

PyCAMA report generated by tropl2-proc

tropl2-proc

2025-12-05 (03:15)

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 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]	0.609 ± 0.359	21376837	0.995	0.550	0.700	0.0	1.000
cloud fraction [1]	0.569 ± 0.336	21376837	0.995	0.689	0.560	0.0	1.000
cloud top height [m]	$(0.392 \pm 0.265) \times 10^4$	21376837	1.575×10^3	3.741×10^3	3.407×10^3	0.0	2.000×10^4
cloud optical thickness [1]	18.4 ± 34.5	21376837	9.34	10.2	8.87	1.000	250
cloud fraction crb [1]	0.569 ± 0.336	21376837	0.995	0.689	0.560	0.0	1.000
cloud height crb [m]	$(0.296 \pm 0.222) \times 10^4$	21376837	75.0	2.990×10^3	2.565×10^3	0.0	2.000×10^4
cloud albedo crb [1]	0.621 ± 0.221	21376837	0.995	0.316	0.606	0.0	1.000
surface albedo fitted [1]	0.286 ± 0.359	21376837	1.500×10^{-2}	0.579	5.205×10^{-2}	0.0	1.000
surface albedo fitted crb [1]	0.272 ± 0.345	21376837	1.500×10^{-2}	0.587	3.872×10^{-2}	0.0	1.000
fitted root mean square [1]	$(7.511 \pm 9.086) \times 10^{-4}$	21376837	5.000×10^{-5}	9.714×10^{-4}	4.441×10^{-4}	1.226×10^{-6}	0.168
fitted root mean square crb [1]	$(6.737 \pm 7.818) \times 10^{-4}$	21376837	5.000×10^{-5}	9.178×10^{-4}	3.511×10^{-4}	9.049×10^{-7}	0.100
wavelength shift [nm]	$(9.220 \pm 7.399) \times 10^{-3}$	21376837	9.000×10^{-4}	1.118×10^{-2}	8.874×10^{-3}	-4.754×10^{-2}	7.100×10^{-2}
cloud fraction apriori [1]	0.576 ± 0.340	21376837	0.995	0.730	0.572	0.0	1.000
reflectance blue ocra [1]	0.594 ± 0.239	21376837	0.265	0.427	0.575	0.131	2.08
reflectance green ocra [1]	0.545 ± 0.271	21376837	0.185	0.507	0.532	6.726×10^{-2}	2.13
reflectance continuum aband [1]	0.497 ± 0.300	21376837	4.500×10^{-2}	0.532	0.498	9.987×10^{-3}	5.65

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	1.000×10^{-2}	0.350	0.900	0.990	1.000	1.000	1.000
cloud fraction [1]	2.283×10^{-2}	7.078×10^{-2}	0.110	0.161	0.258	0.947	1.000	1.000	1.000	1.000
cloud top height [m]	159	682	1.045×10^3	1.355×10^3	1.783×10^3	5.525×10^3	6.618×10^3	7.639×10^3	8.935×10^3	1.138×10^4
cloud optical thickness [1]	1.000	2.24	3.36	4.28	5.27	15.5	24.0	35.8	62.9	250
cloud fraction crb [1]	2.255×10^{-2}	7.011×10^{-2}	0.110	0.161	0.258	0.946	1.000	1.000	1.000	1.000
cloud height crb [m]	0.0	143	497	809	1.194×10^3	4.184×10^3	5.176×10^3	6.163×10^3	7.390×10^3	9.322×10^3
cloud albedo crb [1]	4.276×10^{-2}	0.247	0.362	0.425	0.474	0.790	0.872	0.933	0.998	1.000
surface albedo fitted [1]	0.0	6.038×10^{-3}	1.149×10^{-2}	1.560×10^{-2}	2.150×10^{-2}	0.601	0.848	0.924	0.974	1.000
surface albedo fitted crb [1]	0.0	5.499×10^{-3}	8.711×10^{-3}	1.172×10^{-2}	1.627×10^{-2}	0.604	0.818	0.871	0.906	0.951
fitted root mean square [1]	1.435×10^{-5}	2.809×10^{-5}	4.658×10^{-5}	7.697×10^{-5}	1.369×10^{-4}	1.108×10^{-3}	1.536×10^{-3}	1.917×10^{-3}	2.402×10^{-3}	3.343×10^{-3}
fitted root mean square crb [1]	9.407×10^{-6}	2.026×10^{-5}	3.436×10^{-5}	5.463×10^{-5}	9.712×10^{-5}	1.015×10^{-3}	1.438×10^{-3}	1.819×10^{-3}	2.304×10^{-3}	3.217×10^{-3}
wavelength shift [nm]	-6.903×10^{-3}	-4.323×10^{-4}	5.098×10^{-4}	1.452×10^{-3}	3.345×10^{-3}	1.452×10^{-2}	1.687×10^{-2}	1.881×10^{-2}	2.133×10^{-2}	2.694×10^{-2}
cloud fraction apriori [1]	3.416×10^{-2}	6.864×10^{-2}	0.106	0.158	0.258	0.988	1.000	1.000	1.000	1.000
reflectance blue ocra [1]	0.233	0.260	0.287	0.320	0.378	0.805	0.868	0.907	0.945	1.10
reflectance green ocra [1]	0.153	0.175	0.197	0.225	0.285	0.791	0.861	0.905	0.945	1.07
reflectance continuum aband [1]	2.972×10^{-2}	5.392×10^{-2}	8.790×10^{-2}	0.134	0.226	0.759	0.832	0.881	0.934	1.08

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]	0.614 ± 0.378	8046327	0.650	0.800	0.0	1.000	0.300	0.950
cloud fraction [1]	0.542 ± 0.348	8046327	0.724	0.514	0.0	1.000	0.206	0.930
cloud top height [m]	$(0.419 \pm 0.254) \times 10^4$	8046327	3.784×10^3	3.696×10^3	0.0	2.000×10^4	2.074×10^3	5.858×10^3
cloud optical thickness [1]	25.6 ± 44.3	8046327	15.9	10.2	1.000	250	6.07	22.0
cloud fraction crb [1]	0.540 ± 0.348	8046327	0.723	0.510	0.0	1.000	0.205	0.928
cloud height crb [m]	$(0.354 \pm 0.223) \times 10^4$	8046327	3.302×10^3	3.136×10^3	0.0	1.895×10^4	1.657×10^3	4.959×10^3
cloud albedo crb [1]	0.583 ± 0.201	8046327	0.249	0.572	0.0	1.000	0.461	0.710
surface albedo fitted [1]	0.129 ± 0.167	8046327	0.163	4.343×10^{-2}	0.0	1.000	2.233×10^{-2}	0.186
surface albedo fitted crb [1]	0.121 ± 0.167	8046327	0.158	3.216×10^{-2}	0.0	1.000	1.667×10^{-2}	0.174
fitted root mean square [1]	$(3.919 \pm 5.449) \times 10^{-4}$	8046327	4.054×10^{-4}	2.088×10^{-4}	1.226×10^{-6}	0.168	8.076×10^{-5}	4.862×10^{-4}
fitted root mean square crb [1]	$(3.422 \pm 4.954) \times 10^{-4}$	8046327	3.656×10^{-4}	1.467×10^{-4}	1.054×10^{-6}	2.225×10^{-2}	5.263×10^{-5}	4.182×10^{-4}
wavelength shift [nm]	$(6.741 \pm 6.884) \times 10^{-3}$	8046327	9.318×10^{-3}	5.575×10^{-3}	-4.343×10^{-2}	6.251×10^{-2}	1.607×10^{-3}	1.093×10^{-2}
cloud fraction apriori [1]	0.542 ± 0.353	8046327	0.758	0.509	0.0	1.000	0.199	0.957
reflectance blue ocr [1]	0.524 ± 0.205	8046327	0.304	0.493	0.135	2.05	0.356	0.659
reflectance green ocr [1]	0.461 ± 0.231	8046327	0.368	0.424	7.859×10^{-2}	2.13	0.259	0.627
reflectance continuum aband [1]	0.408 ± 0.269	8046327	0.413	0.376	1.224×10^{-2}	5.13	0.183	0.596

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]	0.606 ± 0.347	13330510	0.500	0.700	0.0	1.000	0.400	0.900
cloud fraction [1]	0.586 ± 0.328	13330510	0.661	0.582	0.0	1.000	0.296	0.957
cloud top height [m]	$(0.376 \pm 0.270) \times 10^4$	13330510	3.712×10^3	3.211×10^3	0.0	2.000×10^4	1.619×10^3	5.332×10^3
cloud optical thickness [1]	14.1 ± 25.9	13330510	8.01	8.23	1.000	250	5.00	13.0
cloud fraction crb [1]	0.586 ± 0.328	13330510	0.662	0.584	0.0	1.000	0.296	0.957
cloud height crb [m]	$(0.261 \pm 0.214) \times 10^4$	13330510	2.750×10^3	2.238×10^3	0.0	2.000×10^4	930	3.679×10^3
cloud albedo crb [1]	0.644 ± 0.229	13330510	0.350	0.640	0.0	1.000	0.482	0.832
surface albedo fitted [1]	0.380 ± 0.407	13330510	0.831	7.285×10^{-2}	0.0	1.000	2.096×10^{-2}	0.852
surface albedo fitted crb [1]	0.363 ± 0.390	13330510	0.804	5.177×10^{-2}	0.0	1.000	1.597×10^{-2}	0.820
fitted root mean square [1]	$(9.679 \pm 10.099) \times 10^{-4}$	13330510	1.217×10^{-3}	7.286×10^{-4}	1.951×10^{-6}	0.106	2.408×10^{-4}	1.458×10^{-3}
fitted root mean square crb [1]	$(8.739 \pm 8.519) \times 10^{-4}$	13330510	1.180×10^{-3}	6.183×10^{-4}	9.049×10^{-7}	0.100	1.735×10^{-4}	1.354×10^{-3}
wavelength shift [nm]	$(1.072 \pm 0.730) \times 10^{-2}$	13330510	1.063×10^{-2}	1.103×10^{-2}	-4.754×10^{-2}	7.100×10^{-2}	5.265×10^{-3}	1.590×10^{-2}
cloud fraction apriori [1]	0.597 ± 0.331	13330510	0.696	0.601	0.0	1.000	0.304	1.000
reflectance blue ocra [1]	0.637 ± 0.248	13330510	0.453	0.674	0.131	2.08	0.400	0.853
reflectance green ocra [1]	0.596 ± 0.280	13330510	0.533	0.648	6.726×10^{-2}	2.05	0.313	0.846
reflectance continuum aband [1]	0.550 ± 0.305	13330510	0.540	0.608	9.987×10^{-3}	5.65	0.272	0.812

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]	0.690 ± 0.328	13590551	0.550	0.850	0.0	1.000	0.400	0.950
cloud fraction [1]	0.588 ± 0.356	13590551	0.768	0.611	0.0	1.000	0.230	0.998
cloud top height [m]	$(0.343 \pm 0.254) \times 10^4$	13590551	3.273×10^3	2.651×10^3	0.0	2.000×10^4	1.518×10^3	4.791×10^3
cloud optical thickness [1]	16.9 ± 25.8	13590551	9.82	9.93	1.000	250	6.55	16.4
cloud fraction crb [1]	0.587 ± 0.356	13590551	0.770	0.610	0.0	1.000	0.228	0.998
cloud height crb [m]	$(0.272 \pm 0.230) \times 10^4$	13590551	2.989×10^3	2.025×10^3	0.0	2.000×10^4	973	3.962×10^3
cloud albedo crb [1]	0.567 ± 0.187	13590551	0.242	0.549	0.0	1.000	0.456	0.697
surface albedo fitted [1]	0.116 ± 0.236	13590551	3.102×10^{-2}	2.653×10^{-2}	0.0	1.000	1.567×10^{-2}	4.669×10^{-2}
surface albedo fitted crb [1]	0.110 ± 0.237	13590551	2.318×10^{-2}	2.013×10^{-2}	0.0	1.000	1.177×10^{-2}	3.495×10^{-2}
fitted root mean square [1]	$(7.214 \pm 9.629) \times 10^{-4}$	13590551	1.015×10^{-3}	3.475×10^{-4}	1.226×10^{-6}	0.101	9.339×10^{-5}	1.108×10^{-3}
fitted root mean square crb [1]	$(6.910 \pm 8.198) \times 10^{-4}$	13590551	9.937×10^{-4}	3.212×10^{-4}	9.049×10^{-7}	7.194×10^{-2}	8.214×10^{-5}	1.076×10^{-3}
wavelength shift [nm]	$(8.755 \pm 7.677) \times 10^{-3}$	13590551	1.142×10^{-2}	8.178×10^{-3}	-4.754×10^{-2}	6.989×10^{-2}	2.743×10^{-3}	1.416×10^{-2}
cloud fraction apriori [1]	0.590 ± 0.362	13590551	0.780	0.617	0.0	1.000	0.220	1.000
reflectance blue oca [1]	0.524 ± 0.210	13590551	0.340	0.484	0.151	2.07	0.344	0.684
reflectance green oca [1]	0.463 ± 0.239	13590551	0.413	0.418	8.560×10^{-2}	2.05	0.245	0.658
reflectance continuum aband [1]	0.397 ± 0.278	13590551	0.498	0.361	9.987×10^{-3}	5.65	0.136	0.634

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]	0.468 ± 0.361	6456198	0.700	0.590	0.0	1.000	0.0	0.700
cloud fraction [1]	0.518 ± 0.285	6456198	0.437	0.493	0.0	1.000	0.292	0.729
cloud top height [m]	$(0.487 \pm 0.261) \times 10^4$	6456198	3.157×10^3	4.709×10^3	0.0	2.000×10^4	3.064×10^3	6.221×10^3
cloud optical thickness [1]	16.7 ± 39.0	6456198	6.14	5.68	1.000	250	4.11	10.2
cloud fraction crb [1]	0.519 ± 0.286	6456198	0.439	0.495	0.0	1.000	0.293	0.732
cloud height crb [m]	$(0.334 \pm 0.199) \times 10^4$	6456198	2.294×10^3	3.133×10^3	0.0	2.000×10^4	2.035×10^3	4.329×10^3
cloud albedo crb [1]	0.728 ± 0.244	6456198	0.358	0.783	0.0	1.000	0.574	0.932
surface albedo fitted [1]	0.645 ± 0.332	6456198	0.677	0.821	0.0	1.000	0.268	0.945
surface albedo fitted crb [1]	0.613 ± 0.310	6456198	0.619	0.790	0.0	1.000	0.264	0.884
fitted root mean square [1]	$(8.631 \pm 8.050) \times 10^{-4}$	6456198	9.072×10^{-4}	6.304×10^{-4}	2.901×10^{-6}	0.168	2.945×10^{-4}	1.202×10^{-3}
fitted root mean square crb [1]	$(6.992 \pm 7.168) \times 10^{-4}$	6456198	8.490×10^{-4}	4.661×10^{-4}	2.415×10^{-6}	0.100	1.671×10^{-4}	1.016×10^{-3}
wavelength shift [nm]	$(1.070 \pm 0.666) \times 10^{-2}$	6456198	1.010×10^{-2}	1.083×10^{-2}	-4.138×10^{-2}	6.540×10^{-2}	5.492×10^{-3}	1.559×10^{-2}
cloud fraction apriori [1]	0.534 ± 0.287	6456198	0.443	0.514	0.0	1.000	0.308	0.750
reflectance blue ocr [1]	0.733 ± 0.235	6456198	0.341	0.819	0.131	2.08	0.560	0.902
reflectance green ocr [1]	0.708 ± 0.262	6456198	0.386	0.810	6.726×10^{-2}	2.08	0.517	0.903
reflectance continuum aband [1]	0.694 ± 0.248	6456198	0.383	0.772	1.375×10^{-2}	4.66	0.497	0.880

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	-2.682×10^{-2}	2.423×10^{-2}	-3.928×10^{-2}	6.218×10^{-3}	-2.969×10^{-2}	-3.973×10^{-2}	8.546×10^{-2}	2.951×10^{-2}	-4.454×10^{-2}
-2.682×10^{-2}	1.000	7.338×10^{-2}	7.732×10^{-2}	0.136	0.155	7.860×10^{-2}	6.301×10^{-2}	0.273	9.456×10^{-2}
2.423×10^{-2}	7.338×10^{-2}	1.000	-6.357×10^{-2}	5.131×10^{-2}	0.200	-6.756×10^{-2}	0.215	-0.222	-8.720×10^{-2}
-3.928×10^{-2}	7.732×10^{-2}	-6.357×10^{-2}	1.000	-2.223×10^{-2}	0.284	1.000	-2.738×10^{-2}	0.311	0.977
6.218×10^{-3}	0.136	5.131×10^{-2}	-2.223×10^{-2}	1.000	2.391×10^{-2}	-2.068×10^{-2}	0.907	8.910×10^{-2}	-3.177×10^{-2}
-2.969×10^{-2}	0.155	0.200	0.284	2.391×10^{-2}	1.000	0.280	9.523×10^{-2}	0.327	0.283
-3.973×10^{-2}	7.860×10^{-2}	-6.756×10^{-2}	1.000	-2.068×10^{-2}	0.280	1.000	-2.731×10^{-2}	0.312	0.977
8.546×10^{-2}	6.301×10^{-2}	0.215	-2.738×10^{-2}	0.907	9.523×10^{-2}	-2.731×10^{-2}	1.000	-6.099×10^{-2}	-4.348×10^{-2}
2.951×10^{-2}	0.273	-0.222	0.311	8.910×10^{-2}	0.327	0.312	-6.099×10^{-2}	1.000	0.340
-4.454×10^{-2}	9.456×10^{-2}	-8.720×10^{-2}	0.977	-3.177×10^{-2}	0.283	0.977	-4.348×10^{-2}	0.340	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
379	-10.1	22.9	-0.257	321	-19.9	-0.260	3.695×10^3	0.127	-0.295
-10.1	371	68.6	0.500	6.918×10^3	103	0.509	2.694×10^3	1.16	0.620
22.9	68.6	2.358×10^3	-1.04	6.596×10^3	335	-1.10	2.316×10^4	-2.38	-1.44
-0.257	0.500	-1.04	0.113	-19.8	3.29	0.113	-20.4	2.310×10^{-2}	0.112
321	6.918×10^3	6.596×10^3	-19.8	7.005×10^6	2.181×10^3	-18.4	5.328×10^6	52.1	-28.6
-19.9	103	335	3.29	2.181×10^3	1.188×10^3	3.24	7.285×10^3	2.49	3.32
-0.260	0.509	-1.10	0.113	-18.4	3.24	0.113	-20.4	2.314×10^{-2}	0.112
3.695×10^3	2.694×10^3	2.316×10^4	-20.4	5.328×10^6	7.285×10^3	-20.4	4.926×10^6	-29.9	-32.8
0.127	1.16	-2.38	2.310×10^{-2}	52.1	2.49	2.314×10^{-2}	-29.9	4.878×10^{-2}	2.552×10^{-2}
-0.295	0.620	-1.44	0.112	-28.6	3.32	0.112	-32.8	2.552×10^{-2}	0.116

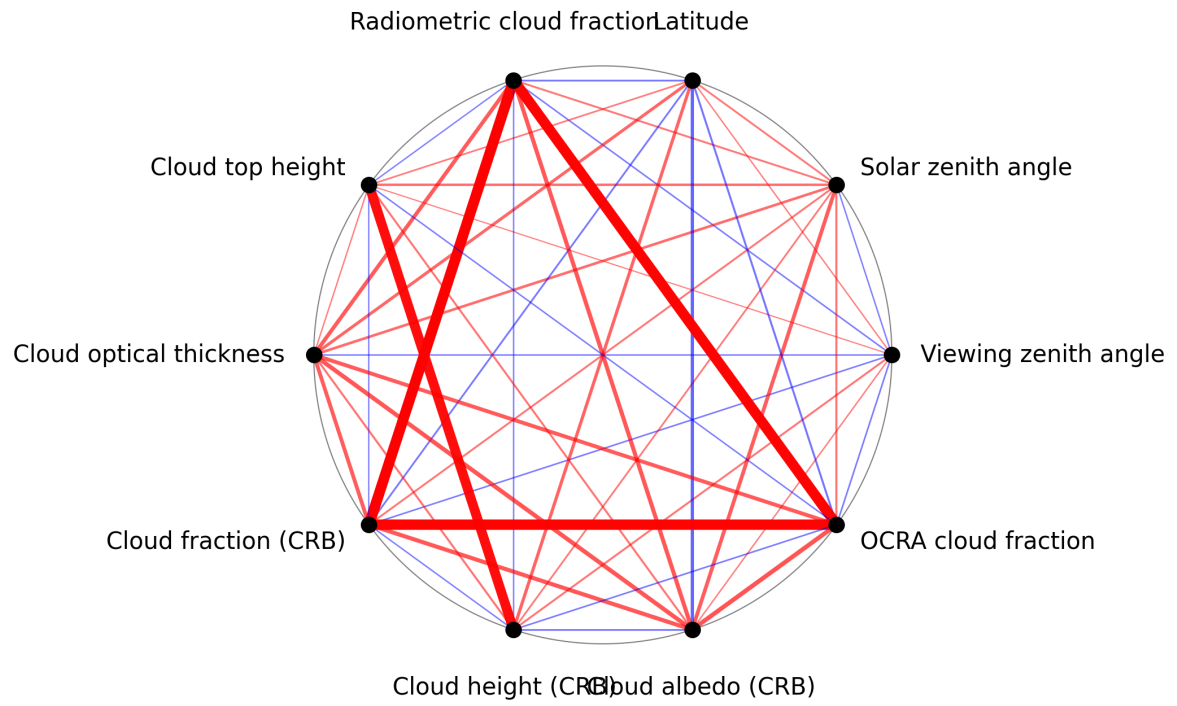


Figure 1: Map of correlation graph for 2025-11-19 to 2025-11-21.

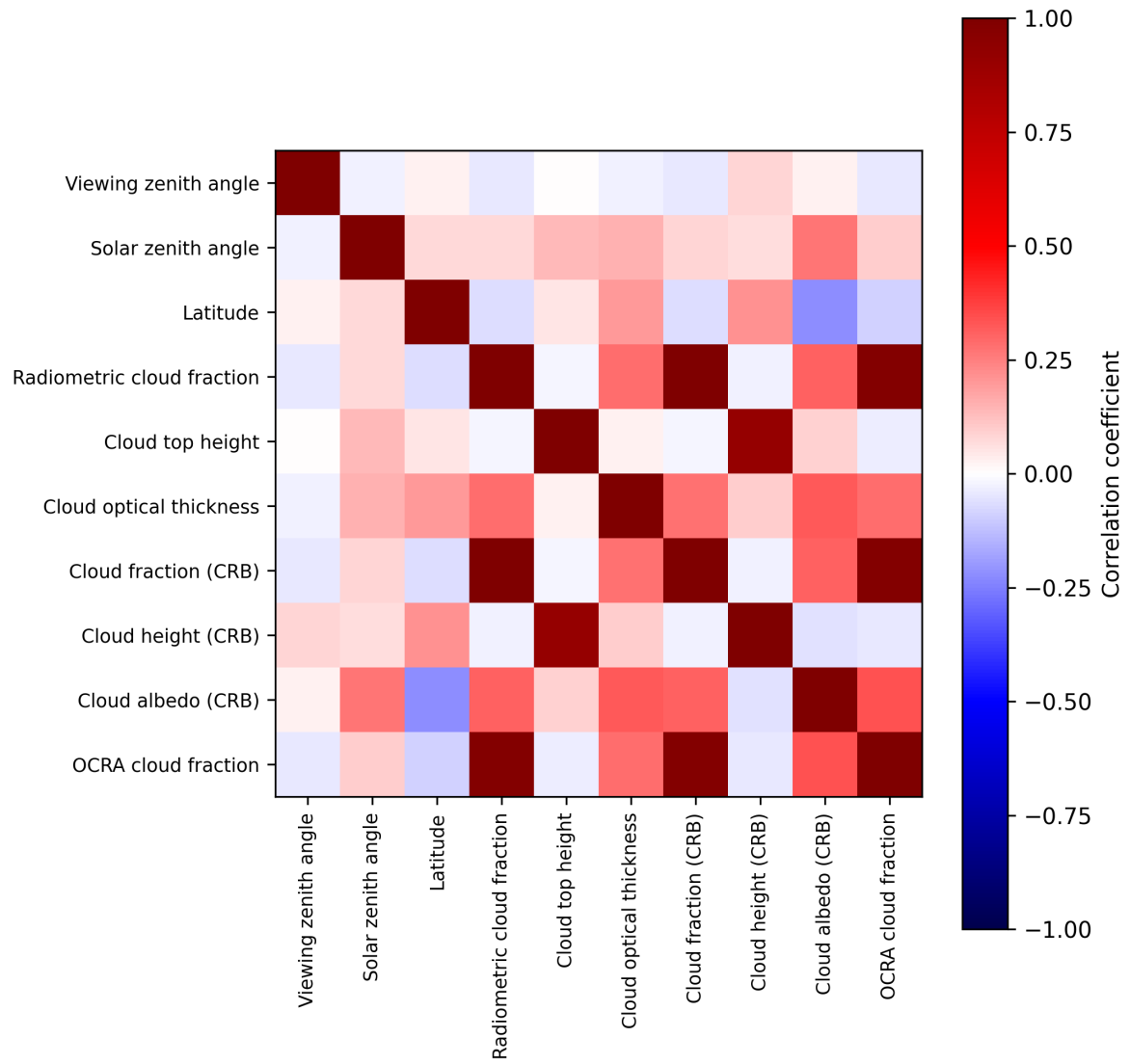


Figure 2: Map of correlation matrix for 2025-11-19 to 2025-11-21.

3 Granule outlines

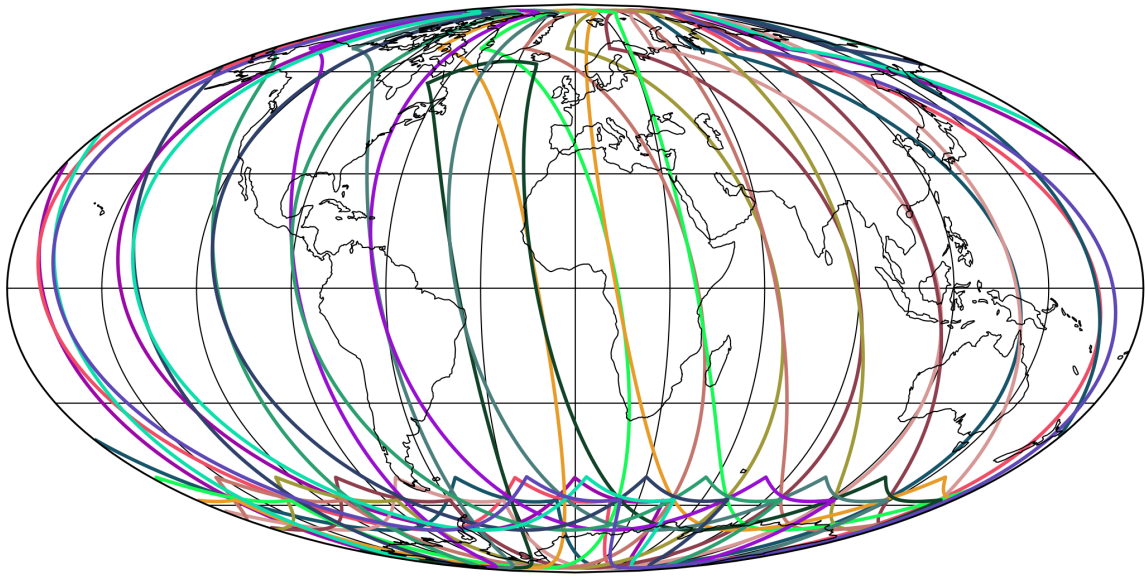


Figure 3: Outline of the granules.

4 Input data monitoring

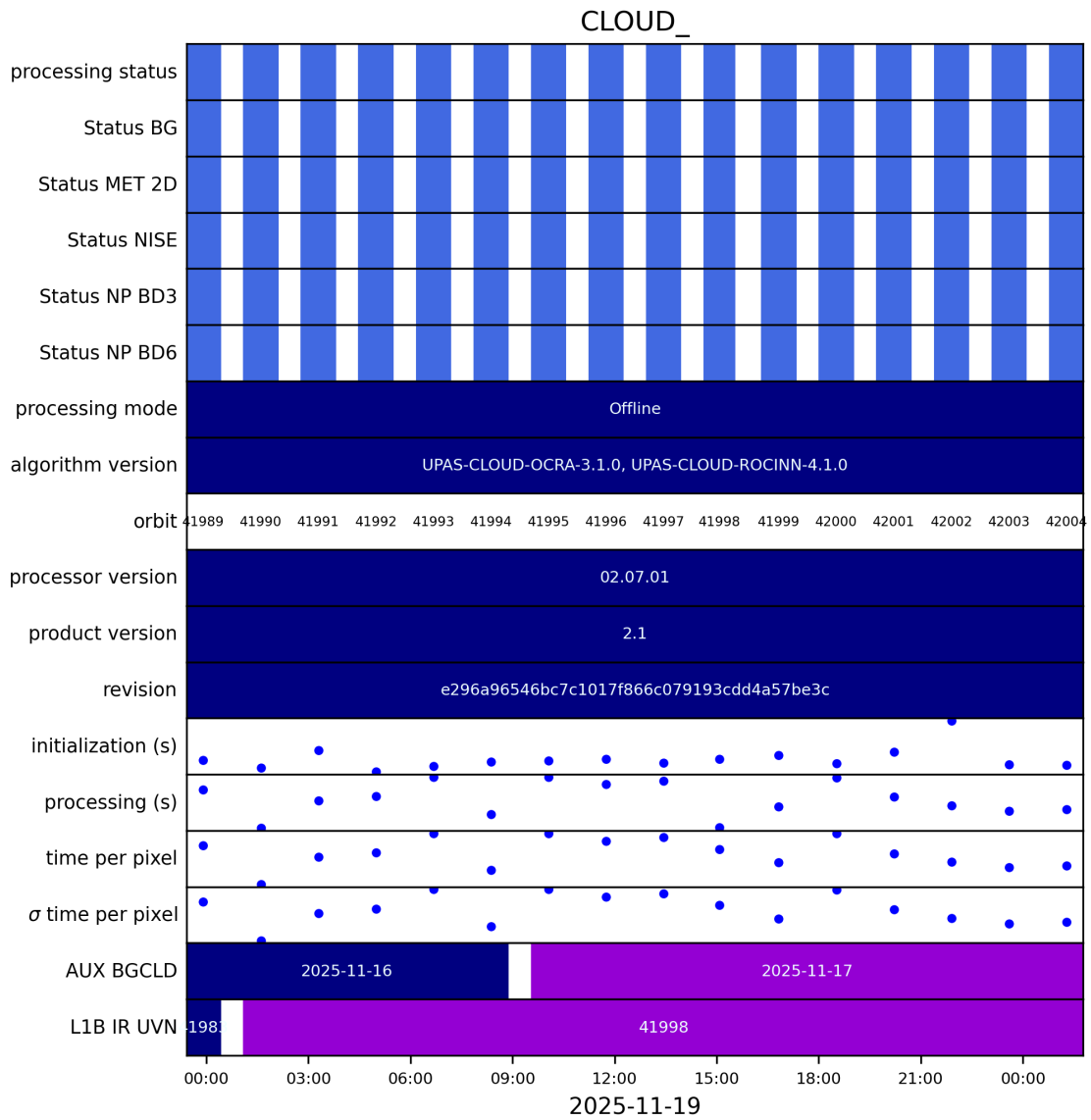


Figure 4: Input data per granule

5 Warnings and errors

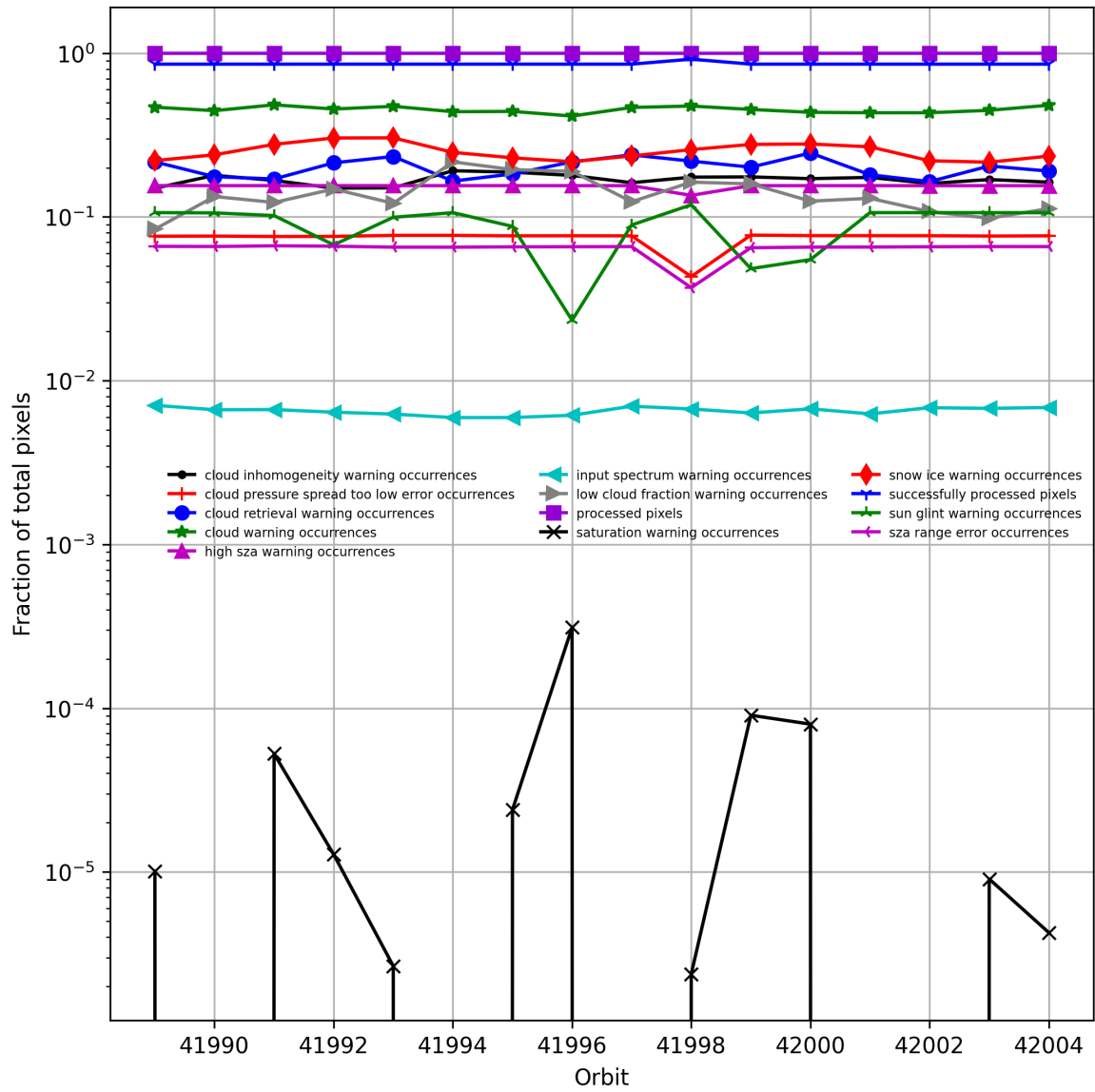


Figure 5: Fraction of pixels with specific warnings and errors during processing

6 World maps

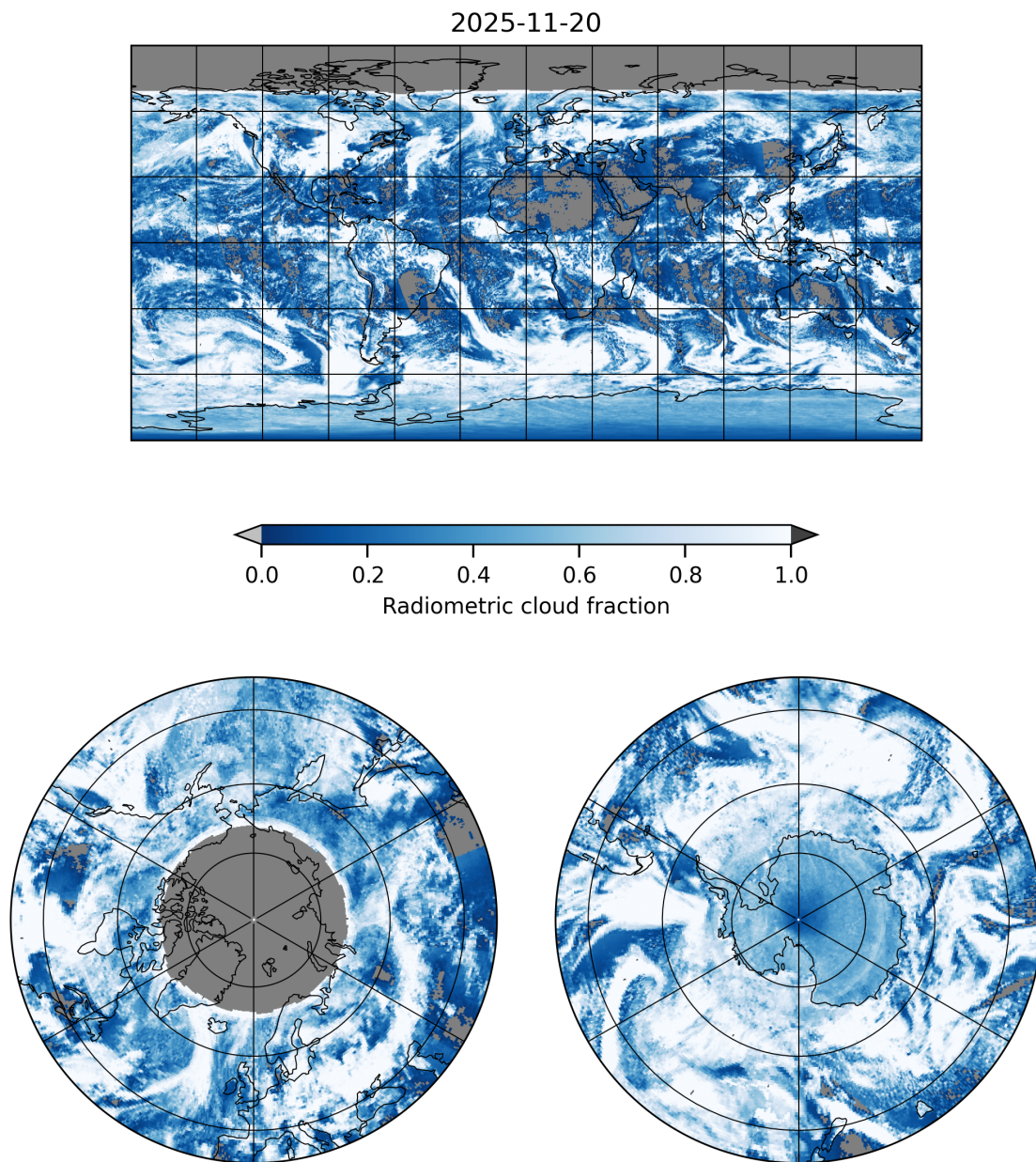


Figure 6: Map of “Radiometric cloud fraction” for 2025-11-19 to 2025-11-21

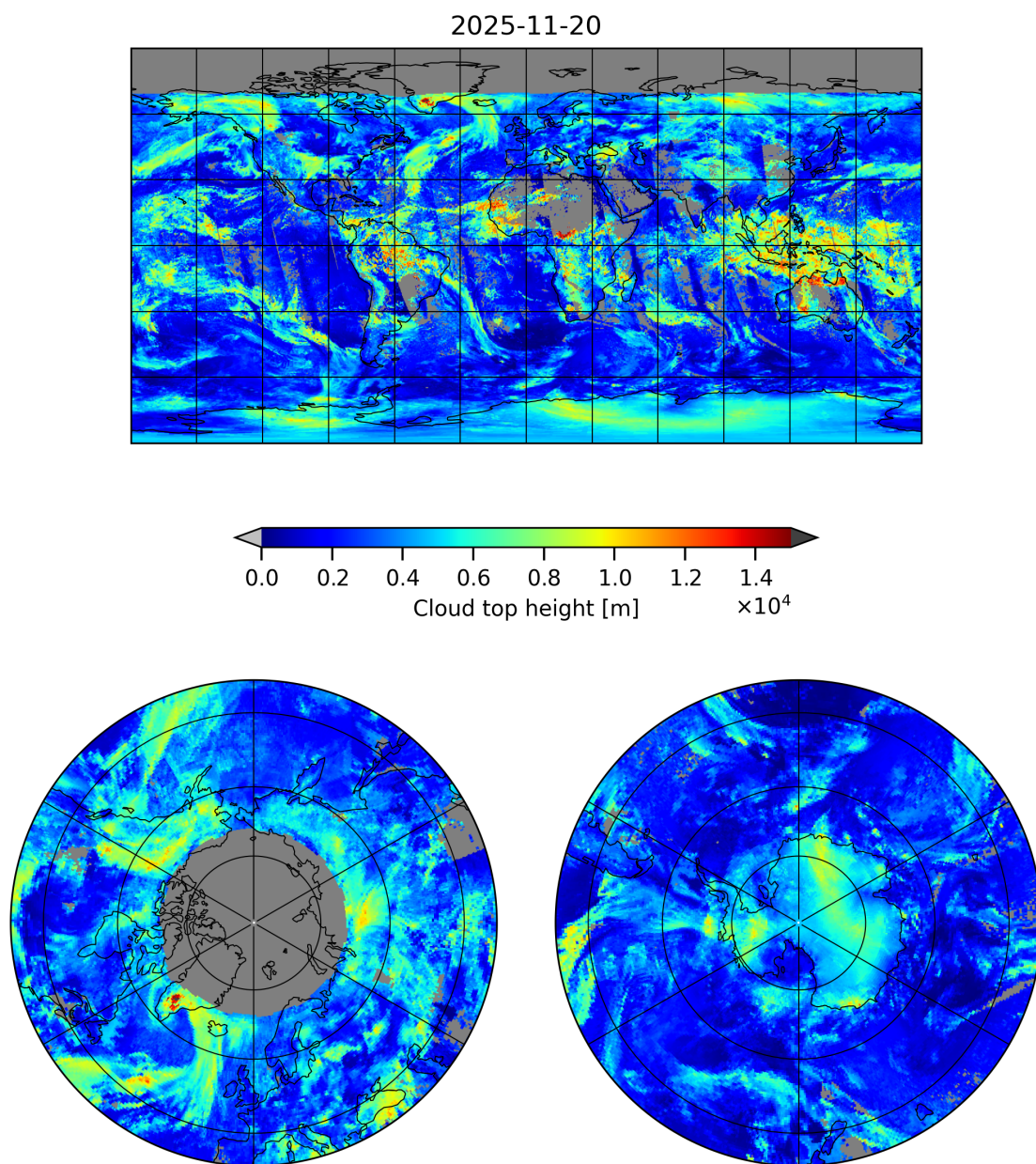


Figure 7: Map of “Cloud top height” for 2025-11-19 to 2025-11-21

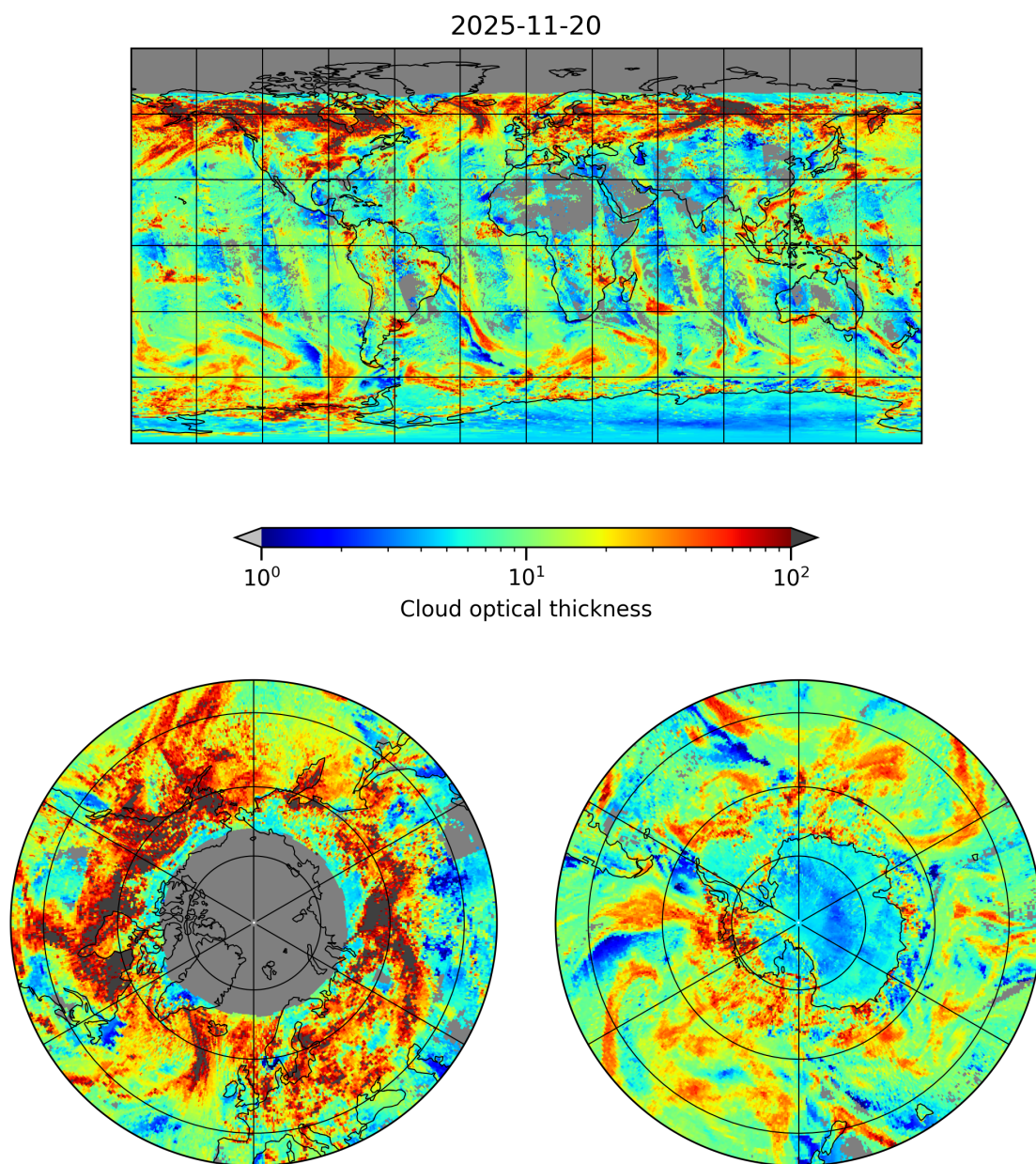


Figure 8: Map of “Cloud optical thickness” for 2025-11-19 to 2025-11-21

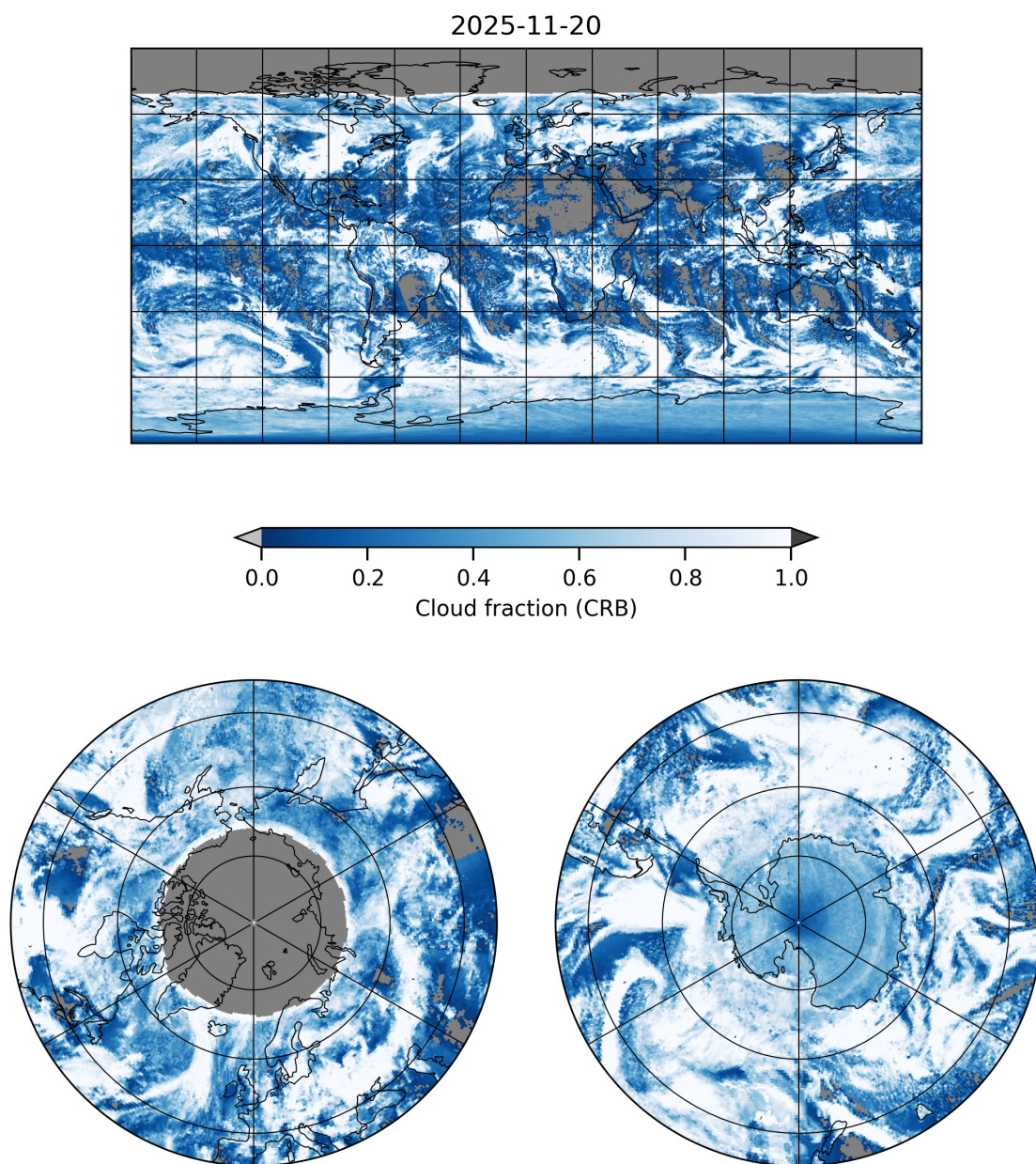


Figure 9: Map of “Cloud fraction (CRB)” for 2025-11-19 to 2025-11-21

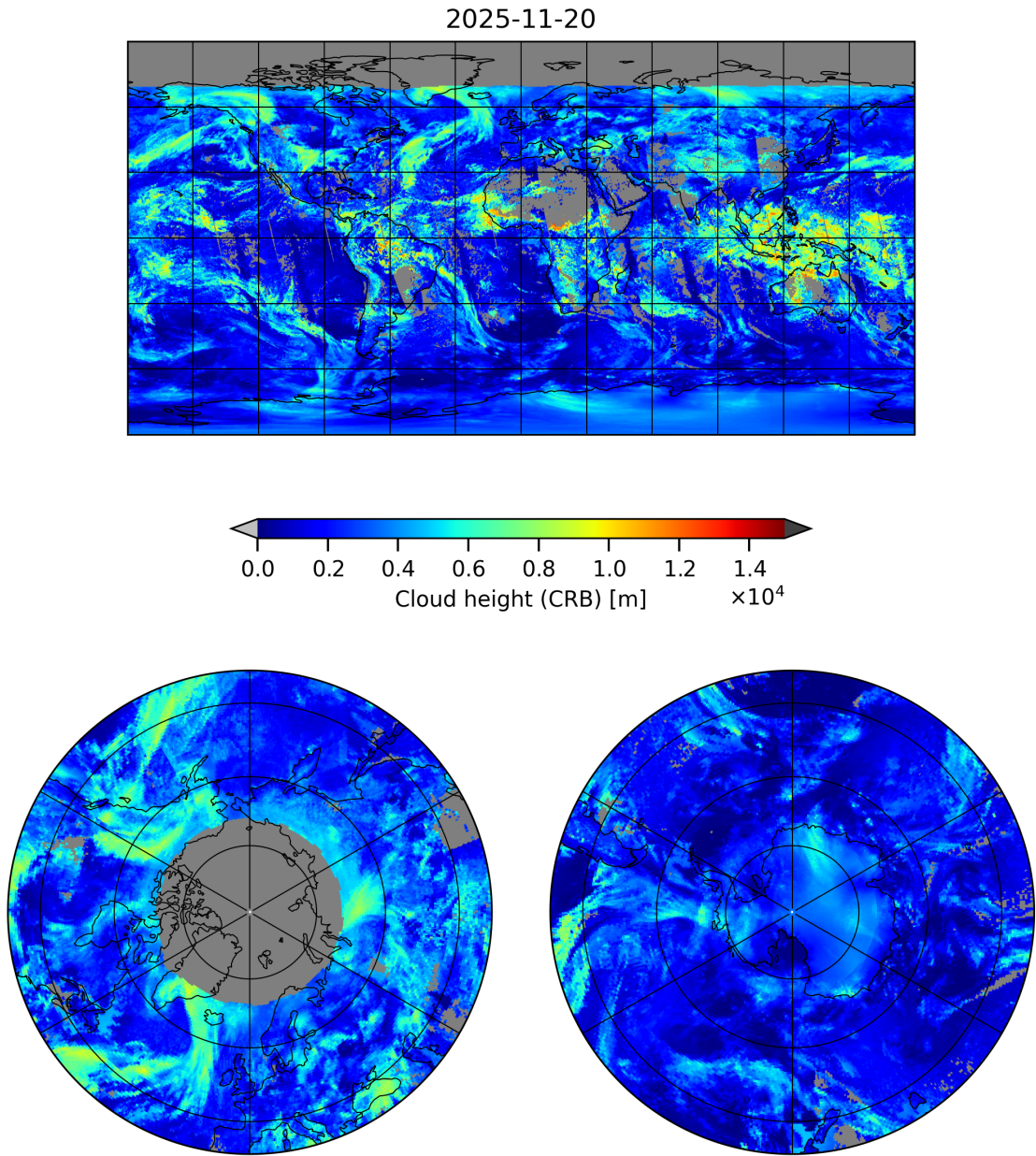


Figure 10: Map of “Cloud height (CRB)” for 2025-11-19 to 2025-11-21

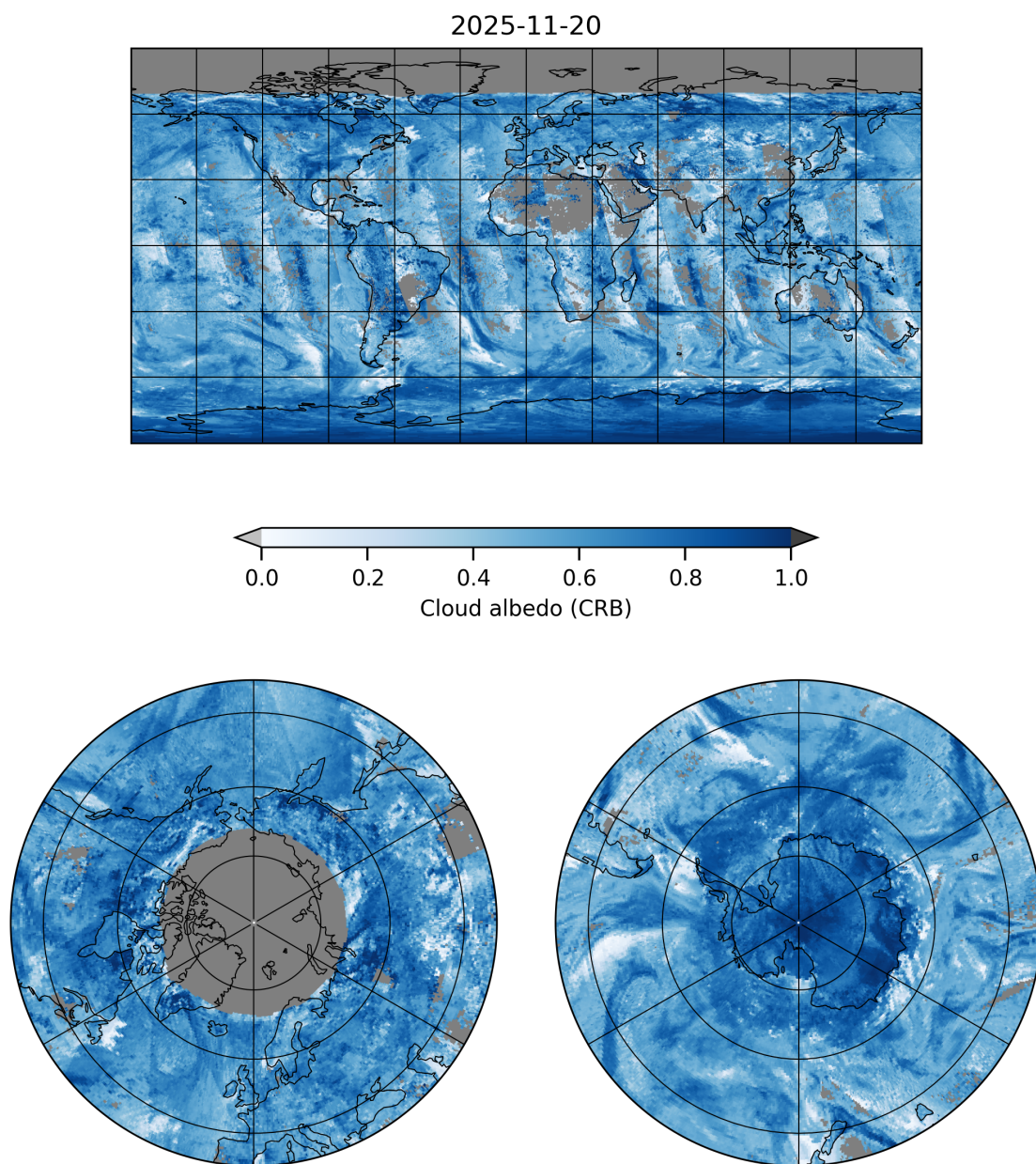


Figure 11: Map of “Cloud albedo (CRB)” for 2025-11-19 to 2025-11-21

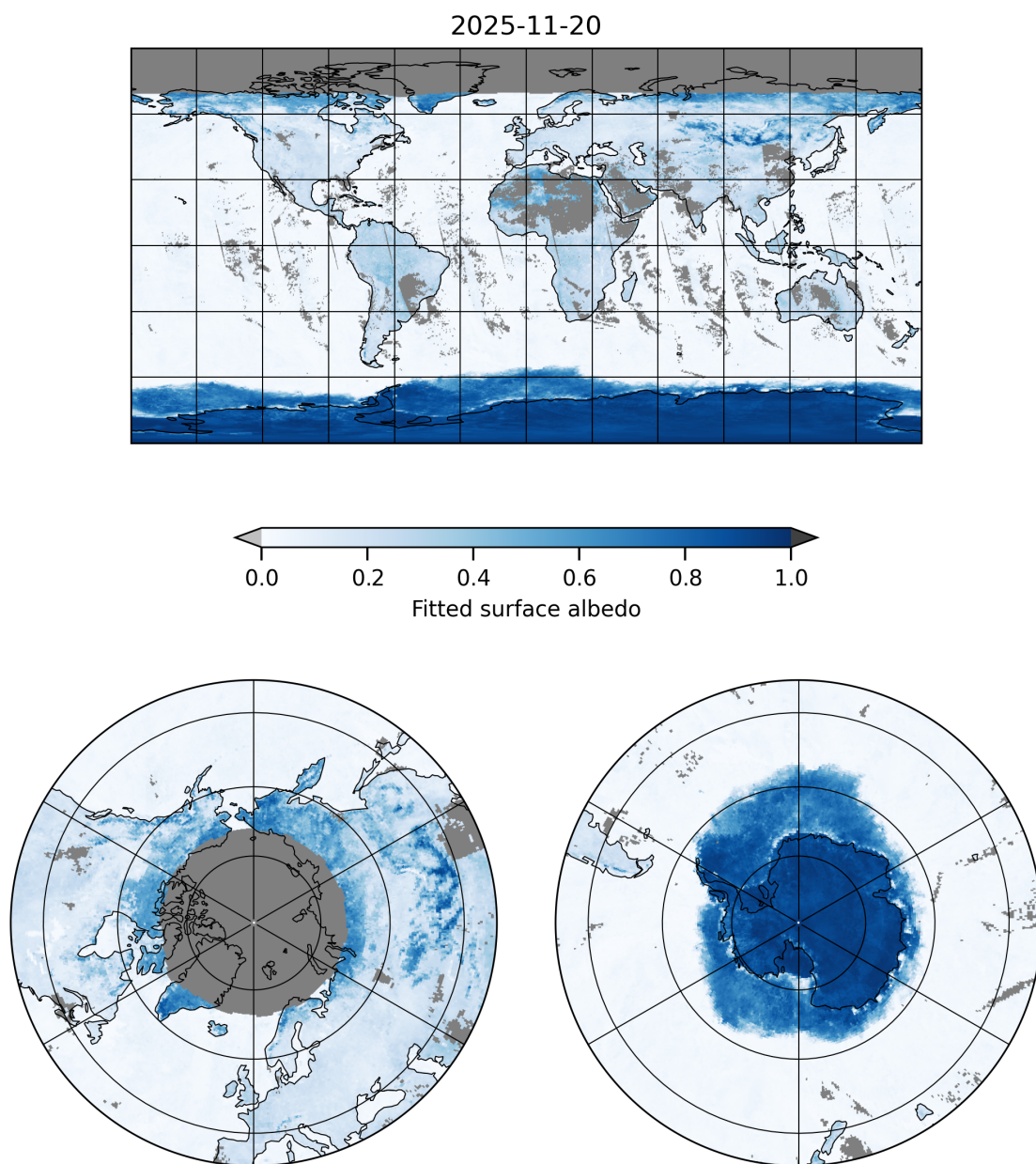


Figure 12: Map of “Fitted surface albedo” for 2025-11-19 to 2025-11-21

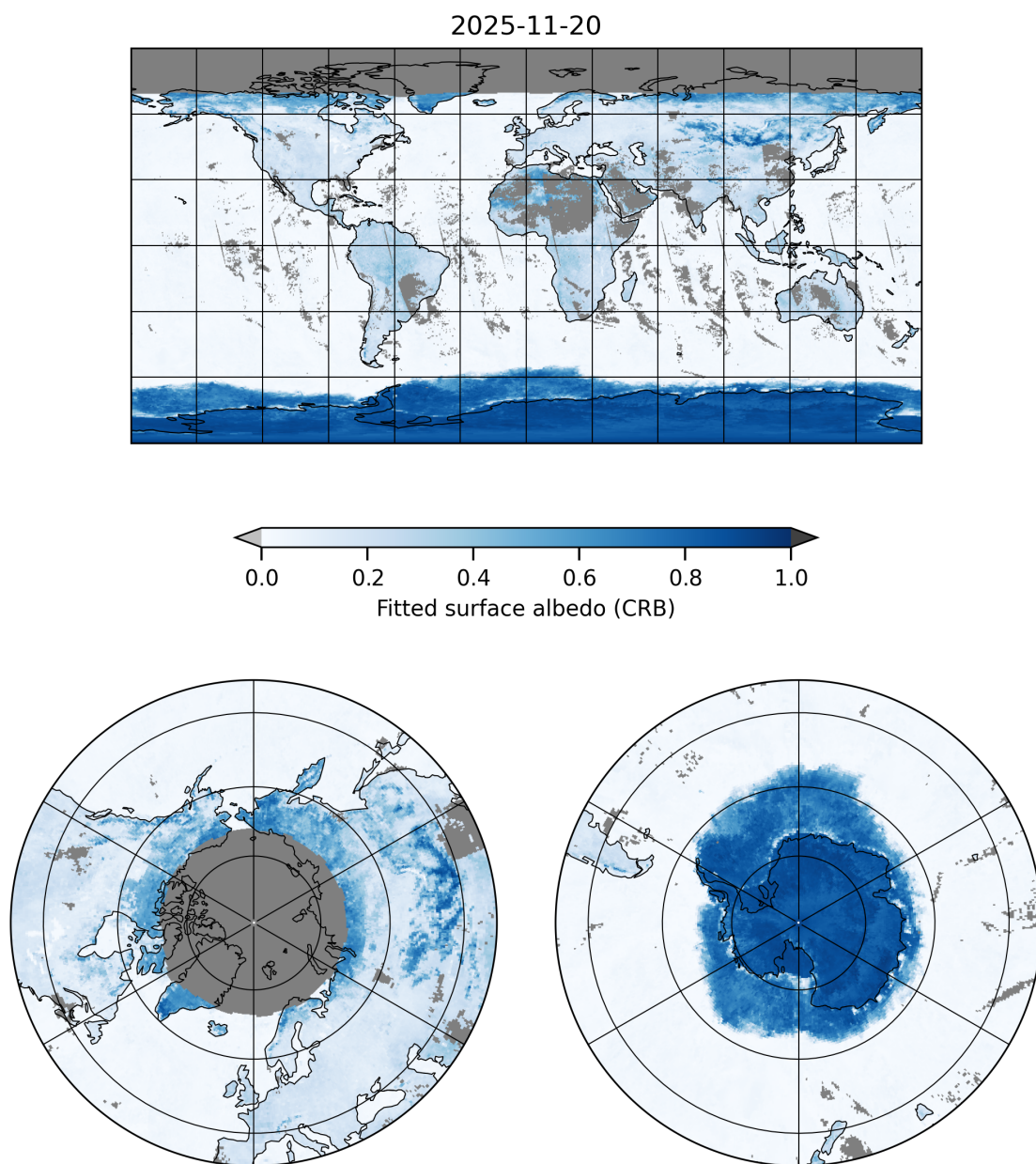


Figure 13: Map of “Fitted surface albedo (CRB)” for 2025-11-19 to 2025-11-21

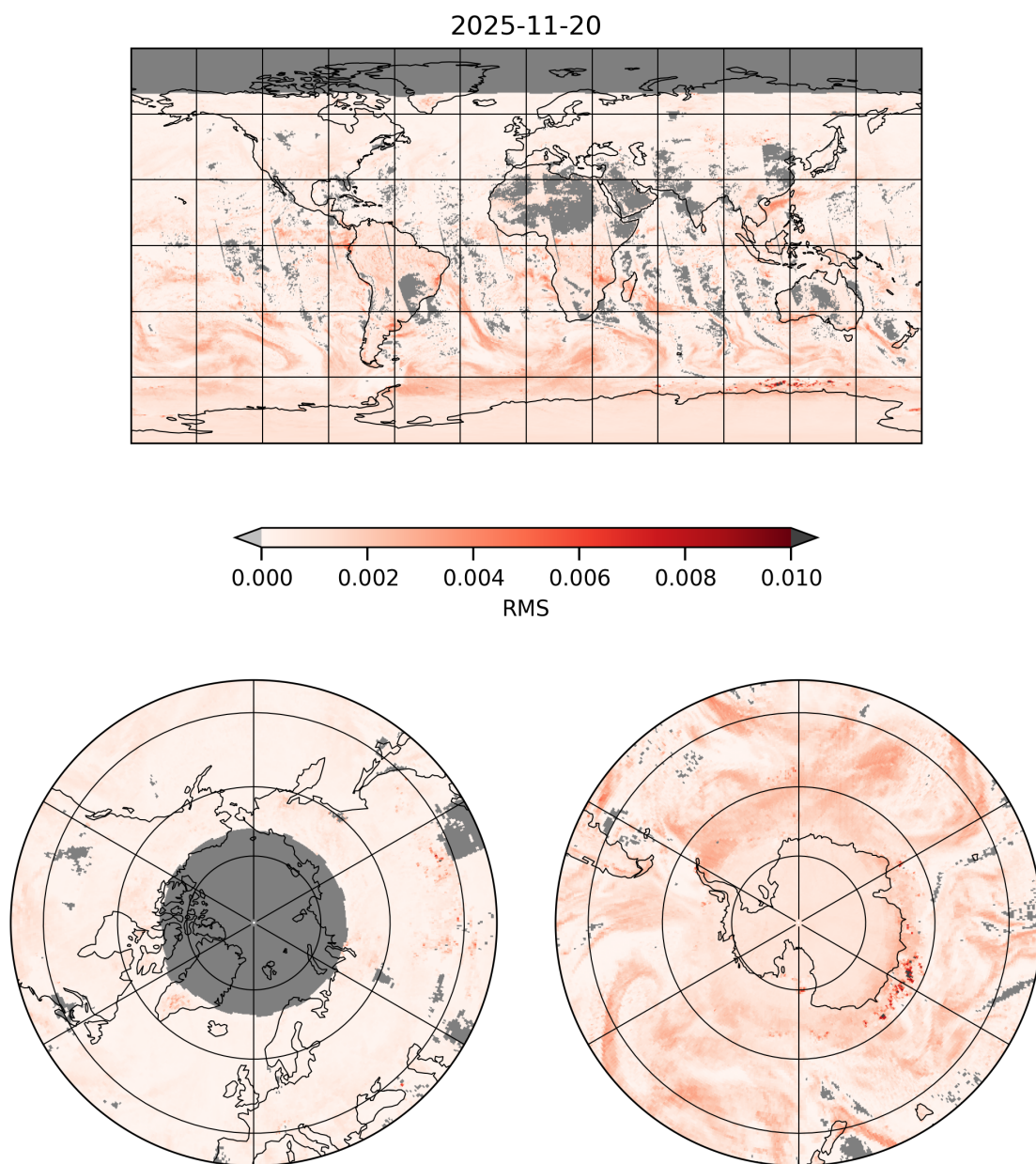


Figure 14: Map of “RMS” for 2025-11-19 to 2025-11-21

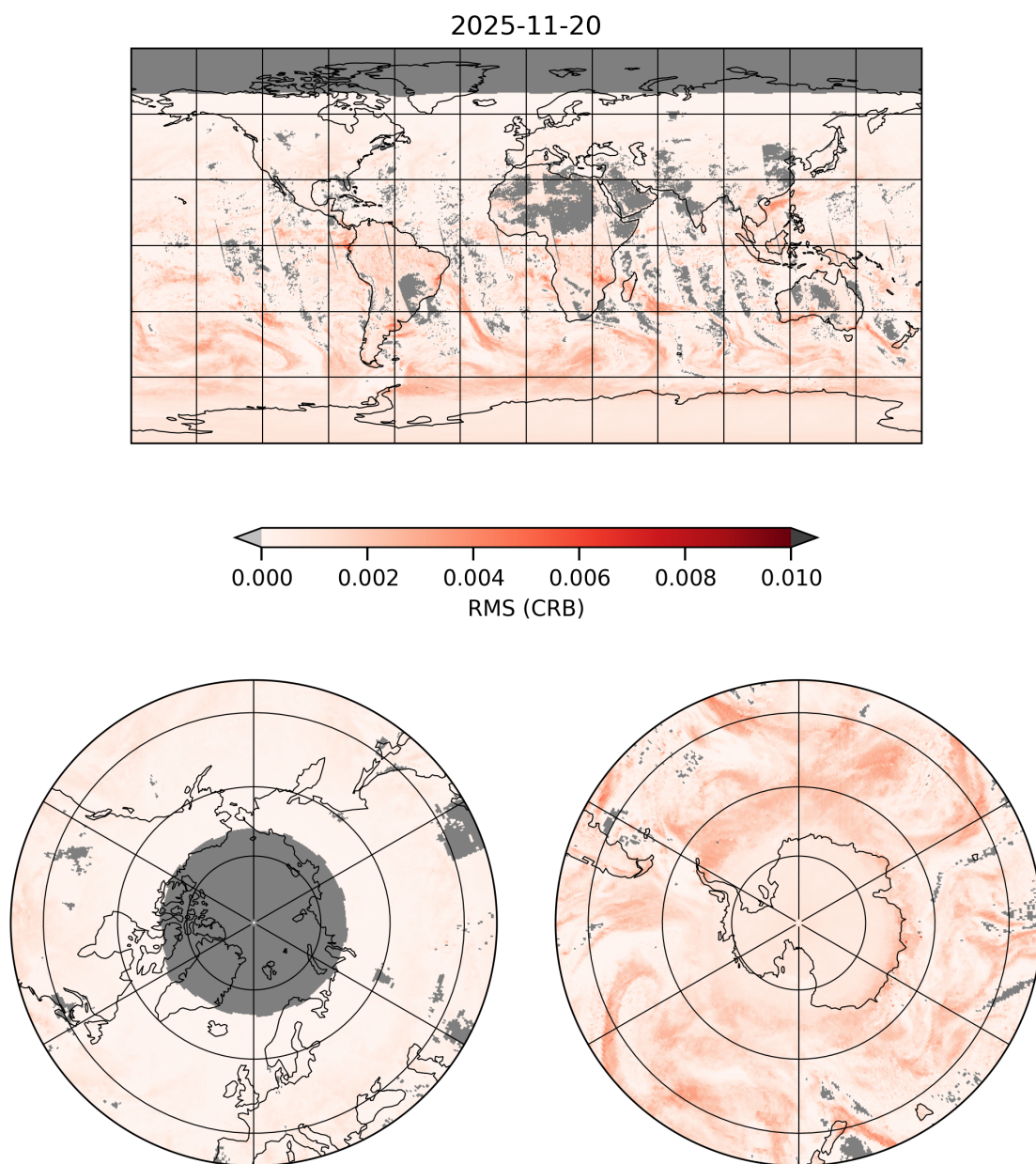


Figure 15: Map of “RMS (CRB)” for 2025-11-19 to 2025-11-21

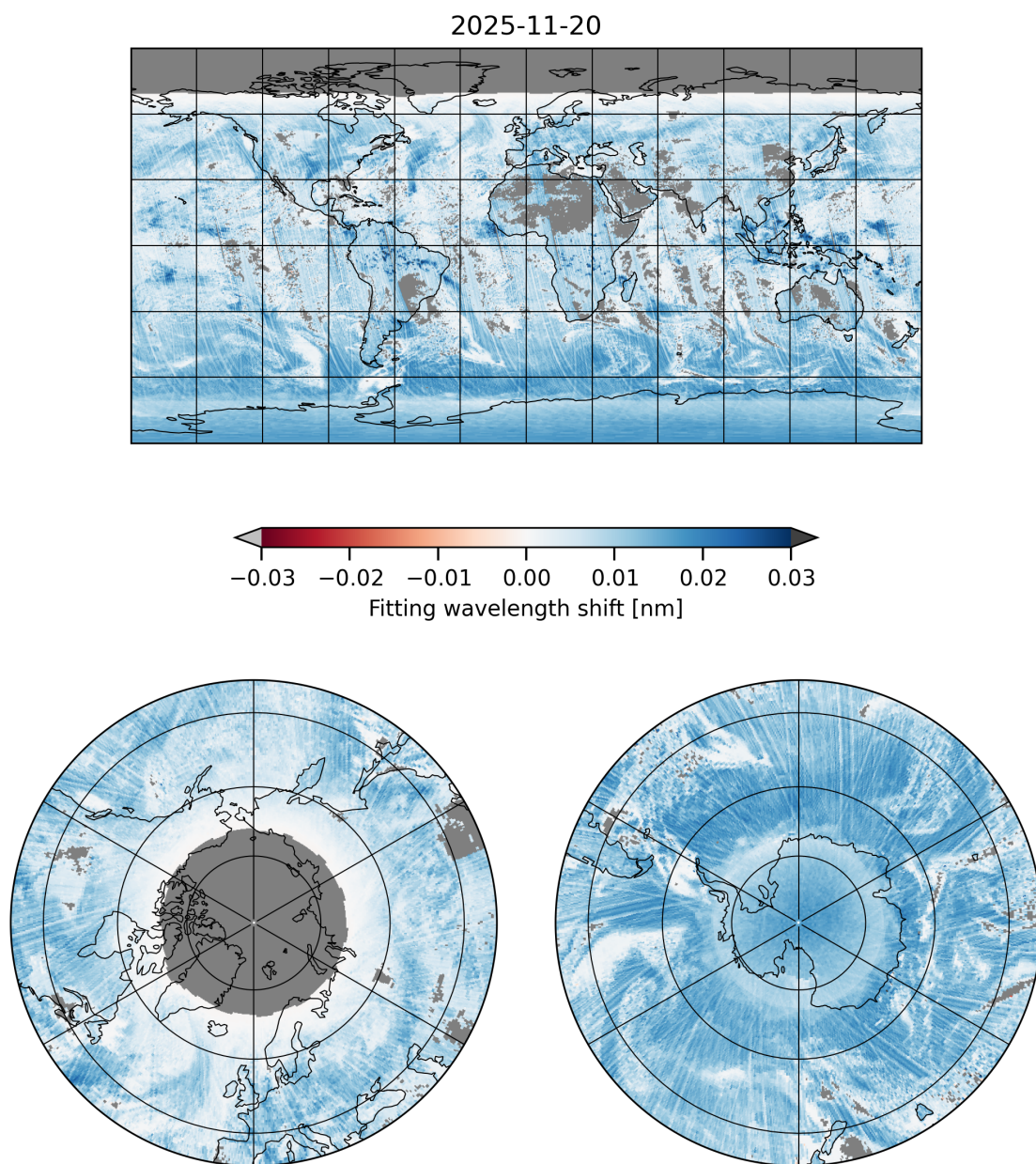


Figure 16: Map of “Fitting wavelength shift” for 2025-11-19 to 2025-11-21

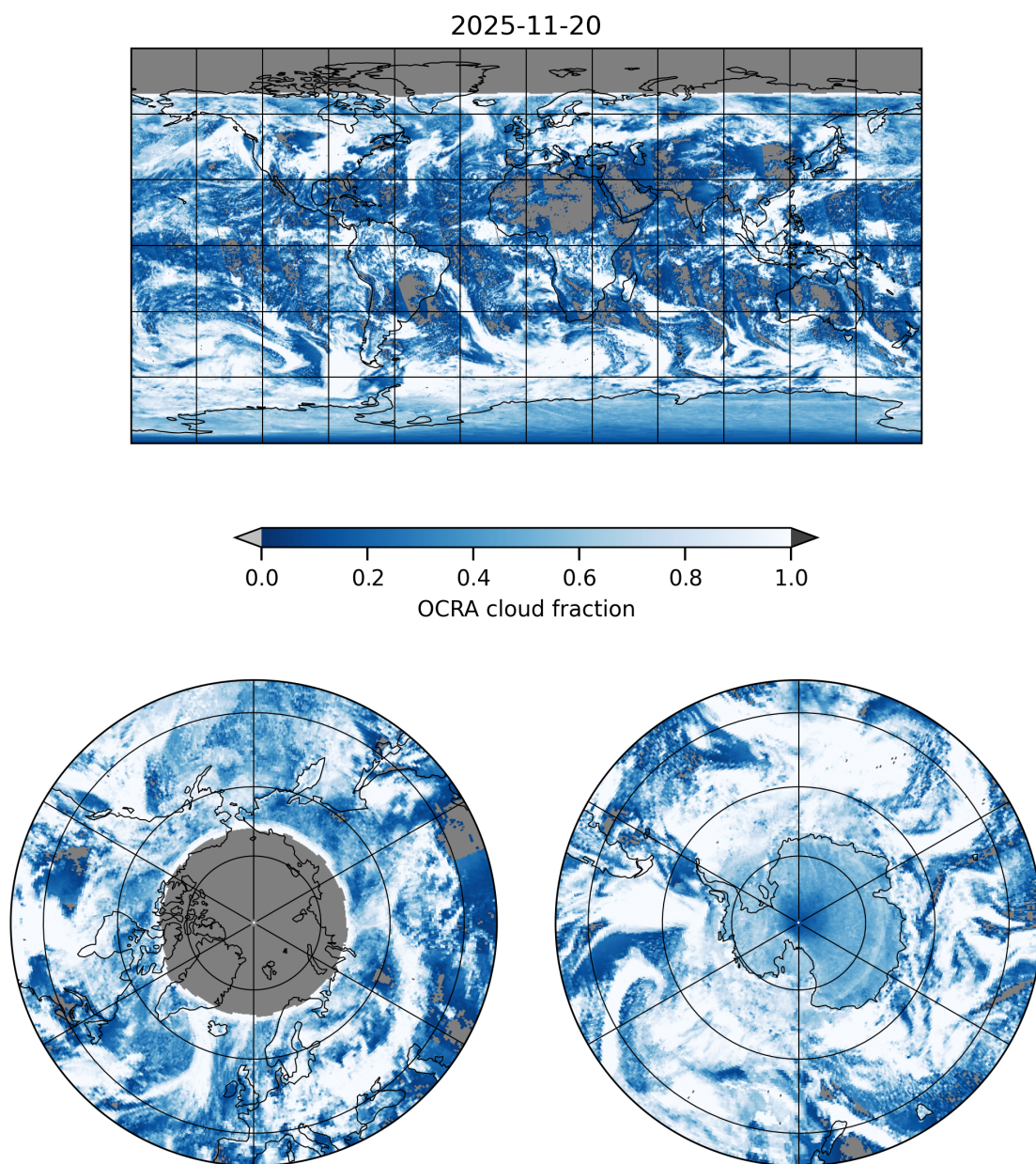


Figure 17: Map of “OCRA cloud fraction” for 2025-11-19 to 2025-11-21

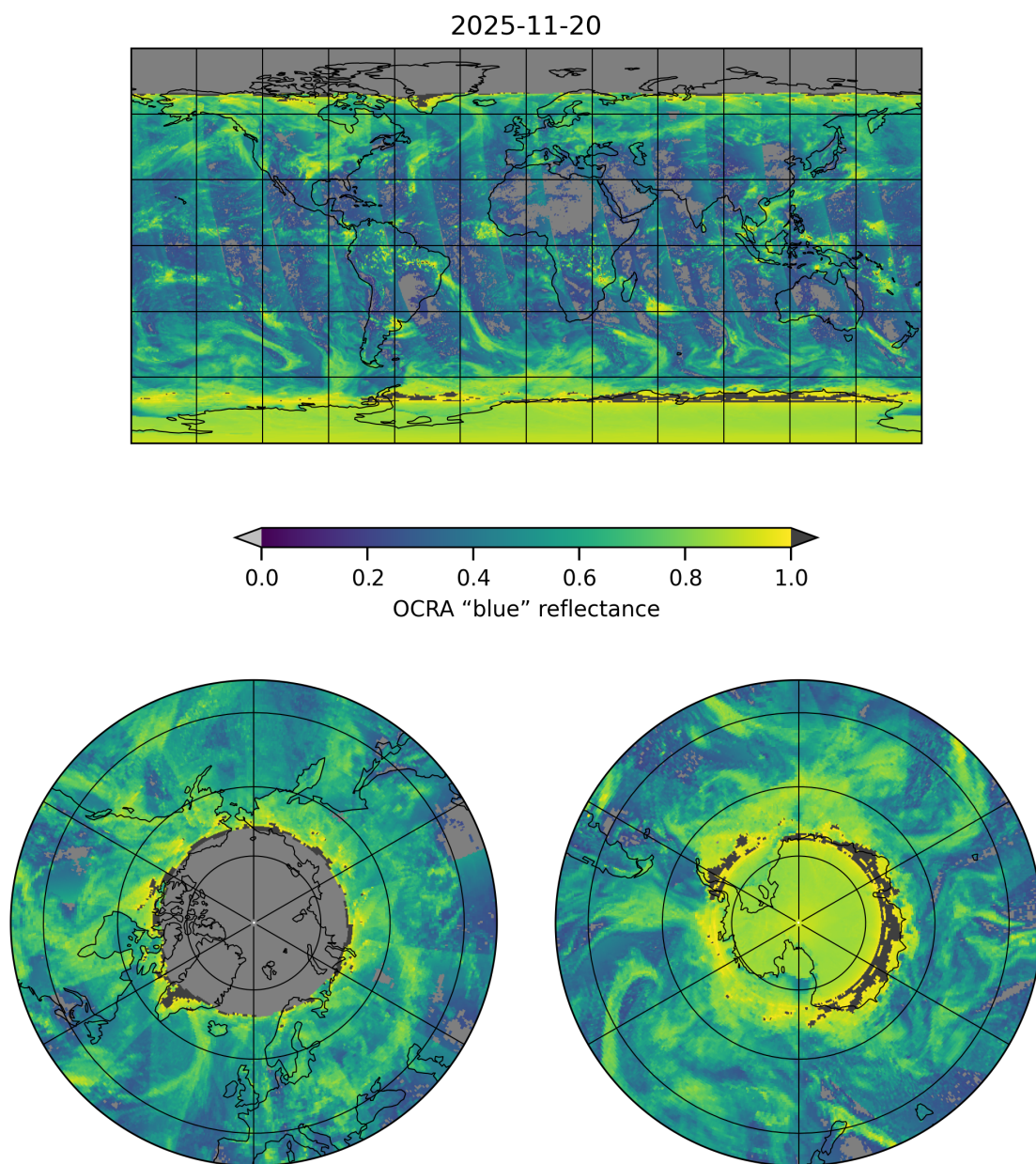


Figure 18: Map of "OCRA "blue" reflectance" for 2025-11-19 to 2025-11-21

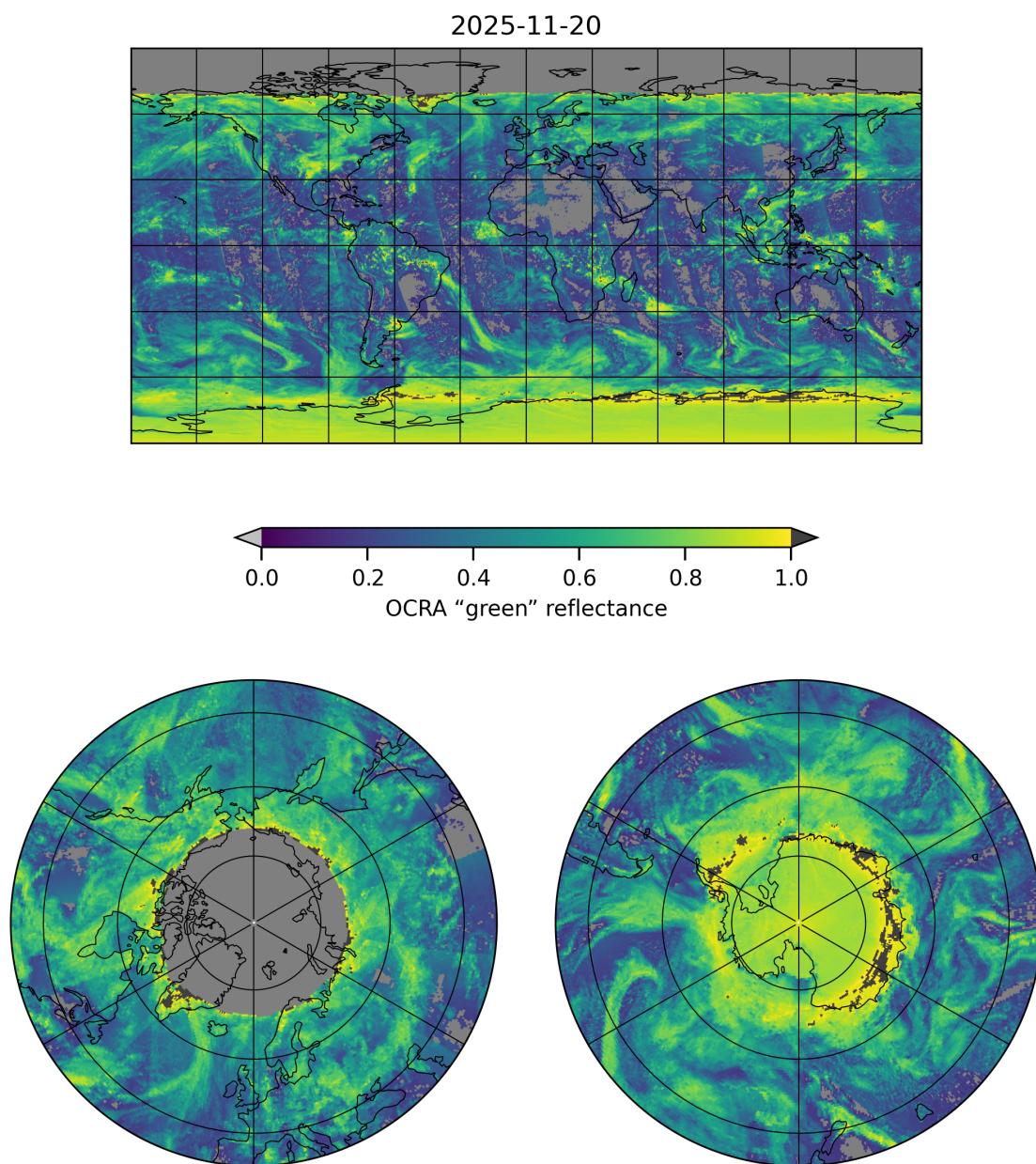


Figure 19: Map of "OCRA "green" reflectance" for 2025-11-19 to 2025-11-21

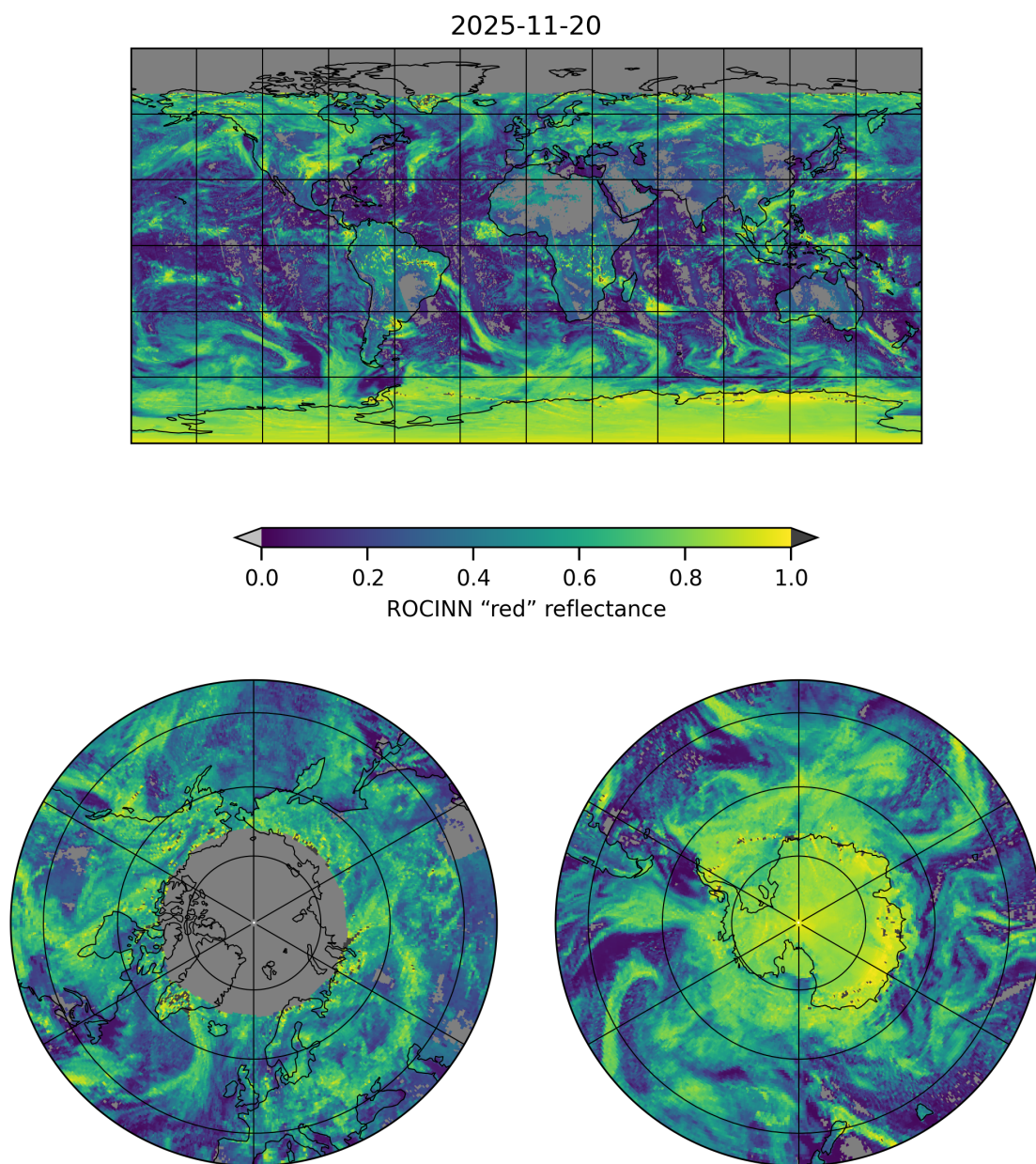


Figure 20: Map of "ROCINN "red" reflectance" for 2025-11-19 to 2025-11-21

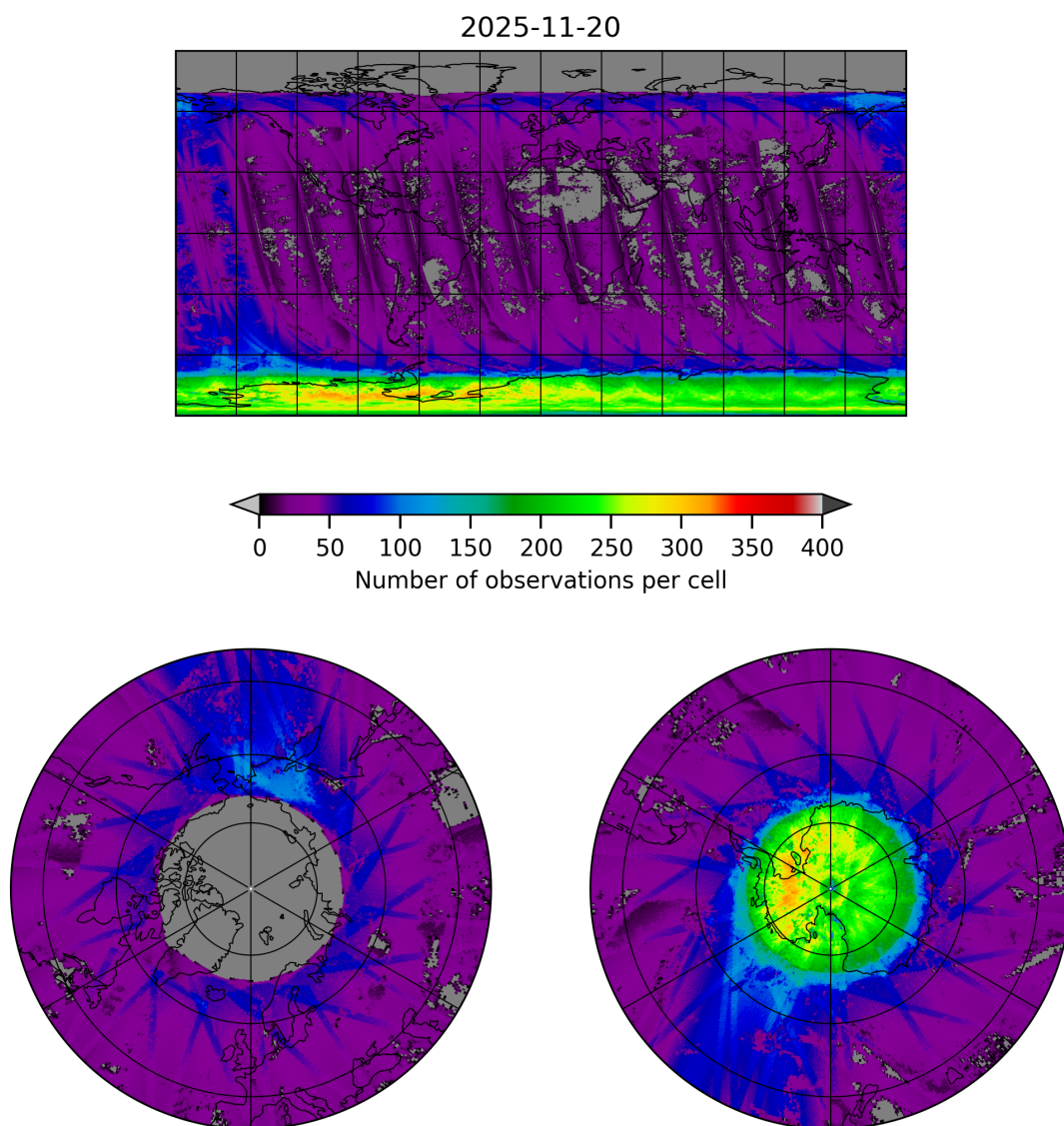


Figure 21: Map of the number of observations for 2025-11-19 to 2025-11-21

7 Zonal average

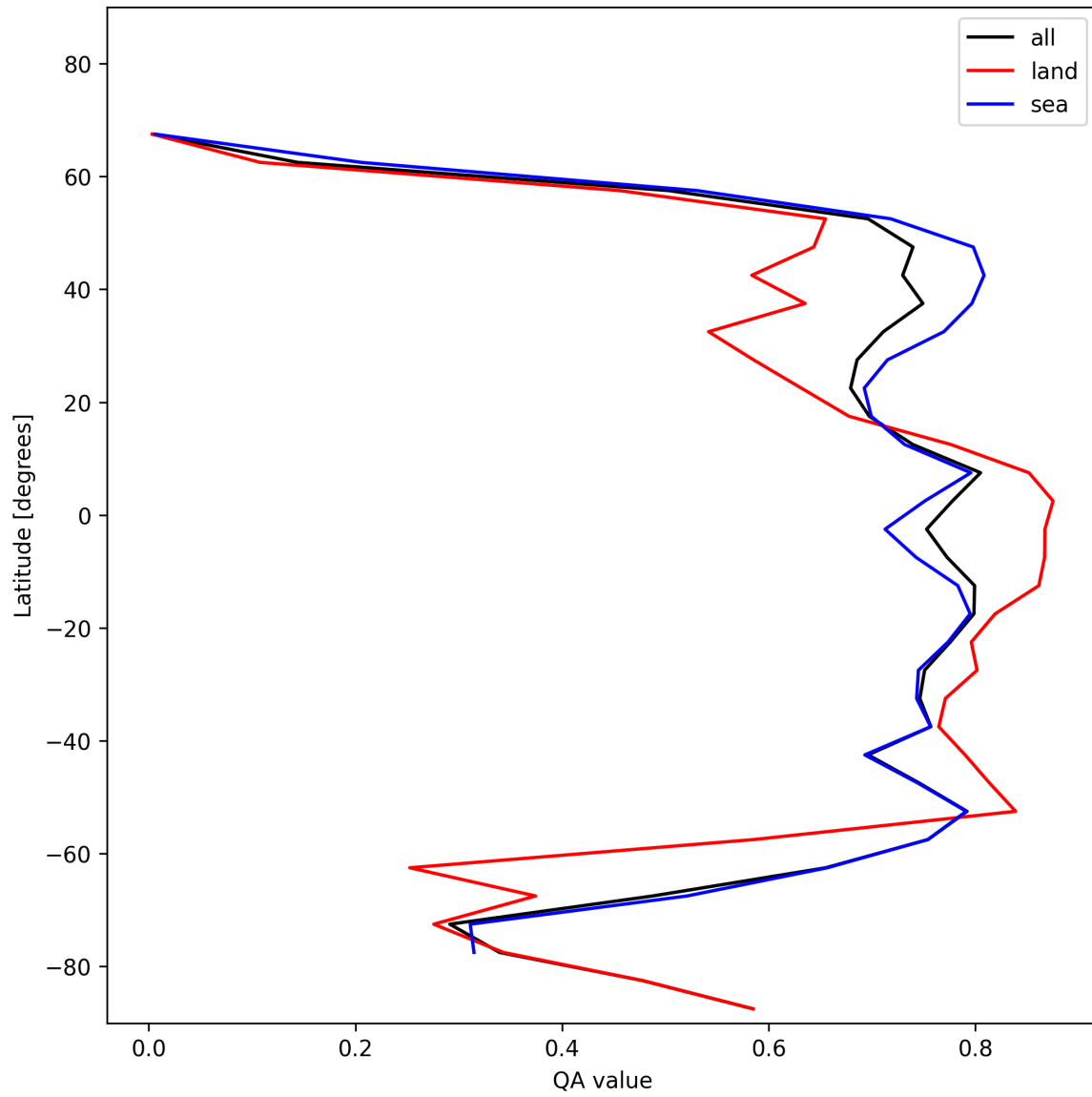


Figure 22: Zonal average of “QA value” for 2025-11-19 to 2025-11-21.

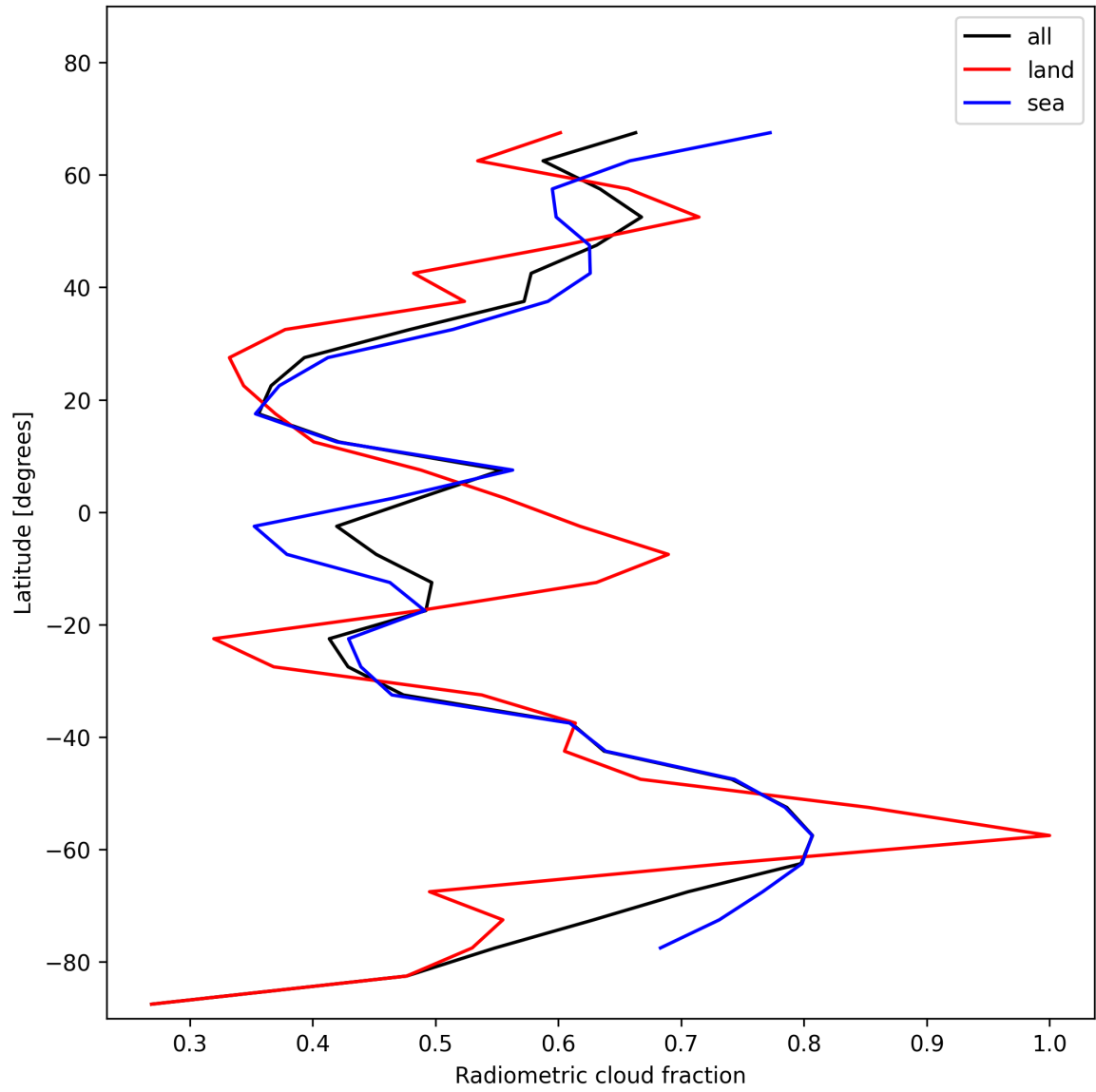


Figure 23: Zonal average of “Radiometric cloud fraction” for 2025-11-19 to 2025-11-21.

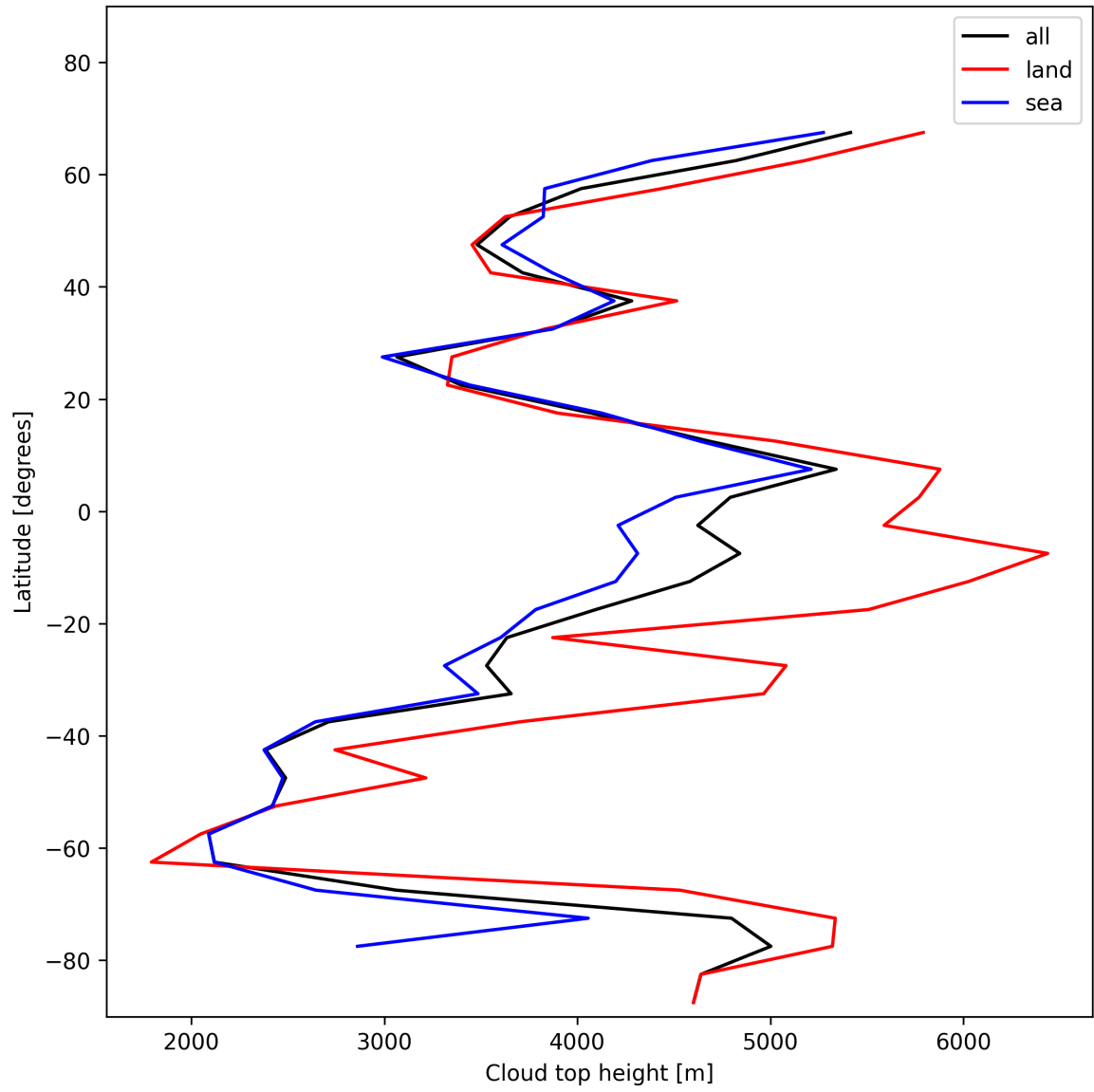


Figure 24: Zonal average of “Cloud top height” for 2025-11-19 to 2025-11-21.

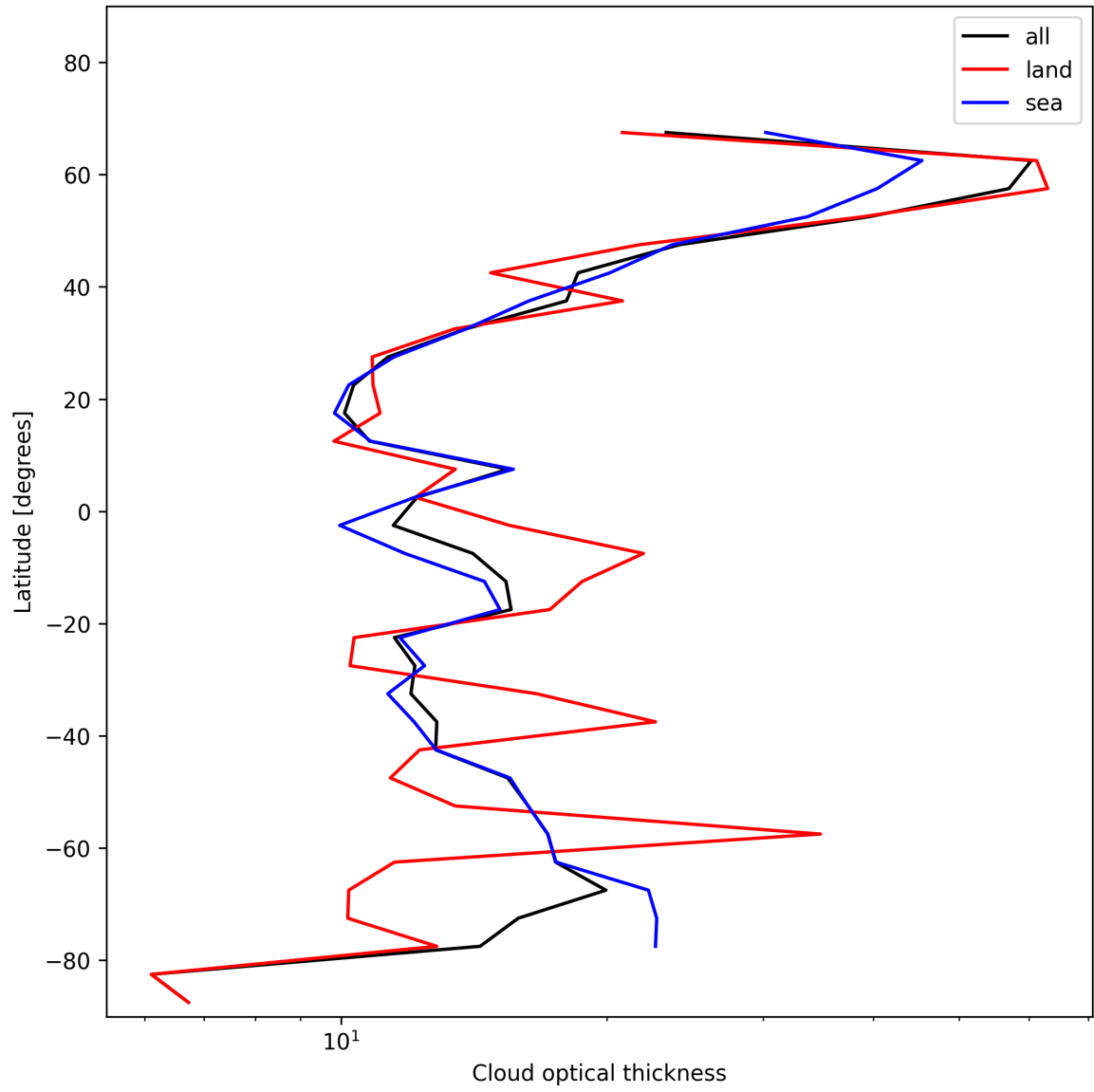


Figure 25: Zonal average of “Cloud optical thickness” for 2025-11-19 to 2025-11-21.

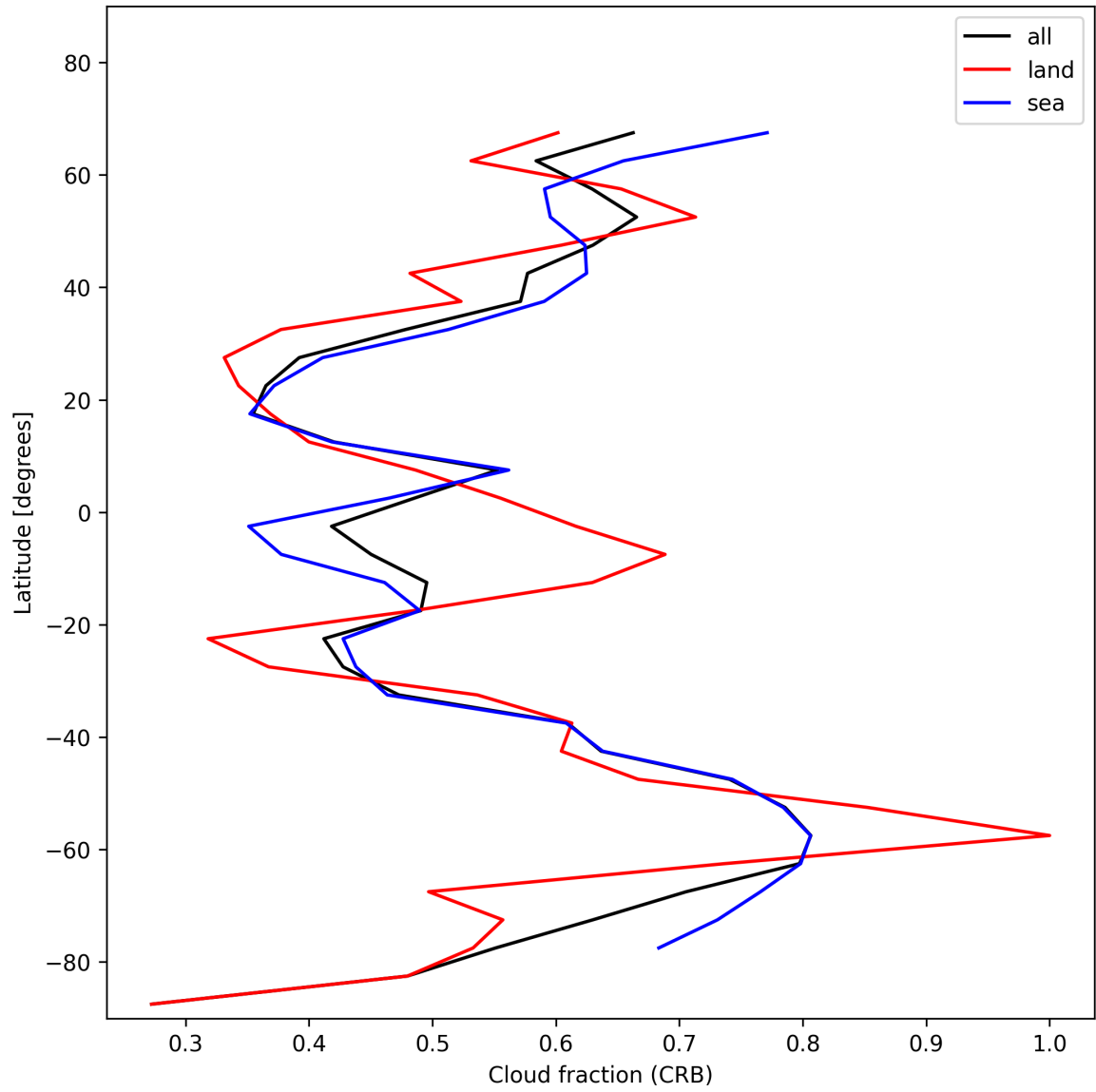


Figure 26: Zonal average of “Cloud fraction (CRB)” for 2025-11-19 to 2025-11-21.

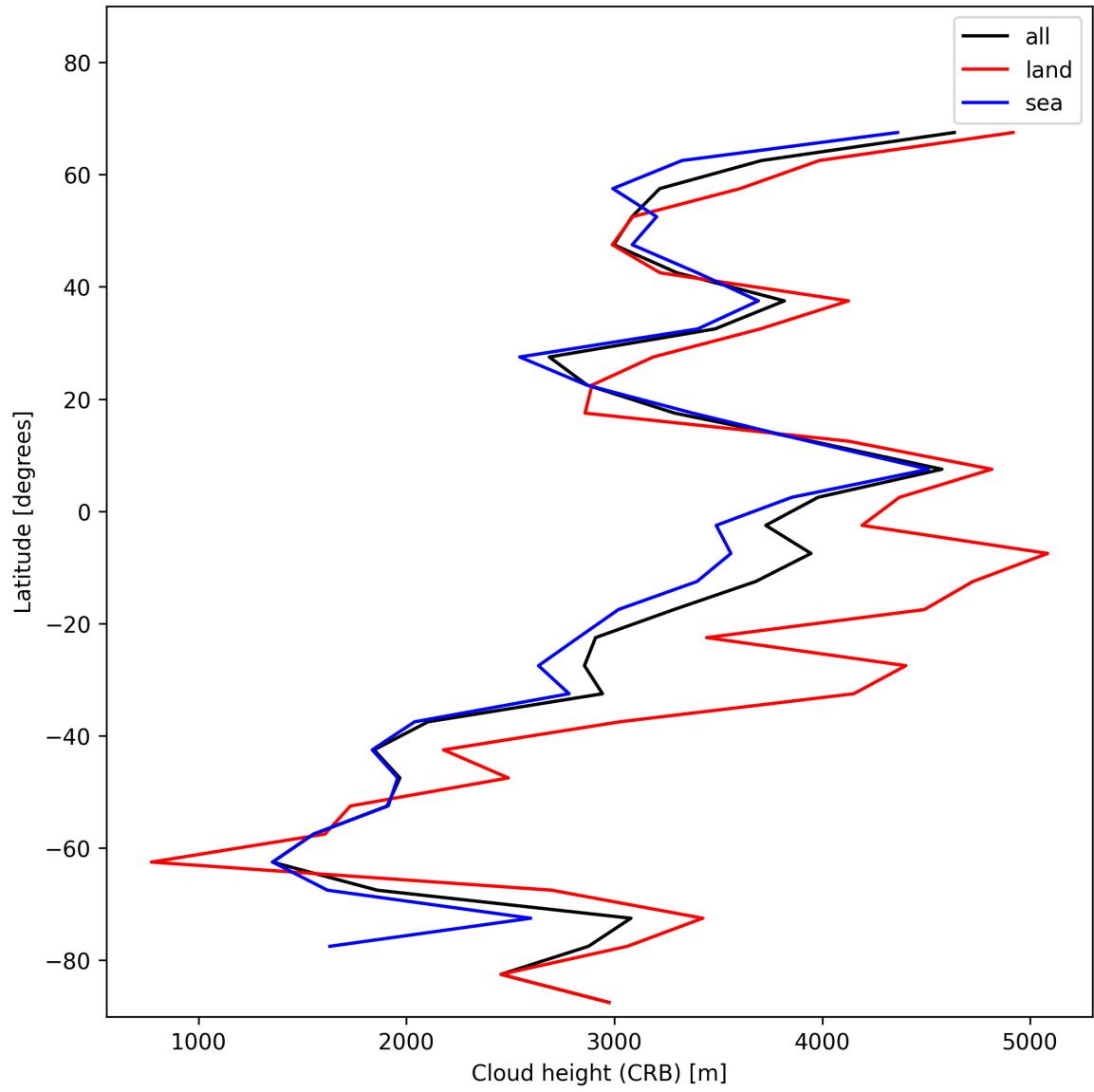


Figure 27: Zonal average of “Cloud height (CRB)” for 2025-11-19 to 2025-11-21.

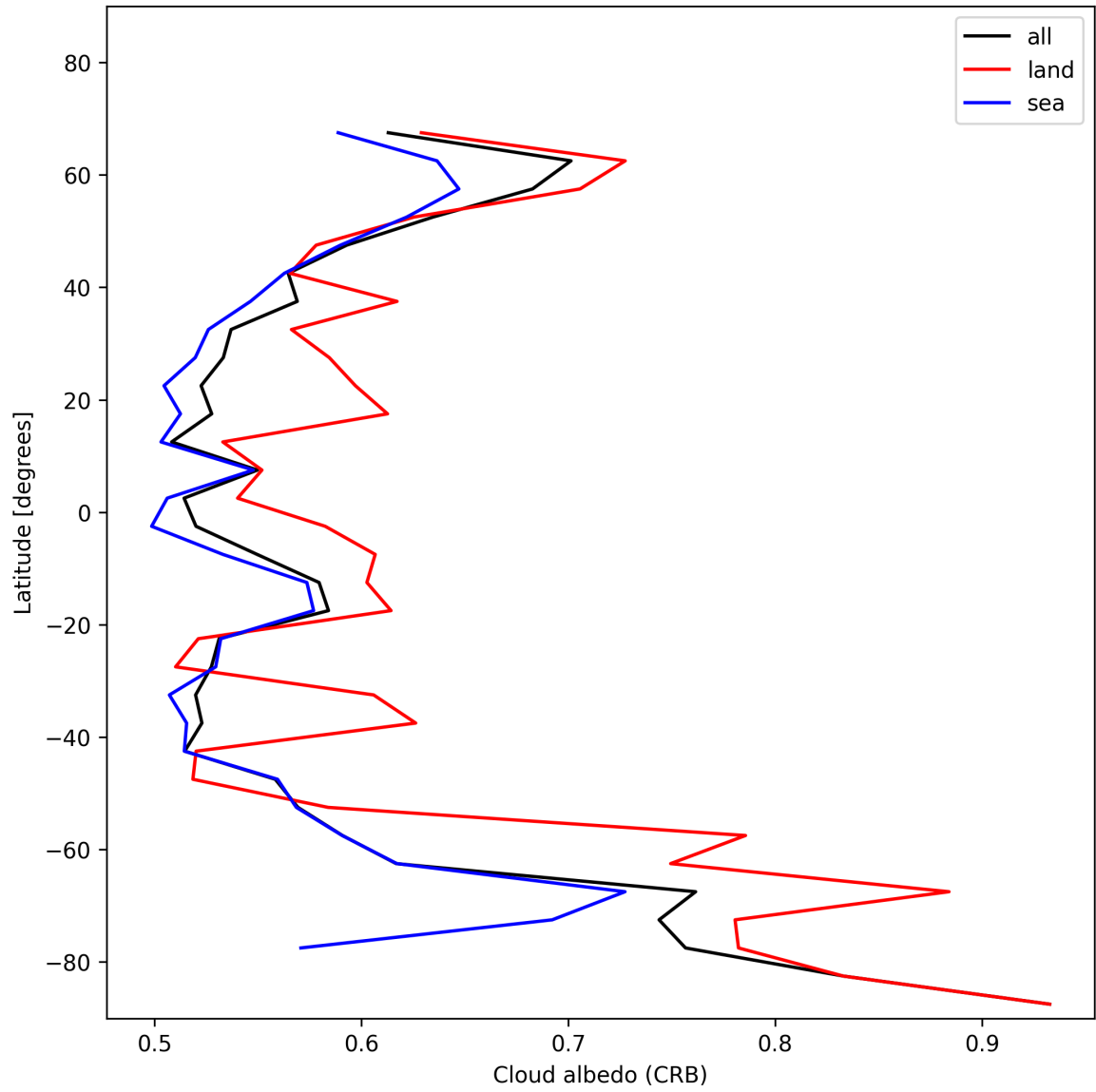


Figure 28: Zonal average of “Cloud albedo (CRB)” for 2025-11-19 to 2025-11-21.

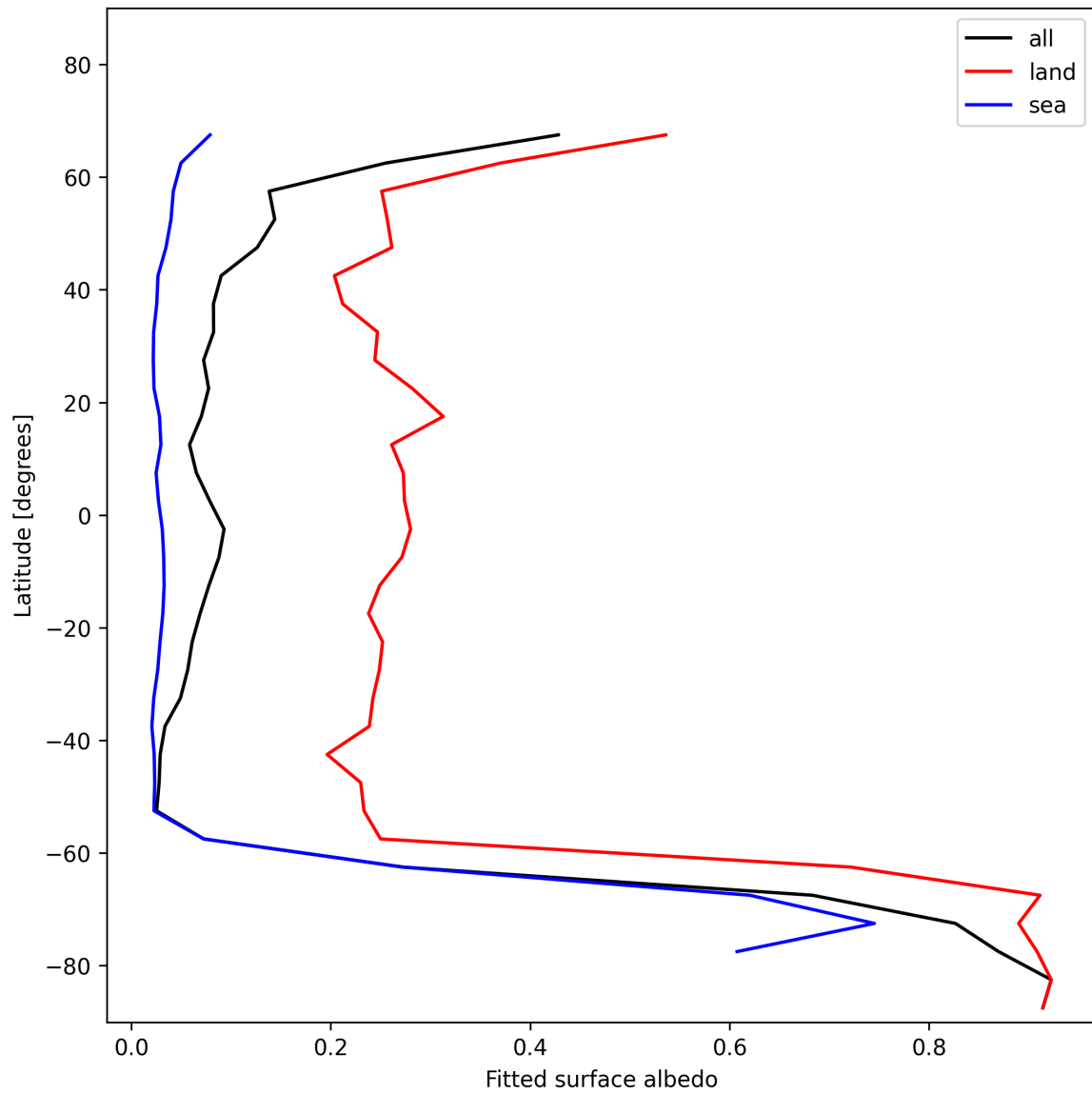


Figure 29: Zonal average of “Fitted surface albedo” for 2025-11-19 to 2025-11-21.

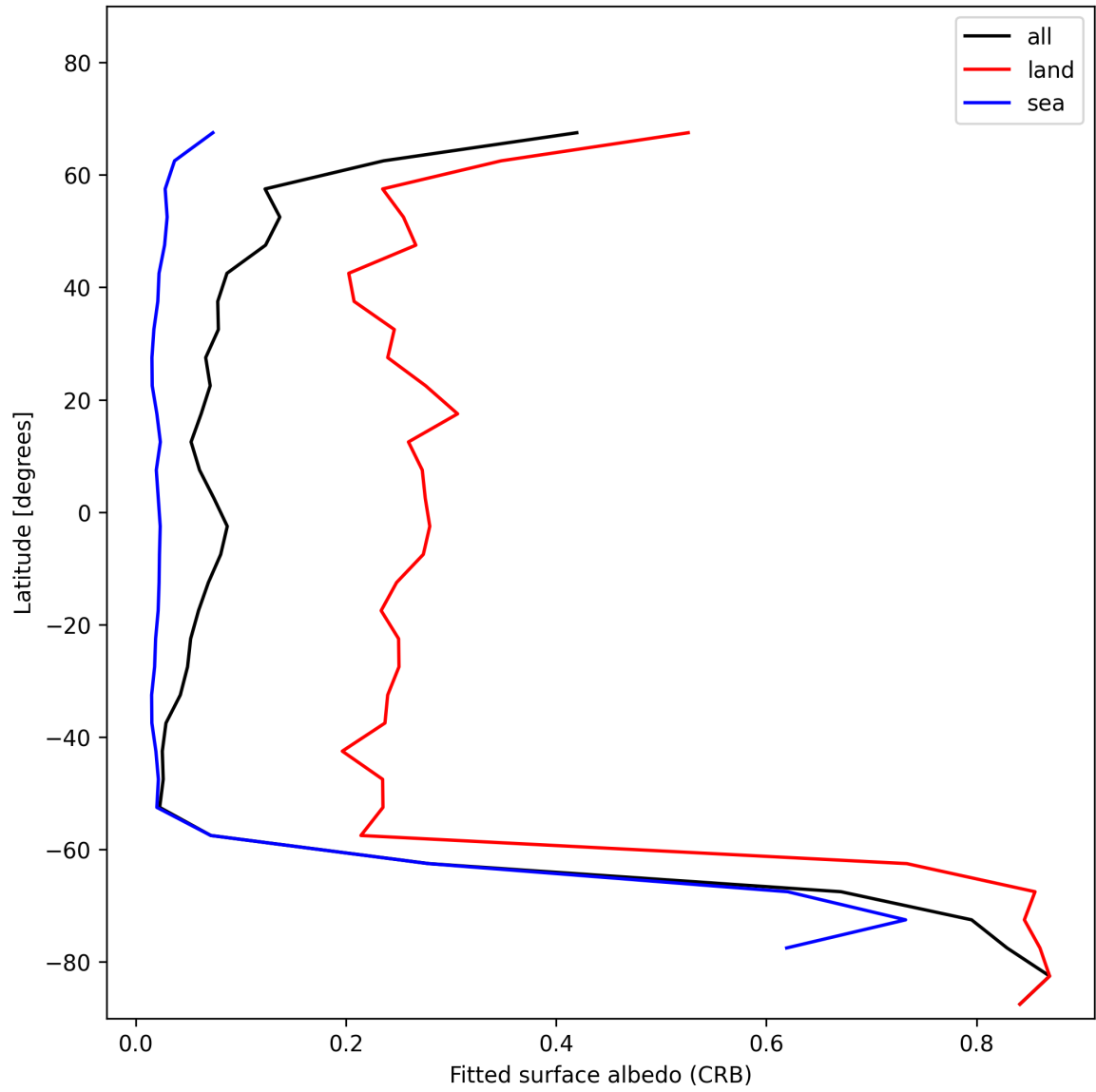


Figure 30: Zonal average of “Fitted surface albedo (CRB)” for 2025-11-19 to 2025-11-21.

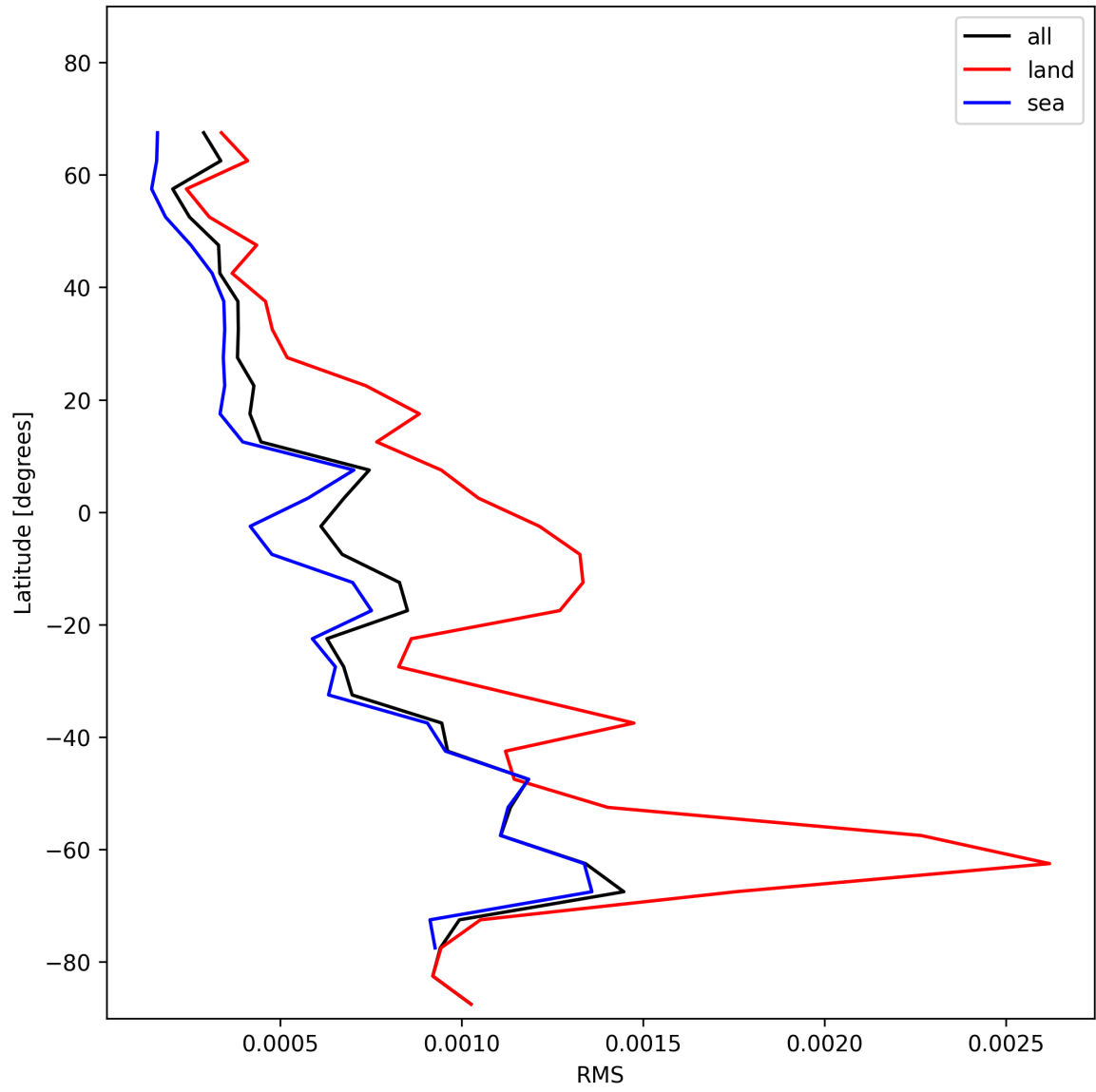


Figure 31: Zonal average of “RMS” for 2025-11-19 to 2025-11-21.

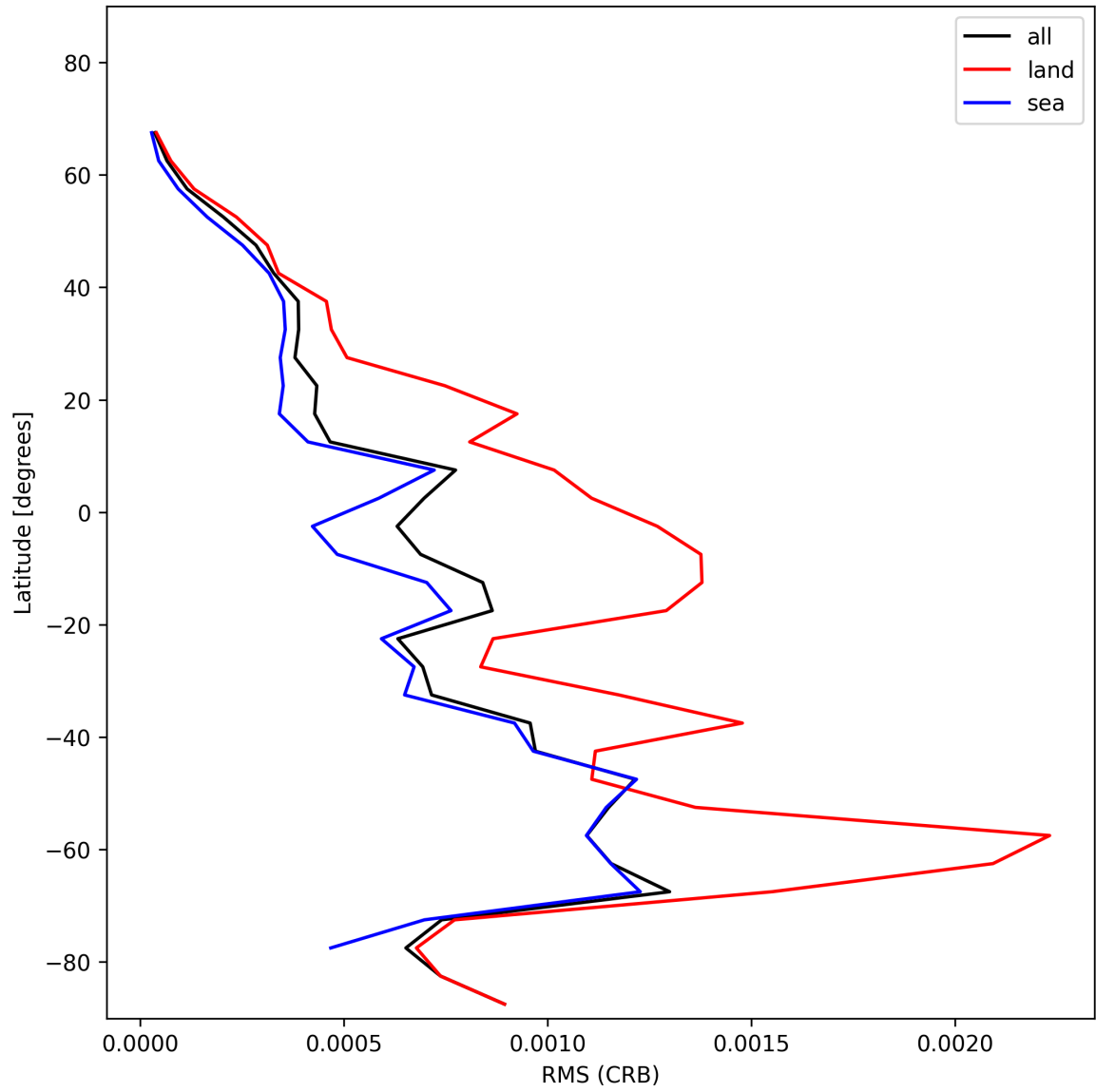


Figure 32: Zonal average of “RMS (CRB)” for 2025-11-19 to 2025-11-21.

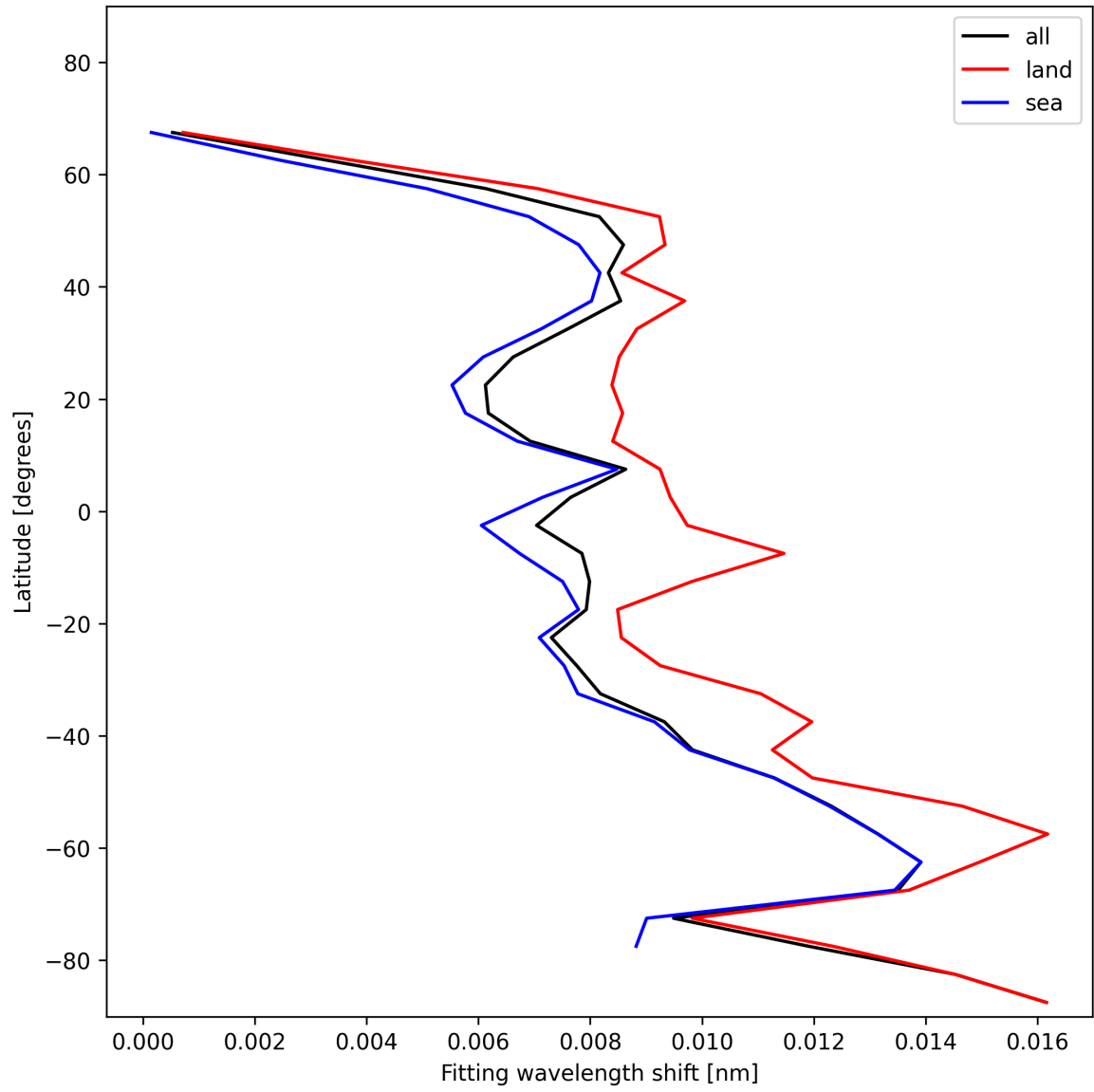


Figure 33: Zonal average of “Fitting wavelength shift” for 2025-11-19 to 2025-11-21.

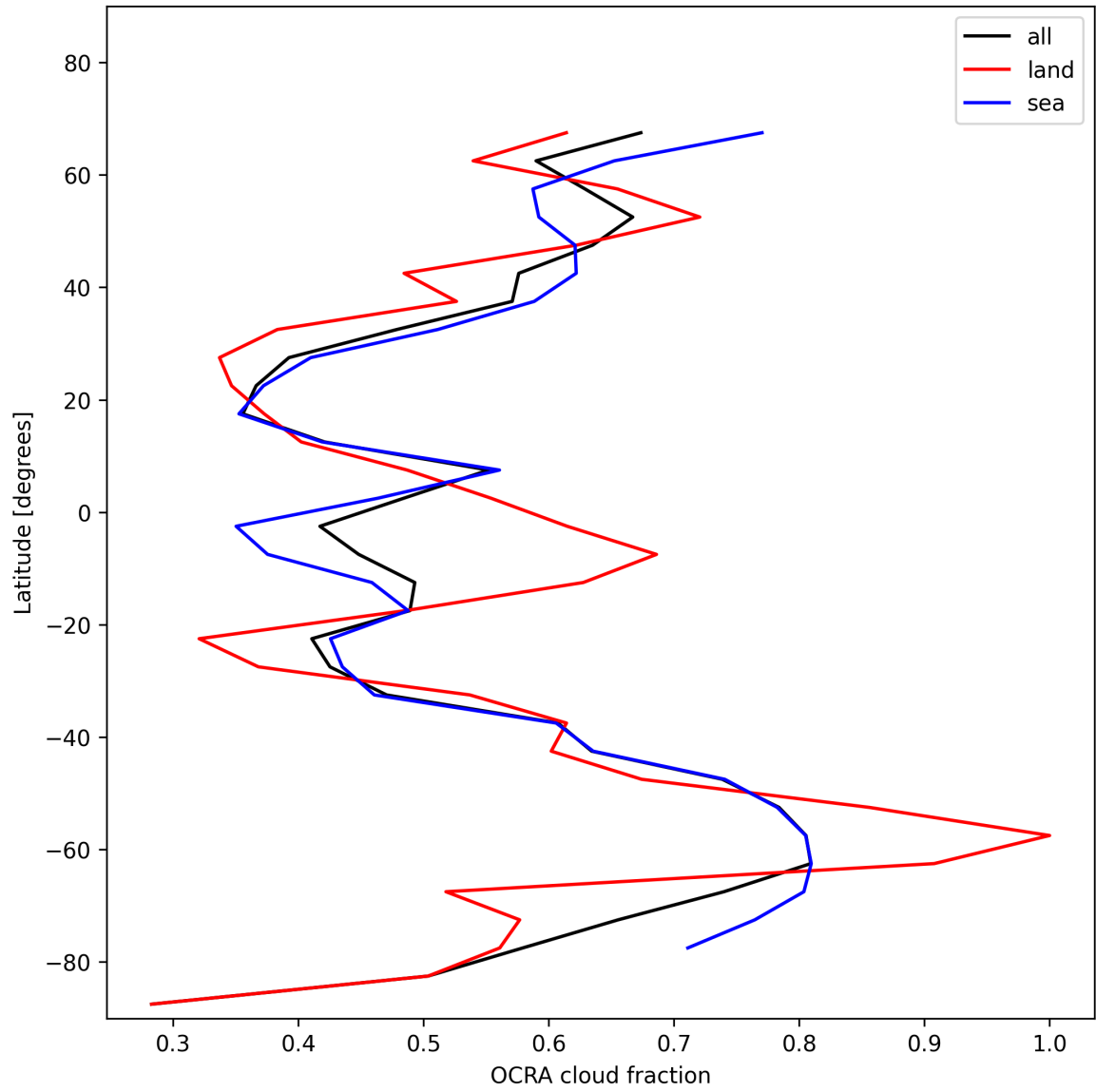


Figure 34: Zonal average of “OCRA cloud fraction” for 2025-11-19 to 2025-11-21.

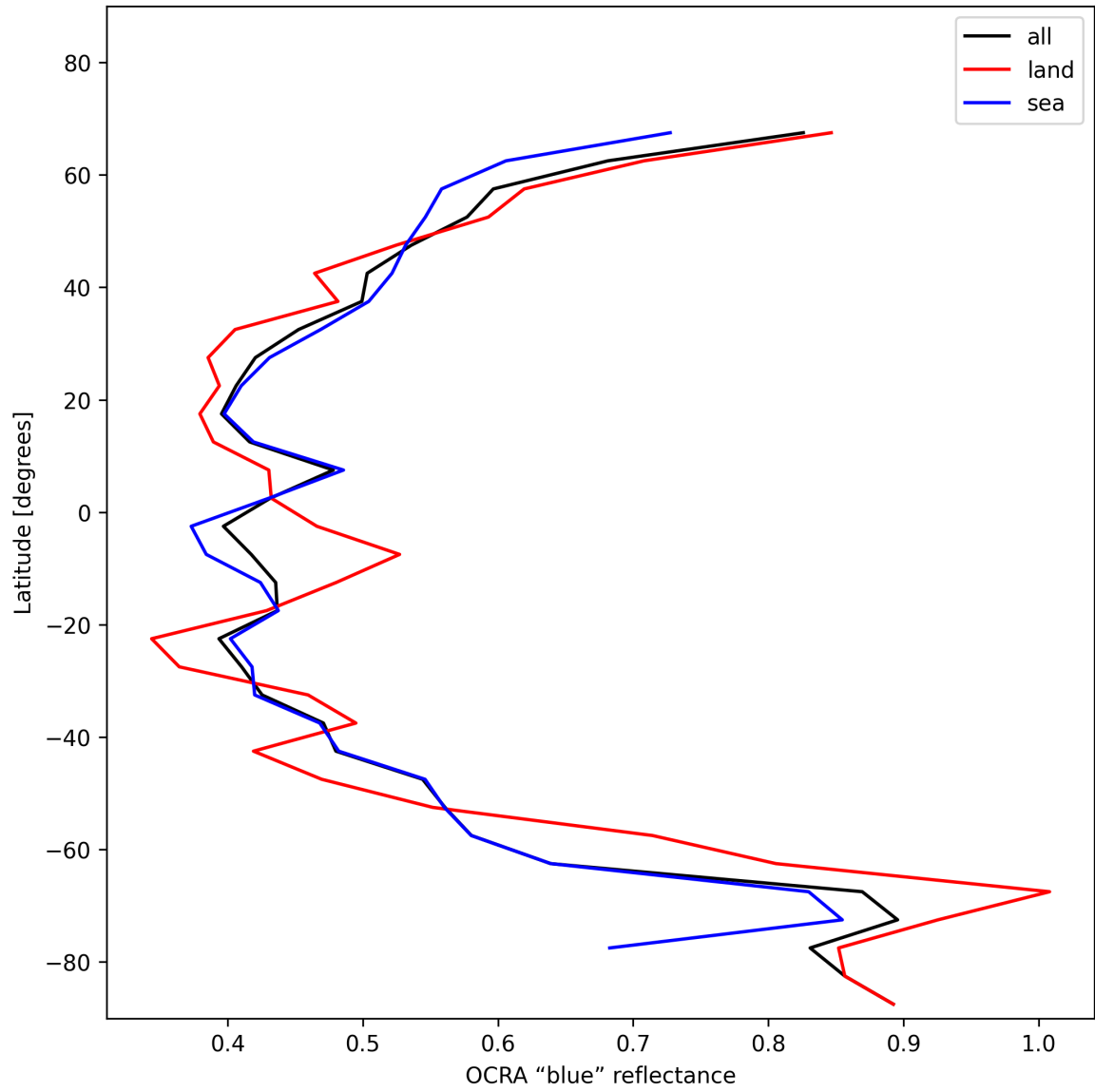


Figure 35: Zonal average of "OCRA "blue" reflectance" for 2025-11-19 to 2025-11-21.

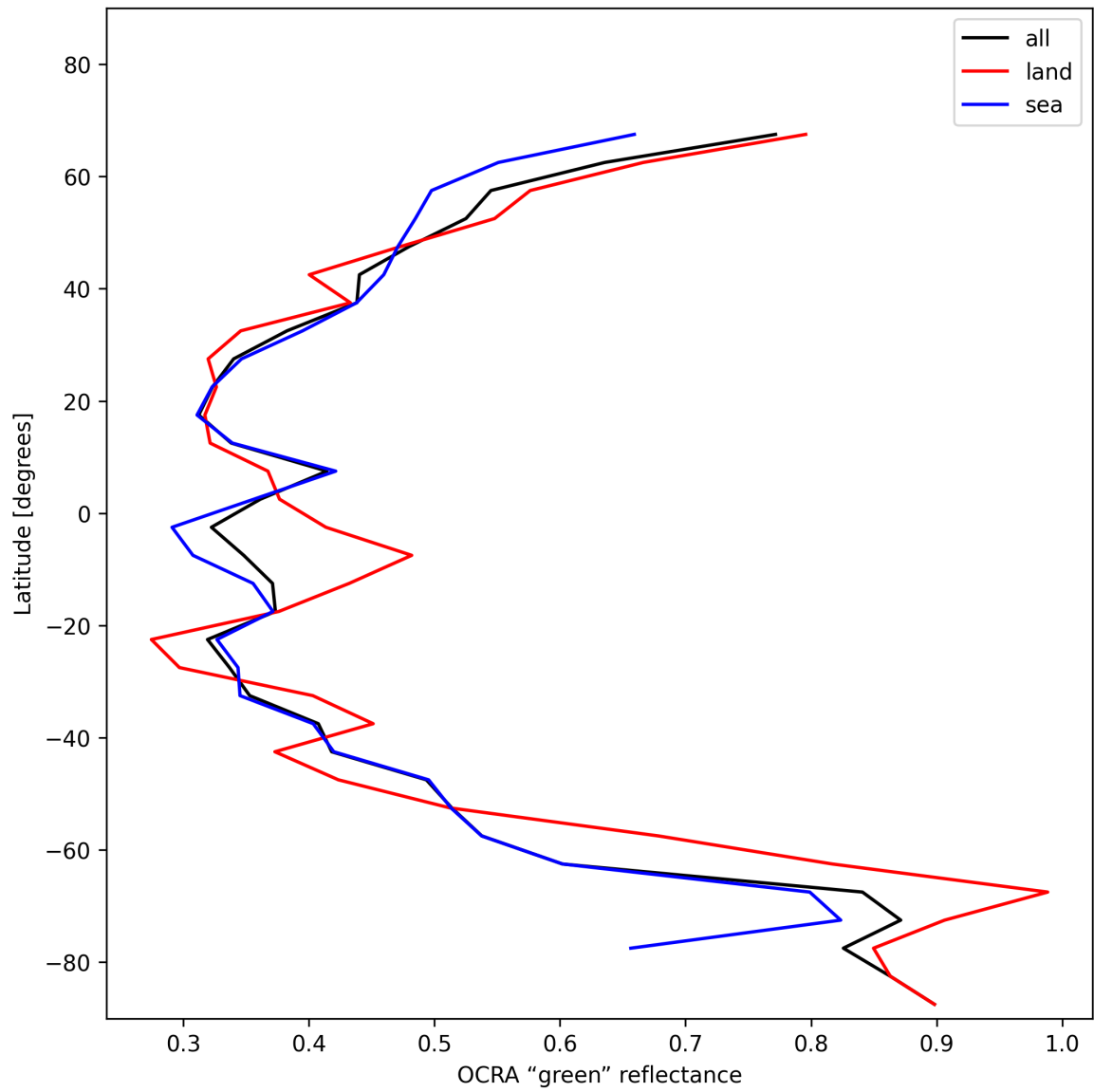


Figure 36: Zonal average of “OCRA “green” reflectance” for 2025-11-19 to 2025-11-21.

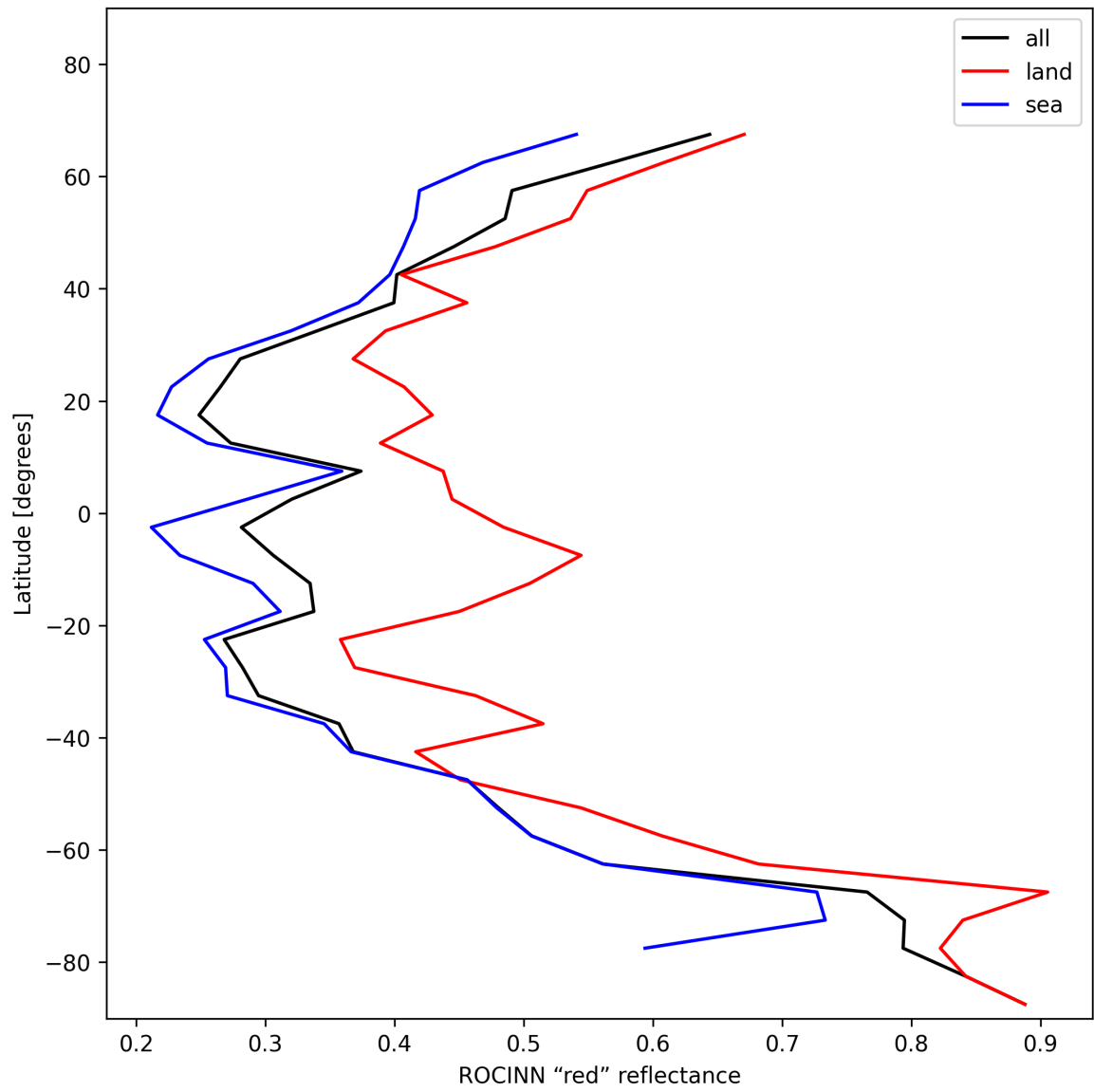


Figure 37: Zonal average of “ROCINN “red” reflectance” for 2025-11-19 to 2025-11-21.

8 Histograms

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

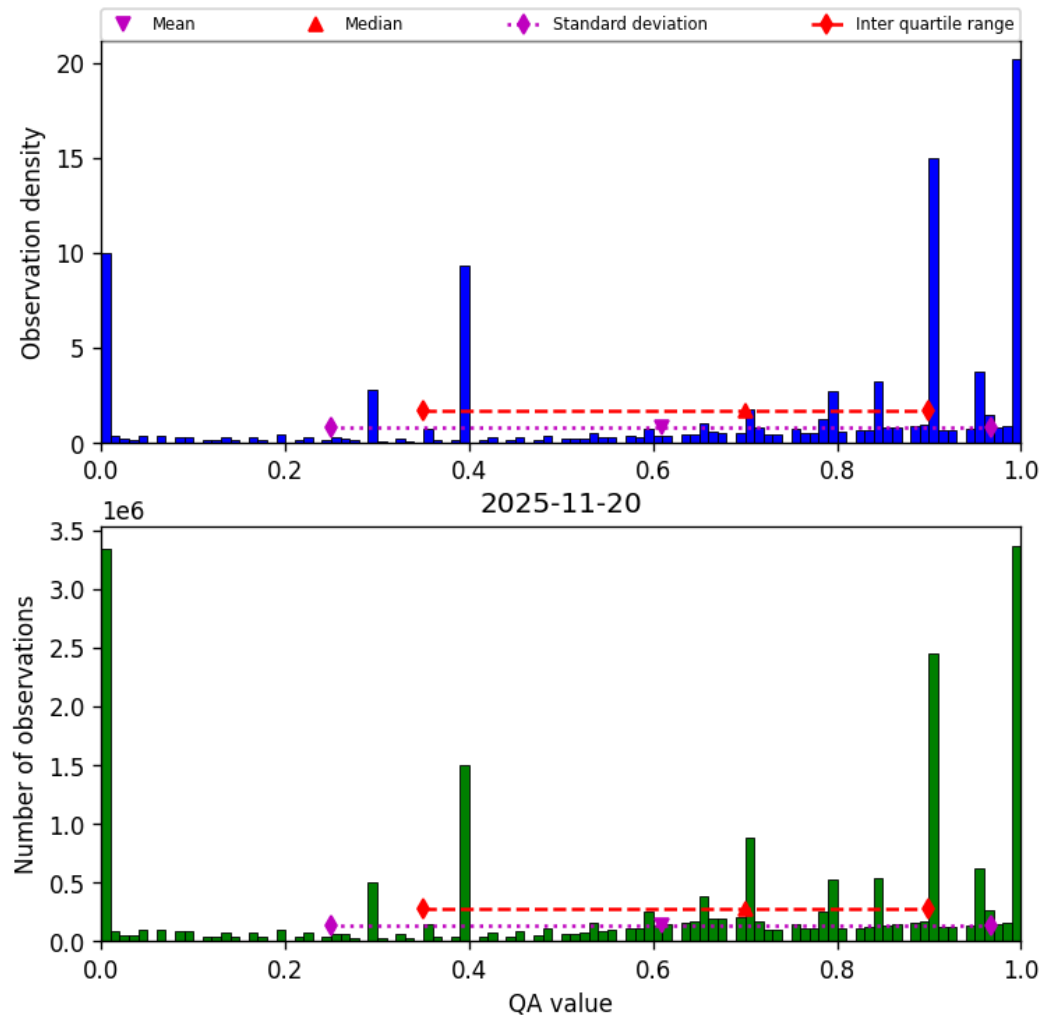


Figure 38: Histogram of “QA value” for 2025-11-19 to 2025-11-21

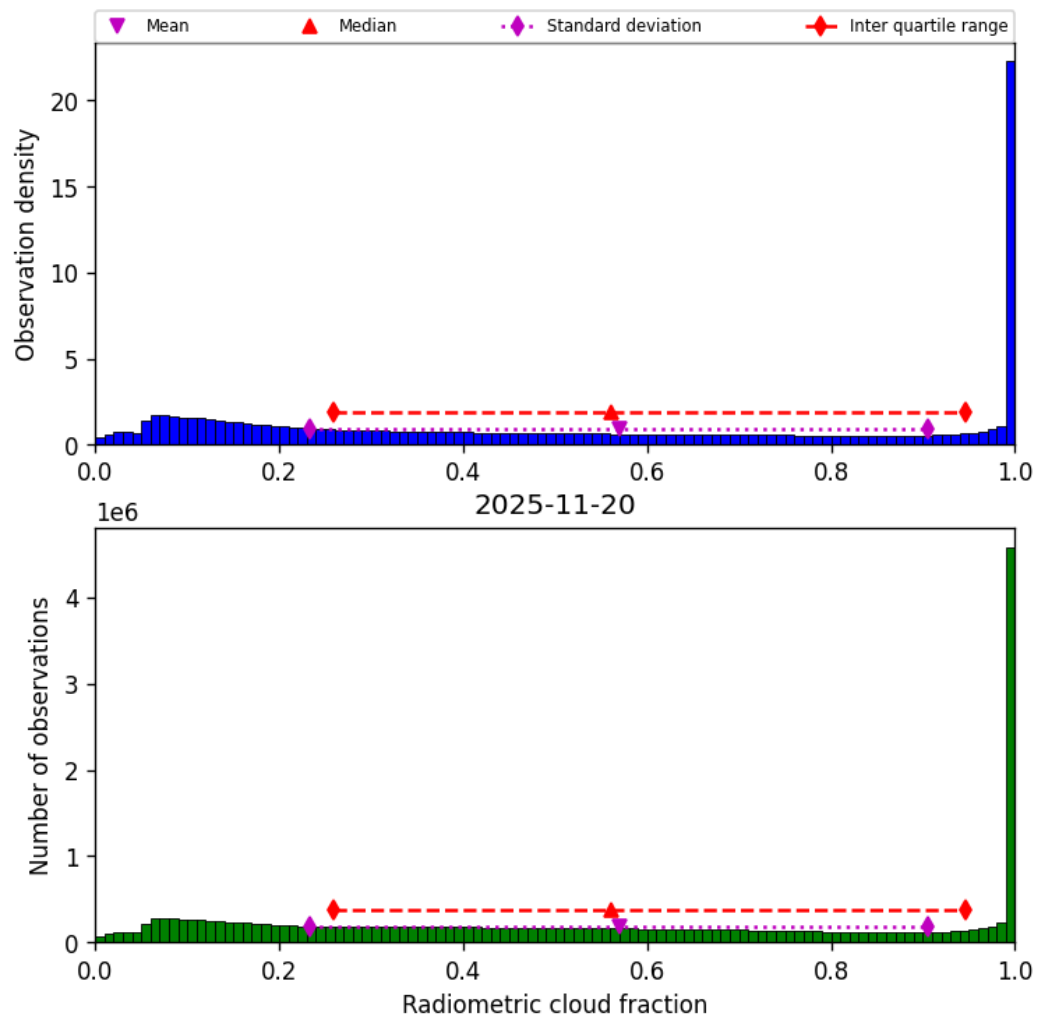


Figure 39: Histogram of “Radiometric cloud fraction” for 2025-11-19 to 2025-11-21

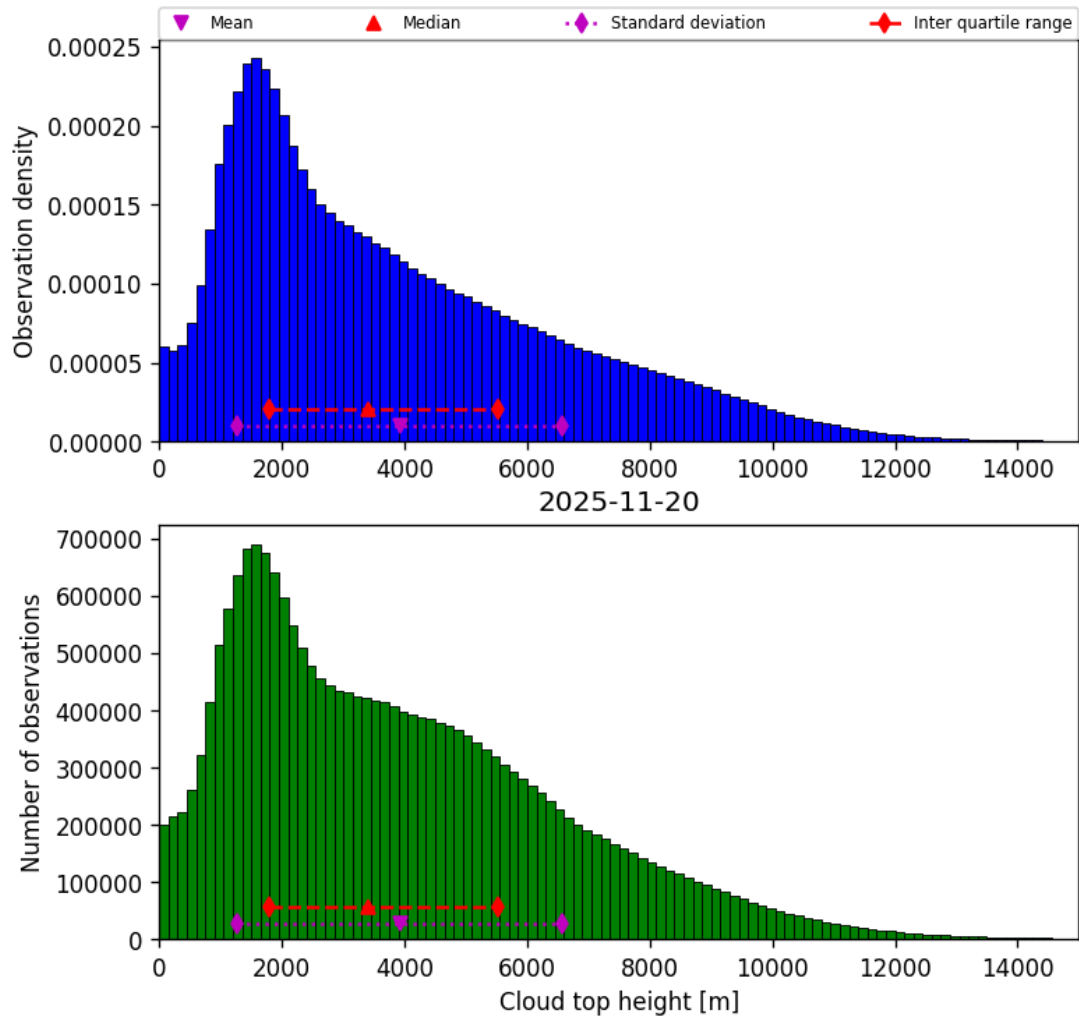


Figure 40: Histogram of “Cloud top height” for 2025-11-19 to 2025-11-21

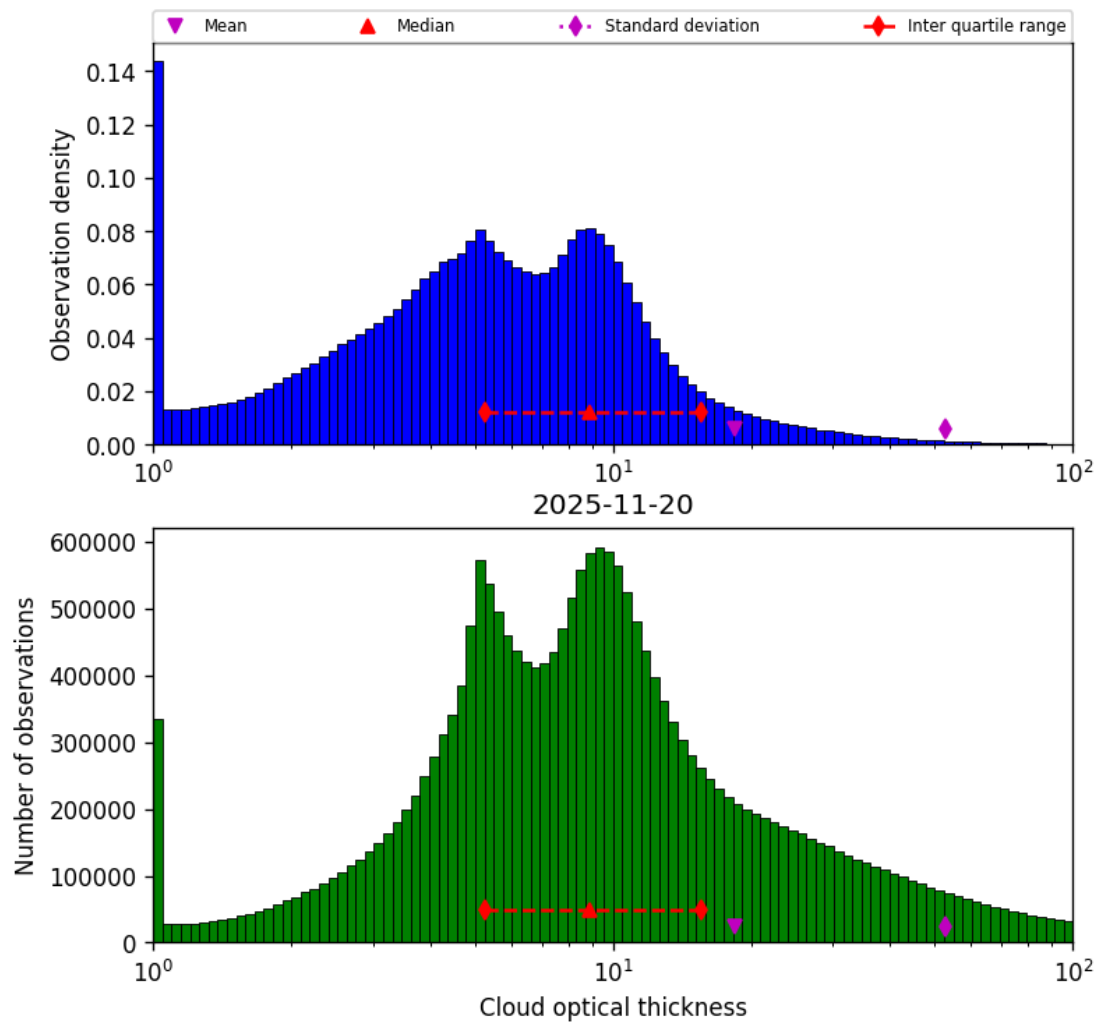


Figure 41: Histogram of “Cloud optical thickness” for 2025-11-19 to 2025-11-21

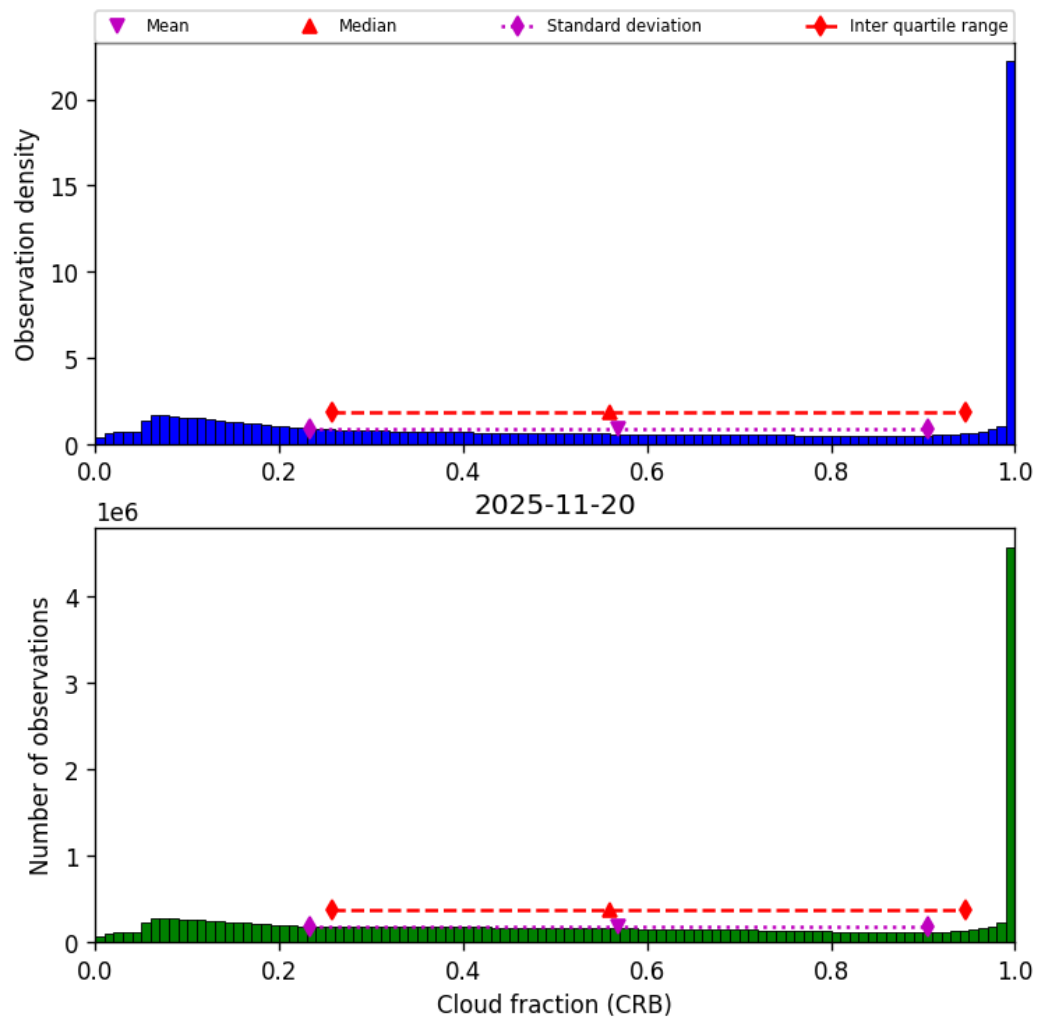


Figure 42: Histogram of “Cloud fraction (CRB)” for 2025-11-19 to 2025-11-21

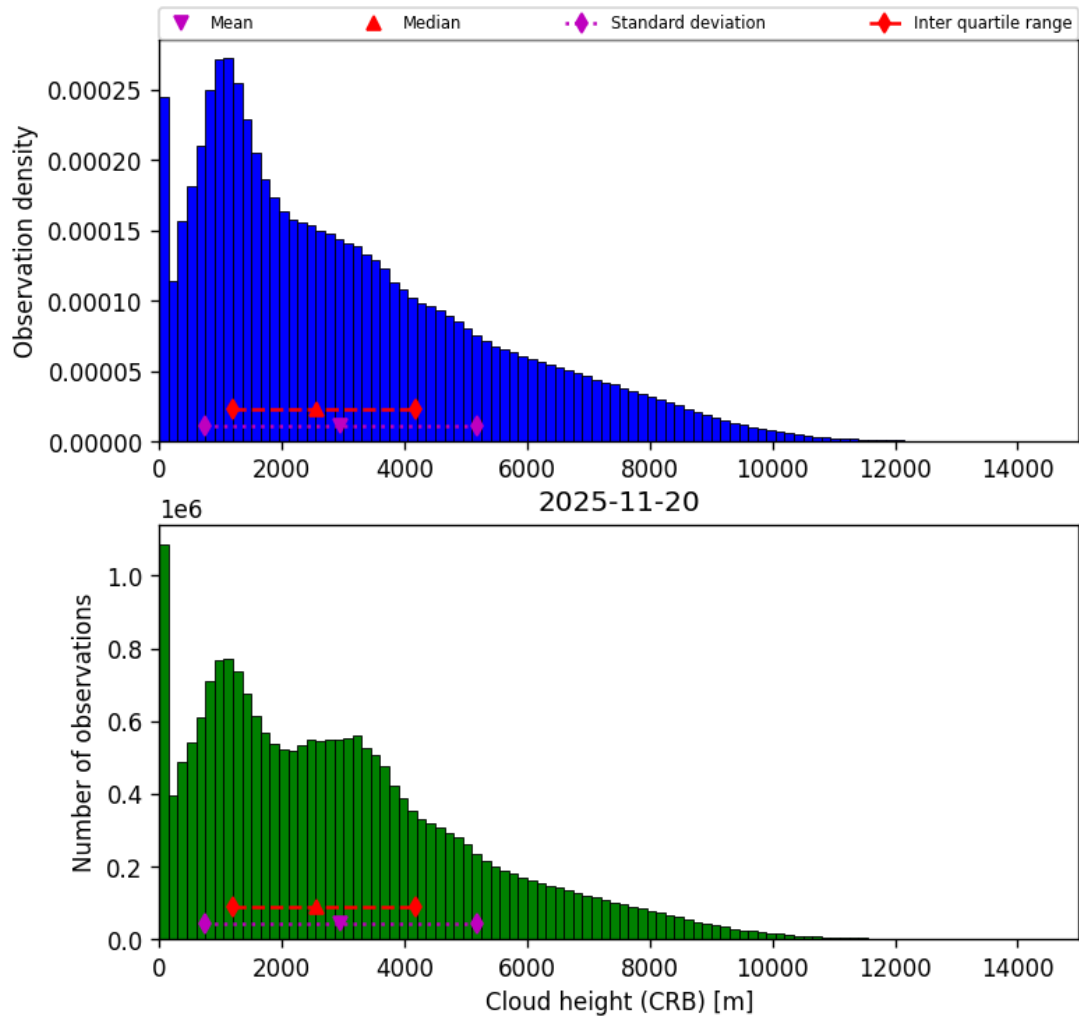


Figure 43: Histogram of “Cloud height (CRB)” for 2025-11-19 to 2025-11-21

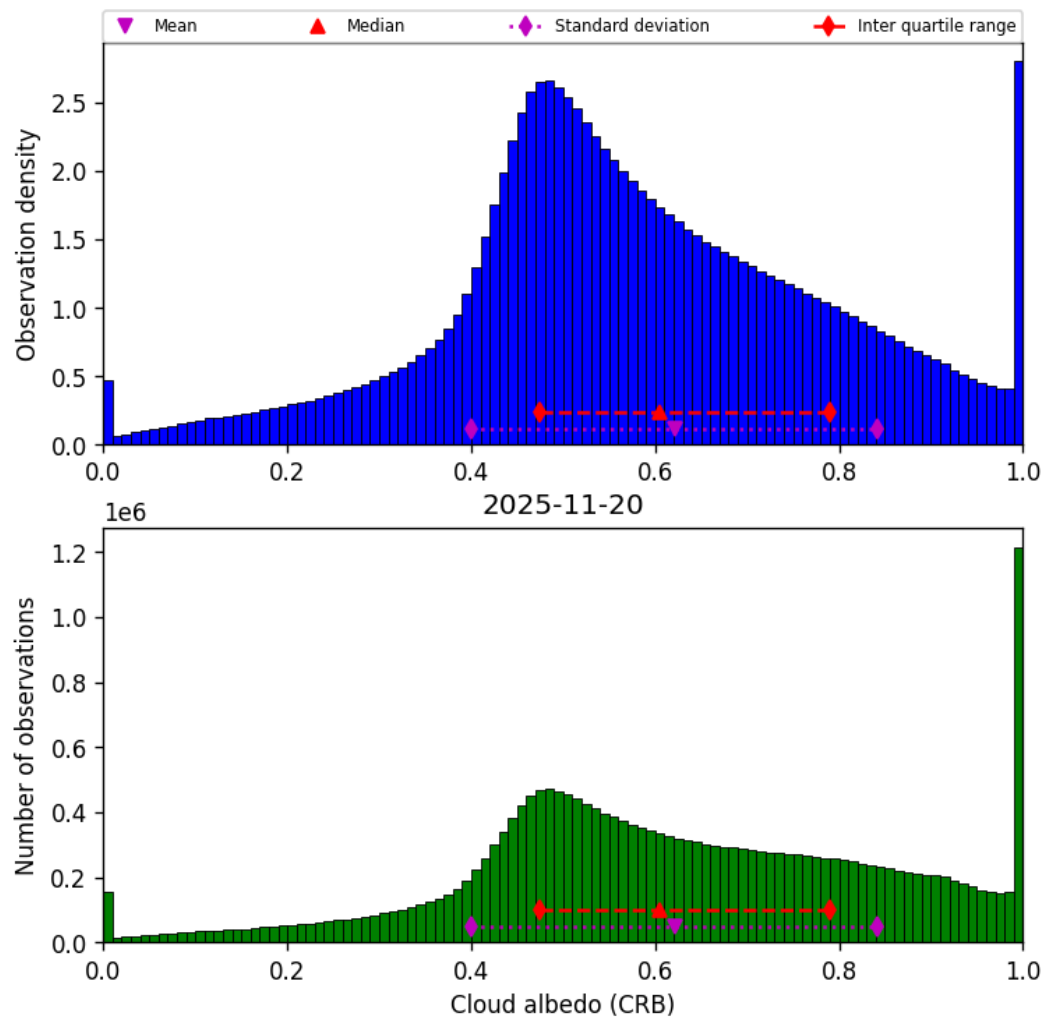


Figure 44: Histogram of “Cloud albedo (CRB)” for 2025-11-19 to 2025-11-21

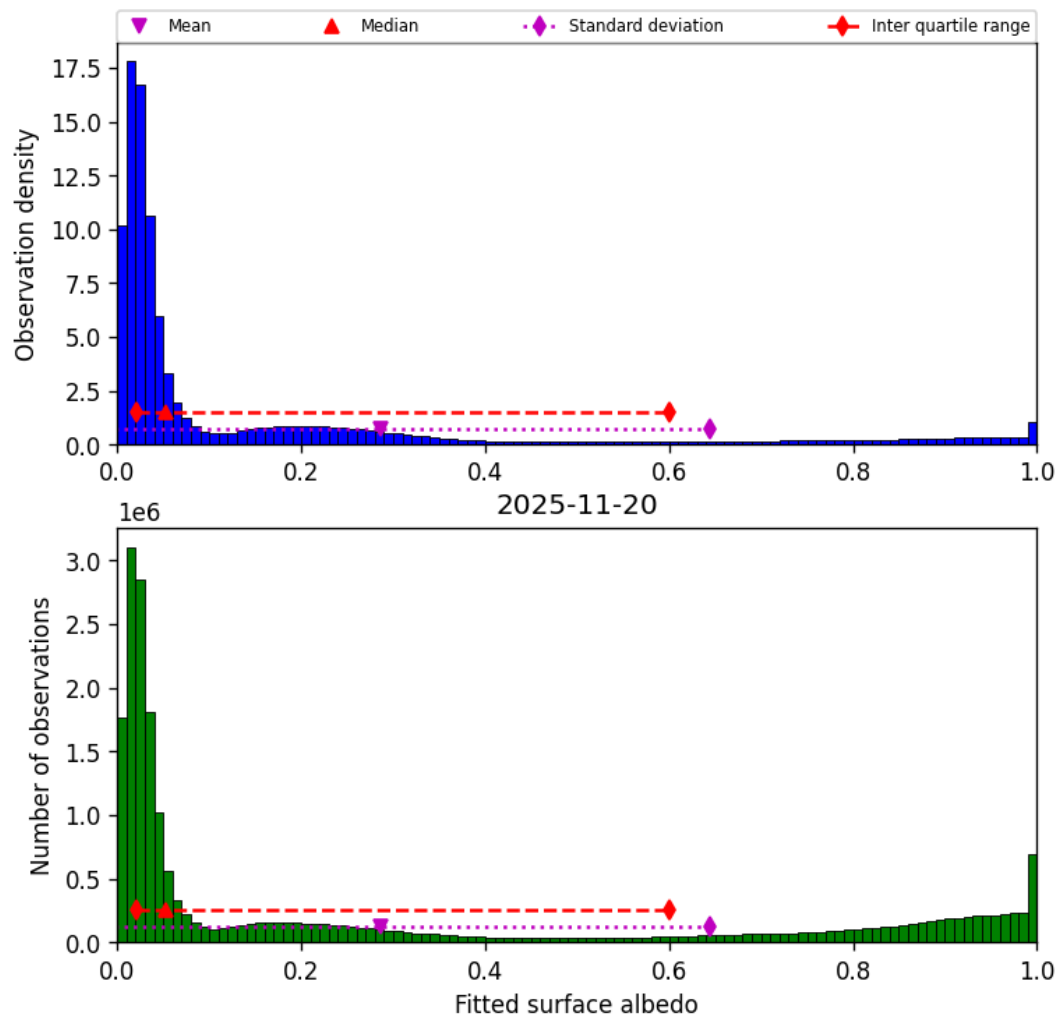


Figure 45: Histogram of “Fitted surface albedo” for 2025-11-19 to 2025-11-21

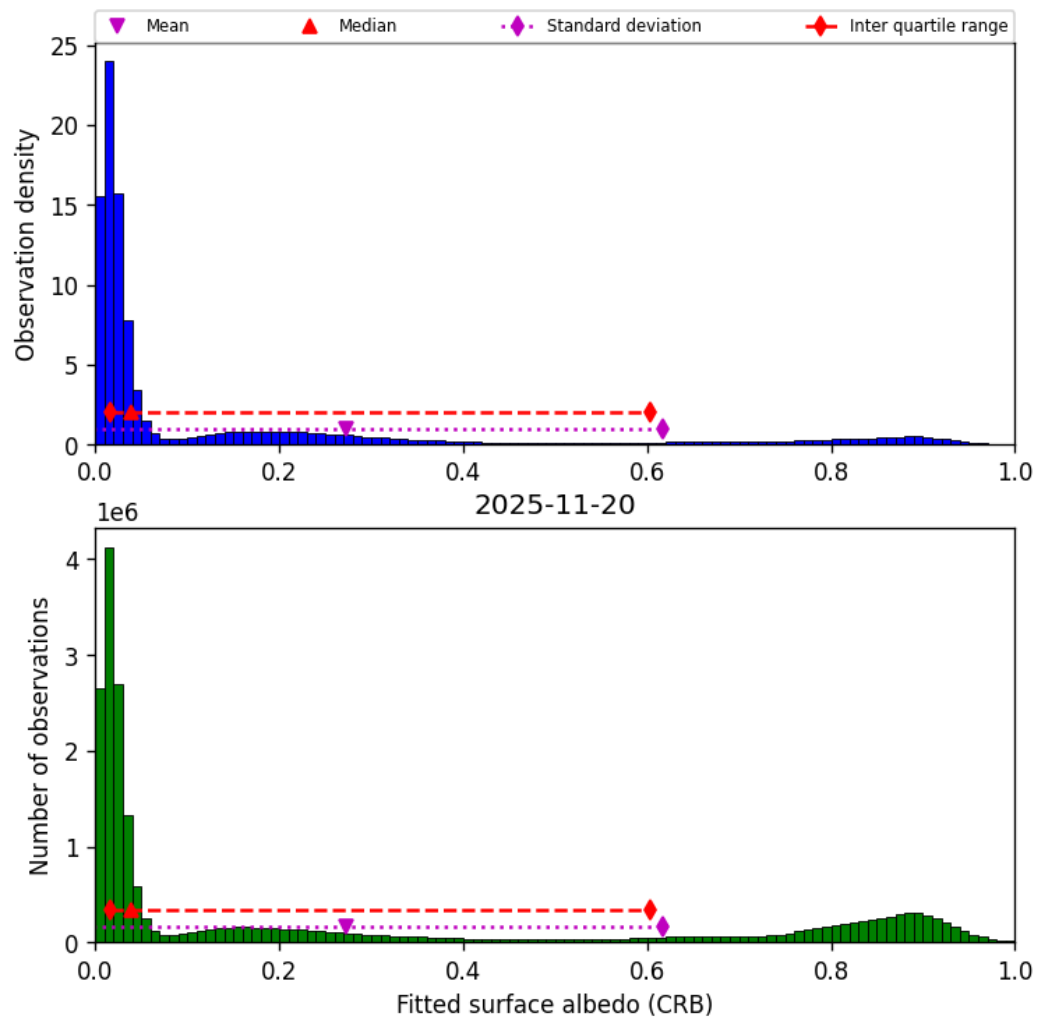


Figure 46: Histogram of “Fitted surface albedo (CRB)” for 2025-11-19 to 2025-11-21

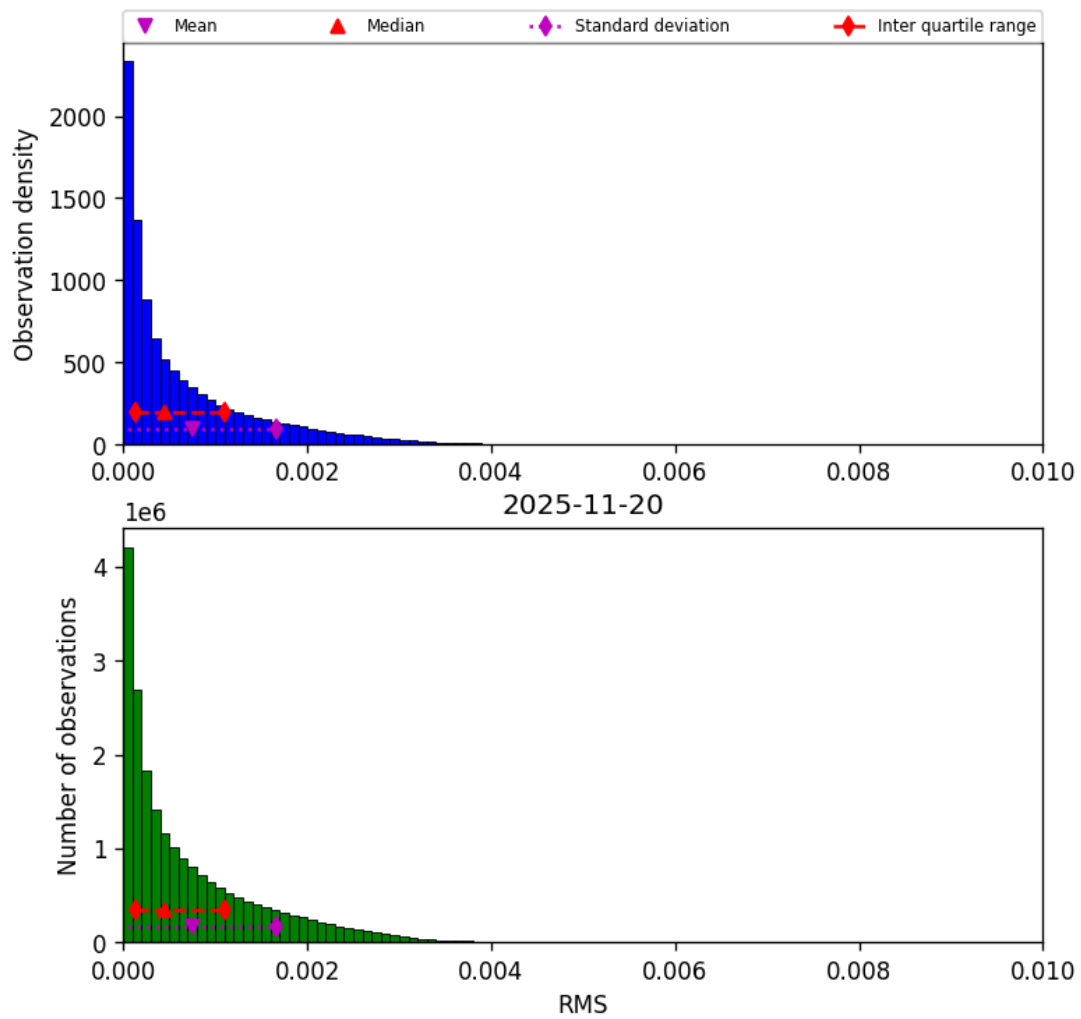


Figure 47: Histogram of “RMS” for 2025-11-19 to 2025-11-21

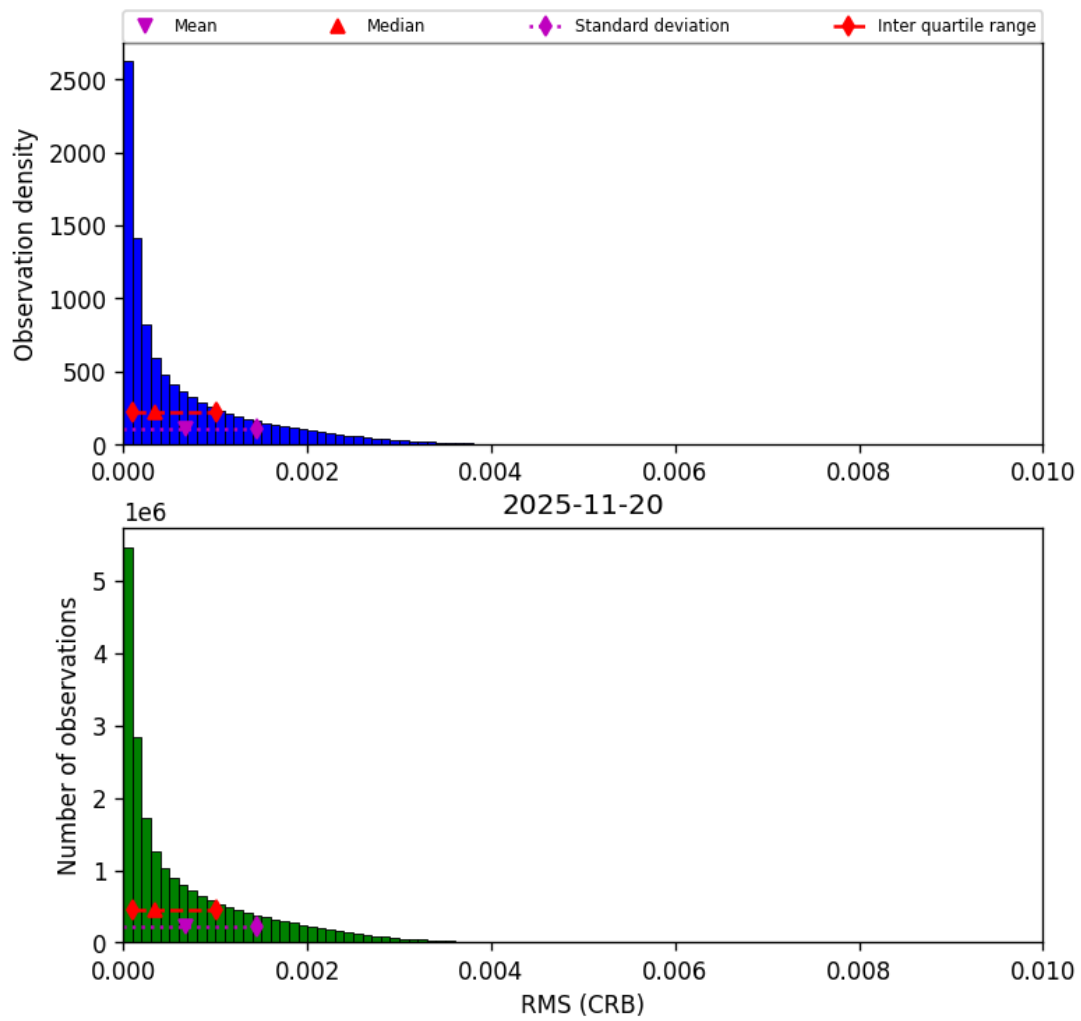


Figure 48: Histogram of “RMS (CRB)” for 2025-11-19 to 2025-11-21

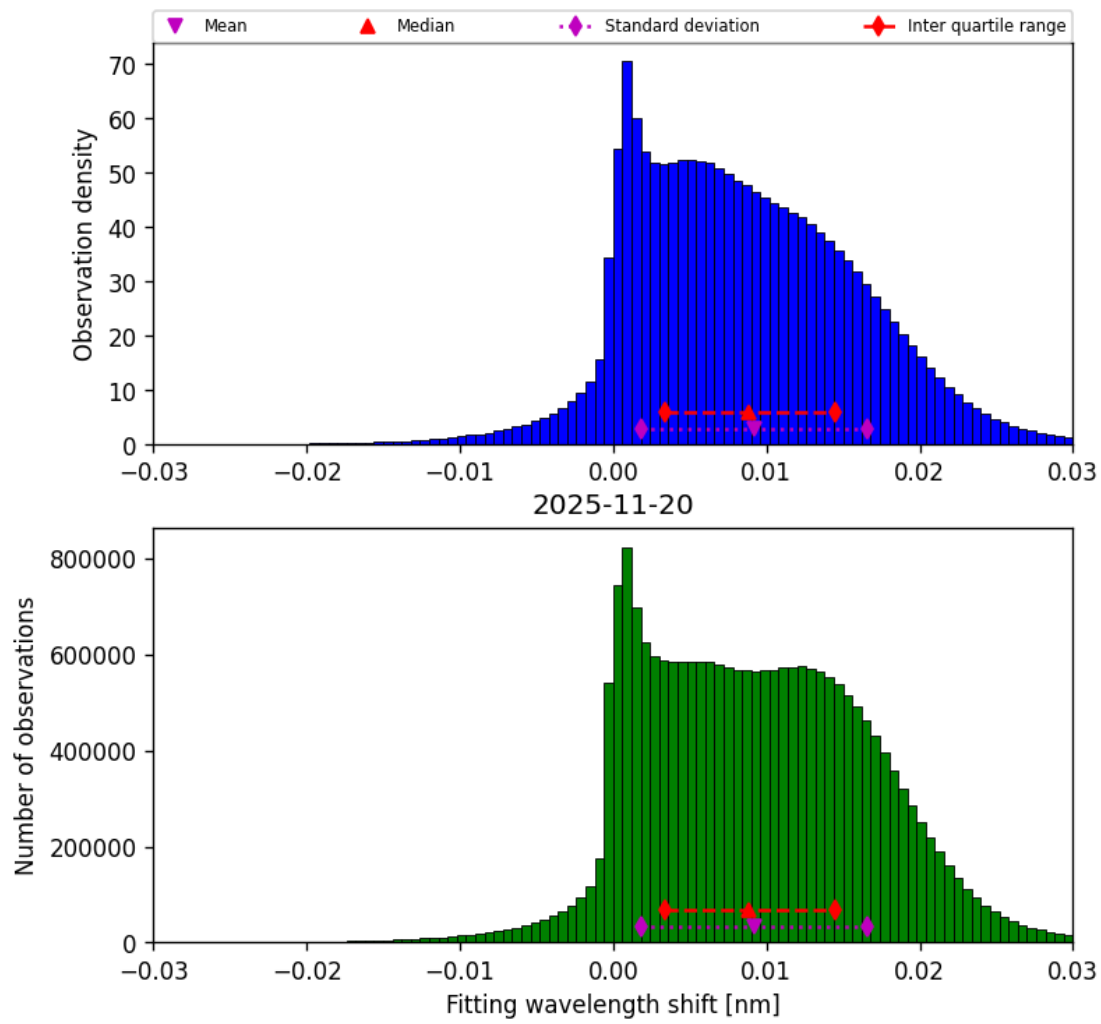


Figure 49: Histogram of “Fitting wavelength shift” for 2025-11-19 to 2025-11-21

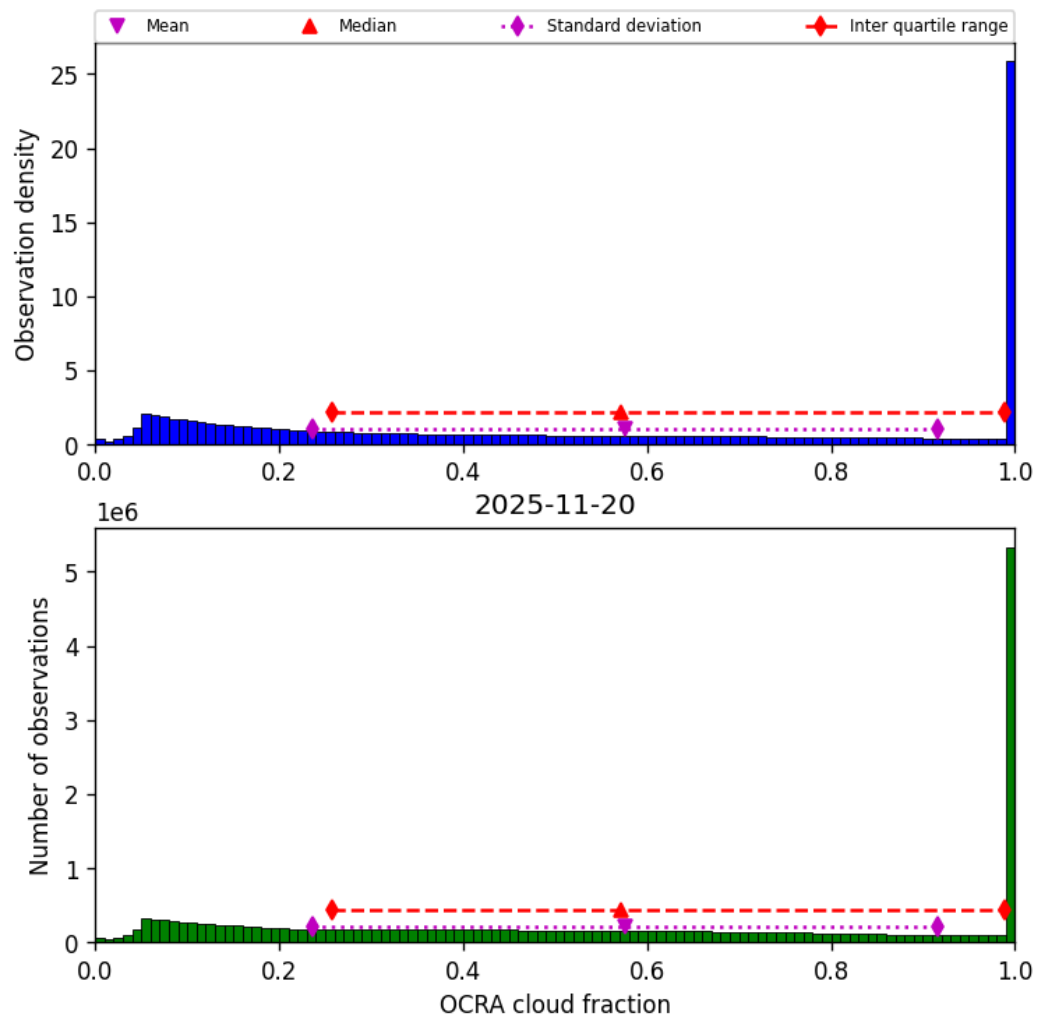


Figure 50: Histogram of “OCRA cloud fraction” for 2025-11-19 to 2025-11-21

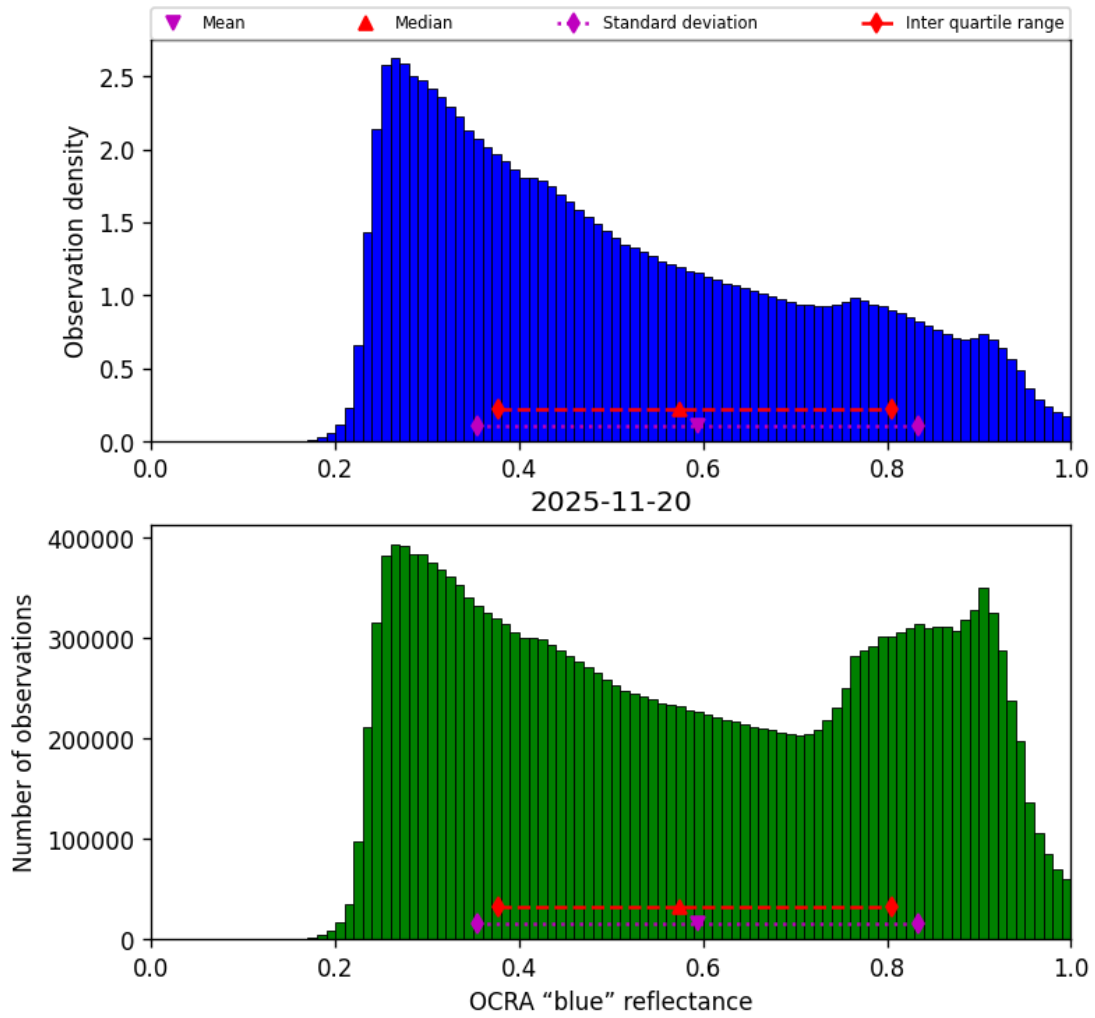


Figure 51: Histogram of “OCRA “blue” reflectance” for 2025-11-19 to 2025-11-21

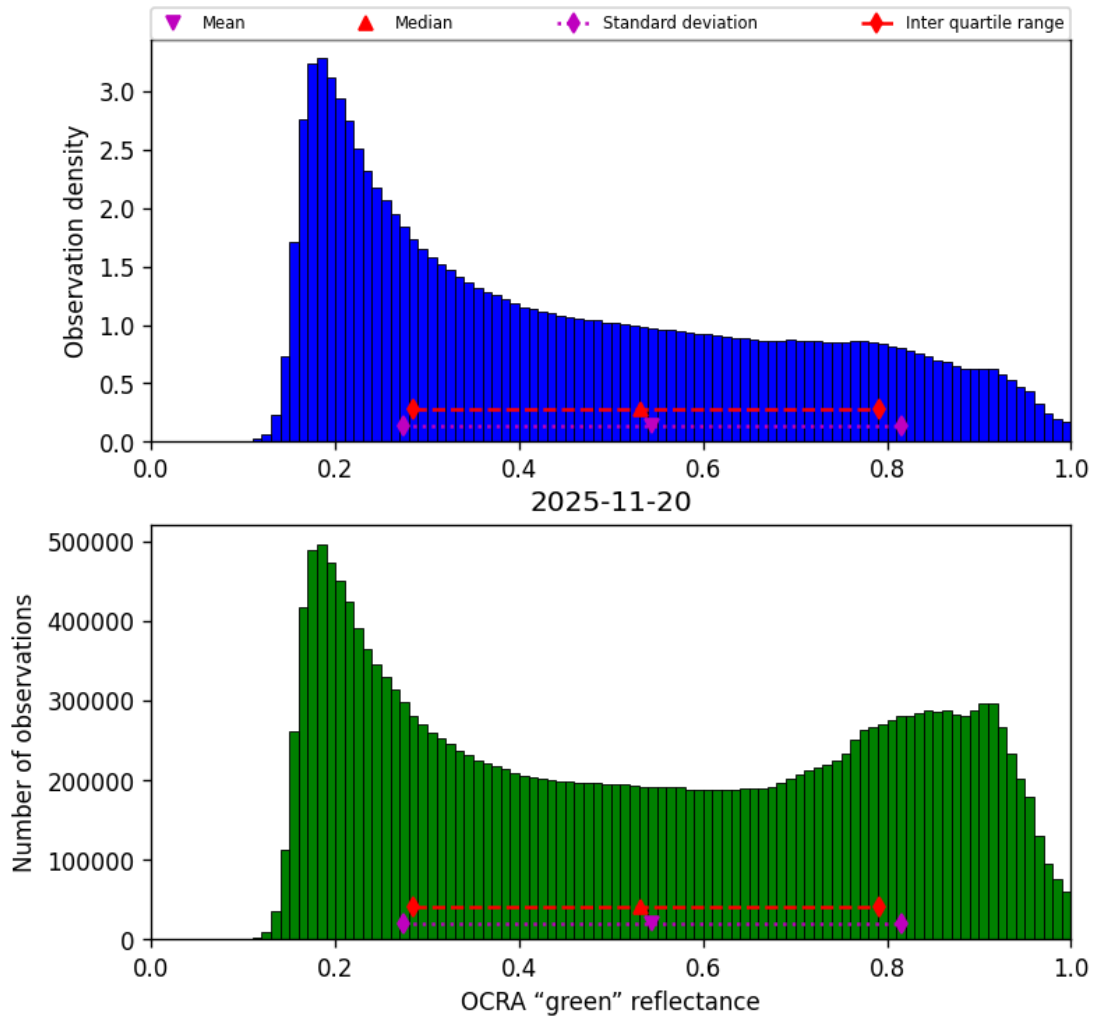


Figure 52: Histogram of “OCRA “green” reflectance” for 2025-11-19 to 2025-11-21

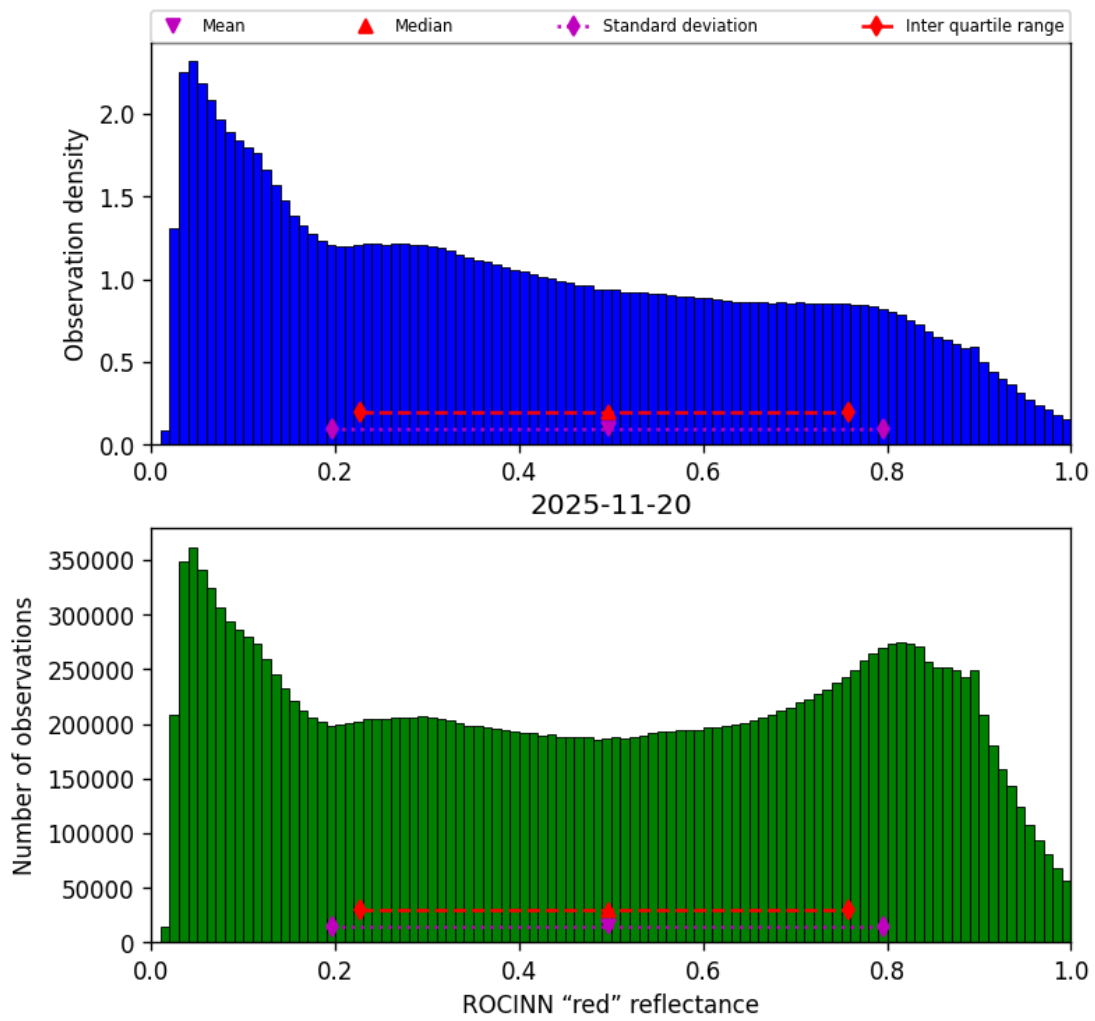


Figure 53: Histogram of “ROCINN “red” reflectance” for 2025-11-19 to 2025-11-21

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.

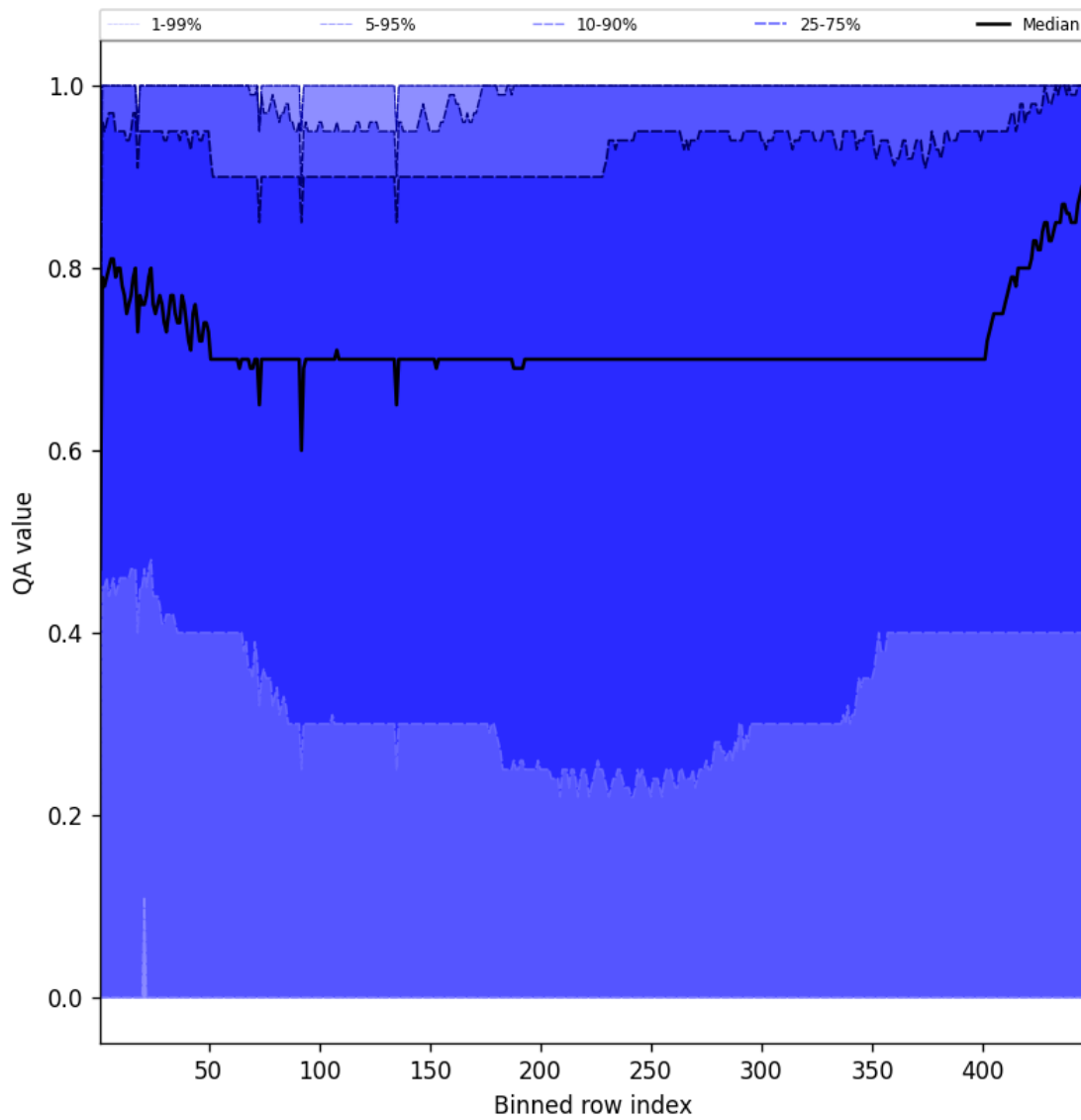


Figure 54: Along track statistics of “QA value” for 2025-11-19 to 2025-11-21

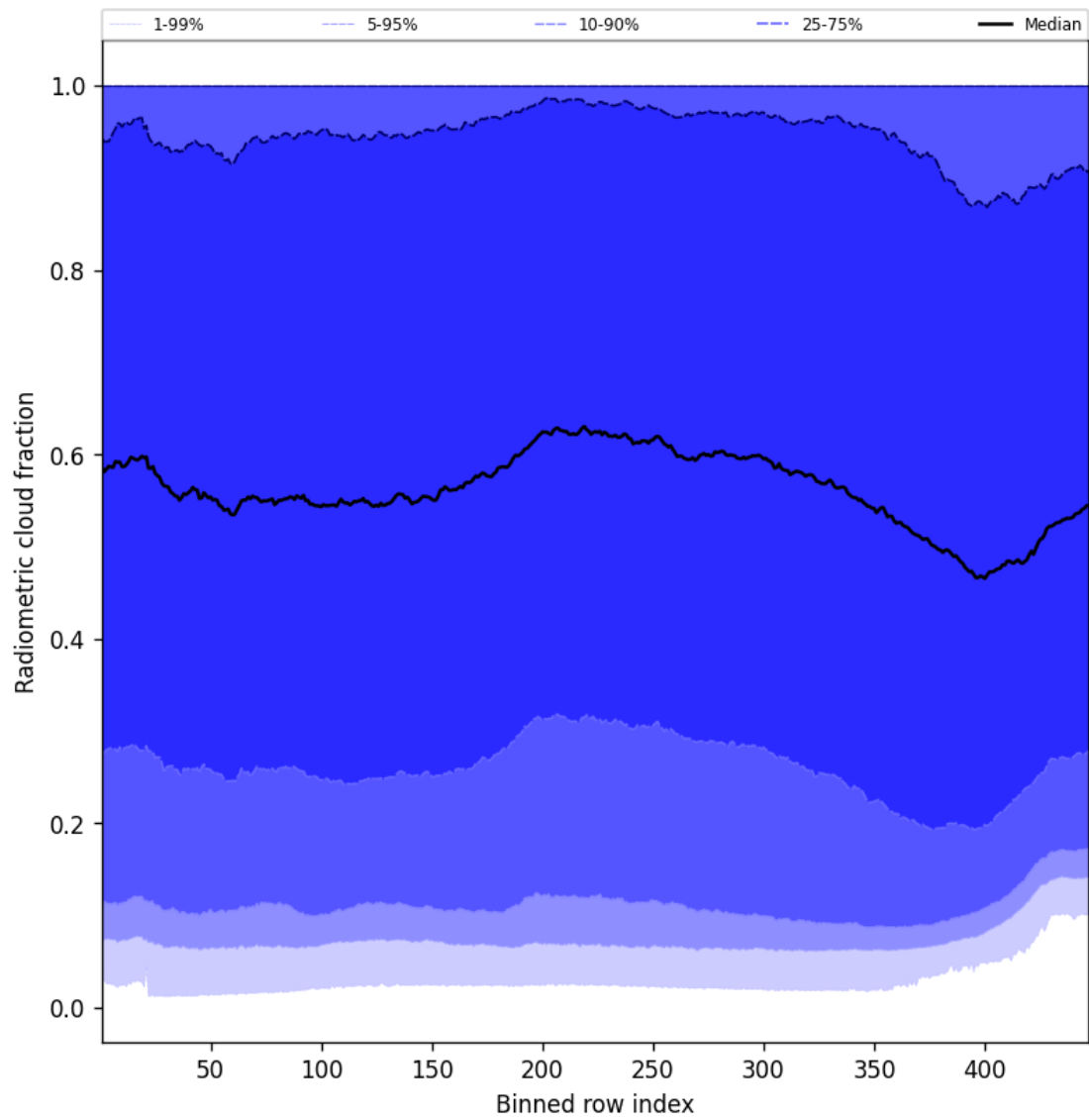


Figure 55: Along track statistics of “Radiometric cloud fraction” for 2025-11-19 to 2025-11-21

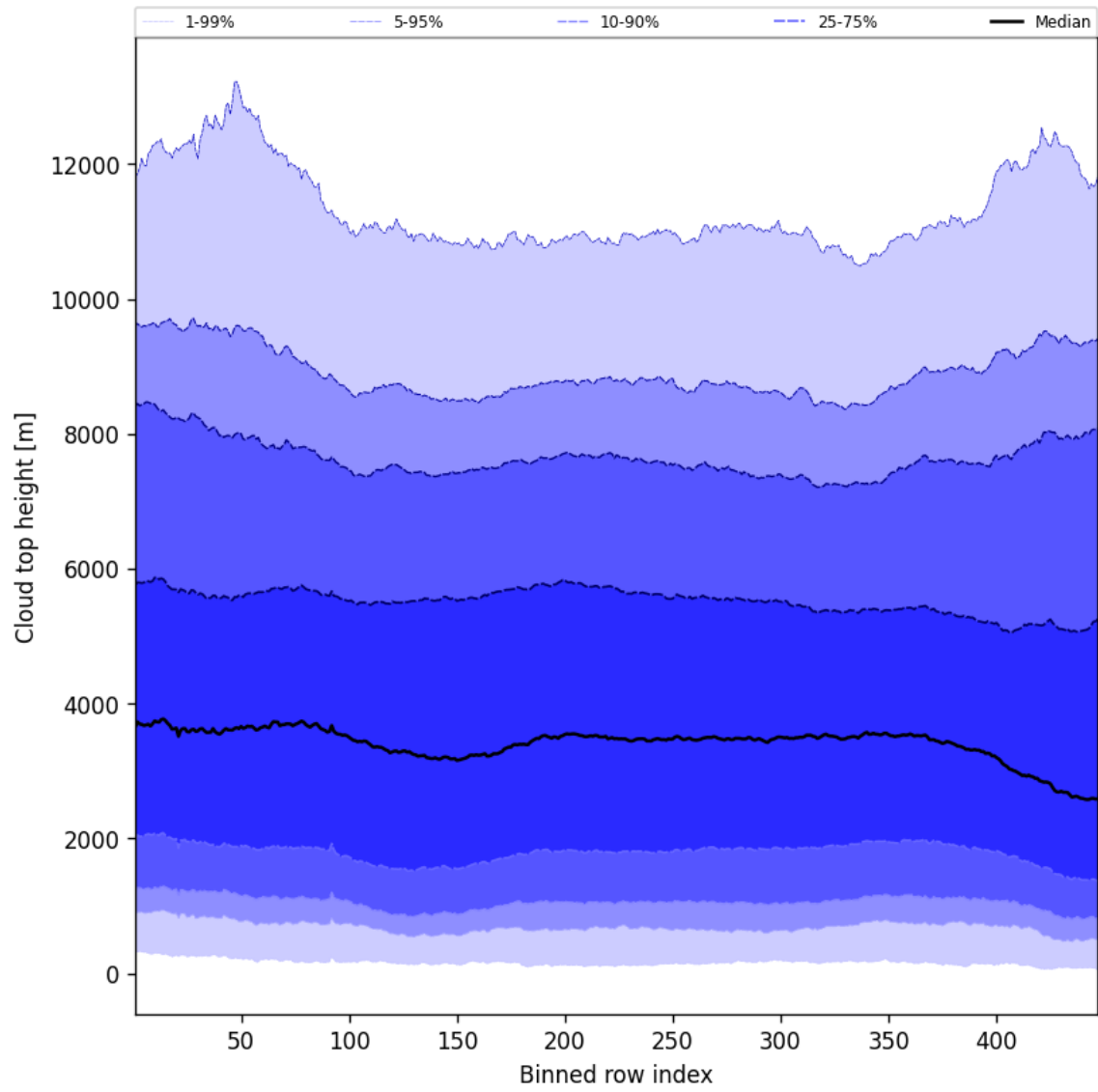


Figure 56: Along track statistics of “Cloud top height” for 2025-11-19 to 2025-11-21

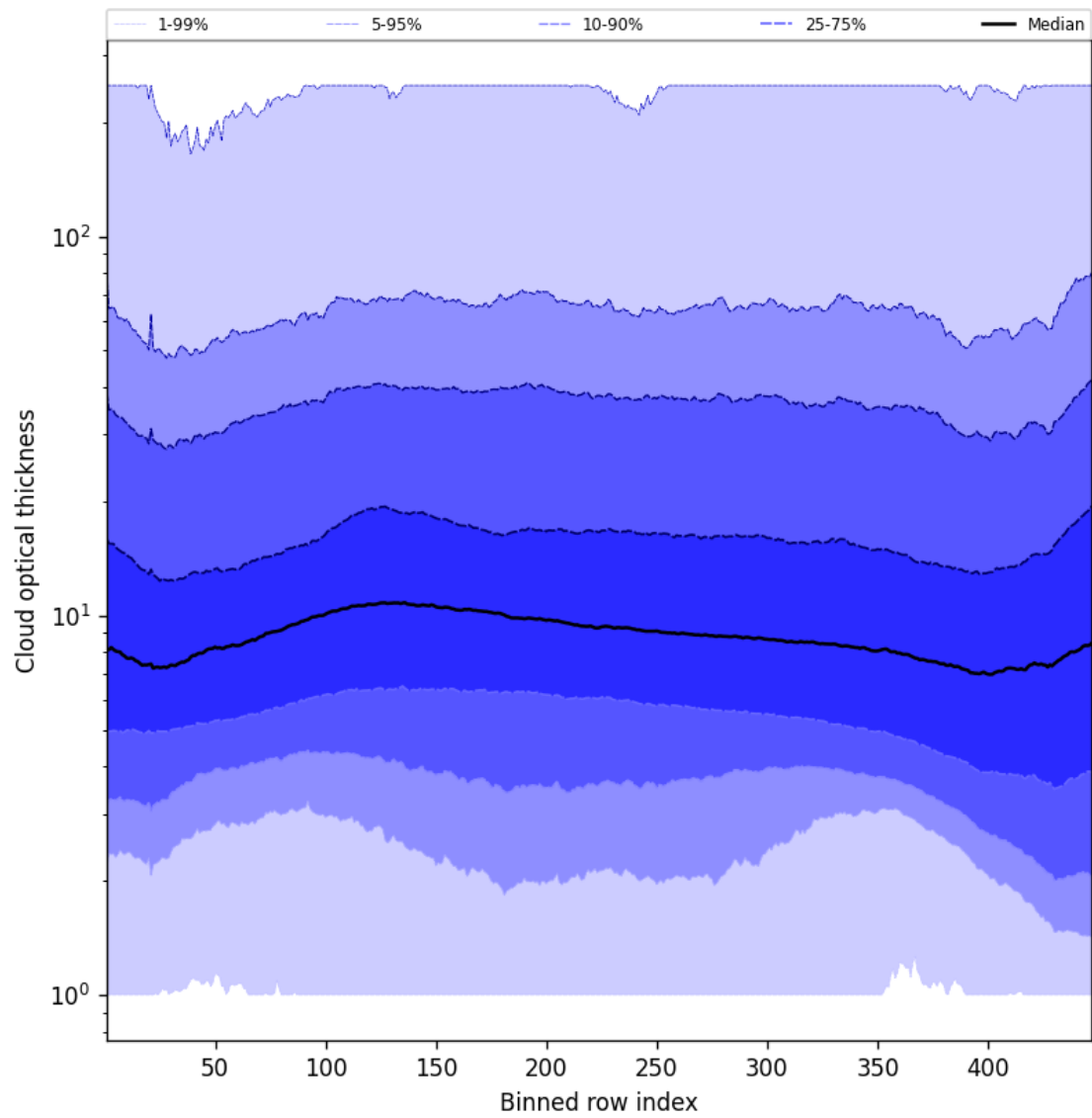


Figure 57: Along track statistics of “Cloud optical thickness” for 2025-11-19 to 2025-11-21

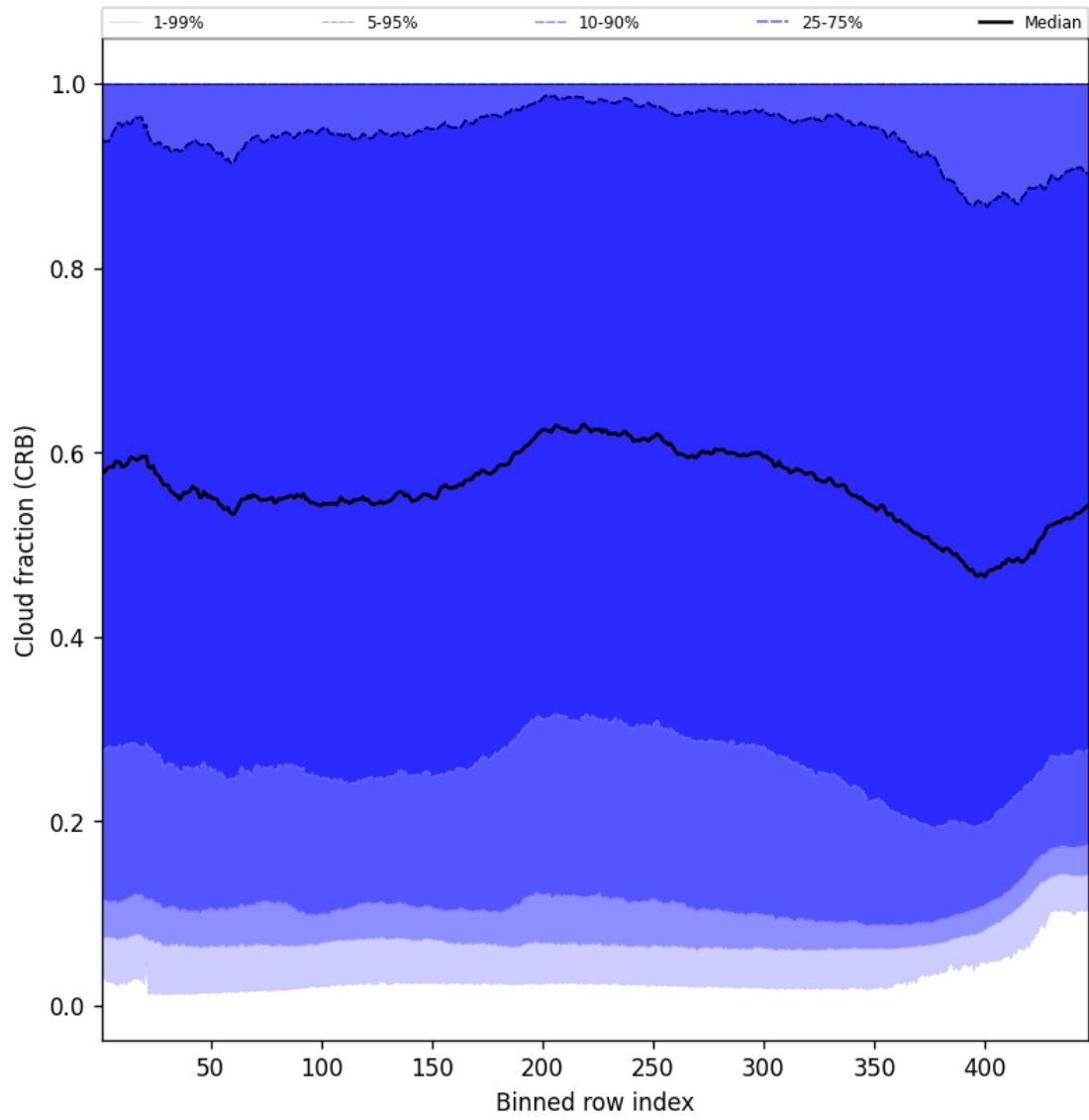


Figure 58: Along track statistics of “Cloud fraction (CRB)” for 2025-11-19 to 2025-11-21

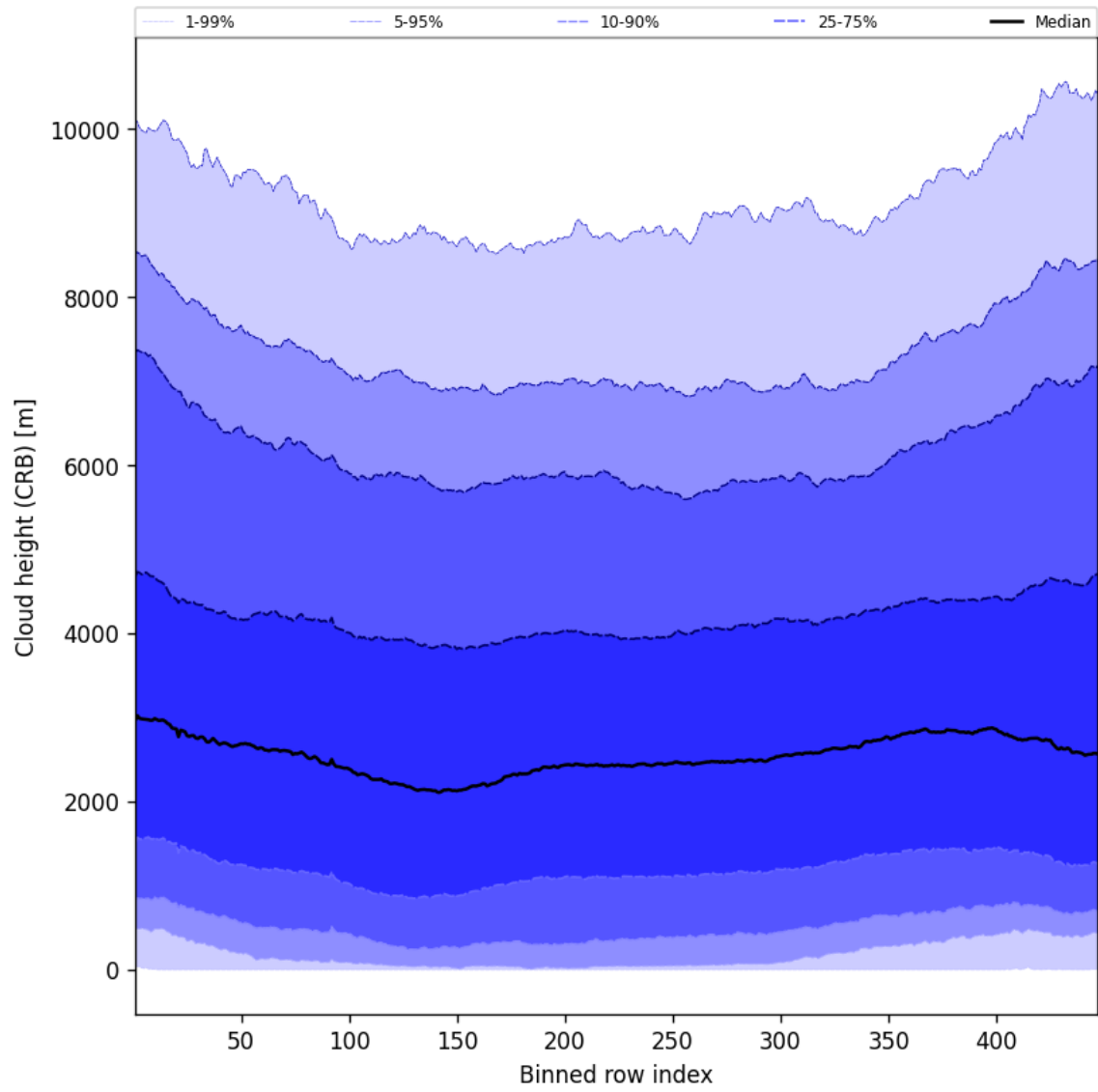


Figure 59: Along track statistics of “Cloud height (CRB)” for 2025-11-19 to 2025-11-21

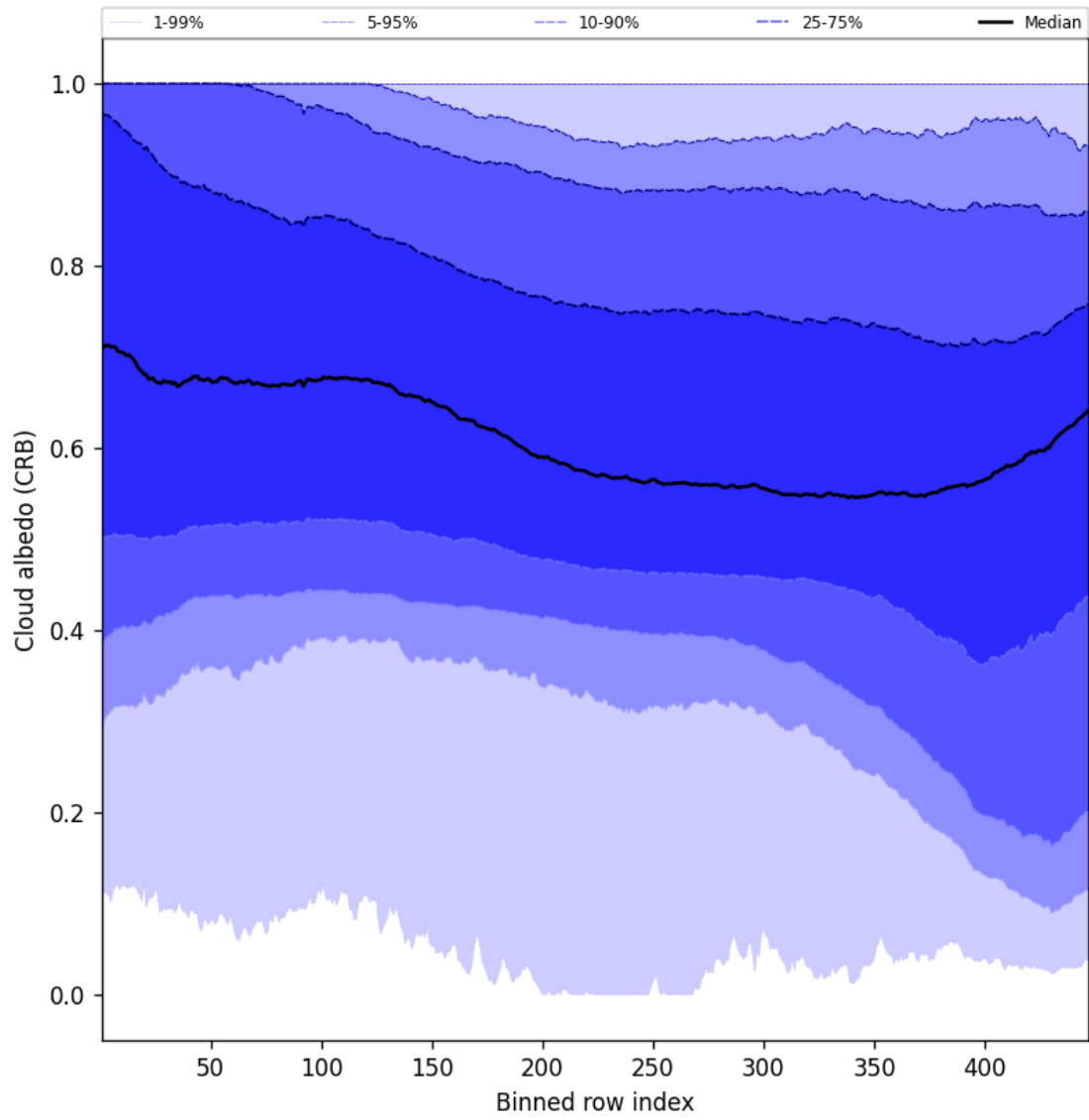


Figure 60: Along track statistics of “Cloud albedo (CRB)” for 2025-11-19 to 2025-11-21

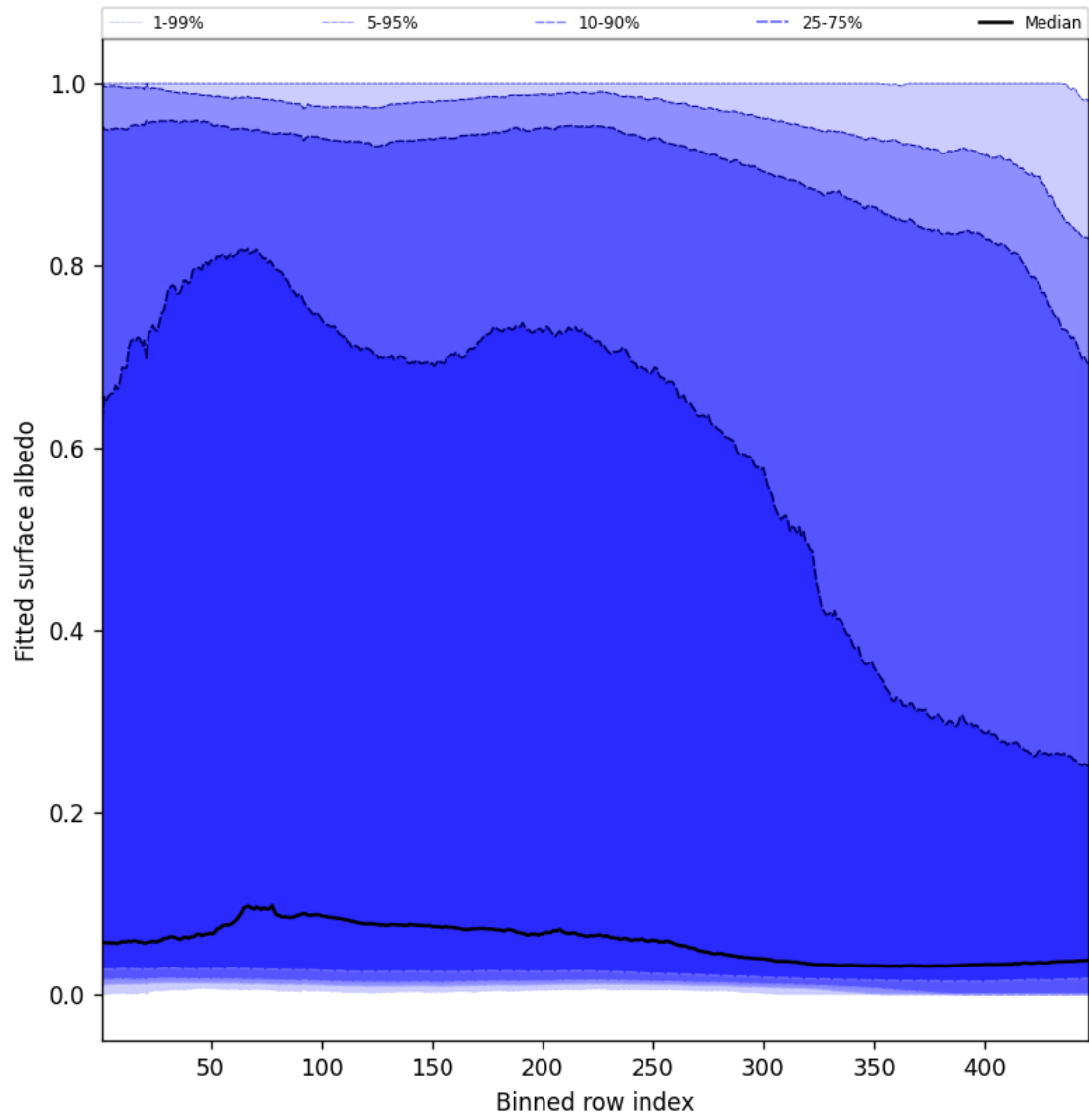


Figure 61: Along track statistics of “Fitted surface albedo” for 2025-11-19 to 2025-11-21

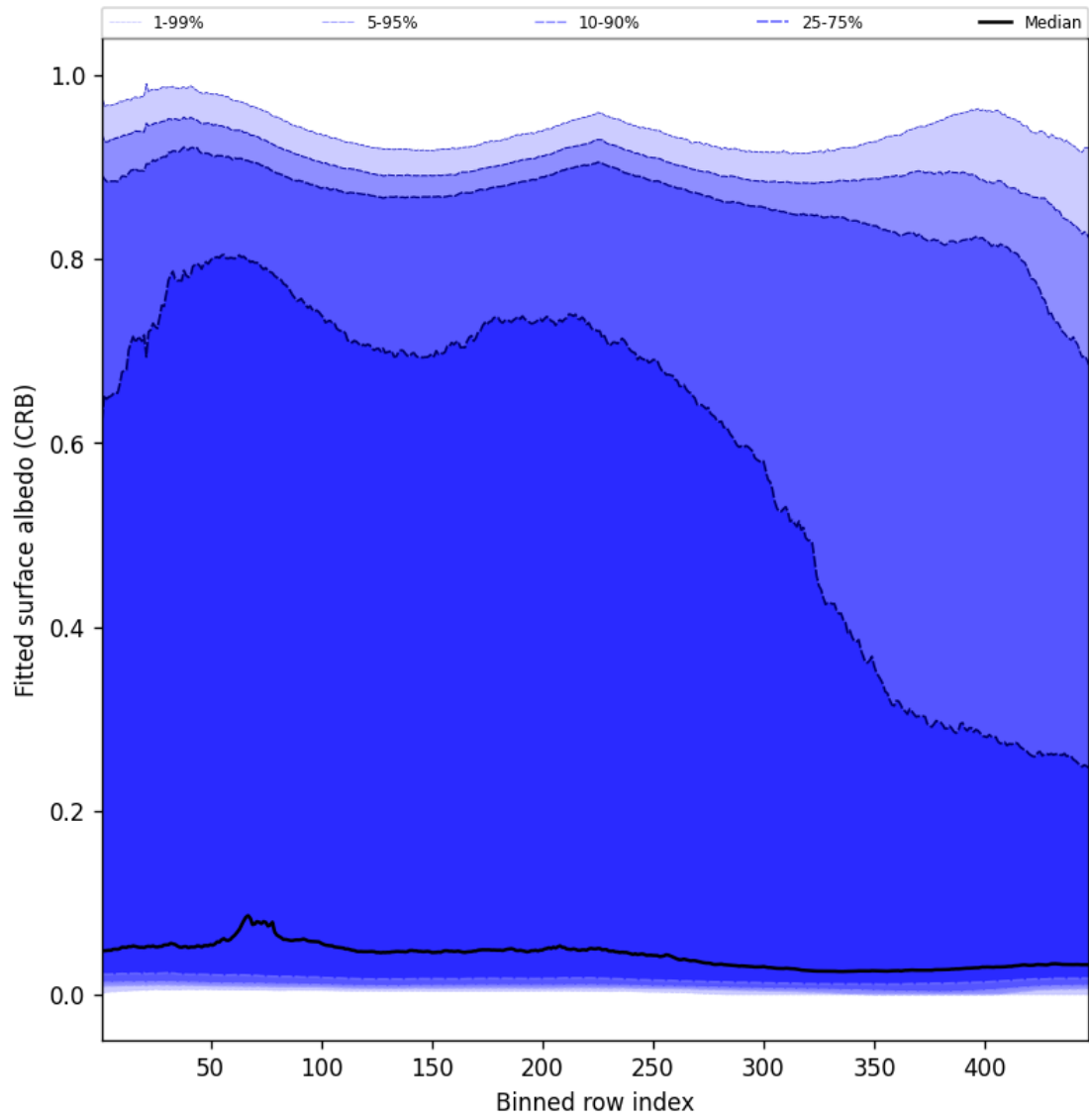


Figure 62: Along track statistics of “Fitted surface albedo (CRB)” for 2025-11-19 to 2025-11-21

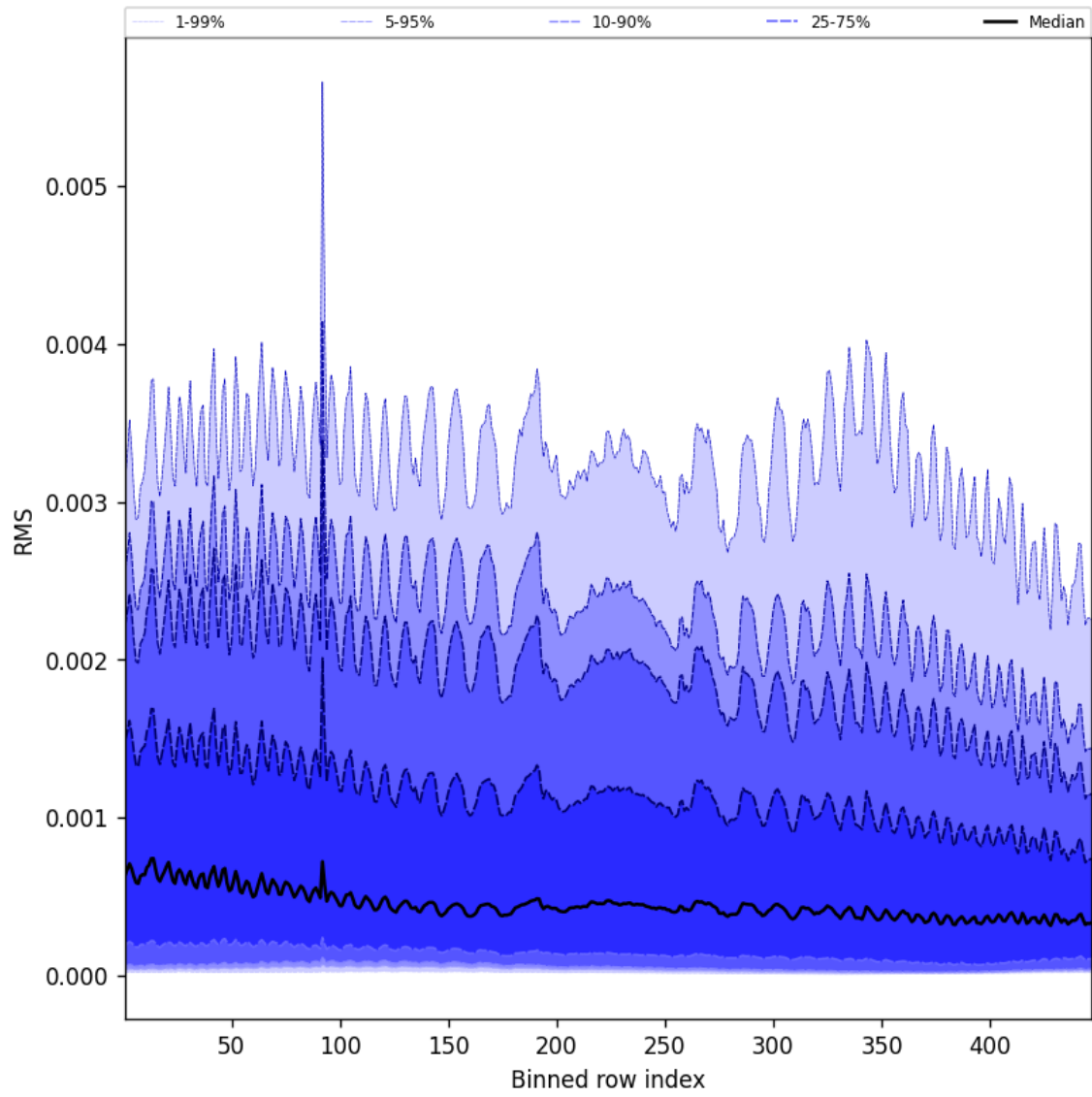


Figure 63: Along track statistics of “RMS” for 2025-11-19 to 2025-11-21

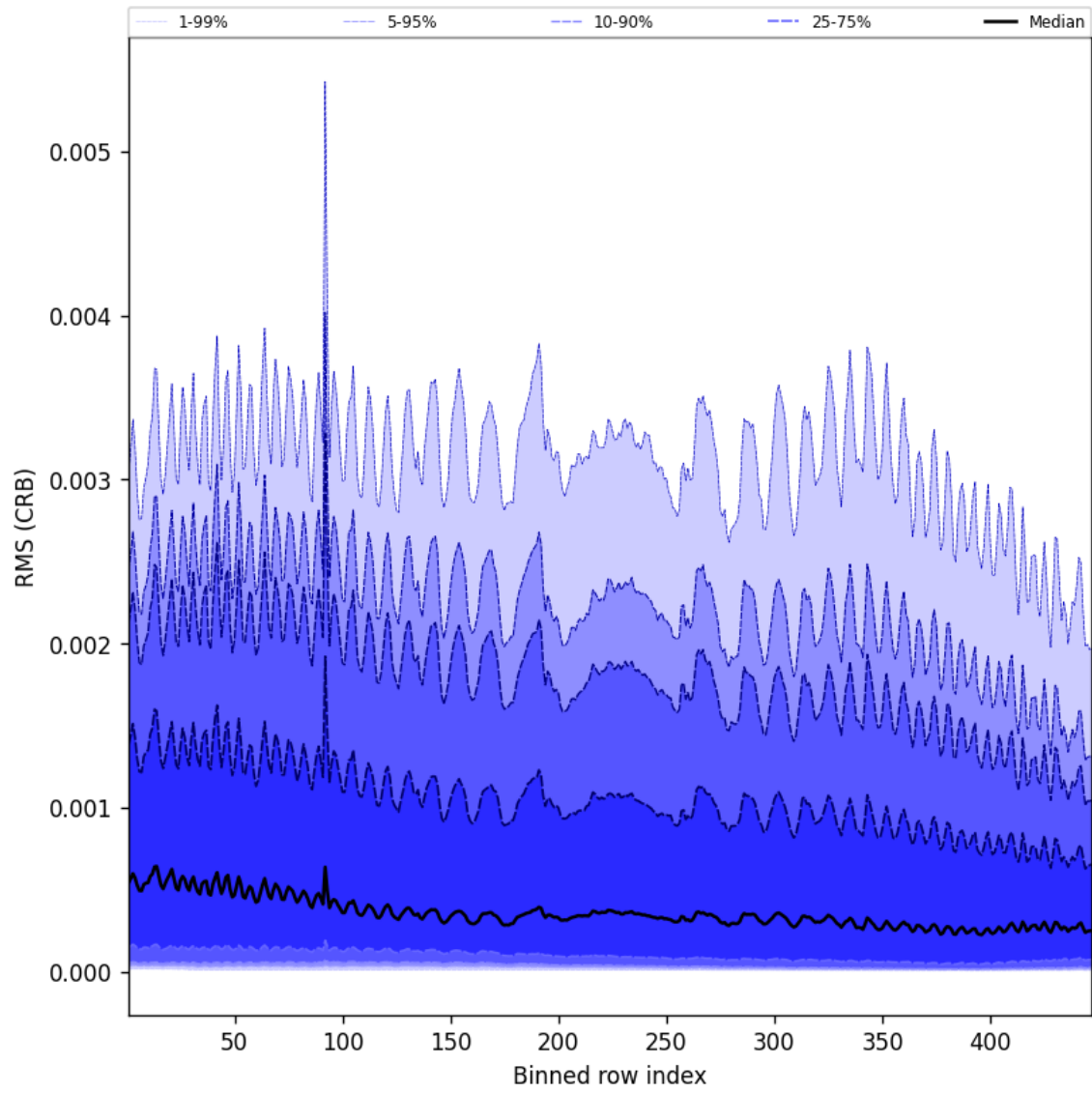


Figure 64: Along track statistics of “RMS (CRB)” for 2025-11-19 to 2025-11-21

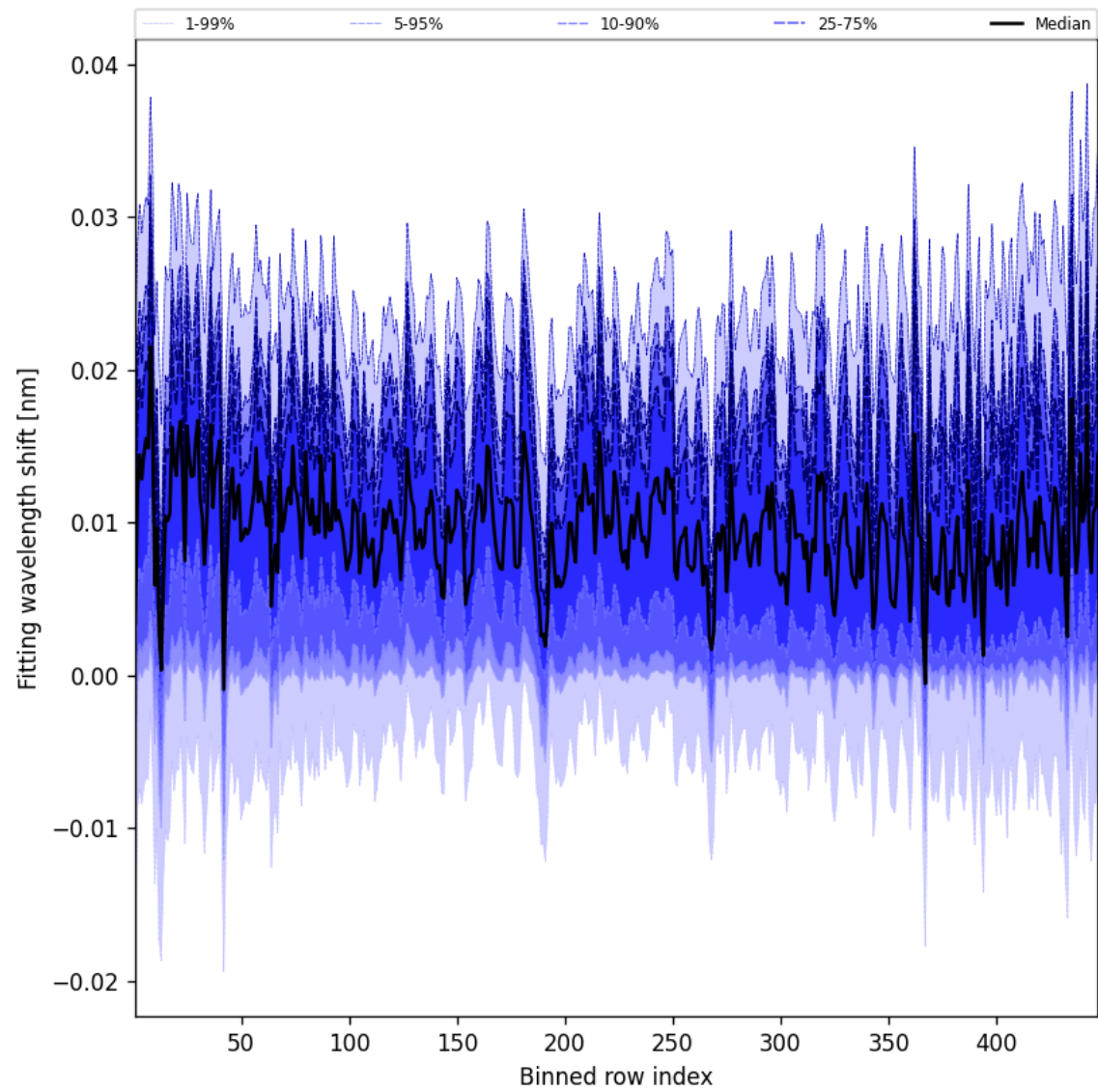


Figure 65: Along track statistics of “Fitting wavelength shift” for 2025-11-19 to 2025-11-21

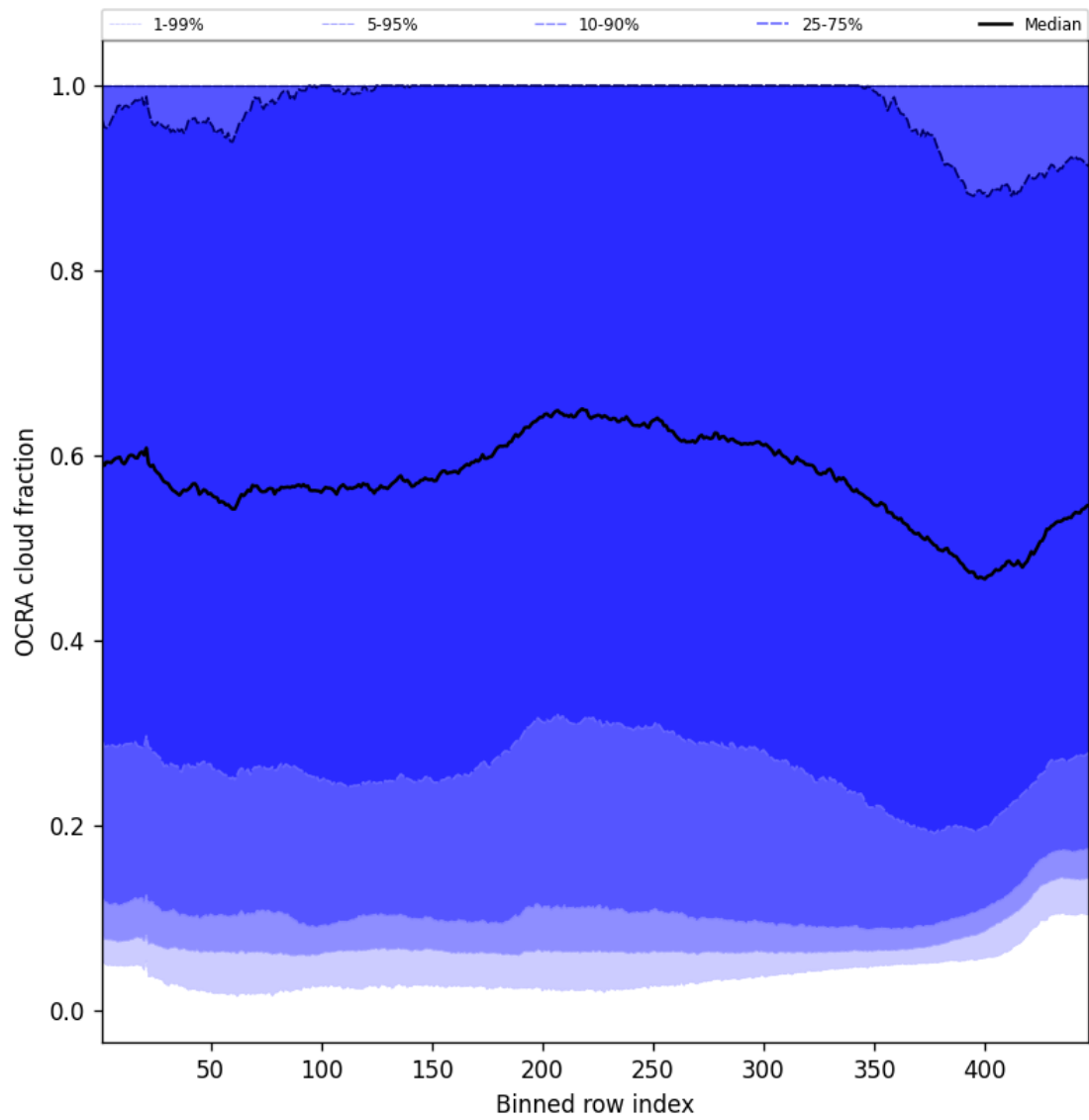


Figure 66: Along track statistics of “OCRA cloud fraction” for 2025-11-19 to 2025-11-21

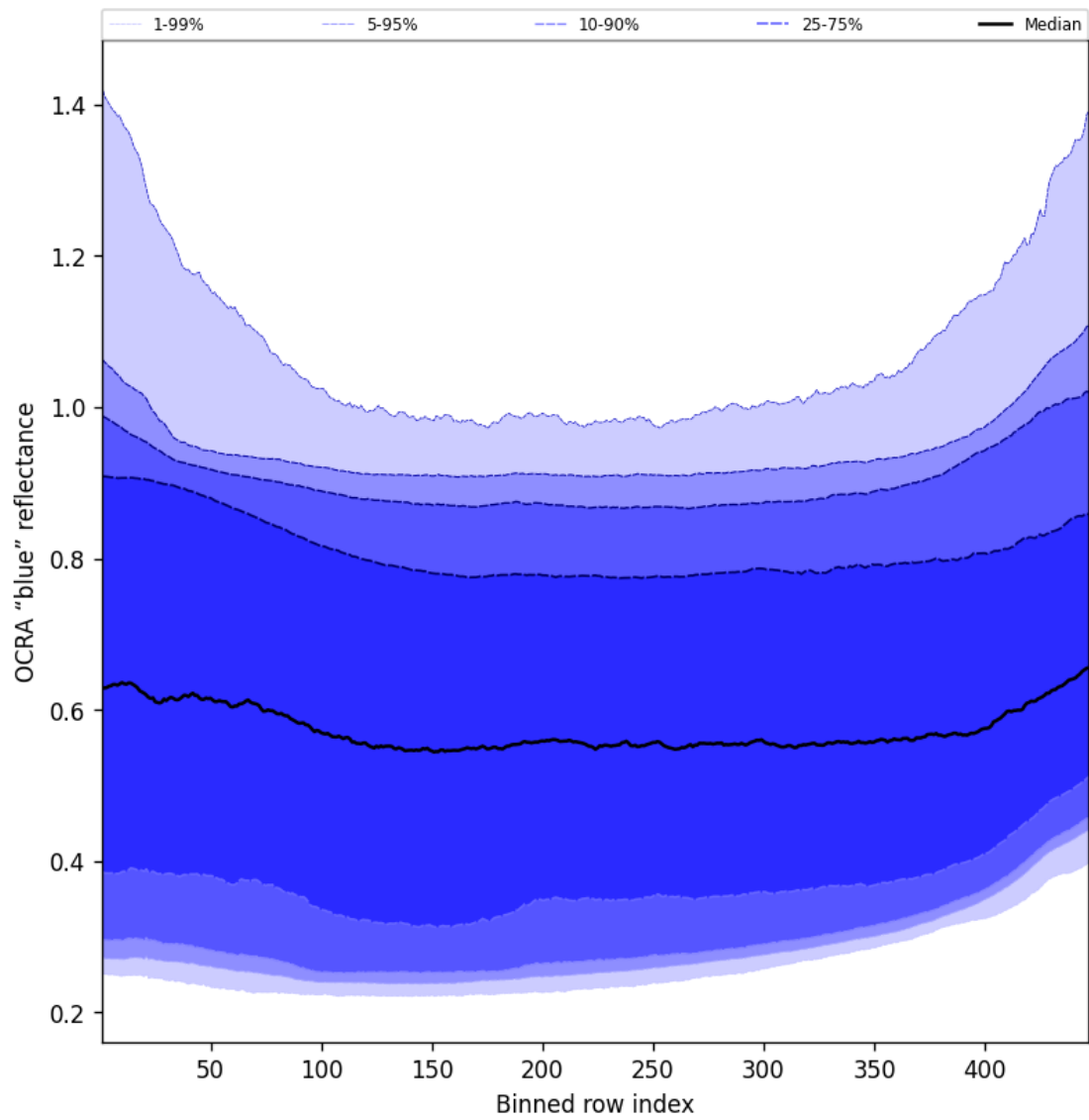


Figure 67: Along track statistics of "OCRA "blue" reflectance" for 2025-11-19 to 2025-11-21

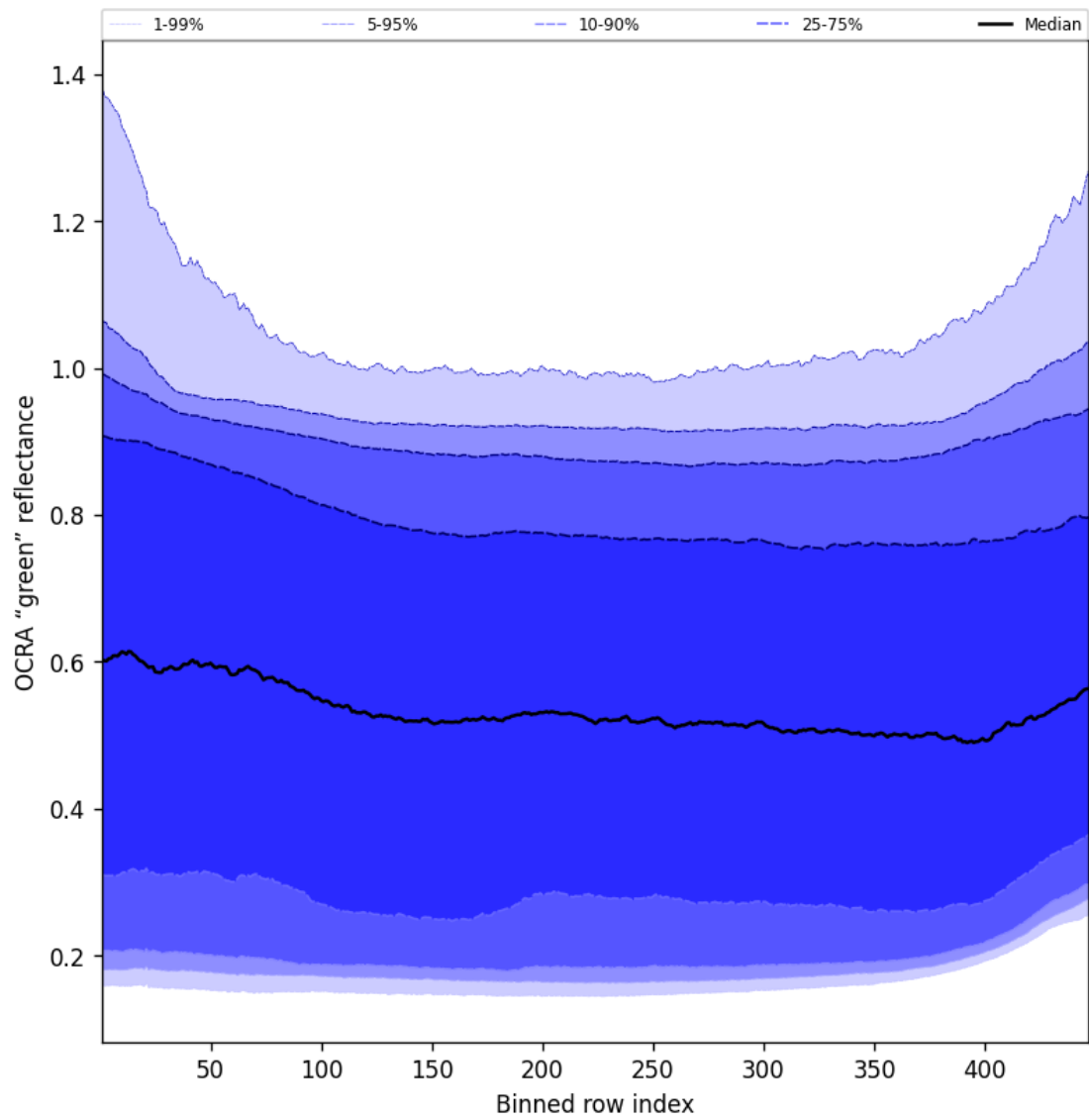


Figure 68: Along track statistics of "OCRA "green" reflectance" for 2025-11-19 to 2025-11-21

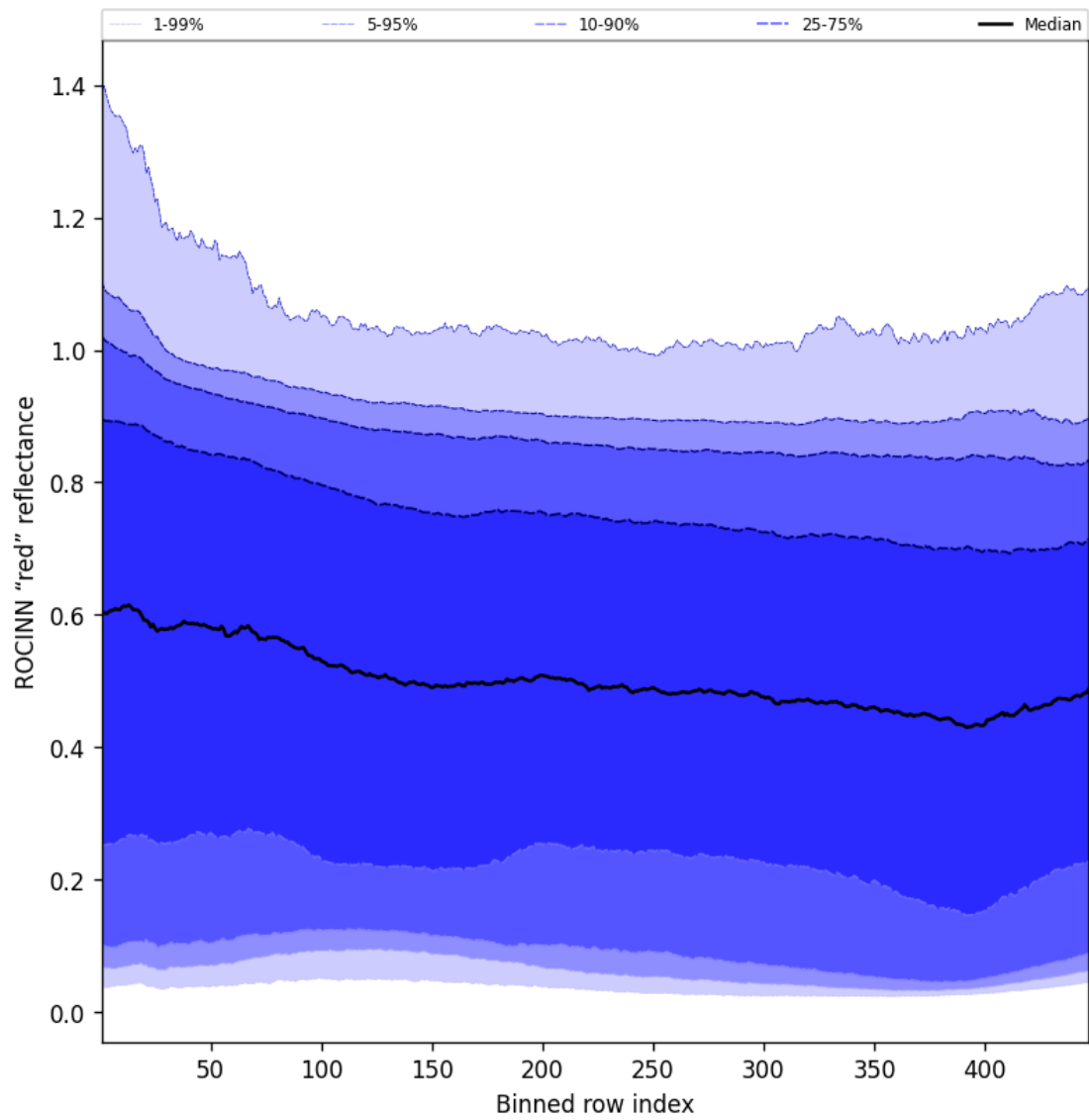


Figure 69: Along track statistics of "ROCINN "red" reflectance" for 2025-11-19 to 2025-11-21

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.

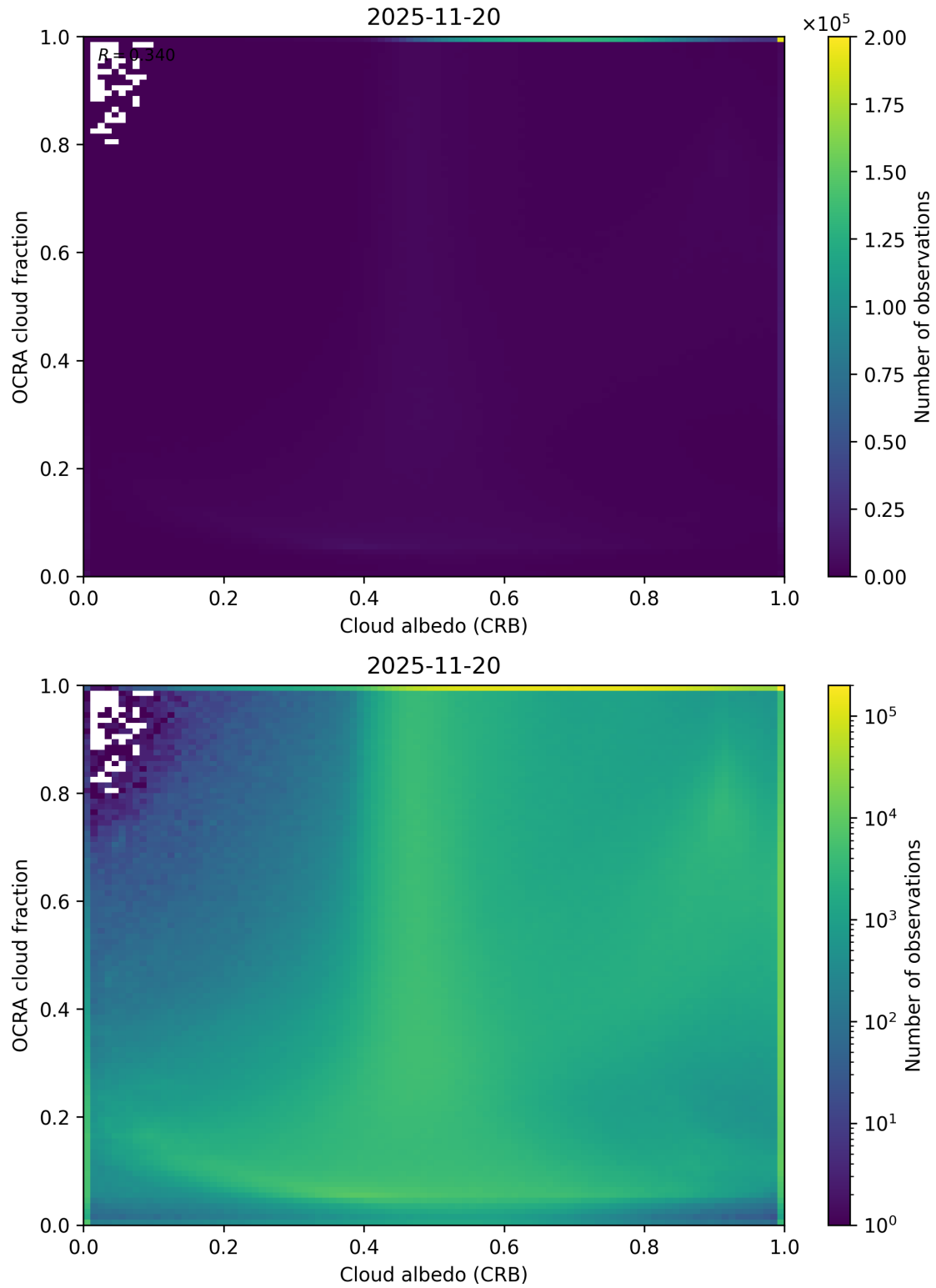


Figure 70: Scatter density plot of “Cloud albedo (CRB)” against “OCRA cloud fraction” for 2025-11-19 to 2025-11-21.

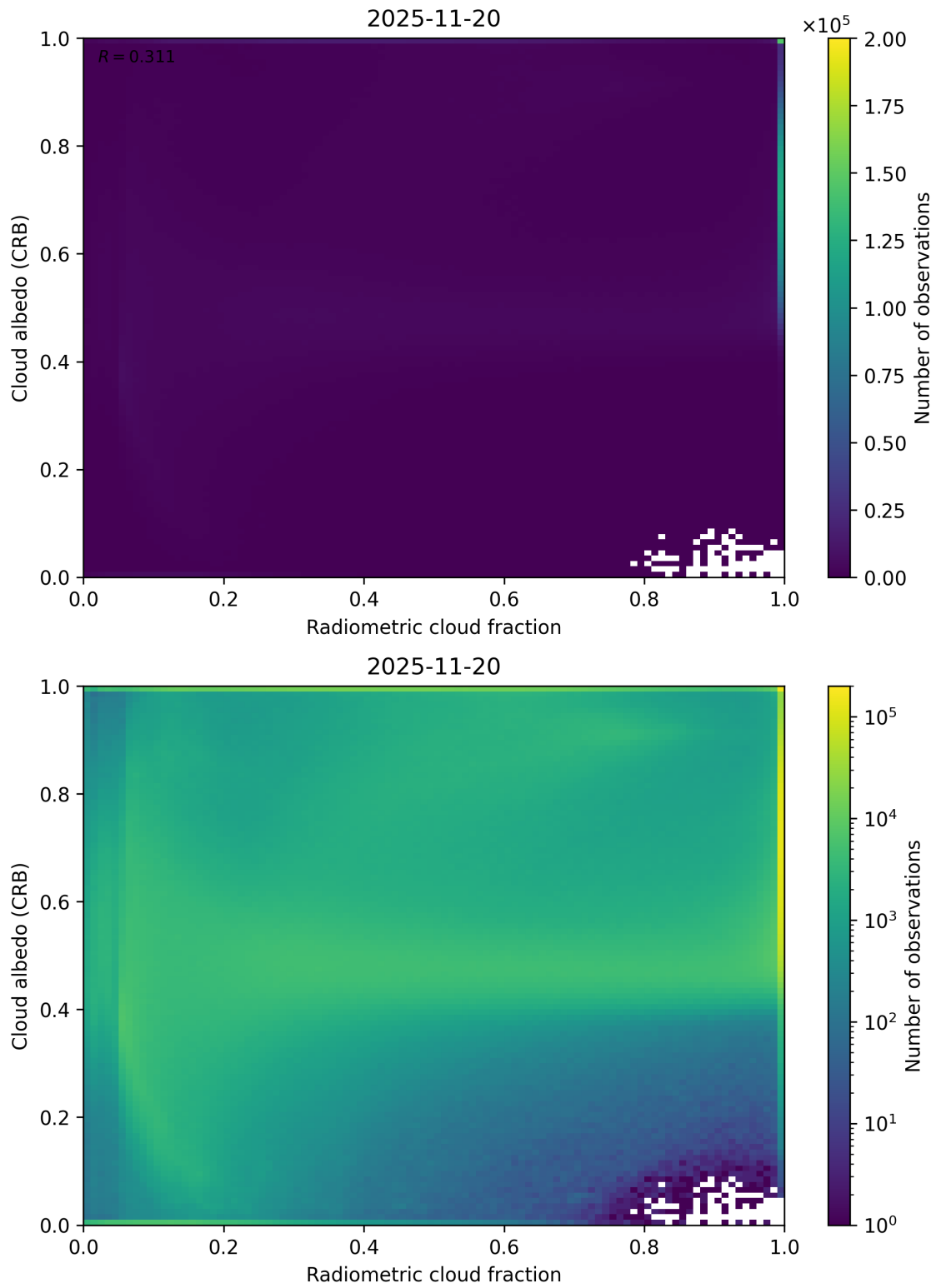


Figure 71: Scatter density plot of “Radiometric cloud fraction” against “Cloud albedo (CRB)” for 2025-11-19 to 2025-11-21.

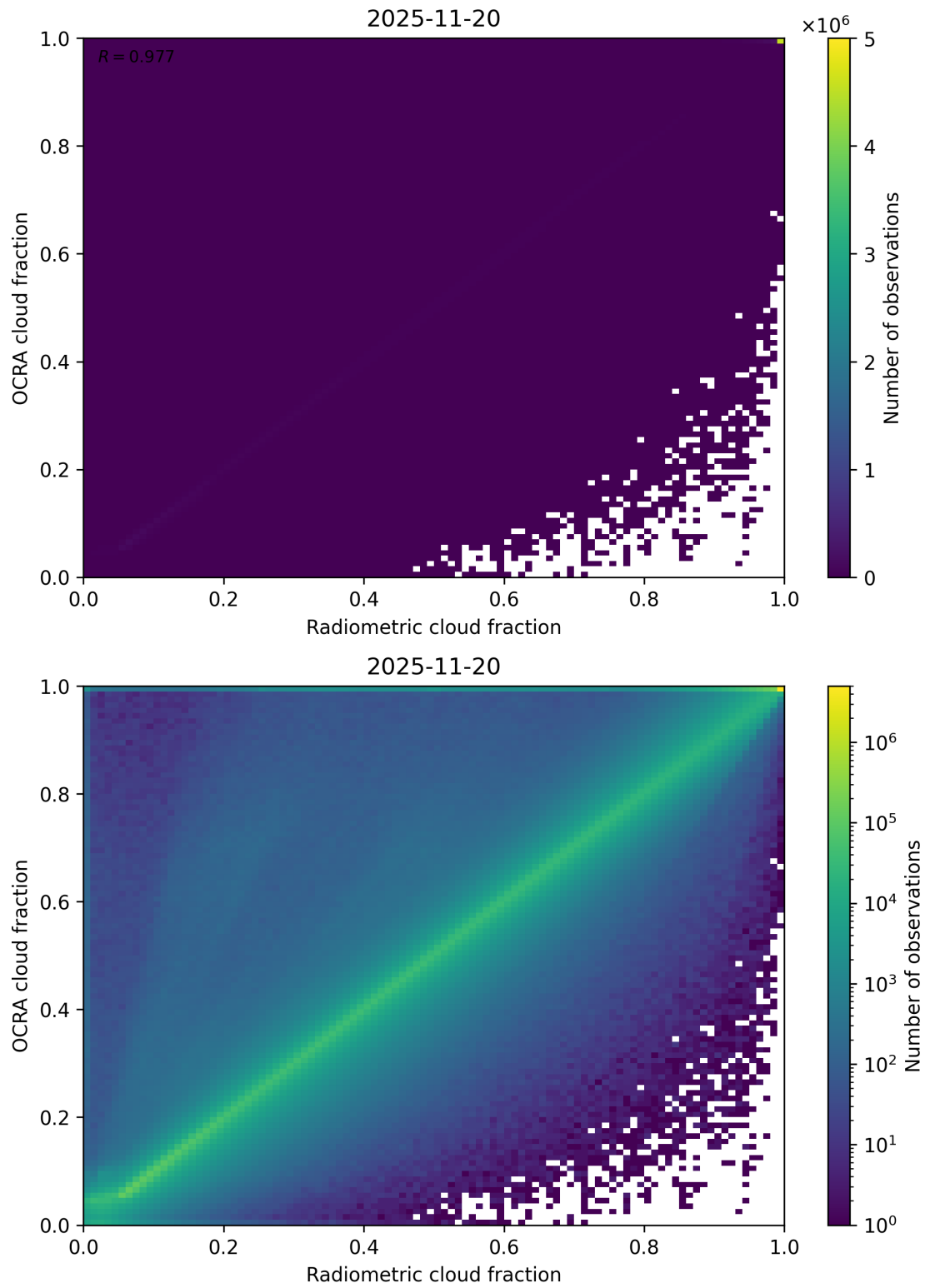


Figure 72: Scatter density plot of “Radiometric cloud fraction” against “OCRA cloud fraction” for 2025-11-19 to 2025-11-21.

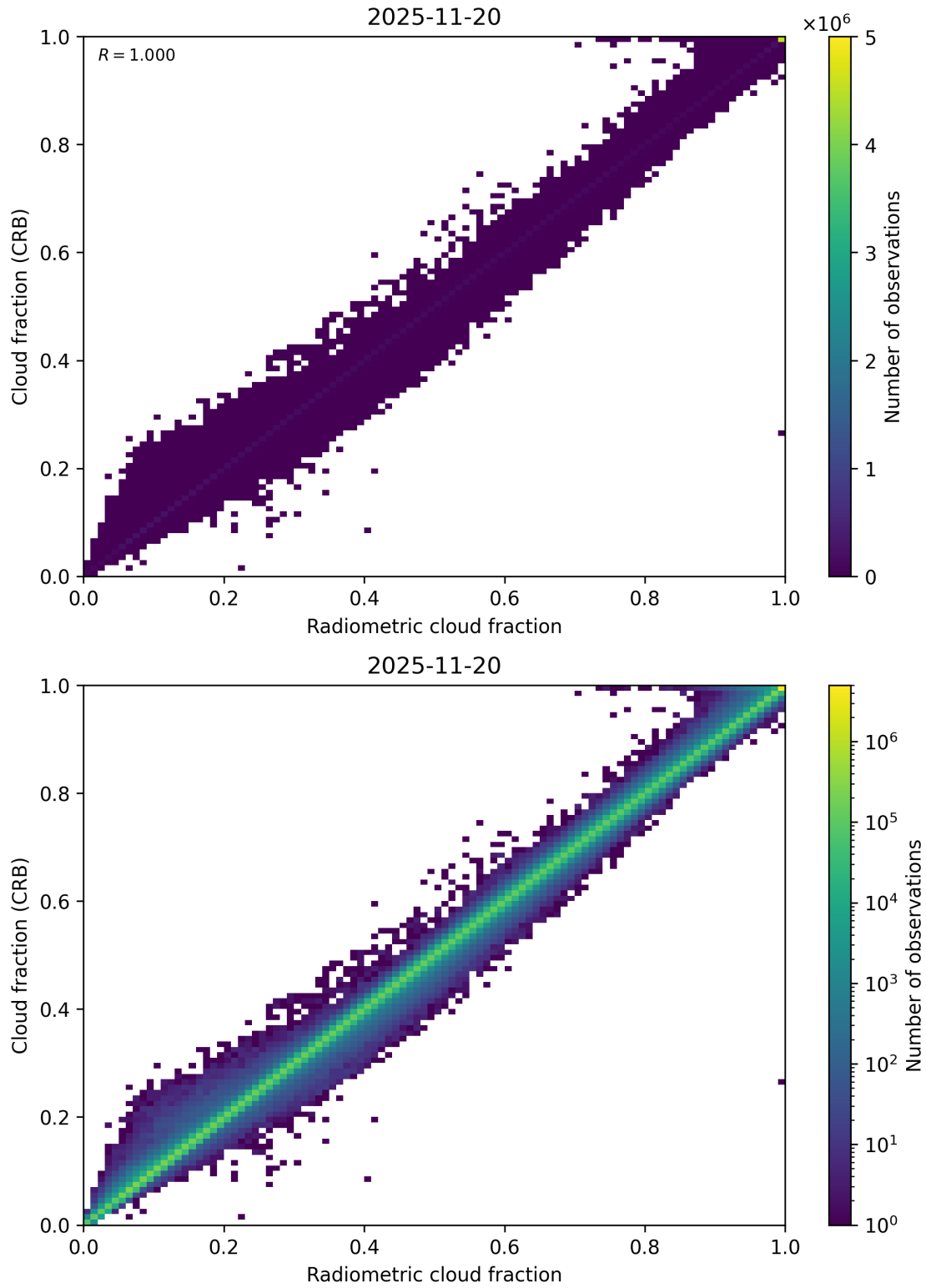


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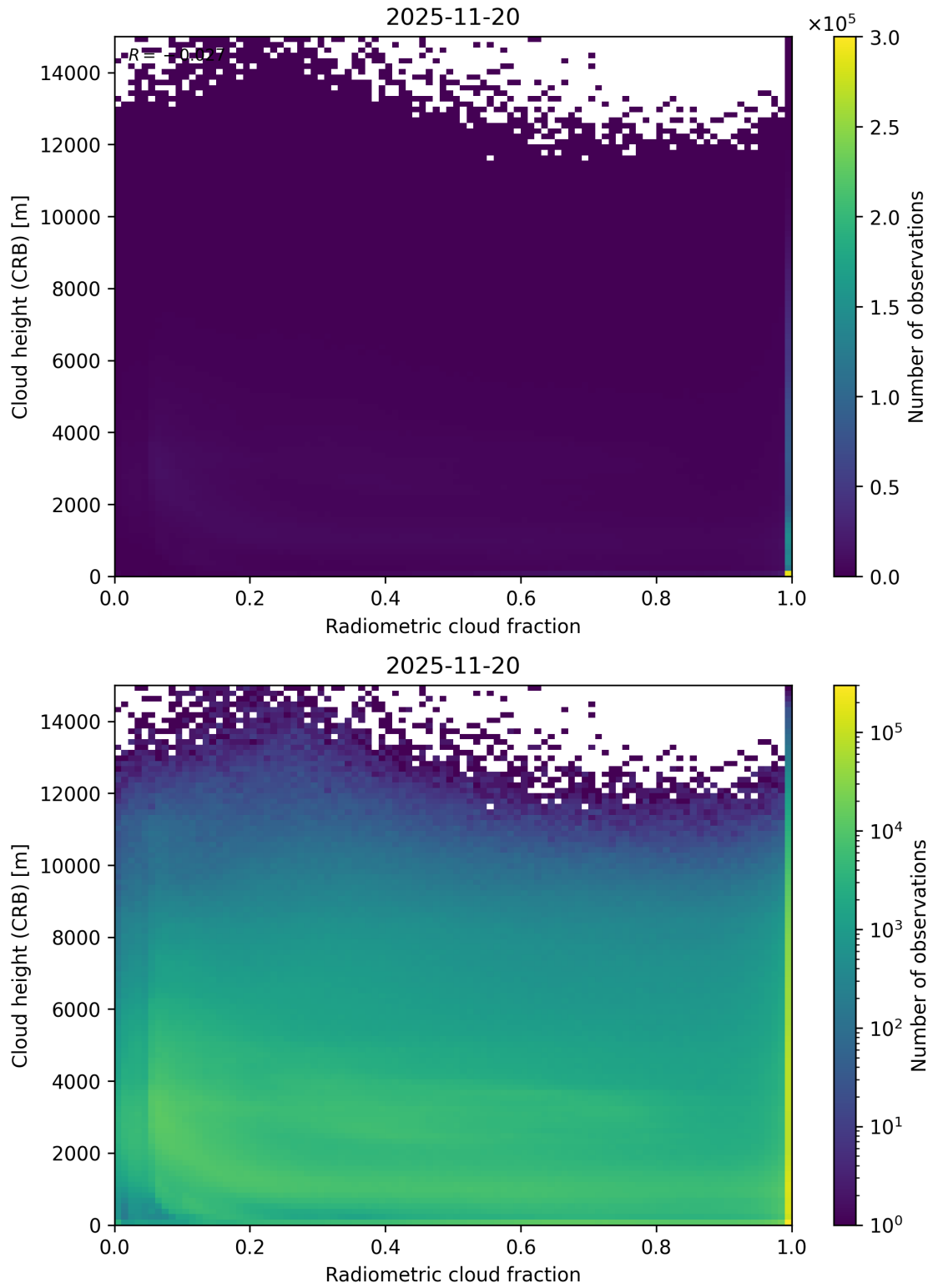


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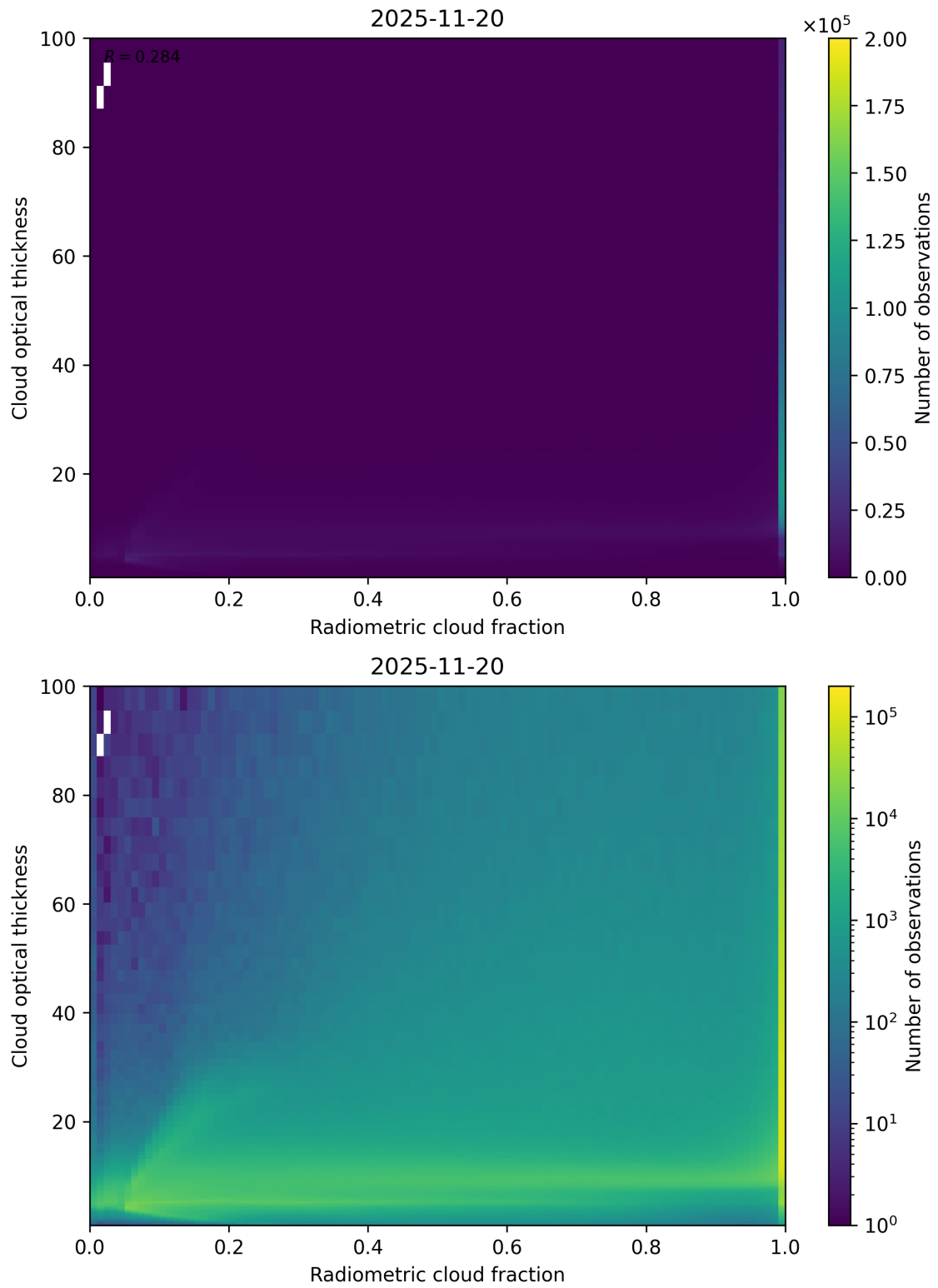


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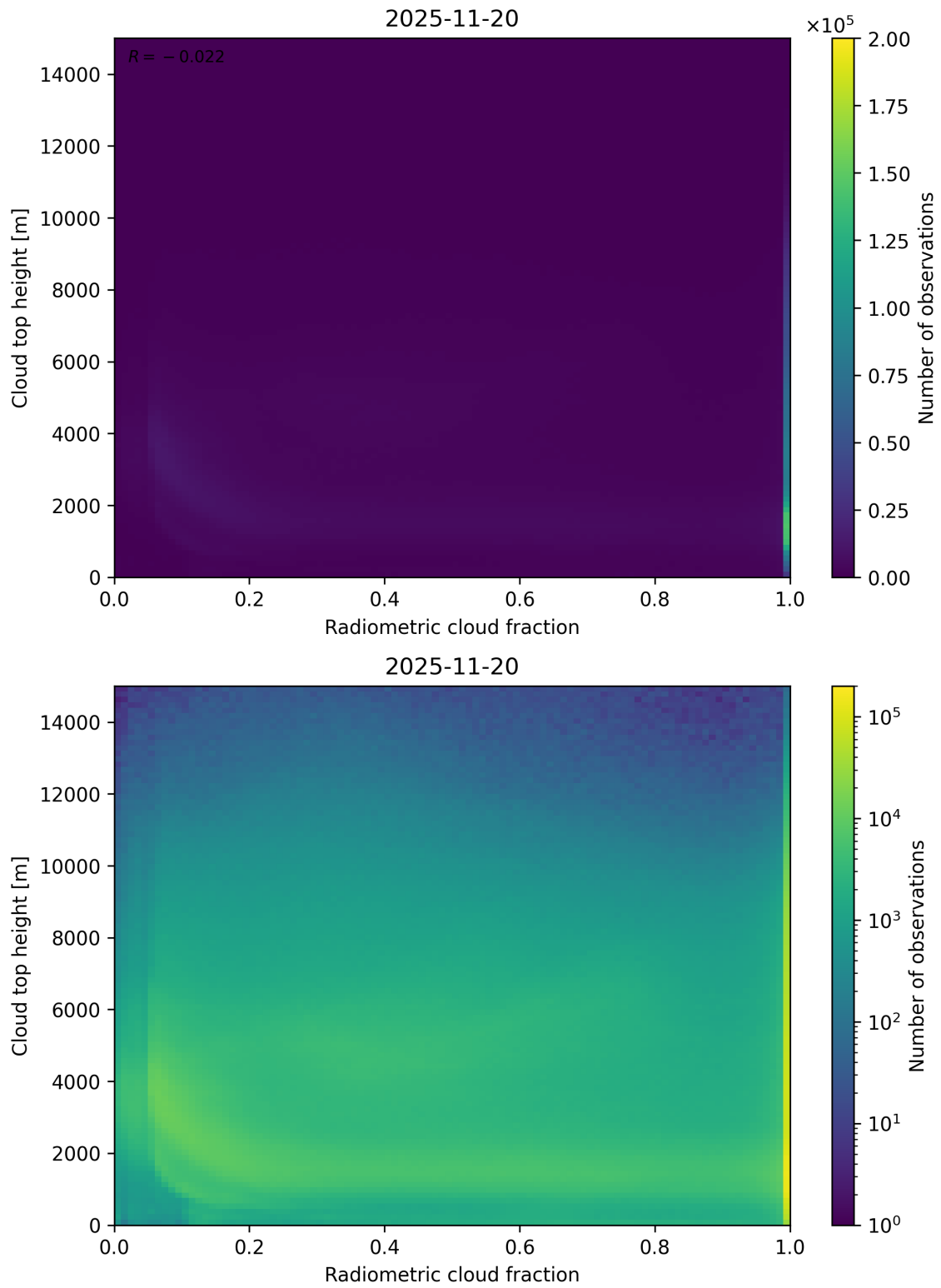


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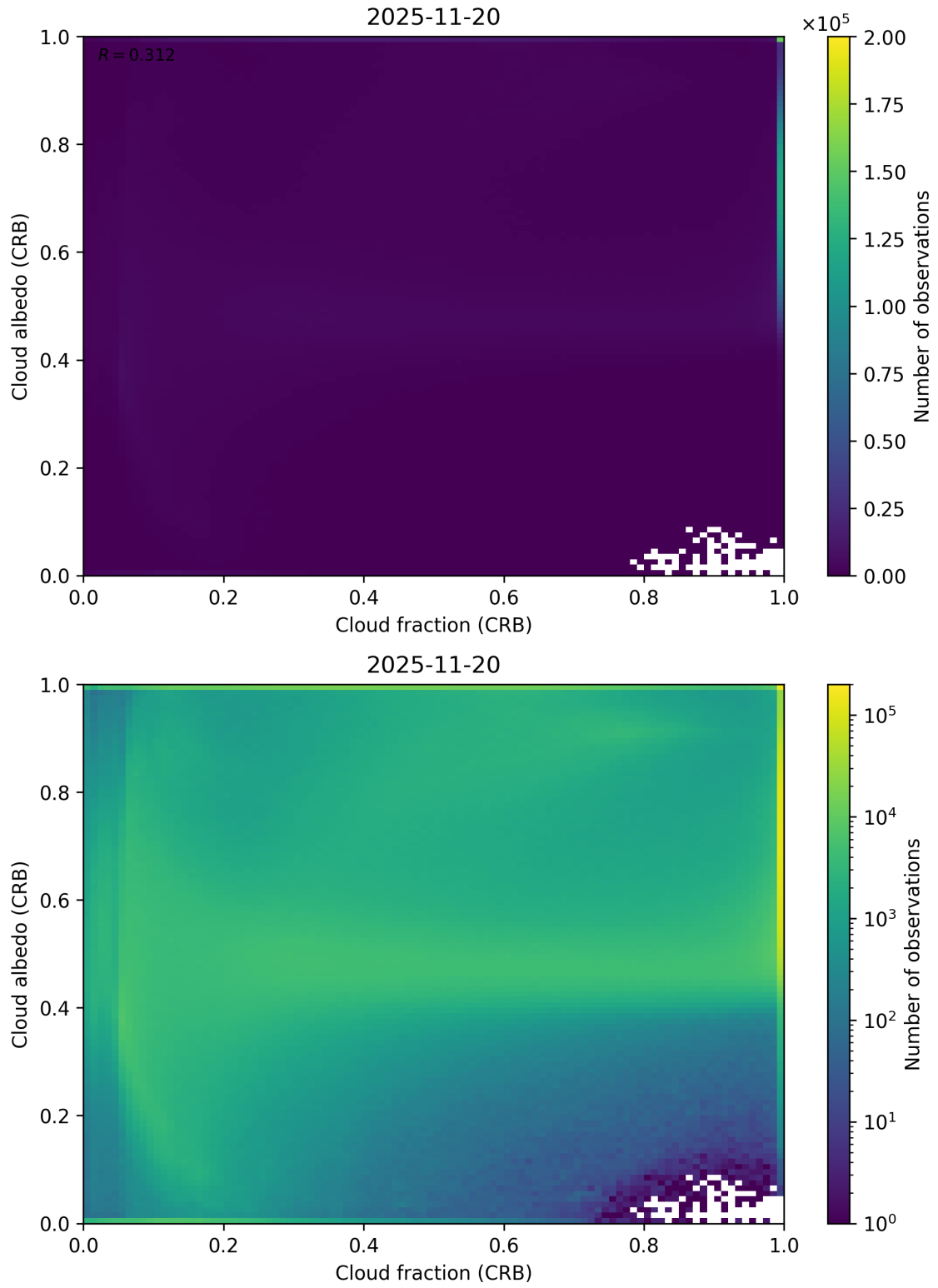


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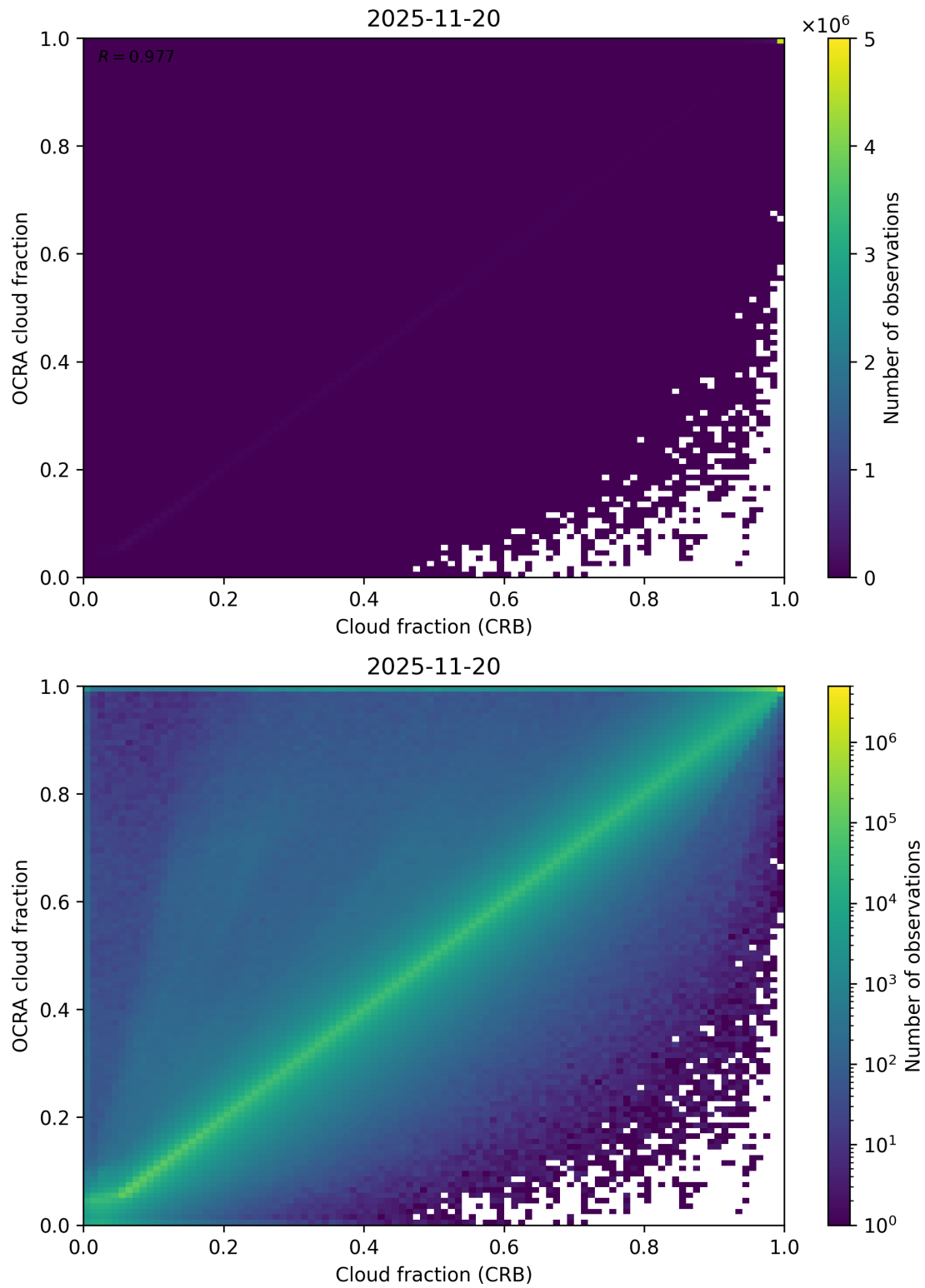


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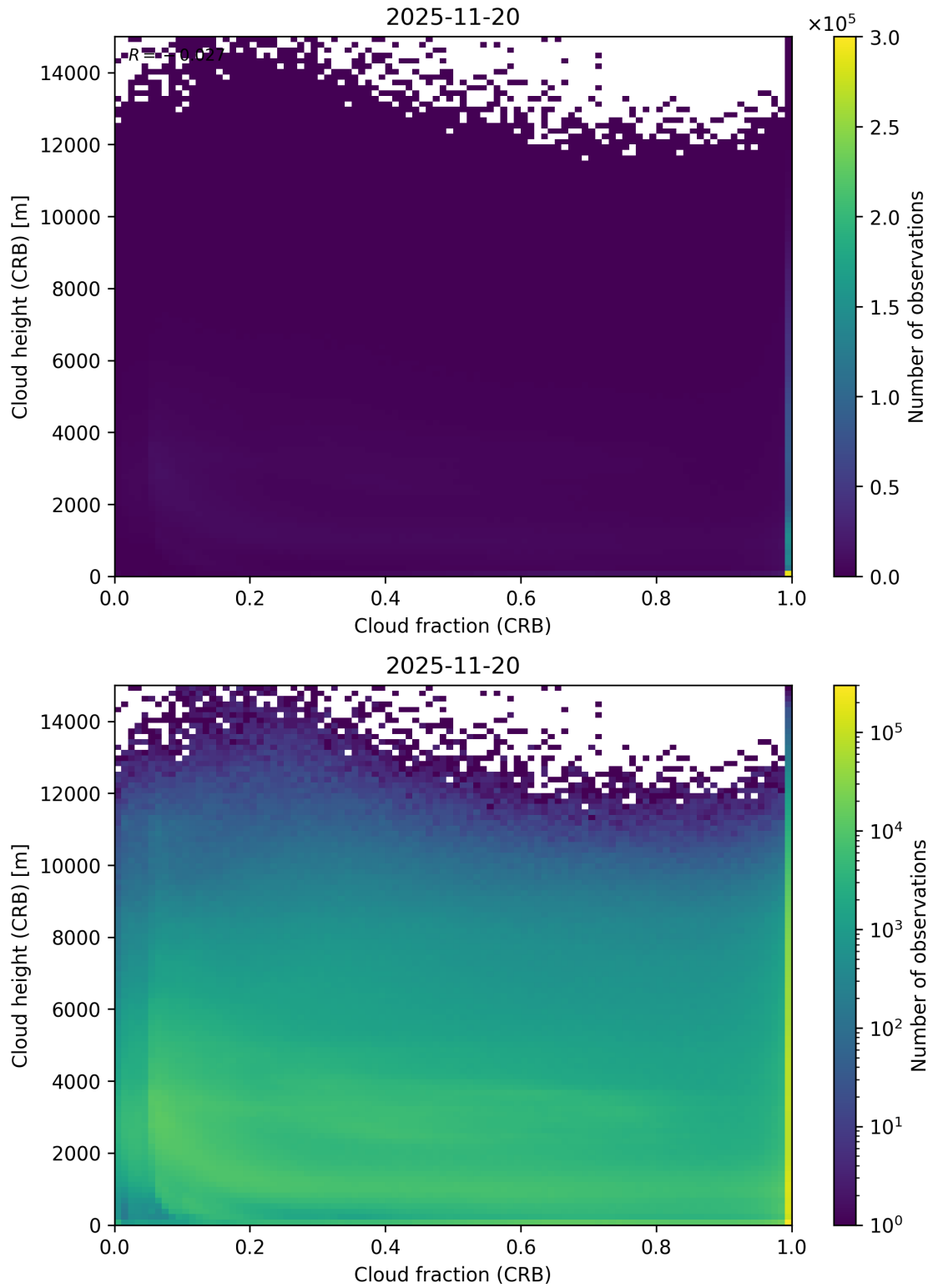


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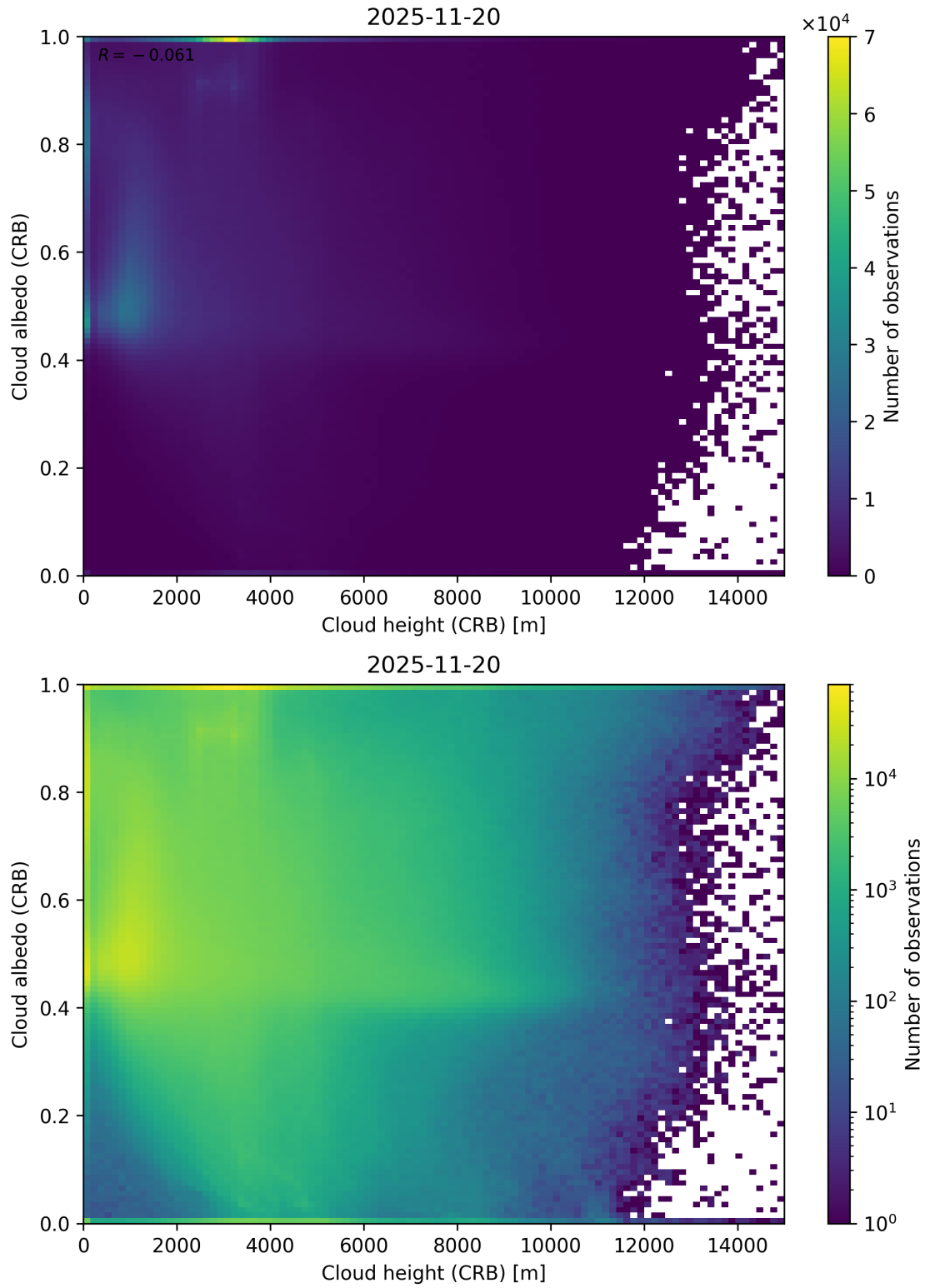


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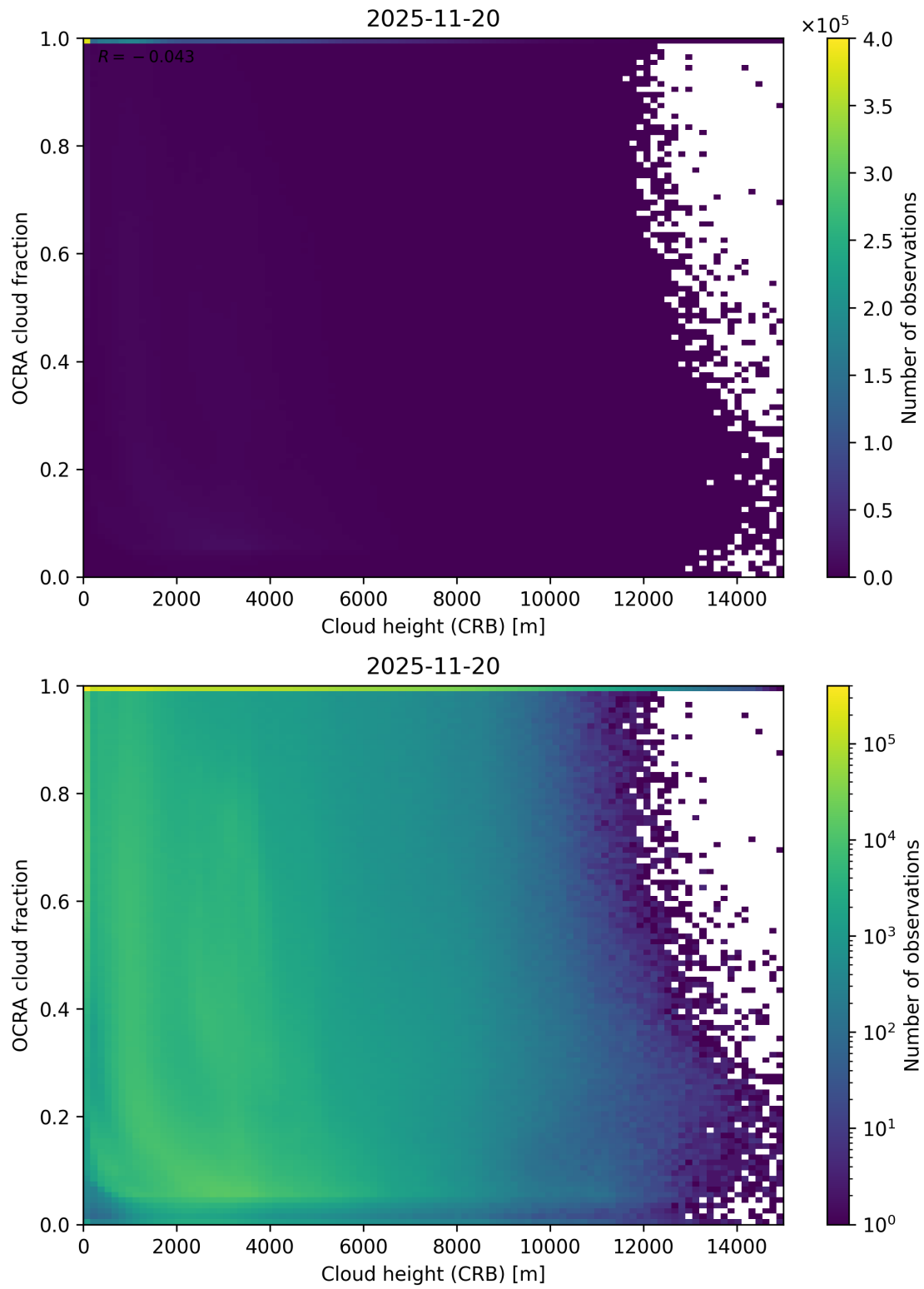


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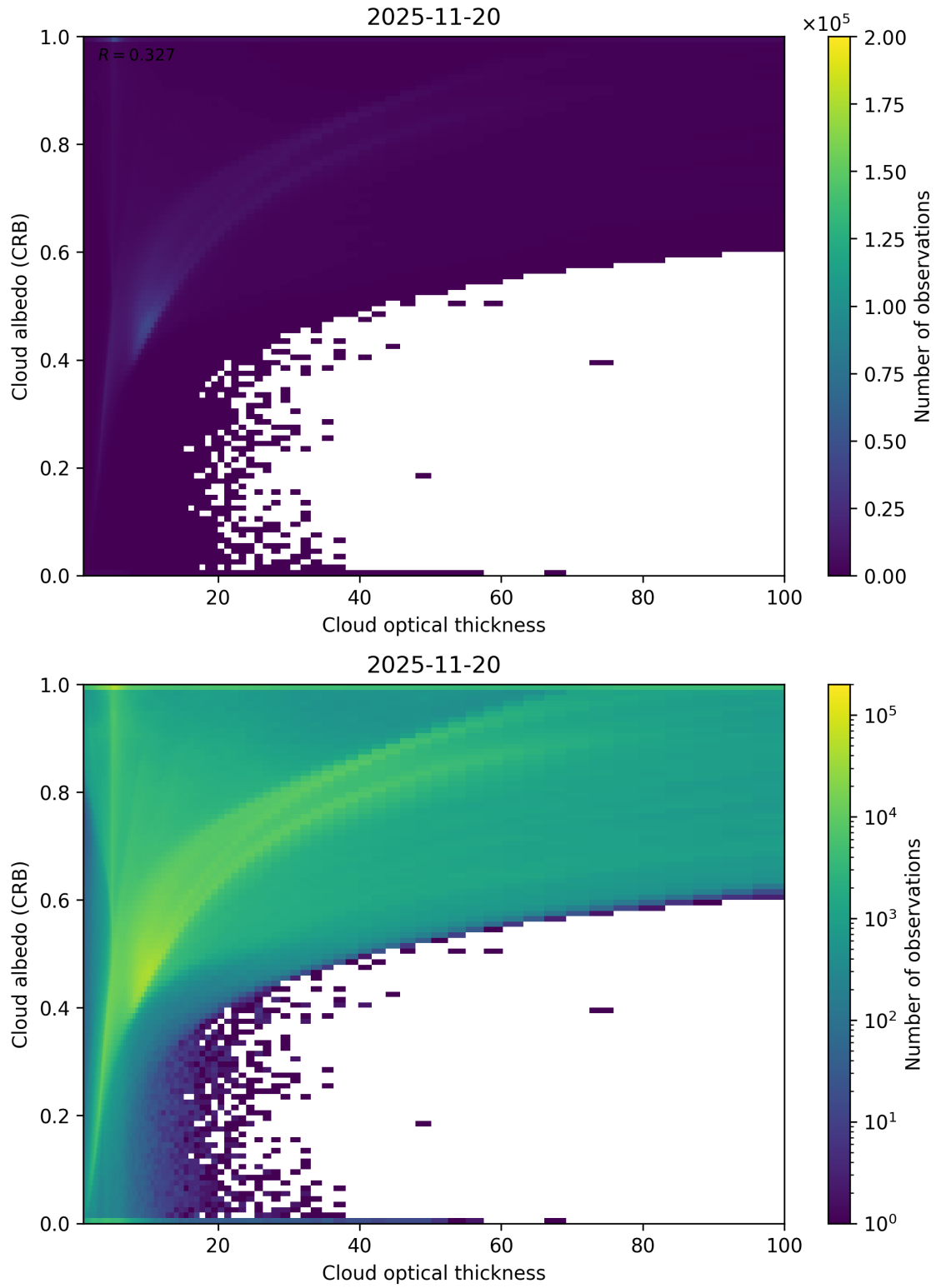


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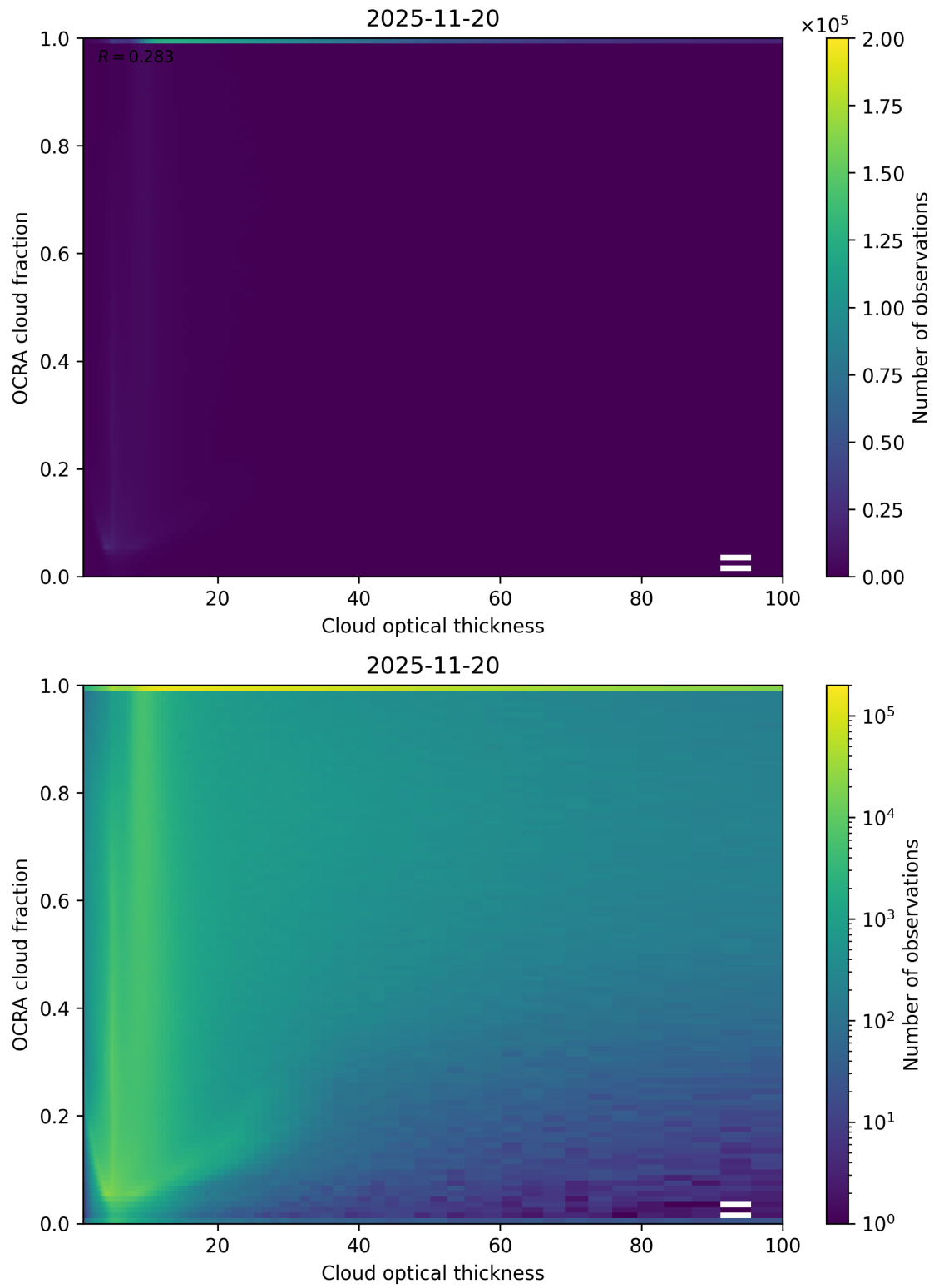


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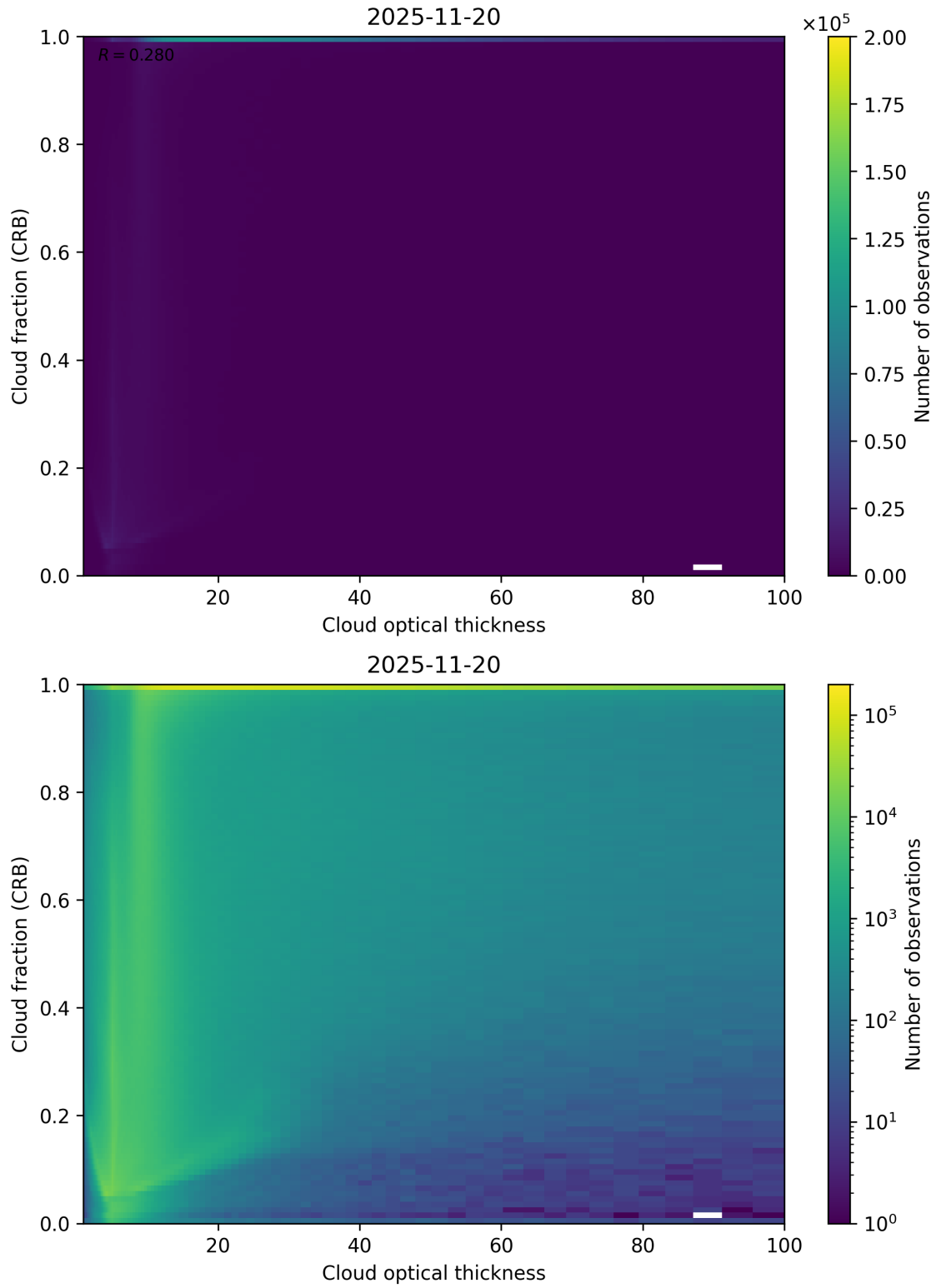


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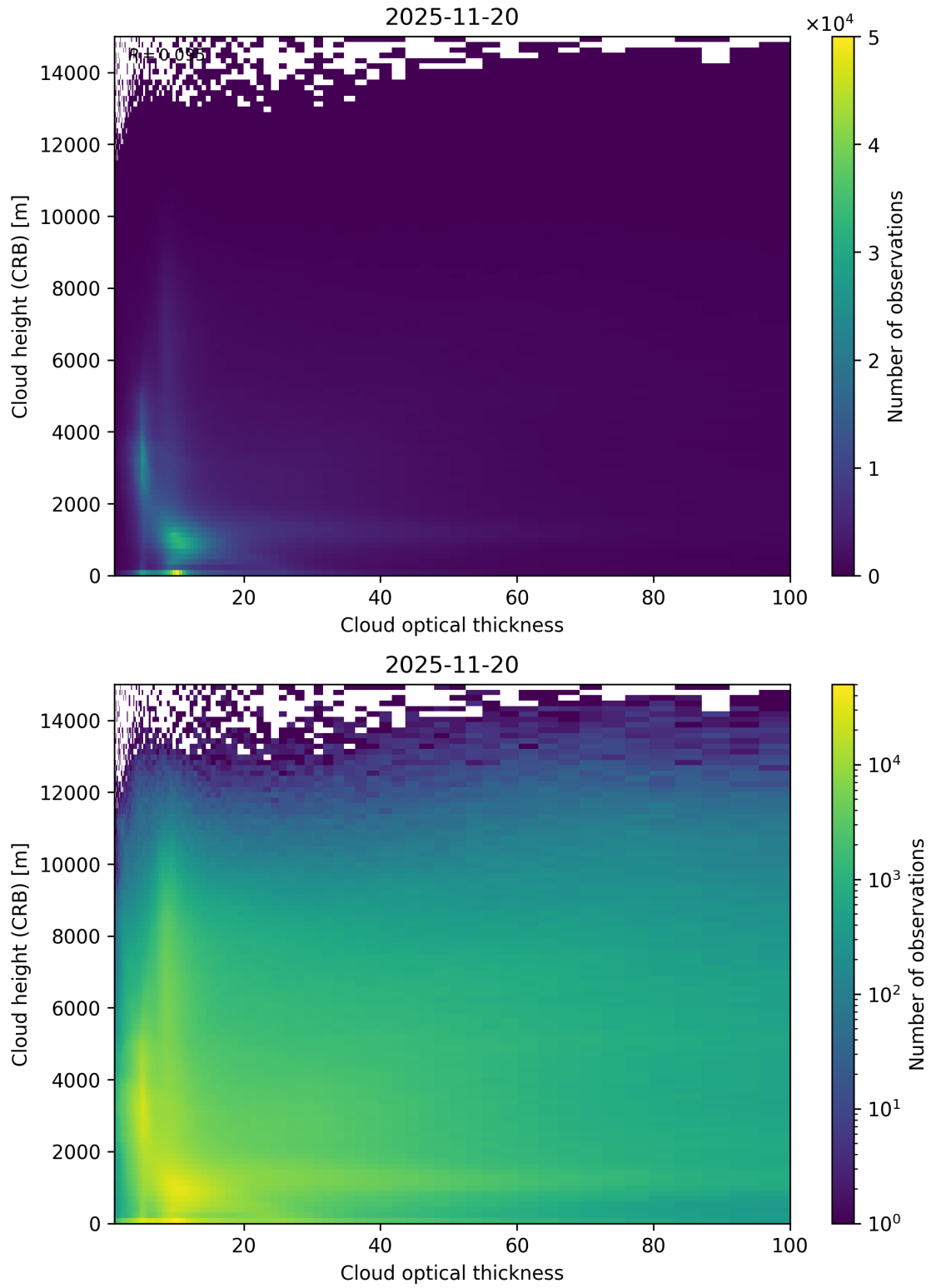


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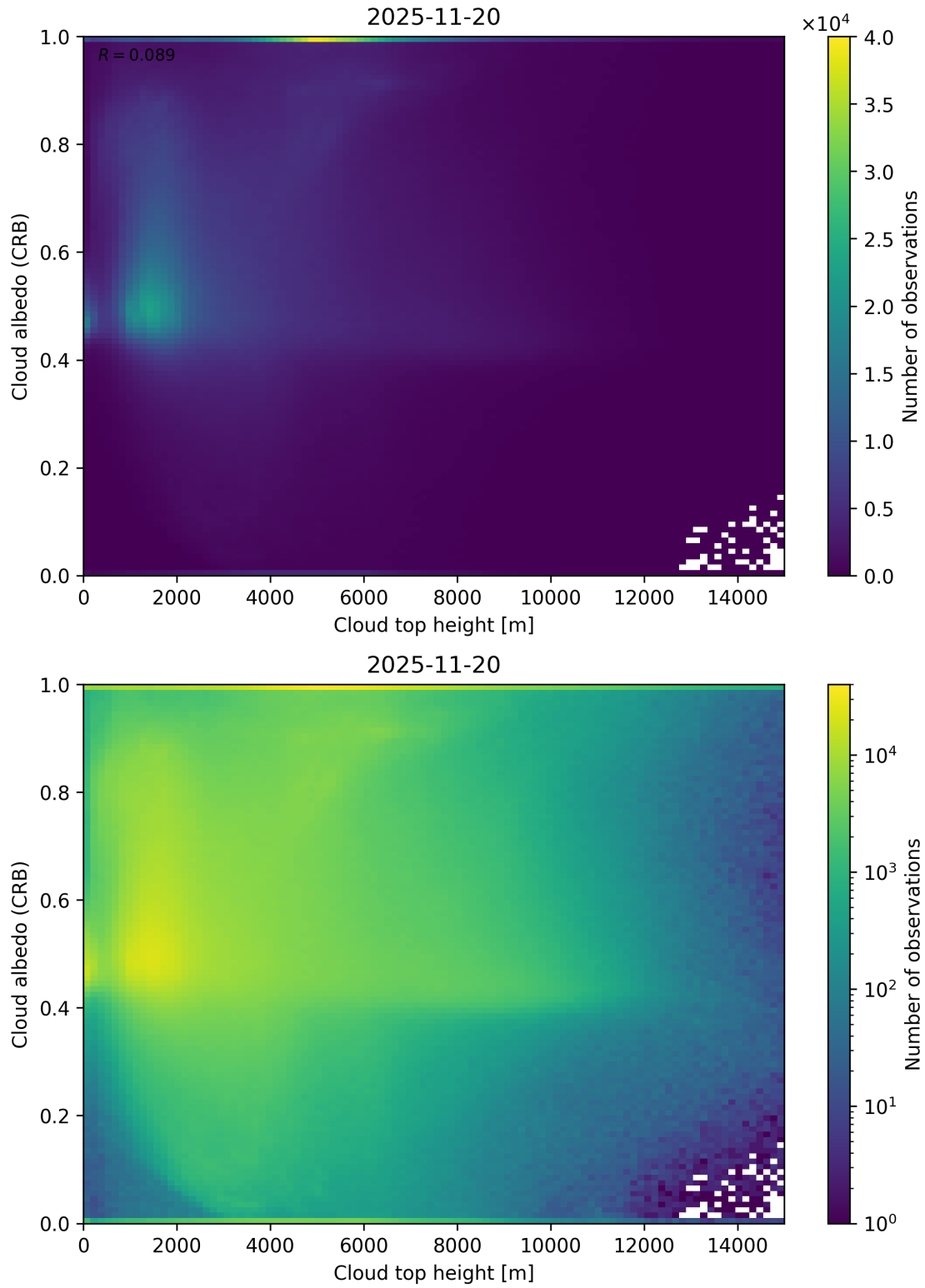


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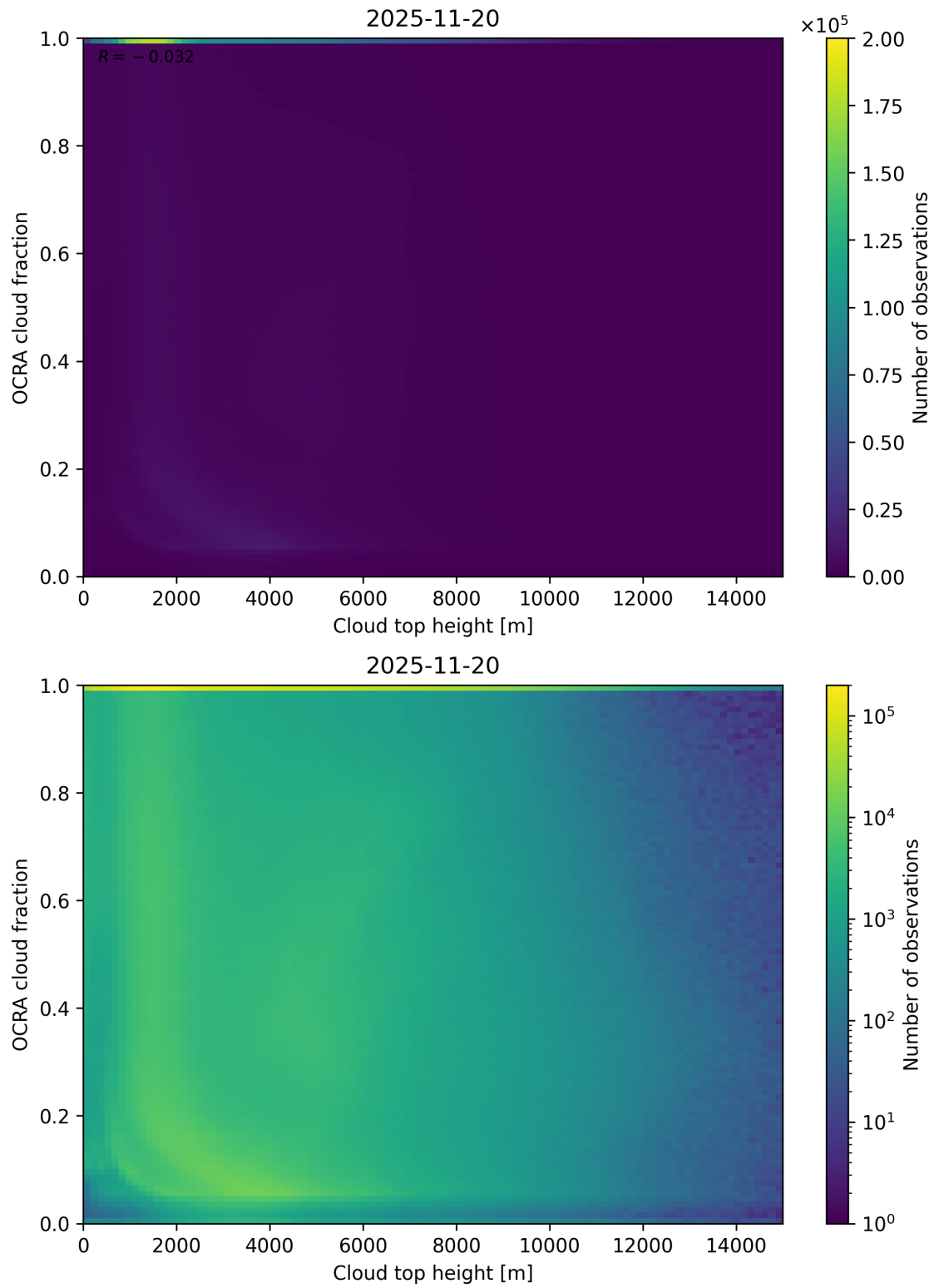


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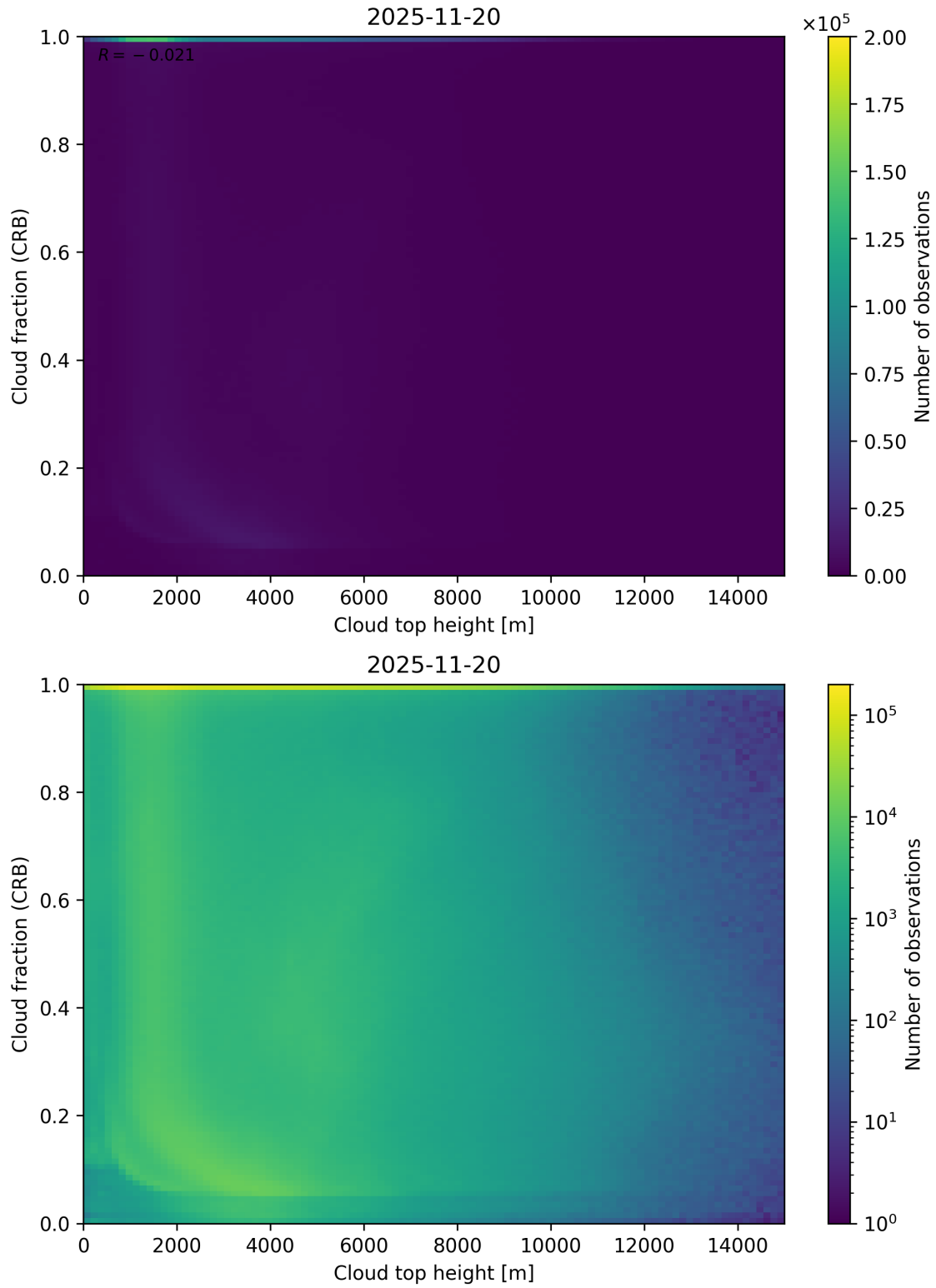


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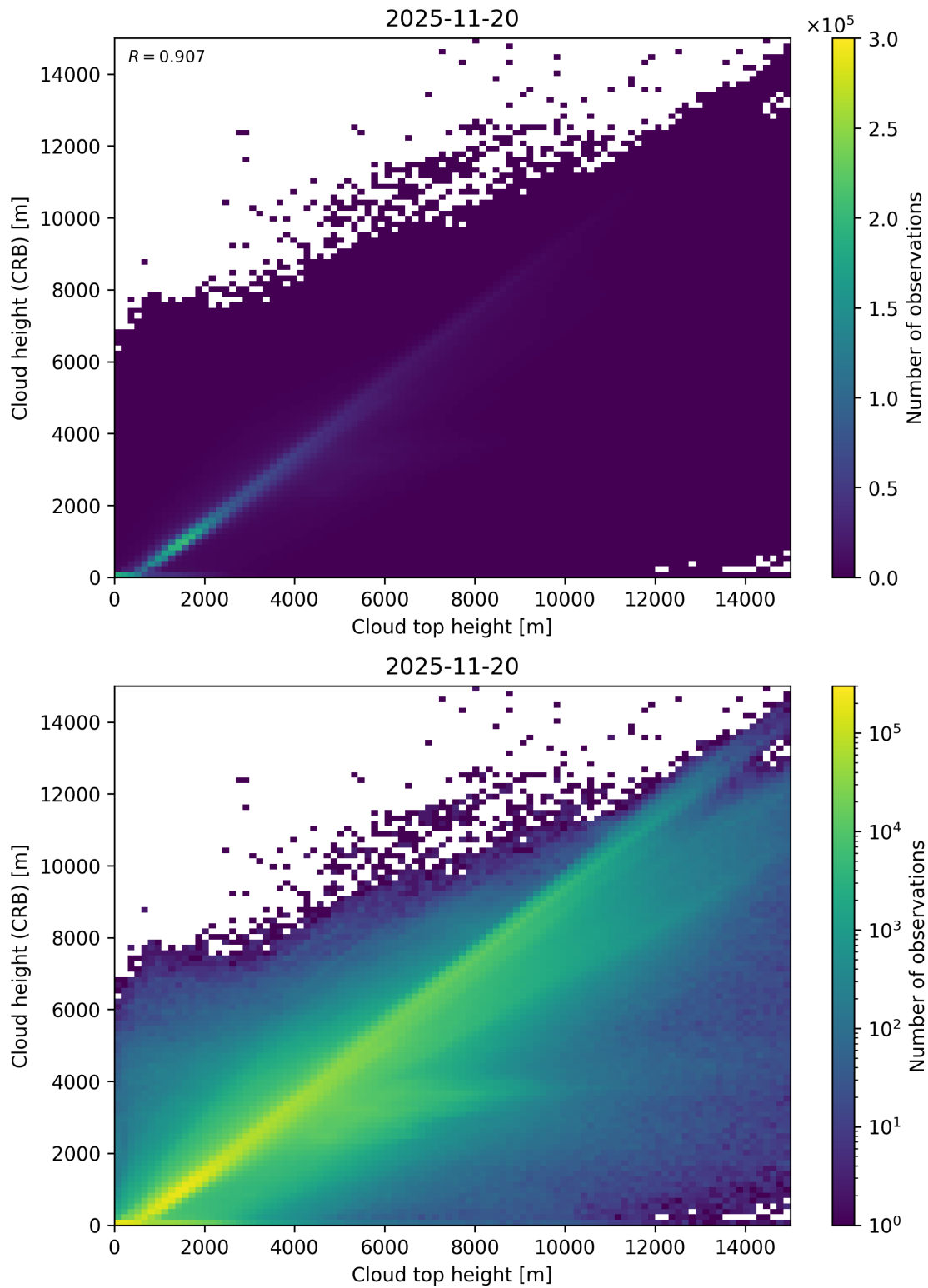


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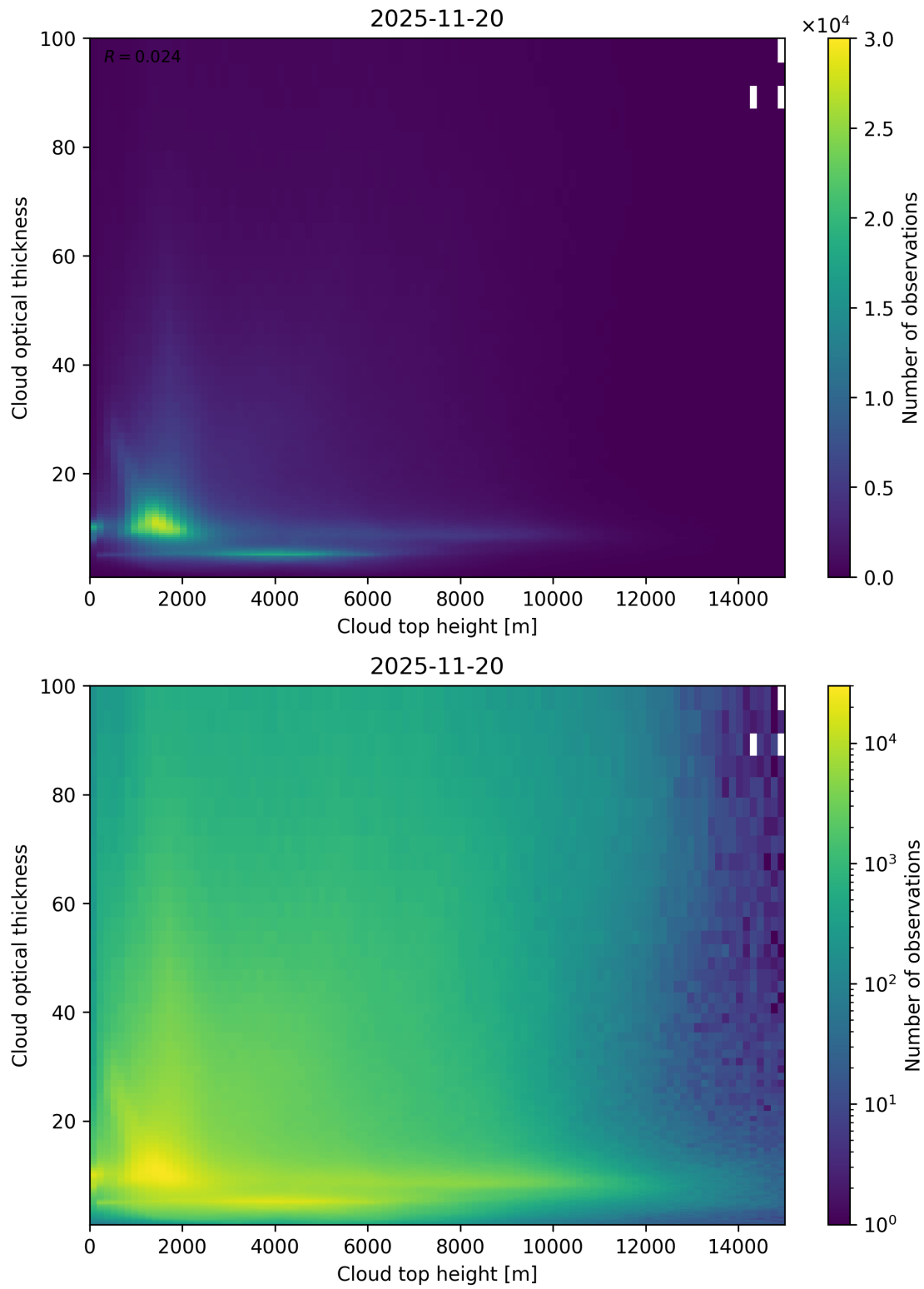


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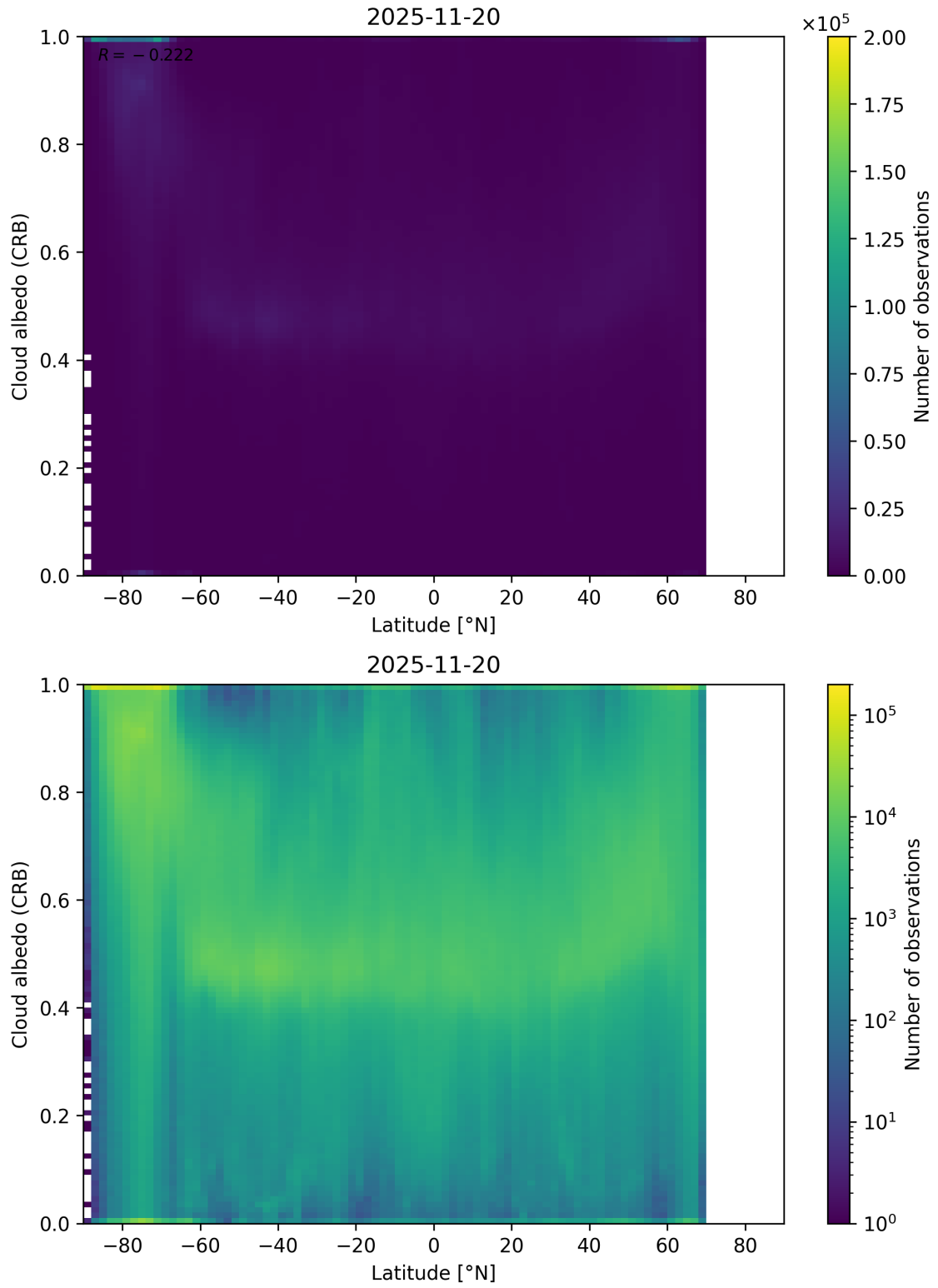


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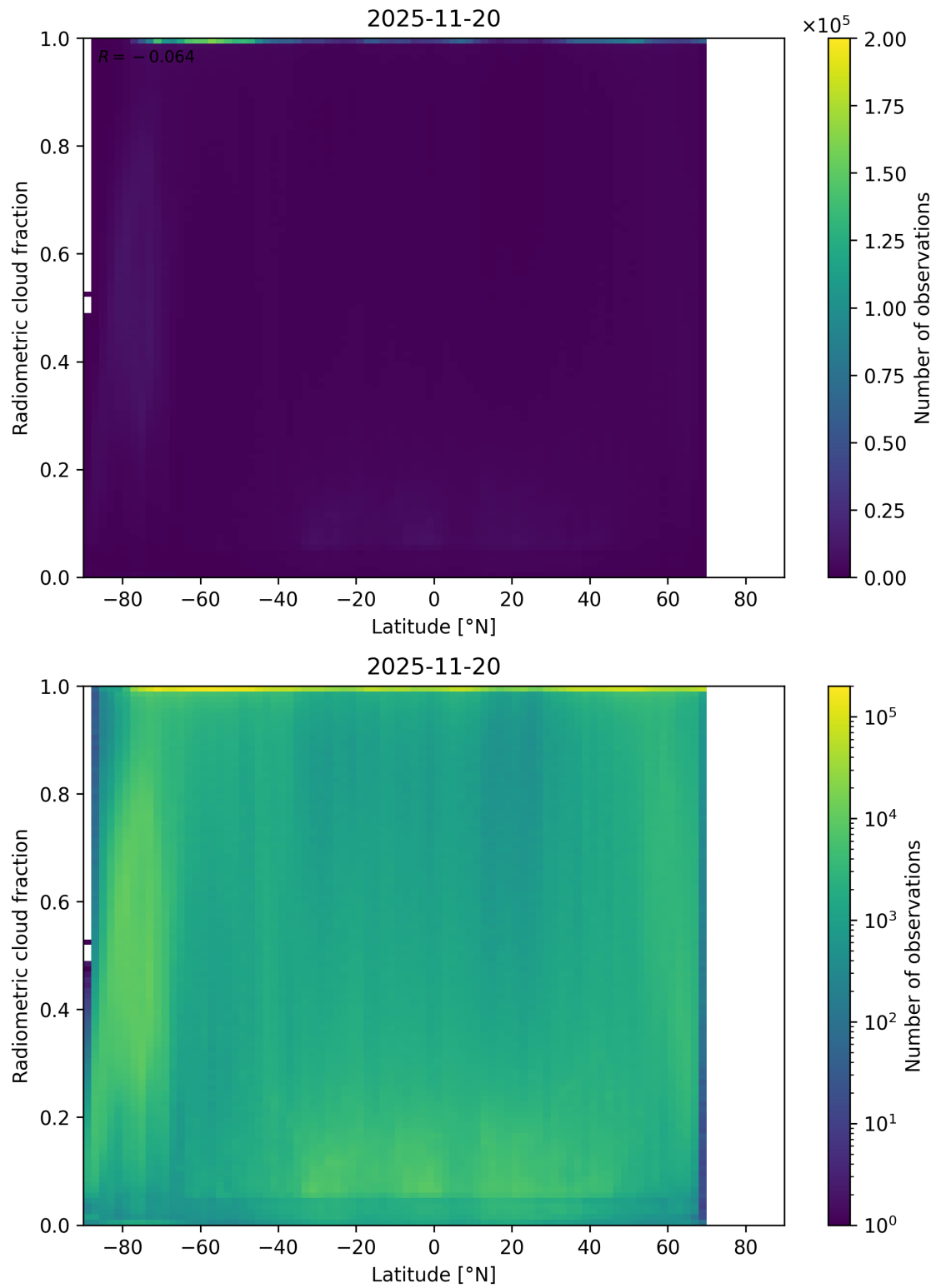


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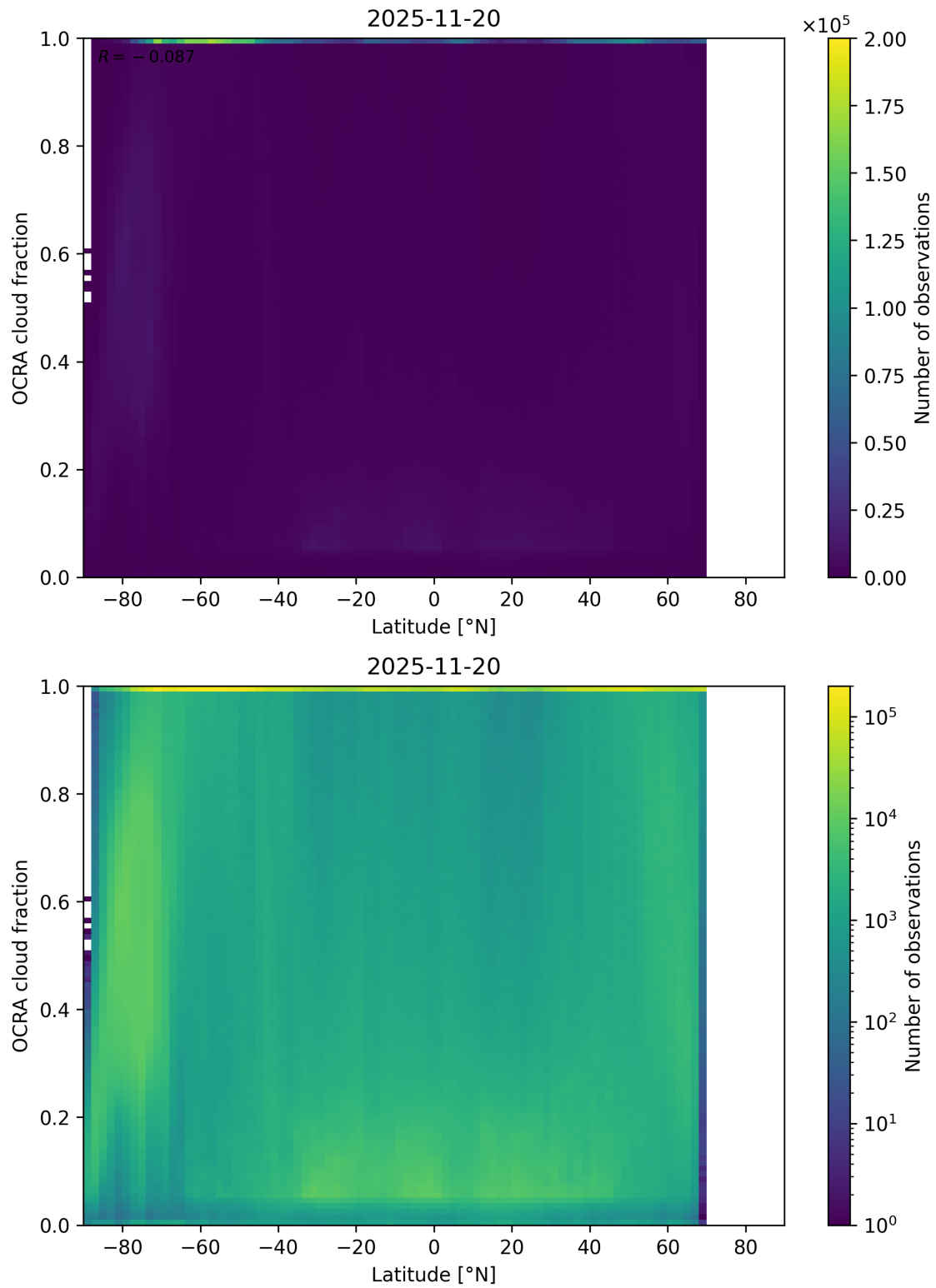


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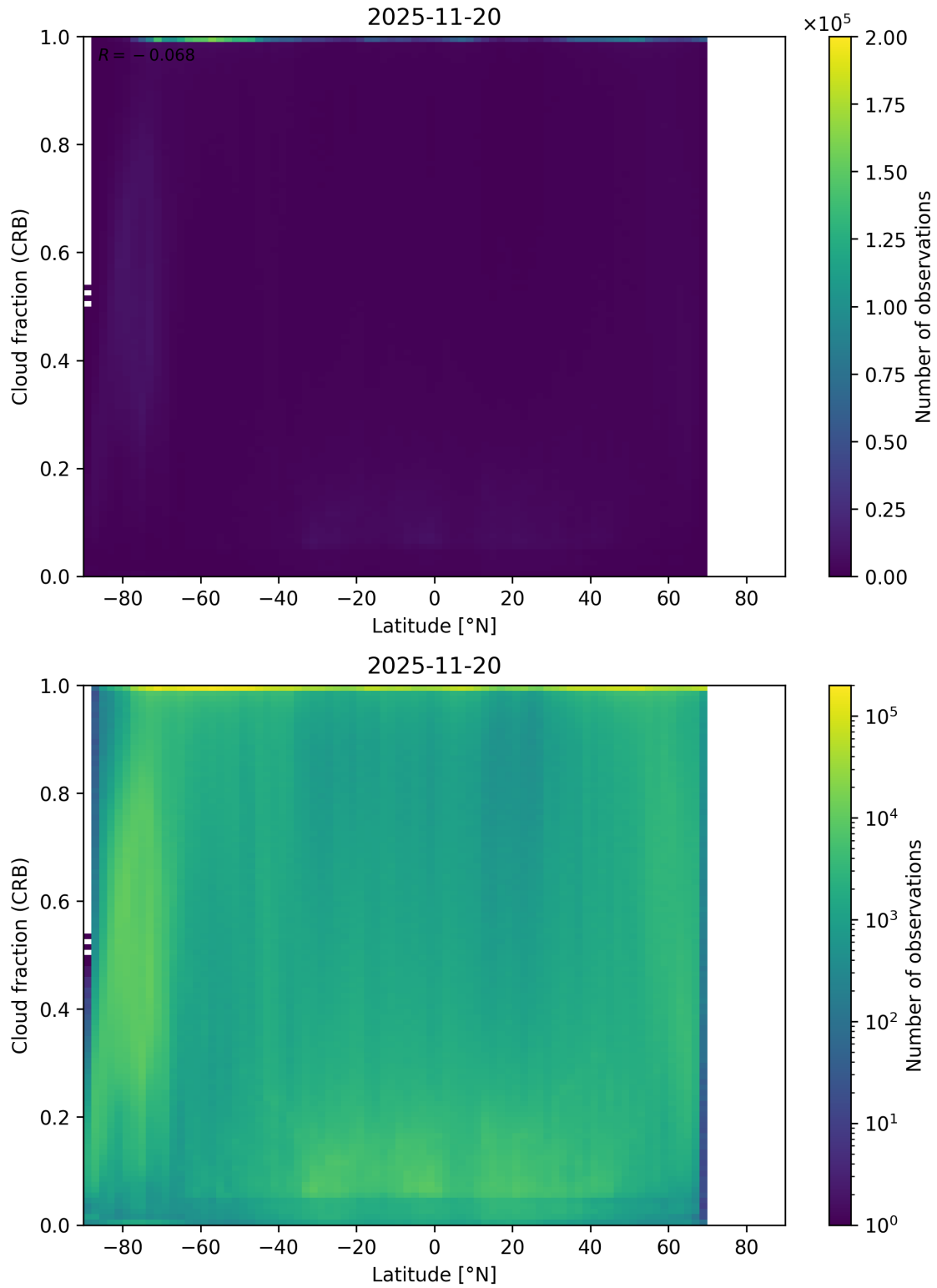


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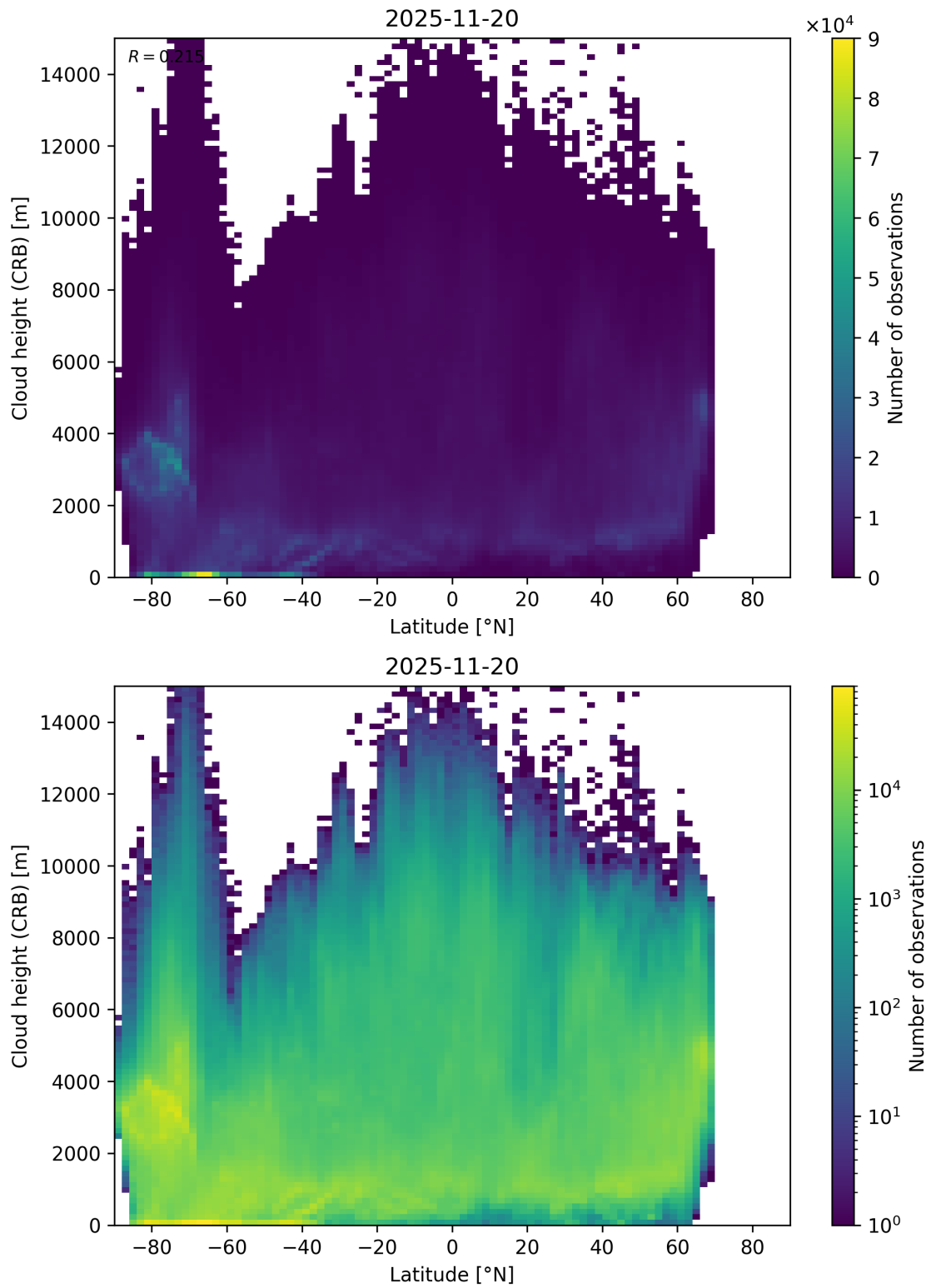


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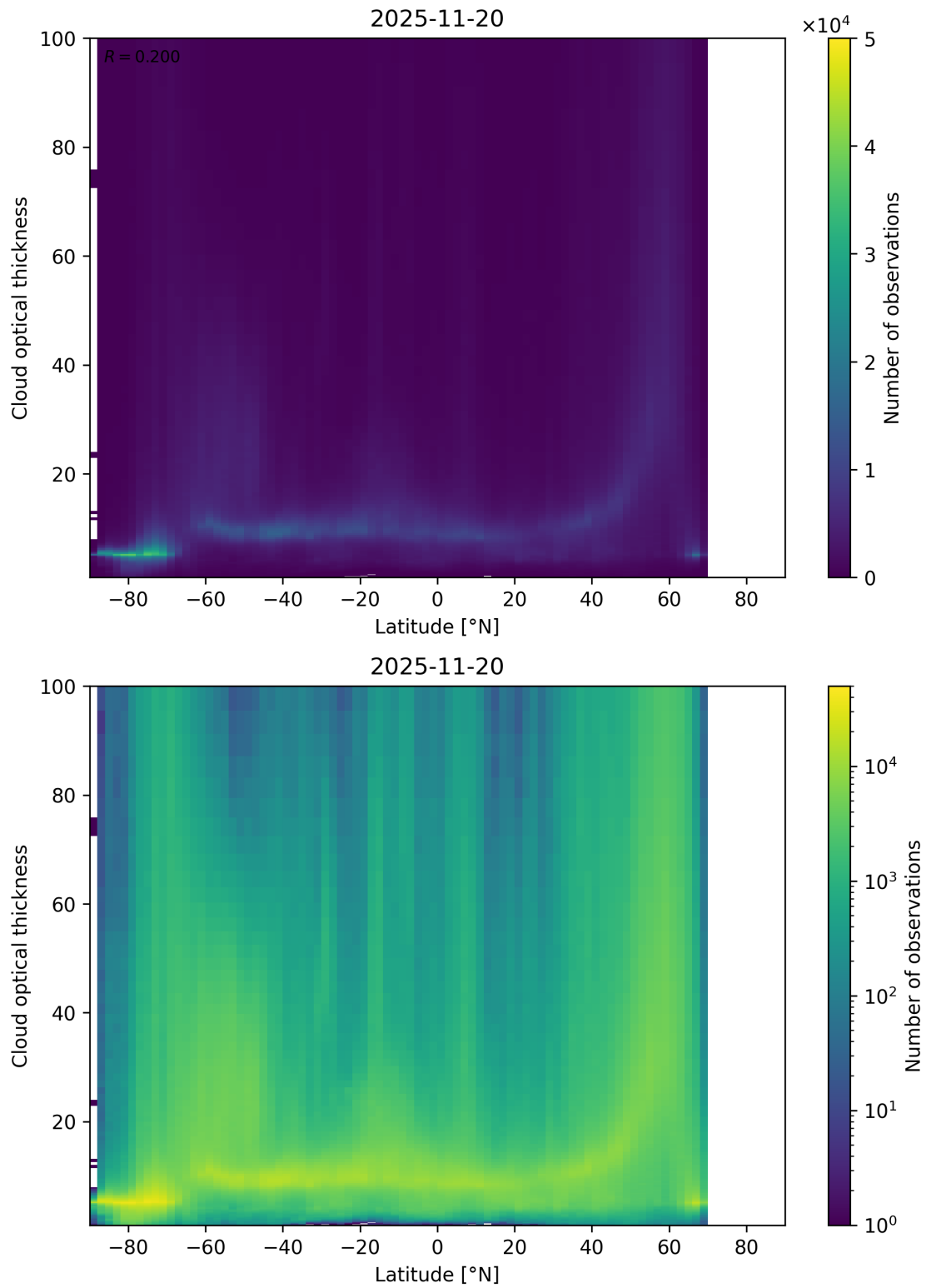


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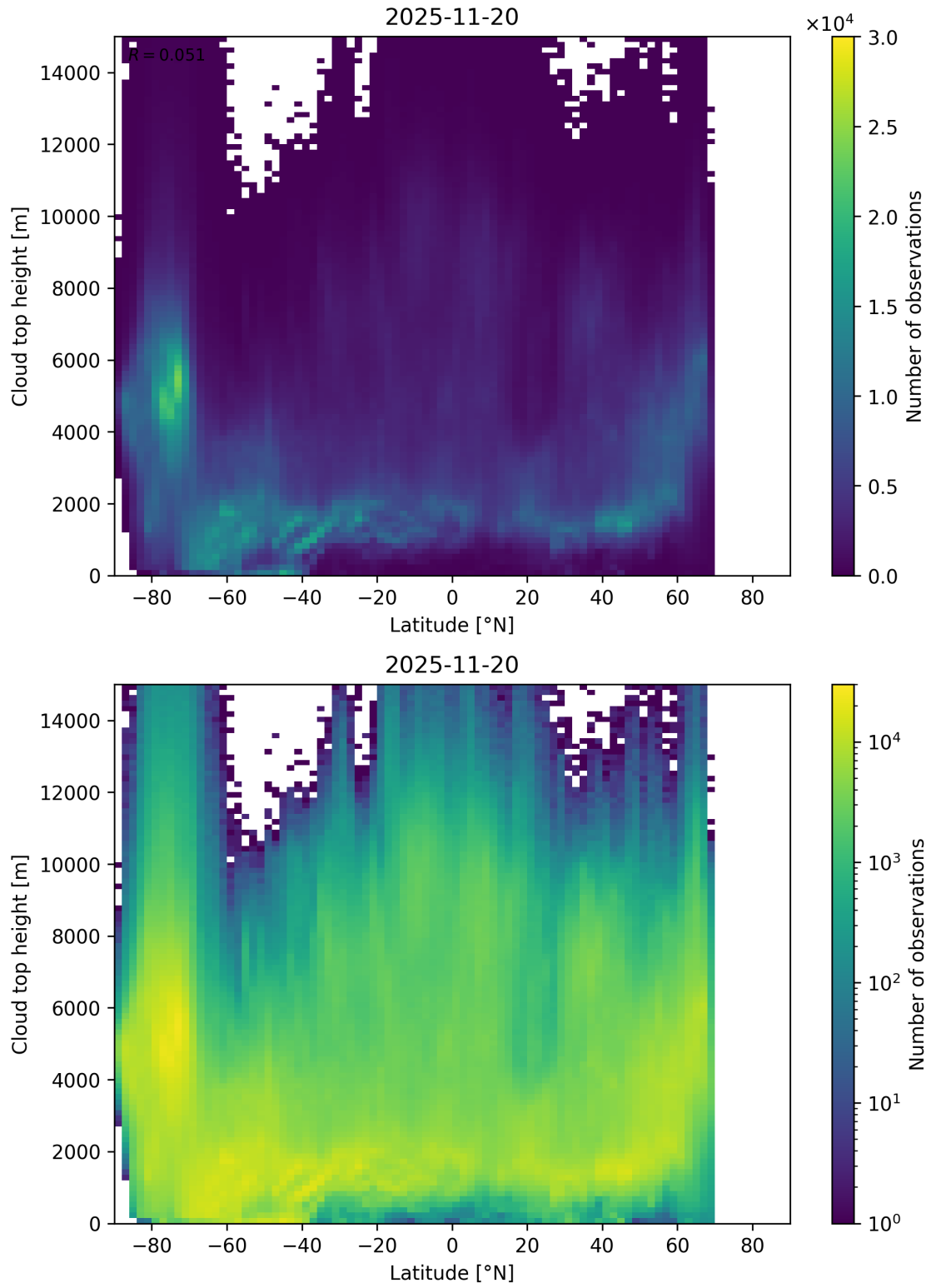


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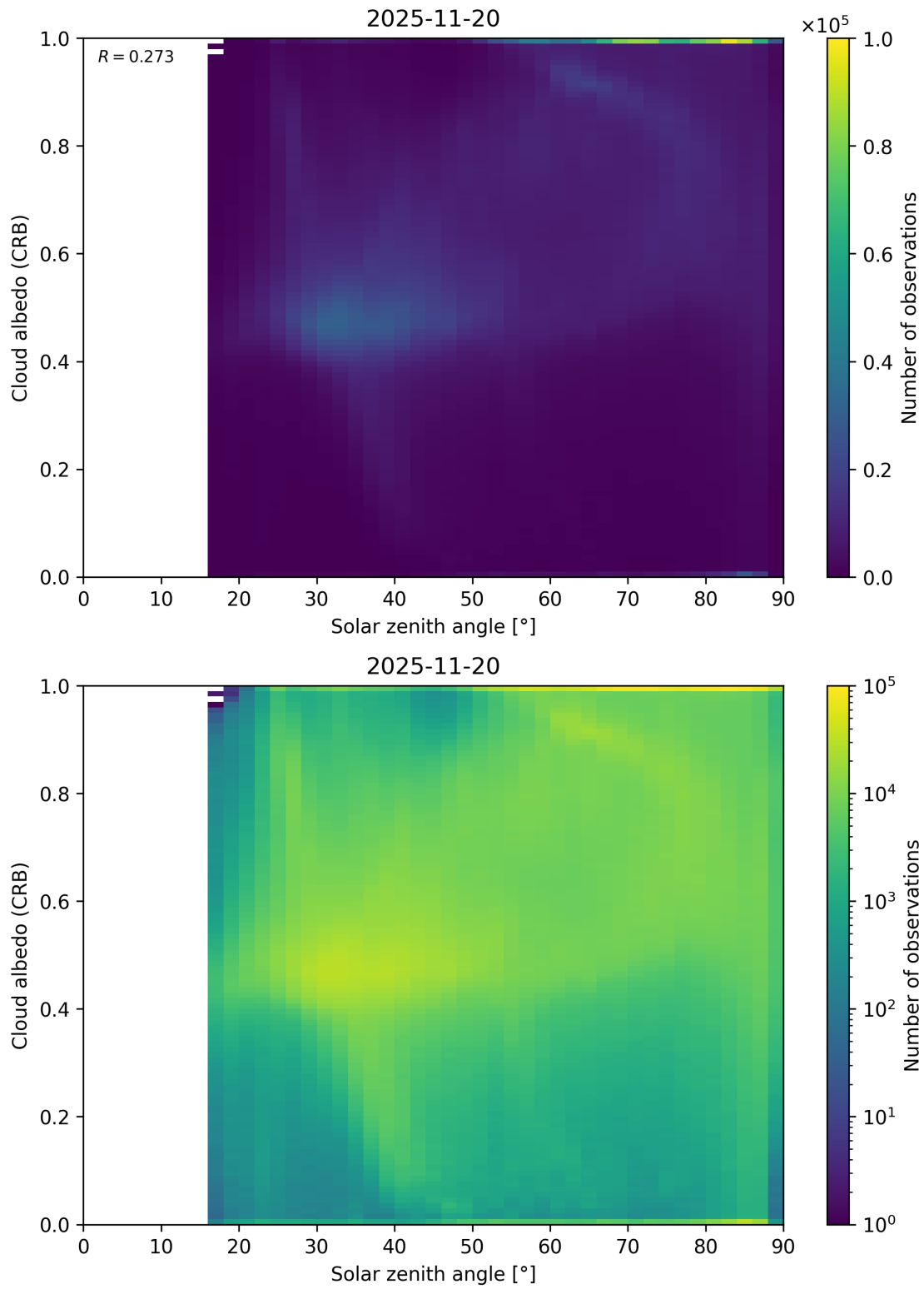


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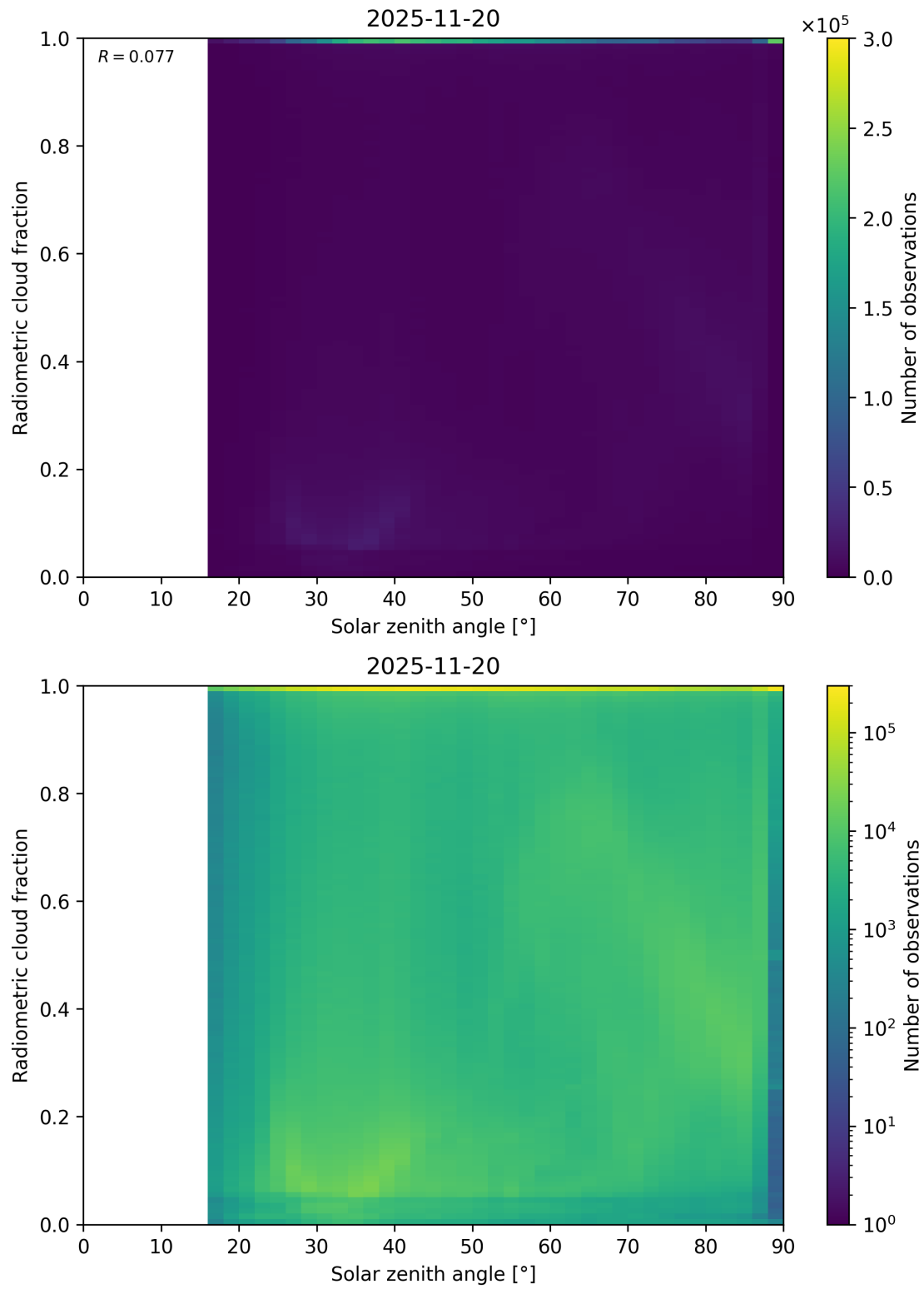


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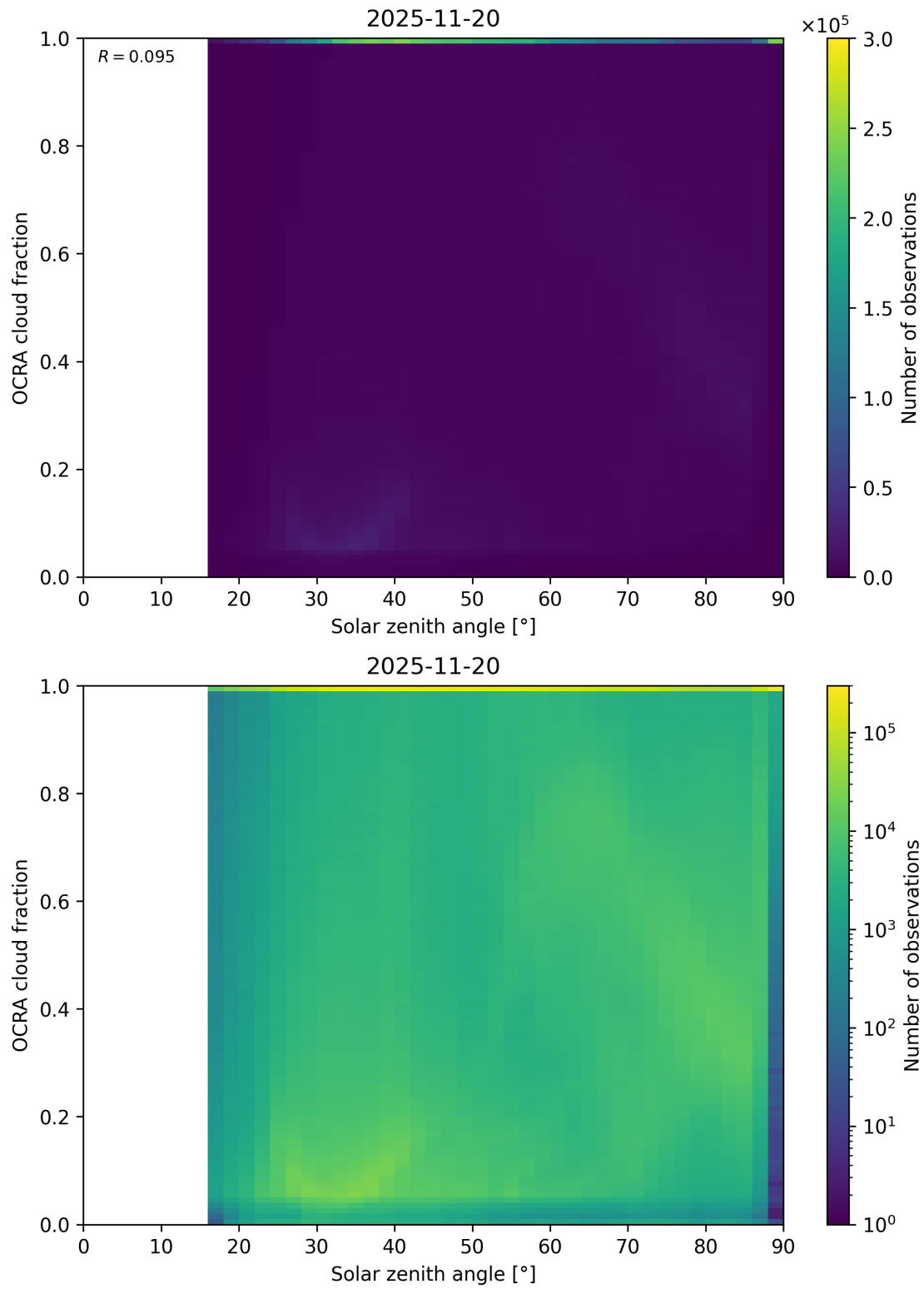


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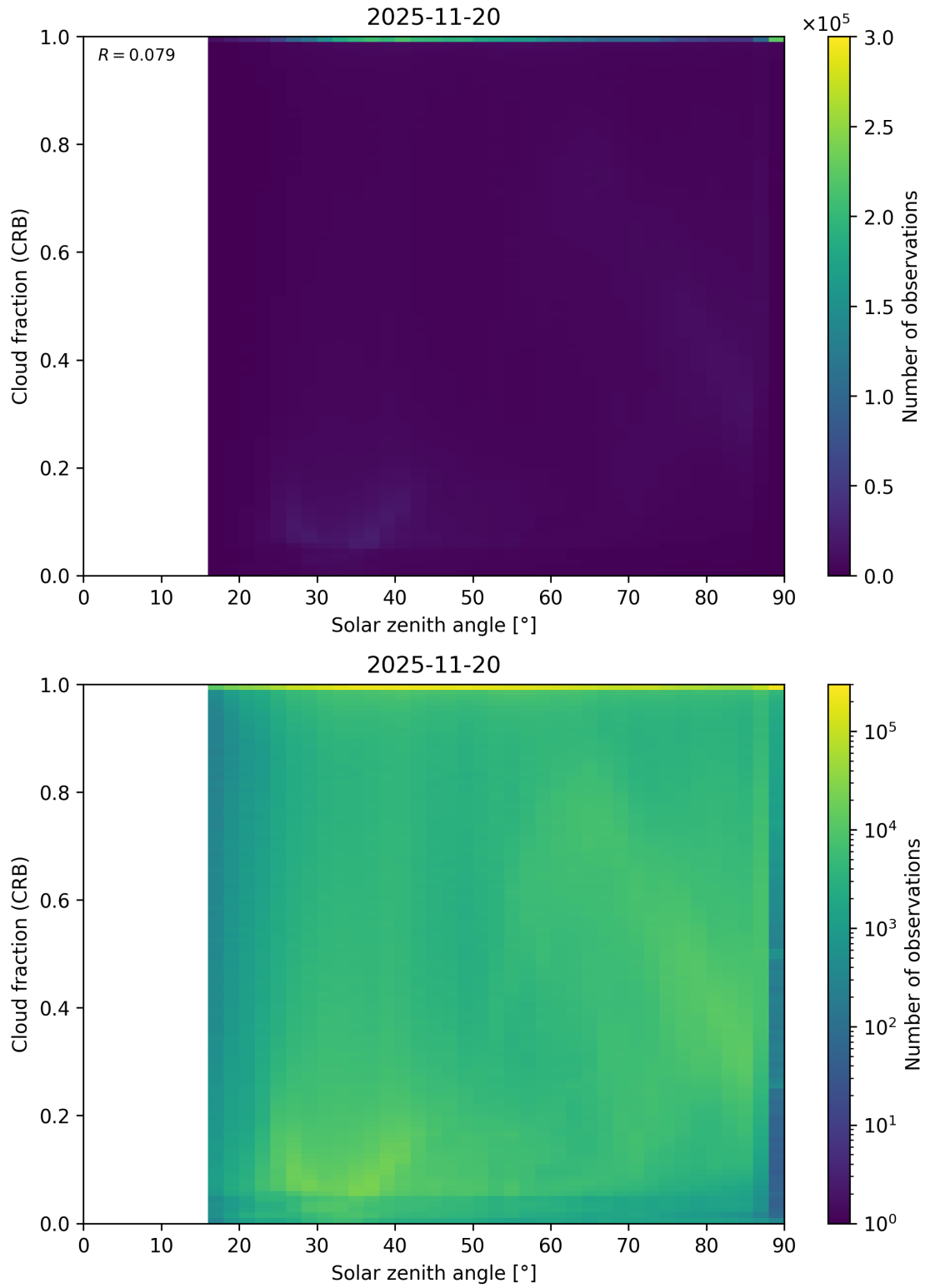


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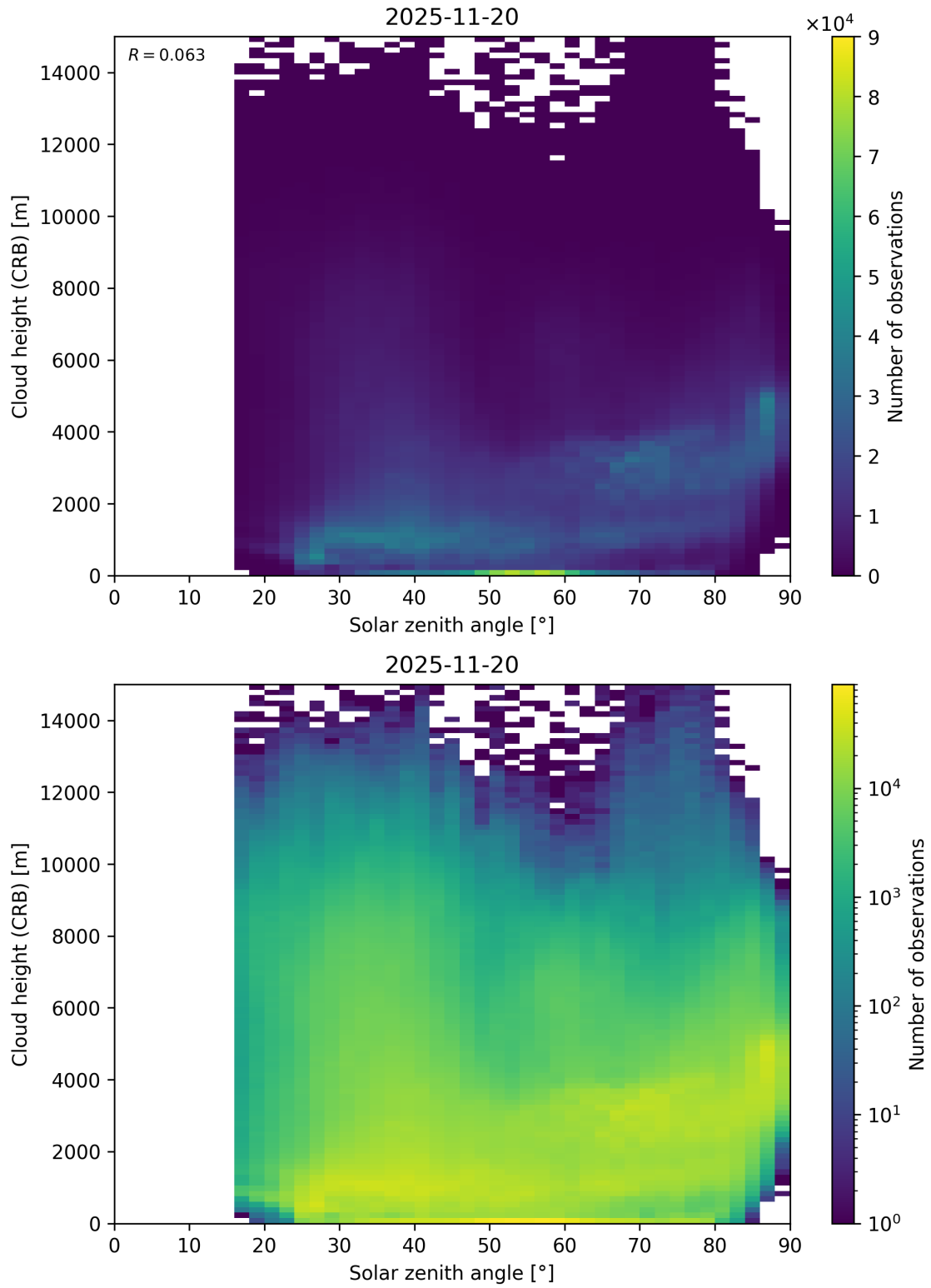


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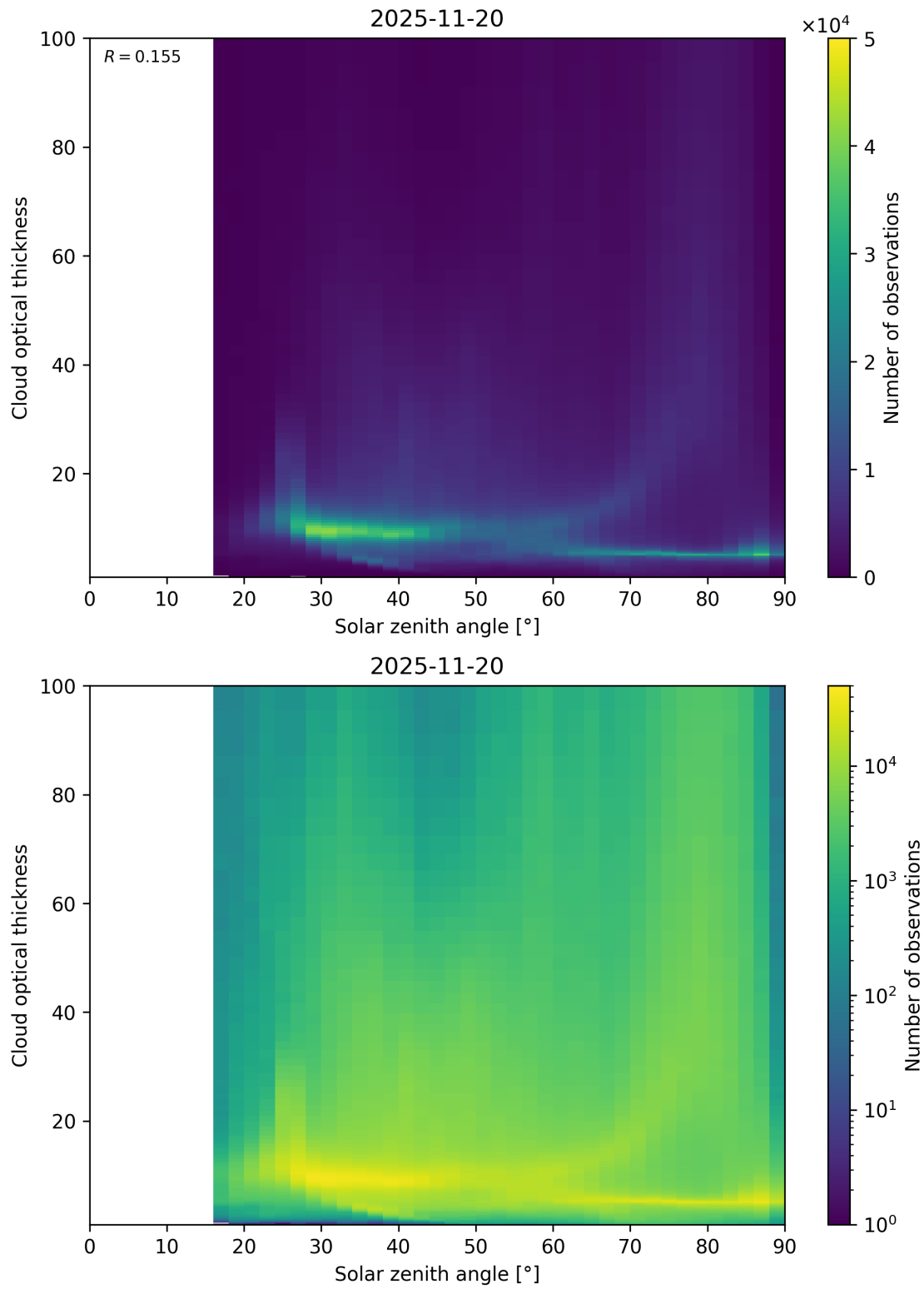


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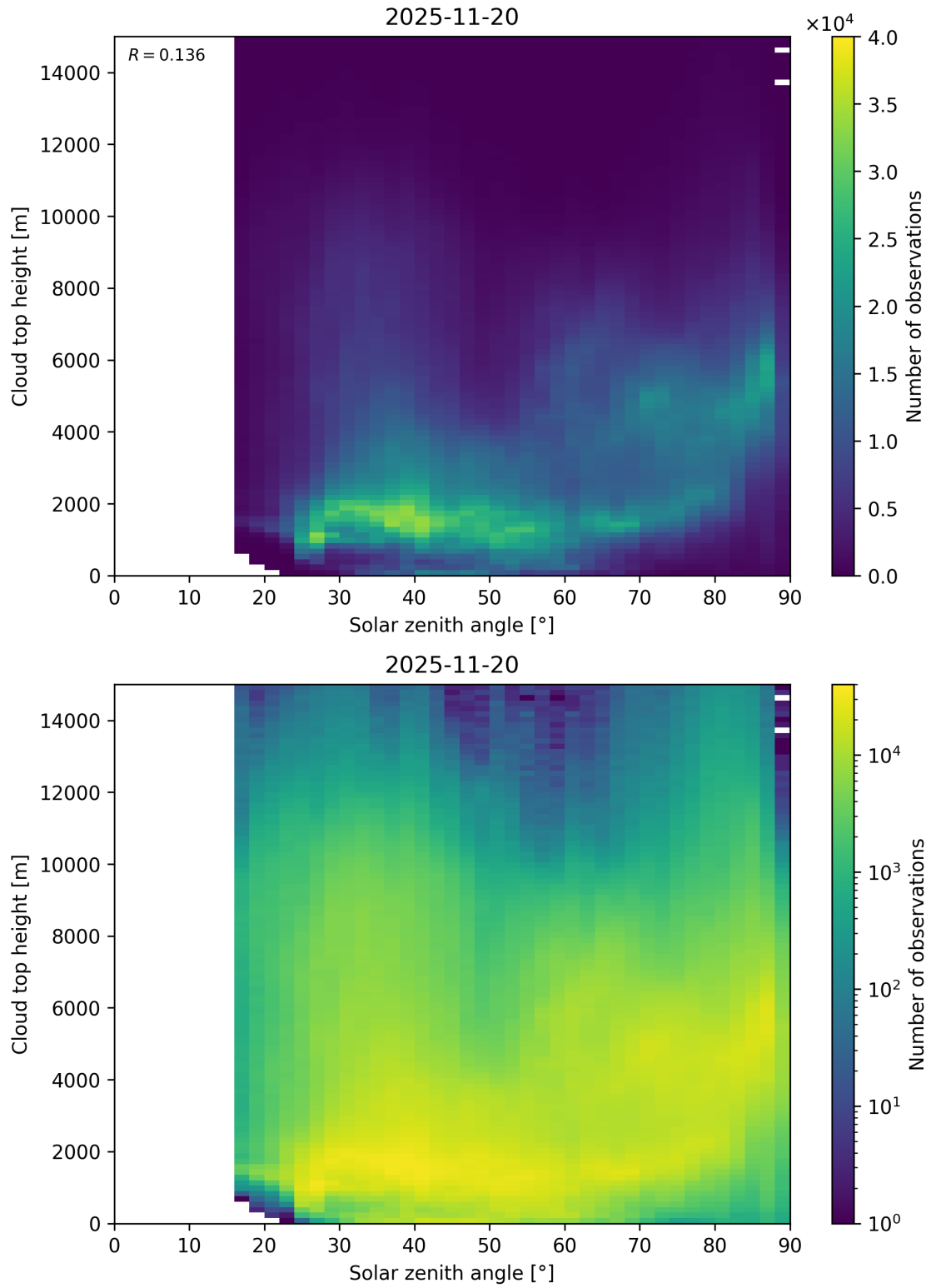


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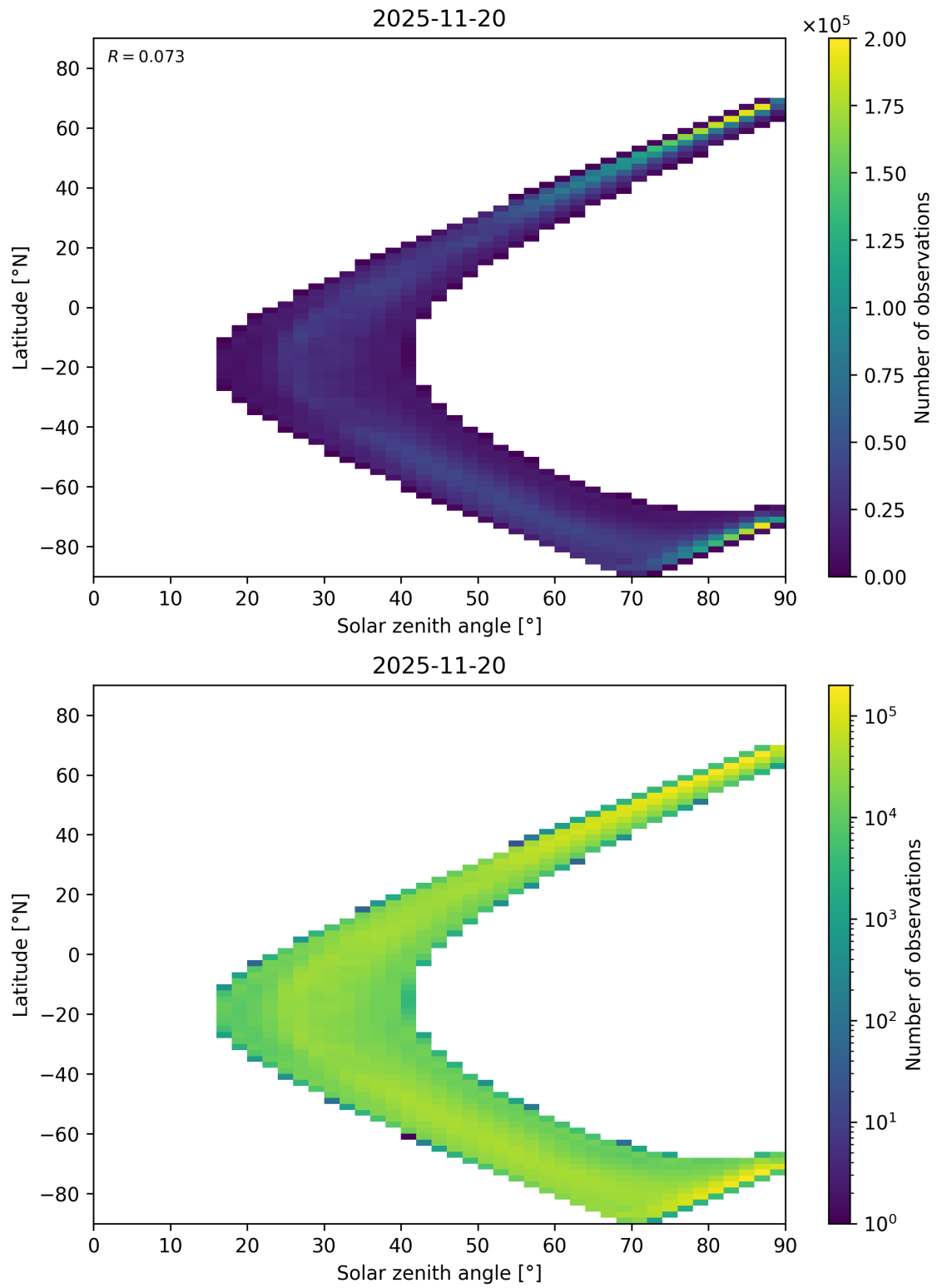


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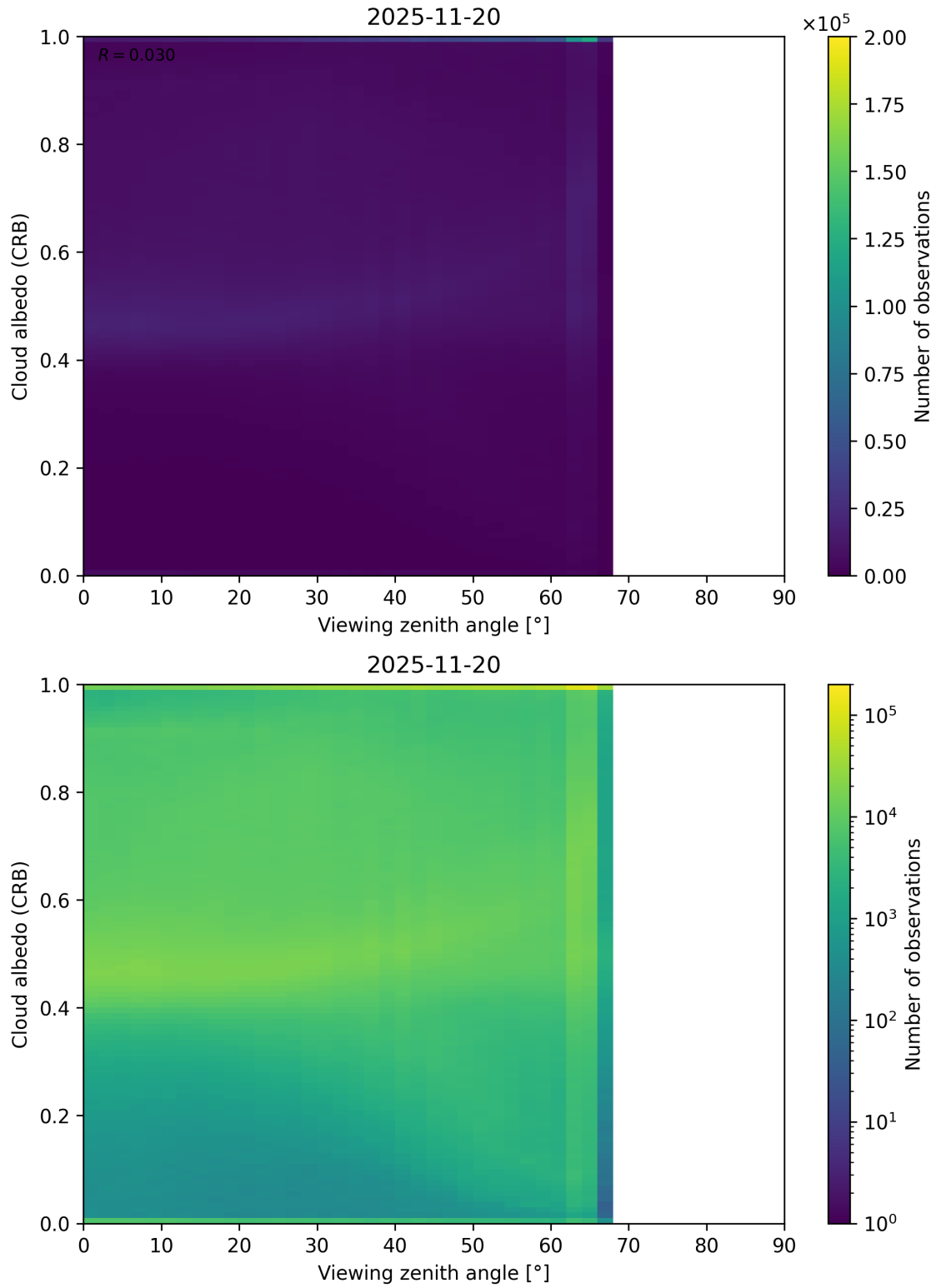


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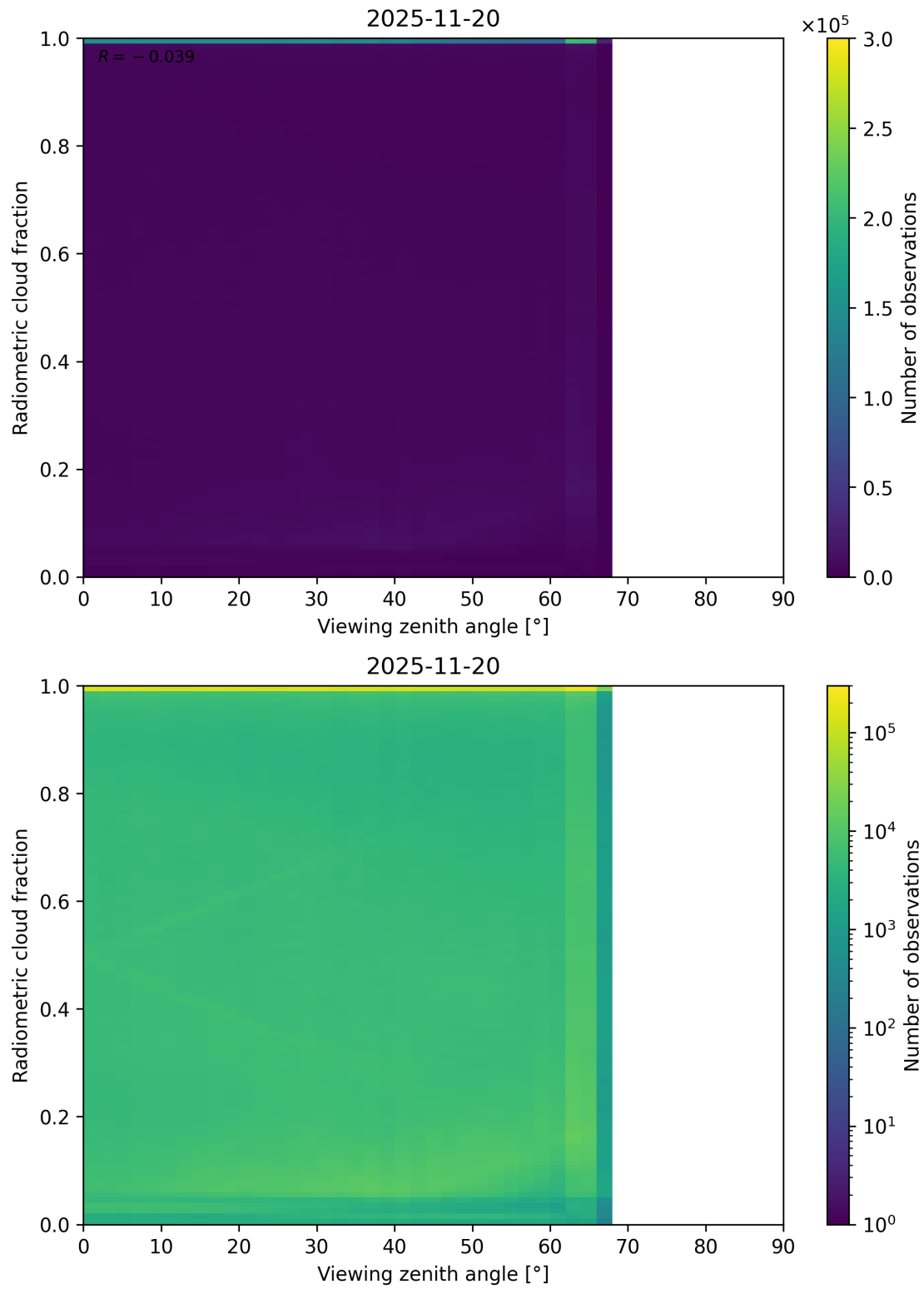


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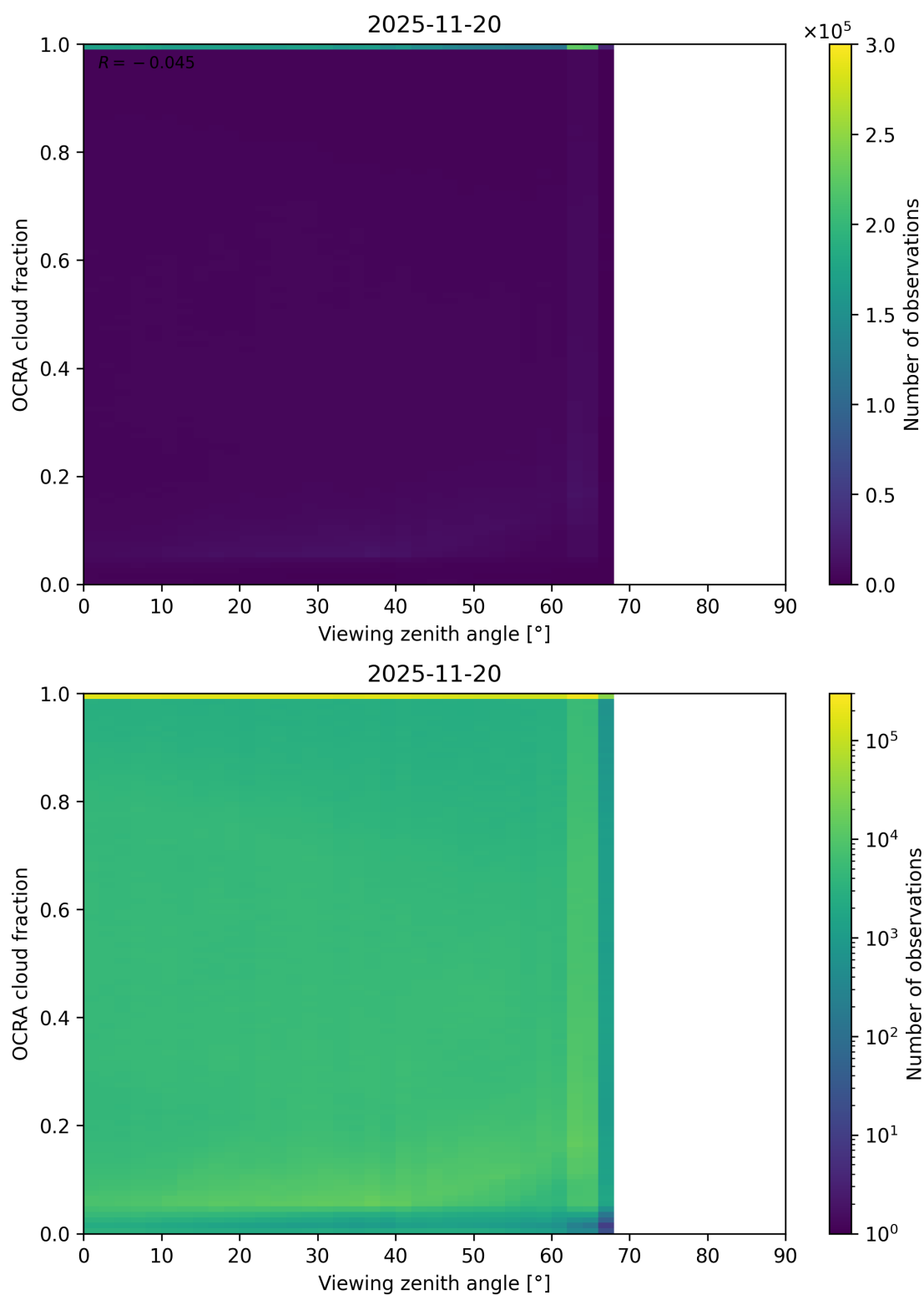


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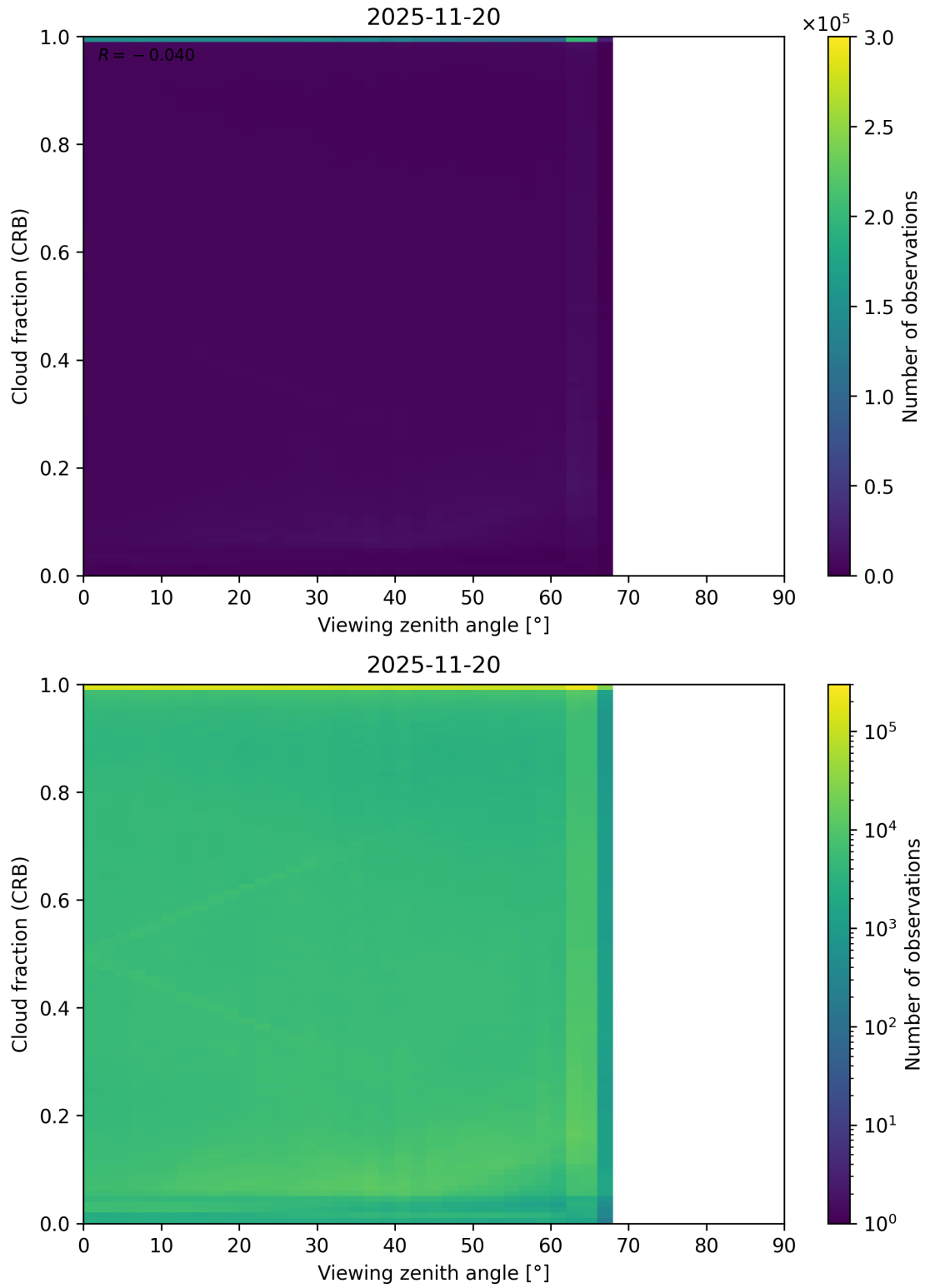


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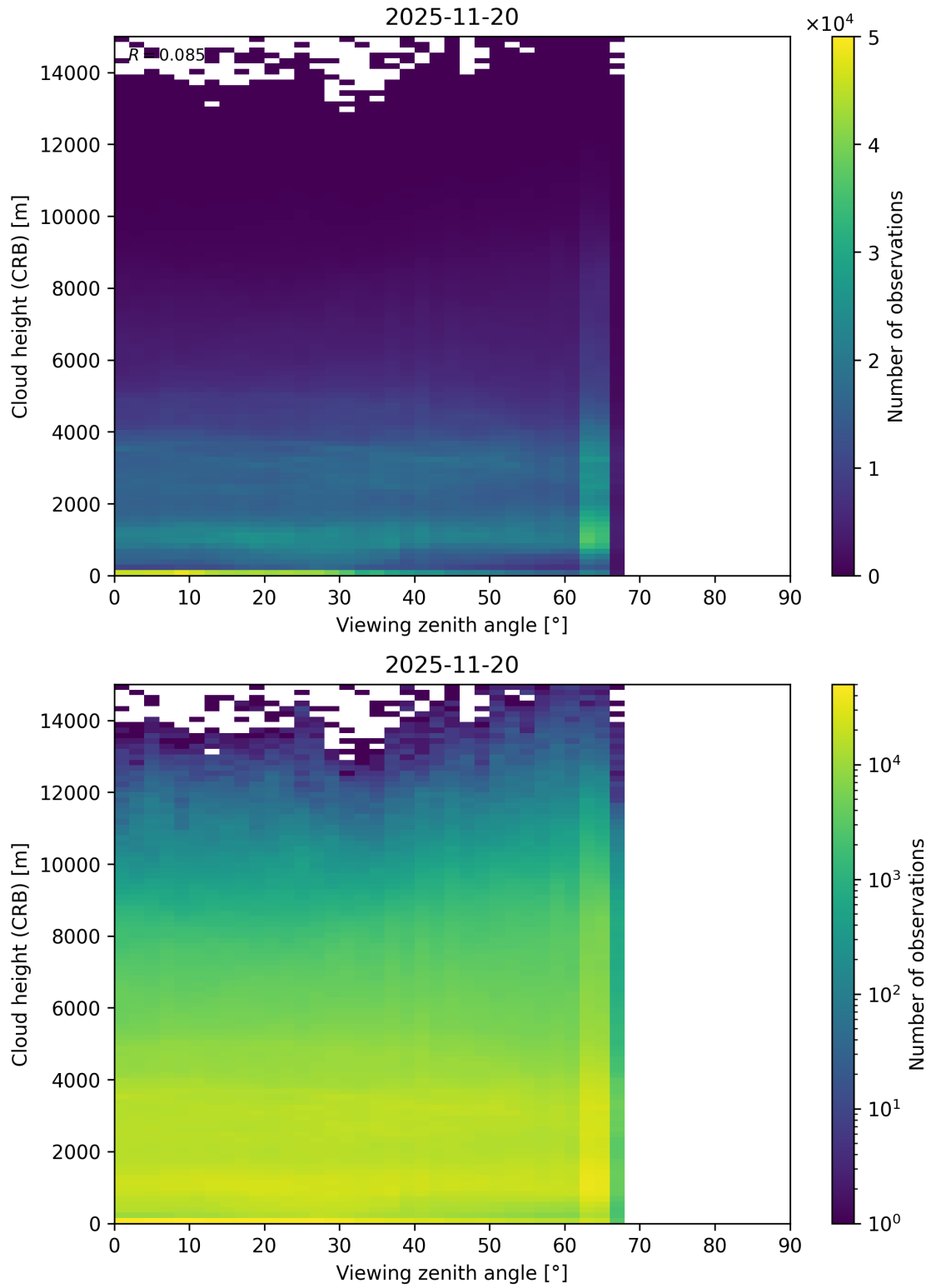


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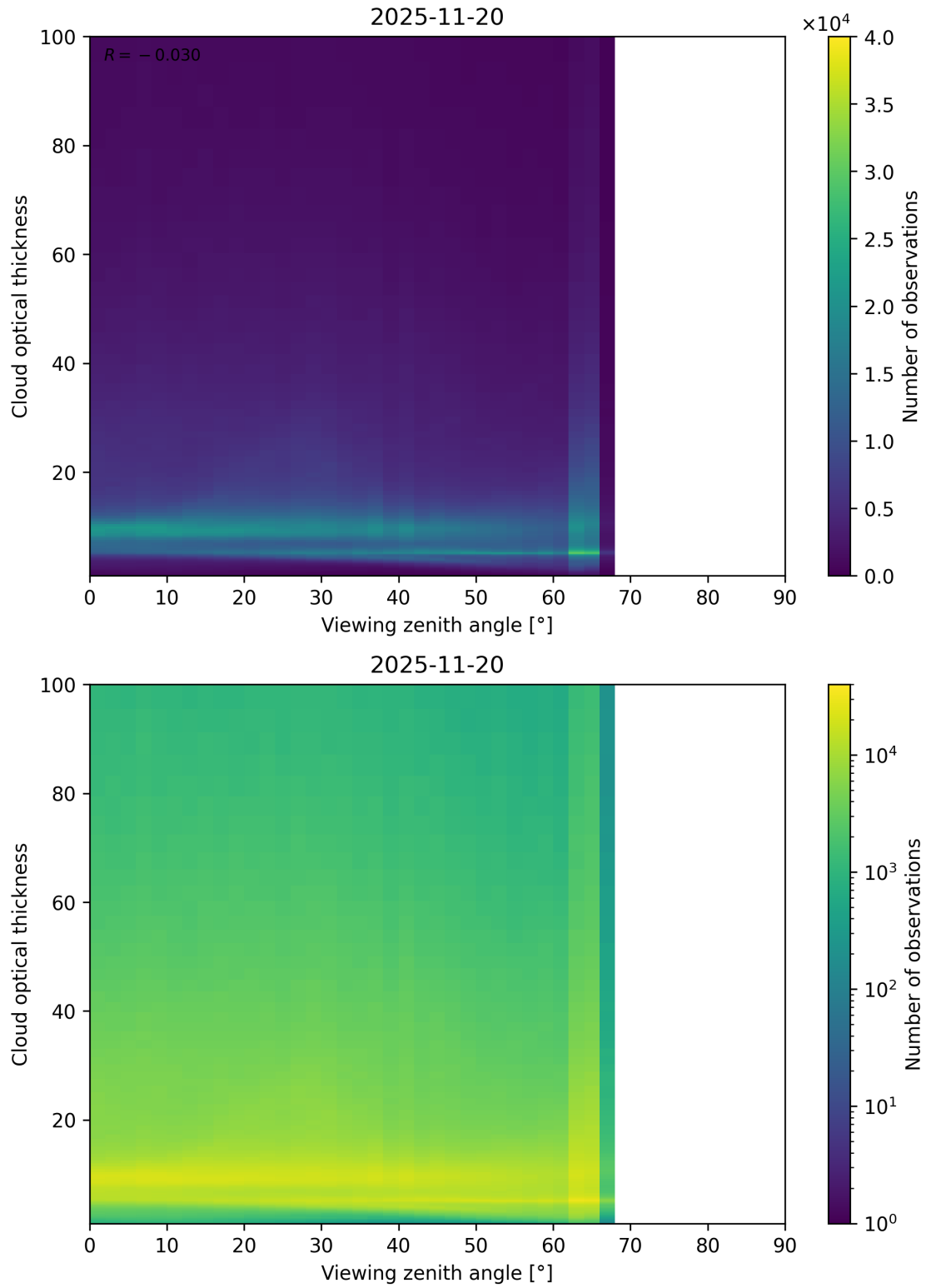


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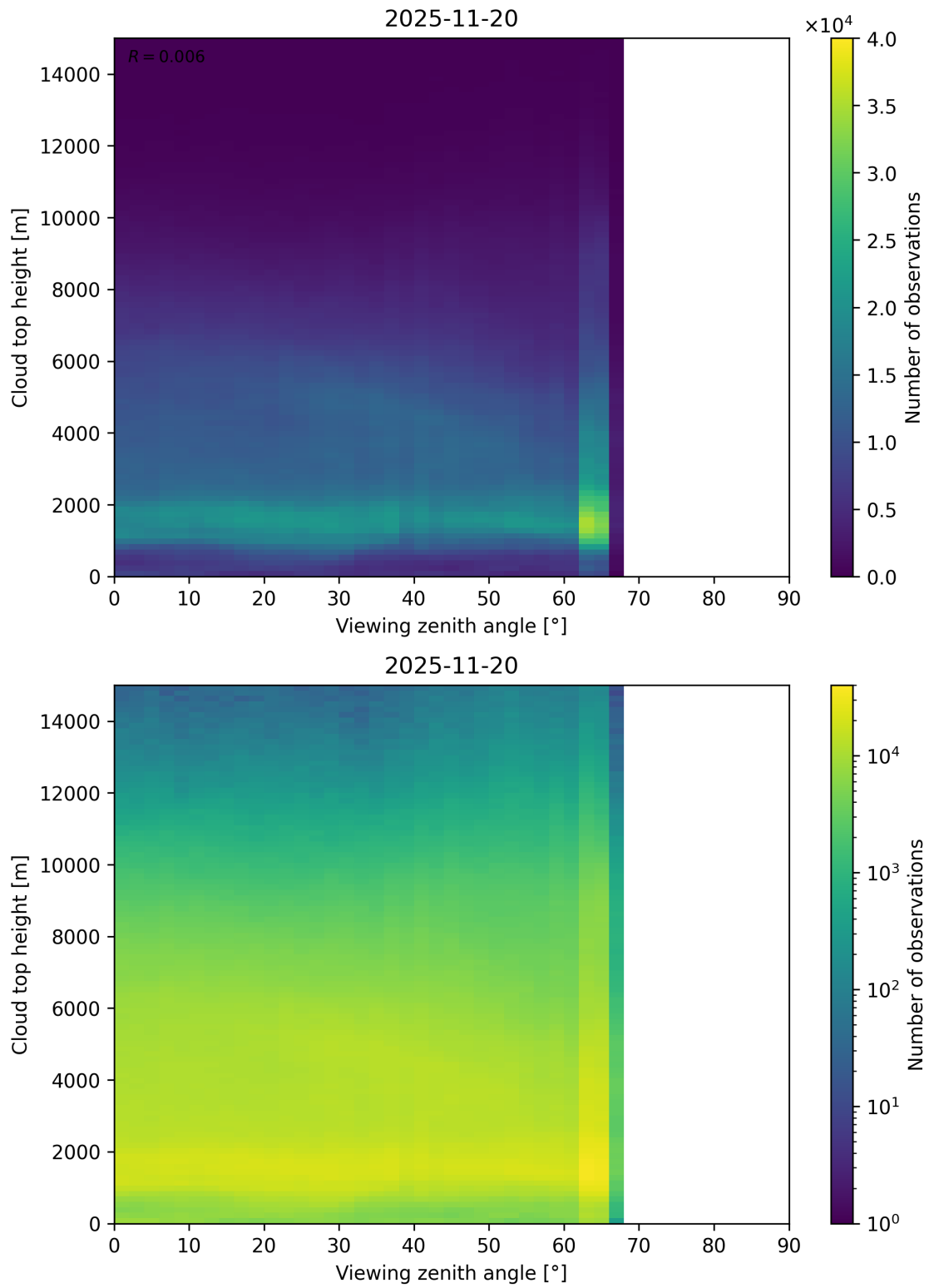


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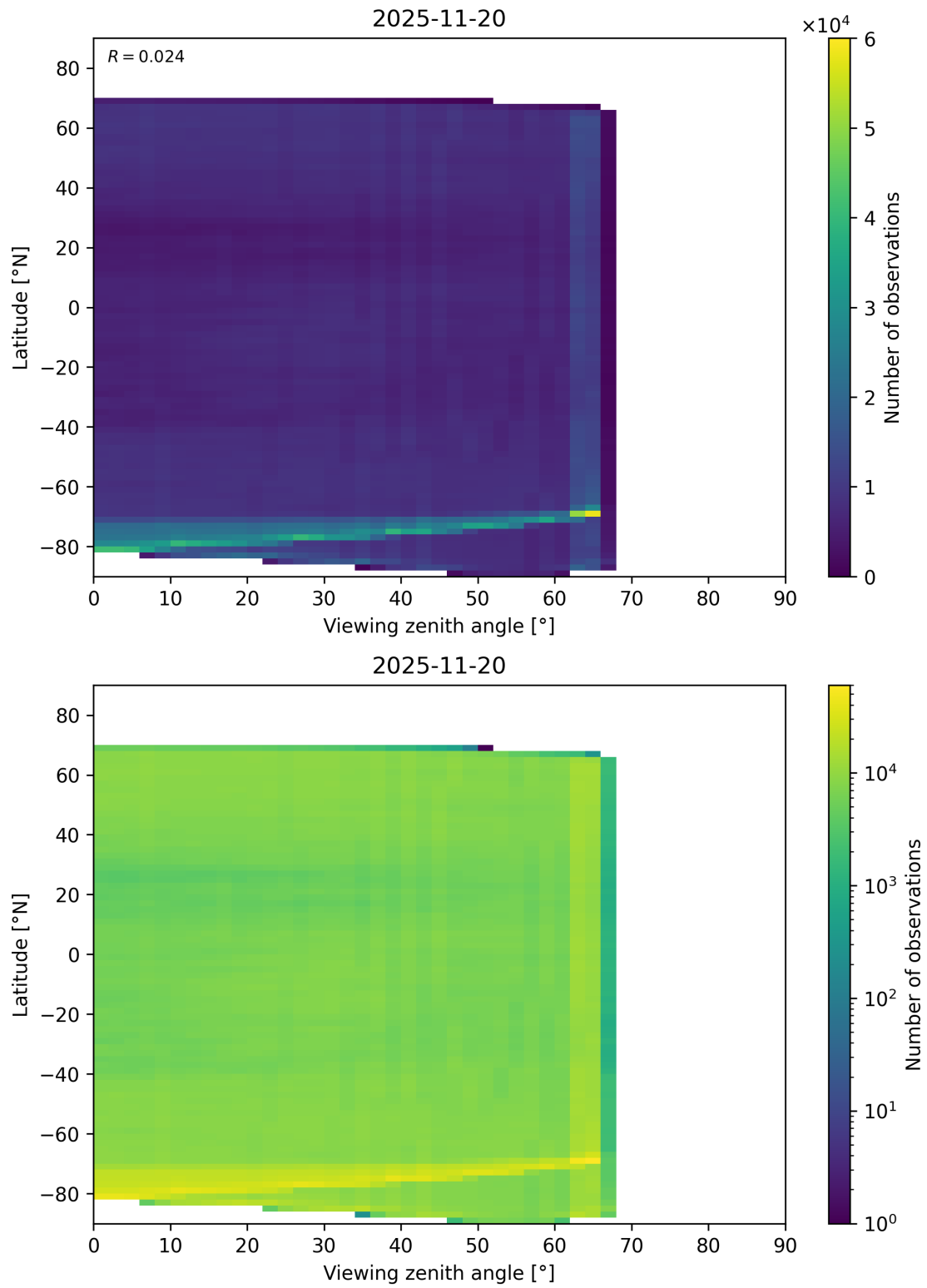


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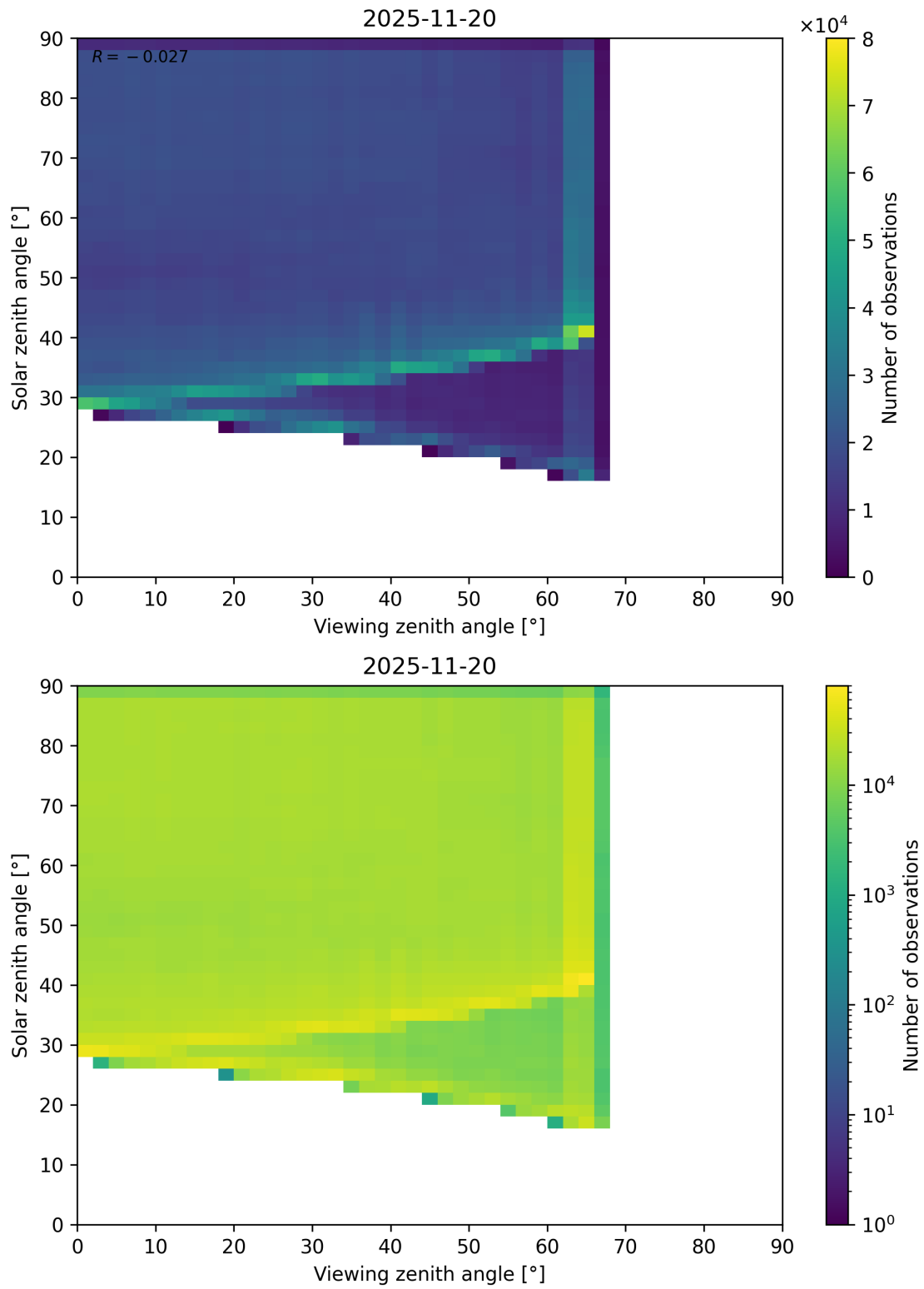


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