1971 Güneş leke rasatları

The sunspot observations made in 1971

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Özet : İstanbul Üniversitesi Observatuarında yapılan fotosferik rasatlarda güneşin görüntüsü bir projeksiyon diski üzerine düşürülmekte ve yüzeyinde görülebilen lekeler ile meşalelerin resmi çizilmektedir. Bu resimlere dayanarak leke gruplarının helyografal koordinatları her gün için tayin edilir.

Makalede, 1971 yılında yapılan rasatlarda, rasat şemaları yardımı ile leke gruplarının koordinatları tayin edilmiş ve bunlara ait istatistikel bilgi hazırlanıp sonuçlar cetvel halinde verilmiştir.

* * *

Summary : In the photospheric observations made at the Istanbul University Observatory, observable sunspots and faculae are drawn on a projected disk of the sun and the heliographic coordinates of the sunspots are determined from these drawings.

This paper gives the heliographic coordinates for the sunspot groups observed in 1971 and some other results.

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The photosphere of the sun is observed on every clear day at the Istanbul University Observatory. A refracting telescope is used for this purpose; the apperture of the objective and the focal length are 13 cm. and 200 cm. respectively. Sunspots and faculae are drawn on a projection disk of a diameter of 25 cm. The heliographic coordinates of the sunspot groups are determined from the American Ephemeris and Nautical Almanac. Each sunspot group is observed for a single rotation of the sun and the results obtained during this period are given in tables and in figures.

In this paper, columns in Table 1 give the following: (1) Current numbers of the groups; (2) and (3): The latitudes and longitudes of the groups respectively, which are the average of the latitudes and longitudes measured each day; (4) and (5): First and last observations of the groups respectively; (6) Evolution of the groups which are classified according to the standard classification of Zurich. The letters characterize the types of the groups and the numbers after them give the number of umbrae in each group. The sign "?" denotes a group which was observed at the edge of the disk and so could not be identified in the Zurich classification. The sign (*) is used to express that the group probably could not be observed on that day, and (—) that no observation was done on that day because of weather conditions or other reasons.

In 1971, 397 groups were observed; one of them has a latitude of 0°, 193 of them have an average latitude of +12°.4 in the North Hemisphere and remained 203 groups have an average latitude of —11°.5 in the South Hemisphere. The distribution of the groups according to their latitudes is as follows (see Fig. 1) :

				North Hemisphere	South Hemisphere
From	0°	to	5°	26	28
«	6	«	10	53	61
«	11	«	15	61	76
«	16	«	20	37	27
«	21	«	25	11	8
«	26	«	30	5	2
«	31	«	35	0	1
T o t a l				193	203

In Table II, numbers of the groups and umbrae are given by decimal numbers for each day; the integer part of these numbers denote numbers of the groups and the fractional part numbers of umbrae. Letters accros these numbers are the abbreviations of the observers' names; the complete names are given at the end of the table.

Table III and Table IV give the relative Wolf numbers for the Istanbul University Observatory and the distribution of the groups in types respectively. Data in Table IV are summarised in Fig. 2.
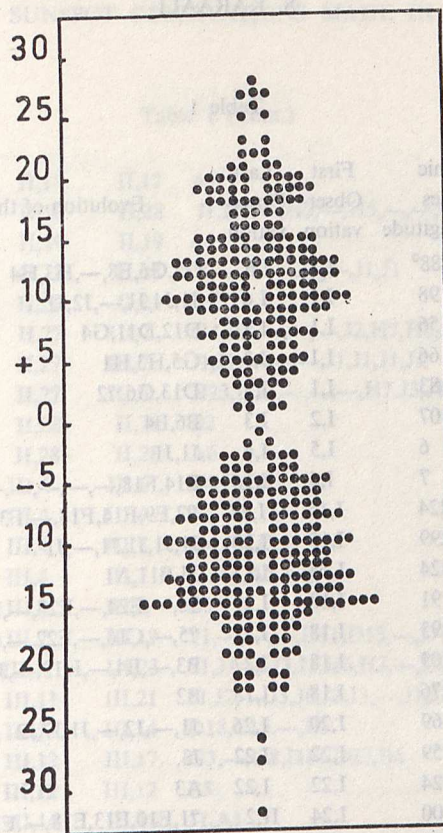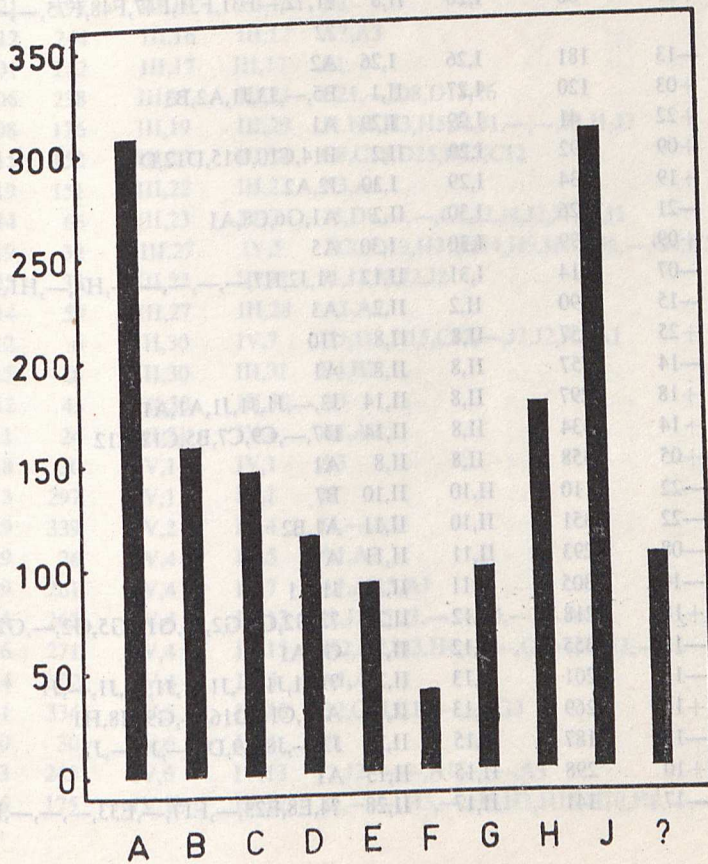
Fig. 1

Fig. 2

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Table 1

Current Numbers	Heliographic Coordinates Latitude	Longitude	First Obser- vation	Last Obser- vation	Evolution of the groups
1	+04°	88°	I,1	I,6	G5,G6,E8,—,H3,H4
2	+22	98	I,1	I,6	J1,J4,J1,—,J2,J1
3	+13	156	I,1	I,3	D12,D11,G4
4	+10	166	I,1	I,3	G5,H3,H1
5	—15	183	I,1	I,3	D13,G6,?2
6	+20	107	I,2	I,3	B6,B4
7	+12	6	I,5	I,6	J1,J1
8	—06	7	I,5	I,16	E14,F18,—,—,—,—,—,—,—,—,H4,?4
9	+18	224	I,15	I,27	?2,E9,F14,F18,—,F32,—,F49,—,E20,E21
10	+19	299	I,15	I,20	J1,J1,J1,J1,—,J1
11	+10	324	I,15	I,17	J4,B11,A1
12	—13	191	I,18	I,29	?6,—,E24,—,E28,—,E21,E23,E22,E14,—,?2
13	+09	193	I,18	I,27	?5,—,C16,—,E22,—,C6,C5,J2,J1
14	+18	209	I,18	I,27	B3,—,B4,—,H13,—,J1,J4,J1,J1
15	+08	276	I,18	I,18	B2
16	+13	169	I,20	I,26	J1,—,J2,—,J1,J7,J2
17	+13	159	I,22	I,22	J3.
18	+28	224	I,22	I,22	A3
19	—12	100	I,24	II,2	?1,E10,E13,E18,—,E30,C28,C24,D22,C14
20	—17	226	I,24	I,24	A1
21	+12	258	I,24	I,24	A1
22	+07	66	I,26	II,8	?1,?2,—,F31,F31,F47,F48,F75,—,—,—,—,—, ?2
23	—13	181	I,26	I,26	A2
24	+03	120	I,27	II,1	B5,—,J3,J1,A2,B3
25	+22	41	I,29	I,29	A1
26	+09	92	I,29	II,2	B14,C10,D15,D12,D13
27	+19	134	I,29	I,30	J2,A2
28	—21	26	I,30	II,2	A1,G6,C8,A1
29	+09	99	I,30	I,30	A5
30	—07	14	I,31	II,12	?1,J2,H7,—,—,—,—,—,H4,—,H1,H2,?1
31	—15	90	II,2	II,2	A3
32	+25	57	II,8	II,8	?10
33	—14	57	II,8	II,8	A1
34	+18	297	II,8	II,14	J2,—,J1,J1,J1,A1,A1
35	+14	334	II,8	II,14	D7,—,C9,C7,B5,C12,C12
36	+05	358	II,8	II,8	A1
37	—22	10	II,10	II,10	B7
38	—22	351	II,10	II,11	A1,B2
39	—08	293	II,11	II,11	A1
40	—10	305	II,11	II,12	J1,A1
41	+18	218	II,12	II,23	?2,G2,G2,G2,—,G13,G5,G2,—,G2,—,J1
42	—15	355	II,12	II,13	G2,A1
43	—13	201	II,13	II,23	?1,J1,J1,—,J1,J1,J1,—,J1,—,J1
44	+14	269	II,13	II,19	A11,C16,D16,—,G9,H8,H1
45	—13	187	II,15	II,23	J3,—,J8,C9,D9,—,J5,—,J1
46	+10	298	II,15	II,15	A1
47	—17	141	II,17	II,28	?4,E8,E23,—,E17,—,E33,—,—,—,D15,G6

Table 1 (Cont.)

48	—15	181	II,17	II,17	A1
49	—07	127	II,18	II,28	?1,H1,—,H3,—,H5,—,—,—,H10,H9
50	—11	243	II,19	II,19	A1
51	—09	107	II,21	II,28	J1,—.J1,—,—,—,J1,J1
52	+20	232	II,21	II,21	D7
53	+09	34	II,27	III,7	G4,H8,—,—,—,J2,H7,H6,J2
54	+26	46	II,27	III,7	J1,J1,—,—,—,J1,J1,J1,J1
55	+07	75	II,27	III,6	H23,H13,—,—,—,H7,J3,J1
56	—13	108	II,28	II,28	B2
57	+01	115	II,28	II,28	A6
58	—02	19	III,4	III,6	B4,G5,J2
59	+23	52	III,4	III,4	A1
60	—15	61	III,4	III,7	G4,C9,J3,J1
61	—12	343	III,4	III,7	J1,A4,A5,A10
62	+15	357	III,4	III,4	B3
63	—17	264	III,7	III,19	?1,—,—,—,D11,D13,—,D13,D8,H13,H1,—,J1
64	—04	214	III,11	III,23	?1,J1,—,J3,J1,H6,H3,—,J2,C13,B4,A1,A1
65	+19	241	III,11	III,21	J1,J2,—,J3,J6,J2,J3,—,J1,J1,?1
66	—08	296	III,11	III,14	D18,C15,—,B5
67	+07	211	III,12	III,17	G3,—,G8,D11,D22,B6
68	—04	308	III,12	III,12	B5
69	+20	210	III,14	III,15	J1,A1
70	—11	282	II,14	III,16	J4,B10,B4
71	—08	303	III,14	III,16	J1,A1,A1
72	—21	197	III,16	III,16	B3
73	—12	244	III,16	III,17	A7,A3
74	+01	212	III,17	III,17	A1.
75	—06	238	III,17	III,21	C21,—,D8,D13,?6
76	—08	126	III,19	III,29	J1,H1,H3,H5,J1,J1,—,—,J2,J1,J2
77	—15	152	III,20	III,24	C8,C18,D25,D17,C12
78	+19	151	III,22	III,23	A3,A5
79	—14	66	III,23	IV,2	?5,D8,—,—,C8,J2,J4,J2,J1,J1,J1
80	—19	32	III,27	IV,5	D20,D19,H31,H14,H9,H12,H5,—,G4,H5
81	+25	38	III,27	III,31	J1,J1,J2,J2,J2
82	—14	59	III,27	III,28	A1,A2
83	+12	6	III,30	IV,7	D5,D8,D15,C12,—,J2,J2,A1,A1
84	—15	28	III,30	III,31	B4,B2
85	+12	43	III,30	III,30	A3
86	—11	24	III,31	IV,1	A1,A3
87	—18	30	IV,1	IV,1	A3
88	+13	297	IV,1	IV,1	J1
89	—19	339	IV,2	IV,4	J4,—,A1
90	—19	26	IV,4	IV,5	A1,A2
91	—19	261	IV,4	IV,7	A1,A1,*,A1
92	—14	263	IV,4	IV,13	J2,J2,J5,J3,—,—,J3,—,—,A4
93	+16	271	IV,4	IV,15	H2,H2,H3,H4,—,—,C4,—,—,J3,—,J1
94	+14	302	IV,4	IV,5	A1,A1
95	+11	334	IV,5	IV,10	B2,C14,C13,—,—,G3
96	—20	30	IV,6	IV,6	?1
97	—03	245	IV,6	IV,13	J2,J2,—,—,A1,—,—,A3
98	—06	175	IV,10	IV,22	?1,—,—,H3,—,H5,H3,H15,H10,H8,—,—,J2

Table 1 (Cont.)

99	+03	180	IV,10	IV,22	?1,—,—,E7,—,G3,G4,G7,G6,J1,—,—,?1
100	+21	147	IV,13	IV,23	A2,—,J6,C21,E22,D27,E39,—,—,J9,A2
101	—17	150	IV,13	IV,19	?5,—,J3,J5,J7,B6,C9
102	+19	157	IV,13	IV,24	D9,—,G9,G13,G16,G10,E15,—,—,H3,H1,?1
103	+19	159	IV,13	IV,24	J1,—,J2,J1,J3,C7,C7,—,—,D11,G8,A2
104	—04	208	IV,13	IV,19	D14,—,D17,D16,C12,J1,J2
105	—21	144	IV,15	IV,15	A1
106	—15	187	IV,15	IV,15	J3
107	—05	218	IV,15	IV,19	C21,C20,D8,J1,J1
108	—11	75	IV,18	IV,19	?2,J4
109	+13	125	IV,19	IV,19	J6
110	+19	211	IV,19	IV,19	A3
111	—18	34	IV,22	IV,23	A1,A1
112	—10	138	IV,22	IV,24	B11,B6,A2
113	+16	153	IV,22	IV,22	J1
114	+04	156	IV,23	IV,24	J2,G3
115	—12	33	IV,24	IV,28	A5,D11,G15,D10,A6
116	—11	43	IV,24	V,1	C9,C12,D14,C14,D8,G4,J1,A1
117	+03	96	IV,24	IV,24	A1
118	+07	30	IV,25	V,3	B2,D19,D16,E19,G9,G9,G5,B4,A1
119	—05	345	IV,25	V,5	?1,G6,D8,G8,G9,H1,H2,G7,G6,J1,J1
120	—14	296	IV,30	V,1	C4,A2
121	+19	321	V,1	V,3	J6,A4,A1
122	+11	253	V,2	V,14	?1,H1,J1,G2,—,H1,G3,H1,—,J2,J2,J2,?1
123	—11	245	V,3	V,5	A2,B3,A1
124	+13	270	V,3	V,13	D10,E22,E20,—,F22,F33,F24,—,E13,E14,?1
125	+08	245	V,4	V,4	A1
126	+05	188	V,7	V,14	?2,C3,D6,—,G2,G5,J3,B6
127	+03	158	V,9	V,15	?2,—,C12,A13,C6,C9,G6
128	+05	131	V,11	V,22	?4,?10,H12,H15,H17,H18,G13,J7,H6,J8,J3,J2
129	+05	165	V,13	V,13	A1
130	—10	180	V,13	V,13	B3,
131	+19	195	V,13	V,17	C14,C7,J1,J1,A1
132	+05	194	V,13	V,13	A1
133	+08	166	V,14	V,14	A2
134	+05	220	V,14	V,16	A5,B3,?1
135	+12	144	V,15	V,18	C5,C6,J1,J2
136	—05	86	V,16	V,16	A2
137	—08	110	V,16	V,16	A1
138	—16	117	V,16	V,16	A1
139	—05	190	V,16	V,18	B3,B3,B3
140	+17	59	V,17	V,23	?1,J1,J1,J2,J3,J1,A1
141	+08	139	V,17	V,17	A1
142	+15	39	V,18	V,22	?1,A1,J1,J1,B4
143	+10	98	V,18	V,18	A2
144	+07	30	V,20	V,20	A1
145	+13	30	V,20	V,22	A3,C8,J1
146	—21	22	V,23	V,23	A1
147	+01	100	V,24	V,24	A2
148	+11	337	V,24	VI,2	J2,D13,E15,E15,E13,E12,G5,G7,E13,G9
149	—08	27	V,27	V,31	D24,E29,E13,D6,?2
150	+10	267	V,28	VI,5	?1,A1,J1,J1,A1,*,—,*,A2

Table 1 (Cont).

151	+14	273	V,28	VI,1	?3,J3,J3,J4,A4
152	+10	328	V,28	VI,4	C5,C13,D12,C3,C7,J3,—,?1
153	00	221	VI,1	VI,12	H3,H3,—,H9,H3,H6,H3,H2,H1,J1,J1,J1
154	—06	200	VI,2	VI,14	?1,—,H2,G2,H2,G5,H1,G3,H5,H3,H3,J1,J1
155	—03	211	VI,4	VI,8	A1,A3,*,A4,A1
156	+27	319	VI,5	VI,5	?1
157	—15	219	VI,7	VI,8	A2,B2
158	+15	223	VI,8	VI,10	B3,A3,B8
159	+15	145	VI,11	VI,15	A5,C16,B13,B8,A1
160	+07	143	VI,12	VI,12	B2
161	—14	124	VI,14	VI,18	B5,B13,B8,B8,B4
162	+14	194	VI,14	VI,15	J3,?1
163	—08	36	VI,15	VI,17	?1,A1,A1
164	—06	76	VI,16	VI,20	A1,A3,C8,C9,B3
165	—13	80	VI,16	VI,17	A5,A1
166	—04	18	VI,17	VI,17	B2
167	+12	127	VI,17	VI,18	J4,J6
168	+10	343	VI,18	VI,26	?1,?4,C7,D6,C10,C14,B8,*,A4
169	—11	35	VI,20	VI,20	A1
170	—18	352	VI,20	VI,24	A2,A7,B10,B11,A5
171	—12	83	VI,21	VI,23	B5,D5,?1
172	+15	294	VI,23	VII,4	?2,C6,E16,E23,E27,E29,E23,E28,D13,G7,H2,?1
173	+13	312	VI,23	VI,23	A1
174	—03	353	VI,23	VI,23	B8
175	—16	329	VI,24	VI,29	B10,B9,C8,B8,B4,A1
176	—22	348	VI,24	VI,28	D18,D12,D15,D11,D9
177	—11	350	VI,24	VI,24	A1
178	+14	303	VI,25	VI,29	A2,C6,D9,D7,C5
179	+07	343	VI,26	VI,26	B8
180	+16	229	VI,27	VII,9	?1,H2,J1,J1,J1,J2,J1,J2,J1,J1,J1,J1,J1
181	—14	228	VI,27	VII,9	?1,E6,E12,E28,F38,F38,F50,F59,F29,F32,F19,E9,?2
182	—08	239	VI,27	VII,8	E5,E10,E7,E15,G7,G6,G7,G15,H5,H3,H10,J1
183	+13	343	VI,27	VI,27	A1
184	—10	230	VI,28	VII,1	A2,G5,A1,A2
185	—10	279	VI,28	VI,28	A1
186	+09	341	VI,28	VI,30	C13,C5,?1
187	+06	249	VI,30	VII,4	D10,D7,D7,D11,B7
188	—09	207	VII,1	VII,3	J5,B11,A4
189	+09	202	VII,3	VII,3	A1
190	—13	183	VII,4	VII,5	B6,C4
191	—07	126	VII,5	VII,9	?3,D9,D18,D26,C16
192	+12	249	VII,5	VII,5	B2
193	—08	125	VII,6	VII,15	B3,B9,C5,C12,C56,C20,E51,E44,C17,H3
194	—12	93	VII,8	VII,14	J2,J2,H5,J5,C11,C10,B7
195	+15	59	VII,10	VII,21	?2,D8,D11,G7,G5,G12,—,—,—,—,—,J1
196	—04	141	VII,10	VII,10	A4
197	+06	28	VII,12	VII,22	?1,G5,E13,E25,—,—,—,—,—,E13,G9
198	—13	86	VII,12	VII,12	A1
199	—15	95	VII,12	VII,12	A1
200	+09	14	VII,14	VII,25	?2,J2,—,—,—,—,—,G9,D6,—,—,A1
201	—06	4	VII,15	VII,15	A3
202	—10	30	VII,15	VII,15	A1

Table 1 (Cont.)

203	+27	79	VII,15	VII,15	A4
204	+07	3	VII,21	VII,22	J1,J2
205	+16	292	VII,21	VII,21	A1
206	+11	310	VII,21	VII,30	A2,A1,—,—,D19,D26,D26,D9,—,?1
207	+15	338	VII,21	VII,25	C7,J4,—,—,A2
208	+13	353	VII,21	VII,27	E20,C11,—,—,E21,G4,?3
209	+09	357	VII,21	VII,21	B2
210	+20	300	VII,22	VII,27	A2,—,—,J6,J2,A2
211	—08	334	VII,22	VII,22	A4
212	—15	339	VII,22	VII,25	D6,—,—,J2
213	—01	354	VII,22	VII,22	A3
214	+17	224	VII,25	VII,25	A1
215	—13	230	VII,25	VIII,5	H5,H3,H4,H10,—,C9,C10,C8,G3,H4,H2,J2
216	—07	243	VII,25	VIII,3	J1,J1,J1,J1,—,J1,J2,J2,J2,A1
217	—15	256	VII,25	VII,25	B2
218	—18	357	VII,25	VII,25	B3
219	—13	275	VII,26	VIII,1	B2,C4,C9,—,D9,J1,J1
220	+15	304	VII,26	VII,26	A1
221	+07	188	VII,27	VIII,1	?2,J4,—,D9,C11,A2
222	+15	293	VII,27	VII,27	A2
223	+23	298	VII,28	VII,28	A5
224	+18	310	VII,28	VII,28	A2
225	+10	197	VII,30	VIII,1	G5,C6,A3
226	+18	210	VII,30	VIII,2	A1,*,C6,A1
227	+27	296	VII,30	VII,30	A2
228	+10	187	VII,31	VIII,1	A2,B2
229	—06	134	VIII,1	VIII,5	A1,B2,*,A5,A2
230	—26	157	VIII,1	VIII,5	J6,C5,C9,A6,J1
231	+06	193	VIII,1	VIII,6	J1,J1,B2,G3,C7,A1
232	+11	196	VIII,2	VIII,3	A1,A1
233	—03	98	VIII,3	VIII,15	?1,J1,H3,H3,H2,H3,H4,H4,H3,H5,H10,H4,J1
234	—10	143	VIII,3	VIII,5	A2,*,A3
235	—12	90	VIII,5	VIII,14	A6,C11,D17,D24,D24,D19,D11,G14,J5,B5
236	—28	156	VIII,5	VIII,5	A1
237	—05	158	VIII,5	VIII,5	A2
238	+12	122	VIII,7	VIII,13	B3,C12,D11,D11,D14,C7,J2
239	—16	190	VIII,7	VIII,7	B3
240	—11	74	VIII,8	VIII,8	A3
241	+10	150	VIII,8	VIII,10	A3,B10,B2
242	+21	41	VIII,10	VIII,14	A1,C4,C15,A1,A1
243	—12	77	VIII,10	VIII,10	B8
244	—08	91	VIII,11	VIII,11	A1
245	+14	353	VIII,11	VIII,18	?2,J2,J2,J3,J2,J1,J2,A1
246	+14	39	VIII,12	VIII,15	C6,B2,B5,A1
247	+10	5	VIII,13	VIII,13	A1
248	+13	317	VIII,14	VIII,26	?1,H2,H2,H2,H1,H1,H2,H1,H1,H1,H1,H1,J1
249	+14	344	VIII,15	VIII,21	J3,A1,A1,J2,J1,A1,A2
250	—15	16	VIII,16	VIII,21	C19,B13,B14,B5,J5,J1
251	+20	85	VIII,16	VIII,16	A1
252	+18	293	VIII,16	VIII,23	?1,J2,J1,J1,B11,B11,C7,B7
253	—12	269	VIII,17	VIII,28	?1,?11,F28,F54,F61,F67,F84,F72,F88,F59,F36,F34
254	+07	7	VIII,18	VIII,18	A1

Table 1 (Cont).

255	+10	356	VIII,20	VIII,20	B6
256	—05	233	VIII,21	IX,1	G4,G7,E8,G5,H6,H2,H6,H10,—,J1,J1,J1
257	+13	288	VIII,23	VIII,26	A1,B4,B12,B9
258	+19	285	VIII,25	VIII,25	A1
259	—32	176	VIII,30	VIII,30	A1
260	+15	192	VIII,30	VIII,30	A1
261	—09	101	VIII,31	IX,2	A1,A1,A1
262	+05	201	VIII,31	VIII,31	A4
263	—10	235	VIII,31	VIII,31	A2
264	—07	120	IX,1	IX,9	A2,B11,D18,D23,E24,E27,—,E19,G7
265	—03	97	IX,2	IX,2	A2
266	+17	97	IX,3	IX,12	J4,B2,C6,D5,—,J2,A6,A1,A3,?1
267	+20	79	IX,6	IX,6	A1
268	—05	109	IX,6	IX,6	A4
269	+02	130	IX,6	IX,9	D7,—,E15,?2
270	+02	50	IX,8	IX,8	B2
271	+14	22	IX,9	IX,9	A1
272	—10	359	IX,9	IX,9	A1
273	+12	319	IX,10	IX,19	?1,J1,J1,J2,J1,J1,J1,J1,J1,J1
274	—16	1	IX,12	IX,18	B8,C13,D12,C11,C13,B6,C4
275	—12	278	IX,13	IX,22	?2,E11,E28,E26,E14,E25,E25,E22,D18,C7
276	+04	280	IX,13	IX,24	?1,J1,H1,H4,H2,H6,J1,J2,H2,J1,—,A3
277	+13	292	IX,13	IX,22	A1,A1,A2,*,J4,A2,J1,J4,D10,E13
278	—13	267	IX,14	IX,19	?2,A7,J5,A2,A3,A1
279	+05	25	IX,15	IX,15	A1
280	—02	242	IX,16	IX,20	A1,A1,A1,A1,A1
281	+09	267	IX,16	IX,16	A1
282	—06	230	IX,18	IX,18	A3
283	—09	268	IX,19	IX,19	C5
284	—14	191	IX,22	X,1	C3,—,G15,C13,C7,C16,C10,C9,G5,A1
285	+13	192	IX,22	IX,25	A1,—,*,B5
286	—05	230	IX,22	IX,22	B4
287	+12	313	IX,22	IX,22	B2
288	—06	132	IX,24	X,5	?1,H2,H2,H3,H1,H11,H2,H5,H7,H1,H3,H1
289	—05	118	IX,27	X,5	B11,C26,C15,D26,D17,D12,D14,B7,A3
290	+11	78	IX,28	X,7	?4,G7,G11,G13,C20,E42,C11,C20,—,H3
291	—08	71	IX,30	X,1	A1,B2
292	+12	190	IX,30	IX,30	A1
293	+17	75	X,1	X,2	A1,B5
294	—14	73	X,2	X,2	A1
295	+20	101	X,2	X,5	A1,*,*,A7
296	—07	128	X,3	X,3	A2
297	—12	94	X,4	X,4	A2
298	+21	20	X,5	X,5	A1
299	—09	74	X,5	X,7	A7,—,C9
300	+06	75	X,7	X,7	A1
301	+11	21	X,11	X,12	J3,A1
302	+12	297	X,11	X,16	B5,C7,J2,A3,*,A2
303	+12	320	X,11	X,12	J5,J2
304	+01	306	X,12	X,12	A7
305	—13	330	X,12	X,16	C6,B5,B11,B6,A1
306	+18	259	X,14	X,14	A1

Tabel 1 (Cont)

307	—11	274	X,14	X,14	A2
308	+08	210	X,16	X,27	?6,—,—,—,F22,F41,F33,F57,F35,F19,F20,F13
309	+18	189	X,20	X,27	J4,B2,B9,B18,E14,E8,G11,G8
310	—13	204	X,20	X,23	B2,B8,B2,B2
311	+04	276	X,20	X,20	A1
312	—05	133	X,21	X,31	?1,H1,H1,H1,H1,H5,H1,—,—,H4,H8
313	+12	129	X,24	X,27	B7,D12,C13,C10
314	+11	80	X,25	XI,6	?1,H1,H2,—,—,H2,H1,—,—,—,H4,H1,H1
315	+20	107	X,25	X,25	A1
316	—06	60	X,27	X,27	?2
317	—07	125	X,27	X,27	A3
318	—13	88	X,30	XI,4	B16,B10,—,—,—,J1
319	—10	3	X,31	XI,12	?1,—,—,—,H10,H14,H15,H8,H9,H12,H8,H4,H1
320	—15	83	X,31	X,31	J5
321	—19	0	XI,4	XI,11	J2,J1,J2,J4,J2,J2,J2,J1
322	+11	19	XI,4	XI,6	A1,A2,B2
323	+06	35	XI,4	XI,4	A1
324	—15	89	XI,4	XI,4	A1
325	—10	91	XI,4	XI,6	D10,G4,?1
326	+11	360	XI,4	XI,9	C8,C13,C9,C10,A2,A1
327	—09	353	XI,5	XI,7	B5,*,B2
328	+04	296	XI,7	XI,7	A1
329	+10	325	XI,7	XI,9	A2,C10,B11
330	—08	325	XI,7	XI,9	A1,A5,A2
331	—15	278	XI,9	XI,12	A1,*,*,A2
332	—03	295	XI,9	XI,13	A3,B7,A1,*,A1
333	—19	322	XI,10	XI,10	A1
334	+07	12	XI,11	XI,11	A2
335	+08	217	XI,11	XI,14	?1,J3,B5,A2
336	+04	295	XI,11	XI,11	B8
337	—16	261	XI,12	XI,13	A2,A1
338	—14	192	XI,13	XI,25	?1,H3,—,H4,H7,H6,H4,H8,—,—,G9,—,?3
339	—07	295	XI,13	XI,13	A1
340	+03	282	XI,14	XI,14	A1
341	—10	238	XI,16	XI,16	A1
342	—12	262	XI,17	XI,20	B5,J2,J3,A1
343	—06	133	XI,18	XI,30	H1,H1,H1,—,—,H1,—,H1,—,—,H1,H1,?1
344	+09	228	XI,18	XI,18	A7
345	—15	184	XI,20	XI,20	B5
346	—14	198	XI,20	XI,20	B8
347	+05	225	XI,20	XI,20	A2
348	+13	80	XI,23	XII,3	H10,—,H22,—,—,D19,D16,C8,J7,C6,D7
349	—17	86	XI,23	XI,25	B6,—,C13
350	—10	92	XI,23	XII,2	J4,—,C8,—,—,B20,D11,B10,C7,B3
351	+14	118	XI,23	XI,23	B2
352	+09	119	XI,23	XI,23	A3
353	—09	82	XI,25	XI,25	B3
354	—15	93	XI,25	XI,25	A8
355	—07	105	XI,25	XI,25	A1
356	—10	1	XI,28	XII,1	A1,A1,A1,B4
357	—16	32	XI,28	XII,1	J2,C4,C4,A1

Table 1 (Cont)

358	—10	83	XI,28	XII,1	C12,C12,B5,B8
359	—17	90	XI,28	XII,3	E43,E39,E19,E25,E12,?4
360	—13	36	XII,1	XII,7	A2,C4,C13,C4,—,A1,?1
361	—05	321	XII,1	XII,12	A3,H5,H5,H15,—,E17,E16,E17,E15,—,—,?1
362	—09	96	XII,2	XII,2	A3
363	+15	7	XII,3	XII,3	A1
364	—14	299	XII,3	XII,14	A2,A2,—,J4,J3,J3,J2,—,—,A7,—,?1
365	—16	35	XII,4	XII,6	A1,—,A4
366	—03	252	XII,6	XII,18	?1,J1,J2,J2,—,—,J3,—,J1,—,J1,J1,?1
367	+10	310	XII,6	XII,12	A6,D8,C9,B8,—,—,A6
368	+08	349	XII,6	XII,9	D10,B11,B6,A1
369	+09	242	XII,7	XII,18	B2,C5,C10,—,—,C36,—,D17,—,C5,J2,J2
370	+06	288	XII,8	XII,12	B4,D9,—,—,A1
371	—07	286	XII,9	XII,12	A4,—,—,A1
372	+21	320	XII,9	XII,9	B2
373	—14	188	XII,12	XII,18	J5,—,H5,—,J1,J7,J2
374	+19	194	XII,12	XII,20	G4,—,D12,—,G18,G8,G8,—,J1
375	+12	182	XII,14	XII,23	J1,—,J3,D17,G21,—,G7,—,G4,?2
376	—09	222	XII,14	XII,14	A1
377	—05	134	XII,16	XII,26	J1,J1,J1,—,J1,—,J1,J1,J1,J1,J1
378	+10	140	XII,16	XII,20	C6,D10,D9,—,B2
379	—15	212	XII,16	XII,17	B3,B2
380	—05	105	XII,17	XII,20	A1,A2,—,A1
381	—14	112	XII,17	XII,28	E11,E19,—,E18,—,G14,E17,C18,G12,G11,H2,H1
382	—16	96	XII,18	XII,29	?3,—,H10,—,H18,E37,E23,E41,E28,D14,G5,G4
383	—10	174	XII,18	XII,20	A2,—,B5
384	—11	85	XII,20	XII,27	B6,—,D10,C7,B2,B3,*,A3
385	—16	76	XII,23	XII,25	A4,C6,B3
386	—13	48	XII,24	XII,31	A2,A1,A1,C9,C11,C7,B6,C5
387	+10	84	XII,24	XII,24	B2
388	—22	87	XII,25	XII,25	A1
389	—11	101	XII,25	XII,25	A3
390	+17	46	XII,26	XII,26	A2
391	—14	71	XII,26	XII,26	A1
392	—11	91	XII,27	XII,28	A2,B2
393	+16	107	XII,27	XII,27	B2
394	—04	328	XII,27	XII,31	?1,J1,J2,J1,J4
395	+22	331	XII,28	XII,31	J1,J1,J2,J4
396	—08	358	XII,28	XII,31	A1,B12,D17,D16
397	—17	303	XII,31	XII,31	B3

Table III

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	86	155	—	95	66	78	143	132	34	99	—	137
2	96	173	—	62	56	56	131	85	44	106	—	93
3	80	—	—	—	81	—	146	90	42	99	—	92
4	—	—	103	94	78	53	150	67	45	63	128	62
5	60	—	89	98	74	61	104	117	50	99	110	—
6	64	—	78	86	—	28	98	45	94	—	90	113
7	—	—	65	84	55	54	107	65	—	43	98	112
8	—	97	—	—	69	59	104	95	78	—	78	116
9	—	—	—	—	73	37	83	89	67	—	102	143
10	—	69	—	73	—	44	107	105	22	—	58	—
11	—	74	71	—	83	39	63	95	24	43	77	—
12	—	72	99	—	94	62	136	109	40	73	48	154
13	—	88	—	151	133	34	106	93	69	27	59	—
14	—	82	118	—	115	57	94	79	88	57	36	108
15	51	73	108	181	82	56	120	59	121	16	—	—
16	65	—	138	163	113	55	—	85	121	39	25	118
17	46	96	108	170	80	79	—	81	100	—	32	160
18	95	92	—	160	76	59	—	101	125	—	56	180
19	—	108	63	205	38	33	—	86	105	—	38	—
20	138	—	86	—	65	53	—	139	69	69	85	141
21	—	106	82	—	55	48	146	140	60	92	—	—
22	190	—	74	119	48	55	149	122	101	85	—	97
23	—	102	79	80	22	97	—	151	—	118	105	128
24	132	—	51	93	24	108	—	122	49	97	—	124
25	130	—	—	66	23	79	173	158	50	102	139	145
26	132	—	—	94	25	124	109	111	29	100	—	104
27	112	114	82	88	59	143	124	62	60	109	—	103
28	—	126	75	81	111	183	110	64	81	—	168	92
29	153		79	52	92	139	—	—	82	—	164	76
30	148		90	55	78	154	117	33	106	52	118	66
31	155		83		67		92	48		75		82

Table IV

Evolution Type	A	B	C	D	E	F	G	H	J	?	Total
Numbers of groups	307	158	145	113	90	38	96	174	305	101	1527
Percentage	20	10	10	7	6	3	6	11	20	7	100

Table II

Day	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	5.36 MA	6.95 FA		6.35 SK	5.16 DK	5.28 FA	7.73 HA	10.32 HA	3.04 HA	6.39 FA	— —	8.57 FA
2	6.36 MA	6.113 LT		4.22 HA	4.16 SM	4.16 MA	6.71 HA	7.15 HA	3.14 SM	6.46 HM	— —	6.33 HM
3	6.20 MÖ			— —	6.21 FA	— —	7.76 MA	7.20 FA	2.22 HA	4.59 HA	— SK	6.32 FA
4			8.23 SK	8.14 SM	5.28 FA	4.13 HA	6.90 DK	5.17 DK	2.25 MA	4.23 FA	9.38 HM	4.22 HM
5	4.20 FA		6.29 HA	8.17 FA	4.34 MA	5.11 SM	6.44 FA	9.27 FA	2.30 HM	6.39 HM	7.40 FA	— —
6	4.24 HA		6.18 MA	6.26 HA	— —	2.08 DK	5.48 HM	3.15 HM	5.44 FA		6.30 HM	7.43 FA
7		7.27 FA	7.15 HA	6.24 FA	3.25 HA	4.14 FA	5.57 MA	4.25 MA	— —	3.13 HA	7.28 MA	7.42 SK
8				— —	3.39 MA	5.09 FA	6.44 HM	5.45 HM	4.38 MA		5.28 FA	7.46 FA
9				— —	4.33 LT	3.07 MA	5.33 HA	4.49 HA	5.17 HA		7.32 MA	9.53 FA
10		5.19 MA		6.13 MA	— MA	3.14 HA	4.67 MA	6.45 MA	2.02 HM	3.13 MA	4.18 FA	— —
11		6.14 SK	4.31 FA	— —	5.33 HA	3.09 HA	3.33 LT	6.35 LT	2.04 MA	3.13 MA	6.17 HM	— —
12		6.12 HA	6.39 HA	10.51 FA	5.44 MA	4.22 MA	6.76 HM	6.49 HM	3.10 HA	5.73 HA	4.08 HM	9.64 HM
13		6.28 MA		— —	9.43 HA	2.14 LT	4.66 HM	7.23 HM	5.19 FA	2.07 MA	5.09 FA	
14	4.11 HA	5.32 MÖ	8.38 HA	11.71 HA	7.45 HA	4.17 FA	5.44 MA	6.19 MA	6.28 HM	4.17 HA	3.06 HM	7.38 SK
15	4.25 MA	5.23 FA	7.38 FA	8.83 FA	5.32 MA	4.16 MA	7.50 HA	5.09 HA	7.51 MA	1.06 HA	— —	— —
16	3.16 MÖ		8.58 FA	8.90 FA	8.33 SK	4.15 SK	— —	6.25 MA	7.51 HA	3.09 MA	2.05 HM	8.38 HM
17	6.35 FA		7.38 MA	9.70 MA	6.20 MA	6.19 MA	9.56 —	6.21 MA	7.30 SM		2.12 FA	10.60 FA
18				11.95 —	6.16 DK	4.19 DK	10.49 —	7.31 FA	8.45 MA		4.16 HM	11.70 HM
19			5.13 HA	— HA	3.08 FA	2.13 MA	— —	5.36 HM	7.35 HM		3.08 FA	
20	6.78 MA	7.36 HA	5.36 MA	— MA	5.15 HA	4.13 HA	— HM	6.79 FA	4.29 FA	4.29 FA	6.25 HM	9.51 FA
21			5.32 DK	— DK	4.15 HA	3.18 HA	— HA	6.80 HM	3.30 MA	4.51 HA	— —	— —
22	7.120 HA		4.34 FA	8.39 FA	4.08 MA	3.25 MA	— —	4.82 HA	7.31 HM	4.45 MA	7.35 SK	5.47 FA
23		6.42 FA	5.29 FA	6.20 FA	2.02 LT	6.37 LT	— —	5.101 FA	— FA	4.78 MA	— —	6.68 HM
24	8.52 MÖ		3.21 MA	7.23 MA	2.04 SM	6.48 SM	11.63 —	4.82 HM	3.19 HM	4.57 MA	8.59 HM	7.54 FA
25	6.70 FA			4.26 SK	1.13 SK	4.39 SK	7.39 DK	5.108 MA	3.20 SM	6.42 HM	— —	8.65 HM
26	8.52 FA			4.54 FA	1.15 MA	6.64 FA	8.44 FA	4.71 HM	2.09 HA	5.50 HM	— —	7.33 FA
27	7.42 MA	6.54 MA	5.32 MA	4.48 FA	2.39 SM	8.63 FA	7.40 HA	2.42 FA	3.30 FA	7.39 MA	— —	— —
28		8.46 HA	5.27 LT	4.41 MA	5.61 HA	10.83 MA	— —	2.44 HA	4.41 MA		7.98 HM	7.22 HM
29	7.83 HA		4.39 FA	3.22 LT	5.42 MA	8.59 HA	8.37 HA	3.03 HA	4.42 MA		7.94 FA	5.26 FA
30	7.78 MA		6.30 FA	4.15 FA	5.28 SK	7.84 MA	6.32 FA	4.08 FA	6.46 HA	3.22 MA	7.48 SK	4.26 HM
31	6.95 MÖ		6.23 HA		5.17 FA					5.25 SK		5.32 FA

Observers :

SK = S. Karaali		MÖ = M. Önal
LT = L. Topaktaş		FA = F. Akkaya
SM = S. Marşoğlu		MA = M. Aktaş
DK = D. Koçer		HA = H. Ayata
		HM = H. Menteş