

PyCAMA report generated by tropl2-proc

tropl2-proc

2024-12-24 (02:15)

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]	0.906 ± 0.185	23408316	0.995	0.1000	1.000	0.350	1.000
cloud pressure crb [hPa]	776 ± 198	23408316	1.015×10^3	289	829	130	1.074×10^3
cloud pressure crb precision [hPa]	2.15 ± 8.29	23408316	0.750	1.04	0.493	5.493×10^{-4}	1.196×10^3
cloud fraction crb [1]	0.499 ± 0.384	23408316	0.996	0.869	0.445	0.0	1.000
cloud fraction crb precision [1]	$(1.635 \pm 6.095) \times 10^{-4}$	23408316	2.500×10^{-4}	5.523×10^{-5}	8.078×10^{-5}	9.671×10^{-9}	0.333
scene albedo [1]	0.481 ± 0.330	23408316	1.500×10^{-2}	0.586	0.459	-6.724×10^{-3}	4.22
scene albedo precision [1]	$(8.250 \pm 8.750) \times 10^{-5}$	23408316	2.500×10^{-4}	6.319×10^{-5}	5.508×10^{-5}	1.063×10^{-5}	8.264×10^{-3}
apparent scene pressure [hPa]	805 ± 176	23408316	1.008×10^3	265	855	130	1.073×10^3
apparent scene pressure precision [hPa]	0.833 ± 1.405	23408316	0.500	0.418	0.409	6.416×10^{-2}	57.0
chi square [1]	$(0.239 \pm 1.395) \times 10^5$	23408316	0.150	2.788×10^4	1.647×10^4	56.8	1.833×10^8
number of iterations [1]	3.37 ± 1.06	23408316	3.23	1.000	3.00	1.000	14.0
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.623 \pm 6.963) \times 10^{-9}$	23408316	7.500×10^{-10}	5.276×10^{-9}	1.433×10^{-9}	-2.079×10^{-6}	1.781×10^{-6}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.767 \pm 0.710) \times 10^{-9}$	23408316	8.500×10^{-10}	1.060×10^{-9}	1.702×10^{-9}	3.737×10^{-10}	5.891×10^{-9}
chi square fluorescence [1]	$(0.526 \pm 0.979) \times 10^5$	23408316	1.250×10^3	4.945×10^4	1.672×10^4	101	5.688×10^6
degrees of freedom fluorescence [1]	6.00 ± 0.00	23408316	5.95	0.0	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	23408316	49.7	0.0	50.0	44.0	50.0
wavelength calibration offset [nm]	$(4.337 \pm 8.109) \times 10^{-3}$	23408316	4.400×10^{-3}	5.307×10^{-3}	4.347×10^{-3}	-0.116	0.139

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	381	473	564	649	938	971	991	1.008×10^3	1.019×10^3
cloud pressure crb precision [hPa]	0.170	0.227	0.247	0.265	0.298	1.33	2.31	3.99	8.28	27.1
cloud fraction crb [1]	1.872×10^{-3}	1.260×10^{-2}	2.916×10^{-2}	5.534×10^{-2}	0.113	0.982	1.000	1.000	1.000	1.000
cloud fraction crb precision [1]	2.042×10^{-5}	2.416×10^{-5}	2.766×10^{-5}	3.286×10^{-5}	4.477×10^{-5}	1.000×10^{-4}	1.460×10^{-4}	2.675×10^{-4}	6.215×10^{-4}	1.722×10^{-3}
scene albedo [1]	9.840×10^{-3}	2.440×10^{-2}	4.814×10^{-2}	8.834×10^{-2}	0.181	0.767	0.877	0.930	0.980	1.13
scene albedo precision [1]	1.334×10^{-5}	1.614×10^{-5}	1.996×10^{-5}	2.526×10^{-5}	3.340×10^{-5}	9.658×10^{-5}	1.263×10^{-4}	1.660×10^{-4}	2.463×10^{-4}	4.676×10^{-4}
apparent scene pressure [hPa]	330	451	544	617	685	949	978	995	1.009×10^3	1.020×10^3
apparent scene pressure precision [hPa]	0.210	0.234	0.251	0.268	0.296	0.715	1.07	1.66	3.01	7.08
chi square [1]	334	837	1.866×10^3	3.393×10^3	6.111×10^3	3.399×10^4	4.425×10^4	5.299×10^4	6.352×10^4	8.481×10^4
number of iterations [1]	2.00	2.00	2.00	2.00	3.00	4.00	4.00	5.00	5.00	7.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	-1.413×10^{-8}	-6.443×10^{-9}	-3.809×10^{-9}	-2.329×10^{-9}	-9.726×10^{-10}	4.303×10^{-9}	6.088×10^{-9}	7.812×10^{-9}	1.028×10^{-8}	1.568×10^{-8}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	7.111×10^{-10}	8.136×10^{-10}	8.913×10^{-10}	9.913×10^{-10}	1.169×10^{-9}	2.229×10^{-9}	2.521×10^{-9}	2.677×10^{-9}	3.003×10^{-9}	3.680×10^{-9}
chi square fluorescence [1]	524	1.103×10^3	1.660×10^3	2.435×10^3	4.415×10^3	5.387×10^4	9.012×10^4	1.395×10^5	2.378×10^5	4.983×10^5
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]	-2.188×10^{-2}	-7.520×10^{-3}	-2.761×10^{-3}	-2.886×10^{-4}	1.671×10^{-3}	6.978×10^{-3}	8.942×10^{-3}	1.147×10^{-2}	1.629×10^{-2}	3.044×10^{-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 ± 0.055	9164394	0.0	1.000	0.350	1.000	1.000	1.000
cloud pressure crb [hPa]	747 ± 219	9164394	361	813	130	1.074×10^3	574	935
cloud pressure crb precision [hPa]	3.00 ± 10.15	9164394	1.74	0.837	5.493×10^{-4}	1.196×10^3	0.425	2.16
cloud fraction crb [1]	0.385 ± 0.346	9164394	0.599	0.267	0.0	1.000	7.205×10^{-2}	0.671
cloud fraction crb precision [1]	$(1.668 \pm 7.185) \times 10^{-4}$	9164394	9.599×10^{-5}	9.332×10^{-5}	2.380×10^{-7}	0.333	5.145×10^{-5}	1.474×10^{-4}
scene albedo [1]	0.408 ± 0.296	9164394	0.453	0.371	-6.724×10^{-3}	3.90	0.161	0.614
scene albedo precision [1]	$(9.328 \pm 9.988) \times 10^{-5}$	9164394	7.324×10^{-5}	5.887×10^{-5}	1.181×10^{-5}	8.264×10^{-3}	3.636×10^{-5}	1.096×10^{-4}
apparent scene pressure [hPa]	790 ± 192	9164394	293	851	130	1.073×10^3	656	949
apparent scene pressure precision [hPa]	1.00 ± 1.61	9164394	0.522	0.518	6.416×10^{-2}	57.0	0.367	0.888
chi square [1]	$(0.145 \pm 1.382) \times 10^5$	9164394	1.493×10^4	1.008×10^4	56.8	1.752×10^8	4.182×10^3	1.911×10^4
number of iterations [1]	3.39 ± 1.10	9164394	1.000	3.00	1.000	14.0	3.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(8.573 \pm 43.880) \times 10^{-10}$	9164394	3.627×10^{-9}	1.012×10^{-9}	-1.146×10^{-6}	9.022×10^{-7}	-7.789×10^{-10}	2.849×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.489 \pm 0.609) \times 10^{-9}$	9164394	8.250×10^{-10}	1.373×10^{-9}	3.737×10^{-10}	5.508×10^{-9}	1.003×10^{-9}	1.828×10^{-9}
chi square fluorescence [1]	$(0.455 \pm 0.919) \times 10^5$	9164394	4.071×10^4	1.249×10^4	101	1.962×10^6	3.701×10^3	4.441×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	9164394	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	9164394	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.434 \pm 8.897) \times 10^{-3}$	9164394	6.508×10^{-3}	4.367×10^{-3}	-7.922×10^{-2}	8.913×10^{-2}	1.133×10^{-3}	7.641×10^{-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]	0.853 ± 0.217	14243922	0.500	1.000	0.350	1.000	0.500	1.000
cloud pressure crb [hPa]	794 ± 180	14243922	266	840	130	1.029×10^3	675	940
cloud pressure crb precision [hPa]	1.60 ± 6.77	14243922	0.587	0.368	1.343×10^{-3}	874	0.270	0.857
cloud fraction crb [1]	0.572 ± 0.388	14243922	0.838	0.606	0.0	1.000	0.162	1.000
cloud fraction crb precision [1]	$(1.613 \pm 5.275) \times 10^{-4}$	14243922	5.861×10^{-5}	7.177×10^{-5}	9.671×10^{-9}	9.185×10^{-2}	4.139×10^{-5}	1.000×10^{-4}
scene albedo [1]	0.527 ± 0.342	14243922	0.649	0.548	-2.768×10^{-3}	4.22	0.200	0.849
scene albedo precision [1]	$(7.557 \pm 7.773) \times 10^{-5}$	14243922	5.899×10^{-5}	5.281×10^{-5}	1.063×10^{-5}	7.424×10^{-3}	3.139×10^{-5}	9.039×10^{-5}
apparent scene pressure [hPa]	814 ± 164	14243922	254	859	130	1.029×10^3	696	950
apparent scene pressure precision [hPa]	0.723 ± 1.244	14243922	0.315	0.351	0.130	50.9	0.274	0.589
chi square [1]	$(0.299 \pm 1.400) \times 10^5$	14243922	3.475×10^4	2.426×10^4	95.1	1.833×10^8	8.934×10^3	4.368×10^4
number of iterations [1]	3.36 ± 1.03	14243922	1.000	3.00	1.000	14.0	3.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(2.116 \pm 8.165) \times 10^{-9}$	14243922	6.597×10^{-9}	1.950×10^{-9}	-2.079×10^{-6}	1.781×10^{-6}	-1.134×10^{-9}	5.463×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.945 \pm 0.713) \times 10^{-9}$	14243922	1.079×10^{-9}	1.965×10^{-9}	4.288×10^{-10}	5.891×10^{-9}	1.371×10^{-9}	2.450×10^{-9}
chi square fluorescence [1]	$(0.573 \pm 1.012) \times 10^5$	14243922	5.491×10^4	2.005×10^4	123	5.688×10^6	5.196×10^3	6.011×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	14243922	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	14243922	0.0	50.0	44.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.275 \pm 7.559) \times 10^{-3}$	14243922	4.661×10^{-3}	4.338×10^{-3}	-0.116	0.139	1.966×10^{-3}	6.627×10^{-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]	0.981 ± 0.052	14532537	0.0	1.000	0.350	1.000	1.000	1.000
cloud pressure crb [hPa]	808 ± 192	14532537	253	877	130	1.073×10^3	702	954
cloud pressure crb precision [hPa]	2.01 ± 8.09	14532537	0.967	0.537	1.343×10^{-3}	945	0.326	1.29
cloud fraction crb [1]	0.417 ± 0.341	14532537	0.620	0.344	0.0	1.000	9.412×10^{-2}	0.714
cloud fraction crb precision [1]	$(9.984 \pm 32.649) \times 10^{-5}$	14532537	6.131×10^{-5}	5.449×10^{-5}	7.104×10^{-7}	9.185×10^{-2}	3.254×10^{-5}	9.385×10^{-5}
scene albedo [1]	0.364 ± 0.295	14532537	0.522	0.307	-6.724×10^{-3}	4.22	8.624×10^{-2}	0.608
scene albedo precision [1]	$(6.356 \pm 7.649) \times 10^{-5}$	14532537	4.125×10^{-5}	4.408×10^{-5}	1.063×10^{-5}	8.264×10^{-3}	2.516×10^{-5}	6.640×10^{-5}
apparent scene pressure [hPa]	826 ± 182	14532537	226	888	130	1.073×10^3	739	965
apparent scene pressure precision [hPa]	1.09 ± 1.72	14532537	0.733	0.496	6.416×10^{-2}	57.0	0.315	1.05
chi square [1]	$(0.190 \pm 1.221) \times 10^5$	14532537	2.480×10^4	1.137×10^4	56.8	1.833×10^8	3.595×10^3	2.839×10^4
number of iterations [1]	2.96 ± 0.82	14532537	0.0	3.00	1.000	14.0	3.00	3.00
fluorescence [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(6.249 \pm 61.971) \times 10^{-10}$	14532537	4.669×10^{-9}	4.270×10^{-10}	-1.843×10^{-6}	1.781×10^{-6}	-1.707×10^{-9}	2.962×10^{-9}
fluorescence precision [mol s ⁻¹ m ⁻² nm ⁻¹ sr ⁻¹]	$(1.704 \pm 0.738) \times 10^{-9}$	14532537	1.155×10^{-9}	1.571×10^{-9}	3.737×10^{-10}	5.514×10^{-9}	1.059×10^{-9}	2.213×10^{-9}
chi square fluorescence [1]	$(0.549 \pm 0.983) \times 10^5$	14532537	5.201×10^4	2.009×10^4	101	5.688×10^6	6.285×10^3	5.830×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	14532537	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	14532537	0.0	50.0	44.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.290 \pm 9.572) \times 10^{-3}$	14532537	6.745×10^{-3}	4.296×10^{-3}	-0.116	0.139	8.993×10^{-4}	7.645×10^{-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]	0.737 ± 0.252	7185781	0.500	0.500	0.350	1.000	0.500	1.000
cloud pressure crb [hPa]	728 ± 185	7185781	247	728	130	1.064×10^3	631	878
cloud pressure crb precision [hPa]	2.18 ± 8.15	7185781	0.962	0.339	5.493×10^{-4}	1.196×10^3	0.261	1.22
cloud fraction crb [1]	0.678 ± 0.408	7185781	0.800	1.000	0.0	1.000	0.200	1.000
cloud fraction crb precision [1]	$(2.754 \pm 8.884) \times 10^{-4}$	7185781	3.739×10^{-5}	1.000×10^{-4}	9.671×10^{-9}	0.333	1.000×10^{-4}	1.374×10^{-4}
scene albedo [1]	0.706 ± 0.284	7185781	0.485	0.803	9.394×10^{-3}	3.90	0.448	0.933
scene albedo precision [1]	$(1.134 \pm 0.909) \times 10^{-4}$	7185781	7.197×10^{-5}	9.106×10^{-5}	1.266×10^{-5}	1.462×10^{-3}	5.756×10^{-5}	1.295×10^{-4}
apparent scene pressure [hPa]	767 ± 153	7185781	246	762	130	1.062×10^3	656	902
apparent scene pressure precision [hPa]	0.389 ± 0.198	7185781	0.167	0.331	8.594×10^{-2}	11.0	0.271	0.438
chi square [1]	$(0.340 \pm 1.464) \times 10^5$	7185781	3.055×10^4	2.696×10^4	152	1.752×10^8	1.452×10^4	4.507×10^4
number of iterations [1]	4.08 ± 1.03	7185781	0.0	4.00	1.000	14.0	4.00	4.00
fluorescence [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(3.548 \pm 7.854) \times 10^{-9}$	7185781	4.983×10^{-9}	3.315×10^{-9}	-1.540×10^{-6}	1.418×10^{-6}	1.148×10^{-9}	6.132×10^{-9}
fluorescence precision [$\text{mol s}^{-1} \text{m}^{-2} \text{nm}^{-1} \text{sr}^{-1}$]	$(1.914 \pm 0.638) \times 10^{-9}$	7185781	8.730×10^{-10}	1.880×10^{-9}	4.227×10^{-10}	5.891×10^{-9}	1.457×10^{-9}	2.330×10^{-9}
chi square fluorescence [1]	$(0.441 \pm 0.890) \times 10^5$	7185781	3.903×10^4	9.703×10^3	164	1.685×10^6	2.318×10^3	4.135×10^4
degrees of freedom fluorescence [1]	6.00 ± 0.00	7185781	0.0	6.00	6.00	6.00	6.00	6.00
number of spectral points in retrieval [1]	50.0 ± 0.1	7185781	0.0	50.0	48.0	50.0	50.0	50.0
wavelength calibration offset [nm]	$(4.371 \pm 4.227) \times 10^{-3}$	7185781	3.439×10^{-3}	4.379×10^{-3}	-0.105	0.132	2.648×10^{-3}	6.087×10^{-3}

3 Granule outlines

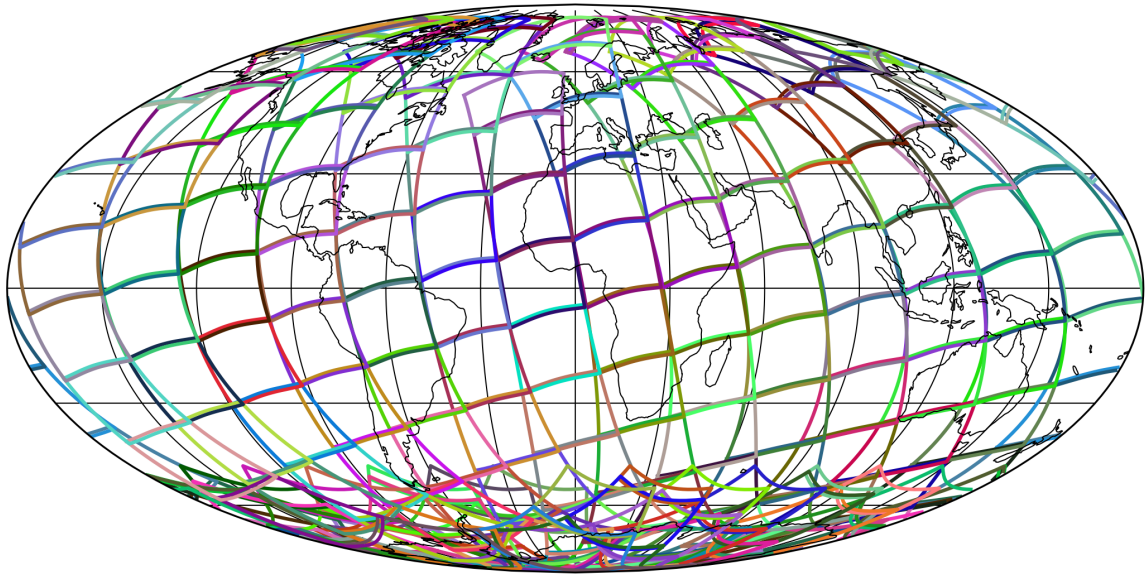


Figure 1: Outline of the granules.

4 Input data monitoring

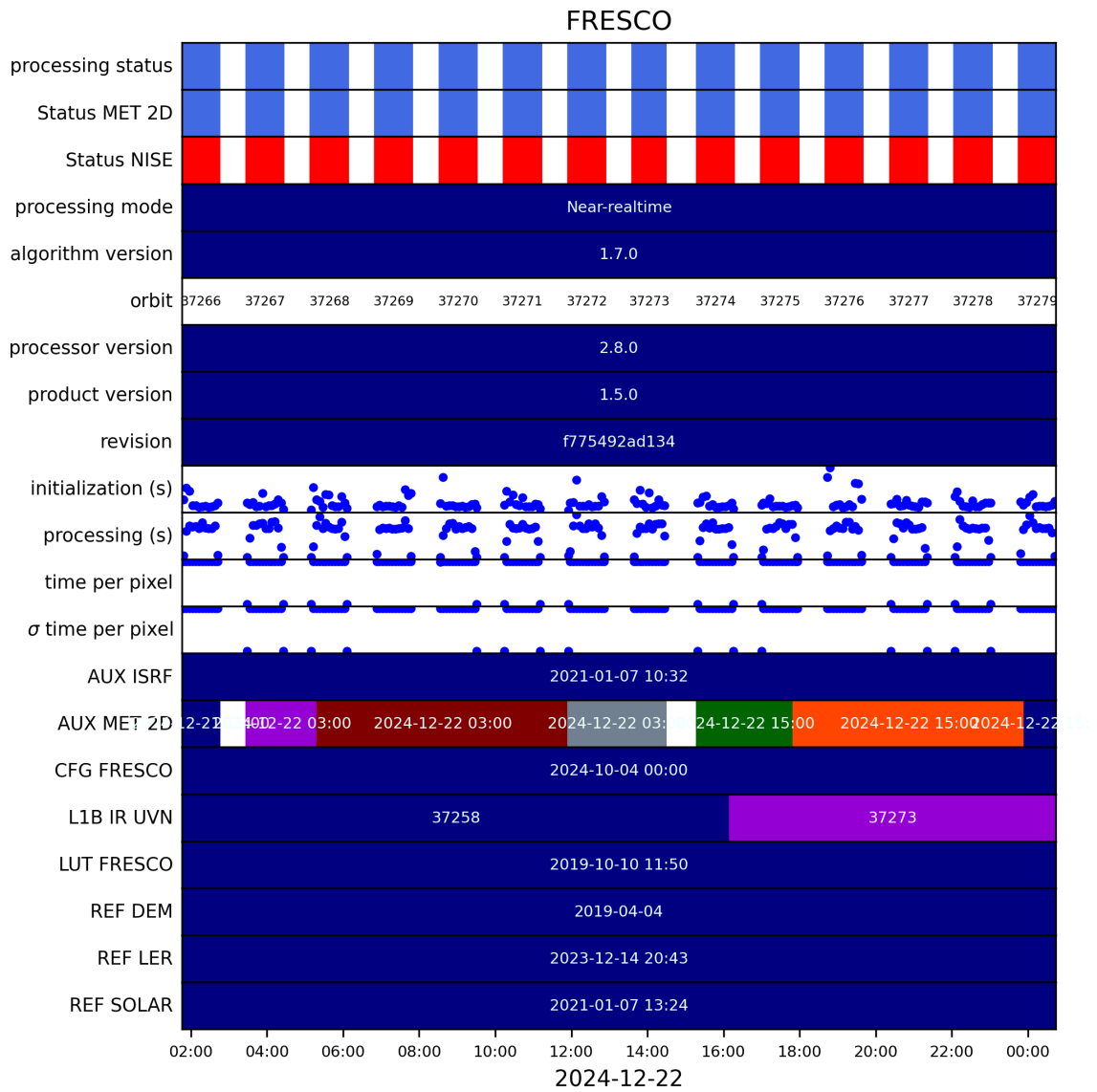


Figure 2: Input data per granule

5 Warnings and errors

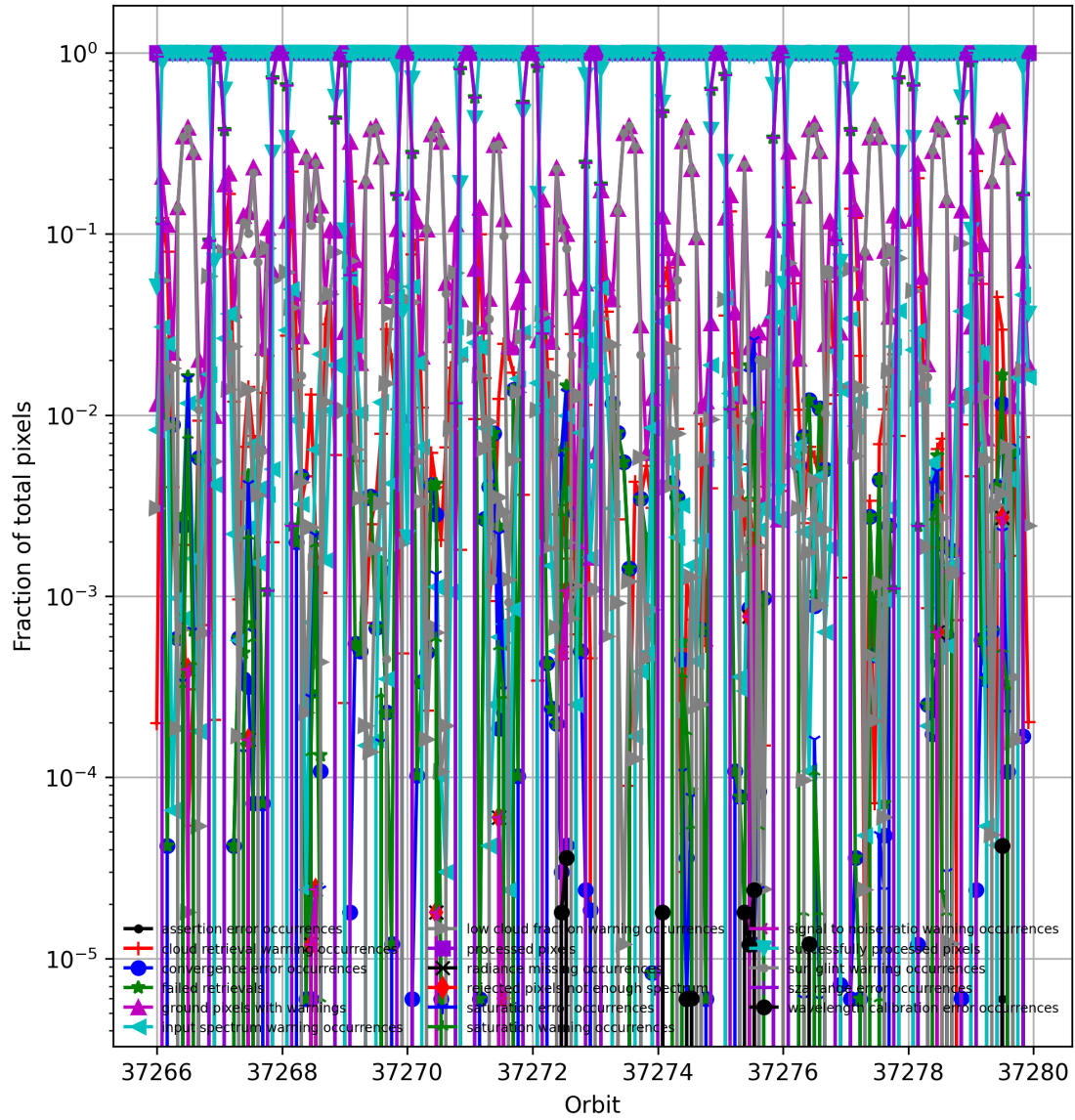


Figure 3: Fraction of pixels with specific warnings and errors during processing

6 World maps

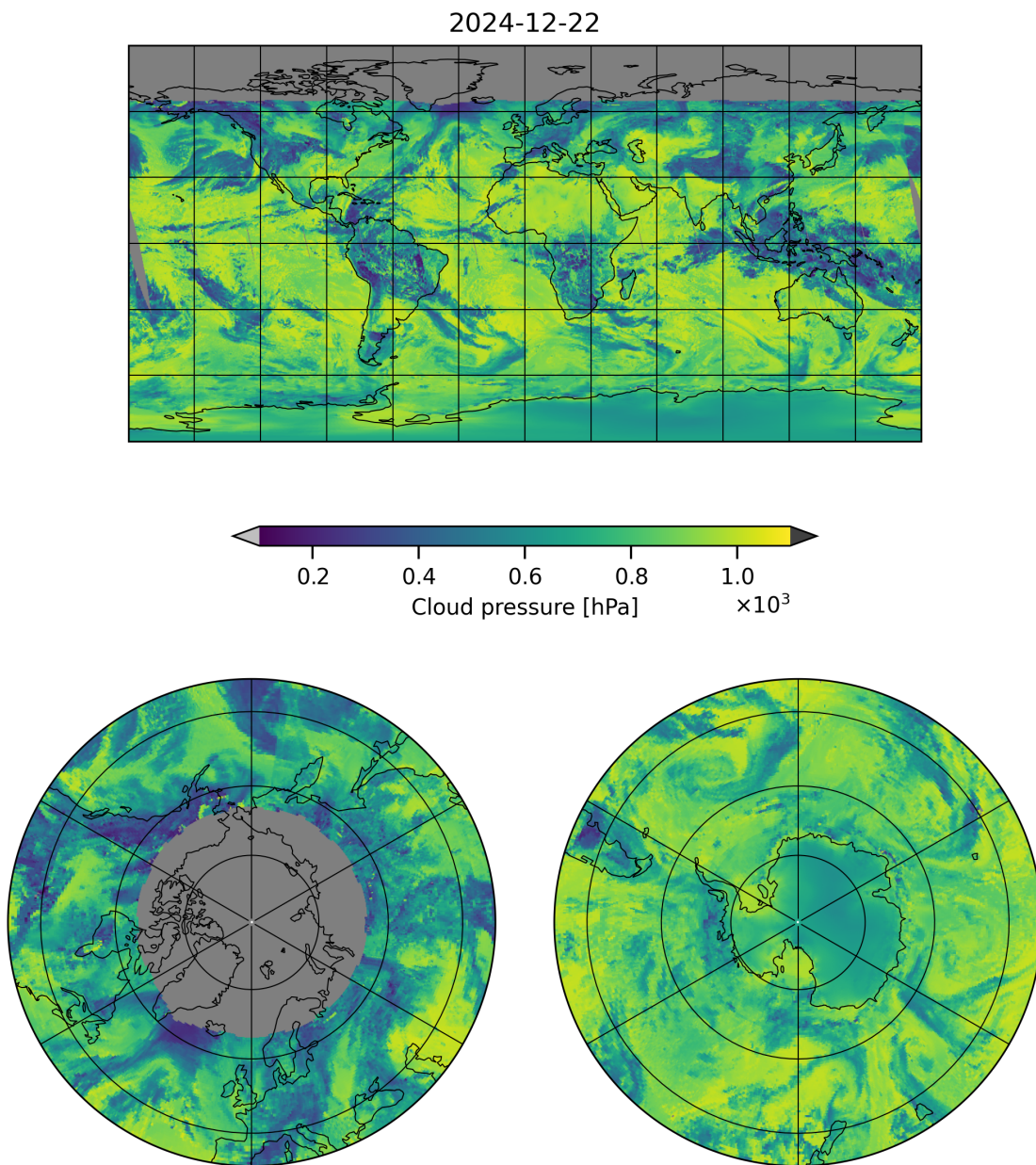


Figure 4: Map of “Cloud pressure” for 2024-12-22 to 2024-12-23

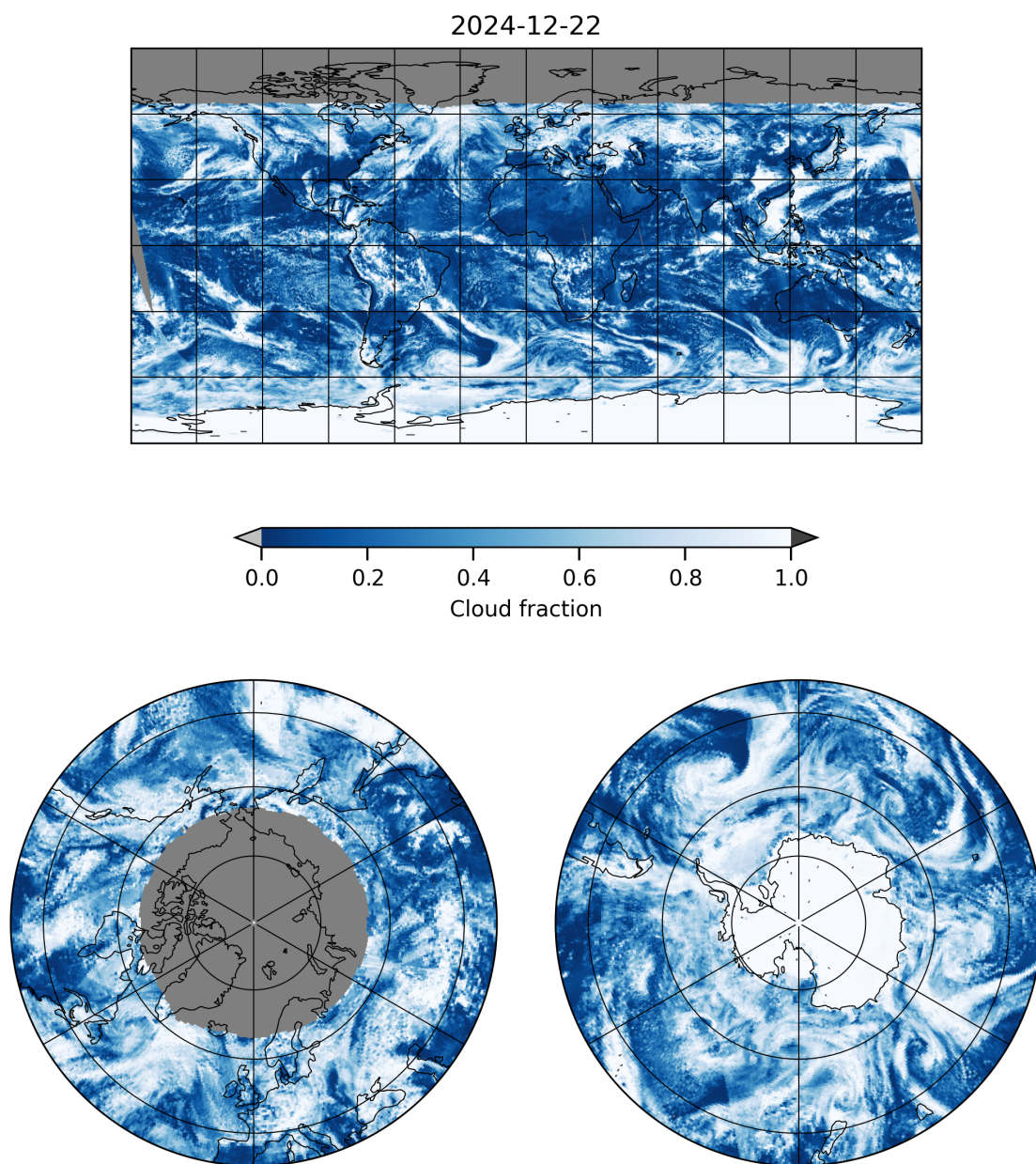


Figure 5: Map of “Cloud fraction” for 2024-12-22 to 2024-12-23

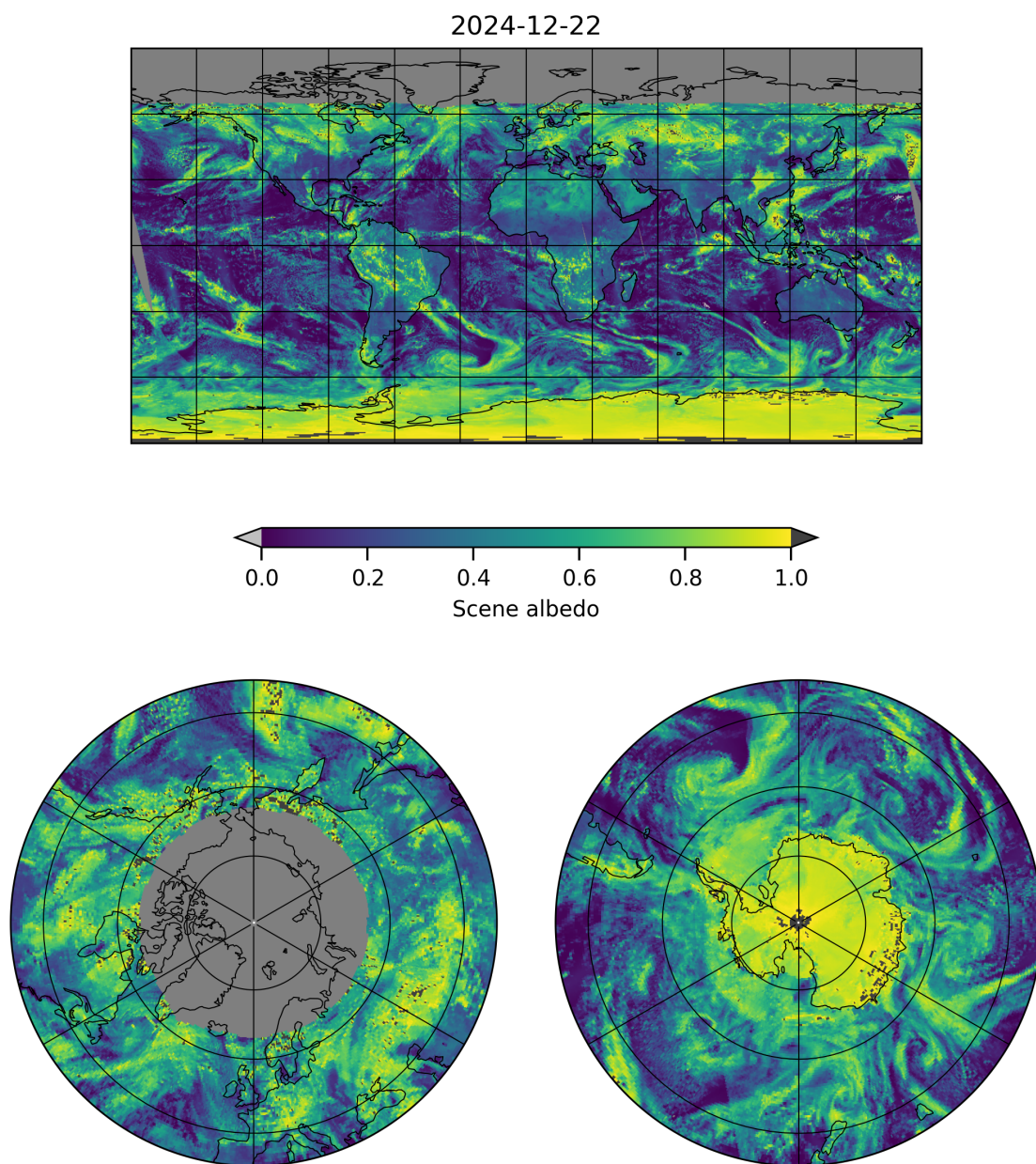


Figure 6: Map of “Scene albedo” for 2024-12-22 to 2024-12-23

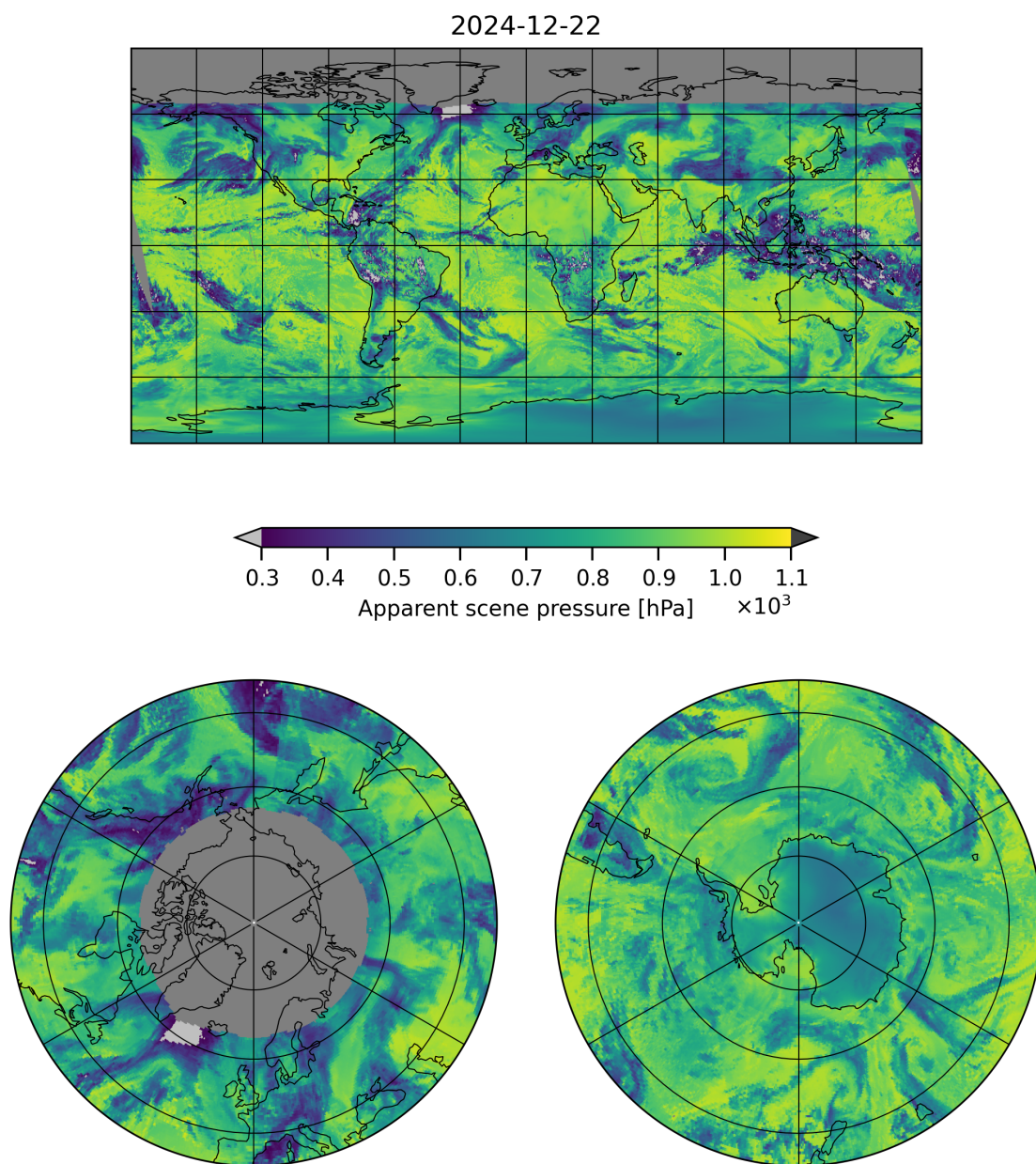


Figure 7: Map of “Apparent scene pressure” for 2024-12-22 to 2024-12-23

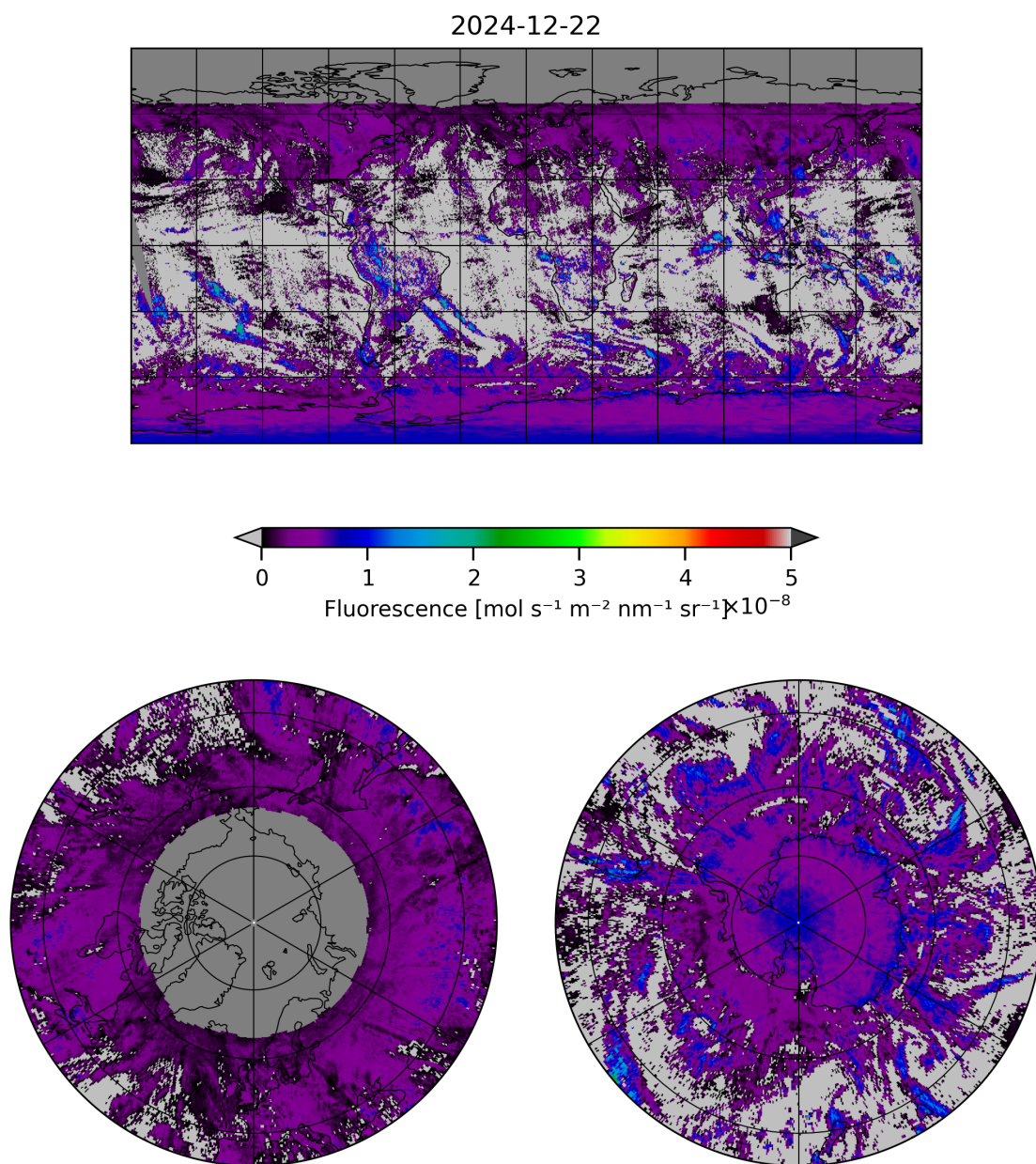


Figure 8: Map of “Fluorescence” for 2024-12-22 to 2024-12-23

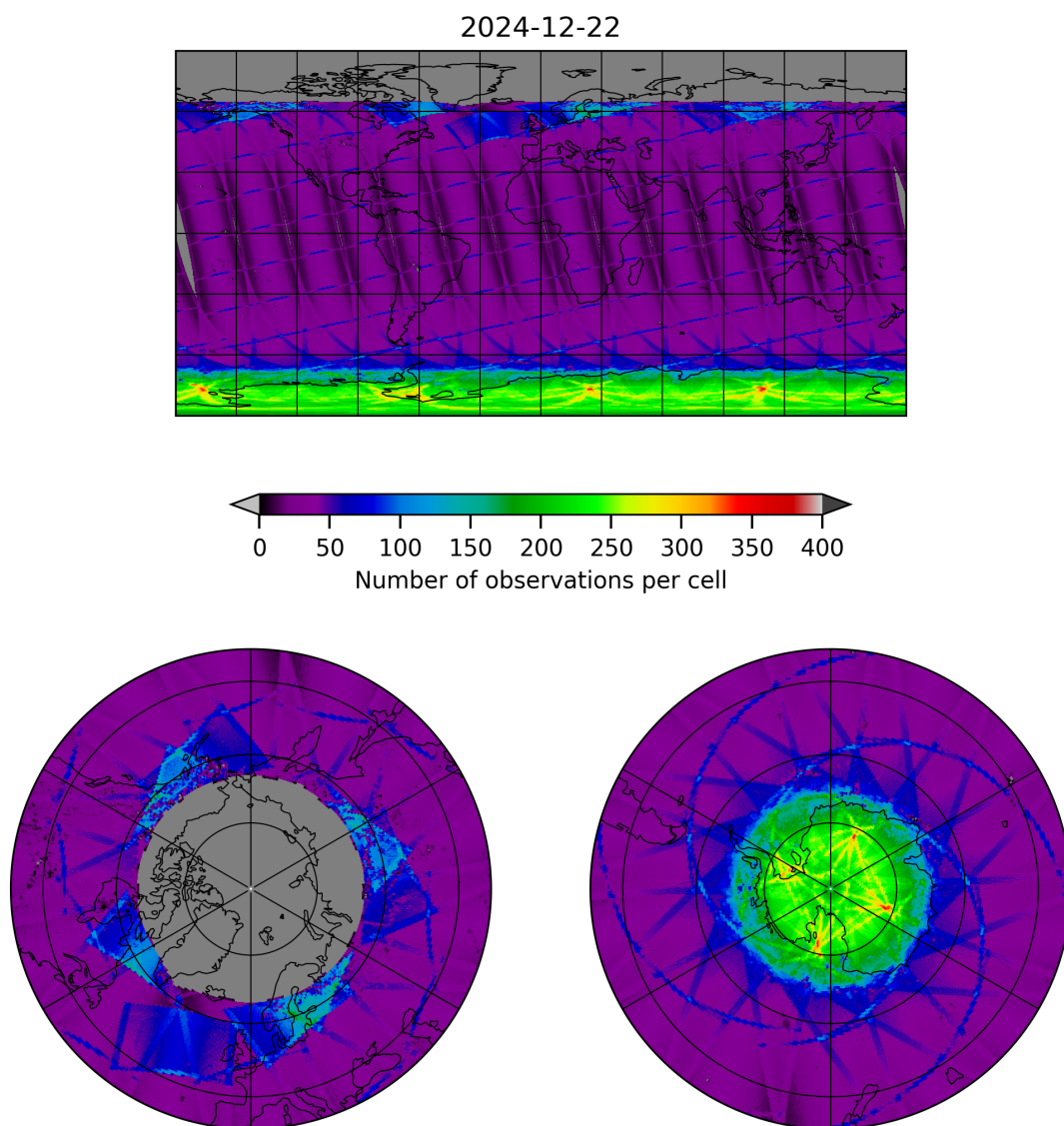


Figure 9: Map of the number of observations for 2024-12-22 to 2024-12-23

7 Zonal average

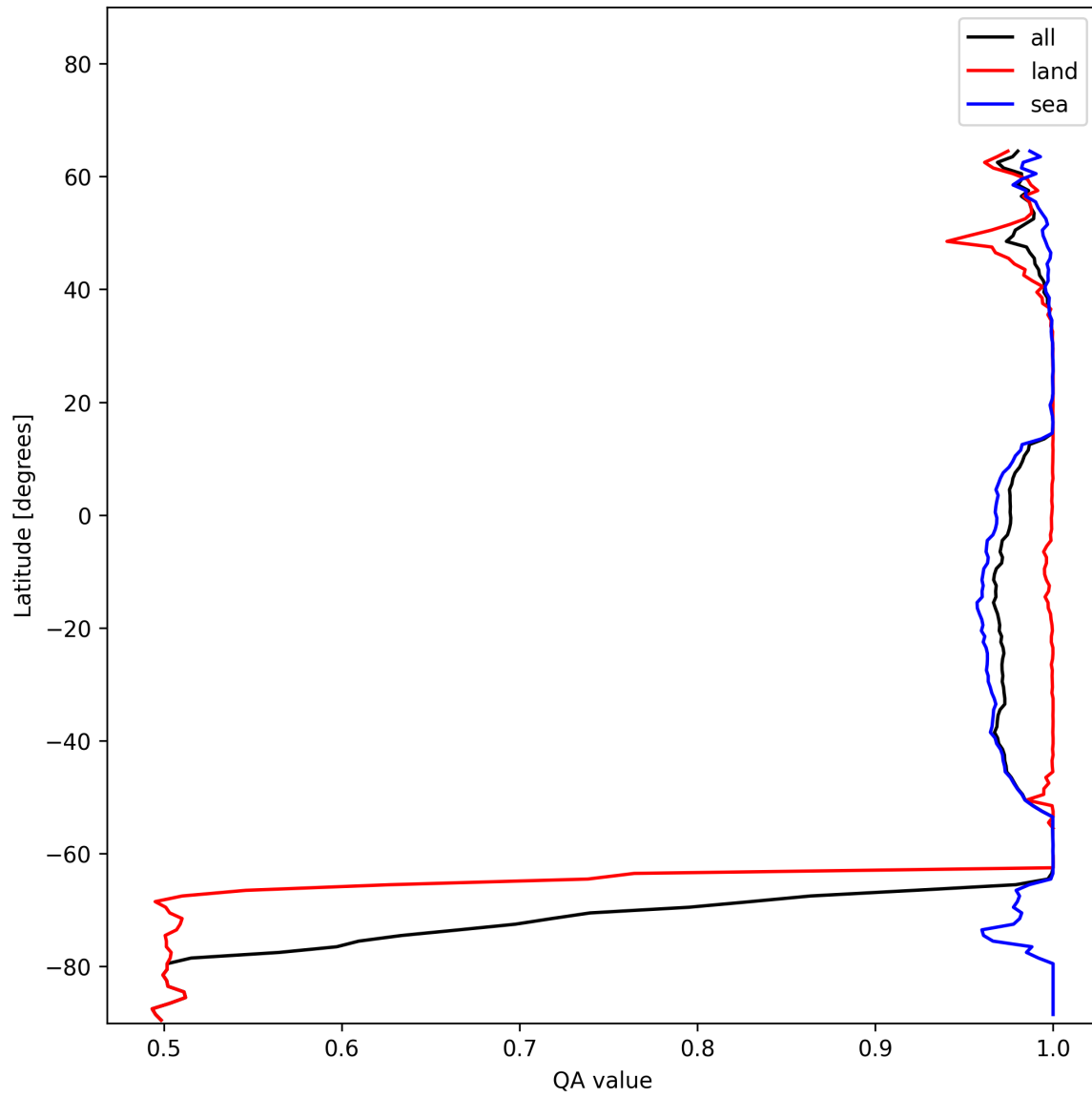


Figure 10: Zonal average of “QA value” for 2024-12-22 to 2024-12-23.

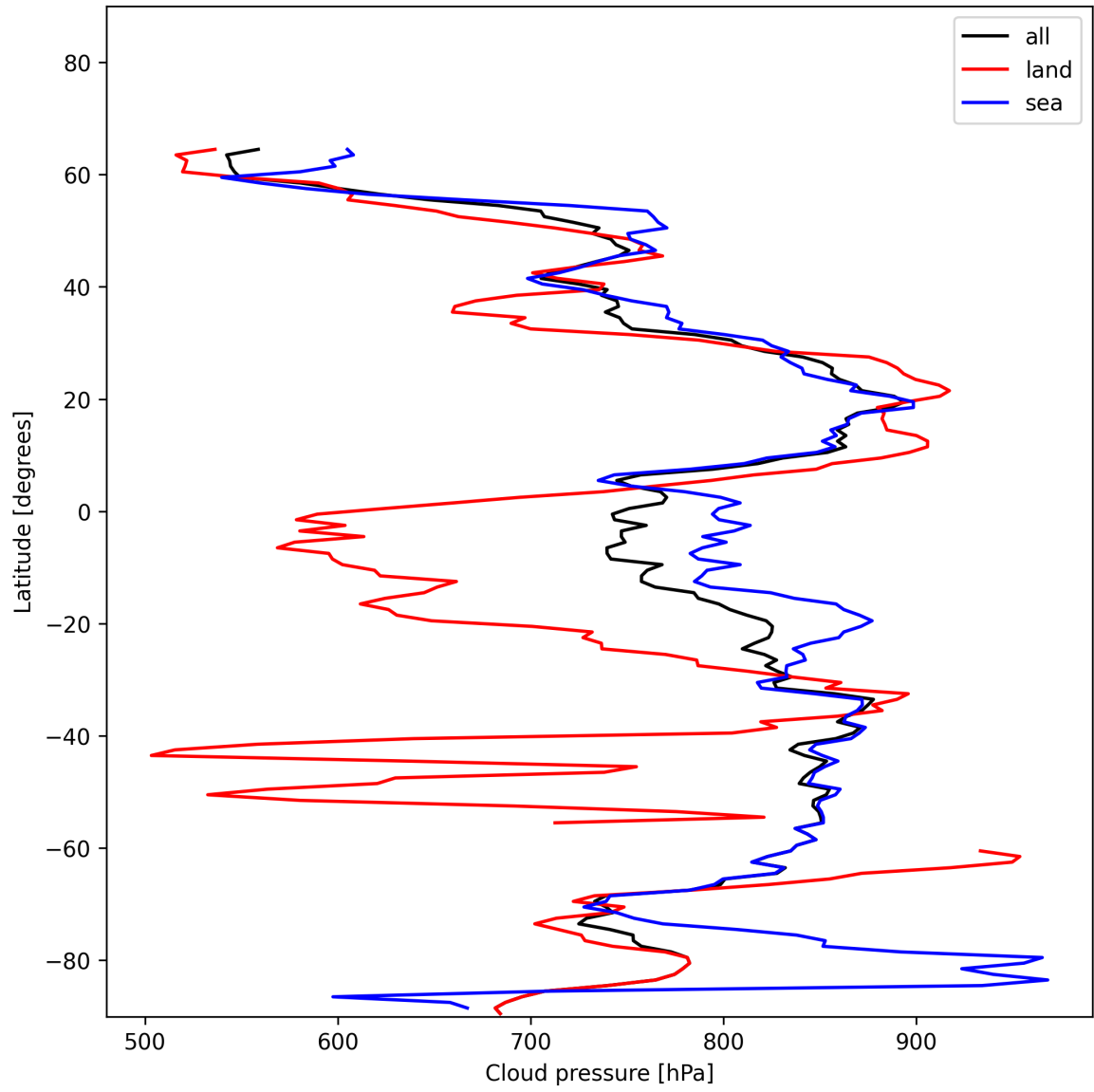


Figure 11: Zonal average of “Cloud pressure” for 2024-12-22 to 2024-12-23.

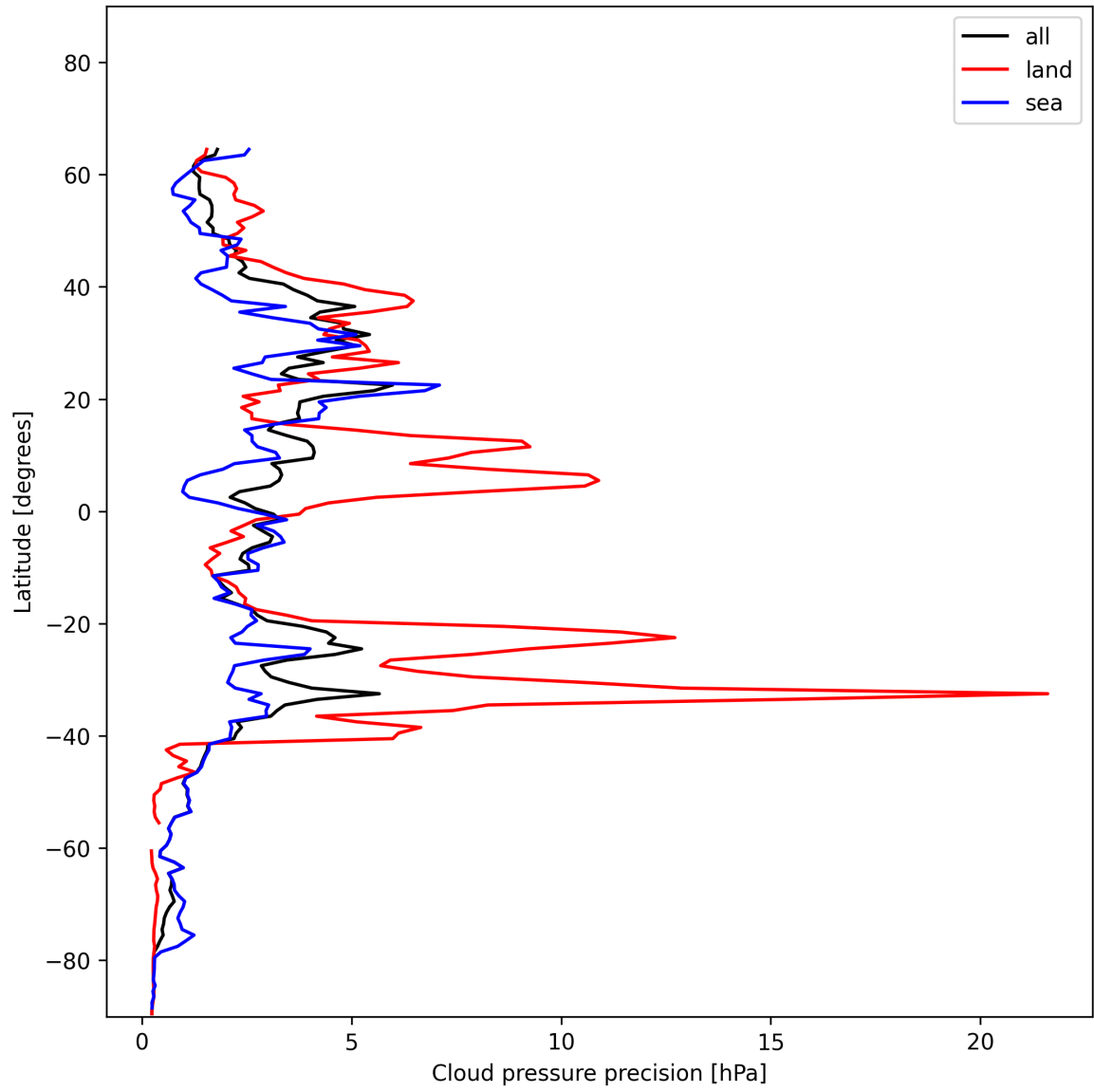


Figure 12: Zonal average of “Cloud pressure precision” for 2024-12-22 to 2024-12-23.

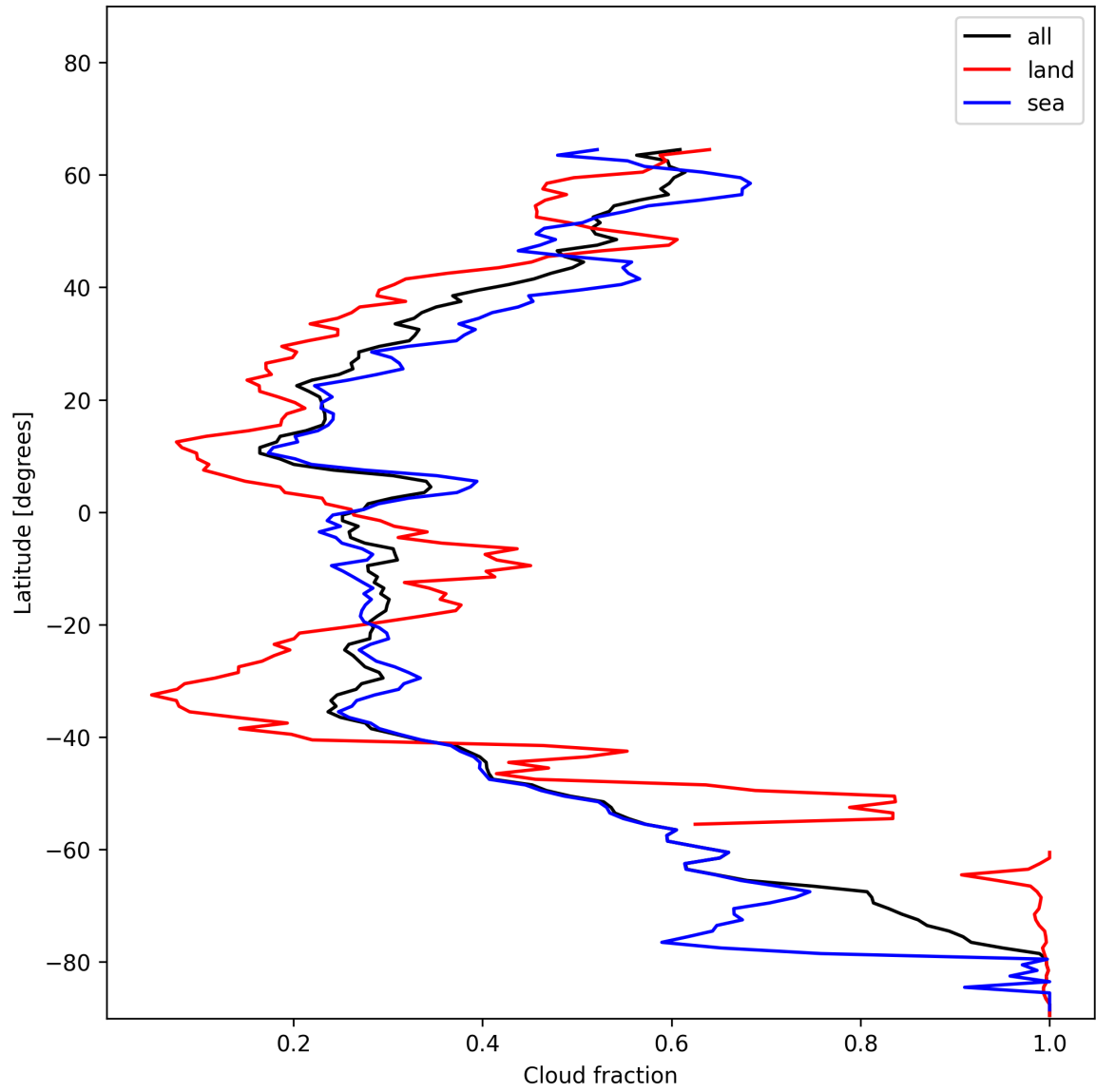


Figure 13: Zonal average of “Cloud fraction” for 2024-12-22 to 2024-12-23.

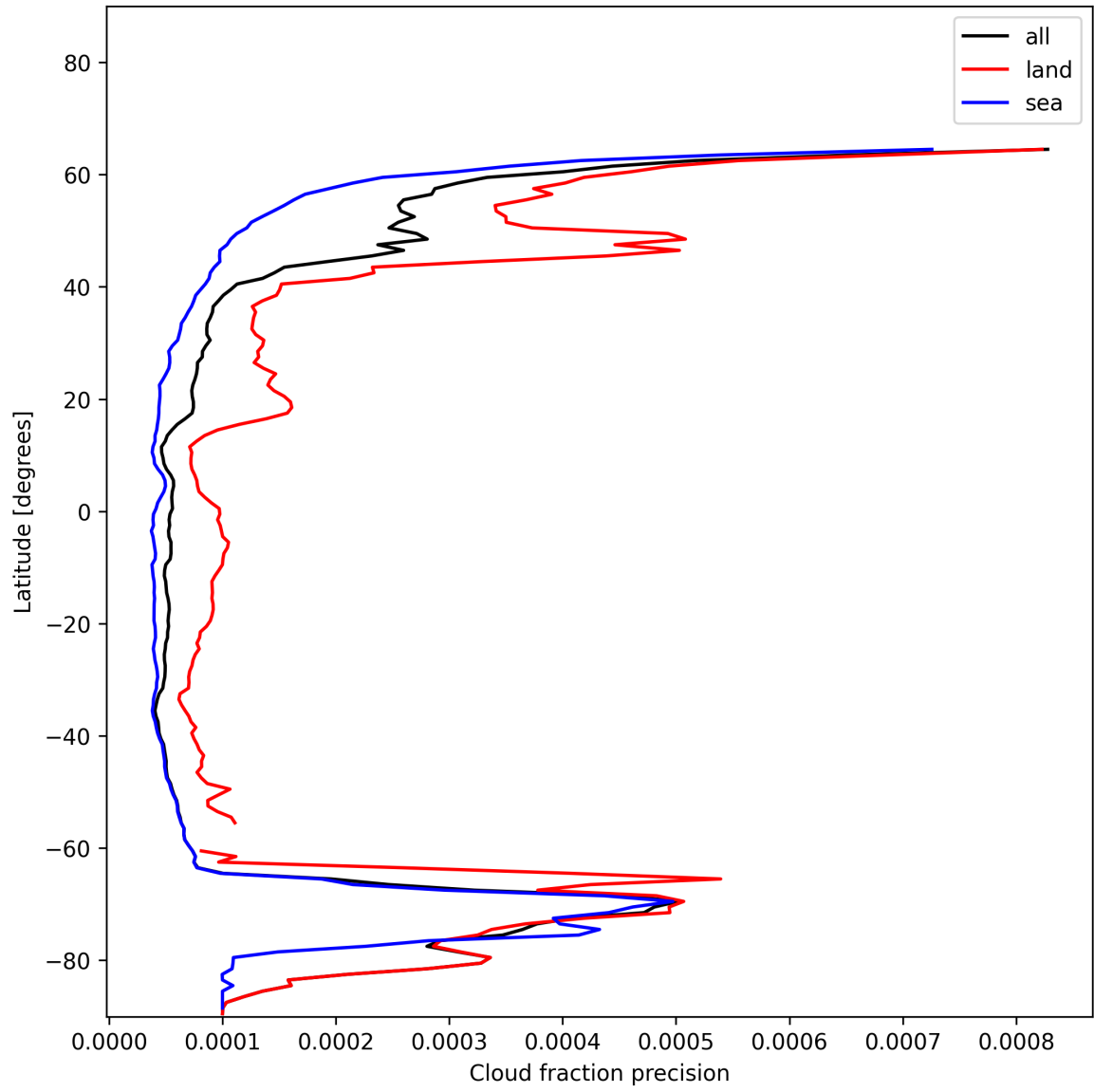


Figure 14: Zonal average of “Cloud fraction precision” for 2024-12-22 to 2024-12-23.

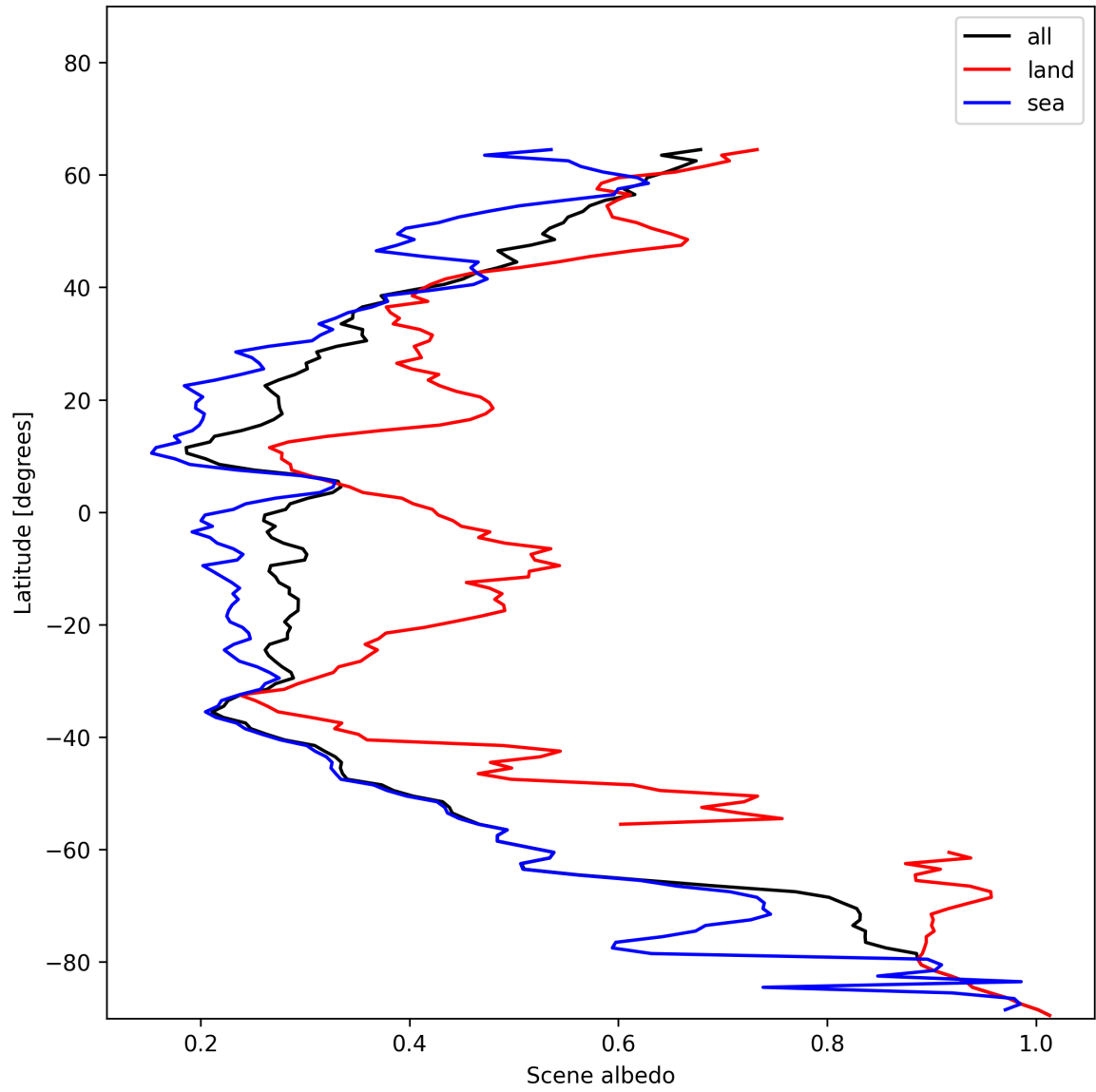


Figure 15: Zonal average of “Scene albedo” for 2024-12-22 to 2024-12-23.

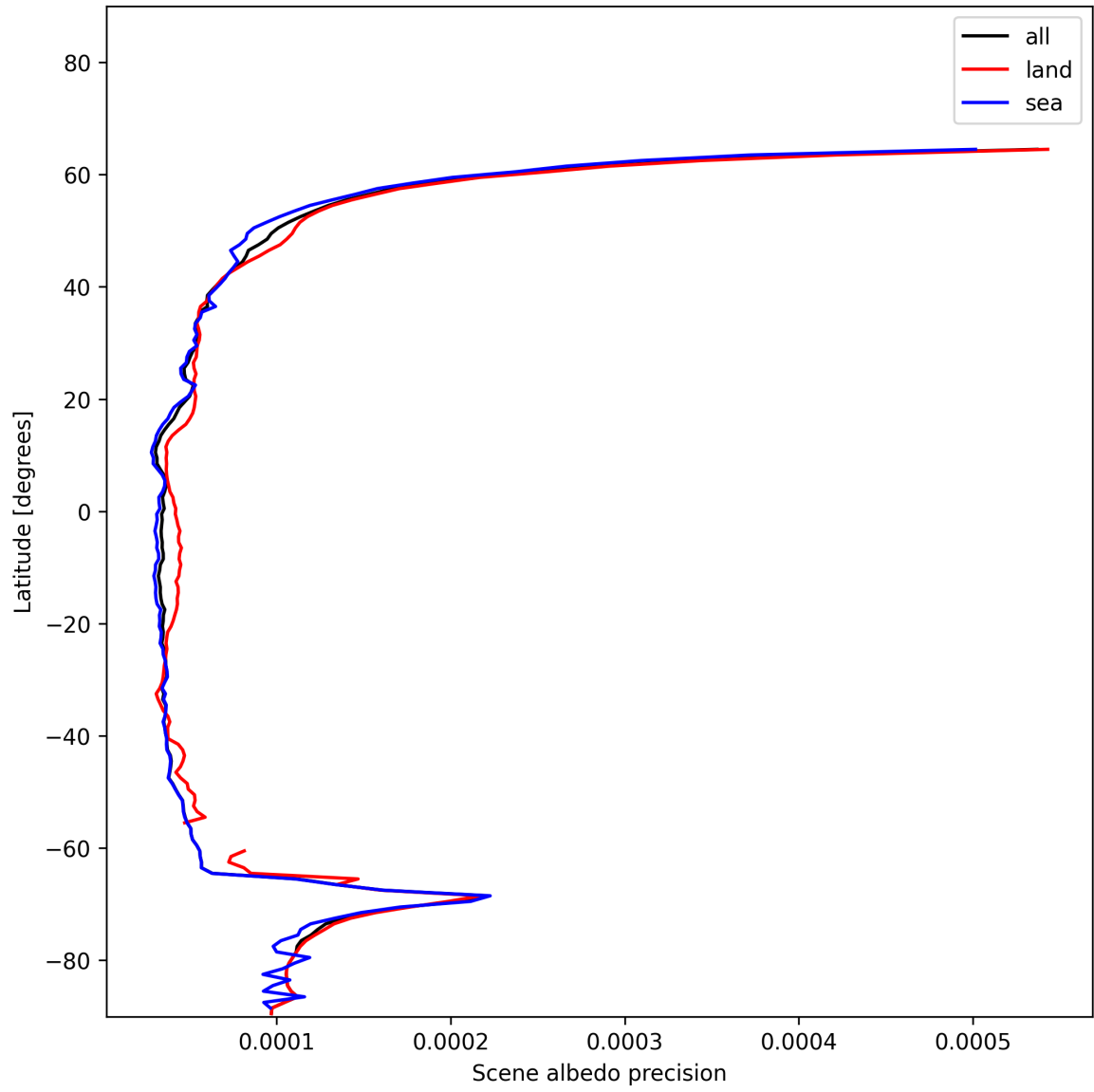


Figure 16: Zonal average of “Scene albedo precision” for 2024-12-22 to 2024-12-23.

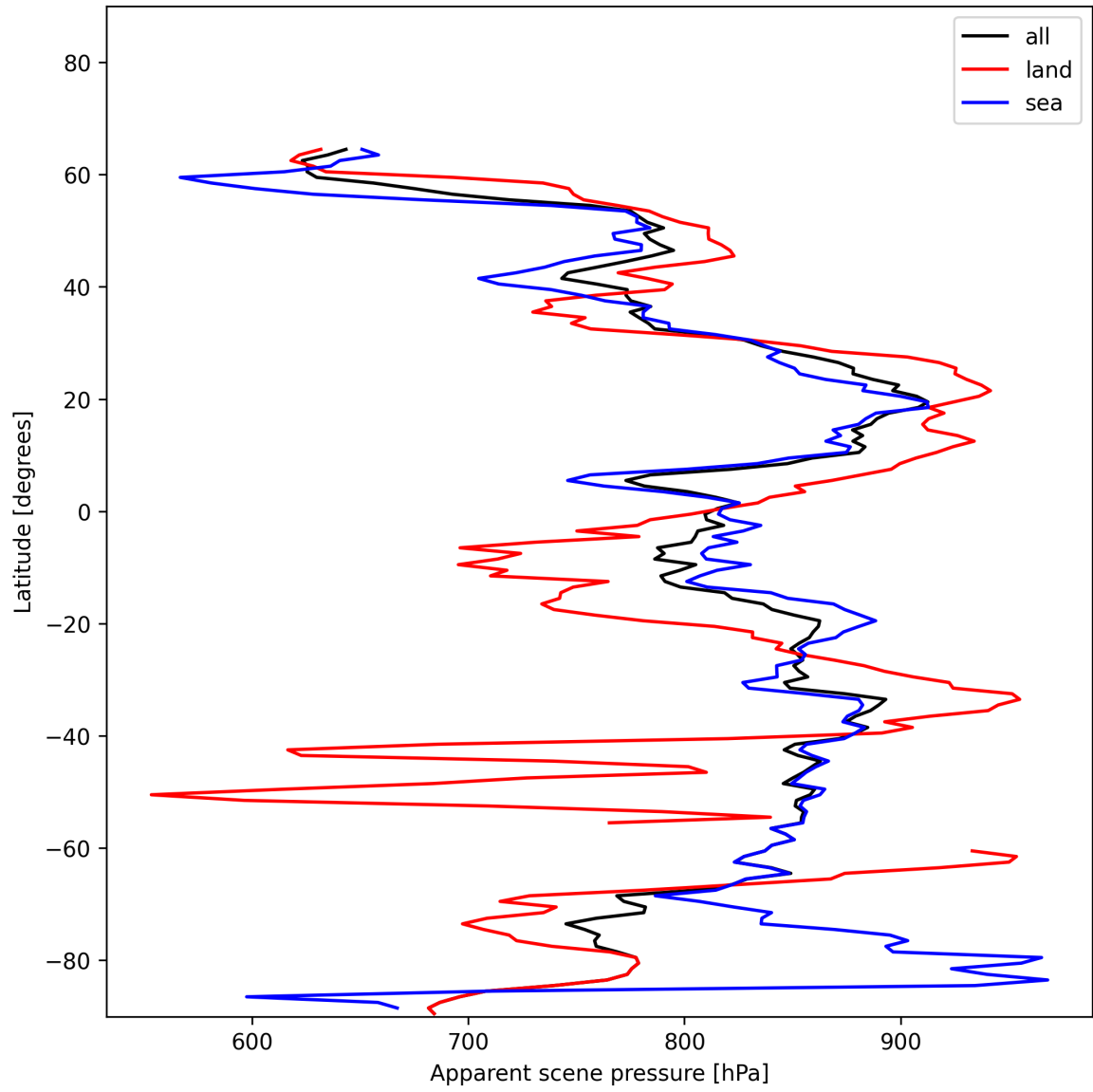


Figure 17: Zonal average of “Apparent scene pressure” for 2024-12-22 to 2024-12-23.

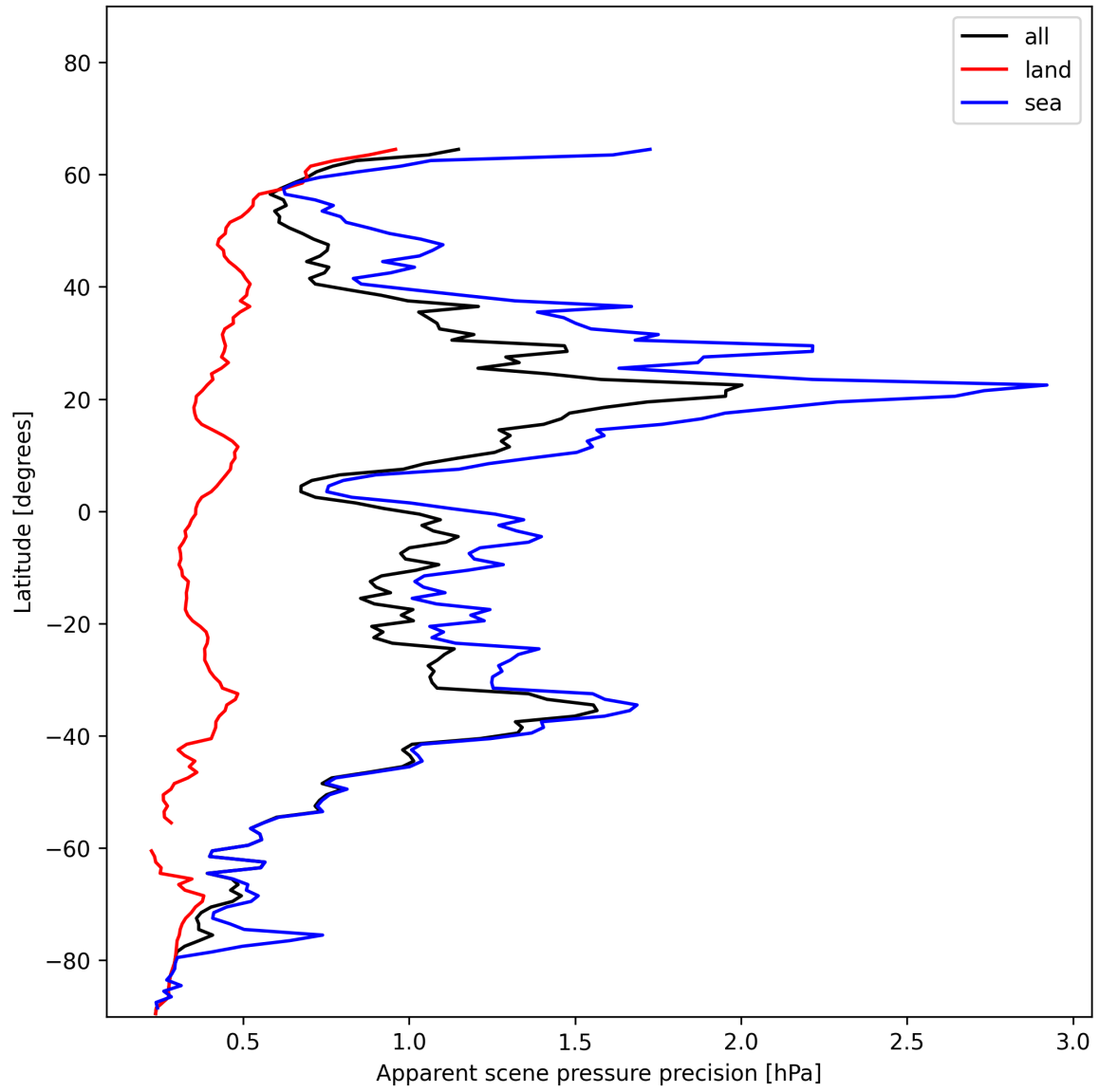


Figure 18: Zonal average of “Apparent scene pressure precision” for 2024-12-22 to 2024-12-23.

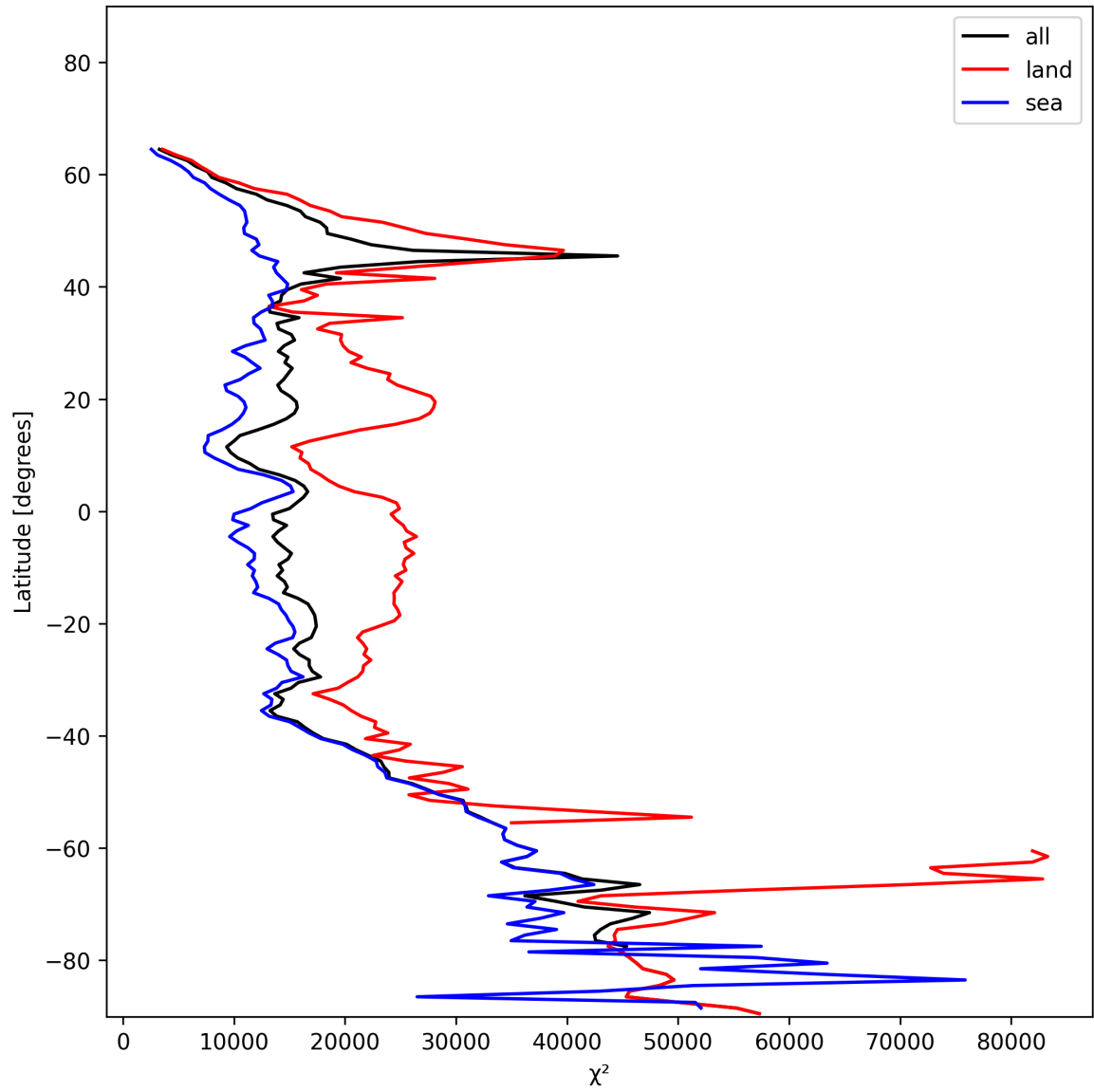


Figure 19: Zonal average of “ χ^2 ” for 2024-12-22 to 2024-12-23.

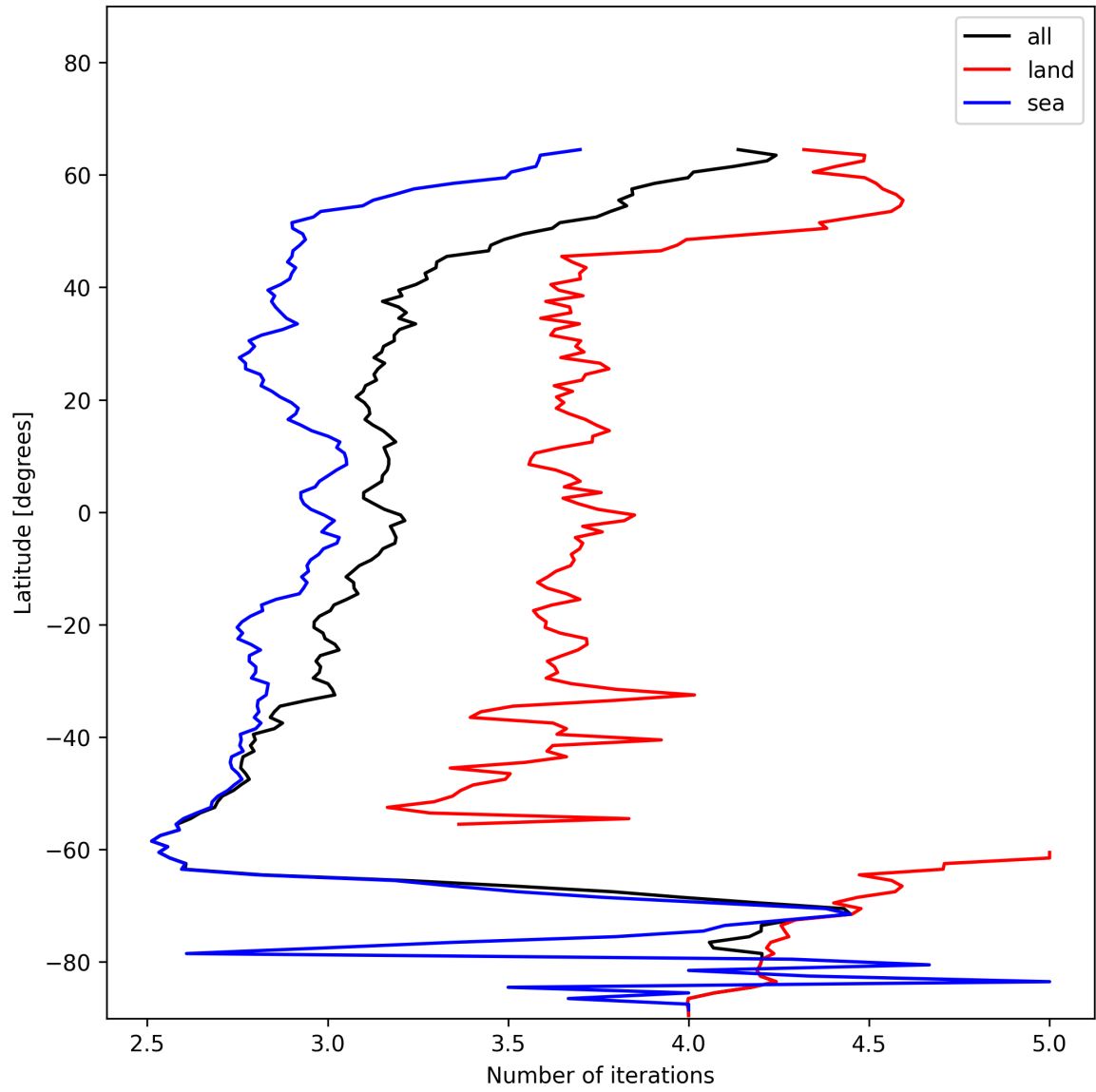


Figure 20: Zonal average of “Number of iterations” for 2024-12-22 to 2024-12-23.

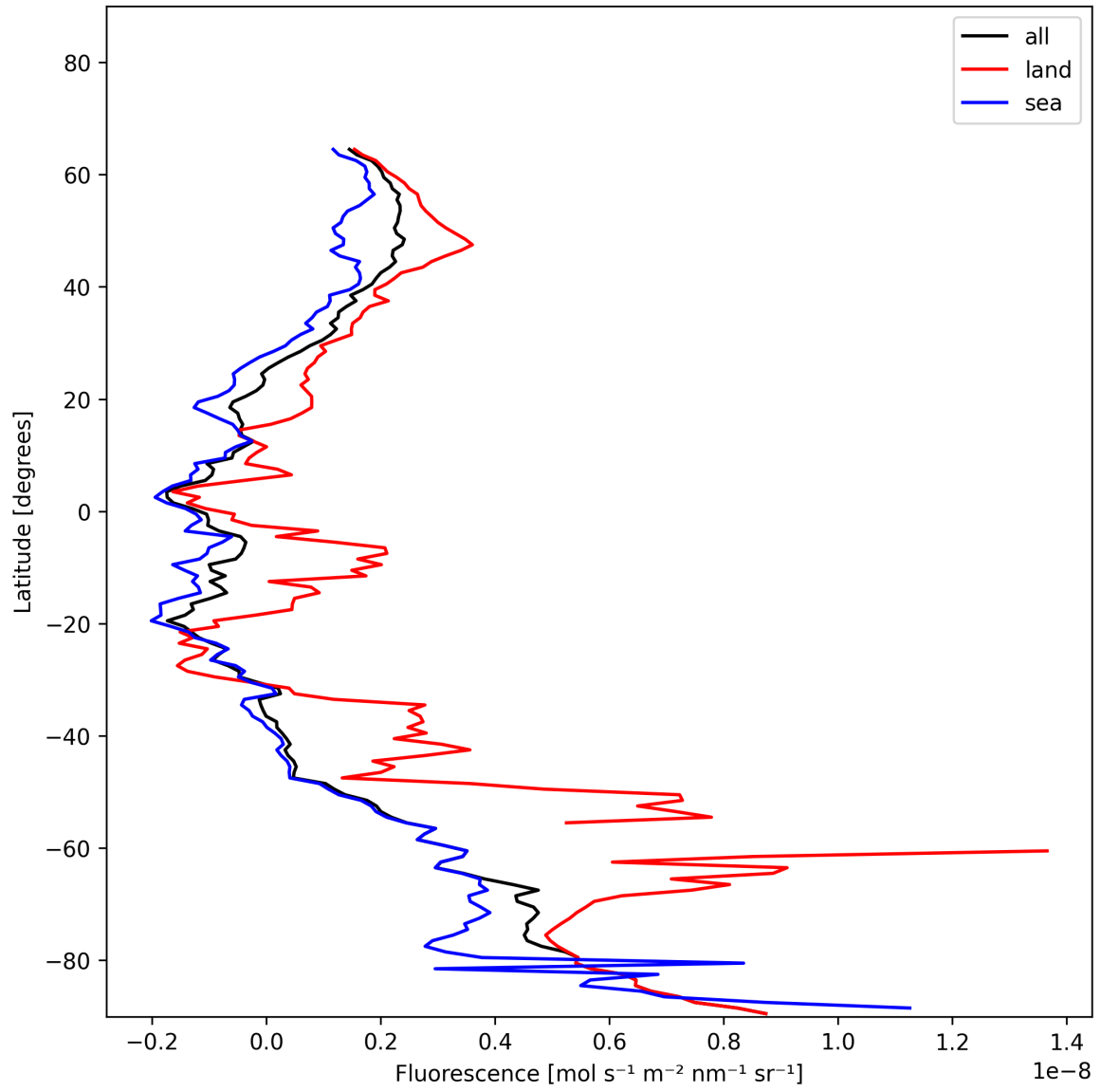


Figure 21: Zonal average of “Fluorescence” for 2024-12-22 to 2024-12-23.

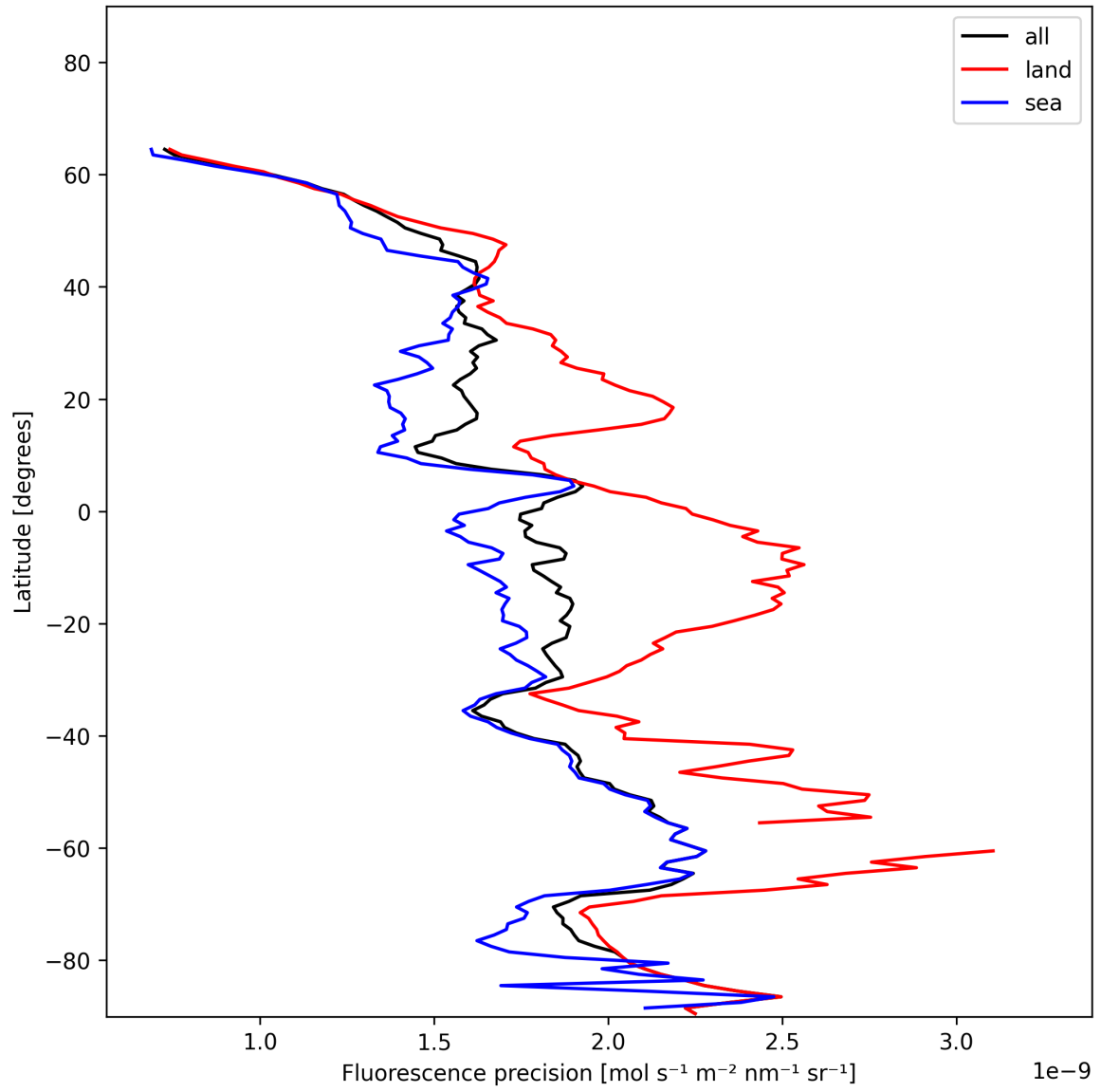


Figure 22: Zonal average of “Fluorescence precision” for 2024-12-22 to 2024-12-23.

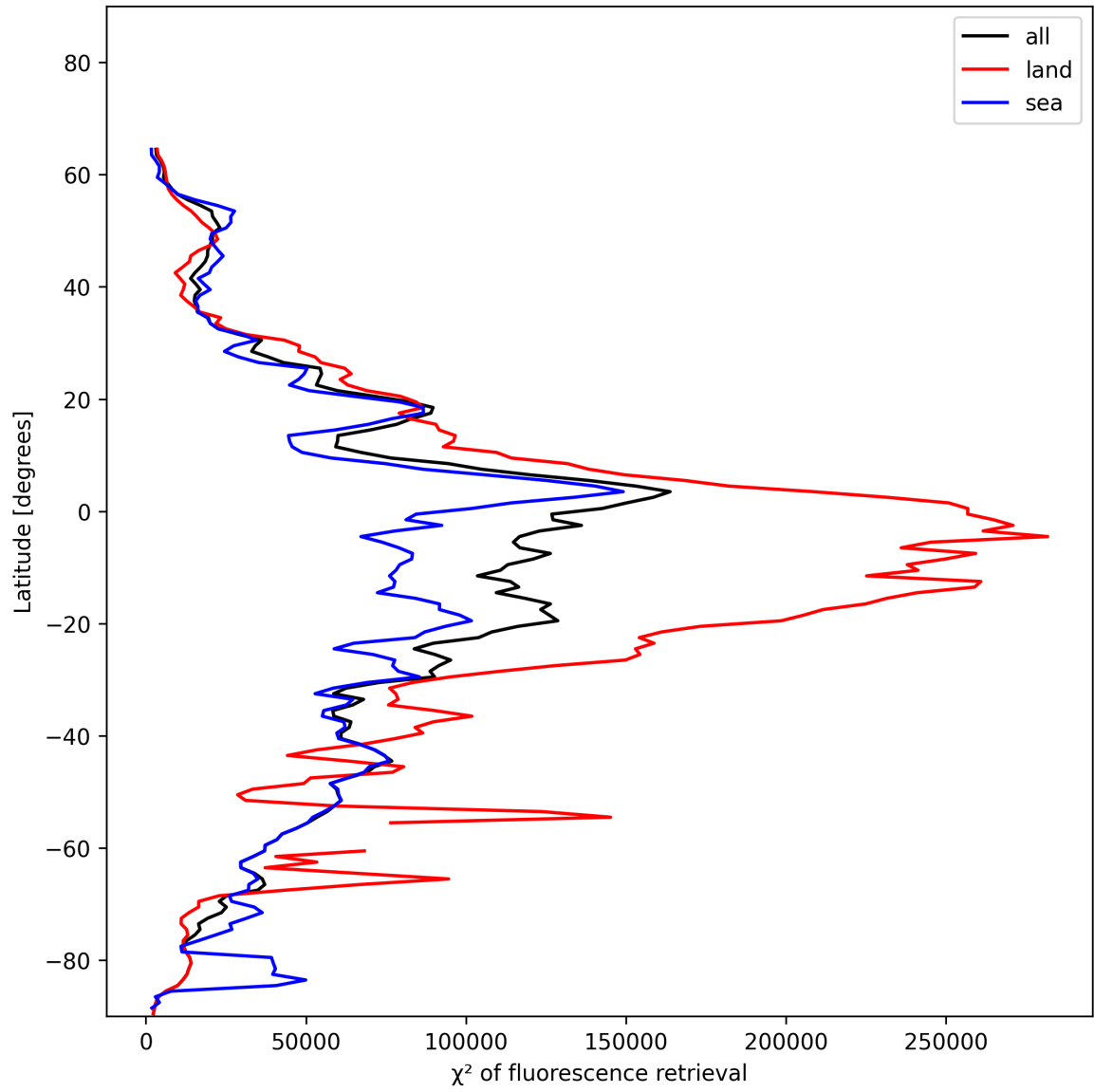


Figure 23: Zonal average of “ χ^2 of fluorescence retrieval” for 2024-12-22 to 2024-12-23.

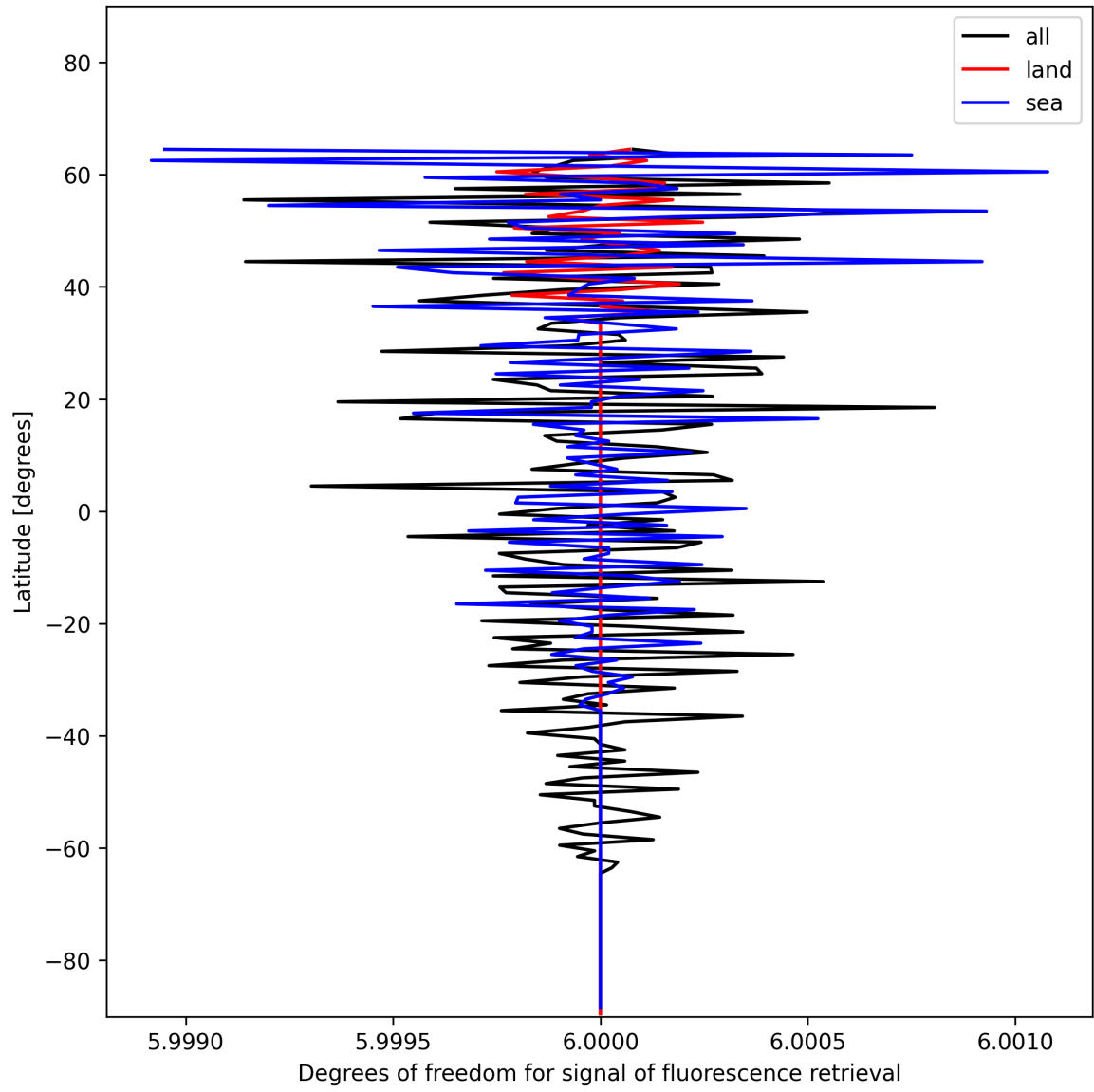


Figure 24: Zonal average of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-22 to 2024-12-23.

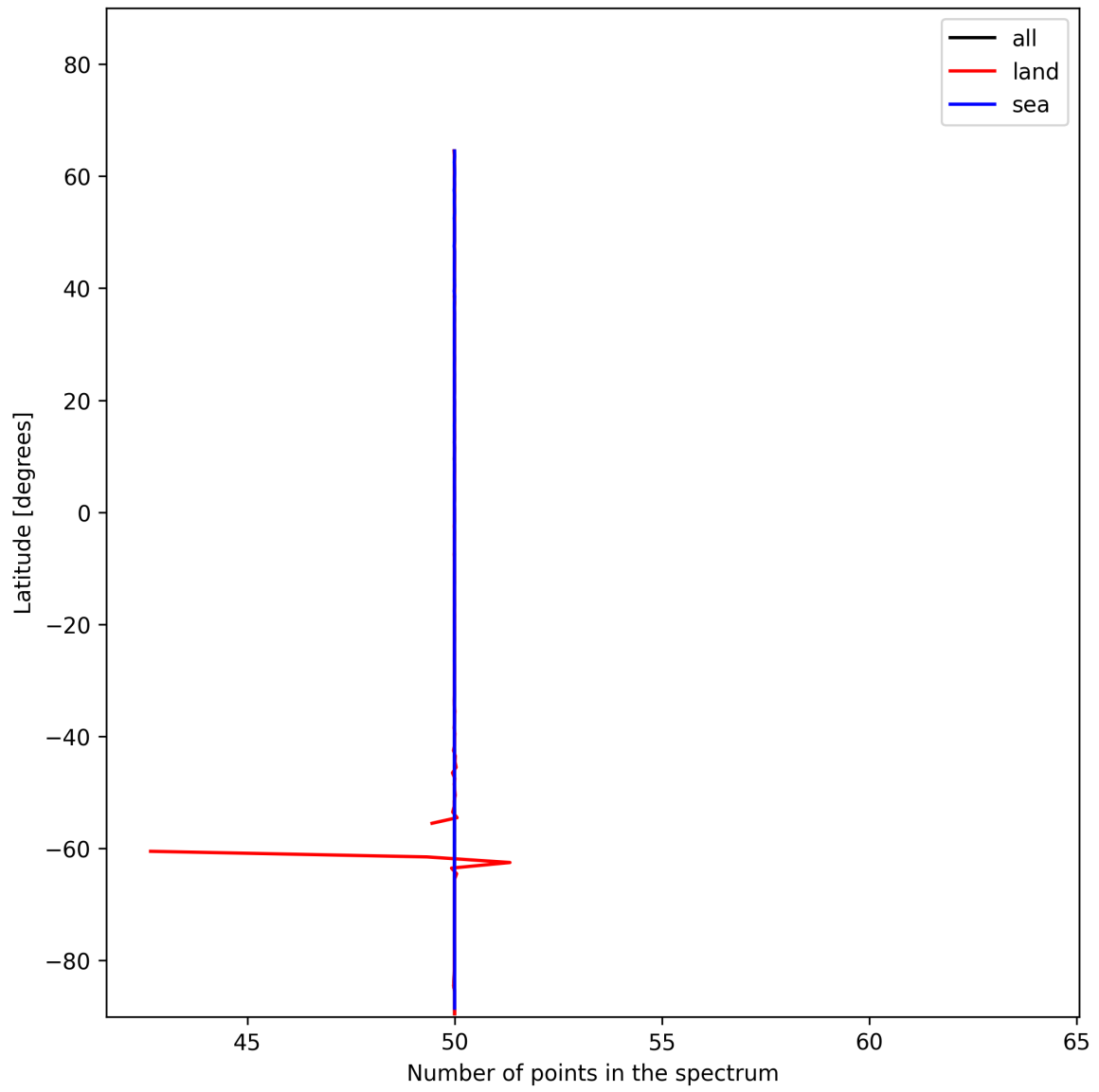


Figure 25: Zonal average of “Number of points in the spectrum” for 2024-12-22 to 2024-12-23.

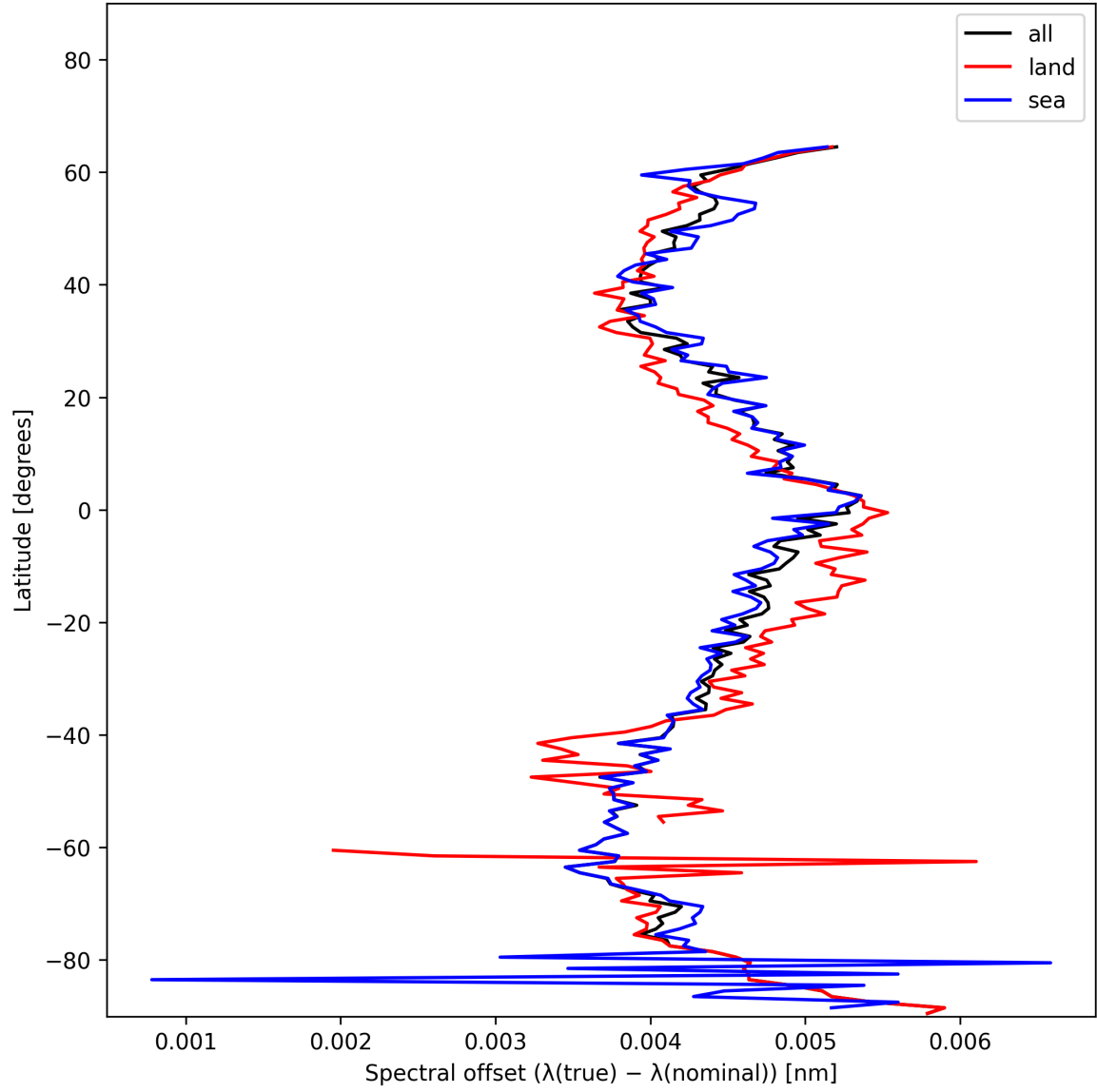


Figure 26: Zonal average of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-22 to 2024-12-23.

8 Histograms

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

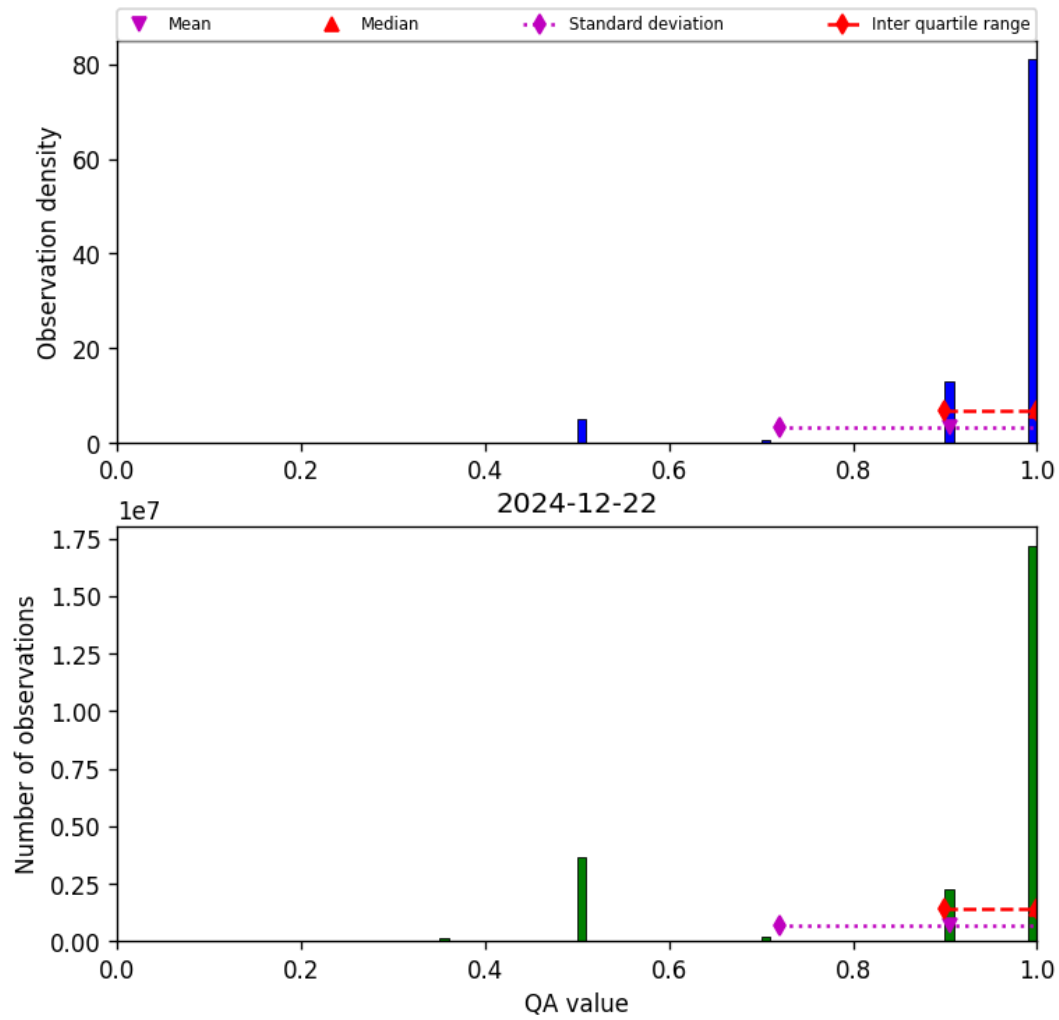


Figure 27: Histogram of “QA value” for 2024-12-22 to 2024-12-23

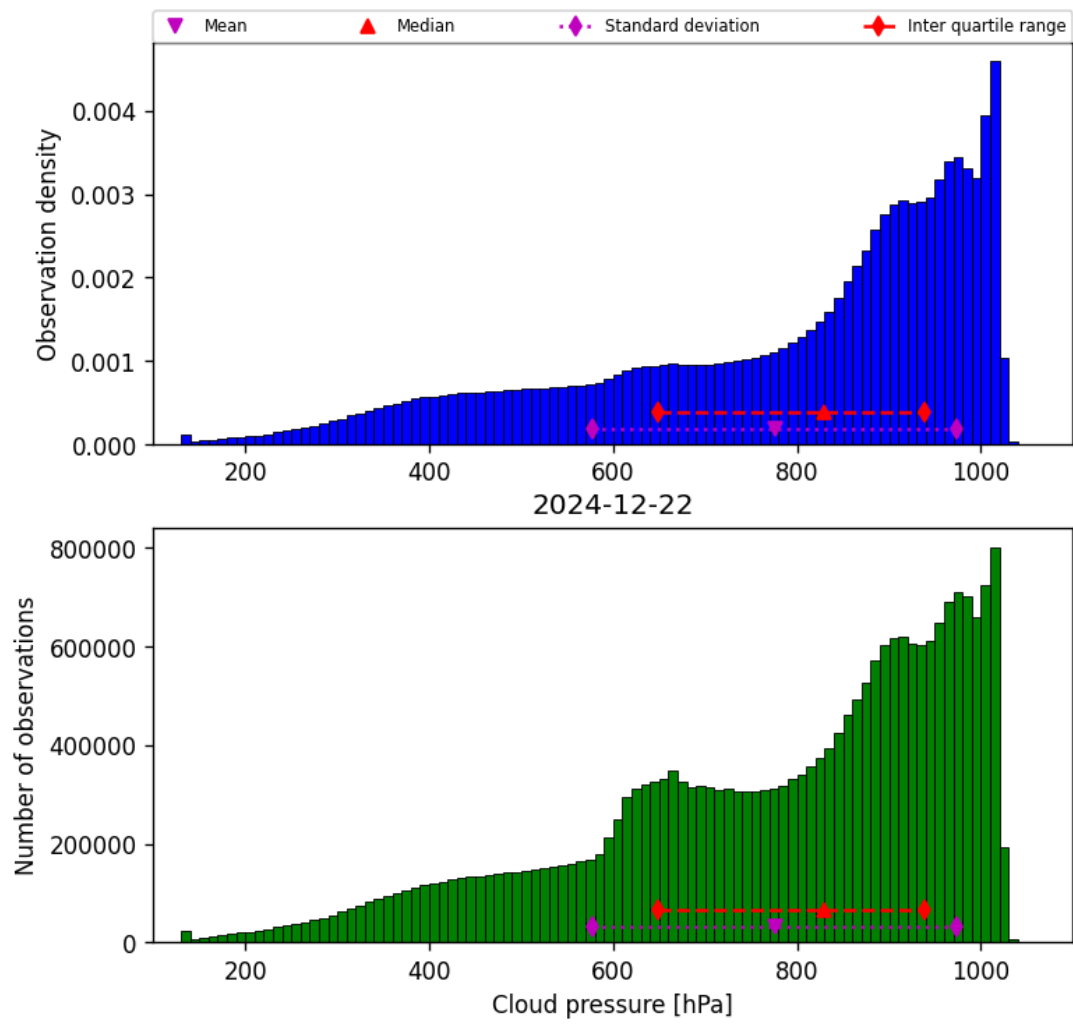


Figure 28: Histogram of “Cloud pressure” for 2024-12-22 to 2024-12-23

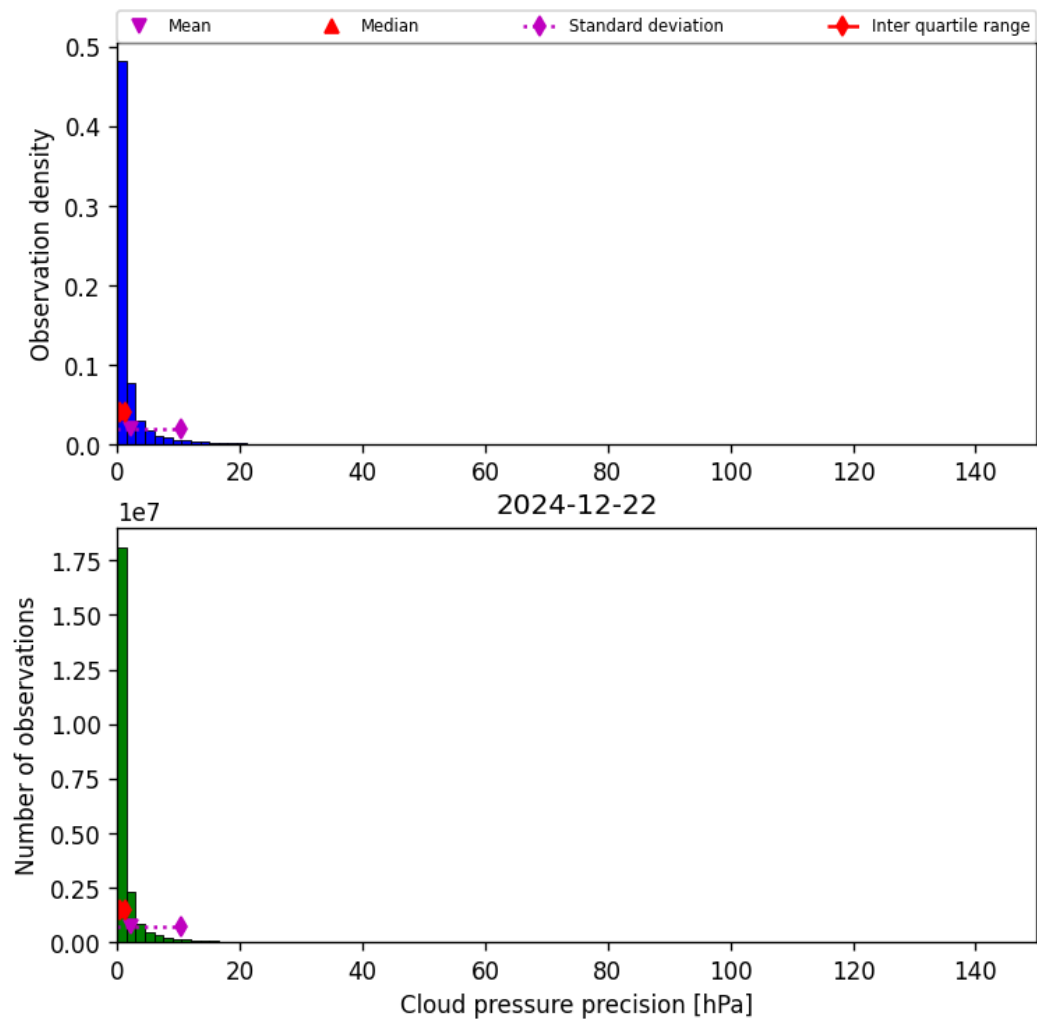


Figure 29: Histogram of “Cloud pressure precision” for 2024-12-22 to 2024-12-23

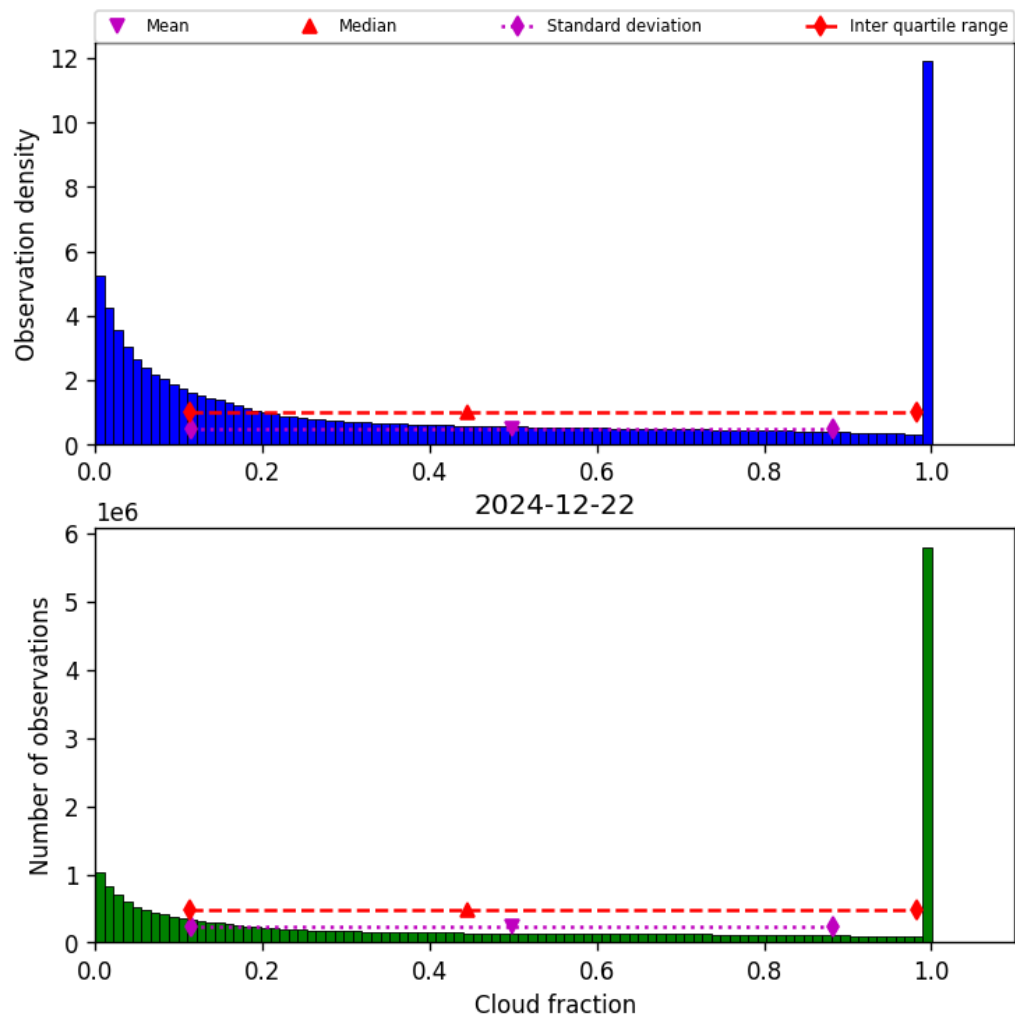


Figure 30: Histogram of “Cloud fraction” for 2024-12-22 to 2024-12-23

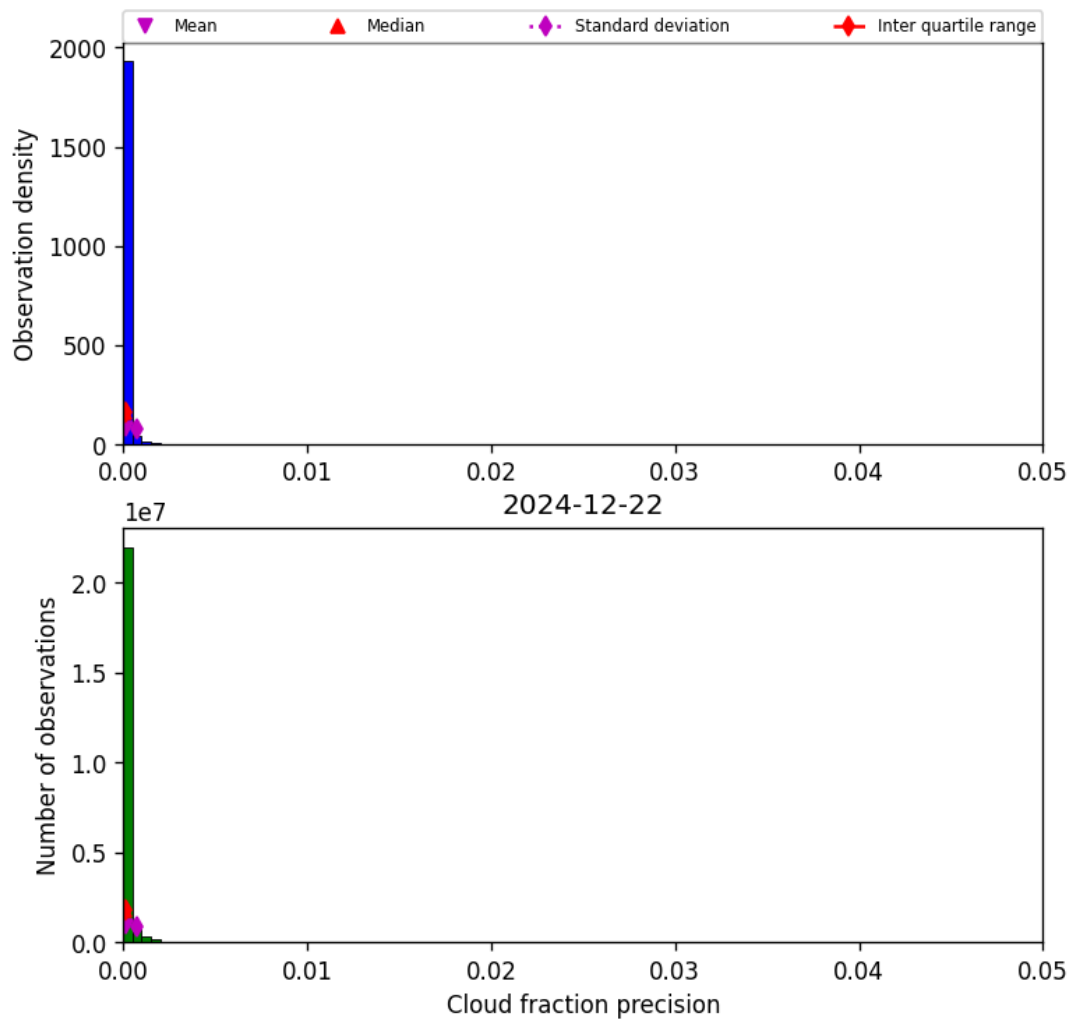


Figure 31: Histogram of “Cloud fraction precision” for 2024-12-22 to 2024-12-23

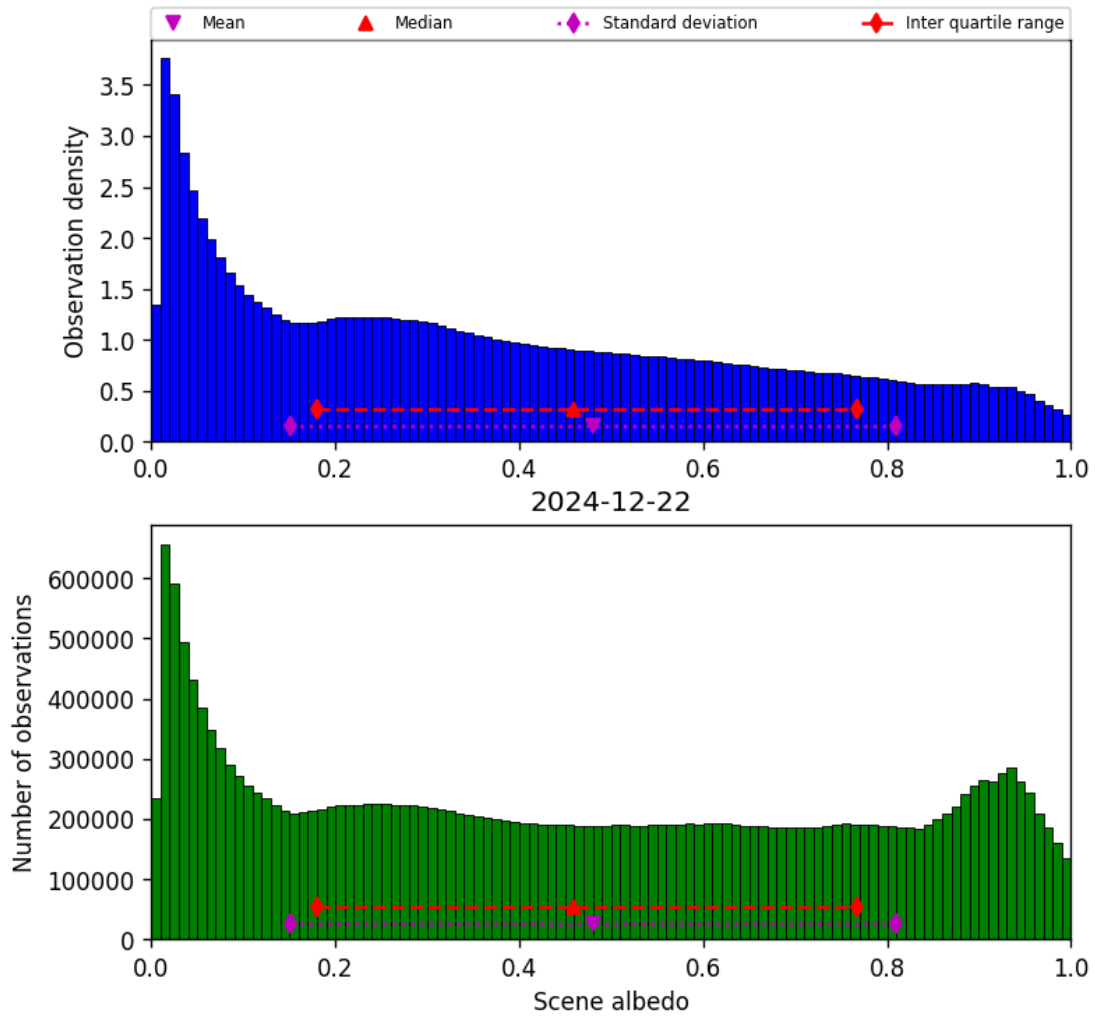


Figure 32: Histogram of “Scene albedo” for 2024-12-22 to 2024-12-23

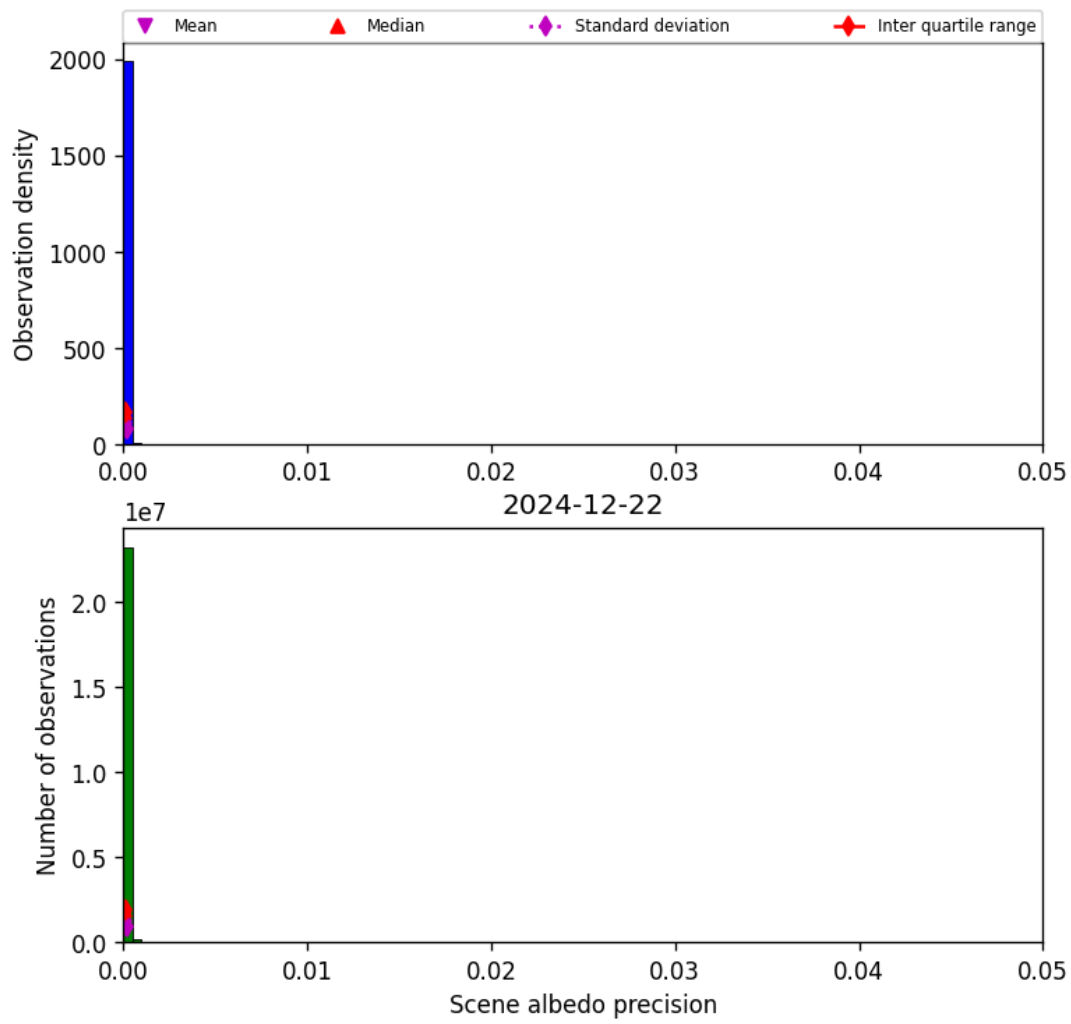


Figure 33: Histogram of “Scene albedo precision” for 2024-12-22 to 2024-12-23

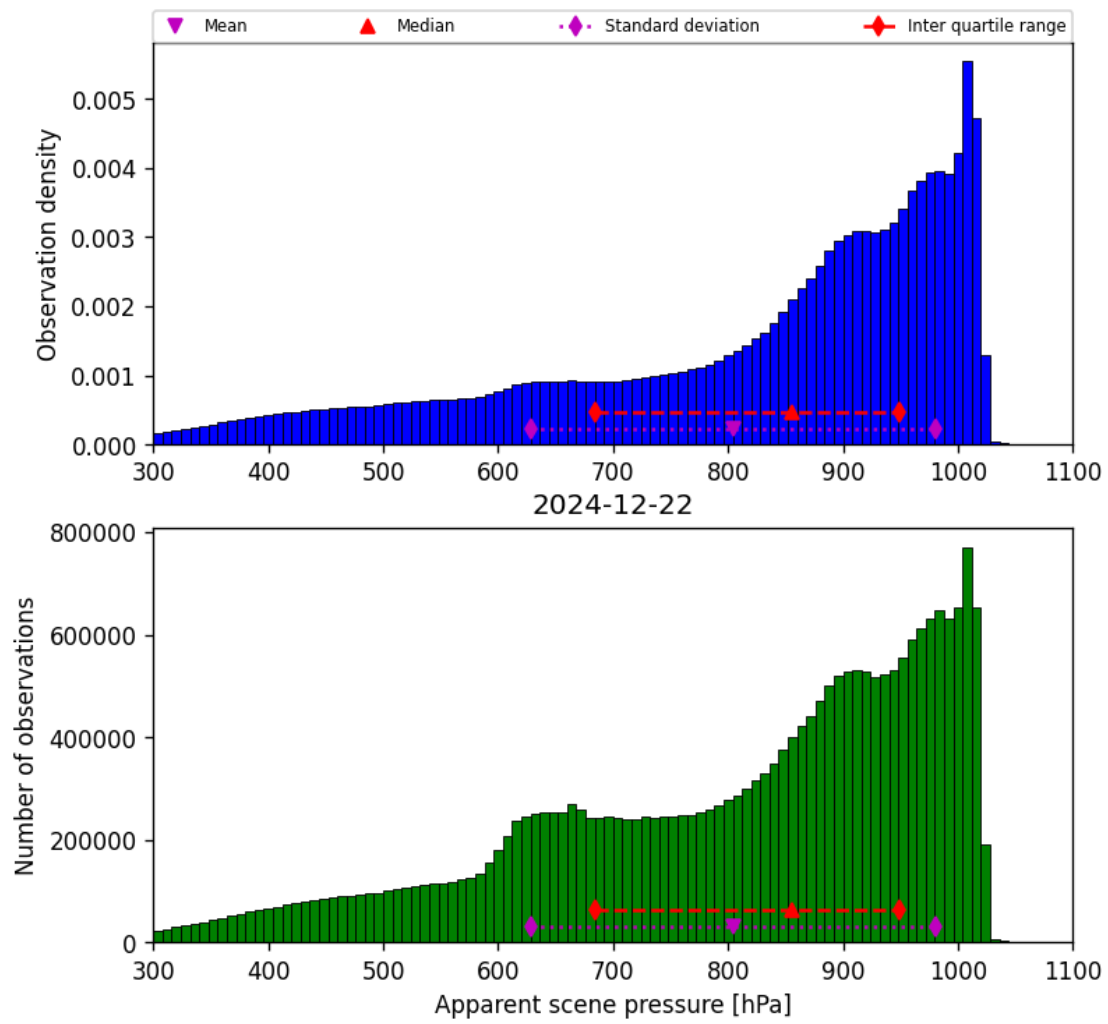


Figure 34: Histogram of “Apparent scene pressure” for 2024-12-22 to 2024-12-23

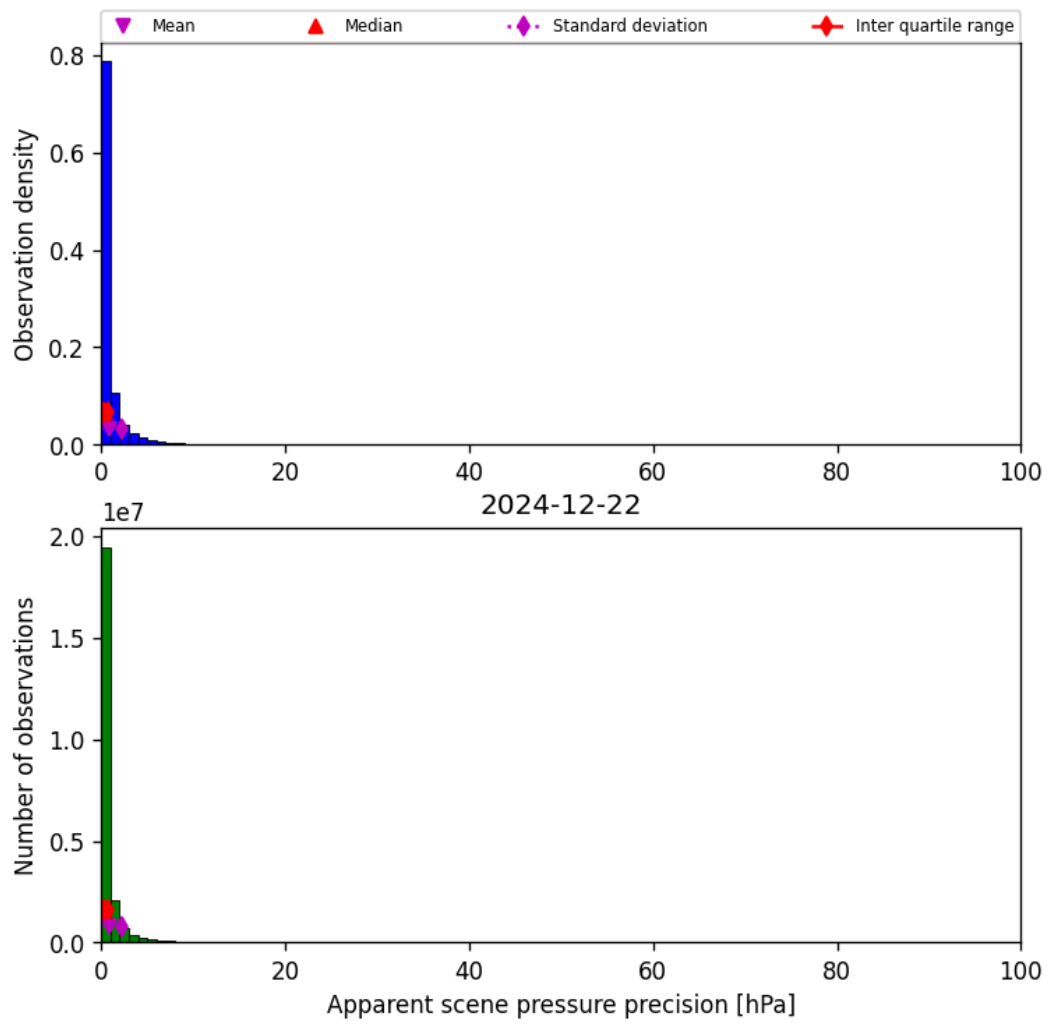


Figure 35: Histogram of "Apparent scene pressure precision" for 2024-12-22 to 2024-12-23

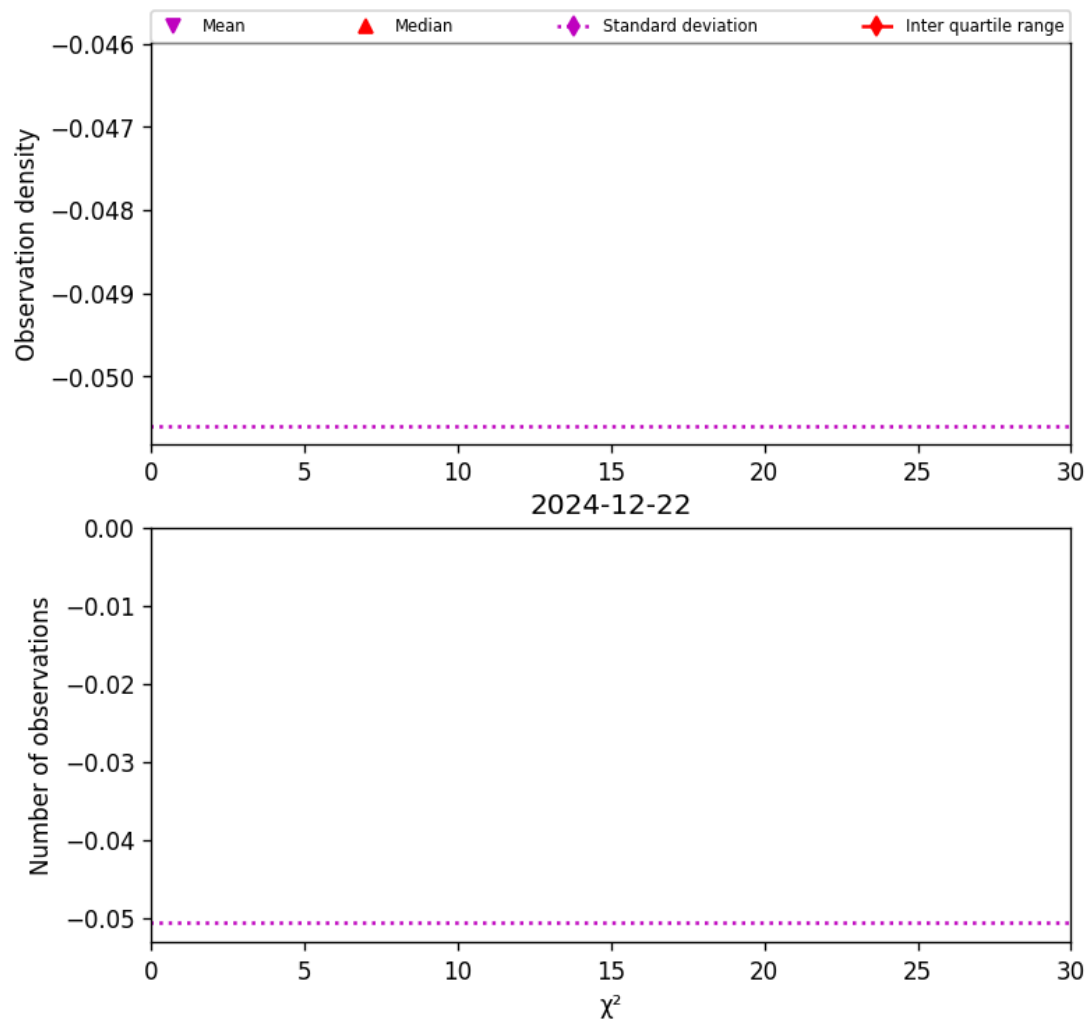


Figure 36: Histogram of " χ^2 " for 2024-12-22 to 2024-12-23

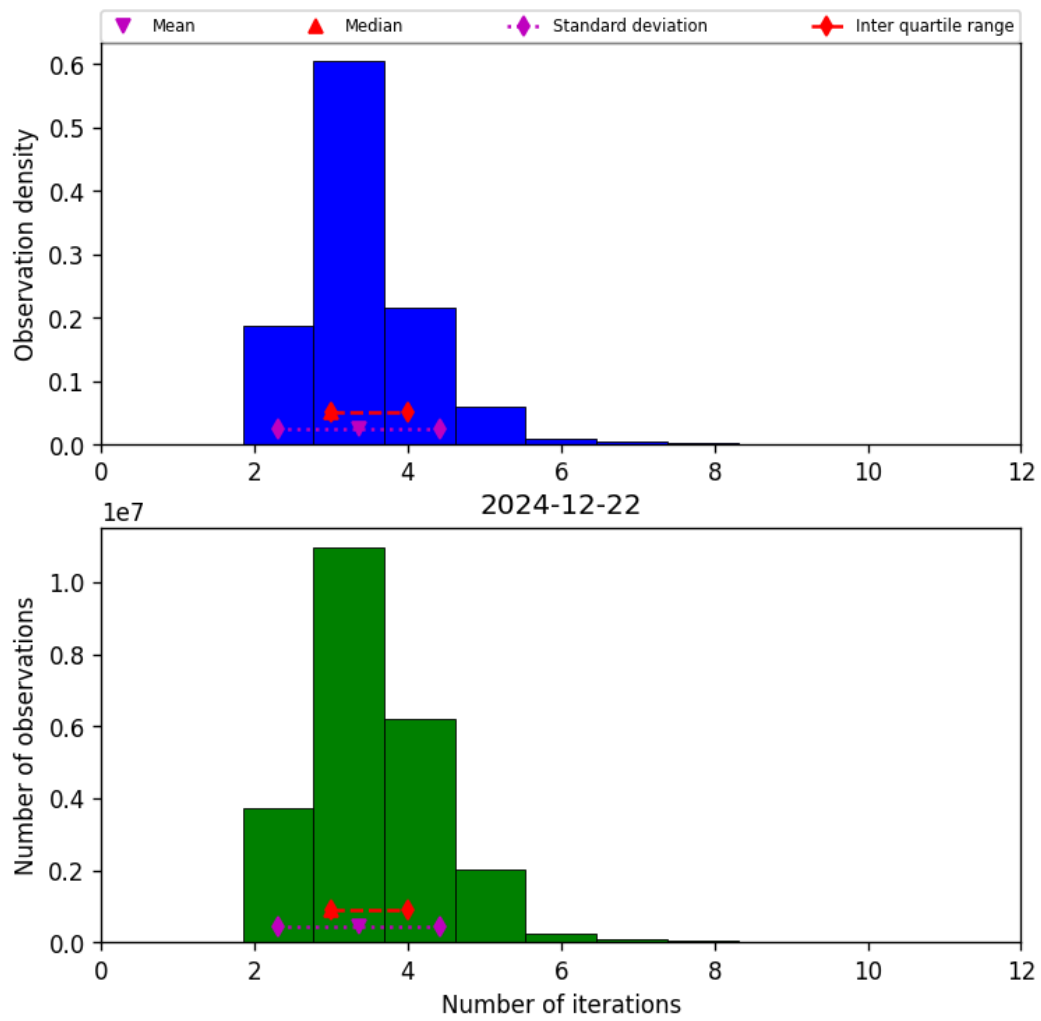


Figure 37: Histogram of “Number of iterations” for 2024-12-22 to 2024-12-23

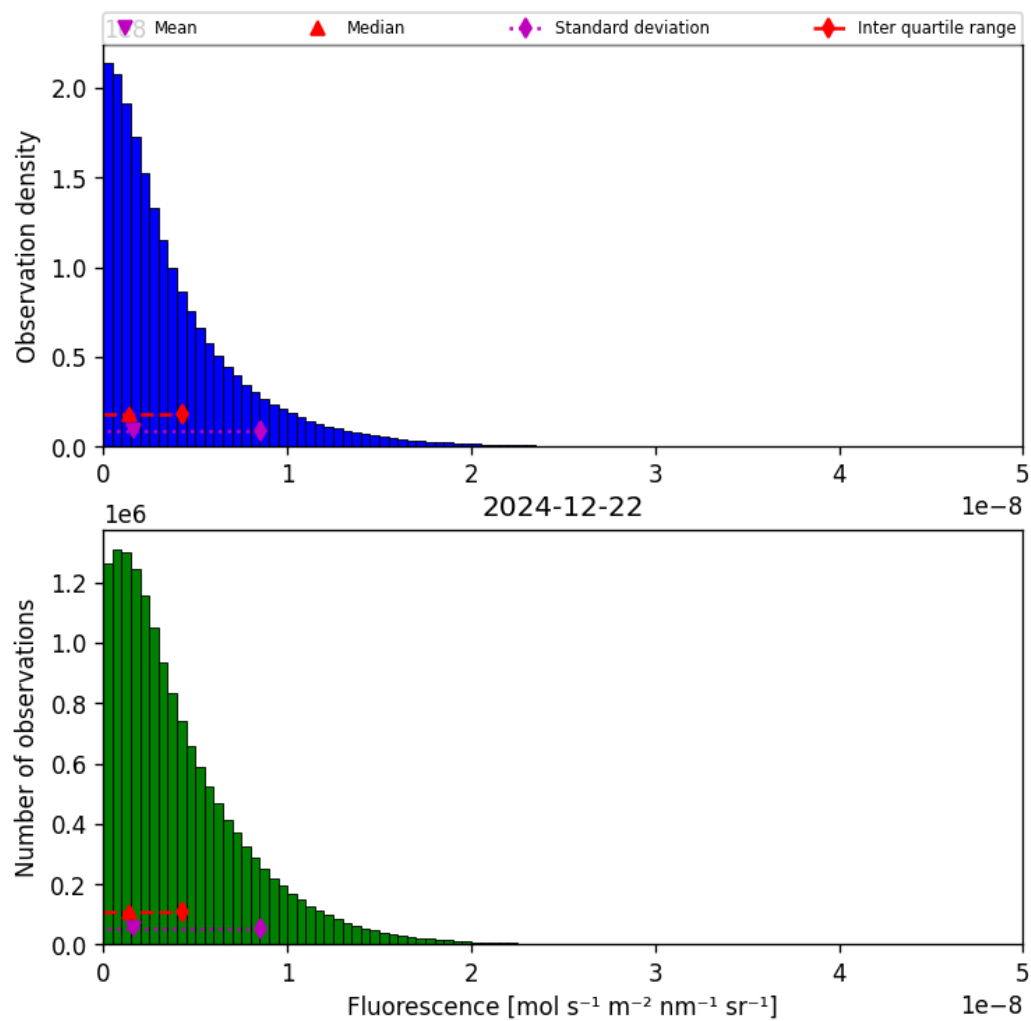


Figure 38: Histogram of “Fluorescence” for 2024-12-22 to 2024-12-23

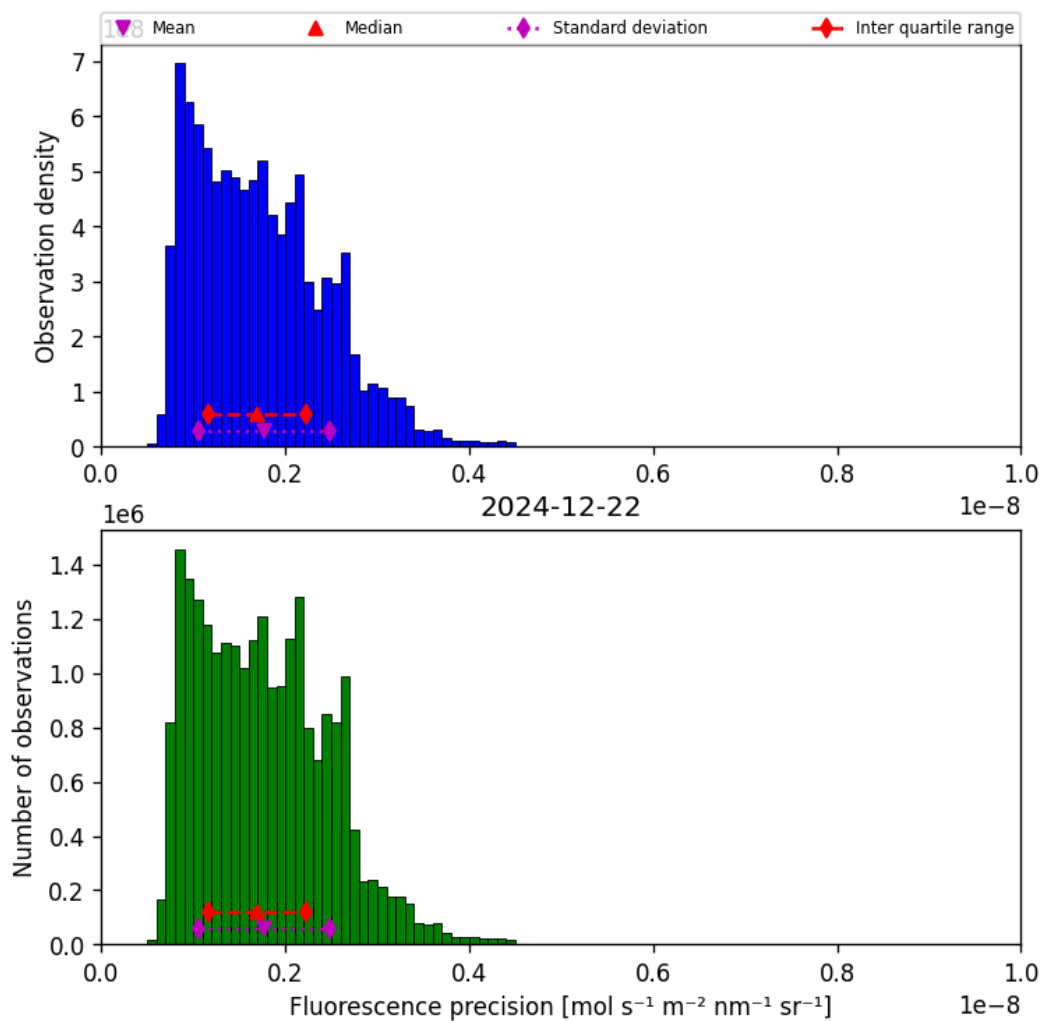


Figure 39: Histogram of “Fluorescence precision” for 2024-12-22 to 2024-12-23

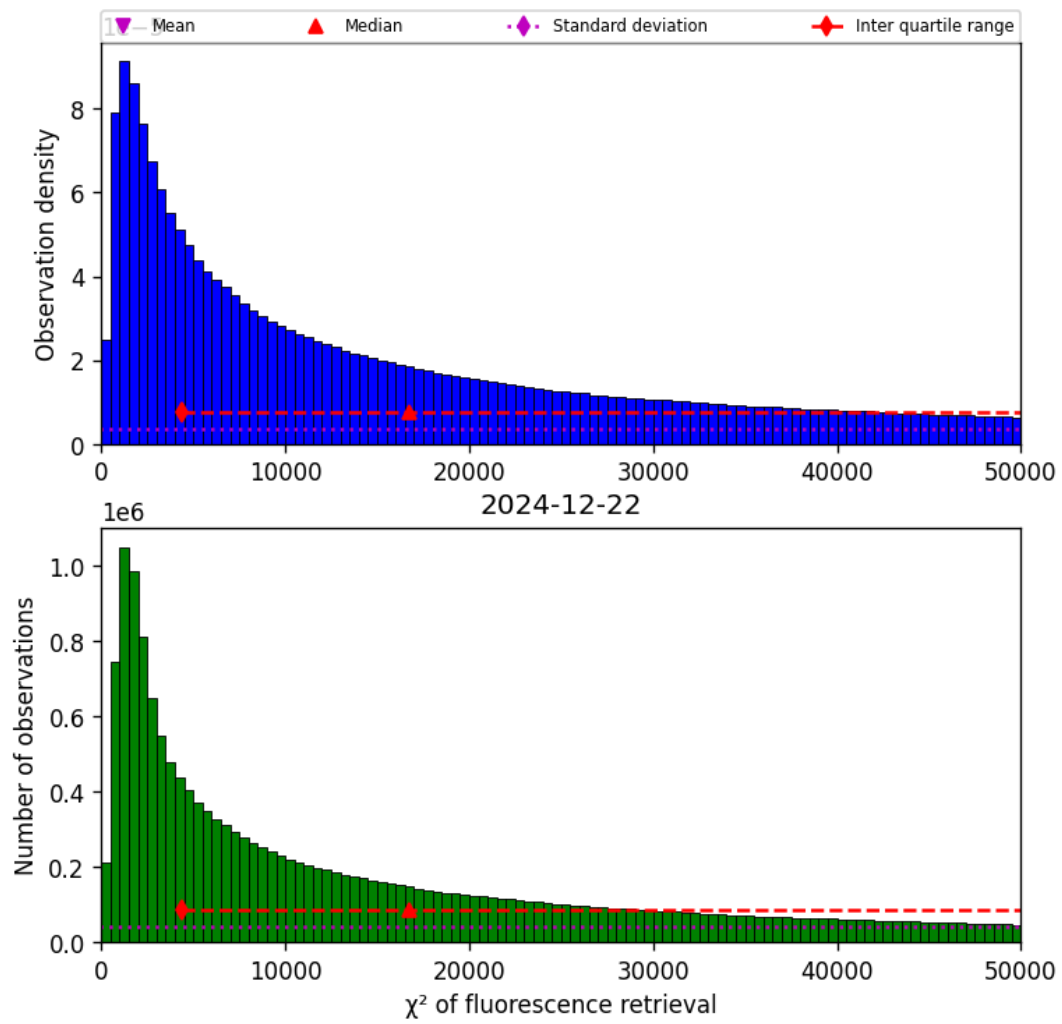


Figure 40: Histogram of “ χ^2 of fluorescence retrieval” for 2024-12-22 to 2024-12-23

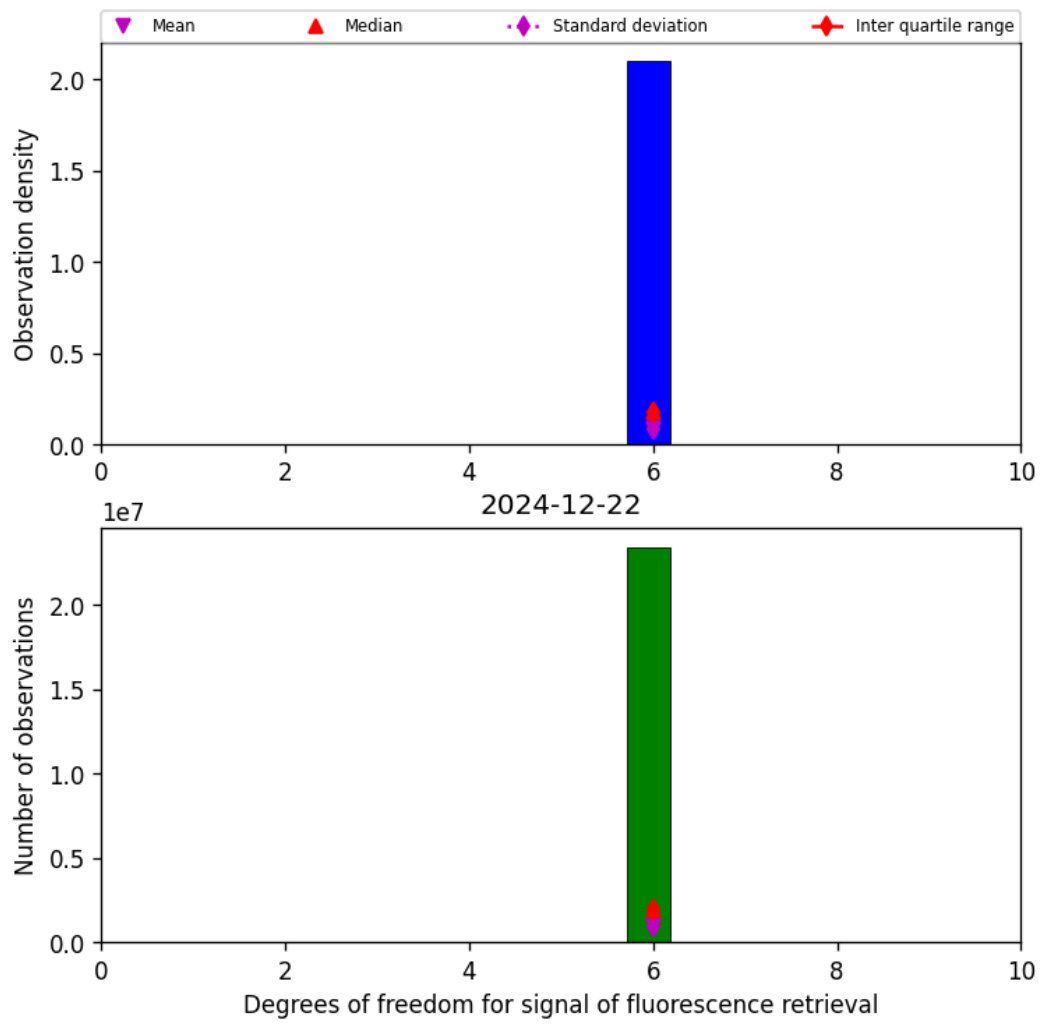


Figure 41: Histogram of "Degrees of freedom for signal of fluorescence retrieval" for 2024-12-22 to 2024-12-23

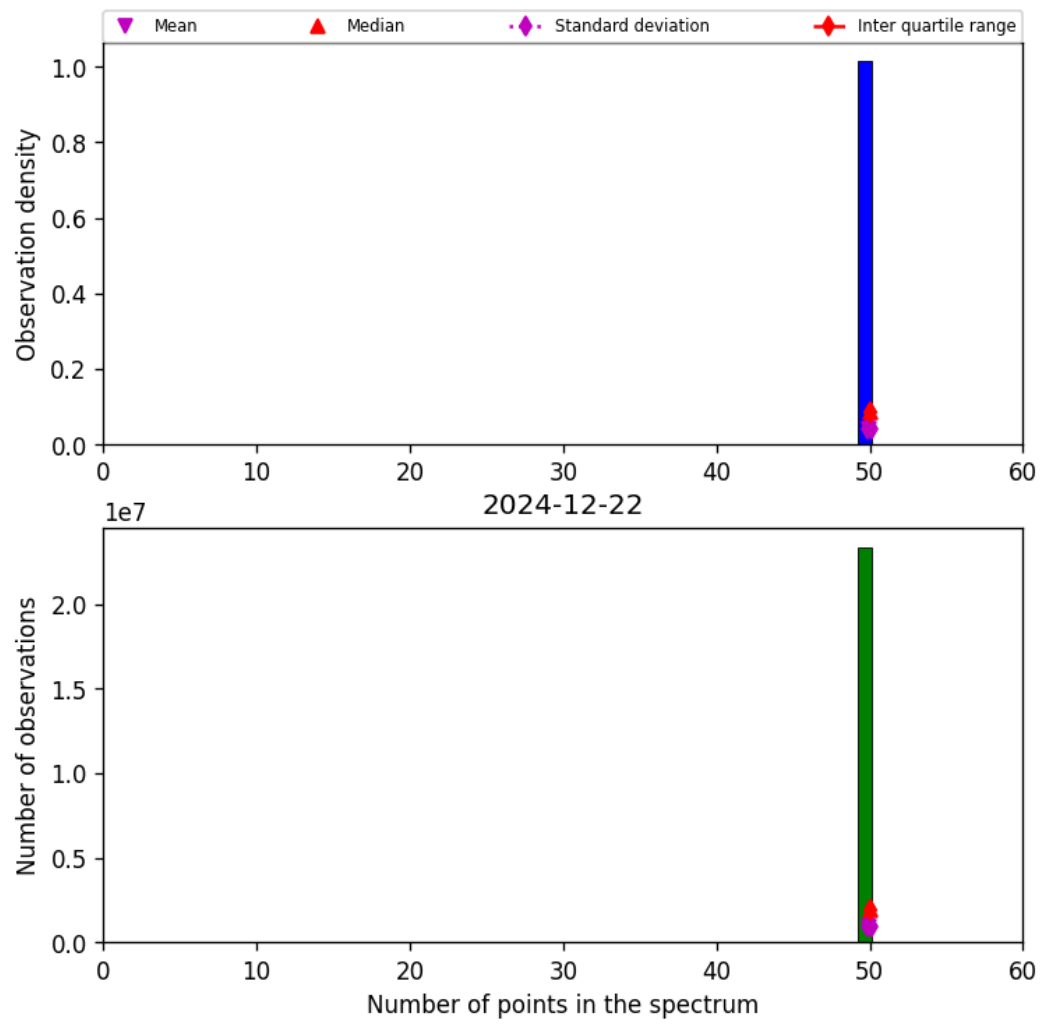


Figure 42: Histogram of “Number of points in the spectrum” for 2024-12-22 to 2024-12-23

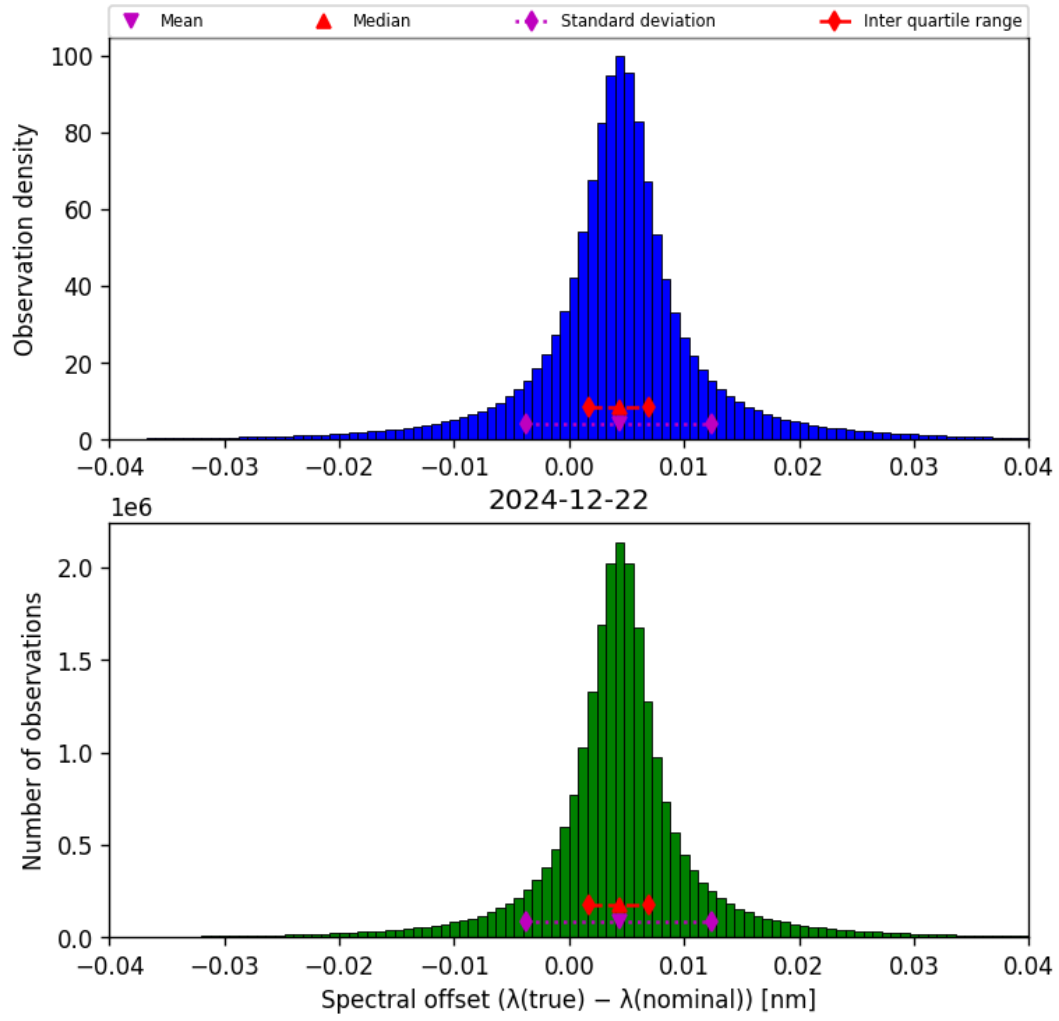


Figure 43: Histogram of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-22 to 2024-12-23

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.

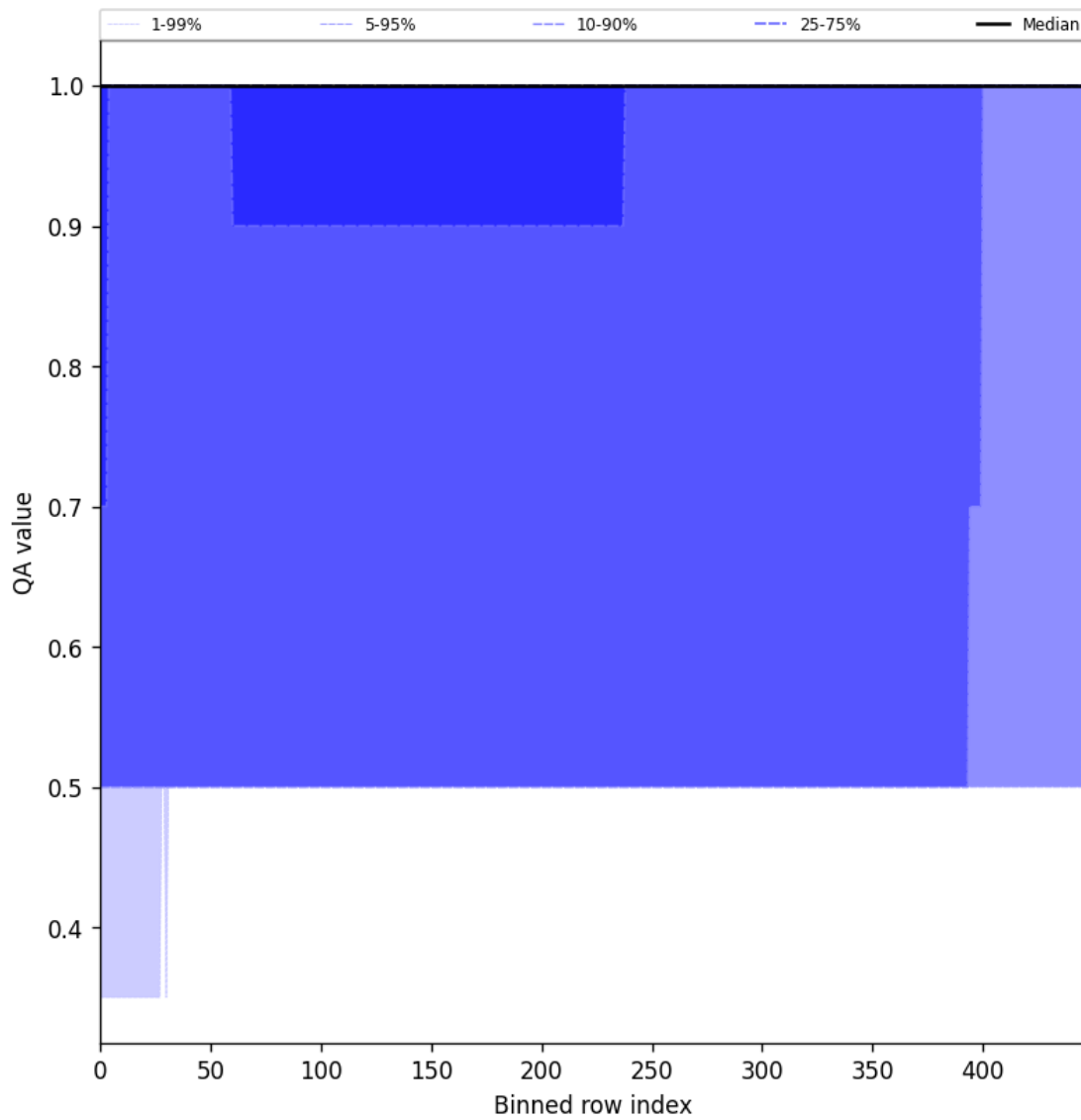


Figure 44: Along track statistics of “QA value” for 2024-12-22 to 2024-12-23

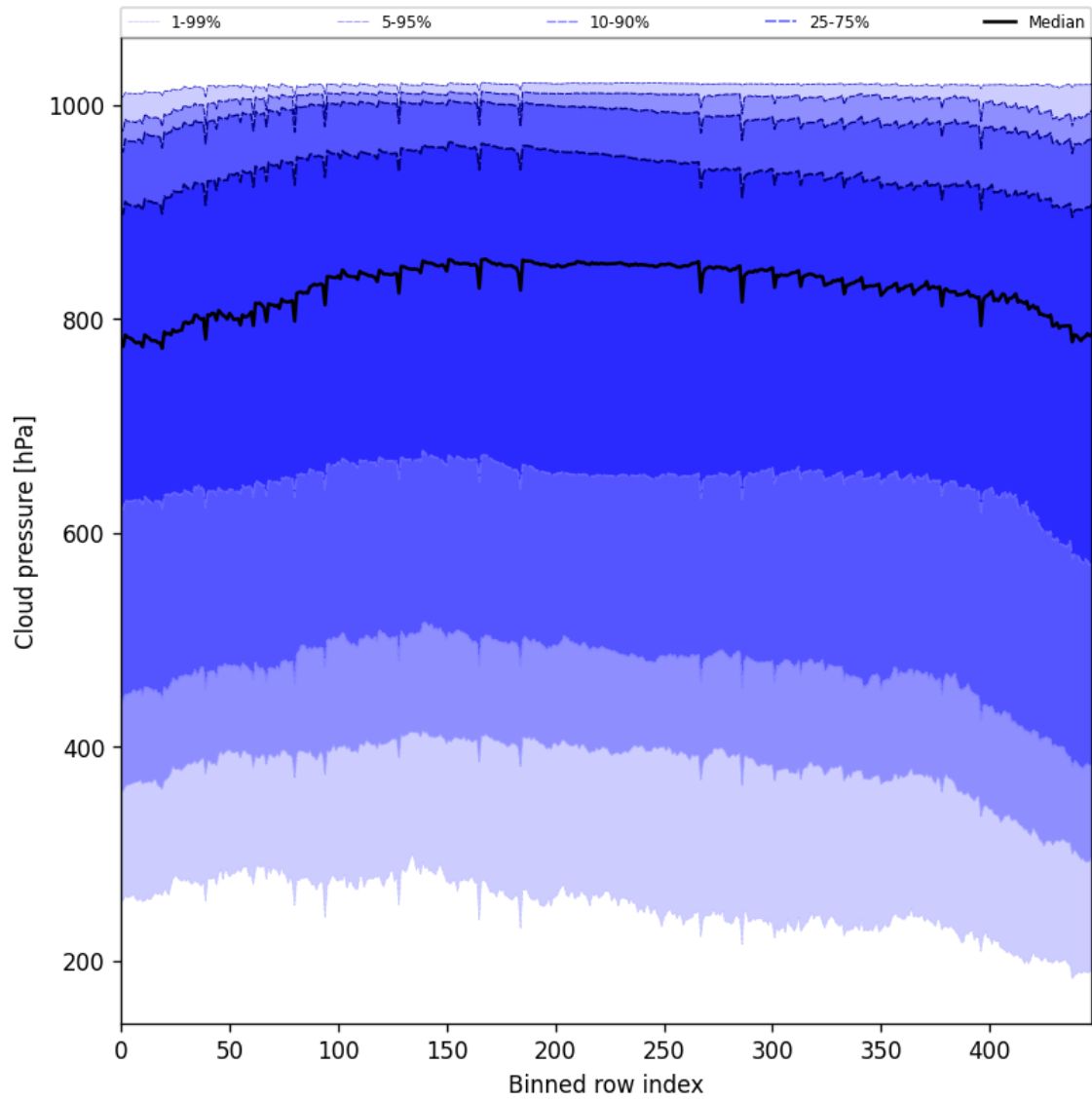


Figure 45: Along track statistics of “Cloud pressure” for 2024-12-22 to 2024-12-23

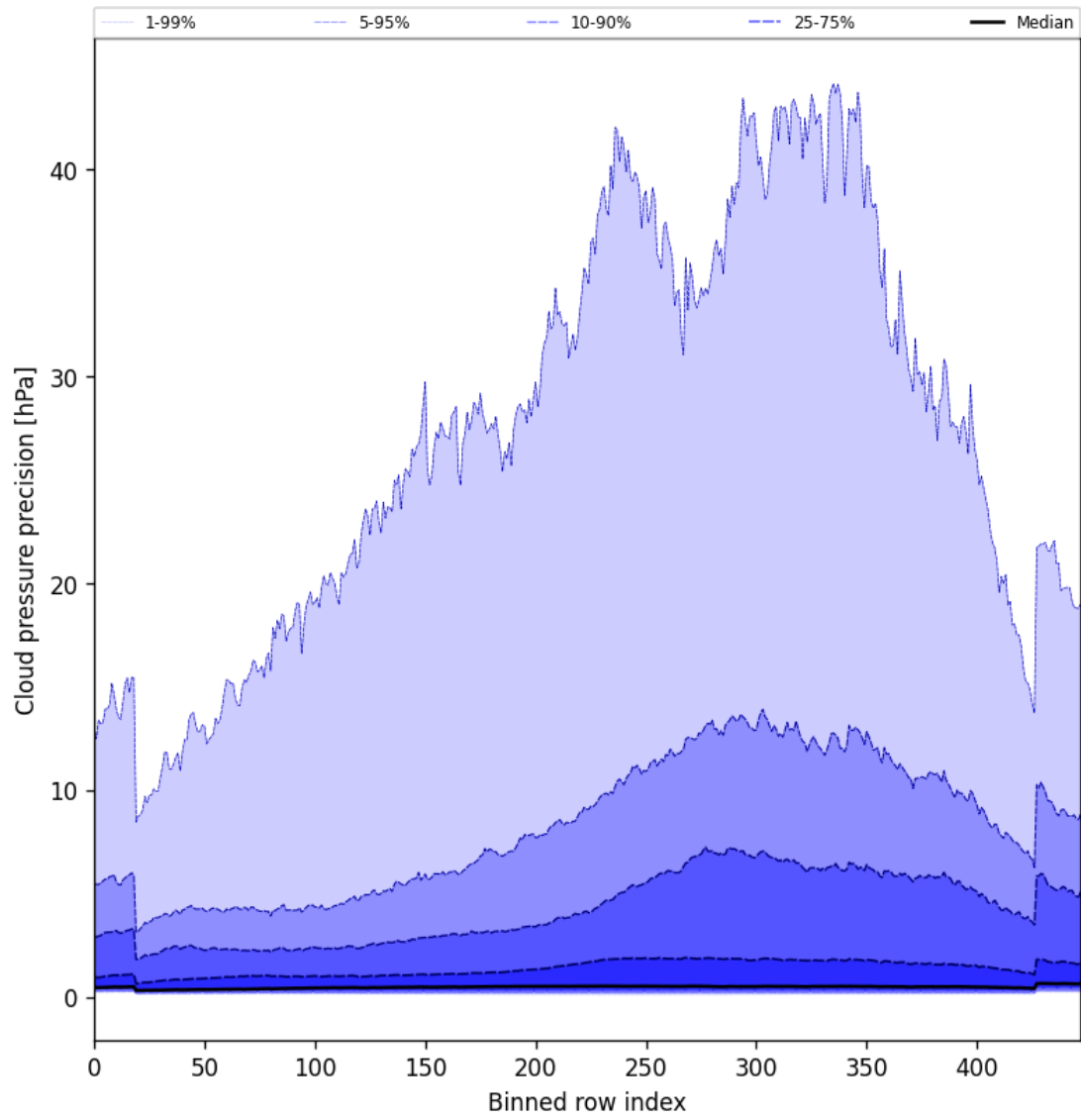


Figure 46: Along track statistics of “Cloud pressure precision” for 2024-12-22 to 2024-12-23

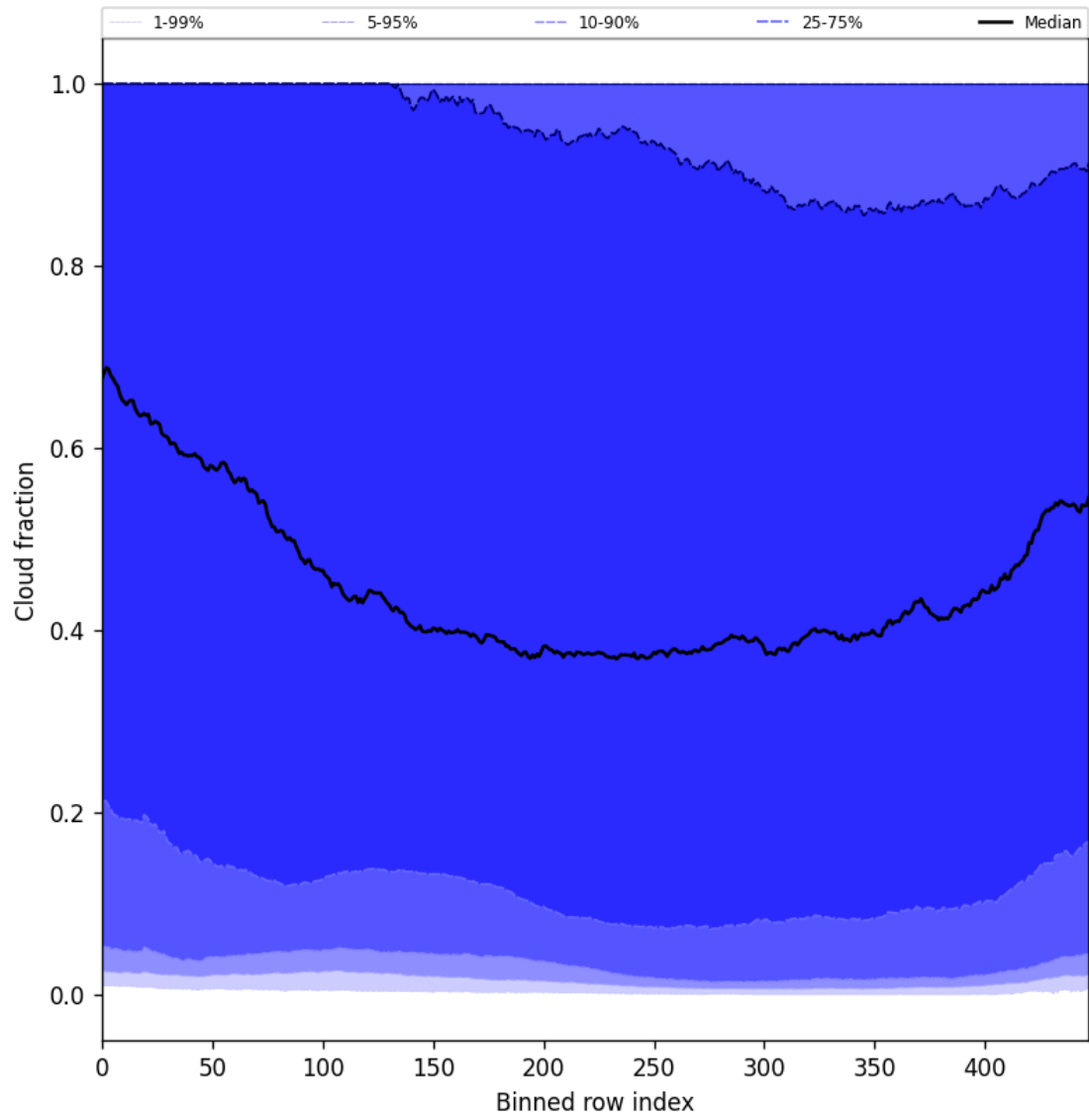


Figure 47: Along track statistics of “Cloud fraction” for 2024-12-22 to 2024-12-23

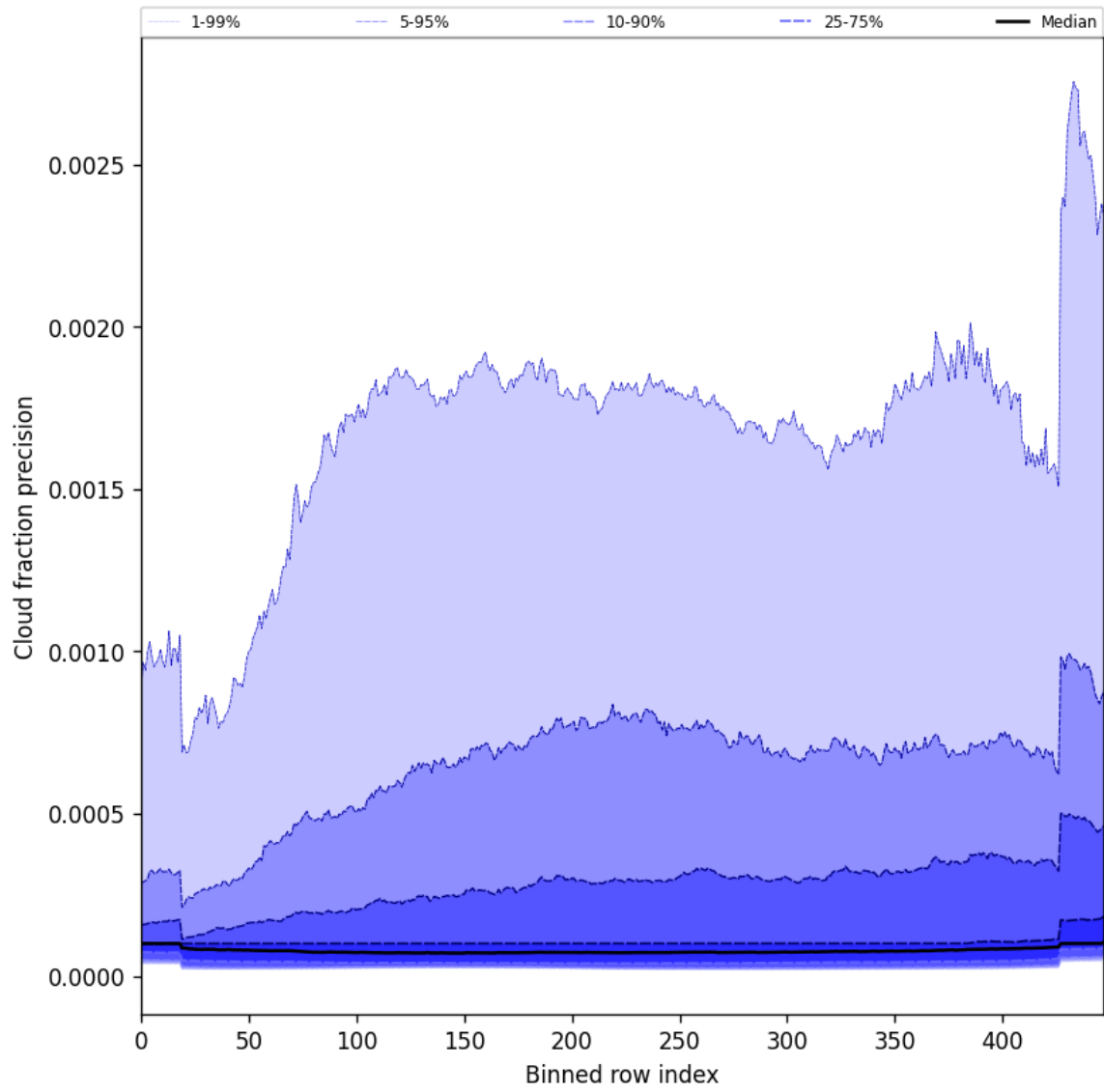


Figure 48: Along track statistics of “Cloud fraction precision” for 2024-12-22 to 2024-12-23

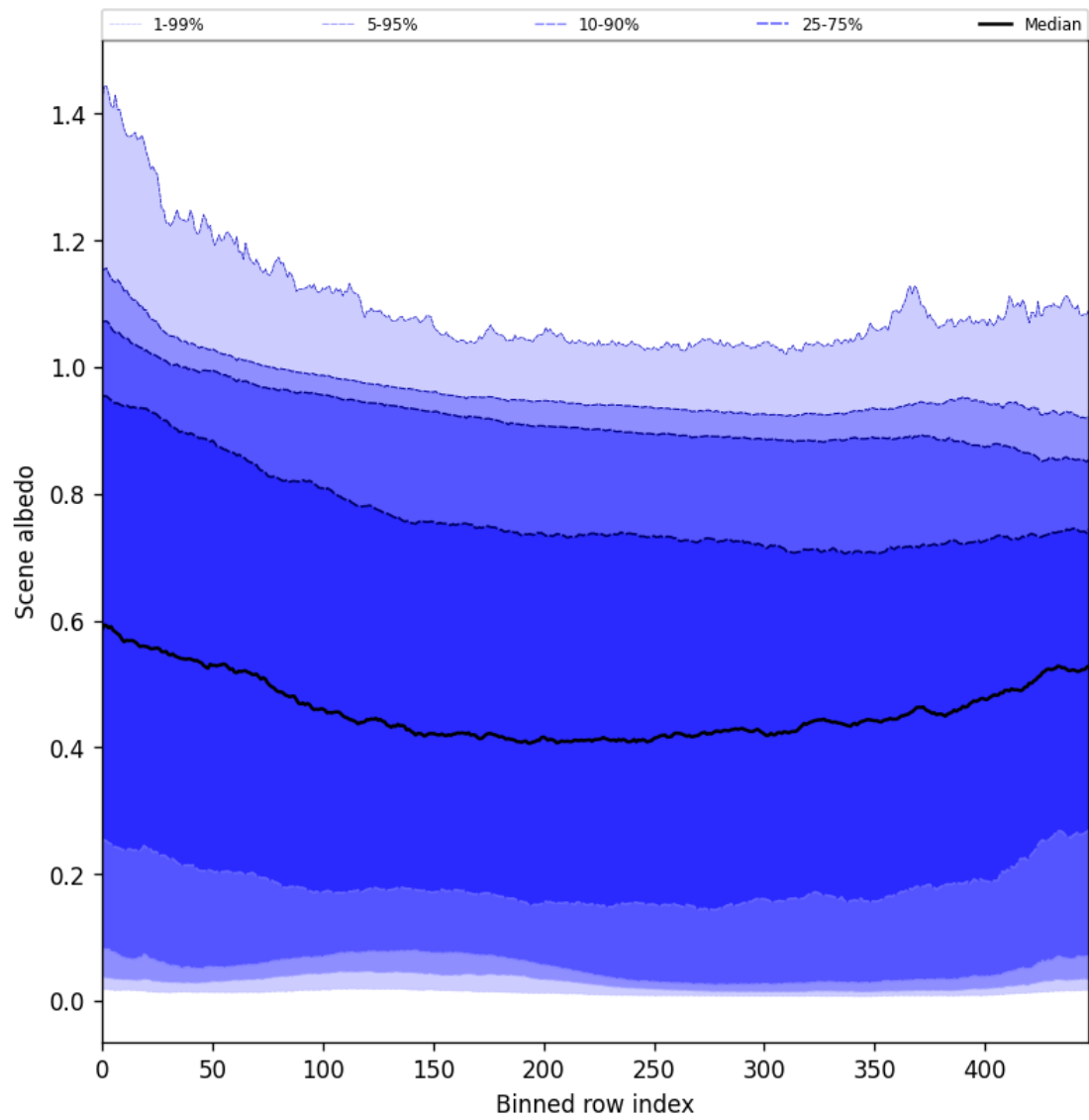


Figure 49: Along track statistics of “Scene albedo” for 2024-12-22 to 2024-12-23

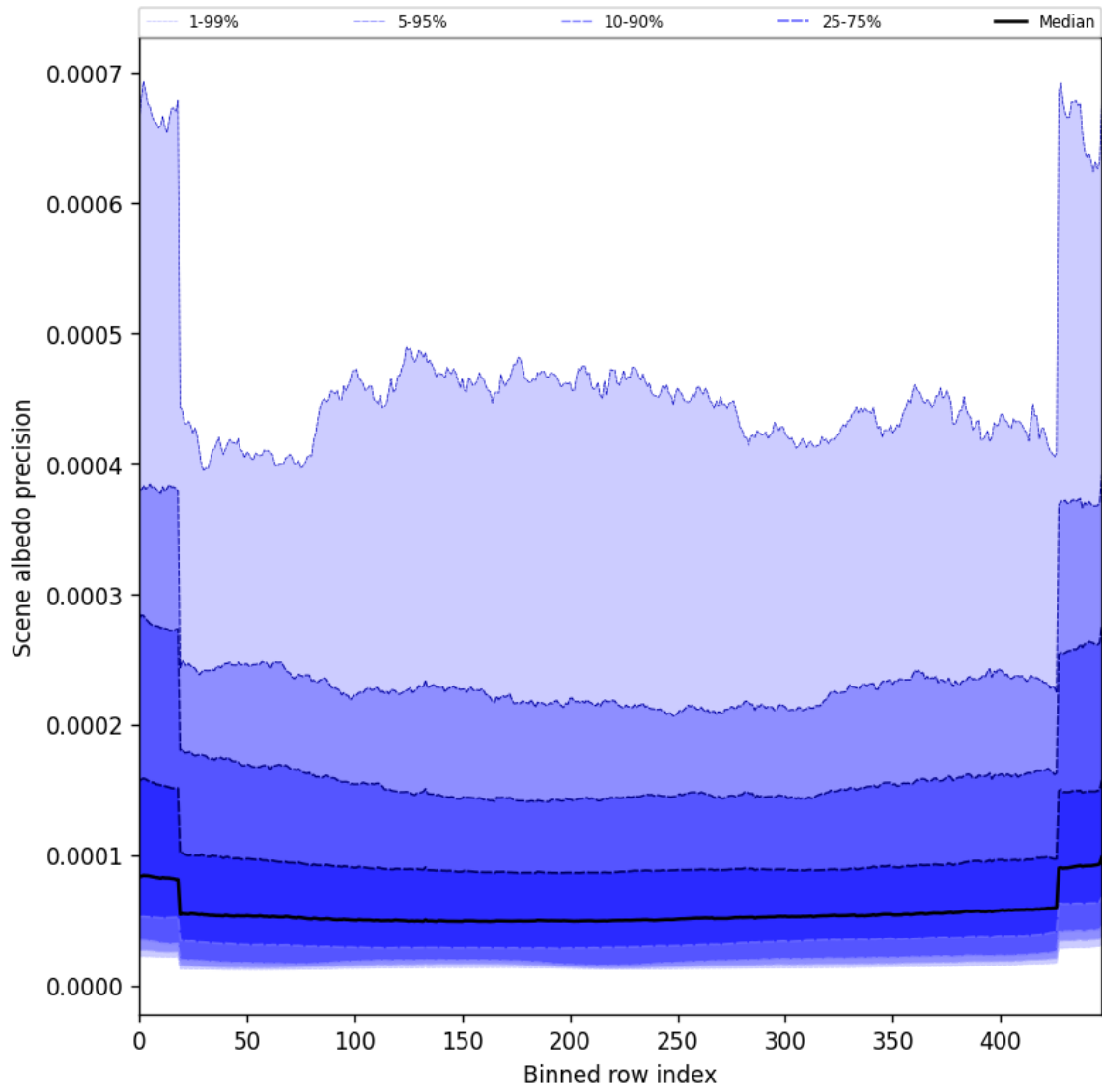


Figure 50: Along track statistics of “Scene albedo precision” for 2024-12-22 to 2024-12-23

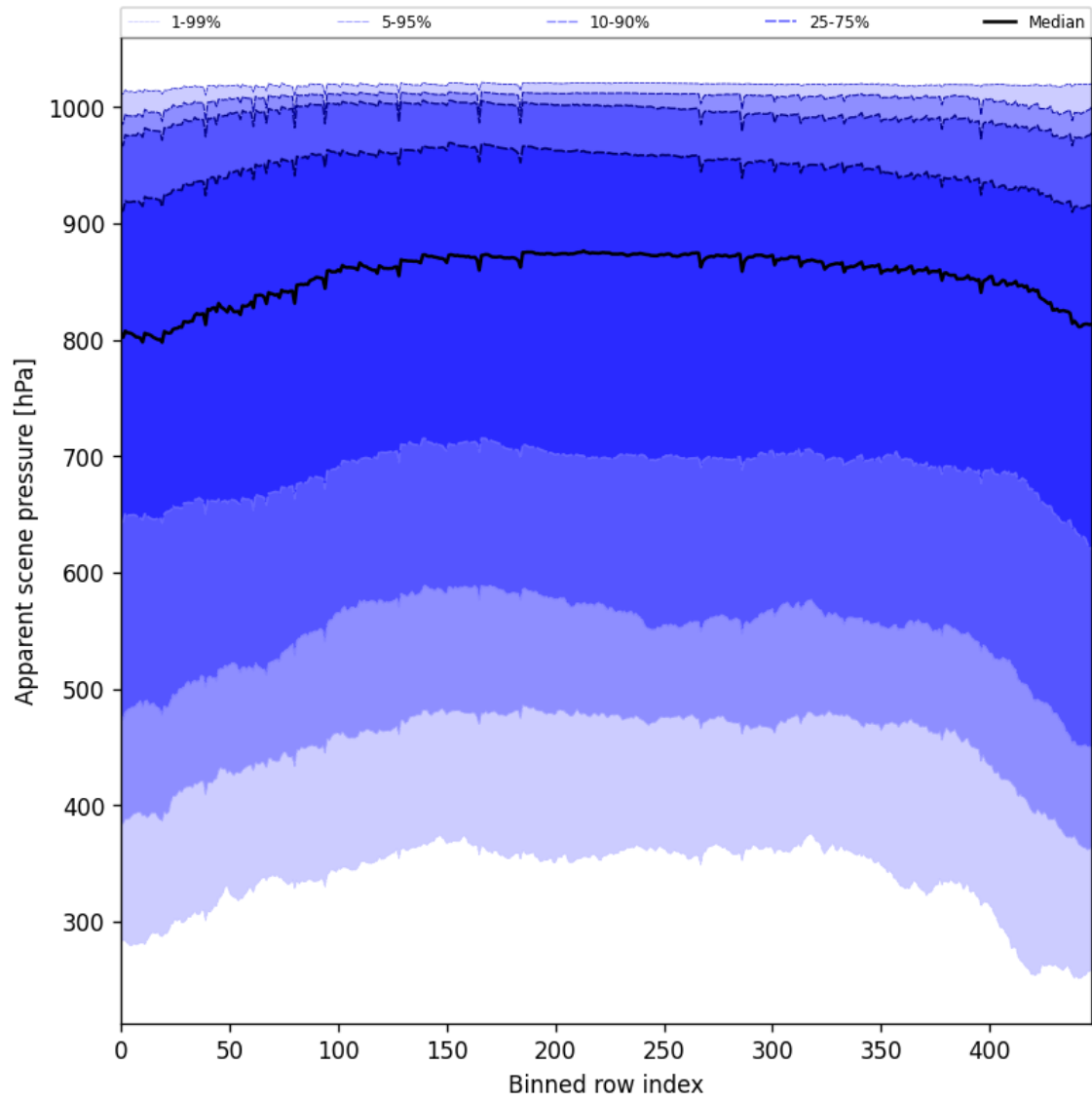


Figure 51: Along track statistics of “Apparent scene pressure” for 2024-12-22 to 2024-12-23

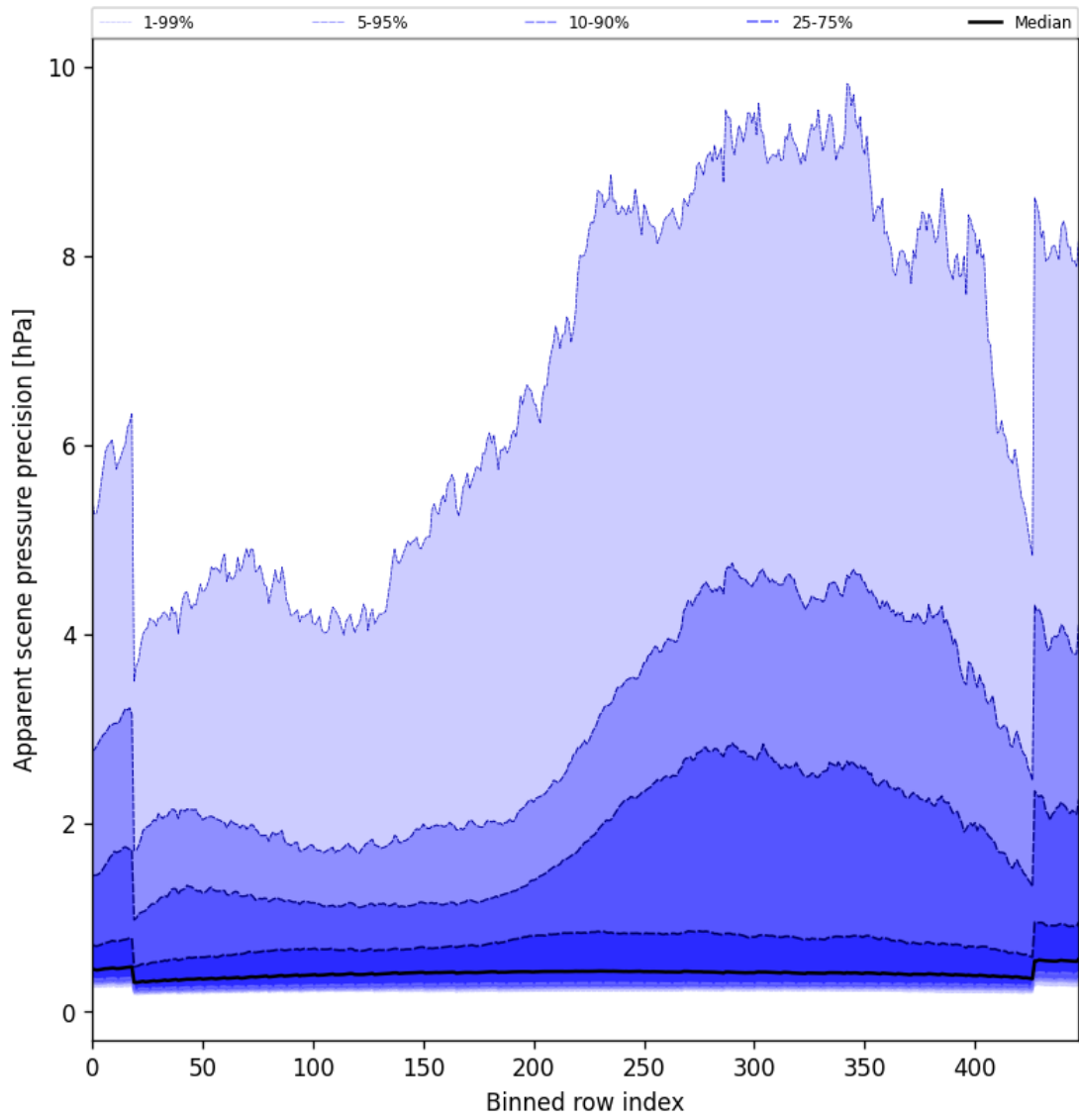


Figure 52: Along track statistics of “Apparent scene pressure precision” for 2024-12-22 to 2024-12-23

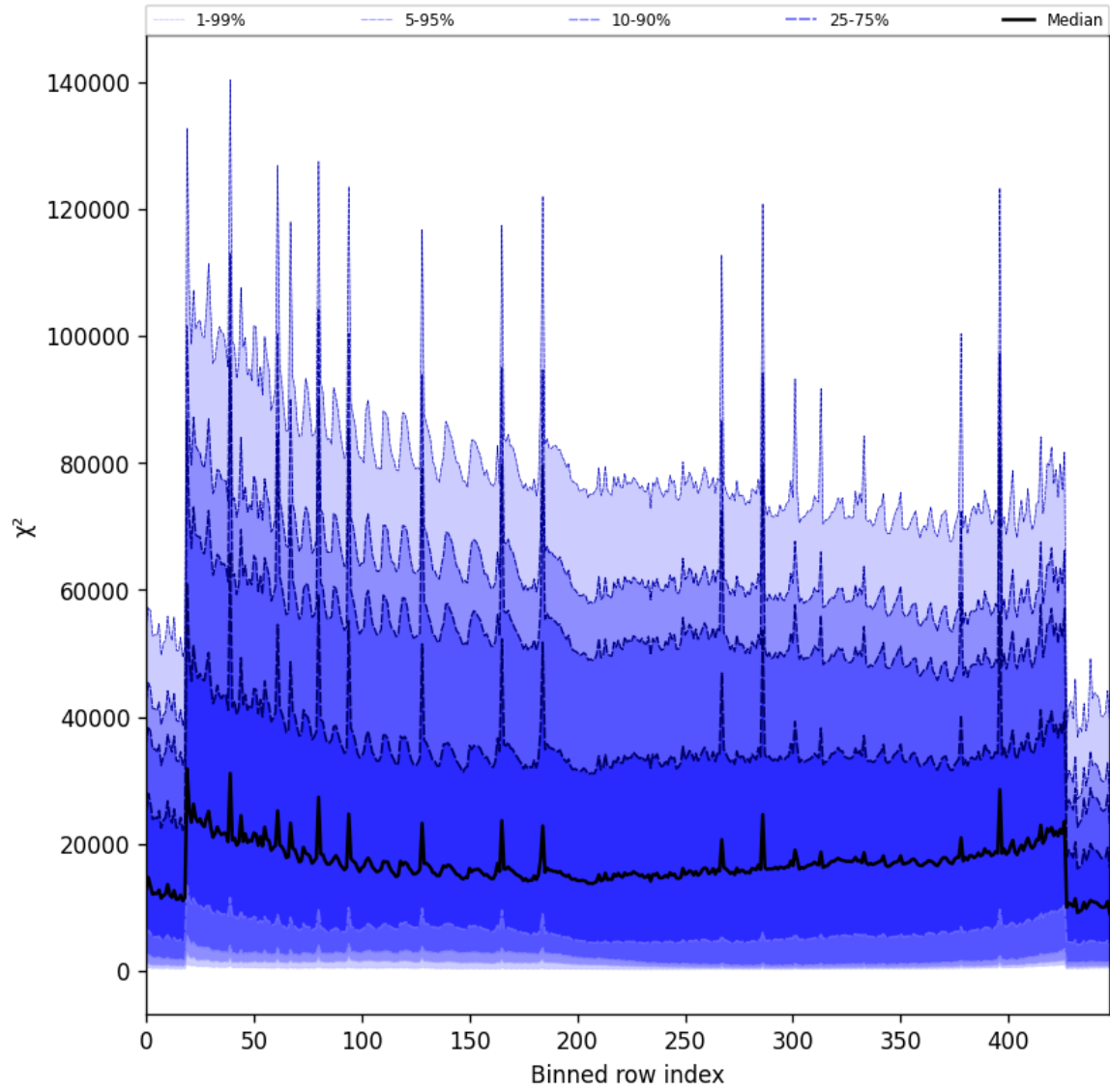


Figure 53: Along track statistics of “ χ^2 ” for 2024-12-22 to 2024-12-23

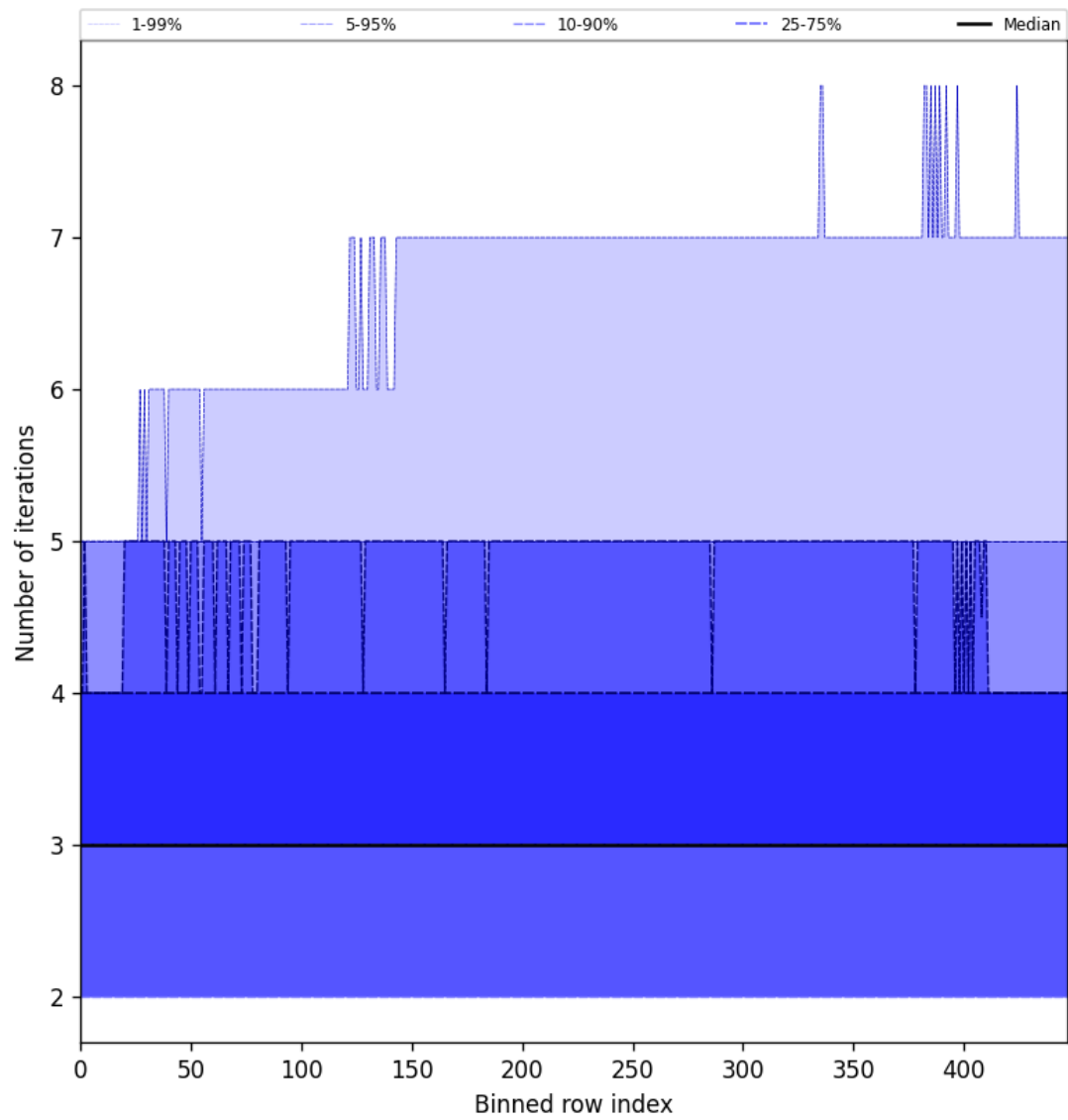


Figure 54: Along track statistics of “Number of iterations” for 2024-12-22 to 2024-12-23

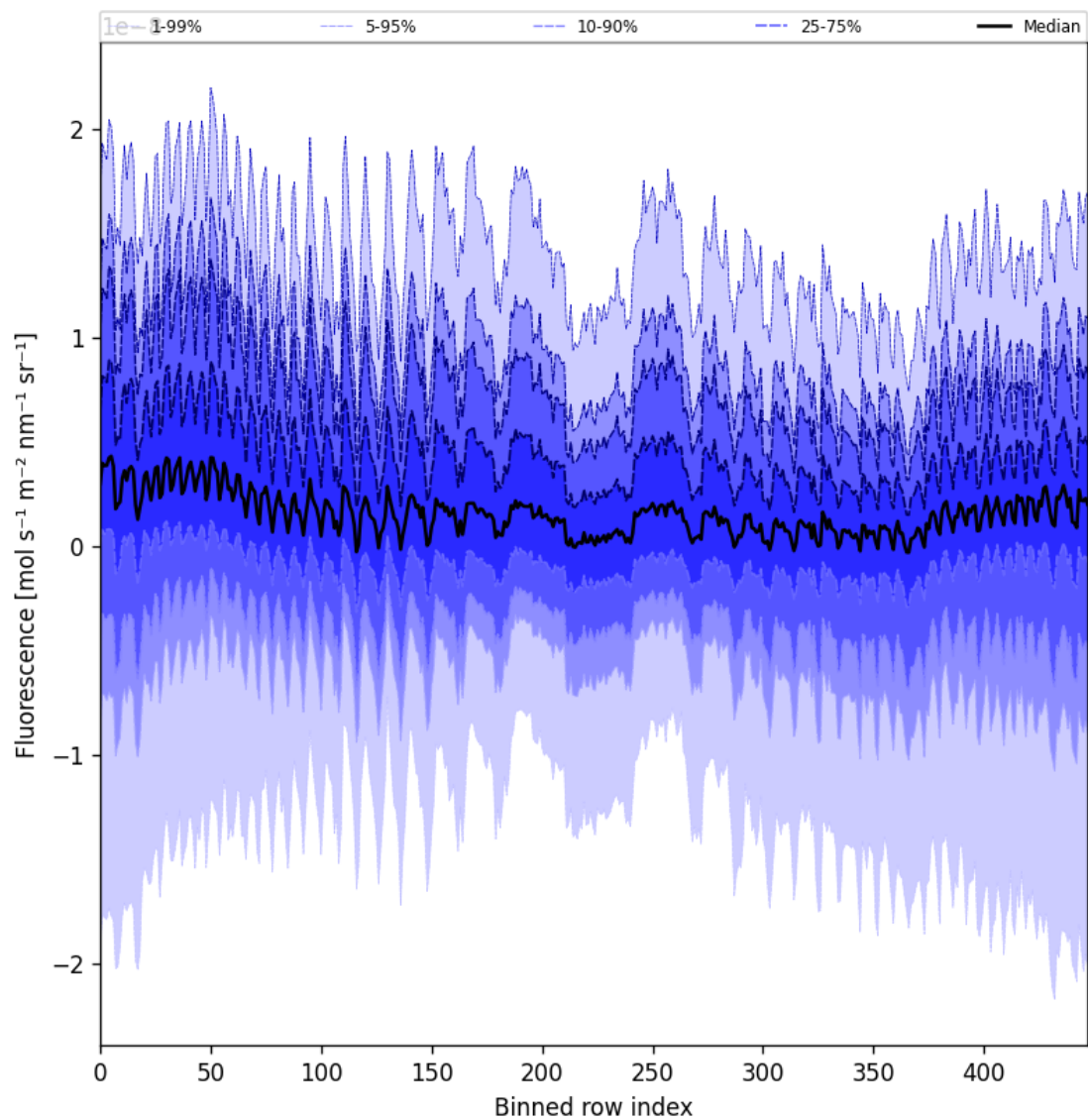


Figure 55: Along track statistics of “Fluorescence” for 2024-12-22 to 2024-12-23

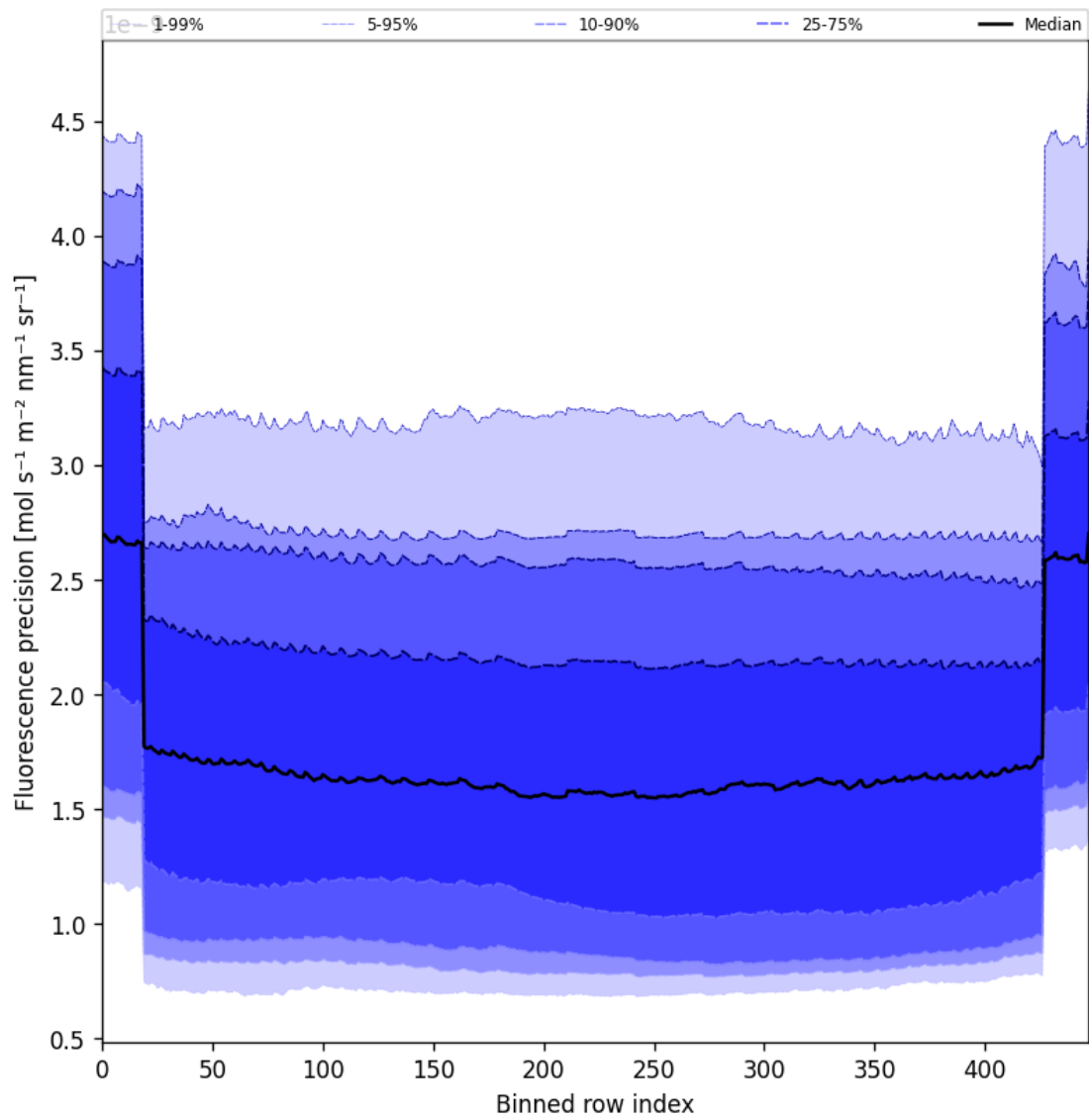


Figure 56: Along track statistics of “Fluorescence precision” for 2024-12-22 to 2024-12-23

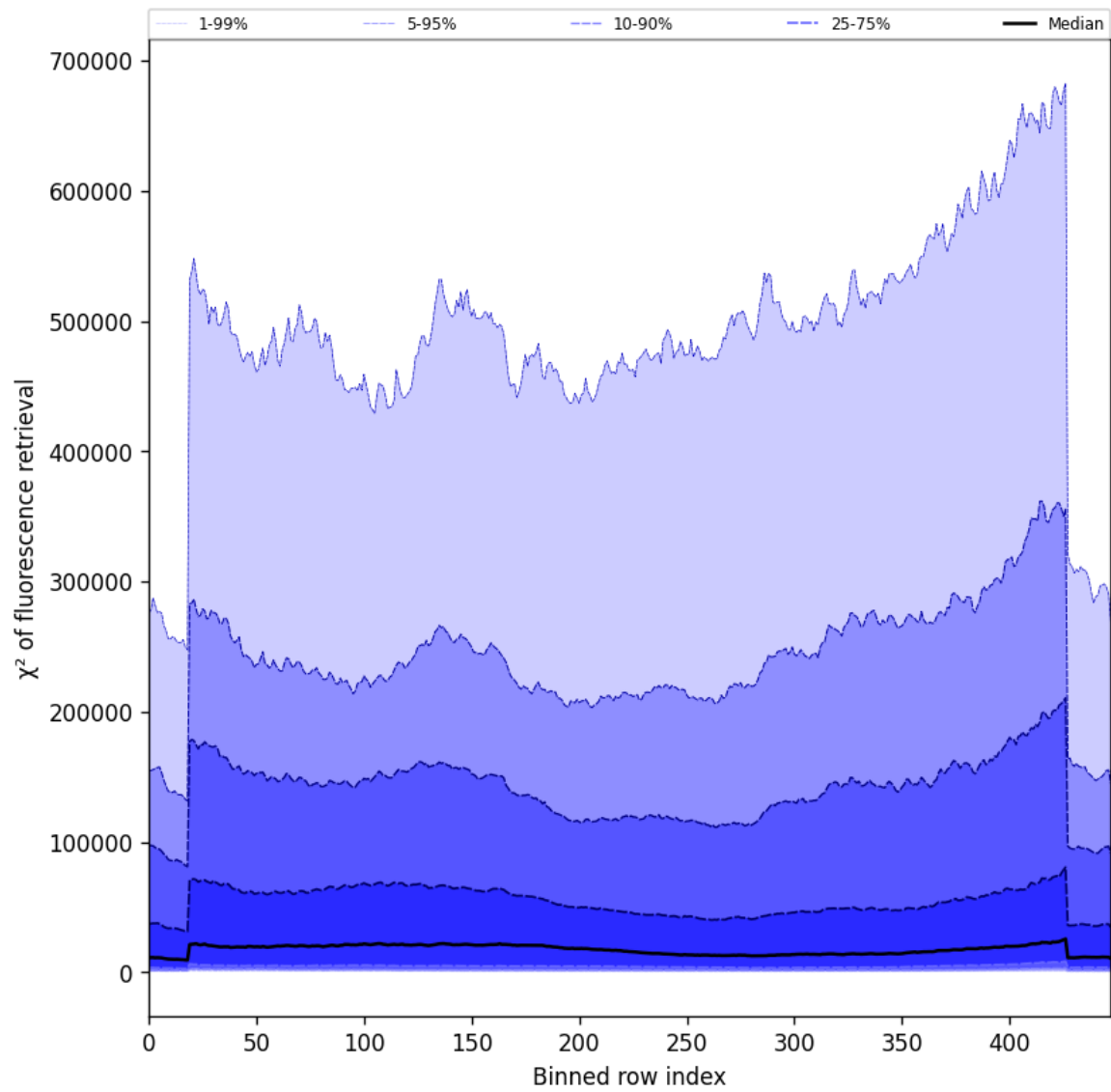


Figure 57: Along track statistics of “ χ^2 of fluorescence retrieval” for 2024-12-22 to 2024-12-23



Figure 58: Along track statistics of “Degrees of freedom for signal of fluorescence retrieval” for 2024-12-22 to 2024-12-23



Figure 59: Along track statistics of “Number of points in the spectrum” for 2024-12-22 to 2024-12-23

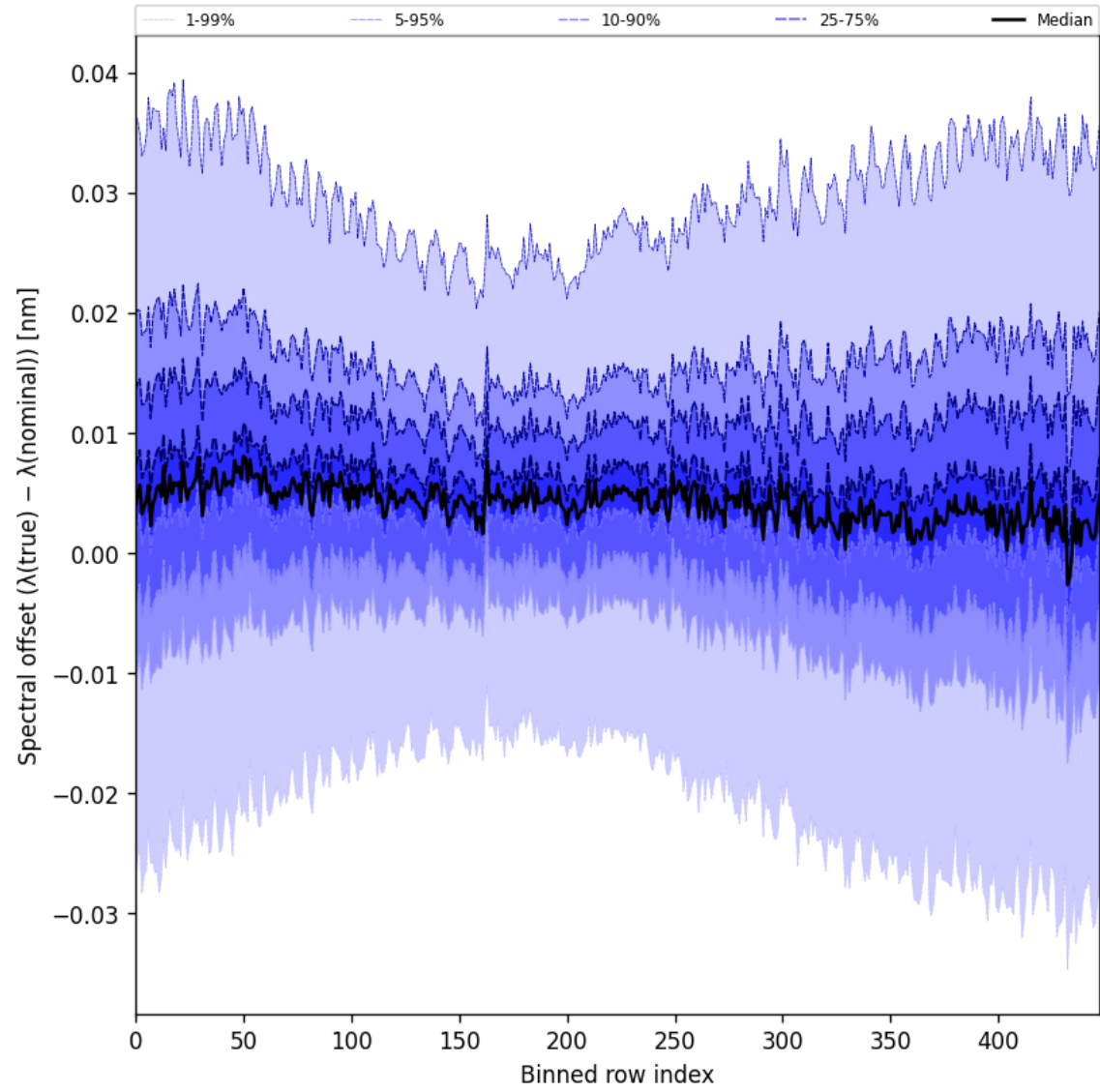


Figure 60: Along track statistics of “Spectral offset ($\lambda_{\text{true}} - \lambda_{\text{nominal}}$)” for 2024-12-22 to 2024-12-23

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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11 Copyright information of ‘PyCAMA’

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