Results of the IMO Video Meteor Network – July 2010

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2010/08/25

1. Observers

Code	Name	Place	Camera	FOV	LM	Nights	Time	Meteors
BENOR	Benitez-S.	Las Palmas	TIMES4 (1.4/50)	∅ 20°	3 mag	10	17.5	50
BRIBE	Brinkmann	Herne	HERMINE (0.8/6)	∅ 55°	3 mag	24	87.3	303
CRIST	Crivello	Valbrevenna	C3P8 (0.8/3.8)	∅ 80°	3 mag	28	132.5	613
			STG38 (0.8/3.8)	∅ 80°	3 mag	31	124.3	436
ELTMA	Eltri	Venezia	MET38 (0.8/3.8)	∅ 80°	3 mag	22	102.5	434
GONRU	Goncalves	Tomar	TEMPLAR1 (0.8/6)	∅ 55°	3 mag	28	157.8	917
			TEMPLAR2 (0.8/6)	∅ 55°	3 mag	28	102.0	424
GOVMI	Govedic	Sredisce ob Dravi	ORION2 (0.8/8)	∅ 42°	4 mag	17	62.8	240
HERCA	Hergenrother	Tucson	SALSA2 (1.2/4)	∅ 80°	3 mag	18	38.9	116
HINWO	Hinz	Brannenburg	AKM2 (0.85/25)	∅ 32°	6 mag	14	55.8	217
IGAAN	Igaz	Budapest	HUPOL (0.8/3.8)	∅ 80°	3 mag	22	67.2	192
JOBKL	Jobse	Oostkapelle	BETSY2 (1.2/85)	∅ 25°	7 mag	13	49.6	626
KACJA	Kac	Kostanjevec	METKA (0.8/8)	∅ 42°	4 mag	1	0.3	1
		Ljubljana	ORION1 (0.8/8)	∅ 42°	4 mag	22	79.2	254
		Kamnik	REZIKA (0.8/6)	∅ 55°	3 mag	12	60.0	336
			STEFKA (0.8/3.8)	∅ 80°	3 mag	14	52.6	239
KERST	Kerr	Glenlee	GOCAM1 (0.8/3.8)	∅ 80°	3 mag	23	197.4	1797
MOLSI	Molau	Seysdorf	AVIS2 (1.4/50)	∅ 60°	6 mag	18	76.7	855
			MINCAM1 (0.8/8)	∅ 42°	4 mag	22	91.5	377
		Ketzür	REMO1 (0.8/3.8)	∅ 80°	3 mag	25	82.0	239
			REMO2 (0.8/3.8)	∅ 80°	3 mag	26	97.6	410
MORJO	Morvai	Fülöpszallas	HUFUL (0.8/3.8)	∅ 80°	3 mag	10	35.0	79
OCHPA	Ochner	Albiano	ALBIANO (1.2/4.5)	∅ 68°	3 mag	2	7.3	15
PERCZ	Perko	Becsehely	HUBEC (0.8/3.8)	∅ 80°	3 mag	5	25.5	92
ROBBI	Roberto	Verona	FIAMENE (0.8/3.8)	∅ 80°	3 mag	5	20.9	93
ROTEC	Rothenberg	Berlin	ARMEFA (0.8/6)	∅ 55°	3 mag	16	53.6	209
SCHHA	Schremmer	Niederkrüchten	DORAEMON (0.8/3.8)	∅ 80°	3 mag	26	73.0	211
SLAST	Slavec	Ljubljana	KAYAK1 (1.8/28)	∅ 50°	4 mag	18	63.1	188
STOEN	Stomeo	Scorze	MIN38 (0.8/3.8)	∅ 80°	3 mag	22	124.5	801
			NOA38 (0.8/3.8)	∅ 80°	3 mag	21	121.7	799
			SCO38 (0.8/3.8)	∅ 80°	3 mag	21	122.0	973
STRJO	Strunk	Herford	MINCAM2 (0.8/6)	∅ 55°	3 mag	11	24.8	71
			MINCAM3 (0.8/8)	∅ 42°	4 mag	15	38.2	129
			MINCAM5 (0.8/6)	∅ 55°	3 mag	13	34.6	135
TEPIS	Tepliczky	Budapest	HUMOB (0.8/3.8)	∅ 80°	3 mag	23	96.4	411
Sum						31	2576.1	13282

2. Observing Times (h)

July	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
BENOR	0.6	2.8	-	1.8	2.2	0.7	0.7	-	-	-	-	2.4	1.9	-	-
BRIBE	3.4	4.0	1.2	5.9	3.0	6.0	1.2	5.2	1.9	2.4	0.8	1.5	2.6	4.0	5.7
CRIST	3.0	6.2	-	2.3	4.4	4.1	4.6	5.0	4.0	4.2	3.2	-	3.3	6.6	4.0
	3.5	4.6	3.0	1.8	1.7	4.1	4.0	3.5	4.0	4.0	3.7	0.5	4.3	6.6	5.6
ELTMA	5.1	3.3	3.1	-	-	-	2.1	4.0	3.0	2.7	-	5.2	-	5.3	-
GONRU	5.0	-	5.8	5.1	5.2	1.9	4.7	-	6.0	6.4	4.6	2.4	0.8	5.9	6.7
	1.0	-	2.8	3.6	3.7	2.0	4.3	-	3.3	5.2	1.9	0.2	0.3	3.4	7.1
GOVMI	-	4.7	1.7	3.1	3.0	2.3	6.3	6.3	5.5	3.3	6.1	4.7	-	-	0.3
HERCA	3.0	1.2	1.6	5.1	2.9	3.1	5.9	0.3	1.3	0.3	-	2.0	2.5	-	-
HINWO	2.2	4.0	2.5	-	-	-	4.7	5.1	5.2	0.6	4.2	-	4.6	0.5	-
IGAAN	1.1	1.9	1.5	4.2	3.1	-	2.8	2.2	4.6	4.4	3.3	4.1	-	-	-
JOBKL	-	-	-	-	-	-	3.7	3.8	3.8	-	3.9	4.0	-	-	4.2
KACJA	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-
	2.8	6.1	3.3	0.6	1.8	1.3	5.2	6.3	5.0	4.5	6.4	3.5	-	-	-
	-	6.0	6.0	-	0.7	2.2	6.2	6.2	-	-	6.3	-	-	-	-
	0.8	5.1	3.5	-	-	0.2	4.2	6.3	-	-	5.5	-	-	-	-
KERST	0.9	-	11.4	8.2	10.0	4.6	-	-	10.2	11.0	11.6	7.7	7.9	-	11.6
MOLSI	4.5	4.6	3.0	-	2.8	3.1	4.8	4.8	4.8	4.9	3.1	-	5.0	-	4.6

	3.0	4.3	3.5	2.9	1.8	3.0	4.2	5.8	5.8	5.9	2.5	-	6.0	-	5.6
	2.7	4.4	2.6	-	-	1.8	1.6	3.2	2.6	2.4	1.4	-	4.9	0.8	3.5
	0.8	4.4	3.3	0.2	-	4.6	1.9	4.7	4.7	4.8	2.8	-	4.9	1.2	5.0
MORJO	2.3	4.7	2.9	3.5	2.2	4.7	1.9	6.2	4.8	1.8	-	-	-	-	-
OCHPA	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PERCZ	-	-	-	-	-	-	-	-	-	-	-	6.1	6.5	3.9	-
ROBBI	-	-	-	-	-	-	-	-	0.8	-	-	-	-	-	-
ROTEC	3.1	4.5	3.1	-	-	3.1	4.7	4.7	3.4	-	-	0.2	5.0	0.5	0.5
SCHHA	3.2	2.1	0.3	5.1	0.9	3.8	-	2.7	0.6	-	0.3	2.5	3.6	4.0	3.0
SLAST	1.3	3.6	2.7	-	3.0	3.0	3.7	6.1	5.4	5.3	4.4	6.2	-	4.4	-
STOEN	-	-	5.2	-	-	4.0	-	5.6	5.4	5.4	1.1	5.1	-	6.7	6.5
	-	-	3.6	-	-	5.0	-	6.5	6.5	5.4	-	5.5	-	6.7	6.5
	-	-	4.2	-	-	4.0	-	5.4	5.5	6.5	-	5.6	-	6.7	6.5
STRJO	-	0.9	-	1.1	-	3.2	-	4.0	1.6	1.0	2.4	-	2.0	-	4.3
	1.7	2.4	0.3	2.7	-	2.6	-	3.1	3.3	3.0	2.4	-	3.2	-	3.6
	-	3.8	-	2.5	0.4	3.9	-	4.0	1.6	2.4	4.2	0.6	2.8	-	3.6
TEPIS	4.2	4.2	4.6	3.5	5.1	-	3.8	5.2	5.2	4.7	4.9	3.8	4.9	3.1	3.5
Sum	60.4	93.8	86.7	63.2	57.9	82.3	87.2	126.2	119.8	102.8	91.0	73.8	77.0	70.3	101.9

July	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BENOR	3.2	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BRIBE	4.5	6.4	6.5	5.9	5.8	0.3	2.6	1.5	5.0	-	-	-	-	-	-	-
CRIST	4.6	4.0	5.8	5.2	4.7	5.9	5.2	4.0	7.0	5.0	5.2	7.2	1.2	5.3	7.3	-
	5.5	2.0	6.1	5.2	4.2	4.1	5.2	3.0	5.8	2.2	5.5	6.1	1.0	1.1	6.2	6.2
ELTMA	5.3	-	5.5	5.5	5.5	4.5	5.2	5.4	6.1	-	6.7	4.9	-	1.0	6.0	7.1
GONRU	5.7	6.2	5.5	6.6	-	6.6	7.4	6.0	7.7	7.6	7.5	6.7	7.8	6.5	7.5	2.0
	5.2	2.6	4.7	5.3	-	3.3	3.2	0.8	6.4	7.6	3.0	2.0	6.6	4.2	6.4	1.9
GOVMI	6.5	0.9	2.5	1.6	-	4.0	-	-	-	-	-	-	-	-	-	-
HERCA	-	2.2	0.5	-	-	3.0	-	-	3.0	0.7	-	-	0.3	-	-	-
HINWO	-	-	-	5.5	5.6	-	-	-	-	-	-	-	-	-	4.9	6.2
IGAAN	4.4	3.2	2.6	-	1.6	2.0	3.8	5.4	-	-	-	-	2.0	0.8	1.8	6.4
JOBKL	3.4	3.8	4.4	4.5	-	3.9	4.7	-	-	-	-	-	-	-	-	1.5
KACJA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	1.2	-	4.6	6.7	6.8	0.3	0.3	0.7	-	3.4	3.2	-	-	5.2
	-	-	-	-	6.6	6.7	6.6	-	-	3.2	-	3.3	-	-	-	-
	-	-	0.1	0.1	6.7	5.5	6.7	-	-	3.5	-	4.4	-	-	-	-
KERST	7.6	9.5	9.7	7.3	8.1	10.7	10.7	10.3	-	-	-	-	3.9	10.0	3.8	10.7
MOLSI	-	-	5.3	4.3	5.4	4.3	-	-	-	2.7	-	-	-	-	-	4.7
	-	-	6.2	6.3	4.7	3.6	-	-	2.5	3.0	-	1.6	2.5	-	6.8	-
	1.4	1.4	4.0	3.8	5.3	4.2	-	-	1.9	4.6	2.9	5.7	5.8	4.3	4.8	-
	2.0	1.9	5.2	5.3	5.3	5.4	-	-	1.0	3.5	3.4	5.7	3.8	5.9	5.9	-
MORJO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCHPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	-
PERCZ	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2
ROBBI	-	-	-	-	4.9	-	-	-	-	-	-	4.6	-	3.2	-	7.4
ROTEC	-	0.4	5.3	4.3	5.4	5.4	-	-	-	-	-	-	-	-	-	-
SCHHA	2.7	4.6	2.3	4.2	1.1	-	3.0	1.4	5.6	-	1.3	-	2.1	1.6	7.2	3.8
SLAST	-	3.2	-	-	1.8	3.8	1.0	-	-	-	-	-	3.1	-	-	1.1
STOEN	6.7	5.7	5.7	6.7	6.8	5.0	6.6	-	7.0	-	6.5	7.1	1.0	-	7.3	7.4
	6.7	3.0	4.8	6.7	6.8	5.6	6.6	-	7.0	-	6.5	6.7	0.9	-	7.3	7.4
	6.7	4.5	5.1	6.8	6.8	5.3	6.5	-	7.0	-	6.4	7.1	0.8	-	7.3	7.3
STRJO	0.5	3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.3	2.5	3.9	3.2	-	-	-	-	-	-	-	-	-	-	-	-
	0.5	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TEPIS	4.8	4.7	3.9	1.3	3.3	5.8	4.8	2.7	-	-	-	-	-	-	-	4.4
Sum	90.0	82.0	106.8	105.6	111.0	115.6	96.6	40.8	73.3	44.3	54.9	76.5	46.0	43.9	96.6	97.9

3. Results (Meteors)

July	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
BENOR	2	5	-	4	5	2	2	-	-	-	-	7	7	-	-
BRIBE	12	9	1	16	11	17	5	16	2	7	5	7	5	9	25
CRIST	16	22	-	6	8	7	9	21	18	9	10	-	17	28	17
	11	11	12	5	5	14	10	13	14	8	9	1	16	15	17
ELTMA	12	6	7	-	-	-	3	19	25	8	-	16	-	17	-
GONRU	19	-	26	23	24	5	29	-	38	36	16	5	3	30	41

	4	-	13	12	12	4	13	-	16	15	9	1	1	18	14
GOVMI	-	16	4	4	9	11	26	33	24	10	24	22	-	-	2
HERCA	7	2	7	19	17	10	14	1	2	1	-	7	10	-	-
HINWO	2	5	5	-	-	-	18	15	11	1	6	-	11	2	-
IGAAN	5	9	2	5	15	-	13	7	16	15	7	8	-	-	-
JOBKL	-	-	-	-	-	-	32	58	41	-	27	39	-	-	59
KACJA	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	6	17	13	2	6	1	20	21	16	13	17	15	-	-	-
	-	20	17	-	1	11	47	43	-	-	39	-	-	-	-
	1	16	22	-	-	1	25	29	-	-	23	-	-	-	-
KERST	4	-	126	55	76	20	-	-	101	95	86	75	71	-	106
MOLSI	25	36	19	-	29	13	87	79	54	44	14	-	71	-	58
	8	16	4	3	7	8	26	30	19	15	6	-	22	-	20
	4	7	8	-	-	12	4	11	5	8	3	-	17	2	9
	2	16	11	1	-	13	10	15	11	19	11	-	23	2	31
MORJO	8	7	6	8	4	9	10	12	12	3	-	-	-	-	-
OCHPA	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PERCZ	-	-	-	-	-	-	-	-	-	-	-	22	14	8	-
ROBBI	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
ROTEC	10	11	21	-	-	18	15	7	11	-	-	1	12	3	5
SCHHA	7	5	1	19	2	13	-	8	3	-	1	14	8	11	9
SLAST	3	7	5	-	3	6	18	18	23	30	11	17	-	8	-
STOEN	-	-	15	-	-	15	-	29	40	28	1	28	-	34	46
	-	-	12	-	-	16	-	36	36	24	-	28	-	39	33
	-	-	18	-	-	22	-	33	36	36	-	35	-	27	46
STRJO	-	2	-	2	-	11	-	7	4	5	6	-	5	-	16
	6	8	3	6	-	7	-	6	11	8	8	-	9	-	14
	-	11	-	8	2	17	-	11	5	7	17	1	12	-	13
TEPIS	13	14	15	12	21	-	18	22	27	22	20	12	20	16	14
Sum	189	278	393	210	257	283	454	600	623	468	376	361	354	269	595

July	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BENOR	13	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BRIBE	15	19	32	24	19	1	10	6	30	-	-	-	-	-	-	-
CRIST	25	14	37	30	22	26	17	34	34	17	35	46	4	20	64	-
	24	7	16	23	10	17	18	18	22	6	23	21	5	4	26	35
ELTMA	23	-	18	17	30	12	14	25	31	-	24	26	-	1	38	62
GONRU	42	32	24	39	-	39	42	43	62	42	51	44	47	43	68	4
	18	12	14	22	-	14	14	12	23	34	35	19	28	16	27	4
GOVMI	22	2	6	7	-	18	-	-	-	-	-	-	-	-	-	-
HERCA	-	4	1	-	-	3	-	-	6	3	-	-	2	-	-	-
HINWO	-	-	-	36	25	-	-	-	-	-	-	-	-	-	44	36
IGAAN	12	6	6	-	6	5	9	13	-	-	-	-	4	5	3	21
JOBKL	46	63	84	58	-	37	66	-	-	-	-	-	-	-	-	16
KACJA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	2	-	20	30	22	2	2	2	-	2	11	-	-	14
	-	-	-	-	39	39	35	-	-	30	-	15	-	-	-	-
	-	-	1	1	31	33	25	-	-	18	-	13	-	-	-	-
KERST	54	95	52	39	53	107	119	102	-	-	-	-	22	127	24	188
MOLSI	-	-	56	57	72	59	-	-	-	11	-	-	-	-	-	71
	-	-	29	38	33	13	-	-	4	10	-	13	15	-	38	-
	5	2	12	13	14	17	-	-	6	10	9	10	24	16	11	-
	10	8	23	27	32	23	-	-	5	9	15	32	5	32	24	-
MORJO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCHPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-
PERCZ	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
ROBBI	-	-	-	-	18	-	-	-	-	-	-	20	-	20	-	33
ROTEC	-	2	31	19	23	20	-	-	-	-	-	-	-	-	-	-
SCHHA	4	17	12	14	5	-	7	3	9	-	3	-	4	5	12	15
SLAST	-	9	-	-	5	10	4	-	-	-	-	-	10	-	-	1
STOEN	40	11	28	47	48	24	26	-	61	-	35	63	2	-	86	94
	29	7	21	40	48	21	30	-	76	-	44	66	1	-	98	94
	62	14	25	38	56	24	27	-	83	-	62	89	3	-	127	110
STRJO	2	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	14	16	11	-	-	-	-	-	-	-	-	-	-	-	-
	1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TEPIS	28	22	7	6	18	35	28	9	-	-	-	-	-	-	-	12
Sum	481	404	553	606	627	627	513	267	454	192	336	479	187	289	703	854

The favorable observing conditions of the previous month continued in July. So it is no surprise, that 17 cameras obtained meteor records in more than twenty observing nights. Stefano Crivello managed to record even in all July nights with his camera STG38. In total, we collected more than 13,000 meteors in almost 2,600 hours of effective observing time and missed only slightly the July record of last year. The data of three cameras are still missing, though.
As usual, meteor activity increased significantly in the middle of the month. The combination of longer nights with upcoming activity of the Perseids and southern meteor showers resulted in higher meteor counts. The monthly average increased from 3.4 meteor per hour in June to 5.2 in July. Our Australian observer Steve Kerr was particularly successful again. In the last few days of July and the first few days of August he recorded more southern delta Aquariids than many European observers Perseids in the middle of August!

Once more, we could integrate a new camera in our network. HUBEC (a Mintron camera with 3.8 mm f/0.8 lens) is operated south-west of lake Balaton by two members of the Nagykanizsa Astronomical Association and further completes the Hungarian camera network.

Two observers reported unusual activity in July again. At first, Christoph Gerber noted increased rates of the July Pegasids during his visual observation on July 8/9. A few days later, Enrico Stomeo reported unusual Perseid activity in the Italian video data from July 14/15 to 16/17. In the following nights, the Perseids almost disappeared again.

For confirmation these observations, we accumulated the number of shower meteors over all cameras for each night, and divided them by the number of sporadic meteors. To check the rates in particular near the begin of the activity intervals, we recomputed the meteor shower assignment beforehand such as if all relevant showers were active in all of July. In addition, we omitted the data from Steve Kerr for this analysis, as they affected the southern delta Aquariids too much. The resulting profiles are given in figure 1. Beside the rates for individual showers, the absolute number of sporadic meteors is given in the background, to document the size of the data set for each night.

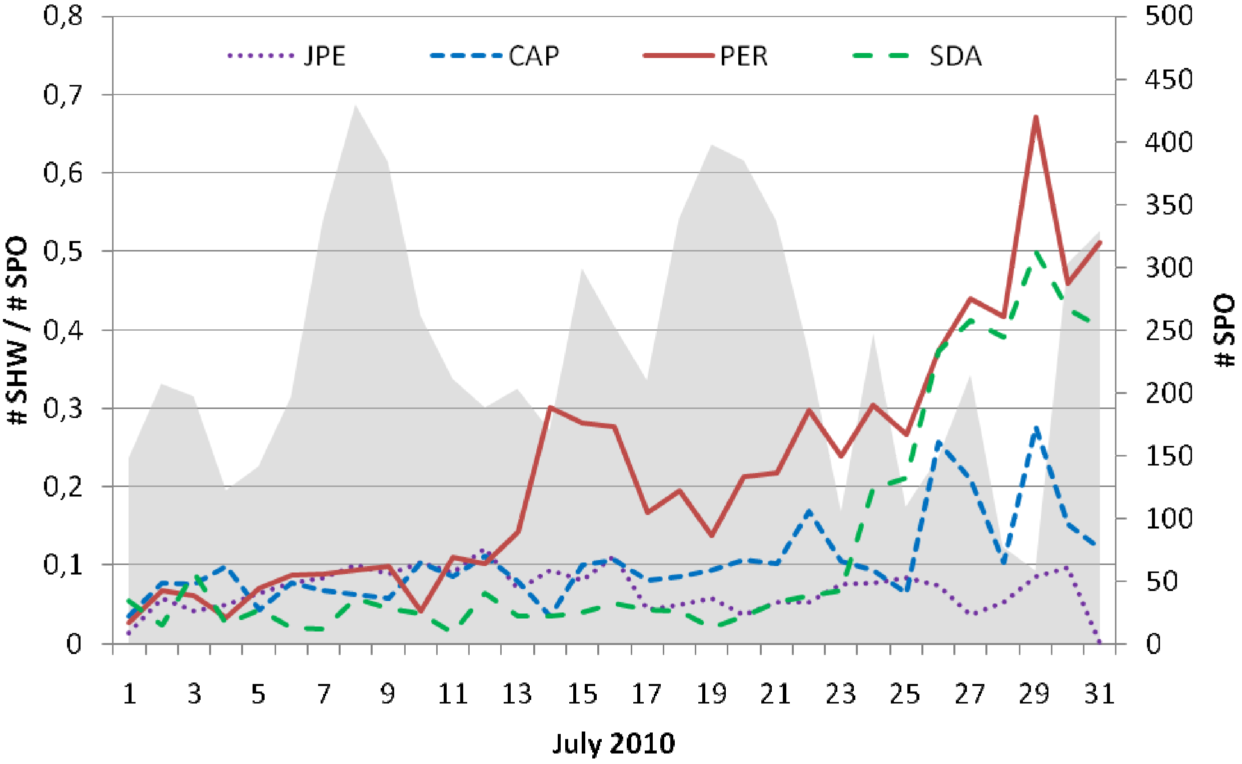

Figure 1: *Activity profile of the July Pegasids, alpha Capricornids, Perseids, and southern delta Aquariids in July 2010. Plotted is the number shower meteors per night, divided by the number of Sporadics. The absolute number of sporadics meteors is given in the background.*

In the first few nights of July, all four showers have activity values near 0.05. Recent analyses have shown, that this is approximately the level of the sporadic background (i.e. of sporadic meteors that match by chance to a meteor shower radiant). Hence, the analyzed showers were not visible in these nights.

According to our long-term analysis of last year, the July Pegasids are active from July 7 to 29. Their rate profile shows only small variations in the full activity interval, such that the maximum on July 10 is hardly noticeable. This year, the July Pegasids emerged from the background around July 8 and remained active at a low level until July 16. There are no hints for enhanced July Pegasid activity on July 8/9.

Next the alpha Capricornids became noticeable around July 10. Their activity level remained low as well. Only between July 26 to 28 the number of Capricornids was significantly higher. That matches well to the maximum we found in last year's analysis (July 28). The additional peak on July 29/30 may have been caused by insufficient data, because both the Perseids and Aquariids showed unusually high rates that night as well.

The Perseids became visible around July 11/12. That was earlier than what we found in our recent analysis, when we set the start date to July 14. As noted by Enrico, the rate in the three nights July 14/15 to 16/17 was indeed unusually high – the number of Perseids increased by about a factor of two. If the sporadic background is taken into account, the activity level might have been even a factor of three higher than usual. In the following nights, the rates went back to normal and reached the same level only on July 22 to 26. As the data set was sufficient in all nights, we assume that the rate increase is real. It might be an interesting task for theorists to find the reason for this activity peak at the begin of the Perseid activity interval.

Finally, the southern delta Aquariids became noticeable on July 24/25. Their activity rose strongly in the following days, and they soon reached the same shower meteor counts as the Perseids. However, due to their southern radiant the observing conditions for the Aquariids are much worse in the northern hemisphere that for the Perseids,. Hence, their ZHR was in fact more than twice as high as the Perseid ZHR. According to our long-term analysis, the maximum of the southern delta Aquariids occurs on July 30. From the 2010 data, the maximum time cannot be determined because of insufficient data on July 28/29 and 29/30.

As noted before, the southern delta Aquariids are much more prominent in the Australian data. On July 31, for example, Steve Kerr recorded 86 meteors of this shower, 63 Sporadics, but only two Perseids. To combine data from both hemispheres in a sensible way, it is necessary to consider the observing geometry. The activity profiles presented in our 2009 analysis were based on the observability function, which expresses how long and at what altitude a meteor shower radiant is visible at a certain observing site. Still, also the figures were finally scaled by the number of sporadic meteors, as neither the effective observing time, nor the limiting magnitude, field of view and other basic camera parameters were known. To have better analysis options in the future, MetRec was extended in June by two important functions.

At first, the software computes each minute the limiting magnitude in the active field of view and stores it in an extra text file. In the past, often only longer gaps in meteor detection hinted on partial cloud coverage. Now we have a detailed limiting magnitude profile for each night, that shows clearly when the observing conditions deteriorate in-between or when the sky is fully clouded.

In the second step, the collection area is determined for each camera. For that, the effective field of view is computed in square degrees, and converted into square kilometers at the meteor layer in 85 km altitude. This value is corrected for the distance to the observer (absolute magnitude) and the extinction: The lower a camera points to the horizon, the larger is the atmospheric surface it covers, but the more distant and therefore fainter are the meteors. The larger atmospheric volume near the horizon is reducing the brightness further. By combining the collection area with the limiting magnitude of the camera (assuming a population index r of 2.5) and the observing time we obtain the effective collection area. That value is measured in km² x h / $r^{(6.5\text{-mag})}$ and reflects the power of a meteor camera much better than the plain observing time. For simplicity, we will only use the term km² x h from now on.

For demonstration, we compare the July results of two different meteor cameras. The first one is the image-intensified camera AVIS2 with a 50 mm f/1.4 lens. It has a roughly circular field of view of 60 degrees diameter and yields a limiting magnitude of 6 mag. The camera points north of the zenith and covers a collection area of almost 1,800 square degrees and 6,100 square kilometers, respectively. If that value is corrected by the distance of the meteor layer and the extinction, the effective collection area is reduced to 4,400.
The second camera is MINCAM1, a relatively old Mintron camera that is equipped with a 12 mm f/0.8 lens and yields a limiting magnitude of 4.5 mag. This camera covers a surface of almost 1,500 square degrees. It points lower to the horizon in south-eastern direction, which results in a collection area of 42,000 square kilometers. This figure reduces to 5,400 after correcting for distance and extinction.
Let’s now take the data from July 31: The effective observing time of AVIS2 was 4.7 hours, in which 71 meteors were recorded. The effective collection area was roughly 8,100 km² x h. MINCAM1 was operated for 6.8 hours, but recorded only 45 meteors. Why? Because the effective collection area was only about 6,000 km² x h.

Figure 2 shows the number of meteors divided by the effective observing time for both cameras in July. As expected, AVIS2 recorded clearly more meteors per hour than MINCAM1, and the hourly rate deviates significantly from one night to the next due to the variable observing conditions. In figure 3, the number of meteors is divided by the effective collection area. Here, both cameras perform equally well, and the deviations from one night to the next are much smaller. In total, the effective collection area of AVIS2 in the given July nights was 123,000 km² x h (with 855 meteors), and that of MINCAM1 was 58.000 km² x h (with 349 meteors).

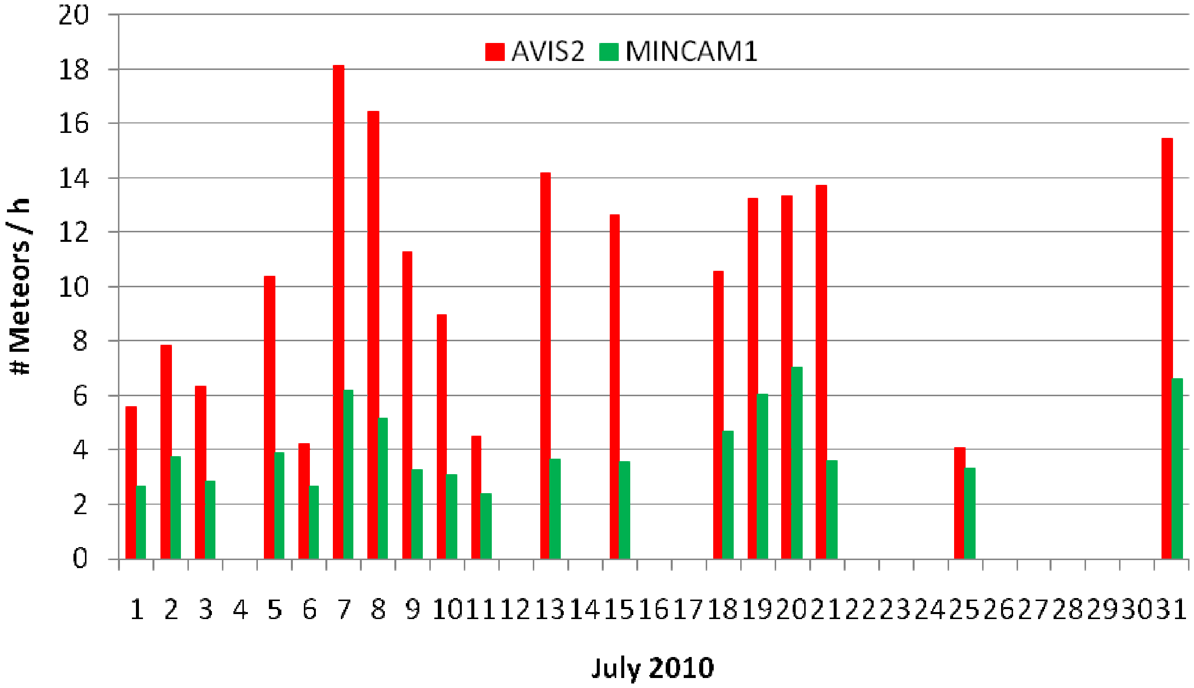

Figure 2: *Number of meteors for both cameras AVIS2 and MINCAM1 in July, divided by the effective observing time in the corresponding night*

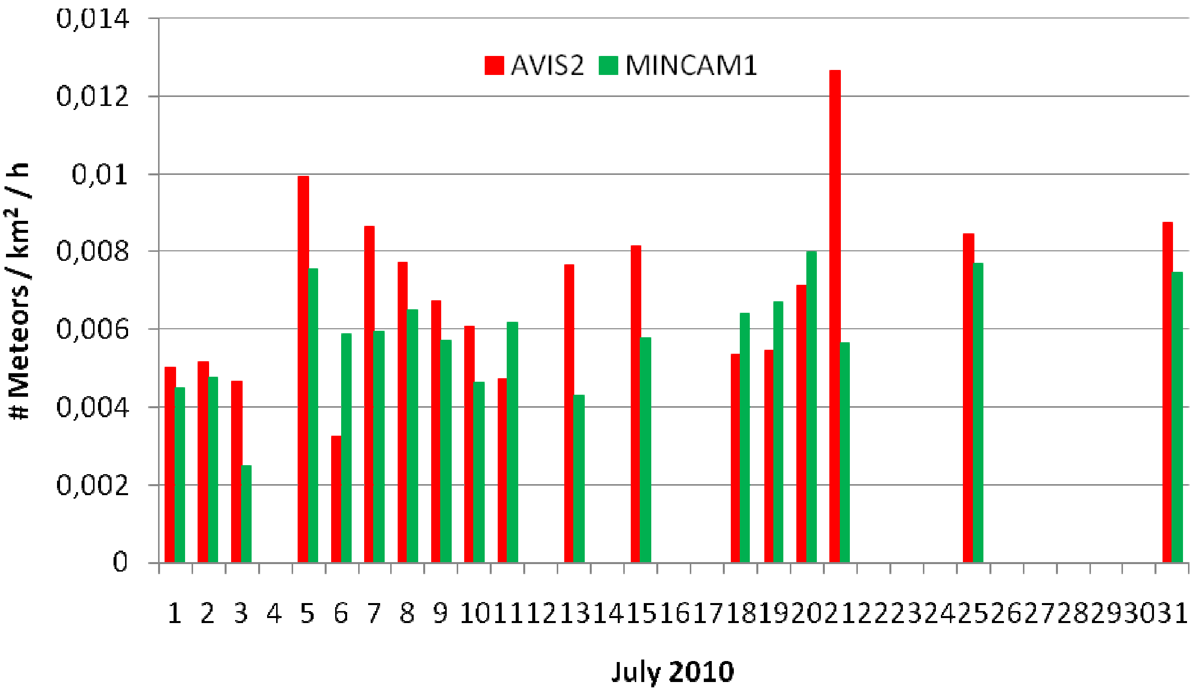

Figure 3: *Number of meteors for both cameras AVIS2 and MINCAM1 in July, divided by the effective collection area in the corresponding night.*

Of course, the correction is not yet perfect, but a large fraction of the camera dependencies are removed by the new method, and we get a step closer to measurements of fluxes from video data. More about this method will be presented at the IMC next month.