



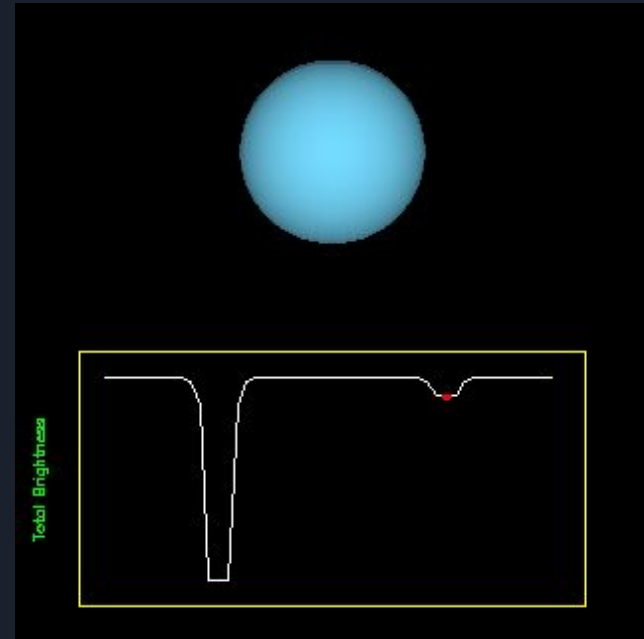
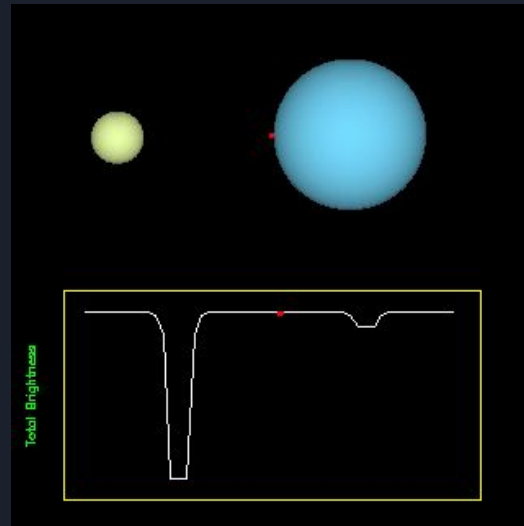
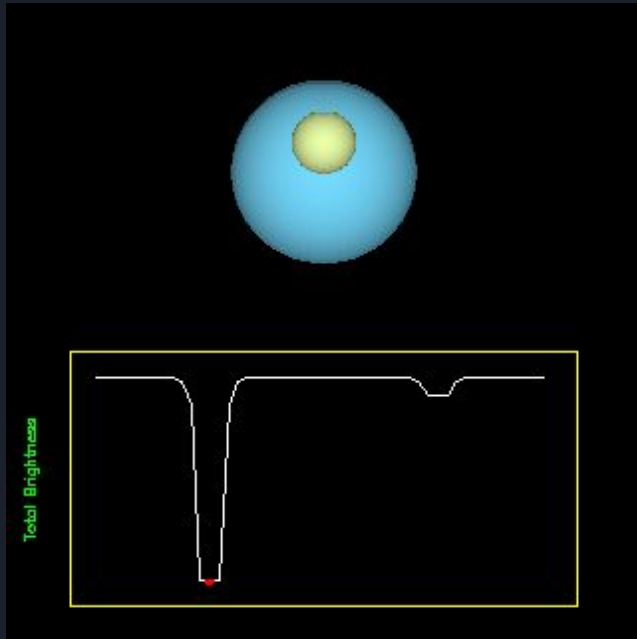
Finding Eclipsing Binary Star Systems

London Willson

Advisor: Dr. Killic

Graduate Student: Alekzander Kosakowski

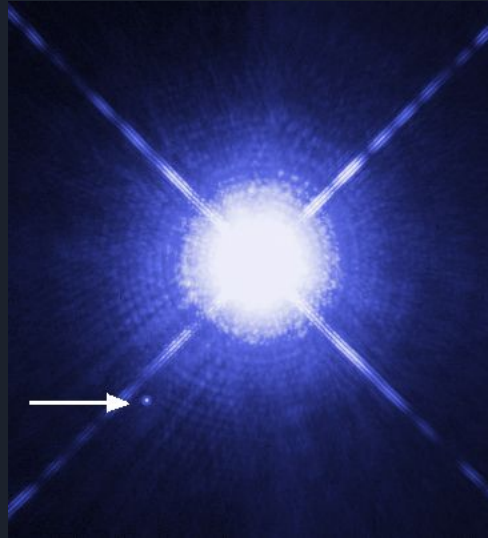
Background: Eclipsing Binaries



Credit: R. Pogge, Ohio State University

Background: Star Types

- White Dwarf (WD)
- B Subdwarf (sdB)
- M Dwarf (dM)

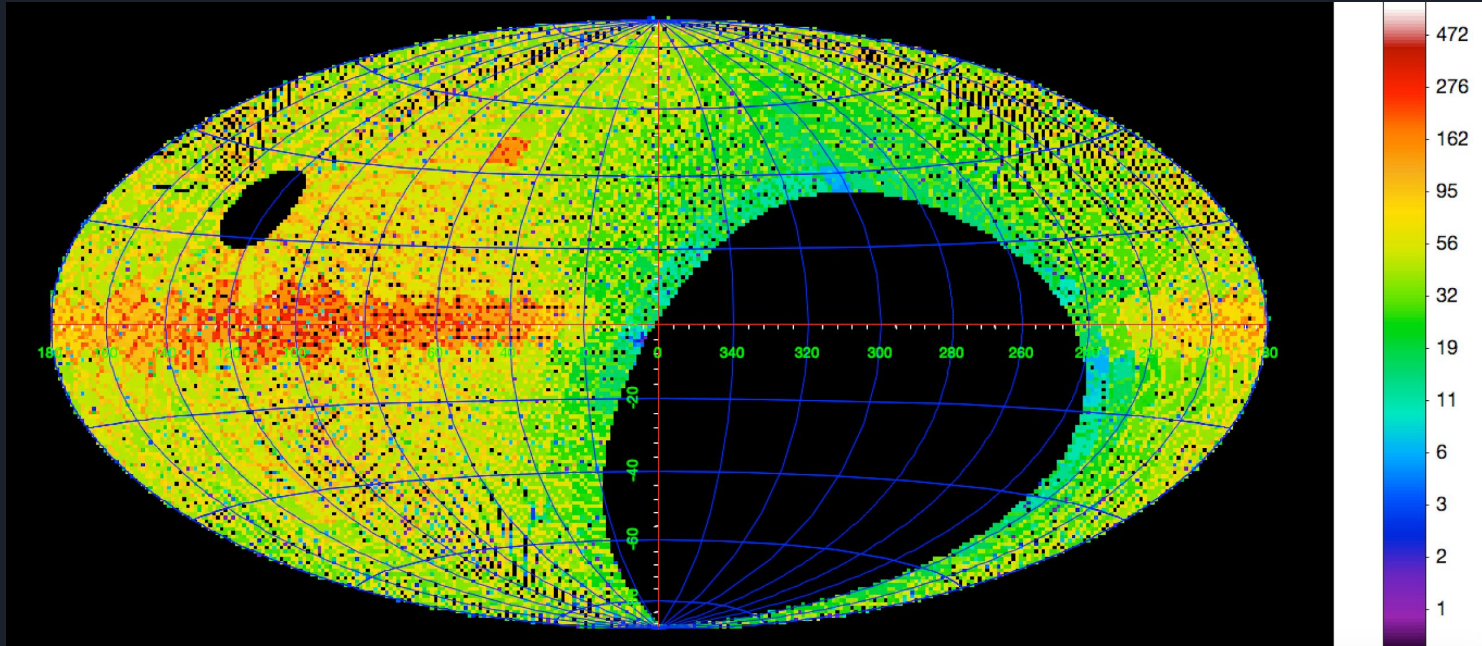


Sirius A & B
Original work of NASA - public domain



Proxima Centauri
ESA/Hubble & NASA

Background: ZTF



Masci, F. J., Laher, R. R., Rusholme, B., et al. 2018, *The Zwicky Transient Facility: Data Processing, Products, and Archive*, PASP, 131, 995.



What I Wanted to Accomplish

- Personal Goals:
 - Python
 - Observational Astronomy
- Research Goals:
 - Interesting eclipsing systems



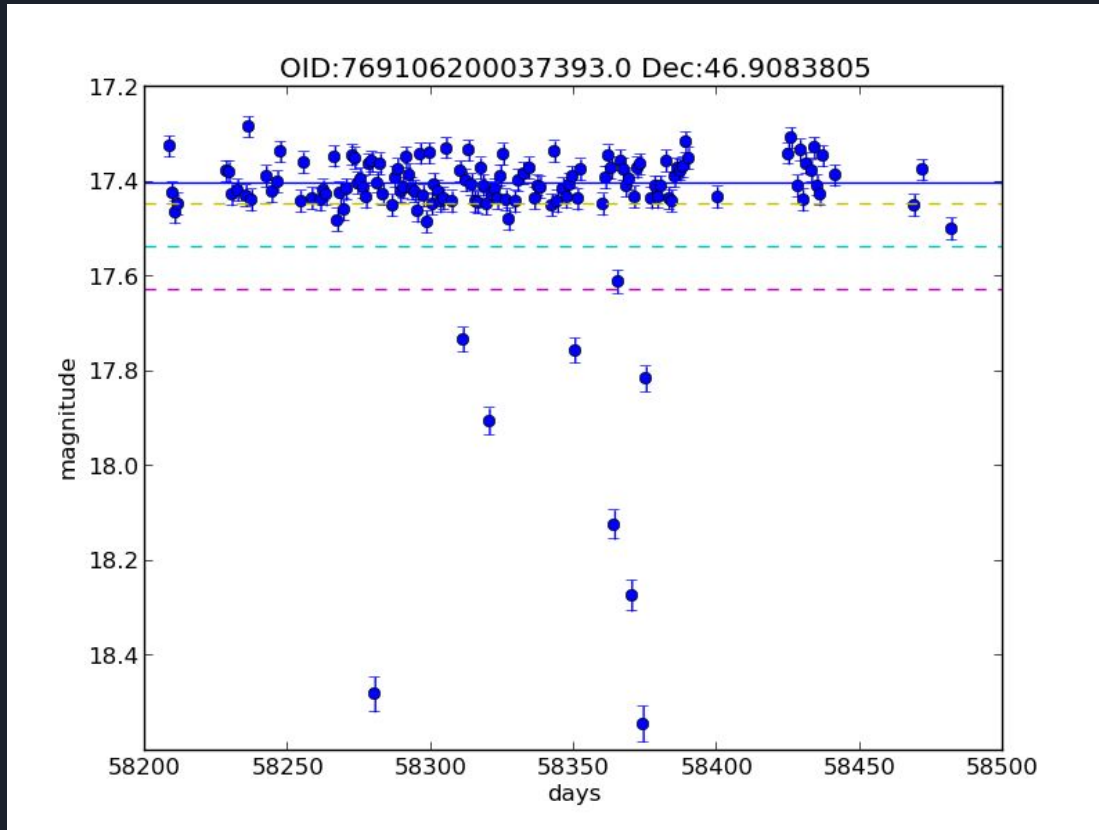
Method:

Object count: 186,000

- Finding all eclipsing systems:
 - Python
 - Simbad
- Determine observational interest:
 - Period04
 - Gaia

Method: Python

Object count: 293





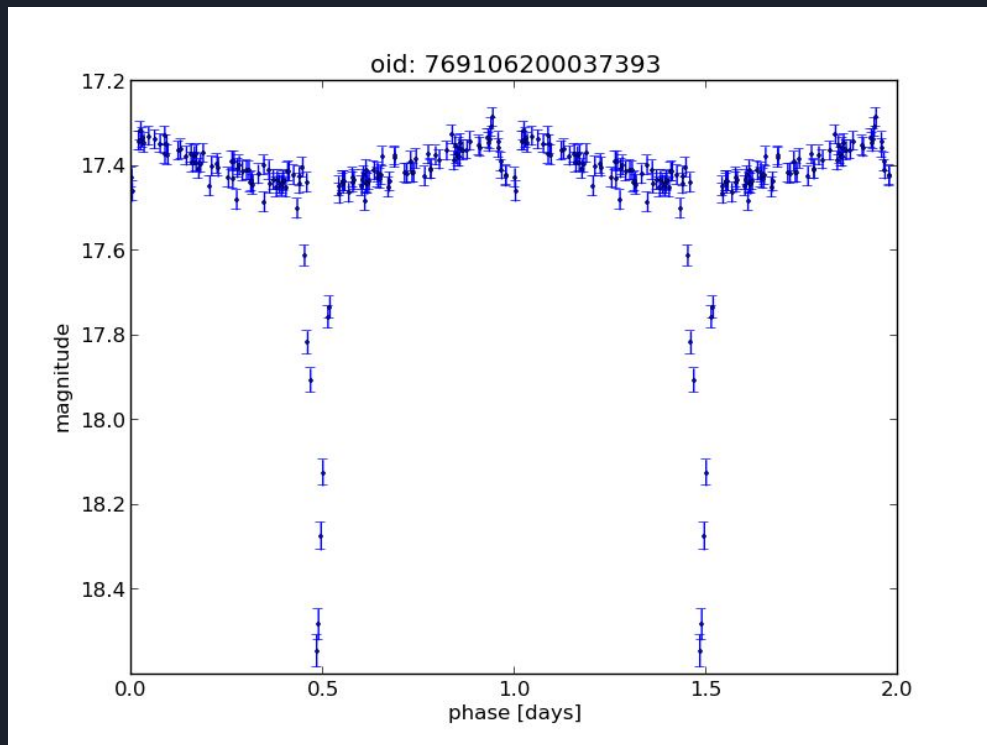
Method:

Object count: 132

- Finding all eclipsing systems:
 - Python
 - Simbad
- Determine observational interest:
 - Period04
 - Gaia

Method: Period04

Object count: 54



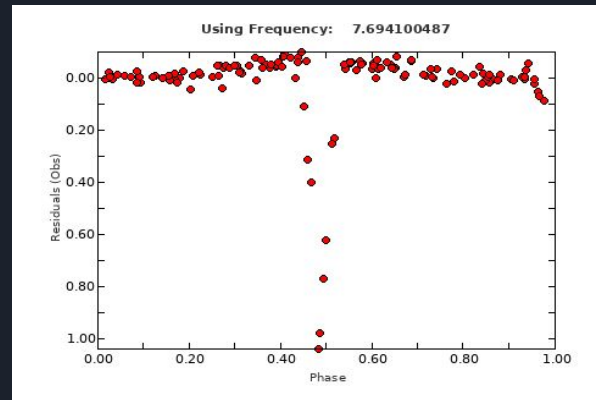
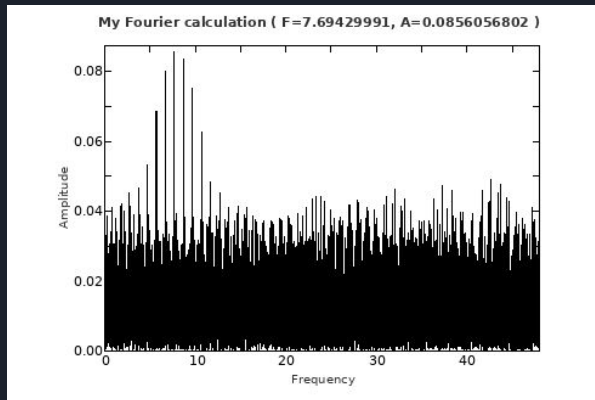
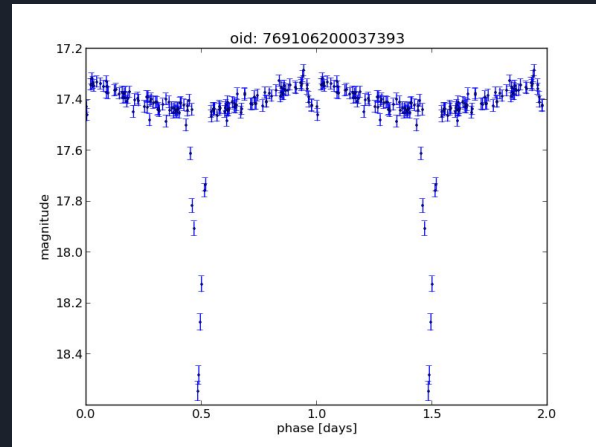
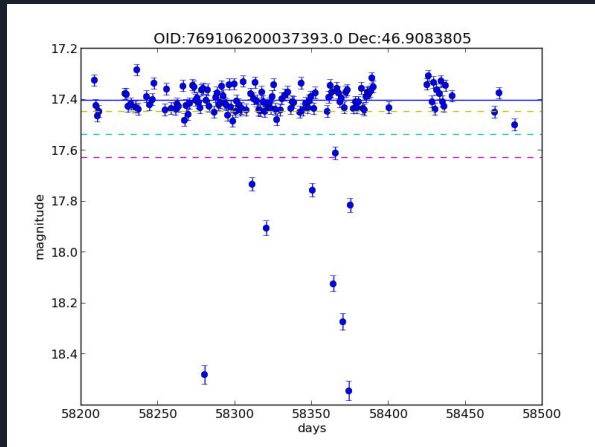


Method:

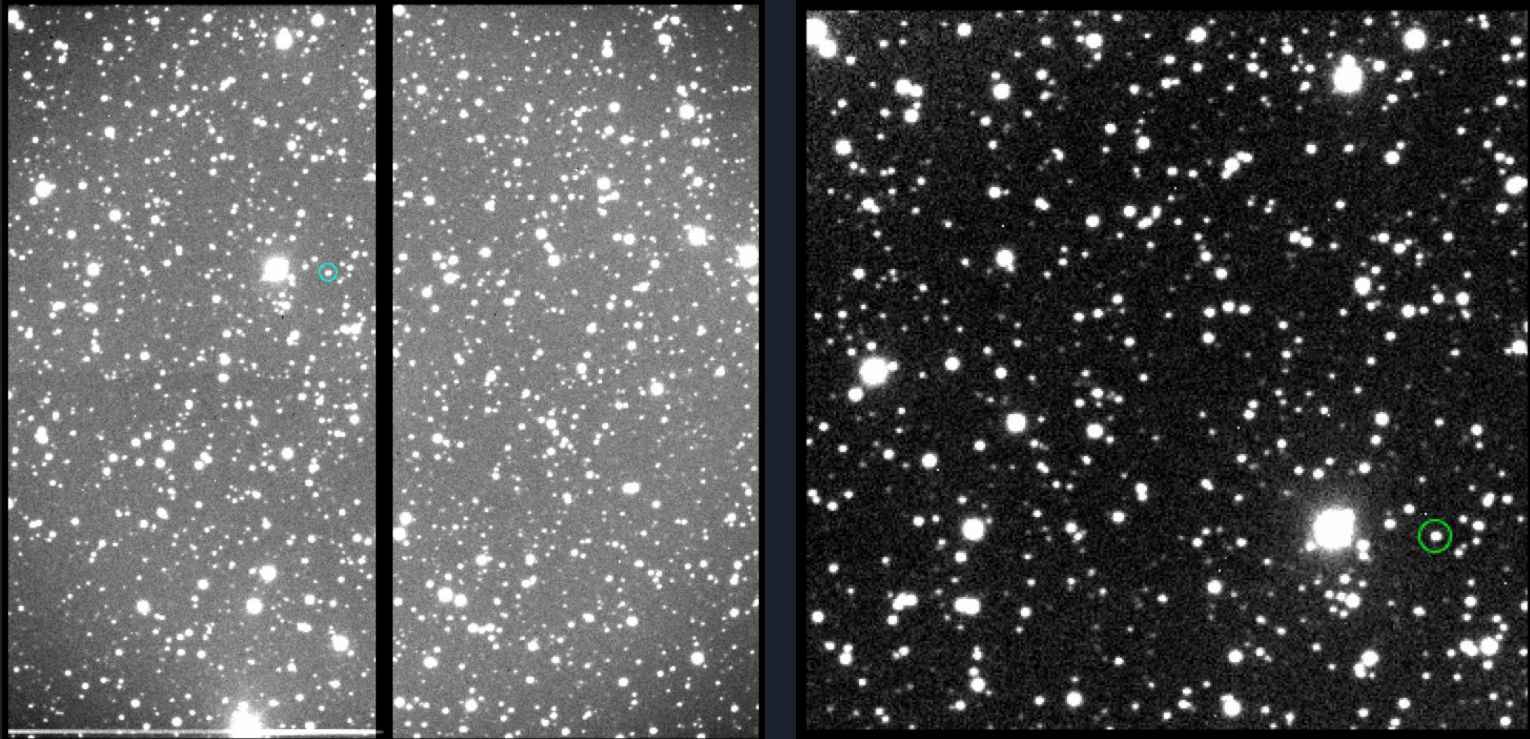
Object count: 54

- Finding all eclipsing systems:
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- Determine observational interest:
 - Period04
 - Gaia

Results: First Follow Up

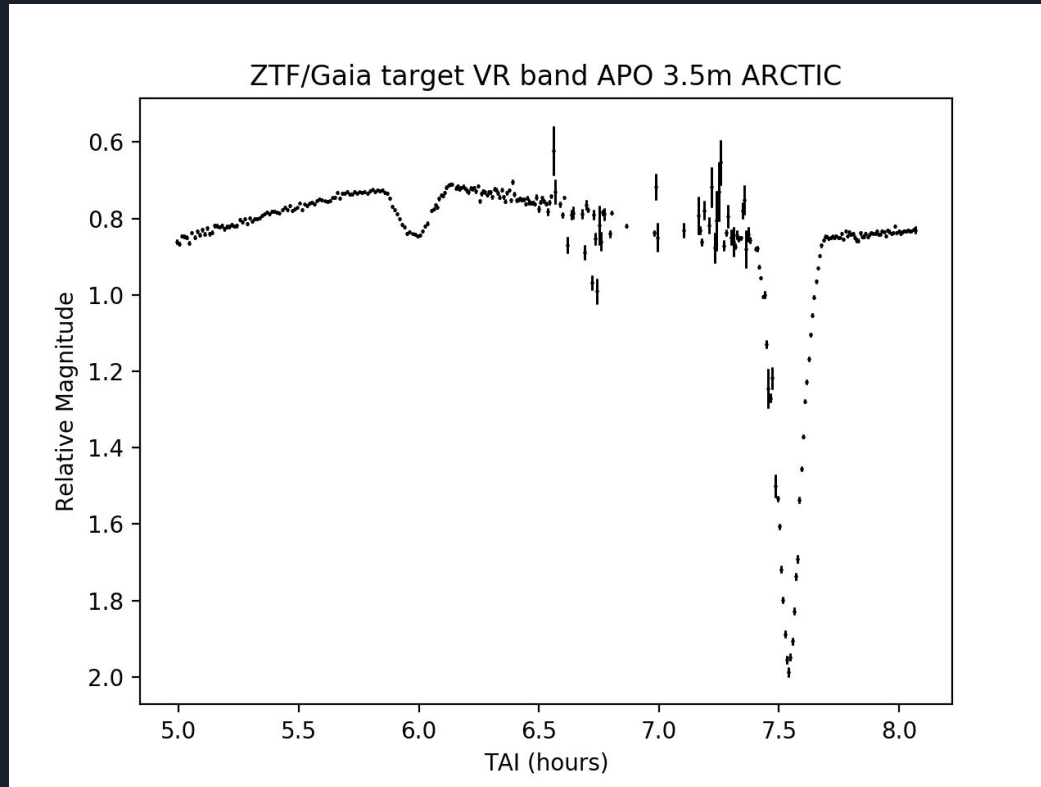


Results: First Follow Up



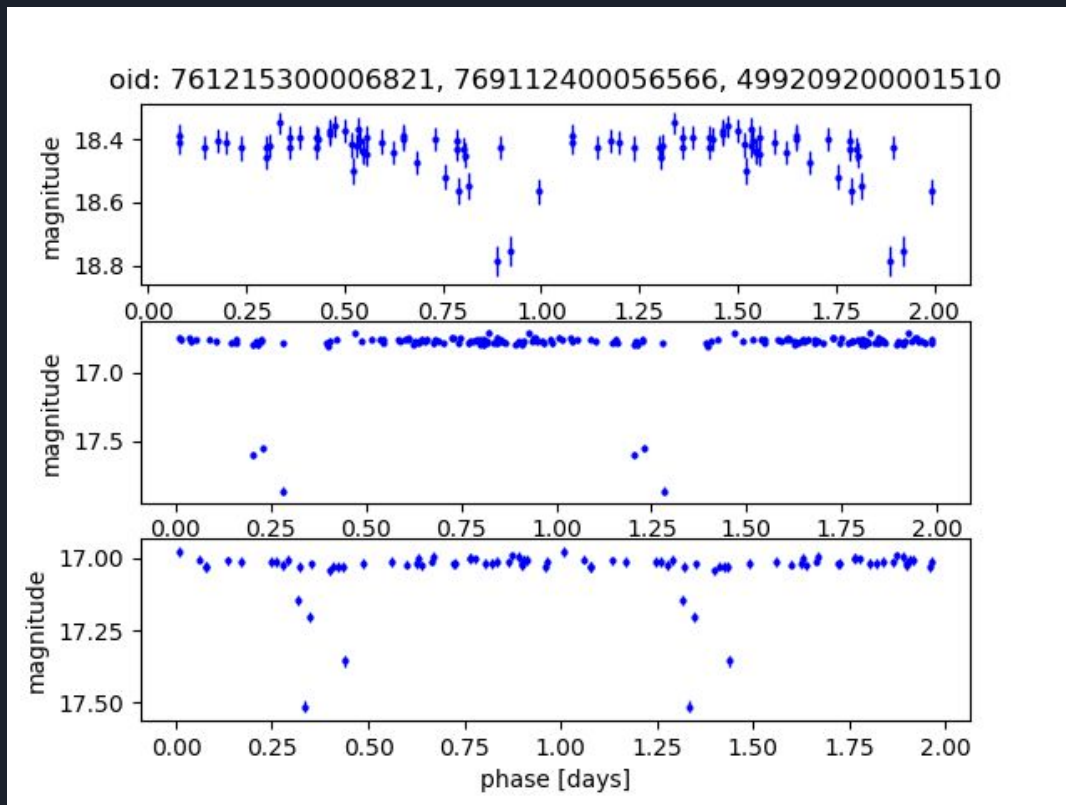
Credit: Aleks Kosakowski

Results: First Follow Up



Credit: Aleks Kosakowski

Results:

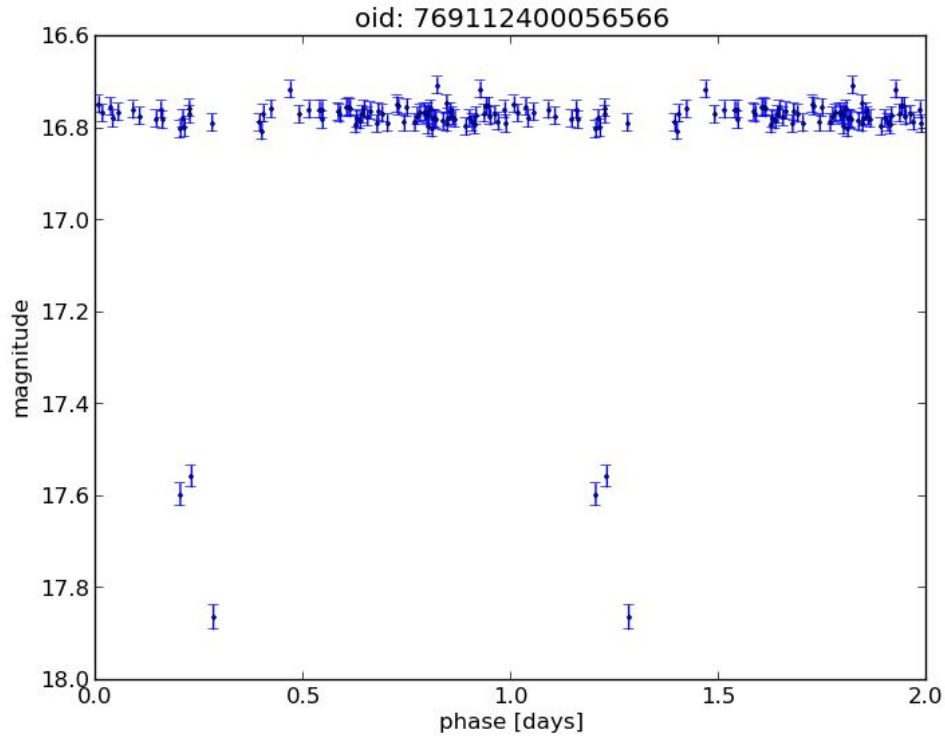


Period:
5.04505538[hrs]
(~5 hrs 3 minutes)

Period:
0.5000112[hrs]
(~30 minutes)

Period:
0.695847552[hrs]
(~41 minutes)

Results:



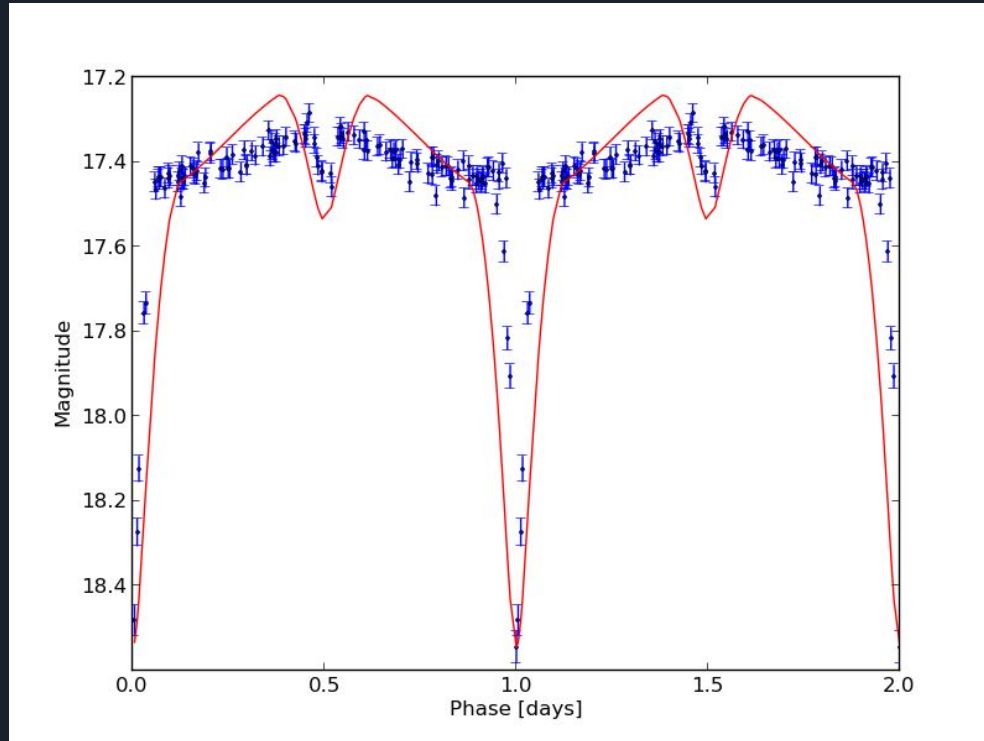
Period: 0.5000112[hrs]
(~30 minutes)



Future Work

- sdB + dM
- Photometry
- Spectroscopy

Future Work: JKTEBOP





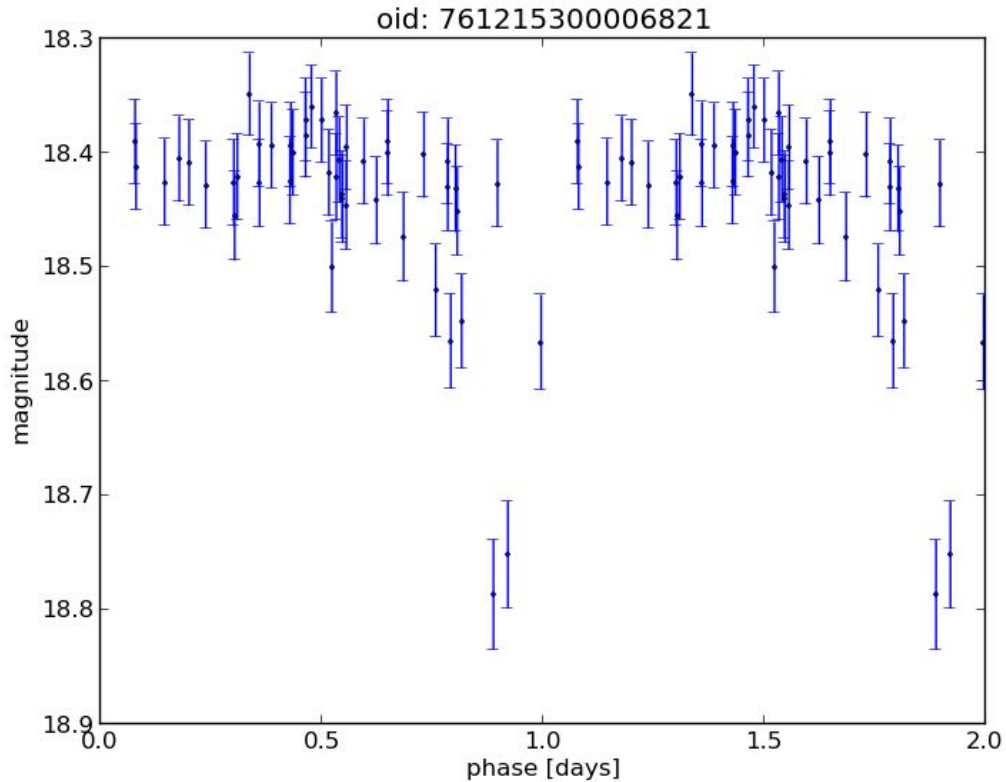
Future Work

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- Photometry
- Spectroscopy



Questions?

Backup Slide:



Backup Slide

