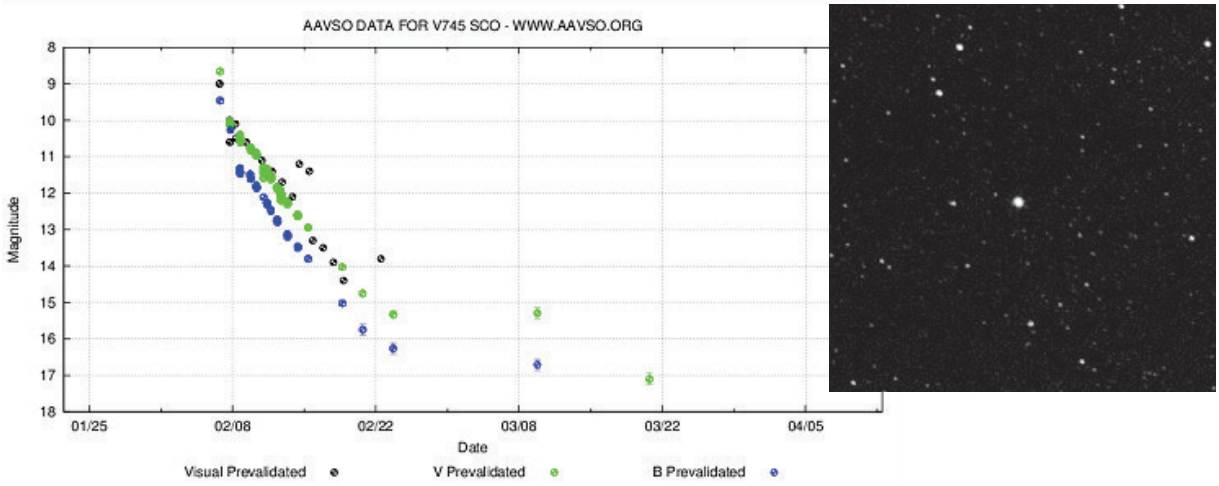
Outburst of the recurrent nova V745 Scorpii

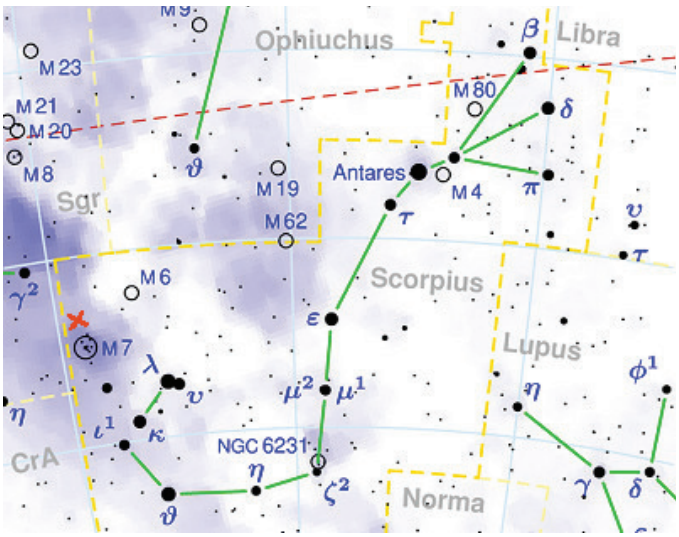
An outburst of the recurrent nova V745 Sco (Nova Sco 1937) has been reported by Rod Stubbings from Australia. Observations made on 2014 February 6.694 UT revealed the star at visual magnitude 9.0. This is only the third recorded outburst of this nova, the others occurred in 1937 and 1989.



V745 Scorpii photometric observations between 2/6/2014 and 3/22/2014. The chart is generated by the AAVSO web service. The nova outburst was detected on February 6, 2014 by Rod Stubbings from Australia during an early morning observing session. The first CCD image was taken by Steve O' Connor (Bermuda)

Outbursts of recurrent novae are relatively rare events. The recurrent nova V745 Scorpii is located in Scorpius just about 1.5 degrees north of the open cluster M7. Previous outbursts of V745 Sco occurred in 1937 and 1989. The 1937 flare was detected 21 years later - in 1958 by Lukas Plaut - on plates taken by Hendrik van Gent at the Leiden Observatory. The object was later assigned its modern GCVS name - V745 Sco. It was classified as a nova on the basis of its outburst amplitude and light curve, although no spectroscopic observations were reported.

On July 30, 1989 William Liller (Chile) discovered on a sky patrol film a 9.7 magnitude star that was not there the night before. Its position was the same as for the nova that flared up on May 10, 1937, known as Nova Sco 1937 = V745 Sco. Duerbeck (1989) notes that in the 1989 outburst V745 Sco appears similar to RS Oph, but the optical spectrum evolves about three times faster.



Soon after the discovery the nature of the burst was confirmed by spectroscopic observations, made by Jonathan Powles: «I've identified the lines with best guesses based on the literature that I've found. Spectra from the first phase of the 1989 outburst are almost identical - these can be found in (Williams et al., 1991). The nova clearly has a strong He emission profile. Some interesting nebular lines developed quite quickly in 1989 - it will be interesting to see if they reappear. »

This recurrent nova fades quickly. Outbursts of 1937 and 1989 defined a typical very fast decline light curve: brightness dropped by 4m in 10 days. This should not be confused with a *supernova*, the last of which observed in our galaxy was Kepler's Supernova in 1604, just before the advent of the telescope in modern astronomy.

Historical notes and photometry of this and 9 other known galactic recurrent novae can be found in a massive paper: "Comprehensive Photometric Histories of All Known Galactic Recurrent Novae" (Schaefer, 2010).

References for further reading:

- AAVSO Special Notice #380
- AAVSO Alert Notice #496
- Schaefer, B.E., 2010; ApJS, 187, 275
- Sekiguchi, K., et al., 1990; MNRAS, 246, 78
- Duerbeck, H. W., 1989; ESO Messenger, 58, 34
- http://www.cbat.eps.harvard.edu/nova_list.html

Left: The recurrent nova is located in Scorpius just about 1.5 degrees north of the open cluster M7. J2000: RA: 17h 55m 22.27s; Dec: -33d 14m 58.5s