Figure 2 - uploaded by Pavol Bezák

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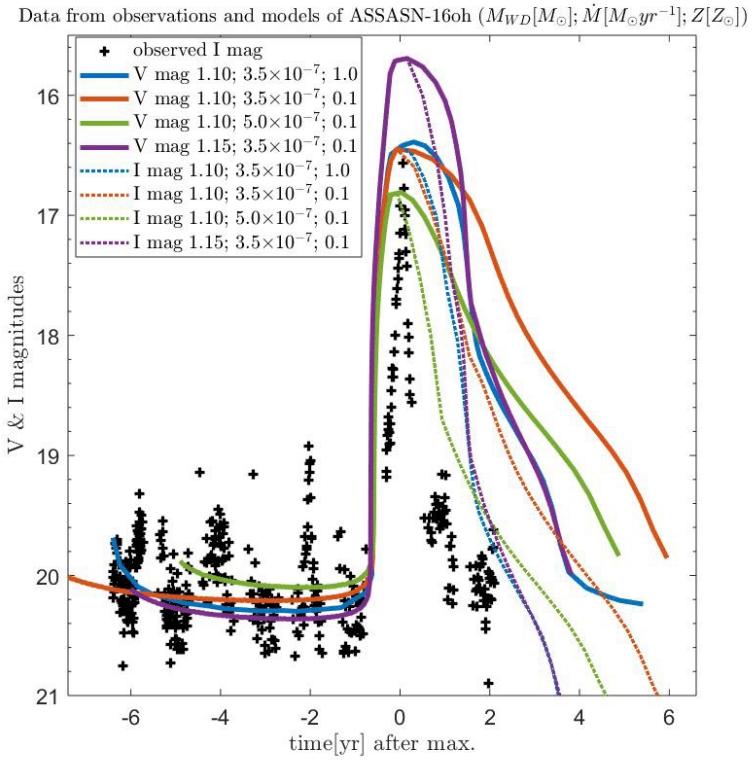

The observed I band of the light curve of ASASSN-16oh (black plus signs) compared with the predicted luminosity of the non-ejecting nova model in the V band (solid curves) and the I band (dashed curves) of four models: MW D =1.1M, ˙ M =3.5×10 −7 Myr −1 , solar metalicity (blue); MW D =1.1M, ˙ M =3.5×10 −7 Myr −1 , one tenth of solar metalicity (red); MW D =1.1M, ˙ M =5×10 −7 Myr −1 , one tenth of solar metalicity (green); MW D =1.15M, ˙ M =3.5×10 −7 Myr −1 , one tenth of solar metalicity (purple).

Source publication

The supersoft X-ray transient ASASSN-16oh as a thermonuclear runaway without mass ejection

Preprint Full-text available Jun 2019

Yael Hillman · Marina Orio · D. Prialnik · [...] · Andrej Dobrotka

The supersoft X-ray and optical transient ASASSN-16oh has been interpreted by Maccarone et al. (2019) as having being induced by an accretion event on a massive white dwarf, resembling a dwarf nova super-outburst. These authors argued that the supersoft X-ray spectrum had a different origin than in an atmosphere heated by shell nuclear burning, bec...

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Contexts in source publication

Context 1

... recurrence time of the thermonuclear outburst is ~10 years, and each V band outburst lasts almost 4 years. A comparison with the observed

light curve is shown in Fig.2. The maximum effective temperature (T eff) the model reaches is ~750, 000K, which is consistent with the value we obtain by fitting the Chandra data. ...

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Context 2

... therefore carried out three additional simulations, each one varying from the above model by either mass, accretion rate or metalicity, in order to understand how sensitive the results are to changes in these parameters. The light curves for these models, in the V and I bands, are presented in Fig.2. We find that lowering the metalicity, while not changing the mass and accretion rate lengthens the outburst duration by ~ 50%. ...

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Context 3

... conclude, that changing the metalicity of the accreted matter will produce similar behavioral trends to what we see in the grid, with somewhat of a shift in the initial input parameters (i.e. M W D and ˙ M), the general regime of the results remaining as discussed here and demonstrated in Fig.2. ...

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Context 4

... show these V band light curves as a prediction of the light curve behavior in this band, which can be tested during the next eruption, provided it will be observed in the V band. The V band light curves in Fig.2 exhibit a longer outburst duration than that of the observed I band. ...

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Context 5

... the I band will decline earlier than the V band. The dashed curves in Fig.2 show an estimate of the I band of our models We produced this estimate based on the computed median of the V-I mag of over 30 classical novae light curves from Shara et al. (2016, fig.8a) showing a gradual decline from V-I0 to V-I1 over ~40 days, and on the longer term V-I behaviors of IM Nor and CI Aql (Schaefer 2010, table 25) showing a decline to V-I1.3 a few years after maximum. ...

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begins earlier than that of the V band, bearing a good resemblance with the dimming time scale of the OGLE data. ...

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Context 7

... recurrence time of the thermonuclear outburst is ~10 years, and each V band outburst lasts almost 4 years. A comparison with the observed light curve is shown in Fig.2. The maximum effective temperature (T eff) the model reaches is ~750, 000K, which is consistent with the value we obtain by fitting the Chandra data. ...

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Context 8

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Context 9

... conclude, that changing the metalicity of the accreted matter will produce similar behavioral trends to what we see in the grid, with somewhat of a shift in the initial input parameters (i.e. M W D and ˙ M), the general regime of the results remaining as discussed here and

demonstrated in Fig.2. ...

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Context 10

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Context 11

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Context 12

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