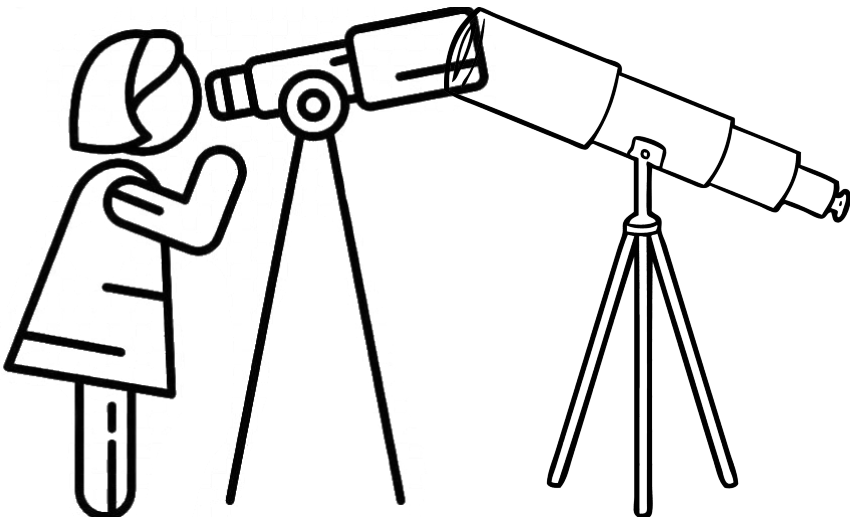
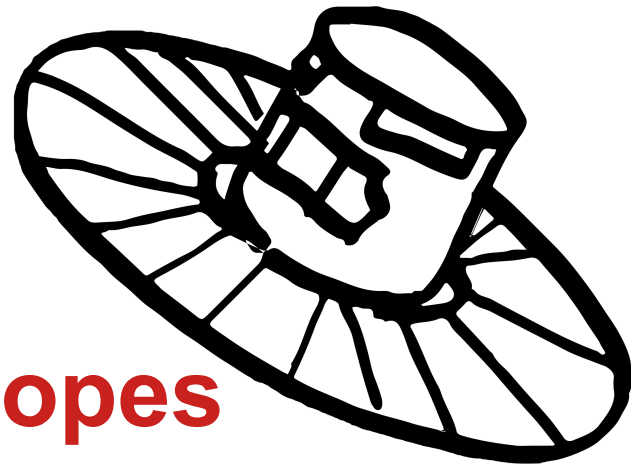
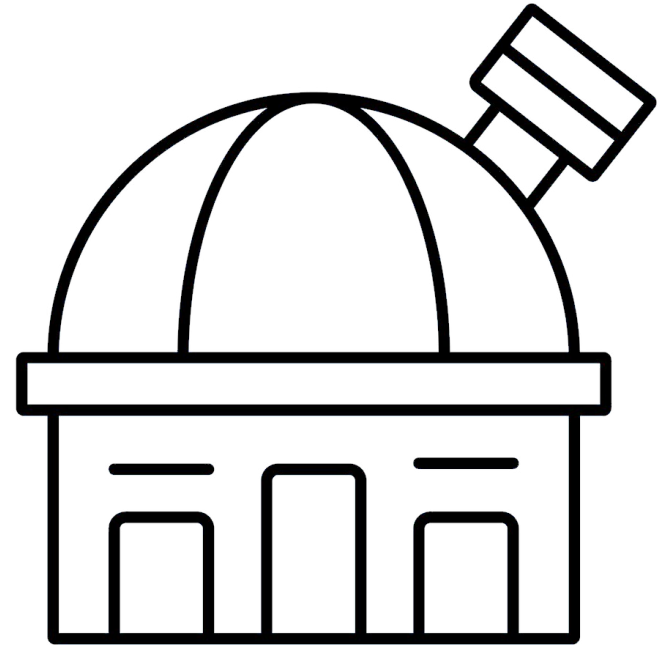


The role of small telescopes in the follow-up of Gaia Alerts

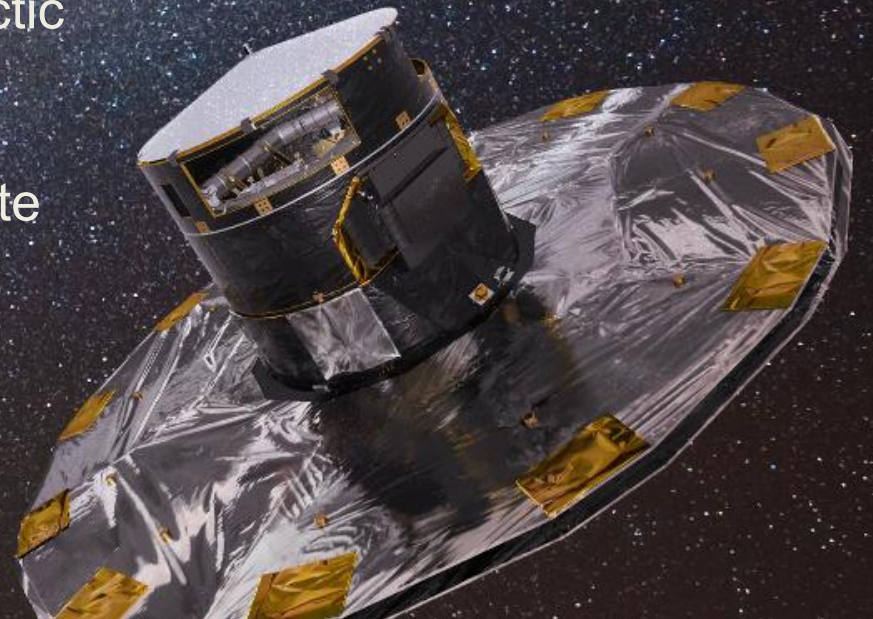


Elmé Breedt
IoA, Cambridge, UK



Gaia

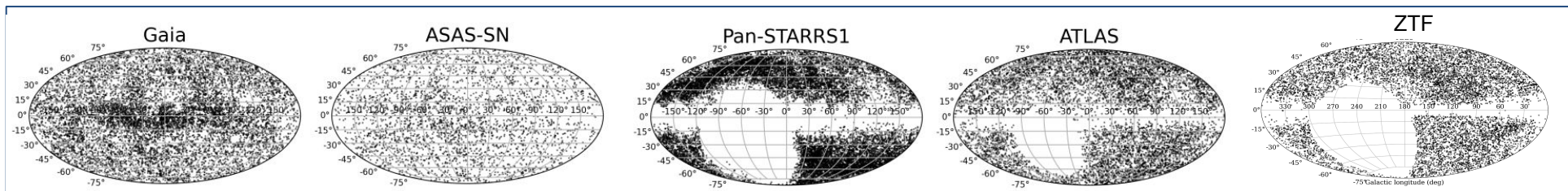
- ★ 3 data releases so far
- ★ Creating a revolution in astronomy
- ★ Data used from the solar system to galactic archeology to cosmology
- ★ Large and small telescopes can contribute



Gaia Alerts

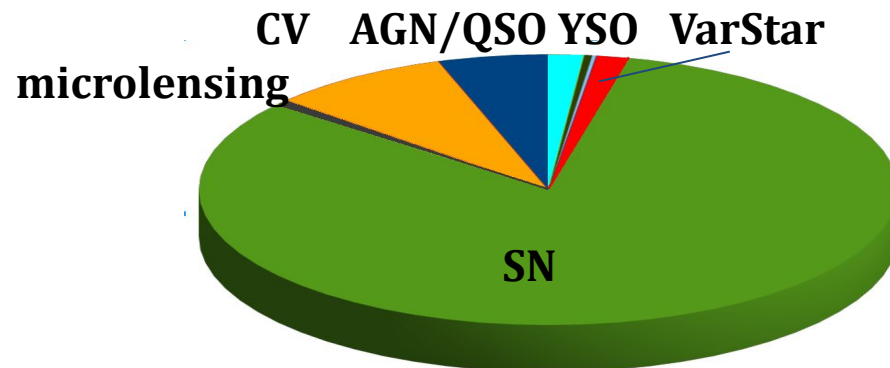
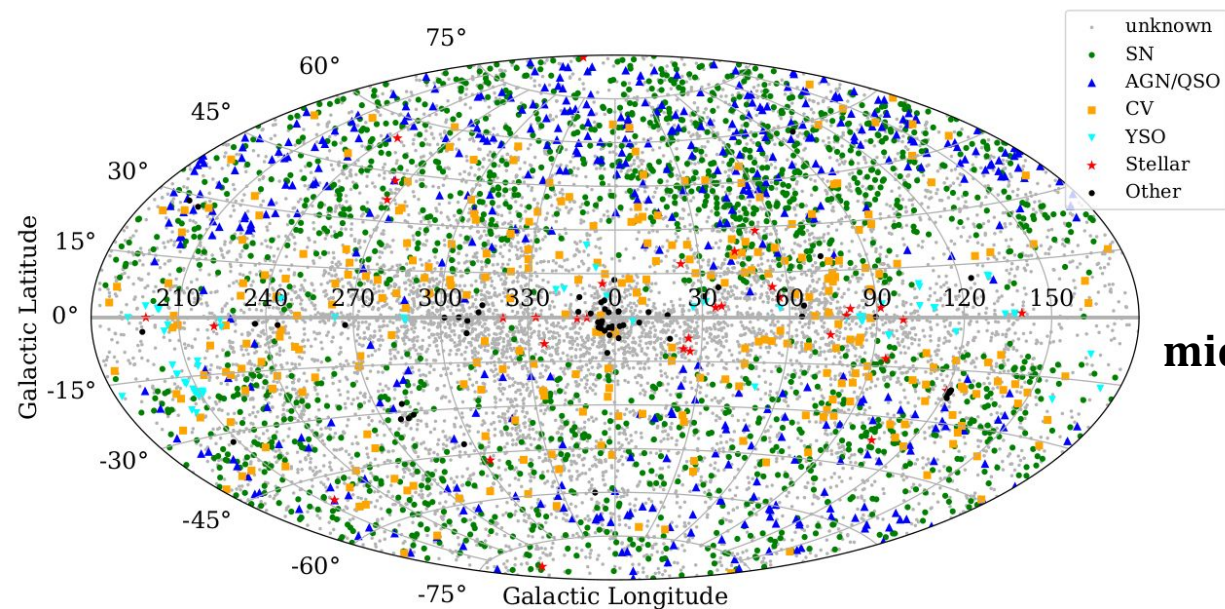
<http://gsaweb.ast.cam.ac.uk/alerts/alertsindex>

- ★ Gaia's transient survey
- ★ Variety of other photometric surveys with similar goals
- ★ Each with its own strengths and features
- ★ Gaia Alerts is a catalogue-driven survey (No images to inspect)



Gaia Alerts

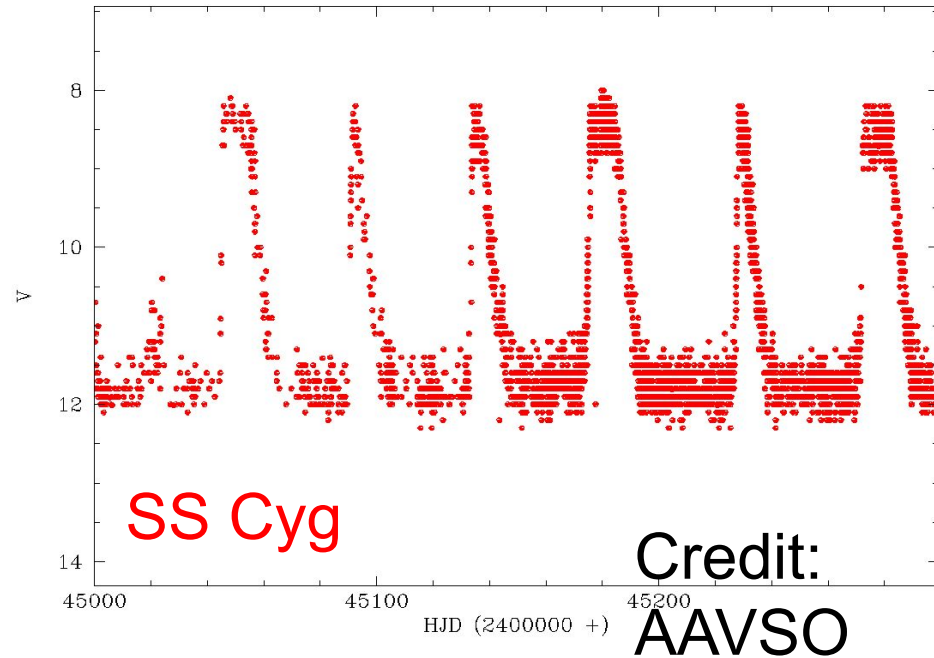
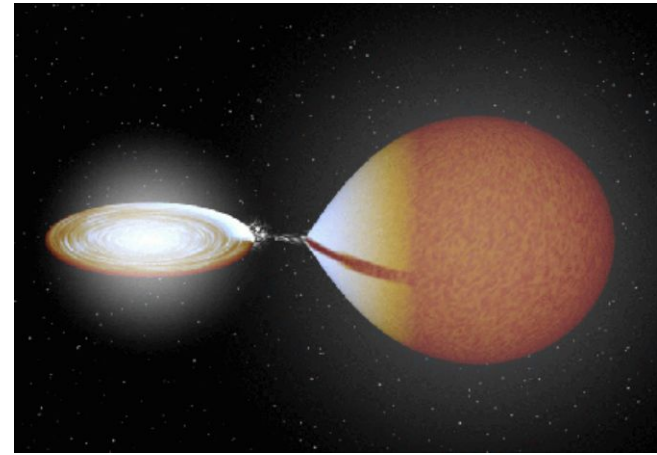
2025-07-03: **23 045** alerts, of which **27.6%** are classified (6364)



Follow-up mostly by Supernova surveys
(PESSTO, NUTS, Asiago Surveys)

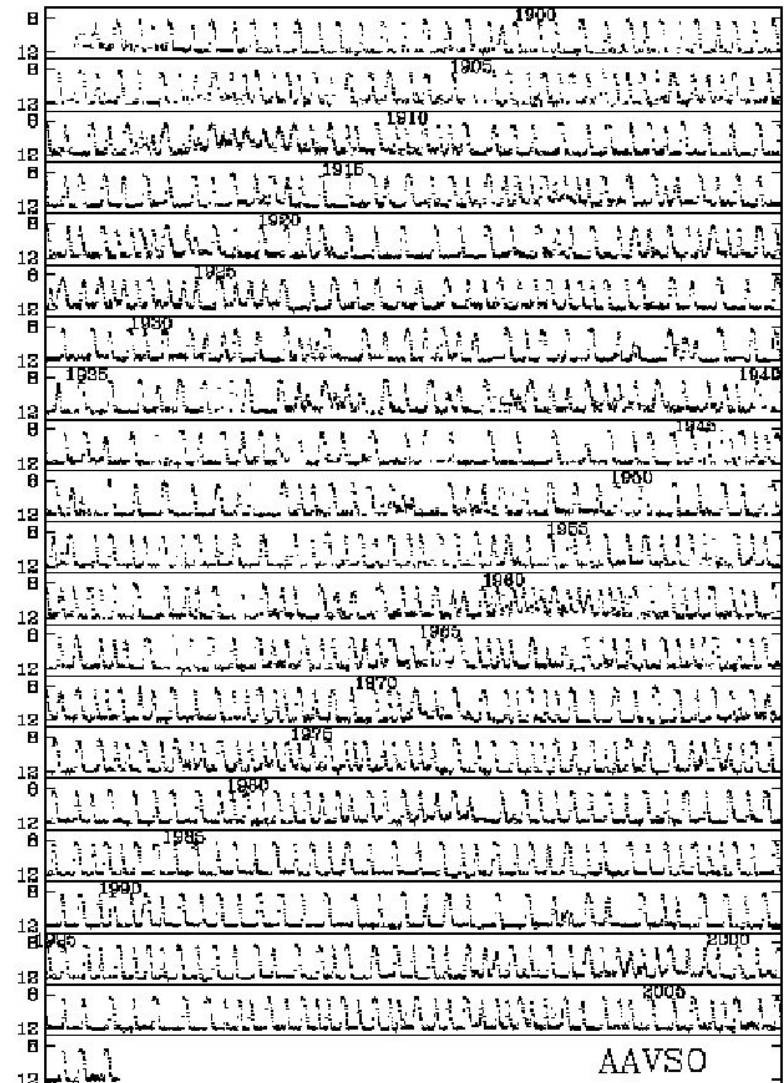
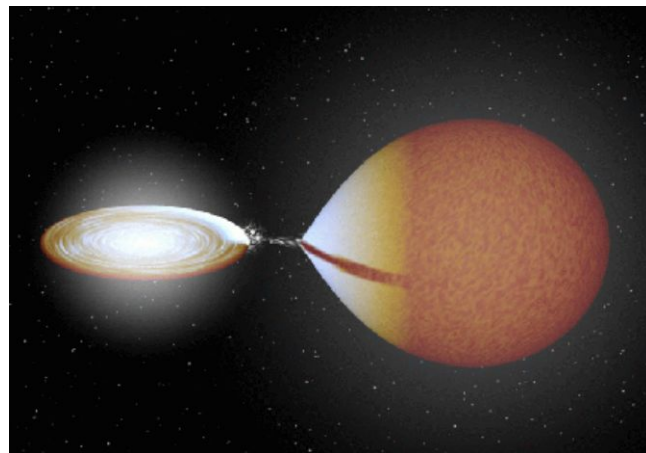
Cataclysmic Variables

- + White dwarf
- + Low mass star
- + Accretion disc

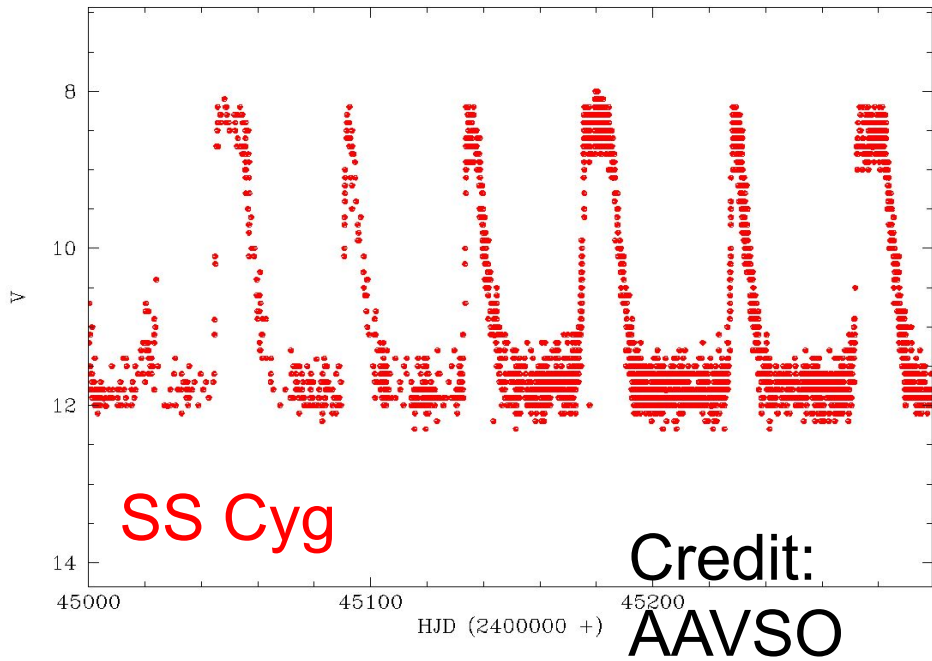


riables

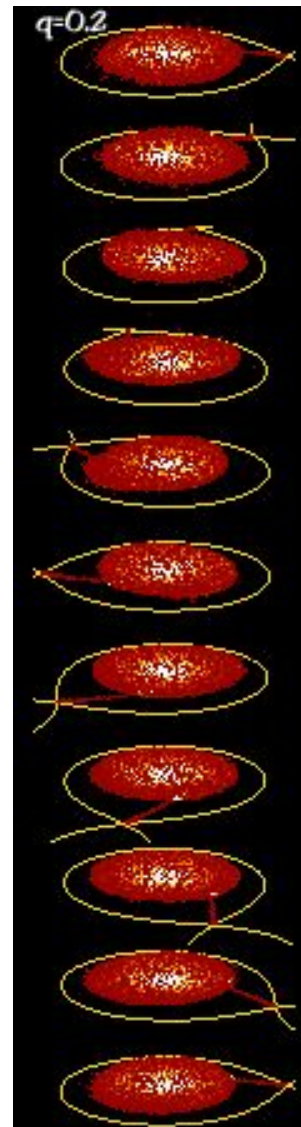
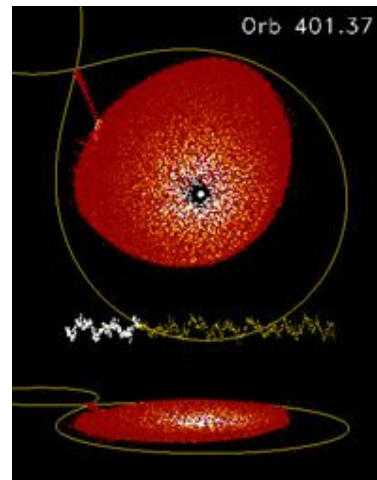
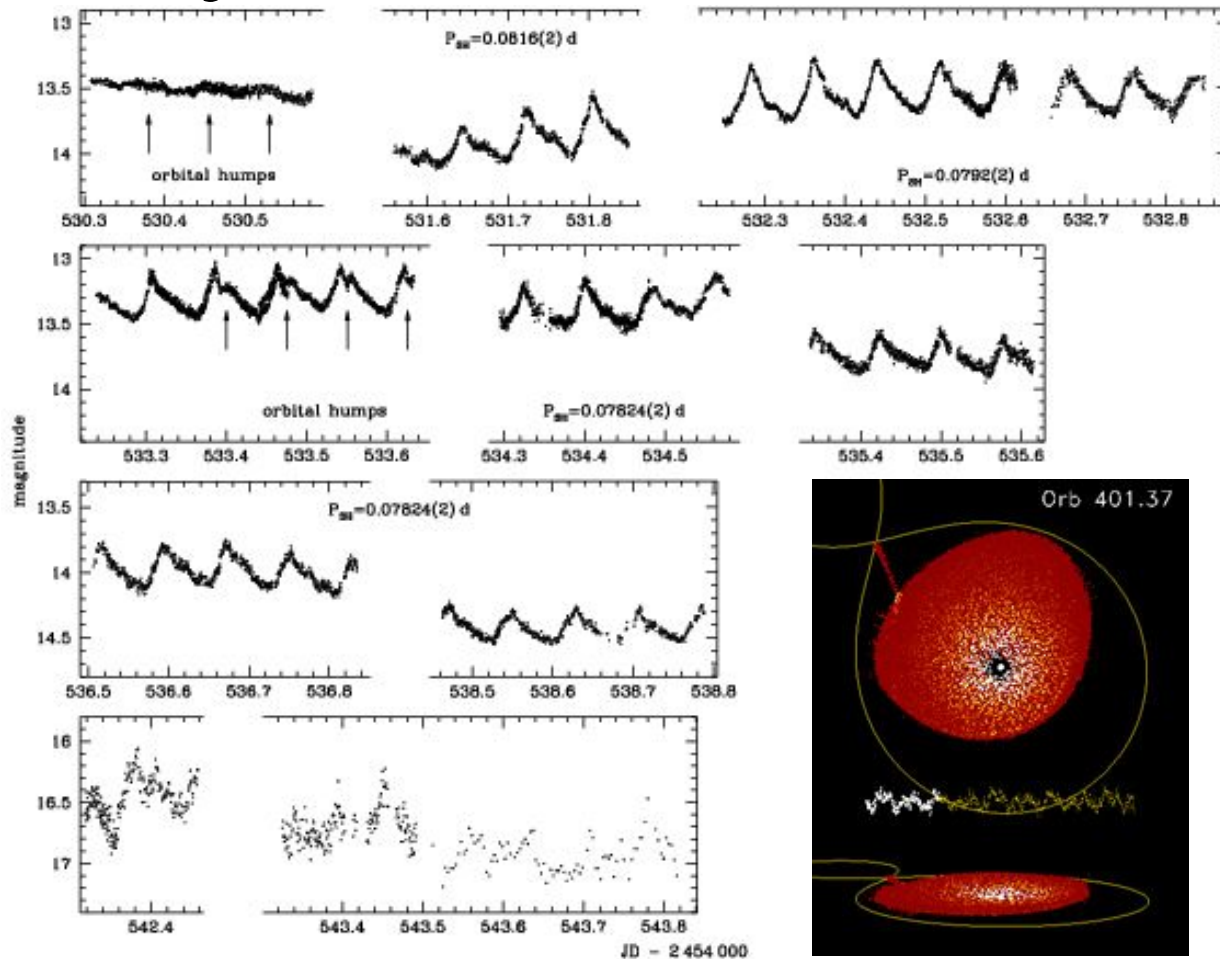
- + White dwarf
- + Low mass star
- + Accretion disc



SS Cyg (27 Sep 1896–30 July 2006)



Cataclysmic Variables



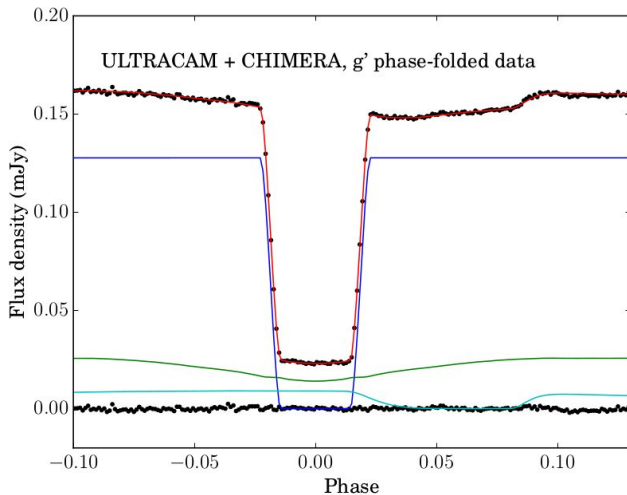
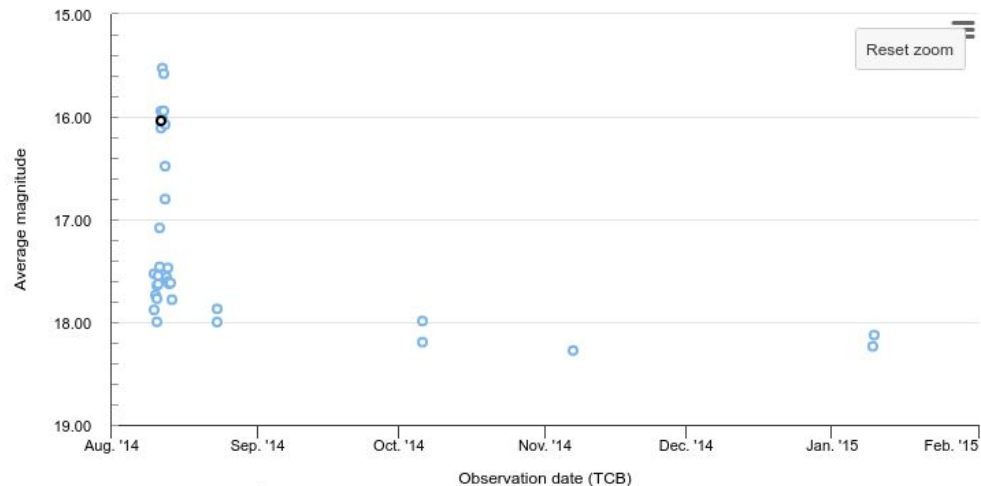
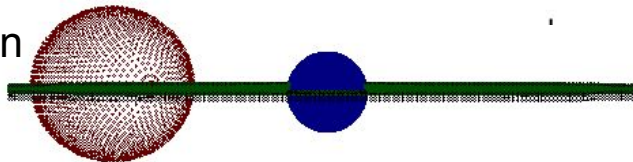
Gaia14aae

A 'pure' Helium binary!

The first in which the white dwarf is fully eclipsed

- Ideal for parameter studies

Longest P_{orb} with outbursts - 49.7 min



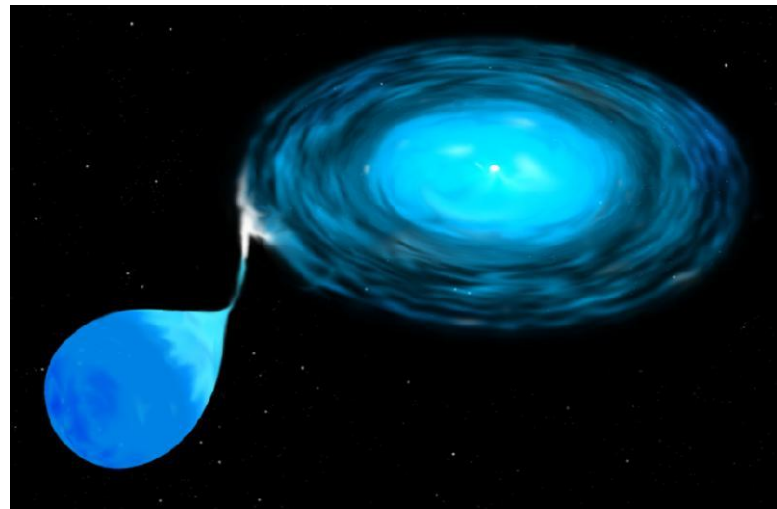
$$P_{\text{orb}} = 49.708061 \pm 0.000023 \text{ min}$$

$$T_{\text{WD}} = 12900 \text{ K}$$

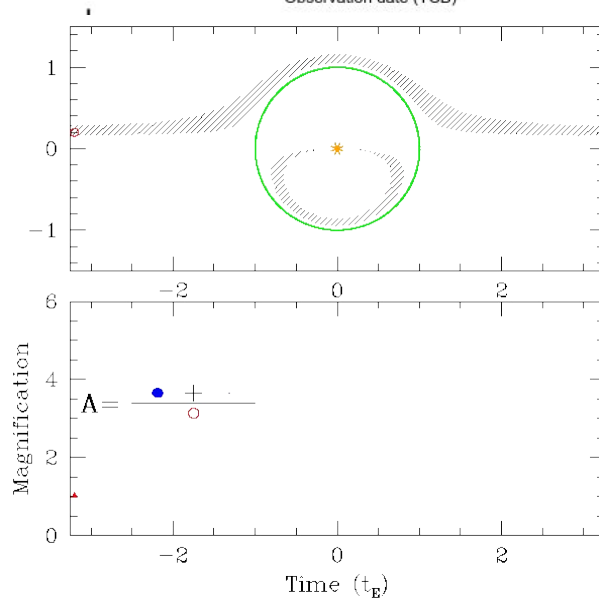
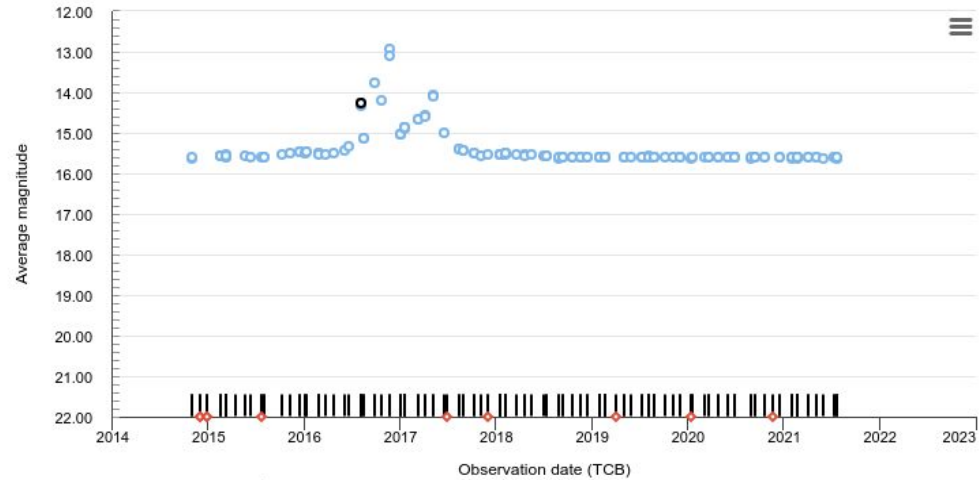
$$q = 0.0296 \pm 0.0007$$

$$M_1 = 0.89 \pm 0.04 M_{\odot}$$

$$M_2 = 0.0263 \pm 0.0014 M_{\odot}$$



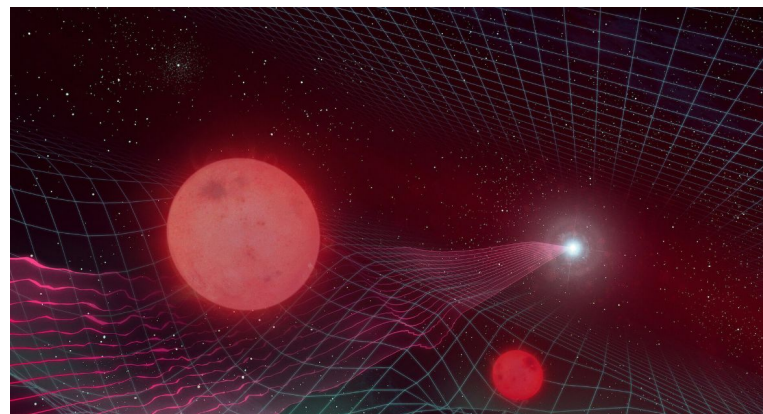
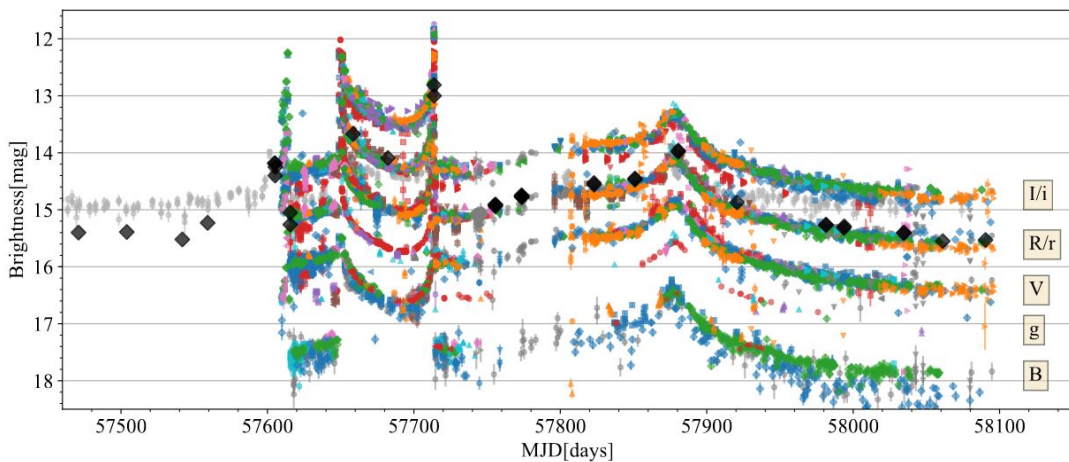
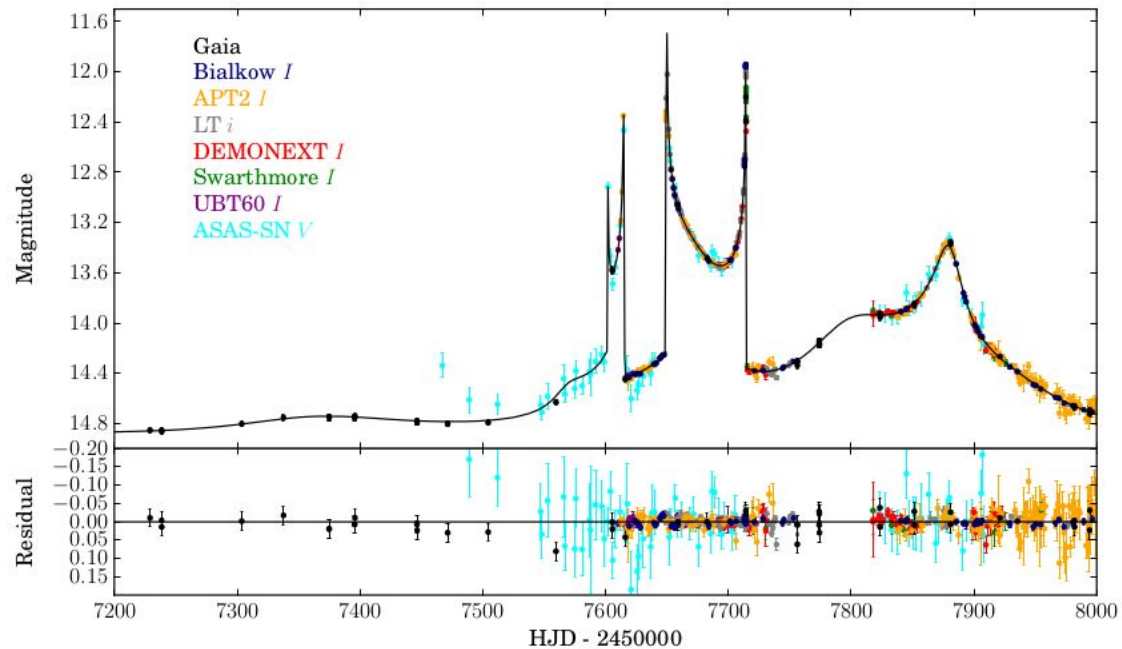
Gaia16aye



Gaia16aye

25000 datapoints from
62 telescopes over
500 days

Lens is a binary at 780 pc,
with $M_1 = 0.57 \pm 0.05 M_\odot$ and
 $M_2 = 0.36 \pm 0.03 M_\odot$

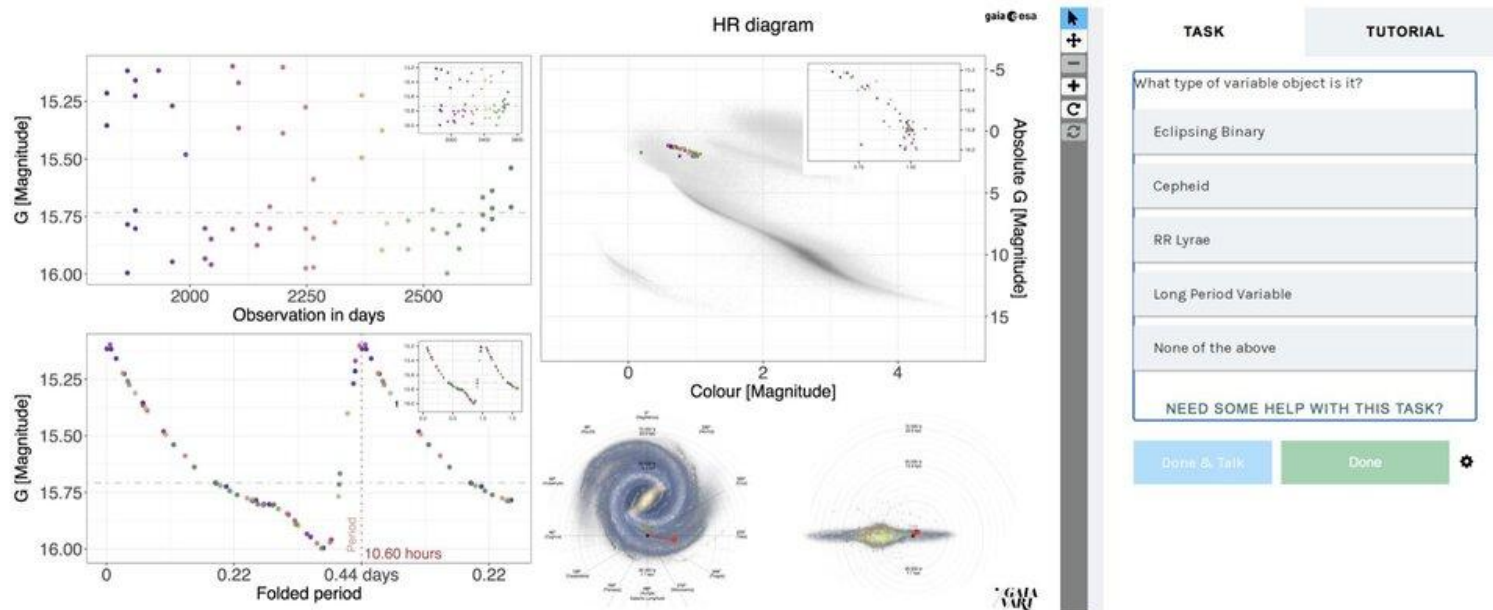


Gaia Vari

<http://gaiavari.space>



A Zooniverse project to help classify variable stars



Small telescope contribution

- ★ Target characterisation
- ★ Additional information e.g. periods
- ★ Fast response
- ★ Long term monitoring
- ★ Share the thrill of observing!



Clear skies!

