

PyCAMA report generated by tropl2-proc

tropl2-proc

2024-12-10 (01:30)

1 Short Introduction

1.1 The list of parameters

You may want to keep the list given in table 1 at hand when viewing the results.

2 Definitions

The averages shown here are *unweighed* averages:

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

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 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]	0.615 ± 0.354	21410485	0.995	0.500	0.700	0.0	1.000
cloud fraction [1]	0.574 ± 0.338	21410485	0.995	0.698	0.567	0.0	1.000
cloud top height [m]	$(0.400 \pm 0.265) \times 10^4$	21410485	1.425×10^3	3.738×10^3	3.483×10^3	0.0	2.000×10^4
cloud optical thickness [1]	17.9 ± 32.7	21410485	9.34	10.3	8.84	1.000	250
cloud fraction crb [1]	0.573 ± 0.338	21410485	0.995	0.698	0.567	0.0	1.000
cloud height crb [m]	$(0.298 \pm 0.223) \times 10^4$	21410485	75.0	2.974×10^3	2.532×10^3	0.0	2.000×10^4
cloud albedo crb [1]	0.625 ± 0.221	21410485	0.995	0.323	0.609	0.0	1.000
surface albedo fitted [1]	0.299 ± 0.366	21410485	1.500×10^{-2}	0.619	5.843×10^{-2}	0.0	1.000
surface albedo fitted crb [1]	0.284 ± 0.350	21410485	1.500×10^{-2}	0.632	4.400×10^{-2}	0.0	1.000
fitted root mean square [1]	$(7.884 \pm 9.264) \times 10^{-4}$	21410485	5.000×10^{-5}	1.042×10^{-3}	4.663×10^{-4}	7.796×10^{-7}	0.179
fitted root mean square crb [1]	$(7.082 \pm 8.155) \times 10^{-4}$	21410485	5.000×10^{-5}	9.864×10^{-4}	3.714×10^{-4}	7.783×10^{-7}	6.530×10^{-2}
wavelength shift [nm]	$(9.453 \pm 7.658) \times 10^{-3}$	21410485	9.000×10^{-4}	1.174×10^{-2}	8.967×10^{-3}	-4.928×10^{-2}	6.885×10^{-2}
cloud fraction apriori [1]	0.580 ± 0.342	21410485	0.995	0.740	0.580	0.0	1.000
reflectance blue ocra [1]	0.597 ± 0.241	21410485	0.265	0.436	0.582	0.130	2.06
reflectance green ocra [1]	0.550 ± 0.274	21410485	0.175	0.518	0.542	8.048×10^{-2}	2.18
reflectance continuum aband [1]	0.502 ± 0.303	21410485	4.500×10^{-2}	0.543	0.508	9.549×10^{-3}	4.99

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	2.000×10^{-2}	0.400	0.900	0.990	1.000	1.000	1.000
cloud fraction [1]	2.311×10^{-2}	7.071×10^{-2}	0.109	0.160	0.260	0.959	1.000	1.000	1.000	1.000
cloud top height [m]	284	787	1.138×10^3	1.424×10^3	1.849×10^3	5.587×10^3	6.690×10^3	7.720×10^3	9.065×10^3	1.145×10^4
cloud optical thickness [1]	1.000	2.18	3.32	4.27	5.30	15.6	23.5	34.5	60.0	233
cloud fraction crb [1]	2.273×10^{-2}	6.992×10^{-2}	0.108	0.159	0.259	0.958	1.000	1.000	1.000	1.000
cloud height crb [m]	0.0	217	553	833	1.206×10^3	4.181×10^3	5.269×10^3	6.250×10^3	7.459×10^3	9.389×10^3
cloud albedo crb [1]	5.815×10^{-2}	0.257	0.367	0.425	0.474	0.798	0.879	0.939	1.000	1.000
surface albedo fitted [1]	0.0	6.506×10^{-3}	1.186×10^{-2}	1.613×10^{-2}	2.240×10^{-2}	0.642	0.869	0.940	0.985	1.000
surface albedo fitted crb [1]	0.0	5.689×10^{-3}	8.986×10^{-3}	1.215×10^{-2}	1.699×10^{-2}	0.649	0.827	0.877	0.912	0.956
fitted root mean square [1]	1.470×10^{-5}	2.812×10^{-5}	4.643×10^{-5}	7.654×10^{-5}	1.361×10^{-4}	1.179×10^{-3}	1.617×10^{-3}	2.017×10^{-3}	2.527×10^{-3}	3.547×10^{-3}
fitted root mean square crb [1]	9.705×10^{-6}	2.102×10^{-5}	3.490×10^{-5}	5.422×10^{-5}	9.718×10^{-5}	1.083×10^{-3}	1.517×10^{-3}	1.905×10^{-3}	2.399×10^{-3}	3.358×10^{-3}
wavelength shift [nm]	-7.041×10^{-3}	-4.353×10^{-4}	5.168×10^{-4}	1.469×10^{-3}	3.295×10^{-3}	1.504×10^{-2}	1.753×10^{-2}	1.956×10^{-2}	2.212×10^{-2}	2.744×10^{-2}
cloud fraction apriori [1]	3.584×10^{-2}	6.878×10^{-2}	0.105	0.156	0.260	1.000	1.000	1.000	1.000	1.000
reflectance blue ocra [1]	0.234	0.259	0.286	0.319	0.377	0.813	0.874	0.909	0.946	1.09
reflectance green ocra [1]	0.153	0.174	0.195	0.224	0.284	0.802	0.870	0.910	0.949	1.06
reflectance continuum aband [1]	3.072×10^{-2}	5.378×10^{-2}	8.622×10^{-2}	0.130	0.227	0.770	0.843	0.889	0.937	1.07

Table 3: Parameterlist and basic statistics for the analysis for observations in the northern hemisphere

Variable	mean $\pm \sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.610 ± 0.383	7803873	0.650	0.800	0.0	1.000	0.300	0.950
cloud fraction [1]	0.549 ± 0.350	7803873	0.739	0.525	0.0	1.000	0.208	0.948
cloud top height [m]	$(0.422 \pm 0.264) \times 10^4$	7803873	3.928×10^3	3.682×10^3	0.0	2.000×10^4	2.014×10^3	5.943×10^3
cloud optical thickness [1]	25.6 ± 43.1	7803873	17.0	10.5	1.000	250	6.18	23.2
cloud fraction crb [1]	0.547 ± 0.350	7803873	0.738	0.522	0.0	1.000	0.207	0.946
cloud height crb [m]	$(0.357 \pm 0.231) \times 10^4$	7803873	3.512×10^3	3.169×10^3	0.0	1.966×10^4	1.609×10^3	5.121×10^3
cloud albedo crb [1]	0.584 ± 0.201	7803873	0.248	0.570	0.0	1.000	0.461	0.710
surface albedo fitted [1]	0.131 ± 0.166	7803873	0.178	4.318×10^{-2}	0.0	1.000	2.211×10^{-2}	0.200
surface albedo fitted crb [1]	0.124 ± 0.165	7803873	0.173	3.252×10^{-2}	0.0	1.000	1.649×10^{-2}	0.189
fitted root mean square [1]	$(4.001 \pm 5.473) \times 10^{-4}$	7803873	4.228×10^{-4}	2.126×10^{-4}	7.796×10^{-7}	8.759×10^{-2}	8.078×10^{-5}	5.036×10^{-4}
fitted root mean square crb [1]	$(3.526 \pm 5.016) \times 10^{-4}$	7803873	3.881×10^{-4}	1.484×10^{-4}	7.783×10^{-7}	2.702×10^{-2}	5.223×10^{-5}	4.404×10^{-4}
wavelength shift [nm]	$(6.723 \pm 6.879) \times 10^{-3}$	7803873	9.299×10^{-3}	5.495×10^{-3}	-4.416×10^{-2}	6.839×10^{-2}	1.589×10^{-3}	1.089×10^{-2}
cloud fraction apriori [1]	0.550 ± 0.354	7803873	0.778	0.525	0.0	1.000	0.202	0.981
reflectance blue ocr [1]	0.530 ± 0.205	7803873	0.308	0.499	0.139	2.00	0.361	0.669
reflectance green ocr [1]	0.467 ± 0.232	7803873	0.372	0.434	8.048×10^{-2}	2.18	0.264	0.636
reflectance continuum aband [1]	0.414 ± 0.271	7803873	0.416	0.388	9.549×10^{-3}	4.99	0.186	0.603

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]	0.618 ± 0.337	13606612	0.500	0.700	0.0	1.000	0.400	0.900
cloud fraction [1]	0.588 ± 0.330	13606612	0.668	0.586	0.0	1.000	0.297	0.965
cloud top height [m]	$(0.387 \pm 0.265) \times 10^4$	13606612	3.651×10^3	3.367×10^3	0.0	2.000×10^4	1.756×10^3	5.407×10^3
cloud optical thickness [1]	13.4 ± 23.7	13606612	7.87	8.13	1.000	250	5.01	12.9
cloud fraction crb [1]	0.588 ± 0.330	13606612	0.668	0.587	0.0	1.000	0.297	0.965
cloud height crb [m]	$(0.263 \pm 0.211) \times 10^4$	13606612	2.642×10^3	2.239×10^3	0.0	2.000×10^4	1.003×10^3	3.644×10^3
cloud albedo crb [1]	0.649 ± 0.228	13606612	0.357	0.648	0.0	1.000	0.482	0.840
surface albedo fitted [1]	0.396 ± 0.412	13606612	0.846	0.132	0.0	1.000	2.260×10^{-2}	0.868
surface albedo fitted crb [1]	0.377 ± 0.392	13606612	0.809	0.129	0.0	1.000	1.737×10^{-2}	0.826
fitted root mean square [1]	$(1.011 \pm 1.021) \times 10^{-3}$	13606612	1.294×10^{-3}	7.604×10^{-4}	1.510×10^{-6}	0.179	2.344×10^{-4}	1.528×10^{-3}
fitted root mean square crb [1]	$(9.122 \pm 8.877) \times 10^{-4}$	13606612	1.251×10^{-3}	6.497×10^{-4}	1.296×10^{-6}	6.530×10^{-2}	1.709×10^{-4}	1.422×10^{-3}
wavelength shift [nm]	$(1.102 \pm 0.764) \times 10^{-2}$	13606612	1.143×10^{-2}	1.132×10^{-2}	-4.928×10^{-2}	6.885×10^{-2}	5.135×10^{-3}	1.657×10^{-2}
cloud fraction apriori [1]	0.598 ± 0.333	13606612	0.698	0.605	0.0	1.000	0.302	1.000
reflectance blue oca [1]	0.636 ± 0.251	13606612	0.467	0.675	0.130	2.06	0.392	0.859
reflectance green oca [1]	0.597 ± 0.285	13606612	0.551	0.651	8.324×10^{-2}	2.11	0.304	0.855
reflectance continuum aband [1]	0.552 ± 0.309	13606612	0.556	0.613	1.398×10^{-2}	4.13	0.265	0.821

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]	0.693 ± 0.326	13482167	0.550	0.850	0.0	1.000	0.400	0.950
cloud fraction [1]	0.588 ± 0.362	13482167	0.783	0.617	0.0	1.000	0.216	1.000
cloud top height [m]	$(0.351 \pm 0.253) \times 10^4$	13482167	3.279×10^3	2.736×10^3	0.0	2.000×10^4	1.577×10^3	4.856×10^3
cloud optical thickness [1]	16.6 ± 25.6	13482167	9.97	9.78	1.000	250	6.40	16.4
cloud fraction crb [1]	0.587 ± 0.362	13482167	0.785	0.615	0.0	1.000	0.215	1.000
cloud height crb [m]	$(0.278 \pm 0.230) \times 10^4$	13482167	3.006×10^3	2.082×10^3	0.0	2.000×10^4	1.010×10^3	4.015×10^3
cloud albedo crb [1]	0.565 ± 0.185	13482167	0.241	0.547	0.0	1.000	0.452	0.693
surface albedo fitted [1]	0.123 ± 0.243	13482167	3.381×10^{-2}	2.756×10^{-2}	0.0	1.000	1.611×10^{-2}	4.992×10^{-2}
surface albedo fitted crb [1]	0.117 ± 0.243	13482167	2.576×10^{-2}	2.101×10^{-2}	0.0	1.000	1.212×10^{-2}	3.788×10^{-2}
fitted root mean square [1]	$(7.099 \pm 9.428) \times 10^{-4}$	13482167	1.002×10^{-3}	3.174×10^{-4}	7.796×10^{-7}	0.179	8.855×10^{-5}	1.091×10^{-3}
fitted root mean square crb [1]	$(6.822 \pm 8.357) \times 10^{-4}$	13482167	9.833×10^{-4}	2.922×10^{-4}	7.783×10^{-7}	6.530×10^{-2}	7.657×10^{-5}	1.060×10^{-3}
wavelength shift [nm]	$(8.678 \pm 7.789) \times 10^{-3}$	13482167	1.161×10^{-2}	7.860×10^{-3}	-4.928×10^{-2}	6.885×10^{-2}	2.578×10^{-3}	1.418×10^{-2}
cloud fraction apriori [1]	0.590 ± 0.367	13482167	0.792	0.622	0.0	1.000	0.208	1.000
reflectance blue oca [1]	0.524 ± 0.211	13482167	0.342	0.484	0.154	2.03	0.341	0.684
reflectance green oca [1]	0.463 ± 0.241	13482167	0.417	0.419	8.421×10^{-2}	2.11	0.241	0.658
reflectance continuum aband [1]	0.396 ± 0.280	13482167	0.501	0.361	1.303×10^{-2}	4.99	0.131	0.632

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]	0.488 ± 0.352	6674230	0.700	0.600	0.0	1.000	0.0	0.700
cloud fraction [1]	0.536 ± 0.282	6674230	0.434	0.515	0.0	1.000	0.318	0.752
cloud top height [m]	$(0.489 \pm 0.261) \times 10^4$	6674230	3.130×10^3	4.708×10^3	0.0	2.000×10^4	3.077×10^3	6.207×10^3
cloud optical thickness [1]	16.0 ± 35.5	6674230	7.03	5.97	1.000	250	4.12	11.2
cloud fraction crb [1]	0.538 ± 0.282	6674230	0.436	0.518	0.0	1.000	0.319	0.754
cloud height crb [m]	$(0.323 \pm 0.201) \times 10^4$	6674230	2.305×10^3	3.005×10^3	0.0	2.000×10^4	1.844×10^3	4.149×10^3
cloud albedo crb [1]	0.741 ± 0.237	6674230	0.346	0.802	0.0	1.000	0.591	0.937
surface albedo fitted [1]	0.658 ± 0.334	6674230	0.681	0.844	0.0	1.000	0.278	0.959
surface albedo fitted crb [1]	0.622 ± 0.308	6674230	0.616	0.801	0.0	1.000	0.274	0.890
fitted root mean square [1]	$(9.886 \pm 8.825) \times 10^{-4}$	6674230	1.043×10^{-3}	7.335×10^{-4}	1.510×10^{-6}	8.759×10^{-2}	3.493×10^{-4}	1.393×10^{-3}
fitted root mean square crb [1]	$(8.136 \pm 7.804) \times 10^{-4}$	6674230	9.938×10^{-4}	5.753×10^{-4}	1.296×10^{-6}	6.124×10^{-2}	2.082×10^{-4}	1.202×10^{-3}
wavelength shift [nm]	$(1.151 \pm 0.710) \times 10^{-2}$	6674230	1.085×10^{-2}	1.172×10^{-2}	-4.763×10^{-2}	6.277×10^{-2}	5.948×10^{-3}	1.680×10^{-2}
cloud fraction apriori [1]	0.553 ± 0.284	6674230	0.444	0.537	0.0	1.000	0.331	0.775
reflectance blue ocrs [1]	0.738 ± 0.233	6674230	0.332	0.828	0.130	2.06	0.572	0.904
reflectance green ocrs [1]	0.717 ± 0.260	6674230	0.377	0.824	8.048×10^{-2}	2.03	0.531	0.908
reflectance continuum aband [1]	0.705 ± 0.243	6674230	0.374	0.791	1.495×10^{-2}	4.94	0.513	0.887

Table 7: Correlation matrix

Viewing zenith angle	Solar zenith angle	Latitude	Radiometric cloud fraction	Cloud top height	Cloud optical thickness	Cloud fraction (CRB)	Cloud height (CRB)	Cloud albedo (CRB)	OCRA cloud fraction
1.000	-2.302×10^{-2}	2.969×10^{-2}	-4.324×10^{-2}	1.950×10^{-2}	-1.526×10^{-2}	-4.378×10^{-2}	0.107	1.638×10^{-2}	-4.903×10^{-2}
-2.302×10^{-2}	1.000	6.674×10^{-2}	0.115	0.123	0.152	0.117	3.797×10^{-2}	0.303	0.133
2.969×10^{-2}	6.674×10^{-2}	1.000	-7.975×10^{-2}	3.399×10^{-2}	0.212	-8.384×10^{-2}	0.223	-0.254	-9.937×10^{-2}
-4.324×10^{-2}	0.115	-7.975×10^{-2}	1.000	-2.998×10^{-2}	0.287	1.000	-4.335×10^{-2}	0.328	0.978
1.950×10^{-2}	0.123	3.399×10^{-2}	-2.998×10^{-2}	1.000	3.196×10^{-2}	-2.830×10^{-2}	0.901	9.700×10^{-2}	-3.794×10^{-2}
-1.526×10^{-2}	0.152	0.212	0.287	3.196×10^{-2}	1.000	0.283	0.107	0.316	0.286
-4.378×10^{-2}	0.117	-8.384×10^{-2}	1.000	-2.830×10^{-2}	0.283	1.000	-4.349×10^{-2}	0.329	0.978
0.107	3.797×10^{-2}	0.223	-4.335×10^{-2}	0.901	0.107	-4.349×10^{-2}	1.000	-7.464×10^{-2}	-5.878×10^{-2}
1.638×10^{-2}	0.303	-0.254	0.328	9.700×10^{-2}	0.316	0.329	-7.464×10^{-2}	1.000	0.354
-4.903×10^{-2}	0.133	-9.937×10^{-2}	0.978	-3.794×10^{-2}	0.286	0.978	-5.878×10^{-2}	0.354	1.000

Table 8: Covariance matrix

Viewing zenith angle	Solar zenith angle	Latitude	Radiometric cloud fraction	Cloud top height	Cloud optical thickness	Cloud fraction (CRB)	Cloud height (CRB)	Cloud albedo (CRB)	OCRA cloud fraction
380	-8.81	27.9	-0.285	1.007×10^3	-9.72	-0.288	4.655×10^3	7.048×10^{-2}	-0.327
-8.81	386	63.2	0.765	6.416×10^3	97.7	0.777	1.666×10^3	1.32	0.890
27.9	63.2	2.323×10^3	-1.30	4.342×10^3	335	-1.37	2.401×10^4	-2.70	-1.64
-0.285	0.765	-1.30	0.114	-26.8	3.17	0.114	-32.7	2.446×10^{-2}	0.113
1.007×10^3	6.416×10^3	4.342×10^3	-26.8	7.027×10^6	2.769×10^3	-25.4	5.330×10^6	56.8	-34.4
-9.72	97.7	335	3.17	2.769×10^3	1.069×10^3	3.13	7.842×10^3	2.28	3.19
-0.288	0.777	-1.37	0.114	-25.4	3.13	0.114	-32.8	2.455×10^{-2}	0.113
4.655×10^3	1.666×10^3	2.401×10^4	-32.7	5.330×10^6	7.842×10^3	-32.8	4.986×10^6	-36.8	-44.9
7.048×10^{-2}	1.32	-2.70	2.446×10^{-2}	56.8	2.28	2.455×10^{-2}	-36.8	4.878×10^{-2}	2.673×10^{-2}
-0.327	0.890	-1.64	0.113	-34.4	3.19	0.113	-44.9	2.673×10^{-2}	0.117

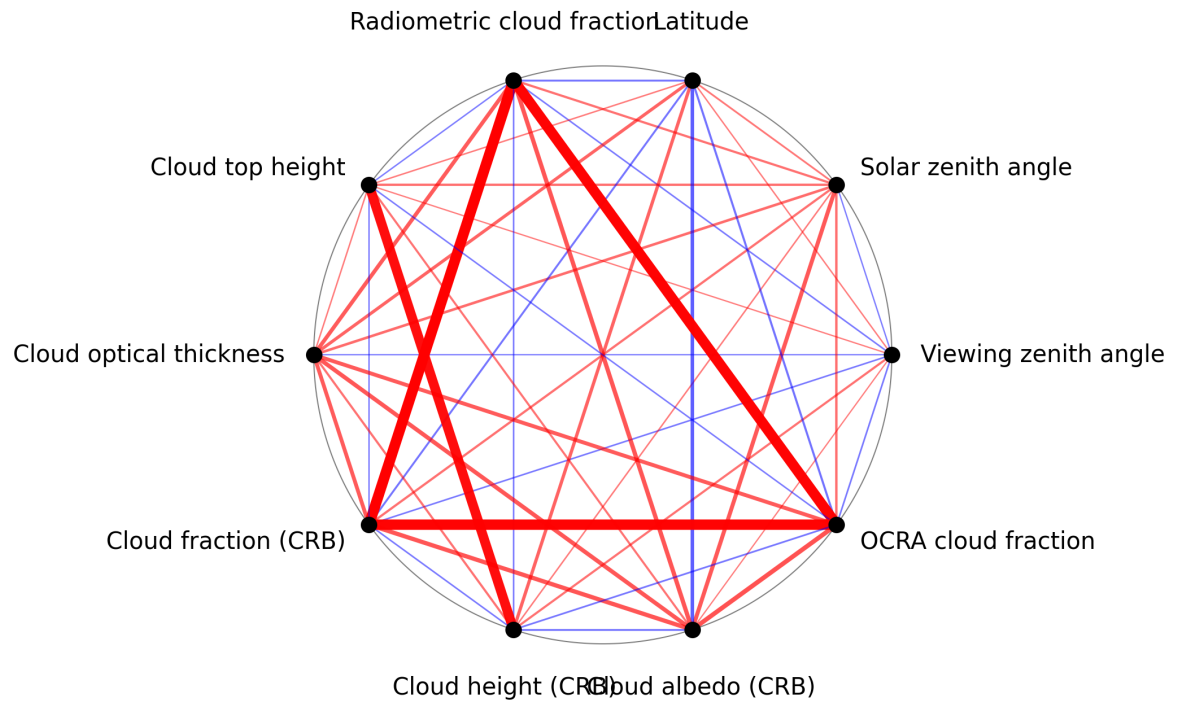


Figure 1: Map of correlation graph for 2024-11-25 to 2024-11-26.

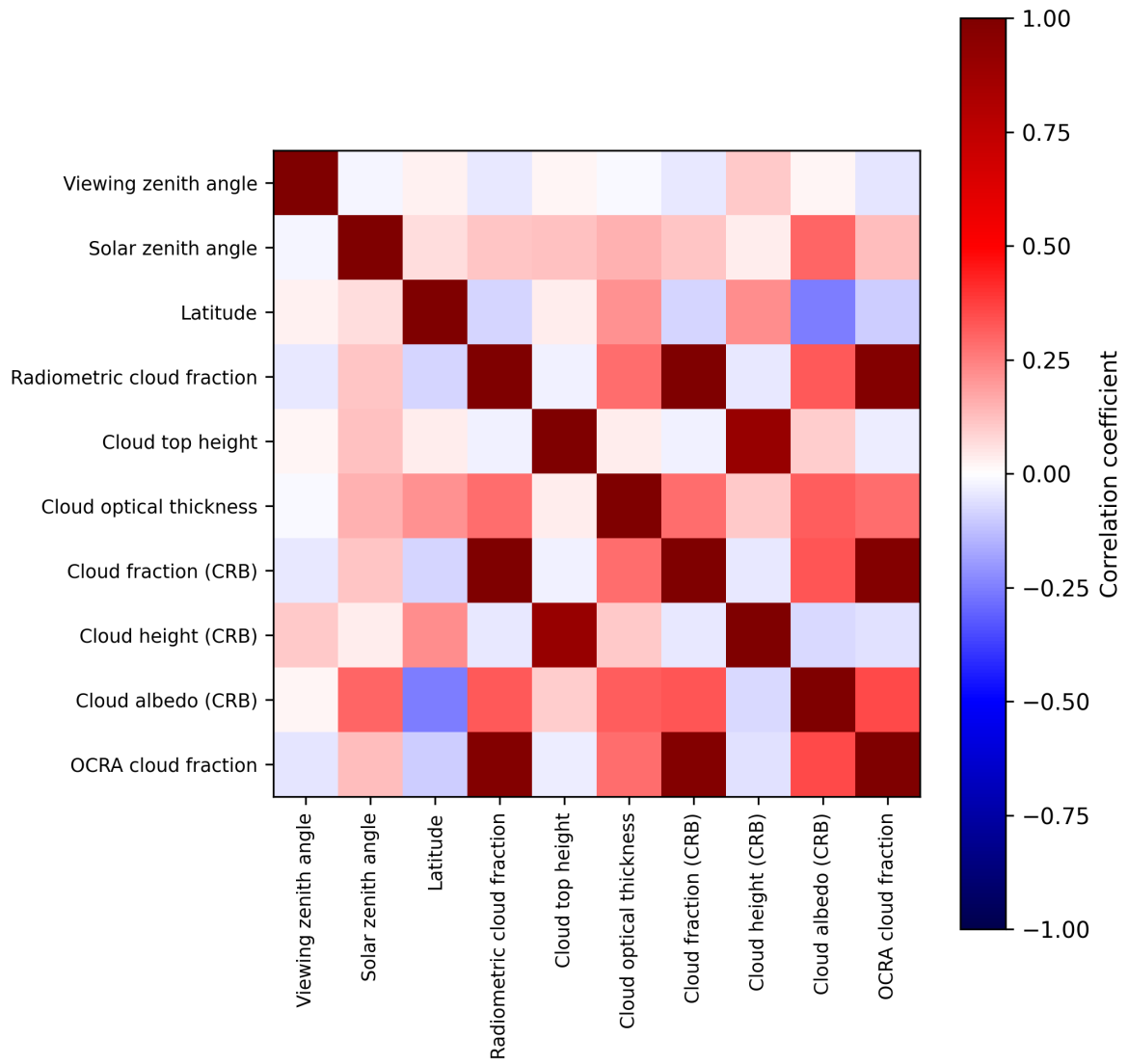


Figure 2: Map of correlation matrix for 2024-11-25 to 2024-11-26.

3 Granule outlines

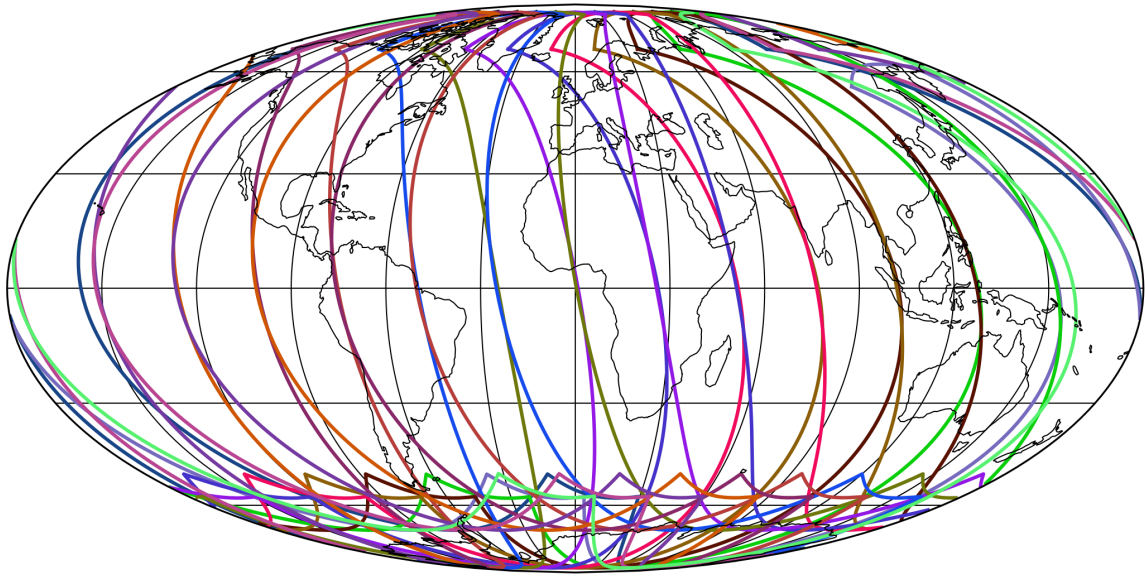


Figure 3: Outline of the granules.

4 Input data monitoring

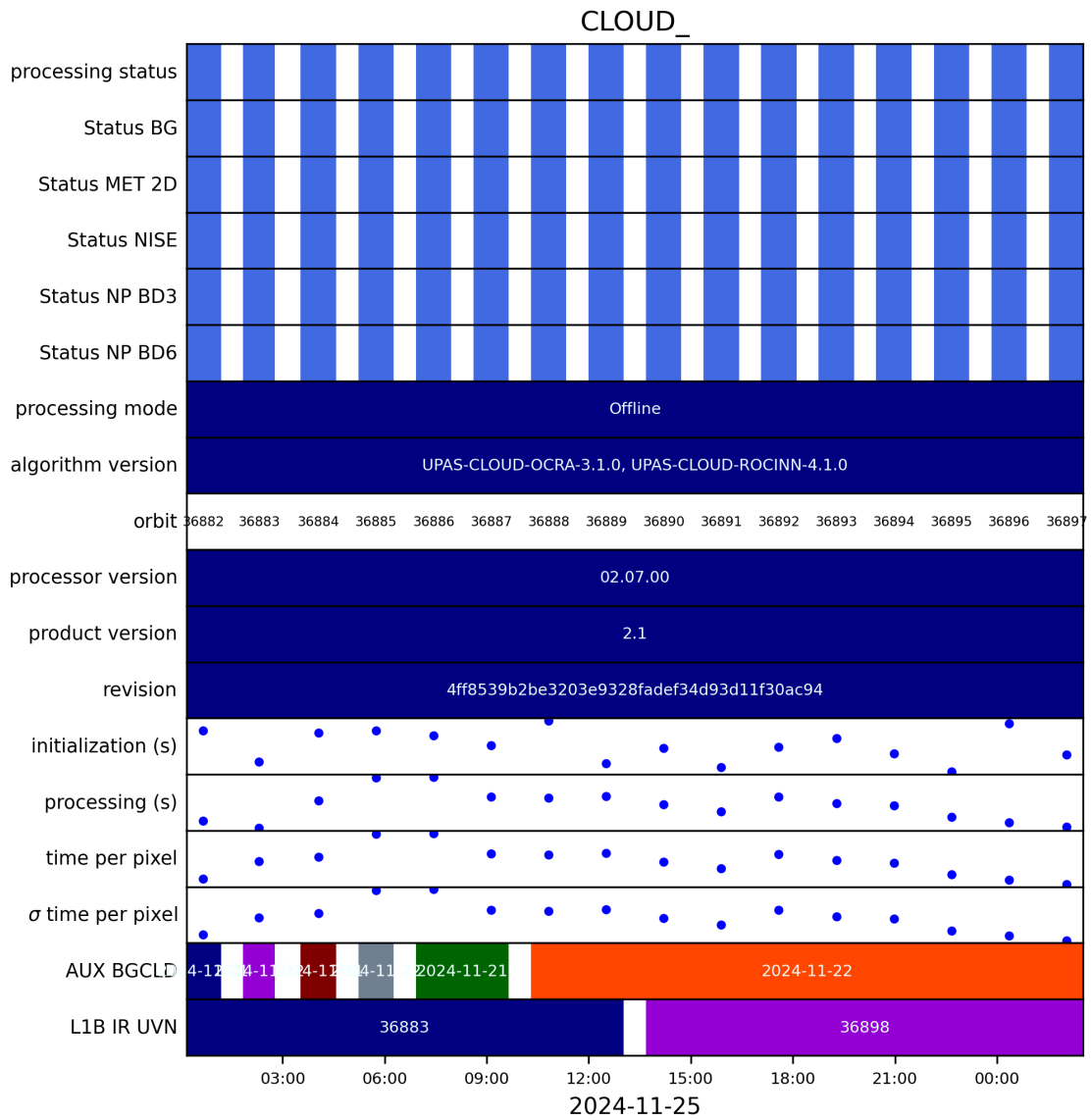


Figure 4: Input data per granule

5 Warnings and errors

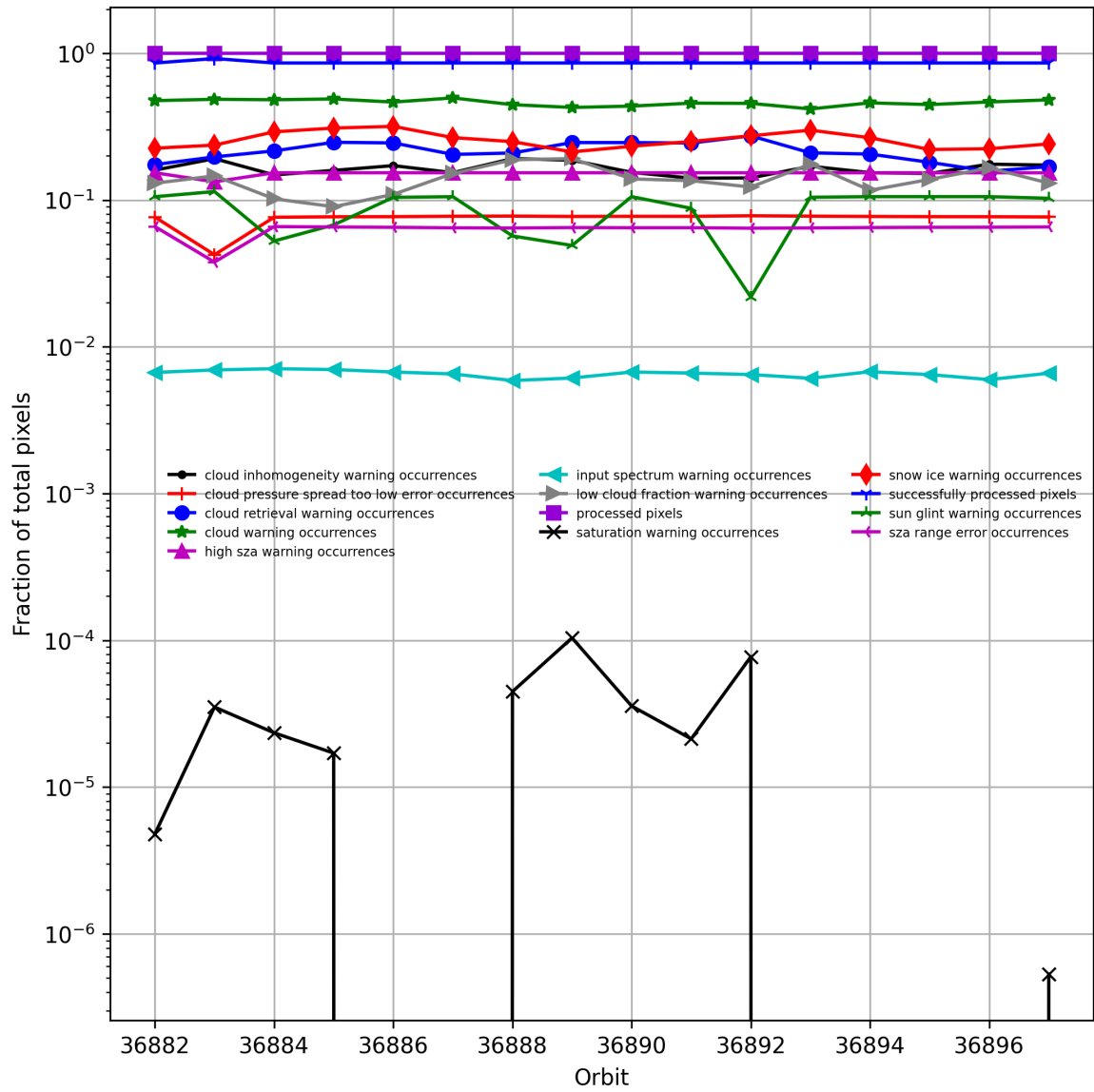


Figure 5: Fraction of pixels with specific warnings and errors during processing

6 World maps

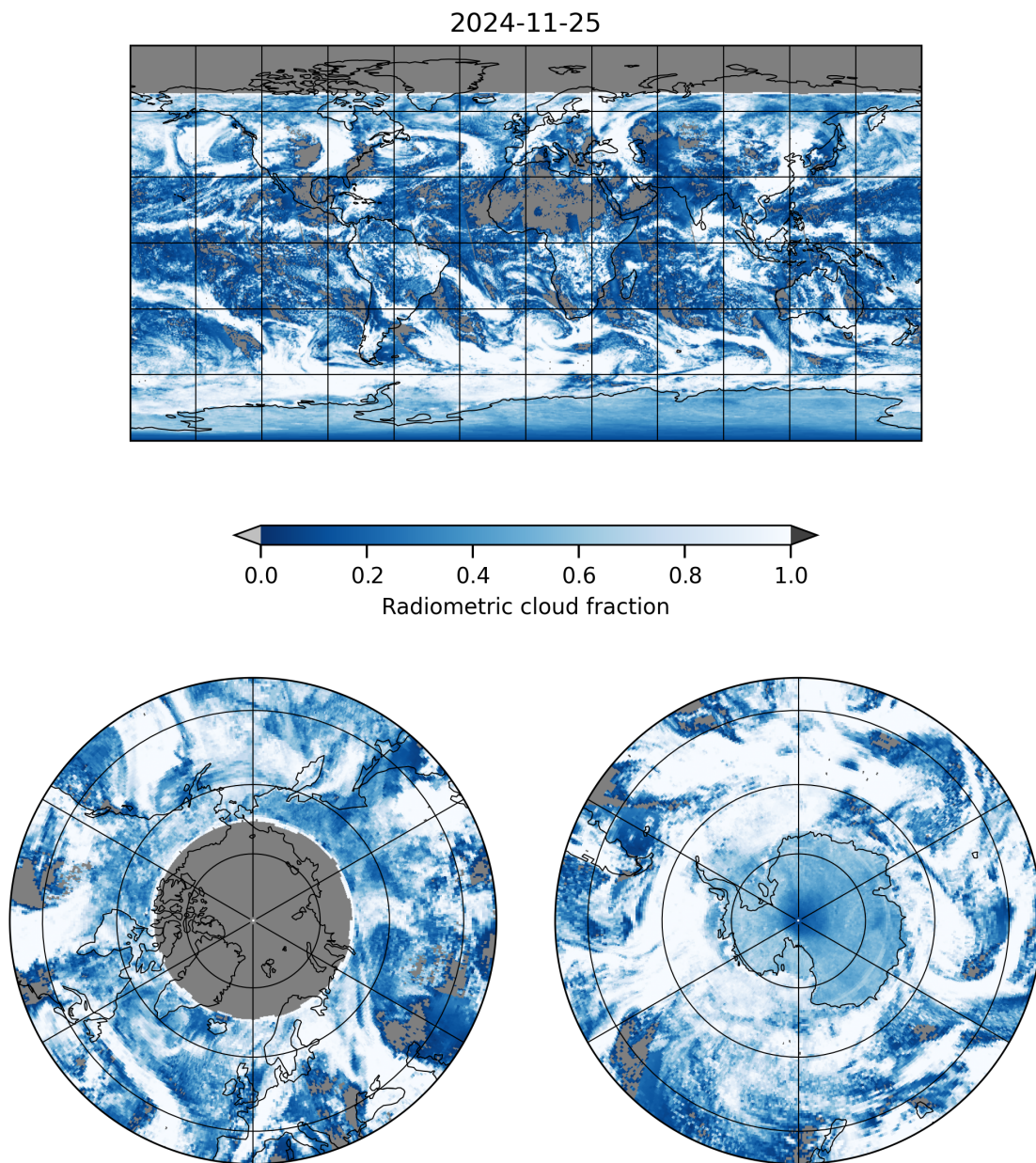


Figure 6: Map of “Radiometric cloud fraction” for 2024-11-25 to 2024-11-26

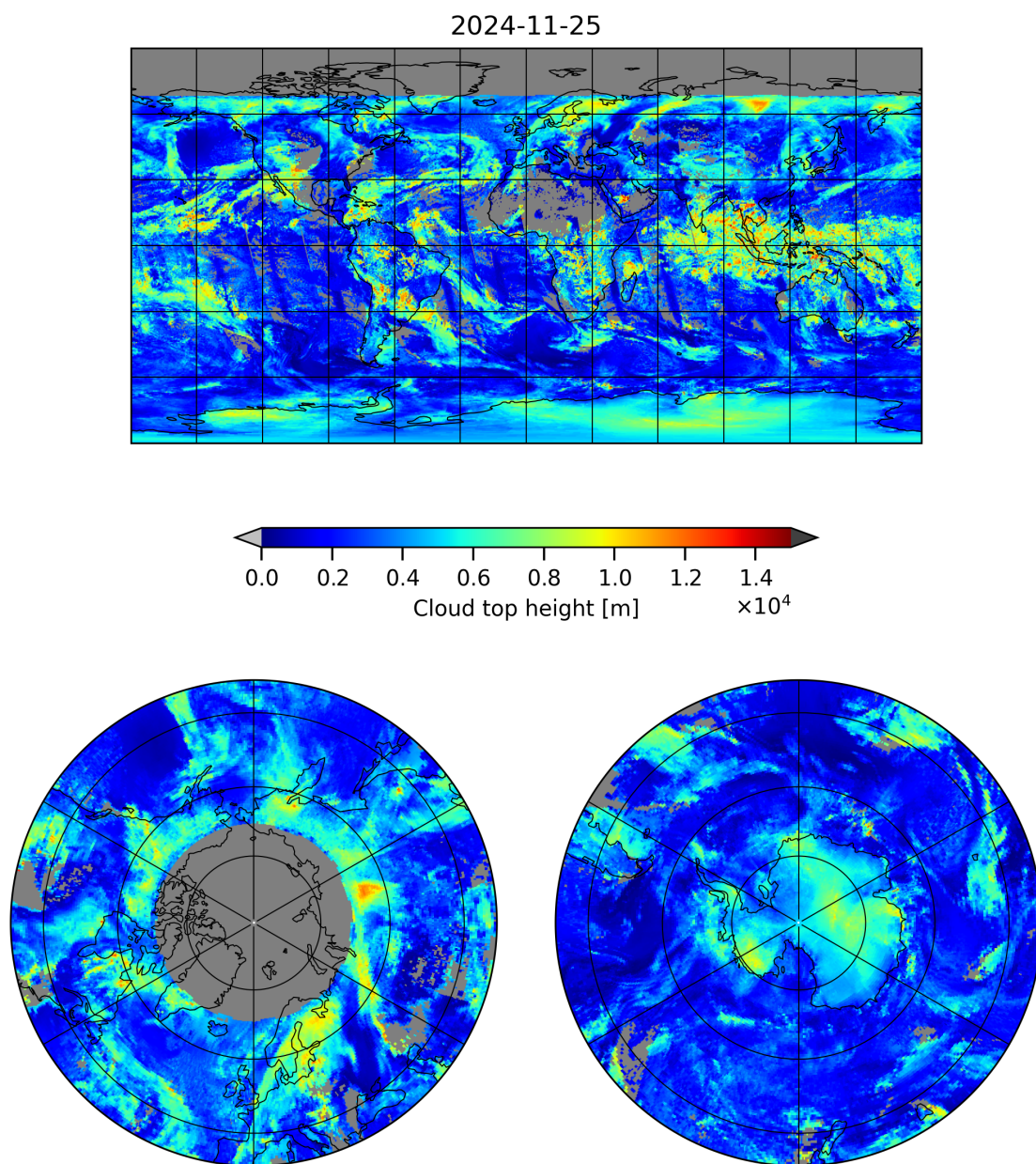


Figure 7: Map of “Cloud top height” for 2024-11-25 to 2024-11-26

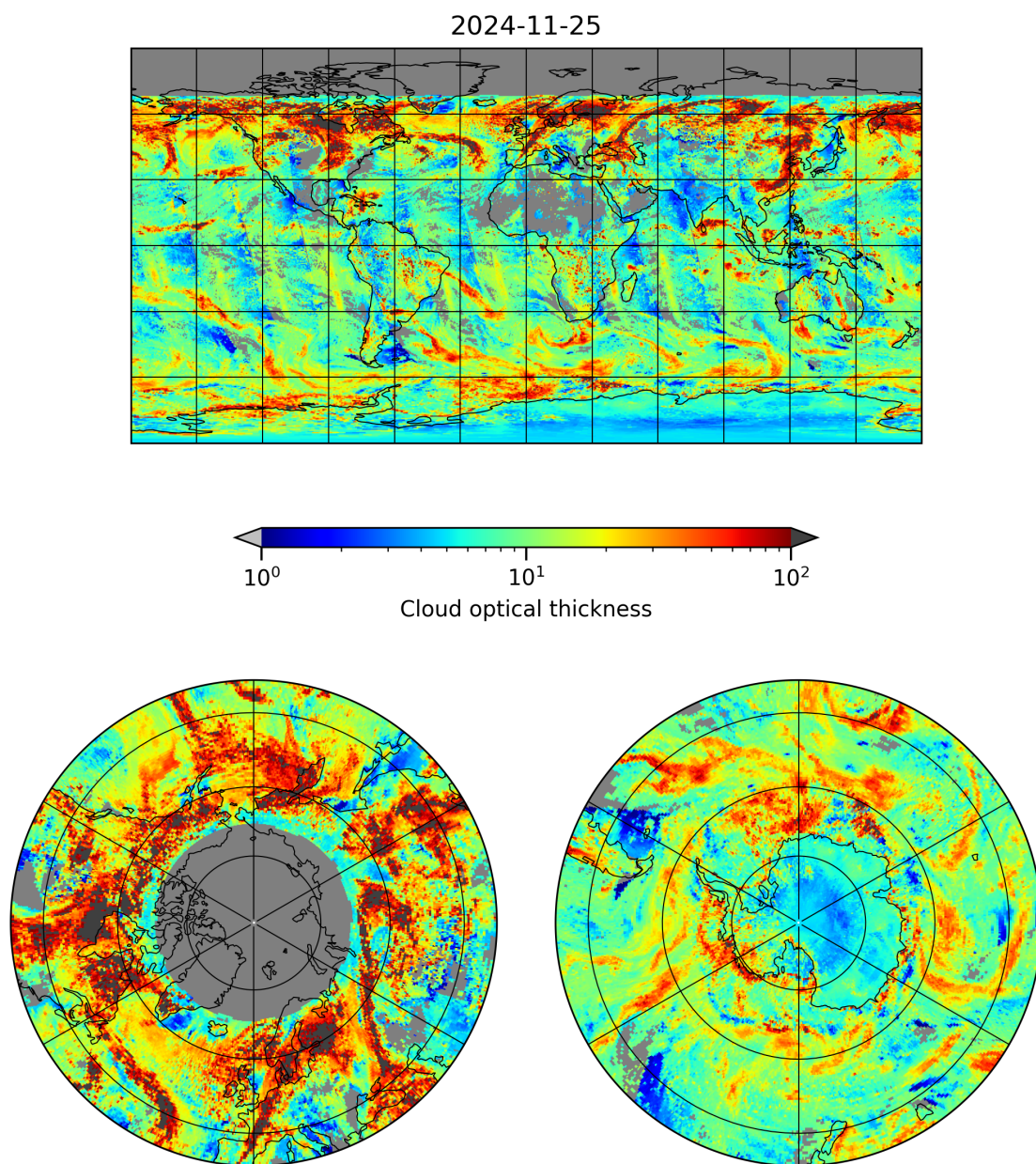


Figure 8: Map of “Cloud optical thickness” for 2024-11-25 to 2024-11-26

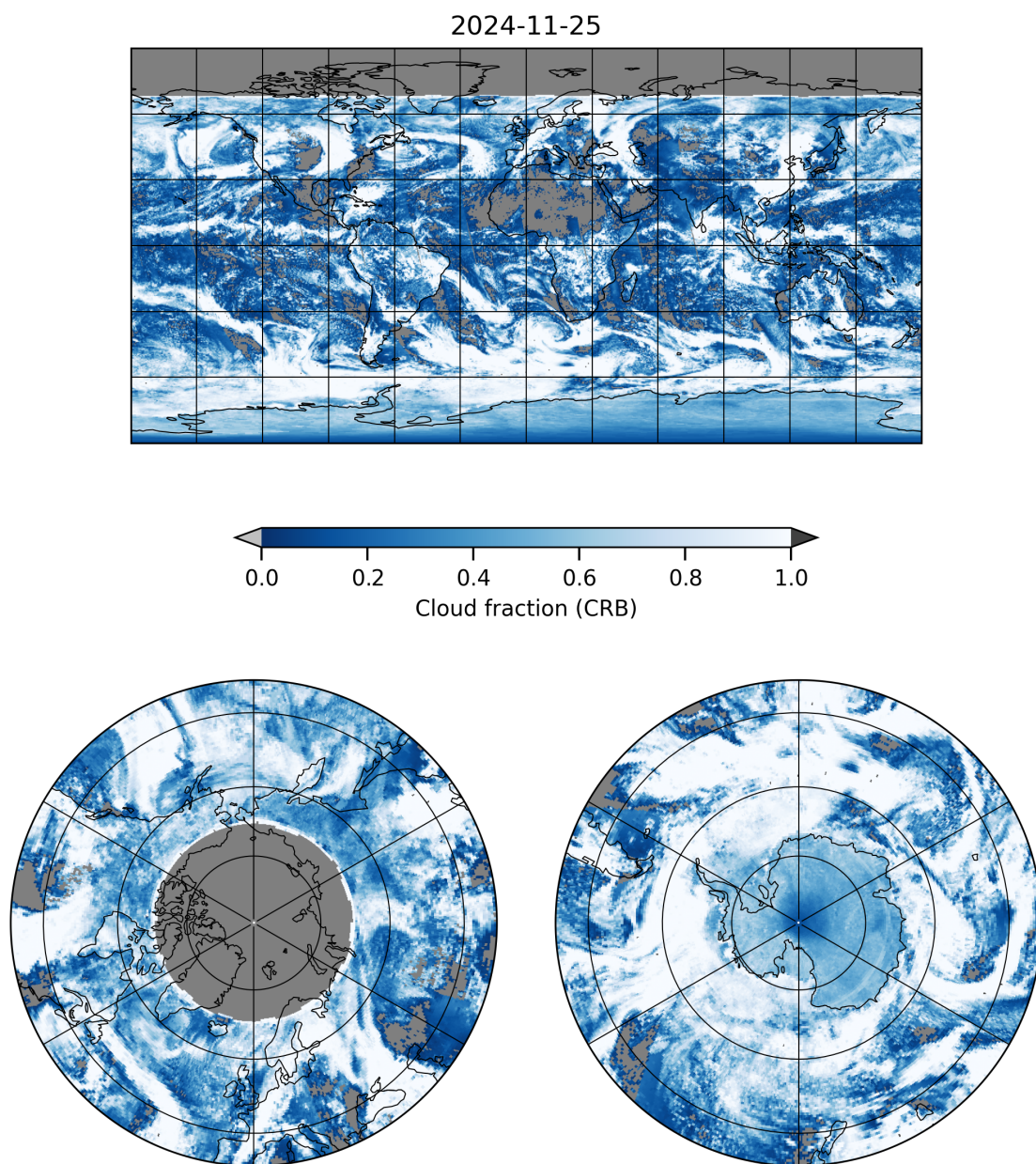


Figure 9: Map of “Cloud fraction (CRB)” for 2024-11-25 to 2024-11-26

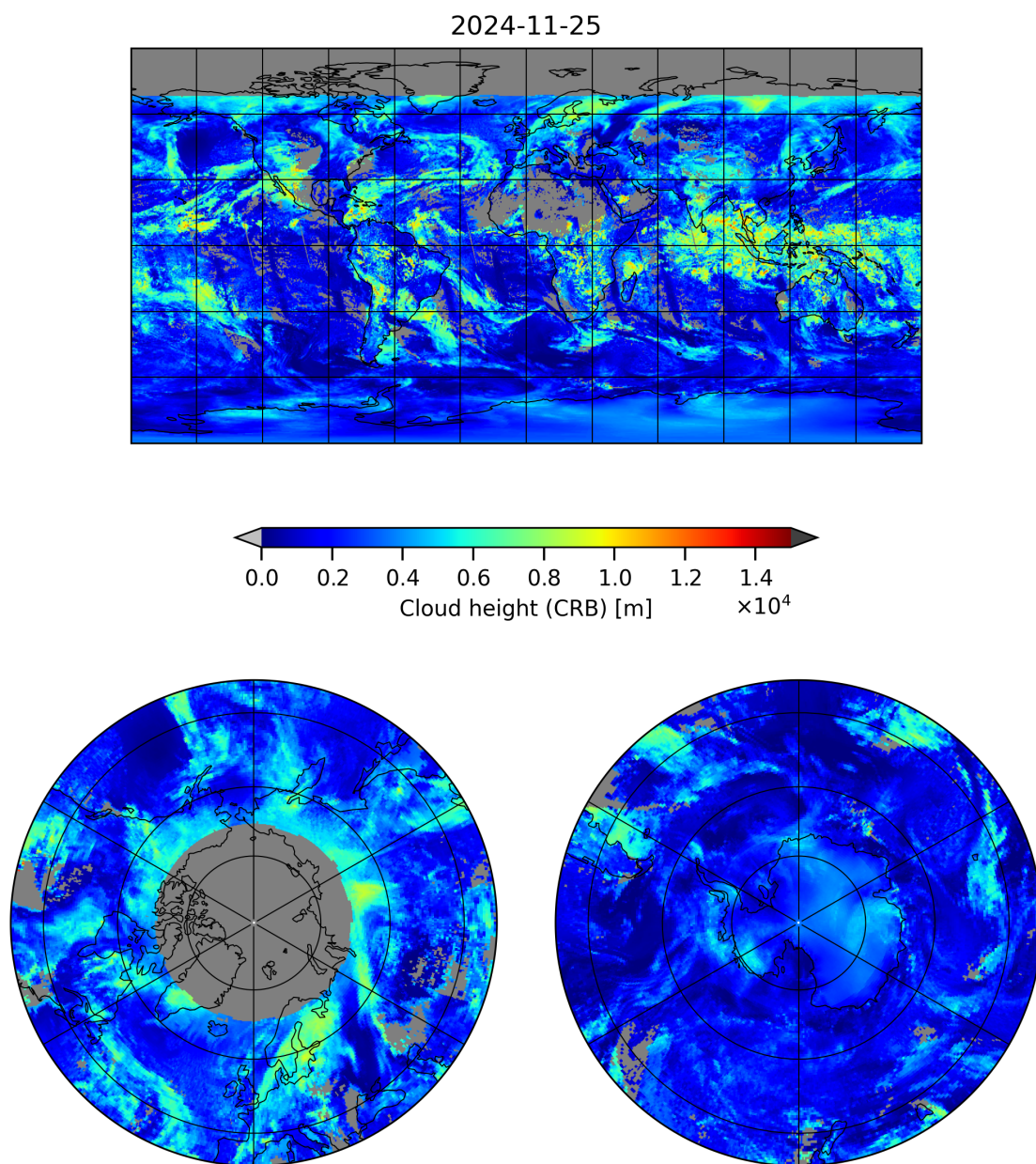


Figure 10: Map of “Cloud height (CRB)” for 2024-11-25 to 2024-11-26

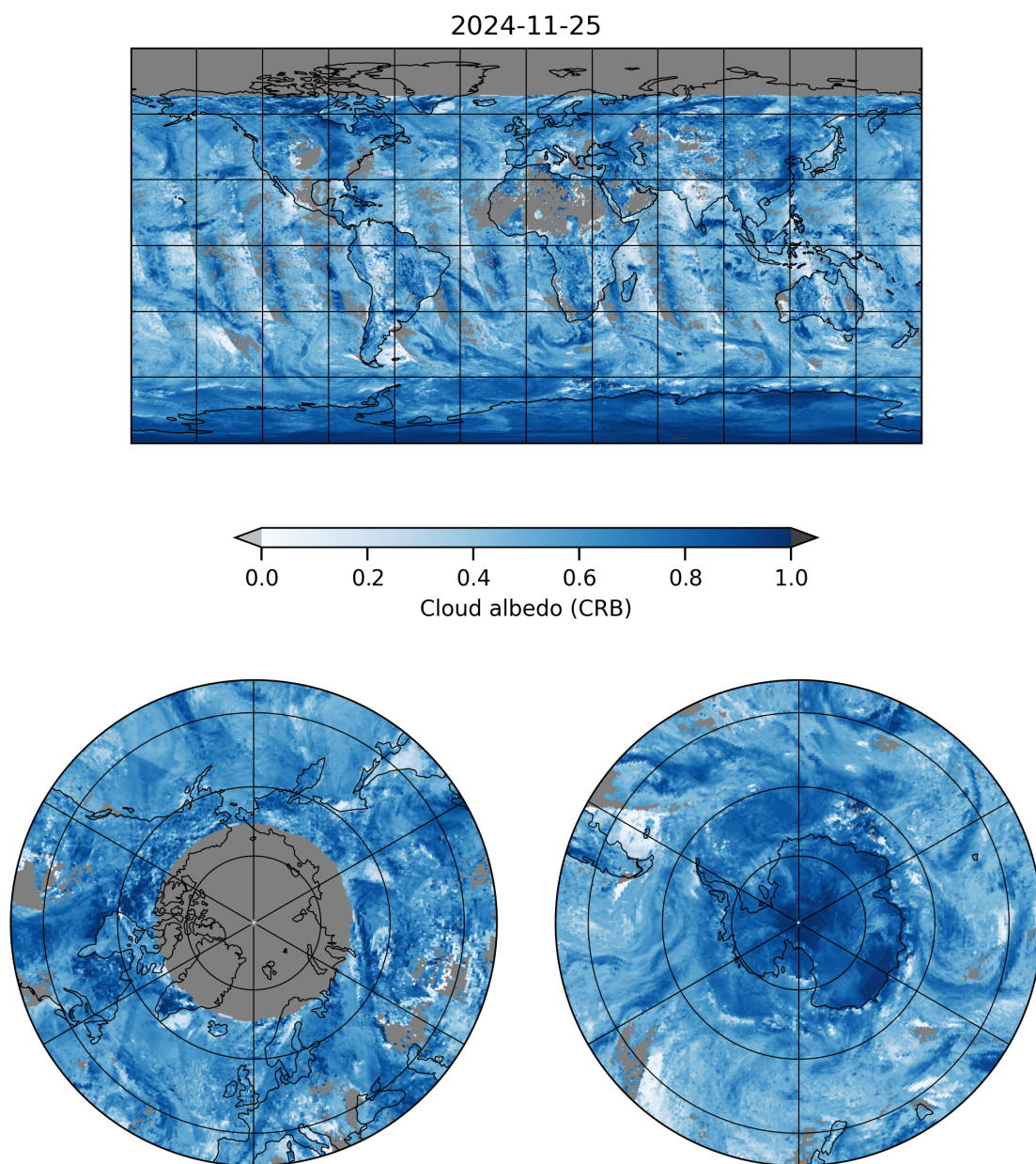


Figure 11: Map of “Cloud albedo (CRB)” for 2024-11-25 to 2024-11-26

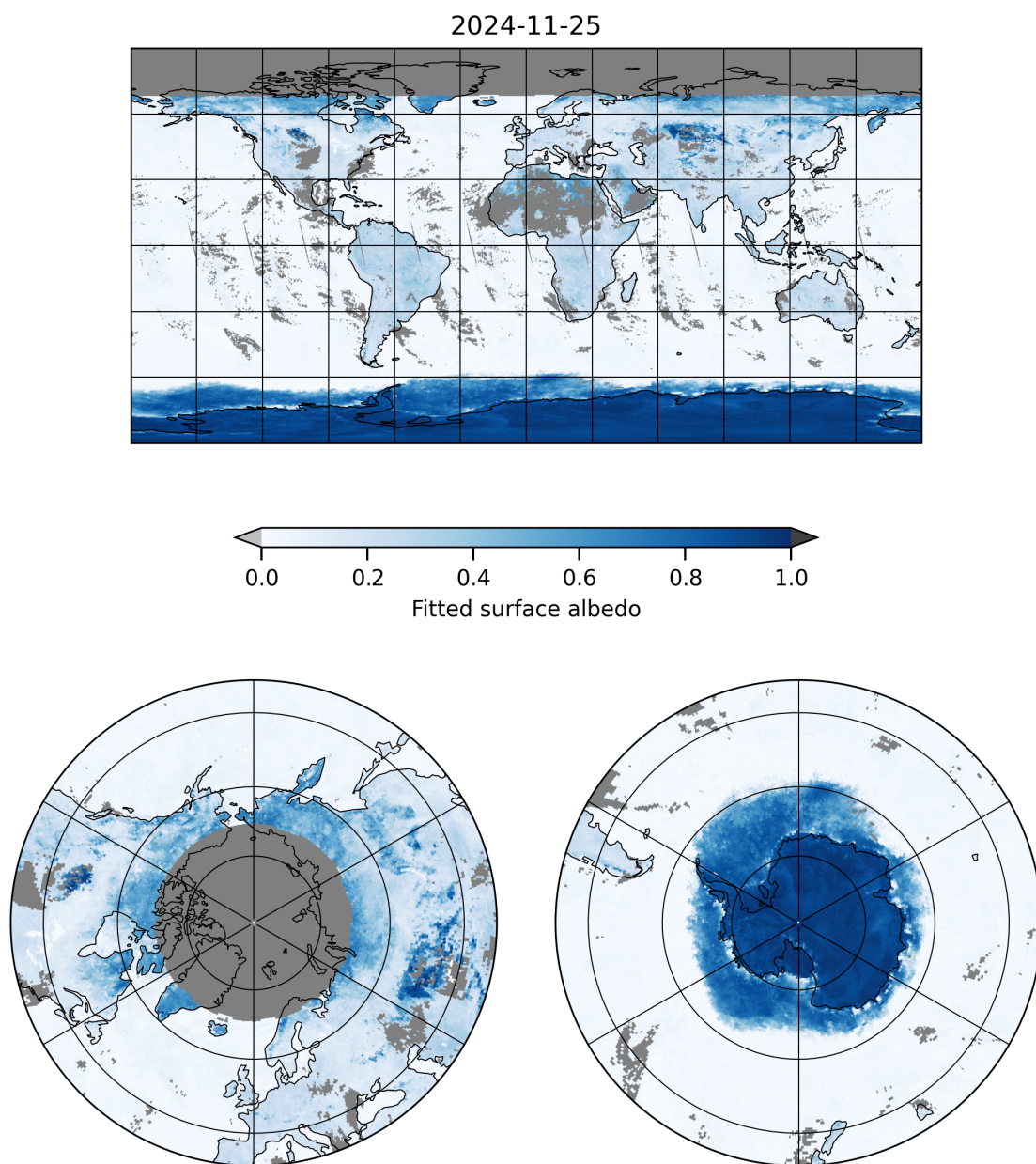


Figure 12: Map of “Fitted surface albedo” for 2024-11-25 to 2024-11-26

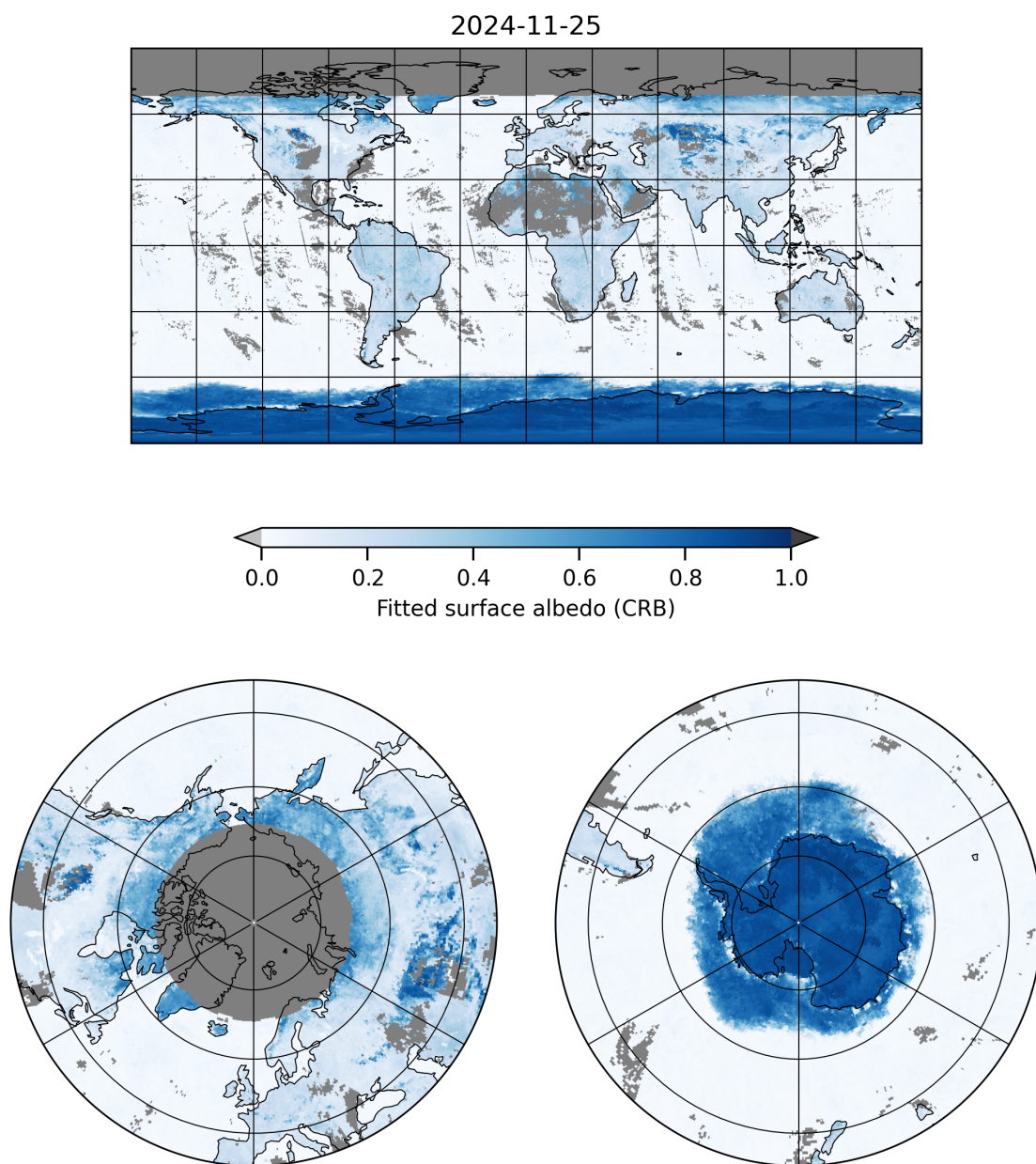


Figure 13: Map of “Fitted surface albedo (CRB)” for 2024-11-25 to 2024-11-26

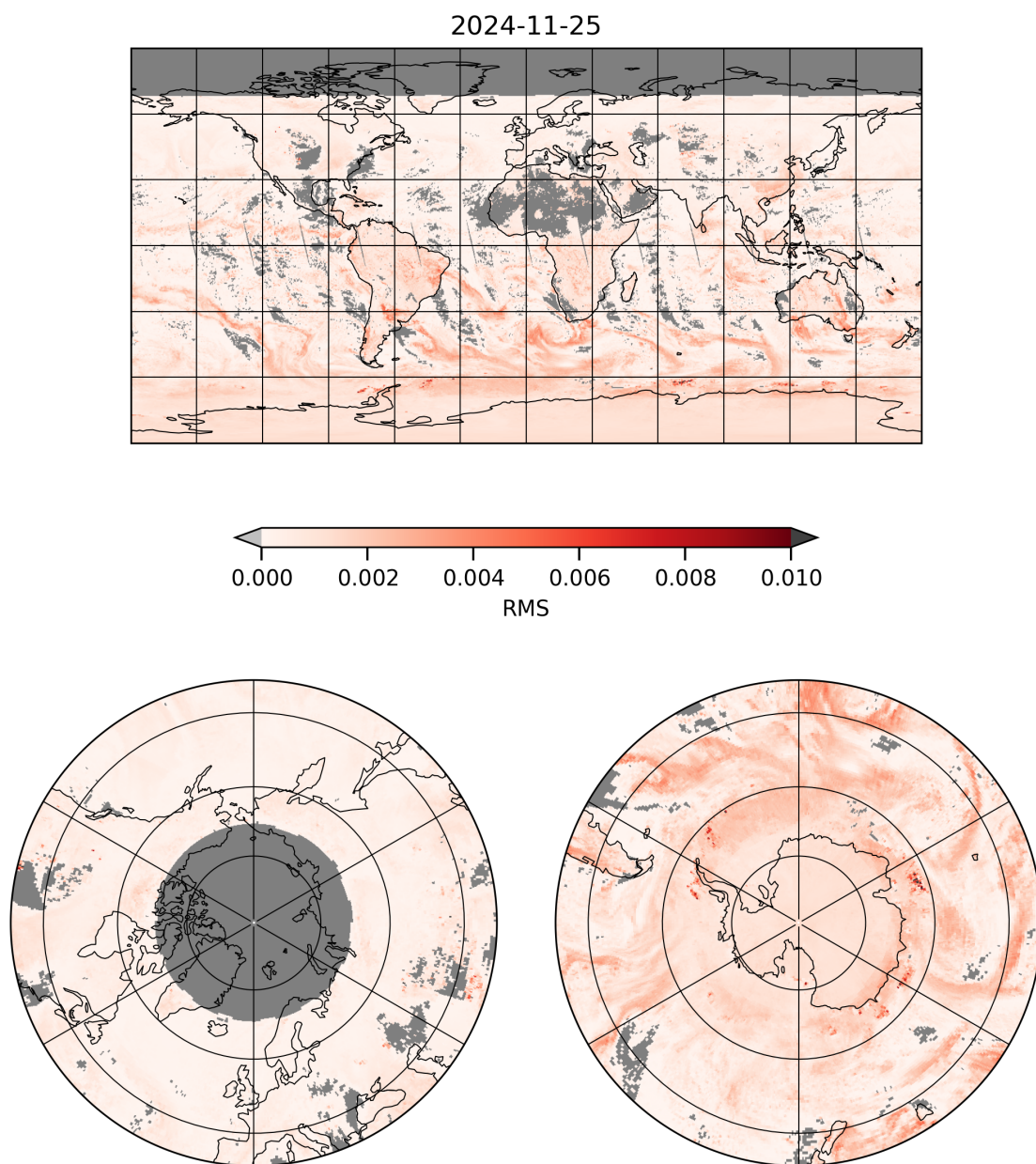


Figure 14: Map of “RMS” for 2024-11-25 to 2024-11-26

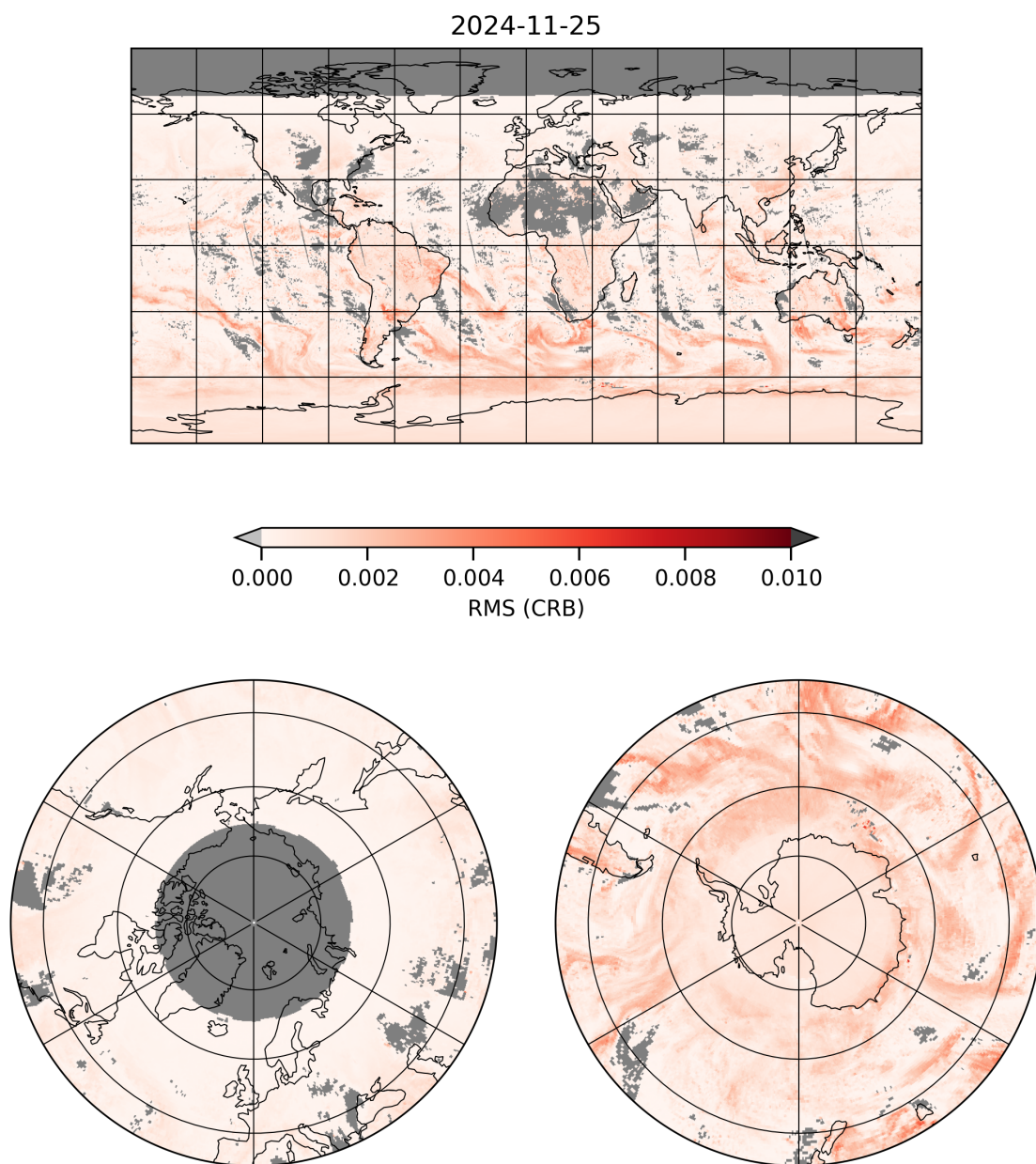


Figure 15: Map of “RMS (CRB)” for 2024-11-25 to 2024-11-26

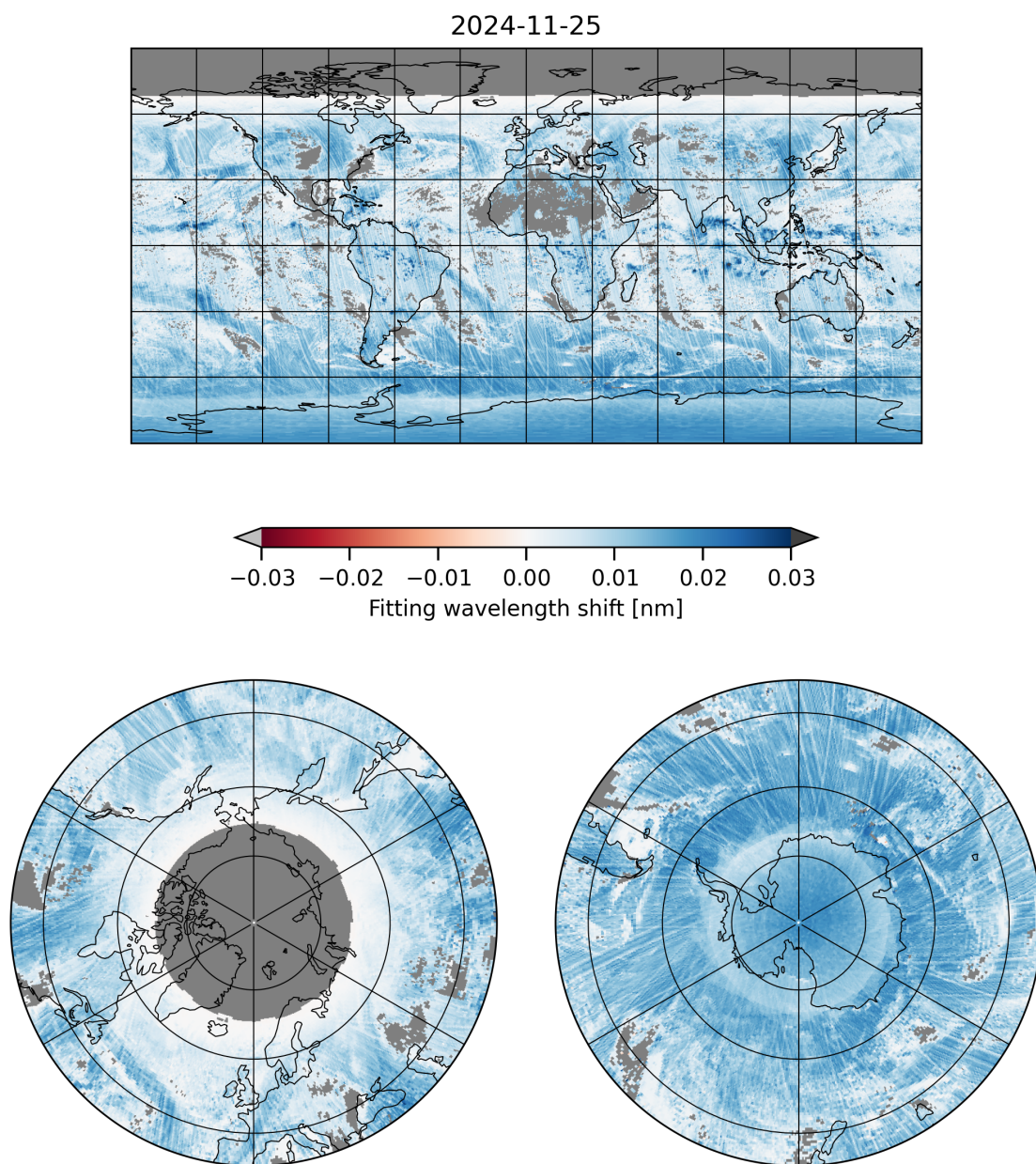


Figure 16: Map of “Fitting wavelength shift” for 2024-11-25 to 2024-11-26

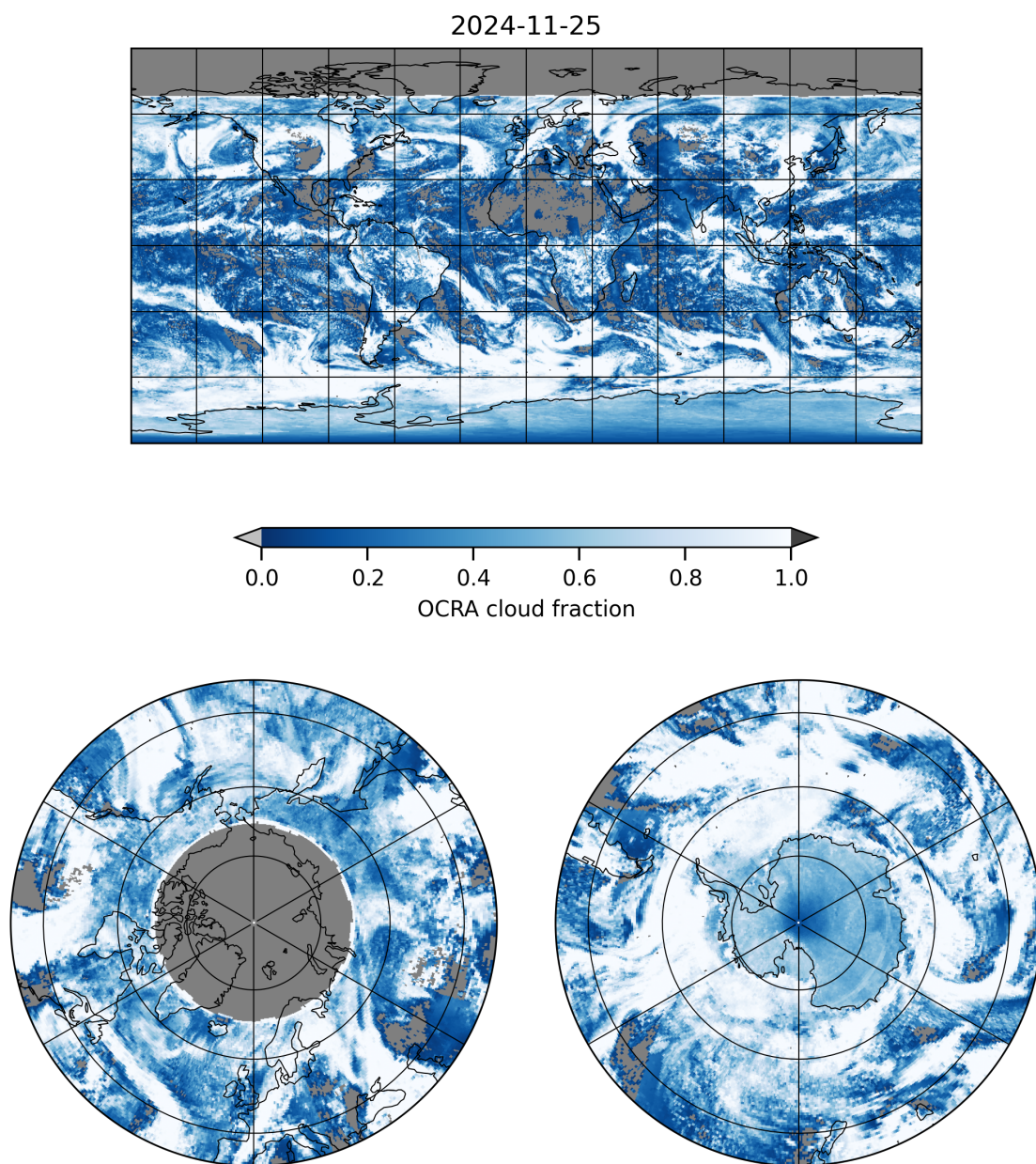


Figure 17: Map of “OCRA cloud fraction” for 2024-11-25 to 2024-11-26

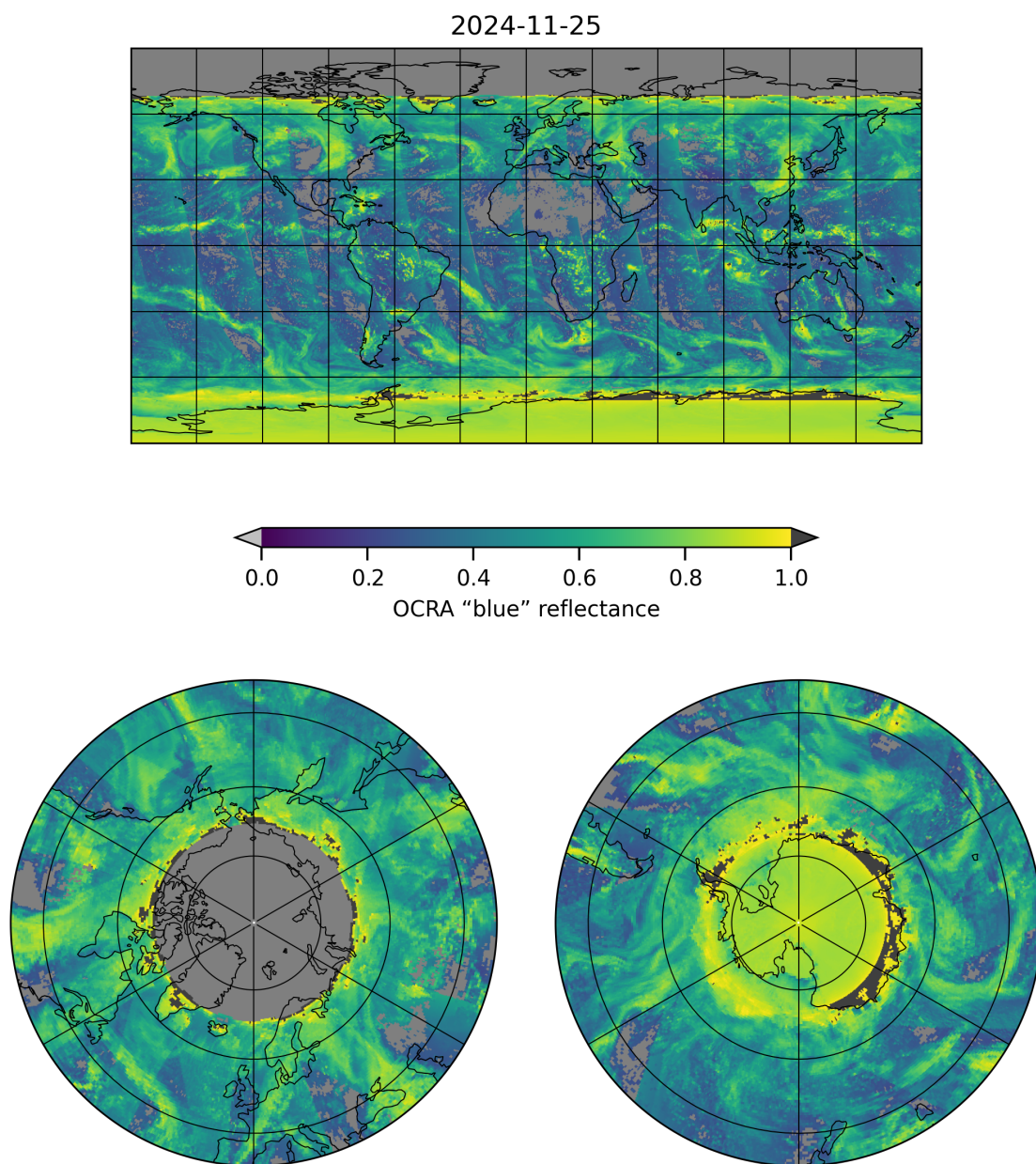


Figure 18: Map of "OCRA "blue" reflectance" for 2024-11-25 to 2024-11-26

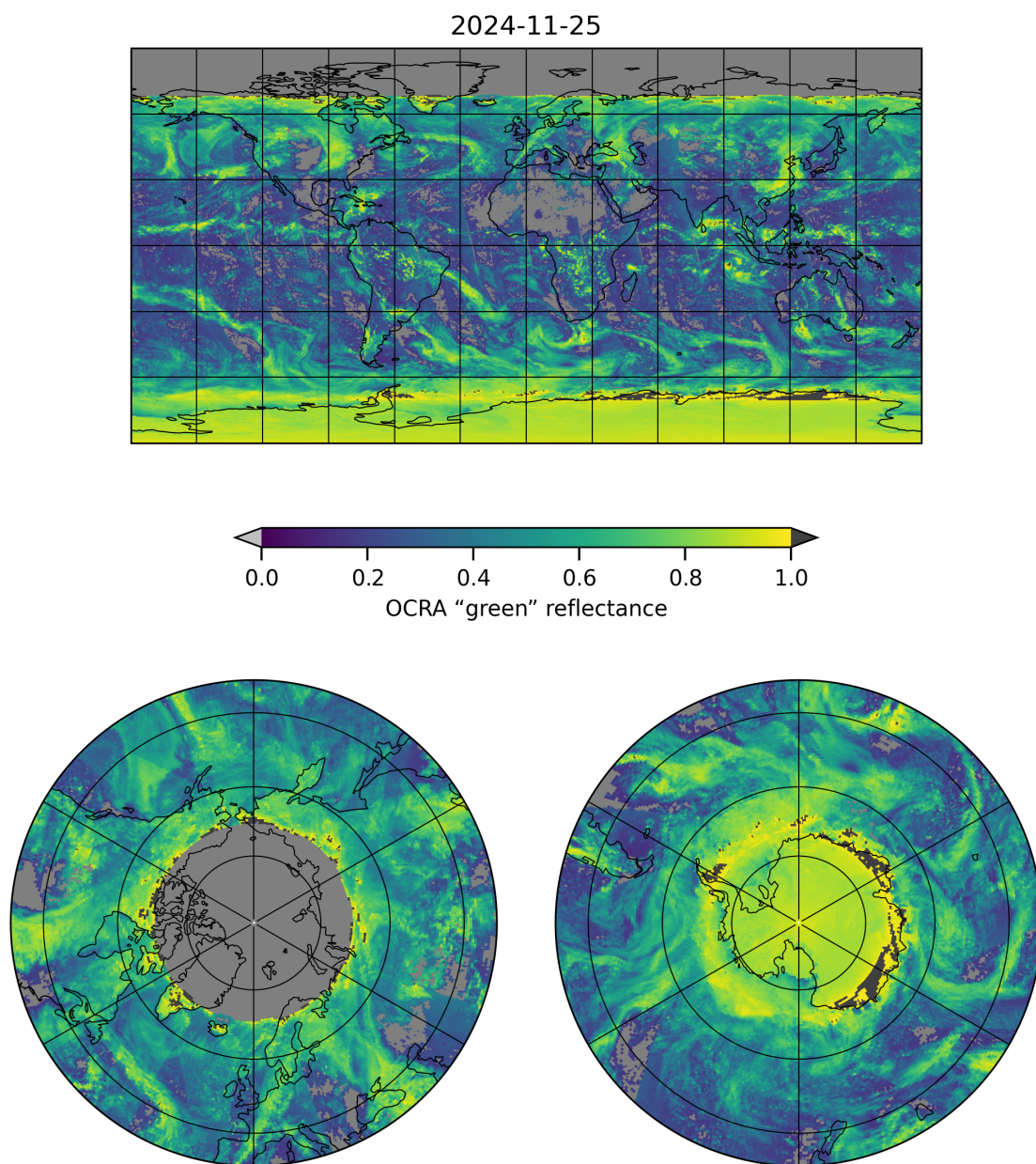


Figure 19: Map of "OCRA "green" reflectance" for 2024-11-25 to 2024-11-26

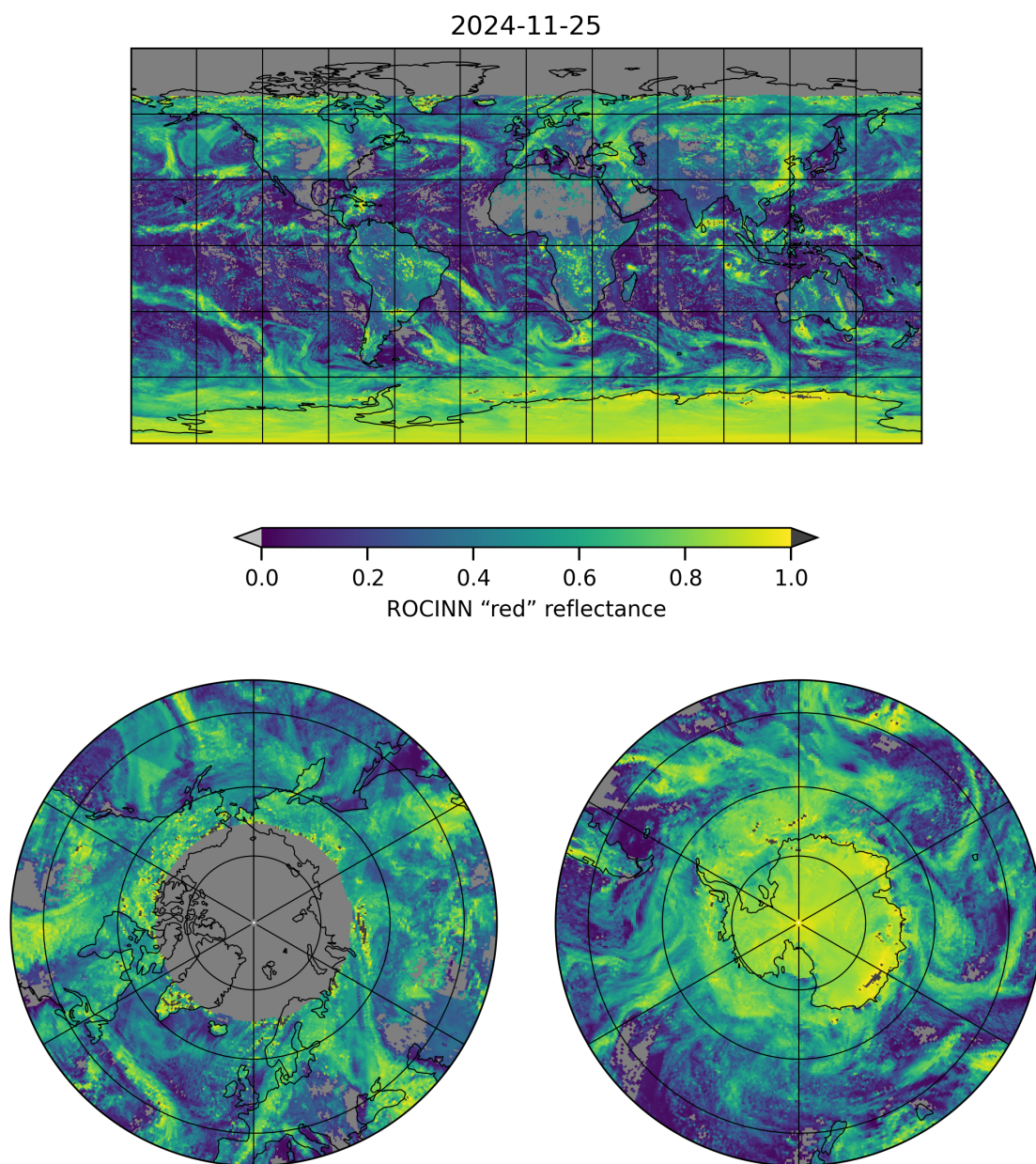


Figure 20: Map of "ROCINN "red" reflectance" for 2024-11-25 to 2024-11-26

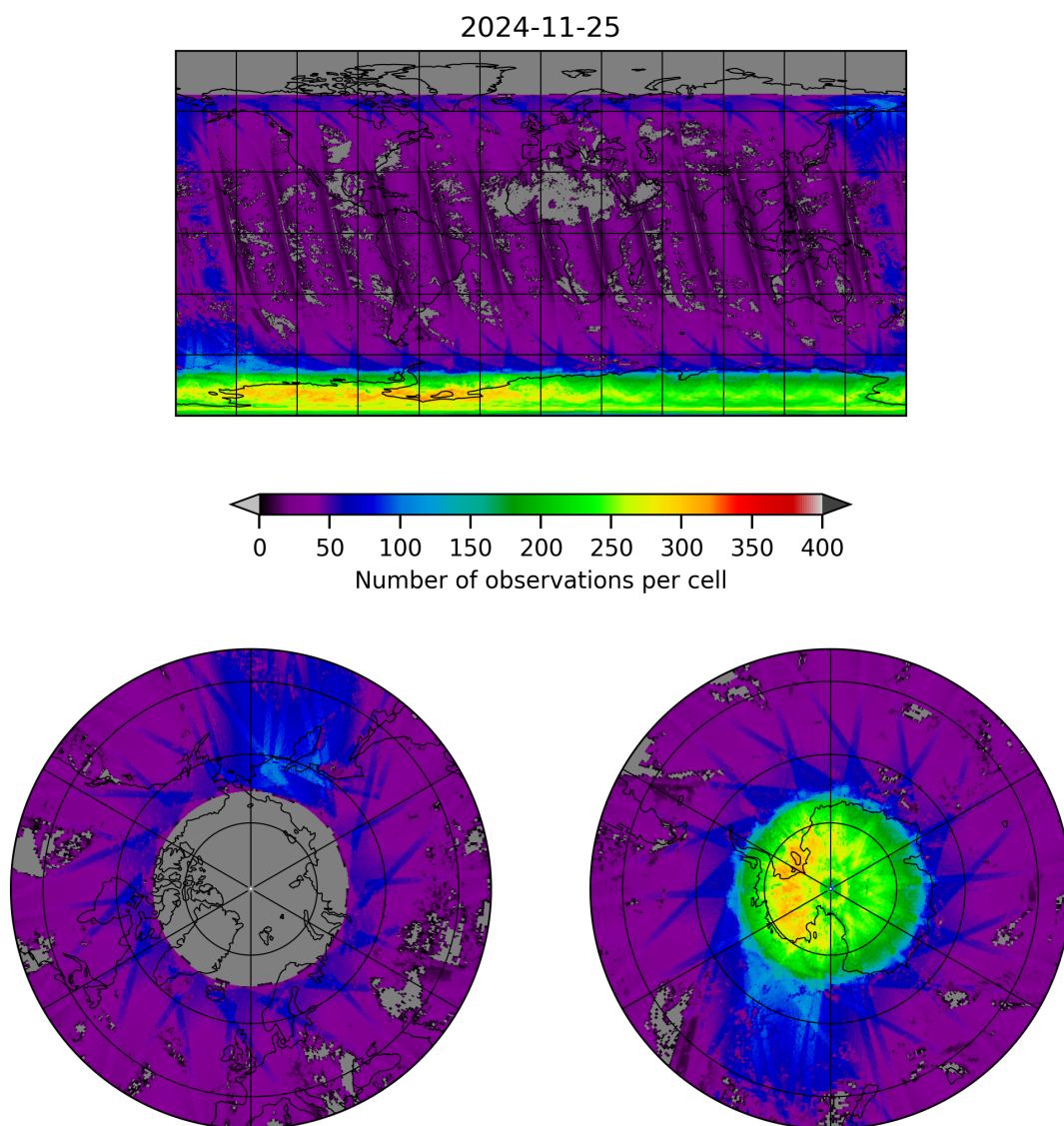


Figure 21: Map of the number of observations for 2024-11-25 to 2024-11-26

7 Zonal average

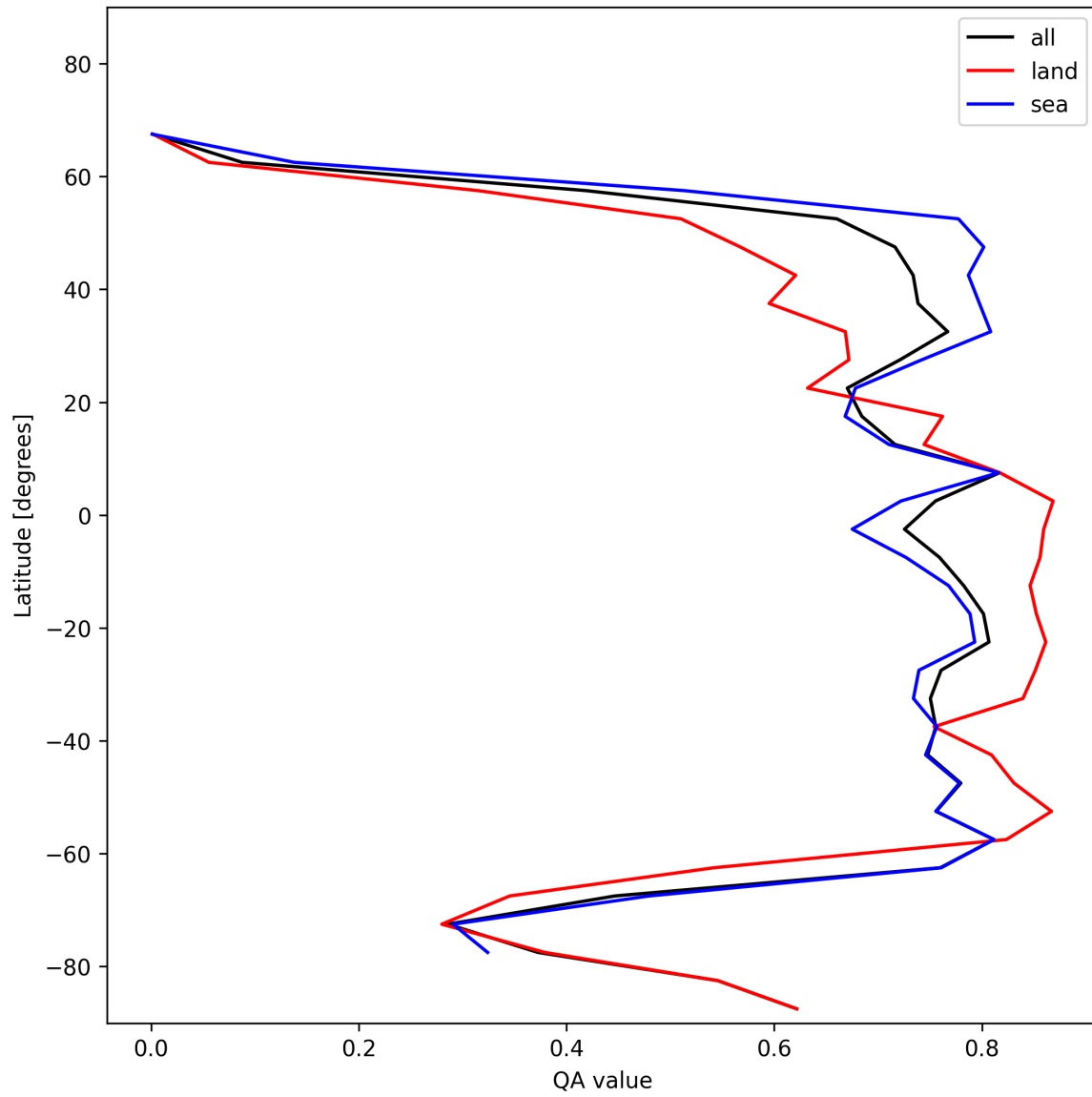


Figure 22: Zonal average of “QA value” for 2024-11-25 to 2024-11-26.

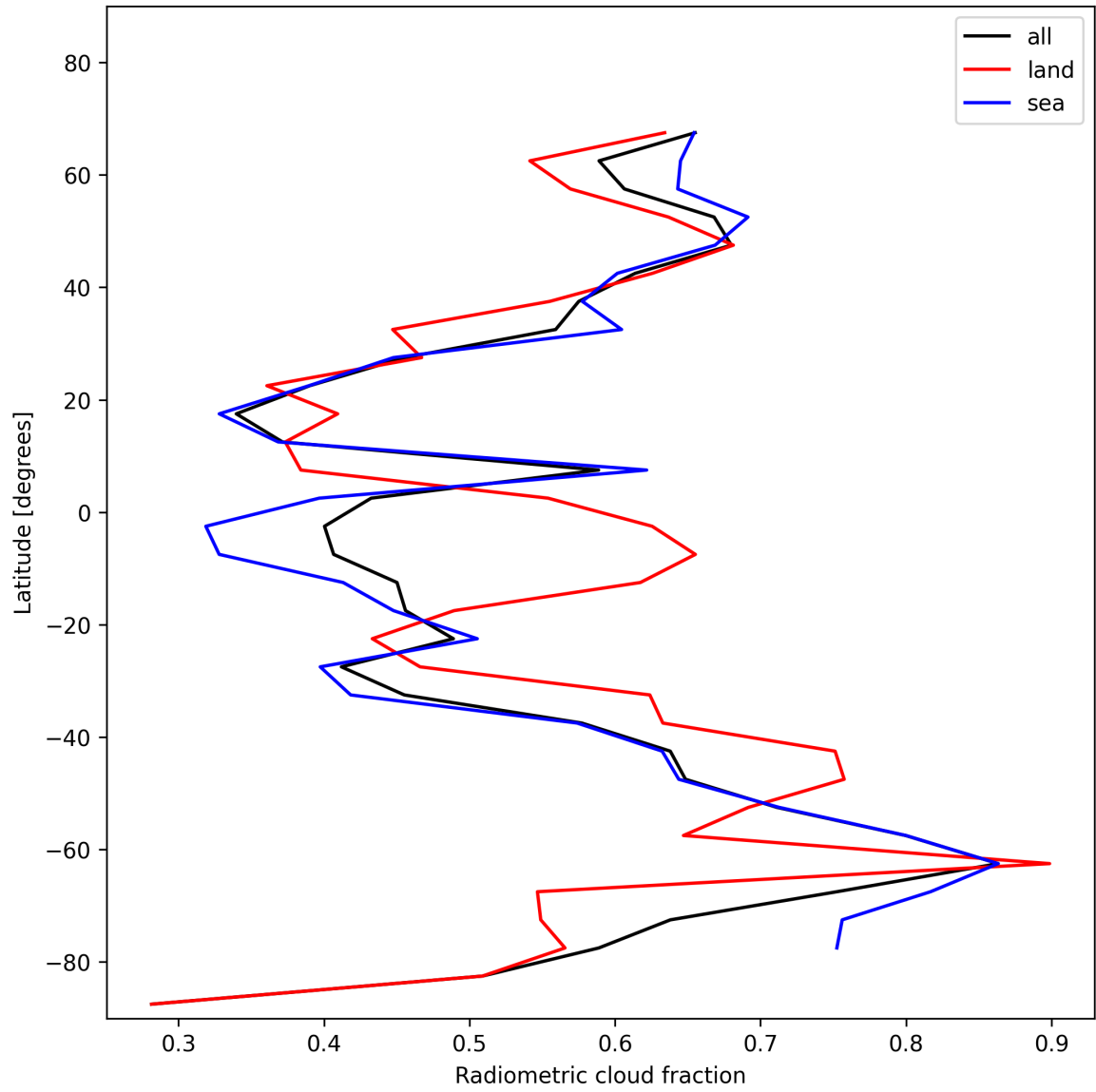


Figure 23: Zonal average of “Radiometric cloud fraction” for 2024-11-25 to 2024-11-26.

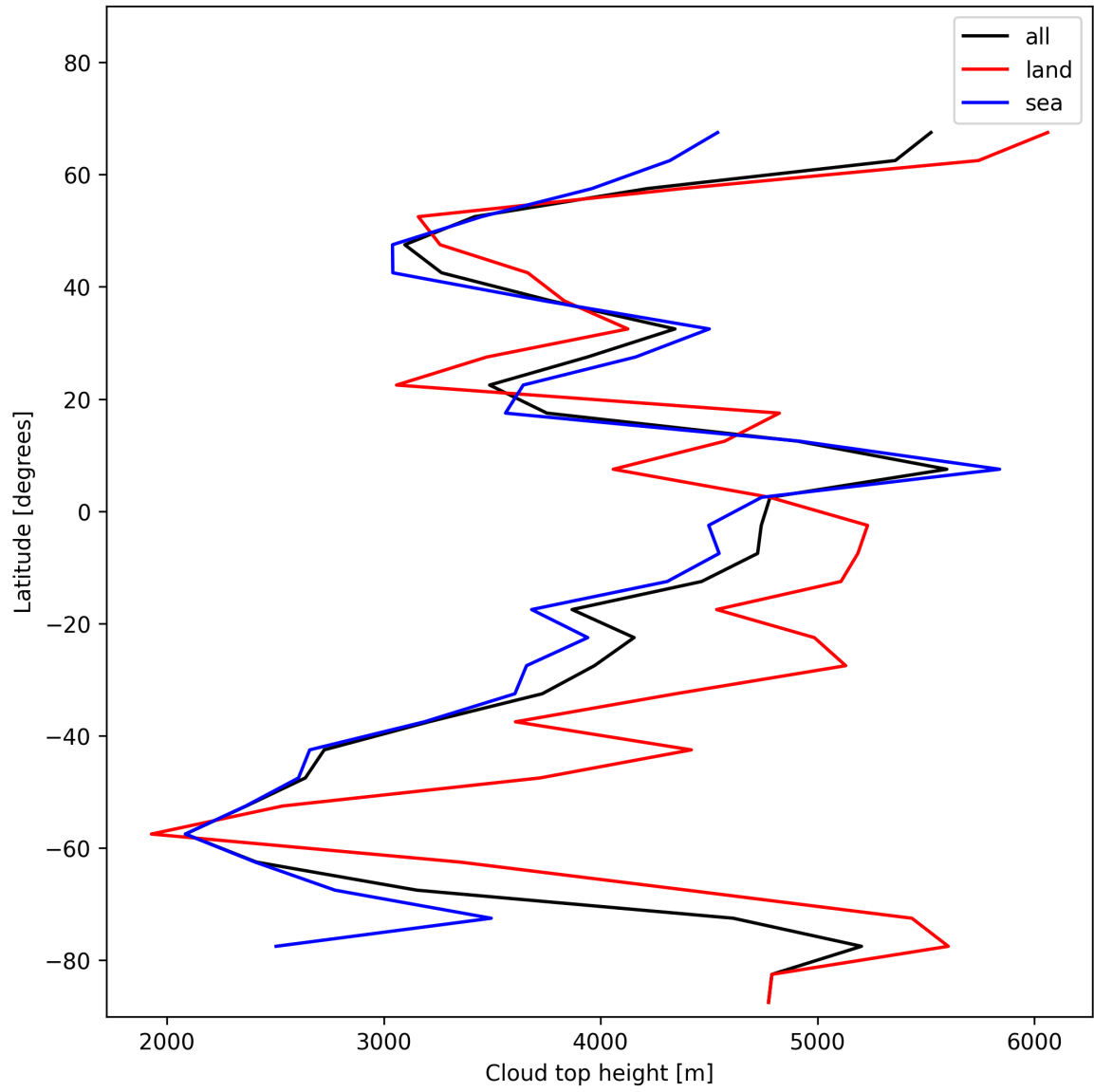


Figure 24: Zonal average of “Cloud top height” for 2024-11-25 to 2024-11-26.

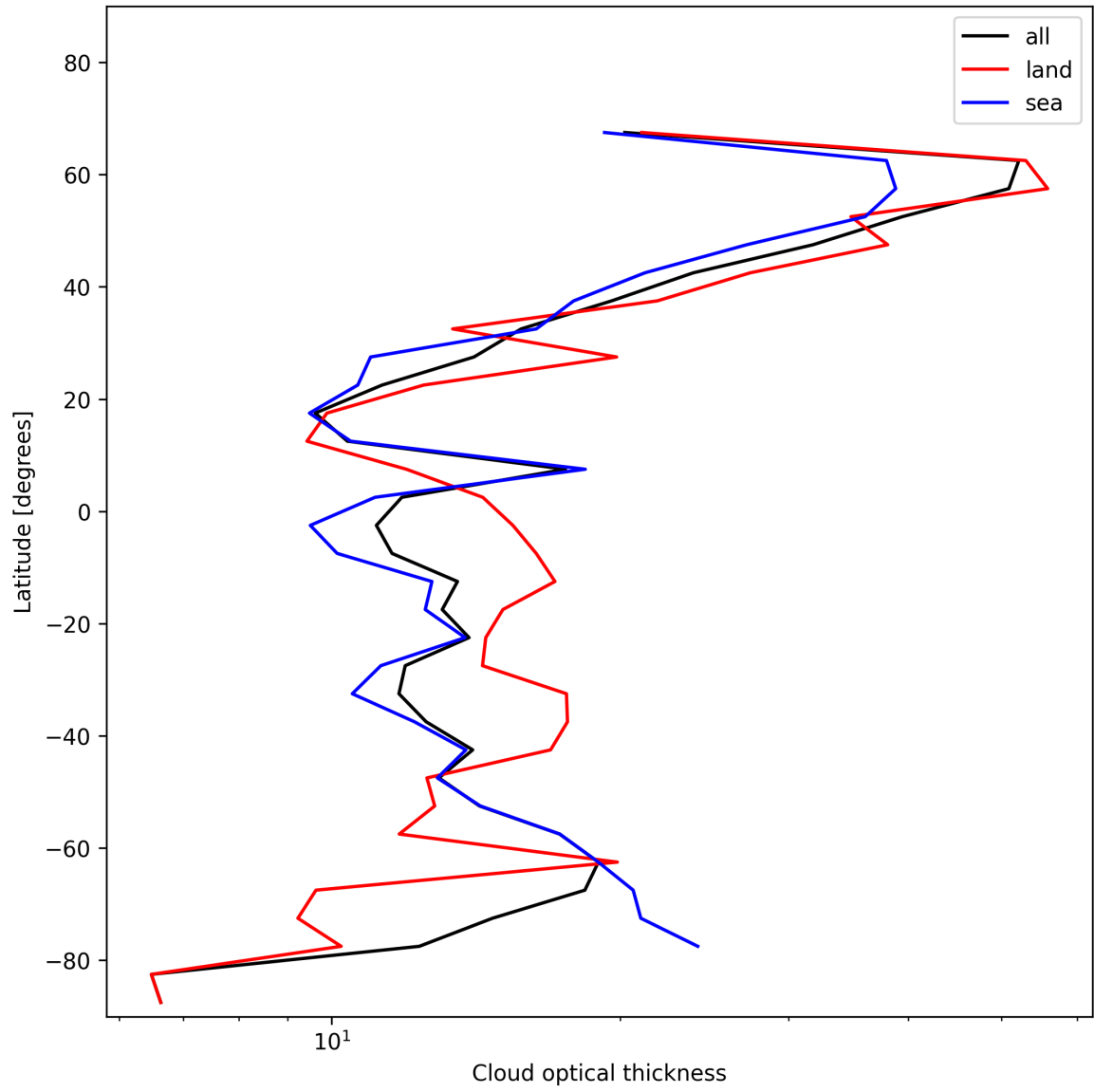


Figure 25: Zonal average of “Cloud optical thickness” for 2024-11-25 to 2024-11-26.

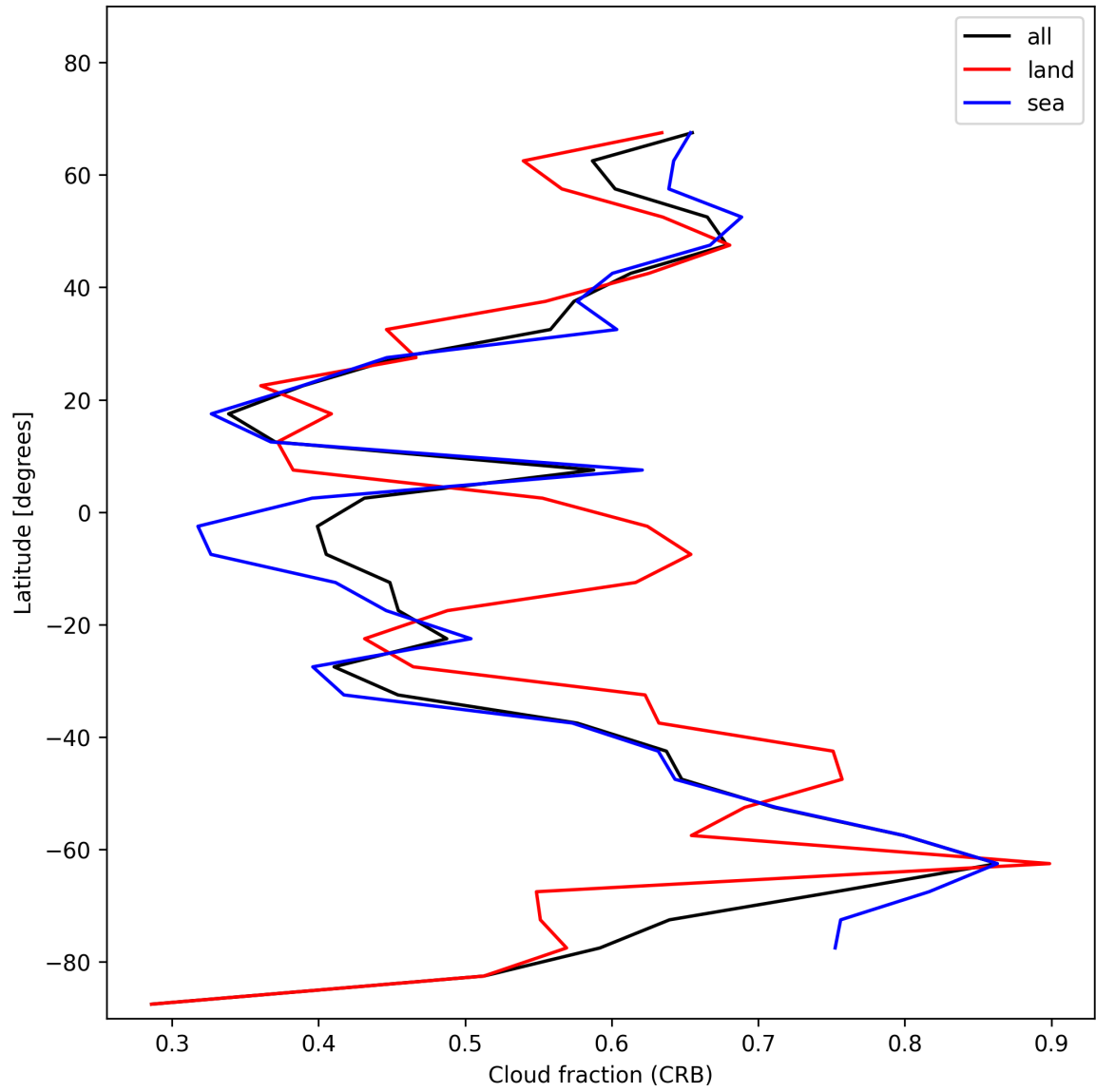


Figure 26: Zonal average of “Cloud fraction (CRB)” for 2024-11-25 to 2024-11-26.

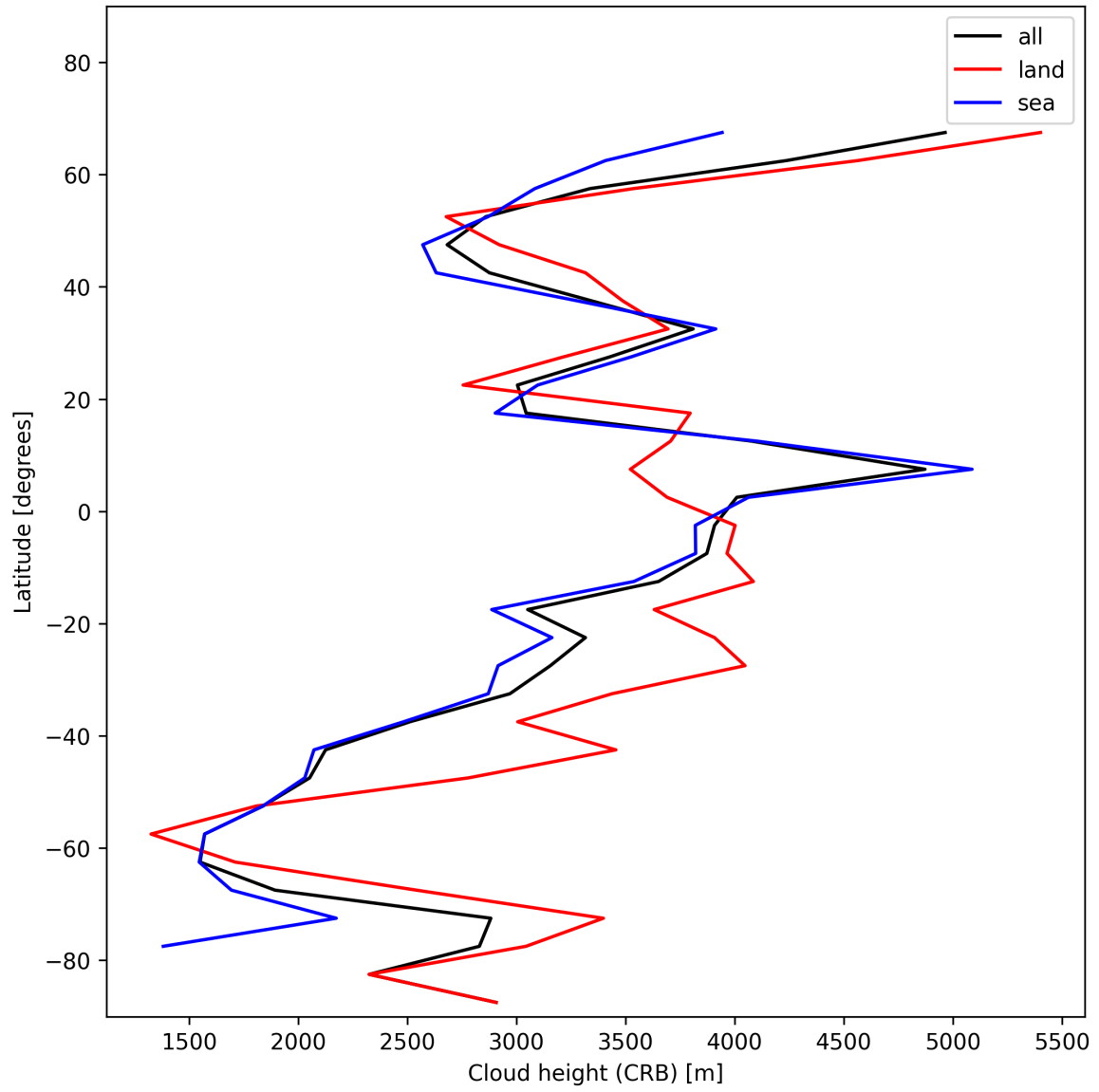


Figure 27: Zonal average of “Cloud height (CRB)” for 2024-11-25 to 2024-11-26.

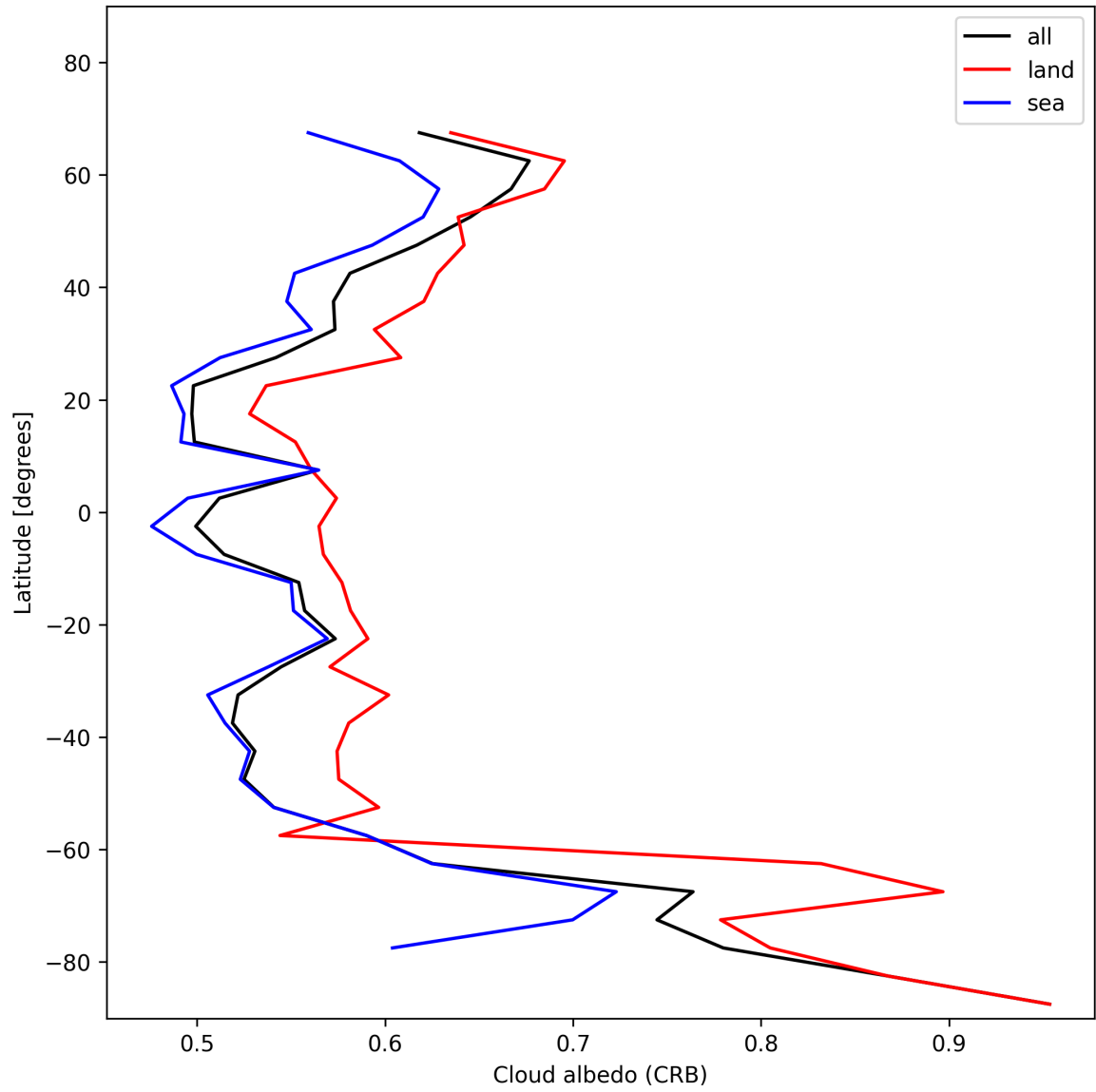


Figure 28: Zonal average of “Cloud albedo (CRB)” for 2024-11-25 to 2024-11-26.

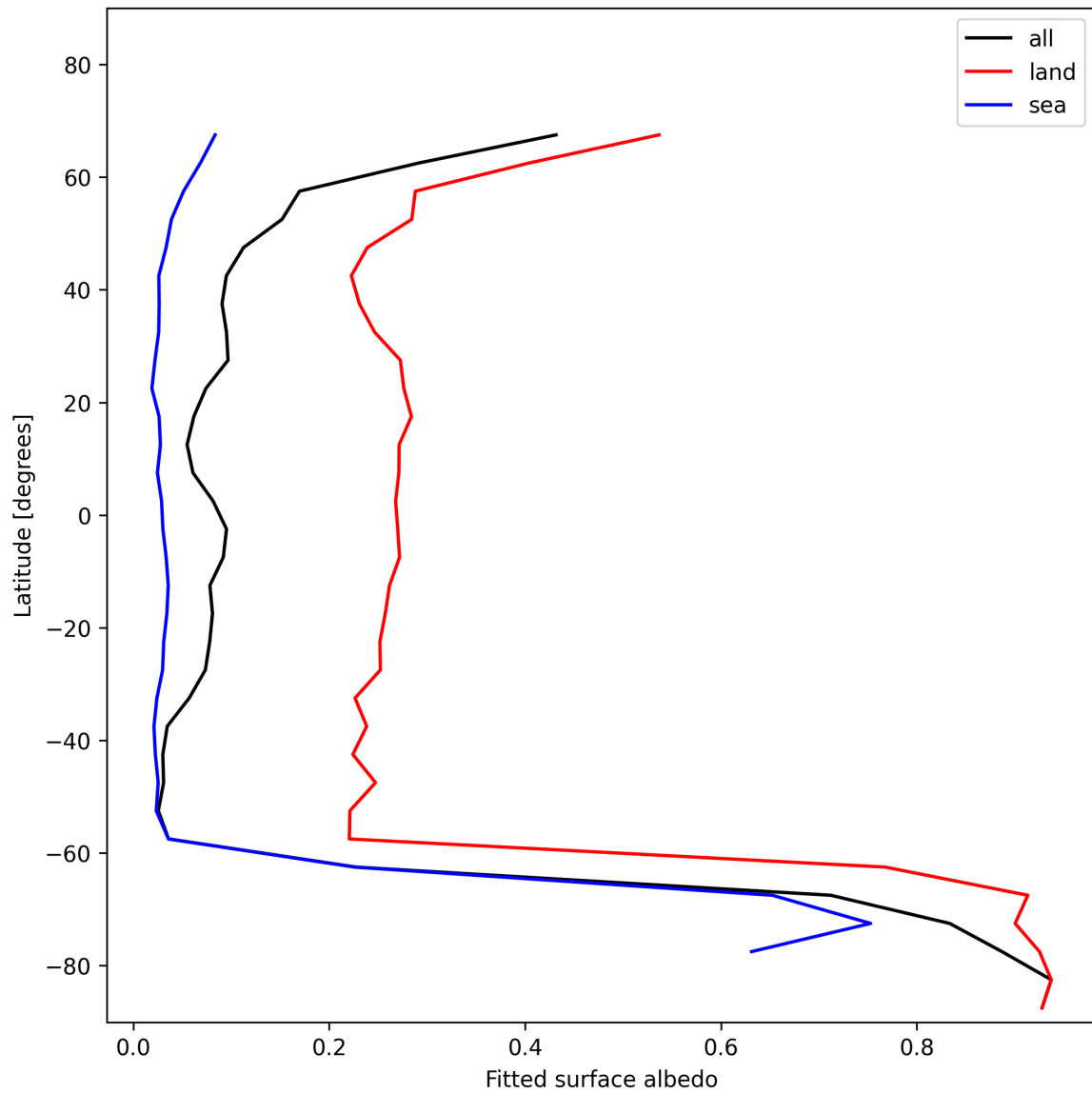


Figure 29: Zonal average of “Fitted surface albedo” for 2024-11-25 to 2024-11-26.

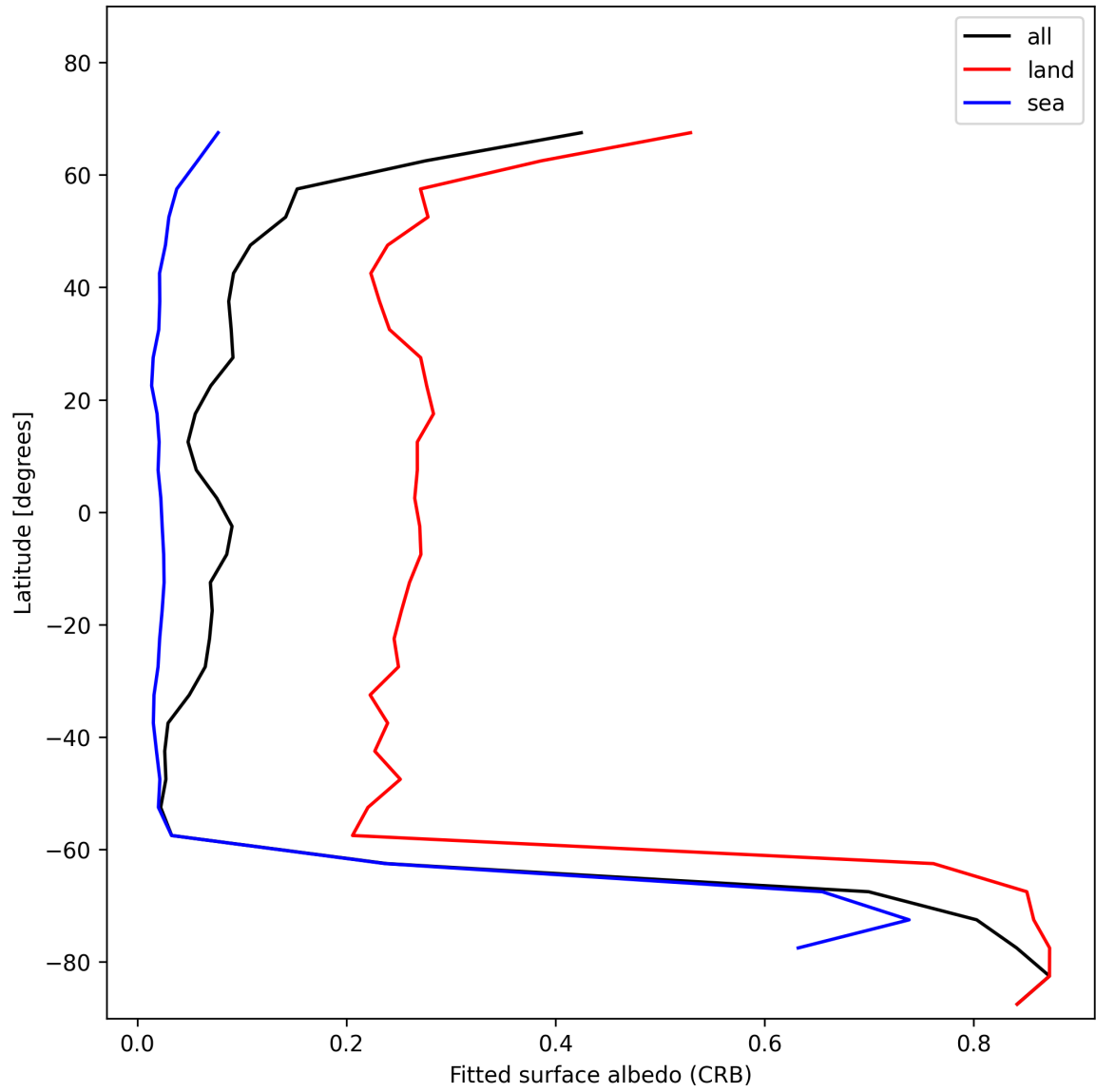


Figure 30: Zonal average of “Fitted surface albedo (CRB)” for 2024-11-25 to 2024-11-26.

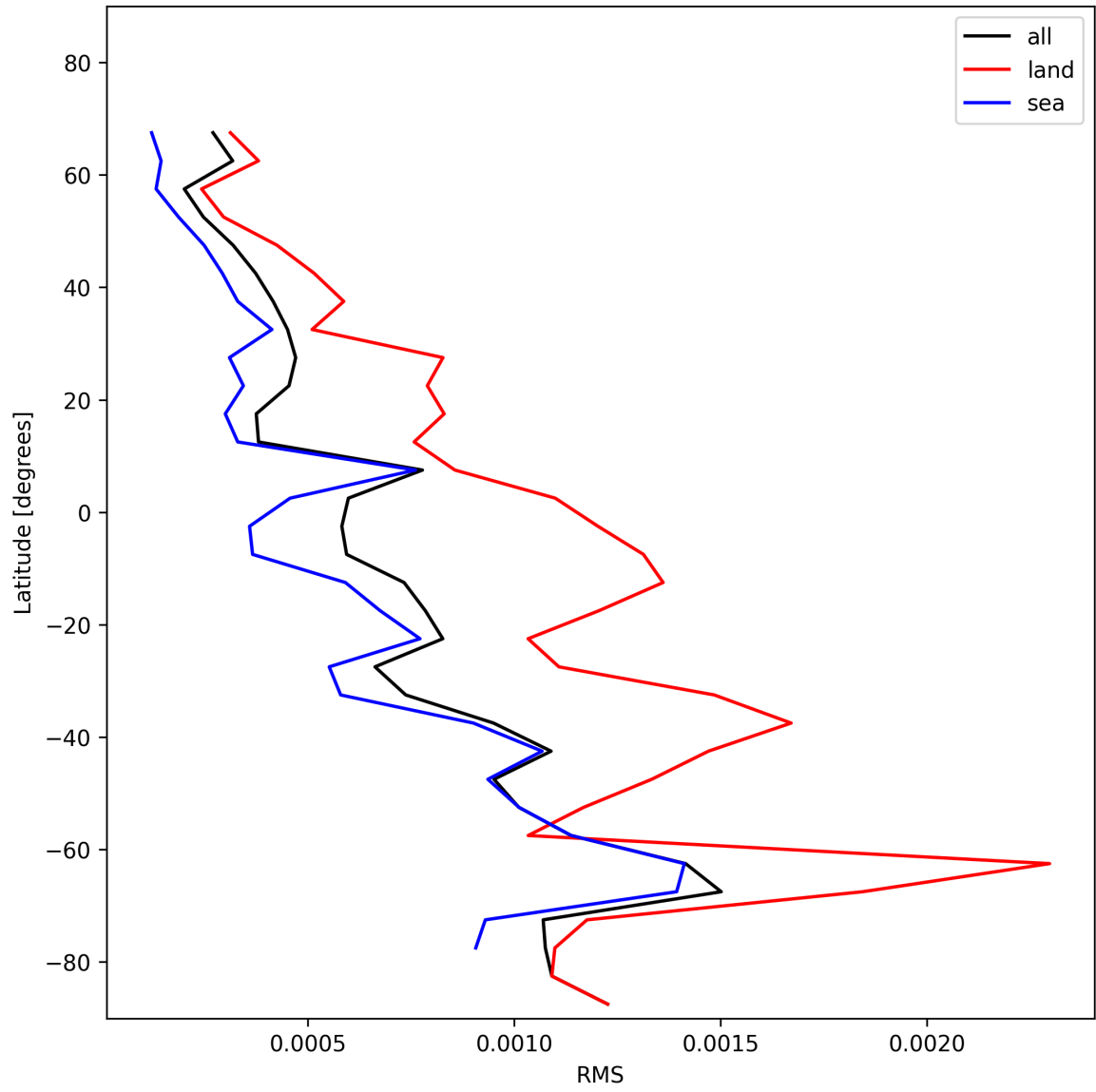


Figure 31: Zonal average of “RMS” for 2024-11-25 to 2024-11-26.

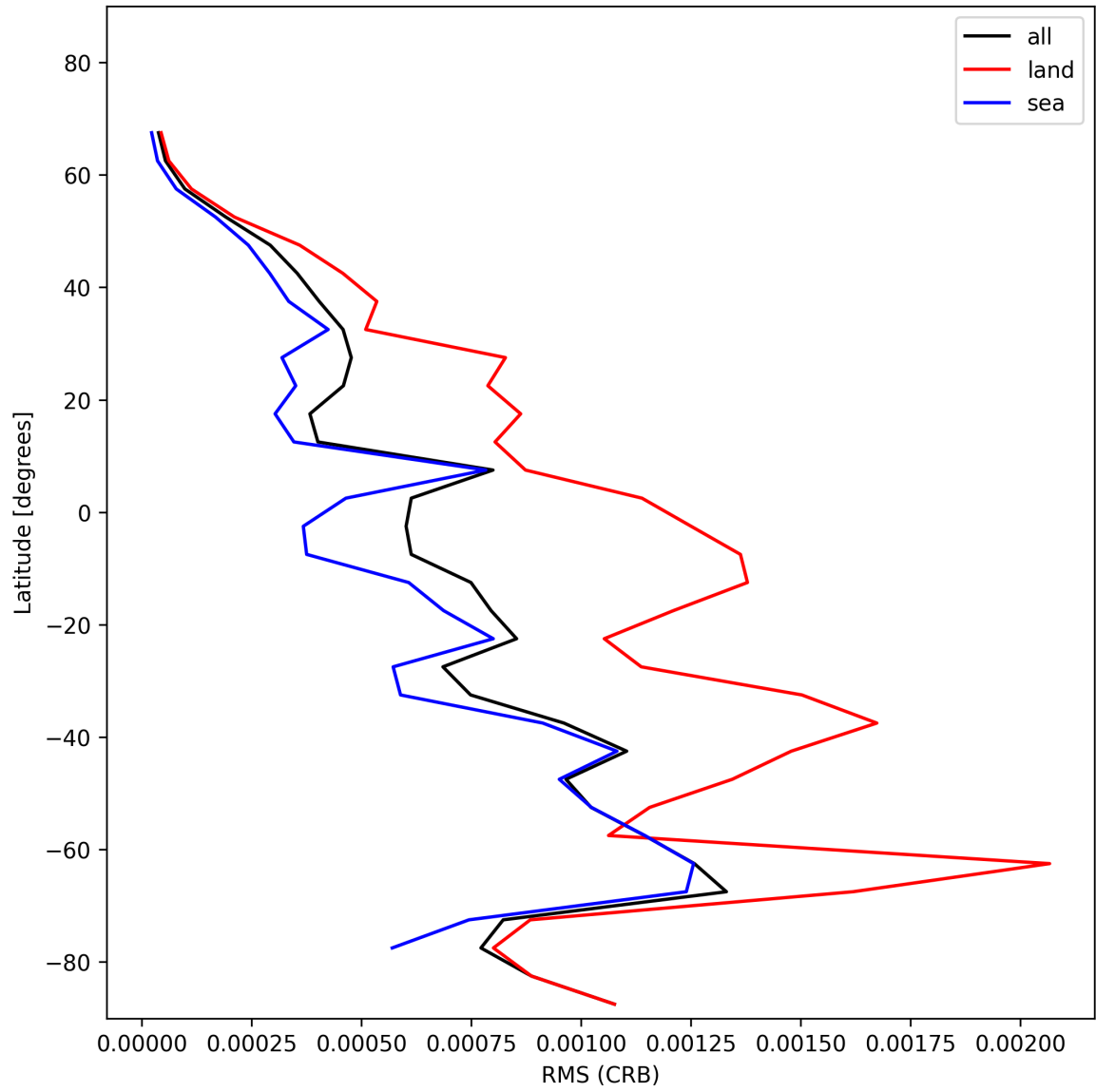


Figure 32: Zonal average of “RMS (CRB)” for 2024-11-25 to 2024-11-26.

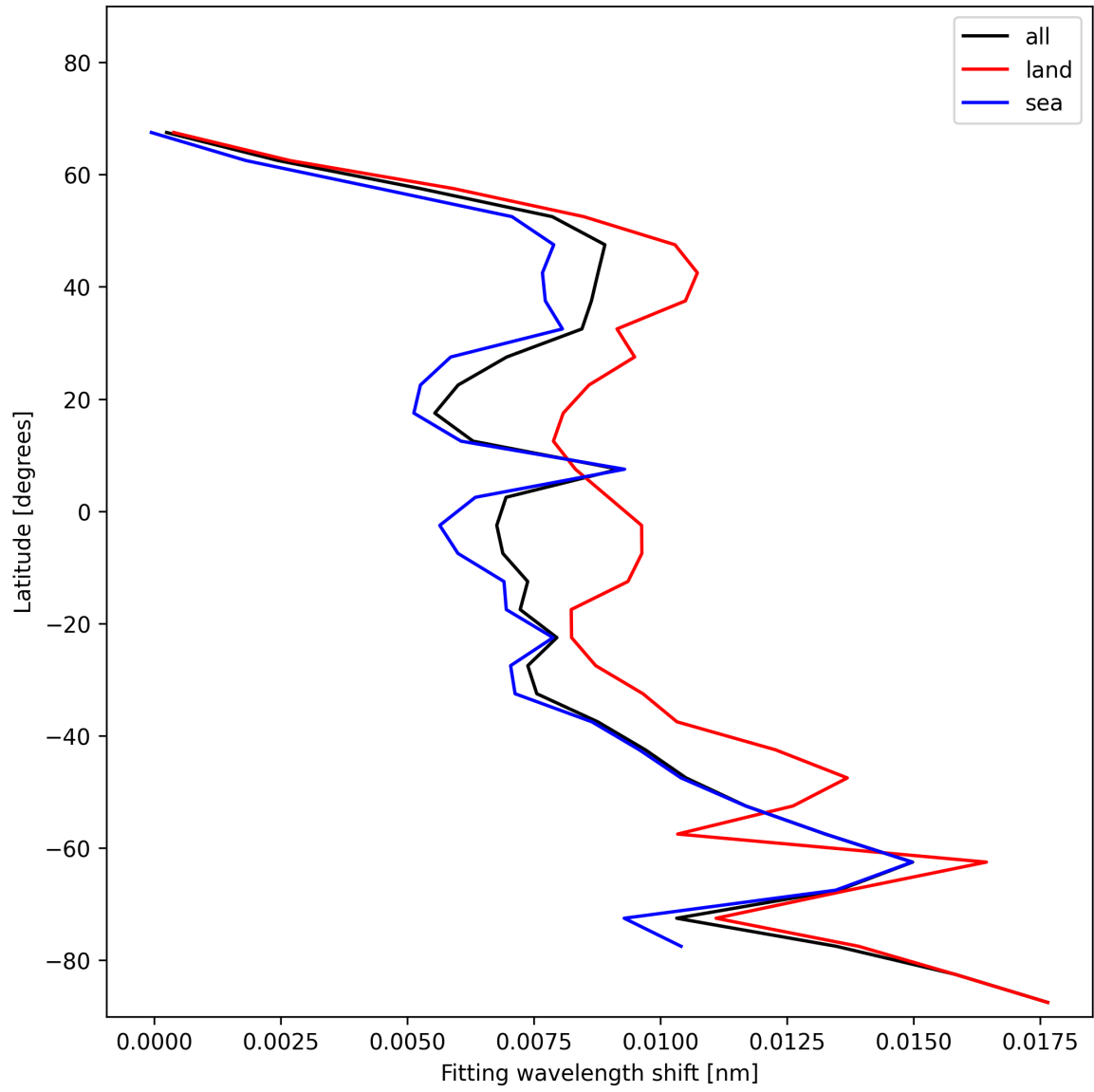


Figure 33: Zonal average of “Fitting wavelength shift” for 2024-11-25 to 2024-11-26.

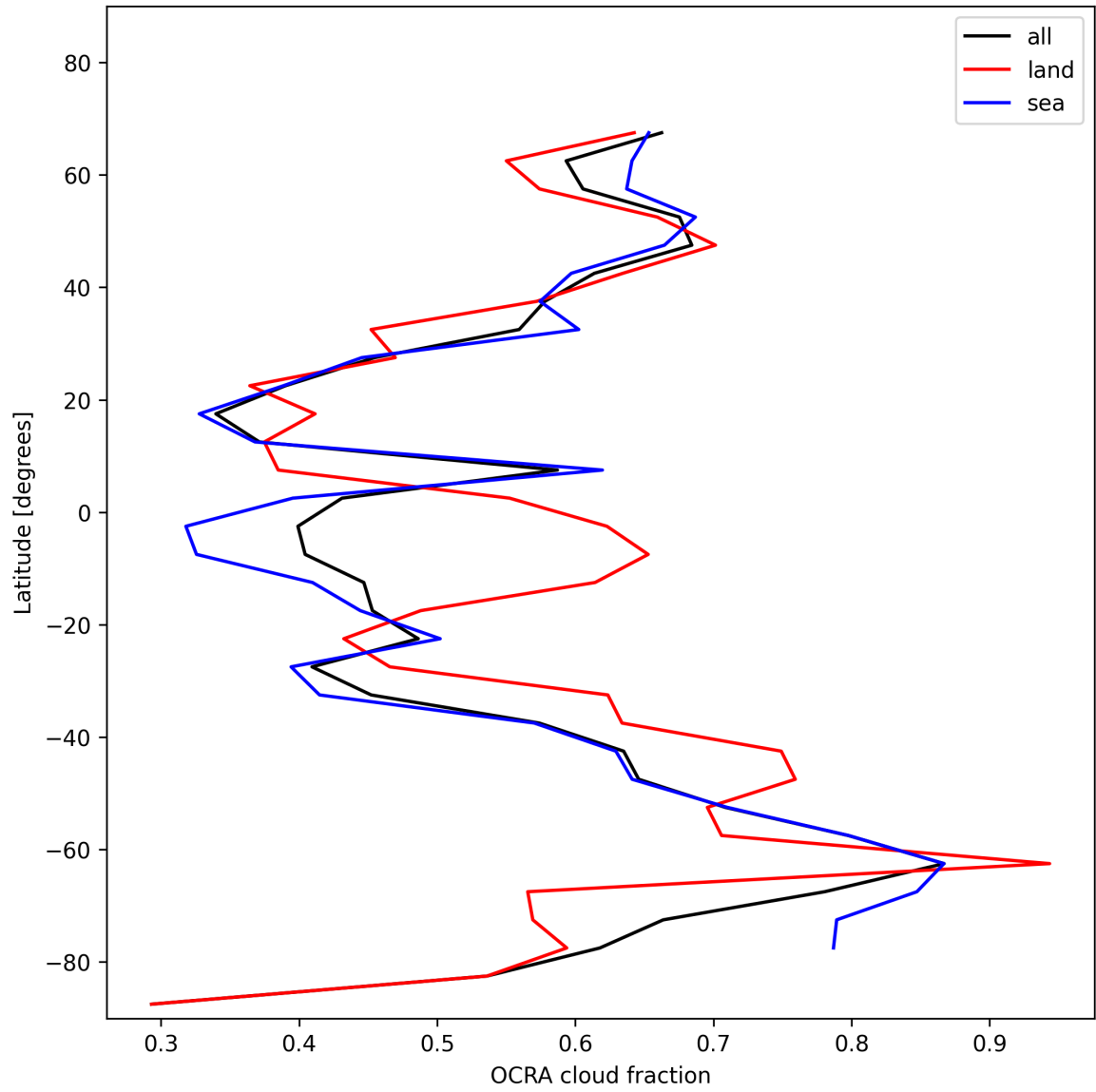


Figure 34: Zonal average of “OCRA cloud fraction” for 2024-11-25 to 2024-11-26.

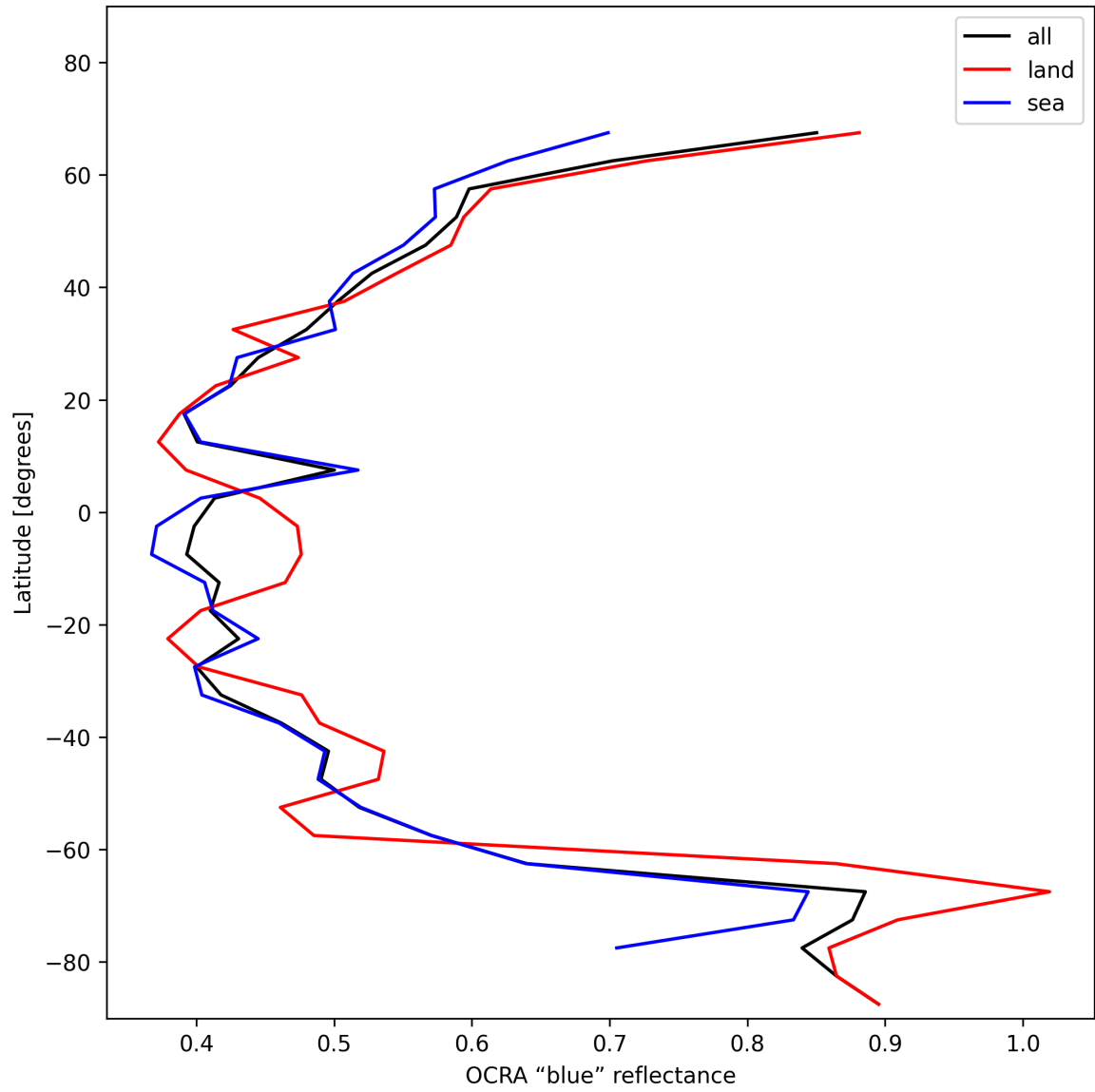


Figure 35: Zonal average of “OCRA “blue” reflectance” for 2024-11-25 to 2024-11-26.

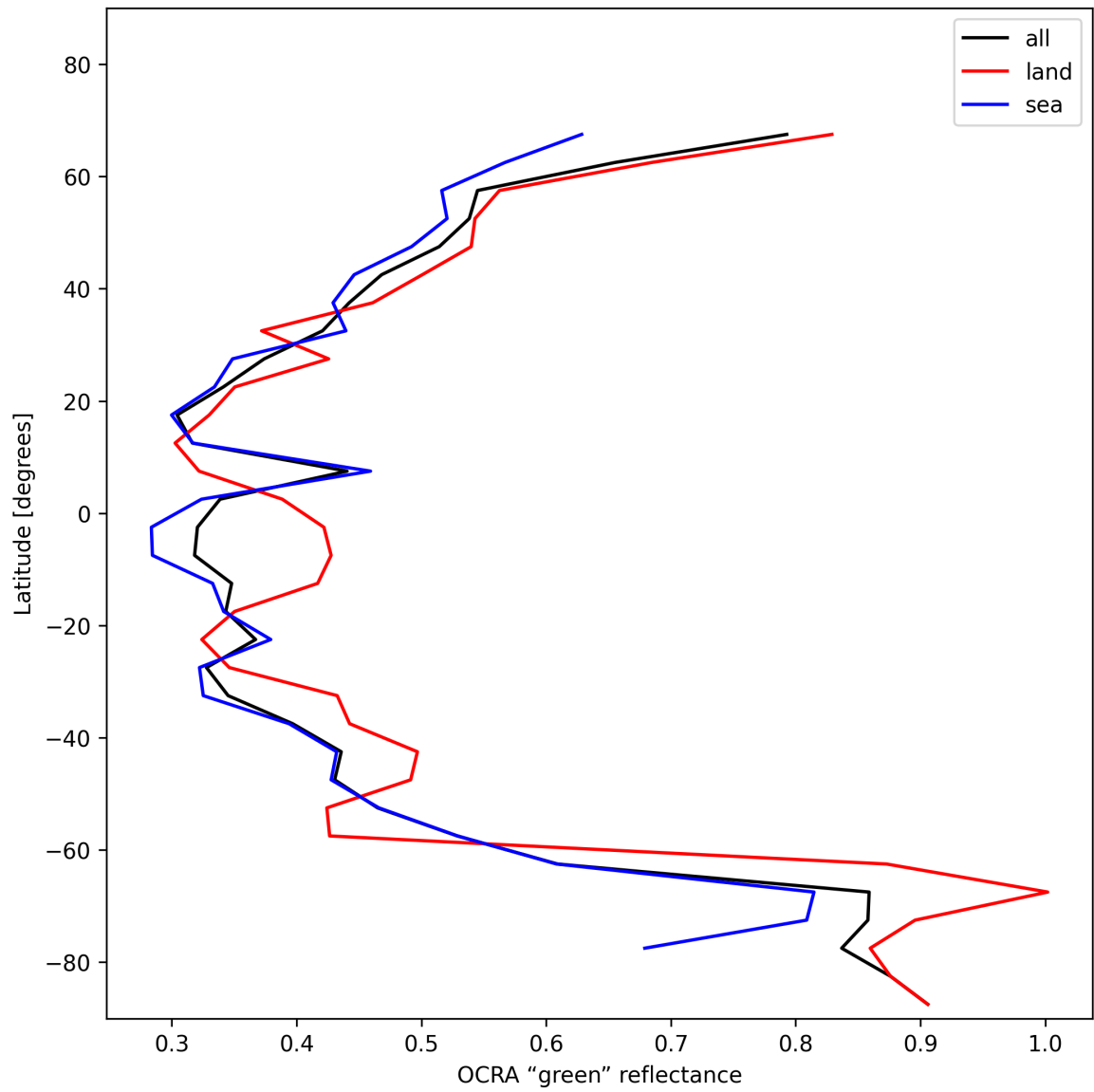


Figure 36: Zonal average of “OCRA “green” reflectance” for 2024-11-25 to 2024-11-26.

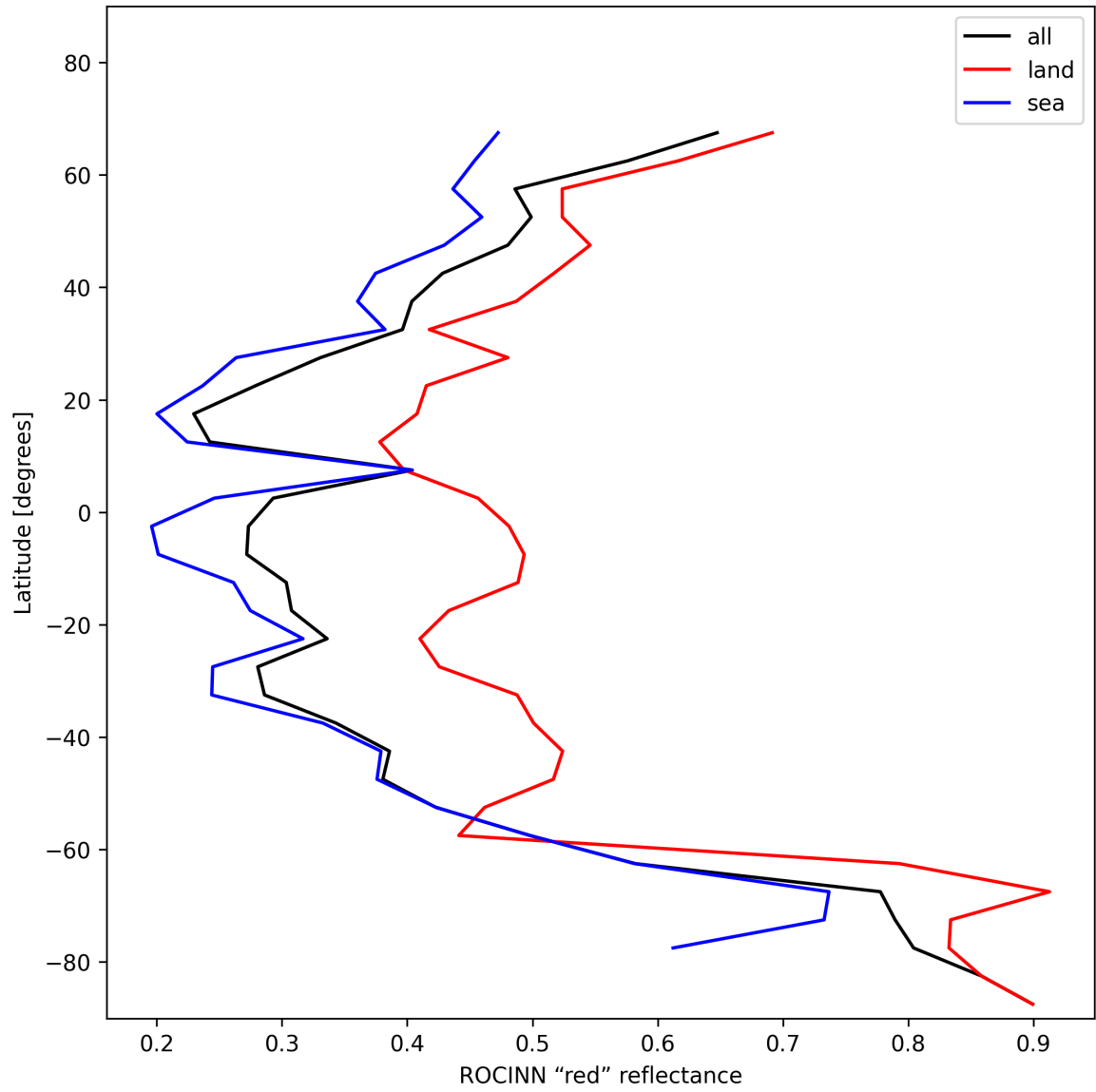


Figure 37: Zonal average of “ROCINN “red” reflectance” for 2024-11-25 to 2024-11-26.

8 Histograms

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

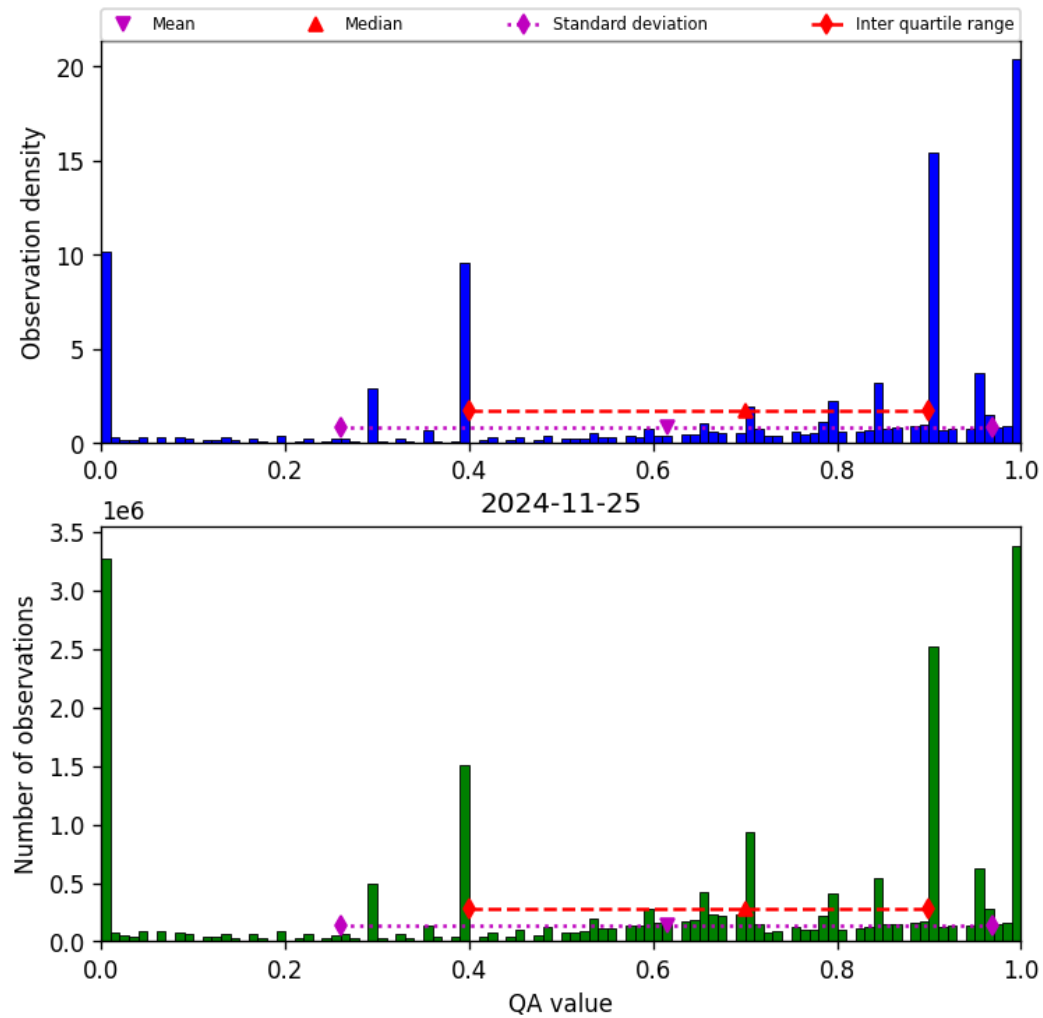


Figure 38: Histogram of “QA value” for 2024-11-25 to 2024-11-26

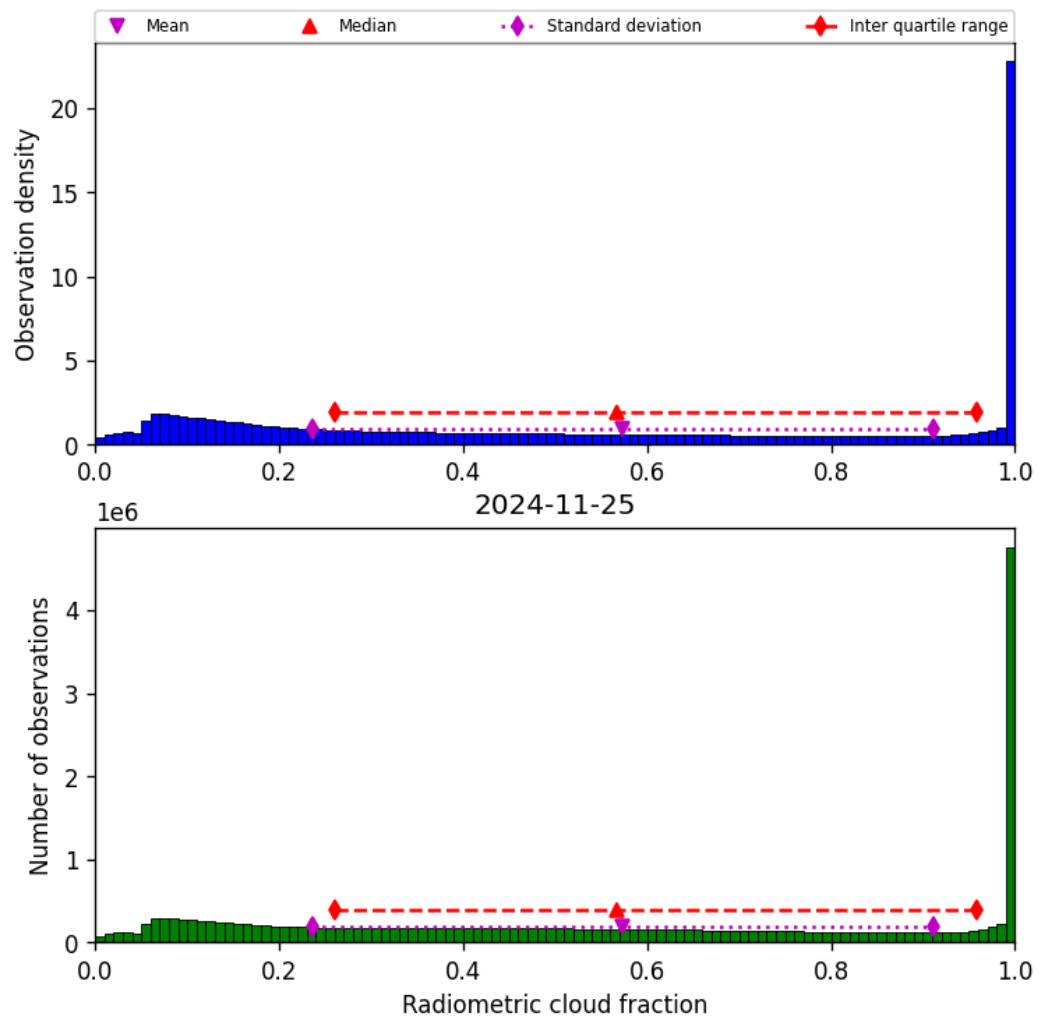


Figure 39: Histogram of “Radiometric cloud fraction” for 2024-11-25 to 2024-11-26

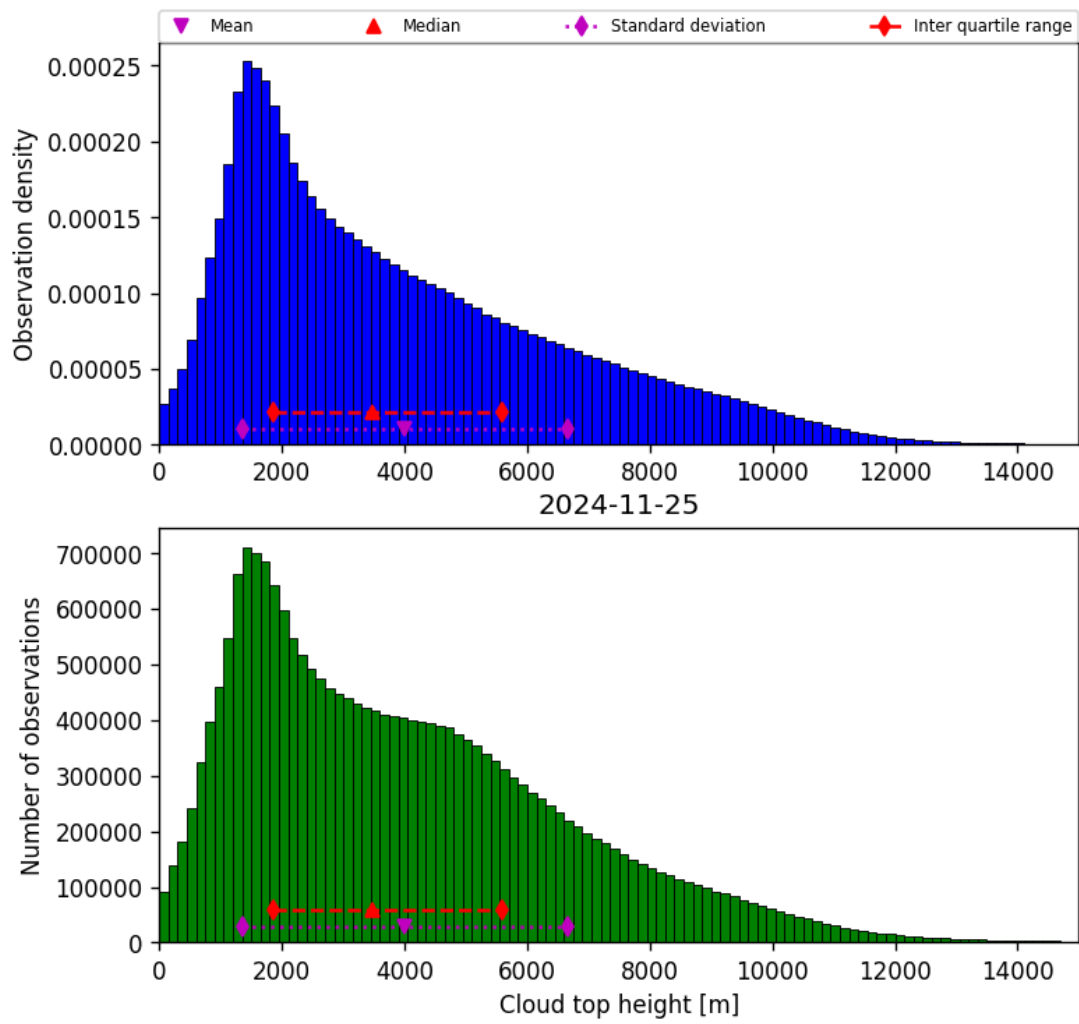


Figure 40: Histogram of “Cloud top height” for 2024-11-25 to 2024-11-26

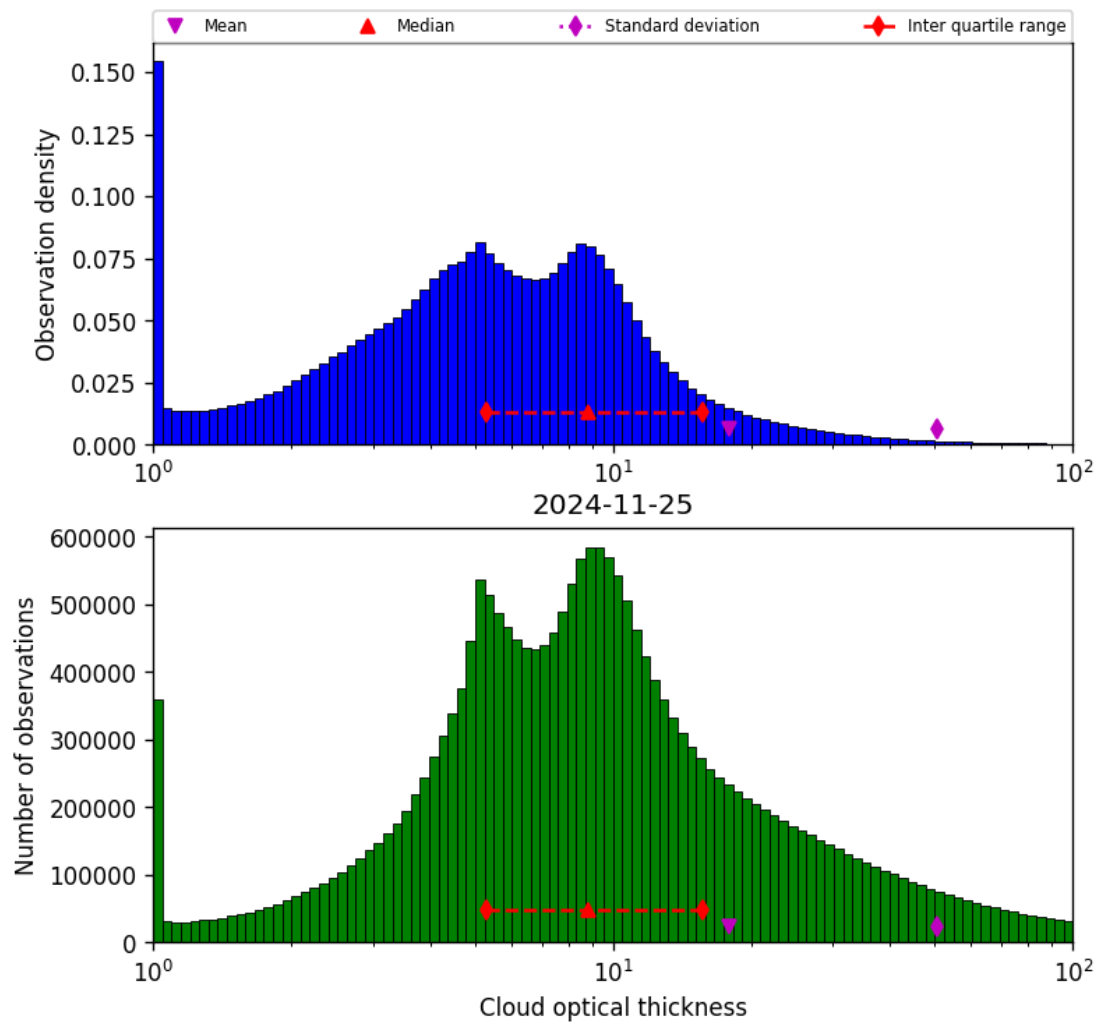


Figure 41: Histogram of “Cloud optical thickness” for 2024-11-25 to 2024-11-26

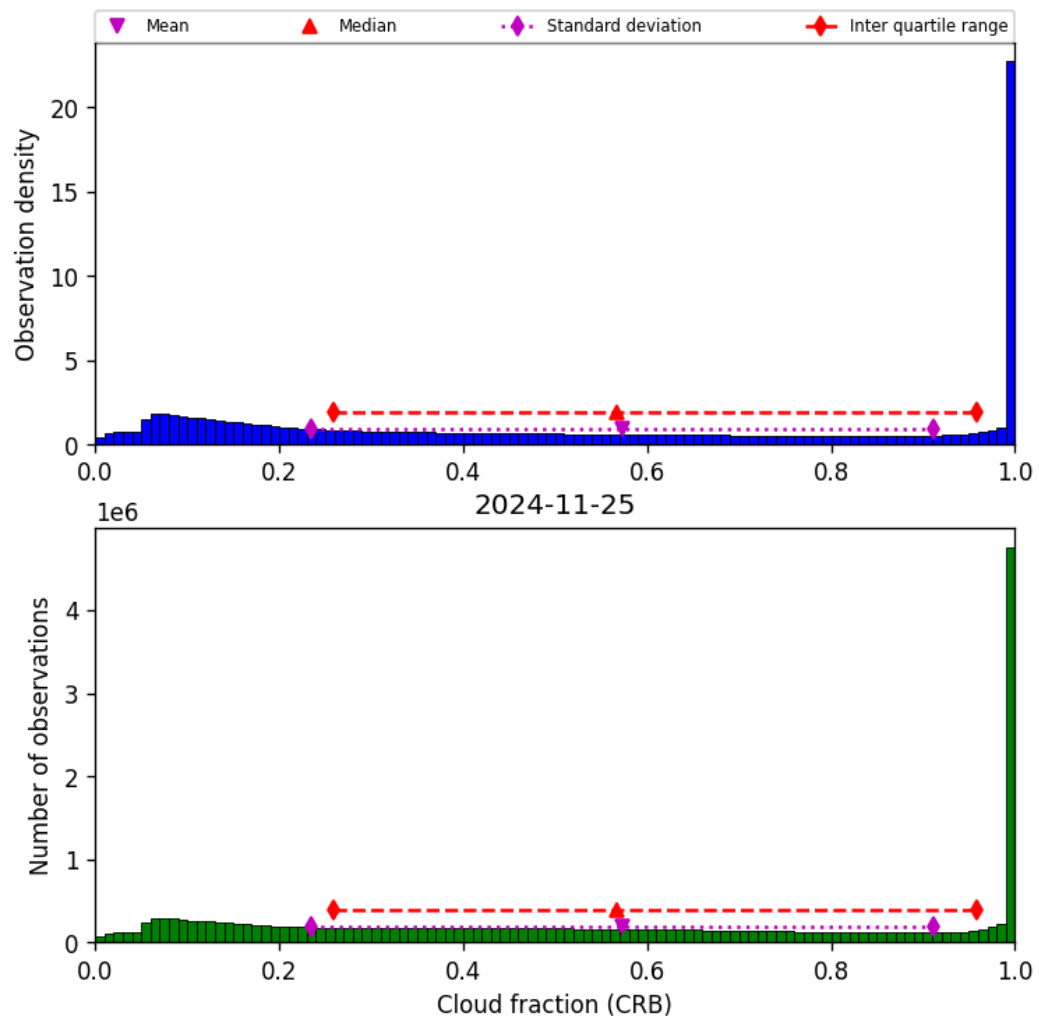


Figure 42: Histogram of “Cloud fraction (CRB)” for 2024-11-25 to 2024-11-26

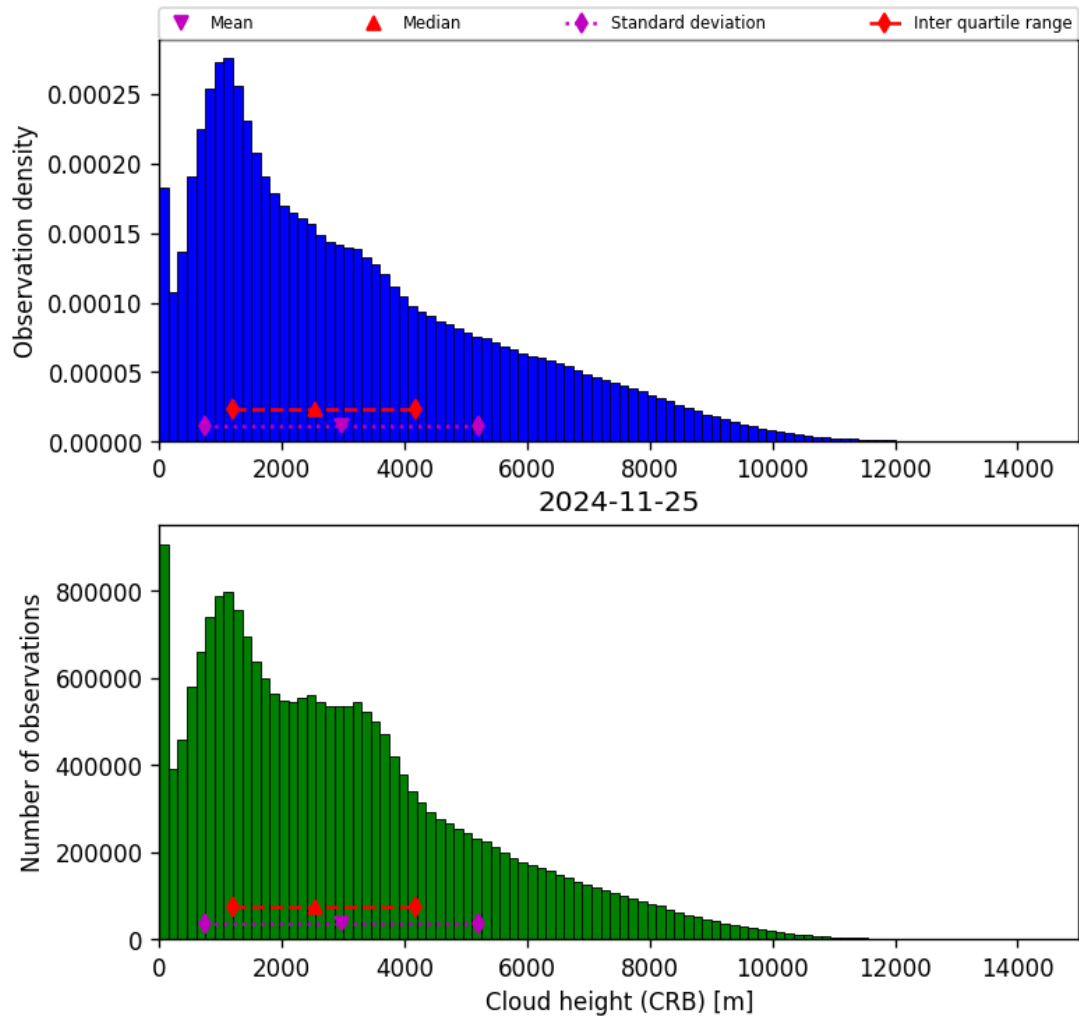


Figure 43: Histogram of “Cloud height (CRB)” for 2024-11-25 to 2024-11-26

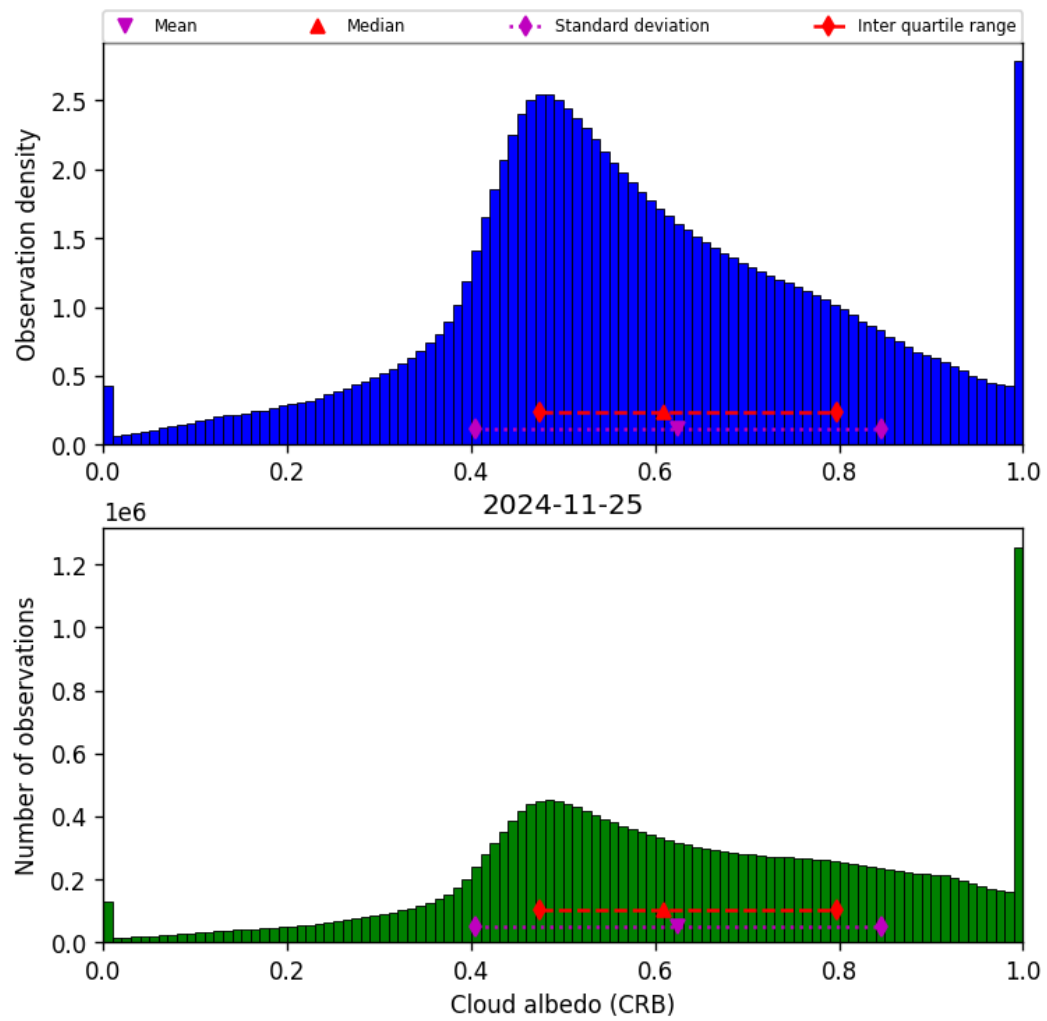


Figure 44: Histogram of “Cloud albedo (CRB)” for 2024-11-25 to 2024-11-26

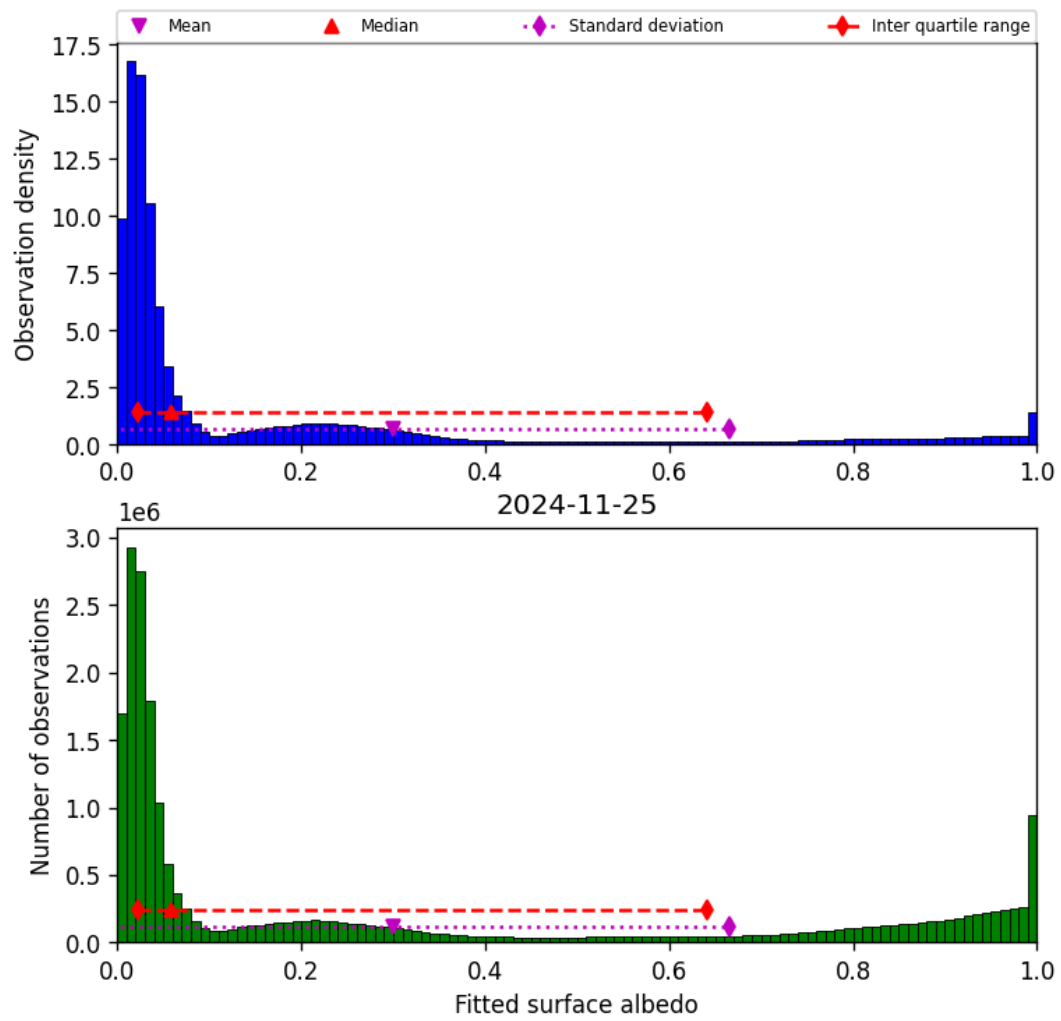


Figure 45: Histogram of “Fitted surface albedo” for 2024-11-25 to 2024-11-26

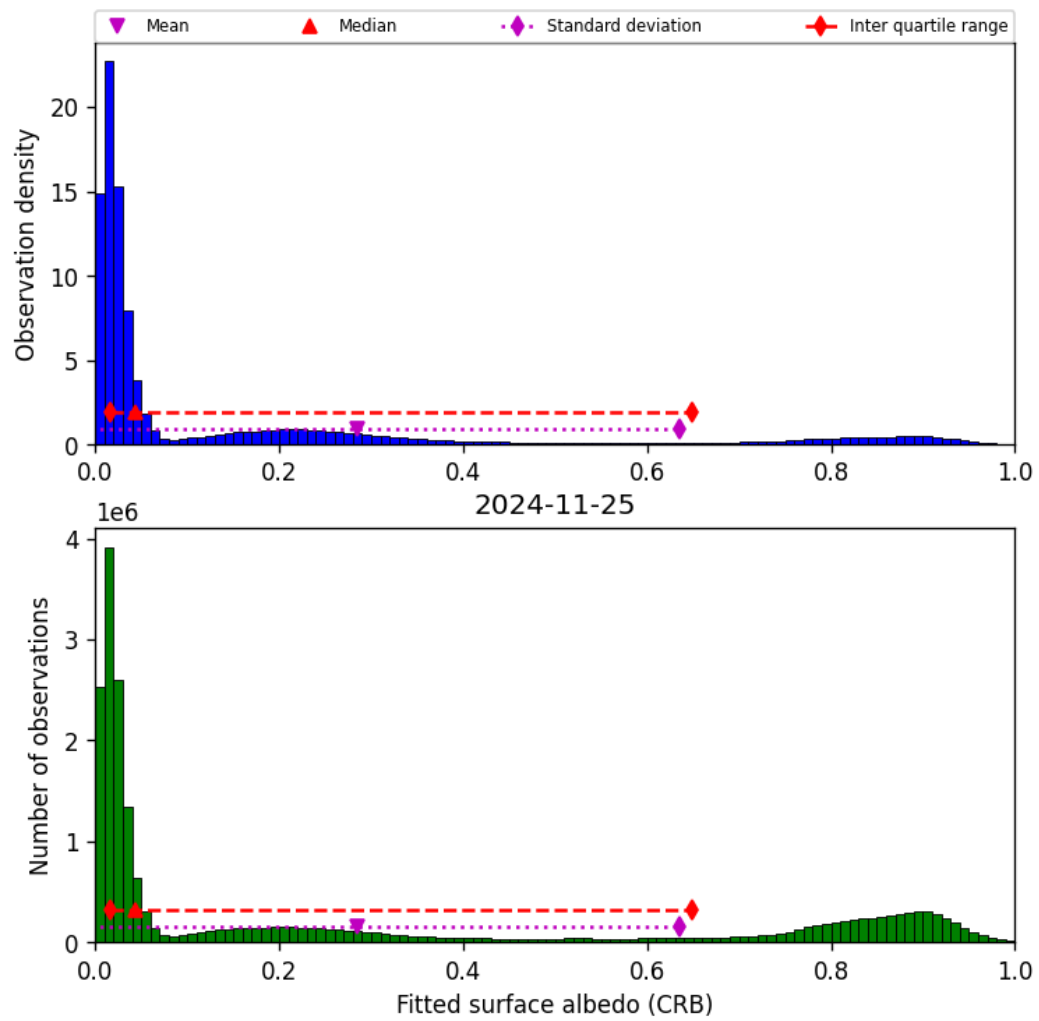


Figure 46: Histogram of “Fitted surface albedo (CRB)” for 2024-11-25 to 2024-11-26

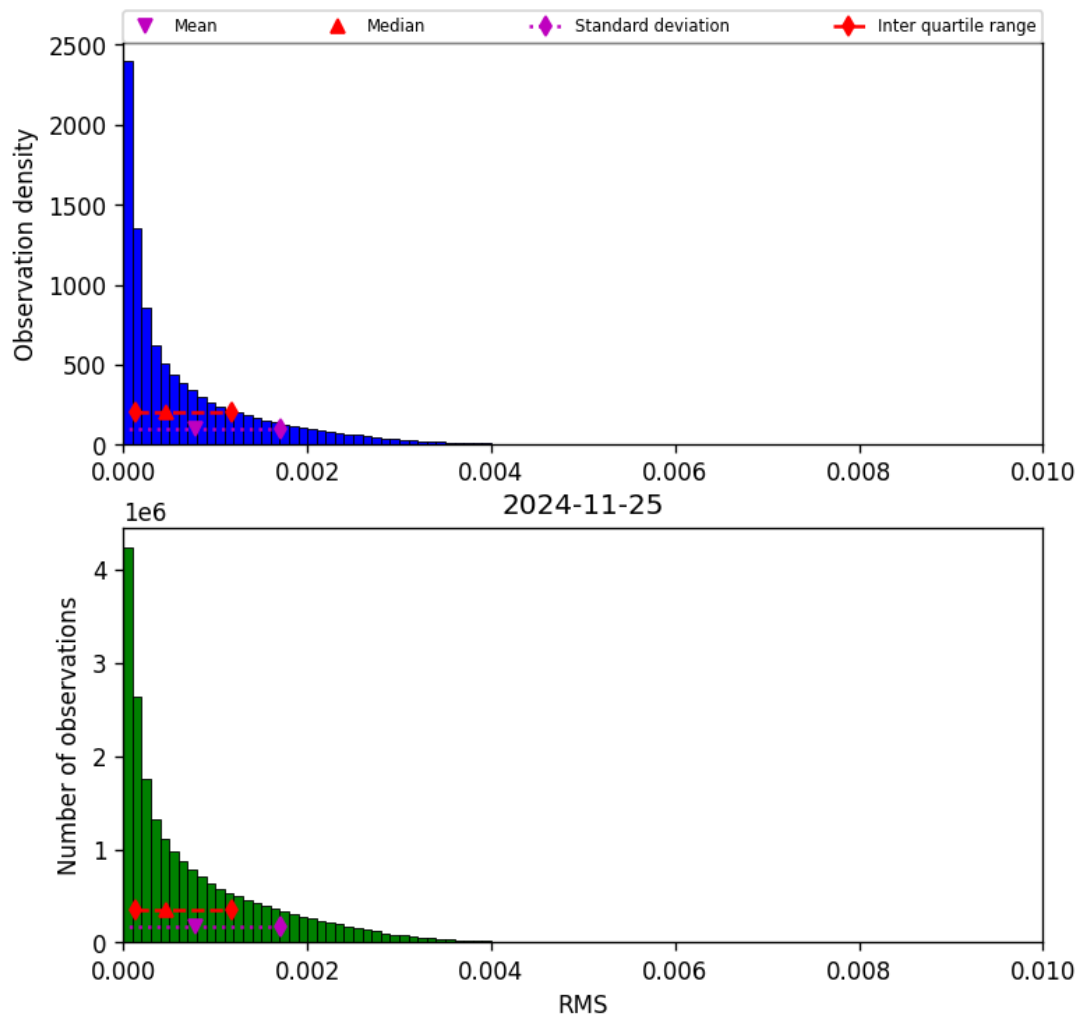


Figure 47: Histogram of “RMS” for 2024-11-25 to 2024-11-26

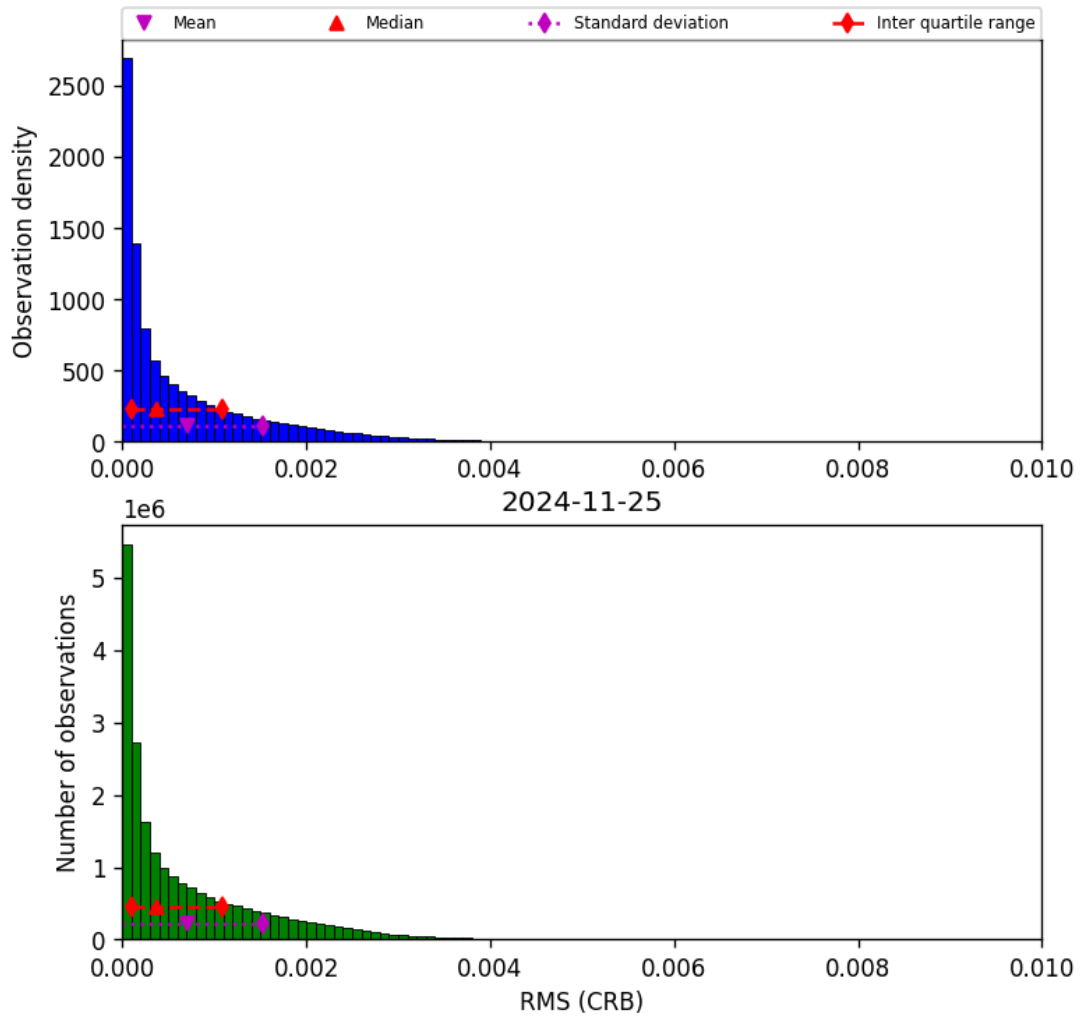


Figure 48: Histogram of “RMS (CRB)” for 2024-11-25 to 2024-11-26

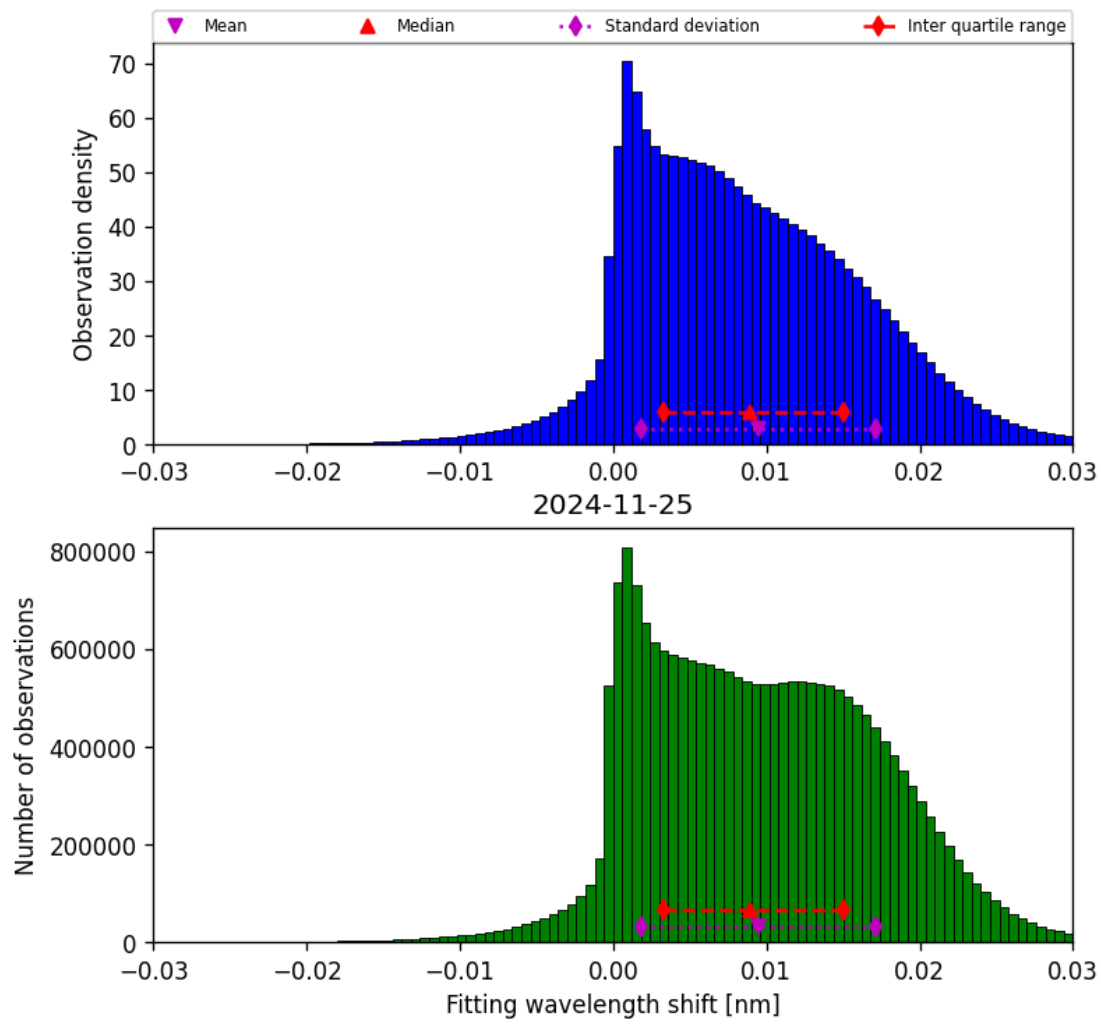


Figure 49: Histogram of “Fitting wavelength shift” for 2024-11-25 to 2024-11-26

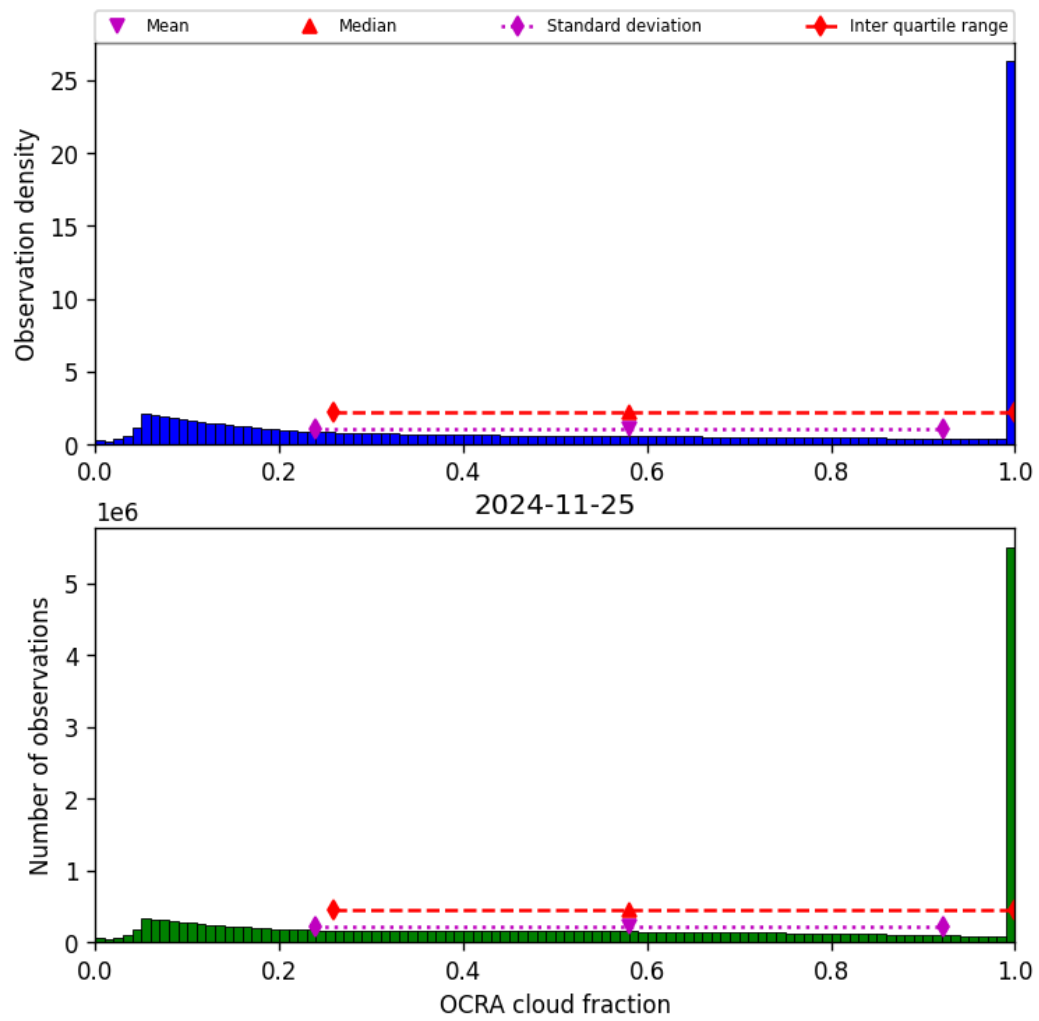


Figure 50: Histogram of “OCRA cloud fraction” for 2024-11-25 to 2024-11-26

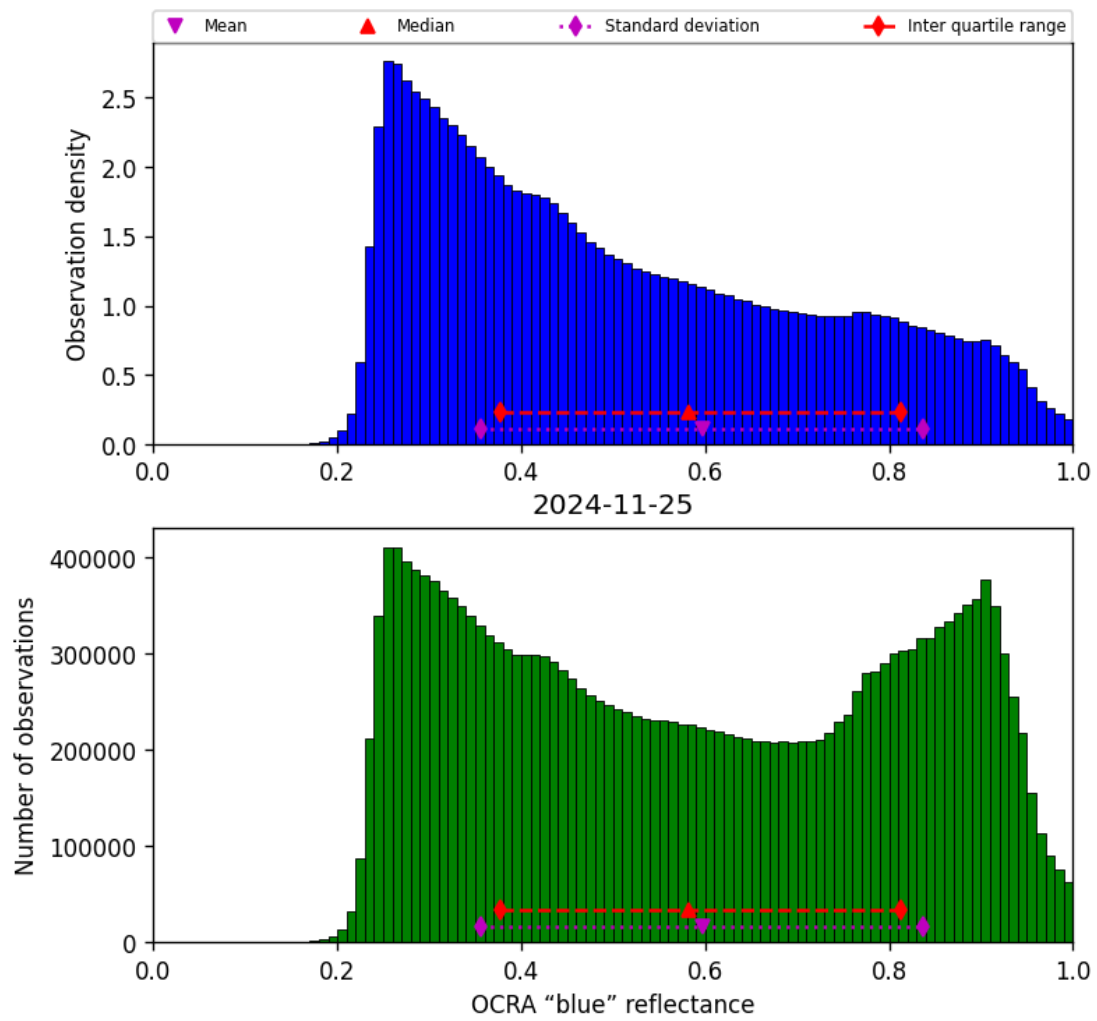


Figure 51: Histogram of “OCRA “blue” reflectance” for 2024-11-25 to 2024-11-26

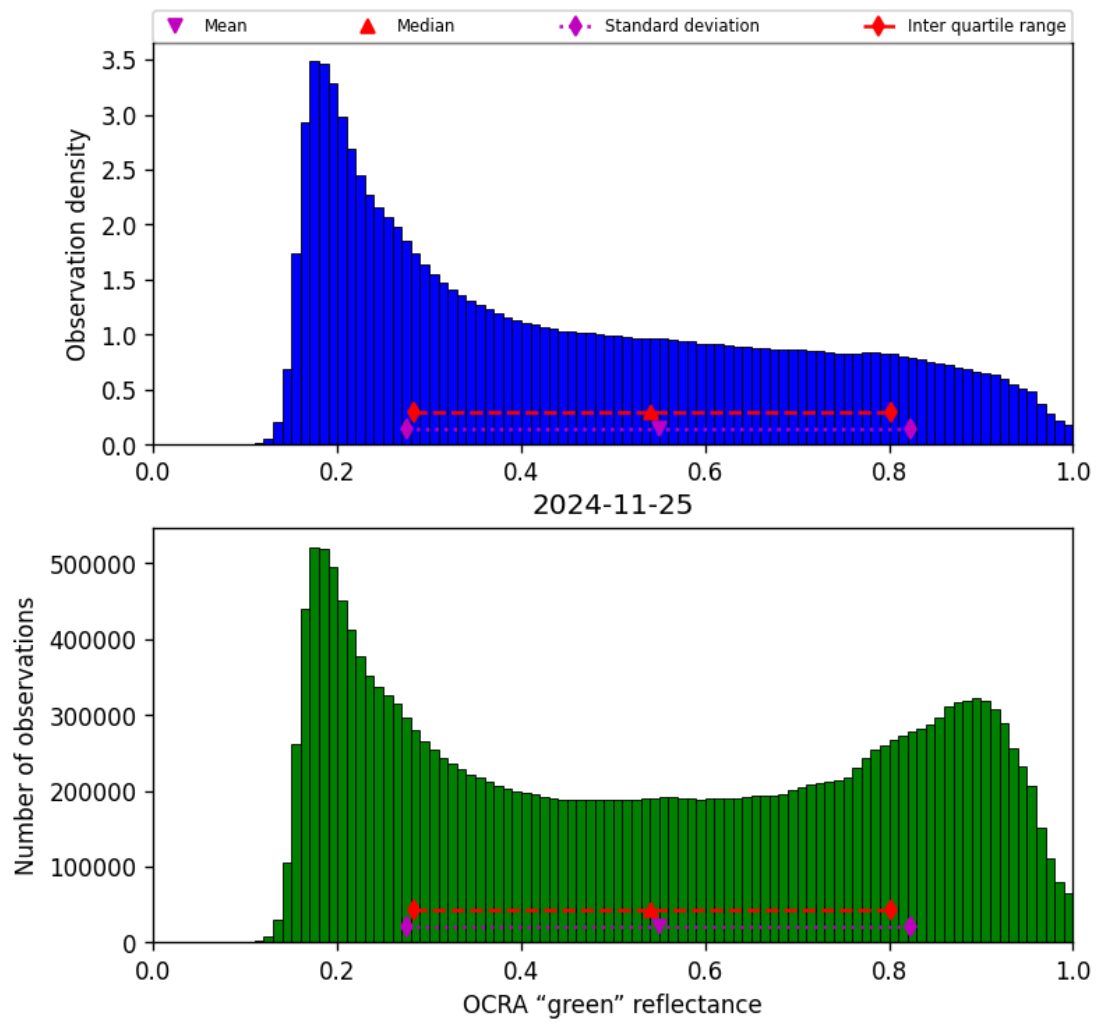


Figure 52: Histogram of “OCRA “green” reflectance” for 2024-11-25 to 2024-11-26

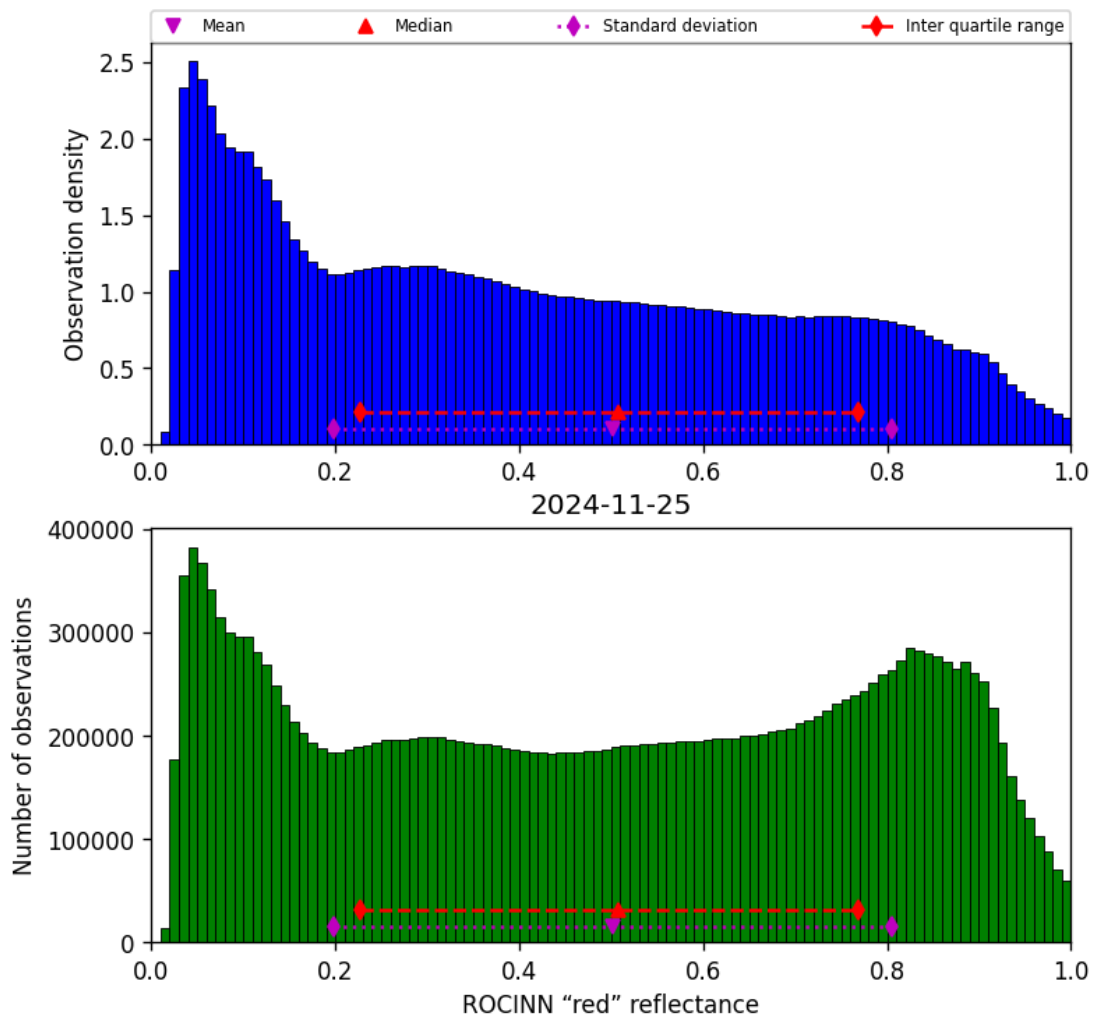


Figure 53: Histogram of “ROCINN “red” reflectance” for 2024-11-25 to 2024-11-26

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.

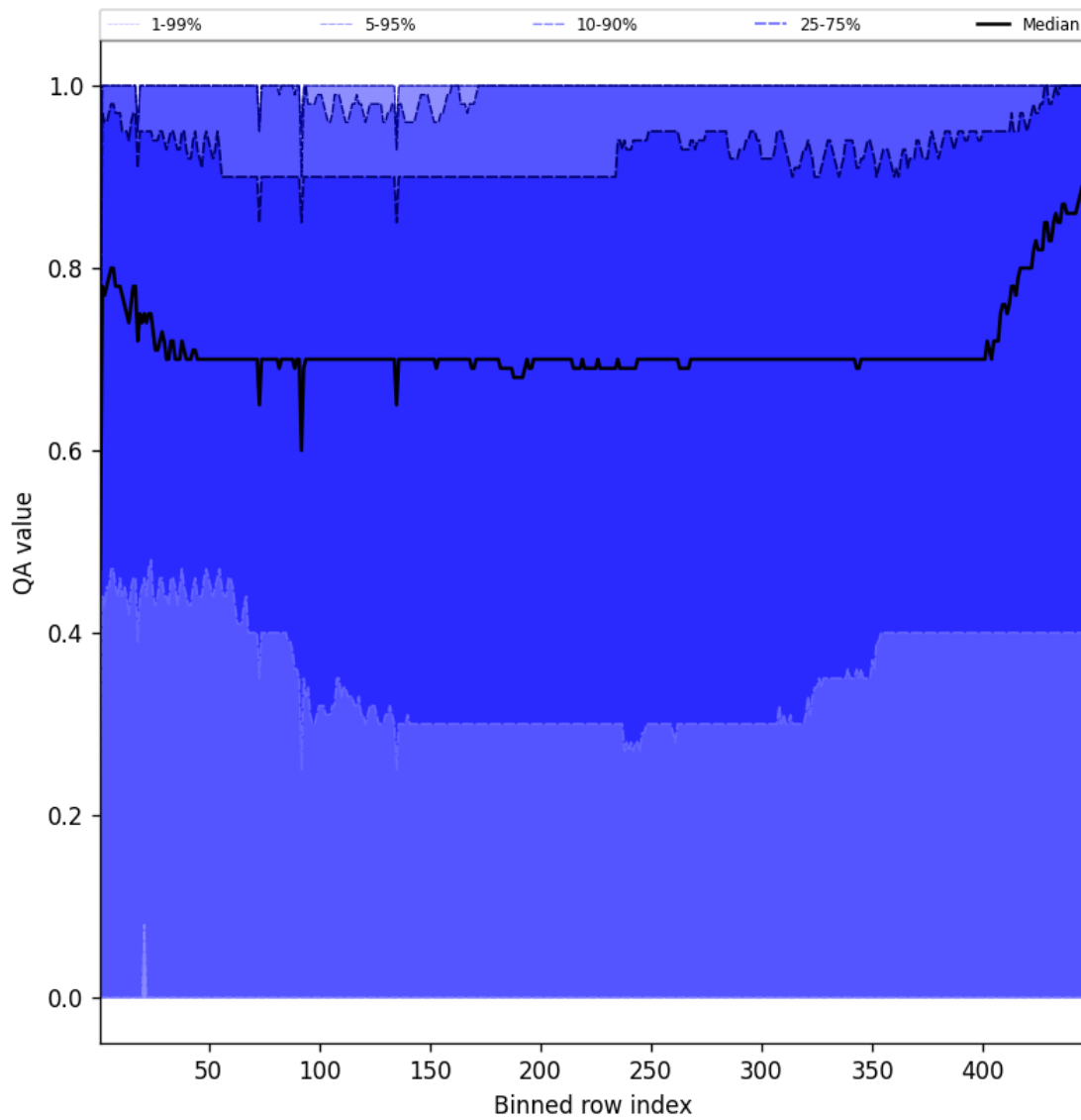


Figure 54: Along track statistics of “QA value” for 2024-11-25 to 2024-11-26

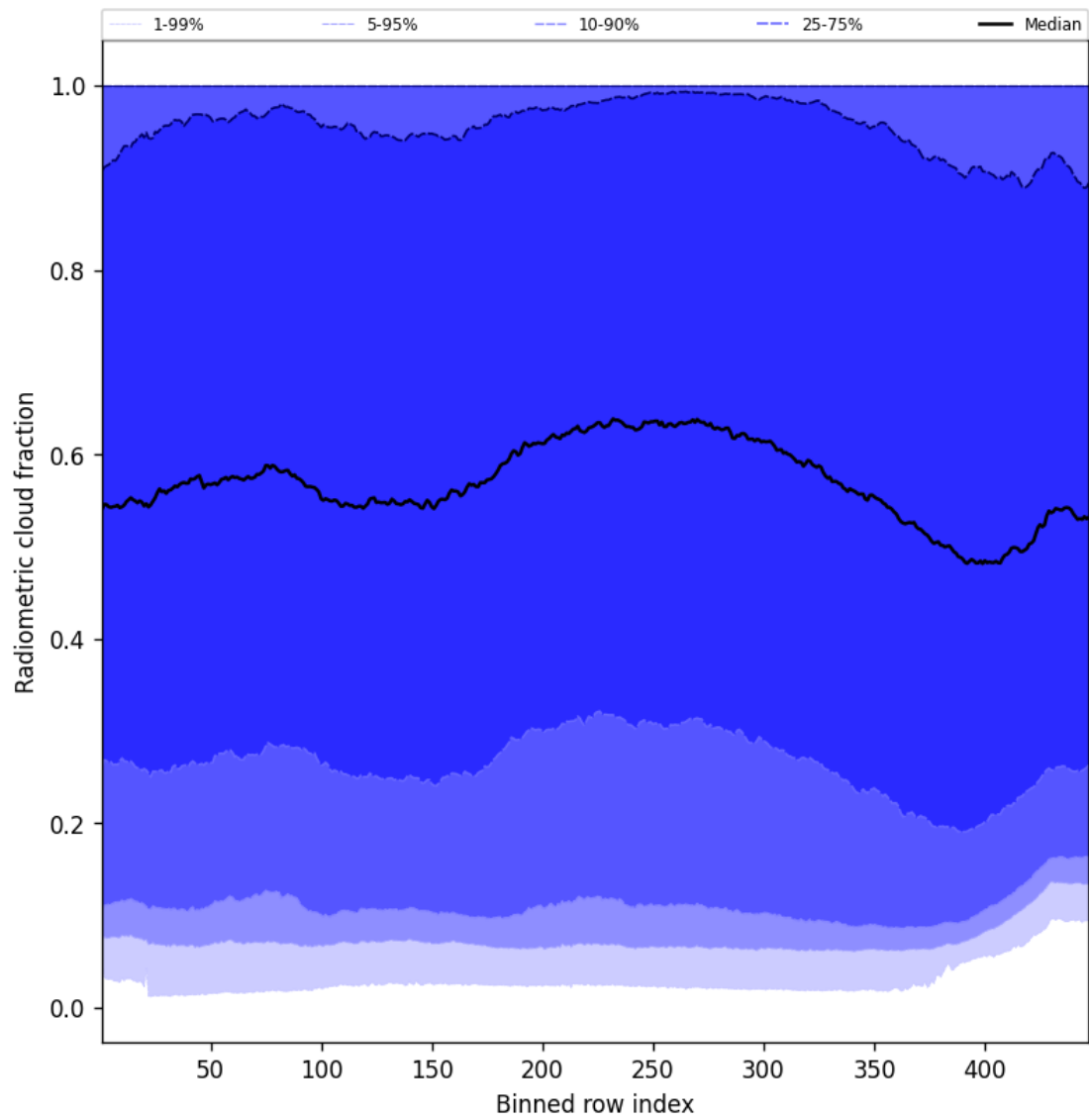


Figure 55: Along track statistics of “Radiometric cloud fraction” for 2024-11-25 to 2024-11-26

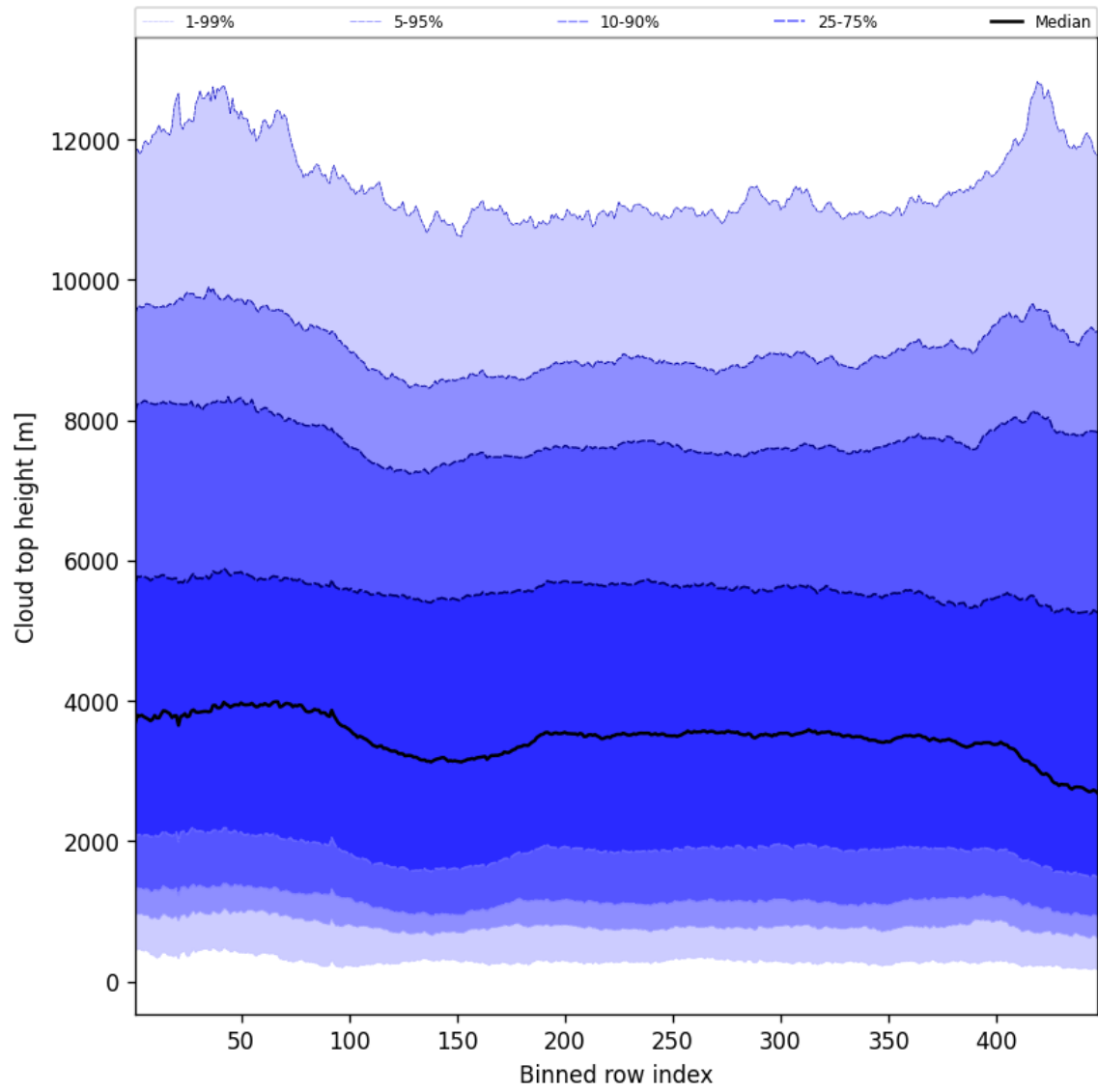


Figure 56: Along track statistics of “Cloud top height” for 2024-11-25 to 2024-11-26

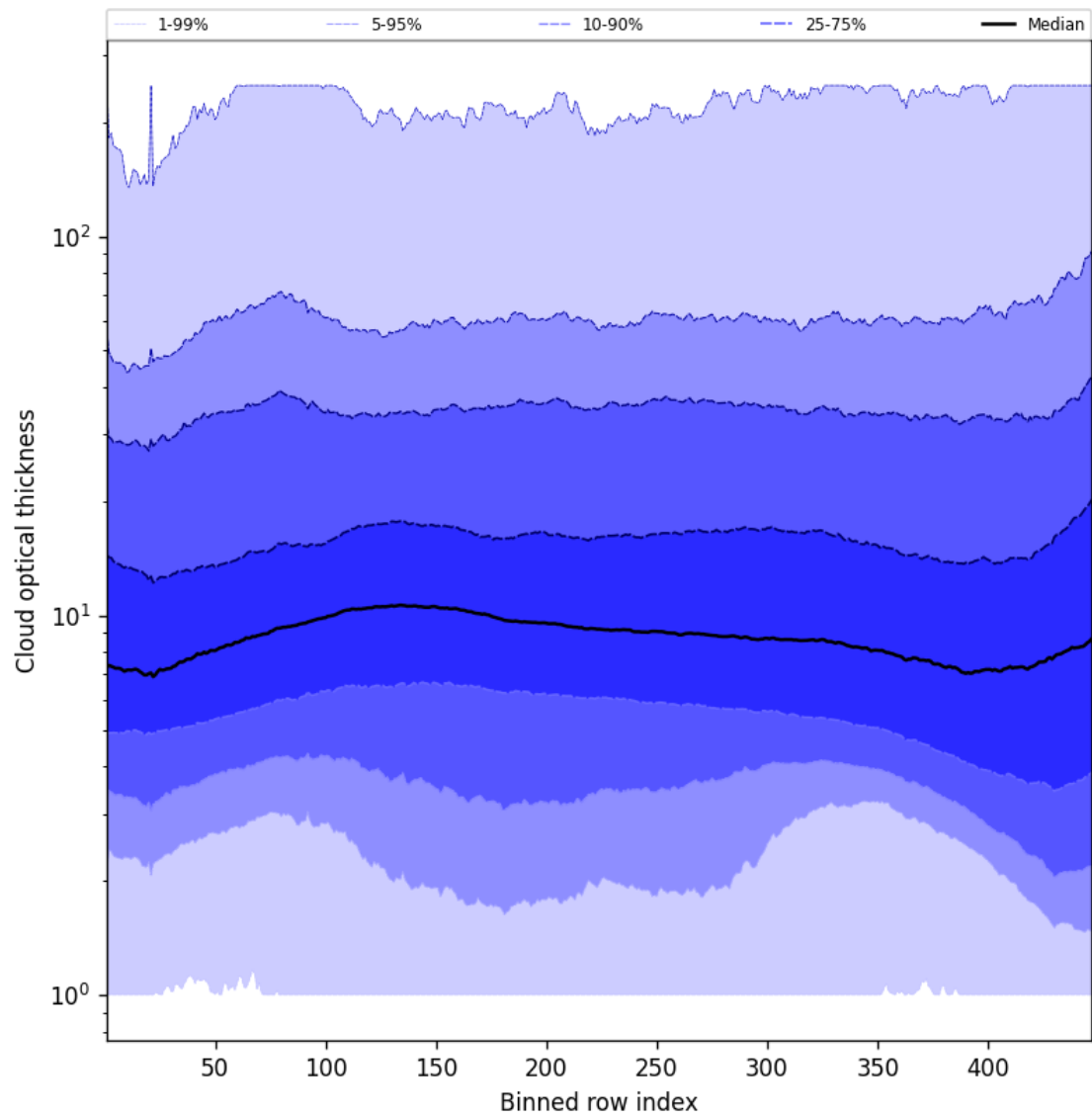


Figure 57: Along track statistics of “Cloud optical thickness” for 2024-11-25 to 2024-11-26

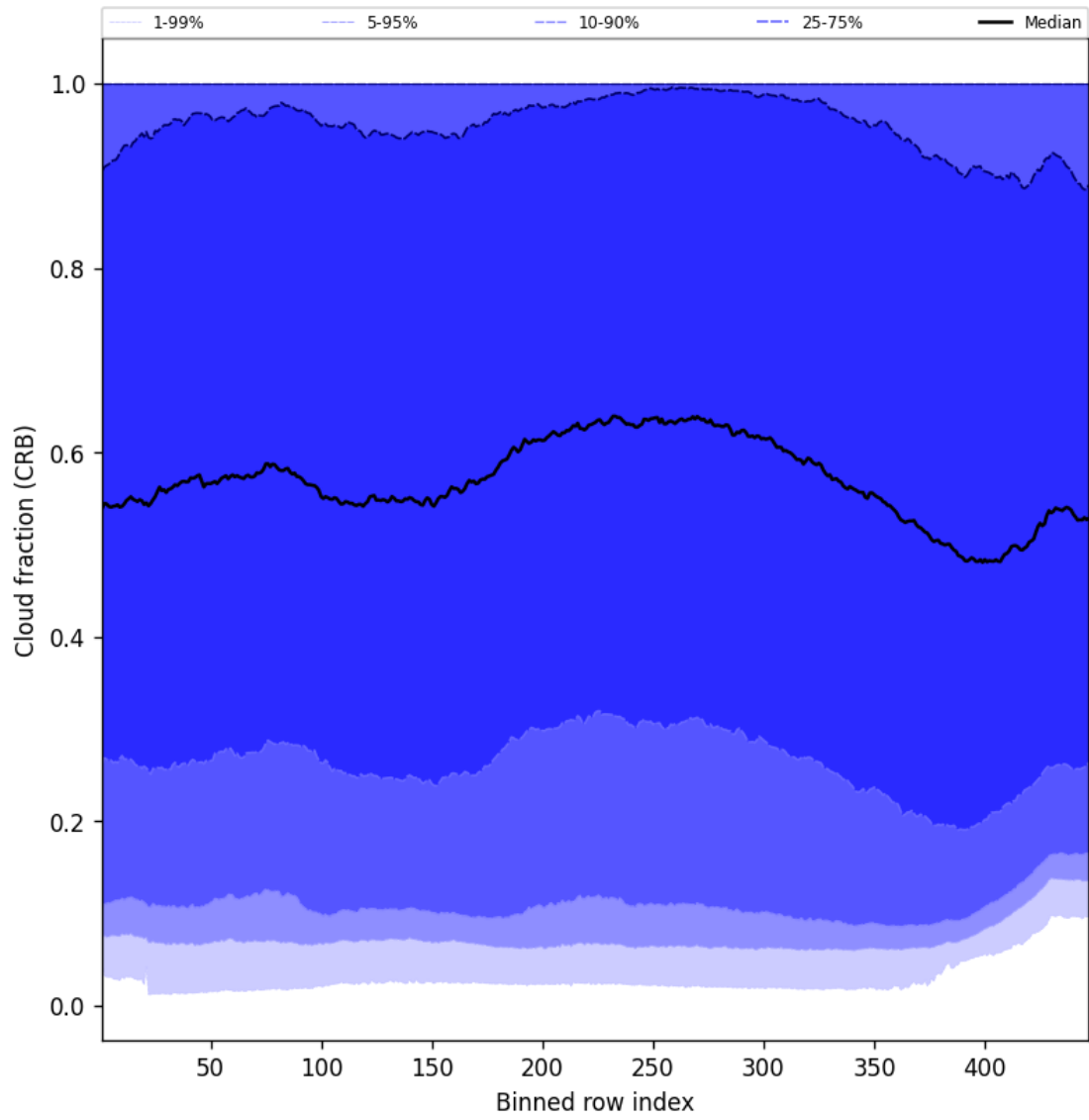


Figure 58: Along track statistics of “Cloud fraction (CRB)” for 2024-11-25 to 2024-11-26

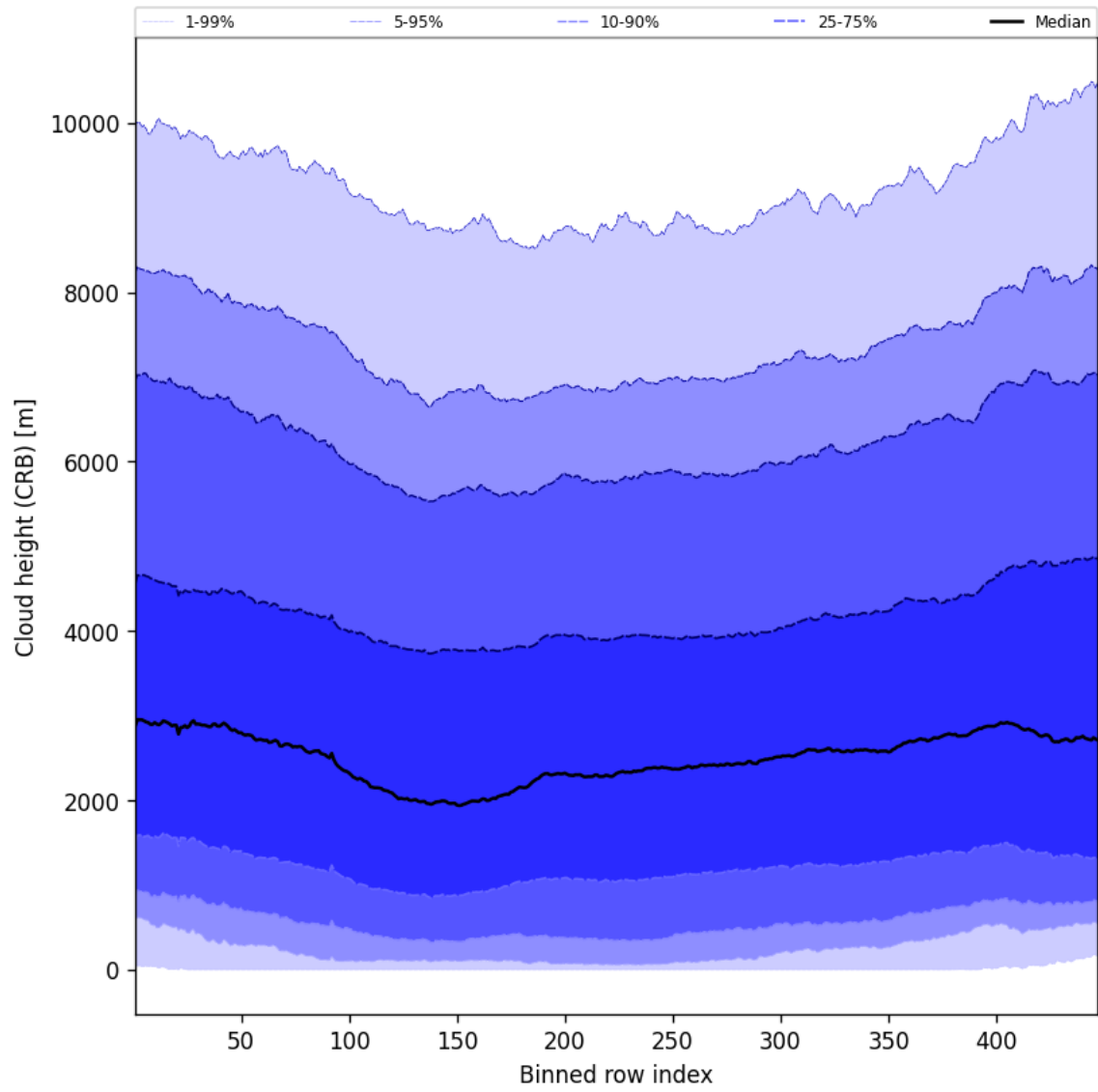


Figure 59: Along track statistics of “Cloud height (CRB)” for 2024-11-25 to 2024-11-26

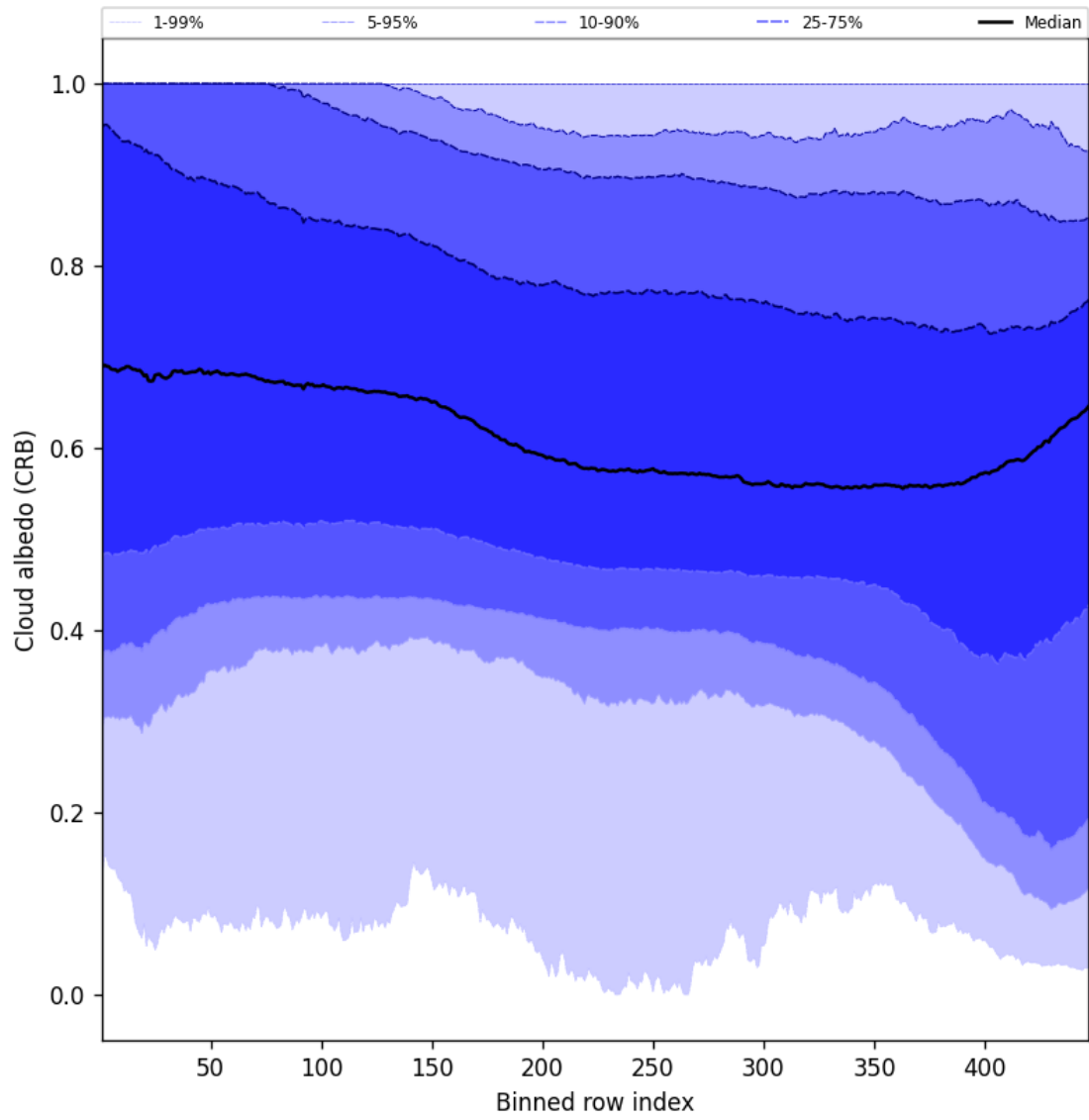


Figure 60: Along track statistics of “Cloud albedo (CRB)” for 2024-11-25 to 2024-11-26

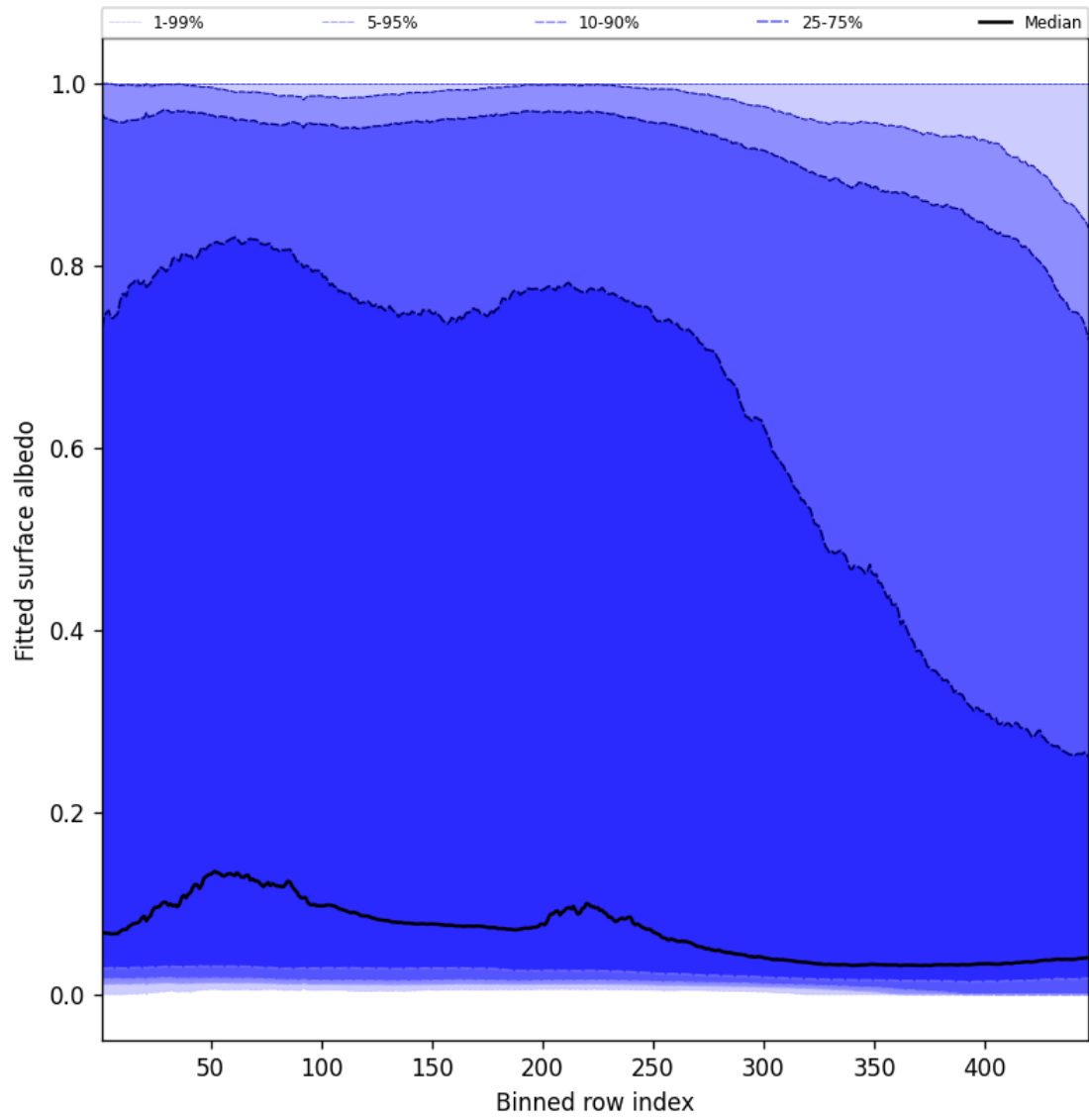


Figure 61: Along track statistics of “Fitted surface albedo” for 2024-11-25 to 2024-11-26

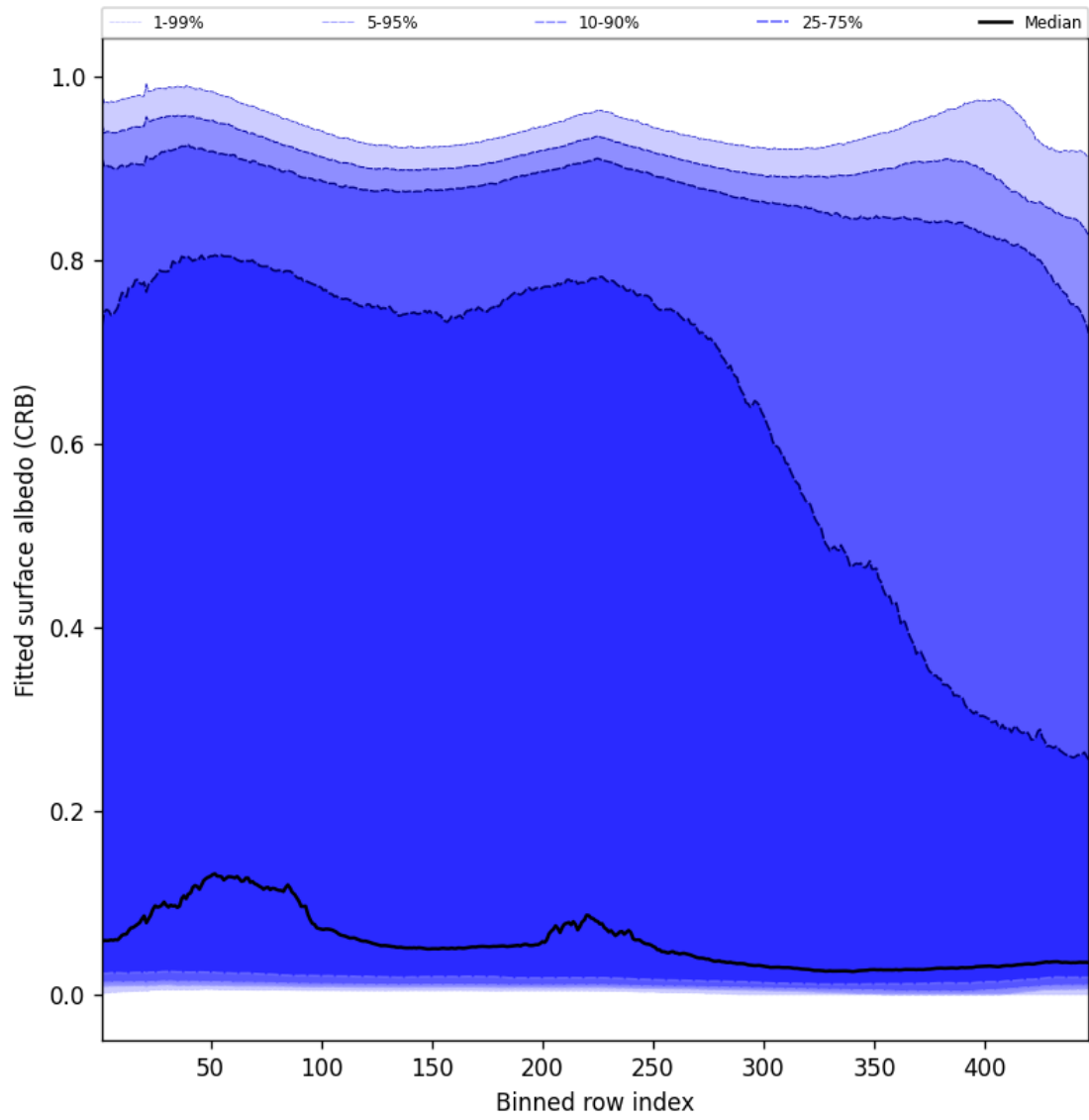


Figure 62: Along track statistics of “Fitted surface albedo (CRB)” for 2024-11-25 to 2024-11-26

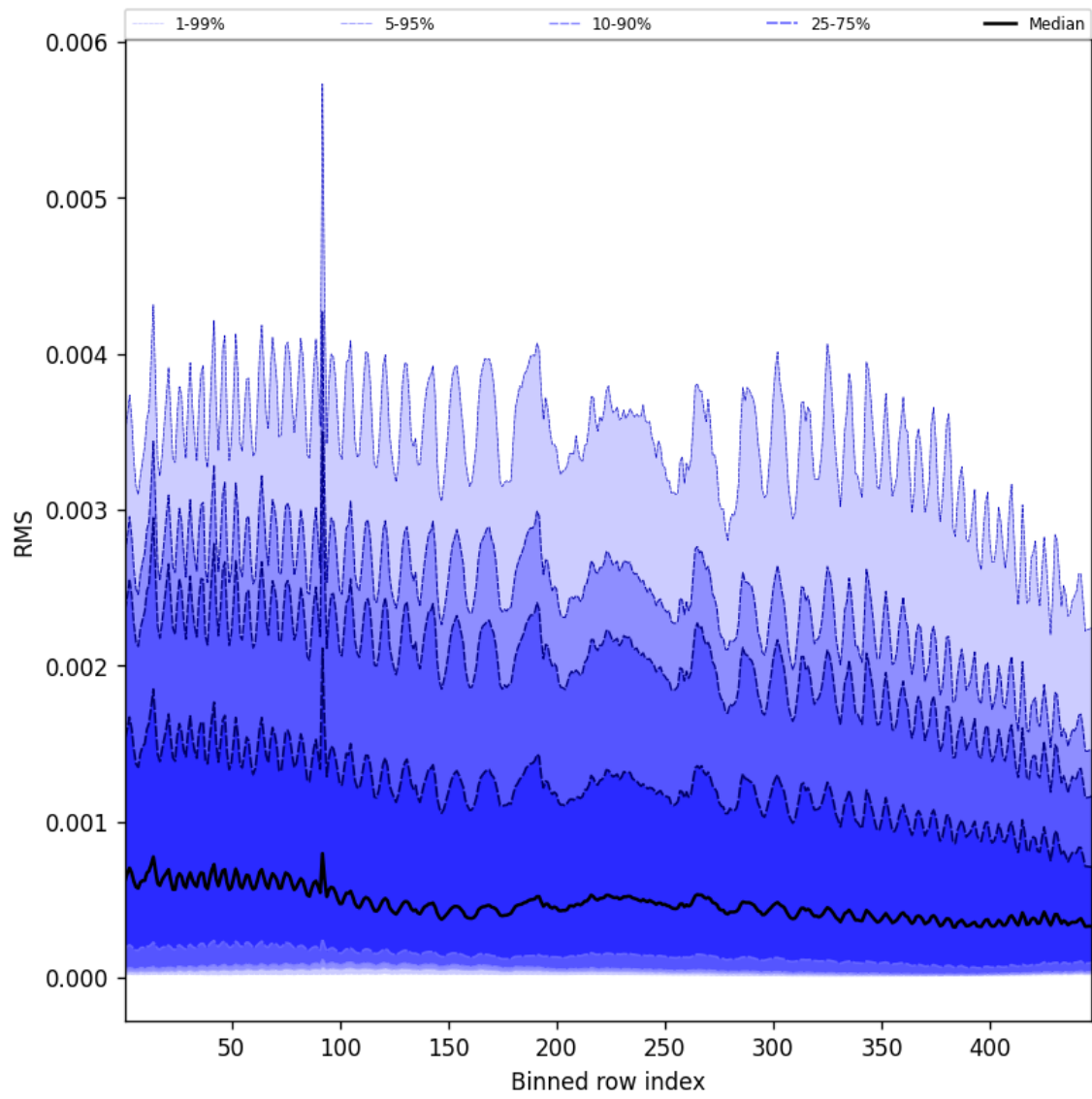


Figure 63: Along track statistics of “RMS” for 2024-11-25 to 2024-11-26

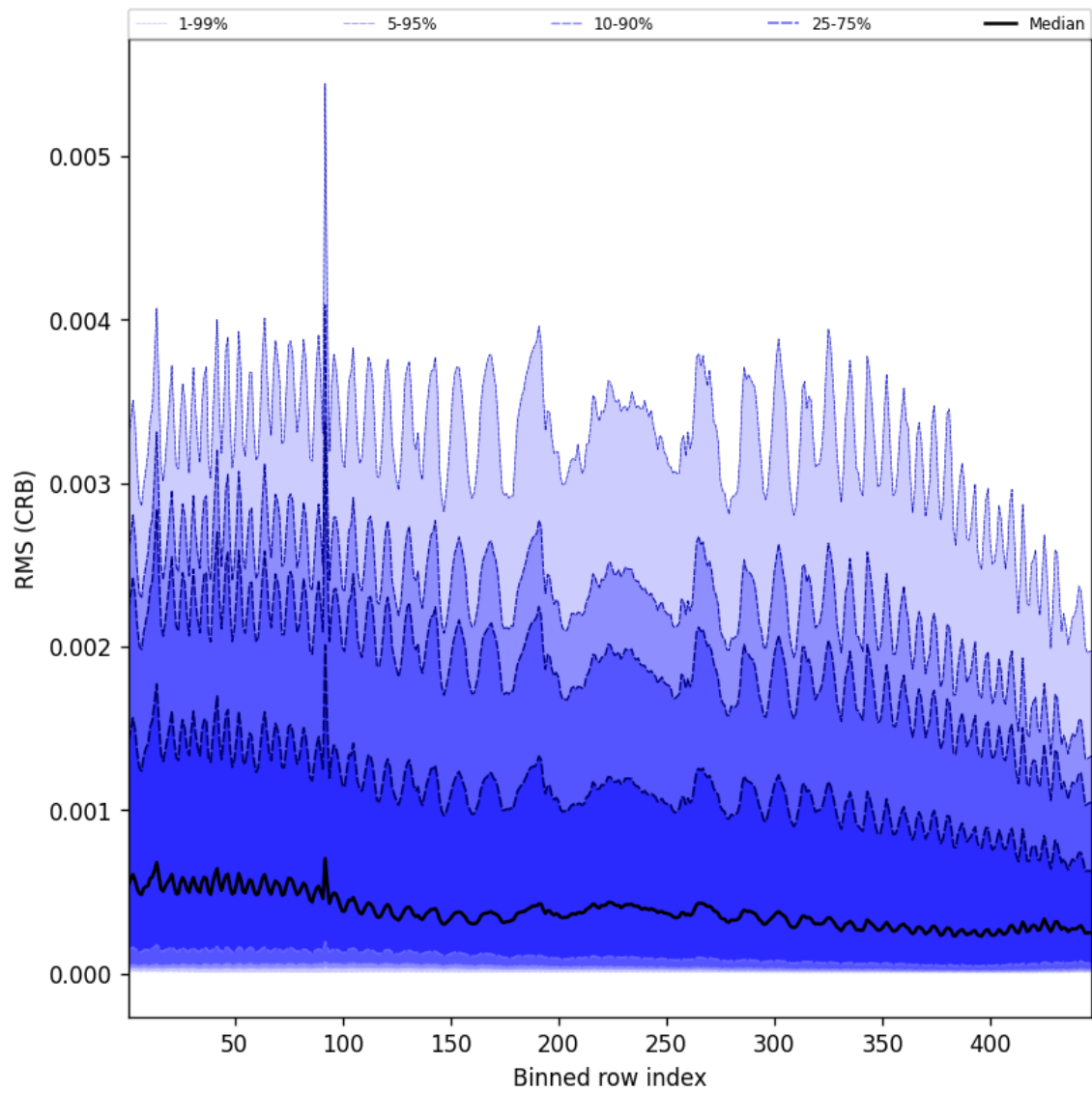


Figure 64: Along track statistics of “RMS (CRB)” for 2024-11-25 to 2024-11-26

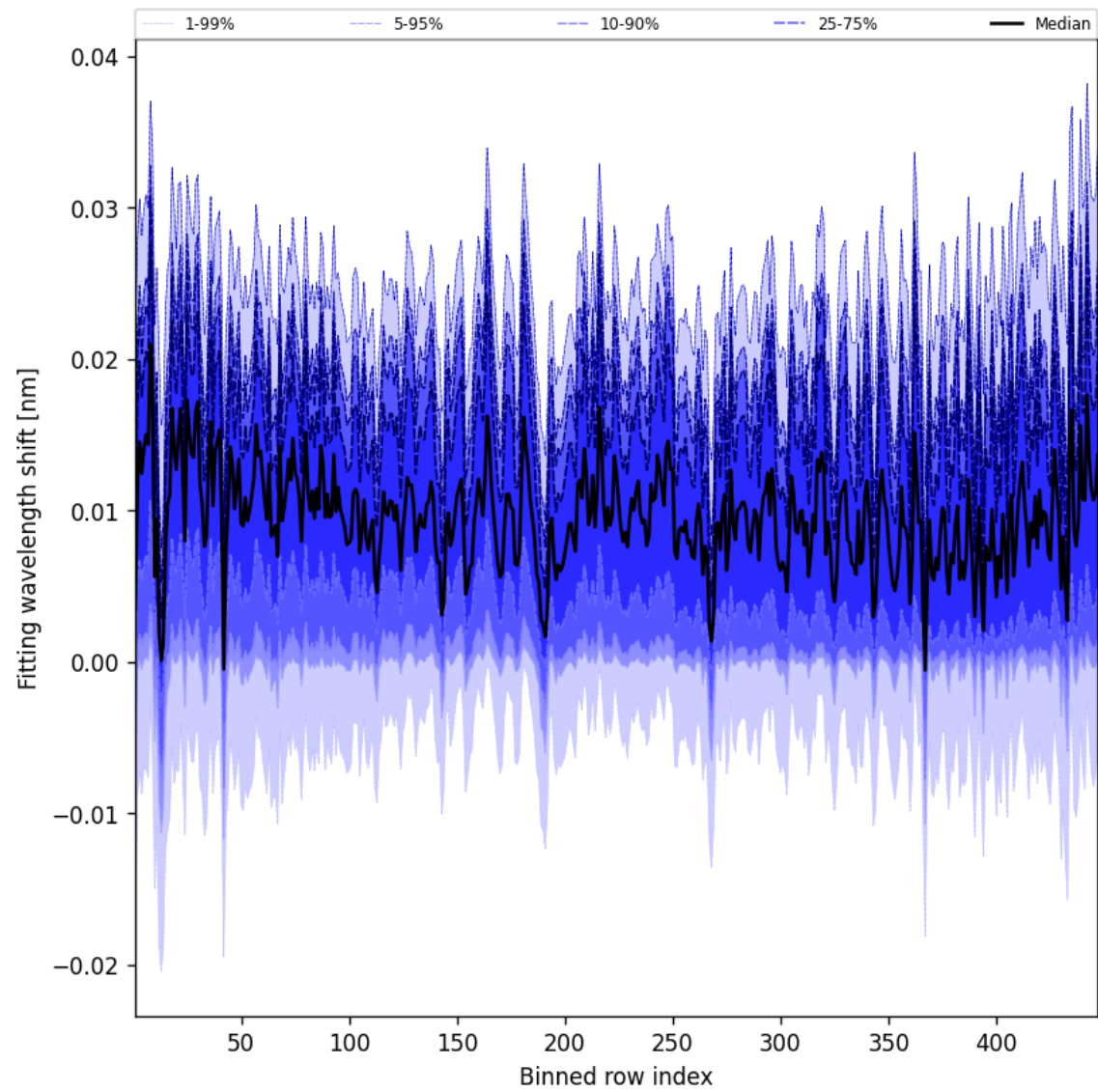


Figure 65: Along track statistics of “Fitting wavelength shift” for 2024-11-25 to 2024-11-26

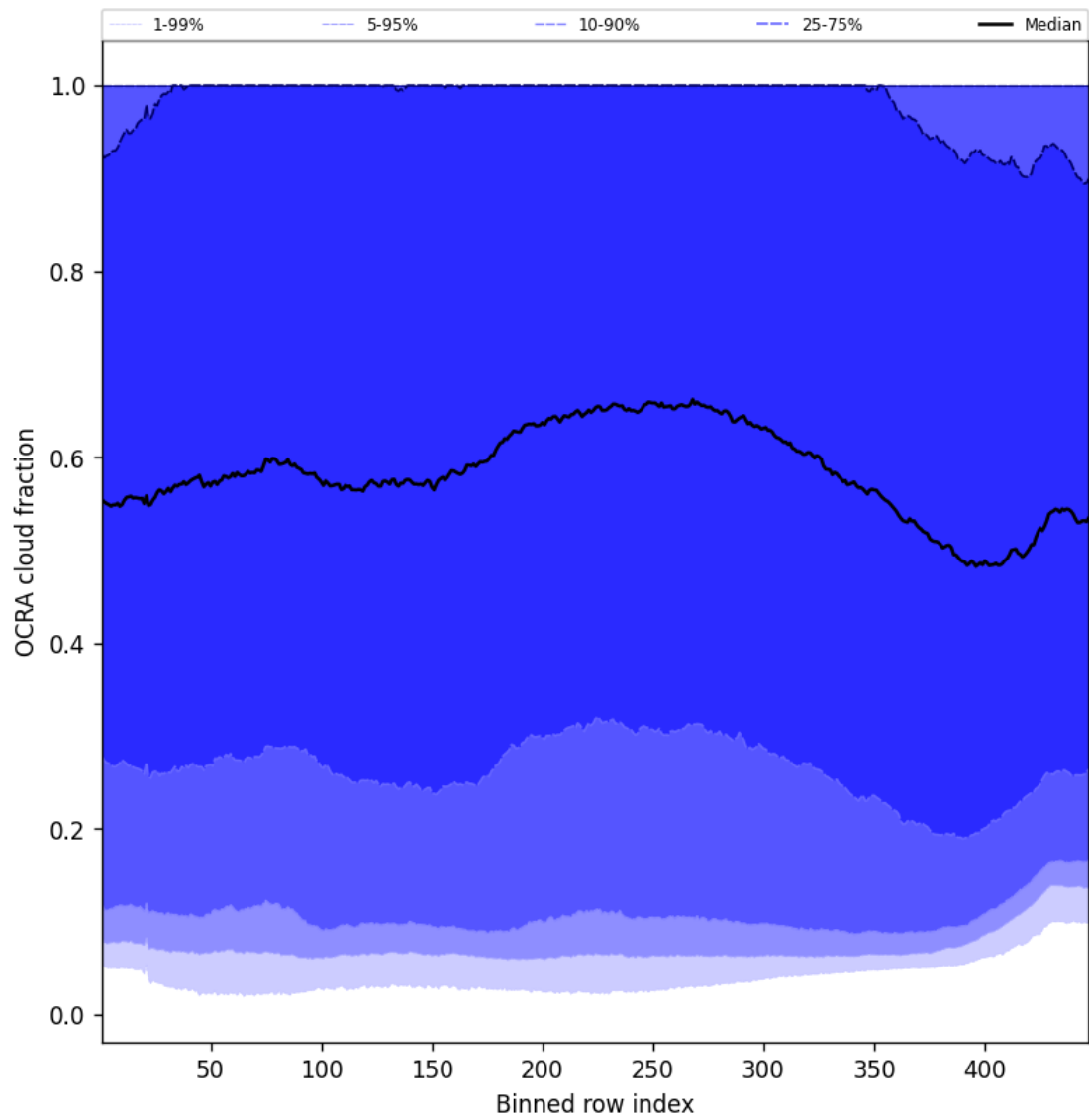


Figure 66: Along track statistics of “OCRA cloud fraction” for 2024-11-25 to 2024-11-26

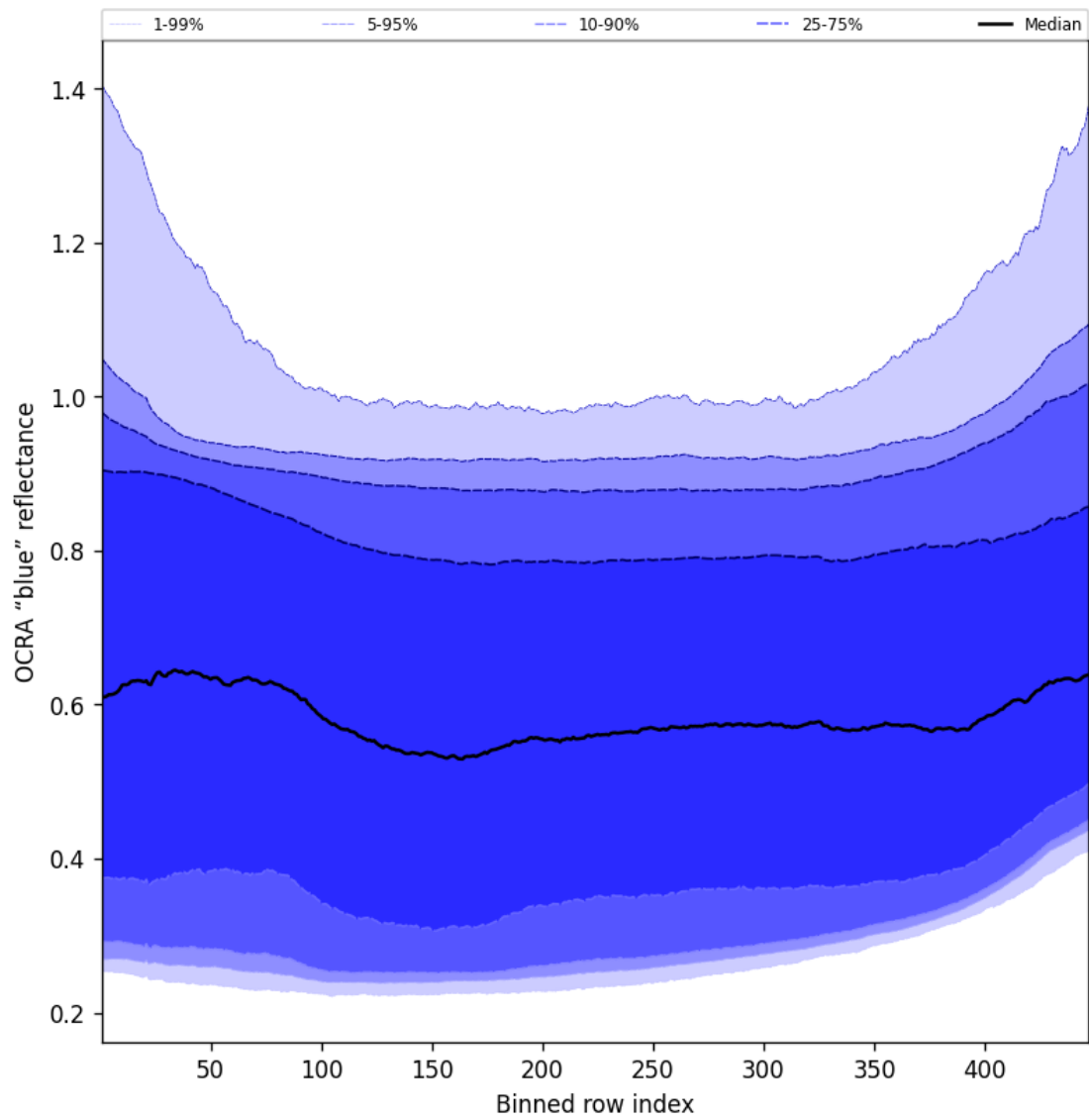


Figure 67: Along track statistics of “OCRA “blue” reflectance” for 2024-11-25 to 2024-11-26

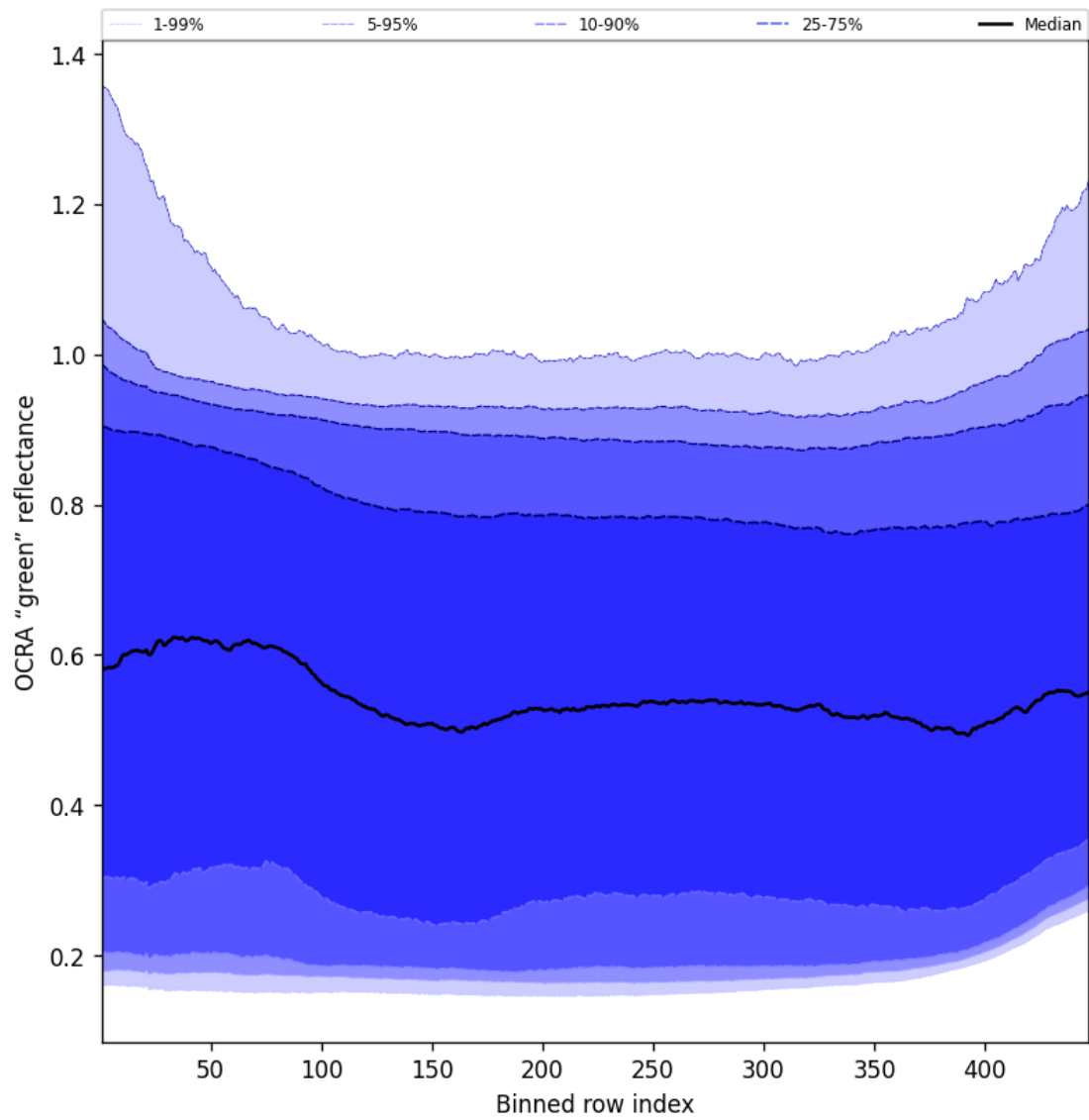


Figure 68: Along track statistics of “OCRA “green” reflectance” for 2024-11-25 to 2024-11-26

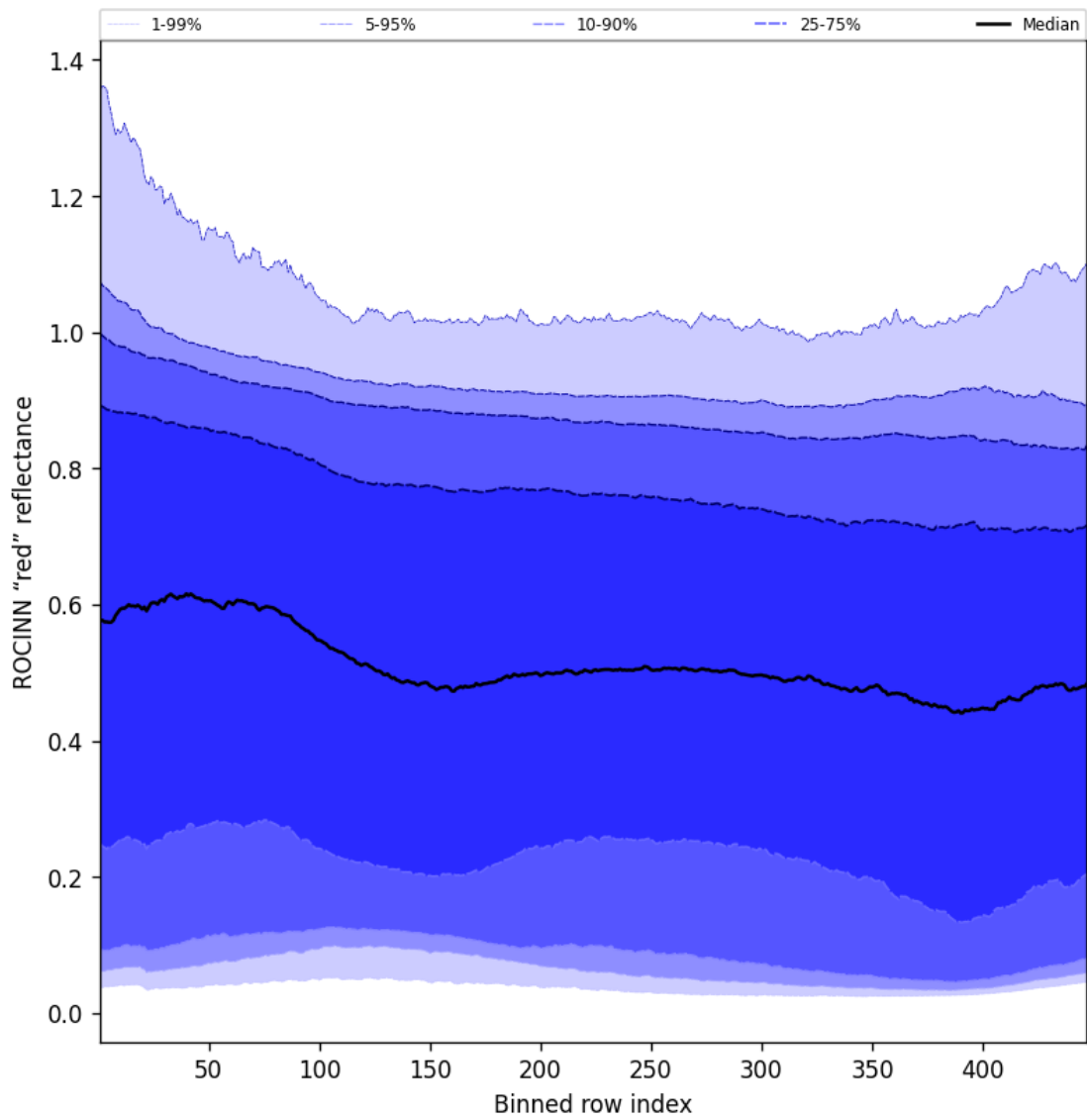


Figure 69: Along track statistics of “ROCINN “red” reflectance” for 2024-11-25 to 2024-11-26

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.

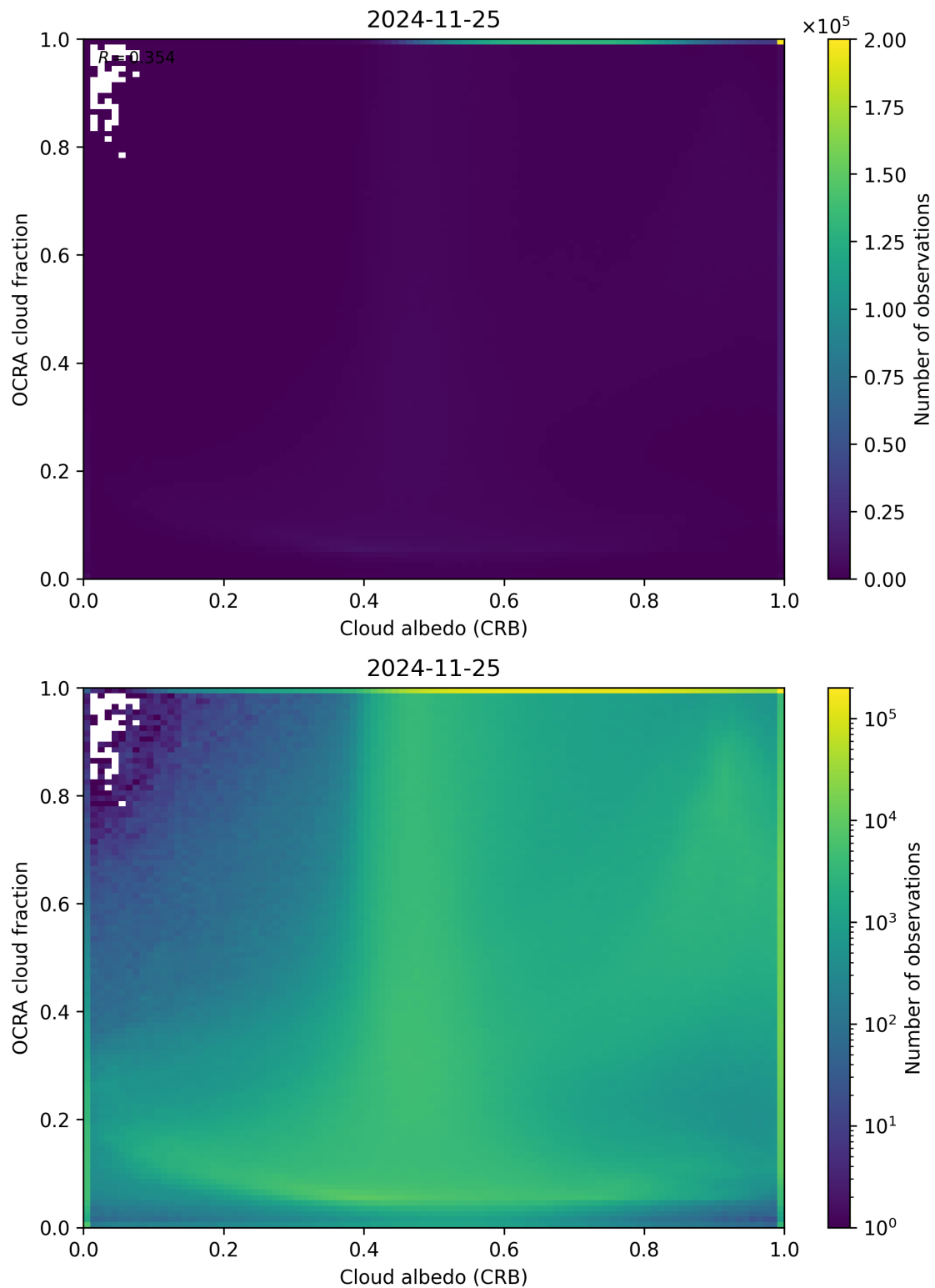


Figure 70: Scatter density plot of “Cloud albedo (CRB)” against “OCRA cloud fraction” for 2024-11-25 to 2024-11-26.

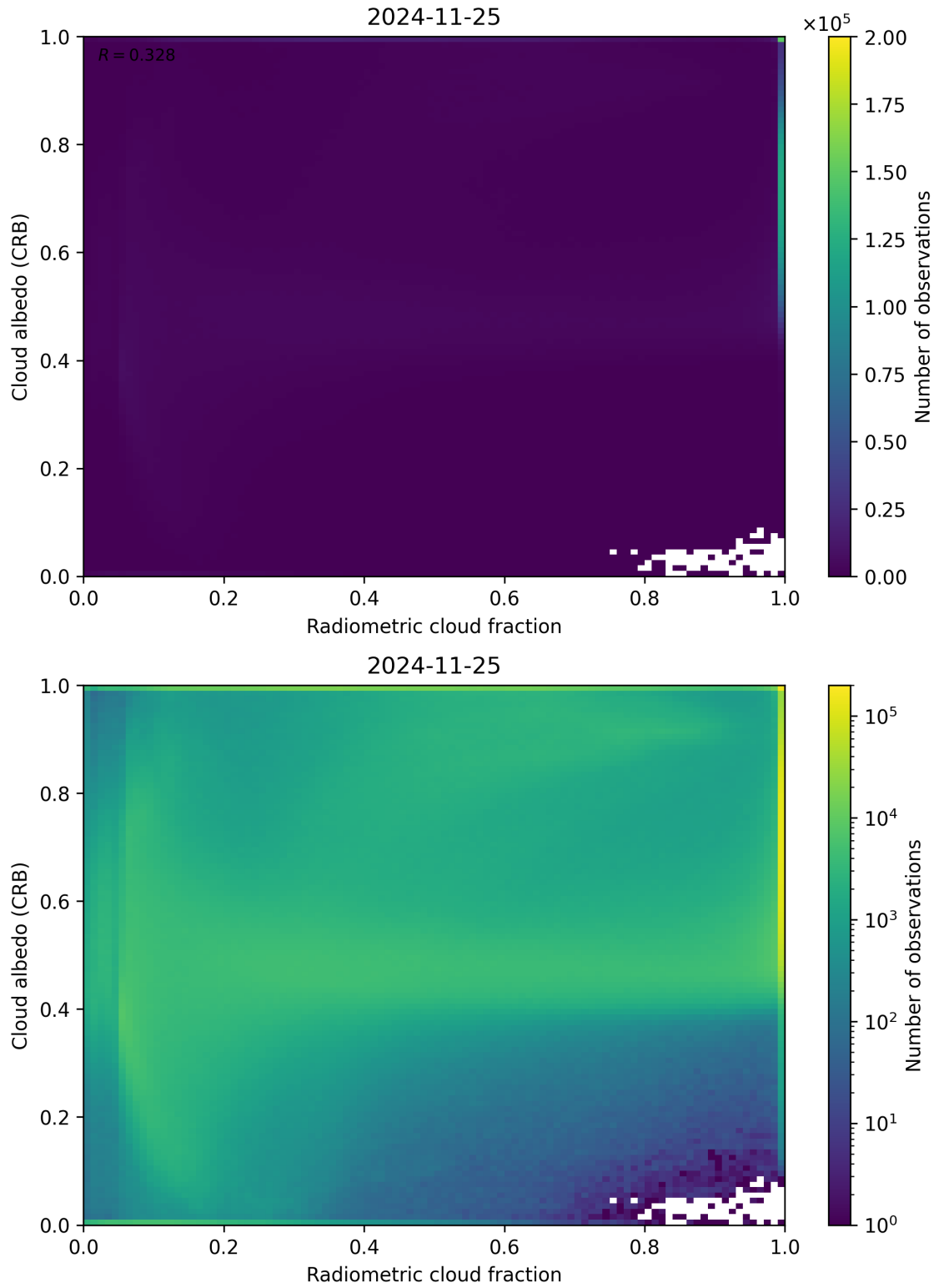


Figure 71: Scatter density plot of “Radiometric cloud fraction” against “Cloud albedo (CRB)” for 2024-11-25 to 2024-11-26.

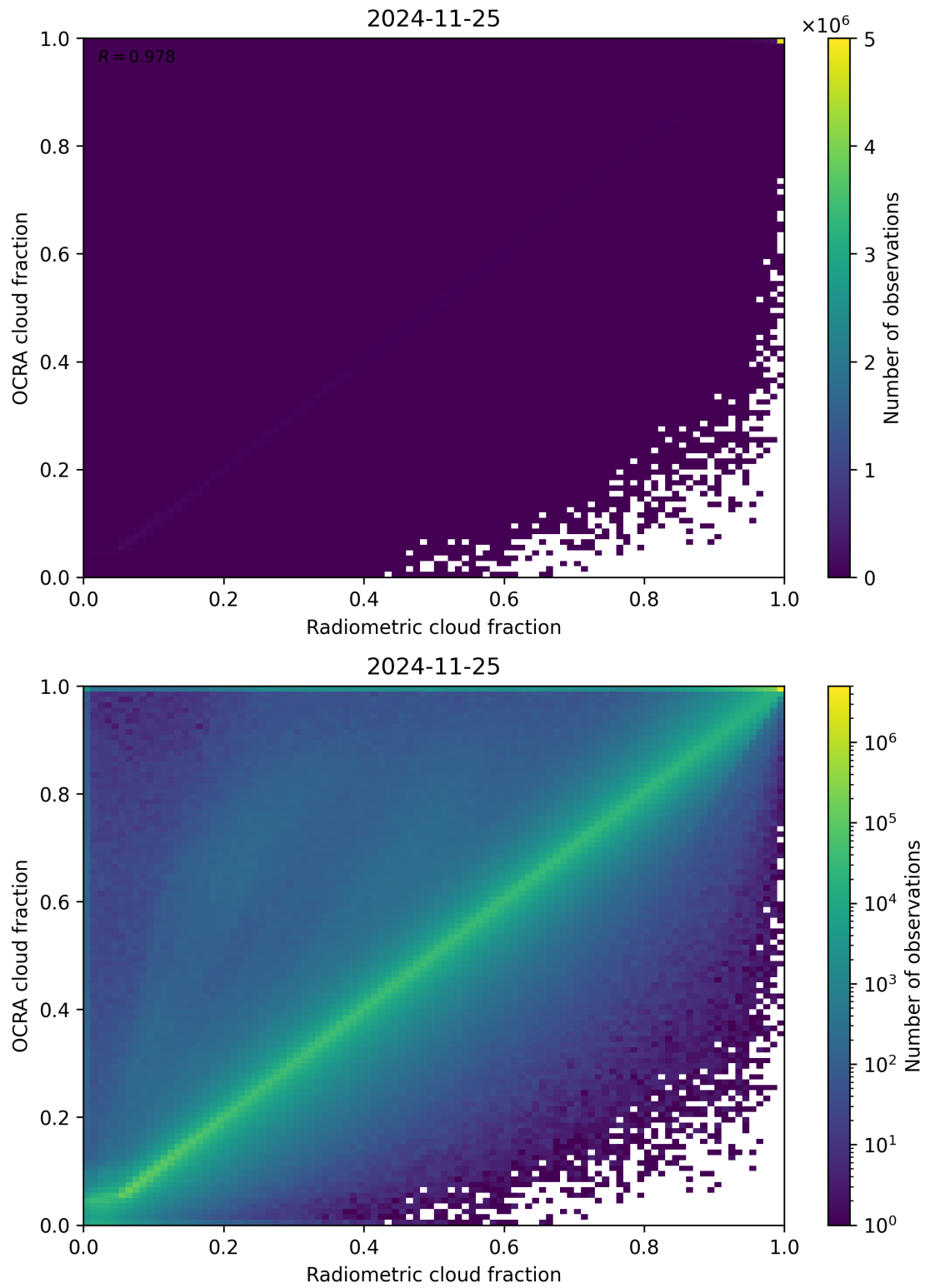


Figure 72: Scatter density plot of “Radiometric cloud fraction” against “OCRA cloud fraction” for 2024-11-25 to 2024-11-26.

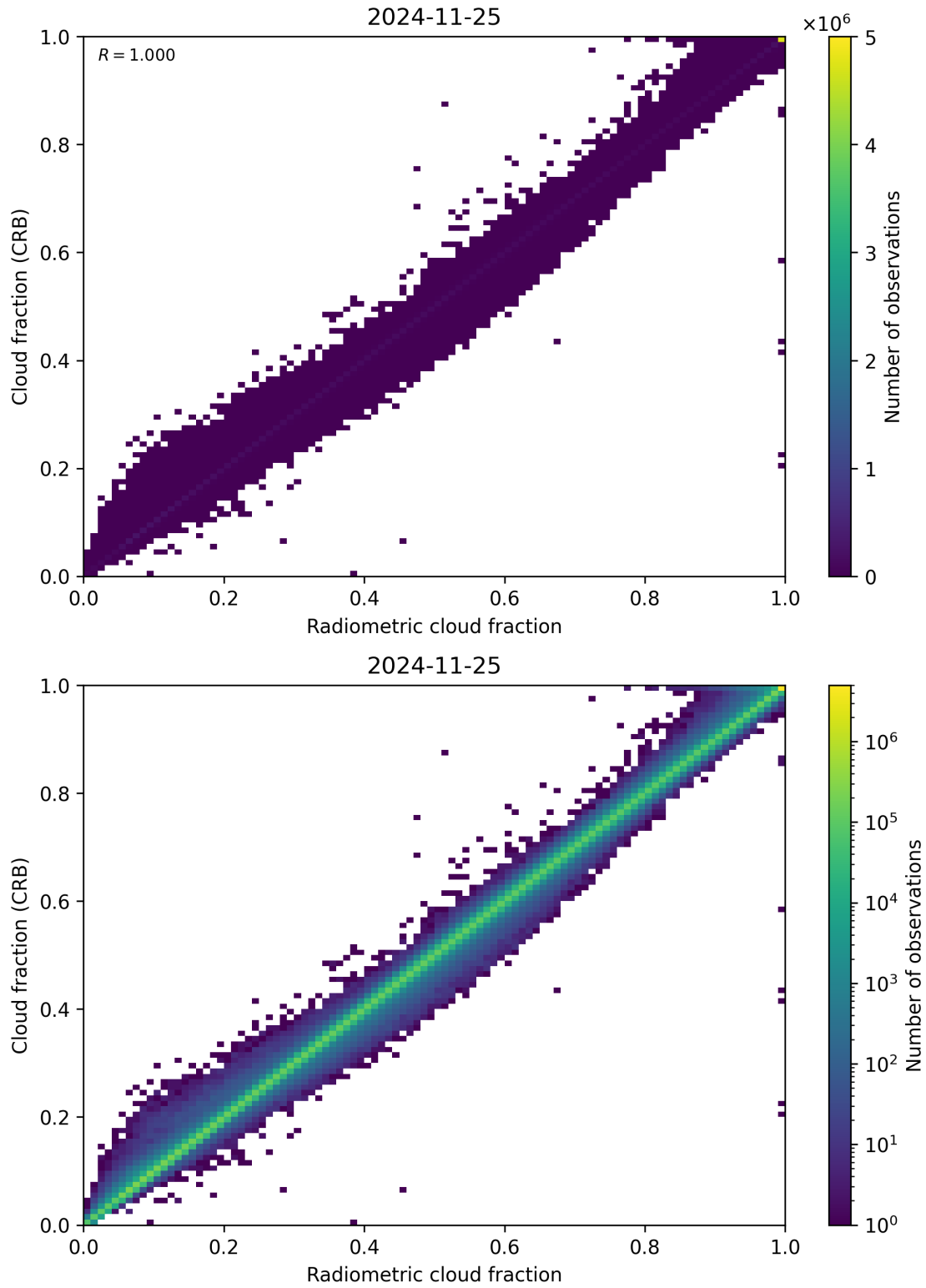


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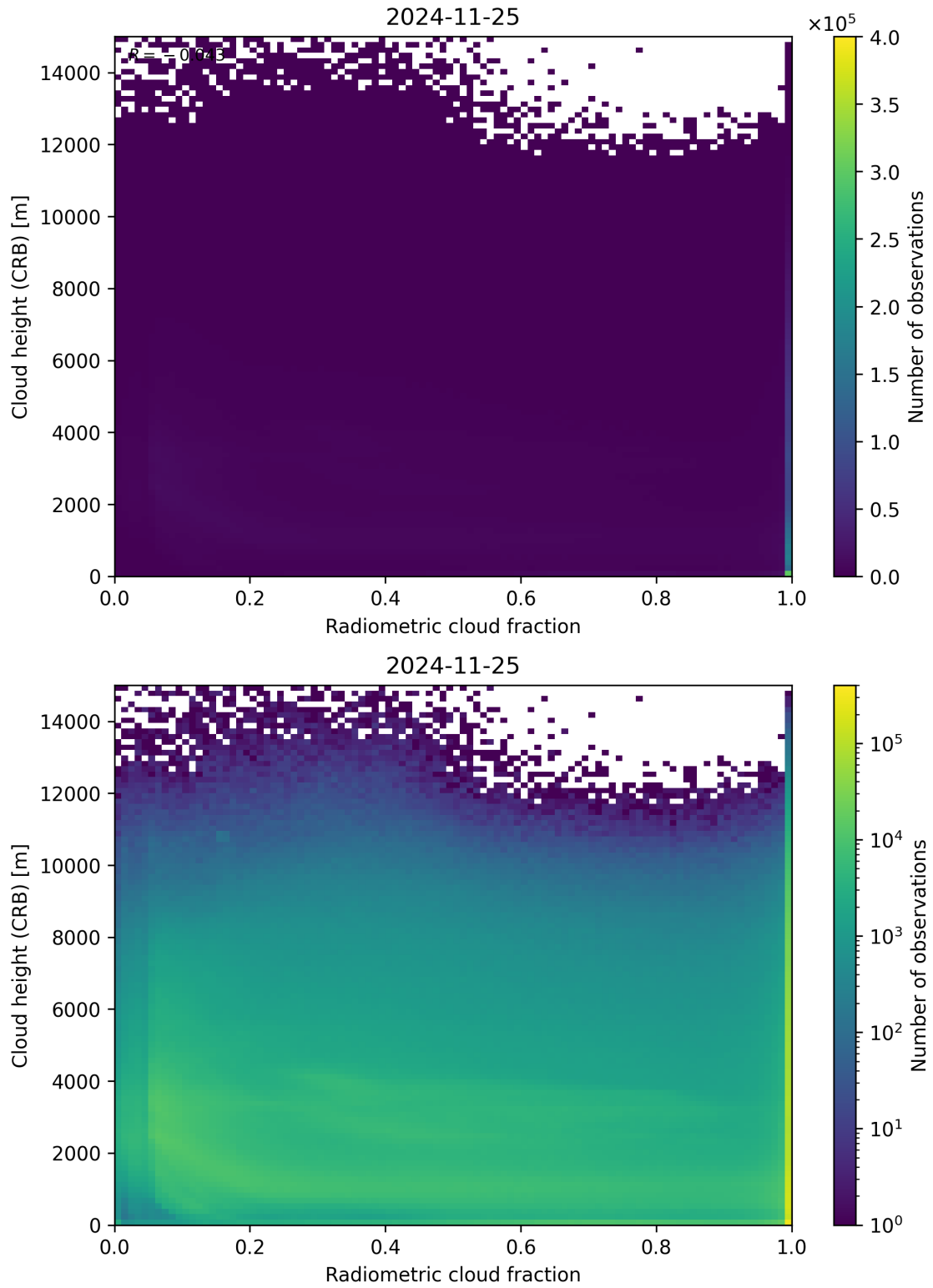


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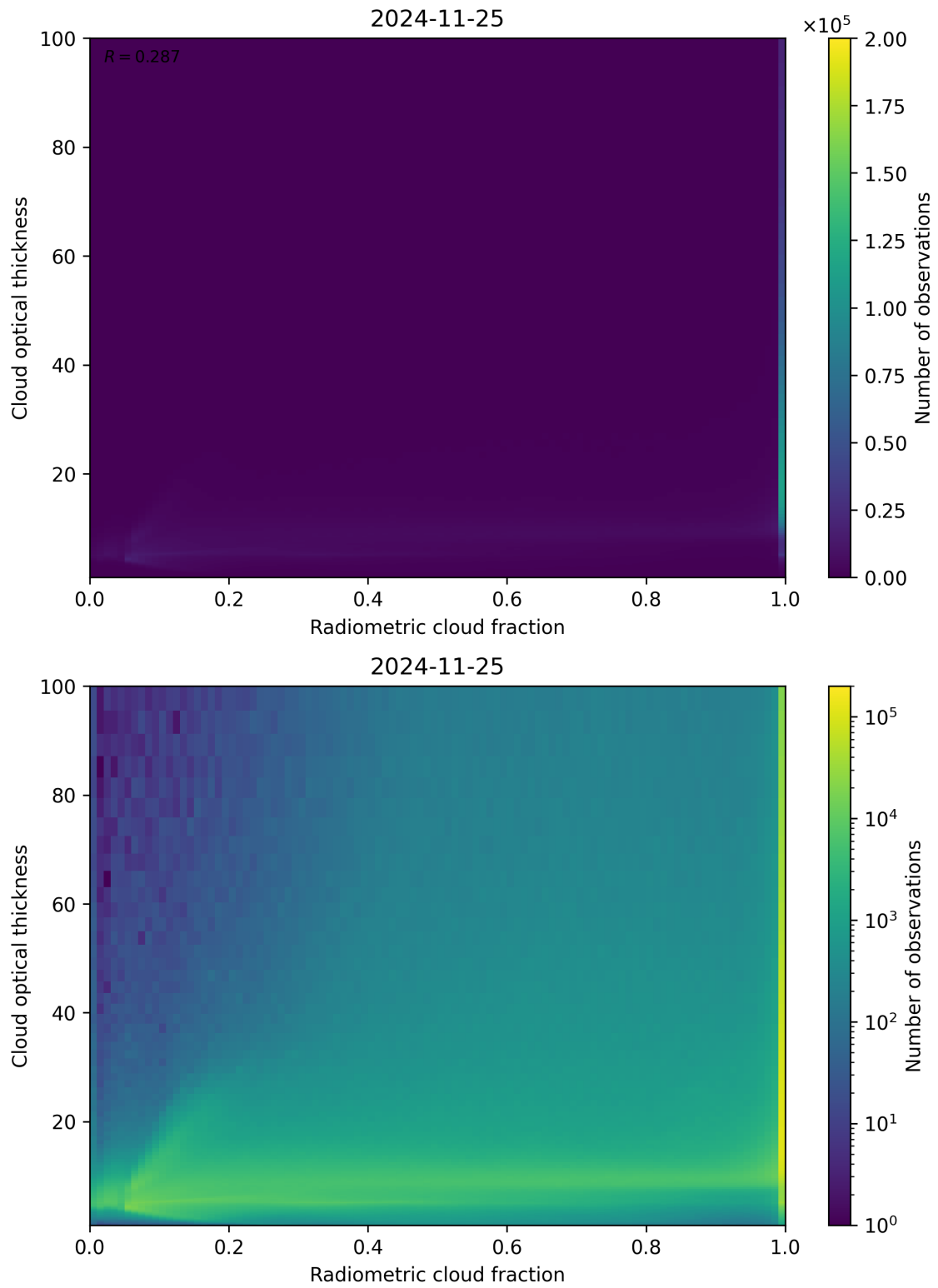


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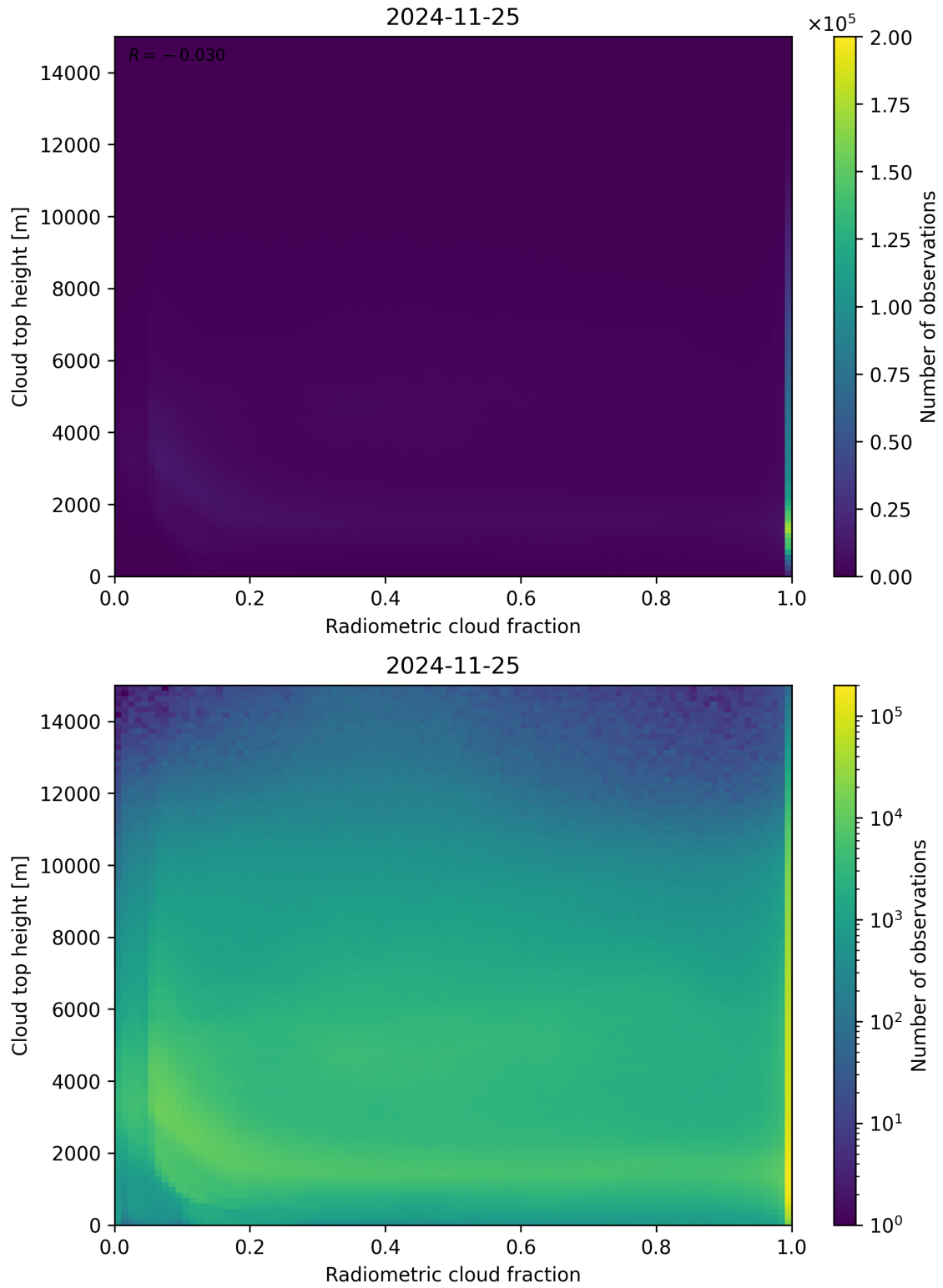


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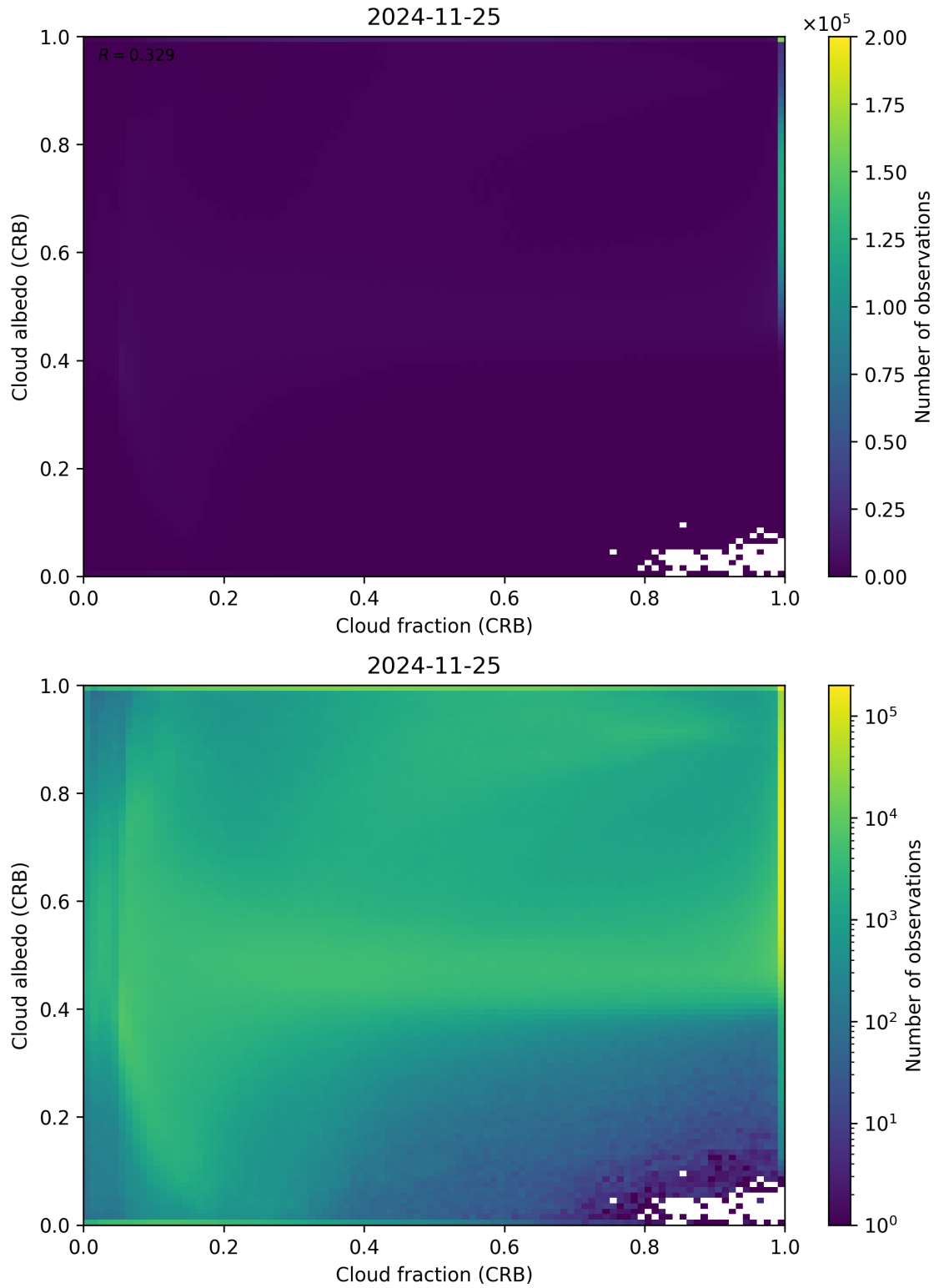


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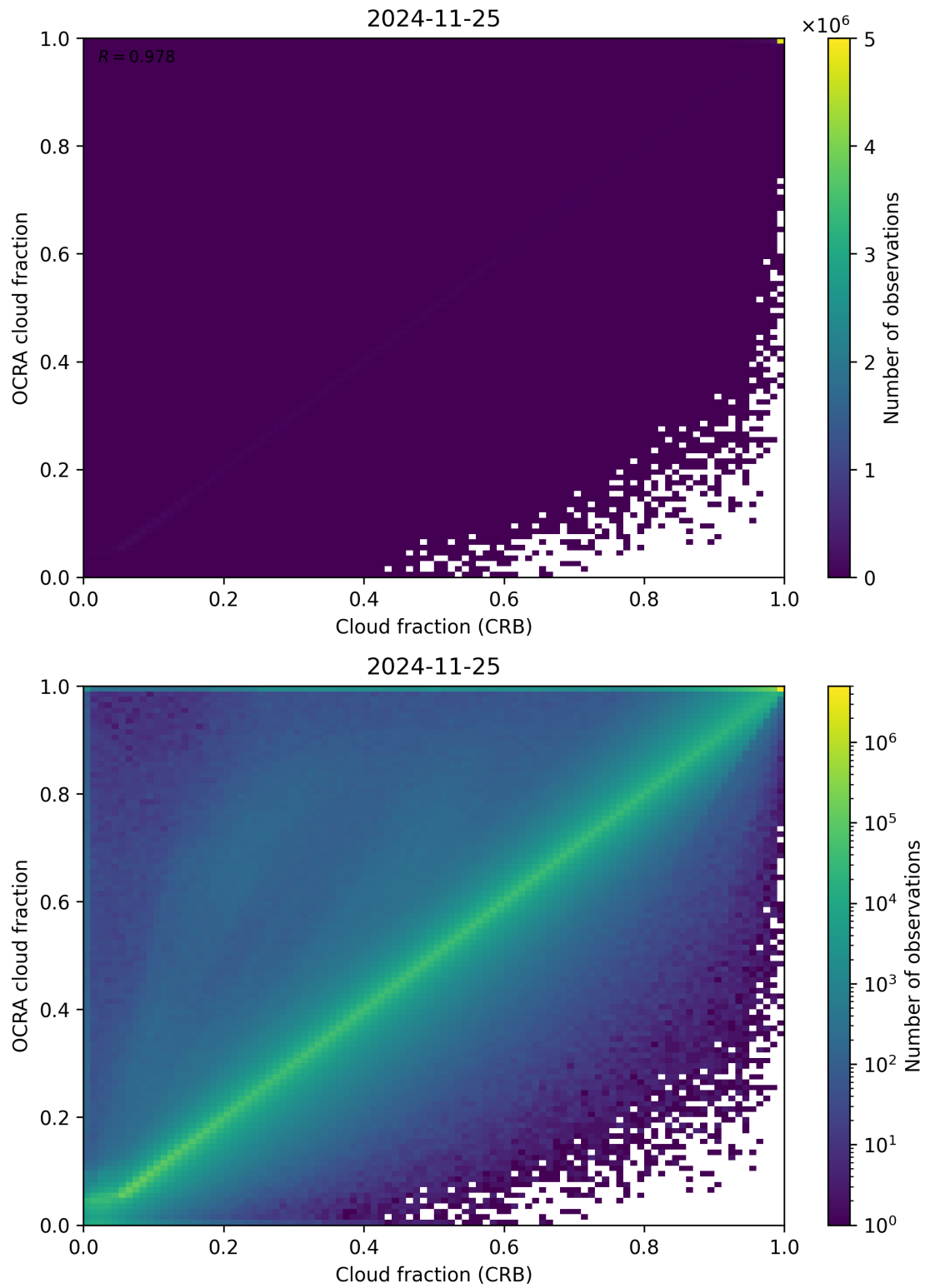


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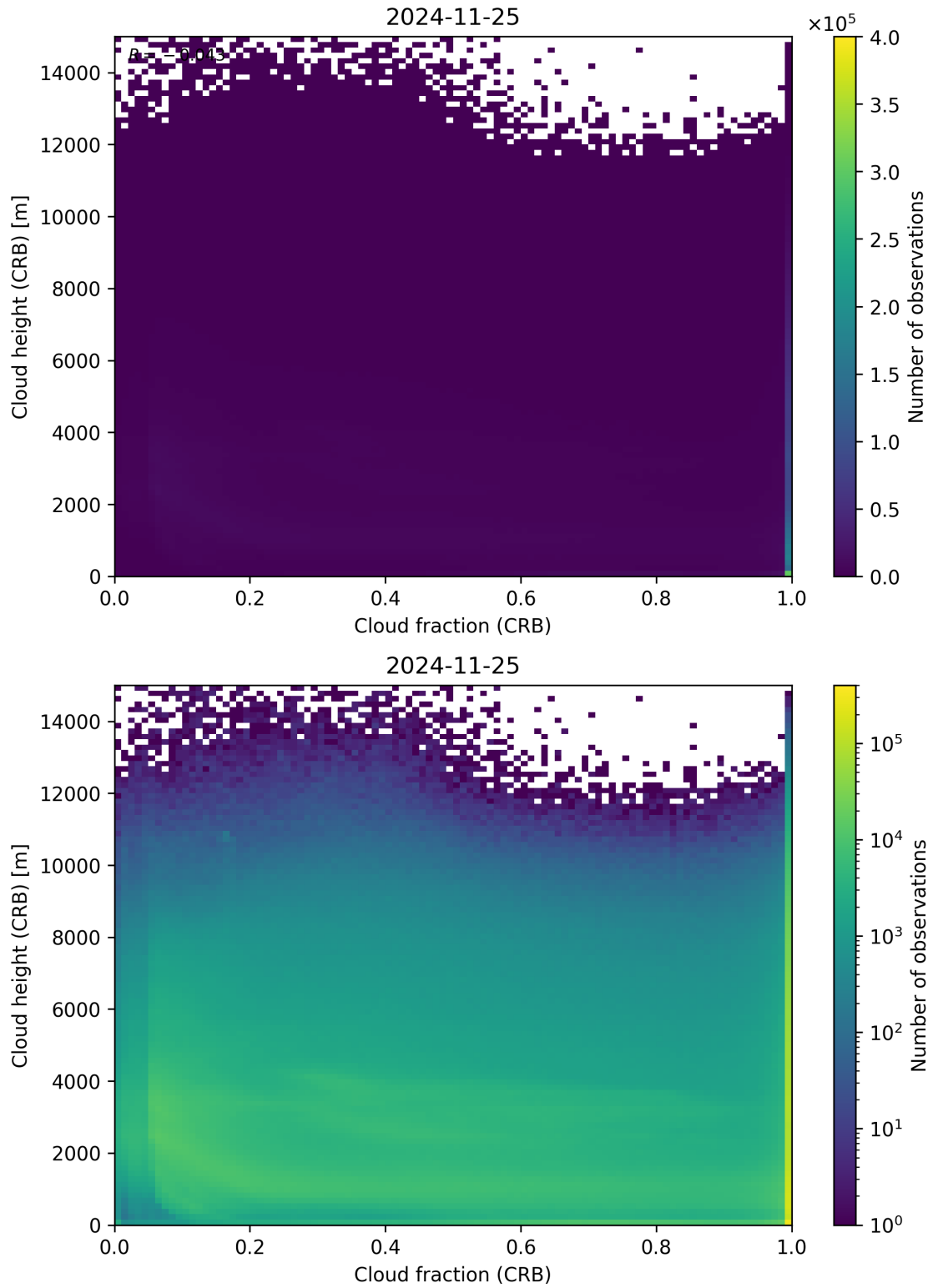


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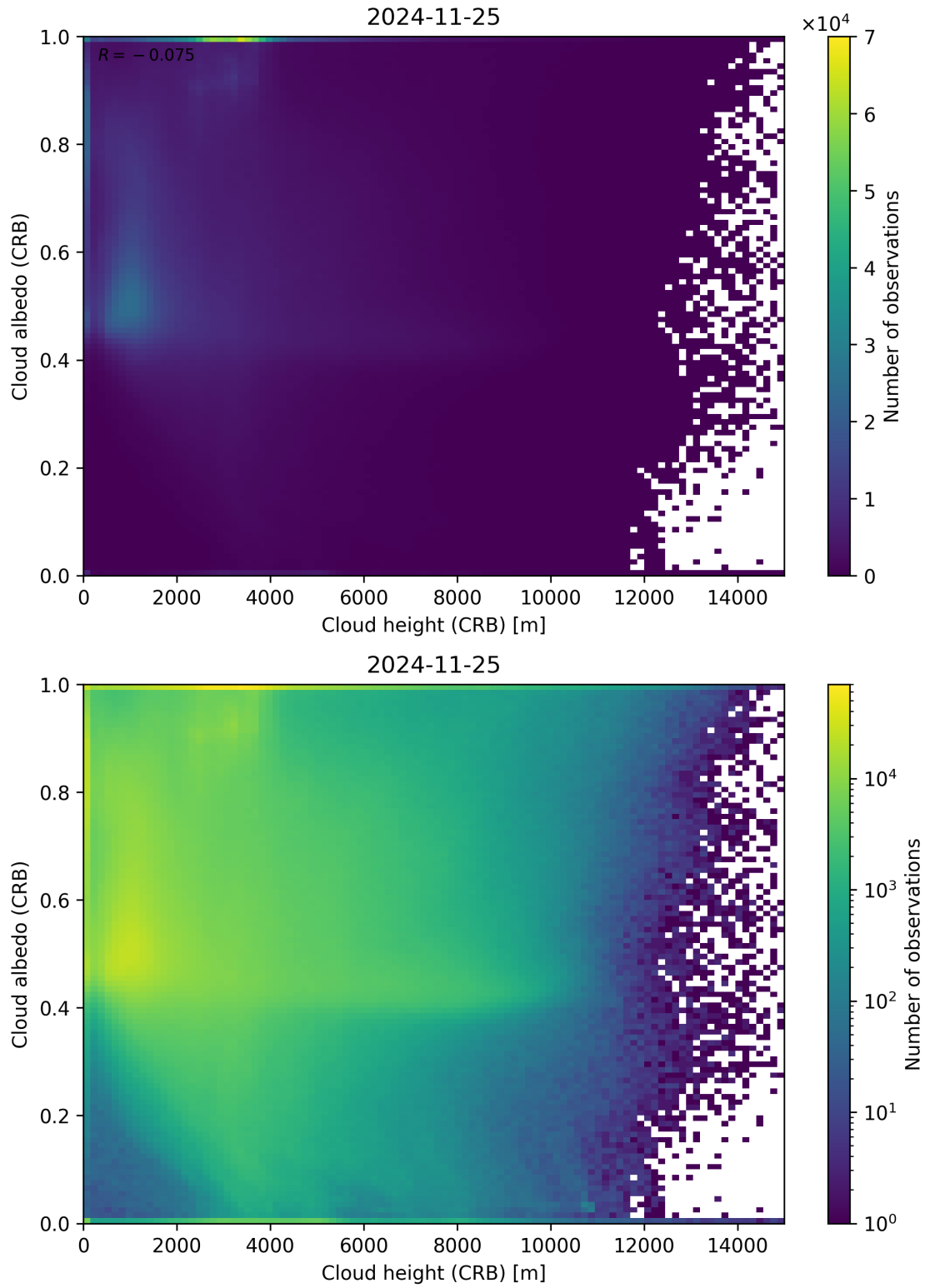


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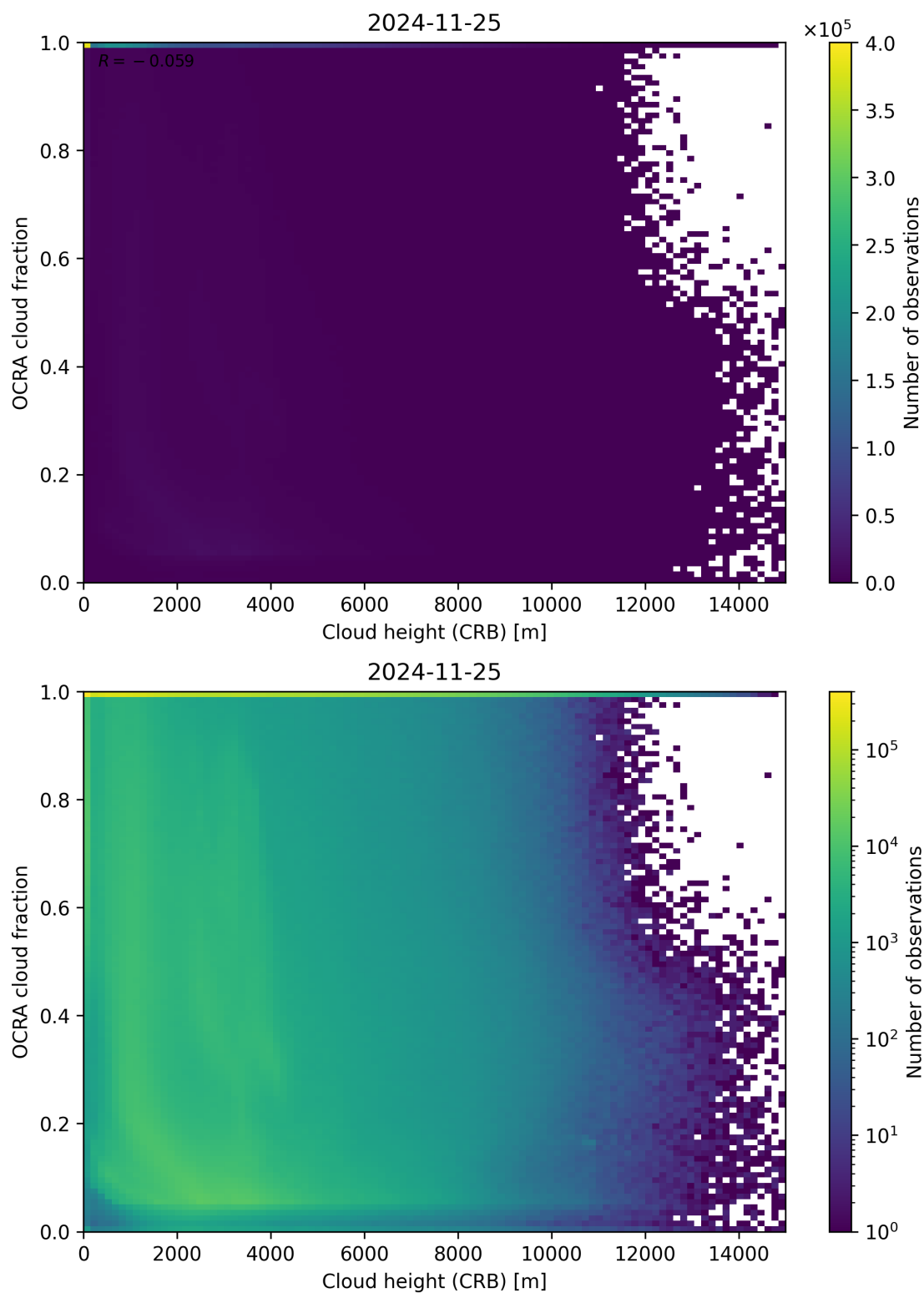


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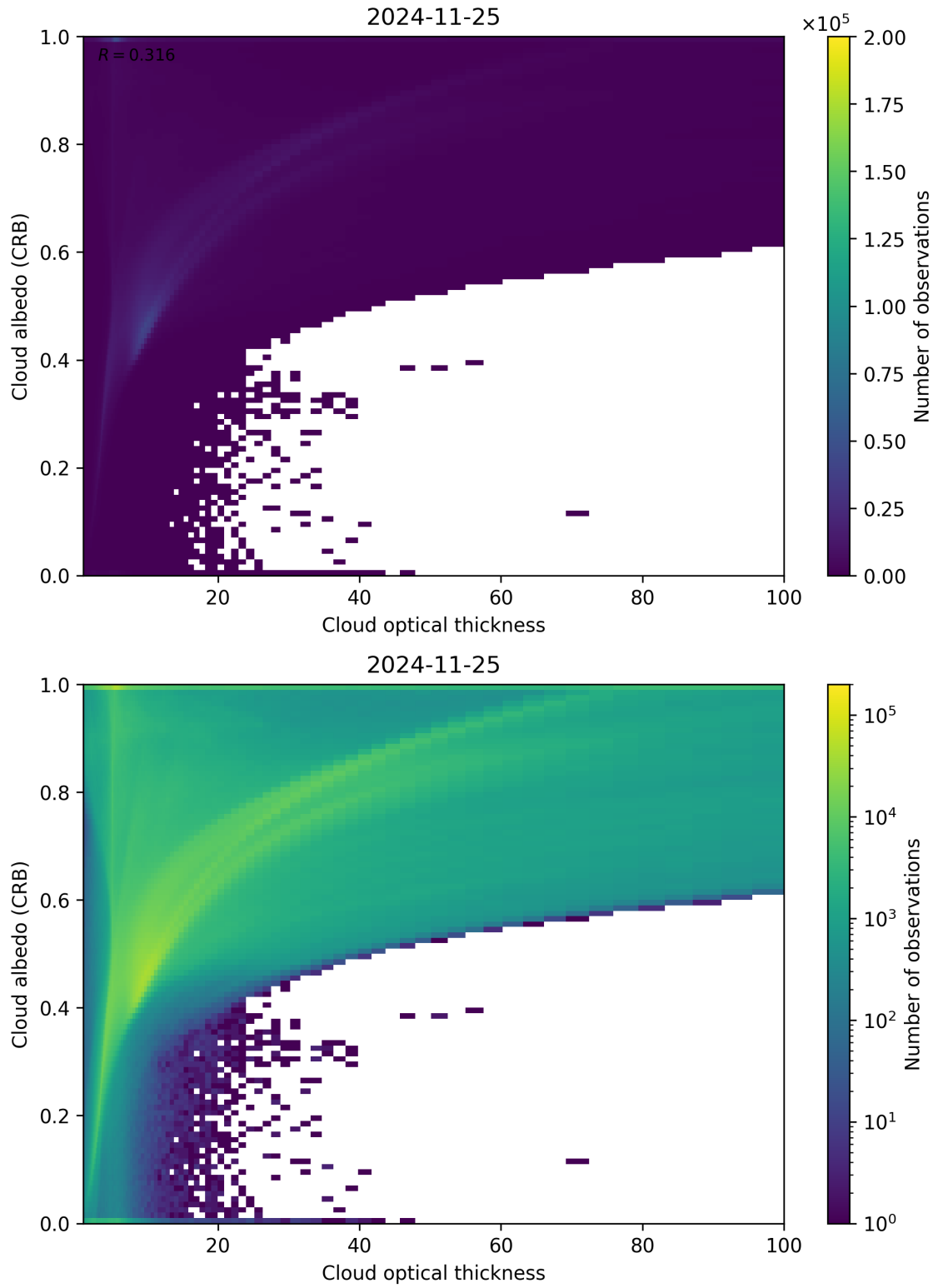


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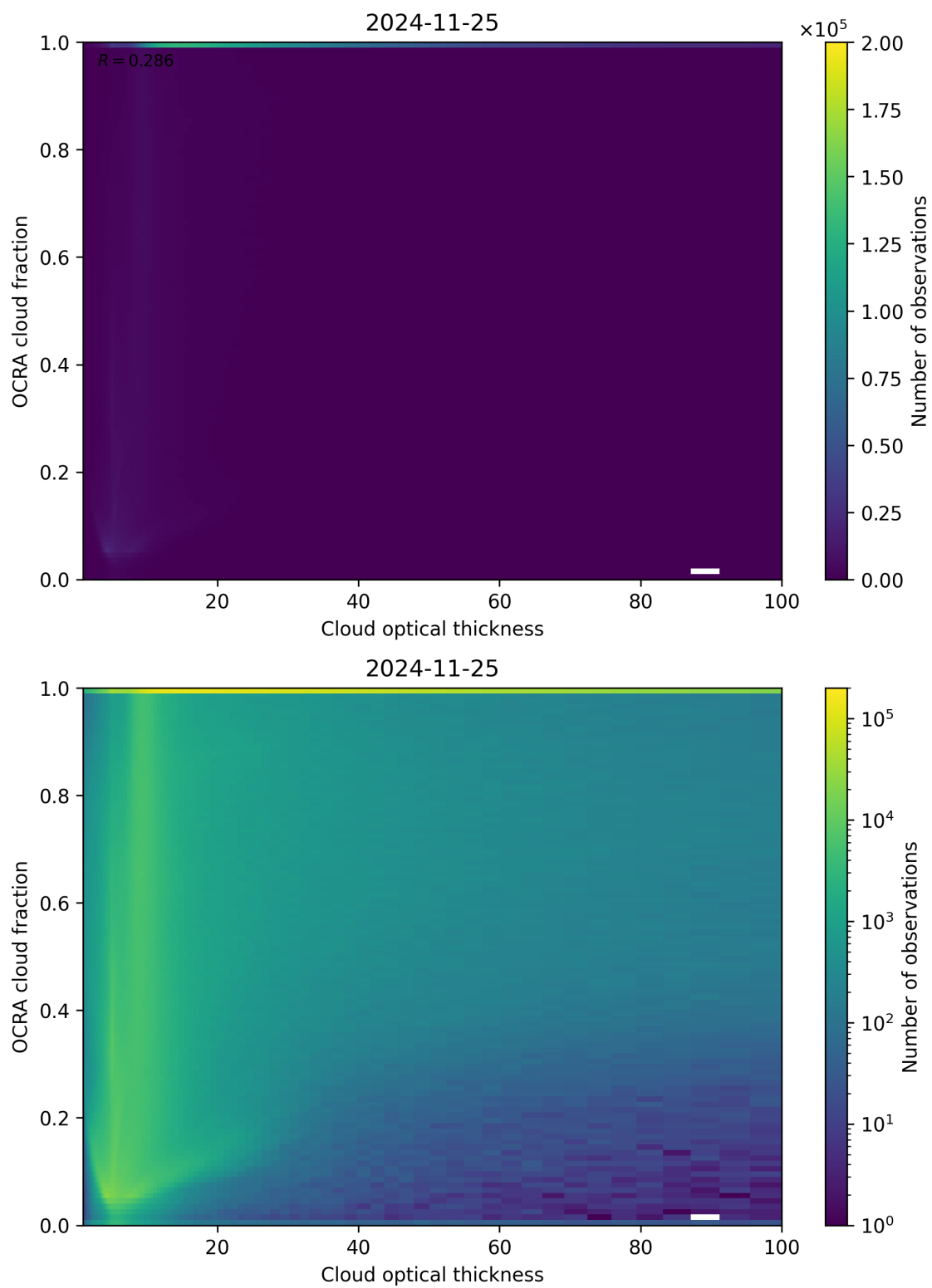


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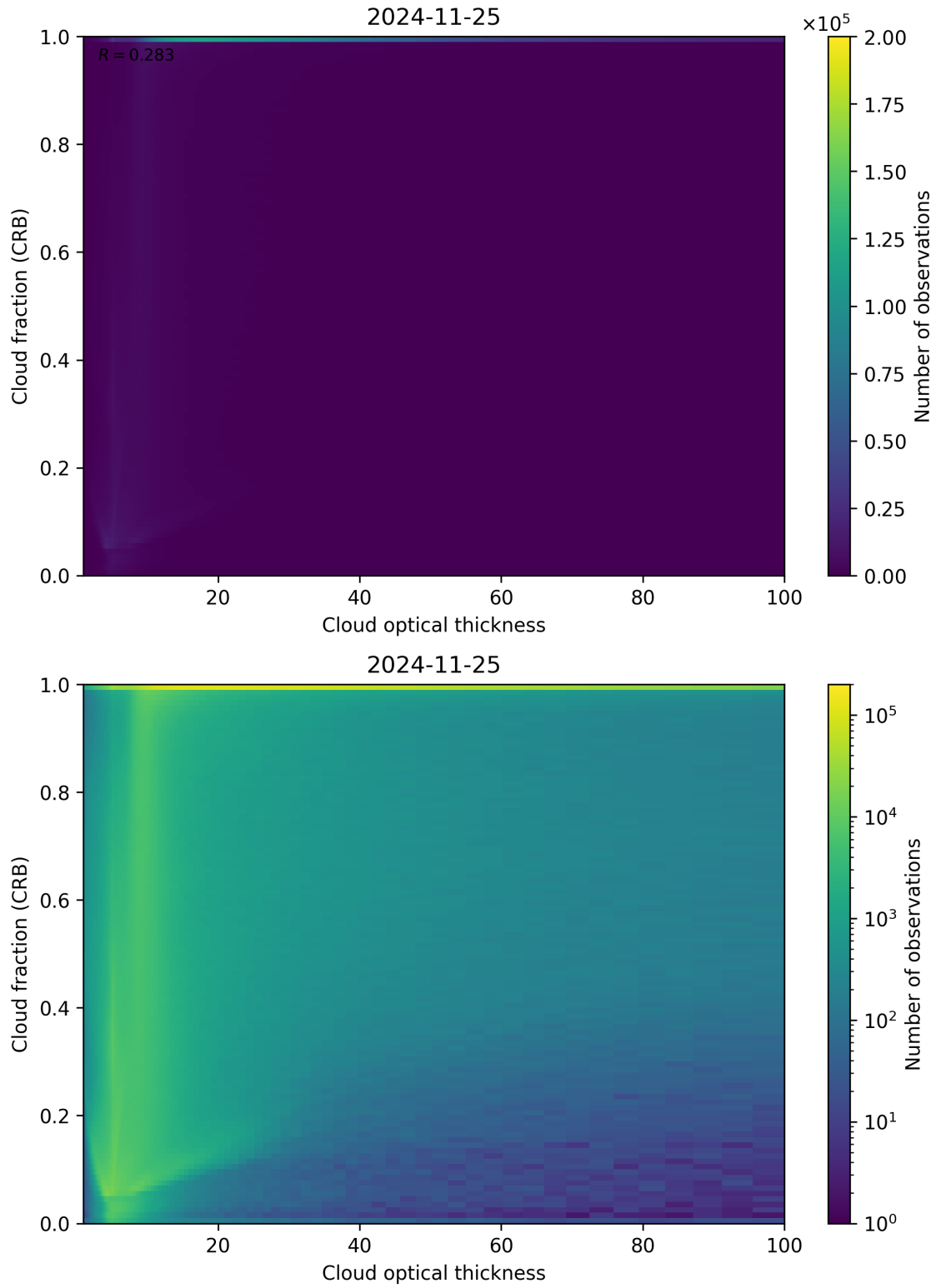


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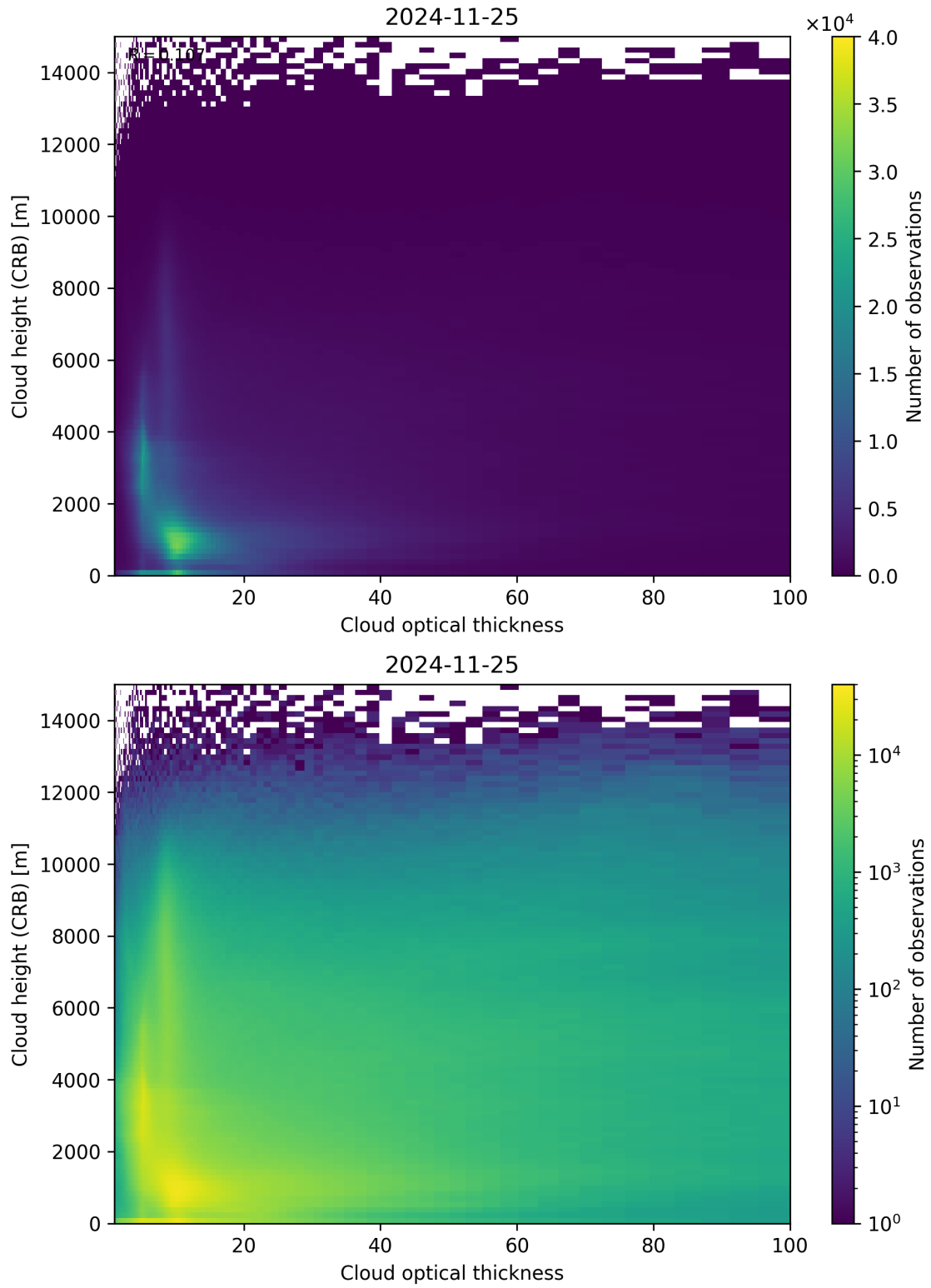


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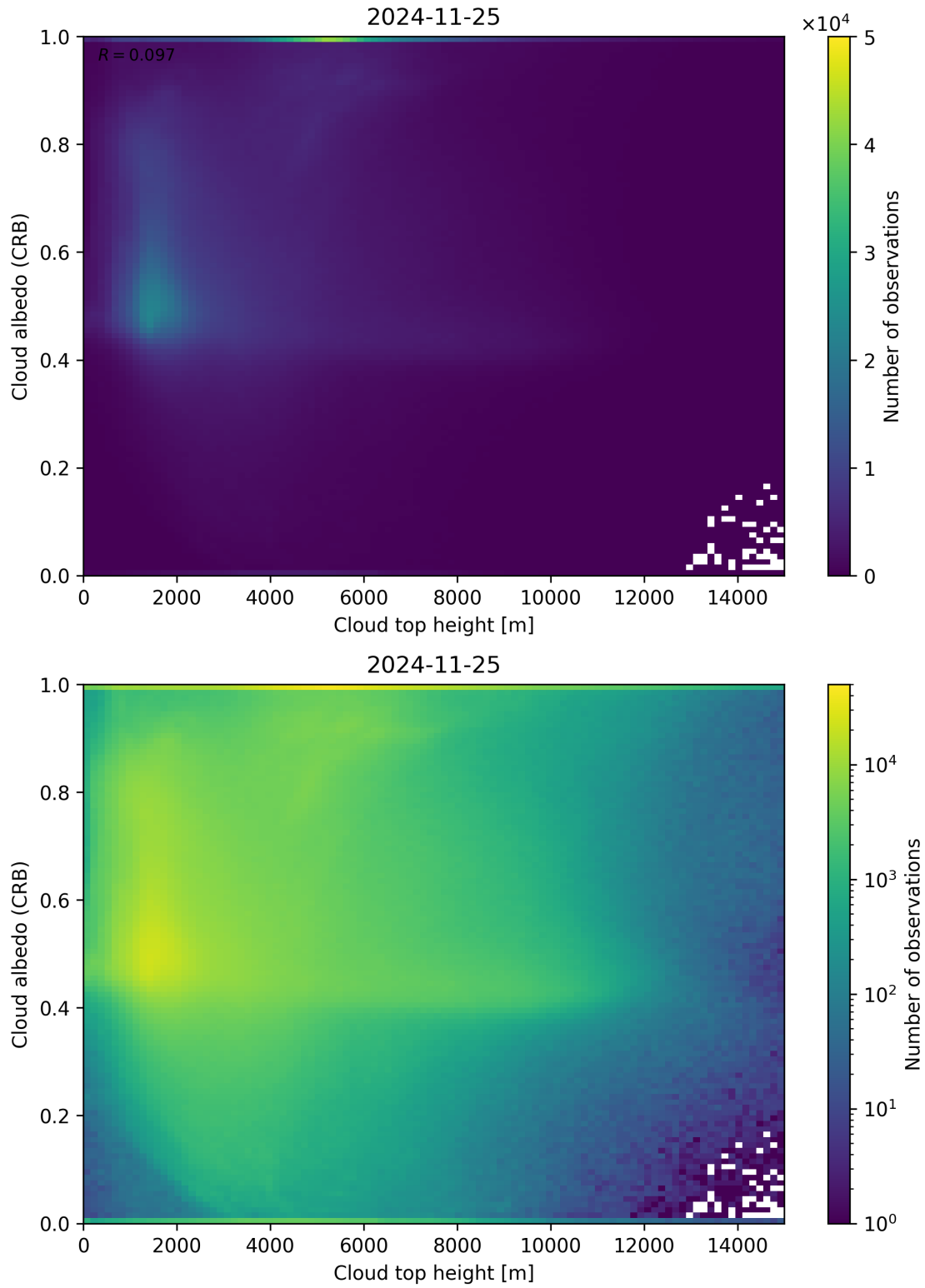


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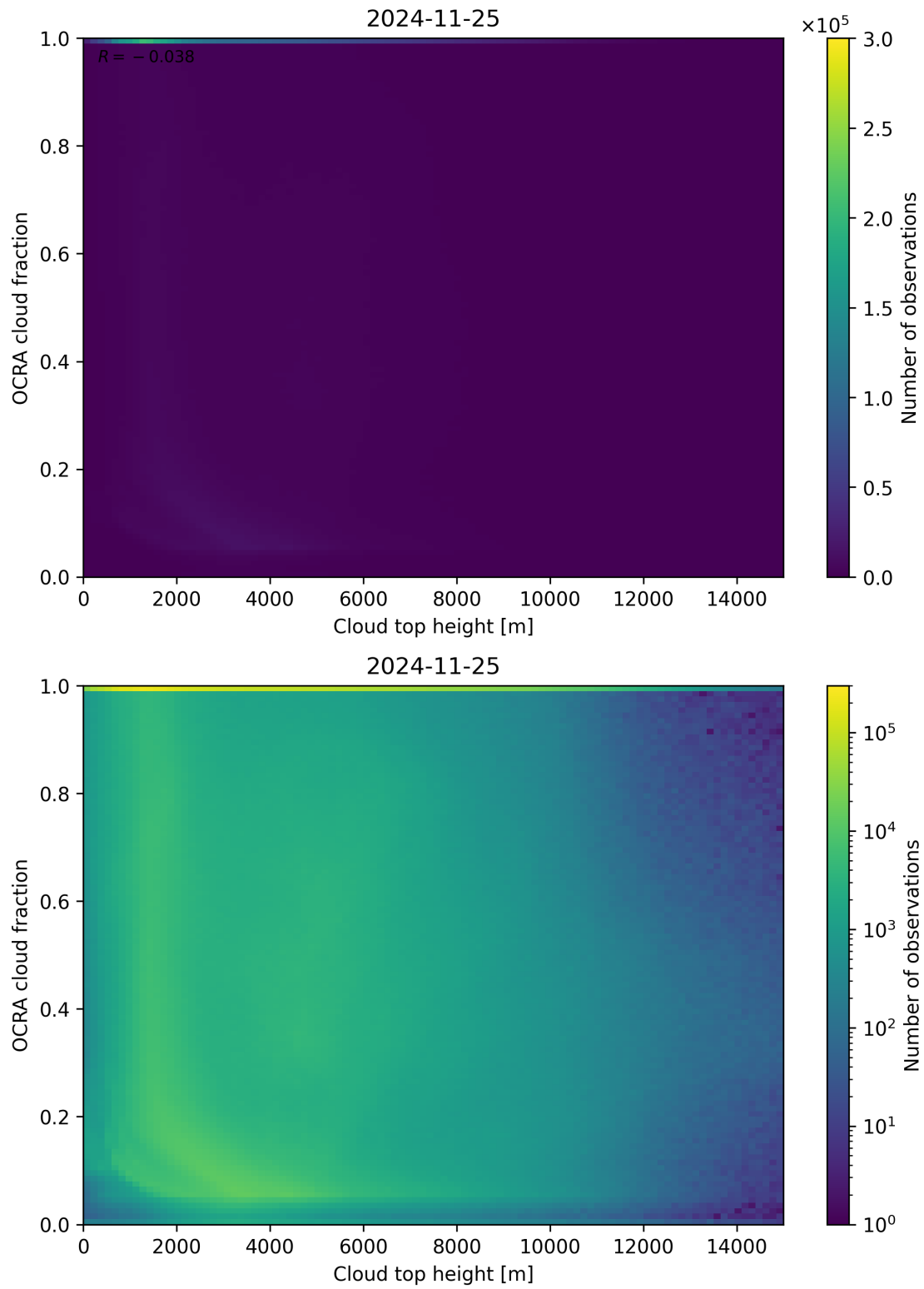


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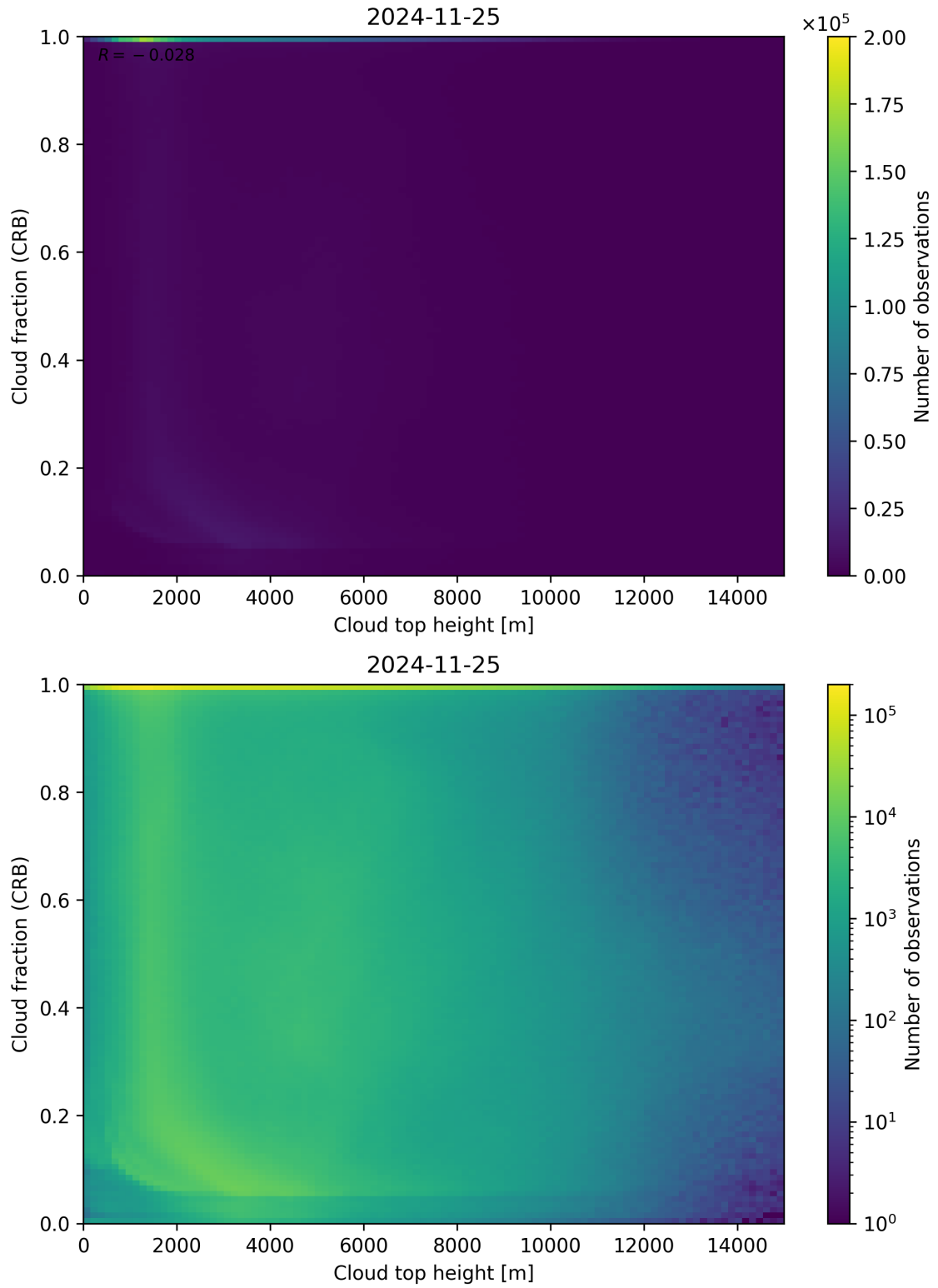


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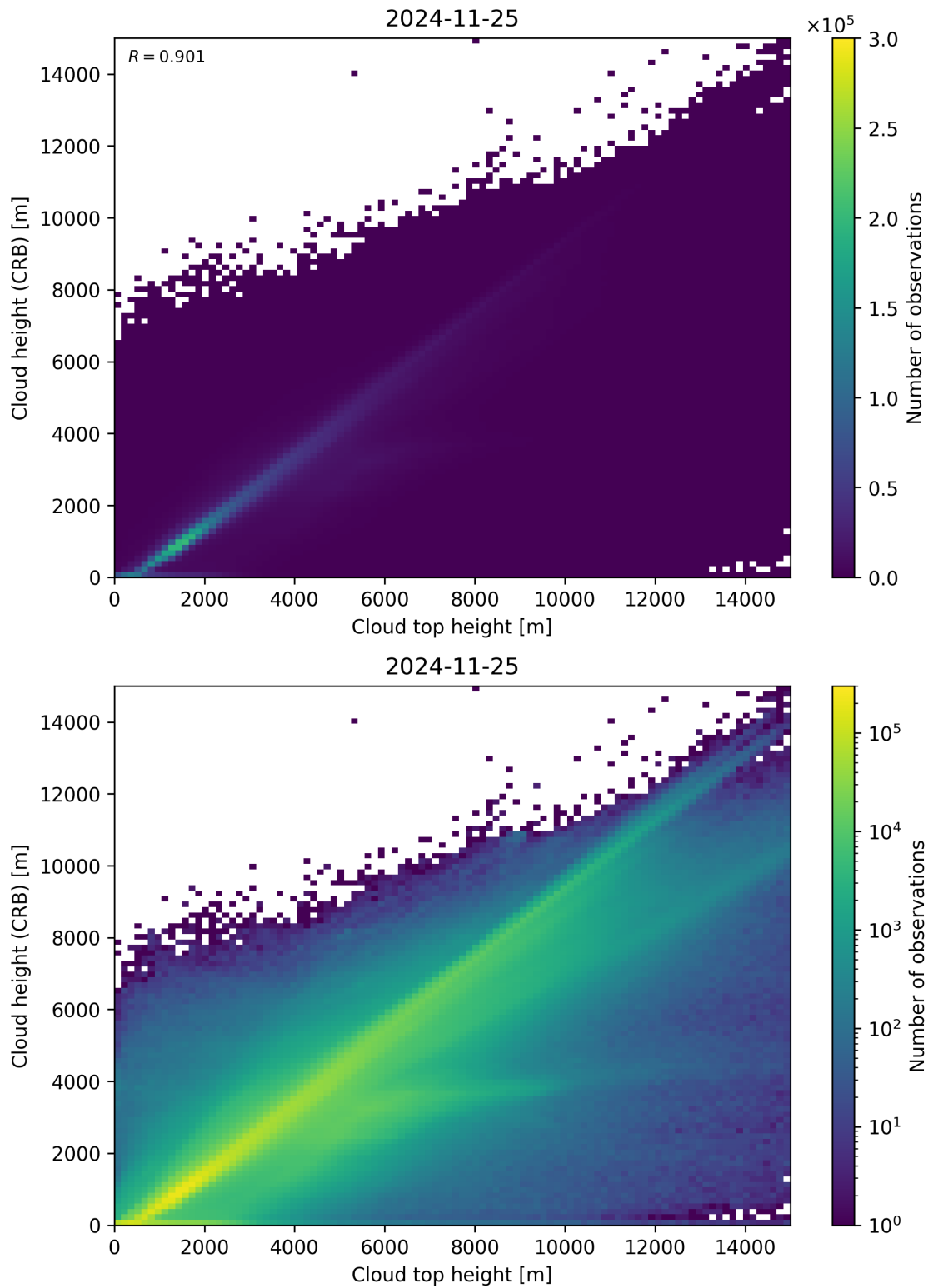


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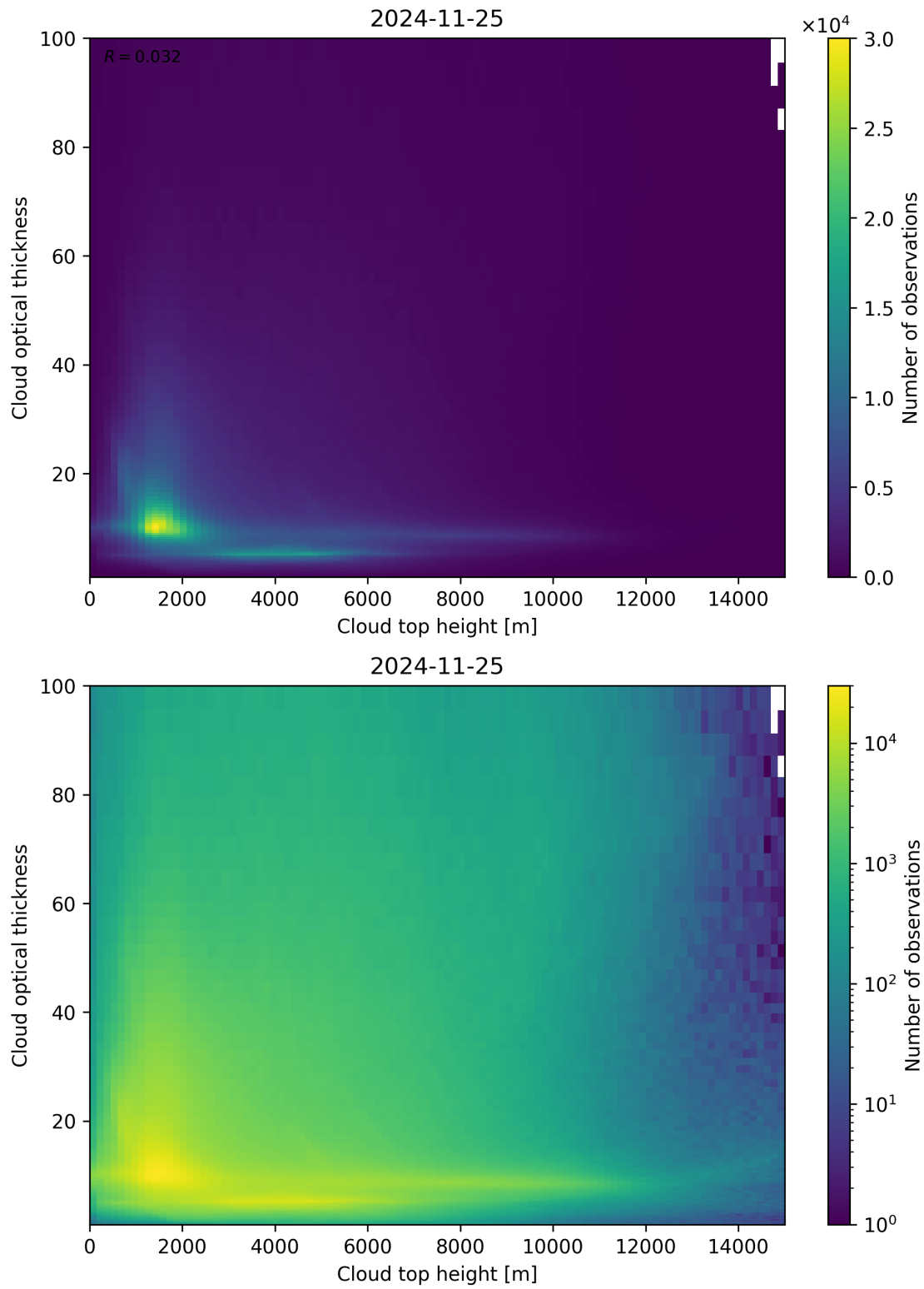


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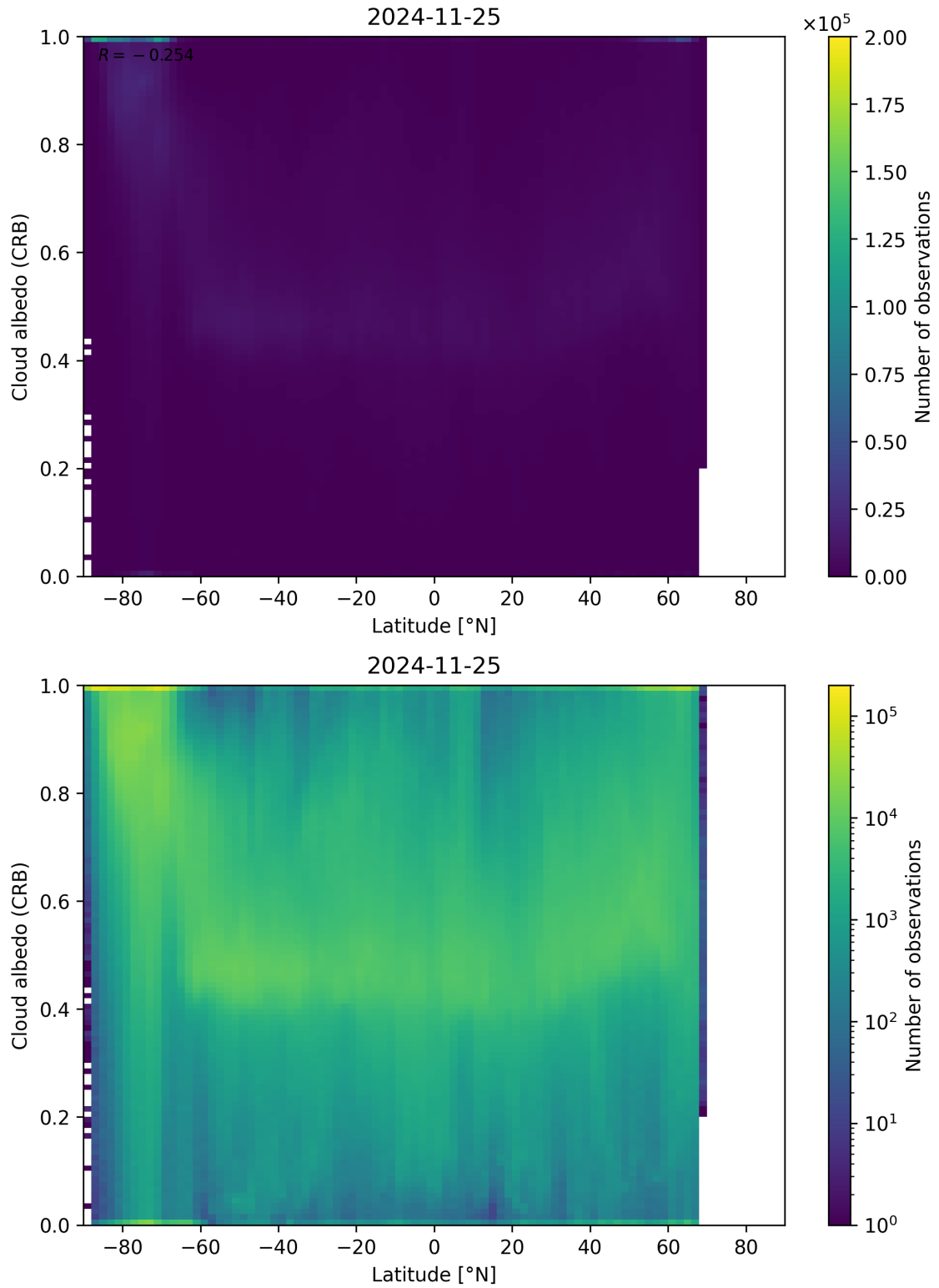


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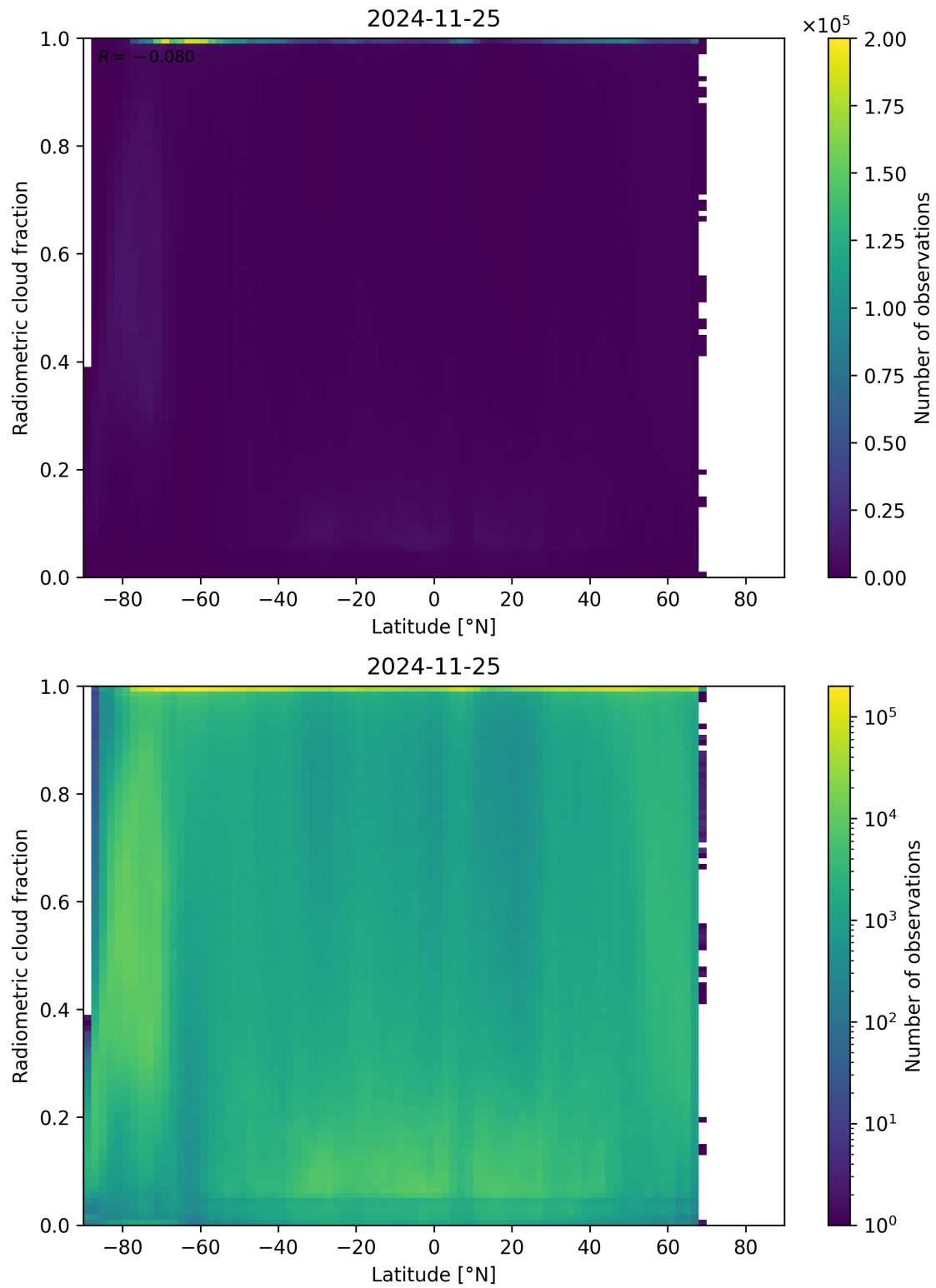


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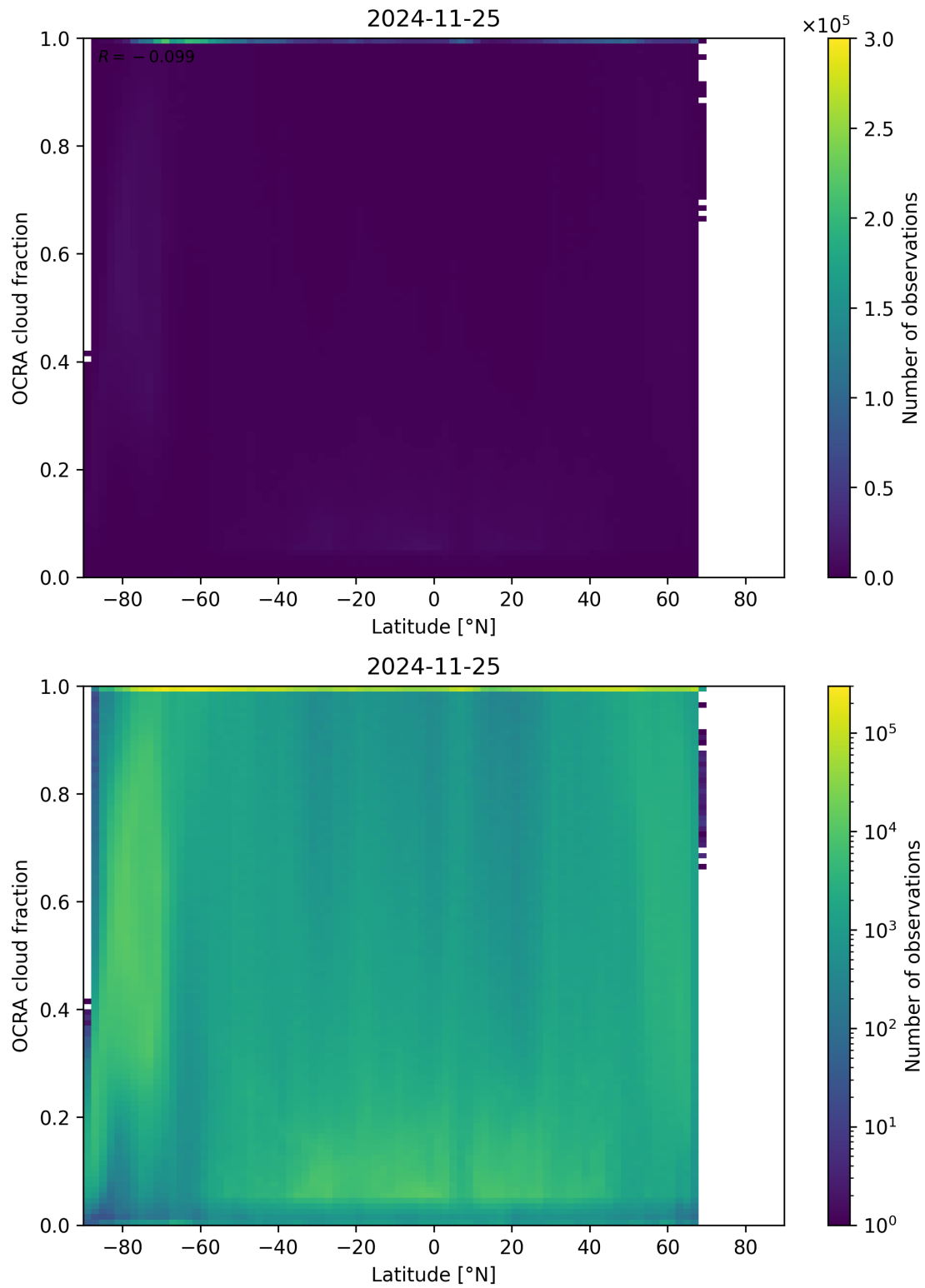


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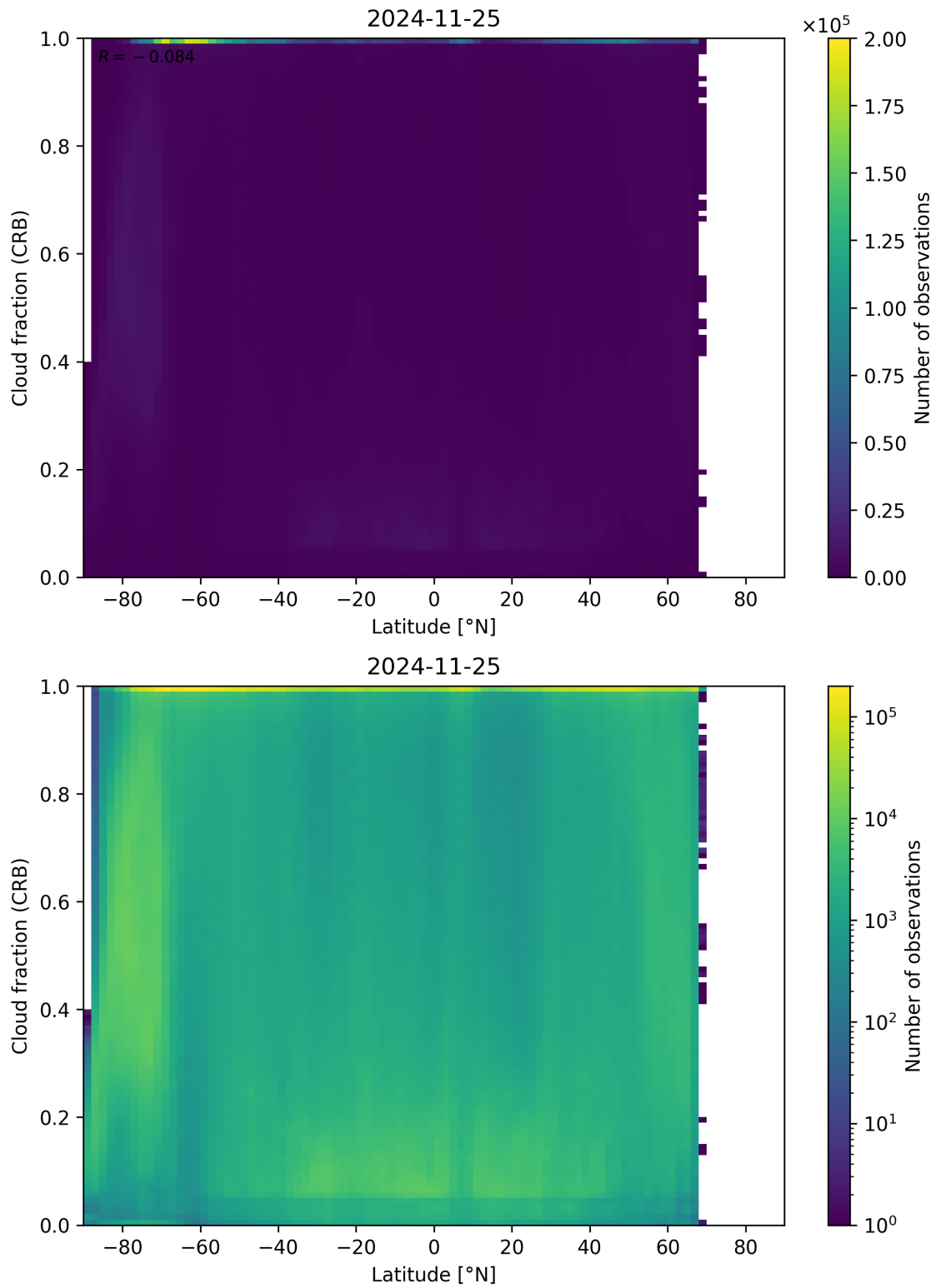


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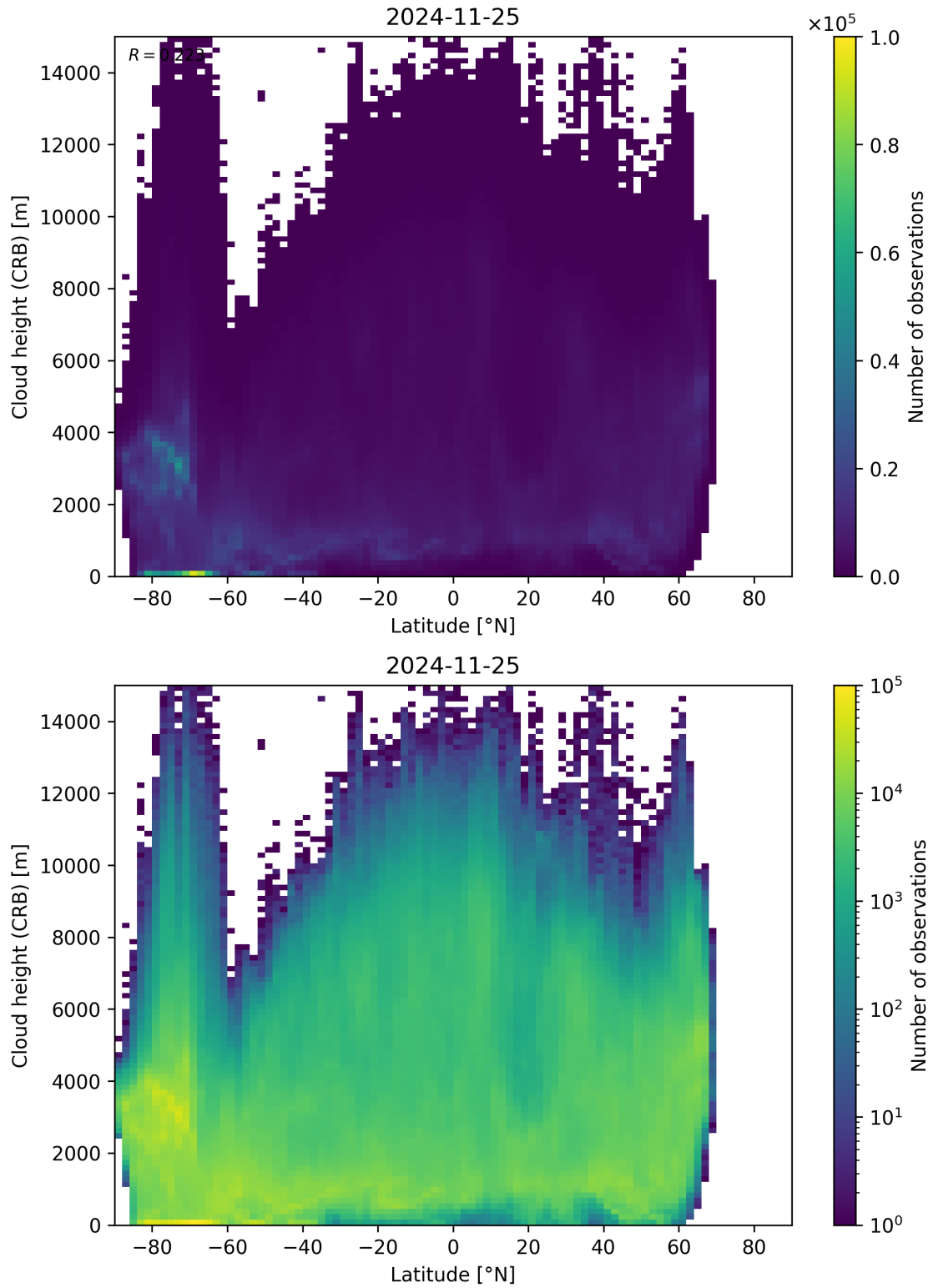


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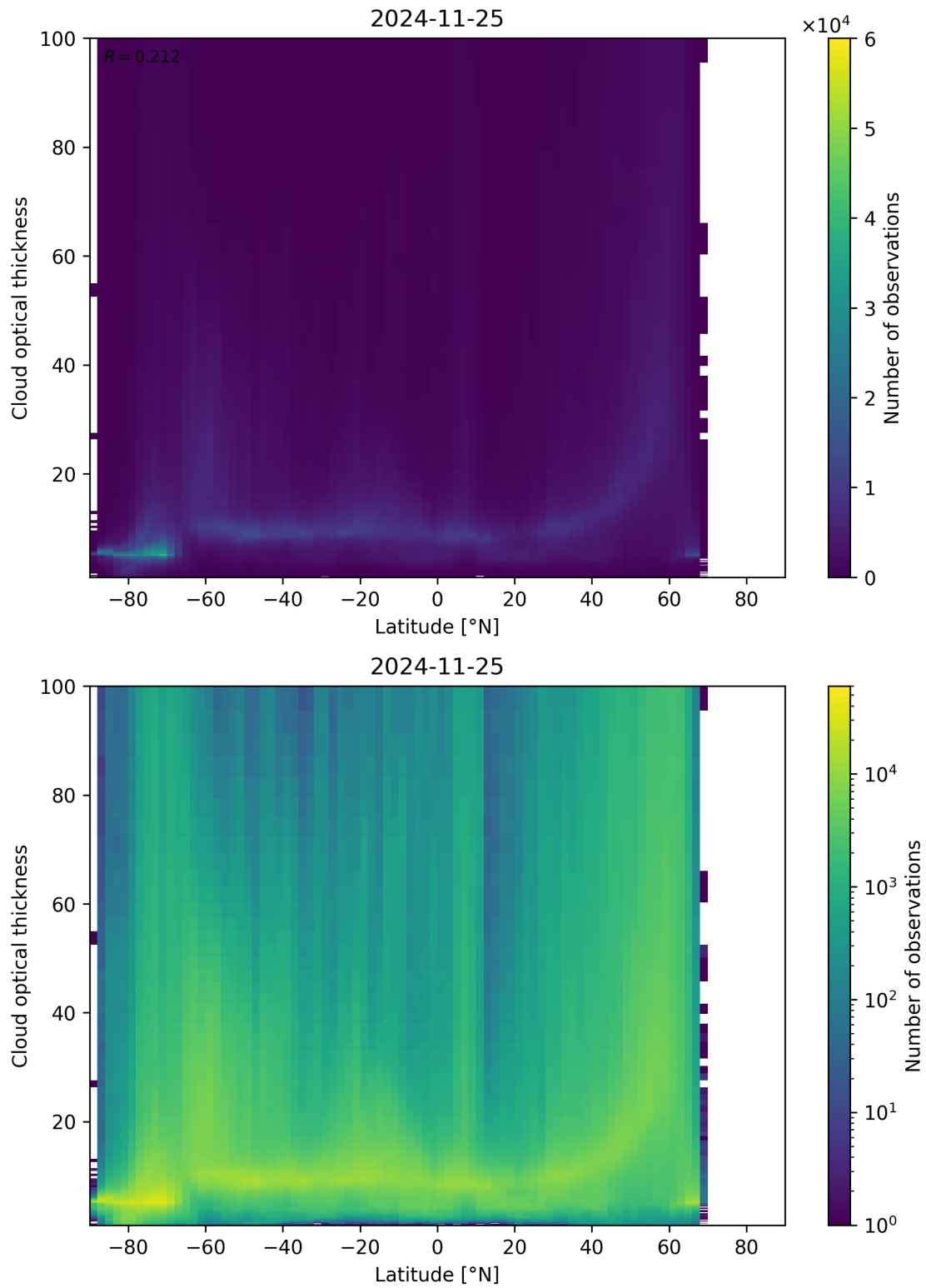


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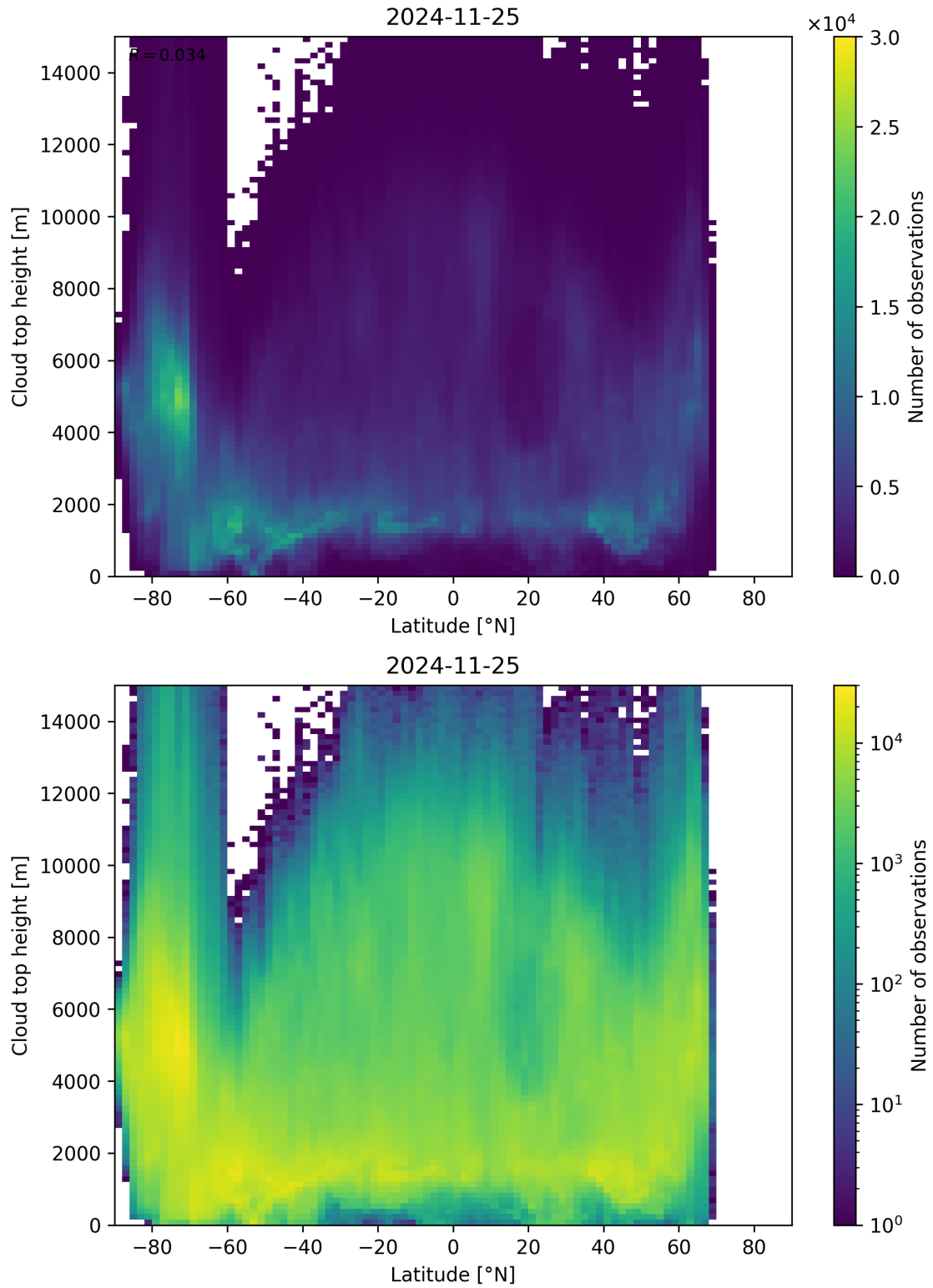


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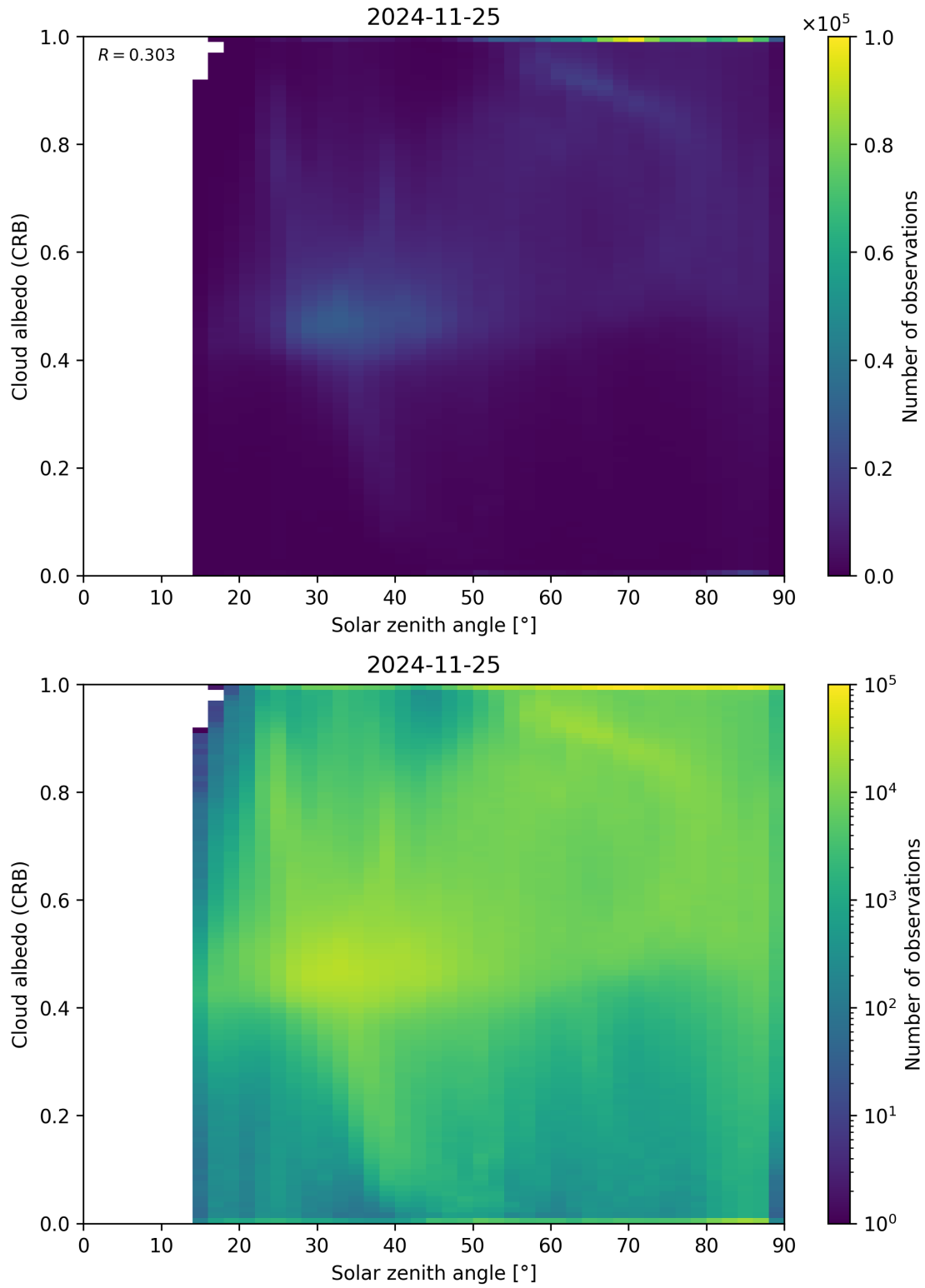


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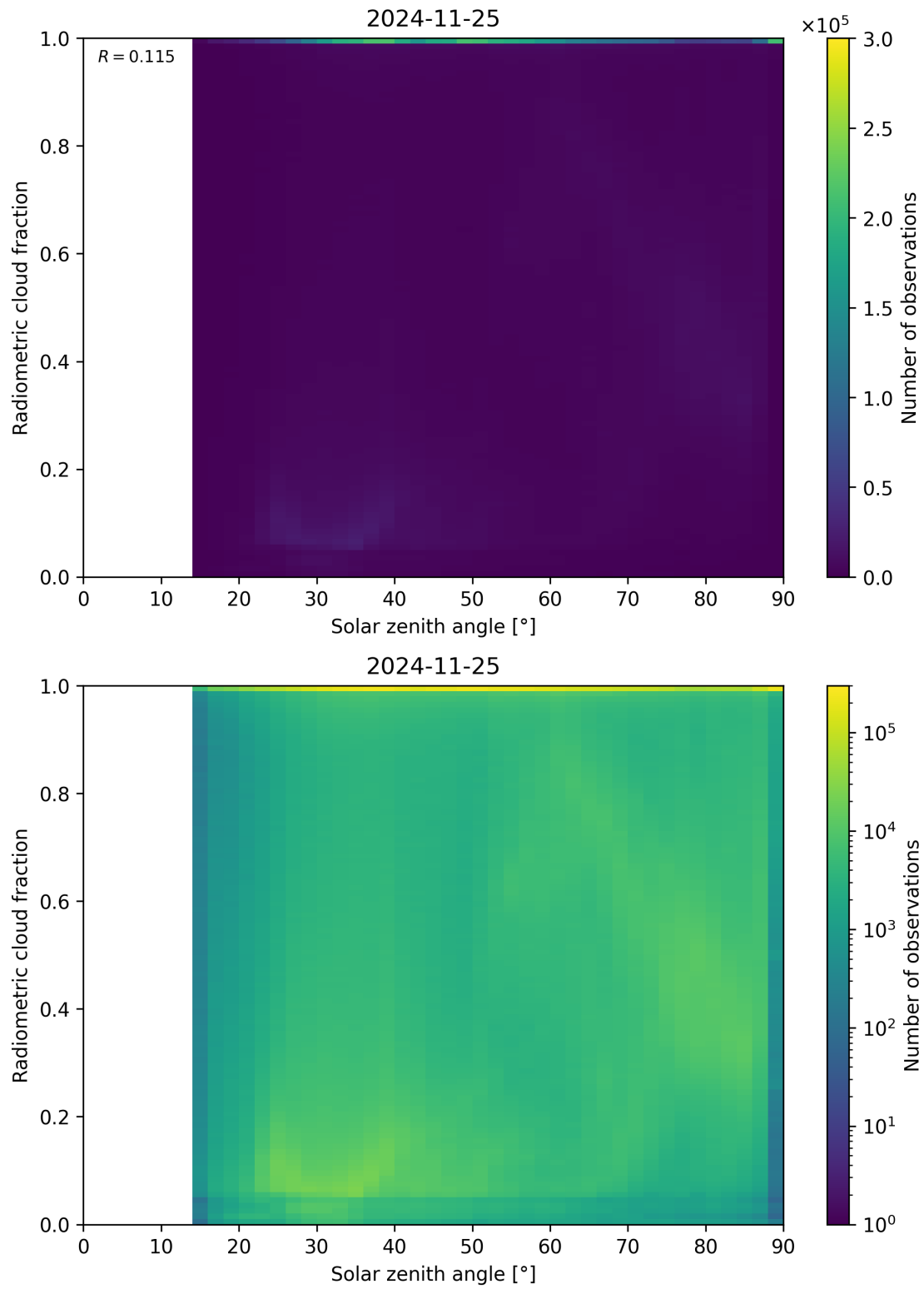


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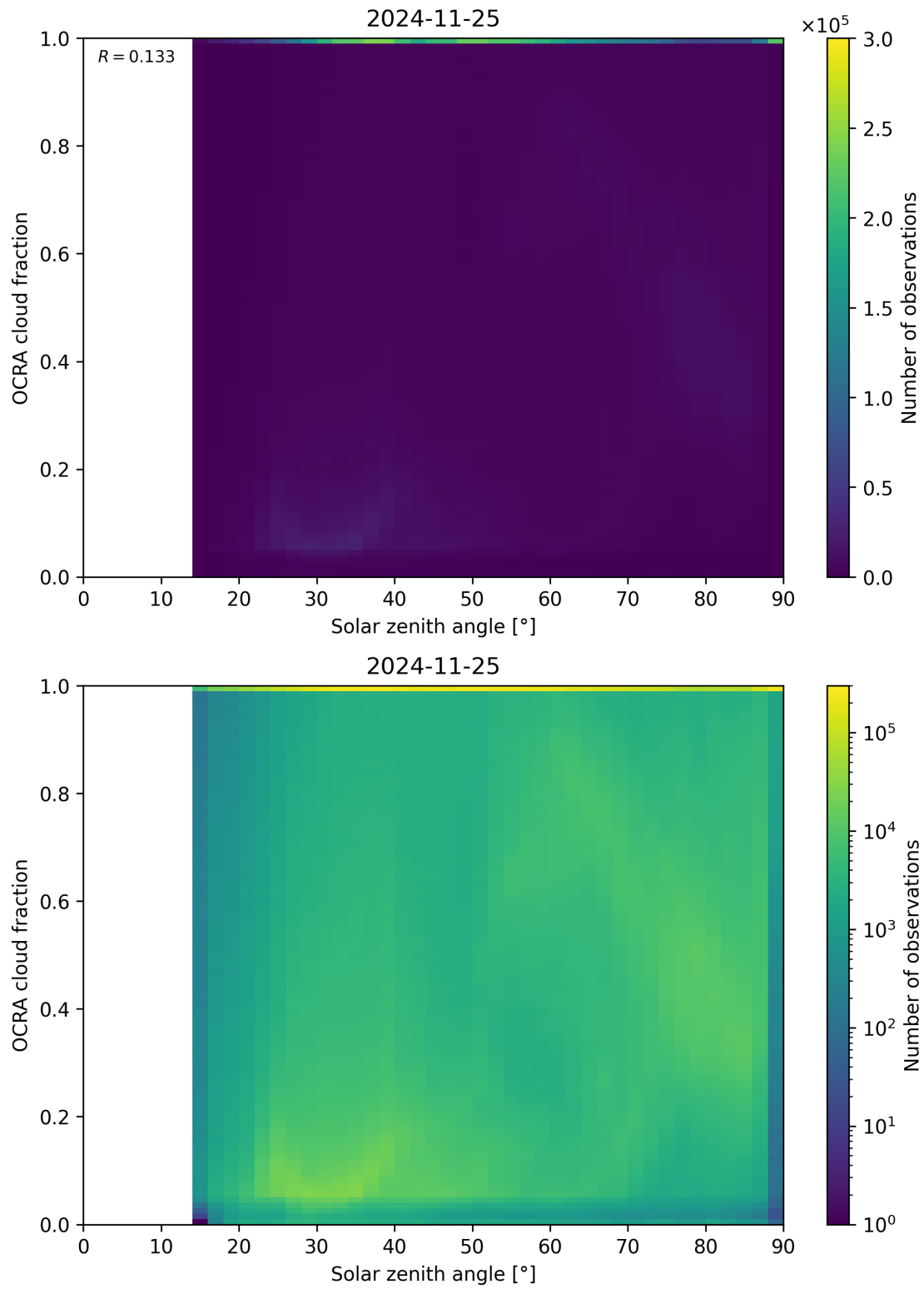


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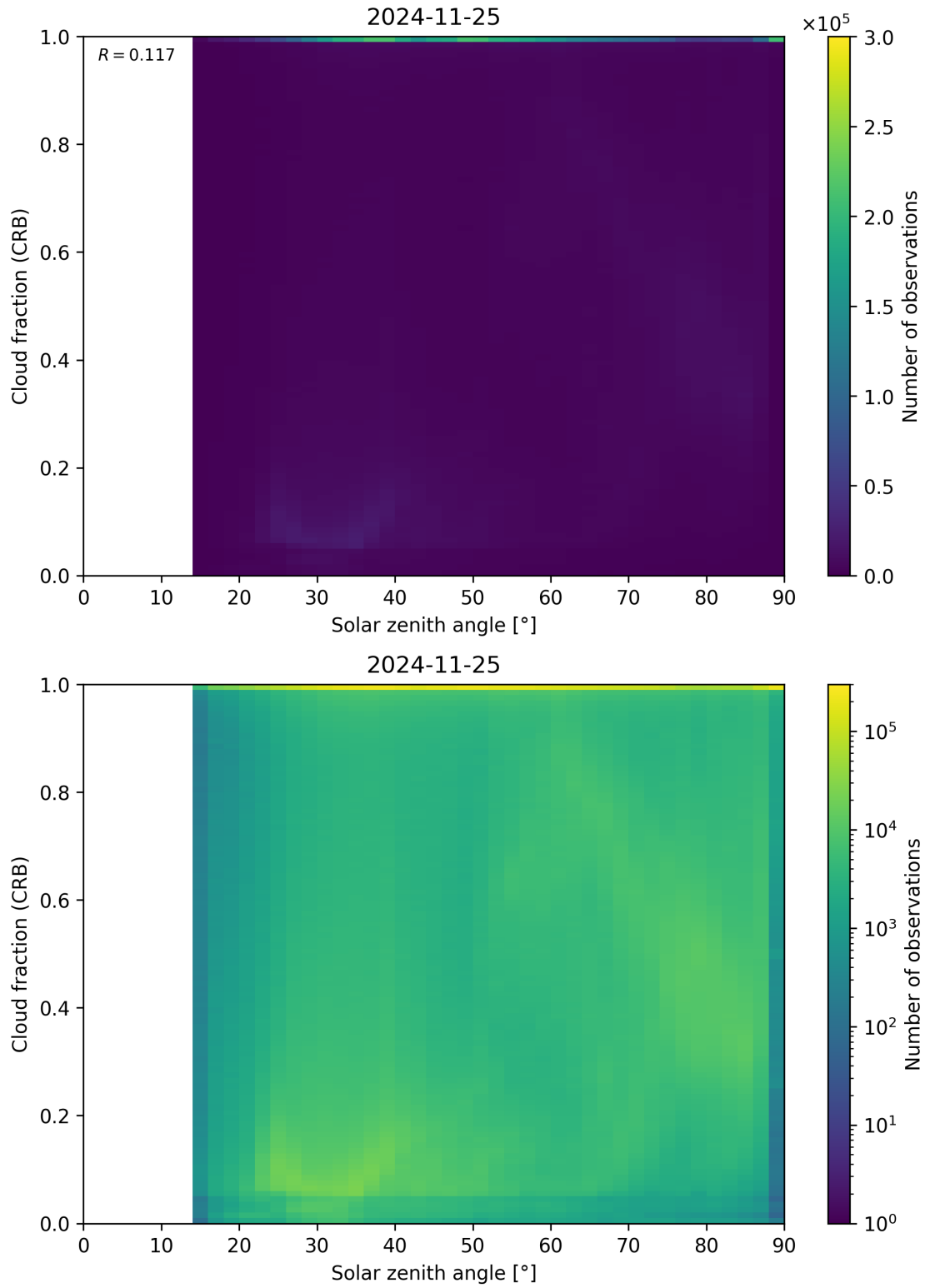


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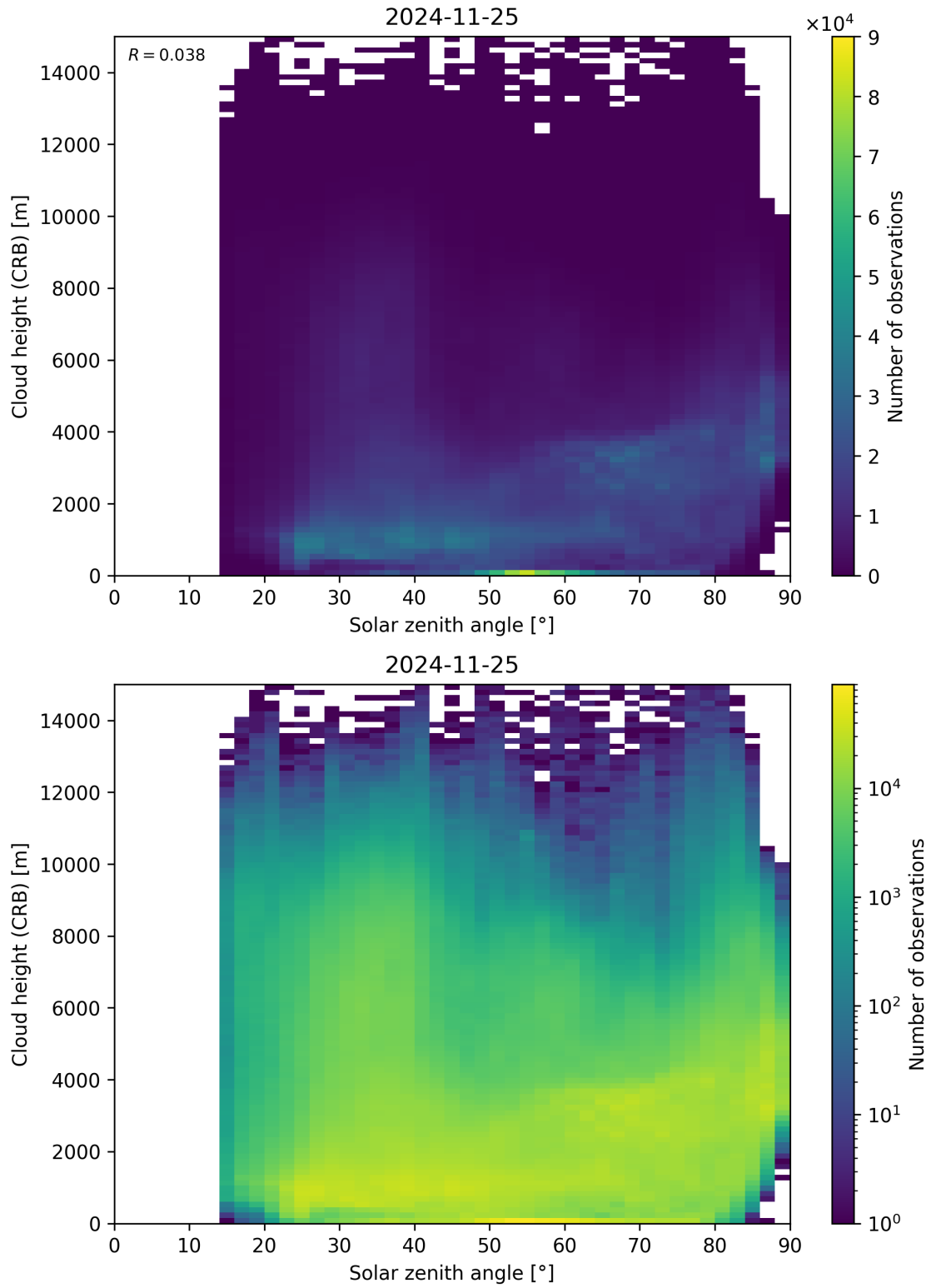


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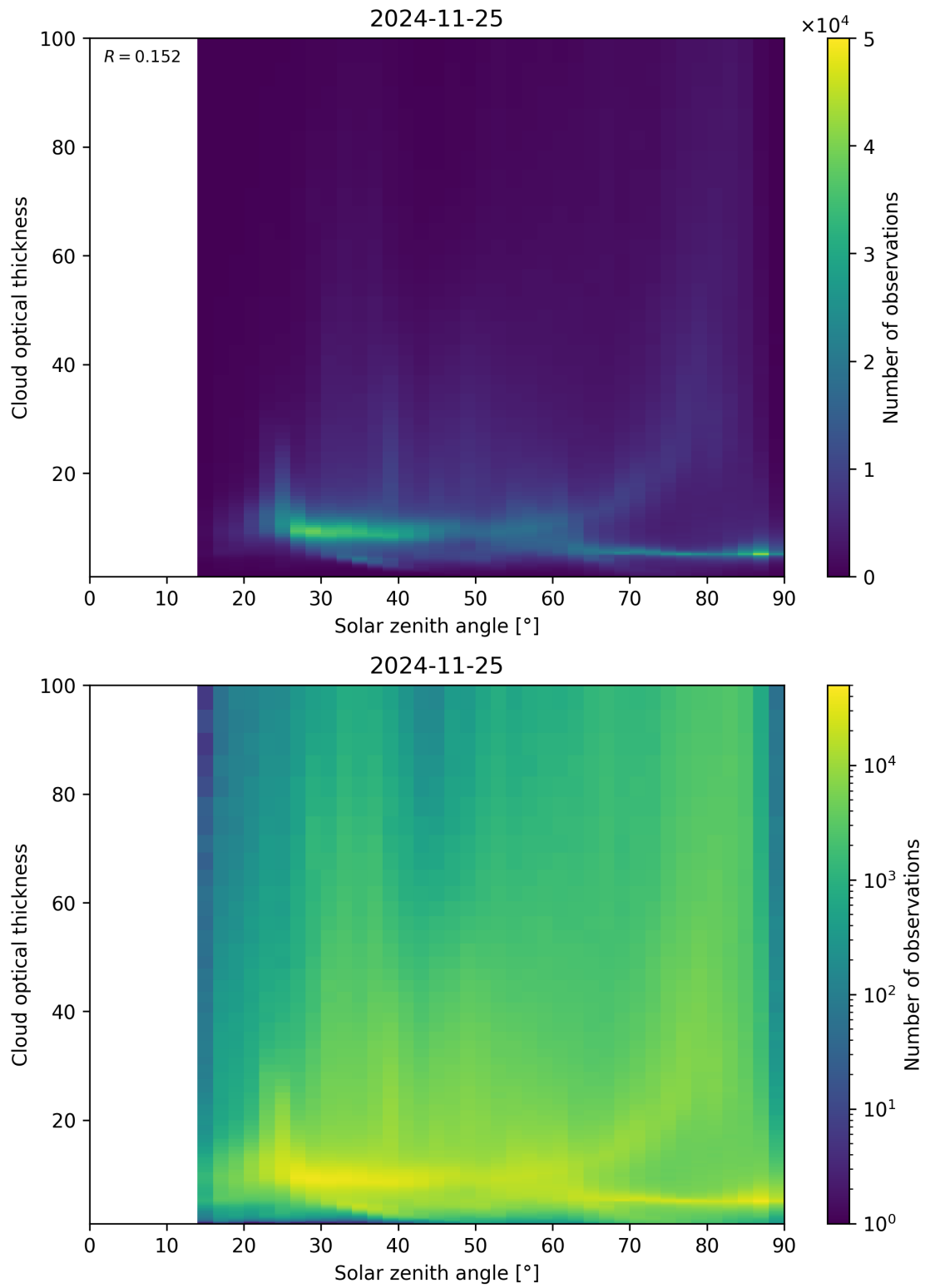


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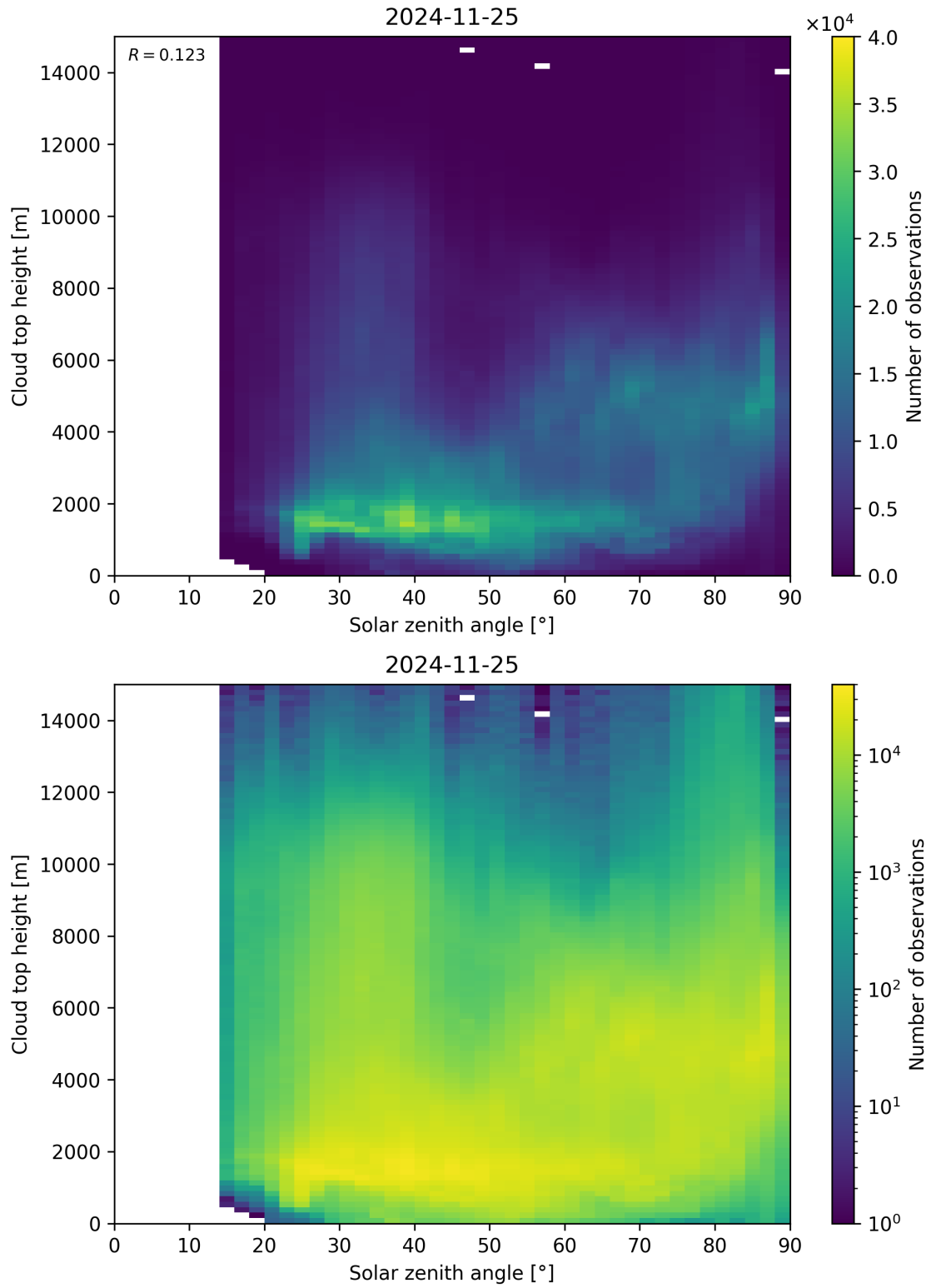


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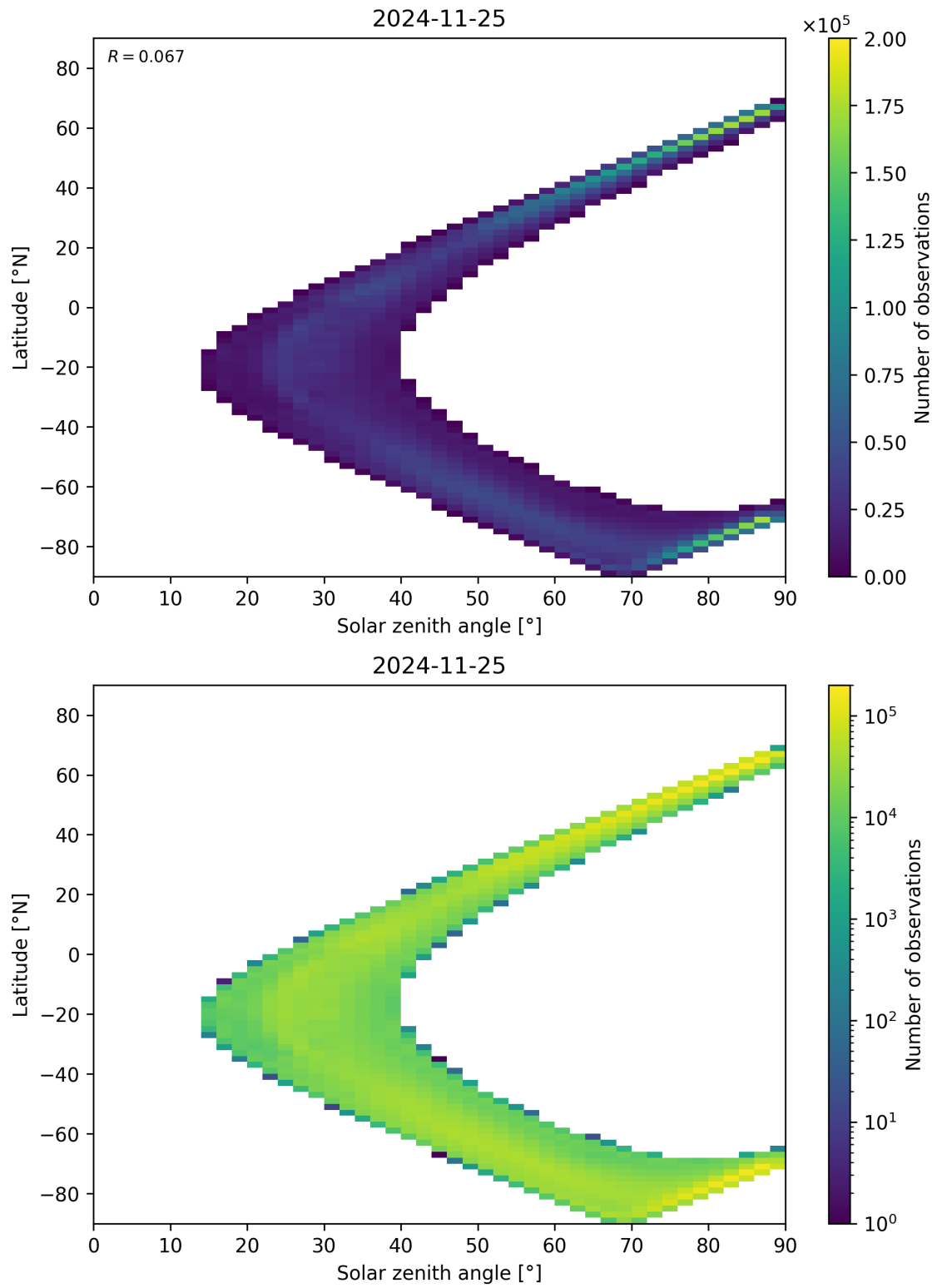


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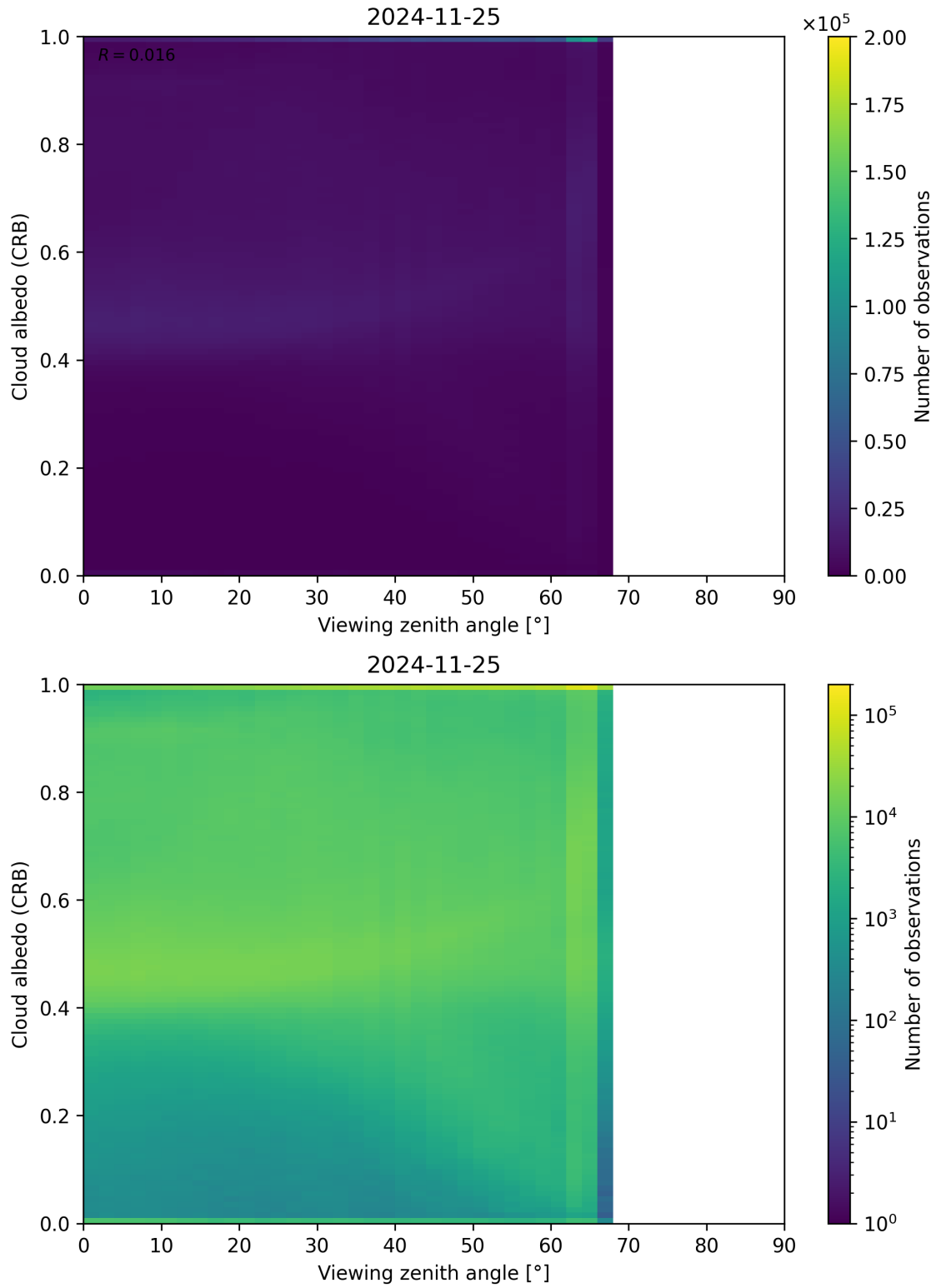


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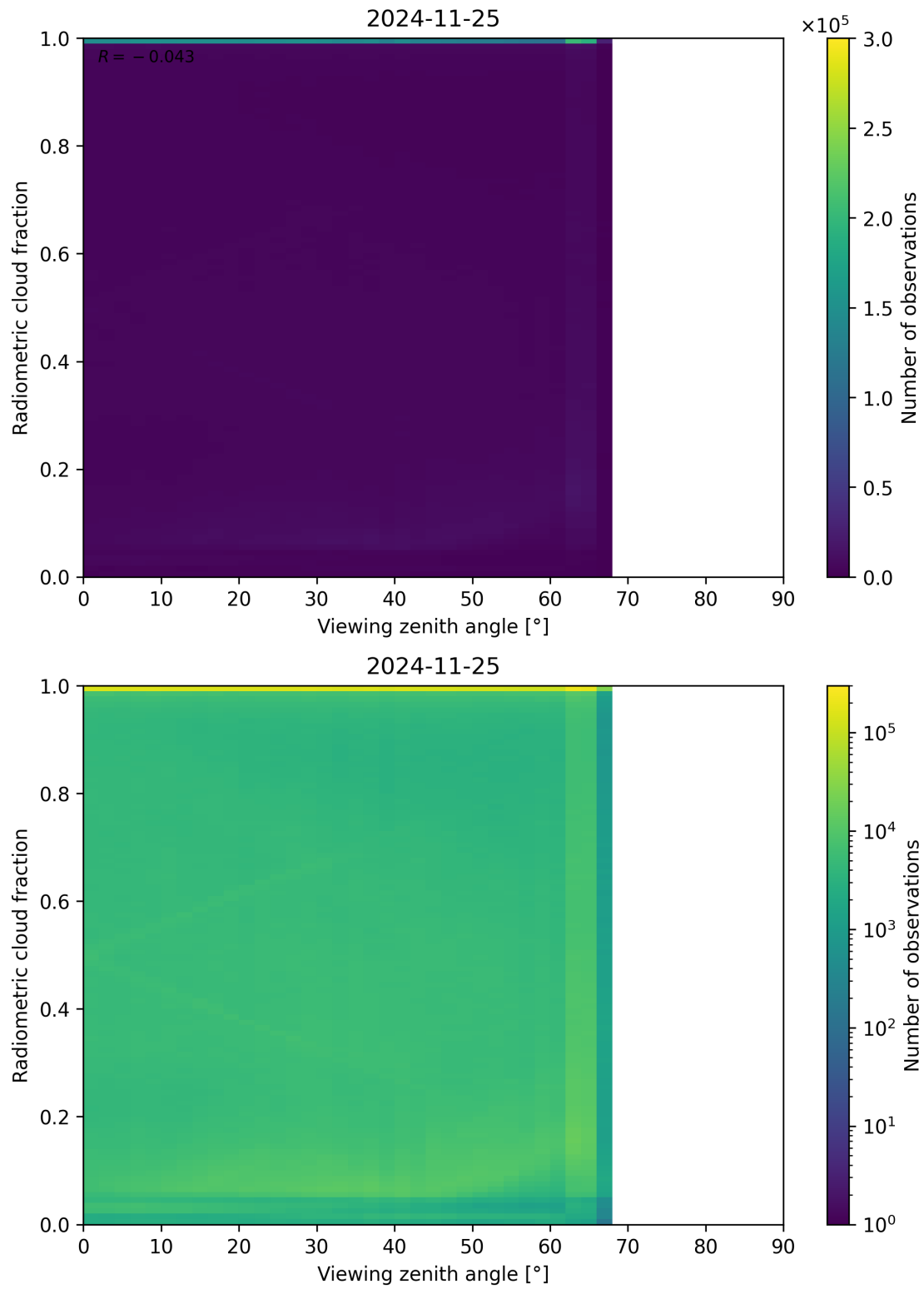


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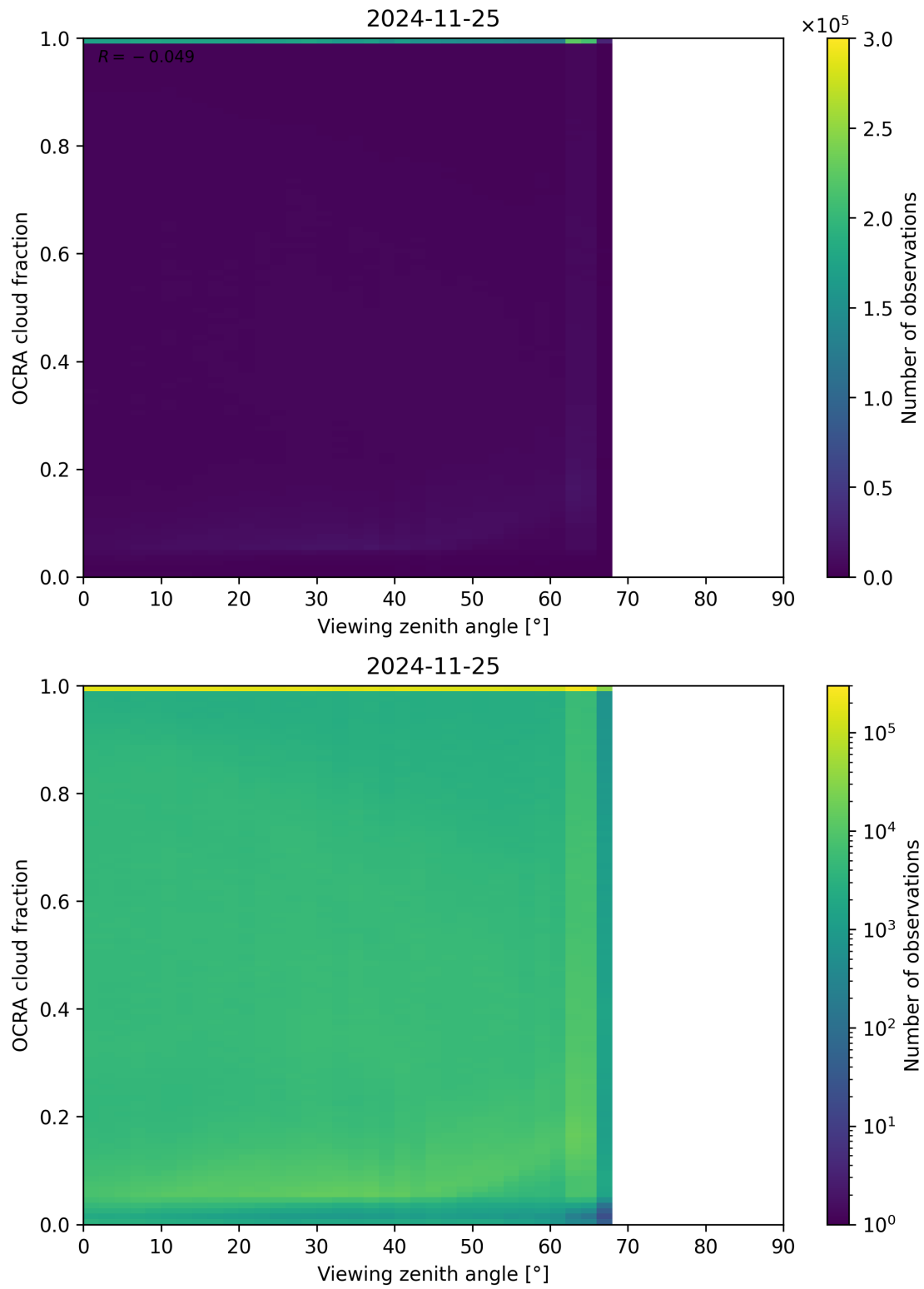


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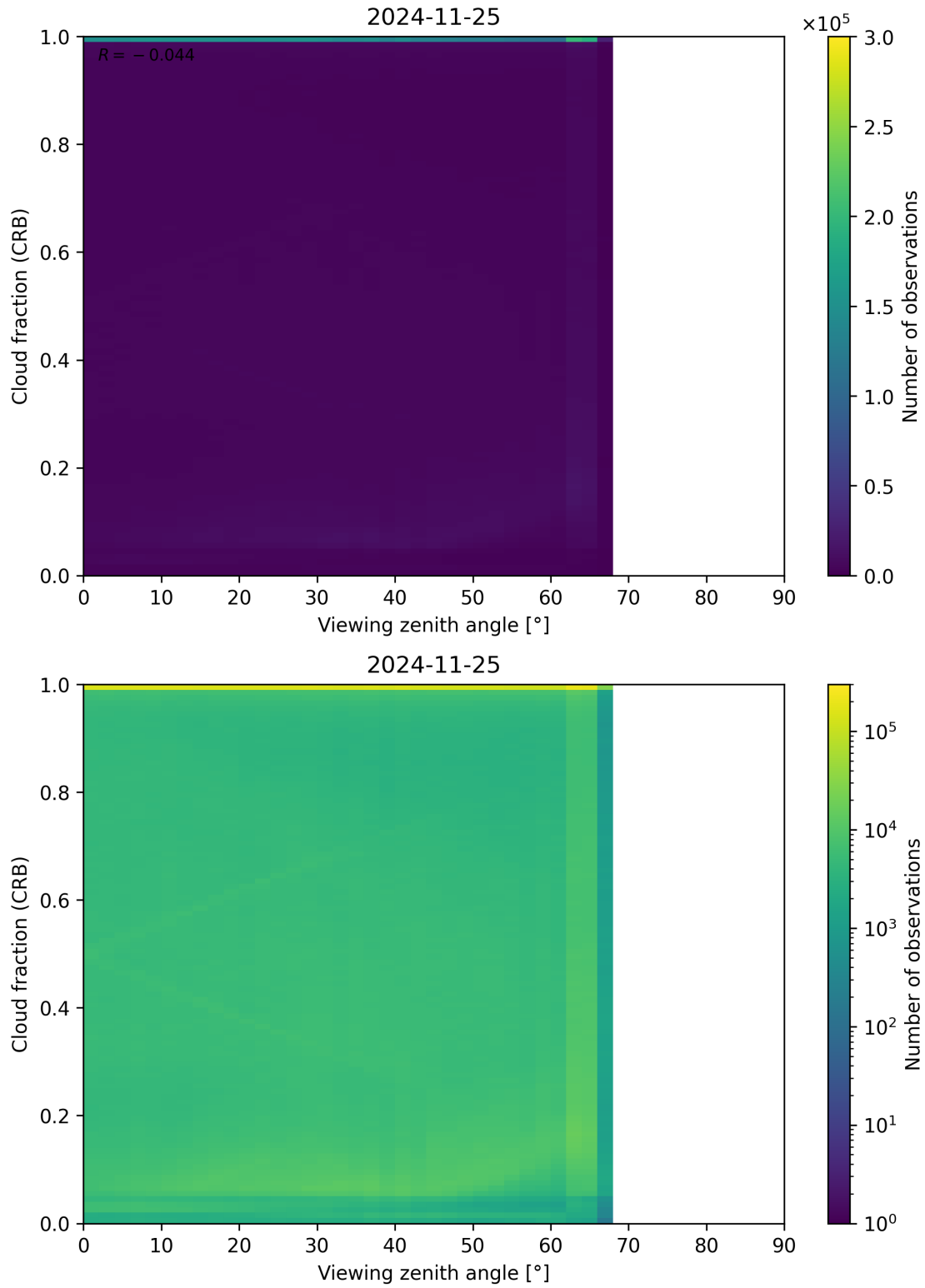


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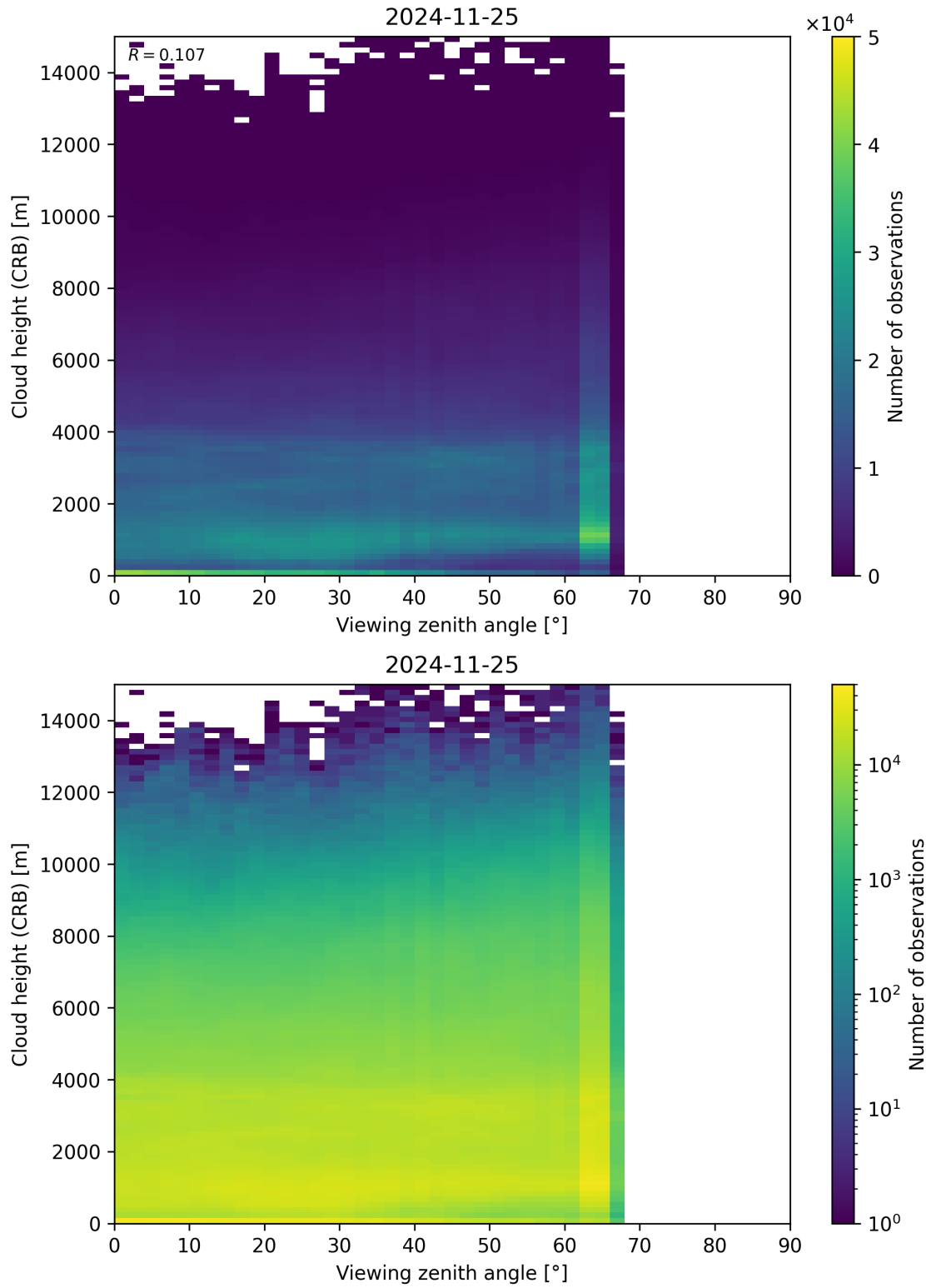


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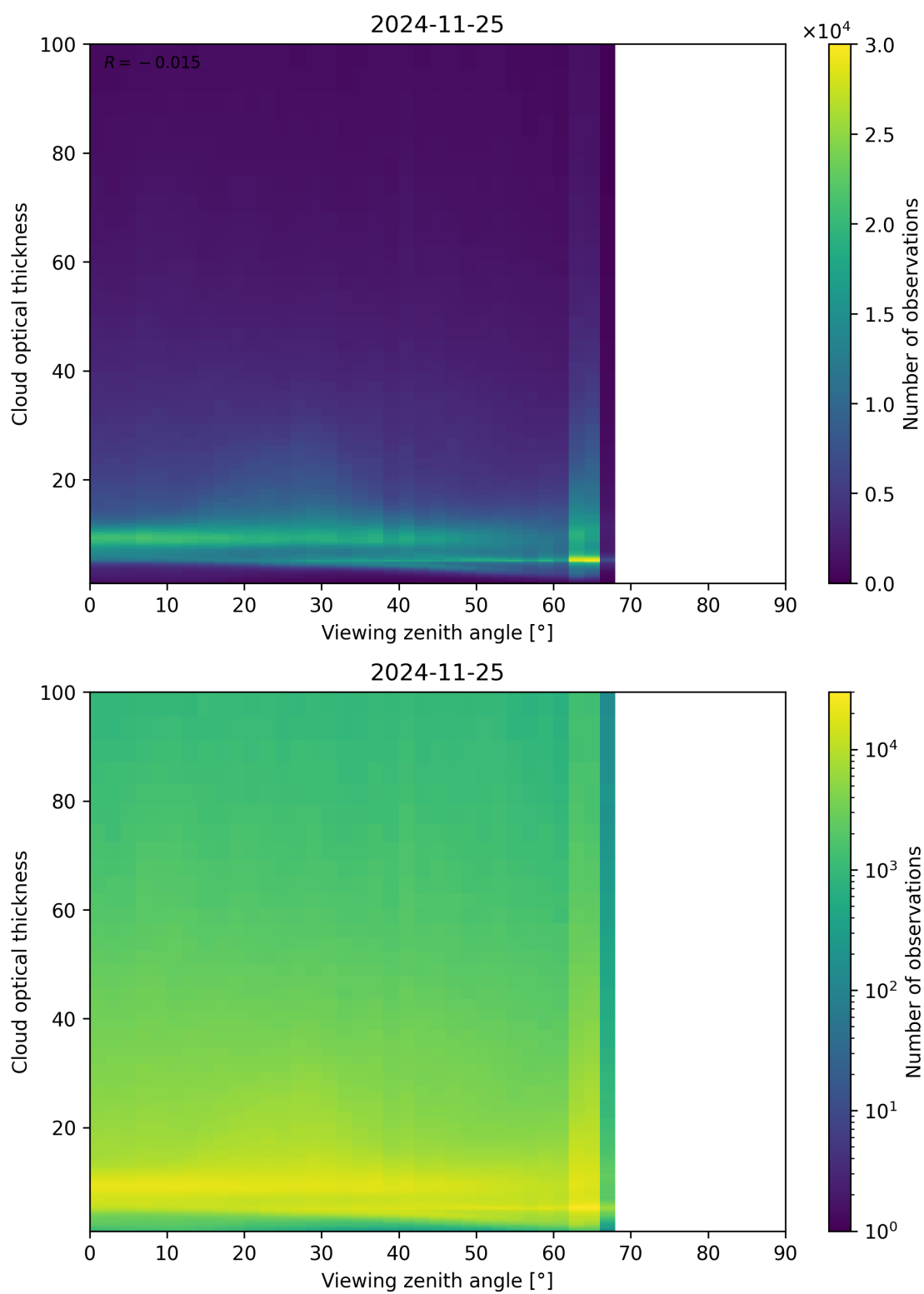


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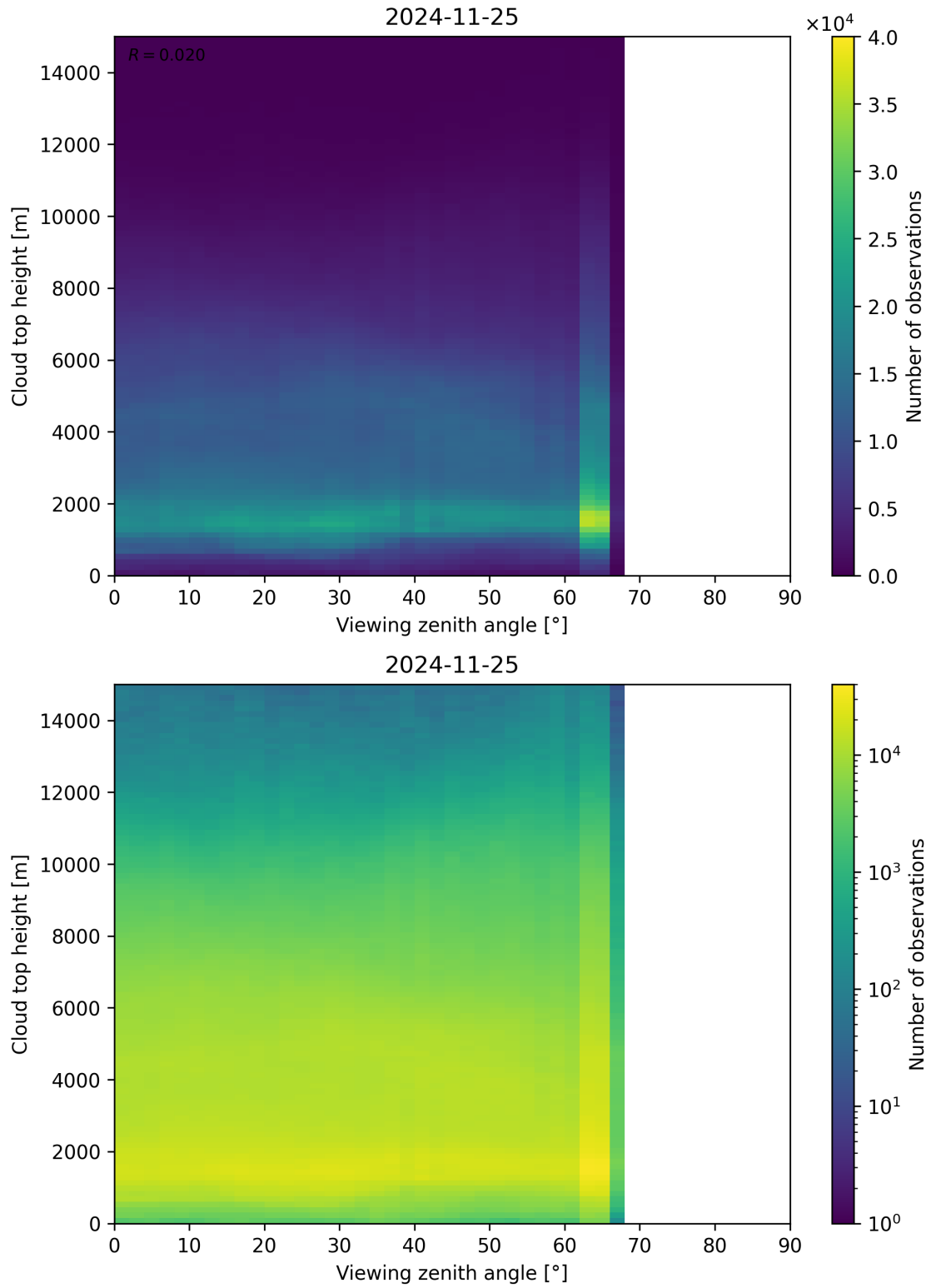


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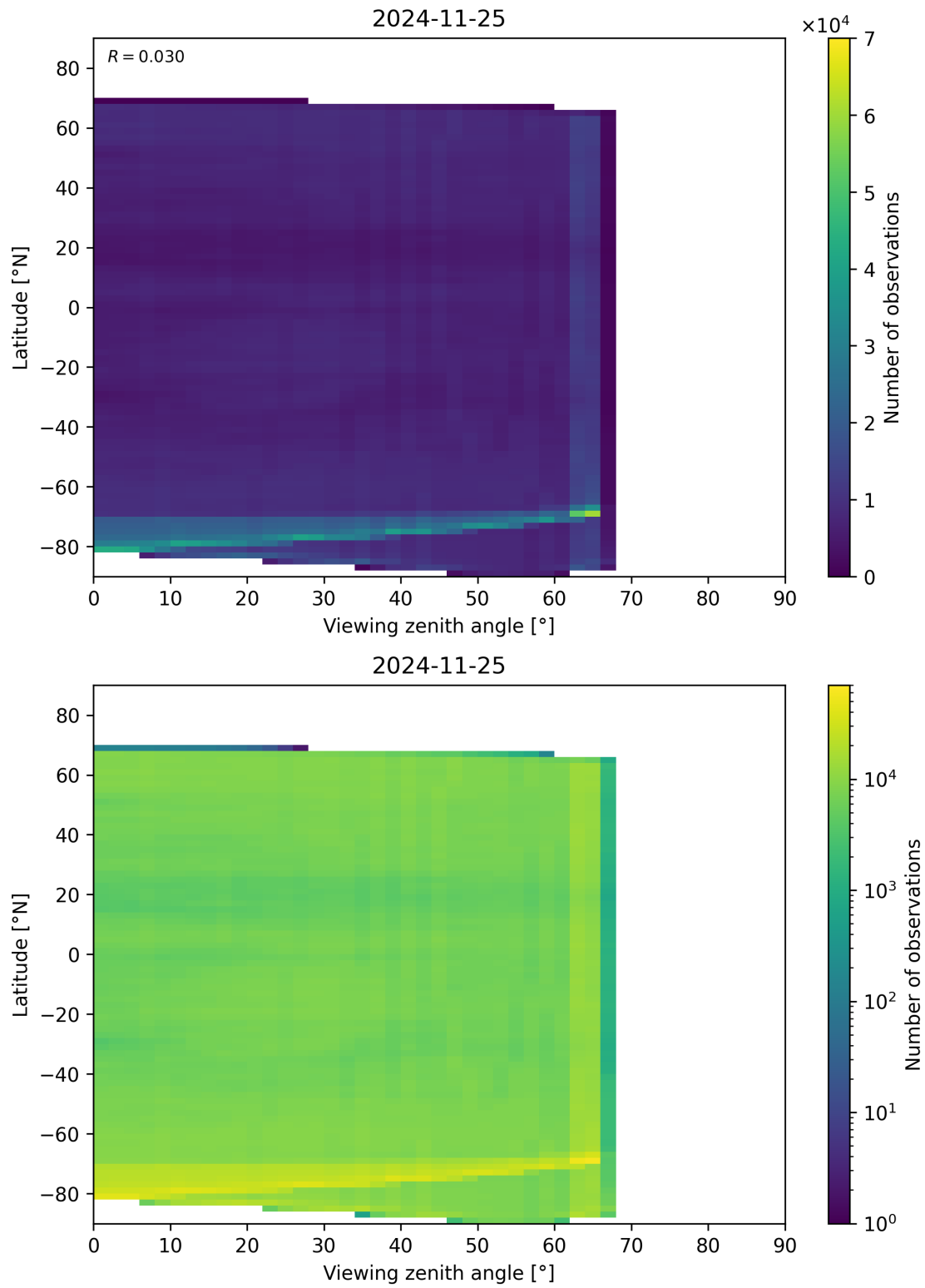


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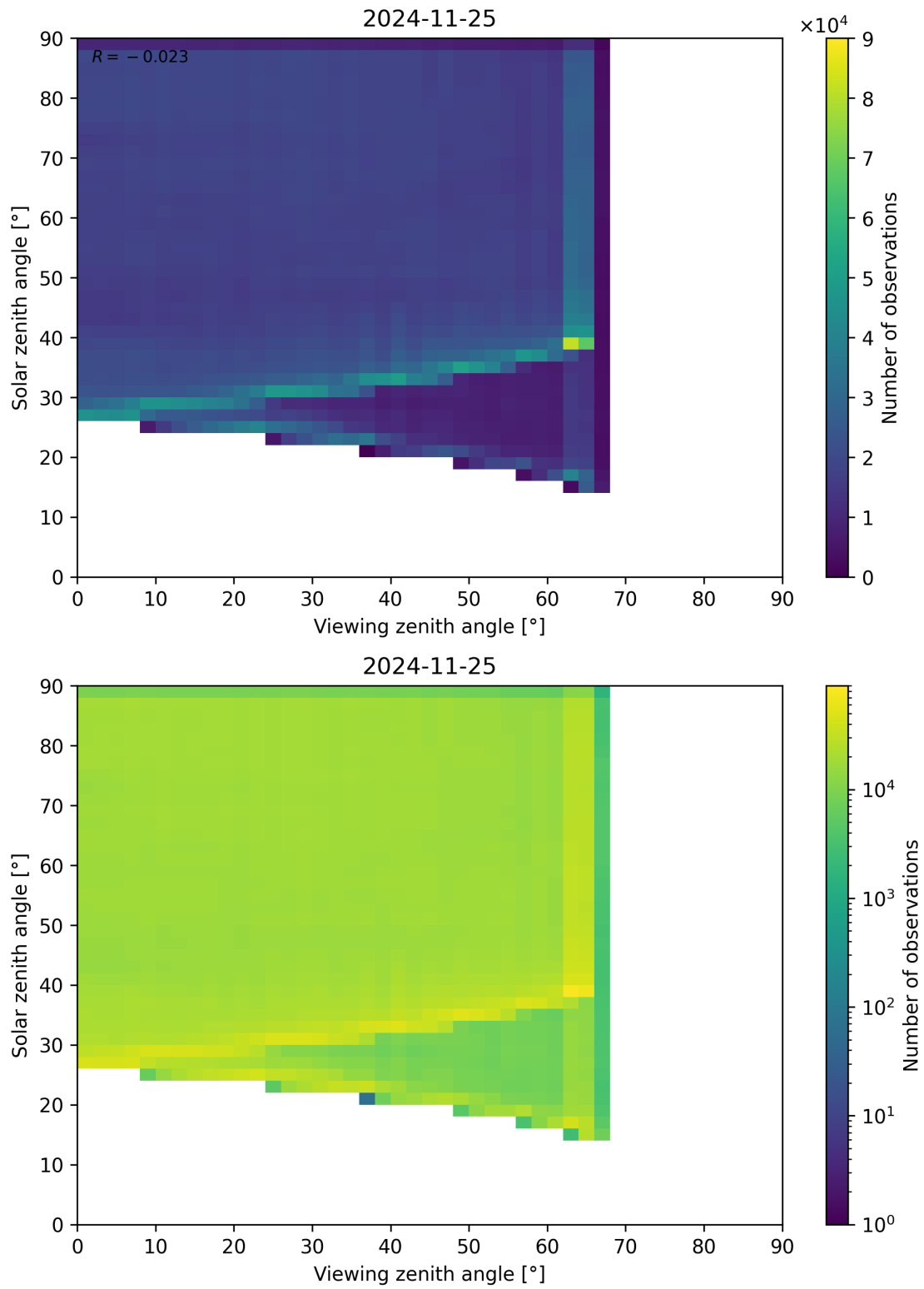


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