

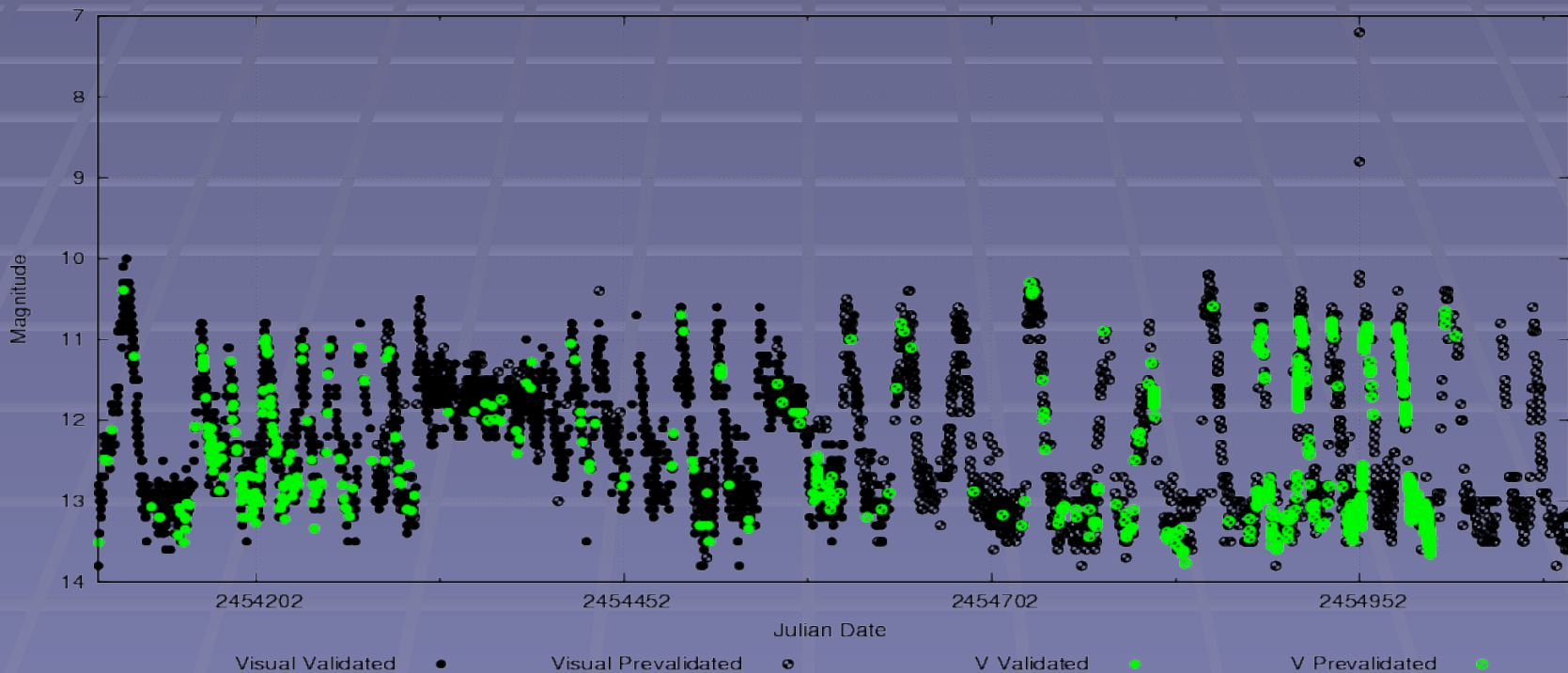
# The Z CamPaign

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# What are Z Cam stars?

- Dwarf novae, outburst amplitudes 2-5 magnitudes, relatively short cycle lengths of 10-40 days
- Exhibit occasional “standstills” after outbursts

AAVSO DATA FOR Z Cam - WWW.AAVSO.ORG



# Is it a duck?



- UGZ can be classified by their light curves alone.
- Orbital period is not a definitive characteristic, even though they all tend to be on the long side of the period gap, 3 to 10 hours orbital period.
- Dwarf novae all share similarities- wings, feet, feathers...
- But, it has to quack like a duck or it isn't a duck.
- *If it doesn't exhibit standstills, it isn't a Z Cam.*

# Candidates vs. Imposters

- Widespread disagreement between various catalogs as to which CVs are Z Cams.
- At most, there are perhaps 50-60.
- More likely, there are a couple dozen.
- If this is true, Z Cams are a rare and interesting class of stars like R CrBs.

# Discrepancies

Name	GCVS	Downes	Ritter
■ HL CMa	UGSS+XM	ug/ugz	DN/ZC
■ WW Cet	UG	ugz:	DN/IP?
■ AM Cas	UGSS	ugz	DN/ZC
■ FS Aur	UGZ:	ug	CV/DN
■ V426 Oph	NL	ugz/dq:	CV/DN/IP?/ZC

# Imposters in the mix

- AB Dra
- CN Ori
- AM Cas
- FO Per
- SV CMi





# On the Properties of Ducks

## ***A Recurrence Time versus Orbital Period Relation for the Z Camelopardalis Stars***

Shafter, Allen W.; Cannizzo, John K.; Waagen, Elizabeth O.

The Publications of the Astronomical Society of the Pacific, Volume 117, Issue 835, pp. 931-937

Using analysis of 16 Z Cam systems this paper reports the discovery of a linear relation between the characteristic outburst period and orbital period.

Using the properties of ducks, penguins and geese to describe ducks?

# Outbursts from Standstills?

Other well-quoted characteristics are that “standstills are always initiated by an outburst,” and “standstills always end with a decline to quiescence” (Hellier, 2001).

At least three Z Cam stars appear to go into outburst from standstill, HX Peg, AH Her and AT Cnc.



# Sorting it all out: The Z CamPaign

- Stars that are confirmed UGZ suitable for continued observation by visual observers throughout their cycles.
- Stars that visual observers should continue to monitor for outbursts and standstills if or when they may occur.
- Stars which both visual and CCD observers are encouraged to monitor for outbursts, but the standstills are likely to only be visible to CCD observers due to their relative faintness (15th or 16th magnitude).
- Stars best suited to CCD observers for monitoring for outbursts and standstill behavior.
- Stars which appear to go into outburst from standstill. When one of these stars enters a standstill we will be asking for intensive coverage until the star either goes into quiescence or outburst.

# Science Goals

- To determine convincingly which CVs are indeed UGZ and which are imposters.
- To improve the overall data available on each of these stars and fill the gaps in the light curves.
- To determine if some UGZ actually do go into outburst from standstill, or if perhaps we have just missed the sudden drop to quiescence before the next outburst, leading to the appearance of outburst from standstill behavior.
- To make any other serendipitous discoveries about 'UGZ-ness' that come to light as a result of improved coverage.
- To publish the results in a peer-reviewed journal such as the Journal of the AAVSO.

# URLs

AAVSO CV Section site

<https://sites.google.com/site/aavsocvsection/>

Z CamPaign Page

<https://sites.google.com/site/aavsocvsection/z-campaign>

The Z Cam List

<https://sites.google.com/site/thezcamlist/>

**That's All Folks!**

