

Meteor Showers

A meteor shower may occur when the Earth passes near the orbital path of a comet or an asteroid cluster. When the Earth intercepts a particle debris stream, the individual particles travel through the earth's atmosphere. Large frictional forces heat the particles and the surrounding atmosphere and a visible meteor is seen. The meteor typically is formed around 100 km altitude with few particles or meteoroids surviving below 80 km.

Below is a table showing key upcoming meteor shower events.

Month	Radiant	Duration	Maximum
Nov 2006	Leonids	13 – 20 Nov	17 Nov at 19:11 UT
Dec 2006	Geminids	07 – 17 Dec	14 Dec at 10:45 UT (\pm 2.3 hrs)
Apr 2007	Lyrids	16 – 25 Apr	22 April at 22:30 UT
May 2007	η - Aquarids	21 Apr – 12 May	6 May at \sim 12 UT
Oct 2007	Orionids	2 Oct – 7 Nov	21 Oct
Nov 2007	Leonids	10 – 23 Nov	18 Nov at 02:50 UT
Dec 2007	Geminids	7 Dec – 17 Dec	14 Dec at 16:45 UT (\pm 2.3 hrs)

Viewing Meteor Showers

Visibility of an active Meteor Shower in Australia depends on three things:

- 1) is it night in Australia at or close to the meteor shower “maximum”?
- 2) is the “radiant”, the region of the night sky where the meteor shower will occur, visible during night time hours?
- 3) is the moon visible, which would create a lot of light and poor viewing conditions?

The events listed in the table above all have the possibility of being viewed in Australian skies with **Orionids** 2007 and **Geminids** 2006 and 2007 offering the best prospects for spectacular viewing of a meteor shower.

Comments:

Geminids – Dec 2006

Maximum is expected somewhere between 8pm and midnight on 14 December. The radiant for this event rises around 10pm in the southern hemisphere. A waning crescent moon rises just before midnight in the west and just after midnight in the east. Around midnight in eastern regions offers the best viewing prospects for this event. Make yourself comfortable, point your feet towards the north-east and look low in the northern sky, about 45 degrees above the horizon.

Lyrids – Apr 2007

The Lyrids radiant, close to the Lyra constellation, rises just after midnight in the southern hemisphere and moves across the northern sky. The Lyrids meteor shower is best viewed after midnight on 22 April or well before sunrise on 23 April. Point your feet towards the northern sky and look about 45 degrees above the horizon. The moon sets shortly before Lyra rises, offering dark skies and great viewing prospects.

η - Aquarids – May 2007

Unfortunately, night skies will be badly moonlit during the maximum at around midnight, 5/6 May. Still worth a look.

Orionids – Oct 2007

Although the traditional Orionids maximum occurs on 21 October, an earlier sub-maximum is possible around 17-18 October, when observing conditions are particularly favourable. The radiant rises around midnight in Australia in the north-eastern sky between 17 and 21 October. On the 17th this is just as the moon is setting while on the 21st the moon sets a little later, after 2am. Well worth staying up late on 17, 18 and 21 October, preferably until after moonset. Best to lie with feet to the north and look well above the horizon.

Leonids – Nov 2007

In Australia the radiant rises soon after midnight in the north-eastern night sky. Although the maximum occurs during local daytime hours try early morning before sunrise on 18 November. Dark skies will be available at this time with the moon setting around midnight in all Australian regions.

Geminids – Dec 2007

The radiant appears around local midnight in the southern-hemisphere with a waxing crescent moon setting just before midnight in the east and well before midnight in the west. The best time for viewing in Australia is from around 1am, 14/15 December. Lie with your feet to the north-east and centre your gaze between 45 degrees above the horizon and straight up.

Sources: International Meteor Organisation, NASA, Geoscience Australia

IPS Link to information on recent Leonids meteor shower -

<http://www.ips.gov.au/Educational/4/1/5>

Other links for Meteor Showers -

<http://liftoff.msfc.nasa.gov/Academy/SPACE/SolarSystem/Meteors/Showers.html>

[NASA – Space Exploration, Educational]

<http://www.imo.net/> <http://www.imo.net/calendar/2007>

[International Meteor Organisation]

<http://www.ga.gov.au/geodesy/astro/moonrise.jsp>

<http://www.ga.gov.au/geodesy/astro/moonphases/moonphases.jsp>

[Geoscience Australia – moonrise/moonset times and moon phases]