

Variable Star of the Year Z Camelopardalis

One hundred years ago at Greenwich during the work on the Astrographic Catalogue a new variable star was discovered right on the border of the constellations of Camelopardalis and Ursa Major. In time Z Cam became recognized as the prototype of a sub group of dwarf novae that are characterized by unpredictable periods of inactivity between outbursts commonly termed 'standstills'. Like U Gem (see 2000 Handbook, page 91), Z Cam is a closely interacting binary system where mass transfer between a cool red star and an accretion disk around a white dwarf takes place. Outbursts are caused by instability within the accretion disk. Standstill phenomenon is still poorly understood, but current thinking suggests that during the decline phase of the outburst, a slight increase in mass transfer from the donor star to the disk causes an increase in stability, thus preventing the disk returning to quiescence.

Z Cam is in a rather barren part of the sky almost equidistant between Polaris and Omicron UMa and also approximately 7 degrees north preceding the famous galaxy pair M81 and M82. With a declination of +73 degrees it is circumpolar from the British Isles. For the observer equipped with a 20cm telescope it can usually be seen throughout its full range of 10 – 14th magnitude. Because it can be seen at any time on any clear night dedicated BAA observers have been known to make estimates of brightness in excess of 130 nights a year.

The outburst period for Z Cam is around 23 days so a couple of outbursts per month are normally seen. As with many dwarf novae the rise to outburst can be very fast and is often accomplished in 2 days. The intermediate standstills are normally between magnitudes 11.5 and 12.0 and can last just a few weeks or up to several years. They generally begin on the decline from maximum and almost always end by completing the decline to minimum. However, on extremely rare occasions Z Cam has been observed to enter standstill whilst rising and also ending a standstill with a rise to outburst. When in standstill only minor irregular fluctuations are seen, usually in the order of 0.2 – 0.3 magnitude.

For the British amateur variable star observer equipped with small to medium telescopes, Z Cam should be (arguably) the first object on the target list every clear night.

Z Cam

