

The Sunspot Observations Made In 2002

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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 2002 and some other results. Recurrent groups also were searched and maximum lifetime for a sunspot group was found as 177 days.

1. Observations

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 aperture of the objective and 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 by using the Astronomical Almanac for which the Position Angle of the Sun's axis Po , Heliographic Latitude Bo , Longitude Lo are calculated for the time that observation was made. Each sunspot group is observed for a single rotation of the Sun. However, each recurrent sunspot group that rotated more than one was taken as the same sunspot group. The results obtained during the period are given in Tables and in Figures.

2. Conclusions

In this paper, columns in Table I give the following : (1): Current numbers of the groups; (2) and (3): The mean latitude and longitude of each group respectively; (4) and (5): First and last observations of the groups, respectively; (6): Evolution of the groups which are classified according to McIntosh Sunspot Group Classification (Solar-Geophysical Data, 1984). The first upper case letter in column gives "Modified Zurich Class". The second upper case letter gives the penumbra of the largest spot. The third upper case letter in the column gives the sunspot distribution. The Figures after these letters give the number of umbrae in each group. The sign "?" denotes a group which was observed at the edge of the disk and could not be identified in the McIntosh Classification. The sign "X" 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 addition some big groups like F, E or H types classifications could be seen one more solar rotation that the word "back" was written that the group most probably passed or stayed behind the Sun that day (i.e. recurrent groups). In 2002, 469 groups were observed; only one of them have a latitude of 0° , 208 of them have an average latitude of $+12.7^\circ$ in the North Hemisphere and remained 261 groups have an average latitude -16.9° in the South Hemisphere. The distribution of the groups according to their latitudes is as follows (see also Fig.1).

Latitude Intervals	North Hemisphere	South Hemisphere
From 0° to 05°	32	32
From 6° to 10°	47	44
From 11° to 15°	67	47
From 16° to 20°	35	60
From 21° to 25°	17	43
From 26° to 30°	9	25
From 31° to 35°	1	9
From 36° to 40°	0	1
TOTAL	208	261

In Table II, number of groups and umbrae are given by decimal numbers for each day; the integer part of these numbers denote the numbers of the groups and the fractional part numbers of umbrae. Letters across these numbers are the abbreviations of the observers' names; the complete names are given at the end of the Table II. In the case; there is a name but no number it means at that day observation was done but was no sunspot.

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 summarized in Figure 2.

Some statistical results of 2002 observations are also as follows:

1. At 279 days of the 2002 solar observations were done.
2. Number of observation without sunspot is 0 day.
3. Number of possible reccurent groups are only 45 among 469 groups that their group numbers and their lifetimes are in the following table.

The maximum lifetime of the group in the table is 177 days. This duration is so long when comparing with historical groups in literature.

Finally, we see some recurrent groups in 2002 that it can be also studied in future whether exists or not a relation between population of the recurrent groups and the solar magnetic activity.

Acknowledgements: I am gratefull to Istanbul University Observatory Research and Application Center for providing computer facilities.

No	Group Number	Classification	Lifetime in day
1	31	DKC	28
2	37	HH	51
3	45	F	34
4	47	F	40
5	77	F	32
6	85	F	35
7	93	E	78
8	119	F	94
9	121	E	28
10	130	DKC	36
11	133	E	32
12	137	F	38
13	139	E	30
14	147	DK	38
15	148	E	59
16	158	F	30
17	160	E	93
18	162	DKC	30
19	167	E	56
20	173	F	66
21	190	F	177
22	194	F	31
23	236	E	80
24	247	F	113
25	255	F	141
26	267	F	62
27	269	HH	29
28	284	E	30
29	314	F	31
30	324	E	29
31	329	E	37
32	352	DAC	39
33	359	E	36
34	361	E	33
35	373	E	33
36	376	F	85
37	377	E	58
38	385	DRI	29
39	399	F	38
40	417	E	29
41	420	E	63
42	429	E	33
43	437	E	32
44	447	F	35
45	455	E	29

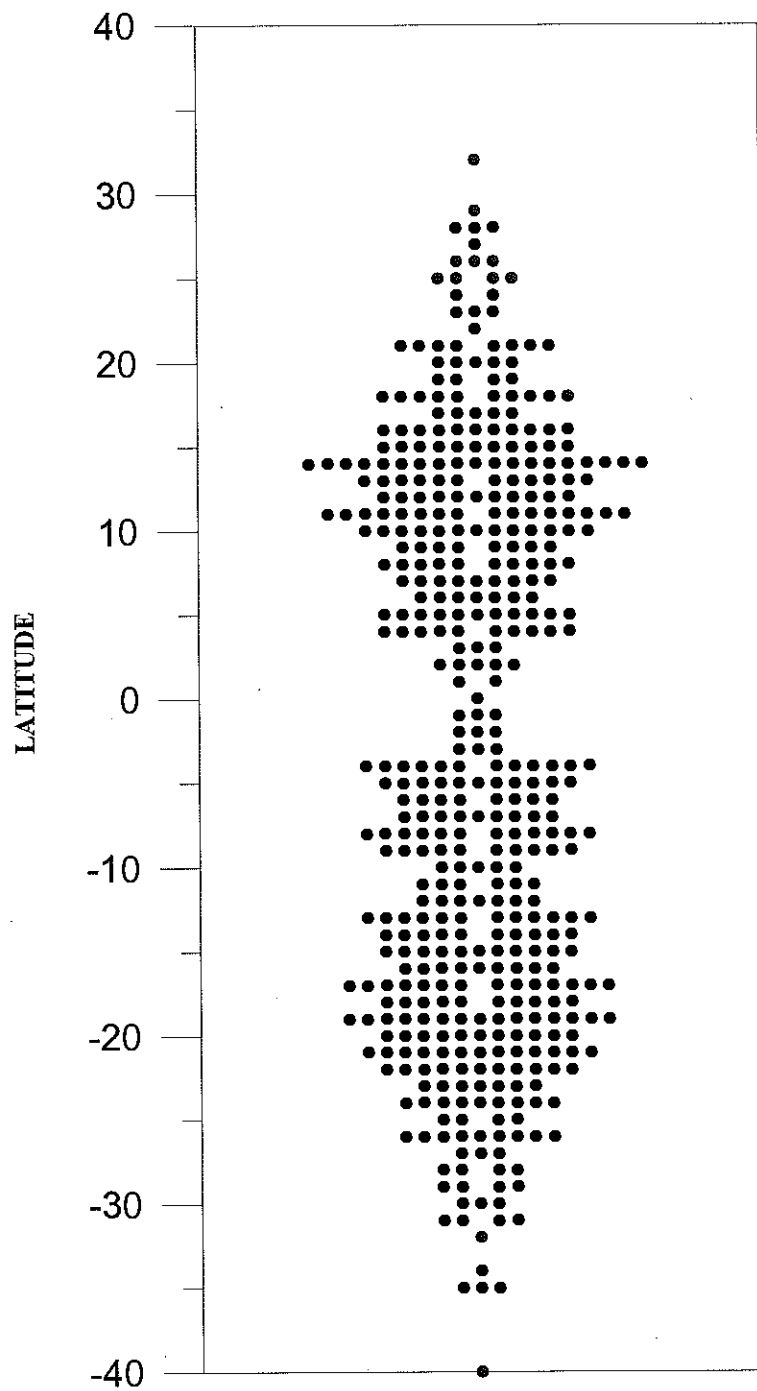


Fig. 1 - Distribution of the groups according to their latitudes.

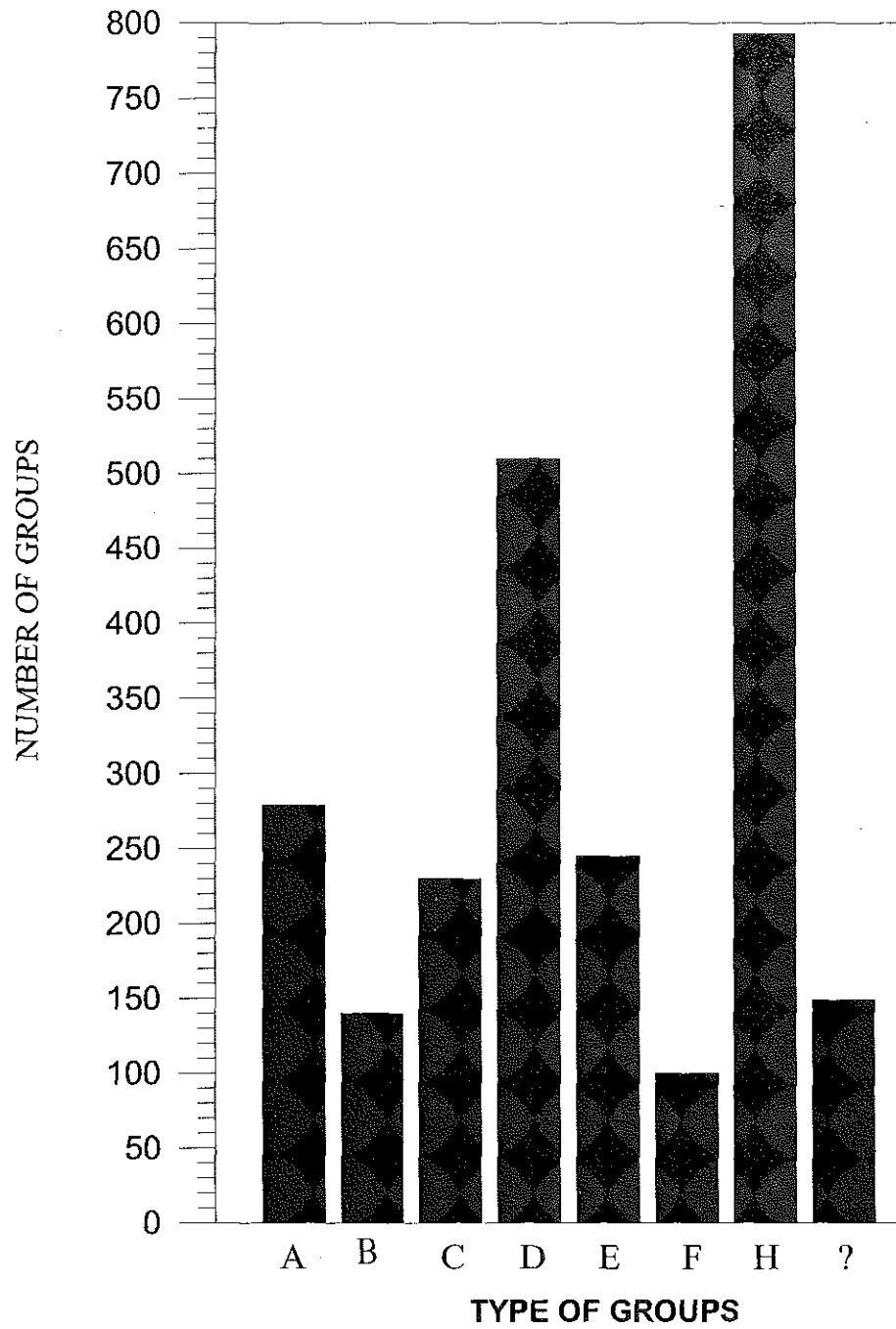


Fig. 2 - Distribution of the groups in types

Table I

Current Number	Heliographic Coordinates	First Observation	Last Observation	Evolution of the groups	
				Latitude	Longitude
1	05 044	02.1.02	03.1.02	HA-2,	HS-2
2	05 060	02.1.02	03.1.02	HS-1,	HS-1
3	10 072	02.1.02	03.1.02	HS-1,	HR-2
4	14 106	02.1.02	03.1.02	DAO-7,	DSI-6
5	-23 017	02.1.02	03.1.02	EAO-8,	EAC-19
6	04 099	02.1.02	03.1.02	HA-4,	HS-1
7	-07 124	02.1.02	03.1.02	EAC-8,	CAO-5
8	07 082	03.1.02	03.1.02	CRI-9	
9	-23 035	03.1.02	03.1.02	HA-1	
10	-19 037	03.1.02	03.1.02	AX-2	
11	-21 087	03.1.02	03.1.02	DSO-2	
12	-08 088	03.1.02	03.1.02	CSO-2	
13	10 217	12.1.02	23.1.02	?-4,	HA-5,
				HA-4,	HA-2,
				HS-3,	HS-1,
				HS-1,	HA-1,
				HS-1,	HS-2
14	06 227	12.1.02	23.1.02	CSO-5,	
15	28 268	12.1.02	16.1.02	BXO-2	
16	10 292	12.1.02	12.1.02	EKO-13	
17	14 330	12.1.02	12.1.02	?-1,	HA-2,
18	-13 206	12.1.02	25.1.02	HA-5,	DAI-12,
				CSO-5	
19	05 231	12.1.02	22.1.02	HS-1,	HA-1,
				?-4,	HA-1,
				CAO-17,	HA-6
20	-16 263	12.1.02	16.1.02	AX-1	
21	-24 266	12.1.02	12.1.02	CRI-11	
22	-07 313	12.1.02	12.1.02	HA-2	
23	-18 323	12.1.02	12.1.02	AX-1	
24	06 208	16.1.02	16.1.02		

Table I (Cont.)

25	09	212	16.I.02	16.I.02	16.I.02	AX-2								
26	-26	226	16.I.02	16.I.02	23.I.02	HA-1, HK-1, ?-7	-	-	-	-	-	-	CSO-3,	
27	-09	151	16.I.02	16.I.02	16.I.02	DSC-13, DAI-12, CAO-4, DAI-9, HH-3, HK-7, back, back, back,	DKC-18, ?-2	ESI-23,	HR-1, AX-1	HR-1, AX-1	HR-1, AX-1	EAI-15, X	DSI-13, CSO-3	
28	18	153	21.I.02	21.I.02	28.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02
29	28	165	21.I.02	21.I.02	26.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02
30	14	194	21.I.02	21.I.02	23.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02
31	-08	133	21.I.02	21.I.02	17.II.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02
32	-15	146	21.I.02	21.I.02	26.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02
33	-04	197	21.I.02	21.I.02	24.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02	21.I.02
34	-22	086	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02	22.I.02
35	12	114	24.I.02	24.I.02	27.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02
36	07	120	24.I.02	24.I.02	25.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02	24.I.02
37	21	202	23.I.02	23.I.02	14.III.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02
38	-24	080	23.I.02	23.I.02	30.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02
39	-02	094	23.I.02	23.I.02	28.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02
40	-17	106	23.I.02	23.I.02	26.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02
41	-34	202	23.I.02	23.I.02	24.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02	23.I.02

Table I (Cont.)

42	-25	068	24.I.02	24.I.02	24.I.02	HA-1	
43	-04	122	24.I.02	24.I.02	24.I.02	AX-3,	X,
44	-04	141	24.I.02	24.I.02	24.I.02	AX-1	BXO-4
45	08	053	27.II.02	25.I.02	27.II.02	DAO-5,	EAL-15,
				24.I.02		FAC-65,	FAC-36,
				25.I.02		back,	back,
						back,	back,
						HS-5,	HK-2,
						AX-1,	HA-2
46	13	154	27.I.02	25.I.02	27.I.02	HS-3,	HA-3,
47	-15	022	6.II.02	26.I.02	6.II.02	AX-1,	BXO-3
						?-2,	ESC-9,
						EAC-40,	ESC-25,
						FAL-17,	EKC-36,
						back,	?-1,
						back,	back,
						back,	back,
						?,	DAC-3,
						X,	AX-1,
48	-06	032	2.II.02	26.I.02	2.II.02	HR-2,	AX-1,
						AX-2,	AX-3
49	-03	035	6.II.02	26.I.02	6.II.02	HA-3,	HA-2,
						HS-3,	HS-2,
50	10	002	8.II.02	28.I.02	8.II.02	?-1,	HA-1,
						CAI-3,	HS-1,
51	-25	132	30.I.02	28.I.02	30.I.02	HA-3,	DAO-4,
52	14	006	31.I.02	29.I.02	31.I.02	DRO-3,	AX-6,
53	25	066	29.I.02	29.I.02	29.I.02	HS-2	
54	08	033	30.I.02	30.I.02	30.I.02	AX-3	
55	-27	325	7.II.02	30.I.02	7.II.02	?-2,	?-5,
						EAL-17,	HA-4,
56	-14	010	30.I.02	30.I.02	30.I.02	AX-3	BXO-4
57	-28	014	30.I.02	30.I.02	30.I.02	AX-1	
58	-28	023	30.I.02	30.I.02	30.I.02	AX-1	
59	-7	059	30.I.02	30.I.02	30.I.02	AX-2	

Table I (Cont.)

60	-6	130	30.II.02	30.II.02	30.II.02	AX-1							
61	16	339	31.II.02	8.II.02	8.II.02	?-3,	HA-9,	CAI-8,	CRI-7,	DRI-4,	DAI-10		
62	-6	323	31.II.02	10.II.02	10.II.02	CAI-12,	DAO-13,	DAO-4					
63	09	300	2.II.02	13.II.02	13.II.02	?-2,	DSO-2,	DAO-2,	DSI-4,	DSO-2,	DSO-3,		
64	12	022	2.II.02	5.II.02	5.II.02	DAO-4,	DAO-6,	DAO-2,	CSO-2,	HA-2	HA-5,		
65	11	283	3.II.02	9.II.02	9.II.02	?-1,	HA-4,	HK-2,	HS-4,	HA-4,	HS-1		
66	-26	279	3.II.02	14.II.02	14.II.02	HA-4,	HS-6,	HS-5,	-,	HS-2,	DRI-12,	DAC-9,	
67	-24	004	3.II.02	3.II.02	3.II.02	AX-2,	BXO-6,	-,	HR-1				
68	06	339	5.II.02	5.II.02	5.II.02	?-1,	HA-1,	HS-2,	HA-6,				
69	-30	254	5.II.02	14.II.02	14.II.02	BXO-6							
70	-8	303	5.II.02	5.II.02	5.II.02	?-1,	DAO-4,	DAC-6,	DAO-10,	DAO-14,	DAO-11,		
71	15	255	7.II.02	9.II.02	9.II.02	CSO-8,	HS-5,	-,	HS-3,	HS-1,	HA-1		
72	14	004	7.II.02	8.II.02	8.II.02	AX-1							
73	18	222	8.II.02	14.II.02	14.II.02	HR-1							
74	13	300	8.II.02	9.II.02	9.II.02	?-1,	?-2,	AX-4,	HS-1,	AX-2,	CRO-4,		
75	-13	271	8.II.02	14.II.02	14.II.02	-,	X,	HA-3,	HA-1				
76	-10	321	8.II.02	8.II.02	8.II.02	HA-1							
77	14	206	9.II.02	12.III.02	12.III.02	BXO-2,	HS-2,	AX-1					
						AX-1,	AX-1						
						?-4,	HA-6,	CAO-4,	-,	DSO-3,	HA-1,		
						AX-3							
						AX-1,	AX-1						
						BXI-5,	DRI-8,	DAC-32,	-,	ESC-25,	DAI-12,		
						EAO-9							
						?-4,	EHL-9,	-,	EAC-24,	FAC-33,	FKC-65,		
						-,	EHO-23,	ESO-9,	EAC-14,	DAI-9,	-,		
						back,	back,	back,	back,	-,	back,		
						back,	-,	back,	back,	back,	-,		

Table I (Cont.)

78	-4	253	9.II.02	back,	back,	back,	HR-1,	⌊
79	-31	260	10.II.02	⌊	AX-1	DAO-7,	HA-2,	BXO-2
80	-24	220	12.II.02	AX-3,	⌊	⌊	⌊	⌊
81	21	194	14.II.02	DAO-3,	⌊	DSO-5	⌊	⌊
82	08	228	14.II.02	AX-3	⌊	⌊	⌊	⌊
83	08	196	16.II.02	BXO-5	AX-2	⌊	⌊	⌊
84	-4	128	16.II.02	DAO-3,	AX-1	FKC-43,	FKC-32,	CAO-44,
85	-19	138	16.II.02	DAO-2,	AX-1	ESC-15,	⌊	back,
			22.III.02	FAC-13,	CKO-14,	back,	⌊	back,
				EAC-31,	EAC-15,	back,	?-4,	⌊
				⌊	back,	back,	⌊	⌊
				back,	?-3,	?-4,	ESO-4,	ESO-8,
				EHO-9,	EKO-14,	⌊	DAO-10,	ESO-11
86	-13	219	17.II.02	HR-1	⌊	⌊	⌊	⌊
87	11	156	19.II.02	CRO-6	⌊	⌊	⌊	⌊
88	-11	154	19.II.02	AX-5	⌊	⌊	⌊	⌊
89	03	088	21.II.02	AX-1	⌊	⌊	⌊	⌊
90	04	132	21.II.02	DAO-5,	DAO-3	⌊	⌊	⌊
91	-19	097	21.II.02	BXO-8,	AX-4	⌊	⌊	⌊
92	-19	104	1.III.02	AX-3,	AX-1,	BXO-3,	CSI-14,	DAC-9,
				DKO-5,	⌊	?-3	⌊	⌊
				DAO-7,	?-7,	back,	back,	back,
			14.V.02	back,	⌊	back,	back,	⌊
				back,	back,	back,	back,	⌊
				⌊	EKO-15,	EKI-27,	EKC-36,	EKO-27,
				⌊	ESO-6,	ESO-7,	⌊	?-2,
				⌊	⌊	⌊	⌊	back,
				⌊	⌊	⌊	⌊	back,
93	-10	191	21.II.02	⌊	⌊	⌊	⌊	⌊

Table I (Cont.)

94	-20	117	22.II.02	27.II.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
95	-11	042	22.II.02	23.II.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
96	-27	042	22.II.02	5.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
97	22	057	23.II.02	3.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
98	17	015	26.II.02	7.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
99	-20	030	26.II.02	1.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
100	-4	117	26.II.02	27.II.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
101	-24	119	26.II.02	26.II.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
102	12	053	27.II.02	27.II.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
103	26	088	27.II.02	1.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
104	-8	095	27.II.02	27.II.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
105	15	304	1.III.02	1.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
106	-6	315	1.III.02	9.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
107	12	319	3.III.02	3.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
108	10	351	3.III.02	3.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,
109	-5	269	3.III.02	15.III.02	back,	back,	back,	back,	back,	back,	back,	back,	back,

Table I (Cont.)

110	-23	288	3.III.02	9.III.02	HA-1 HA-1, HR-1	DAO-3, CAO-10, CSO-11, DSF-9,
111	-18	320	3.III.02	3.III.02	AX-1	
112	07	251	5.III.02	5.III.02	?-1	
113	18	339	5.III.02	7.III.02	AX-1, HA-3,	HS-1
114	-11	284	5.III.02	9.III.02	AX-1, HA-7,	DAO-17, DAO-9
115	-31	324	5.III.02	5.III.02	BXO-2	
116	-5	029	5.III.02	6.III.02	AX-2,	?-2
117	14	311	6.III.02	6.III.02	HA-4	
118	05	001	6.III.02	6.III.02	CAO-5,	DSO-7,
119	18	217	7.III.02	8.VI.02	?-1, DAI-8, back, -, -, -, FAI-14,	?-3 HS-1, HS-3, HA-2, back, back, back, back, FKC-33, FAC-20,
120	08	282	7.III.02	7.III.02	HA-1, HA-6,	HA-1, AX-1
121	-20	180	12.III.02	8.IV.02	HS-1 EAO-4,	HS-5, HS-1, HS-1,

Table I (Cont.)

122	-12	277	12.III.02	HA-5, back, back, back,	DSO-3, back, back, back,	HA-1, HA-1, HA-1, HA-2, DAO-10, HR-1, HA-1	HS-1, back, back, AX-3	HS-1, back, back, AX-3	2-1, back, back,	back, back, back,
123	-22	146	13.III.02	HA-1, AX-1, HS-1,	HA-1, HS-1, HA-2,	HA-1, HA-3, X, HS-2,	AX-1 B XO-7, HS-1	AX-1 B XO-7, HS-1	DAI-11,	
124	-19	169	13.III.02	DAO-10, HR-1, HA-1	HA-1, HA-1	HA-1				
125	-8	252	14.III.02	DAO-10, HR-1, HA-1	HA-1, HA-1	HA-1				
126	-32	176	15.III.02	DAO-10, HR-1, AX-1	B XO-9, HR-1, AX-1	B XO-9, HR-1, AX-1	B XO-3 HA-3,	B XO-3 HA-3,		AX-3
127	16	112	16.III.02	DAO-4, B XO-5,	EAO-5, DAO-11	EAO-5, DAO-11				
128	-15	149	18.III.02	B XO-5, B XO-5,	X, DKC-18,	X, DKC-18,				
129	09	040	21.III.02	B XO-5, B XO-5,	back, back, HA-1, HA-3,	back, back, HA-1, HA-3,	back, back, HS-1, HS-2,	back, back, HS-2, HS-1,	back, back, HA-3, HA-1,	back, back, HR-1
130	07	080	25.IV.02	B XO-5, B XO-5,	X, DKC-18,	X, DKC-18,				
131	16	149	21.III.02	DRO-2	DRO-2	DRO-2				
132	14	156	21.III.02	DSO-2, AX-1,	DSO-2, AX-1,	DSO-2, AX-1,	DAO-8 CAO-6,	DAO-8 CAO-6,		
133	-14	046	21.III.02	back, back, back, AX-2	back, back, back, AX-2	back, back, back, AX-2	back, back, back, AX-2	back, back, back, AX-2	back, back, back, AX-2	back, back, back, AX-2
134	-16	054	21.III.02	HS-1, HS-2	HS-1, HS-2	HS-1, HS-2	HS-1, HS-2	HS-1, HS-2	HS-1, HS-2	HS-1, HS-2

Table I (Cont.)

148	-29	227	7.IV.02	4.VI.02	DAO-3, DAO-5	DAC-22, BXI-18	DAI-8, EAC-13, EAI-20,	DAI-14, EAI-20,	DAO-5, back, back, back, EAI-17, HS-1, back, back, back, DSO-2	CSO-3, DAC-9, back, back, back, HA-7, back, back, back, back,
149	-2	261	7.IV.02	10.IV.02	CAO-8,	CAO-4, HA-1,	HA-1, CAO-5, HS-1, CAO-7	HA-4, HA-1,	HA-5, back,	
150	19	156	8.IV.02	12.IV.02	?-2, HS-1,	DAO-4, HA-1, CAO-4,	CAO-5, HS-1, CAO-7	HA-4, HS-2, HA-2	HA-4, HS-2, HA-2	
151	11	165	8.IV.02	18.IV.02	CAO-9, BXO-3, DAO-2, HA-5,	CAO-4, HA-7, DAO-2, BXI-4	CAO-4, HA-1, CAO-7	HA-4, HA-1,	HA-5, back,	
152	-17	222	8.IV.02	10.IV.02	AX-2	AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	
153	14	153	9.IV.02	15.IV.02	HA-5, AX-2	HA-5, AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	
154	-19	190	10.IV.02	10.IV.02	HA-5, AX-2	HA-5, AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	
155	-16	202	10.IV.02	15.IV.02	HA-5, AX-2	HA-5, AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	
156	03	203	12.IV.02	15.IV.02	HA-5, AX-2	HA-5, AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	
157	-4	115	12.IV.02	21.IV.02	HA-5, AX-2	HA-5, AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	
158	-15	148	12.IV.02	11.V.02	HA-5, AX-2	HA-5, AX-2	DAO-9, CAI-8, FAC-18, AX-1	CAO-3, CAO-3, AX-2	DAO-4, DAO-4, AX-2	

Table I (Cont.)

159	-22	000	14.IV.02	AX-1	14.IV.02	AX-1			
160	-21	085	15.IV.02	BXO-3, CSO-6, back, back, back, EHO-3, HH-1, back, back, HH-1, HH-1, ?-1, back, back, HS-2, HR-1,	16.VII.02	BXO-3, CSO-6, back, back, back, EHO-3, HH-2, EHO-8, -, back, -, HH-2, HH-2, back, back, HS-2, HS-1,	DAO-15, CSO-4, back, back, ESO-3, HH-2, back, back, back, HH-1, HH-2, back, back, HA-1, HA-1	DAO-11, HS-1, back, back, EHO-6, HH-1, back, -, back, HH-4, HH-3, back, back, HS-1, HS-1	-, back, back, back, EHO-6, HH-1, back, -, ?, HH-3, ?, back, back, HS-1, HR-1,
161	-15	135	15.IV.02	AX-1	15.IV.02	AX-1			
162	10	069	18.IV.02	HA-2, DAO-12, back, back, back,	17.V.02	HA-2, DAO-12, back, back, back, HA-2,	DKI-17, ?-1, back, back, back, HA-2,	DAC-18, back, back, back, HS-1, AX-3	DKC-14, back, back, back, back, AX-3
163	-17	054	18.IV.02	AX-2	18.IV.02	AX-2			
164	-13	074	18.IV.02	HR-2	18.IV.02	HR-2			
165	00	106	18.IV.02	AX-3	18.IV.02	AX-3			
166	11	004	21.IV.02	DAO-5, DKI-22, CSO-6,	1.V.02	DAO-5, DKI-22, CSO-6,	DAO-9, DAL-12, DAO-8,	CAI-10, CAO-6, EAO-14,	CAI-9, ? -2, DAO-12, DSO-11,
167	07	014	21.IV.02	CSO-6,	15.VI.02	CSO-6,			

Table I (Cont.)

168	05	043	22.IV.02	DSO-9, back, back, back, DKC-75, EKO-14, back, back, AX-1,	DSO-4, back, back, ?-3, -, ?-8, -, back, AX-1	DHO-3, back, back, DKC-12, DKC-50, back, back, back,	HA-1, back, back, EKC-19, DAC-41, back, back, back,	back, back, back, DKC-21, DAO-14, -, back, back, back,	back, back, back, DKC-46, DAO-12, back, back, HA-1,	
169	-29	000	22.IV.02	AX-1	X,	X,	AX-4			
170	-15	062	22.IV.02	HR-2,	HR-2,	AX-6,	BXI-6,	BXO-9,	AX-1	
171	13	351	22.IV.02	HA-9,	HA-9,	X,	X,	HR-9,	BXO-6	
172	-24	033	23.IV.02	HR-1,	HR-1,	X,	X,	AX-1		
173	13	317	23.IV.02	HA-6,	HA-5,	X,	HA-4,	HA-2,	HA-3,	
			24.IV.02	HA-2,	HS-2,	HS-2,	CSO-3,	AX-1,	back,	
				HA-3,	HA-10,	DAC-14,	back,	back,	back,	
				back,	back,	back,	back,	back,	back,	
				back,	back,	back,	back,	back,	back,	
				FKC-21,	DHI-14,	DHI-11,	HA-1,	-,	DAL-8	
				DKC-5,	-,	HK-1,	EHC-16,	EKC-16,	HK-13,	
				back,	back,	back,	back,	back,	back,	
				back,	back,	back,	back,	back,	back,	
				HS-1,	EAO-5,	EAO-2,	HS-2,	HS-3,	DAO-8,	
				DAC-10,	CSI-9,	DSO-2,	DSO-2,	DAO-2,	DAO-2	
174	-16	026	24.IV.02	CAI-22,	BXO-6,	HS-3,	AX-1,	X,	HR-1	
175	-14	041	24.IV.02	AX-3,	BXI-7,	AX-4,	AX-3			
176	-4	050	24.IV.02	AX-3,	CAI-8,	BXO-12,	BXO-3			
177	21	337	25.IV.02	BXO-3						

Table I (Cont.)

191	21	285	2.V.02	7.V.02	EKC-12, EKC-18, EKC-37, FKC-37, FKC-42, FKC-55, FKC-65, EKC-29, ?-9,	EKC-12, EKC-18, EKC-37, FKC-37, FKC-42, FKC-55, FKC-65, EKC-29, ?-9,
192	-17	230	2.V.02	8.V.02	EXC-51, back, back, back, HH-15, HH-4, back, back, -, HH-2, -, back, back, back, back, HS-1, HA-1, BXO-4, CRO-6, HA-1	EXC-51, back, back, back, HH-15, HH-4, back, back, -, HH-2, -, back, back, back, back, HS-1, HA-1, BXO-4, CRO-6, HA-1
193	-5	186	3.V.02	12.V.02	HS-1, HA-1, BXO-4, CRO-6, HA-1	HS-1, HA-1, BXO-4, CRO-6, HA-1
194	-20	242	3.V.02	9.V.02	HS-2, DSO-8, AX-3, AX-1, AX-1, HS-1	HS-2, DSO-8, AX-3, AX-1, AX-1, HS-1
195	-15	258	3.V.02	3.V.02	AX-1, AX-1, HS-1, HA-1, BXO-4, CRO-6, HA-1	AX-1, AX-1, HS-1, HA-1, BXO-4, CRO-6, HA-1
196	-22	223	4.V.02	11.V.02	AX-1, AX-1, HS-1, HA-1, BXO-4, CRO-6, HA-1	AX-1, AX-1, HS-1, HA-1, BXO-4, CRO-6, HA-1
197	21	198	5.V.02	6.V.02	HS-1, HA-1, BXO-4, CRO-6, HA-1	HS-1, HA-1, BXO-4, CRO-6, HA-1
198	32	200	5.V.02	5.V.02	HS-1, HA-1, BXO-4, CRO-6, HA-1	HS-1, HA-1, BXO-4, CRO-6, HA-1
199	-10	170	5.V.02	11.V.02	AX-1, HA-1, BXO-4, CRO-6, HA-1	AX-1, HA-1, BXO-4, CRO-6, HA-1

Table I (Cont.)

200	-23	217	6.V.02	6.V.02	6.V.02	HR-1
201	-27	230	10.V.02	6.V.02	HS-3	
202	08	170	7.V.02	6.V.02	HS-5, HA-6, AX-2, AX-1	
203	21	212	7.V.02	7.V.02	DAO-3, DAO-2, BXL-6, AX-1	
204	-4	138	6.VI.02	7.V.02	HA-3, DAL-6, X, HS-5	
					HH-1, FHO-5, FKO-15, FKO-28, FHO-15,	
					EHO-10, DHO-10, DHC-12, DAL-8, HA-4, HA-2,	
					back, back, back, back, back, back, back, back,	
					-, back, back, back, back, back, back, BXO-2,	
					BXO-5	
205	-17	160	10.V.02	10.V.02	HA-4, DAO-6, DAO-4, BXO-2	
206	-12	155	11.V.02	11.V.02	AX-1	
207	-6	109	12.V.02	12.V.02	CAO-7, CAO-9, DAO-9, DAO-5, HA-4, HS-5,	
208	-22	033	14.V.02	14.V.02	HR-1, HR-1, HR-1	
209	04	151	15.V.02	15.V.02	?-1, ?-2, HA-3, HA-3, HA-6, HA-6,	
210	-14	031	15.V.02	15.V.02	HS-1, DAC-9, DSO-4, CSO-7, CAO-7	
					?-1, HS-1, HA-1, HA-1, HS-1, HS-1, HS-1,	
211	03	024	16.V.02	16.V.02	HA-3	
					HS-1, HS-1, HS-2, HS-1, HS-1, HS-1,	
212	-7	091	16.V.02	16.V.02	AX-1	
213	14	346	18.V.02	18.V.02	?-2, CAI-8, HA-6, HA-5, HA-6, AX-1	
					DAO-8, HR-5, HS-2, HA-1, AX-1	
214	-24	127	18.V.02	18.V.02	AX-1	
215	-22	333	19.V.02	19.V.02	?-2, EAC-10, EAC-14, EAC-27, EAC-11,	
					EAL-20, EAL-14, CSO-6, DAO-5, CSO-3, HS-1	
216	15	335	20.V.02	20.V.02	HA-1, HA-1, HA-1, CSO-4, CSO-5, HA-1,	

Table I (Cont.)

217	-11	301	23.V.02	23.V.02	23.V.02	HS-1, AX-3	HS-1, HA-1,	HR-1	
218	-8	309	1.VI.02	23.V.02	1.VI.02	HS-5, HS-5, HA-1,	HS-2, HA-2, -	HS-2, AX-2	DAO-3,
219	-14	358	27.V.02	23.V.02	27.V.02	CSO-3, X,	X,	X,	AX-1
220	-14	314	25.V.02	24.V.02	25.V.02	AX-1	AX-1		
221	09	258	30.V.02	26.V.02	30.V.02	CSO-3, DAI-4,	DAI-6, HA-7,	HA-7, HA-3	
222	05	260	5.VI.02	26.V.02	5.VI.02	DAO-5, DSO-2,	DAC-9, DAO-9,	DAC-6, BXC-2,	-
223	-21	232	4.VI.02	28.V.02	4.VI.02	DAO-4, DAO-7, AX-1	-, DAC-10, -	DSO-2, CAO-10,	HS-7,
224	23	213	1.VI.02	29.V.02	1.VI.02	HS-1, DAO-5,	-, -	AX-3	
225	-30	169	6.VI.02	1.VI.02	6.VI.02	?-4,	DSO-6,	HS-7,	HA-5
226	-21	188	11.VI.02	1.VI.02	11.VI.02	HA-2, DSI-10,	-, -	DAC-16, DSI-15,	DSO-11,
227	-9	261	4.VI.02	1.VI.02	4.VI.02	DAI-10, DAO-4, BXC-2, X,	CAO-3, AX-1	HS-1,	
228	-21	288	2.VI.02	1.VI.02	2.VI.02	CAO-6, DSC-6			
229	-31	219	2.VI.02	2.VI.02	2.VI.02	AX-5			
230	04	123	4.VI.02	4.VI.02	4.VI.02	HS-1, HA-1,	HS-2, HA-1,	HR-2, AX-1	HA-2, BXC-5
231	24	152	4.VI.02	4.VI.02	4.VI.02	HA-1, HA-2,	HS-1, HA-2,		
232	18	168	13.VI.02	4.VI.02	13.VI.02	DAO-9, DAI-13, EAO-7, HS-1,	DSI-11, DAI-13, HS-1,	DSI-10, ?-1	EKO-10, EAI-13,
233	04	217	4.VI.02	4.VI.02	4.VI.02	BXC-4			
234	-21	151	10.VI.02	4.VI.02	10.VI.02	HS-1, HR-1	HS-1, HS-1,	HS-1,	HA-1,
235	07	131	6.VI.02	6.VI.02	6.VI.02	AX-2			
236	-17	147	24.VIII.02	6.VI.02	24.VIII.02	BXC-7, EKO-8, back,	EAI-19, DKO-4, back,	EAI-27, ?-1, back,	EKC-19, back, back,

Table I (Cont.)

237	-35	184	6.VI.02	8.VI.02	back, AX-3, BXI-7,	back, DAC-6, DKO-7,	back, DKO-7, - EKC-23,	back, EHC-18,	?-2, EAC-21,
238	-21	199	6.VI.02	6.VI.02	AX-1	ESC-9, DAC-10,	DSC-7,	DSC-8,	HS-2,
239	-23	135	7.VI.02	9.VI.02	AX-3,	back, back,	back, back,	back, back,	back, back,
240	11	068	9.VI.02	9.VI.02	HR-2,	back, back,	?-2,	HS-2,	HS-1,
241	05	150	9.VI.02	9.VI.02	HA-2,	HS-1,	-,	HS-1,	HS-2,
242	-19	067	9.VI.02	9.VI.02	AX-1, AX-4,	back, back,	?-1,	back, back,	back, back,
243	-22	172	10.VI.02	10.VI.02	AX-3	back, AX-1	back,	back,	back,
244	10	116	12.VI.02	12.VI.02	AX-1	BXO-5,	back,	back,	back,
245	13	016	13.VI.02	15.VI.02	HS-4	AX-3,	BXO-2	back,	back,
246	20	351	14.VI.02	26.VI.02	HA-1,	HR-1	HR-1,	HS-1,	HA-1
					HA-1,	DAO-9,	HA-6,	HA-6,	HA-7,
					HS-6,	DSI-6,	HS-3,	DAO-5,	HS-3,
					HA-1	DAO-9,	HA-4,	HS-4,	HA-3,
247	17	006	14.VI.02	4.X.02	HA-3,	DRO-8,	BXO-11,	DAC-9,	X,
					X,	X,	X,	X,	X,
					back,	back,	back,	back,	back,
					back,	back,	back,	back,	back,
					back,	?-2,	DKO-4,	FKC-16,	FKC-42,

Table I (Cont.)

248	-5	123	14.VI.02	FKC-62, FAC-39, back, back, ESO-2, ESO-7, -, back, back, DAI-14, -, back, AX-2, HA-1	FKC-94, EAO-14, back, -, EAO-5, EAO-9, back, back, -, DAC-22, EAI-18, back, back, -, CRO-5, AX-2, HA-1	FKC-83, ?-4, back, back, DSO-5, ESO-7, back, back, -, DAI-30, -, back, back, -, CRO-5, AX-2	FKC-86, ?-1, back, back, DSO-8, CSO-4, back, back, ?-8, DKC-25, CRO-5, back, back, X, AX-2	FKC-62, back, back, back, EAO-13, HS-1, back, back, DAO-11, DKC-27, -, back, -, back, AX-2	FKC-39, back, back, ?-1, ESO-5, HS-1, back, back, DAI-13, DKJ-25, back, X,
249	01	347	16.VI.02 21.VI.02	CAO-5, AX-2, HA-1	CRO-2, BXO-2, HA-1	?-1, X, AX-2	X, X, X, X	X, X, X, X	X, X, X, X
250	-15	042	15.VI.02	DRO-8, HA-2	HR-1, HA-2	HR-1, DAC-11, BXO-9, DSO-3,			
251	-25	057	15.VI.02	AX-1	AX-1				
252	13	021	16.VI.02	AX-2	BXO-2				
253	-18	077	17.VI.02	AX-1	CRO-4				
254	13	353	18.VI.02	HA-2	CAO-5, HA-2	DSO-5, DKC-9, HK-10, back, back, back, back, EKC-38,	DKC-10, HK-1, back, back, back, back, DAO-8, EKC-41,	DKC-8, HK-1, back, back, DAO-8, EKC-50,	HH-22, HH-1, back, back, DKC-15, EKC-46,
255	-8	297	18.VI.02	?-1, HH-11, HH-1, back, back, back, back, EKC-25,	?-3, HK-14, back, back, back, back, EHC-26,	DKC-9, HK-10, back, back, back, back, EKC-38,	DKC-10, HK-1, back, back, back, back, DAO-8, EKC-41,	DKC-8, HK-1, back, back, DAO-8, EKC-50,	HH-22, HH-1, back, back, DKC-15, EKC-46,

Table I (Cont.)

256	-7	033	18.VI.02	21.VI.02	EKC-30, back, EKC-25, back, EKI-24, back, DKI-7, back,
257	-20	051	20.VI.02	AX-2, AX-1, HA-4	back, back, back, back,
258	-13	255	22.VI.02	CRO-2, CAO-8, AX-6, X, DAO-8, DAC-13, DAO-18, DAO-19, CAO-6,	back, back, back, back, back, back, back, back, back, back, back, back,
259	-12	317	22.VI.02	HR-3	back, back, back, back, back, back, back, back, back, back,
260	18	283	23.VI.02	AX-1	back, back, back, back, back, back, back, back, back, back,
261	04	296	23.VI.02	BXO-4, X, CSO-2	back, back, back, back, back, back, back, back, back, back,
262	-19	253	23.VI.02	AX-2	back, back, back, back, back, back, back, back, back, back,
263	21	304	24.VI.02	HR-1	back, back, back, back, back, back, back, back, back, back,
264	-28	251	24.VI.02	BXO-2, CRO-2, DRO-6, DAI-10	back, back, back, back, back, back, back, back, back, back,
265	-9	259	26.VI.02	HA-6, BXO-6, BXO-3, X, X, BXO-5,	back, back, back, back, back, back, back, back, back, back,

Table I (Cont.)

266	-21	221	28.VI.02	28.VI.02	28.VI.02	AX-1	HA-6,	DAI-14,	CAJ-7,	DAO-14,	EKC-28,
267	-19	236	28.VI.02	30.VII.02	30.VII.02	CAO-5,	HA-6,	DAI-14,	CAJ-7,	DAO-14,	EKC-28,
						EAC-22,	?-5,	back,	back,	back,	back,
						back,	back,	back,	back,	back,	back,
						back,	back,	back,	back,	back,	X,
						X,	AX-2,	AX-5,	HA-3,	BXI-7,	HR-2,
						X,	X,	AX-1,	back,	back,	"
						back,	back,	back,	back,	back,	back,
						back,	back,	back,	back,	back,	back,
						back,	back,	back,	back,	back,	back,
						back,	back,	back,	back,	back,	back,
						EAI-26,	EAO-29,	?-1,	DAO-8,	"	CRO-6,
						?-9,	EAO-29,	FAC-20,	FAC-25,	FAC-20,	FKC-15,
						?-1	?-1	FAC-20,	FAC-25,	FAC-20,	FKC-15,
268	14	296	29.VI.02	30.VI.02	30.VI.02	HA-4,	CSO-3	back,	back,	back,	back,
269	14	285	30.VI.02	28.VII.02	28.VII.02	HA-2,	DAO-2,	back,	back,	back,	back,
						back,	back,	back,	back,	back,	back,
						back,	back,	back,	back,	?-1,	HS-1,
						HS-1,	HS-1,	HS-4,	HA-1,	HH-1,	HS-1,
						HS-1,	HS-2,	HS-2,	HA-1,	HS-1	HS-1,
270	-20	139	1.VII.02	8.VII.02	8.VII.02	AX-1,	X,	AX-3,	DAI-7,	HA-6,	BXI-4,
						AX-3,	X,	AX-3,	DAI-7,	HA-6,	BXI-4,
271	01	121	2.VII.02	4.VII.02	4.VII.02	?-3,	AX-1,	HA-1			
272	-23	116	2.VII.02	7.VII.02	7.VII.02	?-1,	AX-1,	HA-1			
273	-26	197	2.VII.02	2.VII.02	2.VII.02	HR-1	AX-1,	HA-2,	DAO-5,	X,	BXO-2
274	-35	107	3.VII.02	10.VII.02	10.VII.02	?-1,	DAO-6,	DAC-10,	DAO-2,	DAO-8,	DAO-5,
						DAO-8,	CAO-7	DAO-2,	DAO-2,	DAO-8,	DAO-5,
275	-30	165	4.VII.02	8.VII.02	8.VII.02	DAI-8,	CAO-7	CRO-9,	DRL-10,	BXI-11,	CSO-4
276	-25	073	7.VII.02	7.VII.02	7.VII.02	AX-1	DAO-8,	CRO-9,	DRL-10,	BXI-11,	CSO-4
277	-14	056	8.VII.02	17.VII.02	17.VII.02	AX-1,	BXO-5,	DAO-6,	DAI-9,	CAO-4,	CAO-5,
						AX-1,	BXO-5,	DAO-6,	DAI-9,	CAO-4,	CAO-5,

Table I (Cont.)

296	-18	172	26.VII.02	26.VII.02	AX-1	
297	-22	134	1.VIII.02	1.VIII.02	?-1,	DSO-4, DRO-2, AX-1, HR-1
298	-8	193	4.VIII.02	27.VII.02	BRI-14,	DAC-19, DKC-30, EKC-34, FKI-32,
					FKC-24,	?-4
299	-6	257	27.VII.02	27.VII.02	DRO-6	
300	08	183	28.VII.02	29.VII.02	BXO-6,	
301	13	109	29.VII.02	7.VIII.02	?-1,	CSO-4, CSO-3, DSO-7,
					DAO-4,	CAO-4, HS-3,
302	-18	174	29.VII.02	30.VII.02	CSO-5,	AX-1
303	-1	223	29.VII.02	29.VII.02	AX-3	
304	04	110	31.VII.02	1.VIII.02	AX-4,	BXI-4
305	-8	147	1.VIII.02	8.VIII.02	BXI-10,	EAC-37, EAC-27, EAC-15,
					EAC-12,	?-1
306	08	042	3.VIII.02	15.VIII.02	?-1,	HA-4, HA-8, DAC-28,
					DAC-25,	DSI-18, HA-16, HA-1,
					HA-1	
307	14	067	3.VIII.02	9.VIII.02	DAO-6,	CSO-13, DSO-7, HA-1,
					CRO-5	
308	-6	078	3.VIII.02	12.VIII.02	HR-1,	HA-2, HA-5, DAC-11, CRO-2,
					DAI-7,	DAO-7, DAI-10, DAI-9
309	-29	146	3.VIII.02	5.VIII.02	CRO-8,	DRO-5, BXO-4
310	-5	116	5.VIII.02	5.VIII.02	AX-2	
311	-21	027	6.VIII.02	6.VIII.02	HR-1	
312	-20	056	7.VIII.02	7.VIII.02	AX-2	
313	-9	359	8.VIII.02	8.VIII.02	AX-1	
314	11	316	10.VIII.02	9.IX.02	?-1,	FAO-7, EAO-10, EAO-12, EKI-30,
					ERI-36,	ERI-24, EAI-33, DAO-20, EAI-7,
					?-4,	back, back, back,
					back,	back, back,

Table I (Cont.)

315	14	332	11.VIII.02	20.VIII.02	back, AX-1	back,	back,	HR-1,	HR-2,
316	14	016	11.VIII.02	11.VIII.02	DSO-8,	BXI-14,	DAC-18,	DAC-13,	DAI-20,
317	07	020	11.VIII.02	11.VIII.02	CRI-9,	CAO-15,	HA-2		
318	16	105	11.VIII.02	11.VIII.02	AX-2				
319	-11	332	12.VIII.02	15.VIII.02	?-1				
320	-17	038	12.VIII.02	16.VIII.02	AX-3,	CRO-6,	DAO-6,		
321	12	284	13.VIII.02	20.VIII.02	CRI-12,	DAO-16,	DSO-4,	?-2	
322	-17	301	13.VIII.02	13.VIII.02	HS-1,	HA-1,	HS-1,	HR-2,	HR-2,
323	15	264	14.VIII.02	23.VIII.02	AX-1	HS-1			
324	-21	282	14.VIII.02	11.IX.02	?-5,	ESC-5,	CAO-14,	DAI-12,	
325	-13	348	14.VIII.02	16.VIII.02	CAI-10,	DAI-9,	HA-6,	HS-1	
326	10	000	15.VIII.02	15.VIII.02	HR-1,	DSC-8,	DAI-15,	EAC-33,	
327	15	248	16.VIII.02	18.VIII.02	EAC-40,	EAI-23,	CKI-20,	HA-3,	back,
328	20	290	18.VIII.02	18.VIII.02	back,	back,	back,	back,	back,
329	-16	217	18.VIII.02	23.IX.02	?,	back,	back,	back,	back,
326	10	000	15.VIII.02	15.VIII.02	back,	back,	BXO-2,	AX-1,	
327	15	248	16.VIII.02	18.VIII.02	back,	back,	DSO-6,	DSO-4	
328	20	290	18.VIII.02	18.VIII.02	back,	back,	AX-3,	HR-2	
329	-16	217	18.VIII.02	23.IX.02	back,	back,	HR-2		
325	-13	348	14.VIII.02	16.VIII.02	?-1,	DAO-7,	DSI-16,	CAO-23,	ESO-20,
326	10	000	15.VIII.02	15.VIII.02	EAI-24,	EAI-12,	CAO-11,	CAO-5,	HR-1,
327	15	248	16.VIII.02	18.VIII.02	back,	back,	back,	back,	back,
328	20	290	18.VIII.02	18.VIII.02	back,	back,	back,	back,	back,
329	-16	217	18.VIII.02	23.IX.02	back,	back,	back,	back,	back,
					HR-2,	HS-10,	CRI-19,	DSC-22,	CSO-6,

Table I (Cont.)

349	-4	077	3.IX.02	8.IX.02	CAO-8,	DAO-10,	CRO-3,	CRO-3,	AX-3,	AX-1
350	-40	138	3.IX.02	3.IX.02	HR-1					
351	-9	112	4.IX.02	4.IX.02	AX-3					
352	12	299	8.IX.02	16.X.02	CRO-4,	DAO-3,	DAO-5,	DAO-9,		DAI-22,
					back,	DAO-11,	back,	HA-4,		HS-2,
					back,	back,	back,	back,		back,
					back,	back,	back,	back,		back,
					DAO-8,	DAO-10,	CAI-20,	DAC-7,	DSO-17,	CAO-5,
					CSO-7,	back,	HS-1			
353	28	316	8.IX.02	8.IX.02	AX-3					
354	19	321	10.IX.02	17.IX.02	CRI-5,	DAO-6,		BXI-6,		X,
					back,	HR-1				
355	-8	321	10.IX.02	13.IX.02	AX-3,	CAO-5,		DAO-10		
356	07	013	13.IX.02	13.IX.02	HR-1					
357	-3	246	13.IX.02	23.IX.02	AX-3,	back,	DAO-13,	back,	DSO-18,	EAI-23,
					EAO-18,	EAO-13,	HS-4,	HA-2,	HS-2	
					BXO-3,	back,	HA-6,	HA-6,	HA-6,	DSO-3,
358	16	267	15.IX.02	22.IX.02	DSO-2,	HR-1				
359	-13	188	17.IX.02	22.X.02	ESO-2,	DSO-2,	DSO-9,	DSO-15,	DSO-14,	EHC-27,
					EAI-24,	back,	DKI-24,	DAO-13,	DSO-8,	back,
					DAO-5,	back,	back,	back,	back,	back,
					back,	back,	HA-1,	HS-1,	back,	back,
					HS-8,	CAO-8,	CAO-11,	back,	HA-6,	BXO-5
360	-18	203	17.IX.02	20.IX.02	HR-4,	BXO-5,	HS-4,	AX-5		
361	-13	230	17.IX.02	10.X.02	DSI-9,	DKO-25,	DKC-21,	EKC-29,	DKC-22,	EKC-30,
					EKC-26,	back,	?-7,	back,	back,	back,
					back,	back,	back,	back,	back,	back,

Table I (Cont.)

362	02	284	18.IX.02		19.IX.02	back, CAO-3, CRO-7, HS-3, ?-1, -,	back, CRI-5, BXO-12, AX-1, BXO-2, AX-5, AX-1	-, DRO-8, BXO-6	back, ESO-4, -,	HS-1, CSO-12, BXI-11,
363	-7	164	18.IX.02		26.IX.02					
364	10	144	20.IX.02		21.IX.02					
365	-24	144	20.IX.02		27.IX.02					
366	-5	145	21.IX.02		23.IX.02					
367	27	127	22.IX.02		27.IX.02					
368	06	131	22.IX.02		30.IX.02					
369	20	180	22.IX.02		29.IX.02					
370	11	077	25.IX.02		6.X.02					
371	11	140	25.IX.02		25.IX.02					
372	-24	136	27.IX.02		27.IX.02					
373	-19	043	29.IX.02		31.X.02					
374	-26	109	29.IX.02		30.IX.02					
375	-26	127	29.IX.02		29.IX.02					
376	25	122	30.IX.02		23.XII.02					

Table I (Cont.)

383	-7	352	5.X.02	10.X.02	AX-2,	DRO-5,	HR-7,	AX-6,	AX-2
384	12	255	8.X.02	19.X.02	HS-1,	HS-1,	HS-1,	HS-1,	HS-1,
385	-17	020	8.X.02	30.X.02	CSO-3,	HS-1,	HS-2,	HS-5,	HS-1
					BXI-6,	BXI-6,	back,	back,	back,
					back,	back,	back,	back,	back,
					?,	back,	back,	back,	back,
					?,	HA-1,	HR-1,	HR-1	
386	15	244	9.X.02	21.X.02	?,	CAO-6,	DAI-32,	DAO-21,	EHC-20,
					?,	ESC-26,	DSI-25,	DSI-11,	?,
					DAO-4				
387	-12	304	9.X.02	9.X.02	BXO-6				
388	-9	323	9.X.02	9.X.02	AX-3				
389	20	315	10.X.02	10.X.02	BXI-8				
390	-20	246	10.X.02	19.X.02	HS-1,	HA-1,	HA-3,	HS-1,	?,
					HR-2,	HS-2,	AX-1,		
391	-4	255	10.X.02	10.X.02	HR-1				
392	-21	293	10.X.02	10.X.02	AX-2				
393	15	227	11.X.02	13.X.02	AX-1,	AX-4,	CRO-3		
394	16	257	11.X.02	14.X.02	AX-1,	HR-31,	BXO-3,		
395	10	279	11.X.02	12.X.02	CRO-2,	AX-1			
396	-8	342	11.X.02	12.X.02	CSO-2,	DRO-5			
397	18	258	12.X.02	12.X.02	AX-1				
398	-18	227	12.X.02	12.X.02	BXO-2				
399	-19	201	14.X.02	20.XI.02	BXO-3,	?,	DAI-20,	DAO-26,	DAO-25,
					?,	CAO-13,	CRO-6,	HR-1,	back,
					back,	back,	back,	back,	back,
					back,	back,	back,	?,	?,
					?,	?,	?,	FAC-47,	EAC-60,
					?,	FKC-61,	FKC-59,	FKC-43,	FKC-27,
					?,	FKC-41,	FKC-41,		

Table I (Cont.)

431	19	011	3.XI.02	FKC-50, AX-3	FKC-22, FKO-16
432	-12	271	3.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
433	-5	322	3.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
434	12	251	8.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
435	10	286	8.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
436	-21	242	8.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
437	13	234	11.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
438	-31	189	11.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
439	-5	325	11.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
440	-2	207	12.XII.02	FKC-22, FKO-16	FKC-22, FKO-16
441	-16	172	14.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
442	-16	173	15.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
443	-13	175	15.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
444	-18	105	16.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
445	11	024	18.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
446	26	119	18.XI.02	FKC-22, FKO-16	FKC-22, FKO-16
447	-16	118	19.XI.02	FKC-22, FKO-16	FKC-22, FKO-16

Table I (Cont.)

464	-25	086	20.XII.02	26.XII.02	DAO-5, DAO-2	CAI-6, CAI-6	BXI-12, X ₁	DAO-7, DAO-7	~ ~
465	14	352	26.XII.02	30.XII.02	HA-1, AX-1	~ ~	X ₁	~ ~	HR-2
466	23	344	28.XII.02	28.XII.02	AX-1	~	~	~	~
467	16	023	28.XII.02	28.XII.02	DAO-6	~	~	~	~
468	-9	293	30.XII.02	31.XII.02	DAI-12, HR-6	CAO-7	~	~	~
469	-9	281	31.XII.02	31.XII.02	HR-6	~	~	~	~

TABLE II

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1		8.103 TC	9.90 TÖ		10.40 TC	12.60 TC	6.32 TÖ	9.104 AK				
2	7.31 TC	10.95 HE	4.37 TÖ		11.60 ZFB	10.80 SB-AK	8.38 ZFB		10.93 AK		13.81 TA	5.53 TC
3	12.52 ZFB	12.77 TÖ	9.57 AK	8.24 TC	15.89 SB		9.67 TC	10.103 HE	14.121 MB	6.59 SB	12.78 MB	
4		10.43 AK			15.122 TA	14.81 ZFB	8.68 İHC	8.58 HE	13.130 MB	5.56 MB	13.72 TA	5.27 MS
5		13.77 İHC	10.38 ZFB		16.120 TC	10.73 AK	8.59 İHC	8.64 ZFB	10.106 MB	7.58 AK	8.78 AK	6.48 SB
6		10.64 TC	9.53 TC		15.88 SB	13.75 TÖ	6.28 AK	8.40 HE	7.72 MB			
7		11.79 ZFB	9.63 ZFB	10.65 TÖ	15.104 İHC	11.49 TÖ	8.36 TA	8.72 SB	9.57 MB			
8		14.46 SB	6.49 SB	12.74 AK	15.87 İHC	10.53 AK	7.30 TÖ	7.39 ZFB	12.154 MB	9.67 SB	9.91 MS	
9		12.58 TA	7.25 HE	11.85 İHC	12.65 AK	11.61 MB	7.32 SB	4.42 SA	10.59 AÖ	11.68 TA		
10		10.70 TC		12.95 TC	14.96 ZFB	10.38 AK	6.20 TC	6.38 HE	9.74 AÖ	14.115 ZFB		
11					13.84 SB	6.27 ZFB	7.33 ZFB	10.79 SB	7.67 AÖ	14.103 ZFB		
12	11.60 TÖ	8.63 İHC	7.29 SB	11.95 İHC	9.68 AK	6.31 SB	4.28 SB	9.85 TA		11.58 HE		
13		9.59 TC	9.49 İHC		8.60 İHC	7.21 TC	5.52 TÖ	10.82 ZFB	7.110 MB	11.49 AK	8.103 HE	
14		9.90 SB	10.62 ZFB	12.100 TC	6.29 AK	9.25 İHC	7.74 TA	12.95 HE			8.104 TG	
15			8.61 İHC	12.71 AK	7.27 İHC	11.38 HE	7.111 SB	13.123 SB	6.63 MB			
16	10.41 TC	6.43 SB	8.58 MB		10.36 SB	8.30 TÖ	8.104 İHC	11.145 ZFB		12.77 ZFB	6.77 HE	8.121 MS
17		7.29 İHC		6.56 TC	8.31 ZFB	7.77 AK	6.107 TC	10.91 TA	10.83 ZFB	11.89 HE	5.84 TG-FB	
18		3.58 İHC	7.36 AK	10.87 ZFB	9.33 MB	9.40 İHC	4.102 ZFB	12.155 HE	11.95 SB	12.110 TA	7.69 TG	
19		5.53 AK	5.37 İHC		8.44 AK	7.23 TC	4.75 AK		11.87 ZFB	11.97 SB	5.44 MS	
20					10.69 AK	8.30 SB	4.96 TC	9.158 ZFB	11.101 ZFB		7.55 SB	8.122 TG
21	11.56 AK	7.70 ZFB	12.40 ZFB	9.46 AK	9.110 İHC	6.26 İHC	6.73 SB	7.131 SB	10.79 SB	10.68 AK	5.26 HE	7.109 MS
22	11.63 İHC	9.66 TÖ	9.49 SB	9.69 ZFB	5.24 HE	5.24 HE	7.75 İHC	8.134 ZFB	11.87 AK	9.81 SB		6.67 MB
23	16.75 TC	7.33 TÖ		10.71 MB	10.114 ZFB	7.54 TC	12.58 TA	7.77 SB	11.122 ZFB	7.61 TA		6.64 ZFB
24	14.55 ZFB	6.10 TA		13.91 TC	9.101 SB	6.35 AK	9.88 TÖ	6.78 TC		9.61 ZFB		
25	11.31 SB			16.82 AK	8.59 TÖ	7.37 ZFB	9.114 TC	6.54 TC	10.100 MB	7.38 MB	5.19 TG	
26	13.70 AK	11.90 İHC		12.69 SB	9.55 TA	7.44 ZFB	15.119 SB	6.70 İHC	8.51 TA	10.56 TA	5.15 ZFB	4.8 SB
27	9.66 MB	13.93 TC		13.66 HE	10.53 AK	6.39 SB	14.187 HE	5.69 ZFB	8.49 SB	8.70 AK	8.23 MS	
28	10.49 AK		7.72 İHC	5.29 TÖ	11.57 İHC	7.22 TC	10.147 TÖ	11.66 ZFB		9.47 SB	7.35 MB	4.9 SB
29	9.87 İHC			11.29 AK	11.54 ZFB	7.25 SB	12.214 SB	7.66 ZFB	7.55 HE	11.47 MB	6.23 TG	
30	15.119 SB			6.18 İHC	9.43 İHC	6.28 AK	11.175 TA	6.52 MB	6.51 HE	12.56 HE	6.40 HE	3.17 HE
31	10.143 ZFB						8.115 TÖ	7.78 HE		14.65 ZFB		3.17 MB

TABLE III

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	--	183	180	--	140	180	92	194	--	--	211	103
2	101	195	77	--	170	180	118	--	193	--	198	--
3	172	197	147	204	236	--	157	203	261	119	202	77
4	--	143	--	--	272	281	148	138	260	106	158	108
5	--	207	138	--	280	173	139	144	206	128	--	--
6	--	164	143	--	238	205	88	129	142	128	--	--
7	--	189	153	165	254	159	116	152	147	--	--	--
8	--	186	109	194	237	153	100	109	274	157	181	--
9	--	178	95	195	185	171	102	82	159	178	--	--
10	--	170	--	215	236	138	80	98	164	255	--	--
11	--	--	--	--	214	87	103	179	137	169	162	--
12	170	143	99	205	158	91	68	175	--	243	154	83
13	--	149	139	--	140	91	102	182	180	168	--	91
14	--	180	162	220	89	115	144	215	--	159	183	--
15	--	--	141	191	97	148	181	253	123	--	184	--
16	141	103	138	--	136	110	184	255	--	197	137	201
17	--	99	--	116	111	97	167	191	183	199	134	--
18	--	88	106	187	123	130	142	275	205	230	139	--
19	--	103	87	--	124	93	115	--	197	207	94	--
20	--	--	--	--	169	110	136	248	211	--	125	202
21	166	140	160	136	200	86	133	201	179	168	76	179
22	173	156	139	159	--	74	145	214	197	171	--	127
23	245	103	--	171	214	124	201	147	232	131	--	124
24	195	110	--	221	191	95	178	138	--	151	--	--
25	141	--	--	242	139	107	184	114	200	108	69	--
26	200	200	--	189	145	114	299	130	131	156	65	48
27	156	223	--	196	153	99	327	119	129	150	103	--
28	149	--	142	79	167	92	247	176	--	137	105	49
29	177	--	--	139	164	95	334	136	125	157	83	--
30	269	--	--	78	133	88	285	112	111	176	100	47
31	243	--	--	--	--	--	195	148	--	205	--	--
Mean	180	157	131	175	176	127	162	167	181	167	136	106

TABLE IV

Evolution Type	A	B	C	D	E	F	H	Total
Number of Groups	279	140	230	510	245	100	793	2446
Percentage of Numbers	11,4	5,7	9,4	20,9	10,0	4	32,4	6,1

Observers:

AK : Ali Kılıçık

TG : Tolga Güver

TÇ : Taşkın Çay

HE : Hasan Esenoğlu

TA : Tanşel Ak

İHÇ: İpek Hamami Çay

MB : Mevlana Başal

AÖ : Adnan Ökten

MS : Melih Sırma

TÖ : Tuncay Özişik

ZFB : Zahide Funde Bostanoı

SB : Selçuk Bilir

FB : Zahide Funda Bostanoı