Comet, Asteroid and Meteor Section

CAMNotes 2025 No.1 January-March

Observations of the following are requested. Prospective observers who need further information or assistance are welcome to contact the Director at CAM[at]assa.saao.ac.za.

COMETS

The first quarter sees only one comet which might be observable with binoculars.

C/2024 G3 (ATLAS) reaches perihelion on 13 January at a close perihelion distance of 0.09 AU from the Sun and is also closest to Earth on this date. The comet will however be difficult to observe. It may become as bright as magnitude -4 at perihelion but will be too close to the Sun to observe at this time. The comet might be observable during the first week of January to the right and slightly below the planet Mercury, low in the morning sky just before dawn, and being perhaps magnitude 4-5 on January 6. After this date the comet rapidly moves into the solar glare.

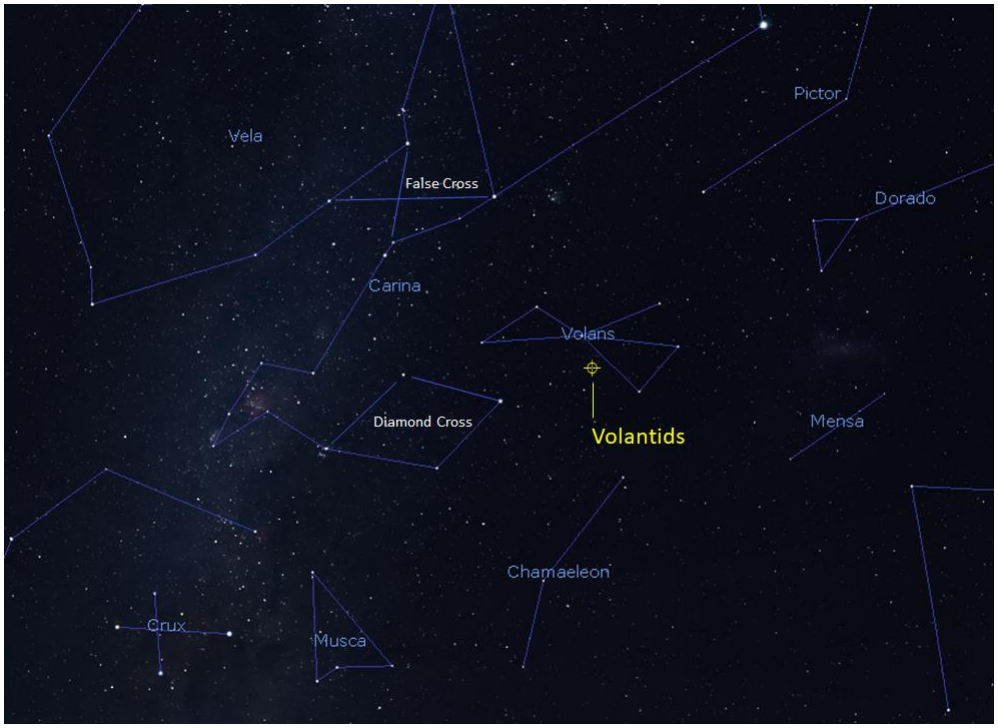
Location of comet C/2024 G3 (ATLAS) before dawn, panel at left shows the position on 1 January, and panel at right on 6 January 2025. The stars of Scorpius are above the comet.

Following perihelion, the comet moves into the evening sky, and on 20 January will be 18° east of, and setting one and a half hours after the Sun. By then the comet will likely have faded again to magnitude 4-5, though it may be visible in binoculars at this time. Thereafter the comet continues to fade quickly, and by month-end should be

around magnitude 7-8, low above the south-western horizon located in the constellation of Piscis Austrinus. Note however, the brightness of the comet is hard to predict with any accuracy. Given the close approach the comet makes to the Sun there were some expectations it might break up, but recent information shows the comet is not on its first visit from the Oort Cloud and has survived such a close approach to the Sun before. Any observations or images during January, and into February as the comet fades will be welcome.

METEOR SHOWERS

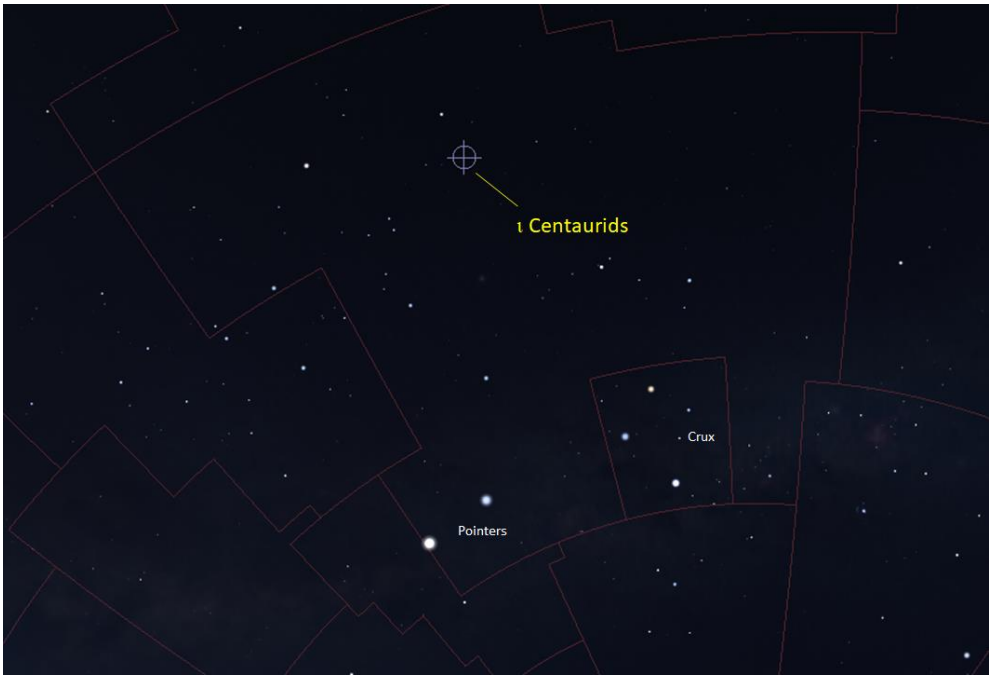
The **Volantids (VOL)** are known as the New Year's Eve shower, following their first detection by CAMS New Zealand on 31 December 2015. They were again detected on 27 and 28 December 2020 and may undergo episodic outbursts in activity at low rates (ZHR_{2020} = 10). A watch should be kept during the period 27 December-1 January in case further outbursts occur, and to help determine any visually observable rates. The Volantids emanate from a radiant at RA/Decl. 08h13.6m, -72.1° and appear with medium speed, V = 30 km/sec. Observations can begin immediately after evening twilight, the radiant culminates at 00h36 and can continue until dawn. Observations can be carried out this year without any hindrance from the Moon.



Radiant position for 'New Year's Eve shower', the Volantids

The **iota-Centaurids (ICN)** are a minor shower which may be active each year at low rates from 16-26 January. Last year they showed enhanced activity between 21 to 26 January, and visual observations are requested again this year about the same dates. The meteors are swift, with speed 64 km/sec, and appear to radiate from RA/Decl.

13h16m, -39°. The shower is best observed from midnight onwards and is highest just before dawn. Last quarter Moon occurs on 22 January and will pose a slight hindrance, becoming less in the following days, and is down to a thin crescent by the morning of 26 January.

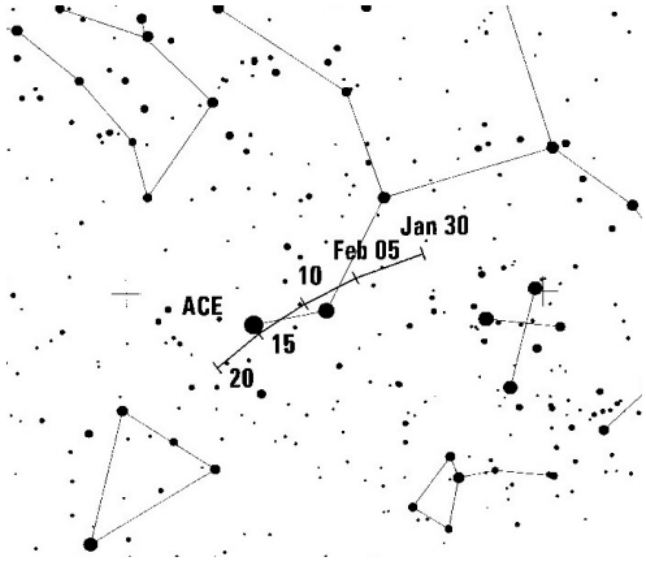


Radiant position for the iota Centaurids.

Normally the **alpha-Centaurids (ACE)** are a weak annual shower, but have been noted to outburst on several occasions, as was the case in 1972 and 1980. In the latter year, the ZHR averaged perhaps 20/hr but may have peaked at >230/hr for a brief period, which consisted of bright yellow meteors (see Atlas of Earth's Meteor Showers). Activity is given as 31 January to 20 February, with maximum on 8 February from a radiant at RA/Decl. 14h04m, -58° and with fast meteors at speed 58 km/sec.

Significant activity was again observed from the alpha Centaurids on 14 February 2015, though not by visual means. During the nights of 13-15 February 2021 there was an outburst of γ Crucids (GCR) from a similar region of the sky as the alpha Centaurids. Their radiant is from RA/Decl. 13h09m, -56°. Therefore, observations are warranted including at least the mornings of 8 and 15 February, and a couple of mornings either side of these dates in order to observe both potential centres of activity. Any meteors seen should be plotted on gnomonic charts to determine which radiants are active, and I will provide charts to those who wish to observe. Observations during both periods are best carried out from midnight until dawn. For the earlier period the Moon is waxing gibbous on 8 February and sets before 1.30 am local time, and so observations can be carried out without interference for at least a couple of hours before dawn. The Moon reaches its full phase on 12 February, and

so the later period around 15 February is affected by the waning gibbous Moon, which will affect observations on this and the surrounding mornings. Any observations carried out during either period are welcome.



Radiant position, including nightly drift, of the alpha Centaurids (ACE). Map courtesy of the International Meteor Organization.

ASTEROIDS

There are no observations of occultations or close approaches by asteroids requested for the first quarter of 2025.

I hope the foregoing gives visual observers and astro-imagers plenty of opportunities. 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. Data on meteor showers is courtesy of the International Meteor Organization's Meteor Shower Calendar 2025, and the Atlas of Earth's Meteor Showers, by Peter Jenniskens, published by Elsevier.