# An Interactive Catalogue of Variable Stars

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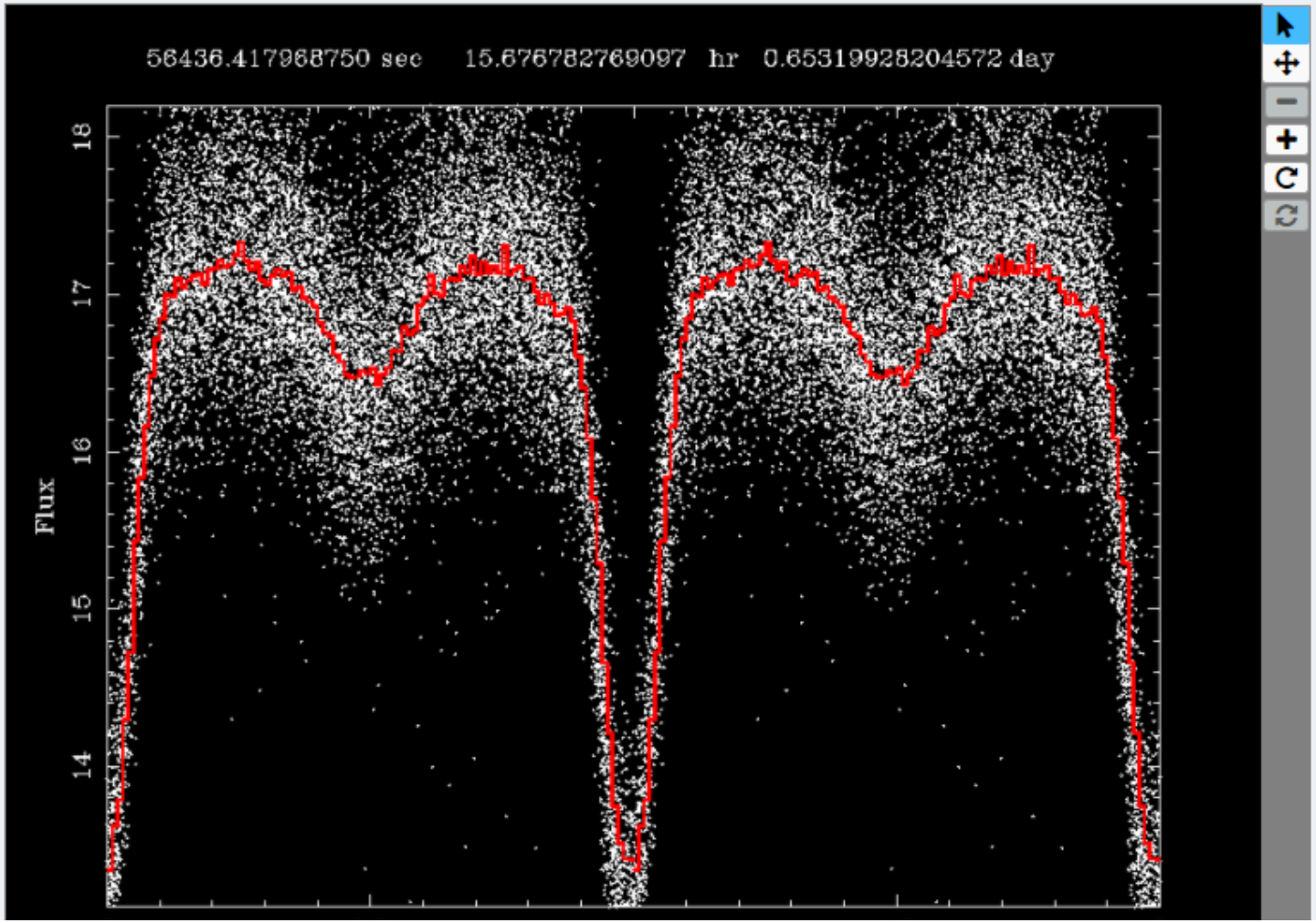



TASK | TUTORIAL

What type of lightcurve is this?

- Pulsator
- EA/EB type
- EW type
- Rotator
- Unknown
- Junk

NEED SOME HELP WITH THIS TASK?

Next →

# SuperWASP Variable Stars on the Zooniverse

zooniverse.org/projects/ajnorton/superwasp-variable-stars

# What is the Zooniverse?

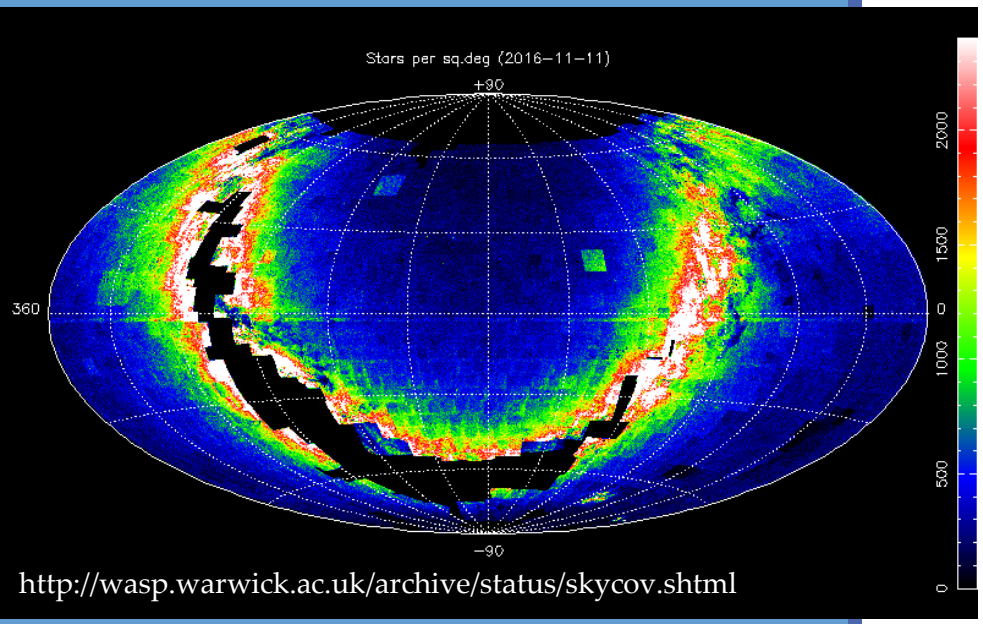
A platform for building and running crowdsourcing projects

# What is SuperWASP?

The **W**ide **A**ngle **S**earch for **P**lanets – a ground-based exoplanet search

# SuperWASP

Ground-based exoplanet search




http://wasp.warwick.ac.uk/archive/status/skycov.shtml

Two telescopes: North in La Palma, South in South Africa

Operated from 2004 - 2016

The most successful ground-based exoplanet search

Photometric lightcurves of ~31 million stars

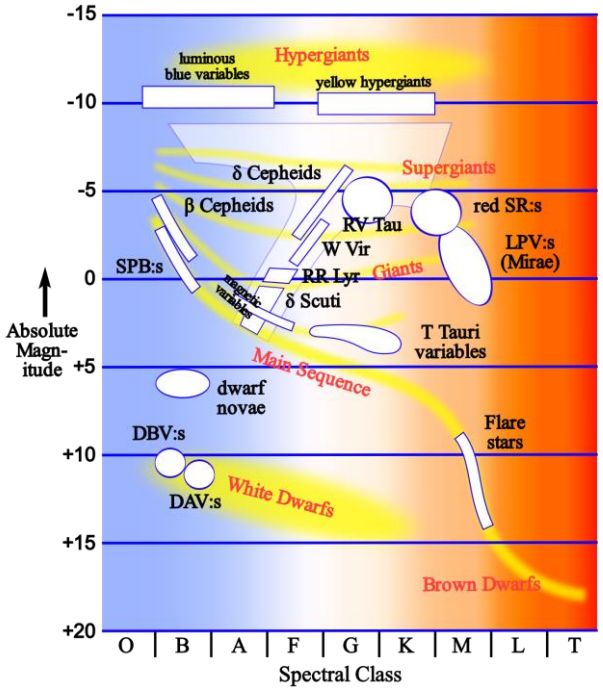
The data can be used for other things. We're looking for variable stars.

# What are variable stars?

Stars whose magnitude changes

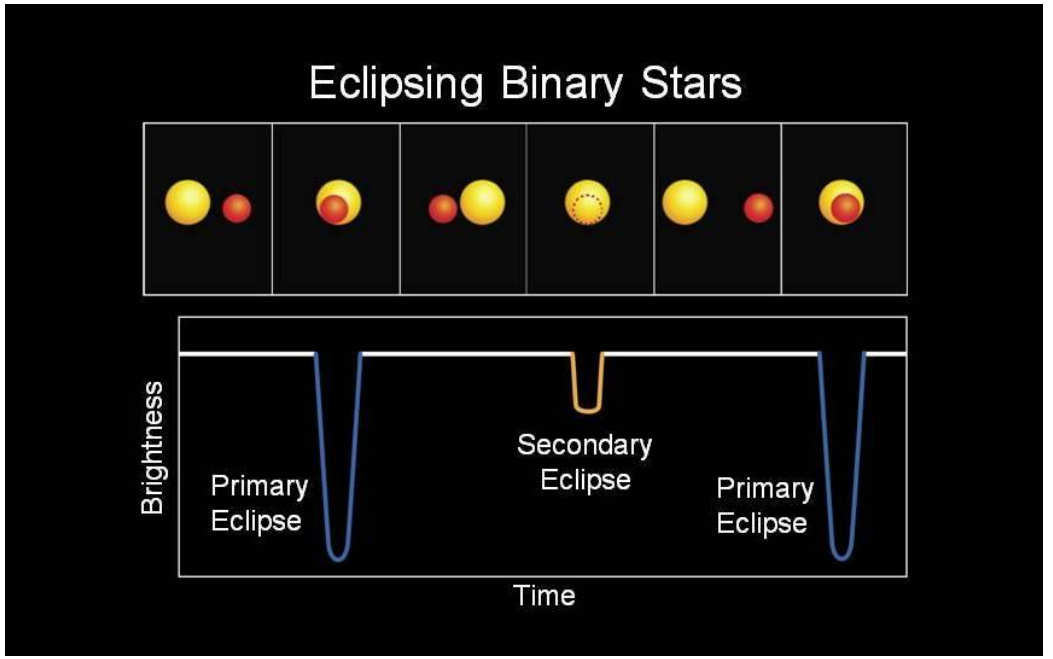
# Variable Stars

## Intrinsic (e.g. pulsators)




Source: Wikipedia (CC-BY-SA-3.0)

## Extrinsic (e.g. eclipsing binaries)



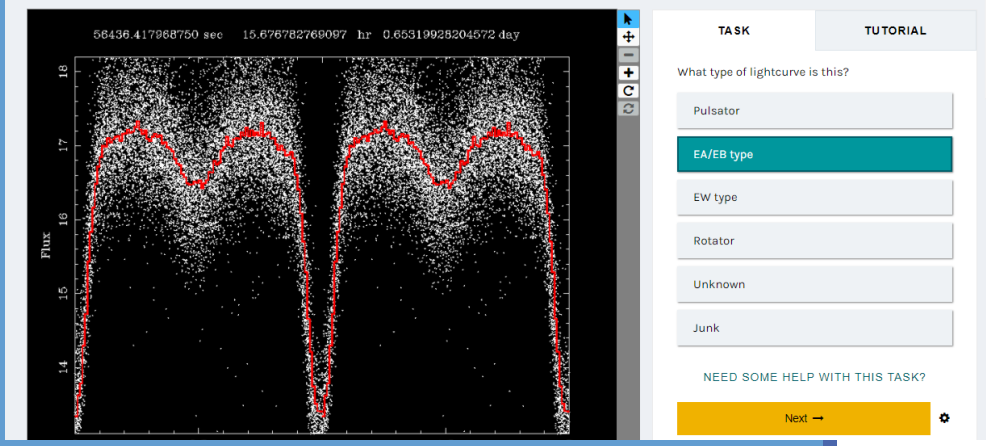

Source: NASA (public domain)

# The SuperWASP variable stars Zooniverse project

Human volunteers classifying variable stars in SuperWASP data

# SuperWASP Variable Stars on the Zooniverse

How the project works




~1.6 million lightcurves, ~700,000 stars

Volunteers see a light curve, which has already been folded on a candidate period

They choose one of: Pulsator, EA/EB, EW, Rotator, Unknown, or Junk

They indicate whether they think the folding period is correct

We combine answers from multiple volunteers to derive a final classification

# Results so far

From the first million human classifications

4.5% pulsating stars

5.3% detached eclipsing binary stars

6.4% contact eclipsing binary stars

9.9% rotating stars

7.3% unknown

66.6% junk

A total of 568,739 lightcurves classified so far (Sept 2020)

Look out for Thiemann et al. (in prep) with more detailed results

# The SuperWASP variable star catalogue

A place to publish our results and let people download the catalogue

# Browsing the catalogue

Allows filtering by min/max magnitude, min/max period, and variable type

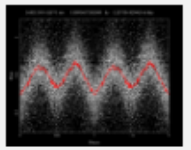
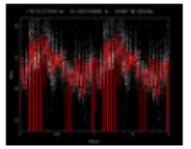
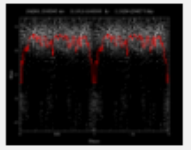
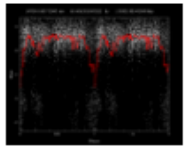
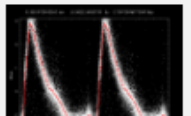
You can generate a download of your search results

SuperWASP Variable Stars | About | Browse | Download | Links | Object ID or coordinates | Search

## Browse the Catalogue

Sort | Magnitude | Period | Variable type | Download

Previous | 1 | 2 | 3 | Next

| SuperWASP ID | Period | Period number | Period uncertainty | Classification | Zooniverse ID | Lightcurve |
|---|---|---|---|---|---|---|
| 1SWASPJ000000.15+320847.6 | 24802.357 | 1 | Certain | EW | 21813536 |  |
| 1SWASPJ000001.78+554743.9 | 1733763.875 | 1 | Certain | Unknown | 21813551 |  |
| 0717.0 | 368576.219 | 5 | Certain | EA/EB | 21813555 |  |
| 0717.0 | 167055.594 | 6 | Certain | EA/EB | 21813556 |  |
| 1SWASPJ000003.66+352146.1 | 61063.973 | 1 | Certain | Pulsator | 21813563 |  |

Sort | Magnitude | Period | Variable type | Download

- [x] Pulsator
- [x] Rotator
- [x] EA/EB
- [x] EW
- [x] Unknown

| SuperWASP ID | Period | Period uncertain |
|---|---|---|
| 1SWASPJ000000.15+320847.6 | 24802. | Certain |

# The SuperWASP variable star catalogue

Coming spring/summer 2021

To be updated every six months with new data

Initial version will allow browsing, filtering, and downloading Zooniverse classification results

A later version will include an interactive lightcurve viewer, sky maps, and cross-references with other catalogues

# Summary

SuperWASP Variable Stars is available on the Zooniverse

Online catalogue of results coming soon (spring/summer 2021)

Look out for Thiemann+ (in prep)

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