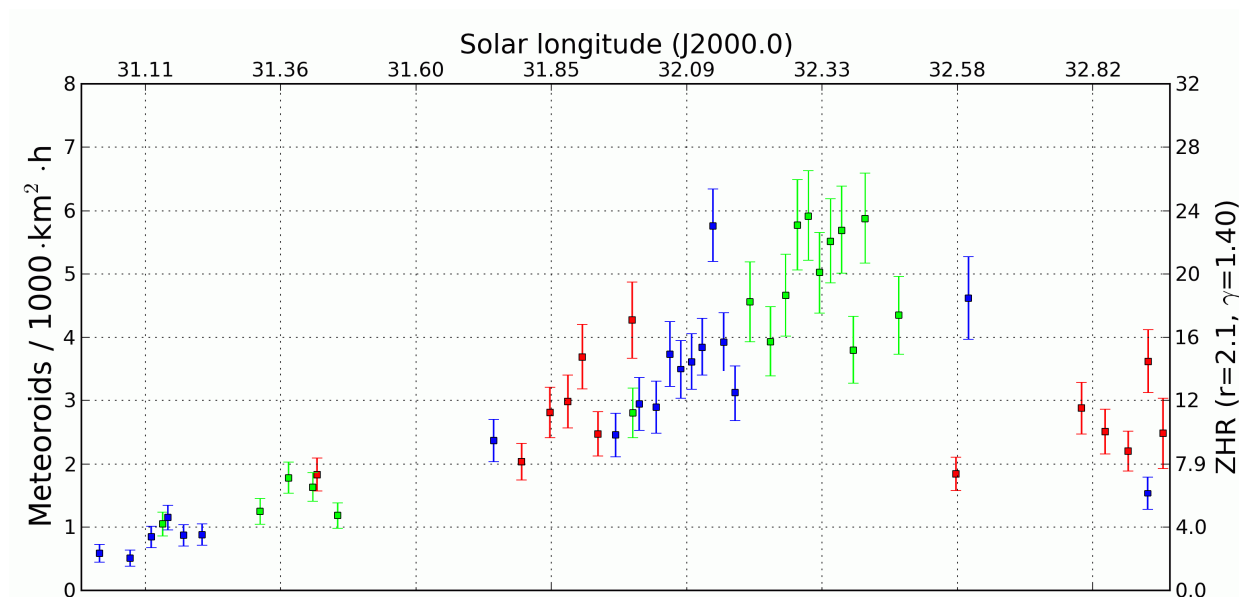


Starting with the second quarter of 2013, the observing conditions finally improved. Whereas there are still big gaps in the observing statistics early April, we enjoyed fine observing conditions at most sites in the rest of the month. Observers in Hungary, Germany and at the Iberian Peninsula were particularly successful, whereas there were fewer clear nights in Slovenia and Italy, for example. In the end, 30 out of 75 video cameras obtained twenty or more observing nights. The overall effective observing time in April increased by thousand to almost 7.000 hours compared to last year. The meteor yields was still slightly below the result of 2012, because a few particularly sensitive cameras are currently inactive.

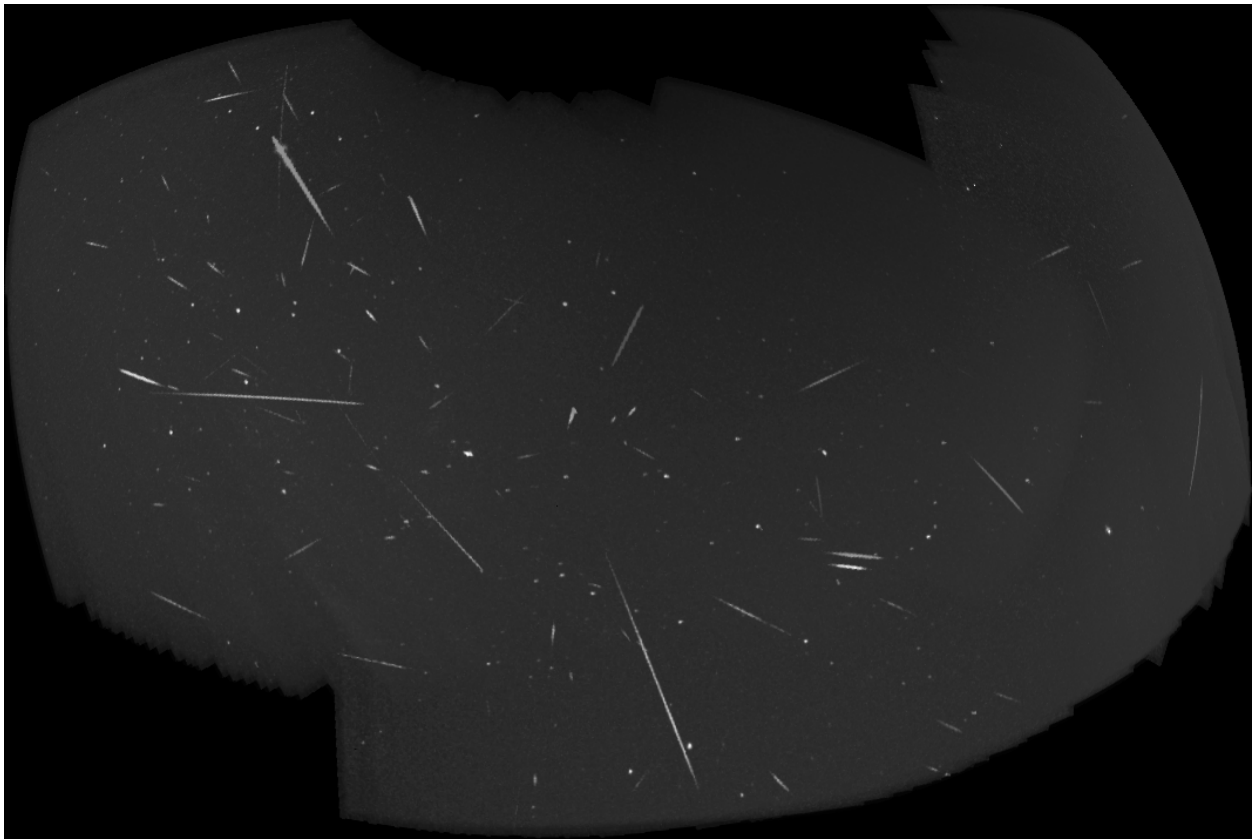
After the long winter break, April presented the first shower that clearly stands out from the sporadic background, which is low at this time of year, anyway. The boundary conditions for the Lyrids were “sub-optimal”, though. The maximum was forecasted for the noon hours (UT) of April 22, i.e. at the European daytime three days before full Moon. This is reflected by the activity profile that we derived from 840 shower members. Neither on April 21/22 nor in the following night we saw a clear peak. Alternatively we compare the flux density profile of 2011 (green), 2012 (blue) and 2013 (red) over two degrees solar longitude around the maximum (figure 1).

The subjectively best picture was obtained with a relatively small zenith exponent of 1.4. All three data sets give a consistent picture – only in 2013 the activity at the ascending branch was somewhat higher. One more year, and we get for the first time a complete flux density profile for this shower.



**Figure 1:** Flux density profile of the Lyrids around their time of maximum, derived from data of 2011 (green), 2012 (blue) and 2013 (red).

Even though the overall number of recorded Lyrids was quite small this year, it is sufficient to create nice shower images with the new Panorama tool. The program, which is still in test, supports different projection types by now. As an example, figure 2 shows meteors from the cameras REMO1 to REMO3 on April 21/22 and 22/23. The combined image is presented in orthographic projection.



**Figure 2:** Shower image of the Lyrids from recordings of REMO1, REMO2 and REMO3 on April 21/22 and 22/23, 2013.

With respect to the meteor shower analysis of spring 2012, we published already in the last April report results for the Lyrids (6 LYR), nu Cygnids (409 NCU), delta Aquilids (131 DAL), sigma Leonids (136 SLE), the Southern May Ophiuchids (17 SOP) and the April chi Librids (22 XLI). According to the MDC list, these showers are either established or have working list status. Here we complete the analysis by two candidates for unknown meter showers. Both are located in the southern hemisphere and at the upper end of the velocity scale (table 1). The first candiate is visible between April 8 and 15 with roughly 200 shower members in our database. The second candidate is represented by almost 150 meteors between April 12 and 15. Even though the scatter in right ascension and declination is relatively small, none of the two can be regarded as a save detection because they never reach a rank below 10. Thus we do not report them to the MDC until there is independent confirmation for one or the other.

**Table 1:** Parameters of two possibly unknown meteor shower from the analysis of the IMO network in 2012.

Source	Solar Longitude		Right Ascension		Deklination		Vinf	
	Mean [°]	Interval [°]	Mean [°]	Drift [°]	Mean [°]	Drift [°]	Mean [km/s]	Drift [km/s]
IMO 2012	22	19-25	266	+0.5	-15	+0.3	67	-
	23	22-25	278	+1.0	-6	+0.1	70	-

# 1. Observers

Code	Name	Place	Camera	FOV [ $^{\circ}$ ]	St.LM [mag]	Eff.CA [km $^2$ ]	Nights	Time [h]	Meteors
ARLR	Arlt	Ludwigsfelde/DE	LUDWIG1 (0.8/8)	1488	4.8	726	1	6.9	7
BANPE	Bánfalvi	Zalaegerszeg/HU	HUVCSE01 (0.95/5)	2423	3.4	361	14	80.5	72
BASLU	Bastiaens	Hove/BE	URANIA1 (0.8/3.8)*	4545	2.5	237	2	9.0	6
BERER	Berkó	Ludanyhalaszi/HU	HULUD1 (0.8/3.8)	5542	4.8	3847	20	143.4	509
			HULUD2 (0.95/4)	3398	3.8	671	19	137.3	123
			HULUD3 (0.95/4)	4357	3.8	876	20	145.1	137
BIRSZ	Biro	Agostyan/HU	HUAGO (0.75/4.5)	2427	4.4	1036	20	120.6	122
BOMMA	Bombardini	Faenza/IT	MARIO (1.2/4.0)	5794	3.3	739	12	64.0	180
BREMA	Breukers	Hengelo/NL	MBB3 (0.75/6)	2399	4.2	699	21	113.5	143
			MBB4 (0.8/8)	1470	5.1	1208	17	87.7	117
BRIBE	Brinkmann	Herne/DE	HERMINE (0.8/6)	2374	4.2	678	18	83.6	134
		Berg. Gladbach/DE	KLEMOI (0.8/6)	2286	4.6	1080	16	74.7	74
CASFL	Castellani	Monte Baldo/IT	BMH1 (0.8/6)	2350	5.0	1611	18	96.1	138
			BMH2 (1.5/4.5)*	4243	3.0	371	15	78.1	107
CRIST	Crivello	Valbrevenna/IT	BILBO (0.8/3.8)	5458	4.2	1772	22	108.2	206
			C3P8 (0.8/3.8)	5455	4.2	1586	20	98.1	136
			STG38 (0.8/3.8)	5614	4.4	2007	22	122.1	287
ELTMA	Eltri	Venezia/IT	MET38 (0.8/3.8)	5631	4.3	2151	15	32.9	210
GANKA	Gansel	Dingden/DE	DARO01 (1.4/3.6)	7141	3.1	652	18	75.9	80
GONRU	Goncalves	Tomar/PT	TEMPLAR1 (0.8/6)	2179	5.3	1842	24	170.9	467
			TEMPLAR2 (0.8/6)	2080	5.0	1508	25	175.3	335
			TEMPLAR3 (0.8/8)	1438	4.3	571	24	172.2	237
			TEMPLAR4 (0.8/3.8)	4475	3.0	442	24	165.2	305
GOVMI	Govedic	Sredisce ob Dr./SI	ORION2 (0.8/8)	1447	5.5	1841	13	70.8	120
			ORION3 (0.95/5)	2665	4.9	2069	23	70.4	132
			ORION4 (0.95/5)	2662	4.3	1043	22	78.7	152
IGAAN	Igaz	Baja/HU	HUBAJ (0.8/3.8)	5552	2.8	403	24	148.8	229
		Debrecen/HU	HUDEB (0.8/3.8)	5522	3.2	620	24	169.8	192
		Hodmezovasar./HU	HUHOD (0.8/3.8)	5502	3.4	764	23	160.8	177
		Budapest/HU	HUPOL (1.2/4)	3790	3.3	475	19	135.8	61
JONKA	Jonas	Budapest/HU	HUSOR (0.95/4)	2286	3.9	445	21	154.2	164
KACJA	Kac	Kamnik/SI	CVETKA (0.8/3.8)	4914	4.3	1842	7	43.3	92
		Kostanjevec/SI	METKA (0.8/12)*	715	6.4	640	10	62.5	127
		Ljubljana/SI	ORION1 (0.8/8)	1402	3.8	331	14	62.1	36
		Kamnik/SI	REZIKA (0.8/6)	2270	4.4	840	7	47.1	169
			STEFKA (0.8/3.8)	5471	2.8	379	7	38.7	79
KERST	Kerr	Glenlee/AU	GOCAM1 (0.8/3.8)	5189	4.6	2550	16	46.5	283
KISSZ	Kiss	Sulysap/HU	HUSUL (0.95/5)*	4295	3.0	355	20	150.3	81
KOSDE	Koschny	Izana Obs./ES	ICC7 (0.85/25)*	714	5.9	1464	18	132.2	682
		Noordwijkerhout/NL	LIC4 (1.4/50)*	2027	6.0	4509	16	83.7	145
LERAR	Leroy	Gretz/FR	SAPHIRA (1.2/6)	3260	3.4	301	8	20.9	28
MACMA	Maciejewski	Chelm/PL	PAV35 (1.2/4)	4383	2.5	253	18	85.3	96
			PAV36 (1.2/4)*	5732	2.2	227	18	90.2	143
			PAV43 (0.95/3.75)*	2544	2.7	176	11	59.3	52
MARGR	Maravelias	Lofoupoli/GR	LOOMECON (0.8/12)	738	6.3	2698	21	93.3	192
MOLSI	Molau	Seysdorf/DE	AVIS2 (1.4/50)*	1230	6.9	6152	12	68.6	371
			MINCAM1 (0.8/8)	1477	4.9	1084	16	92.0	105
		Ketzür/DE	REMO1 (0.8/8)	1467	5.9	2837	24	121.1	444
			REMO2 (0.8/8)	1478	6.3	4467	25	142.0	368
			REMO3 (0.8/8)	1420	5.6	1967	19	102.3	95
MORJO	Morvai	Fülöpszallas/HU	HUFUL (1.4/5)	2522	3.5	532	24	164.4	189
OCAFR	Ocana Gonzales	Madrid/ES	FOGCAM (1.4/7)	1890	3.9	109	21	163.1	119
OCHPA	Ochner	Albiano/IT	ALBIANO (1.2/4.5)	2944	3.5	358	9	2.6	16
OTMTI	Otte	Pearl City/US	ORIE1 (1.4/5.7)	3837	3.8	460	16	49.8	142
PERZS	Perkó	Becsehely/HU	HUBEC (0.8/3.8)*	5498	2.9	460	23	142.9	363
PUCRC	Pucer	Nova vas nad Dra./SI	MOBCAM1 (0.75/6)	2398	5.3	2976	16	104.6	174
ROTEC	Rothenberg	Berlin/DE	ARMEFA (0.8/6)	2366	4.5	911	12	47.1	59
SARAN	Saraiva	Carnaxide/PT	RO1 (0.75/6)	2362	3.7	381	24	122.9	192
			RO2 (0.75/6)	2381	3.8	459	23	157.4	200
			SOFIA (0.8/12)	738	5.3	907	25	157.9	157
SCALE	Scarpa	Alberoni/IT	LEO (1.2/4.5)*	4152	4.5	2052	5	2.1	11
SCHHA	Schremmer	Niederkrüchten/DE	DORAEMON (0.8/3.8)	4900	3.0	409	23	101.1	174
SLAST	Slavec	Ljubljana/SI	KAYAK1 (1.8/28)	563	6.2	1294	13	51.1	72
STOEN	Stomeo	Scorze/IT	MIN38 (0.8/3.8)	5566	4.8	3270	23	86.5	279
			NOA38 (0.8/3.8)	5609	4.2	1911	18	84.5	190
			SCO38 (0.8/3.8)	5598	4.8	3306	19	108.8	303
STORO	Štok	Ondrejov/CZ	OND1 (1.4/50)*	2195	5.8	4595	1	6.1	73
STRJO	Strunk	Herford/DE	MINCAM2 (0.8/6)	2362	4.6	1152	15	62.5	68
			MINCAM3 (0.8/12)	728	5.7	975	17	72.7	85
			MINCAM4 (1.0/2.6)	9791	2.7	552	11	43.8	47
			MINCAM5 (0.8/6)	2349	5.0	1896	18	78.1	132
TEPIS	Tepliczky	Budapest/HU	HUMOB (0.8/6)	2388	4.8	1607	21	115.3	325
TRIMI	Triglav	Velenje/SI	SRAKA (0.8/6)*	2222	4.0	546	14	14.4	92
YRJIL	Yrjölä	Kuusankoski/FI	FINEXCAM (0.8/6)	2337	5.5	3574	19	94.7	210
ZELZO	Zelko	Budapest/HU	HUVCSE03 (1.0/4.5)	2224	4.4	933	8	42.4	62
Sum							30	6968.8	12681

\* 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BANPE	-	-	-	-	-	-	5.8	-	-	-	-	-	5.2	5.3	7.0
BASLU	7.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERER	3.7	-	-	-	-	-	-	-	-	4.2	1.3	-	8.4	8.6	7.3
	3.9	-	-	-	-	-	-	-	-	3.4	-	-	8.5	8.6	8.5
	3.5	-	-	-	-	-	-	-	-	4.4	-	-	8.7	8.6	8.5
BIRSZ	0.4	-	-	2.5	-	8.9	-	-	2.8	8.7	5.1	-	8.5	8.4	8.4
BOMMA	-	-	3.4	-	-	-	-	-	-	9.0	-	-	6.4	-	3.0
BREMA	9.1	6.0	2.4	1.9	-	5.2	6.6	-	-	-	-	-	-	8.2	6.8
	8.9	5.2	1.6	-	-	5.2	6.7	-	-	-	-	-	-	5.6	3.3
BRIBE	9.2	7.0	-	-	-	2.8	5.6	-	3.1	-	-	-	-	8.1	2.5
	9.2	8.4	-	5.2	-	3.4	4.9	2.3	-	-	-	-	-	8.3	2.5
CASFL	1.6	0.9	7.7	-	0.8	1.5	-	-	-	3.6	-	5.9	9.0	9.0	8.3
	-	0.3	6.1	-	-	0.2	-	-	2.4	-	-	4.7	8.4	8.7	5.4
CRIST	-	2.8	5.6	-	3.7	1.3	5.4	-	2.2	7.8	-	8.3	8.4	8.7	8.4
	-	1.5	2.0	-	3.0	0.6	5.3	-	1.8	4.1	-	7.9	8.8	8.7	7.3
	-	4.8	4.6	-	4.2	5.2	6.3	-	-	7.7	-	8.5	7.9	8.7	8.7
ELTMA	-	-	-	-	-	3.7	0.2	-	-	1.2	0.3	2.8	2.4	2.3	2.8
GANKA	7.9	-	-	-	-	7.1	5.7	1.5	-	-	-	0.6	-	7.9	7.3
GONRU	-	1.4	-	-	9.5	7.5	-	3.6	-	-	7.4	7.8	9.2	5.8	9.0
	1.3	3.8	-	-	9.6	4.4	-	3.7	-	-	7.3	7.6	9.2	5.7	9.0
	5.0	1.8	2.7	2.4	9.6	-	-	-	-	-	5.4	9.1	9.2	5.6	9.2
	-	1.4	-	-	9.6	2.5	-	1.6	-	-	6.9	7.5	9.2	5.6	9.0
GOVMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	4.9	2.4	1.0	3.0	-	0.5	3.8	0.5	2.7
	-	-	-	-	-	-	6.7	0.8	0.4	5.2	1.3	-	6.1	4.2	8.0
IGAAN	5.4	-	-	-	-	9.1	-	2.2	2.2	7.7	6.5	4.4	4.0	5.6	5.4
	9.0	-	-	-	-	-	9.1	1.9	-	7.6	5.8	2.4	6.4	8.7	8.6
	7.7	-	-	0.9	-	-	-	2.2	-	8.9	6.3	4.4	8.7	8.5	8.6
	-	-	-	-	-	-	-	-	-	8.2	5.9	2.7	8.5	8.1	8.2
JONKA	-	-	-	-	-	-	-	-	1.6	8.9	5.7	3.7	8.8	8.7	8.6
KACJA	-	-	-	-	-	-	-	-	-	6.7	-	-	8.7	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	9.0	-	-
	-	-	-	-	-	-	-	-	-	8.0	-	-	5.1	3.1	-
	-	-	-	-	-	-	-	-	-	6.8	-	-	8.8	-	-
	-	-	-	-	-	-	-	-	-	6.5	-	-	8.9	-	-
KERST	-	-	4.9	9.3	4.2	-	0.2	1.5	-	-	-	1.3	3.6	2.3	1.5
KISSZ	7.8	-	-	-	-	-	0.7	-	-	8.9	5.1	-	8.7	8.5	8.6
KOSDE	-	-	-	-	-	-	-	9.7	9.7	9.6	7.6	9.6	9.0	8.5	7.5
	8.4	7.5	-	-	-	-	2.6	1.4	-	0.2	-	-	-	-	4.6
LERAR	-	-	-	-	-	-	-	-	-	-	-	-	0.6	7.6	-
MACMA	1.2	-	-	-	-	-	7.0	8.2	-	1.4	-	-	4.3	-	8.5
	1.2	-	-	-	-	-	-	8.7	-	1.7	-	-	4.5	-	8.0
	1.8	-	-	-	-	-	-	8.5	-	-	-	-	3.7	-	8.4
MARGR	5.9	0.2	0.9	6.8	5.6	6.4	0.7	6.8	5.7	2.7	7.9	5.9	7.3	4.7	-
MOLSI	3.3	-	2.9	-	-	-	5.3	-	-	-	-	3.0	6.0	7.9	7.8
	3.4	-	3.0	-	-	-	7.2	-	-	4.1	-	6.7	6.3	8.5	8.4
	9.1	3.7	3.8	-	-	8.4	8.0	7.6	-	2.0	-	6.6	8.1	8.1	3.4
	9.0	9.0	4.5	-	-	8.4	8.4	8.5	-	2.0	8.3	6.9	8.2	8.1	4.4
	9.1	3.5	3.0	-	-	8.4	7.2	6.4	-	-	-	6.5	8.2	7.9	3.6
MORJO	5.1	-	-	3.2	-	7.0	-	-	3.4	9.0	5.6	3.3	8.8	8.7	8.6
OCAFR	6.8	8.6	3.5	2.2	7.9	9.4	-	8.5	-	-	9.2	8.7	9.2	7.8	9.0
OCHPA	-	-	0.2	-	-	0.2	-	-	0.3	0.2	-	0.5	-	0.5	-
OTTMI	9.5	3.3	2.4	2.5	0.2	-	1.0	3.5	-	-	-	-	-	-	-
PERZS	-	-	-	-	-	-	8.3	3.1	4.4	8.4	4.2	-	6.3	5.8	8.7
PUCRC	-	-	-	-	-	9.0	9.0	-	1.1	8.5	-	8.1	8.6	8.6	5.3
ROTEC	-	0.7	-	-	-	7.1	-	3.1	-	-	1.1	4.9	-	7.8	-
SARAN	3.8	-	4.4	0.4	7.7	1.7	-	-	-	-	0.7	9.0	8.9	-	9.3
	1.1	-	3.7	2.1	8.2	-	-	2.6	-	-	5.8	9.2	9.2	-	9.1
	0.5	-	5.0	2.1	8.4	3.1	-	2.9	-	-	6.2	8.9	9.0	-	8.7
SCALE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCHHA	9.4	9.0	1.8	5.8	-	1.1	-	2.8	1.4	-	-	0.7	-	7.8	5.3
SLAST	-	-	-	-	-	-	-	-	-	-	3.6	-	-	8.3	3.7
STOEN	0.4	0.2	1.6	-	-	4.4	-	-	1.4	7.2	-	3.7	7.9	8.9	6.5
	-	0.3	-	-	-	-	-	-	-	2.0	-	4.0	7.8	8.8	7.4
	0.8	-	2.8	-	-	3.9	-	-	4.0	7.3	-	5.2	8.3	9.0	8.1
STORO	-	-	-	-	-	-	6.1	-	-	-	-	-	-	-	-
STRJO	7.5	0.8	-	-	-	2.3	8.0	-	-	-	-	-	1.3	7.4	2.8
	8.1	-	-	-	-	-	1.3	-	-	-	-	1.3	1.7	2.2	3.2
	-	-	-	-	-	-	-	-	-	-	-	-	-	7.3	1.9
	7.7	-	-	-	-	2.2	7.8	2.7	2.0	-	-	-	-	7.5	3.2
TEPIS	-	-	-	-	-	8.6	-	-	1.8	8.6	4.8	-	7.8	8.4	8.0
TRIMI	-	-	-	-	-	-	-	-	-	1.0	-	-	2.6	0.2	-
YRJIL	5.3	-	7.2	7.5	4.9	7.3	-	6.8	5.1	6.2	-	-	-	-	-
ZELZO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2
Sum	219.2	92.1	91.7	54.8	97.1	167.5	162.0	125.5	57.8	222.6	136.6	203.2	390.6	386.3	383.0

April	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	-	-	-	-	6.9	-	-	-	-	-	-	-	-	-	-
BANPE	6.4	6.8	6.4	-	-	-	4.7	7.6	6.2	7.7	0.3	-	6.5	-	4.6
BASLU	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-
BERER	8.4	8.4	8.3	8.3	7.9	7.9	8.1	8.0	7.9	7.8	7.7	-	6.4	7.3	7.5
	8.5	8.4	8.3	8.3	8.0	8.2	8.1	8.1	8.0	7.9	-	1.3	6.5	7.2	7.6
	8.5	8.4	8.3	8.3	8.0	8.2	7.7	8.1	8.0	7.9	7.9	0.9	6.4	7.2	7.6
BIRSZ	6.9	6.8	5.4	-	1.5	8.0	6.7	7.4	5.9	7.1	-	-	7.5	-	3.7
BOMMA	8.3	8.4	8.7	-	-	-	-	8.5	-	2.7	2.4	-	2.6	-	0.6
BREMA	4.1	4.5	7.9	7.8	7.2	1.2	-	6.2	2.4	4.3	-	6.9	7.1	0.7	7.0
	-	3.6	5.4	7.8	6.3	0.9	-	-	-	4.5	-	6.6	7.0	3.2	5.9
BRIBE	-	6.8	7.7	-	4.6	-	1.5	1.5	4.4	5.5	-	6.4	4.0	2.2	0.7
	-	7.2	4.5	2.5	1.4	-	-	-	-	-	-	5.9	4.3	3.4	1.3
CASFL	8.1	8.8	8.7	-	-	-	2.0	6.3	8.4	5.0	-	-	-	0.5	-
	3.3	8.6	8.6	-	-	-	1.7	6.2	8.2	5.3	-	-	-	-	-
CRIST	8.2	8.5	8.5	0.6	2.2	0.2	2.7	7.2	6.5	-	-	-	-	0.4	0.6
	8.5	8.6	6.0	-	2.2	1.5	3.2	7.7	7.8	1.6	-	-	-	-	-
	8.4	8.5	8.5	0.7	3.2	0.6	5.4	6.3	8.2	3.1	-	-	-	0.6	2.0
ELTMA	0.5	3.2	1.3	-	-	-	5.2	3.7	3.1	0.2	-	-	-	-	-
GANKA	-	5.8	2.8	2.8	6.9	0.9	0.5	3.1	1.5	7.4	-	-	-	0.2	6.0
GONRU	9.1	8.6	8.9	8.9	8.5	5.0	4.7	8.8	8.8	5.8	7.5	8.7	7.2	4.7	4.5
	9.2	9.1	4.6	9.0	7.2	7.3	8.6	8.9	8.9	5.8	7.2	8.7	7.6	5.8	5.8
	9.1	9.0	8.6	8.9	8.8	5.5	8.7	8.6	8.2	5.3	7.3	8.6	8.0	-	7.6
	9.2	7.8	9.0	9.0	7.1	6.7	8.8	8.8	8.2	6.1	6.9	8.6	7.1	4.1	4.5
GOVMI	-	-	6.3	7.5	8.4	1.2	1.1	8.2	8.2	7.9	6.2	2.4	7.8	1.3	4.3
	8.5	4.0	5.0	1.9	1.8	0.6	0.9	8.0	2.9	7.8	0.2	1.6	7.7	0.2	0.5
	7.7	3.9	2.1	1.7	1.5	0.4	-	6.9	6.7	5.2	0.3	1.0	7.0	0.7	0.9
IGAAN	5.7	4.7	8.5	8.5	8.3	8.2	4.9	8.1	7.7	8.0	7.9	-	7.9	7.6	0.3
	8.5	8.4	8.4	8.2	8.2	5.1	7.2	8.0	8.0	7.8	7.7	3.3	7.7	7.3	6.5
	8.5	8.5	8.4	8.4	7.9	8.2	3.1	8.1	7.6	8.0	8.0	4.6	7.5	7.8	-
	8.2	8.1	7.6	7.8	4.8	7.8	6.2	7.7	7.4	7.6	7.4	-	7.3	6.3	-
JONKA	8.5	8.0	8.4	8.4	7.7	8.2	7.7	8.0	7.4	8.0	7.9	-	7.7	5.8	6.5
KACJA	2.5	6.8	5.7	-	-	-	-	-	-	-	-	-	-	5.7	7.2
	8.4	8.1	8.2	0.5	-	-	-	7.6	8.0	3.0	-	-	8.0	-	1.7
	2.2	-	5.3	-	3.0	0.7	1.0	8.0	8.0	7.2	-	-	4.9	3.7	1.9
	3.5	7.1	5.7	-	-	-	-	-	-	-	-	-	-	8.0	7.2
	1.5	5.3	4.1	-	-	-	-	-	-	-	-	-	-	5.6	6.8
KERST	-	2.7	5.8	-	5.3	0.2	2.8	0.4	0.5	-	-	-	-	-	-
KISSZ	8.5	8.5	8.4	8.4	8.3	8.2	8.1	8.1	7.8	8.0	-	-	7.8	5.1	6.8
KOSDE	7.0	5.9	-	-	2.3	7.4	6.8	-	6.2	9.2	-	9.1	-	3.4	3.7
	7.0	-	6.9	7.0	6.9	6.8	-	-	-	4.5	-	4.7	4.1	5.0	6.1
LERAR	-	3.9	-	0.3	2.0	1.1	2.1	3.3	-	-	-	-	-	-	-
MACMA	8.2	7.8	7.4	2.9	3.8	7.5	5.5	1.8	-	0.2	5.4	2.5	-	1.7	-
	8.2	8.1	8.0	-	3.5	7.9	6.5	2.2	6.4	0.8	6.0	4.5	1.2	-	2.8
	-	-	-	-	-	8.1	7.8	2.3	6.7	2.5	7.7	-	1.8	-	-
MARGR	-	6.6	2.6	3.1	2.7	3.8	3.9	-	-	3.1	-	-	-	-	-
MOLSI	-	6.3	-	-	-	-	-	6.4	7.2	7.1	-	-	-	5.4	-
	-	8.3	-	-	-	-	2.4	8.0	7.9	7.8	1.6	-	-	6.4	2.0
	0.4	6.6	2.7	6.8	7.2	6.5	5.8	3.6	2.7	0.7	-	-	2.3	2.7	4.3
	1.1	7.0	3.8	7.1	7.6	5.9	5.8	4.2	1.7	0.6	-	-	2.6	4.2	4.7
	-	4.5	-	3.3	6.8	6.1	6.0	3.2	2.5	-	-	-	2.3	-	3.8
MORJO	8.5	-	8.5	8.4	8.4	8.3	7.7	8.2	7.6	8.0	7.9	1.7	7.9	7.5	3.1
OCAFR	9.0	9.0	9.0	8.5	8.8	2.2	8.5	8.7	8.6	-	-	-	-	-	-
OCHPA	0.2	0.2	0.3	-	-	-	-	-	-	-	-	-	-	-	-
OTTMI	-	-	-	2.6	1.2	-	0.2	-	-	3.4	6.2	2.2	7.0	2.6	2.0
PERZS	8.6	8.6	8.4	6.2	5.5	4.0	2.5	8.0	6.6	7.2	6.2	2.8	7.9	3.8	7.4
PUCRC	-	-	-	-	3.9	-	2.6	7.9	7.9	6.6	-	-	6.3	5.5	5.7
ROTEC	-	6.9	-	3.4	6.3	3.1	1.0	1.7	-	-	-	-	-	-	-
SARAN	8.9	8.4	6.6	3.9	4.8	6.1	5.7	3.3	2.0	1.6	1.0	8.8	8.7	1.9	5.3
	9.0	8.9	9.0	8.9	8.0	8.5	8.8	8.7	-	8.6	2.2	8.6	8.5	3.1	5.6
	9.0	8.3	8.8	8.2	7.9	8.5	8.2	7.1	4.3	5.6	1.3	8.3	8.5	3.5	5.6
SCALE	-	-	-	-	-	-	0.2	0.5	0.3	-	-	-	0.2	0.9	-
SCHHA	-	5.9	7.5	3.2	5.4	1.9	0.3	5.6	5.7	7.1	-	6.3	5.1	1.3	0.7
SLAST	-	4.5	4.5	5.2	1.4	0.4	-	-	7.0	7.8	1.1	0.4	-	3.2	-
STOEN	0.7	7.2	5.0	-	-	0.2	4.3	7.4	7.4	1.9	2.2	0.3	1.1	3.5	3.1
	3.6	8.0	3.6	-	-	-	5.0	8.1	8.2	5.6	2.4	0.5	1.6	4.6	3.0
	4.2	8.3	5.5	-	-	-	6.5	7.3	8.5	6.1	-	-	2.5	6.2	4.3
STORO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRJO	-	-	7.2	-	5.9	-	2.1	1.9	2.4	3.6	-	4.8	-	-	4.5
	-	3.6	6.9	2.9	7.2	-	3.0	5.0	3.6	5.1	-	5.9	-	-	4.1
	-	3.6	7.0	-	6.6	-	2.3	4.5	2.2	3.4	-	-	-	1.3	3.7
	-	3.2	7.4	2.8	6.8	-	3.2	4.7	2.6	3.6	-	5.3	-	1.6	3.8
TEPIS	6.5	2.2	2.9	0.5	1.0	4.4	1.9	7.3	7.8	7.5	7.1	-	6.5	6.9	4.8
TRIMI	1.0	1.0	1.3	0.2	1.6	0.4	-	1.4	1.0	-	-	-	0.8	0.7	1.2
YRJIL	5.2	3.7	1.0	-	5.6	5.5	4.3	-	4.5	4.3	-	2.4	4.4	-	3.5
ZELZO	-	-	-	2.5	-	8.2	2.9	-	6.3	6.3	-	-	-	5.3	3.7
Sum	313.2	406.4	386.1	242.1	302.2	235.5	265.1	360.4	346.6	319.3	151.1	154.6	260.8	204.8	230.6

### 3. Results (Meteors)

April	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ARLRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BANPE	-	-	-	-	-	-	6	-	-	-	-	-	5	3	5
BASLU	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERER	12	-	-	-	-	-	-	-	-	22	3	-	26	20	26
	2	-	-	-	-	-	-	-	-	3	-	-	8	6	14
	2	-	-	-	-	-	-	-	-	5	-	-	16	7	10
BIRSZ	1	-	-	2	-	7	-	-	2	12	1	-	13	2	7
BOMMA	-	-	25	-	-	-	-	-	-	24	-	-	18	-	10
BREMA	16	3	1	2	-	4	5	-	-	-	-	-	-	10	6
	11	3	1	-	-	6	5	-	-	-	-	-	-	11	3
BRIBE	16	7	-	-	-	9	5	-	5	-	-	-	-	13	6
	15	6	-	5	-	3	1	2	-	-	-	-	-	15	4
CASFL	1	1	9	-	1	4	-	-	-	4	-	15	17	12	7
	-	1	7	-	-	2	-	-	11	-	-	10	7	8	5
CRIST	-	2	6	-	5	2	6	-	1	6	-	16	20	29	15
	-	1	1	-	4	2	5	-	3	6	-	11	14	16	9
	-	7	5	-	5	4	9	-	-	11	-	21	29	35	25
ELTMA	-	-	-	-	-	21	2	-	-	6	2	17	16	14	20
GANKA	3	-	-	-	-	7	2	1	-	-	-	1	-	6	3
GONRU	-	1	-	-	19	7	-	1	-	-	13	17	29	8	28
	3	2	-	-	26	5	-	4	-	-	10	9	12	7	18
	6	1	2	2	15	-	-	-	-	-	4	16	12	3	10
	-	2	-	-	15	1	-	1	-	-	7	7	14	4	18
GOVMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	7	3	1	8	-	2	9	3	4
	-	-	-	-	-	-	7	2	1	8	3	-	9	8	10
IGAAN	4	-	-	-	-	12	-	3	1	9	4	3	10	11	14
	8	-	-	-	-	-	1	1	-	7	6	1	9	11	15
	7	-	-	2	-	-	-	1	-	12	3	5	11	9	11
	-	-	-	-	-	-	-	-	-	7	1	1	4	3	2
JONKA	-	-	-	-	-	-	-	-	2	10	1	1	8	7	15
KACJA	-	-	-	-	-	-	-	-	-	12	-	-	25	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-
	-	-	-	-	-	-	-	-	-	4	-	-	3	4	-
	-	-	-	-	-	-	-	-	-	15	-	-	54	-	-
	-	-	-	-	-	-	-	-	-	12	-	-	30	-	-
KERST	-	-	28	38	9	-	1	10	-	-	-	8	30	10	9
KISSZ	5	-	-	-	-	-	1	-	-	4	1	-	4	2	5
KOSDE	-	-	-	-	-	-	-	49	56	53	39	47	61	59	54
	23	19	-	-	-	-	2	3	-	1	-	-	-	-	9
LERAR	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-
MACMA	1	-	-	-	-	-	5	3	-	2	-	-	5	-	8
	1	-	-	-	-	-	-	8	-	1	-	-	4	-	9
	1	-	-	-	-	-	-	1	-	-	-	-	2	-	3
MARGR	20	1	6	17	4	4	1	12	19	1	14	13	18	2	-
MOLSI	6	-	16	-	-	-	46	-	-	-	-	22	44	72	60
	1	-	4	-	-	-	3	-	-	1	-	4	10	11	11
	44	16	14	-	-	46	38	16	-	1	-	21	32	30	7
	45	11	3	-	-	41	34	19	-	2	-	10	38	25	5
	15	1	1	-	-	8	6	3	-	-	-	7	4	8	2
MORJO	3	-	-	1	-	7	-	-	1	15	3	2	11	12	14
OCAFR	7	4	3	2	8	8	-	4	-	-	6	8	4	6	4
OCHPA	-	-	1	-	-	1	-	-	2	1	-	3	-	3	-
OTTMI	11	11	18	18	1	-	3	3	-	-	-	-	-	-	-
PERZS	-	-	-	-	-	-	29	6	3	37	2	-	23	9	19
PUCRC	-	-	-	-	-	12	14	-	4	14	-	12	20	18	7
ROTEC	-	1	-	-	-	10	-	1	-	-	1	3	-	8	-
SARAN	1	-	6	2	11	2	-	-	-	-	5	4	11	-	13
	3	-	1	1	2	-	-	5	-	-	7	7	14	-	14
	3	-	7	3	7	1	-	1	-	-	9	2	12	-	9
SCALE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCHHA	14	8	4	5	-	2	-	3	2	-	-	2	-	13	7
SLAST	-	-	-	-	-	-	-	-	-	-	8	-	-	18	11
STOEN	1	1	12	-	-	30	-	-	5	14	-	6	21	20	15
	-	1	-	-	-	-	-	-	-	4	-	5	19	20	16
	2	-	8	-	-	31	-	-	16	9	-	3	19	28	20
STORO	-	-	-	-	-	-	73	-	-	-	-	-	-	-	-
STRJO	8	2	-	-	-	3	6	-	-	-	-	-	1	9	3
	3	-	-	-	-	-	9	-	-	-	1	1	4	3	1
	-	-	-	-	-	-	-	-	-	-	-	-	-	6	4
	15	-	-	-	-	1	7	1	1	-	-	-	-	19	4
TEPIS	-	-	-	-	-	19	-	-	3	14	7	-	22	24	24
TRIMI	-	-	-	-	-	-	-	-	-	6	-	-	17	1	-
YRJIL	7	-	12	19	16	14	-	15	6	13	-	-	-	-	-
ZELZO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Sum	351	113	201	119	148	336	339	182	145	396	161	343	892	724	693

April	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ARLRA	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
BANPE	6	4	3	-	-	-	9	12	6	4	1	-	5	-	3
BASLU	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
BERER	39	34	31	22	17	66	47	14	26	32	8	-	21	19	24
	7	12	4	5	8	11	14	4	4	4	-	1	5	6	5
	8	4	8	7	10	17	8	4	6	11	3	1	2	3	5
BIRSZ	10	10	1	-	2	23	9	8	2	7	-	-	2	-	1
BOMMA	5	21	26	-	-	-	-	38	-	6	3	-	3	-	1
BREMA	5	5	11	9	13	9	-	6	3	5	-	11	8	1	10
	-	6	9	16	14	4	-	-	-	1	-	9	10	3	5
BRIBE	-	11	14	-	12	-	1	2	7	10	-	7	5	3	1
	-	6	4	2	6	-	-	-	-	-	-	2	1	1	1
CASFL	4	9	14	-	-	-	4	22	9	2	-	-	-	3	-
	2	7	11	-	-	-	8	14	10	4	-	-	-	-	-
CRIST	7	25	13	1	5	1	10	25	9	-	-	-	-	1	1
	8	9	7	-	8	4	9	10	8	1	-	-	-	-	-
	10	25	30	2	3	1	11	31	18	1	-	-	-	1	3
ELTMA	3	20	9	-	-	-	21	33	25	1	-	-	-	-	-
GANKA	-	2	8	6	10	4	1	8	4	7	-	-	-	1	6
GONRU	29	33	24	23	31	31	27	18	20	4	22	27	30	11	14
	13	16	11	16	27	24	50	17	13	4	6	13	11	9	9
	12	14	7	5	23	5	24	17	7	2	10	9	13	-	18
	10	9	14	14	33	22	47	7	11	6	10	12	19	6	16
GOVMI	-	-	13	9	12	2	6	23	13	15	4	7	11	2	3
	14	2	4	6	7	2	4	18	6	10	1	8	9	1	3
	11	4	5	5	8	3	-	20	16	12	2	2	10	2	4
IGAAN	10	12	8	9	18	26	6	18	16	11	6	-	11	6	1
	18	14	17	6	8	11	15	9	4	6	2	2	10	6	5
	6	11	8	5	11	23	2	15	9	10	2	2	6	6	-
	2	2	2	2	3	13	4	2	1	5	2	-	3	2	-
JONKA	9	12	9	8	6	17	10	9	11	9	3	-	5	9	3
KACJA	3	12	19	-	-	-	-	-	-	-	-	-	-	14	7
	18	10	14	2	-	-	-	23	17	9	-	-	15	-	6
	1	-	1	-	1	1	1	6	6	4	-	-	2	1	1
	15	28	15	-	-	-	-	-	-	-	-	-	-	16	26
	1	12	12	-	-	-	-	-	-	-	-	-	-	3	9
KERST	-	18	51	-	45	1	20	2	3	-	-	-	-	-	-
KISSZ	3	11	6	2	5	8	11	3	1	3	-	-	1	4	1
KOSDE	52	59	-	-	8	39	15	-	17	12	-	30	-	12	20
	4	-	8	12	22	7	-	-	7	-	4	6	7	11	-
LERAR	-	1	-	1	8	6	5	3	-	-	-	-	-	-	-
MACMA	2	1	6	1	6	29	18	5	-	1	1	1	-	1	-
	13	4	10	-	9	42	15	5	5	1	10	1	4	-	1
	-	-	-	-	-	18	13	2	5	1	3	-	3	-	-
MARGR	-	4	3	7	11	20	12	-	-	3	-	-	-	-	-
MOLSI	-	37	-	-	-	-	-	14	30	12	-	-	-	12	-
	-	6	-	-	-	-	1	18	11	17	2	-	-	2	3
	1	19	5	16	27	44	36	5	4	2	-	-	2	5	13
	2	17	6	13	33	27	17	4	1	2	-	-	3	3	7
	-	2	-	5	7	7	5	4	2	-	-	-	1	-	7
MORJO	10	-	8	10	14	16	12	11	8	8	4	1	8	8	2
OCAFR	9	8	14	6	3	1	5	4	5	-	-	-	-	-	-
OCHPA	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-
OTTMI	-	-	-	15	8	-	1	-	-	13	11	4	10	1	14
PERZS	24	22	16	6	17	17	6	39	18	11	8	15	16	5	15
PUCRC	-	-	-	-	8	-	7	17	13	4	-	-	7	7	10
ROTEC	-	10	-	5	9	7	2	2	-	-	-	-	-	-	-
SARAN	7	8	11	8	7	22	29	4	4	2	4	5	13	3	10
	13	14	4	11	18	21	12	16	-	4	4	6	13	6	4
	10	5	8	6	8	19	15	5	3	4	1	6	9	1	3
SCALE	-	-	-	-	-	-	1	3	1	-	-	-	1	5	-
SCHHA	-	9	11	6	21	8	1	9	8	11	-	12	14	3	1
SLAST	-	3	5	4	3	2	-	-	5	8	1	1	-	3	-
STOEN	3	14	16	-	-	1	31	44	22	3	5	1	2	7	5
	3	11	12	-	-	-	26	35	21	4	2	1	3	5	2
	1	13	15	-	-	-	51	41	24	6	-	-	2	7	7
STORO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRJO	-	-	8	-	11	-	2	6	2	2	-	1	-	-	4
	-	6	11	2	14	-	3	7	2	5	-	11	-	-	2
	-	3	10	-	10	-	1	6	2	3	-	-	-	1	1
	-	6	16	4	21	-	4	14	1	5	-	8	-	1	4
TEPIS	22	13	23	3	7	36	13	11	34	17	6	-	14	9	4
TRIMI	6	6	8	2	10	3	-	10	5	-	-	-	5	5	8
YRJIL	11	6	1	-	13	29	9	-	14	6	-	4	6	-	9
ZELZO	-	-	-	4	-	29	7	-	7	6	-	-	-	1	2
Sum	484	738	680	329	686	781	754	782	565	386	147	225	360	260	361