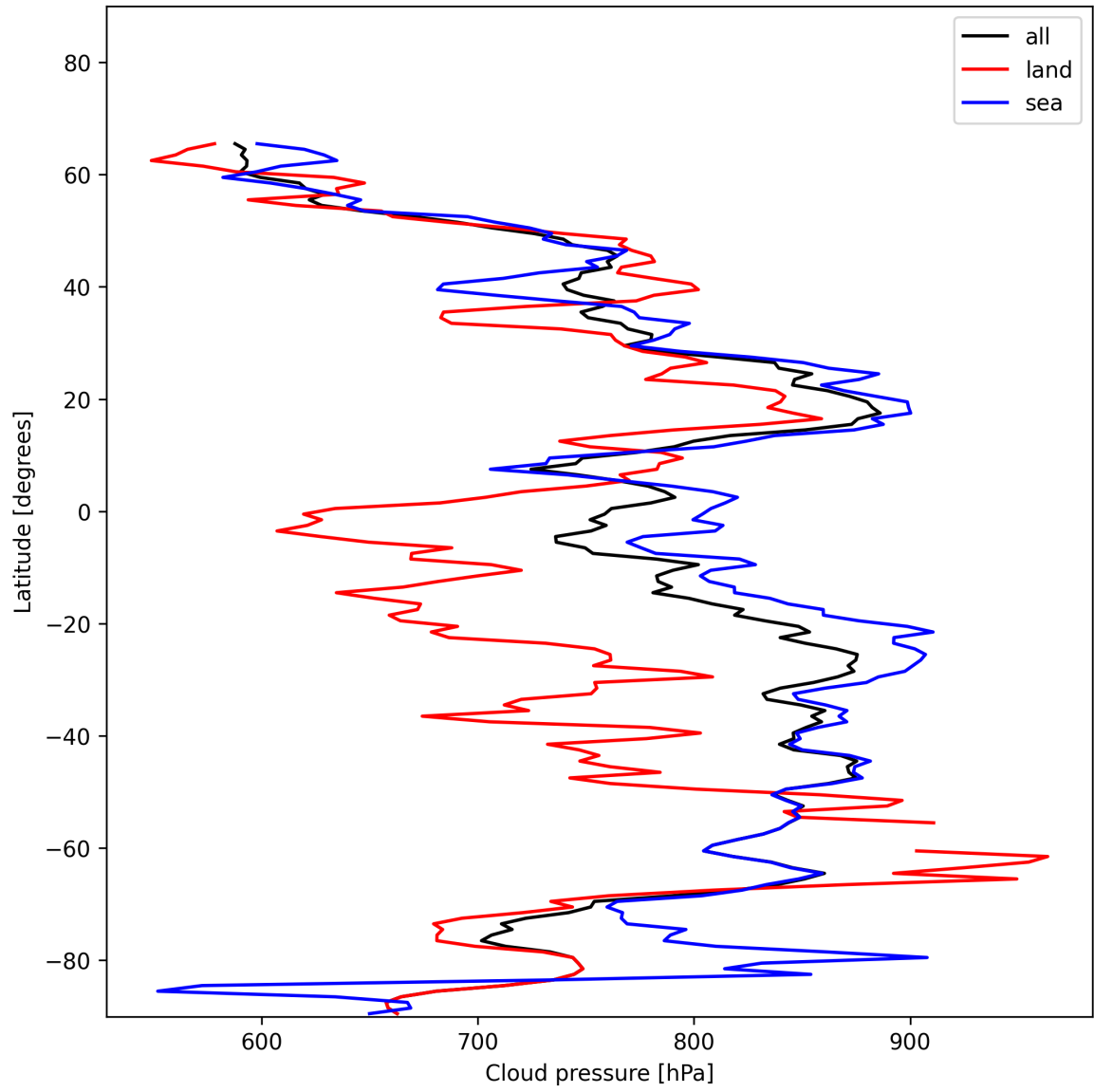


Figure 11: Zonal average of “Cloud pressure” for 2024-12-06 to 2024-12-07.

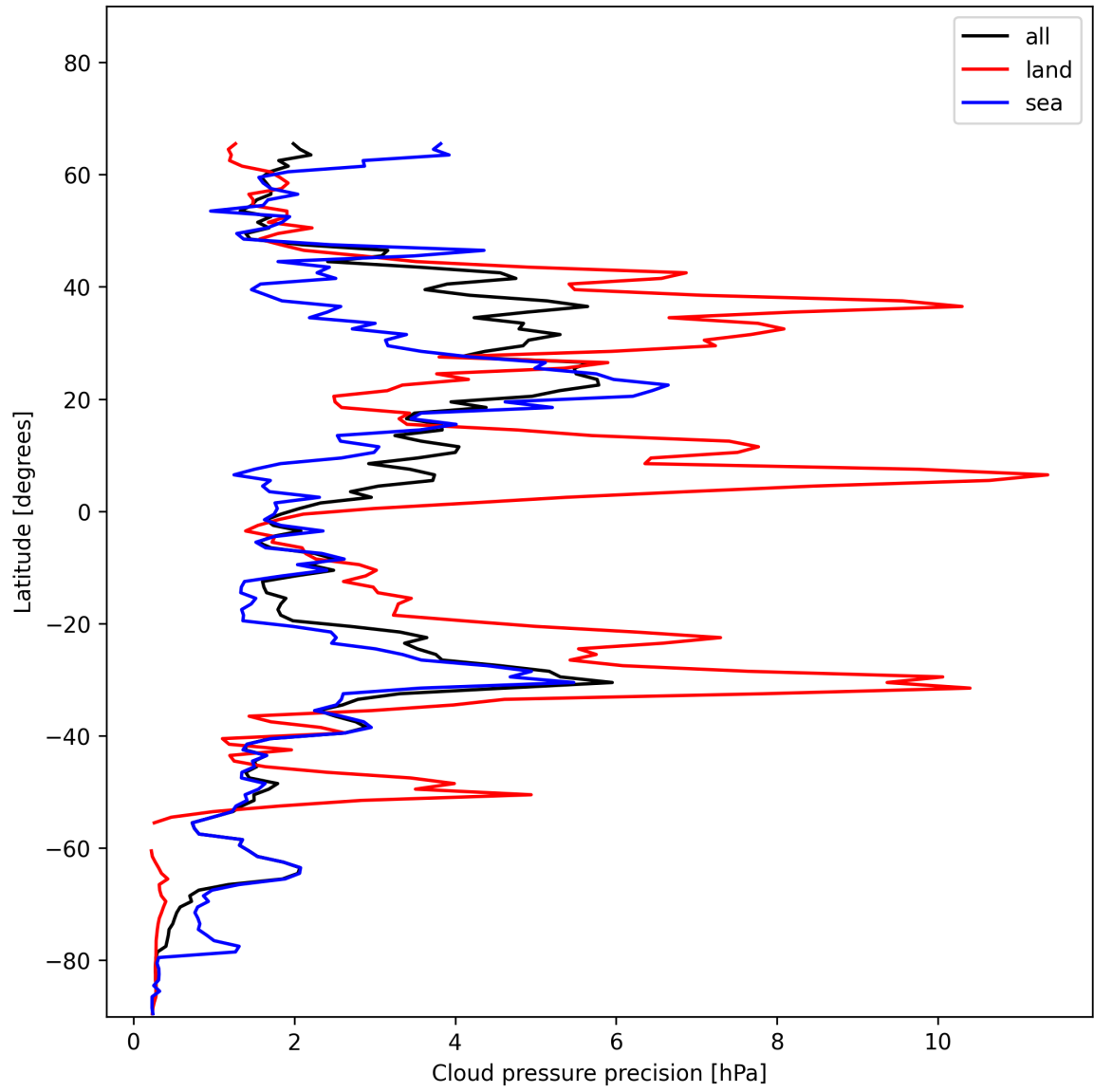


Figure 12: Zonal average of “Cloud pressure precision” for 2024-12-06 to 2024-12-07.

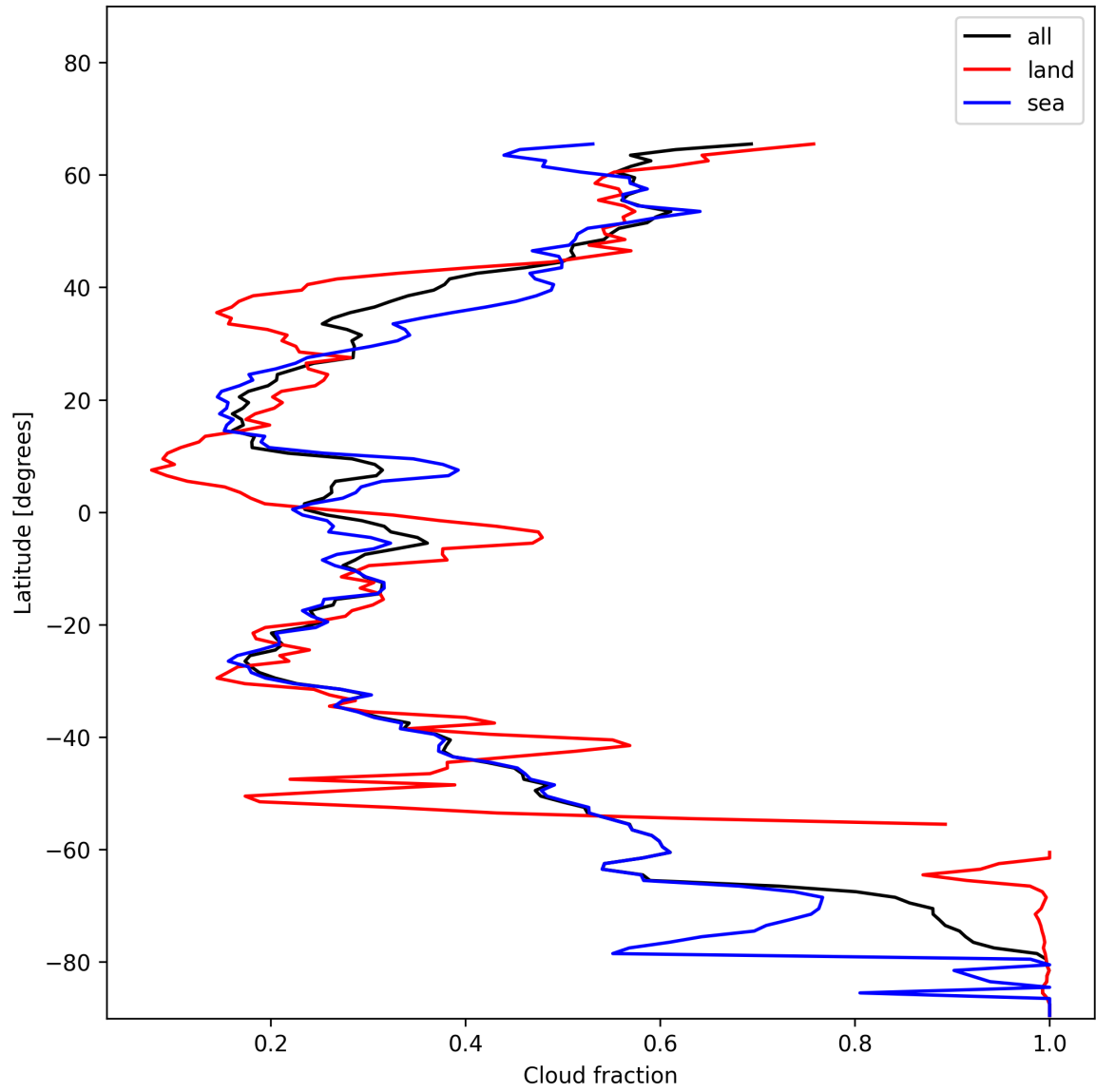


Figure 13: Zonal average of “Cloud fraction” for 2024-12-06 to 2024-12-07.

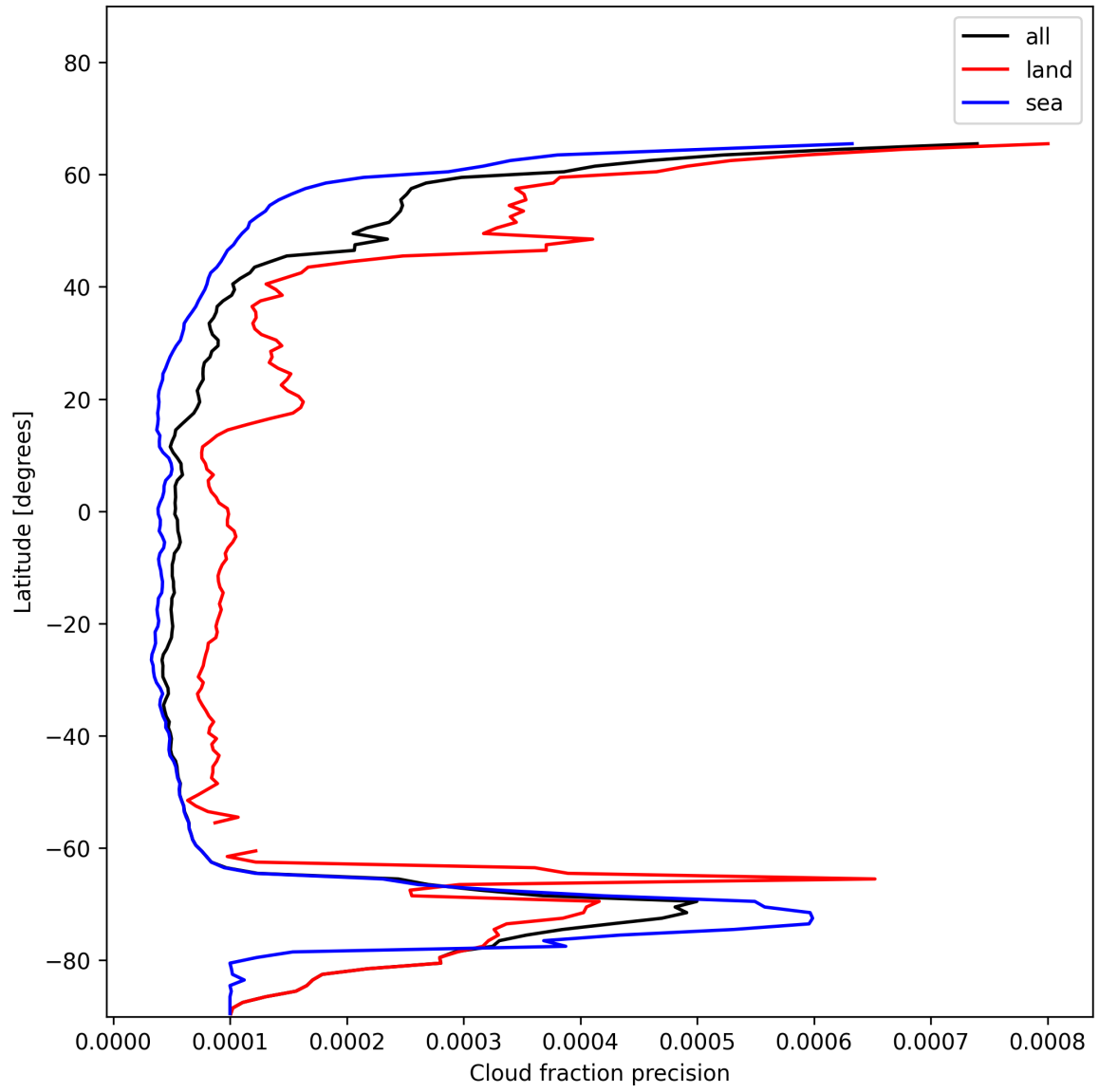


Figure 14: Zonal average of “Cloud fraction precision” for 2024-12-06 to 2024-12-07.

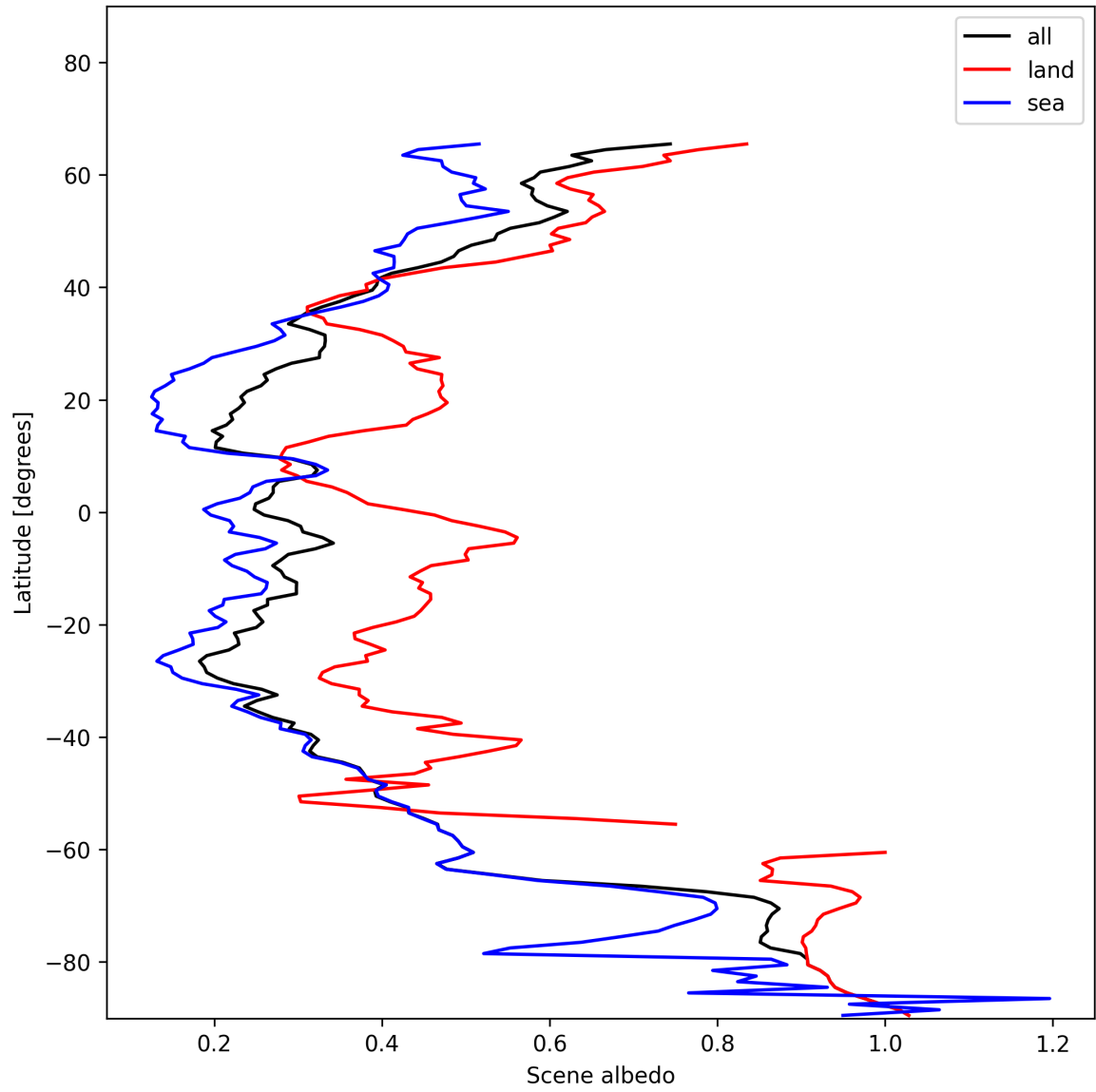


Figure 15: Zonal average of “Scene albedo” for 2024-12-06 to 2024-12-07.

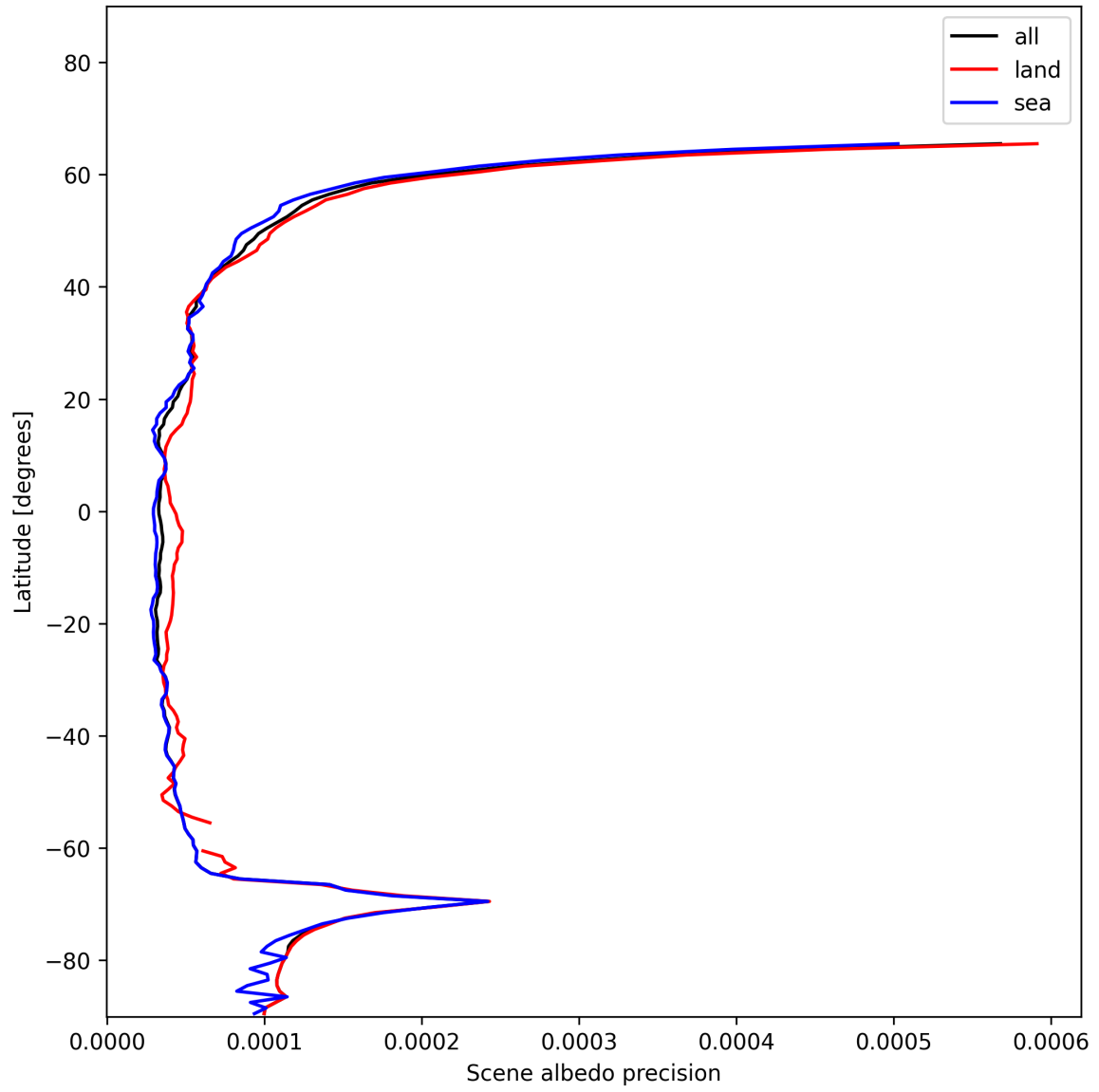


Figure 16: Zonal average of “Scene albedo precision” for 2024-12-06 to 2024-12-07.

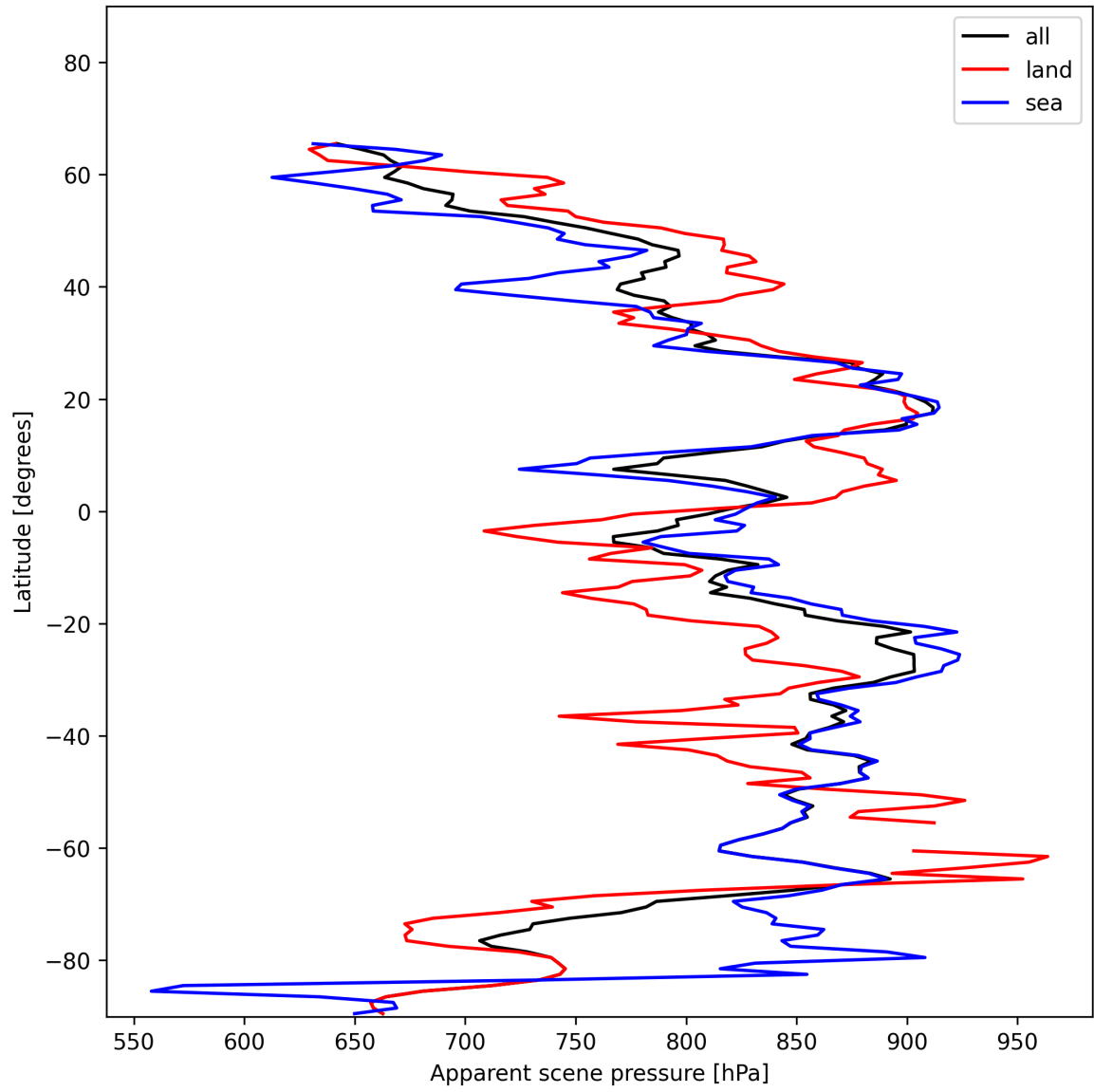


Figure 17: Zonal average of “Apparent scene pressure” for 2024-12-06 to 2024-12-07.

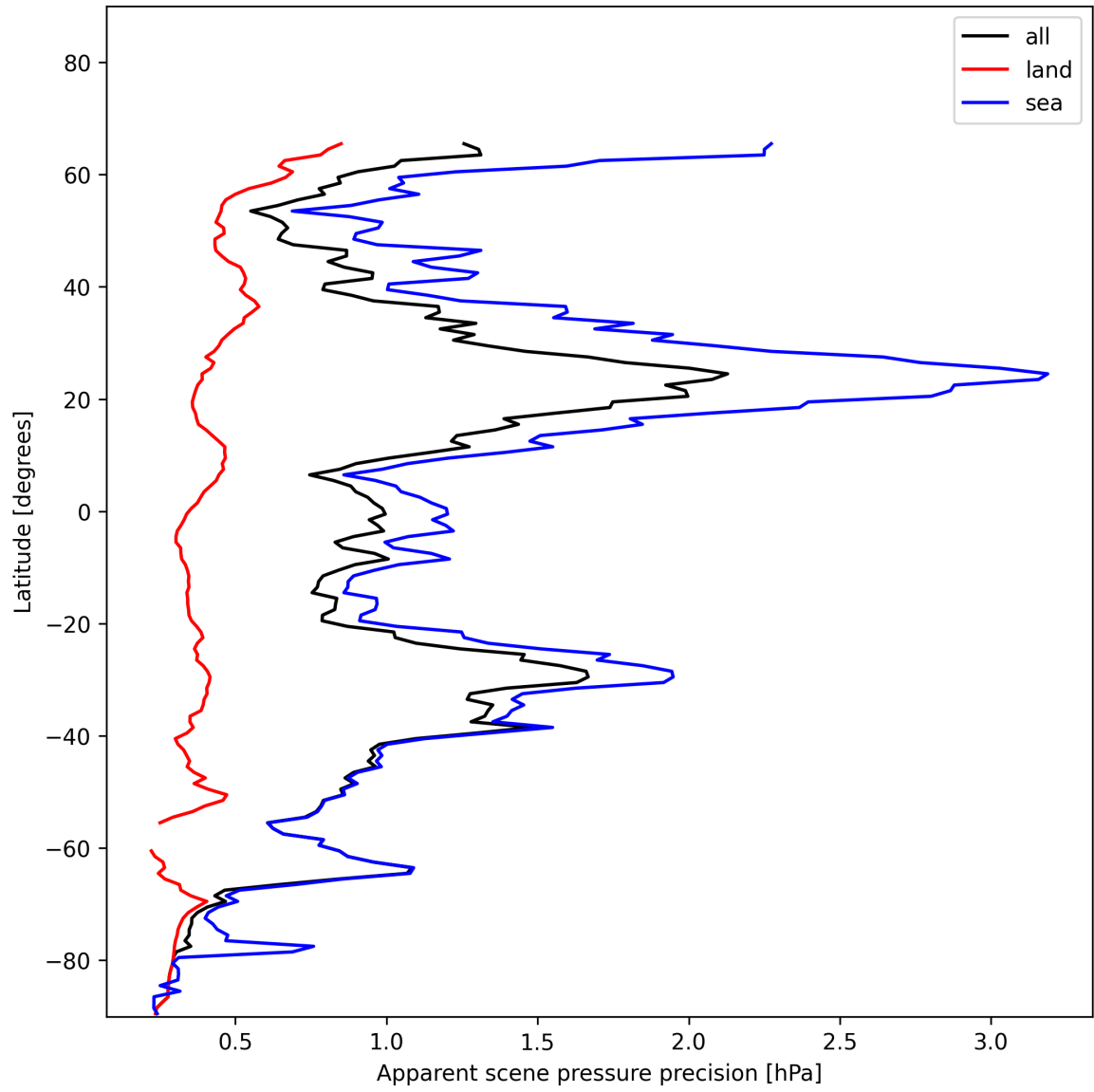


Figure 18: Zonal average of “Apparent scene pressure precision” for 2024-12-06 to 2024-12-07.

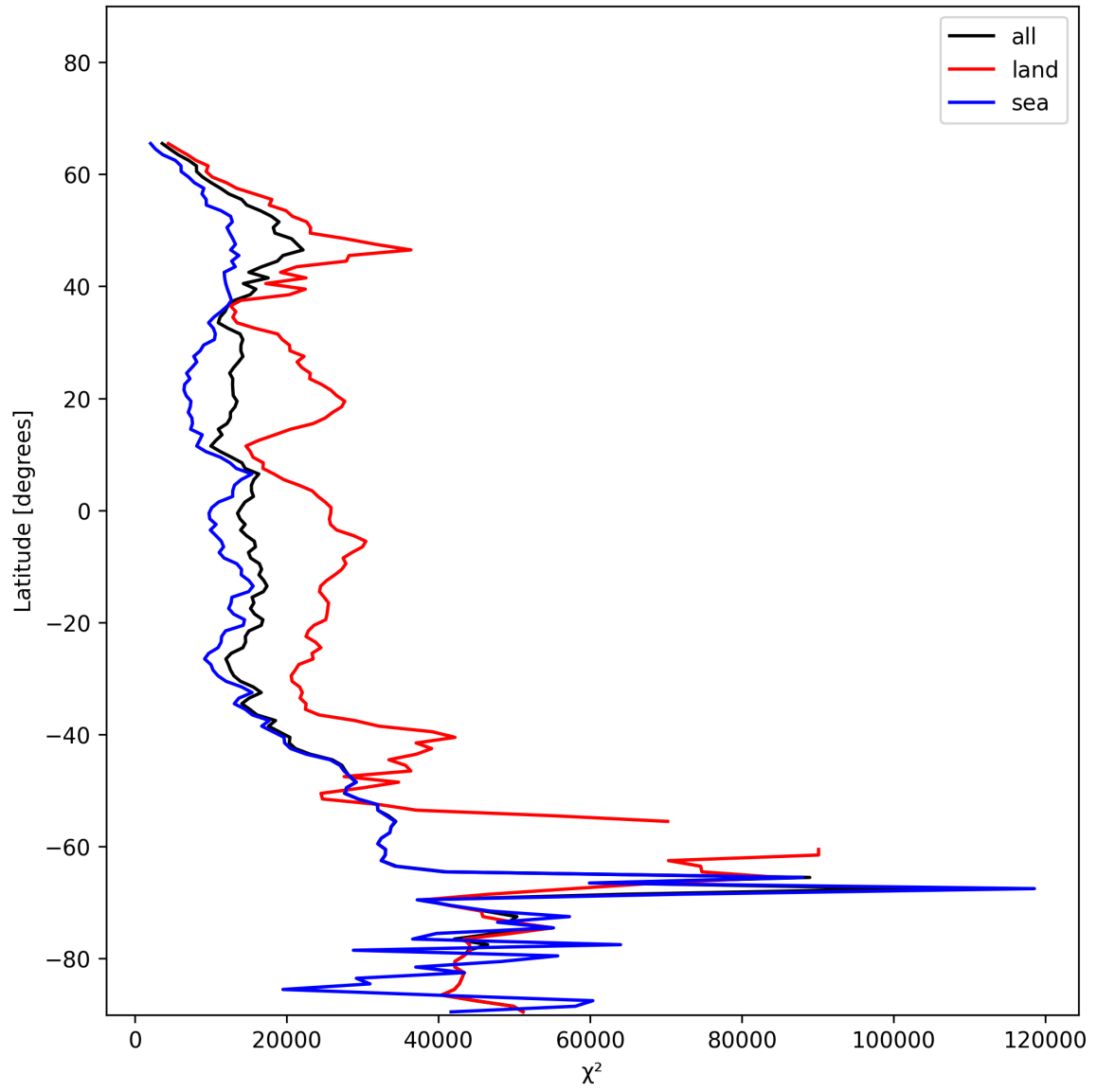


Figure 19: Zonal average of “ χ^2 ” for 2024-12-06 to 2024-12-07.

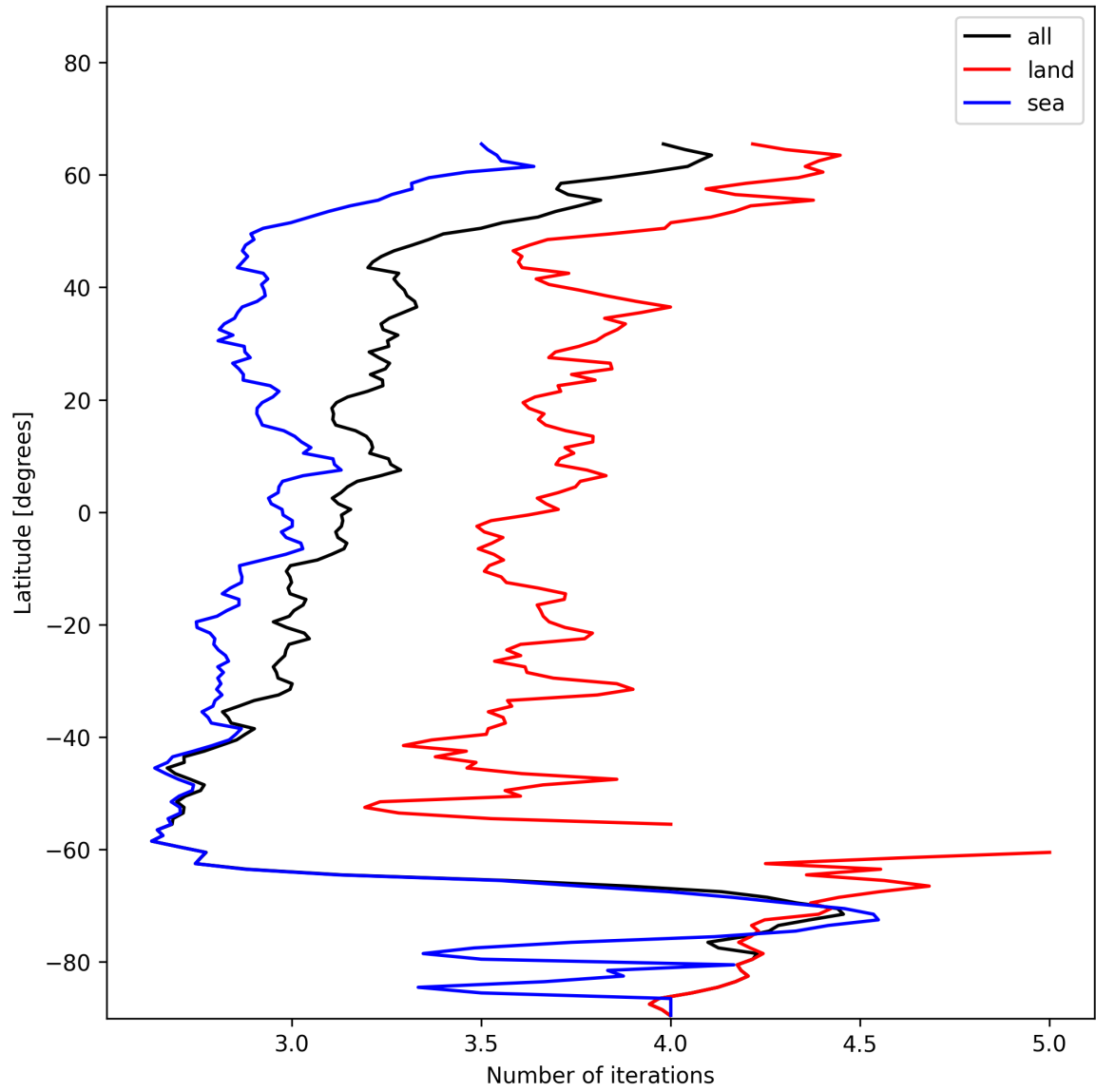


Figure 20: Zonal average of “Number of iterations” for 2024-12-06 to 2024-12-07.

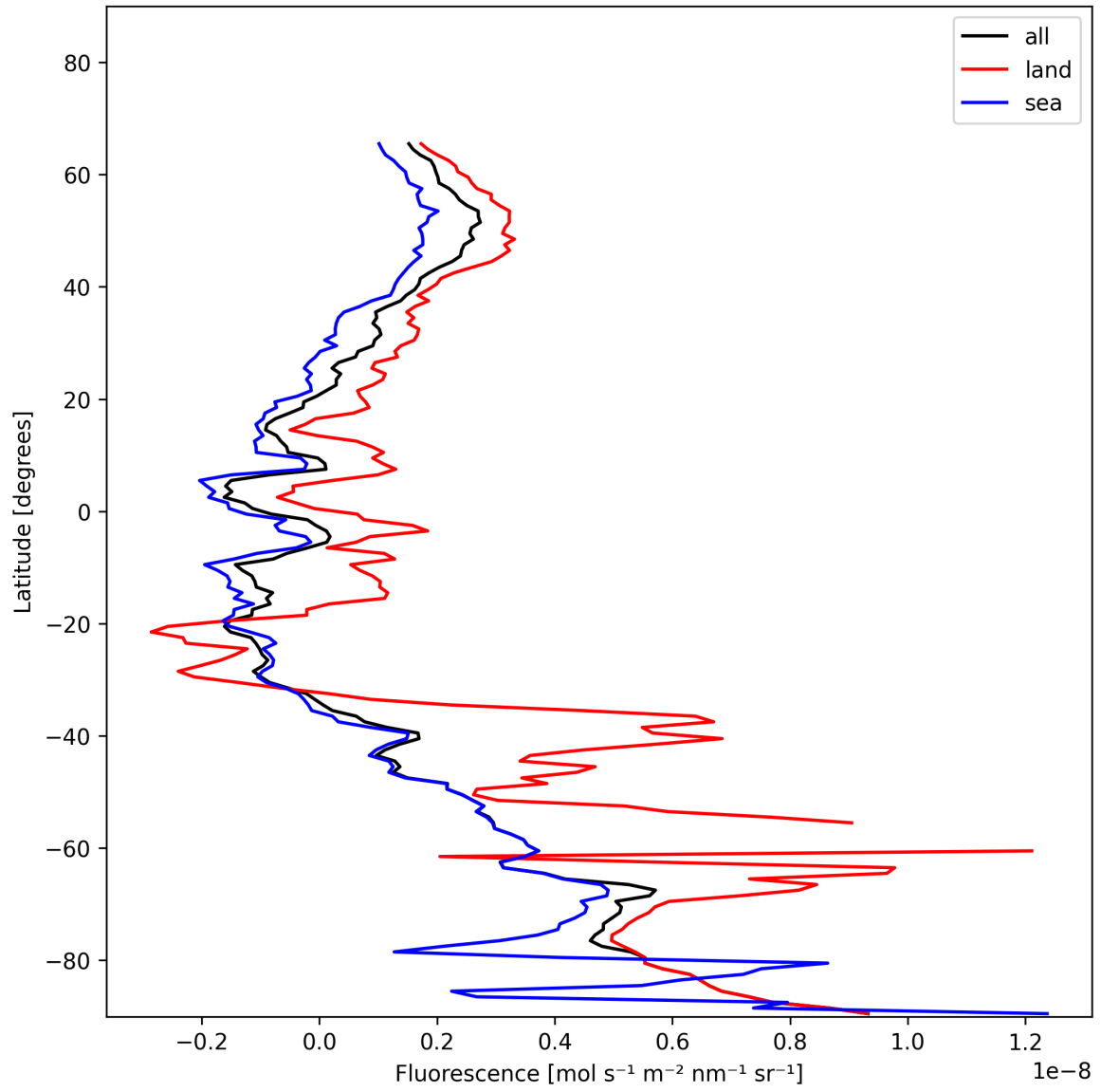


Figure 21: Zonal average of “Fluorescence” for 2024-12-06 to 2024-12-07.

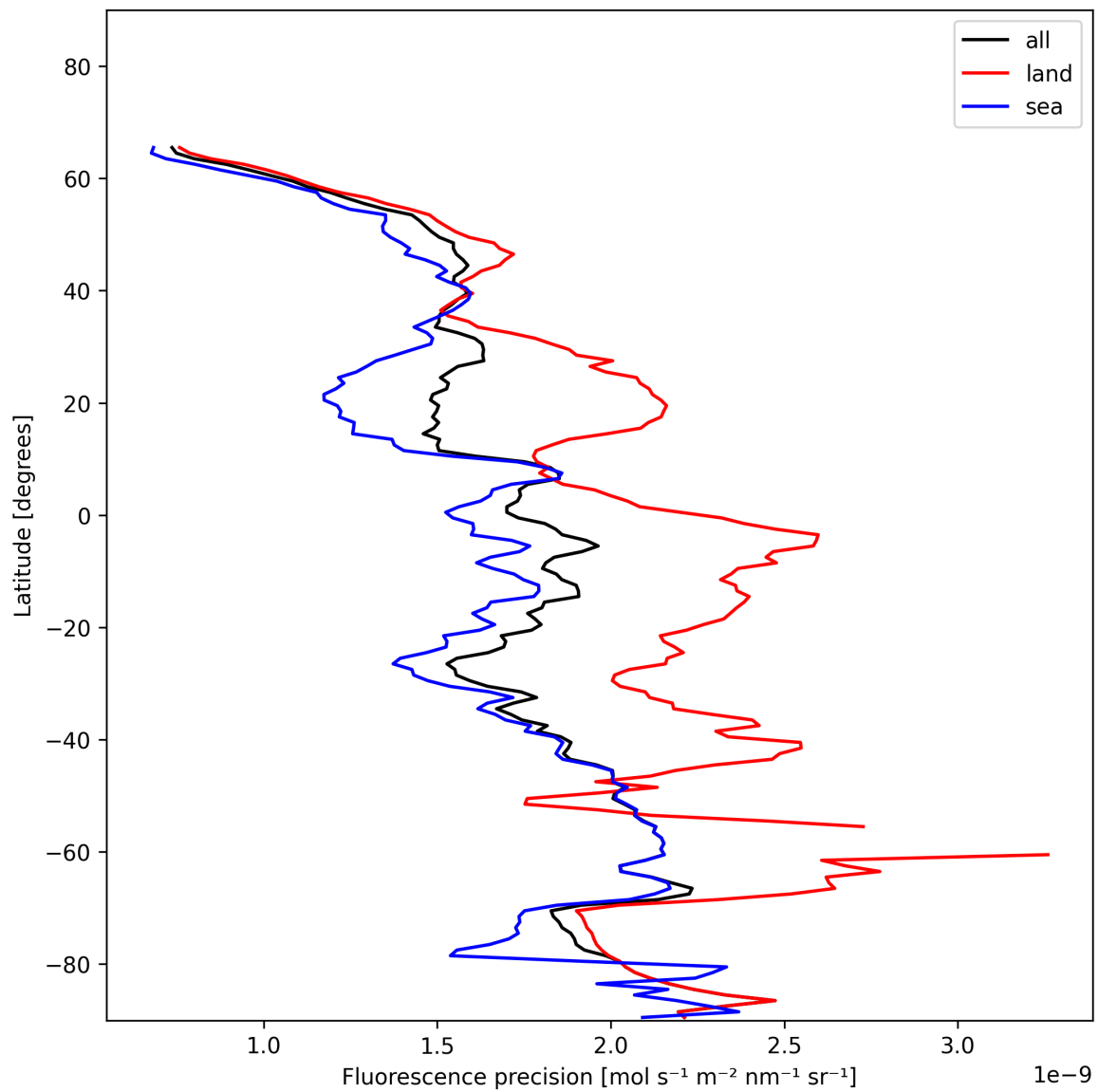


Figure 22: Zonal average of “Fluorescence precision” for 2024-12-06 to 2024-12-07.

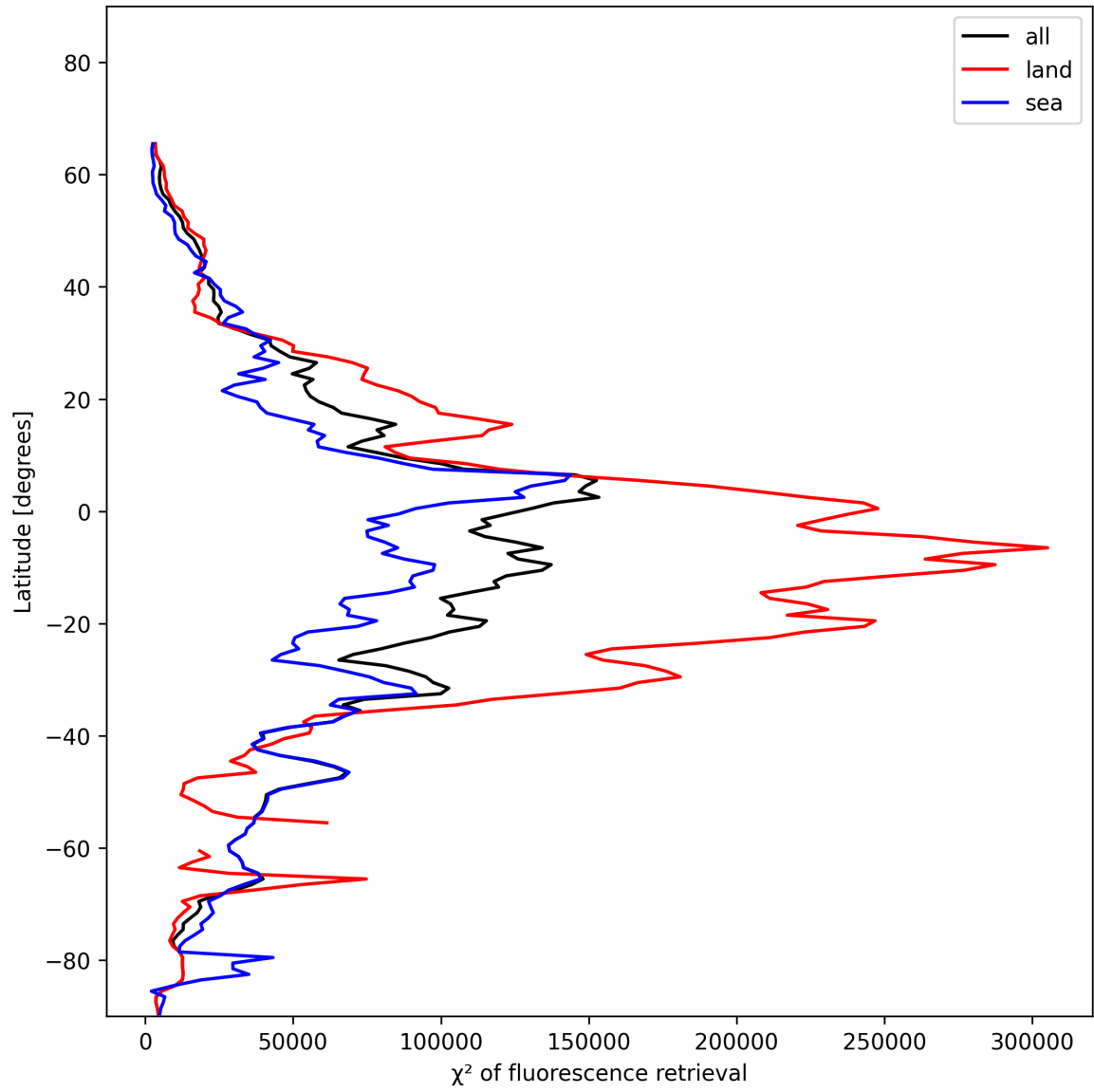


Figure 23: Zonal average of “ χ^2 of fluorescence retrieval” for 2024-12-06 to 2024-12-07.

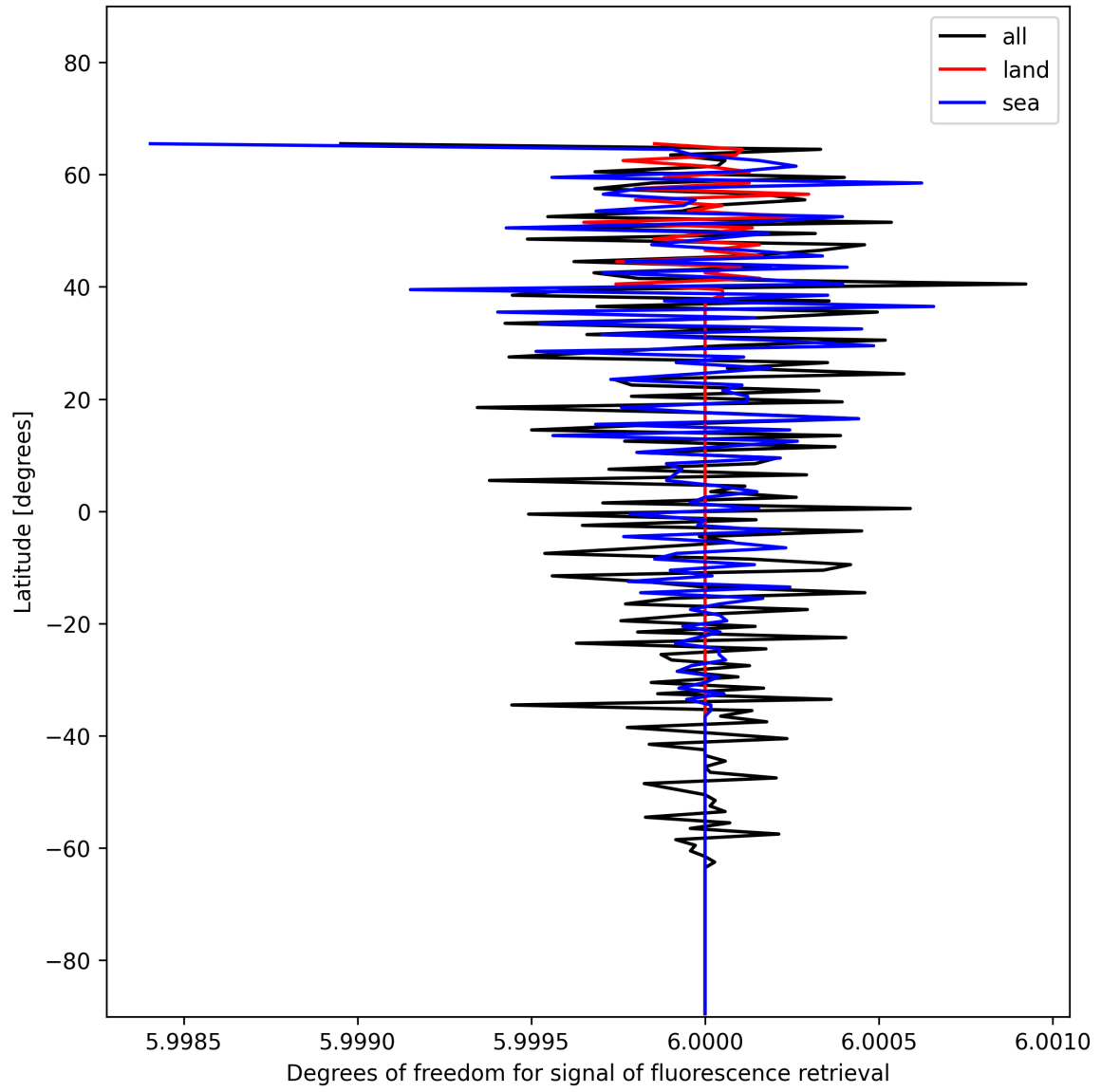


Figure 24: Zonal average of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-06 to 2024-12-07.

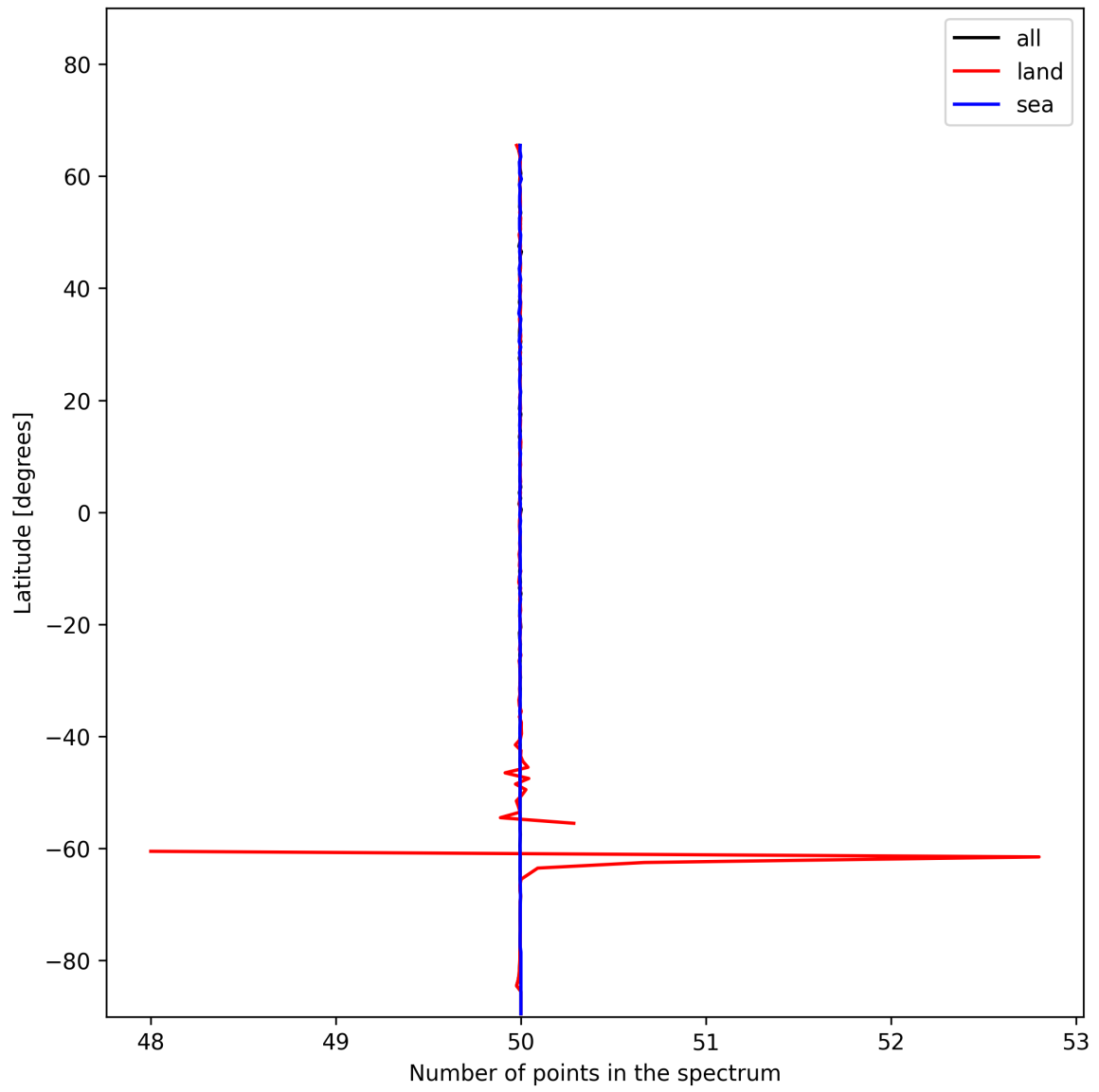


Figure 25: Zonal average of “Number of points in the spectrum” for 2024-12-06 to 2024-12-07.

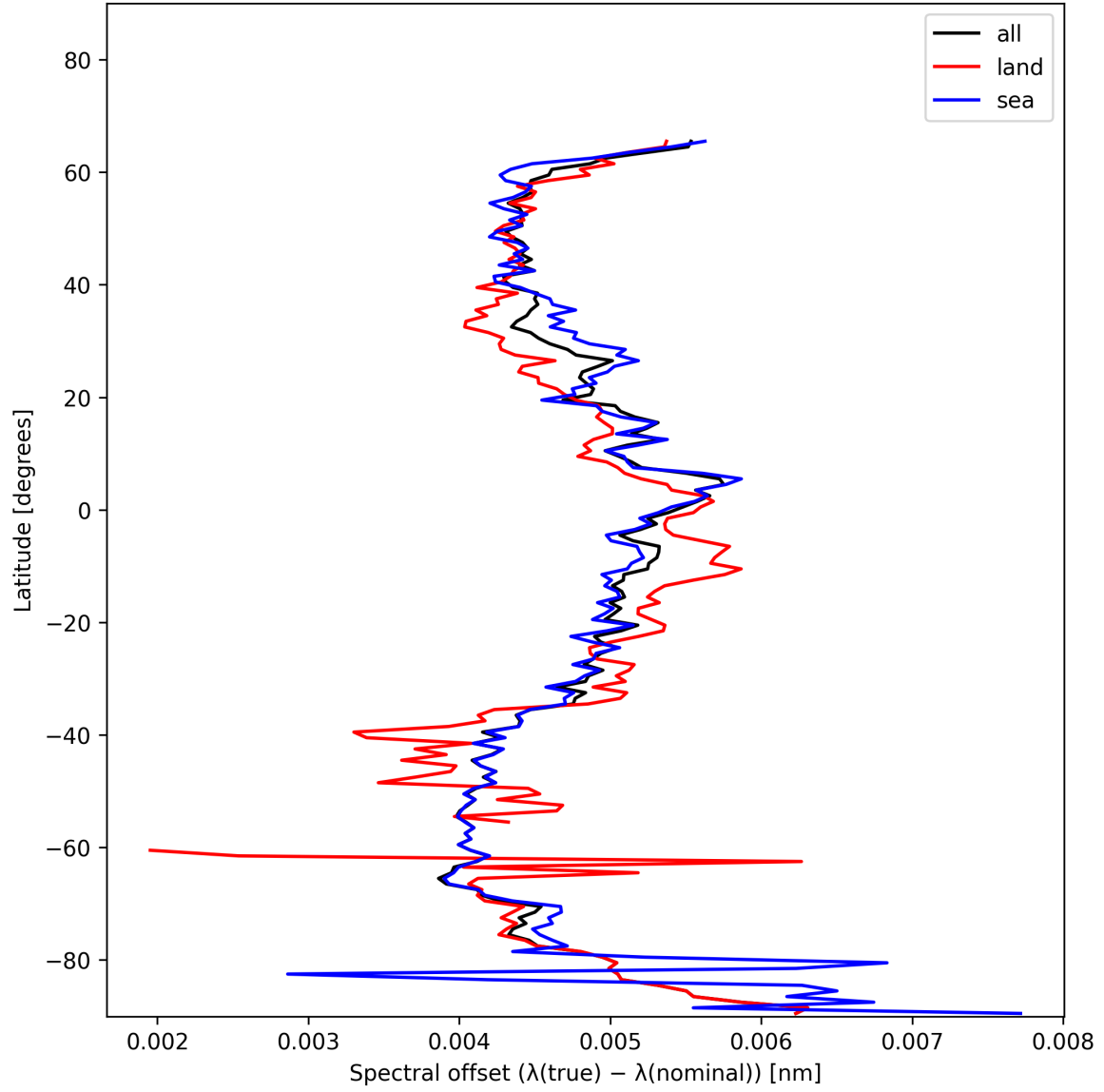


Figure 26: Zonal average of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-06 to 2024-12-07.

8 Histograms

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

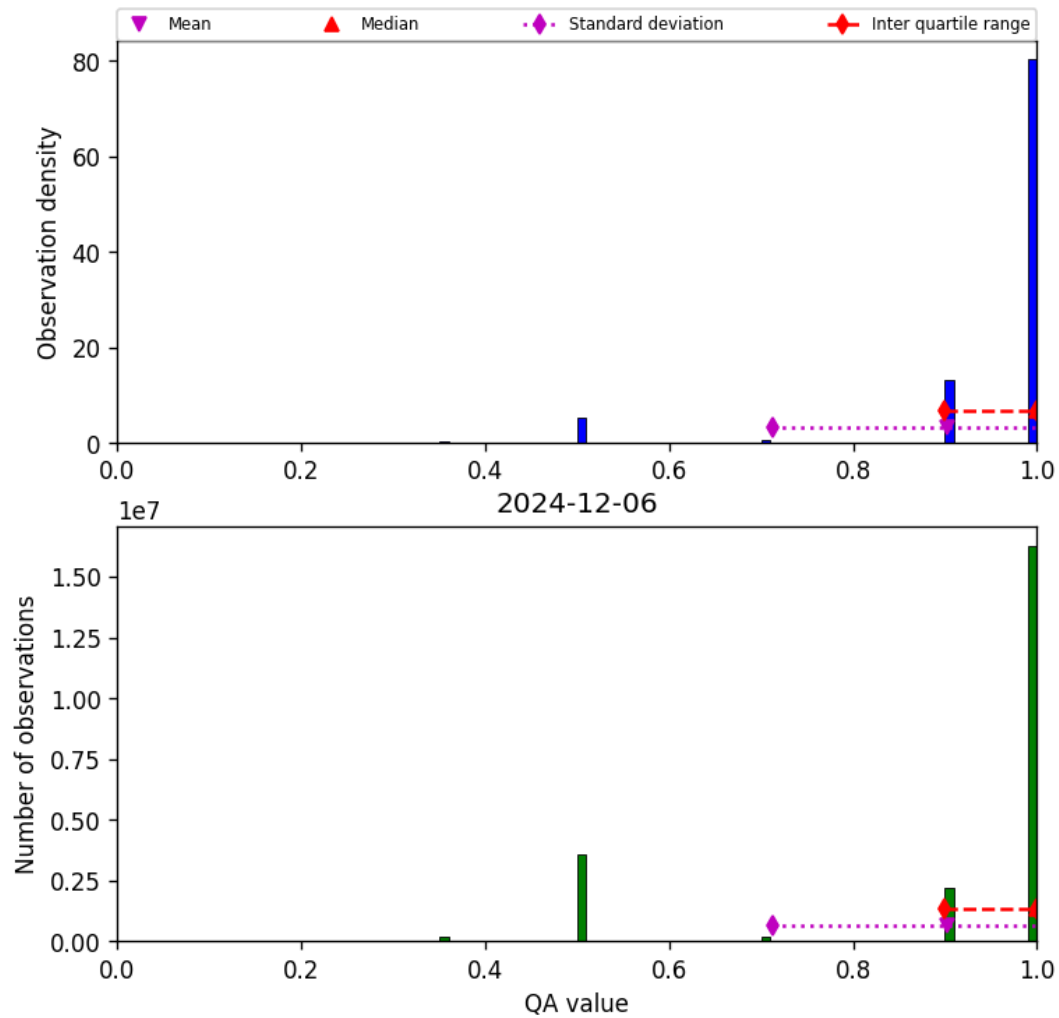


Figure 27: Histogram of “QA value” for 2024-12-06 to 2024-12-07

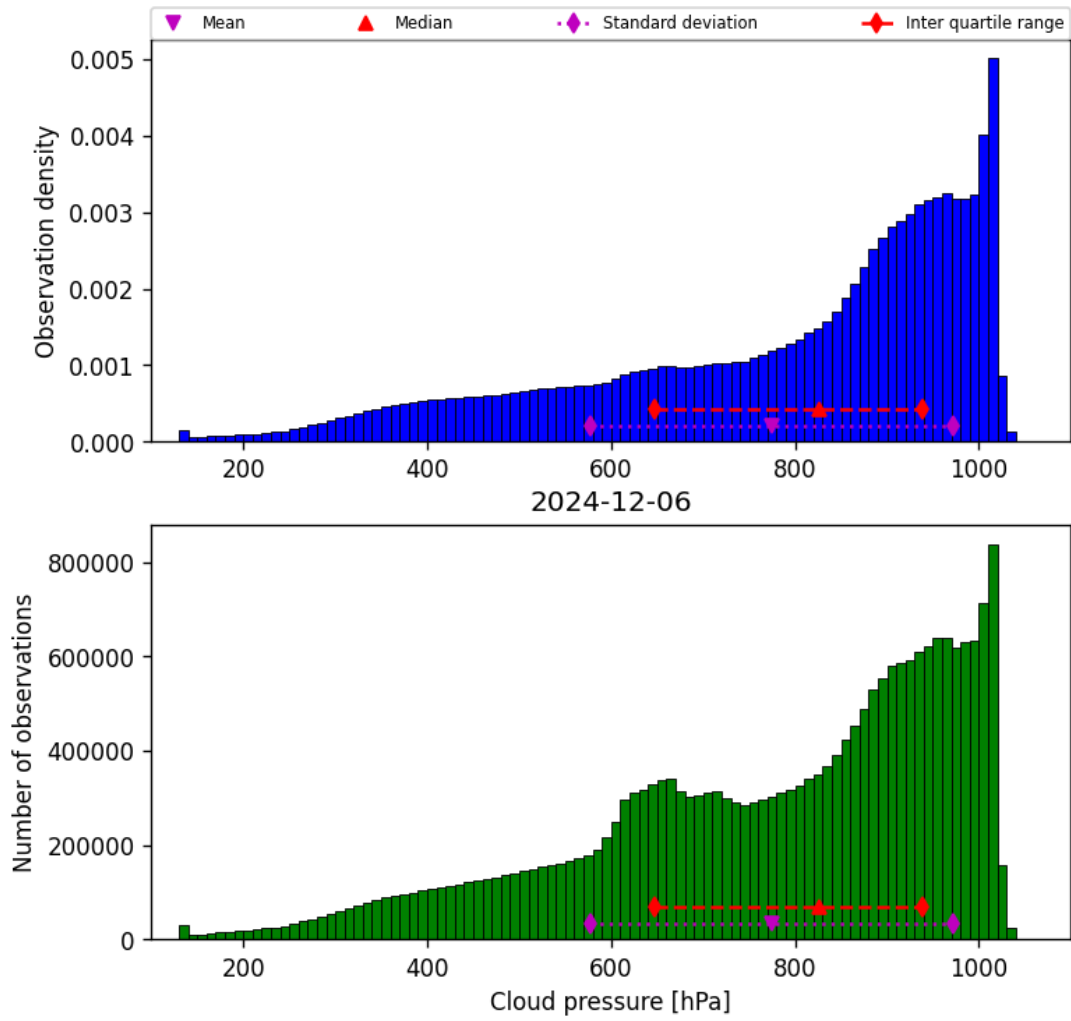


Figure 28: Histogram of “Cloud pressure” for 2024-12-06 to 2024-12-07

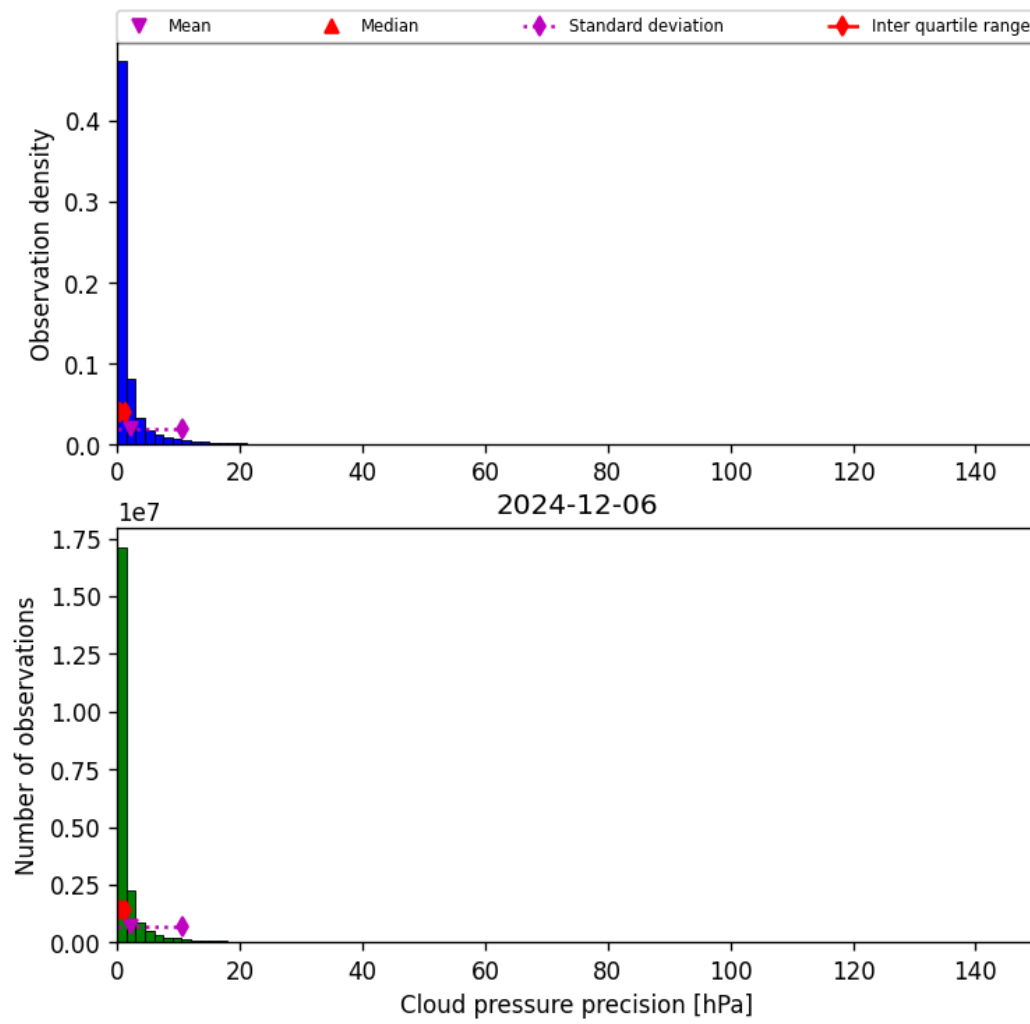


Figure 29: Histogram of “Cloud pressure precision” for 2024-12-06 to 2024-12-07

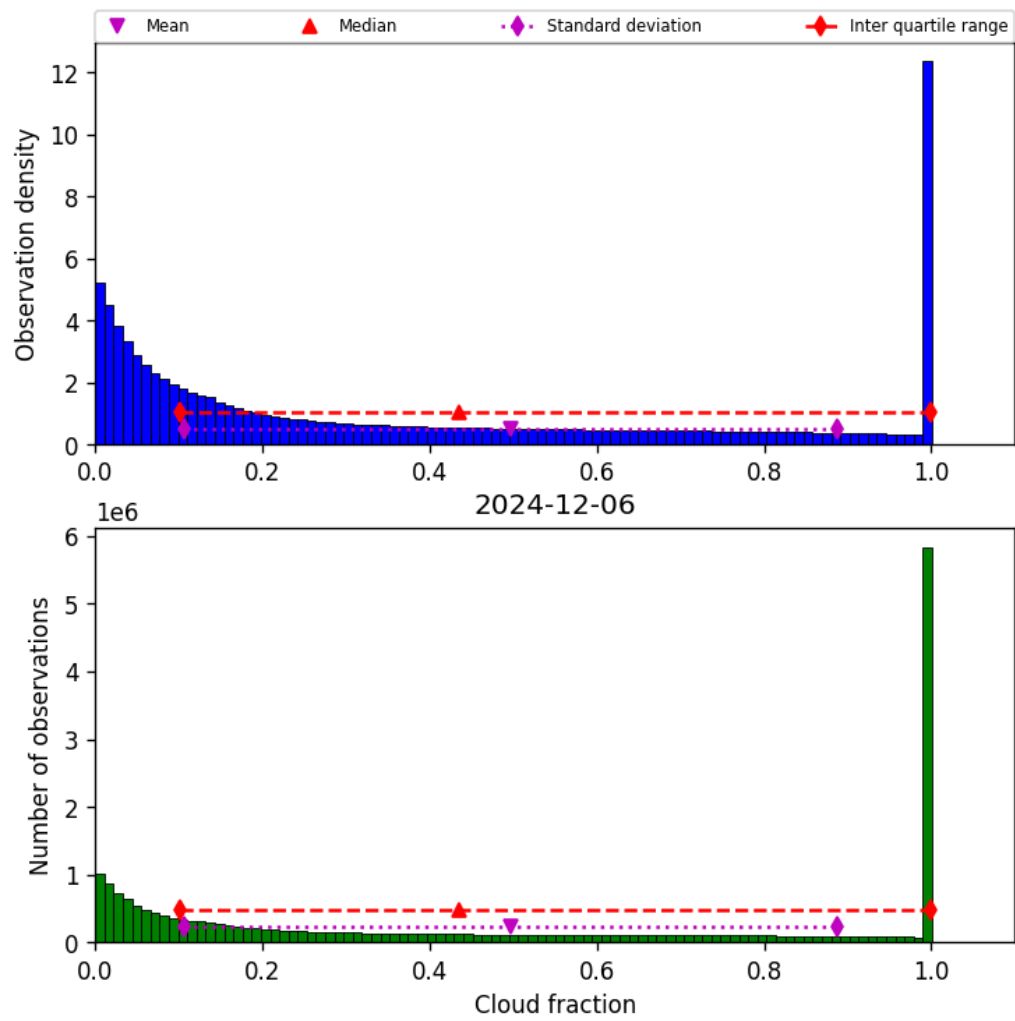


Figure 30: Histogram of “Cloud fraction” for 2024-12-06 to 2024-12-07

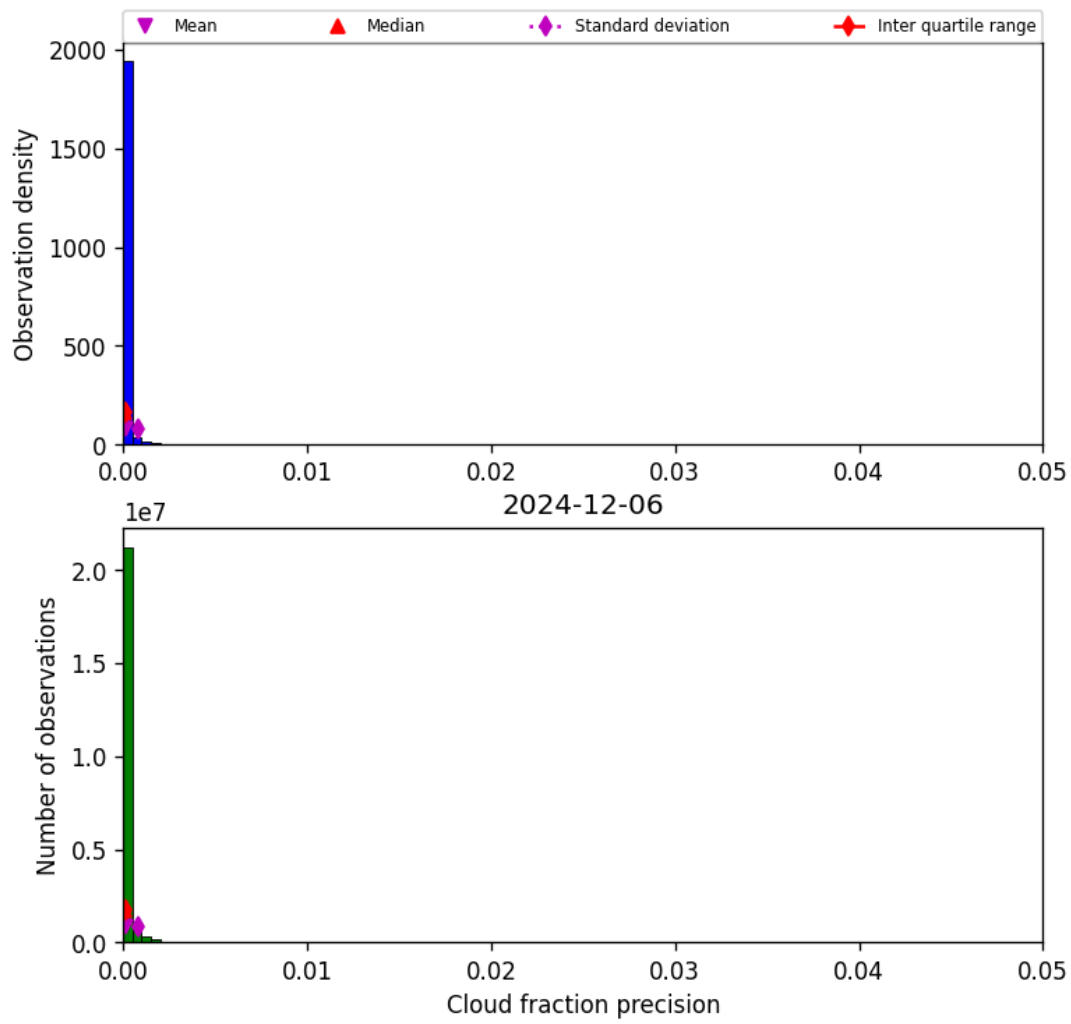


Figure 31: Histogram of “Cloud fraction precision” for 2024-12-06 to 2024-12-07

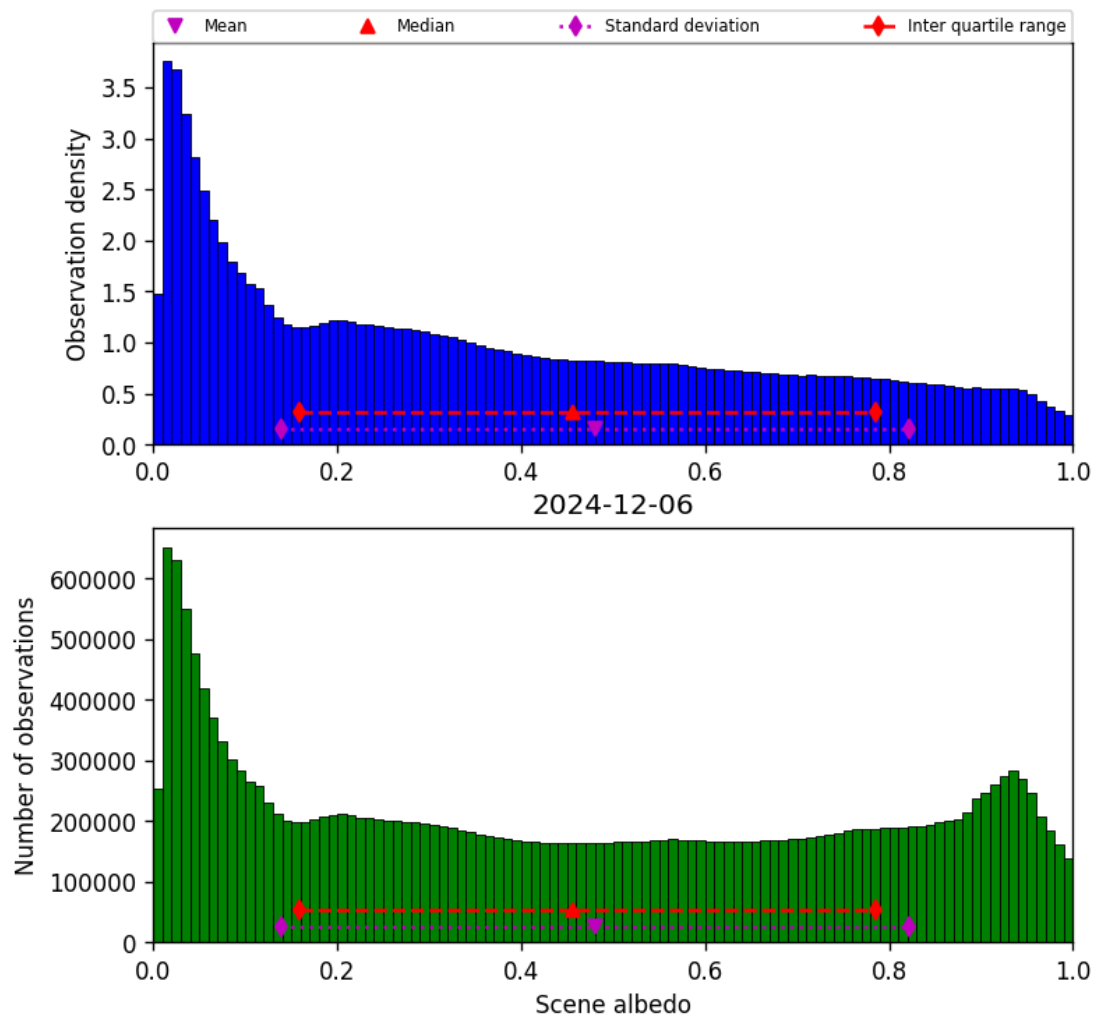


Figure 32: Histogram of “Scene albedo” for 2024-12-06 to 2024-12-07

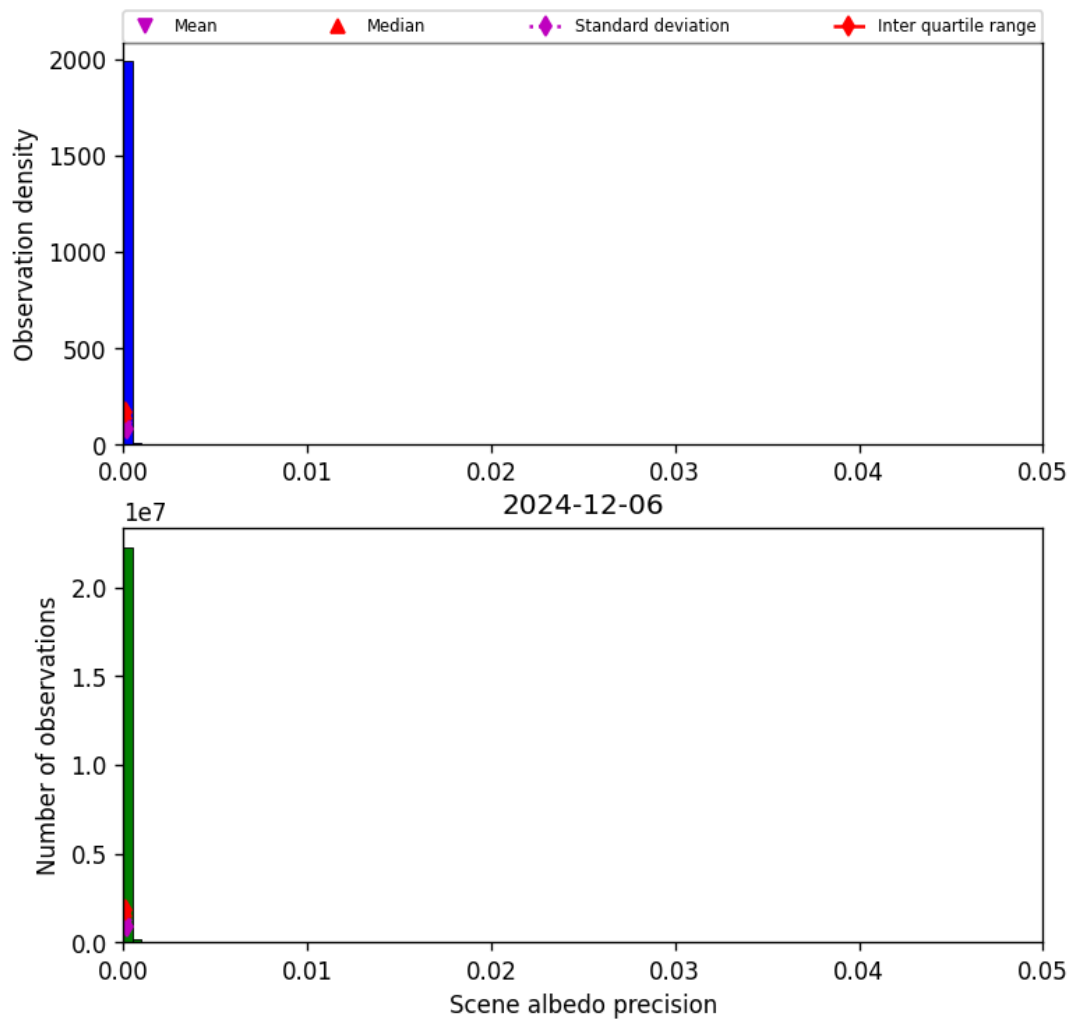


Figure 33: Histogram of “Scene albedo precision” for 2024-12-06 to 2024-12-07

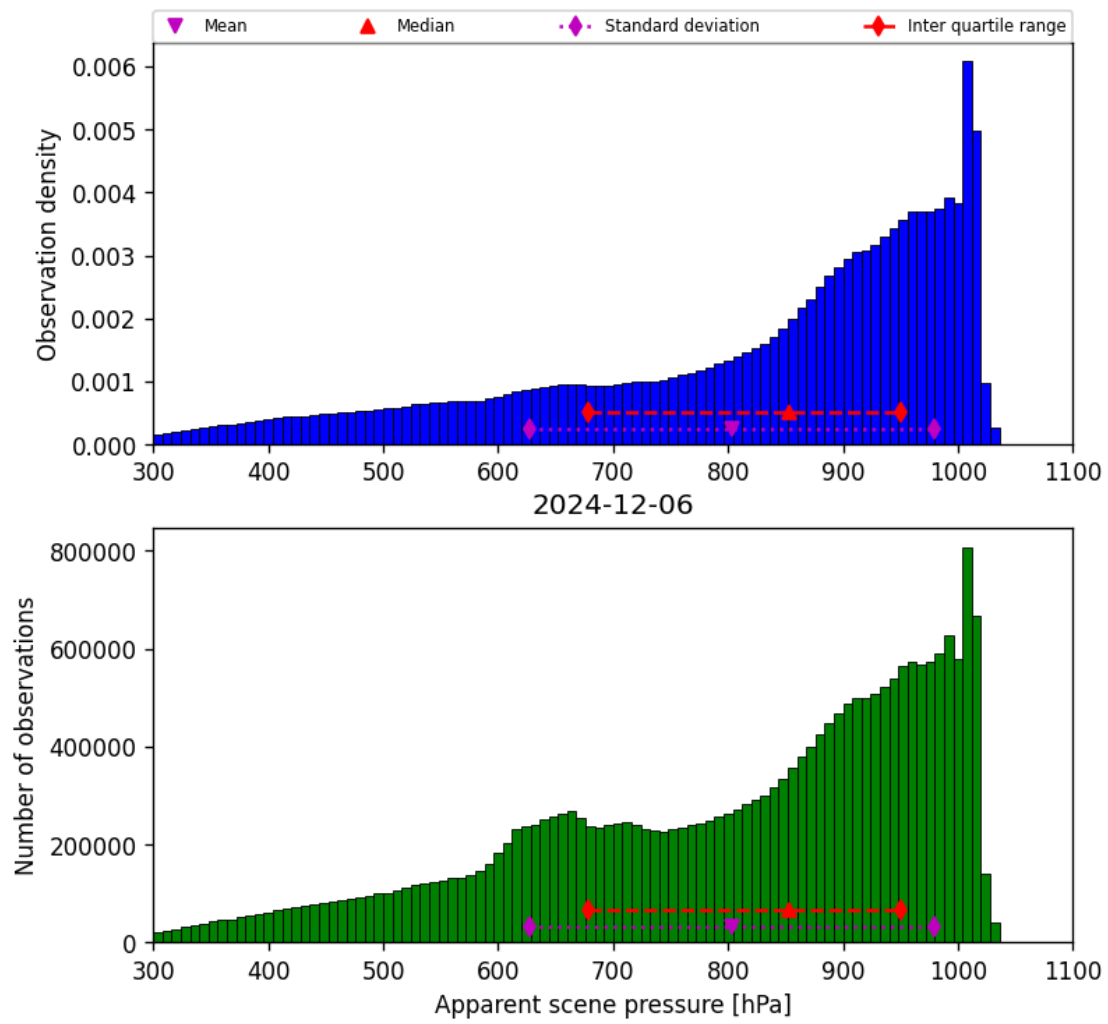


Figure 34: Histogram of “Apparent scene pressure” for 2024-12-06 to 2024-12-07

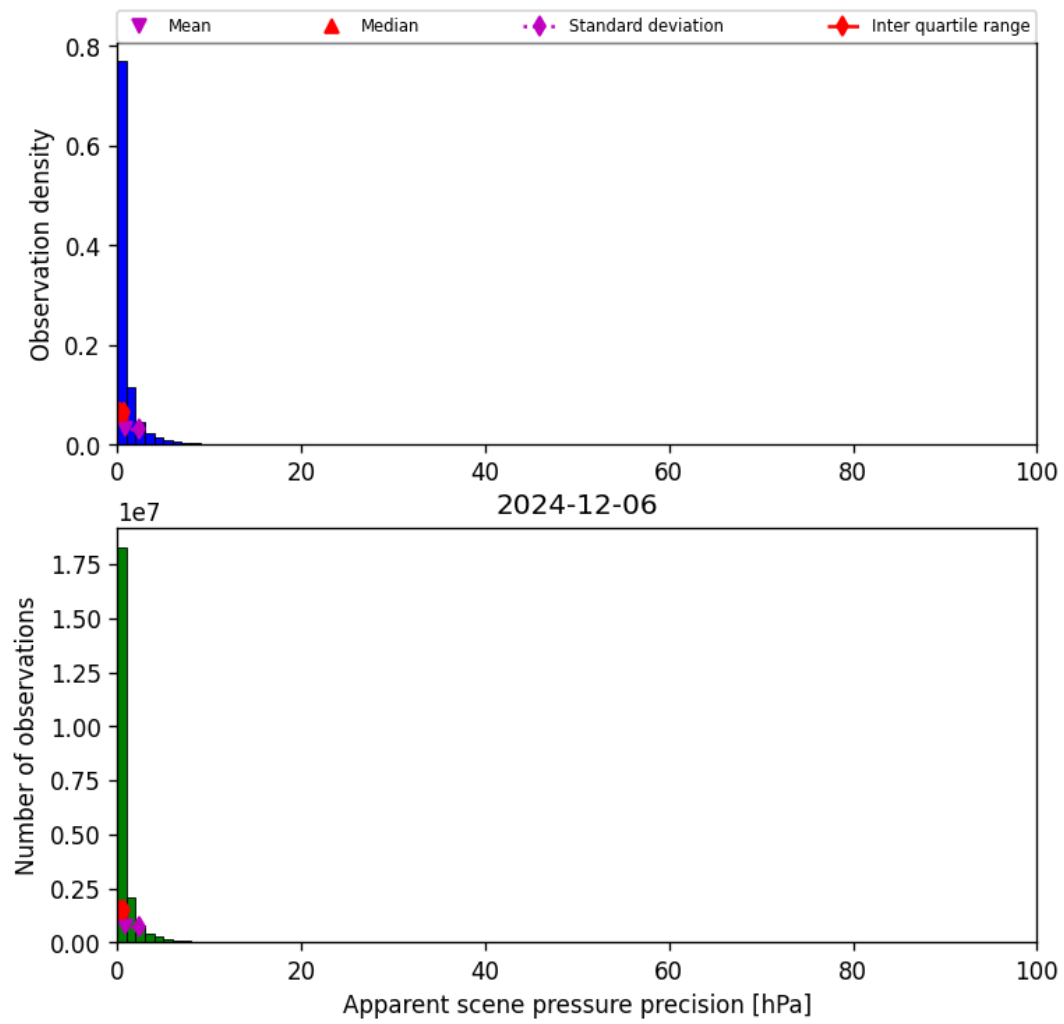


Figure 35: Histogram of “Apparent scene pressure precision” for 2024-12-06 to 2024-12-07

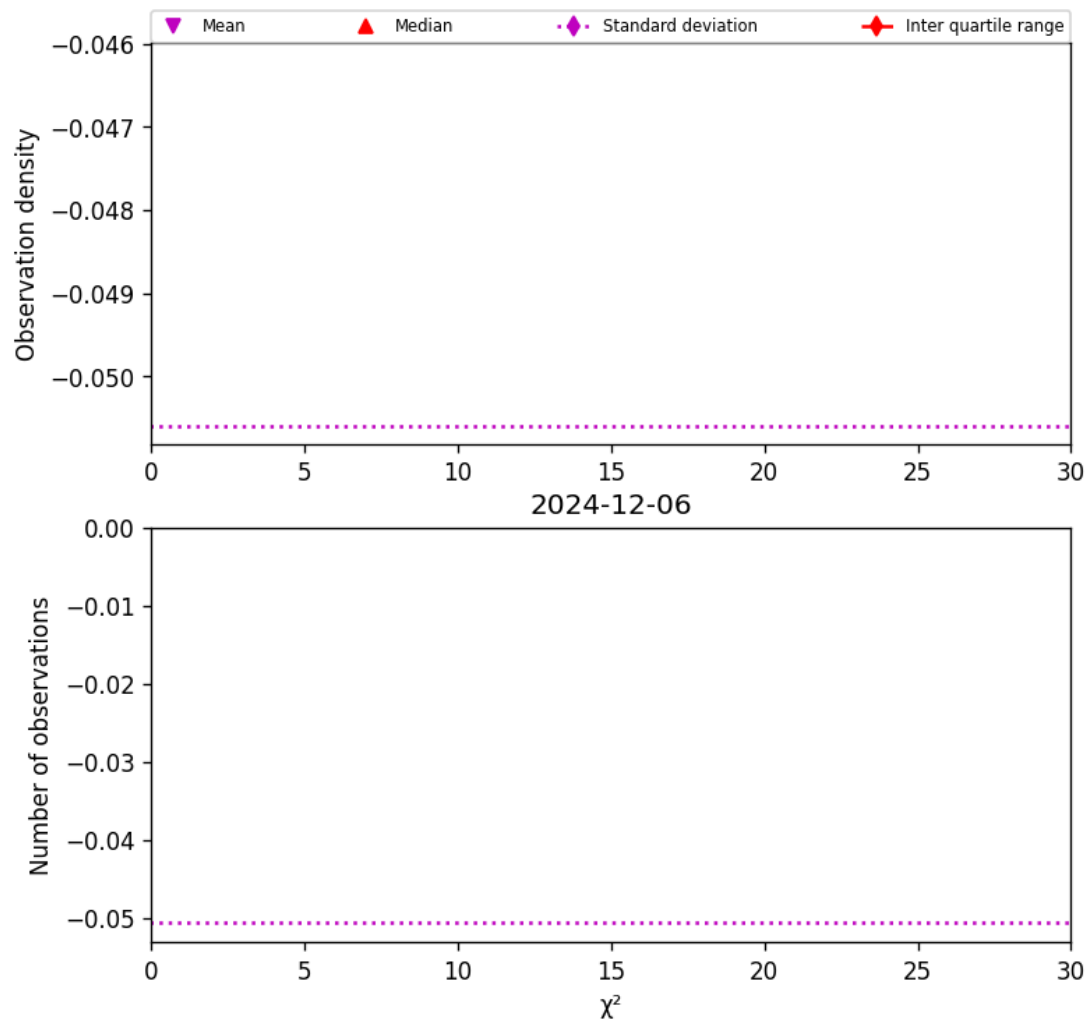


Figure 36: Histogram of " χ^2 " for 2024-12-06 to 2024-12-07

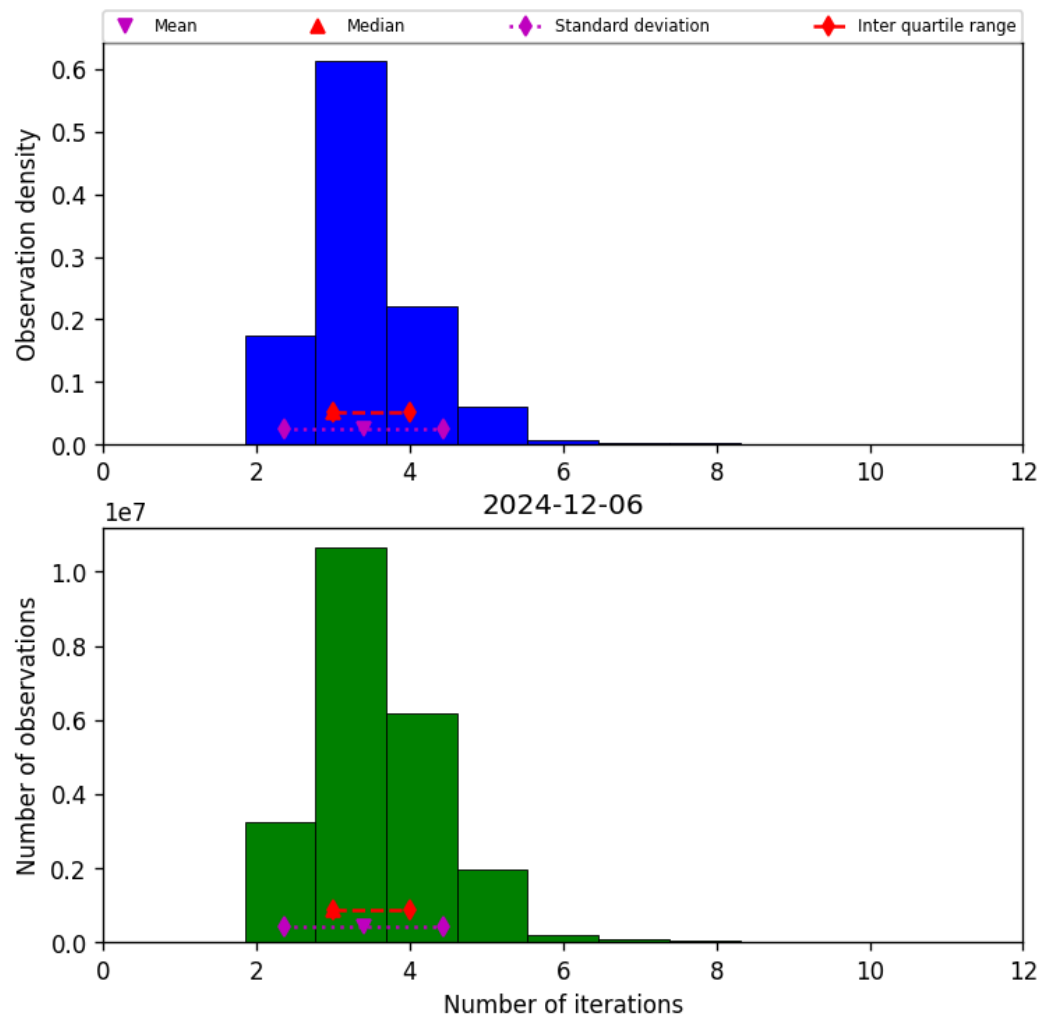


Figure 37: Histogram of “Number of iterations” for 2024-12-06 to 2024-12-07

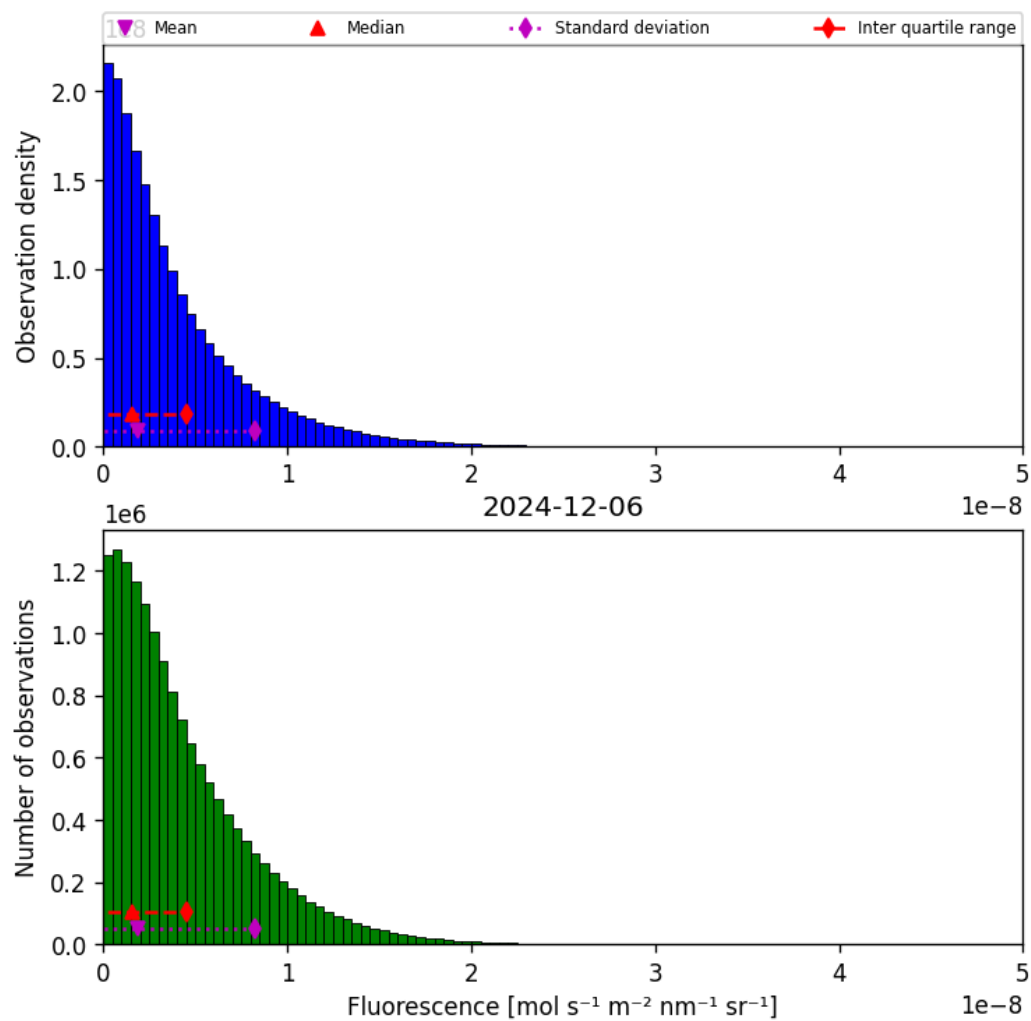


Figure 38: Histogram of “Fluorescence” for 2024-12-06 to 2024-12-07

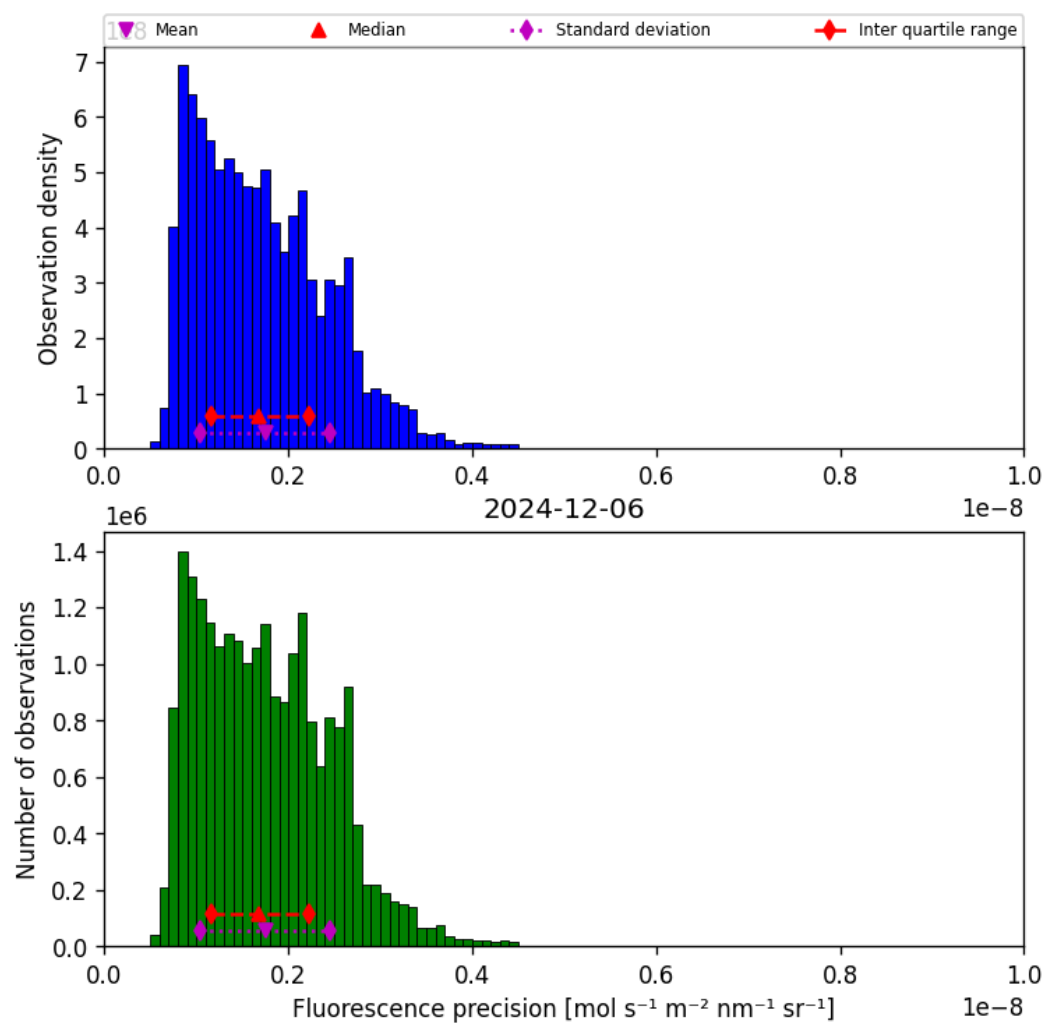


Figure 39: Histogram of “Fluorescence precision” for 2024-12-06 to 2024-12-07

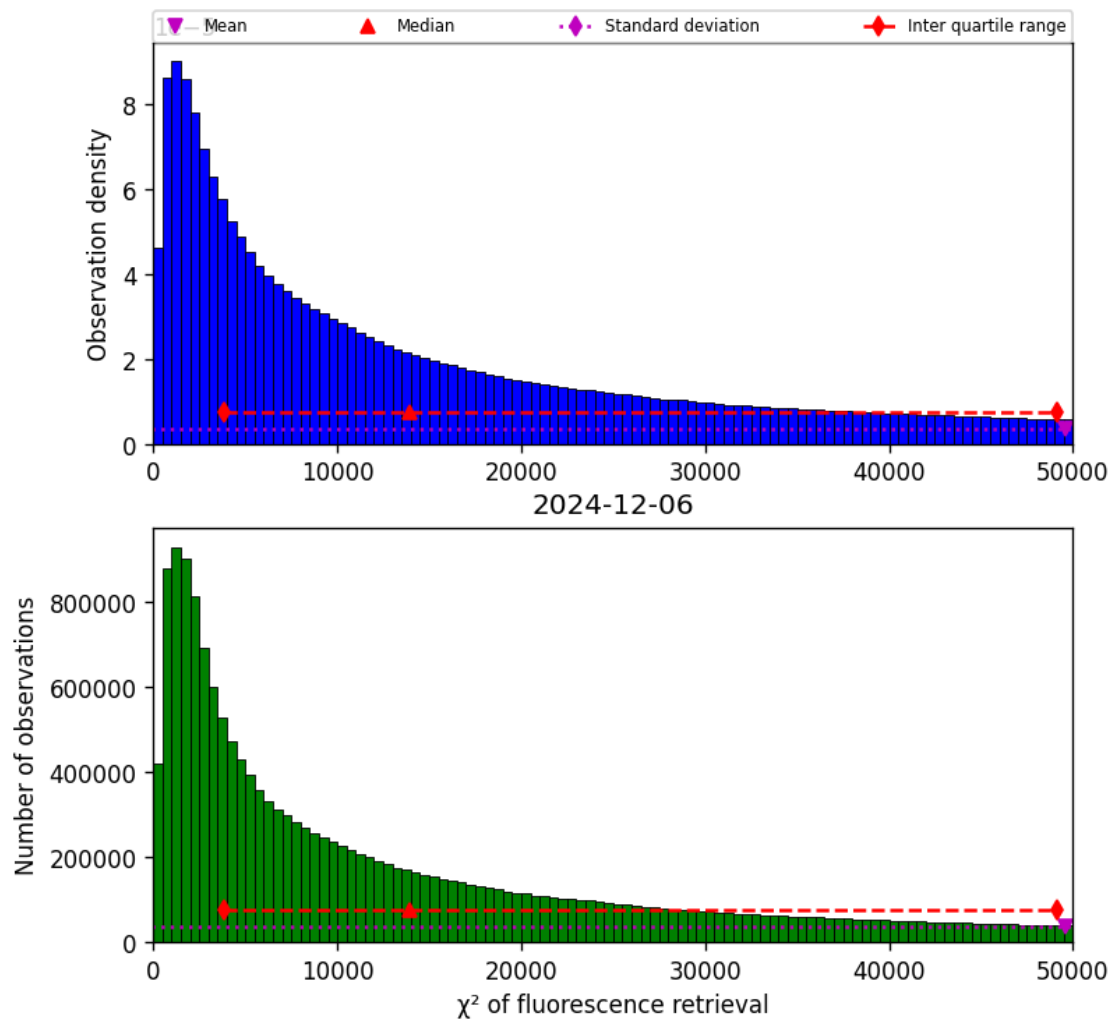


Figure 40: Histogram of “ χ^2 of fluorescence retrieval” for 2024-12-06 to 2024-12-07

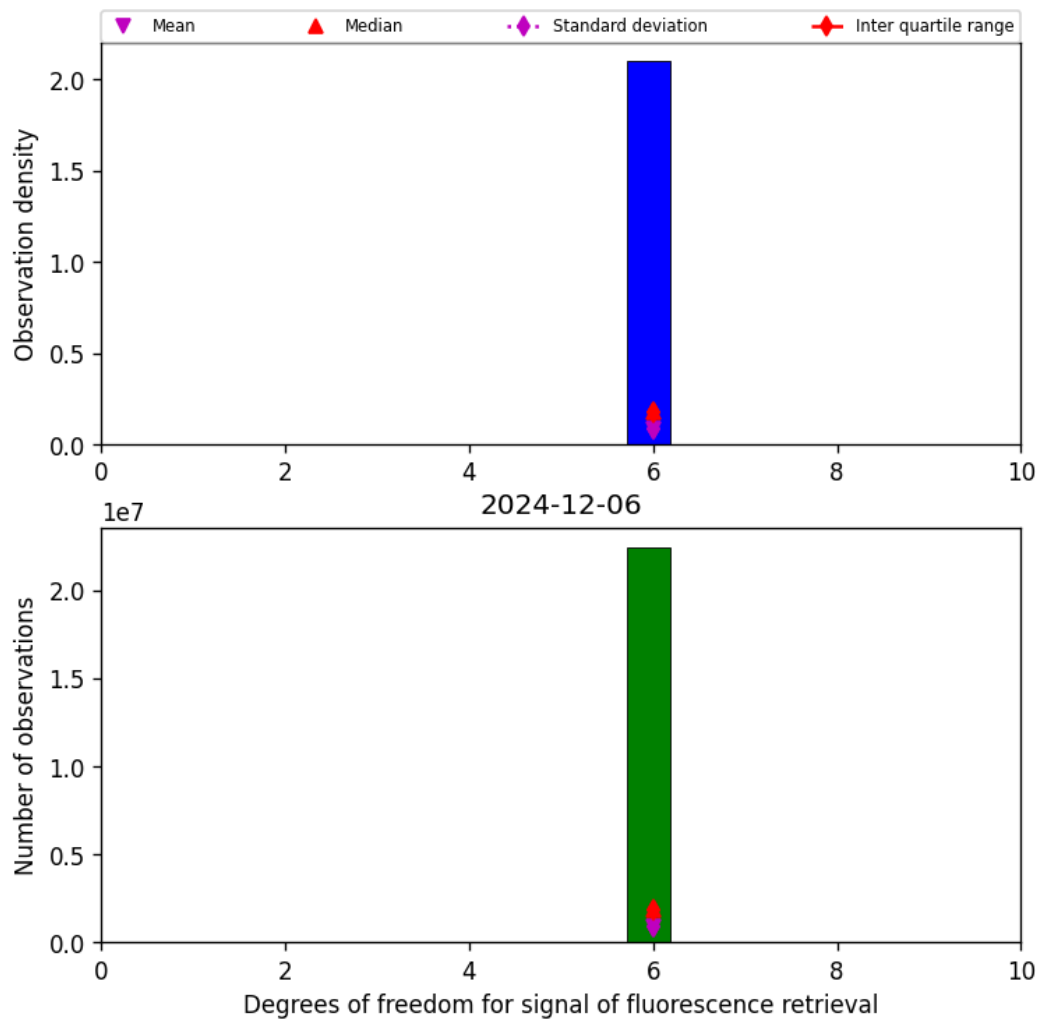


Figure 41: Histogram of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-06 to 2024-12-07

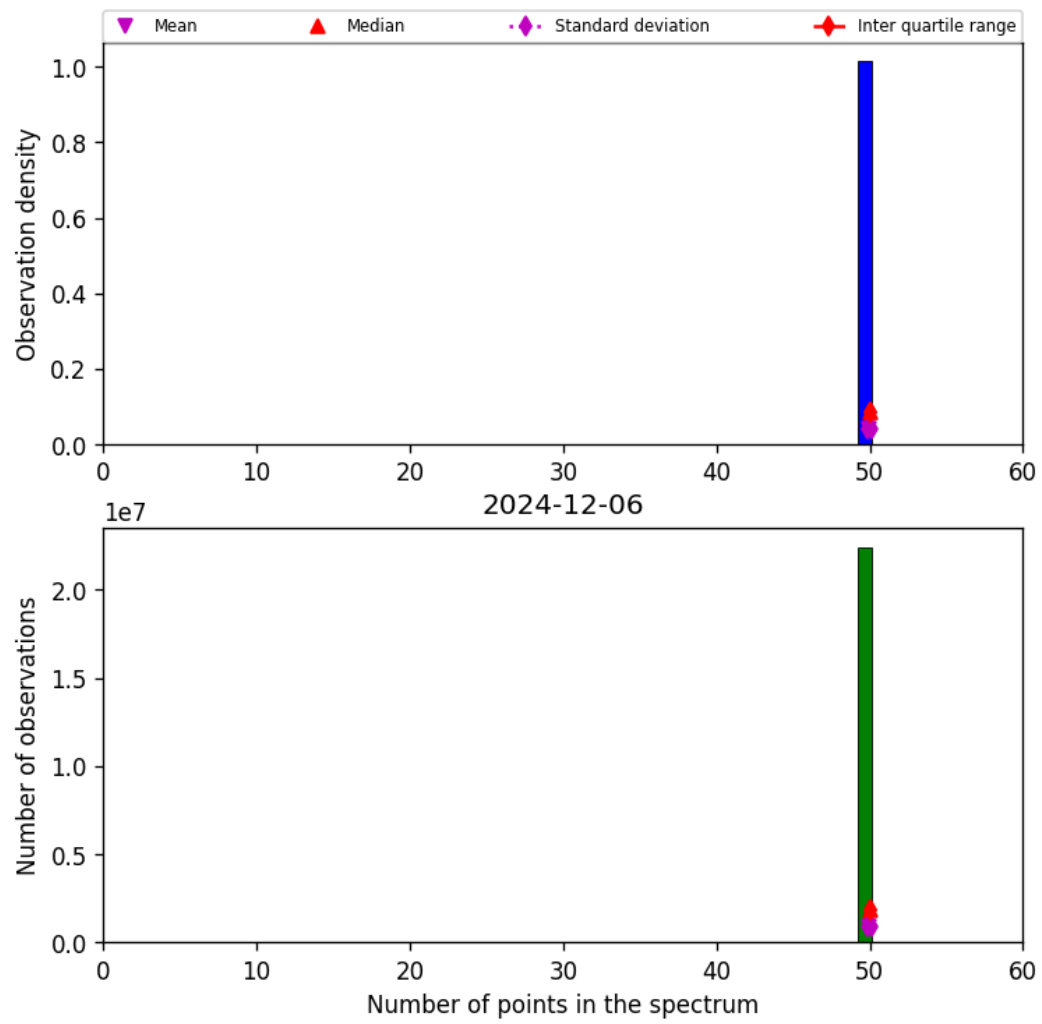


Figure 42: Histogram of “Number of points in the spectrum” for 2024-12-06 to 2024-12-07

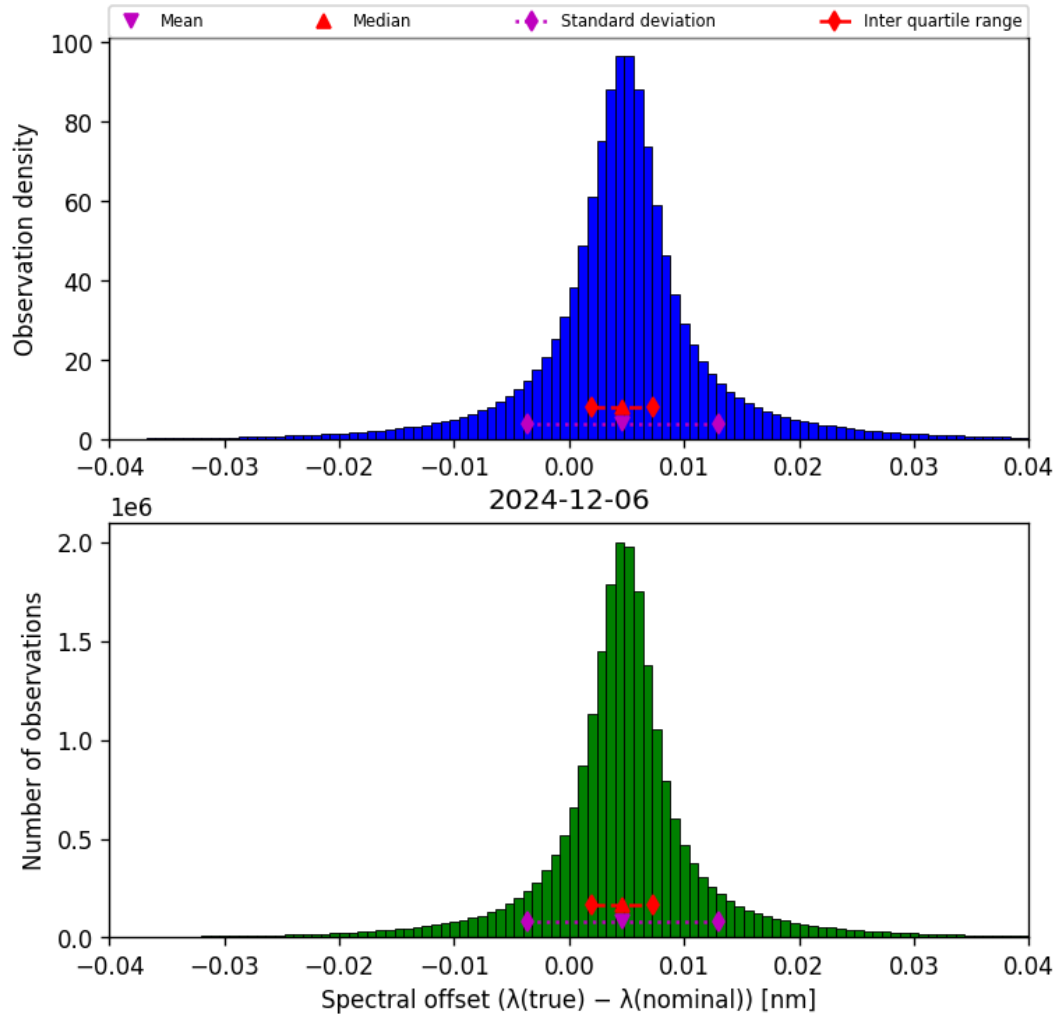


Figure 43: Histogram of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-06 to 2024-12-07

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.

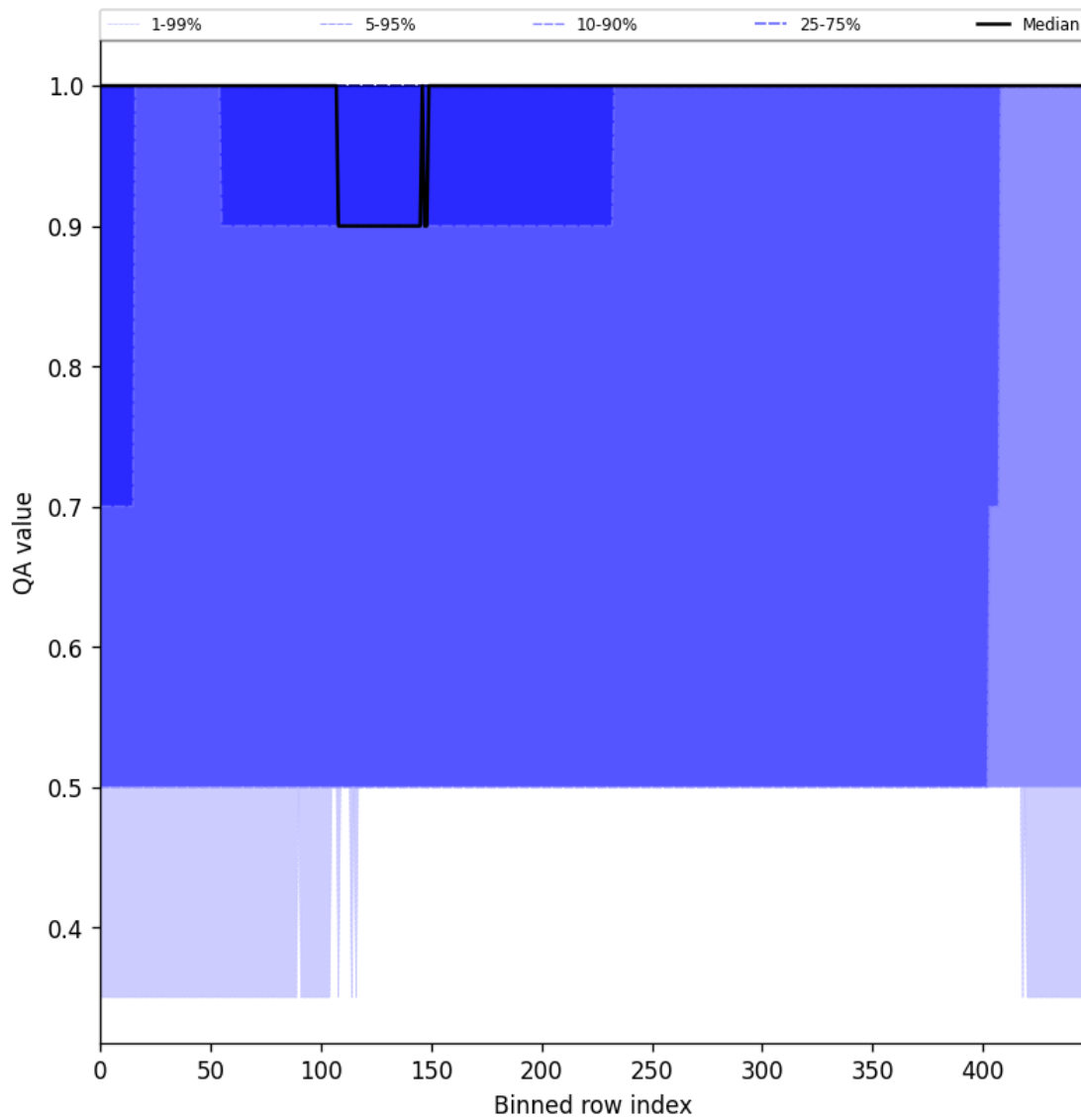


Figure 44: Along track statistics of “QA value” for 2024-12-06 to 2024-12-07

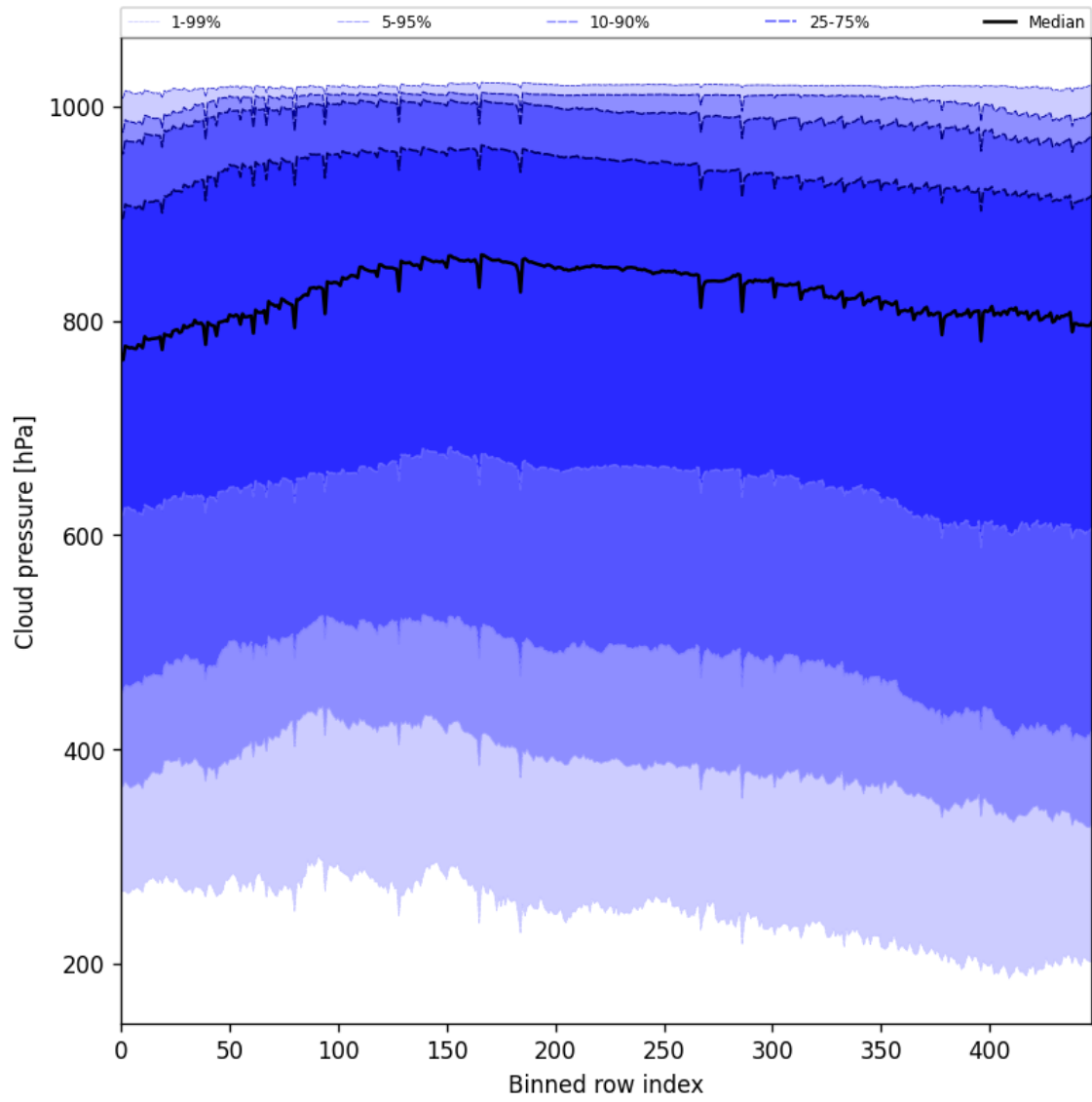


Figure 45: Along track statistics of “Cloud pressure” for 2024-12-06 to 2024-12-07

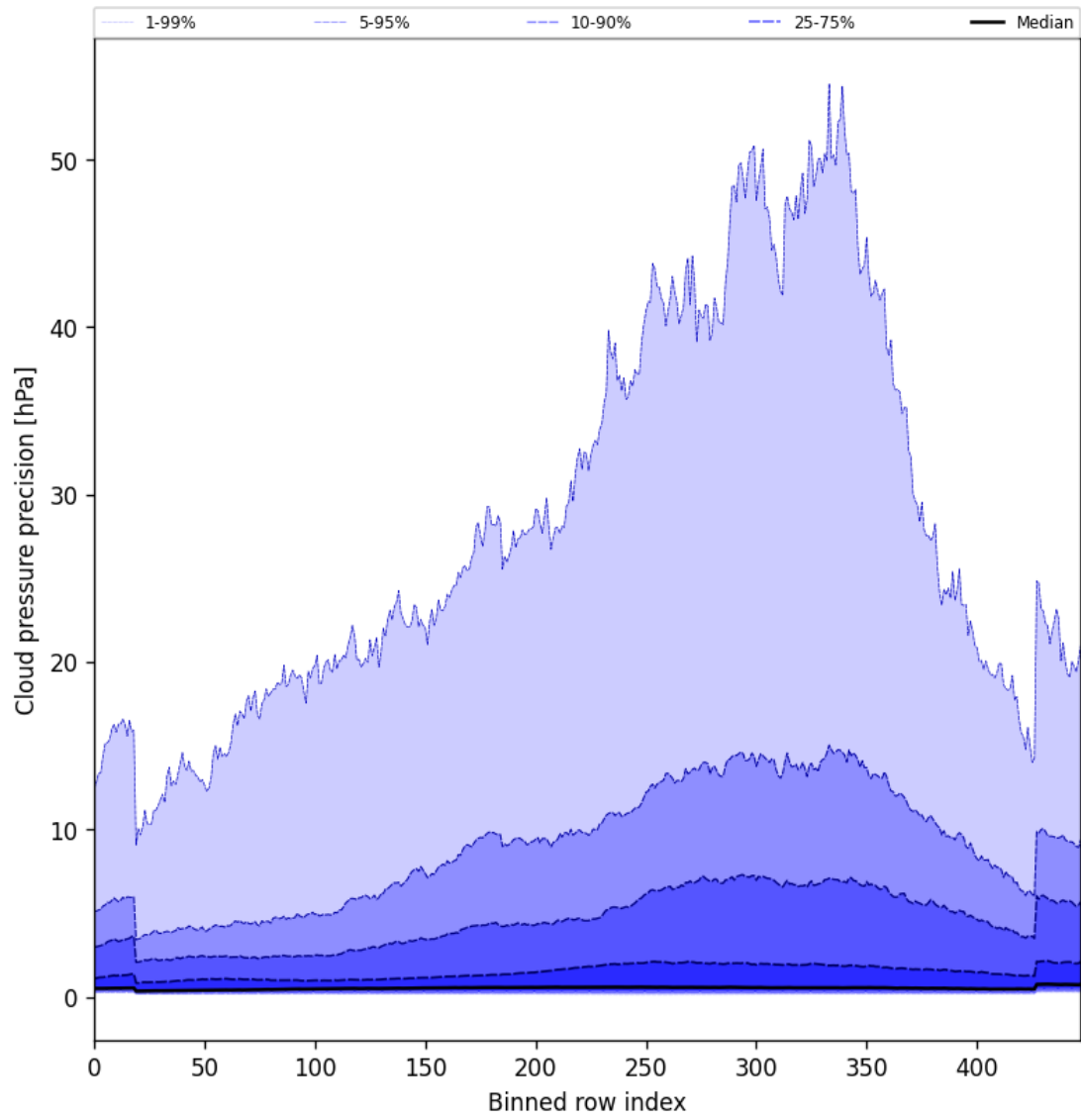


Figure 46: Along track statistics of “Cloud pressure precision” for 2024-12-06 to 2024-12-07

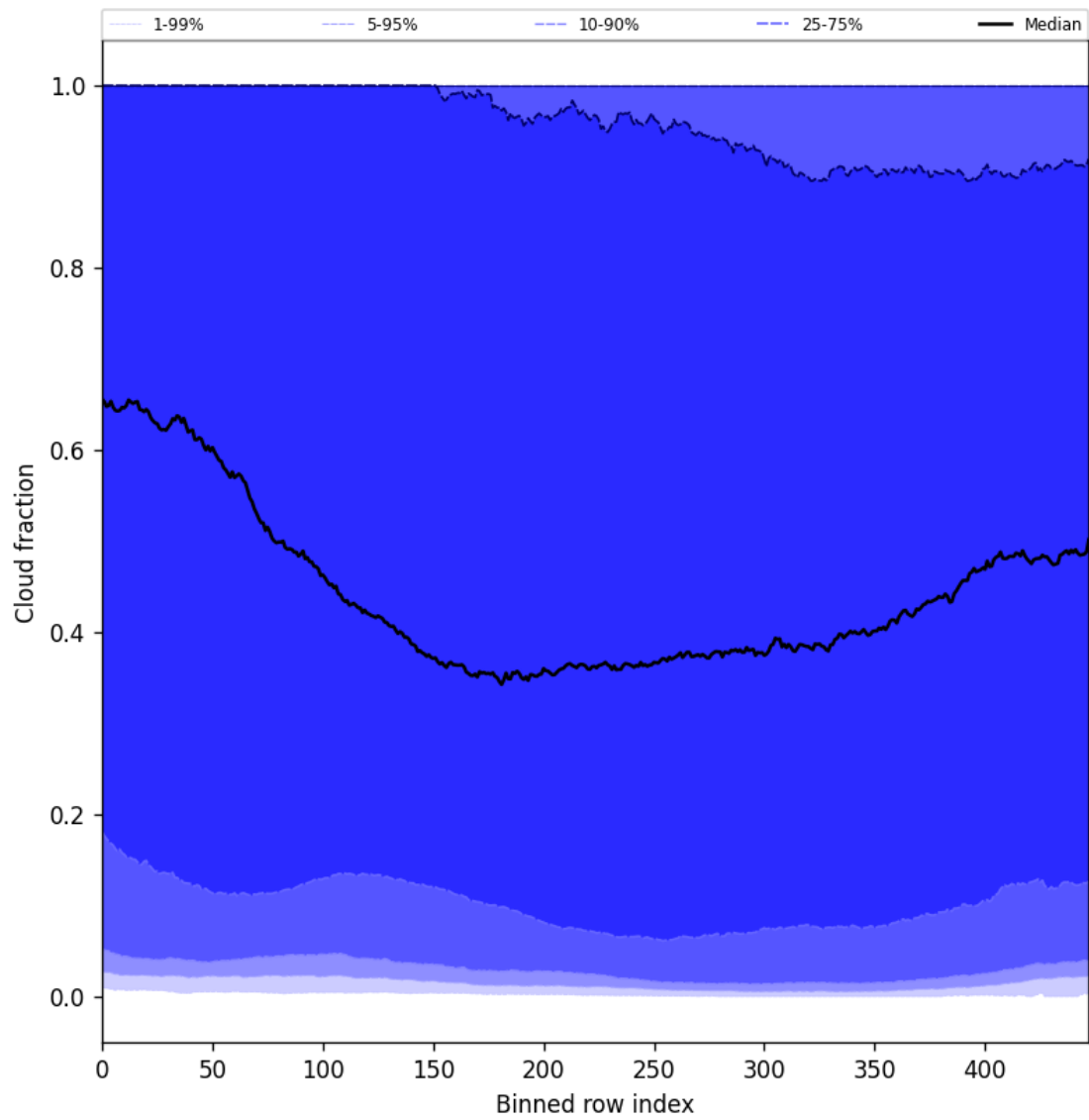


Figure 47: Along track statistics of “Cloud fraction” for 2024-12-06 to 2024-12-07

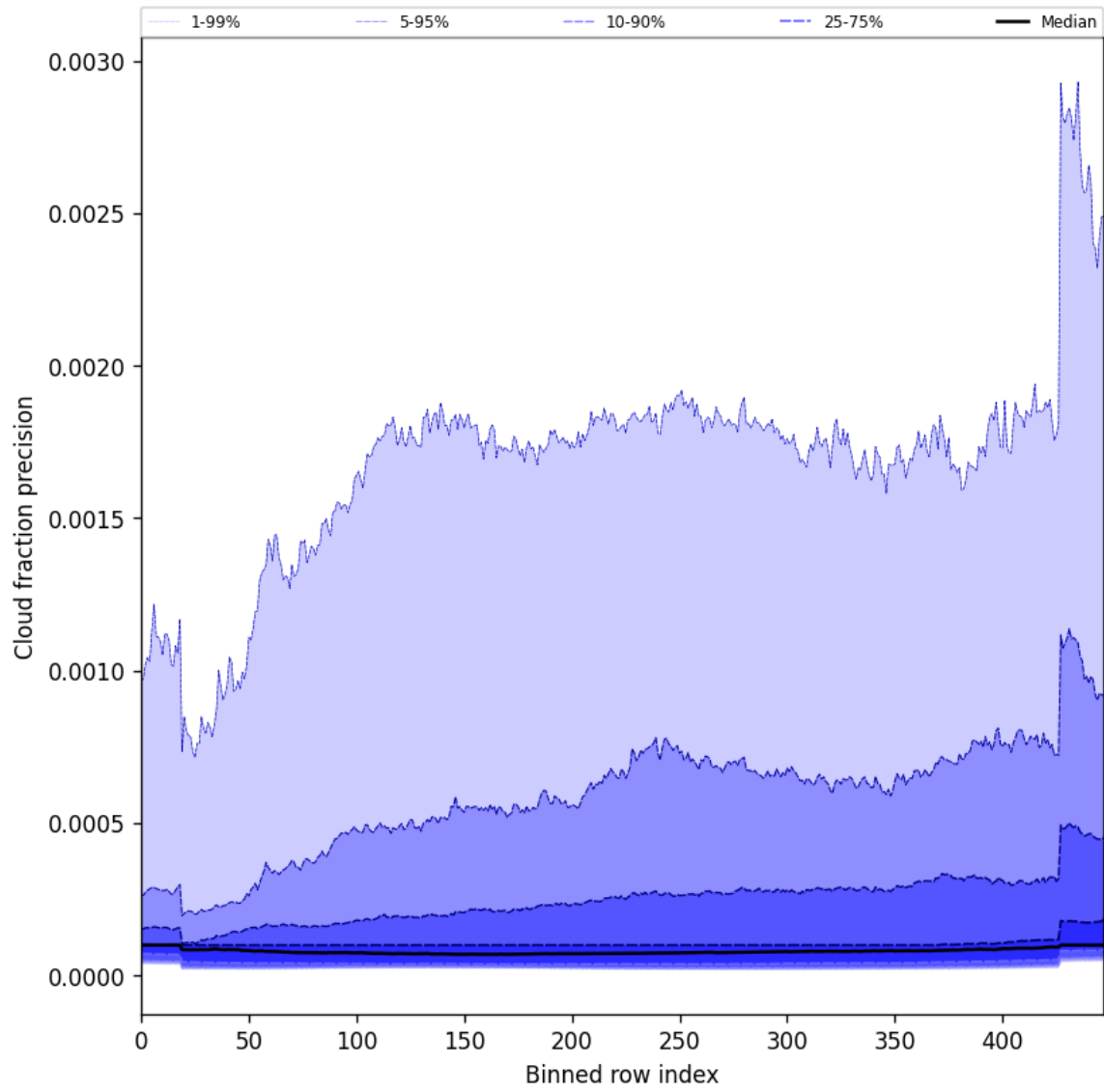


Figure 48: Along track statistics of “Cloud fraction precision” for 2024-12-06 to 2024-12-07

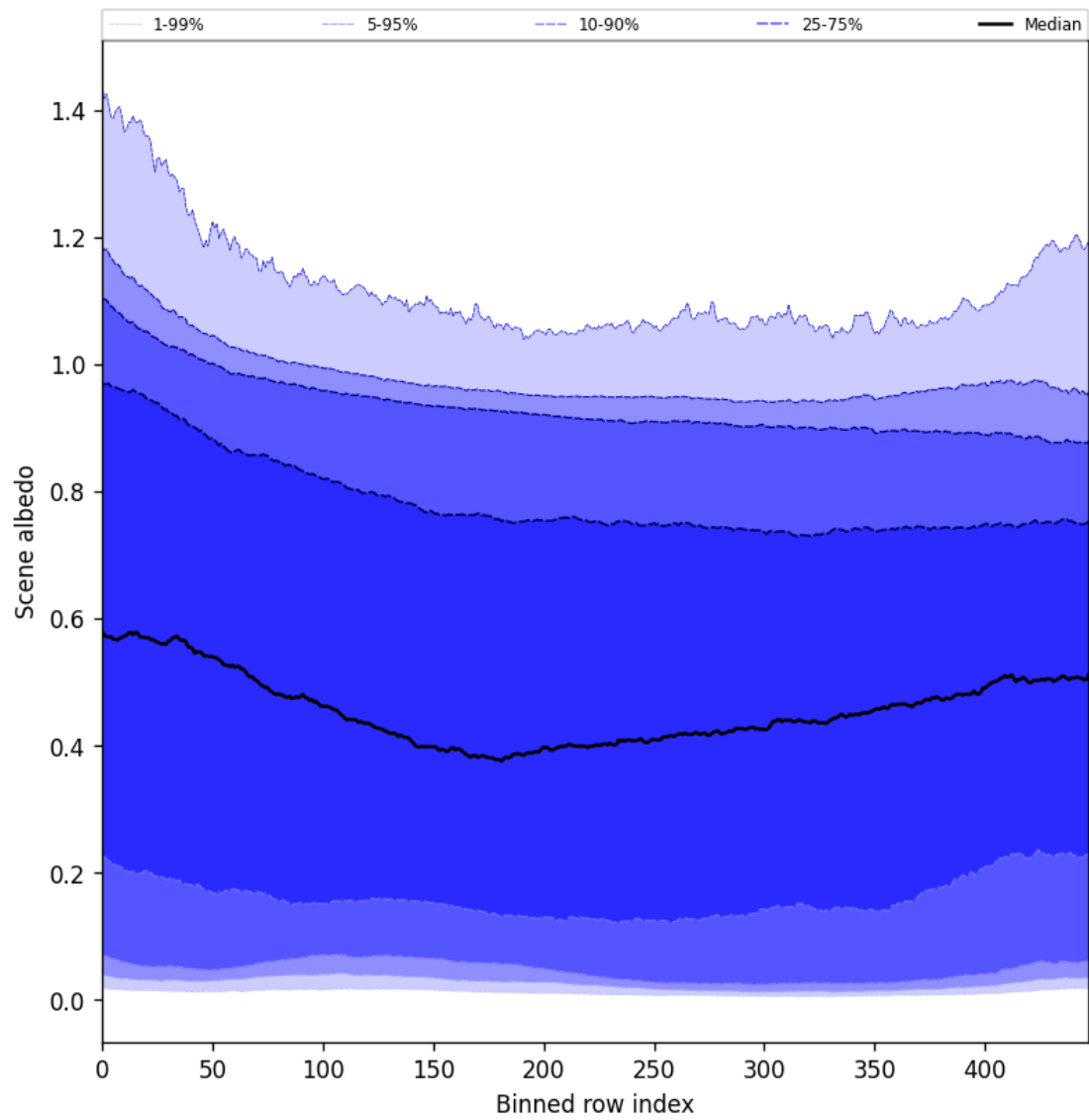


Figure 49: Along track statistics of “Scene albedo” for 2024-12-06 to 2024-12-07

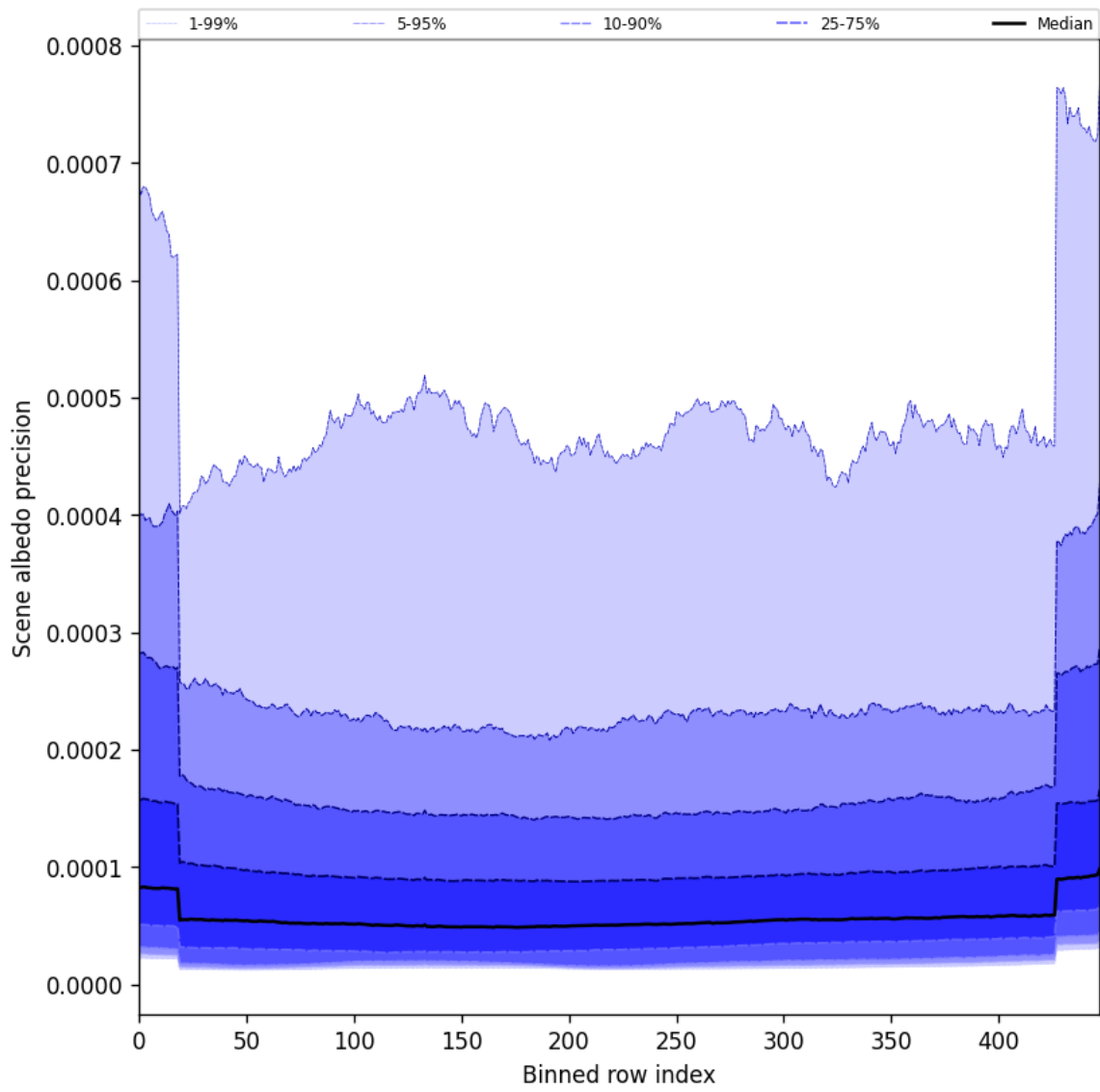


Figure 50: Along track statistics of “Scene albedo precision” for 2024-12-06 to 2024-12-07

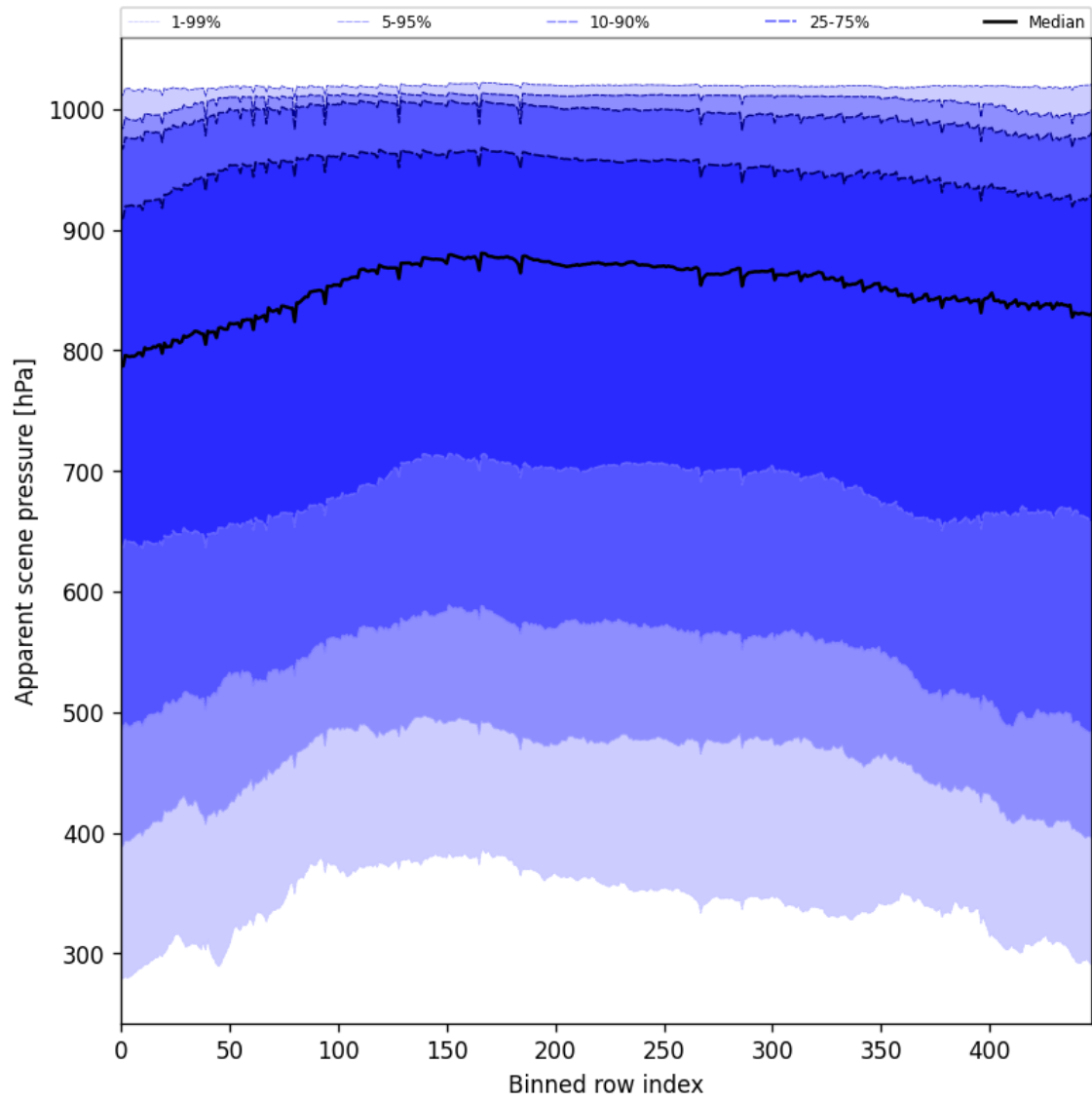


Figure 51: Along track statistics of “Apparent scene pressure” for 2024-12-06 to 2024-12-07

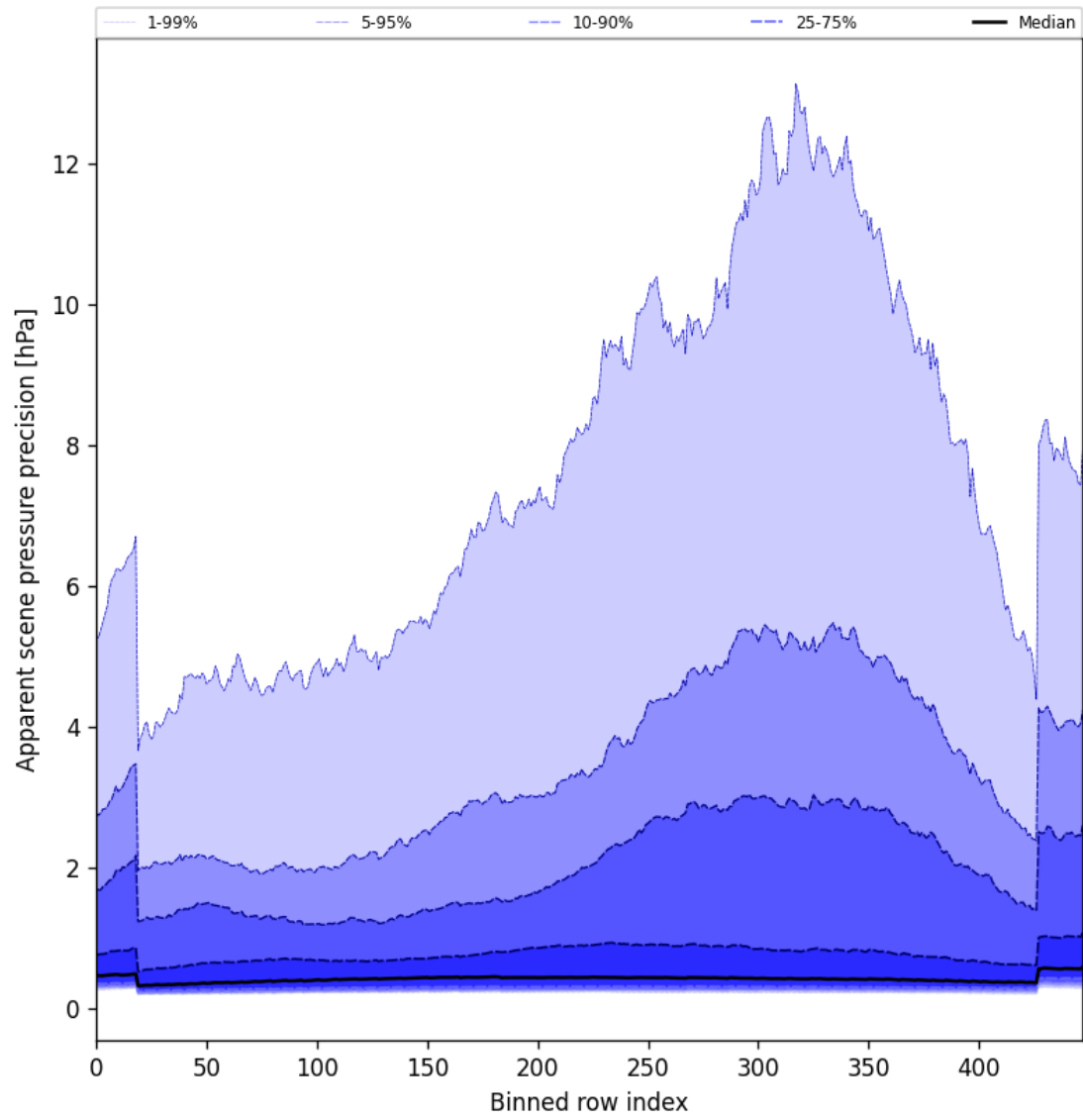


Figure 52: Along track statistics of “Apparent scene pressure precision” for 2024-12-06 to 2024-12-07

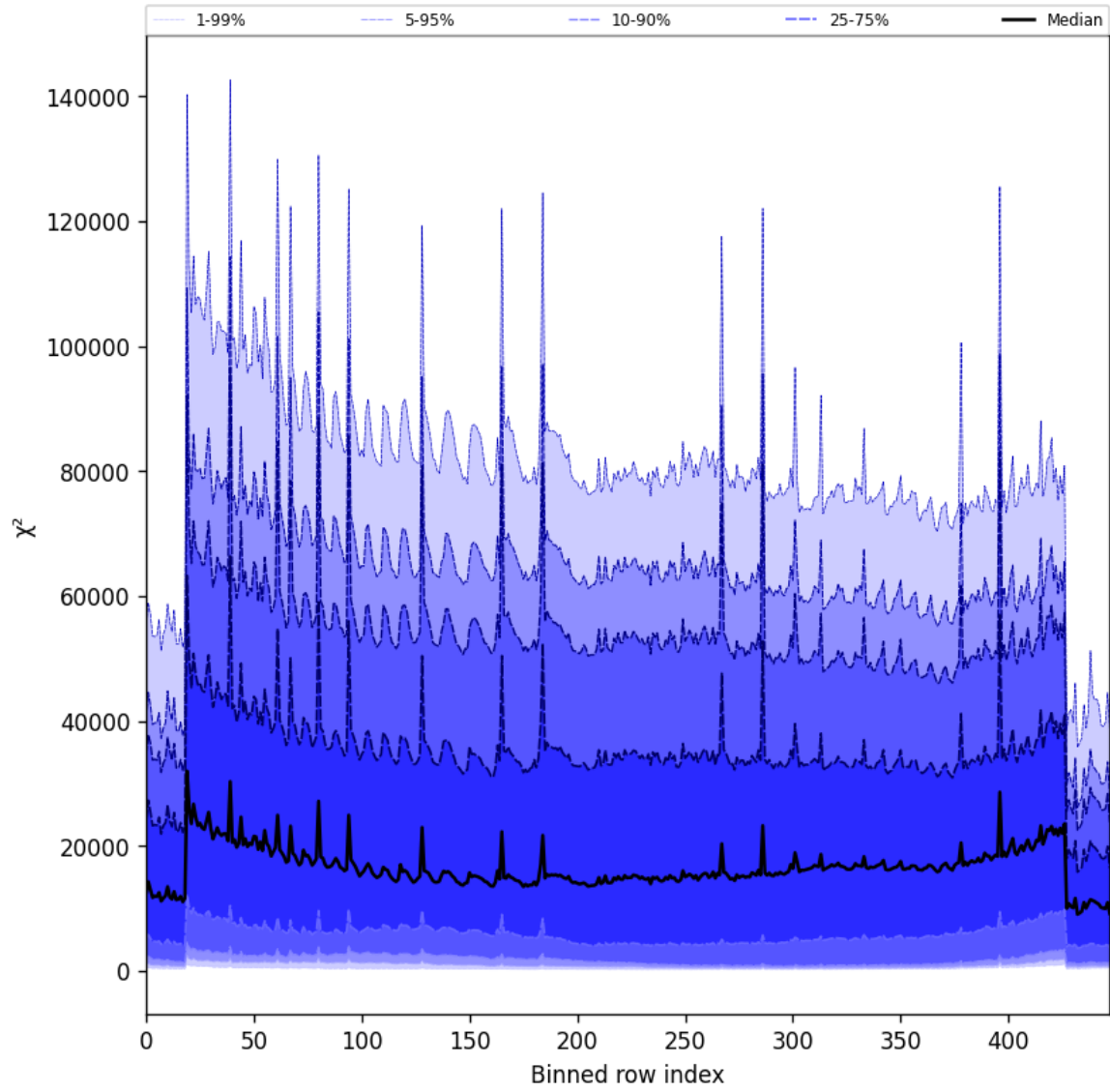


Figure 53: Along track statistics of “ χ^2 ” for 2024-12-06 to 2024-12-07

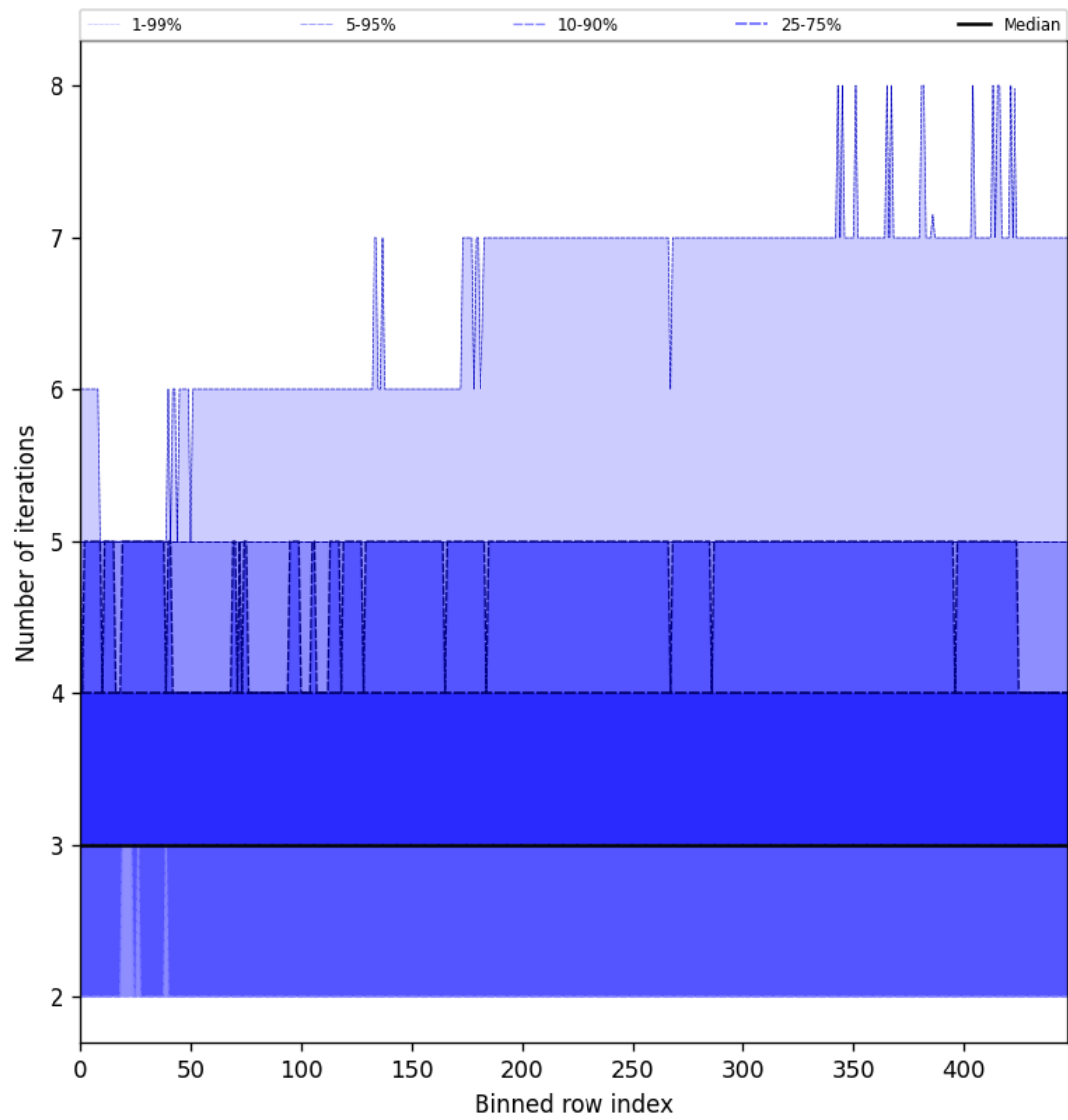


Figure 54: Along track statistics of “Number of iterations” for 2024-12-06 to 2024-12-07

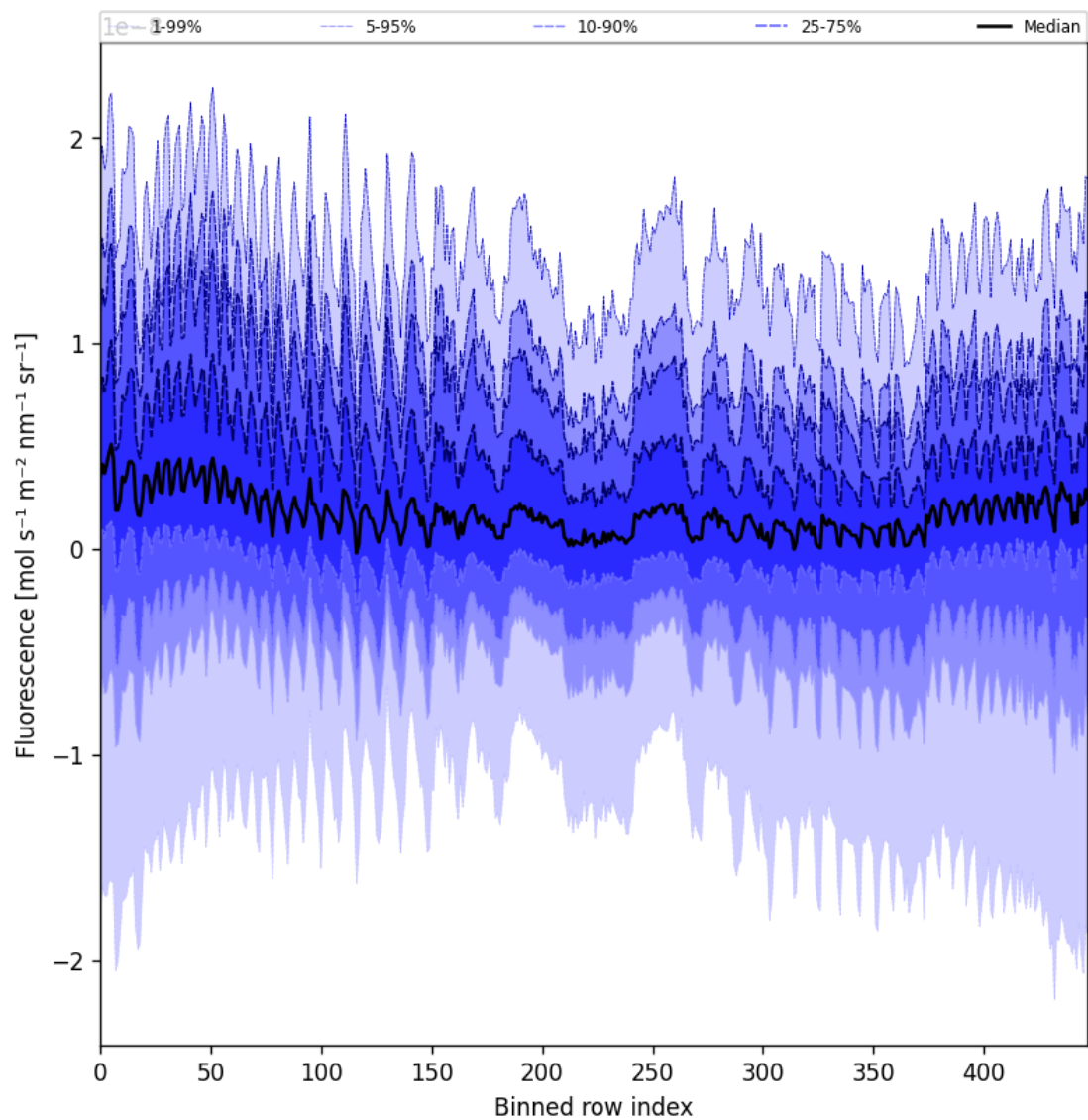


Figure 55: Along track statistics of “Fluorescence” for 2024-12-06 to 2024-12-07

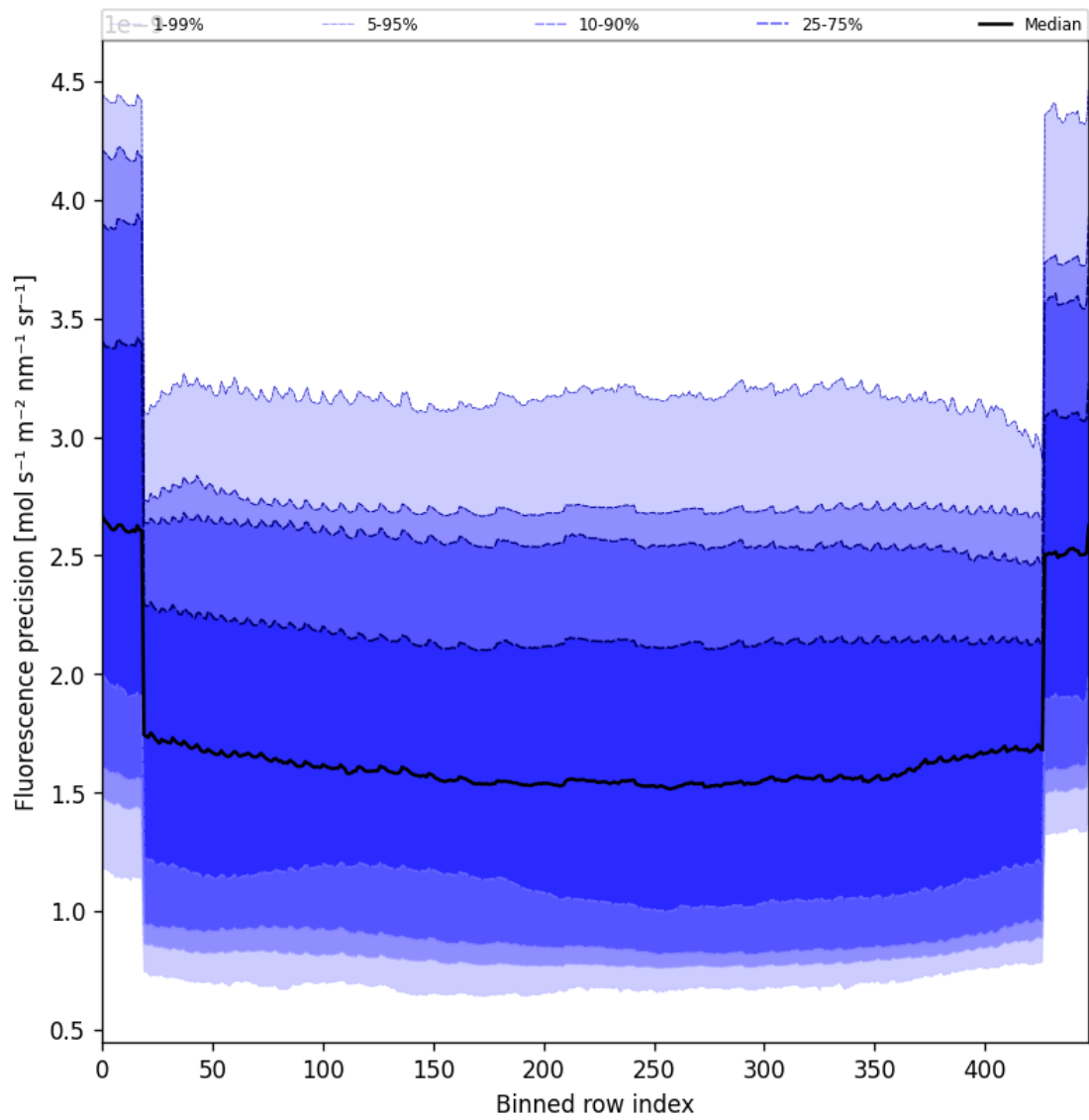


Figure 56: Along track statistics of “Fluorescence precision” for 2024-12-06 to 2024-12-07

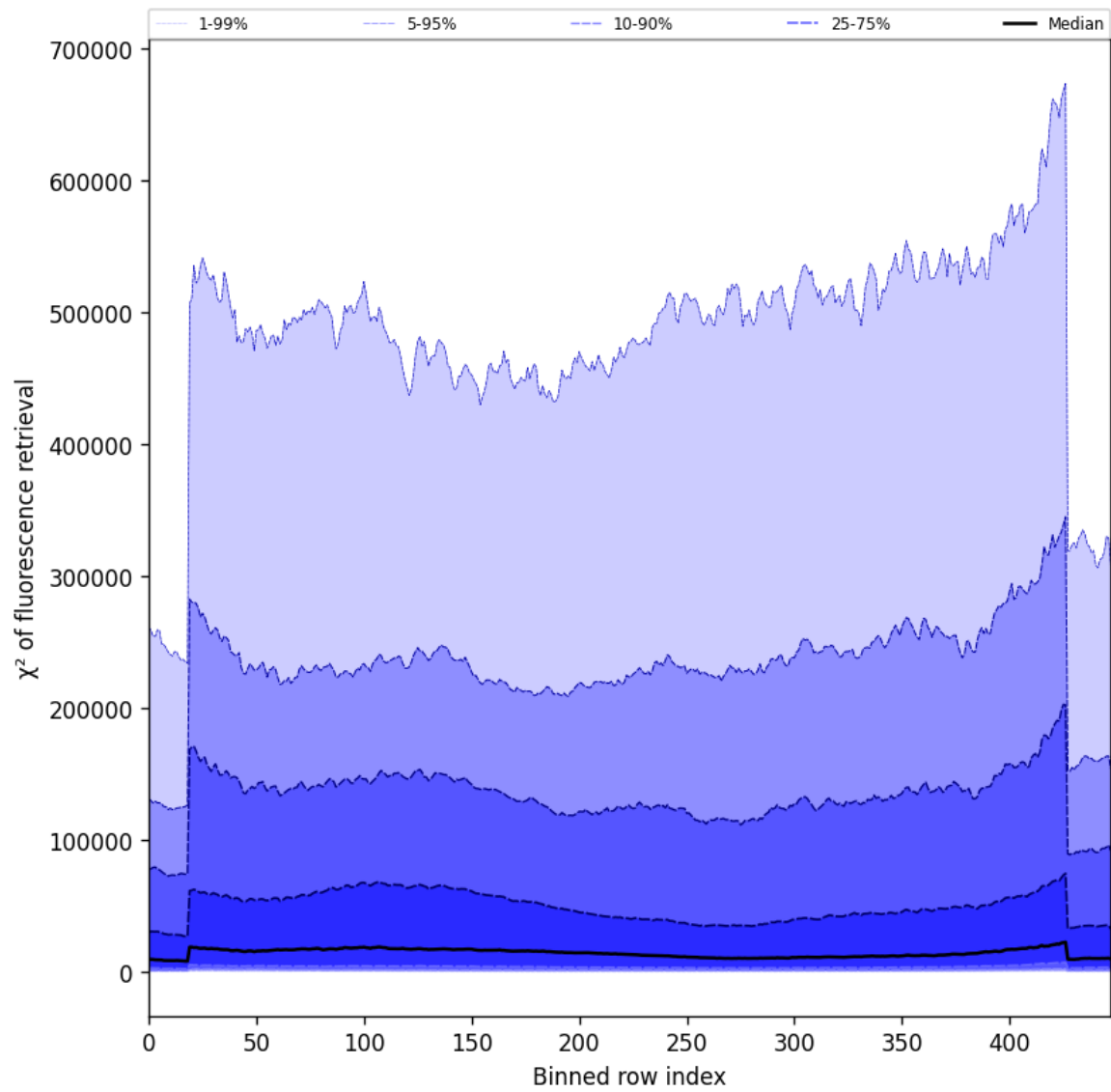


Figure 57: Along track statistics of “ χ^2 of fluorescence retrieval” for 2024-12-06 to 2024-12-07



Figure 58: Along track statistics of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-06 to 2024-12-07



Figure 59: Along track statistics of “Number of points in the spectrum” for 2024-12-06 to 2024-12-07

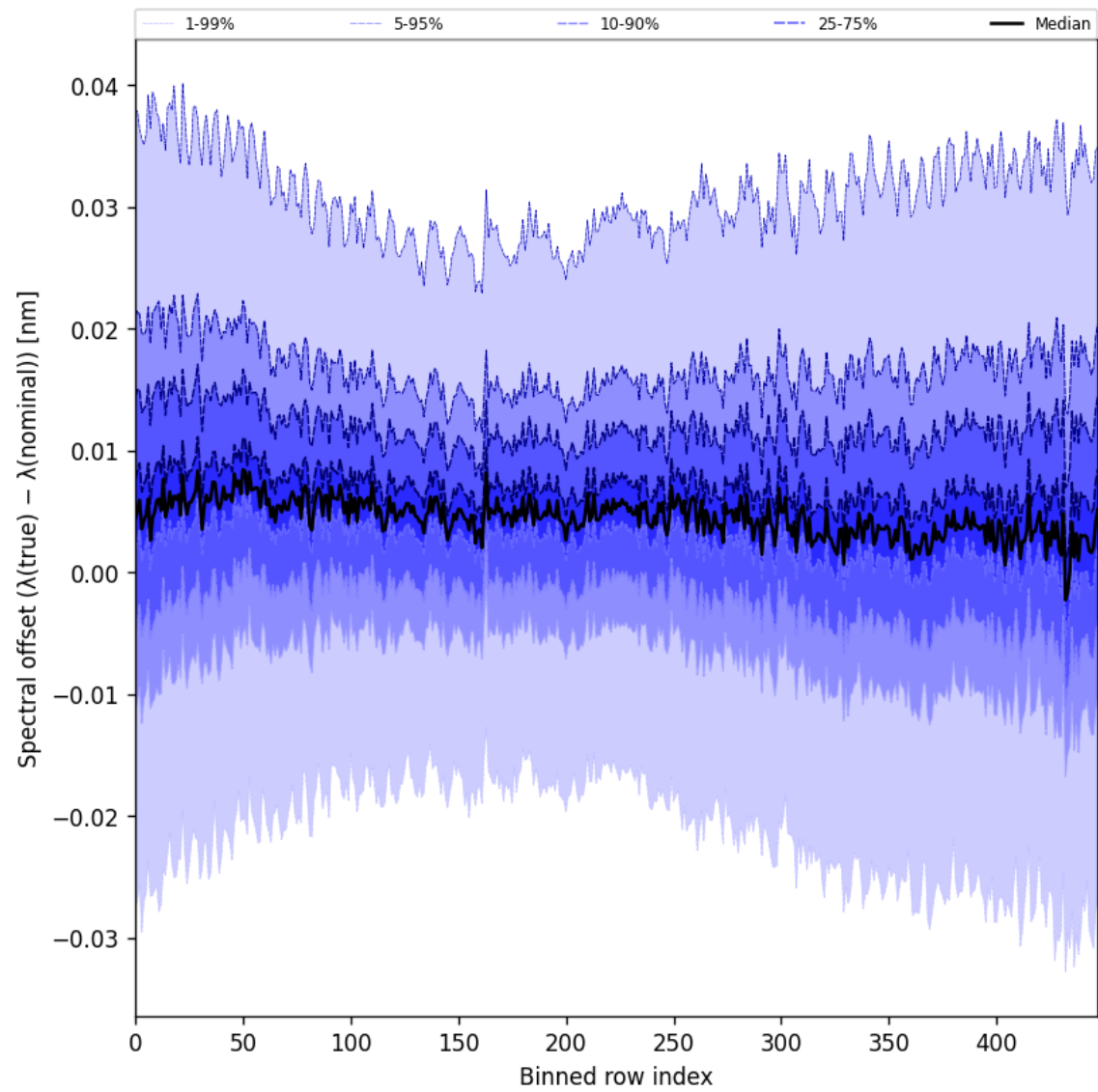


Figure 60: Along track statistics of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-06 to 2024-12-07

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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