

Variable Star of the Year – Z Ursae Majoris

If you are a newcomer to astronomy, are based in the northern hemisphere and have an interest in variable stars, then Z Ursae Majoris (Z UMa) is a highly recommended initial target. Positioned within the quadrilateral of stars that make up the Plough (the bowl of the Big Dipper to North Americans) Z UMa is circumpolar in northern temperate latitudes and can always be seen in a pair of binoculars.

Z UMa was discovered to be a variable star by Edward Skinner King at Harvard College Observatory who noted a 1.5 magnitude variation in 22 photographic plates exposed between 9 November 1897 and 13 March 1904. Williamina Fleming also at Harvard had previously noted its peculiar red spectrum and that's what triggered King to check for evidence of variability. Z UMa soon became a popular variable star for amateur astronomers on account of its convenient position and large variation range that is entirely detectable with small optical aid.

Z UMa is classed as a semi regular variable type SRb (a late type red giant variable star with a poorly defined period), has a mean period of 196 days and an extreme brightness range of magnitude 6.2 to 9.4 which is very large for such a class of star. The spectrum is M5IIIe which indicates a cool red giant with molecular bands and emission lines.

The light curve of Z UMa often shows double maxima and this led B P Gerasimovic in 1928 to mistakenly class the star as RV Tauri type. The double maxima are likely to be the result of the superposition of multiple pulsation cycles within the star. The long term light curve generally shows relatively consistent minima at magnitude 9 but widely ranging maxima between magnitudes 6.5 and 7.5. There are also times when the star's behaviour is disturbed and the light curve becomes quite irregular. Instances of disturbed behaviour occurred in 1909 and 1944.

Z UMa is just 3 degrees preceding Delta UMa (Megrez) the faintest member of the Plough and so this is the obvious stepping stone to the variable for binocular observers. At 58 degrees north Z UMa rarely gets to within 20 degrees of the northern horizon from the UK and this means that UK observers alone are capable of producing a continuous record of the stars variation. Observers who manage to undertake observations every 10 days throughout a full calendar year are guaranteed to produce an interesting light curve.

Z Ursae Majoris September 2004 - February 2010

