

PyCAMA report generated by tropl2-proc

tropl2-proc

2024-08-05 (04:35)

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]	0.566 ± 0.414	24521992	0.995	0.800	0.530	0.0	1.000
sulfurdioxide total vertical column [DU]	-0.495 ± 11.960	24521992	0.672	1.22	-2.610×10^{-2}	-1.252×10^3	2.107×10^3
sulfurdioxide total vertical column precision [DU]	2.21 ± 6.76	24521992	0.346	0.892	0.654	5.634×10^{-2}	816
sulfurdioxide slant column density corrected [DU]	$(-7.582 \pm 167.307) \times 10^{-2}$	24521992	0.560	0.881	-2.120×10^{-2}	-103	157
sulfurdioxide slant column density window1 [DU]	-0.226 ± 1.624	24521992	-7.500×10^{-2}	0.906	-0.108	-103	140
sulfurdioxide slant column density window1 precision [DU]	0.697 ± 0.713	24521992	0.337	0.370	0.437	0.101	23.8
sulfurdioxide slant column density corrected win1 [DU]	$(-7.766 \pm 162.836) \times 10^{-2}$	24521992	-2.500×10^{-2}	0.881	-2.120×10^{-2}	-103	140
background so2 slant column offset window1 [DU]	0.148 ± 0.245	24521992	-2.000×10^{-2}	0.251	8.264×10^{-2}	-1.44	6.45
sulfurdioxide slant column density window2 [DU]	0.773 ± 12.275	24521992	-0.750	12.9	-0.135	-1.275×10^3	1.198×10^3
sulfurdioxide slant column density window2 precision [DU]	9.85 ± 4.66	24521992	7.43	3.94	8.55	2.07	674
sulfurdioxide slant column density corrected win2 [DU]	-0.297 ± 12.001	24521992	-0.750	12.7	-0.873	-1.273×10^3	1.200×10^3
background so2 slant column offset window2 [DU]	-1.07 ± 2.36	24521992	0.250	2.66	-0.513	-23.0	10.4
sulfurdioxide slant column density window3 [DU]	-2.26 ± 28.23	24521992	-0.560	33.1	-1.31	-488	1.274×10^3
sulfurdioxide slant column density window3 precision [DU]	31.5 ± 13.6	24521992	23.7	13.0	27.7	9.75	970
sulfurdioxide slant column density corrected win3 [DU]	1.77 ± 27.79	24521992	2.80	32.6	2.55	-478	1.271×10^3
background so2 slant column offset window3 [DU]	4.03 ± 5.00	24521992	6.16	7.08	4.24	-30.6	43.0
fitted radiance shift [nm]	$(-3.776 \pm 27.674) \times 10^{-4}$	24521992	1.000×10^{-4}	2.033×10^{-3}	-2.465×10^{-4}	-5.518×10^{-2}	4.417×10^{-2}
fitted radiance squeeze [1]	$(-8.583 \pm 43.646) \times 10^{-5}$	24521992	-3.000×10^{-5}	2.748×10^{-4}	-6.780×10^{-5}	-1.843×10^{-2}	2.042×10^{-2}
fitted root mean square [1]	$(2.039 \pm 2.083) \times 10^{-3}$	24521992	9.750×10^{-4}	1.087×10^{-3}	1.281×10^{-3}	2.963×10^{-4}	6.917×10^{-2}
sulfurdioxide total air mass factor polluted [1]	0.760 ± 0.400	24521992	0.700	0.491	0.722	5.000×10^{-2}	3.05
sulfurdioxide total air mass factor polluted precision [1]	0.109 ± 0.139	24521992	3.500×10^{-2}	9.703×10^{-2}	6.088×10^{-2}	2.500×10^{-3}	2.16
sulfurdioxide clear air mass factor polluted [1]	0.736 ± 0.345	24521992	0.700	0.386	0.698	1.230×10^{-2}	2.77
number of spectral points in retrieval [1]	73.4 ± 0.5	24521992	73.0	1.000	73.0	52.0	74.0

Table 2: Percentile ranges

Variable	1 %	5 %	10 %	15.9 %	25 %	75 %	84.1 %	90 %	95 %	99 %
qa value [1]	0.0	0.0	0.0	0.0	0.200	1.000	1.000	1.000	1.000	1.000
sulfurdioxide total vertical column [DU]	-33.3	-4.85	-1.99	-1.16	-0.636	0.584	1.07	1.78	3.66	19.1
sulfurdioxide total vertical column precision [DU]	0.155	0.232	0.289	0.336	0.402	1.29	2.09	3.59	7.96	34.9
sulfurdioxide slant column density corrected [DU]	-6.15	-1.92	-1.07	-0.730	-0.460	0.421	0.693	1.01	1.69	4.27
sulfurdioxide slant column density window1 [DU]	-6.41	-2.28	-1.30	-0.892	-0.580	0.326	0.573	0.846	1.41	3.87
sulfurdioxide slant column density window1 precision [DU]	0.209	0.262	0.291	0.313	0.340	0.710	0.990	1.39	2.17	3.88
sulfurdioxide slant column density corrected win1 [DU]	-6.15	-1.92	-1.07	-0.730	-0.460	0.421	0.693	1.01	1.69	4.27
background so2 slant column offset window1 [DU]	-0.167	-6.519×10^{-2}	-4.071×10^{-2}	-2.419×10^{-2}	-5.543×10^{-3}	0.245	0.336	0.421	0.555	1.07
sulfurdioxide slant column density window2 [DU]	-25.9	-16.2	-12.3	-9.45	-6.36	6.58	10.4	14.3	20.9	40.3
sulfurdioxide slant column density window2 precision [DU]	4.44	5.40	6.00	6.48	7.07	11.0	12.9	15.2	19.3	28.3
sulfurdioxide slant column density corrected win2 [DU]	-27.7	-17.4	-13.2	-10.3	-7.11	5.57	9.09	12.6	18.4	37.7
background so2 slant column offset window2 [DU]	-7.61	-5.89	-4.48	-3.27	-2.17	0.489	0.823	1.10	1.57	3.99
sulfurdioxide slant column density window3 [DU]	-80.7	-49.2	-36.1	-27.3	-18.1	15.0	23.3	30.9	41.3	63.7
sulfurdioxide slant column density window3 precision [DU]	15.1	17.8	19.7	21.2	22.9	35.9	41.6	47.8	57.6	83.1
sulfurdioxide slant column density corrected win3 [DU]	-74.8	-43.8	-31.3	-22.8	-13.9	18.7	26.9	34.4	44.7	67.6
background so2 slant column offset window3 [DU]	-6.78	-4.14	-2.44	-0.969	0.290	7.37	8.79	10.2	12.1	15.7
fitted radiance shift [nm]	-8.875×10^{-3}	-4.700×10^{-3}	-3.183×10^{-3}	-2.245×10^{-3}	-1.379×10^{-3}	6.546×10^{-4}	1.345×10^{-3}	2.190×10^{-3}	3.646×10^{-3}	7.769×10^{-3}
fitted radiance squeeze [1]	-1.371×10^{-3}	-6.264×10^{-4}	-4.214×10^{-4}	-3.114×10^{-4}	-2.156×10^{-4}	5.927×10^{-5}	1.264×10^{-4}	1.969×10^{-4}	3.381×10^{-4}	1.228×10^{-3}
fitted root mean square [1]	6.117×10^{-4}	7.639×10^{-4}	8.479×10^{-4}	9.124×10^{-4}	9.949×10^{-4}	2.082×10^{-3}	2.900×10^{-3}	4.075×10^{-3}	6.344×10^{-3}	1.134×10^{-2}
sulfurdioxide total air mass factor polluted [1]	5.000×10^{-2}	0.161	0.272	0.373	0.489	0.980	1.12	1.27	1.50	1.98
sulfurdioxide total air mass factor polluted precision [1]	6.708×10^{-3}	1.596×10^{-2}	2.313×10^{-2}	2.881×10^{-2}	3.592×10^{-2}	0.133	0.186	0.237	0.330	0.711
sulfurdioxide clear air mass factor polluted [1]	0.119	0.249	0.341	0.420	0.512	0.898	1.02	1.15	1.41	1.84
number of spectral points in retrieval [1]	73.0	73.0	73.0	73.0	73.0	74.0	74.0	74.0	74.0	74.0

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]	0.537 ± 0.410	15749072	0.800	0.480	0.0	1.000	0.200	1.000
sulfurdioxide total vertical column [DU]	-0.458 ± 13.037	15749072	1.09	-2.703×10^{-2}	-1.252×10^3	2.107×10^3	-0.570	0.520
sulfurdioxide total vertical column precision [DU]	2.25 ± 7.48	15749072	0.768	0.585	5.634×10^{-2}	816	0.370	1.14
sulfurdioxide slant column density corrected [DU]	$(-5.104 \pm 137.040) \times 10^{-2}$	15749072	0.794	-2.204×10^{-2}	-103	136	-0.417	0.377
sulfurdioxide slant column density window1 [DU]	-0.205 ± 1.345	15749072	0.821	-0.121	-103	87.8	-0.548	0.273
sulfurdioxide slant column density window1 precision [DU]	0.603 ± 0.597	15749072	0.282	0.401	0.101	19.8	0.324	0.606
sulfurdioxide slant column density corrected win1 [DU]	$(-5.205 \pm 134.187) \times 10^{-2}$	15749072	0.794	-2.204×10^{-2}	-103	87.0	-0.417	0.377
background so2 slant column offset window1 [DU]	0.153 ± 0.218	15749072	0.254	0.111	-1.44	5.62	-1.756×10^{-3}	0.252
sulfurdioxide slant column density window2 [DU]	-0.361 ± 10.629	15749072	11.8	-0.712	-723	1.119×10^3	-6.52	5.27
sulfurdioxide slant column density window2 precision [DU]	9.08 ± 4.17	15749072	3.29	7.99	2.07	674	6.69	9.98
sulfurdioxide slant column density corrected win2 [DU]	-0.927 ± 10.554	15749072	11.7	-1.13	-723	1.117×10^3	-6.96	4.74
background so2 slant column offset window2 [DU]	-0.566 ± 1.722	15749072	2.23	-0.370	-10.0	10.4	-1.66	0.577
sulfurdioxide slant column density window3 [DU]	-0.406 ± 26.066	15749072	30.6	-9.136×10^{-2}	-305	1.274×10^3	-15.4	15.2
sulfurdioxide slant column density window3 precision [DU]	29.8 ± 13.7	15749072	11.5	25.7	9.75	970	21.7	33.1
sulfurdioxide slant column density corrected win3 [DU]	2.51 ± 25.67	15749072	30.3	2.92	-305	1.271×10^3	-12.3	18.0
background so2 slant column offset window3 [DU]	2.92 ± 4.49	15749072	6.86	3.75	-17.3	16.8	-0.441	6.42
fitted radiance shift [nm]	$(-1.058 \pm 27.369) \times 10^{-4}$	15749072	1.913×10^{-3}	-8.337×10^{-5}	-5.187×10^{-2}	4.201×10^{-2}	-1.075×10^{-3}	8.370×10^{-4}
fitted radiance squeeze [1]	$(-1.477 \pm 3.645) \times 10^{-4}$	15749072	2.669×10^{-4}	-1.010×10^{-4}	-1.413×10^{-2}	1.625×10^{-2}	-2.504×10^{-4}	1.654×10^{-5}
fitted root mean square [1]	$(1.765 \pm 1.746) \times 10^{-3}$	15749072	8.300×10^{-4}	1.175×10^{-3}	2.963×10^{-4}	5.715×10^{-2}	9.454×10^{-4}	1.775×10^{-3}
sulfurdioxide total air mass factor polluted [1]	0.772 ± 0.431	15749072	0.552	0.738	5.000×10^{-2}	3.05	0.465	1.02
sulfurdioxide total air mass factor polluted precision [1]	0.124 ± 0.162	15749072	0.114	6.883×10^{-2}	2.500×10^{-3}	2.16	3.858×10^{-2}	0.153
sulfurdioxide clear air mass factor polluted [1]	0.777 ± 0.387	15749072	0.464	0.736	1.230×10^{-2}	2.77	0.508	0.971
number of spectral points in retrieval [1]	73.5 ± 0.5	15749072	1.000	73.0	52.0	74.0	73.0	74.0

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 ± 0.414	8772920	0.790	1.000	0.0	1.000	0.210	1.000
sulfurdioxide total vertical column [DU]	-0.561 ± 9.731	8772920	1.51	-2.383×10^{-2}	-761	623	-0.784	0.724
sulfurdioxide total vertical column precision [DU]	2.13 ± 5.22	8772920	1.12	0.788	5.700×10^{-2}	332	0.490	1.61
sulfurdioxide slant column density corrected [DU]	-0.120 ± 2.109	8772920	1.08	-1.924×10^{-2}	-92.4	157	-0.562	0.522
sulfurdioxide slant column density window1 [DU]	-0.263 ± 2.031	8772920	1.10	-7.917×10^{-2}	-92.4	140	-0.656	0.441
sulfurdioxide slant column density window1 precision [DU]	0.865 ± 0.858	8772920	0.571	0.526	0.126	23.8	0.382	0.953
sulfurdioxide slant column density corrected win1 [DU]	-0.124 ± 2.043	8772920	1.08	-1.924×10^{-2}	-92.4	140	-0.562	0.522
background so2 slant column offset window1 [DU]	0.140 ± 0.288	8772920	0.237	3.430×10^{-2}	-1.44	6.45	-1.213×10^{-2}	0.225
sulfurdioxide slant column density window2 [DU]	2.81 ± 14.56	8772920	15.5	1.20	-1.275×10^3	1.198×10^3	-6.03	9.50
sulfurdioxide slant column density window2 precision [DU]	11.2 ± 5.1	8772920	4.79	9.75	2.50	566	8.00	12.8
sulfurdioxide slant column density corrected win2 [DU]	0.833 ± 14.163	8772920	14.8	-0.282	-1.273×10^3	1.200×10^3	-7.43	7.39
background so2 slant column offset window2 [DU]	-1.97 ± 2.99	8772920	4.83	-0.973	-23.0	10.4	-4.50	0.322
sulfurdioxide slant column density window3 [DU]	-5.58 ± 31.49	8772920	38.2	-4.03	-488	1.081×10^3	-23.8	14.5
sulfurdioxide slant column density window3 precision [DU]	34.7 ± 12.9	8772920	13.5	31.4	11.1	722	26.1	39.6
sulfurdioxide slant column density corrected win3 [DU]	0.445 ± 31.186	8772920	37.6	1.72	-478	1.083×10^3	-17.5	20.1
background so2 slant column offset window3 [DU]	6.03 ± 5.24	8772920	8.27	5.47	-30.6	43.0	1.81	10.1
fitted radiance shift [nm]	$(-8.655 \pm 27.550) \times 10^{-4}$	8772920	2.242×10^{-3}	-5.702×10^{-4}	-5.518×10^{-2}	4.417×10^{-2}	-1.935×10^{-3}	3.067×10^{-4}
fitted radiance squeeze [1]	$(2.524 \pm 52.423) \times 10^{-5}$	8772920	2.883×10^{-4}	-1.615×10^{-6}	-1.843×10^{-2}	2.042×10^{-2}	-1.430×10^{-4}	1.452×10^{-4}
fitted root mean square [1]	$(2.531 \pm 2.505) \times 10^{-3}$	8772920	1.672×10^{-3}	1.541×10^{-3}	3.638×10^{-4}	6.917×10^{-2}	1.119×10^{-3}	2.790×10^{-3}
sulfurdioxide total air mass factor polluted [1]	0.739 ± 0.336	8772920	0.387	0.705	5.000×10^{-2}	2.93	0.520	0.907
sulfurdioxide total air mass factor polluted precision [1]	$(8.155 \pm 7.708) \times 10^{-2}$	8772920	6.772×10^{-2}	5.044×10^{-2}	2.500×10^{-3}	1.55	3.369×10^{-2}	0.101
sulfurdioxide clear air mass factor polluted [1]	0.660 ± 0.233	8772920	0.269	0.663	3.411×10^{-2}	2.73	0.517	0.787
number of spectral points in retrieval [1]	73.4 ± 0.6	8772920	1.000	73.0	52.0	74.0	73.0	74.0

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]	0.552 ± 0.414	17374986	0.800	0.510	0.0	1.000	0.200	1.000
sulfurdioxide total vertical column [DU]	-0.507 ± 11.241	17374986	1.28	-1.957×10^{-2}	-761	1.383×10^3	-0.662	0.618
sulfurdioxide total vertical column precision [DU]	2.20 ± 6.30	17374986	1.02	0.668	5.634×10^{-2}	794	0.409	1.43
sulfurdioxide slant column density corrected [DU]	$(-8.174 \pm 176.441) \times 10^{-2}$	17374986	0.916	-1.548×10^{-2}	-103	157	-0.473	0.444
sulfurdioxide slant column density window1 [DU]	-0.242 ± 1.713	17374986	0.944	-0.103	-103	87.8	-0.599	0.344
sulfurdioxide slant column density window1 precision [DU]	0.734 ± 0.745	17374986	0.441	0.452	0.101	23.8	0.339	0.780
sulfurdioxide slant column density corrected win1 [DU]	$(-8.373 \pm 171.843) \times 10^{-2}$	17374986	0.916	-1.548×10^{-2}	-103	87.0	-0.473	0.444
background so2 slant column offset window1 [DU]	0.158 ± 0.262	17374986	0.277	7.617×10^{-2}	-1.44	6.45	-6.615×10^{-3}	0.271
sulfurdioxide slant column density window2 [DU]	1.26 ± 12.67	17374986	13.2	0.128	-927	1.119×10^3	-6.16	7.07
sulfurdioxide slant column density window2 precision [DU]	9.99 ± 4.76	17374986	4.21	8.59	2.20	674	7.07	11.3
sulfurdioxide slant column density corrected win2 [DU]	$(-4.803 \pm 12338.718) \times 10^{-3}$	17374986	12.9	-0.719	-927	1.117×10^3	-7.02	5.86
background so2 slant column offset window2 [DU]	-1.26 ± 2.56	17374986	3.14	-0.520	-23.0	10.4	-2.65	0.492
sulfurdioxide slant column density window3 [DU]	-0.849 ± 28.631	17374986	33.6	0.243	-488	321	-16.8	16.8
sulfurdioxide slant column density window3 precision [DU]	30.9 ± 12.6	17374986	12.9	27.3	9.75	273	22.7	35.6
sulfurdioxide slant column density corrected win3 [DU]	3.29 ± 27.94	17374986	32.8	4.10	-478	321	-12.4	20.4
background so2 slant column offset window3 [DU]	4.13 ± 5.21	17374986	7.33	4.09	-30.6	43.0	0.234	7.56
fitted radiance shift [nm]	$(-4.633 \pm 25.783) \times 10^{-4}$	17374986	2.066×10^{-3}	-2.795×10^{-4}	-4.873×10^{-2}	4.206×10^{-2}	-1.459×10^{-3}	6.074×10^{-4}
fitted radiance squeeze [1]	$(-6.798 \pm 45.768) \times 10^{-5}$	17374986	2.817×10^{-4}	-5.582×10^{-5}	-1.843×10^{-2}	1.547×10^{-2}	-2.079×10^{-4}	7.380×10^{-5}
fitted root mean square [1]	$(2.145 \pm 2.172) \times 10^{-3}$	17374986	1.294×10^{-3}	1.323×10^{-3}	2.963×10^{-4}	6.917×10^{-2}	9.909×10^{-4}	2.285×10^{-3}
sulfurdioxide total air mass factor polluted [1]	0.743 ± 0.363	17374986	0.467	0.733	5.000×10^{-2}	3.05	0.496	0.963
sulfurdioxide total air mass factor polluted precision [1]	0.106 ± 0.144	17374986	8.059×10^{-2}	5.958×10^{-2}	2.500×10^{-3}	2.16	3.793×10^{-2}	0.119
sulfurdioxide clear air mass factor polluted [1]	0.738 ± 0.317	17374986	0.379	0.719	1.230×10^{-2}	2.73	0.530	0.909
number of spectral points in retrieval [1]	73.4 ± 0.5	17374986	1.000	73.0	52.0	74.0	73.0	74.0

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]	0.626 ± 0.404	4746159	0.790	1.000	0.0	1.000	0.210	1.000
sulfurdioxide total vertical column [DU]	-0.288 ± 10.430	4746159	0.950	-3.692×10^{-2}	-611	1.756×10^3	-0.507	0.443
sulfurdioxide total vertical column precision [DU]	1.54 ± 6.01	4746159	0.567	0.555	5.690×10^{-2}	816	0.348	0.914
sulfurdioxide slant column density corrected [DU]	$(-4.740 \pm 119.785) \times 10^{-2}$	4746159	0.752	-3.329×10^{-2}	-73.1	140	-0.406	0.346
sulfurdioxide slant column density window1 [DU]	-0.143 ± 1.162	4746159	0.770	-9.864×10^{-2}	-73.1	140	-0.488	0.282
sulfurdioxide slant column density window1 precision [DU]	0.533 ± 0.508	4746159	0.181	0.399	0.119	19.7	0.333	0.514
sulfurdioxide slant column density corrected win1 [DU]	$(-4.845 \pm 116.065) \times 10^{-2}$	4746159	0.752	-3.329×10^{-2}	-73.1	140	-0.406	0.346
background so2 slant column offset window1 [DU]	$(9.459 \pm 18.615) \times 10^{-2}$	4746159	0.174	4.188×10^{-2}	-1.44	5.62	-1.435×10^{-2}	0.159
sulfurdioxide slant column density window2 [DU]	-0.754 ± 10.474	4746159	11.9	-0.984	-1.275×10^3	1.198×10^3	-6.90	5.02
sulfurdioxide slant column density window2 precision [DU]	9.07 ± 3.88	4746159	3.20	8.27	2.07	560	6.90	10.1
sulfurdioxide slant column density corrected win2 [DU]	-1.15 ± 10.40	4746159	11.8	-1.29	-1.273×10^3	1.200×10^3	-7.19	4.63
background so2 slant column offset window2 [DU]	-0.391 ± 1.691	4746159	2.03	-0.130	-18.7	10.3	-1.38	0.654
sulfurdioxide slant column density window3 [DU]	-5.40 ± 25.74	4746159	30.6	-4.61	-383	1.274×10^3	-20.3	10.3
sulfurdioxide slant column density window3 precision [DU]	32.5 ± 16.3	4746159	12.5	28.1	10.8	970	23.2	35.7
sulfurdioxide slant column density corrected win3 [DU]	-2.27 ± 25.90	4746159	31.0	-1.52	-371	1.271×10^3	-17.4	13.6
background so2 slant column offset window3 [DU]	3.13 ± 4.58	4746159	6.86	3.59	-13.9	36.1	-0.202	6.66
fitted radiance shift [nm]	$(-1.262 \pm 32.808) \times 10^{-4}$	4746159	1.862×10^{-3}	-1.630×10^{-4}	-5.518×10^{-2}	4.417×10^{-2}	-1.089×10^{-3}	7.728×10^{-4}
fitted radiance squeeze [1]	$(-1.040 \pm 3.225) \times 10^{-4}$	4746159	2.378×10^{-4}	-7.696×10^{-5}	-1.403×10^{-2}	2.042×10^{-2}	-2.021×10^{-4}	3.567×10^{-5}
fitted root mean square [1]	$(1.564 \pm 1.497) \times 10^{-3}$	4746159	5.377×10^{-4}	1.168×10^{-3}	3.424×10^{-4}	5.711×10^{-2}	9.724×10^{-4}	1.510×10^{-3}
sulfurdioxide total air mass factor polluted [1]	0.860 ± 0.492	4746159	0.612	0.731	5.000×10^{-2}	2.93	0.514	1.13
sulfurdioxide total air mass factor polluted precision [1]	0.121 ± 0.125	4746159	0.150	7.228×10^{-2}	2.500×10^{-3}	1.97	3.155×10^{-2}	0.182
sulfurdioxide clear air mass factor polluted [1]	0.783 ± 0.424	4746159	0.394	0.674	1.271×10^{-2}	2.75	0.519	0.912
number of spectral points in retrieval [1]	73.4 ± 0.5	4746159	1.000	73.0	52.0	74.0	73.0	74.0

Table 7: Correlation matrix

Viewing zenith angle	Solar zenith angle	Latitude	SO ₂ vertical column	SO ₂ vertical column precision	Corrected SO ₂ slant column	SO ₂ slant column (window 1)	SO ₂ slant column precision (window 1)	SO ₂ slant column background correction (window 1)	SO ₂ slant column precision (window 2)	Corrected SO ₂ slant column (window 2)	SO ₂ slant column background correction (window 2)	SO ₂ slant column (window 3)	SO ₂ slant column precision (window 3)	Corrected SO ₂ slant column (window 3)	SO ₂ slant column background correction (window 3)	DOAS fit wavelength shift	DOAS fit wavelength squeeze	SO ₂ RMS	Total AMF (polluted)	Precision of total AMF (polluted)	Clear AMF (polluted)
1.000	8.657 × 10 ⁻³	-7.213 × 10 ⁻³	-1.163 × 10 ⁻²	7.940 × 10 ⁻²	-3.207 × 10 ⁻³	-1.815 × 10 ⁻²	7.464 × 10 ⁻²	9.768 × 10 ⁻²	5.189 × 10 ⁻²	-3.086 × 10 ⁻³	8.928 × 10 ⁻²	7.939 × 10 ⁻⁴	6.591 × 10 ⁻³	-1.083 × 10 ⁻²	-6.470 × 10 ⁻²	1.311 × 10 ⁻²	-2.020 × 10 ⁻²	8.057 × 10 ⁻²	-0.147	-0.118	-0.178
8.657 × 10 ⁻³	1.000	-8.581 × 10 ⁻²	-6.958 × 10 ⁻²	0.364	-7.412 × 10 ⁻²	-0.163	0.656	0.558	0.630	0.142	-0.623	-0.205	0.270	-9.790 × 10 ⁻²	0.612	-0.211	-0.109	0.655	-0.212	-0.140	
-7.213 × 10 ⁻³	-8.581 × 10 ⁻²	1.000	3.141 × 10 ⁻³	4.164 × 10 ⁻²	2.571 × 10 ⁻²	3.260 × 10 ⁻³	-0.141	0.160	-0.174	-8.523 × 10 ⁻²	0.204	4.828 × 10 ⁻²	-0.171	2.783 × 10 ⁻²	0.124	-0.285	-0.141	2.636 × 10 ⁻²	0.162	0.195	
-1.163 × 10 ⁻²	-6.958 × 10 ⁻²	3.141 × 10 ⁻³	1.000	-0.193	0.708	0.704	-0.162	7.016 × 10 ⁻²	-0.127	-4.686 × 10 ⁻²	-2.747 × 10 ⁻²	1.865 × 10 ⁻²	-6.109 × 10 ⁻²	2.616 × 10 ⁻²	4.011 × 10 ⁻²	-2.061 × 10 ⁻²	0.210	-0.167	6.276 × 10 ⁻²	2.587 × 10 ⁻²	6.755 × 10 ⁻²
7.940 × 10 ⁻²	0.364	4.164 × 10 ⁻²	-0.193	1.000	-0.117	-0.153	0.706	0.120	0.593	0.149	-4.289 × 10 ⁻²	-8.223 × 10 ⁻²	0.295	-8.107 × 10 ⁻²	1.385 × 10 ⁻²	-0.135	-5.095 × 10 ⁻²	0.703	-0.362	-0.352	
-3.207 × 10 ⁻³	-7.412 × 10 ⁻²	2.571 × 10 ⁻²	0.708	-0.117	1.000	0.975	-0.169	9.134 × 10 ⁻²	-0.132	-5.900 × 10 ⁻²	-3.315 × 10 ⁻²	2.603 × 10 ⁻²	-6.402 × 10 ⁻²	3.450 × 10 ⁻²	4.478 × 10 ⁻²	-2.481 × 10 ⁻²	0.243	-0.182	5.228 × 10 ⁻²	1.694 × 10 ⁻²	6.346 × 10 ⁻²
-1.815 × 10 ⁻²	-0.163	3.260 × 10 ⁻³	0.704	-0.153	0.975	1.000	-0.227	-5.899 × 10 ⁻²	-0.185	-7.451 × 10 ⁻²	3.579 × 10 ⁻²	4.415 × 10 ⁻²	-8.150 × 10 ⁻²	4.086 × 10 ⁻²	-2.227 × 10 ⁻²	-9.204 × 10 ⁻³	0.269	-0.233	7.107 × 10 ⁻²	1.889 × 10 ⁻²	7.287 × 10 ⁻²
7.464 × 10 ⁻²	0.656	-0.141	-0.162	0.706	-0.169	-0.227	1.000	0.372	0.782	0.245	-0.281	-0.170	0.446	-0.139	0.186	-0.244	1.013 × 10 ⁻²	0.998	-0.328	-0.344	
9.768 × 10 ⁻²	0.558	0.160	7.016 × 10 ⁻²	0.120	9.134 × 10 ⁻²	-5.899 × 10 ⁻²	0.301	1.000	0.286	5.239 × 10 ⁻²	-0.453	-0.109	8.465 × 10 ⁻²	-3.115 × 10 ⁻²	0.445	-0.105	-0.133	0.300	-0.115	-6.268 × 10 ⁻³	-5.117 × 10 ⁻²
5.189 × 10 ⁻²	0.630	-0.174	-0.127	0.593	-0.132	-0.185	0.872	0.286	1.000	0.207	-0.301	-0.171	0.597	-0.134	0.220	-0.219	1.840 × 10 ⁻²	0.871	-0.304	-0.328	
-3.086 × 10 ⁻³	0.142	-8.523 × 10 ⁻²	-4.686 × 10 ⁻²	0.149	-5.900 × 10 ⁻²	-7.451 × 10 ⁻²	0.245	0.207	1.000	-1.938 × 10 ⁻²	-6.006 × 10 ⁻²	-0.171	0.597	-0.134	0.220	-0.219	1.840 × 10 ⁻²	0.871	-0.304	-0.328	
8.928 × 10 ⁻²	-0.623	0.204	-2.747 × 10 ⁻²	-4.289 × 10 ⁻²	-3.315 × 10 ⁻²	3.579 × 10 ⁻²	-0.281	-0.453	-0.301	-1.938 × 10 ⁻²	1.000	0.156	-0.156	4.130 × 10 ⁻²	-0.651	0.143	2.682 × 10 ⁻²	-0.282	5.096 × 10 ⁻²	2.740 × 10 ⁻²	1.931 × 10 ⁻²
7.939 × 10 ⁻⁴	-0.205	4.828 × 10 ⁻²	1.865 × 10 ⁻²	-8.223 × 10 ⁻²	2.603 × 10 ⁻²	4.415 × 10 ⁻²	-0.170	-0.109	-0.171	-6.006 × 10 ⁻²	0.156	1.000	-9.642 × 10 ⁻²	0.984	-0.178	-2.972 × 10 ⁻²	-1.776 × 10 ⁻²	-0.170	9.789 × 10 ⁻²	4.329 × 10 ⁻²	9.114 × 10 ⁻²
6.591 × 10 ⁻³	0.270	-0.171	-6.109 × 10 ⁻²	0.295	-6.402 × 10 ⁻²	-8.150 × 10 ⁻²	0.446	8.465 × 10 ⁻²	0.597	0.100	-0.156	-9.642 × 10 ⁻²	1.000	-7.532 × 10 ⁻²	0.126	-0.111	3.659 × 10 ⁻²	0.447	-0.101	-9.005 × 10 ⁻²	-0.198
-1.083 × 10 ⁻²	-9.790 × 10 ⁻²	2.783 × 10 ⁻²	2.616 × 10 ⁻²	-8.107 × 10 ⁻²	3.450 × 10 ⁻²	4.086 × 10 ⁻²	-0.139	-3.115 × 10 ⁻²	-0.134	-5.593 × 10 ⁻²	4.130 × 10 ⁻²	4.130 × 10 ⁻²	-7.532 × 10 ⁻²	1.000	-6.955 × 10 ⁻⁴	-5.100 × 10 ⁻²	-2.704 × 10 ⁻²	-0.140	8.738 × 10 ⁻²	4.965 × 10 ⁻²	7.428 × 10 ⁻²
-6.470 × 10 ⁻²	0.612	-0.118	4.011 × 10 ⁻²	1.385 × 10 ⁻²	4.478 × 10 ⁻²	-2.481 × 10 ⁻²	0.243	-0.182	5.228 × 10 ⁻²	-3.315 × 10 ⁻²	2.603 × 10 ⁻²	2.603 × 10 ⁻²	-6.402 × 10 ⁻²	3.450 × 10 ⁻²	4.478 × 10 ⁻²	-2.481 × 10 ⁻²	0.243	-0.182	5.228 × 10 ⁻²	1.694 × 10 ⁻²	6.346 × 10 ⁻²
1.311 × 10 ⁻²	-0.211	0.124	-2.061 × 10 ⁻²	-0.135	-2.481 × 10 ⁻²	-9.204 × 10 ⁻³	-0.244	-5.899 × 10 ⁻²	-0.185	-7.451 × 10 ⁻²	3.579 × 10 ⁻²	4.415 × 10 ⁻²	-8.150 × 10 ⁻²	4.086 × 10 ⁻²	-2.227 × 10 ⁻²	-9.204 × 10 ⁻³	0.269	-0.233	7.107 × 10 ⁻²	1.889 × 10 ⁻²	7.287 × 10 ⁻²
-2.020 × 10 ⁻²	-0.109	-0.285	0.210	-5.095 × 10 ⁻²	0.243	0.269	1.013 × 10 ⁻²	-0.133	1.840 × 10 ⁻²	4.428 × 10 ⁻²	-0.282	-0.170	0.447	-0.170	-0.170	-0.170	0.447	-0.101	-9.005 × 10 ⁻²	-0.198	
8.057 × 10 ⁻²	0.655	-0.141	-0.167	0.703	-0.182	-0.233	0.998	0.300	0.871	0.244	-0.282	-0.170	0.447	-0.170	-0.170	-0.170	0.447	-0.101	-9.005 × 10 ⁻²	-0.198	
-0.147	-0.212	2.636 × 10 ⁻³	6.276 × 10 ⁻²	-0.362	5.228 × 10 ⁻²	7.107 × 10 ⁻²	-0.328	-0.115	-0.304	-7.311 × 10 ⁻²	5.096 × 10 ⁻²	9.789 × 10 ⁻²	-9.005 × 10 ⁻²	8.738 × 10 ⁻²	-6.728 × 10 ⁻²	8.381 × 10 ⁻²	2.841 × 10 ⁻²	-0.328	1.000	0.413	
-0.118	-0.127	0.162	2.587 × 10 ⁻²	-0.158	1.694 × 10 ⁻²	1.889 × 10 ⁻²	-0.204	-6.268 × 10 ⁻³	-0.239	-8.429 × 10 ⁻²	1.931 × 10 ⁻²	9.114 × 10 ⁻²	-0.198	7.428 × 10 ⁻²	-0.102	8.398 × 10 ⁻²	-2.579 × 10 ⁻²	-0.205	0.413	6.075 × 10 ⁻²	
-0.178	-0.140	0.195	6.755 × 10 ⁻²	-0.352	6.346 × 10 ⁻²	7.287 × 10 ⁻²	-0.344	-5.117 × 10 ⁻²	-0.328	-8.429 × 10 ⁻²	1.931 × 10 ⁻²	9.114 × 10 ⁻²	-0.198	7.428 × 10 ⁻²	-0.102	8.398 × 10 ⁻²	-2.579 × 10 ⁻²	-0.205	0.413	6.075 × 10 ⁻²	

Table 8: Covariance matrix

Clear AMF (polluted)	Precision of total AMF (polluted)	Total AMF (polluted)	SO ₂ RMS	DOAS fit wavelength squeeze	DOAS fit wavelength shift	SO ₂ slant column background correction (window 3)	Corrected SO ₂ slant column (window 3)	SO ₂ slant column precision (window 3)	SO ₂ slant column (window 3)	SO ₂ slant column background correction (window 2)	Corrected SO ₂ slant column (window 2)	SO ₂ slant column precision (window2)	SO ₂ slant column background correction (window 1)	SO ₂ slant column precision (window 1)	Corrected SO ₂ slant column	SO ₂ vertical column precision	SO ₂ vertical column	Latitude	Solar zenith angle	Viewing zenith angle
-1.20	-0.322	-1.15	3.285 × 10 ⁻³	-1.726 × 10 ⁻⁴	7.103 × 10 ⁻⁴	-6.33	-5.89	1.76	0.439	4.12	-0.725	4.74	0.469	1.04	-0.577	10.5	-0.105	-6.24	3.62	383
-1.03	-0.377	-1.81	2.914 × 10 ⁻²	-1.012 × 10 ⁻³	-1.246 × 10 ⁻²	65.3	-58.1	78.6	-123	-31.4	36.5	62.7	2.93	9.99	-2.65	52.5	-2.65	-81.0	456	3.62
2.97	0.997	0.466	-1.299 × 10 ⁻²	-5.501 × 10 ⁻³	1.519 × 10 ⁻²	-26.1	34.2	-103	60.3	21.3	-45.2	-35.9	1.73	-4.43	0.234	12.4	1.90	1.954 × 10 ³	-81.0	-6.24
0.279	4.315 × 10 ⁻²	0.300	-4.151 × 10 ⁻³	1.094 × 10 ⁻³	-6.821 × 10 ⁻⁴	2.40	8.69	-9.97	6.30	-0.775	-6.73	-7.09	0.206	-1.38	14.2	-15.6	143	1.66	-17.8	-6.24
-0.820	-0.949	-0.979	-1.502 × 10 ⁻⁴	-1.502 × 10 ⁻⁴	-2.516 × 10 ⁻³	0.467	-15.7	27.2	-15.7	-0.684	18.7	12.1	0.198	3.40	-1.33	45.6	-1.33	12.4	52.5	-17.8
3.663 × 10 ⁻²	3.953 × 10 ⁻³	3.501 × 10 ⁻²	-6.344 × 10 ⁻⁴	1.773 × 10 ⁻⁴	-4.149 × 10 ⁻⁴	0.374	1.60	-1.46	1.23	-0.131	-1.18	-1.03	3.750 × 10 ⁻²	-0.201	2.65	-1.33	14.2	1.90	-2.65	-0.105
4.084 × 10 ⁻²	4.280 × 10 ⁻³	4.620 × 10 ⁻²	-7.887 × 10 ⁻⁴	1.905 × 10 ⁻⁴	-4.137 × 10 ⁻⁵	-0.181	1.84	-1.81	2.02	0.137	-1.45	-1.40	-2.351 × 10 ⁻²	-0.262	2.64	-1.67	13.7	0.234	-5.64	-0.577
-8.471 × 10 ⁻²	-2.034 × 10 ⁻²	-9.349 × 10 ⁻²	1.482 × 10 ⁻³	3.154 × 10 ⁻⁶	-4.816 × 10 ⁻⁴	0.663	-2.76	4.34	-3.42	-0.473	2.10	0.327	5.266 × 10 ⁻²	-0.262	0.508	-0.201	-1.38	-4.43	9.99	1.04
-4.332 × 10 ⁻³	-2.145 × 10 ⁻⁴	-1.129 × 10 ⁻²	1.536 × 10 ⁻⁴	-1.419 × 10 ⁻⁵	-7.159 × 10 ⁻⁵	0.545	-0.212	0.284	-20.3	-0.549	11.6	144	6.022 × 10 ⁻²	0.198	1.23	-1.18	1.73	1.954 × 10 ³	-81.0	0.469
-0.527	-0.156	-0.568	8.461 × 10 ⁻³	3.745 × 10 ⁻⁵	-2.829 × 10 ⁻³	5.12	-17.3	38.0	10.4	-3.31	11.6	21.7	0.327	2.90	0.137	-1.03	14.2	1.66	-17.8	383
0.888	0.171	-6.446 × 10 ⁻²	6.102 × 10 ⁻³	2.319 × 10 ⁻⁴	1.309 × 10 ⁻³	1.70	-18.6	16.4	797	-20.3	11.6	144	0.154	2.10	2.02	-15.7	60.3	-81.0	456	3.62
1.572 × 10 ⁻²	9.020 × 10 ⁻³	4.812 × 10 ⁻²	-1.386 × 10 ⁻³	2.762 × 10 ⁻⁵	9.360 × 10 ⁻⁴	-25.1	2.71	-5.03	-37.2	-0.549	16.4	38.0	0.284	4.34	-1.81	27.2	-9.97	-103	78.6	-6.24
-0.930	-0.171	-0.549	1.270 × 10 ⁻²	-2.188 × 10 ⁻⁴	-4.193 × 10 ⁻³	8.59	-28.6	186	-37.2	772	-18.6	2.71	0.212	-2.76	1.84	-15.2	8.69	-58.1	-5.89	-6.24
0.192	0.192	0.972	-8.084 × 10 ⁻³	2.179 × 10 ⁻⁴	-3.922 × 10 ⁻³	-28.6	772	-28.6	772	-17.3	5.12	21.7	0.327	2.90	0.137	-1.03	14.2	1.66	-17.8	-6.24
-0.176	-0.135	-0.135	1.940 × 10 ⁻³	-1.091 × 10 ⁻⁴	-1.600 × 10 ⁻³	25.0	-9.656 × 10 ⁻²	8.59	-25.1	-7.67	1.70	21.7	0.327	2.90	0.137	-1.03	14.2	1.66	-17.8	-6.24
8.018 × 10 ⁻⁵	2.605 × 10 ⁻⁵	9.283 × 10 ⁻⁵	-1.403 × 10 ⁻⁶	-2.720 × 10 ⁻⁷	-1.600 × 10 ⁻³	-3.922 × 10 ⁻³	-9.656 × 10 ⁻²	8.59	-25.1	-7.67	1.70	21.7	0.327	2.90	0.137	-1.03	14.2	1.66	-17.8	-6.24
-1.570 × 10 ⁻⁶	-3.900 × 10 ⁻⁶	4.962 × 10 ⁻⁶	-1.091 × 10 ⁻⁴	-2.720 × 10 ⁻⁷	-1.600 × 10 ⁻³	-3.922 × 10 ⁻³	-9.656 × 10 ⁻²	8.59	-25.1	-7.67	1.70	21.7	0.327	2.90	0.137	-1.03	14.2	1.66	-17.8	-6.24
-2.486 × 10 ⁻⁴	-5.957 × 10 ⁻⁵	-2.736 × 10 ⁻⁴	4.962 × 10 ⁻⁶	8.572 × 10 ⁻⁹	1.905 × 10 ⁻⁷	-1.091 × 10 ⁻⁴	-3.280 × 10 ⁻⁴	2.179 × 10 ⁻²	1.270 × 10 ⁻²	-1.002 × 10 ⁻²	-0.351	4.812 × 10 ⁻²	-1.129 × 10 ⁻²	-0.568	3.501 × 10 ⁻²	-6.344 × 10 ⁻⁴	1.905 × 10 ⁻⁴	1.954 × 10 ³	-81.0	-6.24
9.274 × 10 ⁻²	2.307 × 10 ⁻²	2.307 × 10 ⁻²	-2.736 × 10 ⁻⁴	4.962 × 10 ⁻⁶	8.572 × 10 ⁻⁹	-1.091 × 10 ⁻⁴	-3.280 × 10 ⁻⁴	2.179 × 10 ⁻²	1.270 × 10 ⁻²	-1.002 × 10 ⁻²	-0.351	4.812 × 10 ⁻²	-1.129 × 10 ⁻²	-0.568	3.501 × 10 ⁻²	-6.344 × 10 ⁻⁴	1.905 × 10 ⁻⁴	1.954 × 10 ³	-81.0	-6.24
2.924 × 10 ⁻³	1.946 × 10 ⁻²	1.946 × 10 ⁻²	-2.486 × 10 ⁻⁴	-5.957 × 10 ⁻⁵	-1.570 × 10 ⁻⁶	2.605 × 10 ⁻⁵	-1.570 × 10 ⁻⁶	-0.171	-0.171	0.192	-0.349	-0.349	-6.446 × 10 ⁻²	-0.156	4.280 × 10 ⁻³	-2.034 × 10 ⁻²	3.953 × 10 ⁻³	0.997	-0.377	-1.20
0.119	0.119	0.119	-2.486 × 10 ⁻⁴	-5.957 × 10 ⁻⁵	-1.570 × 10 ⁻⁶	2.605 × 10 ⁻⁵	-1.570 × 10 ⁻⁶	-0.171	-0.171	0.192	-0.349	-0.349	-6.446 × 10 ⁻²	-0.156	4.280 × 10 ⁻³	-2.034 × 10 ⁻²	3.953 × 10 ⁻³	0.997	-0.377	-1.20

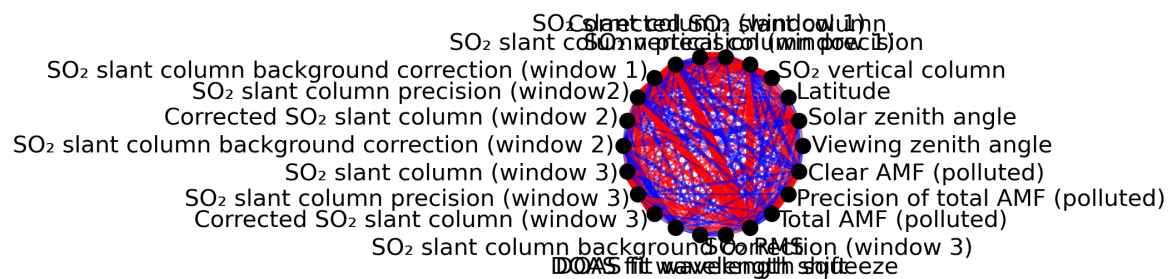


Figure 1: Map of correlation graph for 2024-07-21 to 2024-07-22.

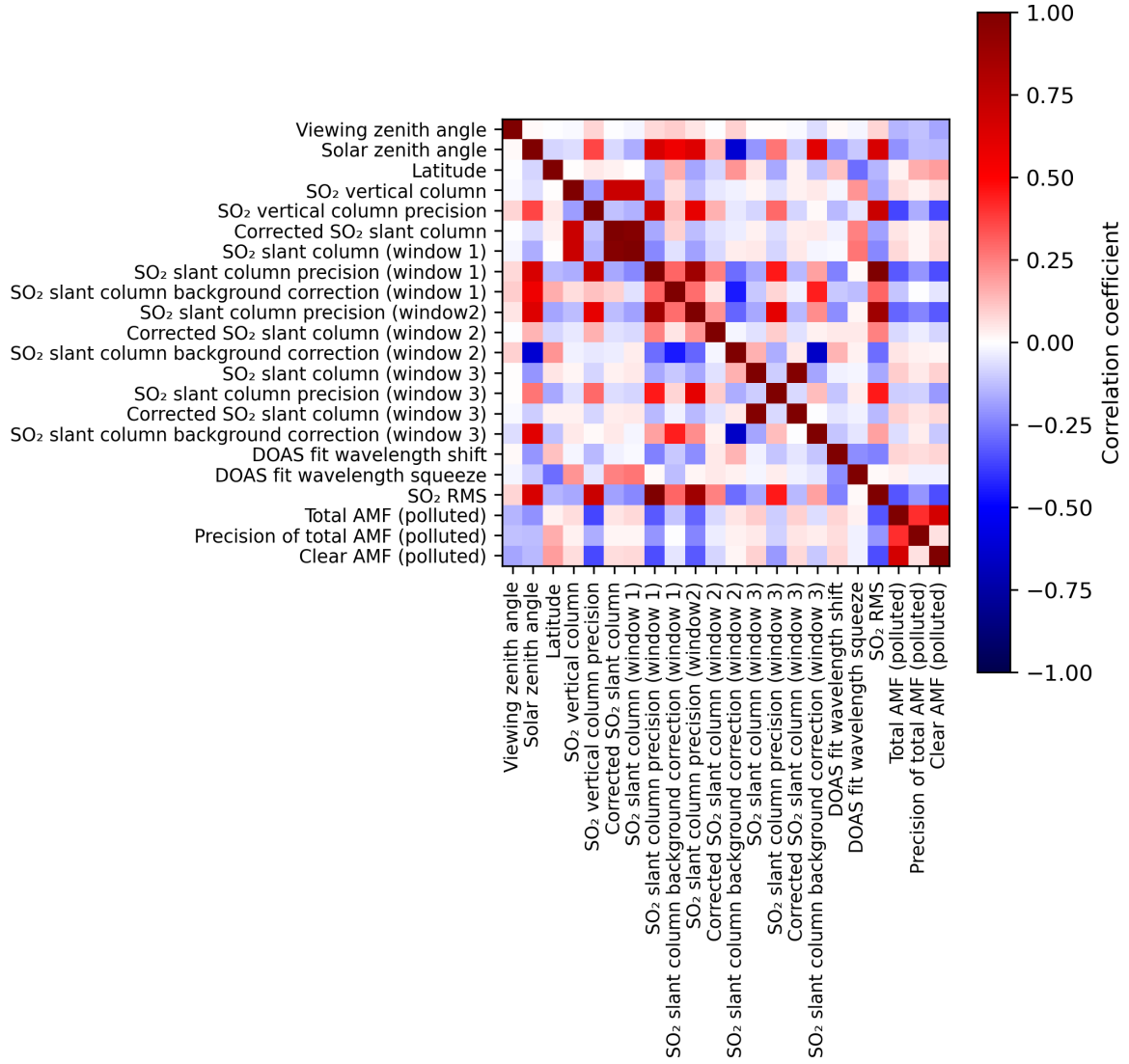


Figure 2: Map of correlation matrix for 2024-07-21 to 2024-07-22.

3 Granule outlines

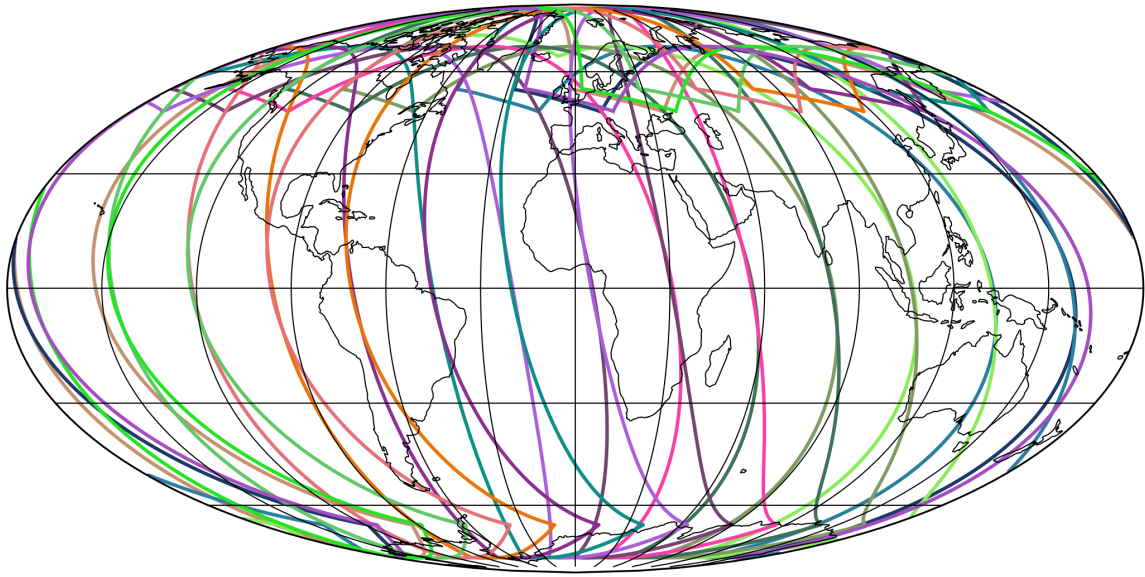


Figure 3: Outline of the granules.

4 Input data monitoring

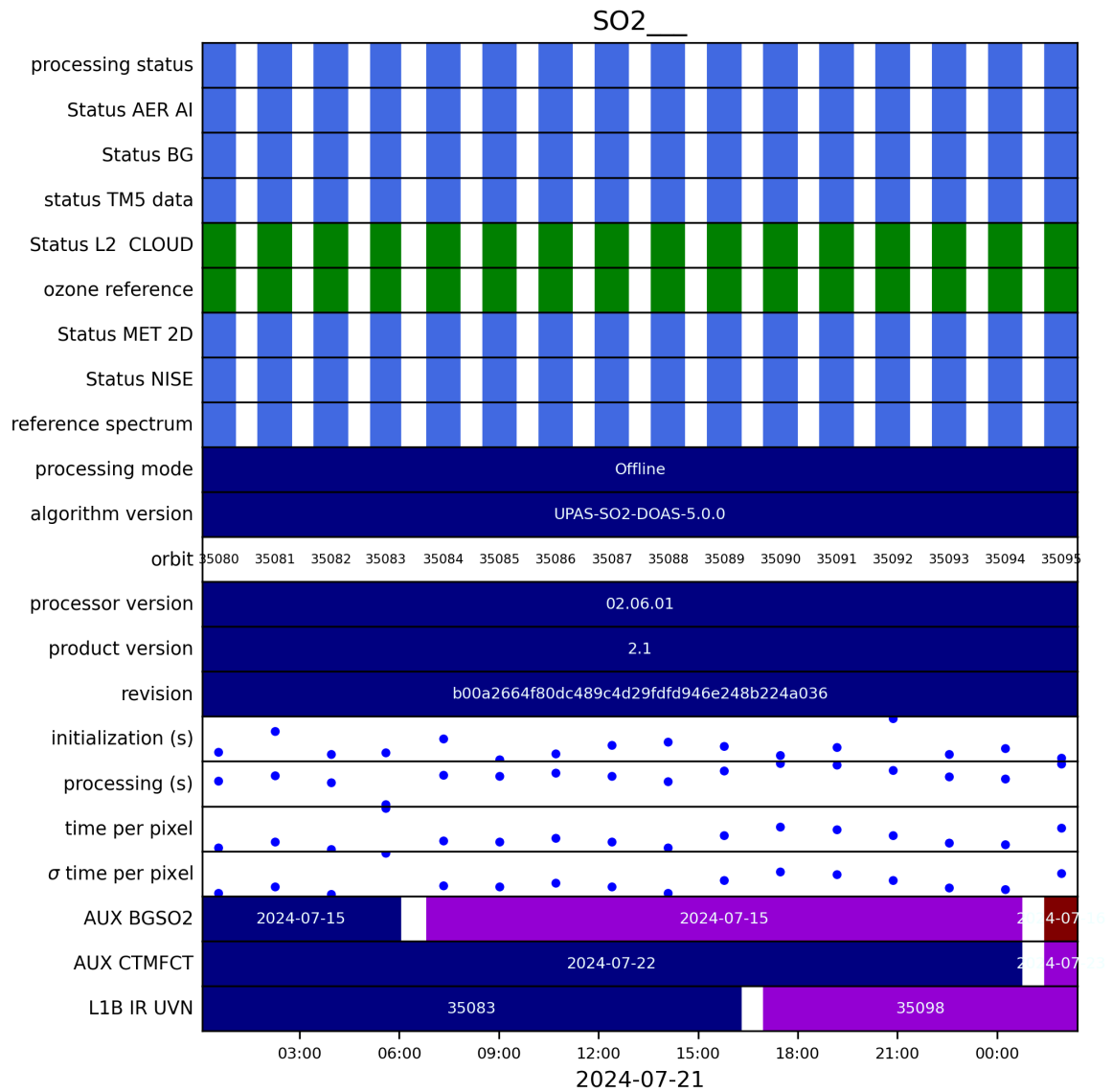


Figure 4: Input data per granule

5 Warnings and errors

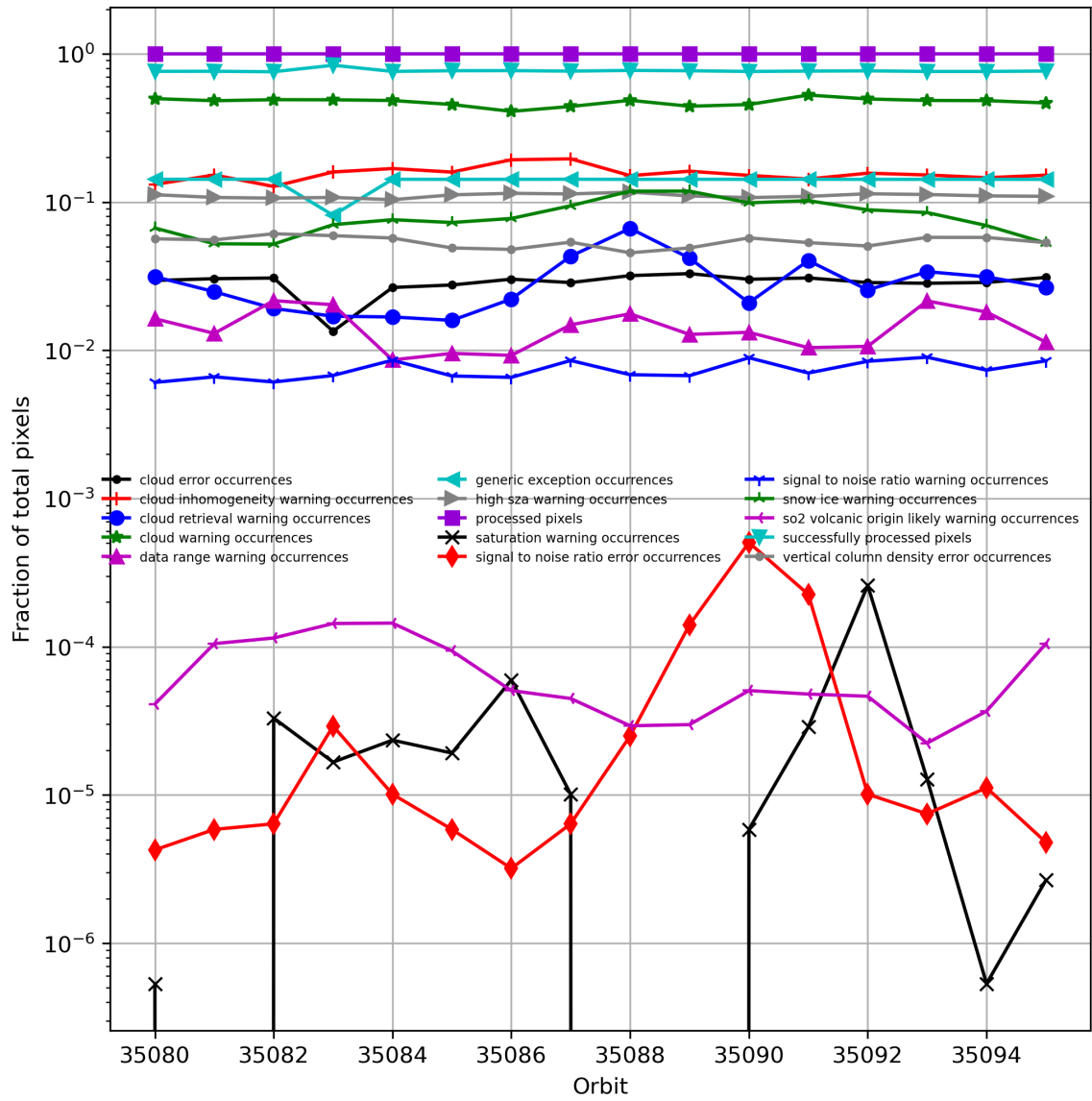


Figure 5: Fraction of pixels with specific warnings and errors during processing

6 World maps

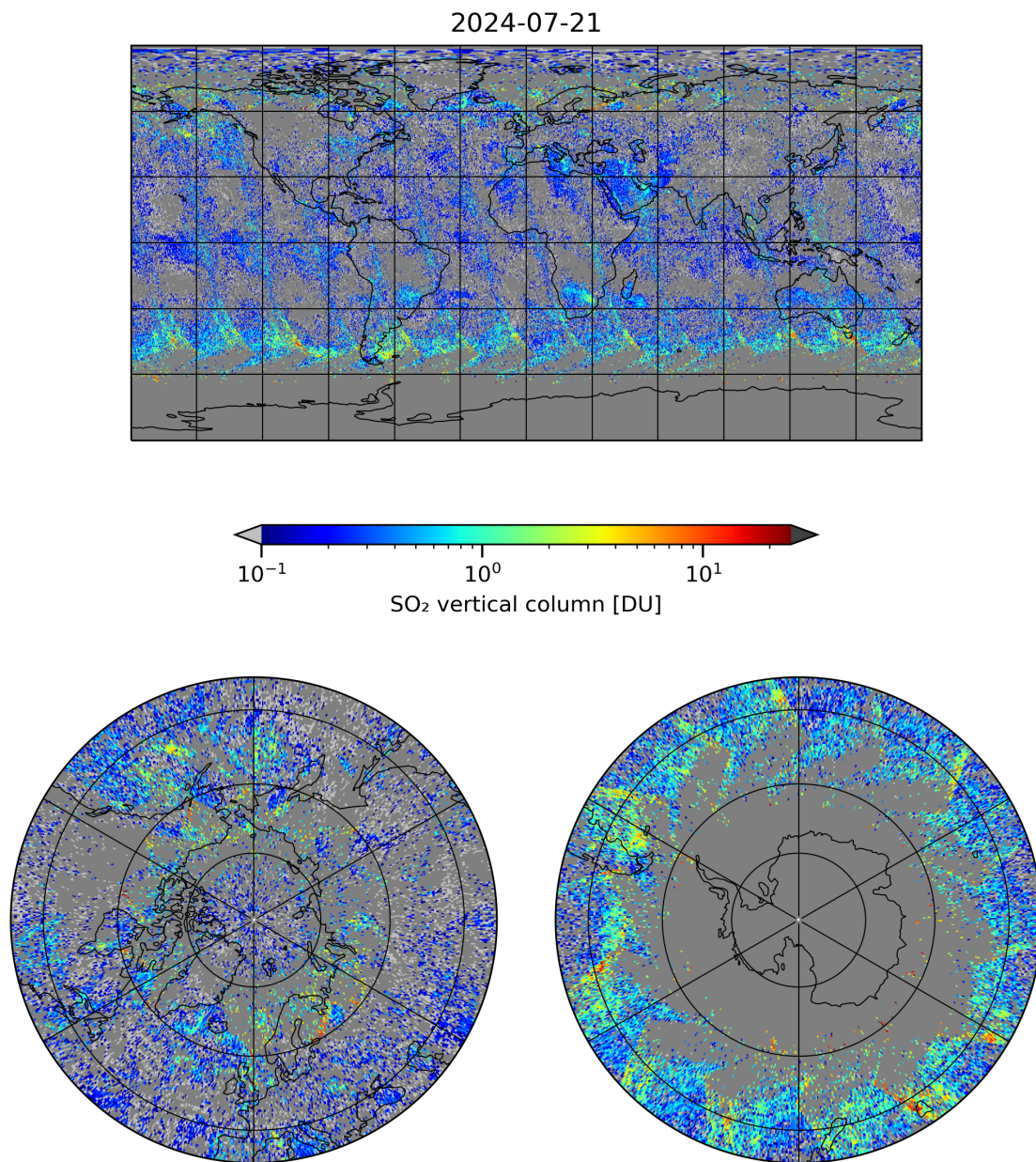


Figure 6: Map of “SO₂ vertical column” for 2024-07-21 to 2024-07-22

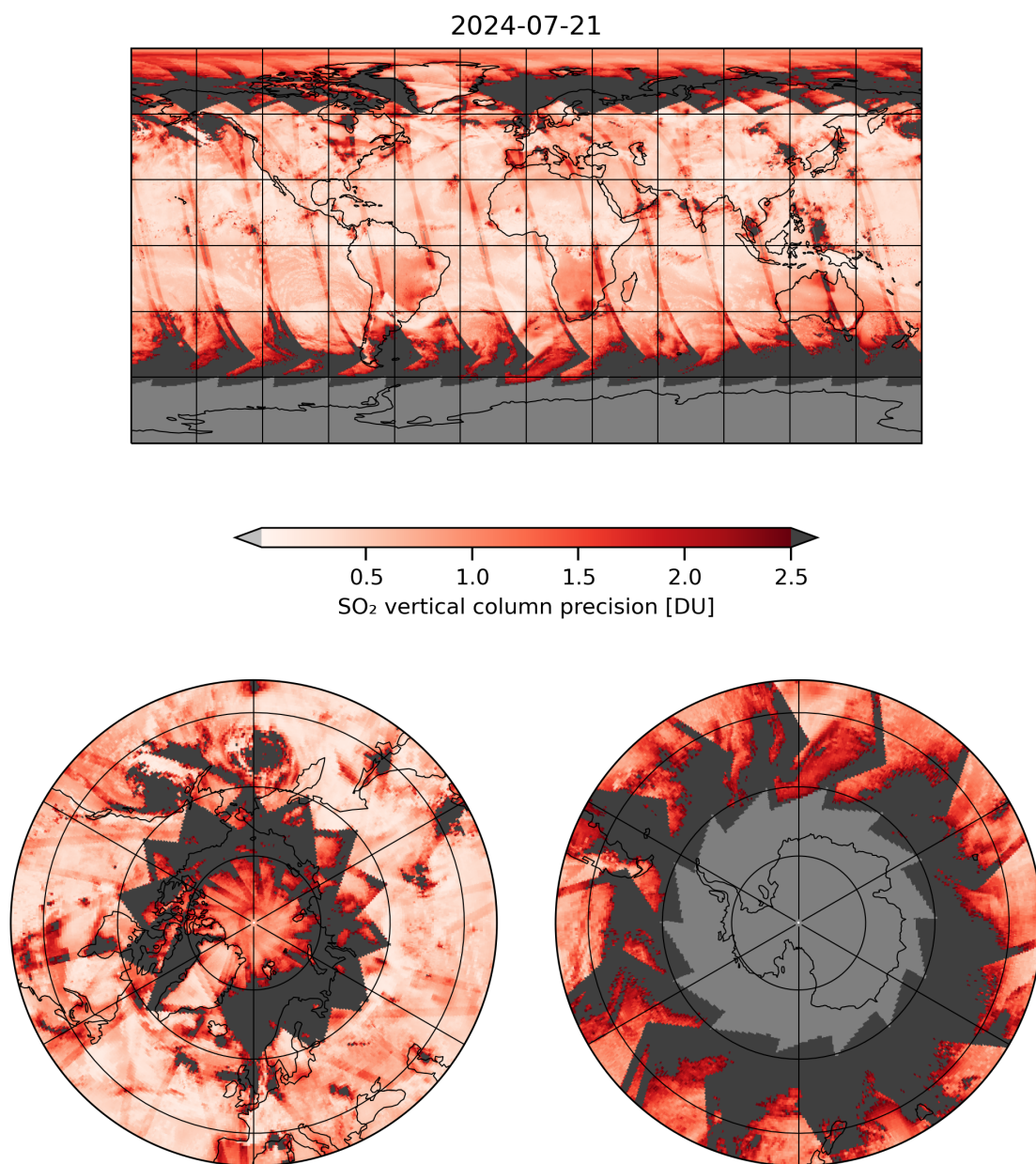


Figure 7: Map of “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22

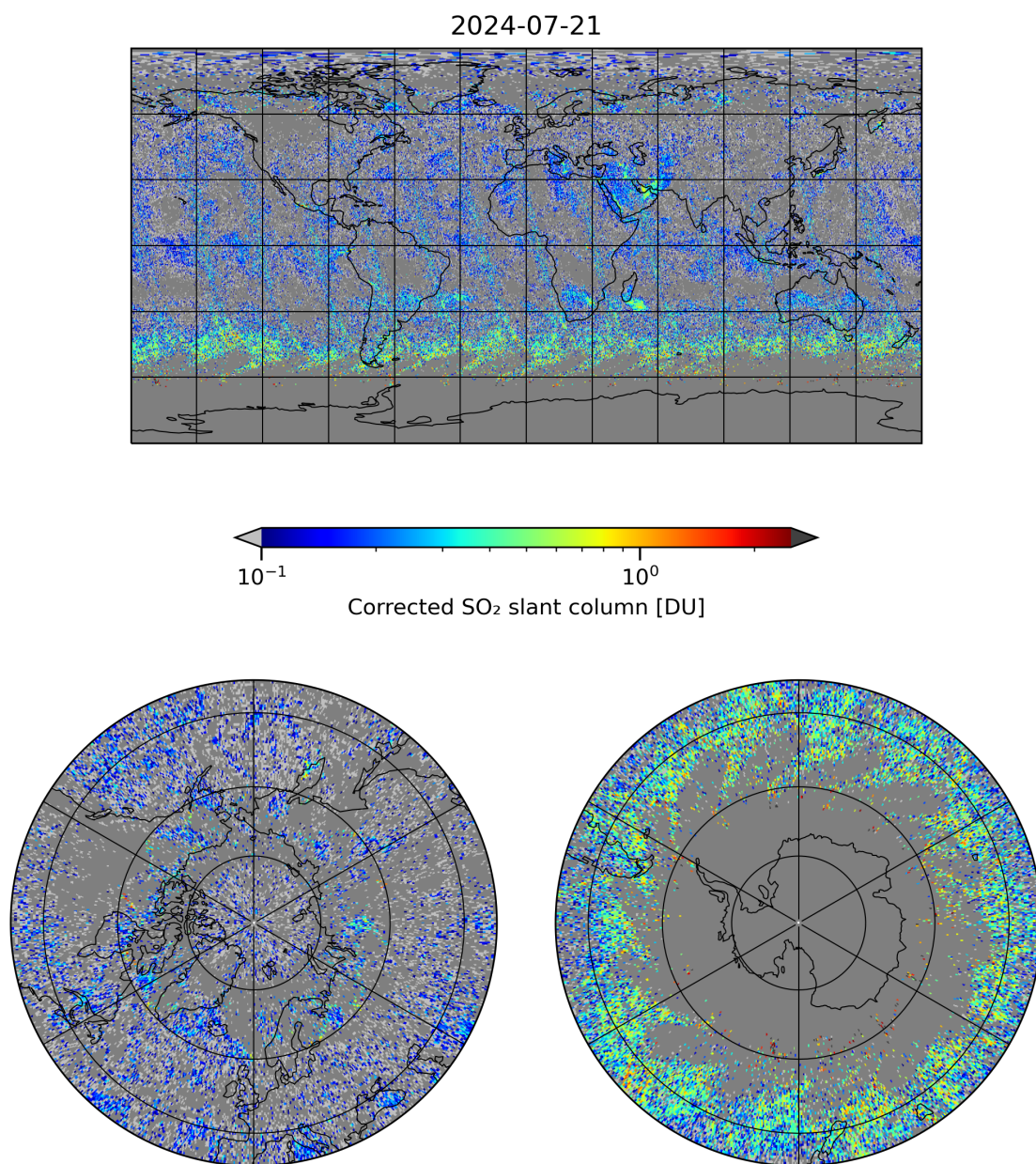


Figure 8: Map of “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22

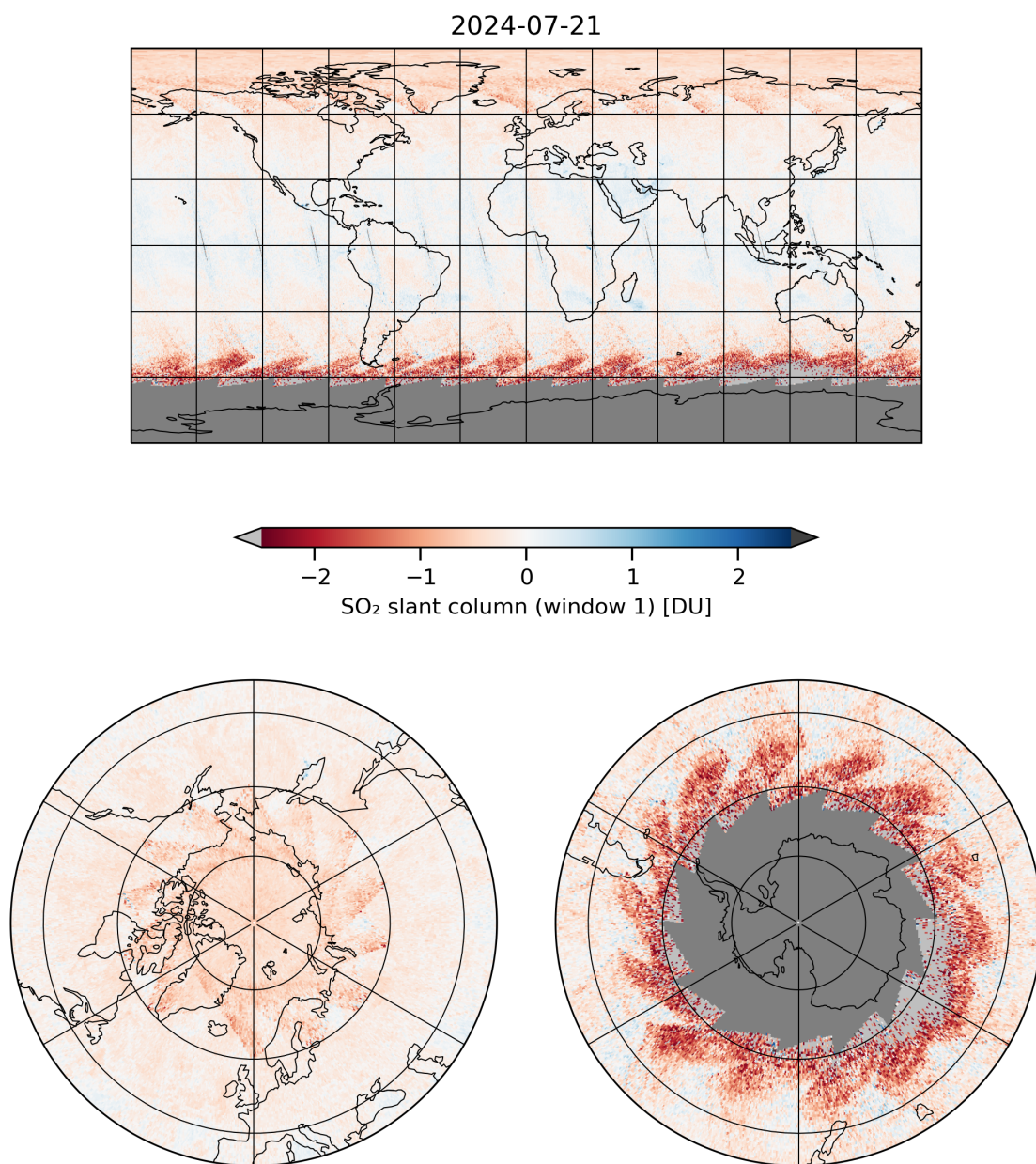


Figure 9: Map of “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22

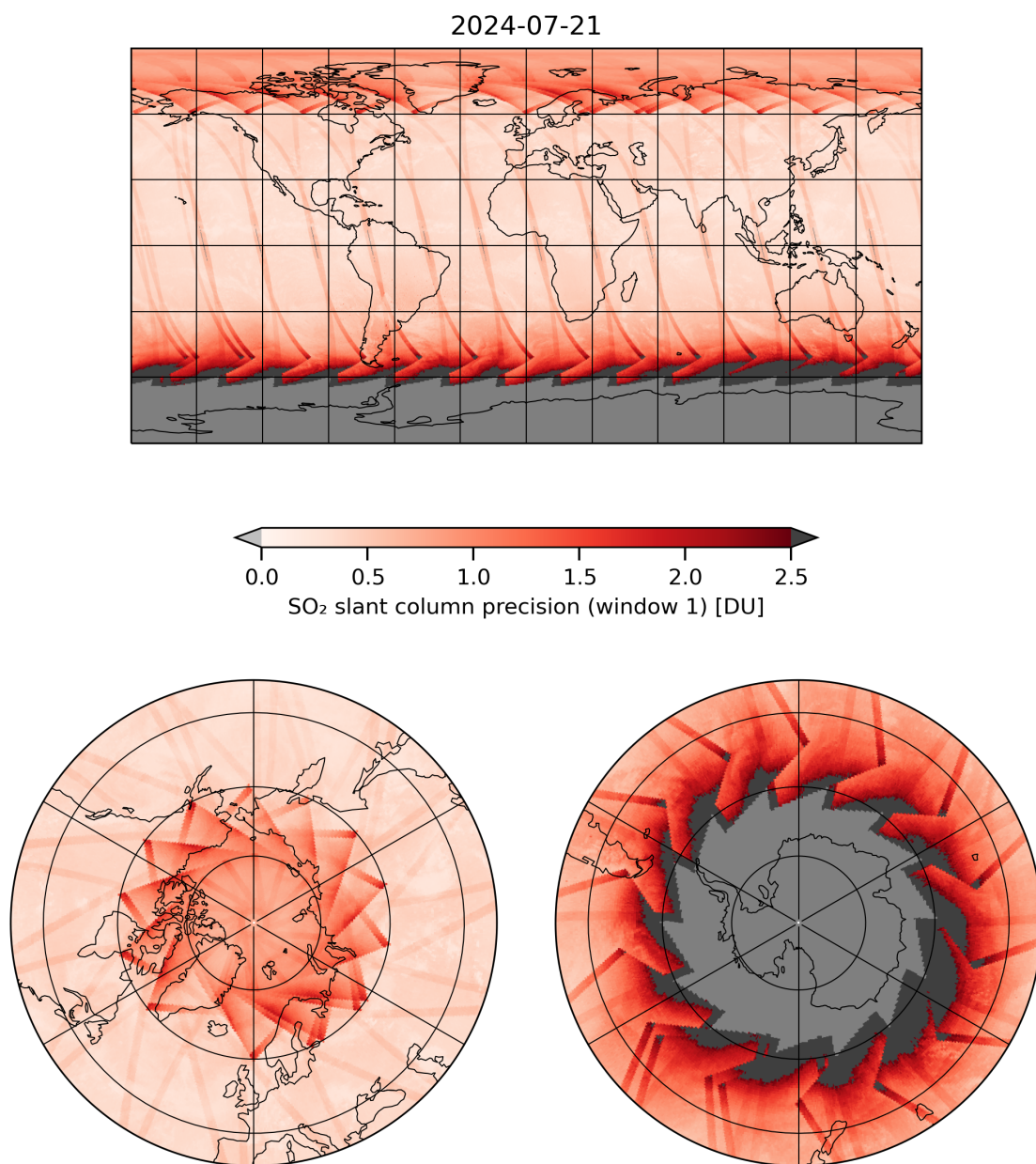


Figure 10: Map of “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22

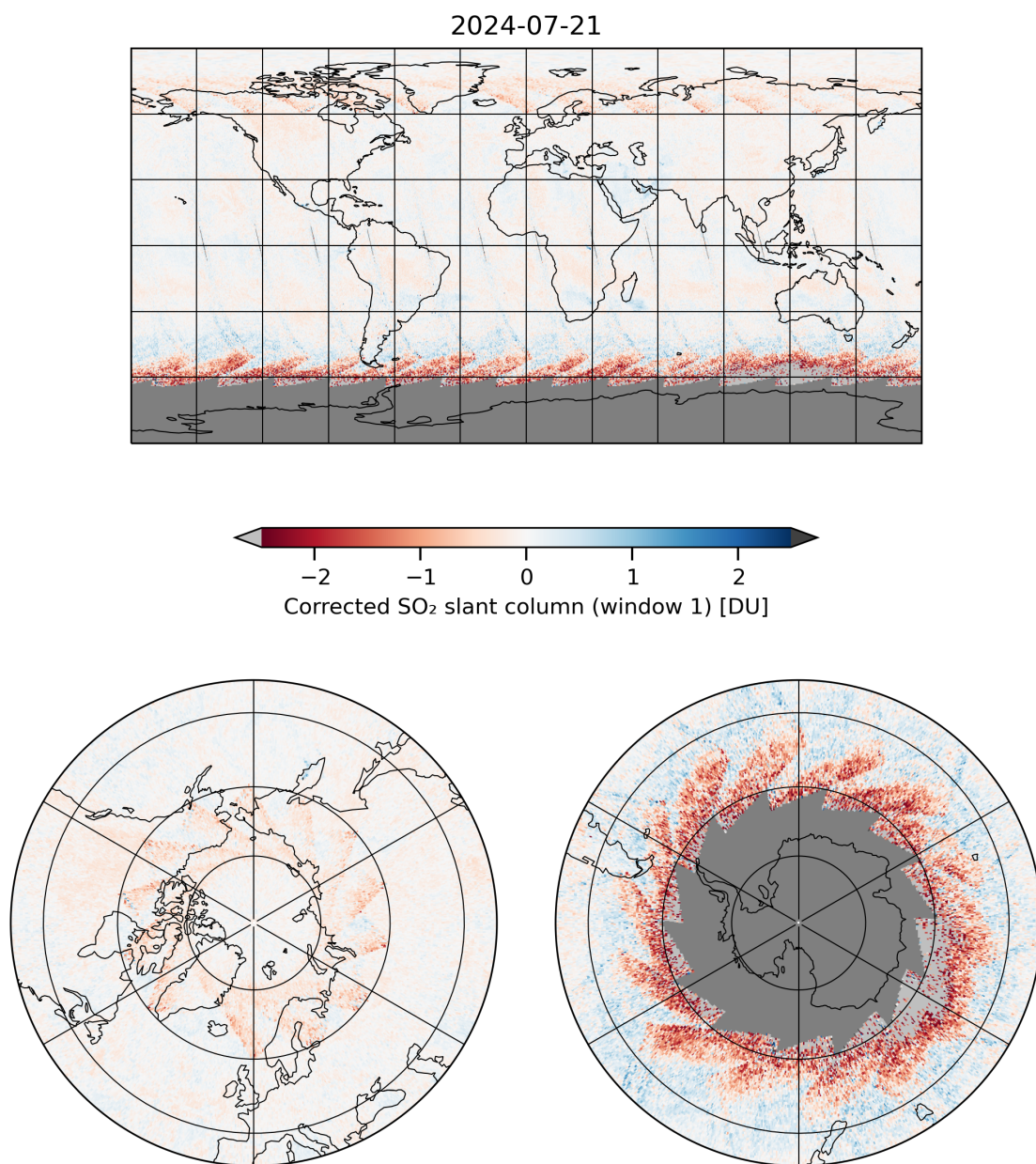


Figure 11: Map of “Corrected SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22

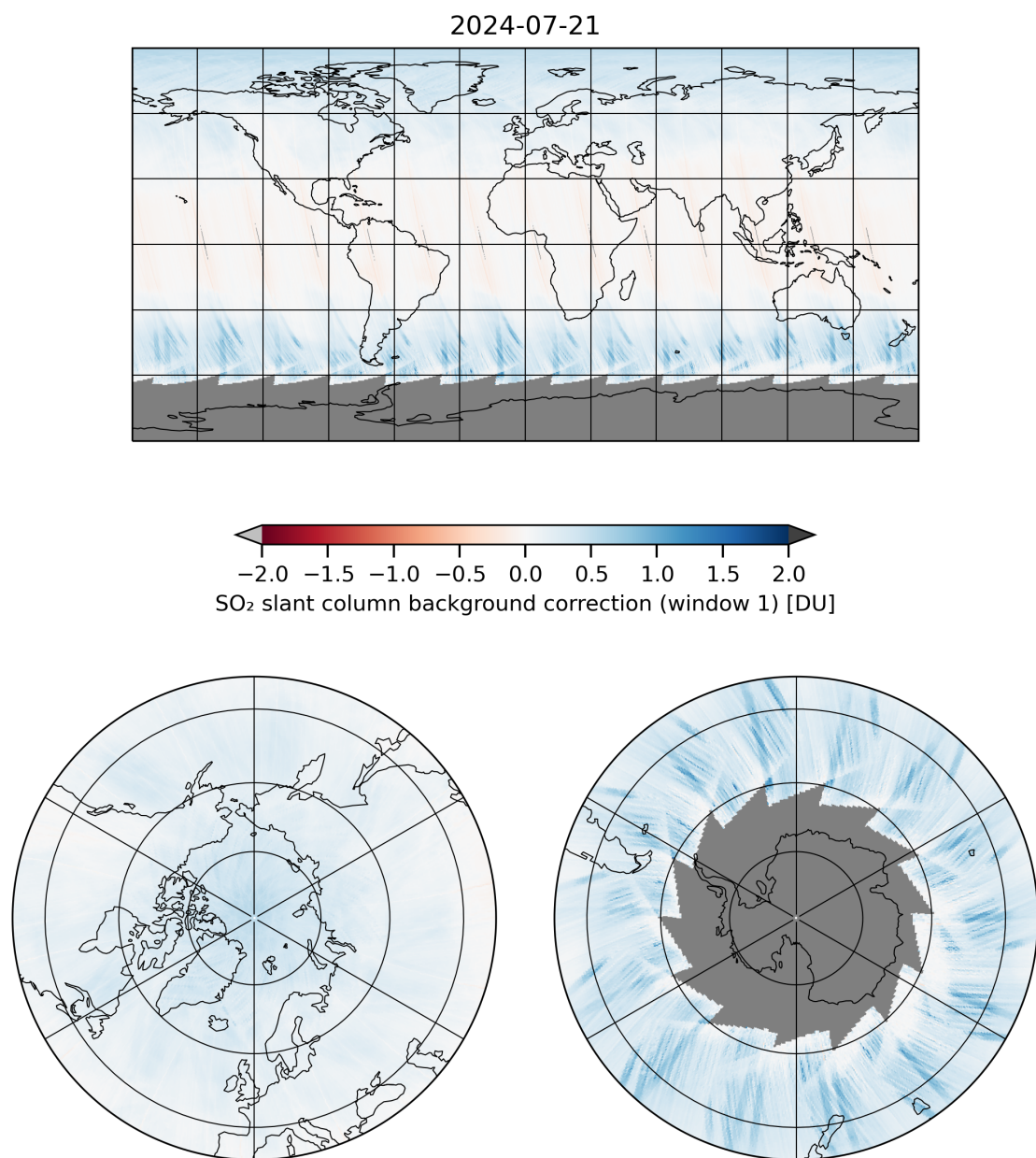


Figure 12: Map of “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22

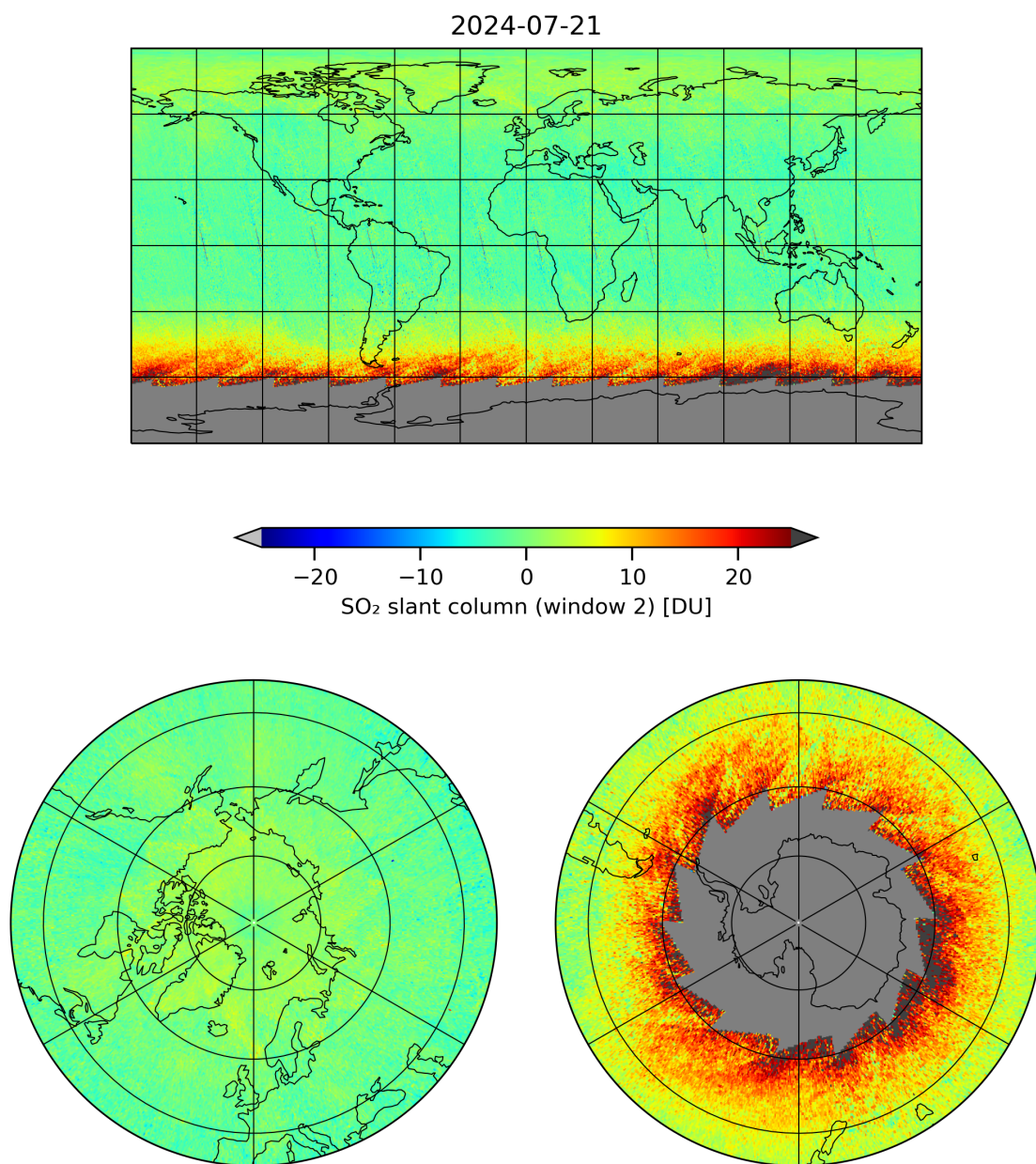


Figure 13: Map of “SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22

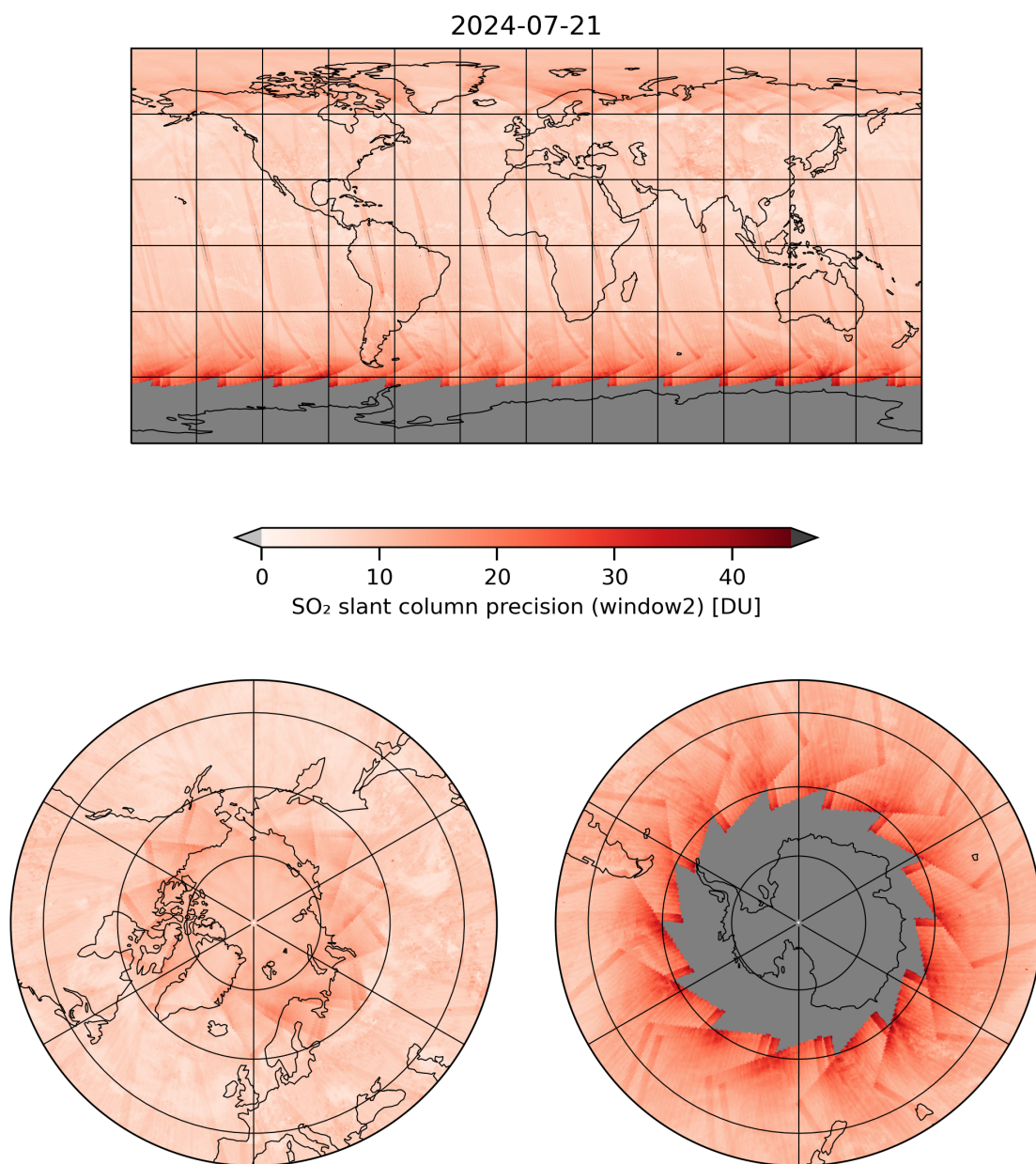


Figure 14: Map of “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22

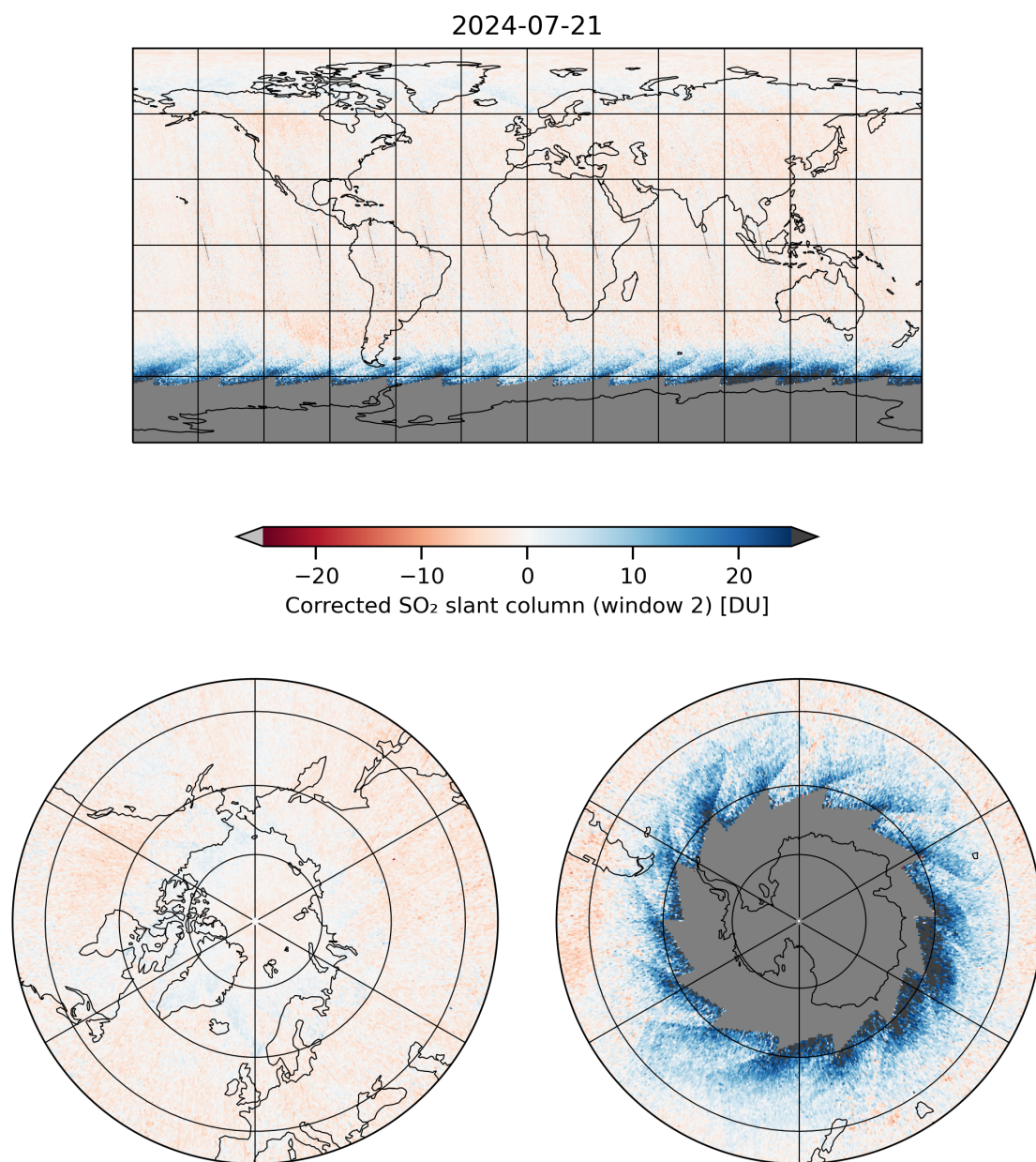


Figure 15: Map of "Corrected SO₂ slant column (window 2)" for 2024-07-21 to 2024-07-22

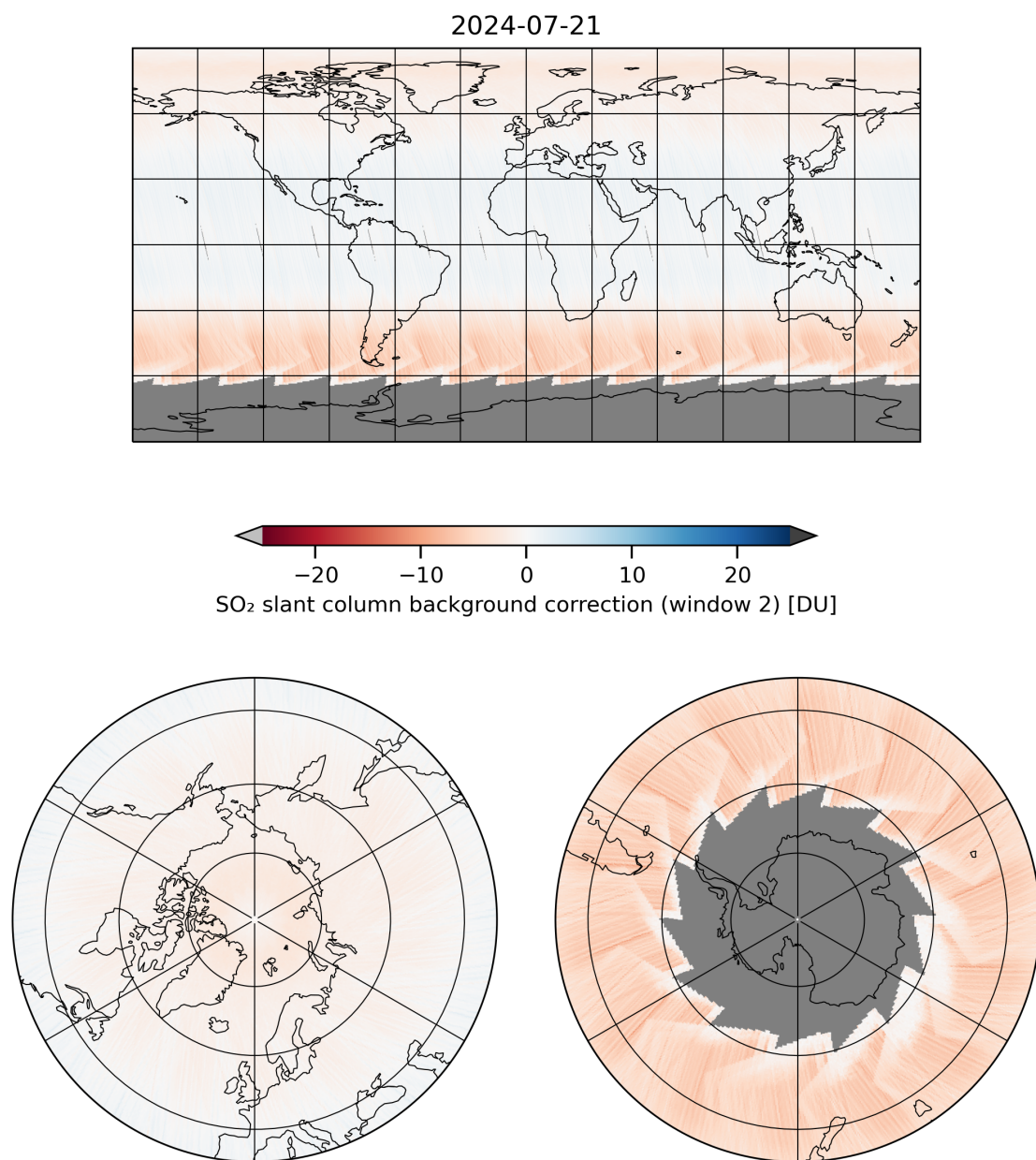


Figure 16: Map of “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22

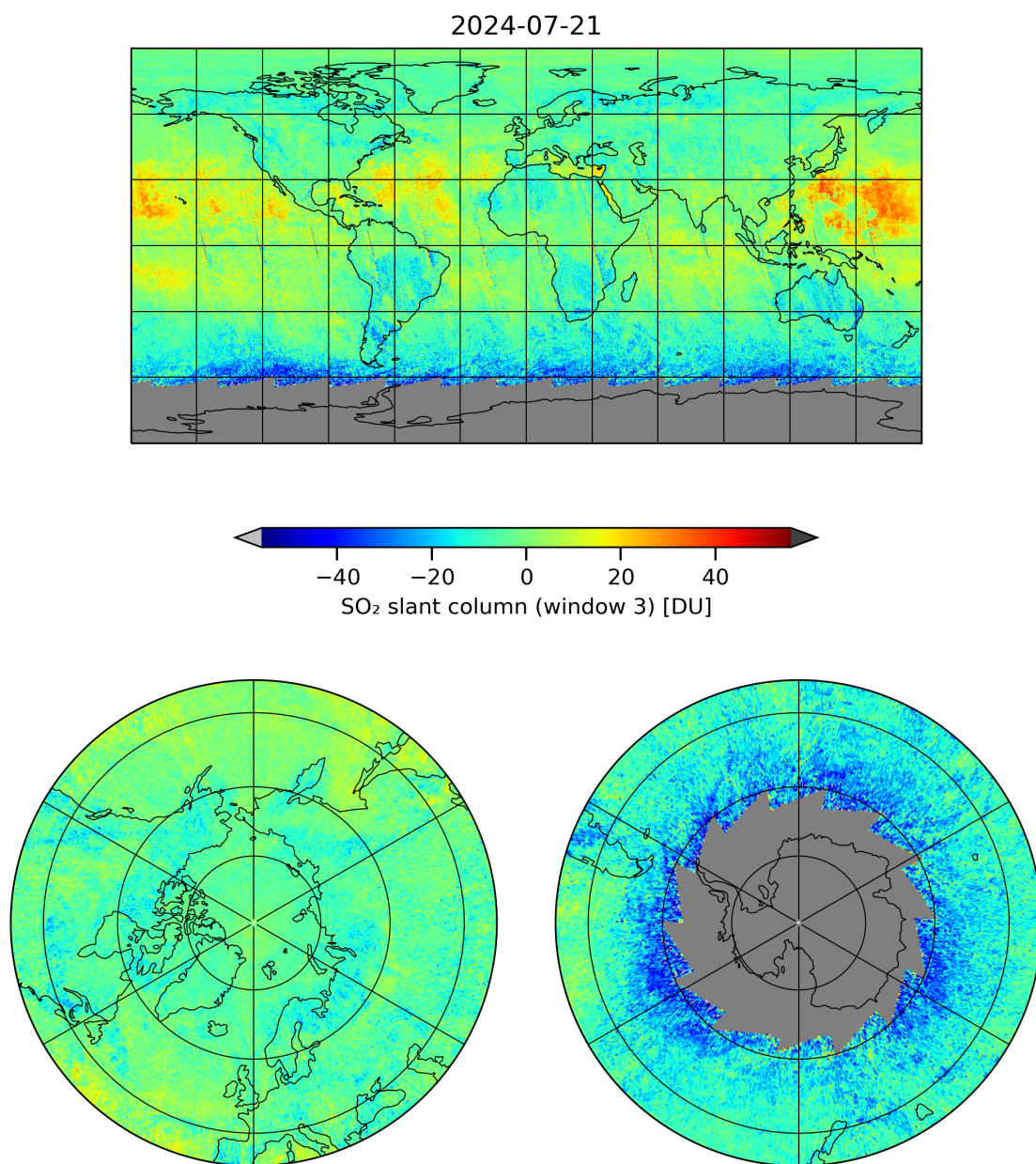


Figure 17: Map of “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22

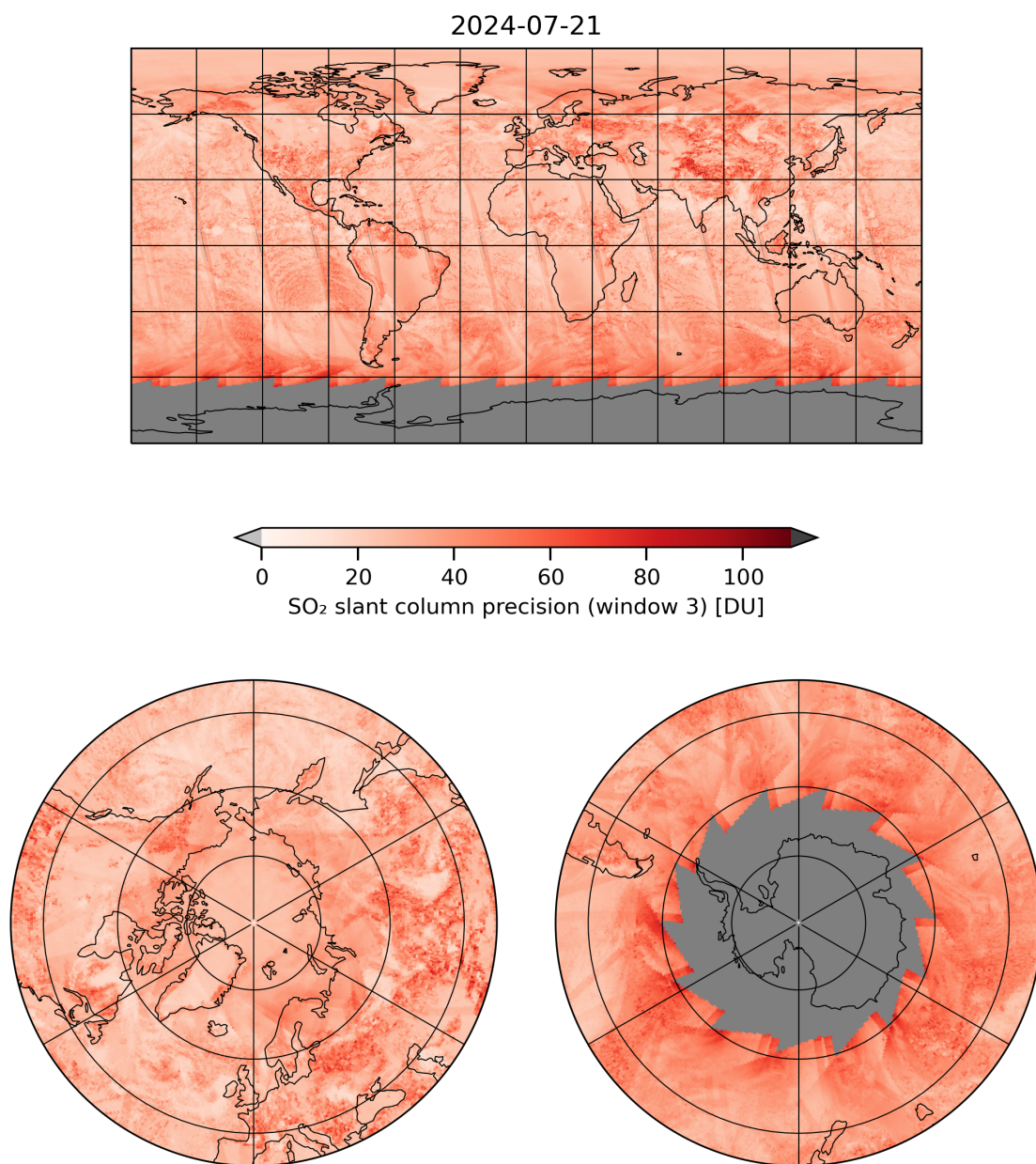


Figure 18: Map of “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22

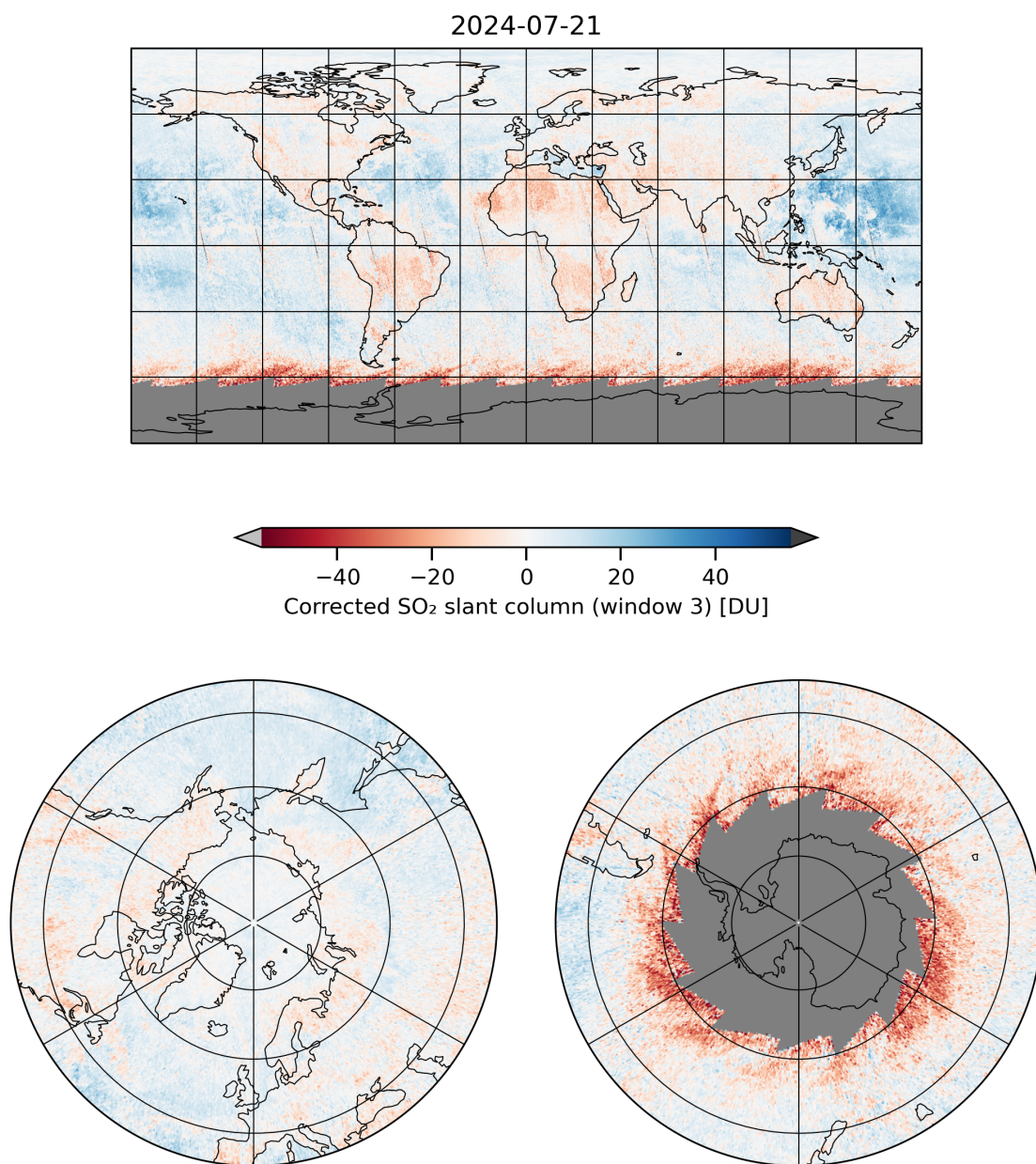


Figure 19: Map of “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22

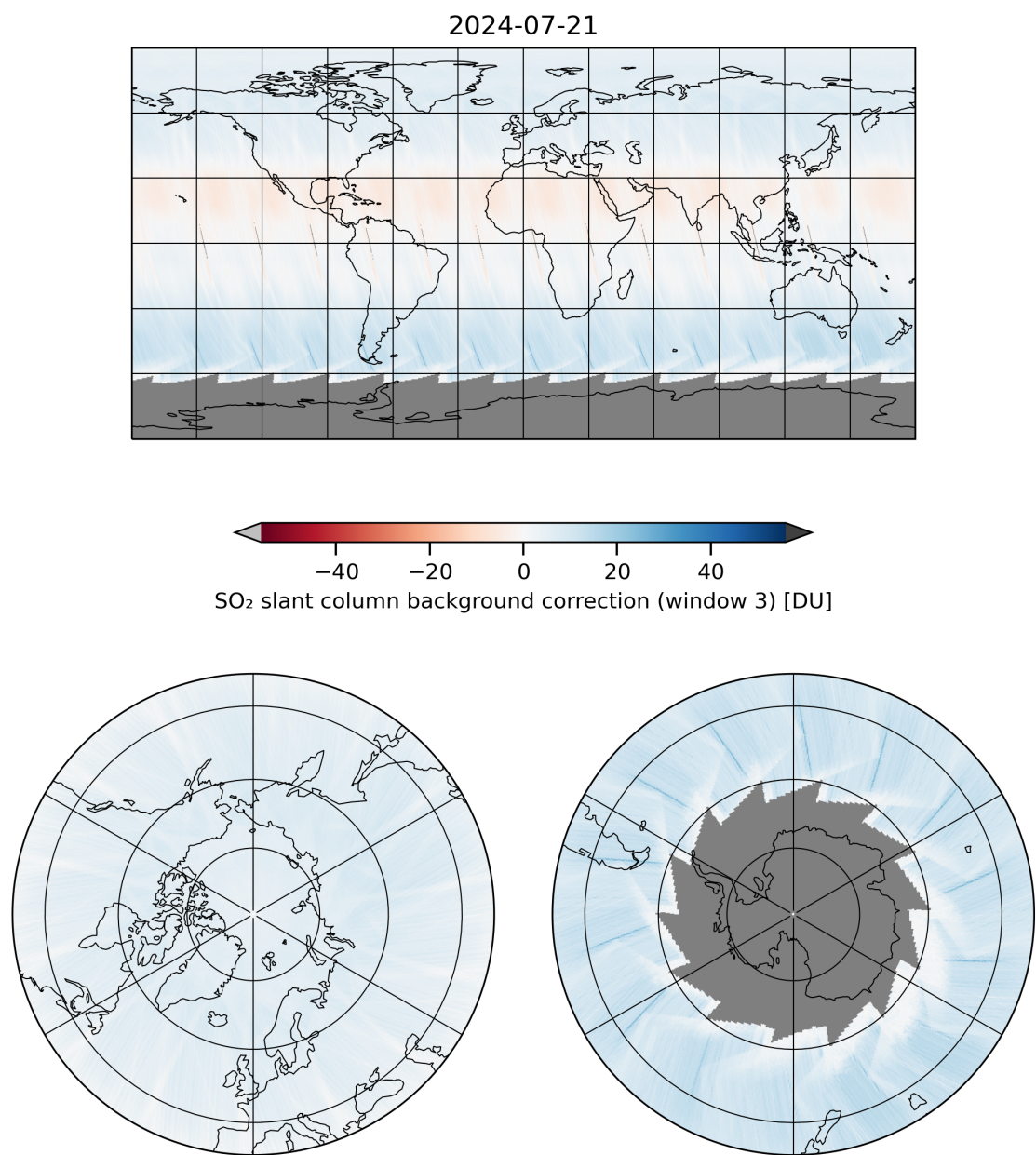


Figure 20: Map of “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22

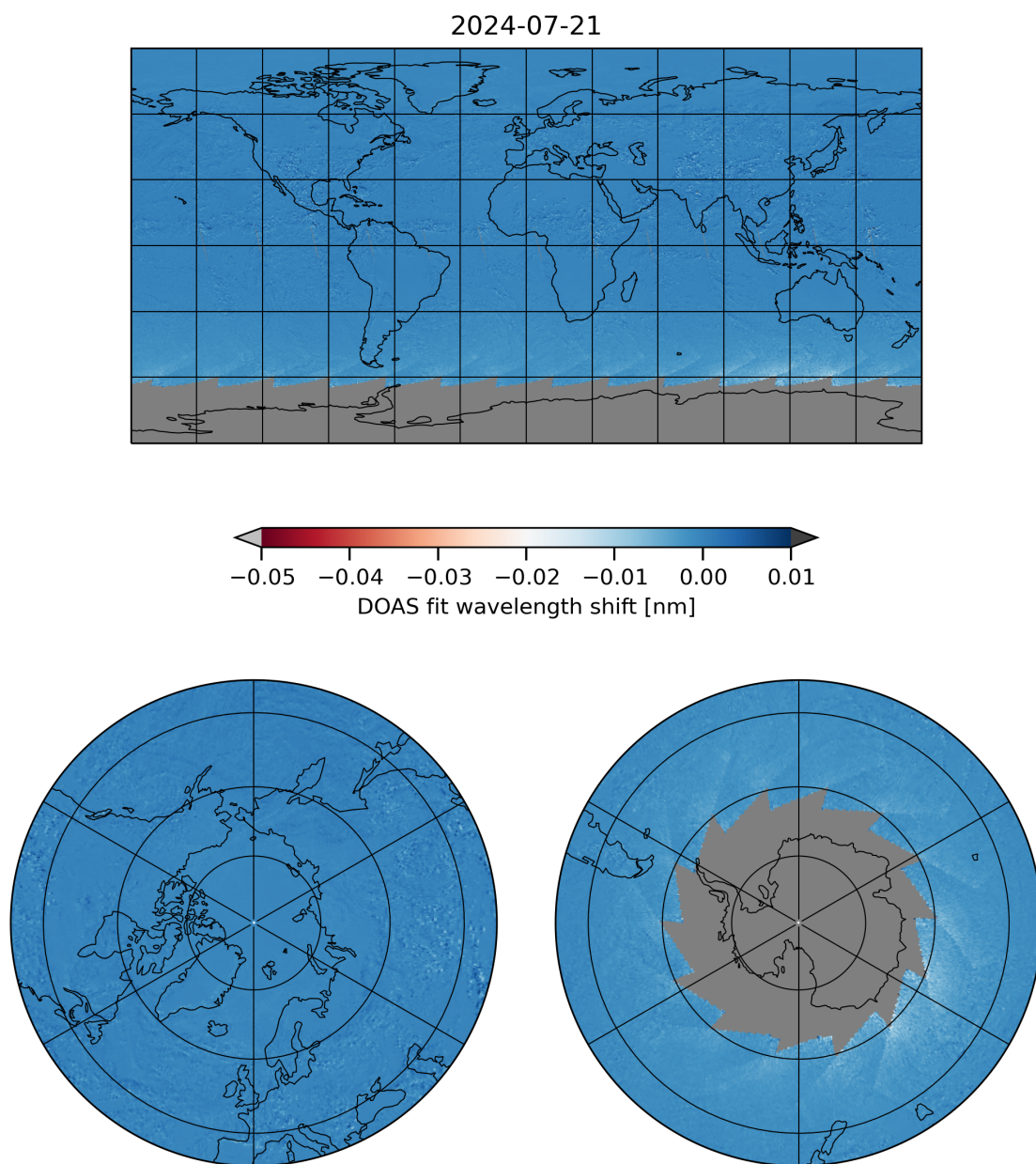


Figure 21: Map of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22

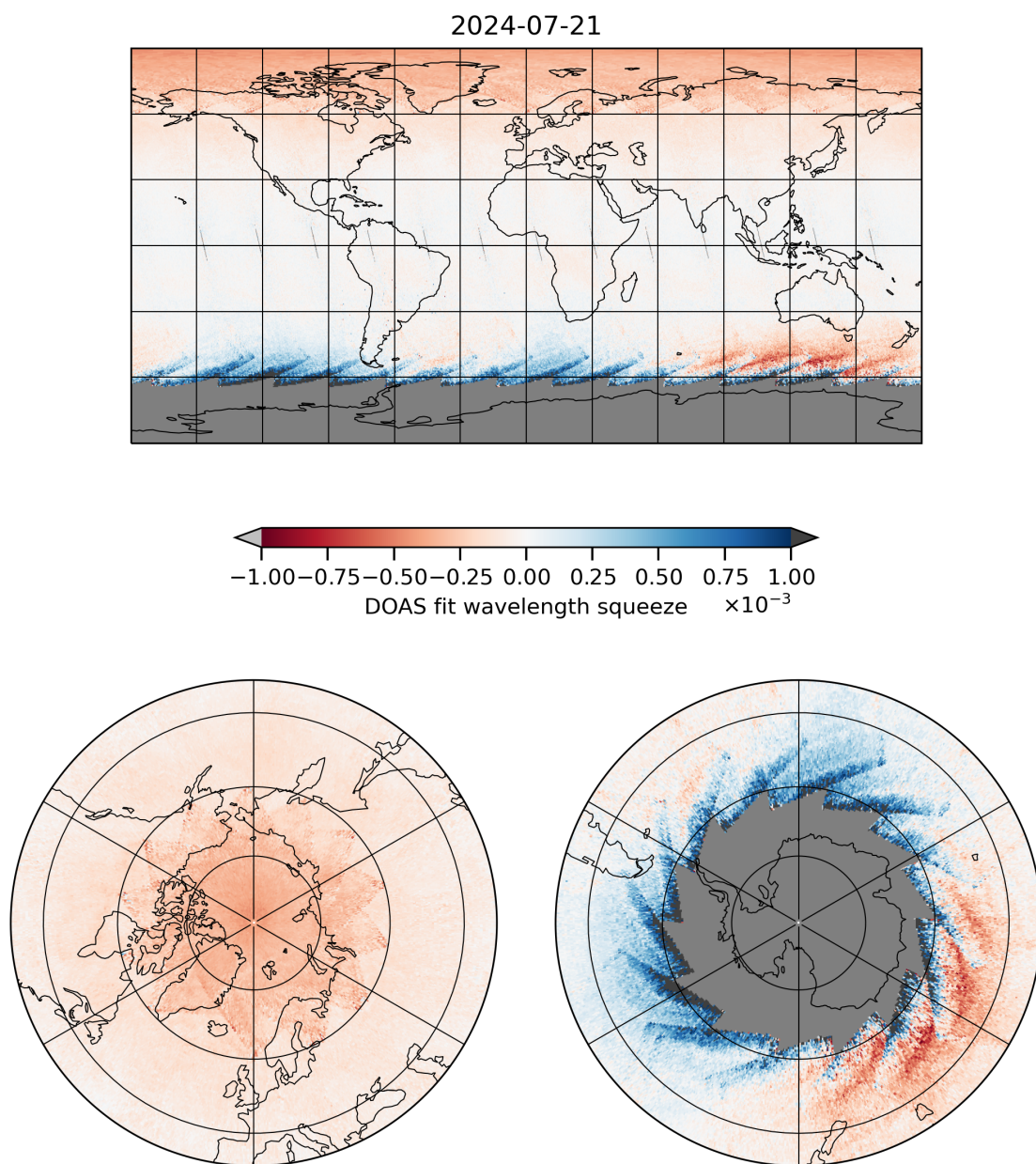


Figure 22: Map of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22

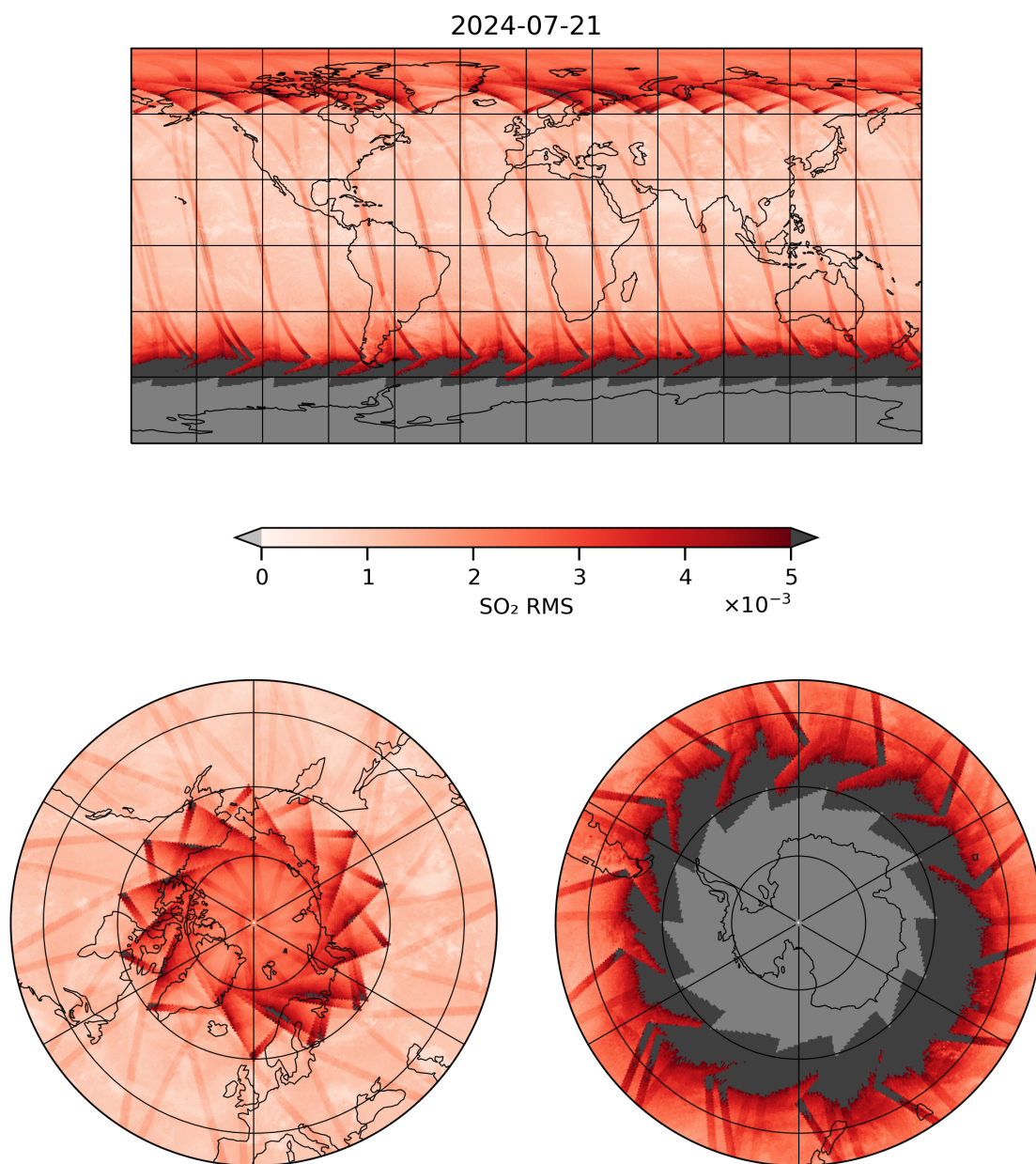


Figure 23: Map of “SO₂ RMS” for 2024-07-21 to 2024-07-22

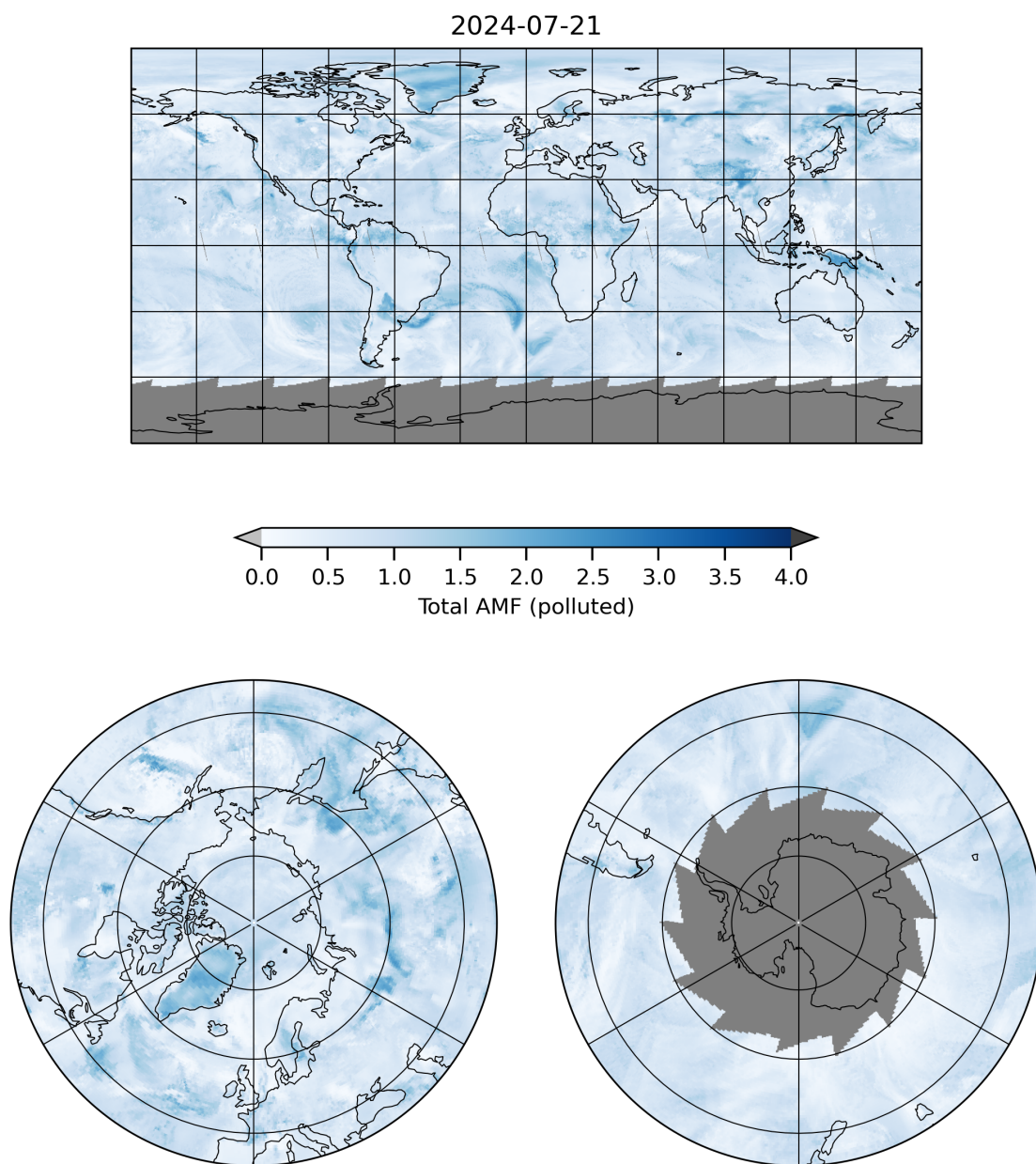


Figure 24: Map of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22

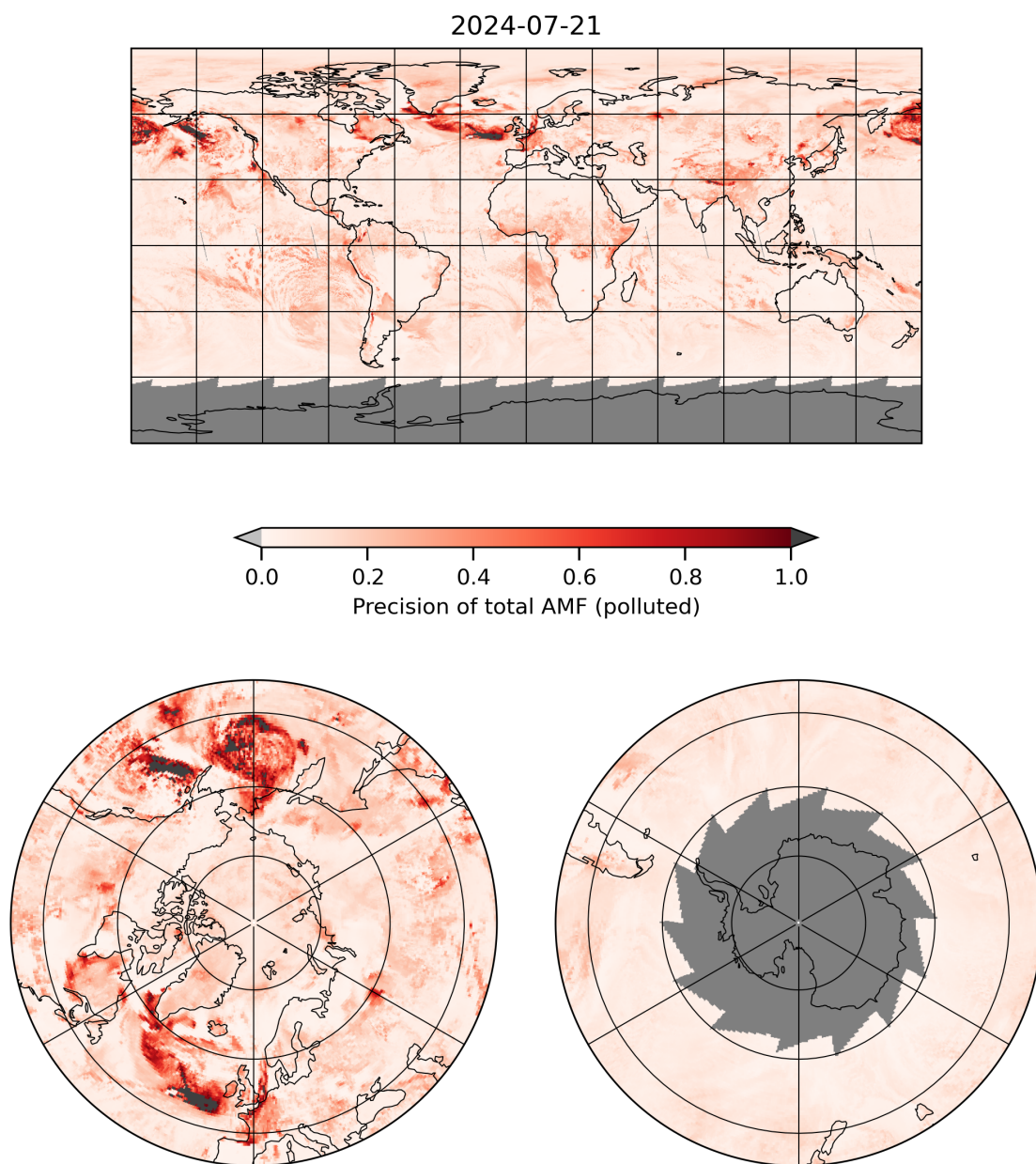


Figure 25: Map of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22

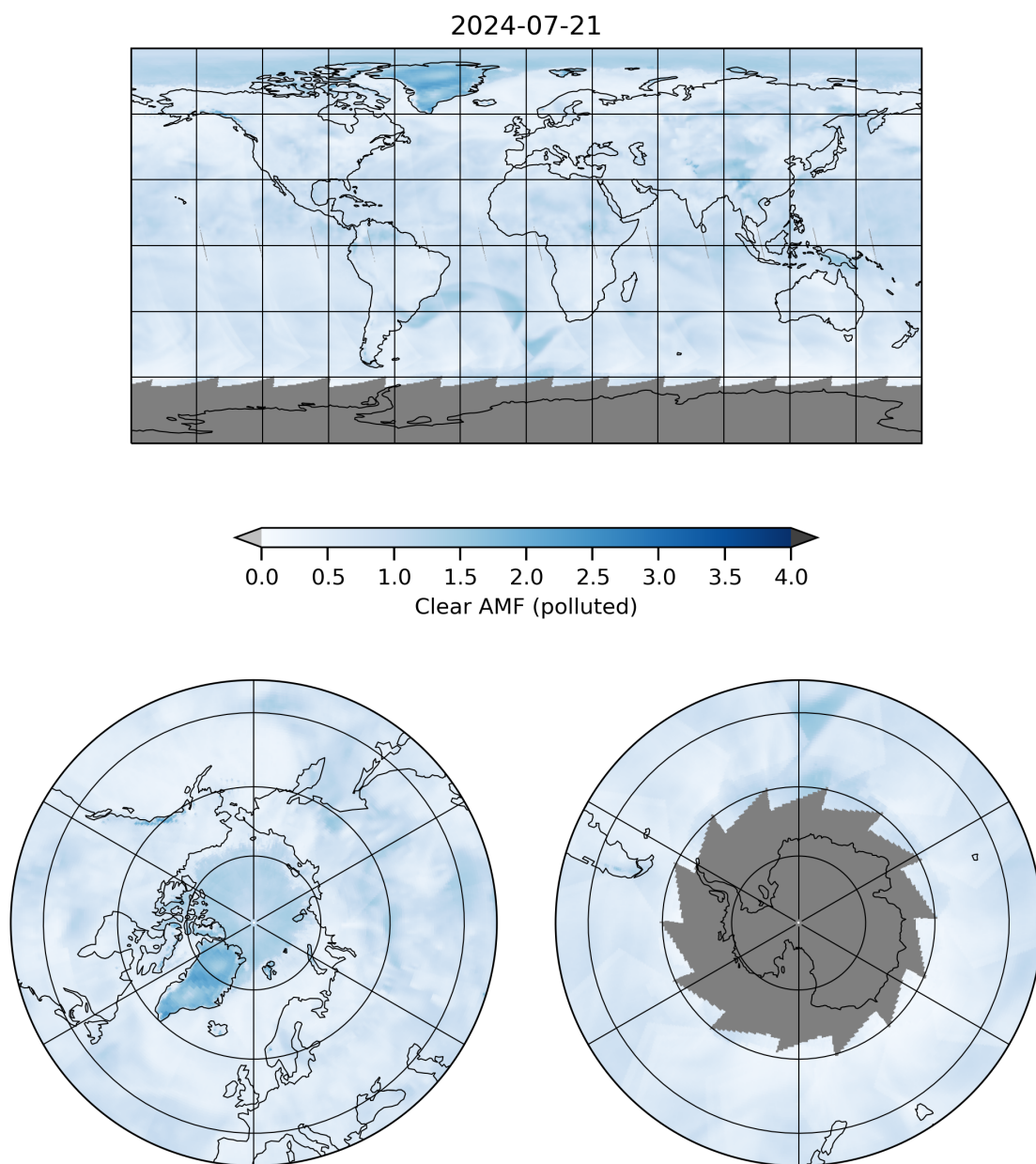


Figure 26: Map of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22

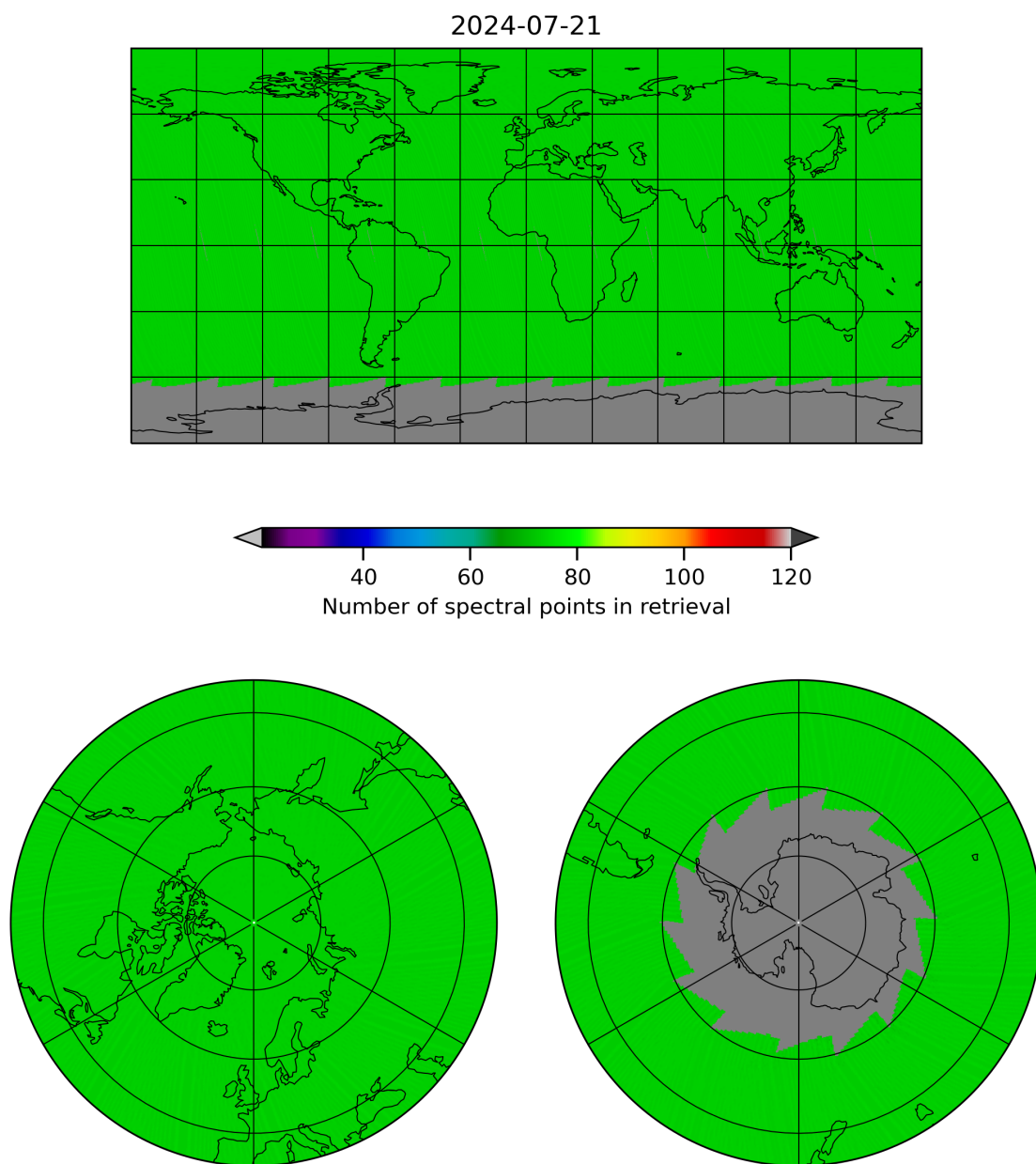


Figure 27: Map of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22

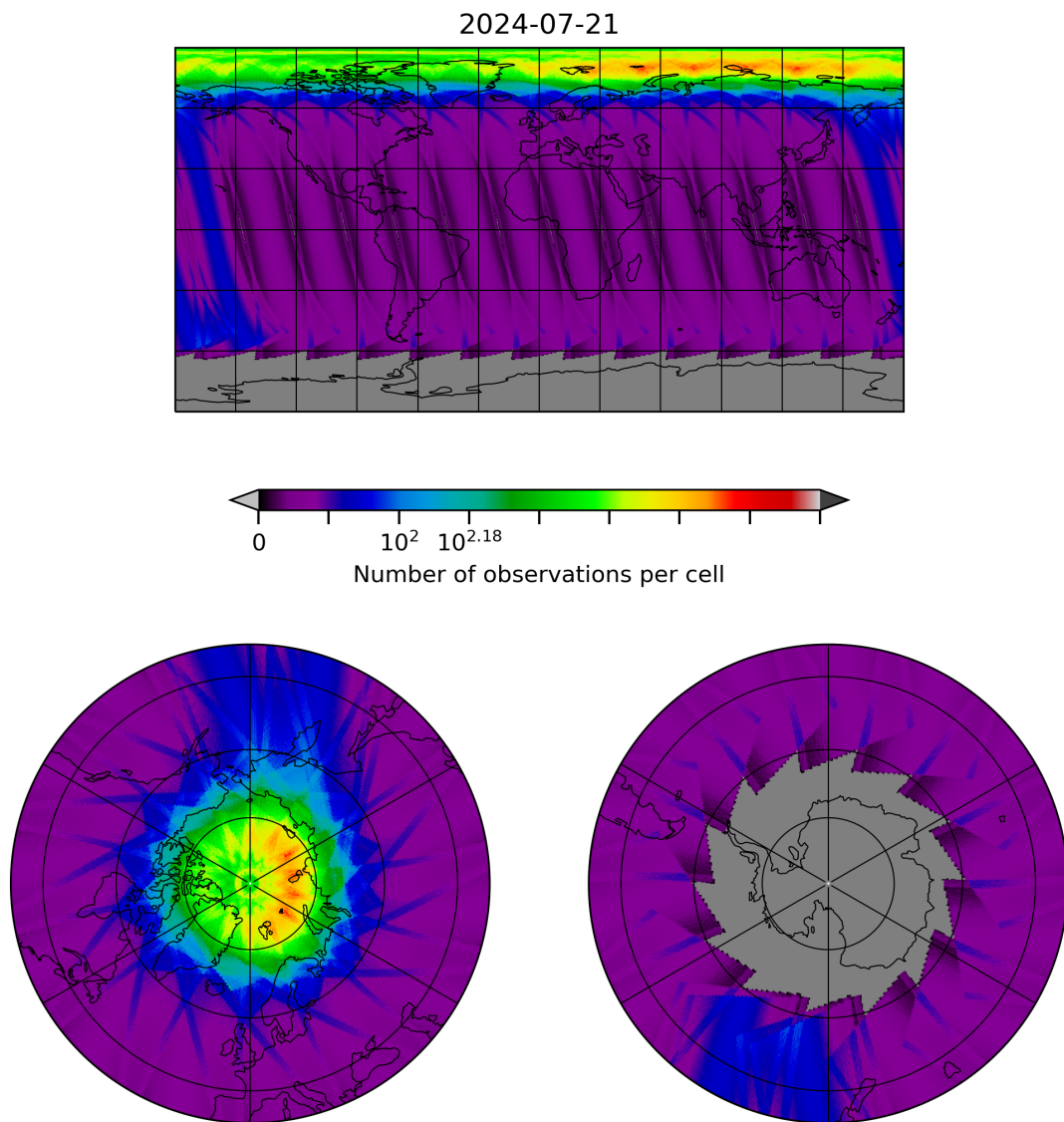


Figure 28: Map of the number of observations for 2024-07-21 to 2024-07-22

7 Zonal average

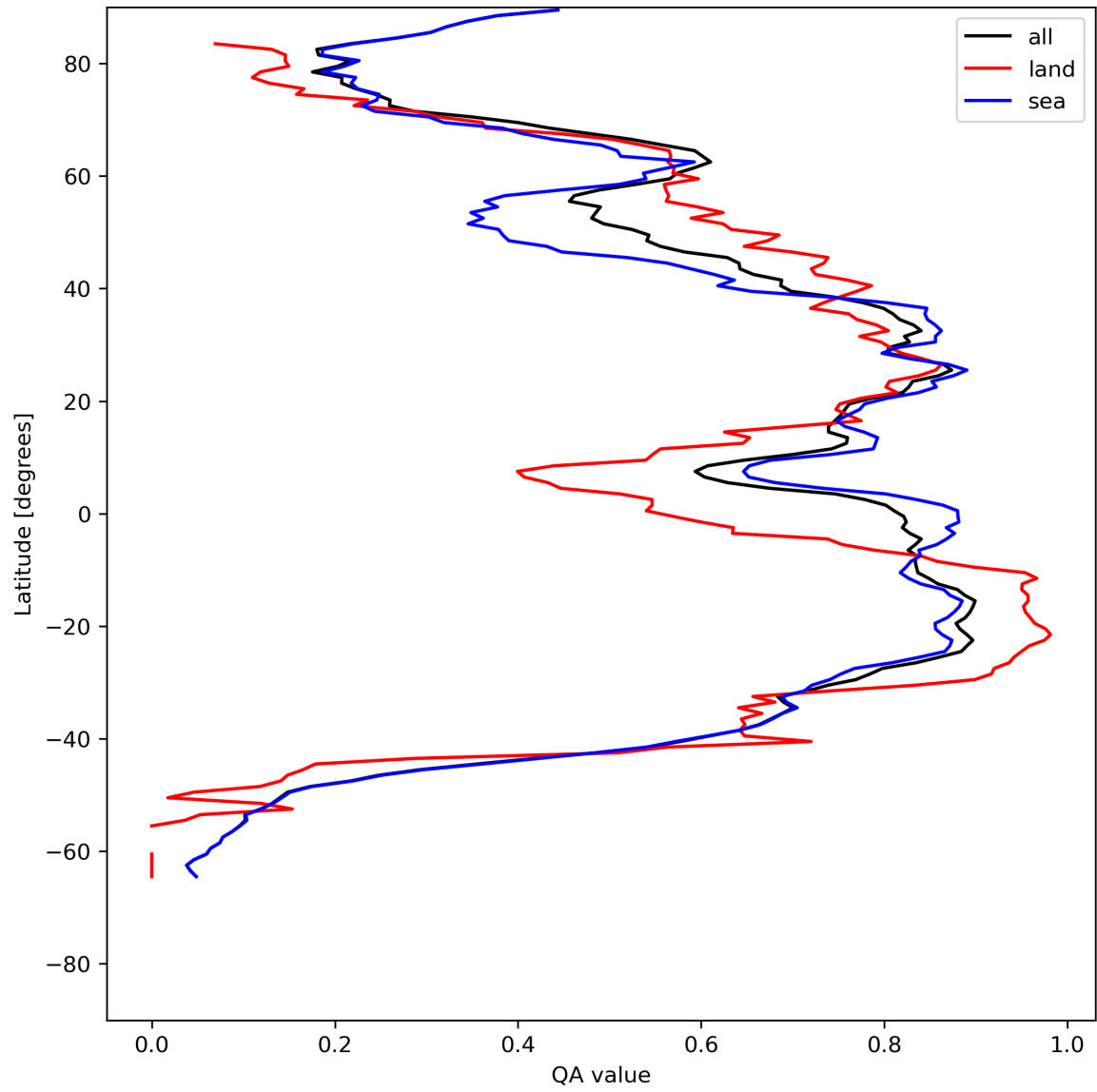


Figure 29: Zonal average of “QA value” for 2024-07-21 to 2024-07-22.

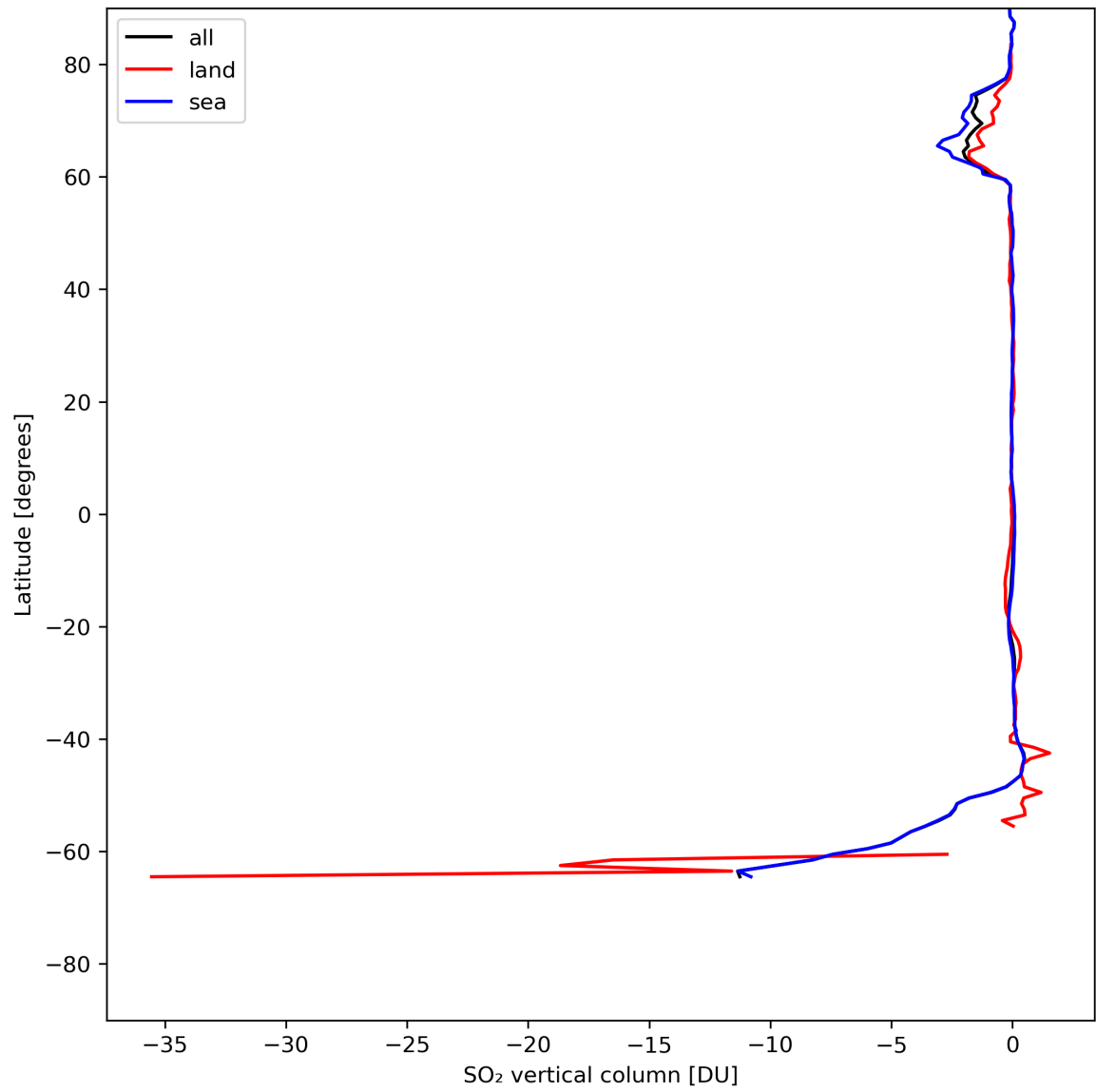


Figure 30: Zonal average of “SO₂ vertical column” for 2024-07-21 to 2024-07-22.

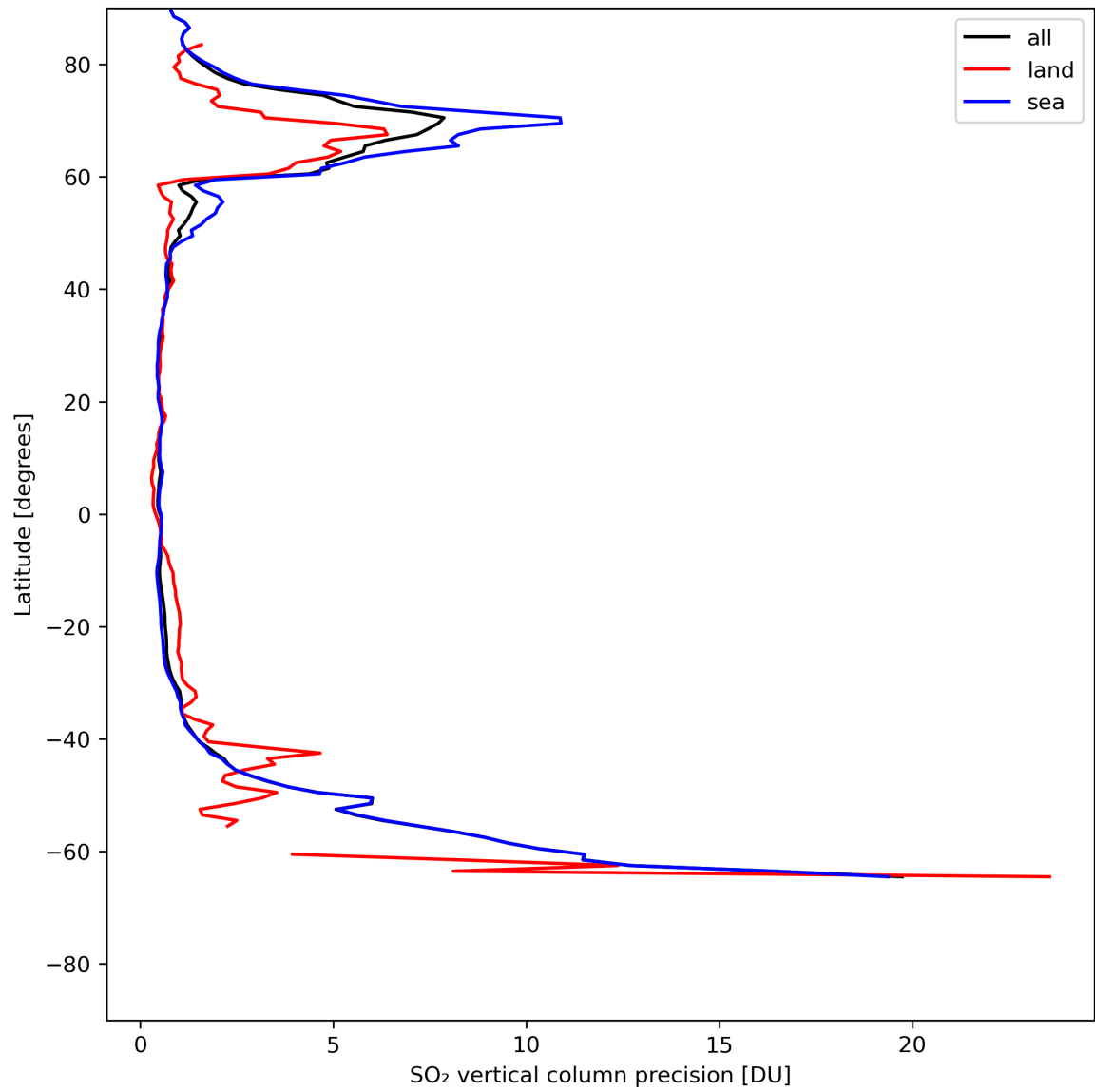


Figure 31: Zonal average of “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22.

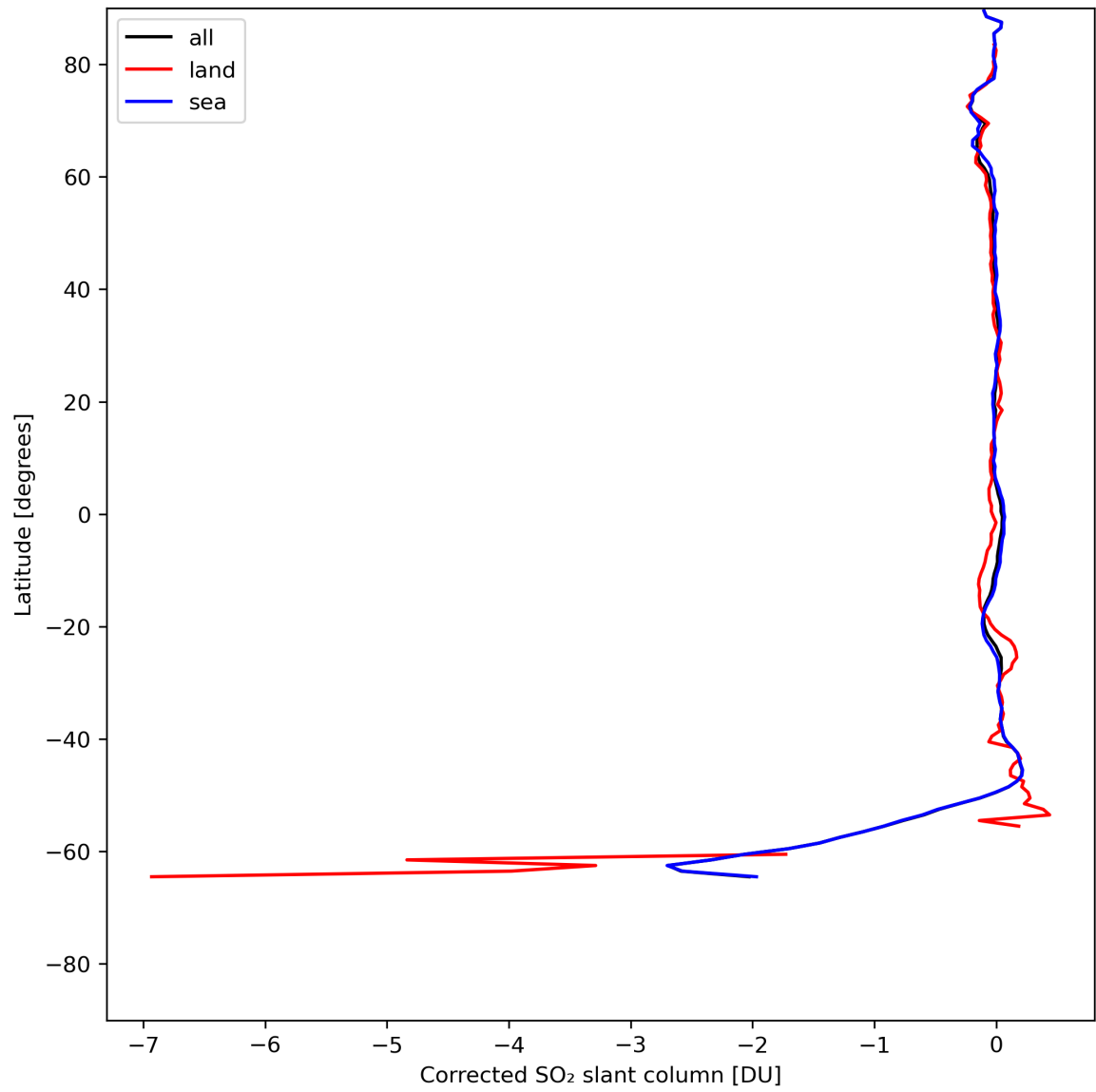


Figure 32: Zonal average of "Corrected SO₂ slant column" for 2024-07-21 to 2024-07-22.

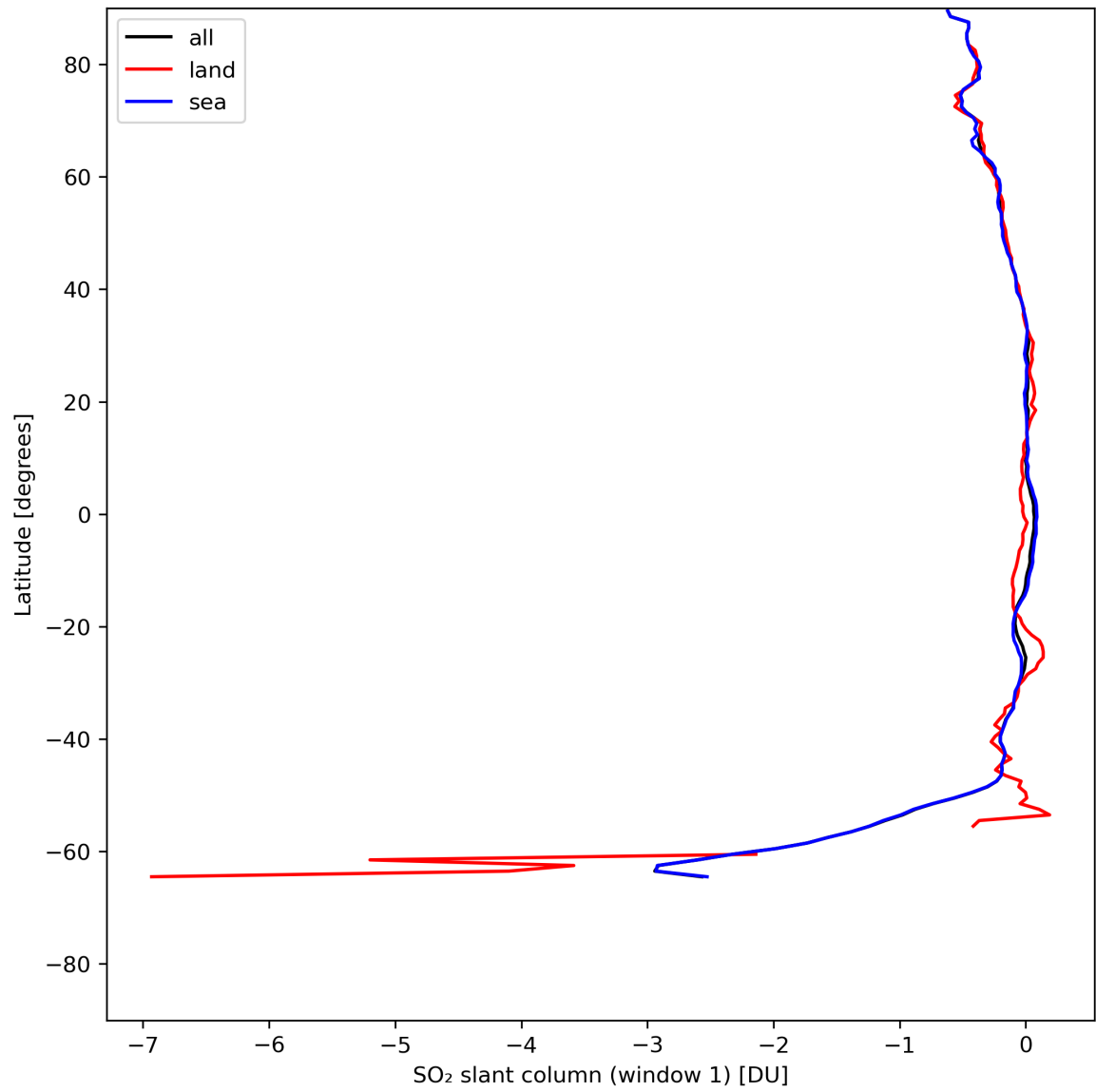


Figure 33: Zonal average of “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

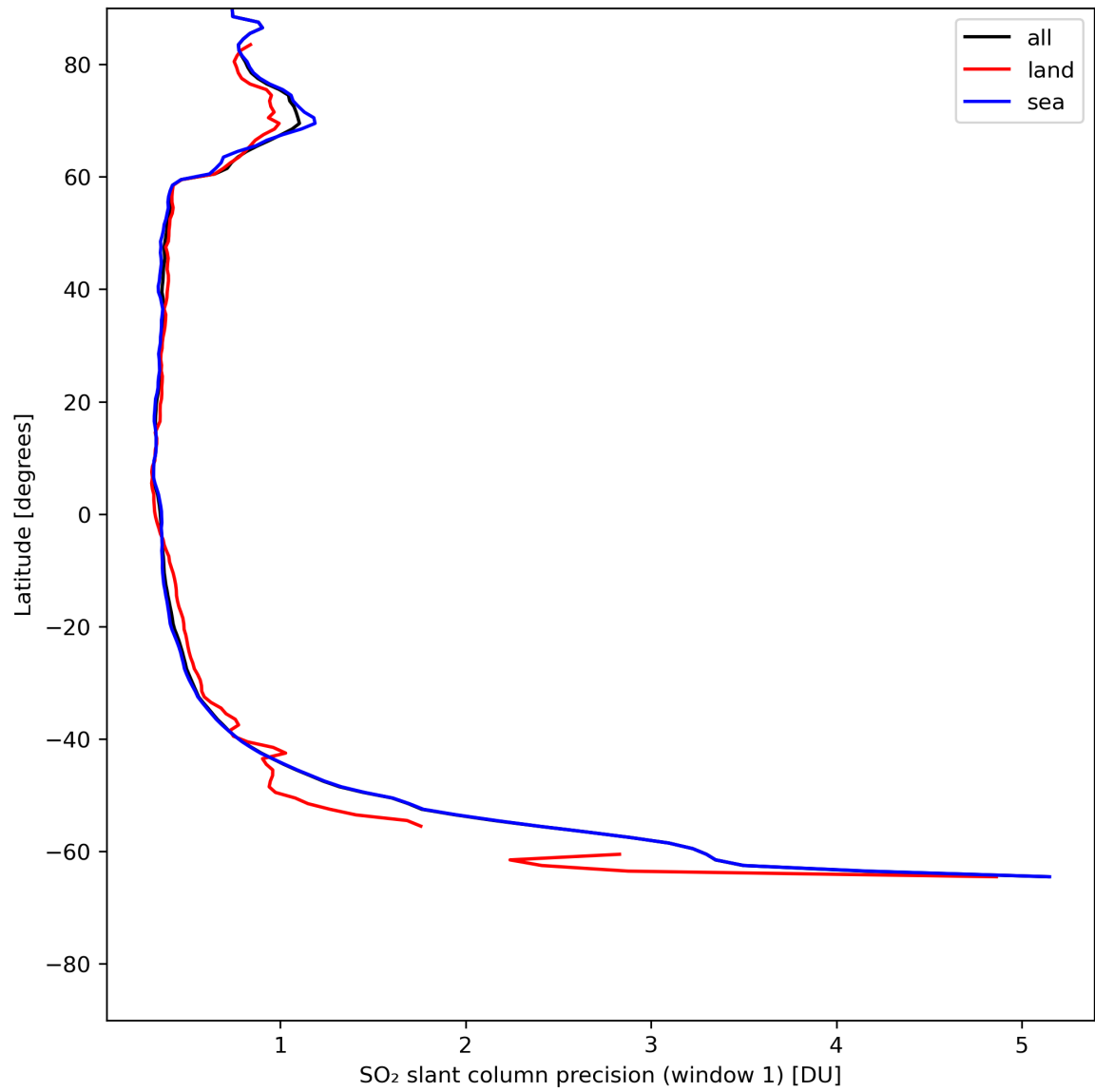


Figure 34: Zonal average of “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

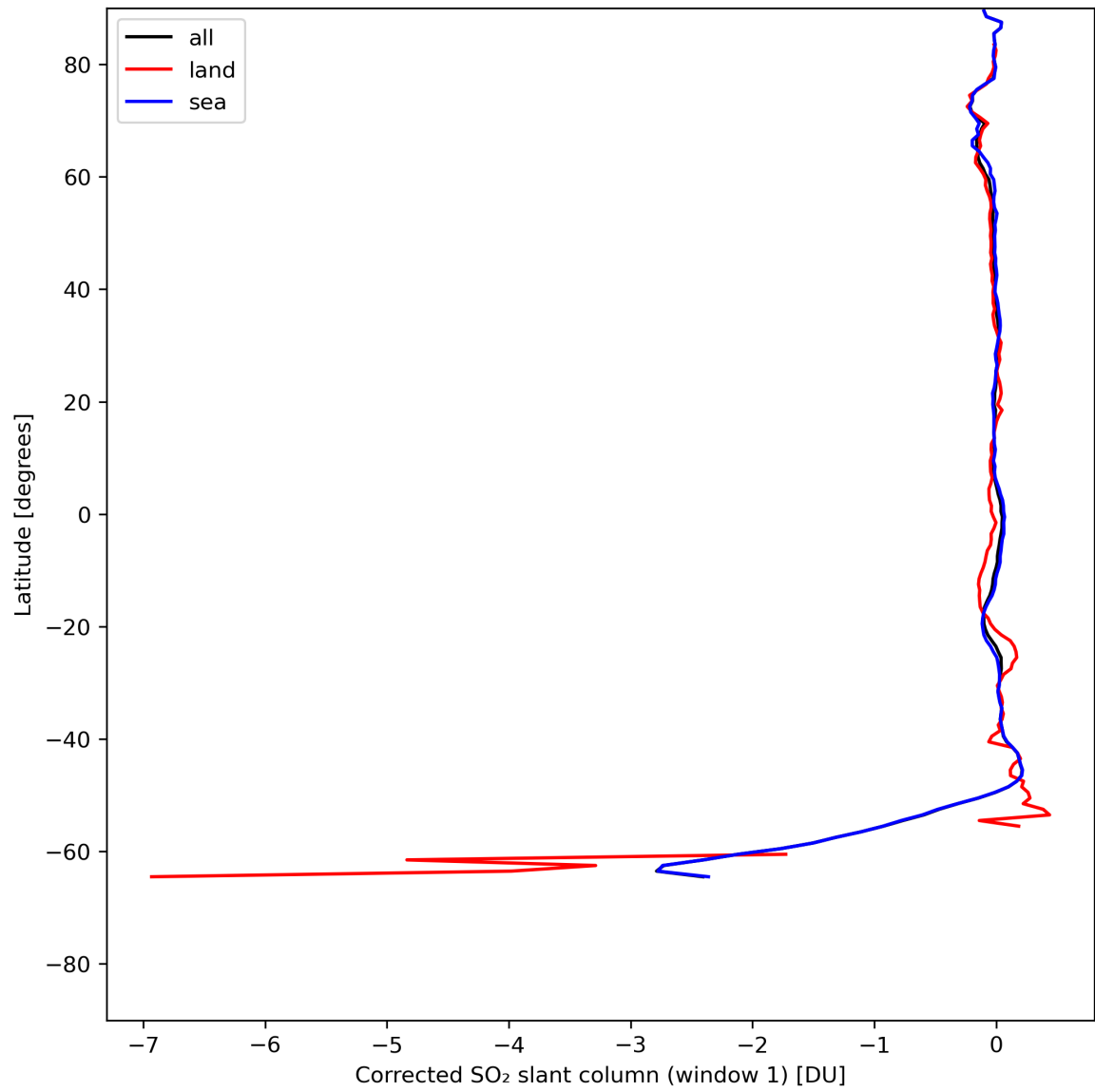


Figure 35: Zonal average of “Corrected SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

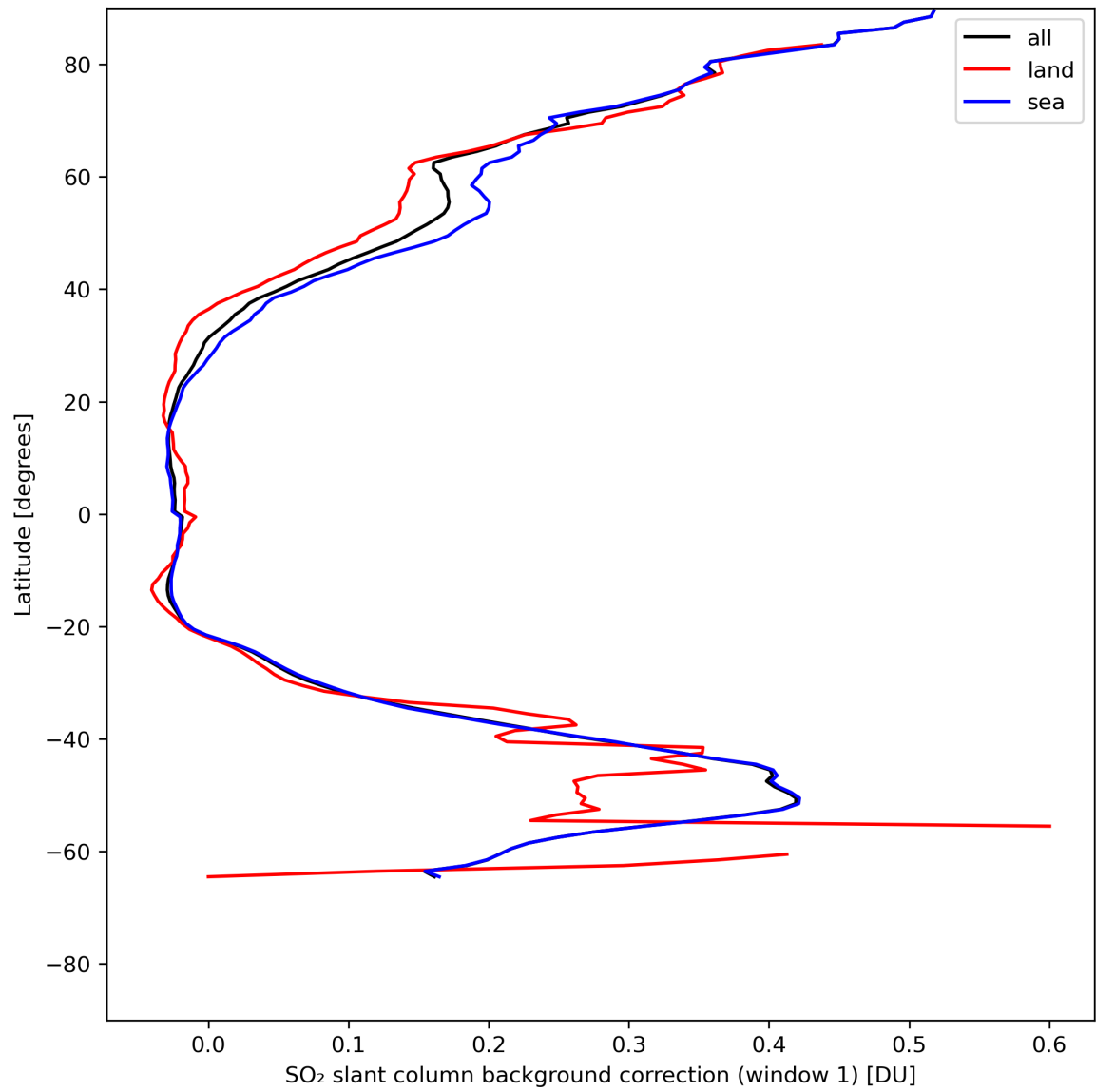


Figure 36: Zonal average of “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

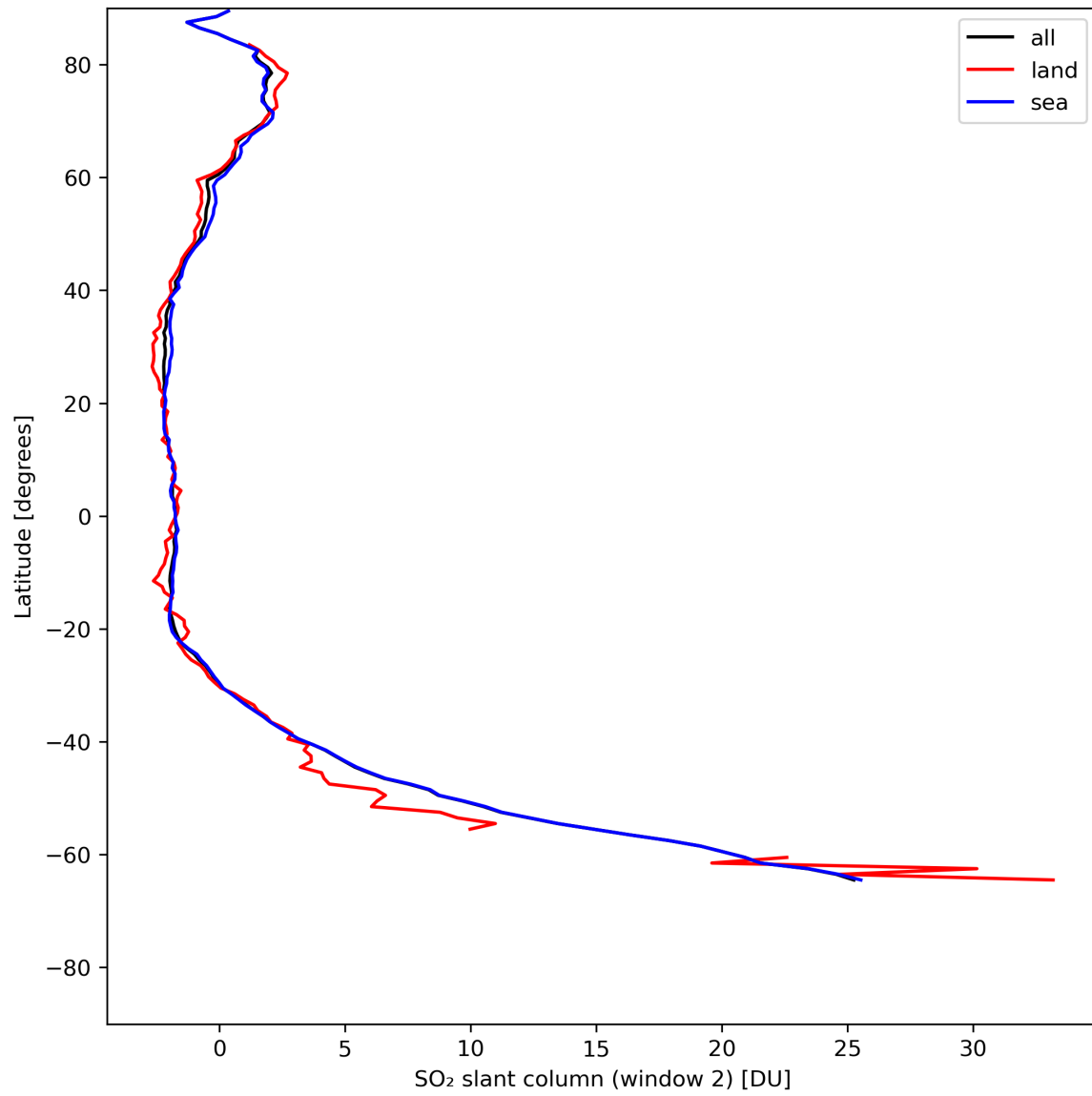


Figure 37: Zonal average of “SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

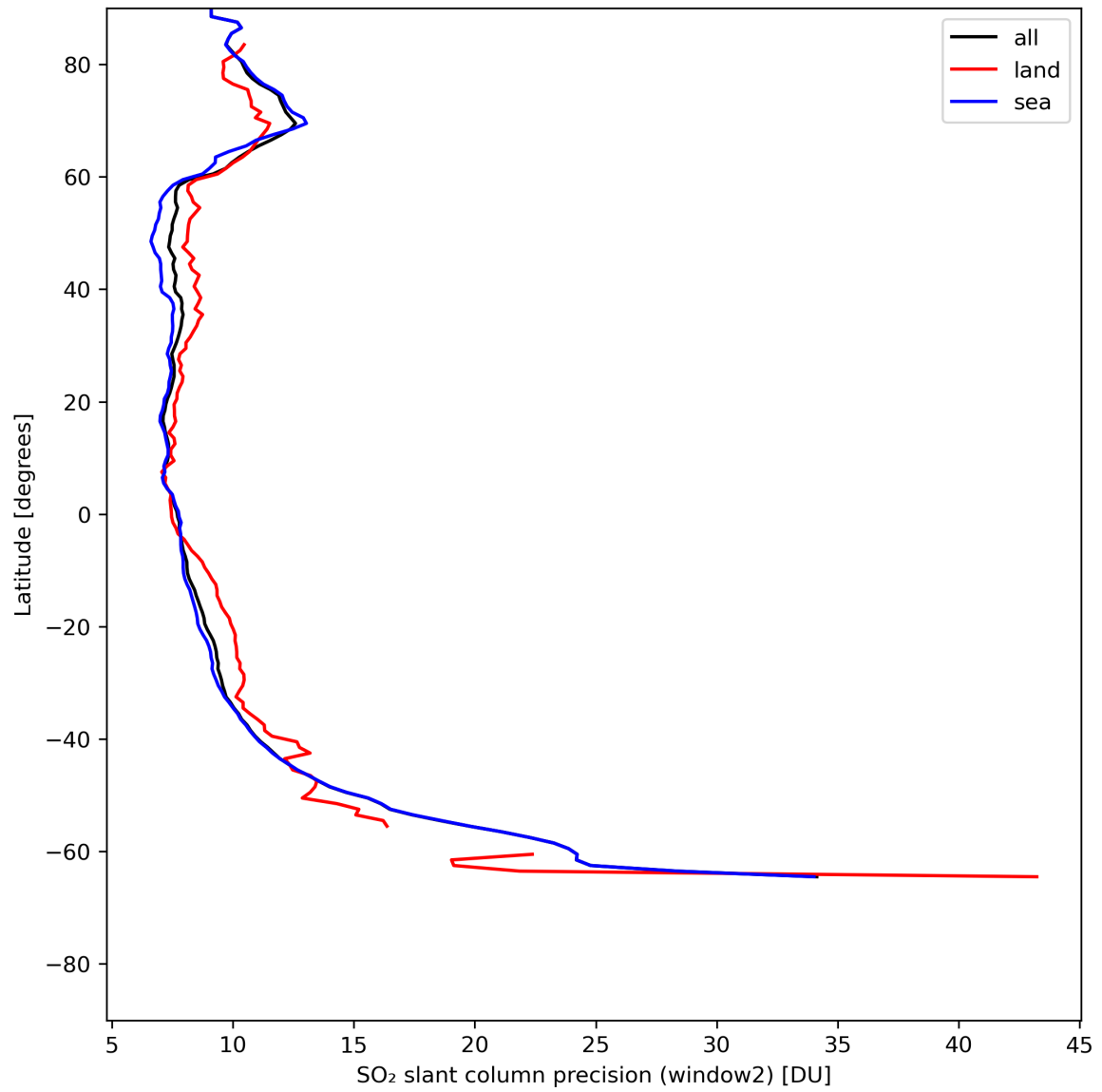


Figure 38: Zonal average of “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

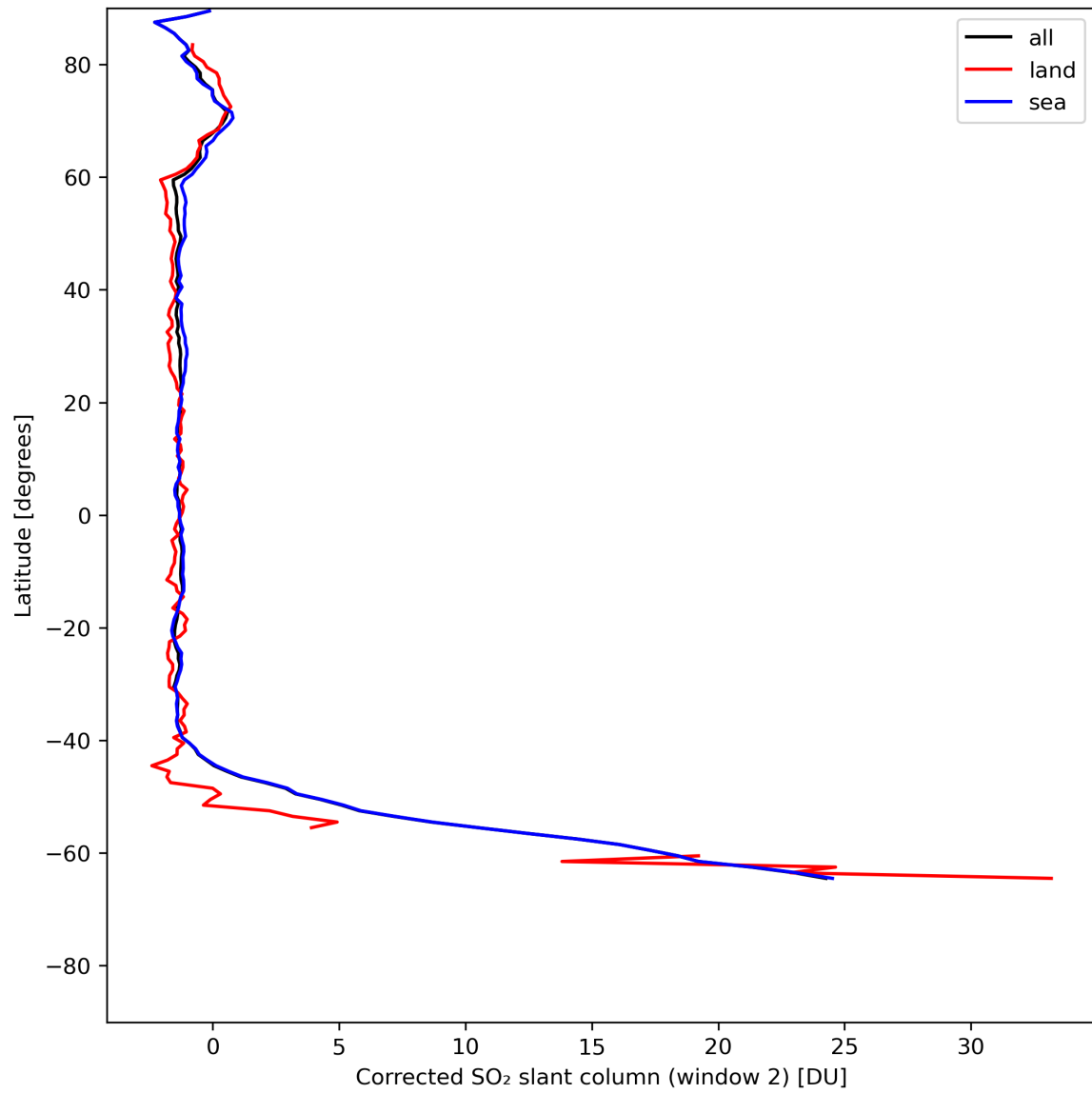


Figure 39: Zonal average of “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

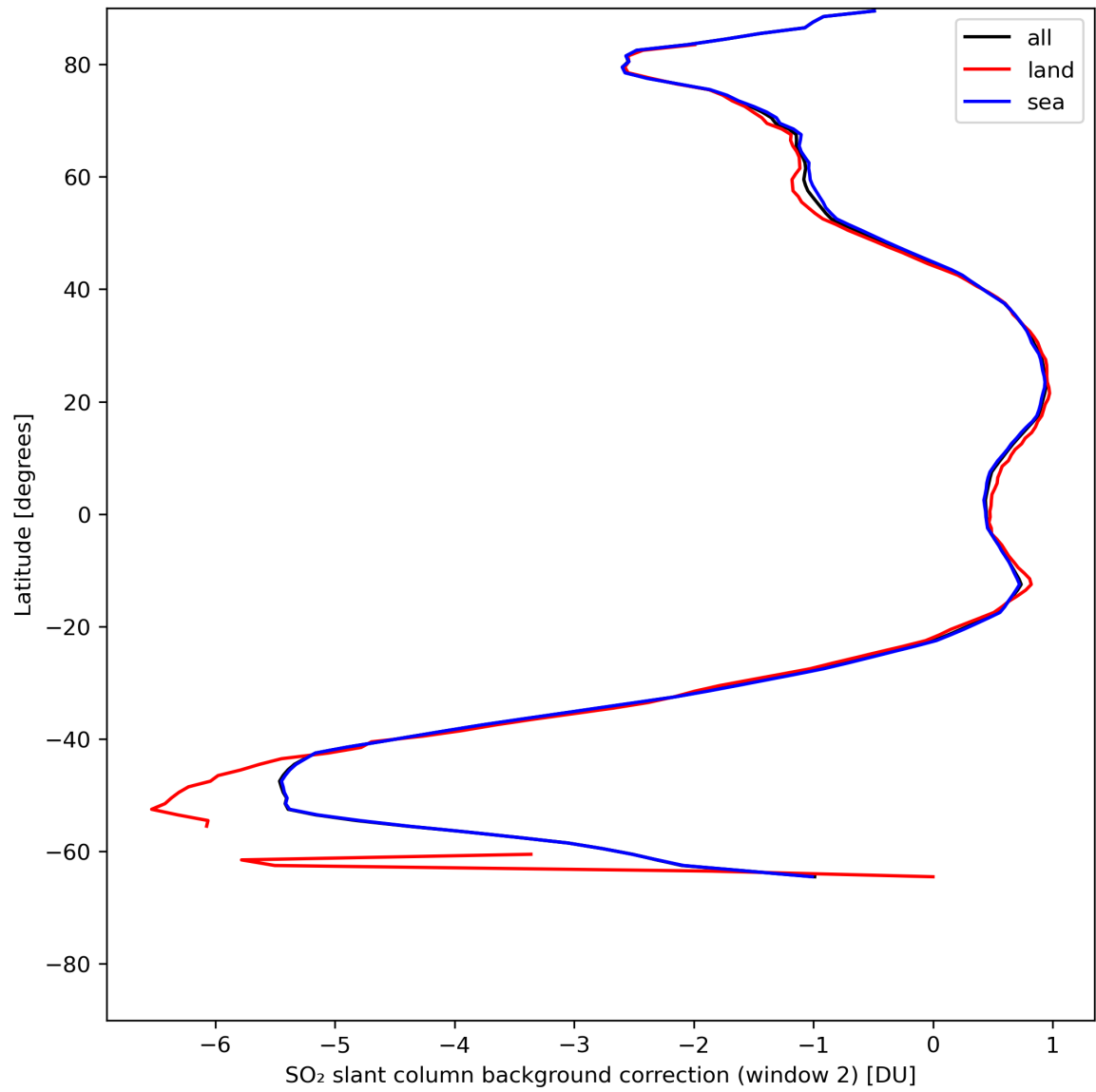


Figure 40: Zonal average of “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

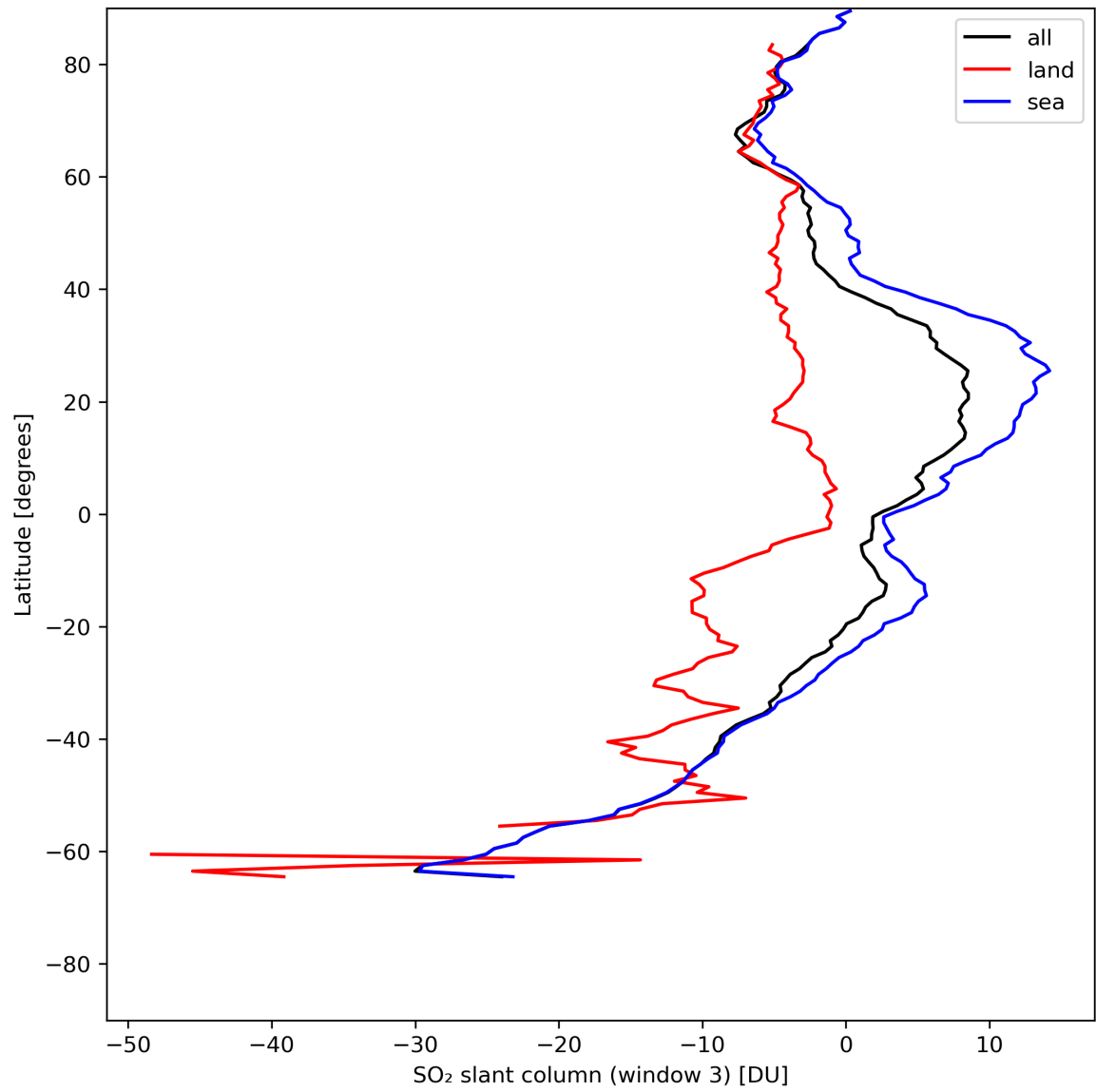


Figure 41: Zonal average of “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

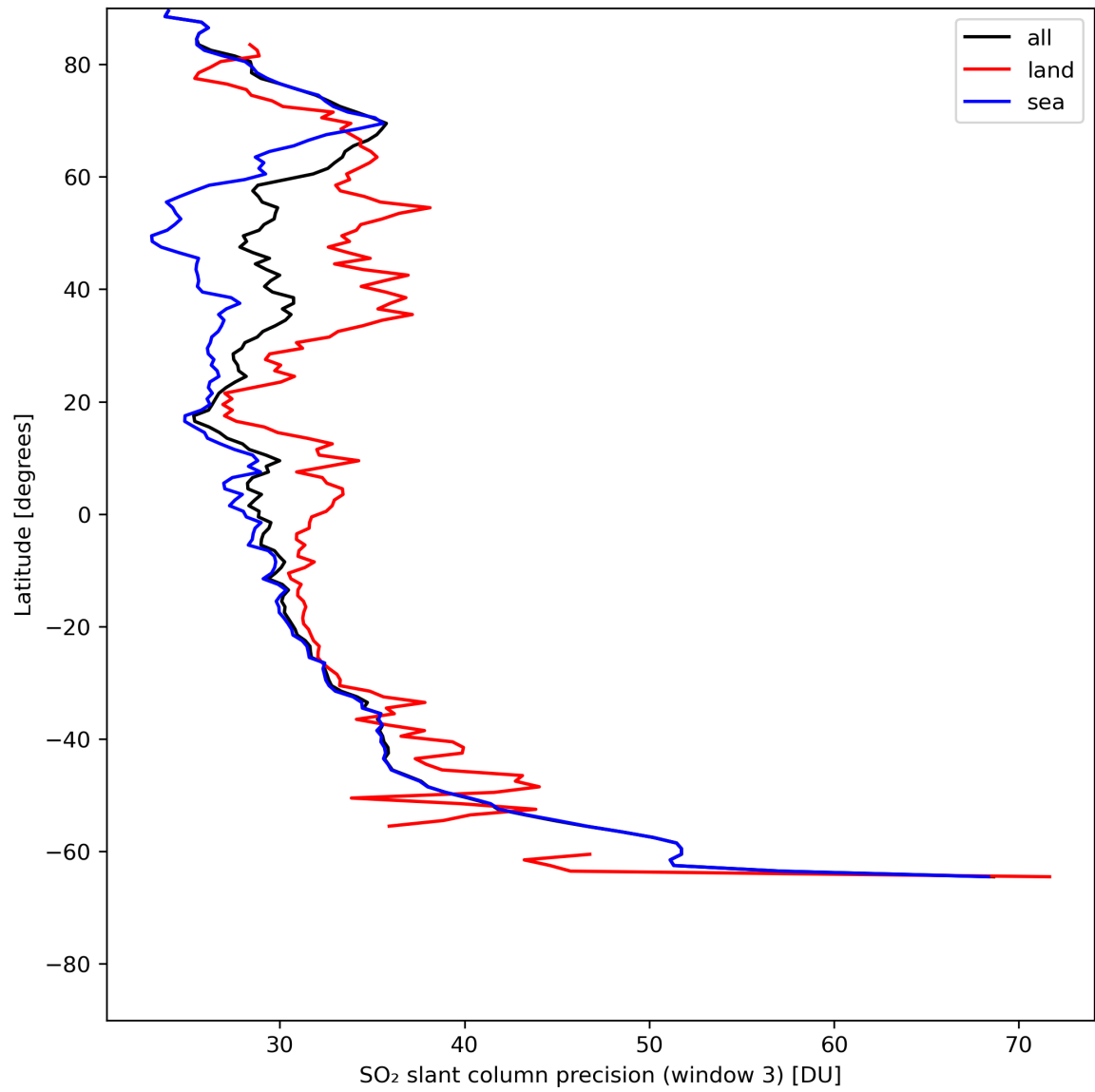


Figure 42: Zonal average of “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

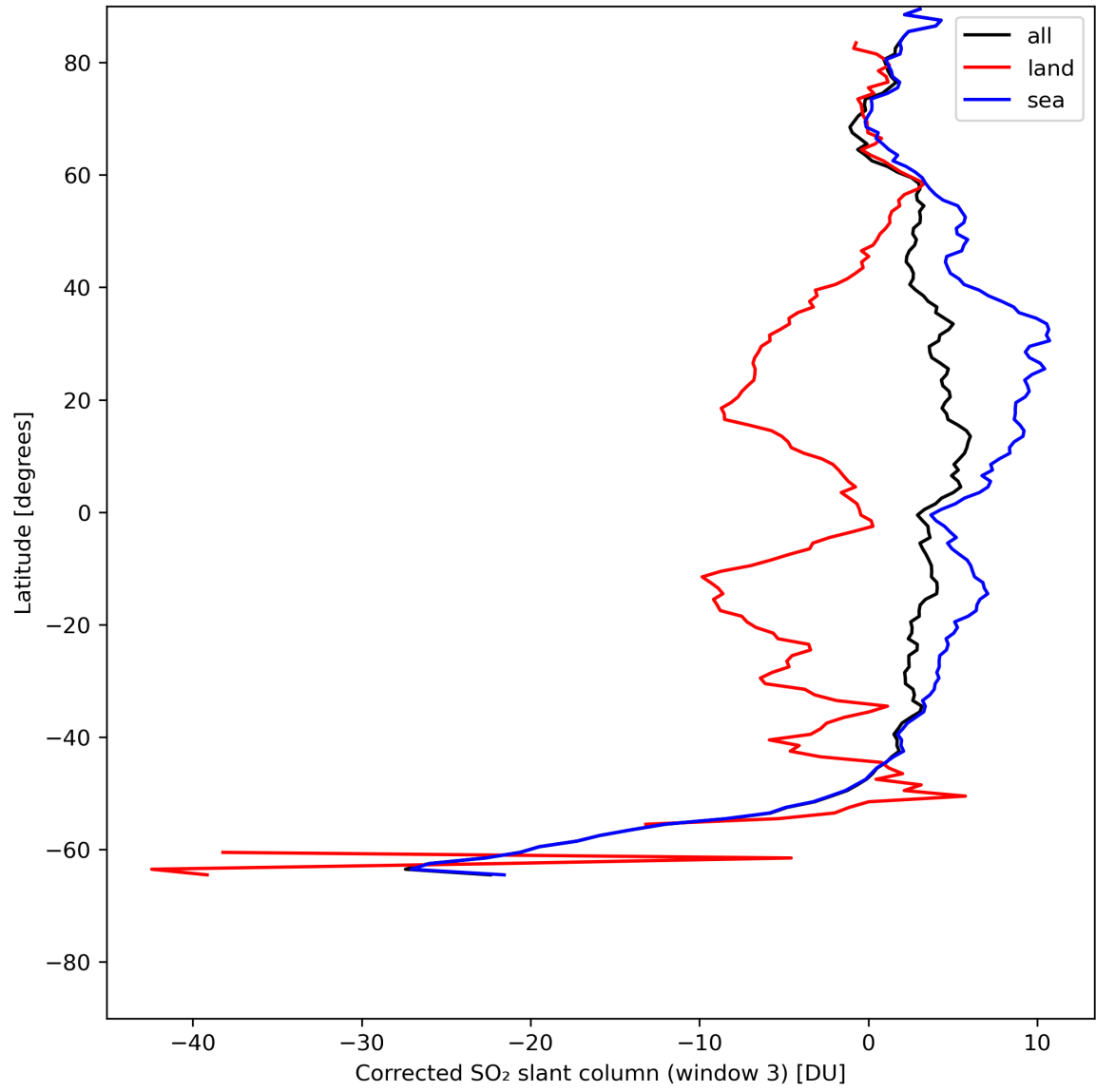


Figure 43: Zonal average of “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

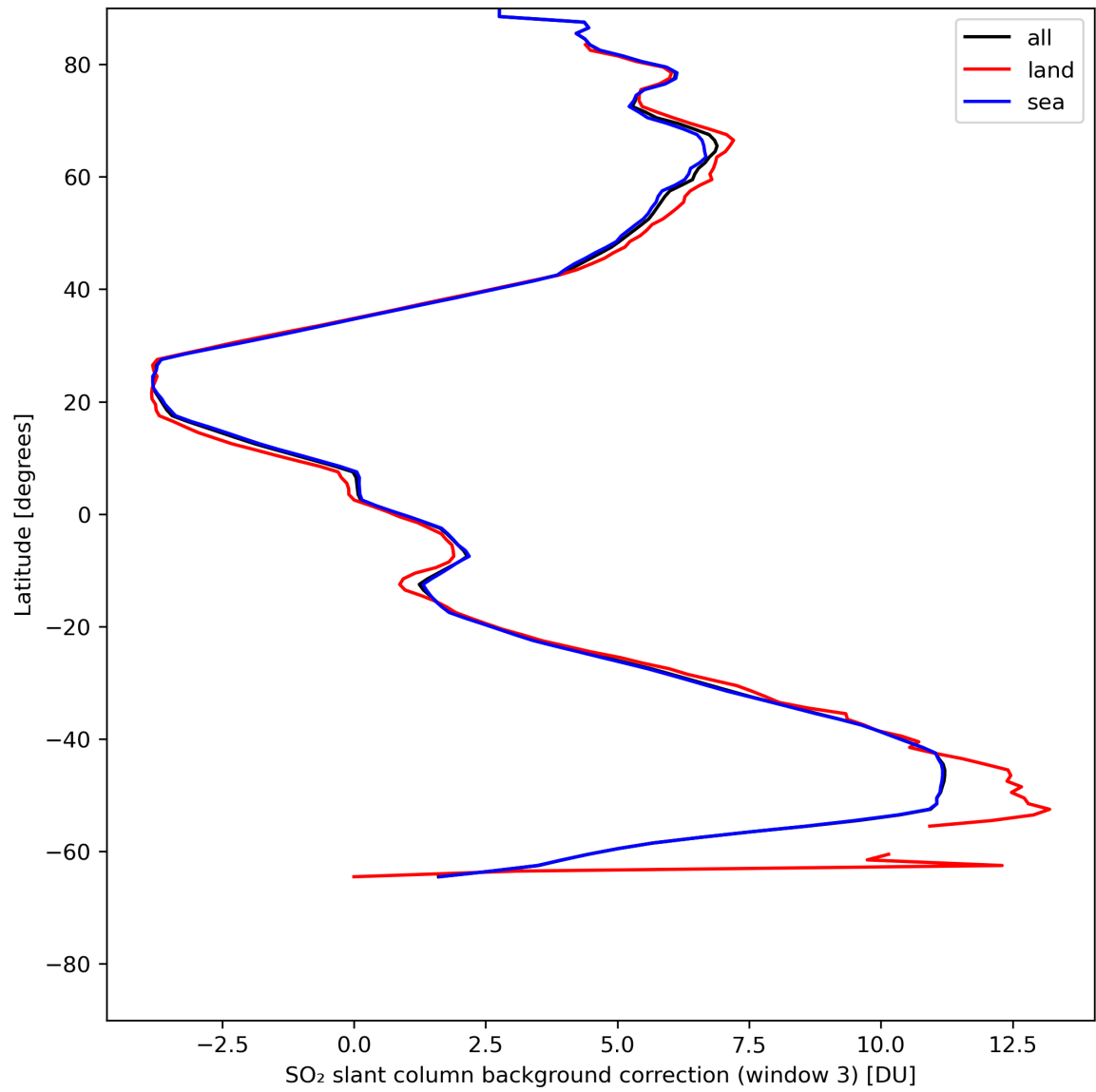


Figure 44: Zonal average of “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

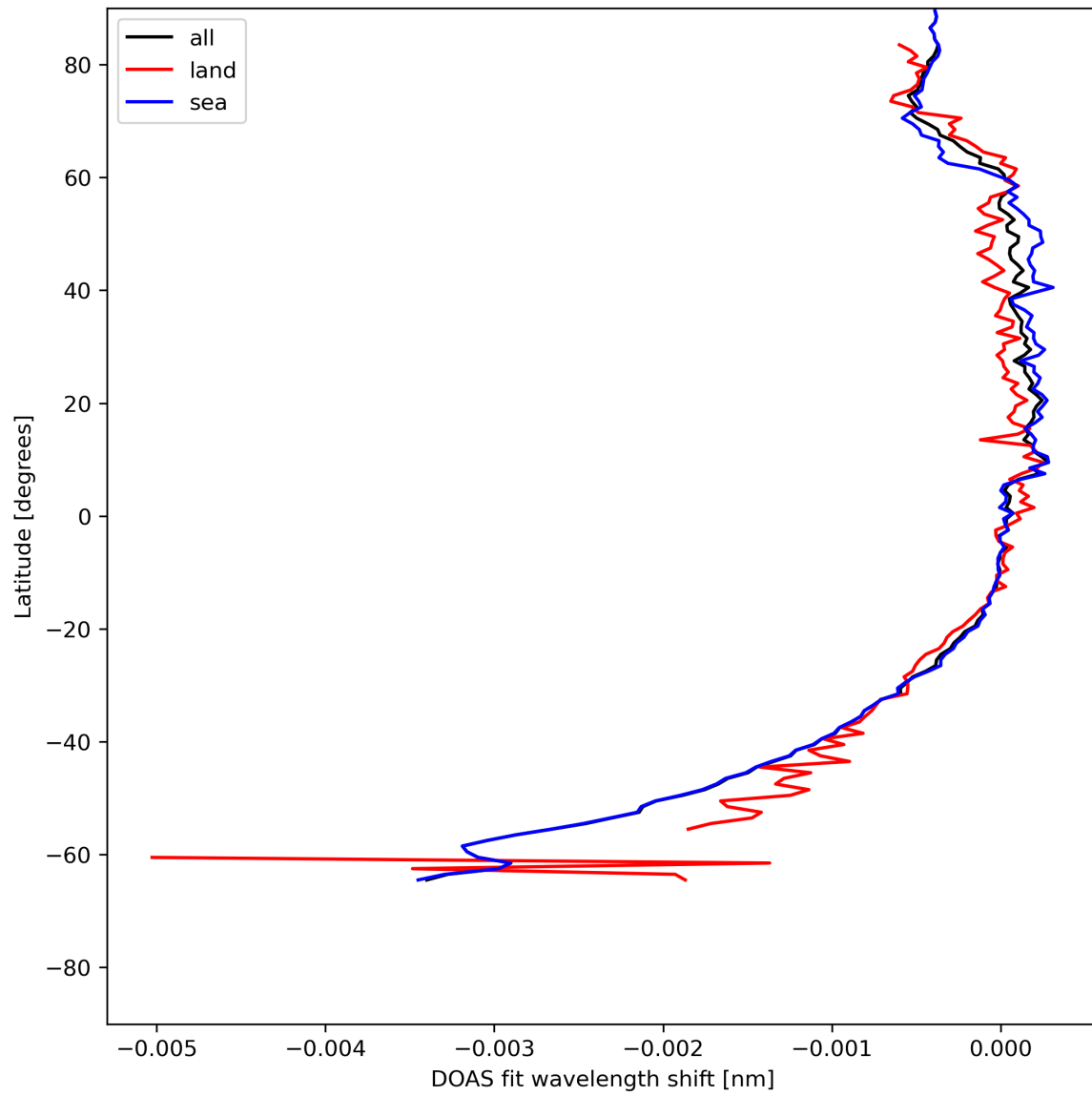


Figure 45: Zonal average of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

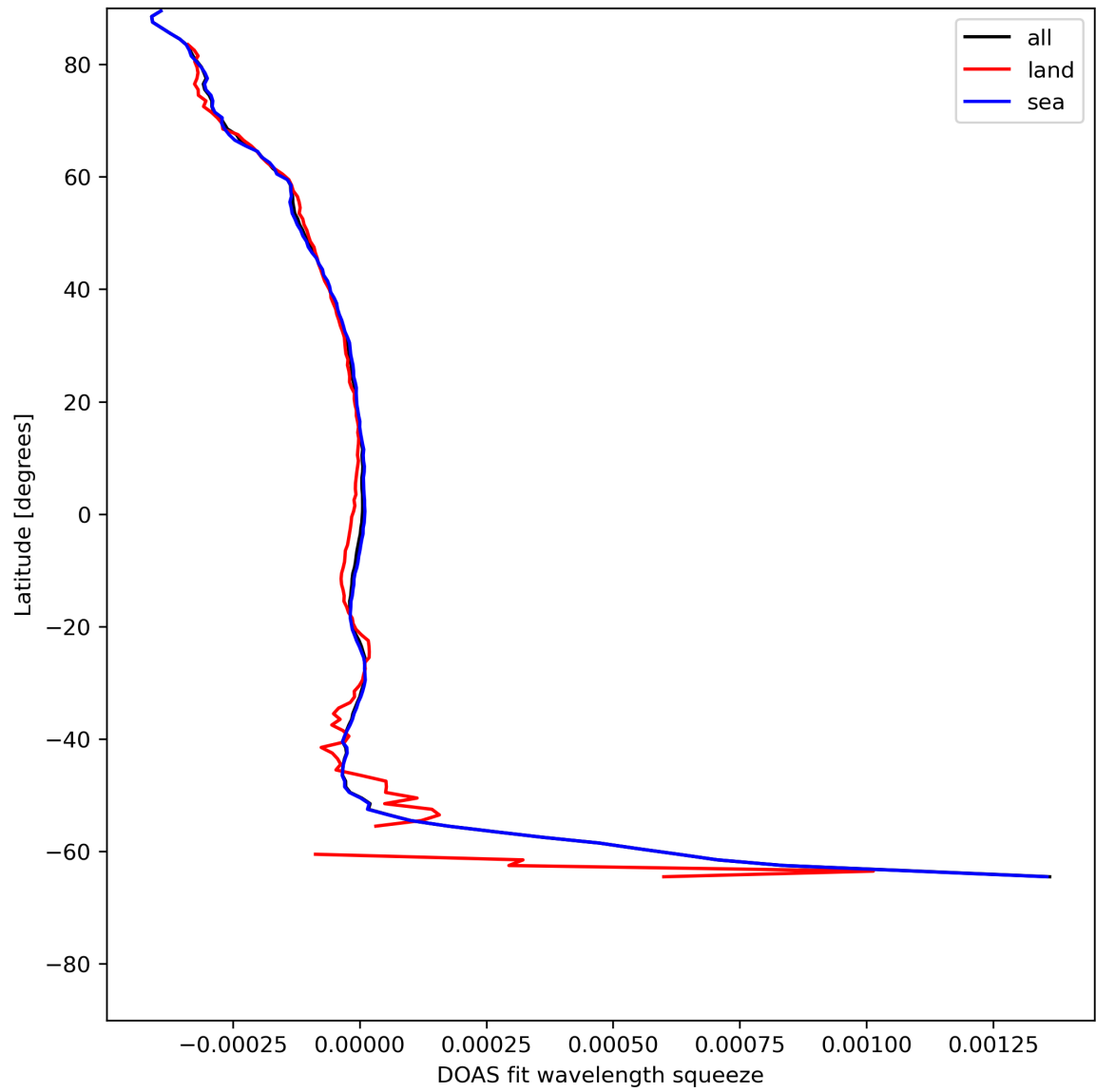


Figure 46: Zonal average of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

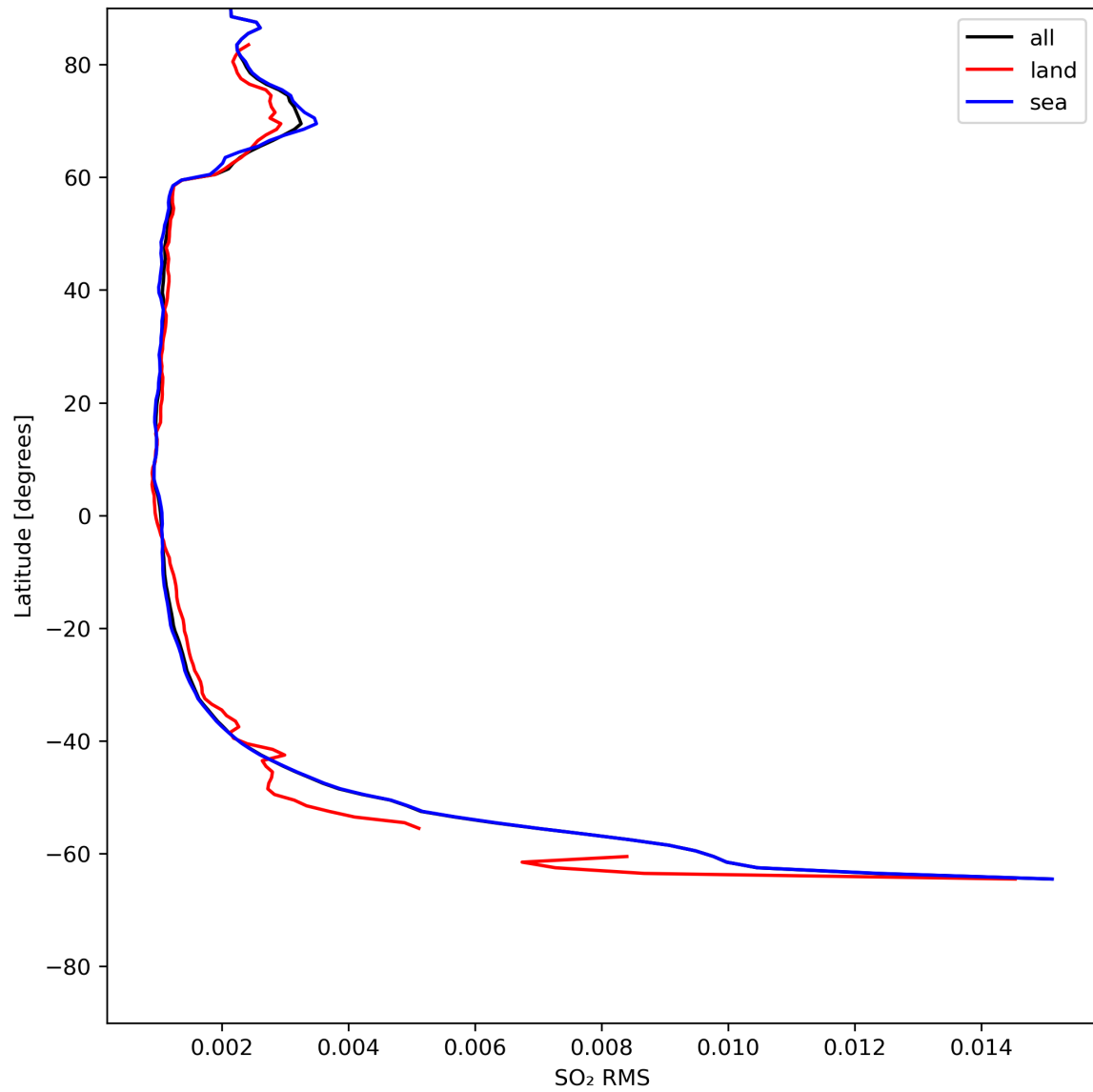


Figure 47: Zonal average of “SO₂ RMS” for 2024-07-21 to 2024-07-22.

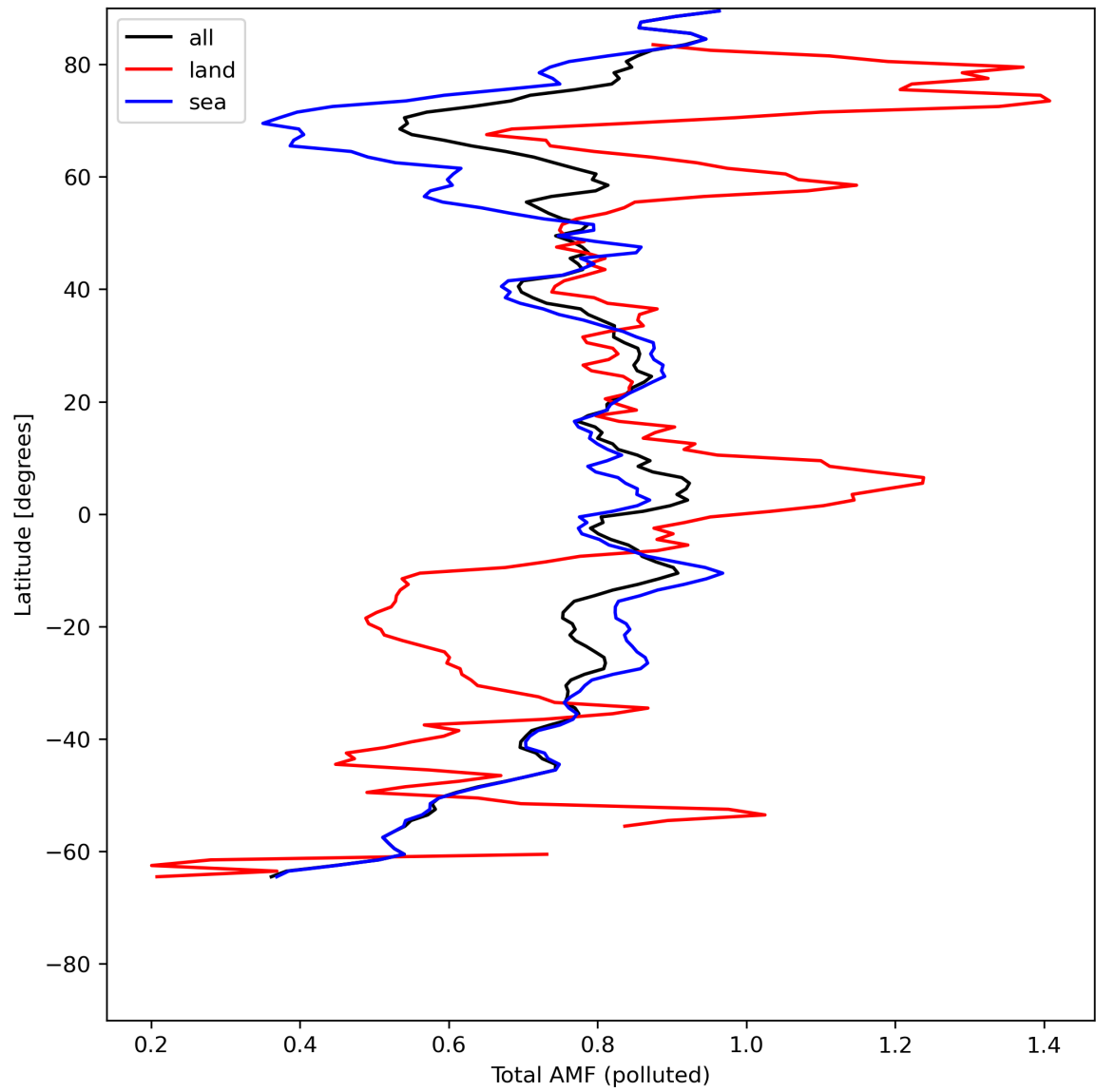


Figure 48: Zonal average of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

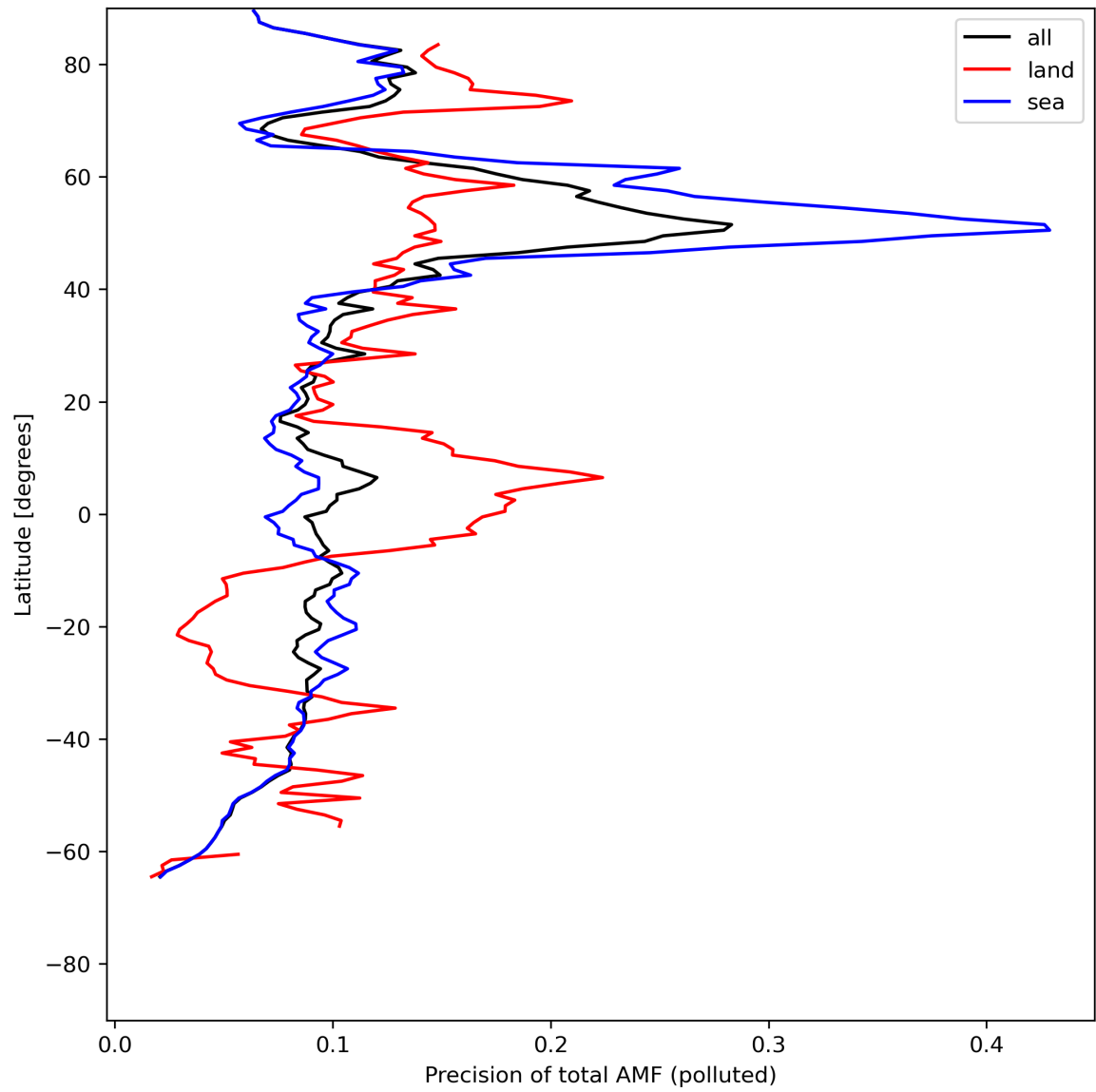


Figure 49: Zonal average of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

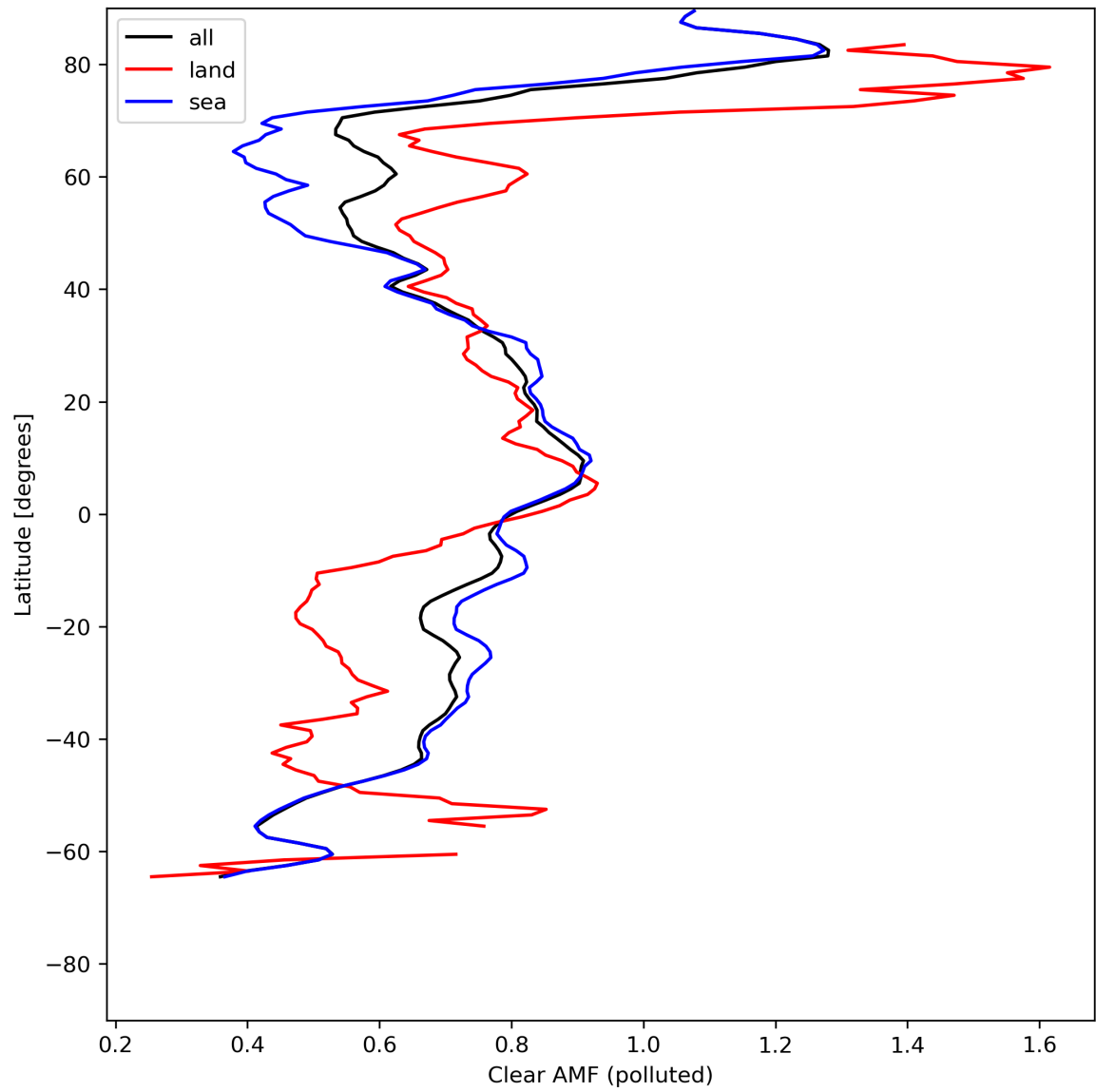


Figure 50: Zonal average of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

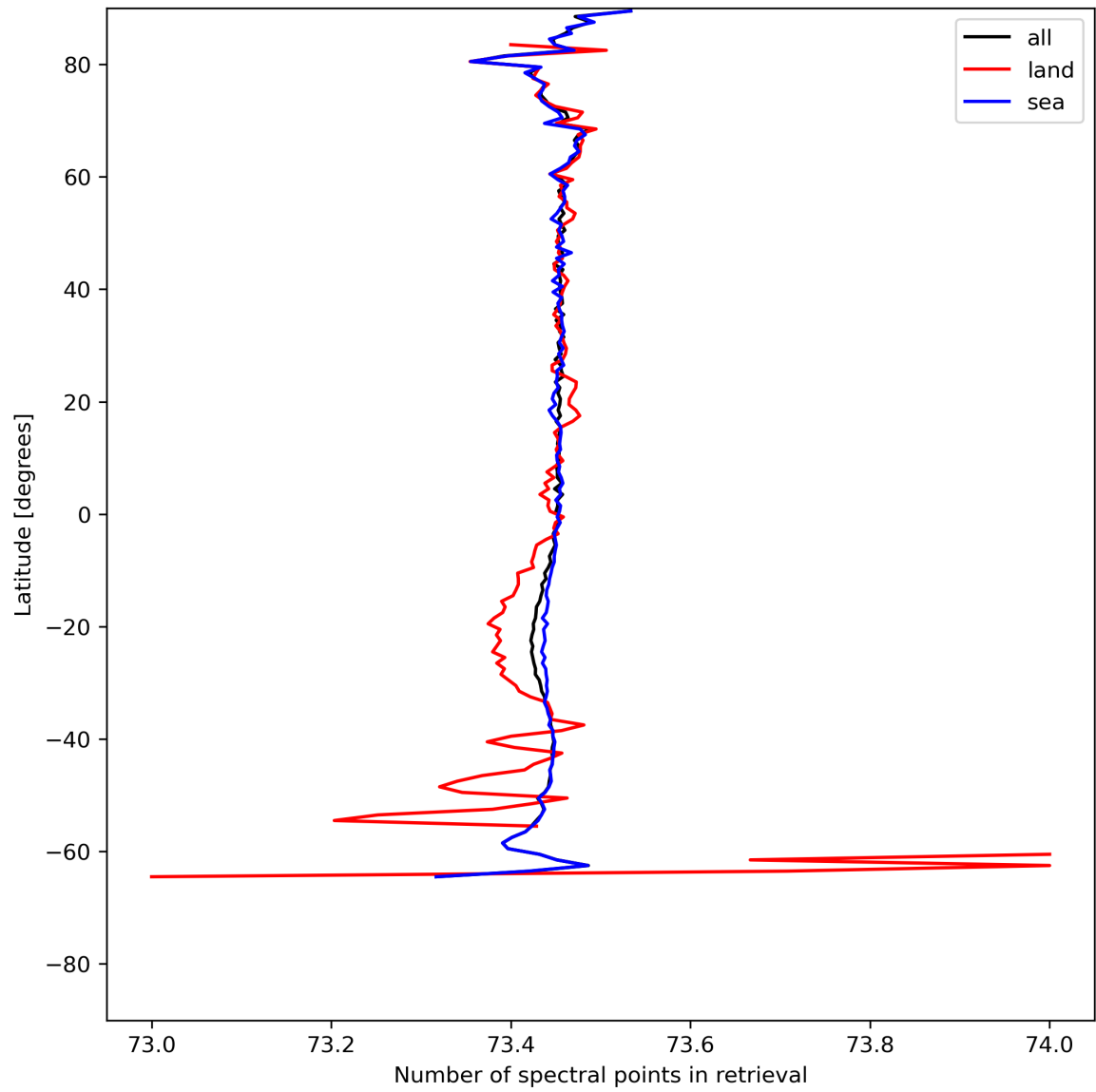


Figure 51: Zonal average of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22.

8 Histograms

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

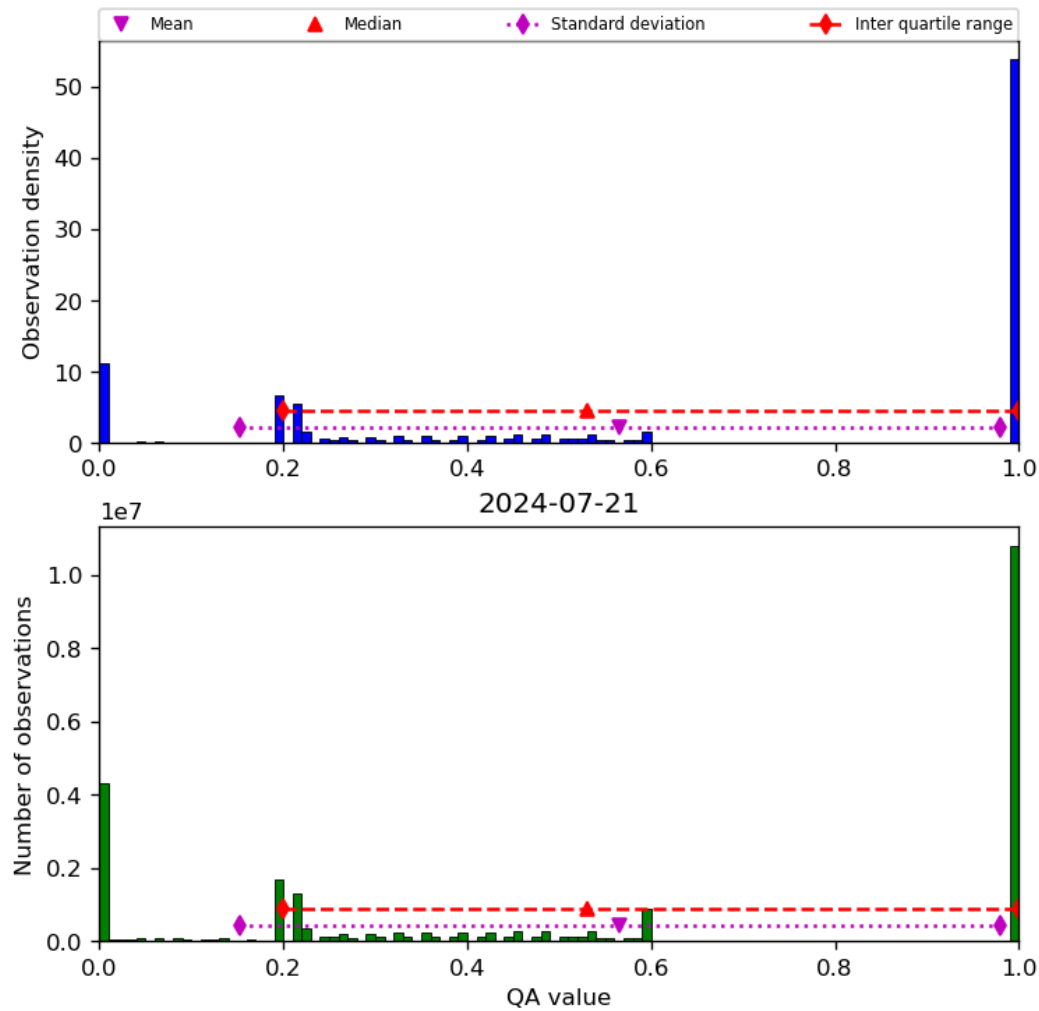


Figure 52: Histogram of “QA value” for 2024-07-21 to 2024-07-22

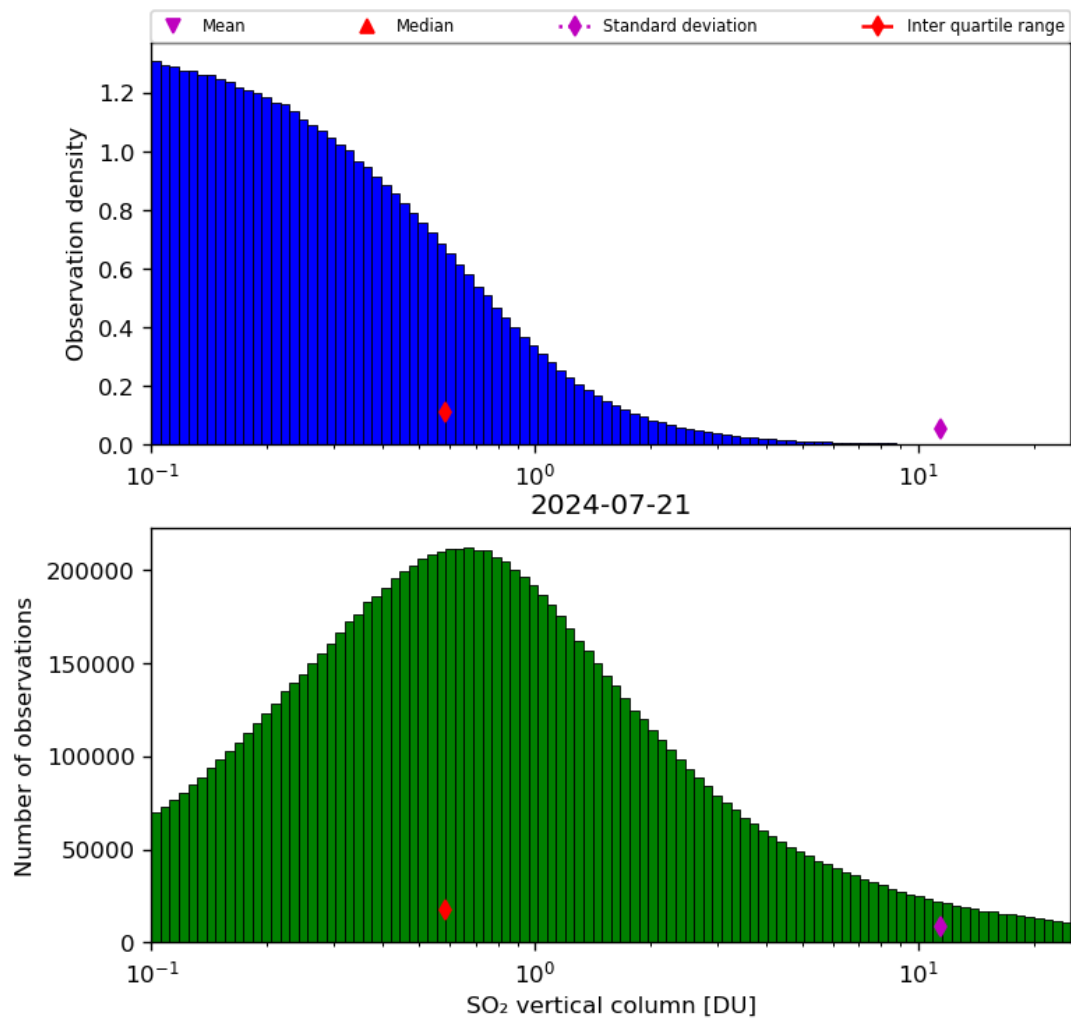


Figure 53: Histogram of “SO₂ vertical column” for 2024-07-21 to 2024-07-22

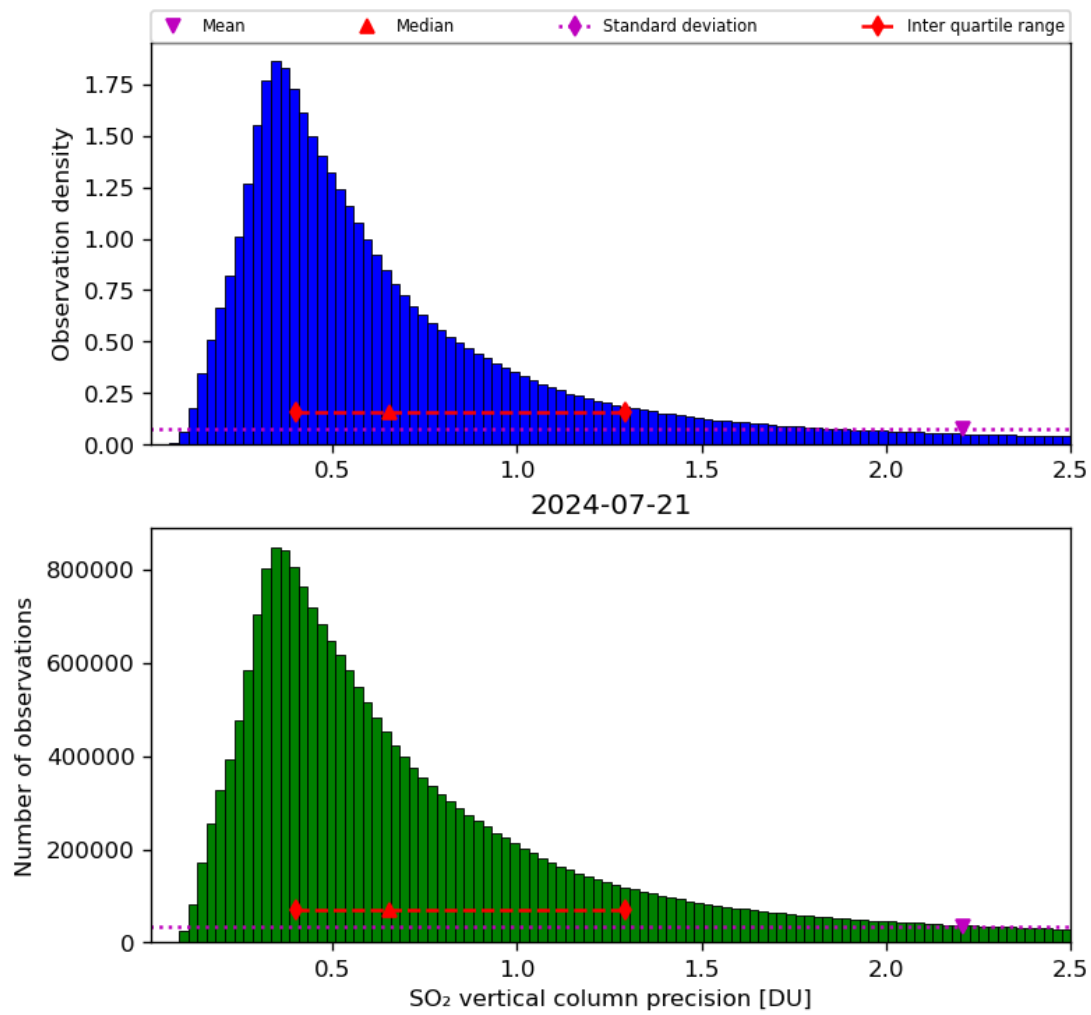


Figure 54: Histogram of “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22

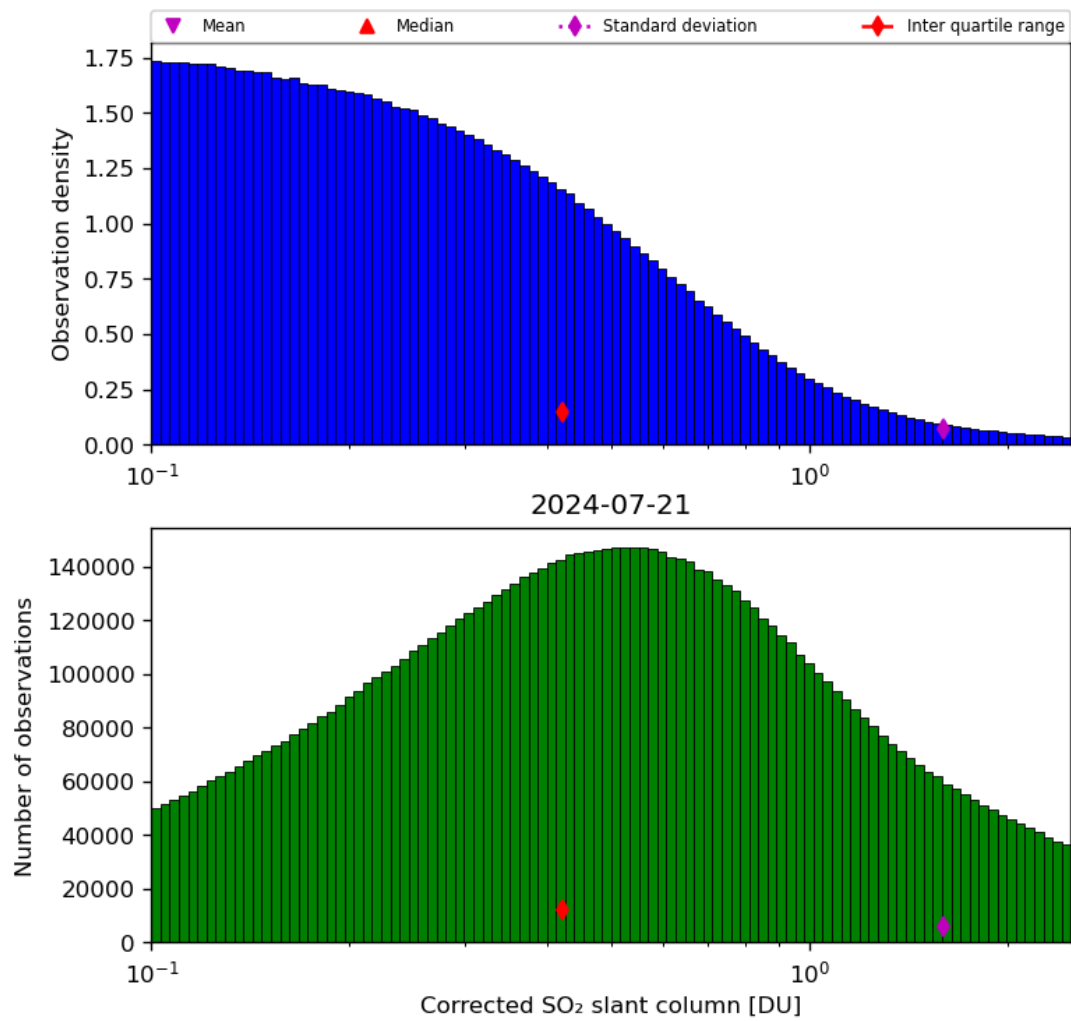


Figure 55: Histogram of “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22

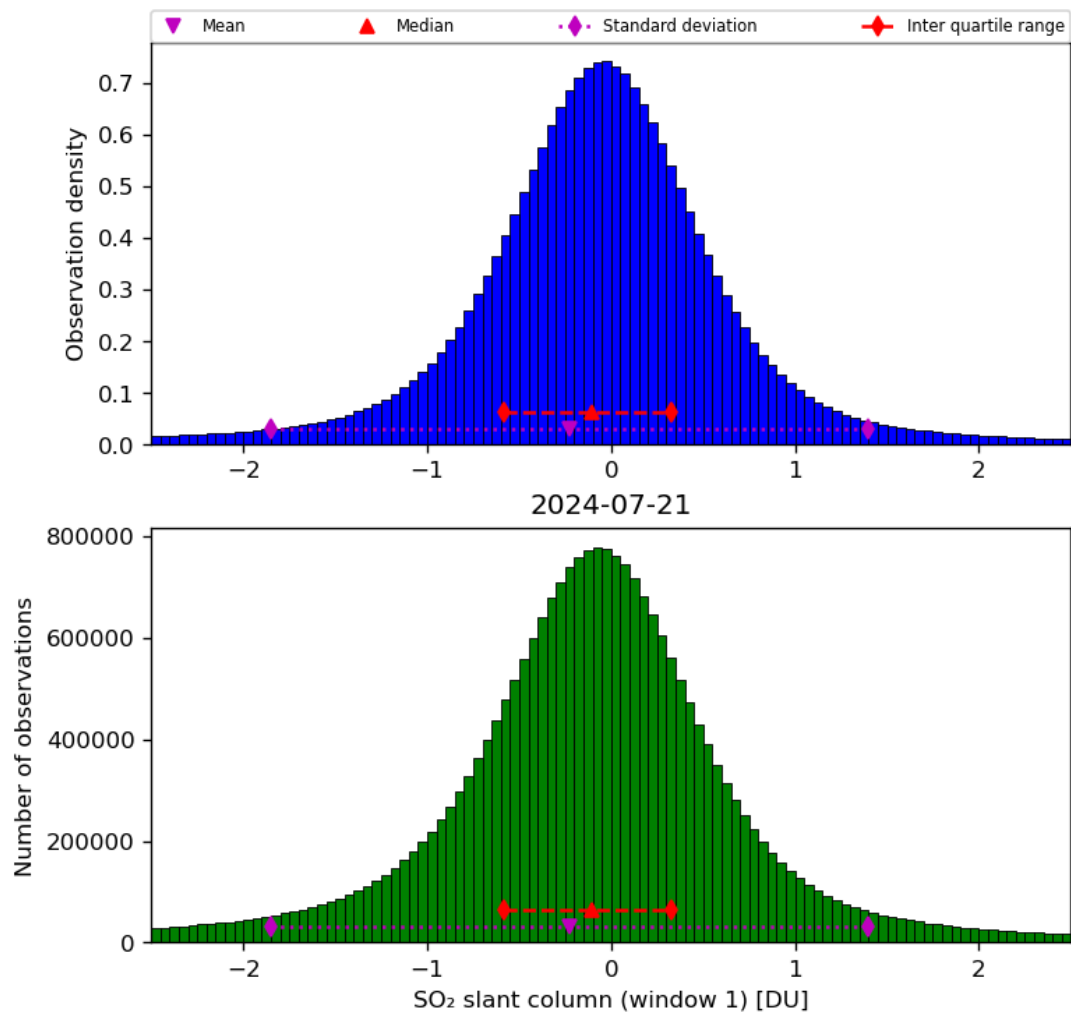


Figure 56: Histogram of “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22

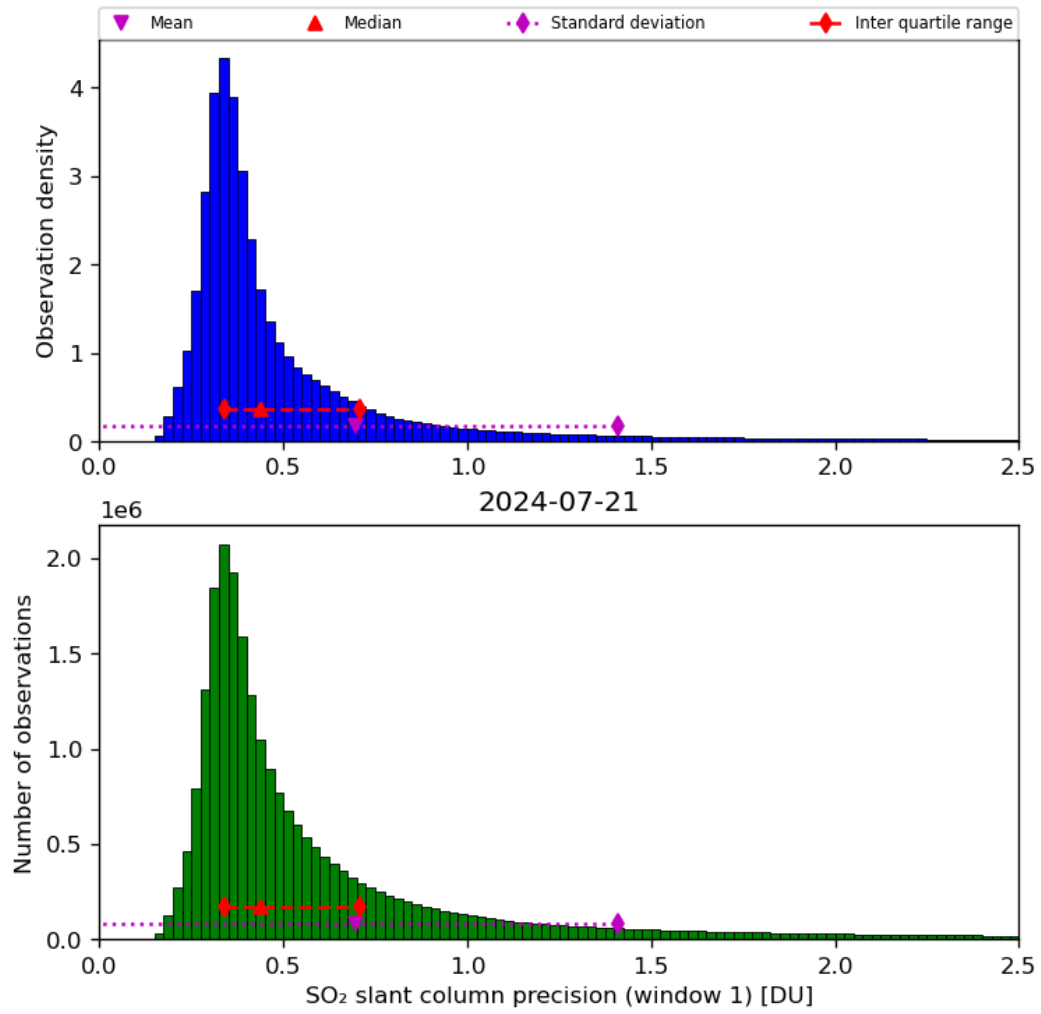


Figure 57: Histogram of “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22

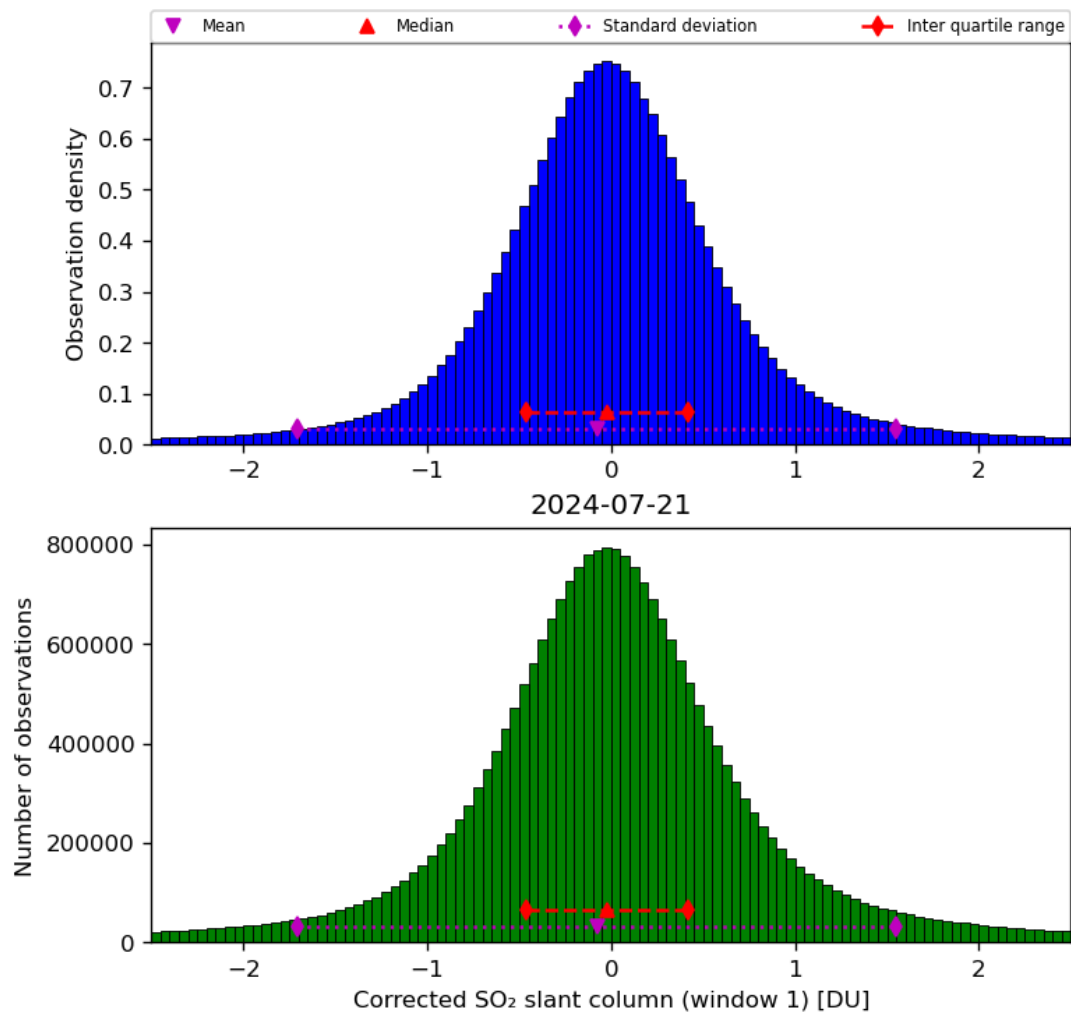


Figure 58: Histogram of “Corrected SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22

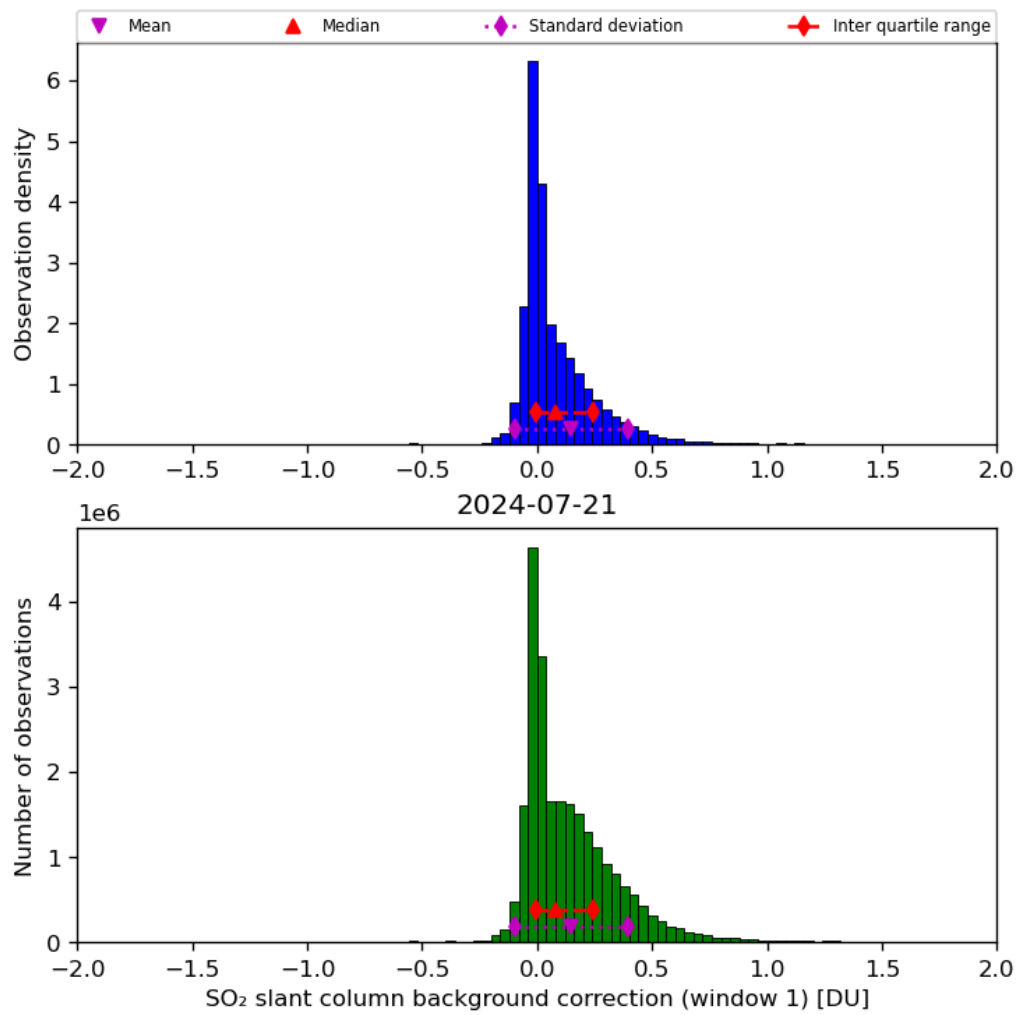


Figure 59: Histogram of “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22

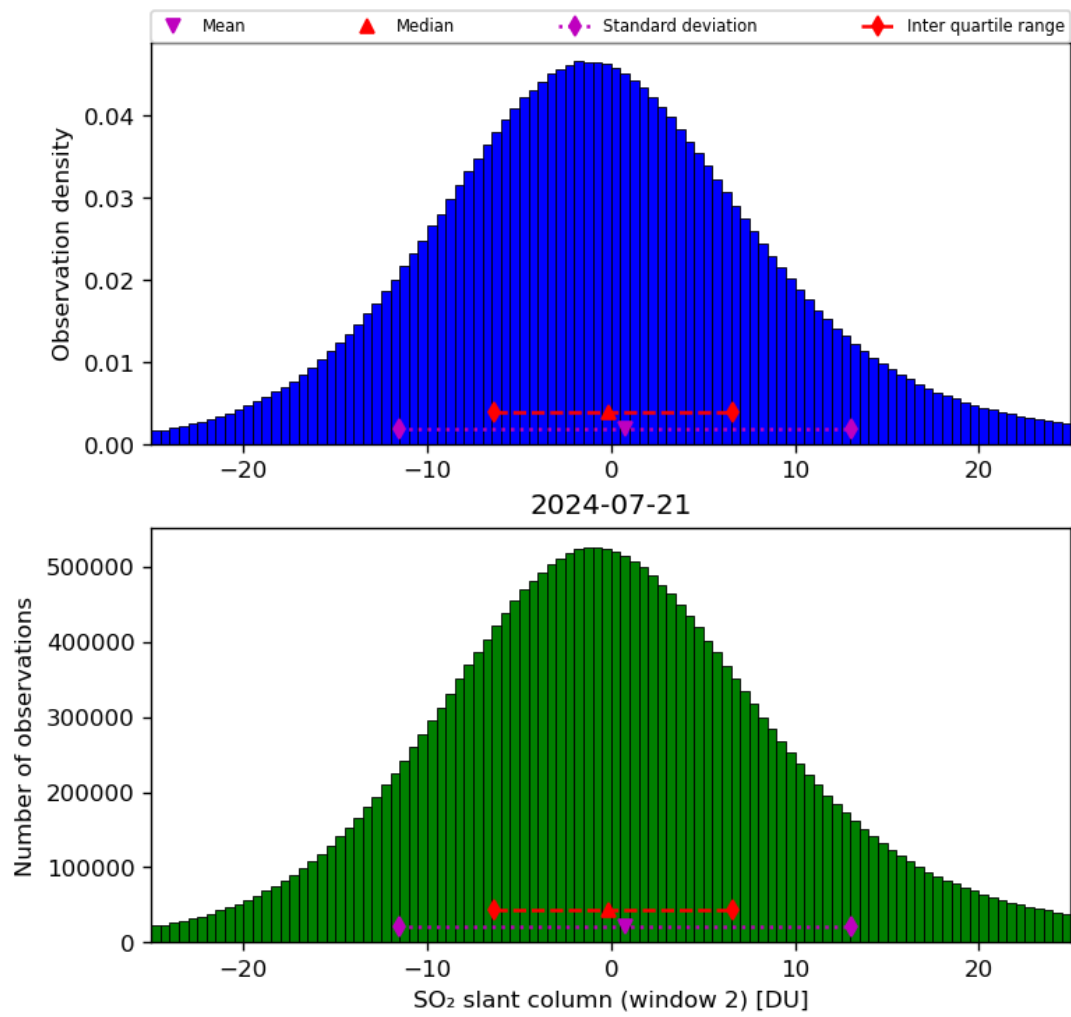


Figure 60: Histogram of “SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22

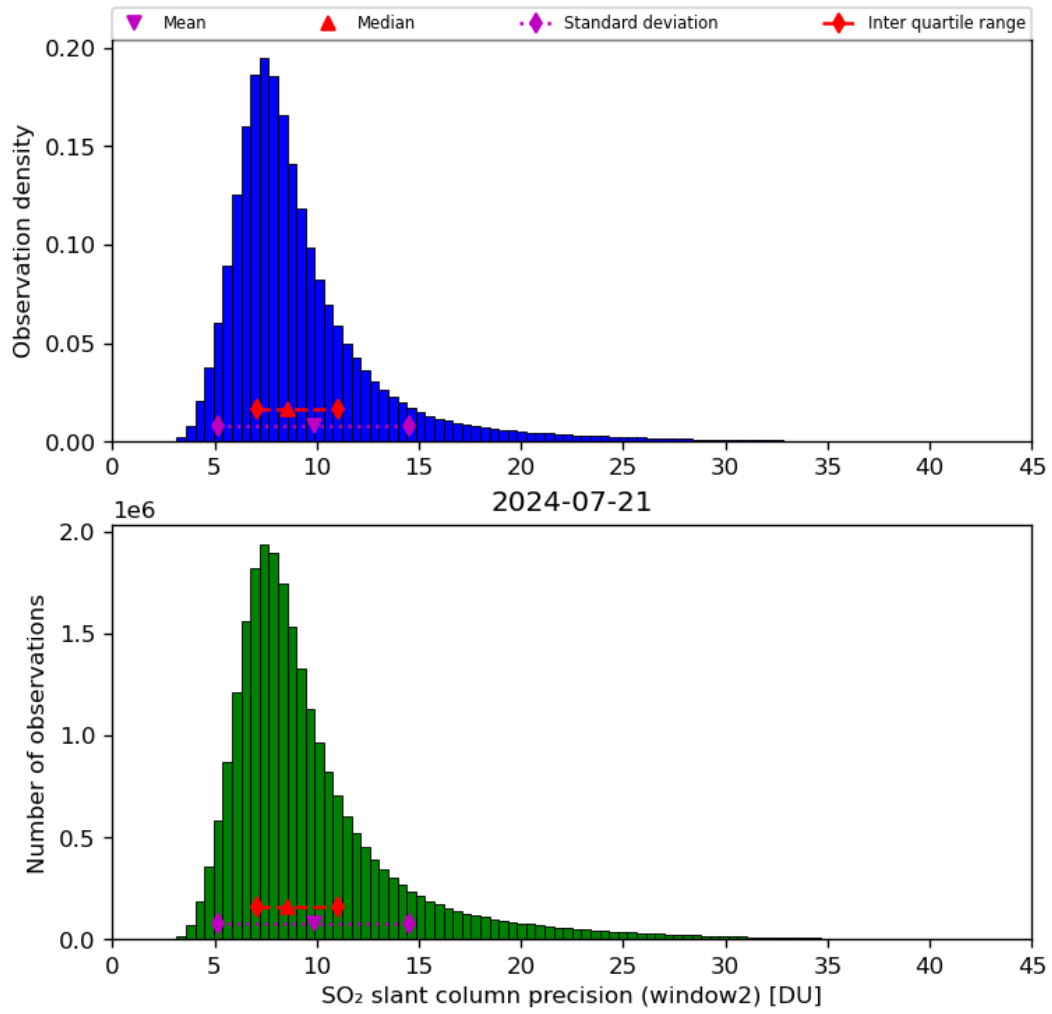


Figure 61: Histogram of “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22

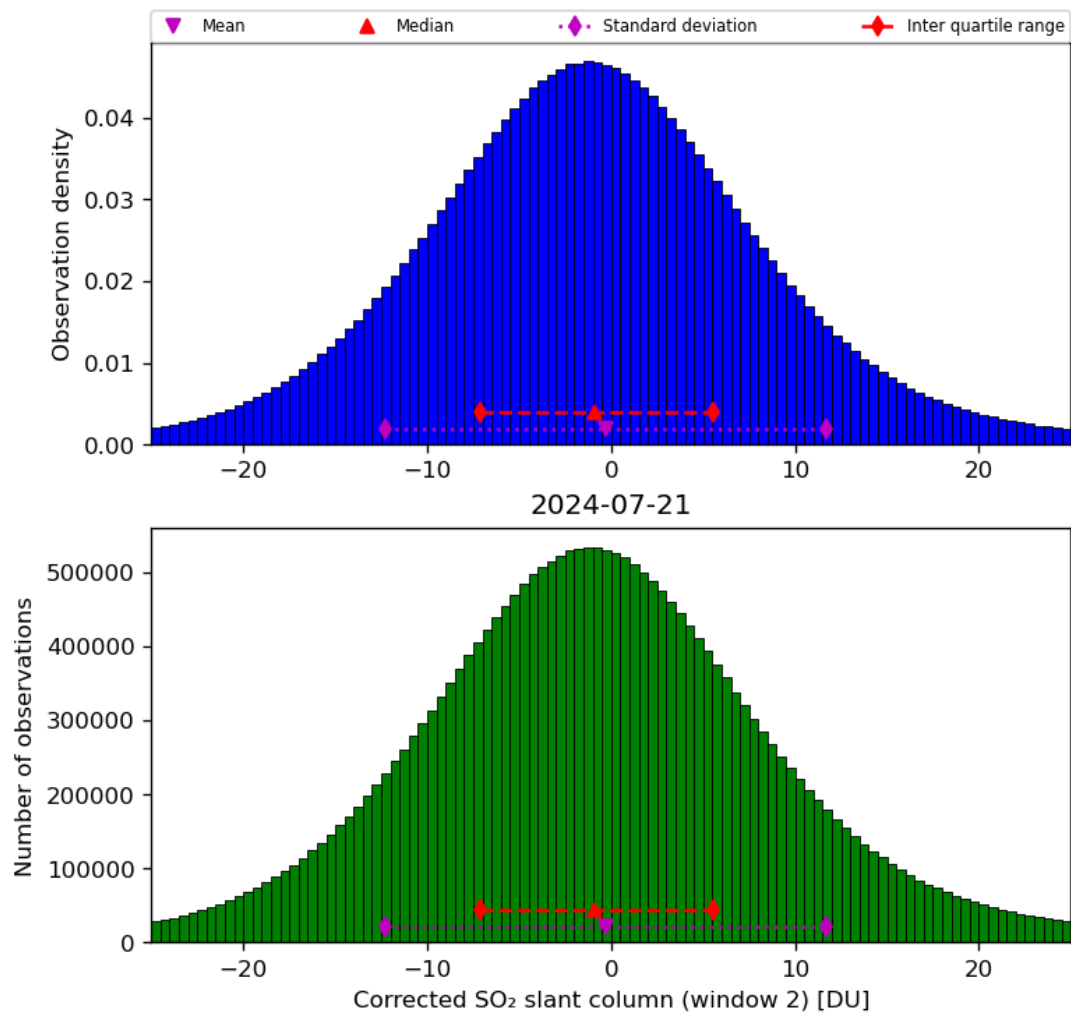


Figure 62: Histogram of “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22

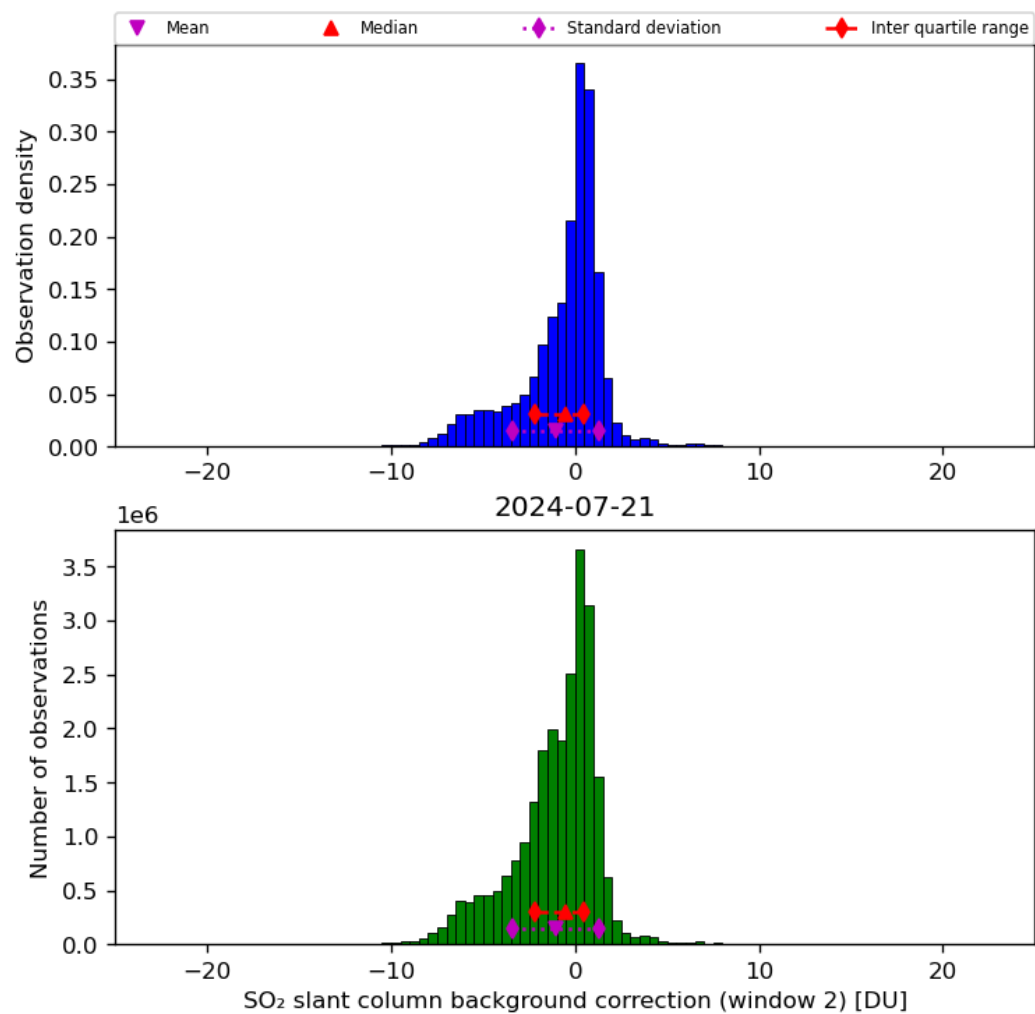


Figure 63: Histogram of “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22

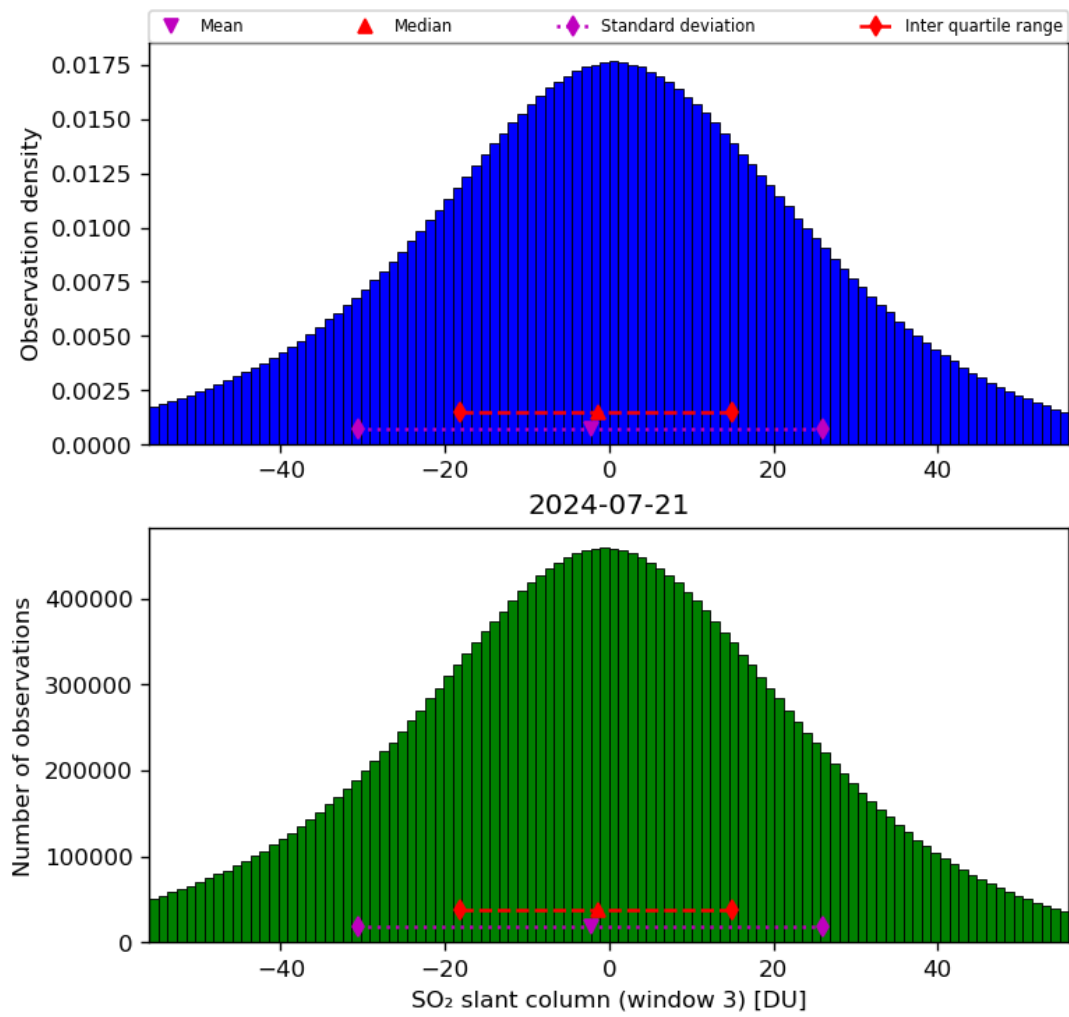


Figure 64: Histogram of “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22

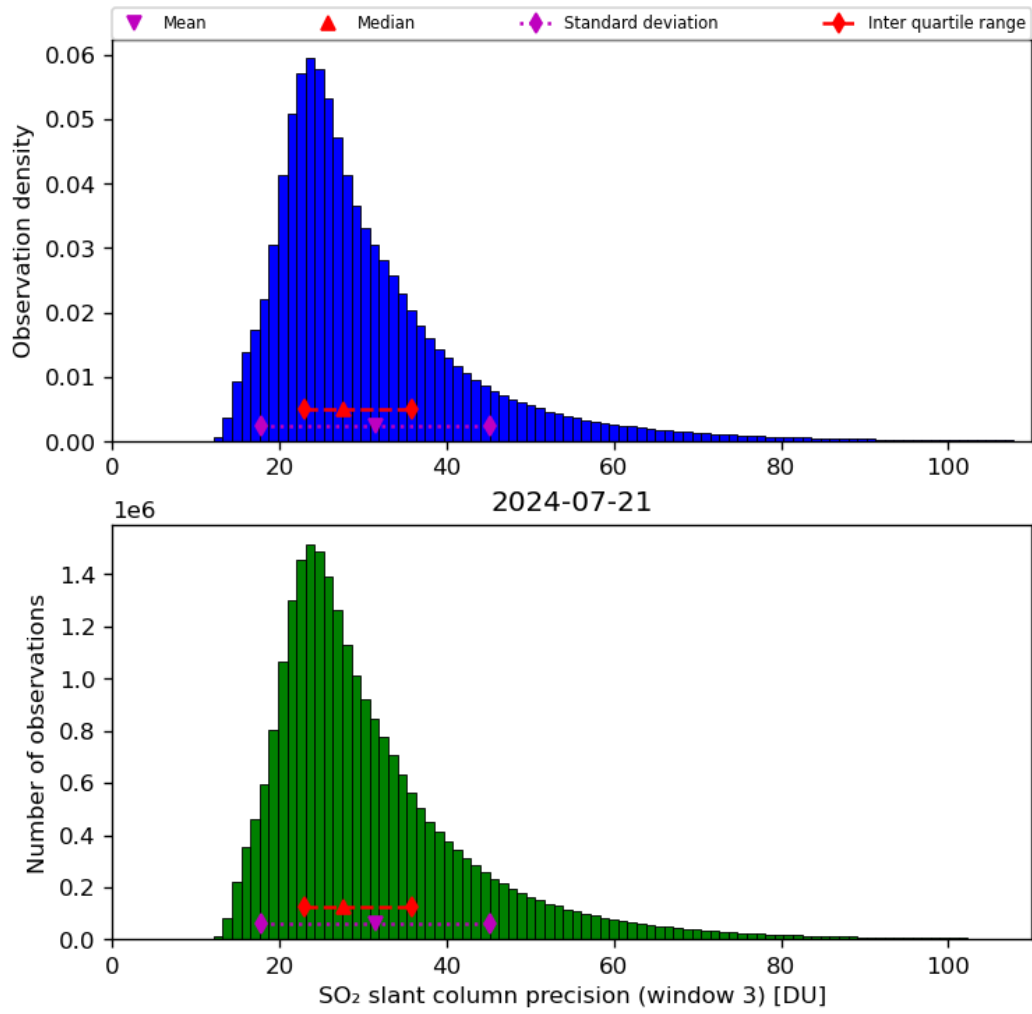


Figure 65: Histogram of “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22

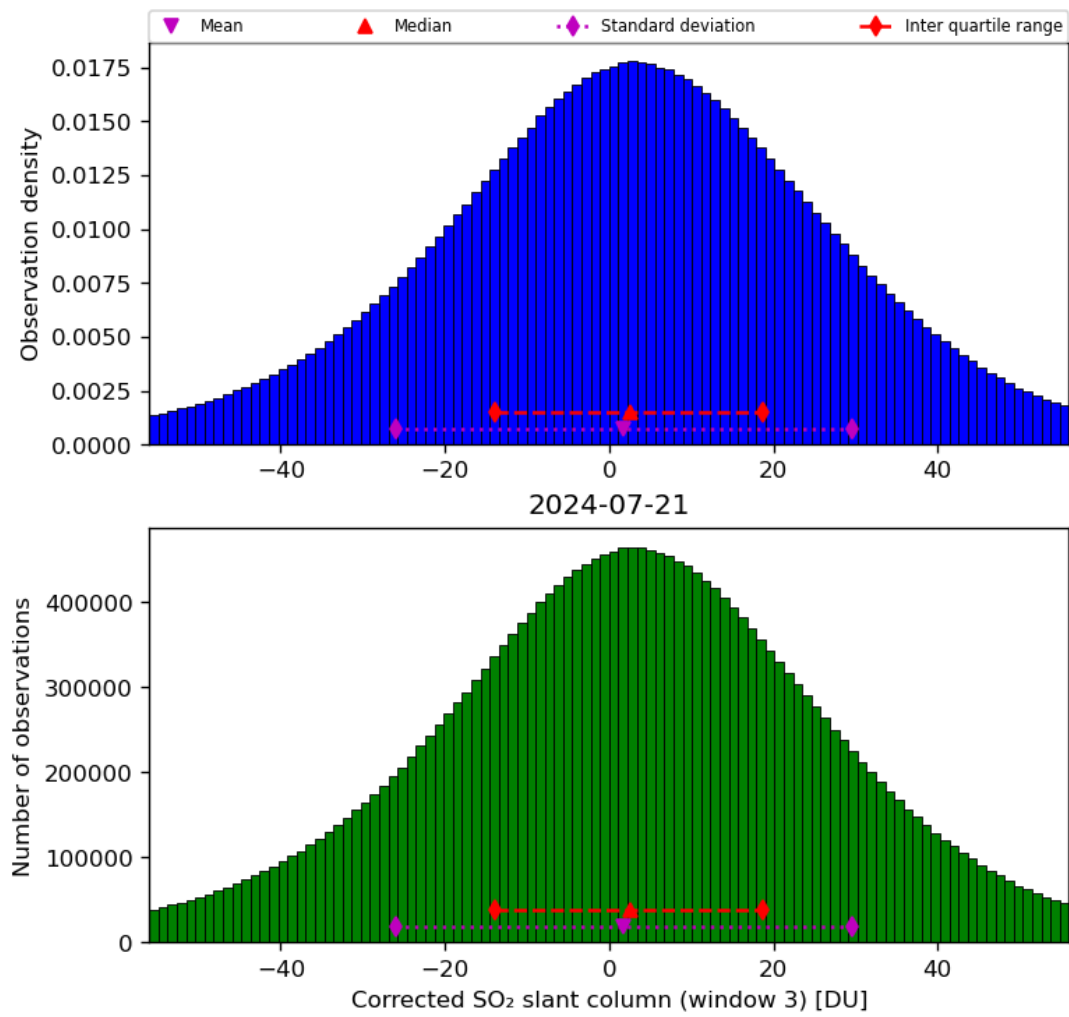


Figure 66: Histogram of “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22

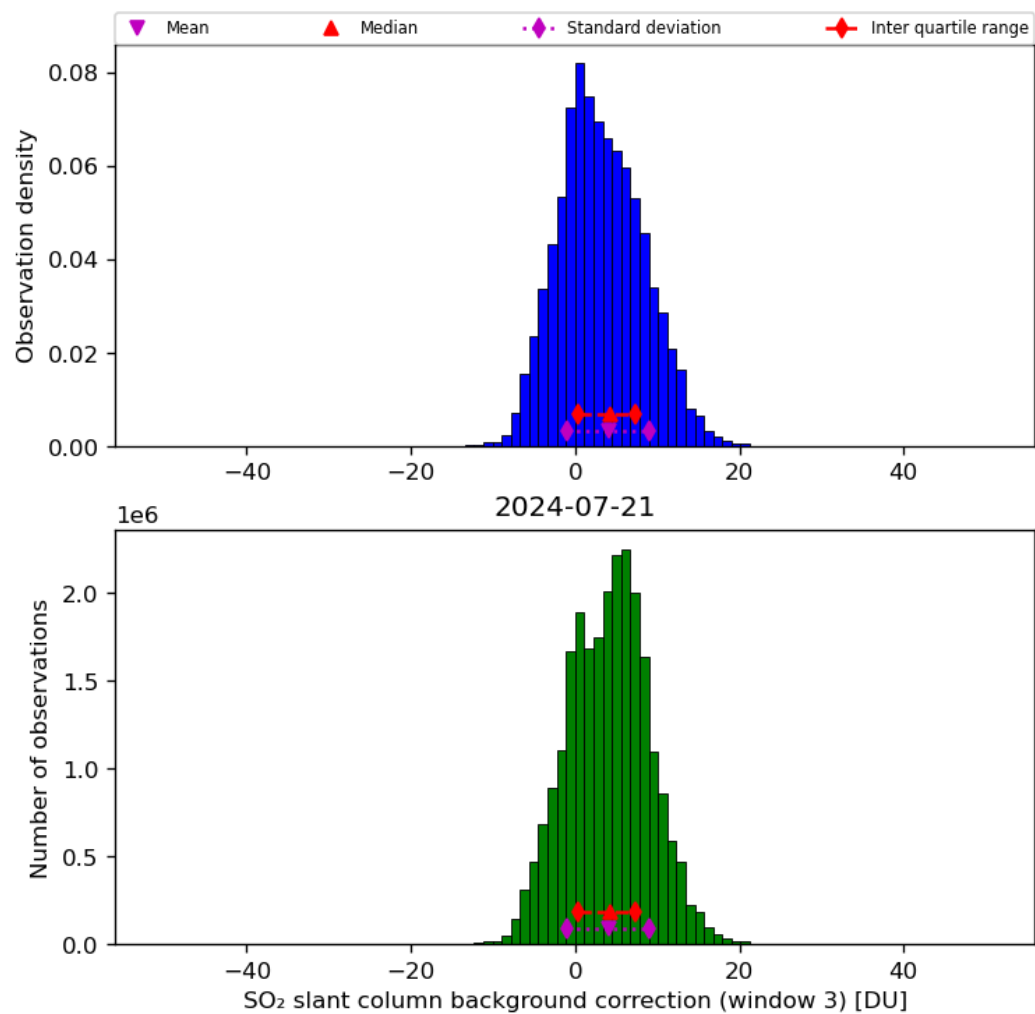


Figure 67: Histogram of “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22

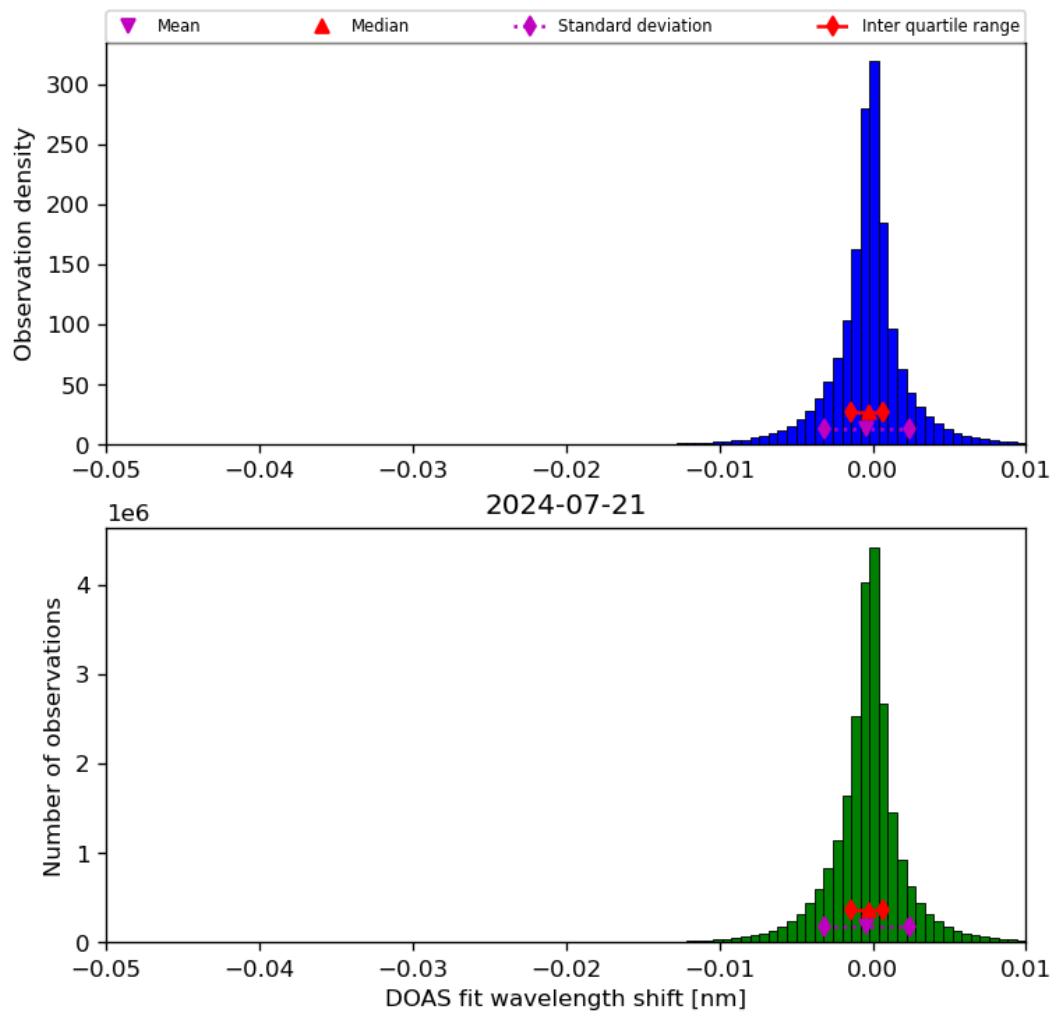


Figure 68: Histogram of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22

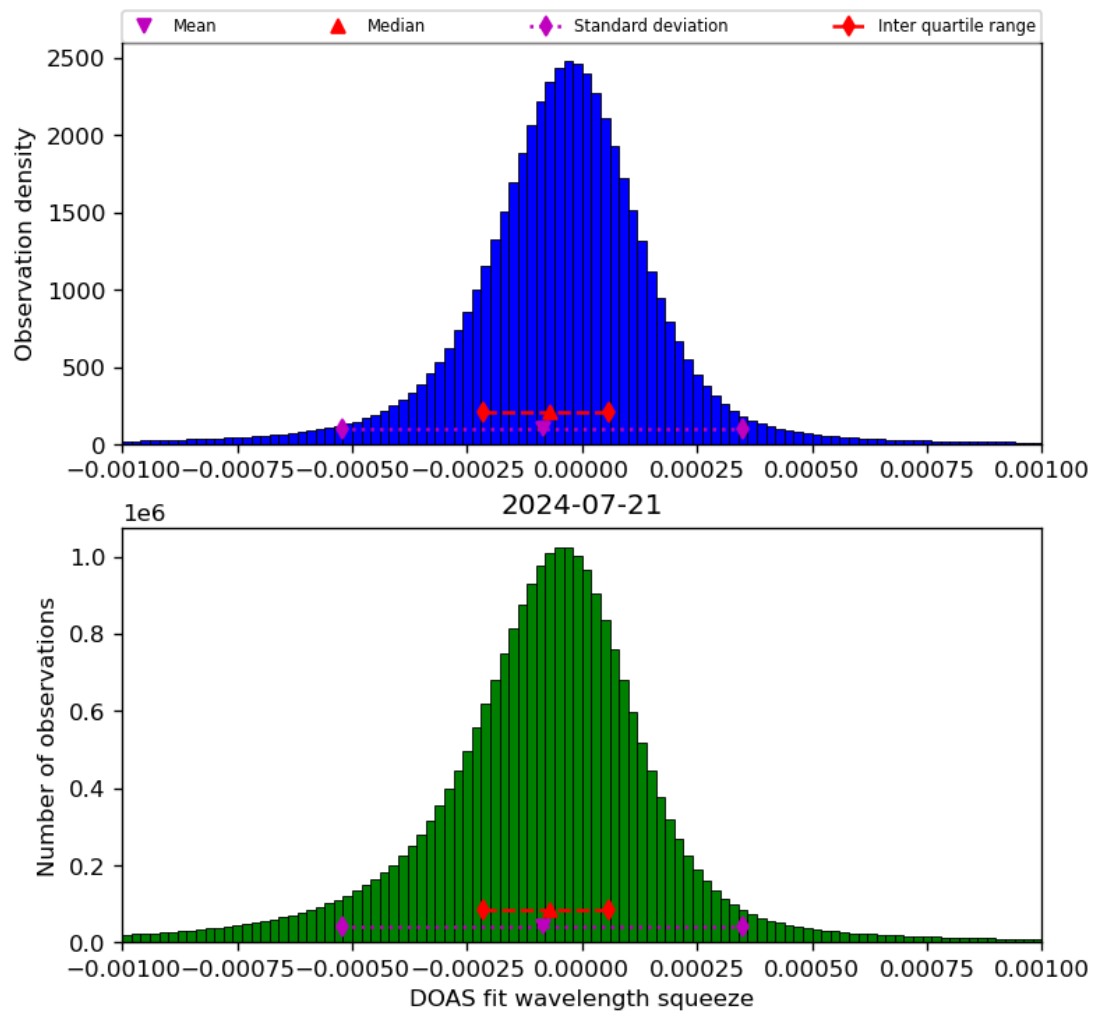


Figure 69: Histogram of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22

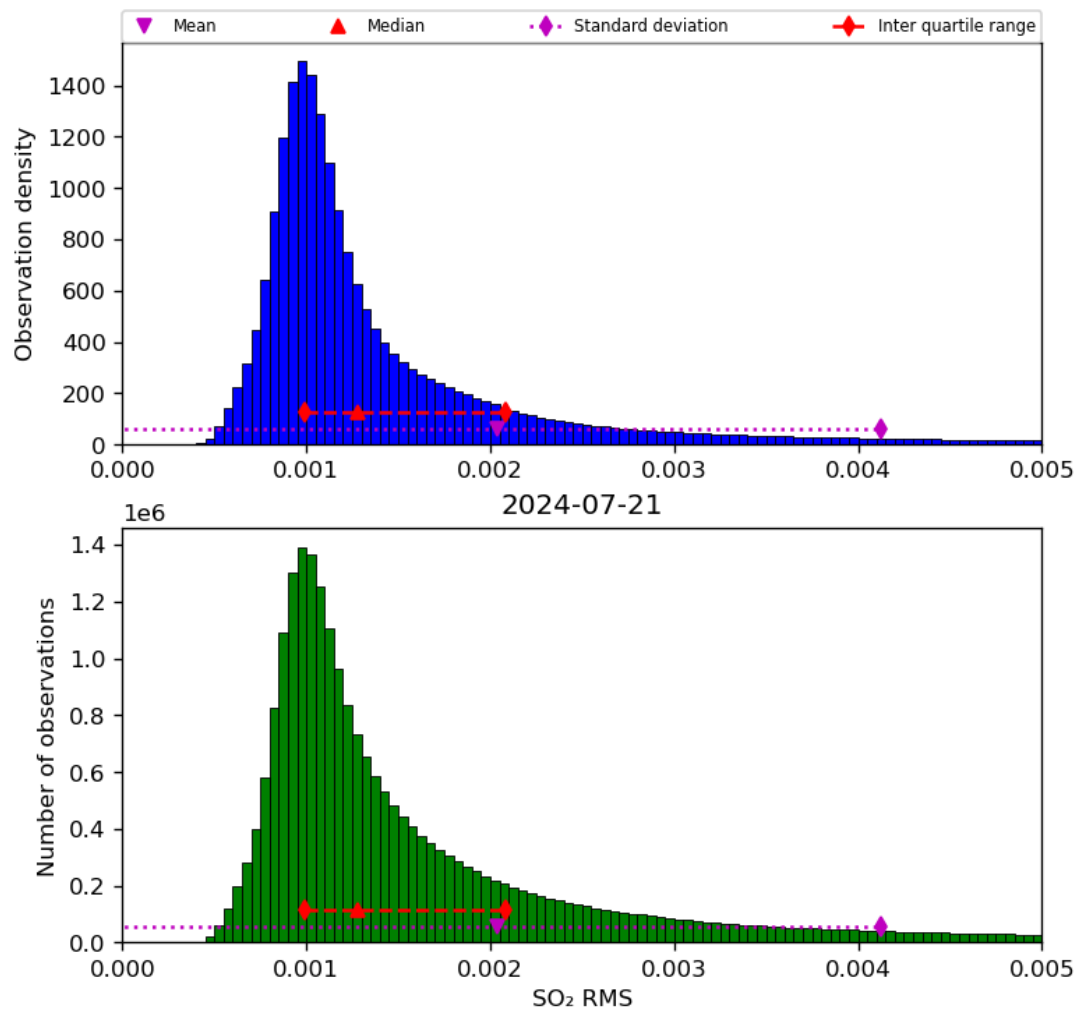


Figure 70: Histogram of “SO₂ RMS” for 2024-07-21 to 2024-07-22

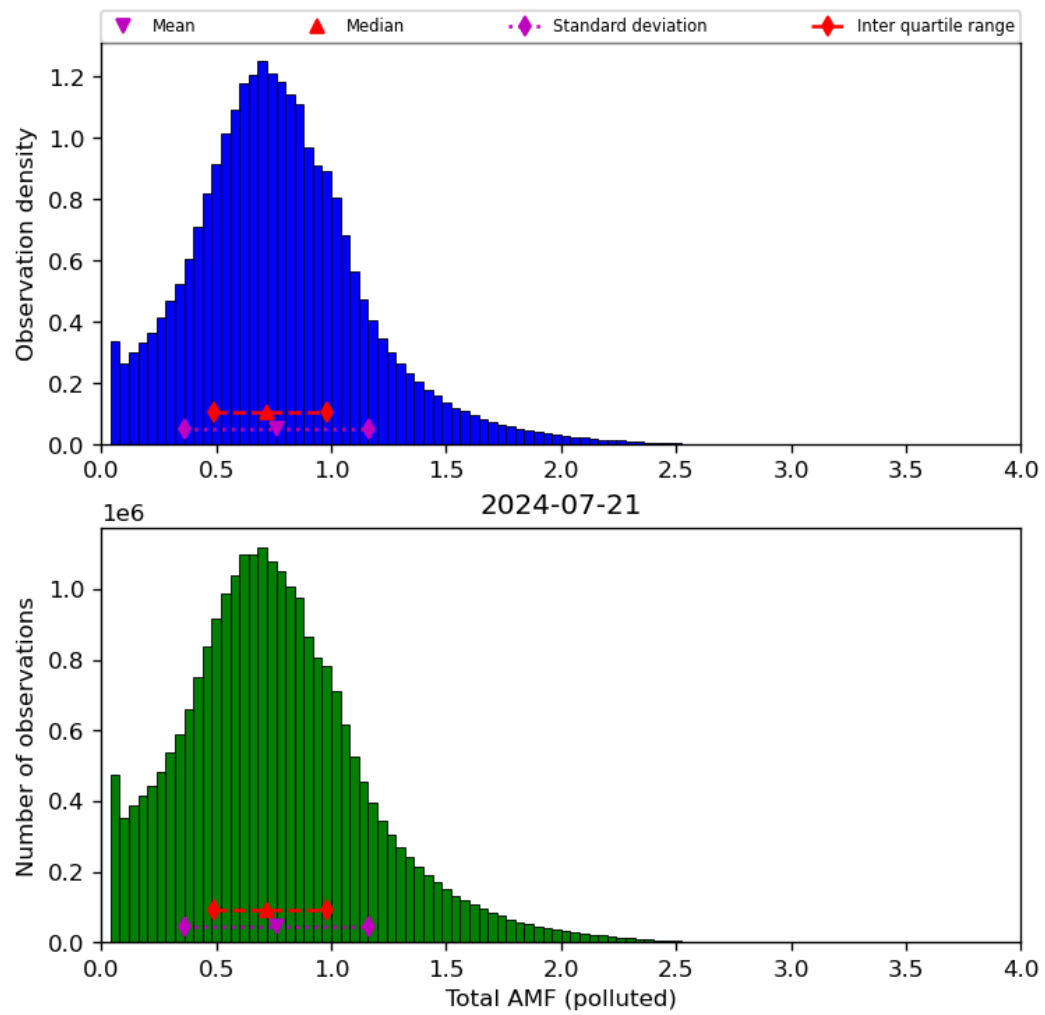


Figure 71: Histogram of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22

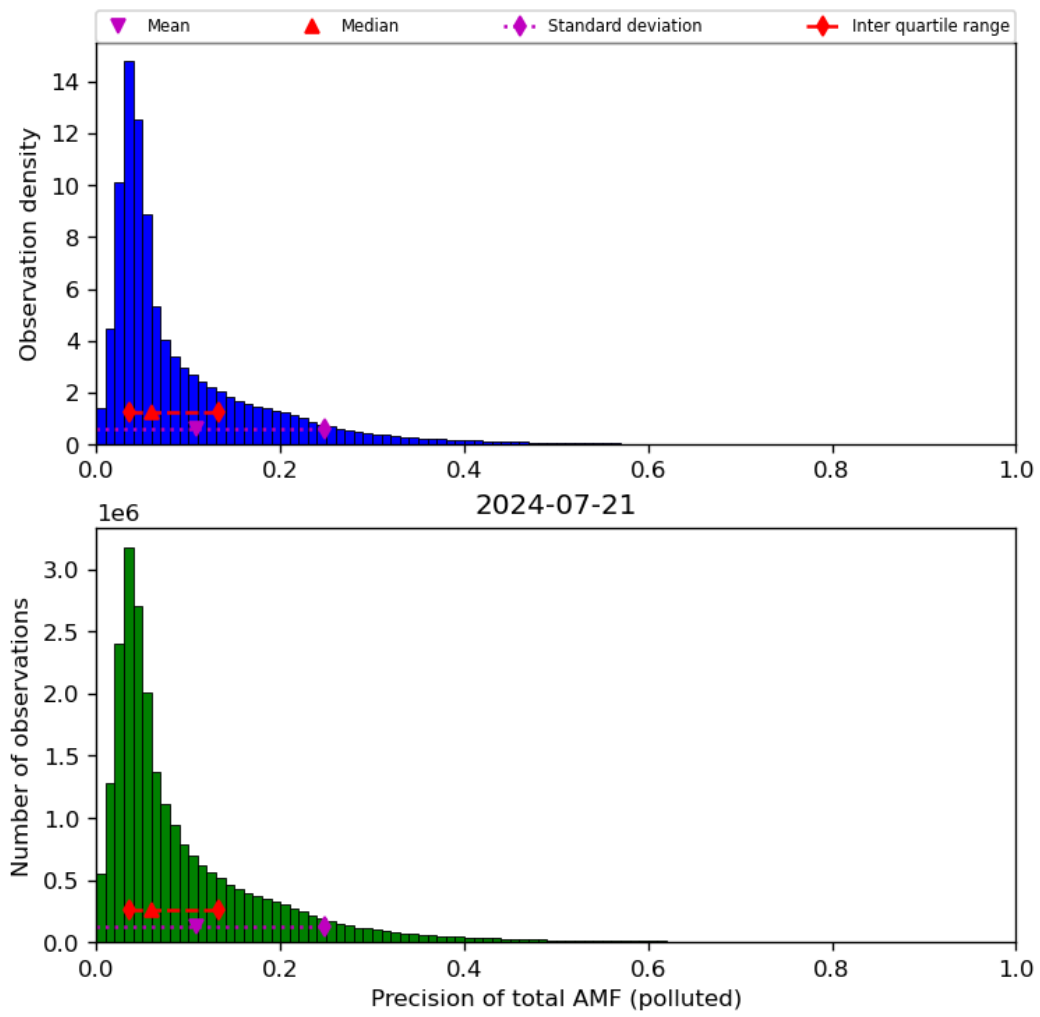


Figure 72: Histogram of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22

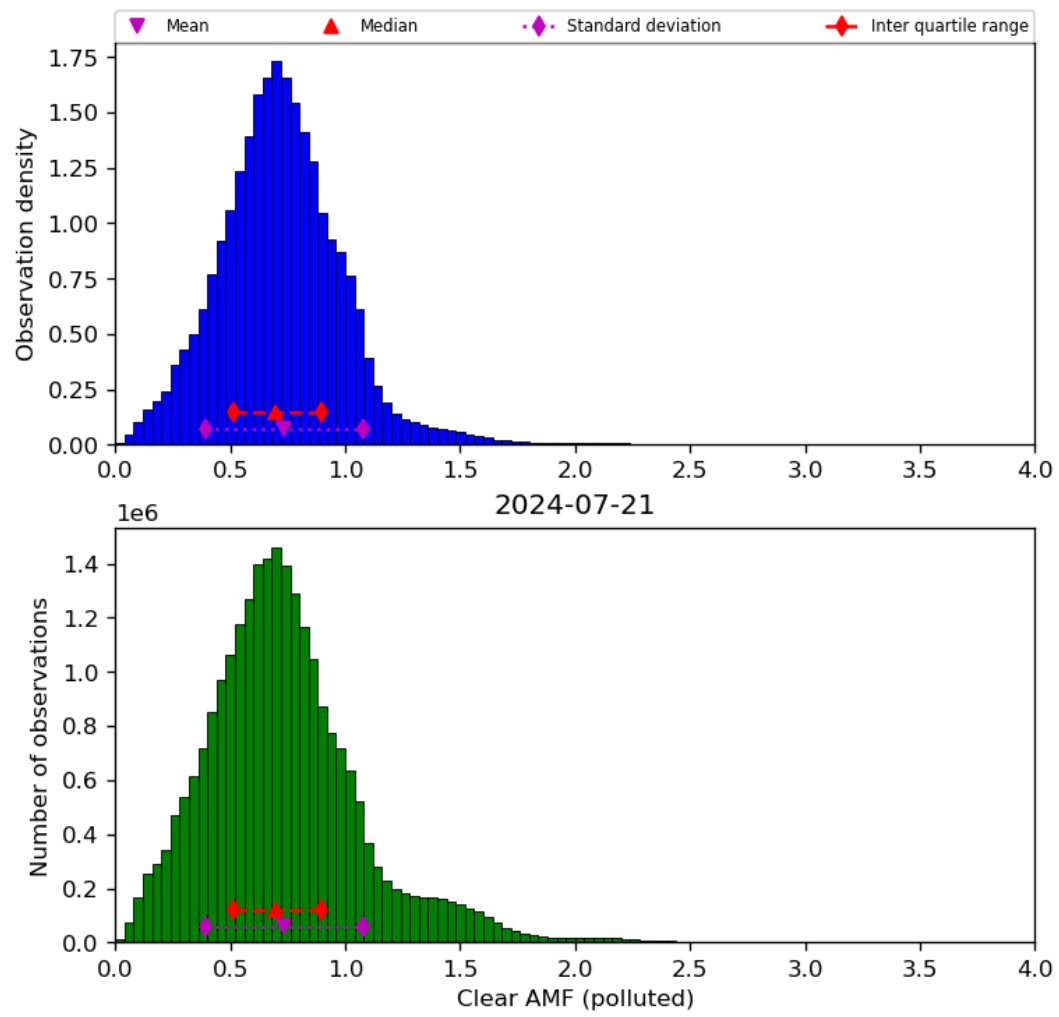


Figure 73: Histogram of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22

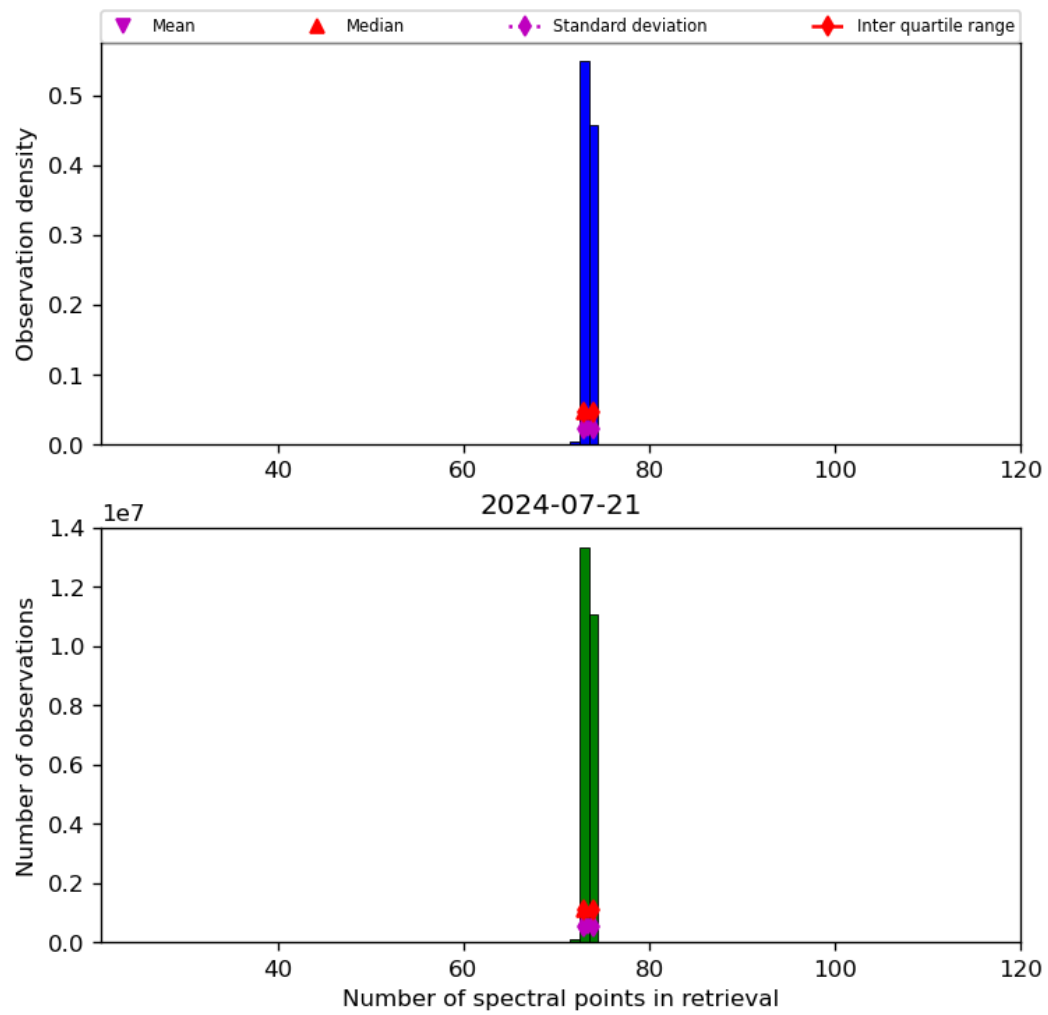


Figure 74: Histogram of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22

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.

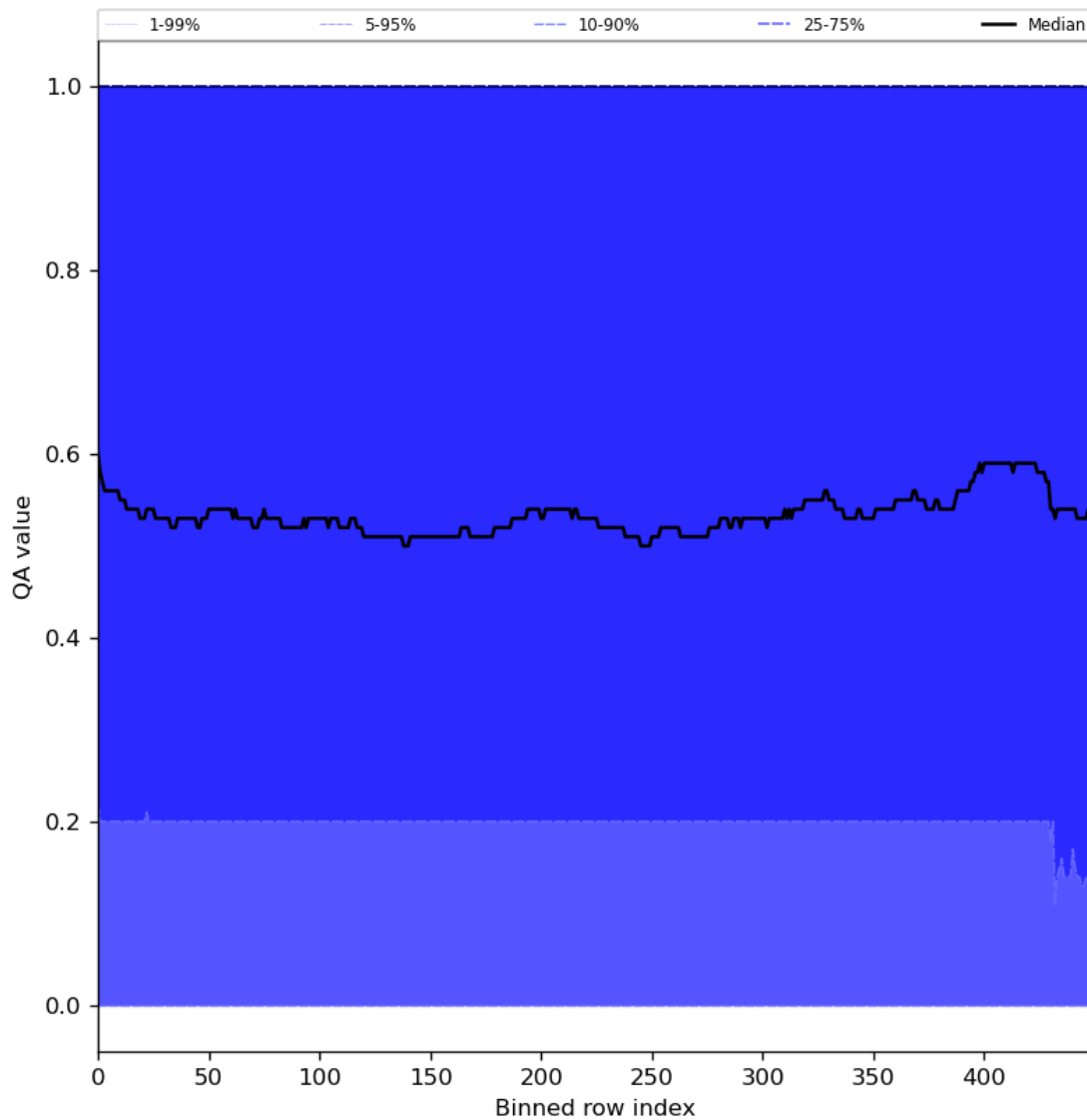


Figure 75: Along track statistics of “QA value” for 2024-07-21 to 2024-07-22

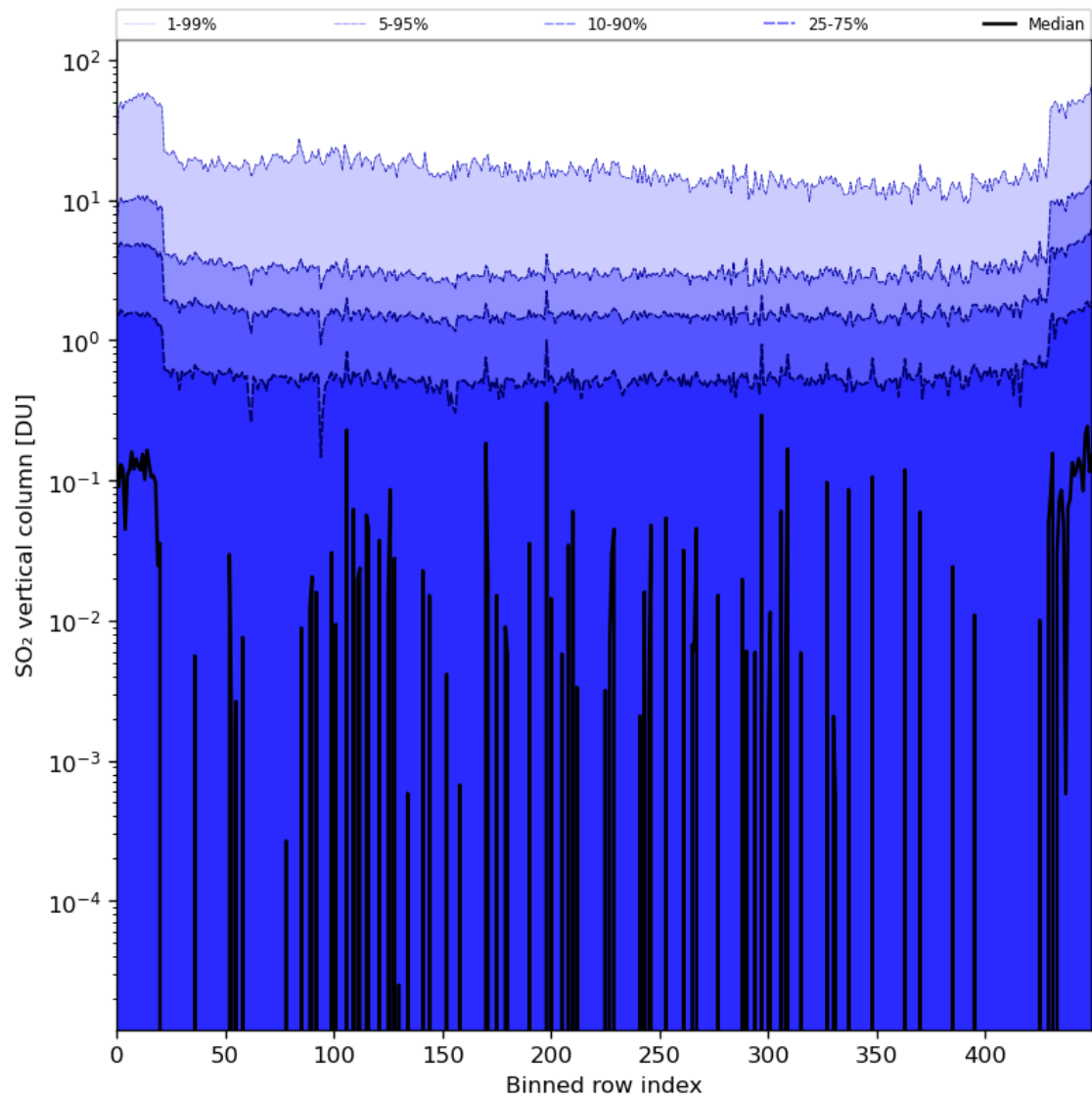


Figure 76: Along track statistics of “SO₂ vertical column” for 2024-07-21 to 2024-07-22

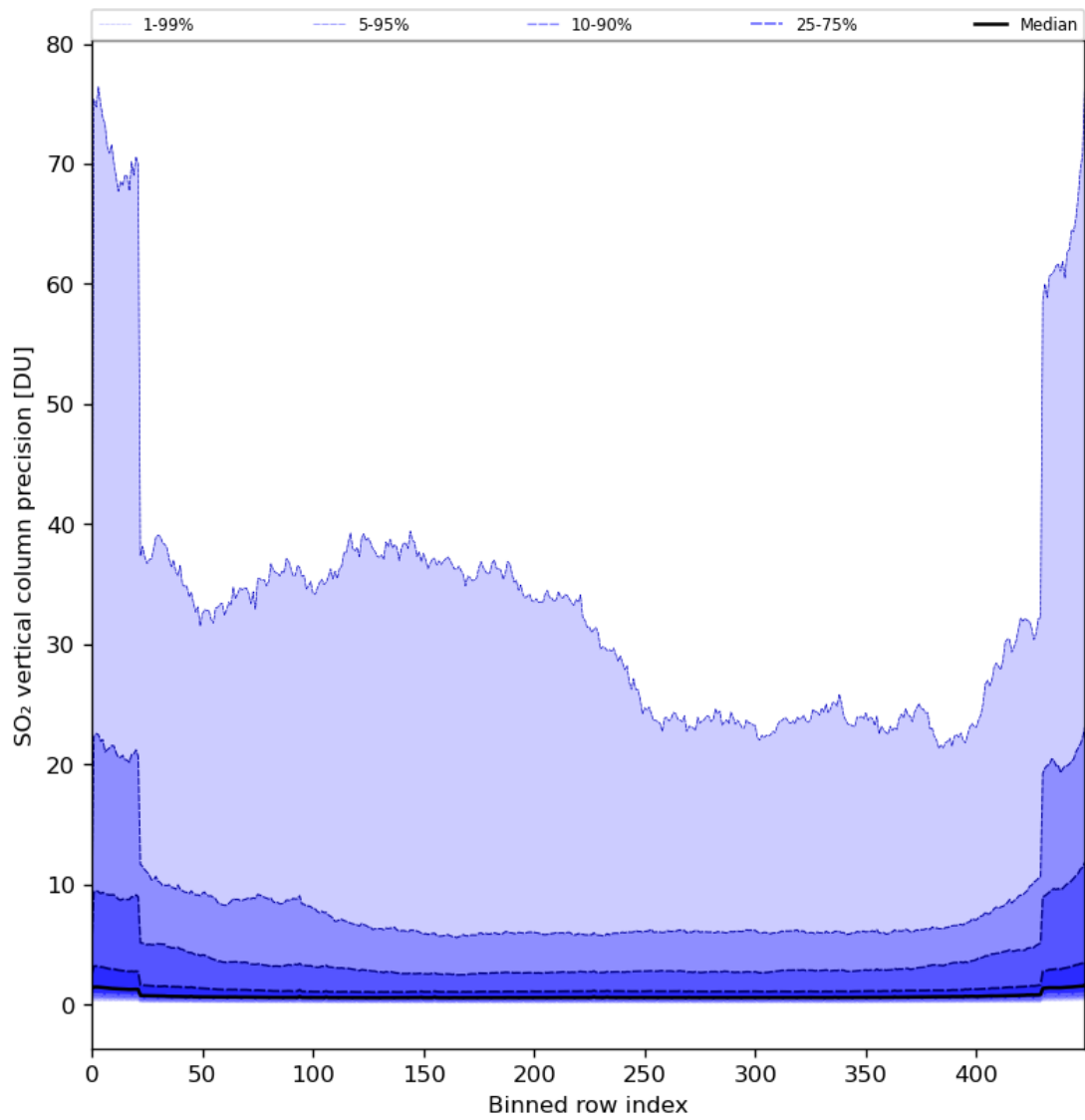


Figure 77: Along track statistics of “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22

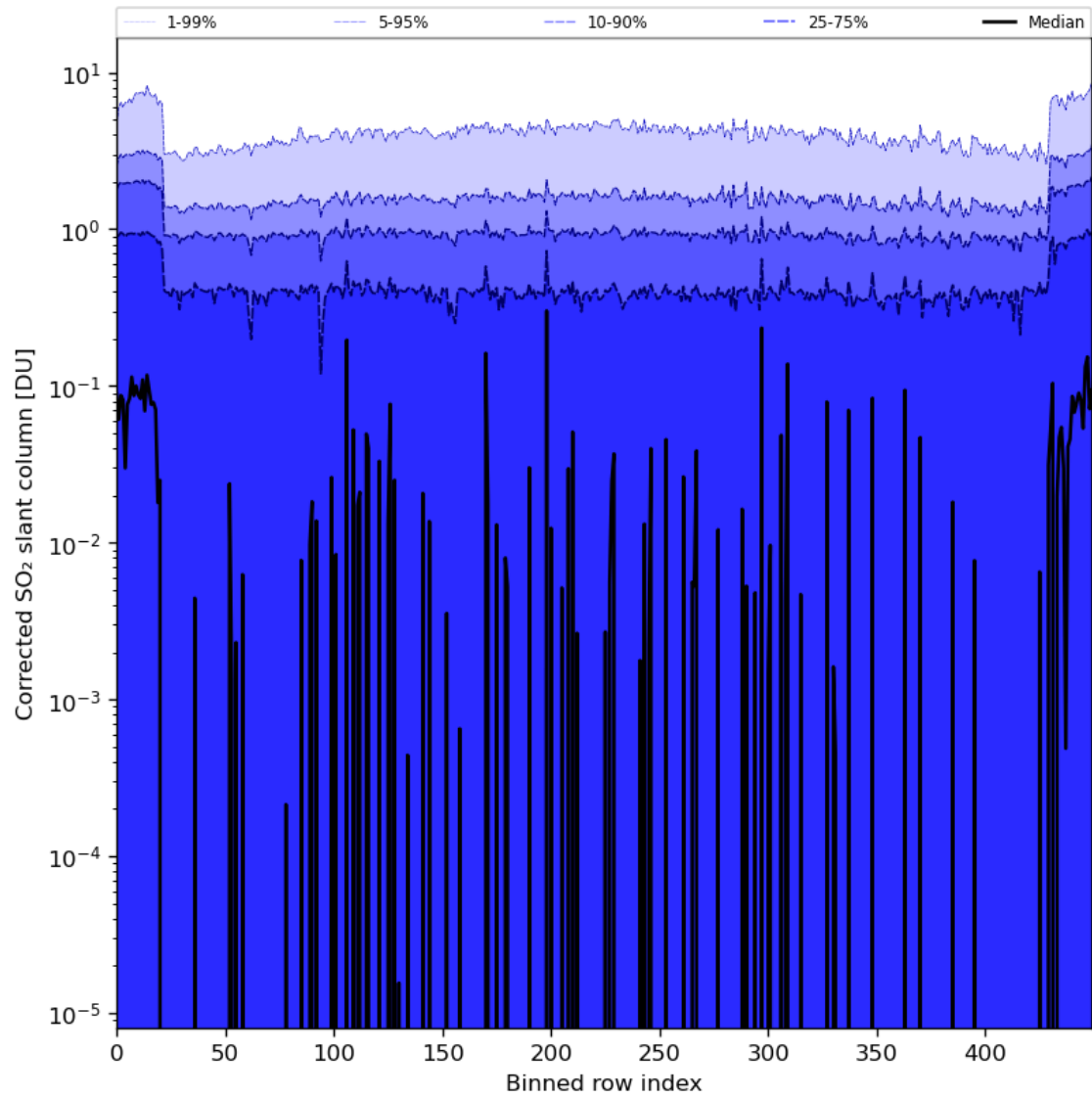


Figure 78: Along track statistics of “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22

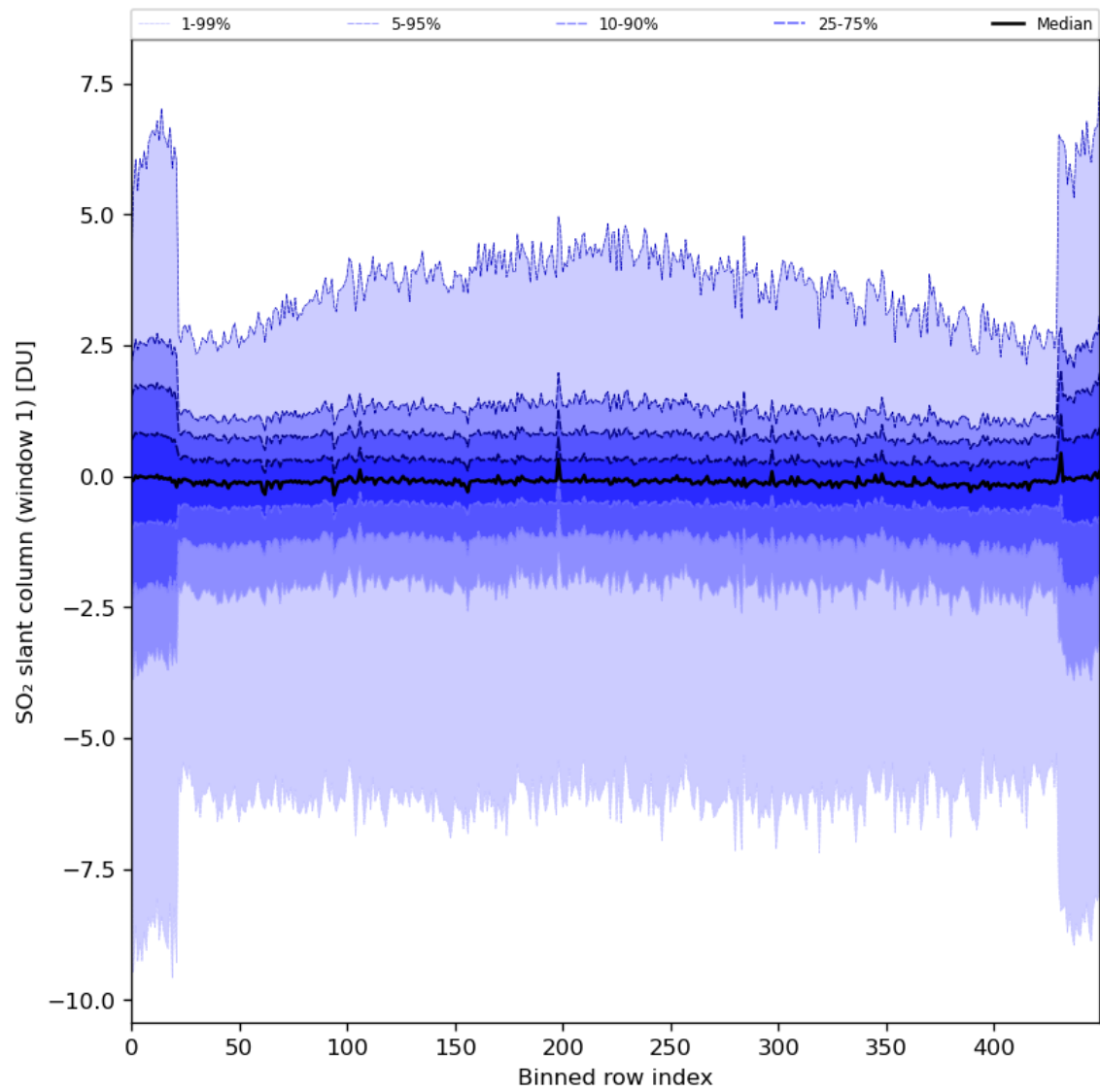


Figure 79: Along track statistics of “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22

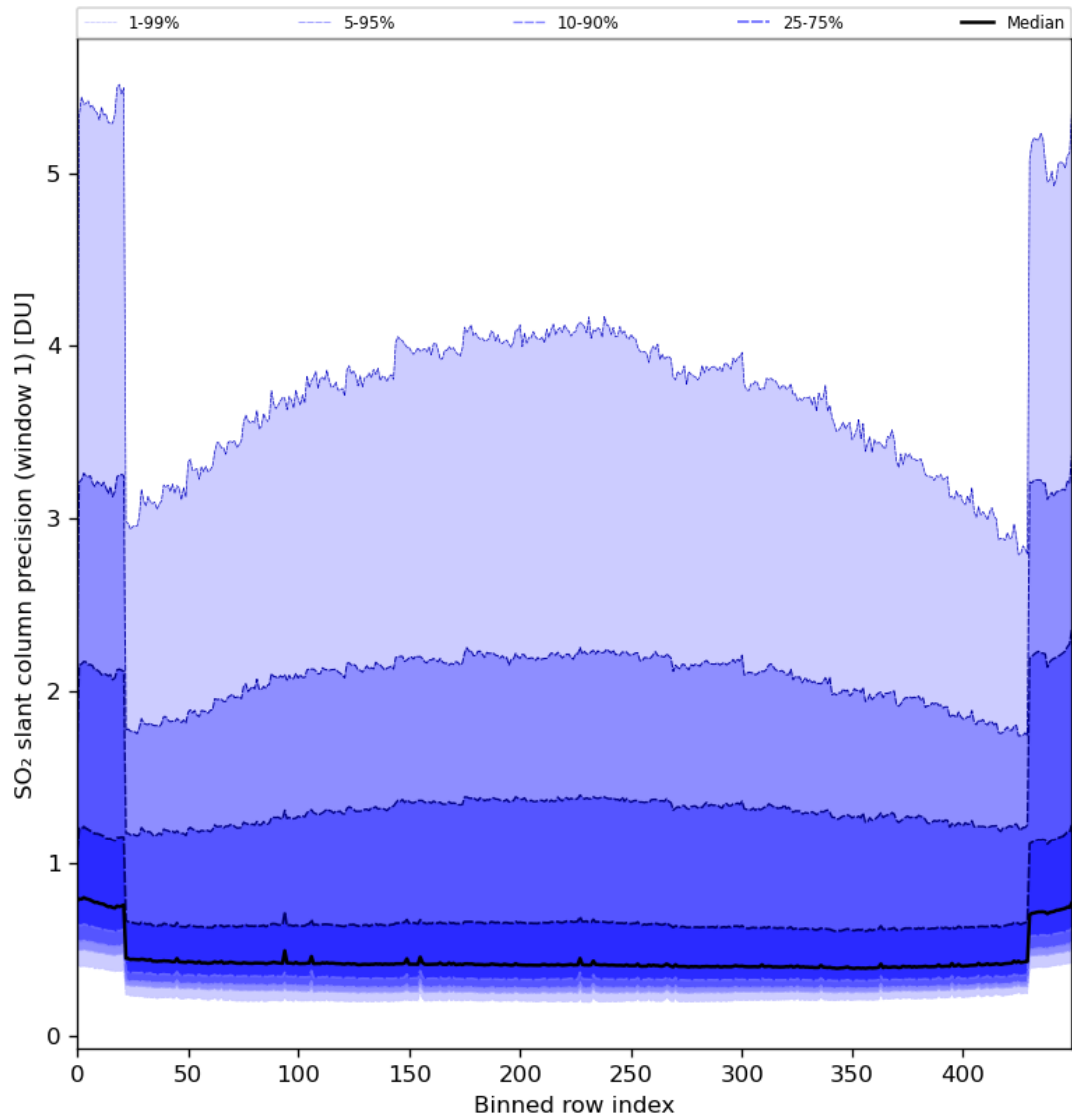


Figure 80: Along track statistics of “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22

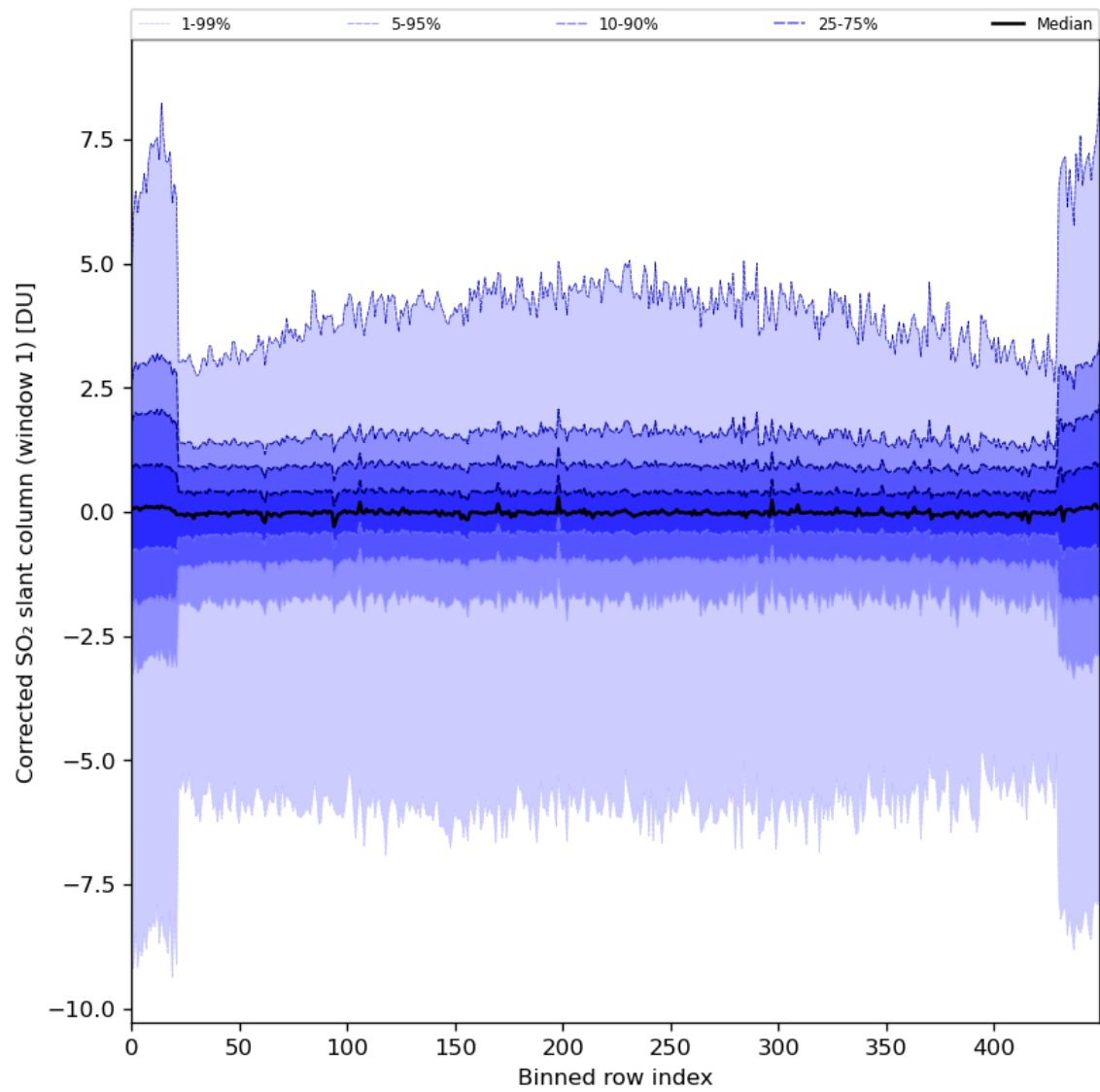


Figure 81: Along track statistics of “Corrected SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22

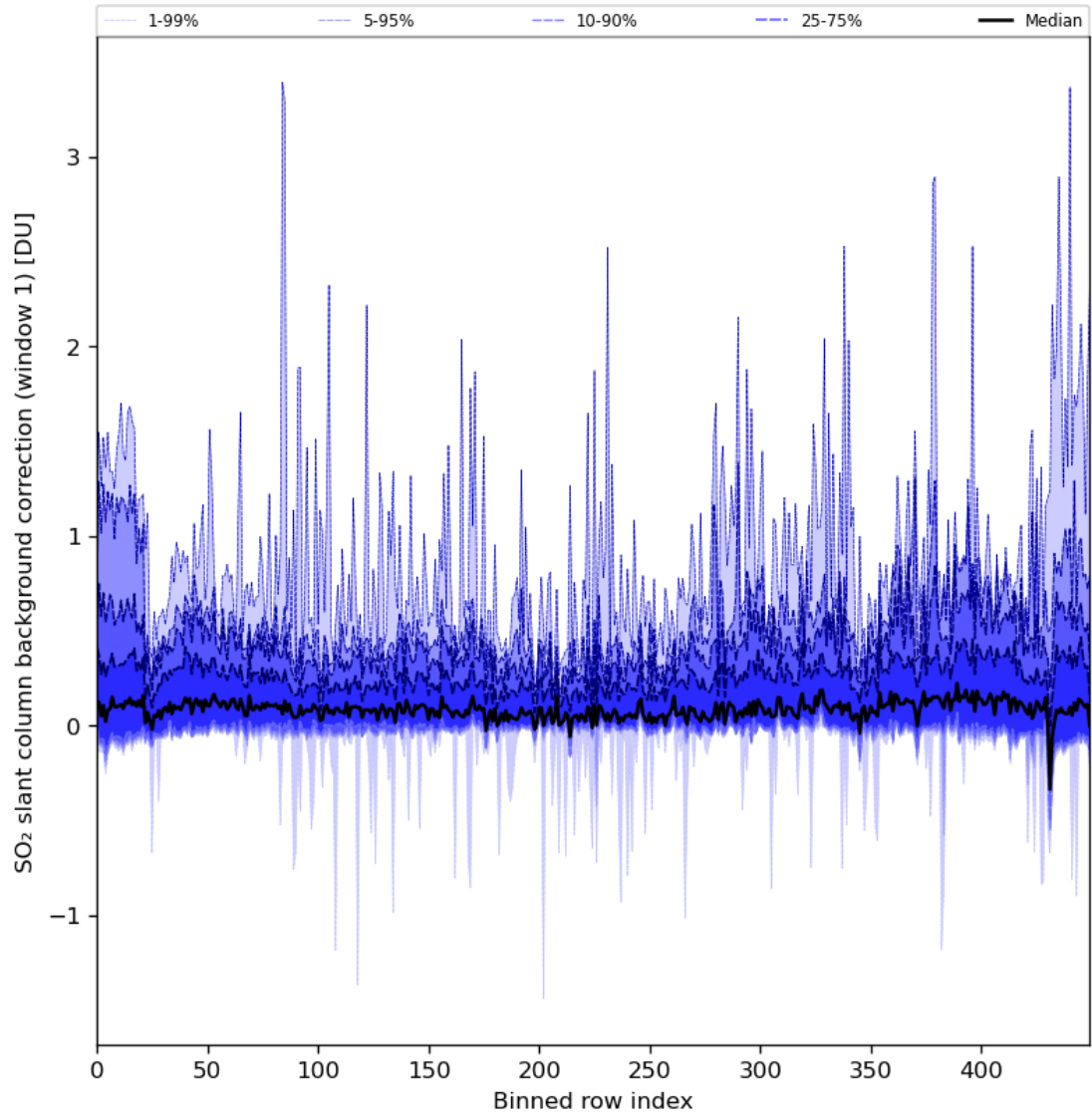


Figure 82: Along track statistics of “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22

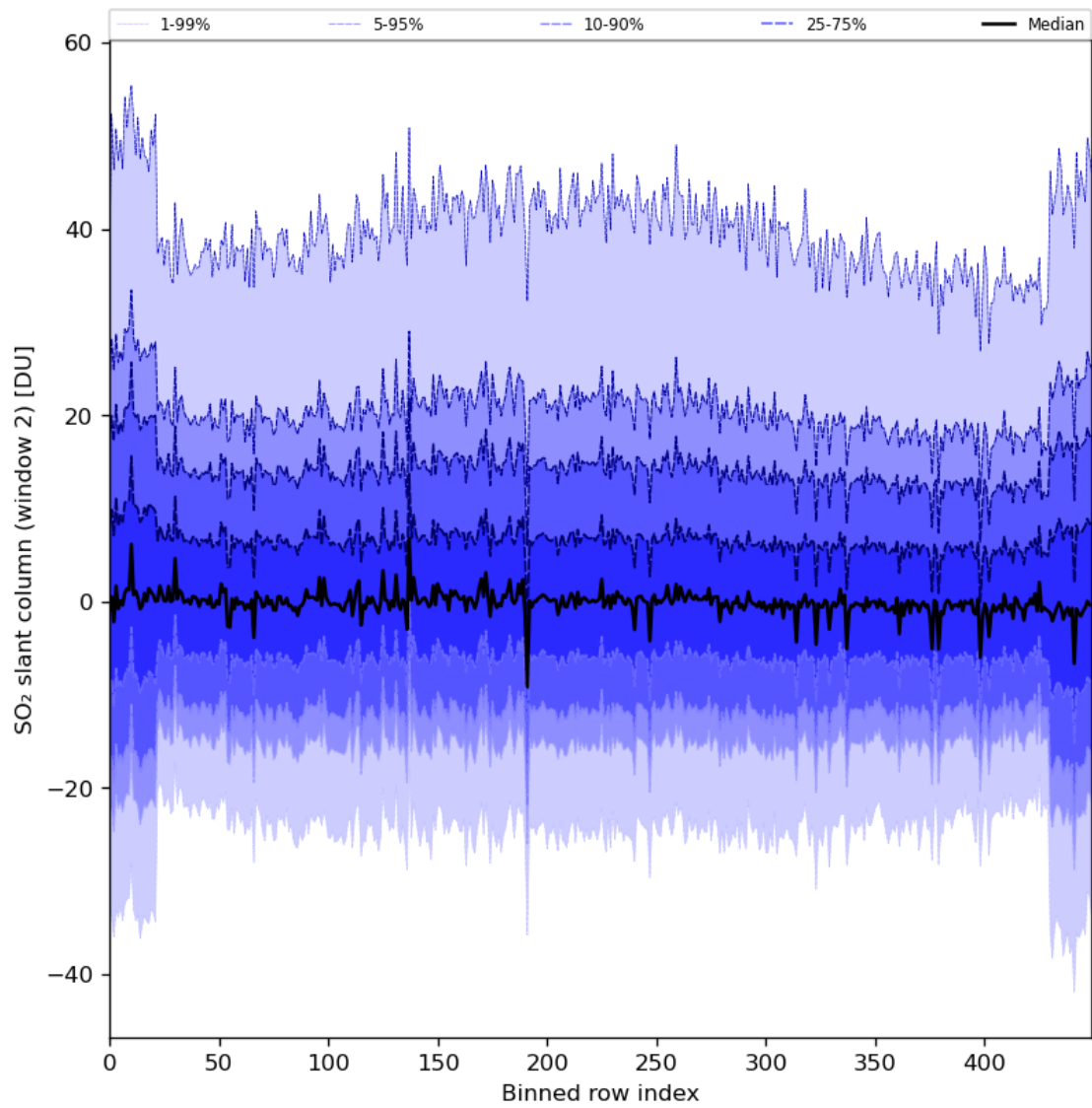


Figure 83: Along track statistics of “SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22

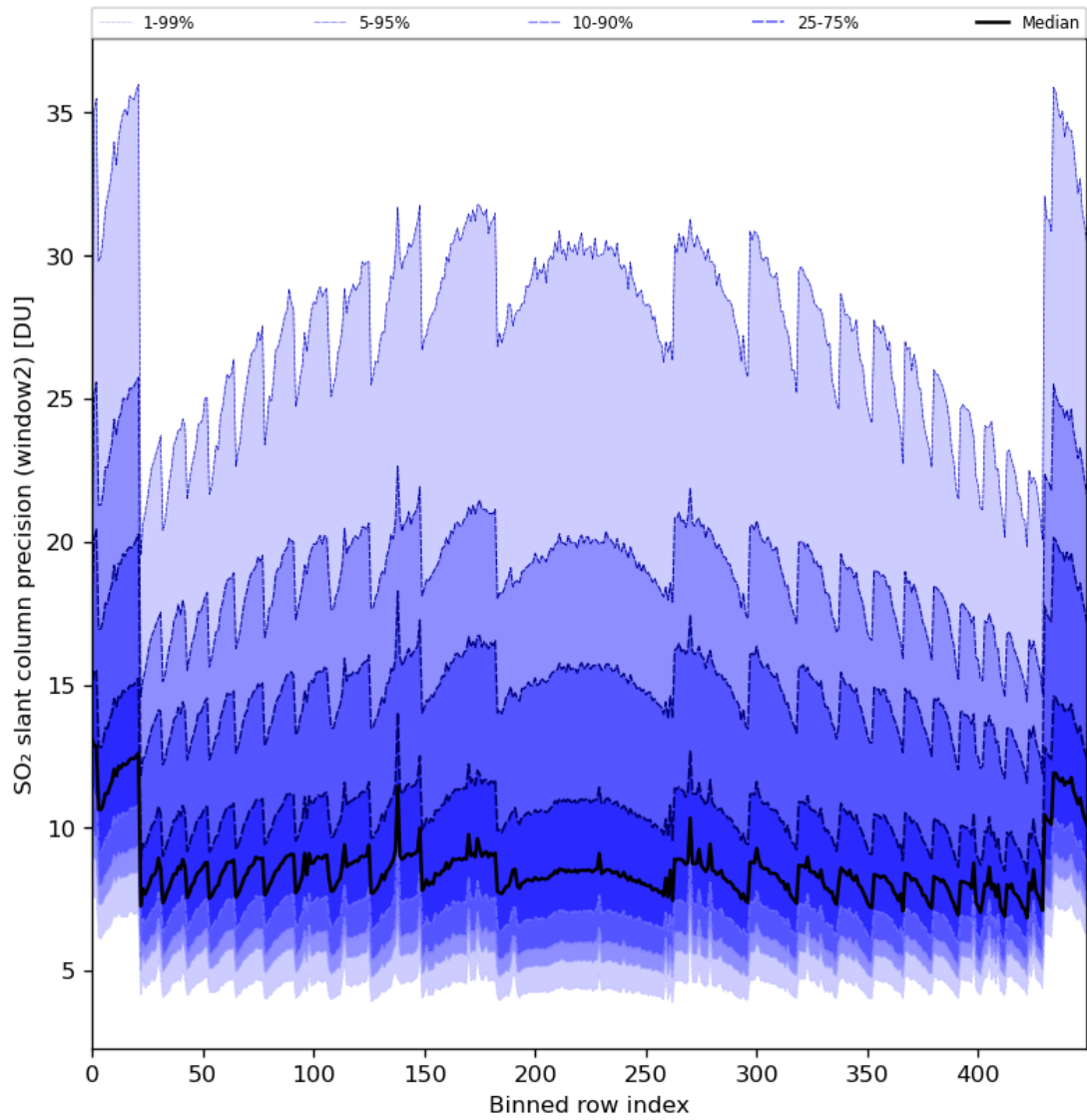


Figure 84: Along track statistics of “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22

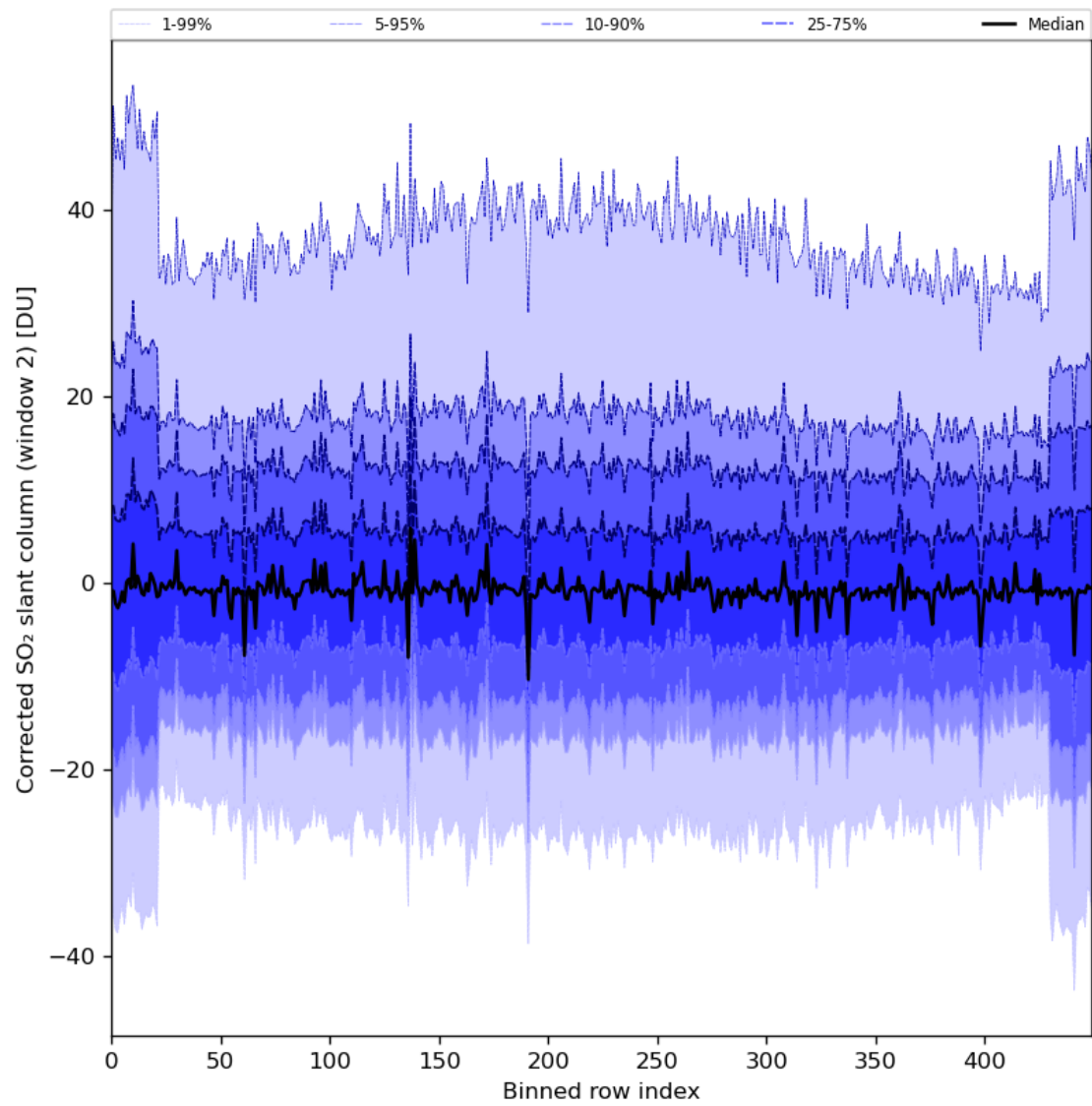


Figure 85: Along track statistics of “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22

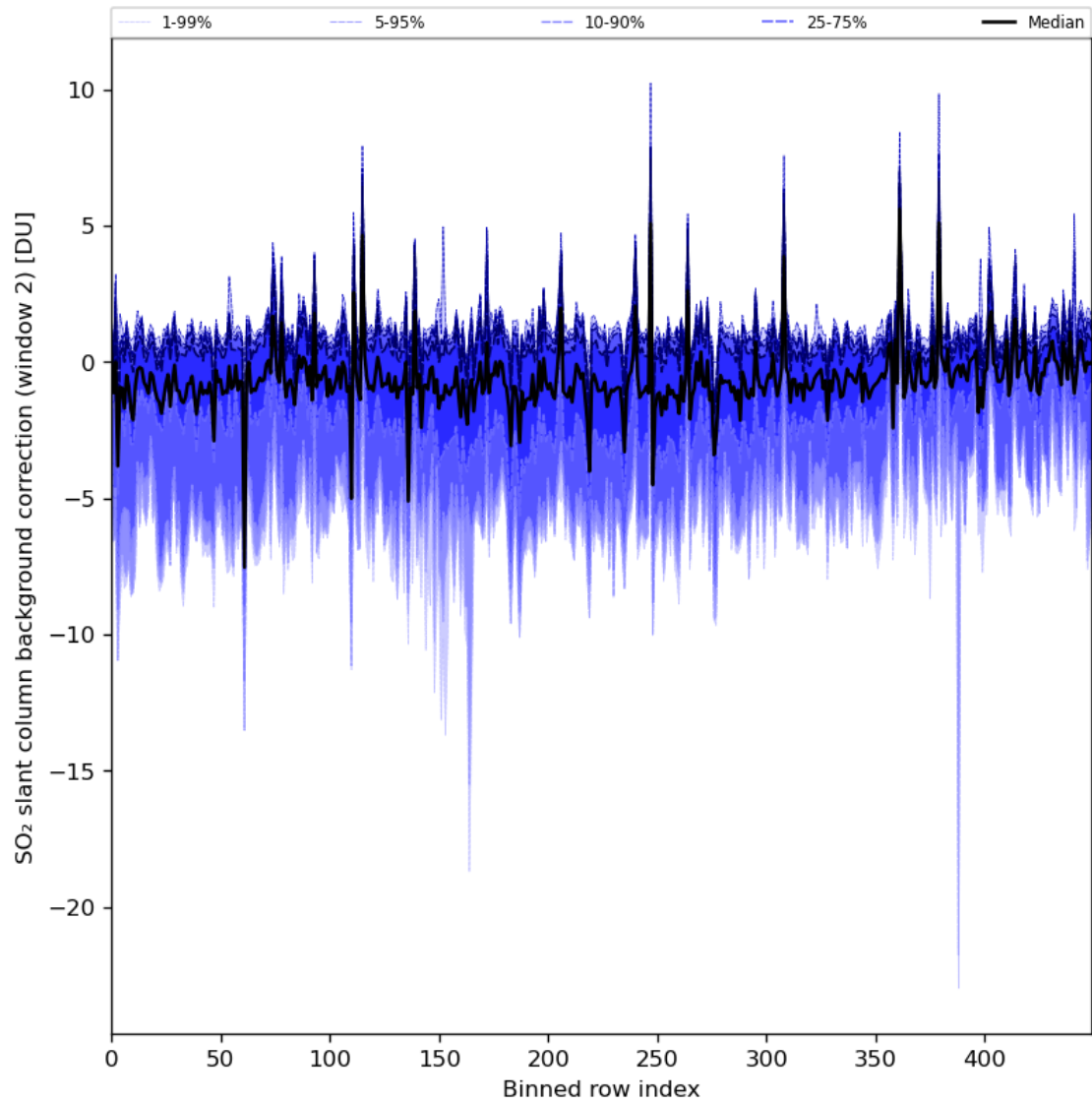


Figure 86: Along track statistics of “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22

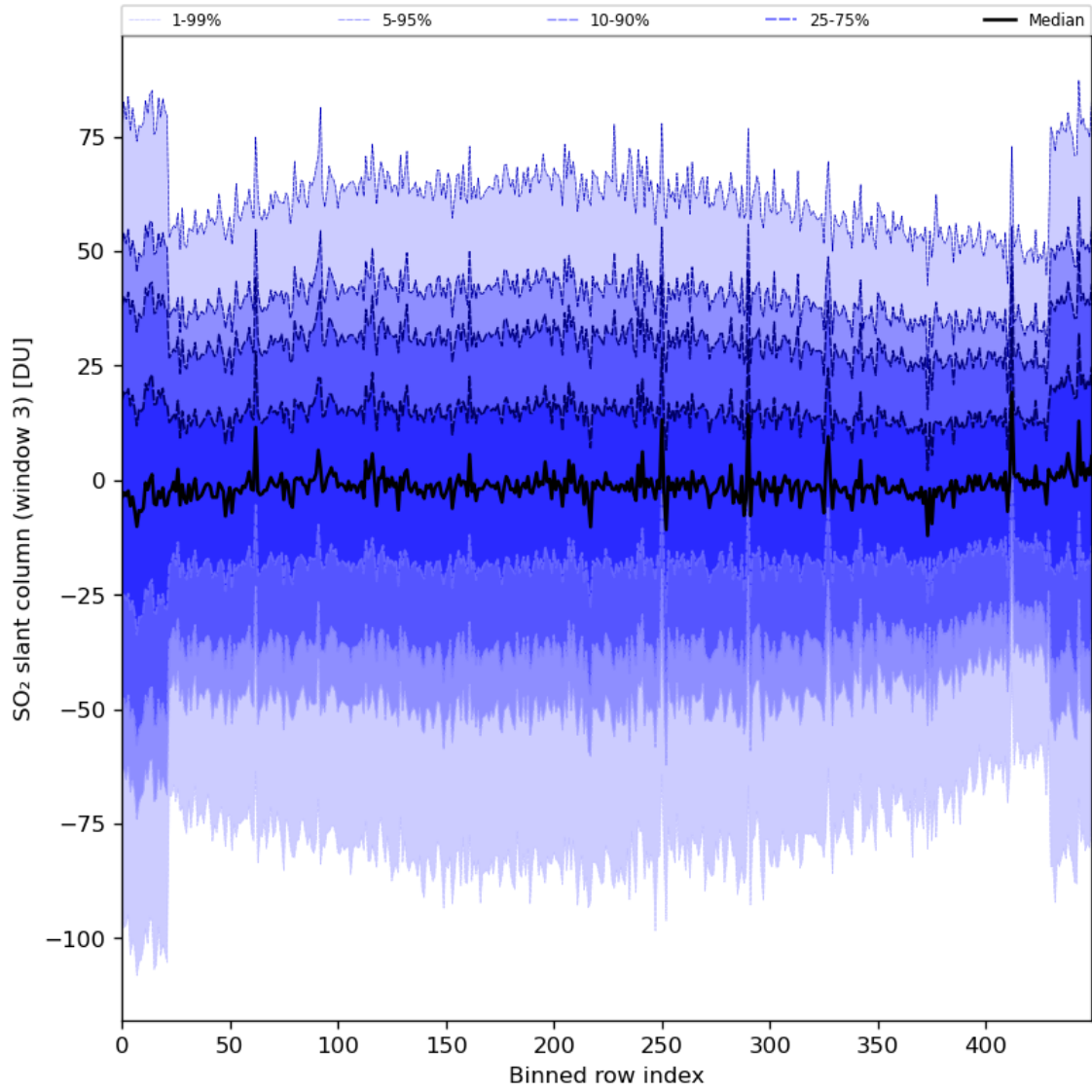


Figure 87: Along track statistics of “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22

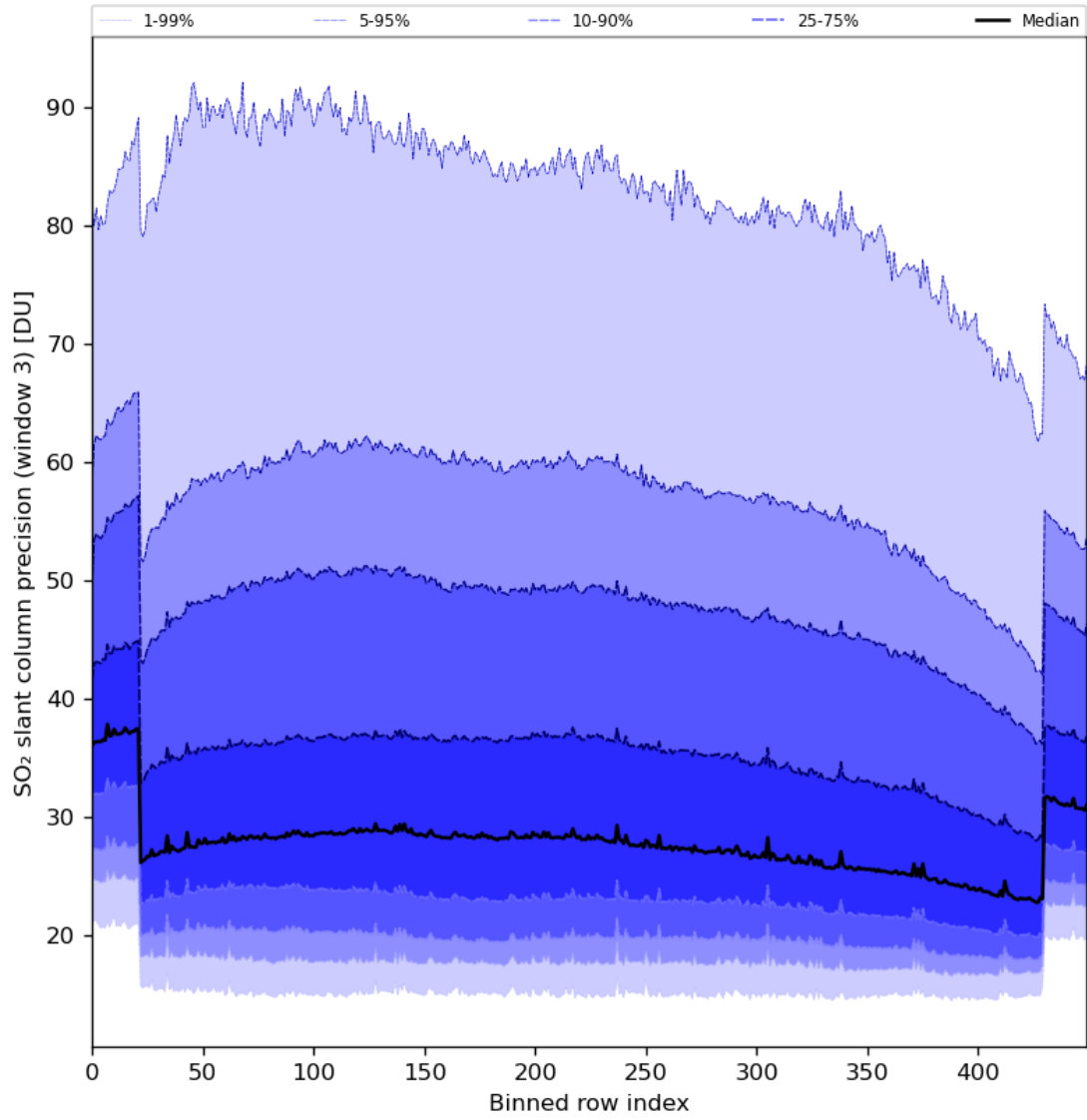


Figure 88: Along track statistics of “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22

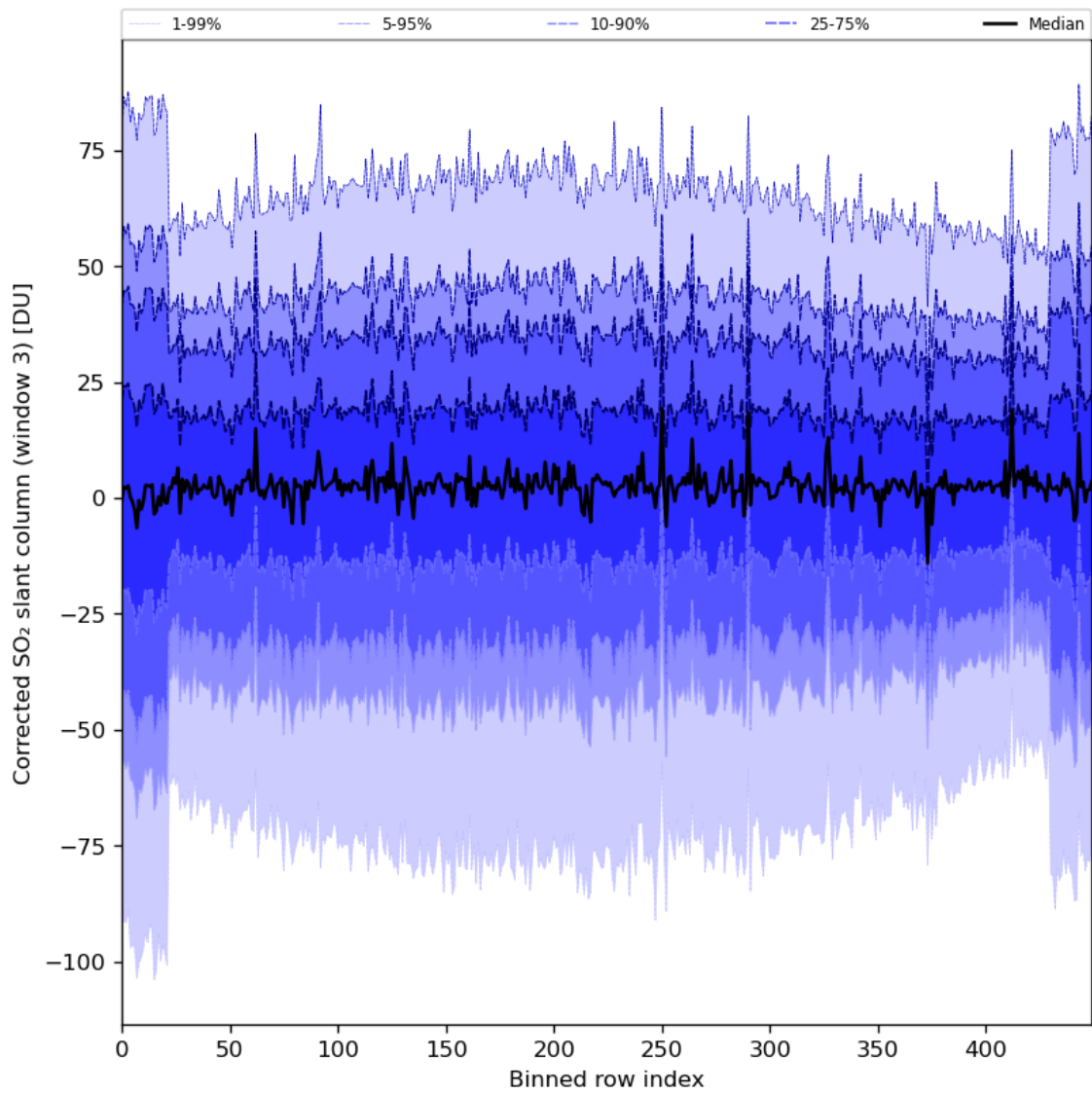


Figure 89: Along track statistics of “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22

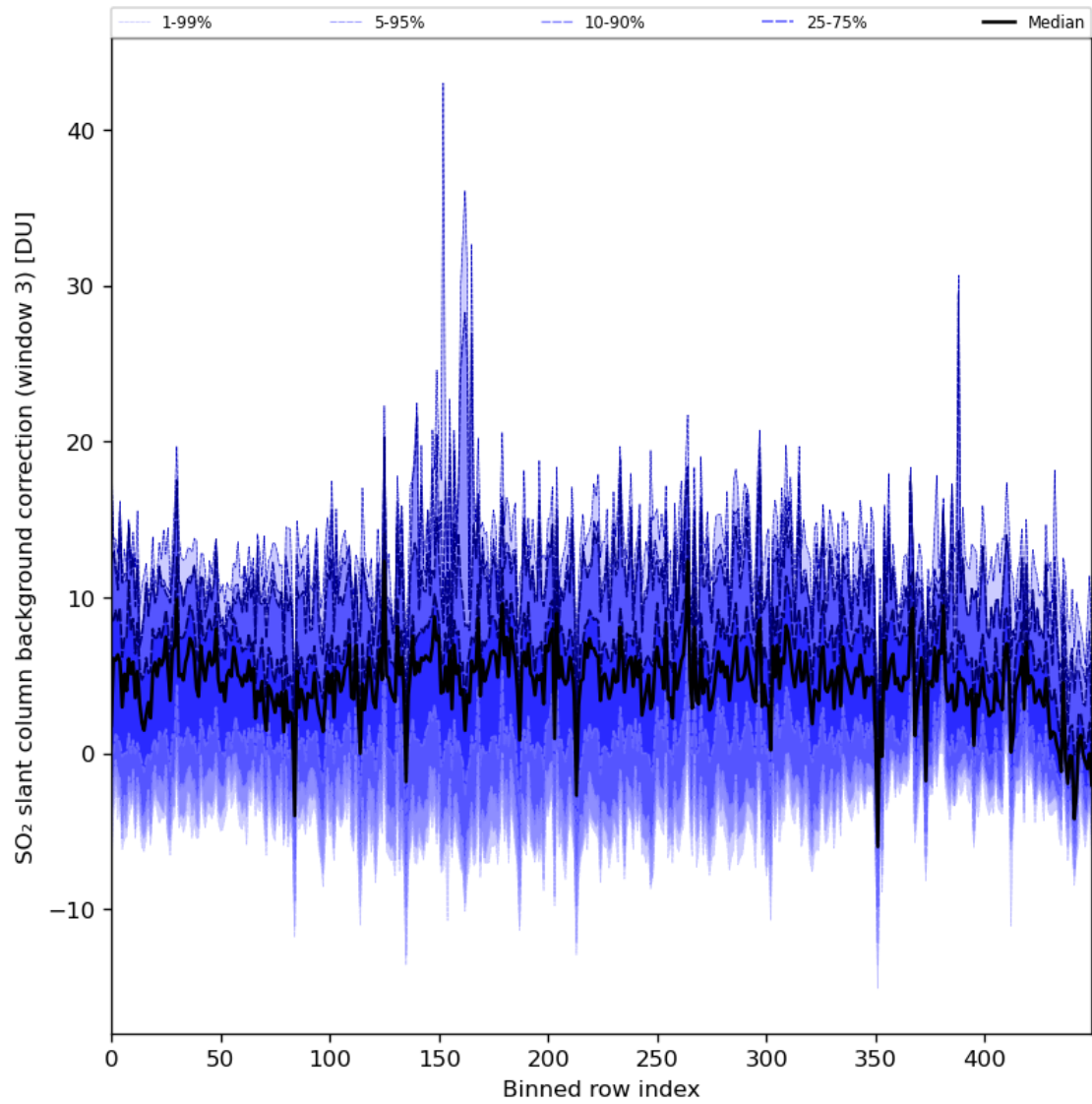


Figure 90: Along track statistics of “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22

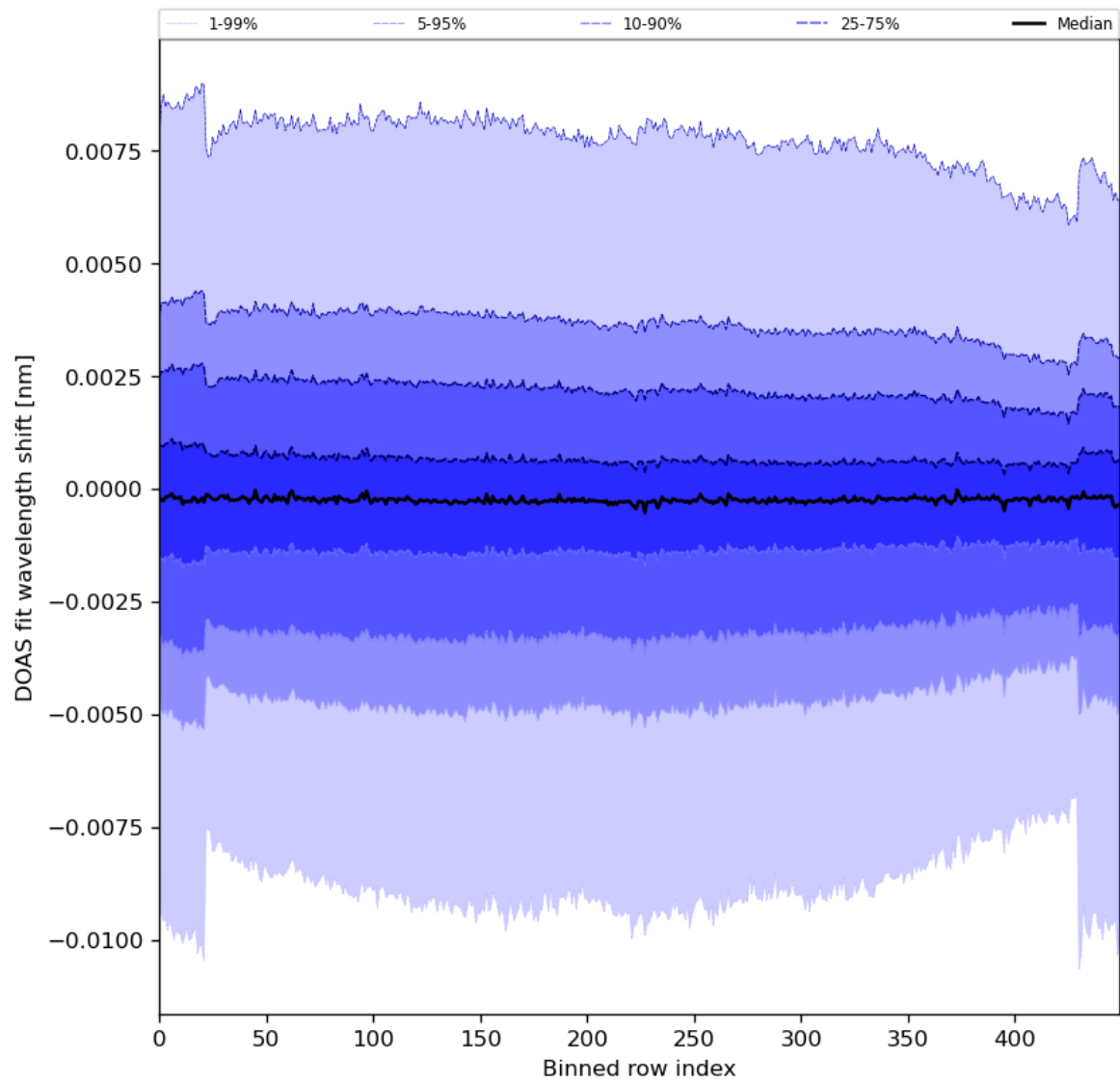


Figure 91: Along track statistics of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22

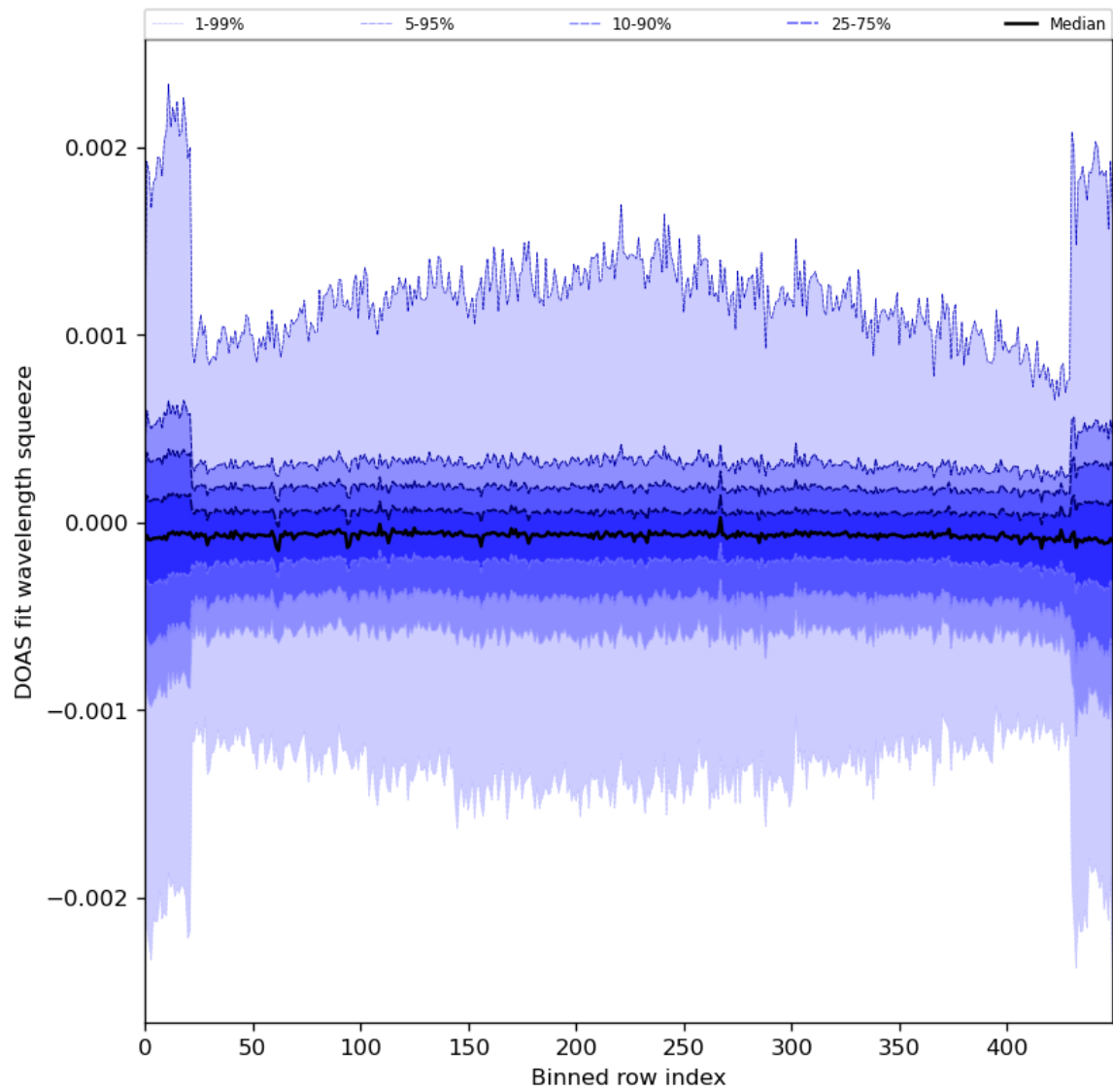


Figure 92: Along track statistics of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22

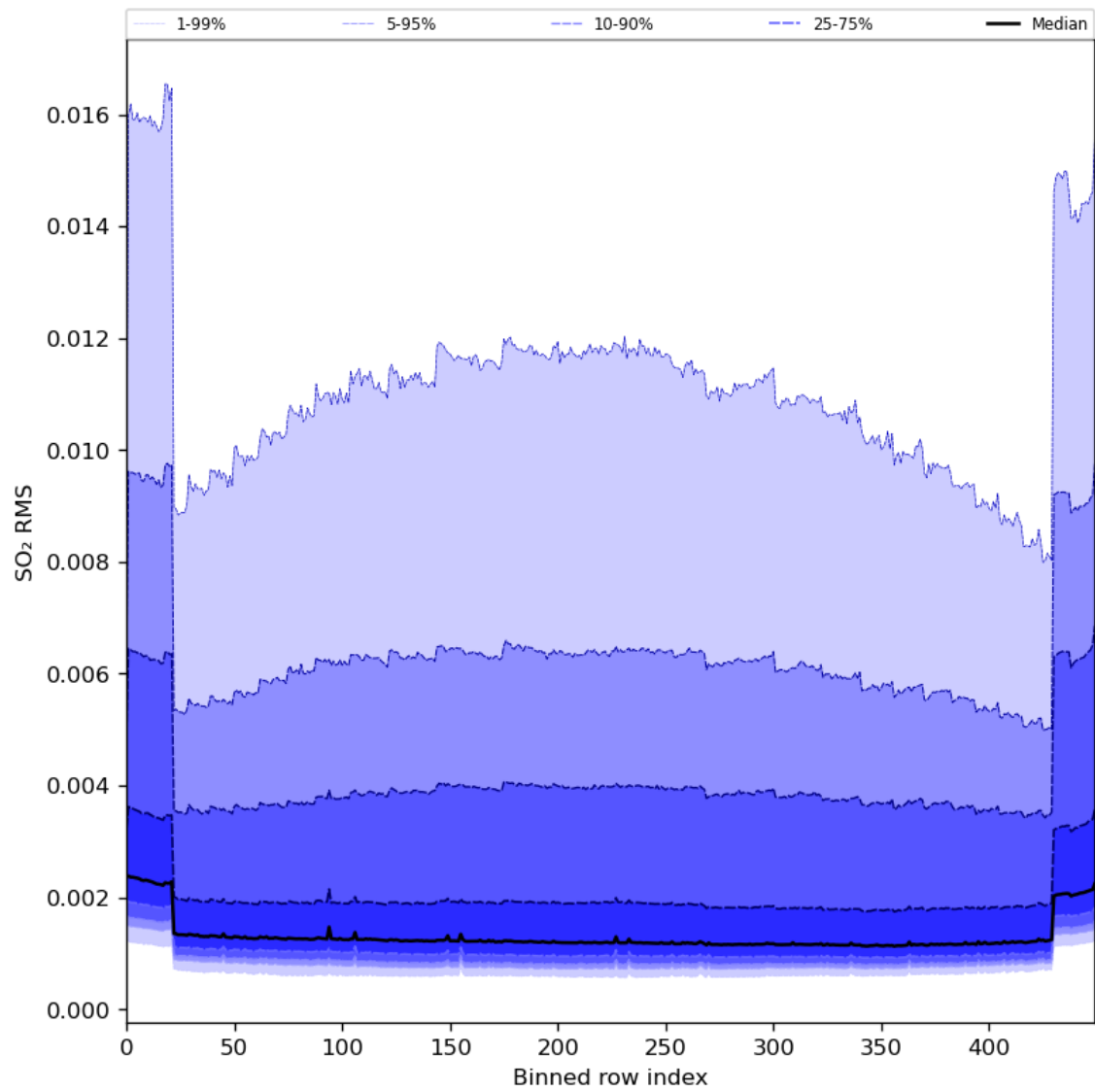


Figure 93: Along track statistics of “SO₂ RMS” for 2024-07-21 to 2024-07-22

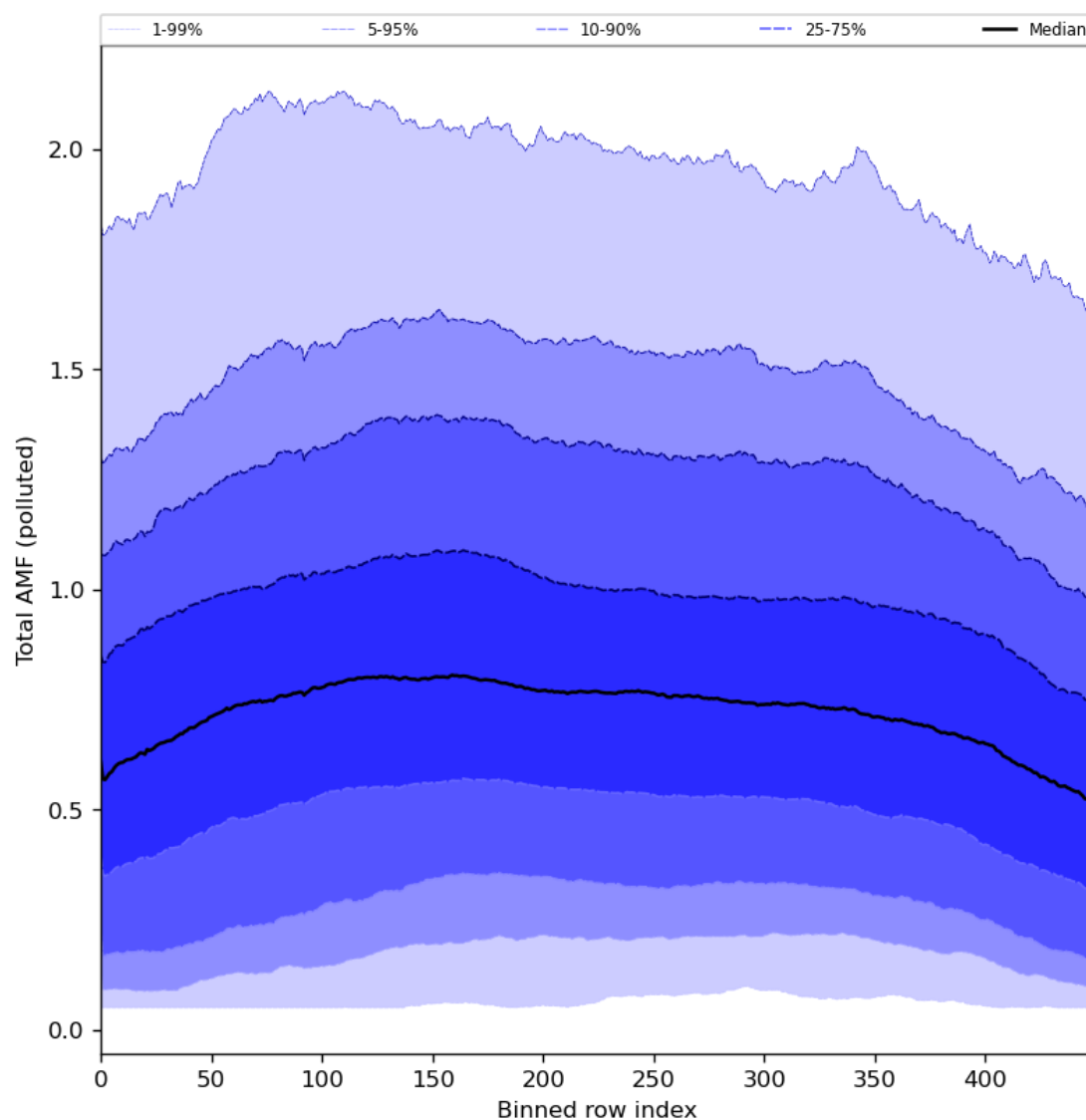


Figure 94: Along track statistics of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22

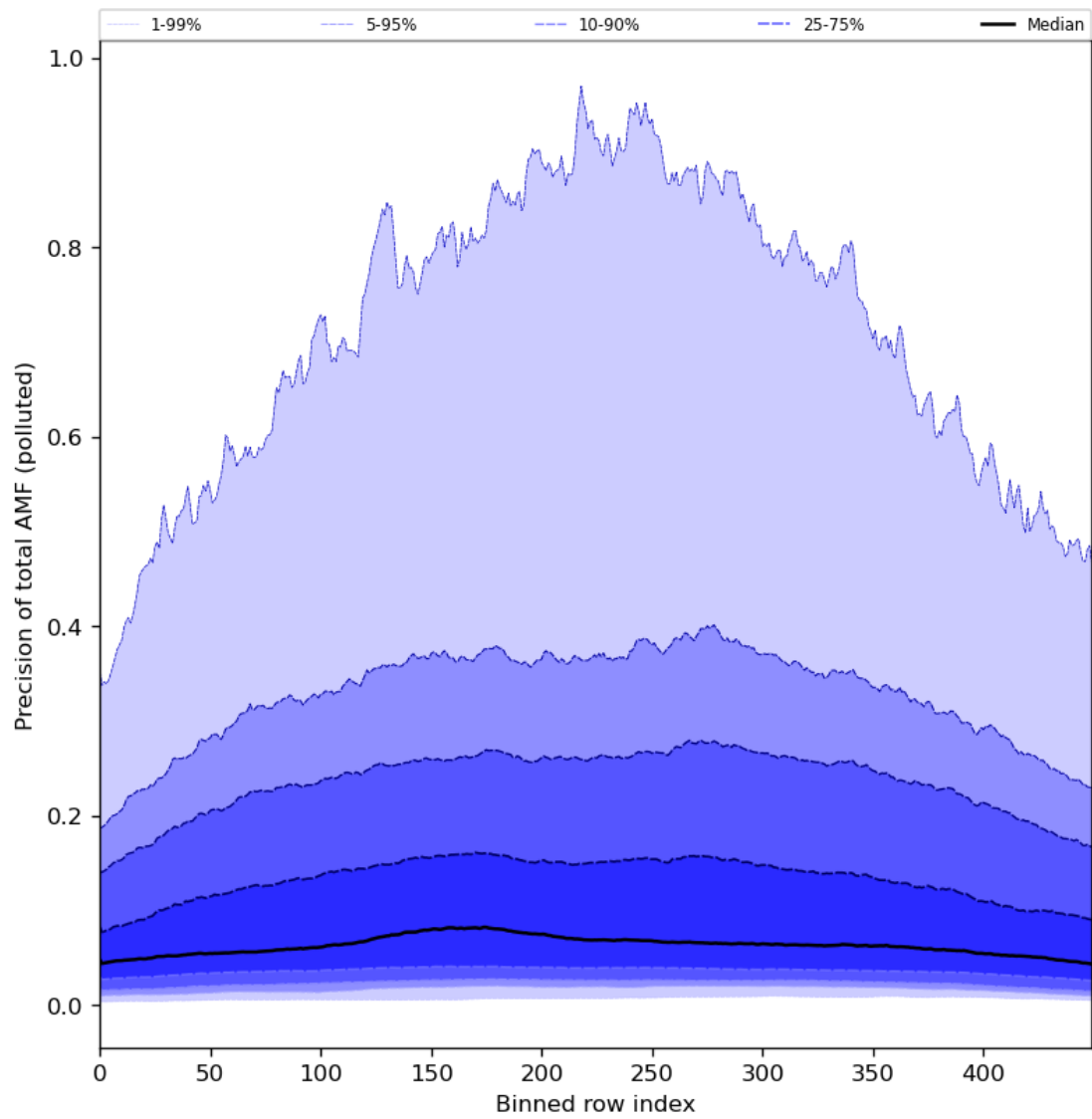


Figure 95: Along track statistics of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22

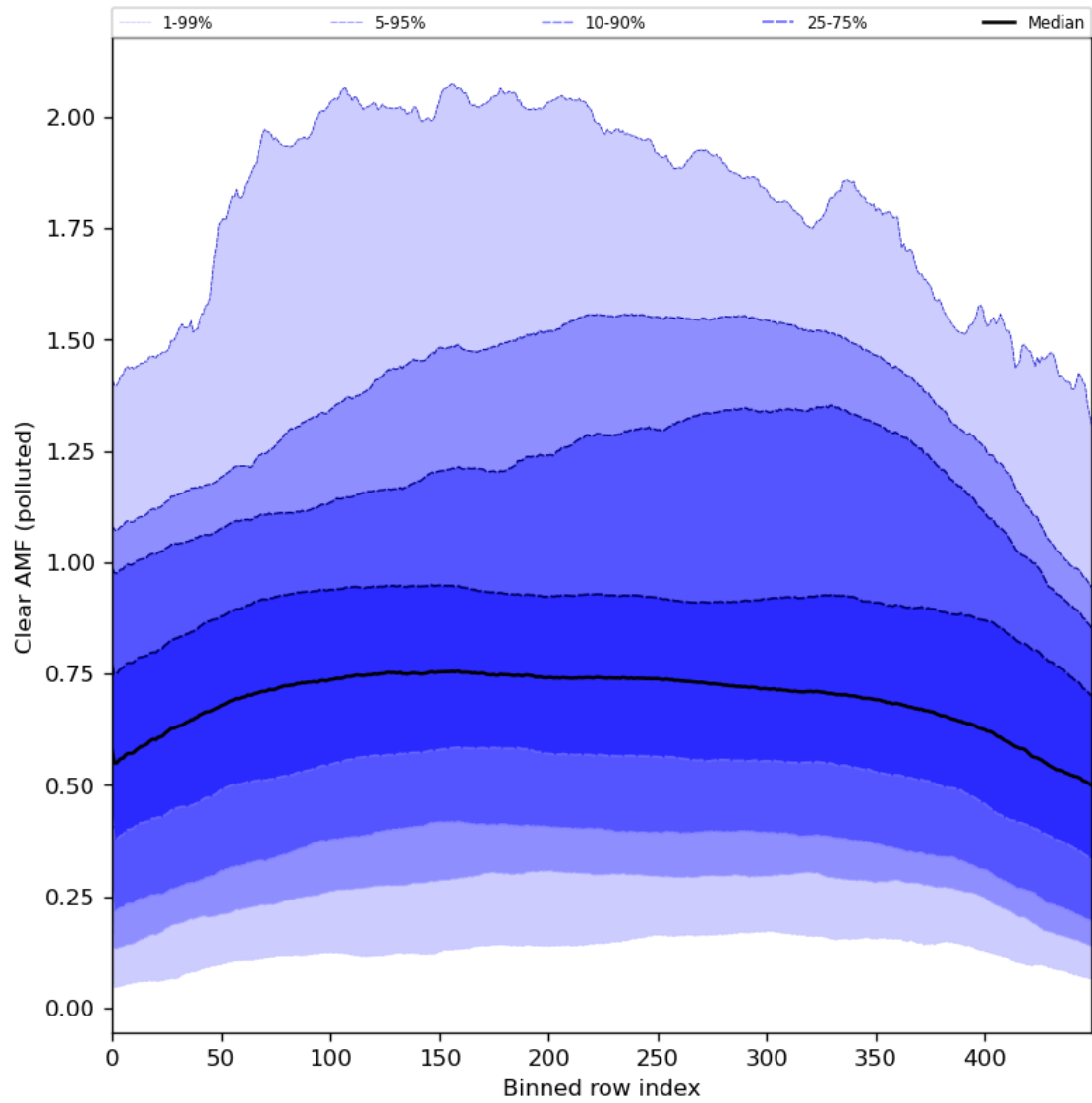


Figure 96: Along track statistics of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22

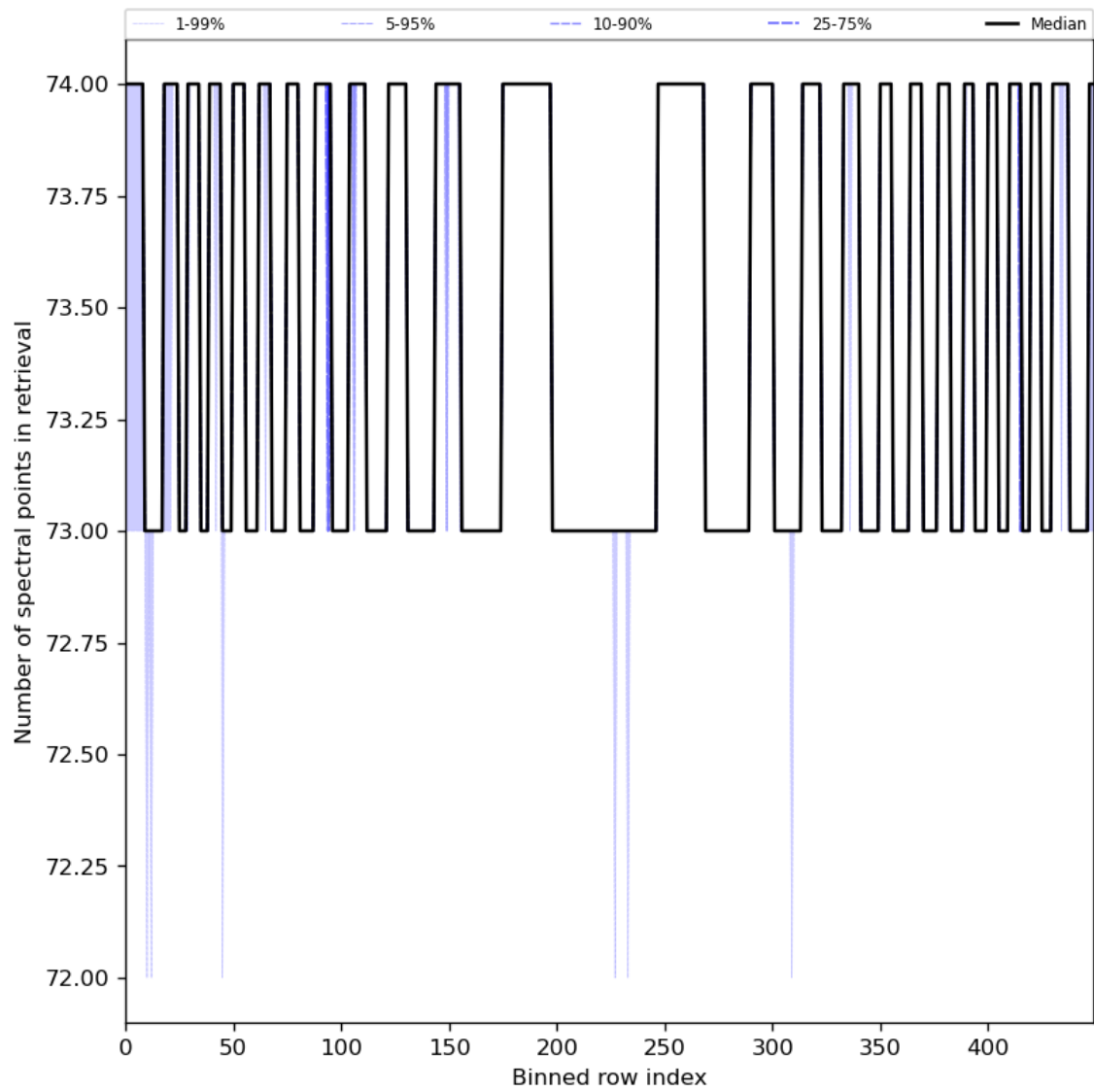


Figure 97: Along track statistics of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22

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.

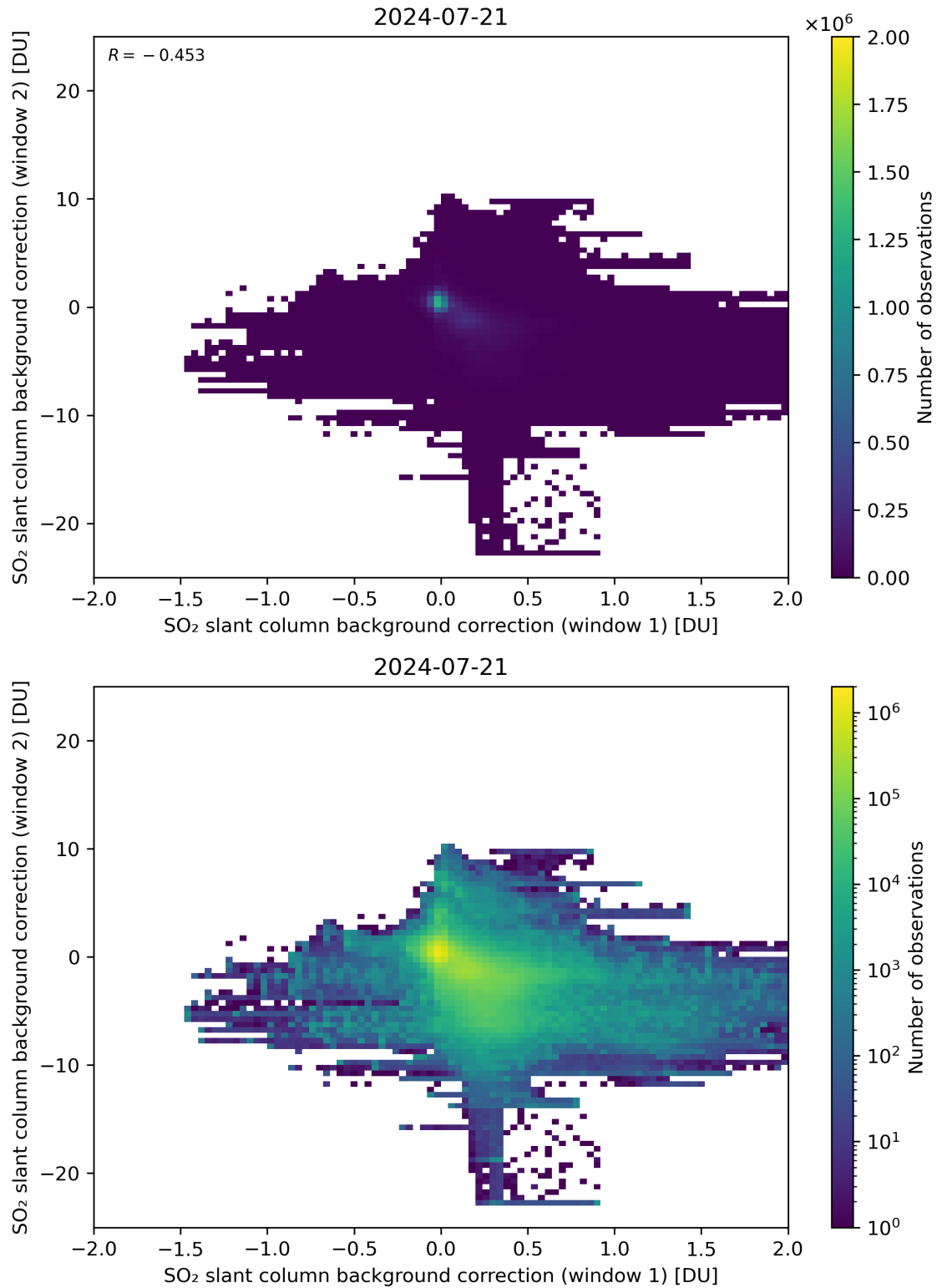


Figure 98: Scatter density plot of “SO₂ slant column background correction (window 1)” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

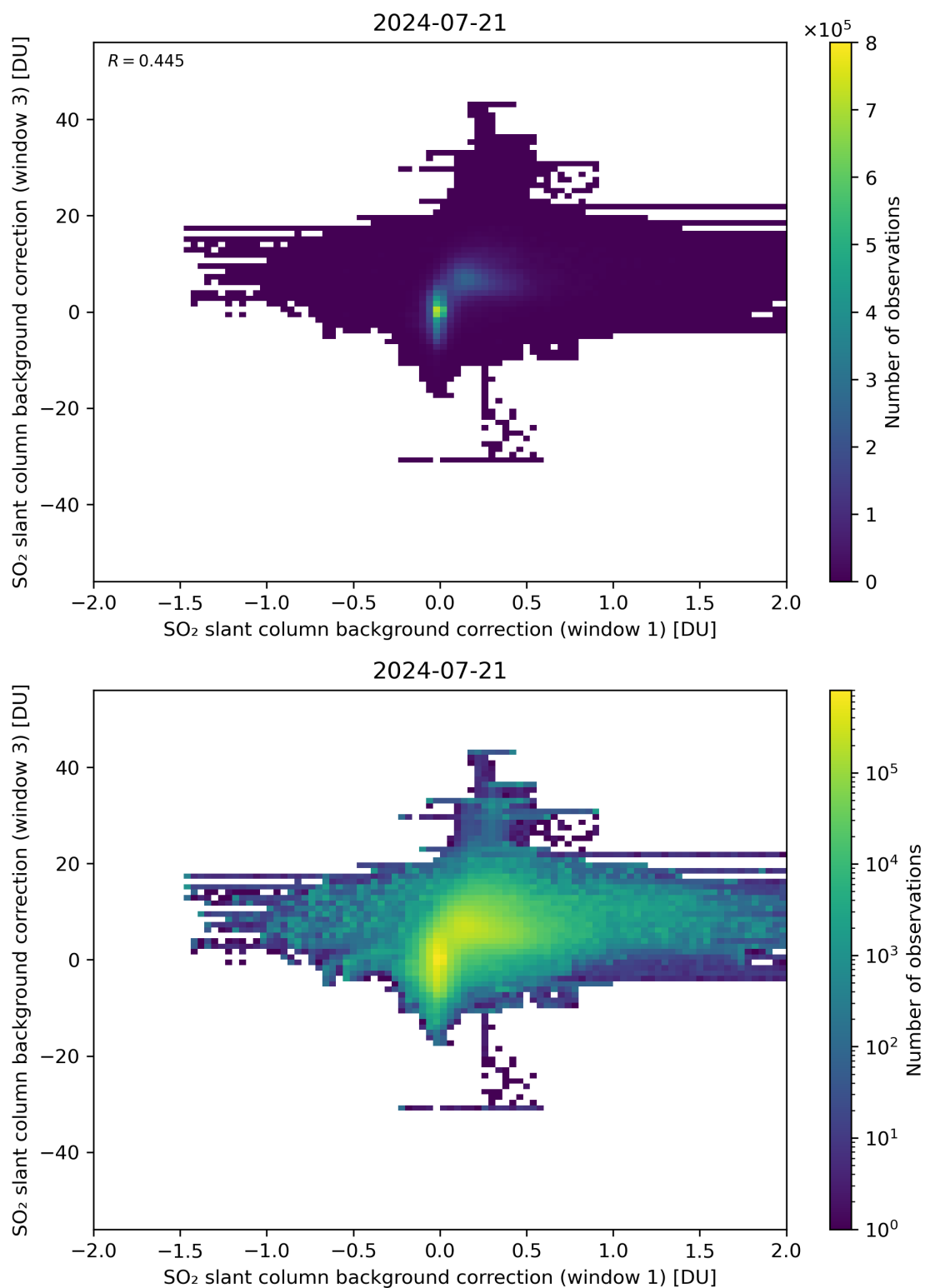


Figure 99: Scatter density plot of “SO₂ slant column background correction (window 1)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

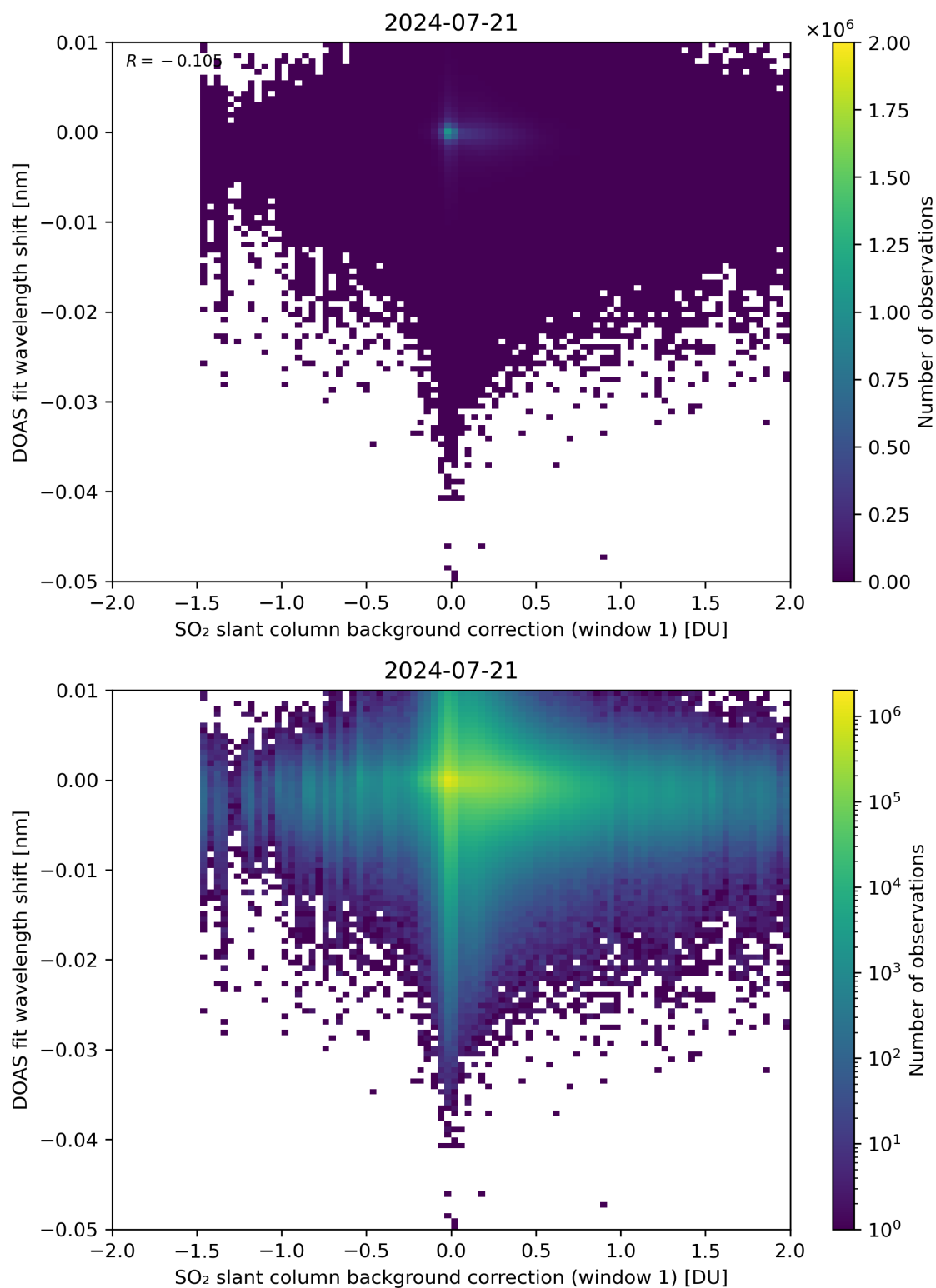


Figure 100: Scatter density plot of “SO₂ slant column background correction (window 1)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

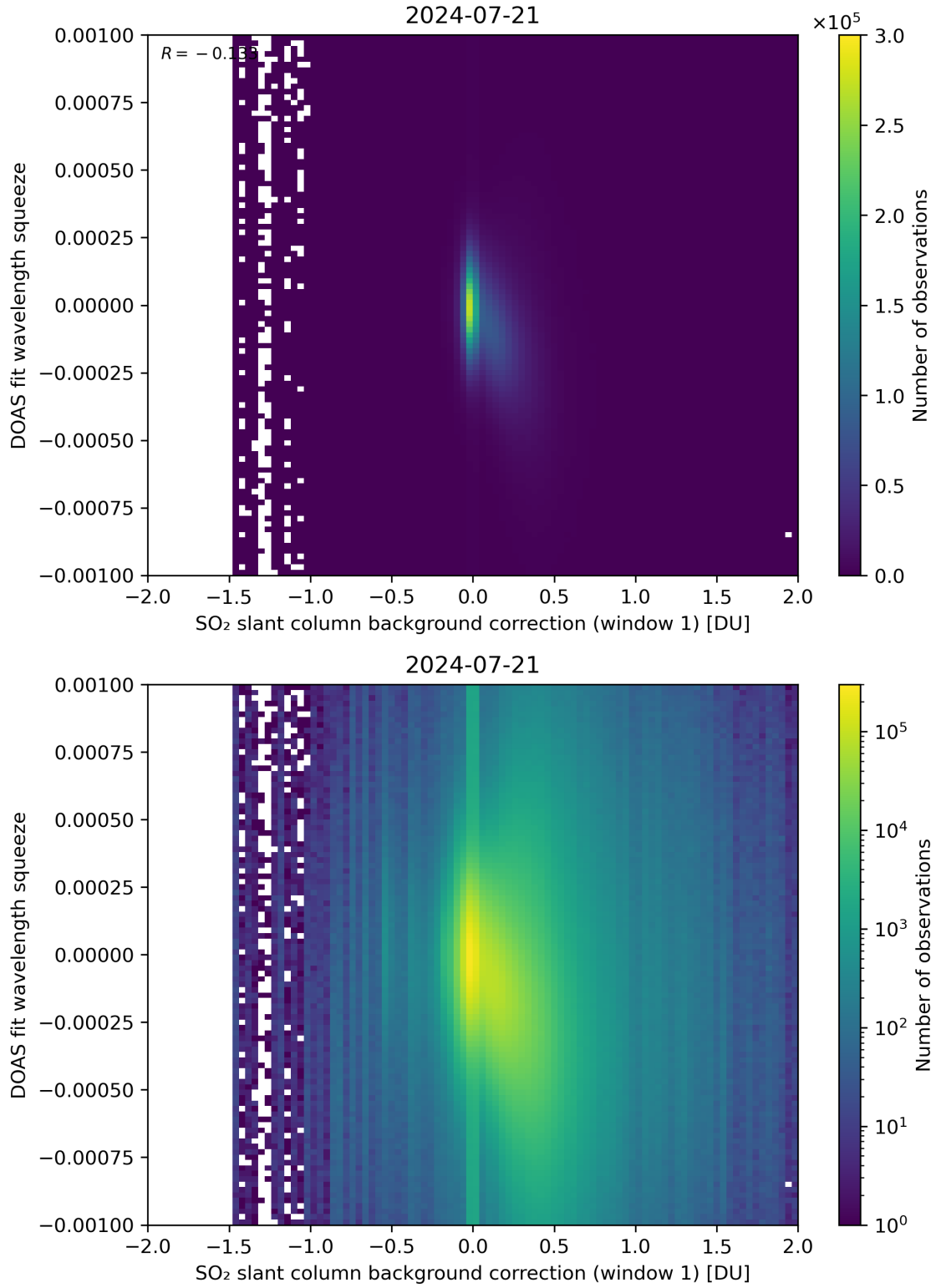


Figure 101: Scatter density plot of “SO₂ slant column background correction (window 1)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

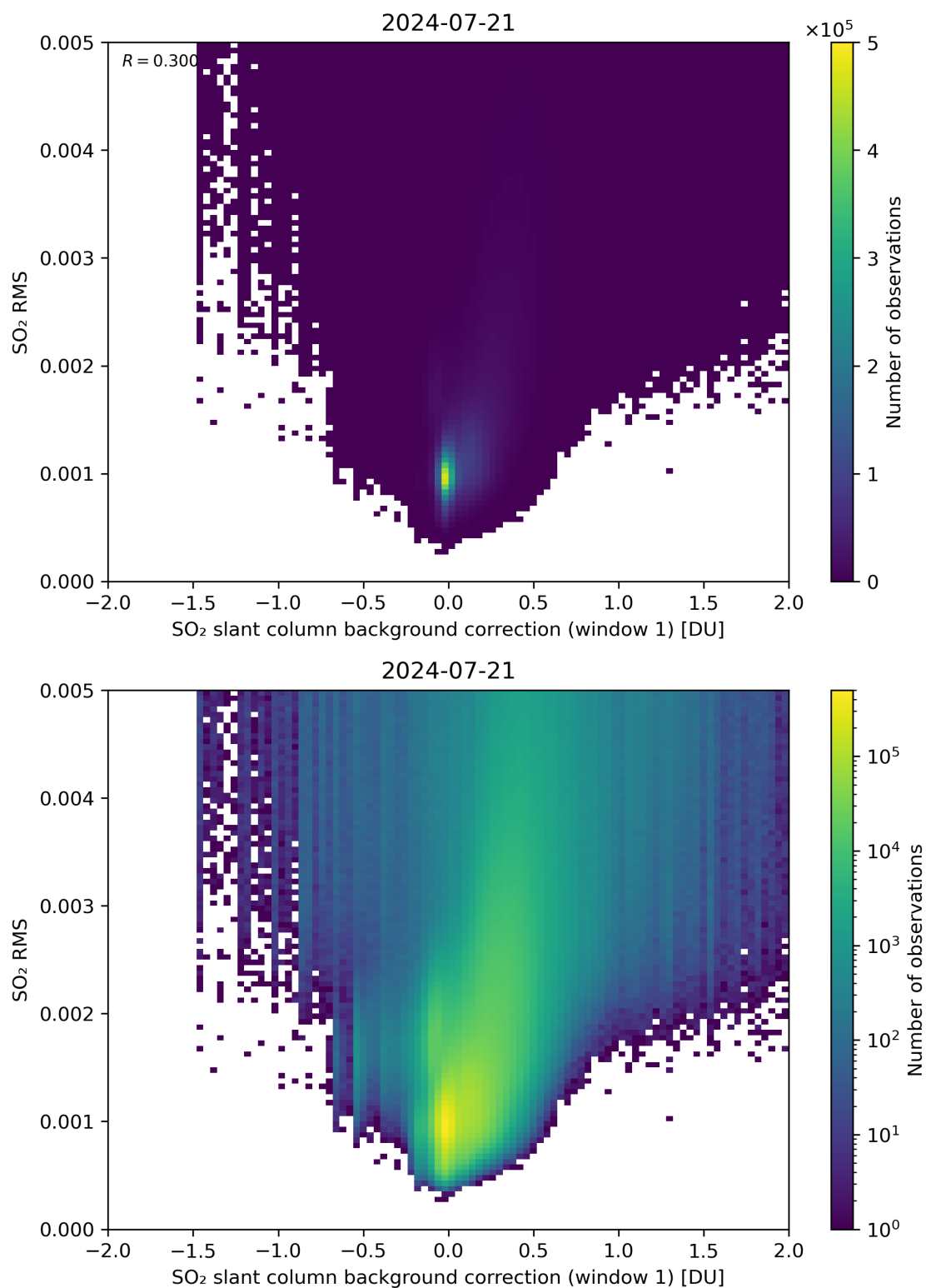


Figure 102: Scatter density plot of “SO₂ slant column background correction (window 1)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

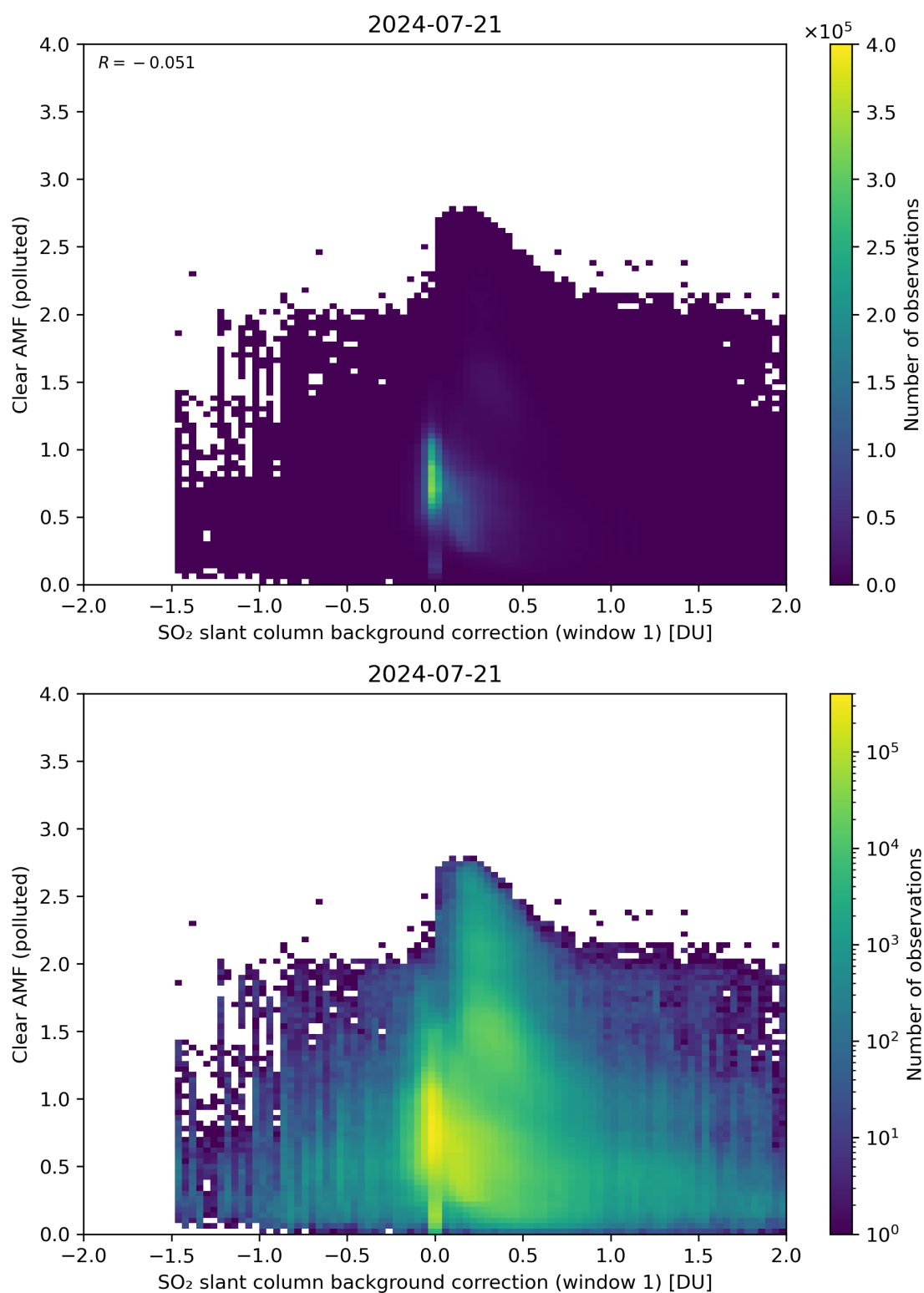


Figure 103: Scatter density plot of “SO₂ slant column background correction (window 1)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

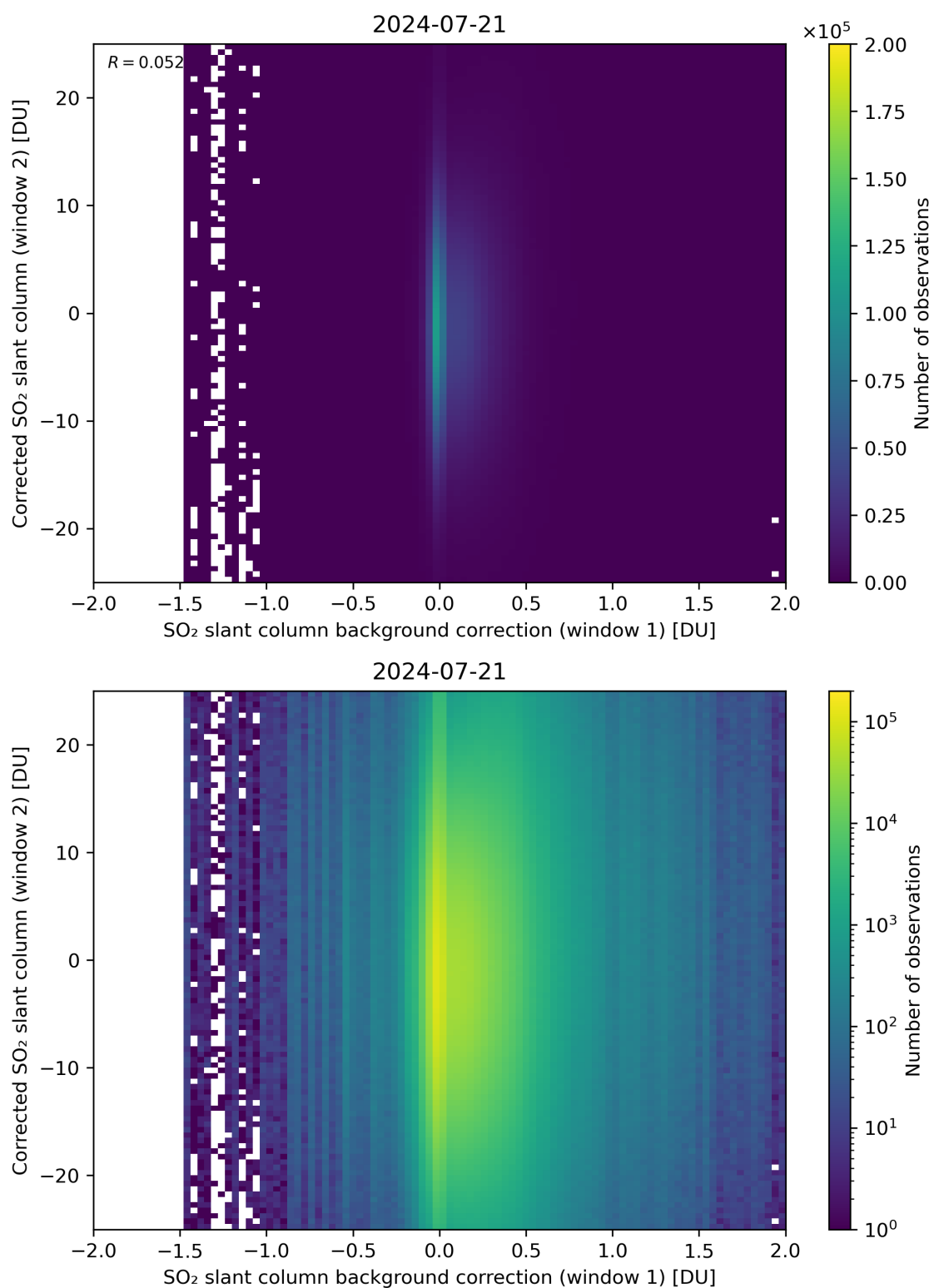


Figure 104: Scatter density plot of “SO₂ slant column background correction (window 1)” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

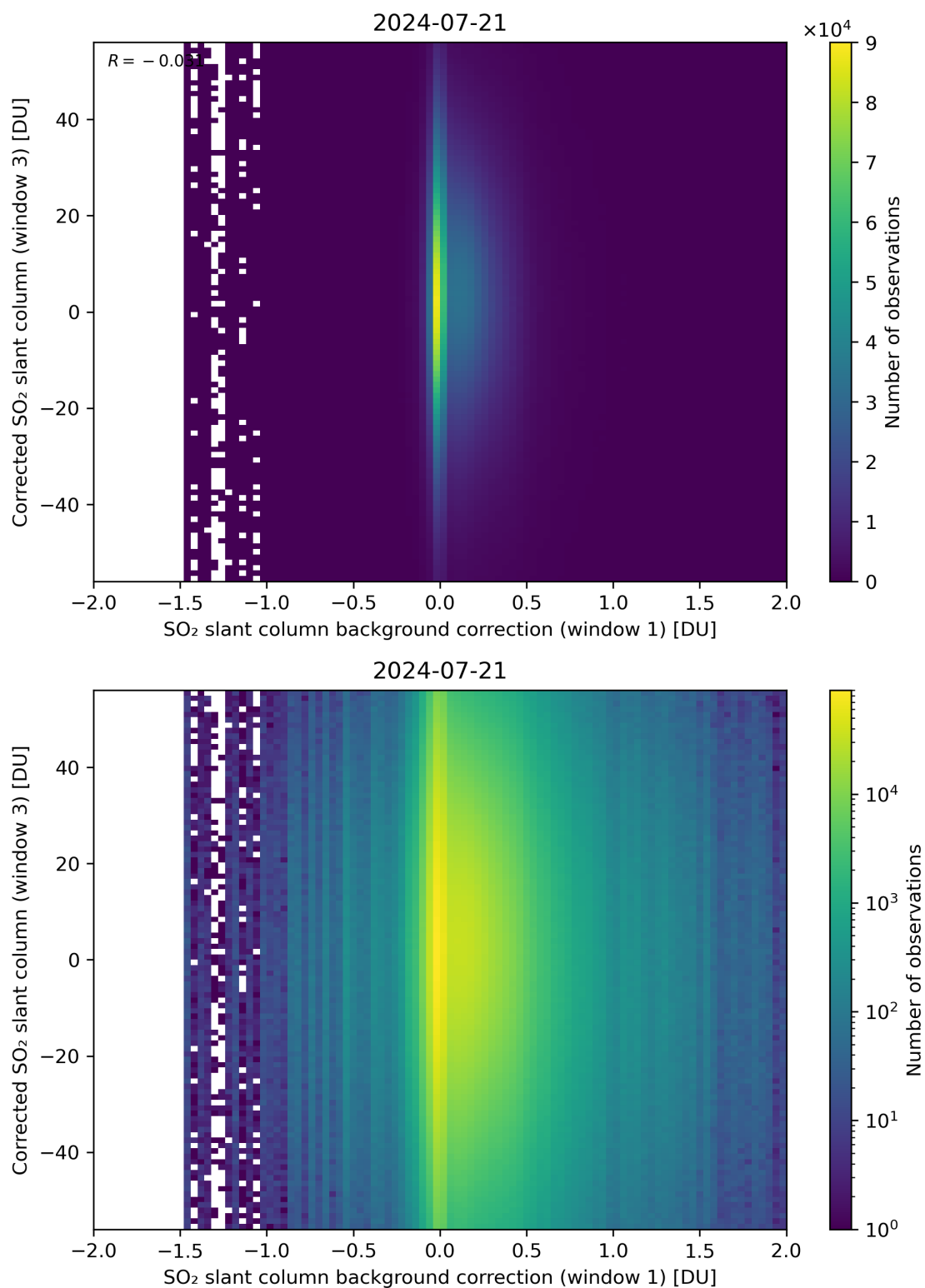


Figure 105: Scatter density plot of “SO₂ slant column background correction (window 1)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

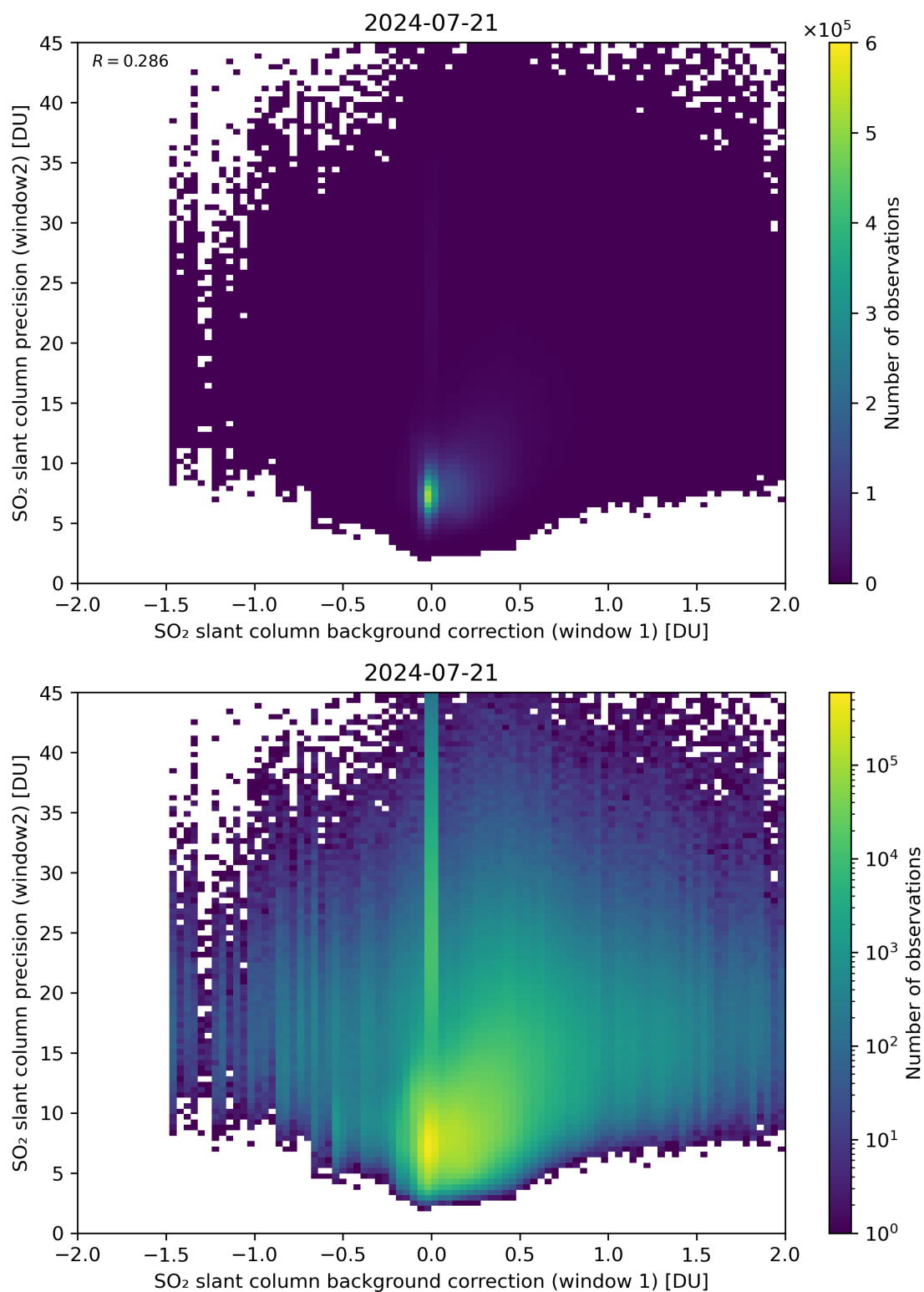


Figure 106: Scatter density plot of “SO₂ slant column background correction (window 1)” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

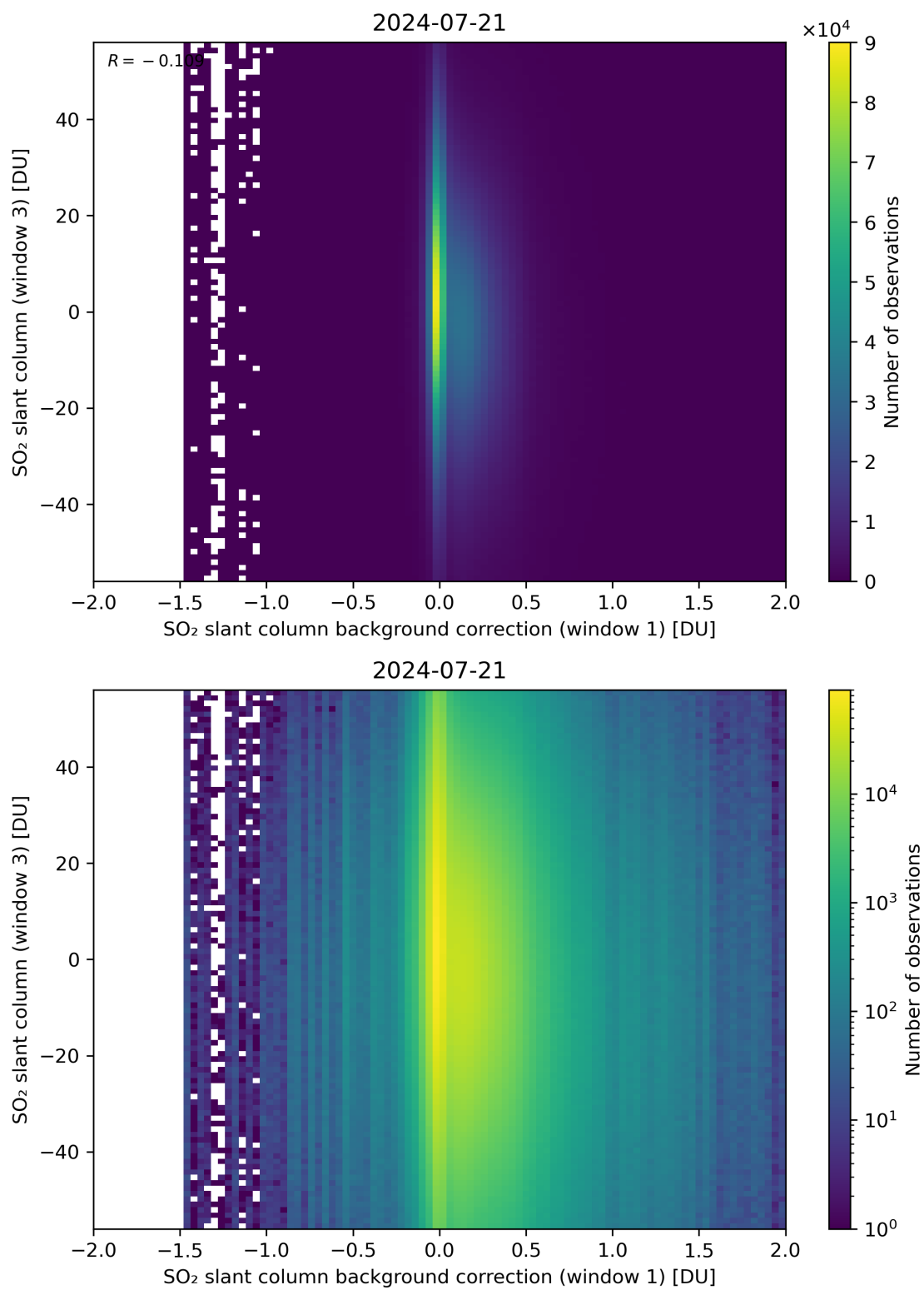


Figure 107: Scatter density plot of “SO₂ slant column background correction (window 1)” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

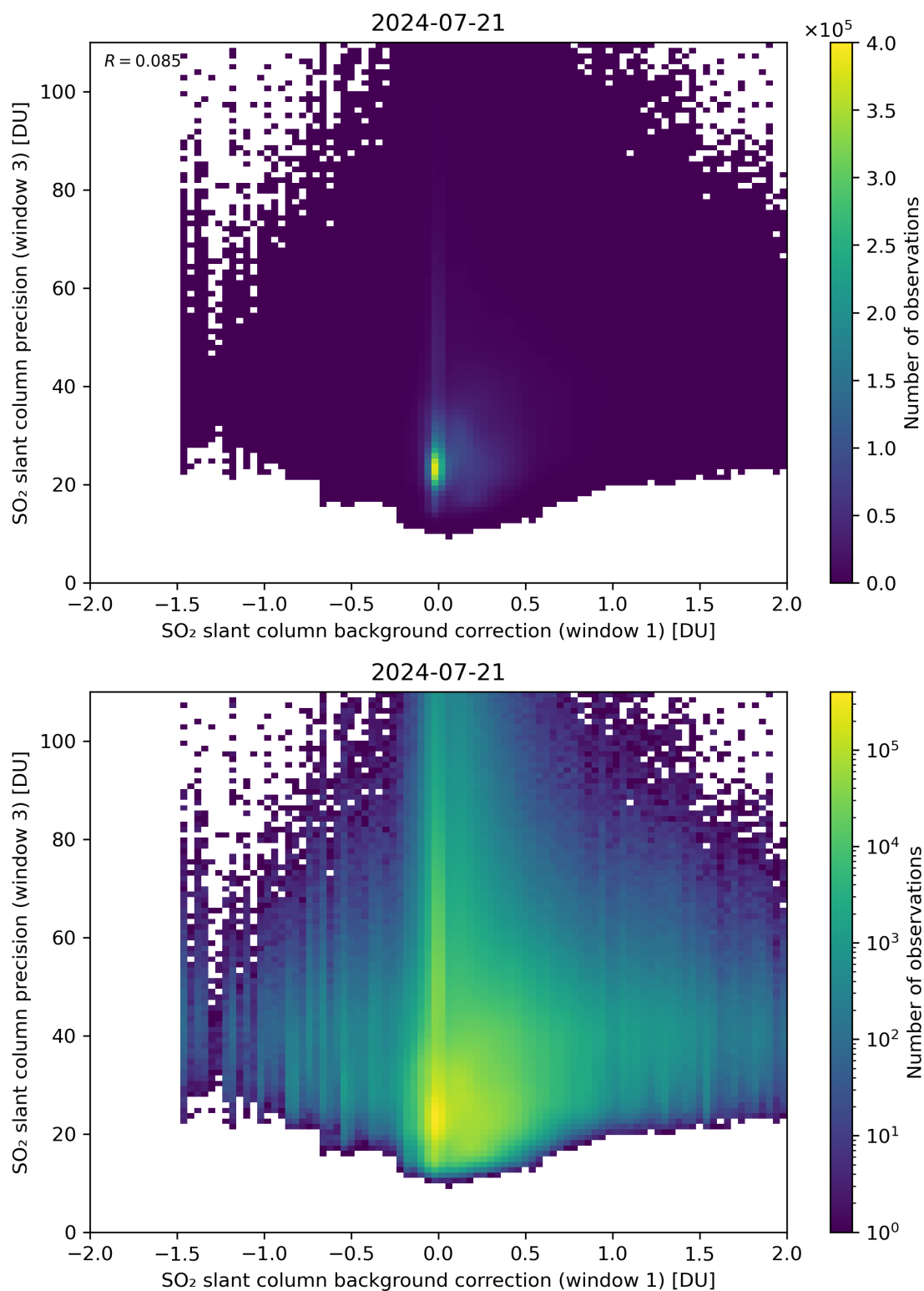


Figure 108: Scatter density plot of “SO₂ slant column background correction (window 1)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

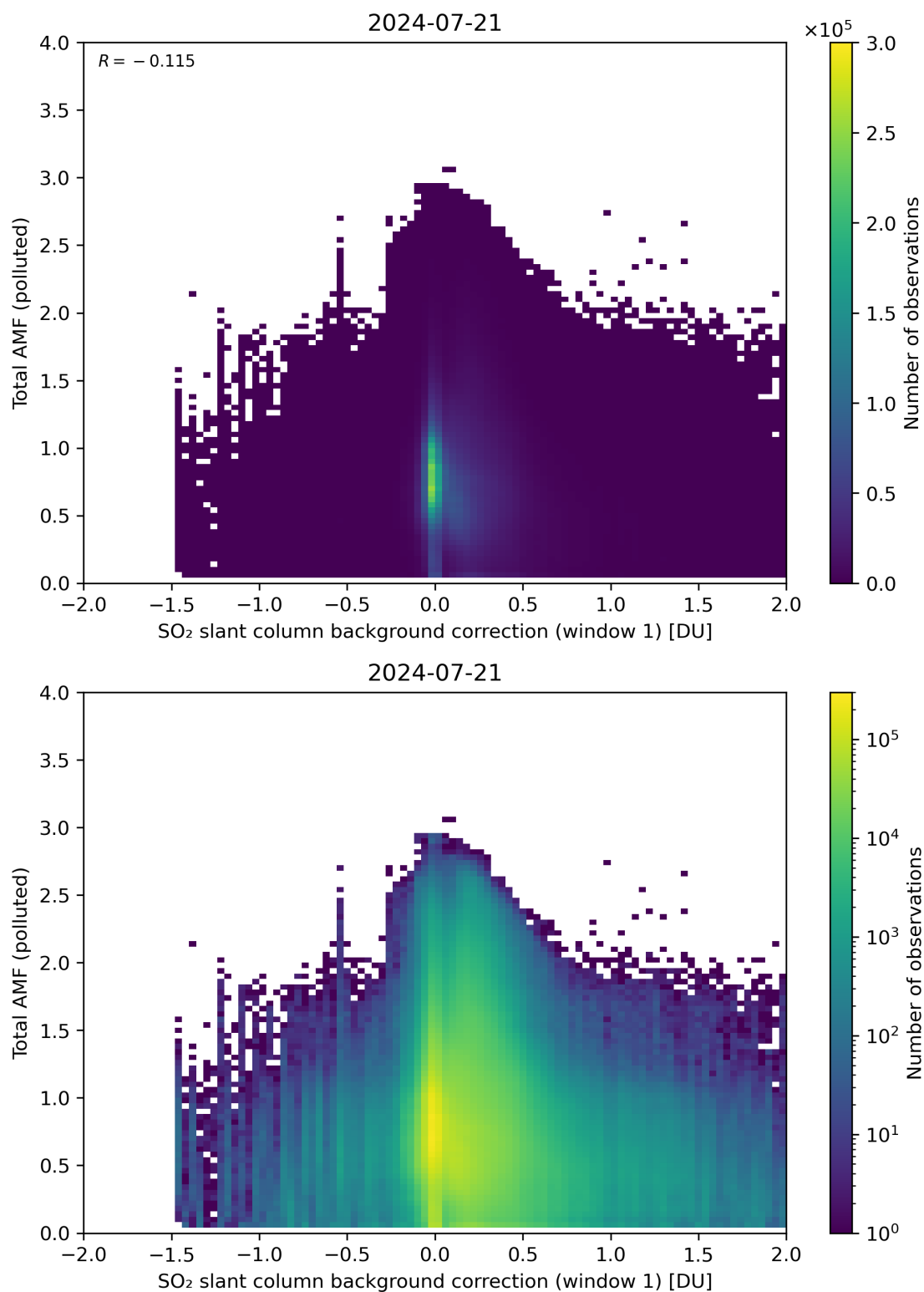


Figure 109: Scatter density plot of “SO₂ slant column background correction (window 1)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

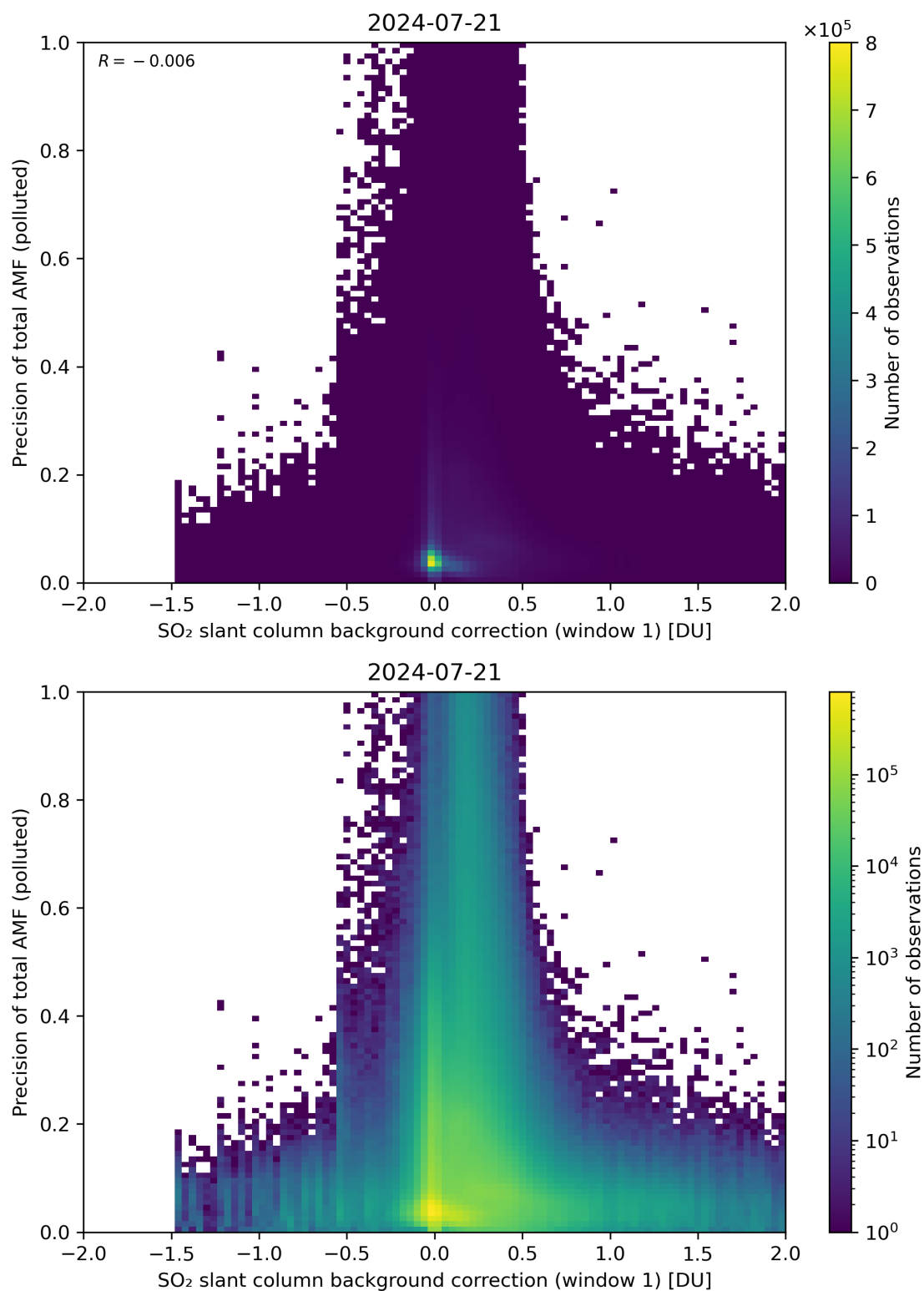


Figure 110: Scatter density plot of “SO₂ slant column background correction (window 1)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

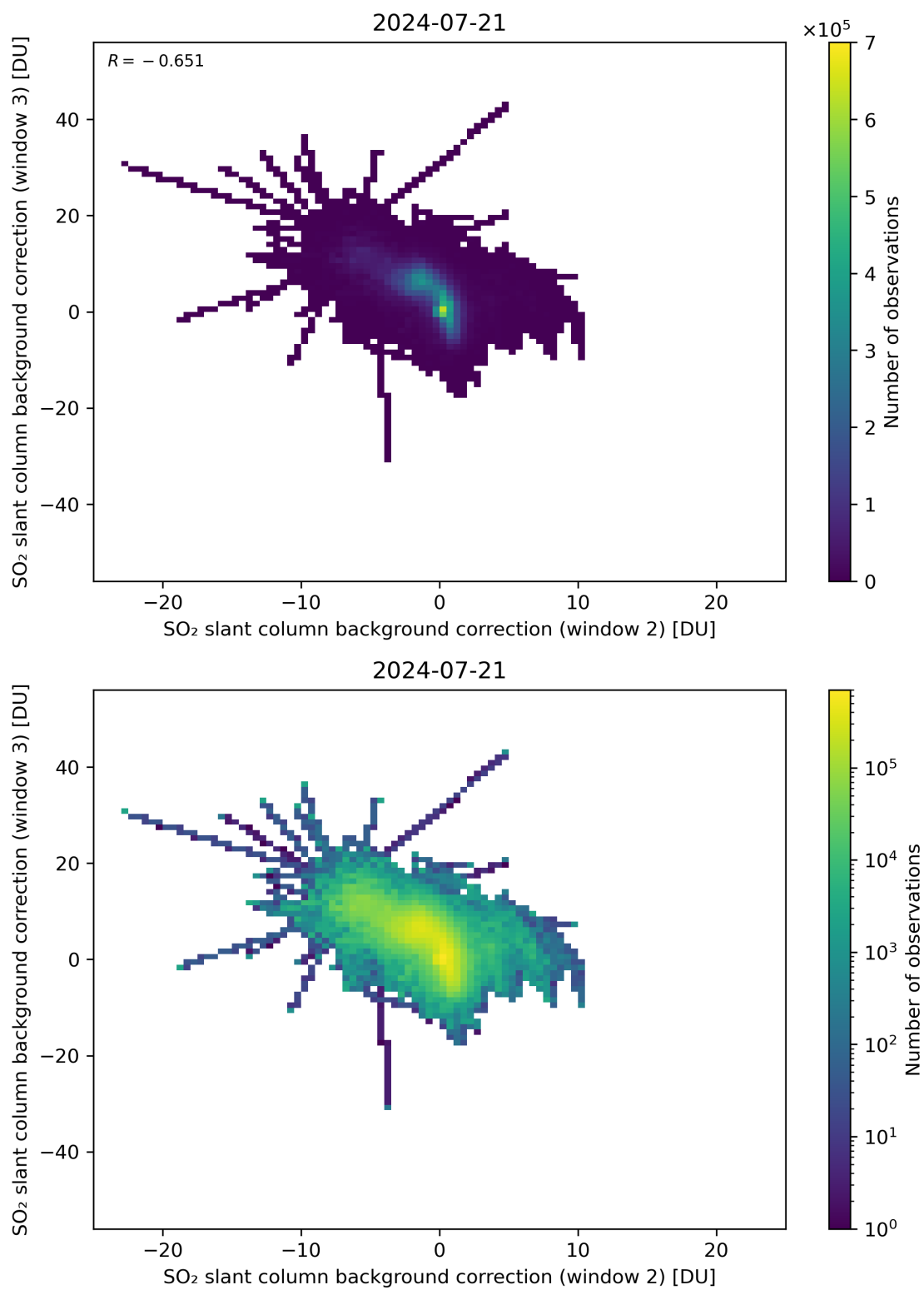


Figure 111: Scatter density plot of “SO₂ slant column background correction (window 2)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

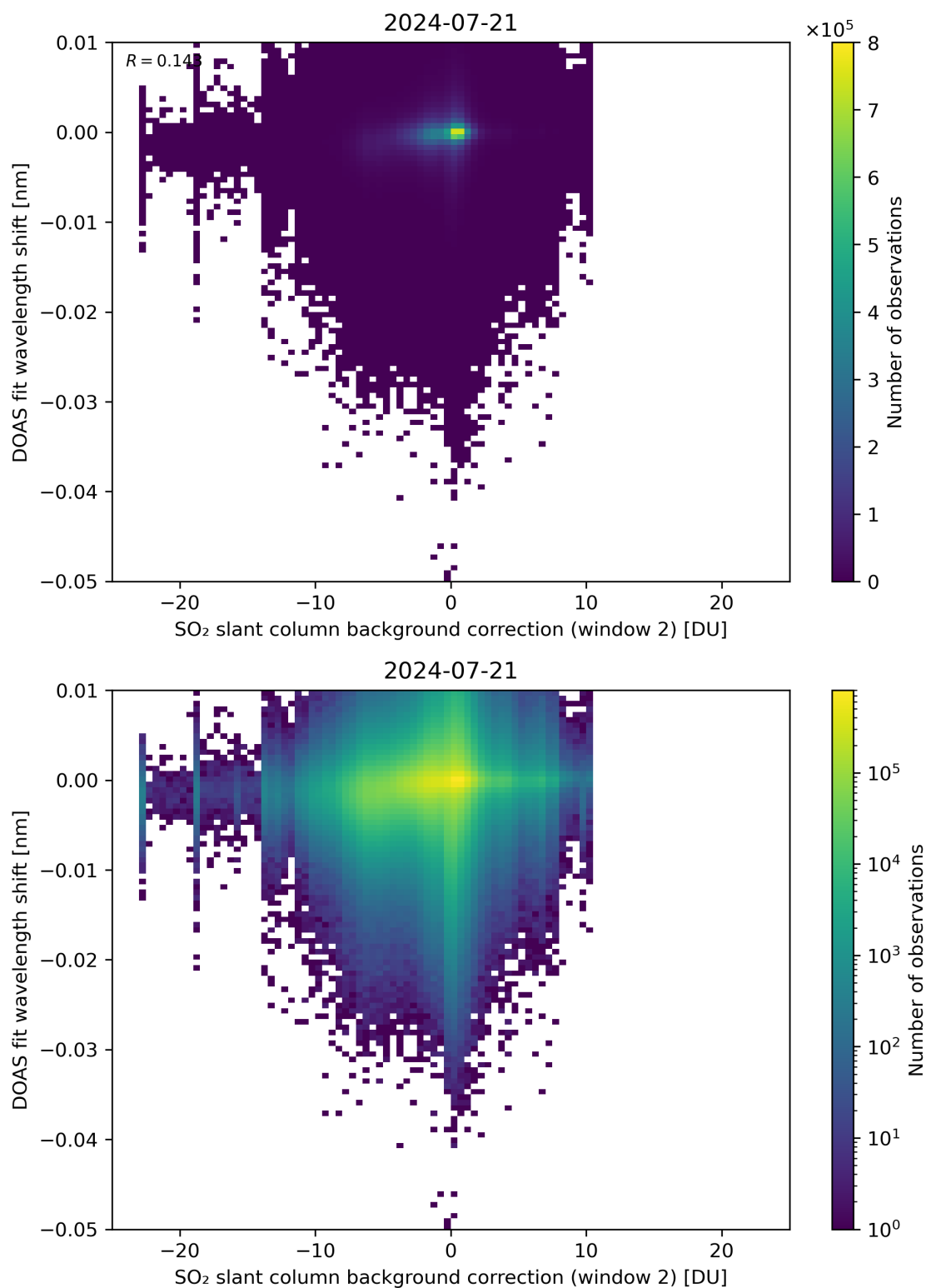


Figure 112: Scatter density plot of “SO₂ slant column background correction (window 2)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

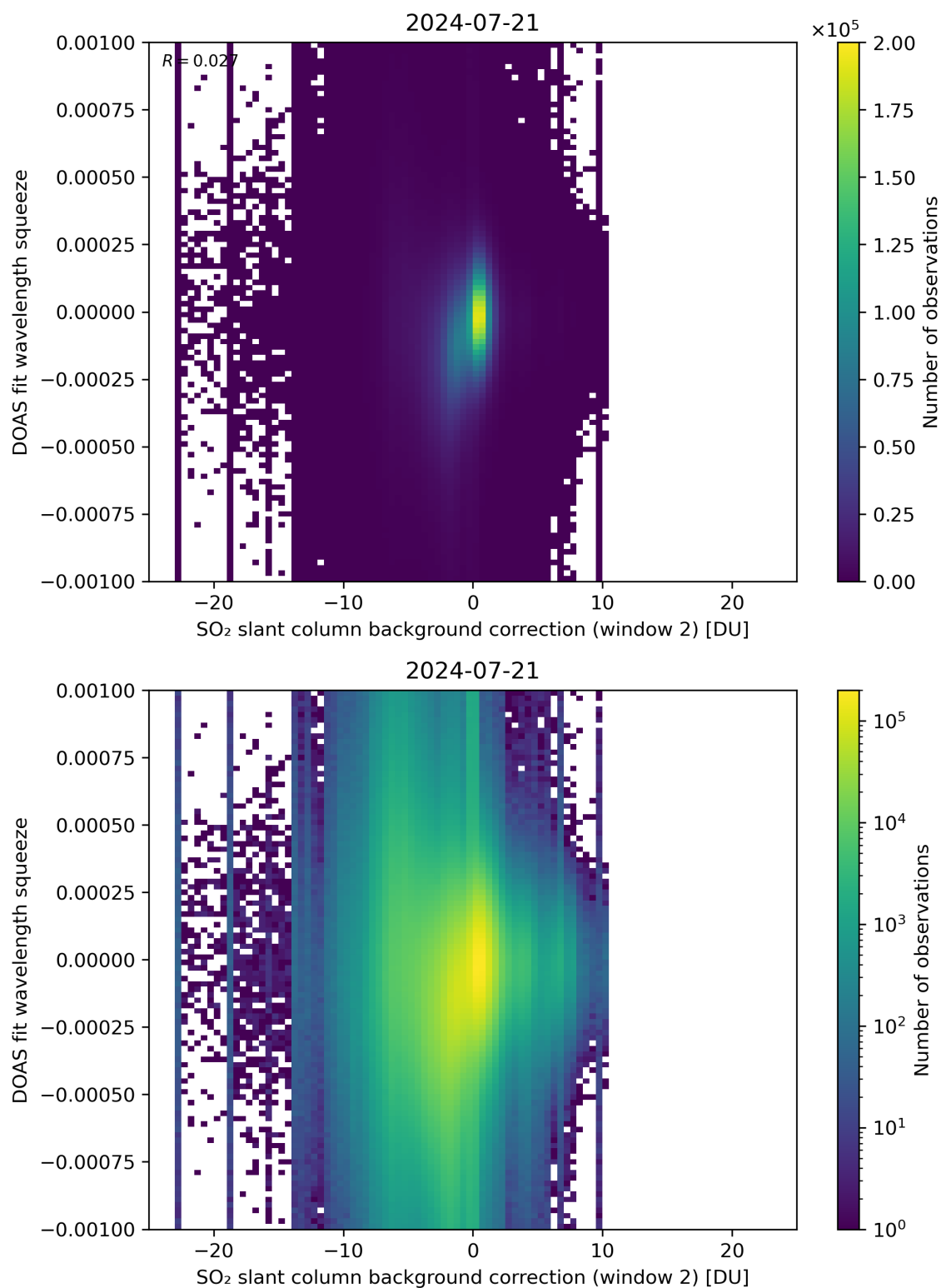


Figure 113: Scatter density plot of “SO₂ slant column background correction (window 2)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

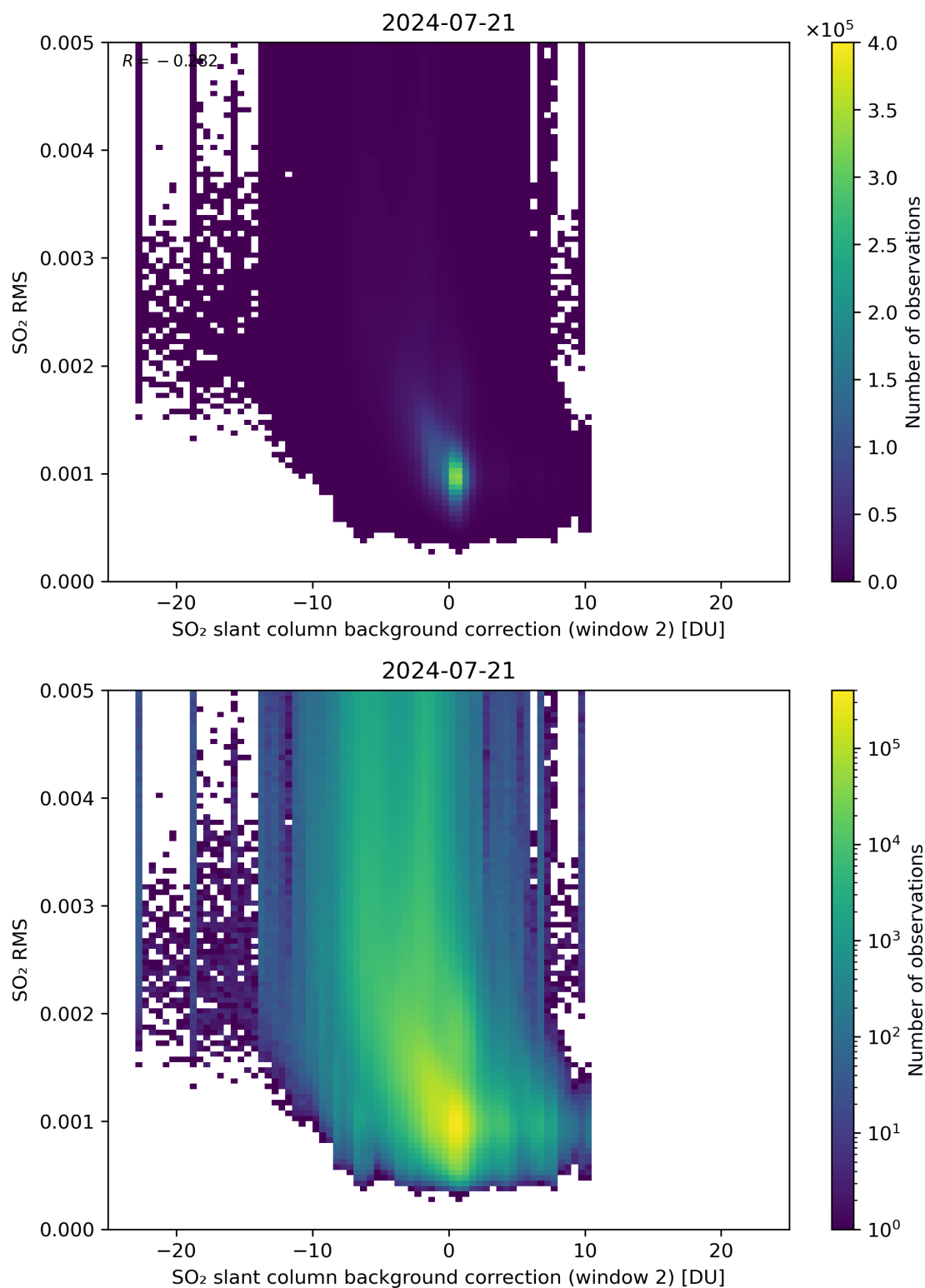


Figure 114: Scatter density plot of “SO₂ slant column background correction (window 2)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

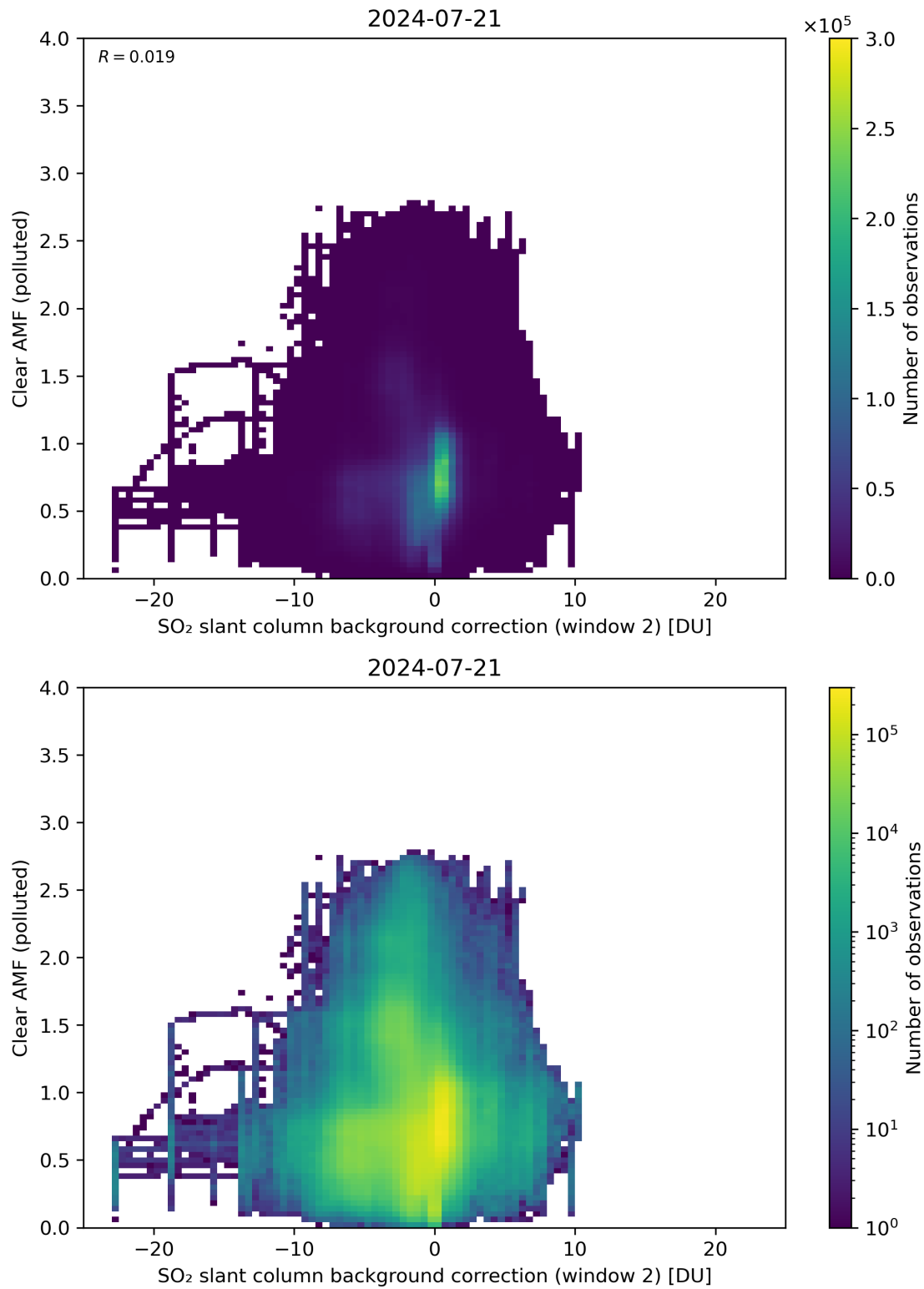


Figure 115: Scatter density plot of “SO₂ slant column background correction (window 2)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

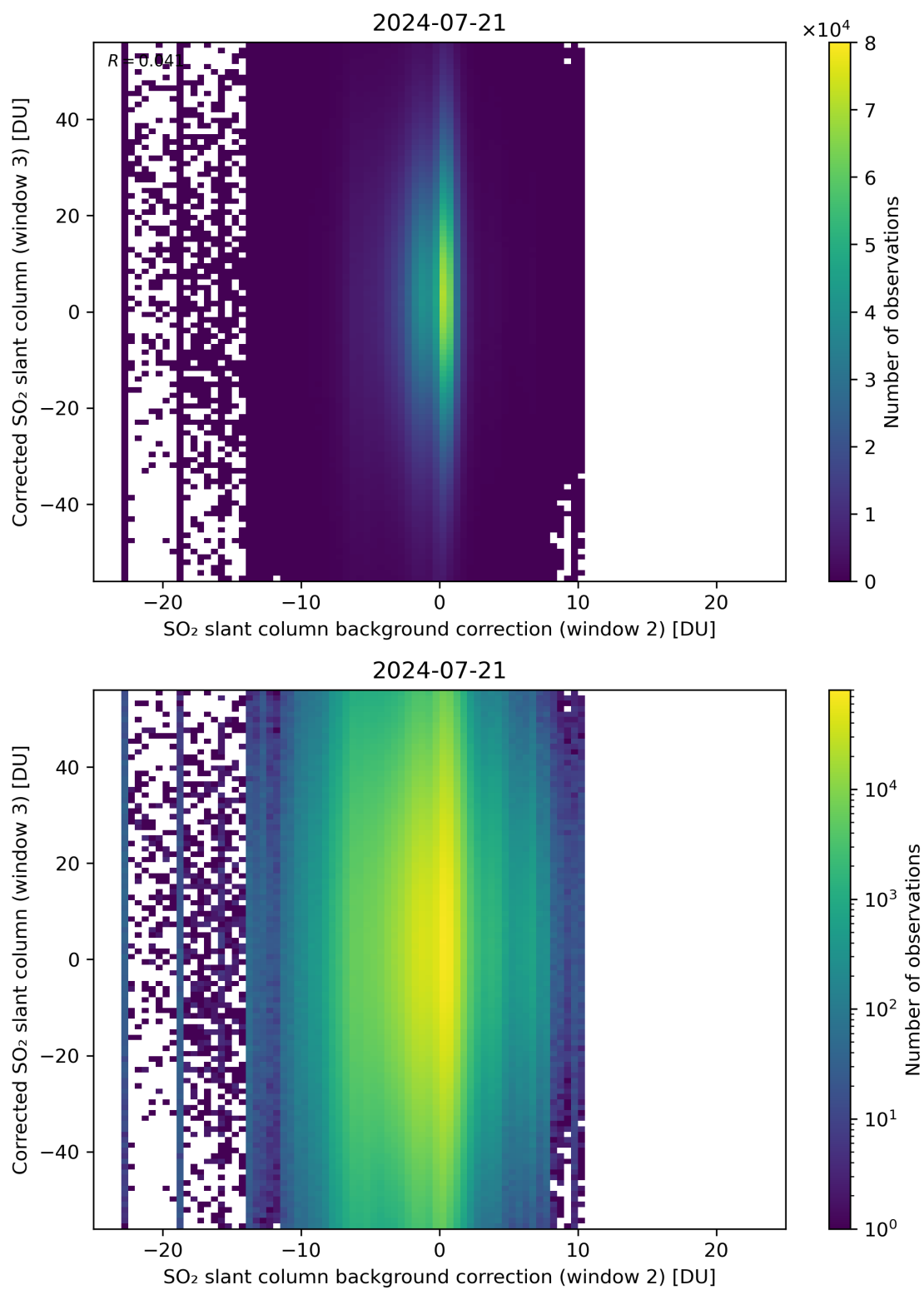


Figure 116: Scatter density plot of “SO₂ slant column background correction (window 2)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

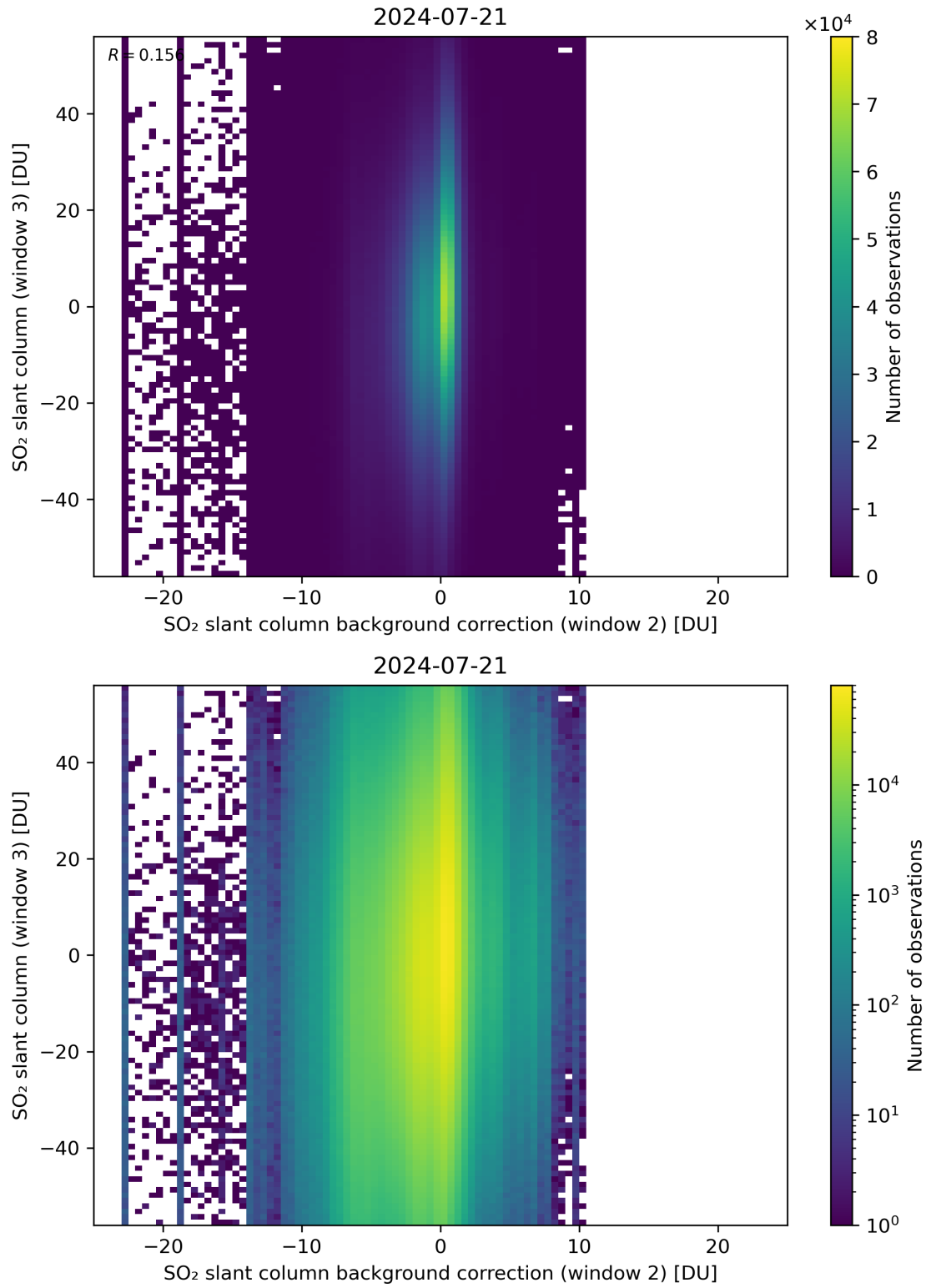


Figure 117: Scatter density plot of “SO₂ slant column background correction (window 2)” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

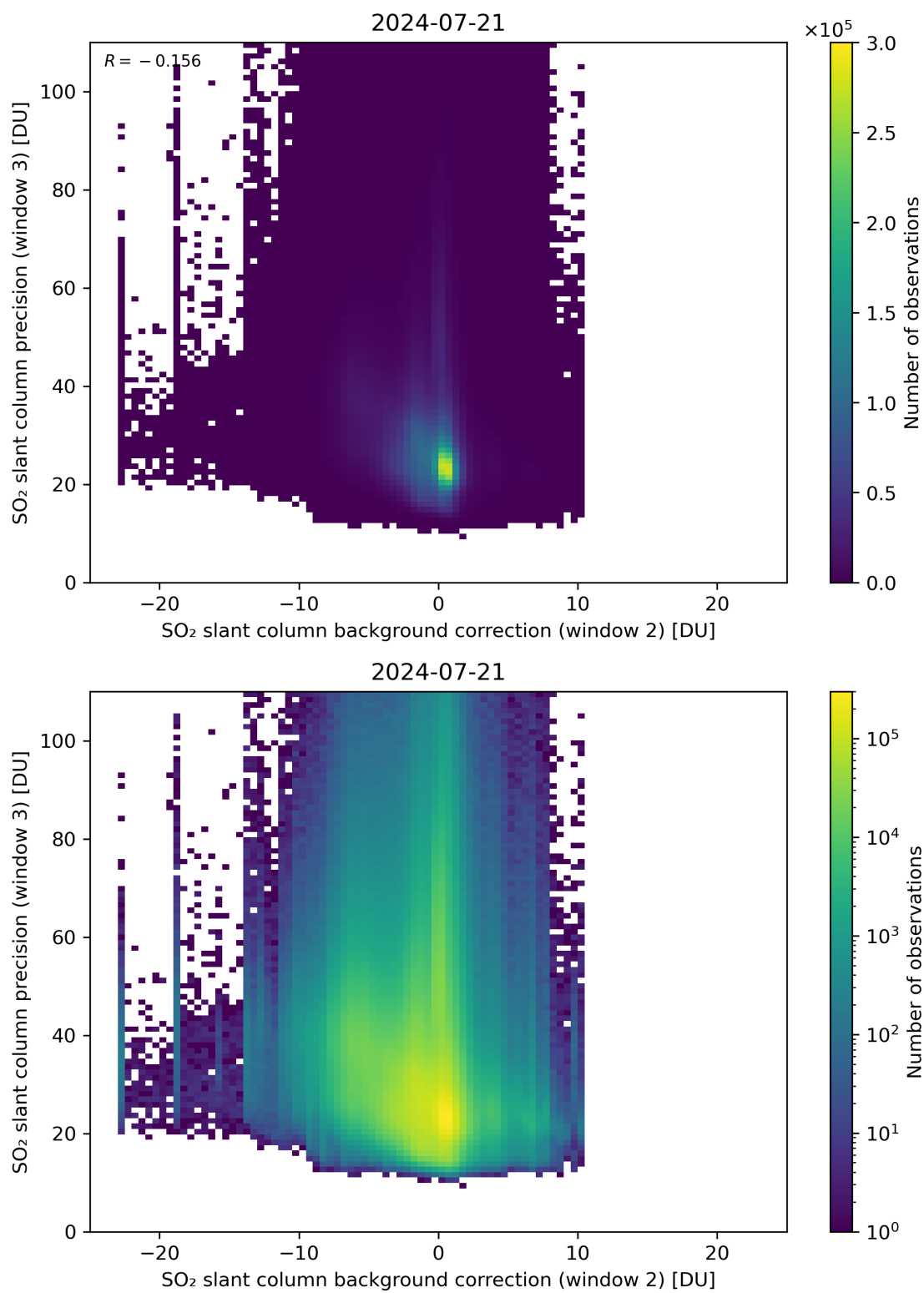


Figure 118: Scatter density plot of “SO₂ slant column background correction (window 2)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

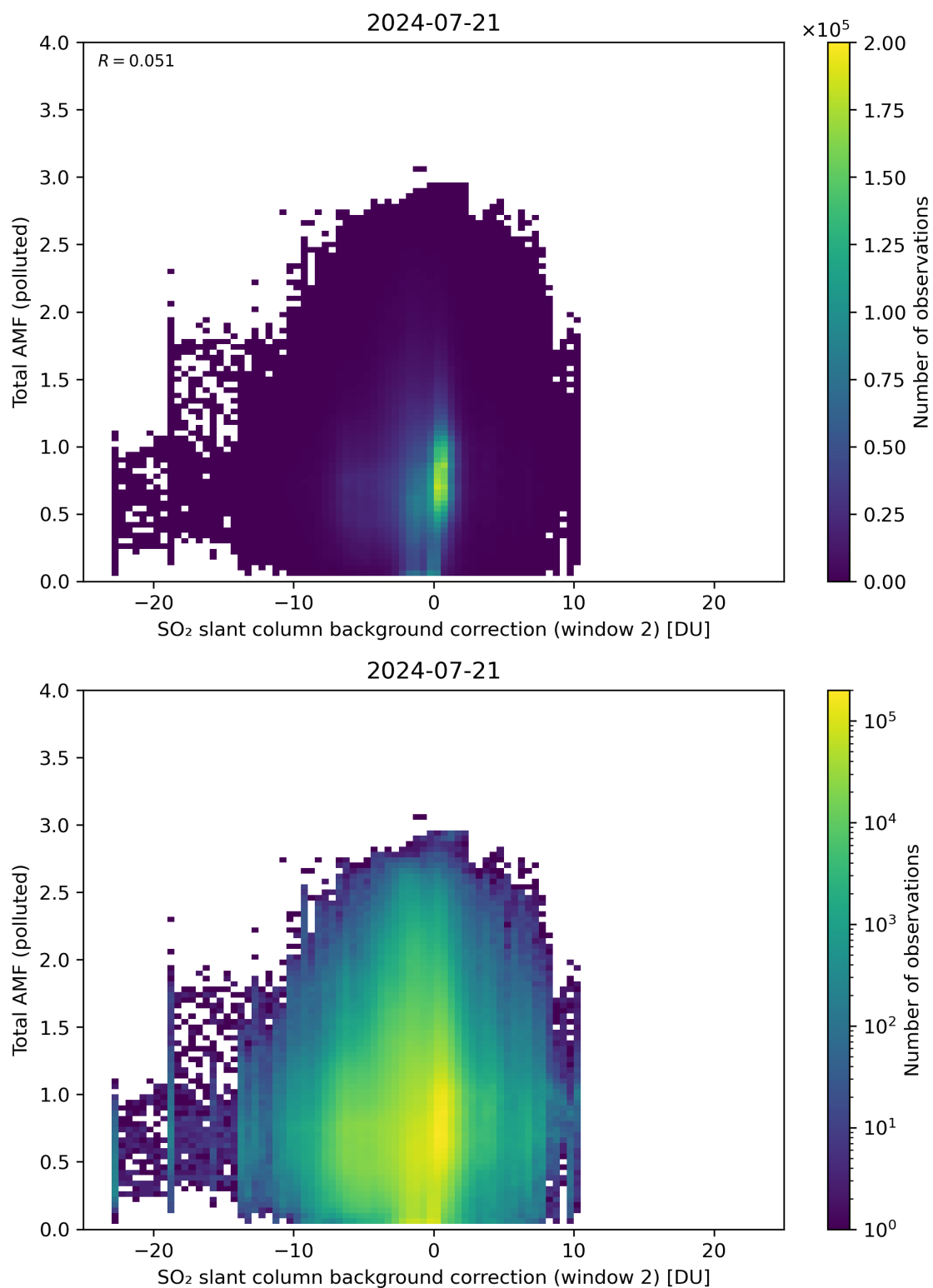


Figure 119: Scatter density plot of “SO₂ slant column background correction (window 2)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

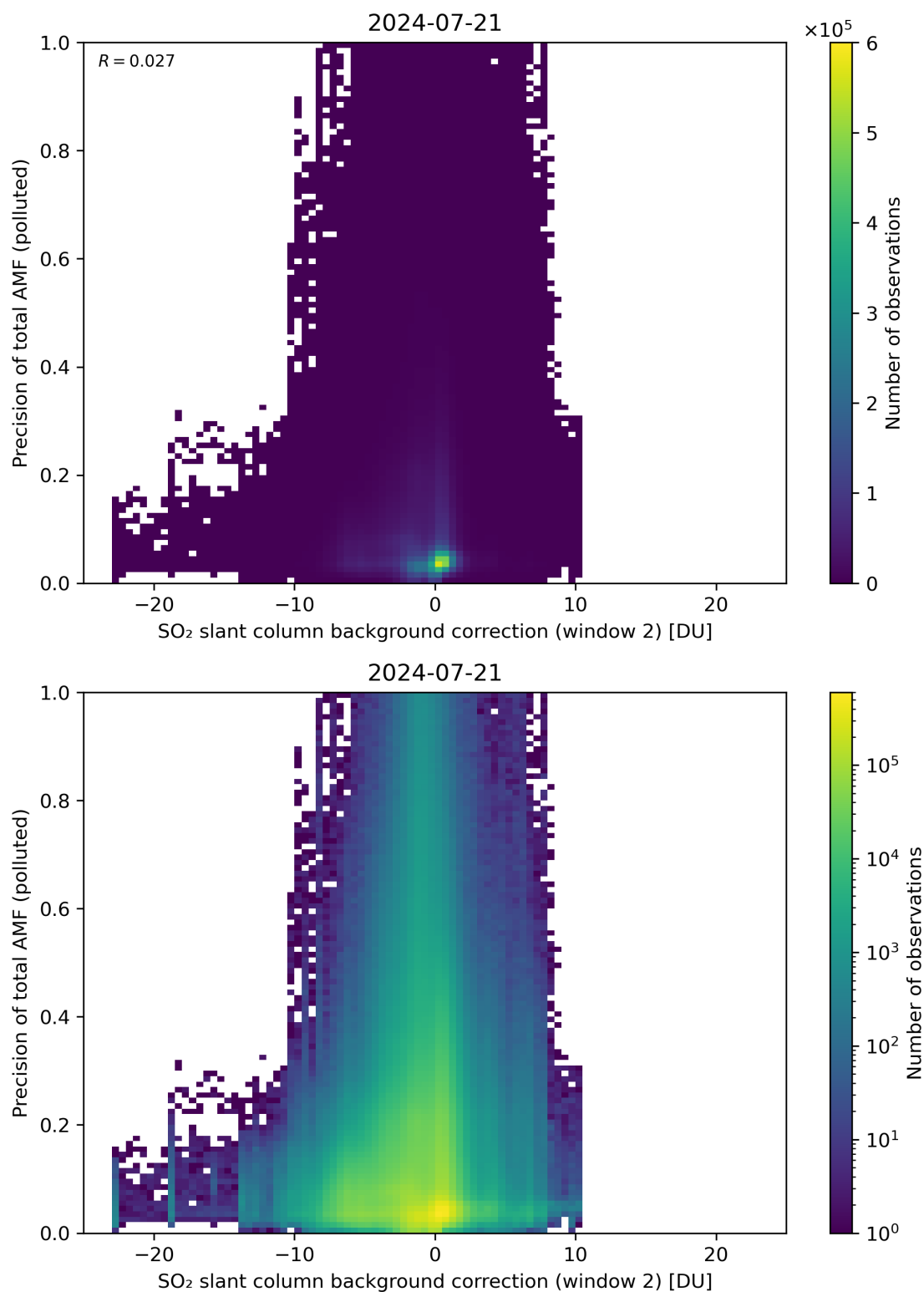


Figure 120: Scatter density plot of “SO₂ slant column background correction (window 2)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

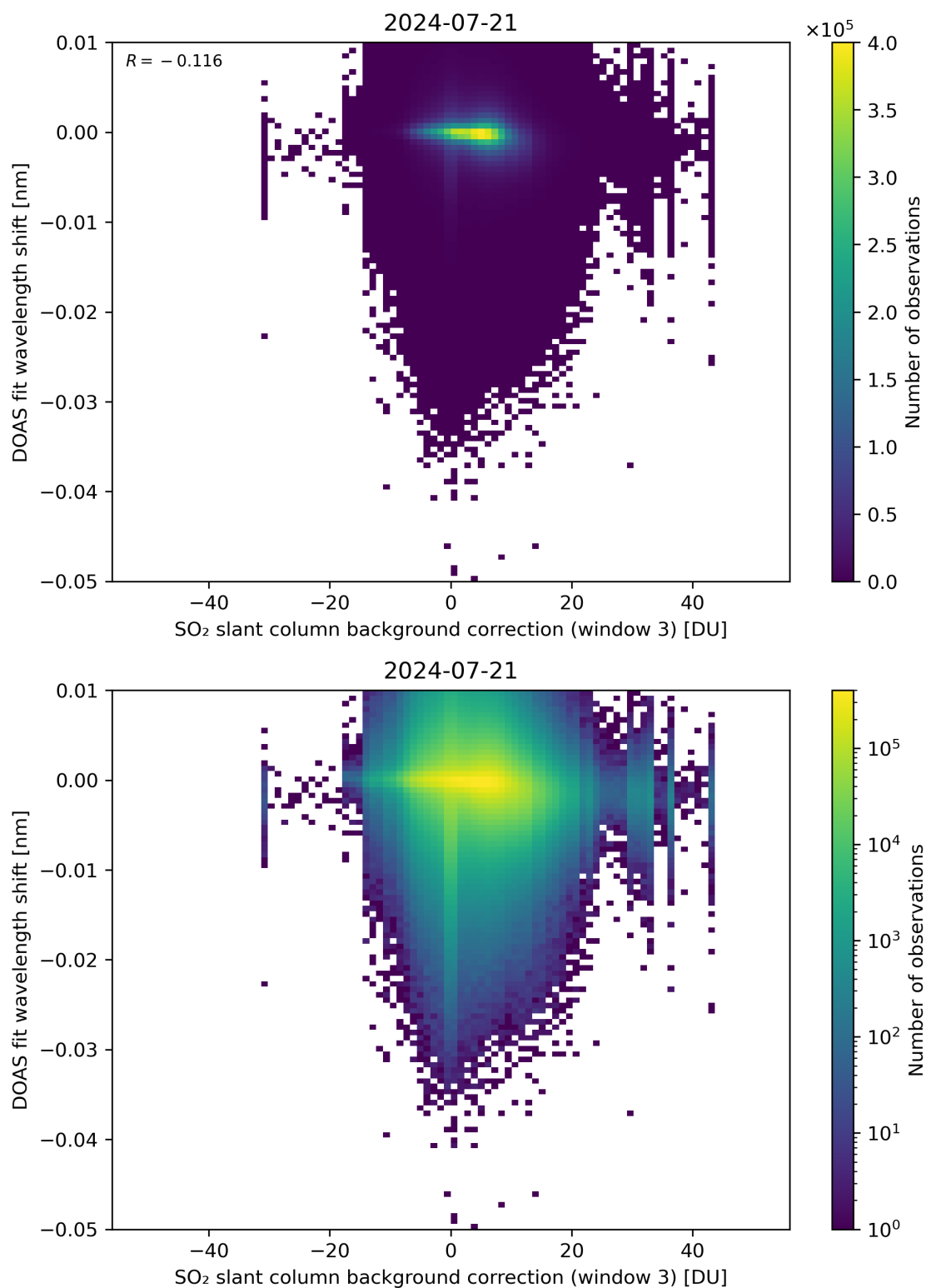


Figure 121: Scatter density plot of “SO₂ slant column background correction (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

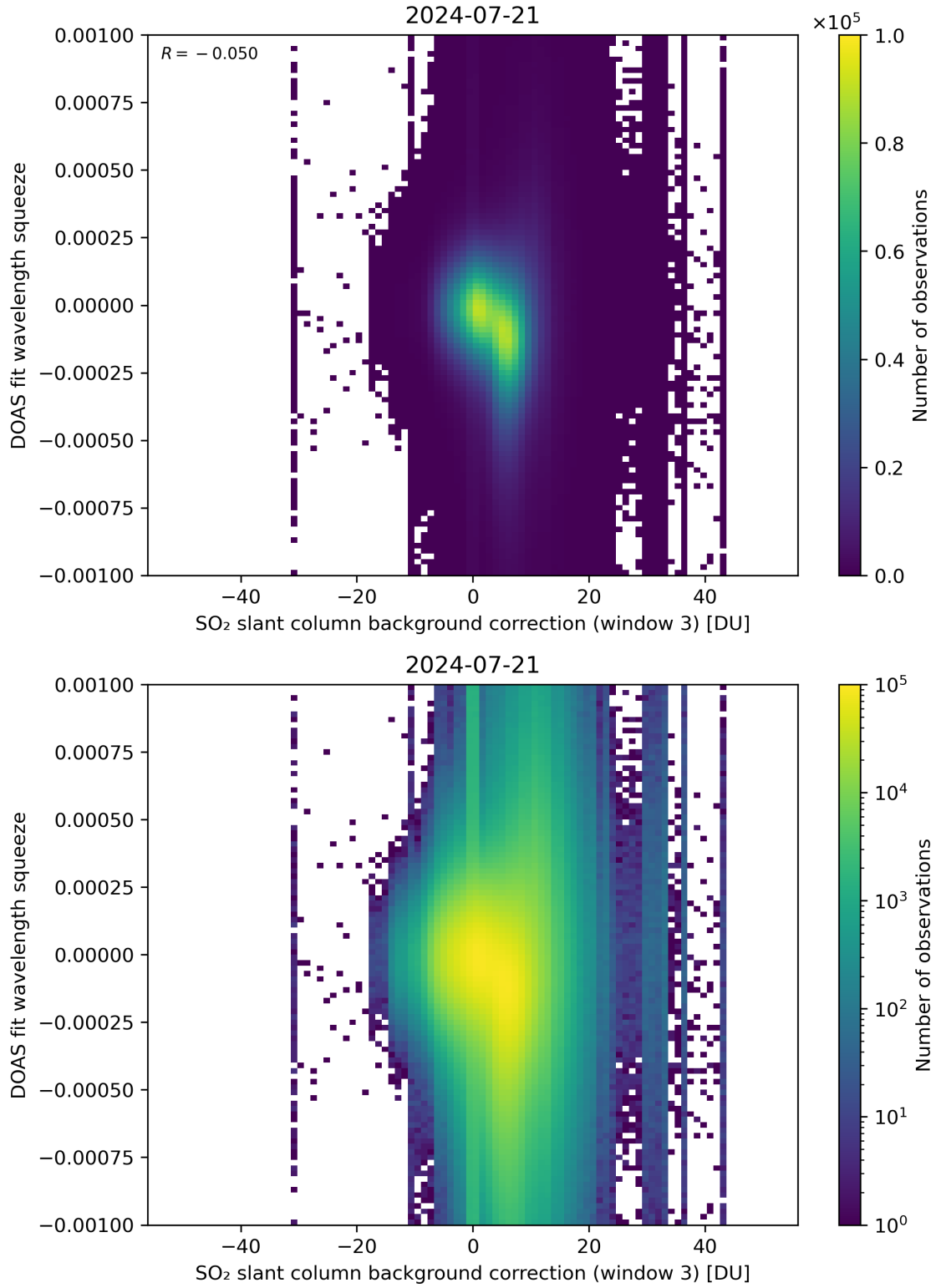


Figure 122: Scatter density plot of “SO₂ slant column background correction (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

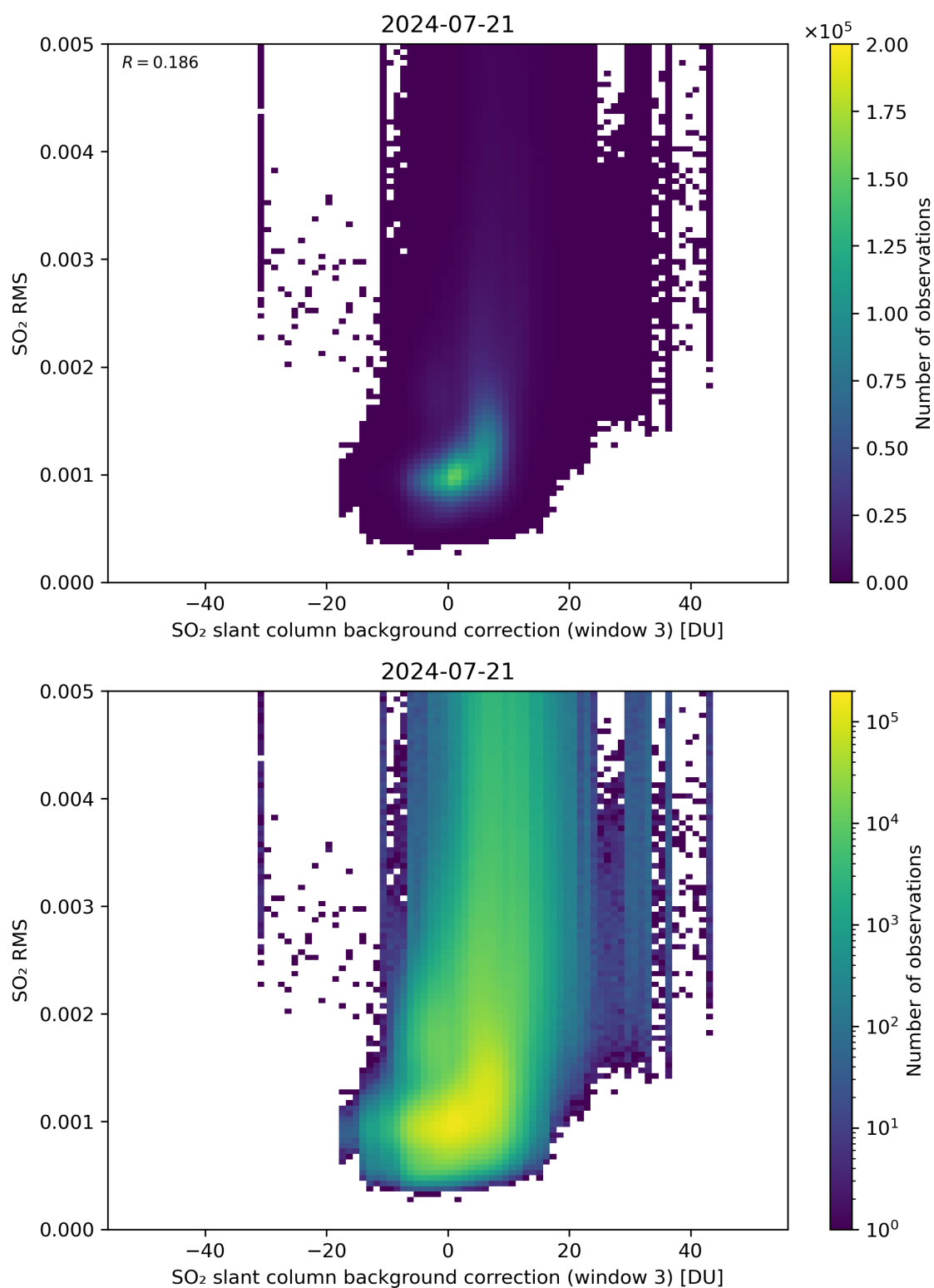


Figure 123: Scatter density plot of “SO₂ slant column background correction (window 3)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

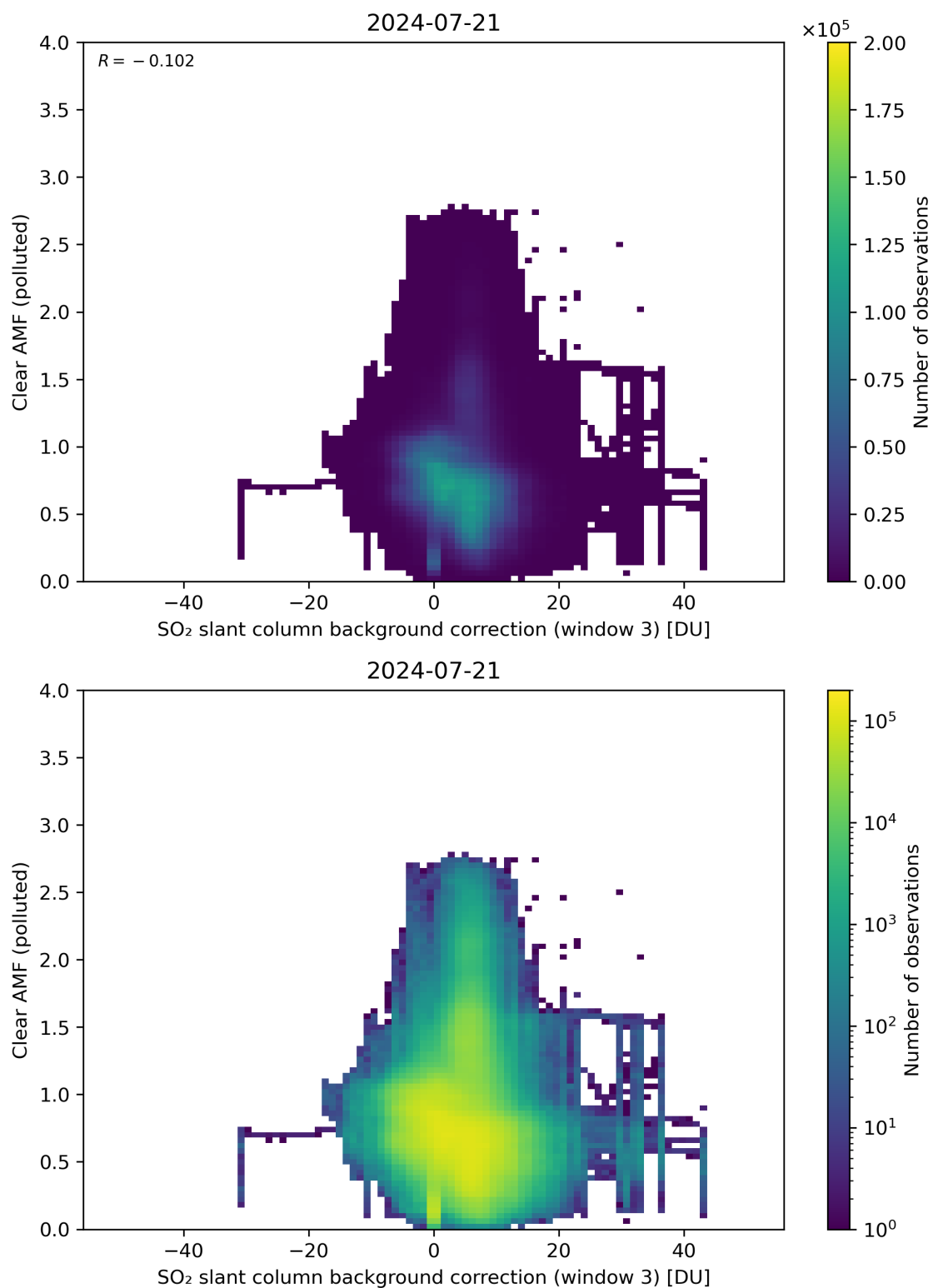


Figure 124: Scatter density plot of “SO₂ slant column background correction (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

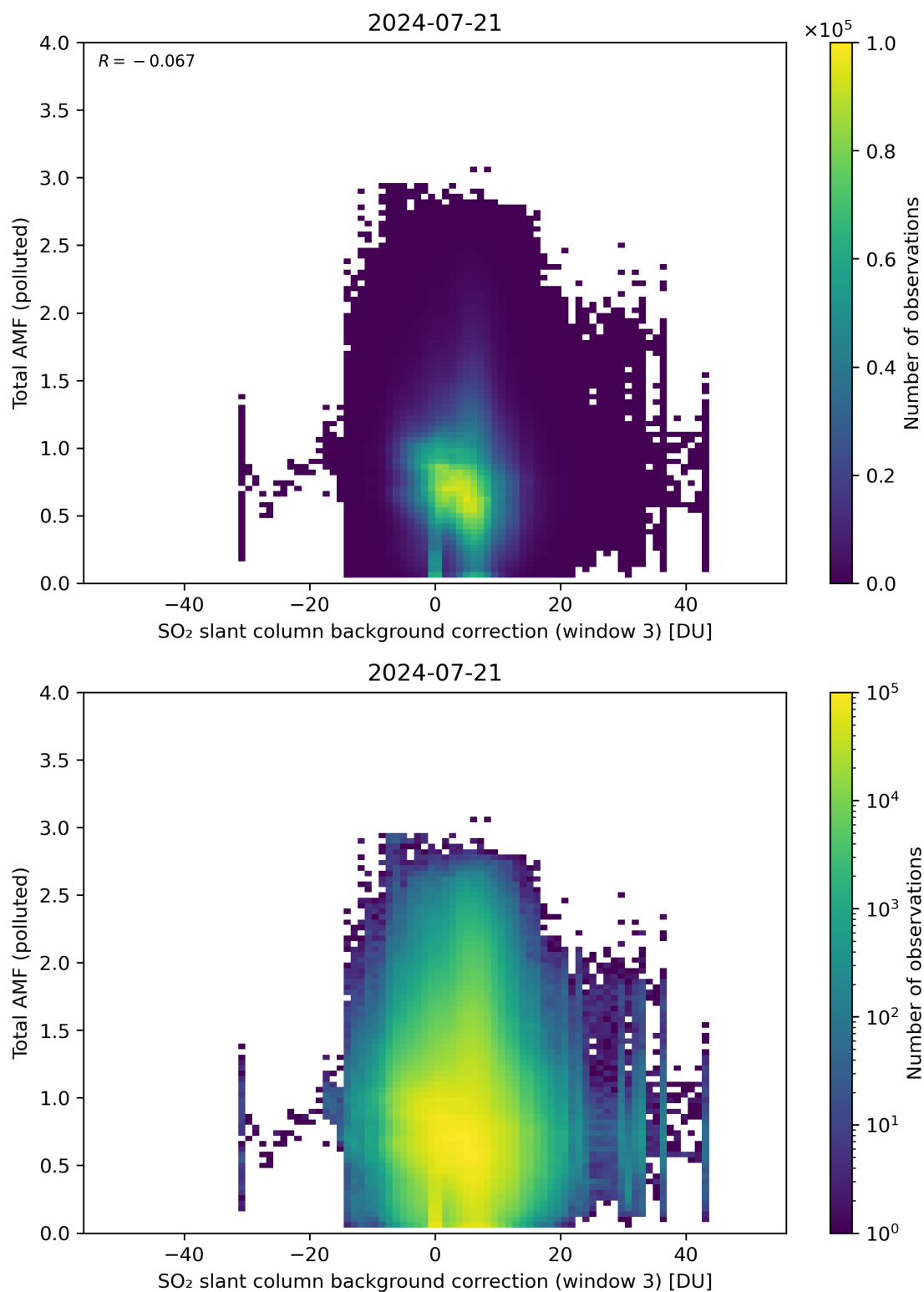


Figure 125: Scatter density plot of “SO₂ slant column background correction (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

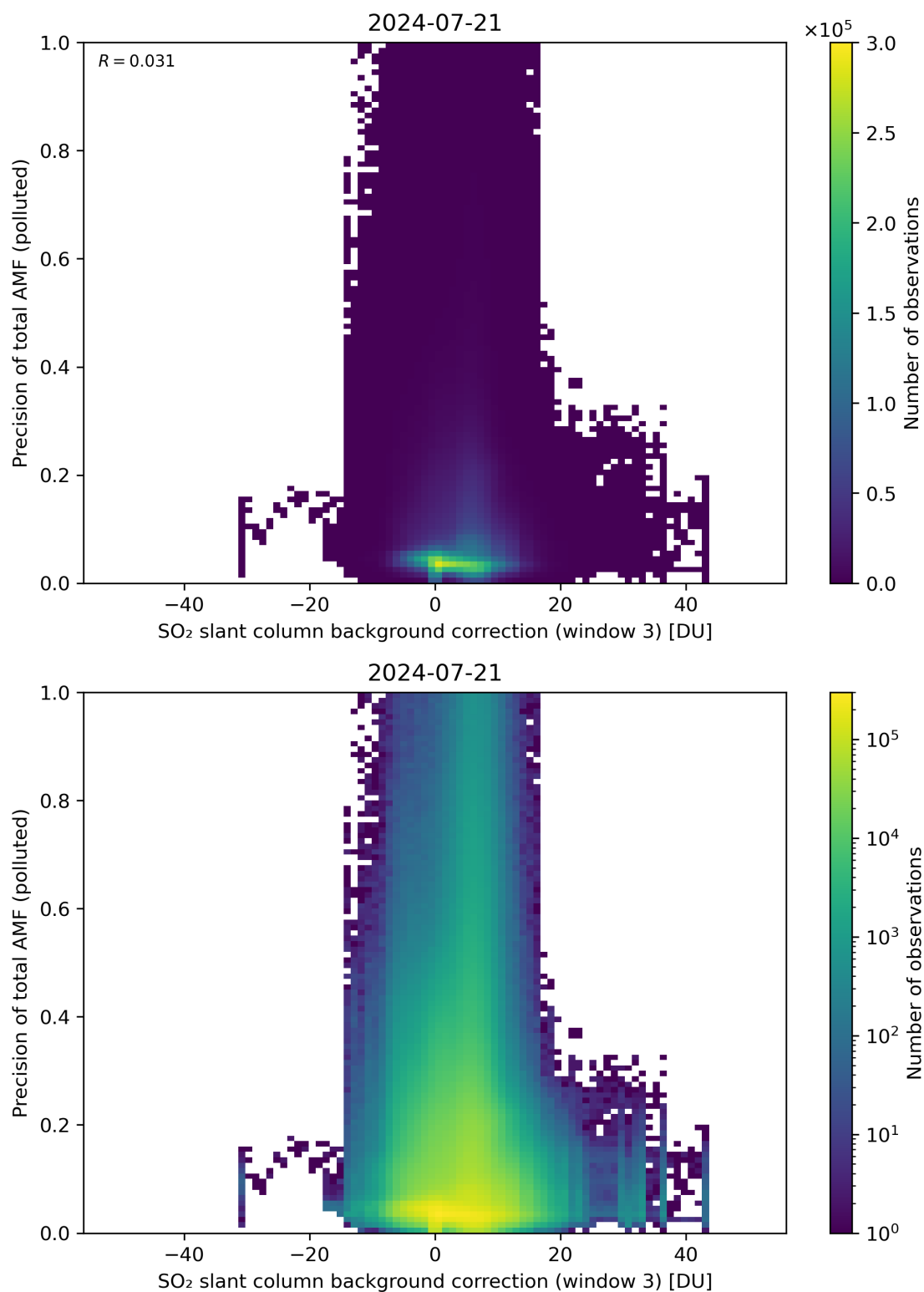


Figure 126: Scatter density plot of “SO₂ slant column background correction (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

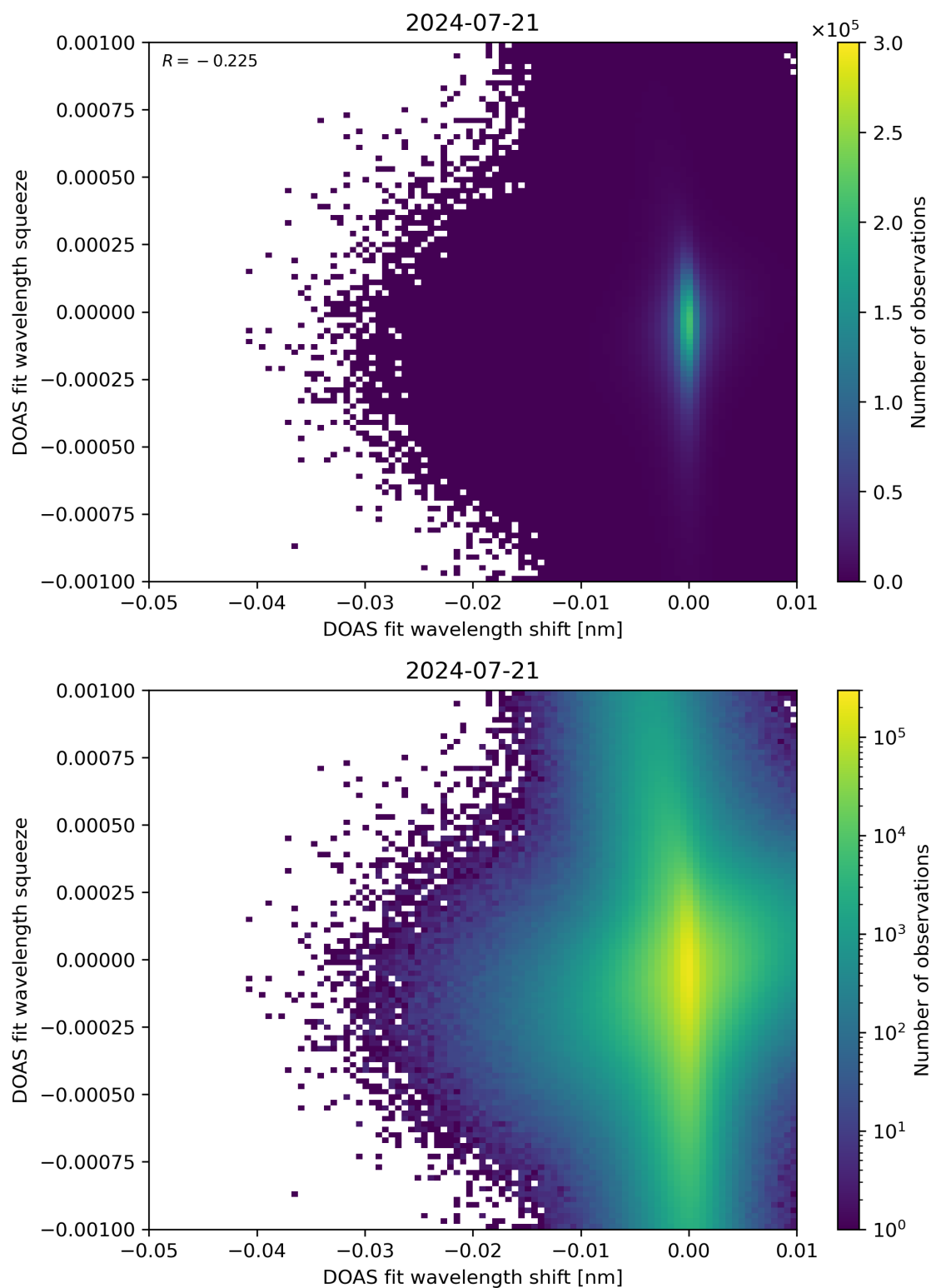


Figure 127: Scatter density plot of “DOAS fit wavelength shift” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

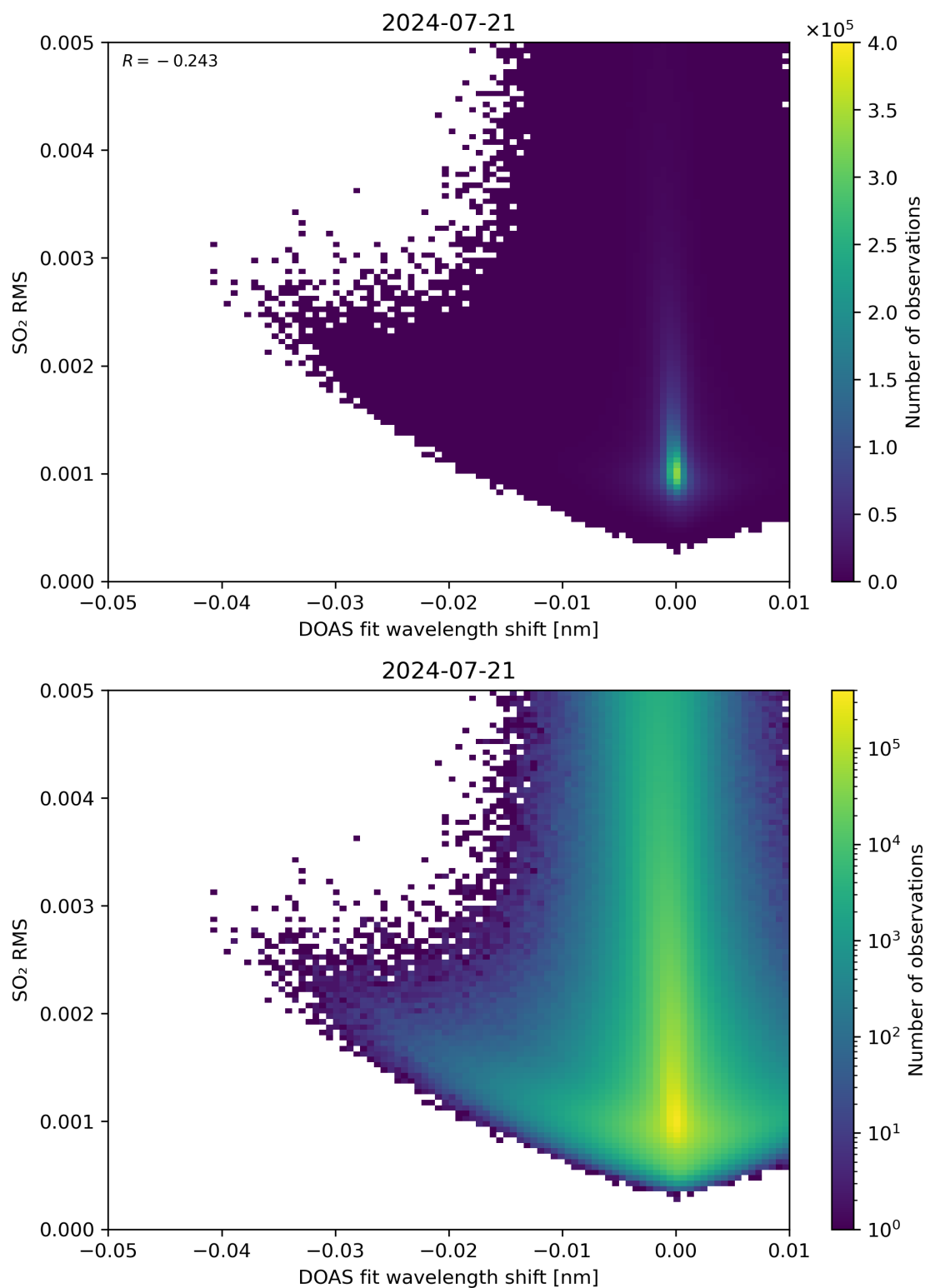


Figure 128: Scatter density plot of “DOAS fit wavelength shift” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

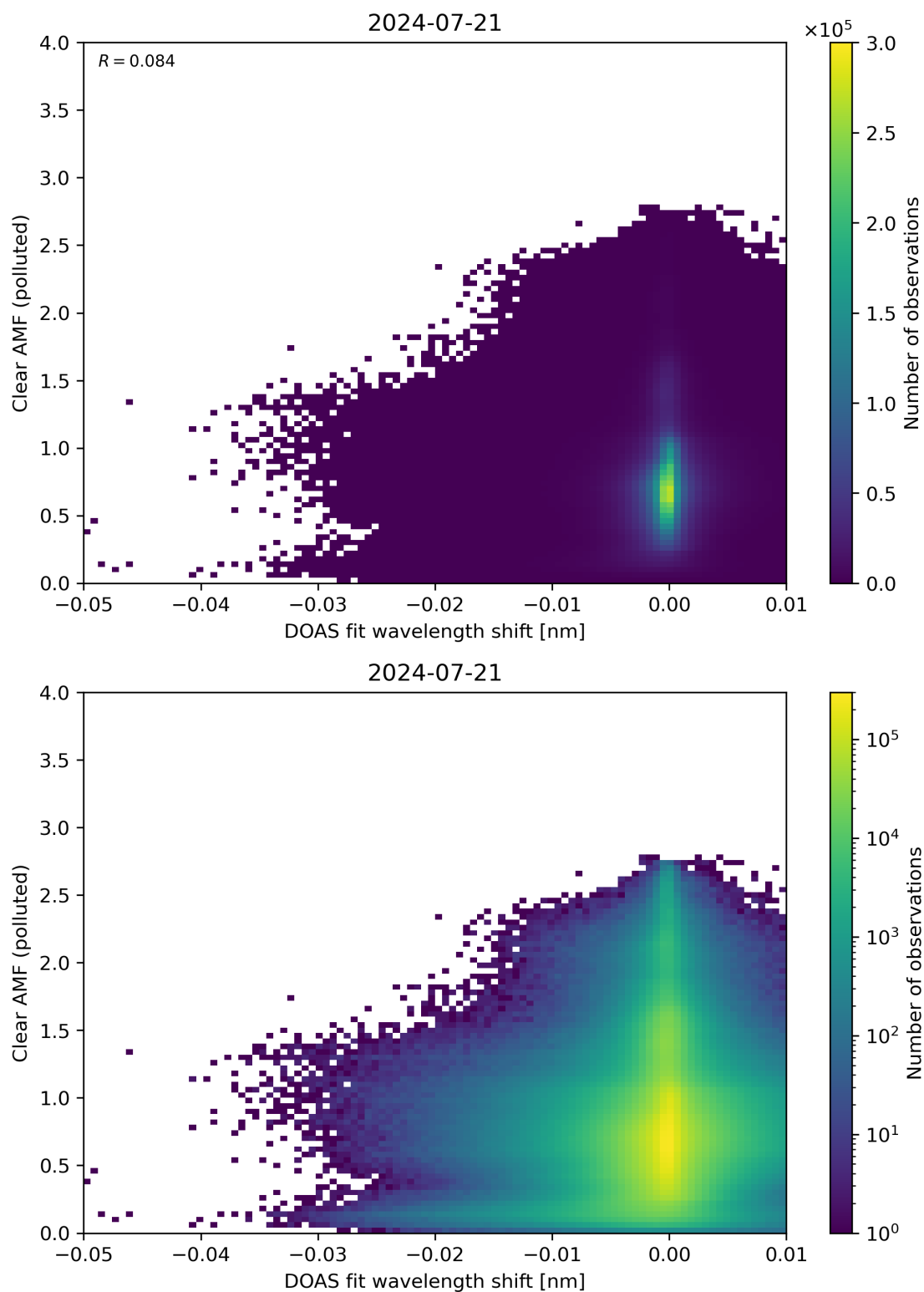


Figure 129: Scatter density plot of “DOAS fit wavelength shift” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

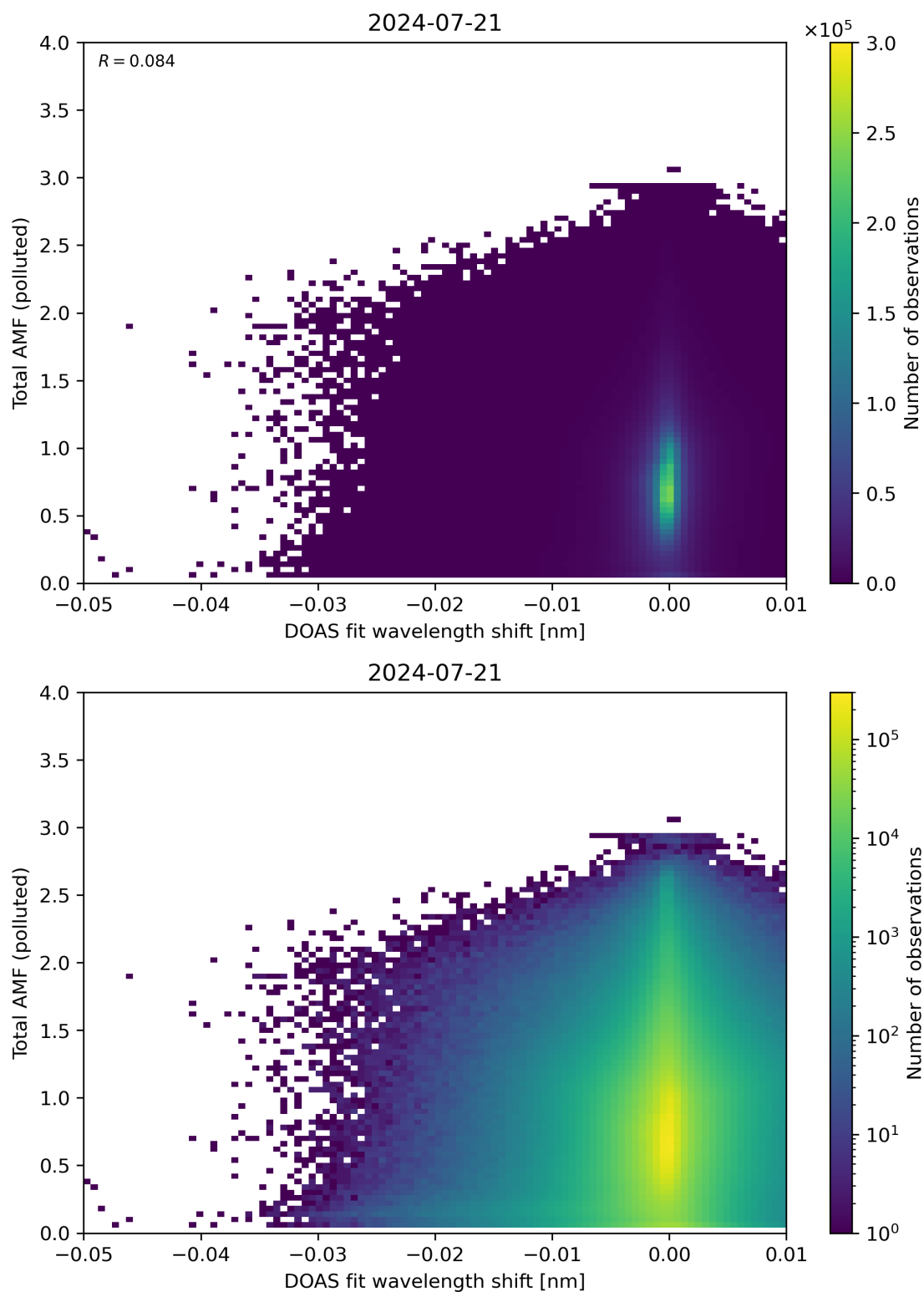


Figure 130: Scatter density plot of “DOAS fit wavelength shift” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

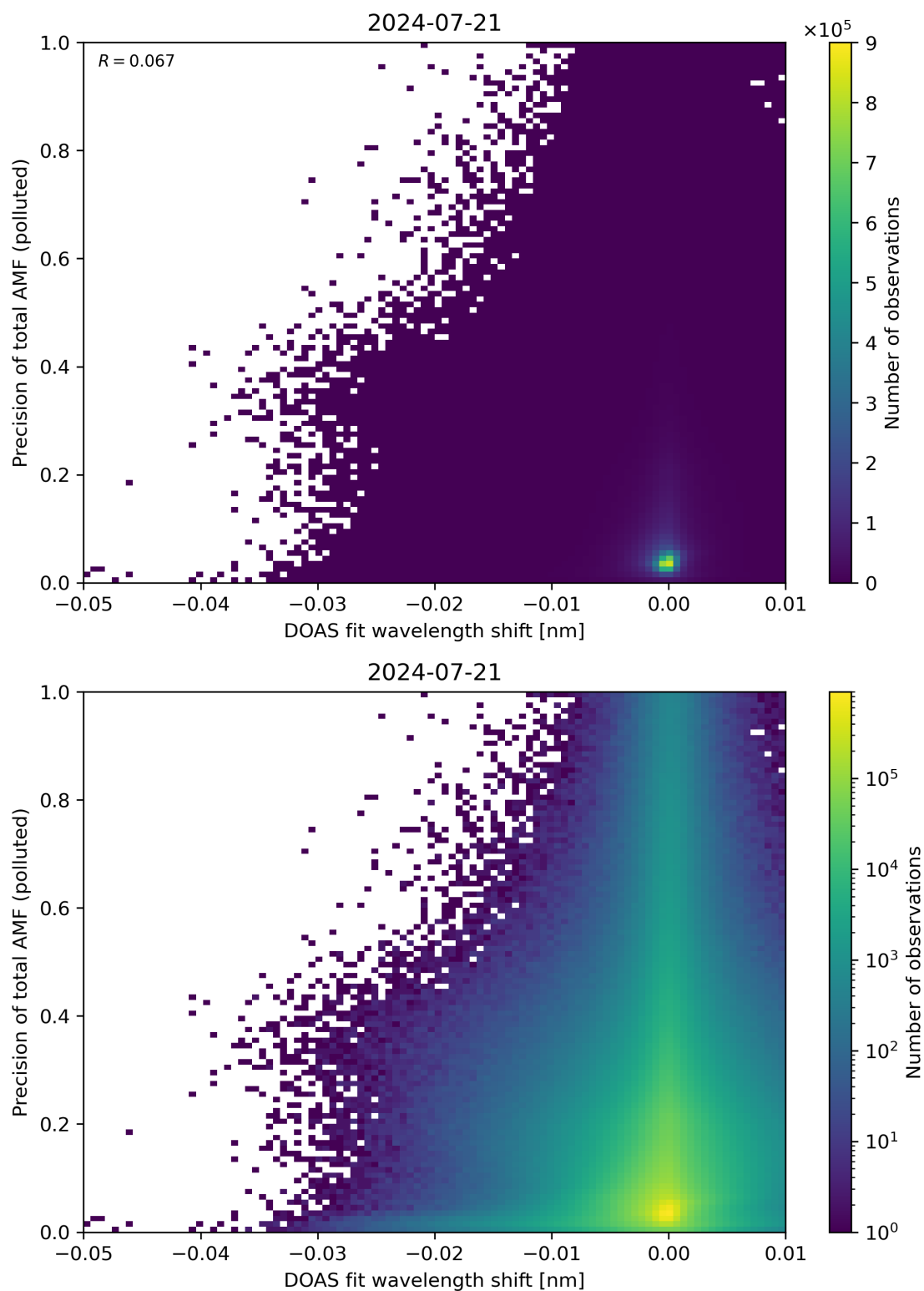


Figure 131: Scatter density plot of “DOAS fit wavelength shift” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

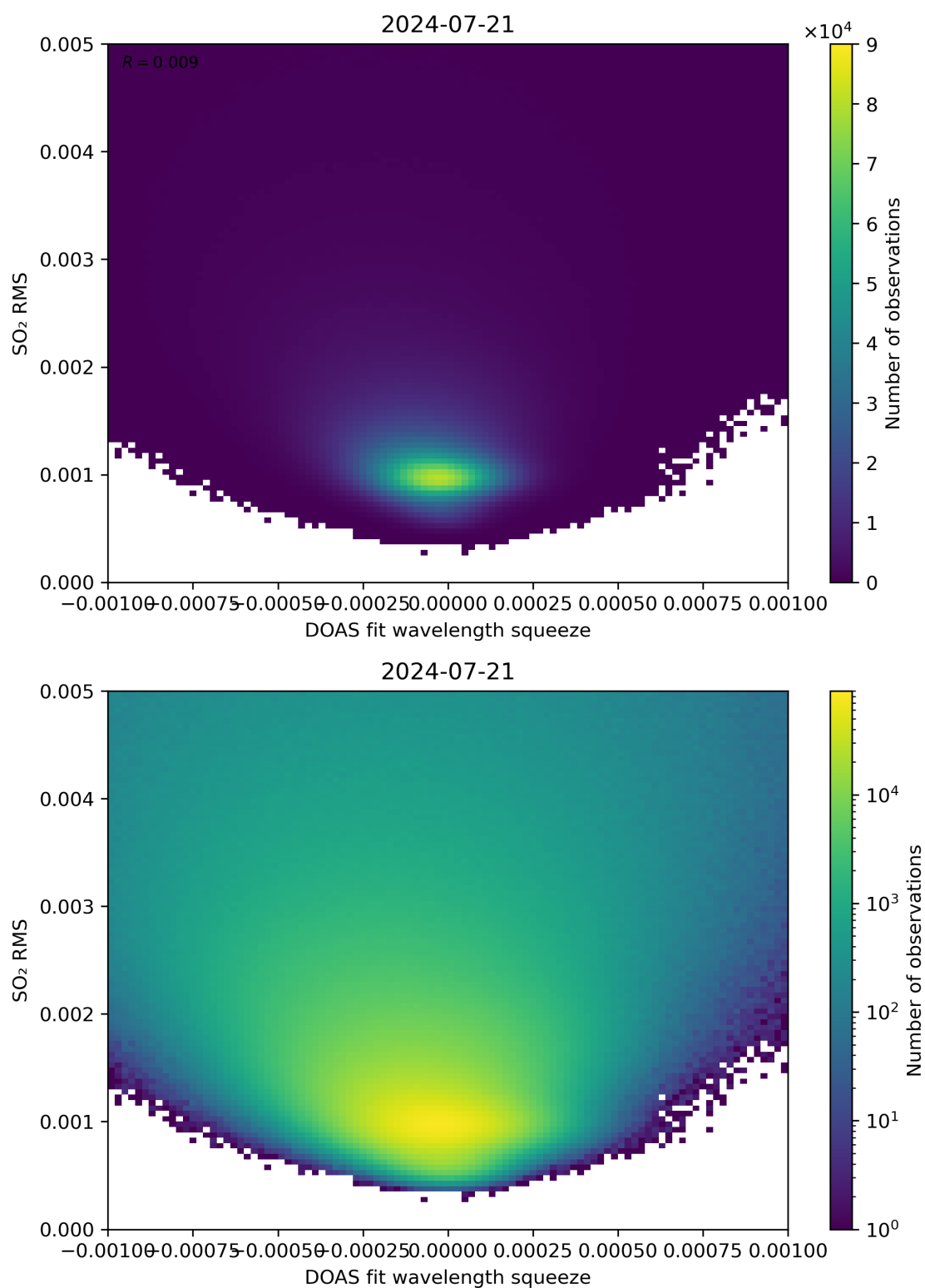


Figure 132: Scatter density plot of “DOAS fit wavelength squeeze” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

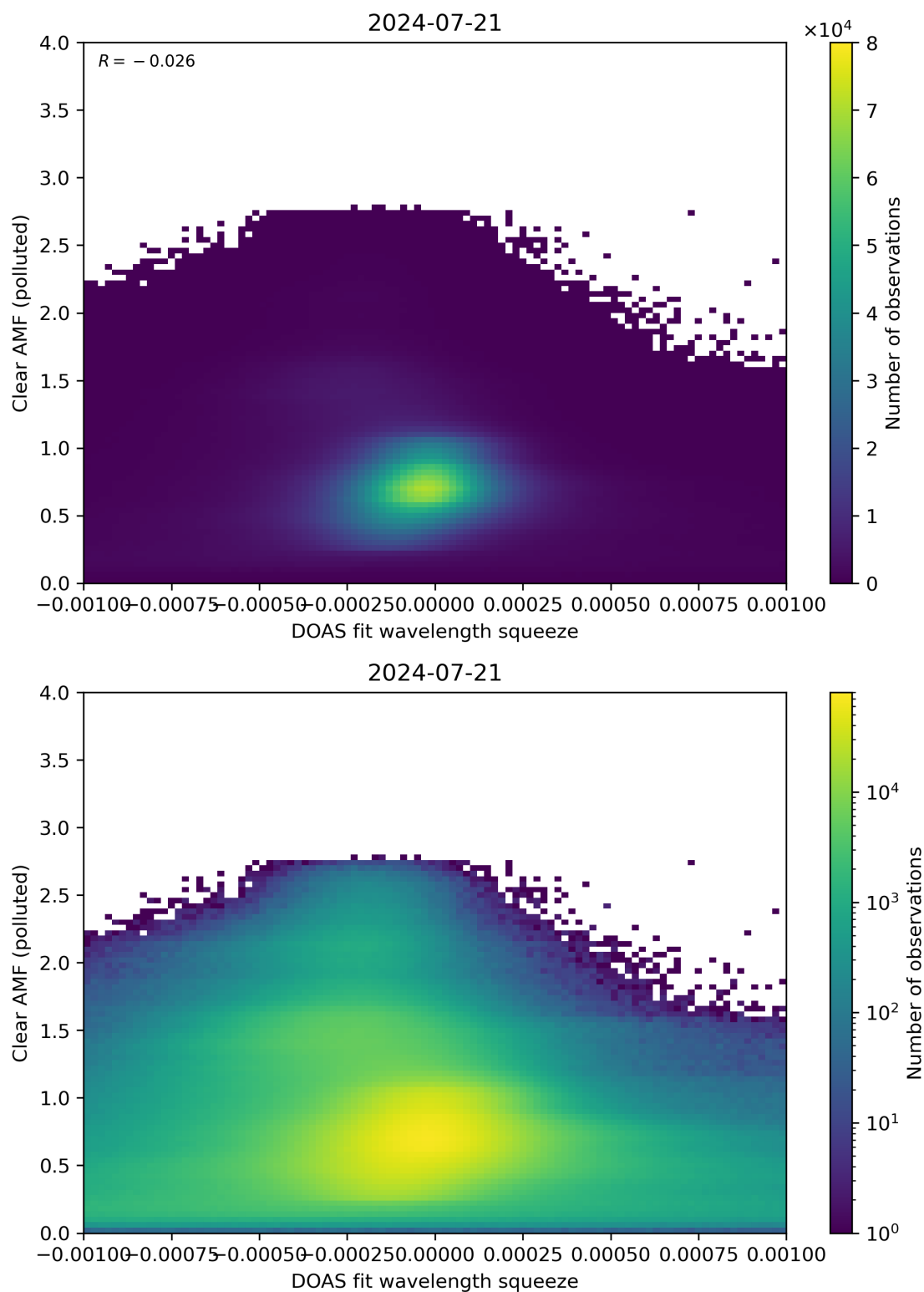


Figure 133: Scatter density plot of “DOAS fit wavelength squeeze” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

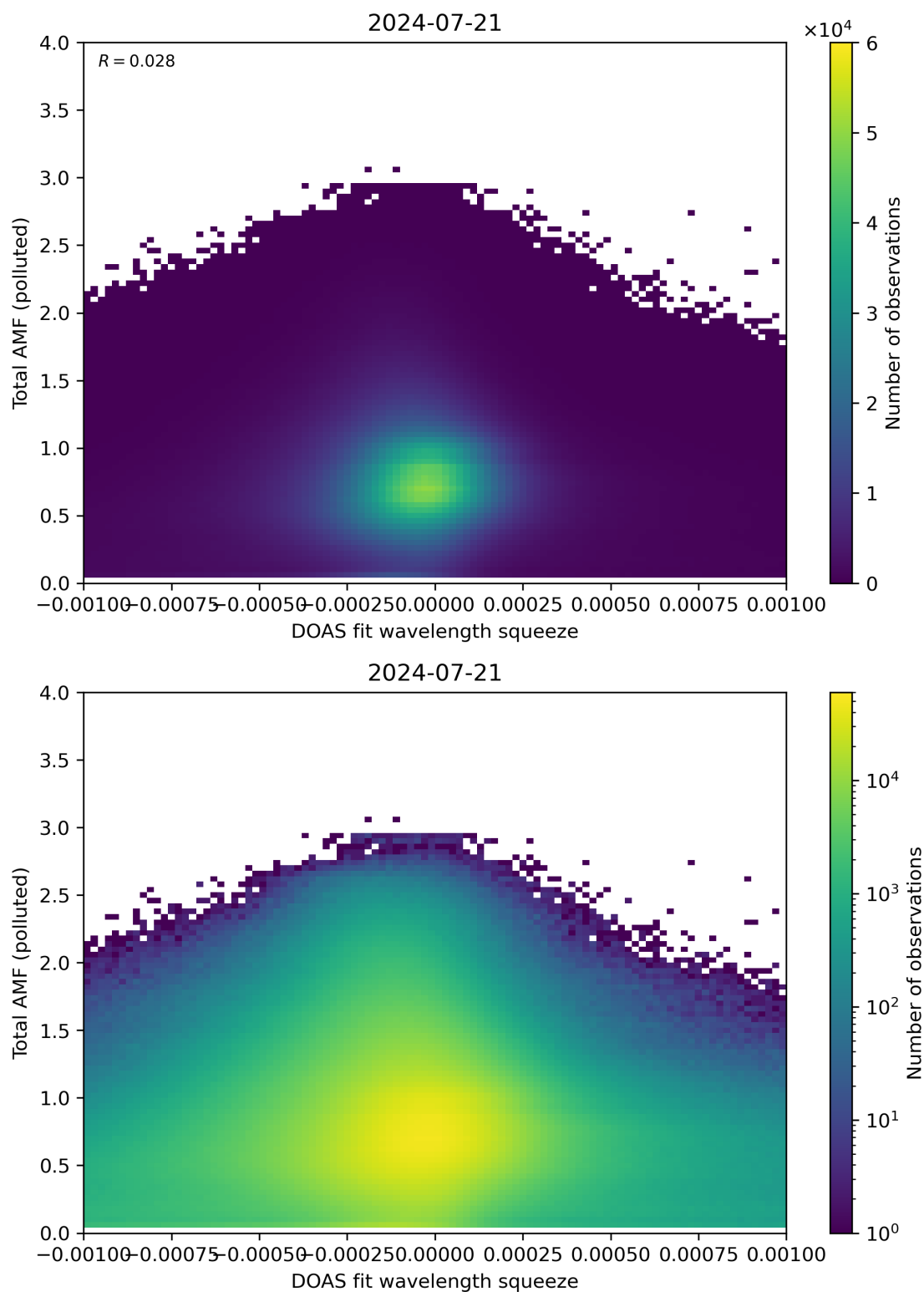


Figure 134: Scatter density plot of “DOAS fit wavelength squeeze” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

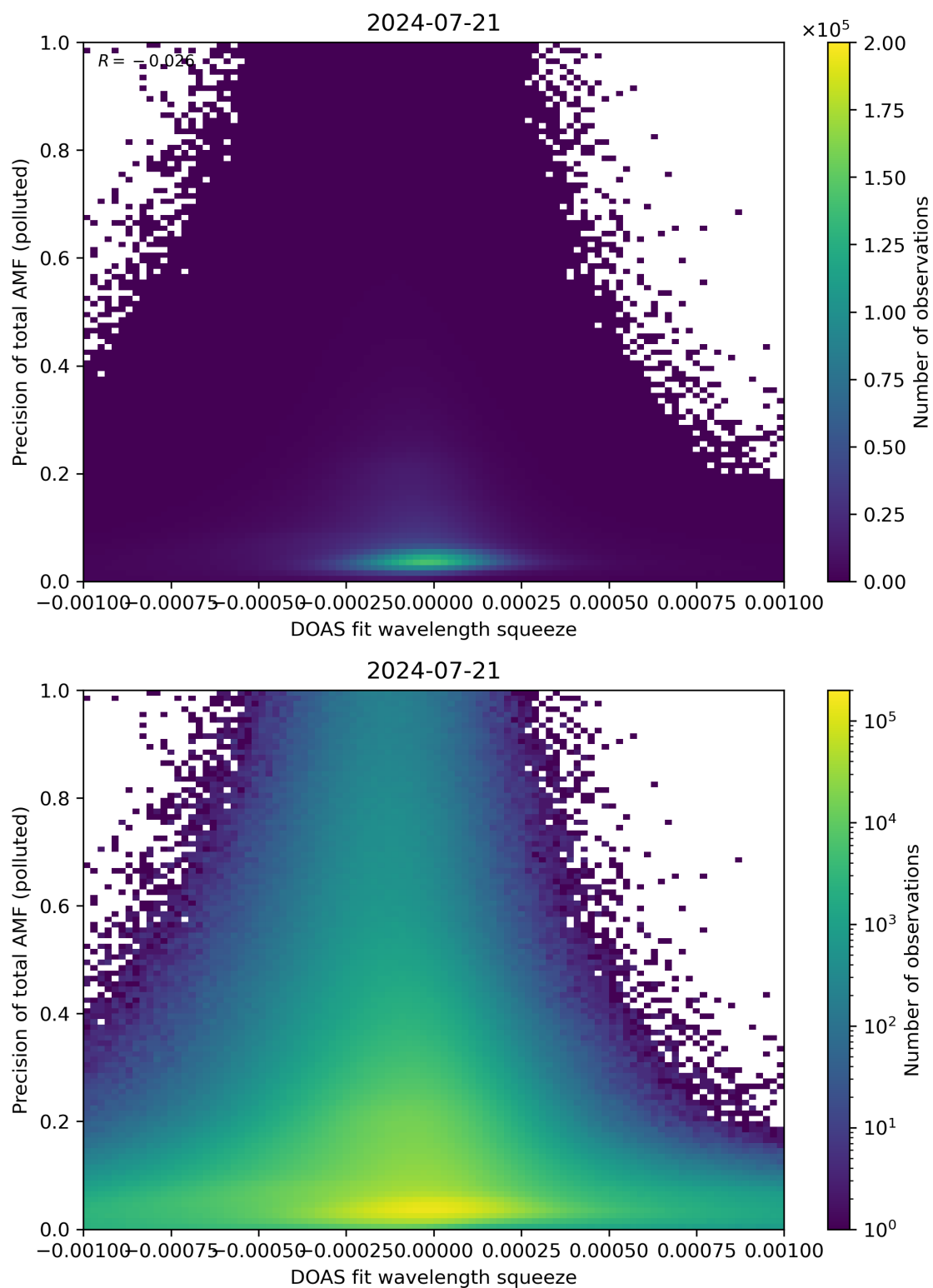


Figure 135: Scatter density plot of “DOAS fit wavelength squeeze” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

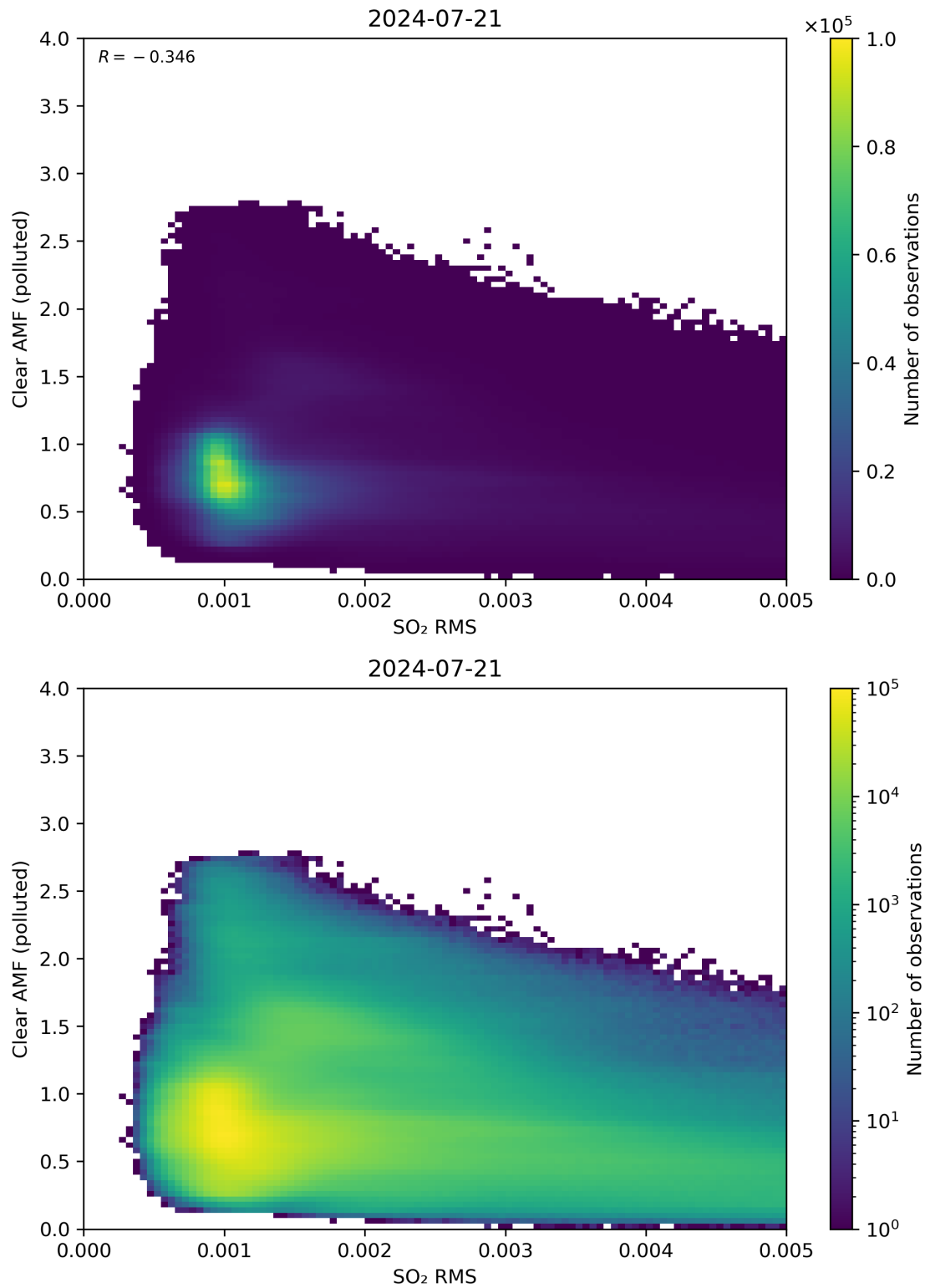


Figure 136: Scatter density plot of “SO₂ RMS” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

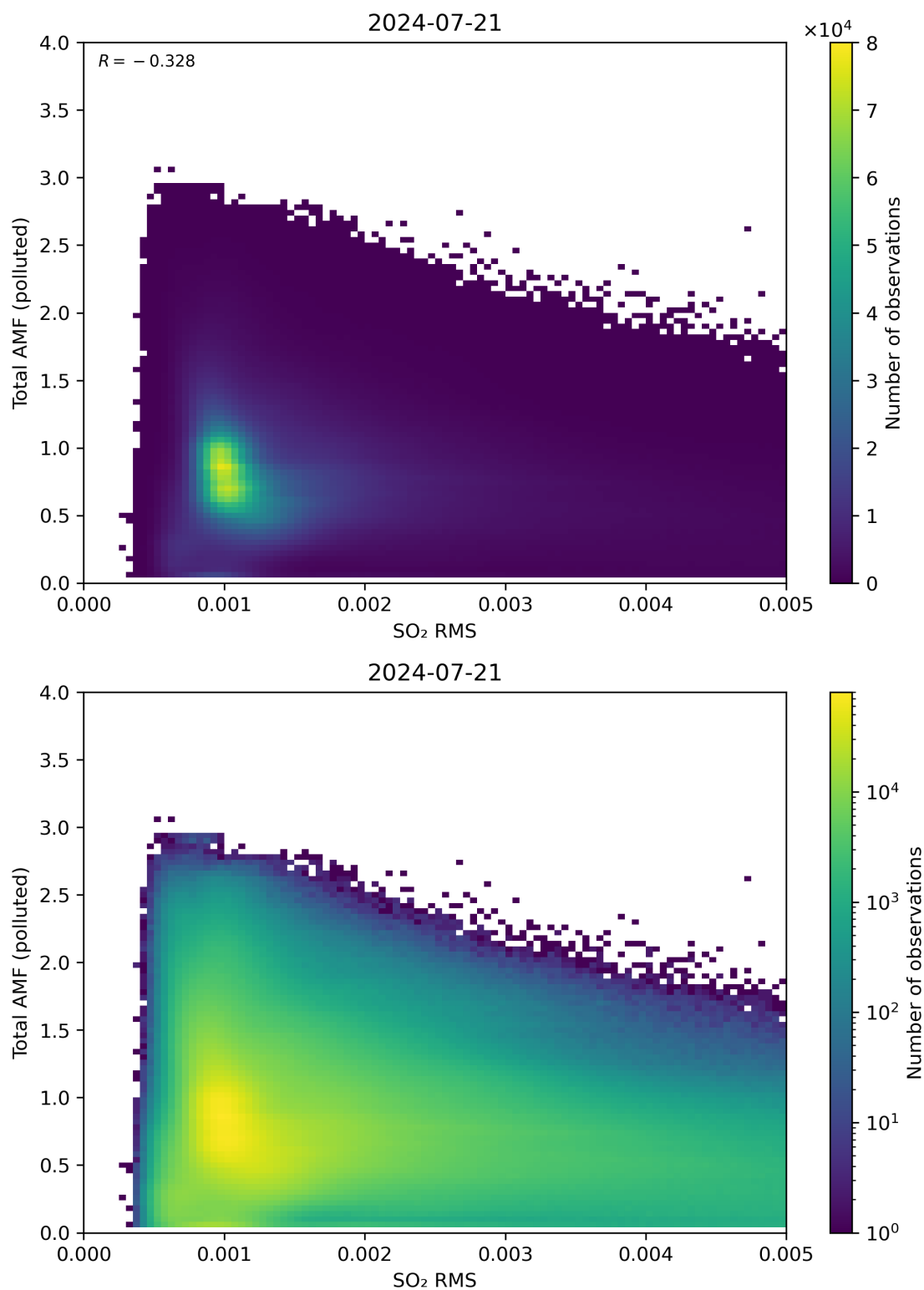


Figure 137: Scatter density plot of “SO₂ RMS” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

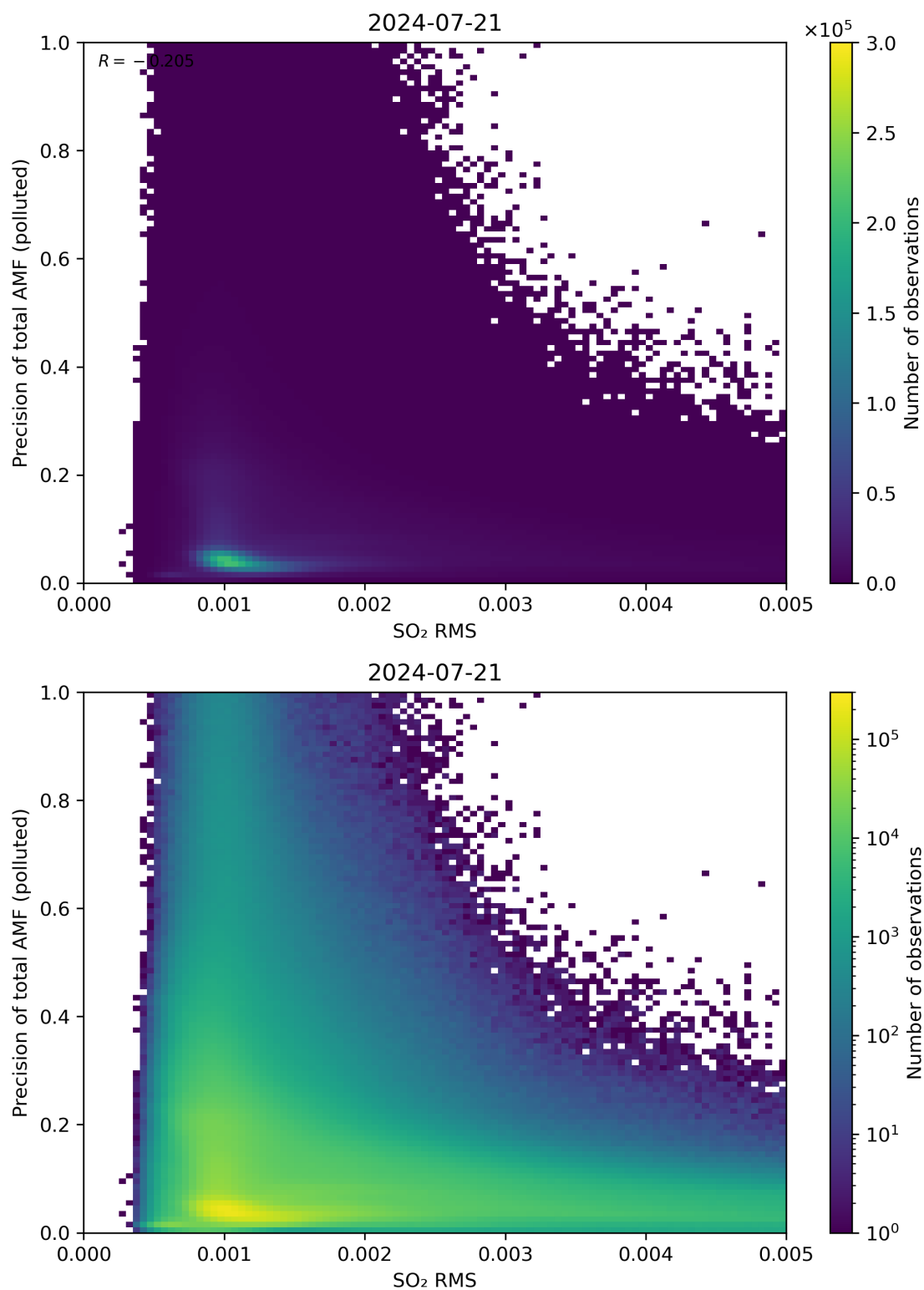


Figure 138: Scatter density plot of “SO₂ RMS” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

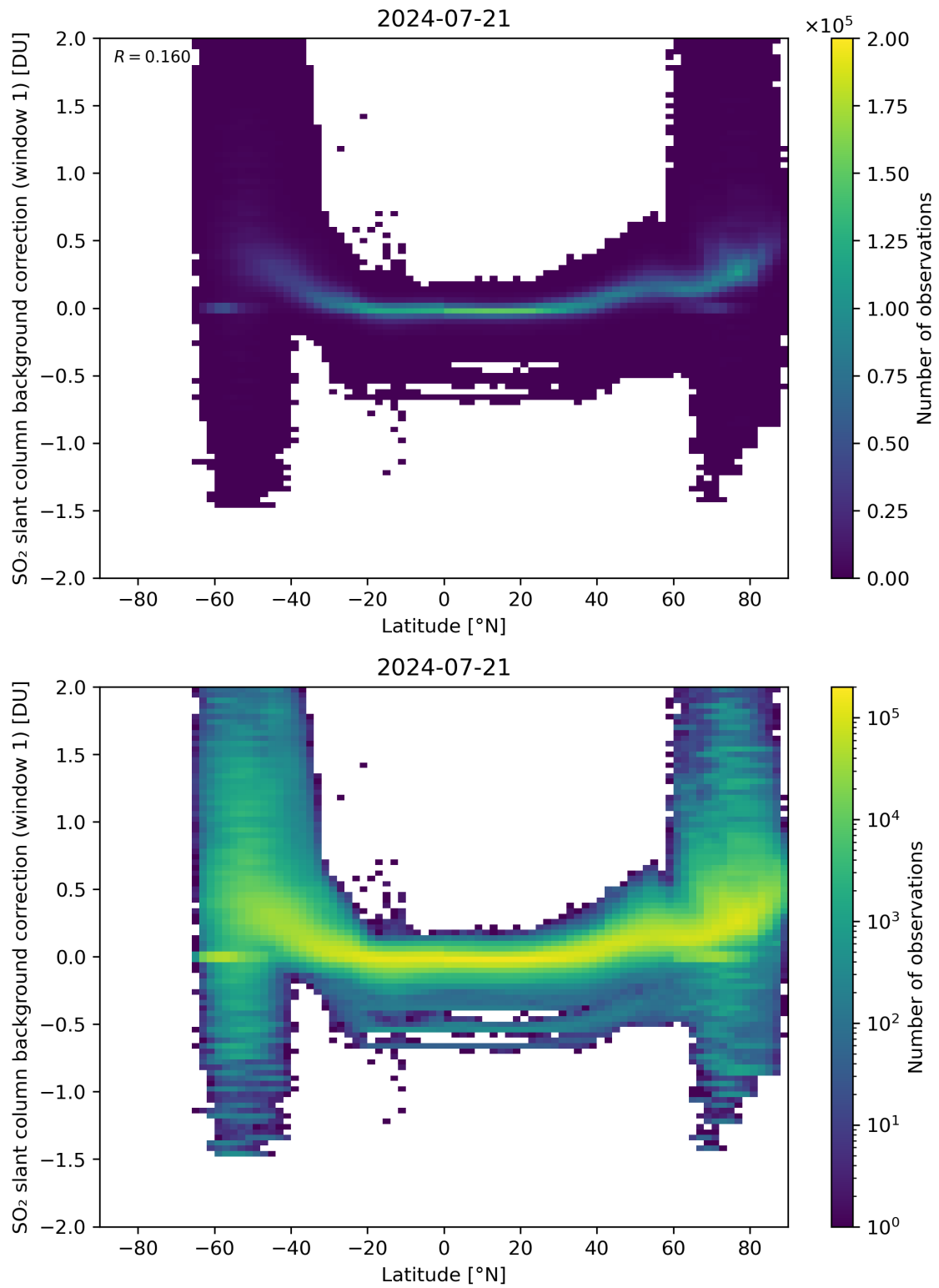


Figure 139: Scatter density plot of “Latitude” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

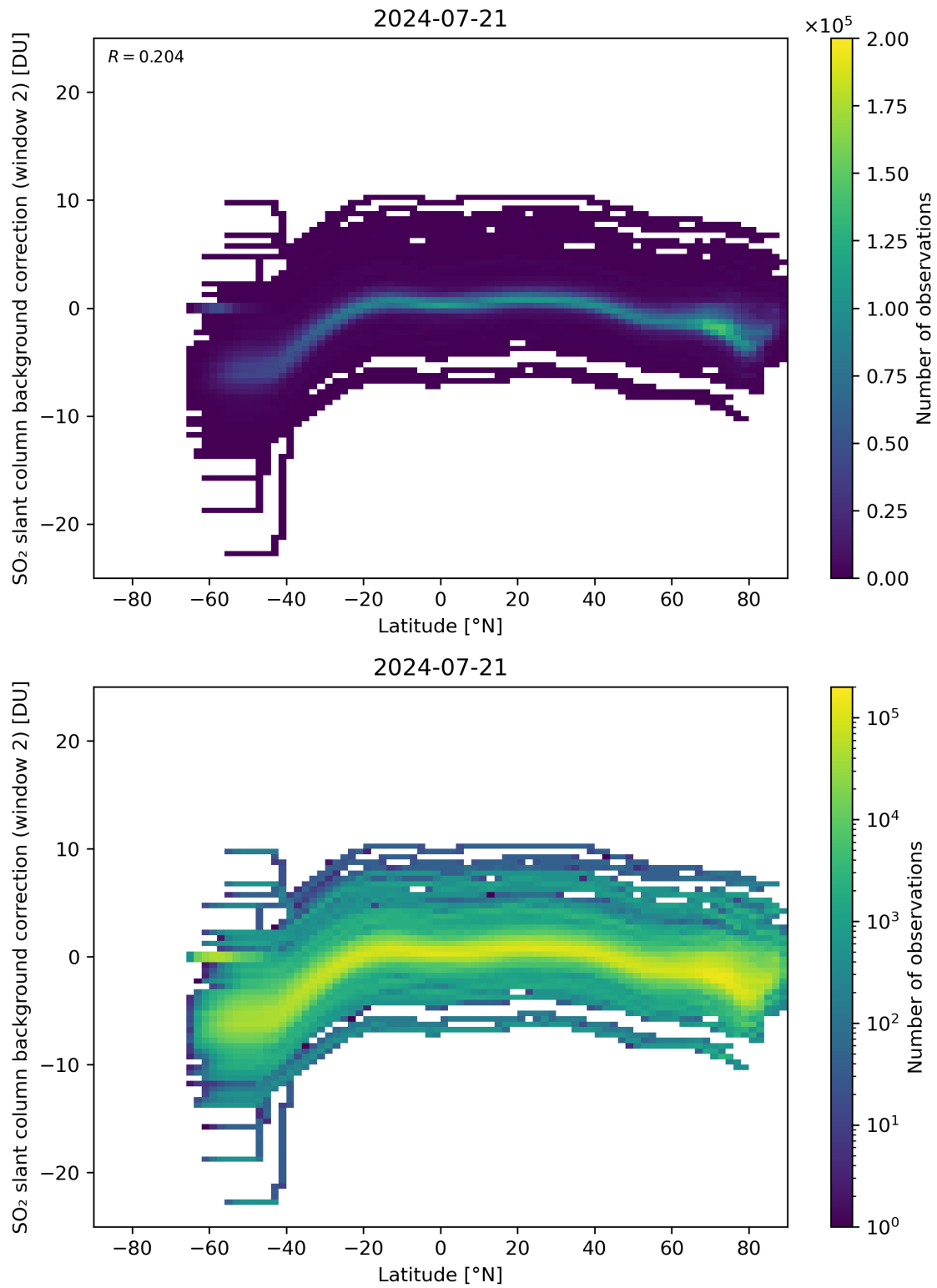


Figure 140: Scatter density plot of “Latitude” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

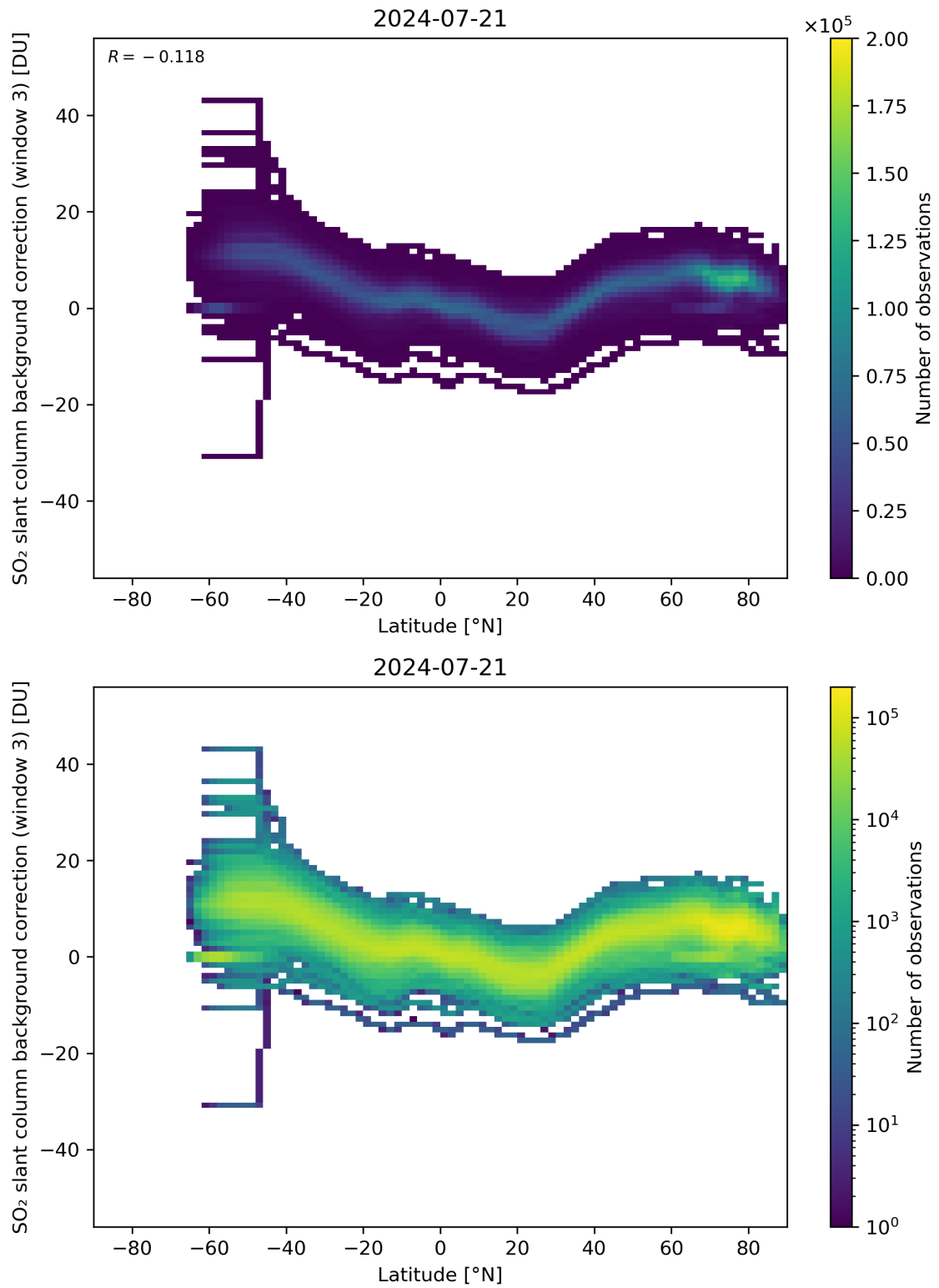


Figure 141: Scatter density plot of “Latitude” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

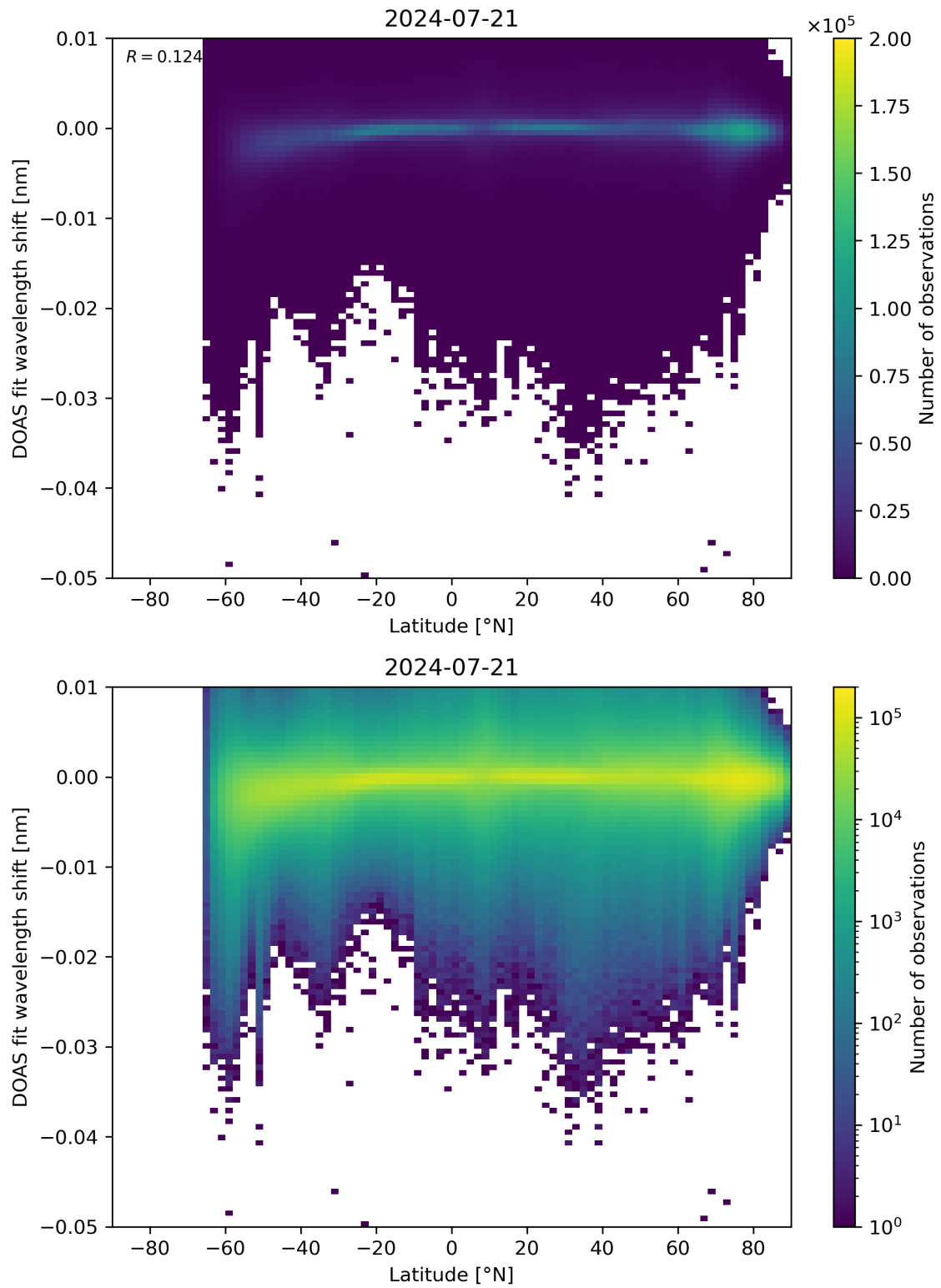


Figure 142: Scatter density plot of “Latitude” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

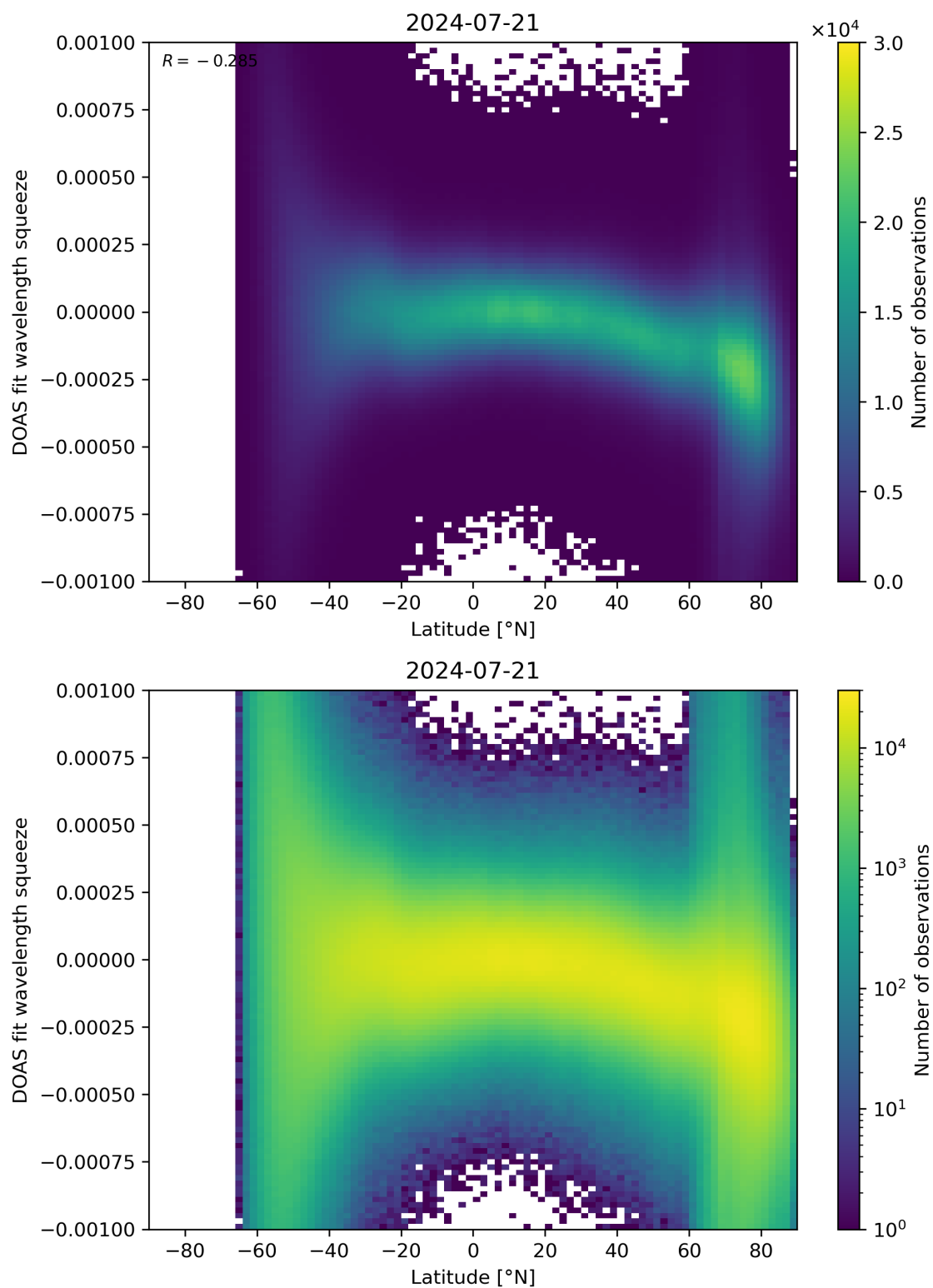


Figure 143: Scatter density plot of “Latitude” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

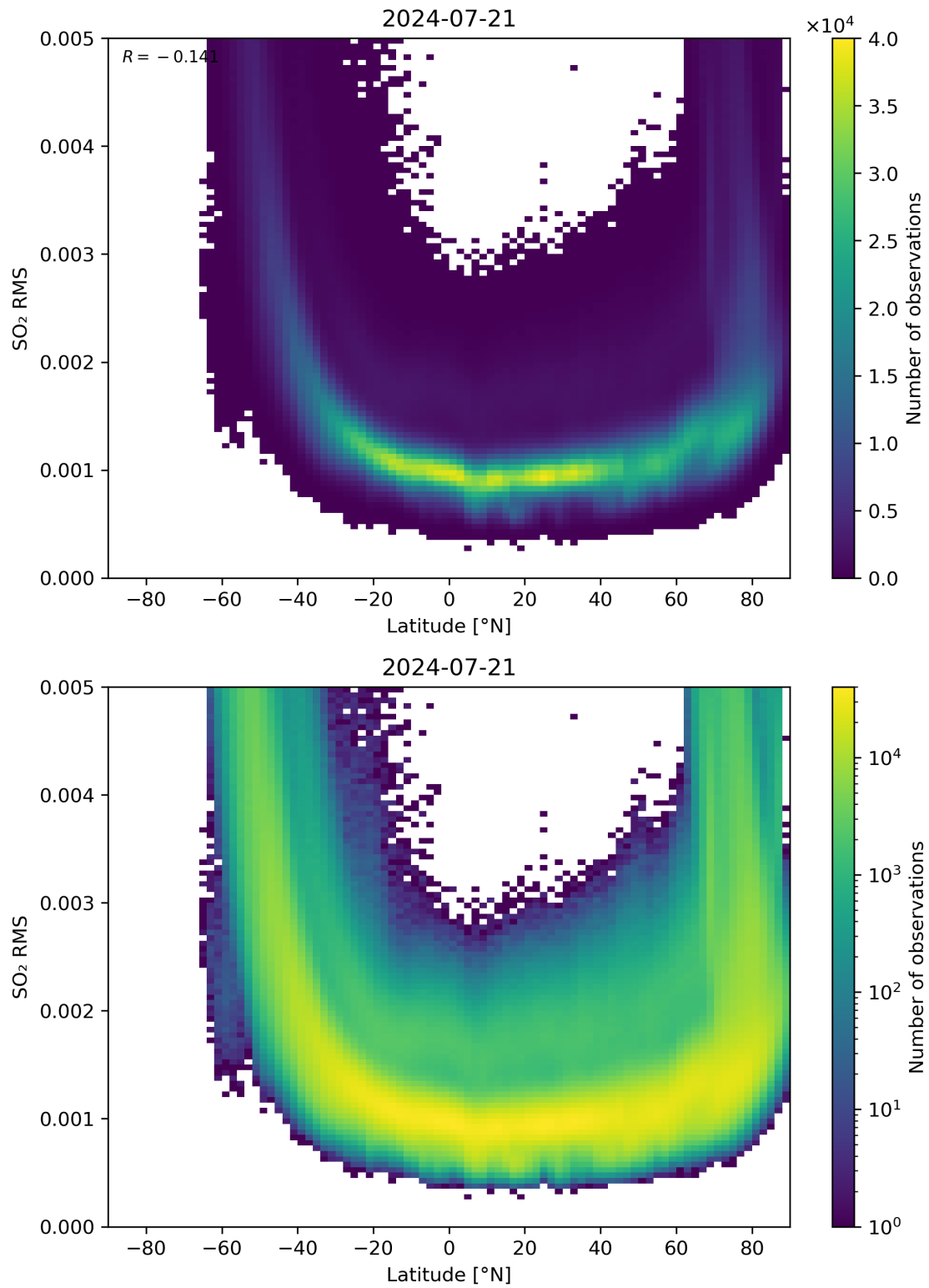


Figure 144: Scatter density plot of “Latitude” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

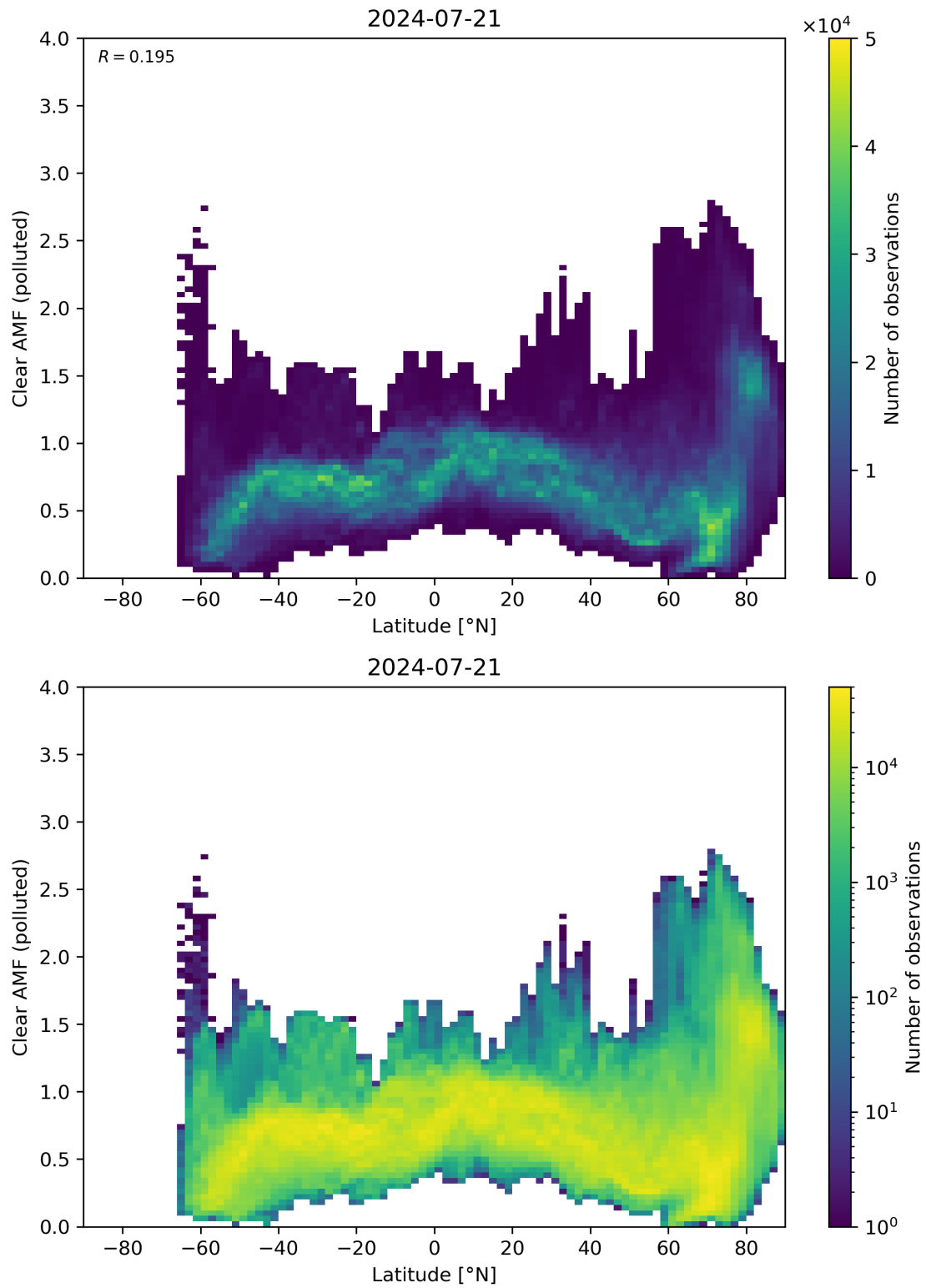


Figure 145: Scatter density plot of “Latitude” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

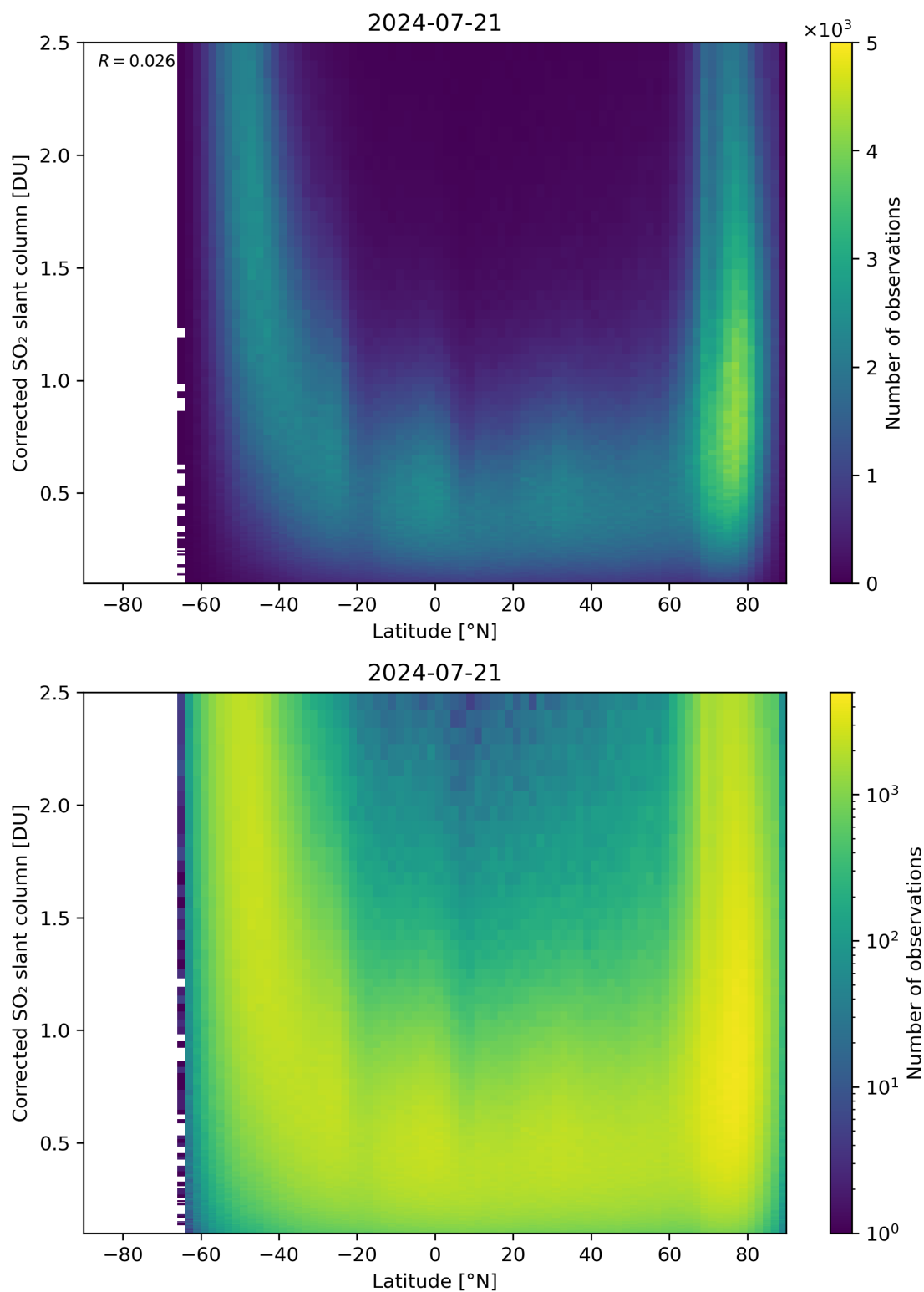


Figure 146: Scatter density plot of “Latitude” against “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22.

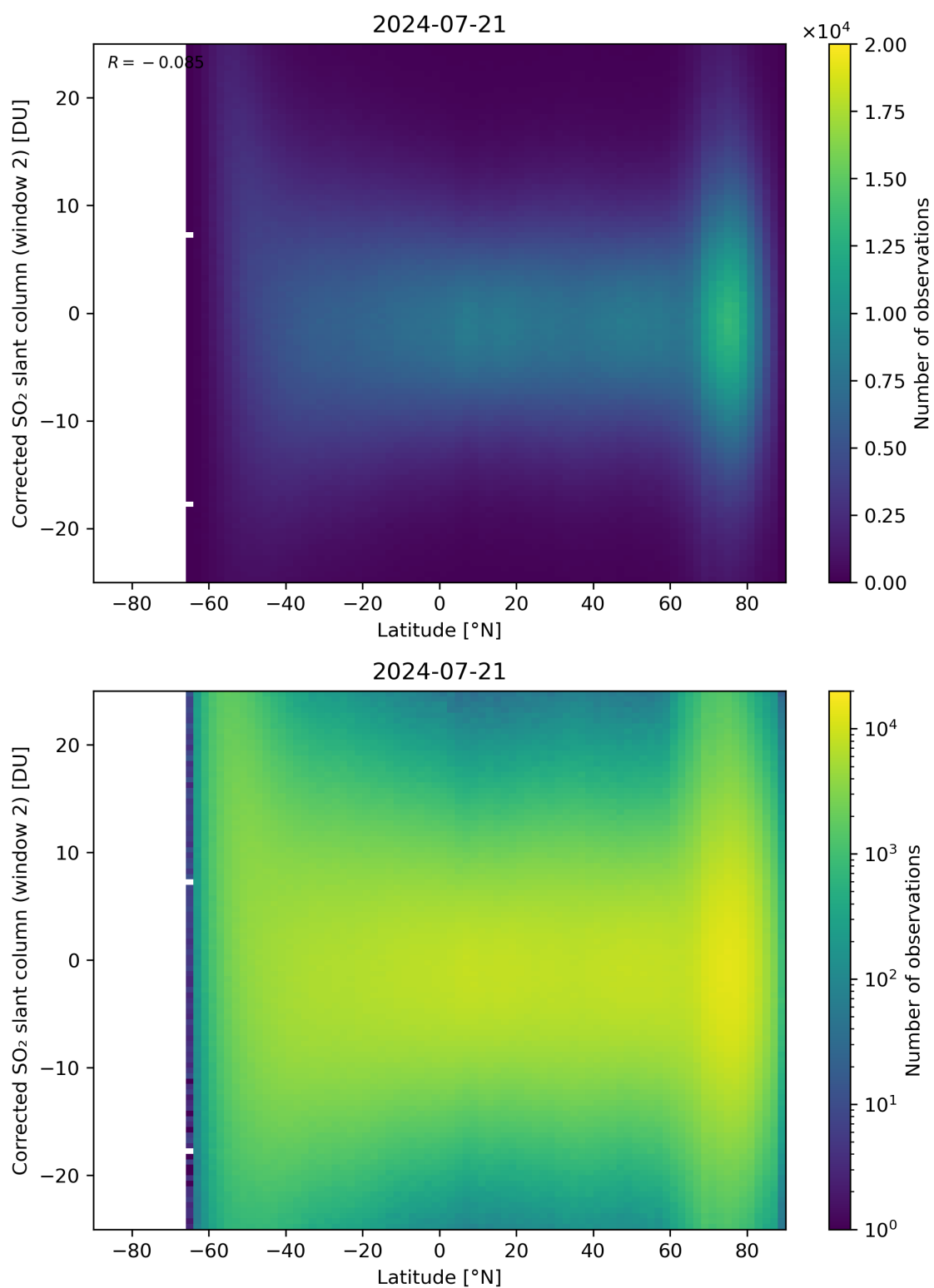


Figure 147: Scatter density plot of “Latitude” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

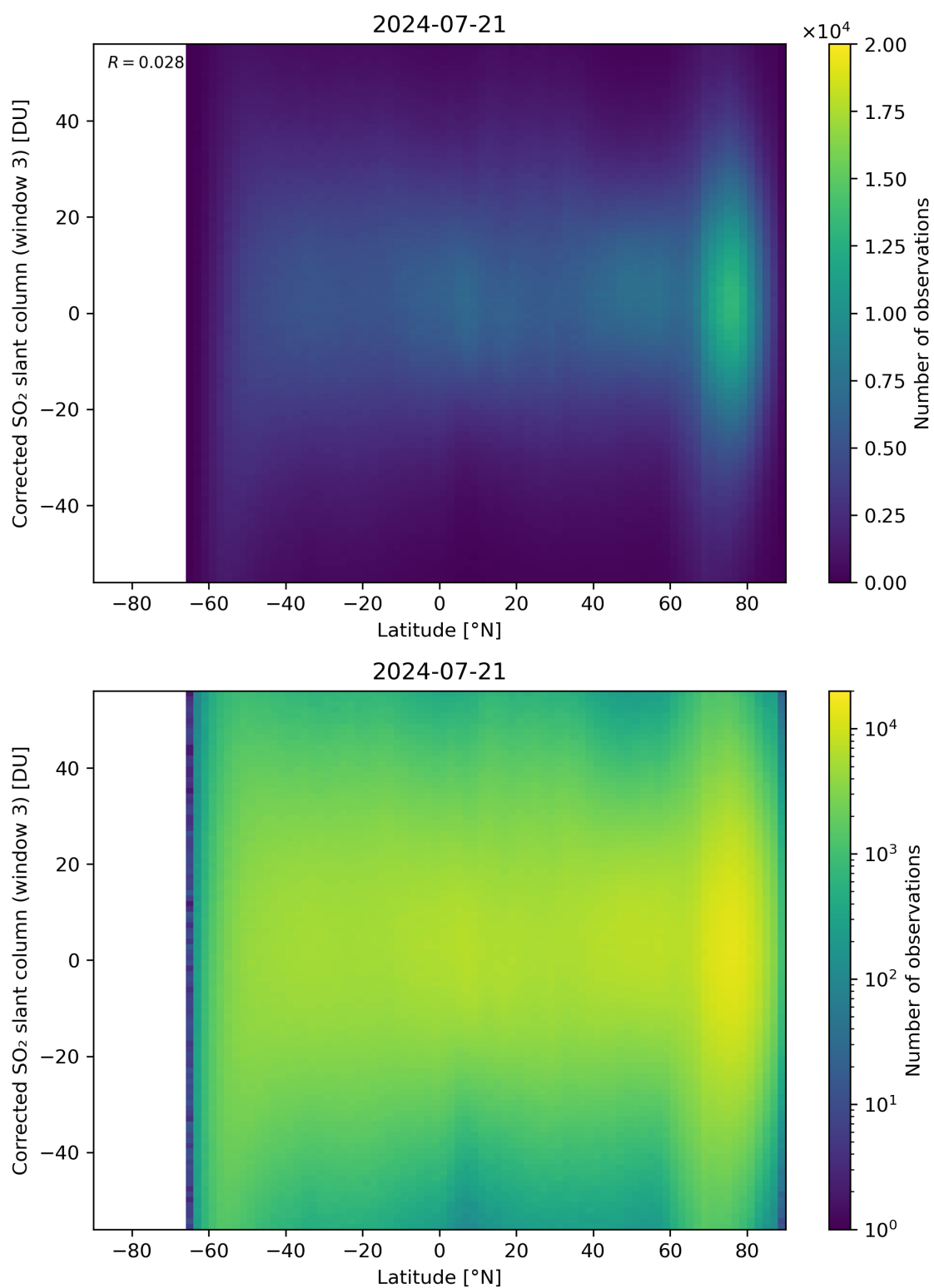


Figure 148: Scatter density plot of “Latitude” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

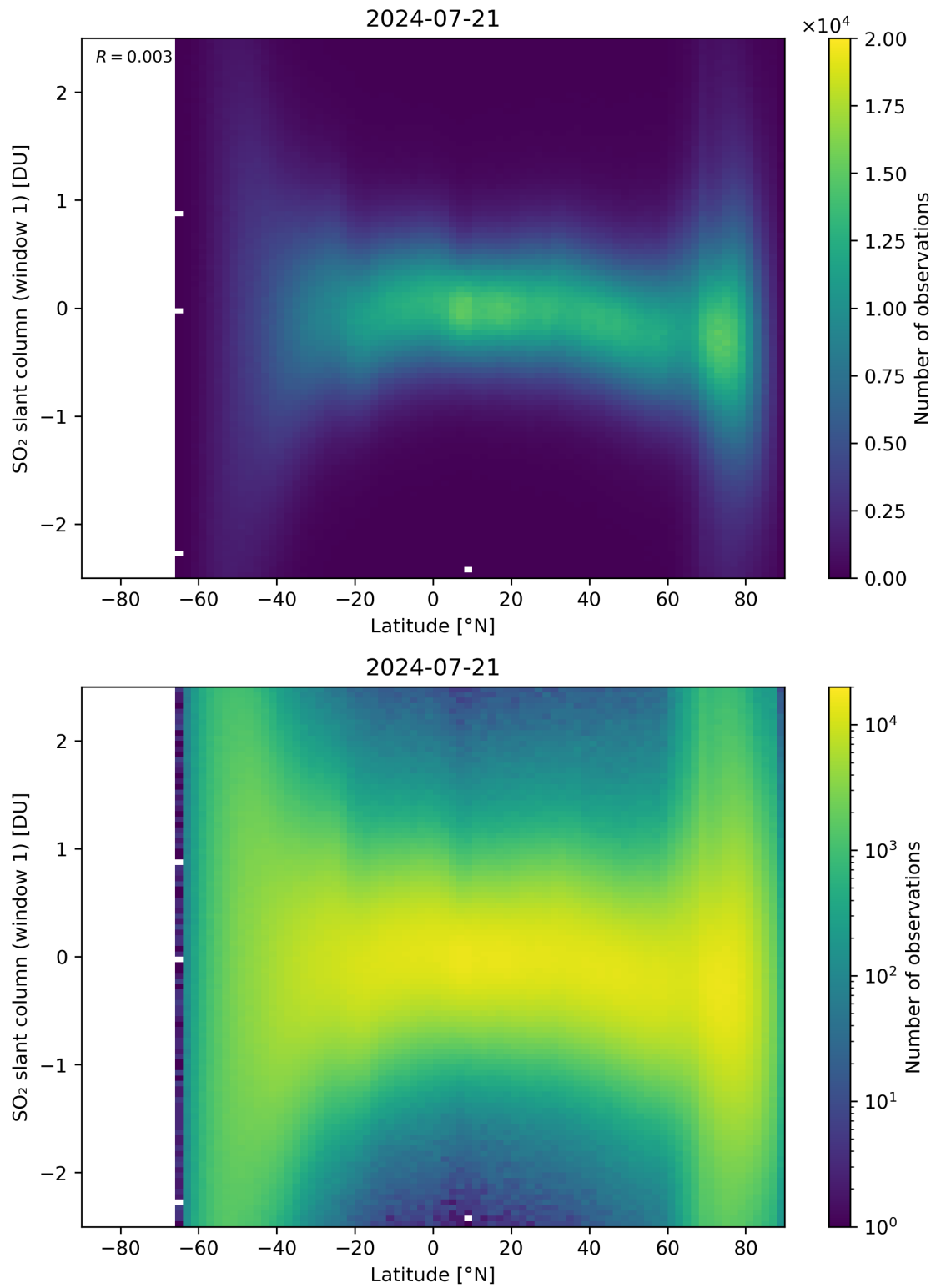


Figure 149: Scatter density plot of “Latitude” against “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

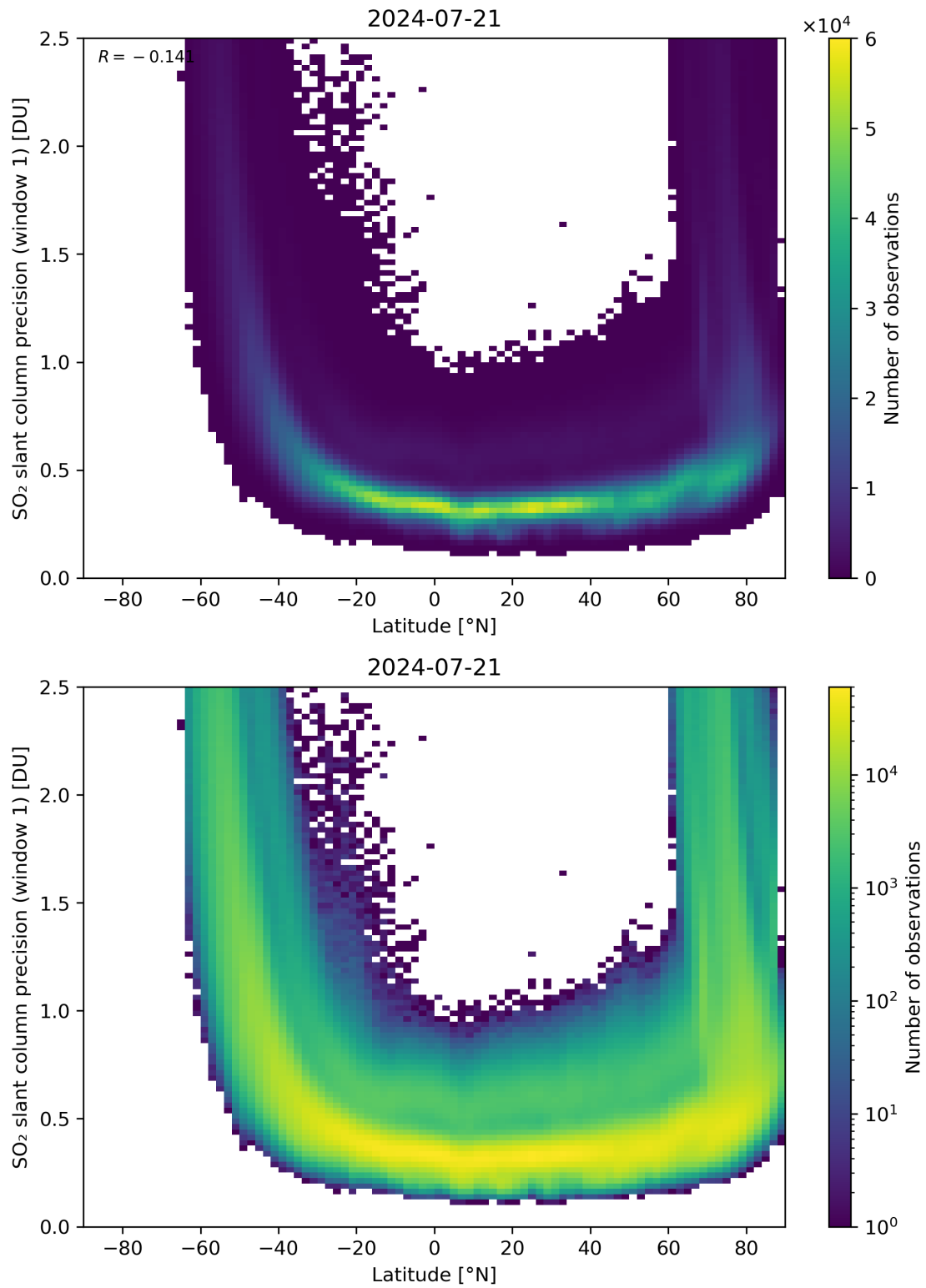


Figure 150: Scatter density plot of “Latitude” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

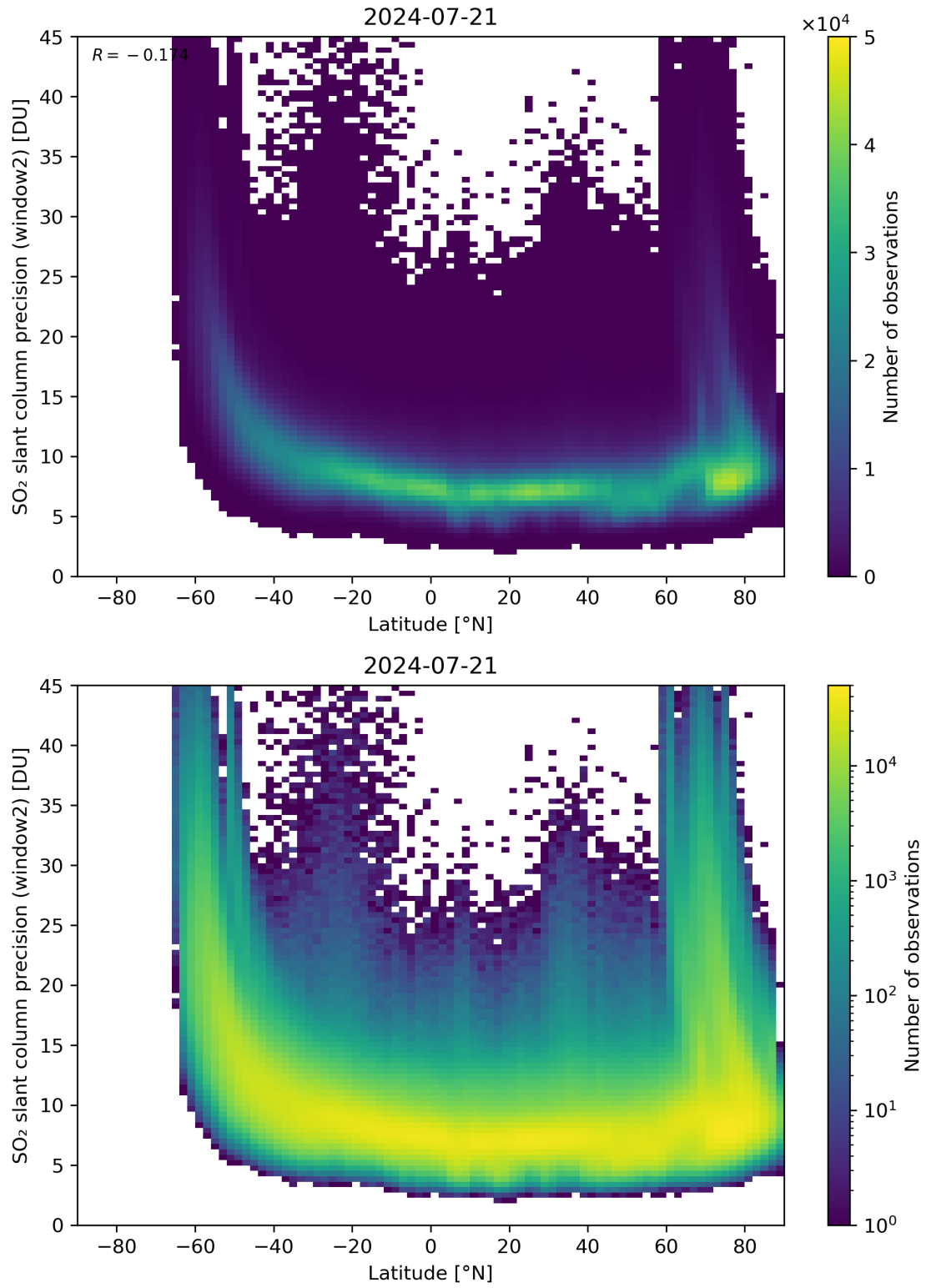


Figure 151: Scatter density plot of “Latitude” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

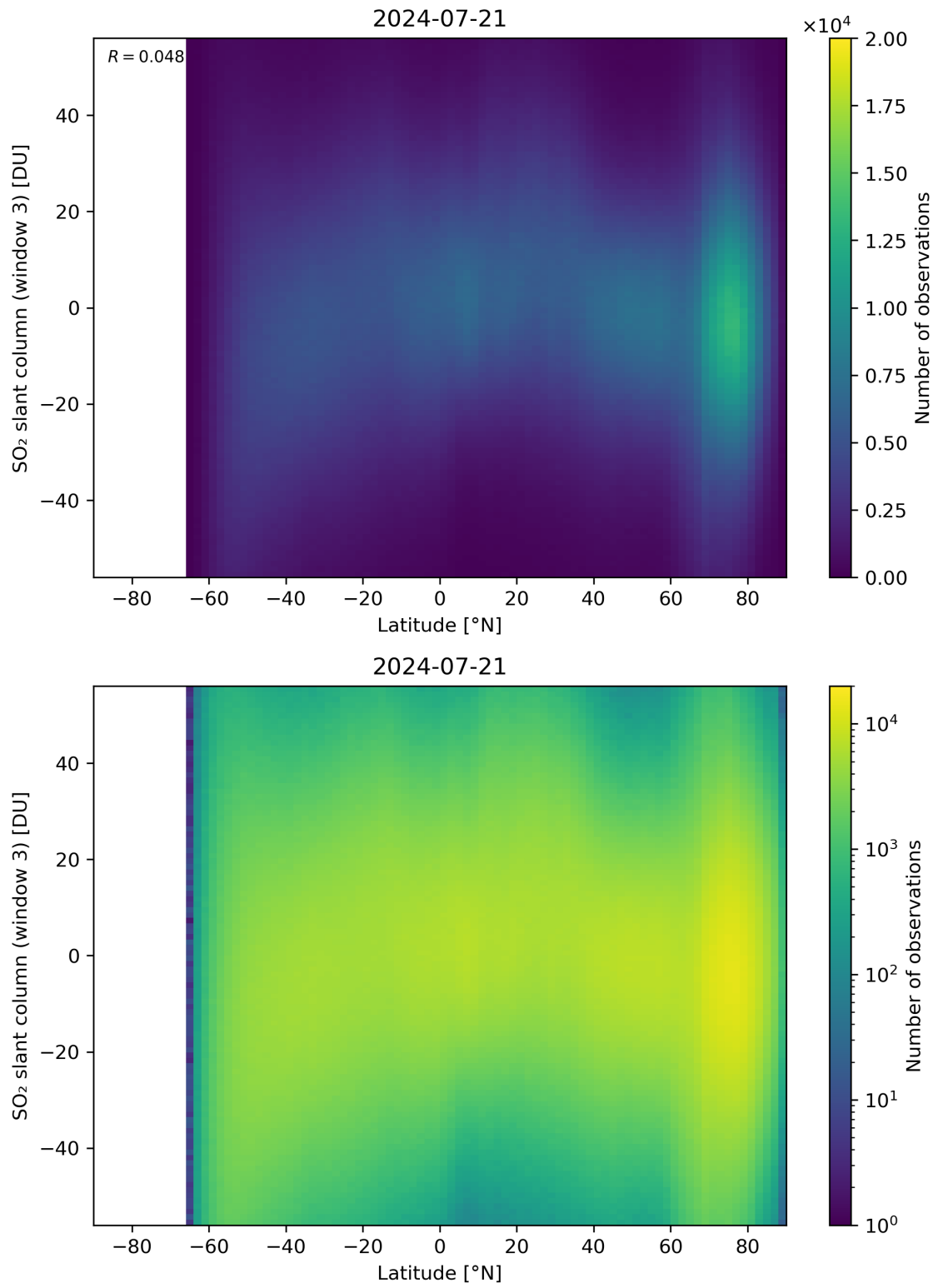


Figure 152: Scatter density plot of “Latitude” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

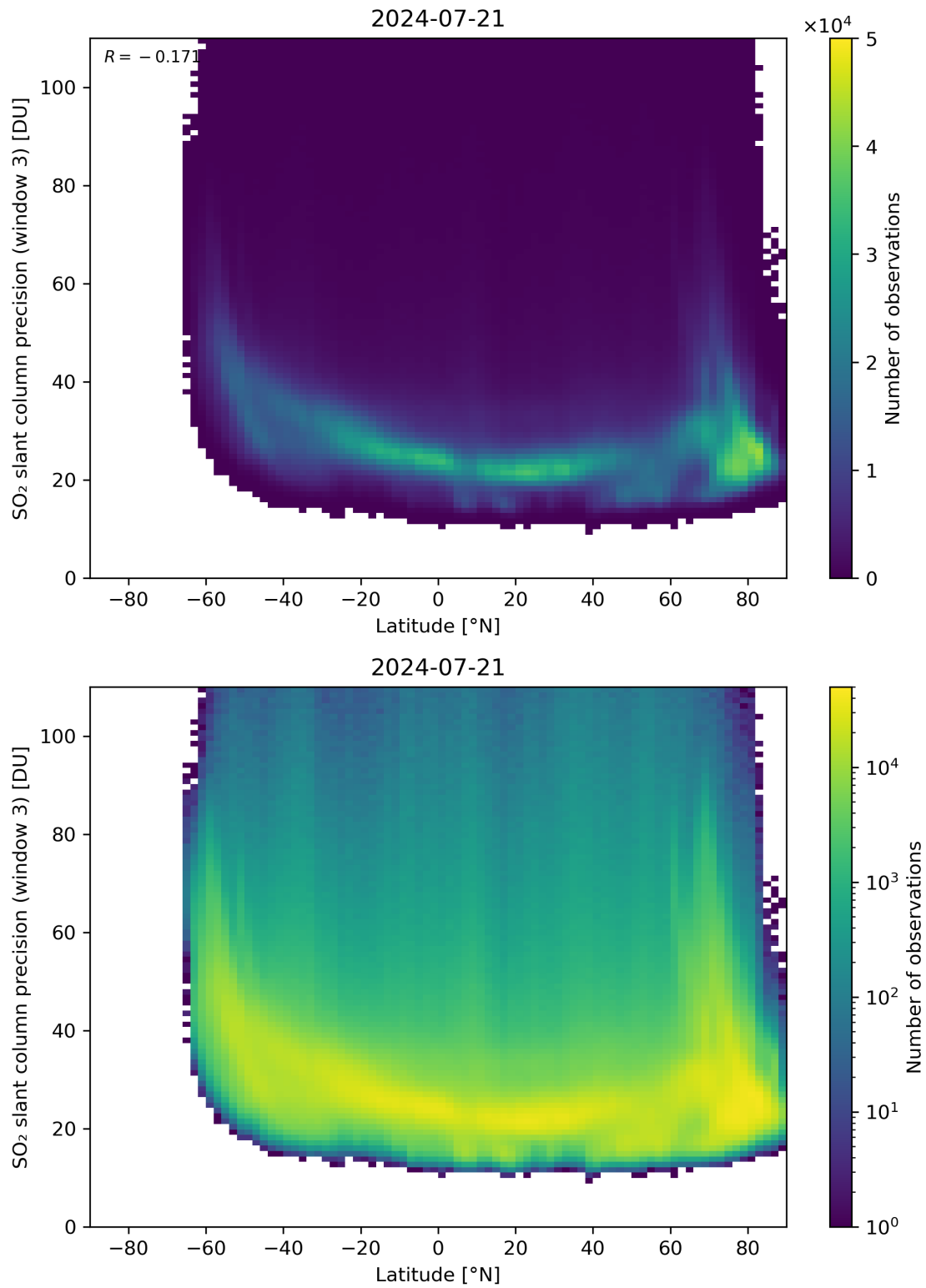


Figure 153: Scatter density plot of “Latitude” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

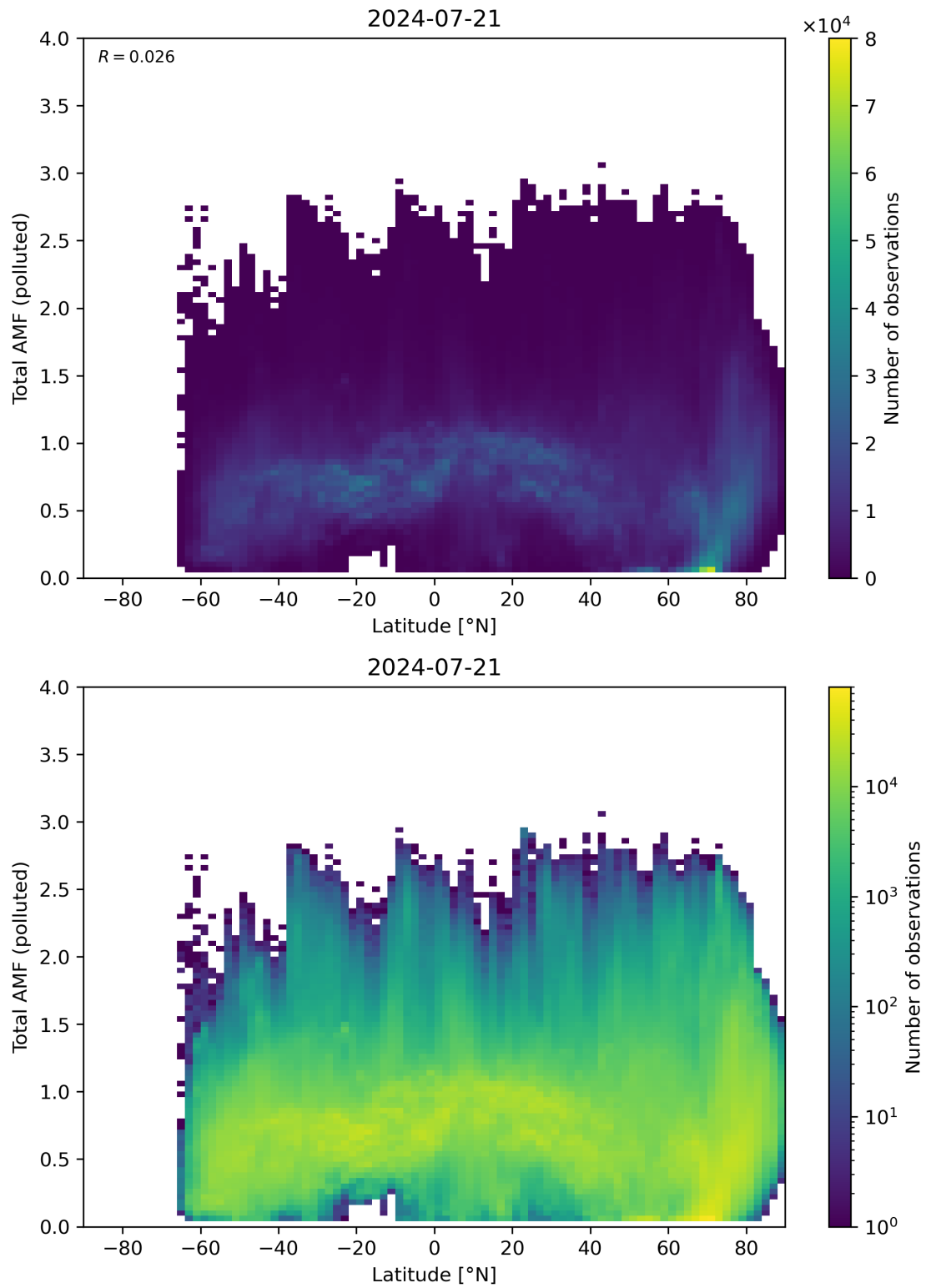


Figure 154: Scatter density plot of “Latitude” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

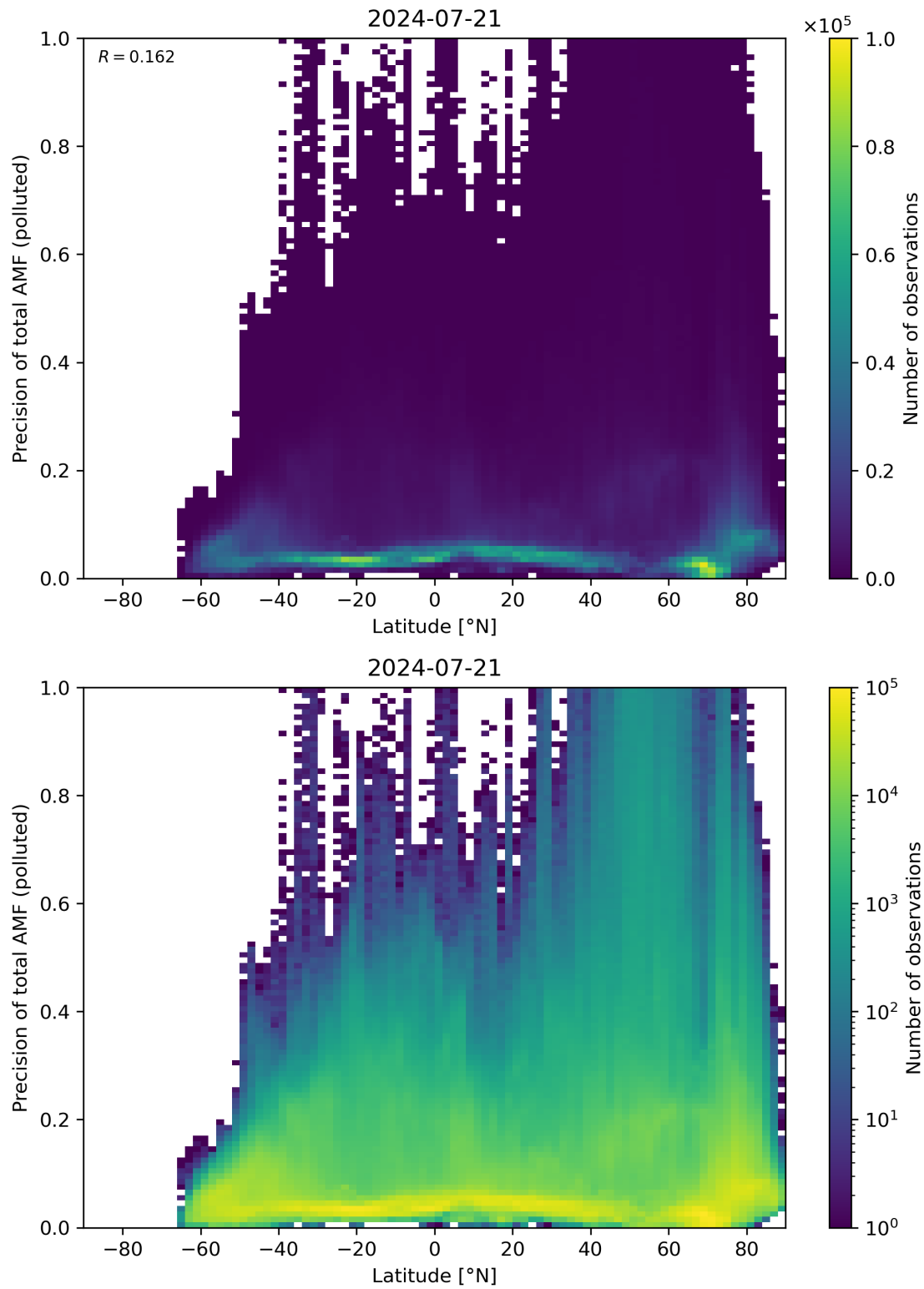


Figure 155: Scatter density plot of “Latitude” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

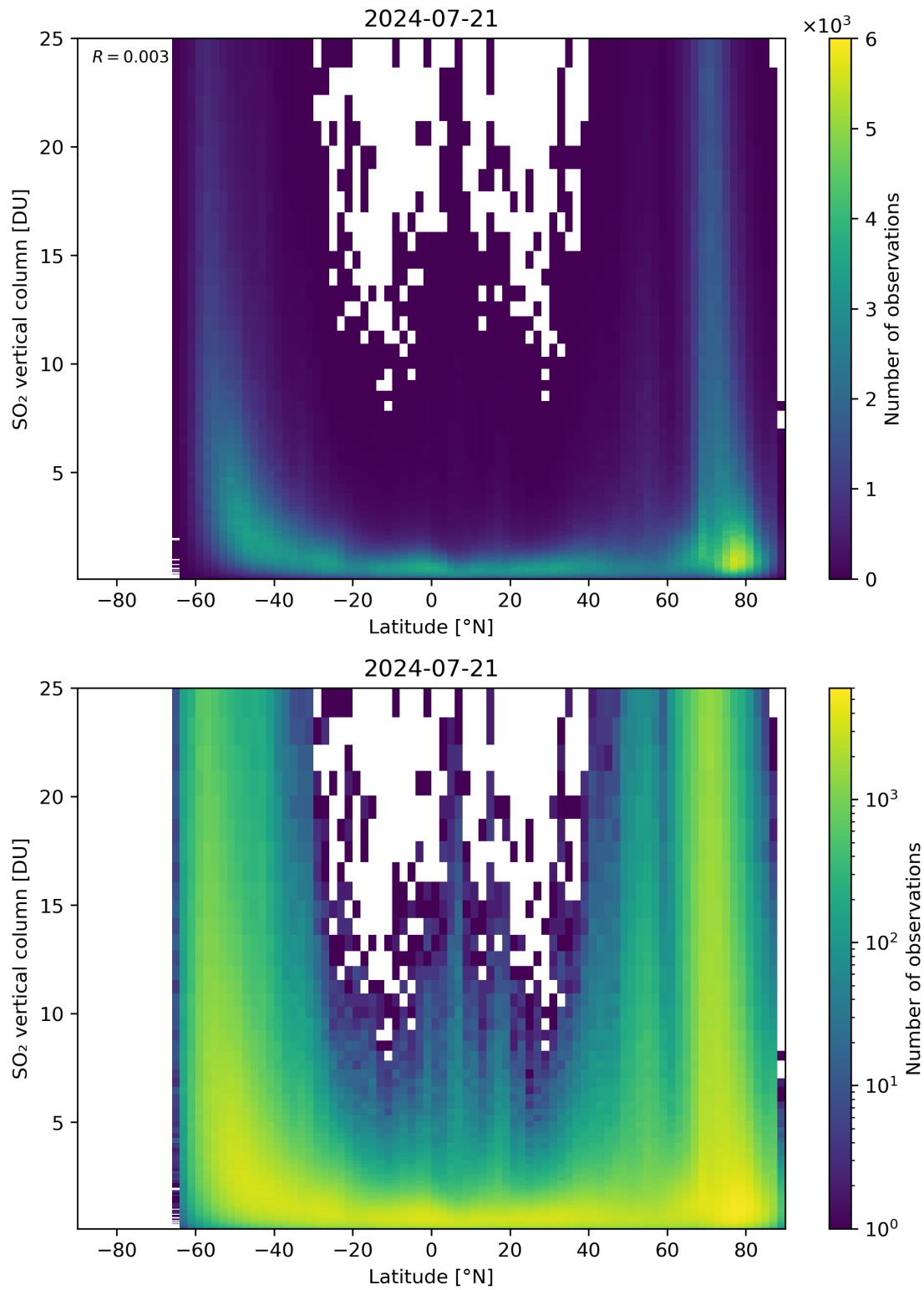


Figure 156: Scatter density plot of “Latitude” against “SO₂ vertical column” for 2024-07-21 to 2024-07-22.

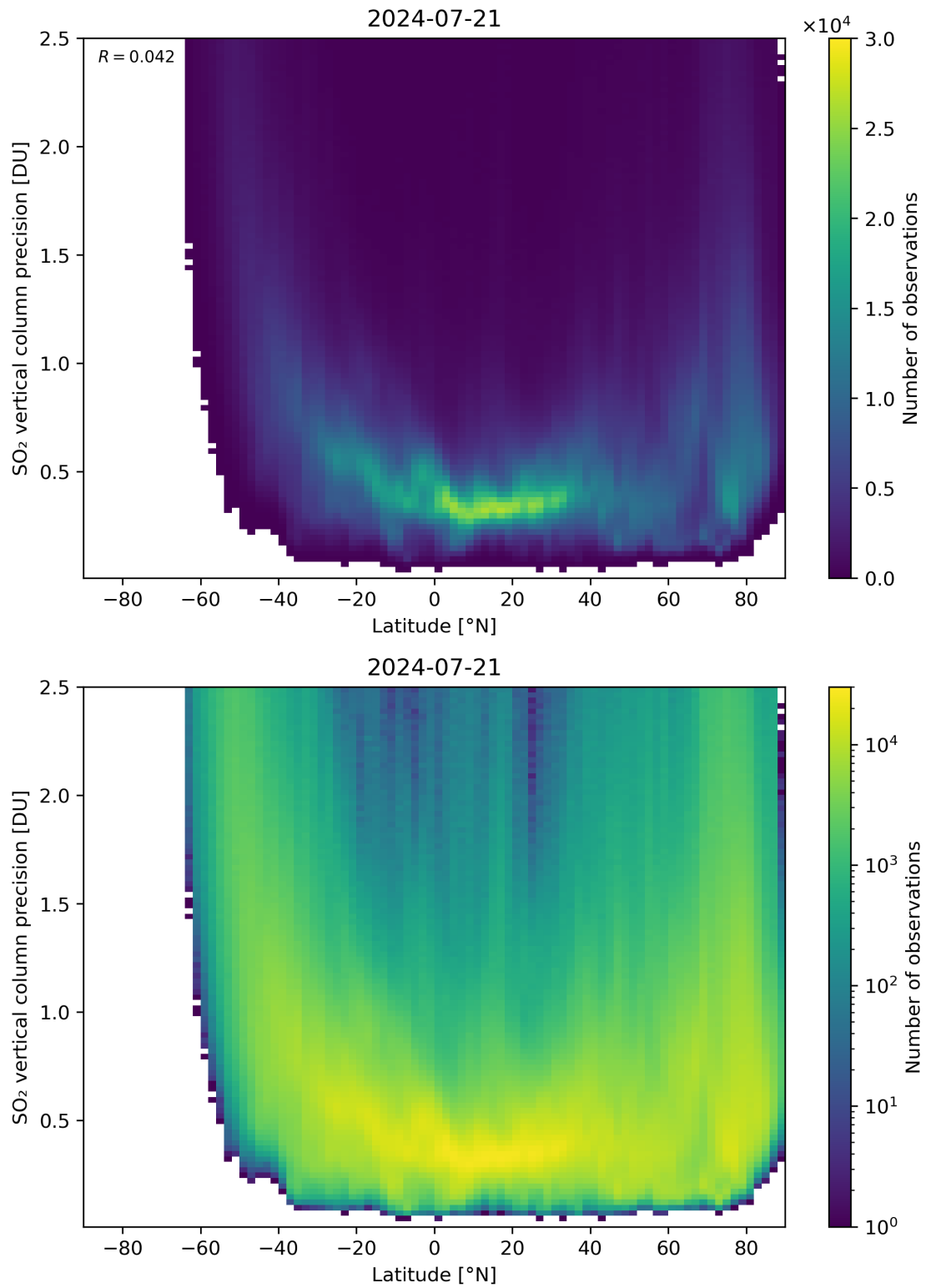


Figure 157: Scatter density plot of “Latitude” against “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22.

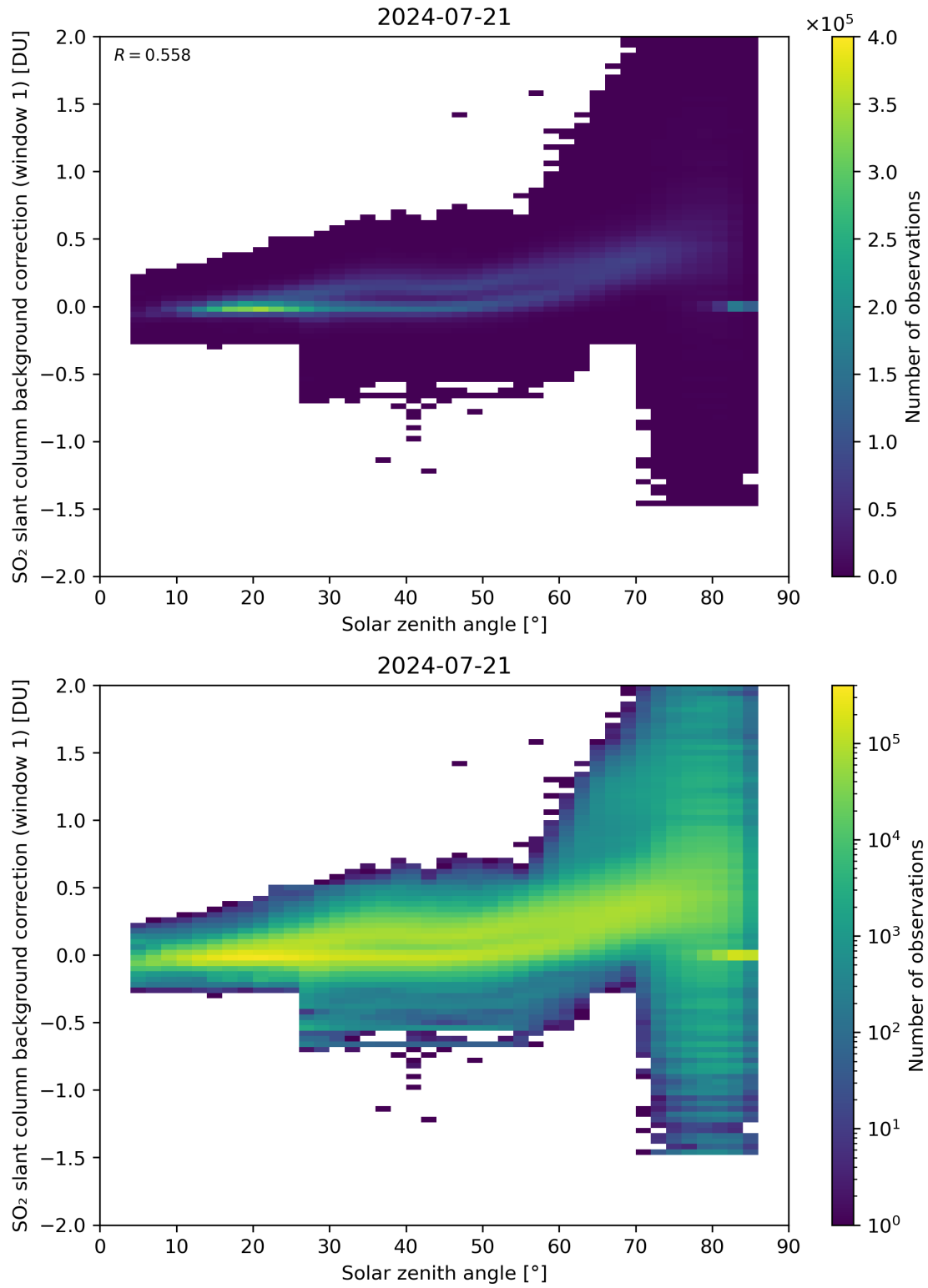


Figure 158: Scatter density plot of “Solar zenith angle” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

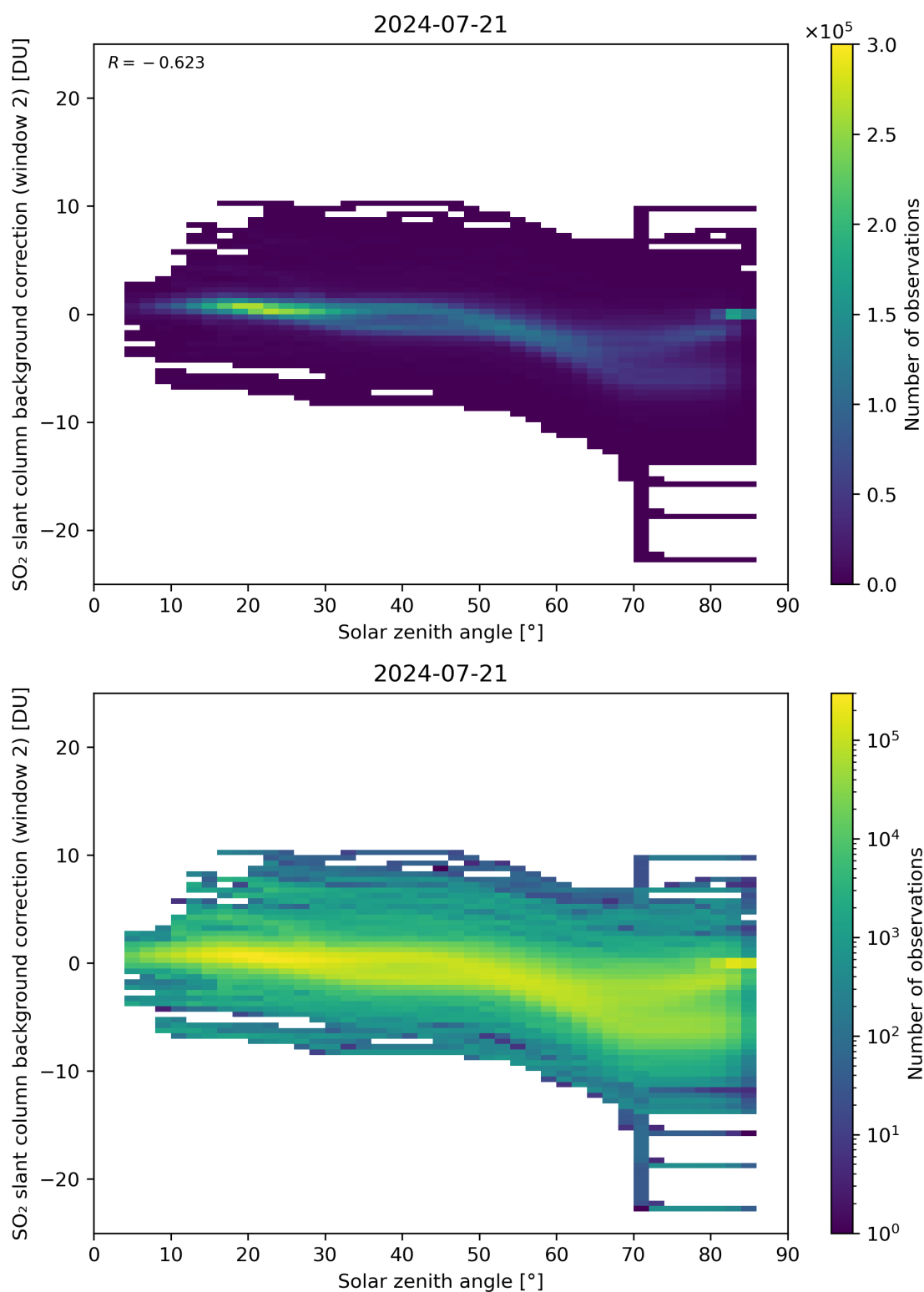


Figure 159: Scatter density plot of “Solar zenith angle” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

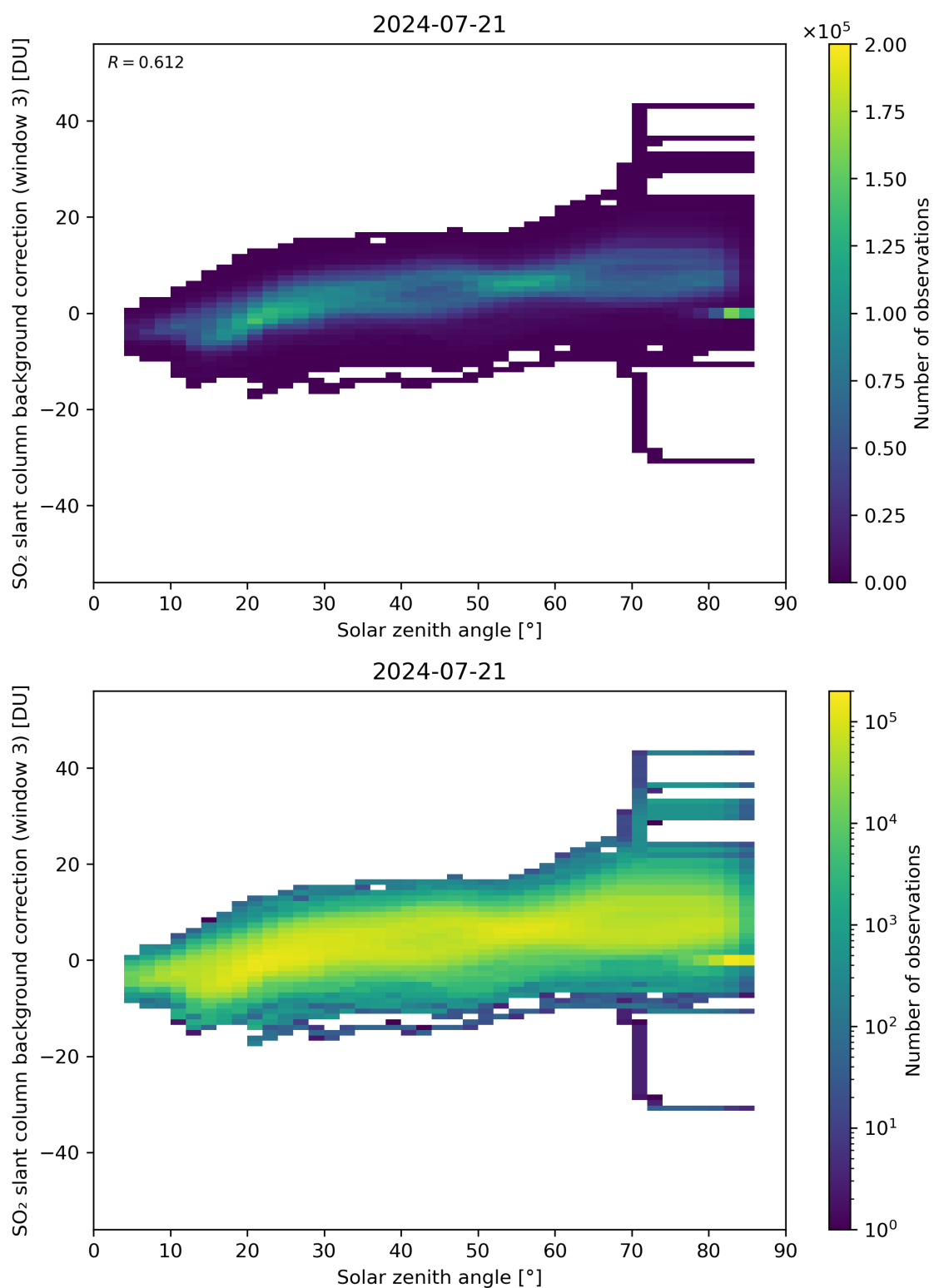


Figure 160: Scatter density plot of “Solar zenith angle” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

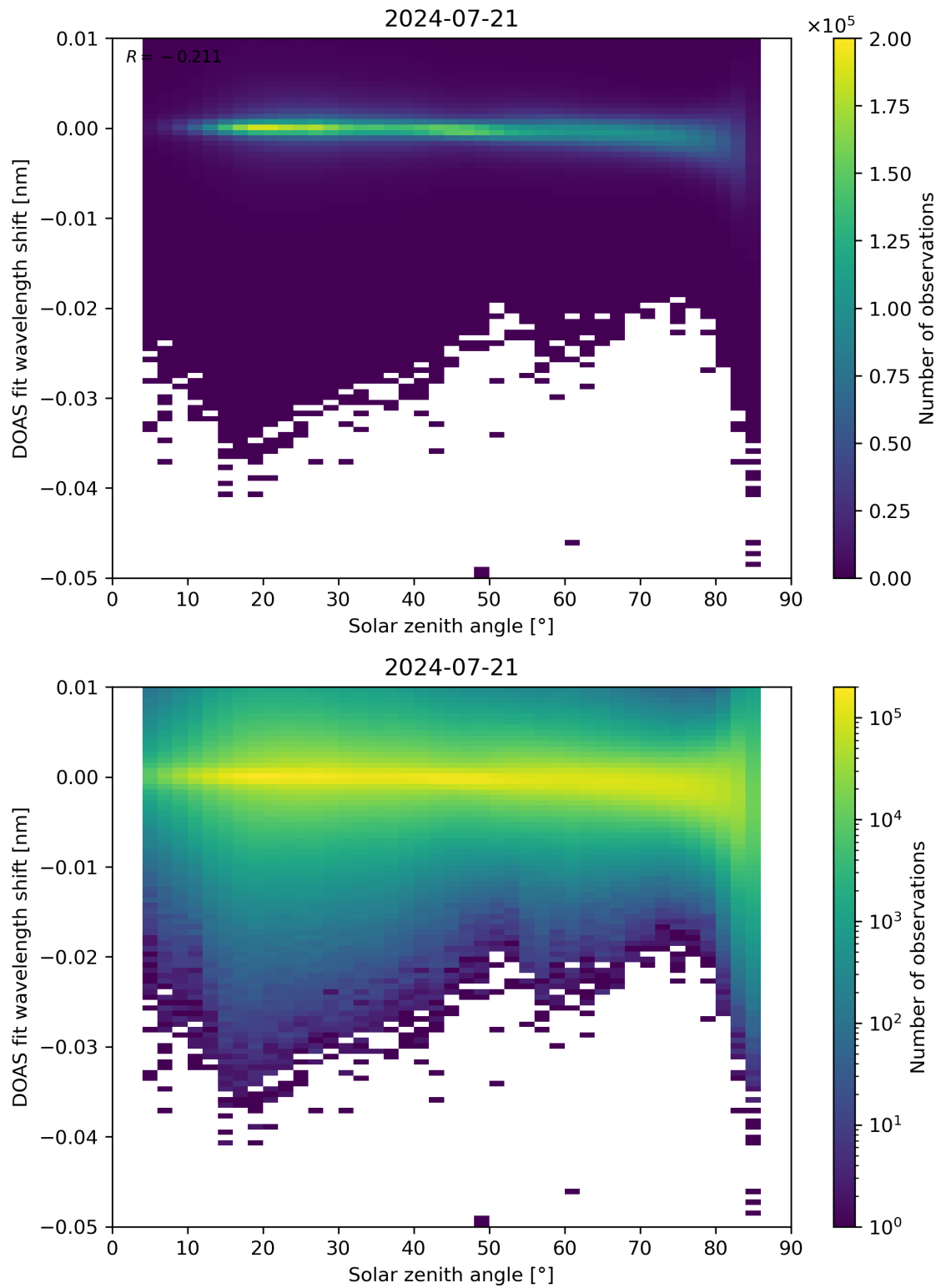


Figure 161: Scatter density plot of “Solar zenith angle” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

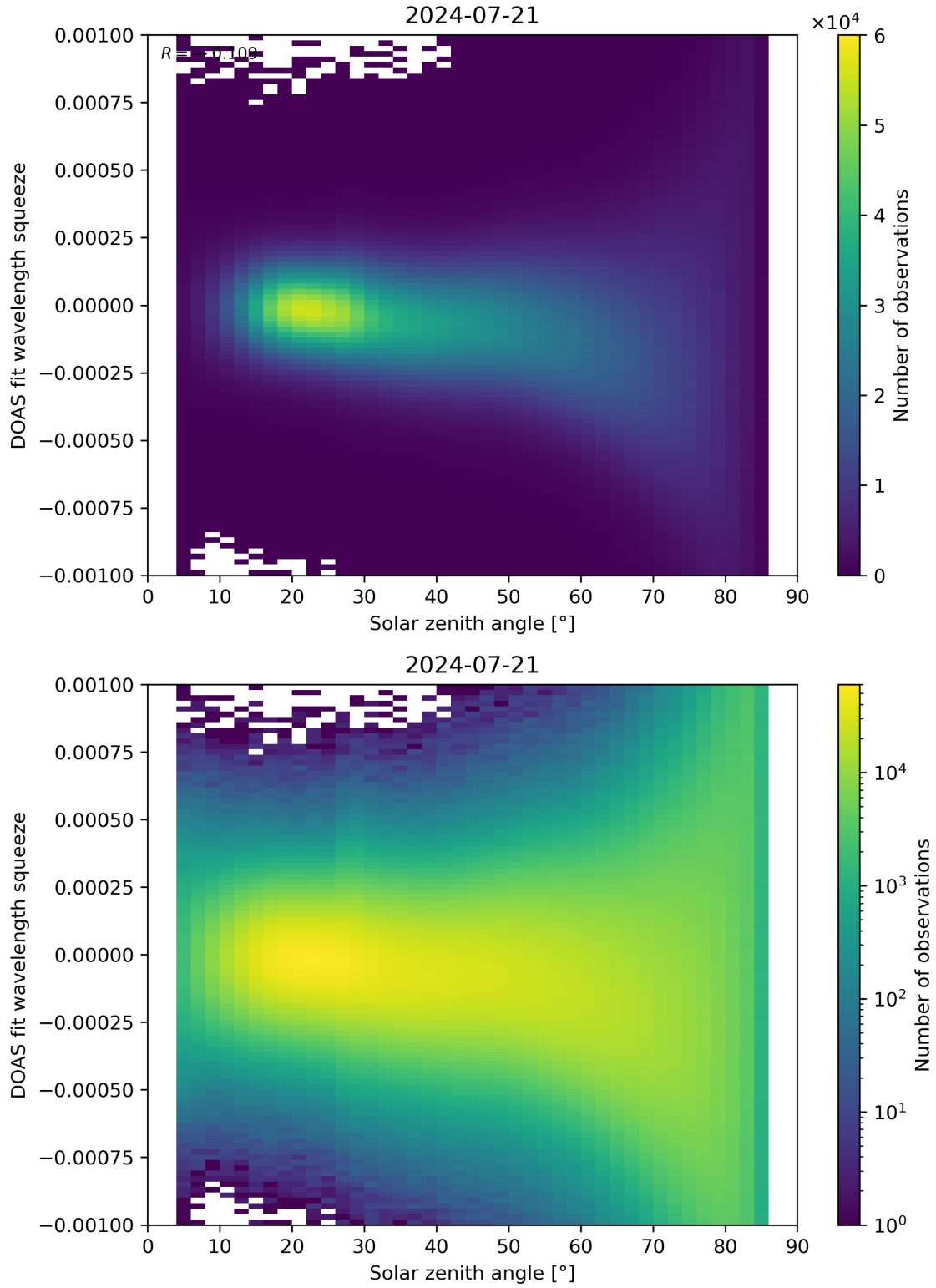


Figure 162: Scatter density plot of “Solar zenith angle” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

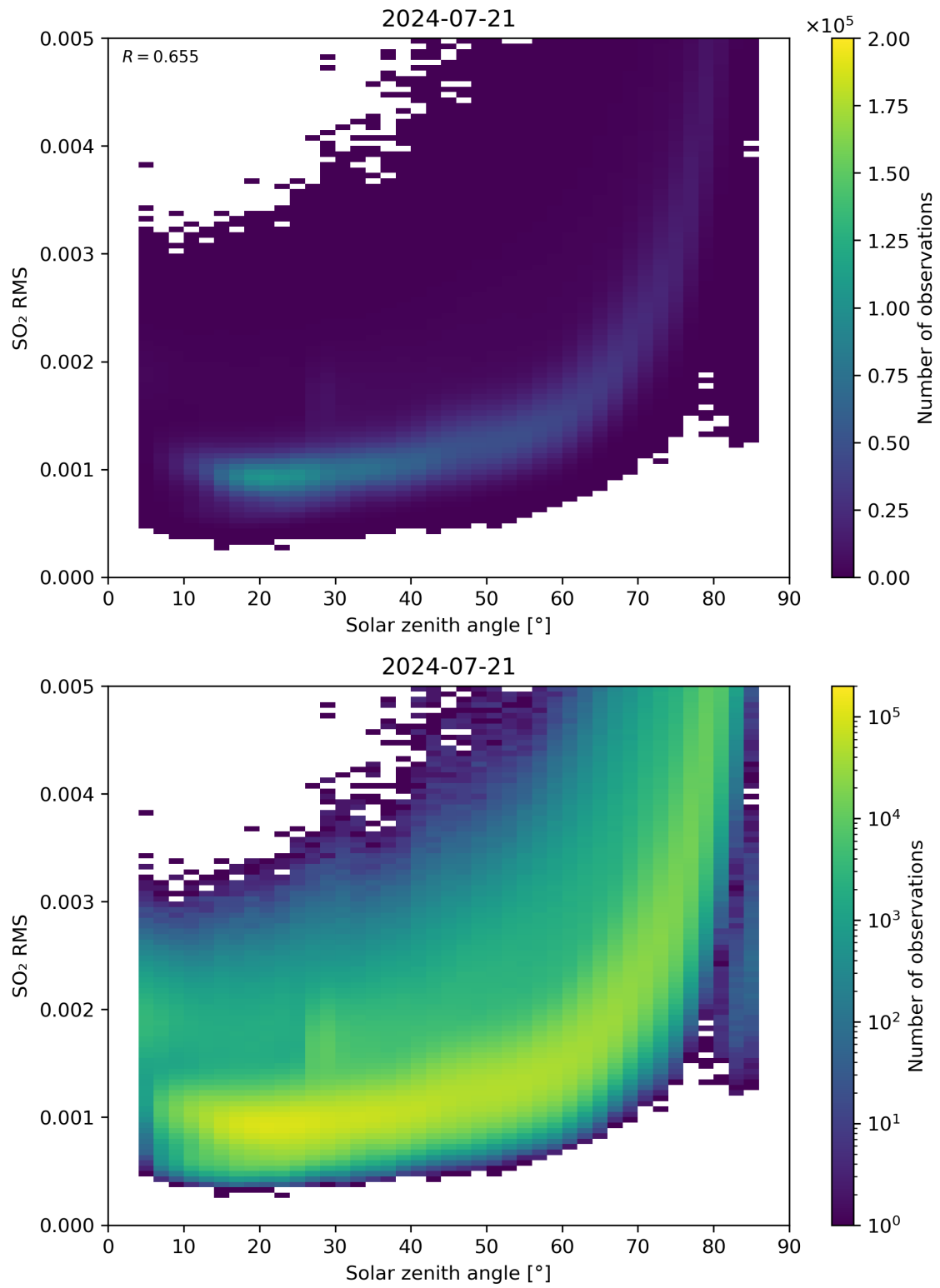


Figure 163: Scatter density plot of “Solar zenith angle” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

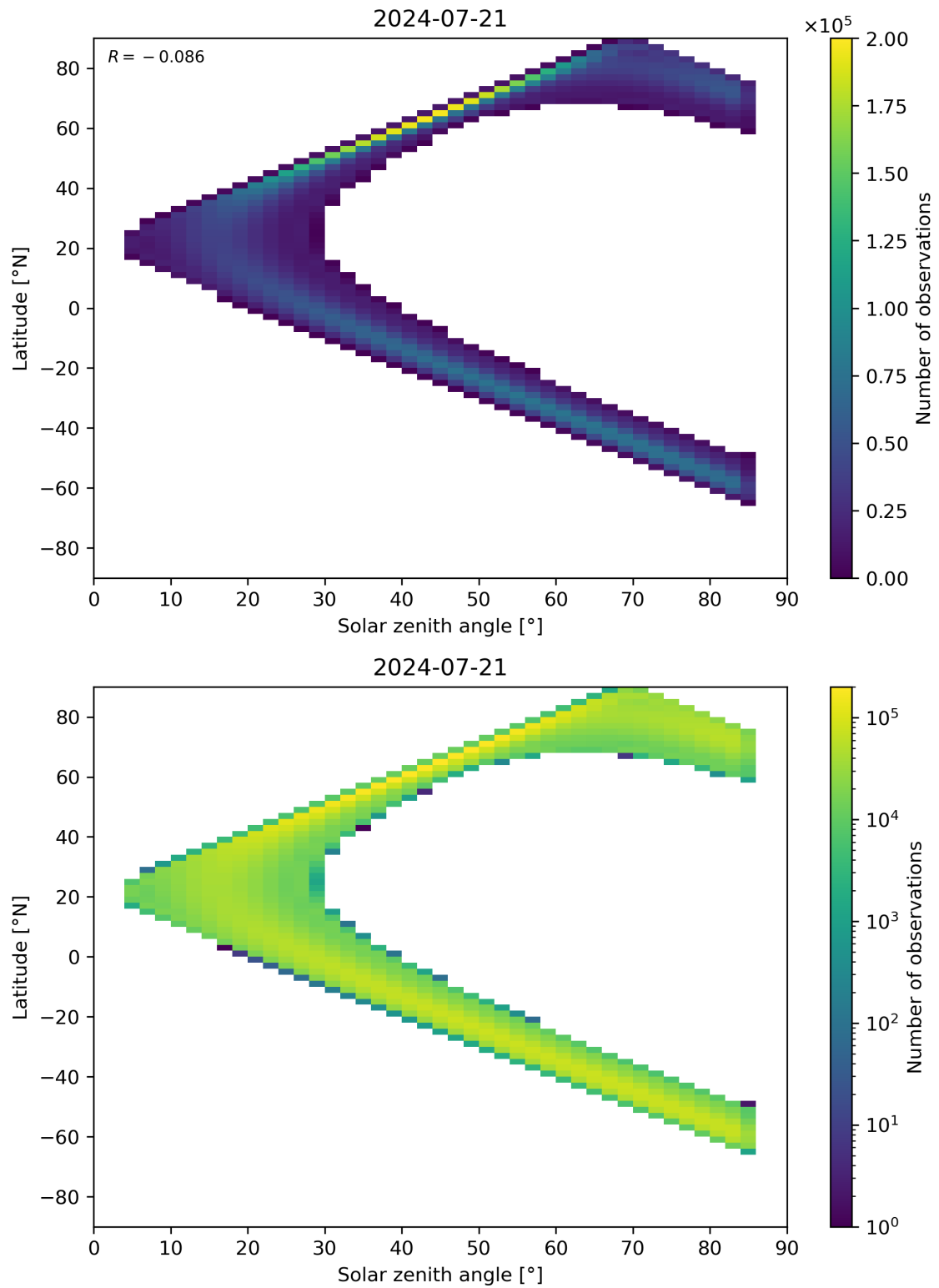


Figure 164: Scatter density plot of “Solar zenith angle” against “Latitude” for 2024-07-21 to 2024-07-22.

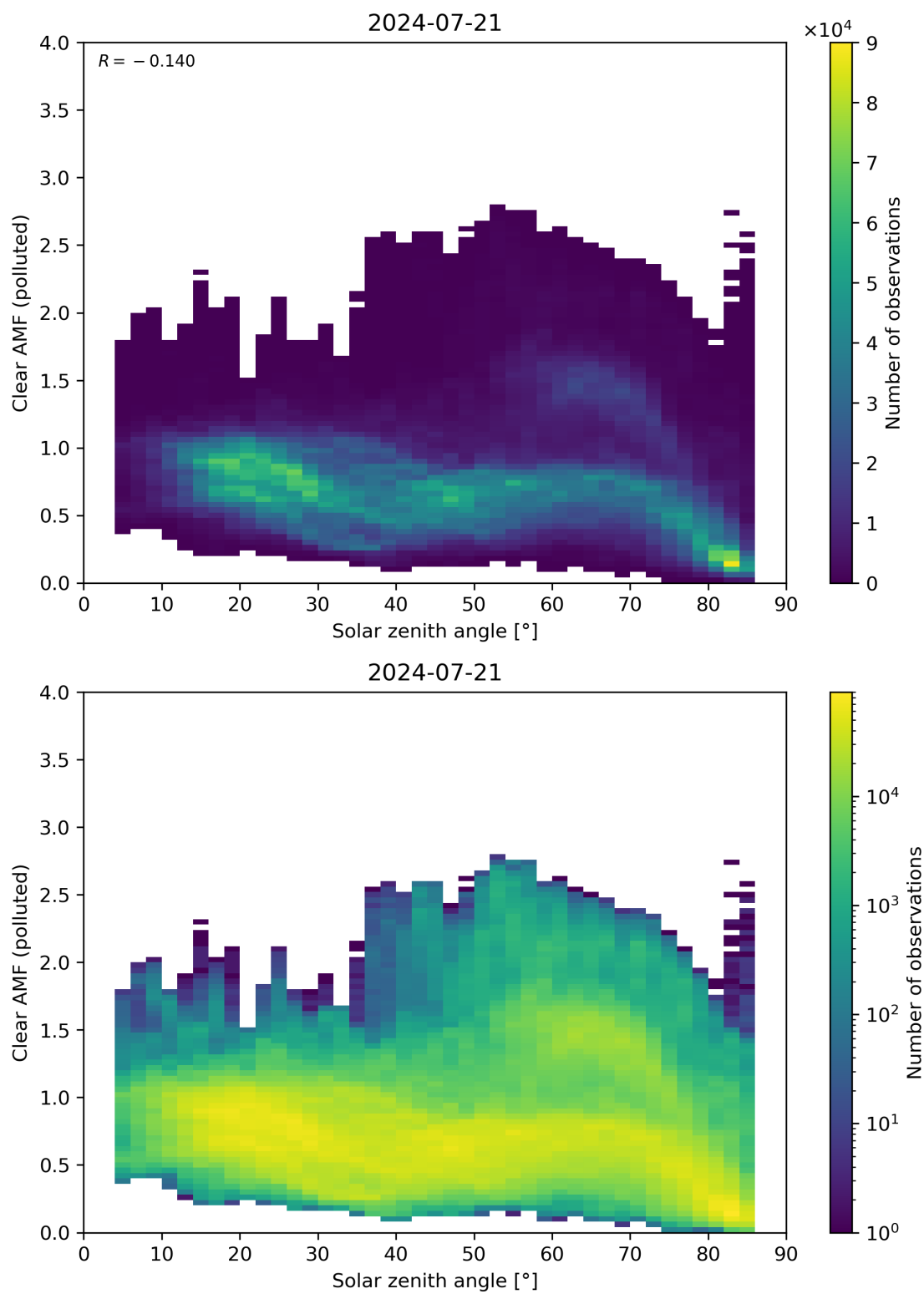


Figure 165: Scatter density plot of “Solar zenith angle” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

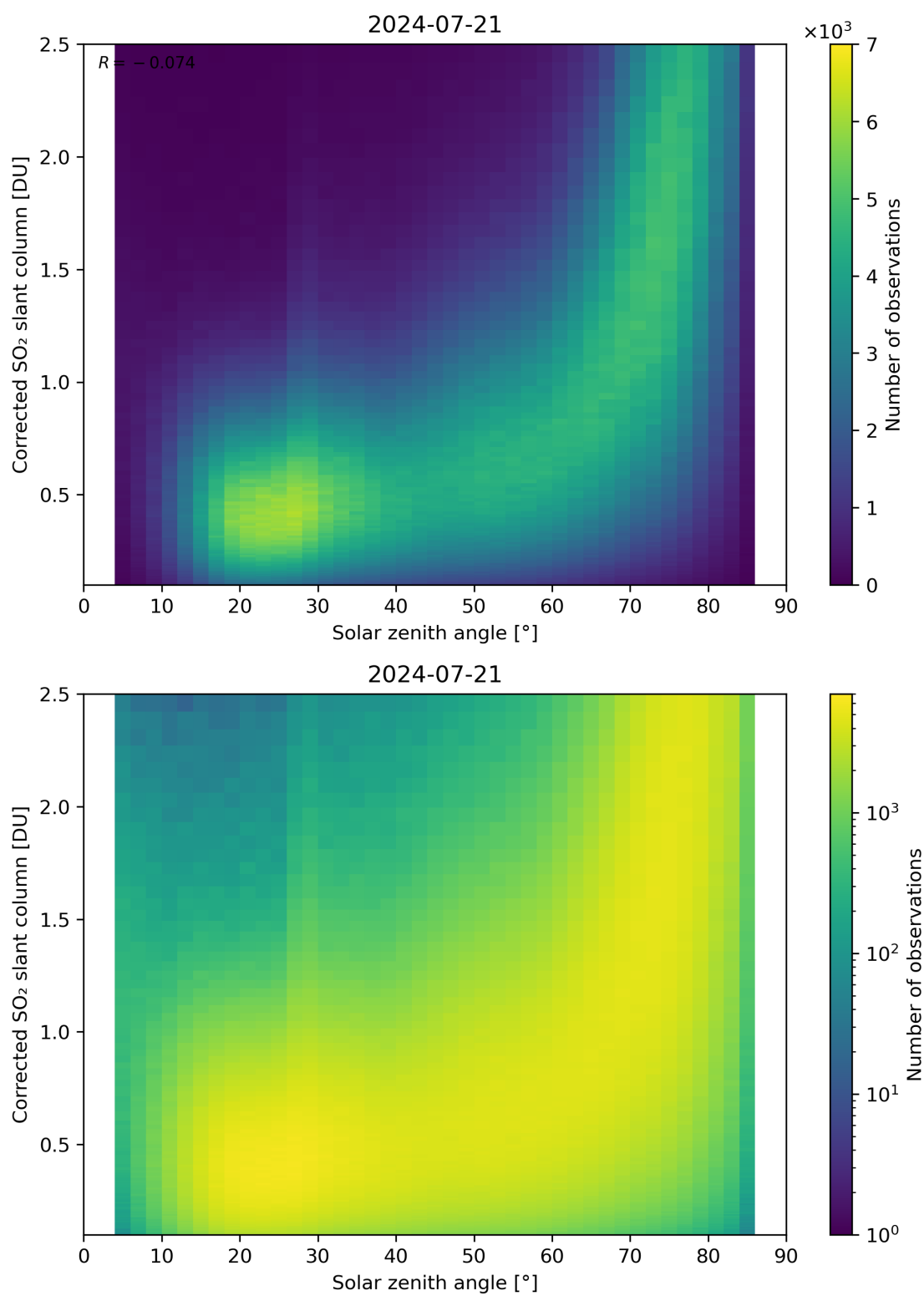


Figure 166: Scatter density plot of “Solar zenith angle” against “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22.

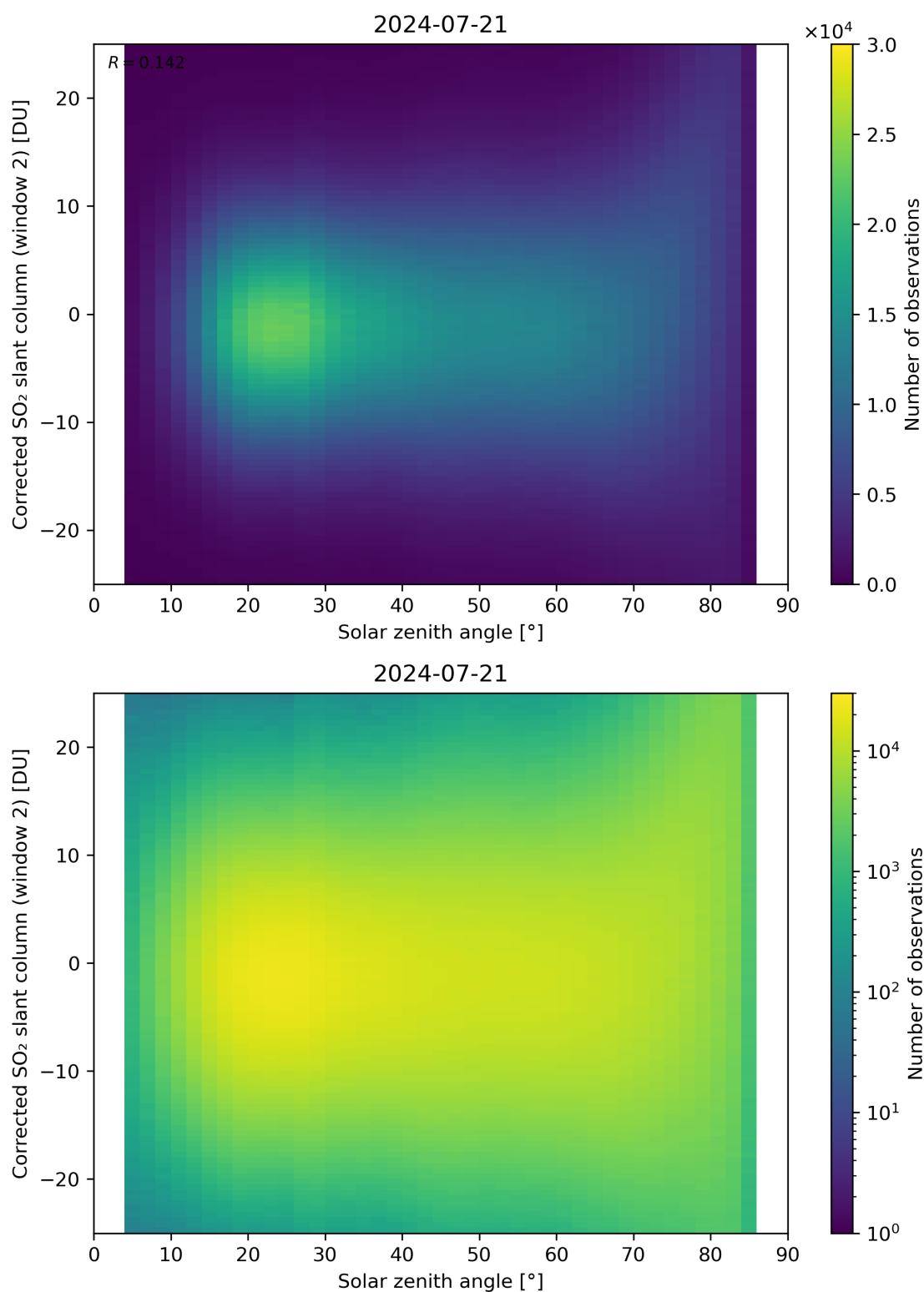


Figure 167: Scatter density plot of “Solar zenith angle” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

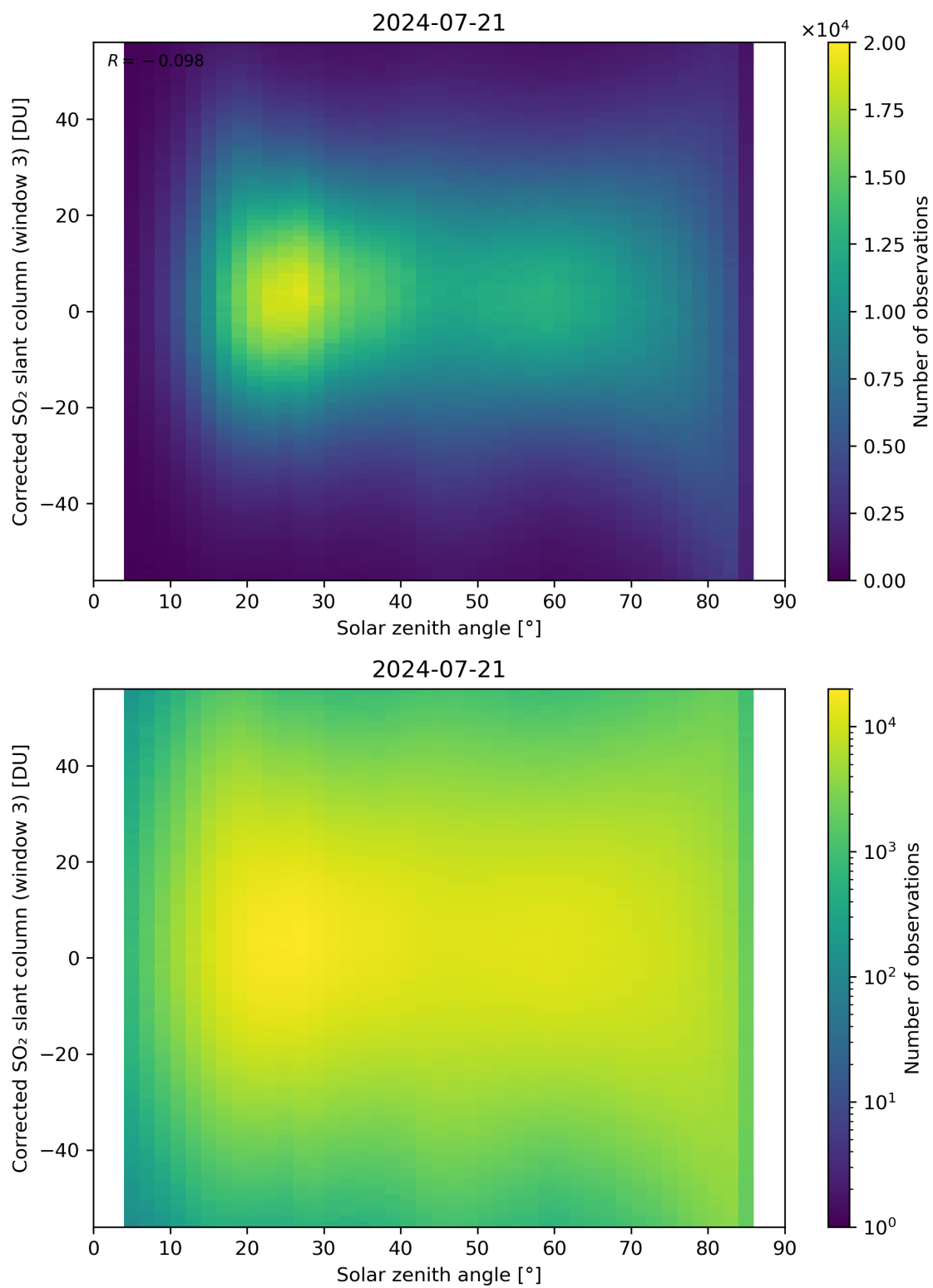


Figure 168: Scatter density plot of “Solar zenith angle” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

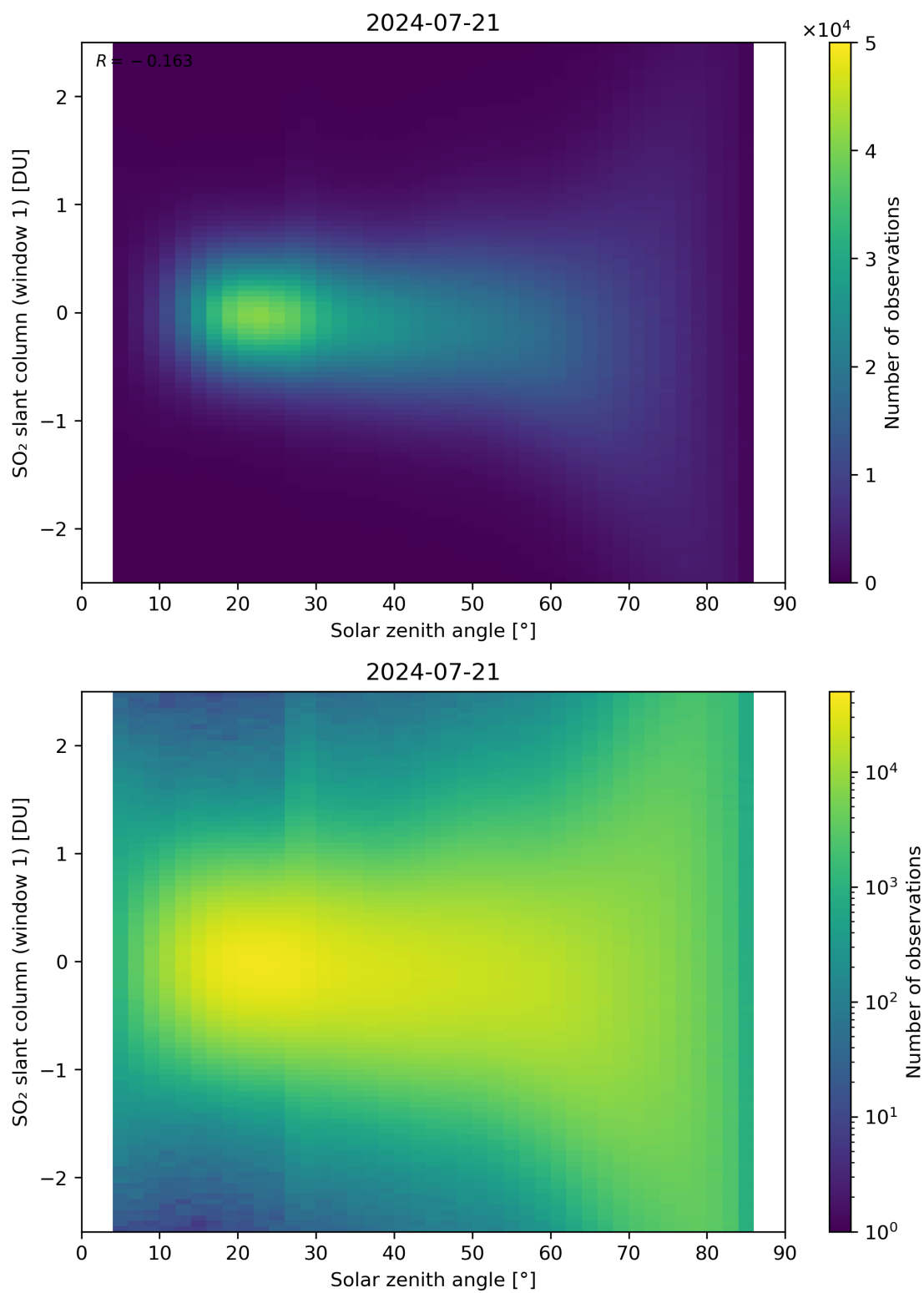


Figure 169: Scatter density plot of “Solar zenith angle” against “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

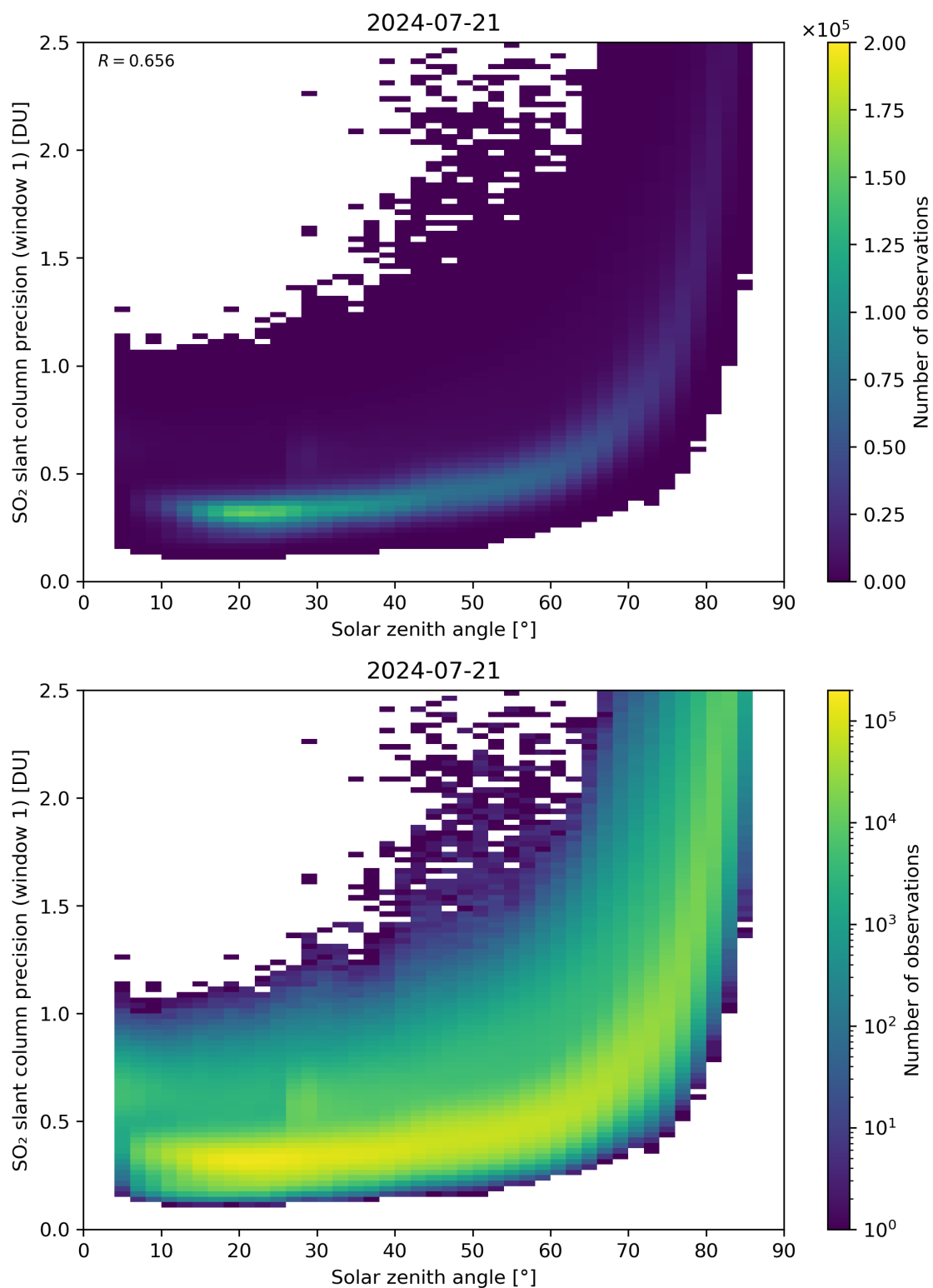


Figure 170: Scatter density plot of “Solar zenith angle” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

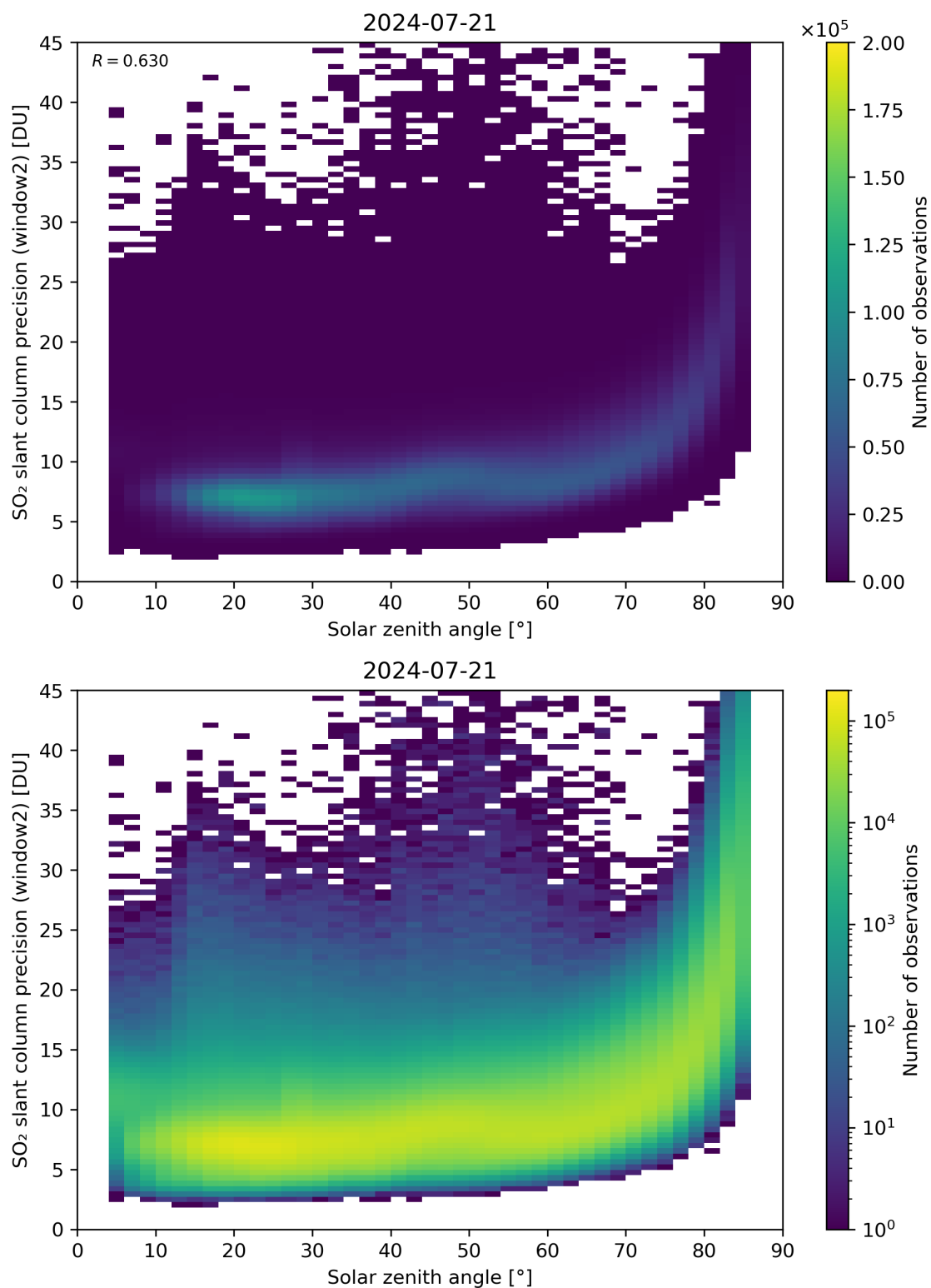


Figure 171: Scatter density plot of “Solar zenith angle” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

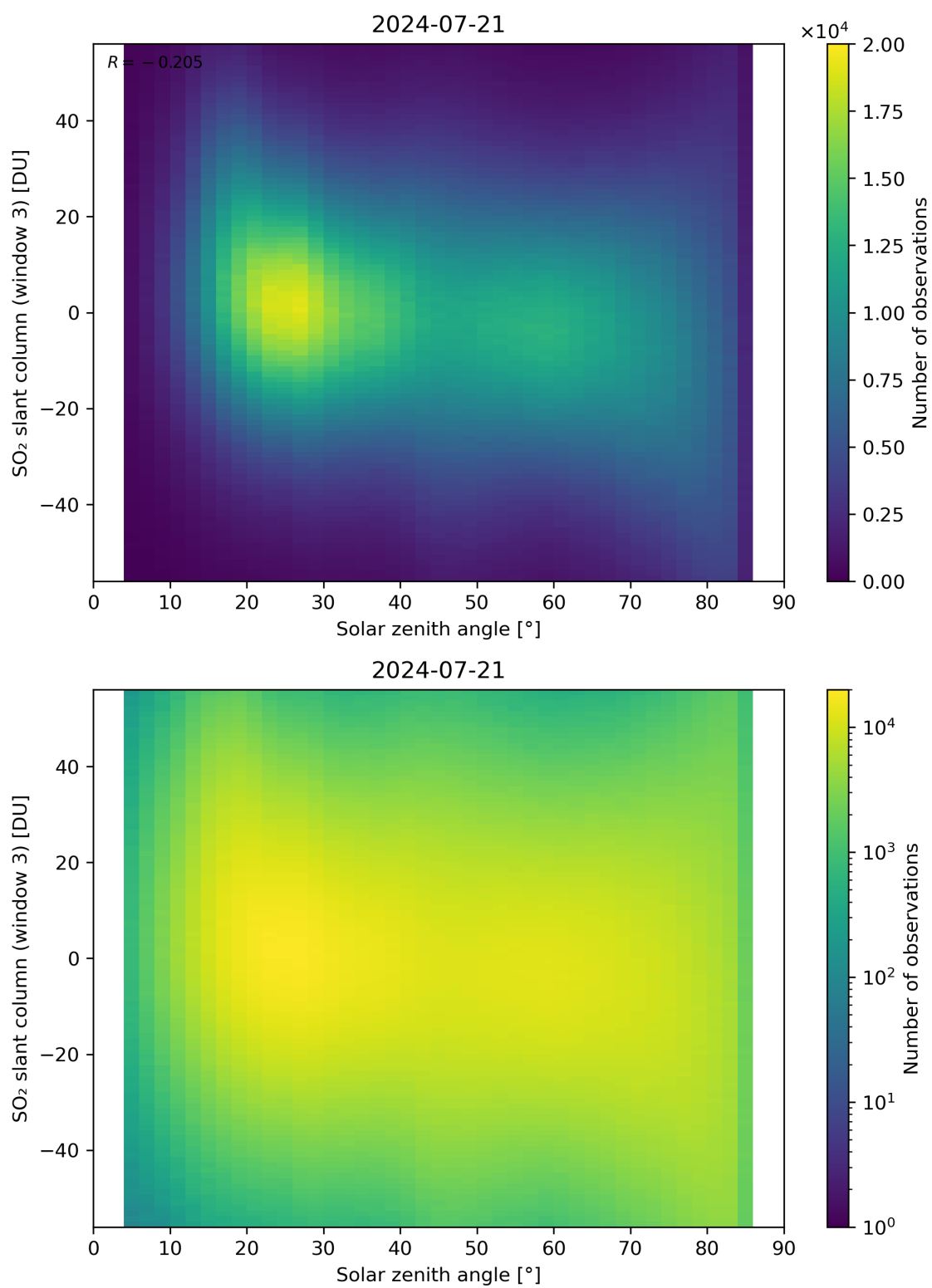


Figure 172: Scatter density plot of “Solar zenith angle” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

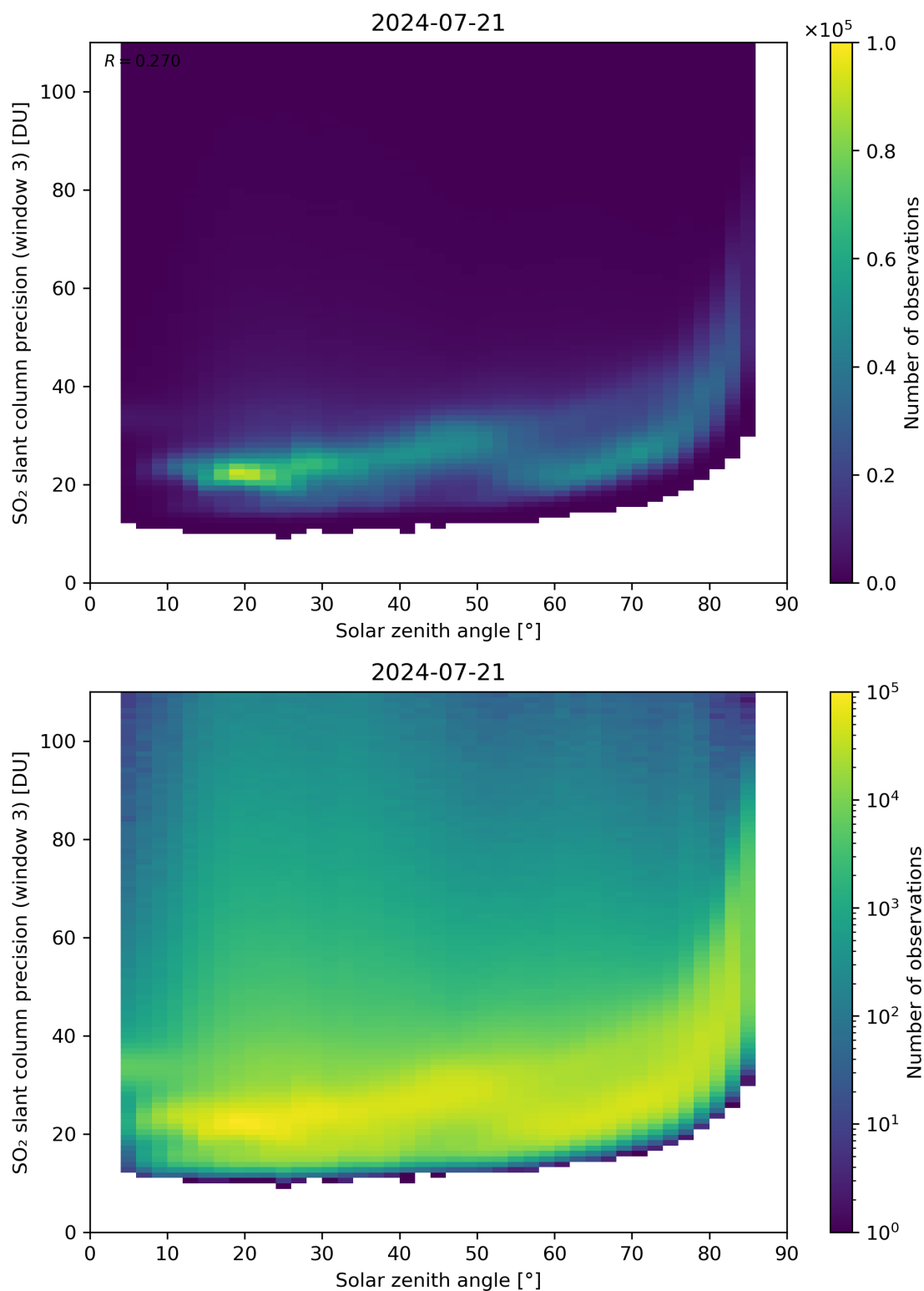


Figure 173: Scatter density plot of “Solar zenith angle” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

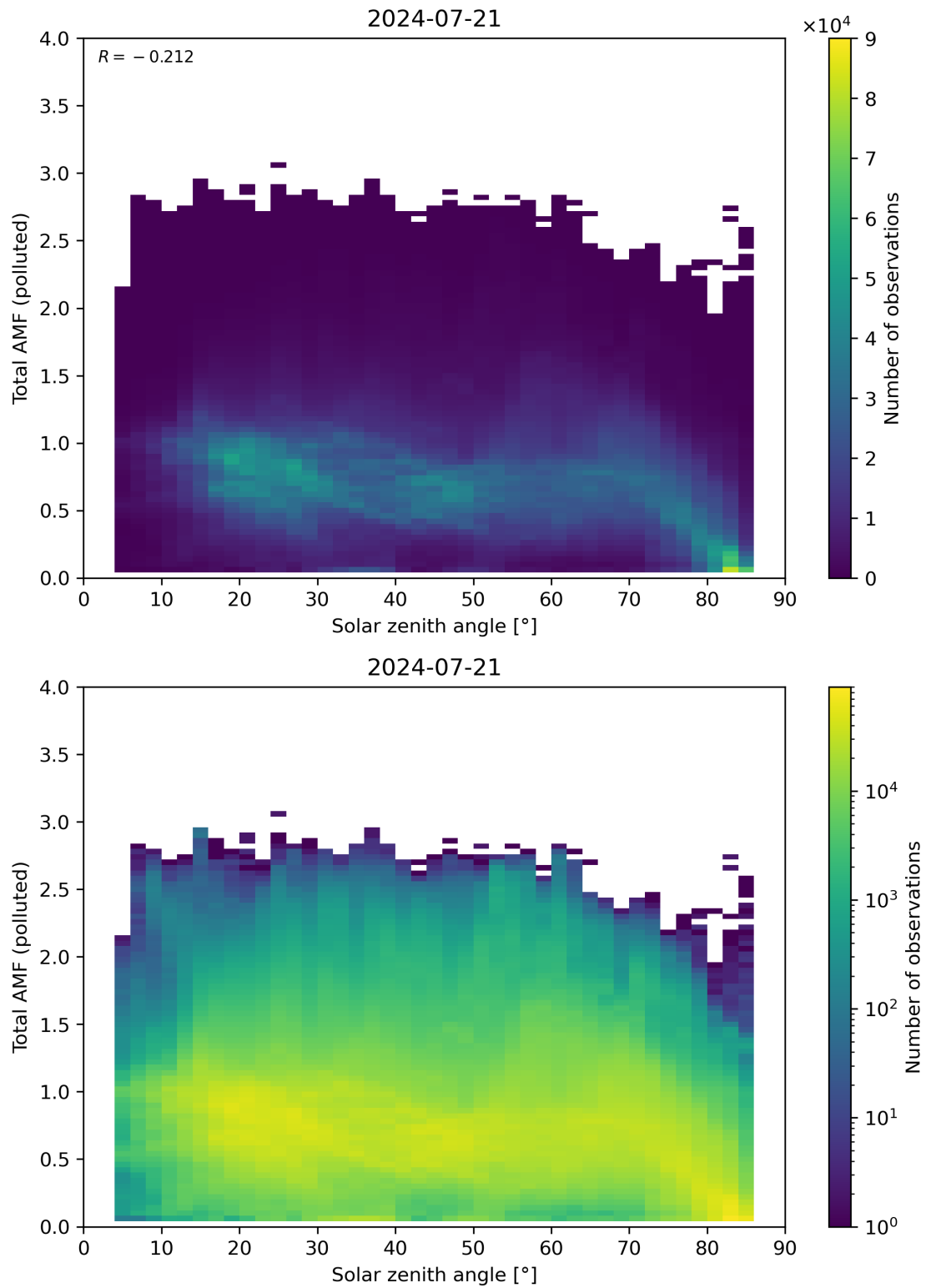


Figure 174: Scatter density plot of “Solar zenith angle” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

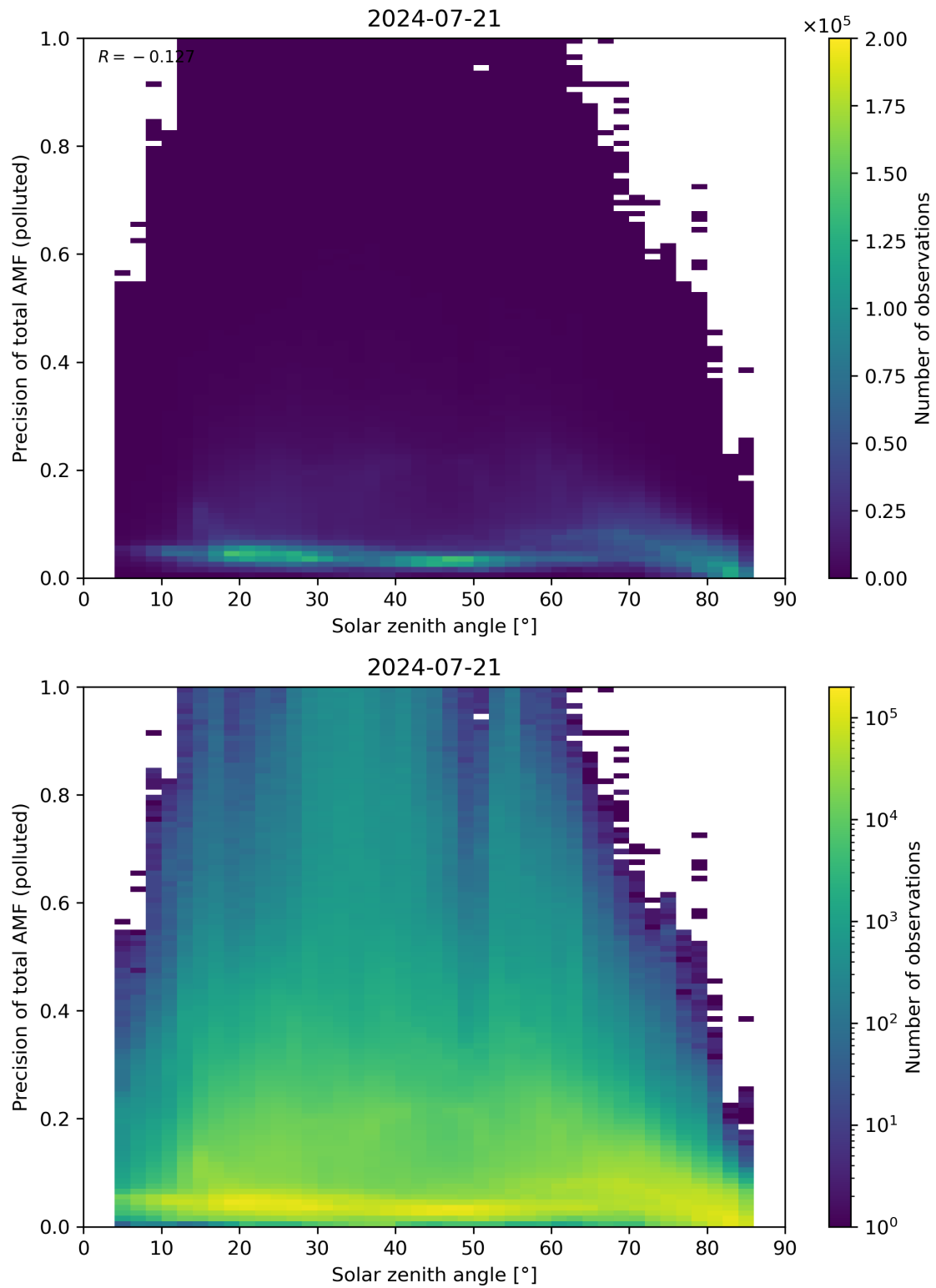


Figure 175: Scatter density plot of “Solar zenith angle” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

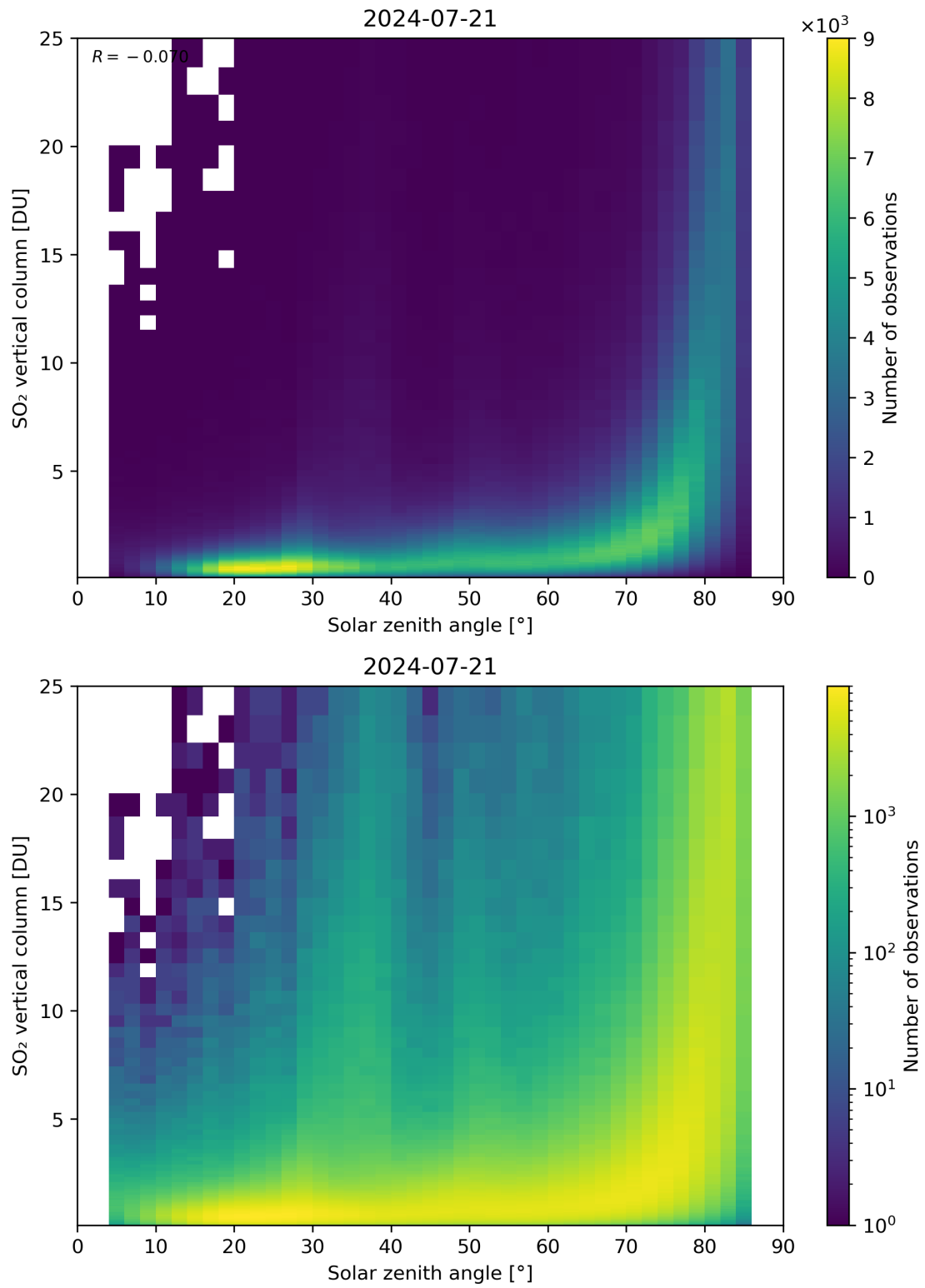


Figure 176: Scatter density plot of “Solar zenith angle” against “SO₂ vertical column” for 2024-07-21 to 2024-07-22.

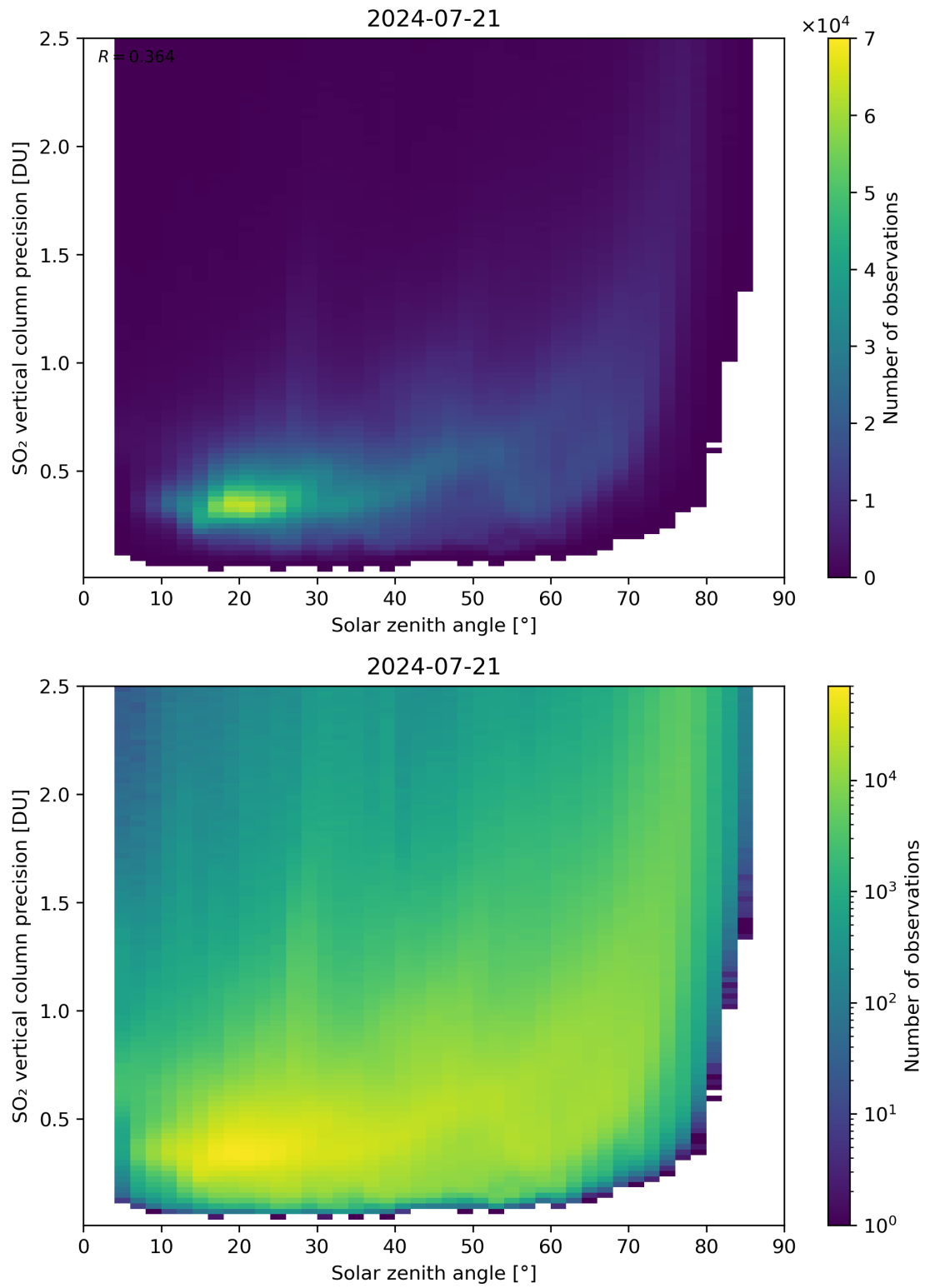


Figure 177: Scatter density plot of “Solar zenith angle” against “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22.

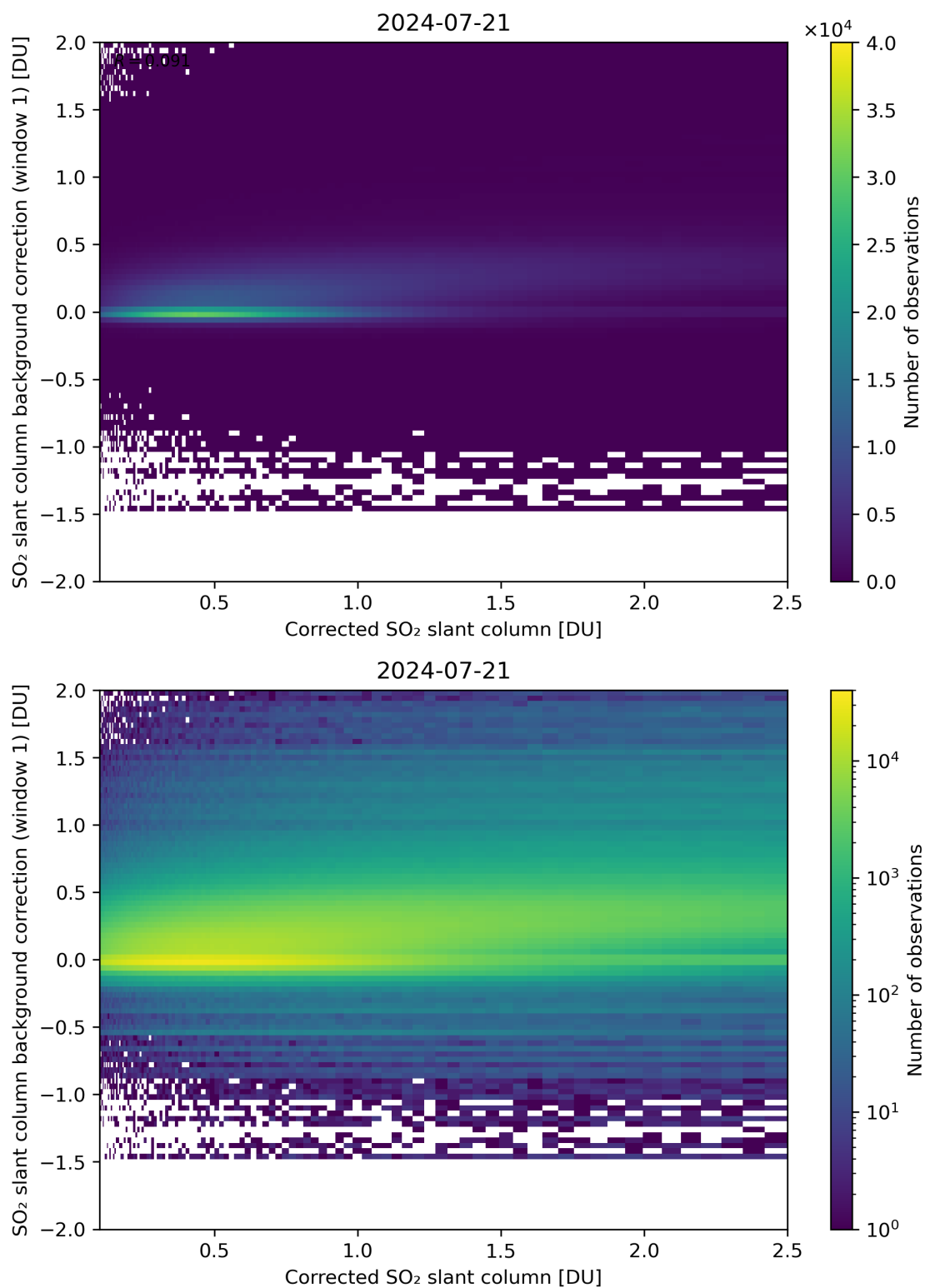


Figure 178: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

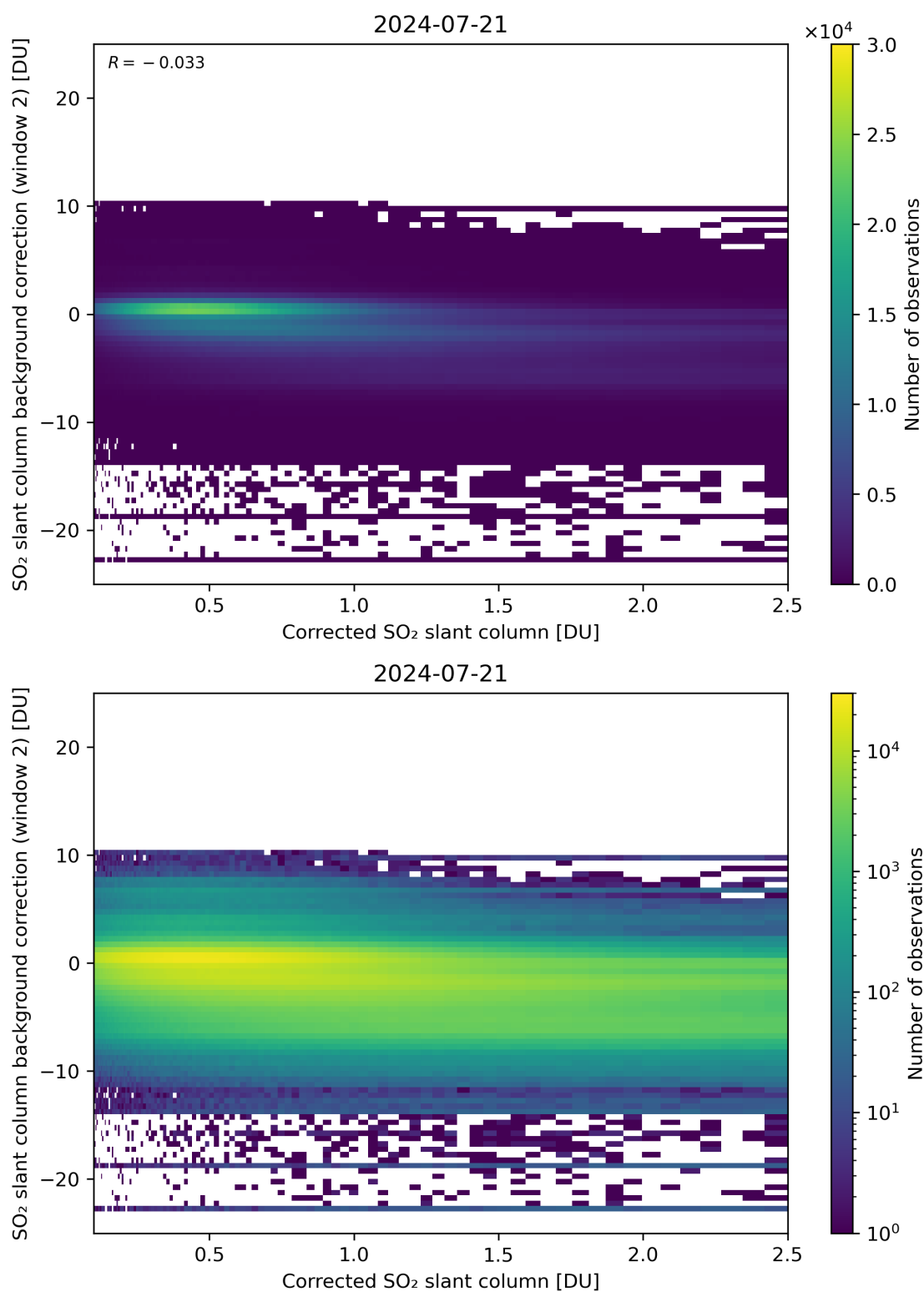


Figure 179: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

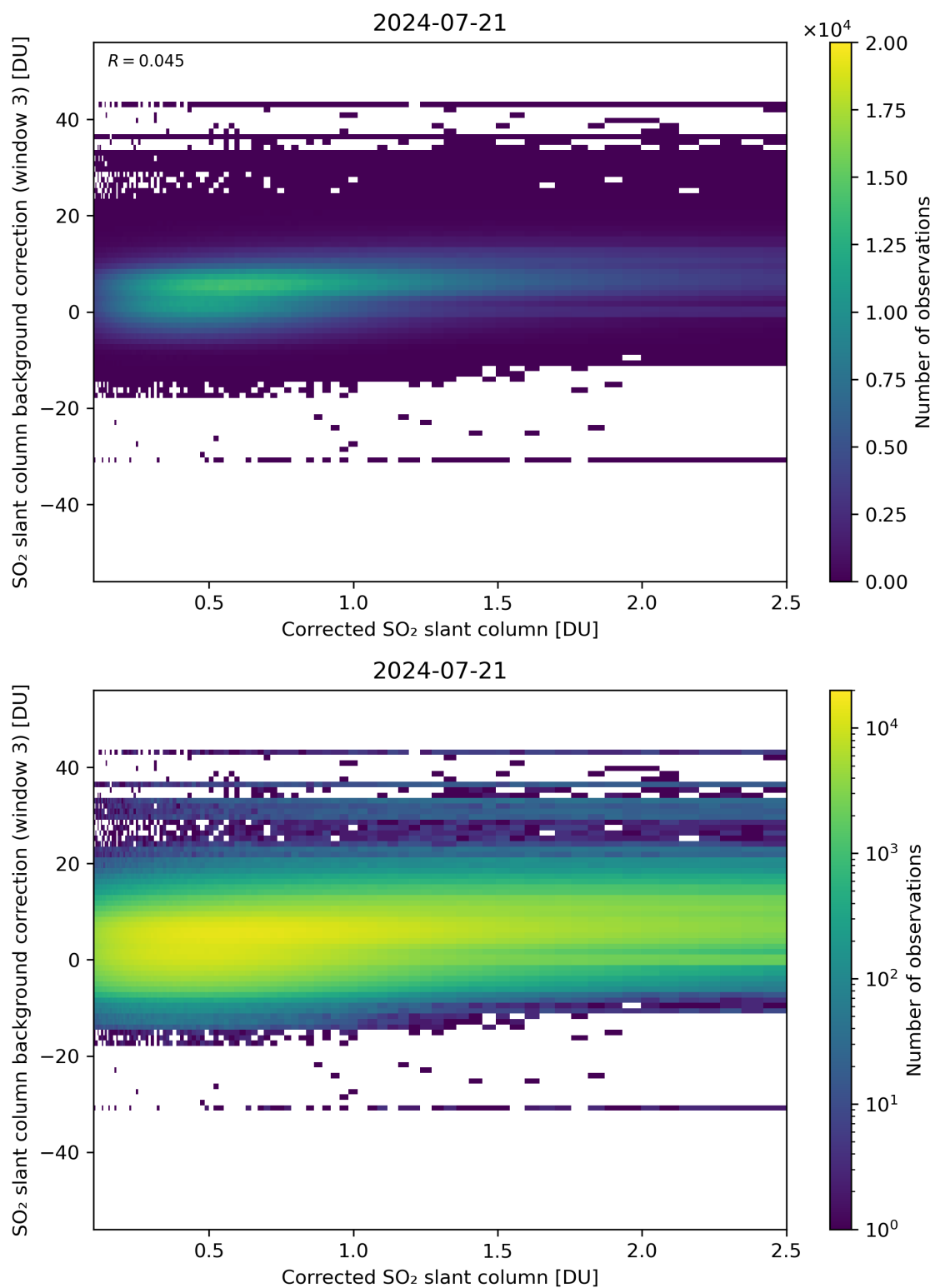


Figure 180: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

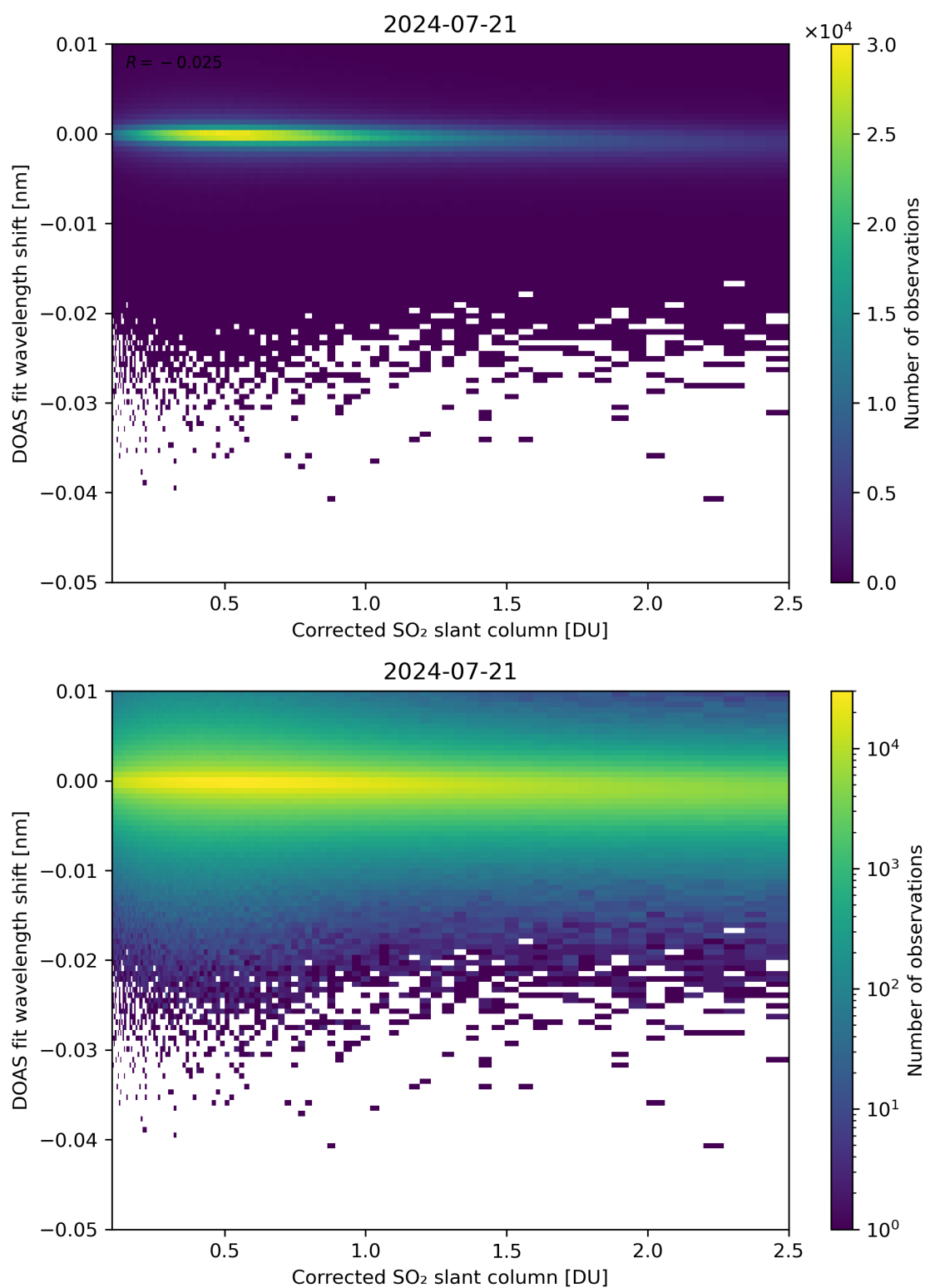


Figure 181: Scatter density plot of “Corrected SO₂ slant column” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

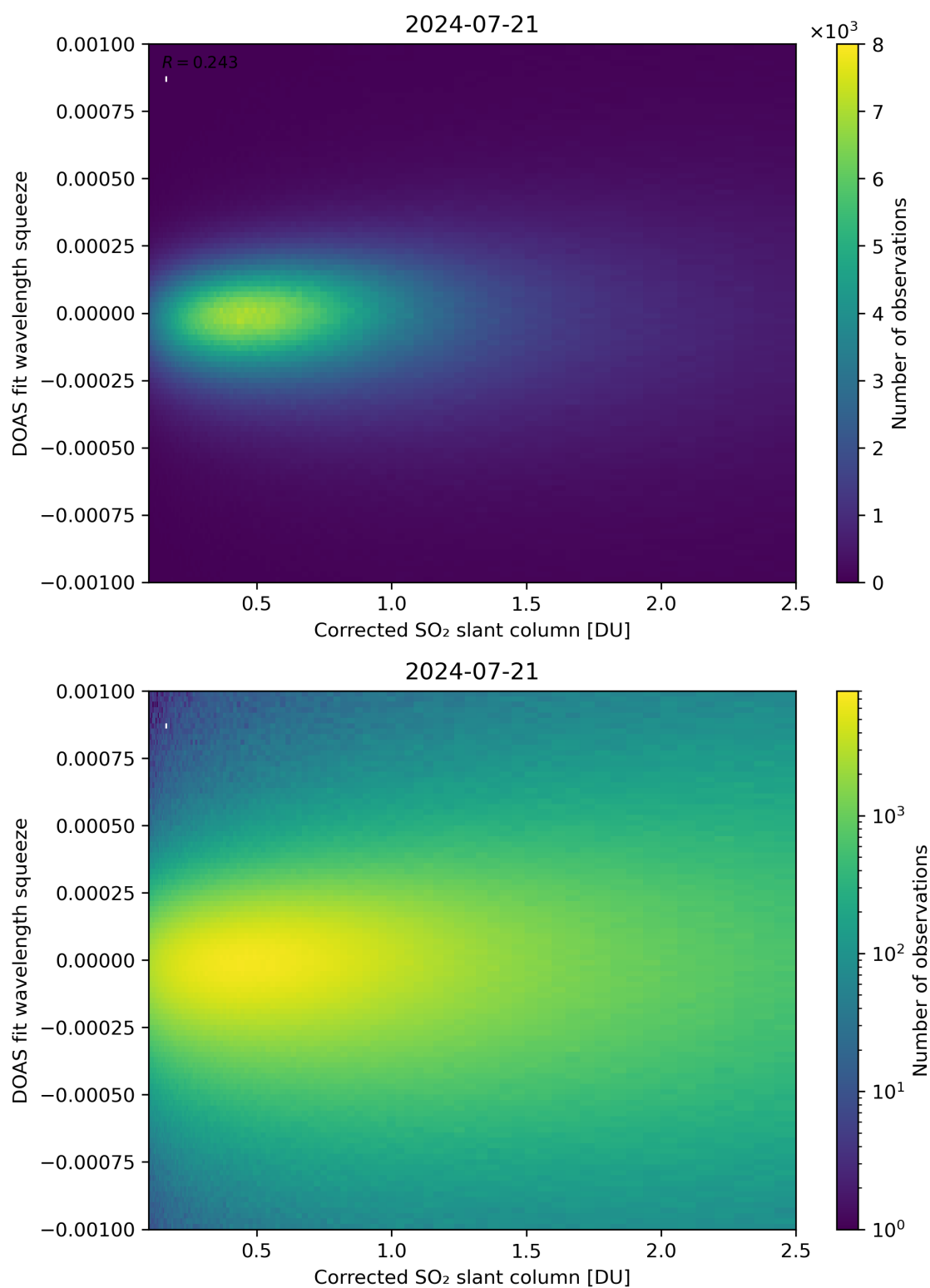


Figure 182: Scatter density plot of “Corrected SO₂ slant column” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

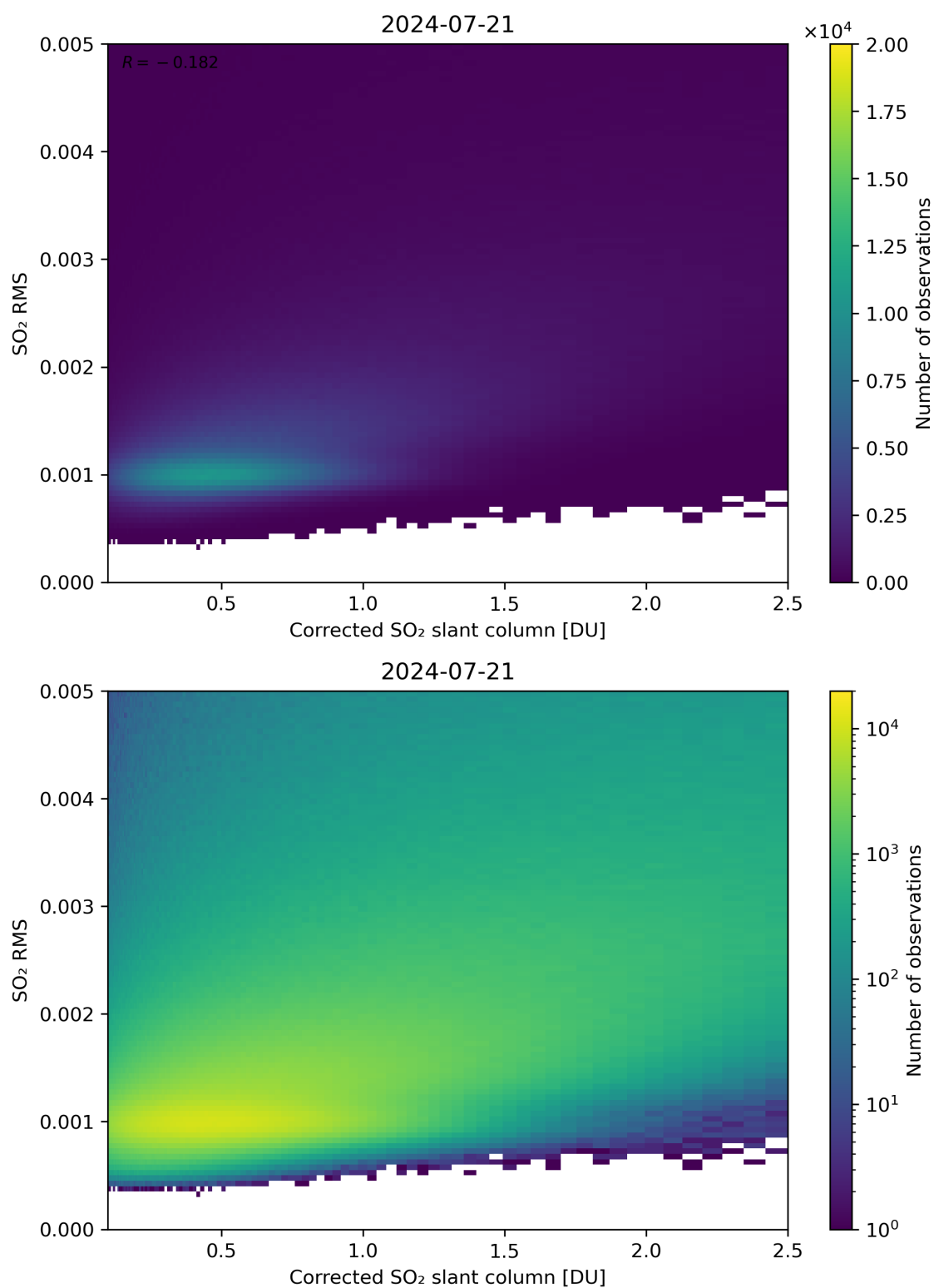


Figure 183: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

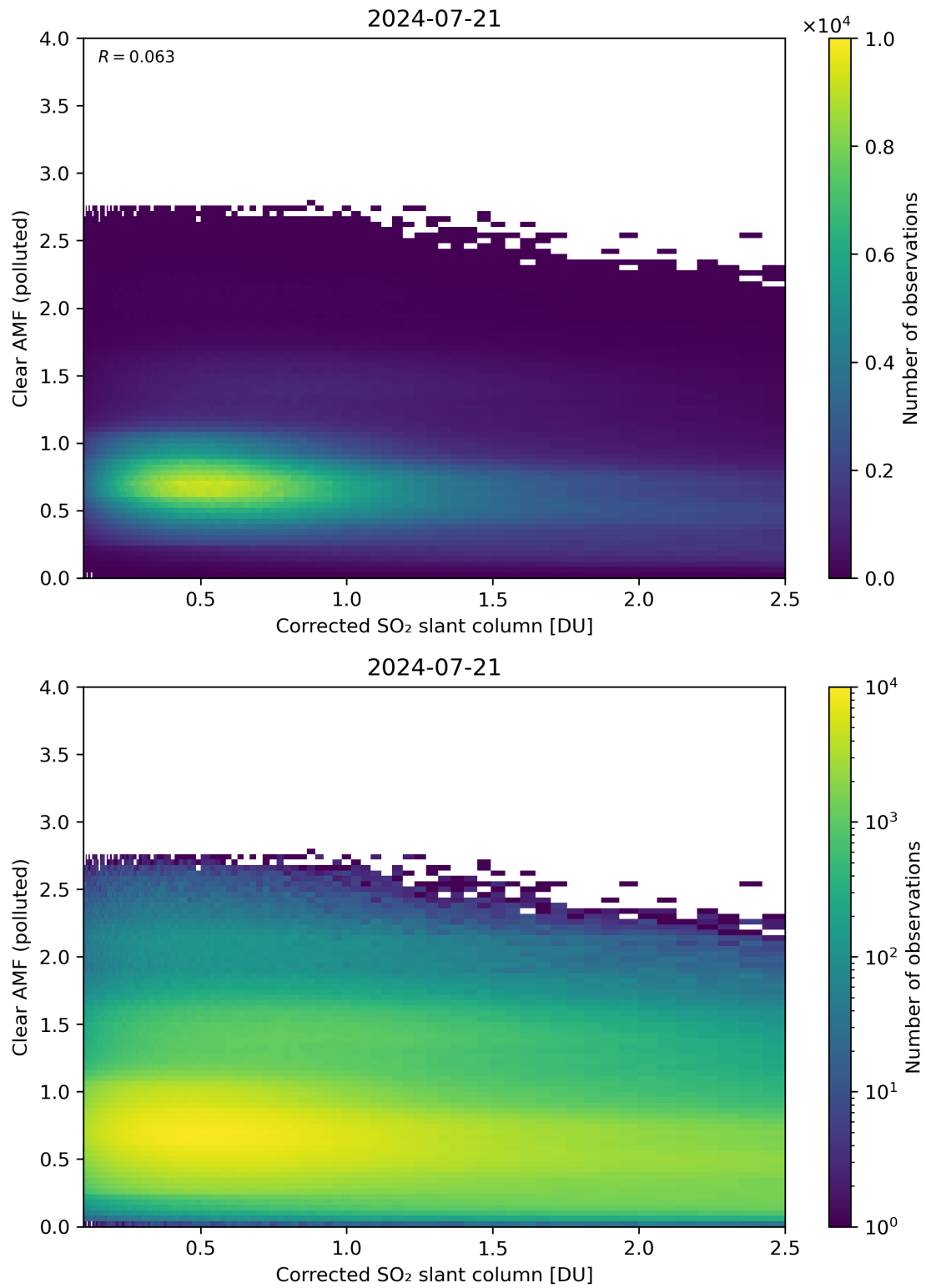


Figure 184: Scatter density plot of “Corrected SO₂ slant column” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

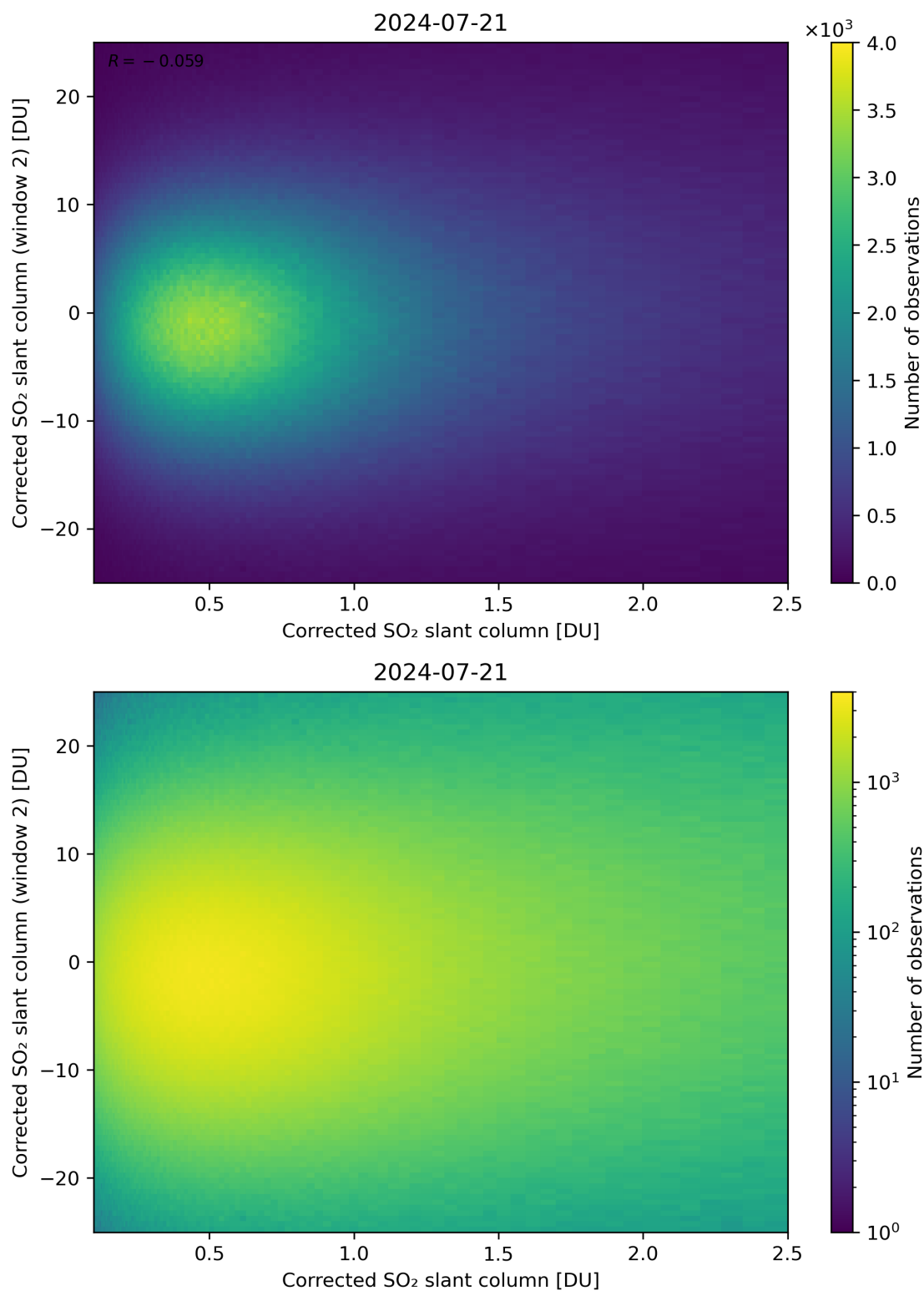


Figure 185: Scatter density plot of “Corrected SO₂ slant column” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

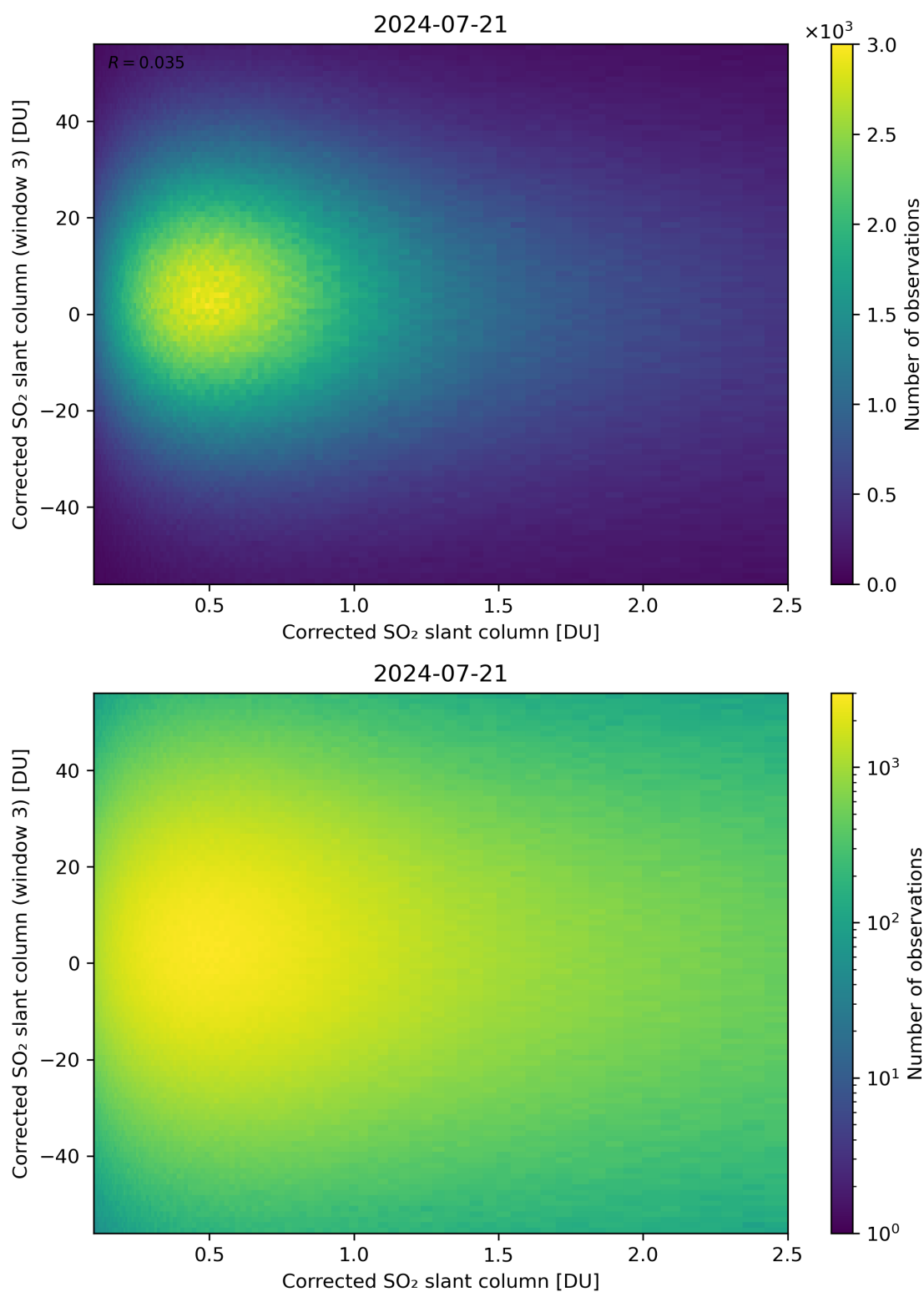


Figure 186: Scatter density plot of “Corrected SO₂ slant column” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

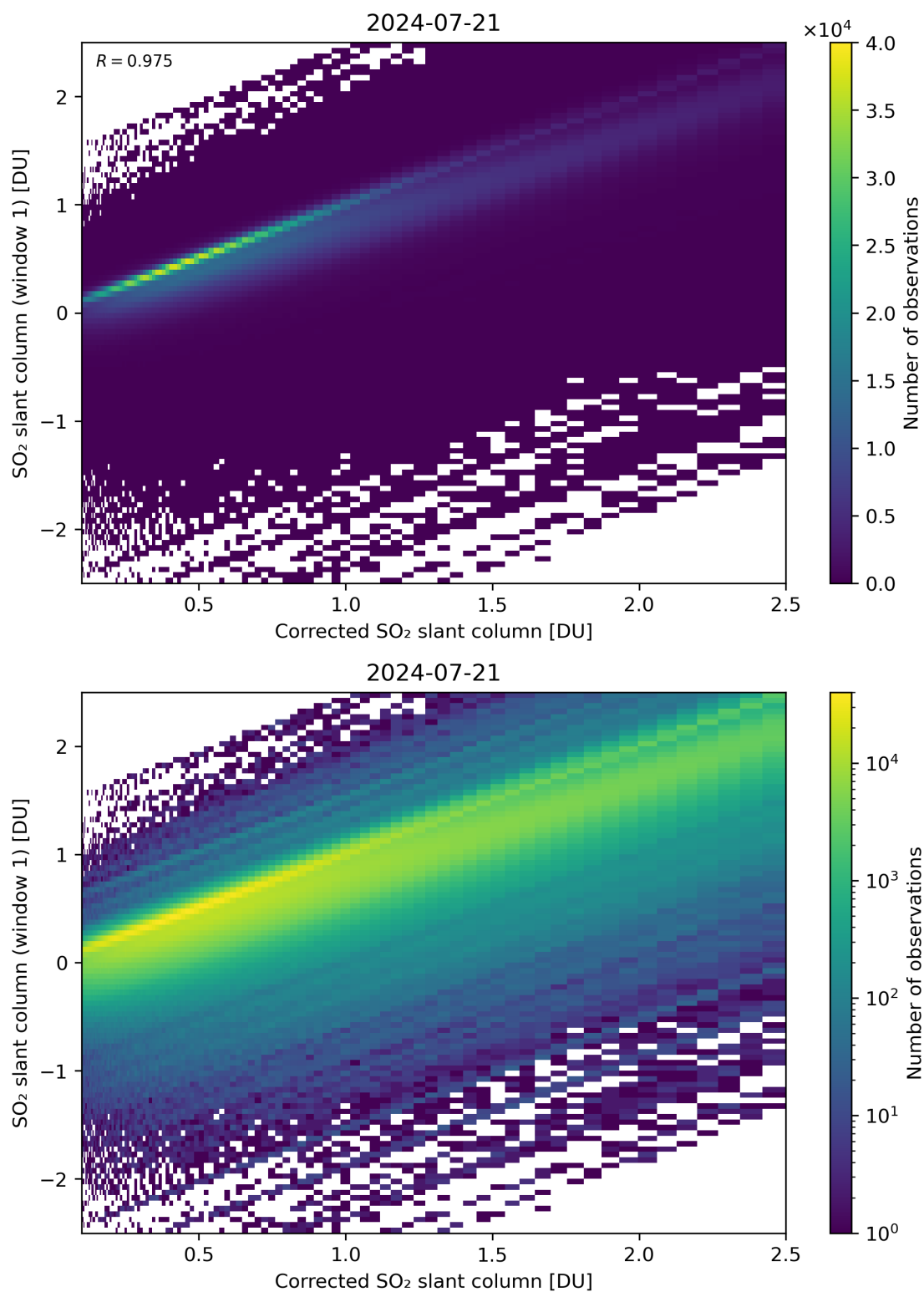


Figure 187: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

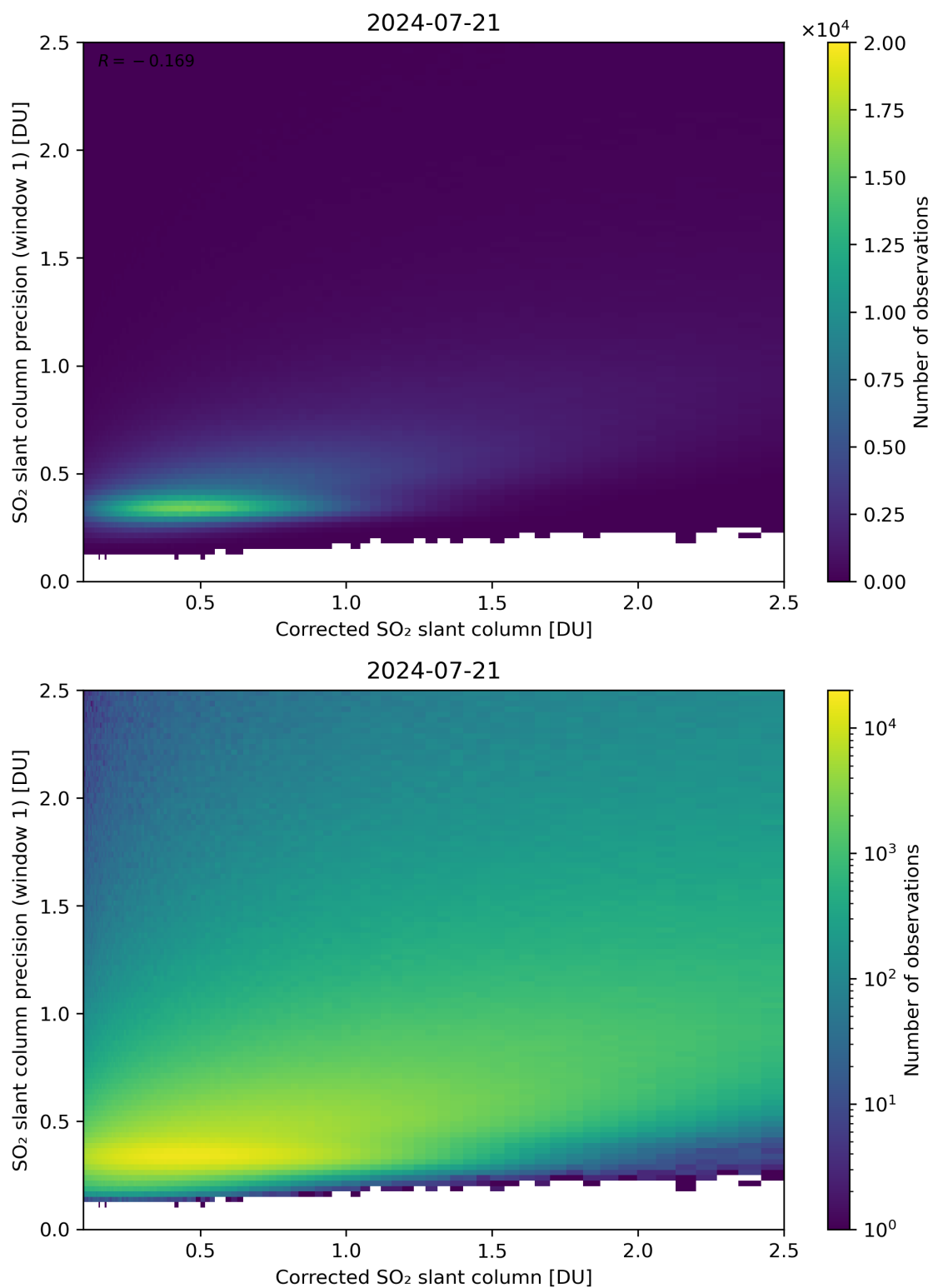


Figure 188: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

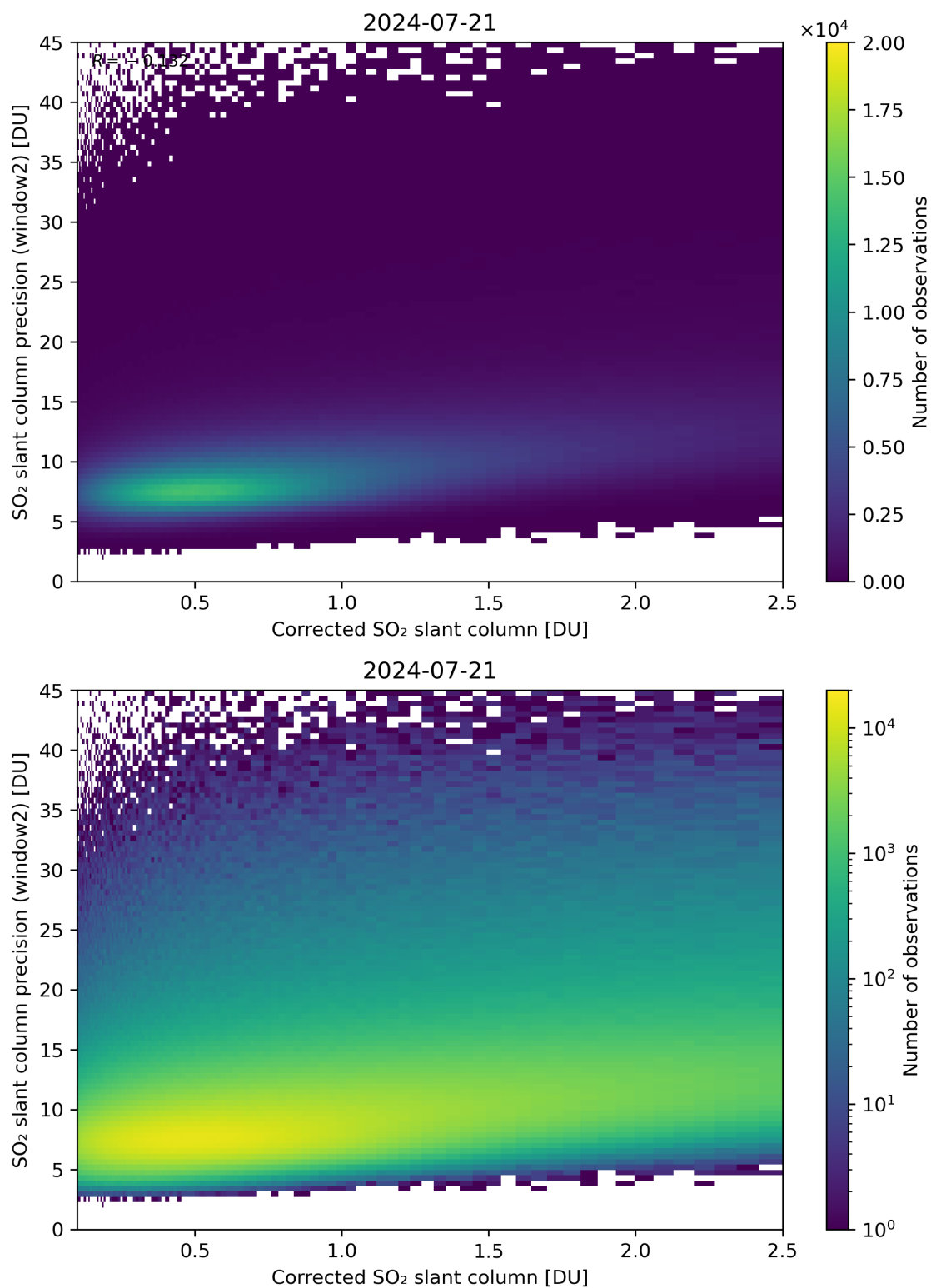


Figure 189: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

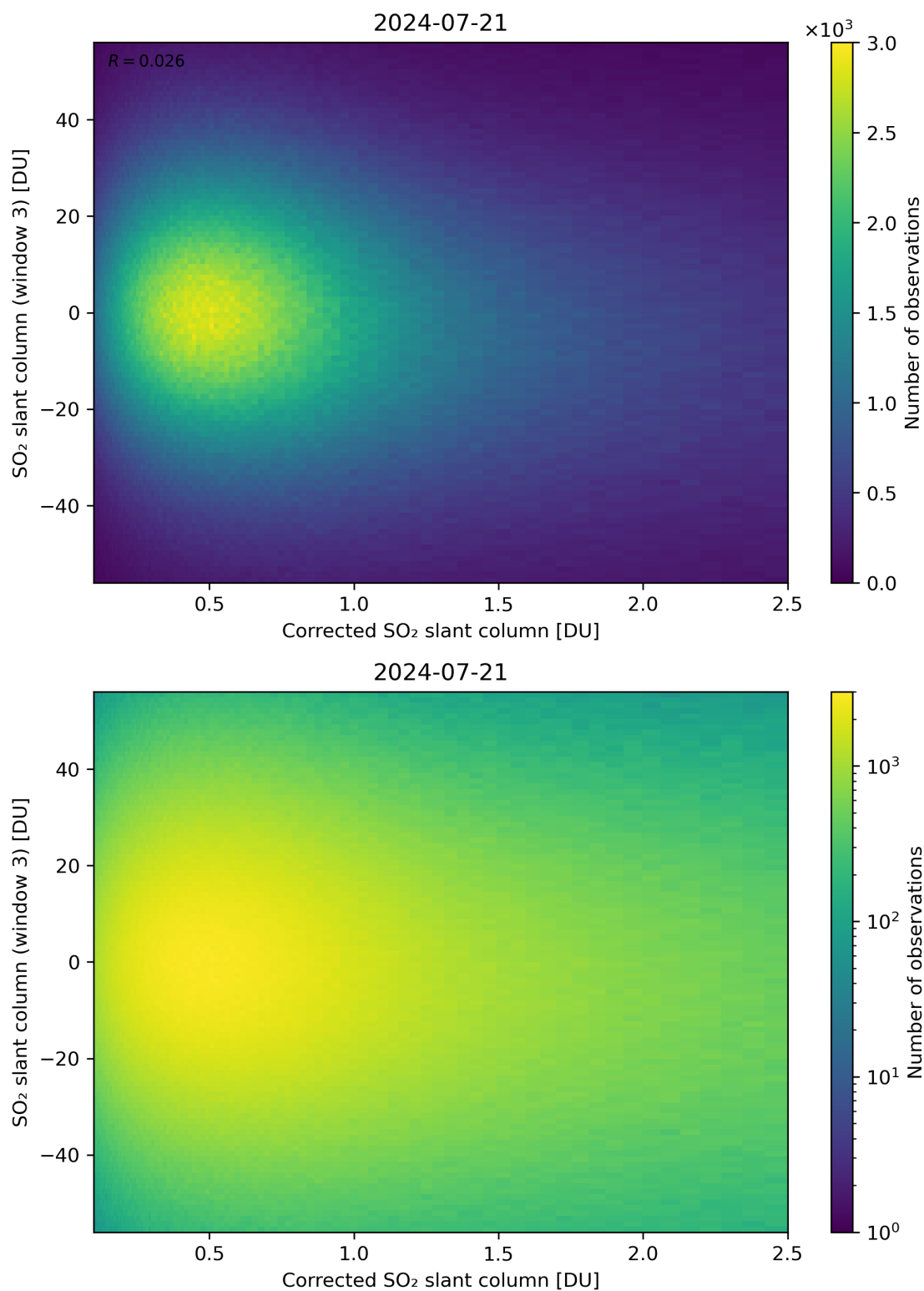


Figure 190: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

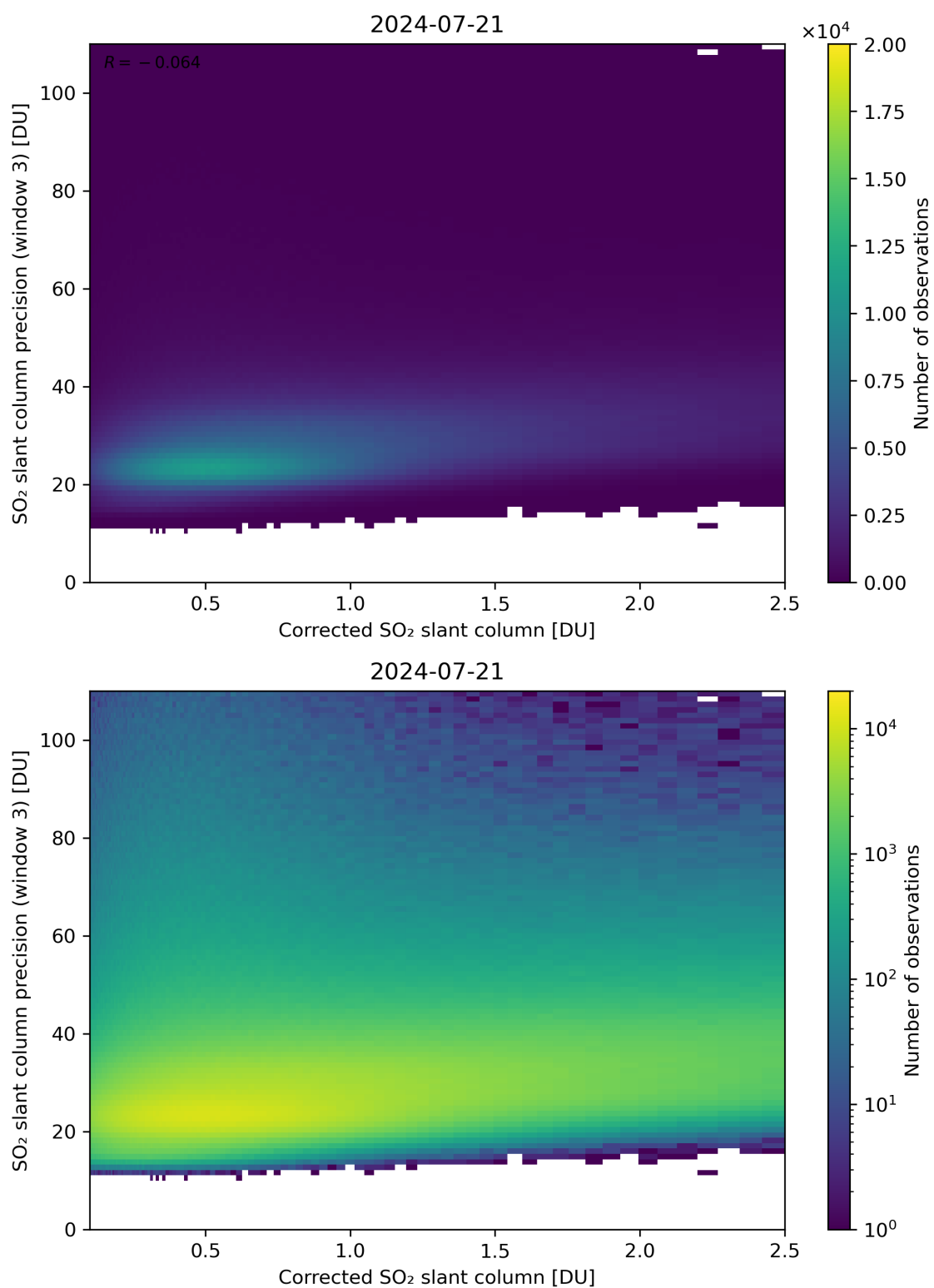


Figure 191: Scatter density plot of “Corrected SO₂ slant column” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

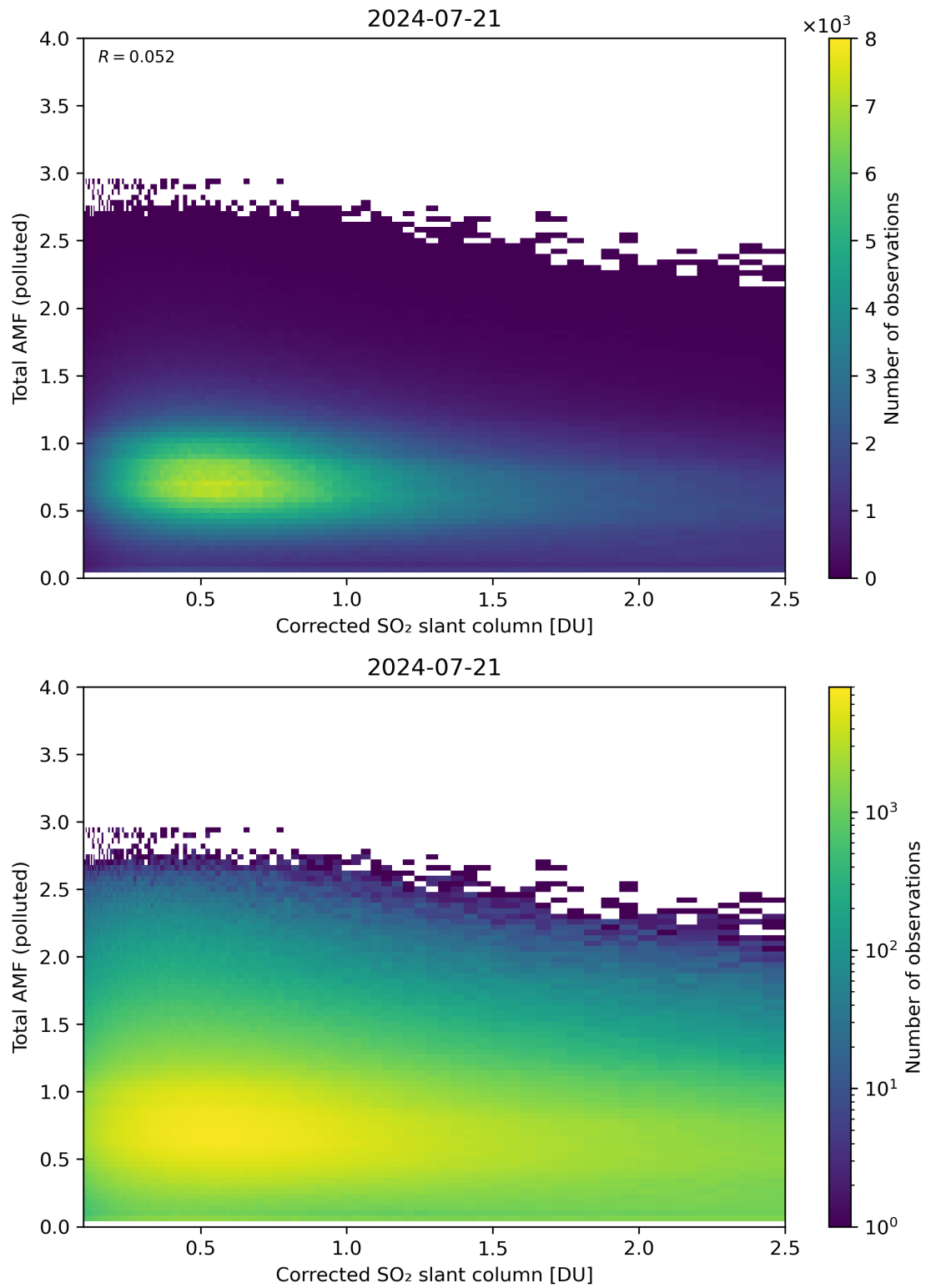


Figure 192: Scatter density plot of “Corrected SO₂ slant column” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

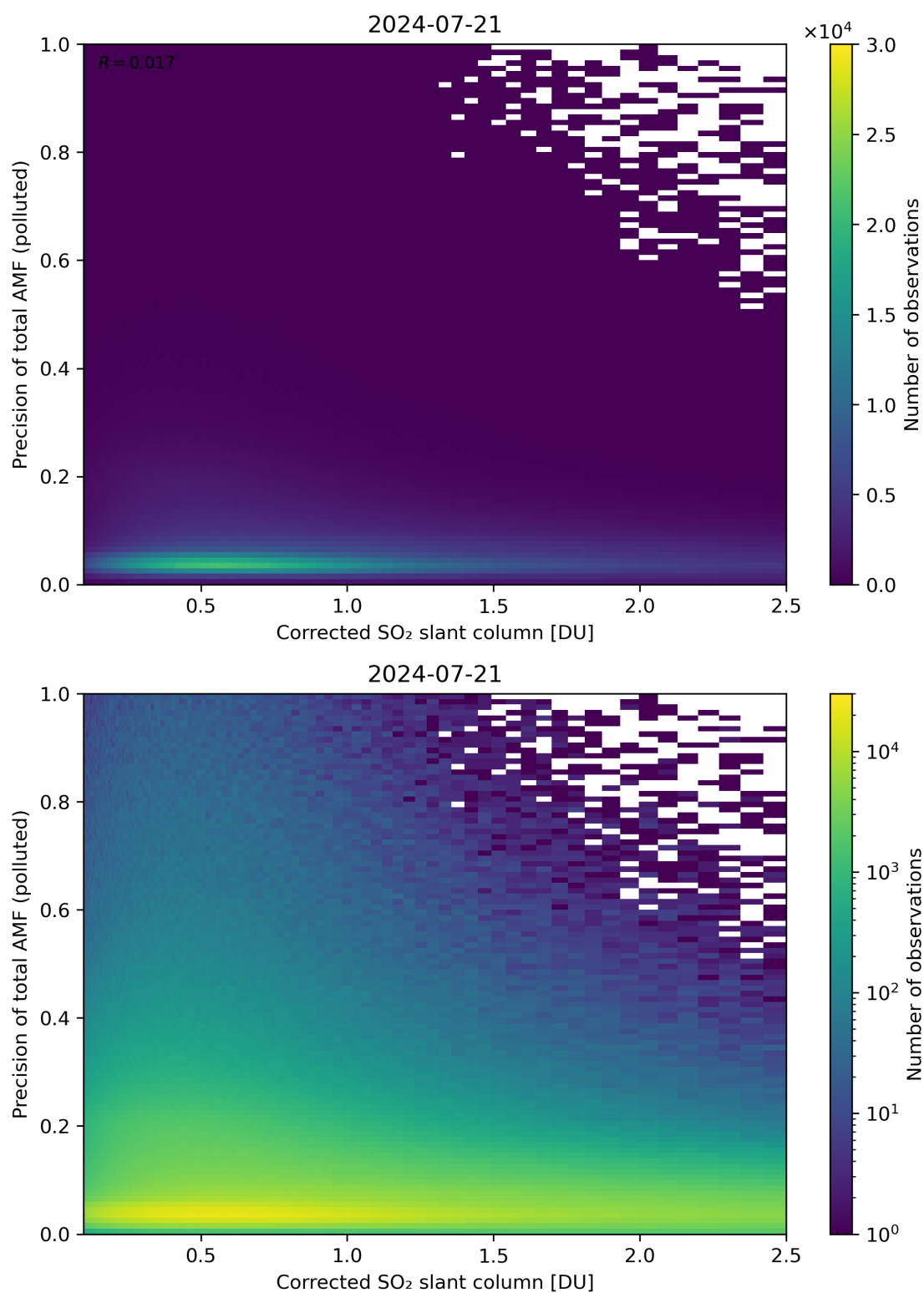


Figure 193: Scatter density plot of “Corrected SO₂ slant column” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

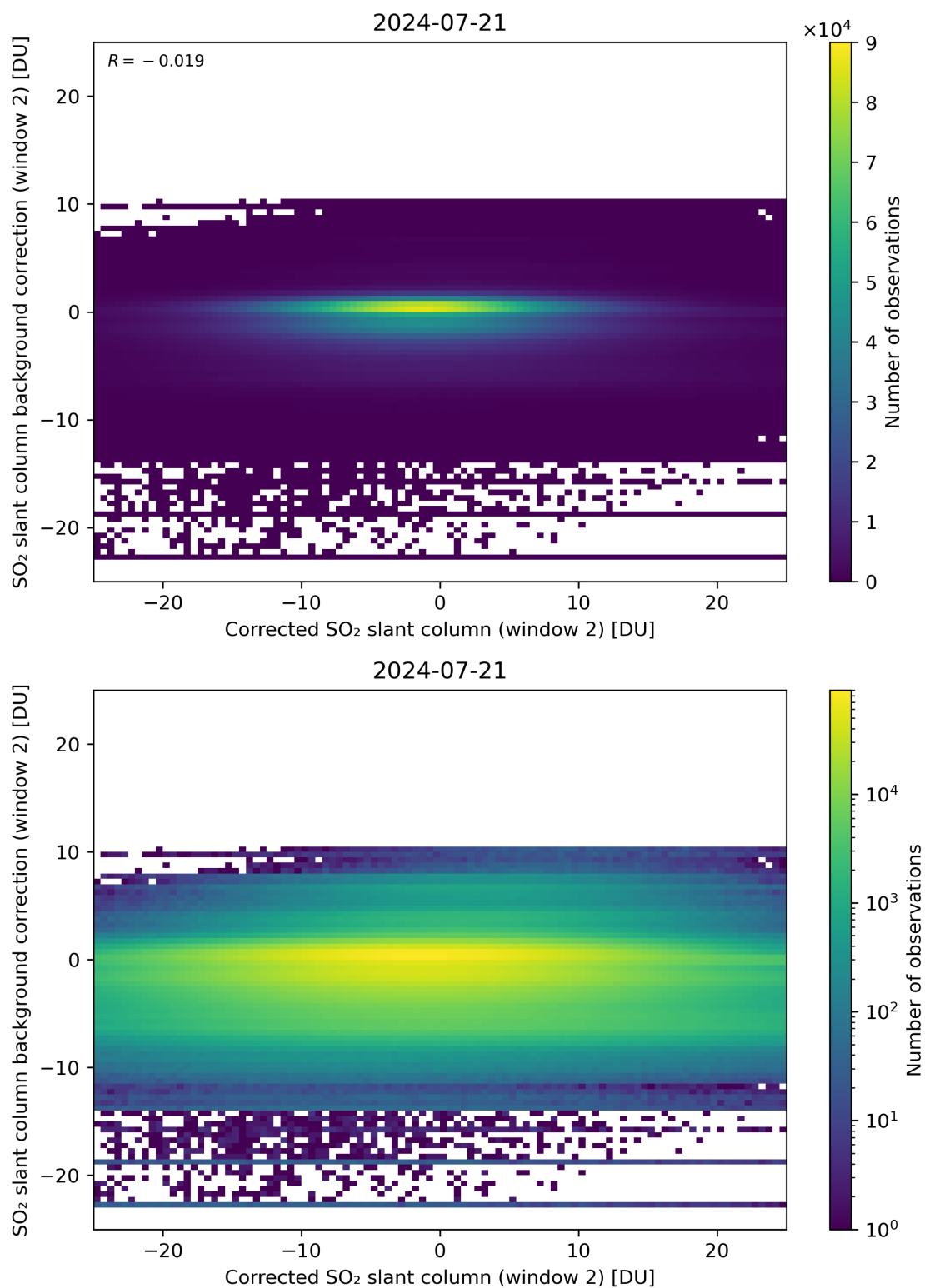


Figure 194: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

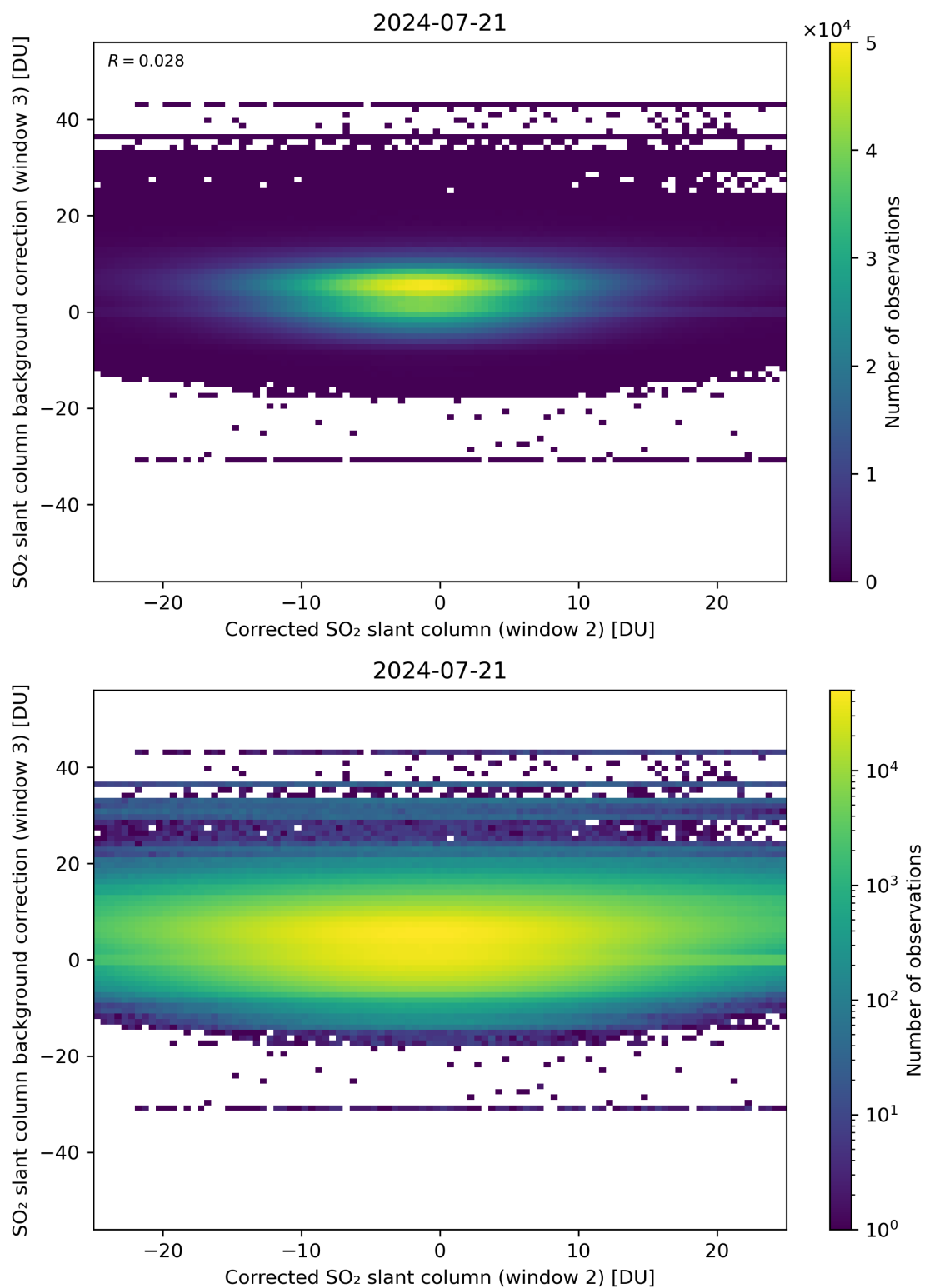


Figure 195: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

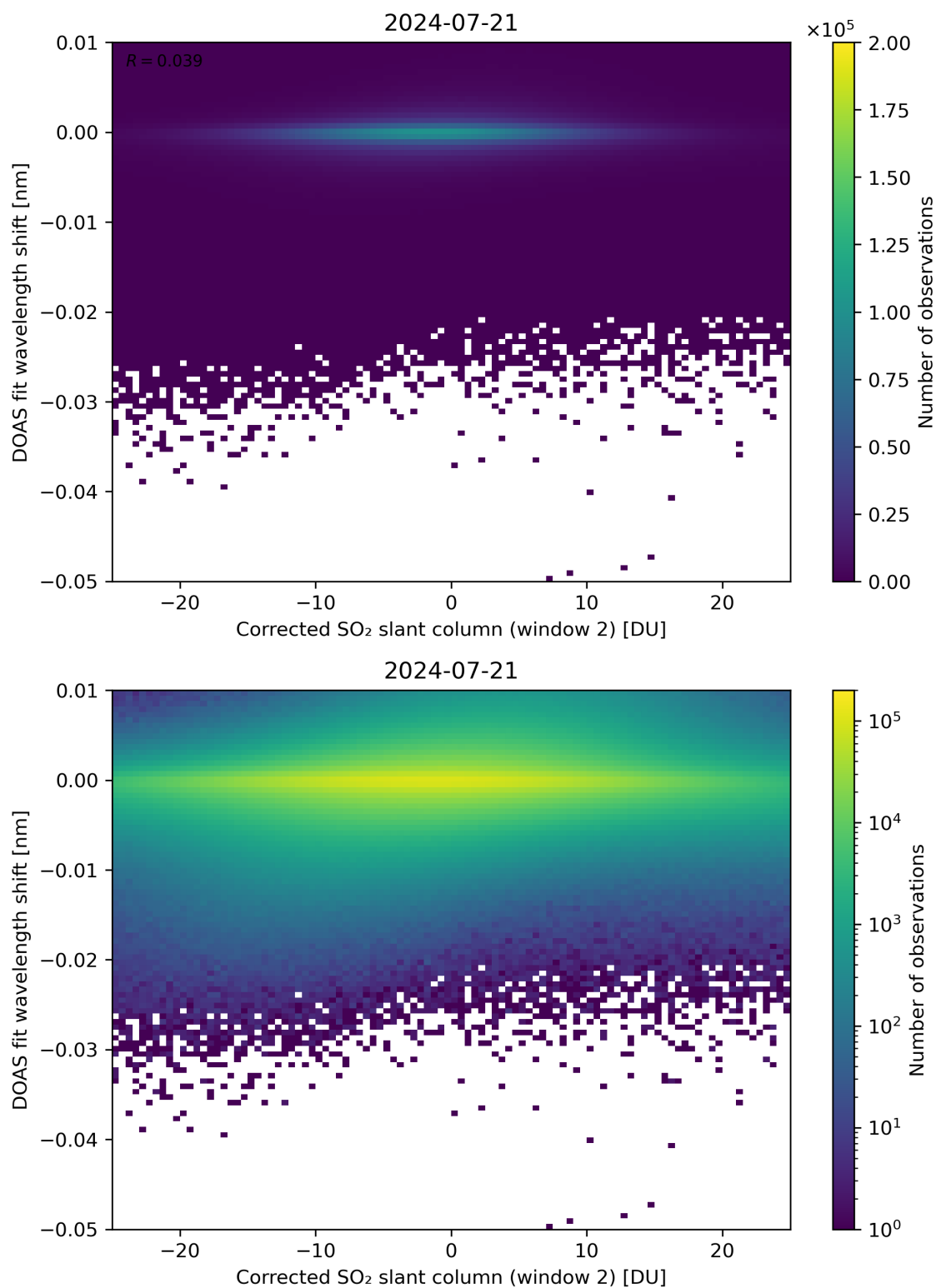


Figure 196: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

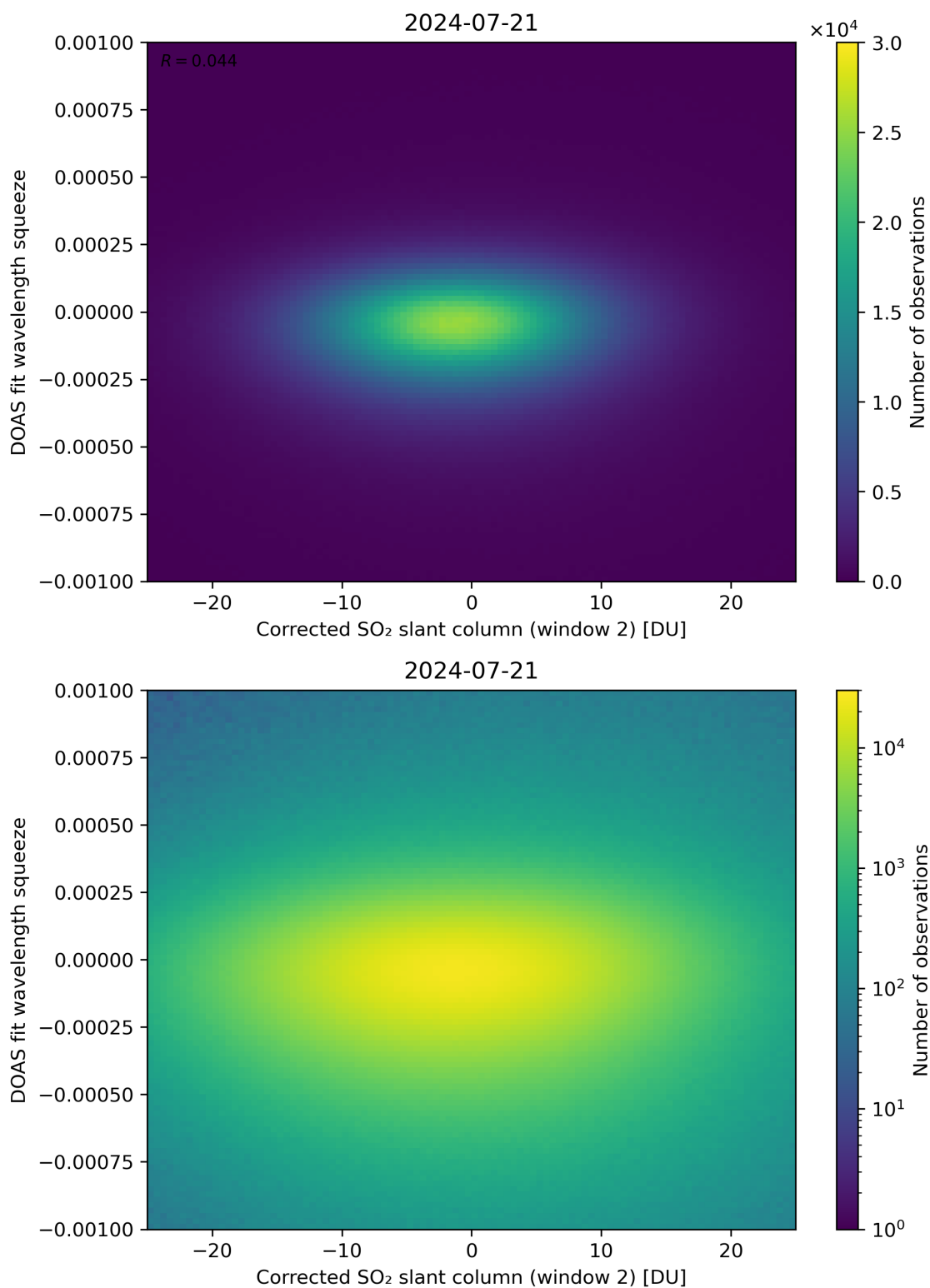


Figure 197: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

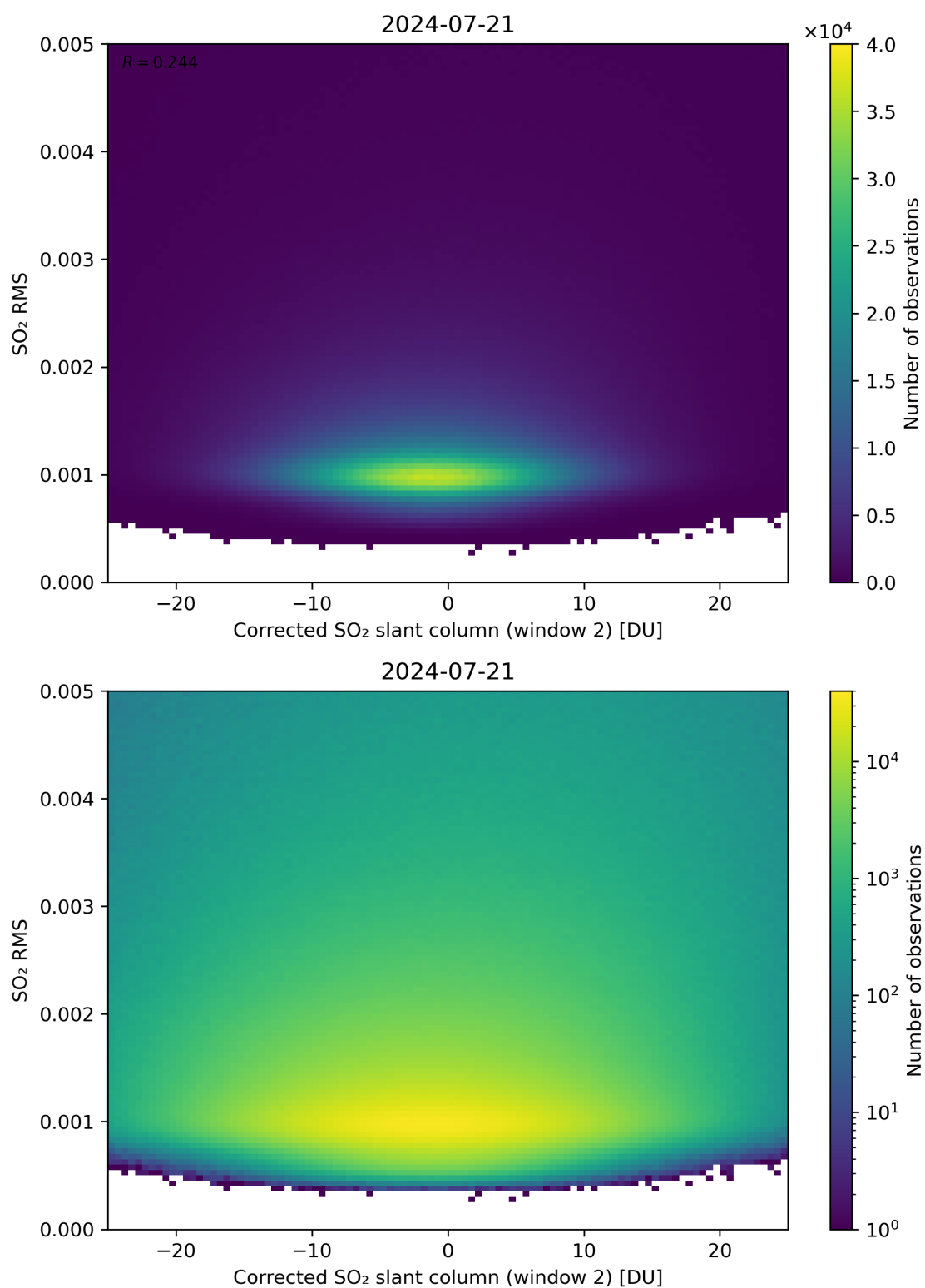


Figure 198: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

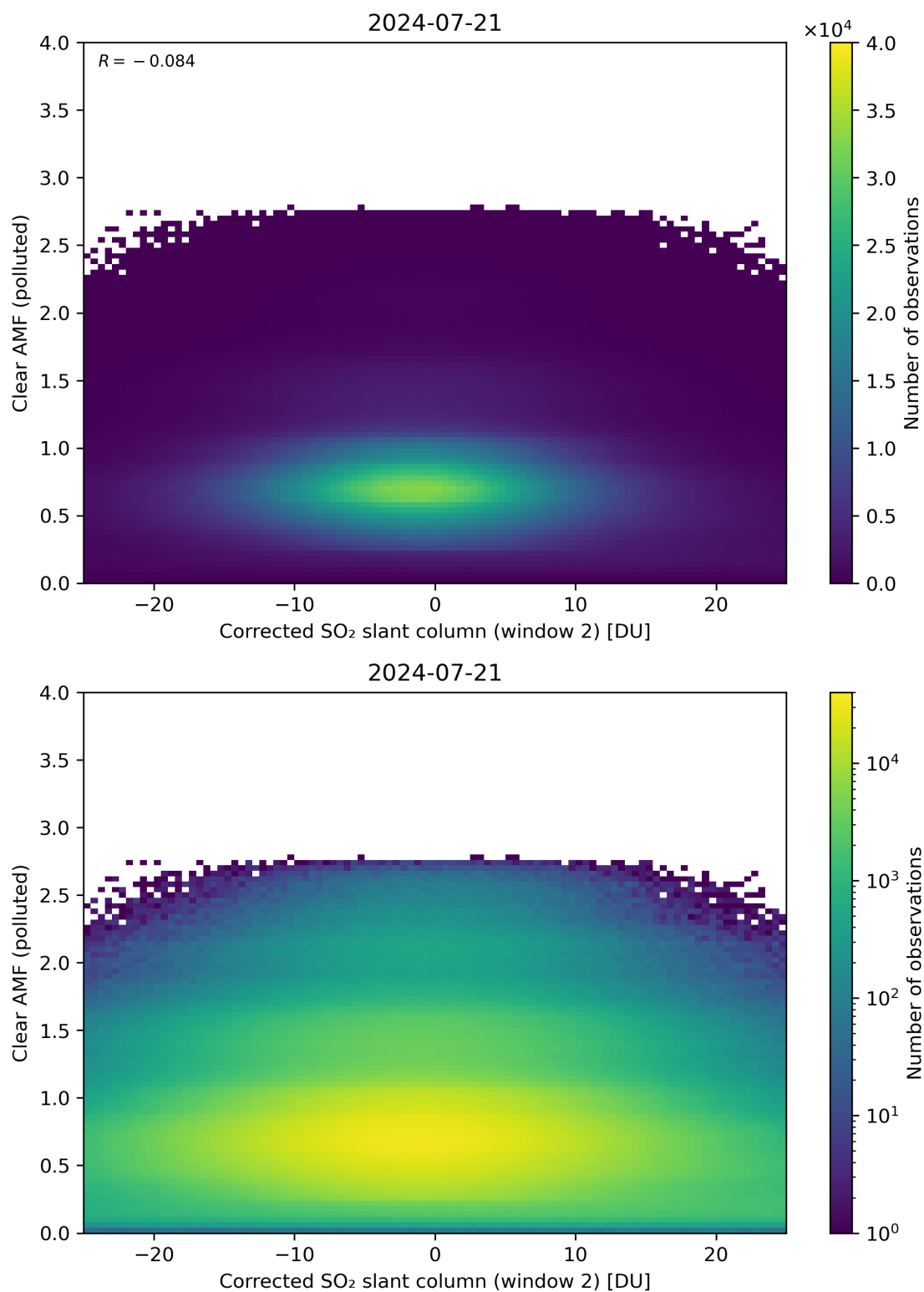


Figure 199: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

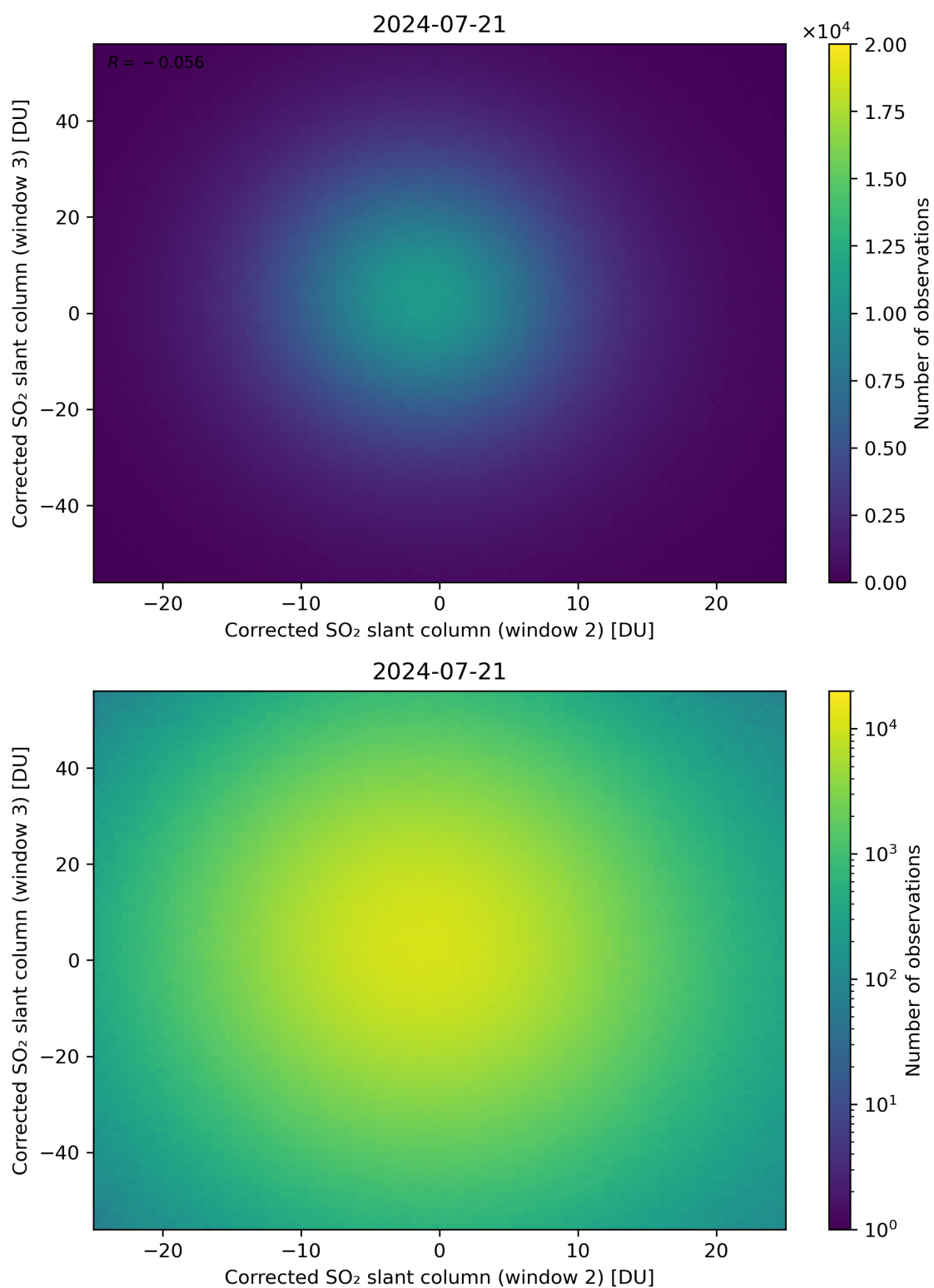


Figure 200: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

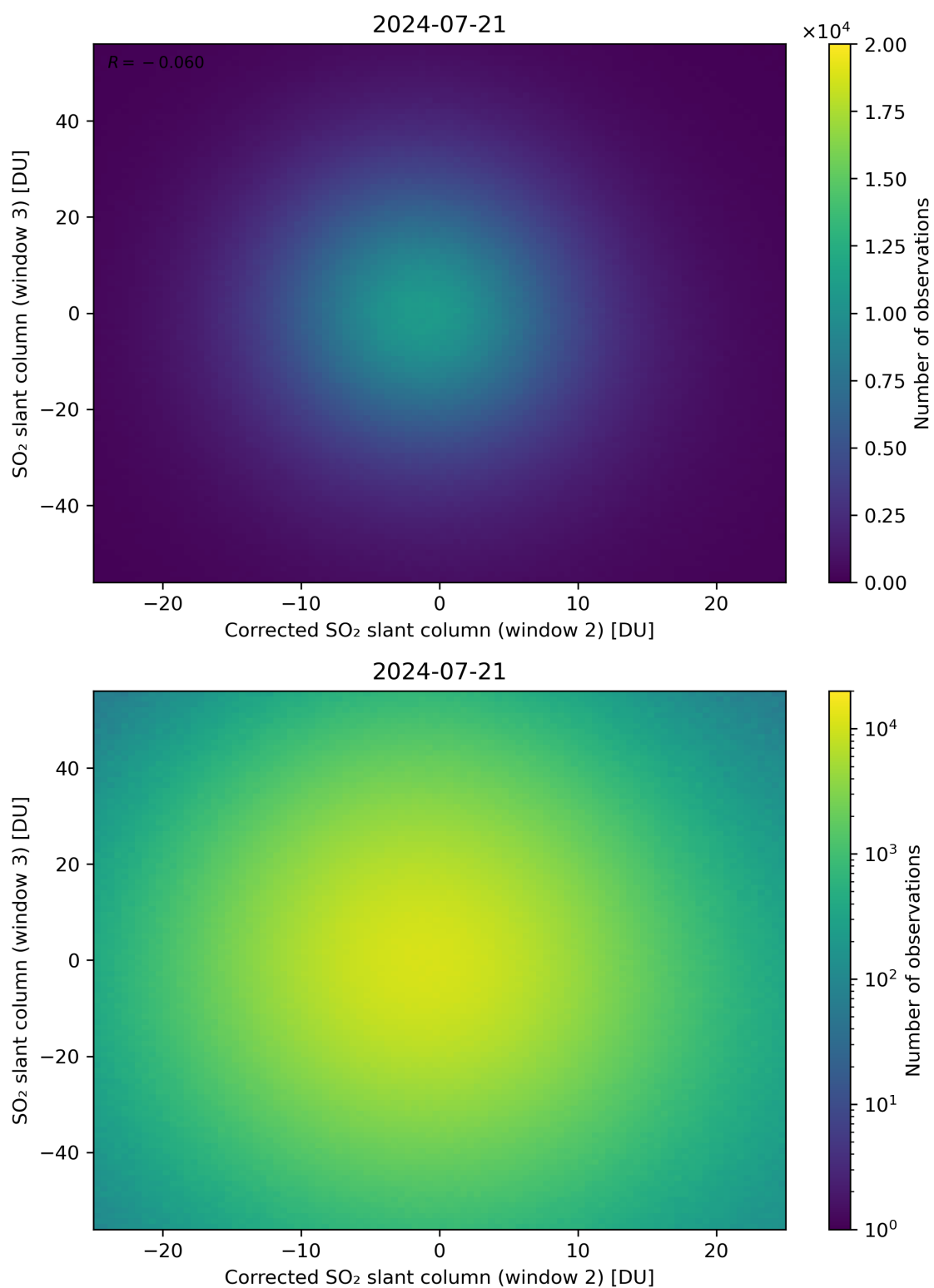


Figure 201: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

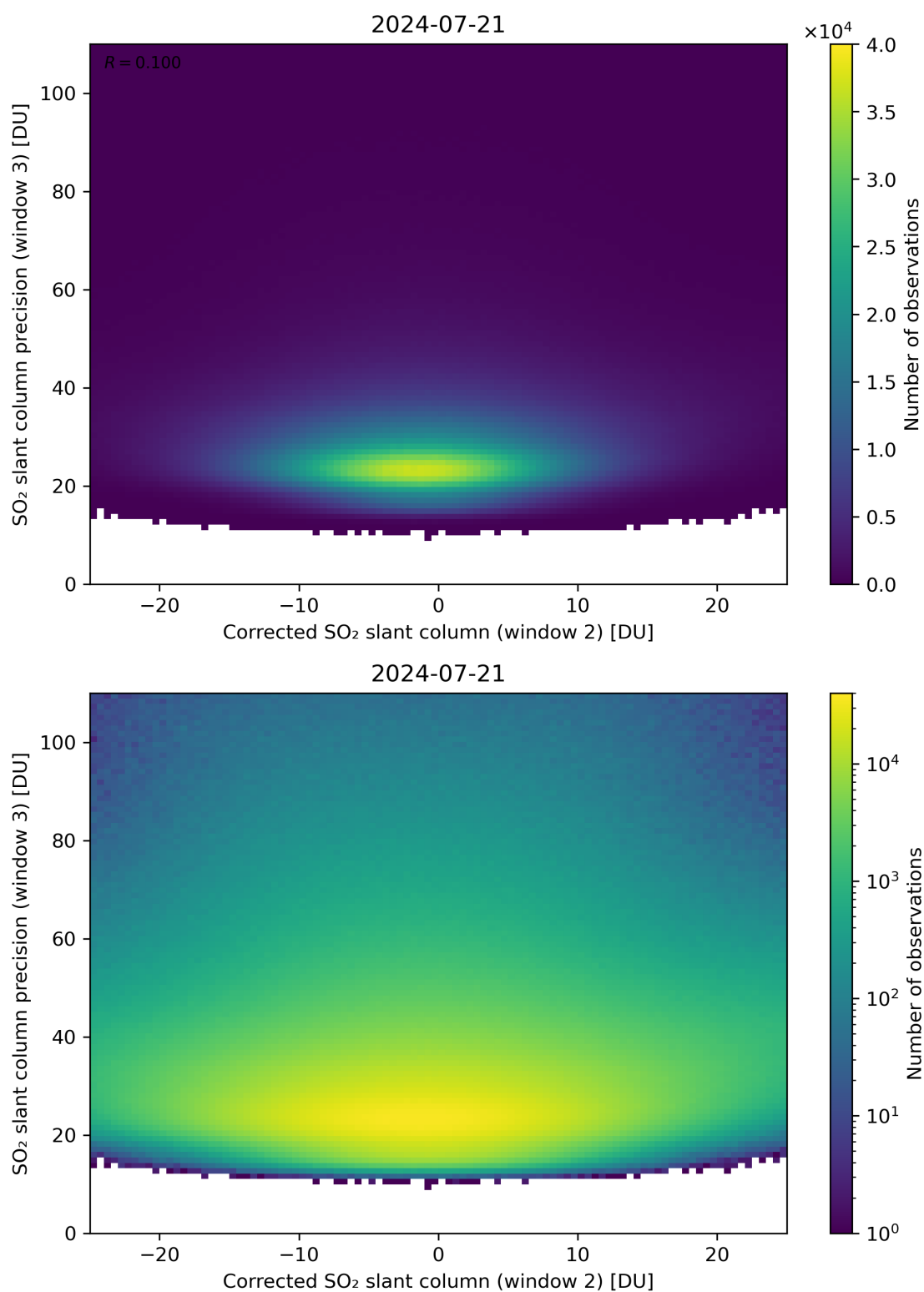


Figure 202: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

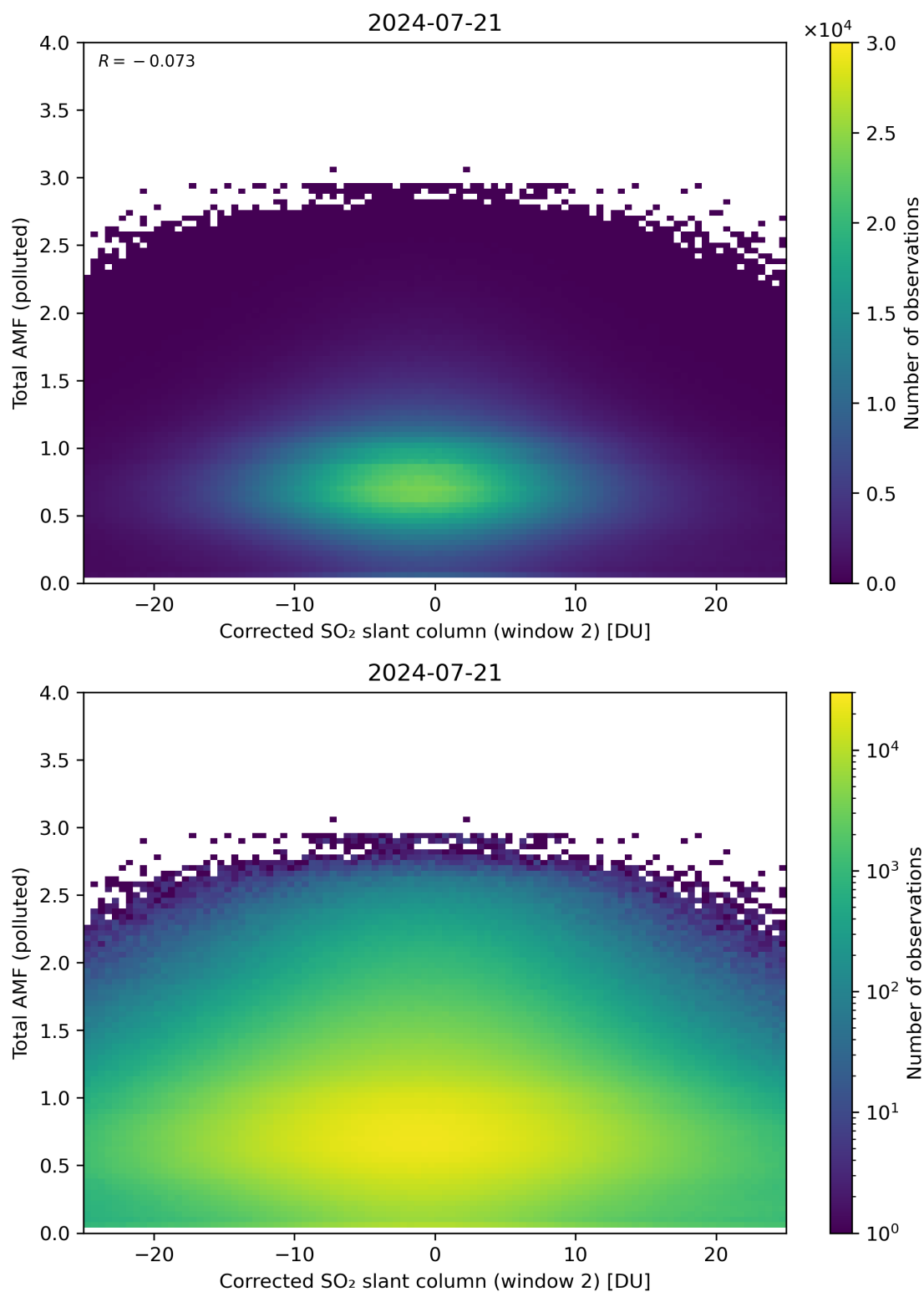


Figure 203: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

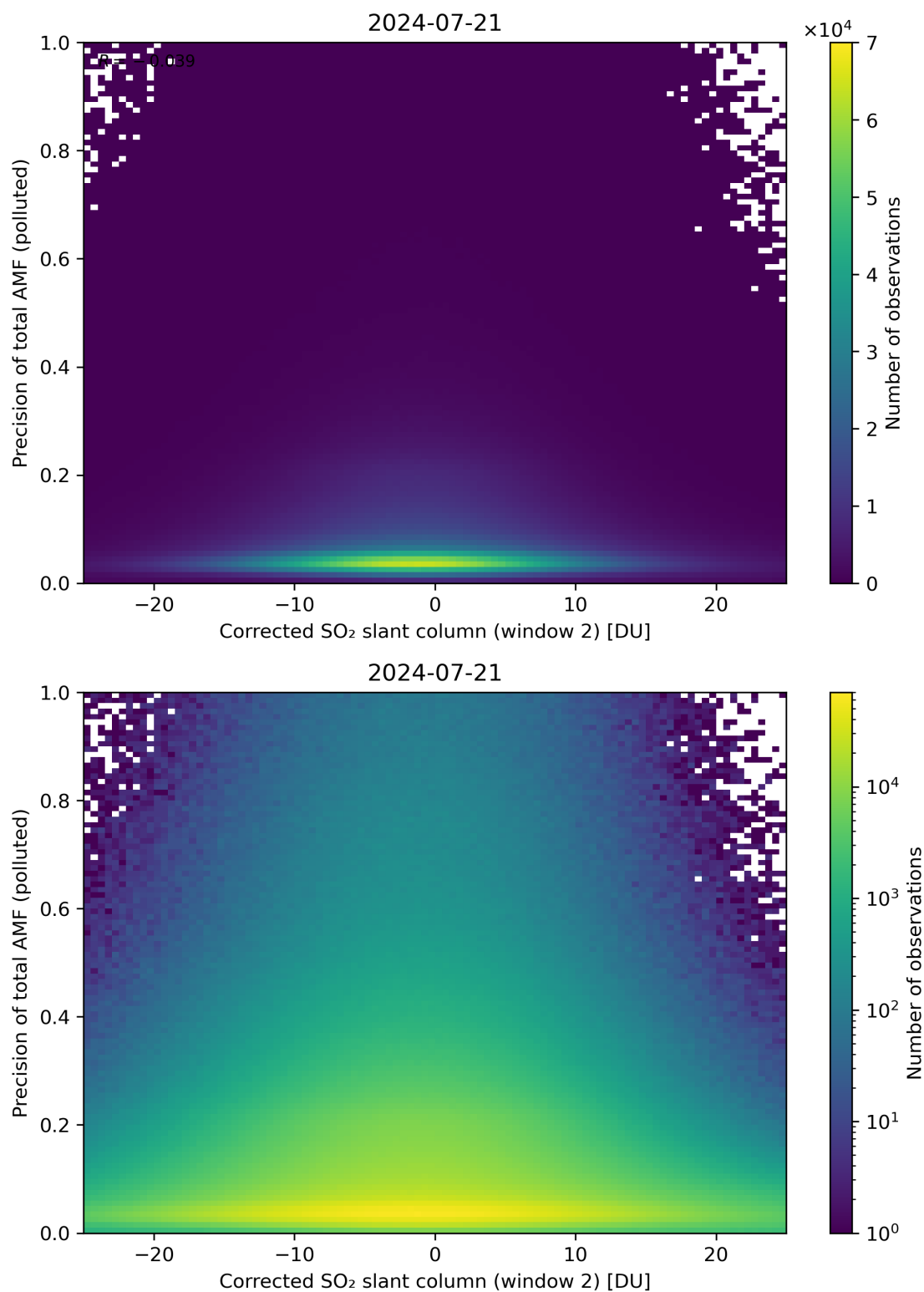


Figure 204: Scatter density plot of “Corrected SO₂ slant column (window 2)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

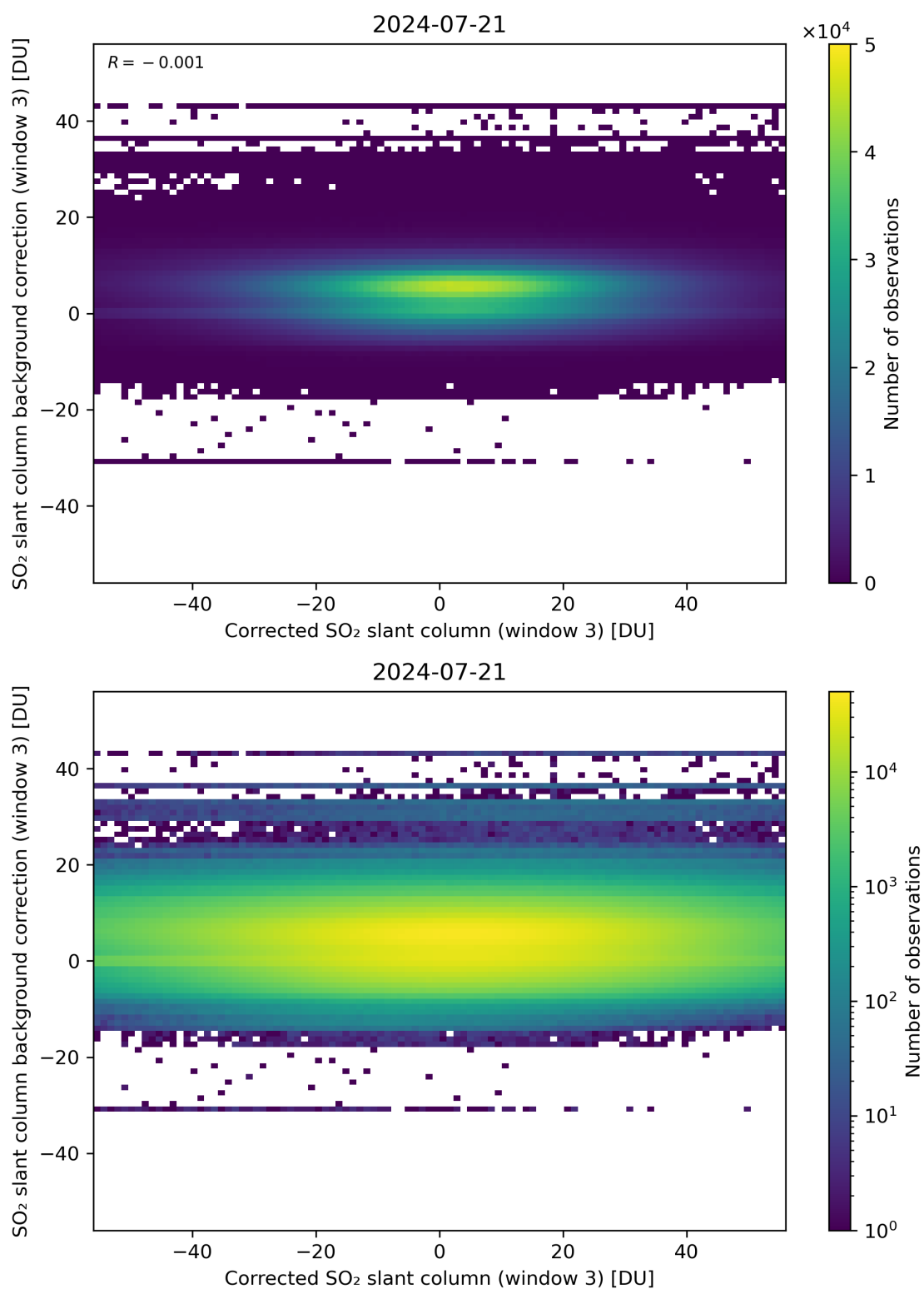


Figure 205: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

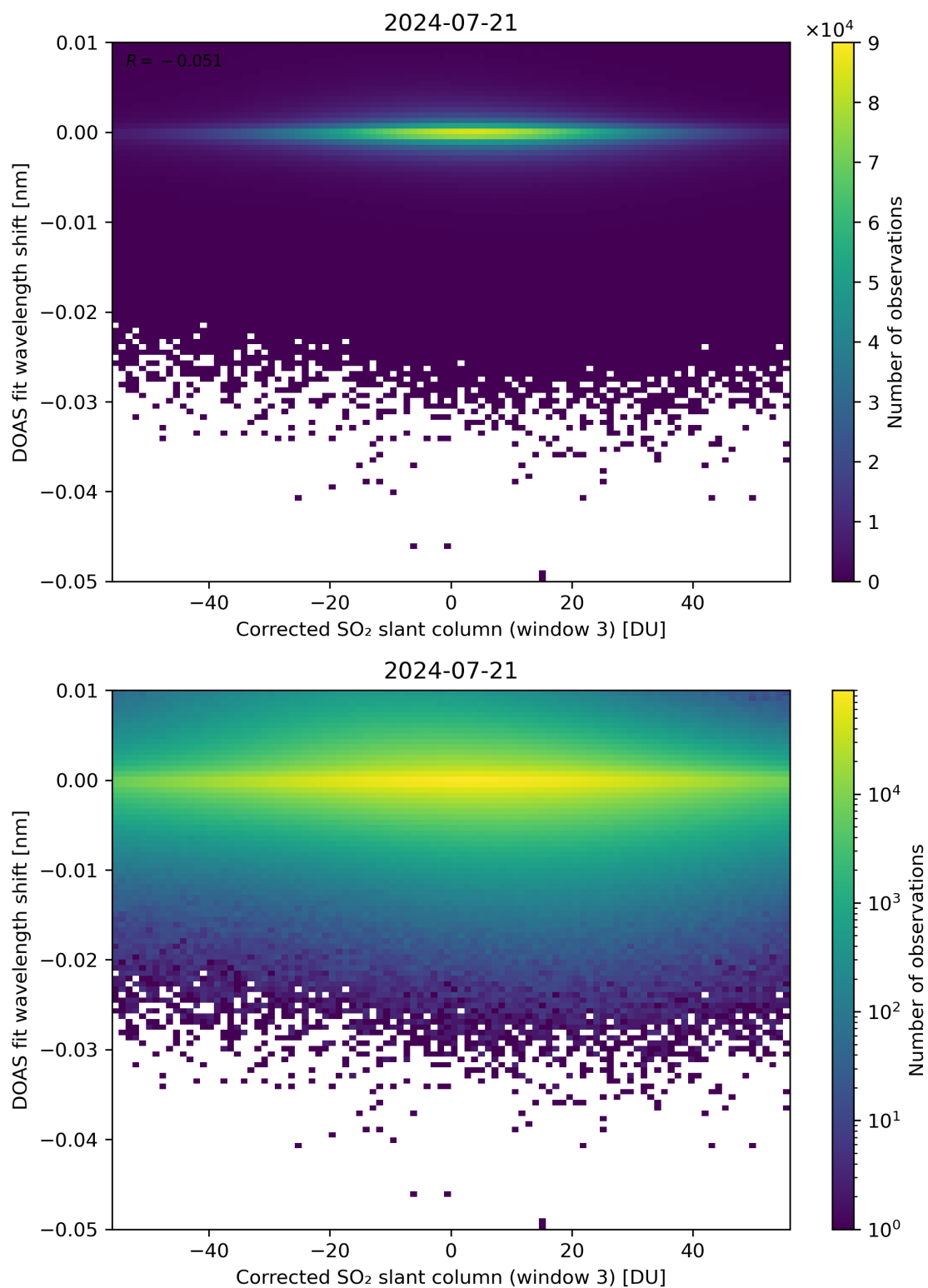


Figure 206: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

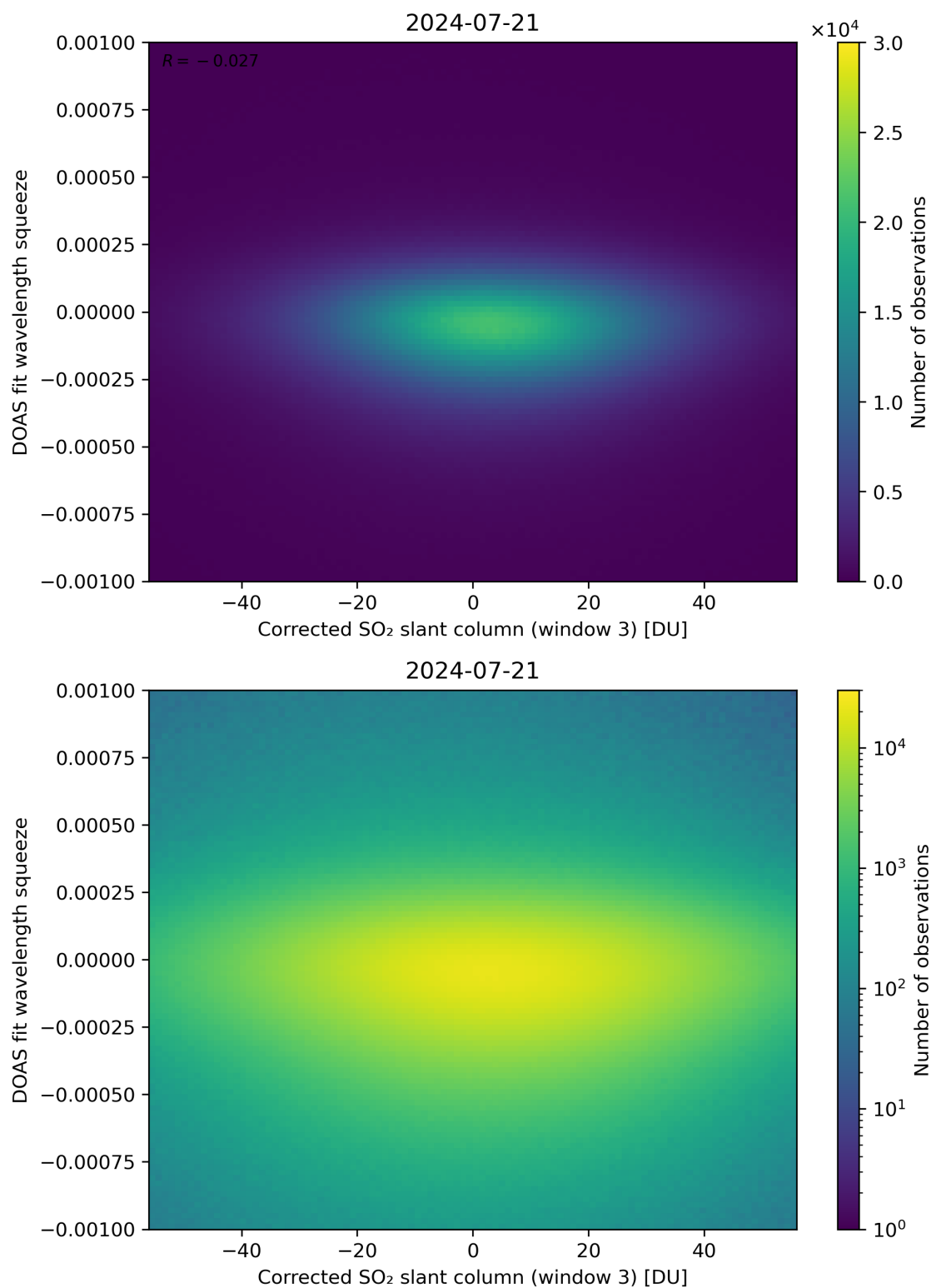


Figure 207: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

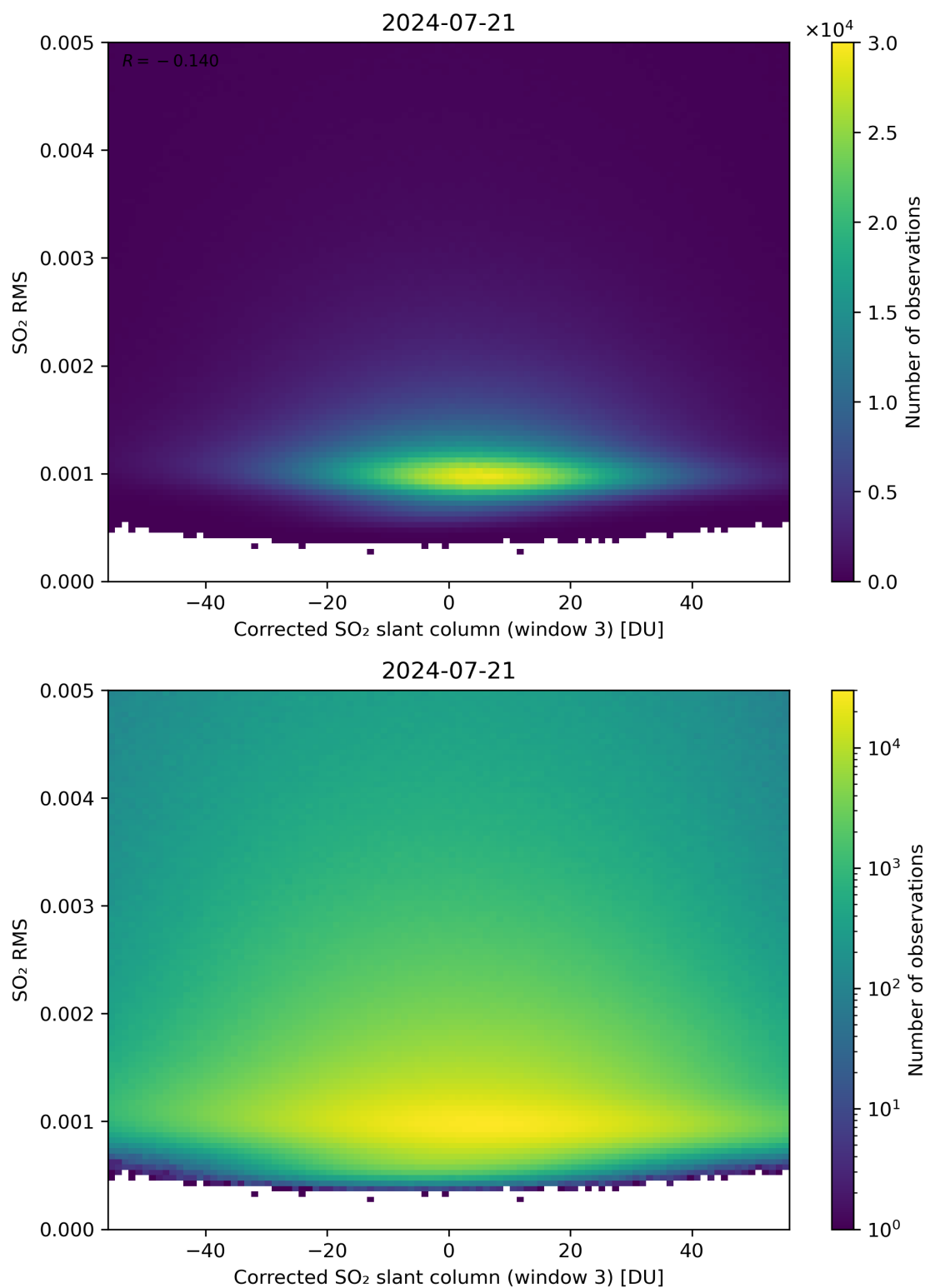


Figure 208: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

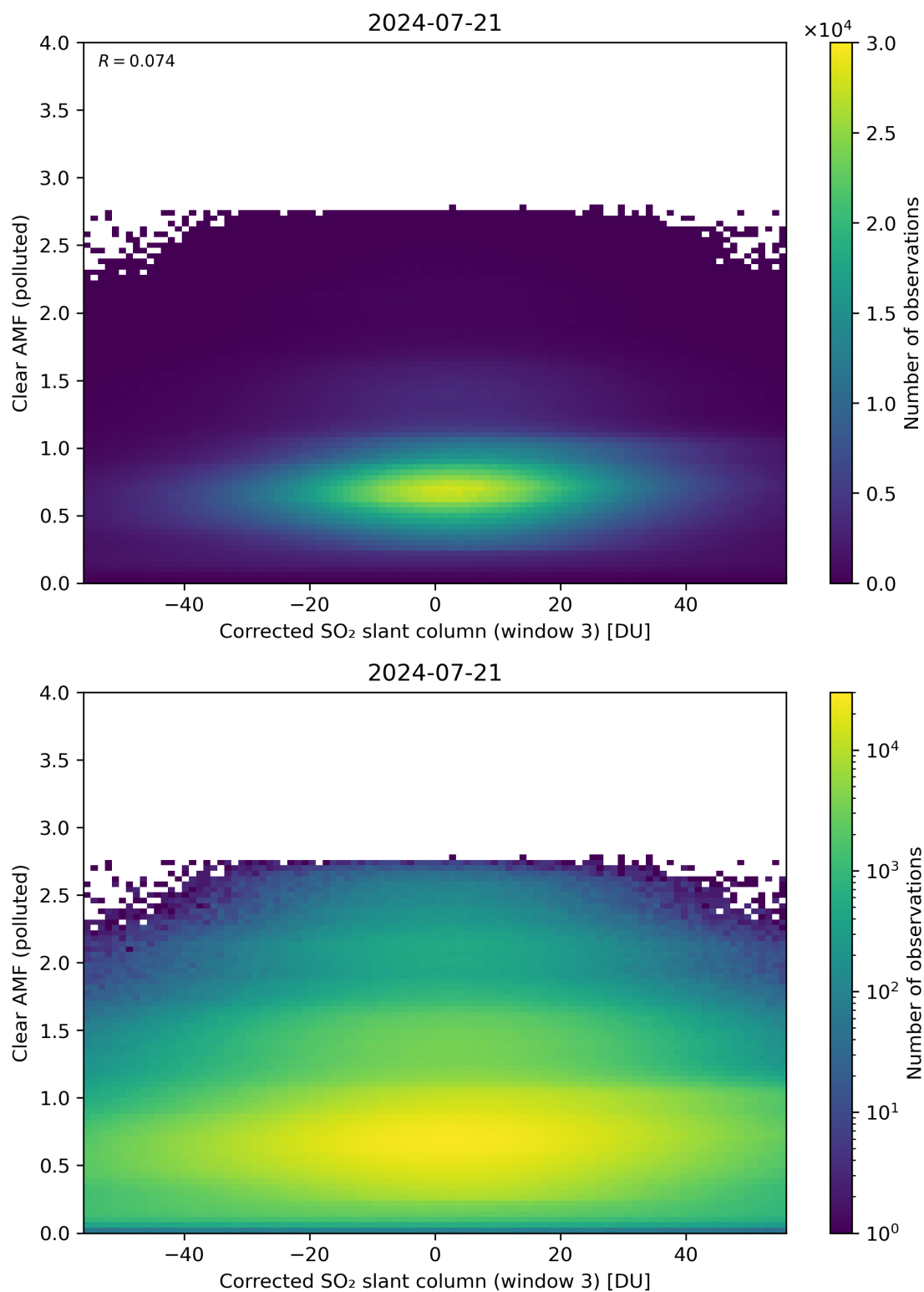


Figure 209: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

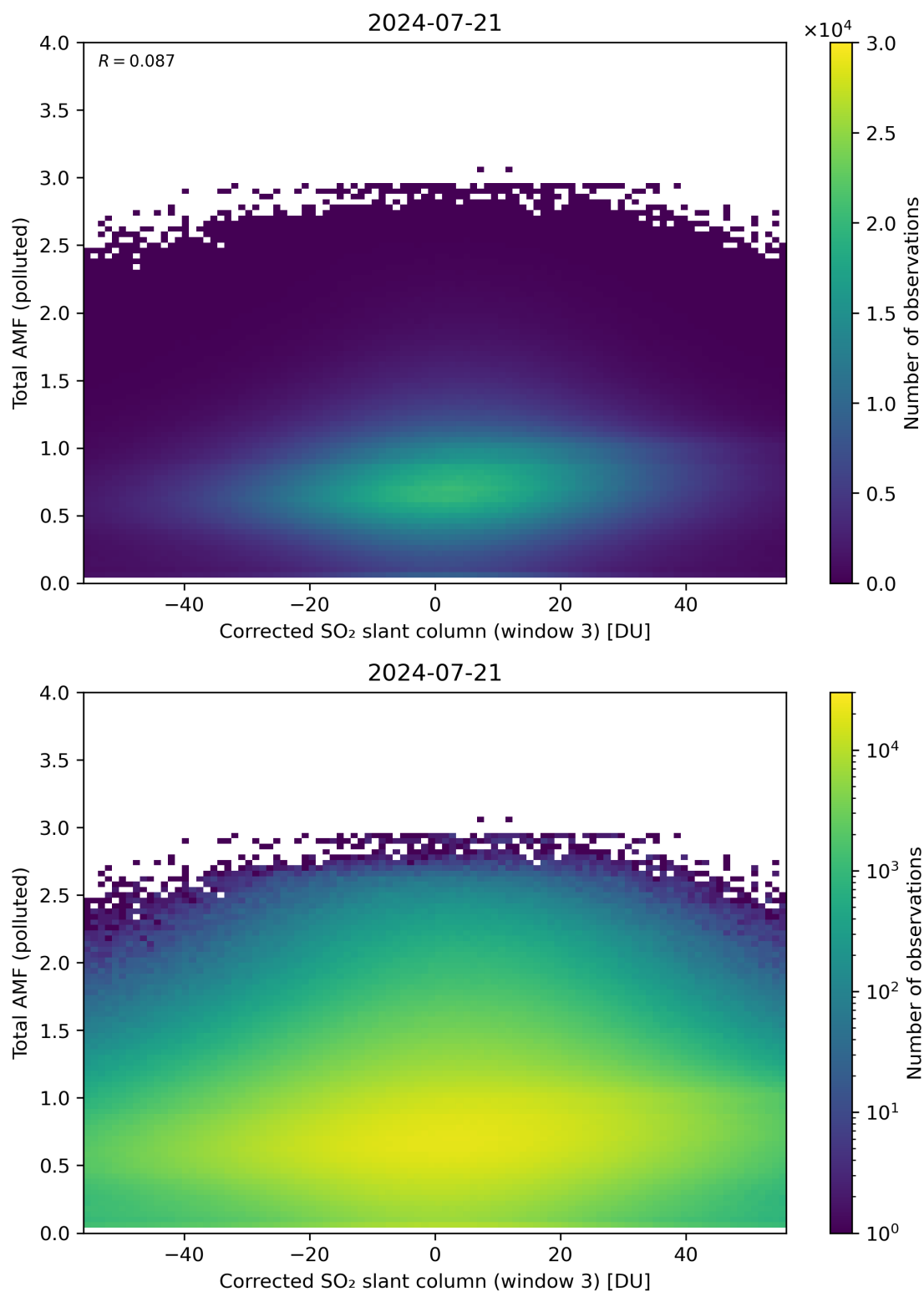


Figure 210: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

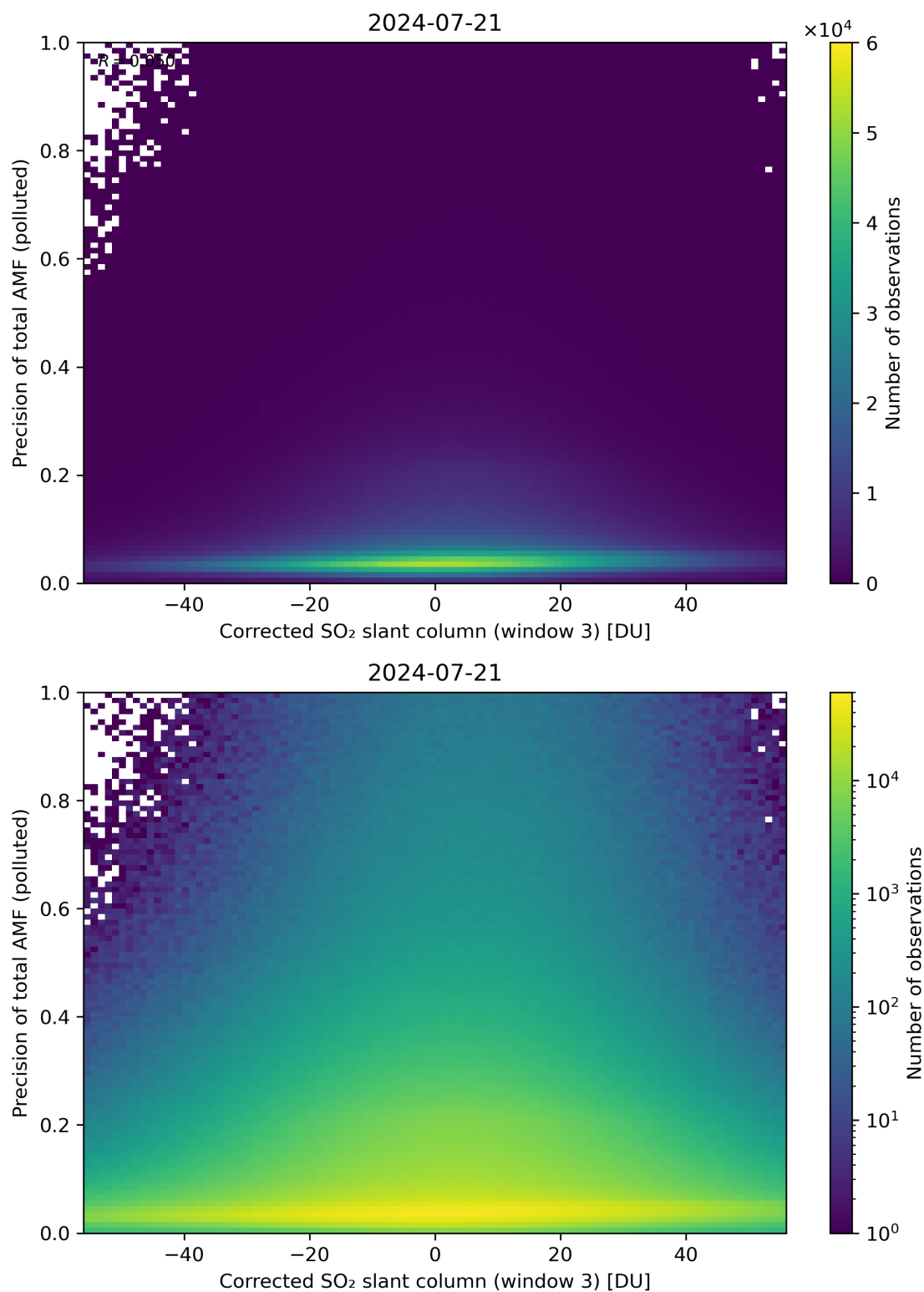


Figure 211: Scatter density plot of “Corrected SO₂ slant column (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

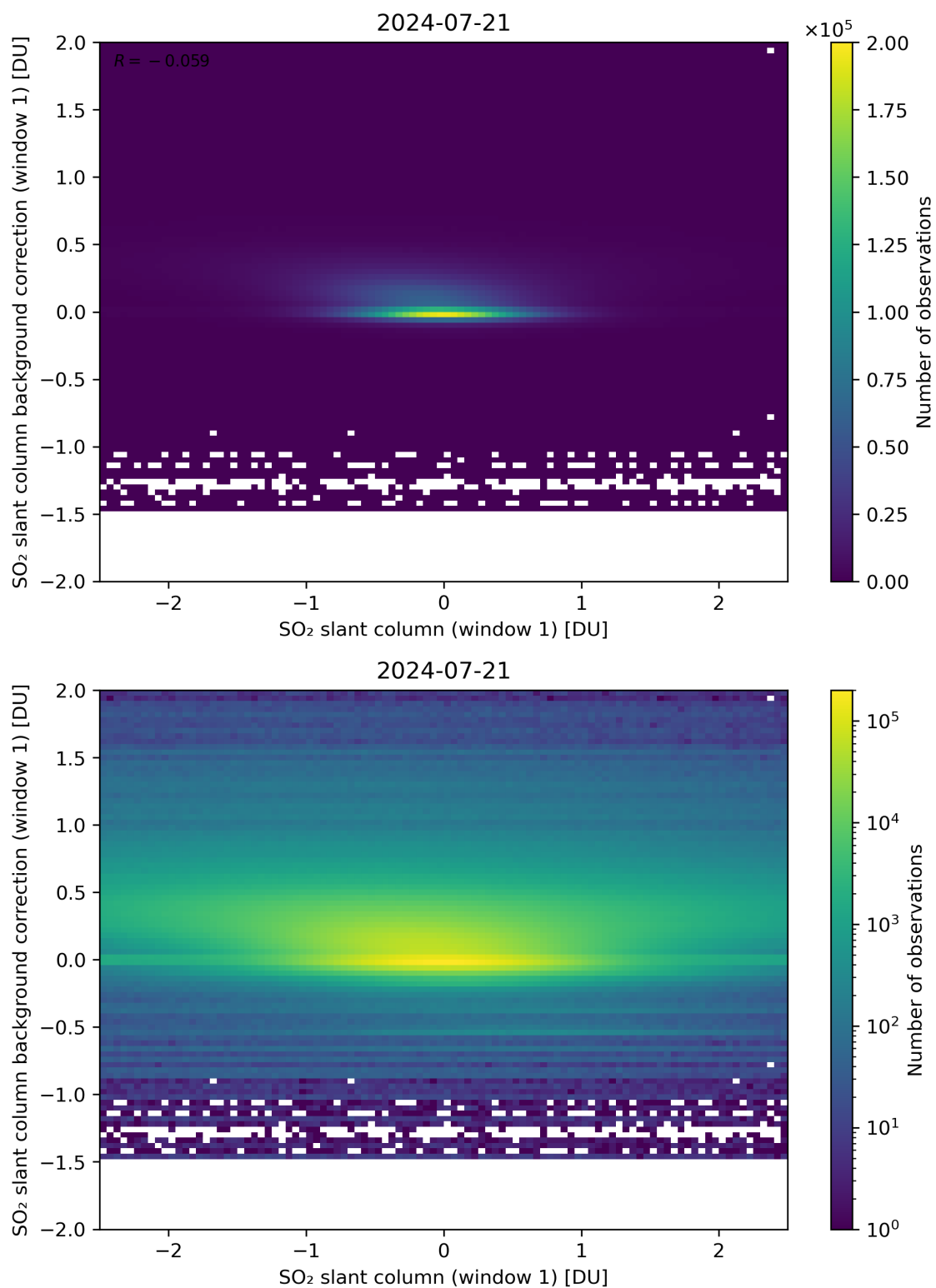


Figure 212: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

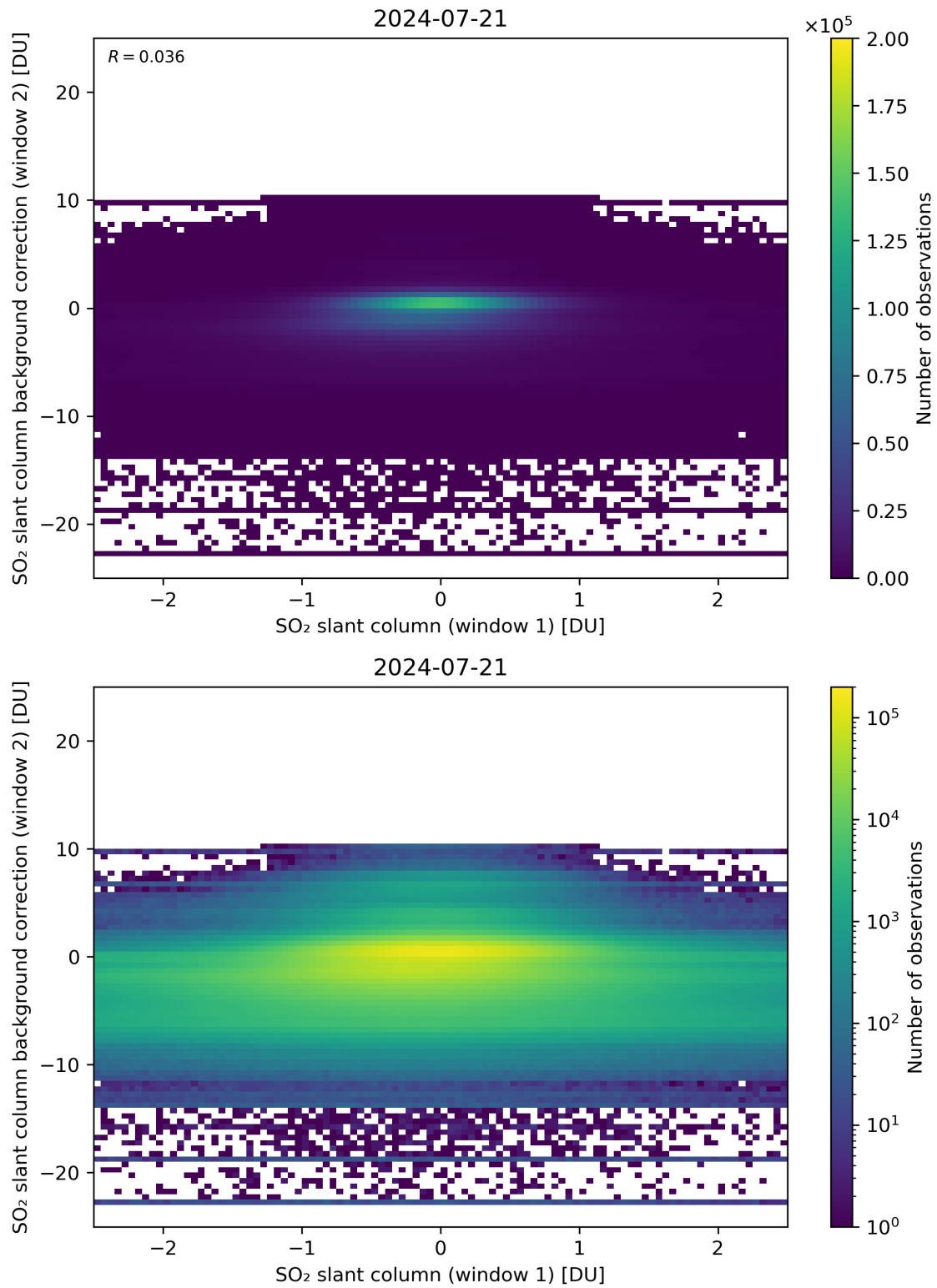


Figure 213: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

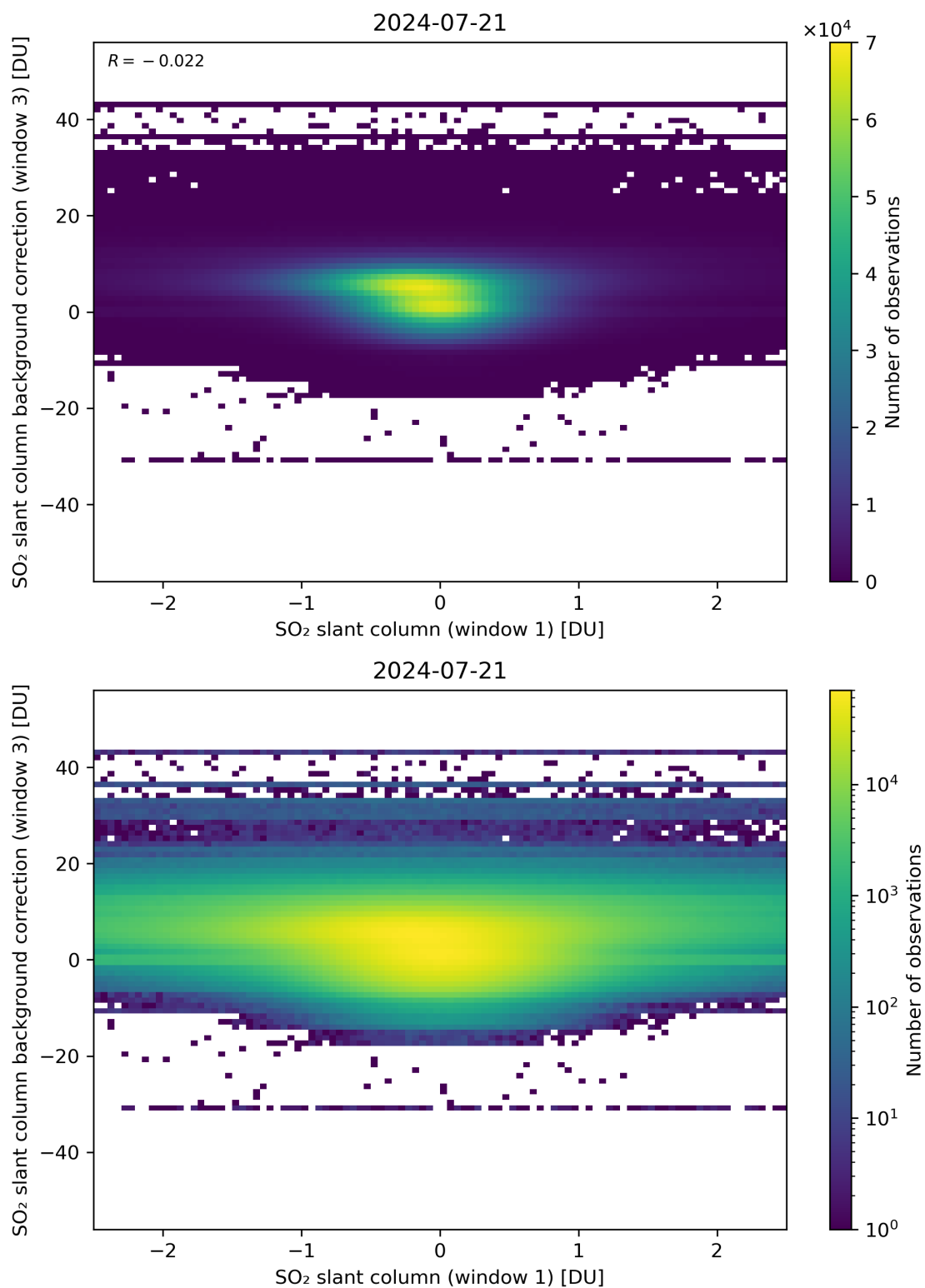


Figure 214: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

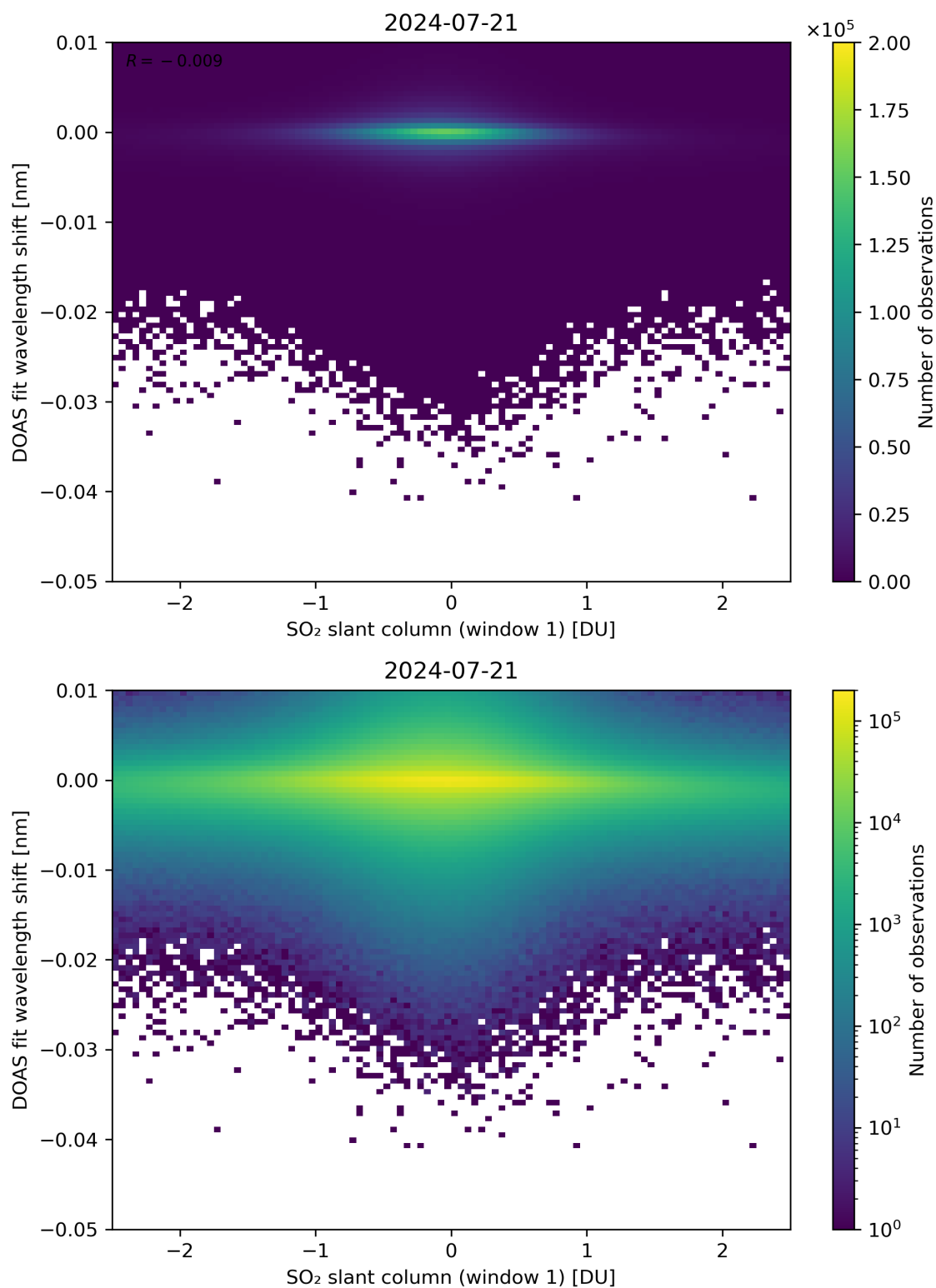


Figure 215: Scatter density plot of “SO₂ slant column (window 1)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

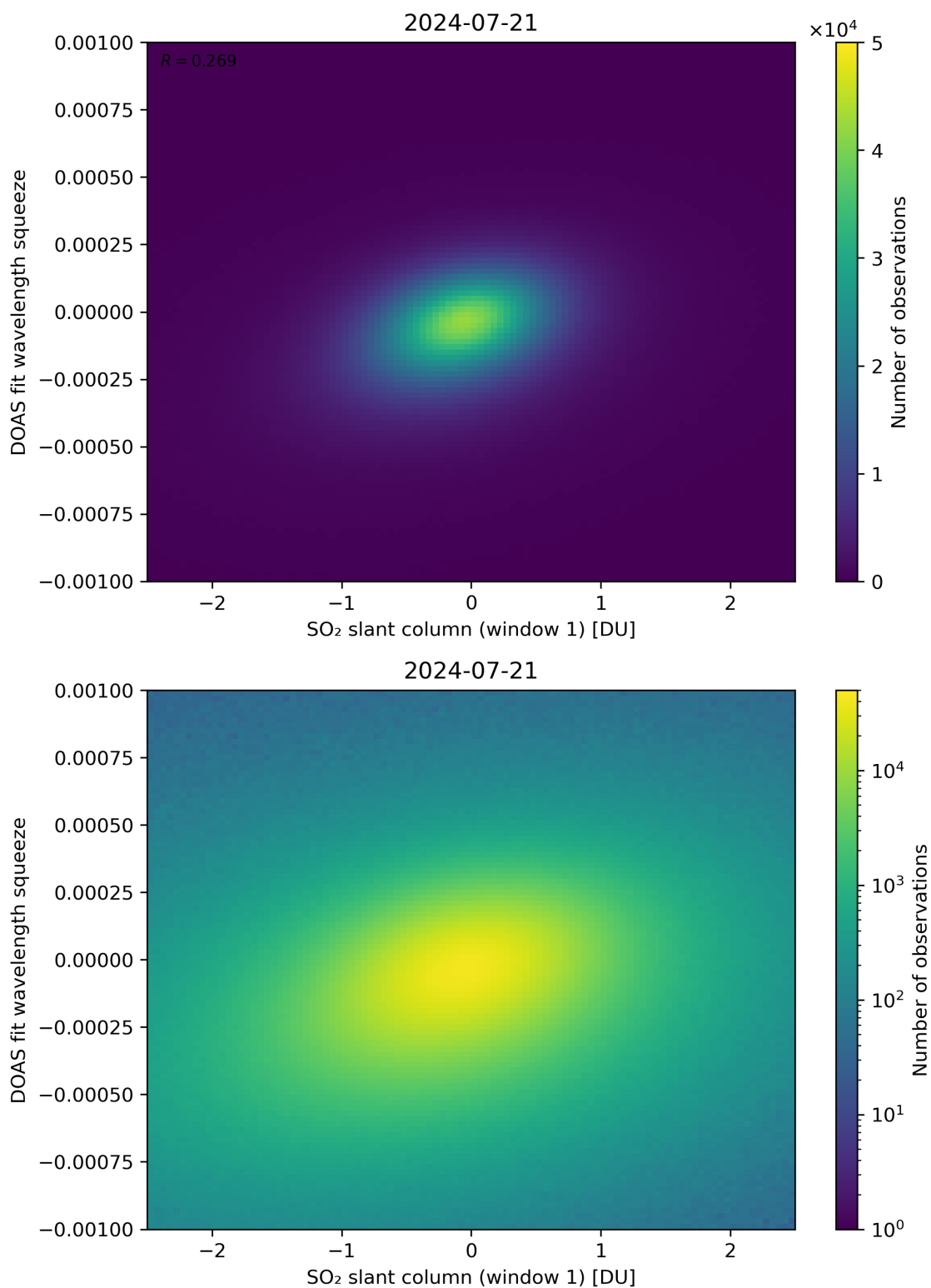


Figure 216: Scatter density plot of “SO₂ slant column (window 1)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

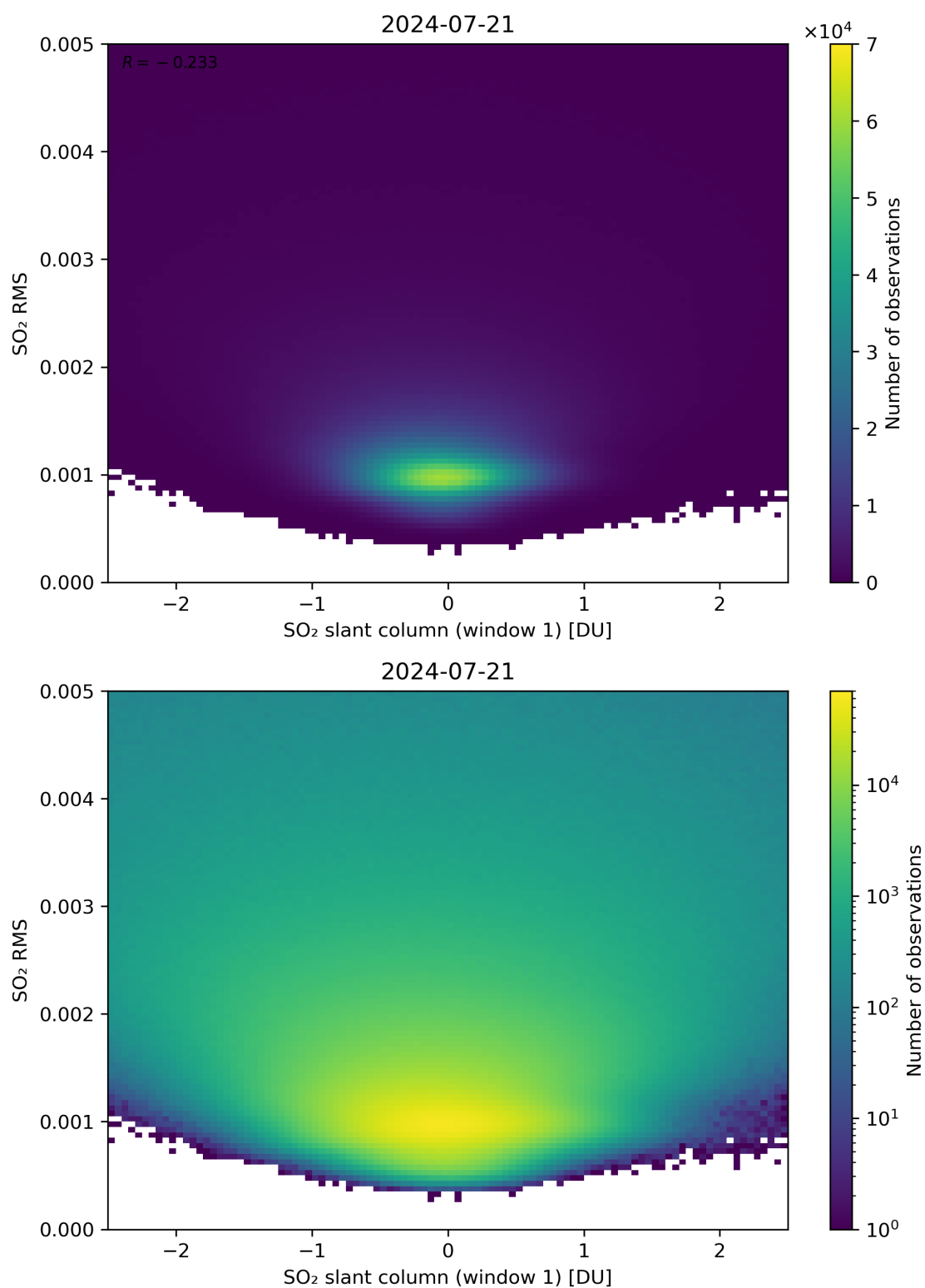


Figure 217: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

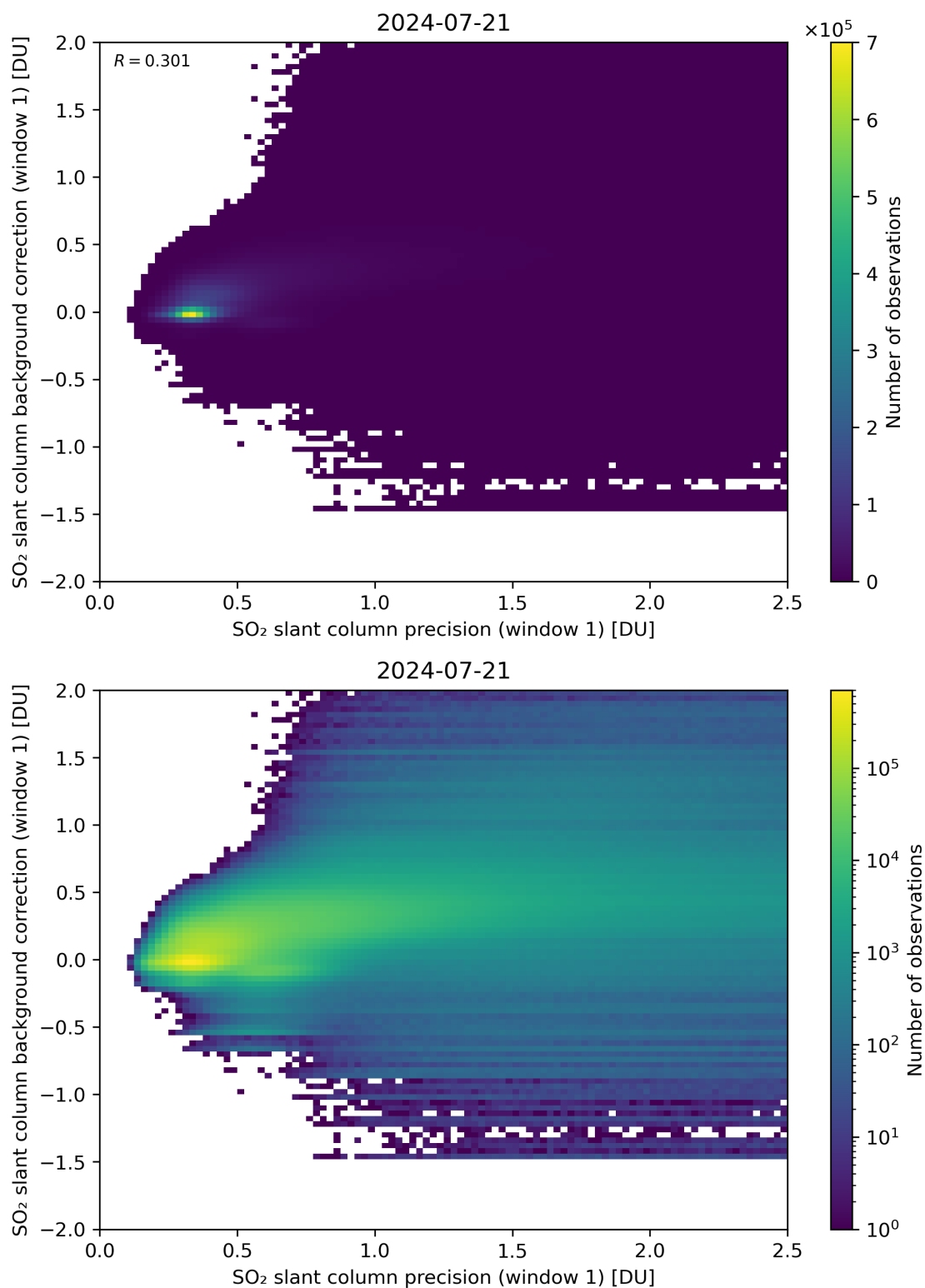


Figure 218: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

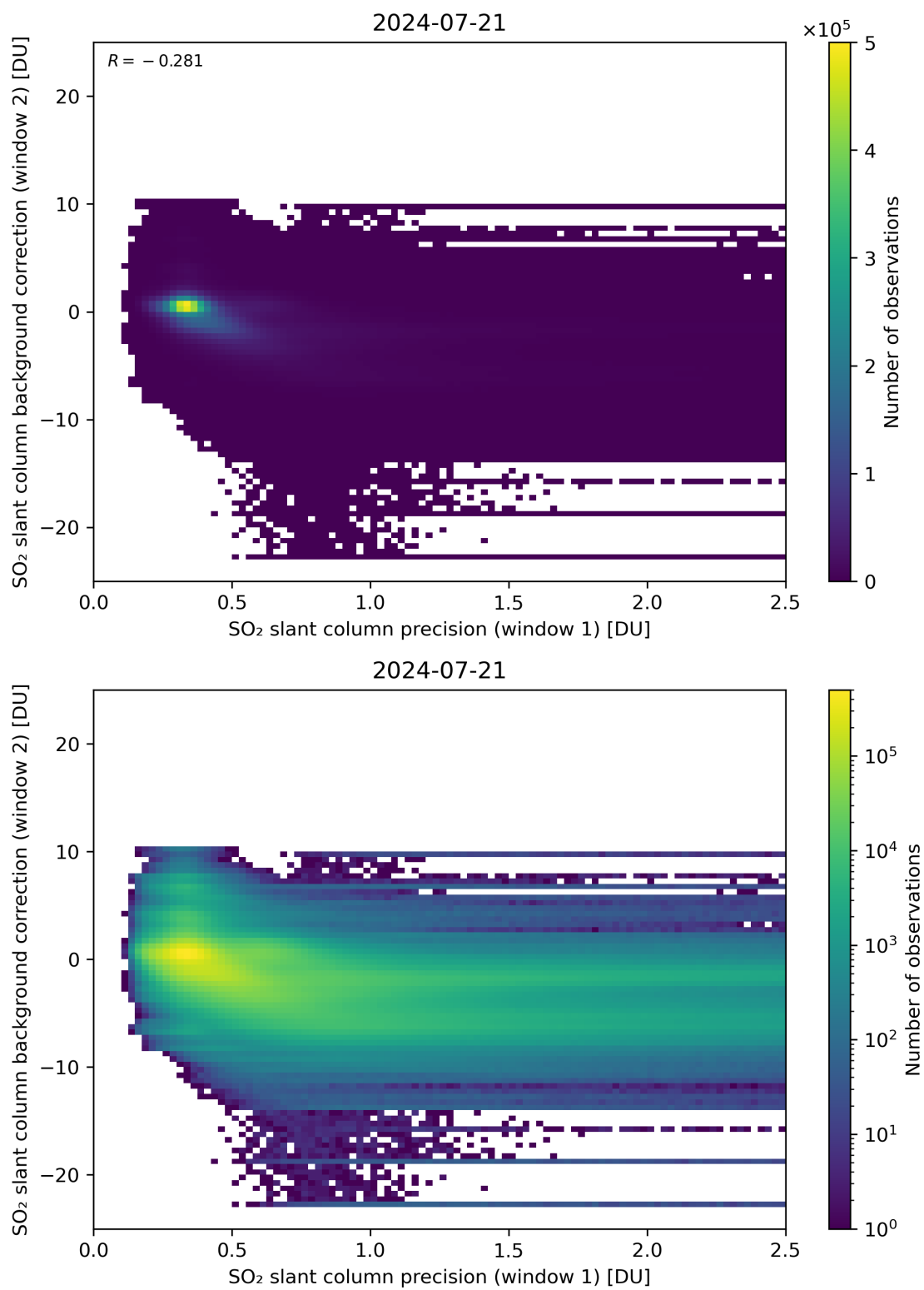


Figure 219: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

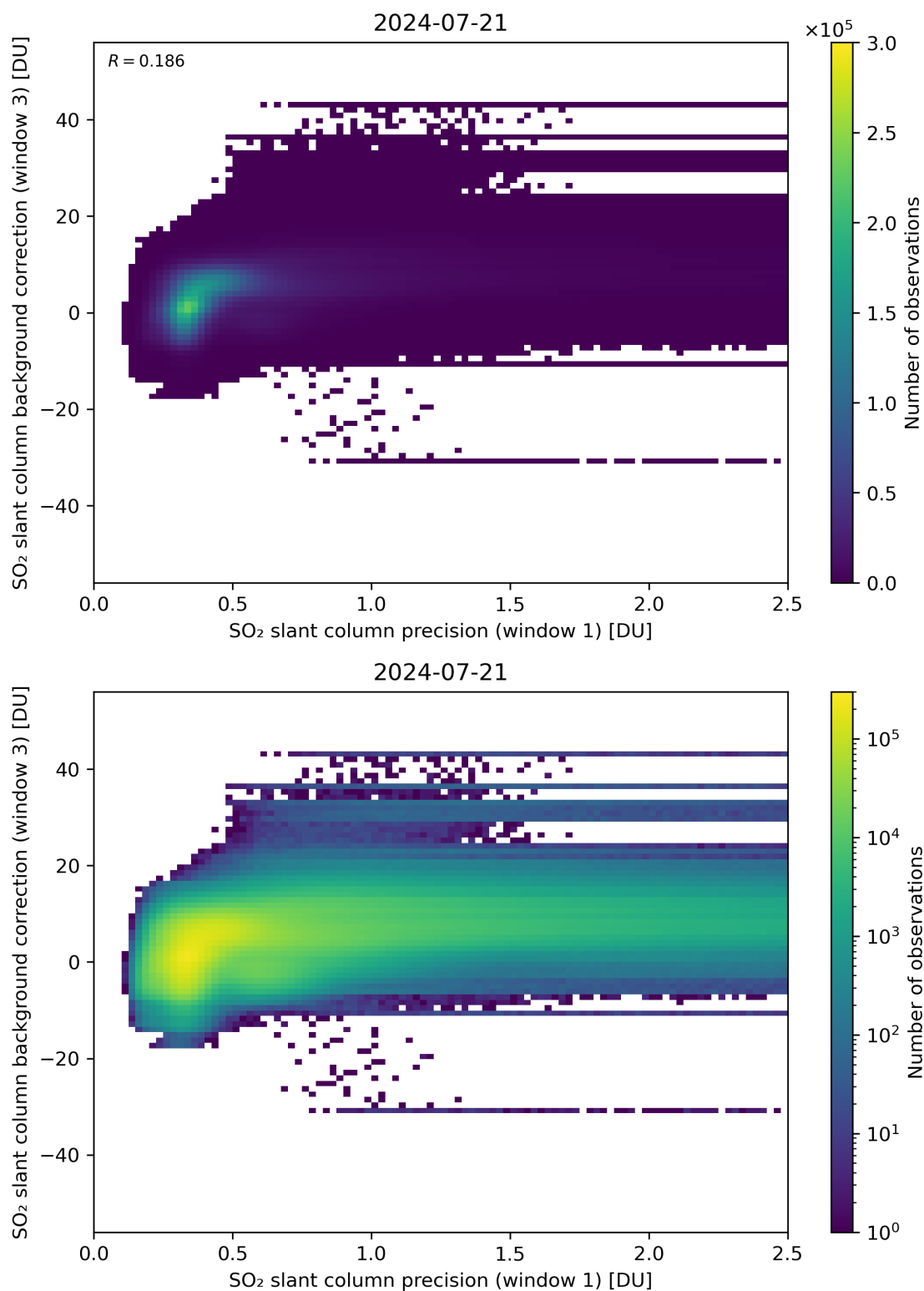


Figure 220: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

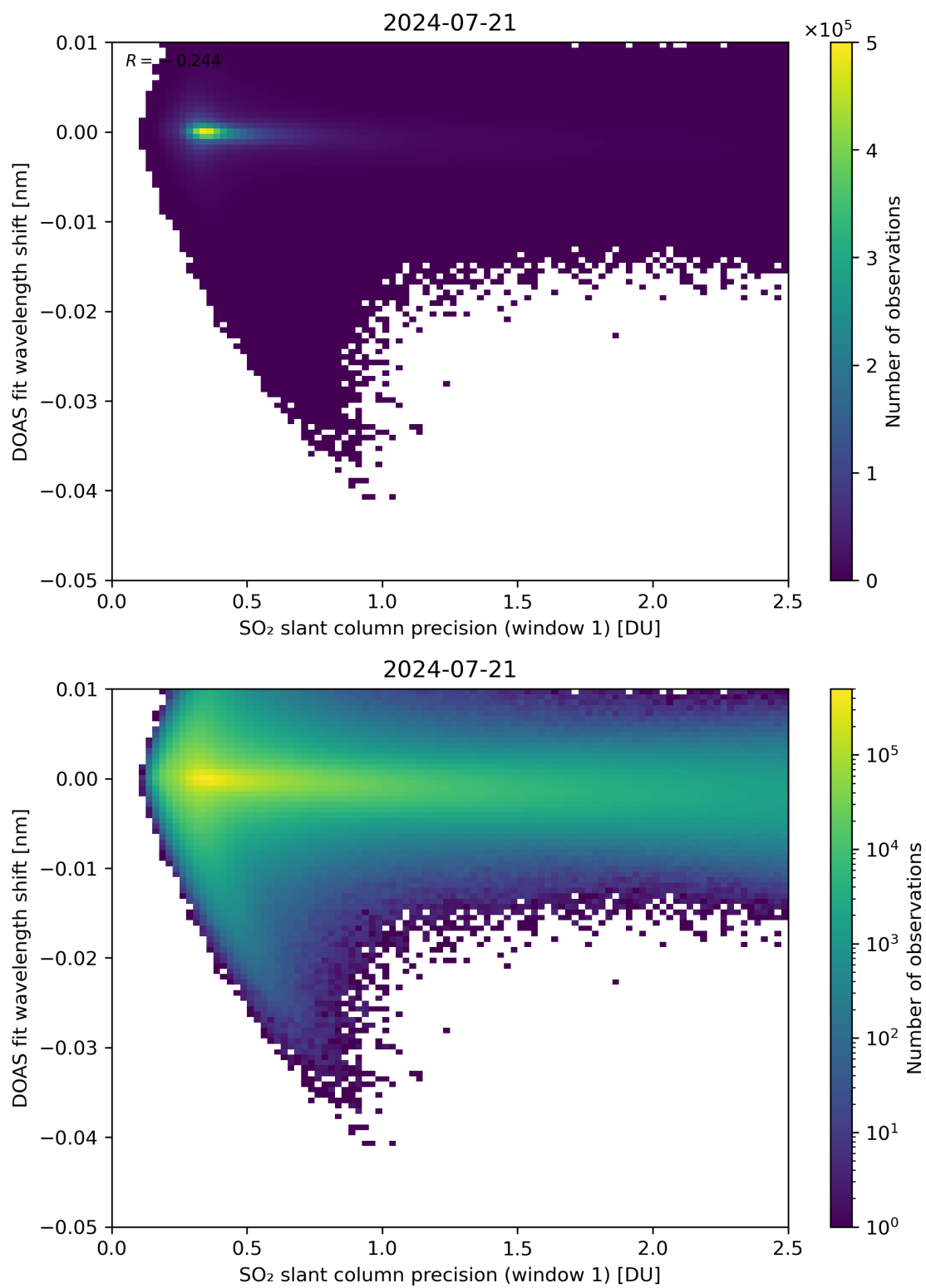


Figure 221: Scatter density plot of “SO₂ slant column precision (window 1)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

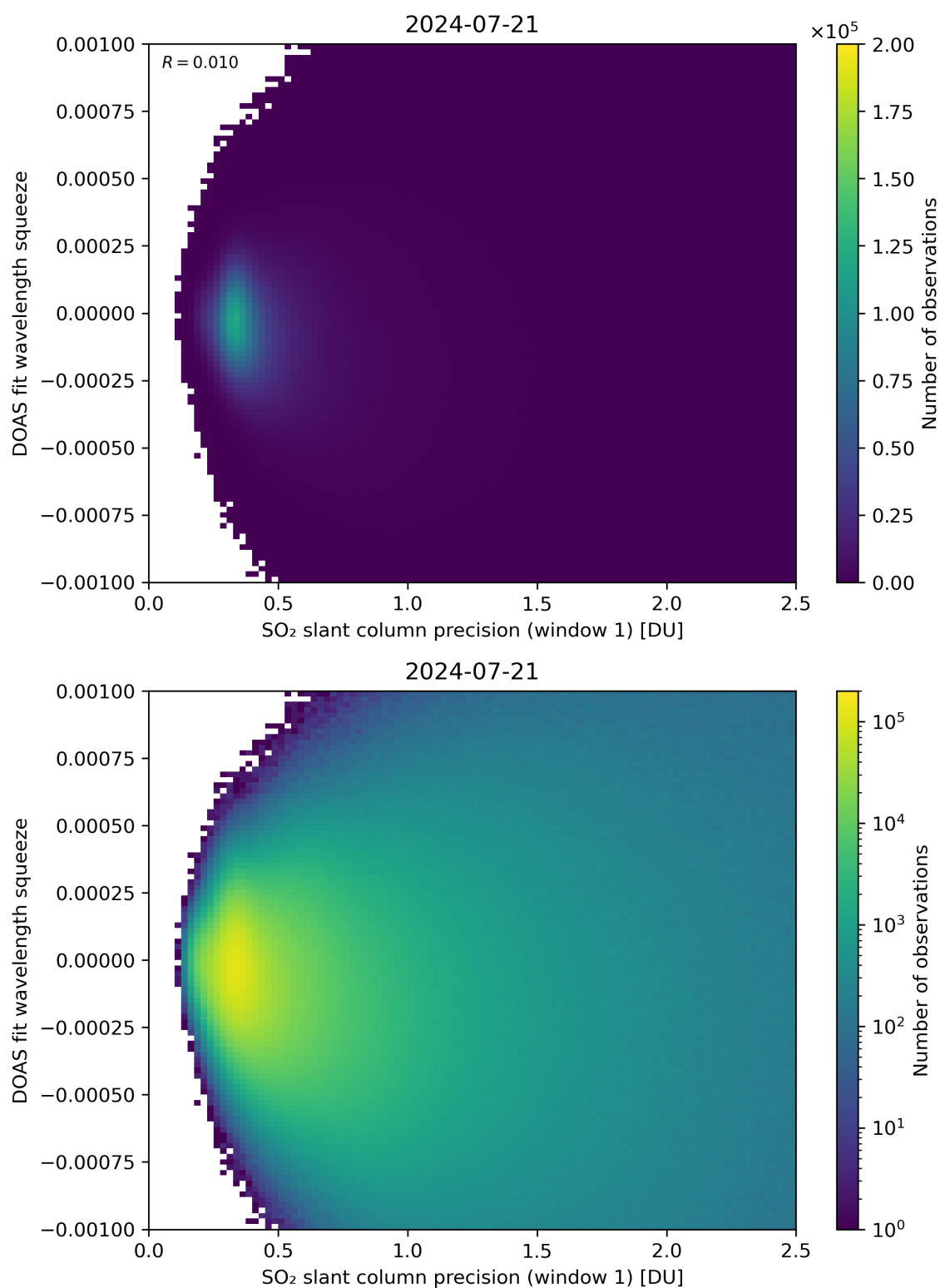


Figure 222: Scatter density plot of “SO₂ slant column precision (window 1)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

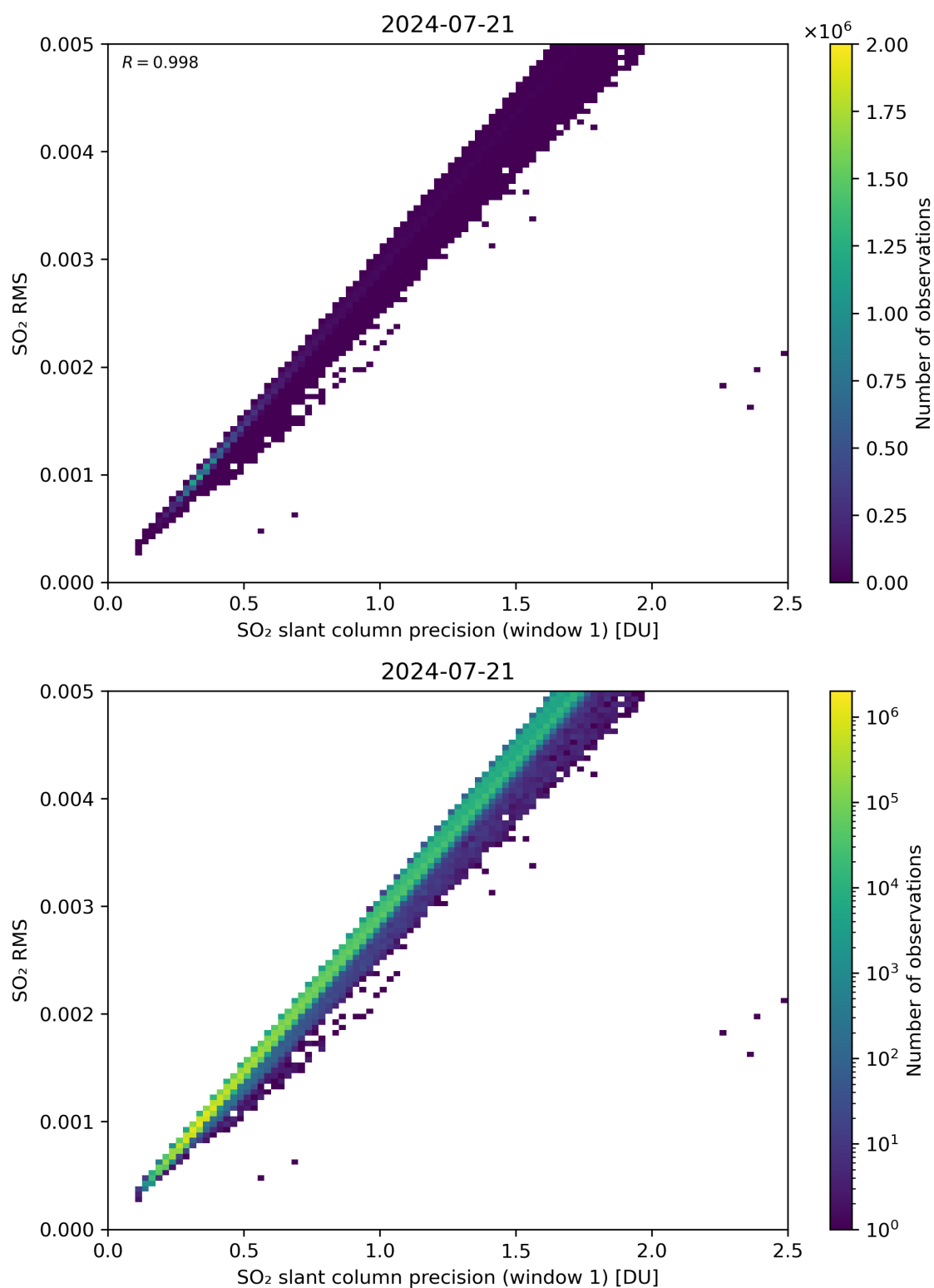


Figure 223: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

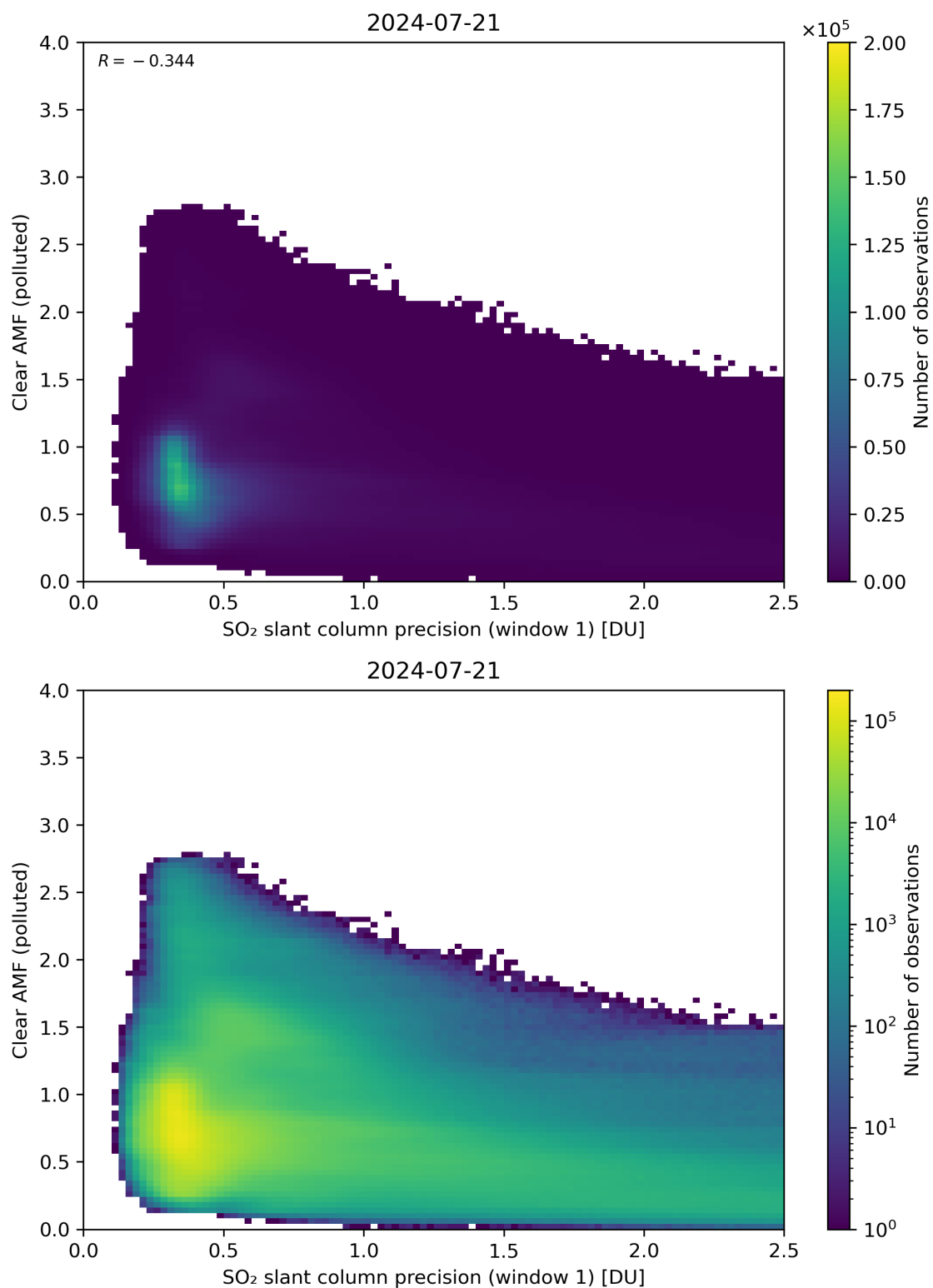


Figure 224: Scatter density plot of “SO₂ slant column precision (window 1)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

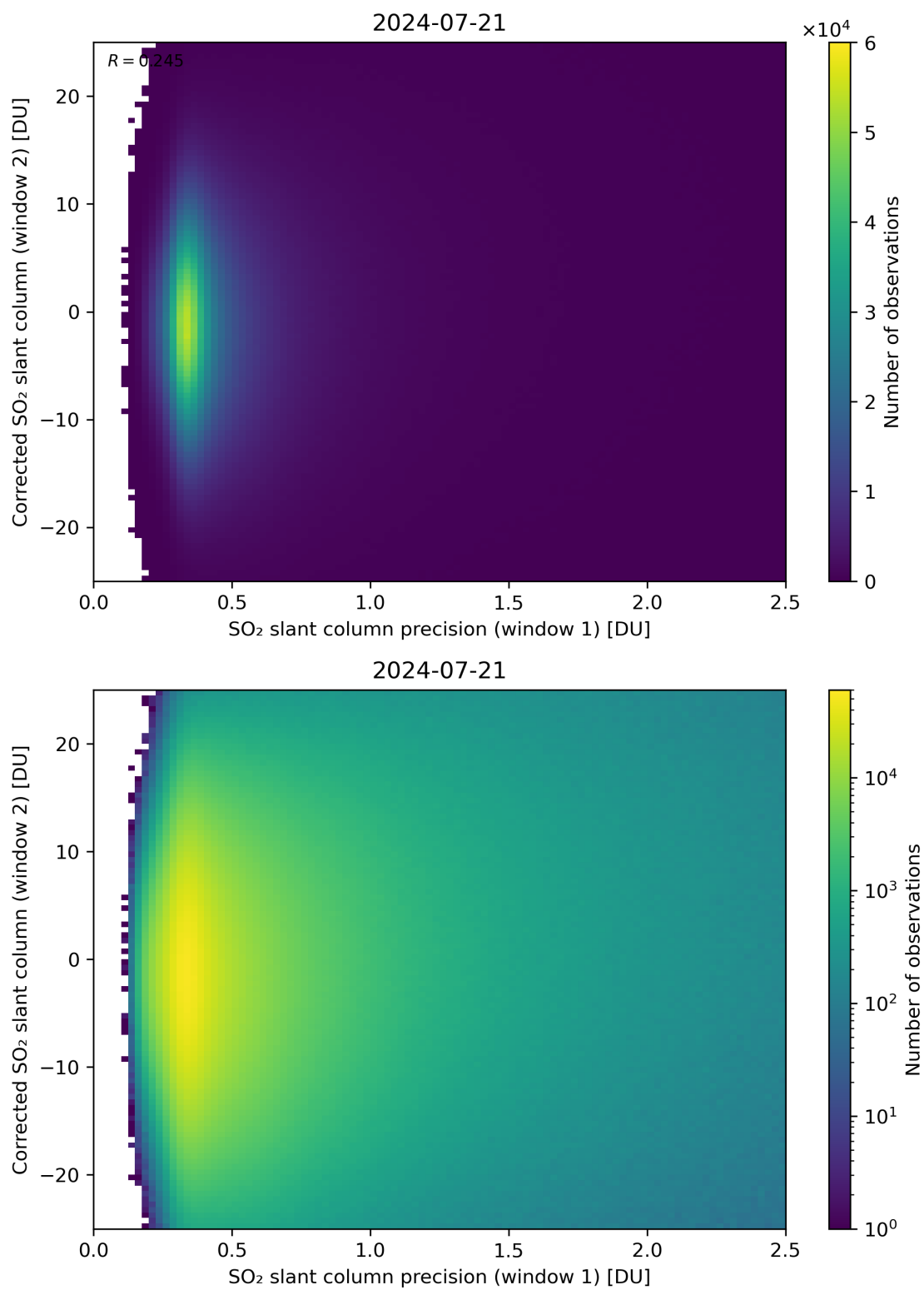


Figure 225: Scatter density plot of “SO₂ slant column precision (window 1)” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

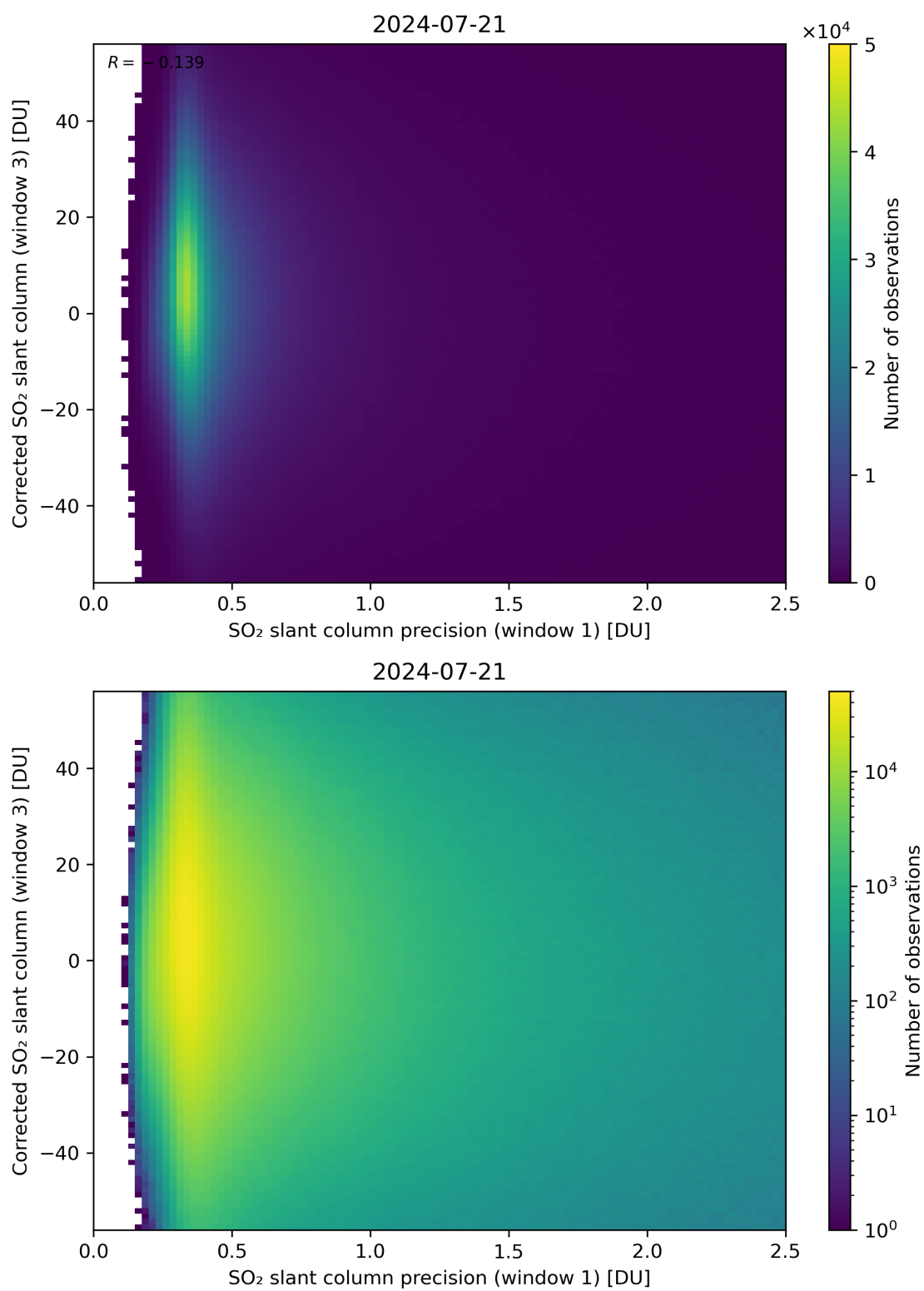


Figure 226: Scatter density plot of “SO₂ slant column precision (window 1)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

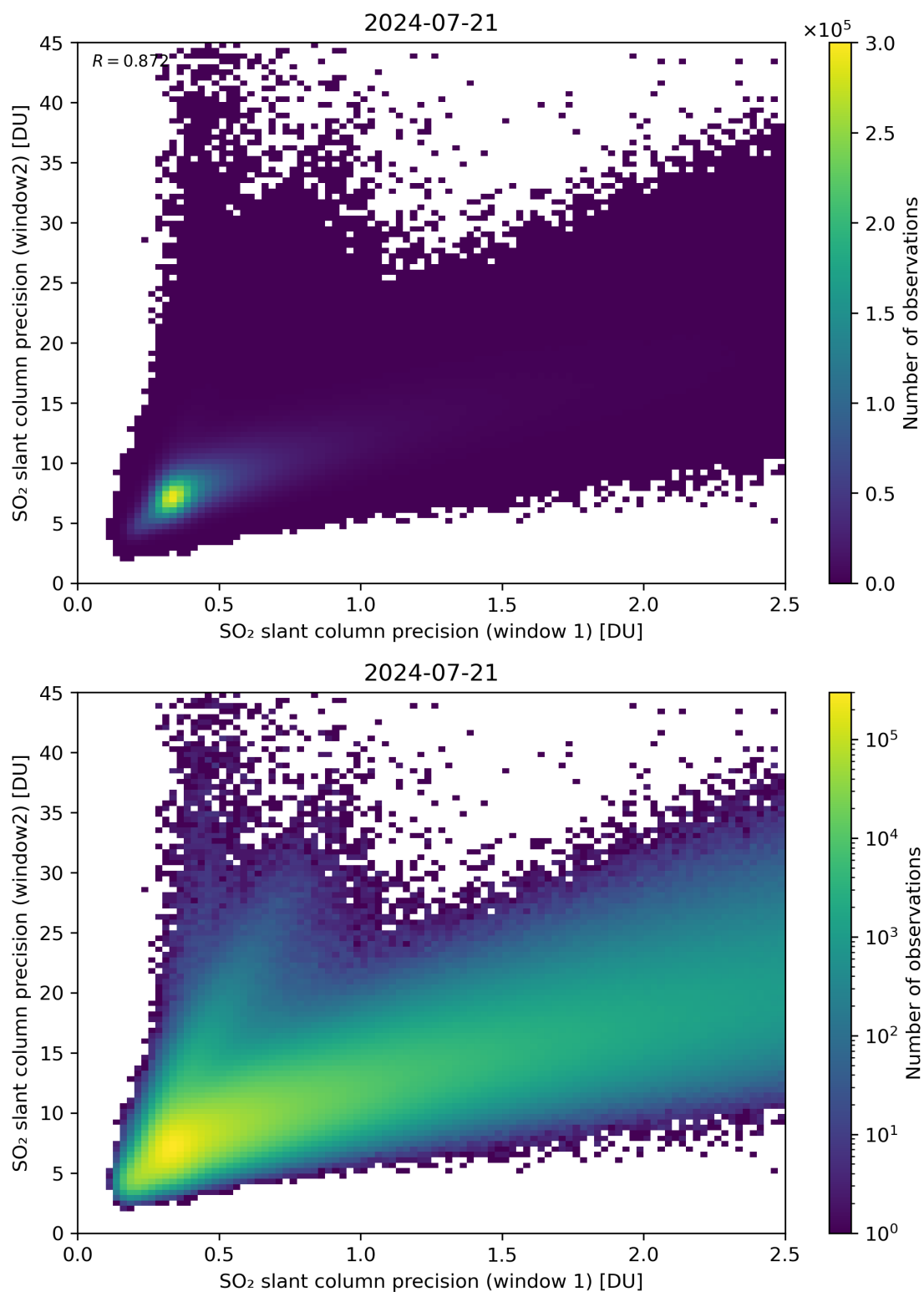


Figure 227: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

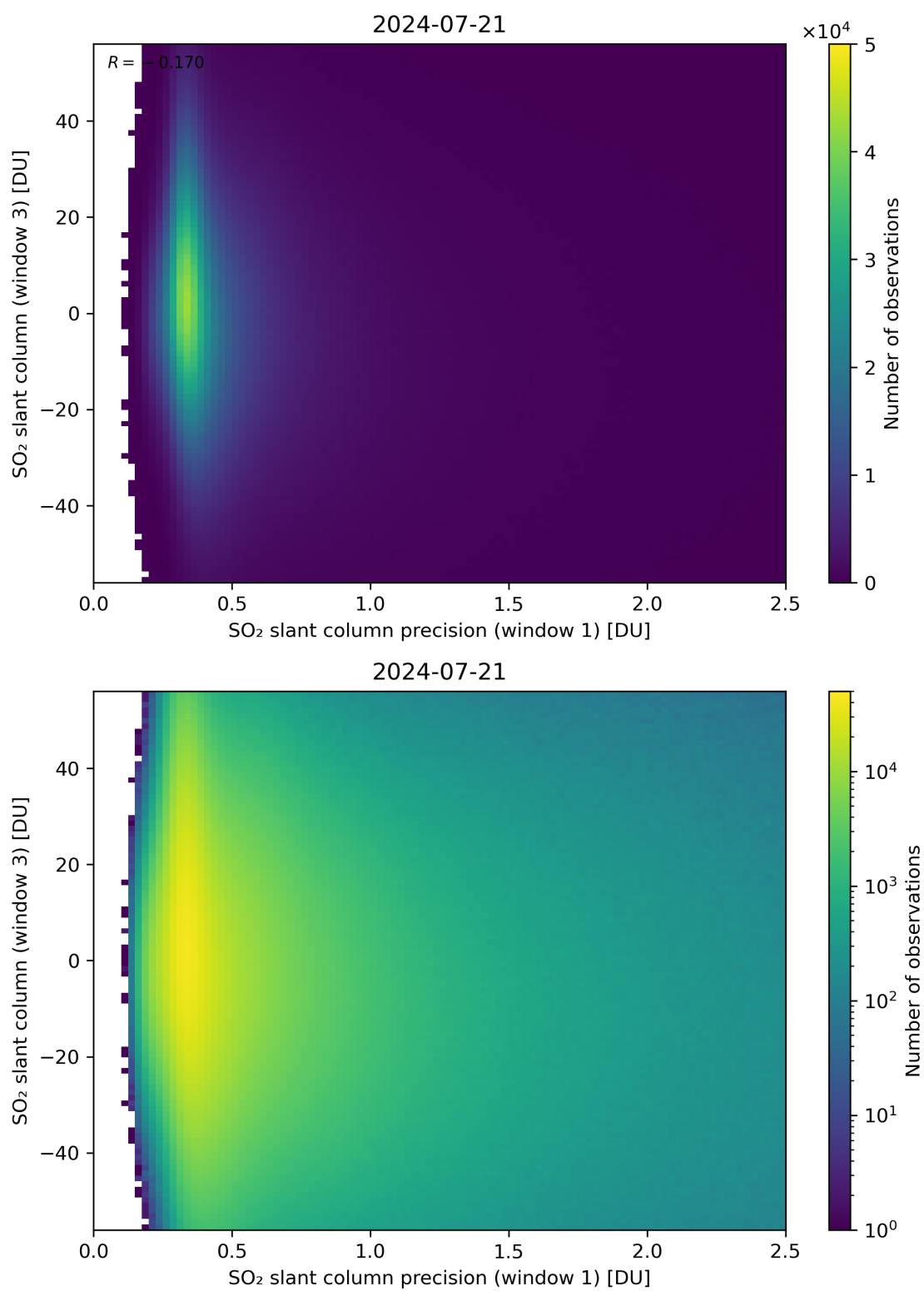


Figure 228: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

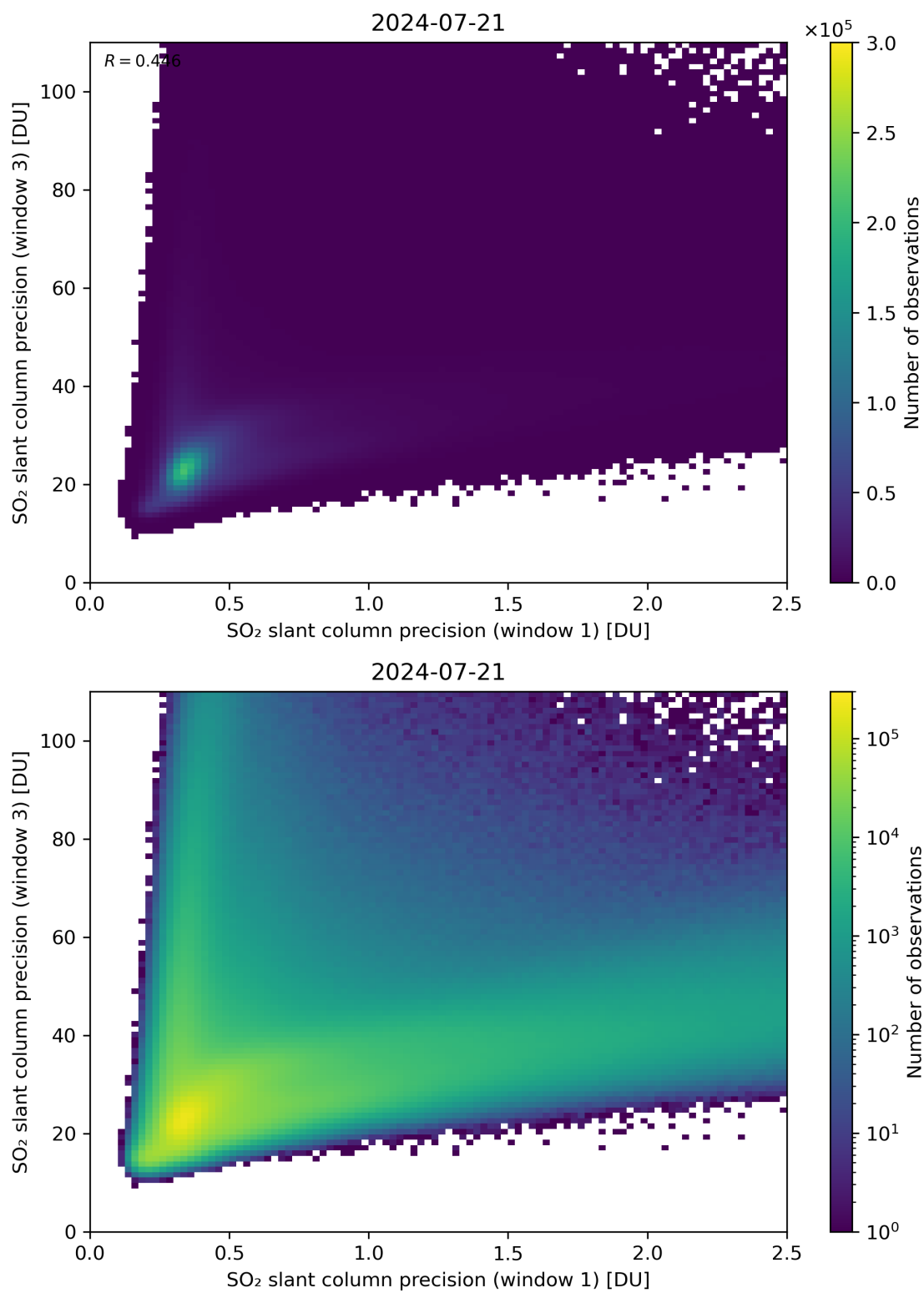


Figure 229: Scatter density plot of “SO₂ slant column precision (window 1)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

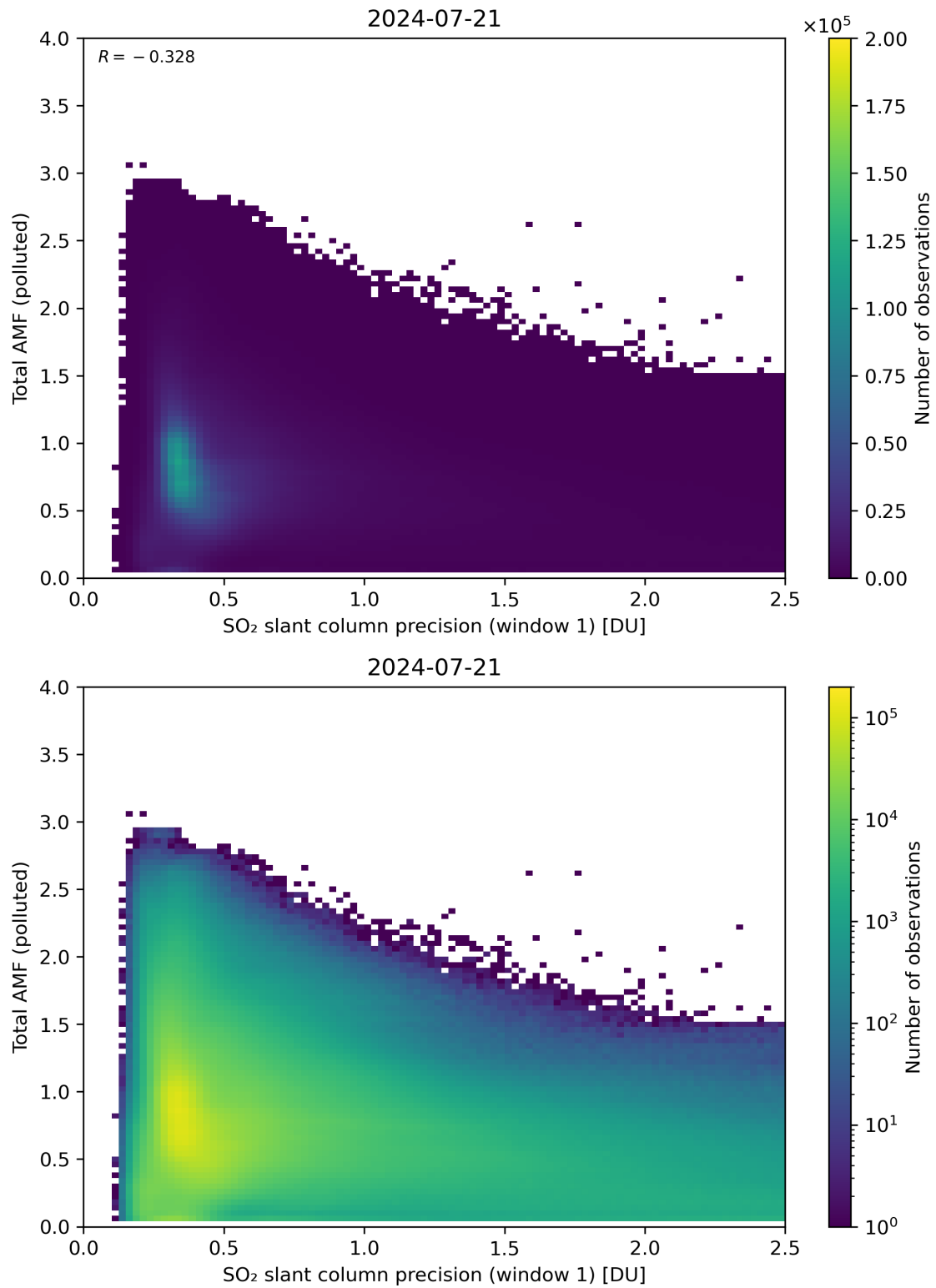


Figure 230: Scatter density plot of “SO₂ slant column precision (window 1)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

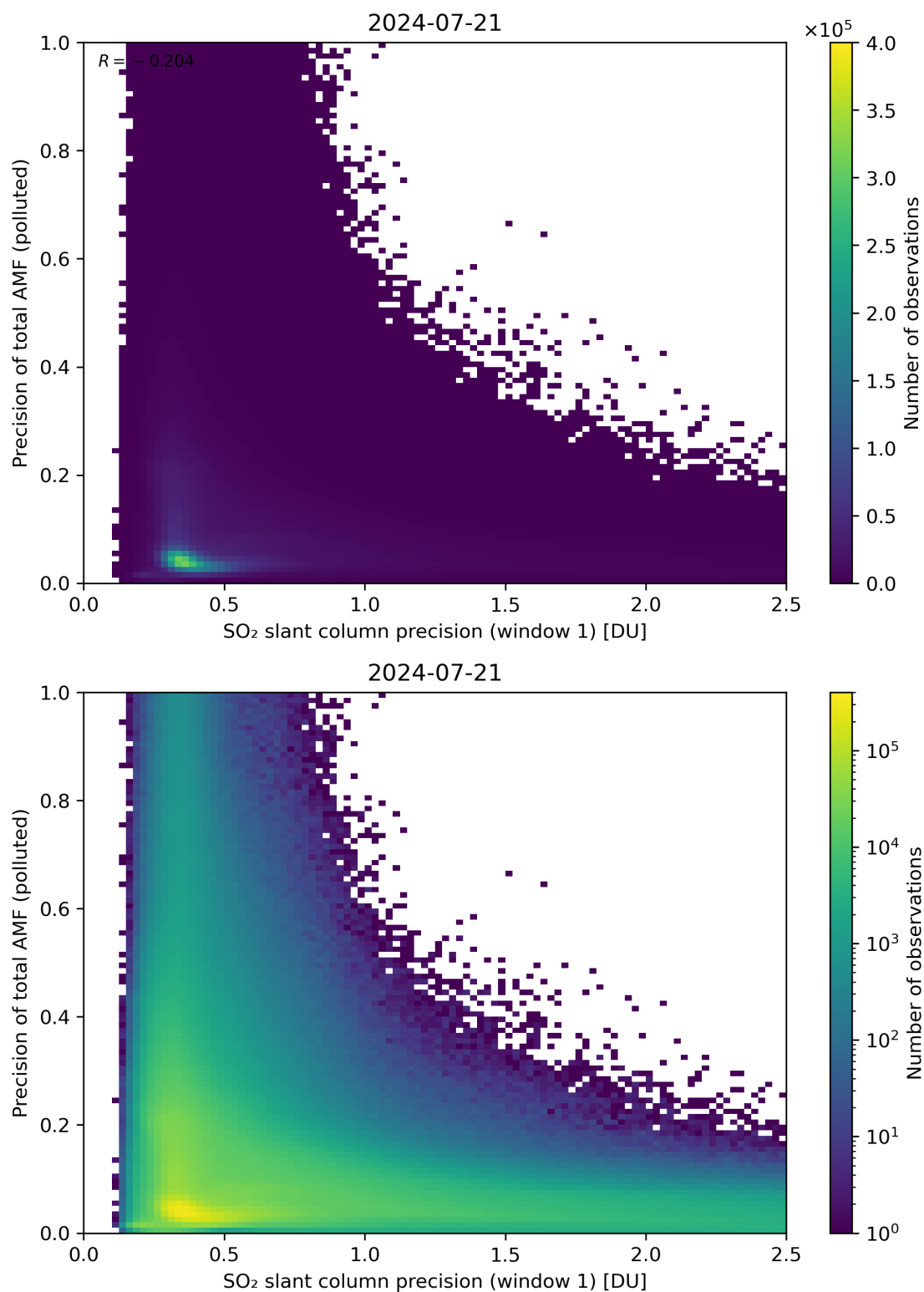


Figure 231: Scatter density plot of “SO₂ slant column precision (window 1)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

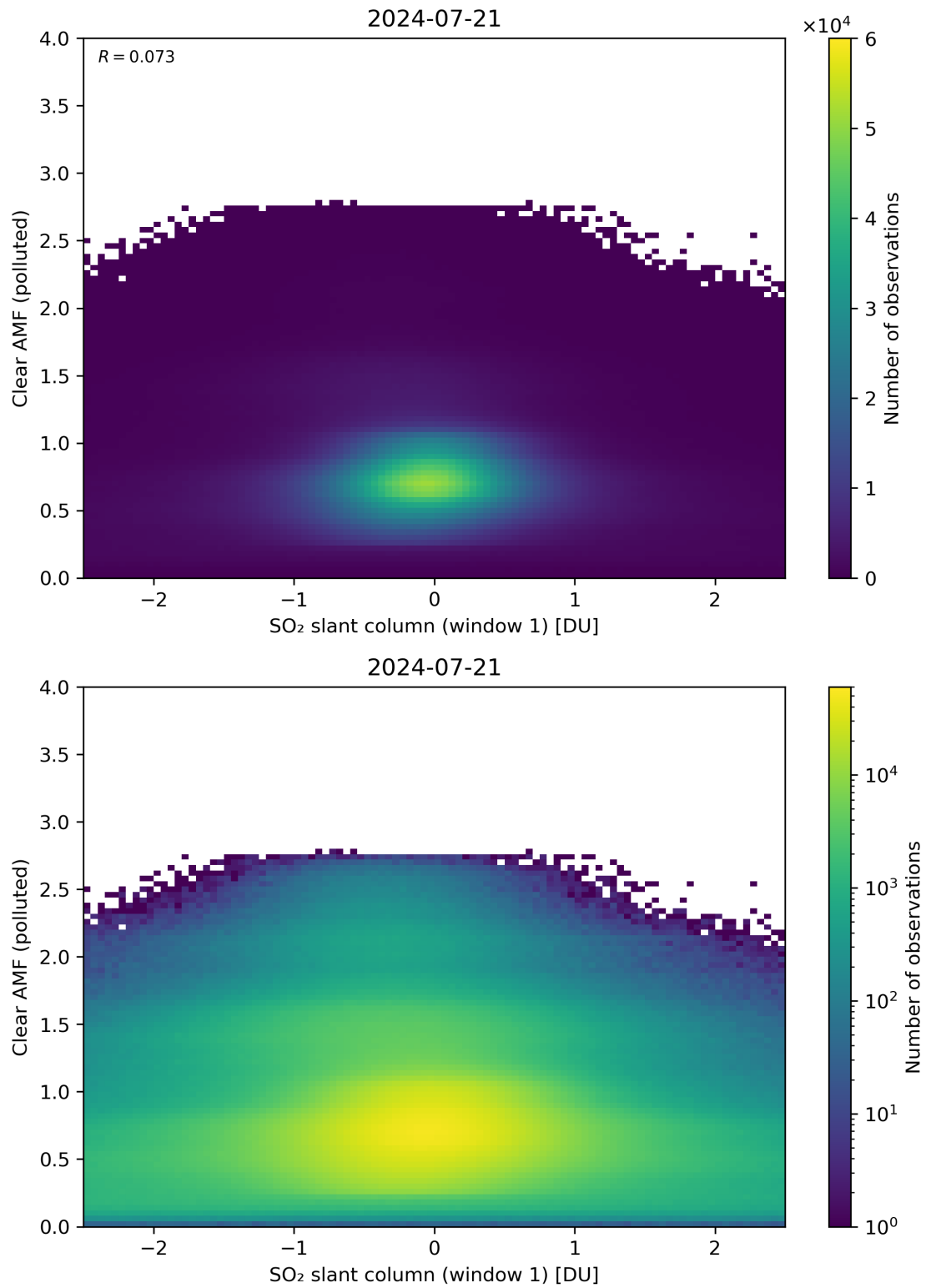


Figure 232: Scatter density plot of “SO₂ slant column (window 1)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

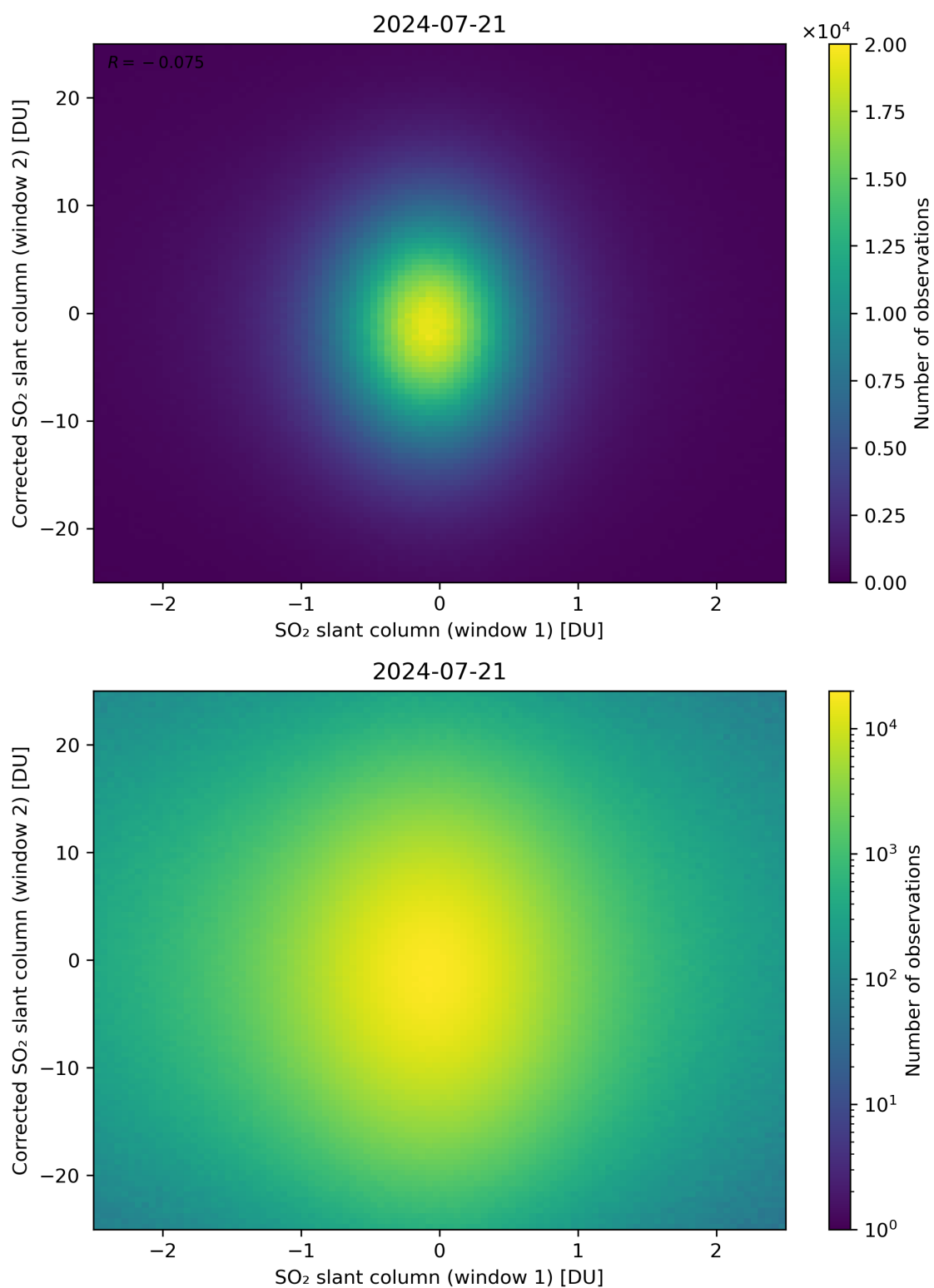


Figure 233: Scatter density plot of “SO₂ slant column (window 1)” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

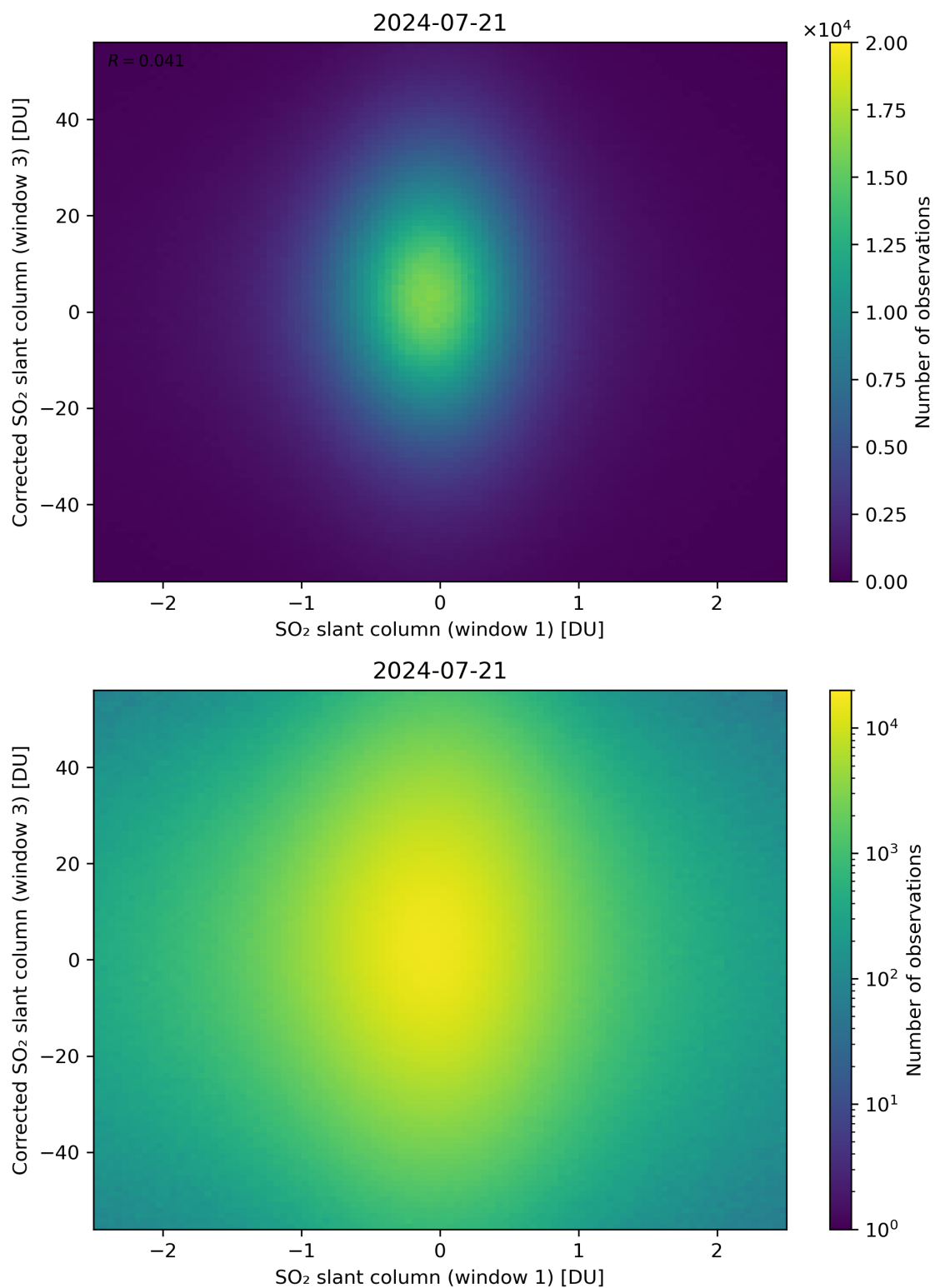


Figure 234: Scatter density plot of “SO₂ slant column (window 1)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

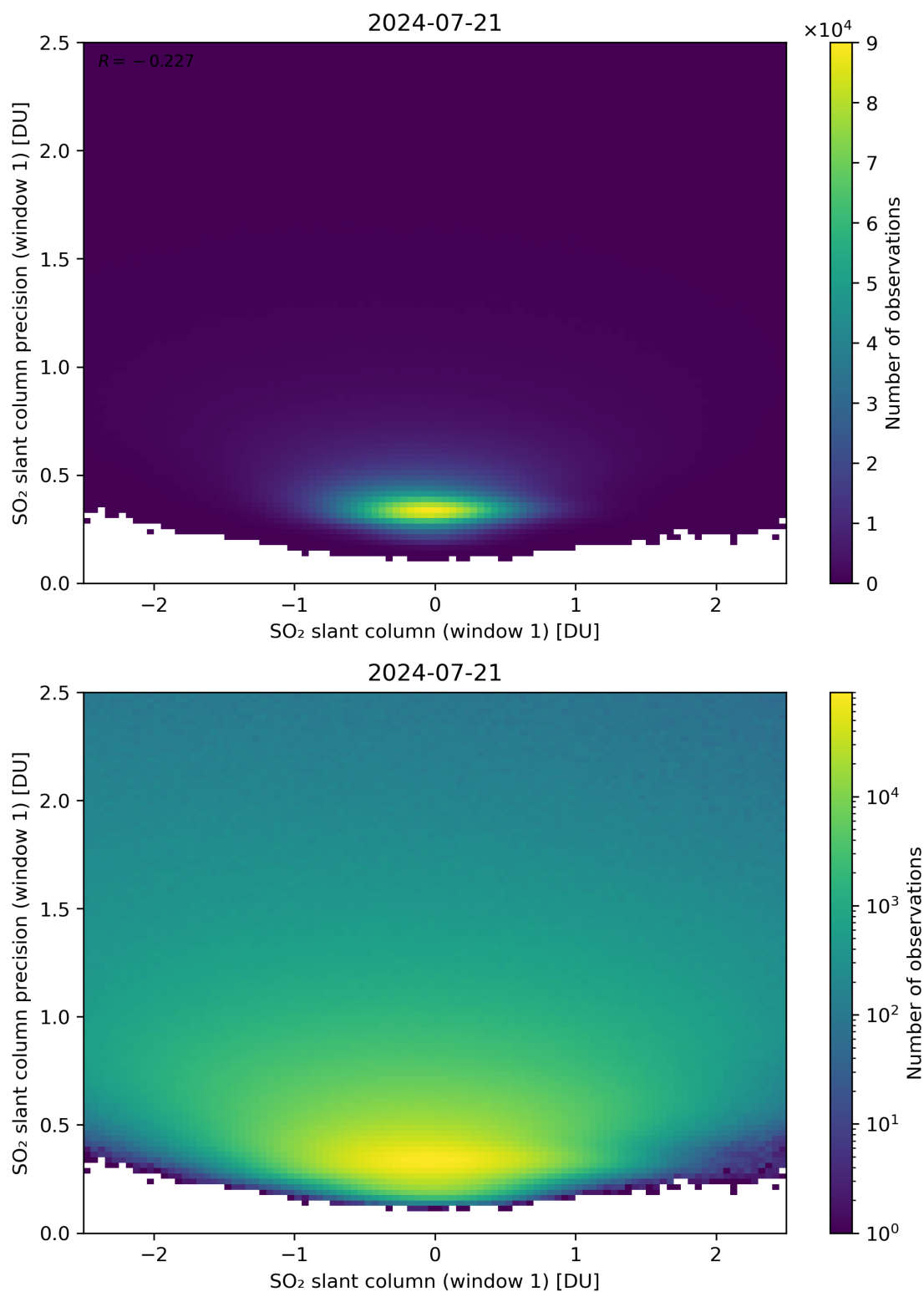


Figure 235: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

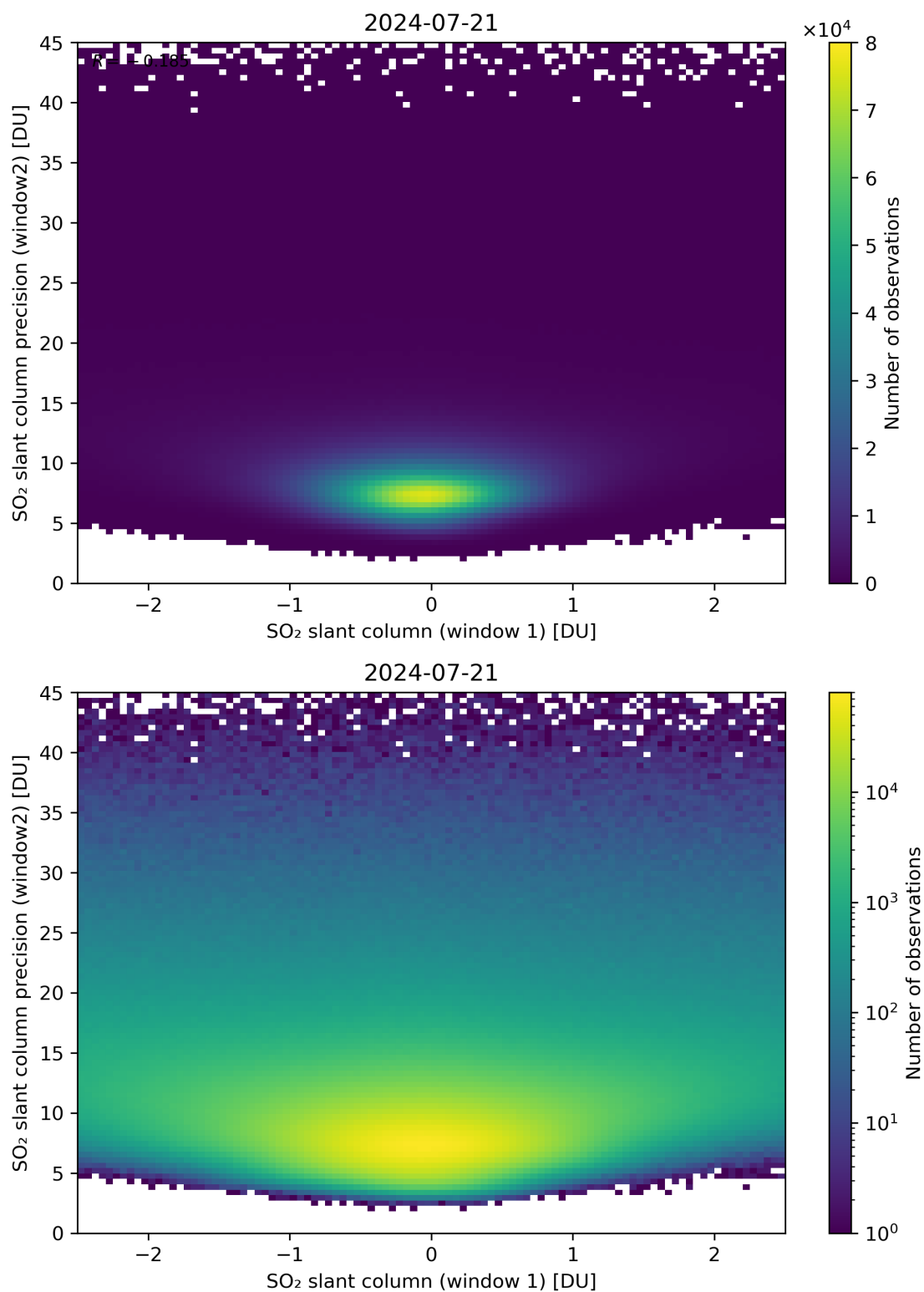


Figure 236: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

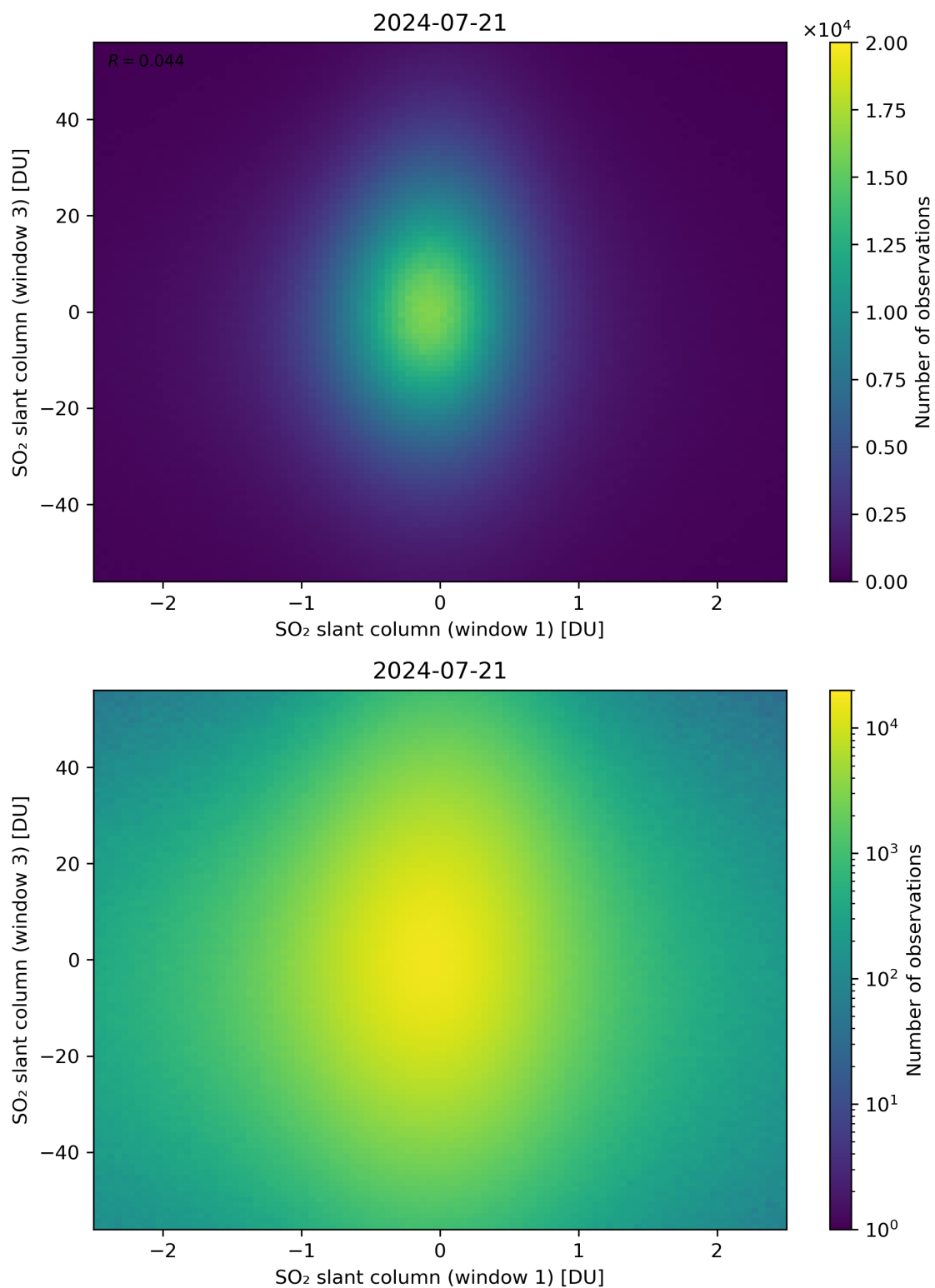


Figure 237: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

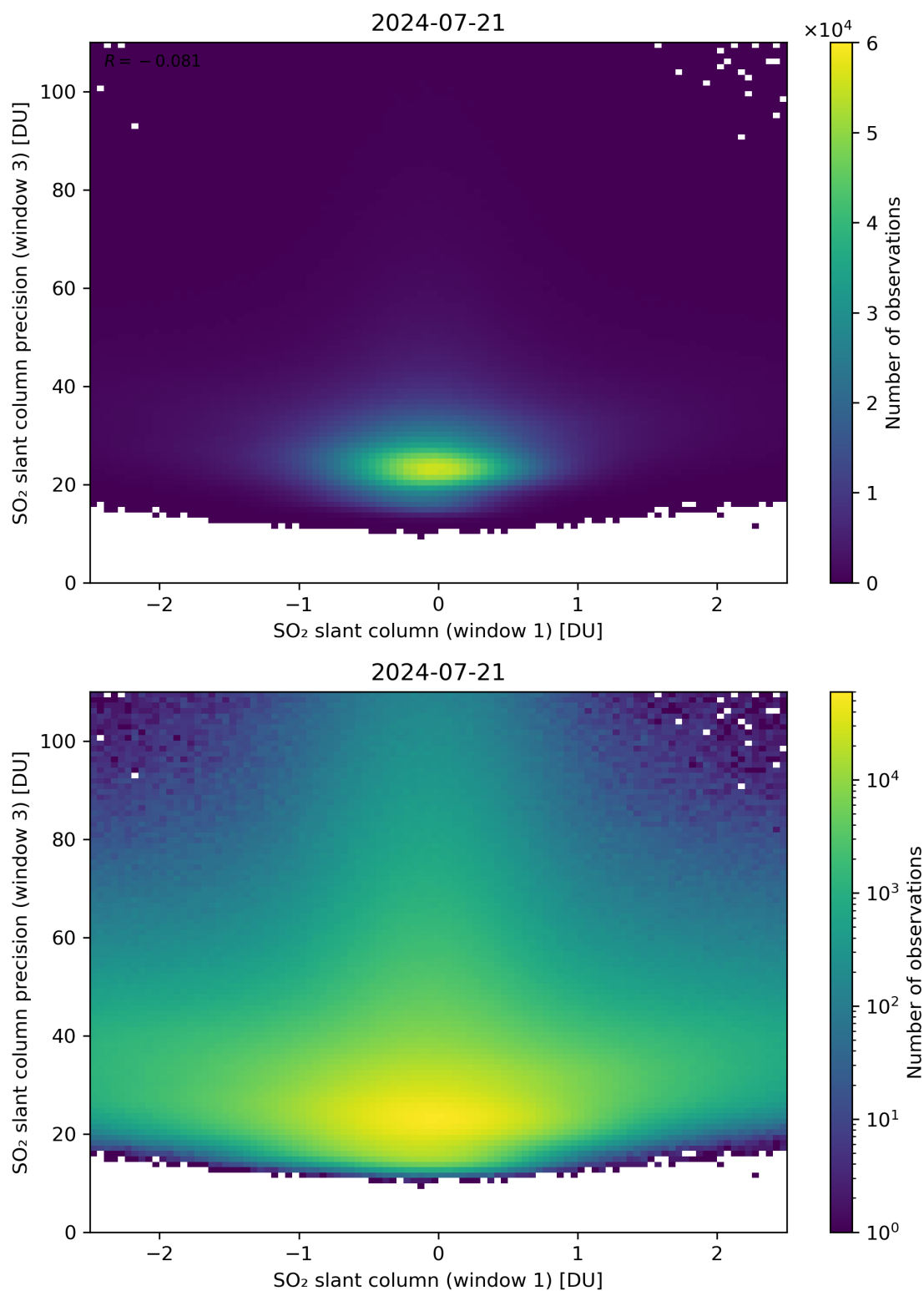


Figure 238: Scatter density plot of “SO₂ slant column (window 1)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

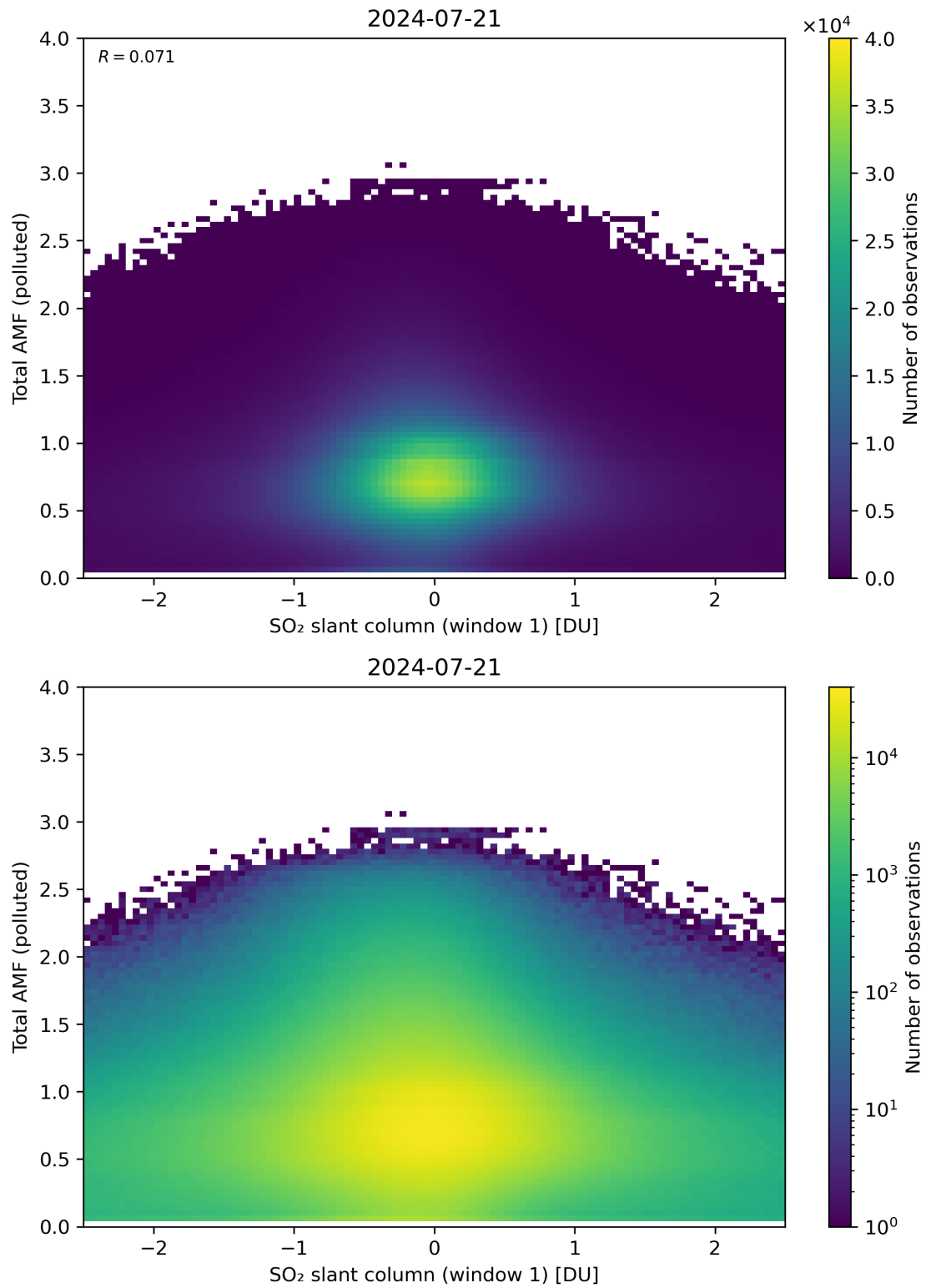


Figure 239: Scatter density plot of “SO₂ slant column (window 1)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

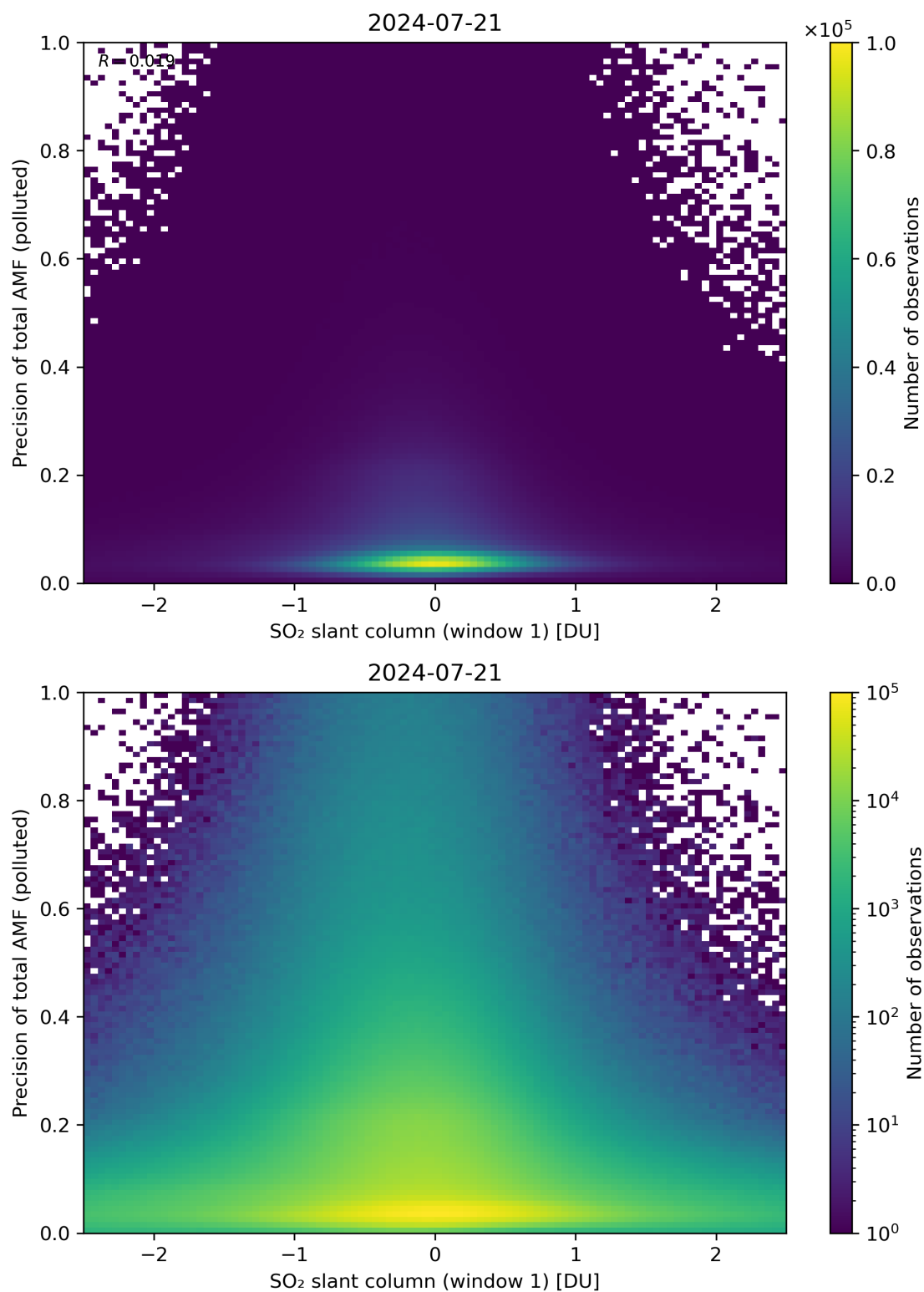


Figure 240: Scatter density plot of “SO₂ slant column (window 1)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

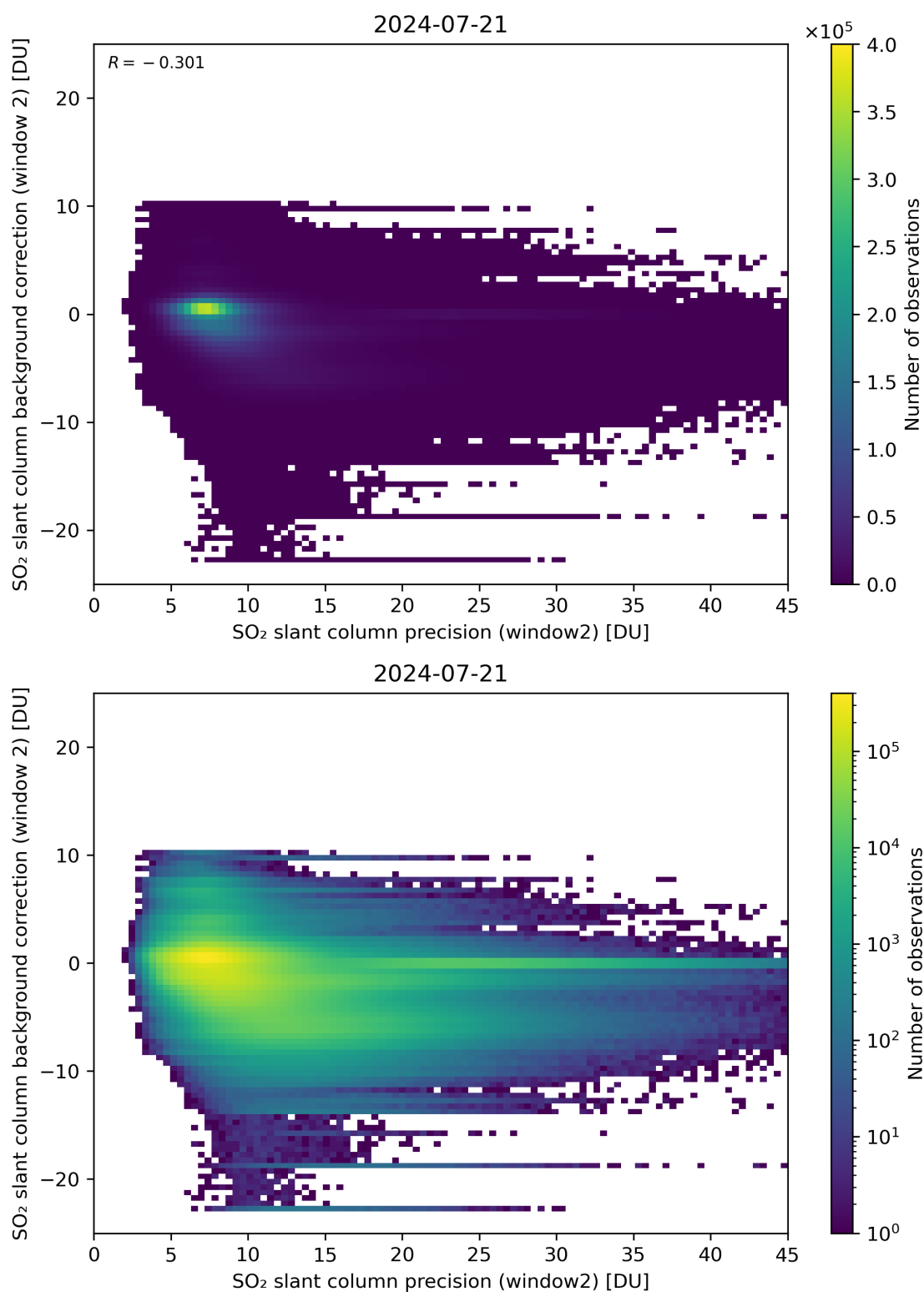


Figure 241: Scatter density plot of “SO₂ slant column precision (window2)” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

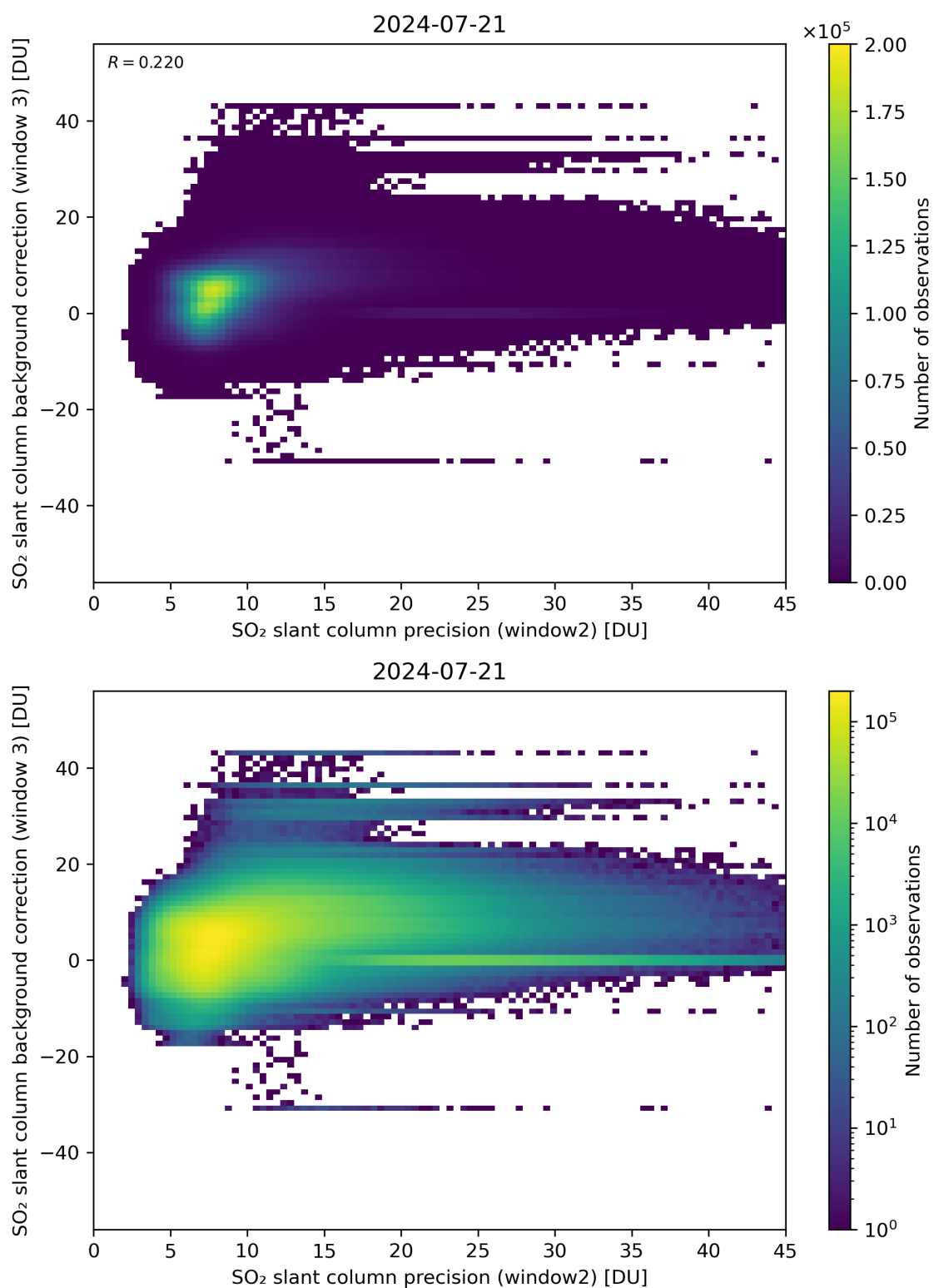


Figure 242: Scatter density plot of “SO₂ slant column precision (window2)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

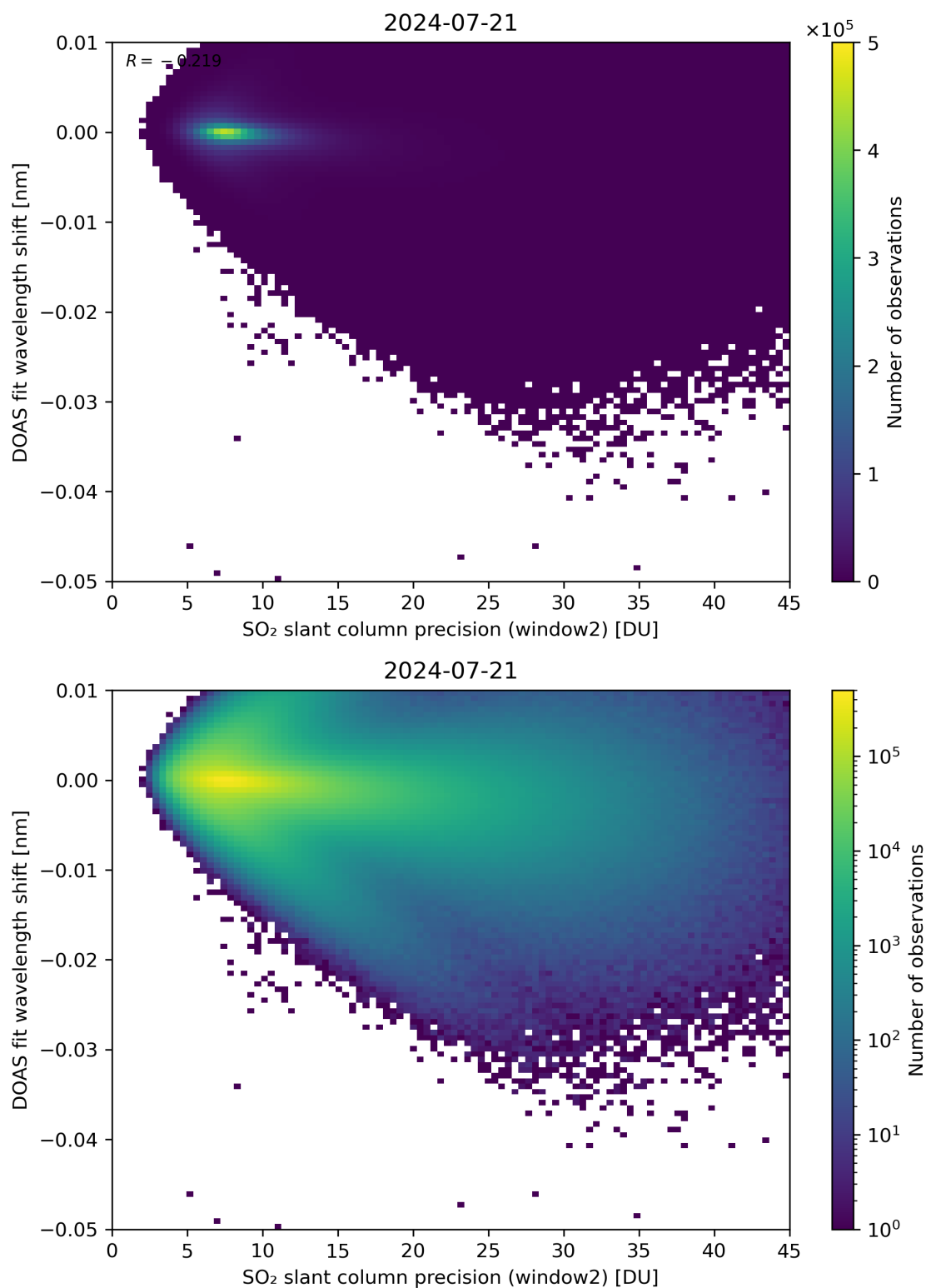


Figure 243: Scatter density plot of “SO₂ slant column precision (window2)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

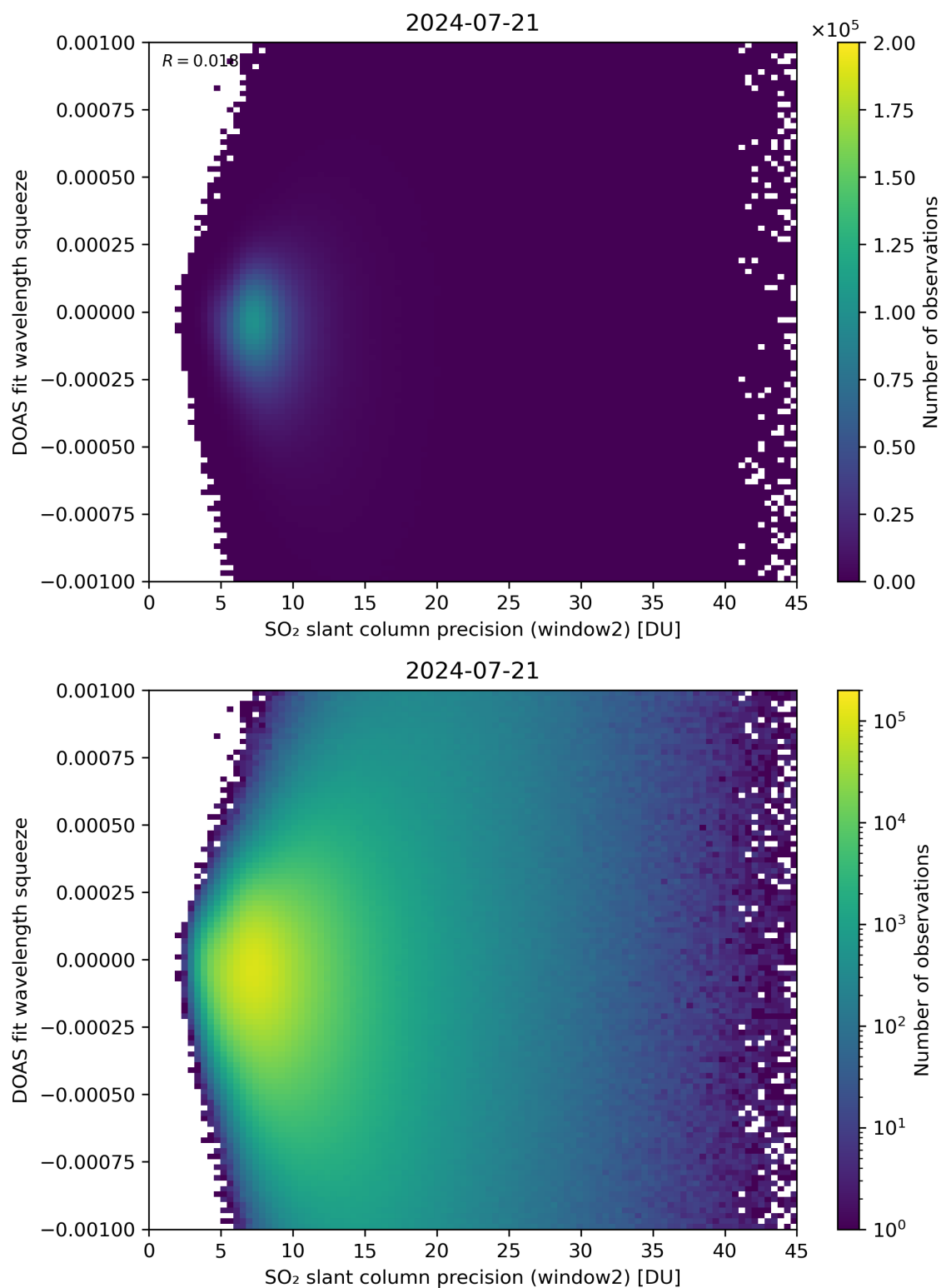


Figure 244: Scatter density plot of “SO₂ slant column precision (window2)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

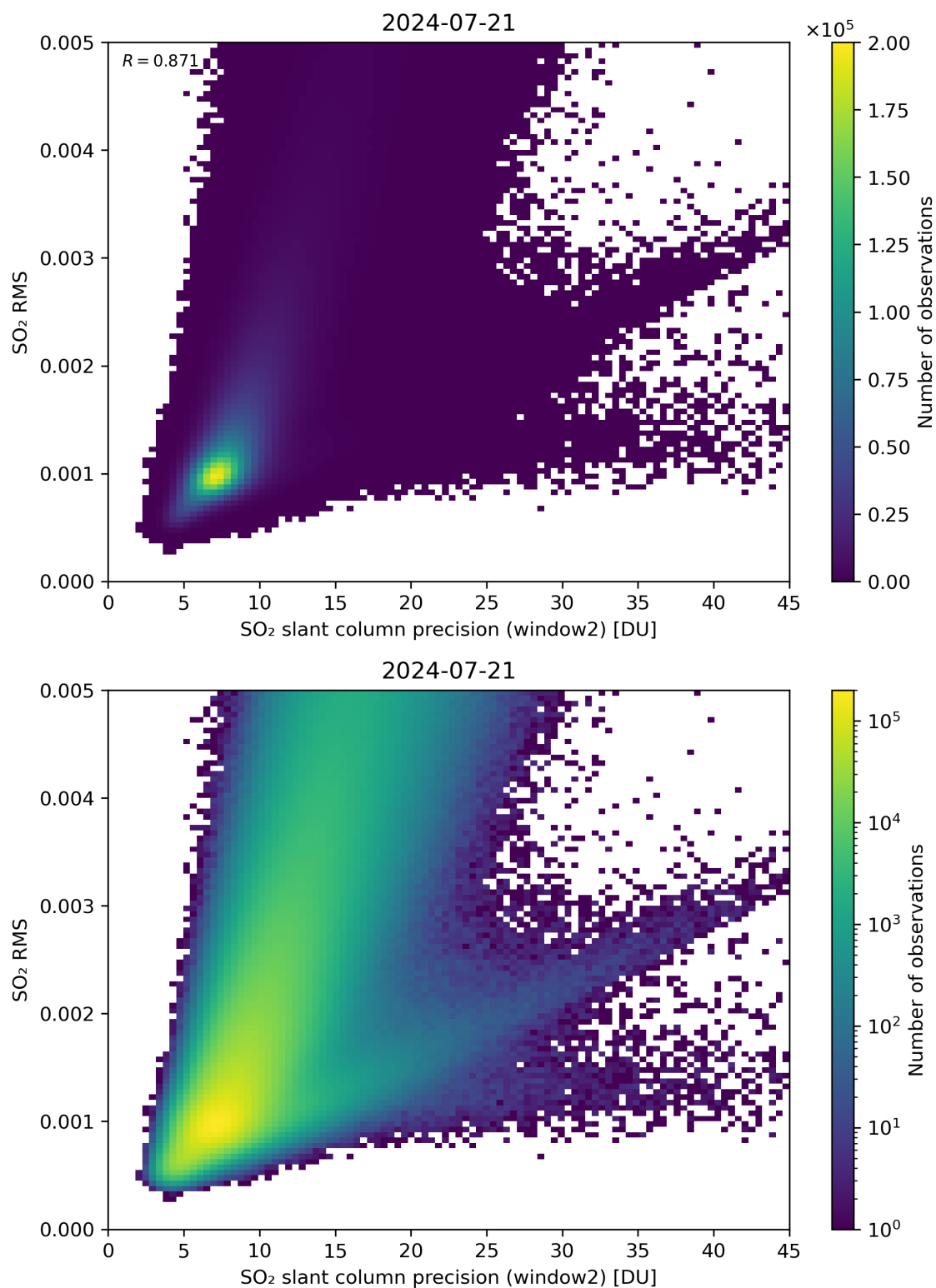


Figure 245: Scatter density plot of “SO₂ slant column precision (window2)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

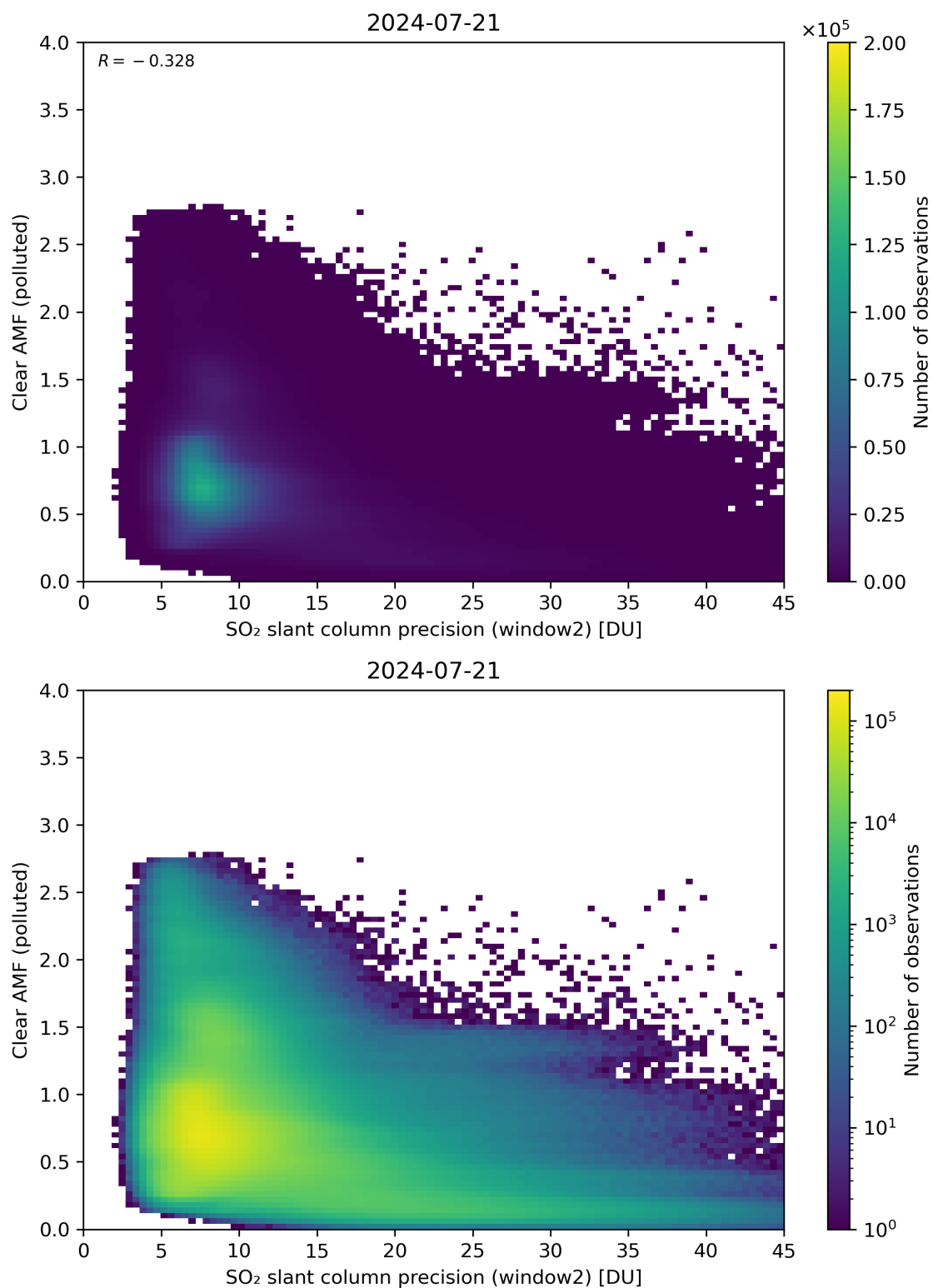


Figure 246: Scatter density plot of “SO₂ slant column precision (window2)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

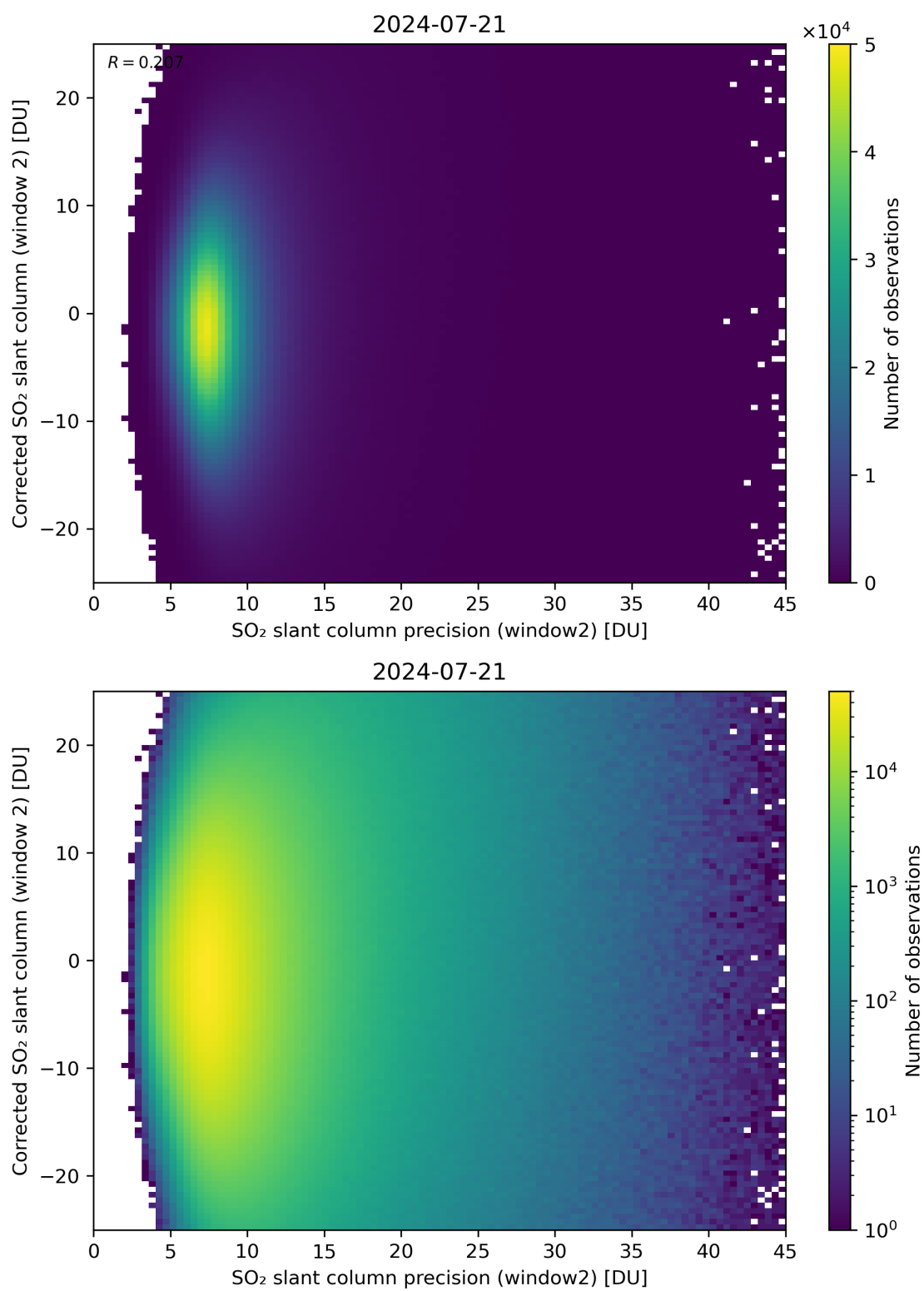


Figure 247: Scatter density plot of “SO₂ slant column precision (window2)” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

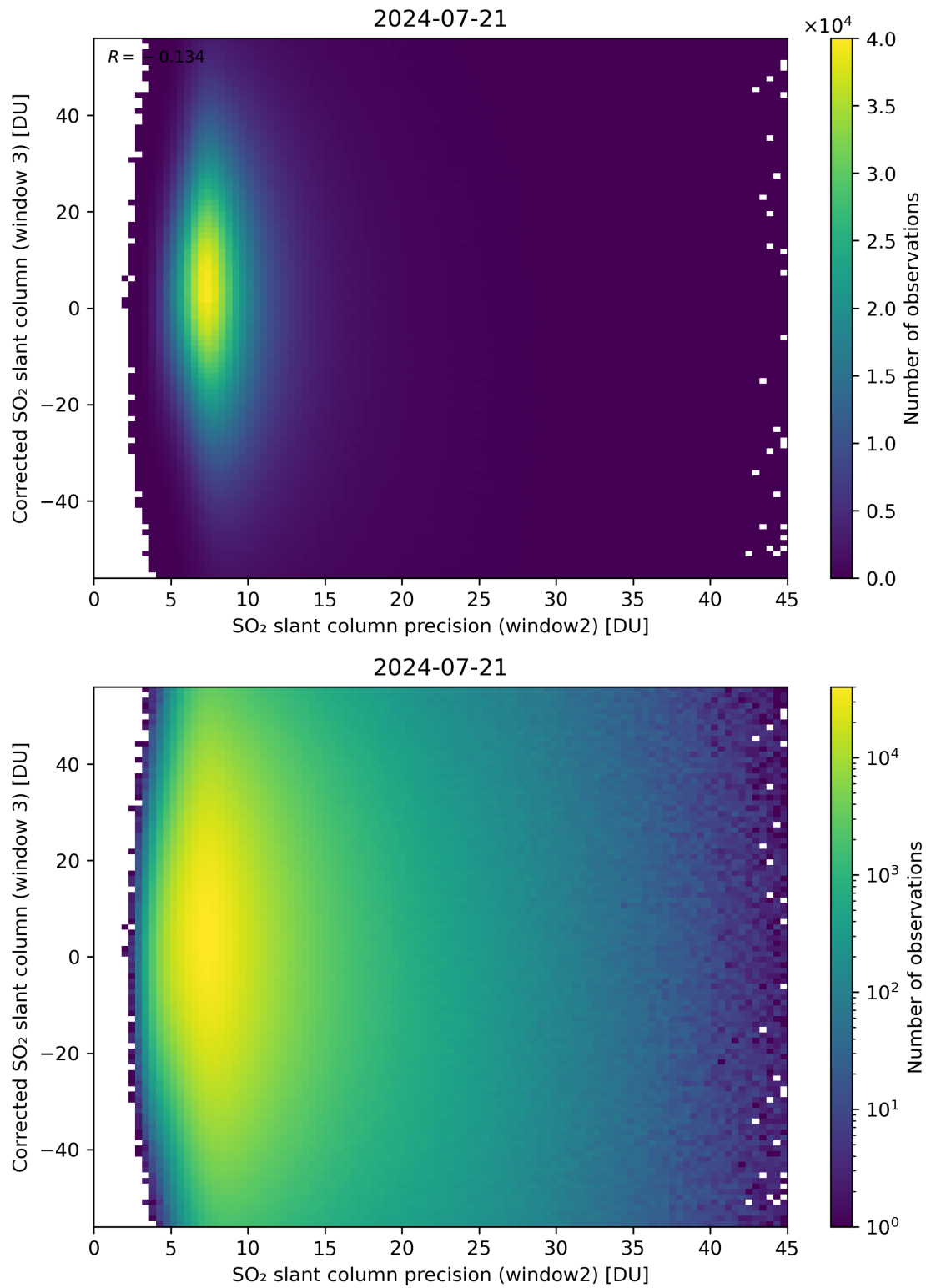


Figure 248: Scatter density plot of “SO₂ slant column precision (window2)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

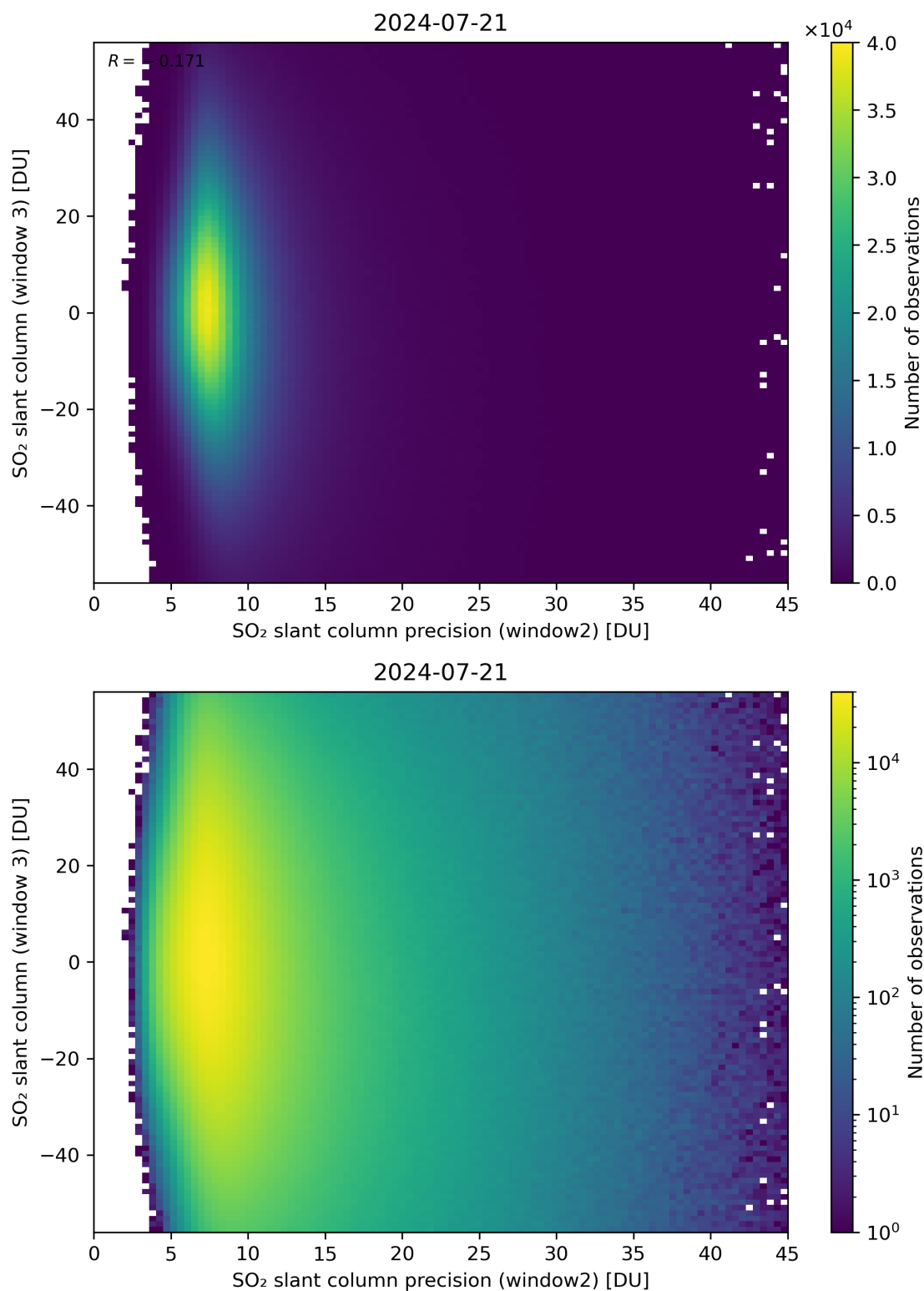


Figure 249: Scatter density plot of “SO₂ slant column precision (window2)” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

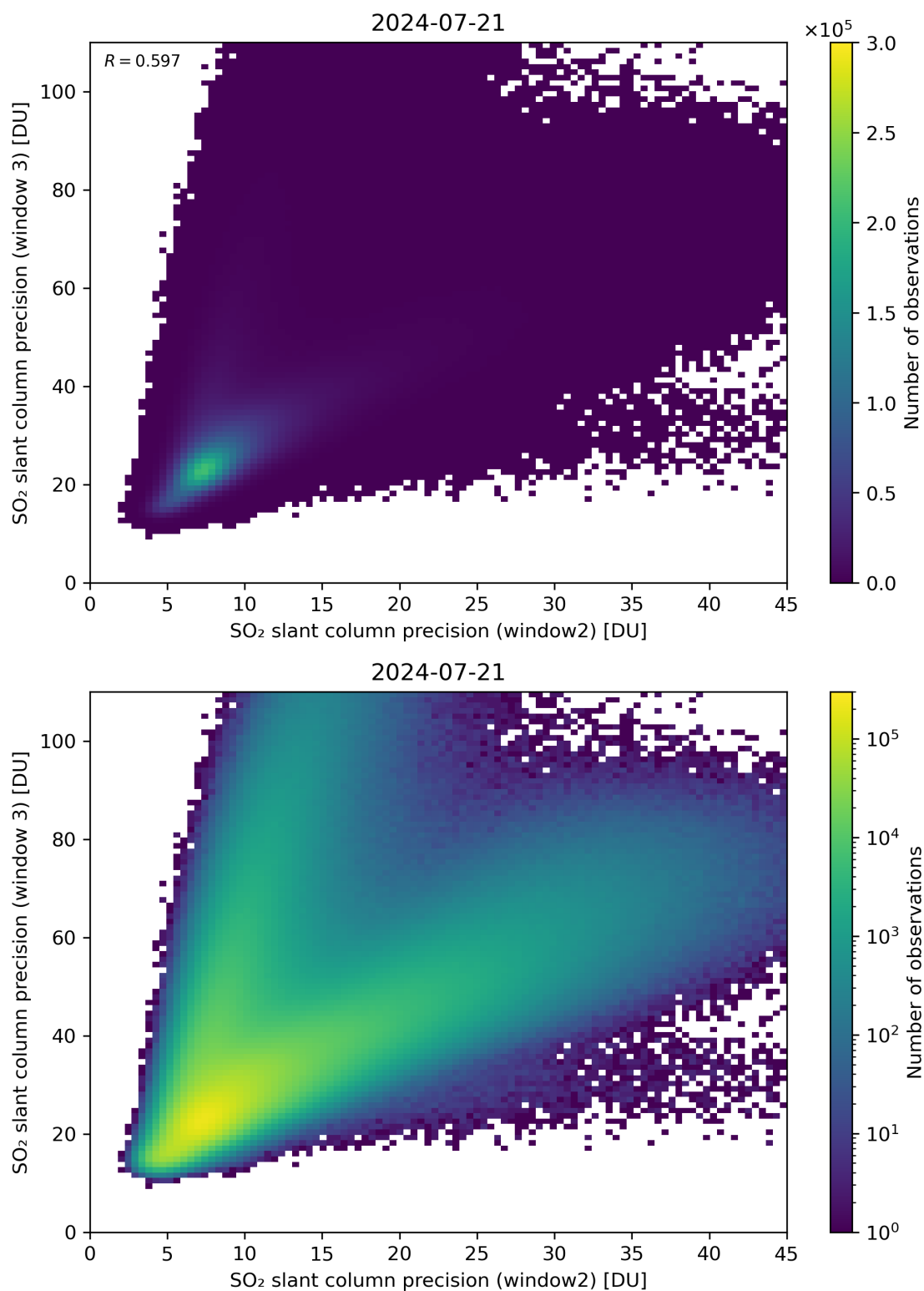


Figure 250: Scatter density plot of “SO₂ slant column precision (window2)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

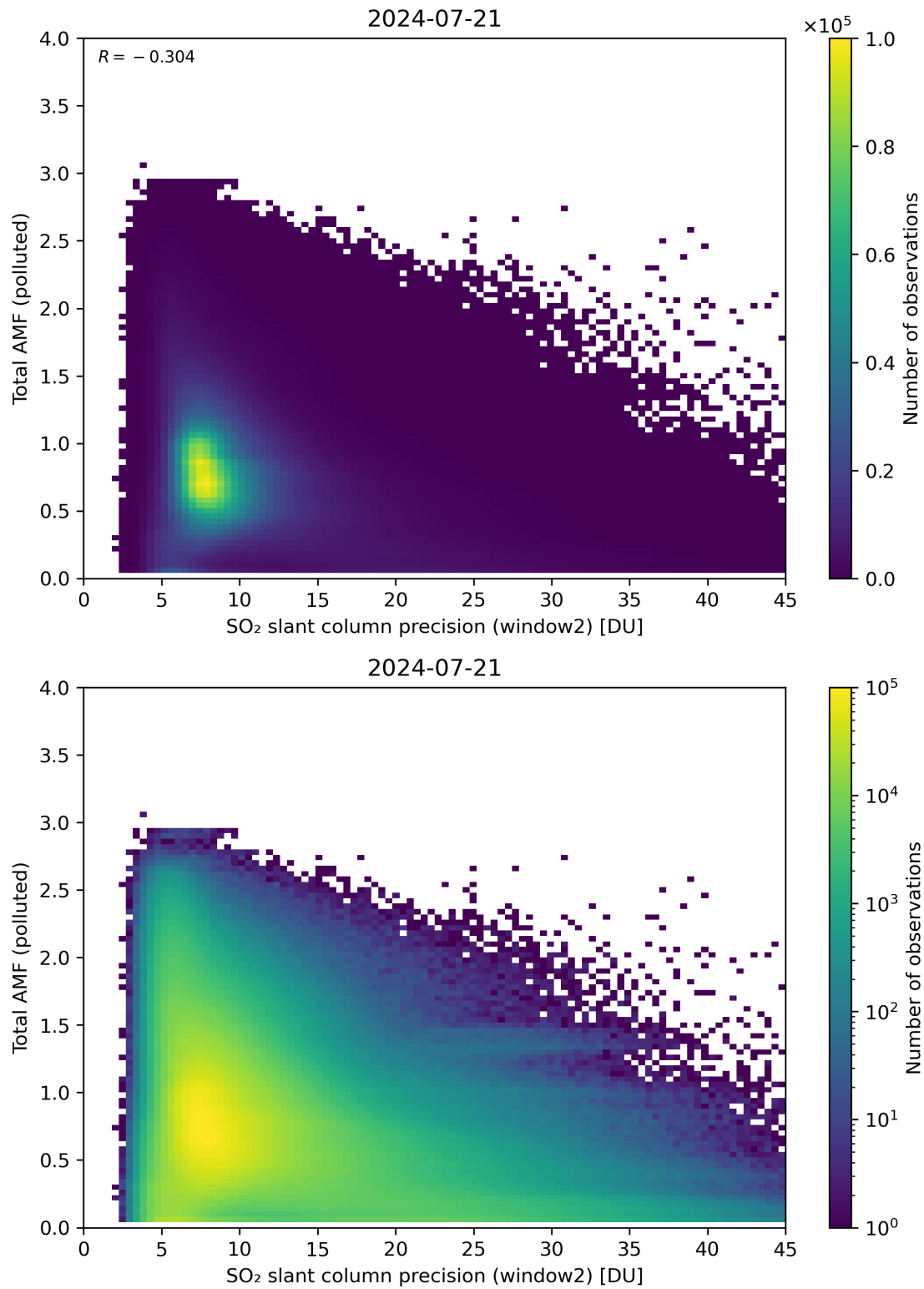


Figure 251: Scatter density plot of “SO₂ slant column precision (window2)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

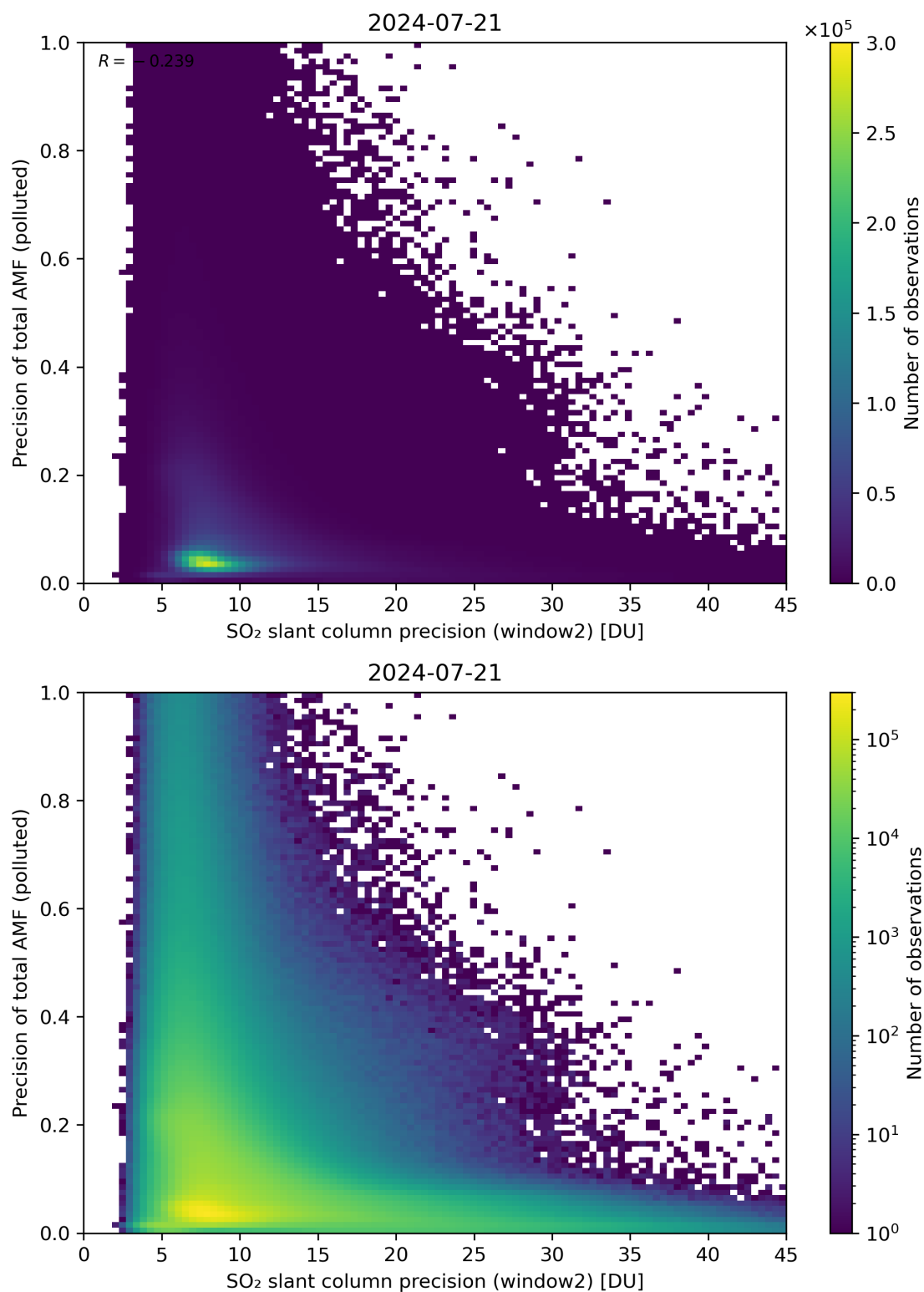


Figure 252: Scatter density plot of “SO₂ slant column precision (window2)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

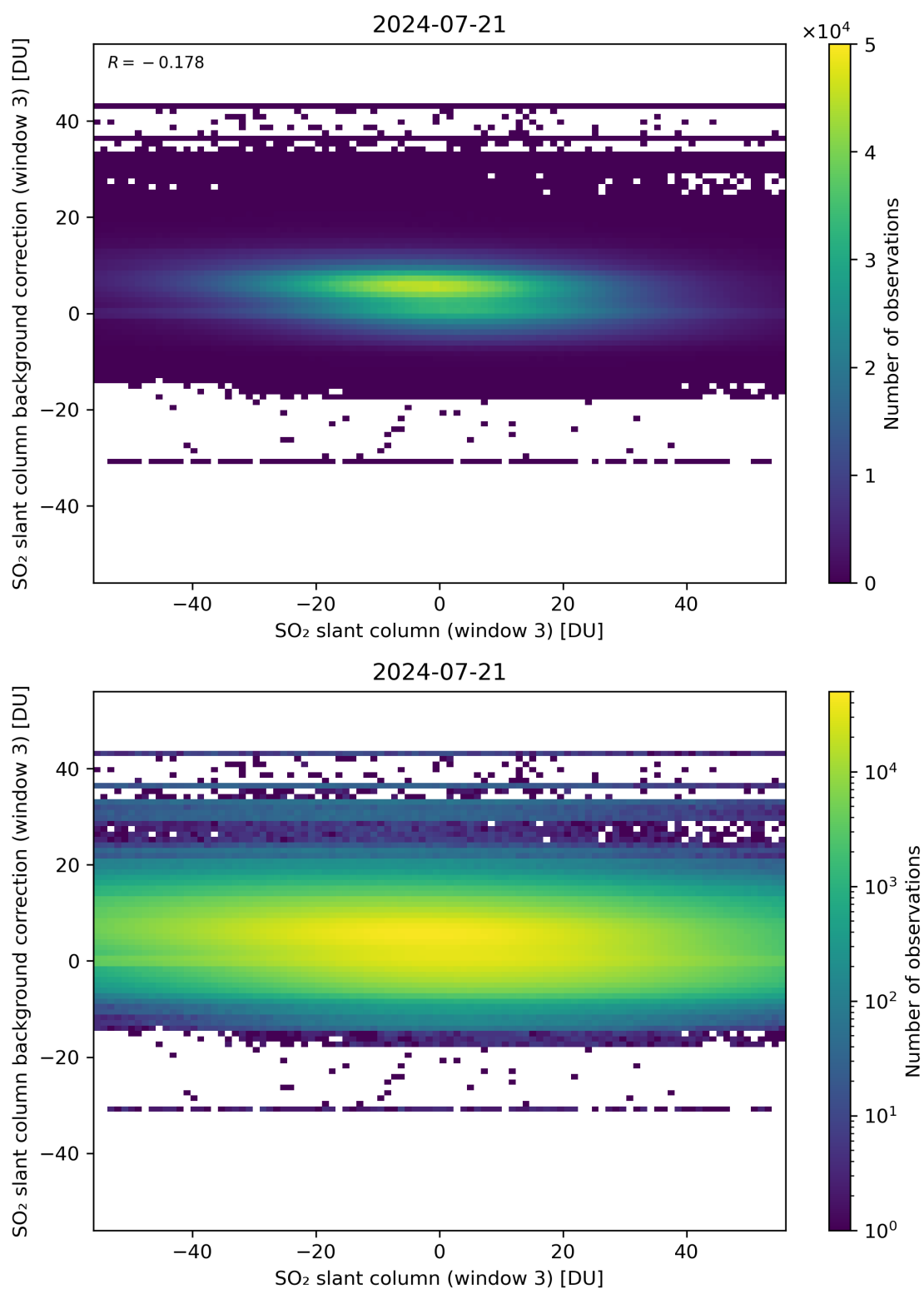


Figure 253: Scatter density plot of “SO₂ slant column (window 3)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

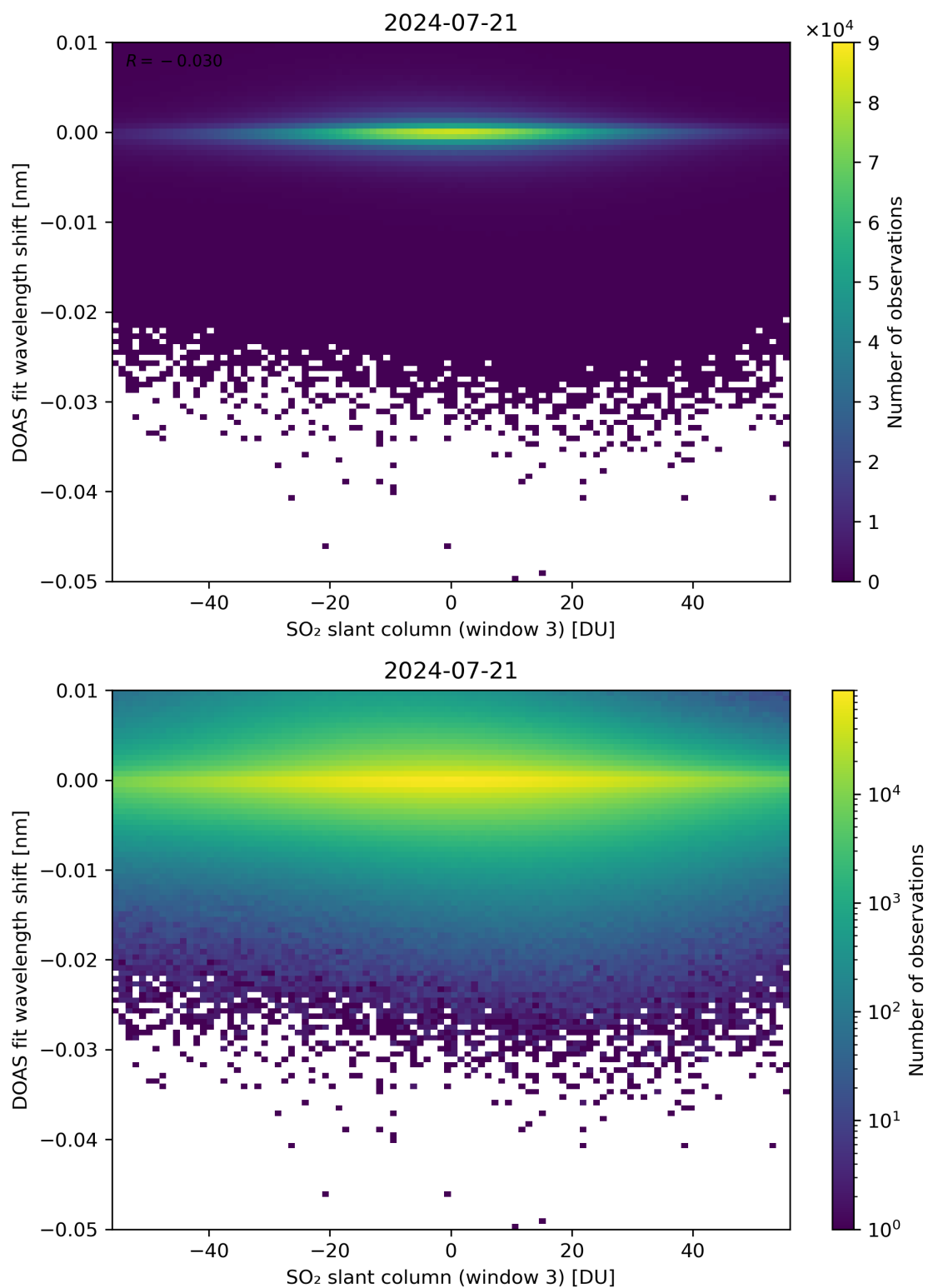


Figure 254: Scatter density plot of “SO₂ slant column (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

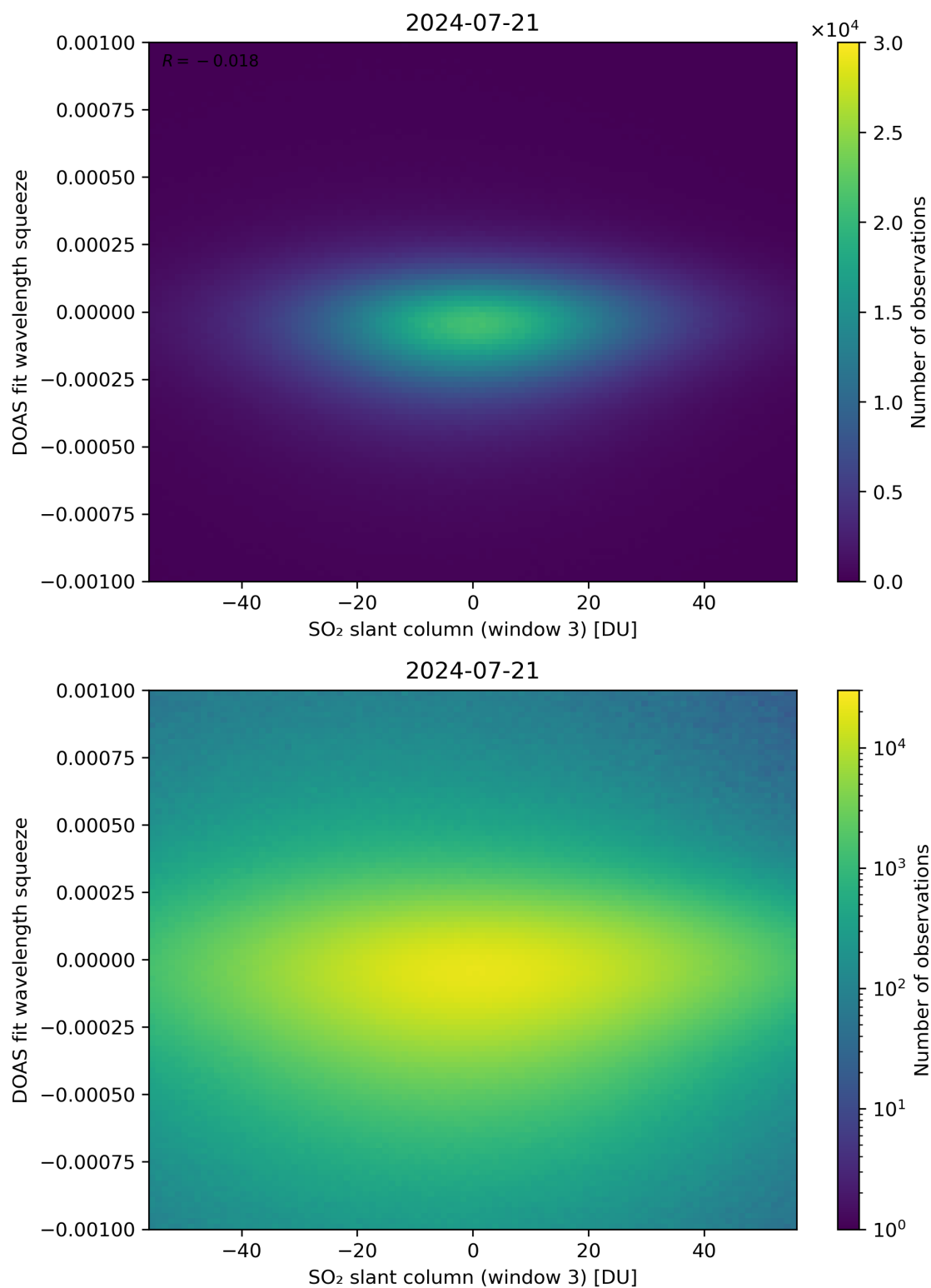


Figure 255: Scatter density plot of “SO₂ slant column (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

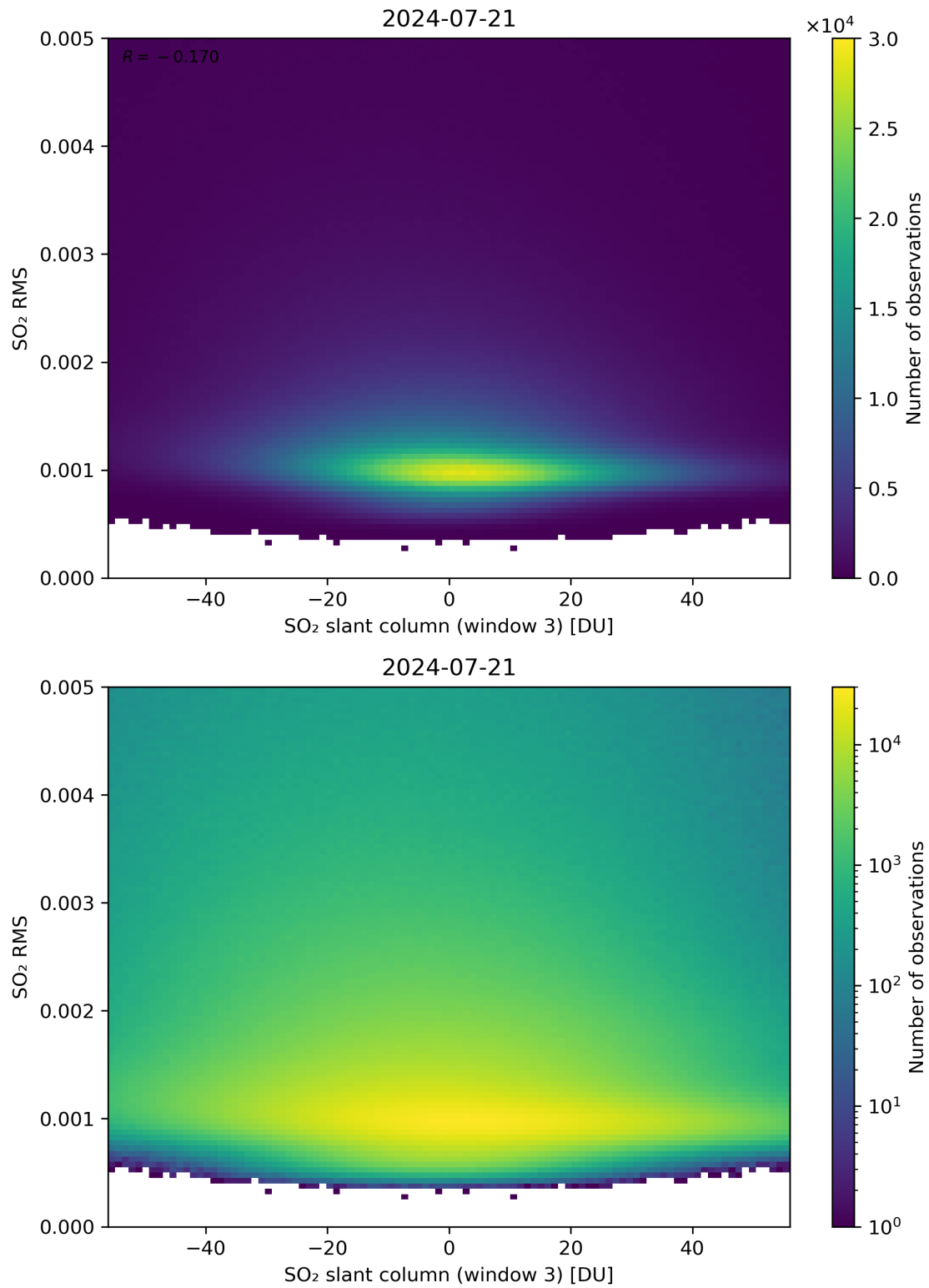


Figure 256: Scatter density plot of “SO₂ slant column (window 3)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

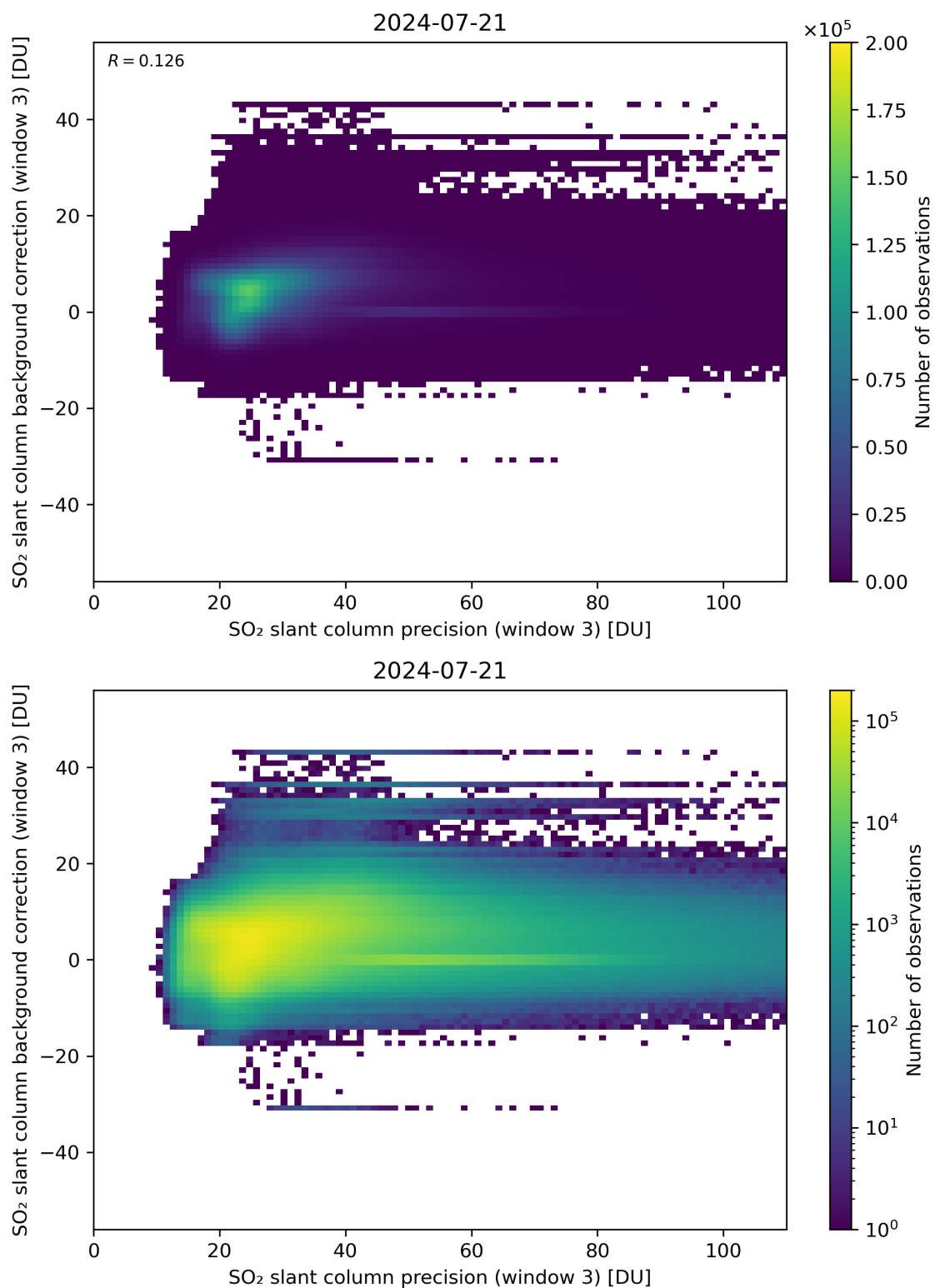


Figure 257: Scatter density plot of “SO₂ slant column precision (window 3)” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

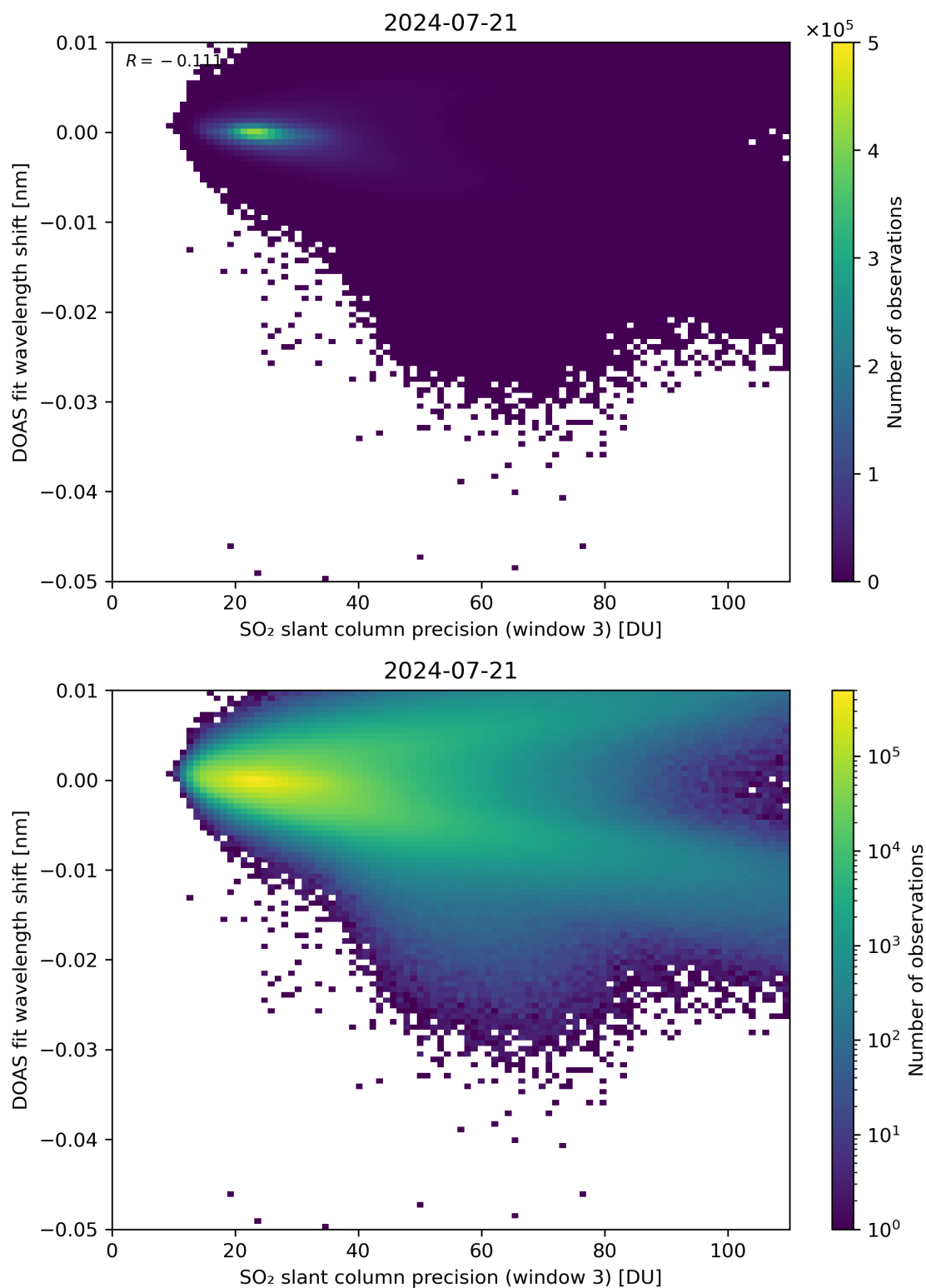


Figure 258: Scatter density plot of “SO₂ slant column precision (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

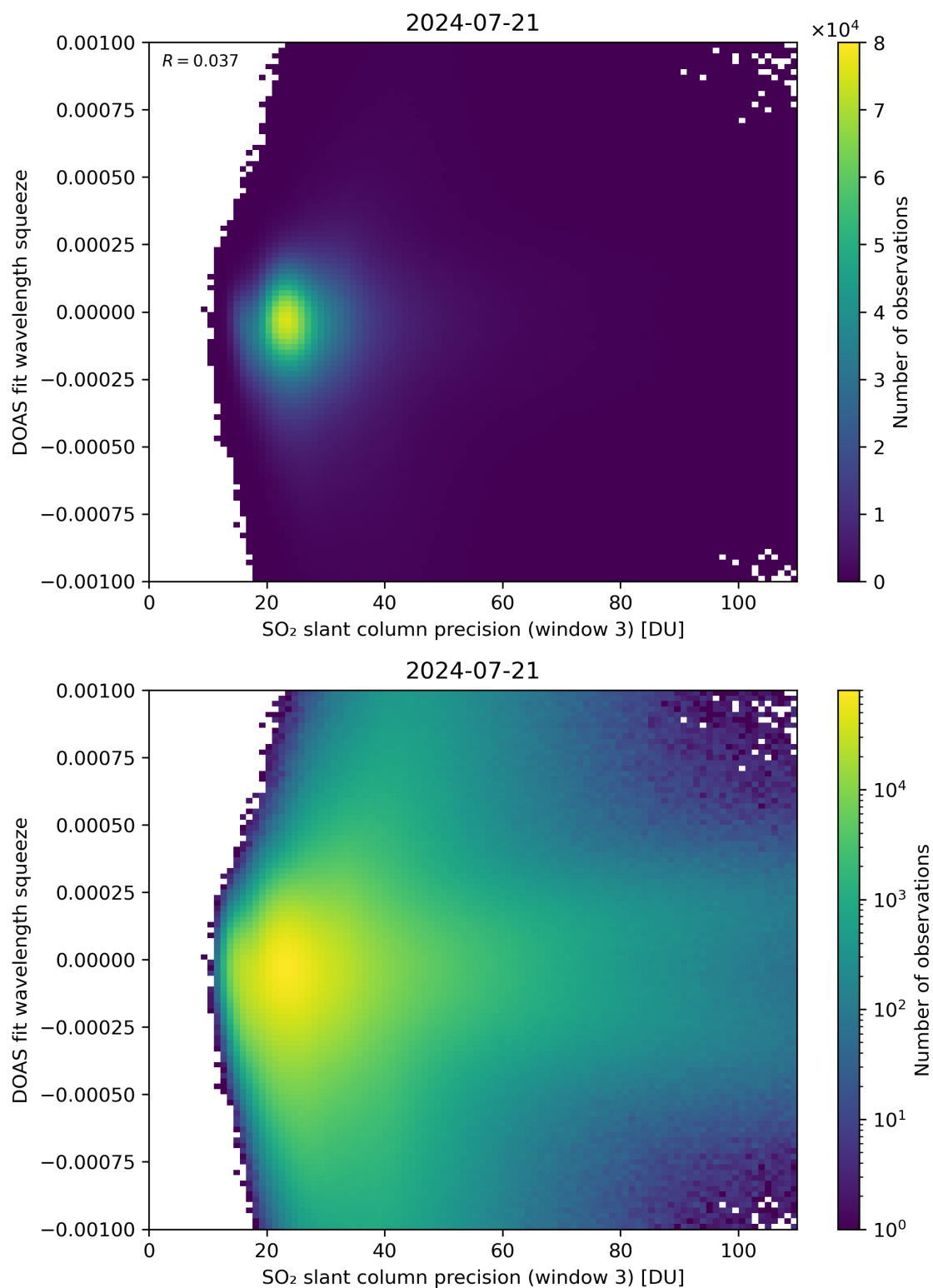


Figure 259: Scatter density plot of “SO₂ slant column precision (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

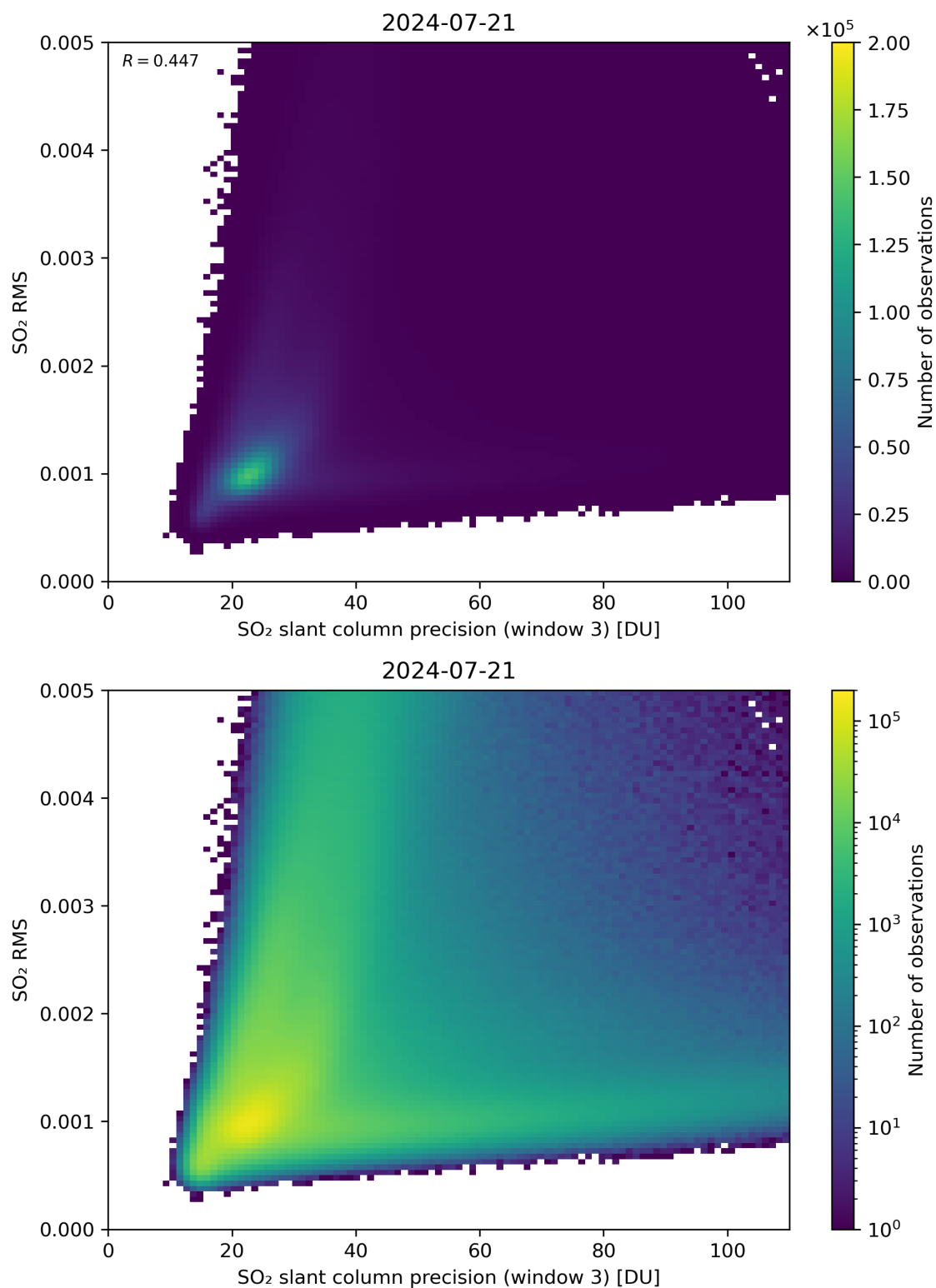


Figure 260: Scatter density plot of “SO₂ slant column precision (window 3)” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

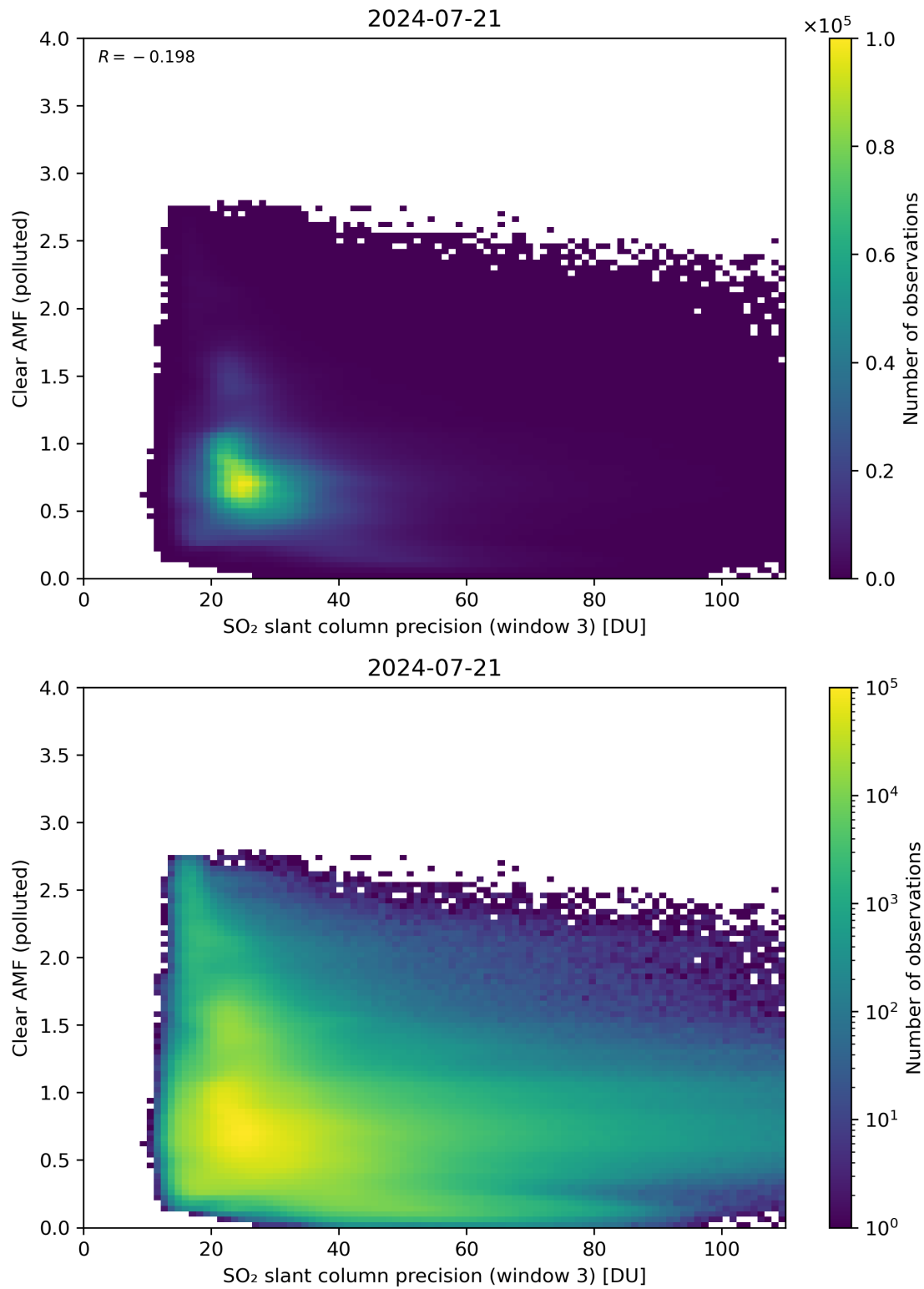


Figure 261: Scatter density plot of “SO₂ slant column precision (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

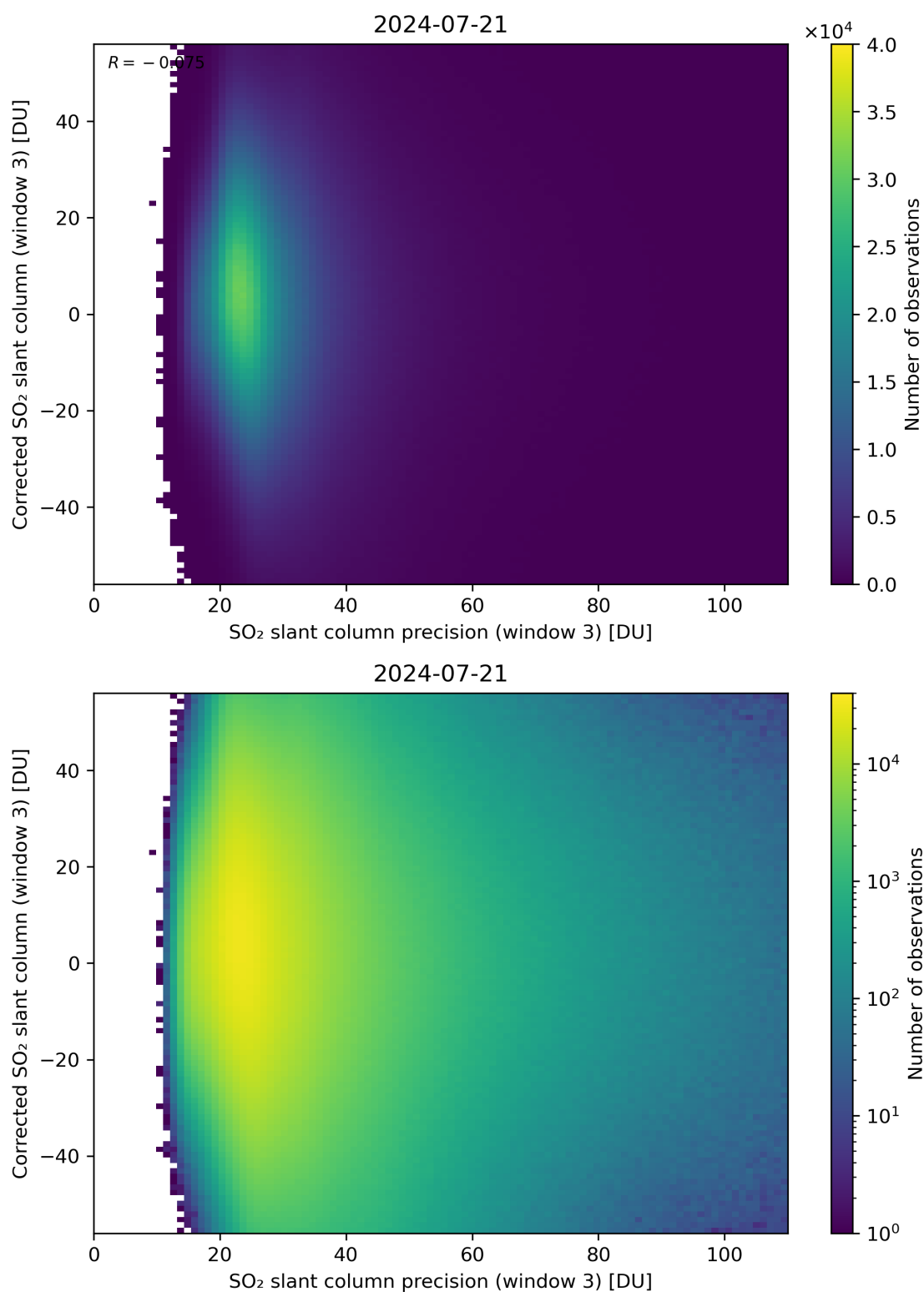


Figure 262: Scatter density plot of “SO₂ slant column precision (window 3)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

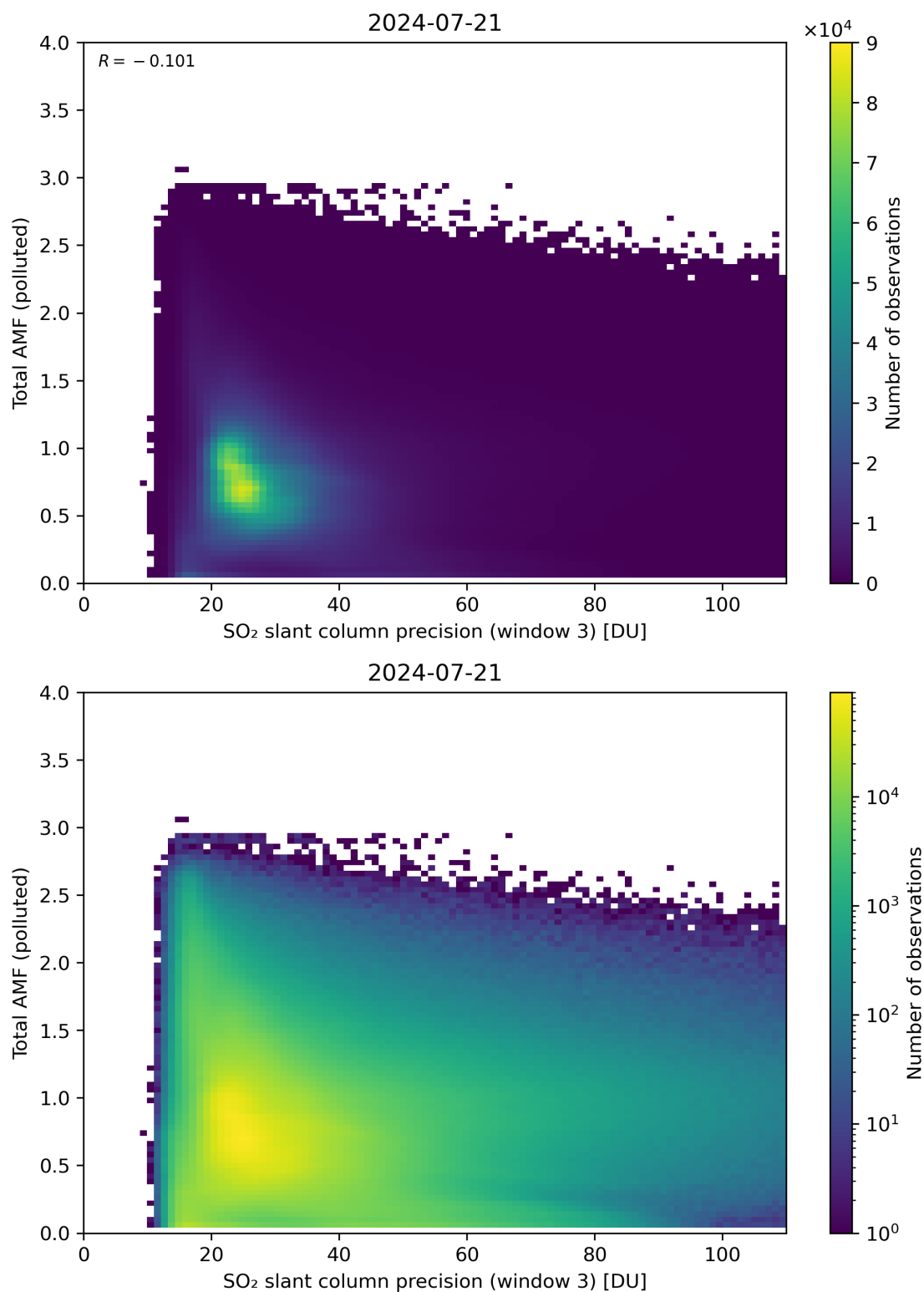


Figure 263: Scatter density plot of “SO₂ slant column precision (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

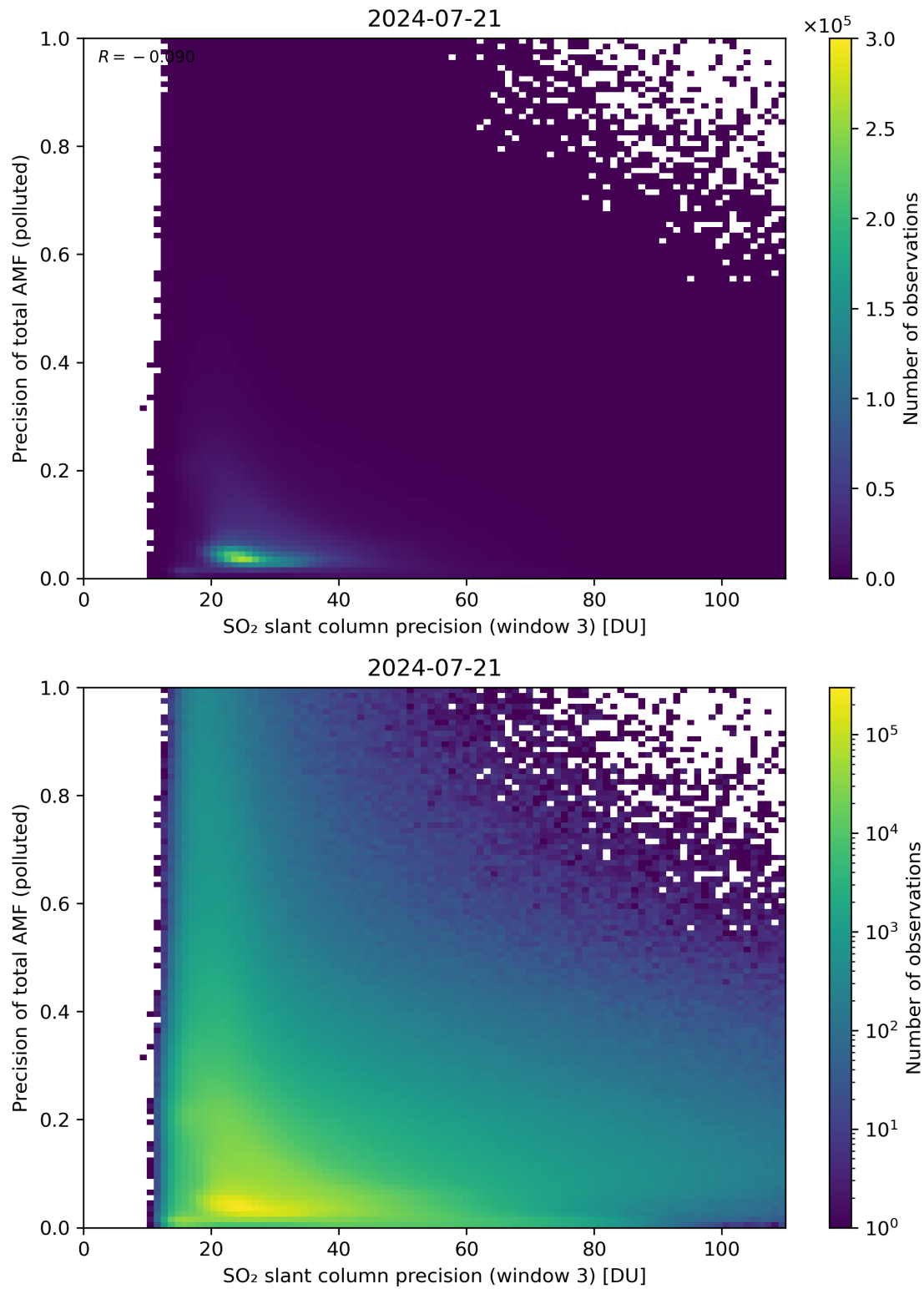


Figure 264: Scatter density plot of “SO₂ slant column precision (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

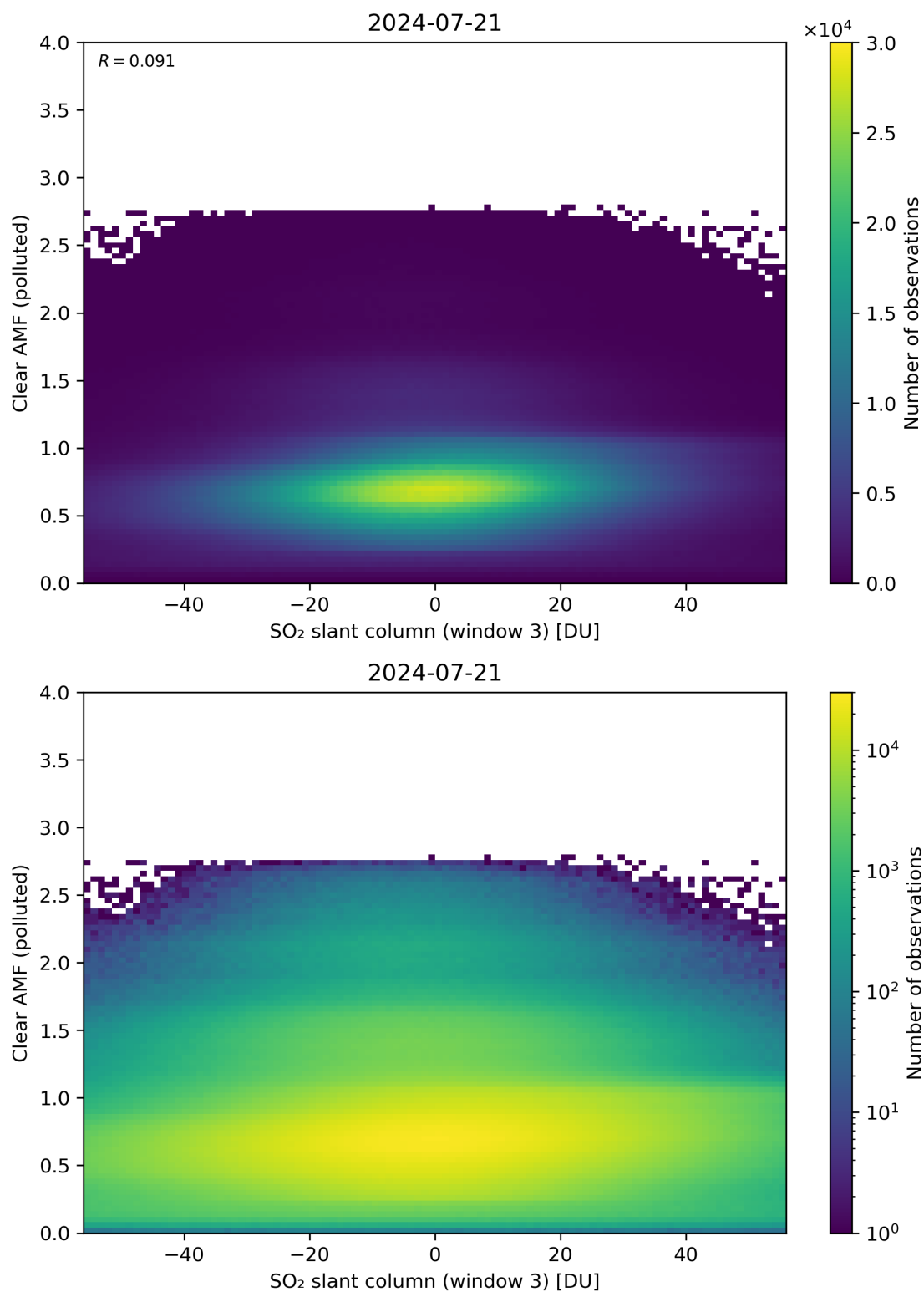


Figure 265: Scatter density plot of “SO₂ slant column (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

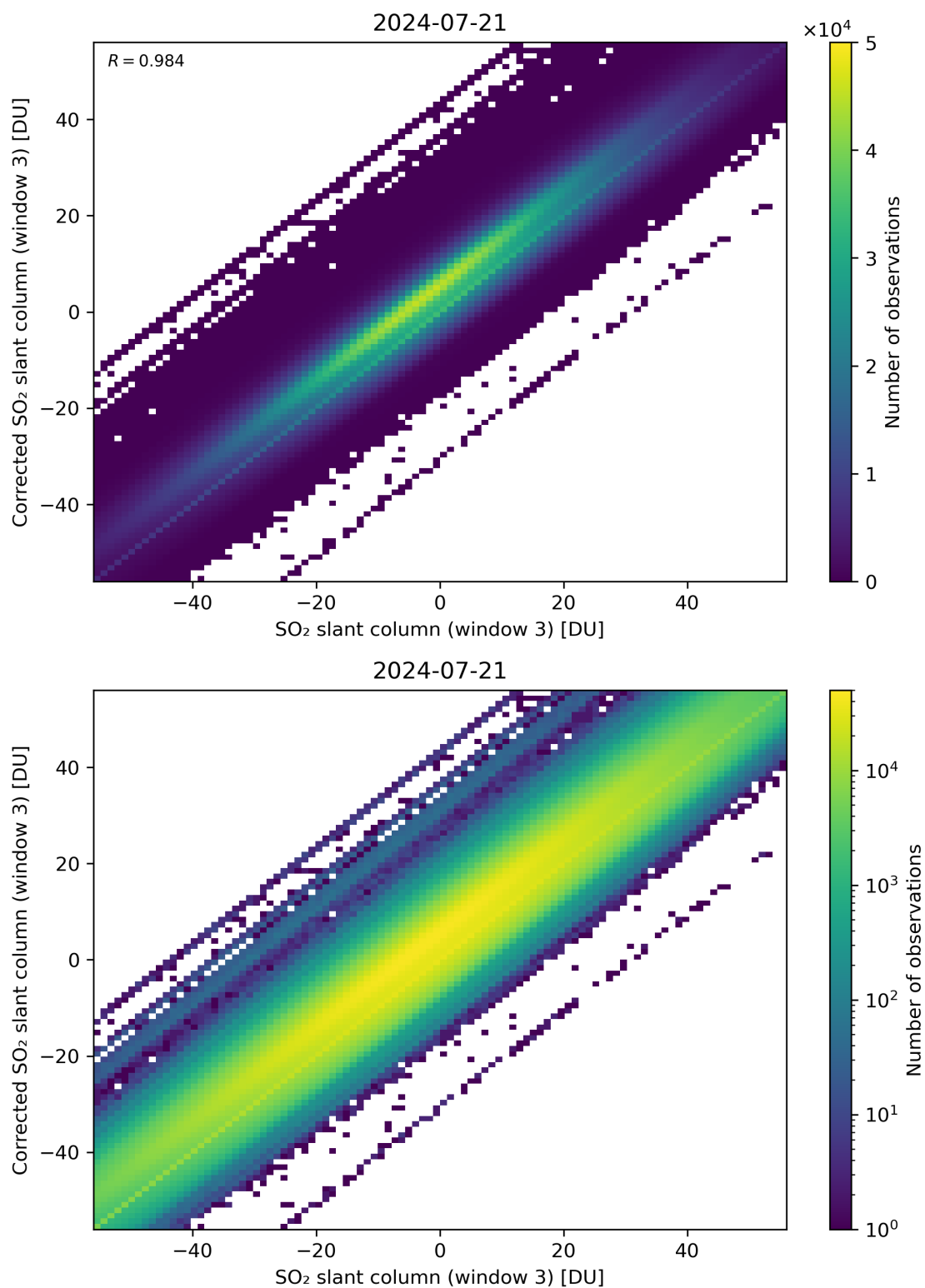


Figure 266: Scatter density plot of “SO₂ slant column (window 3)” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

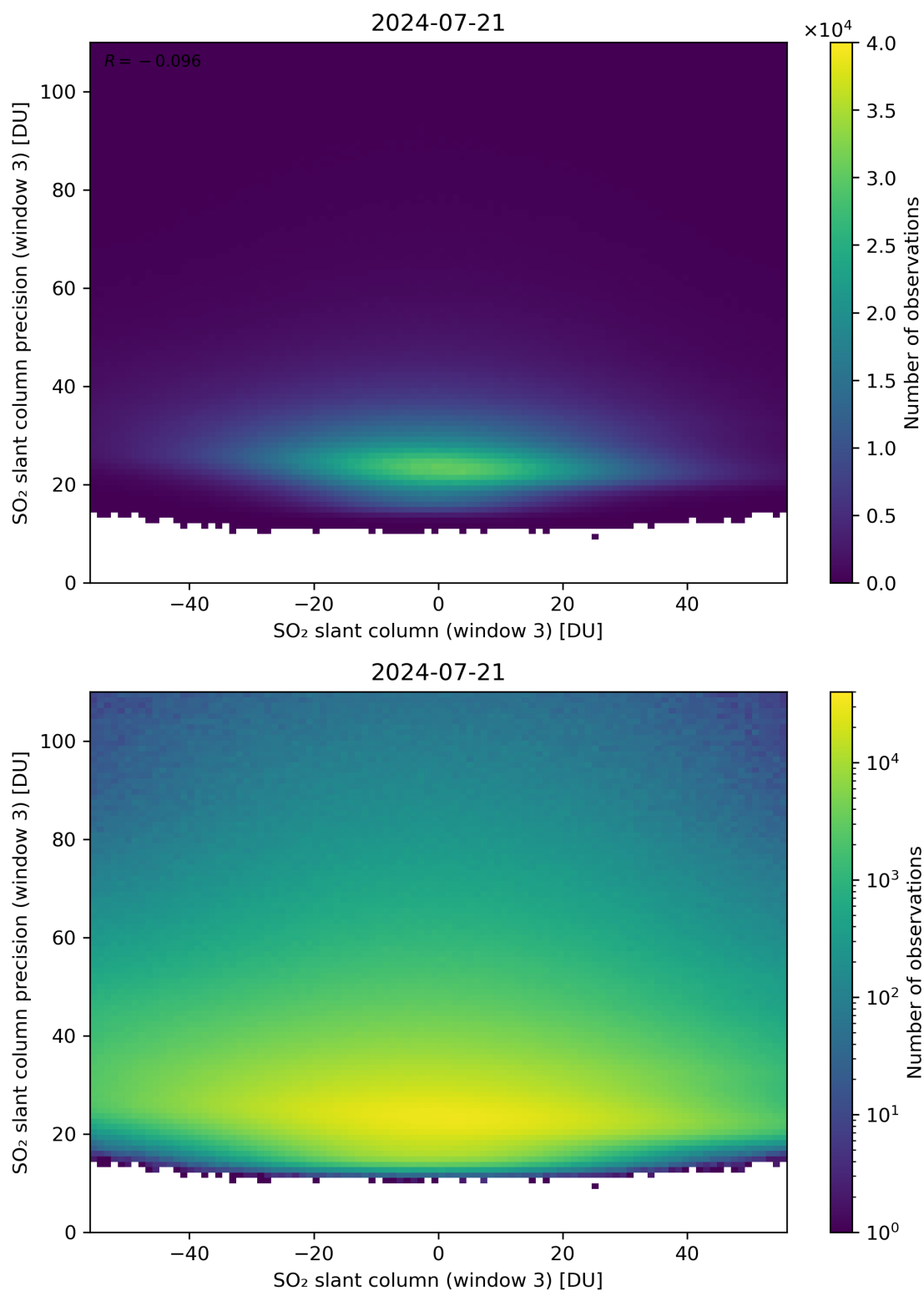


Figure 267: Scatter density plot of “SO₂ slant column (window 3)” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

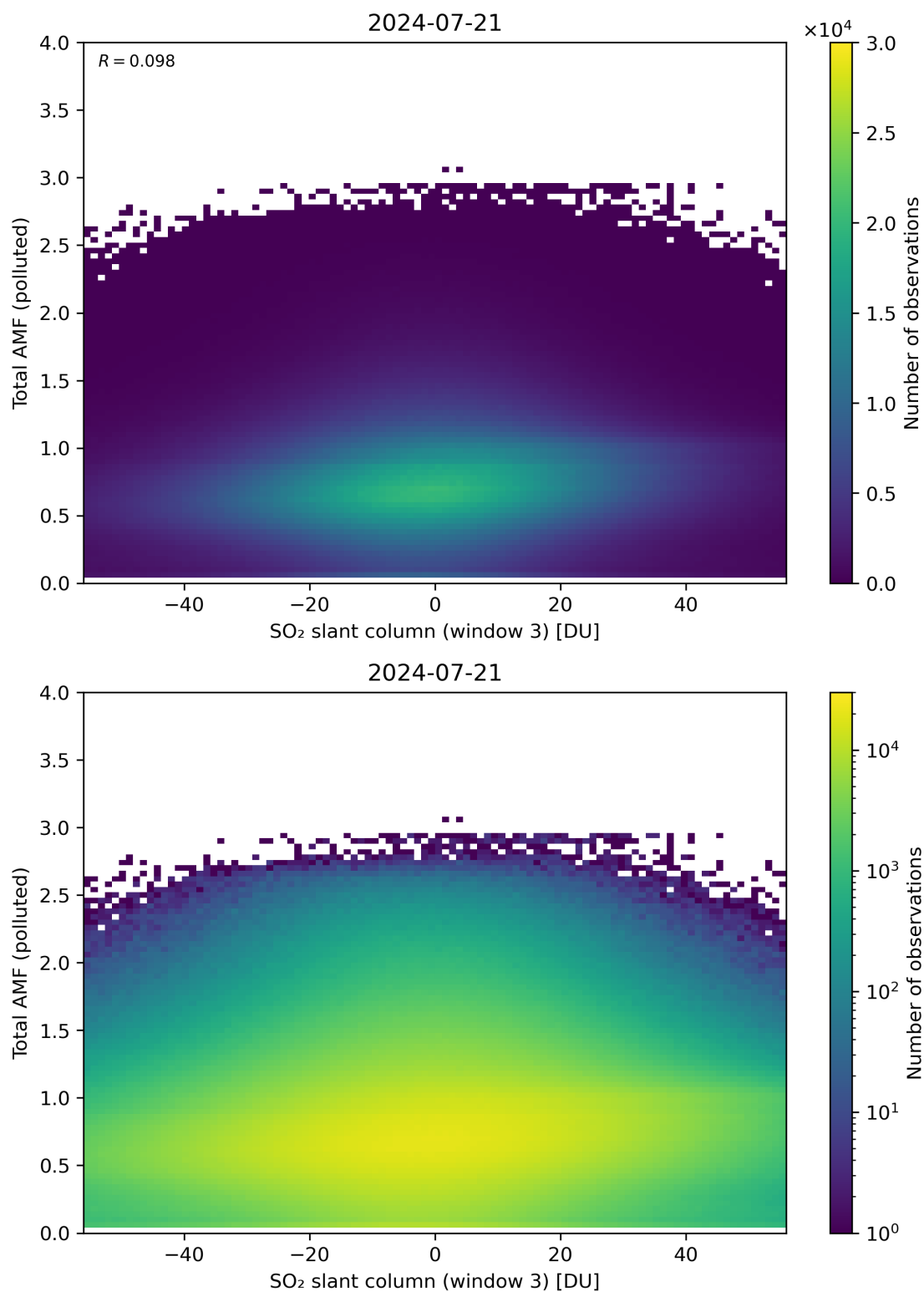


Figure 268: Scatter density plot of “SO₂ slant column (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

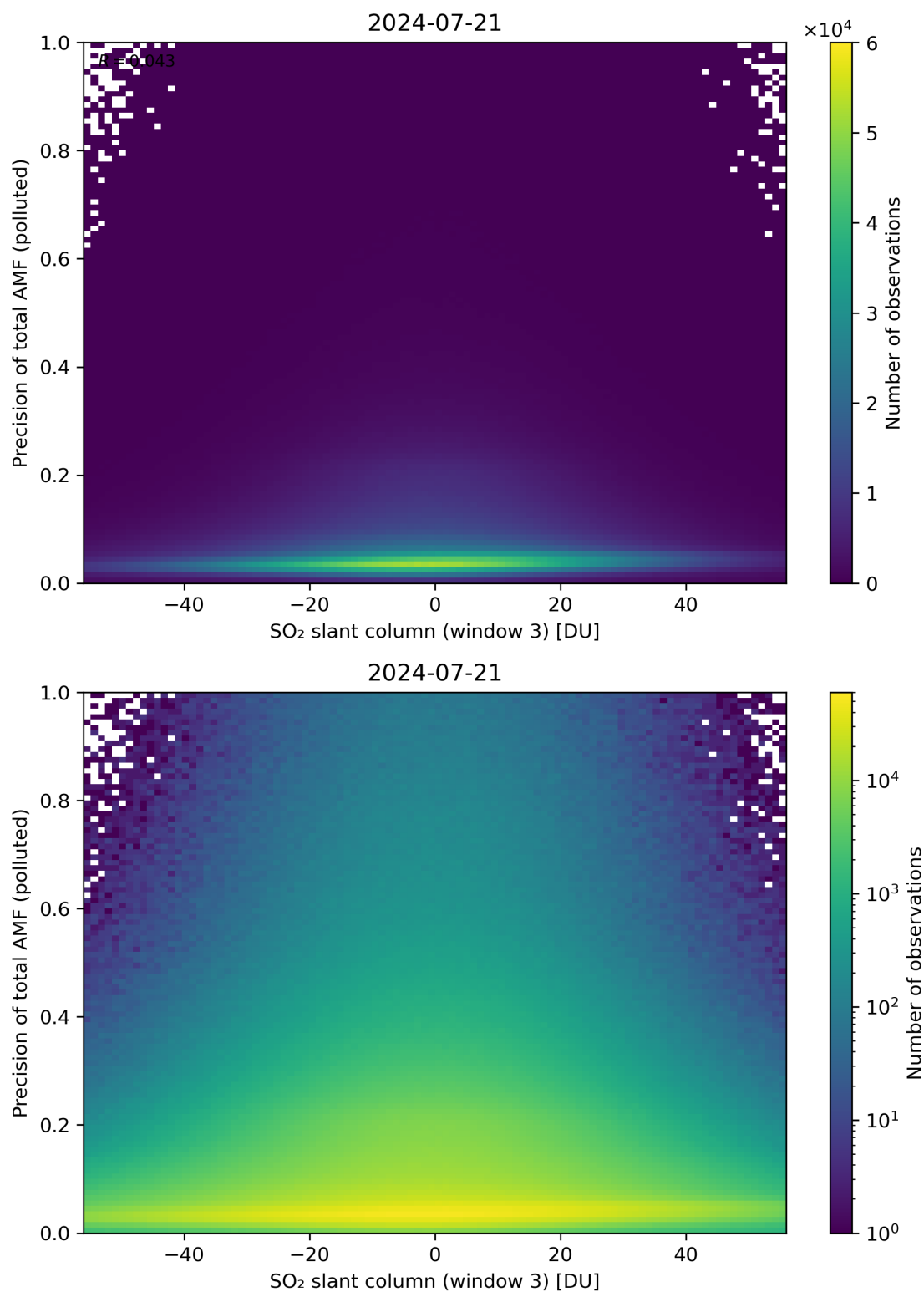


Figure 269: Scatter density plot of “SO₂ slant column (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

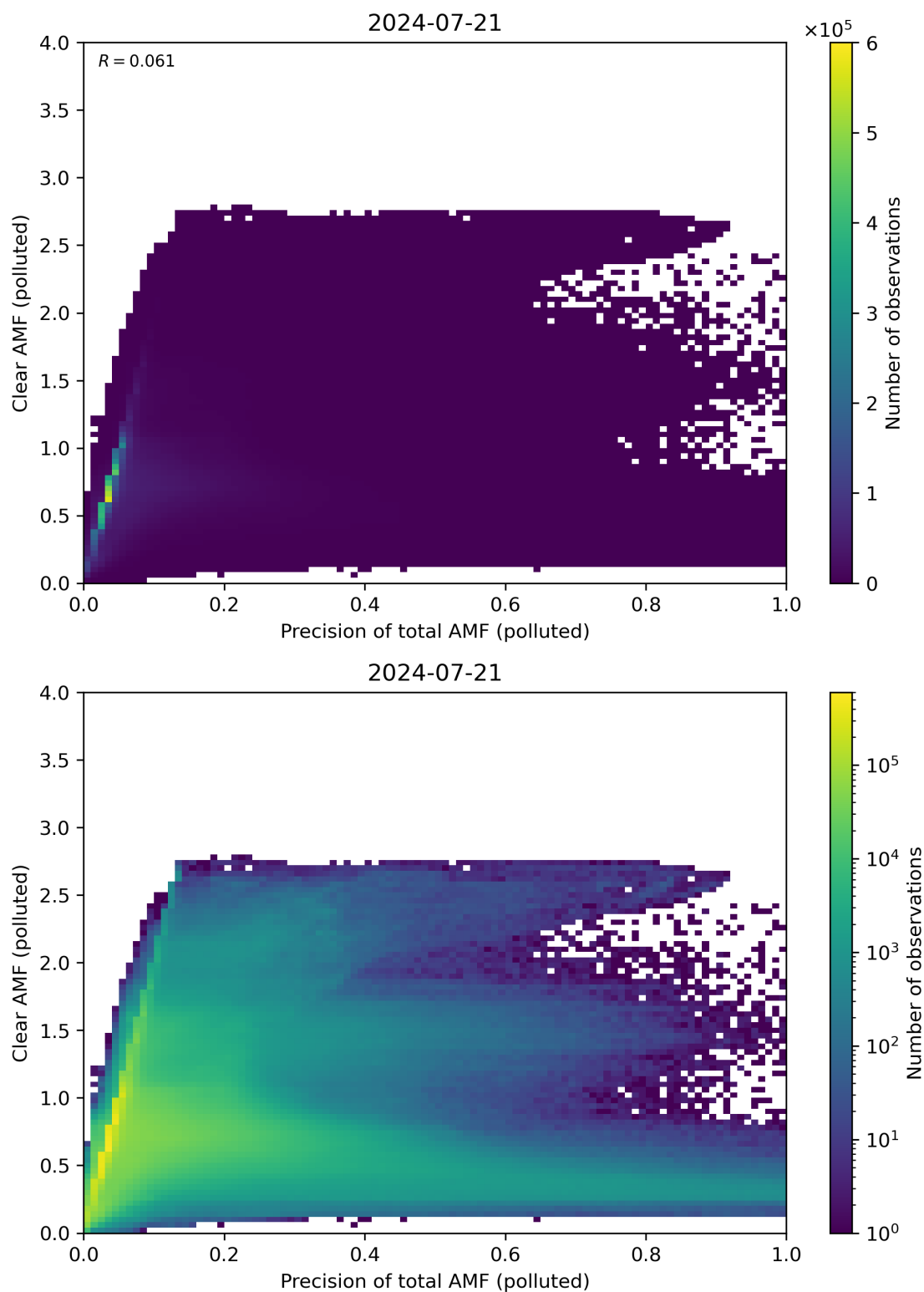


Figure 270: Scatter density plot of “Precision of total AMF (polluted)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

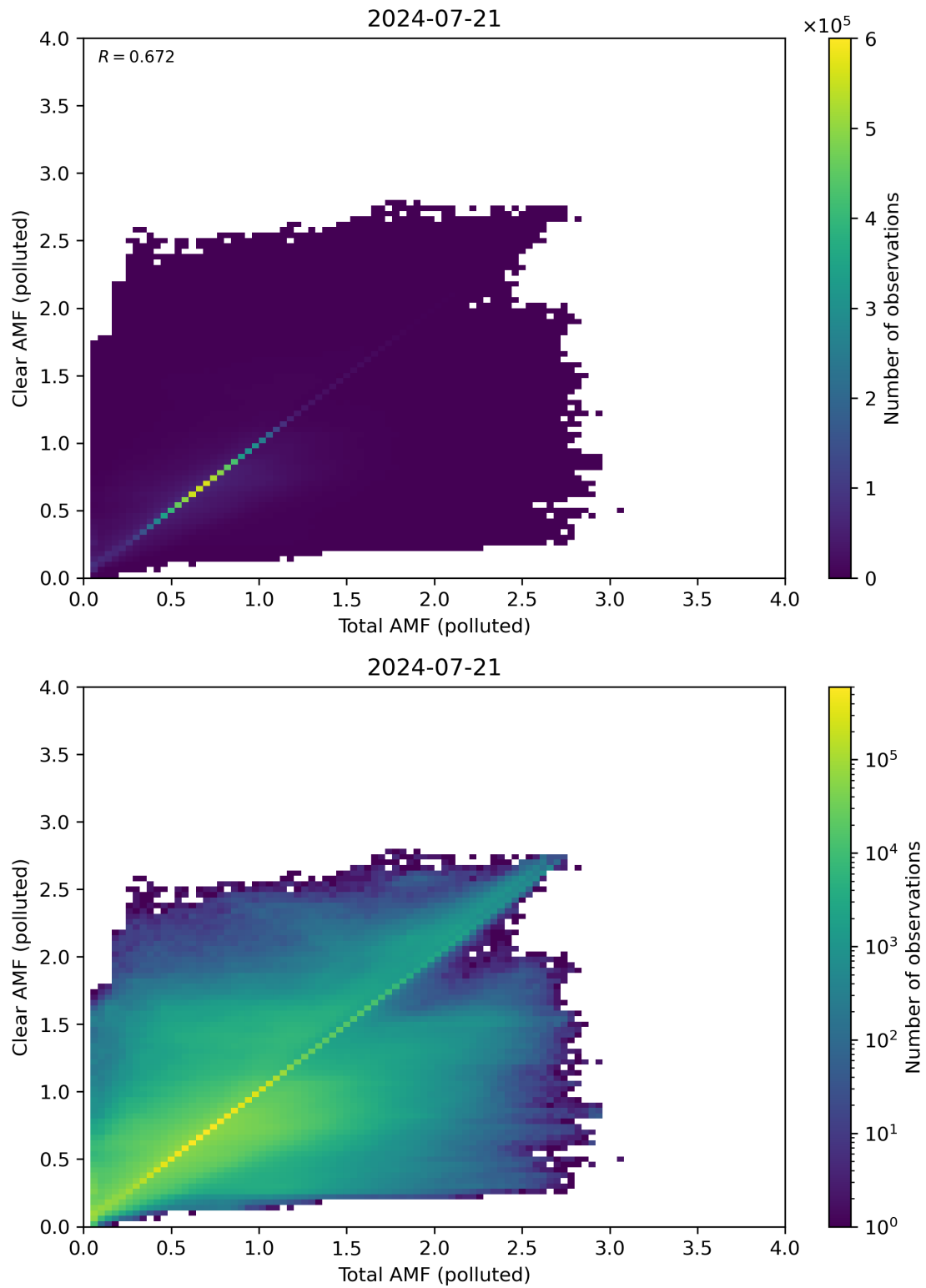


Figure 271: Scatter density plot of “Total AMF (polluted)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

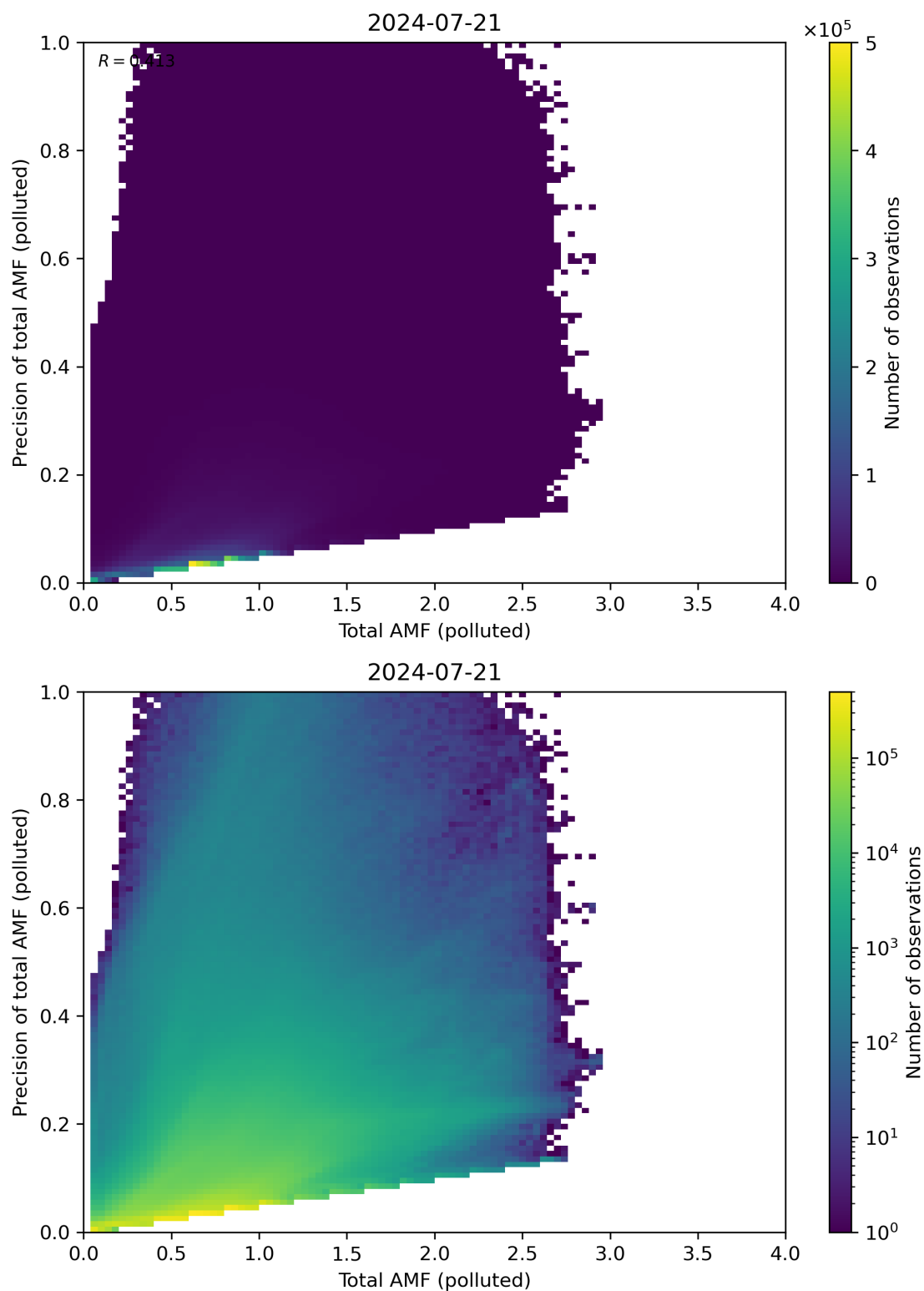


Figure 272: Scatter density plot of “Total AMF (polluted)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

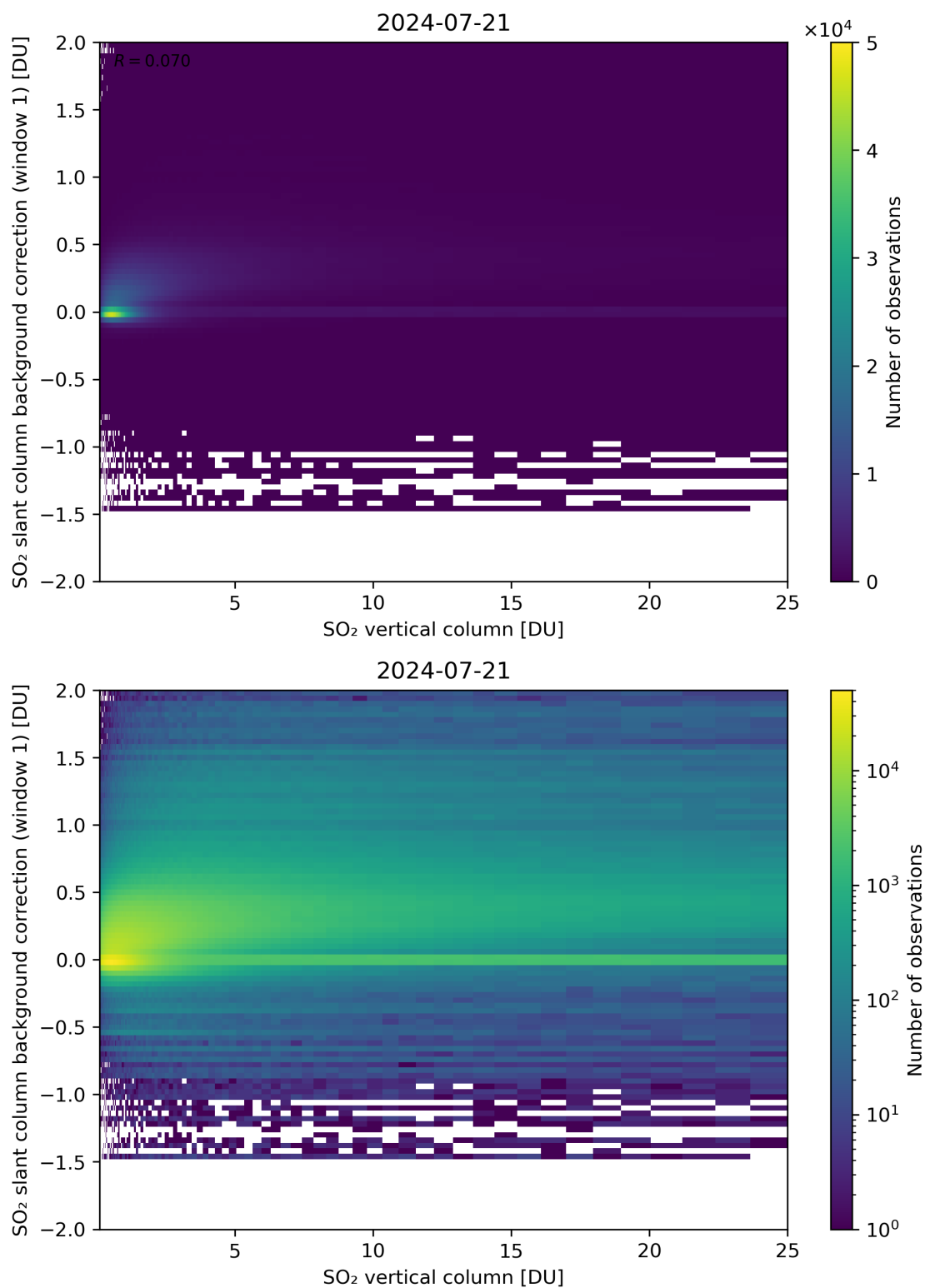


Figure 273: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

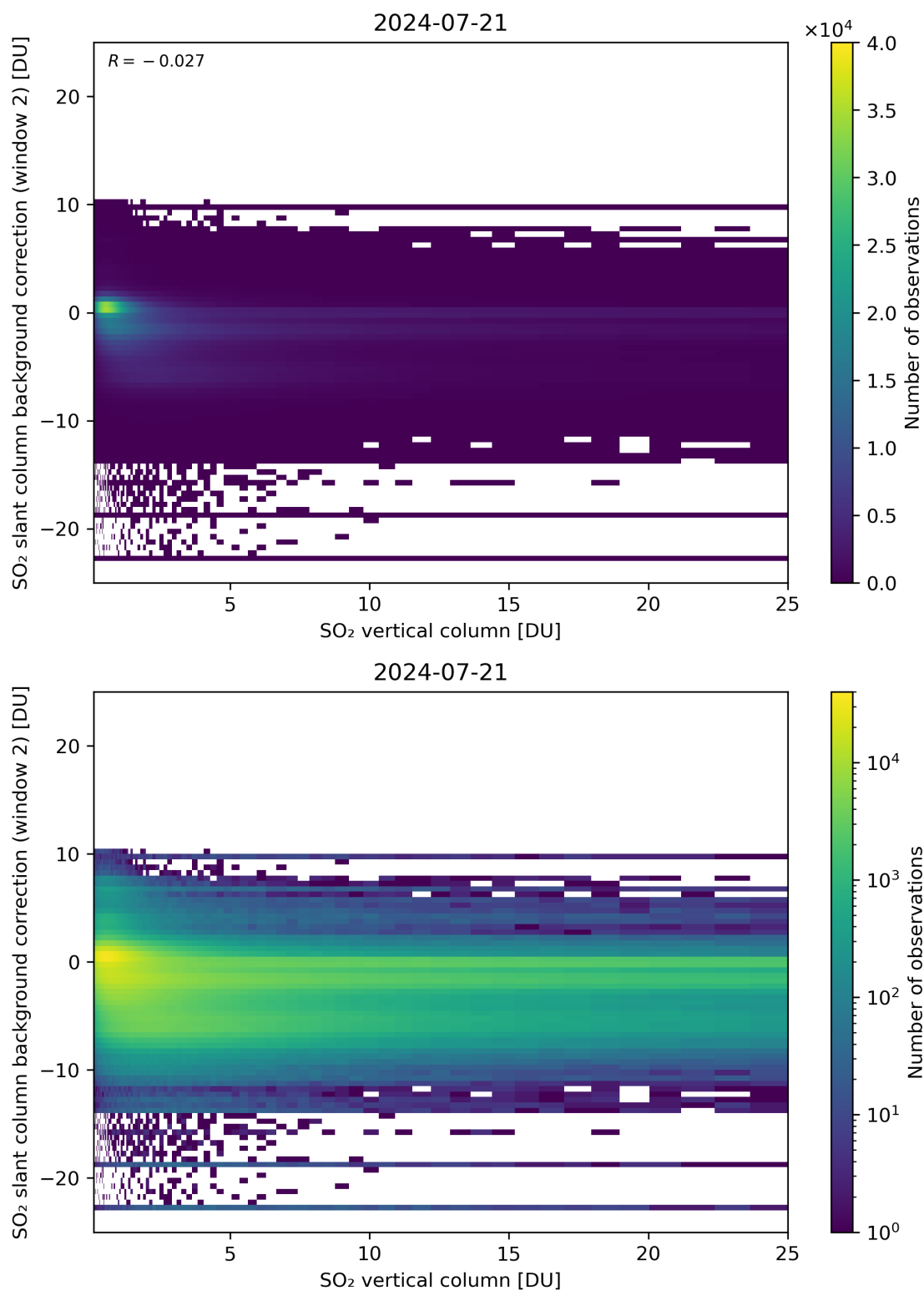


Figure 274: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

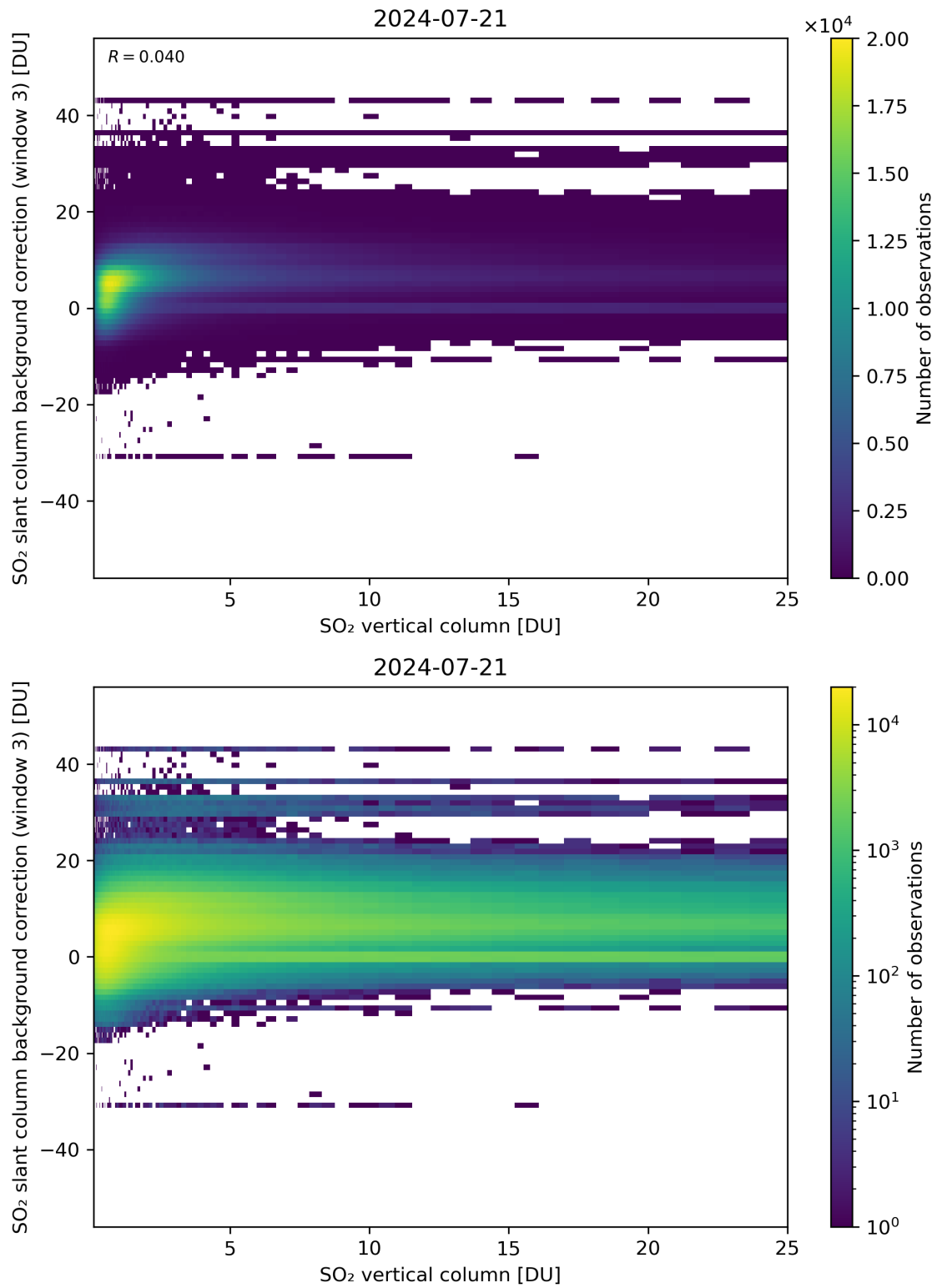


Figure 275: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

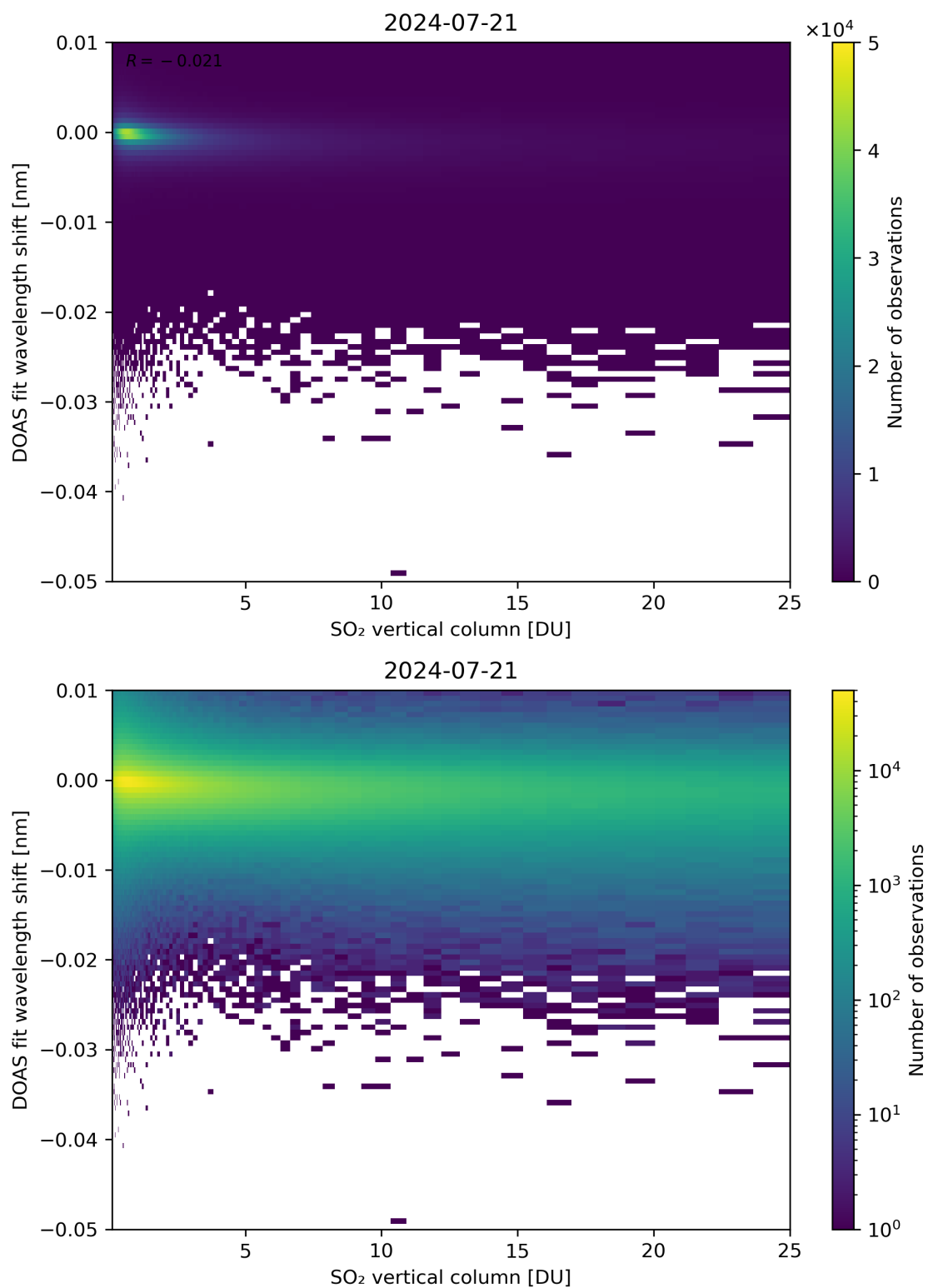


Figure 276: Scatter density plot of “SO₂ vertical column” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

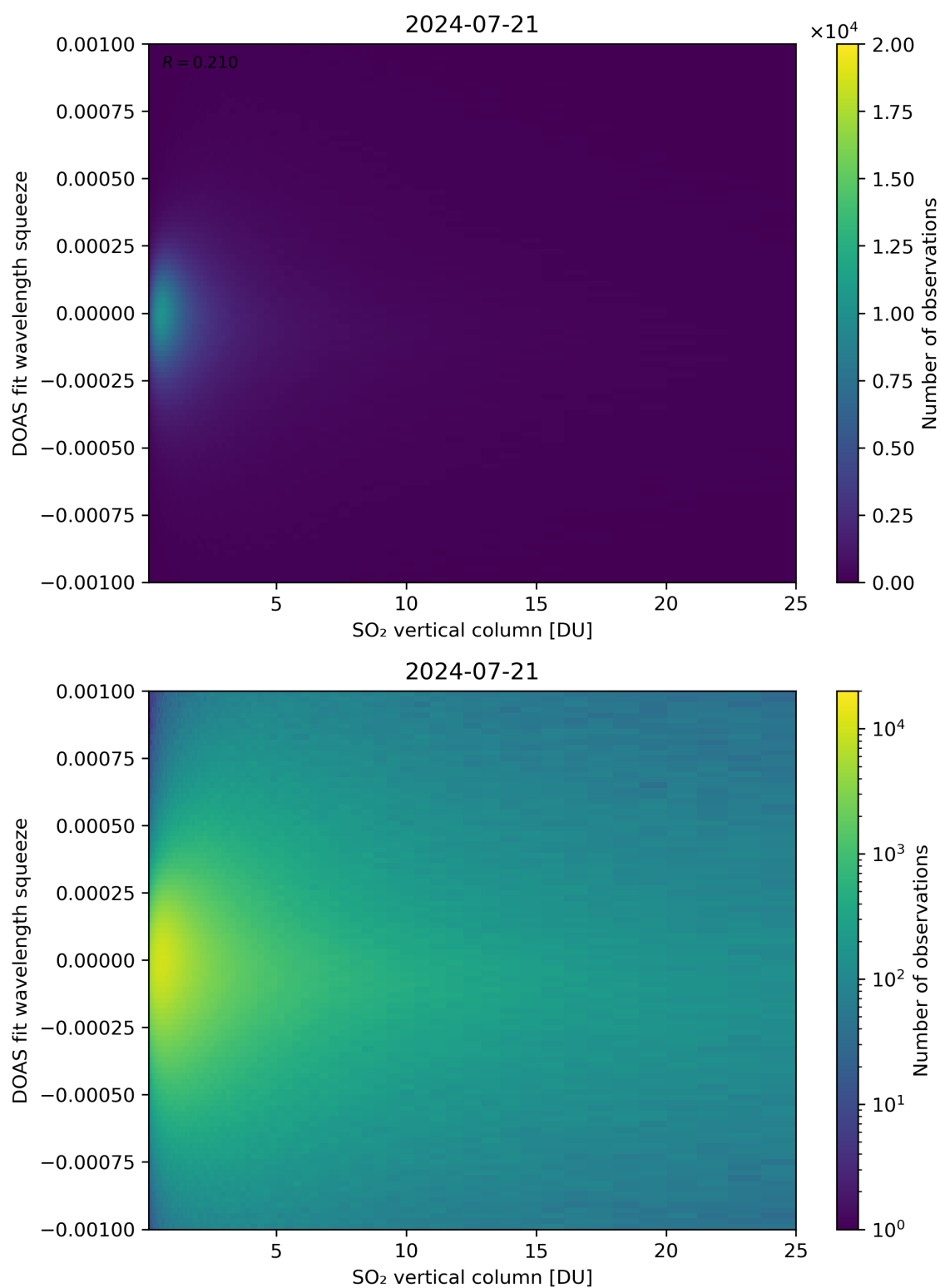


Figure 277: Scatter density plot of “SO₂ vertical column” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

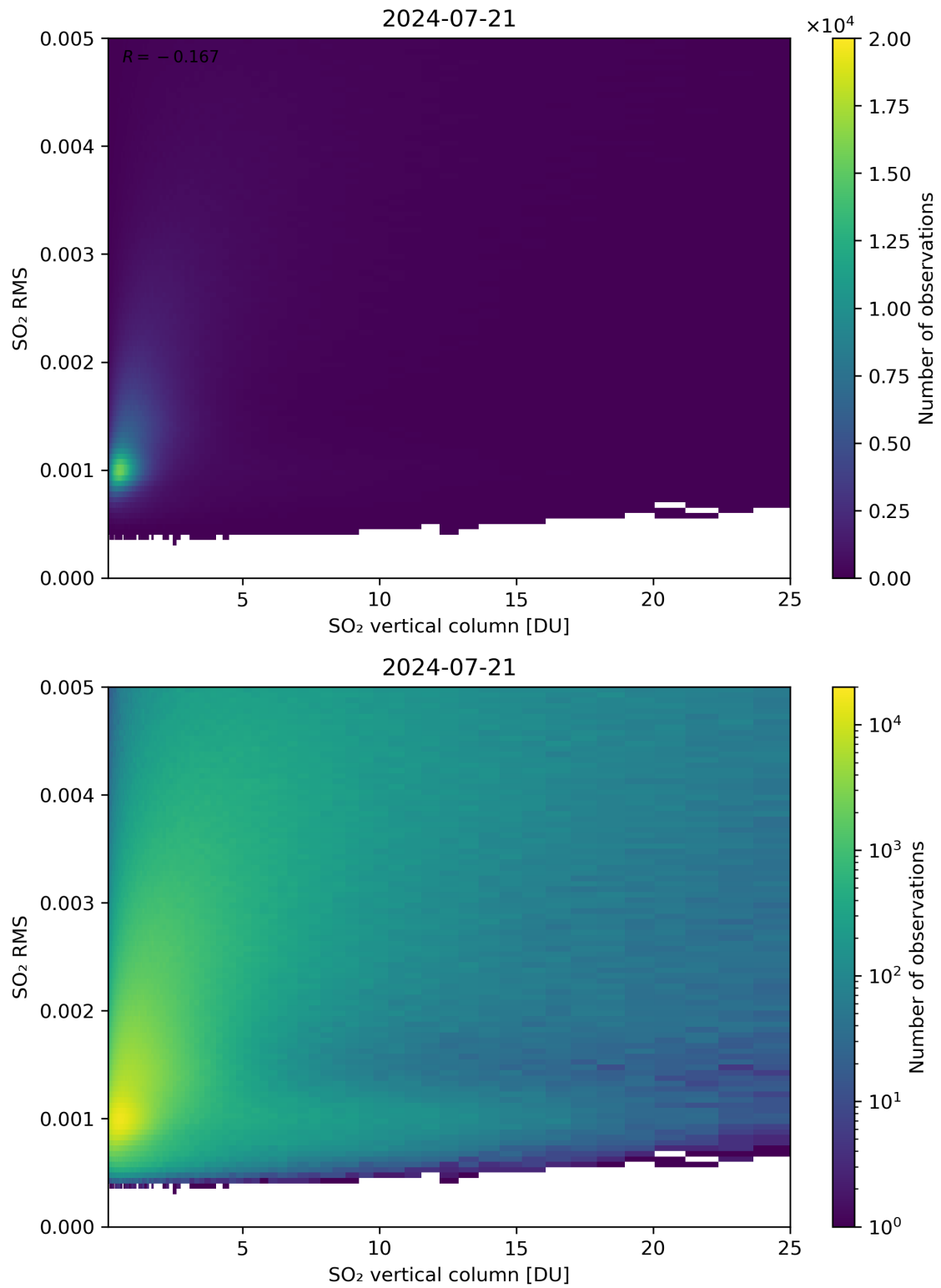


Figure 278: Scatter density plot of “SO₂ vertical column” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

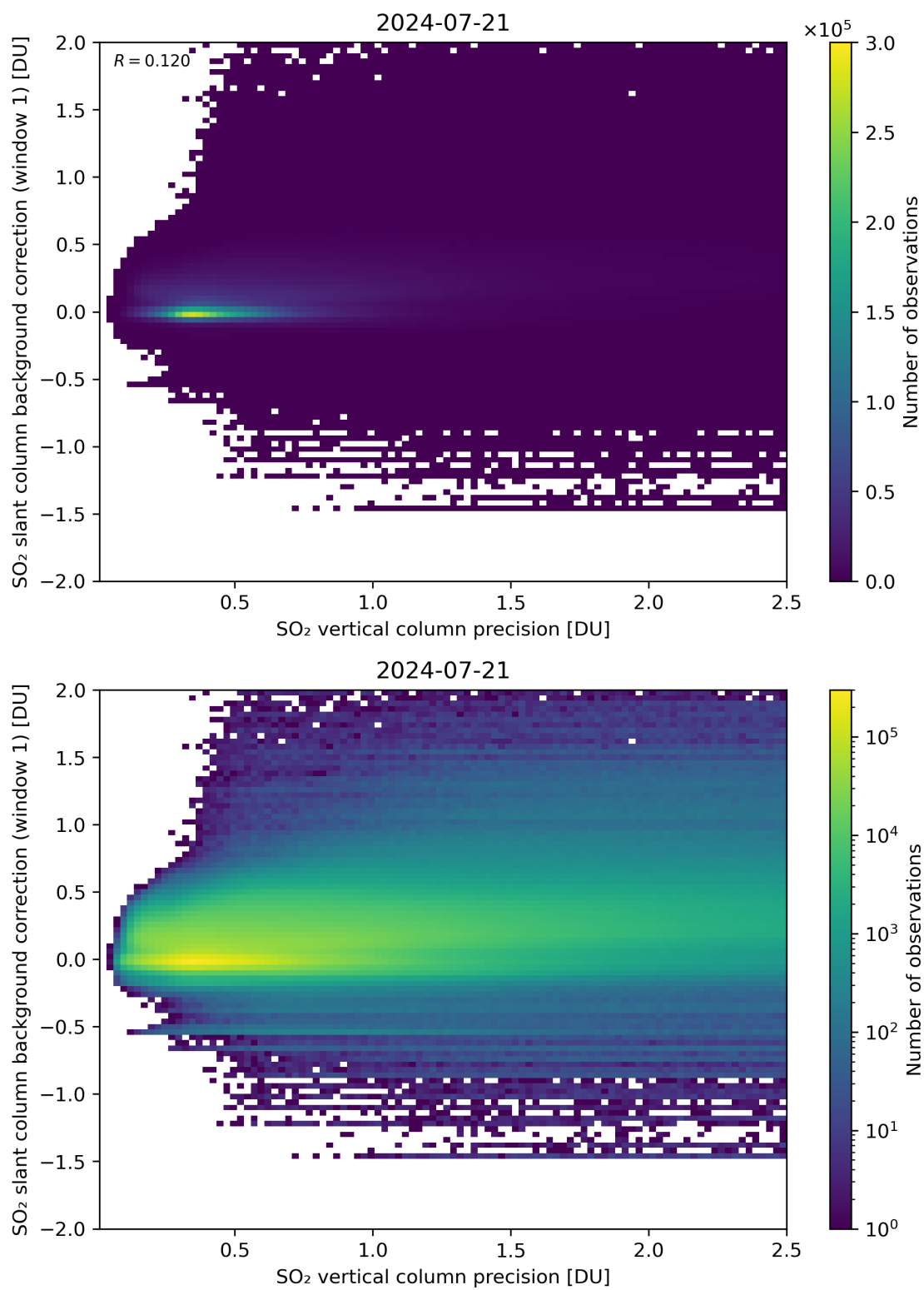


Figure 279: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

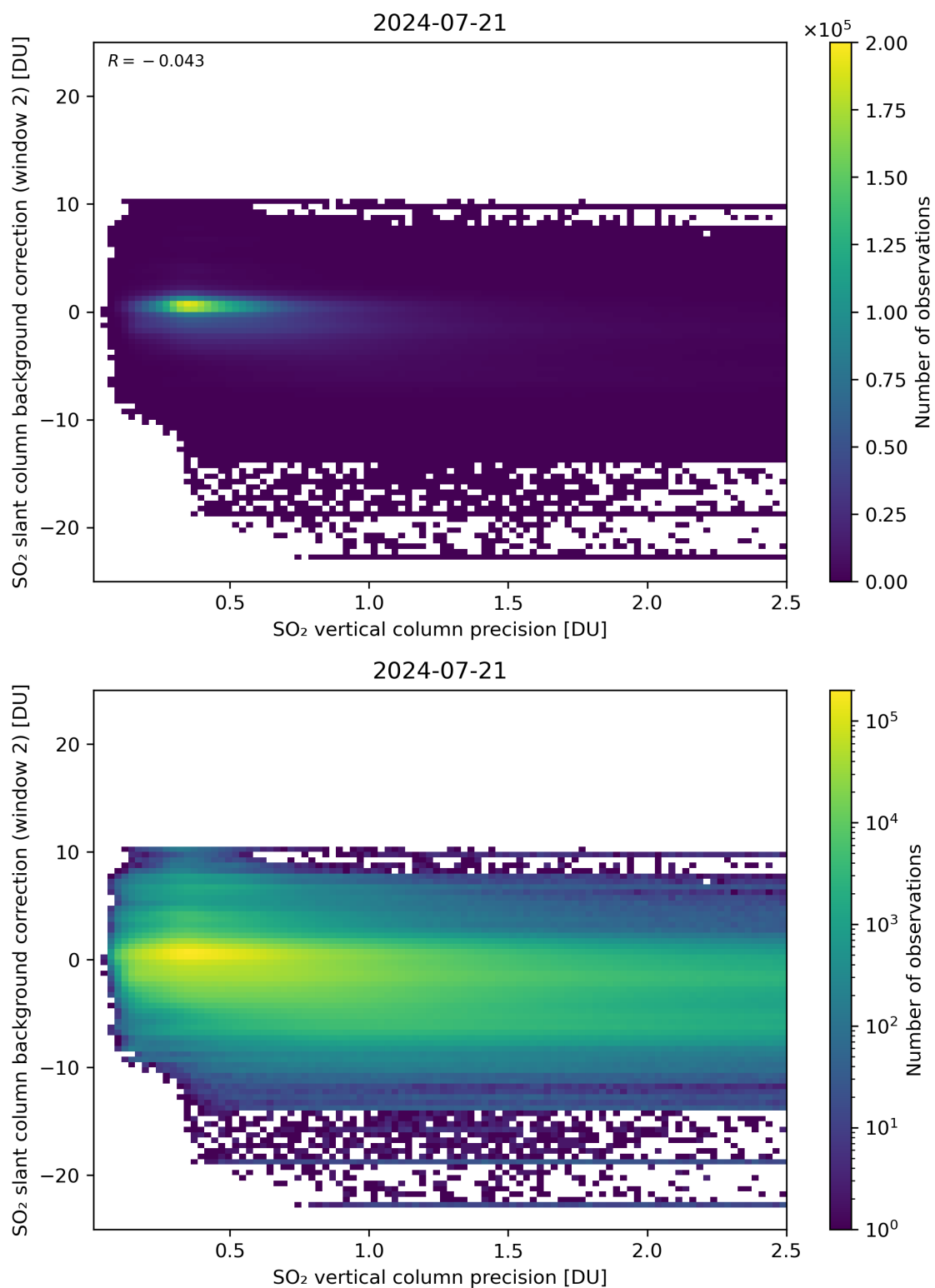


Figure 280: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

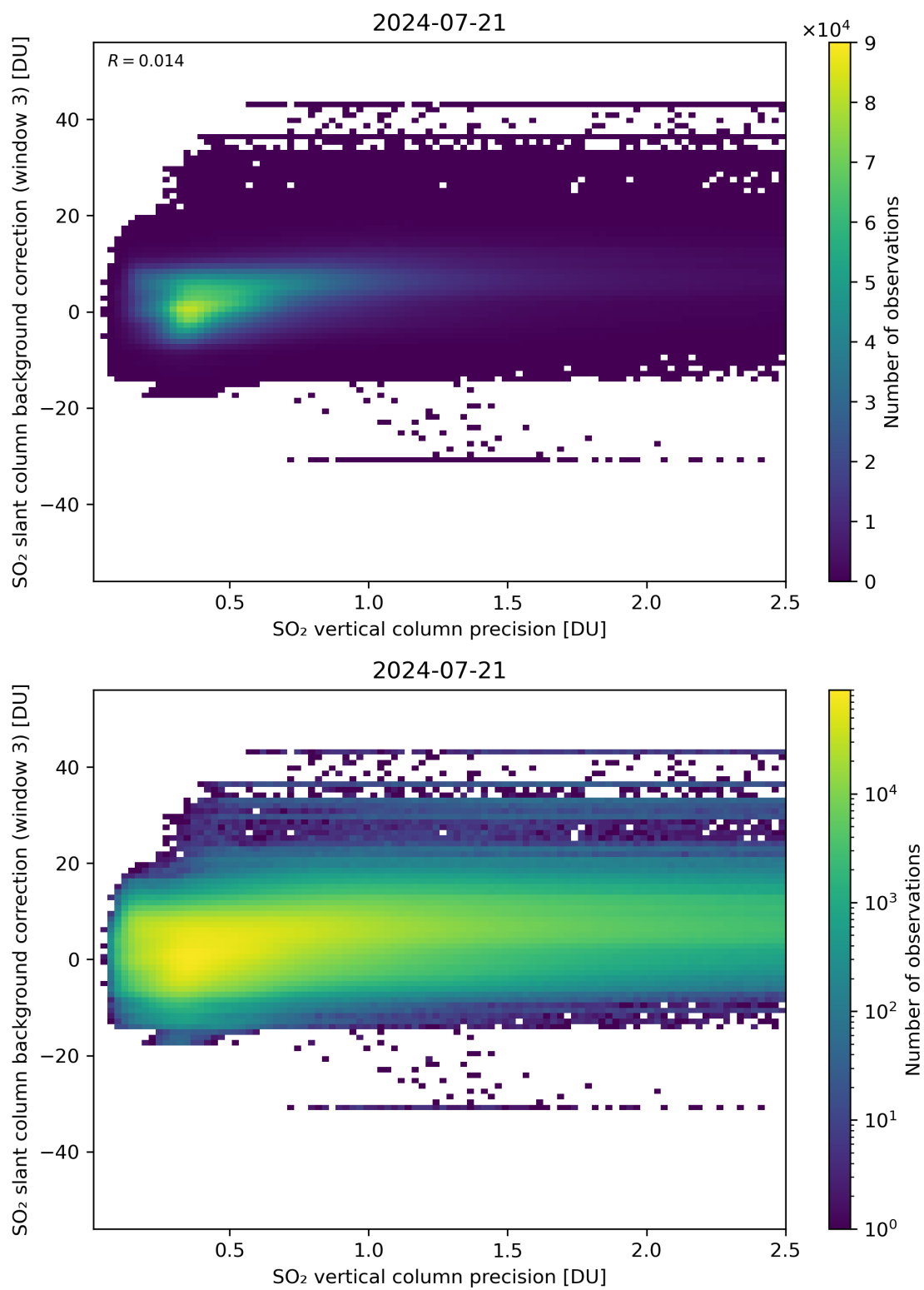


Figure 281: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

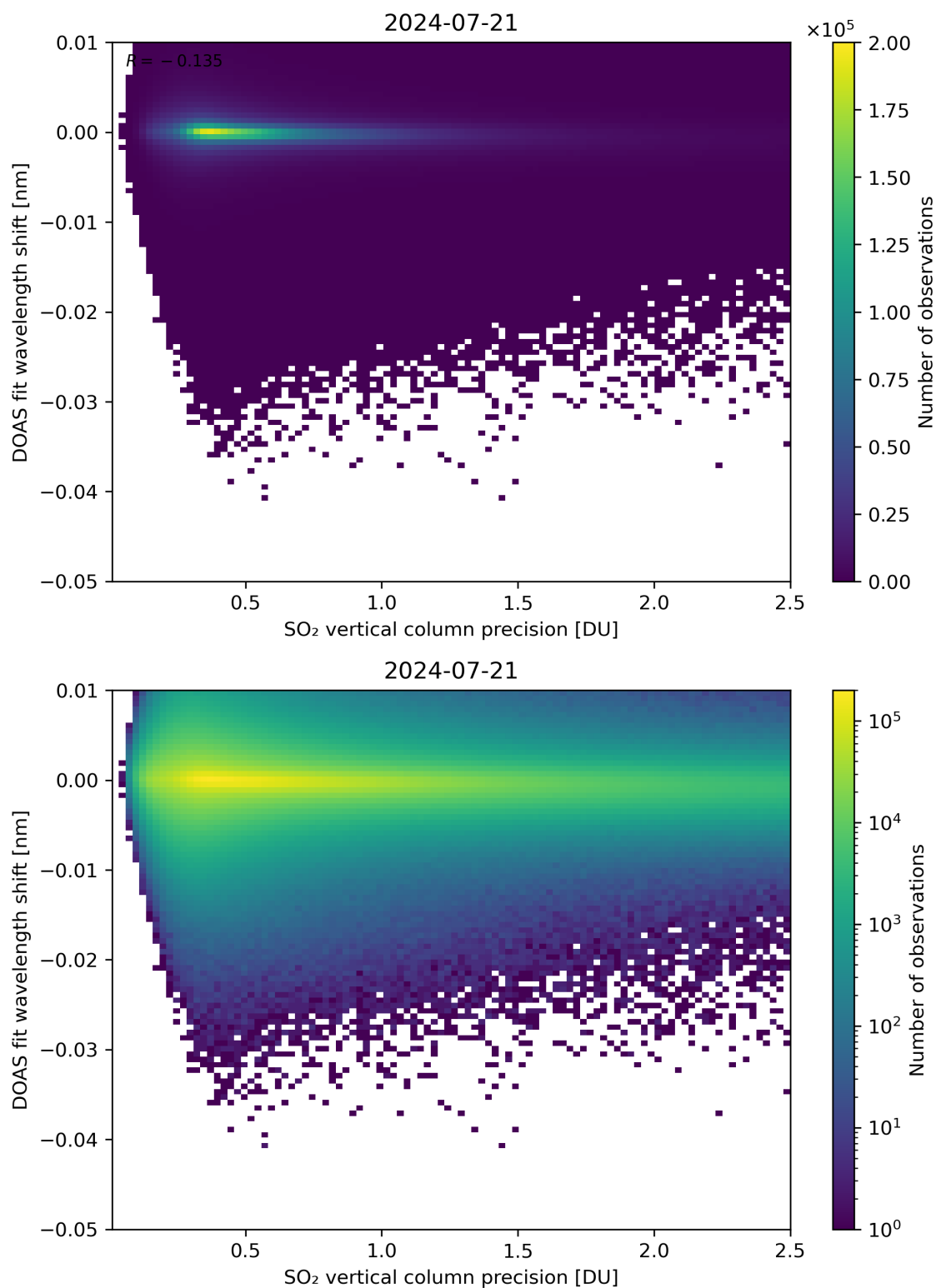


Figure 282: Scatter density plot of “SO₂ vertical column precision” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

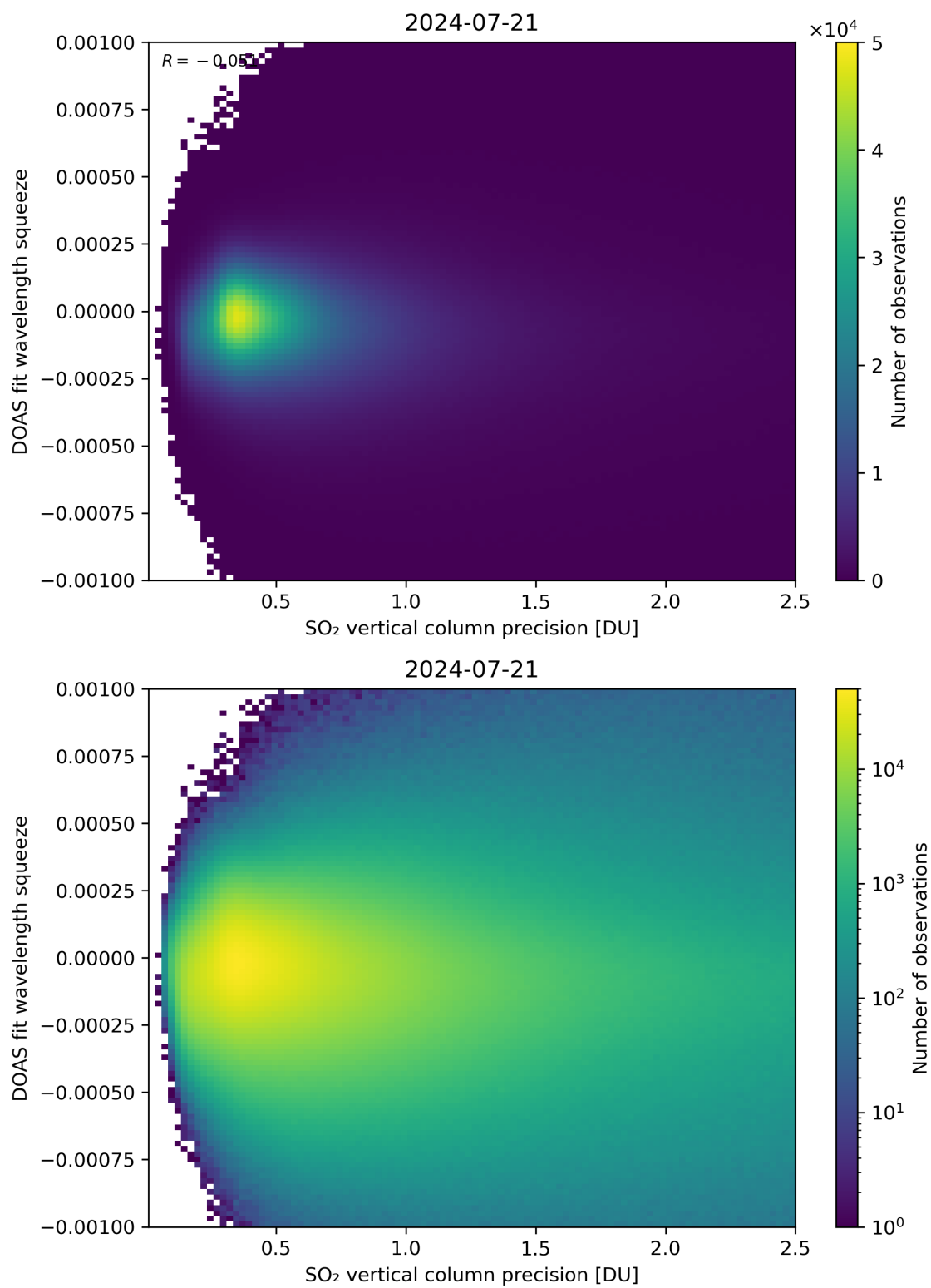


Figure 283: Scatter density plot of “SO₂ vertical column precision” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

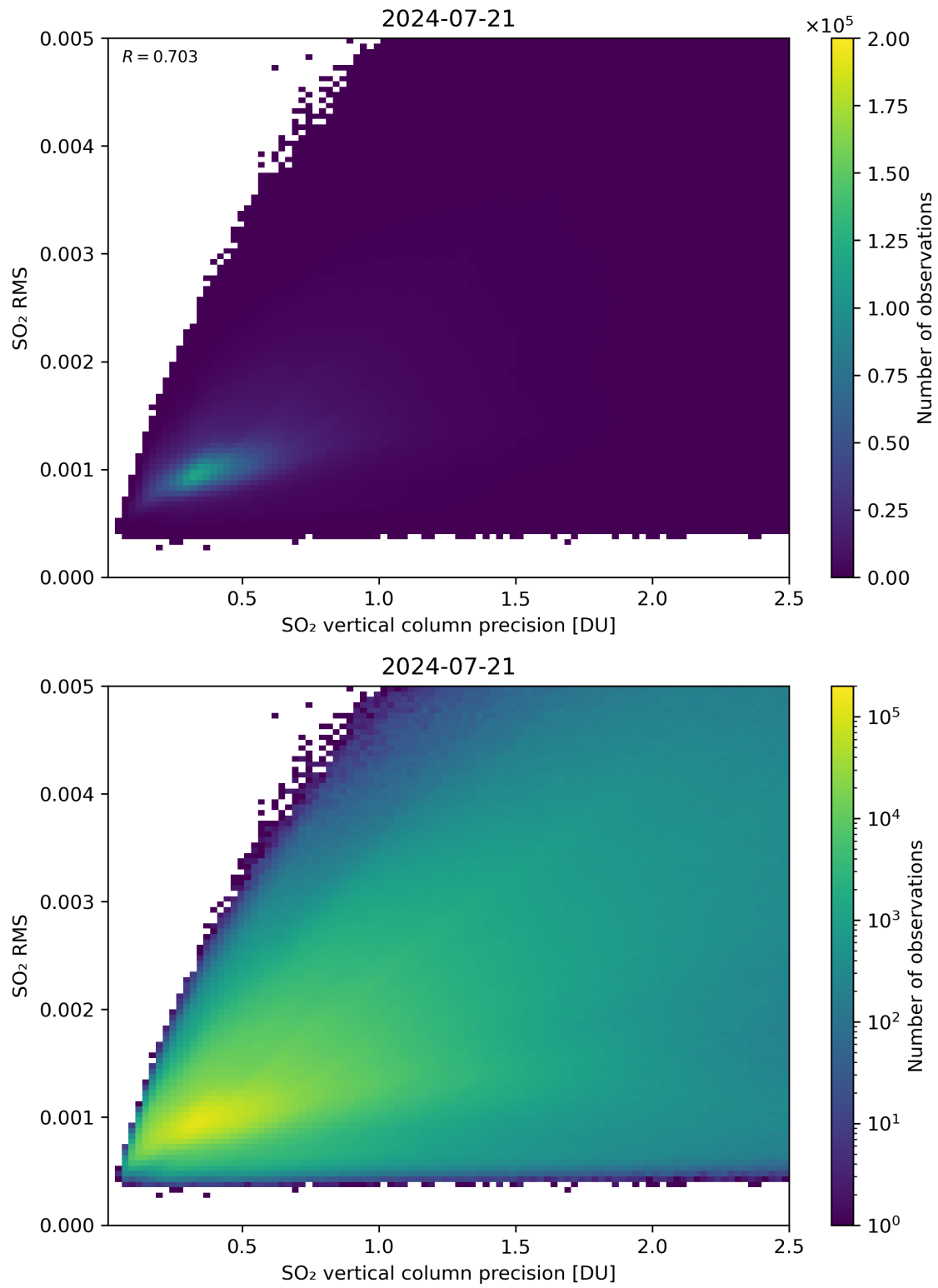


Figure 284: Scatter density plot of “SO₂ vertical column precision” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

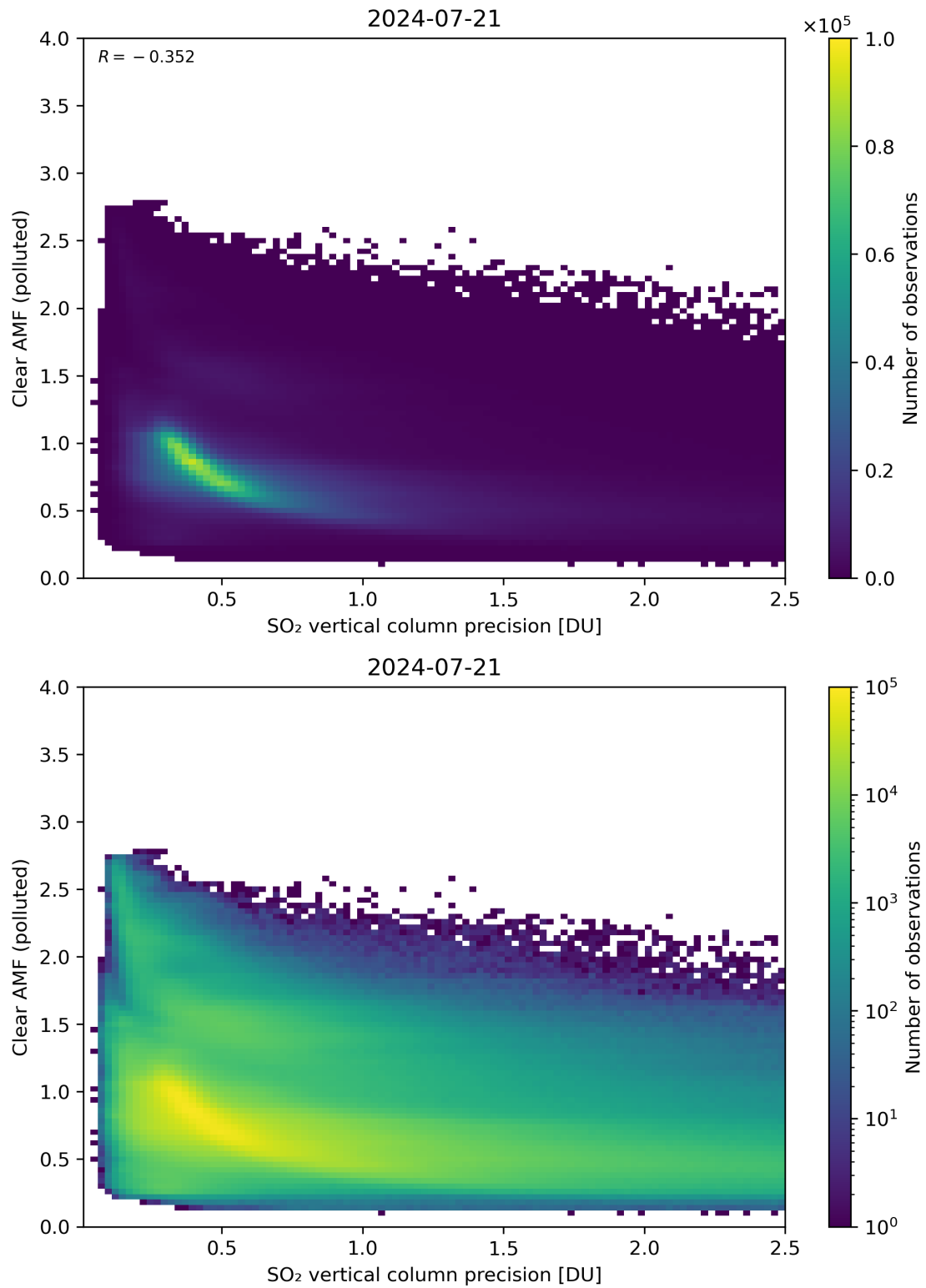


Figure 285: Scatter density plot of “SO₂ vertical column precision” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

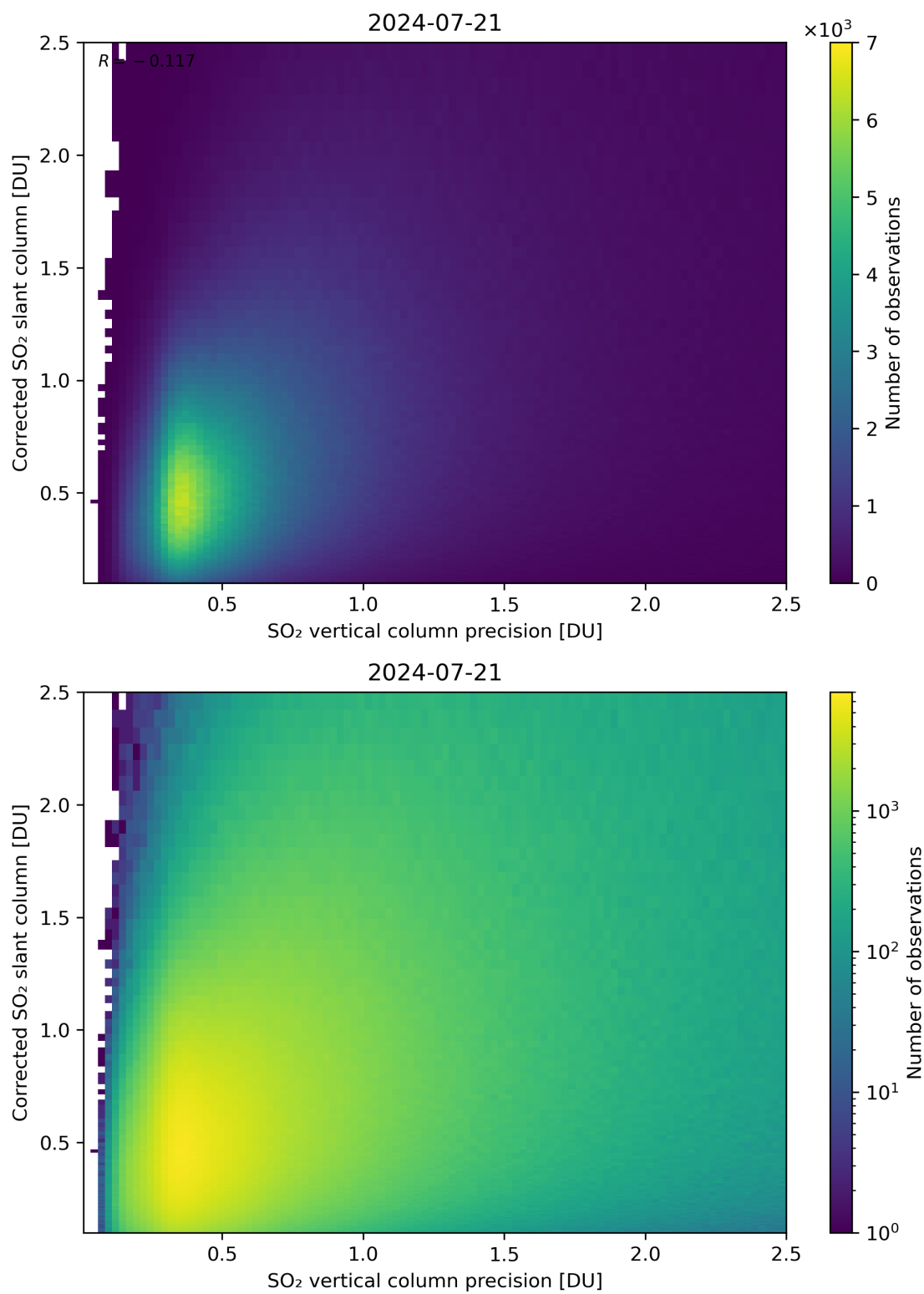


Figure 286: Scatter density plot of “SO₂ vertical column precision” against “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22.

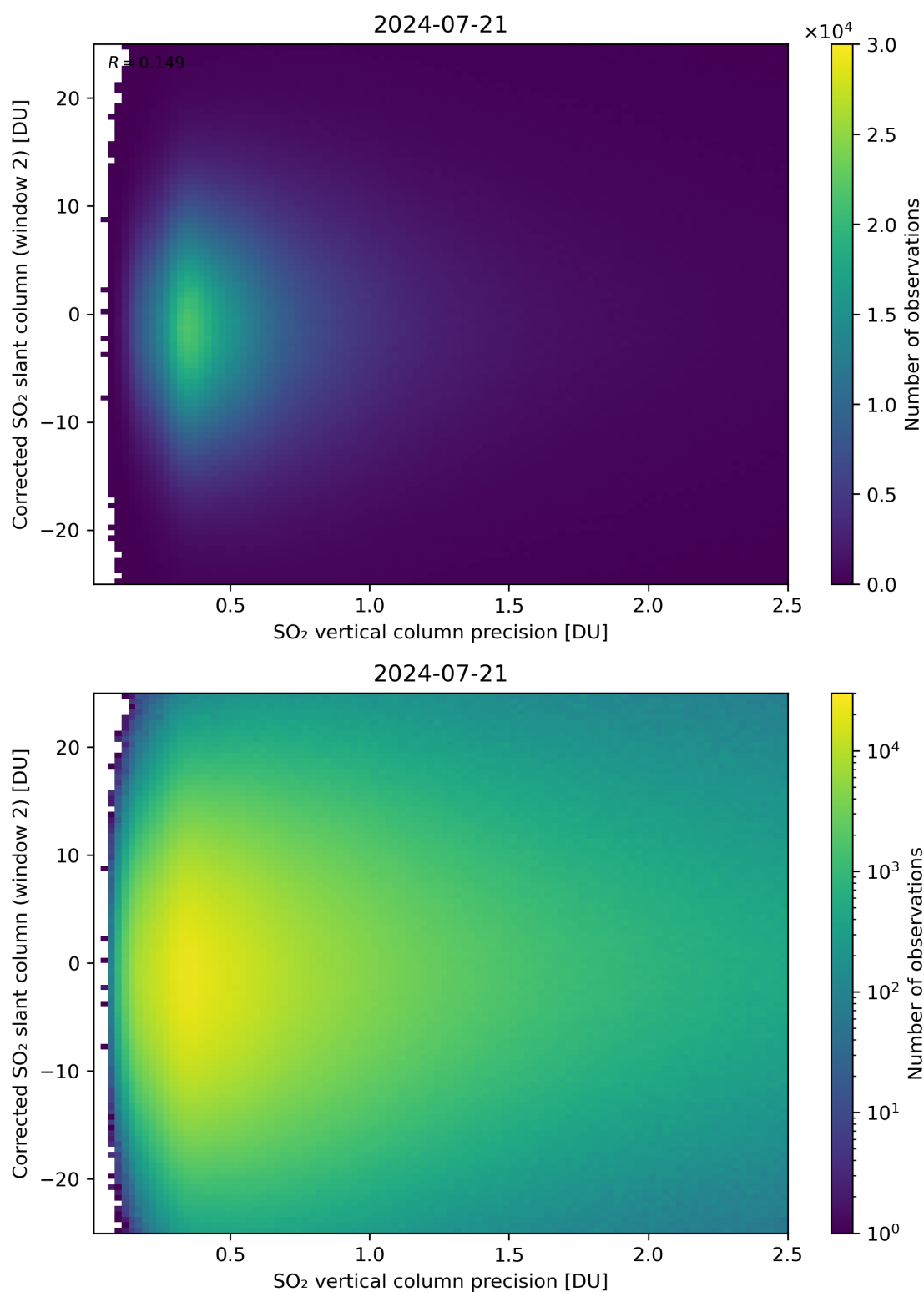


Figure 287: Scatter density plot of “SO₂ vertical column precision” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

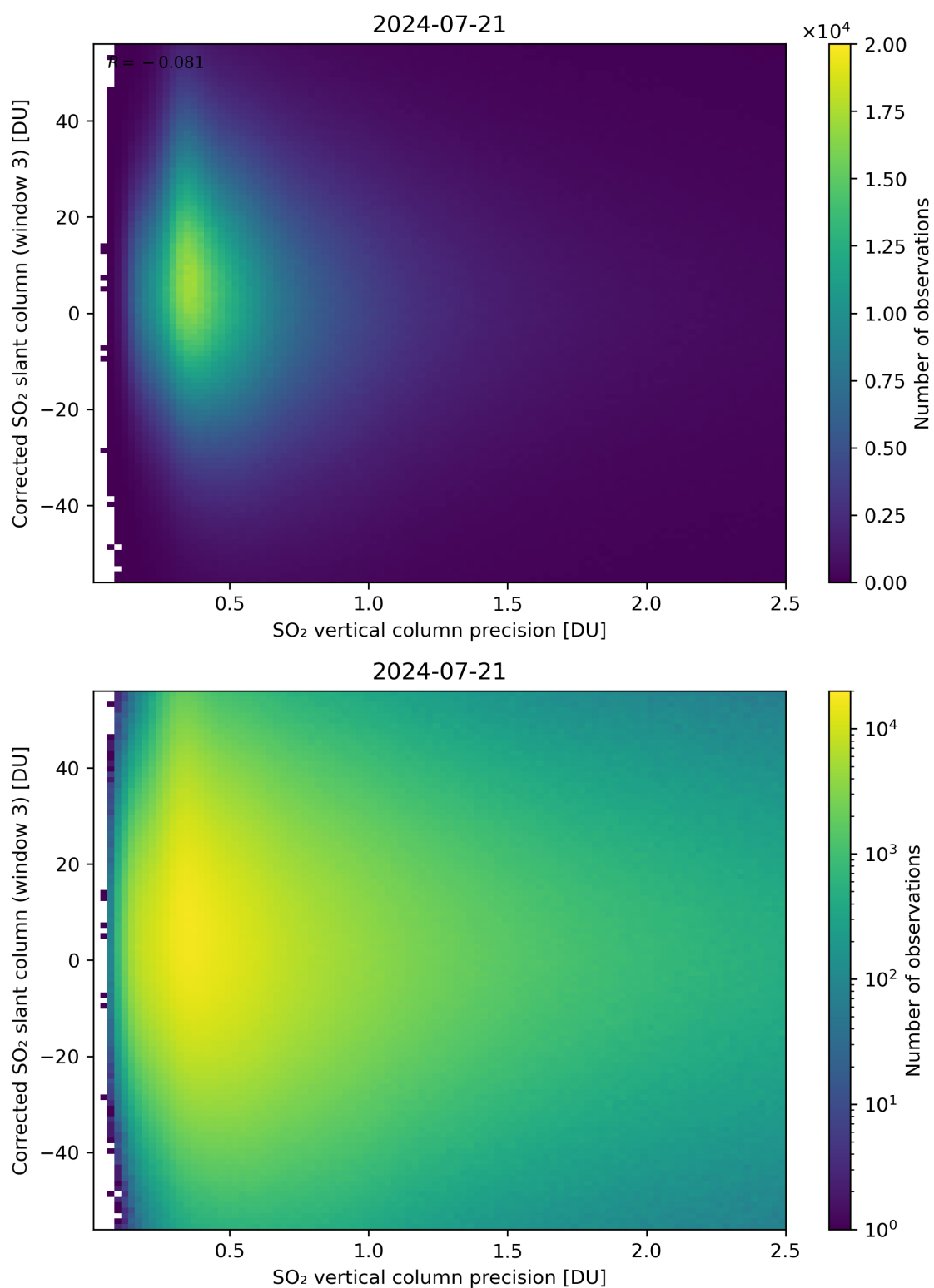


Figure 288: Scatter density plot of “SO₂ vertical column precision” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

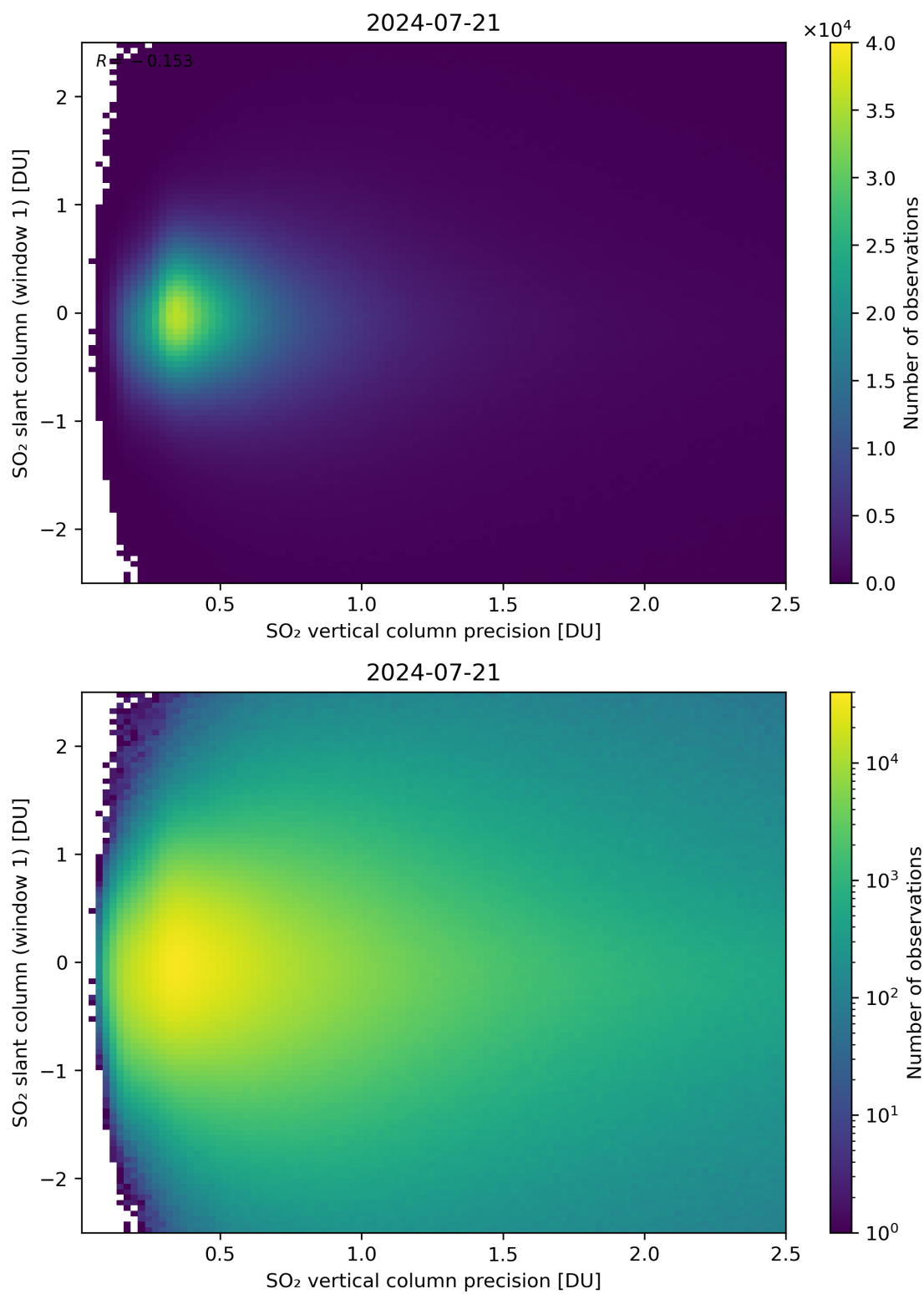


Figure 289: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

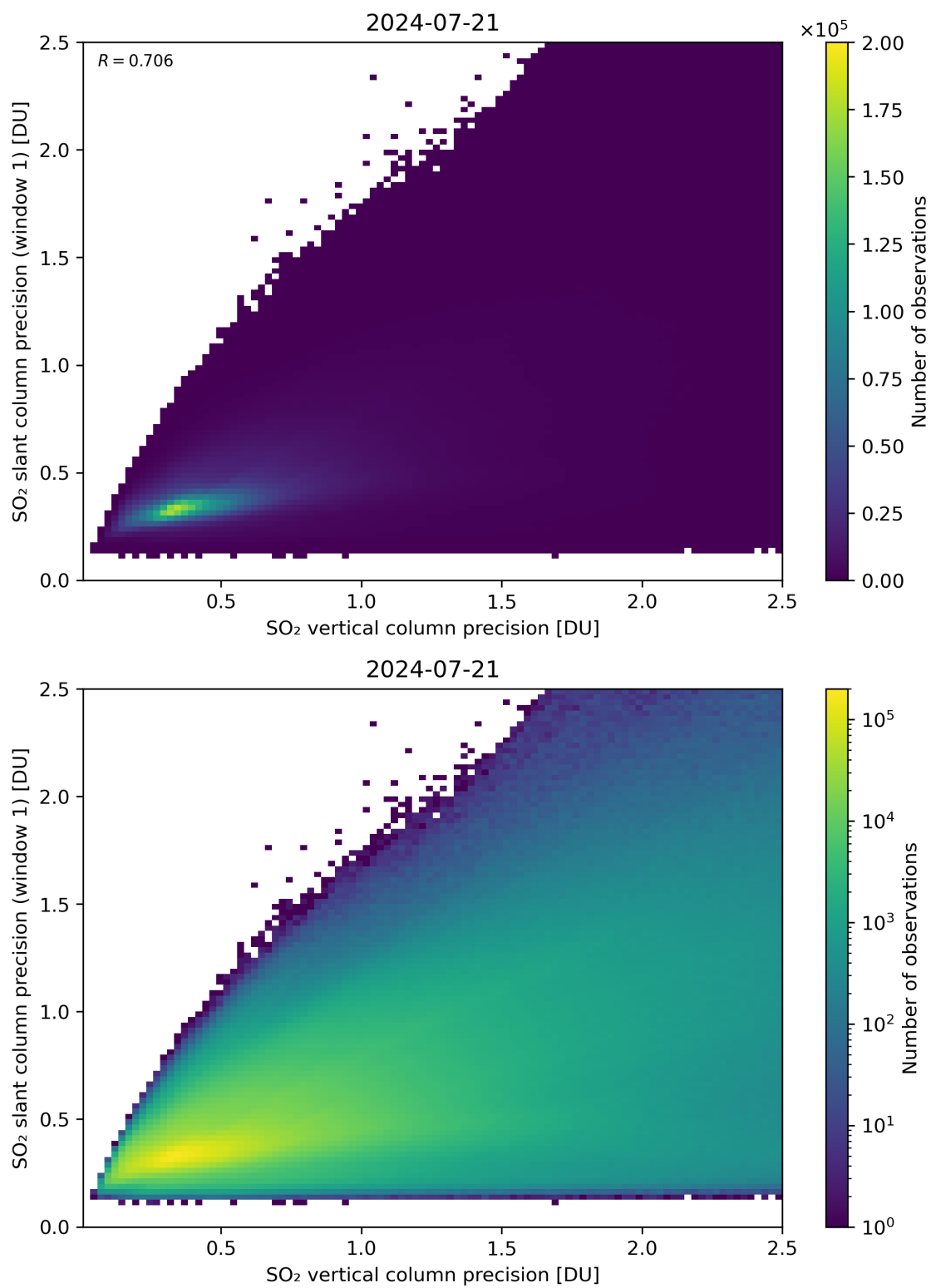


Figure 290: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

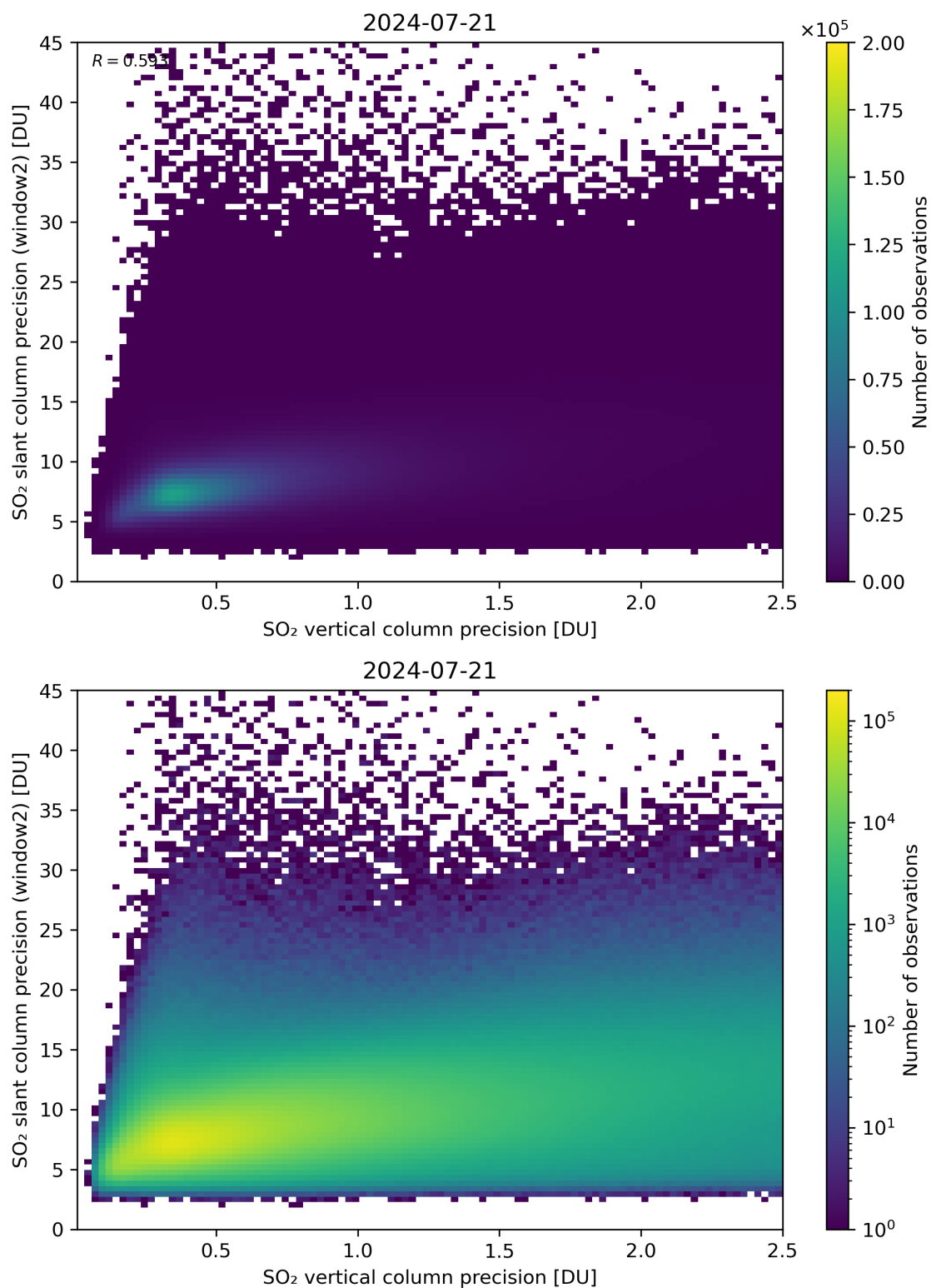


Figure 291: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

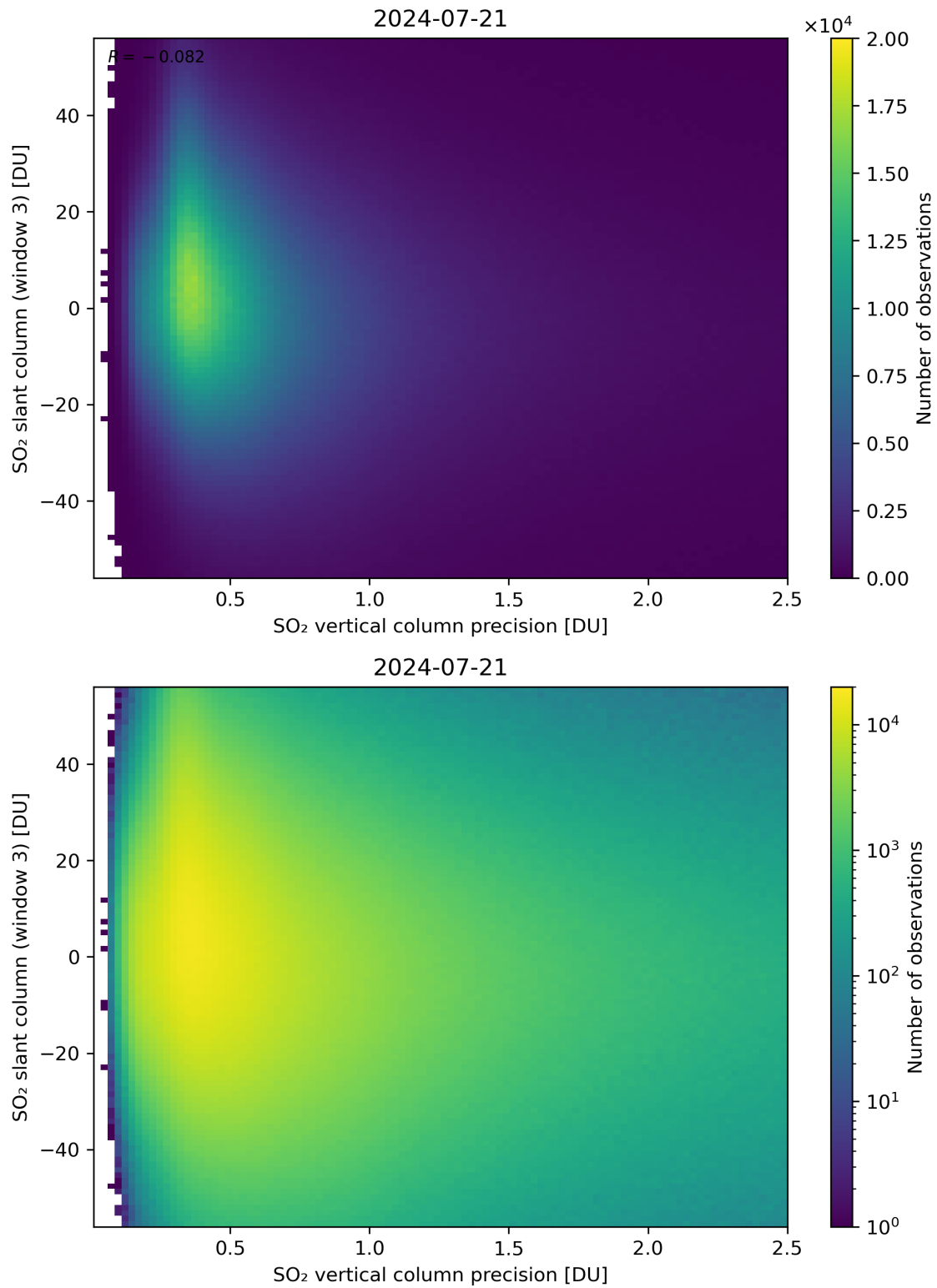


Figure 292: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

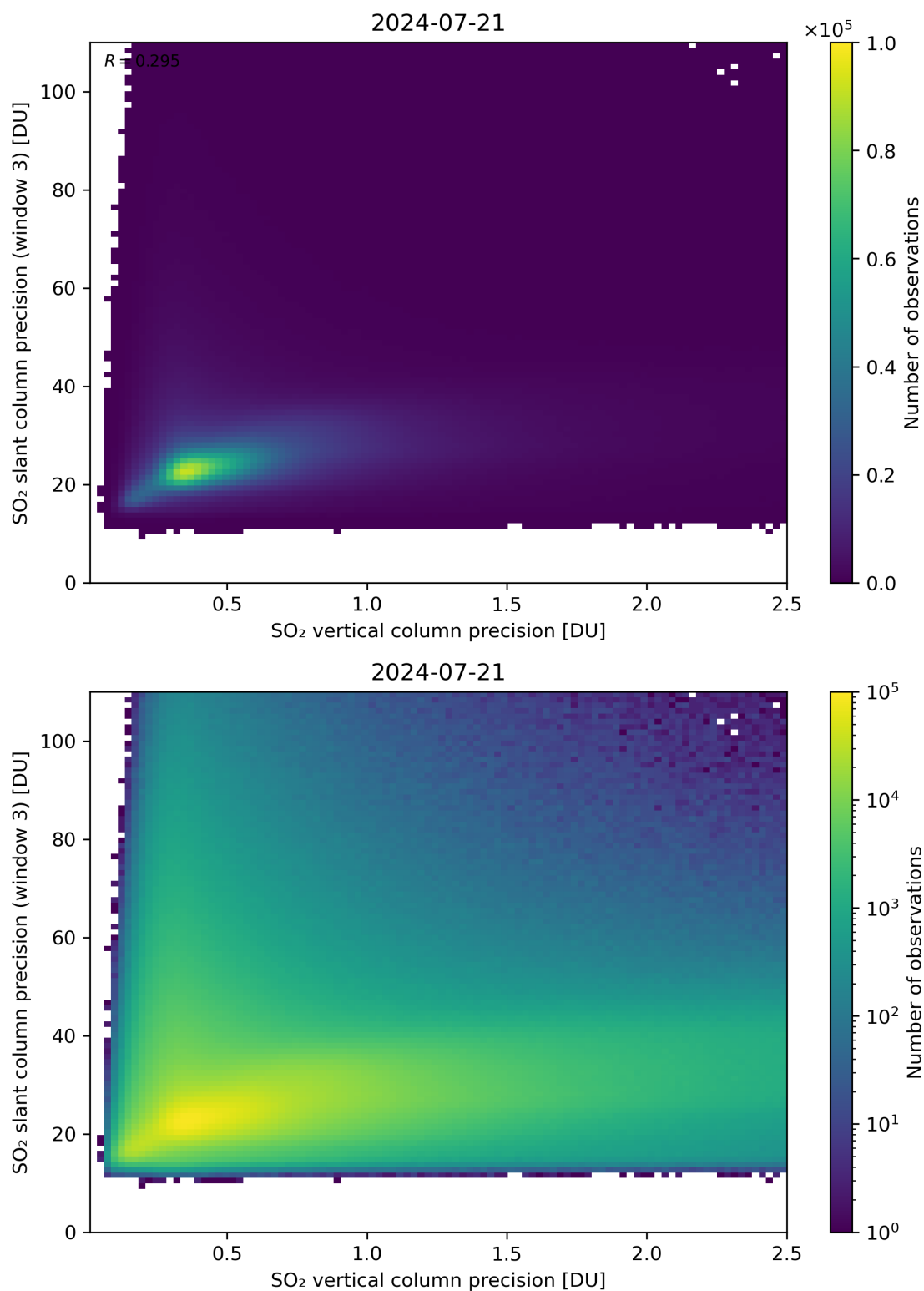


Figure 293: Scatter density plot of “SO₂ vertical column precision” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

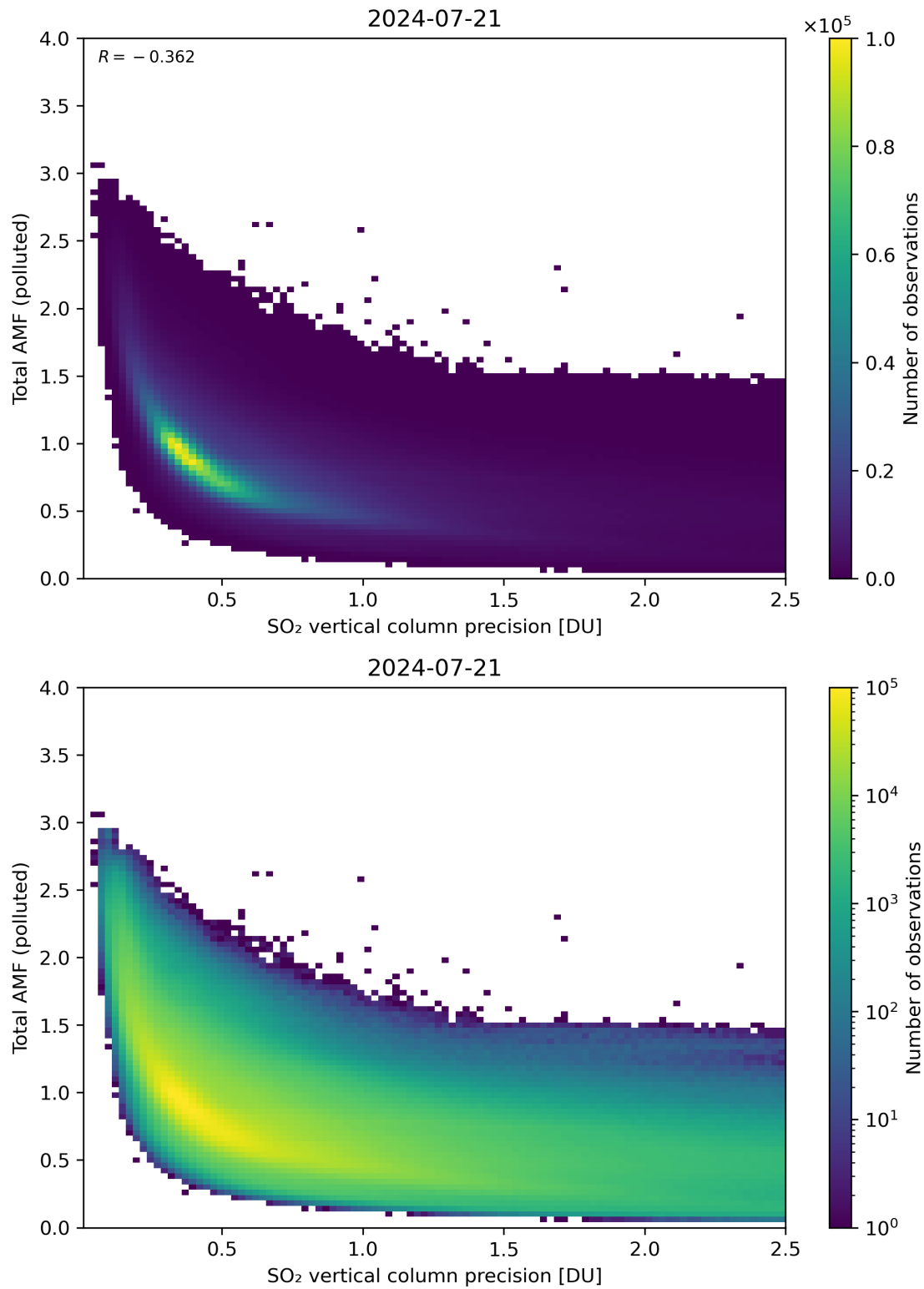


Figure 294: Scatter density plot of “SO₂ vertical column precision” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

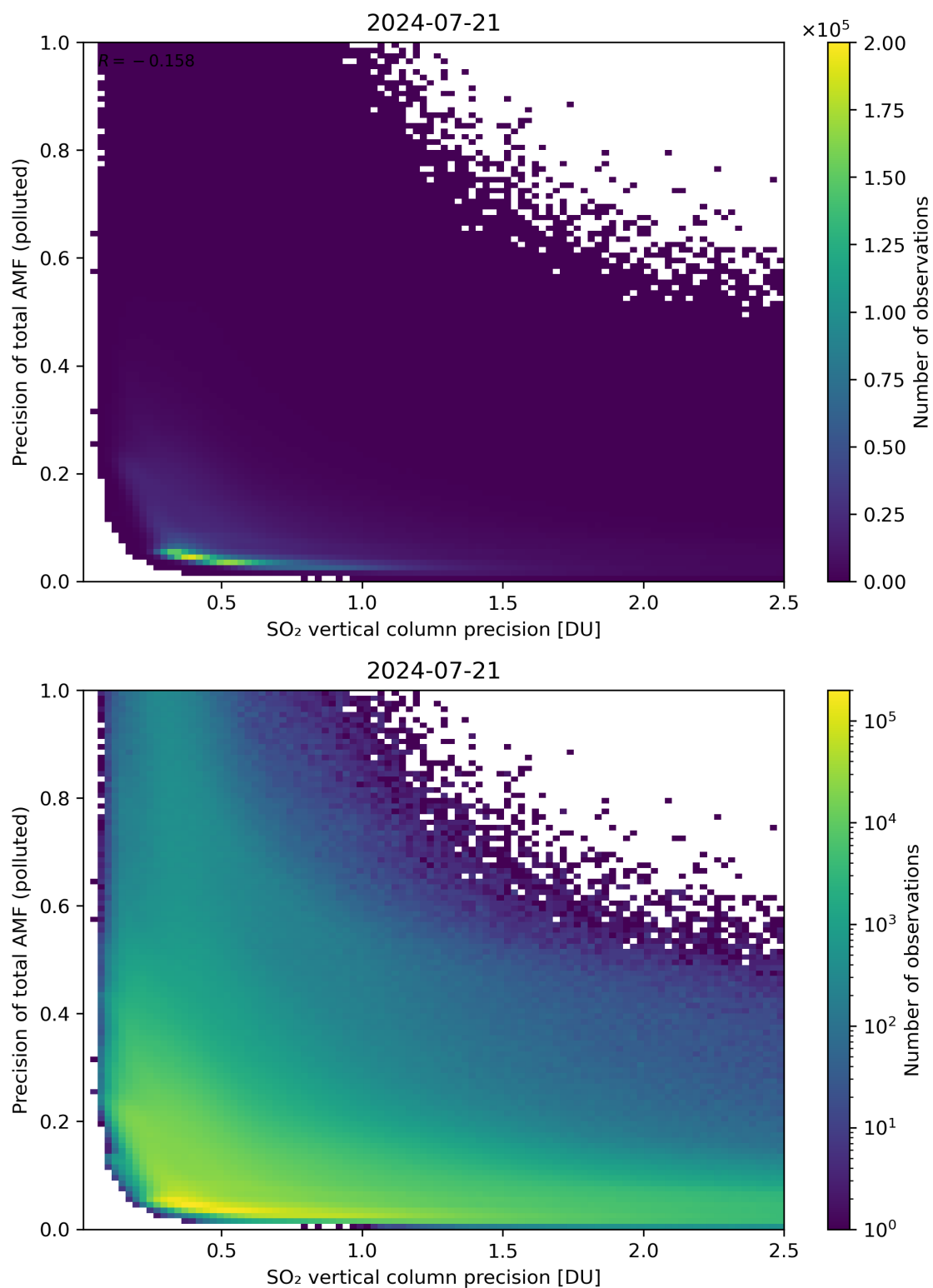


Figure 295: Scatter density plot of “SO₂ vertical column precision” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

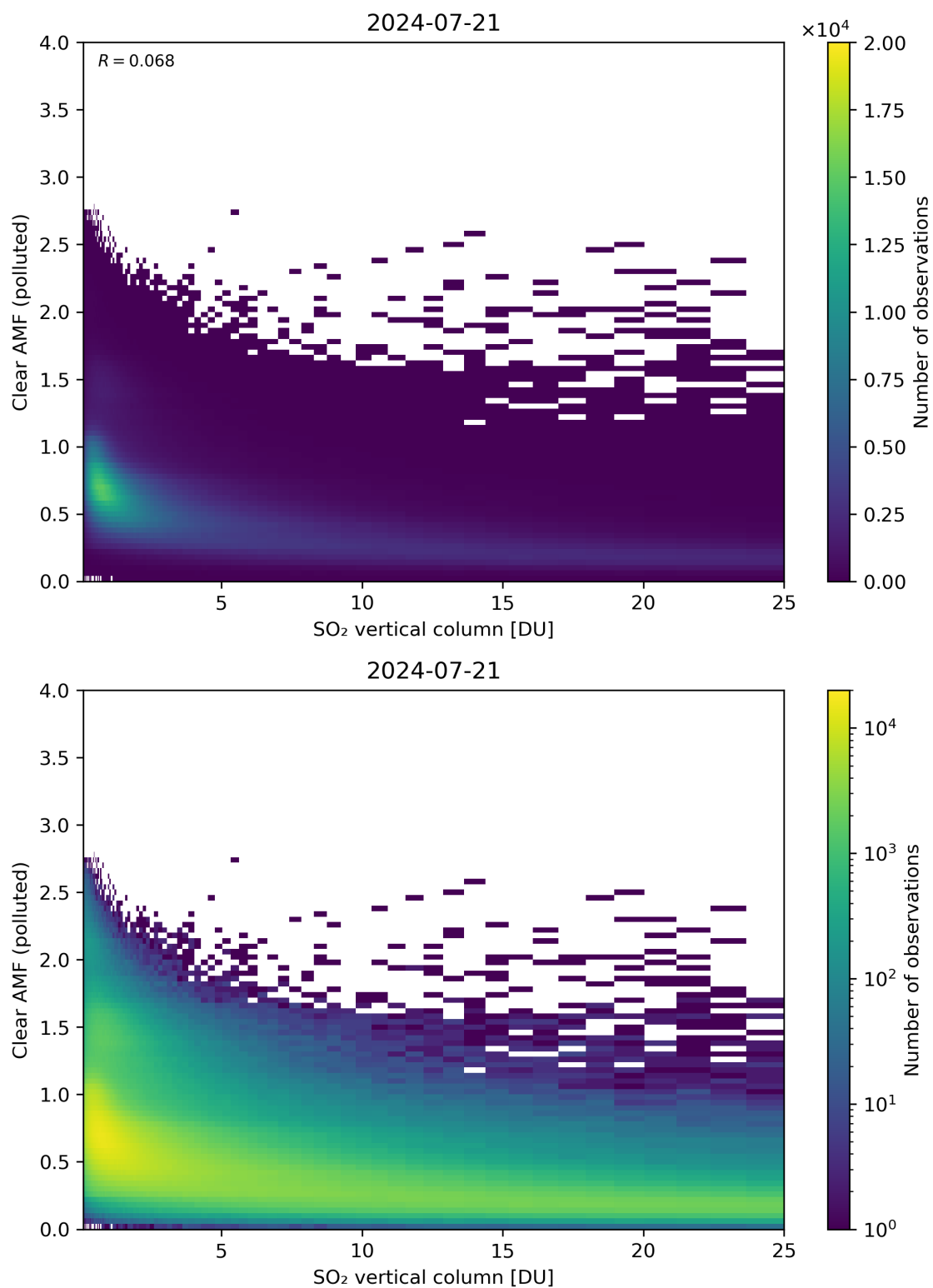


Figure 296: Scatter density plot of “SO₂ vertical column” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

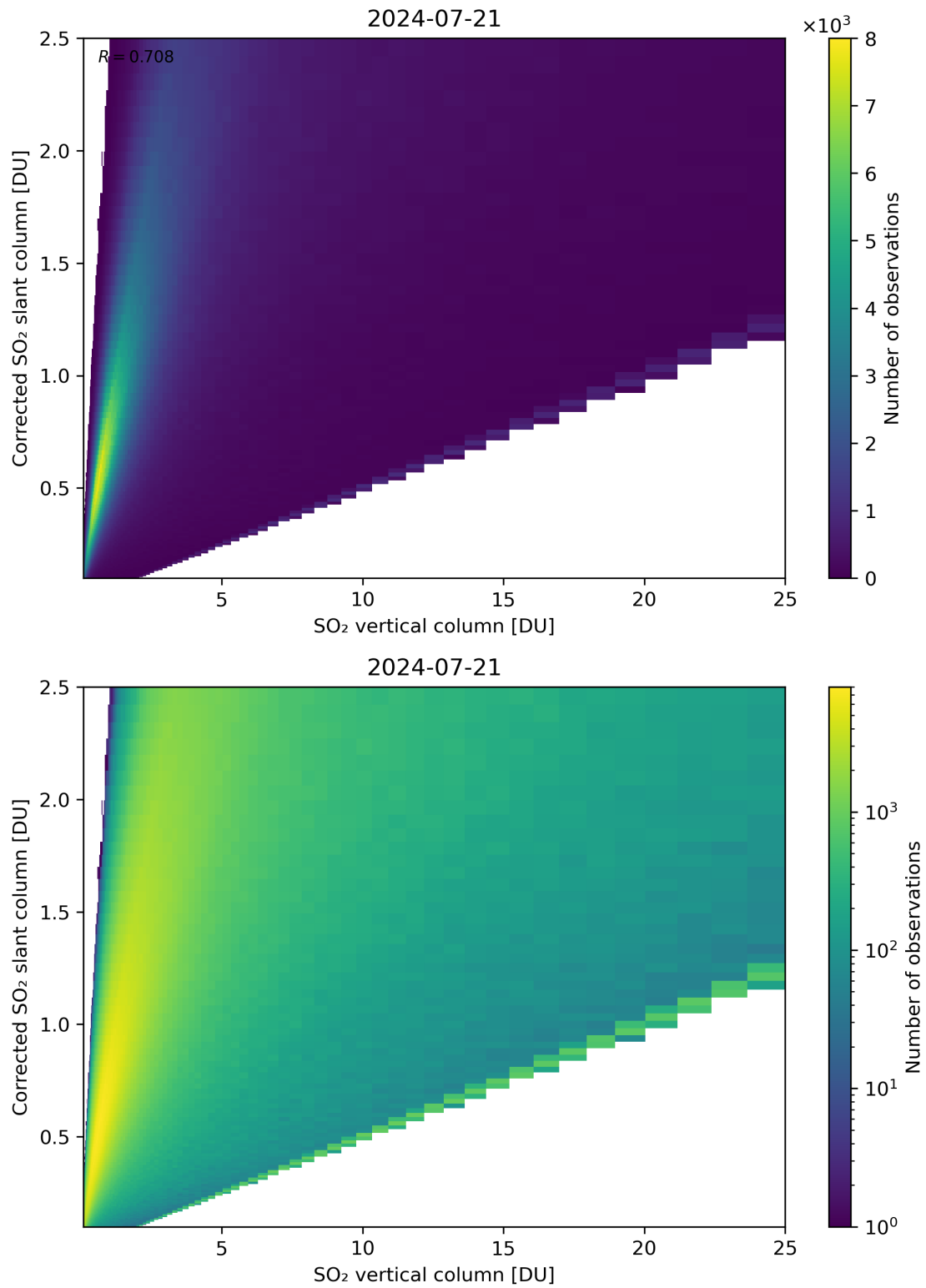


Figure 297: Scatter density plot of “SO₂ vertical column” against “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22.

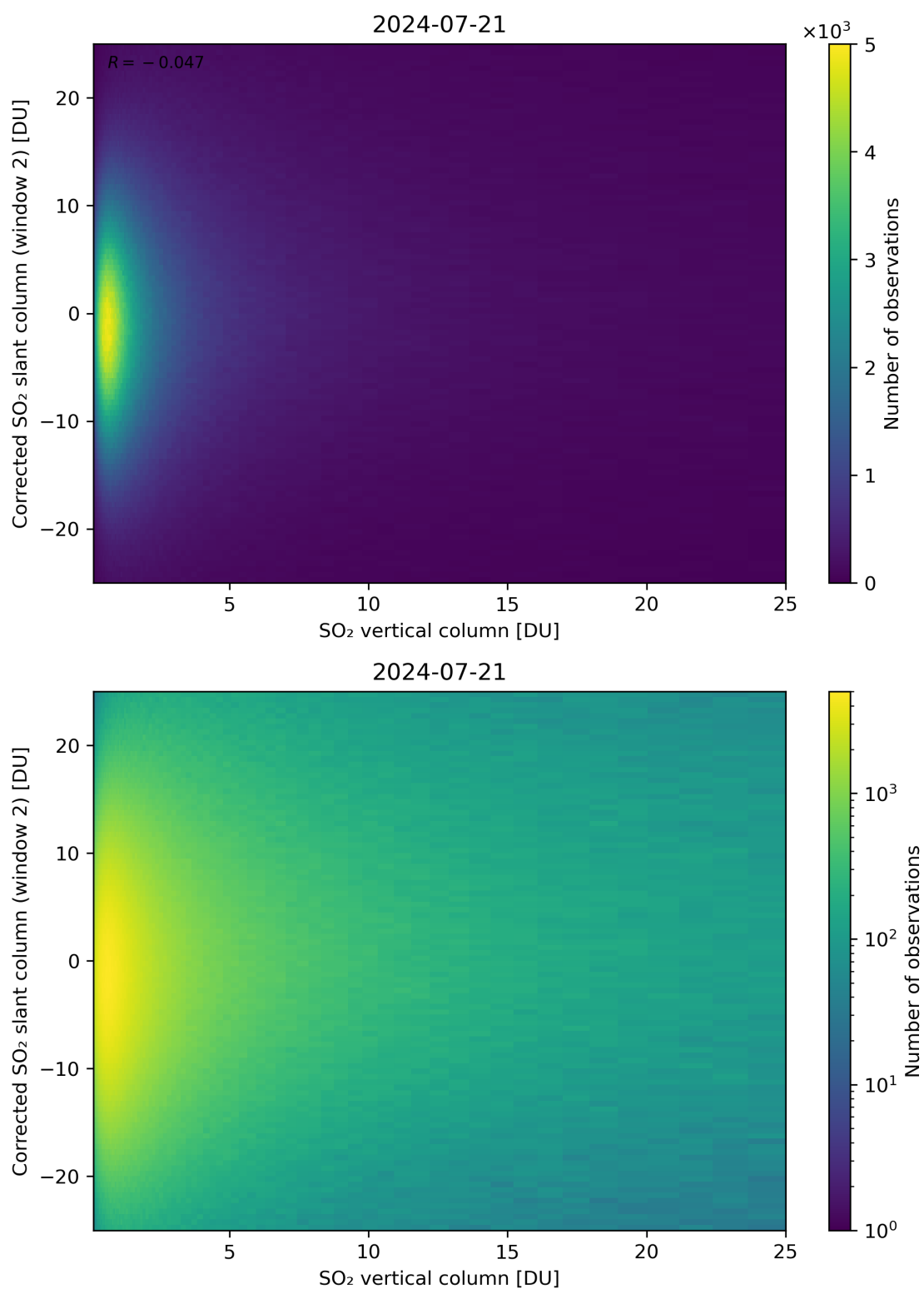


Figure 298: Scatter density plot of “SO₂ vertical column” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

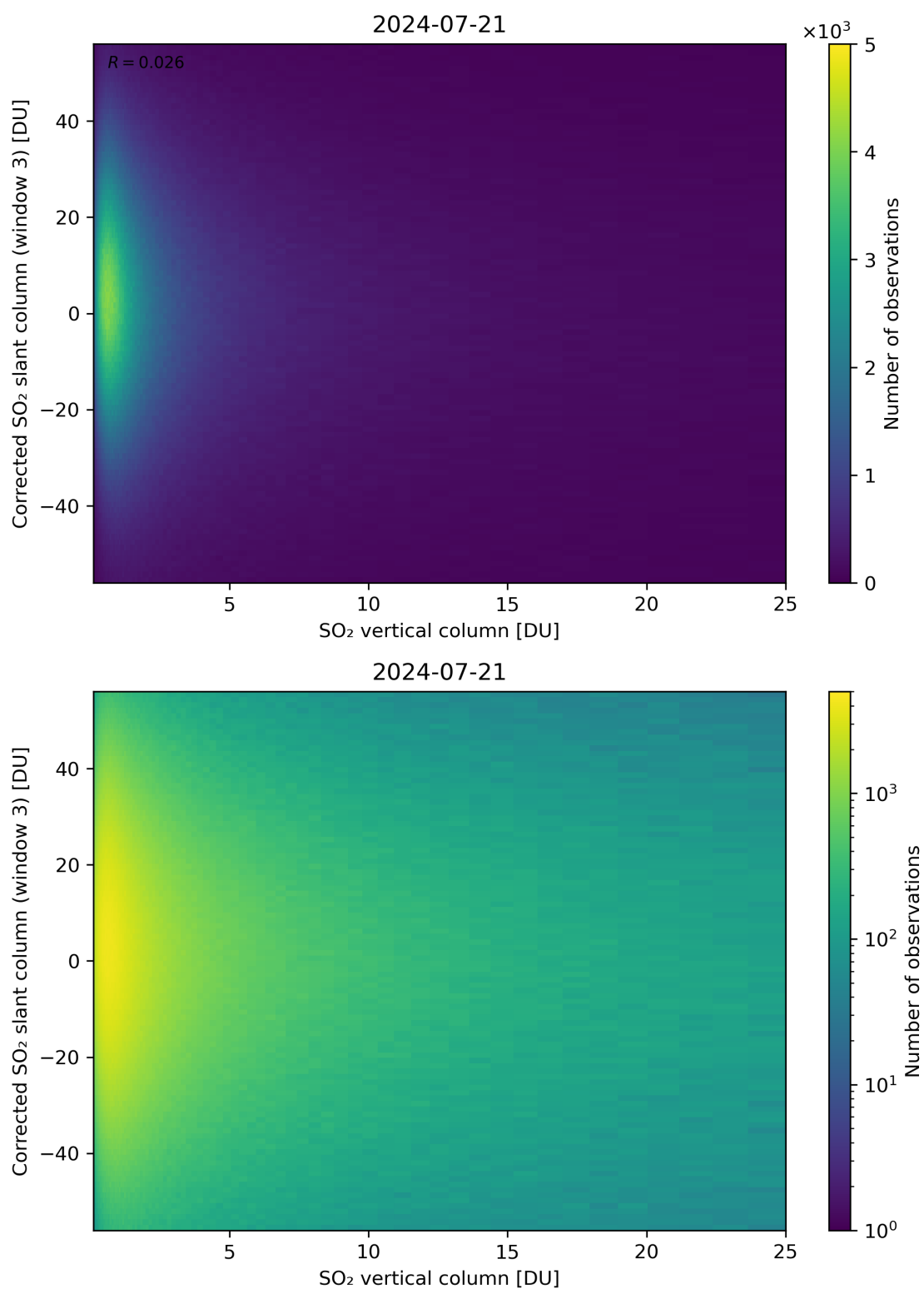


Figure 299: Scatter density plot of “SO₂ vertical column” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

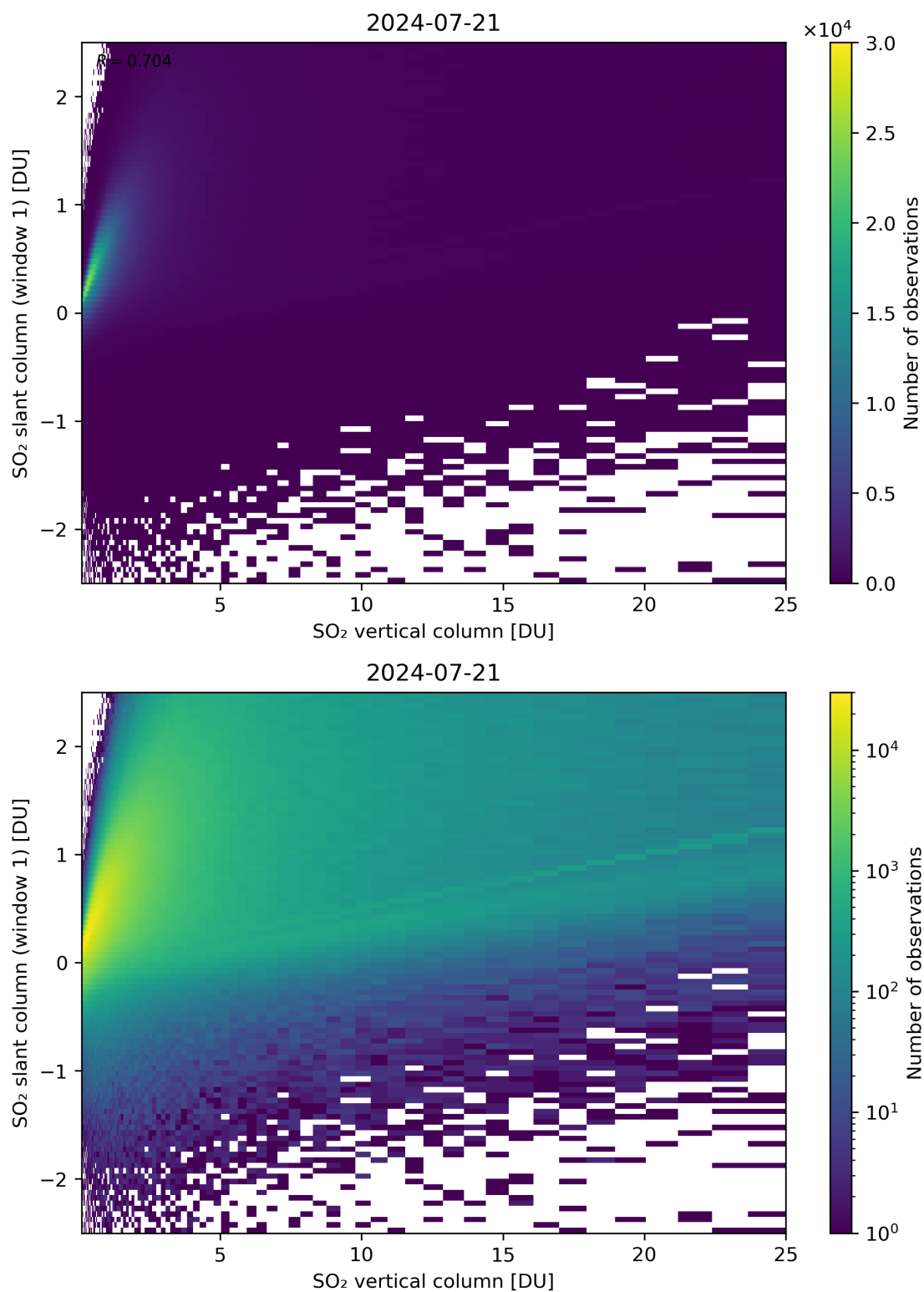


Figure 300: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

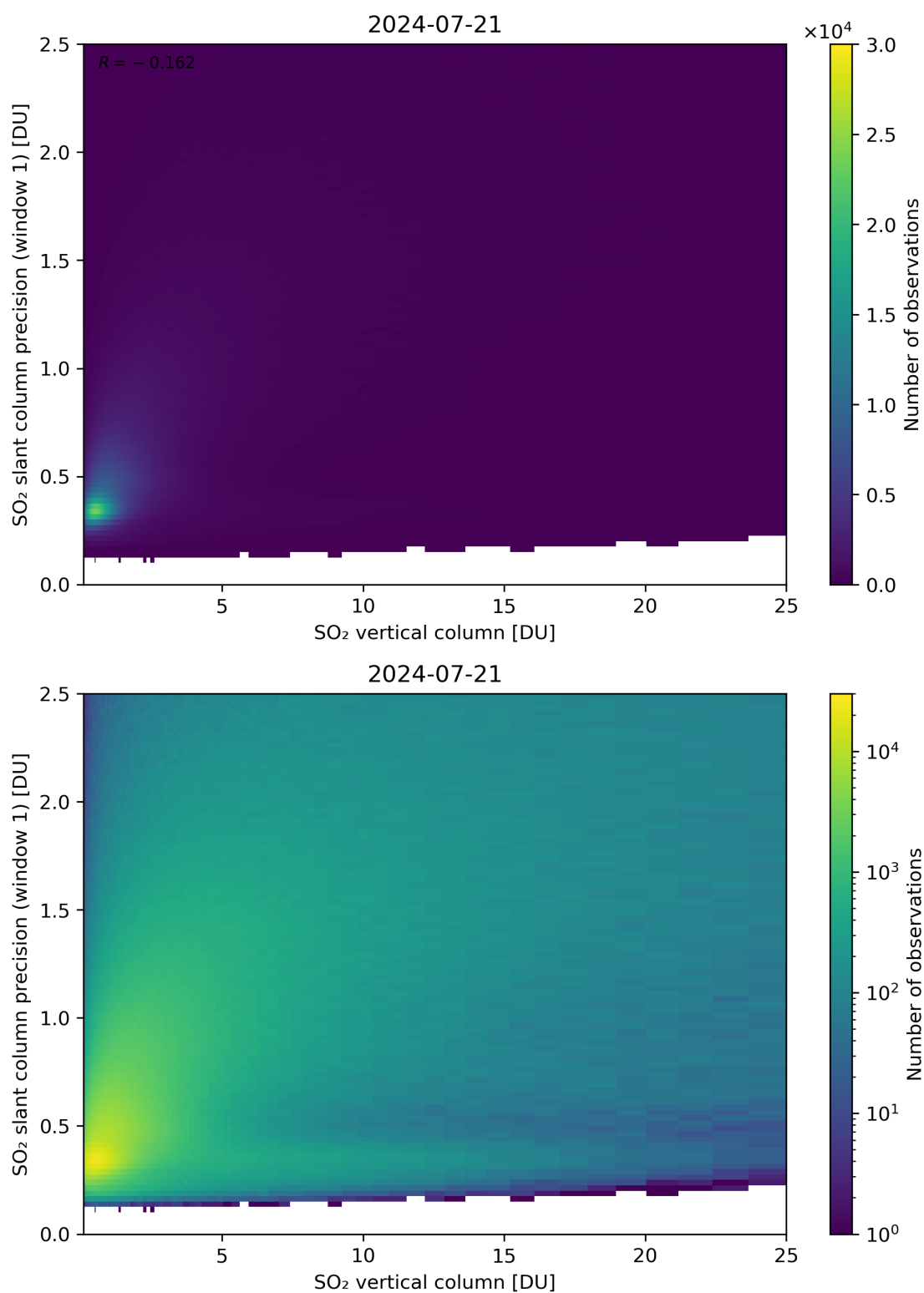


Figure 301: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

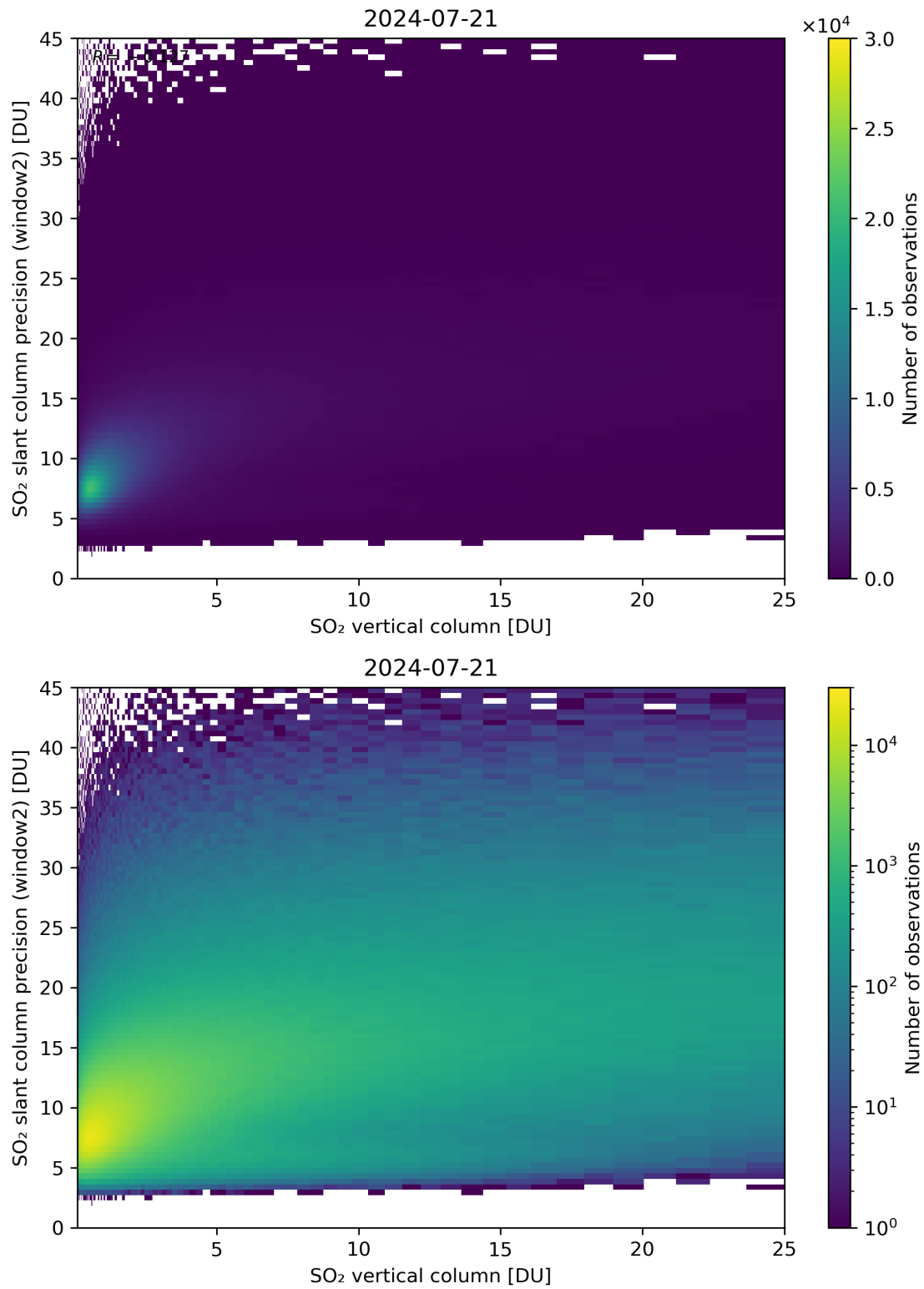


Figure 302: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

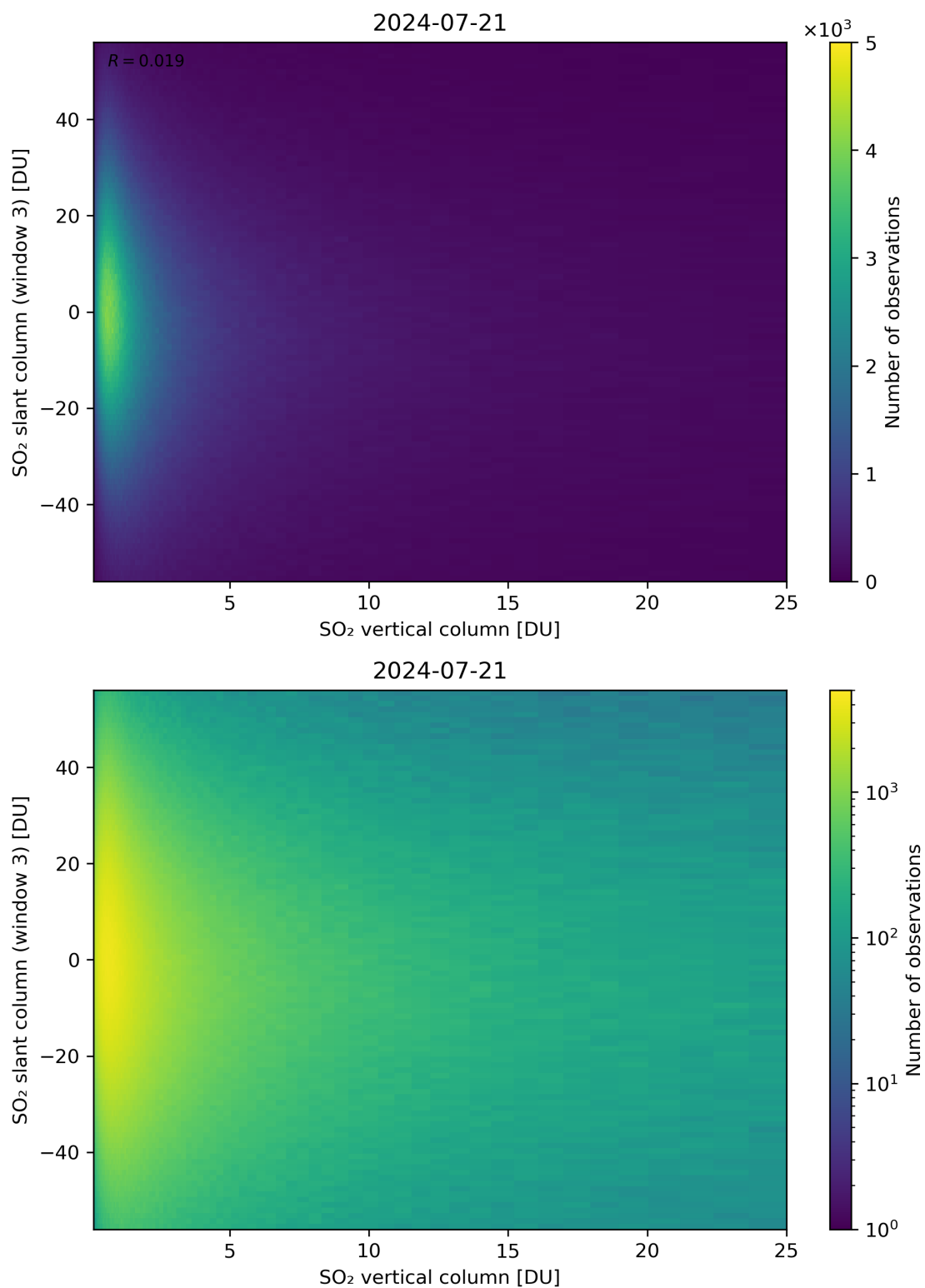


Figure 303: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

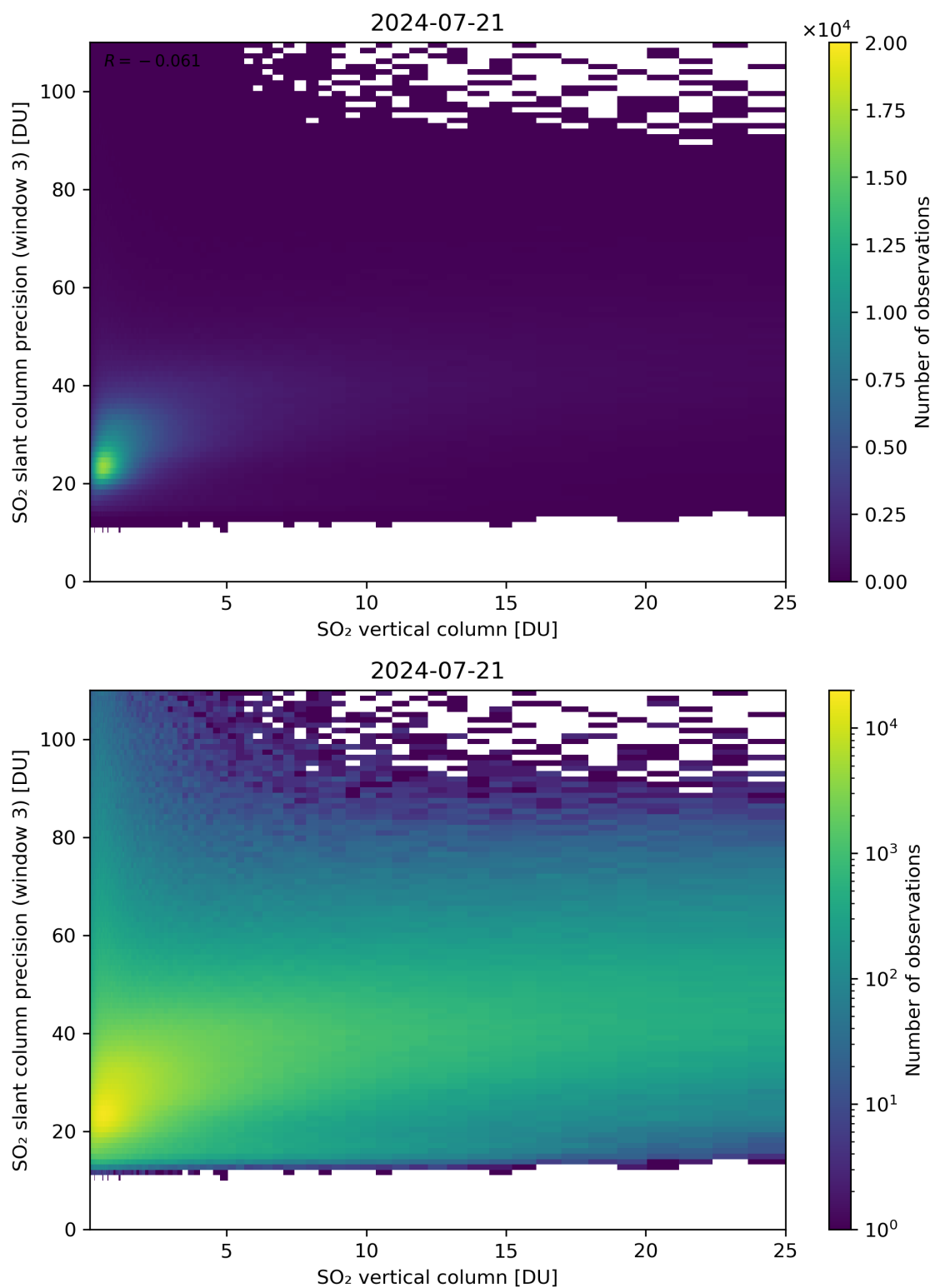


Figure 304: Scatter density plot of “SO₂ vertical column” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

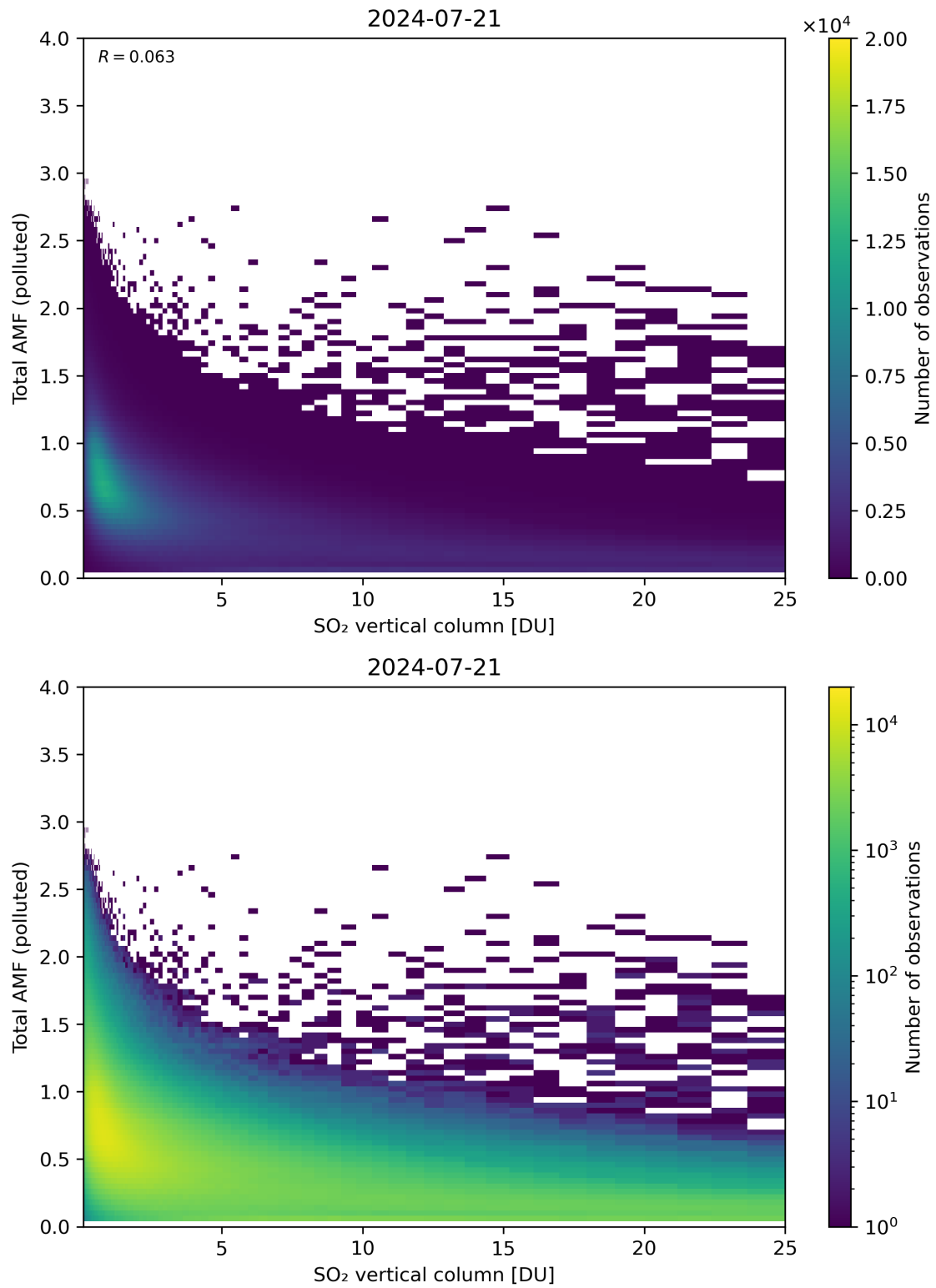


Figure 305: Scatter density plot of “SO₂ vertical column” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

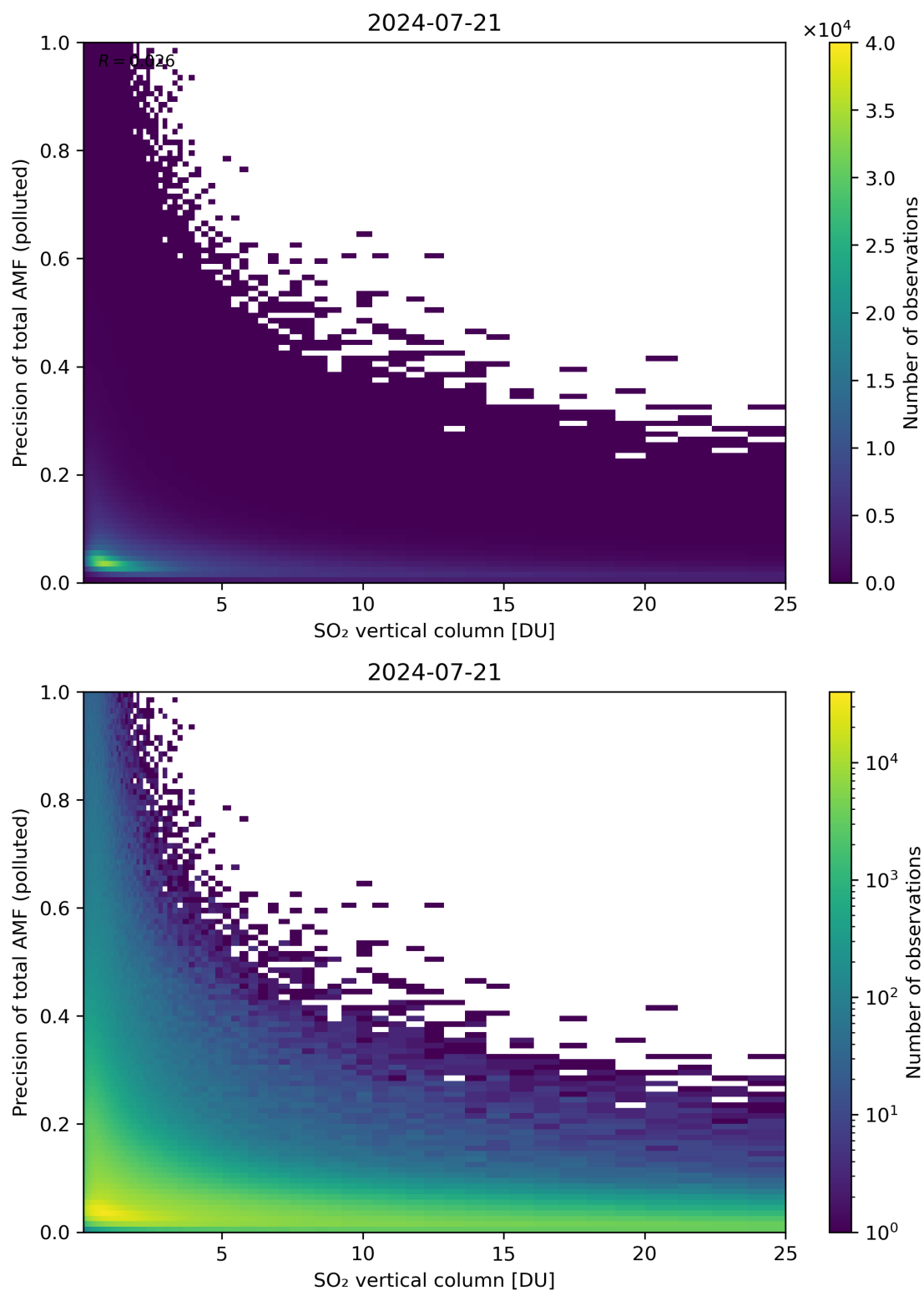


Figure 306: Scatter density plot of “SO₂ vertical column” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

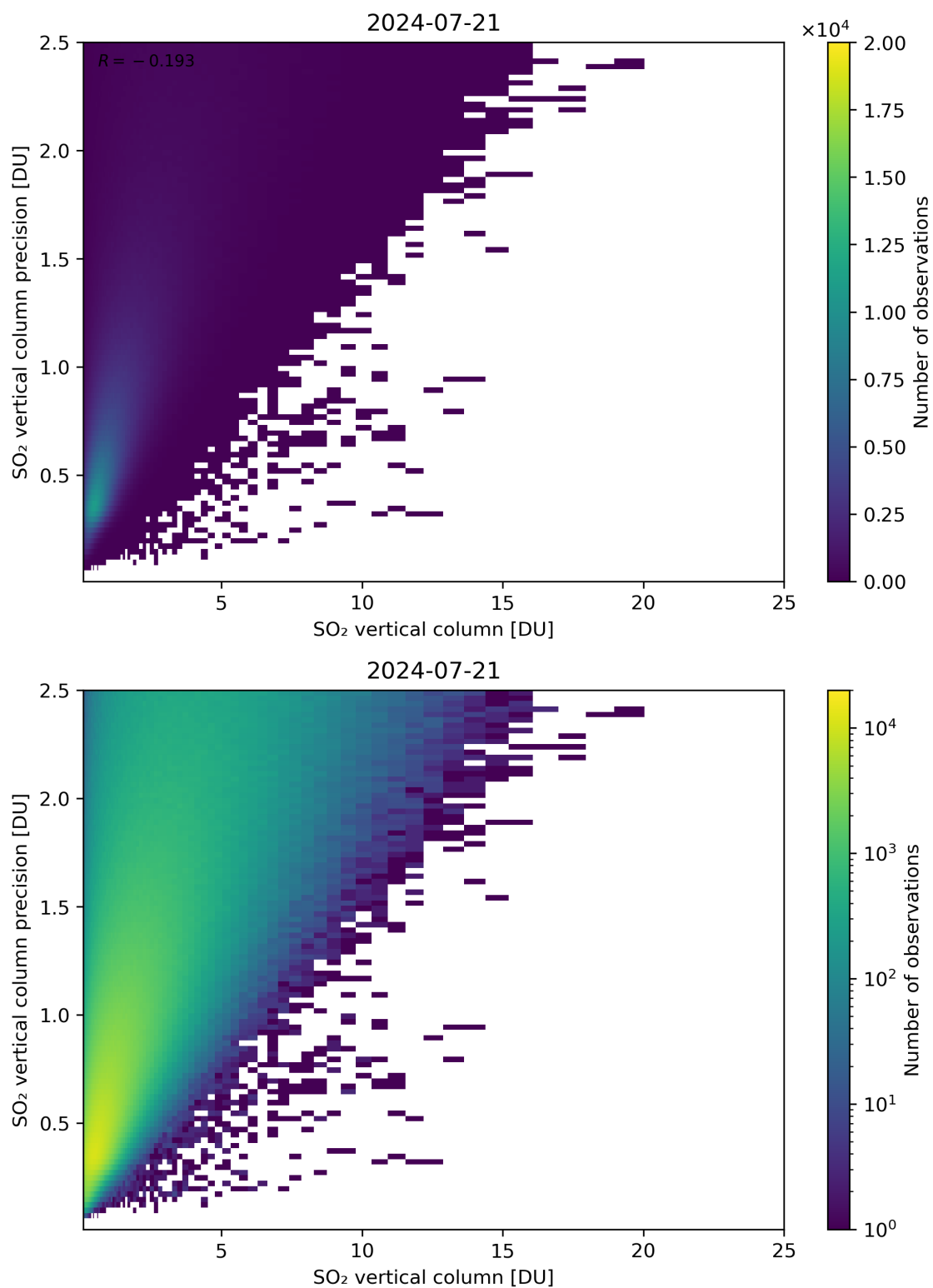


Figure 307: Scatter density plot of “SO₂ vertical column” against “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22.

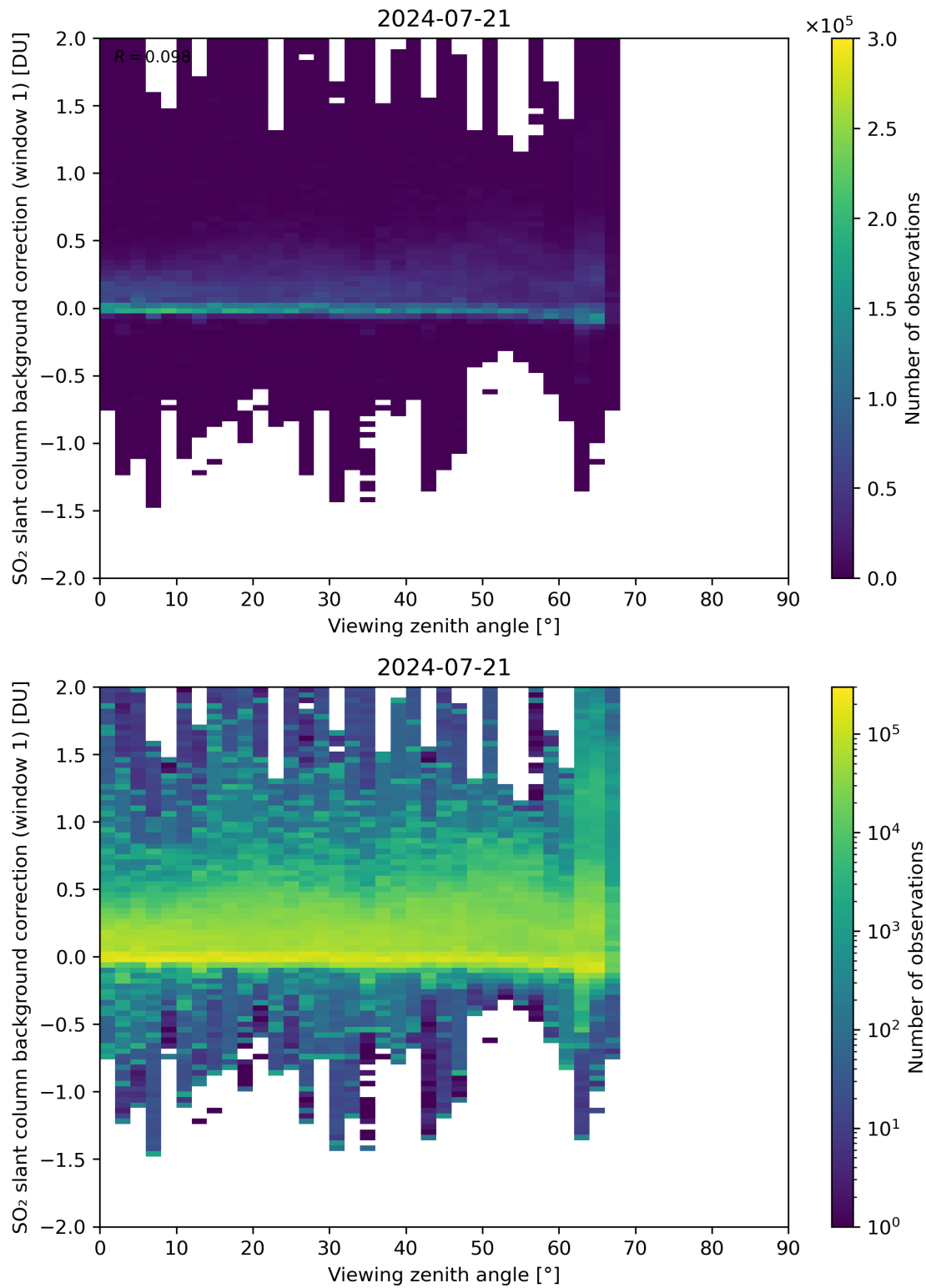


Figure 308: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.

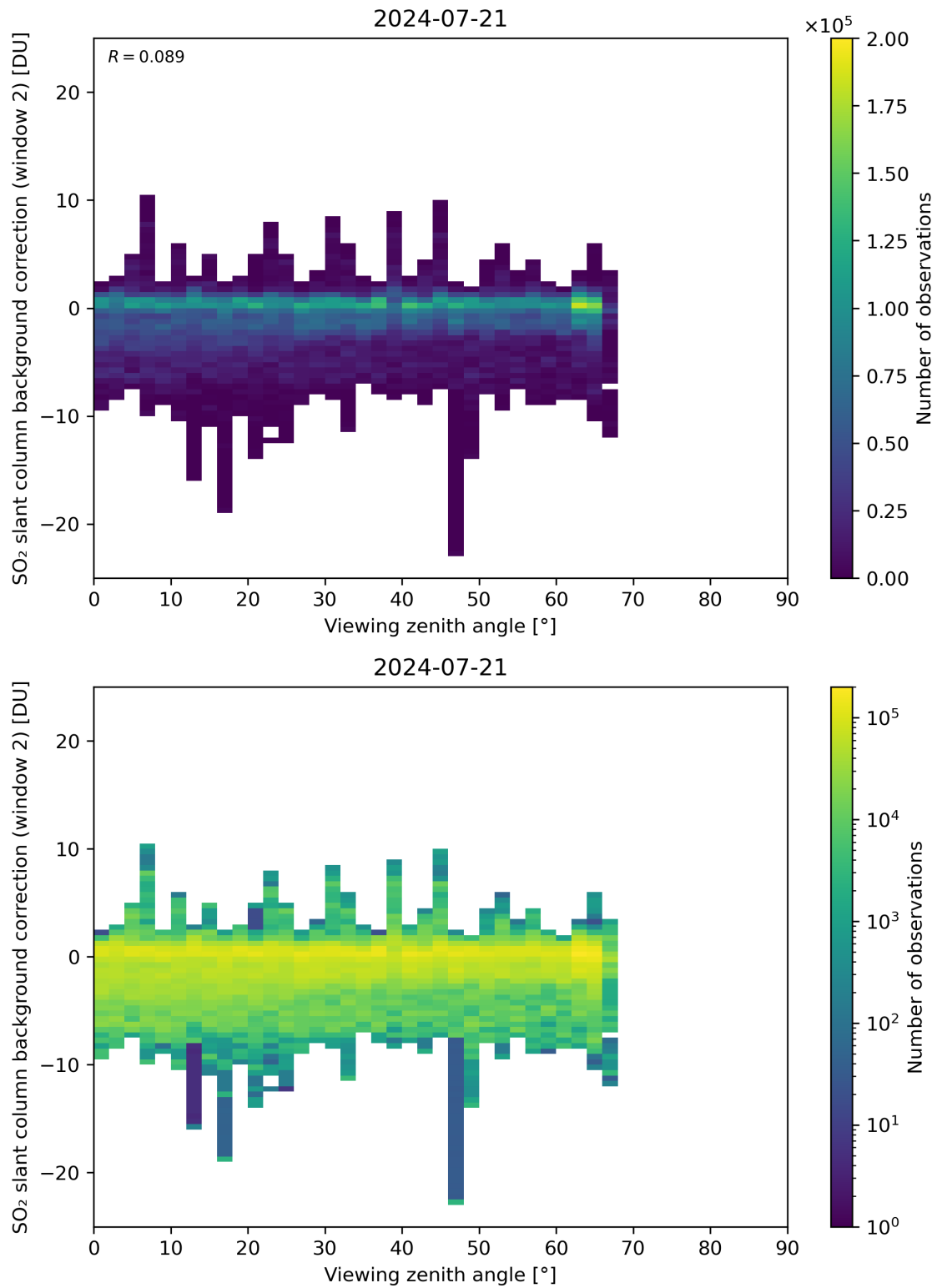


Figure 309: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.

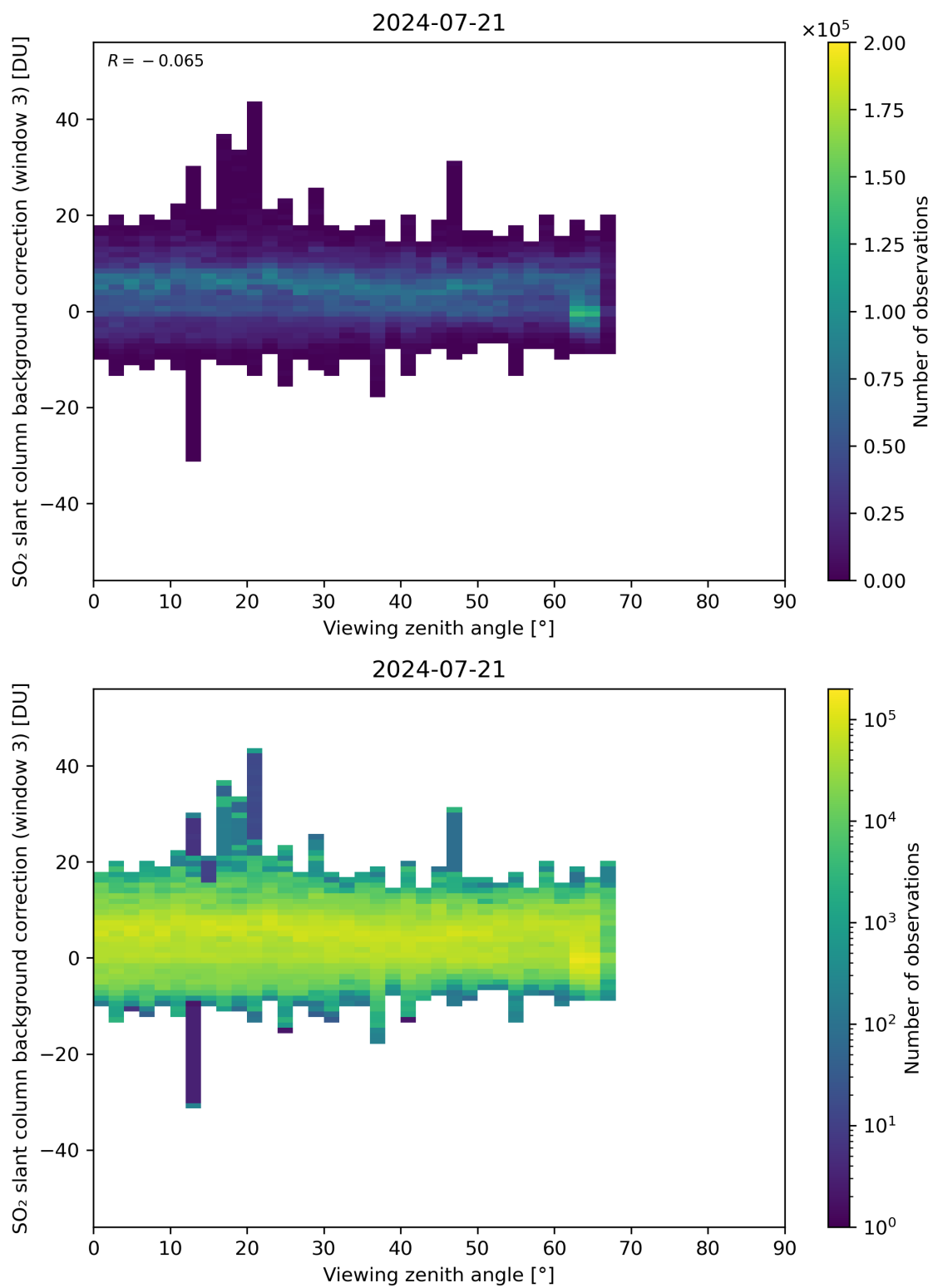


Figure 310: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.

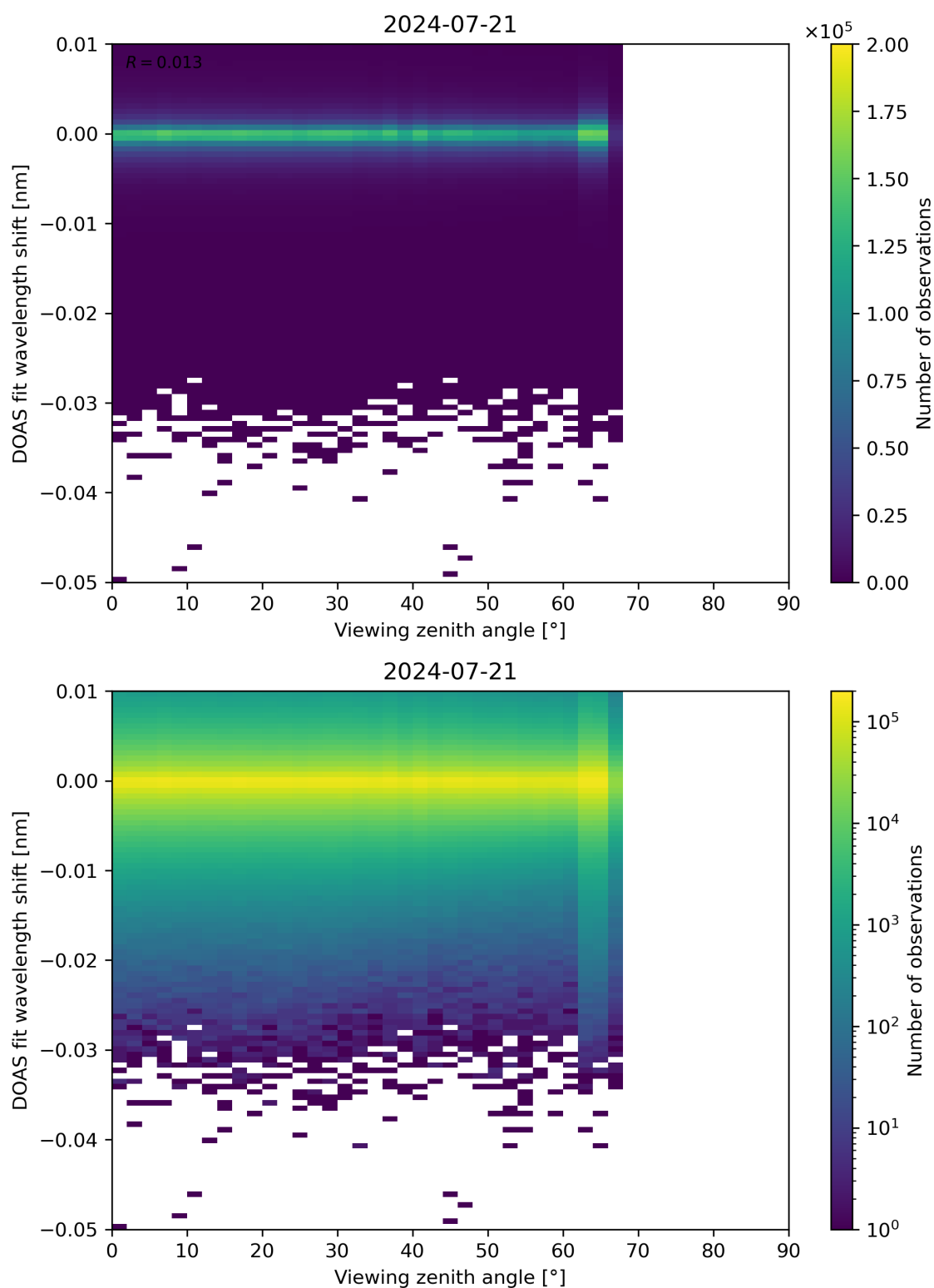


Figure 311: Scatter density plot of “Viewing zenith angle” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.

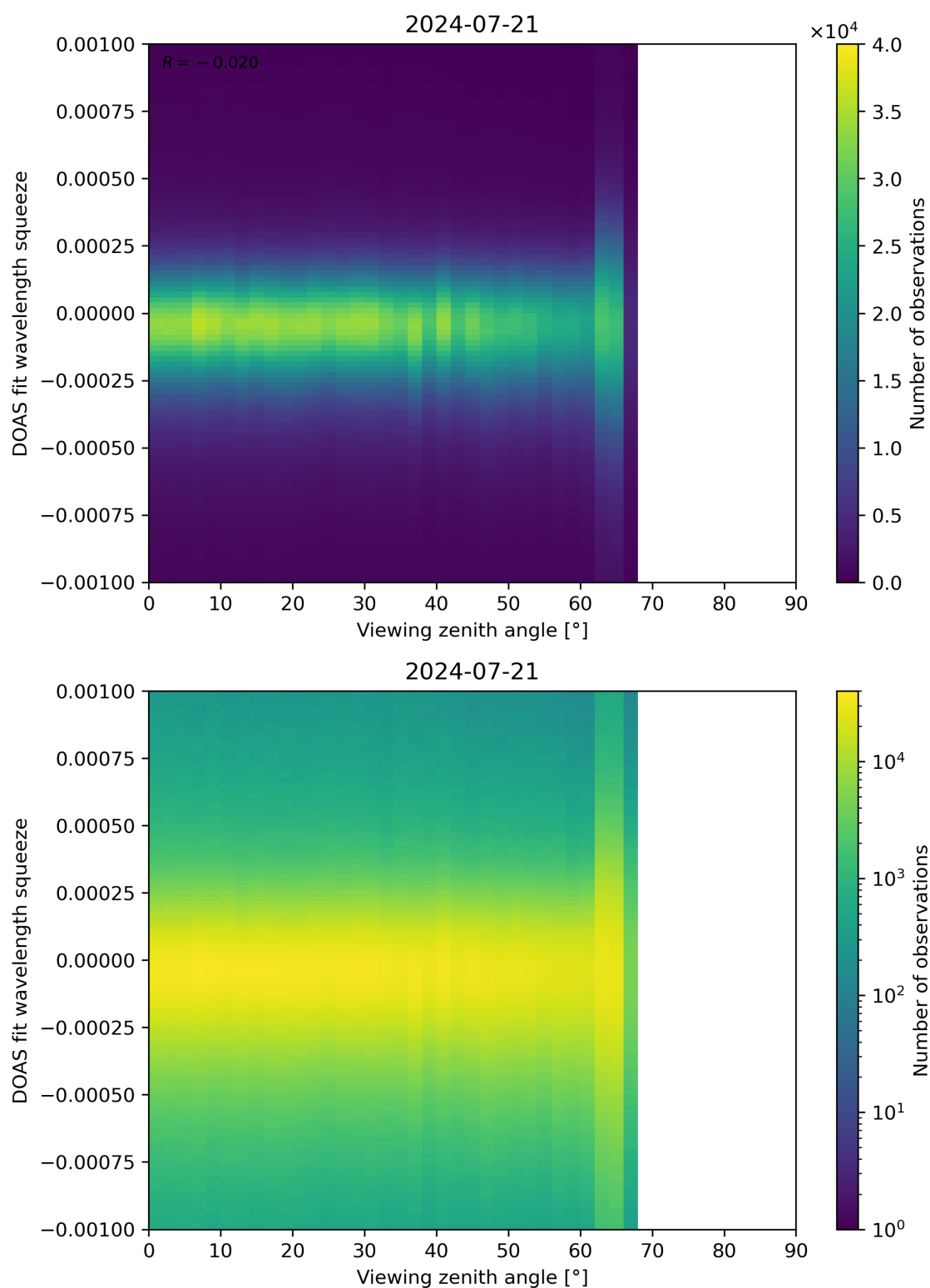


Figure 312: Scatter density plot of “Viewing zenith angle” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.

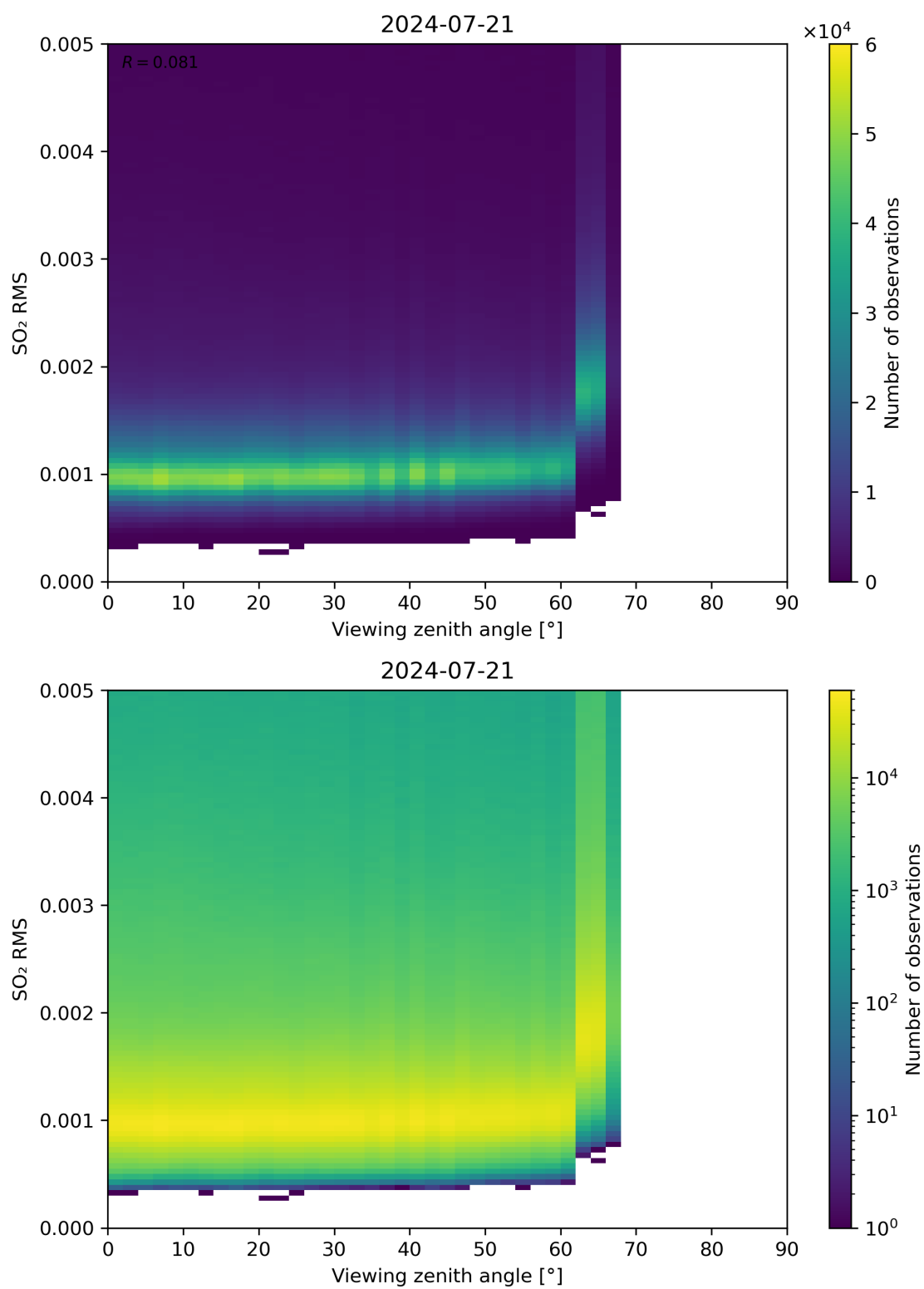


Figure 313: Scatter density plot of “Viewing zenith angle” against “SO₂ RMS” for 2024-07-21 to 2024-07-22.

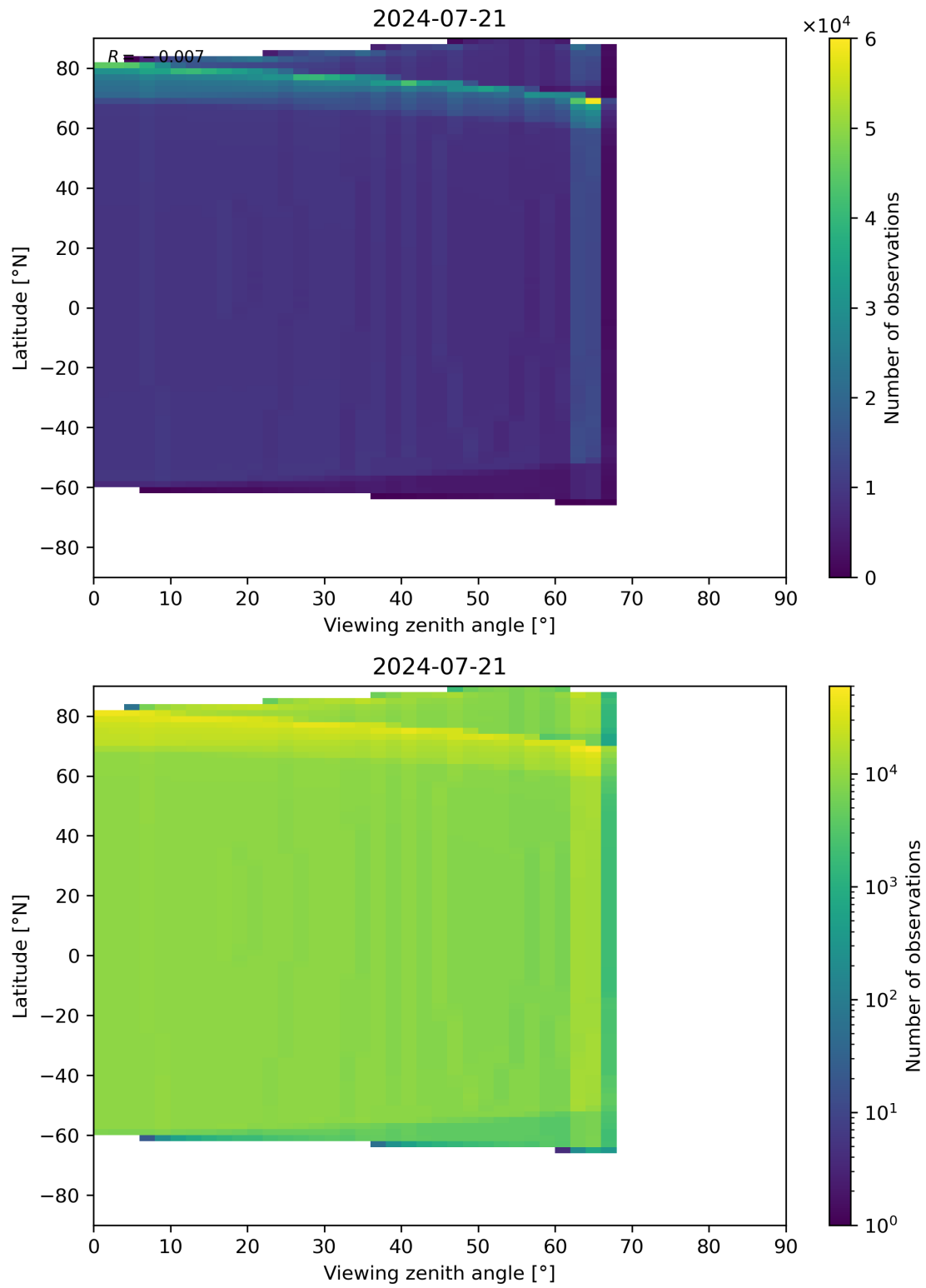


Figure 314: Scatter density plot of “Viewing zenith angle” against “Latitude” for 2024-07-21 to 2024-07-22.

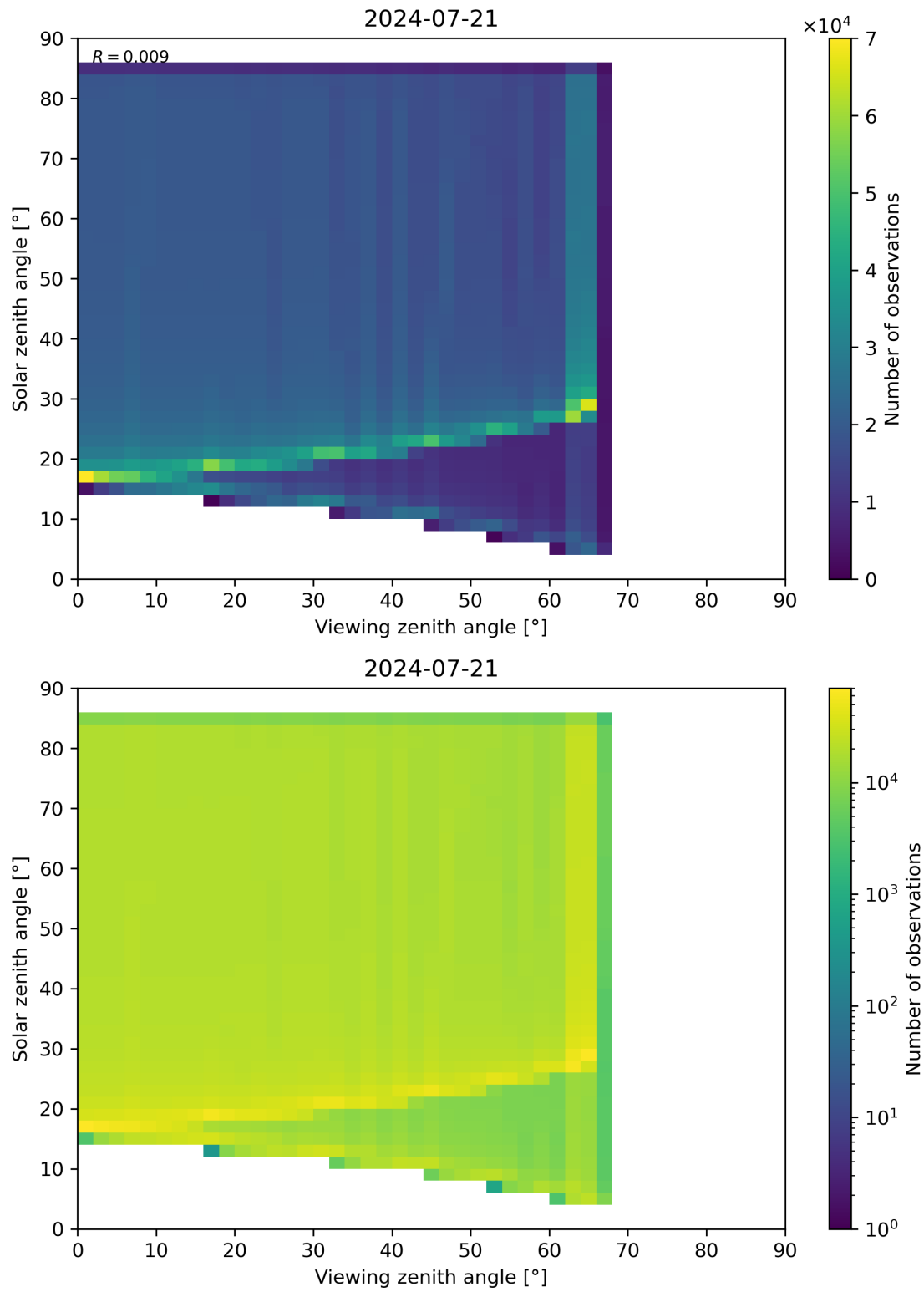


Figure 315: Scatter density plot of “Viewing zenith angle” against “Solar zenith angle” for 2024-07-21 to 2024-07-22.

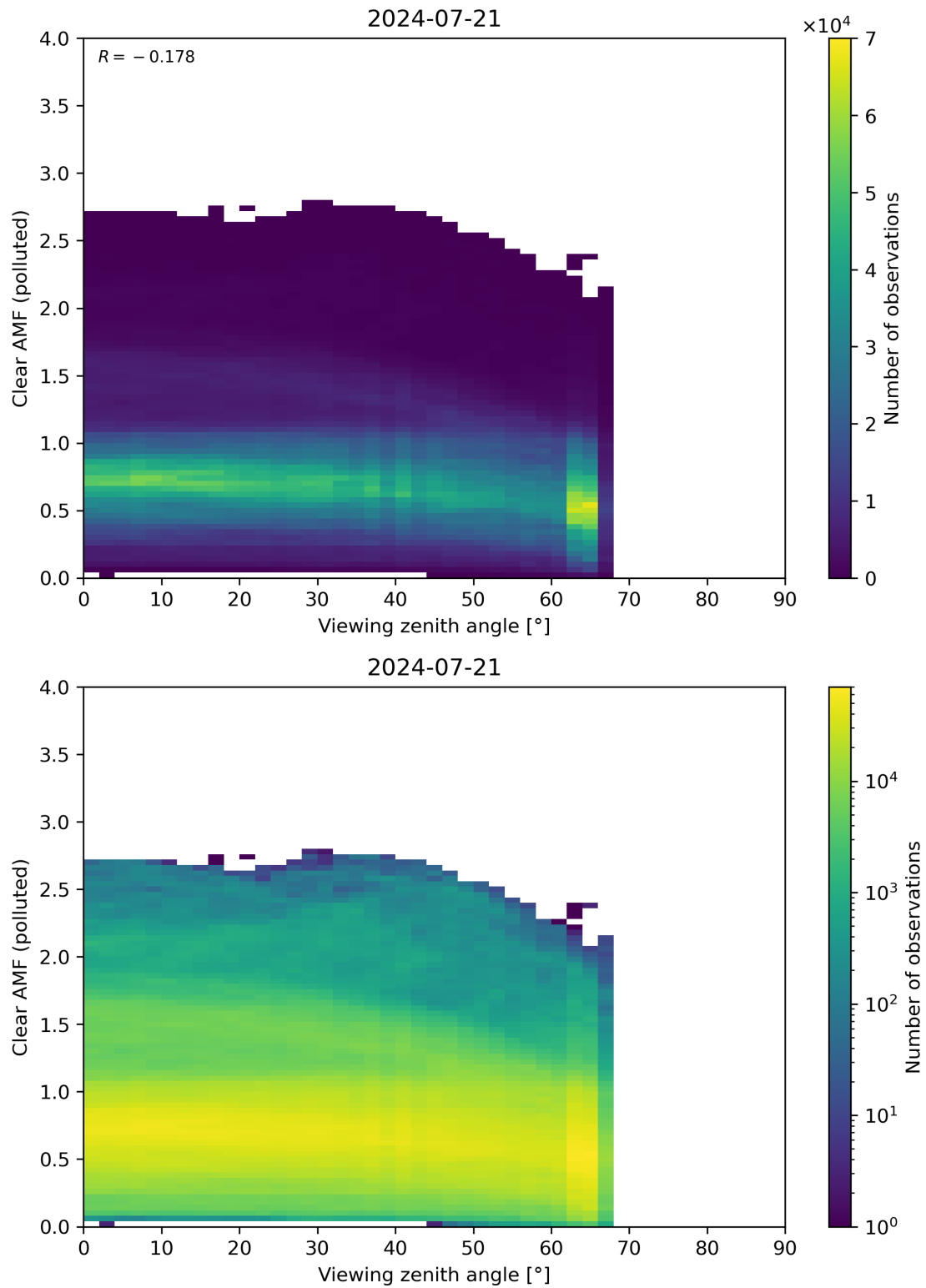


Figure 316: Scatter density plot of “Viewing zenith angle” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.

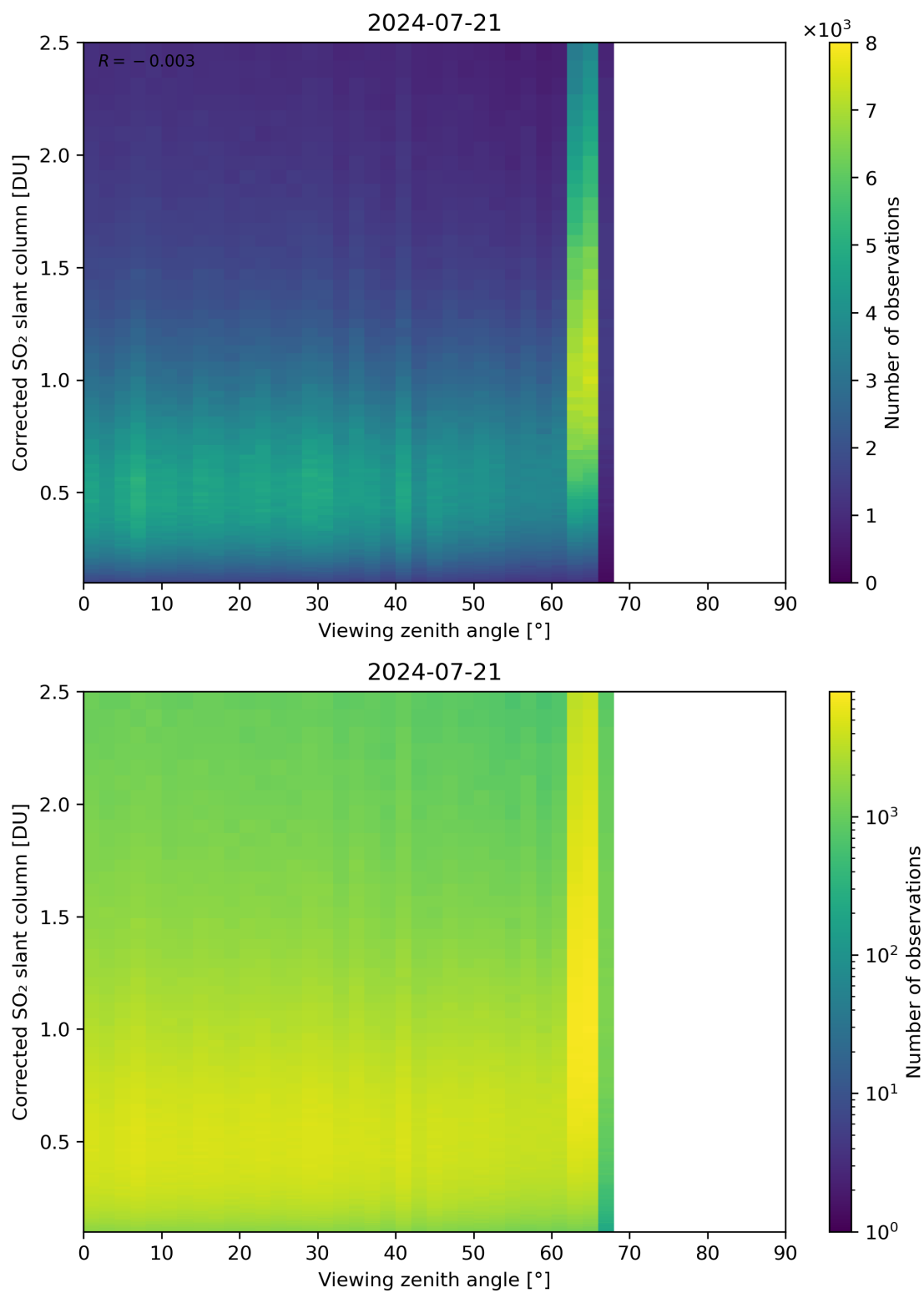


Figure 317: Scatter density plot of “Viewing zenith angle” against “Corrected SO₂ slant column” for 2024-07-21 to 2024-07-22.

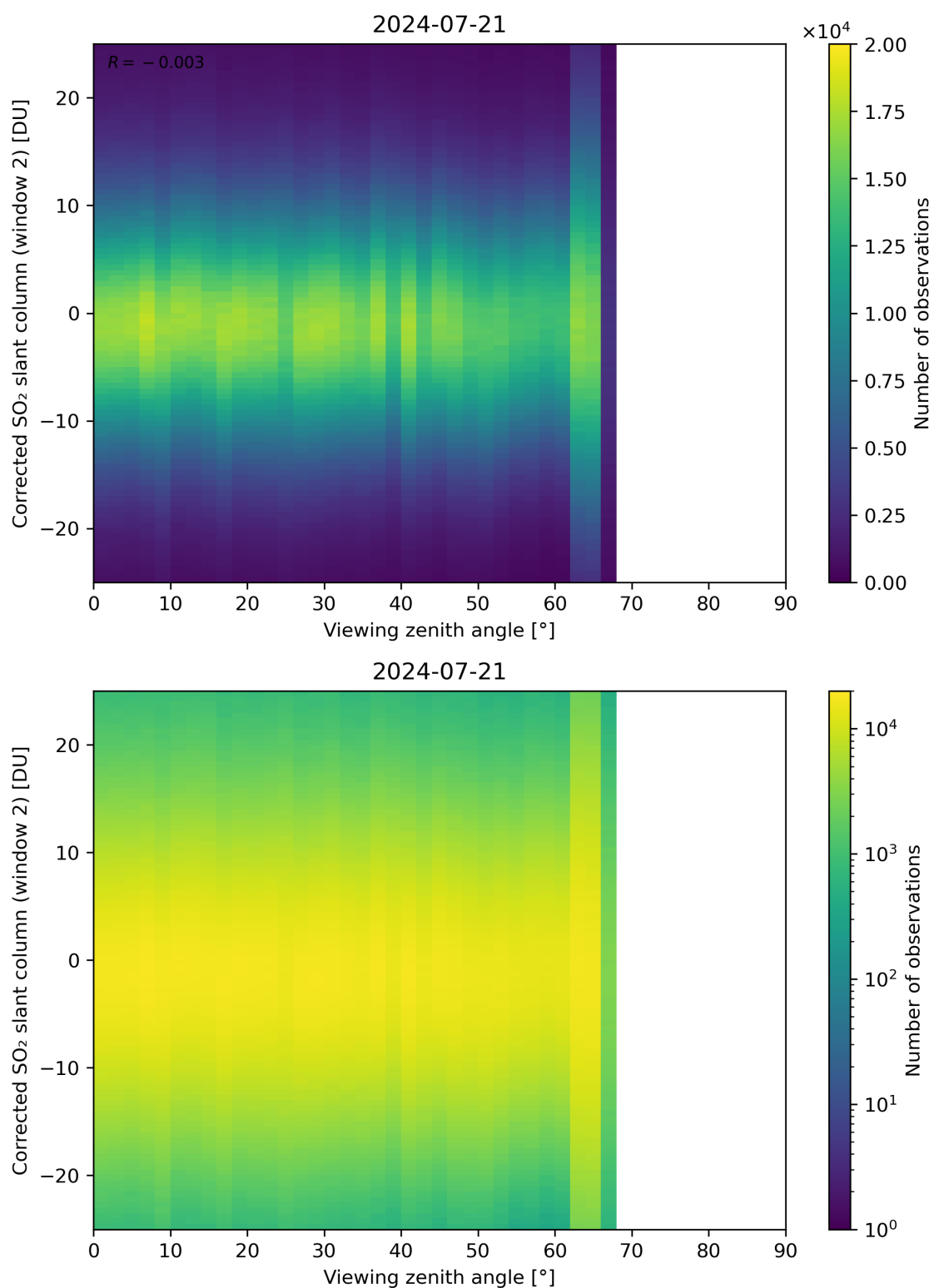


Figure 318: Scatter density plot of “Viewing zenith angle” against “Corrected SO₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.

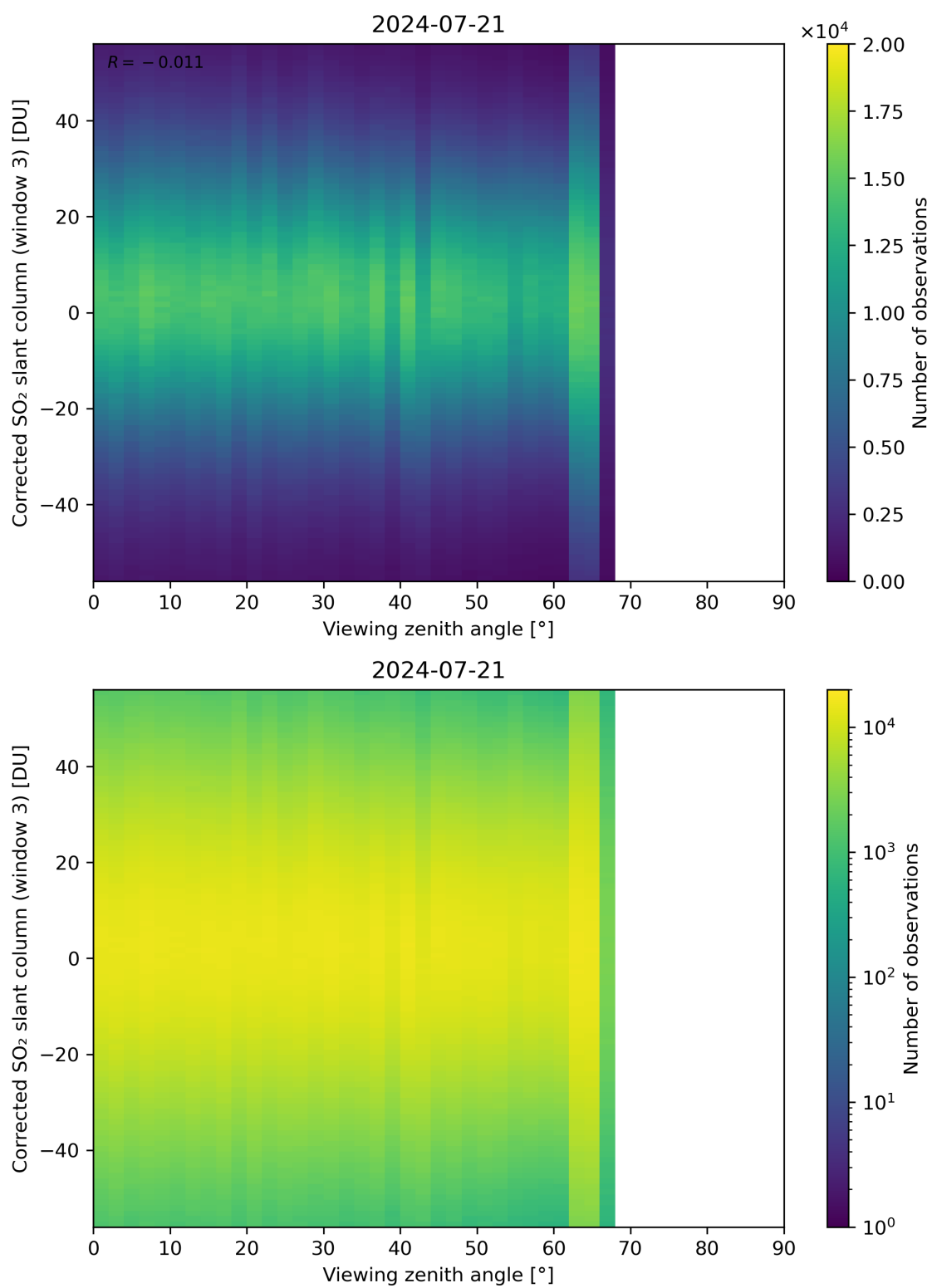


Figure 319: Scatter density plot of “Viewing zenith angle” against “Corrected SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

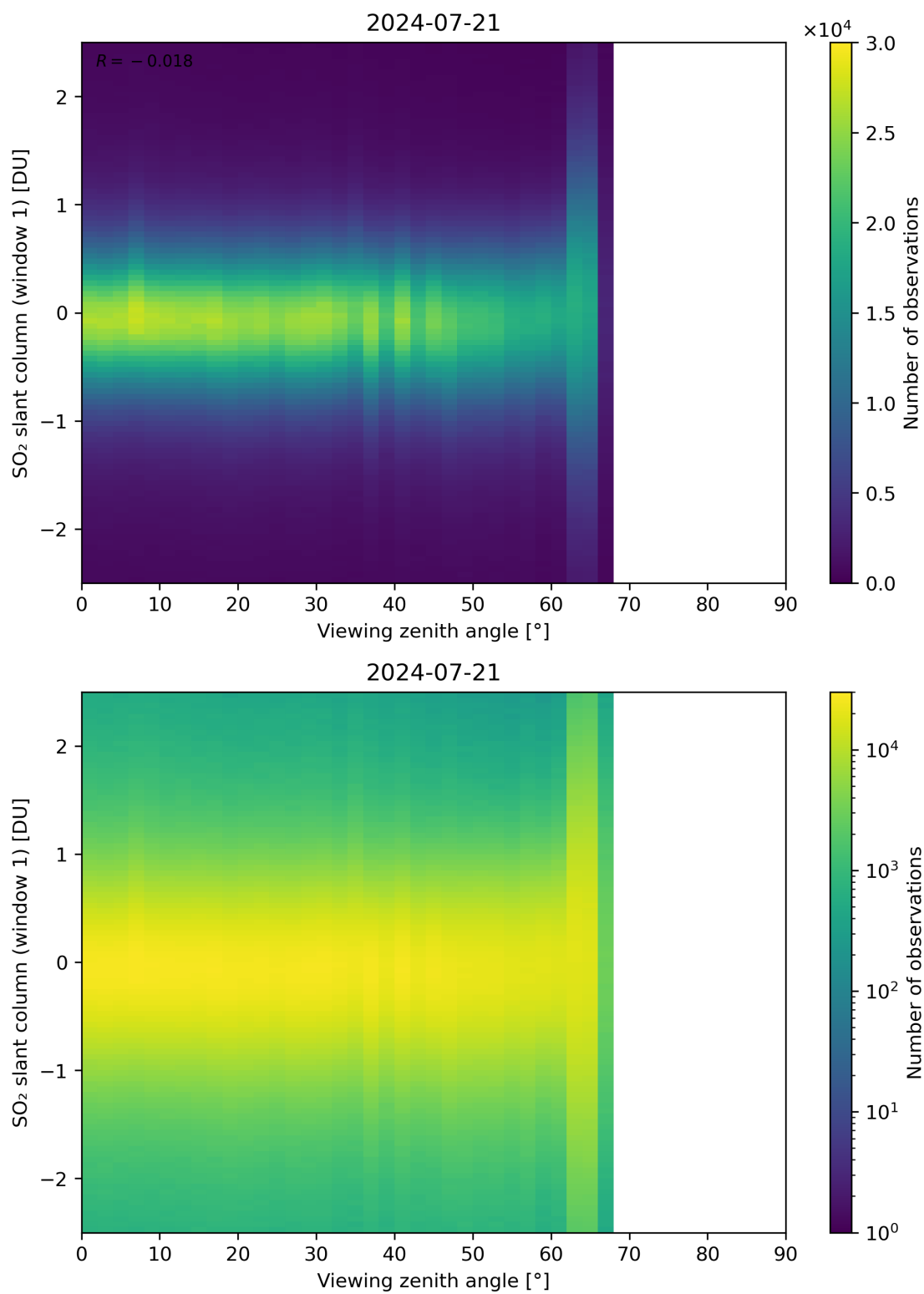


Figure 320: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.

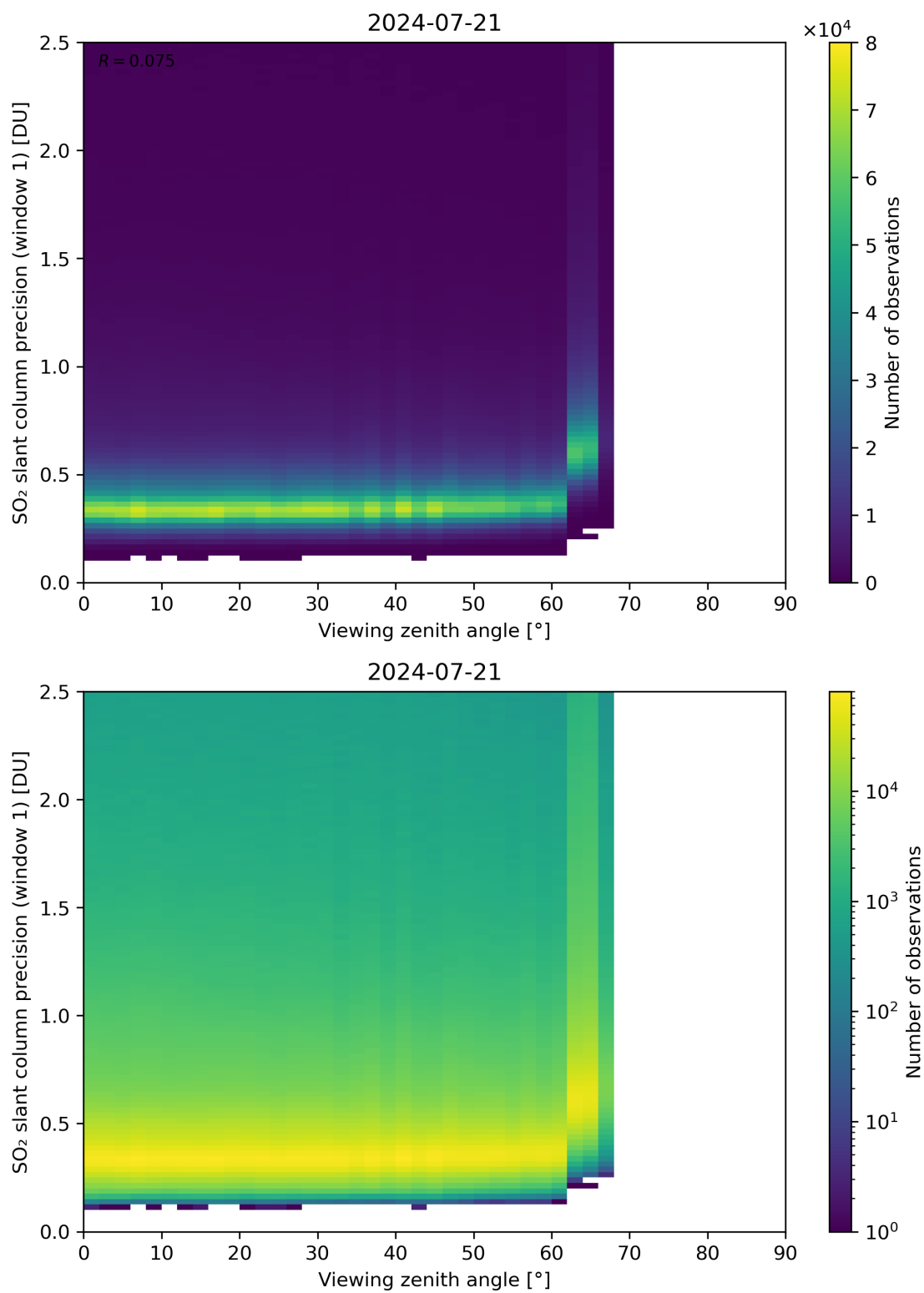


Figure 321: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.

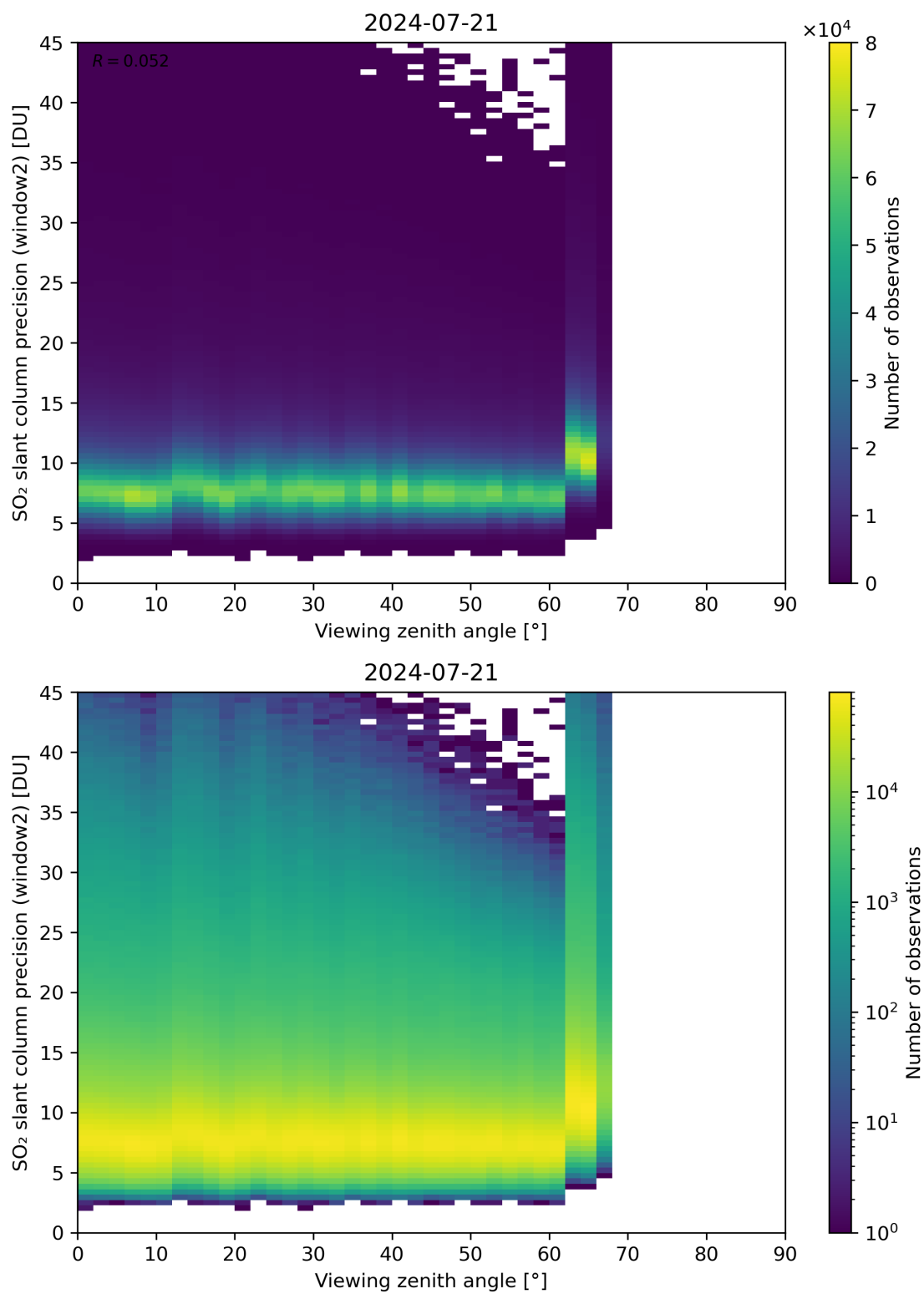


Figure 322: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.

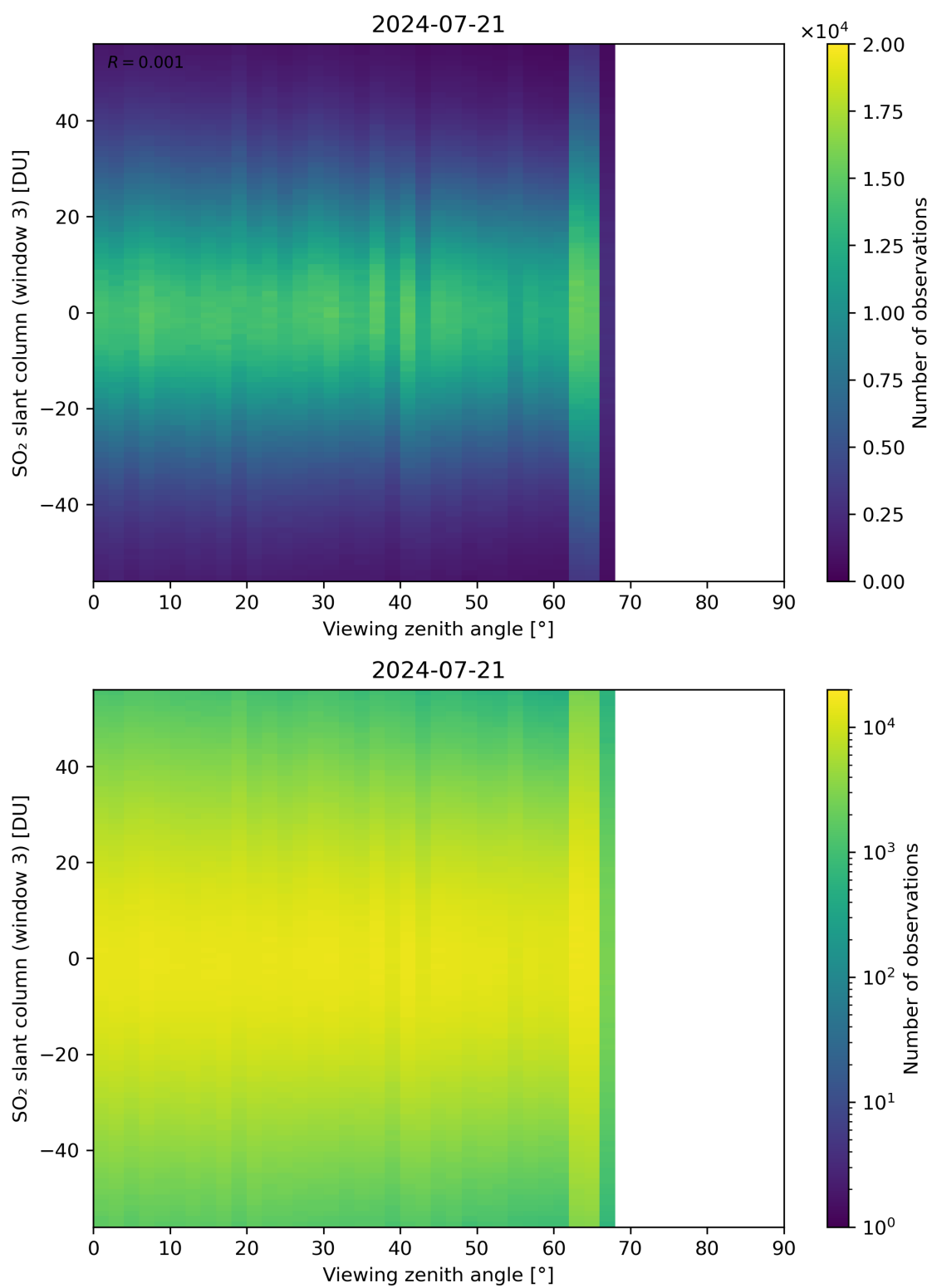


Figure 323: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.

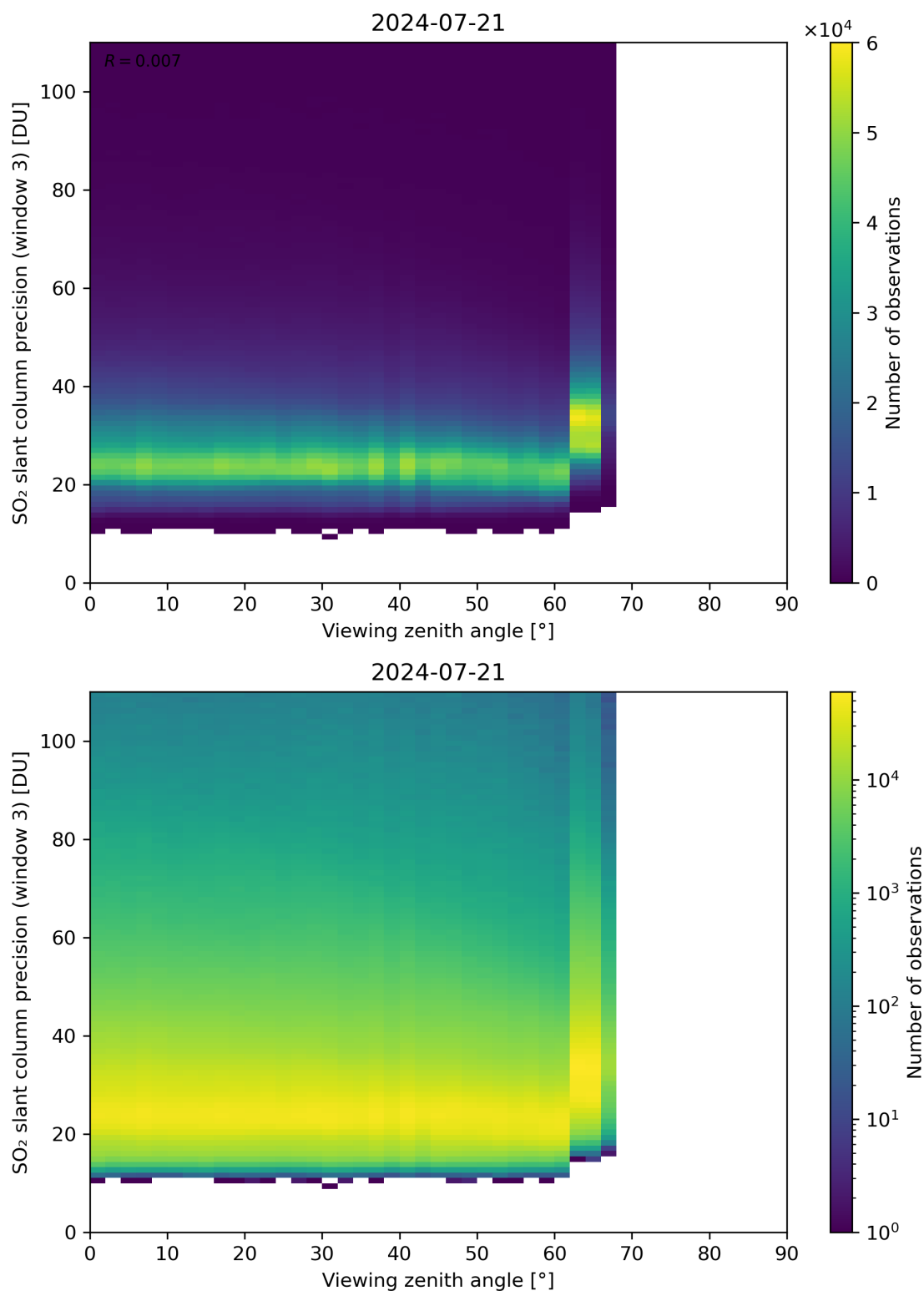


Figure 324: Scatter density plot of “Viewing zenith angle” against “SO₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.

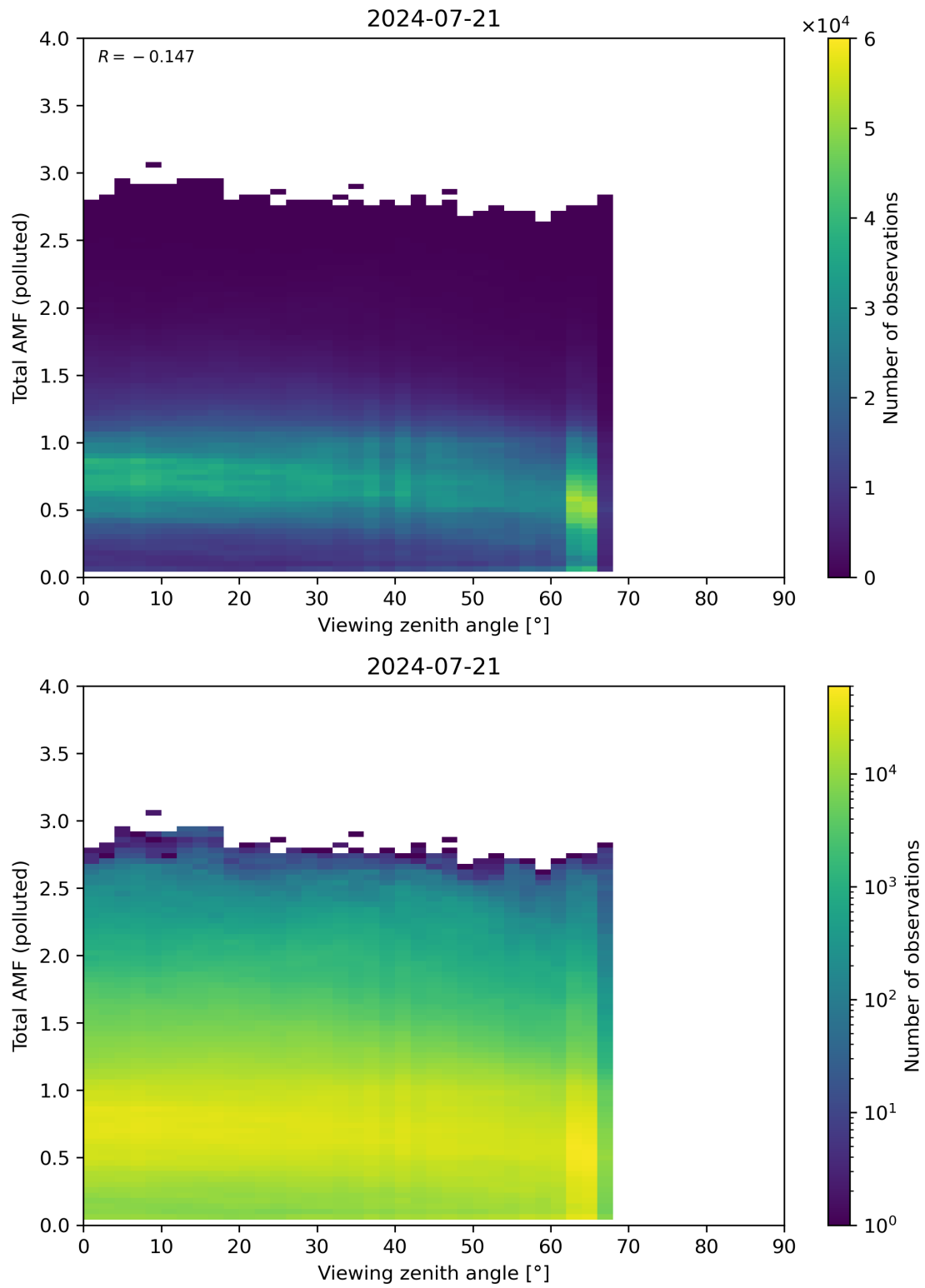


Figure 325: Scatter density plot of “Viewing zenith angle” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.

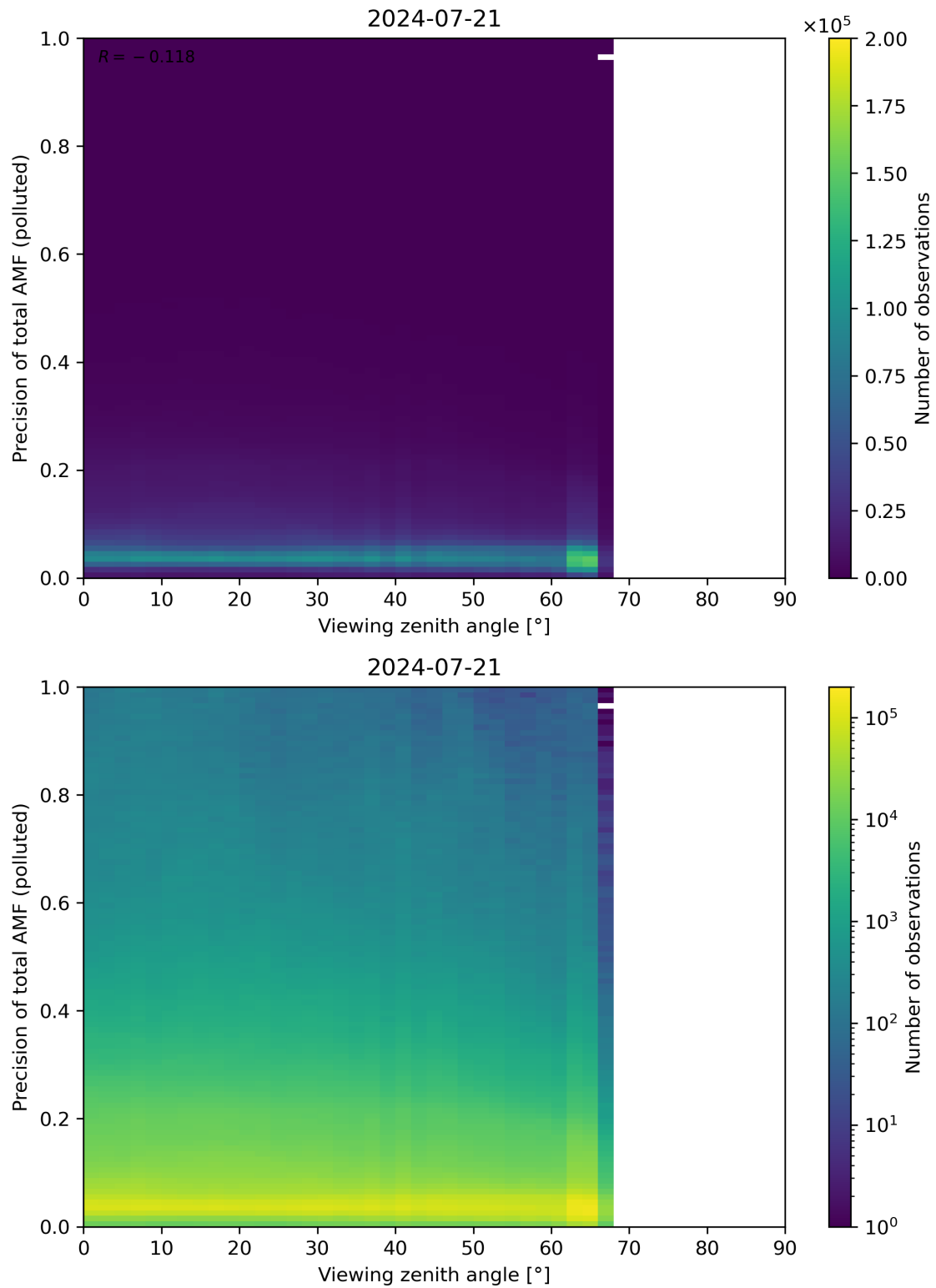


Figure 326: Scatter density plot of “Viewing zenith angle” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.

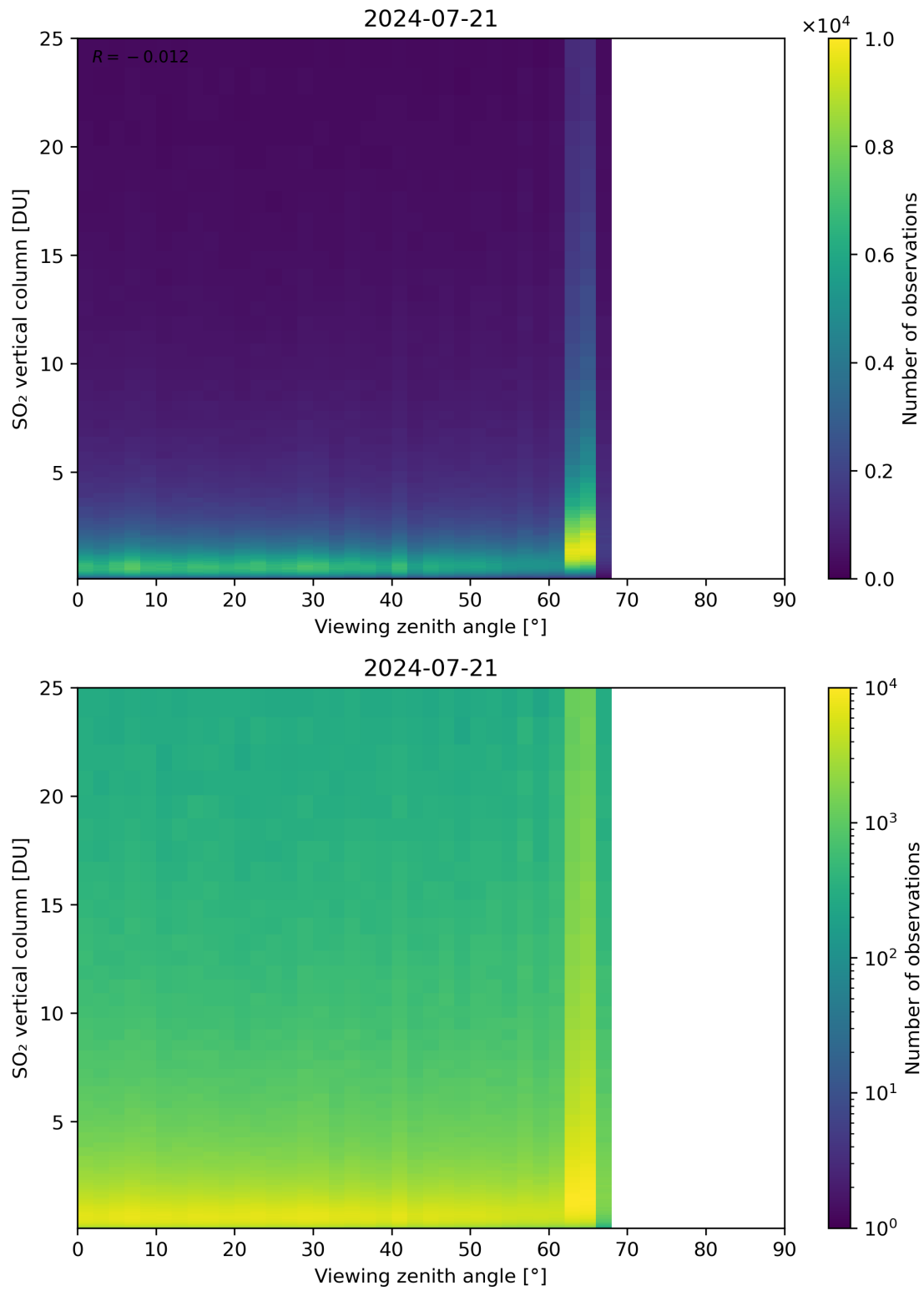


Figure 327: Scatter density plot of “Viewing zenith angle” against “SO₂ vertical column” for 2024-07-21 to 2024-07-22.

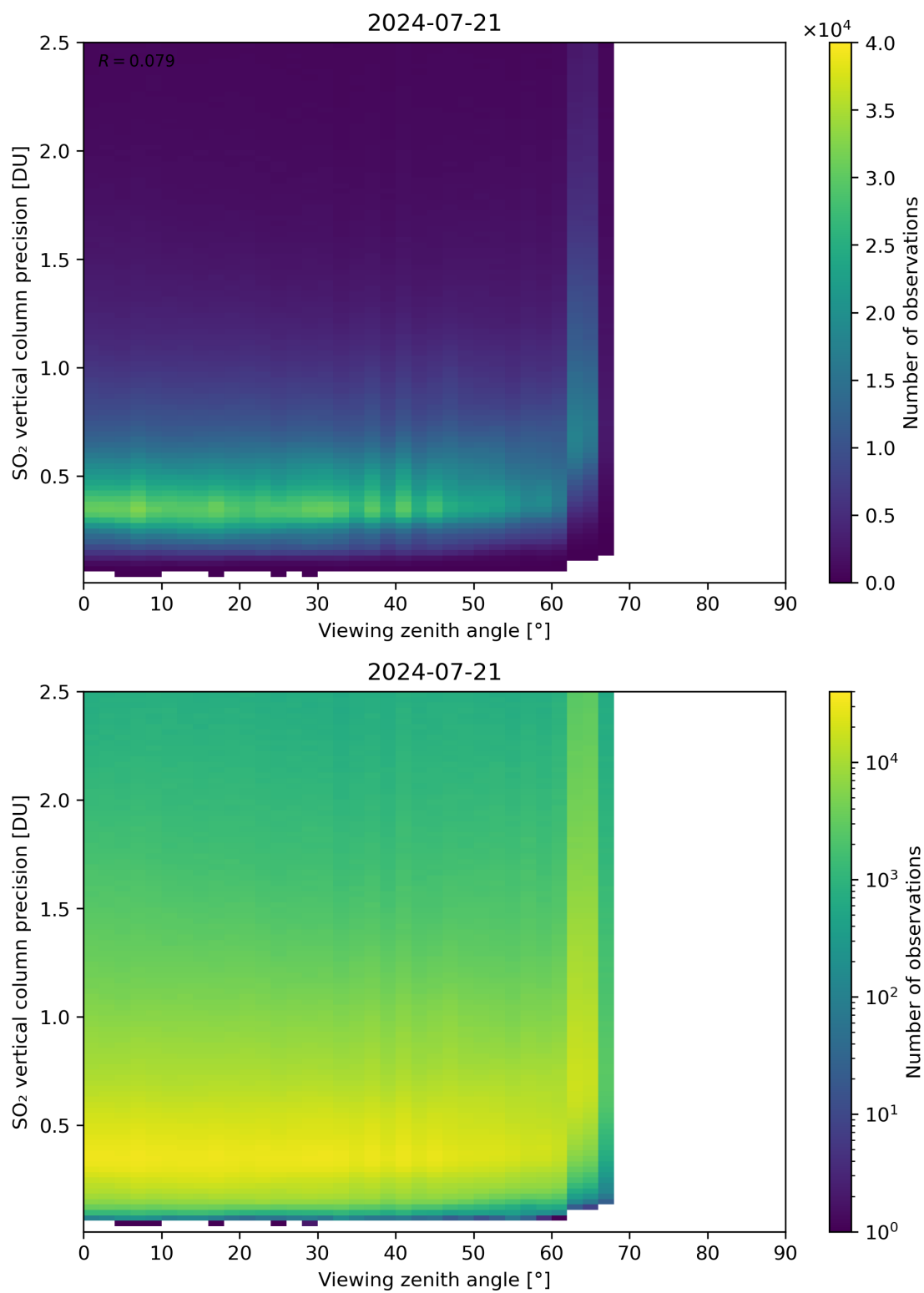


Figure 328: Scatter density plot of “Viewing zenith angle” against “SO₂ vertical column precision” for 2024-07-21 to 2024-07-22.

Contents

1	Short Introduction	1
1.1	The list of parameters	1
2	Definitions	1
3	Granule outlines	12
4	Input data monitoring	13
5	Warnings and errors	14
6	World maps	15
7	Zonal average	38
8	Histograms	61
9	Along track statistics	84
10	Coincidence density	107
11	Copyright information of ‘PyCAMA’	338

List of Figures

1	Map of correlation graph for 2024-07-21 to 2024-07-22.	10
2	Map of correlation matrix for 2024-07-21 to 2024-07-22.	11
3	Outline of the granules.	12
4	Input data per granule	13
5	Fraction of pixels with specific warnings and errors during processing	14
6	Map of “SO ₂ vertical column” for 2024-07-21 to 2024-07-22	15
7	Map of “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22	16
8	Map of “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22	17
9	Map of “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22	18
10	Map of “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22	19
11	Map of “Corrected SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22	20
12	Map of “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22	21
13	Map of “SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22	22
14	Map of “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22	23
15	Map of “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22	24
16	Map of “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22	25
17	Map of “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22	26
18	Map of “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22	27
19	Map of “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22	28
20	Map of “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22	29
21	Map of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22	30
22	Map of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22	31
23	Map of “SO ₂ RMS” for 2024-07-21 to 2024-07-22	32
24	Map of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22	33
25	Map of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22	34
26	Map of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22	35
27	Map of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22	36
28	Map of the number of observations for 2024-07-21 to 2024-07-22	37
29	Zonal average of “QA value” for 2024-07-21 to 2024-07-22.	38
30	Zonal average of “SO ₂ vertical column” for 2024-07-21 to 2024-07-22.	39
31	Zonal average of “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22.	40
32	Zonal average of “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22.	41
33	Zonal average of “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	42
34	Zonal average of “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	43
35	Zonal average of “Corrected SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	44
36	Zonal average of “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	45

37	Zonal average of “SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	46
38	Zonal average of “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	47
39	Zonal average of “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	48
40	Zonal average of “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22. . .	49
41	Zonal average of “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	50
42	Zonal average of “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	51
43	Zonal average of “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	52
44	Zonal average of “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22. . .	53
45	Zonal average of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	54
46	Zonal average of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	55
47	Zonal average of “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	56
48	Zonal average of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	57
49	Zonal average of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	58
50	Zonal average of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	59
51	Zonal average of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22.	60
52	Histogram of “QA value” for 2024-07-21 to 2024-07-22	61
53	Histogram of “SO ₂ vertical column” for 2024-07-21 to 2024-07-22	62
54	Histogram of “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22	63
55	Histogram of “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22	64
56	Histogram of “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22	65
57	Histogram of “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22	66
58	Histogram of “Corrected SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22	67
59	Histogram of “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22	68
60	Histogram of “SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22	69
61	Histogram of “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22	70
62	Histogram of “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22	71
63	Histogram of “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22	72
64	Histogram of “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22	73
65	Histogram of “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22	74
66	Histogram of “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22	75
67	Histogram of “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22	76
68	Histogram of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22	77
69	Histogram of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22	78
70	Histogram of “SO ₂ RMS” for 2024-07-21 to 2024-07-22	79
71	Histogram of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22	80
72	Histogram of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22	81
73	Histogram of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22	82
74	Histogram of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22	83
75	Along track statistics of “QA value” for 2024-07-21 to 2024-07-22	84
76	Along track statistics of “SO ₂ vertical column” for 2024-07-21 to 2024-07-22	85
77	Along track statistics of “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22	86
78	Along track statistics of “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22	87
79	Along track statistics of “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22	88
80	Along track statistics of “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22	89
81	Along track statistics of “Corrected SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22	90
82	Along track statistics of “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22	91
83	Along track statistics of “SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22	92
84	Along track statistics of “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22	93
85	Along track statistics of “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22	94
86	Along track statistics of “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22	95
87	Along track statistics of “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22	96
88	Along track statistics of “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22	97
89	Along track statistics of “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22	98
90	Along track statistics of “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22	99
91	Along track statistics of “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22	100
92	Along track statistics of “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22	101
93	Along track statistics of “SO ₂ RMS” for 2024-07-21 to 2024-07-22	102
94	Along track statistics of “Total AMF (polluted)” for 2024-07-21 to 2024-07-22	103
95	Along track statistics of “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22	104
96	Along track statistics of “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22	105
97	Along track statistics of “Number of spectral points in retrieval” for 2024-07-21 to 2024-07-22	106

129	Scatter density plot of “DOAS fit wavelength shift” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	138
130	Scatter density plot of “DOAS fit wavelength shift” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	139
131	Scatter density plot of “DOAS fit wavelength shift” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	140
132	Scatter density plot of “DOAS fit wavelength squeeze” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	141
133	Scatter density plot of “DOAS fit wavelength squeeze” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	142
134	Scatter density plot of “DOAS fit wavelength squeeze” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	143
135	Scatter density plot of “DOAS fit wavelength squeeze” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	144
136	Scatter density plot of “SO ₂ RMS” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	145
137	Scatter density plot of “SO ₂ RMS” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	146
138	Scatter density plot of “SO ₂ RMS” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	147
139	Scatter density plot of “Latitude” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	148
140	Scatter density plot of “Latitude” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	149
141	Scatter density plot of “Latitude” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	150
142	Scatter density plot of “Latitude” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	151
143	Scatter density plot of “Latitude” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	152
144	Scatter density plot of “Latitude” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	153
145	Scatter density plot of “Latitude” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	154
146	Scatter density plot of “Latitude” against “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22.	155
147	Scatter density plot of “Latitude” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	156
148	Scatter density plot of “Latitude” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	157
149	Scatter density plot of “Latitude” against “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	158
150	Scatter density plot of “Latitude” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	159
151	Scatter density plot of “Latitude” against “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	160
152	Scatter density plot of “Latitude” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	161
153	Scatter density plot of “Latitude” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	162
154	Scatter density plot of “Latitude” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	163
155	Scatter density plot of “Latitude” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	164
156	Scatter density plot of “Latitude” against “SO ₂ vertical column” for 2024-07-21 to 2024-07-22.	165
157	Scatter density plot of “Latitude” against “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22.	166
158	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	167
159	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	168
160	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	169
161	Scatter density plot of “Solar zenith angle” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	170
162	Scatter density plot of “Solar zenith angle” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	171
163	Scatter density plot of “Solar zenith angle” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	172
164	Scatter density plot of “Solar zenith angle” against “Latitude” for 2024-07-21 to 2024-07-22.	173
165	Scatter density plot of “Solar zenith angle” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	174
166	Scatter density plot of “Solar zenith angle” against “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22.	175
167	Scatter density plot of “Solar zenith angle” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	176
168	Scatter density plot of “Solar zenith angle” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	177

169	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	178
170	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	179
171	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	180
172	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	181
173	Scatter density plot of “Solar zenith angle” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	182
174	Scatter density plot of “Solar zenith angle” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	183
175	Scatter density plot of “Solar zenith angle” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	184
176	Scatter density plot of “Solar zenith angle” against “SO ₂ vertical column” for 2024-07-21 to 2024-07-22.	185
177	Scatter density plot of “Solar zenith angle” against “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22.	186
178	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	187
179	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	188
180	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	189
181	Scatter density plot of “Corrected SO ₂ slant column” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	190
182	Scatter density plot of “Corrected SO ₂ slant column” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	191
183	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	192
184	Scatter density plot of “Corrected SO ₂ slant column” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	193
185	Scatter density plot of “Corrected SO ₂ slant column” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	194
186	Scatter density plot of “Corrected SO ₂ slant column” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	195
187	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	196
188	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	197
189	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	198
190	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	199
191	Scatter density plot of “Corrected SO ₂ slant column” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	200
192	Scatter density plot of “Corrected SO ₂ slant column” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	201
193	Scatter density plot of “Corrected SO ₂ slant column” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	202
194	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	203
195	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	204
196	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	205
197	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	206
198	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	207
199	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	208
200	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	209

201	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	210
202	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	211
203	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	212
204	Scatter density plot of “Corrected SO ₂ slant column (window 2)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	213
205	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	214
206	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	215
207	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	216
208	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	217
209	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	218
210	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	219
211	Scatter density plot of “Corrected SO ₂ slant column (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	220
212	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	221
213	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	222
214	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	223
215	Scatter density plot of “SO ₂ slant column (window 1)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	224
216	Scatter density plot of “SO ₂ slant column (window 1)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	225
217	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	226
218	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	227
219	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	228
220	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	229
221	Scatter density plot of “SO ₂ slant column precision (window 1)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	230
222	Scatter density plot of “SO ₂ slant column precision (window 1)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	231
223	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	232
224	Scatter density plot of “SO ₂ slant column precision (window 1)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	233
225	Scatter density plot of “SO ₂ slant column precision (window 1)” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	234
226	Scatter density plot of “SO ₂ slant column precision (window 1)” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	235
227	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ slant column precision (window 2)” for 2024-07-21 to 2024-07-22.	236
228	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	237
229	Scatter density plot of “SO ₂ slant column precision (window 1)” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	238
230	Scatter density plot of “SO ₂ slant column precision (window 1)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	239
231	Scatter density plot of “SO ₂ slant column precision (window 1)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	240

232	Scatter density plot of “SO ₂ slant column (window 1)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	241
233	Scatter density plot of “SO ₂ slant column (window 1)” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	242
234	Scatter density plot of “SO ₂ slant column (window 1)” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	243
235	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	244
236	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	245
237	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	246
238	Scatter density plot of “SO ₂ slant column (window 1)” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	247
239	Scatter density plot of “SO ₂ slant column (window 1)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	248
240	Scatter density plot of “SO ₂ slant column (window 1)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	249
241	Scatter density plot of “SO ₂ slant column precision (window2)” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	250
242	Scatter density plot of “SO ₂ slant column precision (window2)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	251
243	Scatter density plot of “SO ₂ slant column precision (window2)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	252
244	Scatter density plot of “SO ₂ slant column precision (window2)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	253
245	Scatter density plot of “SO ₂ slant column precision (window2)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	254
246	Scatter density plot of “SO ₂ slant column precision (window2)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	255
247	Scatter density plot of “SO ₂ slant column precision (window2)” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	256
248	Scatter density plot of “SO ₂ slant column precision (window2)” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	257
249	Scatter density plot of “SO ₂ slant column precision (window2)” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	258
250	Scatter density plot of “SO ₂ slant column precision (window2)” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	259
251	Scatter density plot of “SO ₂ slant column precision (window2)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	260
252	Scatter density plot of “SO ₂ slant column precision (window2)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	261
253	Scatter density plot of “SO ₂ slant column (window 3)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	262
254	Scatter density plot of “SO ₂ slant column (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	263
255	Scatter density plot of “SO ₂ slant column (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	264
256	Scatter density plot of “SO ₂ slant column (window 3)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	265
257	Scatter density plot of “SO ₂ slant column precision (window 3)” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	266
258	Scatter density plot of “SO ₂ slant column precision (window 3)” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	267
259	Scatter density plot of “SO ₂ slant column precision (window 3)” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	268
260	Scatter density plot of “SO ₂ slant column precision (window 3)” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	269
261	Scatter density plot of “SO ₂ slant column precision (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	270
262	Scatter density plot of “SO ₂ slant column precision (window 3)” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	271

263	Scatter density plot of “SO ₂ slant column precision (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	272
264	Scatter density plot of “SO ₂ slant column precision (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	273
265	Scatter density plot of “SO ₂ slant column (window 3)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	274
266	Scatter density plot of “SO ₂ slant column (window 3)” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	275
267	Scatter density plot of “SO ₂ slant column (window 3)” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	276
268	Scatter density plot of “SO ₂ slant column (window 3)” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	277
269	Scatter density plot of “SO ₂ slant column (window 3)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	278
270	Scatter density plot of “Precision of total AMF (polluted)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	279
271	Scatter density plot of “Total AMF (polluted)” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	280
272	Scatter density plot of “Total AMF (polluted)” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	281
273	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	282
274	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	283
275	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	284
276	Scatter density plot of “SO ₂ vertical column” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	285
277	Scatter density plot of “SO ₂ vertical column” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	286
278	Scatter density plot of “SO ₂ vertical column” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	287
279	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	288
280	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	289
281	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	290
282	Scatter density plot of “SO ₂ vertical column precision” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	291
283	Scatter density plot of “SO ₂ vertical column precision” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	292
284	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	293
285	Scatter density plot of “SO ₂ vertical column precision” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	294
286	Scatter density plot of “SO ₂ vertical column precision” against “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22.	295
287	Scatter density plot of “SO ₂ vertical column precision” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	296
288	Scatter density plot of “SO ₂ vertical column precision” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	297
289	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	298
290	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	299
291	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column precision (window 2)” for 2024-07-21 to 2024-07-22.	300
292	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	301
293	Scatter density plot of “SO ₂ vertical column precision” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	302
294	Scatter density plot of “SO ₂ vertical column precision” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	303

295	Scatter density plot of “SO ₂ vertical column precision” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	304
296	Scatter density plot of “SO ₂ vertical column” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	305
297	Scatter density plot of “SO ₂ vertical column” against “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22.	306
298	Scatter density plot of “SO ₂ vertical column” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	307
299	Scatter density plot of “SO ₂ vertical column” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	308
300	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	309
301	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	310
302	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	311
303	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	312
304	Scatter density plot of “SO ₂ vertical column” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	313
305	Scatter density plot of “SO ₂ vertical column” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	314
306	Scatter density plot of “SO ₂ vertical column” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	315
307	Scatter density plot of “SO ₂ vertical column” against “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22.	316
308	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column background correction (window 1)” for 2024-07-21 to 2024-07-22.	317
309	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column background correction (window 2)” for 2024-07-21 to 2024-07-22.	318
310	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column background correction (window 3)” for 2024-07-21 to 2024-07-22.	319
311	Scatter density plot of “Viewing zenith angle” against “DOAS fit wavelength shift” for 2024-07-21 to 2024-07-22.	320
312	Scatter density plot of “Viewing zenith angle” against “DOAS fit wavelength squeeze” for 2024-07-21 to 2024-07-22.	321
313	Scatter density plot of “Viewing zenith angle” against “SO ₂ RMS” for 2024-07-21 to 2024-07-22.	322
314	Scatter density plot of “Viewing zenith angle” against “Latitude” for 2024-07-21 to 2024-07-22.	323
315	Scatter density plot of “Viewing zenith angle” against “Solar zenith angle” for 2024-07-21 to 2024-07-22.	324
316	Scatter density plot of “Viewing zenith angle” against “Clear AMF (polluted)” for 2024-07-21 to 2024-07-22.	325
317	Scatter density plot of “Viewing zenith angle” against “Corrected SO ₂ slant column” for 2024-07-21 to 2024-07-22.	326
318	Scatter density plot of “Viewing zenith angle” against “Corrected SO ₂ slant column (window 2)” for 2024-07-21 to 2024-07-22.	327
319	Scatter density plot of “Viewing zenith angle” against “Corrected SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	328
320	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column (window 1)” for 2024-07-21 to 2024-07-22.	329
321	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column precision (window 1)” for 2024-07-21 to 2024-07-22.	330
322	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column precision (window2)” for 2024-07-21 to 2024-07-22.	331
323	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column (window 3)” for 2024-07-21 to 2024-07-22.	332
324	Scatter density plot of “Viewing zenith angle” against “SO ₂ slant column precision (window 3)” for 2024-07-21 to 2024-07-22.	333
325	Scatter density plot of “Viewing zenith angle” against “Total AMF (polluted)” for 2024-07-21 to 2024-07-22.	334
326	Scatter density plot of “Viewing zenith angle” against “Precision of total AMF (polluted)” for 2024-07-21 to 2024-07-22.	335
327	Scatter density plot of “Viewing zenith angle” against “SO ₂ vertical column” for 2024-07-21 to 2024-07-22.	336
328	Scatter density plot of “Viewing zenith angle” against “SO ₂ vertical column precision” for 2024-07-21 to 2024-07-22.	337

List of Tables

1	Parameterlist and basic statistics for the analysis	2
2	Percentile ranges	3
3	Parameterlist and basic statistics for the analysis for observations in the northern hemisphere	4
4	Parameterlist and basic statistics for the analysis for observations in the southern hemisphere	5
5	Parameterlist and basic statistics for the analysis for observations over water	6
6	Parameterlist and basic statistics for the analysis for observations over land	7
7	Correlation matrix	8
8	Covariance matrix	9

11 Copyright information of ‘PyCAMA’

Copyright © 2005 – 2023, Maarten Sneep (KNMI).

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

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

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