EDUCE- flagging report for spectral data from Tromso, Norway

Authors/evaluators: JE Williams, PN den Outer and H Slaper (RIVM)

FP2 : Flagging results for Tromso, Norway:

Measurements details :

Location: Tromso, Norway
Elevation (m): 107
Instrument name: Brewer #104
Instrument type: Brewer double monochromator MK III
Wavelength range (nm): 287.5-363
Lat, Long: 69.66, 18.93
Date on which data was extracted : 28.01.02(*1994, 1995, 1996, 1997*), 29.01.02(*1998)*
Date on which slit function was extracted/received : 18.10.96
Years of submitted data: 5
No spectra submitted (per year): 2521 (*1994*), 8751 (*1995*), 2522 (*1996*), 5294 (*1997*), 2527 (*1998*)
No spectra (total submitted): 21615
Slit width (FWHM) (nm): 0.6
SHIC version for analysis: 3_093

Special comments: Measurements for both the start and end of the year are not available from this location due to lack of sunlight. Therefore, days where the solar zenith angle is never less than 90 degrees are ignored during the assessment of percentage annual coverage.

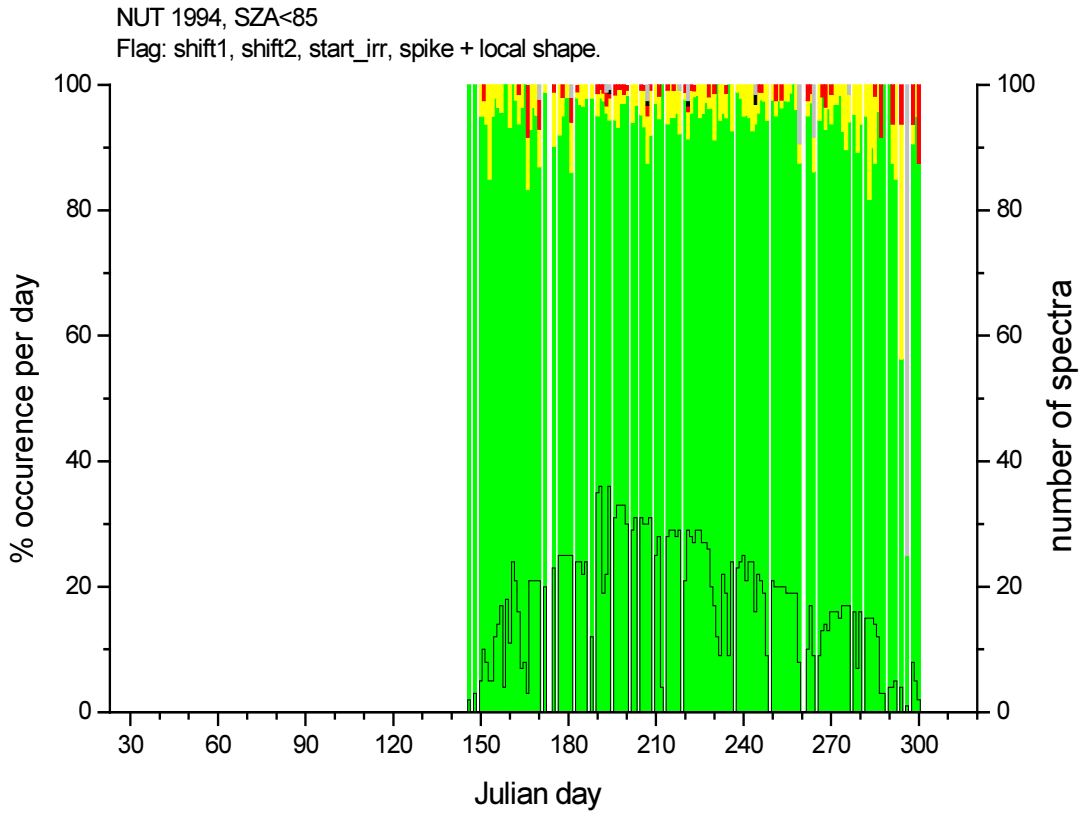
Responsible operator/PI: Trond Svenoe ; Trond.Svenoe@unis.no

Operator comments:

The operator suggests that the annual coverage be calculated for periods only where there is sunlight at this high latitude measurement station, which has now been performed.

Results of flagging statistics:

1994:



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
shift1_flagging	99.4	0	0	0	0.6	0	2363	0	0	0	14	0	2377
shift2_flagging	98.4	1.3	0	0	0.3	0	2339	31	0	0	7	0	2377
start_irradiance_flag	99.6	0.3	0	0.1	0	0	2368	6	0	3	0	0	2377
Spike + local_shape_flag	80.9	14.2	2.7	0	0.1	2.1	1964	344	65	1	3	51	2428
Transmission_2	95.8	4	0.1	0	0.1	0	2278	94	2	0	3	0	2377

Comments:

Moderate annual coverage (approximately 60%); medium potential value for climatological studies.

Overall data-quality impression : a high fraction of potential high quality spectra

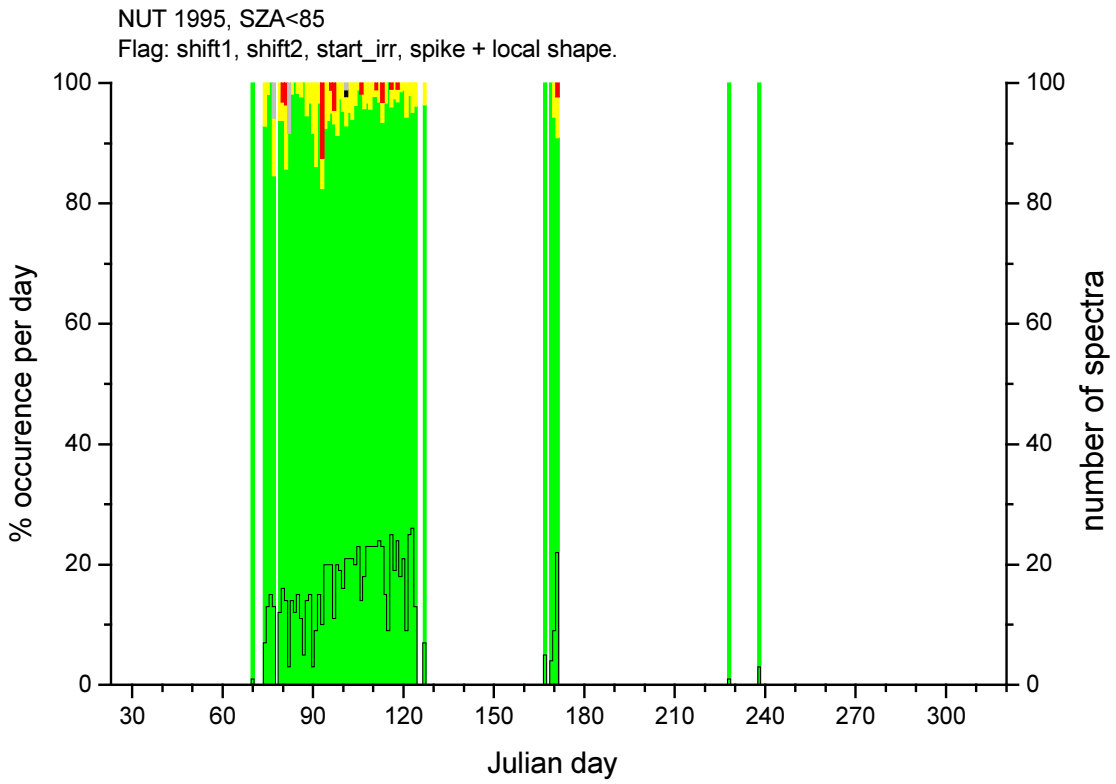
A very small number of black flags occur in some of the chosen flagging categories (with red flags < 3%).

The shift2 flag indicates that some non-critical calibration error occurs for 1.3% of spectra. in the UVA when comparing with a extra-terrestial solar spectrum.

51 (2.1%) spectra with spikes are reported.

The distribution of errors is fairly uniform across the dataset although more spectra are red-flagged towards the end of the dataset.

1995:



Flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
shift1_flagging	99.7	0	0	0	0.3	0	872	0	0	0	3	0	875
shift2_flagging	94.1	5.8	0	0	0.1	0	823	51	0	0	1	0	875
start_irradiance_flag	99.2	0.7	0	0.1	0	0	868	6	0	1	0	0	875
Spike + local_shape_flag	86.4	8.2	2.3	0	0.1	3	779	74	21	0	1	27	902
Transmission_2	57.4	36.9	5.6	0	0.1	0	502	323	49	0	1	0	875

Comments:

Limited annual coverage (approximately 30%); some potential for use in climatological studies.

Overall data-quality impression : a useful fraction of potential high quality spectra

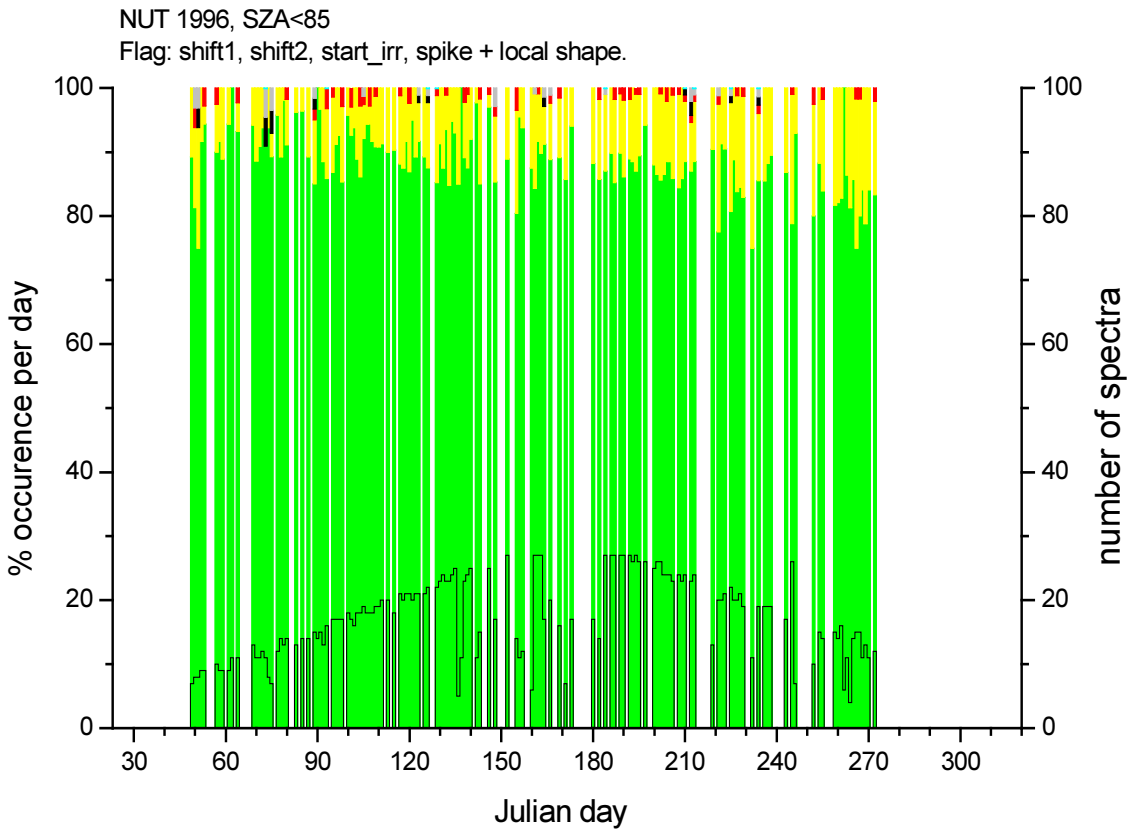
Only one black flag occurs in the one of the chosen flagging categories (with red flags < 6%).

The shift2 flag indicates that some non-critical calibration error occurs for ~6% of spectra. in the UVA when compared with an extra-terrestial solar spectrum.

27 (3%) of spectra with spikes are reported.

There is a higher incidence of errors at the beginning of the measurement period. The lack of summertime measurements may limit the use of the data for annual doses of effective UV.

1996:



Flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
shift1_flagging	99.2	0	0	0	0.8	0	2477	0	0	0	20	0	2497
shift2_flagging	70.7	29.3	0	0	0	0	1765	731	0	0	1	0	2497
start_irradiance_flag	99.1	0.2	0.2	0.5	0	0	2475	6	4	12	0	0	2497
Spike + local_shape_flag	82.6	11.6	2.3	0	0	3.5	2138	299	59	1	0	91	2588
Transmission_2	94.5	5.5	0	0	0	0	2359	137	1	0	0	0	2497

Comments:

Moderate annual coverage (approximately 75%): medium potential for use in climatological studies.

Overall data-quality impression : a useful fraction of potential high quality spectra

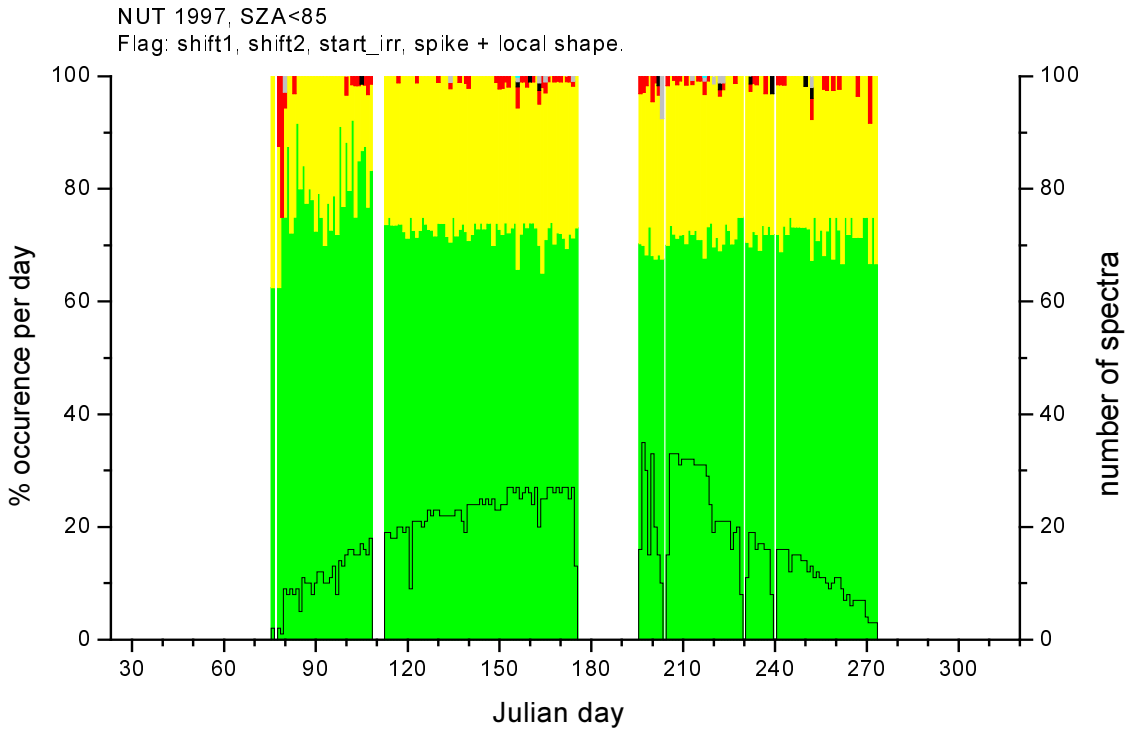
A small number of black flags occur in the some of the chosen flagging categories (with red flags < 2.5%).

The shift2 flag indicates that some non-critical calibration error occurs for nearly 30% of spectra submitted for this year, when comparing to an extra-terrestial solar spectrum. This is worse than the dataset from the previous year.

91 (3.5%) spectra with spikes are reported .

The incidence of errors gradually increases throughout the measurement period suggesting that the instrument becomes misaligned over the measurement period.

1997:



Flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
shift1_flagging	99.5	0.1	0	0	0.4	0	3075	2	0	0	12	0	3089
shift2_flagging	3.7	96.2	0.1	0	0.1	0	114	2971	2	0	2	0	3089
start_irradiance_flag	99.3	0.1	0.3	0.3	0	0	3066	4	9	10	0	0	3089
Spike + local_shape_flag	87.3	7.6	2.8	0	0	2.2	2759	240	89	0	1	70	3159
Transmission_2	97.3	2.6	0	0	0	0	3006	81	1	0	1	0	3089

Comments:

Moderate annual coverage (approximately 65%): medium potential for use in climatological studies.

Overall data-quality impression : a high fraction of potential high quality spectra

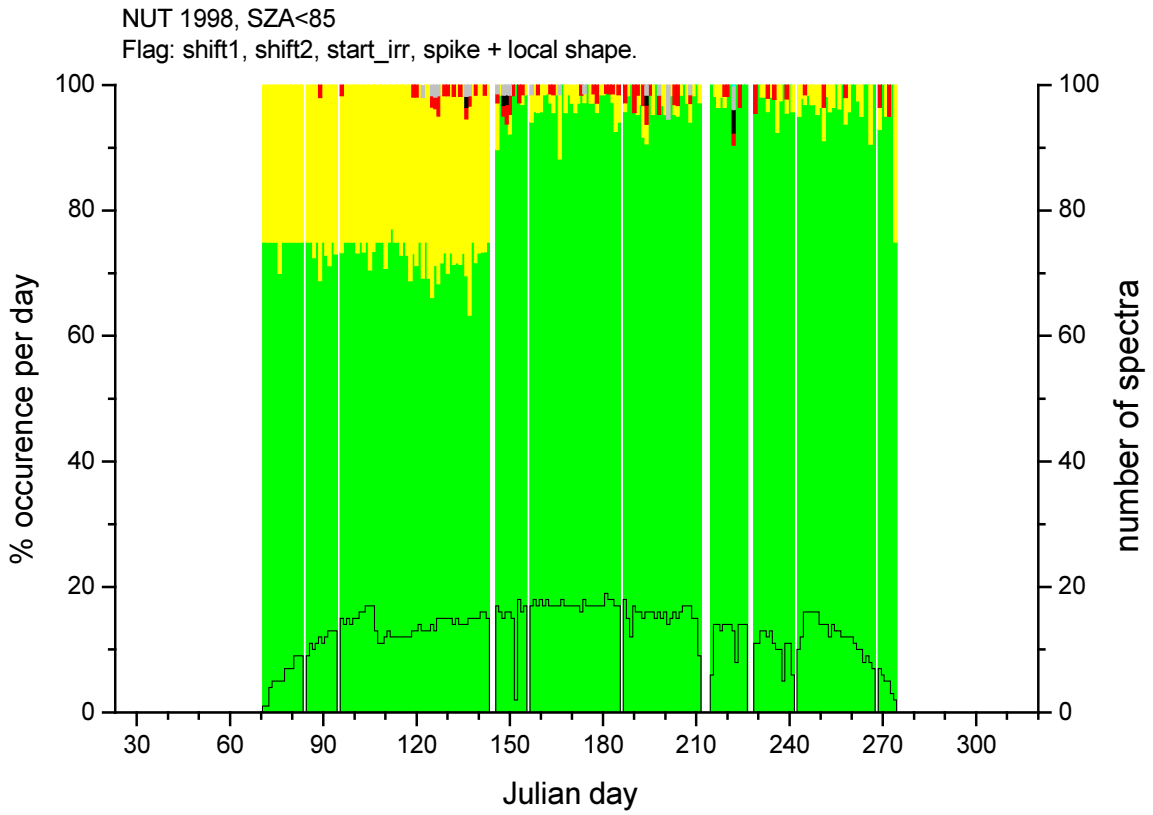
A few black flags are associated with the start irradience flag. Moreover, 89 (2.8%) of spectra have red flags associated with spikes and local shape flag.

The shift2 flag indicates that some non-critical calibration error occurs for nearly all of spectra submitted for this year in the UVA portion of the spectra. This implies that the calibration error which crept in at the end of 1996 becomes slightly worse and persists throughout this year.

70 (2.2%) spectra with spikes are reported.

The distribution of errors is uniform throughout the dataset.

1998:



Flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
shift1_flagging	99.4	0	0	0	0.6	0	2505	0	0	0	16	0	2521
shift2_flagging	65.8	34.1	0	0	0.2	0	1658	859	0	0	4	0	2521
start_irradiance_flag	99.5	0.2	0.2	0.2	0	0	2508	4	4	5	0	0	2521
Spike + local_shape_flag	87.3	7.4	2.6	0	0	2.7	2261	191	67	1	1	69	2590
Transmission_2	97.4	2.6	0	0	0	0	2455	65	0	0	1	0	2521

Comments:

Moderate annual coverage (approximately 70%): medium potential for use in climatological studies.

Overall data-quality impression : a useful fraction of potential high quality spectra

A small number of black flags are associated with the start irradience flag (with red flags < 3%).

The shift2 flag indicates that some non-critical calibration error occurs for nearly all of spectra before Julian day 143. After this day a recalibration of the instrument seems to occur which improves the quality of the spectra.

69 (2.7%) spectra with spikes are reported.

The number of errors is greatest during the spring of this year, after which there is an improvement in the quality of the dataset. Potential users should be aware of this when utilizing the data