



# Spectroscopic observations of Nova Delphini 2013 [= V339 Delphini]

This recent nova, whose discovery is described by Guy Hurst on page 250 of this *Journal*, has been extensively observed by amateurs both photometrically and spectroscopically. It is by a substantial margin the brightest nova seen so far this century. While photometrists have provided a very well observed lightcurve, see for example the AAVSO Light Curve Generator,<sup>1</sup> for the first time amateurs equipped with spectrographs have also contributed many observations.<sup>2</sup>

The majority of these spectroscopic observers are currently based in Europe, particularly France, due in large measure to the strong influence of Christian Buil and his colleagues at Shelyak Instruments.<sup>3</sup> For several years now they have been developing spectrographs suitable for amateur use.

I recently joined the ranks of amateur spectroscopists by acquiring a LISA spectrograph from Shelyak. This rides on a C11 scope with SXV imaging and guide cameras. The figure shows a spectrum of the nova taken on September 5 using this equipment. Prominent hydrogen Balmer emission lines and many weaker FeII emission lines are visible showing that the runaway thermonuclear explosion on the surface of the white dwarf in this cataclysmic vari-

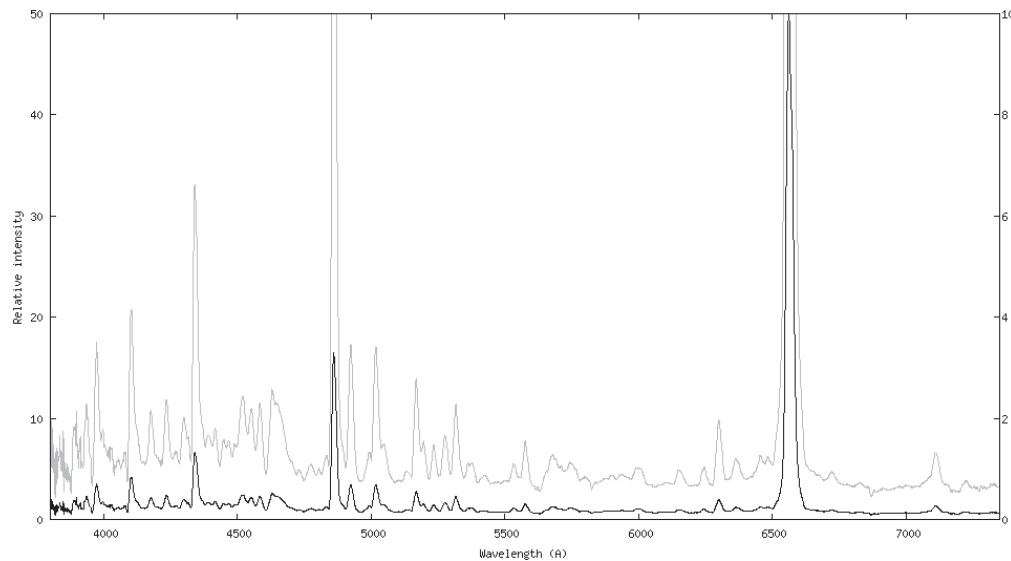
able created elements as far up the periodic table as iron. The grey spectrum is a  $\times 5$  magnification to show the weaker features.

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### References

- 1 <http://www.aavso.org/lcg>
- 2 [http://www.astrosurf.com/aras/Aras\\_Data\\_Base/Novae/Nova-Del-2013.htm](http://www.astrosurf.com/aras/Aras_Data_Base/Novae/Nova-Del-2013.htm)
- 3 <http://www.shelyak.com/>



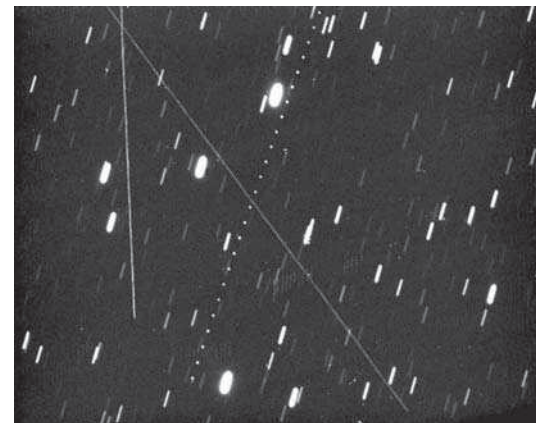
## 2013 PJ<sub>10</sub> – a bright, fast-moving near-Earth object

Late in the evening of 2013 August 4, the La Sagra Sky Survey based in Andalusia, Spain (operated by amateurs S. Sanchez, J. Nomen, M. Hurtado, J. A. Jaume, W. K. Y. Yeung, F. Serra, T. Valls & J. Hurtado), detected a bright fast moving object in Aquarius using a 0.45m, f/2.8 telescope. At the time of the discovery the object was moving at 82 arcsec/min and was about magnitude 15. Three positions were obtained spanning a period of just 15 minutes and so the initial orbit was very uncertain.

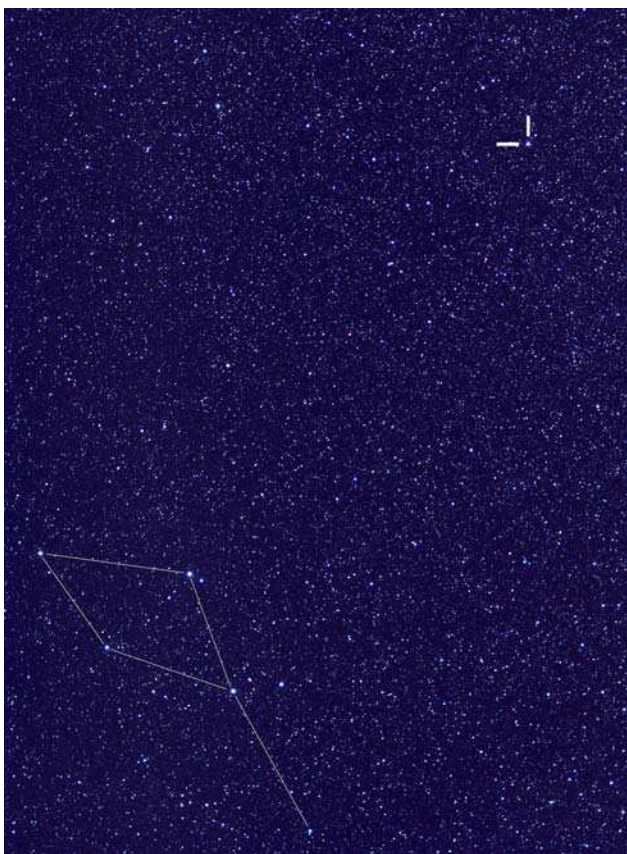
On the next night the same team managed to recover the object early on the morning of August 6 even though it was 10° from its predicted position. They obtained a long series of new positions which allowed a much more accurate orbit to be computed. By now the object was in Pegasus and the motion had slowed to 22 arcsec/min.

I had a clear night on the evening of August 6 and so, as the sky darkened, I obtained my first images of the object. By now its motion had

reduced to 12 arcsec/min and its magnitude was around 16. I imaged it from 20:51–23:25 UTC using a 0.28m, f/10 SCT and ST9XE CCD camera, and provided astrometry to the Minor Planet Center in time for my data to be used along with astrometric positions provided by several other observatories to fine-tune the or-



*Composite of 25 stacks of 10x10s frames obtained between 21:38 and 22:37 UT on 2013 August 6. The stacks are offset at the expected motion of the NEO and so they show 2013 PJ<sub>10</sub> as a series of dots across the frame. The solid lines are satellite trails.*



*Binocular-oriented view of Delphinus with the mag 4.5 nova highlighted, 2013 Aug 15, 21:16–23:03 UT. Canon EOS 550D, 45x60s, 100mm f/2, ISO 400. Nick James.*