

Croatian Meteor Network

Croatian Meteor Network: data reduction and analysis

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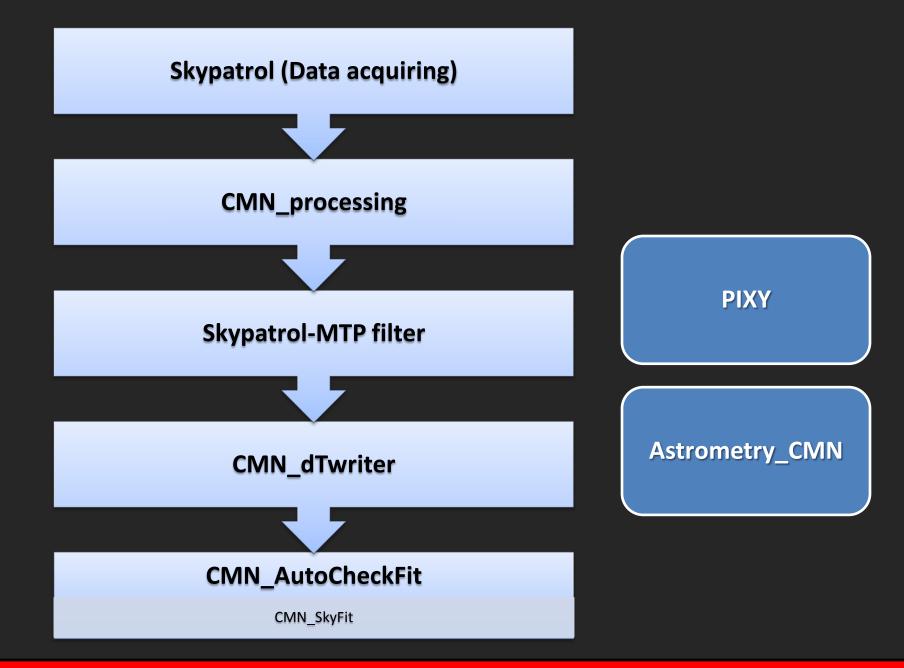
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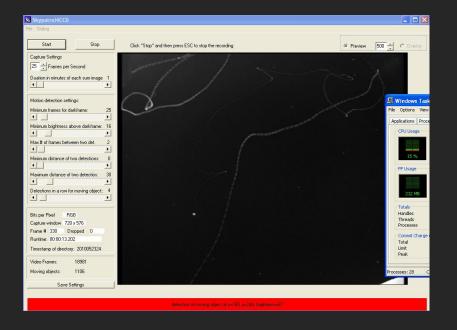
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1. Data reduction



1.1. Skypatrol \rightarrow CMN_processing

- Detecting moving objects
- Very low system requirements



- First data reduction
- MTP_MeteorDetector
 - First data reduction
- MTPFilter
 - Second data reduction
 - Separating meteors from other detections
- Written in Python, uses multithreading (faster processing)

1.2. SkyPatrol-MTP filter \rightarrow CMN_dTwriter

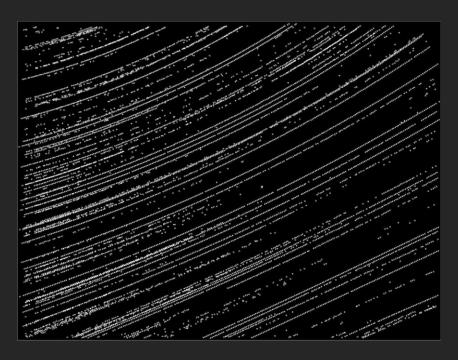
• manual filtering (visual inspection)

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2 23 13 58 222 0461 342.8 213 522																	

- Time synchronization between various stations
- Compares recorded events between overlapping stations → figures out the clock errors
- Referent stations synchronize times via Internet

1.3. Astrometry_CMN \rightarrow CMN_AutoCheckFit

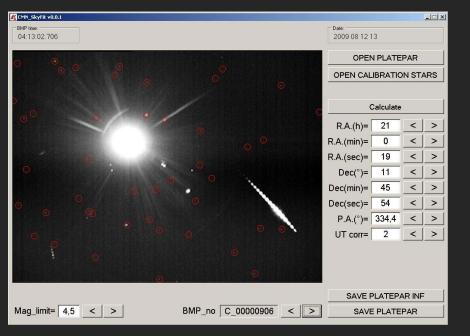
- Astrometric calibration using reference stars
- More images \rightarrow more reference stars
- 3rd order polynomial fit



- Checking if calibration file is usable on all nights using AstrometryCheckFit software
- Does coordinate transformations and photometry using CMN_Met_Math software

1.4. CMN_SkyFit & Additional tools

• If calibration file proves not to be suitable, manual checking is possible



- HMM_detectedExtractor
- HMM_ProcessedExtractor
- HMM_updateCheckFitBase
- HMM_CSVextractor

2. Analysis

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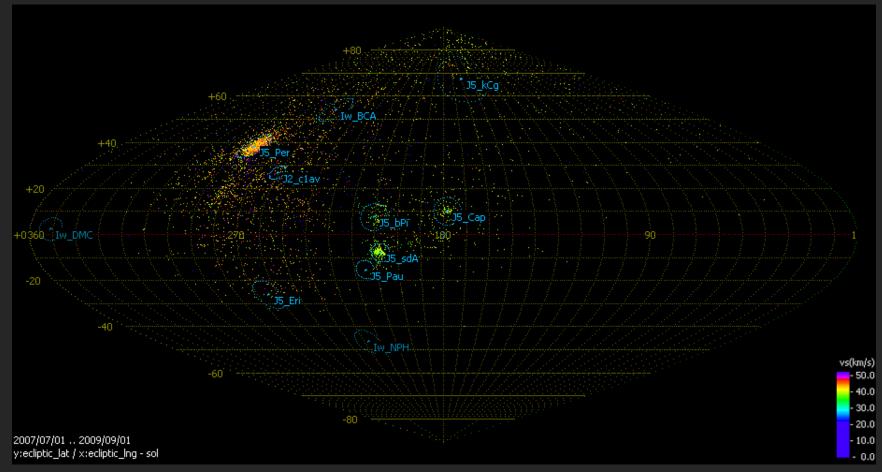
2.1. Observing statistics

- 2007 2009 July and August:
 - 31 573 meteors detected
 - 4 235 Q1 orbits

year	month	Rovisce BJA	Merenje MEA	Osijek OSA	Pula_ADIP PUB	Pula_HOME PUA	Rijeka_A RIA	Rijeka_B RIB	Visnjan VID	Tican TIA	Zagreb_RGN ZGR	Varazdin VAA	MaliLosinj MLA	Petrovsko PET	Zrnovnica ZRA	VelikaPisanica VPI	Valpovo VLA	Sibenik_B SIB	BackaPalanka BPA	Brac BRA	Zagreb_Titus ZGT	Varazdin_Alan VAB	Total:
2007	7	165	95	226		488	465				489												1928
	8	153	168	145		970	726			142	349												2653
2008	7		229	103	374	550		87	225		256	7	83	205	581	158	34						2892
	8		1057	790	926	1125	884	467	858		530		498	790	1537	1290	249						11001
2009	7	1	607	131	316	241	41	206	466	2	280			409	437	99	152	281	73		340	179	4258
	8		487	344	554	1132	331	339	825		338	Ĵ,	205	673	776	282	553	723	103	315	782	79	8841
T	otal:	318	2643	1739	2170	4506	2447	1099	2374	142	2242	7	786	2077	3331	1829	988	1004	176	315	1122	258	31573

Table 1. Number of meteors (by stations)

2.2. Radiant map - UFOOrbit



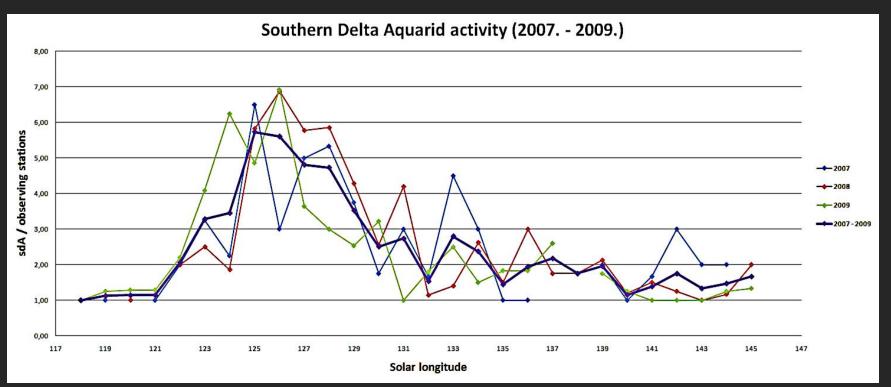
July – August 2007 – 2009 radiant map – Croatian Meteor Network

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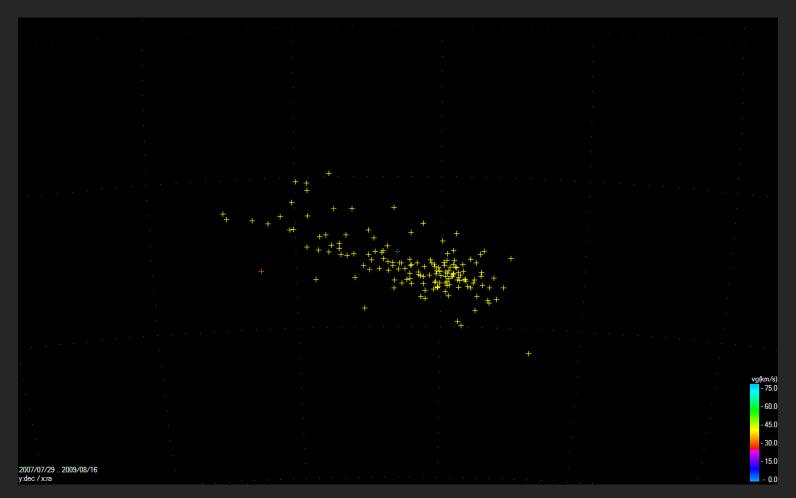
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2.3. Activity of Southern Delta Aquarids

- presented results were obtained with UFOOrbit (SonotaCo Network)
- observations from July 20 to August 18 ($\lambda = 118^{\circ} 145^{\circ}$)
- 1189 single station meteors

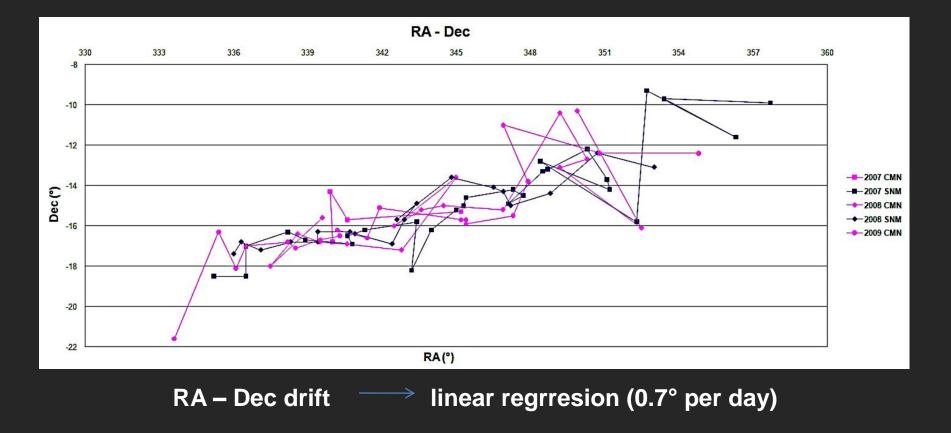


2.4. Radiant drift

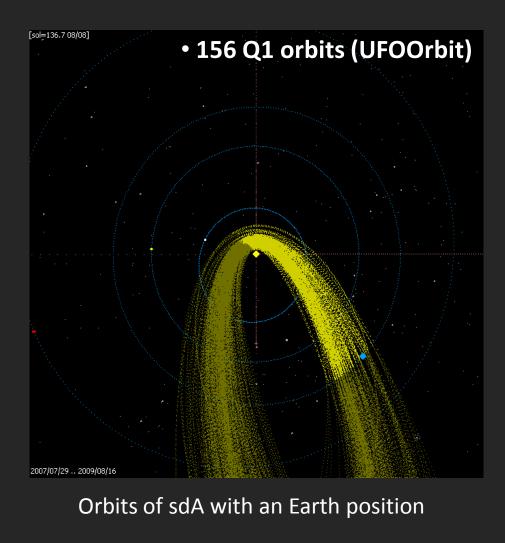


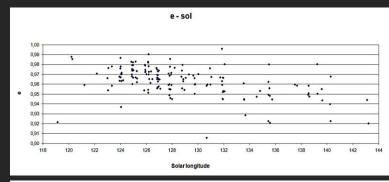
Radiant drift from UFOOrbit: July – August, 2007 - 2009 (504 meteors)

2.4. Radiant drift

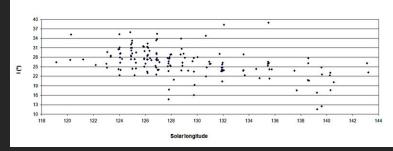


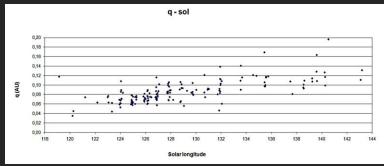
2.5. Orbits

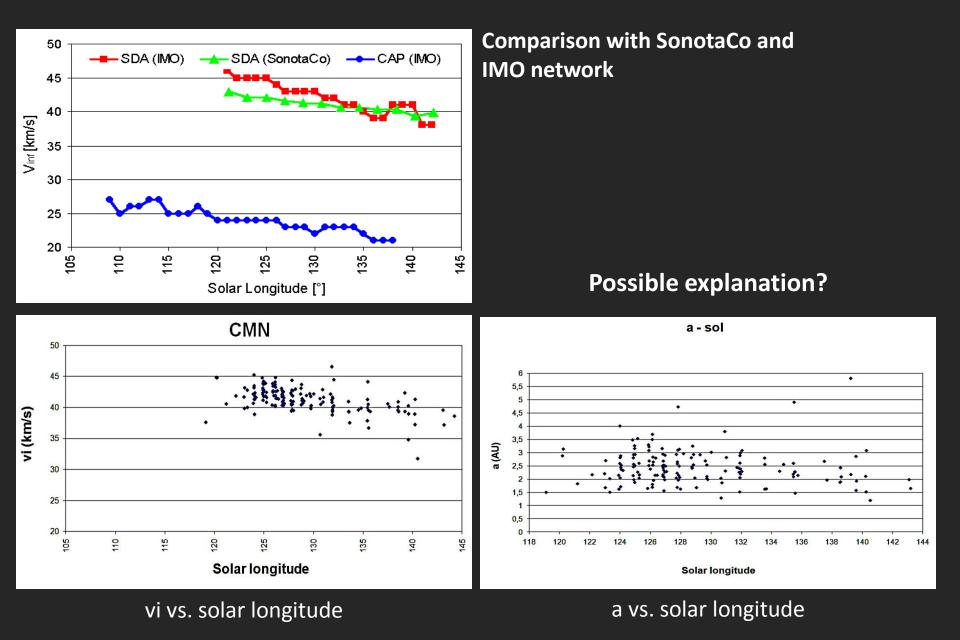




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Croatian Meteor Network

ozoo Google

Visina pogleda 1722.16 km

Thank you for your attention! Questions?

© 2010 Basarsoft © 2010 Europa Technologies US Dept of State Geographer © 2010 Tele Atlas 44*43*22.15* S 14*54*25.15* I podizanje 29 m

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