

COMPARISON OF CORONAL STATION SCALES (emission line 530.3 nm, 1977-1983)

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**ABSTRACT.** The results of measuring the intensity of coronal line 530.3 nm for the period 1977-1983 at the coronal stations of Lomnický Štít, Kislovodsk, Norikura and Sacramento Peak are compared. The method of comparison and determination of the formulas used to reduce the data of the mentioned coronal stations to the Lomnický Štít scale is described. The time stability of the compared data is analysed. An error in procedure was found for Lomnický Štít in the years 1979 and 1980. The reason why the error occurred is given, and the corrected values of the intensity are tabulated.

**СРАВНЕНИЕ ШКАЛ КОРОНАЛЬНЫХ СТАНЦИЙ** (эмиссионная линия 530.3 нм ; 1977 - 1983 ). В статье сравнены результаты определения интенсивности корональной линии 530.3 нм за период 1977 - 1983 гг на корональных станциях Ломницки Штит, Кисловодск, Норикюра и Сакраменто Пик. Описан метод сравнения и определения трансформационных формуль на шкалу станции Ломницки Штит. Оценена временная стабильность сравниваемых данных. У станции Ломницки Штит обнаружена систематическая ошибка за 1979 и 1980 гг. Определена причина ее возникновения и в таблице приведены исправленные данные.

**POROVNANIE ŠKÁL KORONÁLNYCH STANIĆ** (emisná čiara 530,3 nm, 1977-1983). V práci sú porovnané výsledky merania intenzity koronálnej čiary 530,3 nm za obdobie 1977-1983 na koronálnych staniaciach Lomnický Štít, Kislovodsk, Nori-

kura a Sacramento Peak. Je opísaný spôsob porovnania a určenia transformačných funkcií na škálu stanice Lomnický Štít pre údaje z uvedených koronálnych staníc. Je hodnotená časová stabilita porovnávaných údajov. U stanice Lomnický Štít sa zistila chyba v postupe pri rokoch 1979 a 1980. Je opísaná príčina vzniku chyby a v tabuľke sú uvedené opravené hodnoty intenzít.

## 1. INTRODUCTION

The observations of the emission coronal line 530.3 nm, which are available (with a few gaps) since 1939, are an excellent measure of the changes in solar activity, as proved by Waldmeier, Trellis and others. The emission of this line originates in the Fe XIV ion and, therefore, accompanies high-energy phenomena in the solar corona, the substance of which is still not quite clear. Before the coming of the space age, these observations, together with observations of cosmic radiation, were the only source of information about high-temperature cosmic plasma. Beginning with 1947, therefore, a network of coronal stations was established, which were to observe the intensity of this line according to a uniform program, at intervals of  $5^\circ$  in position angle,  $40''$  above the photosphere and once daily.

Later, with the increasing amount of space experiments, many of these coronal stations gave up these systematic observations in the hope that they would be replaced by satellite observations. To-day (1984), however, the opinion prevails that this was a mistake and that these observations should be renewed with better resolution and using more accurate, automated measuring instruments.

The observations of a single station, particularly under European conditions, will never be sufficient to compile a continuous series of observations. For example, during the last 20 years a maximum of 80 observations a year were made at Lomnický Štít, whereas Sacramento Peak has recorded about 260. However, using just these observations does not solve the problem either, because they are not readily available (they are only published in graphical form in Solar Geophysical Data), the measurements are difficult to check and, particularly, because there is no certainty as to how long these data will be available at all; recently, the observation programs are frequently being changed and even long-term systematic measurements are sometimes being abandoned.

The network of coronal stations was organized to provide as continuous a series of observations as possible by supplementing the observations of one station by those of others. Unfortunately this objective was never completely achieved because, in spite of the long years of effort, the method of observation was never unified, which also applies to the photometry for the international service. The results from the various stations mostly differ quite considerably and, if they are to be used, a suitable method must be found of reducing them to a uniform scale and of creating a homogeneous series of intensities.

## 2. METHOD OF OBSERVATION

The initial data for comparing the observations made at various coronal stations are the averages on common observation days for the pair of stations being compared and the interval involved. One is immediately faced with the problem of a reference station.

The reference station should be capable of producing stable and reliably accurate results over a long period. However, there are no rules according to which one would be able to select a station with these properties at their best. Consequently, we decided to adopt our station as the reference station: Lomnický štít. The reason for this is simple: each step of the observation procedure and photometry can be checked at our station, whereas this is not possible at other stations and the information they publish is insufficient.

The method of observation used is described in detail in the papers of Rybanský (1975, 1977); its basic steps will only be mentioned briefly here, and, in Section 3, each of the stations will be analysed in terms of the individual steps:

a/ A graph of the intensities (averages on common observation days) is plotted for both stations and for each year separately. If there are no conspicuous differences in the character of the observations (determined subjectively from the graph) the whole observation interval is reduced to a uniform scale.

b/ The displacement of the position angle scale of the station relative to the reference station is determined by cross-correlation.

c/ Using the values corrected for the position angle displacement, a graph is plotted of the functional dependence, a function is selected which would fit this dependence best, and the necessary parameters of the function are determined.

d/ The time stability of the reduction formula is analysed in terms of intensity and orientation (position angle) and a general characteristic of the comparison is presented.

## 3. RESULTS

As already mentioned, the results of the comparison will be given for each station (the reference symbol of the station which will be used hereinafter is given in parantheses following the name of the station) according to the items given in Section 2.

LOMNICKÝ ŠTÍT (LS):

This station was adopted as the reference station, so that items a/, b/ and c/ can be omitted. Only item d/ refers:

d/ The station comparison graphs indicate that, in 1979 and 1980, the intensities are systematically low at the other stations. The films for this period were checked, and it was found that the error is of an instrumental nature. At this time, the properties of the diffraction grating of the spectrograph deteriorated rapidly; its lifetime had probably come to an end. The met-

hod of abbreviated photometry used (Rybanský, 1971) requires the halfwidth of the measured line to vary only within narrow limits, and the line intensity is determined as the product of the measured central intensity of the line and the constant halfwidth. The deterioration of the properties of the grating led to an increase in the instrumental profile and lower intensities were obtained (in 1979 on the average by 0.903 x and in 1980 0.569 x). However, the correction cannot be made by multiplying the values in question by some coefficients, because the properties of the grating changed gradually. The spectrograms obtained in 1979 and 1980 were measured exactly, i.e. the central intensity and the halfwidth were determined. The corrected values are given in Table 1.

In 1981, the grating was changed and is, therefore, no longer a source of systematic errors.

KISLOVODSK (KI):

a/ The results of comparing the graphs indicate that the reduction formulas can be reduced to uniform scales in the following intervals: 1977-1980, 1981-1982 and 1983.

b/ As regards the first interval, the position angle should be corrected by  $-5^{\circ}$  in the range of  $90^{\circ}$ - $175^{\circ}$ , in the second interval by  $-5^{\circ}$  all measurements, i.e. in the range of  $0^{\circ}$ - $355^{\circ}$ , and in the third interval by  $-5^{\circ}$  in the range  $0^{\circ}$ - $175^{\circ}$  and by  $-12.5^{\circ}$  in the range of  $180^{\circ}$ - $355^{\circ}$ .

c/ Figure 1 indicates that the best fits for the period in question are: a broken line, a straight line and a broken line. Their parameters are given in Figure 1.

d/ The stability of the reduction formula is relatively small, mainly as regards the position angle and low intensities. The results show very good agreement in the second interval.

NORIKURA (NO):

a/ The reduction formulas are the same for the whole period in question.

b/ The position angle requires a correction of  $-2.5^{\circ}$  only in  $0^{\circ}$ - $175^{\circ}$ .

c/ The best fits are straight lines, different for the eastern and western limb. The results and the line parameters are given in Figure 2.

d/ The stability of the reduction formula is good. The asymmetry of the data at the eastern and western limb persists. This asymmetry was also observed in the 1950's (Trellis, 1960).

SACRAMENTO PEAK (SP):

a/ The data for this station were obtained from the graphs published in Solar Geophysical Data (SGD). The calibration was corrected several times (SGD-explanation of data reports, Altröck, 1984). The nature of the reduction is different for the interval 1977-1982 and 1983.

b/ The position angle has to be corrected by  $-1.5^{\circ}$  in the range of  $0^{\circ}$ - $175^{\circ}$  for the first interval and by  $-1.0^{\circ}$  for the range of  $180^{\circ}$ - $355^{\circ}$ . The 1983 correction for the whole range of position angles is  $-7.5^{\circ}$ .

c/ The best fit in the first interval is a broken line, in 1983 a straight line, as can be seen from Figs 3a, 3b and 3c.

d/ The stability of the reduction formula is high with the exception of

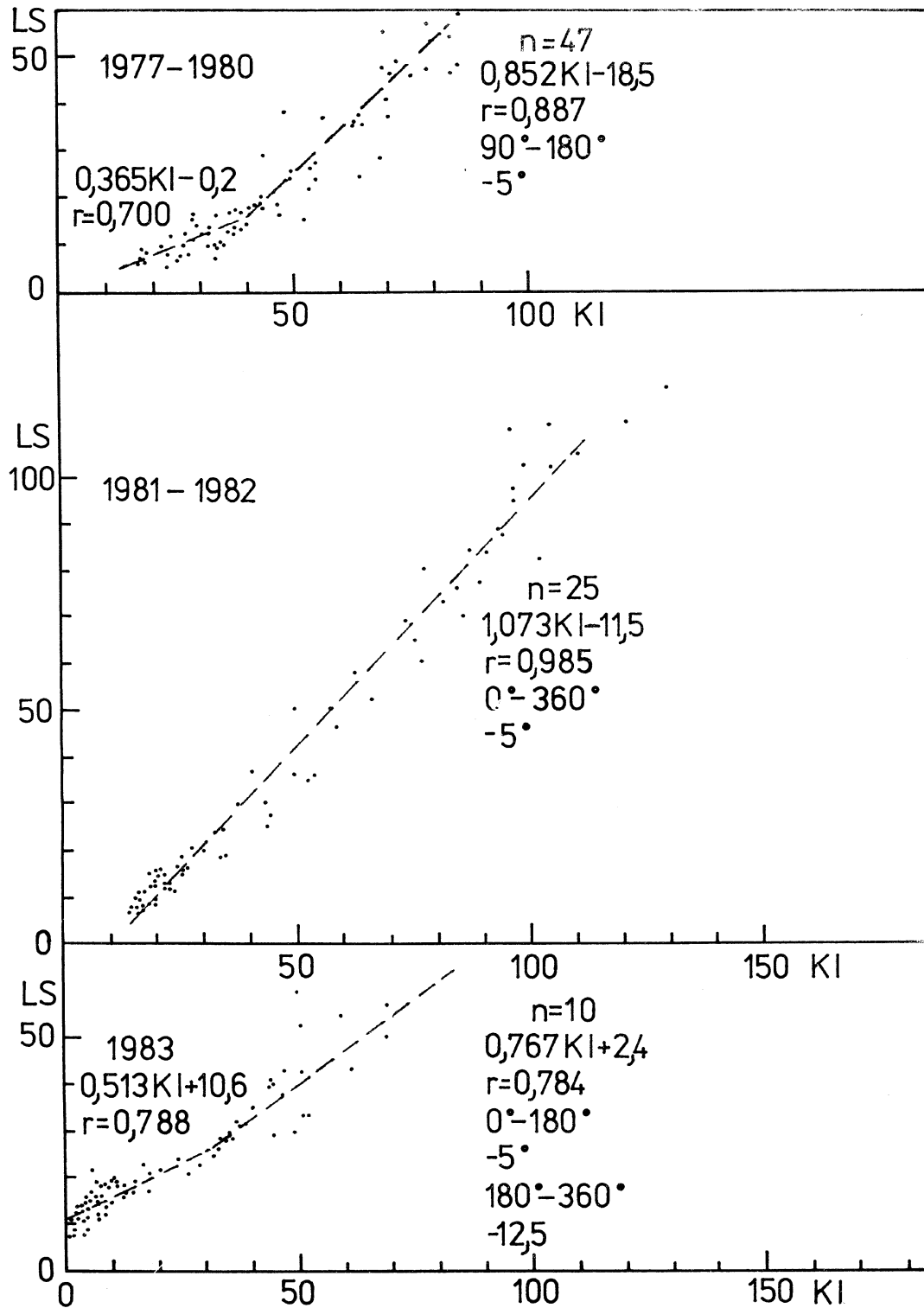


Fig. 1 Intensities Lomnický štít vs Kislovodsk (averages from common days)

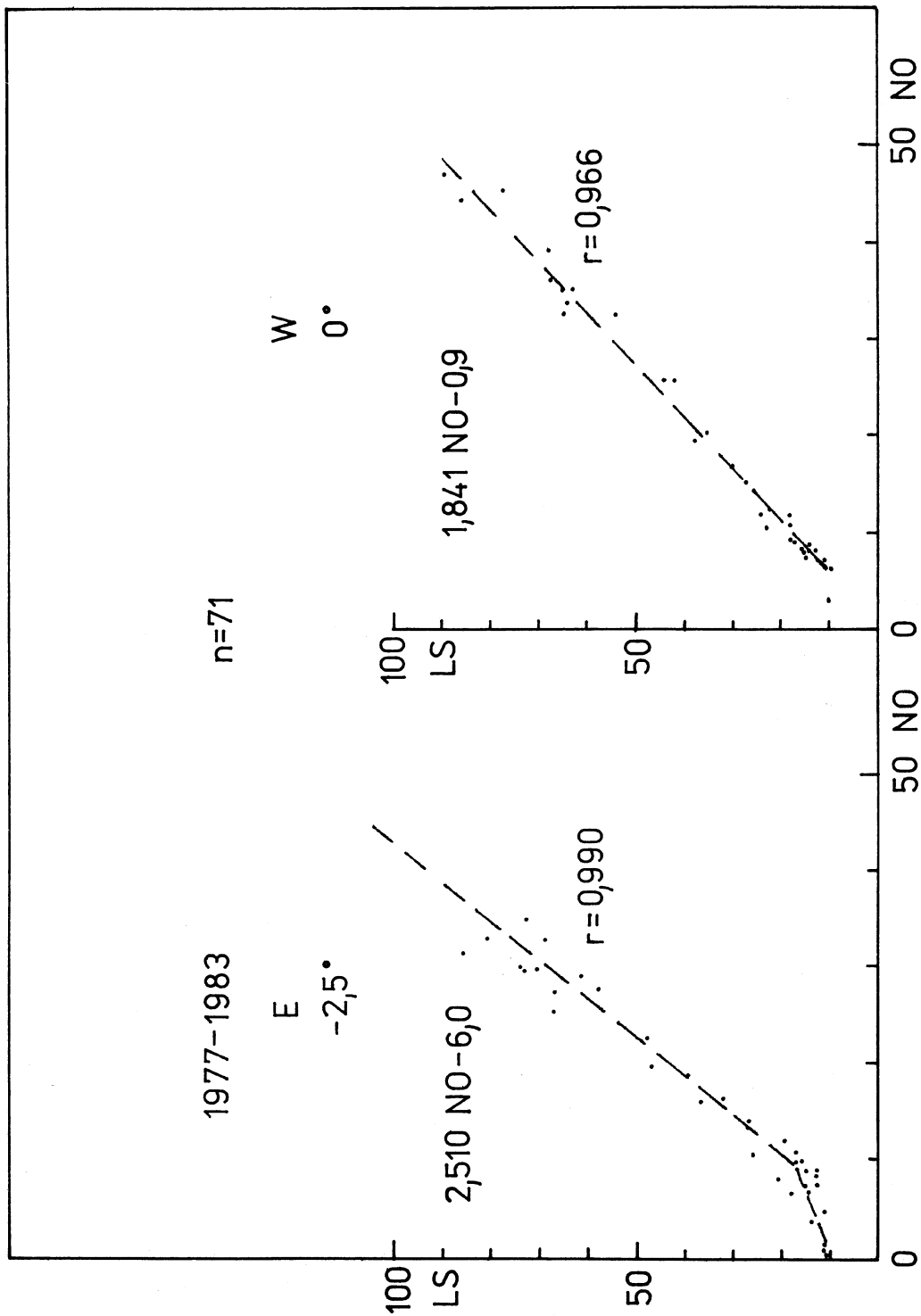


Fig. 2 Intensities Lomnický štít vs Norikura (averages from common days)

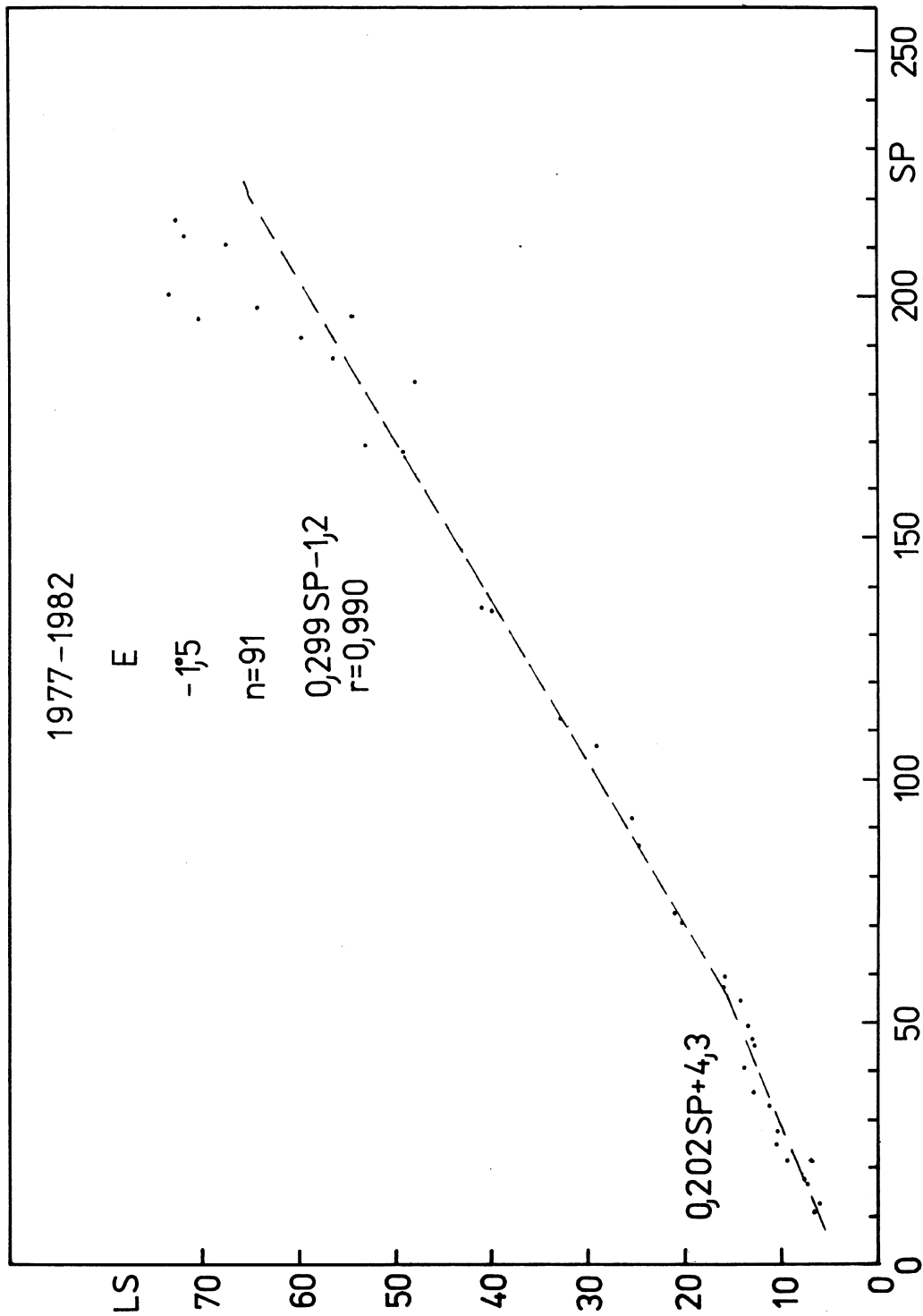


Fig. 3a Intensities Lonmický Štít vs Sacramento Peak in the years 1977 - 1982 for the E-limb (averages from common days)

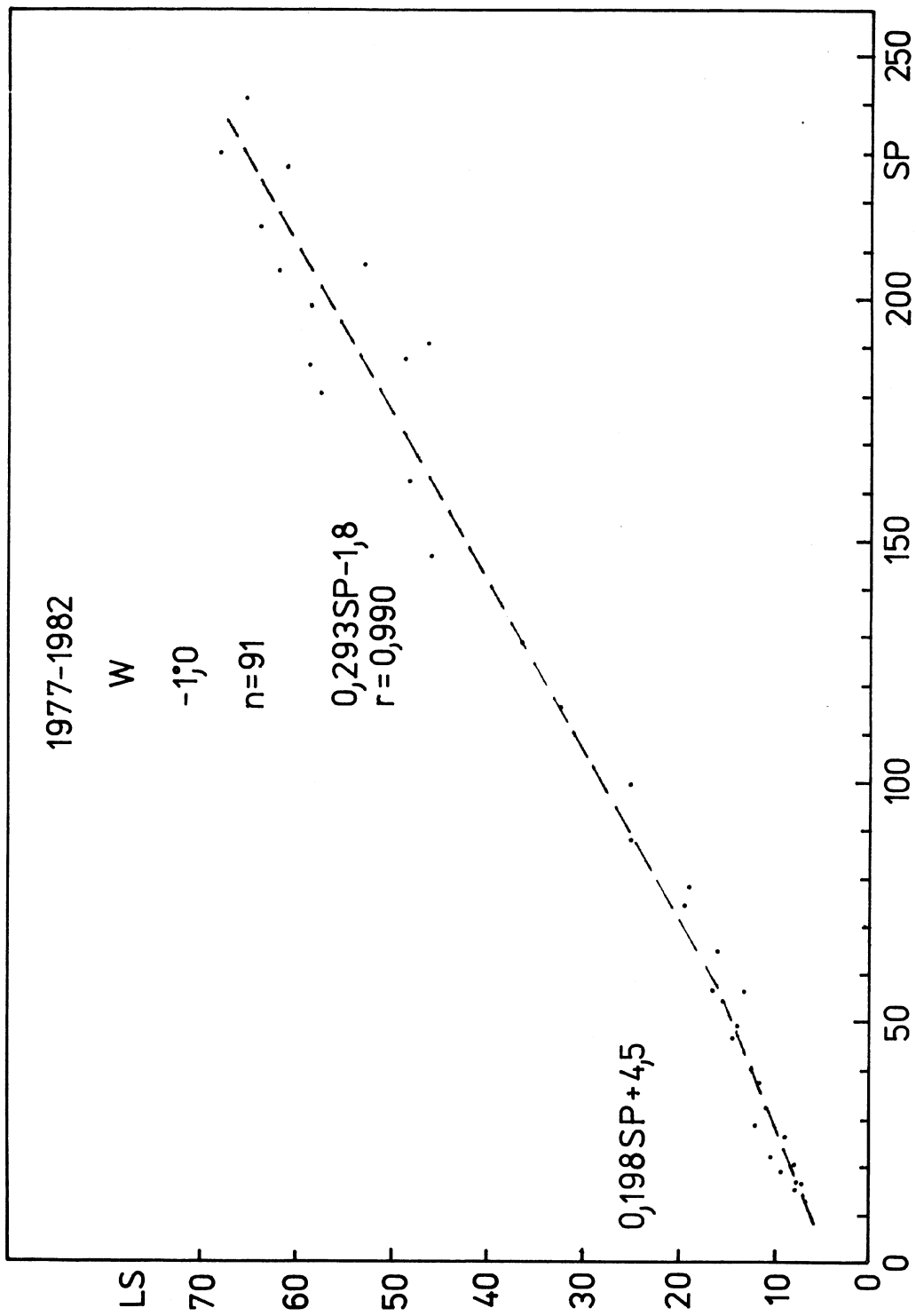


Fig. 3b The same as in Fig. 3a for the W-limb



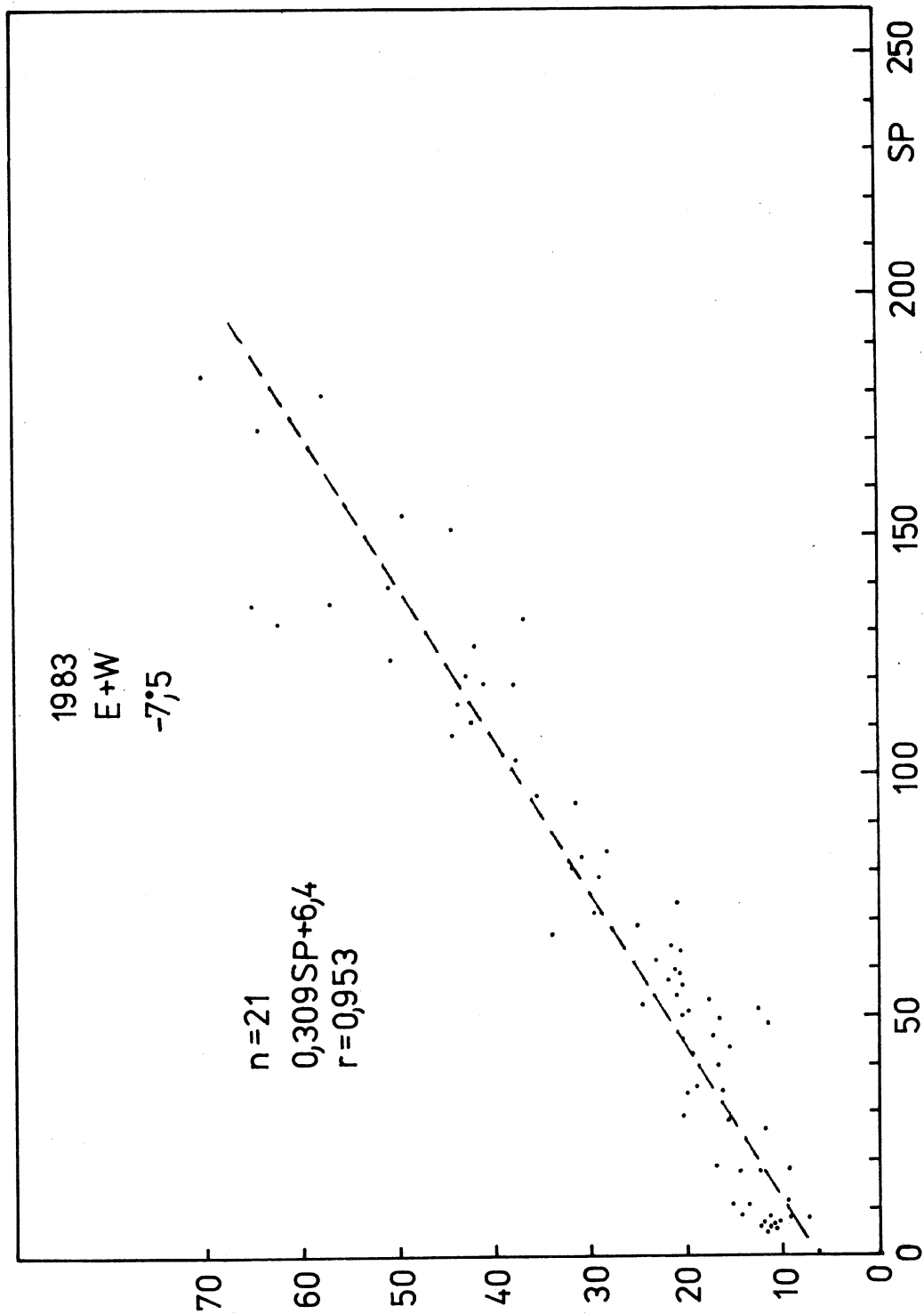


Fig. 3c Intensities Lomnický Štít vs Sacramento Peak in the year 1983  
(averages from common days)

TABLE 1

1979 January

Day	UT	0	5	10	15	20	25	30	35	40	45	50	55
7	11 <sup>h</sup> 10 <sup>m</sup>	8	0	3	0	0	0	3	9	12	46	38	31
12	10 51	0	5	5	0	5	5	3	8	11	9	0	0
13	09 18	8	0	9	17	15	7	20	24	21	17	16	0
17	10 26	1	1	2	6	5	6	1	3	8	6	9	18
26	11 39	3	1	4	13	0	0	5	9	12	23	15	31

1979 February

3	09 14	7	7	0	25	8	16	17	18	29	31	58	58
4	10 42	6	16	19	28	17	19	26	19	35	56	40	59
7	09 10	3	15	7	17	15	11	18	13	19	7	8	20
9	09 11	11	21	26	25	19	12	20	13	25	26	35	26
22	12 30	15	6	13	11	7	7	15	27	21	16	22	75
23	09 01	5	7	15	9	8	11	11	31	31	18	35	58
24	08 33	5	8	15	11	15	19	9	22	19	16	29	28
26	12 51	6	13	0	5	7	16	9	6	18	16	20	16
27	12 49	16	6	25	11	.8	27	13	82	57	3	33	35

1979 March

3	10 18	15	39	23	79	57	59	47	16	38	52	166	133
9	11 12	11	8	13	15	13	12	7	9	1	11	15	18
25	07 36	7	7	18	5	8	12	19	40	34	33	52	114

1979 April

3	08 54	3	18	12	12	12	13	9	17	17	17	23	46
9	09 12	3	9	8	13	8	17	24	16	19	65	44	79
12	08 22	18	0	27	19	0	3	0	2	13	15	12	61

1979 May

13	08 49	30	15	9	25	20	19	5	3	16	13	9	16
14	12 19	13	12	7	16	17	13	18	7	3	11	9	18
15	05 10	8	7	8	15	15	13	3	0	6	12	12	12
16	05 07	21	18	13	27	12	7	12	0	6	14	27	21
29	05 10	11	11	4	18	14	9	8	13	4	28	22	22
30	05 06	6	13	7	7	12	6	6	18	25	25	20	13

1979 June

11	05 35	0	51	51	32	21	32	19	8	34	61	66	101
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TABLE 1 /Continued/

1979 January

60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
29	77	81	38	18	7	11	25	21	84	100	130	147	104	42
1	9	27	17	25	17	12	6	17	15	37	77	63	24	15
19	40	60	42	43	37	29	9	18	28	75	44	54	37	21
26	28	36	85	55	21	20	42	88	35	24	2	7	3	6
22	51	55	20	33	15	11	20	29	46	51	82	54	13	3

1979 February

59	93	84	34	24	31	24	26	34	76	139	67	75	56	52
126	122	103	72	24	36	22	35	54	91	90	213	193	141	36
13	22	16	25	25	28	16	17	37	45	100	58	57	36	16
20	79	65	43	38	32	28	26	39	58	140	111	77	49	62
61	66	66	101	62	30	19	19	45	52	29	29	18	17	6
72	62	53	81	63	26	26	30	131	92	60	20	40	37	18
42	63	53	82	57	24	33	52	139	121	44	19	31	20	12
35	47	34	58	52	19	27	34	42	60	80	152	65	28	16
48	64	47	74	80	44	65	100	152	372	184	191	150	98	55

1979 March

85	108	289	155	43	72	46	104	231	309	230	160	177	98	19
46	25	34	45	41	24	21	27	26	21	48	17	27	15	18
28	79	52	37	37	19	20	21	52	73	43	40	49	35	36

1979 April

52	37	21	18	17	7	22	24	27	27	33	99	76	29	17
97	96	80	66	127	68	59	111	168	119	74	61	25	16	6
99	74	91	55	61	20	53	59	63	99	42	73	39	39	35

1979 May

26	67	26	55	46	45	29	12	15	18	37	33	19	8	11
12	23	25	30	19	40	20	19	18	17	19	12	7	9	9
24	24	19	22	26	26	11	8	20	19	x	13	1	7	11
21	42	60	71	38	34	21	29	38	28	16	18	2	12	9
74	68	106	65	36	25	27	20	27	36	40	47	41	34	14
27	53	53	49	41	47	28	20	28	36	53	62	19	47	41

1979 June

254	147	85	62	47	44	66	114	220	52	0	34	19	0	13
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TABLE 1 /Continued/

1979		January													
	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205
	36	24	11	12	17	9	15	18	12	2	7	3	0	0	0
	12	8	13	9	6	9	20	5	9	7	6	9	6	9	5
	8	12	37	35	16	9	9	8	12	16	8	3	0	2	22
	3	7	3	5	7	6	7	5	0	0	15	9	13	9	8
	21	11	15	9	16	9	3	5	1	4	3	0	0	0	9
1979		February													
	49	38	48	25	57	52	13	15	0	43	21	30	6	0	13
	15	17	31	98	147	66	46	0	65	9	21	4	7	13	7
	13	20	13	22	18	15	19	11	8	6	8	8	0	5	3
	29	20	18	20	21	25	6	21	16	1	0	2	2	20	11
	5	3	6	3	2	2	6	2	2	5	6	6	2	12	11
	6	12	8	9	7	11	3	3	12	0	13	15	12	0	9
	11	8	3	6	7	7	6	2	3	6	6	8	13	15	15
	19	13	22	0	6	19	11	2	9	12	7	5	0	15	7
	60	43	94	29	12	34	8	36	13	1	15	11	24	13	28
1979		March													
	59	0	37	47	38	47	5	31	32	0	21	25	7	33	31
	7	0	12	8	12	13	18	6	9	2	7	1	8	6	1
	17	8	6	3	7	3	6	2	6	7	8	7	6	13	12
1979		April													
	22	17	17	13	13	19	19	21	16	9	7	7	9	0	6
	11	7	7	7	7	11	15	19	11	0	8	15	16	11	12
	18	22	11	18	19	18	18	12	8	2	26	19	22	20	21
1979		May													
	6	5	8	5	0	0	11	2	8	24	1	3	27	17	7
	6	0	8	2	1	2	0	6	3	2	9	9	33	19	15
	8	3	5	2	9	5	3	3	0	0	0	5	13	7	6
	0	0	8	2	1	2	1	2	14	9	18	25	19	13	8
	19	18	27	16	18	29	34	14	12	9	12	7	7	7	7
	29	13	13	14	6	13	16	17	17	4	0	4	4	1	1
1979		June													
	19	0	16	11	12	12	29	40	13	7	8	14	58	54	31
1979		July													
	16	4	13	18	18	8	7	7	7	9	4	8	13	19	8

TABLE 1 /Continued/

1979 January

210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	8	12	11	12	76	83	138	125	170	135	84	38	24	9
12	13	22	22	44	55	39	52	57	55	22	19	15	15	24
17	29	37	42	71	113	83	94	81	75	66	62	54	33	46
7	7	7	9	20	41	37	44	35	27	27	30	21	24	43
13	22	37	20	15	51	62	83	106	110	85	22	15	13	46

1979 February

8	2	5	8	39	25	27	63	95	61	59	45	21	36	27
0	0	27	8	127	150	119	356	190	96	72	46	17	17	37
5	6	13	28	35	48	52	37	33	47	21	13	11	8	25
9	16	46	21	45	123	72	71	79	106	62	37	25	53	150
11	9	19	15	20	19	18	18	19	20	13	13	21	44	25
3	9	26	15	21	31	29	19	19	19	17	19	21	35	26
12	9	15	16	18	31	26	26	44	22	27	26	55	38	46
15	10	8	18	11	22	25	40	47	27	22	11	16	36	80
30	24	13	30	35	146	179	225	241	114	73	99	143	228	141

1979 March

21	3	35	12	39	44	146	162	165	182	111	46	21	26	28
5	5	11	24	30	11	49	47	104	57	20	30	36	57	39
7	7	15	11	12	6	16	11	6	33	33	30	20	65	52

1979 April

5	6	1	30	52	100	48	67	53	35	43	43	66	100	95
13	15	19	27	44	38	72	98	99	145	40	32	25	30	62
30	22	35	3	46	37	32	7	95	127	121	68	40	64	49

1979 May

15	6	7	8	9	12	27	29	37	16	6	7	2	8	10
6	5	9	11	11	18	25	30	34	12	12	9	6	11	12
7	3	9	6	7	17	21	35	37	19	15	16	13	0	8
4	4	14	2	33	55	69	40	41	14	21	14	4	10	19
7	10	4	2	9	16	19	4	31	22	25	19	19	29	41
7	4	6	1	10	8	34	36	38	31	24	2	25	29	25

1979 June

27	28	28	53	45	51	73	47	59	68	41	27	39	6	79
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1979 July

14	7	12	42	27	32	9	16	16	10	12	12	27	38	27
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TABLE 1 /Continued/

1979		January													
285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	
12	47	47	43	33	53	36	12	12	27	18	7	26	24	16	
28	52	35	33	45	28	25	19	15	12	5	17	13	7	5	
111	108	69	66	100	81	31	33	33	16	31	37	24	8	1	
46	53	56	37	27	18	15	18	11	6	9	7	0	1	2	
116	114	56	43	33	53	12	27	14	11	6	9	15	1	2	
1979		February													
53	46	75	72	46	57	52	36	18	1	15	0	15	12	0	
77	49	67	67	75	157	62	32	27	7	18	27	47	6	3	
36	42	49	55	18	37	16	20	9	11	12	13	11	16	7	
138	125	76	103	71	22	22	29	9	21	17	21	27	7	18	
36	54	31	26	21	7	16	11	8	5	15	13	9	13	11	
39	69	37	27	25	12	11	9	9	8	11	8	8	9	8	
35	56	67	12	12	12	8	3	9	9	11	11	9	12	7	
43	63	64	24	3	21	17	0	3	3	15	8	6	20	7	
247	111	81	80	47	75	18	17	27	19	12	0	8	0	0	
1979		March													
22	82	77	121	99	42	53	55	80	39	54	52	22	20	0	
53	58	40	31	29	37	40	13	11	3	18	6	13	9	3	
64	40	54	53	39	37	21	12	12	3	8	7	9	9	8	
1979		April													
80	72	55	66	54	49	37	22	24	13	16	17	17	13	11	
63	76	63	71	67	46	55	32	22	13	11	20	22	19	9	
42	73	158	119	55	39	56	13	38	40	15	12	30	30	11	
1979		May													
18	20	22	26	33	29	71	35	17	26	12	13	21	16	5	
9	15	21	16	18	8	13	2	7	17	11	9	8	11	12	
3	15	16	37	15	11	7	8	5	9	9	0	12	13	35	
33	49	73	41	24	14	12	18	21	13	9	14	19	25	11	
51	44	41	31	29	16	16	12	18	19	12	13	16	29	12	
33	x	28	24	16	20	14	18	11	6	9	16	7	12	14	
1979		June													
136	89	72	81	96	103	99	38	28	20	22	31	24	40	0	
1979		July													
42	82	85	31	45	34	10	9	16	6	8	20	13	10	7	

TABLE I /Continued/

1979 July		0	5	10	15	20	25	30	35	40	45	50	55
Day	UT												
23	04 <sup>h</sup> 58 <sup>m</sup>	2	7	8	9	11	12	18	11	29	34	16	29
1979 August													
17	06 56	9	2	10	13	16	18	14	19	44	47	47	49
23	06 00	9	9	13	13	18	6	27	20	34	53	68	94
26	07 13	3	11	8	8	11	21	14	22	12	12	18	36
30	06 54	19	22	40	25	21	14	25	19	21	39	22	22
31	07 25	22	32	21	14	24	12	16	18	31	31	28	39
1979 September													
2	08 09	18	24	44	13	7	13	20	55	71	81	99	94
6	08 38	0	32	19	0	28	12	36	42	52	41	73	108
27	06 55	x	8	13	11	x	x	x	16	19	26	27	x
30	07 08	13	20	12	20	9	8	11	20	25	25	25	47
1979 October													
1	07 43	19	11	14	22	18	11	29	32	40	54	71	100
3	07 49	21	7	34	25	14	28	20	33	55	47	80	103
6	07 21	11	9	25	24	20	29	11	11	14	20	16	60
7	08 05	8	13	6	9	0	11	9	8	8	16	16	22
8	08 09	4	14	11	12	7	9	9	9	8	18	16	4
9	06 52	6	8	7	4	2	9	11	8	13	16	8	24
10	10 49	45	26	11	25	12	7	11	18	24	44	47	61
11	07 59	22	19	19	19	11	4	19	0	41	58	54	52
12	10 53	8	27	7	8	11	9	27	21	21	34	36	31
24	10 06	4	2	2	10	2	2	10	8	7	12	9	22
26	07 37	21	9	40	36	18	14	24	32	88	14	69	53
27	08 06	0	4	11	1	8	8	12	13	10	31	40	59
28	08 10	7	6	6	14	12	0	14	21	31	9	81	171
1979 November													
4	08 00	6	18	8	25	20	27	7	7	7	14	38	42
23	09 05	25	2	13	19	0	4	9	0	6	13	71	44
24	08 42	13	7	1	0	0	9	0	0	0	14	40	25
1979 December													
13	10 08	24	52	11	0	32	24	44	76	66	53	189	189
17	09 28	18	0	13	6	2	4	6	2	4	4	27	25

TABLE 1 /Continued/

1979	July													
60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
44	53	40	55	45	29	20	12	24	32	22	11	9	27	39
1979	August													
47	83	62	54	34	26	32	52	129	173	205	111	93	86	39
92	83	55	101	115	116	69	22	45	33	58	58	25	44	x
55	61	92	83	42	12	21	18	16	18	8	21	21	10	14
71	72	40	61	54	45	25	25	31	31	34	44	29	52	40
60	62	55	47	24	22	39	40	48	71	132	109	48	52	41
1979	September													
96	147	62	102	35	31	21	16	42	56	64	80	88	49	24
64	102	123	238	113	31	156	131	49	79	25	0	14	0	0
x	29	29	33	24	16	8	26	16	25	16	44	72	28	29
40	31	119	96	92	51	25	21	52	32	31	53	94	69	32
1979	October													
105	112	100	161	119	74	59	82	64	55	32	41	114	131	53
74	115	111	109	218	139	39	68	51	39	86	45	81	78	53
75	75	78	41	34	1	8	18	81	99	64	88	69	39	2
49	38	45	40	14	31	9	18	28	53	29	49	35	27	1
47	64	55	49	31	14	13	12	25	21	39	42	44	49	8
14	64	78	51	29	21	19	14	25	24	24	28	49	31	7
28	96	131	296	125	123	73	74	61	109	81	73	51	62	32
41	53	98	128	145	201	94	103	68	92	71	58	45	19	29
56	60	25	94	142	180	135	156	78	94	98	72	45	34	19
42	39	34	42	20	9	4	7	12	36	48	39	32	0	14
122	54	82	121	60	26	27	75	91	91	101	114	79	38	20
134	67	122	51	42	12	15	51	78	73	59	19	31	38	20
211	194	129	178	86	60	40	71	134	116	95	71	102	99	38
1979	November													
16	92	49	56	32	25	31	22	11	81	44	39	39	60	27
83	123	143	146	108	74	33	113	80	82	24	75	76	52	15
31	64	96	94	56	48	29	41	58	59	54	16	31	20	11
1979	December													
201	81	74	0	29	58	135	155	194	64	42	12	9	20	6
28	40	42	29	9	2	12	8	18	27	28	21	27	27	20



TABLE 1

1979 August

135	140	145	150	155	160	165	170	175	180	185	190	195	200	205
34	52	35	20	14	0	4	2	2	6	14	32	19	19	18
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
18	13	16	9	14	13	16	9	4	1	12	6	8	13	0
34	18	21	19	20	20	29	27	27	12	16	12	8	7	6
44	13	9	12	10	14	27	21	27	9	14	13	16	8	14

1979 September

54	58	38	28	31	9	16	9	9	12	0	8	4	19	25
13	4	38	73	29	29	7	0	55	16	22	38	0	49	64
19	8	18	14	14	10	14	8	8	7	0	7	0	7	4
45	36	19	20	16	22	19	14	12	6	0	0	10	8	16

1979 October

75	79	32	25	19	19	27	12	8	4	18	13	9	9	18
33	38	48	33	21	44	14	21	12	16	19	0	18	42	20
8	8	16	13	8	20	2	8	6	0	12	7	13	17	20
7	7	7	12	0	8	4	0	13	0	4	4	11	6	11
4	2	9	14	6	11	7	2	2	5	6	7	19	15	16
7	4	0	6	0	4	8	4	6	13	8	11	15	11	8
12	2	4	0	0	4	7	0	12	12	14	16	48	33	19
6	14	10	4	6	0	11	18	6	8	19	19	34	18	26
14	12	2	6	7	4	18	7	9	0	16	24	22	12	19
19	16	13	20	4	7	7	7	4	0	7	7	6	6	13
49	45	19	27	0	34	36	16	9	24	13	28	4	17	0
32	18	24	13	7	16	16	9	2	4	6	6	9	6	9
69	59	21	13	19	29	0	0	0	2	9	7	0	6	0

1979 November

28	12	4	9	13	9	8	0	0	0	2	0	0	7	2
54	13	33	13	18	27	16	31	0	0	10	0	0	33	8
29	27	9	4	11	16	12	8	9	0	0	0	8	0	0

1979 December

16	0	0	2	0	13	14	7	0	12	0	7	18	6	18
19	0	13	9	11	6	6	11	0	0	0	21	19	19	12

1980 January

15	6	14	10	9	11	14	11	10	10	10	10	10	11	13
20	11	18	14	6	9	8	19	0	11	13	21	29	23	23

TABLE I /Continued/

1979		August													
	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
	21	16	25	27	27	35	33	108	68	33	25	31	28	25	69
	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	8	6	6	13	34	42	12	13	48	39	33	22	24	38	55
	16	28	29	42	53	55	99	215	132	135	53	44	22	33	8
	14	20	29	78	93	72	65	169	116	103	83	99	79	61	16
1979		September													
	22	34	35	60	100	79	145	132	73	122	118	100	92	82	120
	0	44	61	79	101	136	269	119	93	73	94	49	87	71	40
	26	4	14	18	21	33	42	42	51	52	68	59	51	40	76
	0	14	22	112	156	186	171	86	132	74	75	140	112	126	126
1979		October													
	10	24	22	49	100	93	89	101	69	125	83	58	47	108	169
	20	44	41	127	119	59	73	64	74	180	106	79	83	126	116
	12	11	20	21	21	19	32	55	45	25	17	8	12	21	48
	13	12	12	9	24	14	23	58	49	34	21	1	11	18	60
	11	14	16	21	29	23	28	60	78	45	18	13	11	24	53
	12	8	6	19	24	13	11	28	49	34	18	17	12	16	22
	45	39	33	40	71	142	79	139	185	162	27	31	32	61	146
	8	16	13	29	62	74	73	40	47	99	39	26	38	20	32
	20	12	29	34	26	88	119	47	33	60	65	32	39	46	79
	8	6	11	9	12	19	9	42	68	53	40	52	39	38	61
	22	21	21	20	68	79	24	56	39	95	68	65	102	92	105
	6	7	6	4	12	53	52	48	10	65	51	53	45	40	55
	0	36	2	44	72	103	218	94	121	206	175	55	32	28	53
1979		November													
	11	11	7	18	31	42	82	71	76	53	29	19	0	22	24
	0	0	8	53	183	132	152	176	76	167	92	71	93	58	100
	0	0	0	9	38	49	66	66	34	45	47	28	19	20	27
1979		December													
	31	41	85	46	112	200	141	74	4	32	36	32	40	14	31
	9	11	24	21	66	61	54	96	107	208	91	93	75	71	61
1980		January													
	14	13	14	19	30	33	58	50	55	46	68	24	19	19	50
	15	✓ 24	33	14	38	61	74	83	75	55	55	74	88	64	73

TABLE 1 /Continued/

1979		August													
	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355
102	88	81	99	101	53	27	31	19	33	9	19	28	28	35	
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
89	59	60	24	18	2	6	10	13	8	13	20	16	8	0	
51	121	64	31	54	47	25	24	29	20	18	19	11	13	13	
55	75	39	38	54	36	27	18	22	0	22	21	25	11	8	
1979		September													
163	102	105	34	47	75	39	45	29	22	21	27	8	9	4	
60	192	46	156	41	69	49	54	39	0	0	0	21	20	7	
89	51	34	24	24	18	12	11	1	1	7	12	9	14	16	
51	78	82	41	18	24	16	7	7	1	9	9	12	27	27	
1979		October													
x	81	126	115	33	28	6	20	0	13	20	24	29	22	20	
115	122	62	69	89	25	32	24	8	27	2	18	14	18	20	
68	67	73	18	13	16	18	16	20	1	12	0	0	6	13	
40	58	74	27	21	13	16	13	8	2	1	6	2	6	9	
67	61	76	27	9	18	11	14	9	9	16	9	0	8	16	
52	64	52	39	7	13	12	14	12	6	6	11	6	4	8	
92	121	66	45	33	35	12	25	20	28	22	27	14	18	18	
29	32	16	21	22	18	8	11	11	0	11	16	16	11	19	
75	29	39	27	54	45	21	7	16	14	7	22	7	13	12	
75	75	41	36	42	33	19	9	12	0	0	7	9	8	2	
78	116	92	82	52	28	44	59	44	22	20	7	14	9	14	
69	29	27	101	75	61	42	21	31	27	7	4	9	0	4	
92	86	215	123	95	40	25	54	65	29	33	12	20	45	19	
1979		November													
67	60	58	39	33	13	8	7	8	0	0	1	8	12	7	
134	112	143	53	105	213	232	68	31	11	2	0	9	22	12	
35	25	47	28	39	51	42	21	13	6	7	11	20	7	0	
1979		December													
25	21	18	28	11	8	11	13	21	14	38	2	13	4	16	
12	86	71	24	14	34	41	31	11	9	8	21	29	14	14	
1980		January													
65	53	26	39	29	13	20	14	11	1	15	14	14	0	9	
214	158	98	56	31	30	45	21	4	0	38	9	18	9	38	

TABLE I /Continued/

1980 January

Day	UT	0	5	10	15	20	25	30	35	40	45	50	55
9	09 <sup>h</sup> 50 <sup>m</sup>	20	10	18	31	14	15	29	13	23	46	73	95
13	10 02	30	20	35	46	29	24	8	1	20	24	25	33
14	10 24	25	21	20	25	23	14	8	4	8	8	19	38
17	09 53	18	19	20	11	10	8	4	9	14	18	25	24
18	11 20	8	9	6	6	4	6	9	10	13	15	11	11
19	09 40	10	8	6	3	8	9	9	10	6	11	11	11
20	09 27	19	14	10	6	10	9	11	13	11	13	9	15
21	09 12	4	4	15	4	4	4	11	10	9	9	11	20

1980 February

16	09 25	14	23	10	24	14	6	8	18	13	15	21	40
18	08 26	8	8	10	10	10	6	11	9	14	8	10	14
19	08 13	9	14	8	11	9	8	9	10	11	15	13	14
20	08 05	19	21	6	9	19	14	10	6	14	15	20	19
21	08 52	5	11	10	10	14	8	11	13	16	32	33	27
22	08 32	24	29	27	24	22	10	10	8	56	x	x	x
23	09 18	38	8	15	17	19	10	29	43	60	38	30	43
24	09 12	32	27	10	27	13	22	13	32	60	56	22	30
25	08 08	16	16	14	10	13	8	13	14	19	24	13	29
26	08 38	8	13	11	11	13	16	19	24	33	14	25	49
27	09 49	13	13	14	11	13	14	24	22	19	16	27	16

1980 March

22	08 25	11	13	11	14	16	16	13	19	14	41	32	46
23	06 55	22	16	25	10	13	14	19	14	25	37	32	38

1980 April

7	09 53	11	10	8	13	5	8	5	8	8	17	25	30
15	08 25	5	14	10	8	11	16	22	19	13	10	16	33

1980 May

11	09 22	19	0	13	46	59	0	2	129	121	84	38	54
12	08 52	12	2	2	2	0	4	12	13	15	2	10	13
13	07 00	19	6	10	4	12	4	23	15	17	10	12	23
14	06 59	8	10	4	8	8	10	31	23	23	15	13	40

1980 June

9	05 56	29	21	2	17	23	19	27	35	31	10	12	27
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TABLE 1 /Continued/

1980	January													
60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
75	43	33	24	19	18	31	34	56	36	78	50	39	28	30
33	35	40	36	29	55	54	50	71	60	34	26	20	28	30
46	50	40	63	46	45	25	40	50	78	55	29	34	36	35
18	31	46	58	25	26	38	38	98	51	60	54	35	35	29
14	20	24	23	14	14	18	24	26	14	24	20	24	19	18
9	15	21	19	13	19	21	30	23	21	20	30	29	18	19
14	18	20	30	23	19	19	23	26	23	39	48	43	26	25
18	25	48	30	15	13	19	19	31	23	43	54	35	29	29
1980	February													
41	40	50	41	20	26	39	45	78	69	40	44	36	46	43
13	25	15	21	10	9	14	36	19	26	19	54	30	21	18
19	33	19	15	13	21	23	41	41	44	50	39	30	23	14
30	31	20	19	24	24	34	36	39	59	24	15	24	20	18
46	19	24	29	33	49	54	46	94	79	40	49	27	11	17
x	x	x	x	x	x	67	81	75	67	83	71	57	49	40
24	38	56	46	41	67	73	73	143	175	86	41	24	24	10
52	49	81	114	105	81	303	232	210	154	348	199	51	22	30
60	46	64	143	86	54	100	122	81	119	95	43	22	16	22
60	59	87	111	157	152	92	79	116	135	84	49	44	30	32
70	75	102	113	95	54	41	33	29	41	38	41	30	38	24
1980	March													
49	27	27	43	38	52	57	64	59	70	65	91	30	24	19
33	49	43	79	38	60	57	54	32	71	91	64	30	30	25
1980	April													
30	56	22	17	25	13	40	27	38	40	67	86	64	27	16
38	29	49	37	57	46	27	29	29	65	27	30	24	19	24
1980	May													
13	51	92	3	114	54	114	154	129	95	67	27	32	71	27
21	17	17	31	12	54	35	31	50	69	52	35	21	15	19
44	44	12	29	50	58	37	50	71	54	54	31	19	23	21
48	64	19	23	52	65	60	56	65	67	67	77	33	81	35
1980	June													
48	29	92	44	64	48	56	40	139	77	54	89	52	33	19

TABLE I /Continued/

1980		January													
	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205
	19	15	15	11	4	6	4	0	4	8	11	15	14	13	19
	23	19	10	15	13	14	11	6	1	1	9	13	9	10	14
	14	11	9	13	9	11	6	3	1	3	4	4	10	9	9
	15	9	9	3	4	9	4	8	8	1	4	6	9	6	6
	25	13	11	13	11	8	9	9	4	8	4	11	9	6	11
	15	11	9	8	6	3	3	4	9	6	4	1	3	4	3
1980		February													
	41	24	23	18	11	13	3	3	4	1	9	9	30	10	18
	23	10	9	6	9	9	8	8	3	6	3	4	6	9	6
	14	10	10	4	8	4	8	6	3	4	6	9	11	9	6
	10	4	9	9	14	11	10	9	6	10	9	3	6	10	9
	14	13	11	10	10	14	5	5	11	10	13	8	8	8	3
	17	14	13	11	8	10	13	2	3	8	24	11	10	10	5
	14	14	8	10	14	11	10	5	10	11	10	8	3	14	11
	22	22	8	13	11	11	2	11	8	11	8	8	8	8	2
	5	11	11	5	3	14	13	14	11	8	3	8	2	5	2
	17	16	11	11	24	22	14	19	3	2	3	5	5	8	3
	18	13	13	14	14	11	13	10	8	3	11	3	2	8	8
1980		March													
	17	8	11	14	30	17	13	11	8	3	3	0	2	11	3
	17	11	14	11	10	5	16	14	5	8	5	5	10	0	19
1980		April													
	10	3	5	10	0	8	5	3	8	3	5	5	13	2	10
	16	14	10	8	13	8	8	5	13	5	10	5	8	3	3
1980		May													
	48	87	43	24	0	22	22	43	3	33	8	35	41	35	0
	13	12	6	2	0	0	2	4	6	6	10	2	23	17	4
	4	6	2	4	6	13	10	6	10	12	10	0	0	4	4
	13	13	21	13	0	12	0	8	33	15	13	31	13	15	4
1980		June													
	21	19	13	13	15	21	12	29	8	15	15	4	13	0	4
1980		August													
	94	67	19	35	0	35	56	33	10	35	23	35	15	35	23

TABLE 1 /Continued/

1980		January													
210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	
11	19	25	23	43	60	85	85	69	85	71	86	55	54	85	
11	11	25	24	36	38	69	90	175	99	108	41	46	30	31	
11	8	10	8	14	33	33	35	39	39	35	19	15	23	25	
3	6	6	18	14	26	21	35	23	36	31	19	25	21	26	
10	11	8	8	18	30	15	36	36	43	33	36	65	35	35	
6	4	3	11	11	14	14	44	56	56	54	33	30	51	41	
1980		February													
18	23	20	21	15	24	56	50	61	44	59	95	55	110	51	
8	6	8	11	6	10	35	24	33	33	36	26	13	10	11	
6	8	10	9	11	21	21	44	86	41	21	9	11	6	15	
10	6	9	15	23	14	23	36	64	21	20	18	8	13	35	
10	5	10	11	14	17	29	49	49	52	25	11	40	29	44	
13	10	5	8	19	24	37	84	73	70	44	29	46	65	60	
10	11	16	40	56	108	157	206	146	68	56	83	91	91	195	
10	6	8	0	37	49	59	219	470	270	68	78	122	65	102	
13	17	14	24	17	29	60	116	252	133	54	59	54	27	75	
2	8	13	29	91	44	108	319	154	75	79	71	27	65	49	
14	13	17	25	27	44	78	84	59	33	38	22	29	25	17	
1980		March													
5	10	8	10	5	25	54	32	29	33	27	24	16	41	49	
17	19	13	10	13	24	38	43	54	52	57	54	25	29	27	
1980		April													
8	11	16	17	13	33	40	51	57	46	44	43	41	33	75	
8	11	8	14	11	11	30	44	24	25	10	11	22	54	40	
1980		May													
10	25	0	41	89	27	44	21	103	25	40	92	68	13	29	
10	17	8	10	33	33	33	46	27	33	23	19	10	35	29	
6	6	12	4	21	37	50	50	35	31	39	39	15	15	19	
0	0	12	12	15	15	31	37	27	56	23	13	12	10	19	
1980		June													
15	8	12	12	48	85	87	67	58	69	73	40	13	31	37	
1980		August													
46	10	0	15	33	54	85	27	92	50	152	119	58	21	64	
37	15	37	44	62	0	166	48	48	112	216	91	52	83	191	

TABLE 1 /Continued/

1980		January													
285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	
89	123	99	53	43	29	40	26	21	21	11	18	20	21	23	
38	50	75	56	38	25	19	13	19	15	15	10	14	13	15	
53	41	41	30	43	34	30	26	18	11	9	9	8	10	11	
36	36	43	40	34	18	39	33	15	8	8	9	10	6	8	
43	59	54	85	56	50	31	43	41	26	11	4	6	18	20	
23	33	41	46	39	29	25	20	13	10	10	14	14	14	13	
1980		February													
56	111	153	36	31	40	44	35	24	21	23	8	8	26	13	
24	23	34	29	50	51	46	20	19	9	9	14	8	10	8	
44	40	53	31	53	60	19	14	13	11	14	6	6	11	4	
56	51	31	21	23	34	15	15	20	11	4	9	14	18	13	
57	32	32	40	44	29	13	13	13	13	8	10	5	14	14	
68	46	68	64	59	43	29	16	25	11	10	13	10	16	10	
225	78	56	71	52	41	11	19	19	14	8	14	19	x	x	
199	299	138	33	38	81	37	14	27	25	19	13	24	24	22	
67	71	78	40	25	51	44	16	13	17	13	24	8	17	10	
60	38	54	16	46	59	93	32	17	14	17	13	16	16	24	
19	25	27	24	27	25	24	24	13	19	14	14	16	11	16	
1980		March													
60	14	8	30	22	43	10	8	2	5	30	17	10	8	13	
44	60	44	49	24	25	37	10	8	2	3	3	5	5	10	
1980		April													
68	59	102	32	40	27	29	11	13	8	10	16	11	10	2	
38	29	41	29	29	17	13	5	14	10	8	3	0	13	3	
1980		May													
233	143	13	13	0	38	0	0	46	54	0	18	15	18	0	
33	79	37	40	33	25	25	25	10	6	4	21	6	2	10	
35	54	54	46	35	19	17	15	21	13	4	6	4	10	17	
79	79	35	94	17	48	48	0	0	0	0	15	0	15	0	
1980		June													
71	29	40	33	19	27	15	4	19	19	19	17	8	0	12	



TABLE 1 /Continued/

1980		August												
Day	UT	0	5	10	15	20	25	30	35	40	45	50	55	
5	06 <sup>h</sup> 30 <sup>m</sup>	23	0	0	4	19	33	27	40	29	21	19	19	
6	10 58	15	15	0	0	0	33	31	62	52	46	52	29	
7	05 22	46	72	0	10	27	17	19	27	17	2	0	19	
18	09 45	27	48	0	13	58	81	71	54	58	94	92	98	
19	06 22	17	12	13	2	12	23	31	2	13	27	27	50	
1980		September												
4	05 12	6	10	4	4	6	6	10	10	10	10	10	13	
5	06 30	17	6	2	13	10	12	12	6	12	4	15	23	
19	08 42	6	6	4	6	4	6	8	4	13	17	27	35	
22	08 07	5	0	5	11	11	18	16	18	18	9	25	43	
24	07 14	14	7	7	7	14	0	2	14	20	16	34	27	
25	07 48	5	9	2	20	7	0	23	0	14	25	63	68	
1980		October												
4	11 11	2	7	5	7	16	14	16	14	14	23	23	25	
21	07 55	5	7	9	7	9	14	7	7	14	0	9	14	
26	10 55	11	13	2	0	9	11	7	20	18	9	20	50	
28	12 31	7	23	2	11	0	0	9	7	16	7	11	57	
1980		November												
1	12 18	27	16	23	0	18	18	14	5	5	5	11	43	
2	08 57	9	18	23	7	9	27	0	2	0	14	27	18	
8	10 32	0	2	2	5	0	5	14	0	2	9	2	0	
1980		December												
17	11 41	32	0	2	0	36	27	34	23	29	70	75	84	
25	10 42	0	7	5	18	29	38	48	34	48	43	18	102	

TABLE 1 /Continued/

1980	August													
60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
79	0	110	85	54	35	37	50	73	83	71	67	69	46	37
33	85	89	129	67	119	127	91	79	112	150	96	112	119	96
33	46	33	133	85	89	56	46	127	135	110	119	77	71	33
73	133	241	141	129	123	193	116	295	148	73	102	241	168	98
37	64	48	91	58	35	17	40	52	44	31	23	21	35	33
1980	September													
12	15	27	54	58	50	54	31	21	39	37	81	39	54	31
21	35	35	50	71	64	46	52	44	35	52	77	60	50	12
23	50	25	17	21	10	17	31	33	50	40	46	77	35	15
25	25	14	84	57	61	68	77	66	97	70	27	29	25	41
45	20	59	79	59	68	82	84	66	77	91	59	27	18	29
88	61	86	x	50	82	77	84	66	66	50	32	34	18	18
1980	October													
41	29	41	68	61	34	79	82	82	57	23	46	23	57	27
11	20	25	29	27	20	27	34	16	41	48	16	0	9	11
43	95	52	66	50	52	54	91	57	20	0	5	34	14	11
122	145	57	79	95	61	32	118	106	140	32	25	18	20	9
1980	November													
41	43	48	41	66	63	77	48	59	50	7	20	20	20	0
20	29	50	66	48	27	2	115	149	38	2	2	2	11	7
20	29	18	20	10	5	11	34	14	20	20	14	25	20	9
1980	December													
79	177	145	95	91	86	75	45	88	72	106	63	45	43	38
165	145	86	97	59	18	63	183	129	120	111	59	43	36	41

TABLE I /Continued/

1980		August													
135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	
62	85	37	46	62	77	0	64	67	67	44	15	15	91	15	
73	21	15	2	10	0	10	40	0	10	15	46	0	13	15	
44	31	46	37	48	17	39	23	37	37	65	0	31	73	64	
21	13	12	21	12	17	0	0	37	8	12	10	10	21	0	
1980		September													
27	29	27	12	13	4	12	6	4	12	0	6	10	4	6	
6	13	10	2	2	4	4	4	2	4	6	6	10	6	0	
12	6	10	4	0	2	4	0	13	10	6	6	6	4	13	
32	34	14	14	5	2	5	7	20	14	16	0	7	2	20	
16	43	14	7	16	18	0	20	5	5	11	14	11	9	20	
9	27	0	9	9	5	18	2	18	2	2	0	7	9	0	
1980		October													
36	38	48	14	9	5	5	5	5	7	5	16	9	2	9	
5	2	7	5	0	0	14	0	0	0	5	0	0	9	7	
0	29	23	14	14	11	5	20	14	18	0	7	9	11	2	
18	0	11	11	2	34	0	11	9	27	0	0	7	11	0	
1980		November													
11	25	18	14	7	0	27	16	5	5	2	5	16	0	0	
18	29	20	0	34	18	7	0	0	0	18	11	0	0	16	
5	5	0	0	5	5	0	9	2	2	0	2	5	0	2	
1980		December													
38	14	32	14	38	18	14	20	7	18	11	7	16	0	16	
29	14	38	5	18	5	2	2	7	7	0	0	0	0	18	

TABLE 1 /Continued/

1980		August													
210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	
19	29	33	10	65	46	73	21	77	83	64	98	89	64	77	
58	71	35	144	183	204	198	116	216	152	129	166	96	69	156	
21	37	39	31	29	52	64	65	65	96	35	56	17	37	37	
1980		September													
6	6	4	4	10	13	29	23	31	48	35	35	12	10	15	
6	6	4	10	10	10	67	64	29	52	35	33	12	19	12	
19	23	40	29	42	50	29	40	27	10	25	29	46	67	73	
9	5	7	9	29	32	72	50	57	45	63	77	61	43	59	
23	20	23	27	32	27	45	29	38	57	41	45	27	43	43	
14	14	27	0	27	38	32	20	57	32	38	36	27	36	61	
1980		October													
5	2	23	23	51	51	51	41	45	43	75	54	x	x	x	
14	14	11	11	5	5	16	14	0	8	38	23	27	14	2	
0	9	41	59	45	50	61	45	45	9	29	27	18	32	50	
0	0	32	63	106	54	77	104	59	9	7	0	20	25	104	
1980		November													
11	5	18	18	16	36	25	45	18	59	48	59	41	41	61	
2	2	2	0	2	2	18	66	59	27	115	43	111	68	50	
5	0	0	0	2	11	11	11	16	16	11	7	11	23	25	
1980		December													
25	5	36	52	50	84	59	82	147	129	134	86	54	59	43	
11	20	23	54	53	x	x	x	180	149	145	63	134	224	181	

TABLE 1 /Continued/

1980		August													
285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	
83	81	56	69	54	29	31	21	60	54	4	0	0	0	10	
56	171	148	73	83	110	56	48	56	15	0	18	9	0	8	
37	117	110	139	129	23	15	21	15	44	46	0	33	0	15	
331	154	106	121	87	89	85	91	81	50	50	69	85	27	21	
77	64	46	29	12	35	31	23	31	12	21	10	12	13	15	
1980		September													
35	13	29	15	33	17	10	13	4	17	13	6	6	0	2	
13	39	39	31	27	16	33	47	2	17	13	12	12	10	6	
52	37	37	15	10	15	15	13	4	17	15	8	6	4	6	
95	63	59	66	34	16	11	7	9	11	5	2	14	14	11	
70	75	54	38	32	0	16	14	9	5	0	0	0	2	7	
61	57	54	25	11	2	2	0	0	2	8	5	0	11	4	
1980		October													
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
9	9	9	16	9	14	25	16	2	9	5	5	9	2	7	
75	100	70	7	25	9	9	9	5	0	0	0	0	5	25	
43	43	43	63	29	41	11	23	29	11	0	0	9	0	11	
1980		November													
36	54	9	2	16	9	9	14	23	23	0	2	9	18	5	
57	95	84	52	2	16	2	2	9	9	0	0	0	18	11	
25	0	0	5	9	0	0	2	4	7	2	5	5	0	0	
1980		December													
63	36	38	70	68	43	20	16	2	41	25	27	16	9	9	
183	235	152	68	41	23	5	5	29	2	7	11	4	2	0	

the change in 1983. The measurements at this station are carried out a height of 2' 24" above the photosphere as opposed to the 40" at stations LS and KI, and to 1' at NO. However, the reduced intensities agree well if one takes Rušín's (1973) gradient into account.

#### 4. CONCLUSION

The reduction formulas derived will be used to establish a homogeneous series of intensities of coronal line 530.3 nm in absolute units of the LS scale. This series will form the basis of various studies concerning the changes in the properties of coronal radiation during solar activity cycles.

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