

Results of the IMO Video Meteor Network – September 2017

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After September had presented outstanding results in the previous two years, 2017 was just an average year. 39 observers with 77 active video cameras recorded almost 36,000 meteors in nearly 10,000 hours of effective observing time. In particular east European observers had to accept larger gaps in their observing statistics. 49 cameras managed to obtain twenty and more observing nights, and eleven cameras had to pause no more than one night. The average of 3.6 meteors per hour was again well below the average of the previous years.

The IMO “Working List of Meteor Showers” lists two showers in September with variable activity. The alpha Aurigids are active between August 25 and September 7. Their average activity profile for 2011 till 2016 (figure 1, green) shows just a little increase of flux density over the sporadic background. Peak values are observed between 157° and 158° solar longitude, i.e. in the last few days of August. In 2017 we find the peak at the same time, plus a similarly high value at 163° solar longitude.

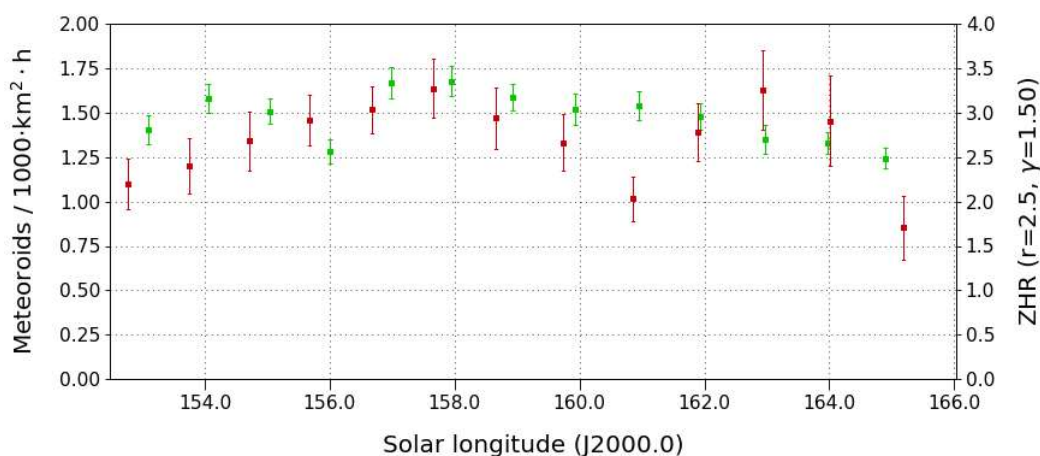


Figure 1: Flux density profile of the alpha Aurigids 2011-2016 (green) and 2017 (red), derived from video data of the IMO Network

A look at the population index (figure 2) proves that the Aurigids stand indeed out of the sporadic background. Each data point is based on 500 shower resp. 3,000 sporadic meteors. Whereas the sporadic population index scatters around $r=2.5$, we yield an average of $r=2.0$ for the alpha Aurigids if we omit the values at the begin and end of the activity interval.

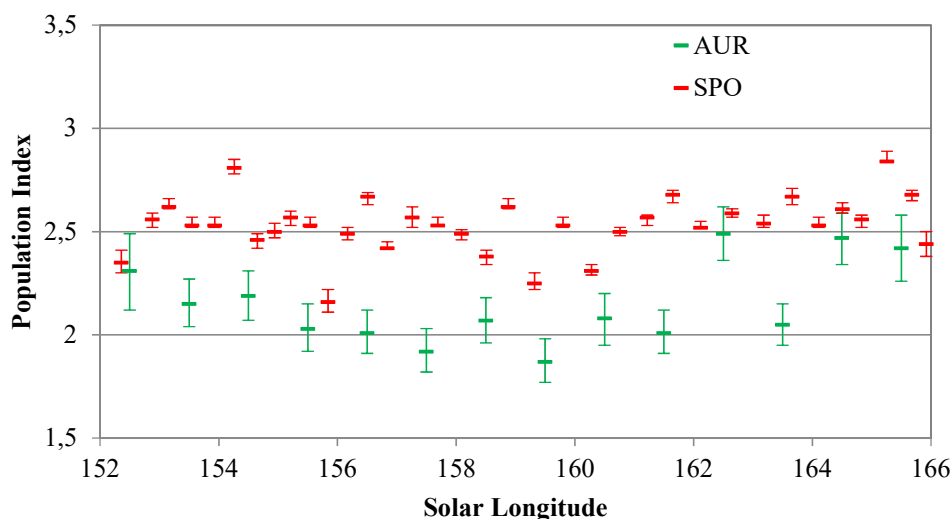


Figure 2: Comparison of the population index profile of the alpha Aurigids (green) and sporadic meteors (red) in the years 2011-2017.

A similar result is obtained for the September Perseids (figure 3). In this case we omitted the data set of 2013 when the shower underwent a short but intense outburst at 167.2° solar longitude. The average activity profile of the September Perseids shows a peak at September 9 (167° solar longitude) with a higher absolute value than the alpha Aurigids. Maximum activity in 2017 was observed already in the night of September 7/8.

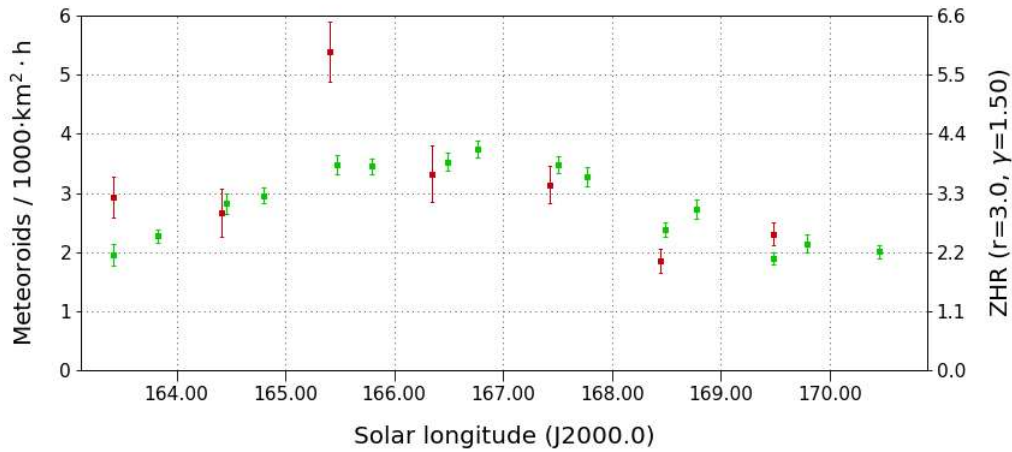


Figure 3: Flux density profile of the September Perseids 2011-2016 (green, without 2013) and 2017 (red), derived from video data of the IMO Network

Also in case of this shower the population index deviates clearly from sporadic meteors (figure 4). Whereas the sporadic value is $r=2.6$ with slightly smaller scatter than a few days before, we obtain the same population of $r=2.0$ for the September Perseids as for the alpha Aurigids.

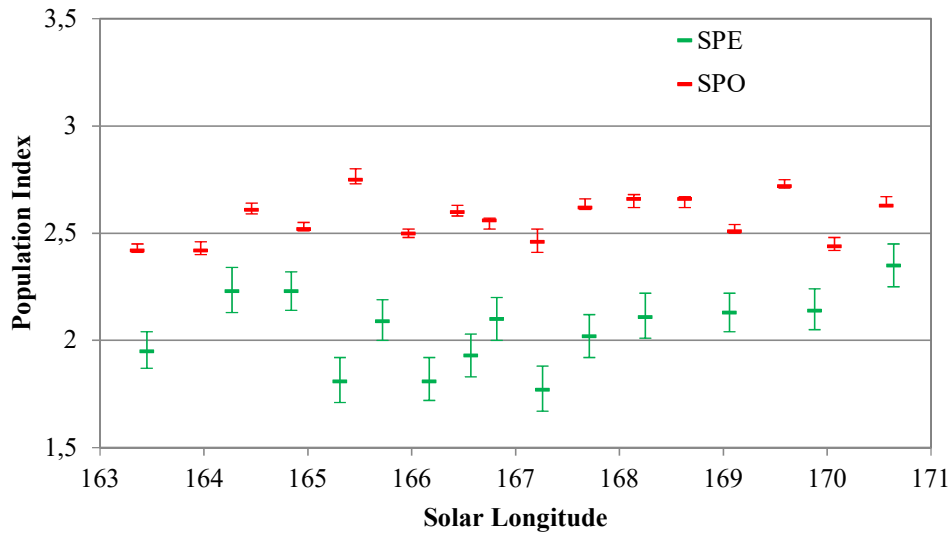


Figure 4: Comparison of the population index profile of the September Perseids (green) and sporadic meteors (red) in the years 2011-2017 (without 2013).

1. Observers

Code	Name	Place	Camera	FOV [°²]	Slim [mag]	Eff.CA [km²]	Nights	Time [h]	Meteors
ARLRA	Arlt	Ludwigsfelde/DE	LUDWIG2 (0.8/8)	1475	6.2	3779	28	130.7	917
BERER	Berkó	Ludanyhalaszi/HU	HULUD1 (0.8/3.8)	5542	4.8	3847	5	34.1	167
BOMMA	Bombardini	Faenza/IT	MARIO (1.2/4.0)	5794	3.3	739	26	168.5	891
BREMA	Breukers	Hengelo/NL	MBB3 (0.75/6)	2399	4.2	699	21	111.2	277
BRIBE	Klemt	Herne/DE	HERMINE (0.8/6)	2374	4.2	678	22	117.0	414
		Berg. Gladbach/DE	KLEMOI (0.8/6)	2286	4.6	1080	21	105.1	361
CARMA	Carli	Monte Baldo/IT	BMH2 (1.5/4.5)*	4243	3.0	371	23	138.4	798
CASFL	Castellani	Monte Baldo/IT	BMH1 (0.8/6)	2350	5.0	1611	9	64.6	191
CINFR	Cineglosso	Faenza/IT	JENNI (1.2/4)	5886	3.9	1222	26	90.1	786
CRIST	Crivello	Valbrenna/IT	ARCI (0.8/3.8)	5566	4.6	2575	26	200.0	719
			BILBO (0.8/3.8)	5458	4.2	1772	27	189.6	824
			C3P8 (0.8/3.8)	5455	4.2	1586	26	138.4	516
			STG38 (0.8/3.8)	5614	4.4	2007	21	162.7	1058
ELTMA	Eltri	Venezia/IT	MET38 (0.8/3.8)	5631	4.3	2151	15	105.6	359
FORKE	Förster	Carlsfeld/DE	AKM3 (0.75/6)	2375	5.1	2154	23	115.6	523
GONRU	Goncalves	Foz do Arelho/PT	FARELHO1 (0.75/4.5)	2286	3.0	208	16	90.7	60
		Tomar/PT	TEMPLAR1 (0.8/6)	2179	5.3	1842	30	260.0	1101
			TEMPLAR2 (0.8/6)	2080	5.0	1508	30	259.6	727
			TEMPLAR3 (0.8/8)	1438	4.3	571	30	232.2	354
			TEMPLAR4 (0.8/3.8)	4475	3.0	442	30	257.8	827
			TEMPLAR5 (0.75/6)	2312	5.0	2259	29	222.2	758
GOVMI	Govedic	Sredisce ob Dr./SI	ORION2 (0.8/8)	1447	5.5	1841	23	119.2	425
			ORION4 (0.95/5)	2662	4.3	1043	13	63.7	157
HERCA	Hergenrother	Tucson/US	SALS3 (0.8/3.8)	2336	4.1	544	28	247.1	427
HINWO	Hinz	Schwarzenberg/DE	HINWO1 (0.75/6)	2291	5.1	1819	24	142.3	599
IGAAN	Igaz	Hodmezovasar./HU	HUHOD (0.8/3.8)	5502	3.4	764	19	50.7	146
		Budapest/HU	HUPOL (1.2/4)	3790	3.3	475	8	45.2	37
JONKA	Jonas	Budapest/HU	HUSOR (0.95/4)	2286	3.9	445	18	91.4	205
			HUSOR2 (0.95/3.5)	2465	3.9	715	17	110.5	172
KACJA	Kac	Kamnik/SI	CVETKA (0.8/3.8)	4914	4.3	1842	8	39.4	207
		Kostanjevec/SI	METKA (0.8/12)*	715	6.4	640	19	100.8	386
		Ljubljana/SI	ORION1 (0.8/8)	1399	3.8	268	12	52.3	155
		Kamnik/SI	REZIKA (0.8/6)	2270	4.4	840	7	35.8	213
			STEFKA (0.8/3.8)	5471	2.8	379	2	4.6	5
LOPAL	Lopes	Lisboa/PT	NASO1 (0.75/6)	2377	3.8	506	25	210.3	278
MACMA	Maciejewski	Chelm/PL	PAV35 (0.8/3.8)	5495	4.0	1584	9	52.6	172
			PAV36 (0.8/3.8)*	5668	4.0	1573	11	78.6	319
			PAV43 (0.75/4.5)*	3132	3.1	319	9	64.4	155
			PAV60 (0.75/4.5)	2250	3.1	281	11	78.2	275
MARRU	Marques	Lisbon/PT	CAB1 (0.75/6)	2362	4.8	1517	29	262.0	993
			RAN1 (1.4/4.5)	4405	4.0	1241	29	222.1	803
MASMI	Maslov	Novosibirsk/RU	NOWATEC (0.8/3.8)	5574	3.6	773	13	42.3	217
MOLSI	Molau	Seysdorf/DE	AVIS2 (1.4/50)*	1230	6.9	6152	27	166.5	1350
			ESCIMO2 (0.85/25)	155	8.1	3415	23	146.2	276
			MINCAM1 (0.8/8)	1477	4.9	1084	26	145.2	554
		Ketzür/DE	REMO1 (0.8/8)	1467	6.5	5491	28	124.2	843
			REMO2 (0.8/8)	1478	6.4	4778	24	137.4	1040
			REMO3 (0.8/8)	1420	5.6	1967	26	159.8	917
			REMO4 (0.8/8)	1478	6.5	5358	28	157.9	1257
MORJO	Morvai	Fülöpszallas/HU	HUFUL (1.4/5)	2522	3.5	532	17	107.6	179
MOSFA	Moschini	Rovereto/IT	ROVER (1.4/4.5)	3896	4.2	1292	20	110.0	219
OCHPA	Ochner	Albiano/IT	ALBIANO (1.2/4.5)	2944	3.5	358	7	14.4	29
OTTMI	Otte	Pearl City/US	ORIE1 (1.4/5.7)	3837	3.8	460	25	139.7	260
PERZS	Perkó	Becsehely/HU	HUBEC (0.8/3.8)*	5498	2.9	460	22	111.7	320
ROTEC	Rothenberg	Berlin/DE	ARMEFA (0.8/6)	2366	4.5	911	21	134.6	440
SARAN	Saraiva	Carnaxide/PT	RO1 (0.75/6)	2362	3.7	381	28	249.7	482
			RO2 (0.75/6)	2381	3.8	459	29	262.2	689
			RO3 (0.8/12)	710	5.2	619	29	262.4	924
			RO4 (1.0/8)	1582	4.2	549	29	222.7	314
			SOFIA (0.8/12)	738	5.3	907	29	248.4	512
SCALE	Scarpa	Alberoni/IT	LEO (1.2/4.5)*	4152	4.5	2052	23	116.3	165
SCHHA	Schremmer	Niederkrüchten/DE	DORAEMON (0.8/3.8)	4900	3.0	409	23	118.0	356
SLAST	Slavec	Ljubljana/SI	KAYAK1 (1.8/28)	563	6.2	1294	11	40.0	240
			KAYAK2 (0.8/12)	741	5.5	920	13	52.5	67
STOEN	Stomeo	Scorze/IT	MIN38 (0.8/3.8)	5566	4.8	3270	22	113.5	738
			NOA38 (0.8/3.8)	5609	4.2	1911	24	110.4	546
			SCO38 (0.8/3.8)	5598	4.8	3306	27	124.3	793
STRJO	Strunk	Herford/DE	MINCAM2 (0.8/6)	2354	5.4	2751	26	142.3	751
			MINCAM3 (0.8/6)	2338	5.5	3590	26	129.2	384
			MINCAM4 (0.8/6)	2306	5.0	1412	28	108.9	268
			MINCAM5 (0.8/6)	2349	5.0	1896	24	134.4	482
			MINCAM6 (0.8/6)	2395	5.1	2178	26	131.4	386
TEPIS	Tepliczky	Agostyan/HU	HUAGO (0.75/4.5)	2427	4.4	1036	19	107.2	248
			HUMOB (0.8/6)	2388	4.8	1607	13	96.3	302
WEGWA	Wegrzyk	Nieznaszyn/PL	PAV78 (0.8/6)	2286	4.0	778	16	46.2	182
YRJIL	Yrjölä	Kuusankoski/FI	FINEXCAM (0.8/6)	2337	5.5	3574	14	75.3	273
ZAKJU	Zakrajšek	Petkovec/SI	TACKA (0.8/12)	714	5.3	783	15	52.3	98
Sum							30	9906.7	35858

* active field of view smaller than video frame

2. Observing Times (h)

September	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	2.4	7.1	7.2	7.1	1.6	3.5	1.8	0.3	-	7.5	7.2	7.1	6.6	1.4	7.3
BERER	-	-	-	-	-	-	8.9	3.6	-	-	-	-	-	-	-
BOMMA	9.0	0.3	9.5	5.3	9.5	0.9	1.2	8.8	0.8	0.8	9.6	10.0	10.0	6.8	0.2
BREMA	5.1	8.3	5.4	4.4	-	-	-	-	7.5	-	0.4	3.6	3.6	3.7	8.1
BRIBE	-	8.7	6.7	1.3	1.0	-	-	-	6.7	0.3	3.6	3.2	4.7	3.0	9.5
	1.3	7.8	7.0	-	-	-	-	-	5.4	1.6	2.5	3.2	1.2	2.3	8.8
CARMA	4.4	1.3	7.0	3.9	7.4	3.7	1.4	3.9	-	0.7	0.9	9.9	7.0	9.5	-
CASFL	3.7	-	3.5	-	-	-	-	-	-	-	-	-	-	-	-
CRIST	4.4	0.4	4.5	3.3	3.9	0.6	1.1	2.9	0.2	0.5	3.7	3.7	5.0	1.8	-
	8.7	6.4	7.4	9.1	8.0	6.8	7.3	4.9	-	-	7.2	9.4	7.7	5.8	-
	8.3	5.1	7.1	9.1	6.8	5.1	4.7	4.3	-	-	7.5	9.6	7.5	4.1	-
	2.6	4.5	2.6	8.2	6.5	4.5	6.5	2.7	-	1.4	7.0	8.5	0.5	3.9	-
DONJE	8.7	5.9	-	-	-	-	-	-	-	-	7.2	9.6	7.5	8.6	-
ELTMA	6.7	-	3.0	1.9	5.4	0.6	-	4.7	-	-	-	9.7	9.1	-	-
FORKE	2.0	2.1	8.3	8.1	-	0.6	4.5	0.2	-	6.6	6.7	1.0	-	-	8.3
GONRU	8.8	5.3	-	-	-	-	4.1	-	7.5	5.6	9.5	-	-	9.5	9.3
	9.4	9.4	4.1	2.0	8.7	9.3	9.5	3.7	9.6	9.6	9.8	8.9	7.7	9.9	10.0
	9.4	9.2	3.1	2.1	7.8	9.4	9.7	4.3	9.7	9.8	9.8	9.0	8.1	10.0	10.1
	9.3	8.7	3.6	1.5	6.6	9.5	9.2	1.0	9.6	9.7	9.7	7.7	6.0	3.5	10.0
	9.5	8.9	3.3	2.1	8.1	9.5	9.7	3.8	9.8	9.9	9.9	9.1	7.5	10.1	10.1
	9.2	6.5	3.3	-	5.4	6.8	5.1	0.5	9.5	9.5	9.6	8.0	5.8	9.8	9.9
GOVMI	1.3	-	7.4	7.2	8.7	-	1.2	8.8	7.2	4.1	-	1.8	9.5	0.5	-
	-	-	3.0	1.5	8.0	-	-	8.0	-	3.2	-	0.9	8.3	-	-
HERCA	10.0	9.6	2.1	6.7	7.7	10.1	9.5	6.5	-	-	10.1	6.6	8.8	7.9	10.1
HINWO	0.7	1.5	8.8	8.3	3.6	0.5	5.9	2.2	-	9.2	9.1	7.1	-	0.8	8.3
IGAAN	1.9	-	-	1.3	-	-	2.9	4.4	2.9	1.3	-	0.4	5.1	-	1.2
	4.0	-	-	-	-	6.0	-	7.9	7.8	-	-	2.0	-	-	-
JONKA	4.8	-	-	6.7	1.0	4.0	4.8	6.5	3.1	-	-	2.6	2.1	-	1.9
	-	-	-	7.3	0.4	3.3	8.8	8.2	7.8	-	-	4.2	5.2	-	2.4
KACJA	-	-	-	3.1	2.6	-	-	-	-	-	-	-	5.1	-	-
	-	-	4.9	5.7	4.7	-	-	6.1	5.5	2.5	-	4.4	9.6	-	-
	0.2	-	1.8	4.2	7.8	2.8	-	1.0	-	-	-	-	5.7	-	-
	-	-	-	2.9	2.4	-	-	-	-	-	-	-	-	-	-
	-	-	-	2.1	2.5	-	-	-	-	-	-	-	-	-	-
LOPAL	8.8	9.1	2.5	1.4	9.1	9.1	8.7	-	8.0	9.5	9.7	9.7	5.8	-	9.4
MACMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6.9	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-
	6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6.9	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-
MARRU	9.2	9.3	5.7	4.5	9.4	8.5	7.8	6.8	9.4	9.4	9.4	9.4	9.4	9.4	9.5
	8.8	5.8	2.2	3.0	4.4	7.5	6.5	-	8.0	9.7	9.8	9.9	5.7	8.4	9.9
MASMI	0.2	7.0	7.5	7.3	0.3	-	-	-	-	-	0.8	0.5	1.2	-	8.9
MOLSI	-	1.2	6.3	6.4	2.5	1.7	5.5	8.5	-	8.6	7.2	6.1	5.4	6.6	4.2
	-	-	-	4.4	2.5	-	5.8	8.4	-	8.8	6.8	6.3	6.2	2.4	-
	-	-	4.9	5.9	0.3	-	4.3	5.6	-	7.6	3.9	5.0	6.0	5.6	1.9
	0.3	7.0	7.1	7.3	1.6	3.4	1.6	1.0	0.5	6.9	7.6	7.4	7.2	0.8	7.6
	0.9	7.7	7.7	7.7	-	3.3	0.6	-	-	7.0	8.5	8.1	8.1	1.1	8.8
	-	8.6	8.6	8.7	4.4	4.8	2.4	1.8	1.7	8.2	9.2	8.9	9.1	1.4	9.1
	-	8.6	8.6	8.7	2.7	4.2	1.9	2.1	1.7	8.0	9.1	8.9	8.6	1.5	9.3
MORJO	7.0	-	-	8.3	-	-	7.8	-	-	-	-	1.5	6.8	0.3	4.1
MOSFA	4.3	-	5.7	3.0	2.6	-	-	4.4	-	0.5	0.6	9.9	9.4	6.0	-
OCHPA	2.4	-	6.8	-	3.7	-	-	-	-	-	0.3	0.2	0.2	-	-
OTPMI	2.1	4.5	2.0	-	4.3	0.8	9.3	9.7	9.7	7.4	-	1.6	0.7	1.9	2.5
PERZS	2.8	0.6	5.1	3.1	7.0	-	0.3	5.3	7.9	-	-	-	9.5	1.0	0.9
ROTEC	2.7	8.4	8.5	8.6	0.2	-	-	-	-	9.1	8.7	8.9	7.4	1.9	8.6
SARAN	9.5	9.4	0.5	-	7.3	6.8	6.4	3.3	8.4	10.1	10.0	10.3	7.0	8.5	10.4
	9.3	9.1	1.5	-	8.2	9.8	9.3	1.5	9.1	9.7	10.1	10.1	6.3	10.2	10.3
	9.4	8.8	2.4	-	7.9	9.6	9.7	3.1	9.8	9.8	9.8	9.8	8.3	10.0	10.1
	8.8	8.1	1.4	0.6	7.0	9.1	6.4	0.7	8.3	9.6	9.8	9.8	6.0	9.9	9.8
	7.3	5.7	1.6	-	7.8	6.3	7.0	3.0	9.8	9.8	10.1	10.1	8.4	10.2	10.2
SCALE	7.0	-	4.0	1.6	7.6	1.1	0.2	4.9	-	-	0.2	9.7	-	4.6	-
SCHHA	-	4.6	6.7	-	1.6	-	-	-	5.5	-	4.5	3.1	4.9	4.1	9.5
SLAST	-	-	7.3	2.1	1.7	-	-	-	-	-	-	-	6.1	-	-
	-	-	7.3	4.6	5.9	0.2	-	0.8	0.8	-	-	-	6.0	1.5	-
STOEN	5.4	-	5.2	2.1	6.8	1.0	0.7	5.7	-	0.8	-	7.9	8.5	1.5	-
	2.2	0.5	4.2	1.9	6.7	1.5	0.8	4.6	-	-	0.3	9.3	8.0	1.5	-
	5.9	0.4	5.7	3.5	6.9	1.7	1.2	5.5	0.2	0.3	0.3	9.8	8.6	2.1	0.2
STRJO	3.5	8.5	8.2	8.8	-	0.3	-	-	7.7	2.0	1.8	4.8	5.5	3.3	8.1
	3.6	7.7	7.1	7.6	-	0.5	-	-	7.7	1.7	1.5	4.4	5.0	2.3	7.8
	5.1	8.0	8.2	8.7	-	0.3	0.2	-	6.7	2.2	2.0	4.6	5.0	1.0	1.0
	4.5	8.2	8.0	7.5	-	-	-	-	6.7	2.0	1.9	3.5	4.3	3.1	7.6
	4.1	7.8	7.5	8.3	-	0.3	-	-	7.7	1.4	1.7	4.3	5.4	2.6	7.5
TEPIS	-	-	-	8.1	2.4	4.7	8.8	3.4	8.8	1.4	-	3.2	6.5	0.8	0.6
	-	-	-	8.0	-	-	-	-	8.3	9.2	-	-	5.7	-	-
WEGWA	-	-	-	0.6	-	0.2	3.4	1.0	1.0	-	-	1.1	-	1.2	2.7
YRJIL	6.8	-	7.1	7.3	4.3	-	-	-	-	-	4.7	-	1.5	-	1.1
ZAKJU	0.2	-	7.7	6.8	7.5	2.5	-	1.7	0.9	-	-	0.2	-	-	-
Sum	308.3	283.0	315.4	302.8	280.7	196.7	234.4	210.3	265.8	255.3	301.3	379.5	388.6	239.6	317.1

September	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	7.0	6.2	8.2	6.7	2.2	1.9	8.6	-	1.1	1.4	1.8	3.0	2.9	8.8	2.8
BERER	-	-	-	-	-	-	2.6	-	-	-	-	-	9.8	9.2	-
BOMMA	-	-	-	-	10.3	8.2	8.5	8.5	3.3	10.3	9.9	6.5	10.0	7.2	3.1
BREMA	8.9	2.5	-	3.9	1.0	10.0	-	7.7	5.0	4.7	7.8	7.5	-	-	2.1
BRIBE	5.7	6.0	-	1.6	8.1	9.6	-	8.5	4.7	5.7	4.6	6.3	-	-	7.5
	8.0	6.0	-	5.2	8.0	8.8	-	6.6	-	3.2	9.1	3.3	0.7	-	5.1
CARMA	4.6	6.2	-	6.4	8.1	10.4	10.1	-	6.4	7.1	10.5	7.6	-	-	-
CASFL	-	-	-	-	8.3	10.4	9.3	-	5.6	5.7	10.4	7.7	-	-	-
CRIST	0.5	-	-	-	4.5	6.5	6.1	6.0	1.9	6.6	5.8	3.9	5.4	4.9	2.0
	6.4	6.7	0.2	9.7	10.0	9.8	6.6	6.6	6.9	7.0	10.1	10.4	10.4	10.5	-
	5.4	6.4	0.4	9.3	10.0	9.9	6.7	6.3	7.0	7.1	10.2	10.4	10.4	10.5	0.4
	0.3	4.1	-	7.1	10.0	5.1	2.2	2.1	5.5	1.7	10.1	10.4	10.4	10.0	-
DONJE	7.0	8.3	0.3	10.0	10.0	9.9	6.4	7.0	6.8	7.3	10.3	10.4	10.4	10.5	0.6
ELTMA	-	7.4	-	-	-	10.4	10.3	-	-	10.3	10.4	-	9.8	-	5.9
FORKE	7.3	6.5	9.2	1.2	-	1.8	5.7	0.3	-	0.6	8.3	8.0	8.4	9.9	-
GONRU	6.1	-	0.3	-	-	1.0	0.2	5.2	-	-	9.6	4.3	-	-	4.4
	10.1	10.1	10.1	8.9	9.4	5.7	7.0	9.9	8.8	10.0	10.5	10.5	10.5	6.3	10.6
	10.1	10.2	10.2	8.8	9.5	4.8	7.1	9.9	8.8	10.1	10.6	10.6	10.6	6.0	10.8
	10.1	10.2	9.7	6.4	8.4	3.1	6.0	8.9	8.5	9.8	10.4	10.5	10.5	3.6	10.5
	10.2	10.2	10.2	8.7	8.9	5.7	7.1	9.9	8.8	9.8	10.6	10.7	10.6	4.7	10.4
	9.8	9.9	9.6	6.1	8.1	2.7	5.9	8.7	7.6	9.5	10.3	10.3	10.3	4.1	10.4
GOVMI	-	2.0	-	0.3	4.7	5.4	7.5	4.5	2.0	-	0.2	4.0	10.2	10.2	10.5
	-	-	-	-	-	8.4	6.6	-	-	0.5	-	2.9	-	6.6	5.8
HERCA	10.5	8.1	9.5	9.9	9.3	9.1	8.1	6.7	10.3	10.5	10.3	10.5	9.4	9.6	9.6
HINWO	7.6	9.1	9.8	-	0.7	-	6.9	1.4	-	2.6	7.2	10.1	10.4	10.5	-
IGAAN	1.8	6.5	3.5	2.2	-	-	5.0	-	3.0	-	0.5	2.2	0.3	-	4.3
	-	-	-	-	-	-	-	-	-	-	8.0	-	6.6	-	2.9
JONKA	-	6.9	-	-	-	-	9.9	-	6.6	-	4.5	3.0	8.2	8.4	6.4
	-	8.2	-	-	-	-	10.2	-	10.3	-	3.8	3.4	9.7	8.3	9.0
KACJA	-	-	-	-	6.6	6.5	10.0	-	-	-	-	-	-	4.6	0.9
	-	1.7	-	-	6.0	7.7	9.5	0.9	-	0.5	2.3	2.3	10.4	10.5	5.6
	-	-	-	-	-	-	9.1	-	-	-	-	4.1	3.4	6.5	5.7
	-	-	-	-	9.6	6.1	9.4	-	-	-	-	-	-	4.6	0.8
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOPAL	9.7	9.7	-	-	-	8.9	9.8	9.7	6.7	9.8	10.2	10.2	9.9	5.9	9.0
MACMA	-	2.0	8.6	-	-	-	0.3	-	-	3.0	6.3	10.0	8.5	7.0	6.9
	-	2.4	8.8	-	-	-	0.7	-	-	8.0	9.0	10.5	10.4	10.6	10.7
	-	2.6	8.7	-	-	-	-	-	-	5.0	6.0	8.0	7.0	9.8	10.7
	-	2.7	8.7	-	-	-	0.5	-	-	7.9	8.9	10.4	10.3	10.5	10.6
MARRU	9.4	9.5	9.5	10.2	9.8	9.8	9.6	9.6	9.6	9.7	9.2	-	9.6	9.7	9.7
	9.8	9.7	4.7	10.0	8.1	10.0	10.0	10.0	2.1	6.2	10.0	10.1	6.1	7.5	8.2
MASMI	2.7	2.1	2.7	1.1	-	-	-	-	-	-	-	-	-	-	-
MOLSI	6.5	5.0	5.9	3.4	3.0	9.5	8.0	8.9	9.7	9.7	8.2	9.8	8.4	0.3	-
	1.1	4.1	6.1	2.8	3.1	9.9	8.3	9.1	10.1	10.1	9.0	10.3	8.8	1.8	-
	6.1	4.9	5.0	2.5	2.2	9.9	8.1	8.4	10.1	10.1	8.2	9.7	8.4	0.2	0.4
	7.3	4.8	7.4	7.3	3.1	0.6	8.2	-	1.5	0.7	2.6	4.8	0.1	8.5	-
	8.2	5.9	8.4	8.3	4.1	1.1	9.4	-	1.7	1.4	3.8	5.9	-	9.7	-
	8.2	5.9	9.5	8.9	4.6	-	10.0	-	2.0	0.9	3.8	7.1	-	10.5	1.5
	8.4	6.1	9.5	8.6	4.6	1.4	10.0	-	2.0	0.9	3.5	6.9	0.5	10.4	1.2
MORJO	3.4	9.9	-	1.7	-	-	10.3	-	10.2	-	7.1	10.3	5.0	3.3	10.6
MOSFA	1.7	3.3	-	2.5	8.4	10.4	9.1	-	4.5	6.3	10.6	6.8	-	-	-
OCHPA	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	-
OTTMI	-	1.3	-	1.7	-	2.2	10.3	10.4	10.5	6.2	1.6	10.4	7.6	10.7	10.3
PERZS	-	4.5	-	-	1.1	1.6	8.8	6.7	3.5	-	3.1	8.6	9.4	10.4	10.5
ROTEC	8.4	5.2	9.6	7.5	-	4.6	9.9	-	-	2.0	-	-	0.7	10.3	3.4
SARAN	10.5	10.5	6.7	10.5	-	10.6	10.6	10.7	8.5	10.7	10.9	10.8	10.8	10.3	9.7
	10.3	10.3	5.6	10.2	10.4	9.2	10.5	10.5	7.9	10.6	10.7	10.6	10.7	10.0	10.2
	10.1	10.1	7.6	10.2	10.1	10.0	10.3	10.4	8.6	10.4	10.5	10.4	10.5	4.5	10.2
	10.0	9.8	3.2	9.4	8.7	-	10.3	10.0	5.2	9.4	10.0	9.8	8.7	7.0	5.9
	10.4	10.3	5.1	10.5	10.4	10.1	10.5	10.5	8.0	10.8	10.8	10.8	8.6	7.9	6.4
SCALE	1.2	4.7	-	-	7.7	10.2	7.7	1.2	0.4	9.5	10.3	7.8	8.5	0.4	5.8
SCHHA	4.6	3.8	-	1.3	8.2	10.0	3.2	4.1	10.1	8.9	8.2	2.4	0.2	0.6	7.9
SLAST	-	-	-	-	1.0	6.8	-	-	-	-	0.4	1.6	5.4	4.2	3.4
	-	-	-	-	-	7.7	-	1.4	-	-	0.9	-	9.0	6.4	-
STOEN	1.0	-	-	-	8.3	10.4	10.3	-	1.8	10.5	10.3	9.6	5.3	0.2	0.2
	0.5	5.2	-	-	8.6	9.6	9.4	0.4	1.7	9.7	9.5	8.7	5.4	0.2	-
	0.7	5.5	-	-	8.1	10.3	10.1	-	1.7	10.5	9.9	9.2	4.9	0.9	0.2
STRJO	9.6	7.6	-	2.2	8.2	9.9	2.4	1.9	5.6	6.6	7.7	9.5	3.3	2.8	2.5
	9.5	7.0	-	1.6	8.3	9.9	1.4	1.3	4.8	5.5	7.2	9.7	2.3	0.6	3.2
	9.6	7.1	0.2	2.3	4.8	10.0	0.2	0.3	1.0	2.2	7.6	9.0	1.1	0.2	0.3
	9.5	6.5	-	2.1	8.1	9.9	1.9	2.0	6.6	6.7	8.1	9.6	3.0	-	3.1
	9.6	6.9	-	2.1	9.0	9.9	0.9	1.3	5.2	4.9	6.4	9.5	3.3	0.8	3.0
TEPIS	-	-	-	-	-	-	5.8	-	5.1	0.2	9.2	7.0	10.4	10.3	10.5
	-	8.5	-	-	0.3	-	8.4	-	1.8	-	9.2	5.6	10.4	10.4	10.5
WEGWA	-	3.3	4.6	-	-	-	1.3	-	-	-	2.7	8.3	3.5	5.6	5.7
YRJIL	5.4	-	-	0.5	-	-	8.2	9.3	9.4	7.6	-	-	2.1	-	-
ZAKJU	-	-	-	-	3.9	4.8	5.0	-	-	-	0.5	2.2	6.1	-	2.3
Sum	340.8	378.1	237.3	251.8	347.9	418.1	478.3	273.7	307.3	374.6	500.2	506.7	453.9	406.4	352.8

3. Results (Meteors)

September	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	13	50	56	40	6	14	3	1	-	50	58	57	43	5	90
BERER	-	-	-	-	-	-	54	13	-	-	-	-	-	-	-
BOMMA	45	2	54	30	45	7	11	42	2	1	48	60	48	31	2
BREMA	22	29	19	10	-	-	-	-	19	-	1	6	15	2	24
BRIBE	-	58	14	1	4	-	-	-	25	1	11	14	18	17	45
	4	23	32	-	-	-	-	-	25	1	4	12	3	8	29
CARMA	16	4	24	28	35	16	4	12	-	1	4	73	44	80	-
CASFL	8	-	4	-	-	-	-	-	-	-	-	-	-	-	-
CRIST	35	3	33	24	36	4	11	21	1	4	27	25	39	12	-
	26	34	28	23	19	14	21	9	-	-	22	39	19	35	-
	39	37	38	32	25	23	17	6	-	-	28	40	22	8	-
	22	28	3	26	20	14	23	6	-	7	29	31	3	29	-
DONJE	56	66	-	-	-	-	-	-	-	-	37	65	42	48	-
ELTMA	34	-	17	13	16	3	-	18	-	-	-	31	27	-	-
FORKE	2	4	45	49	-	2	7	1	-	21	29	3	-	-	34
GONRU	6	1	-	-	-	-	2	-	7	2	6	-	-	10	4
	53	46	9	1	21	24	19	7	44	37	50	43	25	54	48
	30	21	4	1	16	14	26	12	37	25	36	28	20	24	32
	18	10	2	1	2	10	9	1	16	20	21	11	5	11	17
	37	17	7	3	24	15	15	7	43	48	53	41	21	46	40
	45	23	5	-	4	12	10	1	38	27	47	30	15	39	47
GOVMI	1	-	29	14	31	-	4	18	28	16	-	7	54	2	-
	-	-	12	3	18	-	-	15	-	10	-	2	24	-	-
HERCA	17	21	2	11	13	14	4	10	-	-	16	13	14	14	19
HINWO	2	3	52	35	12	2	12	6	-	48	45	31	-	4	41
IGAAN	6	-	-	4	-	-	7	12	9	3	-	2	14	-	5
	4	-	-	-	-	5	-	12	8	-	-	1	-	-	-
JONKA	19	-	-	9	4	9	18	13	11	-	-	3	8	-	1
	-	-	-	10	2	8	19	8	13	-	-	2	14	-	1
KACJA	-	-	-	9	7	-	-	-	-	-	-	-	22	-	-
	-	-	18	14	14	-	-	13	11	8	-	27	39	-	-
	1	-	2	16	32	6	-	3	-	-	-	-	5	-	-
	-	-	-	11	5	-	-	-	-	-	-	-	-	-	-
	-	-	-	4	1	-	-	-	-	-	-	-	-	-	-
LOPAL	11	16	2	1	11	8	10	-	15	12	22	10	2	-	12
MACMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	1	-	-	-	-	-	-	-	-	-	-	-	-	-
MARRU	40	28	15	9	36	24	18	11	52	40	43	55	31	43	52
	26	24	1	3	6	9	30	-	22	38	64	35	5	34	37
MASMI	1	49	41	31	1	-	-	-	-	-	5	2	3	-	35
MOLSI	-	3	37	30	4	2	16	23	-	96	72	52	58	48	10
	-	-	-	14	4	-	11	5	-	17	9	13	10	14	-
	-	-	11	9	2	-	15	6	-	30	16	25	37	17	1
	2	54	66	62	5	20	7	3	2	50	72	41	39	2	71
	2	76	71	50	-	15	1	-	-	47	91	54	65	4	92
	-	75	62	48	8	26	2	3	6	51	51	55	54	4	52
	-	73	93	53	4	23	2	8	9	74	105	86	69	7	113
MORJO	17	-	-	15	-	-	18	-	-	-	-	2	19	1	3
MOSFA	11	-	9	12	2	-	-	4	-	1	2	31	12	23	-
OCHPA	6	-	8	-	6	-	-	-	-	2	1	1	-	-	-
OTTPM	9	6	4	-	4	3	11	9	9	5	-	13	5	13	19
PERZS	6	2	18	9	26	-	1	7	10	-	-	-	39	1	1
ROTEC	12	26	27	36	1	-	-	-	-	25	35	29	34	2	40
SARAN	13	15	1	-	18	7	11	6	7	28	18	23	14	19	20
	22	24	2	-	35	11	6	1	26	24	25	29	12	24	39
	37	27	2	-	46	20	27	3	28	38	42	42	16	40	35
	12	12	1	1	11	9	9	1	18	16	9	14	7	14	13
	15	12	1	-	15	3	12	3	10	22	31	34	14	30	20
SCALE	10	-	8	7	7	2	1	8	-	-	1	20	-	10	-
SCHHA	-	7	14	-	7	-	-	-	28	-	9	6	17	7	44
SLAST	-	-	43	8	8	-	-	-	-	-	-	-	21	-	-
	-	-	13	8	5	1	-	1	1	-	-	-	4	1	-
STOEN	21	-	44	19	31	6	4	22	-	4	-	53	43	7	-
	12	4	19	11	13	4	6	12	-	-	2	68	39	9	-
	33	2	44	30	25	7	9	26	1	2	2	72	46	11	1
STRJO	17	61	51	36	-	1	-	-	35	8	8	23	46	20	58
	4	28	27	28	-	2	-	-	29	3	5	7	12	14	37
	12	19	24	19	-	2	1	-	10	7	1	6	10	7	2
	8	42	38	37	-	-	-	-	19	7	5	4	16	14	30
	17	25	20	26	-	2	-	-	25	1	4	6	7	7	36
TEPIS	-	-	-	10	8	9	25	7	22	4	-	6	25	7	1
	-	-	-	23	-	-	-	36	24	-	-	-	33	-	-
WEGWA	-	-	-	5	-	1	21	6	7	-	-	11	-	7	14
YRJIL	22	-	33	28	12	-	-	-	-	-	14	-	6	-	1
ZAKJU	1	-	18	15	28	4	-	2	1	-	-	1	-	-	-
Sum	1024	1192	1377	1115	801	437	570	480	753	980	1337	1626	1474	940	1368

September	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	72	49	72	53	3	2	88	-	2	5	5	4	9	65	2
BERER	-	-	-	-	-	-	6	-	-	-	-	-	51	43	-
BOMMA	-	-	-	-	77	40	54	44	28	54	59	25	35	41	6
BREMA	29	4	-	9	5	24	-	9	6	9	13	19	-	-	3
BRIBE	36	16	-	4	22	27	-	10	9	10	12	28	-	-	32
	39	25	-	12	22	36	-	17	-	6	43	6	1	-	13
CARMA	9	10	-	36	72	82	40	-	18	52	77	61	-	-	-
CASFL	-	-	-	-	21	42	20	-	7	17	41	31	-	-	-
CRIST	3	-	-	-	42	77	67	52	22	64	51	34	48	38	13
	16	11	1	35	45	49	15	16	33	20	46	44	52	47	-
	15	10	2	39	64	46	17	23	49	31	56	49	50	57	1
	2	4	-	30	41	19	6	10	18	14	37	27	36	31	-
DONJE	23	23	1	70	90	65	23	27	53	49	69	82	91	77	1
ELTMA	-	18	-	-	-	41	29	-	-	44	28	-	20	-	20
FORKE	37	40	46	1	-	3	29	1	-	4	19	39	49	58	-
GONRU	1	-	1	-	-	1	1	2	-	-	11	1	-	-	4
	61	40	44	31	32	18	27	48	24	63	70	55	56	8	43
	40	36	28	15	18	7	22	38	25	23	33	37	44	10	25
	22	26	10	5	16	2	9	19	16	13	22	13	15	2	10
	27	37	31	23	17	7	24	36	29	28	36	36	49	4	26
	56	41	34	7	28	2	15	18	26	33	50	46	27	10	22
GOVMI	-	4	-	1	23	28	25	10	4	-	1	12	38	37	38
	-	-	-	-	-	17	13	-	-	2	-	5	-	22	14
HERCA	14	13	21	17	24	21	9	5	18	25	17	17	21	13	24
HINWO	36	58	48	-	4	-	22	4	-	3	17	35	42	37	-
IGAAN	5	17	10	8	-	-	14	-	9	-	2	8	1	-	10
	-	-	-	-	-	-	-	-	-	-	1	-	3	-	3
JONKA	-	20	-	-	-	-	19	-	12	-	8	10	21	9	11
	-	10	-	-	-	-	11	-	11	-	6	5	25	18	9
KACJA	-	-	-	-	30	41	40	-	-	-	-	-	-	46	12
	-	12	-	-	24	30	41	1	-	1	1	1	45	53	33
	-	-	-	-	-	-	19	-	-	-	-	8	3	29	31
	-	-	-	-	70	33	61	-	-	-	-	-	-	24	9
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOPAL	5	20	-	-	-	11	11	17	11	16	4	20	14	6	11
MACMA	-	4	25	-	-	-	2	-	-	3	18	29	34	27	30
	-	3	48	-	-	-	1	-	-	16	37	46	44	40	56
	-	9	19	-	-	-	-	-	-	4	18	26	24	20	18
	-	5	45	-	-	-	1	-	-	20	32	38	45	32	36
MARRU	52	47	35	30	34	51	38	38	36	44	21	-	30	23	17
	48	27	21	48	25	41	30	55	11	26	38	34	18	27	20
MASMI	24	4	20	1	-	-	-	-	-	-	-	-	-	-	-
MOLSI	34	39	35	28	21	148	70	68	138	107	57	120	33	1	-
	4	6	11	6	2	39	17	16	17	25	12	16	6	2	-
	12	9	11	11	8	88	27	20	51	52	24	54	15	1	2
	42	22	52	55	20	1	81	-	5	1	7	9	1	51	-
	69	42	75	65	21	3	79	-	8	2	19	11	-	78	-
	62	30	66	55	20	-	94	-	4	3	13	24	-	46	3
	91	42	96	71	29	1	79	-	6	1	20	23	2	76	1
MORJO	1	26	-	7	-	-	22	-	11	-	4	12	3	2	16
MOSFA	5	2	-	5	16	20	10	-	2	17	25	10	-	-	-
OCHPA	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-
OTTMI	-	7	-	10	-	13	11	17	16	4	3	18	15	24	12
PERZS	-	8	-	-	5	4	27	12	12	-	2	20	39	37	34
ROTEC	33	9	35	33	-	12	29	-	-	1	-	-	1	19	1
SARAN	26	20	12	30	-	24	21	28	16	14	21	24	16	14	16
	32	32	10	19	28	28	26	28	20	44	35	23	40	22	22
	43	33	11	34	22	36	42	32	28	46	55	50	32	32	25
	12	12	8	11	10	-	15	16	9	13	15	18	16	4	8
	22	19	6	15	19	27	21	24	20	22	27	21	15	21	11
SCALE	2	4	-	-	12	5	6	3	2	8	18	15	7	2	7
SCHHA	8	11	-	4	27	34	7	12	39	25	28	4	1	3	14
SLAST	-	-	-	-	4	47	-	-	-	-	1	8	22	46	32
	-	-	-	-	-	11	-	1	-	-	1	-	9	11	-
STOEN	8	-	-	-	88	68	41	-	25	78	49	94	30	1	2
	3	24	-	-	62	32	29	1	15	48	38	65	29	1	-
	5	36	-	-	86	55	46	-	10	81	48	78	31	5	1
STRJO	67	37	-	6	37	49	7	3	31	24	30	53	18	4	21
	44	17	-	5	15	27	6	2	8	16	15	21	6	2	4
	28	12	1	3	17	25	1	2	6	16	7	20	7	1	2
	50	23	-	6	25	28	5	3	26	16	22	38	9	-	11
	45	20	-	1	17	28	2	2	23	5	15	30	10	2	10
TEPIS	-	-	-	-	-	-	12	-	17	1	7	3	29	37	18
	-	35	-	-	1	-	29	-	5	-	12	10	26	45	23
WEGWA	-	12	8	-	-	-	5	-	-	-	7	13	14	22	29
YRJIL	25	-	-	5	-	-	27	31	40	24	-	-	5	-	-
ZAKJU	-	-	-	-	2	5	4	-	-	-	3	5	5	-	4
Sum	1445	1232	999	960	1463	1721	1747	821	1092	1393	1639	1841	1533	1566	932