Results of the IMO Video Meteor Network – September 2011

Sirko Molau, Abenstalstr. 13b, 84072 Seysdorf *2011/11/25*

1. Observers

Code	Name	Place	Camera	FOV [°²]	St.LM [mag]	Eff.CA [km²]	Nights	Time [h]	Tot. CA [10³km²h]	Meteors
BASLU	Bastiaens	Hove/BE	URANIA1 (0.8/3.8)*	4545	2.5	237	12	21.8	13.1	64
BERER	Berko	Ludanyhalaszi/HU	HULUD1 (0.95/3)	2256	4.8	1540	27	217.9	208.2	1131
			HULUD2 (0.75/6)	4860	3.9	1103	24	191.5	116.6	574
			HULUD3 (0.75/6)	4661	3.9	1052	26	182.7	120.1	390
BREMA	Breukers	Hengelo/NL	MBB3 (0.75/6)	2399	4.2	699	5	45.2	-	139
			MBB4 (0.8/8)	1477	-	-	5	33.1	-	115
BRIBE	Brinkmann	Herne/DE	HERMINE (0.8/6)	2374	4.2	678	25	168.1	69.7	574
		Berg. Gladbach/DE	KLEMOI (0.8/6)	2286	4.6	1080	26	142.9	127.4	638
CASFL	Castellani	Monte Baldo/IT	BMH1 (0.8/6)	2350	-	-	15	75.6	-	230
			BMH2 (1.5/4.5)*	4243	3.0	371	20	107.0	185.1	383
CRIST	Crivello	Valbrevenna/IT	C3P8 (0.8/3.8)	5455	4.2	1586	25	190.3	221.7	720
			STG38 (0.8/3.8)	5614	4.4	2007	30	242.7	315.6	1636
CSISZ	Csizmadia	Zalaegerszeg/HU	HUVCSE01 (0.95/5)	2423	3.4	361	21	99.2	18.4	283
ELTMA	Eltri	Venezia/IT	MET38 (0.8/3.8)	5631	4.3	2151	24	225.8	178.2	791
GONRU	Goncalves	Tomar/PT	TEMPLAR1 (0.8/6)	2179	5.3	1842	27	203.1	250.1	935
			TEMPLAR2 (0.8/6)	2080	5.0	1508	27	211.5	137.2	873
			TEMPLAR3 (0.8/8)	1438	4.3	571	24	166.4	106.7	565
GOVMI	Govedic	Sredisce ob Dr./SI	ORION2 (0.8/8)	1447	5.5	1841	26	157.5	288.1	714
HERCA	Hergenrother	Tucson/US	SALSA3 (1.2/4)*	2198	4.6	894	11	95.9	32.8	360
IGAAN	Igaz	Baja/HU	HUBAJ (0.8/3.8)	5552	2.8	403	25	161.2	54.3	577
		Debrecen	HUDEB (0.8/3.8)	5522	3.2	620	30	225.7	116.0	729
		Hodmezovasar./HU	HUHOD (0.8/3.8)	5502	3.4	764	27	228.6	97.0	652
		Sopron/HU	HUSOP (0.8/6)	2031	3.8	460	25	164.3	-	737
JONKA	Jonas	Budapest/HU	HUSOR (0.95/4)	2286	3.9	445	27	193.1	155.5	726
KACJA	Kac	Kamnik/SI	CVETKA (0.8/3.8)	4914	4.3	1842	17	134.7	129.3	807
		Kostanjevec/SI	METKA (0.8/8)*	1372	4.0	361	19	152.9	43.9	276
		Ljubljana/SI	ORION1 (0.8/8)	1402	3.8	331	27	194.8	87.3	730
		Kamnik/SI	REZIKA (0.8/6)	2270	4.4	840	17	145.3	214.2	1320
			STEFKA (0.8/3.8)	5471	2.8	379	18	154.1	80.5	717
KERST	Kerr	Glenlee/AU	GOCAM1 (0.8/3.8)	5189	4.6	2550	23	166.3	407.2	746
KOSDE	Koschny	Noordwijkerh./NL	ICC7 (0.85/25)	714	5.9	1464	17	66.5	100.0	282
			LIC4 (1.4/50)*	2027	6.0	4509	17	85.3	164.4	360
LERAR	Leroy	Gretz/FR	SAPHIRA (1.2/6)	3260	3.4	301	14	63.4	-	83
MACMA	Maciejewski	Chelm/PL	PAV35 (1.2/4)	4383	2.5	253	25	119.1	-	212
			PAV36 (1.2/4)*	5732	2.2	227	24	130.6	-	180
			PAV43 (0.95/3.75)*	2544	2.7	176	25	133.4	31.6	213
MARGR	Maravelias		LOOMECON (0.8/12)	738	6.3	2698	5	36.6	37.0	241
MOLSI	Molau	Seysdorf/DE	AVIS2 (1.4/50)*	1776	6.1	3817	20	155.8	546.1	2535
			MINCAM1 (0.8/8)	1477	4.9	1084	24	171.8	176.8	672
		Ketzür/DE	REMO1 (0.8/3.8)	5600	3.0	486	25	126.6	-	280
			REMO2 (0.8/3.8)	5613	4.0	1186	27	177.7	106.9	475
MORJO	Morvai	Fülöpszallas/HU	HUFUL (1.4/5)	2522	3.5	532	28	194.6	122.0	571
OTTMI	Otte	Pearl City/US	ORIE1 (1.4/5.7)	3837	3.8	460	27	130.7	-	639
PERZS	Perko	Becsehely/HU	HUBEC (0.8/3.8)*	5498	2.9	460	25	173.8	100.8	1148
ROETO	Roeland	Oostmalle/BE	KEMPEN (0.95/8)	1593	4.2	524	10	73.3	-	72
ROTEC	Rothenberg	Berlin/DE	ARMEFA (0.8/6)	2366	4.5	911	16	80.7	63.0	250
SARAN	Saraiva	Carnaxide/PT	RO1 (0.75/6)	2362	3.7	381	19	122.4	-	402
			RO2 (0.75/6)	2381	3.8	459	4	20.6	-	56
SCALE	Scarpa	Alberoni/IT	LEO (1.2/4.5)	4133	-	-	27	206.7	-	689
SCHHA	Schremmer	Niederkrüchten/DE	DORAEMON (0.8/3.8)	4900	3.0	409	22	89.1	55.5	338
SLAST	Slavec	Ljubljana/SI	KAYAK1 (1.8/28)	588	-	-	25	119.4	-	430
STOEN	Stomeo	Scorze/IT	MIN38 (0.8/3.8)	5566	4.8	3270	26	208.2	370.8	1248
			NOA38 (0.8/3.8)	5609	4.2	1911	26	206.8	292.3	988
			SCO38 (0.8/3.8)	5598	4.8	3306	27	210.1	230.3	1440
STRJO	Strunk	Herford/DE	MINCAM2 (0.8/6)	2362	4.6	1152	15	75.1	60.6	257
			MINCAM3 (0.8/12)	728	5.7	975	22	89.2	46.6	358
			MINCAM5 (0.8/6)	2349	5.0	1896	21	105.8	104.2	499
TEPIS	Tepliczky	Budapest/HU	HUMOB (0.8/6)	2388	4.8	1607	24	191.4	137.8	1013
TRIMI	Triglav	Velenje/SI	SRAKA (0.8/6)*	2222	-	-	25	113.8	88.3	310
YRJIL	Yrjölä	Kuusankoski/FI	FINEXCAM (0.8/6)	2337	5.5	3574	21	99.1	162.2	425
ZELZO	Zelko	Budapest/HU	HUVCSE02 (0.95/5)	1606	3.8	390	19	124.1	-	330
			HUVCSE03 (1.0/4.5)	2224	4.4	933	8	58.2	48.4	156
Sum							30	8659.1	-	36284

* active field of view smaller than video frame

2. Observing Times (h)

September	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
BASLU	-	2.7	-	1.4	-	0.6	-	-	-	-	-	-	-	-	-
BERER	-	8.7	8.8	8.8	4.3	8.9	0.7	-	9.1	9.4	9.4	7.8	9.5	0.5	9.7
	-	8.8	8.8	8.9	1.3	8.9	-	-	8.3	9.4	8.3	4.3	7.2	-	9.7
	-	8.8	8.8	8.9	1.3	8.9	-	0.6	9.1	4.3	5.3	4.8	7.5	-	7.1
BREMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	4.1	-	-	-	-	-	-	-	-	-	-	-	-	3.5
BRIBE	8.6	7.6	5.0	3.0	5.0	-	0.3	-	-	6.3	4.7	5.5	5.7	5.7	9.5
	8.3	5.4	2.2	1.9	7.5	-	0.2	-	0.3	3.2	2.5	0.6	6.5	3.1	9.4
CASFL	4.2	-	2.0	0.3	1.2	9.9	4.9	5.6	3.2	-	-	-	-	-	-
	3.8	5.1	1.2	0.3	0.9	10.2	4.0	6.2	0.8	-	-	-	-	-	-
CRIST	5.1	7.5	-	-	5.4	8.1	8.3	2.7	9.4	1.7	-	9.6	9.6	7.7	9.7
	9.0	9.0	3.1	0.6	8.7	9.2	9.3	6.7	9.4	9.4	1.2	9.6	9.6	9.7	9.7
CSISZ	4.1	-	6.3	4.5	-	5.2	-	-	1.2	9.0	-	6.0	7.5	0.2	0.5
ELTMA	6.3	9.2	8.9	-	-	9.4	-	-	9.0	9.3	6.1	9.5	9.3	7.9	9.8
GONRU	-	9.1	-	9.1	9.1	9.0	9.2	5.1	6.2	2.3	9.1	8.2	7.2	4.7	2.9
	-	9.3	-	9.4	9.1	9.2	8.2	6.6	8.4	4.7	7.6	9.5	9.4	8.4	5.4
	-	8.7	0.3	9.3	9.5	9.5	6.7	4.8	3.5	3.4	9.7	7.7	9.7	8.5	5.8
GOVMI	3.0	3.7	7.4	5.8	-	8.2	2.5	-	7.1	8.2	6.4	8.3	6.8	4.2	5.3
HERCA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IGAAN	0.4	2.7	8.9	5.1	1.2	9.3	2.2	-	4.9	9.3	9.4	9.2	8.9	7.2	2.9
	0.3	7.8	8.4	9.0	2.2	9.2	0.2	0.9	9.4	6.6	9.4	9.6	9.1	7.4	8.9
	1.0	8.9	9.0	9.1	-	9.2	3.0	-	6.6	9.4	9.5	9.5	9.5	9.3	5.6
	4.2	5.0	8.8	4.6	-	8.8	-	-	-	9.1	9.1	8.0	4.2	4.6	5.2
JONKA	3.0	8.8	8.2	5.4	2.1	7.8	-	-	6.3	9.4	7.5	8.0	7.8	0.6	9.7
KACJA	-	-	7.9	-	-	9.3	4.7	-	8.3	-	9.6	7.0	-	-	-
	-	-	9.1	-	-	9.3	-	-	8.2	7.5	6.1	7.9	8.6	-	5.2
	4.5	6.8	9.0	2.4	-	9.1	6.3	-	9.5	2.5	7.5	6.1	9.5	3.6	8.2
	4.1	7.0	9.1	-	-	8.7	-	-	5.8	-	9.6	7.4	-	-	-
	5.2	6.8	9.1	-	-	8.5	6.9	-	8.3	-	9.2	7.1	-	-	-
KERST	6.9	9.5	9.6	8.6	-	9.0	9.1	-	-	6.8	-	-	-	-	8.6
KOSDE	-	-	-	-	-	-	-	-	-	-	-	-	1.3	0.7	2.4
	7.6	7.6	0.9	2.3	0.3	1.7	-	-	3.2	2.7	-	2.5	0.6	-	-
LERAR	-	8.9	0.3	9.0	9.0	-	0.2	-	9.3	2.7	0.3	-	-	3.2	9.7
MACMA	3.6	0.7	8.7	7.7	2.5	8.2	0.7	-	2.5	-	3.2	0.8	3.9	5.1	3.8
	4.3	0.4	-	8.5	2.7	2.4	-	-	4.2	0.3	6.9	2.2	4.5	7.3	3.5
	2.7	0.9	9.2	8.8	1.0	8.5	-	-	5.5	0.2	7.1	4.3	4.8	8.0	7.4
MARGR	8.7	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-
MOLSI	8.1	2.7	6.0	-	4.3	-	-	-	-	8.6	-	6.4	3.0	6.6	8.6
	8.3	1.1	4.2	-	5.7	0.8	-	-	8.0	9.3	0.7	6.8	1.8	8.8	8.4
	-	4.9	5.8	0.1	7.3	-	-	0.6	-	1.8	1.2	0.5	3.9	2.6	1.2
	1.5	8.4	8.4	1.7	8.6	-	-	1.7	-	7.8	2.1	2.4	8.9	4.2	5.9
MORJO	2.1	7.1	8.1	8.2	2.8	9.0	1.0	-	4.6	9.2	8.1	9.0	8.0	3.1	4.7
OTTMI	4.3	1.7	3.9	5.9	7.1	6.4	8.2	7.4	3.4	6.8	5.2	6.0	4.9	6.4	0.2
PERCZ	-	3.8	9.0	6.9	-	9.3	0.2	-	4.5	7.1	8.7	5.1	8.3	3.4	3.7
ROETO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROTEC	-	6.0	6.8	2.6	8.4	-	-	-	-	3.7	0.5	-	-	0.2	0.1
SARAN	2.0	5.1	-	8.2	9.3	9.6	6.7	7.8	0.6	4.4	3.6	8.8	8.9	2.5	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCALE	4.7	9.0	2.7	2.8	-	8.3	2.8	3.8	7.6	7.9	2.2	9.4	9.5	6.0	9.7
SCHHA	-	4.0	1.9	2.2	4.8	1.4	-	1.0	1.9	0.6	2.0	2.1	6.1	3.3	2.8
SLAST	2.6	5.7	5.1	0.4	-	-	0.8	-	3.5	5.3	0.9	4.4	5.2	0.3	4.4
STOEN	3.5	9.1	7.0	-	3.9	9.3	-	0.8	9.2	3.8	2.9	9.7	9.7	9.8	7.5
	3.8	9.1	6.4	-	4.1	9.2	-	1.6	9.3	1.3	2.9	9.7	9.7	9.8	6.0
	3.2	9.1	6.0	-	4.4	9.3	-	3.9	9.2	2.6	3.5	9.6	9.6	9.8	8.0
STRJO	-	-	-	-	-	-	-	-	-	2.9	-	0.5	2.5	2.1	3.6
	6.7	-	0.5	-	4.5	-	-	0.3	-	1.9	-	1.5	1.4	2.2	3.3
	6.2	5.8	6.8	-	5.5	-	0.3	-	-	3.6	-	0.3	2.1	2.0	2.6
TEPIS	3.2	4.5	8.6	7.5	-	8.8	-	-	4.5	9.0	6.9	9.1	9.2	-	7.8
TRIMI	1.3	4.0	6.5	1.6	-	6.3	2.8	-	4.0	6.4	4.3	2.2	6.9	2.0	5.7
YRJIL	2.7	1.0	5.0	6.1	7.4	3.0	1.4	-	1.6	7.2	7.4	-	-	-	-
ZELZO	-	-	6.3	6.2	-	3.3	-	-	-	7.1	9.8	4.0	-	-	10.6
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum	173.1	299.8	294.0	213.1	172.4	328.2	111.8	68.1	248.9	265.4	247.6	288.5	297.8	202.7	283.9

September	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
BASLU	-	-	-	-	-	1.5	1.1	2.3	1.7	2.0	1.5	-	2.9	2.3	1.8
BERER	9.7	9.8	6.2	0.2	-	8.9	6.4	10.0	10.1	10.1	10.3	10.4	9.2	10.5	10.5
	9.7	9.8	3.9	-	-	4.0	3.1	10.2	10.2	10.2	10.4	10.4	4.5	10.6	10.6
	8.4	9.8	1.9	-	1.2	5.0	5.3	10.2	10.2	10.2	10.4	10.4	3.1	10.6	10.6
BREMA	-	-	-	-	-	-	4.0	10.1	10.1	-	-	-	-	10.5	10.5
	-	-	-	-	-	-	-	6.4	9.4	-	-	-	-	-	9.7
BRIBE	4.0	-	0.9	9.0	-	3.6	4.8	10.1	10.2	10.2	6.5	10.4	10.4	10.5	10.6
	1.1	-	0.5	8.7	-	0.9	2.7	9.9	10.1	10.1	6.5	10.1	10.4	10.4	10.4
CASFL	-	-	-	-	-	7.7	8.1	3.0	8.0	7.8	7.4	2.3	-	-	-
	-	-	-	-	4.7	6.6	7.1	2.8	4.0	9.4	10.5	3.8	9.7	7.4	8.5
CRIST	9.5	-	2.7	9.8	9.8	6.8	10.1	10.1	2.7	4.5	10.3	-	10.3	10.5	8.4
	9.8	0.5	2.9	9.9	10.0	10.0	10.1	10.1	8.1	5.1	10.3	10.3	10.4	10.5	10.5
CSISZ	-	4.2	0.3	-	-	6.8	3.9	2.2	4.0	7.5	5.8	7.1	7.9	5.0	-
ELTMA	9.9	9.2	-	-	9.9	9.9	10.0	10.1	10.0	10.2	10.0	10.4	10.6	10.2	10.7
GONRU	3.1	9.3	9.8	9.8	9.9	8.8	2.7	5.5	10.2	7.6	8.9	-	9.8	7.6	8.9
	3.3	9.4	9.9	9.9	10.0	8.5	2.3	6.5	9.0	10.3	6.9	-	7.8	2.2	10.3
	2.3	9.8	8.0	9.8	9.9	4.1	1.5	7.7	8.5	7.7	-	-	-	-	-
GOVMI	4.8	8.0	-	-	0.7	1.4	1.3	5.0	6.0	7.9	8.4	7.4	8.9	10.4	10.4
HERCA	-	9.6	9.7	9.7	8.9	8.2	9.7	9.5	5.3	-	-	-	9.7	7.6	8.0
IGAAN	7.0	9.2	4.4	-	-	-	-	9.8	9.4	6.7	4.1	4.3	5.9	8.2	10.6
	9.7	9.9	4.8	7.1	5.2	10.0	9.0	7.5	10.2	10.3	10.4	10.4	10.5	10.0	2.3
	9.7	9.8	5.0	-	2.8	10.0	10.1	10.1	10.2	10.2	10.2	10.3	10.4	9.8	10.4
	8.7	4.8	1.4	-	4.7	9.3	7.8	0.8	9.4	9.4	9.4	5.9	6.4	7.5	7.2
JONKA	6.7	7.8	3.6	-	1.1	6.8	5.5	10.2	10.3	10.3	10.4	10.5	6.5	8.2	10.6
KACJA	-	-	-	0.4	-	9.3	5.1	5.0	7.1	10.4	10.2	9.4	10.2	10.3	10.5
	7.7	8.0	-	-	-	5.7	-	9.6	10.4	10.3	7.0	9.9	1.9	10.5	10.0
	9.1	9.0	0.3	2.8	-	7.3	5.6	8.5	9.5	8.8	9.7	9.6	8.5	10.5	10.6
	-	-	-	-	-	8.9	5.8	8.9	8.3	10.4	10.4	9.5	10.2	10.6	10.6
	-	-	-	-	-	9.5	5.6	8.8	7.3	10.4	10.4	9.6	10.3	10.5	10.6
KERST	9.0	10.2	6.8	6.7	4.8	3.7	9.3	4.9	8.8	4.8	8.4	7.7	5.9	5.2	2.0
KOSDE	-	0.5	1.8	2.6	1.2	3.6	5.0	7.7	5.3	3.5	0.3	7.1	7.9	8.9	6.7
	-	-	-	-	-	-	-	-	7.6	7.1	2.3	9.1	9.2	10.3	10.3
LERAR	-	-	-	2.2	-	0.7	1.0	6.9	-	-	-	-	-	-	-
MACMA	7.7	8.4	7.8	4.7	-	0.1	2.0	1.8	9.8	10.5	8.8	3.8	2.3	-	-
	8.9	9.5	8.9	7.1	-	2.8	2.3	2.5	9.8	9.9	8.7	-	3.1	-	9.9
	8.7	7.6	6.5	-	-	1.0	2.1	1.1	9.1	9.0	8.4	2.0	1.0	-	8.5
MARGR	-	-	-	-	-	-	-	-	-	-	-	5.1	6.6	8.0	-
MOLSI	-	-	-	-	8.1	9.4	6.2	9.5	9.6	9.7	9.5	9.8	9.8	9.9	10.0
	1.1	-	-	-	9.1	9.6	5.9	9.8	10.2	10.1	10.1	10.4	10.5	10.5	10.6
	1.6	-	0.3	3.2	9.7	0.3	9.9	10.0	10.0	10.1	0.2	10.2	10.3	10.4	10.5
	4.9	2.0	2.7	8.7	9.8	2.0	9.0	10.0	10.0	10.1	5.4	10.3	10.3	10.4	10.5
MORJO	8.0	9.1	4.6	-	1.4	10.0	7.2	9.1	9.7	9.1	9.2	6.8	9.2	6.0	10.2
OTTMI	3.1	-	-	7.6	2.9	1.0	6.3	3.1	3.7	2.2	-	1.3	6.1	6.7	8.9
PERCZ	2.8	8.7	2.5	-	-	8.1	6.6	5.0	8.6	9.2	10.3	10.5	10.5	10.5	10.5
ROETO	-	-	-	-	-	3.6	2.5	9.6	10.0	3.6	2.8	10.3	10.4	10.0	10.5
ROTEC	2.9	0.4	-	-	9.8	1.9	-	-	-	10.2	-	-	8.1	8.6	10.5
SARAN	6.7	6.5	9.6	8.1	6.3	7.7	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	5.0	-	10.1	1.5	4.0
SCALE	8.9	8.5	-	-	9.6	9.7	9.5	9.3	5.5	9.7	10.3	8.1	10.4	10.3	10.5
SCHHA	3.2	-	-	6.9	-	4.8	3.7	-	-	5.5	2.5	8.3	10.6	-	9.5
SLAST	1.5	3.6	-	2.8	-	6.9	0.3	8.7	7.5	9.0	10.0	6.1	5.9	8.8	9.7
STOEN	6.4	3.5	-	-	9.8	10.0	10.2	9.4	10.3	10.4	10.2	10.3	10.4	10.6	10.5
	8.9	4.0	-	-	9.9	10.2	10.2	7.9	10.3	10.4	10.2	10.3	10.5	10.6	10.5
	9.2	1.8	-	0.7	9.9	9.9	10.1	8.0	10.3	10.4	10.0	10.2	10.4	10.5	10.5
STRJO	0.5	-	2.0	7.4	-	-	-	7.9	9.2	8.2	-	2.4	8.8	8.7	8.4
	0.7	-	3.7	6.5	-	0.6	2.2	9.6	7.8	7.6	0.7	0.8	8.5	10.0	8.2
	0.3	-	2.5	6.9	-	-	-	8.5	9.1	8.9	1.7	2.9	9.9	9.9	10.0
TEPIS	6.2	8.4	4.1	-	-	7.7	8.6	9.8	9.9	9.9	10.0	10.1	8.6	8.8	10.2
TRIMI	3.8	2.5	-	-	-	5.2	4.0	4.2	6.8	5.4	6.1	3.4	2.1	7.6	8.7
YRJIL	1.1	6.3	6.4	-	4.5	-	5.8	1.0	4.9	1.6	-	9.6	5.2	-	9.9
ZELZO	7.5	-	7.4	-	-	1.9	6.0	6.2	1.7	10.9	8.8	3.8	4.5	7.6	10.5
	-	-	-	-	-	-	-	6.6	2.2	10.1	8.2	3.7	8.8	8.0	10.6
Sum	257.8	249.4	153.8	169.2	195.6	311.9	294.6	409.0	457.6	465.1	394.4	376.8	452.3	461.2	515.1

3. Results (Meteors)

September	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
BASLU	-	10	-	8	-	2	-	-	-	-	-	-	-	-	-
BERER	-	40	51	39	14	68	1	-	33	66	41	46	52	1	66
	-	30	27	19	3	28	-	-	31	41	20	16	32	-	25
	-	15	13	21	3	15	-	2	25	18	11	15	16	-	21
BREMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	10	-	-	-	-	-	-	-	-	-	-	-	-	12
BRIBE	38	21	9	7	12	-	1	-	-	24	11	6	12	18	24
	47	29	5	7	28	-	1	-	1	15	14	2	16	9	42
CASFL	13	-	4	1	3	28	14	17	15	-	-	-	-	-	-
	15	20	3	2	5	11	12	23	5	-	-	-	-	-	-
CRIST	21	14	-	-	17	18	34	17	41	4	-	24	23	17	23
	47	40	21	2	47	51	74	72	81	78	6	46	59	51	55
CSISZ	12	-	18	8	-	19	-	-	5	26	-	15	21	1	1
ELTMA	20	19	10	-	-	58	-	-	31	24	7	33	26	20	36
GONRU	-	56	-	36	41	51	39	12	40	8	29	30	20	13	7
	-	35	-	47	48	60	25	24	31	16	32	30	36	22	16
	-	21	2	38	32	37	20	17	10	9	24	32	24	19	18
GOVMI	29	31	23	21	-	44	6	-	29	31	28	33	25	14	18
HERCA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IGAAN	3	9	31	18	4	31	7	-	19	28	18	35	34	21	9
	2	16	28	37	1	41	1	3	49	19	45	20	36	21	36
	1	27	26	25	-	32	6	-	37	33	27	33	33	24	17
	23	16	22	8	-	25	-	-	-	40	33	32	10	17	9
JONKA	11	36	33	15	6	31	-	-	28	60	24	34	34	2	36
KACJA	-	-	38	-	-	17	16	-	75	-	47	44	-	-	-
	-	-	20	-	-	41	-	-	40	8	5	13	14	-	6
	31	26	25	8	-	56	9	-	40	6	33	21	50	10	33
	56	83	53	-	-	98	-	-	114	-	33	37	-	-	-
	44	31	28	-	-	52	19	-	52	-	24	34	-	-	-
KERST	53	48	64	47	-	44	38	-	-	40	-	-	-	-	38
KOSDE	-	-	-	-	-	-	-	-	-	-	-	-	7	4	9
	53	40	4	12	2	6	-	-	10	21	-	5	2	-	-
LERAR	-	10	1	6	8	-	1	-	12	6	1	-	-	10	5
MACMA	10	3	19	9	5	14	3	-	12	-	10	4	9	16	9
	8	1	-	13	5	5	-	-	6	2	13	4	6	14	5
	4	4	15	16	5	13	-	-	14	1	15	10	12	15	13
MARGR	47	37	-	-	-	-	-	-	-	-	-	-	-	-	-
MOLSI	100	12	56	-	134	-	-	-	-	97	-	62	16	71	62
	21	3	15	-	30	2	-	-	18	46	1	27	4	39	31
	-	18	19	1	18	-	-	3	-	14	7	3	9	4	8
	1	27	37	1	37	-	-	2	-	16	6	5	31	8	9
MORJO	7	16	27	12	7	32	3	-	23	40	18	29	25	3	12
OTTMI	20	5	13	37	37	27	42	31	13	43	27	23	25	36	1
PERCZ	-	31	43	29	-	58	1	-	23	42	33	29	43	16	17
ROETO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROTEC	-	22	26	4	24	-	-	-	-	11	2	-	-	1	5
SARAN	4	22	-	27	33	36	31	34	2	16	25	20	21	5	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCALE	18	18	9	11	-	41	14	10	19	13	3	24	17	17	25
SCHHA	-	14	3	17	22	7	-	4	11	5	7	4	27	12	12
SLAST	11	19	13	2	-	-	6	-	11	12	3	10	14	1	13
STOEN	24	41	24	-	10	98	-	6	58	17	13	30	31	29	33
	21	26	15	-	10	52	-	6	38	6	14	13	23	23	24
	23	47	20	-	11	75	-	12	58	21	20	53	62	42	49
STRJO	-	-	-	-	-	-	-	-	-	15	-	2	9	6	12
	25	-	2	-	22	-	-	1	-	8	-	7	10	10	13
	35	23	30	-	29	-	2	-	-	19	-	2	11	7	9
TEPIS	21	28	59	38	-	49	-	-	26	63	33	53	46	-	34
TRIMI	5	9	16	7	-	18	9	-	15	19	10	4	19	8	10
YRJIL	6	1	24	29	32	11	5	-	6	32	33	-	-	-	-
ZELZO	-	-	19	13	-	13	-	-	-	15	12	24	-	-	24
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum	930	1160	1063	698	745	1515	440	296	1207	1194	818	1078	1052	677	992

September	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
BASLU	-	-	-	-	-	5	1	5	4	9	7	-	6	5	5
BERER	47	46	18	1	-	26	33	48	52	57	54	47	37	87	60
	24	28	8	-	-	10	6	22	24	37	34	29	13	34	33
	24	20	4	-	2	10	12	11	14	15	22	18	7	38	18
BREMA	-	-	-	-	-	-	15	26	35	-	-	-	-	35	28
	-	-	-	-	-	-	-	37	22	-	-	-	-	-	34
BRIBE	5	-	2	36	-	10	11	39	34	39	14	41	57	46	57
	7	-	1	48	-	4	5	47	42	35	18	50	56	48	61
CASFL	-	-	-	-	-	18	27	10	17	27	30	6	-	-	-
	-	-	-	-	30	17	27	11	12	39	39	13	36	25	38
CRIST	18	-	16	34	62	8	32	38	8	31	52	-	56	57	55
	66	2	22	66	97	25	75	62	25	48	96	75	82	78	87
CSISZ	-	11	1	-	-	14	13	8	9	30	16	19	17	19	-
ELTMA	30	29	-	-	43	29	39	32	41	36	43	35	47	51	52
GONRU	10	42	52	60	55	36	5	30	50	56	34	-	49	25	49
	10	48	42	47	41	35	7	22	46	58	25	-	33	7	30
	4	37	36	50	38	8	2	30	31	26	-	-	-	-	-
GOVMI	13	43	-	-	3	6	5	24	30	30	32	40	44	49	63
HERCA	-	39	25	30	30	33	35	38	25	-	-	-	36	33	36
IGAAN	22	26	37	-	-	-	-	38	22	25	23	29	22	25	41
	31	42	10	10	6	25	13	13	37	38	36	36	35	25	17
	23	49	9	-	3	20	22	35	20	20	22	30	12	23	43
	31	19	5	-	8	17	14	2	22	22	21	60	78	96	107
JONKA	18	30	11	-	2	18	19	35	33	36	40	29	18	33	54
KACJA	-	-	-	1	-	52	15	45	62	63	56	66	51	83	76
	6	6	-	-	-	6	-	12	17	18	13	11	1	19	20
	34	46	1	7	-	19	4	25	29	28	33	18	23	56	59
	-	-	-	-	-	64	30	85	80	101	116	80	60	102	128
	-	-	-	-	-	31	11	41	53	54	48	37	34	55	69
KERST	50	47	24	30	19	12	37	14	32	19	27	28	16	16	3
KOSDE	-	2	4	11	3	26	14	31	20	11	1	31	29	45	34
	-	-	-	-	-	-	-	-	27	21	2	20	43	55	37
LERAR	-	-	-	7	-	2	5	9	-	-	-	-	-	-	-
MACMA	13	8	8	8	-	1	3	3	9	17	13	4	2	-	-
	8	7	12	12	-	2	4	5	9	15	8	-	1	-	15
	7	8	8	-	-	1	1	2	9	18	8	1	1	-	12
MARGR	-	-	-	-	-	-	-	-	-	-	-	43	57	57	-
MOLSI	-	-	-	-	107	117	57	187	226	176	185	202	192	256	220
	3	-	-	-	35	32	13	29	37	42	38	48	48	57	53
	4	-	2	12	21	1	14	17	22	8	1	22	6	20	26
	6	1	5	19	34	4	22	33	22	28	8	24	11	38	40
MORJO	17	33	12	-	3	24	17	29	24	31	23	21	16	17	50
OTTMI	18	-	-	36	15	4	39	12	15	8	-	5	20	36	51
PERCZ	15	44	8	-	-	30	24	22	81	79	56	94	112	109	109
ROETO	-	-	-	-	-	4	4	5	9	6	2	8	18	9	7
ROTEC	6	1	-	-	35	5	-	-	-	26	-	-	17	27	38
SARAN	14	20	30	18	15	29	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	15	-	23	5	13
SCALE	18	18	-	-	48	28	23	36	25	46	41	31	33	49	54
SCHHA	13	-	-	22	-	28	16	-	-	22	8	25	30	-	29
SLAST	6	12	-	5	-	19	1	25	33	38	38	22	32	42	42
STOEN	31	15	-	-	77	52	75	55	70	66	81	60	80	79	93
	35	18	-	-	92	31	44	34	56	60	69	43	73	81	81
	44	14	-	2	99	63	83	67	86	80	84	74	72	71	108
STRJO	2	-	6	31	-	-	-	24	26	21	-	5	25	30	43
	2	-	19	25	-	3	11	36	34	22	3	3	28	39	35
	2	-	9	37	-	-	-	50	37	26	8	6	36	65	56
TEPIS	23	31	18	-	-	16	33	59	66	60	60	46	38	52	61
TRIMI	12	6	-	-	-	13	10	11	15	15	12	11	9	26	21
YRJIL	3	25	20	-	18	-	25	11	14	5	-	47	29	-	49
ZELZO	12	-	7	-	-	14	22	20	4	22	30	11	16	26	26
	-	-	-	-	-	-	-	20	6	29	33	7	16	20	25
Sum	787	873	492	665	1041	1107	1075	1717	1910	1995	1778	1711	2039	2481	2751

August 2011 was similarly successful like March. And similar to spring, when a successful month was beaten by an even better successor, the situation repeated in fall. With respect to the observing conditions, September was close to perfect at almost every observing site. An amazing 42 out of 62 cameras collected twenty and more observing nights. With STG38 of Stefano Crivello and HUDEB of Antal Igaz, there were once more two cameras successful in every night. The uninterrupted observing series of Stefano lasted from July 20 to October 6. That is, he could observe with STG38 in 79 consecutive nights, which is a „European record"!
Between September 21 and 27, more than 50 cameras were in operation; on September 23 and 24 even 57 cameras. Is there any further proof necessary for the splendid weather? As the nights were getting longer in the northern hemisphere it is not a big surprise, than we collected more than 8,600 observing hours in September, which is a plus of 20% compared to the preceding month. For comparison: That is more observing time than we collected in the first three years of the camera network altogether. With „only" 36,000 meteors, September could not quite rival August due to the missing Perseids, but that is still twice the number of meteors recorded in the year before. In the last decade of September we catched as many events as typically only during major meteor showers.

As often in the previous few months, we would like to welcome new observers and cameras at this time. With Grigoris Maravelias we have the first Greek observer in our midst. Grigoris is observing from Crete with his camera LOOMECON, a Watec 902H2 with 12 mm f/0.8 Panasonic lens. Detlef Koschny operated his new image-intensified camera ICC7 with 25 mm f/0.85 Fujinon lens for testing at his Dutch home. Meanwhile the camera has arrived in Tenerife, where regular observation shall start soon. Javor Kac has equaled with Antal Igaz by taking a fifth camera into operation. CVETKA consist of a Mintron camera with 3.8 mm f/0.8 Computar lens. Since September, Zoltan Zelko has been operating a second camera HUVCSE03 at his balcony in Budapest. Last but not least the Belgian team of video observers grew thanks to Tom Roelands. Toms camera KEMPEN is installed in Oostmalle and consists of a Watec 902H2 camera with a f/0.95 zoom lens.

As September is offering no major showers to us, we now will have another look at the sporadic activity. Our May 2011 analysis had shown, that their activity profile is not uniform, but contains a clear increase towards the (local) morning hours. Consequently the modeling was changed such that sporadic meteors are now considered as a „weighted mix" of different radiation areas (Apex/Antapex, Helion, N/S Torodial). The check with the September data (figure 1) shows, that the systematic variations did not fully disappear, but got significantly smaller. Furthermore it's not anymore a continuous increase towards dawn: In some cases the flux density is approximately constant, in some cases it is raising or falling, and in some cases the activity even seem to peak at midnight.

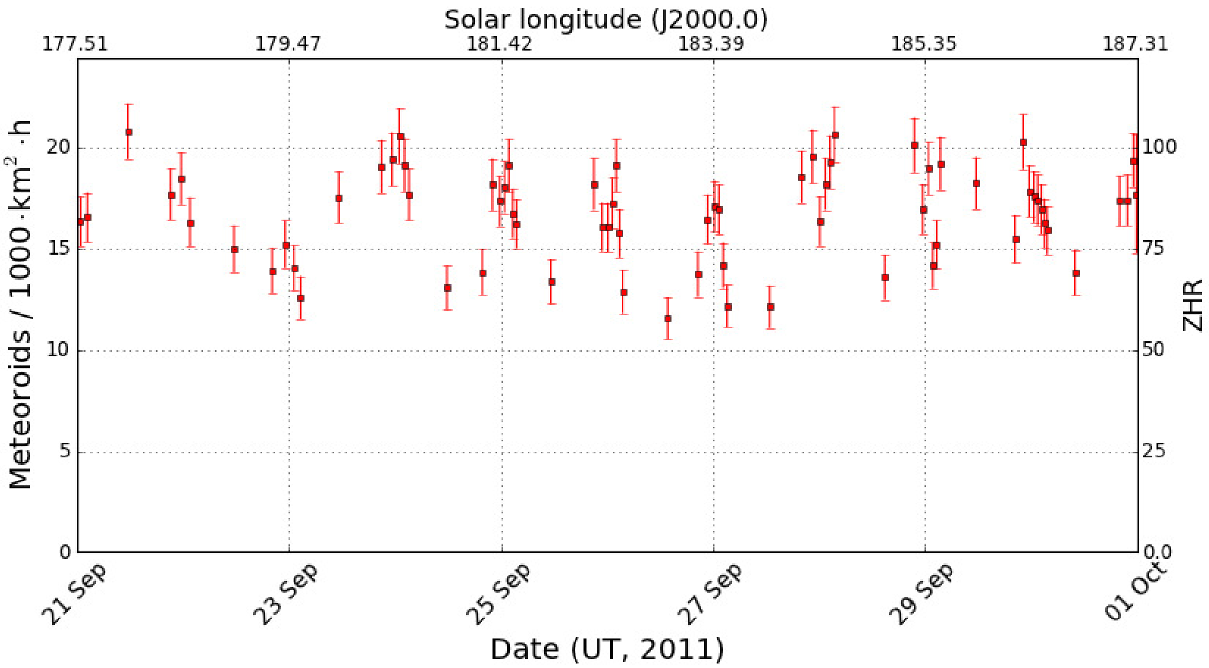

Figure 1: *Flux density of the sporadic meteors in the last decade of September 2011, derived from observation of the IMO video network.*

The observations and analyses of the previous months allowed another insight to mature. Be it the unknown population index of a shower, the possible zenith exponent, the effective collection area of a camera or the loss in limiting meteor magnitude by the angular velocity of meteors – all these effects are secondary. Prime factors for the determination of the flux density are the effective observing time per minute and the stellar limiting magnitude. Only these two parameters are directly estimated during the observation and cannot be corrected. All other factors may be analyzed and possible adjusted later on.
The effective observing time can be measured easily – a robust estimation of the limiting magnitude is not trivial, however. This Summer I spend some time to improve the procedure, and now we earn the first fruits of this work. To demonstrate the problems we have to fight with, let's discuss some aspects of the algorithm in more detail now.

First we will recapitulate how the lm estimation works in principle. At first, all pixels are segmented from an averaged and nearly noise-free image, which are by a certain amount brighter than their neighborhood (figure 2, left). Based on a star catalog and the plate constants it is calculated in parallel, which star should be visible at what position in the field of view at the given point in time (figure 2, right). In the end it is checked, which segmented pixel fit to what catalog star based only on their position. The identified stars are counted and transformed similar to visual star field counts into an (average) limiting magnitude in the field of view.

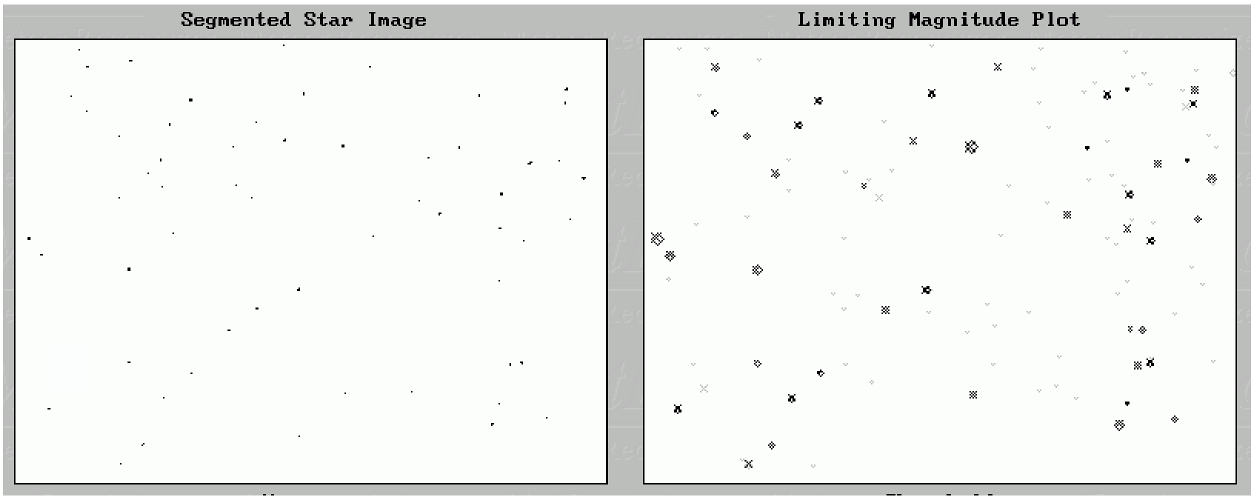

Figure 2: Limiting magnitude estimation for MINCAM1: On the left side, all pixels are marked that are a certain amount brighter than their neighborhood. On the right side the corresponding section of the star catalog is shown. All stars that fit are marked in bold (approx. 50).

First we learnt, that estimating the limiting magnitude requires a precise astrometry. If the camera deviates only slightly from their original position or if the plate constants are only roughly estimated due to lack of reference stars, some of the segmented stars cannot be identified anymore. Consequently, together with the number of identified stars the limiting magnitude is decreasing, and the calculated flux density is increasing.
A simple solution would be to allow for larger tolerances when the stars are identified. However, the procedure must be compatible to a large variety of cameras and observing conditions. It reaches from aging Mintron cameras with wide angle lenses, that show more hot pixels than stars, up to image-intensified cameras with 500 stars and more in a small compass (figure 3). If the allowed tolerances are increased, there will be a fitting catalog star to most pixels, no matter whether it is a real star or just noise.

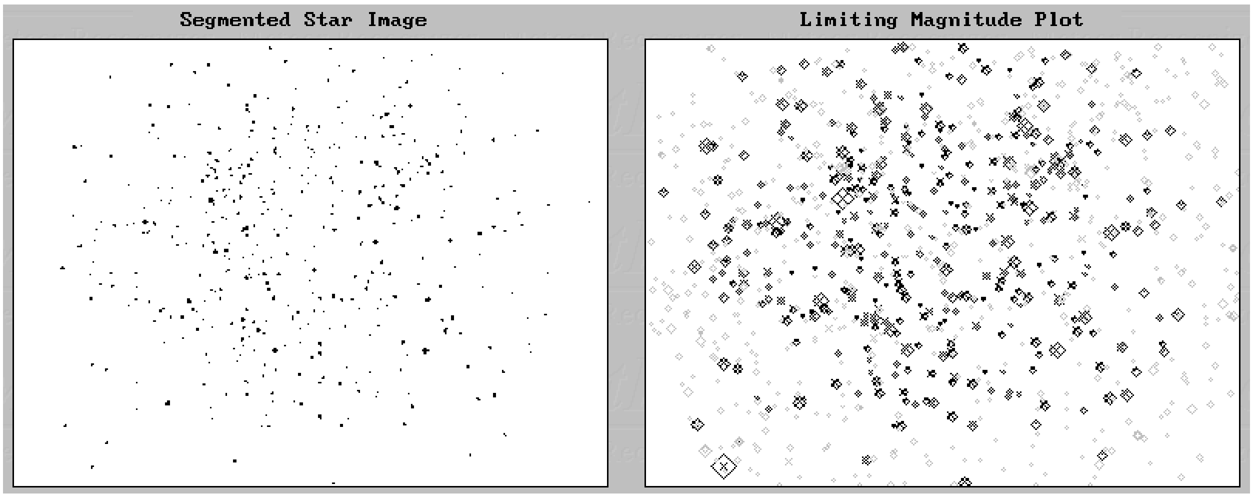

Figure 3: Limiting magnitude determination for the image-intensified camera AVIS2. Due to the tremendous sensitivity, a few hundred stars can be identified in the center. Towards the edges the sensitivity is significantly decreasing, though.

The members of the IMO network soon realized, that highest precision is required when measuring the reference stars. A nice by-product is the improved accuracy of the calculated meteor positions.

Beside the tolerance range there are two thresholds that have a particular impact on the lm determination. On the one hand, there is the threshold from when on a pixel raises from the background and is segmented. This threshold was fixed in the first implementation, and it was determined during measurement of the reference image. Later we saw, that this threshold may vary with the observing conditions. Due to (automatic) gain control, the noise of the camera is significantly increasing when skies are fully dark, whereas the noise level reduces at dawn or when bright clouds are present. In addition, the ideal threshold depends on the (unknown) limiting magnitude of the camera. The better the limiting magnitude, the more stars do we expect (under clear skies). And here is the problem: If the threshold is lowered to segment sufficient stars, more stars will automatically be identified (partly also noise), which will further increase the limiting magnitude. That yields the next reduction of the threshold, etc. So we have to cope with a feedback loop, that has to be damped such that the threshold and the limiting magnitude will converge to stable values even under most variable conditions.

The second threshold determines, up to which magnitude stars from the catalog are taken to identify the segmented pixels. Also here the threshold should only slightly be higher than the real lm. If it is too low, 100% of the stars will be identified and you get exactly the limiting magnitude that you defined before as threshold. If it is too big, however, the number of catalog stars grows exponentially and the probability is increasing, that for each segmented pixel (star or noise) some catalog star fits. Thus, the limiting magnitude is overestimated and the threshold is further growing in the next step. So here we have another feedback loop.

The current implementation looks roughly as follows: The threshold for segmenting pixels is adjusted according to the number of identified stars in the previous minute. If no star was found it is updated such that about 30 pixels are segmented. If n stars were identified, then it is adjusted such that about n+x pixels are segmented. At first, the extra x is 100% of n. With growing number of stars, the extra is decreasing in percentages. At 500 stars, the extra is only 10% (all values set empirically). That accounts for the fact, that the star density in the field of view and thereby the probability of a chance alignment between segmented noise and weak catalog star is growing.

In parallel, the limiting magnitude for catalog stars is determined from the stellar lm in the previous minute plus an extra of one magnitude. A smaller extra was not possible, because in case of image-intensified cameras, uneven cloudiness, moon twilight etc. the lm varies significantly in the field of view. The faintest visible stars are clearly fainter than the average limiting magnitude of the field of view. In addition, there are upper and lower limits based on the best limiting magnitude of the camera.

The last few weeks have teached us that despite the risk from the described feedback loops, the procedure yields a robust lm estimation under a large variety of cameras (variable sensitivity, vignetting), fields of view (wide angle or tele lens) and observing conditions (clear skies, fog, clouds, Moon, twilight). In spring, the calculated sporadic flux density easily varied by a factor of ten from one camera to the next. No we obtain with most cameras a value of roughly 15 meteoroids per 1,000 km^2 and hour with systematic deviations that are rarely larger than a factor of two in either direction. Only some, mostly weak cameras still yield values beyond 50. Here a further analysis has to show, why lm is underestimated and how the algorithm can be optimized further.

As evidence for the consistent limiting magnitude, figure 4 presents the overall profile of the sporadic flux density in September 2011. It shows that the values are within a small range of 15 to 20 meteoroids per 1,000 km^2 and hour. The differences from one day to the next are typically even smaller.

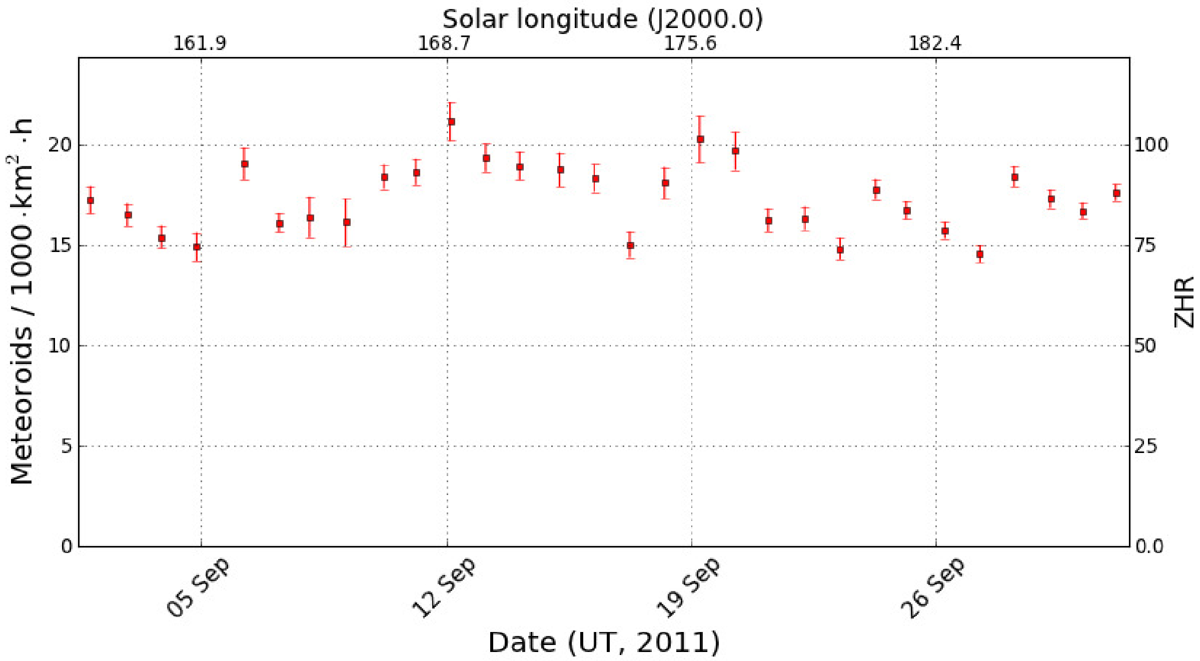

Figure 4: *Flux density profile of the sporadic meteors in September 2011 from data of the IMO video network.*

Finally, figure 5 shows the same graph for the Antihelion source. Here in particular a rate increase between September 8 and 14 looks interesting, which may point to some sub-structure. After September 24 the shower is not detected anymore, because then it merges by definition into the Taurids.

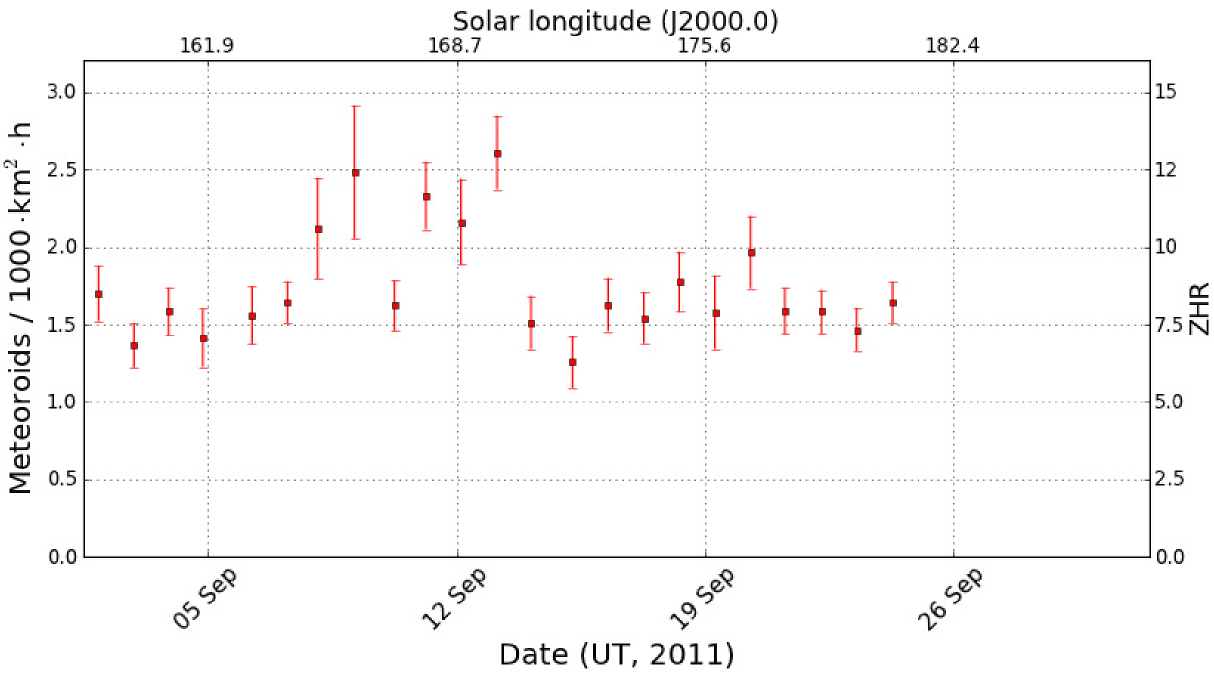

Figure 5: *Flux density profile of the Antihelion source in September 2011 from data of the IMO video network.*