Keeping an Eye on Saturn's Big Cousins

Amateur Astronomy's Essential Contribution to the Study of Giant Ring Systems

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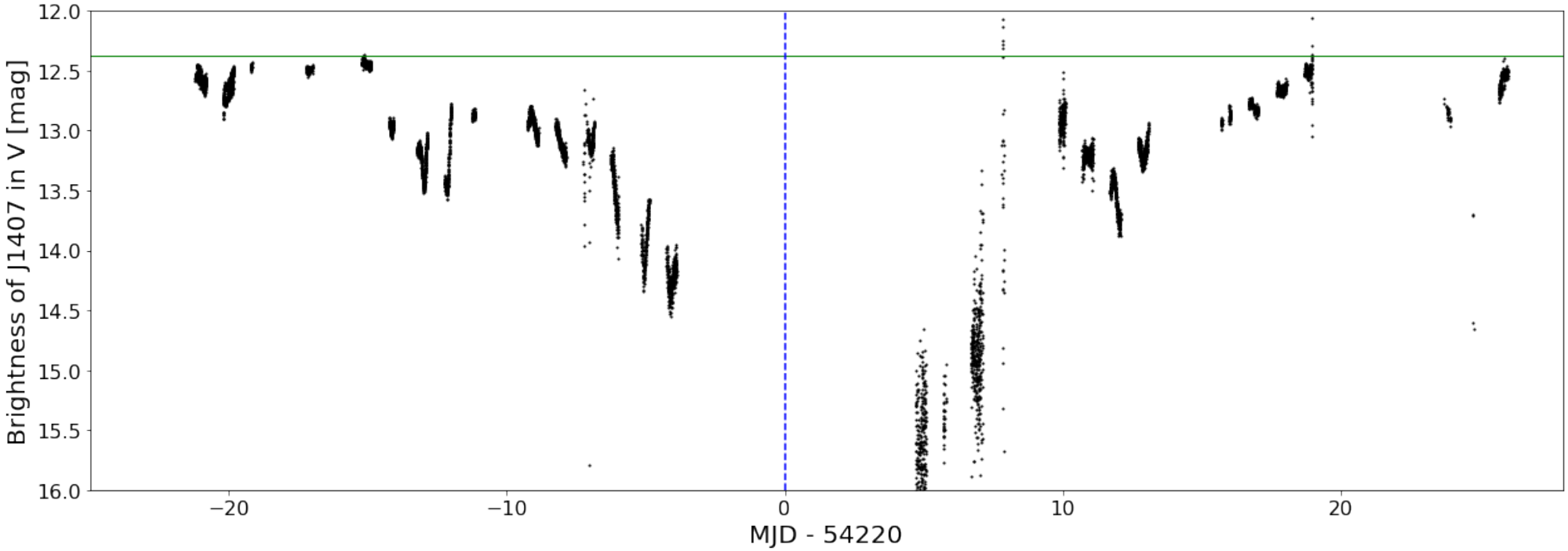
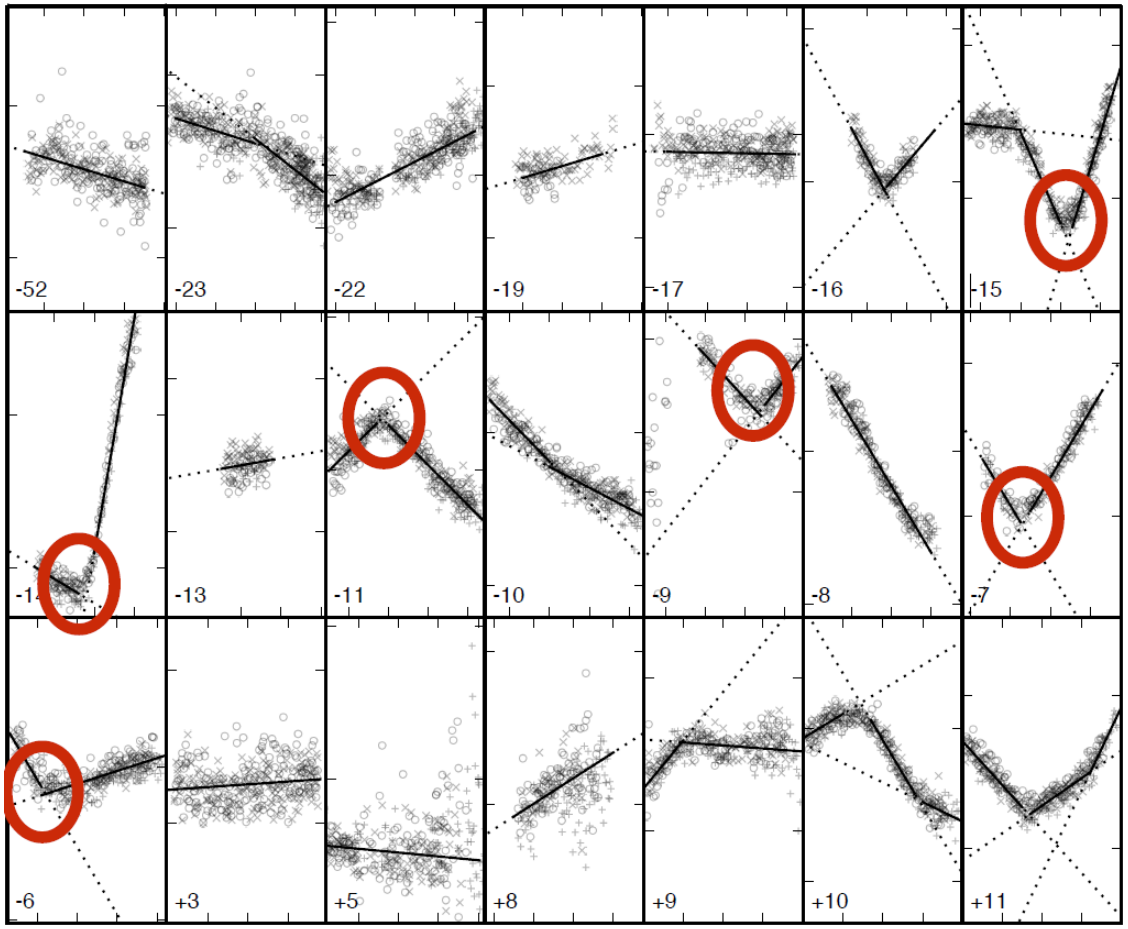
J1407: The Story Begins



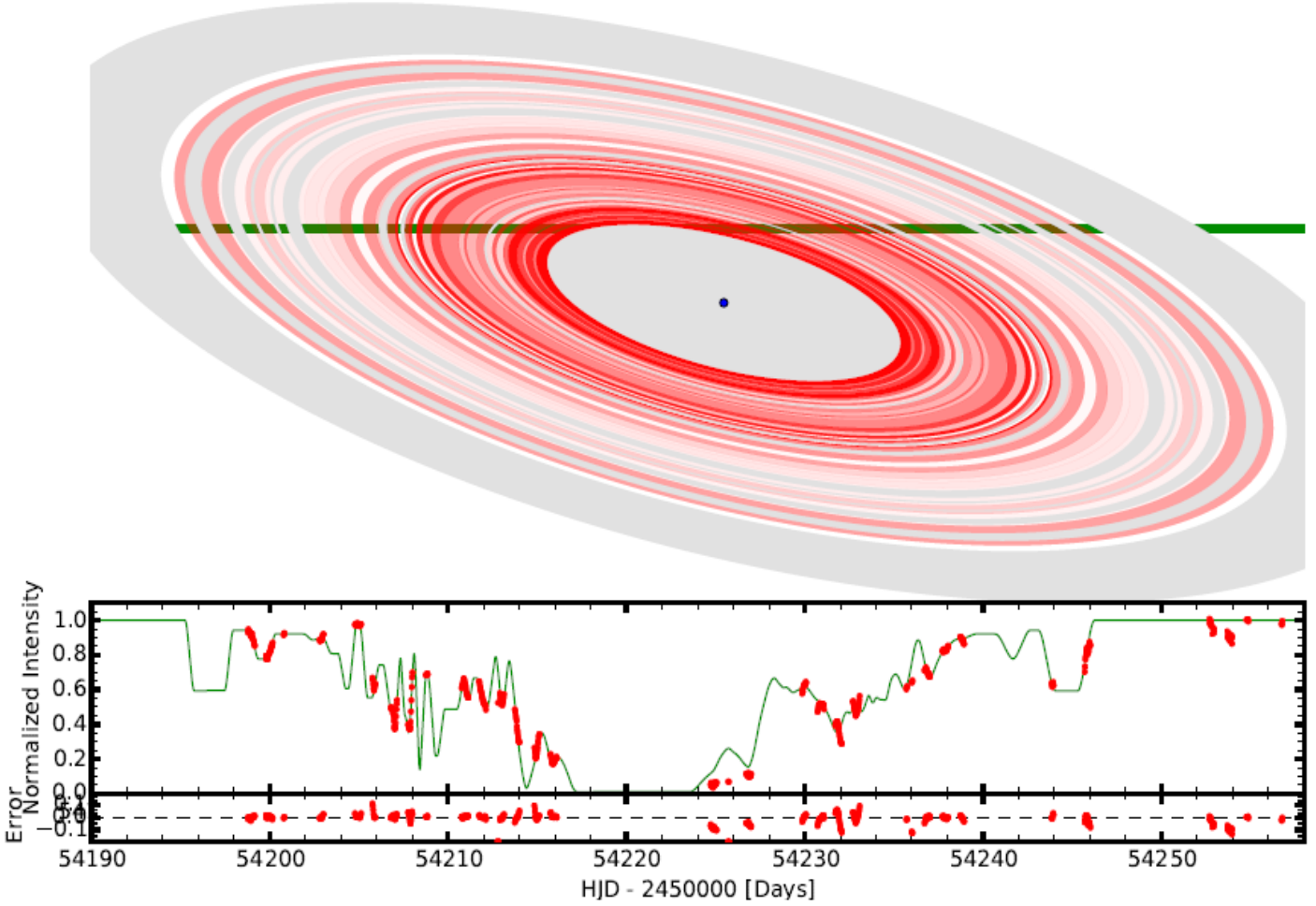
SuperWASP photometry of J1407 in April, May 2007.

J1407: The Story Begins



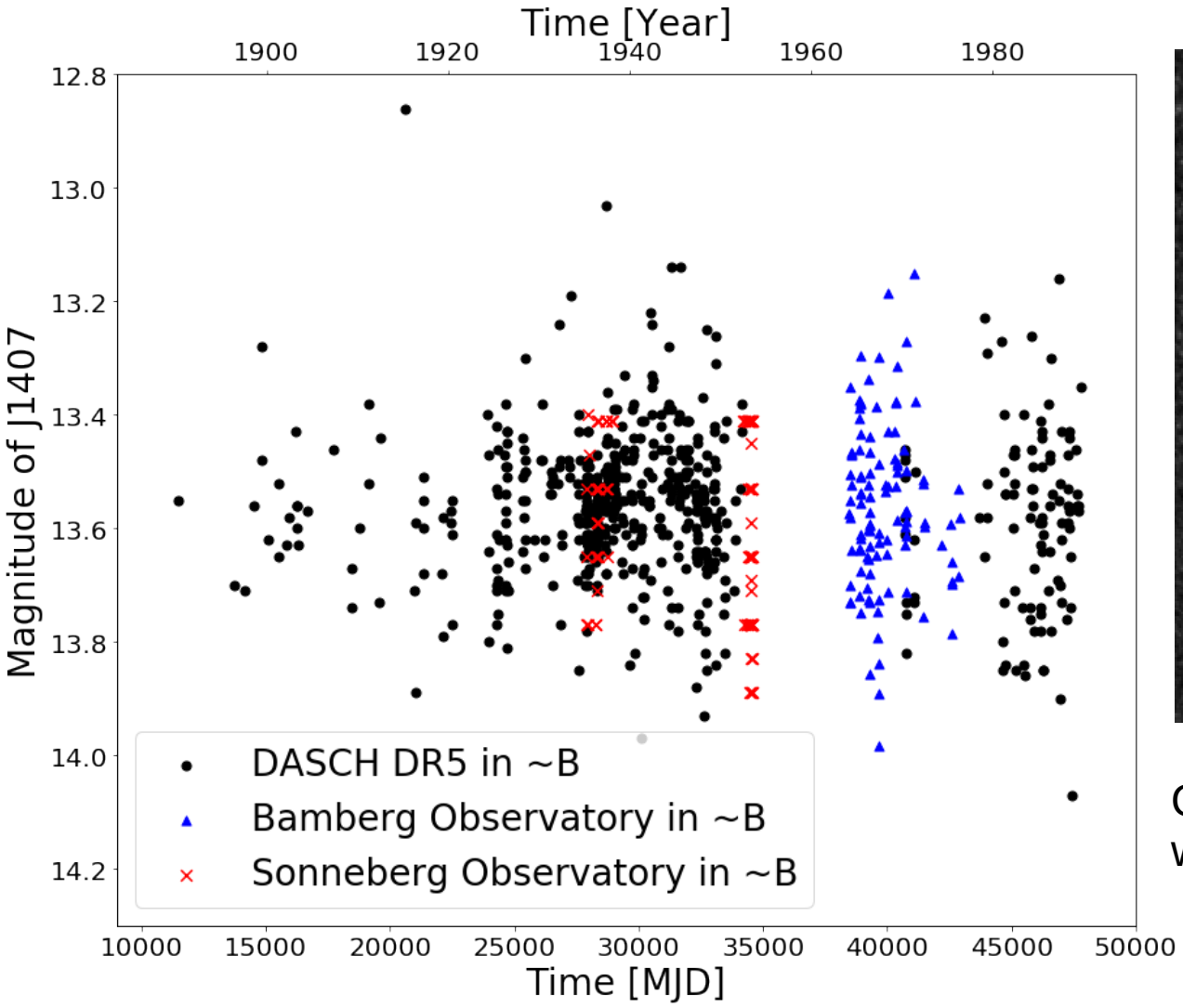
Variation in birghtness of J1407 during the 2007 event

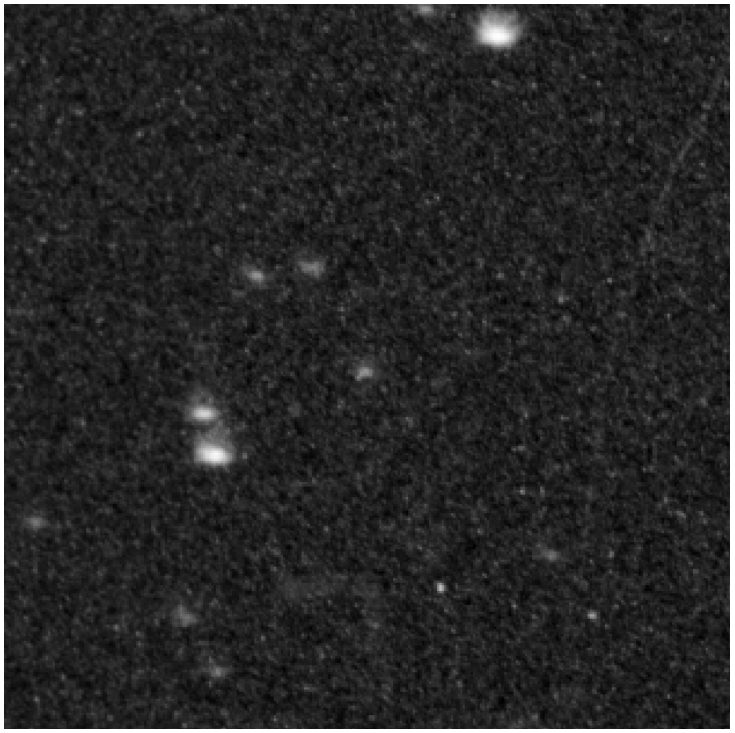
J1407: What Was That?



Model of the transiting ring system (Kenworthy and Mamajek, 2015)

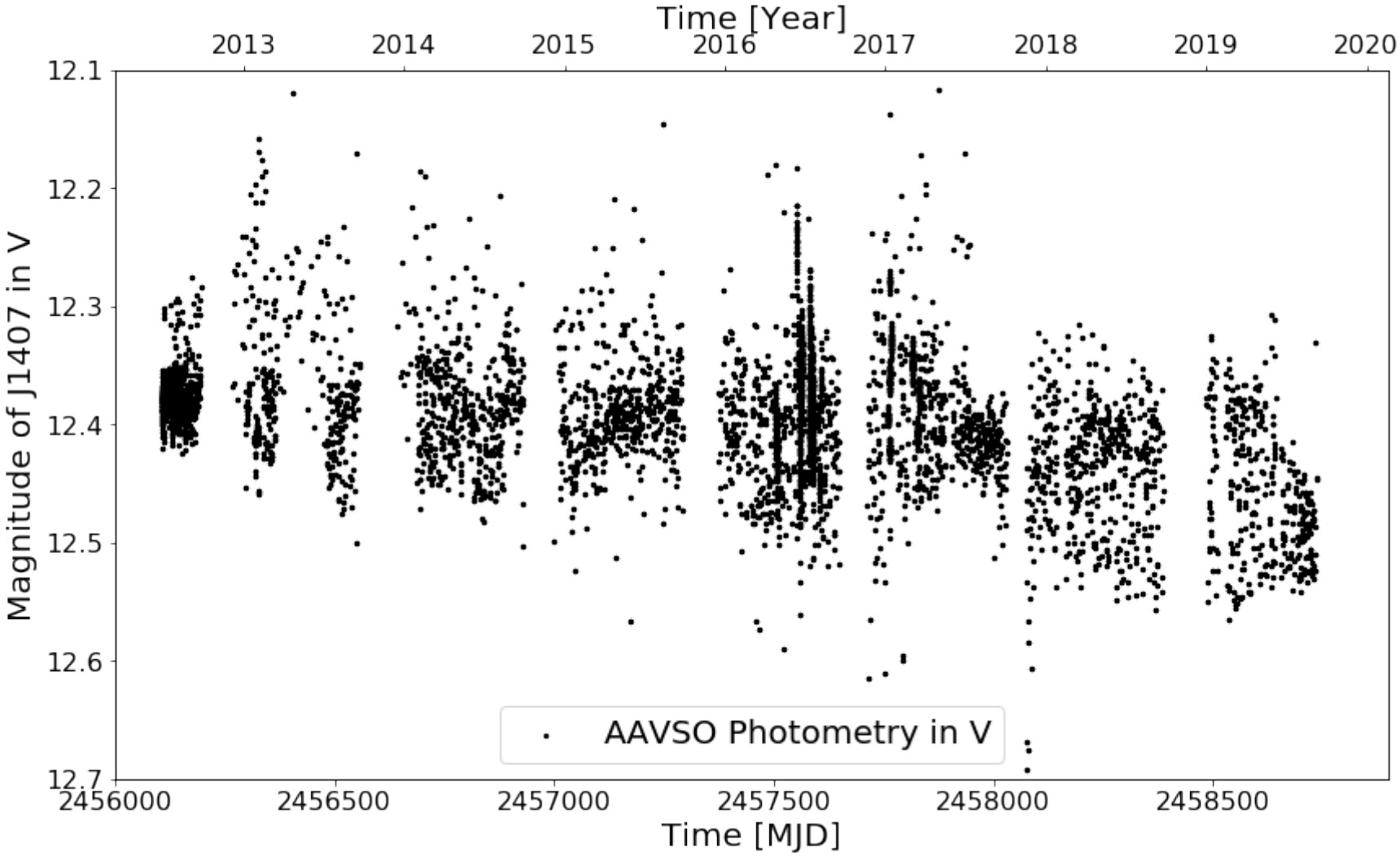
J1407 and DASCH: A Century Long Look Into The Past



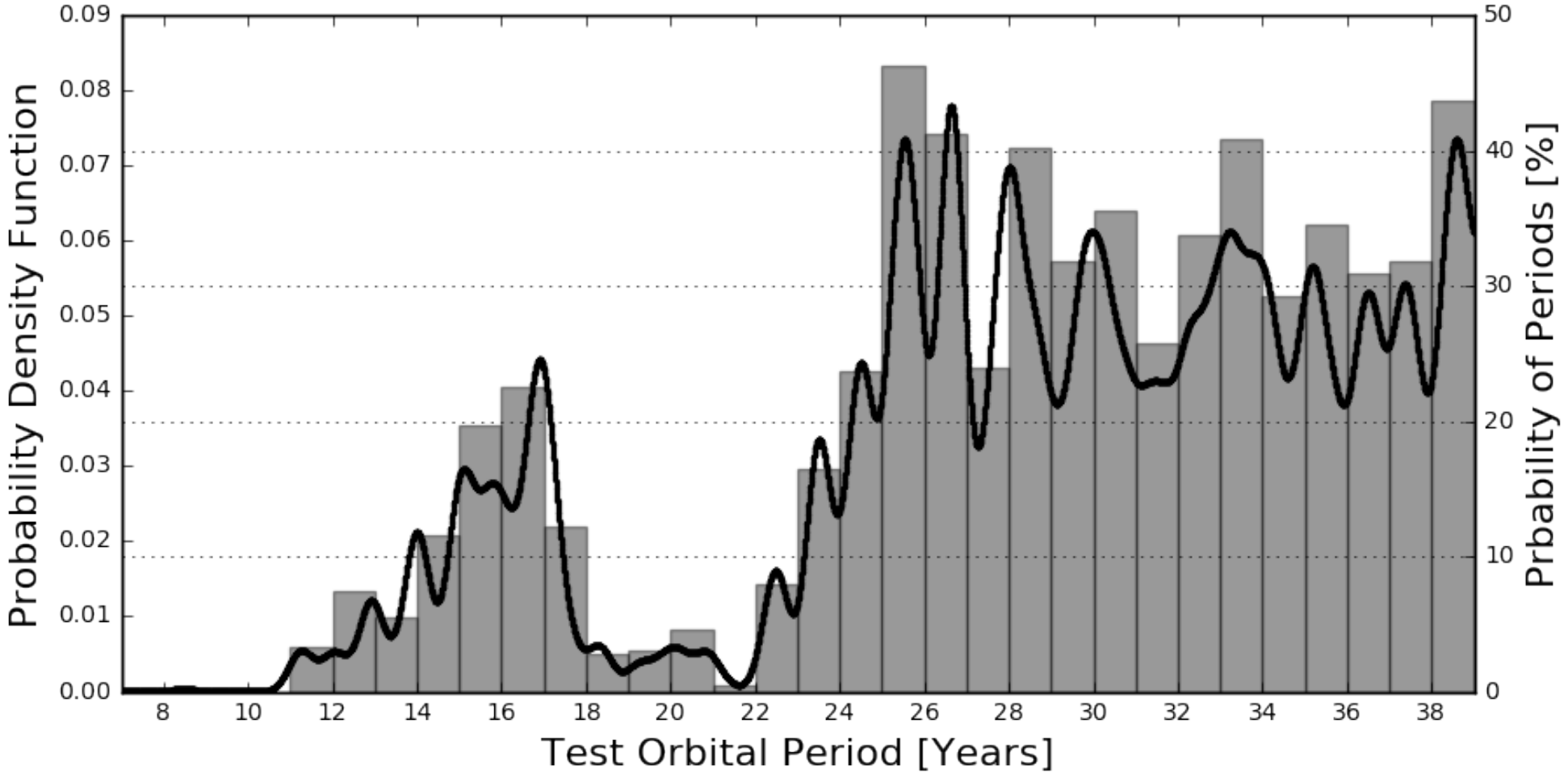


Observation of J1407 from 27.4.1890 with an 8” refractor

J1407 and AAVSO: A Remarkable Coverage



J1407: A Look into the Future



KDE of possible orbital periods. From Mentel et al. 2018

Another Cousin: PDS 110

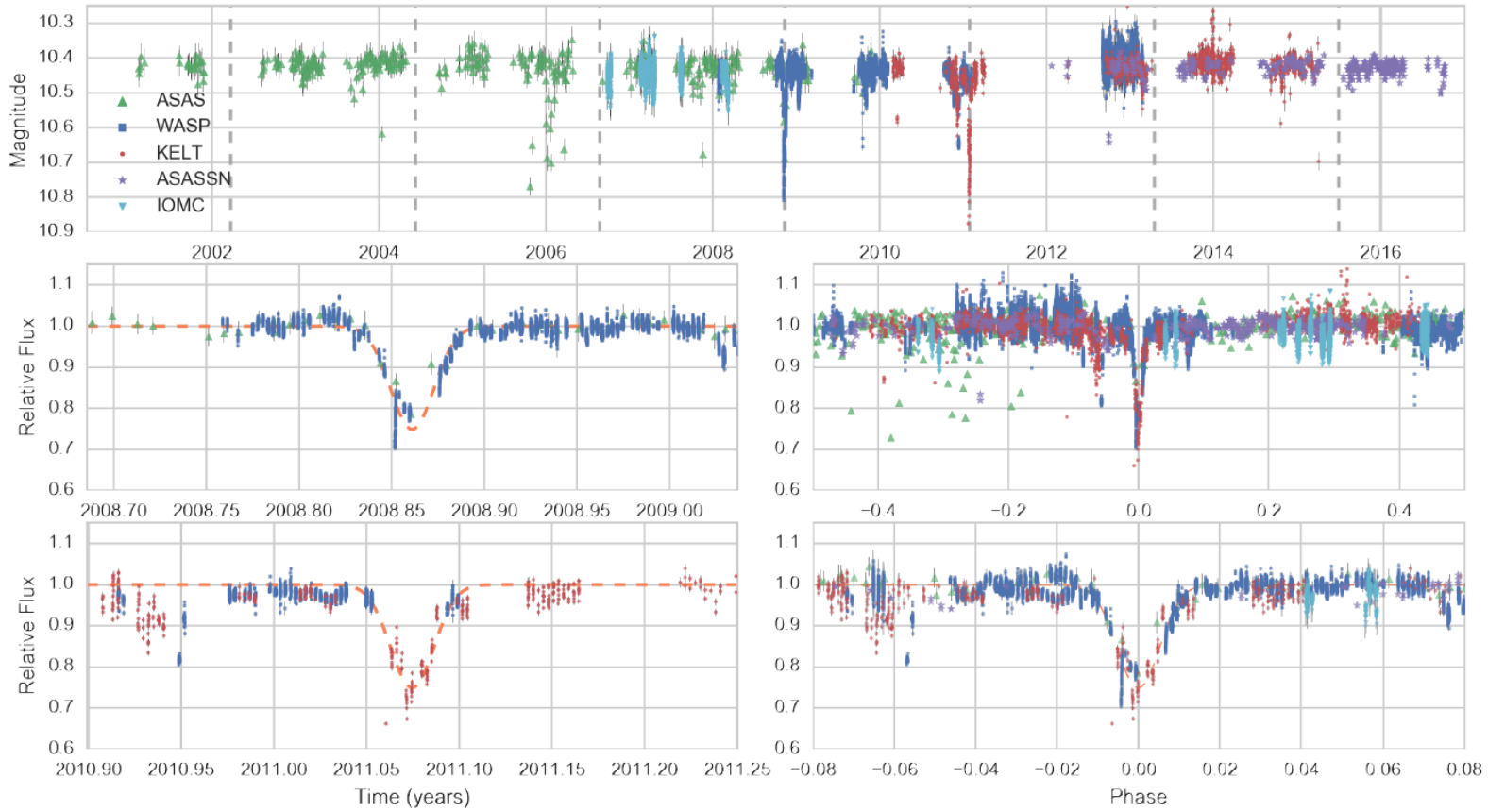


Figure 1. WASP (blue squares), KELT (red circles), ASAS (green triangles), ASAS-SN (purple stars) and IORC (turquoise triagles) observations. Upper figure: plotted from 2002 to 2016. Eclipse times are shown with dashed vertical lines. Lower left figures: individual eclipses in 2008 (upper) and 2011 (lower). Lower right figures: phase-folded light curve with full phase coverage (upper) and zoomed to the eclipse (lower). The best-fit eclipse model (see section 4.3) is overplotted in orange in these cases. In all cases we have applied a vertical offset to the KELT and WASP data to match the quiescent magnitude seen in the ASAS *V*-band data. However, there has been no attempt to place all the data on the same absolute scale.

Photometry of PDS 110 of the two events,
indicating a period of 808 days. (Osborn et al. 2017)

PDS 110: The Model

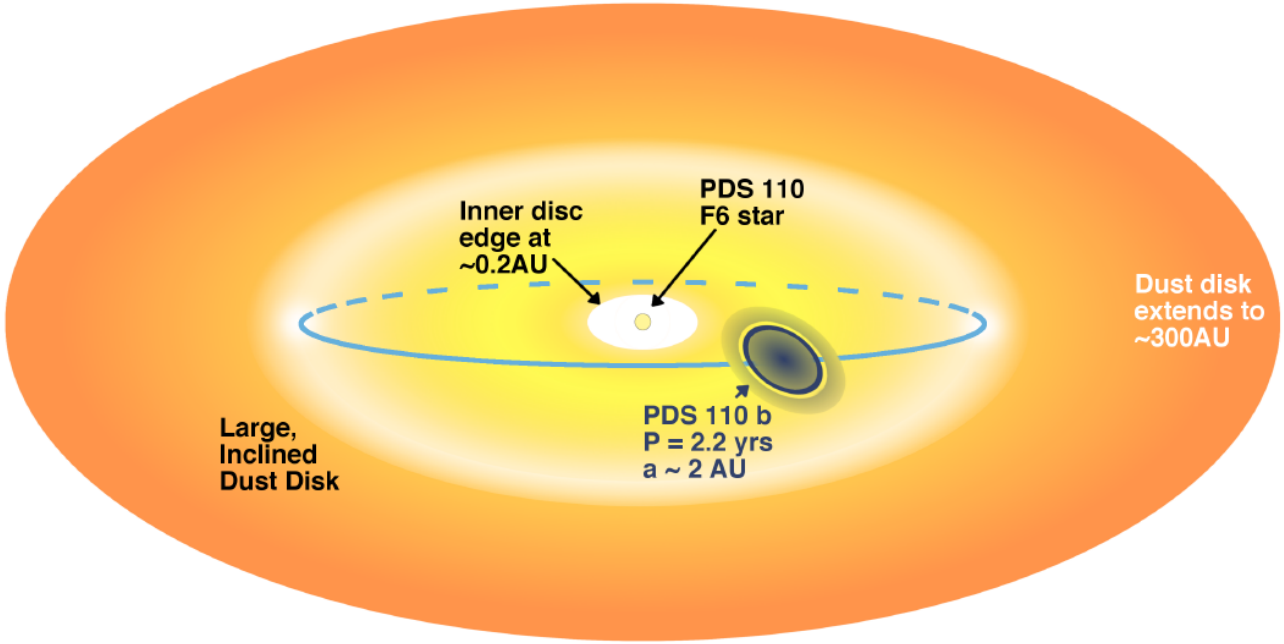
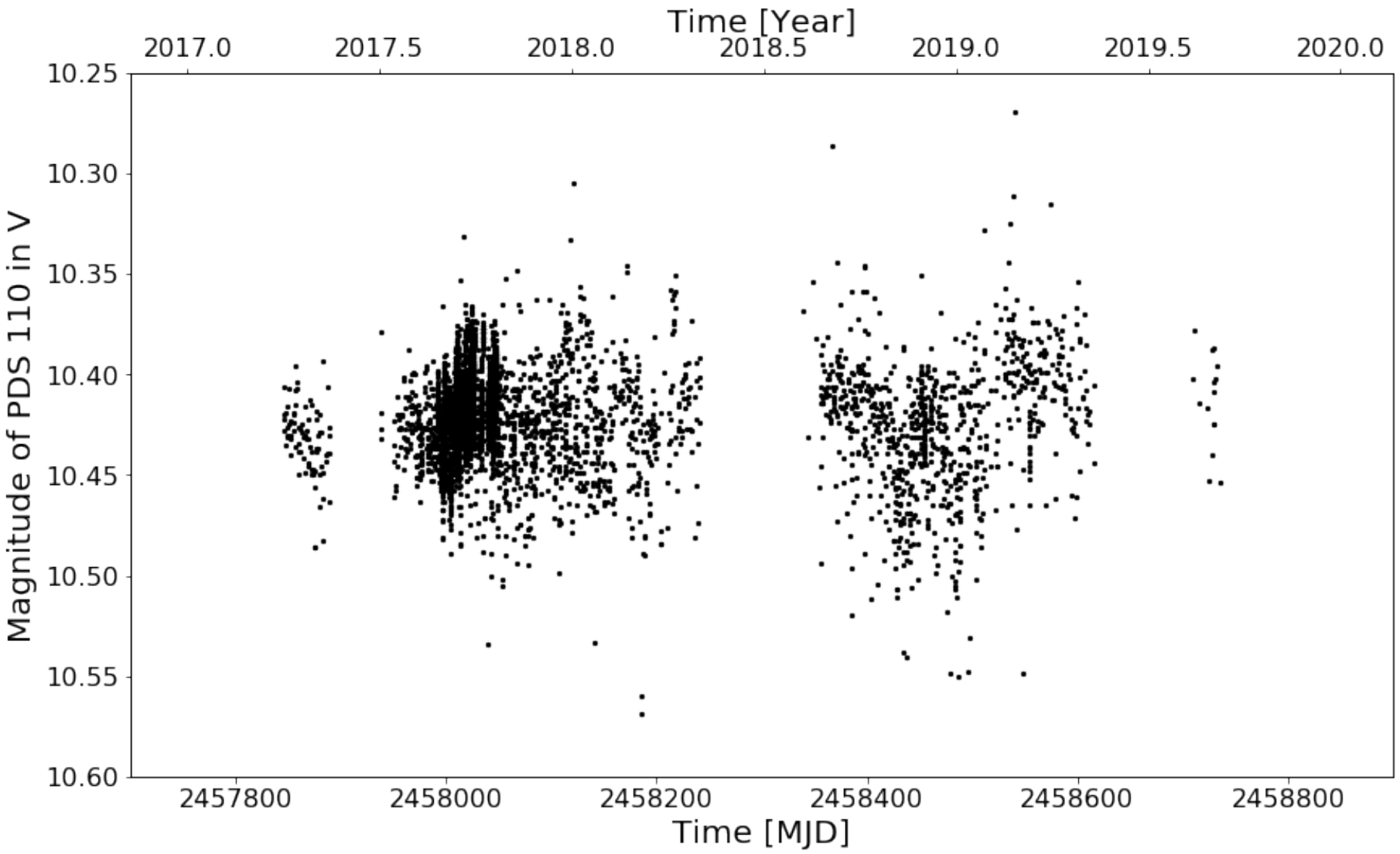


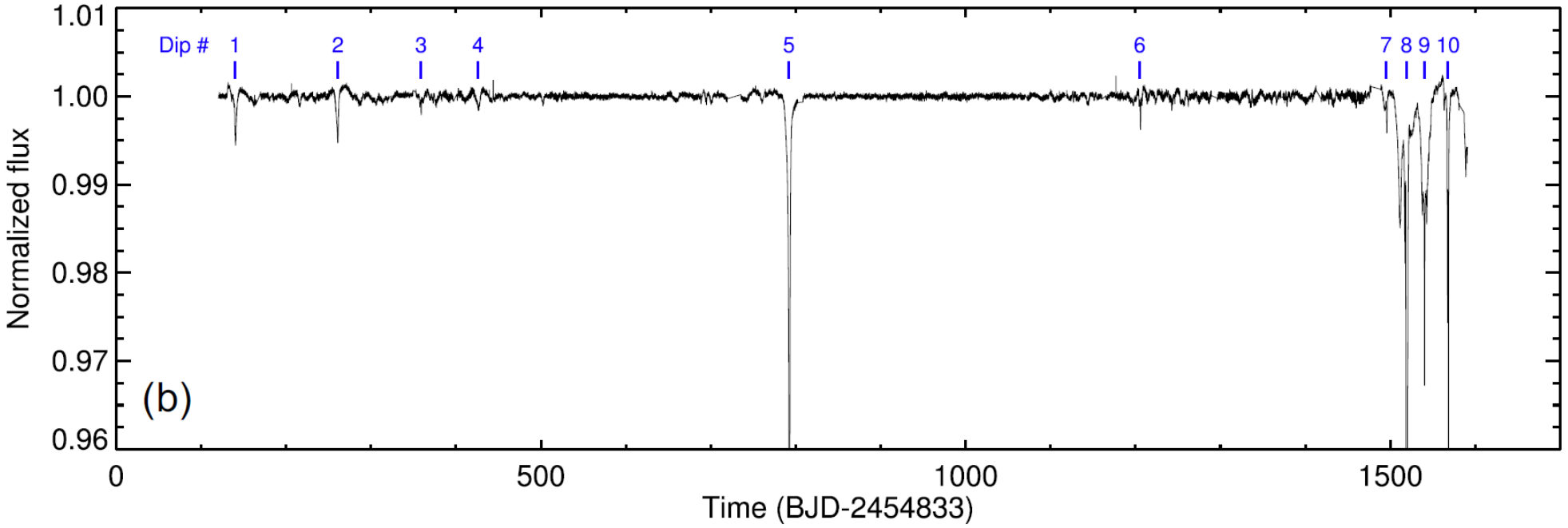
Figure 6. A sketch of the PDS 110 system. The primary star is surrounded by a warm disc of dust inclined away from edge-on. Orbiting around the primary star is a secondary companion with an extended disc which eclipses the primary every 808 days.

From Osborn et al. (2017)

PDS 110: sadly nothing… (yet)

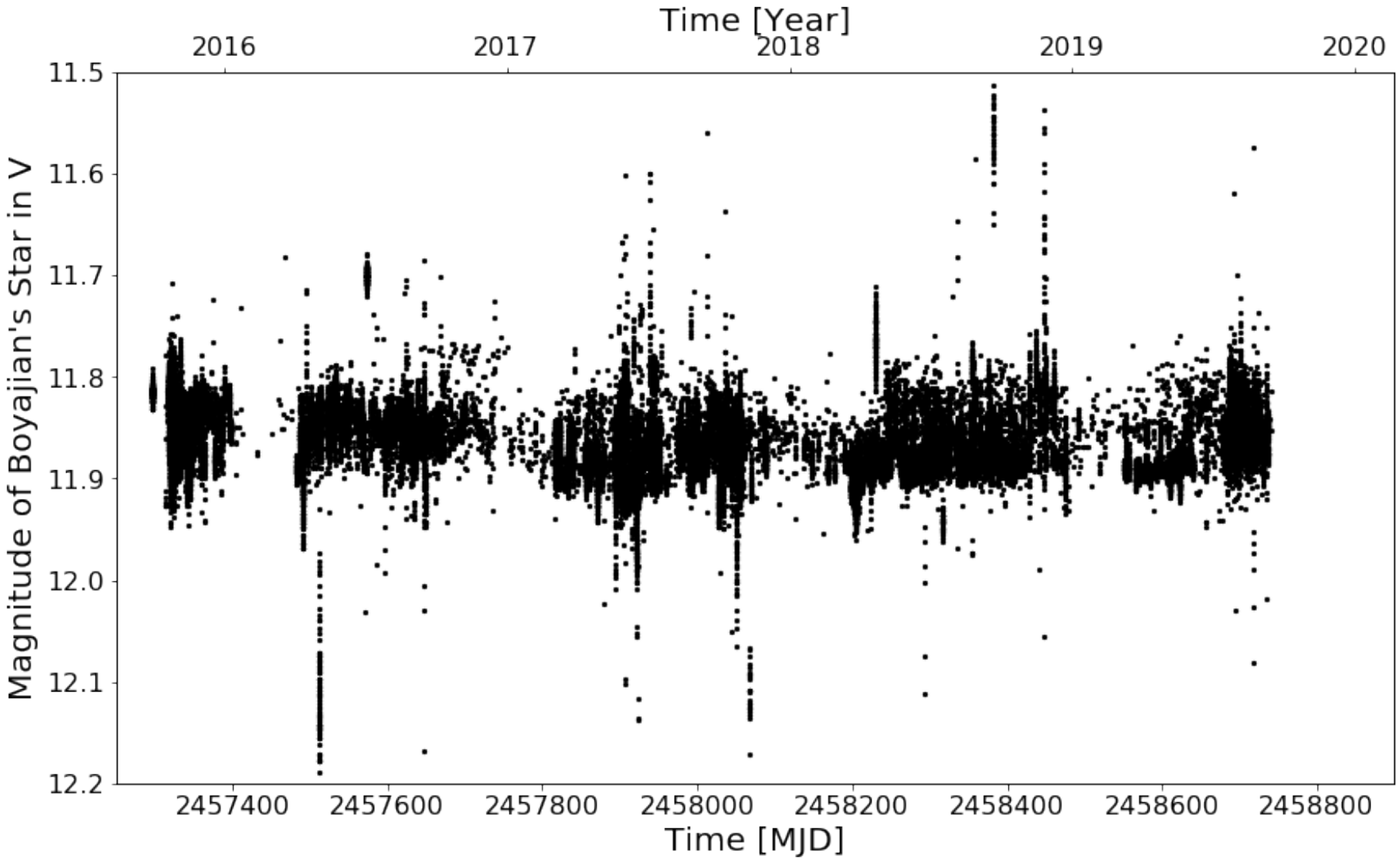


Another cousin?
Boyajian's Star: The most mysterious Pokémon in the Universe



Kepler photometry of KIC 8462852 between 13.05.2009 and 12.05.2013. Blue marks significant dimmings. (Boyajian et al. 2016)

Boyajian’s Star: AAVSO Coverage



Thanks for your Attention!

Any questions?