



2011 Draconids Meteor Shower Outburst Observing Campaign

Ground Based Observation
Paris Observatory Team

Support of the

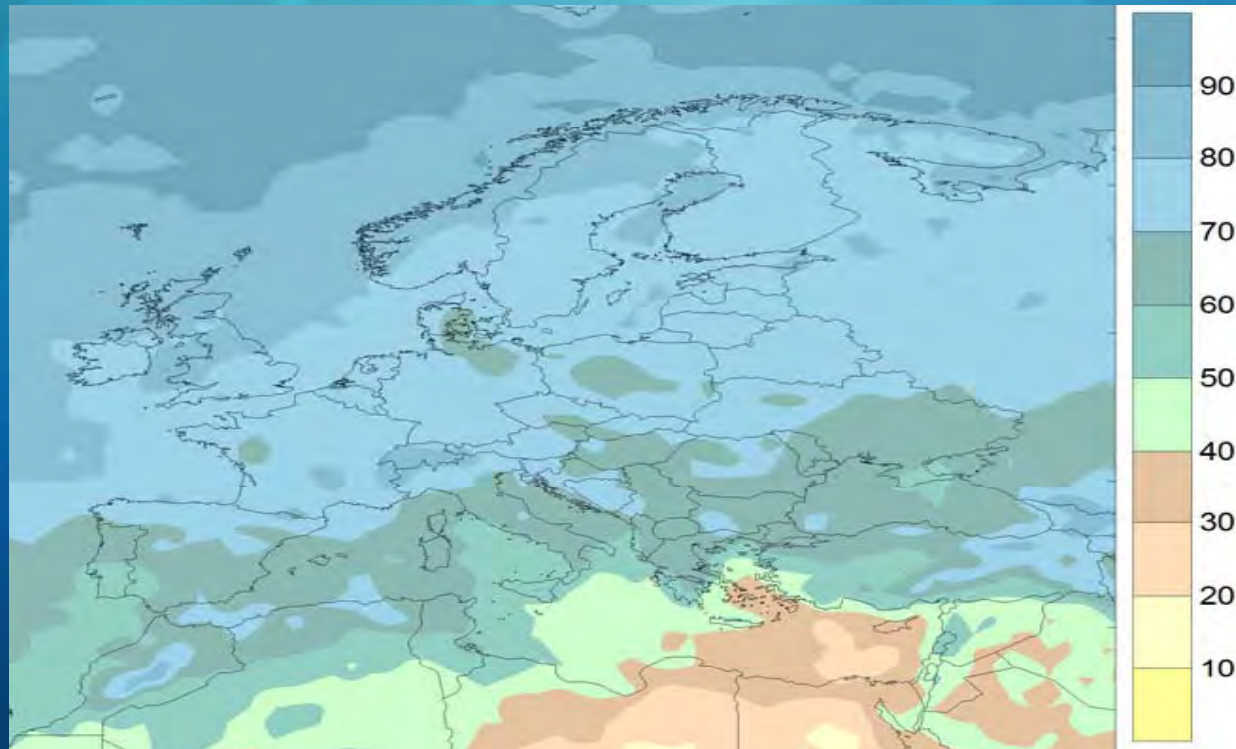


Outline

- Observations Site
- Equipment
- Results of the campaign
- Some Pictures

Observations Site

Selection : first criteria - Meteorology



Courtesy J. Anderson, K. Beatty, Sky & Telescope

Observations Site

- 3 sites has been selected
 - one with François Colas at the Pic du Midi observatory (2877m alt - French Pyrénées)
 - one on Rhodes Island in Greece , with Lucie Maquet and Sylvain Bouley
 - one movable team , wich able to move in France to have a good weather , with Regina Rudawska ,Jean Lecacheux and Arnaud Leroy

Observations Site



Equipment

For Pic du Midi Team and Rhodes Team

- Watec 902H2 or 902H
- 6mm and 12 mm Pentax Lens
- TIM10 video time inserter with gps
- Grabber (Pinnacle Dazzle DVC100) and computer

For mobile station team

- Watec 902H2, Watec 902H and Watec 120N
- 4mm, 12mm and a 300 l/mm grating
- TIM 10 , Sprite 2 and Black Box time inserter (all based on gps time pps)
- Grabber (Pinnacle Dazzle DVC100) and computer
- For Jean Lecacheux a DV camcorder

Equipment



The Results

- Unfortunately, for the Pic du Midi observatory , a big lenticular cloud don't permit to observ
- For Rhodes Island , observations was possible but clouds doesnt' permit to observ the end of the phenomenon
- For mobile station, we have found a perfect weather (low humidity but windy) in the south east of France

The Results

- Rhodes Island Team

Only few meteors were detected because of partial cloudy sky

North of Rhodes Sylvain Bouley			36°25'1 0"N	28°18' 58"E
6mm	12mm			
175605	171845			
180149	182542			
182541				
193121				
194505				
South of Rhodes Lucie Maquet			35°53'3 0"N	27°46' 22"
6mm	12mm			
165918	165511			
173731	165918			
174604	171844			
175605	172832			
185901				
	Double detection			

The Results

South East of France Team

Our team was completed by two other observers

J.Lecacheux – F.Kugel : 41 detections (12mm)

A.Leroy – K.Antier : 66 detections (12 mm)

- With the 4mm lens , nearly no detections because of sky brightness with gibbous moon
- No spectrum was made , not enough time

Karl Antier is a visual observer : he has seen in nearly 5 hours ,
157 Draconids !!

The Results

- The data of Jean Lecacheux was on DV format. The video was processed offline with Ufo suite Software



The Results

- Here the reports of

Visual meteor observing report

```
// Header section
observer: Karl, Antier
site: Montagnac-Montpezat, France (6.130 E, 43.796 N)
```

```
// Number section
```

	start	stop	RA	DEC	Teff	F	Lm	DRA		SPO	
period	2011-10-08T18:33:00	2011-10-08T18:36:00	330	58	0.050	1.05	5.73	C	1	C	0
period	2011-10-08T18:36:00	2011-10-08T18:39:00	330	58	0.050	1.05	5.73	C	1	C	0
period	2011-10-08T18:39:00	2011-10-08T18:42:00	330	58	0.050	1.05	5.73	C	1	C	1
period	2011-10-08T18:42:00	2011-10-08T18:45:00	330	58	0.050	1.18	5.73	C	0	C	1
period	2011-10-08T18:45:00	2011-10-08T18:48:00	330	58	0.050	1.05	5.73	C	5	C	0
period	2011-10-08T18:48:00	2011-10-08T18:51:00	330	58	0.050	1.05	5.73	C	1	C	1
period	2011-10-08T18:51:00	2011-10-08T18:54:00	330	58	0.050	1.05	5.73	C	2	C	1
period	2011-10-08T18:54:00	2011-10-08T18:57:00	330	58	0.050	1.05	5.73	C	2	C	0
period	2011-10-08T18:57:00	2011-10-08T19:00:00	330	58	0.050	1.05	5.73	C	2	C	0
period	2011-10-08T19:00:00	2011-10-08T19:03:00	330	58	0.050	1.05	5.73	C	5	C	0
period	2011-10-08T19:03:00	2011-10-08T19:06:00	330	58	0.050	1.05	5.73	C	5	C	0
period	2011-10-08T19:06:00	2011-10-08T19:09:00	330	58	0.050	1.05	5.73	C	0	C	1
period	2011-10-08T19:09:00	2011-10-08T19:12:00	330	58	0.050	1.05	5.73	C	3	C	1
period	2011-10-08T19:12:00	2011-10-08T19:15:00	330	58	0.050	1.05	5.73	C	3	C	1
period	2011-10-08T19:15:00	2011-10-08T19:18:00	330	58	0.050	1.05	5.73	C	3	C	0
period	2011-10-08T19:18:00	2011-10-08T19:21:00	330	58	0.050	1.05	5.73	C	5	C	0
period	2011-10-08T19:21:00	2011-10-08T19:24:00	330	58	0.050	1.05	5.73	C	3	C	2

```
// Magnitude section
```

	Shower	start	stop	-6	-5	-4	-3	-2	-1	+0	+1	+2	+3	+4	+5	+6	+7
distribution	DRA	2011-10-08T18:33:00	2011-10-08T19:00:00	0	0	0	0	0	0	1	1	2	2.5	5.5	3	0	0
distribution	SPO	2011-10-08T18:33:00	2011-10-08T19:24:00	0	0	0	0	0	2	1.5	2.5	1.5	0.5	1	0	0	0
distribution	DRA	2011-10-08T19:00:00	2011-10-08T19:24:00	0	0	0	0	0	0.5	5	3	5.5	7.5	5.5	0	0	0

+7
0
0

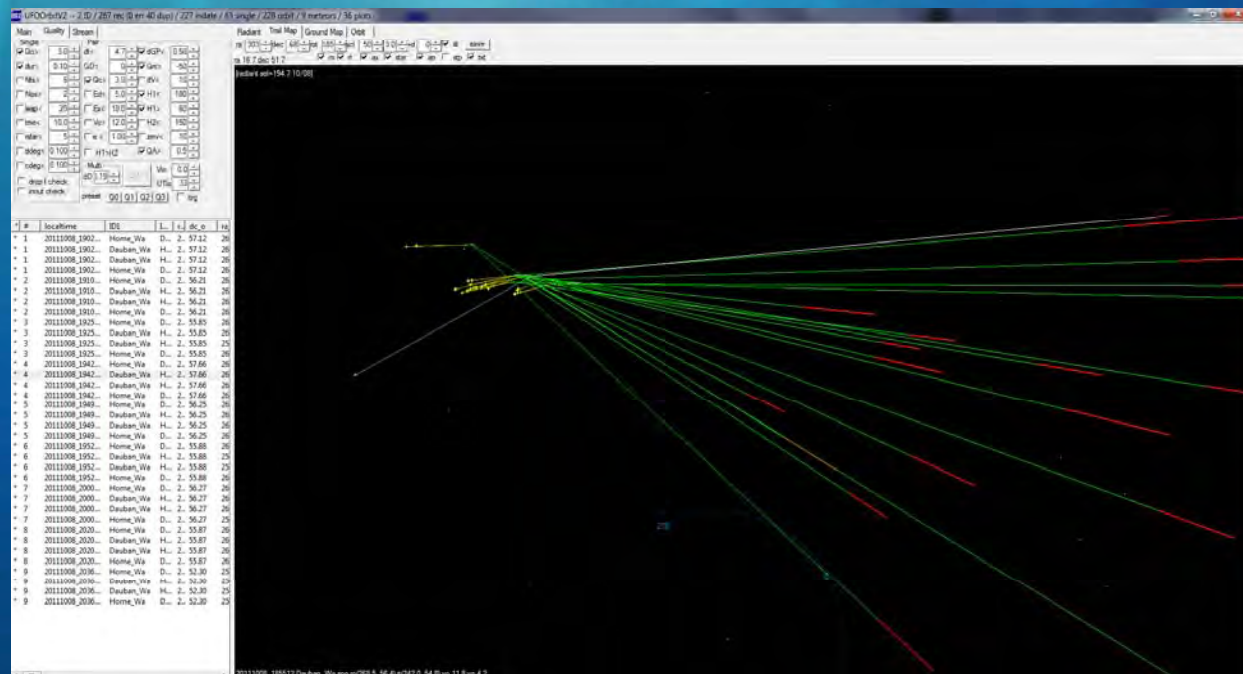
```
// Personal comments
```

1st part of a four-parts observing session.
 4th and last part of a four-parts observing session.
 Activity was then largely decreasing. Probably the end of the outburst.

The Results

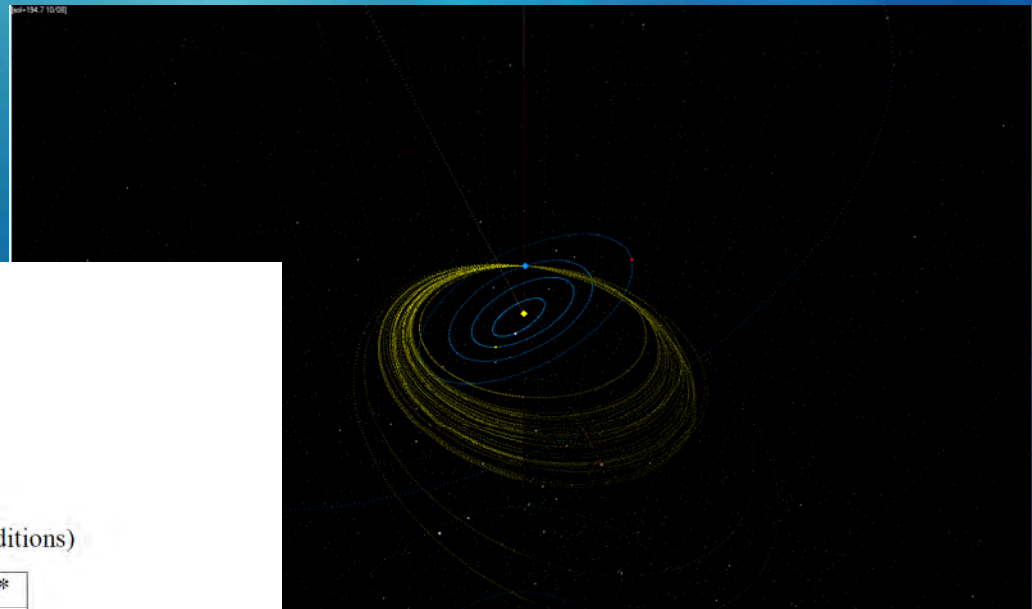
Video Detections

Quality	Number of pair detections
Q0	25
Q1	23
Q2	9
Q3	3



The Results

Orbits computed with Ufoorbit (SonotaCo)



Results of orbit computations with Q2 parameters

	Mediane
Peri °	172,2 +/- 4,2
Node °	195 ,02 +/- 0,03
Incl. °	29,5 +/- 5,5
Vg (geocentre) km/s	19,1 +/- 5,1

Results of orbit computations with Q3 parameters (Normally conditions)

	Mediane
Peri °	173,3 +/- 1,8
Node °	194,99 +/- 0,03
Incl. °	30,8 +/- 2,7
Vg (geocentre) km/s	20,3 +/- 2,3

Comet 21P *
172,603
195,397
31,911
20,9

* Jean computations of orbital elements of the comet Giacobinni Zinner 21P (5 dec 2011)

Some Pictures of the campaign

Rhodes Island



Some Pictures of the campaign

South East of France Team



- Thanks for your attention

any questions

Acknowledgements

IMCCE Team : Jérémie Vaubaillon, François Colas, Lucie Maquet , Sylvain Bouley, Regina Rudawska

REFORME Team : Karl Antier

François Kugel to welcome Jean in his observatory