Sirko Molau, Abenstalstr. 13b, 84072 Seysdorf *2016/12/21*

July 2016 was an exceptional month as can be seen easily. Similar to the previous year there are hardly any "holes" in the observing statistics, because the observing conditions were nearly perfect. In particular in southern Europe, clouds in the night sky were the exception, such that five cameras in Italy and Portugal obtained 31 observing nights. 63 of 76 overall active cameras managed to observe in twenty or more observing nights. If we don't count those cameras which had to pause because of technical defects or other reasons, there was hardly any camera that did not take this hurdle because of the weather. Only in Slovenia the weather conditions were not that good.

In total, we collected over 8,600 hours of effective observing time, which is about 10% less than in the previous year. This is because there were also eight cameras less than in July 2015. Since all four cameras on the Canary Islands run in high gear, we increased the overall number of meteors by 10% relative to 2015 to over 41,000.

For the first time in a few months a new camera dubbed FARELHO1 joined the network, operated by Rui Goncalves. Responsibility for the Italian camera BMH2 was taken over by Maurizio Carli.

The most important meteor showers of July are the alpha Capricornids and the southern delta Aquariids. Since both showers reach their peak at the end of the month, we included the already partially available August data in this analysis to get a complete activity profile for 2016.

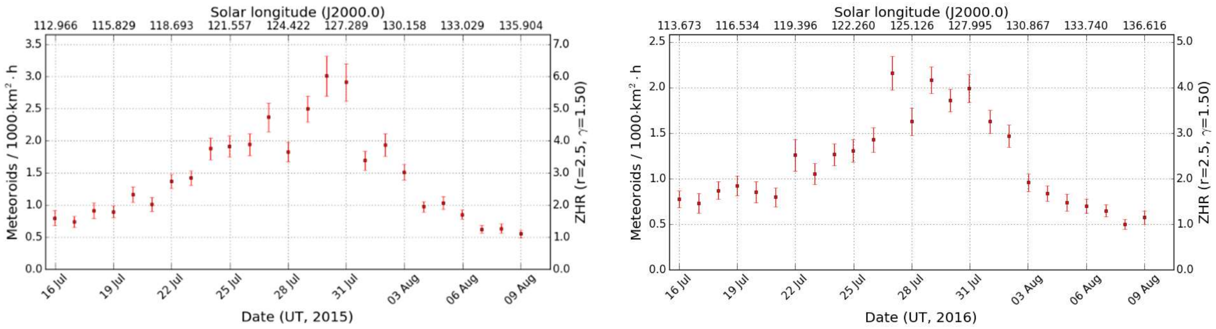

***Figure 1:** Activity profile of the alpha Capricornids in 2015 (left) and 2016 (right), derived from video observations of the IMO Network.*

Figure 1 compares the overall activity profile of the alpha Capricornids in 2015 and 2016. The peak rate in 2016 was clearly lower, since the peak flux density was only 2 meteoroids per 1,000 km^2 and hour, compared to 3 in the previous year. Earlier analyses had shown, though, that the flux density at full moon is frequently estimated higher than at new moon. The alpha Capricornid peak of 2015 occurred directly at full moon, whereas the peak of 2016 happened just before new moon.

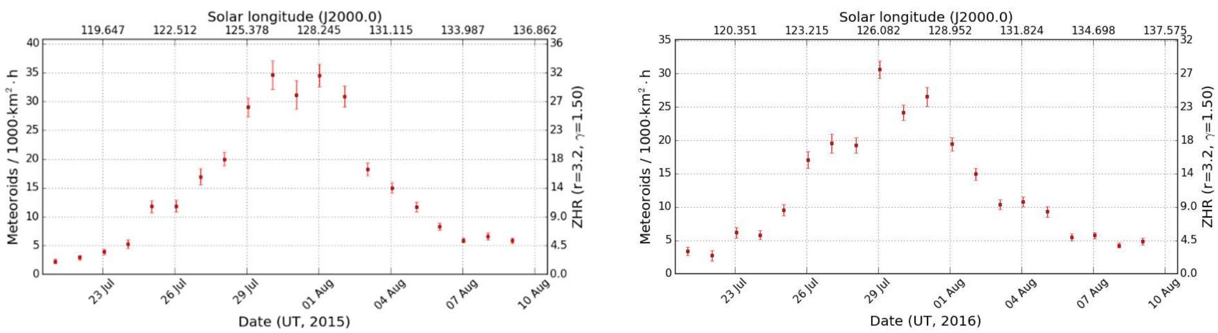

***Figure 2:** Activity profile of the southern delta Aquariids in 2015 (left) and 2016 (right), derived from video observations of the IMO Network.*

In case of the southern delta Aquariids (Figure 2) we can observe the same effect. Also here the 2015 peak flux density of almost 35 meteoroids per 1,000 km^2 and hour was higher than the peak flux density of 2016 which hardly exceeded 25.

In the end, however, it was another shower that made a splash in July. The gamma Draconids sparked some funny comments with their short code GDR over 25 years after the German reunification. Indeed, they are a shower that was acquainted to only a few observers before. In our 2012 meteor shower analysis, we assigned about 700 meteors between 122 and 127° solar longitude to the gamma Draconids, which are in principle easy to observe in northern latitudes thanks to their high declination and low velocity.

On July 30 Martin Breukers informed that the CAMS Benelux network had recorded two days before close to midnight over 50 gamma Draconids in less than two hours, among them five double-station meteors. Shortly thereafter we received a message from Peter Brown, that also the Canadian CMOR radar had captured an unexpected GDR outburst at midnight UT of July 27/28. The activity was 18 Sigma above the average and thus higher than the kappa Cancrid and gamma Lyrid outbursts that we had analysed in the February report.

Since there was obviously an unusual event, we asked the IMO network observers to provide their observations on short notice. Thanks to this we could publish five days after the event a first detailed activity profile of the gamma Draconid outburst on the IMO homepage. Based on a preliminary data set of 26 cameras we derived a peak flux density of 30 meteoroids per 1,000 km^2 and hour with a full width at half maximum (FWHM) of just one hour.
Almost in parallel, Enrico Stomeo and Stefano Crivello informed about unusual activity end of July from the constellation of Draco which they had noted in the Italian camera data. Hence, they had discovered the outburst independently of the other observers, which makes the gamma Draconids a perfect example for international data exchange and cooperation among meteor observers.

Now that the complete July data set of the IMO network is available, we can refine the findings. In the two hours of the outburst we recorded over 500 gamma Draconids, which allows us to obtain a high-resolution activity profile.

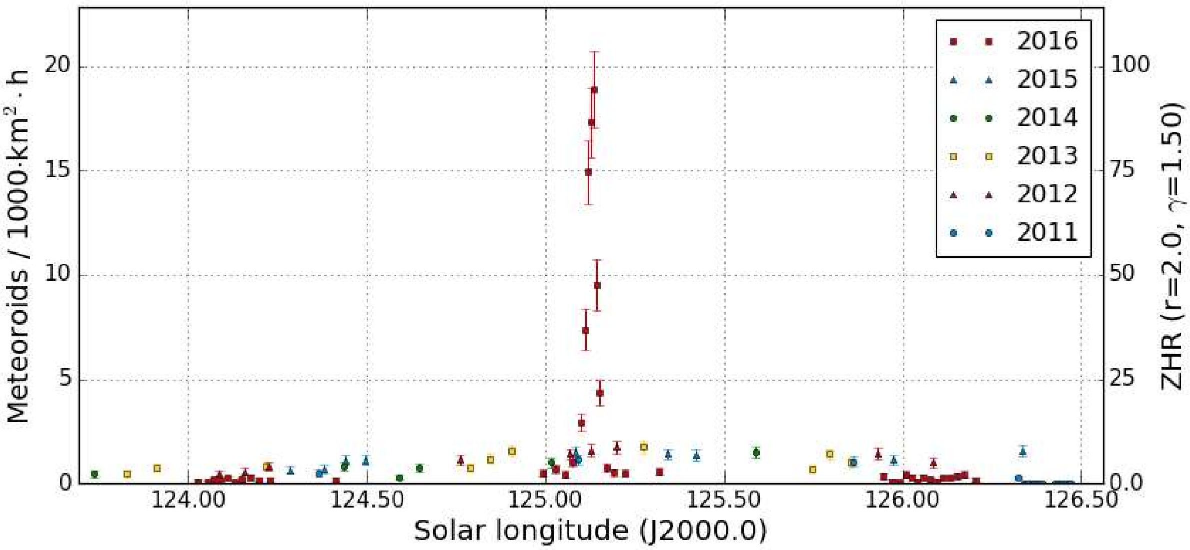

Figure 3: *Activity profile of the gamma Draconids 2011-2016, derived from video observations of the IMO Network.*

At first, figure 3 shows a comparison of the gamma Draconid activity between 2011 and 2016. It is clear that the flux density of this year exceeded the average activity level many times.

At a resolution of five minutes per interval (figure 4) we obtain a nice overall outburst profile. We can see that the activity raised only after 23 UT on July 27 and had vanished before 1 UT on July 28. Peak activity occurred briefly after midnight.

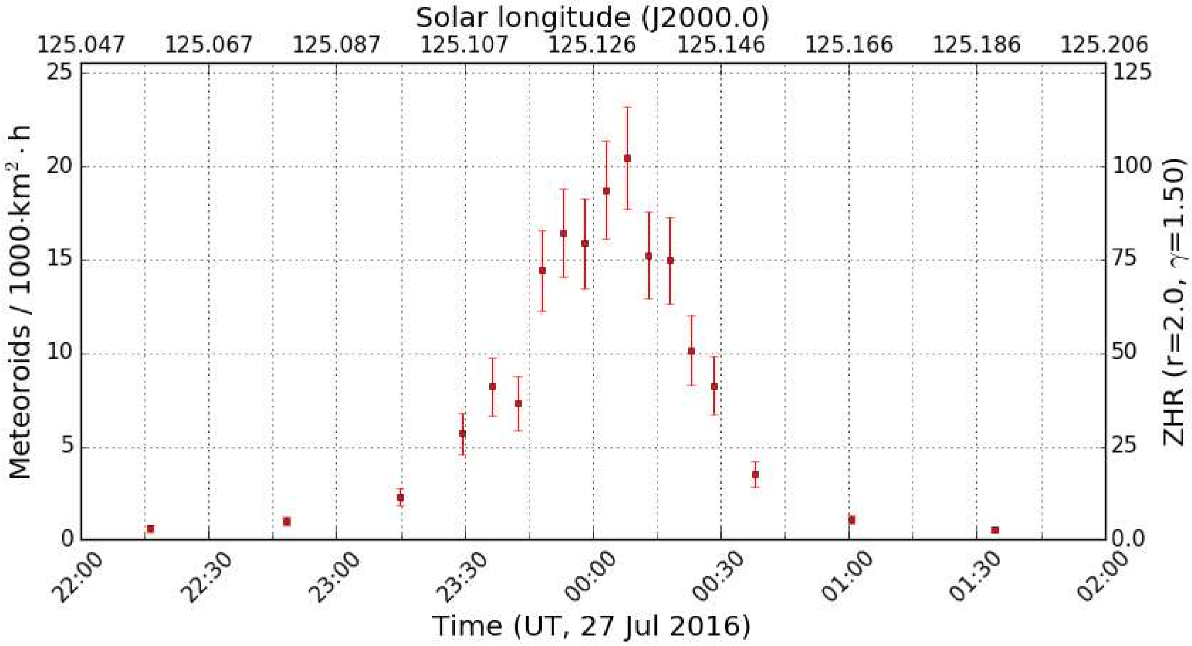

Figure 4: *Detailed activity profile of the gamma Draconids on July 27/28, 2016, with a temporal resolution of five minutes per interval.*

If the resolution is pushed to the limits (interval length two minutes) we find further interesting details (figure 5).

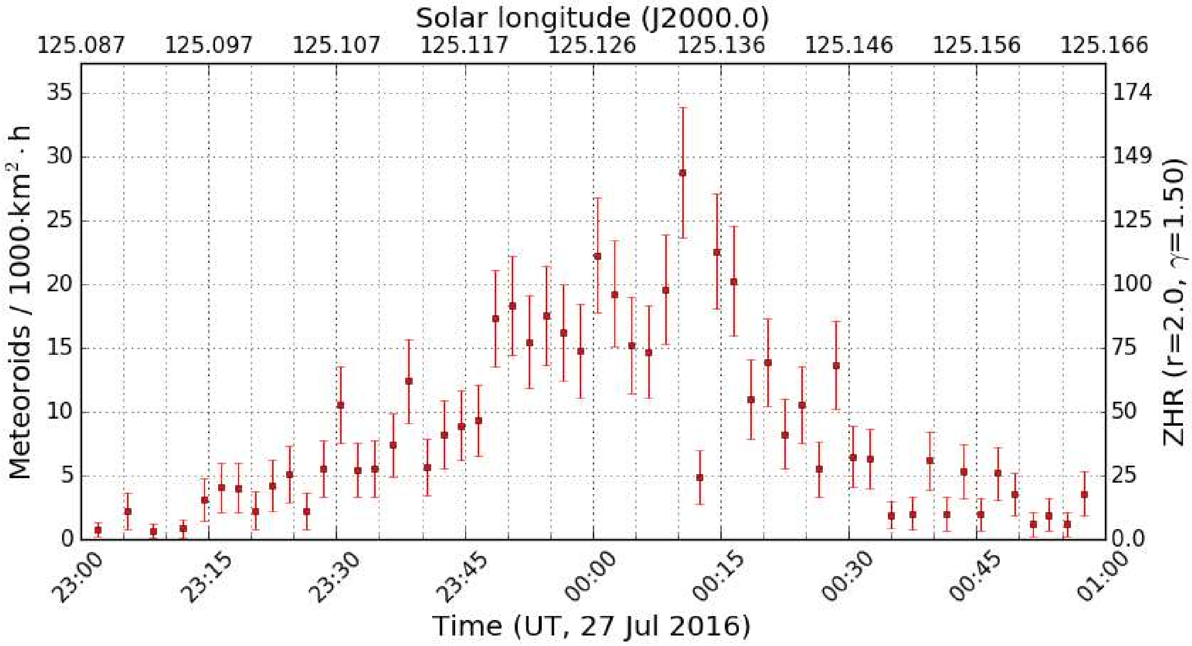

Figure 5: *Extremely high resolution activity profile of the gamma Draconids on July 27/28, 2016, with a temporal resolution of just two minutes per interval.*

First of all, we can precisely determine the peak time and FWHM of the outburst by fitting an exponential function to the ascending and descending activity branch. In the logarithmic presentation (figure 6) those exponential functions show up as straight lines.

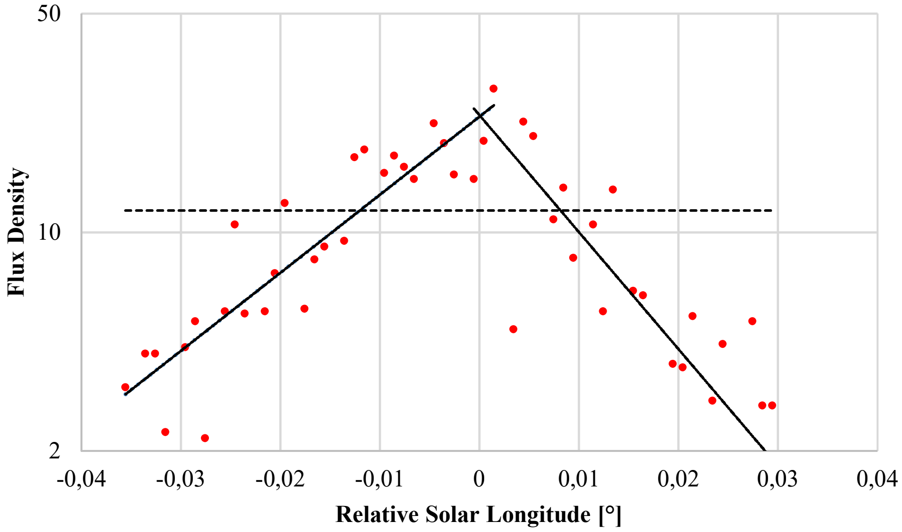

Figure 6: *Activity profile of the gamma Draconids in logarithmic presentation. The solid black lines represent exponential fits to the ascending and descending activity branch, the horizontal dashed line is the half peak level.*

We obtain a peak flux density of 23 meteoroids per 1,000 km^2 and hour at a solar longitude of 125.132° (July 28, 00:07 UT). The times of half activity are 23:49 and 00:19 UT, which yields a FWHM of exactly 30 minutes. The descending branch was slightly steeper than the ascending branch.

The population index obtained by the usual method from video data of July 27/28 was r=2.0 for the gamma Draconids, and r=3.0 for sporadic meteors, respectively. Thus, the population index was quite small and the percentage of bright shower meteors accordingly high.

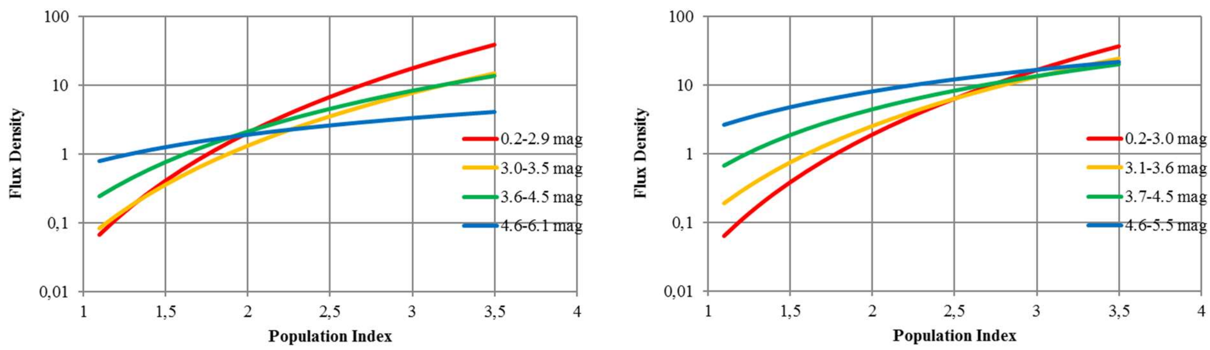

Figure 7: *Determination of the r-value of the gamma Draconids (left) and sporadic meteors (right) on July 27/28, 2016.*

With a population index of 2.0 we obtained an impressive equivalent ZHR of over 100 at the peak time (see figure 5)! Compared to our initial analysis early August the flux density has become somewhat smaller, but the eZHR has clearly increased due to the smaller population index. The duration of the outburst was also just half as long as originally determined.

The high-resolution profile shows still another interesting detail. Scatter is naturally increasing at such short interval lengths, but immediately after the peak count at 00:10 UT (31 meteors, flux density 29) the rate breaks down by over 80% (5 meteors, flux density 5) only to be back at the original level in the next interval at 00:14 (25 meteors, flux density 23). This outlier was not used when the exponential fit was calculated, because it had distorted the fit significantly.

Now is that outlier just extended scatter or does it represent a real structure? If the meteor rate λ is constant and the individual meteors are mutually independent, the number of meteors k per time unit follows a Poisson distribution (equation 1):

$$P_\lambda(k) = \frac{\lambda^k}{k!} e^{-\lambda} \quad (1)$$

Between 23:49 and 00:19 we recorded on average of 21 gamma Draconids per 2-min-interval. Figure 8 shows the probability, that at an average activity of λ=21 between k=0 to 40 meteors are recorded per interval. It also shows how many meteors were observed in reality in these 15 intervals. We can see two outliers left and right. The probability that under the given conditions only five meteors are observed in a single interval is below one per mille. At large values of λ, the Poisson distribution resembles a normal distribution. From that we can estimate that the outlier was 4σ away from the average. The upper outlier is not unusual, though, in particular if we remember that it was observed at the peak time where the activity was rather like 25 meteors per interval.

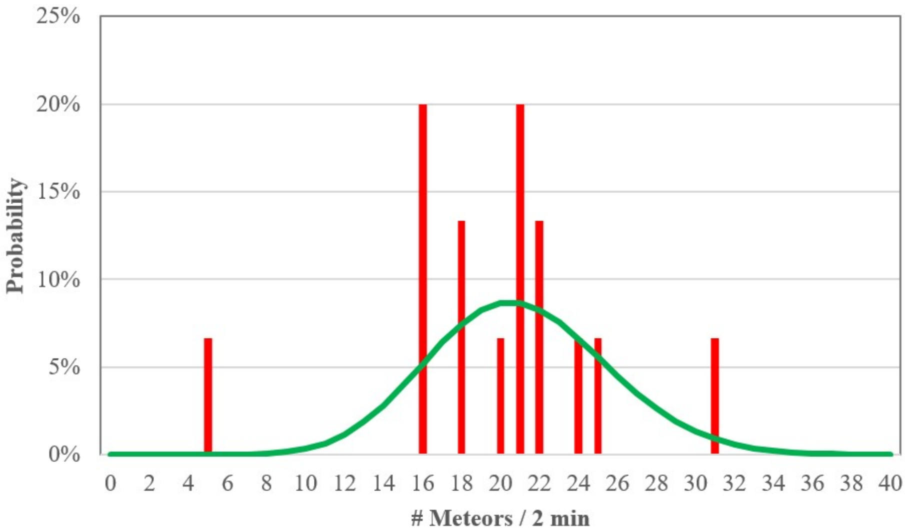

Figure 8: *Poisson distribution for an average of λ=21 meteor per interval (green line) and really observed meteor counts per interval (red bars) during those 30 minutes of more than half peak activity.*

We can sum up that the short time activity breakdown right after the peak is no statistical fluctuation but with high probability a real structure in the profile.

1. Observers

Code	Name	Place	Camera	FOV [°²]	St.LM [mag]	Eff.CA [km²]	Nights	Time [h]	Meteors
ARLRA	Arlt	Ludwigsfelde/DE	LUDWIG2 (0.8/8)	1475	6.2	3779	26	85.5	598
BERER	Berkó	Ludanyhalaszi/HU	HULUD1 (0.8/3.8)	5542	4.8	3847	16	87.5	593
BOMMA	Bombardini	Faenza/IT	MARIO (1.2/4.0)	5794	3.3	739	30	166.9	979
BREMA	Breukers	Hengelo/NL	MBB3 (0.75/6)	2399	4.2	699	25	81.2	260
BRIBE	Klemt	Herne/DE	HERMINE (0.8/6)	2374	4.2	678	26	74.8	285
		Berg. Gladbach/DE	KLEMOI (0.8/6)	2286	4.6	1080	27	75.1	237
CARMA	Carli	Monte Baldo/IT	BMH2 (1.5/4.5)*	4243	3.0	371	24	113.7	346
CASFL	Castellani	Monte Baldo/IT	BMH1 (0.8/6)	2350	5.0	1611	26	138.4	532
CRIST	Crivello	Valbrevenna/IT	BILBO (0.8/3.8)	5458	4.2	1772	29	162.1	813
			C3P8 (0.8/3.8)	5455	4.2	1586	30	137.7	651
			STG38 (0.8/3.8)	5614	4.4	2007	31	170.2	1428
DONJE	Donati	Faenza/IT	JENNI (1.2/4)	5886	3.9	1222	31	187.4	1315
ELTMA	Eltri	Venezia/IT	MET38 (0.8/3.8)	5631	4.3	2151	30	131.0	594
FORKE	Förster	Carlsfeld/DE	AKM3 (0.75/6)	2375	5.1	2154	18	62.4	301
GONRU	Goncalves	Foz do Arelho/PT	FARELHO1 (1.0/2.6)	6328	2.8	469	1	5.3	39
		Tomar/PT	TEMPLAR1 (0.8/6)	2179	5.3	1842	31	199.8	1021
			TEMPLAR2 (0.8/6)	2080	5.0	1508	31	190.5	859
			TEMPLAR3 (0.8/8)	1438	4.3	571	28	172.6	325
			TEMPLAR4 (0.8/3.8)	4475	3.0	442	31	195.7	857
			TEMPLAR5 (0.75/6)	2312	5.0	2259	30	174.6	824
GOVMI	Govedic	Sredisce ob Dr./SI	ORION2 (0.8/8)	1447	5.5	1841	25	107.7	347
			ORION3 (0.95/5)	2665	4.9	2069	16	57.0	115
			ORION4 (0.95/5)	2662	4.3	1043	26	107.5	242
HERCA	Hergenrother	Tucson/US	SALSA3 (0.8/3.8)	2336	4.1	544	27	163.8	447
IGAAN	Igaz	Budapest/HU	HUPOL (1.2/4)	3790	3.3	475	23	108.1	136
JONKA	Jonas	Budapest/HU	HUSOR (0.95/4)	2286	3.9	445	25	121.9	244
			HUSOR2 (0.95/3.5)	2465	3.9	715	25	117.0	255
KACJA	Kac	Kamnik/SI	CVETKA (0.8/3.8)	4914	4.3	1842	16	75.9	436
		Ljubljana/SI	ORION1 (0.8/8)	1399	3.8	268	24	105.3	536
		Kamnik/SI	REZIKA (0.8/6)	2270	4.4	840	15	74.3	535
			STEFKA (0.8/3.8)	5471	2.8	379	15	69.6	272
KOSDE	Koschny	Izana Obs./ES	ICC7 (0.85/25)*	714	5.9	1464	26	158.7	1274
		La Palma / ES	ICC9 (0.85/25)*	683	6.7	2951	21	145.9	1838
		Izana Obs./ES	LIC1(2.8/50)*	2255	6.2	5670	29	229.2	2688
		La Palma / ES	LIC2 (3.2/50)*	2199	6.5	7512	30	233.8	2892
LOJTO	Łojek	Grabniak/PL	PAV57 (1.0/5)	1631	3.5	269	15	61.2	313
LOPAL	Lopes	Lisboa/PT	NASO1 (0.75/6)	2377	3.8	506	26	165.1	167
MACMA	Maciejewski	Chelm/PL	PAV35 (0.8/3.8)	5495	4.0	1584	26	96.8	512
			PAV36 (0.8/3.8)*	5668	4.0	1573	28	95.9	389
			PAV43 (0.75/4.5)*	3132	3.1	319	25	64.9	250
			PAV60 (0.75/4.5)	2250	3.1	281	28	96.7	464
MARRU	Marques	Lisbon/PT	CAB1 (0.8/3.8)	5291	3.1	467	30	204.3	941
			RAN1 (1.4/4.5)	4405	4.0	1241	27	178.0	524
MASMI	Maslov	Novosimbirsk/RU	NOWATEC (0.8/3.8)	5574	3.6	773	22	47.4	179
MOLSI	Molau	Seysdorf/DE	AVIS2 (1.4/50)*	1230	6.9	6152	24	87.4	888
			ESCIMO2 (0.85/25)	155	8.1	3415	23	114.2	326
			MINCAM1 (0.8/8)	1477	4.9	1084	25	81.2	370
		Ketzür/DE	REMO1 (0.8/8)	1467	6.5	5491	27	96.7	823
			REMO2 (0.8/8)	1478	6.4	4778	28	96.9	645
			REMO3 (0.8/8)	1420	5.6	1967	1	5.0	32
			REMO4 (0.8/8)	1478	6.5	5358	27	99.7	687
MORJO	Morvai	Fülöpszallas/HU	HUFUL (1.4/5)	2522	3.5	532	29	146.1	267
MOSFA	Moschini	Rovereto/IT	ROVER (1.4/4.5)	3896	4.2	1292	23	14.1	97
OTTMI	Otte	Pearl City/US	ORIE1 (1.4/5.7)	3837	3.8	460	28	138.8	376
PERZS	Perkó	Becsehely/HU	HUBEC (0.8/3.8)*	5498	2.9	460	20	102.3	474
ROTEC	Rothenberg	Berlin/DE	ARMEFA (0.8/6)	2366	4.5	911	23	46.1	134
SARAN	Saraiva	Carnaxide/PT	RO1 (0.75/6)	2362	3.7	381	28	181.7	347
			RO2 (0.75/6)	2381	3.8	459	27	186.4	500
			RO3 (0.8/12)	710	5.2	619	26	170.3	682
			SOFIA (0.8/12)	738	5.3	907	27	161.5	315
SCALE	Scarpa	Alberoni/IT	LEO (1.2/4.5)*	4152	4.5	2052	28	132.0	246
SCHHA	Schremmer	Niederkrüchten/DE	DORAEMON (0.8/3.8)	4900	3.0	409	24	79.6	270
SLAST	Slavec	Ljubljana/SI	KAYAK1 (1.8/28)	563	6.2	1294	17	67.3	332
			KAYAK2 (0.8/12)	741	5.5	920	27	132.9	169
STOEN	Stomeo	Scorze/IT	MIN38 (0.8/3.8)	5566	4.8	3270	30	145.4	987
			NOA38 (0.8/3.8)	5609	4.2	1911	30	149.4	836
			SCO38 (0.8/3.8)	5598	4.8	3306	30	144.6	1064
STRJO	Strunk	Herford/DE	MINCAM2 (0.8/6)	2354	5.4	2751	28	82.0	325
			MINCAM3 (0.8/6)	2338	5.5	3590	26	67.3	244
			MINCAM4 (1.0/2.6)	9791	2.7	552	21	62.2	66
			MINCAM5 (0.8/6)	2349	5.0	1896	22	67.8	143
			MINCAM6 (0.8/6)	2395	5.1	2178	27	64.4	211
TEPIS	Tepliczky	Agostyan/HU	HUAGO (0.75/4.5)	2427	4.4	1036	25	120.9	270
			HUMOB (0.8/6)	2388	4.8	1607	3	13.9	110
TRIMI	Triglav	Velenje/SI	SRAKA (0.8/6)*	2222	4.0	546	17	49.9	114
YRJIL	Yrjölä	Kuusankoski/FI	FINEXCAM (0.8/6)	2337	5.5	3574	2	3.9	24
Sum							31	8610.3	41227

* active field of view smaller than video frame

2. Observing Times (h)

July	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	3.4	3.7	3.9	2.3	1.5	4.1	2.5	2.5	-	4.5	2.5	3.5	-	-	4.5
BERER	5.4	-	4.6	5.2	-	5.5	5.5	-	5.4	5.6	5.6	5.3	-	-	-
BOMMA	6.7	5.8	1.5	6.8	2.7	6.5	5.8	6.3	6.8	-	7.0	4.8	6.9	0.5	0.7
BREMA	-	4.4	4.6	2.3	2.9	4.7	-	2.9	-	0.4	3.9	0.6	4.4	2.7	1.9
BRIBE	-	3.5	1.0	2.0	4.9	5.0	0.4	0.8	3.4	1.0	4.0	3.8	2.2	-	1.7
	2.6	4.4	1.9	-	4.8	3.6	1.6	3.6	4.7	1.0	1.7	3.9	2.5	1.5	2.9
CARMA	-	3.1	-	6.1	5.4	5.8	-	1.6	4.7	4.2	2.4	-	3.5	2.4	6.7
CASFL	-	5.5	-	6.5	5.5	6.3	3.4	5.1	5.9	6.0	4.6	0.7	3.9	3.7	6.9
CRIST	6.2	5.4	6.3	6.3	5.2	6.3	5.7	6.4	6.4	6.5	6.2	4.4	6.3	2.6	6.7
	1.8	0.2	6.2	6.0	5.4	6.4	4.8	3.1	6.5	6.0	6.5	-	6.2	2.4	6.7
	6.2	4.3	6.3	6.3	5.3	6.3	6.1	6.4	6.4	6.5	5.8	3.9	6.6	2.9	6.6
DONJE	6.6	6.1	2.0	6.6	3.9	6.7	5.7	6.6	6.8	6.9	7.0	5.8	6.8	1.7	1.9
ELTMA	6.1	1.5	0.7	6.4	2.7	2.7	6.7	3.9	6.2	6.7	5.1	5.3	5.8	0.2	-
FORKE	4.7	1.9	5.1	-	-	5.2	-	-	2.9	5.0	1.8	-	-	-	2.5
GONRU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.2	7.2	3.7	7.2	7.3	5.5	4.1	7.3	7.3	7.4	4.2	7.3	7.5	7.4	7.4
	5.8	7.4	3.8	7.4	7.3	5.3	4.2	7.5	7.5	7.5	3.4	7.6	5.4	5.9	7.1
	3.1	7.0	-	6.6	4.6	2.6	-	6.4	5.6	7.4	3.1	7.3	7.4	7.3	7.3
	5.0	7.4	2.8	6.8	6.9	4.3	3.8	7.5	7.2	7.5	6.0	5.4	6.1	7.6	7.6
	4.1	7.1	2.7	7.1	5.8	3.8	3.2	5.9	5.3	7.3	3.8	7.3	7.4	7.4	7.3
GOVMI	5.8	4.3	4.5	5.9	-	4.7	6.0	3.8	4.9	6.1	5.9	4.1	-	-	-
	5.8	4.4	2.5	5.9	-	3.1	6.0	3.6	3.7	6.1	-	4.1	-	-	-
	5.8	3.7	3.3	5.8	-	4.3	6.0	3.6	4.1	6.1	5.6	4.9	-	0.5	-
HERCA	-	7.6	7.7	7.6	6.6	8.4	-	6.0	7.5	8.5	8.4	8.5	8.5	8.5	8.6
IGAAN	5.6	2.1	5.8	5.7	-	5.6	5.6	-	5.5	5.9	5.6	4.5	-	5.5	-
JONKA	4.8	3.4	5.7	5.8	3.1	6.0	6.1	1.8	6.1	-	6.2	5.5	-	5.0	-
	5.9	2.2	5.9	3.4	3.3	4.4	6.0	-	6.1	6.1	6.2	2.3	-	5.2	-
KACJA	5.6	-	-	6.0	-	-	-	-	-	-	6.3	2.0	-	-	4.8
	6.3	-	-	6.4	-	0.2	3.1	-	6.4	6.6	6.4	2.4	-	2.0	6.6
	-	-	-	6.2	-	-	-	-	-	-	6.4	2.1	-	-	4.0
	-	-	-	6.2	-	-	-	-	-	-	6.4	2.0	-	-	3.8
KOSDE	5.0	7.9	6.7	6.1	4.9	6.3	-	6.2	7.3	5.9	6.2	5.7	3.8	8.0	7.4
	7.8	7.8	7.9	-	-	7.9	7.9	7.9	7.9	-	-	8.0	8.0	8.0	7.0
	8.5	8.3	8.2	8.2	8.5	8.5	8.5	8.5	8.0	8.1	8.1	8.2	7.7	8.3	8.3
	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0	8.1	8.1	7.0
LOJTO	5.0	4.6	-	3.5	-	-	5.0	-	-	5.3	-	-	0.2	-	1.5
LOPAL	-	6.7	3.2	6.2	-	-	6.4	7.6	7.5	7.6	4.8	7.5	6.5	7.6	7.6
MACMA	3.8	5.0	4.8	5.0	2.2	-	4.8	-	3.4	4.1	2.1	4.4	2.9	3.3	3.1
	4.2	5.1	4.4	4.7	1.5	0.8	4.8	1.0	3.5	4.1	2.2	4.1	2.8	2.8	3.2
	3.8	-	-	3.6	0.8	0.4	4.6	0.2	1.3	3.5	0.6	2.3	2.1	2.5	2.8
	4.2	5.0	4.6	4.7	1.3	1.0	4.7	0.9	3.3	3.8	2.0	4.0	2.6	3.2	3.0
MARRU	7.2	7.2	5.6	-	5.5	2.9	7.3	7.3	7.4	7.4	7.4	7.4	7.4	7.5	7.5
	-	7.5	5.3	7.5	-	2.6	6.6	7.5	4.9	6.4	5.7	7.6	7.5	6.9	5.0
MASMI	-	-	-	2.2	2.1	0.9	1.5	2.5	2.3	1.8	2.8	2.9	3.0	2.3	0.9
MOLSI	0.9	4.7	-	4.7	2.9	4.5	4.8	-	4.8	4.9	-	-	-	2.4	1.8
	5.3	4.2	-	5.4	5.4	5.3	5.5	-	5.6	5.6	-	-	-	2.0	3.0
	3.0	3.8	-	4.8	4.7	4.4	3.3	0.6	1.4	5.2	-	-	-	0.8	1.4
	4.3	3.8	4.2	1.7	1.4	4.4	2.8	3.1	-	3.7	1.6	4.6	1.2	-	4.8
	4.3	3.8	4.4	1.1	1.4	4.6	2.3	3.3	0.3	4.2	1.7	4.8	1.4	-	4.9
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0
	4.2	3.8	4.5	1.3	1.4	4.6	2.1	3.2	-	3.9	1.1	4.7	1.5	-	5.0
MORJO	6.0	5.7	5.7	4.2	5.0	5.7	6.1	4.5	6.3	6.1	5.9	5.4	0.5	3.4	-
MOSFA	-	-	-	0.8	0.3	0.5	0.2	0.2	0.8	0.3	-	-	0.2	0.3	0.2
OTTMI	5.5	4.1	1.2	-	0.9	1.7	7.1	7.1	6.6	4.9	7.1	2.6	6.6	7.2	-
PERZS	-	4.4	5.4	6.2	-	5.0	6.2	3.8	6.1	6.3	6.4	6.1	-	3.7	-
ROTEC	0.3	2.1	0.6	0.1	0.7	2.4	1.1	2.0	-	1.7	-	0.7	-	-	3.9
SARAN	7.5	6.2	5.3	7.7	-	2.6	7.3	7.5	7.5	7.4	6.6	7.6	7.9	8.0	7.1
	7.2	6.3	4.4	7.4	-	1.9	7.5	7.4	7.4	-	5.7	7.7	7.8	7.8	7.7
	7.3	6.0	5.9	7.2	-	2.3	7.4	7.1	-	-	-	-	7.4	7.5	7.4
	6.7	6.1	5.0	3.7	-	2.7	7.2	6.8	7.5	7.4	5.6	7.6	6.9	5.7	5.7
SCALE	6.2	1.9	-	6.2	-	2.8	6.4	2.9	5.6	6.6	3.4	6.0	5.8	-	5.4
SCHHA	-	1.1	1.6	-	1.9	5.0	-	2.8	2.2	0.7	4.4	3.3	5.1	5.0	-
SLAST	3.1	3.4	-	4.0	-	4.1	5.8	4.0	5.6	6.0	5.9	3.5	-	0.4	0.1
	6.2	3.5	2.1	6.1	-	4.6	6.0	3.9	6.1	6.3	6.3	5.7	-	2.2	6.6
STOEN	6.4	1.4	0.3	6.5	2.6	3.2	5.8	3.6	4.6	6.2	3.1	5.7	6.8	-	6.3
	6.3	1.5	0.2	6.5	3.0	2.5	5.7	3.2	4.9	6.6	3.9	5.4	6.6	-	6.6
	6.4	1.1	0.2	6.4	2.8	2.0	5.2	2.7	3.7	6.6	4.1	5.3	6.7	-	6.8
STRJO	2.3	3.8	3.5	4.4	3.1	4.7	2.6	1.4	2.4	2.7	4.2	3.7	-	1.4	3.8
	1.9	3.3	3.3	4.1	2.0	4.2	0.8	1.5	2.6	0.8	4.7	3.5	-	0.5	3.2
	0.4	3.7	4.0	4.6	-	4.8	0.7	1.4	2.4	1.4	4.8	-	-	-	3.6
	2.3	3.2	3.5	4.2	2.4	4.7	-	1.4	2.4	-	4.3	4.0	-	0.5	3.2
	0.9	3.3	2.8	3.9	2.0	3.8	0.2	1.7	1.8	0.4	4.5	2.8	-	0.2	3.1
TEPIS	5.6	-	5.6	5.0	2.8	5.1	5.7	0.5	5.7	5.8	5.6	4.7	-	6.0	-
	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	-
TRIMI	4.4	1.0	1.5	2.2	-	1.7	3.4	1.4	-	4.4	2.5	2.4	-	-	-
YRJIL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum	290.8	283.8	226.3	342.8	176.5	278.3	291.5	249.2	312.4	324.9	304.0	297.2	232.4	216.4	285.1

July	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ARLRA	-	-	2.9	3.5	4.0	4.5	4.9	2.3	5.0	3.3	5.4	1.5	0.2	1.4	5.2	2.5
BERER	-	-	-	4.3	6.4	-	5.4	6.0	4.6	-	-	-	-	6.1	6.6	-
BOMMA	4.2	7.0	7.0	7.0	7.1	7.2	5.9	2.4	3.6	7.2	7.4	6.8	6.7	7.4	7.5	3.7
BREMA	-	4.8	5.3	-	3.8	1.3	4.2	4.4	4.8	4.5	-	2.2	0.6	2.7	0.7	6.2
BRIBE	2.6	4.4	5.4	5.5	0.3	-	-	5.4	0.8	1.7	4.3	-	1.3	2.1	1.9	5.4
	-	4.0	5.3	5.3	0.2	1.0	0.2	-	0.7	2.8	2.9	-	1.6	1.0	3.2	6.2
CARMA	6.7	6.7	6.6	2.4	5.2	3.8	5.3	4.0	3.6	-	2.7	-	7.1	6.8	6.9	-
CASFL	6.9	6.9	7.0	3.2	5.2	5.2	5.9	4.1	4.9	-	3.2	-	7.4	7.3	7.2	-
CRIST	-	6.6	6.7	6.8	5.8	3.9	-	0.3	6.8	5.7	7.1	4.1	7.2	7.2	4.5	2.5
	6.7	2.7	6.0	6.7	4.5	3.4	0.3	0.5	6.9	5.1	5.8	4.3	5.5	5.6	2.0	3.5
	6.7	6.7	6.7	6.8	5.9	5.3	1.3	0.2	6.6	5.9	7.1	3.5	7.1	6.7	4.6	3.2
DONJE	4.3	7.0	6.9	7.0	7.1	7.4	7.1	4.0	4.5	7.4	7.5	7.2	7.3	7.6	7.7	6.3
ELTMA	4.6	6.6	2.5	4.2	3.7	2.5	3.8	5.4	2.2	4.8	5.2	2.4	6.4	7.2	6.3	3.2
FORKE	-	1.5	5.7	5.5	5.6	2.0	3.4	-	-	-	0.2	2.4	-	2.1	4.9	-
GONRU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3
	7.4	7.4	7.5	4.5	6.9	5.2	7.7	7.8	7.8	7.8	2.6	7.9	7.9	5.8	1.6	8.0
	6.4	7.6	7.7	4.1	4.8	1.5	7.8	7.7	7.9	7.9	2.5	8.0	8.0	5.9	1.5	8.1
	7.4	7.4	7.4	4.0	5.4	4.3	7.6	7.7	7.6	7.7	1.5	7.7	7.7	5.8	-	7.7
	7.6	7.7	7.6	4.1	6.8	4.9	7.8	7.9	7.8	7.9	2.4	8.0	8.0	5.9	1.3	8.1
	7.3	7.0	7.2	0.7	2.5	3.9	7.0	7.7	7.7	7.7	1.6	7.7	7.8	5.7	-	7.6
GOVMI	-	1.7	2.7	3.9	4.6	-	3.2	4.5	2.0	4.5	3.9	2.5	3.3	5.7	5.7	3.5
	-	1.8	0.2	2.2	-	-	3.2	4.2	0.2	-	-	-	-	-	-	-
	-	4.0	2.2	6.3	5.2	-	5.8	6.0	1.6	4.6	4.0	2.9	1.8	5.4	1.5	2.5
HERCA	8.7	0.4	0.7	2.2	3.4	4.5	3.9	7.9	7.6	4.4	8.1	-	0.2	8.1	1.3	-
IGAAN	-	1.8	2.6	4.6	6.3	2.9	5.3	5.7	-	0.8	-	5.0	3.2	5.7	6.8	-
JONKA	-	1.4	3.7	5.5	6.2	4.4	4.7	5.0	4.5	-	1.7	5.6	6.6	6.0	7.1	-
	-	1.4	2.9	6.1	4.8	4.0	5.4	5.1	4.6	-	2.3	3.9	6.0	6.5	7.0	-
KACJA	-	4.5	4.1	5.6	6.6	-	5.3	6.7	-	2.7	-	-	3.4	6.8	2.7	2.8
	-	6.9	5.7	6.6	3.3	-	6.9	2.8	1.3	2.5	3.6	1.0	2.6	7.2	1.9	6.6
	-	4.1	3.6	5.8	6.6	-	5.4	6.8	-	4.3	-	-	4.3	6.5	3.6	4.6
	-	4.8	3.4	6.2	6.7	-	5.3	6.6	-	3.4	-	-	3.3	6.8	1.0	3.7
KOSDE	7.0	8.1	2.5	-	0.9	5.2	-	-	8.3	7.5	7.6	7.5	8.1	1.5	-	7.1
	6.5	6.0	-	-	-	-	3.1	3.5	-	4.4	5.5	6.5	7.5	8.4	-	8.4
	7.5	8.6	2.3	7.7	-	8.6	8.5	8.4	8.4	8.0	8.4	7.2	8.8	4.1	-	8.8
	6.6	6.1	5.1	8.1	7.3	7.8	8.2	8.2	8.3	7.7	8.3	8.3	8.4	8.5	-	8.4
LOJTO	-	-	-	2.8	3.4	5.8	2.1	5.8	5.2	-	-	-	-	5.8	5.2	-
LOPAL	7.5	6.2	5.5	-	7.9	-	7.8	7.9	8.0	7.9	3.6	5.5	7.4	1.8	0.5	8.4
MACMA	-	-	1.2	3.6	5.8	2.5	-	5.4	5.9	1.3	4.6	3.6	1.9	6.3	3.1	2.7
	-	-	0.9	4.0	5.8	3.1	-	5.0	6.2	1.0	4.9	2.3	1.4	6.5	2.5	3.1
	-	-	0.8	3.5	5.6	1.4	-	4.2	4.8	-	3.8	1.3	0.5	6.2	2.8	1.5
	-	-	1.5	4.0	5.8	3.2	-	5.3	6.0	0.7	5.0	2.9	2.0	6.3	3.2	2.5
MARRU	7.5	7.5	7.5	3.2	7.7	6.8	7.7	7.8	7.8	7.9	3.8	7.8	7.9	4.9	5.4	8.1
	7.2	6.2	7.6	4.4	7.4	-	7.9	7.7	8.0	8.0	6.3	8.0	7.5	2.6	-	8.2
MASMI	1.4	0.9	1.5	0.5	-	3.8	1.3	2.2	3.1	3.2	-	4.3	-	-	-	-
MOLSI	0.5	1.8	5.3	5.0	0.4	-	1.2	-	5.7	4.1	5.8	3.9	5.2	3.9	5.4	2.8
	-	4.6	6.0	6.0	6.0	0.9	-	-	6.1	5.7	6.4	4.3	5.3	6.5	6.2	2.9
	0.7	2.7	4.8	5.1	4.9	0.4	-	-	5.0	0.2	5.6	3.1	4.8	3.0	5.5	2.0
	1.0	-	4.7	3.0	4.5	5.0	5.2	4.4	5.2	2.6	4.2	4.4	-	0.7	5.8	4.4
	1.3	-	4.6	2.8	3.8	5.0	5.2	4.2	5.4	2.5	4.2	4.6	-	0.8	5.8	4.2
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.4	-	5.1	3.2	4.5	5.2	5.5	5.5	5.6	2.7	4.2	4.7	-	0.6	5.9	4.3
MORJO	-	2.4	2.8	3.5	6.5	6.1	5.0	5.3	3.1	3.6	6.4	6.7	6.9	6.6	6.9	3.8
MOSFA	1.2	0.8	0.9	-	0.3	0.5	0.5	0.3	0.8	0.3	0.2	-	0.7	1.6	2.2	-
OTTMI	6.1	7.3	5.7	4.1	-	3.5	0.7	1.4	7.6	7.6	7.5	1.1	3.7	7.5	7.8	4.6
PERZS	-	-	3.3	-	-	-	4.9	6.7	2.6	-	3.5	5.6	2.3	6.7	7.1	-
ROTEC	-	-	-	0.4	2.1	3.3	4.6	1.5	4.7	3.7	4.8	0.4	-	0.6	3.7	0.7
SARAN	7.9	7.8	7.5	4.4	6.2	-	6.2	7.8	7.5	8.2	0.9	6.1	-	2.5	4.1	8.4
	7.8	7.7	7.9	5.8	8.1	-	8.0	8.2	7.7	8.2	0.9	7.9	8.2	-	5.5	8.3
	7.6	7.7	7.8	6.7	7.9	1.9	7.6	7.9	7.4	8.0	1.8	7.5	7.9	2.6	6.3	8.2
	5.7	-	4.1	2.2	5.2	-	6.3	7.8	7.4	8.0	-	7.6	7.5	2.5	4.3	8.3
SCALE	4.2	6.4	3.9	5.9	5.9	7.0	5.2	3.7	1.2	4.6	2.5	0.4	6.5	6.6	5.8	3.0
SCHHA	2.6	5.4	5.7	5.6	-	-	1.7	4.5	2.9	3.1	4.4	-	1.3	3.9	3.6	1.8
SLAST	-	5.6	5.7	-	-	-	-	-	-	-	-	-	2.3	-	2.4	5.4
	-	6.6	5.9	6.7	6.7	0.7	6.5	6.8	-	5.4	3.5	0.9	2.3	6.8	2.6	5.9
STOEN	5.3	6.9	4.7	5.1	5.3	5.7	5.4	6.0	3.6	5.2	3.7	1.3	6.1	7.4	6.9	4.3
	6.3	7.0	4.7	5.3	6.2	6.3	5.6	5.6	4.7	6.0	3.5	0.9	6.6	7.4	6.5	3.9
	6.1	6.9	3.8	5.6	5.8	5.8	5.6	5.9	4.7	5.9	3.2	1.0	6.2	7.2	6.7	4.2
STRJO	-	5.3	5.4	5.3	0.4	3.9	3.2	0.2	2.4	3.2	0.3	0.6	-	3.9	0.2	3.7
	-	5.2	3.1	5.3	-	4.0	2.9	-	1.6	2.4	-	0.3	0.1	2.7	0.3	3.0
	-	3.2	5.4	5.4	2.4	4.3	3.4	-	-	3.2	-	0.6	-	1.9	0.6	-
	-	4.9	4.5	5.0	-	3.3	3.0	-	1.7	2.8	-	-	-	2.9	0.3	3.3
	-	5.2	5.4	5.3	0.5	3.4	1.3	0.2	2.1	2.6	-	0.7	-	0.8	1.0	4.5
TEPIS	-	3.0	2.4	5.9	6.2	3.0	5.0	5.7	5.2	-	2.9	4.4	5.8	6.7	6.6	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	6.6	-
TRIMI	-	-	-	-	-	-	3.5	5.7	-	-	-	2.7	1.5	5.7	2.9	3.0
YRJIL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	2.2
Sum	204.4	298.8	310.7	301.0	302.3	210.5	299.8	315.8	307.5	282.0	235.2	241.5	285.1	342.5	272.1	289.5

3. Results (Meteors)

July	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	21	21	36	11	7	33	11	14	-	22	9	11	-	-	51
BERER	17	-	23	26	-	37	32	-	53	36	38	24	-	-	-
BOMMA	32	25	4	35	11	21	22	33	32	-	32	22	39	2	5
BREMA	-	9	14	2	4	9	-	7	-	1	8	3	15	7	4
BRIBE	-	11	1	7	20	16	2	1	8	5	17	14	9	-	5
	3	13	7	-	16	3	1	7	11	2	2	4	7	7	6
CARMA	-	5	-	14	15	10	-	2	5	6	5	-	7	4	34
CASFL	-	6	-	28	27	21	7	3	7	18	17	5	9	9	35
CRIST	12	11	24	19	20	27	11	24	31	32	19	15	41	25	38
	2	1	16	24	13	18	8	14	20	18	20	-	29	21	30
	33	16	36	40	36	44	12	49	54	51	34	20	55	24	59
DONJE	31	35	5	32	9	34	34	46	47	40	51	23	59	4	4
ELTMA	16	6	2	27	9	5	24	14	11	32	14	21	28	1	-
FORKE	16	7	33	-	-	22	-	-	16	17	2	-	-	-	11
GONRU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9	31	5	28	23	12	12	28	28	59	17	39	42	32	39
	16	32	2	14	10	7	10	34	23	49	10	45	34	40	39
	1	10	-	7	1	2	-	5	7	16	5	11	15	13	11
	5	28	6	10	14	8	9	24	23	30	19	14	26	35	31
	8	23	5	23	6	11	7	18	28	32	13	43	43	49	38
GOVMI	13	9	14	20	-	7	25	11	15	16	17	18	-	-	-
	9	7	4	17	-	5	18	10	5	15	-	10	-	-	-
	11	5	8	9	-	8	13	8	7	13	20	11	-	2	-
HERCA	-	14	16	16	17	31	-	8	24	23	32	25	25	16	13
IGAAN	5	1	10	3	-	6	5	-	4	8	7	5	-	5	-
JONKA	4	3	10	9	7	10	18	2	11	-	8	11	-	7	-
	7	2	13	4	4	12	10	-	12	18	9	8	-	3	-
KACJA	24	-	-	33	-	-	-	-	-	-	40	2	-	-	18
	25	-	-	34	-	1	15	-	23	32	31	3	-	8	4
	-	-	-	45	-	-	-	-	-	-	52	7	-	-	9
	-	-	-	18	-	-	-	-	-	-	20	2	-	-	13
KOSDE	46	65	45	40	27	45	-	49	46	46	48	28	36	58	60
	82	85	95	-	-	103	99	89	102	-	-	97	115	64	76
	106	107	125	112	127	112	118	108	122	118	143	71	63	80	73
	101	122	86	106	94	77	101	102	109	94	122	97	91	89	74
LOJTO	24	17	-	20	-	-	23	-	-	24	-	-	1	-	8
LOPAL	-	5	6	4	-	-	6	6	4	5	1	8	4	5	5
MACMA	9	30	21	32	3	-	32	-	10	26	6	27	13	15	9
	3	6	6	16	1	2	13	1	10	23	5	19	6	18	9
	10	-	-	14	1	1	20	1	5	14	1	10	2	8	7
	16	22	13	34	3	4	21	3	11	24	3	18	9	14	9
MARRU	19	20	10	-	8	10	31	20	21	19	29	31	40	35	27
	-	18	13	20	-	10	5	20	9	25	9	27	28	10	9
MASMI	-	-	-	12	6	4	4	6	8	5	11	5	16	10	7
MOLSI	8	33	-	52	39	83	66	-	60	47	-	-	-	27	14
	15	9	-	17	11	25	10	-	18	18	-	-	-	6	5
	6	20	-	26	21	22	15	1	5	29	-	-	-	7	2
	27	30	36	9	6	46	8	22	-	15	1	26	3	-	63
	20	29	40	10	4	42	6	27	1	9	6	21	2	-	53
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
	27	35	27	6	5	45	6	27	-	10	5	25	1	-	50
MORJO	6	3	11	2	3	8	14	3	10	13	9	7	1	4	-
MOSFA	-	-	-	7	2	3	1	1	5	2	-	-	2	2	1
OTTMI	2	6	7	-	6	12	23	8	17	6	22	10	15	15	-
PERZS	-	9	23	30	-	22	32	13	26	34	37	21	-	7	-
ROTEC	2	4	6	1	2	8	6	3	-	3	-	3	-	-	14
SARAN	14	7	5	6	-	2	7	16	16	11	9	22	18	17	11
	8	9	6	5	-	1	16	18	22	-	12	18	16	10	14
	24	22	10	12	-	5	13	26	-	-	-	-	24	24	26
	12	12	6	13	-	1	12	12	12	9	12	12	19	11	9
SCALE	12	3	-	14	-	2	7	2	5	9	3	10	10	-	17
SCHHA	-	1	10	-	14	9	-	9	3	2	12	8	26	24	-
SLAST	14	10	-	29	-	28	21	19	33	32	33	11	-	3	1
	4	1	1	10	-	2	6	6	8	7	4	7	-	2	8
STOEN	30	8	2	43	20	20	31	12	20	49	11	34	59	-	58
	25	8	1	42	16	12	24	9	12	32	12	28	42	-	58
	32	6	1	41	26	14	28	13	14	47	19	42	50	-	66
STRJO	4	21	19	20	9	22	4	3	7	3	38	23	-	2	15
	4	11	18	16	1	21	2	8	7	2	22	15	-	1	16
	2	4	4	1	-	7	1	1	2	3	4	-	-	-	2
	2	9	8	5	2	8	-	2	1	-	7	4	-	1	5
	2	11	9	12	4	15	1	4	3	1	13	13	-	1	5
TEPIS	10	-	14	6	3	11	16	1	12	12	15	6	-	20	-
	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-
TRIMI	8	2	3	5	-	3	9	5	-	11	7	5	-	-	-
YRJIL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum	1056	1151	981	1405	733	1287	1164	1038	1281	1430	1269	1225	1195	904	1415

July	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ARLRA	-	-	13	18	20	22	44	8	44	25	64	8	1	6	41	37
BERER	-	-	-	51	40	-	19	31	13	-	-	-	-	67	86	-
BOMMA	24	41	37	36	35	33	32	7	20	40	51	61	66	81	68	32
BREMA	-	20	25	-	13	3	3	3	10	15	-	21	1	20	2	41
BRIBE	4	16	21	22	2	-	-	20	4	5	13	-	5	10	8	39
	-	14	18	16	1	2	1	-	1	9	9	-	7	3	12	55
CARMA	19	23	22	2	17	3	9	6	12	-	13	-	41	35	37	-
CASFL	33	39	28	9	17	11	16	8	13	-	20	-	46	54	46	-
CRIST	-	32	25	14	10	5	-	2	22	30	31	79	78	72	37	27
	29	9	23	26	11	10	1	2	24	24	39	81	58	36	6	38
	61	55	51	55	32	27	3	1	41	49	59	108	116	98	53	56
DONJE	24	66	50	52	50	48	38	7	18	44	70	91	84	86	93	40
ELTMA	23	25	13	15	15	8	16	16	12	31	30	13	60	52	44	11
FORKE	-	3	25	27	22	3	10	-	-	-	1	12	-	18	56	-
GONRU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39
	29	27	43	10	23	23	31	40	51	57	9	73	74	40	5	82
	20	18	15	5	15	5	28	39	46	52	6	85	53	37	2	68
	11	9	19	2	5	2	18	20	20	14	1	29	27	14	-	30
	21	24	24	8	16	16	22	46	64	41	9	95	66	43	1	79
	35	20	19	1	2	6	21	43	33	50	1	81	56	31	-	78
GOVMI	-	3	6	9	12	-	9	13	3	12	13	19	8	41	16	18
	-	2	1	4	-	-	3	4	1	-	-	-	-	-	-	-
	-	8	4	9	15	-	11	11	4	11	6	10	2	21	3	12
HERCA	17	1	2	7	10	18	4	35	25	3	27	-	1	30	7	-
IGAAN	-	3	5	2	8	2	5	3	-	4	-	8	8	6	23	-
JONKA	-	5	10	10	12	6	6	3	6	-	2	17	10	31	26	-
	-	4	4	14	8	4	9	4	9	-	5	12	13	36	31	-
KACJA	-	33	38	26	33	-	19	30	-	11	-	-	30	57	10	32
	-	45	11	36	13	-	38	17	2	6	10	7	17	80	7	71
	-	35	34	28	36	-	16	32	-	20	-	-	73	75	18	55
	-	26	14	13	21	-	11	20	-	11	-	-	36	41	3	23
KOSDE	73	98	4	-	2	27	-	-	88	52	63	128	54	10	-	36
	112	80	-	-	-	-	23	24	-	30	42	118	135	143	-	124
	59	89	8	9	-	34	52	88	108	48	95	177	165	27	-	144
	85	53	44	17	22	38	58	92	84	66	109	192	203	195	-	169
LOJTO	-	-	-	20	21	37	4	36	14	-	-	-	-	30	34	-
LOPAL	1	7	2	-	5	-	5	6	9	7	2	21	17	1	2	23
MACMA	-	-	3	17	23	14	-	20	37	5	22	28	5	69	26	10
	-	-	4	23	26	11	-	19	34	3	15	13	5	61	30	7
	-	-	3	16	25	4	-	23	9	-	10	10	2	23	21	10
	-	-	9	20	27	10	-	26	46	2	20	14	6	43	28	9
MARRU	33	19	27	2	32	22	27	46	40	62	17	80	72	20	23	99
	14	15	19	7	25	-	18	14	11	18	14	68	41	6	-	51
MASMI	8	2	5	2	-	13	3	4	24	7	-	17	-	-	-	-
MOLSI	4	16	37	31	2	-	1	-	71	39	60	28	31	50	66	23
	-	9	17	16	19	6	-	-	8	7	10	14	11	44	22	9
	1	6	25	17	16	3	-	-	17	2	14	34	21	19	33	8
	6	-	55	30	27	37	69	27	44	25	24	66	-	3	61	57
	4	-	27	11	12	15	40	20	45	8	20	62	-	3	58	50
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	39	14	17	32	57	27	37	10	15	54	-	1	63	45
MORJO	-	7	3	5	8	14	3	6	7	1	20	24	16	27	19	13
MOSFA	10	5	7	-	2	3	3	2	6	2	1	-	5	10	15	-
OTTMI	13	27	12	8	-	15	4	5	18	24	21	2	13	17	29	19
PERZS	-	-	9	-	-	-	9	18	8	-	12	45	12	57	50	-
ROTEC	-	-	-	1	7	6	11	4	11	10	14	4	-	1	10	3
SARAN	17	11	6	1	8	-	7	18	16	25	4	16	-	4	17	36
	13	9	9	12	17	-	25	28	26	24	1	48	42	-	33	58
	29	16	21	17	40	4	37	36	30	45	3	72	50	5	36	55
	10	-	7	3	4	-	5	22	11	19	-	18	18	1	11	34
SCALE	8	14	8	4	7	5	6	5	4	18	6	1	25	22	16	3
SCHHA	5	17	17	16	-	-	5	15	7	9	15	-	4	18	16	8
SLAST	-	21	12	-	-	-	-	-	-	-	-	-	15	-	6	44
	-	11	16	8	7	1	8	6	-	4	3	4	5	15	3	12
STOEN	41	36	28	21	13	24	28	31	22	51	27	14	98	77	58	21
	39	42	24	17	14	21	29	20	23	58	19	6	83	57	46	17
	60	48	31	26	28	31	24	26	36	52	30	13	108	79	52	21
STRJO	-	23	25	24	3	3	6	1	5	11	2	2	-	16	1	13
	-	24	13	16	-	11	5	-	4	4	-	2	1	11	1	8
	-	5	7	8	3	4	2	-	-	2	-	2	-	1	1	-
	-	6	11	25	-	5	7	-	4	7	-	-	-	8	2	14
	-	20	25	17	2	4	1	1	5	6	-	2	-	2	6	26
TEPIS	-	8	5	8	13	2	6	6	1	-	4	15	12	30	34	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	52	48	-
TRIMI	-	-	-	-	-	-	7	12	-	-	-	3	3	12	5	14
YRJIL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	13
Sum	1002	1350	1224	1016	991	713	1038	1205	1468	1327	1223	2327	2315	2491	1734	2269