PyCAMA report generated by tropl2-proc

tropl2-proc

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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:

$$\overline{x} = \frac{1}{N} \sum_{i=1}^{N} x_i \tag{1}$$

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

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

$$P(x \le m) = P(x \ge m) = \int_{-\infty}^{m} f(x) \, \mathrm{d}x = \frac{1}{2}$$
(3)

with f(x) the probability density function.

The median is a special case of a percentile. Instead of $\frac{1}{2}$ in equation 3, other threshold values can be used. We report results for 1%, 5%, 10%, 15.9%, 25%, 75%, 84.1%, 90%, 95% and 99%. The inter quartile range is the difference between the 75% and 25% percentiles. Similarly the minimum and maximum values correspond to the 0% and 100% percentiles respectively.

For normally distributed parameters the mean and median are the same, while the $\mu \pm \sigma$ values and the 15.9% and 84.1% percentiles coincide.

To get a measure for the relation of one variable $x_{(k)}$ with another $x_{(l)}$, we calculate the covariance matrix C_{kl} .

$$C_{kl} = C(x_{(k)}, x_{(l)}) = \frac{1}{N-1} \sum_{i=1}^{N} (x_{(k),i} - \overline{x_{(k)}}) (x_{(l),i} - \overline{x_{(l)}})$$
(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:

$$R_{kl} = R(x_{(k)}, x_{(l)}) = \frac{C_{kl}}{\sqrt{C_{kk}C_{ll}}} = \frac{C_{kl}}{\sqrt{V(x_k)V(x_l)}}$$
(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 ana	lysis
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Variable	mean $\pm \sigma$	Count	Mode	IQR	Median	Minimum	Maximum
qa value [1]	0.671 ± 0.349	20214798	0.995	0.700	0.900	1.000×10^{-2}	1.000
formaldehyde tropospheric vertical column [mol m ⁻²]	$(6.424 \pm 15.344) \times 10^{-5}$	20214798	1.750×10^{-5}	$1.413 imes 10^{-4}$	$4.513 imes 10^{-5}$	$-1.914 imes 10^{-3}$	$5.892 imes 10^{-3}$
formaldehyde tropospheric vertical column precision [mol m ⁻²]	$(9.274 \pm 10.495) \times 10^{-5}$	20214798	$2.500 imes 10^{-6}$	$9.198 imes10^{-5}$	$6.477 imes10^{-5}$	8.403×10^{-12}	5.335×10^{-3}
formaldehyde tropospheric vertical column correction [mol m ⁻²]	$(3.940 \pm 4.126) \times 10^{-5}$	20214798	$6.750 imes10^{-6}$	$3.456 imes 10^{-5}$	$3.437 imes 10^{-5}$	$-6.450 imes 10^{-6}$	$7.492 imes 10^{-4}$
formaldehyde slant column density window1 [mol m ⁻²]	$(1.943 \pm 13.911) \times 10^{-5}$	20214798	$5.000 imes 10^{-6}$	$1.719 imes10^{-4}$	1.560×10^{-5}	-1.958×10^{-3}	4.217×10^{-3}
formaldehyde slant column density window1 precision [mol m ⁻²]	$(1.318 \pm 0.442) \times 10^{-4}$	20214798	$1.125 imes10^{-4}$	4.359×10^{-5}	$1.216 imes 10^{-4}$	4.603×10^{-5}	$9.691 imes10^{-4}$
formaldehyde tropospheric air mass factor [1]	1.42 ± 0.63	20214798	1.23	0.659	1.28	0.100	4.26
formaldehyde tropospheric air mass factor precision [1]	0.169 ± 0.127	20214798	7.500×10^{-2}	0.181	0.128	$1.033 imes10^{-2}$	1.31
formaldehyde clear air mass factor [1]	1.37 ± 0.54	20214798	1.27	0.295	1.26	0.552	4.17
integrated formaldehyde profile apriori [mol m ⁻²]	$(5.810\pm7.848) imes10^{-5}$	20214798	$2.500 imes 10^{-6}$	$5.041 imes 10^{-5}$	$4.473 imes 10^{-5}$	$6.918 imes10^{-7}$	1.990×10^{-3}
fitted wavelength radiance shift [nm]	$(-1.315 \pm 33.079) \times 10^{-4}$	20214798	$-2.000 imes10^{-4}$	$2.035 imes 10^{-3}$	-1.621×10^{-4}	$-5.207 imes 10^{-2}$	4.759×10^{-2}
fitted wavelength radiance squeeze [1]	$(1.112\pm6.913) imes10^{-5}$	20214798	$5.000 imes 10^{-6}$	$8.574 imes10^{-5}$	$8.756 imes10^{-6}$	$-1.148 imes10^{-2}$	$7.157 imes 10^{-3}$
fitted root mean square win1 [1]	$(7.855 \pm 2.639) \times 10^{-4}$	20214798	$6.500 imes10^{-4}$	$2.599 imes10^{-4}$	$7.248 imes10^{-4}$	$2.739 imes10^{-4}$	$5.846 imes 10^{-3}$
formaldehyde slant column delta [mol m ⁻²]	$(3.306 \pm 17.714) \times 10^{-6}$	20214798	$7.500 imes 10^{-6}$	2.111×10^{-5}	$4.760 imes 10^{-6}$	$-1.504 imes10^{-4}$	$7.450 imes 10^{-5}$
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Table 2: Percentile ranges														
Variable	1 %	5 %	10 %	15.9%	25 %	75 %	84.1 %	90 %	95 %	99 %				
qa value [1]	4.000×10^{-2}	0.200	0.200	0.210	0.300	1.000	1.000	1.000	1.000	1.000				
formaldehyde tropospheric vertical column [mol m ⁻²]	-2.307×10^{-4}	$-1.206 imes10^{-4}$	$-7.746 imes 10^{-5}$	$-4.875 imes 10^{-5}$	$-1.838 imes10^{-5}$	$1.229 imes10^{-4}$	$1.698 imes10^{-4}$	$2.185 imes10^{-4}$	$3.002 imes 10^{-4}$	$5.752 imes10^{-4}$				
formaldehyde tropospheric vertical column precision [mol m ⁻²]	1.141×10^{-6}	$5.708 imes10^{-6}$	$1.146 imes10^{-5}$	$1.831 imes10^{-5}$	$2.936 imes10^{-5}$	$1.213 imes10^{-4}$	$1.588 imes10^{-4}$	$1.989 imes10^{-4}$	$2.664 imes10^{-4}$	$4.815 imes10^{-4}$				
formaldehyde tropospheric vertical column correction [mol m ⁻²]	1.943×10^{-6}	$4.187 imes10^{-6}$	$6.605 imes10^{-6}$	$9.276 imes10^{-6}$	$1.523 imes10^{-5}$	$4.979 imes10^{-5}$	$5.537 imes10^{-5}$	$6.470 imes10^{-5}$	$9.097 imes10^{-5}$	$2.230 imes10^{-4}$				
formaldehyde slant column density window1 [mol m ⁻²]	$-2.988 imes 10^{-4}$	$-1.977 imes10^{-4}$	$-1.481 imes10^{-4}$	$-1.110 imes10^{-4}$	$-6.922 imes10^{-5}$	$1.027 imes10^{-4}$	$1.476 imes10^{-4}$	$1.889 imes10^{-4}$	$2.470 imes10^{-4}$	$3.824 imes10^{-4}$				
formaldehyde slant column density window1 precision [mol m ⁻²]	6.861×10^{-5}	$8.219 imes10^{-5}$	$9.106 imes 10^{-5}$	9.742×10^{-5}	$1.045 imes 10^{-4}$	$1.481 imes10^{-4}$	$1.648 imes10^{-4}$	$1.823 imes10^{-4}$	$2.121 imes10^{-4}$	$3.020 imes10^{-4}$				
formaldehyde tropospheric air mass factor [1]	0.251	0.538	0.774	0.904	1.04	1.70	2.02	2.31	2.70	3.46				
formaldehyde tropospheric air mass factor precision [1]	3.478×10^{-2}	$4.720 imes 10^{-2}$	$5.410 imes 10^{-2}$	$5.925 imes 10^{-2}$	$6.555 imes 10^{-2}$	0.246	0.302	0.345	0.399	0.580				
formaldehyde clear air mass factor [1]	0.779	0.879	0.948	1.02	1.11	1.41	1.51	1.71	2.77	3.64				
integrated formaldehyde profile apriori [mol m ⁻²]	2.003×10^{-6}	$3.272 imes 10^{-6}$	$5.293 imes10^{-6}$	$9.006 imes 10^{-6}$	$1.589 imes 10^{-5}$	$6.631 imes10^{-5}$	$8.520 imes10^{-5}$	$1.144 imes10^{-4}$	$1.696 imes10^{-4}$	$3.758 imes10^{-4}$				
fitted wavelength radiance shift [nm]	-1.035×10^{-2}	$-5.168 imes 10^{-3}$	-3.257×10^{-3}	$-2.133 imes 10^{-3}$	-1.182×10^{-3}	$8.529 imes 10^{-4}$	1.865×10^{-3}	3.054×10^{-3}	5.064×10^{-3}	$1.045 imes 10^{-2}$				
fitted wavelength radiance squeeze [1]	-1.495×10^{-4}	-9.669×10^{-5}	-7.176×10^{-5}	-5.346×10^{-5}	-3.302×10^{-5}	$5.272 imes 10^{-5}$	7.569×10^{-5}	$9.688 imes 10^{-5}$	1.266×10^{-4}	$1.926 imes 10^{-4}$				
fitted root mean square win1 [1]	4.087×10^{-4}	$4.893 imes 10^{-4}$	$5.419 imes 10^{-4}$	$5.799 imes 10^{-4}$	$6.226 imes 10^{-4}$	$8.825 imes 10^{-4}$	$9.822 imes 10^{-4}$	$1.087 imes 10^{-3}$	1.264×10^{-3}	$1.801 imes 10^{-3}$				
formaldehyde slant column delta [mol m ⁻²]	-4.993×10^{-5}	-2.557×10^{-5}	-1.714×10^{-5}	-1.205×10^{-5}	$-6.594 imes 10^{-6}$	$1.451 imes 10^{-5}$	$1.875 imes 10^{-5}$	2.252×10^{-5}	$2.805 imes 10^{-5}$	4.339×10^{-5}				

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

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Variable	mean $\pm \sigma$	Count	IQR	Median	Minimum	Maximum	25 % percentile	75 % percentile
qa value [1]	0.682 ± 0.347	10808823	0.680	0.900	1.000×10^{-2}	1.000	0.320	1.000
formaldehyde tropospheric vertical column [mol m ⁻²]	$(7.974 \pm 16.626) \times 10^{-5}$	10808823	$1.495 imes10^{-4}$	5.896×10^{-5}	-1.191×10^{-3}	5.892×10^{-3}	-8.669×10^{-6}	$1.408 imes 10^{-4}$
formaldehyde tropospheric vertical column precision [mol m ⁻²]	$(1.005 \pm 1.144) \times 10^{-4}$	10808823	$9.913 imes10^{-5}$	$7.022 imes 10^{-5}$	$9.465 imes 10^{-12}$	$5.235 imes 10^{-3}$	$3.179 imes10^{-5}$	$1.309 imes10^{-4}$
formaldehyde tropospheric vertical column correction [mol m ⁻²]	$(4.913 \pm 4.802) \times 10^{-5}$	10808823	$3.093 imes10^{-5}$	$4.460 imes10^{-5}$	$3.759 imes10^{-6}$	$7.492 imes 10^{-4}$	$2.364 imes10^{-5}$	$5.457 imes10^{-5}$
formaldehyde slant column density window1 [mol m ⁻²]	$(3.142 \pm 14.283) \times 10^{-5}$	10808823	$1.721 imes 10^{-4}$	$2.786 imes10^{-5}$	-1.217×10^{-3}	$2.646 imes 10^{-3}$	$-5.742 imes10^{-5}$	$1.147 imes10^{-4}$
formaldehyde slant column density window1 precision [mol m ⁻²]	$(1.346 \pm 0.472) \times 10^{-4}$	10808823	$4.838 imes10^{-5}$	$1.231 imes 10^{-4}$	$4.603 imes10^{-5}$	$9.691 imes10^{-4}$	$1.046 imes10^{-4}$	$1.530 imes10^{-4}$
formaldehyde tropospheric air mass factor [1]	1.36 ± 0.63	10808823	0.608	1.24	0.100	4.26	0.987	1.60
formaldehyde tropospheric air mass factor precision [1]	0.164 ± 0.137	10808823	0.168	0.106	$1.033 imes 10^{-2}$	1.29	$6.282 imes 10^{-2}$	0.231
formaldehyde clear air mass factor [1]	1.35 ± 0.54	10808823	0.299	1.23	0.552	4.15	1.08	1.38
integrated formaldehyde profile apriori [mol m ⁻²]	$(6.014 \pm 4.648) \times 10^{-5}$	10808823	4.239×10^{-5}	5.326×10^{-5}	$1.322 imes 10^{-6}$	$4.675 imes 10^{-4}$	3.061×10^{-5}	$7.301 imes 10^{-5}$
fitted wavelength radiance shift [nm]	$(1.163 \pm 33.784) \times 10^{-4}$	10808823	$1.931 imes 10^{-3}$	5.316×10^{-5}	-4.562×10^{-2}	4.759×10^{-2}	$-8.433 imes10^{-4}$	$1.087 imes10^{-3}$
fitted wavelength radiance squeeze [1]	$(1.070 \pm 6.925) \times 10^{-5}$	10808823	$8.551 imes10^{-5}$	$8.397 imes10^{-6}$	$-9.132 imes10^{-4}$	$7.730 imes 10^{-4}$	$-3.332 imes10^{-5}$	$5.220 imes 10^{-5}$
fitted root mean square win1 [1]	$(8.022 \pm 2.813) \times 10^{-4}$	10808823	$2.886 imes10^{-4}$	7.335×10^{-4}	$2.739 imes10^{-4}$	$5.726 imes 10^{-3}$	$6.231 imes10^{-4}$	$9.117 imes10^{-4}$
formaldehyde slant column delta [mol m ⁻²]	$(-2.389 \pm 17.788) \times 10^{-6}$	10808823	2.064×10^{-5}	-2.242×10^{-6}	-1.504×10^{-4}	7.200×10^{-5}	-1.190×10^{-5}	8.739×10^{-6}

Table 4: Parameterlist and basic statistics for the analysis for observations in the southern hemisphere

Variable	mean $\pm \sigma$	Count	IOR	Median	Minimum	Maximum	25 % percentile	75 % percentile
ca value [1]	0.658 ± 0.252	0405075	0.720	0.000	1.000×10^{-2}	1 000	0.270	1 000
qa value [1]	0.038 ± 0.332	9403973	0.750	0.900	1.000×10	1.000	0.270	1.000
formaldehyde tropospheric vertical column [mol m ⁻²]	$(4.643 \pm 13.506) \times 10^{-5}$	9405975	$1.289 imes 10^{-4}$	3.077×10^{-5}	-1.914×10^{-3}	5.656×10^{-3}	-2.712×10^{-5}	$1.017 imes10^{-4}$
formaldehyde tropospheric vertical column precision [mol m ⁻²]	$(8.386 \pm 9.209) \times 10^{-5}$	9405975	$8.363 imes10^{-5}$	$5.921 imes 10^{-5}$	$8.403 imes10^{-12}$	$5.335 imes10^{-3}$	2.697×10^{-5}	$1.106 imes10^{-4}$
formaldehyde tropospheric vertical column correction [mol m ⁻²]	$(2.822 \pm 2.784) \times 10^{-5}$	9405975	$3.097 imes10^{-5}$	2.499×10^{-5}	$-6.450 imes 10^{-6}$	$6.158 imes10^{-4}$	$8.926 imes10^{-6}$	$3.990 imes10^{-5}$
formaldehyde slant column density window1 [mol m ⁻²]	$(5.656 \pm 133.370) \times 10^{-6}$	9405975	$1.691 imes10^{-4}$	$1.711 imes10^{-6}$	-1.958×10^{-3}	$4.217 imes10^{-3}$	-8.136×10^{-5}	$8.776 imes10^{-5}$
formaldehyde slant column density window1 precision [mol m ⁻²]	$(1.286 \pm 0.404) \times 10^{-4}$	9405975	$3.876 imes10^{-5}$	$1.202 imes 10^{-4}$	$4.923 imes 10^{-5}$	$9.691 imes10^{-4}$	$1.044 imes10^{-4}$	$1.432 imes10^{-4}$
formaldehyde tropospheric air mass factor [1]	1.49 ± 0.63	9405975	0.699	1.34	0.100	4.21	1.11	1.80
formaldehyde tropospheric air mass factor precision [1]	0.175 ± 0.114	9405975	0.188	0.155	$1.073 imes10^{-2}$	1.31	$6.923 imes10^{-2}$	0.257
formaldehyde clear air mass factor [1]	1.39 ± 0.54	9405975	0.280	1.29	0.561	4.17	1.15	1.43
integrated formaldehyde profile apriori [mol m ⁻²]	$(5.577 \pm 10.365) \times 10^{-5}$	9405975	$4.503 imes10^{-5}$	2.939×10^{-5}	$6.918 imes10^{-7}$	$1.990 imes10^{-3}$	$8.594 imes10^{-6}$	$5.363 imes10^{-5}$
fitted wavelength radiance shift [nm]	$(-4.163 \pm 32.014) \times 10^{-4}$	9405975	$2.015 imes 10^{-3}$	$-4.294 imes10^{-4}$	-5.207×10^{-2}	$4.197 imes10^{-2}$	-1.479×10^{-3}	$5.358 imes10^{-4}$
fitted wavelength radiance squeeze [1]	$(1.160 \pm 6.899) \times 10^{-5}$	9405975	8.601×10^{-5}	$9.169 imes 10^{-6}$	-1.148×10^{-2}	$7.157 imes10^{-3}$	-3.268×10^{-5}	$5.333 imes10^{-5}$
fitted root mean square win1 [1]	$(7.663 \pm 2.410) \times 10^{-4}$	9405975	2.310×10^{-4}	$7.165 imes 10^{-4}$	2.931×10^{-4}	$5.846 imes 10^{-3}$	$6.222 imes 10^{-4}$	$8.532 imes 10^{-4}$
formaldehyde slant column delta [mol m ⁻²]	$(9.851 \pm 15.186) \times 10^{-6}$	9405975	1.573×10^{-5}	1.065×10^{-5}	-9.565×10^{-5}	7.450×10^{-5}	2.559×10^{-6}	1.829×10^{-5}

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]	0.664 ± 0.348	14770885	0.710	0.900	$1.000 imes10^{-2}$	1.000	0.290	1.000
formaldehyde tropospheric vertical column [mol m ⁻²]	$(4.889 \pm 13.632) \times 10^{-5}$	14770885	$1.275 imes10^{-4}$	$3.567 imes10^{-5}$	$-1.734 imes 10^{-3}$	$5.892 imes 10^{-3}$	$-2.332 imes10^{-5}$	$1.042 imes 10^{-4}$
formaldehyde tropospheric vertical column precision [mol m ⁻²]	$(8.234 \pm 9.037) \times 10^{-5}$	14770885	$8.190 imes 10^{-5}$	5.936×10^{-5}	$9.465 imes 10^{-12}$	$5.235 imes 10^{-3}$	2.715×10^{-5}	$1.090 imes 10^{-4}$
formaldehyde tropospheric vertical column correction [mol m ⁻²]	$(3.721 \pm 4.120) \times 10^{-5}$	14770885	$3.405 imes10^{-5}$	$3.217 imes10^{-5}$	$-5.279 imes 10^{-6}$	$7.442 imes 10^{-4}$	1.316×10^{-5}	$4.721 imes 10^{-5}$
formaldehyde slant column density window1 [mol m ⁻²]	$(5.793 \pm 128.950) \times 10^{-6}$	14770885	$1.628 imes10^{-4}$	4.737×10^{-6}	-1.958×10^{-3}	$4.217 imes 10^{-3}$	-7.654×10^{-5}	$8.628 imes10^{-5}$
formaldehyde slant column density window1 precision [mol m ⁻²]	$(1.287 \pm 0.425) \times 10^{-4}$	14770885	$4.160 imes10^{-5}$	$1.185 imes10^{-4}$	$4.603 imes 10^{-5}$	$9.691 imes10^{-4}$	1.026×10^{-4}	$1.442 imes 10^{-4}$
formaldehyde tropospheric air mass factor [1]	1.46 ± 0.62	14770885	0.614	1.32	0.100	4.21	1.13	1.74
formaldehyde tropospheric air mass factor precision [1]	0.160 ± 0.106	14770885	0.166	0.126	1.222×10^{-2}	1.22	$6.736 imes10^{-2}$	0.233
formaldehyde clear air mass factor [1]	1.42 ± 0.51	14770885	0.235	1.30	0.585	4.15	1.19	1.43
integrated formaldehyde profile apriori [mol m ⁻²]	$(4.011 \pm 3.186) \times 10^{-5}$	14770885	$4.460 imes10^{-5}$	$4.045 imes 10^{-5}$	$7.874 imes10^{-7}$	$9.216 imes10^{-4}$	1.209×10^{-5}	$5.668 imes10^{-5}$
fitted wavelength radiance shift [nm]	$(-2.047 \pm 31.569) \times 10^{-4}$	14770885	$2.068 imes10^{-3}$	$-2.248 imes10^{-4}$	$-3.885 imes 10^{-2}$	$4.572 imes 10^{-2}$	$-1.278 imes10^{-3}$	$7.898 imes10^{-4}$
fitted wavelength radiance squeeze [1]	$(1.158 \pm 6.858) \times 10^{-5}$	14770885	$8.465 imes10^{-5}$	$8.789 imes10^{-6}$	$-1.064 imes 10^{-2}$	$1.214 imes10^{-3}$	$-3.231 imes10^{-5}$	$5.234 imes 10^{-5}$
fitted root mean square win1 [1]	$(7.671 \pm 2.533) \times 10^{-4}$	14770885	$2.479 imes 10^{-4}$	$7.063 imes 10^{-4}$	2.739×10^{-4}	$5.810 imes 10^{-3}$	$6.111 imes 10^{-4}$	$8.590 imes10^{-4}$
formaldehyde slant column delta [mol m ⁻²]	$(3.728 \pm 18.004) \times 10^{-6}$	14770885	2.156×10^{-5}	5.390×10^{-6}	-1.504×10^{-4}	7.450×10^{-5}	-6.338×10^{-6}	1.522×10^{-5}

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]	0.722 ± 0.347	3855893	0.650	1.000	$1.000 imes10^{-2}$	1.000	0.350	1.000
formaldehyde tropospheric vertical column [mol m ⁻²]	$(1.114 \pm 1.868) \times 10^{-4}$	3855893	$1.846 imes10^{-4}$	$8.666 imes10^{-5}$	$-1.914 imes10^{-3}$	$5.656 imes10^{-3}$	$5.066 imes10^{-6}$	$1.897 imes10^{-4}$
formaldehyde tropospheric vertical column precision [mol m ⁻²]	$(1.221 \pm 1.335) \times 10^{-4}$	3855893	$1.253 imes10^{-4}$	8.617×10^{-5}	$8.403 imes10^{-12}$	$5.335 imes10^{-3}$	$3.832 imes 10^{-5}$	$1.636 imes10^{-4}$
formaldehyde tropospheric vertical column correction [mol m ⁻²]	$(4.929 \pm 4.003) \times 10^{-5}$	3855893	$3.043 imes 10^{-5}$	$4.667 imes 10^{-5}$	-6.450×10^{-6}	$7.492 imes 10^{-4}$	2.812×10^{-5}	$5.855 imes10^{-5}$
formaldehyde slant column density window1 [mol m ⁻²]	$(5.564 \pm 14.812) \times 10^{-5}$	3855893	$1.887 imes10^{-4}$	$5.247 imes 10^{-5}$	-1.762×10^{-3}	2.467×10^{-3}	-4.063×10^{-5}	$1.480 imes 10^{-4}$
formaldehyde slant column density window1 precision [mol m ⁻²]	$(1.383 \pm 0.489) \times 10^{-4}$	3855893	4.231×10^{-5}	$1.273 imes10^{-4}$	5.034×10^{-5}	$9.691 imes10^{-4}$	$1.103 imes10^{-4}$	1.526×10^{-4}
formaldehyde tropospheric air mass factor [1]	1.25 ± 0.60	3855893	0.553	1.10	0.100	4.26	0.899	1.45
formaldehyde tropospheric air mass factor precision [1]	0.192 ± 0.175	3855893	0.236	0.114	$1.033 imes10^{-2}$	1.30	$5.612 imes10^{-2}$	0.292
formaldehyde clear air mass factor [1]	1.15 ± 0.48	3855893	0.277	1.02	0.552	4.17	0.911	1.19
integrated formaldehyde profile apriori [mol m ⁻²]	$(1.212 \pm 1.379) \times 10^{-4}$	3855893	$1.060 imes10^{-4}$	$7.913 imes10^{-5}$	$6.918 imes10^{-7}$	$1.990 imes 10^{-3}$	$4.374 imes10^{-5}$	$1.497 imes10^{-4}$
fitted wavelength radiance shift [nm]	$(2.840 \pm 381.816) \times 10^{-5}$	3855893	$1.762 imes10^{-3}$	-4.540×10^{-5}	-5.207×10^{-2}	$4.745 imes10^{-2}$	-8.618×10^{-4}	$9.005 imes 10^{-4}$
fitted wavelength radiance squeeze [1]	$(8.217 \pm 68.970) \times 10^{-6}$	3855893	$8.714 imes10^{-5}$	7.331×10^{-6}	-1.148×10^{-2}	7.157×10^{-3}	-3.570×10^{-5}	$5.144 imes 10^{-5}$
fitted root mean square win1 [1]	$(8.241 \pm 2.916) \times 10^{-4}$	3855893	$2.522 imes10^{-4}$	$7.589 imes10^{-4}$	$3.013 imes 10^{-4}$	$5.846 imes 10^{-3}$	$6.570 imes10^{-4}$	$9.093 imes10^{-4}$
formaldehyde slant column delta [mol m ⁻²]	$(1.434 \pm 16.684) \times 10^{-6}$	3855893	1.962×10^{-5}	$2.172 imes10^{-6}$	-1.136×10^{-4}	7.450×10^{-5}	-7.949×10^{-6}	$1.167 imes10^{-5}$

							Table 7	Correlatio	n matrix							
Viewing zenith angle	Solar zenith angle	Latitude	HCHO vertical column	HCHO vertical column precision	HCHO vertical column correction	HCHO slant column (window1)	HCHO slant column precision (window	Airmass factor total	Airmass factor total precision	Airmass factor clear	Integrated a priori HCHO profile	DOAS fit wavelength shift	DOAS fit wavelength squeeze	DOAS fit RMS (first interval)	HCHO slant column corrected	HCHO slant column correction
1.000	-2.236×10^{-2}	-2.241×10^{-2}	-7.296×10^{-3}	2.973×10^{-2}	5.596×10^{-2}	-1.786×10^{-2}	1.416×10^{-2}	-3.808×10^{-2}	-2.890×10^{-2}	-2.318×10^{-2}	1.368×10^{-2}	-1.836×10^{-3}	-1.300×10^{-2}	1.334×10^{-2}	-3.241×10^{-2}	-0.113
-2.236×10^{-2}	1.000	9.075×10^{-2}	-0.230	$-8.186 imes 10^{-2}$	-0.462	-0.136	0.254	0.376	0.238	0.445	-0.422	-2.070×10^{-2}	0.164	0.252	-0.112	0.193
$-2.241 imes 10^{-2}$	$9.075 imes 10^{-2}$	1.000	9.652×10^{-2}	$7.927 imes 10^{-2}$	0.167	0.116	0.132	$-6.955 imes 10^{-2}$	$-9.157 imes 10^{-3}$	$-2.389 imes 10^{-2}$	5.362×10^{-2}	9.311×10^{-2}	$1.799 imes 10^{-2}$	0.131	$8.016 imes 10^{-2}$	-0.287
-7.296×10^{-3}	-0.230	9.652×10^{-2}	1.000	0.528	0.493	0.762	$-4.386 imes 10^{-2}$	-0.282	-0.173	-0.138	0.328	0.193	-3.555×10^{-2}	-4.333×10^{-2}	0.762	-3.070×10^{-2}
$2.973 imes10^{-2}$	$-8.186 imes 10^{-2}$	$7.927 imes 10^{-2}$	0.528	1.000	0.467	0.248	$8.344 imes 10^{-2}$	-0.369	-0.212	-0.154	0.252	$6.913 imes 10^{-2}$	$-3.943 imes 10^{-2}$	$8.345 imes 10^{-2}$	0.244	$-3.887 imes 10^{-2}$
$5.596 imes 10^{-2}$	-0.462	0.167	0.493	0.467	1.000	0.106	-0.174	-0.569	-0.349	-0.255	0.280	3.682×10^{-2}	-0.125	-0.174	8.143×10^{-2}	-0.195
-1.786×10^{-2}	-0.136	0.116	0.762	0.248	0.106	1.000	2.636×10^{-2}	-6.809×10^{-2}	-5.314×10^{-2}	-5.876×10^{-2}	0.275	0.215	2.730×10^{-2}	2.685×10^{-2}	0.992	-0.104
1.416×10^{-2}	0.254	0.132	-4.386×10^{-2}	8.344×10^{-2}	-0.174	2.636×10^{-2}	1.000	0.159	2.017×10^{-2}	0.170	$-5.518 imes 10^{-2}$	3.079×10^{-2}	0.105	1.000	1.844×10^{-2}	-6.301×10^{-2}
-3.808×10^{-2}	0.376	$-6.955 imes 10^{-2}$	-0.282	-0.369	-0.569	-6.809×10^{-2}	0.159	1.000	0.508	0.665	-0.244	$-1.216 imes 10^{-2}$	0.110	0.159	-6.838×10^{-2}	4.802×10^{-4}
-2.890×10^{-2}	0.238	-9.157×10^{-3}	-0.173	-0.212	-0.349	-5.314×10^{-2}	2.017×10^{-2}	0.508	1.000	9.001×10^{-2}	-7.324×10^{-2}	6.788×10^{-3}	4.033×10^{-2}	1.998×10^{-2}	-3.843×10^{-2}	0.117
-2.318×10^{-2}	0.445	$-2.389 imes 10^{-2}$	-0.138	-0.154	-0.255	-5.876×10^{-2}	0.170	0.665	9.001×10^{-2}	1.000	-0.296	-1.317×10^{-2}	9.384×10^{-2}	0.171	-6.956×10^{-2}	-8.205×10^{-2}
1.368×10^{-2}	-0.422	5.362×10^{-2}	0.328	0.252	0.280	0.275	-5.518×10^{-2}	-0.244	-7.324×10^{-2}	-0.296	1.000	2.192×10^{-2}	-7.358×10^{-2}	-5.548×10^{-2}	0.261	-0.122
-1.836×10^{-3}	-2.070×10^{-2}	9.311×10^{-2}	0.193	$6.913 imes 10^{-2}$	3.682×10^{-2}	0.215	3.079×10^{-2}	$-1.216 imes 10^{-2}$	6.788×10^{-3}	-1.317×10^{-2}	2.192×10^{-2}	1.000	0.126	3.083×10^{-2}	0.213	-2.826×10^{-2}
-1.300×10^{-2}	0.164	1.799×10^{-2}	-3.555×10^{-2}	-3.943×10^{-2}	-0.125	2.730×10^{-2}	0.105	0.110	4.033×10^{-2}	$9.384 imes 10^{-2}$	-7.358×10^{-2}	0.126	1.000	0.104	2.891×10^{-2}	1.144×10^{-2}
1.334×10^{-2}	0.252	0.131	-4.333×10^{-2}	$8.345 imes 10^{-2}$	-0.174	2.685×10^{-2}	1.000	0.159	1.998×10^{-2}	0.171	$-5.548 imes 10^{-2}$	3.083×10^{-2}	0.104	1.000	$1.880 imes 10^{-2}$	-6.397×10^{-2}
-3.241×10^{-2}	-0.112	$8.016 imes 10^{-2}$	0.762	0.244	8.143×10^{-2}	0.992	1.844×10^{-2}	-6.838×10^{-2}	-3.843×10^{-2}	-6.956×10^{-2}	0.261	0.213	2.891×10^{-2}	1.880×10^{-2}	1.000	2.336×10^{-2}
-0.113	0.193	-0.287	-3.070×10^{-2}	-3.887×10^{-2}	-0.195	-0.104	-6.301×10^{-2}	4.802×10^{-4}	0.117	-8.205×10^{-2}	-0.122	-2.826×10^{-2}	1.144×10^{-2}	-6.397×10^{-2}	2.336×10^{-2}	1.000

 ∞

							Table 8:	Covariance	e matrix							
Viewing zenith angle	Solar zenith angle	Latitude	HCHO vertical column	HCHO vertical column precision	HCHO vertical column correction	HCHO slant column (window I)	HCHO slant column precision (window	Airmass factor total	Airmass factor total precision	Airmass factor clear	Integrated a priori HCHO profile	DOAS fit wavelength shift	DOAS fit wavelength squeeze	DOAS fit RMS (first interval)	HCHO slant column corrected	HCHO slant column correction
380	-6.83	-17.5	-2.182×10^{-5}	6.080×10^{-5}	4.499×10^{-5}	-4.843×10^{-5}	1.221 × 10 ⁻⁵	-0.471	-7.143×10^{-2}	-0.243	2.092×10^{-5}	$-1.183 imes 10^{-4}$	$-1.751 imes 10^{-5}$	$6.859 imes 10^{-5}$	-8.741×10^{-5}	$-3.898 imes 10^{-5}$
-6.83	246	57.1	-5.540×10^{-4}	-1.347×10^{-4}	-2.989×10^{-4}	-2.959×10^{-4}	1.764×10^{-4}	3.74	0.474	3.75	-5.200×10^{-4}	-1.074×10^{-3}	$1.778 imes 10^{-4}$	1.045×10^{-3}	-2.424×10^{-4}	5.354×10^{-5}
-17.5	57.1	1.607×10^{3}	$5.937 imes 10^{-4}$	$3.335 imes 10^{-4}$	2.756×10^{-4}	$6.488 imes 10^{-4}$	$2.337 imes 10^{-4}$	-1.77	-4.657×10^{-2}	-0.514	$1.687 imes 10^{-4}$	1.235×10^{-2}	4.984×10^{-5}	1.390×10^{-3}	$4.447 imes 10^{-4}$	-2.041×10^{-4}
-2.182×10^{-5}	-5.540×10^{-4}	$5.937 imes 10^{-4}$	2.354×10^{-8}	8.500×10^{-9}	3.124×10^{-9}	1.627×10^{-8}	$-2.977 imes 10^{-10}$	-2.747×10^{-5}	-3.362×10^{-6}	-1.139×10^{-5}	3.948×10^{-9}	$9.788 imes 10^{-8}$	$-3.771 imes 10^{-10}$	-1.755×10^{-9}	1.619×10^{-8}	$-8.343 imes 10^{-11}$
6.080×10^{-5}	-1.347×10^{-4}	$3.335 imes 10^{-4}$	$8.500 imes 10^{-9}$	$1.101 imes 10^{-8}$	$2.023 imes 10^{-9}$	$3.617 imes 10^{-9}$	3.874×10^{-10}	-2.455×10^{-5}	-2.829×10^{-6}	$-8.669 imes 10^{-6}$	2.073×10^{-9}	$2.400 imes 10^{-8}$	$-2.861 imes 10^{-10}$	2.311×10^{-9}	3.545×10^{-9}	$-7.226 imes 10^{-11}$
4.499×10^{-5}	$-2.989 imes 10^{-4}$	2.756×10^{-4}	3.124×10^{-9}	$2.023 imes 10^{-9}$	1.702×10^{-9}	6.072×10^{-10}	$-3.176 imes 10^{-10}$	-1.489×10^{-5}	-1.825×10^{-6}	-5.649×10^{-6}	9.074×10^{-10}	$5.025 imes 10^{-9}$	-3.567×10^{-10}	-1.890×10^{-9}	4.650×10^{-10}	-1.422×10^{-10}
-4.843×10^{-5}	$-2.959 imes 10^{-4}$	$6.488 imes 10^{-4}$	1.627×10^{-8}	3.617×10^{-9}	6.072×10^{-10}	1.935×10^{-8}	1.623×10^{-10}	$-6.010 imes 10^{-6}$	-9.378×10^{-7}	$-4.389 imes 10^{-6}$	3.002×10^{-9}	$9.898 imes 10^{-8}$	2.625×10^{-10}	9.857×10^{-10}	1.909×10^{-8}	-2.565×10^{-10}
$1.221 imes 10^{-5}$	$1.764 imes10^{-4}$	$2.337 imes 10^{-4}$	$-2.977 imes 10^{-10}$	$3.874 imes 10^{-10}$	$-3.176 imes 10^{-10}$	$1.623 imes 10^{-10}$	$1.957 imes10^{-9}$	$4.450 imes10^{-6}$	$1.132 imes 10^{-7}$	$4.043 imes10^{-6}$	-1.916×10^{-10}	4.506×10^{-9}	$3.197 imes 10^{-10}$	$1.167 imes10^{-8}$	$1.129 imes 10^{-10}$	$-4.938 imes 10^{-11}$
-0.471	3.74	-1.77	-2.747×10^{-5}	-2.455×10^{-5}	-1.489×10^{-5}	-6.010×10^{-6}	4.450×10^{-6}	0.403	4.089×10^{-2}	0.227	-1.217×10^{-5}	-2.551×10^{-5}	4.843×10^{-6}	2.665×10^{-5}	$-6.004 imes 10^{-6}$	5.397×10^{-9}
-7.143×10^{-2}	0.474	-4.657×10^{-2}	-3.362×10^{-6}	-2.829×10^{-6}	-1.825×10^{-6}	-9.378×10^{-7}	1.132×10^{-7}	4.089×10^{-2}	1.609×10^{-2}	6.131×10^{-3}	-7.291×10^{-7}	2.848×10^{-6}	3.536×10^{-7}	6.690×10^{-7}	$-6.746 imes 10^{-7}$	2.632×10^{-7}
-0.243	3.75	-0.514	-1.139×10^{-5}	-8.669×10^{-6}	-5.649×10^{-6}	-4.389×10^{-6}	4.043×10^{-6}	0.227	6.131×10^{-3}	0.288	-1.249×10^{-5}	-2.338×10^{-5}	3.483×10^{-6}	2.428×10^{-5}	$-5.169 imes 10^{-6}$	-7.804×10^{-7}
2.092×10^{-5}	$-5.200 imes 10^{-4}$	$1.687 imes 10^{-4}$	3.948×10^{-9}	2.073×10^{-9}	9.074×10^{-10}	3.002×10^{-9}	$-1.916 imes 10^{-10}$	-1.217×10^{-5}	-7.291×10^{-7}	-1.249×10^{-5}	6.159×10^{-9}	5.691×10^{-9}	-3.992×10^{-10}	$-1.149 imes 10^{-9}$	2.833×10^{-9}	-1.691×10^{-10}
$-1.183 imes10^{-4}$	-1.074×10^{-3}	$1.235 imes 10^{-2}$	$9.788 imes 10^{-8}$	$2.400 imes 10^{-8}$	$5.025 imes 10^{-9}$	$9.898 imes10^{-8}$	4.506×10^{-9}	-2.551×10^{-5}	2.848×10^{-6}	-2.338×10^{-5}	5.691×10^{-9}	1.094×10^{-5}	$2.891 imes 10^{-8}$	2.692×10^{-8}	9.732×10^{-8}	-1.656×10^{-9}
$-1.751 imes 10^{-5}$	$1.778 imes10^{-4}$	$4.984 imes 10^{-5}$	$-3.771 imes 10^{-10}$	$-2.861 imes 10^{-10}$	-3.567×10^{-10}	2.625×10^{-10}	$3.197 imes 10^{-10}$	$4.843 imes 10^{-6}$	$3.536 imes 10^{-7}$	$3.483 imes 10^{-6}$	$-3.992 imes 10^{-10}$	$2.891 imes10^{-8}$	$4.779 imes10^{-9}$	1.899×10^{-9}	$2.765 imes 10^{-10}$	$1.401 imes 10^{-11}$
6.859×10^{-5}	$1.045 imes 10^{-3}$	$1.390 imes 10^{-3}$	$-1.755 imes 10^{-9}$	$2.311 imes 10^{-9}$	$-1.890 imes 10^{-9}$	$9.857 imes 10^{-10}$	$1.167 imes10^{-8}$	2.665×10^{-5}	$6.690 imes 10^{-7}$	$2.428 imes 10^{-5}$	$-1.149 imes 10^{-9}$	$2.692 imes 10^{-8}$	$1.899 imes10^{-9}$	$6.966 imes 10^{-8}$	$6.866 imes 10^{-10}$	$-2.991 imes 10^{-10}$
$-8.741 imes 10^{-5}$	$-2.424 imes10^{-4}$	$4.447 imes10^{-4}$	$1.619 imes10^{-8}$	$3.545 imes 10^{-9}$	4.650×10^{-10}	$1.909 imes10^{-8}$	$1.129 imes 10^{-10}$	$-6.004 imes10^{-6}$	$-6.746 imes 10^{-7}$	$-5.169 imes 10^{-6}$	2.833×10^{-9}	$9.732 imes 10^{-8}$	$2.765 imes 10^{-10}$	$6.866 imes 10^{-10}$	$1.915 imes10^{-8}$	5.727×10^{-11}
-3.898×10^{-5}	5.354×10^{-5}	-2.041×10^{-4}	-8.343×10^{-11}	-7.226×10^{-11}	-1.422×10^{-10}	-2.565×10^{-10}	-4.938×10^{-11}	5.397×10^{-9}	2.632×10^{-7}	-7.804×10^{-7}	-1.691×10^{-10}	-1.656×10^{-9}	1.401×10^{-11}	-2.991×10^{-10}	5.727×10^{-11}	3.138×10^{-10}



Figure 1: Map of correlation graph for 2023-09-23 to 2023-09-25.



Figure 2: Map of correlation matrix for 2023-09-23 to 2023-09-25.

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 "HCHO vertical column" for 2023-09-23 to 2023-09-25





Figure 7: Map of "HCHO vertical column precision" for 2023-09-23 to 2023-09-25





Figure 8: Map of "HCHO vertical column correction" for 2023-09-23 to 2023-09-25



Figure 9: Map of "HCHO slant column (window1)" for 2023-09-23 to 2023-09-25





Figure 10: Map of "HCHO slant column precision (window1)" for 2023-09-23 to 2023-09-25



Figure 11: Map of "Airmass factor total" for 2023-09-23 to 2023-09-25



Figure 12: Map of "Airmass factor total precision" for 2023-09-23 to 2023-09-25



Figure 13: Map of "Airmass factor clear" for 2023-09-23 to 2023-09-25



Figure 14: Map of "Integrated a priori HCHO profile" for 2023-09-23 to 2023-09-25





-0.0200.0150.0100.0050.0000.0050.0100.0150.020 DOAS fit wavelength shift [nm]



Figure 15: Map of "DOAS fit wavelength shift" for 2023-09-23 to 2023-09-25



Figure 16: Map of "DOAS fit wavelength squeeze" for 2023-09-23 to 2023-09-25



Figure 17: Map of "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25



Figure 18: Map of "HCHO slant column correction" for 2023-09-23 to 2023-09-25



Figure 19: Map of the number of observations for 2023-09-23 to 2023-09-25

7 Zonal average



Figure 20: Zonal average of "QA value" for 2023-09-23 to 2023-09-25.



Figure 21: Zonal average of "HCHO vertical column" for 2023-09-23 to 2023-09-25.



0.000025 0.000050 0.000075 0.000100 0.000125 0.000150 0.000175 0.000200 0.000225 HCHO vertical column precision [mol m⁻²]

Figure 22: Zonal average of "HCHO vertical column precision" for 2023-09-23 to 2023-09-25.



Figure 23: Zonal average of "HCHO vertical column correction" for 2023-09-23 to 2023-09-25.



Figure 24: Zonal average of "HCHO slant column (window1)" for 2023-09-23 to 2023-09-25.



HCHO slant column precision (window1) [mol m^{-2}]

Figure 25: Zonal average of "HCHO slant column precision (window1)" for 2023-09-23 to 2023-09-25.



Figure 26: Zonal average of "Airmass factor total" for 2023-09-23 to 2023-09-25.



Figure 27: Zonal average of "Airmass factor total precision" for 2023-09-23 to 2023-09-25.


Figure 28: Zonal average of "Airmass factor clear" for 2023-09-23 to 2023-09-25.



Figure 29: Zonal average of "Integrated a priori HCHO profile" for 2023-09-23 to 2023-09-25.



Figure 30: Zonal average of "DOAS fit wavelength shift" for 2023-09-23 to 2023-09-25.



Figure 31: Zonal average of "DOAS fit wavelength squeeze" for 2023-09-23 to 2023-09-25.



Figure 32: Zonal average of "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25.



Figure 33: Zonal average of "HCHO slant column correction" for 2023-09-23 to 2023-09-25.

8 Histograms

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



Figure 34: Histogram of "QA value" for 2023-09-23 to 2023-09-25



Figure 35: Histogram of "HCHO vertical column" for 2023-09-23 to 2023-09-25



Figure 36: Histogram of "HCHO vertical column precision" for 2023-09-23 to 2023-09-25



Figure 37: Histogram of "HCHO vertical column correction" for 2023-09-23 to 2023-09-25



Figure 38: Histogram of "HCHO slant column (window1)" for 2023-09-23 to 2023-09-25



Figure 39: Histogram of "HCHO slant column precision (window1)" for 2023-09-23 to 2023-09-25



Figure 40: Histogram of "Airmass factor total" for 2023-09-23 to 2023-09-25



Figure 41: Histogram of "Airmass factor total precision" for 2023-09-23 to 2023-09-25



Figure 42: Histogram of "Airmass factor clear" for 2023-09-23 to 2023-09-25



Figure 43: Histogram of "Integrated a priori HCHO profile" for 2023-09-23 to 2023-09-25



Figure 44: Histogram of "DOAS fit wavelength shift" for 2023-09-23 to 2023-09-25



Figure 45: Histogram of "DOAS fit wavelength squeeze" for 2023-09-23 to 2023-09-25



Figure 46: Histogram of "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25



Figure 47: Histogram of "HCHO slant column correction" for 2023-09-23 to 2023-09-25

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 48: Along track statistics of "QA value" for 2023-09-23 to 2023-09-25



Figure 49: Along track statistics of "HCHO vertical column" for 2023-09-23 to 2023-09-25



Figure 50: Along track statistics of "HCHO vertical column precision" for 2023-09-23 to 2023-09-25



Figure 51: Along track statistics of "HCHO vertical column correction" for 2023-09-23 to 2023-09-25



Figure 52: Along track statistics of "HCHO slant column (window1)" for 2023-09-23 to 2023-09-25



Figure 53: Along track statistics of "HCHO slant column precision (window1)" for 2023-09-23 to 2023-09-25



Figure 54: Along track statistics of "Airmass factor total" for 2023-09-23 to 2023-09-25



Figure 55: Along track statistics of "Airmass factor total precision" for 2023-09-23 to 2023-09-25



Figure 56: Along track statistics of "Airmass factor clear" for 2023-09-23 to 2023-09-25



Figure 57: Along track statistics of "Integrated a priori HCHO profile" for 2023-09-23 to 2023-09-25



Figure 58: Along track statistics of "DOAS fit wavelength shift" for 2023-09-23 to 2023-09-25



Figure 59: Along track statistics of "DOAS fit wavelength squeeze" for 2023-09-23 to 2023-09-25



Figure 60: Along track statistics of "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25



Figure 61: Along track statistics of "HCHO slant column correction" for 2023-09-23 to 2023-09-25

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 62: Scatter density plot of "DOAS fit RMS (first interval)" against "HCHO slant column corrected" for 2023-09-23 to 2023-09-25.



Figure 63: Scatter density plot of "DOAS fit RMS (first interval)" against "HCHO slant column correction" for 2023-09-23 to 2023-09-25.


Figure 64: Scatter density plot of "DOAS fit wavelength shift" against "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25.



Figure 65: Scatter density plot of "DOAS fit wavelength shift" against "DOAS fit wavelength squeeze" for 2023-09-23 to 2023-09-25.



Figure 66: Scatter density plot of "DOAS fit wavelength shift" against "HCHO slant column corrected" for 2023-09-23 to 2023-09-25.



Figure 67: Scatter density plot of "DOAS fit wavelength shift" against "HCHO slant column correction" for 2023-09-23 to 2023-09-25.



Figure 68: Scatter density plot of "DOAS fit wavelength squeeze" against "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25.



Figure 69: Scatter density plot of "DOAS fit wavelength squeeze" against "HCHO slant column corrected" for 2023-09-23 to 2023-09-25.



Figure 70: Scatter density plot of "DOAS fit wavelength squeeze" against "HCHO slant column correction" for 2023-09-23 to 2023-09-25.



Figure 71: Scatter density plot of "Airmass factor clear" against "DOAS fit RMS (first interval)" for 2023-09-23 to 2023-09-25.



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