



Comet, Asteroid and Meteor Section

CAMNotes 2025 No.3 July-September

METEOR SHOWERS

Three showers reach their peak activity in late July/early August, and the Moon near First Quarter about the same time, and setting around midnight, leaves the crisp clear winter mornings suitable for observation until dawn.



The radiants of the Southern delta-Aquariids and Anthelion meteors. The view is for Johannesburg at 22h00 local time on 31 July looking east. The radiants of the alpha-Capricornids and Piscis Austrinids (close to the bright star Fomalhaut) are also shown. Saturn will be visible below the shower radiants and rises about 9.30pm local time.

The Southern delta-Aquariids (SDA) are one of the more active meteor showers visible from the southern hemisphere and generally produce good rates (ZHR~25) peaking around 31 July. Rates are also at decent levels a couple of days before and after maximum. During 2003, the shower peaked at ZHR ~40, but two days earlier than the traditional maximum date. The radiant on 31 July is at RA 23h36, Decl. -16°,

and the meteors are medium speed at 42 km/sec. The radiant is fairly close to those of the Anthelion showers at this time of year, and some Anthelion meteors may be observed at the same time. They can be distinguished from the SDAs however by their slower average speed. The radiant is high enough to observe from 22h00 local time, culminates just after 2am and observations can continue until dawn.

At the same time, meteors may be observed from two other nearby showers. The **alpha-Capricornids (CAP)** reach their maximum on the same night as the Southern delta-Aquariids, though the rate is lower at ZHR ~5. The alpha-Capricornids are slow meteors, speed 25 km/sec, and have a tendency to produce bright yellow meteors, with fireballs common. The CAPs showed enhanced rates last in 1995 when the rate reached ZHR ~10. Since then, nothing untoward was observed. During watches on the SDA and CAP showers, the occasional meteor from the **Piscis Austrinids (PAU)** might be observed. The radiant is close by and to the south of the SDAs, and peaks a couple of days earlier. Any meteors seen will appear to radiate from near to the bright star Fomalhaut. The shower appears to be rich in faint meteors, and so probably only the occasional brighter members are observed visually. Nevertheless, care needs to be taken not to include these in counts of the other showers observed. At 44 km/sec, their speed is very similar to the Southern delta-Aquariids.

The **eta-Eridanids** were only recently added to the IMO working list. Recent video detections show activity from a broad radiant active for much of August but peaking around 8 August with low ZHR. The activity however continues well beyond this date and visual observations are required to help understand the nature of this southern hemisphere shower. The radiant is centred around RA 41.4° (02h46m), Decl. -13.3° and produces fast meteors which enter the atmosphere at 64 km/sec. The radiant rises around 23h30 local time, is high enough to observe from 2am and is highest as early morning twilight intervenes. Unfortunately, conditions are poor this year, with full Moon coinciding with the date of maximum.

COMETS

Comet C/2025 K1 (ATLAS) might become within reach of amateur telescopes or perhaps binoculars during September, as it approaches its perihelion on 8 October, when it may reach 8th magnitude. However, after perihelion it will be a difficult object low in the morning sky, and any observations from here will likely be confined to late September when the comet will be near Mars in the western sky shortly after sunset. An opportunity to find the comet in binoculars from dark sky sites occurs on the evening of 20 September when the comet is located just 2.3° from Mars. The comet forms a quadrilateral with three stars; 86 Virginis (magnitude 5.6), HIP 66901 (magnitude 7.4) and HIP 66758 (magnitude 7.2) as shown in the figure on the next page. Looking west, locate these three stars to the left of Mars and use the quadrilateral figure to estimate the location of the comet. The comet maybe slightly fainter than HIP 66901, so using averted vision may help in finding the diffuse coma.

Following this date the comet will brighten slightly but becomes lower each evening and will be unobservable by end of September.



Comet C/2025 K1 (ATLAS) will be 2.3° to the left of Mars on the evening of 20 September.

ASTEROIDS

Asteroid 2025 FA22 makes a close approach to Earth of just 2.2 LD (lunar distance) on 18 September 2025 at 07:43 TDB. Best opportunity will occur however early morning of 19 September when the magnitude peaks at 13.1, although it will be moving more slowly, with the asteroid near to M45 in Taurus. The asteroid will appear to cross the sky at about 1.5 arc-minutes per minute of time. Those with CCD cameras who wish to image the passage can contact the Director for further details.

If you do observe or image any of these events, I will be pleased to receive any reports or images for analysis.

Clear skies,

Tim Cooper

Director, Comet, Asteroid and Meteor Section.

Acknowledgements

Star maps were drawn using Stellarium 0.20.1, Copyright © 2000-2020 Stellarium Developers. Meteor shower data is from the International Meteor Organization, 2025 Meteor Shower Calendar edited by Juergen Rendtel, with additional information from Atlas of Earth's Meteor Showers by Peter Jenniskens. Close approach data for asteroids is from the ESA NEO Coordination Centre (NEOCC), website at <https://neo.ssa.esa.int/close-approaches>.