

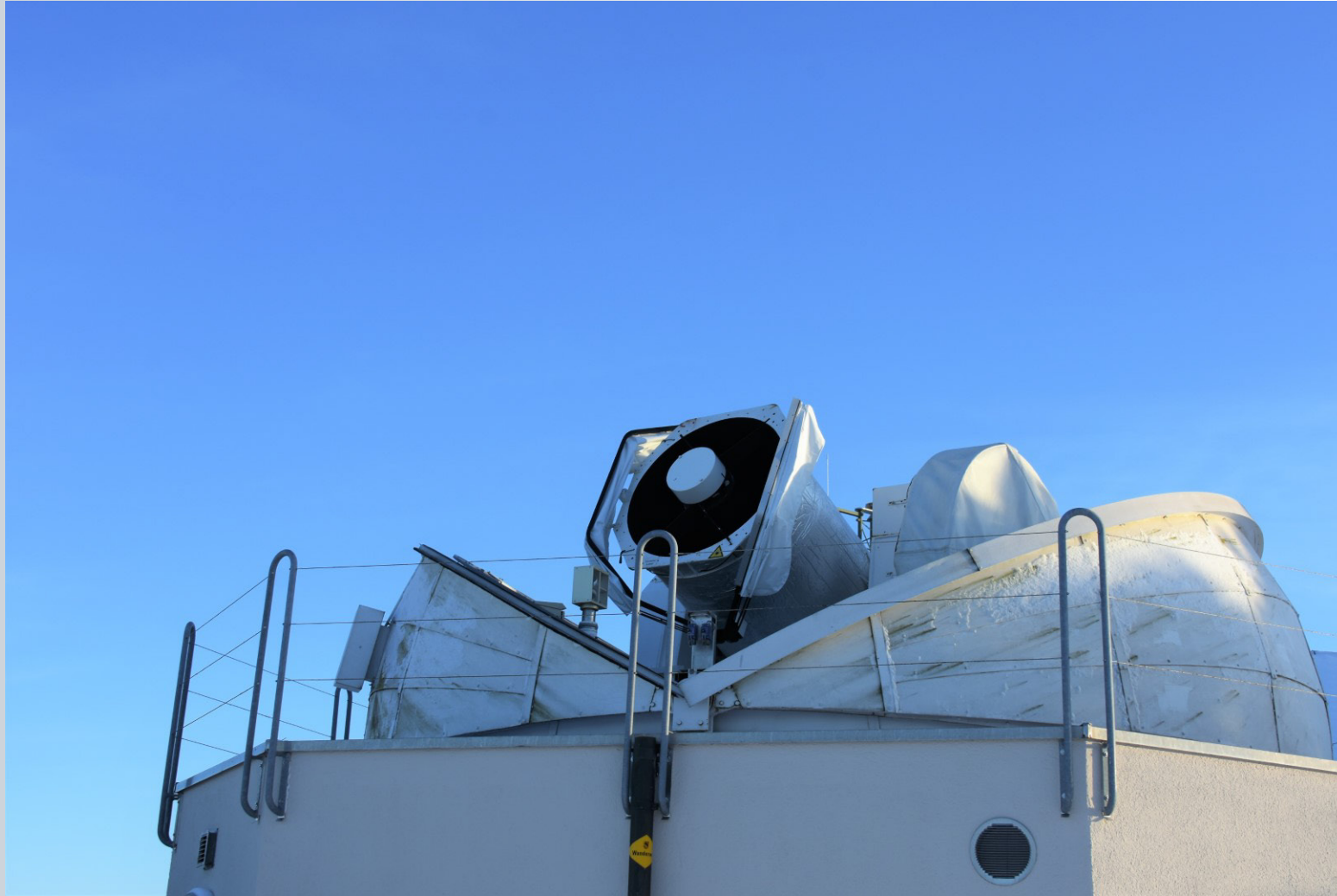
# IT 41.2 ESA Contribution Light Curve Observations of 87074G

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*42<sup>nd</sup> IADC Annual Meeting,  
April 16<sup>th</sup> – 19<sup>th</sup> 2024, Bengaluru, India*

# 1-m ZIMLAT at SwissOGS

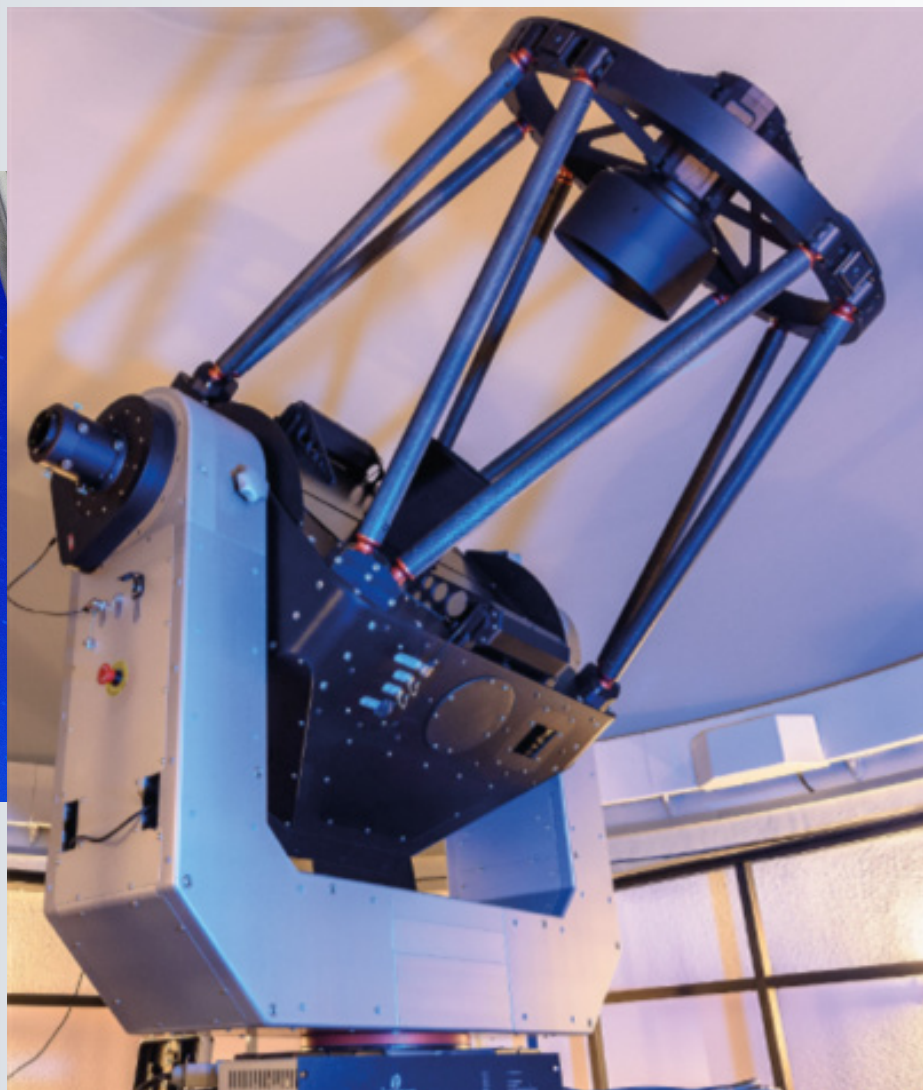
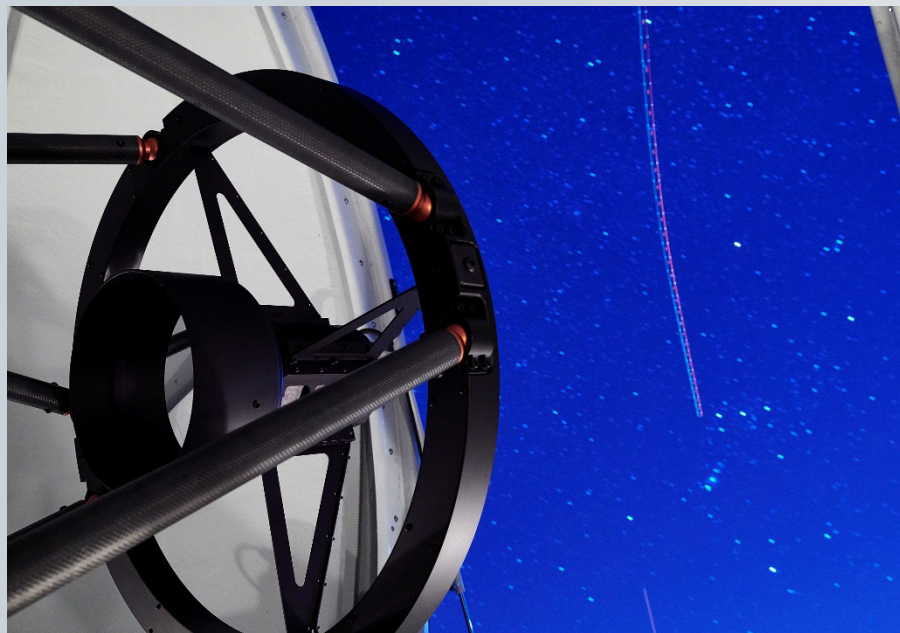


**1-m Zimmerwald  
Laser and  
Astrometry  
Telescope ZIMLAT**

- **CCD light curves**
- **CMOS light curves**

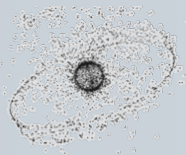


# 0.8-m ZimMAIN at SwissOGS

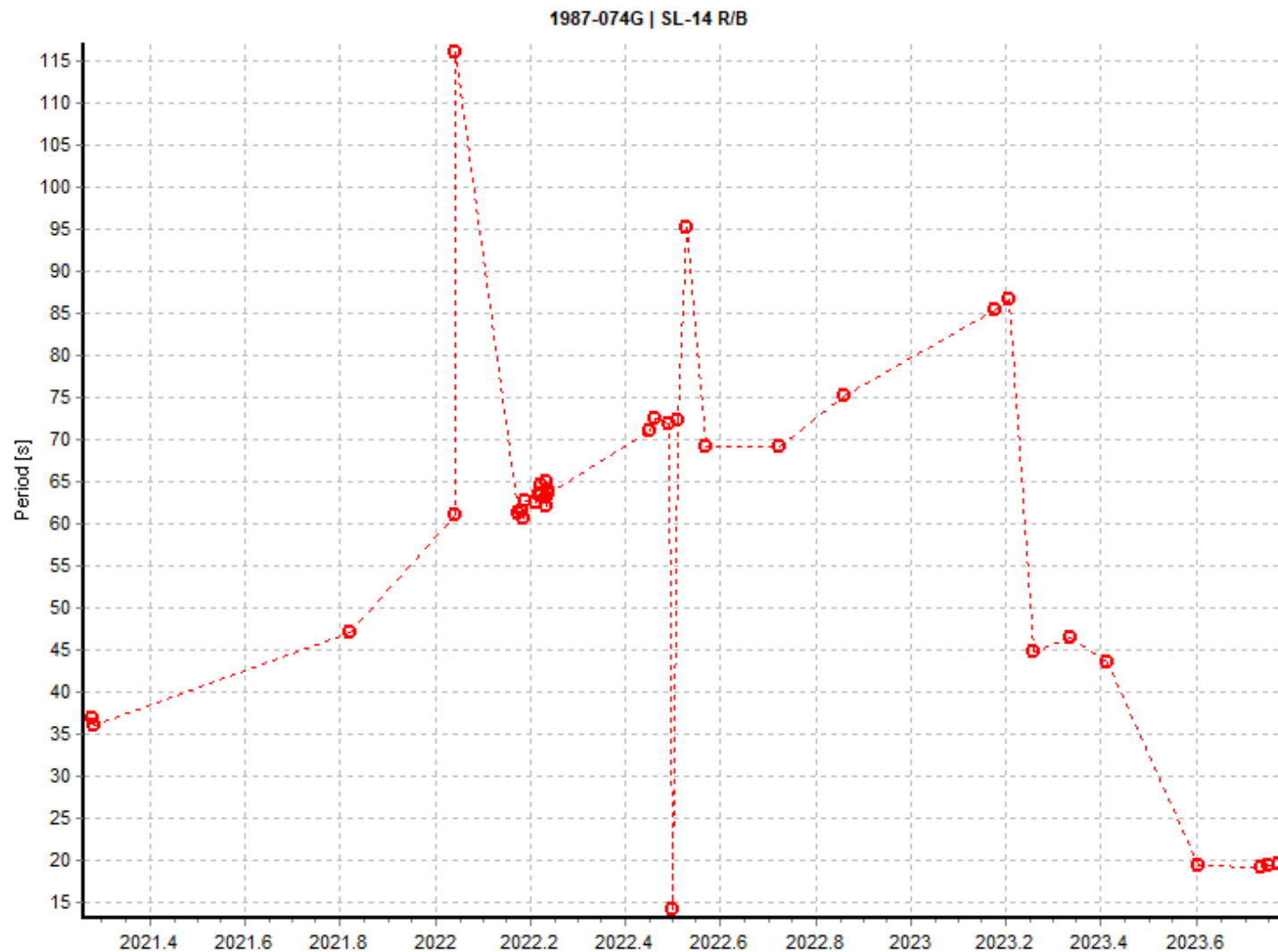


**0.8-m Zimmerwald  
Multiple Application  
Instrument ZimMAIN**

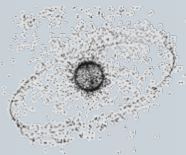
- CMOS light curves



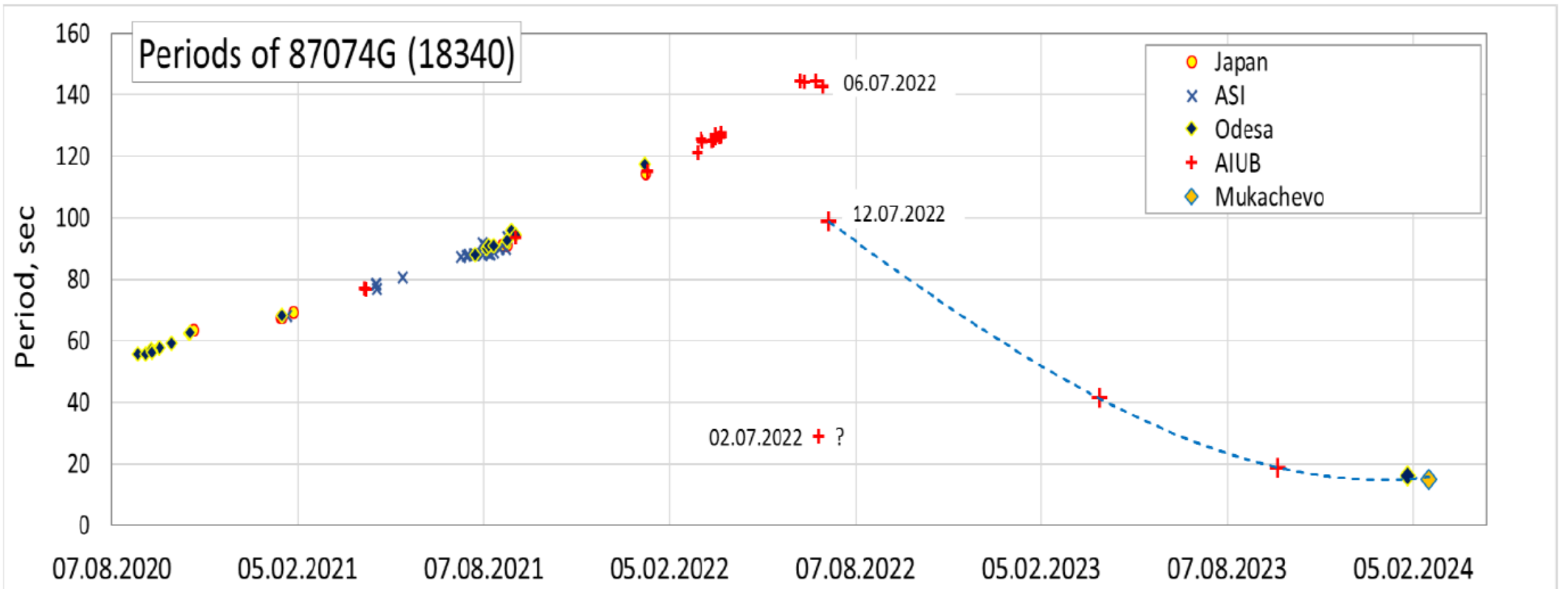
# Evolution of Spin Period of 87074G

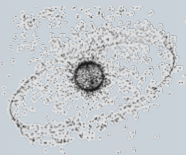


real spin period may  
always be a multiple  
of the period  
determined from a  
single light curve!

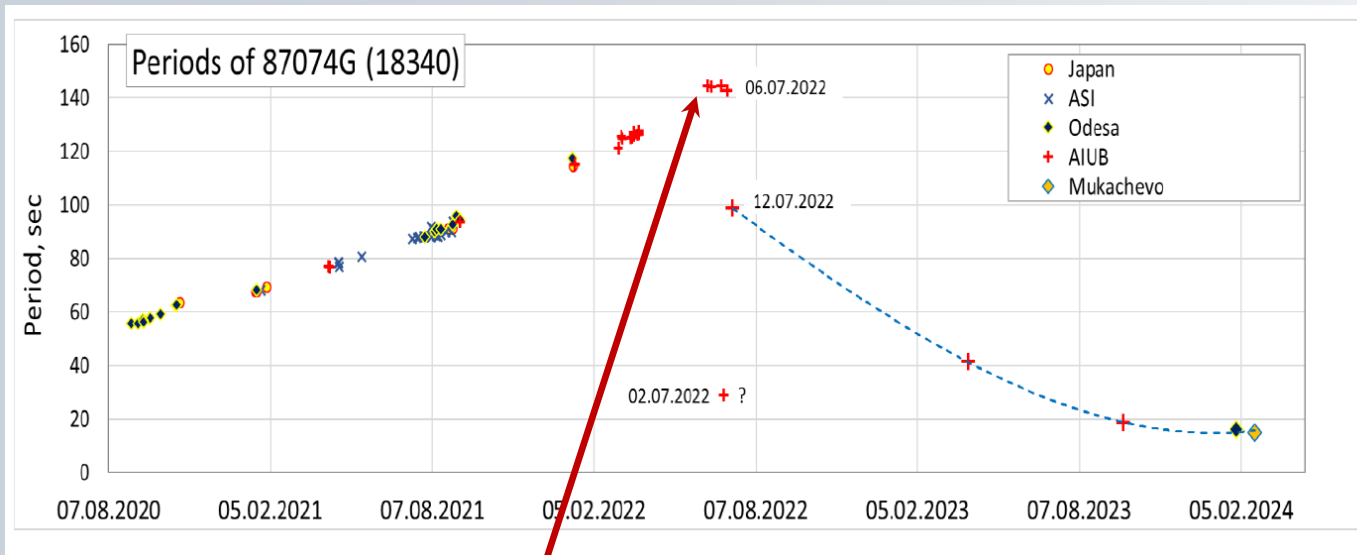


# SSAU Results including ESA (AIUB) Data



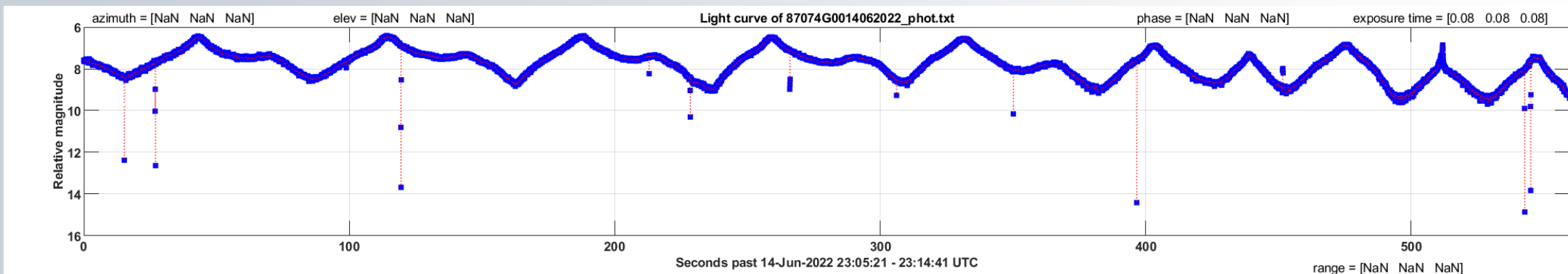


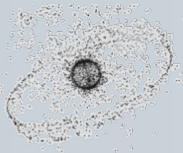
# SSAU Results including ESA (AIUB) Data



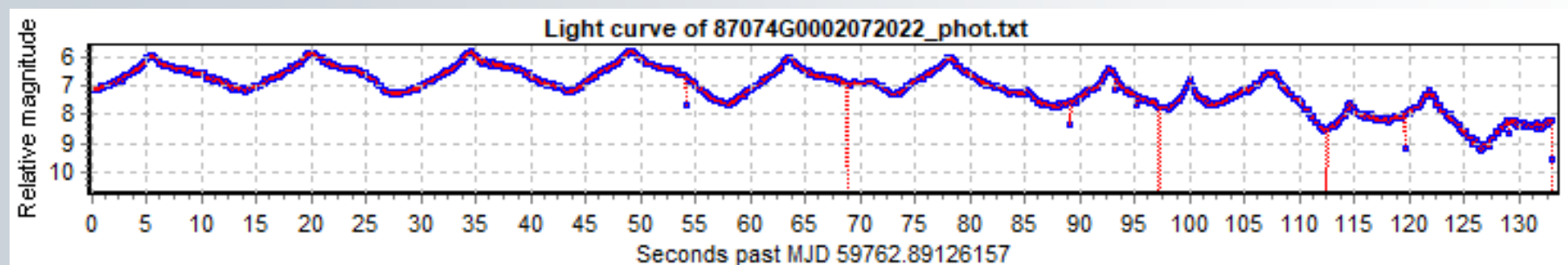
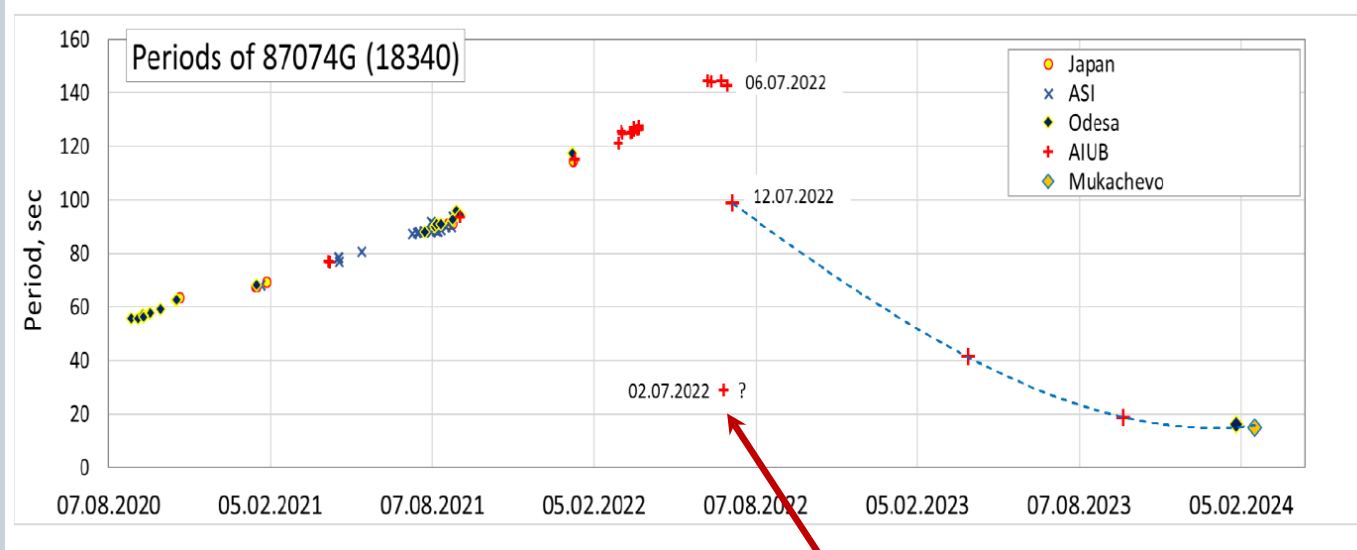
P (AIUB): 71 s

P (SSAU): 142 s

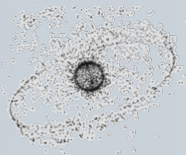




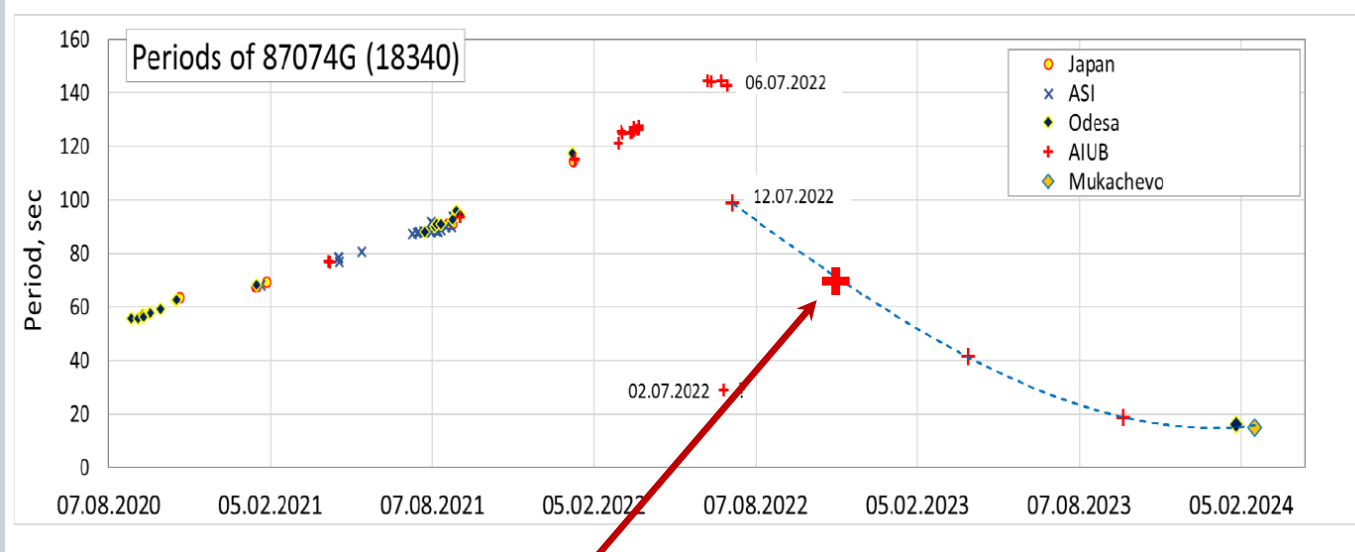
# SSAU Results including ESA (AIUB) Data



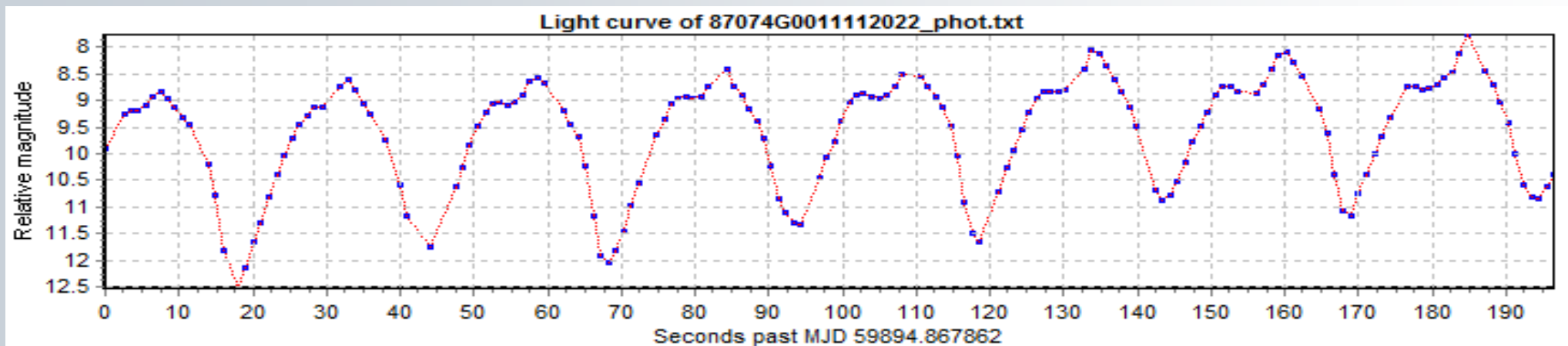




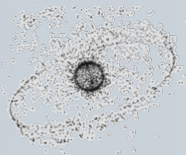
# SSAU Results including ESA (AIUB) Data



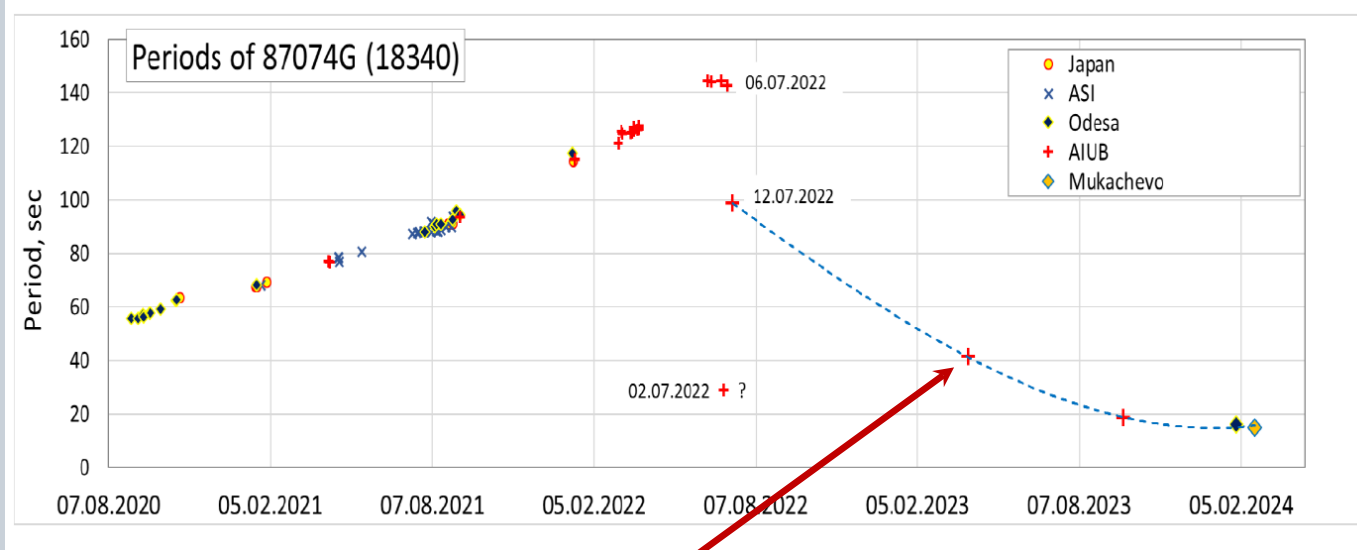
**P (AIUB): 75s**





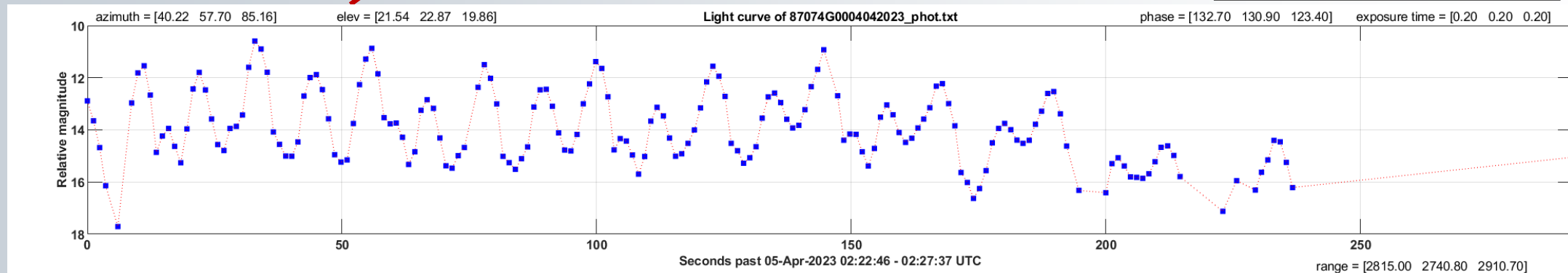


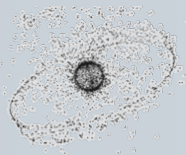
# SSAU Results including ESA (AIUB) Data



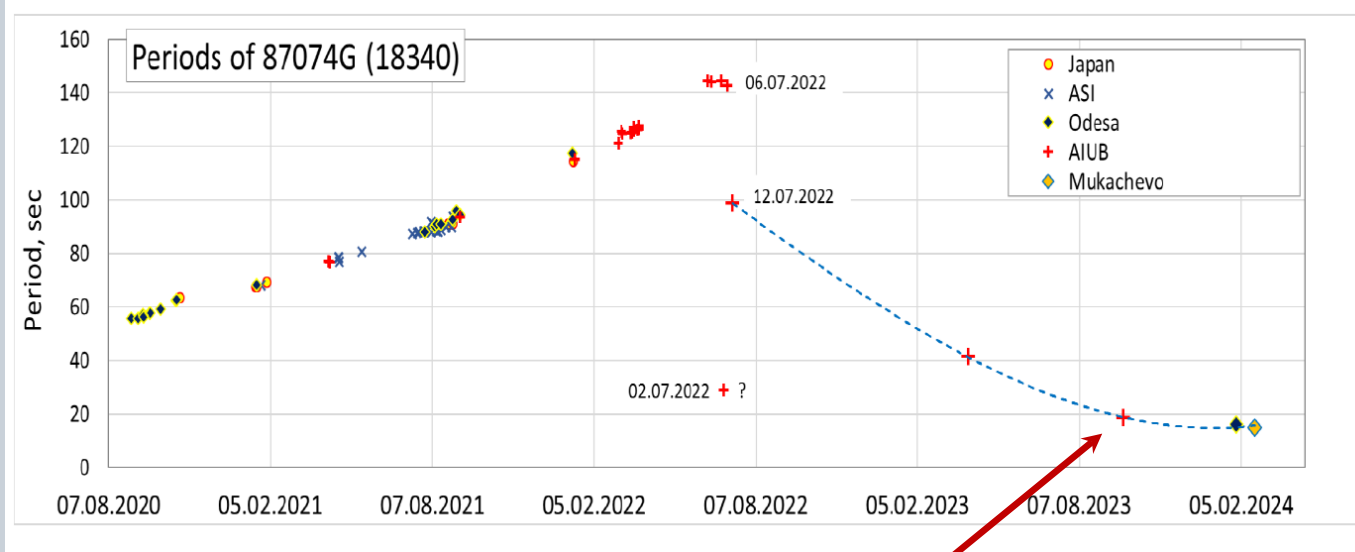
P (AIUB): 45s

P (SSAU): 41s



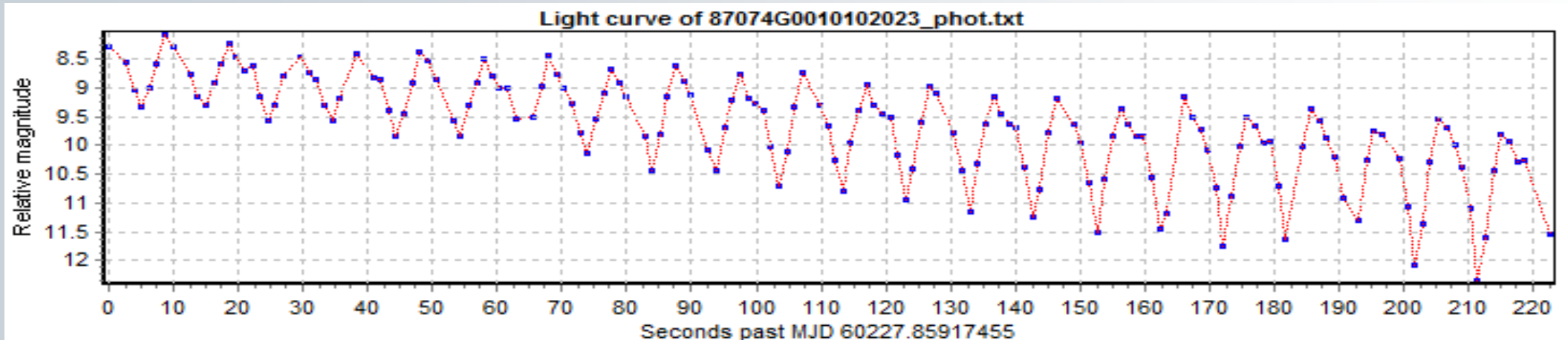


# SSAU Results including ESA (AIUB) Data



P (AIUB): 19s

P (SSAU): 19s





# Summary – Lessons Learned

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- 45 light curves of NORAD 18340 (87074G), SL-14 r/b acquired from April 2021 to October 2023 (CMOS and CCD)
- **period ambiguity difficult to resolve for single light curve!**
- higher temporal resolution required to resolve ambiguity?
- 87074G shows sudden decrease of period in July 2022:  
**30% within 6 days**  
**reason for spin-up? spin axis orientation change?**