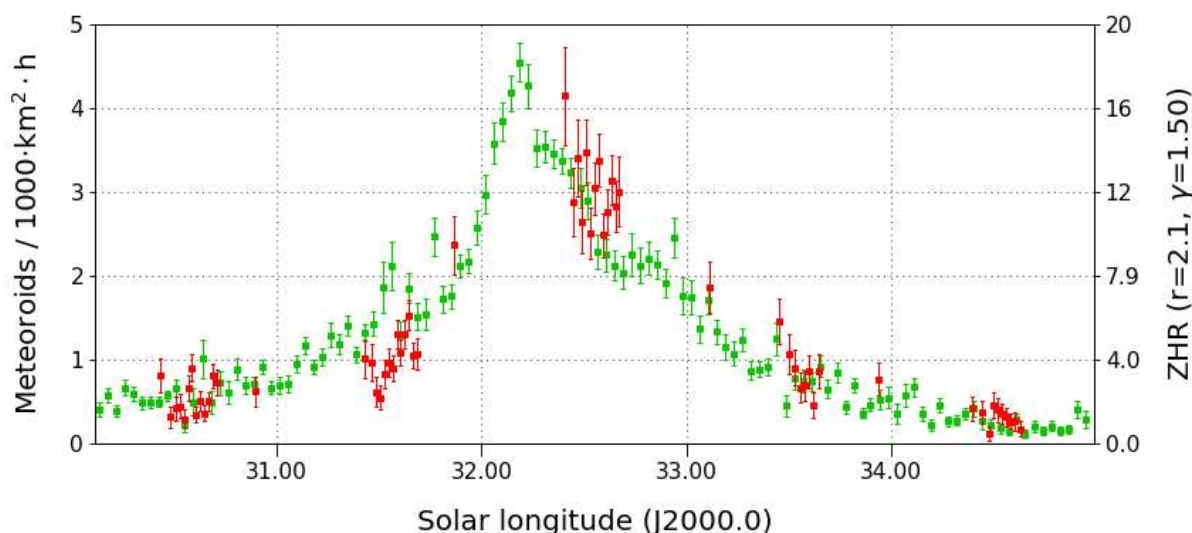


In April 2018, the number of active video cameras increased slightly, which is also thanks to our Hungarian observer Henrietta Nagy. With HUZAN, she is meanwhile operating a third Mintron camera, this time equipped with a 6mm f/0.8 c-mount lens. Overall 80 cameras enjoyed an unusually pleasant spring month, in which the weather conditions in Europe were somehow turned upside down. Cameras in northern Central Europe (Germany, Poland) with typically unsteady weather conditions enjoyed often up to 25 observing nights, whereas in the sun-kissed states of Southern Europe (Italy, Spain) the cameras collected fewer nights. Two third of all cameras managed to observe in twenty or more observing nights, which is a threefold increase compared to March. In total we recorded over 18,500 meteors in almost 9,000 hours of effective observing time. That is the second-best April output ever which is only eclipsed by April 2015. It does not yet level out the poor start, but the year 2018 is at least catching up a bit.

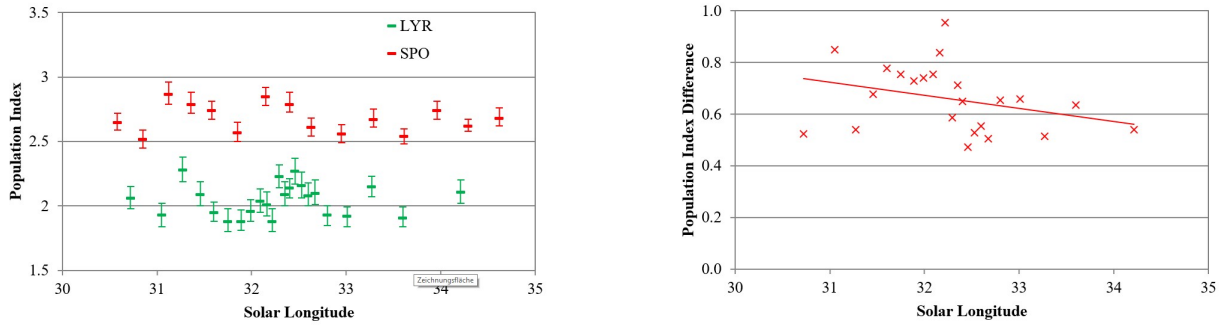
The first relevant shower after the spring minimum are the Lyrids around April 22. Observing conditions for this shower were favorable this year, because the weather was often fine and the waxing moon did not interfere with observations in the second half of night. Since the measured flux density was nearly identical in the nights before and after the peak (April 21/22 and 23/24, respectively) one could assume that we might have caught exactly the Lyrid peak on April 22/23. However, if the flux density of 2018 is projected onto the average profile of the years 2012-2017 (figure 1) it becomes clear that we missed the peak in Central Europe by a few hours. The first meteors were recorded that night at 32.4° solar longitude. The peak in the long-term video profile is positioned at 32.17°, which fell in the afternoon hours of April 22, 2018. This point in time is also somewhat earlier than given in the IMO handbook (32.32° solar longitude), and with 0.6° solar longitude also the full width at half maximum (FWHM) is only half the size given by IMO. However, the width of the Lyrids is also mentioned to vary between half a day and two and a half days depending on the strength of the Lyrid peak. Times of half activity are positioned at about 32.0° and 32.6° solar longitude, which hints on an asymmetric activity profile with a steep ascending and a somewhat shallower descending branch. That can also be recognized visually in the activity profile.



**Figure 1:** Flux density profile of the Lyrids in April 2018 (green) and in the average of the years 2012-2017 (red), derived from video data of the IMO Network.

The mean population index of the Lyrids is about 0.6 smaller than the sporadic population index (Figure 2, left) if all data since 2012 are processed. However, it is difficult to analyze fine

structures, because both profiles have the same shape. If the difference between them is calculated (figure 2, right), we find a small peak at  $32.2^\circ$  solar longitude where the difference is almost 1.0. Thus, the percentage of bright Lyrids is particularly high directly at the peak time.



**Figure 2:** Population index profile of the Lyrids and sporadic meteors in the average of the years 2012-2018 (left), and the difference between both profiles (right).

# 1. Observers

Code	Name	Place	Camera	FOV [°]	St.LM [mag]	Eff.CA [km <sup>2</sup> ]	Nights	Time [h]	Meteors
ARLRA	Arlt	Ludwigsfelde/DE	LUDWIG2 (0.8/8)	1475	6.2	3779	26	126.6	419
BERER	Berkó	Ludanyhalaszi/HU	HULUD1 (0.8/3.8)	5542	4.8	3847	6	34.0	119
BIATO	Bianchi	Mt. San Lorenzo/IT	OMSL1 (1.2/4)	6435	4.0	1705	18	17.7	115
BOMMA	Bombardini	Faenza/IT	MARIO (1.2/4.0)	5794	3.3	739	28	159.8	440
BREMA	Breukers	Hengelo/NL	MBB3 (0.75/6)	2399	4.2	699	10	26.7	67
BRIBE	Klemt	Herne/DE	HERMINE (0.8/6)	2374	4.2	678	23	125.9	225
		Berg. Gladbach/DE	KLEMOI (0.8/6)	2286	4.6	1080	22	134.2	208
CARMA	Carli	Monte Baldo/IT	BMH2 (1.5/4.5)*	4243	3.0	371	24	163.4	613
CASFL	Castellani	Monte Baldo/IT	BMH1 (0.8/6)	2350	5.0	1611	21	148.4	279
CINFR	Cineglosso	Faenza/IT	JENNI (1.2/4)	5886	3.9	1222	27	24.9	165
CRIST	Crivello	Valbrevenna/IT	ARCI (0.8/3.8)	5566	4.6	2575	22	135.6	286
			BILBO (0.8/3.8)	5458	4.2	1772	21	126.5	313
			C3P8 (0.8/3.8)	5455	4.2	1586	22	112.4	208
			STG38 (0.8/3.8)	5614	4.4	2007	21	146.9	492
ELTMA	Eltri	Venezia/IT	MET38 (0.8/3.8)	5631	4.3	2151	18	118.1	283
FORKE	Förster	Carlsfeld/DE	AKM3 (0.75/6)	2375	5.1	2154	19	126.9	289
GONRU	Goncalves	Foz do Arelho/PT	FARELHO1 (0.75/4.5)	2286	3.0	208	17	81.7	31
		Tomar/PT	TEMPLAR1 (0.8/6)	2179	5.3	1842	21	146.4	323
			TEMPLAR2 (0.8/6)	2080	5.0	1508	21	144.3	243
			TEMPLAR3 (0.8/8)	1438	4.3	571	21	138.4	88
			TEMPLAR4 (0.8/3.8)	4475	3.0	442	23	120.7	215
			TEMPLAR5 (0.75/6)	2312	5.0	2259	21	127.1	187
GOVMI	Govedic	Sredisce ob Dr./SI	ORION2 (0.8/8)	1447	5.5	1841	23	127.3	202
			ORION3 (0.95/5)	2665	4.9	2069	16	73.0	79
			ORION4 (0.95/5)	2662	4.3	1043	16	53.0	111
HERCA	Hergenrother	Tucson/US	SALSA3 (0.8/3.8)	2336	4.1	544	27	224.6	263
HINWO	Hinz	Schwarzenberg/DE	HINWO1 (0.75/6)	2291	5.1	1819	25	153.6	284
IGAAN	Igaz	Budapest/HU	HUPOL (1.2/4)	3790	3.3	475	13	84.2	31
JONKA	Jonas	Budapest/HU	HUSOR (0.95/4)	2286	3.9	445	22	157.1	97
			HUSOR2 (0.95/3.5)	2465	3.9	715	24	135.2	149
KACJA	Kac	Kamnik/SI	CVETKA (0.8/3.8)	4914	4.3	1842	13	90.1	322
		Kostanjevec/SI	METKA (0.8/12)*	715	6.4	640	10	31.4	107
		Kamnik/SI	REZIKA (0.8/6)	2270	4.4	840	14	88.7	459
			STEFKA (0.8/3.8)	5471	2.8	379	13	91.7	224
KOSDE	Koschny	Izana Obs./ES	LIC1 (2.8/50)*	2255	6.2	5670	3	12.0	42
LOJTO	Łojek	Grabniak/PL	PAV57 (1.0/5)	1631	3.5	269	9	59.7	196
MACMA	Maciejewski	Chelm/PL	PAV35 (0.8/3.8)	5495	4.0	1584	25	107.7	194
			PAV36 (0.8/3.8)*	5668	4.0	1573	25	153.6	317
			PAV43 (0.75/4.5)*	3132	3.1	319	20	94.5	75
			PAV60 (0.75/4.5)	2250	3.1	281	26	164.2	325
MARRU	Marques	Lisbon/PT	CAB1 (0.75/6)	2362	4.8	1517	14	85.1	127
			RAN1 (1.4/4.5)	4405	4.0	1241	17	111.3	136
MOLSI	Molau	Seysdorf/DE	AVIS2 (1.4/50)*	1230	6.9	6152	28	152.4	803
			ESCIMO2 (0.85/25)	155	8.1	3415	26	146.9	308
			MINCAM1 (0.8/8)	1477	4.9	1084	25	142.5	507
		Ketzür/DE	REMO1 (0.8/8)	1467	6.5	5491	27	127.7	454
			REMO2 (0.8/8)	1478	6.4	4778	25	128.1	462
			REMO3 (0.8/8)	1420	5.6	1967	25	148.9	401
			REMO4 (0.8/8)	1478	6.5	5358	27	145.9	598
MORJO	Morvai	Fülöpszallas/HU	HUFUL (1.4/5)	2522	3.5	532	23	26.2	114
MOSFA	Moschini	Rovereto/IT	ROVER (1.4/4.5)	3896	4.2	1292	22	136.7	178
NAGHE	Nagy	Budapest/HU	HUKON (0.8/3.8)	5500	4.0	1575	24	105.5	242
		Piszkestető/HU	HUPIS (0.8/3.8)	5615	4.0	1524	25	122.3	263
		Zamardi/HU	HUZAM (0.8/6)	2358	4.7	1266	7	32.4	65
OCHPA	Ochner	Albiano/IT	ALBIANO (1.2/4.5)	2944	3.5	358	14	96.6	109
OTMI	Otte	Pearl City/US	ORIE1 (1.4/5.7)	3837	3.8	460	16	85.3	92
PERZS	Perkó	Becskehely/HU	HUBEC (0.8/3.8)*	5498	2.9	460	18	98.6	99
ROTEC	Rothenberg	Berlin/DE	ARMEFA (0.8/6)	2366	4.5	911	22	123.9	159
SARAN	Saraiva	Camaxide/PT	RO1 (0.75/6)	2362	3.7	381	23	124.3	112
			RO2 (0.75/6)	2381	3.8	459	24	141.5	163
			RO3 (0.8/12)	710	5.2	619	23	144.7	197
			RO4 (1.0/8)	1582	4.2	549	20	89.8	68
			SOFIA (0.8/12)	738	5.3	907	19	61.6	94
SCALE	Scarpa	Alberoni/IT	LEO (1.2/4.5)*	4152	4.5	2052	19	107.4	113
SCHHA	Schremmer	Niederkrüchten/DE	DORAEMON (0.8/3.8)	4900	3.0	409	22	110.3	154
SLAST	Slavec	Ljubljana/SI	KAYAK1 (1.8/28)	563	6.2	1294	16	95.9	244
			KAYAK2 (0.8/12)	741	5.5	920	18	124.3	99
STOEN	Stomeo	Scorze/IT	MIN38 (0.8/3.8)	5566	4.8	3270	27	114.2	440
			NOA38 (0.8/3.8)	5609	4.2	1911	22	67.7	419
			SCO38 (0.8/3.8)	5598	4.8	3306	25	143.4	433
STRJO	Strunk	Herford/DE	MINCAM2 (0.8/6)	2354	5.4	2751	25	136.2	376
			MINCAM3 (0.8/6)	2338	5.5	3590	24	137.8	198
			MINCAM4 (0.8/6)	2306	5.0	1412	22	124.7	150
			MINCAM5 (0.8/6)	2349	5.0	1896	23	133.4	200
			MINCAM6 (0.8/6)	2395	5.1	2178	23	123.5	197
TEPIS	Tepliczky	Agostyan/HU	HUAGO (0.75/4.5)	2427	4.4	1036	23	147.8	193
			HUMOB (0.8/6)	2388	4.8	1607	16	75.7	87
WEGWA	Wegrzyk	Nieznaszyn/PL	PAV78 (0.8/6)	2286	4.0	778	25	137.4	180
YRJIL	Yrjölä	Kuusankoski/FI	FINEXCAM (0.8/6)	2337	5.5	3574	14	62.9	121
ZAKJU	Zakrajšek	Petkovec/SI	TACKA (0.8/12)	714	5.3	783	21	155.3	176
Sum							30	8964.3	18616

\* active field of view smaller than video frame

## 2. Observing Times (h)

April	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	3.7	-	2.9	3.7	4.5	7.4	7.3	7.2	7.2	3.1	7.0	-	0.9	5.5	-
BERER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIATO	0.8	-	-	-	1.3	1.9	0.5	-	0.7	0.2	-	0.5	0.7	-	0.7
BOMMA	9.8	2.9	-	1.9	8.8	8.9	8.9	1.0	1.1	-	1.5	1.5	7.2	0.2	6.1
BREMA	-	-	-	-	3.7	0.7	-	-	-	-	-	-	-	-	0.3
BRIBE	1.7	0.3	5.8	-	8.9	8.8	7.7	7.0	-	-	8.4	6.5	0.9	-	1.1
	-	-	4.5	1.0	8.8	8.8	7.5	8.6	-	-	8.5	7.3	-	-	1.9
CARMA	9.8	5.4	-	2.3	9.6	6.4	7.3	3.2	-	5.4	-	-	9.1	5.0	3.4
CASFL	9.7	2.6	-	-	9.5	6.1	3.7	2.5	-	6.0	-	-	8.9	3.7	3.6
CINFR	0.7	0.7	-	0.5	1.4	1.4	0.9	0.2	0.3	-	0.2	0.7	0.9	-	0.5
CRIST	7.7	0.4	-	-	8.8	9.2	6.7	-	-	4.6	-	-	6.3	0.9	0.5
	5.3	-	-	-	9.2	9.2	7.1	-	-	4.7	-	-	5.8	0.7	0.4
	5.9	0.6	-	-	6.8	8.6	4.8	-	-	2.8	-	0.2	5.0	-	0.2
	8.6	-	-	-	7.6	9.2	8.1	-	-	5.9	-	0.3	7.0	1.0	-
ELTMA	8.6	-	-	-	3.3	8.5	8.3	-	-	-	-	-	8.3	-	-
FORKE	-	-	-	-	-	8.8	8.8	8.8	4.8	5.5	6.8	-	-	7.3	-
GONRU	-	-	4.0	7.6	6.9	5.4	-	-	-	4.2	1.2	-	3.7	-	-
	1.6	-	4.6	7.2	9.1	-	8.0	3.8	-	7.0	-	-	8.8	-	8.0
	-	-	2.9	7.2	9.3	-	7.2	3.7	-	7.0	1.0	-	9.0	-	8.2
	1.2	-	-	9.4	7.8	0.3	8.0	1.5	-	6.3	-	-	8.6	-	7.5
	0.4	0.3	0.6	7.2	9.1	-	6.2	1.4	-	3.8	0.2	-	8.9	-	5.5
	0.3	0.2	1.6	8.6	8.1	-	7.6	1.7	-	6.3	-	-	8.6	-	7.2
GOVMI	3.6	4.6	-	-	5.7	6.8	3.5	7.9	1.4	3.5	7.4	1.0	8.0	-	-
	5.3	-	-	-	1.7	7.7	1.2	7.7	-	2.0	5.5	-	8.5	0.2	-
	1.7	-	-	-	1.4	7.1	0.5	4.8	-	0.5	-	-	8.4	-	-
HERCA	0.4	10.2	10.0	9.9	10.2	7.1	3.7	9.9	9.7	9.8	9.9	9.6	9.0	9.7	8.4
HINWO	-	1.3	4.6	5.6	2.9	8.9	6.2	8.8	7.5	8.2	7.6	6.1	-	7.5	-
IGAAN	-	-	6.3	-	-	-	5.0	-	-	6.4	6.5	3.8	-	-	-
JONKA	3.6	9.1	-	7.7	-	-	6.7	9.0	5.8	8.4	8.8	4.7	8.7	6.9	-
	0.2	7.4	5.5	6.5	-	-	6.5	9.0	5.3	8.0	6.4	3.1	8.7	4.5	-
KACJA	-	-	-	-	-	-	-	8.7	-	-	-	-	8.7	-	-
	5.8	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	1.3	8.7	-	-	-	-	8.8	-	-
	-	-	-	-	-	-	1.2	8.6	-	-	-	-	8.8	-	-
KOSDE	-	-	-	-	-	-	-	-	-	-	-	5.5	5.9	-	-
LOTJO	-	-	-	-	-	9.2	8.9	-	-	-	-	-	-	7.2	-
MACMA	-	4.8	3.8	0.2	-	8.6	8.5	8.5	7.6	3.4	1.6	3.0	4.4	8.1	-
	-	8.3	6.4	2.5	-	9.0	8.9	8.8	8.4	4.4	6.5	8.5	4.6	8.3	1.7
	-	7.2	6.0	0.2	-	8.7	8.6	8.5	8.4	1.3	1.5	6.6	3.5	-	-
	-	8.2	6.3	2.4	-	8.9	8.8	8.7	8.6	4.7	7.9	8.4	4.6	8.3	3.6
MARRU	3.1	5.1	7.0	9.6	9.5	-	9.4	4.6	-	-	-	-	-	-	-
	-	-	2.4	7.8	7.5	3.3	8.4	-	-	-	-	-	3.9	-	7.8
MOLSI	2.4	1.1	3.6	7.8	8.4	8.4	8.0	7.8	8.2	1.6	2.6	4.1	8.0	7.4	-
	3.7	0.8	0.3	4.3	4.1	6.8	7.2	8.7	8.7	-	2.6	3.6	8.4	8.2	-
	2.9	-	2.7	8.7	8.2	8.9	7.1	8.4	8.7	-	-	3.2	8.4	7.8	-
	2.9	-	2.8	4.5	5.8	7.2	7.1	7.1	3.8	6.4	7.1	3.1	2.0	5.6	1.7
	2.8	-	2.8	4.8	6.1	8.2	8.0	8.0	4.1	6.9	7.7	2.8	2.2	5.9	-
	3.9	-	4.3	5.4	6.5	8.7	8.6	8.5	4.8	7.2	8.4	4.6	2.5	6.3	-
	3.4	-	3.9	5.5	6.6	8.7	8.6	8.5	5.1	7.1	8.2	3.8	2.6	6.2	2.3
MORJO	1.2	0.9	0.3	1.7	-	0.2	0.9	1.4	1.1	1.0	0.8	-	0.9	-	-
MOSFA	8.6	-	-	-	8.6	5.3	8.6	2.2	0.7	4.1	-	-	8.5	2.6	-
NAGHE	6.1	8.4	1.2	8.9	0.9	-	8.2	9.1	6.8	8.8	5.5	1.3	8.7	2.4	-
	-	3.4	1.3	4.8	-	-	5.5	4.0	6.9	8.5	8.6	1.0	5.3	3.5	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCHPA	8.4	-	-	-	8.0	-	7.5	-	-	-	-	-	-	-	-
OTTMI	-	-	9.6	1.5	9.5	9.5	-	-	3.8	1.5	3.8	-	-	-	3.5
PERZS	4.3	3.0	3.7	-	3.7	8.7	5.8	-	3.6	6.1	8.8	-	8.8	-	-
ROTEC	2.7	-	1.2	3.0	5.0	8.7	8.6	8.5	7.5	-	6.7	2.6	-	6.1	-
SARAN	-	-	1.9	8.4	7.2	4.6	7.8	4.1	-	5.3	2.2	2.4	6.2	-	8.6
	-	-	2.6	7.5	7.2	5.5	7.0	3.5	-	4.4	-	1.7	5.8	-	8.7
	-	-	2.0	8.3	7.0	4.5	5.6	2.9	-	5.7	1.1	-	6.6	-	8.5
	-	-	-	-	6.8	1.5	3.5	1.0	-	-	-	0.9	3.8	-	8.2
	-	-	-	3.5	2.0	1.6	3.9	0.2	-	2.4	-	0.8	1.8	-	7.1
SCALE	9.3	-	-	-	4.7	5.6	8.1	0.9	-	-	-	1.7	8.3	-	-
SCHHA	1.5	-	4.3	-	7.2	8.9	7.7	6.4	3.6	-	2.7	7.8	4.8	-	3.5
SLAST	6.0	1.4	-	-	-	7.7	5.9	7.7	-	-	-	-	6.8	-	-
	6.4	-	5.5	-	4.7	8.0	6.5	8.5	-	-	-	-	8.9	-	-
STOEN	8.1	0.5	-	-	2.7	6.7	9.0	2.3	0.3	3.9	-	0.5	7.7	0.3	2.1
	4.2	-	-	0.2	0.8	2.9	3.5	-	-	-	-	-	3.4	0.7	1.1
	9.6	0.7	-	-	4.3	8.9	9.4	2.1	-	5.8	-	0.7	8.9	0.9	2.2
STRJO	-	-	4.4	3.4	8.8	8.8	8.7	6.5	6.3	6.6	5.3	-	-	2.7	2.2
	-	-	5.1	2.5	8.7	8.5	8.7	6.8	5.6	7.1	4.4	-	-	3.3	2.2
	-	-	4.1	3.1	8.9	8.8	8.7	6.0	4.7	6.9	-	-	-	-	0.7
	-	-	4.1	2.4	8.8	8.6	8.7	6.5	5.9	6.9	5.9	-	-	2.9	2.3
	-	-	4.0	2.4	8.8	8.8	8.7	5.7	4.6	7.0	4.4	-	-	-	2.1
TEPIS	2.5	8.0	7.0	8.2	0.7	-	6.0	-	6.2	5.6	8.6	-	8.5	8.2	-
	-	7.5	1.6	2.3	-	-	0.9	8.7	6.5	5.9	8.6	-	3.6	4.4	-
WEGWA	-	4.7	8.3	5.8	1.3	8.8	-	8.6	7.2	1.0	7.0	6.6	7.5	6.9	-
YRJIL	-	-	7.7	-	-	3.1	-	-	-	6.9	6.3	6.6	5.8	6.2	2.8
ZAKJU	6.3	3.5	4.1	-	7.6	9.3	8.1	9.0	-	-	-	-	8.8	-	-
Sum	206.7	125.6	189.6	227.9	371.0	415.3	458.0	352.4	201.5	274.0	231.7	137.1	386.6	183.5	146.4

April	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	4.2	6.5	6.4	6.4	6.3	6.2	1.7	6.0	-	3.9	3.8	4.5	1.5	5.7	3.1
BERER	-	-	-	-	-	6.3	6.9	4.0	5.4	3.7	-	7.7	-	-	-
BIATO	-	1.0	1.7	1.6	-	1.5	-	-	1.9	0.9	-	0.5	0.5	-	0.8
BOMMA	5.0	6.9	8.7	8.0	8.6	8.6	8.6	8.5	8.4	8.3	7.9	7.7	1.8	2.3	0.7
BREMA	-	-	-	2.1	1.4	-	4.6	2.4	-	0.3	7.3	3.9	-	-	-
BRIBE	8.1	8.0	8.0	7.9	6.6	4.4	4.6	7.3	-	1.7	7.0	1.5	3.7	-	-
	8.1	8.0	7.9	7.9	7.7	7.7	1.3	7.4	1.5	6.4	6.4	3.8	3.2	-	-
CARMA	1.1	8.8	8.6	8.8	8.7	8.7	8.5	7.9	8.4	8.2	-	8.0	3.4	-	7.4
CASFL	-	8.9	8.7	8.7	8.7	8.6	8.6	8.2	8.4	8.1	-	7.6	-	-	7.6
CINFR	0.5	1.8	0.9	1.0	1.6	1.6	2.6	1.6	1.5	0.7	0.5	0.5	0.6	0.8	0.3
CRIST	8.3	7.2	8.5	8.5	8.4	7.8	7.1	6.2	8.1	5.6	8.1	6.1	0.6	-	-
	8.6	8.2	8.5	8.5	8.4	8.3	8.3	5.8	6.9	3.8	4.9	3.5	0.4	-	-
	7.7	3.7	8.5	8.4	8.4	8.4	6.7	1.2	8.0	-	8.1	7.6	0.5	-	0.3
	8.6	8.4	8.5	8.5	8.4	8.3	8.3	7.8	8.2	6.9	8.1	8.0	1.2	-	-
ELTMA	-	7.8	8.5	7.6	8.4	8.4	8.2	7.6	5.5	6.1	2.8	7.0	2.7	0.5	-
FORKE	-	8.2	8.0	7.9	3.4	6.6	6.2	-	7.5	-	7.3	4.8	5.9	7.3	3.0
GONRU	7.8	7.7	6.4	-	-	-	0.8	2.2	-	7.4	6.2	3.4	1.8	-	5.0
	9.0	9.0	9.0	8.8	-	3.2	8.3	8.6	-	8.6	8.2	7.0	-	2.7	5.9
	9.2	9.1	9.1	9.0	-	3.3	8.1	8.6	2.9	8.8	7.7	7.1	-	-	5.9
	9.0	9.0	9.0	8.9	3.0	3.1	7.8	8.7	-	8.6	8.1	6.4	-	-	6.2
	9.1	9.0	9.1	8.9	-	2.2	5.1	3.5	-	8.5	7.4	6.9	-	1.8	5.6
	8.7	8.8	8.8	8.7	-	3.2	7.7	8.3	-	8.2	7.1	5.3	-	-	2.1
GOVMI	-	7.7	7.8	8.0	8.0	6.9	6.8	-	7.7	7.5	-	1.8	4.8	2.1	4.8
	-	5.2	7.2	6.3	-	4.9	4.0	-	3.2	2.4	-	-	-	-	-
	-	2.3	8.1	3.4	-	2.9	5.0	-	-	2.2	-	-	2.2	2.1	0.4
HERCA	9.7	1.9	9.7	9.5	9.7	9.2	-	-	9.3	8.8	8.7	-	5.2	9.2	6.2
HINWO	-	8.2	8.1	8.0	8.0	7.9	4.7	4.5	6.9	-	5.5	3.9	4.2	7.3	1.2
IGAAN	-	-	-	7.7	7.4	7.9	7.3	-	7.1	5.6	-	7.2	-	6.0	-
JONKA	-	-	8.4	7.1	8.3	8.2	8.2	-	8.1	7.9	-	7.8	2.7	7.3	3.7
	-	0.4	8.3	4.3	8.3	7.8	7.4	-	7.4	5.2	-	5.6	1.8	4.0	3.6
KACJA	-	-	-	8.4	8.3	7.1	8.3	5.7	7.9	7.9	-	7.7	7.7	0.2	3.5
	-	-	-	-	-	3.9	4.9	0.6	7.0	1.6	-	2.9	1.3	-	1.3
	-	-	-	8.4	8.4	7.1	8.4	5.3	7.9	8.0	-	6.9	6.5	0.2	2.8
	-	-	-	8.4	8.4	7.2	8.1	5.6	8.0	8.1	-	7.8	7.8	-	3.7
KOSDE	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOTJO	-	6.5	4.4	-	8.1	8.0	7.2	0.2	-	-	-	-	-	-	-
MACMA	-	5.9	2.6	7.7	7.7	6.9	6.9	0.2	-	1.3	1.0	0.2	1.8	0.5	2.5
	-	7.3	-	7.4	7.9	7.2	7.2	1.0	-	3.1	4.8	3.9	7.1	3.3	7.1
	-	6.1	-	6.7	6.8	6.1	5.2	-	-	1.4	0.2	-	0.6	-	0.9
	-	7.8	2.5	7.9	7.9	7.7	7.7	1.5	-	4.8	4.8	4.1	7.2	3.7	7.2
MARRU	-	-	-	-	-	-	-	-	8.5	8.3	3.5	2.7	2.3	3.9	7.6
	8.8	9.0	8.5	8.9	-	-	3.1	6.9	7.8	7.9	3.9	-	-	-	5.4
MOLSI	2.6	7.7	7.6	7.5	7.5	7.0	6.7	0.6	7.2	0.7	1.6	4.5	6.9	4.9	-
	3.1	8.2	8.1	8.0	8.0	7.9	7.8	-	7.7	1.1	2.0	5.8	6.3	5.5	-
	3.0	8.2	8.1	8.0	8.0	7.9	6.7	0.7	7.4	0.8	1.5	1.8	4.1	1.3	-
	2.8	6.9	-	6.8	6.8	6.7	1.7	5.1	-	5.1	3.1	4.9	0.2	5.0	5.5
	2.9	7.3	-	7.1	7.0	7.0	1.5	4.6	-	5.0	2.9	4.1	-	3.6	4.8
	3.2	7.9	-	7.8	7.7	7.6	1.9	5.8	-	6.1	3.4	5.6	-	5.7	6.5
	3.3	7.9	-	7.8	7.7	7.6	2.0	3.5	-	5.9	2.3	5.4	0.4	5.4	6.2
MORJO	-	-	1.0	0.5	1.6	1.6	2.9	1.0	1.9	0.9	-	1.6	0.7	1.2	0.9
MOSFA	2.3	8.8	8.7	8.7	8.6	8.6	8.6	5.8	5.8	6.8	-	7.7	0.7	-	6.4
NAGHE	-	-	6.4	2.8	1.9	3.4	3.3	-	4.1	2.1	-	1.2	1.3	1.7	1.0
	-	0.7	8.2	4.4	5.6	8.1	8.0	3.0	7.7	3.2	0.7	7.6	6.3	2.1	3.9
	-	-	0.5	-	-	1.8	4.9	1.8	8.1	8.0	-	7.3	-	-	-
OCHPA	-	8.2	7.1	8.6	6.8	7.9	7.8	6.0	2.1	-	-	8.2	2.9	-	7.1
OTTMI	9.0	-	-	-	-	-	-	0.8	8.6	4.5	3.7	8.4	4.4	3.2	-
PERZS	-	7.1	8.4	8.4	0.1	-	-	-	-	6.4	-	5.5	2.9	3.3	-
ROTEC	3.6	7.8	7.7	7.5	7.3	7.6	-	5.1	-	4.7	3.3	4.4	-	-	4.3
SARAN	8.3	7.6	9.2	8.7	-	-	5.0	2.6	-	5.0	4.2	2.3	1.8	4.1	6.8
	8.3	8.6	8.0	8.4	2.1	0.6	4.2	6.2	7.8	8.5	8.2	3.9	4.5	-	8.3
	8.2	8.5	8.4	8.4	-	-	4.7	6.0	8.2	8.2	8.1	4.2	5.4	6.1	8.1
	6.7	8.4	8.1	7.9	0.2	-	3.9	-	2.5	5.8	4.6	2.7	2.1	3.3	7.9
	5.7	7.6	-	2.9	-	-	4.1	1.9	-	5.2	5.7	1.1	-	0.6	3.5
SCALE	-	6.3	6.5	8.4	8.2	7.7	6.3	5.3	4.9	7.1	2.5	-	3.1	-	2.5
SCHHA	8.2	7.8	2.2	1.8	7.1	5.0	2.1	0.9	-	3.8	7.4	-	5.6	-	-
SLAST	-	6.5	8.0	7.9	7.8	7.7	7.6	2.7	6.4	-	-	-	4.9	-	0.9
	-	8.6	8.6	8.5	8.5	8.4	8.3	1.3	8.2	1.9	-	8.1	-	-	5.4
STOEN	0.2	8.4	8.1	8.6	8.5	8.3	7.1	5.9	3.4	4.8	0.2	3.1	1.2	0.3	2.0
	0.6	3.5	3.9	4.2	4.4	5.0	5.3	2.0	1.0	2.1	0.3	7.7	5.4	-	5.5
	1.7	8.1	8.4	8.6	8.1	8.4	8.5	8.3	7.2	6.7	0.3	4.2	5.9	-	5.5
STRJO	8.0	8.0	7.9	7.8	7.7	7.7	4.1	5.5	-	1.7	5.4	4.4	0.7	2.5	1.1
	7.9	7.9	7.8	7.9	7.2	7.7	4.4	5.9	-	3.1	6.4	5.8	0.6	2.3	-
	8.0	7.8	7.9	7.8	7.4	7.7	3.7	6.0	-	2.5	6.5	5.5	1.0	-	1.0
	8.1	8.0	7.9	7.8	7.7	7.7	4.1	6.1	-	-	5.7	5.3	1.0	-	1.0
	7.5	7.4	7.9	7.7	5.5	7.5	4.2	4.7	-	2.0	5.3	5.1	0.3	1.9	-
TEPIS	-	7.5	8.2	8.1	8.1	8.0	7.9	-	7.5	-	1.5	7.6	3.2	5.0	5.7
	-	-	5.0	7.3	-	7.8	0.8	-	-	-	1.6	3.2	-	-	-
WEGWA	-	8.0	7.8	5.4	7.8	3.1	6.2	-	2.0	3.7	6.2	4.2	2.2	3.8	3.3
YRJIL	-	-	-	5.4	-	-	4.1	-	0.2	-	2.6	2.3	2.9	-	-
ZAKJU	-	8.5	8.4	8.4	8.4	8.3	8.3	6.8	8.1	8.0	-	8.0	6.6	5.9	4.9
Sum	255.3	454.0	448.4	516.0	410.5	440.6	419.1	275.2	307.4	348.1	256.5	354.0	186.5	149.6	235.8

### 3. Results (Meteors)

April	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	4	-	8	11	25	27	33	32	19	7	19	-	2	9	-
BERER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIATO	5	-	-	-	8	13	3	-	5	1	-	3	4	-	4
BOMMA	26	6	-	7	20	25	23	3	1	-	1	3	11	1	10
BREMA	-	-	-	-	12	4	-	-	-	-	-	-	-	-	2
BRIBE	1	1	11	-	17	11	14	13	-	-	7	5	1	-	2
	-	-	6	1	14	11	8	16	-	-	9	7	-	-	3
CARMA	45	10	-	4	41	7	26	3	-	34	-	-	37	10	11
CASFL	14	2	-	-	23	4	5	2	-	14	-	-	13	1	5
CINFR	5	4	-	3	8	8	5	1	2	-	1	4	6	-	3
CRIST	9	2	-	-	17	15	12	-	-	7	-	-	5	2	2
	8	-	-	-	5	17	15	-	-	3	-	-	3	1	1
	6	1	-	-	14	11	6	-	-	1	-	1	3	-	1
	16	-	-	-	8	32	25	-	-	13	-	1	4	4	-
ELTMA	11	-	-	-	5	14	23	-	-	-	-	-	15	-	-
FORKE	-	-	-	-	-	20	23	20	11	14	12	-	-	3	-
GONRU	-	-	1	2	4	2	-	-	-	1	1	-	1	-	-
	2	-	2	15	17	-	22	8	-	13	-	-	26	-	19
	-	-	1	14	21	-	8	4	-	9	3	-	19	-	8
	1	-	-	4	1	1	4	1	-	2	-	-	2	-	6
	2	1	3	7	20	-	12	5	-	7	1	-	13	-	8
	1	1	1	6	8	-	4	2	-	14	-	-	12	-	5
GOVMI	6	1	-	-	9	7	4	8	2	3	11	4	17	-	-
	3	-	-	-	2	4	2	2	-	3	2	-	7	1	-
	10	-	-	-	8	2	3	3	-	3	-	-	7	-	-
HERCA	1	14	11	15	9	3	1	11	8	11	10	16	8	14	11
HINWO	-	3	8	10	6	26	17	20	13	24	11	4	-	4	-
IGAAN	-	-	1	-	-	-	2	-	-	2	2	1	-	-	-
JONKA	6	5	-	2	-	-	1	7	1	2	1	3	3	5	-
	1	2	4	5	-	-	5	4	4	5	6	1	8	1	-
KACJA	-	-	-	-	-	-	-	16	-	-	-	-	20	-	-
	8	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	2	28	-	-	-	-	48	-	-
	-	-	-	-	-	-	2	14	-	-	-	-	17	-	-
KOSDE	-	-	-	-	-	-	-	-	-	-	-	20	18	-	-
LOTJO	-	-	-	-	-	25	20	-	-	-	-	-	-	19	-
MACMA	-	6	8	1	-	14	8	7	9	3	2	6	10	6	-
	-	14	11	2	-	12	13	23	10	4	8	11	14	15	1
	-	2	1	1	-	3	2	4	1	3	3	2	2	-	-
	-	15	11	1	-	19	17	22	15	8	9	13	16	17	2
MARRU	5	5	10	13	22	-	14	7	-	-	-	-	-	-	-
	-	-	2	6	10	3	11	-	-	-	-	-	6	-	15
MOLSI	9	1	6	41	38	65	68	54	38	2	8	6	64	32	-
	2	1	1	17	12	12	21	17	16	-	1	1	25	12	-
	8	-	2	19	20	37	38	24	25	-	1	31	21	-	-
	10	-	10	19	37	21	31	26	7	14	20	1	6	11	1
	4	-	7	16	26	39	41	29	9	16	19	3	5	7	-
	11	-	9	17	22	22	29	28	8	20	18	3	1	4	-
	9	-	10	29	40	40	55	42	15	15	34	3	3	12	1
MORJO	6	3	1	7	-	1	4	9	5	7	4	-	5	-	-
MOSFA	11	-	-	-	11	1	5	3	1	5	-	-	11	2	-
NAGHE	5	10	1	11	1	-	14	5	3	17	7	7	8	6	-
	-	6	2	12	-	-	5	9	7	20	15	2	10	6	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCHPA	3	-	-	-	5	-	1	-	-	-	-	-	-	-	-
OTTMI	-	-	6	3	10	8	-	-	3	4	3	-	-	-	2
PERZS	3	4	3	-	6	10	1	-	4	3	11	-	8	-	-
ROTEC	1	-	1	5	8	14	13	11	6	-	6	2	-	3	-
SARAN	-	-	1	6	12	2	4	1	-	8	1	1	5	-	11
	-	-	3	3	4	3	13	2	-	2	-	1	6	-	16
	-	-	6	4	7	3	7	1	-	4	1	-	7	-	13
	-	-	-	-	3	1	4	1	-	-	-	1	2	-	4
	-	-	-	5	4	4	2	1	-	9	-	1	5	-	9
SCALE	6	-	-	-	4	5	3	2	-	-	-	3	5	-	-
SCHHA	2	-	7	-	5	7	9	3	2	-	6	7	3	-	7
SLAST	14	3	-	-	-	19	6	12	-	-	-	-	23	-	-
	11	-	1	-	2	9	2	5	-	-	-	-	6	-	-
STOEN	22	3	-	-	5	30	33	13	2	14	-	6	31	2	6
	34	-	-	1	6	27	25	-	-	-	-	-	28	5	6
	50	3	-	-	3	16	17	4	-	20	-	5	32	3	1
STRJO	-	-	16	5	22	16	33	18	8	22	7	-	-	2	5
	-	-	5	3	11	11	17	2	5	8	4	-	-	2	2
	-	-	4	3	9	13	17	5	6	7	-	-	-	-	2
	-	-	8	1	13	12	15	6	5	10	9	-	-	1	1
	-	-	7	2	15	8	13	11	9	11	4	-	-	-	2
TEPIS	2	10	5	11	1	-	7	-	6	5	7	-	11	8	-
	-	2	1	5	-	-	1	7	10	8	5	-	1	3	-
WEGWA	-	6	9	5	2	10	-	12	8	4	4	4	9	9	-
YRJIL	-	-	19	-	-	5	-	-	-	13	5	13	12	9	3
ZAKJU	2	1	1	-	6	10	7	11	-	-	-	-	7	-	-
Sum	421	150	252	380	724	821	956	660	309	479	318	176	748	273	211

April	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	5	27	24	24	39	36	8	19	-	6	7	10	1	9	8
BERER	-	-	-	-	-	32	60	8	6	4	-	9	-	-	-
BIATO	-	6	12	12	-	10	-	-	12	6	-	3	3	-	5
BOMMA	9	18	22	24	32	45	47	23	15	17	16	15	8	10	2
BREMA	-	-	-	14	9	-	15	8	-	1	1	1	-	-	-
BRIBE	14	19	17	20	13	12	12	13	-	3	8	3	8	-	-
	14	18	14	21	13	10	4	16	1	7	8	2	5	-	-
CARMA	1	31	39	47	34	38	69	25	22	30	-	25	6	-	18
CASFL	-	13	17	23	17	35	34	8	8	11	-	10	-	-	20
CINFR	3	12	6	6	9	13	23	10	12	4	3	3	4	5	2
CRIST	18	24	15	10	26	29	43	11	19	4	11	4	1	-	-
	16	23	18	12	25	34	61	12	26	8	17	7	1	-	-
	12	13	19	14	25	23	23	1	17	-	8	5	2	-	2
	18	28	25	26	38	40	71	36	33	17	28	23	6	-	-
ELTMA	-	21	20	10	28	31	50	16	7	6	7	7	10	2	-
FORKE	-	29	22	16	29	16	13	-	19	-	16	3	7	10	6
GONRU	2	2	4	-	-	-	1	1	-	2	3	1	2	-	1
	18	25	28	22	-	13	30	16	-	15	13	8	-	1	10
	10	20	18	21	-	10	16	12	1	14	15	12	-	-	7
	7	1	6	8	2	4	12	8	-	4	5	5	-	-	4
	10	16	18	12	-	12	20	12	-	13	6	6	-	5	6
	12	13	19	24	-	9	18	8	-	8	12	6	-	-	4
GOVMI	-	10	13	11	17	22	17	-	12	10	-	4	9	3	2
	-	1	5	6	-	7	24	-	8	2	-	-	-	-	-
	-	8	6	9	-	13	25	-	-	4	-	-	2	6	2
HERCA	10	4	8	14	14	15	-	-	10	10	9	-	7	13	6
HINWO	-	17	14	10	30	16	8	5	11	-	8	4	3	9	3
IGAAN	-	-	-	2	1	6	6	-	5	1	-	1	-	1	-
JONKA	-	-	9	2	9	8	13	-	4	1	-	6	3	4	2
	-	1	13	3	14	16	30	-	12	2	-	3	3	3	3
KACJA	-	-	-	29	39	36	92	5	30	20	-	18	8	1	8
	-	-	-	-	27	32	2	12	8	-	8	3	-	-	5
	-	-	-	46	52	45	110	11	38	27	-	28	18	1	5
	-	-	-	25	29	27	54	8	12	13	-	11	5	-	7
KOSDE	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOTJO	-	14	13	-	21	38	45	1	-	-	-	-	-	-	-
MACMA	-	9	1	13	11	25	28	1	-	7	6	1	5	3	4
	-	16	-	16	27	29	42	2	-	6	12	1	17	7	4
	-	4	-	3	8	13	15	-	-	3	1	-	1	-	3
	-	14	2	21	22	24	27	3	-	10	6	2	16	4	9
MARRU	-	-	-	-	-	-	-	-	6	7	10	6	6	4	12
	13	9	7	3	-	-	14	10	5	11	6	-	-	-	5
MOLSI	8	53	40	45	59	54	36	1	32	1	4	14	16	8	-
	3	27	26	16	23	18	8	-	5	2	6	8	17	11	-
	7	34	41	33	53	37	26	3	14	4	3	6	12	8	-
	16	38	-	21	32	46	9	11	-	18	6	16	1	10	16
	13	31	-	26	37	48	8	16	-	11	12	15	-	10	14
	4	20	-	27	17	41	7	6	-	23	9	19	-	12	24
	7	42	-	51	30	52	18	14	-	23	4	15	1	10	23
MORJO	-	-	4	1	9	7	17	4	8	2	-	5	1	3	1
MOSFA	4	15	8	11	14	18	24	2	7	8	-	5	2	-	10
NAGHE	-	-	6	8	11	26	28	-	24	12	-	7	10	9	6
	-	4	13	8	14	21	48	7	9	4	4	12	9	13	3
	-	-	3	-	-	18	16	2	3	14	-	9	-	-	-
OCHPA	-	1	3	14	10	18	25	6	1	-	-	10	2	-	10
OTTMI	11	-	-	-	-	-	-	3	9	3	4	9	5	9	-
PERZS	-	10	11	2	1	-	-	-	-	12	-	7	1	2	-
ROTEC	2	11	16	15	11	20	-	2	-	4	1	1	-	-	6
SARAN	8	8	3	1	-	-	7	7	-	8	8	1	1	5	3
	1	17	17	4	1	2	14	5	4	10	13	4	7	-	11
	10	28	21	9	-	-	11	4	5	16	11	4	3	8	14
	2	4	4	6	1	-	6	-	1	5	3	2	4	8	6
	9	7	-	7	-	-	8	1	-	5	9	1	-	2	5
SCALE	-	5	6	10	6	14	17	9	7	4	1	-	2	-	4
SCHHA	18	19	2	3	8	14	8	1	-	3	8	-	12	-	-
SLAST	-	13	30	29	19	32	29	6	3	-	-	-	5	-	1
	-	5	4	11	7	12	16	1	1	1	3	-	-	-	2
STOEN	1	30	21	25	38	52	48	18	8	5	1	8	5	2	11
	3	24	32	31	34	43	55	14	5	14	2	8	8	-	14
	2	22	25	39	27	32	51	13	13	14	2	13	12	-	14
STRJO	28	22	24	28	20	42	13	15	-	1	5	15	2	3	4
	9	13	18	21	5	20	16	6	-	2	4	9	3	2	-
	9	7	7	12	8	12	6	6	-	1	2	9	2	-	3
	10	11	16	18	12	21	9	6	-	-	3	9	3	-	1
	14	6	12	16	7	24	13	3	-	4	6	6	2	2	-
TEPIS	-	2	7	9	7	21	31	-	14	-	1	9	2	7	10
	-	-	7	9	-	14	3	-	-	-	5	6	-	-	-
WEGWA	-	5	6	4	16	8	15	-	4	4	11	9	6	6	4
YRJIL	-	-	-	8	-	-	22	-	1	-	4	3	4	-	-
ZAKJU	-	7	11	15	12	14	27	8	7	6	-	11	2	7	4
Sum	395	1007	898	1172	1182	1620	1907	511	548	566	394	549	332	258	399