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# H-alpha confirmation of novae in M31

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*on* ***18 Aug 2015; 08:35 UT***
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Subjects: Optical, Nova



We report H-alpha and BR-band photometry of three objects in M31, suspected as novae. The objects are: PNV J00420640+4108211 = 2015-03a? (ATel# 7189), 2015-07c? (ATel# 7795, ATel #7818) and TCP J00401150+4042199 = 2015-07e? (ATel #7834). The images are obtained with the 2m RCC telescope, equipped with focal reducer FoReRo2, and 50/70cm Schmidt telescope at Rozhen NAO, Bulgaria. The R- and H-alpha magnitudes are:

PNV J00420640+4108211 = 2015-03a
2015 08 15.053 UT, Ha=16.52+/-0.04 (3x90s, 2m)
2015 08 15.025 UT, R =19.20+/-0.08 (5x20s, 2m)

2015_07c?
2015 08 15.066 UT, Ha=19.79+/-0.17 (3x90s, 2m)
2015 08 14.898 UT, R=20.26+/-0.13 (5x300s, 50/70cm)

TCP J00401150+4042199 = 2015-07e?
2015 08 15.040 UT, Ha=16.28+/-0.03 (3x90s, 2m)
2015 08 15.029 UT, R=19.50+/-0.06 (5x20s, 2m)

The strong H-alpha emission relative to the faint R-band magnitude for 2015-03a and 2015-07e strongly supports their classification as novae. The object 2015-07c does not seems to be a classical nova.

Furthermore, we present BR magnitudes for 2015-03a for the last three months:
2015 08 16.950 UT, R=19.17+/- 0.12 (5x300s, 50/70cm)

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2015 08 16.970 UT, B=19.62+/- 0.08 (3x300s, 50/70cm)
2015 08 15.907 UT, R=19.20+/-0.12 (5x300s, 50/70cm)
2015 08 15.923 UT, B=19.63+/-0.12 (3x300s, 50/70cm)
2015 08 14.898 UT, R=19.20+/-0.12 (5x300s, 50/70cm)
2015 08 14.921 UT, B=19.84+/-0.12 (3x300s, 50/70cm)
2015 07 13.943 UT, R=19.79+/-0.22 (5x300s, 50/70cm)
2015 07 13.963 UT, B=[20.0 (3x300s, 50/70cm)
2015 06 03.036 UT, R=[20.0 (5x300s, 50/70cm)
2015 06 03.054 UT, B=[20.0 (3x300s, 50/70cm)

There is an indication for a slow re-brightening. The reported slow brightening by Hornoch et al. (ATel #7189) in February-March 2015, the presence of H-alpha excess and the visibility of a nova at brightness around the observed maximum more then 5 months later indicate that this object might be a rare F-class nova (Strope, Schaefer & Henden 2010).

**3039** M31N 2010-10b: A Slowly-Evolving, Fe II Nova in M31

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