EDUCE- flagging report for spectral data from Lindenberg, Germany

Authors/evaluators: J.E. Williams, P.N. den Outer and H. Slaper (RIVM)

FP7 : Flagging results for Lindenberg, Germany:

Measurements details :

Location : Lindenberg, Germany
Elevation (m) : 121
Instrument name : brewer #078
Instrument type : SCI-TEC MK IV
Wavelength range (nm) : 280-325
Lat, Long : 52.2167, 14.1167
Years of submitted data : 7
No spectra (per year) : 3748 (*1995*), 5254 (*1996*), 6182 (*1997*), 6551 (*1998*), 3942 (*1999*), 6487 (*2000*), 6368 (*2001*)
No spectra (total submitted) : 38532
Slit width (FWHM) (nm) : 0.5
SHIC version for analysis : 3_093

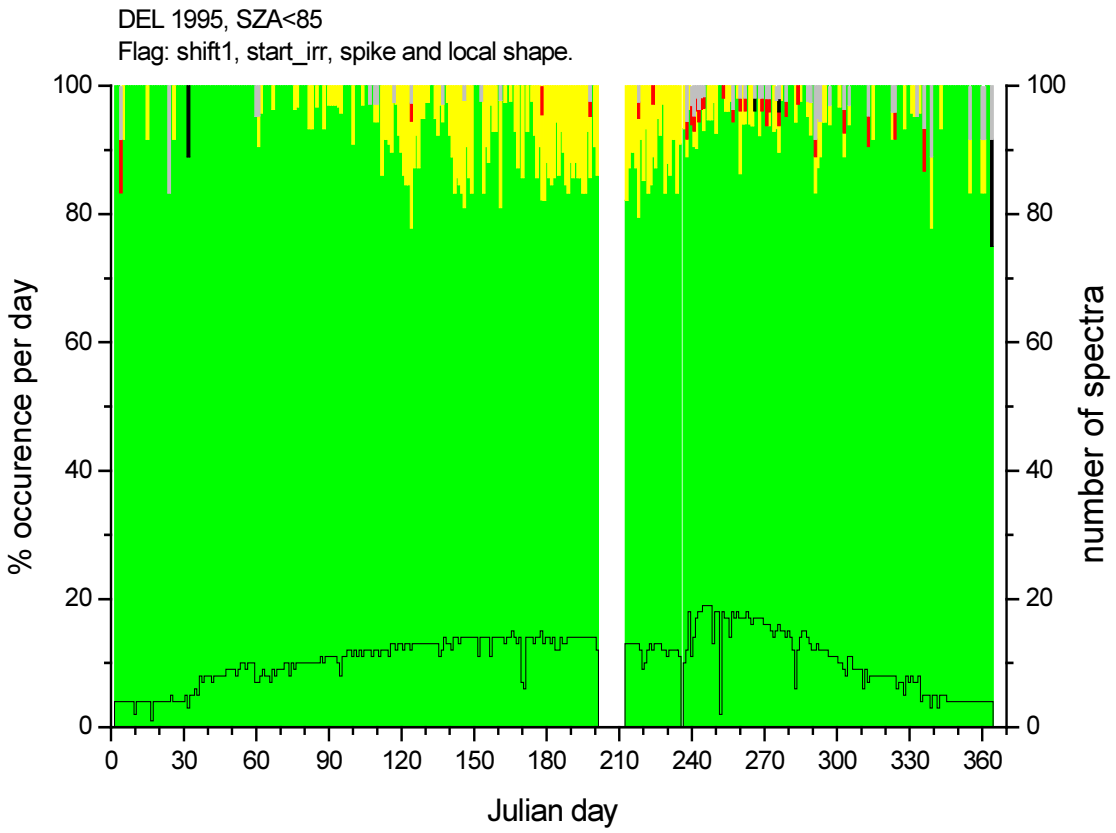
Special comments: Complete coverage for a number of successive years.

Responsible operator/PI: Uwe Feister : Uwe.Feister@dwd.de

Operator comments: No comments made by the operator

Tables of flagging statistics:

1995:



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	98.4	0	0	0	1.6	0	3614	0	0	1	59	0	3674
start_irradiance_flag	86.9	12.9	0.1	0.1	0	0	3193	474	4	3	0	0	3674
Spike+local_shape	97.8	1.4	0.7	0	0	0.1	3596	50	26	1	1	2	3676

Comments :

Extensive annual coverage (approximately 95%): excellent potential for use in climatological studies.

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

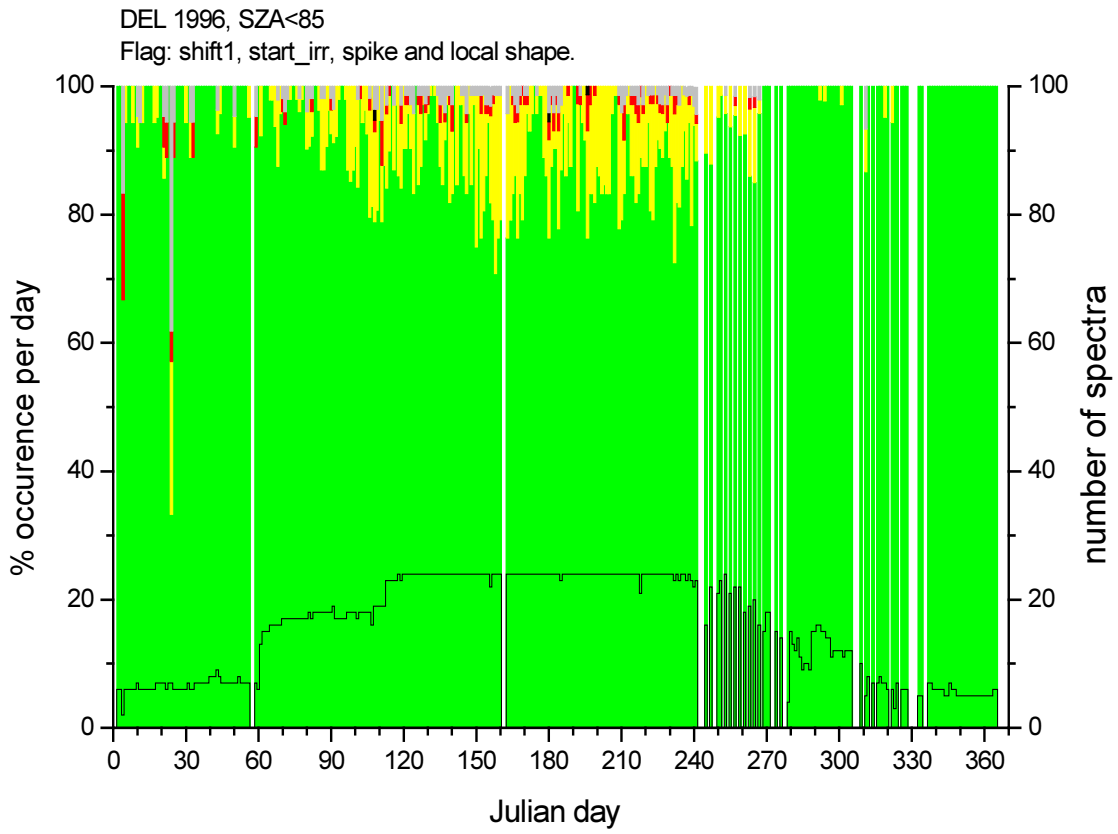
A small number of black flags exist in the start irradience flagging category (with red flags < 1%).

The shift1 flag indicates that the instrument is well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, although 1.6% of spectra have grey flags.

2 (0.1%) spectra with spikes are reported.

The distribution of errors is non-uniform throughout the year, where most yellow flags occur during the summer and most red flags during the autumn, which improves towards the end of the year.

1996:



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	96.8	0	0	0	3.2	0	5064	0	0	0	166	0	5230
start_irradiance_flag	81.9	17.6	0.4	0	0	0	4282	923	23	2	0	0	5230
Spike+local_shape	95.1	3.3	1.5	0	0	0.1	4978	174	76	1	1	4	5234

Comments :

Extensive annual coverage (approximately 97%): excellent potential for use in climatological studies.

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

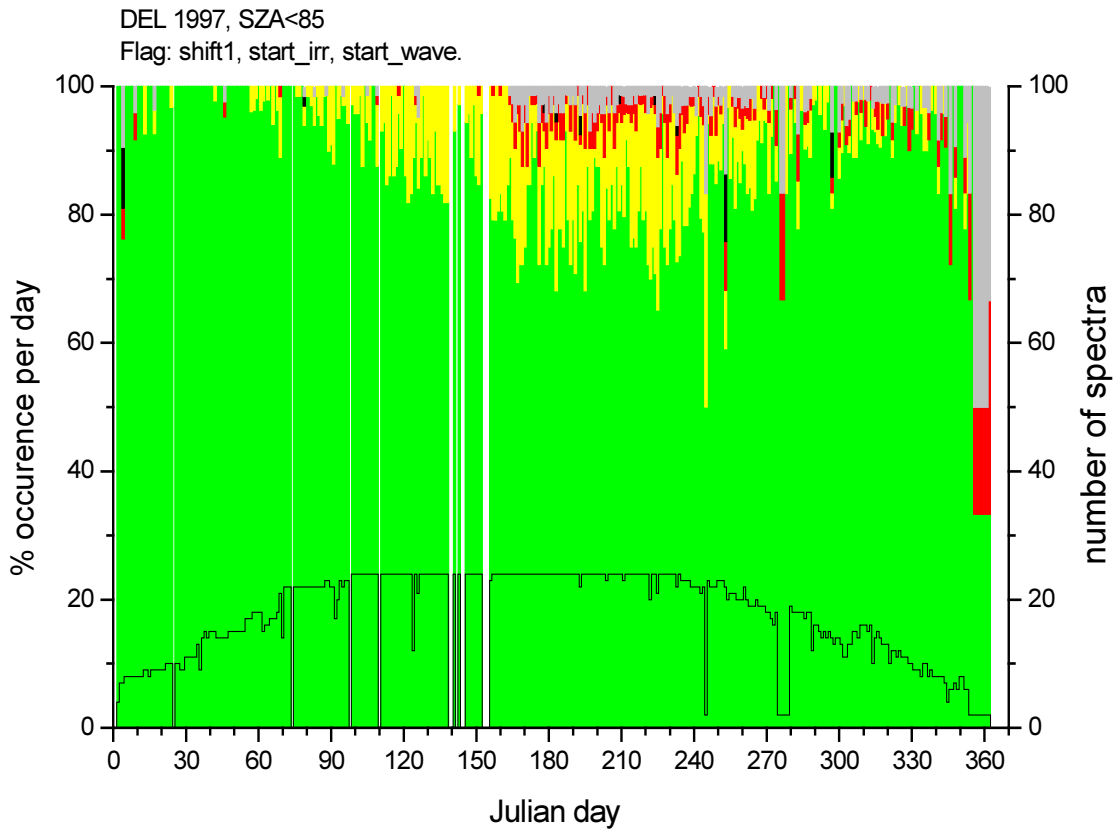
A small number of black flags occur for some of the chosen flagging categories (with red flags < 2%).

The shift1 flag indicates that the instrument is well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, with 3.2% of spectra having grey flags.

4 (0.1%) spectra with spikes are reported.

The distribution of errors is non-uniform throughout the year, where most flags occur during the summer. There is a decrease in the number of flags towards the end of the year which suggests some instrument recalibration.

1997:



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	95.3	0	0	0	4.7	0	5879	0	0	0	289	0	6168
start_irradiance_flag	79.1	19.9	0.8	0.1	0	0	4881	1228	50	9	0	0	6168
Spike+local_shape	91.8	4.6	3.3	0.2	0.1	0	5665	281	205	11	6	1	6169

Comments :

Extensive annual coverage (approximately 97%): excellent potential for use in climatological studies.

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

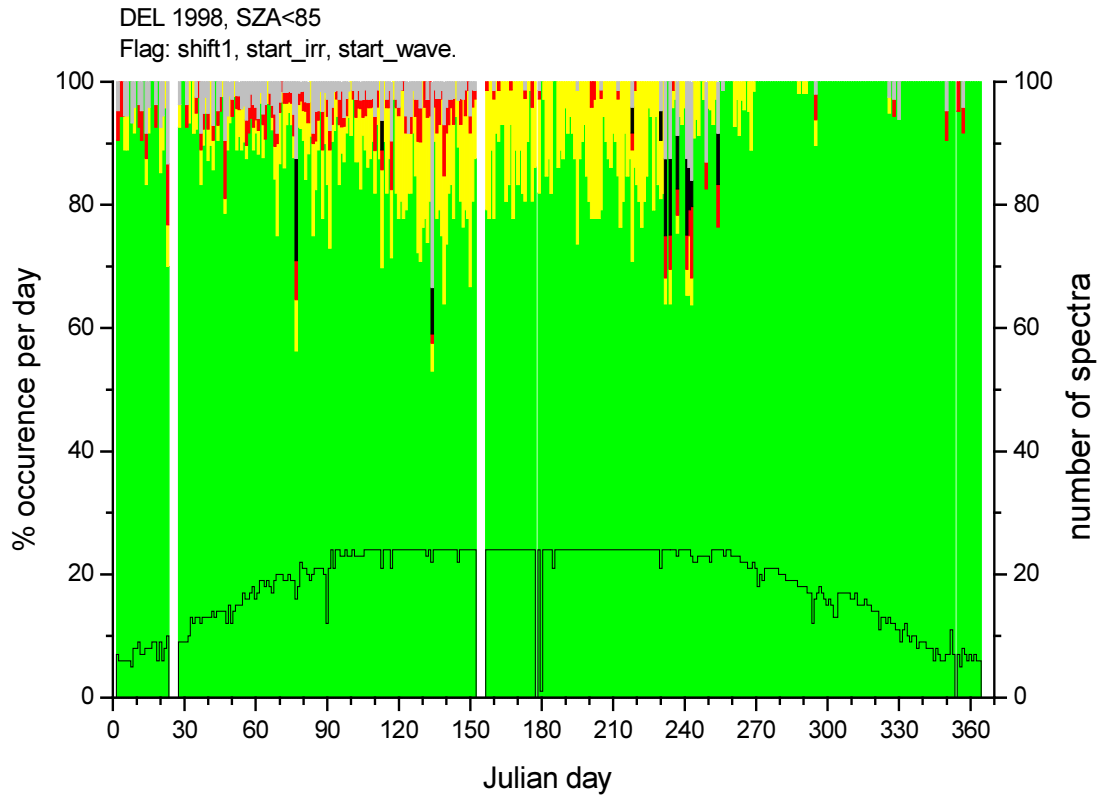
A small number of black flags occur in some of the chosen flagging categories (with red flags < 3.5%).

The shift1 flag indicates that the instrument is relatively well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, with 4.7% of spectra having grey flags.

1 (<0.1%) spectrum with a spike is reported.

The distribution of errors is non-uniform throughout the year, with the number of flags gradually increasing with respect to Julian Day. This suggest that the calibration of the instrument gets gradually worse with time for this year.

1998:



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	95	0	0	0	5	0	6207	0	0	0	330	0	6537
start_irradiance_flag	80.1	18.6	0.7	0.6	0	0	5236	1215	45	40	1	0	6537
Spike+local_shape	92.5	3.7	3.1	0.4	0.2	0	6050	243	201	29	14	1	6538

Comments :

Full annual coverage (approximately 97%): excellent potential for use in climatological studies.

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

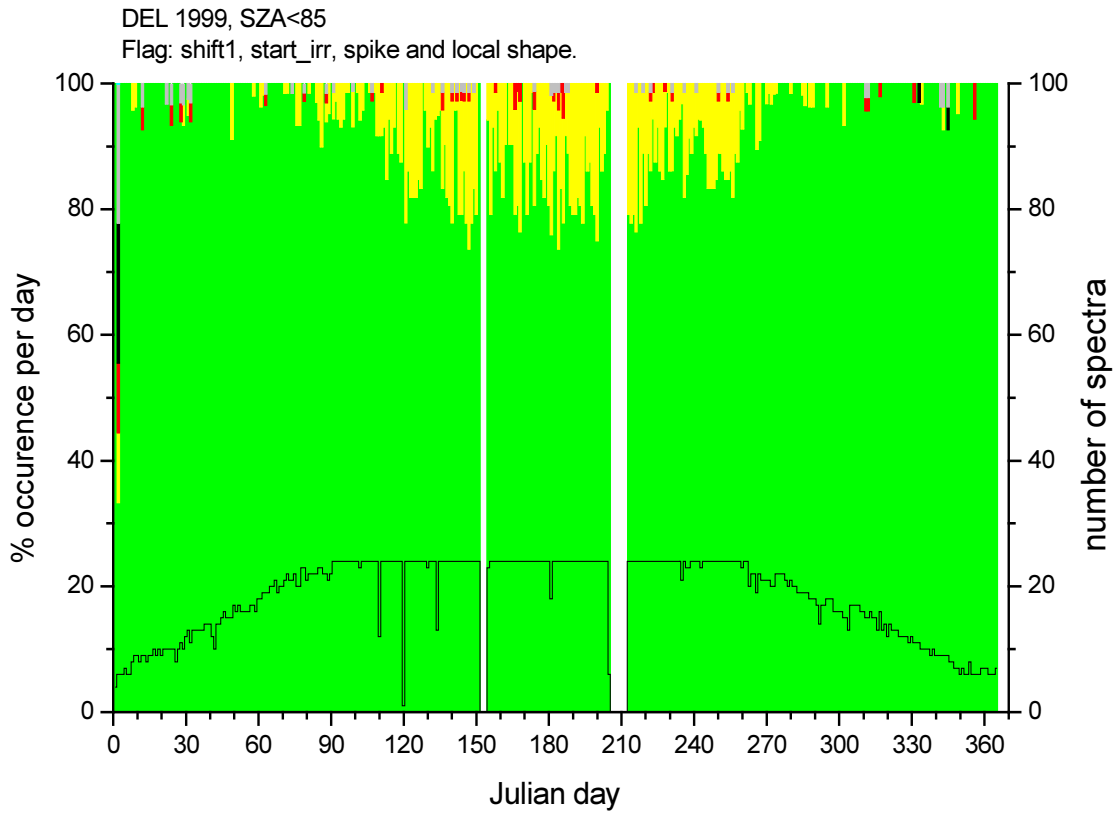
A number of black flags occur in some of the chosen flagging categories (with red flags < 3.5%).

The shift1 flag indicates that the instrument is relatively well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, with 5% of spectra having grey flags. This is better than that for the two previous years.

1 (<0.1%) spectrum with a spike is reported.

The distribution of errors is non-uniform throughout the year, with the number of flags decreasing after spring, with the exception of small periods which last a few days (e.g) JD ∈ 235. This suggest the calibration of the instrument improves towards the end of the year.

1999



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	99.3	0	0	0	0.7	0	6528	0	0	0	48	0	6576
start_irradiance_flag	79.7	20	0.3	0	0	0	5238	1316	20	1	1	0	6576
Spike+local_shape	98.9	0.6	0.4	0.1	0	0	6505	38	27	5	1	2	6578

Comments :

Extensive annual coverage (approximately 96%): full potential for use in climatological studies.

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

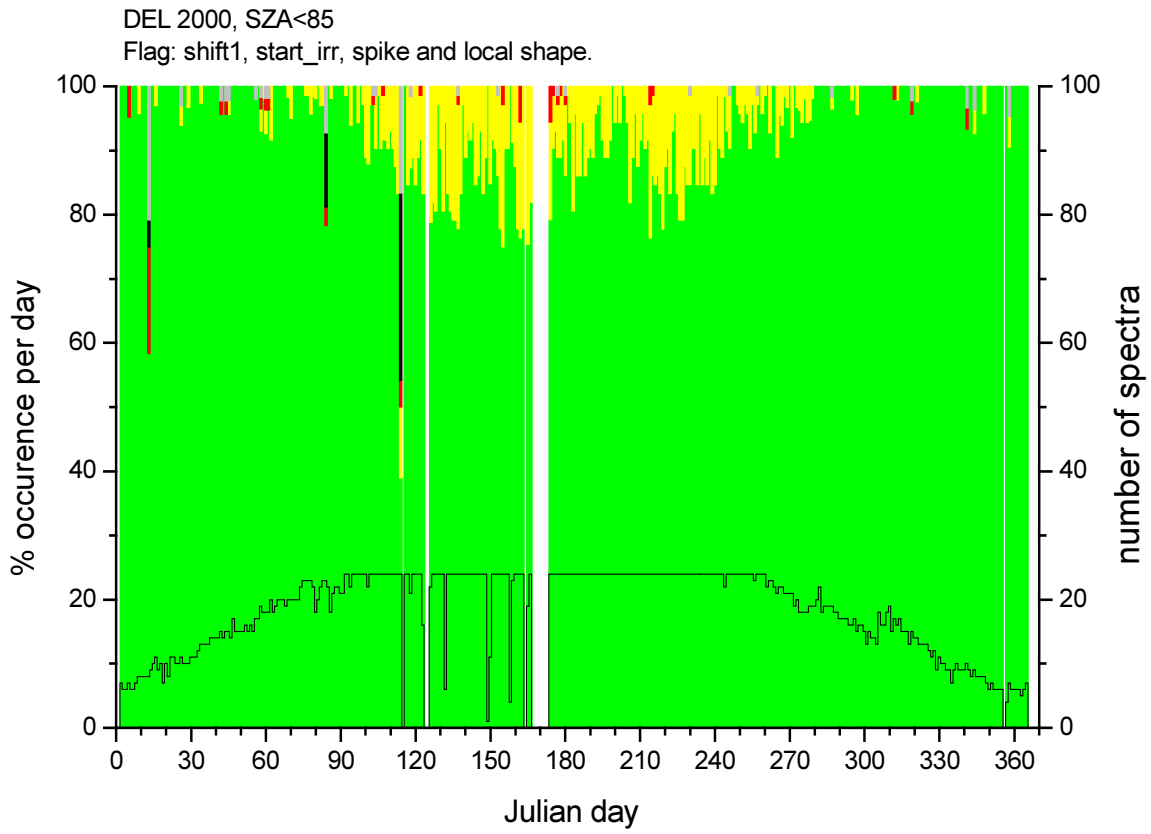
A small number of black flags occur in some of the chosen flagging categories (with red flags < 0.5%).

The shift1 flag indicates that the instrument is well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, with 0.7% of spectra having grey flags. The performance is an improvement on the previous year.

2 (<0.1%) spectra with spikes are reported.

The distribution of errors is non-uniform throughout the year, with the number of yellow flags increasing during the summer.

2000:



flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	99.3	0	0	0	0.7	0	6428	1	0	0	45	0	6474
start_irradiance_flag	81.8	17.7	0.3	0.2	0	0	5294	1146	21	13	0	0	6474
Spike+local_shape	98.9	0.5	0.3	0.3	0	0	6405	34	18	17	0	1	6475

Comments :

Full annual coverage (approximately 96%): excellent potential for use in climatological studies.

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

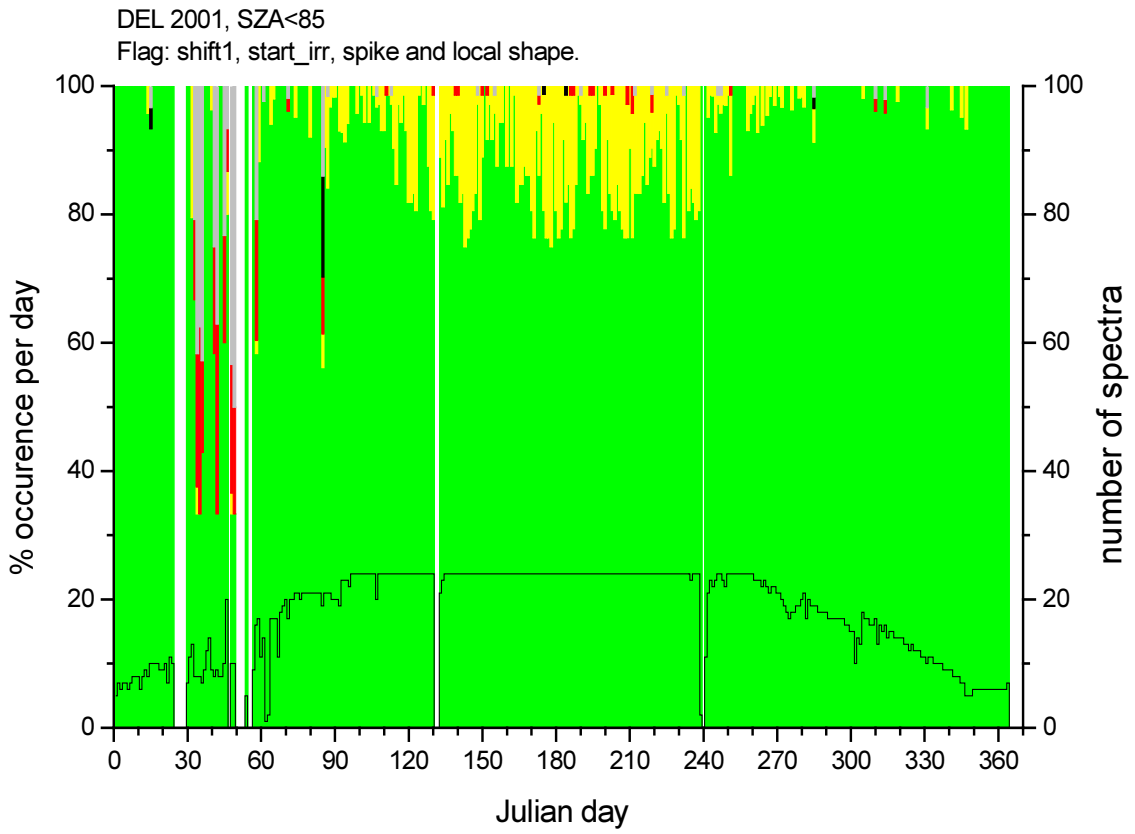
A small number of black flags occur in some of the chosen flagging categories (with red flags < 3.5%).

The shift1 flag indicates that the instrument is relatively well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, with 0.7% of spectra having grey flags. No real improvement from the previous year.

1 (<0.1%) spectrum with a spike is reported.

The distribution of errors is non-uniform throughout the year, with the number of yellow flags increasing during the summer. Towards the end of the year only a very few flags are occur in the dataset.

2001:



Flag	Green %	Yellow %	Red %	Black %	Grey %	Cor. %	Green	Yellow	Red	Black	Grey	Cor.	Num
Shift1_flagging	98.1	0.2	0	0	1.7	0	6248	10	0	0	108	0	6366
start_irradiance_flag	80.4	19.1	0.3	0.1	0	0	5120	1218	21	7	0	0	6366
Spike+local_shape	97.3	1.2	1.1	0.1	0.3	0.1	6198	77	67	6	18	4	6370

Comments :

Full annual coverage (approximately 96%): excellent potential for use in climatological studies.

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

A small number of black flags occur in some of the chosen flagging categories (with red flags < 3.5%).

The shift1 flag indicates that the instrument is relatively well calibrated in the UVB region of the spectrum compared to an extra-terrestial solar spectrum, with 1.7% of spectra having grey flags.

1 (<0.1%) spectrum with a spike is reported.

The distribution of errors is non-uniform throughout the year, with the highest number of yellow flags occuring during the summer. A high number of red and grey flags occur between Julian days 30 and 50 which suggests some calibration error, whereas only a few grey flags occur after this date. Towards the end of the dataset only very few flags occur in the dataset (i.e. most are green).