

DEFINITIVE AMERICAN RELATIVE SUNSPOT NUMBERS FOR 1991

Peter O. Taylor
P.O. Box 5685
Athens, GA 30604-5685

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Abstract

Final values of American Relative Sunspot Numbers for 1991 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 1991 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 1991

	<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)	140	212	114	91	92	162	192	137	162	150	181	102
02)	111	192	97	102	90	162	200	140	145	159	174	93
03)	105	167	84	113	91	160	230	141	127	160	139	112
04)	101	149	80	138	98	172	226	124	141	147	131	110
05)	105	131	92	157	103	172	207	130	134	158	122	130
06)	129	122	90	171	104	164	200	119	124	131	126	154
07)	118	118	130	163	102	162	206	111	120	118	138	171
08)	105	113	139	129	128	194	188	101	133	114	139	185
09)	90	129	168	148	139	197	163	88	123	139	133	217
10)	104	136	163	169	138	200	153	75	110	144	135	205
11)	119	136	153	181	131	200	140	85	118	143	128	186
12)	123	151	162	199	124	196	136	91	128	130	110	166
13)	142	179	158	190	116	157	138	126	144	137	100	167
14)	122	187	174	214	117	158	128	124	138	128	99	164
15)	129	176	190	218	105	166	114	165	115	128	91	150
16)	140	167	202	180	109	159	98	204	91	133	71	129
17)	124	150	188	172	116	138	87	246	96	110	80	114
18)	132	191	168	177	120	143	85	275	97	108	79	125
19)	108	213	150	164	121	135	115	292	90	88	97	124
20)	95	216	173	142	110	113	124	290	89	88	98	111
21)	112	230	171	115	97	125	157	312	112	86	81	103
22)	101	219	176	78	116	126	162	295	130	92	72	127
23)	127	210	183	60	121	114	192	283	124	111	79	129
24)	143	188	179	38	115	125	208	242	111	144	88	136
25)	154	201	171	52	128	143	200	200	102	168	93	148
26)	195	187	164	71	150	142	196	164	110	183	102	152
27)	225	179	142	82	153	140	182	138	116	213	112	154
28)	231	160	129	116	150	160	186	144	125	236	115	150
29)	247	---	130	122	141	175	187	152	136	247	103	142
30)	253	---	142	118	138	188	189	168	131	222	81	152
31)	232	---	118	---	138	---	166	166	---	215	---	162

Yearly Mean (1991): 144.3

The final monthly mean values included in Table 2a continue the series of values which were presented in Taylor (1987a, 1988, 1989, 1991).

Table 2a. Final Monthly Means for 1991

	<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>
1991	140.7	171.8	147.7	135.7	119.4	158.3	166.3	171.9	120.7	146.1	109.9	144.2

The final smoothed monthly mean values included in Table 2b continue the series which were presented in Taylor (1987b, 1988, 1989, 1991). 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 1991.

Table 2b. Smoothed Monthly Means for 1991

	<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	-----	-----	-----	-----	-----	-----	143.4	143.4	145.0	144.8	143.9	145.2
1991	148.1	148.2	147.0	146.7	145.5	144.5	-----	-----	-----	-----	-----	-----

References

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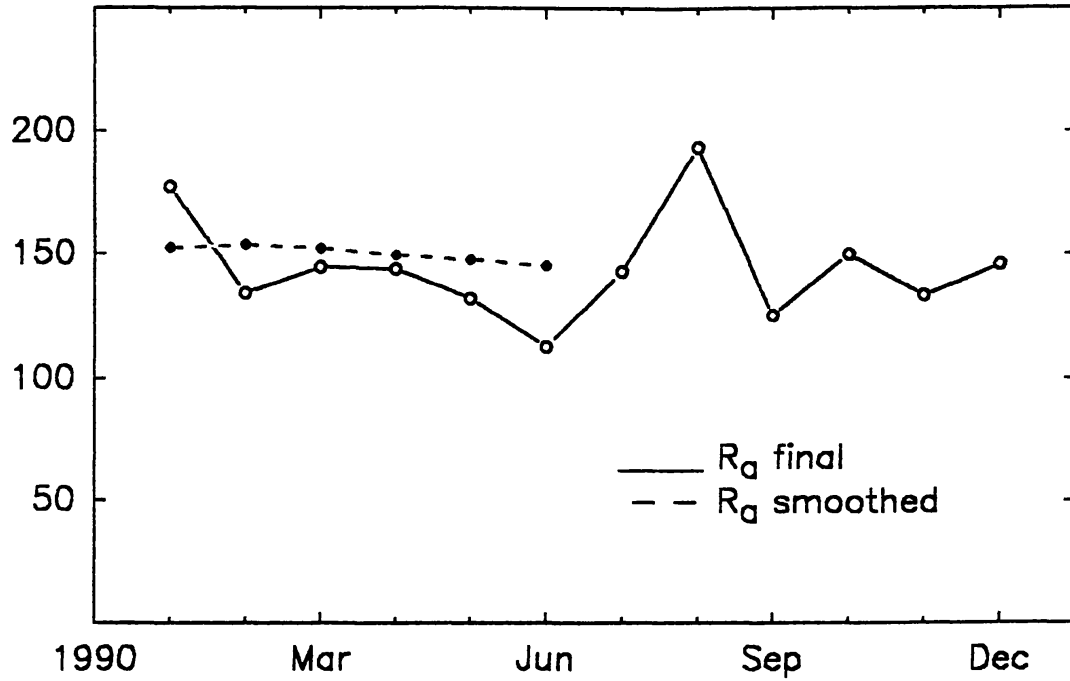


Figure 1. Sunspot activity during 1991. Solid lines and open circles indicate the trend of monthly mean American Relative Sunspot Numbers. Dashed lines and filled circles show the progress of the smoothed monthly mean.