



Data in BHATOM:

examples of usage

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OPTICON
RadioNet
Pilot

Time-domain astronomy

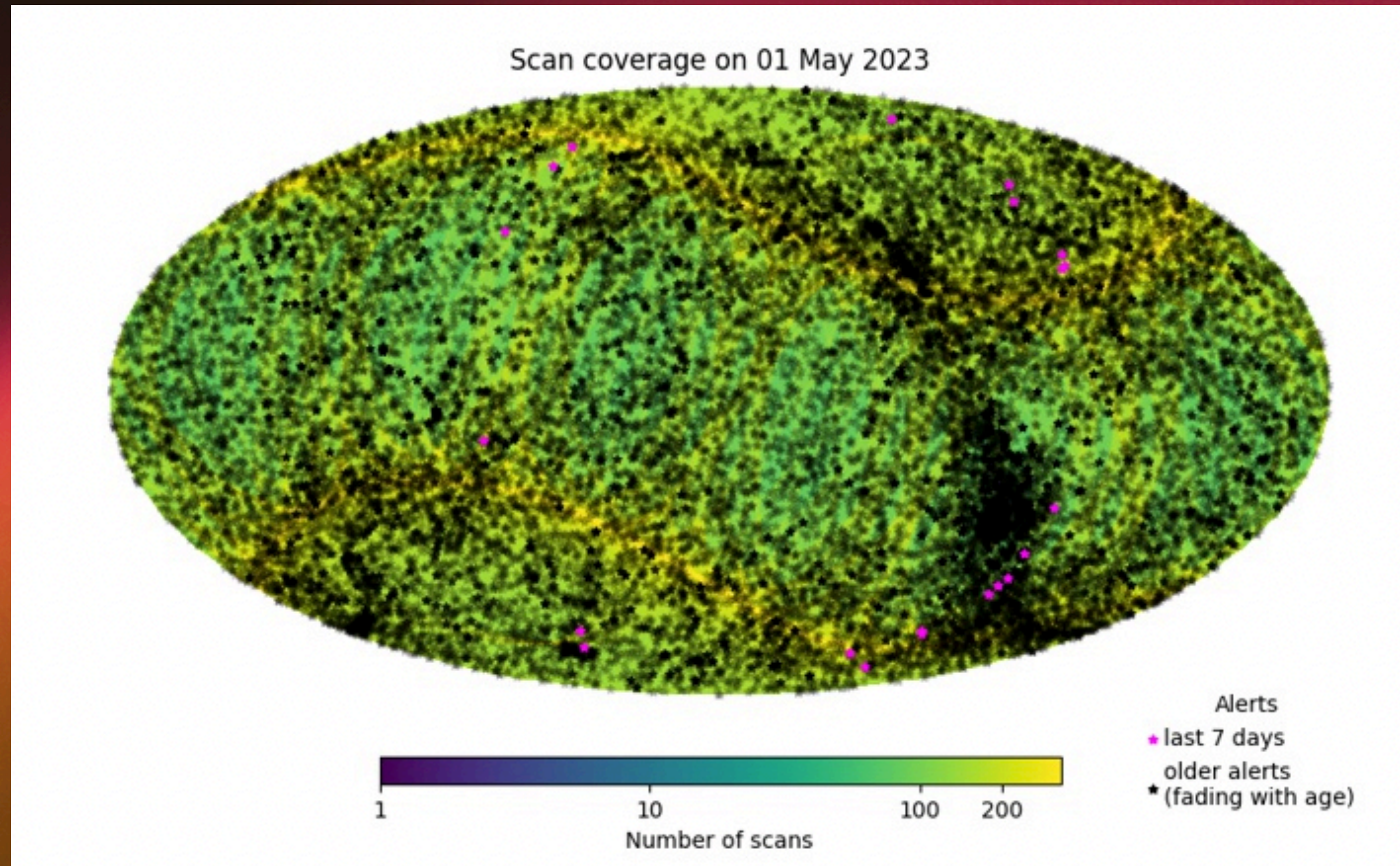
There is always an interesting transient visible on the sky!

Gaia: whole sky down to 20 mag

ASAS-SN: whole sky down to 17 mag

ZTF: Northern sky down to ~21 mag

LSST: Southern sky down to 25 mag!



What is important in TDA?

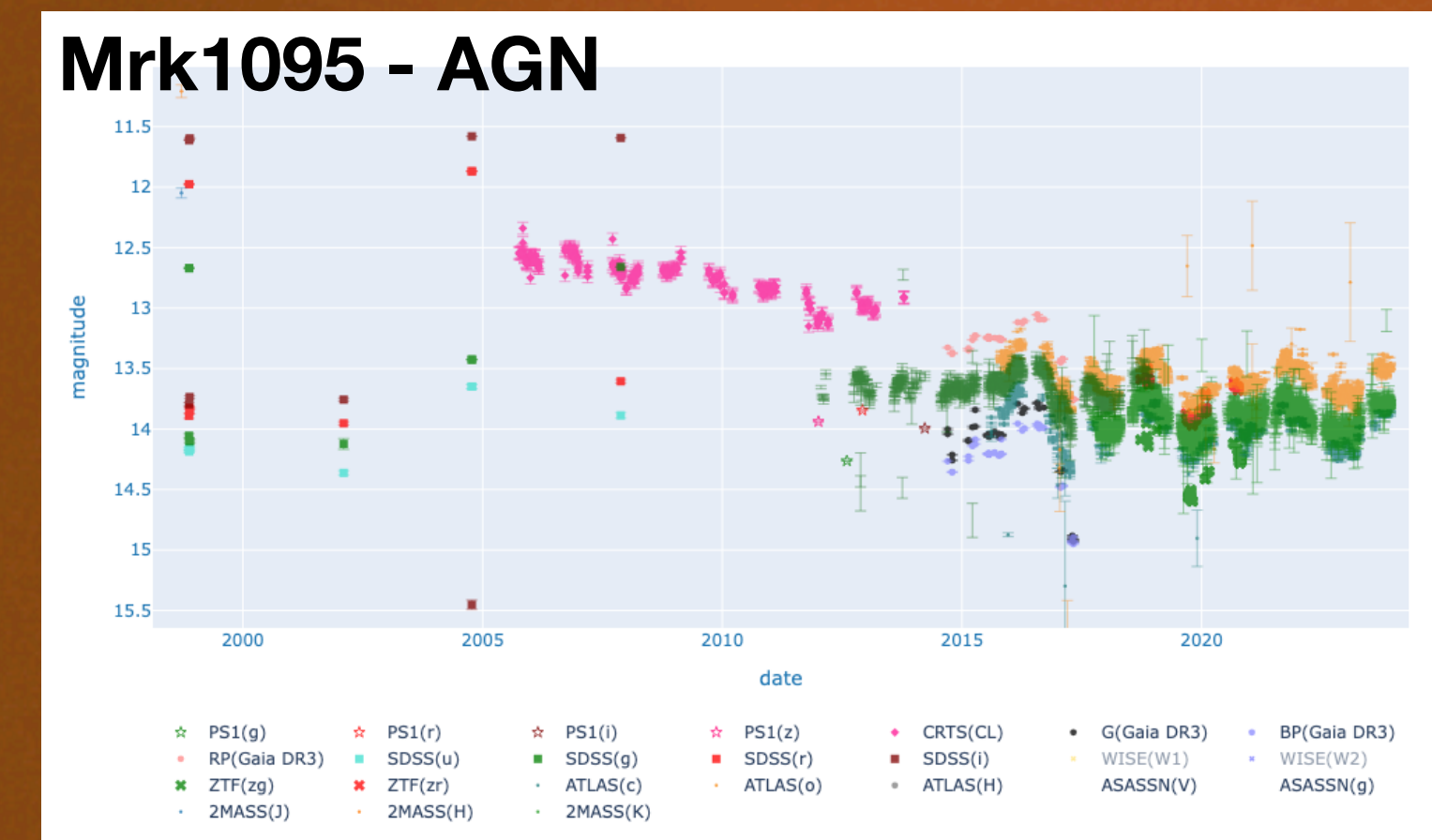
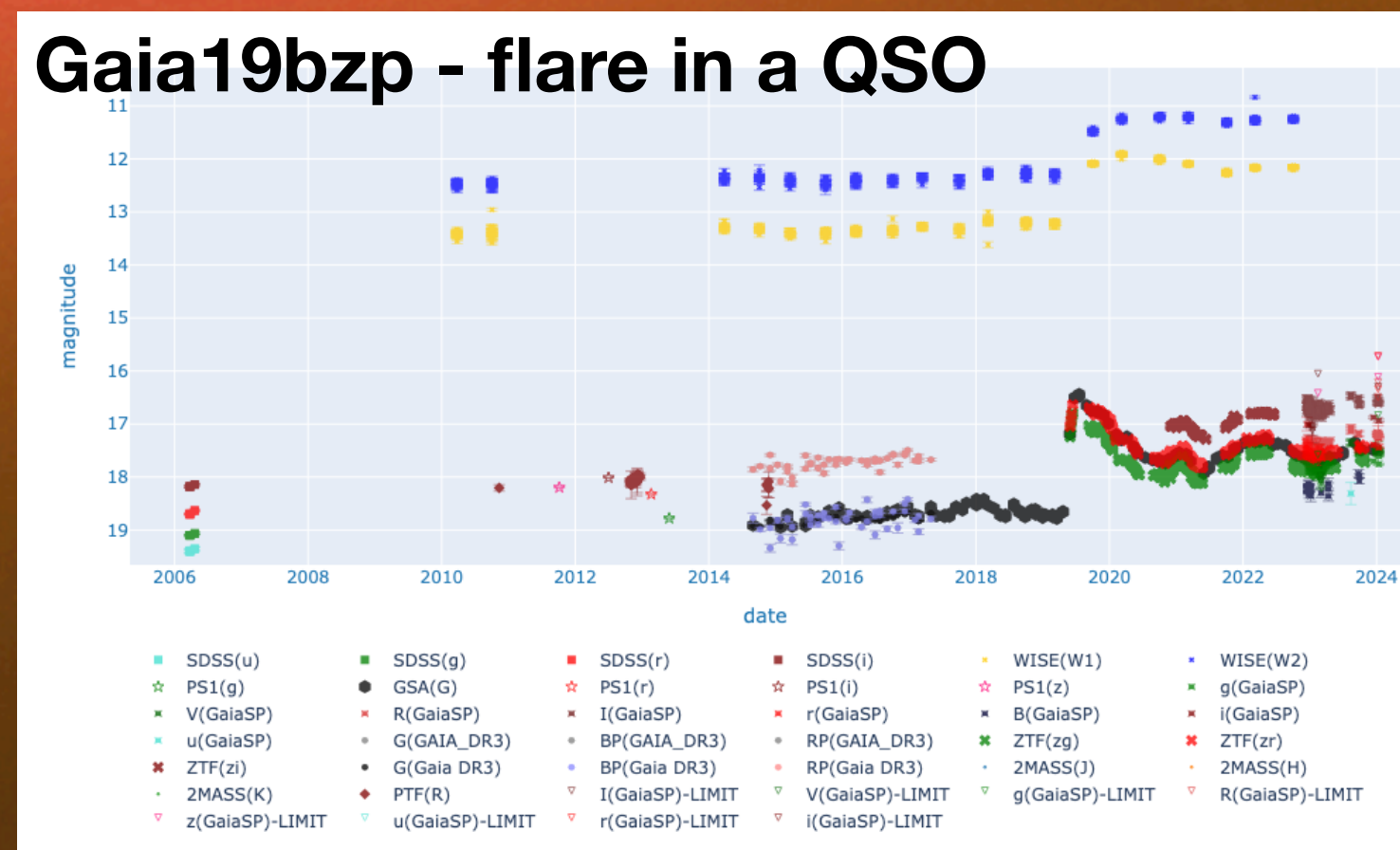
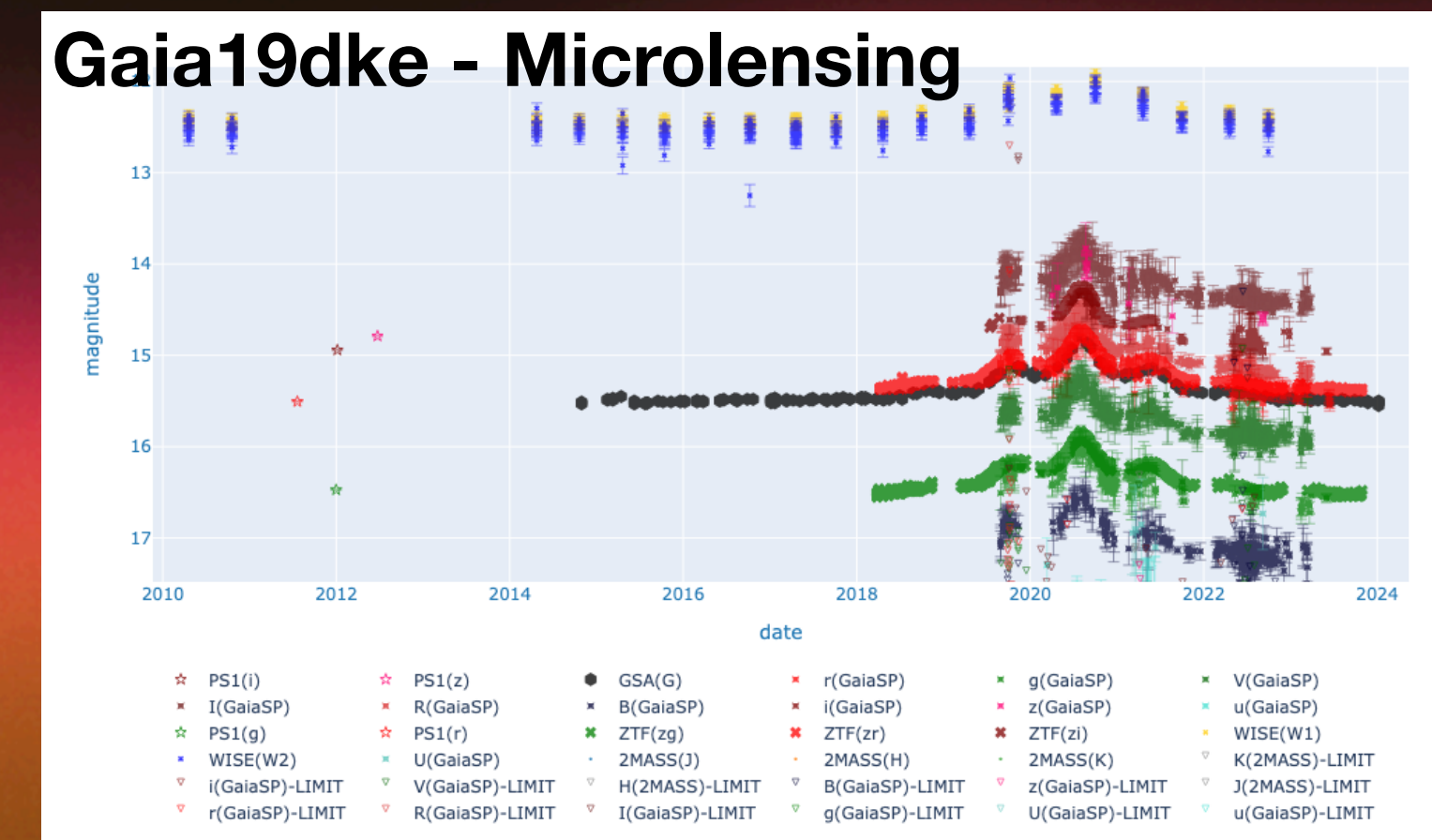
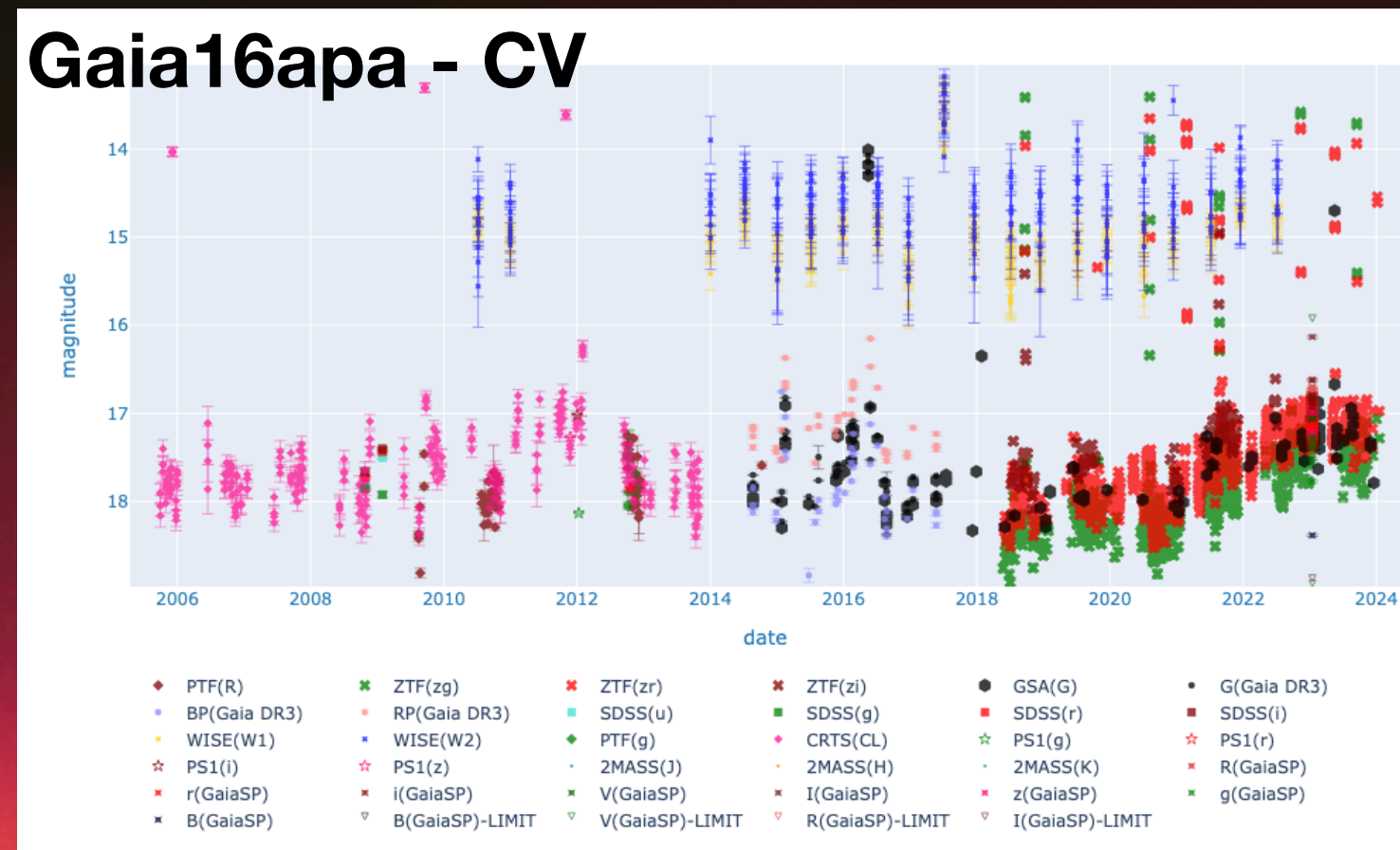
How to (effectively) deal with TDA observations?

- Targets of interests selected from the alerts published
- Observations triggered via proposals or voluntary time allocations
- Observations made (dense cadence) and data collected
- Automatic data reduction and calibration to science-ready products
- Processed data used by the users for analysis

Projects with BHTOM data

some examples

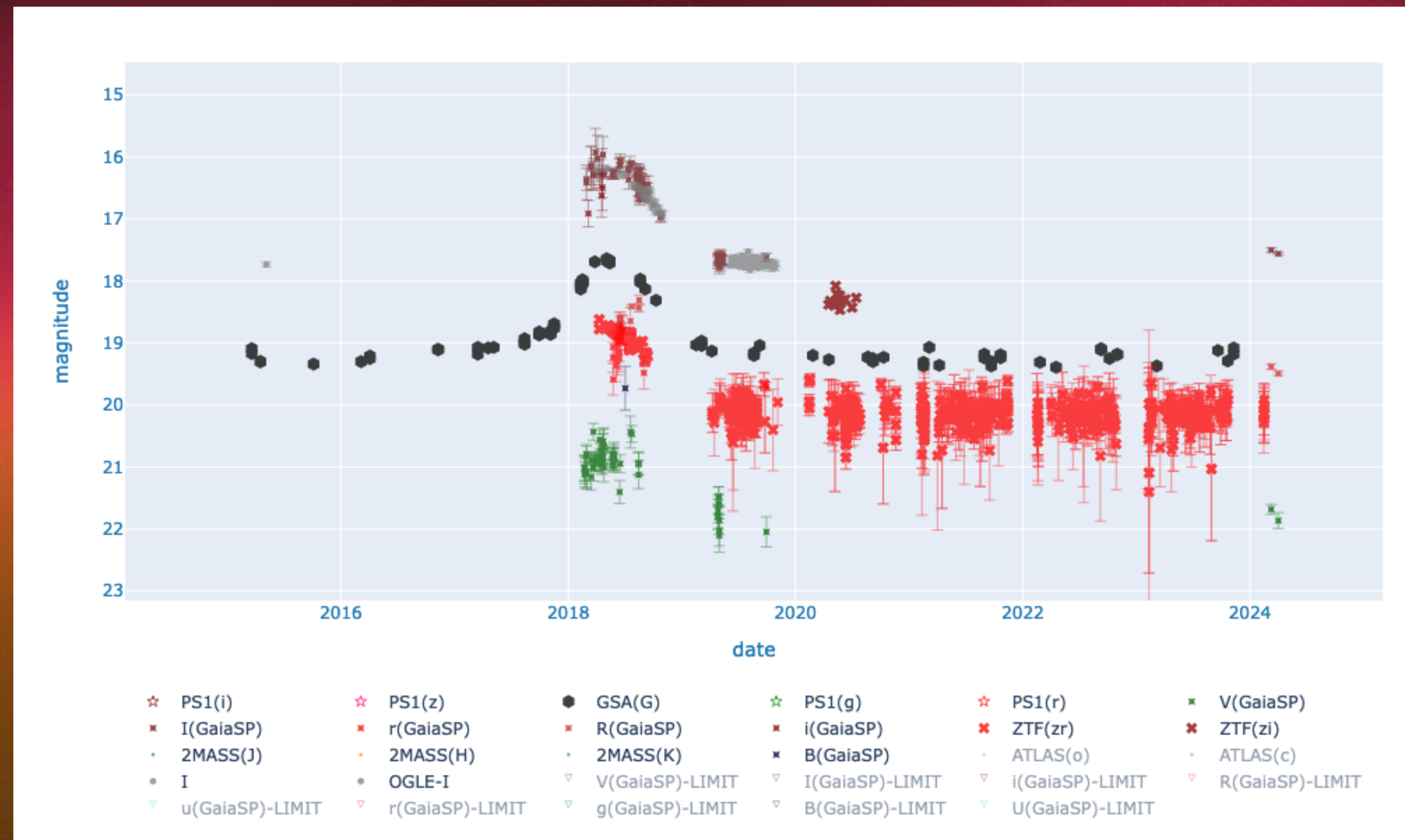
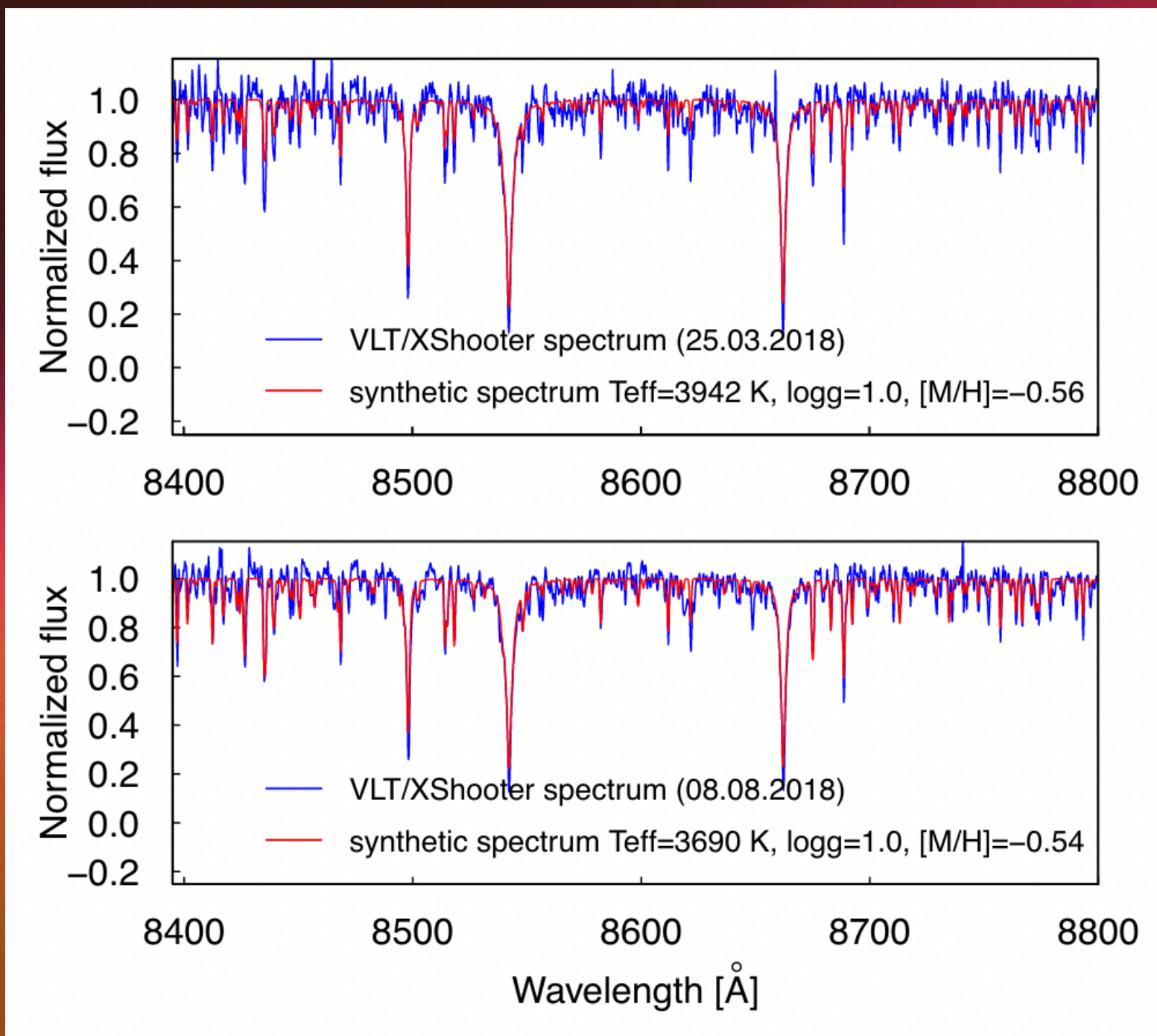
- Microlensing events
- Young Stellar Objects
- Symbiotic stars
- Flares in quasars
- Active Galactic Nuclei
- Supernovae
- Cataclysmic Variables
- Be stars
- ...



Microlensing events

Gaia18ajz

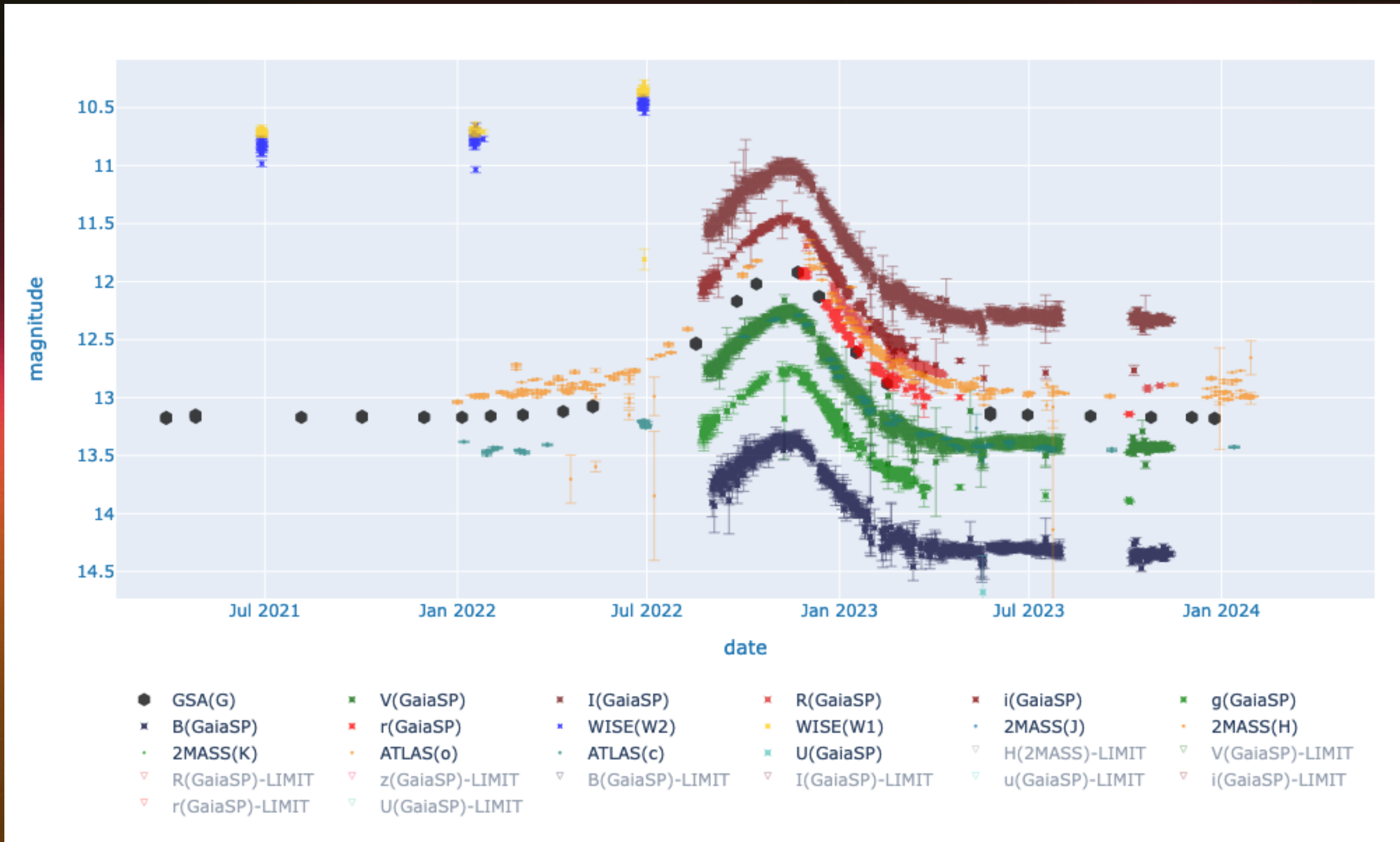
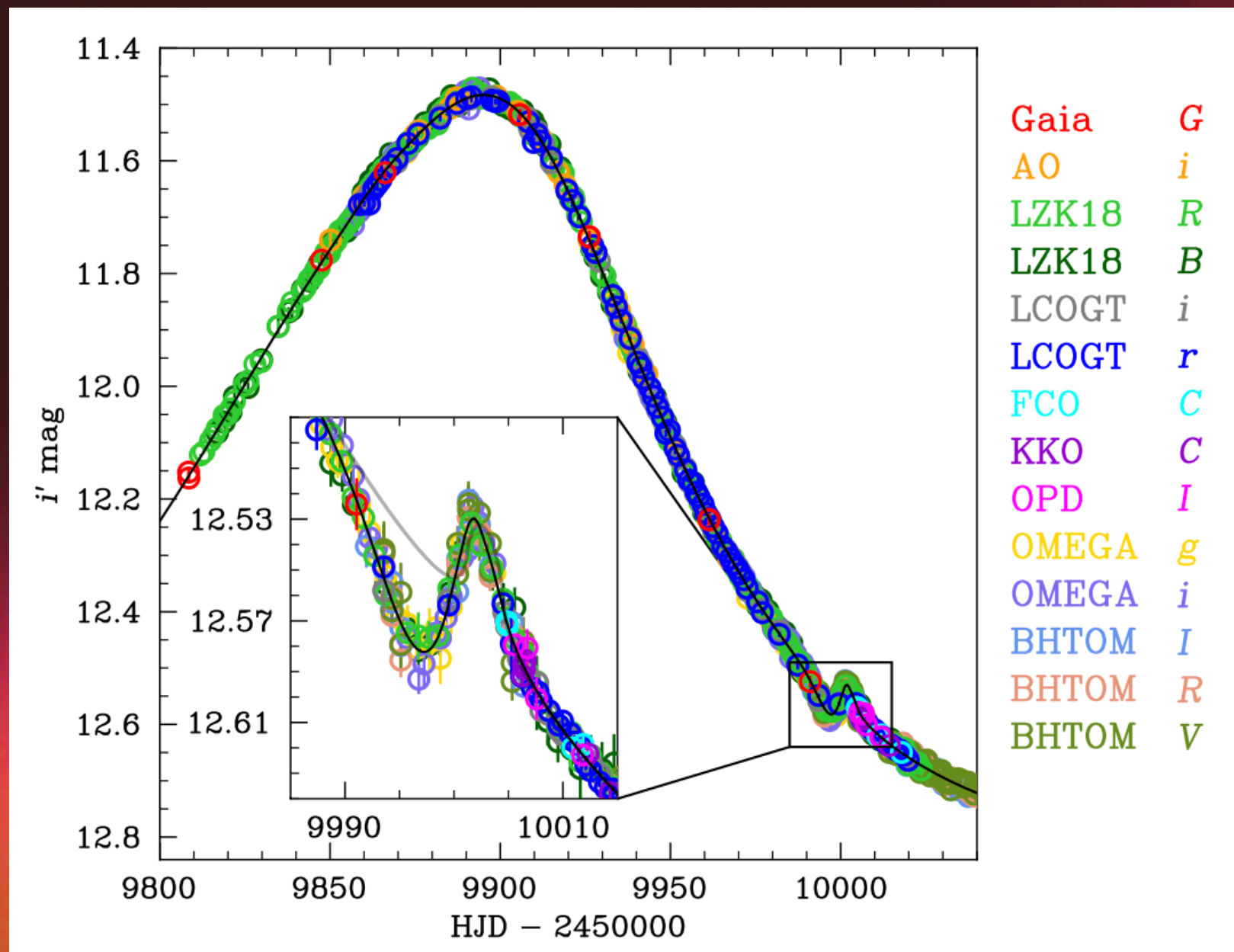
- Candidate BH lens:
5.6 Msun or 12 Msun object
located at 1-1.2 kpc
- Howil et al. 2024



Microensing events

Gaia22dkv

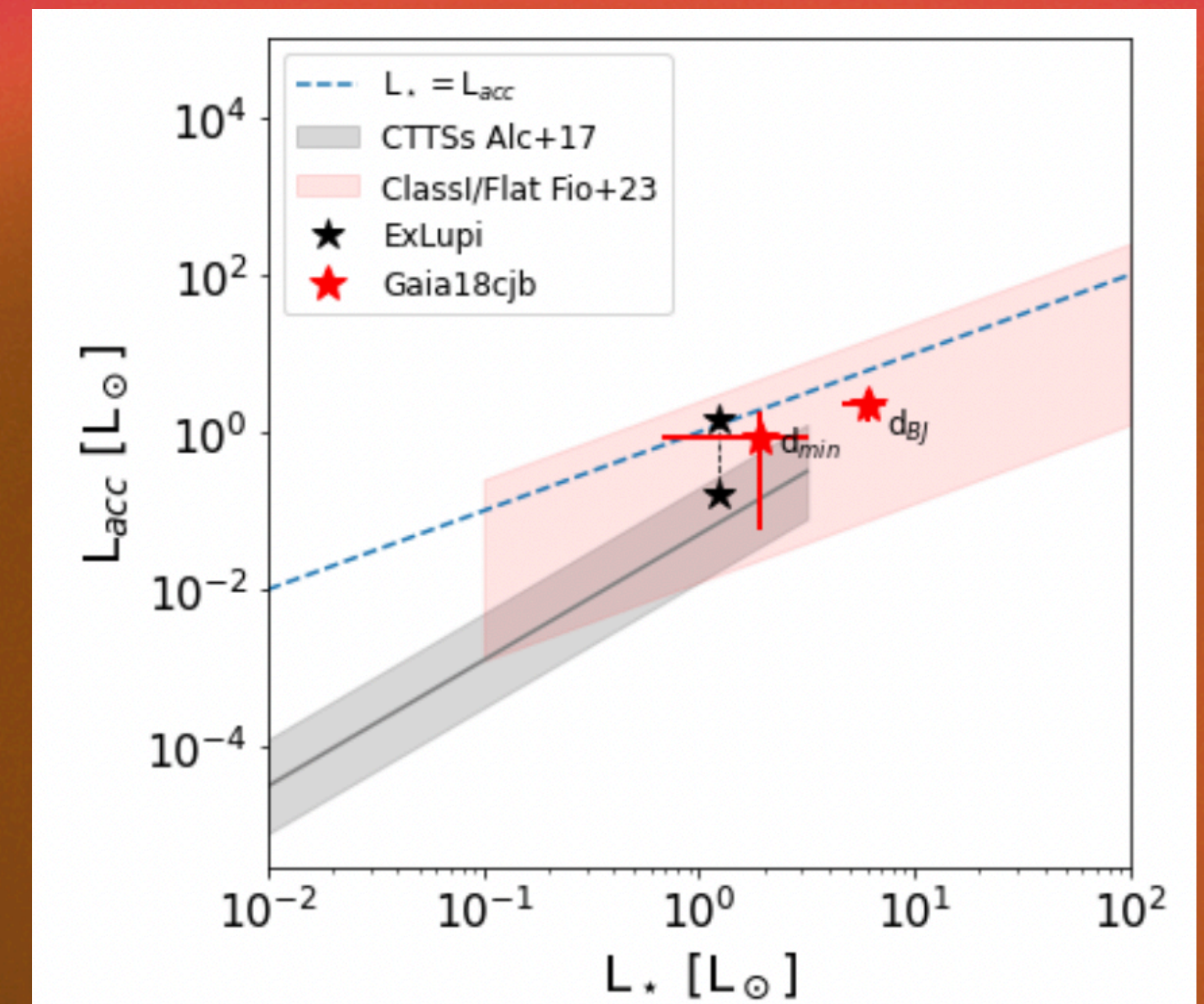
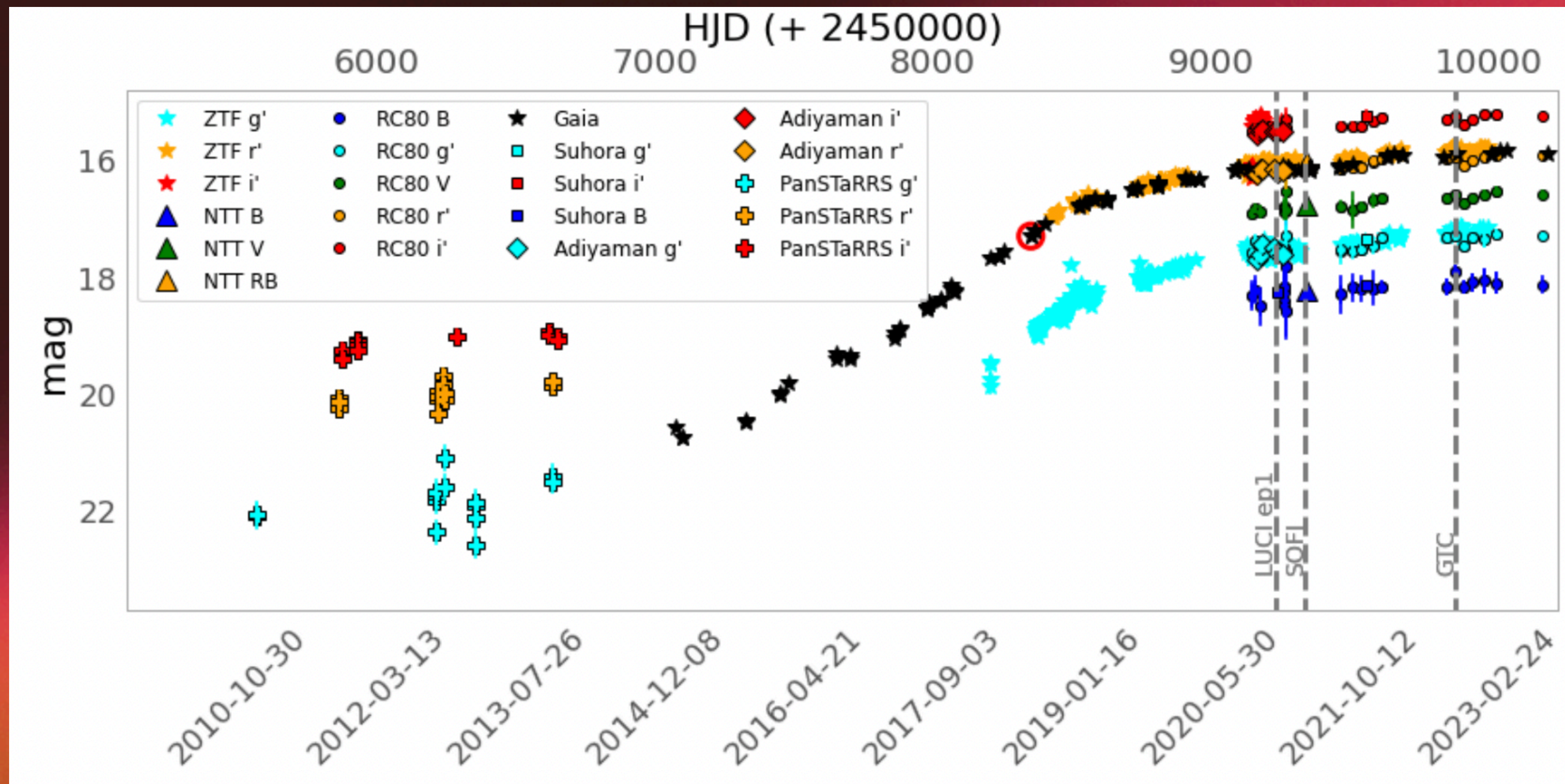
- Microlensing event with planetary anomaly
- Wu et al. 2024



YSOs

Gaia18cjb

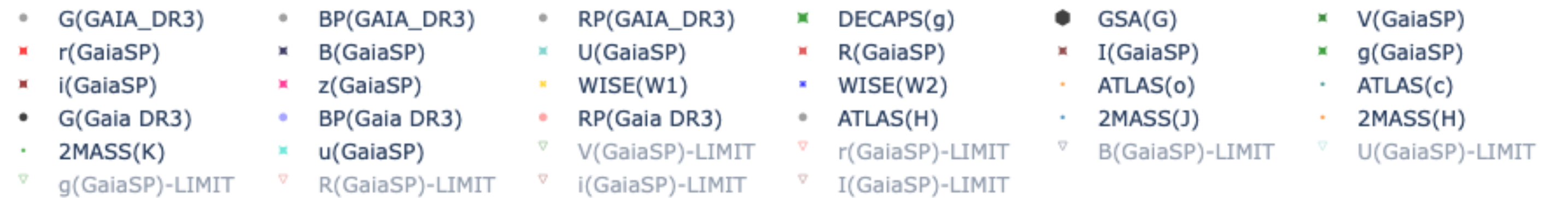
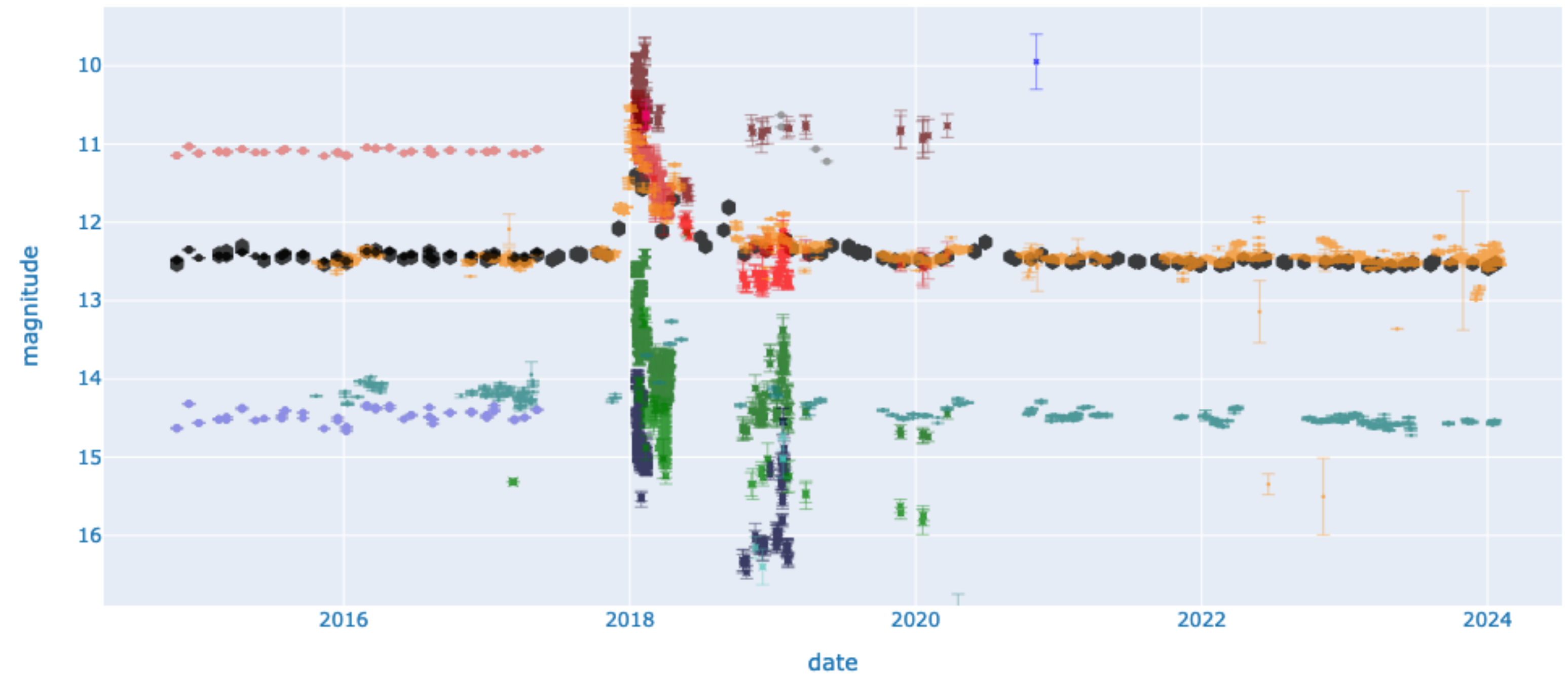
- Rare hybrid of FUor and EXor
- Fiorellino et al. 2024



Symbiotic stars

Gaia18aen

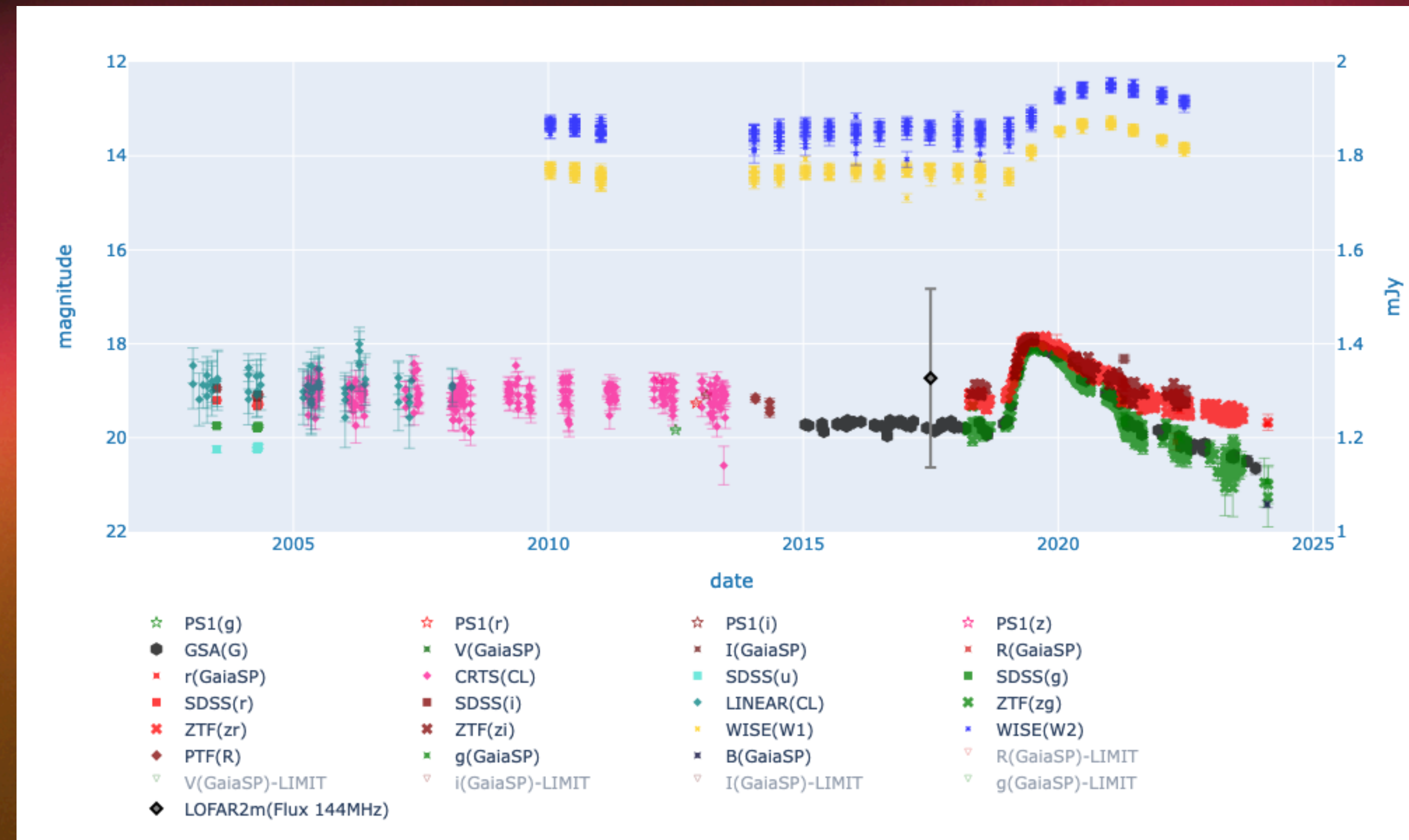
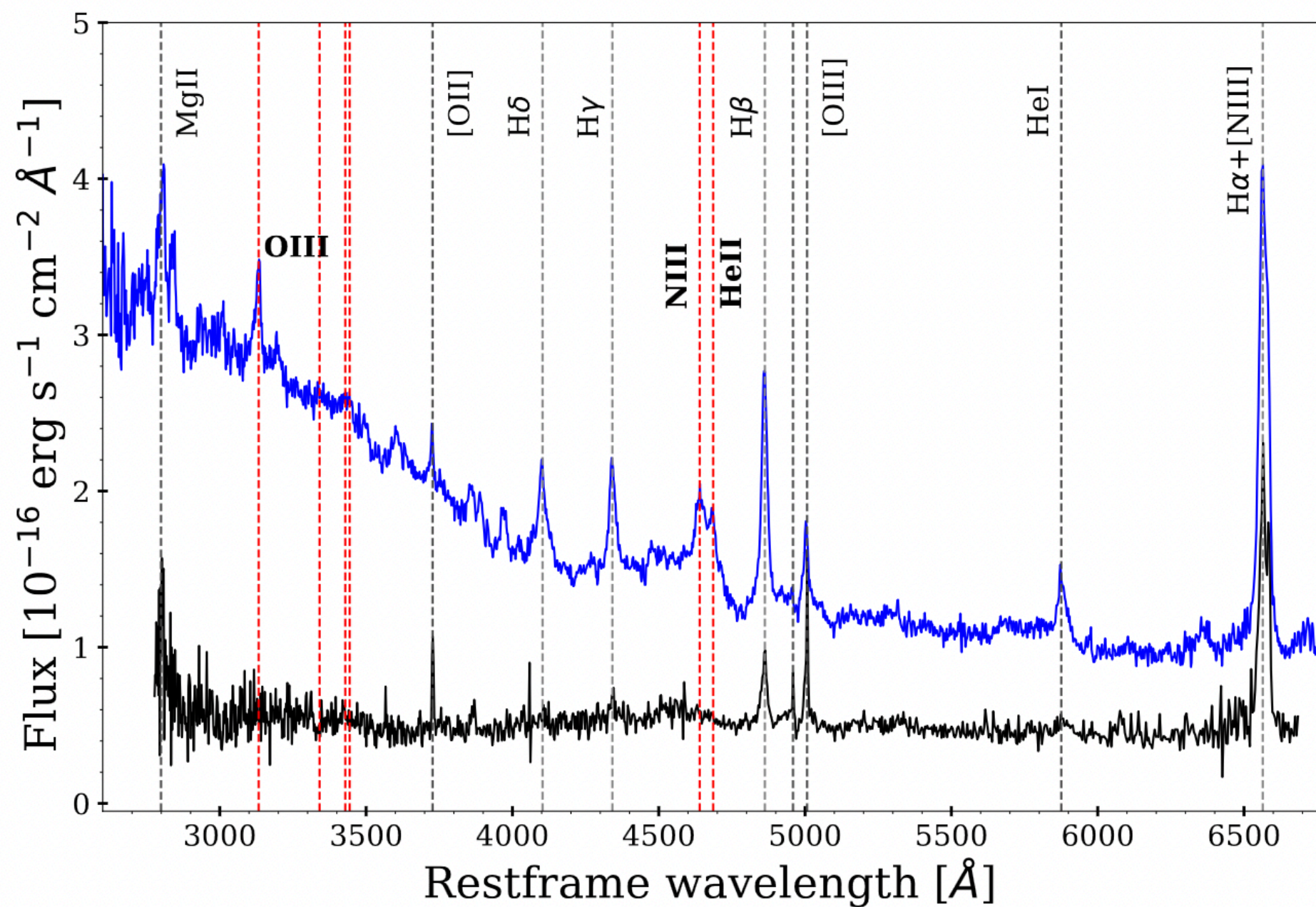
- First SymS alerted by Gaia
- Merc et al. 2020



Bowen fluorescence flares

Gaia19axp

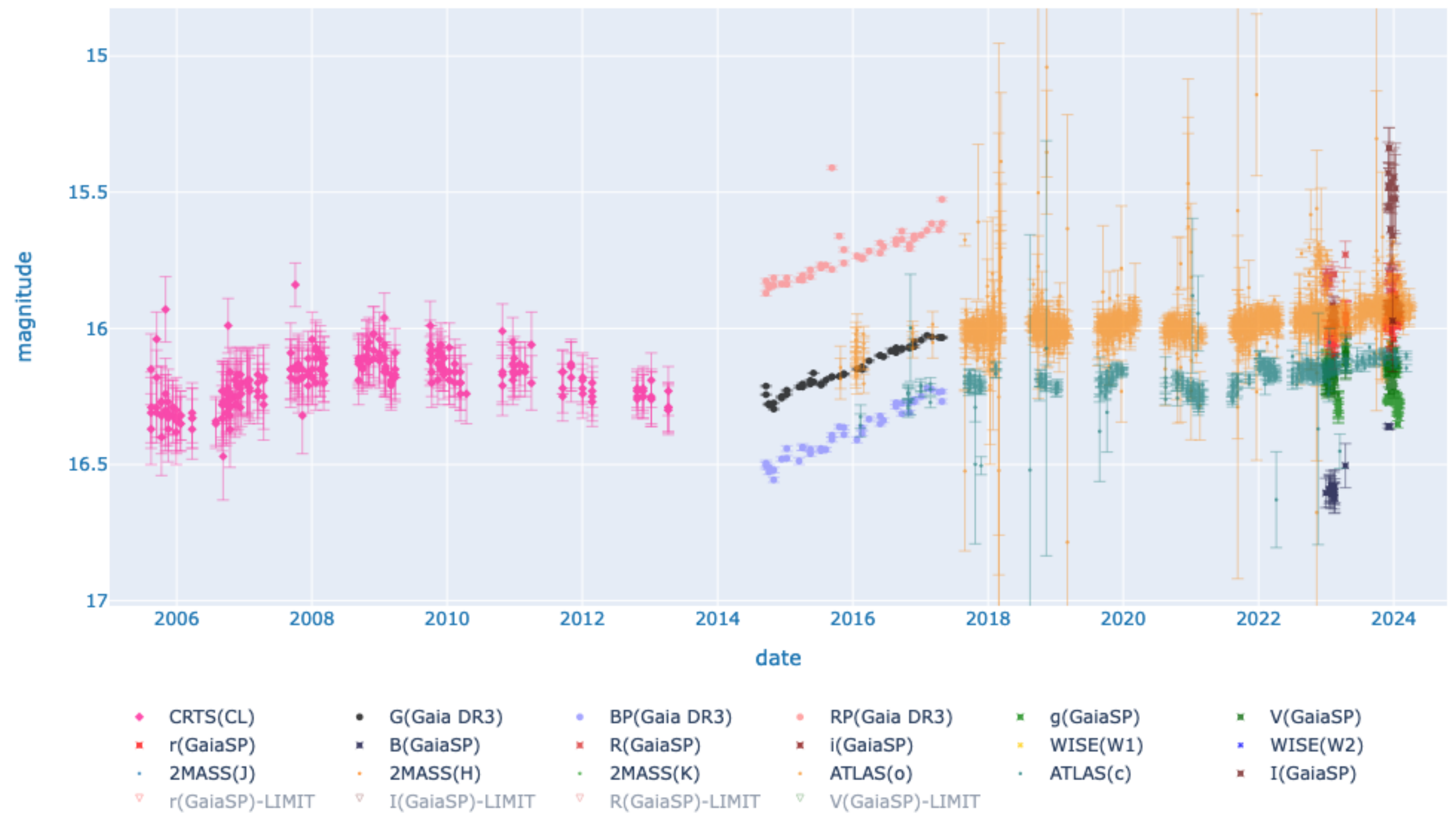
- The most distant and luminous case related with Supermassive Black Holes
- Ihanec et al., in prep.



AGNs/QSOs

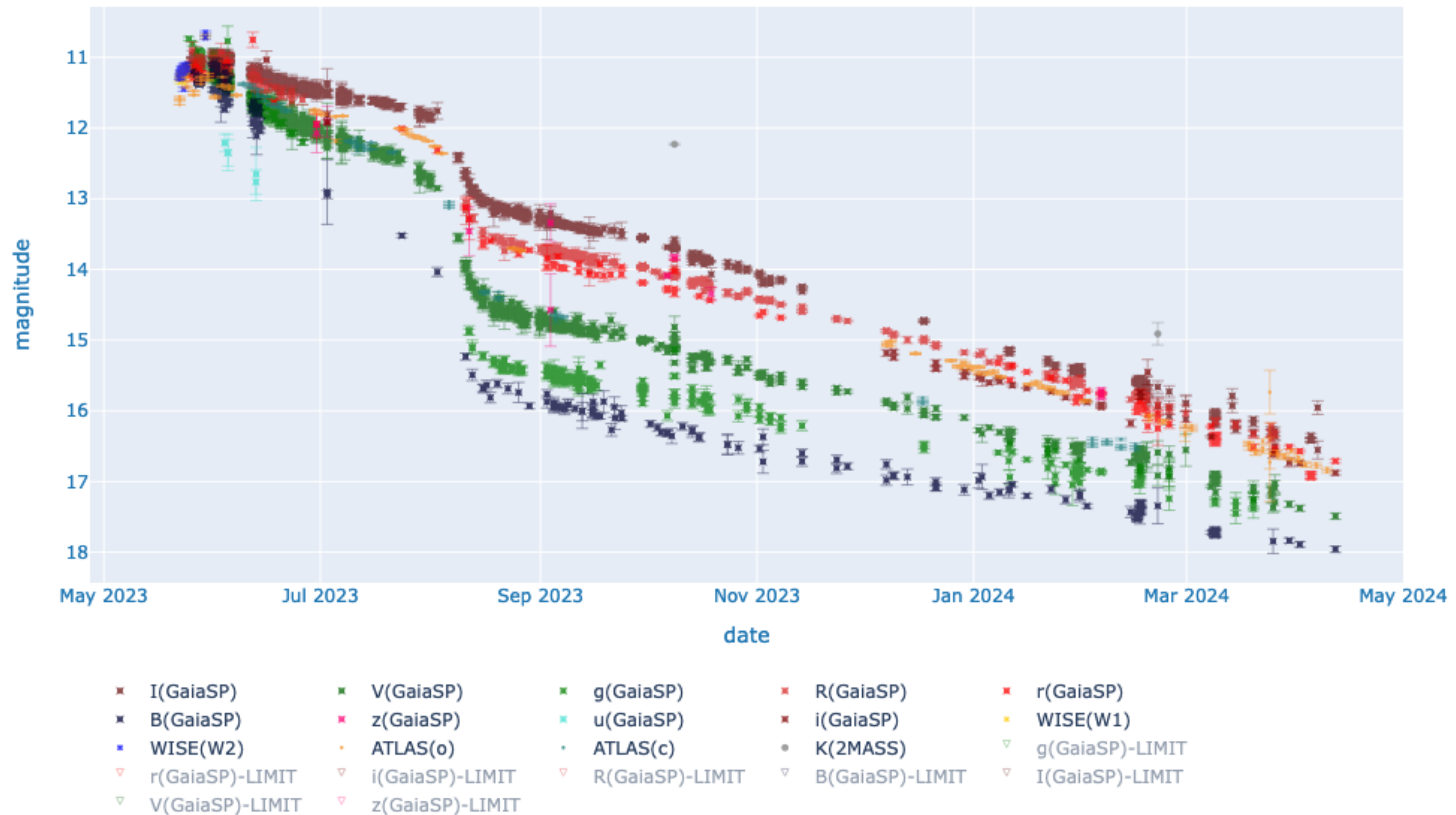
HE0413+4031

- Very long-term monitoring



SNe

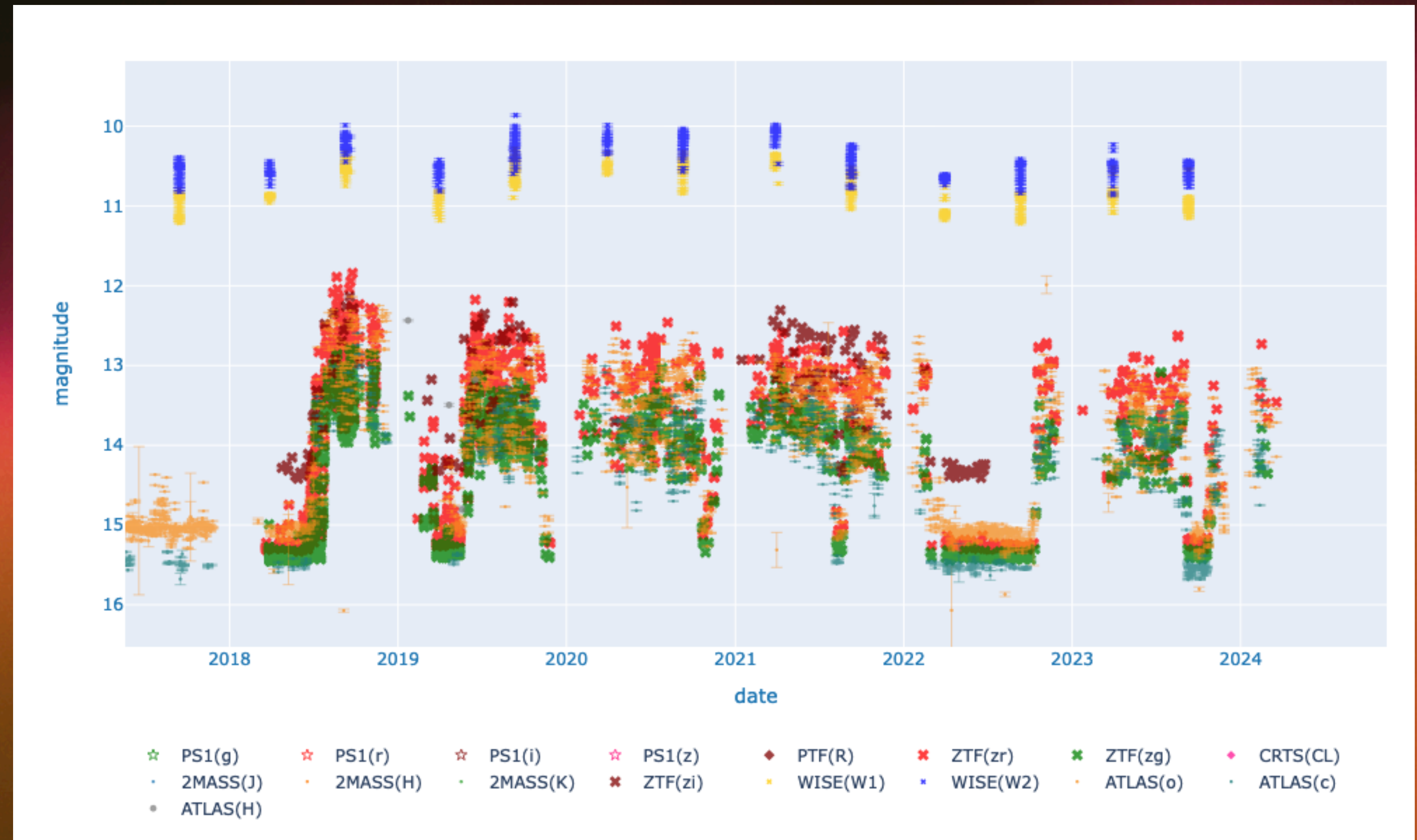
SN2023ixf - a supernova in M101



CVs

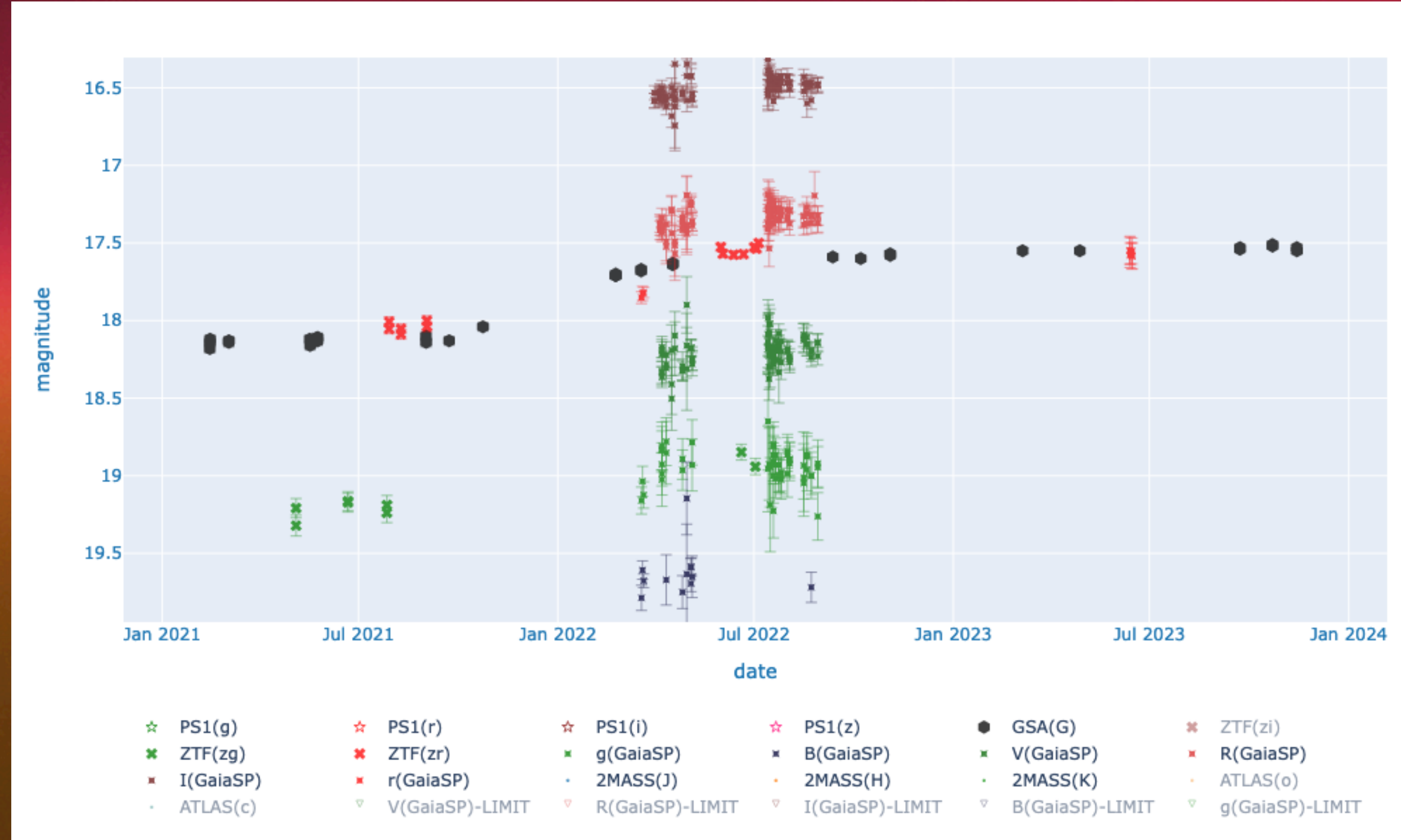
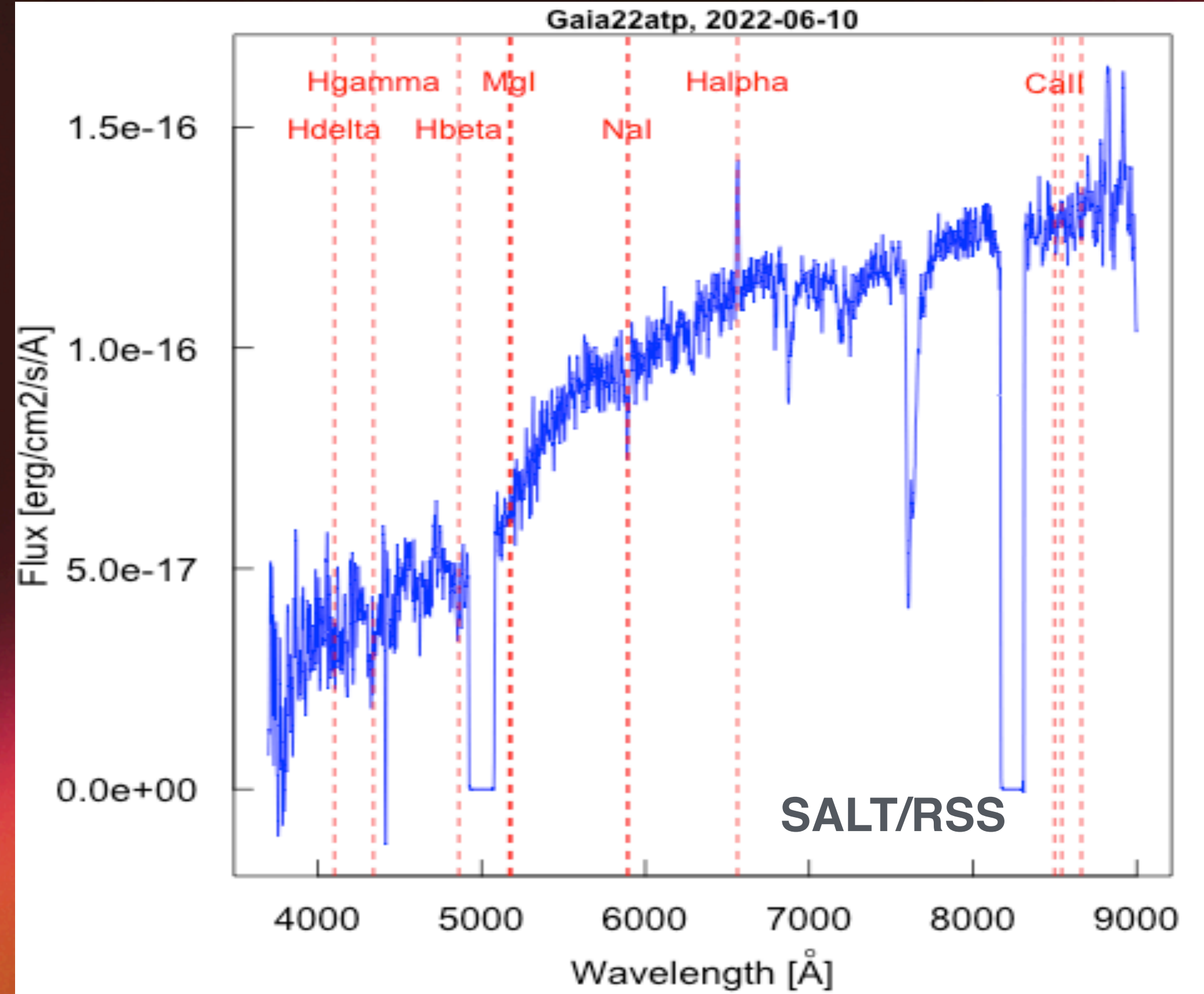
joint opto + radio observations

- AM Her
- EVN radio proposal awarded recently
- EVN+ORP run planned in June 2024



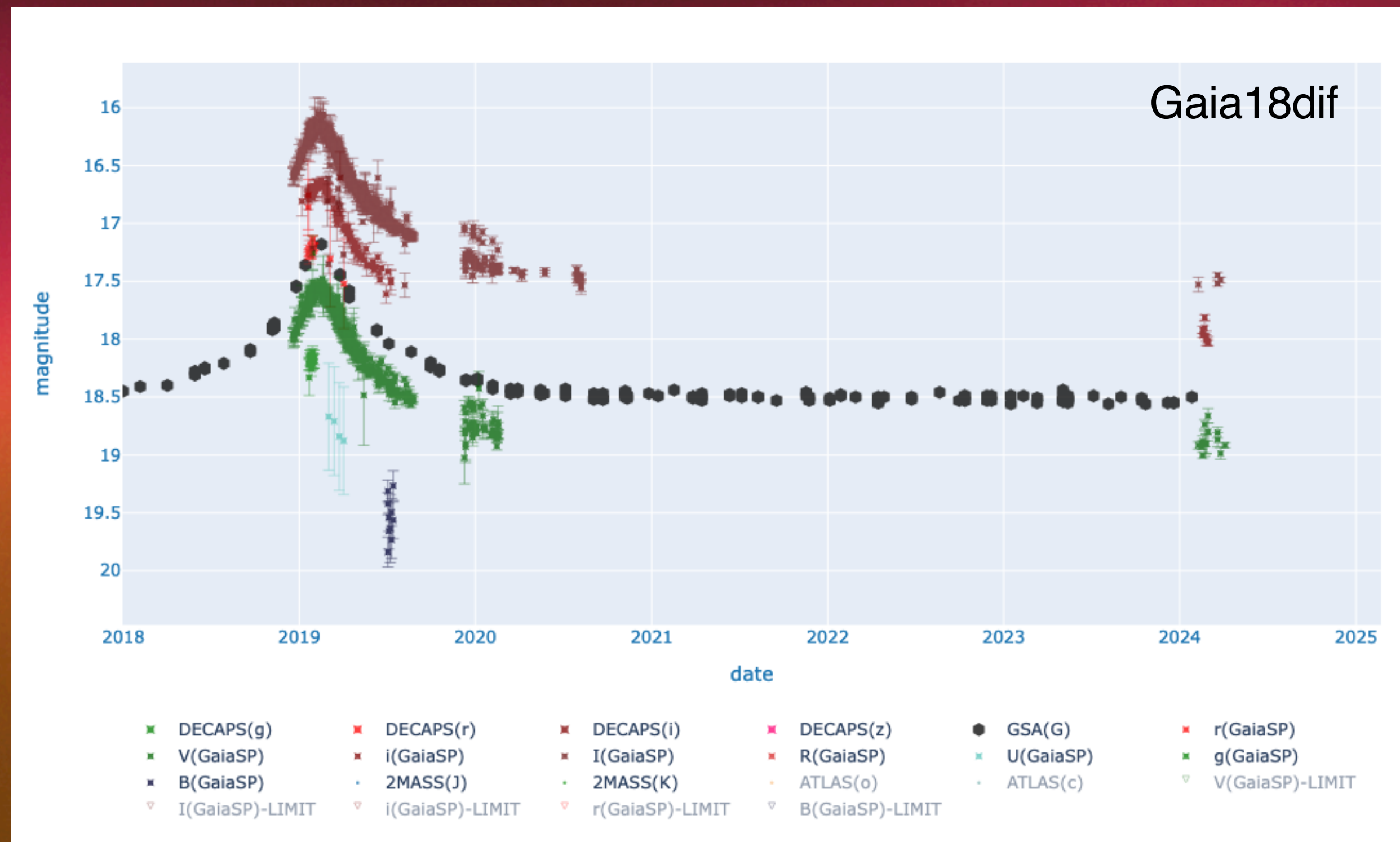
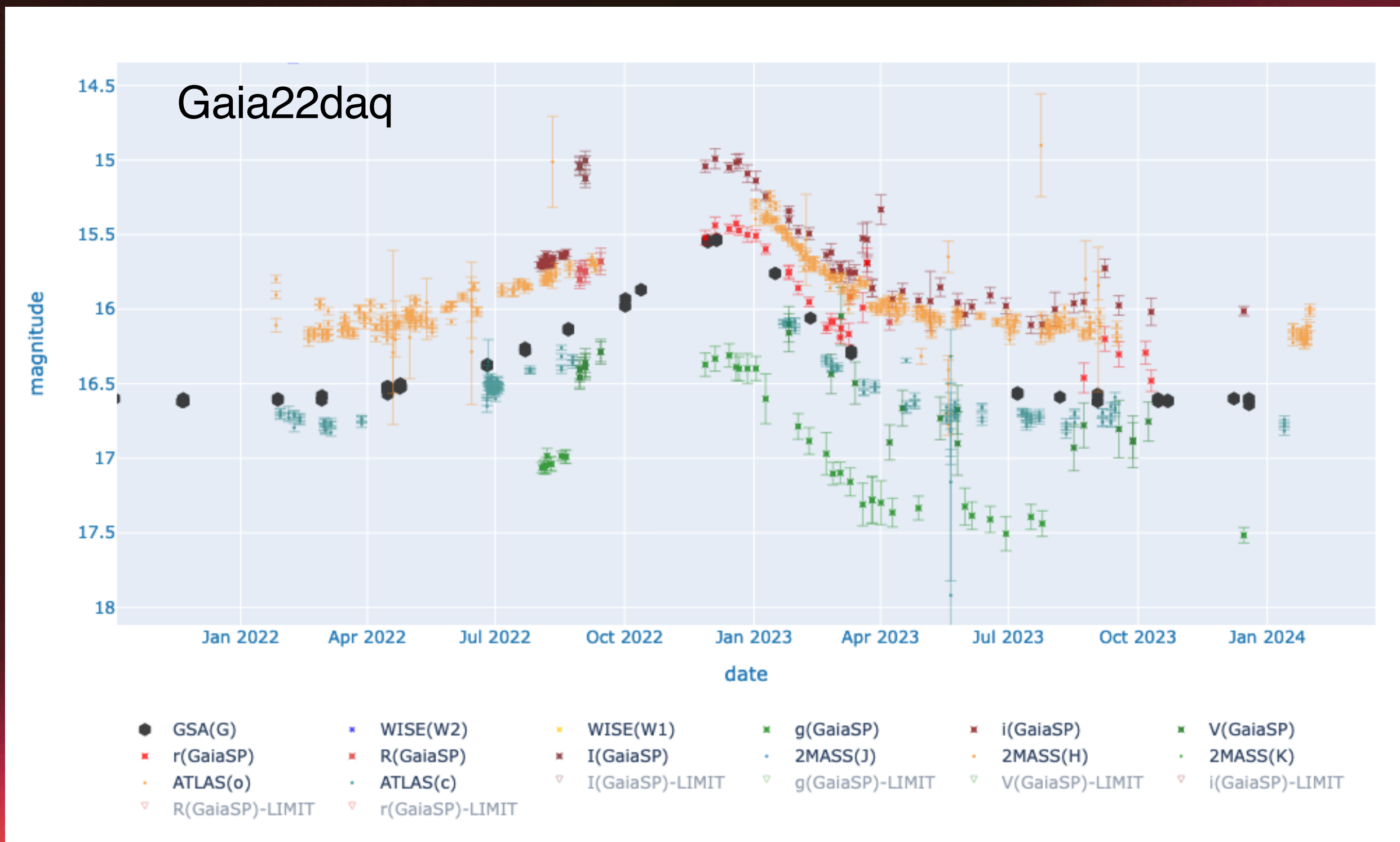
Be stars

photometry & spectroscopy

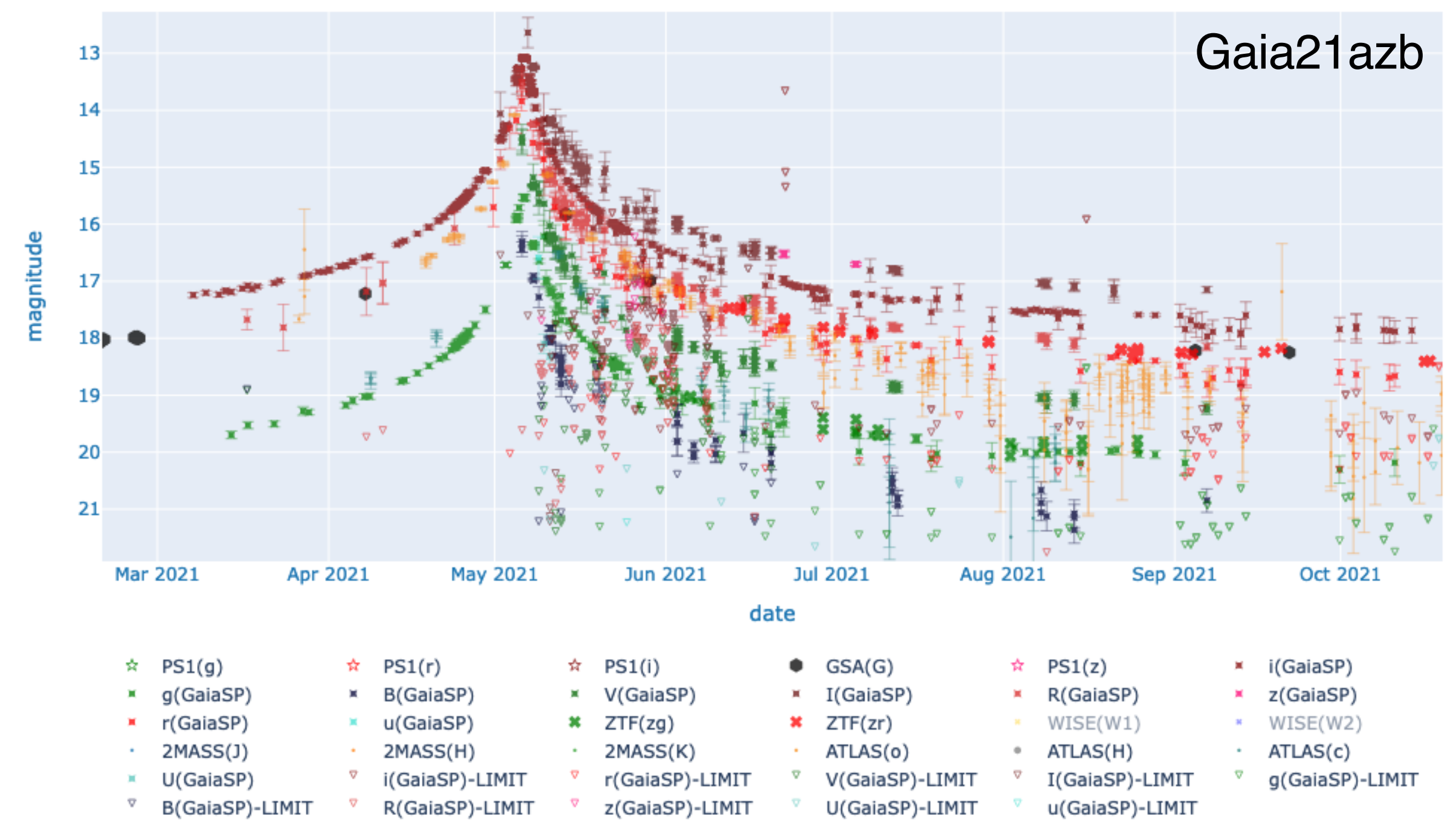
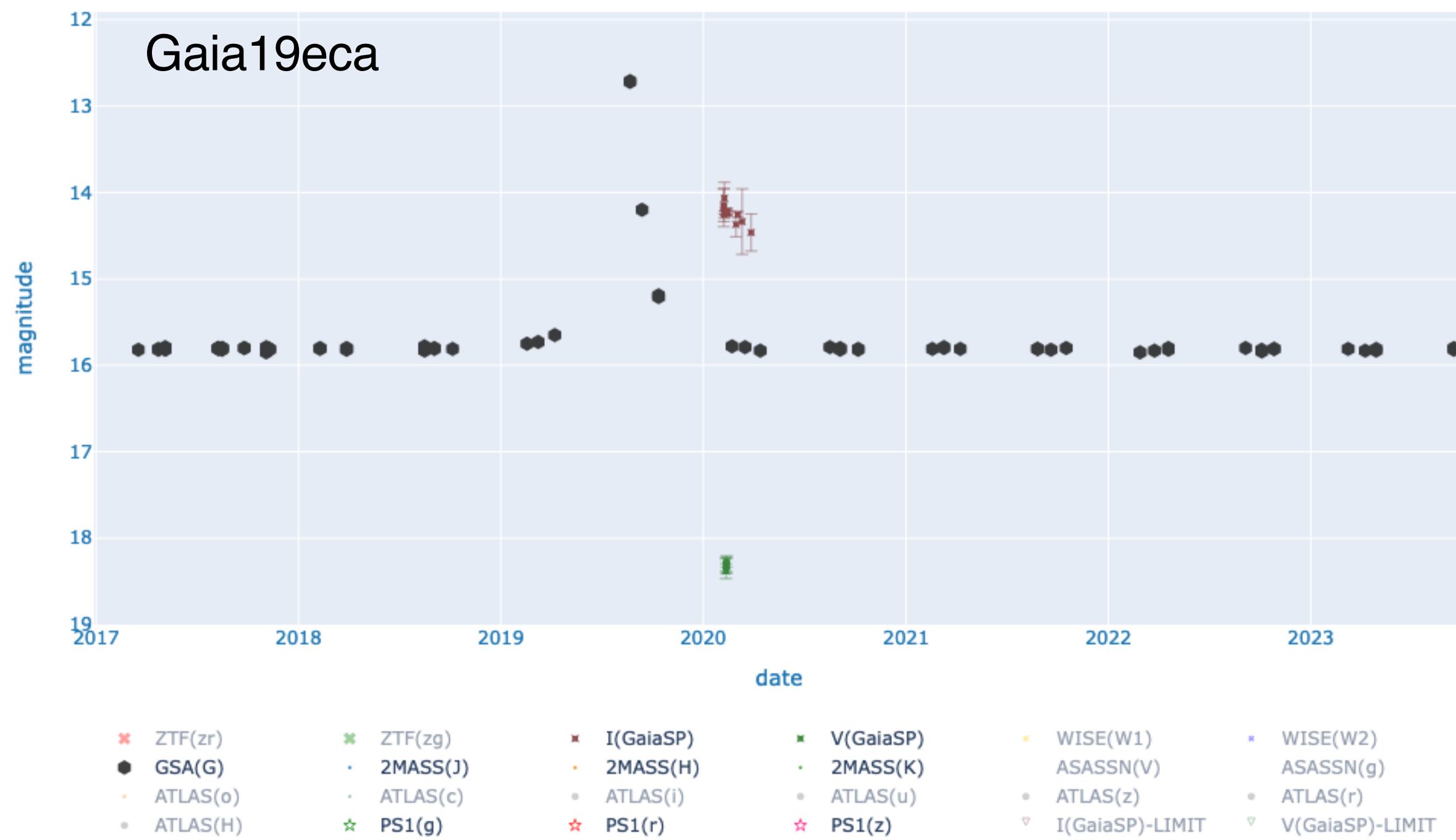


Nice light curve

useful for modelling



Worse light curve not very useful



Summary

- We need follow-up!!! Please help if you can :)
- Check the interesting targets in BHTOM (sorting by priority) or in automated newsletter
- Add your targets of interest and wait for data from other users
- If you observed some targets, please continue observing until the brightness' baseline
- It is better to observe one target ten times than ten targets once!!!
- Variety of scientific cases based on BHTOM photometric data
- Spectra also available for some targets
- BHTOM is a new automatic tool for TDA

Thank you!

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