

A German proverb says „the first million is the hardest“. I could not yet proof if this is valid for money, but at least for meteor observation we now supplied the evidence. Whereas it took us more than a decade from the start of the IMO network in 1999 till November 2011 to record a million meteors, we needed less than 3 years for the second million. In September 2014 we reached the point – at the end of the month the counter was at 2,011,743 meteors that had been recorded in 5,281 observing nights and 485,355 hours (or more than 50 years) of effective observing time.

The outcome of September 2014 was comparable to the two preceding years. A total of 43 observers contributed with 81 video cameras to the IMO network. The weather in September is often Indian summer like with nice observing conditions, and this year was no exception. 75 cameras were active on September 28, for example, and more than 2/3 of the cameras could collect twenty and more observing nights. With over 9,400 hours, the effective observing time slightly surpassed the results of the two years before, and 36,000 meteors is in-between the outcome of 2012 and 2013.

September offers a number of smaller meteor showers in the Perseus-Auriga region, but there are not major showers among these. The alpha Aurigids are active at the August/September borderline, but neither in 2014 nor in the three years before they showed a well-defined activity profile. The flux density is fluctuating between 1.5 and 2 meteoroids per 1,000 km² and hour. With a little phantasy, you may spot a weak maximum right at the change of month (figure 1).

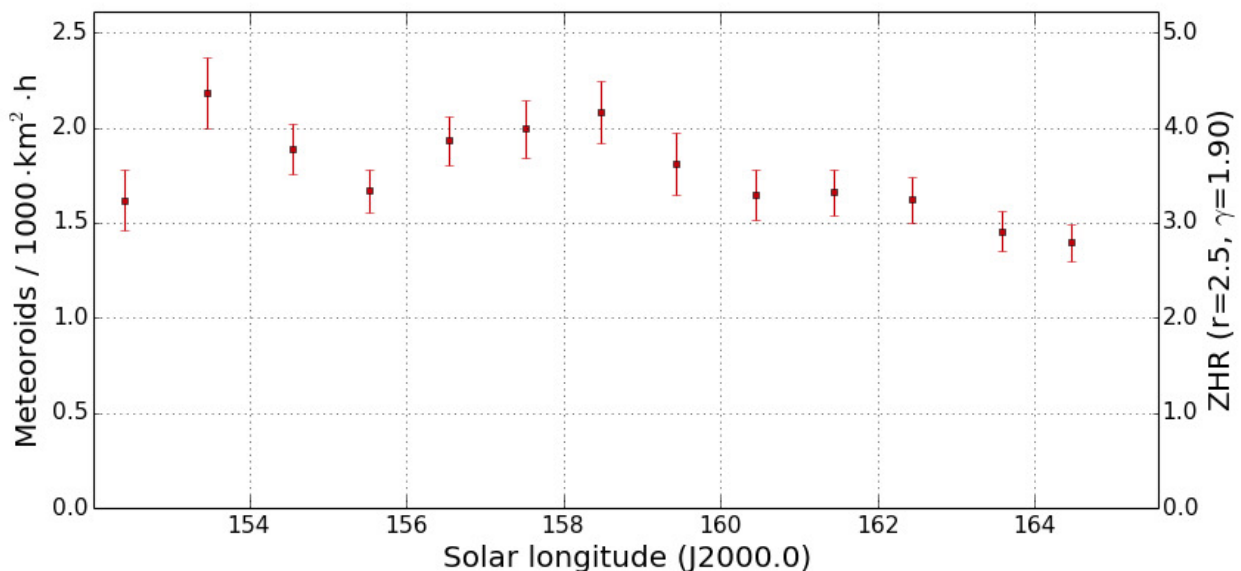


Figure 1: Flux density profile of the alpha Aurigids, averaged over IMO Video Meteor Network data of 2011-2014.

The September Perseids reach in “normal” years flux densities between two and three meteoroids per 1,000 km² and hour, but this year we derived values almost twice as high (figure 2). Not shown is the outburst from last year, which exceeds the selected range.

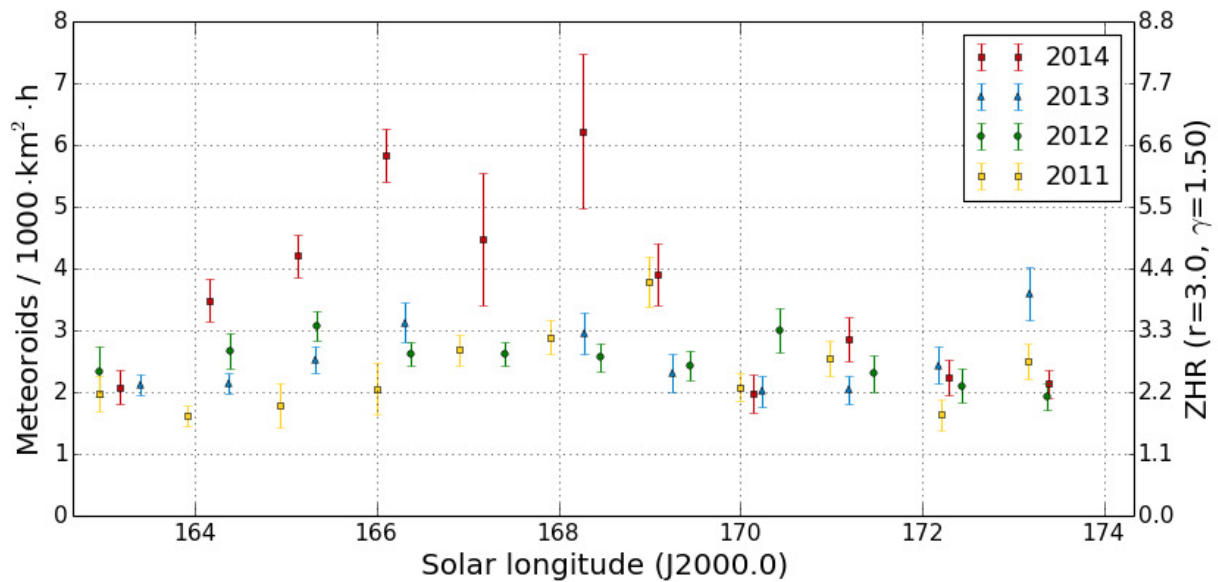


Figure 2: Comparison of the flux density profiles of the September Perseids in 2011 till 2014. The outburst of September 9, 2013, is beyond the displayed range.

Finally there was the second "challenge" that Jürgen Rendtel had presented at the last IMC. Beside the Daytime Arietids (ARI) in June, the Daytime Sextantids (DSX) in September are the second daytime shower that can be observed rudimentarily in the optical domain thanks to their strength and the comparably large radiant distance from the Sun. Between 2011 and end of September 2014 we recorded an overall of 200 Sextantids, twice as many as Arietids in June. The preliminary activity profile (not yet including the October 2014 data) shows a peak right at the September/October border with a flux density of more than 10 meteoroids per 1,000 km² and hour, whereby this value depends significantly on the selected zenith exponent (here: 1.5). This activity would position the Daytime Sextantids somewhere between the Lyrids and southern delta Aquariids.

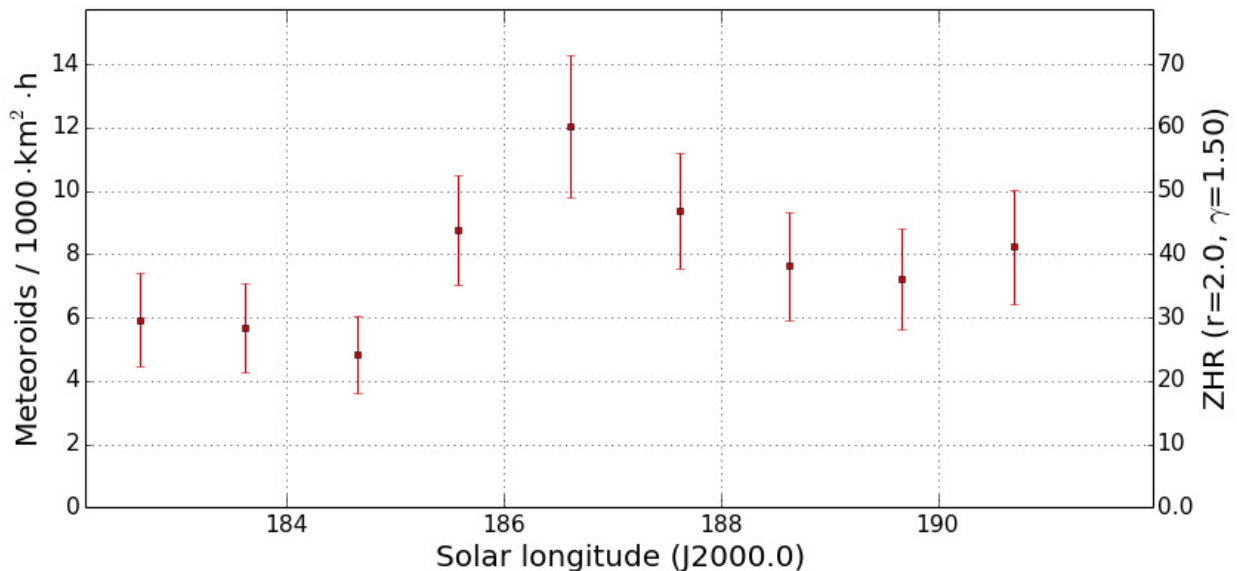


Figure 3: Flux density profile of the Daytime Sextantids, averaged over IMO Video Meteor Network data of 2011-2014.

Figure 4 compares the distribution of the Daytime Arietids and Sextantids over radiant altitude. In both cases, the radiant is about 35° away from the Sun. However, since the ecliptic is steeper in September than in June, the Daytime Sextantids can be observed slightly better. A few shower members were recorded at radiant altitudes beyond 15°.

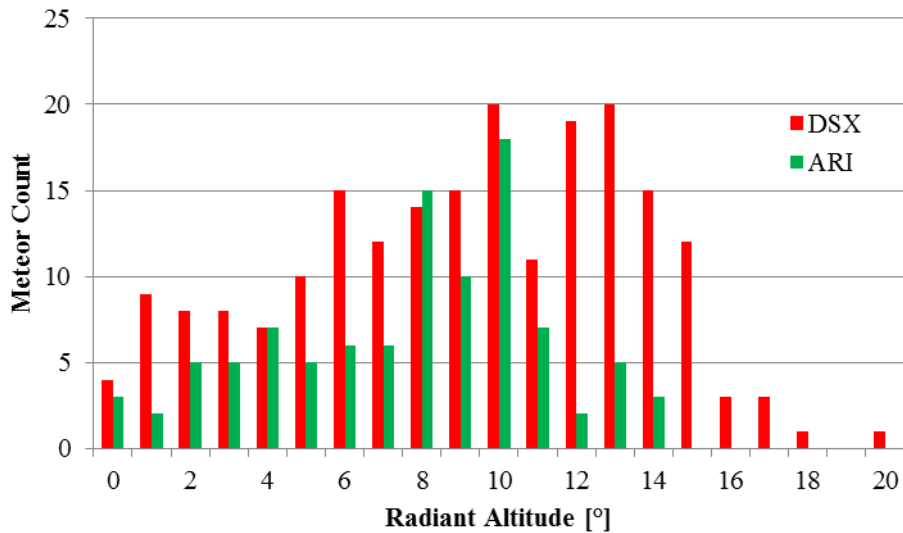


Figure 4: Distribution of the observed Daytime Arietids and Daytime Sextantids over the radiant altitude.

If you expect that daytime meteor showers are mainly observed at lower limiting magnitudes at dawn, you will be corrected by figure 5. It shows the cumulative distribution of Arietids and Sextantids as well as sporadic meteors (in the same observing nights) over the limiting magnitudes of the meteor cameras. Whereas there is indeed some deviation for the Arietids, the cumulative distribution of the Sextantids is almost identical to the distribution of the sporadic meteors.

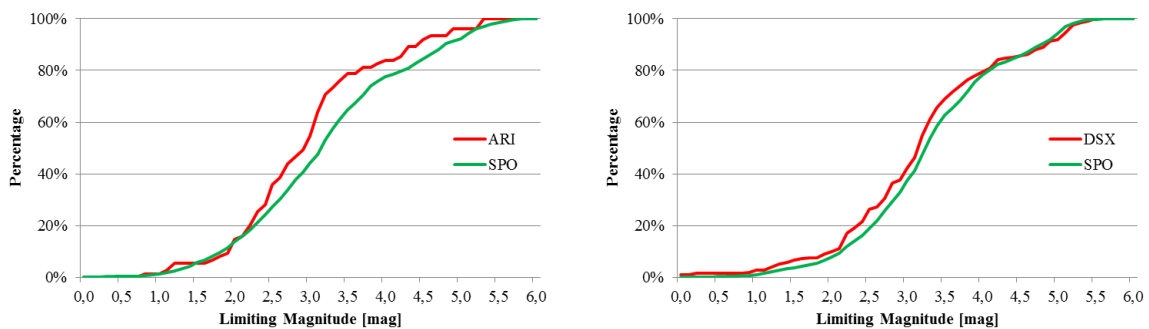


Figure 5: Comparison of the cumulative distribution of the Daytime Arietids (left) and Daytime Sextantids (right) with sporadic meteors over the limiting magnitude of the camera.

The match between the curves hints on a similar population index for the Daytime Sextantids and sporadic meteors. Thus, we have been "brave" enough to calculate the population index for both showers. We took all data of the activity intervals in 2011 till 2014 at once, and we selected only three limiting magnitude intervals to maximize the available data set. The result looks quite promising (figure 6): Depending on the selected zenith exponent, the Daytime Arietids got r-values around 2.2, and the Daytime Sextantids between 2.6 and 2.7. The population index of the sporadic meteors was determined to 2.6 during the Arietids and 2.65 during the Sextantids. That confirms that the Daytime Arietids have a noticeable smaller r-value than sporadic meteors, whereas it is virtually identical for the Daytime Sextantids.

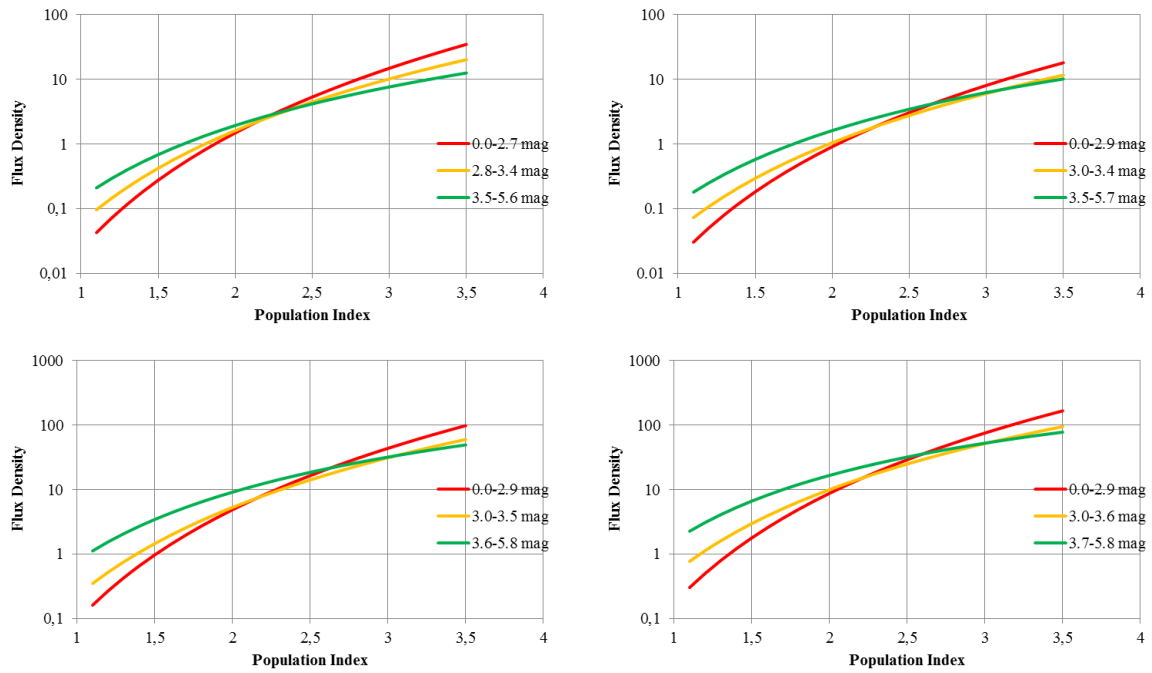


Figure 6: Dependency of the flux density of the Daytime Arietids (up left) and the Daytime Sextantids (up right) as well as the sporadic meteors in the same time interval (down left and right) from the population index for different limiting magnitudes. The analysis is based on all observations of June 3-10 (ARI) resp. September 24-October 10 (DSX) in 2011-2014.

1. Observers

Code	Name	Place	Camera	FOV [°]	St.LM [mag]	Eff.CA [km ²]	Nights	Time [h]	Meteors
ARLRA	Arlt	Ludwigsfelde/DE	LUDWIG2 (0.8/8)	1475	6.2	3779	23	129.3	944
BANPE	Bánfalvi	Zalaegerszeg/HU	HUVCSE01 (0.95/5)	2423	3.4	361	9	17.7	93
BERER	Berkó	Ludanyhalaszi/HU	HULUD1 (0.8/3.8)	5542	4.8	3847	14	105.8	580
			HULUD3 (0.95/4)	4357	3.8	876	13	97.0	132
BOMMA	Bombardini	Faenza/IT	MARIO (1.2/4.0)	5794	3.3	739	28	183.6	979
BREMA	Breukers	Hengelo/NL	MBB3 (0.75/6)	2399	4.2	699	26	158.7	364
			MBB4 (0.8/8)	1470	5.1	1208	23	144.7	282
BRIBE	Klemt	Herne/DE	HERMINE (0.8/6)	2374	4.2	678	23	138.7	451
		Berg. Gladbach/DE	KLEMOI (0.8/6)	2286	4.6	1080	25	147.9	509
CASFL	Castellani	Monte Baldo/IT	BMH1 (0.8/6)	2350	5.0	1611	27	148.5	534
			BMH2 (1.5/4.5)*	4243	3.0	371	18	76.1	267
CRIST	Crivello	Valbrenna/IT	BILBO (0.8/3.8)	5458	4.2	1772	26	173.8	872
			C3P8 (0.8/3.8)	5455	4.2	1586	26	159.2	601
			STG38 (0.8/3.8)	5614	4.4	2007	27	167.4	1095
CSISZ	Csizmadia	Baja/HU	HUVCSE02 (0.95/5)	1606	3.8	390	15	24.6	104
DONJE	Donati	Faenza/IT	JENNI (1.2/4)	5886	3.9	1222	29	179.7	995
ELTMA	Eltri	Venezia/IT	MET38 (0.8/3.8)	5631	4.3	2151	20	105.2	394
FORKE	Förster	Carlsfeld/DE	AKM3 (0.75/6)	2375	5.1	2154	18	103.0	487
GONRU	Goncalves	Tomar/PT	TEMPLAR1 (0.8/6)	2179	5.3	1842	22	155.9	674
			TEMPLAR2 (0.8/6)	2080	5.0	1508	23	157.2	501
			TEMPLAR3 (0.8/8)	1438	4.3	571	26	160.0	273
			TEMPLAR4 (0.8/3.8)	4475	3.0	442	23	160.2	492
			TEMPLAR5 (0.75/6)	2312	5.0	2259	26	164.4	655
GOVMI	Govedic	Sredisce ob Dr./SI	ORION2 (0.8/8)	1447	5.5	1841	10	46.1	223
			ORION3 (0.95/5)	2665	4.9	2069	17	80.2	134
			ORION4 (0.95/5)	2662	4.3	1043	14	74.5	135
HERCA	Hergenrother	Tucson/US	SALSA3 (1.2/4)*	2198	4.6	894	27	210.3	545
HINWO	Hinz	Schwarzenberg/DE	HINWO1 (0.75/6)	2291	5.1	1819	16	97.7	456
IGAAN	Igaz	Baja/HU	HUBAJ (0.8/3.8)	5552	2.8	403	19	102.8	182
		Hodmezovasar./HU	HUHOD (0.8/3.8)	5502	3.4	764	21	107.8	200
		Budapest/HU	HUPOL (1.2/4)	3790	3.3	475	14	74.6	43
JONKA	Jonas	Budapest/HU	HUSOR (0.95/4)	2286	3.9	445	16	94.3	175
KACJA	Kac	Kamnik/SI	CVETKA (0.8/3.8)	4914	4.3	1842	13	44.0	198
		Ljubljana/SI	ORION1 (0.8/8)	1402	3.8	331	22	67.2	137
		Kamnik/SI	REZIKA (0.8/6)	2270	4.4	840	13	48.9	262
			STEFKA (0.8/3.8)	5471	2.8	379	14	41.5	132
KISSZ	Kiss	Sulysap/HU	HUSUL (0.95/5)*	4295	3.0	355	17	75.7	73
KOSDE	Koschny	Izana Obs./ES	ICC7 (0.85/25)*	714	5.9	1464	23	120.0	877
		La Palma / ES	ICC9 (0.85/25)*	683	6.7	2951	26	166.8	1754
		Noordwijkerhout/NL	LIC4 (1.4/50)*	2027	6.0	4509	22	143.7	450
LOJTO	Łojek	Grabniak/PL	PAV57 (1.0/5)	1631	3.5	269	12	74.2	102
MACMA	Maciejewski	Chelm/PL	PAV35 (0.8/3.8)	5495	4.0	1584	27	183.7	530
			PAV36 (0.8/3.8)*	5668	4.0	1573	28	199.2	1065
			PAV43 (0.75/4.5)*	3132	3.1	319	27	169.2	427
			PAV60 (0.75/4.5)	2250	3.1	281	27	195.9	705
MARGR	Maravelias	Lofoupoli/GR	LOOMECON (0.8/12)	738	6.3	2698	24	143.1	285
MARRU	Marques	Lisbon/PT	RAN1 (1.4/4.5)	4405	4.0	1241	20	138.2	336
MASMI	Maslov	Novosibirsk/RU	NOWATEC (0.8/3.8)	5574	3.6	773	18	85.4	622
MOLSI	Molau	Seysdorf/DE	AVIS2 (1.4/50)*	1230	6.9	6152	24	144.0	1280
			MINCAM1 (0.8/8)	1477	4.9	1084	23	120.8	693
		Ketzür/DE	REMO1 (0.8/8)	1467	6.5	5491	26	140.6	1081
			REMO2 (0.8/8)	1478	6.4	4778	25	138.5	726
			REMO3 (0.8/8)	1420	5.6	1967	24	127.8	519
			REMO4 (0.8/8)	1478	6.5	5358	24	147.0	924
MOSFA	Moschini	Rovereto/IT	ROVER (1.4/4.5)	3896	4.2	1292	25	36.9	235
OCHPA	Ochner	Albiano/IT	ALBIANO (1.2/4.5)	2944	3.5	358	19	102.3	324
OTTMI	Otte	Pearl City/US	ORIE1 (1.4/5.7)	3837	3.8	460	26	155.7	305
PERZS	Perkó	Becsehely/HU	HUBEC (0.8/3.8)*	5498	2.9	460	20	109.5	525
PUCRC	Pucer	Nova vas nad Dra./SI	MOBCAM1 (0.75/6)	2398	5.3	2976	20	99.3	371
ROTEC	Rothenberg	Berlin/DE	ARMEFA (0.8/6)	2366	4.5	911	19	112.0	278
SARAN	Saraiva	Carnaxide/PT	RO1 (0.75/6)	2362	3.7	381	21	142.8	218
			RO2 (0.75/6)	2381	3.8	459	24	136.7	312
			RO3 (0.8/12)	710	5.2	619	24	155.4	503
			SOFIA (0.8/12)	738	5.3	907	23	147.8	249
SCALE	Scarpa	Alberoni/IT	LEO (1.2/4.5)*	4152	4.5	2052	20	86.3	276
SCHHA	Schremmer	Niederkrüchten/DE	DORAEMON (0.8/3.8)	4900	3.0	409	28	120.3	420
SLAST	Slavec	Ljubljana/SI	KAYAK1 (1.8/28)	563	6.2	1294	1	0.5	3
STOEN	Stomeo	Scorze/IT	MIN38 (0.8/3.8)	5566	4.8	3270	27	122.1	763
			NOA38 (0.8/3.8)	5609	4.2	1911	26	131.5	596
			SCO38 (0.8/3.8)	5598	4.8	3306	26	131.1	810
STRJO	Strunk	Herford/DE	MINCAM2 (0.8/6)	2354	5.4	2751	25	134.0	338
			MINCAM3 (0.8/6)	2338	5.5	3590	25	120.6	407
			MINCAM4 (1.0/2.6)	9791	2.7	552	25	115.5	279
			MINCAM5 (0.8/6)	2349	5.0	1896	24	119.2	326
			MINCAM6 (0.8/6)	2395	5.1	2178	24	120.0	305
TEPIS	Tepliczky	Agostyan/HU	HUAGO (0.75/4.5)	2427	4.4	1036	20	83.2	183
			HUMOB (0.8/6)	2388	4.8	1607	21	91.7	313
TRIMI	Triglav	Velenje/SI	SRAKA (0.8/6)*	2222	4.0	546	16	37.3	92
YRJIL	Yrjölä	Kuusankoski/FI	FINEXCAM (0.8/6)	2337	5.5	3574	24	143.9	482
ZELZO	Zelko	Budapest/HU	HUVCSE03 (1.0/4.5)	2224	4.4	933	3	14.6	31
			HUVCSE04 (1.0/4.5)	1484	4.4	573	3	9.8	25
Summe							30	9448.3	36518

* 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	-	-	8.4	8.5	8.3	3.9	2.5	2.8	0.4	0.5	-	-	3.5	5.2	9.2
BANPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERER	-	-	-	8.0	-	-	-	7.2	-	-	-	1.3	-	-	-
	-	-	-	7.3	-	-	-	7.3	-	-	-	1.4	-	-	-
BOMMA	4.7	-	1.6	-	4.0	6.8	9.6	9.6	1.8	1.9	4.2	6.6	6.8	8.8	6.3
BREMA	7.7	8.0	8.7	6.5	8.8	2.5	5.5	6.8	1.3	2.1	9.2	6.3	6.3	8.8	0.6
	7.5	8.0	7.3	6.2	8.5	1.8	4.6	6.9	-	-	9.1	6.8	5.5	1.1	-
BRIBE	5.7	6.0	5.4	4.7	8.3	-	6.6	6.9	-	-	9.3	8.6	5.3	6.4	1.1
	6.1	7.7	4.5	-	8.9	-	5.2	7.7	0.2	2.1	9.3	0.2	3.9	8.6	0.5
CASFL	9.2	3.0	1.2	1.0	2.2	0.3	5.0	5.0	-	-	3.9	6.7	7.2	4.6	3.5
	9.1	1.8	1.0	-	1.9	0.7	6.5	5.5	-	-	5.3	6.7	7.0	4.5	2.4
CRIST	9.0	9.0	5.0	1.0	3.8	9.2	9.2	4.1	0.5	-	2.3	5.8	9.1	8.6	0.5
	9.0	9.0	5.5	0.7	4.2	9.2	9.1	1.1	0.3	-	0.8	6.3	9.6	8.2	-
	9.0	9.0	4.9	1.7	4.0	9.2	6.9	3.6	1.4	0.2	0.4	6.2	9.3	8.5	0.8
CSISZ	-	-	-	-	-	-	-	-	1.2	-	-	0.8	0.3	0.3	0.7
DINJE	4.4	0.5	2.7	3.0	4.0	7.8	9.5	9.6	3.2	1.9	4.5	8.5	4.5	10.0	7.3
ELTMA	5.6	-	1.5	1.3	2.8	3.4	5.7	2.0	-	0.2	-	0.8	-	0.8	9.8
FORKE	-	-	1.9	8.0	6.5	6.4	1.7	2.1	1.5	-	-	-	-	-	3.2
GONRU	9.1	6.7	4.1	9.0	3.8	-	5.7	8.1	3.2	2.8	5.2	4.9	4.2	4.9	-
	9.2	7.3	4.2	9.3	4.6	-	5.4	8.4	3.4	2.1	6.0	5.8	4.6	4.9	-
	9.2	5.4	4.6	9.2	3.3	-	6.2	7.8	3.7	1.3	5.4	4.1	2.3	4.9	0.7
	9.3	7.3	3.6	9.3	2.6	-	5.2	8.5	2.4	2.4	5.6	6.0	4.1	4.7	-
	9.4	5.1	4.6	9.2	1.8	-	4.8	7.0	2.5	-	5.0	4.4	2.8	4.0	0.6
GOVMI	1.6	-	0.2	0.4	-	-	-	-	-	-	-	-	-	-	-
	0.5	0.2	-	0.2	-	0.6	1.6	6.0	0.4	-	-	-	-	-	-
	1.2	-	-	-	-	0.2	-	-	-	-	-	-	-	-	0.2
HERCA	9.8	9.8	10.1	2.3	3.7	9.0	4.9	1.6	6.5	10.3	7.7	10.0	5.2	10.2	10.5
HINWO	-	-	0.8	8.6	8.4	4.4	5.3	-	1.9	-	-	-	-	-	3.0
IGAAN	-	-	-	0.2	-	-	-	9.1	8.2	-	-	1.2	1.9	-	2.5
	4.6	1.1	0.3	-	-	-	-	8.2	8.3	-	-	1.1	-	-	-
	-	4.8	3.6	4.7	-	-	0.2	-	0.9	-	-	-	-	-	-
JONKA	-	2.7	2.5	4.0	-	-	0.2	9.3	-	-	-	-	-	-	-
KACJA	0.7	-	-	-	-	-	6.1	6.2	-	-	-	-	-	1.0	-
	2.4	-	0.2	0.3	0.3	1.3	6.4	5.6	-	-	-	-	-	2.8	3.8
	0.5	-	-	-	-	-	6.5	5.2	-	-	-	-	-	0.9	-
	0.9	-	-	-	-	-	5.2	7.4	-	-	-	-	-	1.0	-
KISSZ	-	1.1	2.0	-	-	-	0.8	6.2	-	-	-	0.5	-	-	-
KOSDE	9.2	8.6	9.5	9.5	-	5.3	1.9	6.0	0.8	-	8.8	5.2	-	2.2	3.7
	8.4	9.7	9.7	9.2	2.7	6.8	5.8	4.8	3.4	4.4	4.4	3.6	4.5	5.6	-
	1.3	7.8	8.1	4.9	-	-	6.6	-	-	7.8	8.7	6.3	6.3	8.8	7.1
LOJTO	-	-	-	-	-	-	-	1.1	-	3.4	-	8.2	-	-	-
MACMA	-	3.7	8.9	8.9	9.0	9.0	9.3	9.0	-	0.3	4.2	7.9	7.3	5.8	9.1
	-	3.7	8.8	8.8	8.8	8.9	9.1	9.0	0.1	0.8	4.2	8.4	7.5	7.5	9.1
	-	3.1	8.7	8.8	7.1	8.9	9.0	8.9	-	0.3	3.9	8.6	4.9	4.5	9.0
	-	3.7	8.6	8.8	8.6	8.6	9.0	8.9	-	0.7	4.6	8.6	7.8	7.3	9.0
MARGR	9.6	8.8	-	9.7	9.7	7.9	6.1	5.2	3.6	-	0.1	-	0.1	-	2.2
MARRU	8.8	5.6	4.7	8.9	-	-	-	6.9	-	-	-	5.0	-	3.6	-
MASMI	1.2	7.7	3.0	7.5	7.3	6.6	-	-	-	-	3.1	-	-	-	0.1
MOLSI	0.8	-	2.1	7.5	5.1	7.6	8.3	3.4	6.9	6.8	2.2	-	-	-	7.5
	0.6	-	1.4	7.6	3.1	6.3	5.7	1.0	3.9	3.5	1.9	-	-	-	7.2
	-	3.0	8.4	8.5	8.4	4.5	2.7	7.1	0.5	1.3	3.7	-	-	4.1	9.1
	-	2.8	8.5	8.4	8.5	4.5	1.9	4.6	0.5	0.6	2.6	-	-	3.7	9.2
	-	3.0	8.6	8.0	7.3	3.5	1.7	7.3	0.9	2.6	4.1	-	-	4.5	9.5
	-	3.0	8.6	8.7	8.8	4.6	2.3	6.7	-	1.6	3.5	-	-	5.2	9.5
MOSFA	3.5	1.0	0.2	-	1.0	-	0.3	1.0	1.7	0.3	1.3	4.9	2.5	1.5	1.2
OCHPA	9.3	-	-	-	-	1.2	3.7	3.0	4.7	-	2.0	4.2	7.4	2.7	2.6
OTTMI	3.0	7.7	3.6	6.1	2.3	7.2	6.9	-	-	-	-	0.5	8.5	3.0	8.7
PERZS	2.5	0.3	-	0.8	-	-	-	6.8	-	-	-	-	1.3	1.6	3.3
PUCRC	8.2	-	-	-	0.9	-	6.6	5.5	1.4	-	5.0	-	6.0	7.0	0.4
ROTEC	-	-	8.4	8.4	8.2	2.9	1.2	-	-	-	-	-	2.5	-	8.5
SARAN	9.2	4.9	-	9.5	-	-	-	6.0	-	-	-	5.0	0.5	-	-
	9.2	4.7	-	9.3	-	-	0.7	8.1	-	0.2	-	5.4	0.5	2.7	-
	9.1	5.2	-	9.5	-	-	1.6	9.0	-	1.1	-	7.3	0.5	4.8	-
	9.0	3.7	-	8.5	-	-	0.8	7.3	-	-	-	6.3	2.0	4.2	-
SCALE	2.7	-	-	1.4	1.2	5.1	5.1	2.2	-	-	0.6	0.8	4.0	-	7.9
SCHHA	0.8	6.5	1.8	1.0	3.2	0.7	1.3	-	0.2	1.1	7.7	3.6	6.7	6.0	5.2
SLAST	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-
STOEN	6.4	-	0.6	0.4	2.1	3.3	6.0	2.3	-	-	0.6	3.4	4.6	2.4	6.9
	6.7	-	0.8	0.2	2.7	1.9	8.1	3.6	-	-	1.5	3.6	5.0	3.6	5.9
	6.5	-	1.6	0.2	3.0	3.3	8.2	5.8	-	-	0.8	3.1	5.4	1.5	5.3
STRJO	2.8	8.1	8.5	8.0	2.2	1.3	6.6	6.3	-	-	6.9	1.8	1.1	3.3	6.4
	2.7	7.8	8.3	8.2	1.2	1.6	6.7	7.7	0.2	-	-	3.3	2.0	3.0	5.4
	1.9	2.6	8.4	8.0	1.0	0.4	3.0	7.9	-	-	7.1	2.2	1.8	3.7	5.0
	2.7	8.0	8.3	7.8	0.2	0.9	6.8	6.9	-	-	6.3	2.3	2.1	3.4	5.7
	2.3	7.8	8.4	8.4	0.3	1.5	6.6	7.3	-	0.3	7.2	2.8	1.0	3.0	6.2
TEPIS	-	-	0.3	0.7	-	-	-	3.4	0.2	-	-	-	-	0.4	0.2
	-	-	0.9	1.9	-	-	0.8	8.3	1.0	-	-	-	-	1.5	-
TRIMI	0.4	-	-	-	-	-	-	2.8	-	-	-	-	0.2	2.5	-
YRJIL	2.4	-	6.7	7.3	7.4	7.2	7.1	5.4	-	3.9	2.2	3.4	7.6	7.2	8.2
ZELZO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum	296.6	256.0	274.8	363.9	236.5	208.2	319.6	399.3	83.2	68.8	202.4	236.7	215.0	255.5	261.5

September	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	9.4	9.4	8.3	3.1	3.5	-	-	8.2	4.2	-	2.0	9.9	9.8	2.0	6.3
BANPE	0.5	-	2.6	4.3	0.6	-	-	2.4	0.3	1.4	-	3.6	2.0	-	-
BERER	3.5	5.7	9.8	-	-	-	9.7	10.2	8.2	-	8.6	10.1	8.7	9.7	5.1
	-	5.6	9.9	-	-	-	6.7	10.2	6.9	-	8.6	9.8	9.3	9.1	4.9
BOMMA	8.4	8.6	1.4	2.0	5.5	9.5	7.5	10.2	3.8	9.8	10.4	10.6	10.0	10.7	2.5
BREMA	8.5	9.7	7.2	-	0.6	3.6	8.2	1.6	5.0	-	8.9	10.3	6.0	-	-
	7.7	9.4	7.0	3.9	-	3.3	7.6	-	3.4	-	9.1	10.2	3.9	-	5.9
BRIBE	9.3	9.7	2.4	1.4	-	4.9	9.5	4.6	2.9	-	1.4	10.4	7.9	-	-
	9.5	9.5	5.2	8.8	-	4.7	9.8	6.8	0.7	-	-	10.3	8.4	2.5	6.8
CASFL	3.9	4.1	1.2	0.5	9.1	9.3	10.0	10.5	3.9	6.8	10.5	10.6	9.3	6.0	-
	3.5	2.4	0.6	0.5	8.3	8.4	-	-	-	-	-	-	-	-	-
CRIST	8.5	0.9	-	-	4.6	9.9	10.1	10.2	1.0	10.3	10.3	10.4	10.4	10.1	-
	7.7	1.3	0.9	0.4	-	6.8	10.1	8.8	0.3	10.3	10.3	10.4	9.5	9.4	-
	8.4	1.8	0.3	-	2.9	10.0	9.4	10.2	-	10.2	9.9	8.4	10.4	10.4	-
CSISZ	-	-	2.2	0.2	0.6	0.5	0.9	2.0	2.3	-	-	-	3.4	5.0	4.2
DINJE	10.0	10.1	2.2	2.5	6.1	10.0	8.8	10.4	3.7	10.4	10.6	0.1	-	10.1	3.3
ELTMA	9.2	9.9	1.3	-	-	-	6.8	10.3	-	5.5	9.4	10.3	-	8.6	-
FORKE	9.5	9.4	6.9	3.0	7.4	-	-	9.5	0.9	-	-	9.8	10.2	5.1	-
GONRU	-	9.1	-	7.7	8.6	-	-	8.9	9.8	10.2	-	-	9.2	10.2	10.5
	4.8	8.9	-	8.0	1.4	-	-	9.1	10.0	9.2	-	-	9.4	10.4	10.8
	3.4	7.3	-	8.0	8.6	-	1.7	8.9	10.4	10.3	6.2	7.3	9.2	-	10.6
	4.4	8.2	-	7.8	9.1	-	-	9.0	10.0	10.3	-	-	9.2	10.4	10.8
	3.1	7.5	-	8.1	8.8	-	1.4	9.4	10.4	10.5	5.8	7.8	9.1	10.7	10.6
GOVMI	-	-	-	-	-	-	-	6.7	7.1	1.6	0.2	8.8	9.5	10.0	-
	-	8.1	9.0	9.5	-	-	1.2	6.5	5.6	2.1	-	8.7	10.0	10.0	-
	-	7.9	9.5	8.9	1.2	-	1.5	6.7	5.4	2.3	-	9.5	10.0	10.0	-
HERCA	-	-	-	3.4	10.3	8.0	7.0	10.6	9.5	10.6	6.3	8.9	5.6	8.4	10.1
HINWO	8.0	9.5	3.4	1.0	7.6	-	-	9.4	-	-	-	10.4	10.4	5.6	-
IGAAN	1.8	8.9	9.6	2.1	4.6	3.2	4.6	-	9.9	-	4.8	2.0	9.1	9.2	9.9
	2.0	8.2	8.6	1.5	4.2	2.9	6.4	8.7	8.3	2.5	3.9	1.3	8.4	8.8	8.5
	5.4	6.4	9.2	-	-	-	3.9	8.4	-	-	5.6	10.2	-	5.1	6.2
JONKA	1.1	2.0	9.7	5.8	-	-	3.4	9.9	7.4	-	6.0	9.5	10.2	10.6	-
KACJA	1.1	2.0	-	-	-	-	-	3.1	5.3	4.4	1.2	-	7.5	2.9	2.5
	3.9	-	1.9	1.4	1.1	-	1.0	6.5	4.1	2.0	1.6	0.5	6.8	10.3	3.0
	1.2	2.2	-	-	-	-	-	4.2	5.8	6.0	1.7	-	9.3	3.3	2.1
	1.2	2.3	0.3	-	-	-	-	3.6	5.4	2.6	1.6	-	7.2	0.6	2.2
KISSZ	3.6	7.8	9.1	-	1.5	0.8	2.1	10.0	1.9	-	3.8	7.9	6.1	10.5	-
KOSDE	0.4	5.9	8.8	4.9	9.2	-	3.5	5.5	0.7	-	-	-	0.7	2.1	7.6
	7.0	4.6	8.5	2.9	-	-	10.1	10.1	3.6	-	6.6	5.7	10.2	5.5	9.0
	8.1	8.9	8.9	4.9	-	2.2	4.6	-	6.0	-	7.2	3.8	6.6	-	8.8
LOJTO	-	9.5	9.6	-	5.2	-	4.2	-	6.8	-	7.0	9.7	4.0	5.5	-
MACMA	9.9	9.3	9.2	1.2	3.0	0.2	9.7	5.5	9.5	3.5	10.5	-	7.6	10.0	2.2
	9.6	9.2	9.2	2.0	3.2	-	9.1	5.6	9.3	3.4	10.3	10.3	10.2	10.1	3.0
	8.9	9.0	8.9	1.7	1.7	-	6.6	5.5	8.7	2.4	10.1	3.7	4.1	9.6	2.6
	9.0	9.1	9.0	1.8	3.4	-	9.0	5.8	9.1	4.0	10.2	10.4	10.4	9.8	0.7
MARGR	9.7	8.3	8.2	9.6	4.9	5.0	0.2	7.7	8.8	1.9	2.4	-	3.0	-	10.4
MARRU	-	6.7	4.7	6.6	7.0	9.3	-	8.8	8.8	8.0	2.2	6.7	7.1	9.2	9.6
MASMI	7.3	7.8	3.8	-	-	4.8	0.2	6.0	0.3	0.2	8.7	9.8	-	-	-
MOLSI	9.0	9.2	4.0	7.1	9.2	2.4	2.7	9.6	-	6.3	1.6	9.8	7.9	7.0	-
	8.8	9.3	4.3	5.9	8.9	1.0	1.9	9.7	-	4.9	-	10.0	6.9	7.0	-
	9.2	9.3	9.3	4.4	2.8	6.0	1.9	3.5	3.1	-	3.6	10.0	8.7	0.6	6.9
	9.4	9.5	9.2	5.2	3.2	6.5	2.0	3.5	3.2	-	4.2	10.2	9.4	-	7.2
	9.5	9.6	9.0	3.7	0.3	5.5	-	3.3	2.5	-	3.1	10.2	6.7	-	3.4
	9.6	9.6	9.7	4.6	3.9	6.5	2.0	3.5	3.2	-	4.4	10.3	9.3	-	7.9
MOSFA	0.3	1.0	0.2	-	0.3	-	2.4	3.8	0.3	0.8	3.9	1.1	1.7	0.7	-
OCHPA	-	0.2	-	-	5.1	-	10.4	8.5	-	9.9	8.4	9.9	6.3	2.8	-
OTTMI	9.3	8.2	7.9	3.3	5.6	9.6	7.9	3.8	0.6	8.6	8.9	10.0	7.3	0.6	6.6
PERZS	6.3	10.0	9.7	10.1	2.8	0.4	2.0	8.6	9.3	8.3	-	8.5	10.5	6.4	-
PUCRC	9.1	9.1	6.2	-	0.3	-	-	-	0.5	8.9	1.6	6.2	6.7	7.1	2.6
ROTEC	9.4	9.5	8.9	6.0	3.3	3.8	1.0	6.0	3.4	-	1.4	10.2	9.0	-	-
SARAN	1.4	6.0	5.0	6.8	6.1	9.9	4.1	9.8	10.0	7.3	2.4	9.3	10.2	9.7	9.7
	1.0	4.9	3.7	5.4	4.7	8.4	2.0	10.0	10.1	7.5	1.2	9.1	10.3	7.4	10.2
	1.5	6.7	5.0	7.1	6.5	8.2	3.7	9.8	9.8	8.2	1.9	9.2	10.1	9.6	10.0
	1.9	5.3	5.0	6.1	6.7	9.7	4.4	9.8	10.0	6.6	4.4	9.4	6.9	10.1	9.7
SCALE	9.4	-	1.8	-	-	1.1	5.4	7.8	3.4	-	6.1	5.1	6.9	8.3	-
SCHHA	9.2	7.4	3.5	8.4	0.8	4.1	9.3	-	8.5	1.4	1.3	8.8	5.9	1.0	4.9
SLAST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STOEN	7.5	7.9	1.9	0.3	1.3	1.2	7.8	9.4	4.4	9.1	9.4	5.6	9.8	7.2	0.3
	8.3	7.6	1.8	0.2	1.5	2.0	7.7	8.6	3.6	10.1	9.2	10.3	9.7	7.3	-
	7.3	6.9	3.0	-	1.3	2.2	7.6	8.4	3.6	9.2	9.1	10.2	9.7	7.6	0.3
STRJO	9.4	9.4	-	2.7	2.8	4.8	3.3	7.4	0.7	-	2.9	9.0	9.5	-	8.8
	9.2	9.5	0.9	1.9	1.3	3.8	3.8	5.2	-	-	1.2	8.3	9.2	-	8.2
	9.4	9.5	1.1	1.9	0.3	4.4	2.2	5.9	-	-	1.8	8.9	9.2	-	7.9
	9.3	9.4	-	1.7	-	4.7	2.6	5.2	0.7	-	1.4	8.8	7.3	-	6.7
	6.0	9.4	1.3	-	-	4.3	2.4	5.9	0.7	-	-	9.1	9.4	-	8.4
TEPIS	9.5	5.0	5.5	6.3	1.5	-	4.6	9.7	1.8	0.5	1.8	9.8	9.5	9.1	3.4
	5.1	8.3	7.0	6.6	1.8	1.7	4.2	9.5	2.1	0.4	0.6	7.6	8.3	10.3	3.8
TRIMI	3.6	-	1.7	5.7	1.9	-	2.4	2.6	3.6	1.2	-	1.3	5.6	1.3	0.5
YRJIL	8.5	4.0	8.1	5.8	6.4	4.0	-	-	-	2.9	-	8.5	4.3	6.8	8.6
ZELZO	-	-	-	-	-	-	-	-	-	-	-	-	4.0	8.4	2.2
	-	-	-	-	-	-	-	-	-	-	-	-	4.0	3.6	2.2
Sum	439.8	513.8	363.2	256.6	244.4	233.5	318.2	515	344.5	284.8	329.7	552.8	589.5	447.4	331.1

3. Results (Meteors)

September	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	-	-	85	86	43	24	3	9	1	2	-	-	25	18	71
BANPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERER	-	-	-	54	-	-	-	33	-	-	-	2	-	-	-
	-	-	-	10	-	-	-	5	-	-	-	1	-	-	-
BOMMA	36	-	1	-	21	58	45	39	3	8	20	38	35	52	28
BREMA	14	28	36	14	19	2	9	18	1	3	21	8	9	21	2
	23	19	12	6	9	6	7	10	-	-	27	5	4	4	-
BRIBE	28	24	23	12	24	-	13	14	-	-	43	24	9	21	4
	12	34	19	-	39	-	12	24	1	4	33	1	11	35	3
CASFL	40	4	8	4	5	1	23	21	-	-	16	28	37	12	15
	32	1	5	-	8	5	23	20	-	-	23	31	29	9	5
CRIST	48	60	39	6	22	47	26	15	3	-	4	28	53	51	3
	40	44	32	4	21	28	25	4	2	-	5	27	39	29	-
	60	78	55	11	27	70	42	22	8	1	1	39	43	59	3
CSISZ	-	-	-	-	-	-	-	-	7	-	-	6	2	2	4
DINJE	21	1	2	15	22	76	46	54	8	7	17	62	30	70	24
ELTMA	17	-	6	7	11	17	19	11	-	1	-	2	-	6	34
FORKE	-	-	14	24	19	22	3	7	3	-	-	-	-	-	8
GONRU	36	18	20	52	2	-	15	30	2	9	24	9	11	21	-
	24	27	14	37	10	-	18	29	8	9	17	18	12	10	-
	12	8	8	15	4	-	8	12	3	1	7	9	3	4	3
	26	16	16	51	6	-	11	22	3	7	13	13	20	4	-
	33	11	22	35	4	-	18	32	13	-	13	17	5	7	2
GOVMI	7	-	1	1	-	-	-	-	-	-	-	-	-	-	-
	1	1	-	1	-	3	9	8	2	-	-	-	-	-	-
	3	-	-	-	-	1	-	-	-	-	-	-	-	-	1
HERCA	37	29	30	6	12	34	10	9	14	27	24	33	13	24	18
HINWO	-	-	3	34	31	14	10	-	5	-	-	-	-	-	8
IGAAN	-	-	-	1	-	-	-	15	16	-	-	5	2	-	6
	3	1	1	-	-	-	-	10	15	-	-	2	-	-	-
	-	1	1	2	-	-	1	-	1	-	-	-	-	-	-
JONKA	-	4	4	6	-	-	1	11	-	-	-	-	-	-	-
KACJA	4	-	-	-	-	-	29	53	-	-	-	-	-	4	-
	8	-	1	2	1	7	14	19	-	-	-	-	-	4	7
	2	-	-	-	-	-	35	36	-	-	-	-	-	2	-
	4	-	-	-	-	-	18	25	-	-	-	-	-	1	-
KISSZ	-	6	6	-	-	-	4	3	-	-	-	2	-	-	-
KOSDE	72	82	90	101	-	26	5	20	2	-	58	17	-	5	18
	88	120	132	132	7	107	104	71	58	40	31	7	19	28	-
	4	25	46	9	-	-	22	-	-	17	36	18	16	37	22
LOJTO	-	-	-	-	-	-	-	4	-	6	-	10	-	-	-
MACMA	-	6	18	40	26	35	27	14	-	1	11	15	12	9	33
	-	5	44	91	52	51	45	51	1	1	24	29	22	24	61
	-	3	6	22	20	23	37	23	-	1	19	14	8	7	31
	-	6	32	48	36	26	28	26	-	1	16	24	22	17	37
MARGR	19	13	-	24	20	13	12	7	3	-	2	-	8	-	9
MARRU	18	9	19	23	-	-	-	20	-	-	-	13	-	9	-
MASMI	8	51	6	60	32	44	-	-	-	-	17	-	-	-	40
MOLSI	4	-	5	81	27	52	40	10	11	37	5	-	-	-	73
	3	-	3	25	8	33	26	4	17	10	2	-	-	-	44
	-	20	93	97	74	43	18	39	2	6	28	-	-	11	78
	-	12	64	76	45	18	7	9	1	1	8	-	-	4	50
	-	6	58	44	36	15	10	28	2	6	22	-	-	16	31
	-	15	115	72	55	28	7	14	-	5	24	-	-	23	68
MOSFA	24	6	1	-	6	-	2	7	14	2	9	15	14	11	7
OCHPA	19	-	-	-	-	2	19	14	28	-	10	17	30	4	3
OTTMI	7	15	2	9	5	11	8	-	-	-	-	1	17	4	20
PERZS	4	1	-	3	-	-	-	27	-	-	-	-	2	2	4
PUCRC	25	-	-	-	6	-	33	26	1	-	19	-	14	22	3
ROTEC	-	-	33	28	20	9	1	-	-	-	-	-	2	-	13
SARAN	17	6	-	29	-	-	-	8	-	-	-	6	2	-	-
	12	5	-	54	-	-	3	20	-	1	-	18	2	4	-
	27	10	-	39	-	-	3	26	-	1	-	15	1	6	-
	14	4	-	25	-	-	1	14	-	-	-	6	2	7	-
SCALE	13	-	-	7	5	8	10	12	-	-	3	5	18	-	13
SCHHA	3	25	11	3	11	3	6	-	1	2	28	7	11	20	18
SLAST	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
STOEN	48	-	5	2	15	20	40	10	-	-	1	9	37	15	30
	40	-	2	1	18	5	37	16	-	-	9	17	38	12	21
	37	-	9	1	24	18	66	23	-	-	6	16	49	13	32
STRJO	10	24	32	21	3	1	6	17	-	-	15	3	2	9	17
	14	39	32	26	1	2	22	24	1	-	-	12	4	11	20
	3	6	35	19	6	2	5	19	-	-	11	4	5	9	12
	9	28	28	20	1	2	14	20	-	-	15	4	2	14	17
	5	22	29	21	1	4	10	14	-	2	33	4	2	8	14
TEPIS	-	-	2	6	-	-	-	9	1	-	-	-	-	1	1
	-	-	3	3	-	-	3	35	8	-	-	-	-	6	-
TRIMI	2	-	-	-	-	-	-	4	-	-	-	-	1	6	-
YRJIL	15	-	16	34	20	28	15	31	-	9	3	5	38	34	37
ZELZO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum	1135	979	1435	1792	943	1044	1189	1336	270	228	773	721	792	878	1126

September	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	73	111	48	8	5	-	-	59	12	-	25	141	49	3	43
BANPE	4	-	18	18	3	-	-	14	2	9	-	19	6	-	-
BERER	11	17	60	-	-	-	63	90	26	-	62	84	19	57	2
	-	2	23	-	-	-	7	22	5	-	16	20	3	12	6
BOMMA	52	52	3	2	23	57	22	71	12	55	61	69	50	61	5
BREMA	28	26	18	-	1	4	26	2	7	-	27	17	3	-	-
	15	27	20	3	-	7	22	-	7	-	21	23	1	-	4
BRIBE	40	54	9	3	-	11	31	8	7	-	4	33	12	-	-
	46	54	21	20	-	5	39	11	2	-	-	43	12	19	9
CASFL	21	18	3	4	22	43	19	36	5	23	49	30	30	17	-
	15	6	3	3	21	28	-	-	-	-	-	-	-	-	-
CRIST	34	1	-	-	10	53	50	57	1	68	65	49	40	39	-
	21	2	5	3	-	31	39	42	1	43	30	30	22	32	-
	36	5	2	-	9	56	65	80	-	73	63	65	53	69	-
CSISZ	-	-	12	1	2	3	6	13	13	-	-	-	11	16	6
DINJE	88	63	6	1	35	63	46	82	14	65	69	1	-	5	2
ELTMA	51	33	3	-	-	-	28	42	-	20	36	27	-	23	-
FORKE	47	56	28	8	35	-	-	61	2	-	-	72	64	14	-
GONRU	-	38	-	41	41	-	-	41	59	49	-	-	43	52	61
	18	23	-	22	3	-	-	31	26	40	-	-	22	36	47
	9	9	-	18	17	-	2	17	15	24	11	21	11	-	22
	11	19	-	30	26	-	-	25	50	32	-	-	13	43	35
	15	18	-	25	43	-	4	46	36	57	20	54	32	44	49
GOVMI	-	-	-	-	-	-	-	28	10	9	1	57	38	71	-
	-	19	12	22	-	-	1	4	5	1	-	18	8	19	-
	-	16	7	21	2	-	6	11	7	4	-	22	14	20	-
HERCA	-	-	-	5	30	26	14	22	22	21	13	19	13	12	28
HINWO	44	45	14	4	23	-	-	54	-	-	-	97	44	26	-
IGAAN	8	20	22	4	5	3	4	-	15	-	9	6	12	13	16
	3	21	21	2	5	4	9	23	15	9	4	3	12	23	14
	4	6	5	-	-	-	2	9	-	-	2	5	-	2	2
JONKA	4	10	18	11	-	-	1	22	11	-	16	20	11	25	-
KACJA	9	3	-	-	-	-	-	10	24	12	8	-	26	7	9
	8	-	2	4	4	-	1	6	10	1	4	2	9	21	2
	17	2	-	-	-	-	-	12	19	22	12	-	76	18	9
	8	2	1	-	-	-	-	18	17	5	6	-	22	3	2
KISSZ	6	5	6	-	1	1	1	6	3	-	3	9	3	8	-
KOSDE	8	24	65	21	52	-	19	53	5	-	-	-	8	36	90
	51	38	72	17	-	-	125	114	19	-	45	69	105	52	103
	16	38	27	12	-	5	18	-	17	-	28	4	11	-	22
LOJTO	-	16	12	-	2	-	1	-	6	-	13	24	3	5	-
MACMA	28	36	22	4	5	1	24	18	22	5	36	-	38	39	5
	54	52	60	5	6	-	37	35	45	11	68	81	50	51	9
	25	15	13	2	2	-	11	12	9	7	24	31	34	23	5
	39	24	27	8	7	-	32	25	25	14	48	49	38	43	7
MARGR	24	16	14	15	10	8	2	12	19	1	3	-	3	-	28
MARRU	-	11	9	12	12	14	-	17	18	20	9	35	24	13	31
MASMI	39	53	39	-	-	42	1	64	2	1	48	75	-	-	-
MOLSI	98	123	56	47	162	9	9	170	-	47	1	153	30	30	-
	54	78	34	21	67	4	5	111	-	16	-	91	19	18	-
	85	108	78	23	2	32	22	16	6	-	20	105	37	3	35
	51	72	58	16	4	21	4	11	5	-	24	97	31	-	37
	37	41	35	21	2	16	-	10	6	-	16	36	16	-	9
	66	71	66	18	8	25	9	19	15	-	26	106	29	-	40
MOSFA	2	6	1	-	2	-	15	27	2	7	31	8	12	4	-
OCHPA	-	1	-	-	19	-	32	21	-	26	34	22	12	11	-
OTTMI	31	25	18	5	17	17	10	7	1	18	5	16	17	1	18
PERZS	24	56	37	61	9	1	21	43	25	34	-	67	55	49	-
PUCRC	41	40	15	-	2	-	-	-	4	41	5	17	38	17	2
ROTEC	19	29	31	5	1	9	4	14	4	-	1	34	21	-	-
SARAN	1	5	6	6	8	6	4	23	15	5	9	24	15	10	13
	4	4	2	9	12	28	1	20	29	16	4	15	17	13	19
	1	6	7	29	15	52	4	35	27	31	4	53	49	24	38
	2	2	8	14	7	17	4	20	11	12	4	23	22	11	19
SCALE	34	-	4	-	-	6	18	30	9	-	21	11	22	27	-
SCHHA	35	19	16	23	2	17	44	-	32	4	5	32	22	7	13
SLAST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STOEN	90	46	9	2	7	2	82	60	18	71	51	24	42	25	2
	66	35	2	1	5	5	31	33	14	57	41	36	36	18	-
	79	45	17	-	2	9	64	39	17	65	43	39	56	39	2
STRJO	33	49	-	4	4	8	8	5	1	-	3	25	20	-	18
	41	48	4	2	6	10	10	7	-	-	1	26	20	-	24
	27	38	2	2	1	7	4	6	-	-	4	24	14	-	14
	31	41	-	4	-	7	8	5	1	-	2	28	12	-	13
	16	33	4	-	-	11	14	4	1	-	-	26	16	-	11
TEPIS	9	9	7	7	2	-	12	27	1	2	5	43	7	26	6
	11	32	20	21	4	7	19	40	4	1	3	22	16	46	9
TRIMI	7	-	4	13	6	-	5	12	8	4	-	3	11	4	2
YRJIL	28	16	28	15	2	8	-	-	-	10	-	32	6	17	35
ZELZO	-	-	-	-	-	-	-	-	-	-	-	-	10	18	3
	-	-	-	-	-	-	-	-	-	-	-	-	11	13	1
Sum	2053	2184	1319	748	840	799	1241	2240	903	1168	1322	2662	1839	1503	1056