

Forecast of October Draconids in 2012

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Last year, the enhanced October Draconids was observed. In 2012, the Earth will approach several dust trails. However, profiles of dust trails in 2012 are different from trails in 2011.

- 1) The ejection years were newer (1959 - 1966).
- 2) The ejection velocities were higher (30 - 50 m/s).
- 3) The parts of dust trails were disturbed by the perturbation by having approached the Earth.

The situations of 1) and 2) are similar to the case in 1999. In 1999, a mid-sized appearance of Draconids was observed (Sato 2003).

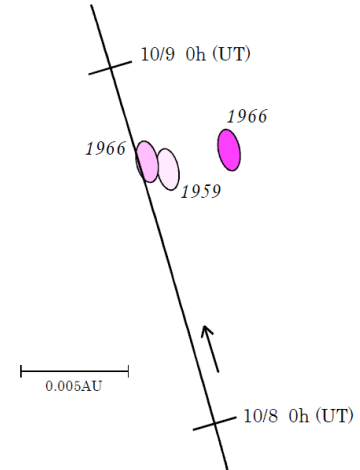


Fig.1 Distributions of Dust Trail in 2012

Table.1 Data of Dust Trail in 2012

Ejection Year	Date (UT)	Maximum Time (UT)	Sol. Long.	Dr* (AU)	Ejection Velocity (m/s)	fM	Radiants		Vg (km/s)
							Alpha	Delta	
1959	2012 / 10 / 08.69	16:40	195.6245	0.0012	+38.70	0.0033	262.79	+55.84	20.99
1966	2012 / 10 / 08.70	16:48	195.6299	0.0042	+43.07	0.24	262.37	+55.76	20.91
1966	2012 / 10 / 08.73	17:28	195.6578	0.00041	+51.34	0.027	262.51	+55.60	20.96
1966	2012 / 10 / 08.73	17:28	195.6579	0.0004	+51.35	0.022	262.52	+55.61	20.96

* : The difference in the heliocentric distance between Earth and each trail in the ecliptic plane.

Table.1 Data of Dust Trail in 1999

Ejection Year	Date (UT)	Maximum Time (UT)	Sol. Long.	Dr* (AU)	Ejection Velocity (m/s)	fM	Radiants		Vg (km/s)
							Alpha	Delta	
1959	1999 / 10 / 09.45	10:51	195.7142	-0.0026	+59.98	0.20	262.83	+55.48	21.01
1966	1999 / 10 / 09.50	12:00	195.7614	-0.0014	+69.42	0.26	262.50	+55.26	20.94

* : The difference in the heliocentric distance between Earth and each trail in the ecliptic plane.

Comparison of 1999 and 2012 :

- 1) The approach distance in 2012 has a smaller than one in 2011.
(Activity : Slightly active in 2012)
- 2) The ejection velocity in 2012 has a smaller than one in 2011.
(Activity : Slightly active in 2012)
- 3) The value of fM in 2012 is a one-tenth of the value in 2011.
(Activity : 1/10 inactive in 2012)
- 4) The parts of trails in 2012 are disturbed.
(Activity : Slightly inactive in 2012)

In 1999, the activity of hourly rate was about 30 (ZHR = about 50) was observed in Japan. Therefore, it is thought that an appearance in 2012 is a small appearance less than 10 of ZHR. The detection is considerably difficult in Japan because of low altitude of the radiant in the peak time. However, the detection is expected by the automatic observation.

(The rest is omitted.)

Sato M. 2003 :

"An investigation into the 1998 and 1999 Giacobinids by meteoroid trajectory modeling"

WGN, Journal of the International Meteor Organization, vol. 31, no. 2, p. 59-63