Results of the IMO Video Meteor Network – December 2010

Sirko Molau, Abenstalstr. 13b, 84072 Seysdorf *2011/02/24*

1. Observers

Code	Name	Place	Camera	FOV [°²]	St.LM [mag]	Eff.CA [km²]	Nights	Time [h]	Tot. CA [10³km²h]	Meteors
BENOR	Benitez-S.	Las Palmas	TIMES4 (1.4/50)	2359	3.2	492	17	75.8	55.3	396
			TIMES5 (0.95/50)	33	7.0	261	7	13.1	-	36
BERER	Berko	Ludanyhalaszi	HULUD1 (0.95/3)	6500	3.8	2209	10	53.1	-	311
			HULUD2 (0.95/2.8)	5977	4.2	2978	14	59.9	-	290
BRIBE	Brinkmann	Herne	HERMINE (0.8/6)	2374	4.2	1084	13	39.7	-	143
CASFL	Castellani	Monte Baldo	BMH1 (0.8/6)	2350	-	-	17	145.1	-	1143
			BMH2 (1.5/4.5)*	4243	-	-	18	169.4	-	1287
CRIST	Crivello	Valbrevenna	C3P8 (0.8/3.8)	5575	4.2	2525	17	150.1	349.5	1554
			STG38 (0.8/3.8)	5593	4.3	2810	17	141.3	-	1766
CSISZ	Csizmadia	Zalaegerszeg	HUVCSE01 (0.95/5)	2439	-	-	13	61.1	-	367
CURMA	Currie	Grove	MIC4 (0.8/6)	1471	5.2	3008	8	40.2	-	170
ELTMA	Eltri	Venezia	MET38 (0.8/3.8)	5620	-	-	14	129.7	-	823
GONRU	Goncalves	Tomar	TEMPLAR1 (0.8/6)*	2188	5.3	2331	10	86.3	151.2	659
			TEMPLAR2 (0.8/6)*	2303	5.0	2397	12	81.6	167.5	527
GOVMI	Govedic	Sredisce ob Dravi	ORION2 (0.8/8)	1471	6.0	3916	23	131.1	102.5	857
HERCA	Hergenrother	Tucson	SALSA3 (1.2/4)*	4332	4.0	1471	30	194.2	137.8	866
HINWO	Hinz	Brannenburg	AKM2 (0.85/25)*	754	5.7	1306	6	20.8	33.4	75
IGAAN	Igaz	Baja	HUBAJ (0.8/3.8)	5600	4.3	3338	15	72.0	-	477
		Hodmezovasarhely	HUHOD (0.8/3.8)	5609	4.2	3031	8	38.0	-	198
		Budapest	HUPOL (1.2/4)	3929	3.5	1144	11	46.7	-	265
JOBKL	Jobse	Oostkapelle	BETSY2 (1.2/85)*	1725	-	-	6	54.3	-	1382
			KLARA2 (1.2/85)*	1564	-	-	6	55.2	-	1211
KACJA	Kac	Kostanjevec	METKA (0.8/8)*	1381	4.0	2246	7	58.7	-	466
		Ljubljana	ORION1 (0.8/8)	1420	5.3	2336	16	77.7	-	649
		Kamnik	REZIKA (0.8/6)	2307	5.0	2293	12	97.4	-	1252
			STEFKA (0.8/3.8)	5540	4.2	2882	13	79.8	-	977
KERST	Kerr	Glenlee	GOCAM1 (0.8/3.8)	5238	4.2	2637	9	55.4	121.8	747
KOSDE	Koschny	Noordwijkerhout	LIC4 (1.4/50)*	2027	5.3	2782	2	16.4	11.5	126
LUNRO	Lunsford	Chula Vista	BOCAM (1.4/50)*	1860	5.1	1719	11	92.3	-	922
MOLSI	Molau	Seysdorf	AVIS2 (1.4/50)*	1771	6.1	4182	6	14.9	24.8	82
			MINCAM1 (0.8/8)	1477	4.9	1716	16	42.9	31.2	180
		Ketzür	REMO1 (0.8/3.8)	5592	3.0	974	5	25.4	20.2	191
MORJO	Morvai	Fülöpszallas	HUFUL (1.4/5)	2522	3.5	532	13	57.2	-	231
OTTMI	Otte	Pearl City	ORIE1 (1.4/5.7)	3837	-	-	6	27.6	-	118
PERZS	Perko	Becsehely	HUBEC (0.8/3.8)*	5448	3.4	1500	18	127.6	-	1229
ROTEC	Rothenberg	Berlin	ARMEFA (0.8/6)	2369	4.8	1801	5	14.9	28.8	167
SCHHA	Schremmer	Niederkrüchten	DORAEMON (0.8/3.8)	5537	3.0	846	15	46.9	-	296
SLAST	Slavec	Ljubljana	KAYAK1 (1.8/28)	604	6.5	1849	13	71.9	-	355
STOEN	Stomeo	Scorze	MIN38 (0.8/3.8)	5631	4.1	2407	16	119.0	-	1775
			NOA38 (0.8/3.8)	5609	4.9	5800	12	98.7	-	1454
			SCO38 (0.8/3.8)	5598	-	-	12	112.0	-	1835
STRJO	Strunk	Herford	MINCAM2 (0.8/6)	2357	-	-	10	22.6	-	129
			MINCAM3 (0.8/12)	728	-	-	13	49.8	-	316
			MINCAM5 (0.8/6)	2344	-	-	11	48.6	-	497
TEPIS	Tepliczky	Budapest	HUMOB (0.8/6)	2375	4.9	2258	11	57.7	-	317
TRIMI	Triglav	Velenje	SRAKA (0.8/6)*	2222	-	-	20	101.0	-	777
YRJIL	Yrjölä	Kuusankoski	FINEXCAM (0.8/6)	2337	5.5	3574	9	63.8	-	346
Sum							31	3438.9		30237

* active field of view smaller than video frame

2. Observing Times (h)

December	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
BENOR	-	-	4.1	4.4	1.5	1.7	4.0	3.7	5.0	6.4	3.1	9.6	9.7	7.4	3.7
	-	-	-	-	-	-	-	-	0.3	2.0	1.3	2.8	4.4	1.0	1.3
BERER	-	-	-	1.7	-	-	-	-	9.0	9.4	-	-	-	12.8	3.1
	-	-	-	2.9	-	-	-	-	8.4	12.6	-	1.3	-	13.5	2.2
BRIBE	-	1.7	4.8	-	0.8	3.1	-	-	1.5	-	-	-	1.1	-	5.1
CASFL	-	-	-	-	-	0.4	-	0.6	13.1	10.7	13.0	13.0	13.0	8.9	6.5
	-	-	-	11.2	-	-	-	3.3	11.7	12.2	13.3	13.3	13.3	9.2	8.3
CRIST	8.7	6.2	9.0	7.4	-	-	-	-	12.0	12.1	3.1	12.9	12.5	12.8	13.2
	9.7	6.2	1.0	10.1	-	-	-	3.1	13.1	12.1	4.7	13.1	13.1	13.2	13.2
CSISZ	-	-	-	-	-	-	-	7.4	-	5.2	6.5	8.0	6.5	2.3	-

CURMA	-	-	-	-	-	-	-	6.1	3.9	-	3.8	-	-	-	-
ELTMA	-	-	-	-	-	-	-	-	10.0	12.1	11.1	12.1	12.2	13.0	5.9
GONRU	-	-	6.2	-	-	-	-	-	-	7.7	8.5	-	7.8	12.7	10.2
	-	-	8.1	-	-	-	-	-	6.0	7.1	4.9	-	7.3	11.3	11.7
GOVMI	-	-	0.3	0.4	0.3	-	1.8	7.5	10.7	10.6	12.9	7.2	13.6	9.6	5.2
HERCA	7.7	7.1	7.8	6.2	8.8	8.5	8.0	9.6	8.1	8.8	7.4	9.9	10.5	10.9	10.9
HINWO	-	-	-	9.6	-	-	-	1.3	-	-	-	-	-	-	-
IGAAN	0.3	-	4.7	5.1	0.5	-	4.9	4.5	9.1	12.1	3.3	8.1	0.5	-	-
	-	-	4.3	6.6	-	-	-	2.2	7.7	8.0	2.5	5.1	-	-	-
	-	-	3.2	7.1	-	-	-	0.1	5.0	7.8	0.7	6.2	0.8	7.9	-
JOBKL	-	-	9.8	-	-	-	-	11.5	-	-	6.5	10.4	9.0	7.1	-
	-	-	8.3	-	-	-	-	11.6	-	-	7.5	11.6	9.7	6.5	-
KACJA	-	-	-	-	-	-	-	-	-	7.7	13.7	-	10.7	-	-
	-	-	-	0.3	-	-	-	-	5.8	9.7	12.8	6.1	11.5	4.9	-
	-	-	-	-	-	-	-	-	2.1	10.8	8.3	10.5	13.5	9.6	2.6
	-	-	-	-	-	-	-	-	1.0	11.9	8.1	8.1	11.7	9.1	4.9
KERST	2.8	-	-	-	-	-	6.3	4.1	3.9	-	-	-	7.7	8.1	8.3
KOSDE	-	-	-	-	-	-	-	-	-	-	8.3	8.1	-	-	-
LUNRO	8.1	-	-	5.0	7.3	-	6.0	10.9	8.8	7.4	6.6	9.8	10.4	12.0	-
MOLSI	-	0.2	-	6.6	-	-	-	-	-	-	-	-	-	-	-
	-	2.9	-	9.2	-	-	0.2	0.2	-	-	-	0.7	3.7	-	0.1
	-	-	4.9	4.1	-	4.3	-	-	-	-	2.7	9.4	-	-	-
MORJO	-	-	-	5.4	-	0.4	2.9	4.3	5.4	8.9	-	7.2	-	7.0	-
OTTMI	-	-	5.9	-	-	6.9	-	7.9	5.6	0.6	0.7	-	-	-	-
PERCZ	-	-	-	-	-	-	-	2.0	10.2	10.0	1.8	9.9	13.6	5.0	5.7
ROTEC	-	-	-	-	-	5.5	-	-	0.3	-	-	6.6	1.9	-	0.6
SCHHA	-	0.3	8.5	-	-	0.1	-	4.4	1.6	-	4.8	9.6	1.2	4.5	1.5
SLAST	-	-	-	-	-	-	-	-	5.6	8.3	13.2	7.7	10.1	7.3	1.0
STOEN	-	-	0.3	8.2	-	-	-	-	9.2	10.1	11.8	12.3	10.7	9.7	1.4
	-	-	-	-	-	-	-	-	-	-	12.8	12.8	10.6	9.9	4.1
	-	-	-	-	-	-	-	-	-	-	11.8	12.0	11.2	10.5	7.7
STRJO	-	-	1.0	-	-	-	-	-	0.3	-	0.5	3.6	2.1	7.3	0.4
	-	-	4.0	-	-	0.4	-	-	0.3	-	0.5	8.2	0.2	7.5	2.3
	-	-	2.9	-	-	2.2	-	-	-	-	0.7	12.7	0.6	7.6	1.8
TEPIS	-	-	-	6.6	-	-	-	6.4	8.1	10.3	-	4.2	-	1.4	-
TRIMI	0.7	-	0.2	7.0	0.7	-	-	3.7	7.8	9.0	10.5	9.3	9.8	2.7	3.5
YRJIL	-	-	-	1.1	-	6.9	-	-	-	8.1	9.5	9.4	6.0	11.5	4.2
Sum	38.0	24.6	99.3	126.2	19.9	40.4	34.1	116.4	210.6	269.7	253.2	322.8	292.2	295.7	150.6

December	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BENOR	1.5	-	5.8	0.6	3.6	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERER	5.5	-	5.5	-	-	-	-	1.7	-	-	-	0.9	3.5	-	-	-
	3.0	-	6.4	1.1	0.6	-	-	2.1	-	-	-	1.3	4.2	-	-	0.3
BRIBE	-	7.3	0.6	-	1.1	-	-	-	-	1.3	-	-	3.5	7.8	-	-
CASFL	3.5	5.0	9.4	-	-	-	-	-	-	-	-	9.4	8.8	7.3	12.7	9.8
	3.2	7.8	6.7	-	-	-	-	-	-	-	8.9	9.2	9.2	7.8	9.3	11.5
CRIST	4.0	11.3	4.7	-	-	-	-	-	-	-	4.8	5.8	-	-	-	9.6
	4.6	-	5.7	-	-	-	-	-	-	-	-	9.5	-	-	0.7	8.2
CSISZ	-	-	0.3	8.8	6.9	-	-	1.3	-	0.7	-	-	6.0	1.2	-	-
CURMA	3.8	-	2.0	1.0	-	-	-	-	6.1	13.5	-	-	-	-	-	-
ELTMA	8.0	-	6.1	-	-	-	-	-	-	-	8.4	9.0	-	4.1	11.2	6.5
GONRU	10.6	-	-	-	-	-	-	4.9	-	9.4	8.3	-	-	-	-	-
	7.5	-	-	-	-	-	-	4.7	-	8.5	3.6	-	-	-	-	0.9
GOVMI	2.0	-	4.7	8.8	4.5	0.3	5.7	3.1	0.3	-	2.0	11.7	7.9	-	-	-
HERCA	5.9	1.3	3.8	5.8	6.8	0.3	0.3	1.0	9.6	4.5	7.8	1.7	3.3	8.0	-	3.9
HINWO	0.7	-	3.5	4.0	-	-	1.7	-	-	-	-	-	-	-	-	-
IGAAN	-	-	-	4.9	-	-	2.0	-	-	-	-	10.0	2.0	-	-	-
	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-
	-	-	-	-	2.8	-	-	-	-	-	-	5.1	-	-	-	-
JOBKL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KACJA	-	-	8.5	-	7.3	-	-	-	-	-	-	9.0	1.8	-	-	-
	3.2	-	1.6	1.0	-	-	-	-	-	-	5.0	4.3	3.9	3.6	3.7	0.3
	-	-	-	-	-	-	-	-	-	-	-	5.7	7.2	5.5	12.1	9.5
	0.3	-	-	-	-	-	-	-	-	-	-	4.6	2.8	2.2	4.9	10.2
KERST	6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6

KOSDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LUNRO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOLSI	-	-	1.4	-	-	-	0.1	-	-	-	-	3.8	2.8	-	-	-
	0.9	0.6	6.3	-	1.1	-	4.5	-	-	0.5	-	4.2	5.6	2.2	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MORJO	-	-	-	6.1	1.5	-	-	-	-	0.4	-	7.2	-	0.5	-	-
OTTMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PERCZ	-	-	3.4	10.0	7.8	2.5	7.8	2.1	-	-	2.2	9.4	10.6	13.6	-	-
ROTEC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCHHA	-	4.7	-	-	-	-	-	-	-	0.3	-	-	2.6	2.5	0.3	-
SLAST	-	-	-	-	-	-	-	-	-	-	0.8	4.0	3.3	4.7	5.6	0.3
STOEN	5.2	-	6.1	-	-	-	-	-	-	-	6.3	6.1	-	5.2	10.9	5.5
	4.6	-	7.8	-	-	-	-	-	-	-	6.3	6.6	-	5.1	11.2	6.9
	10.7	-	7.4	-	-	-	-	-	-	-	6.2	7.8	-	7.0	10.7	9.0
STRJO	-	-	-	-	2.6	-	-	-	-	-	-	-	3.4	1.4	-	-
	-	-	1.8	-	8.0	-	-	-	-	2.3	-	-	7.6	6.7	-	-
	-	-	2.0	-	4.7	-	-	-	-	-	-	-	7.7	5.7	-	-
TEPIS	-	-	-	2.6	3.1	-	-	-	-	-	-	6.9	5.2	2.9	-	-
TRIMI	4.8	-	4.0	2.7	3.4	-	-	-	-	-	2.0	7.2	6.7	-	5.3	-
YRJIL	-	-	-	-	-	-	-	7.1	-	-	-	-	-	-	-	-
Sum	100.1	38.0	115.5	57.4	65.8	3.1	23.7	28.0	16.0	41.4	72.6	160.4	119.6	105.0	98.6	100.0

3. Results (Meteors)

December	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
BENOR	-	-	13	19	5	4	13	16	20	30	21	62	125	23	12
	-	-	-	-	-	-	-	-	1	6	3	10	14	1	1
BERER	-	-	-	4	-	-	-	-	43	48	-	-	-	168	6
	-	-	-	4	-	-	-	-	31	46	-	4	-	153	3
BRIBE	-	5	22	-	3	7	-	-	5	-	-	-	4	-	16
CASFL	-	-	-	-	-	1	-	2	65	78	98	178	331	99	27
	-	-	-	36	-	-	-	20	61	70	102	159	381	122	32
CRIST	50	53	54	33	-	-	-	-	112	129	5	238	421	237	69
	60	46	2	48	-	-	-	14	129	148	14	318	535	274	74
CSISZ	-	-	-	-	-	-	-	38	-	25	37	59	124	11	-
CURMA	-	-	-	-	-	-	-	25	19	-	25	-	-	-	-
ELTMA	-	-	-	-	-	-	-	-	43	74	52	107	252	104	14
GONRU	-	-	35	-	-	-	-	-	-	85	39	-	130	123	81
	-	-	32	-	-	-	-	-	30	56	18	-	110	100	65
GOVMI	-	-	1	1	1	-	4	58	46	57	92	58	317	49	12
HERCA	29	31	26	21	30	22	25	32	34	43	38	45	93	159	53
HINWO	-	-	-	32	-	-	-	7	-	-	-	-	-	-	-
IGAAN	3	-	19	30	3	-	12	38	46	78	42	128	6	-	-
	-	-	12	22	-	-	-	6	42	43	15	54	-	-	-
	-	-	25	30	-	-	-	1	20	26	14	43	5	75	-
JOBKL	-	-	99	-	-	-	-	151	-	-	147	471	419	95	-
	-	-	54	-	-	-	-	98	-	-	113	398	421	127	-
KACJA	-	-	-	-	-	-	-	-	-	28	74	-	264	-	-
	-	-	-	1	-	-	-	-	25	60	110	29	288	42	-
	-	-	-	-	-	-	-	-	7	89	169	107	560	95	7
	-	-	-	-	-	-	-	-	4	88	90	54	543	83	22
KERST	9	-	-	-	-	-	81	14	53	-	-	-	128	238	88
KOSDE	-	-	-	-	-	-	-	-	-	-	39	87	-	-	-
LUNRO	45	-	-	18	39	-	38	72	72	63	61	76	241	197	-
MOLSI	-	2	-	41	-	-	-	-	-	-	-	-	-	-	-
	-	6	-	30	-	-	1	1	-	-	-	12	44	-	1
	-	-	36	5	-	14	-	-	-	-	6	130	-	-	-
MORJO	-	-	-	28	-	1	8	23	23	30	-	49	-	17	-
OTTMI	-	-	40	-	-	31	-	28	13	4	2	-	-	-	-
PERCZ	-	-	-	-	-	-	-	21	62	76	5	179	500	66	18
ROTEC	-	-	-	-	-	25	-	-	7	-	-	128	4	-	3
SCHHA	-	1	36	-	-	1	-	15	4	-	25	106	15	56	7
SLAST	-	-	-	-	-	-	-	-	28	37	108	43	86	13	5
STOEN	-	-	1	48	-	-	-	-	102	167	147	291	524	217	9
	-	-	-	-	-	-	-	-	-	-	176	332	470	216	16
	-	-	-	-	-	-	-	-	-	-	219	376	620	217	31

STRJO	-	-	5	-	-	-	-	-	1	-	2	6	10	78	1
	-	-	18	-	-	1	-	-	1	-	3	111	1	74	18
	-	-	14	-	-	9	-	-	-	-	3	227	3	144	15
TEPIS	-	-	-	34	-	-	-	35	55	55	-	51	-	14	-
TRIMI	2	-	1	40	2	-	-	22	35	45	81	43	295	31	21
YRJIL	-	-	-	10	-	31	-	-	-	31	89	48	48	58	14
Sum	198	144	545	535	83	147	182	737	1239	1815	2284	4817	8332	3776	741

December	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BENOR	4	-	14	4	11	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BERER	15	-	15	-	-	-	-	2	-	-	-	2	8	-	-	-
	12	-	20	2	1	-	-	2	-	-	-	3	8	-	-	1
BRIBE	-	43	2	-	1	-	-	-	-	2	-	-	15	18	-	-
CASFL	9	24	28	-	-	-	-	-	-	-	-	39	40	18	48	58
	16	45	23	-	-	-	-	-	-	-	42	36	36	21	48	37
CRIST	9	65	11	-	-	-	-	-	-	-	16	19	-	-	-	33
	12	-	14	-	-	-	-	-	-	-	-	33	-	-	2	43
CSISZ	-	-	1	27	17	-	-	3	-	2	-	-	17	6	-	-
CURMA	10	-	10	4	-	-	-	-	15	62	-	-	-	-	-	-
ELTMA	27	-	13	-	-	-	-	-	-	-	41	28	-	14	30	24
GONRU	58	-	-	-	-	-	-	18	-	57	33	-	-	-	-	-
	46	-	-	-	-	-	-	11	-	38	19	-	-	-	-	2
GOVMI	3	-	17	29	7	1	19	11	1	-	7	44	22	-	-	-
HERCA	19	3	12	17	14	1	1	2	27	15	18	4	14	26	-	12
HINWO	3	-	18	10	-	-	5	-	-	-	-	-	-	-	-	-
IGAAN	-	-	-	22	-	-	10	-	-	-	-	33	7	-	-	-
	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
	-	-	-	-	8	-	-	-	-	-	-	18	-	-	-	-
JOBKL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KACJA	-	-	31	-	31	-	-	-	-	-	-	31	7	-	-	-
	10	-	7	4	-	-	-	-	-	-	26	11	13	14	7	2
	-	-	-	-	-	-	-	-	-	-	-	33	50	21	55	59
	2	-	-	-	-	-	-	-	-	-	-	19	21	9	16	26
KERST	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68
KOSDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LUNRO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOLSI	-	-	4	-	-	-	1	-	-	-	-	16	18	-	-	-
	5	3	21	-	6	-	14	-	-	6	-	16	10	4	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MORJO	-	-	-	15	12	-	-	-	-	1	-	22	-	2	-	-
OTTMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PERCZ	-	-	11	51	37	4	42	6	-	-	5	42	49	55	-	-
ROTEC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCHHA	-	18	-	-	-	-	-	-	-	1	-	-	3	7	1	-
SLAST	-	-	-	-	-	-	-	-	-	-	2	5	9	8	10	1
STOEN	33	-	16	-	-	-	-	-	-	-	50	35	-	21	73	41
	13	-	23	-	-	-	-	-	-	-	41	44	-	26	56	41
	37	-	23	-	-	-	-	-	-	-	77	56	-	39	88	52
STRJO	-	-	-	-	9	-	-	-	-	-	-	-	13	4	-	-
	-	-	7	-	32	-	-	-	-	8	-	-	24	18	-	-
	-	-	6	-	14	-	-	-	-	-	-	-	40	22	-	-
TEPIS	-	-	-	9	12	-	-	-	-	-	-	28	19	5	-	-
TRIMI	25	-	22	19	14	-	-	-	-	-	9	32	23	-	15	-
YRJIL	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-
Sum	436	201	369	213	226	6	96	72	43	192	386	649	466	358	449	500

December was fair to middling just as the whole year of 2010. Poor conditions persisted for most of the time – only during the Geminid maximum the weather improved at most sites. More southern located observers were privileged again, as they enjoyed clear skies in the most interesting nights, whereas observers in Germany, for example, could catch only a few cloud gaps. For this reason, it became the hour of our observers in Hungary, Slovenia and Italy: The bright Moon could not really harm their wide-angle Mintron cameras, and so they obtained sheer incredible results on December 13/14: C3P8 – 421 meteors, NOA38 – 470 meteors, HUBEC –

500 meteors, MIN38 – 524 meteors, STG38 - 535 meteors, STEFKA – 543 meteors, REZIKA – 560 meteors and SCO38 even 620 meteors! More harmful was the Mon to the two image-intensified cameras of Klaas Jobse, which normally outperform the other cameras. In this case, however,"only" 419 resp. 421 meteors were recorded. Those 36 cameras active in the Geminid maximum night catched over 8,300 meteors – the best result ever obtained in a single night. If we add the nights before, we end up with more than 22,000 meteors observed between December 9 and 14 alone, which vamp up the totals for this otherwise lame month (more than 30,000 meteors in 3,400 hours effective observing time).

The observing series of Carl Hergentroher, that we addressed already in our last report, ended on December 29. Thus, he managed to observe 125 nights in a row with his camera SALSA3 – another unparalleled result in the IMO network.

Let's now have a closer look at the Geminid activity on December 13/14. The analysis was based on 11 cameras with the best observing conditions and covers half a days from 17:30 to 5:30 UT. Single intervals with partial cloud cover were omitted. For each camera, we calculated the number of Geminids in half hour intervals, corrected it by the radiant altitude, and averaged the number over all camera systems. The result, which is based on exactly 3,333 meteors, is given in figure 1. The ZHR profile of the IMO quick look analysis (based on 4,700 visual Geminids) is given for comparison as a line. Both profiles show an increase in activity in the evening hours, whereby the slope in the visual data is slightly steeper. Between about 22:30 and 03:30 UT, the visual ZHR was beyond 100, but there is no clear maximum. Highest rates in the video data occurred between 22:30 and 03:00, and the peak activity occured in the interval 00:30 to 01:00 UT.

The quick look analysis included a second higher resolution profile, which shows a short-lived peak with almost doubled ZHR near 22:50 UT. That peak, however, cannot be confirmed with our video data.

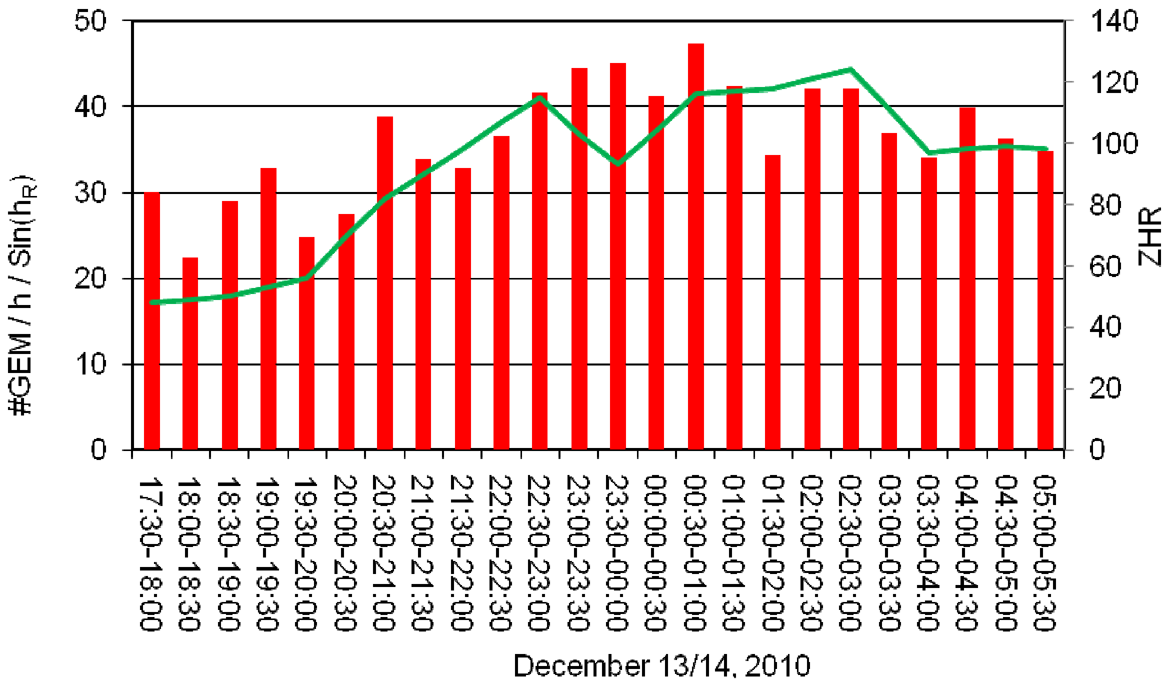

Figure 1: *Activity profile of the Geminids on December 13/14, 2010. The ZHR profile obtained by IMO from visual data is given for comparison as a line.*

Another topic: One of the most important extensions of the MetRec software in 2010 was the identification of stars in the video data stream, and based on that the determination of the limiting magnitude. "By-product" is a large number of star positions, which can be re-used to improve the estimation of the plate constants. That should improve the astrometric accuracy particularly for wide-angle cameras, because the strongly distorted edges of the field of view are better covered. But is it possible to verify this improvement quantitatively?

To answer this question we took the data set of C3P8 from the Gemind maximum (13./14. December) in 2009 and 2010. Thanks to the 3.8 mm lens, this camera has a large field of view. The orientation of C3P8 was left unchanged, and the camera recorded more than hundred Geminids in both years (2009: 136; 2010: 325).

At first, the precise radiant position was obtained for both data sets. Then we calculated the distance of the backward prolongated meteors from the radiant, and the deviation from the expected angular velocity (in other words: the dispersion of observations). Higher astrometric accuracy should result in smaller deviations and a more compact radiant.

The result is presented in figure 2 and 3. The x-axis represents the deviation in position resp. velocity, and the y-axis gives the (cumulative) number of meteors. The deviation of the 2010 data set with about 4,400 (automatically) measured reference stars is clearly smaller than in the year before with about 100 (manually) measured stars. Hence, the new method yields the expected quality improvements for wide-angle cameras.

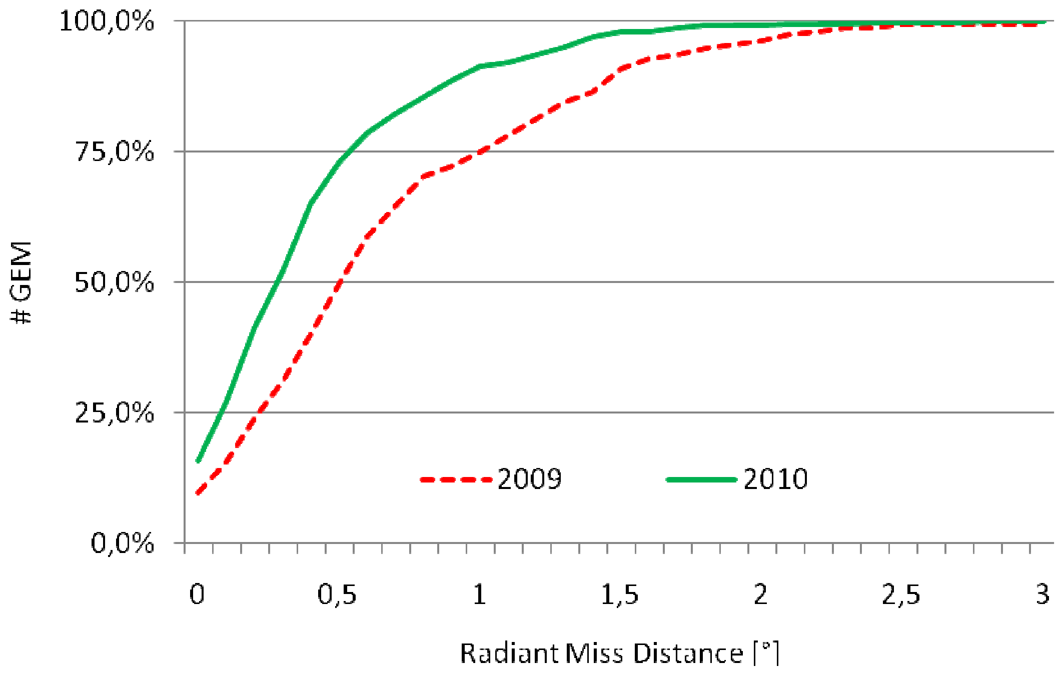

Figure 2: *Radiant miss distance of the Geminids recorded by C3P8 in 2009 and 2010.*

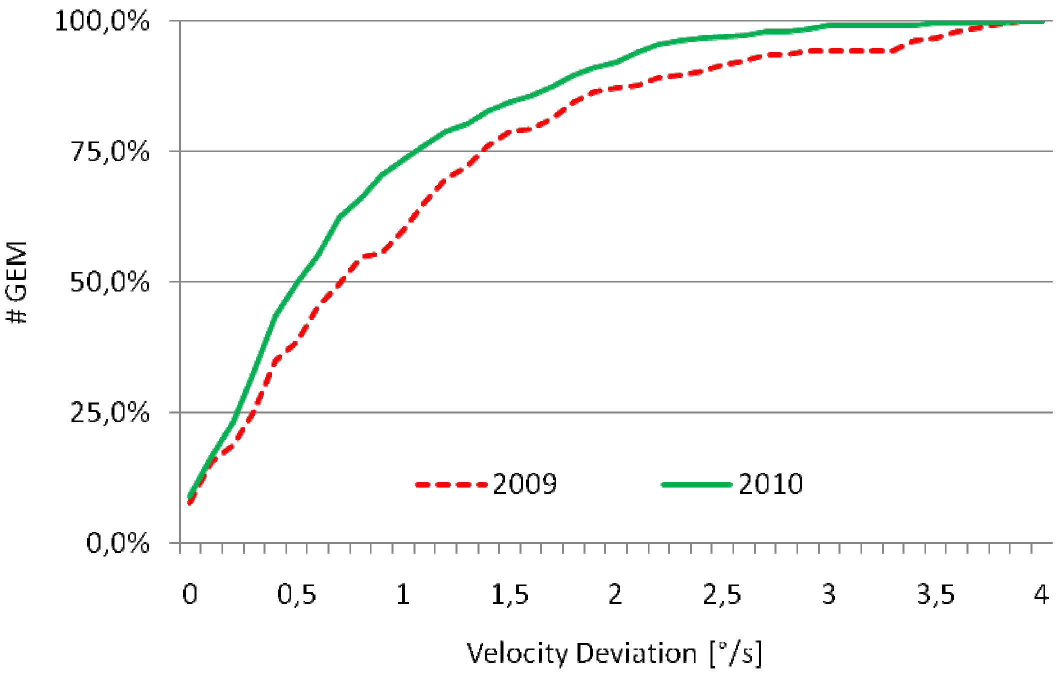

***Figure 3:** Deviation of the observed from the expected angular velocity of Geminds recorded by C3P8 in 2009 and 2010.*

Now we come to the overall statistics for the meteor year 2010. Given the monthly reports with all the records we registered in 2010 it is clear that the year was more successful for the IMO Video Meteor Network than any other year before. The real question is, by how much the previously best year 2009 was surpassed. 33 observers (2009: 24) from 12 countries (2009: 10) contributed with 57 camera systems (2009: 43) to the IMO network. The network is still focussed on central Europe and it grew fastest in Hungary. By the end of 2010, nine video cameras were operated there. So Hungary follows Germany (11 cameras) and Italy (10 cameras) closely. However, we should also not forget our observer from down-under, as Steve Kerr covers the whole southern sky with his camera, where the data set is still insufficient.

A growing number of camera results naturally in more effective observing time. Last year we collected a total of 35,300 hours, which is an increase of 10% (2009: 23,300). In that time we recorded more than 191,500 meteors, a 40% increase compared to 2009 (138,800). Including the 2010 data, the IMO Network Database has grown to a total of three quarter million meteors now. The apparently higher hourly average of 5.4 meteors (2009: 4.3) is not due to higher activity. We were rather more consequent in omitting also smaller cloud intervals from the effective observing time.

Even though the weather was fine in a number of months, October and August have to be highlighted in particular, when the effective observing time and the meteor count reached undreamt heights. February on the other hand was the clear looser. The following table gives the distribution of observations in 2010.

Month	# Observing Nights	Eff. Observing Time	# Meteors	Meteors / Hour
January	31	1,575.2	6,350	4.0
February	28	1,321.1	4,536	3.4
March	31	2,048.8	5,580	2.7
April	30	2,855.8	9,233	3.2
May	31	1,654.1	6,085	3.7
June	30	2,142.1	7,336	3.4
July	31	3,023.1	14,986	5.0
August	31	4,622.2	32,916	7.1
September	30	3,722.8	18,801	5.1
October	31	5,603.0	39,482	7.0

November	30	3,334.7	15,991	4.8
December	31	3,438.9	30,237	8.8
Overall	***365***	***35,341.8***	***191,533***	***5.4***

In the observer centric statistics, there has been a change on top for the first time in many years: Thanks to the perfect Arizona observing conditions, Carl Hergenrother clearly took the lead with 327 observing nights (with only one camera). Sirko Molau "only" ranked second with 291 nights (based on four cameras at two sites), closely chased by Stefano Crivelly with 289 nights. There are nine more observers with over 200 observing nights, and another sixteen observers with over 100 nights. These figures underline the high degree of automation of our systems.
Looking at the effective observing time and number of meteors, the picture is slightly different. In this respect, Enrico Stomeo clearly outperformed all other observers in 2010 with his three Mintron cameras. Enrico alone recorded more that 27,000 meteors, almost as many as the second and third best (once more Sirko Molau and Stefano Crivello) together! With this fantastic result, Enrico passed Jörg Strunk and Javor Kac in the long-term statistics of the IMO network, and now ranks second. If we were in sports, we would probably suppose "illegal camera doping", but in this case it's a combination of an observing site with fine weather and three camera with wide field of view, but still good limiting magnitude. It also seems that Enrico's cameras do not yet suffer from aging, which lets other cameras loose significant power after a few years.

Details for the individual observers are given in the next table, whereby the number of cameras and sites refer to the main part of the year.

Observer	Country	# Observing Nights	Eff. Observing Time [h]	# Meteors	Meteors / Hour	Cameras (Sites)
Carl Hergenrother	USA	327	1,580.2	5,567	3.5	1 (1)
Sirko Molau	Germany	291	2,839.9	15,080	5.3	4 (2)
Stefano Crivello	Italy	289	2,427.3	14,304	5.9	2 (1)
Flavio Castellani	Italy	271	2,096.3	8,947	4.3	2 (1)
Antal Igaz	Hungary	238	1,603.3	6,809	4.2	3 (1)
Rui Goncalves	Portugal	237	2,450.5	11,977	4.9	2 (1)
Bernd Brinkmann	Germany	223	826.5	3,089	3.7	1 (1)
Javor Kac	Slovenia	222	2,080.1	12,154	5.8	4 (3)
Enrico Stomeo	Italy	217	3,722.3	27,276	7.3	3 (1)
Hans Schremmer	Germany	217	620.2	2,202	3.6	1 (1)
Mitja Govedic	Slovenia	215	992.4	4,611	4.6	1 (1)
Mike Otte	USA	204	964.6	3,883	4.0	1 (1)
Jörg Strunk	Germany	190	1,302.4	5,731	4.4	3 (1)
Steve Kerr	Australia	179	1,292.7	11,018	8.5	1 (1)
Detlef Koschny	Netherlands	173	869.0	5,122	5.9	3 (1)
Mihaela Triglav	Slovenia	162	535.0	2,271	4.2	1 (1)
Eckehard Rothenberg	Germany	161	553.4	2,333	4.2	1 (1)
Jozsef Morvaj	Hungary	160	637.7	2,073	3.3	1 (1)
Maurizio Eltri	Italy	158	884.6	4,019	4.5	1 (1)
Stane Slavec	Slovenia	142	589.4	1,969	3.3	1 (1)
Paolo Ochner	Italy	142	567.7	1,343	2.4	1 (1)
Istvan Tepliczky	Hungary	141	784.6	4,341	5.5	1 (1)
Orlando Benitez-Sanchez	Spain	130	451.8	1,579	3.5	2 (1)
Robert Lunsford	USA	126	764.8	4,526	5.9	1 (1)
Ilkka Yrjölä	Finland	123	537.9	2,343	4.4	1 (1)
Klaas Jobse	Netherlands	115	930.4	12,558	13.5	2 (1)
Wolfgang Hinz	Germany	113	524.9	2,113	4.0	1 (1)
Szolt Perko	Hungary	109	640.9	4,169	6.5	1 (1)
Biondani Roberto	Italy	65	321,8	1.238	3,8	1 (1)
Erno Berkó	Hungary	62	553.2	2,374	4.3	2 (1)
Szilárd Csizmadia	Hungary	32	152.3	670	4.4	1 (1)
Malcolm Currie	UK	26	117.3	996	8.5	1 (1)

Rosta Stork	Czech Rep.	15	126.4	2,848	22.5	2 (2)

In the ranking of the ten most successful cameras, Carl Hergenrother is not present, because he switched from SALSA via SALSA2 to SALSA3 in the course of 2010. Also the cameras of Steve Kerr and Enrico Stomeo which recorded most meteors (GOCAM1: 11,018; SCO38: 10,230; MIN38: 9,043; NOA38: 8,003) missed the TOP-10 barely. The top of the list is occupied by Italian observers. South of the Alps, they simply enjoyed fine weather in 2010, whereas the conditions farther north were clearly inferiour to the years before.

Camera	Observing Site	Observer	# Observing Nights	Eff. Observing Time [h]	# Meteors	Meteors / Hour
STG38	Valbrevenna (IT)	Stefano Crivello	254	1,245.8	7,954	6.4
BMH2	Monte Baldo (IT)	Flavio Castellani	241	1,124.5	5,236	4.7
BMH1	Monte Baldo (IT)	Flavio Castellani	238	971.8	3,711	3.8
C3P8	Valbrevenna (IT)	Stefano Crivello	236	1,181.5	6,350	5.4
MINCAM1	Seysdorf (DE)	Sirko Molau	227	890.9	4,100	4.6
TEMPLAR2	Tomar (PT)	Rui Goncalves	226	1,138.9	4,979	4.4
HERMINE	Herne (DE)	Bernd Brinkmann	223	826.5	3,089	3.7
DORAEMON	Niederkrüchten (DE)	Hans Schremmer	217	620.2	2,202	3.6
ORION2	Sredisce ob Dravi (SL)	Mitja Govedic	215	992.4	4,611	4.6
REMO1	Ketzür (DE)	Sirko Molau	212	658.2	2,210	3.4

All observations will be checked once more for consistency in these days, and then the full data set will be provided in the Internet.

As every year, I would like to thank all observers for their passion and enthusiasm which led to this excellent result. I wish all of us, that the success story of the IMO Video Meteor Network continues in this year alike.