

## DEFINITIVE AMERICAN RELATIVE SUNSPOT NUMBERS FOR 1990

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### Abstract

Final values of American Relative Sunspot Numbers for 1990 are provided. The values are based upon observations made by contributors to the AAVSO Solar Division's international network.

The daily mean values of American Relative Sunspot Numbers for 1990 are listed in Table 1. They were computed according to the statistical methods which were described in Taylor (1985).

Table 1. Final Daily American Relative Sunspot Numbers for 1990

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
01)	174	177	169	107	68	94	261	149	125	120	77	137
02)	151	164	169	114	55	90	242	151	124	130	84	174
03)	160	140	155	118	58	84	240	142	135	146	117	184
04)	169	120	113	129	84	85	209	131	141	147	140	196
05)	140	90	105	131	77	81	184	125	119	130	169	195
06)	133	77	98	133	106	100	169	116	114	136	192	202
07)	131	91	116	132	125	100	158	121	107	150	197	216
08)	135	109	91	110	135	116	132	125	104	155	204	229
09)	117	110	90	98	138	103	104	145	112	156	200	206
10)	134	79	85	85	128	112	94	161	118	173	167	198
11)	161	80	87	93	127	131	107	162	113	199	141	170
12)	169	82	89	93	142	130	104	175	127	190	143	144
13)	165	100	90	123	141	124	106	182	139	207	127	139
14)	133	91	89	152	137	121	107	210	164	208	142	106
15)	159	90	108	166	152	105	96	218	158	221	113	102
16)	147	65	125	184	168	109	90	226	162	193	98	121
17)	183	47	136	224	177	104	76	262	144	190	121	123
18)	179	88	165	218	181	90	55	273	138	185	102	124
19)	201	123	203	215	190	80	60	277	143	173	109	150
20)	233	139	228	215	183	74	84	280	142	152	109	129
21)	222	158	230	209	197	69	127	262	138	141	120	110
22)	196	181	210	196	179	76	144	249	133	143	131	106
23)	218	220	234	189	156	73	174	266	113	137	130	97
24)	235	269	234	171	151	86	201	275	101	132	120	105
25)	225	236	215	155	147	102	199	241	97	130	114	106
26)	220	220	193	152	131	121	190	217	98	111	109	116
27)	203	217	161	128	137	151	173	194	95	110	106	122
28)	209	205	135	97	118	202	154	163	119	107	132	129
29)	213	---	132	99	113	225	139	172	127	108	152	126
30)	192	---	130	92	100	245	118	177	118	89	142	120
31)	198	---	109	---	106	---	141	152	---	84	---	142

Yearly Mean (1990): 145.1

The final monthly mean values included in Table 2a continue the series of values which were presented in Taylor (1987a, 1988, 1989).

Table 2a. Final Monthly Means

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
1990	177.6	134.6	145.0	144.3	132.5	112.8	143.2	193.5	125.6	150.1	133.6	145.9

The final smoothed monthly mean values included in Table 2b continue the series which were presented in Taylor (1987b, 1988, 1989). The values were computed according to equation (1) from Waldmeier (1961):

$$R_{sm} = 1/24 [N_{i-6} + N_{i+6} + 2 (\sum_{-5}^{+5} N_i)], \quad (1)$$

where N is set equal to the final mean of the month under analysis, and other means are taken accordingly. Consequently,  $R_{sm}$  always lags six months behind the more recent final mean.

Figure 1 depicts this sunspot activity during 1990.

Table 2b. Smoothed Monthly Means

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
1989	-----	-----	-----	-----	-----	-----	163.2	162.7	161.7	162.5	162.0	156.6
1990	152.7	153.9	152.6	149.9	147.8	145.5	-----	-----	-----	-----	-----	-----

## References

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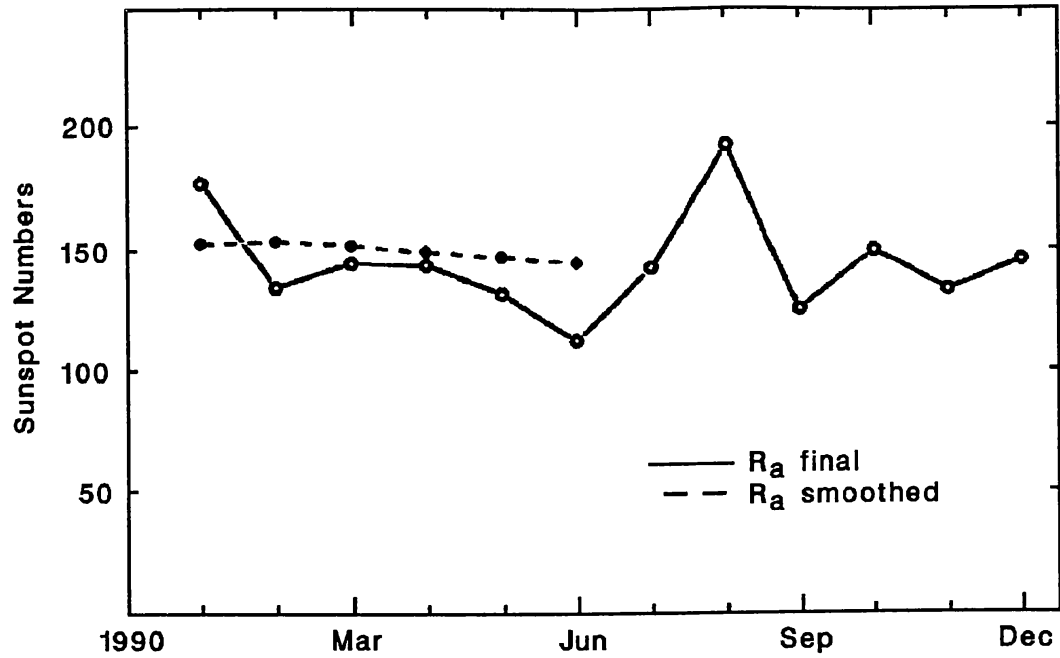


Figure 1. Sunspot activity during 1990. Solid lines and open circles indicate the trend of monthly mean American Relative Sunspot Numbers. Dashed lines and filled circles show the progress of the smoothed mean.