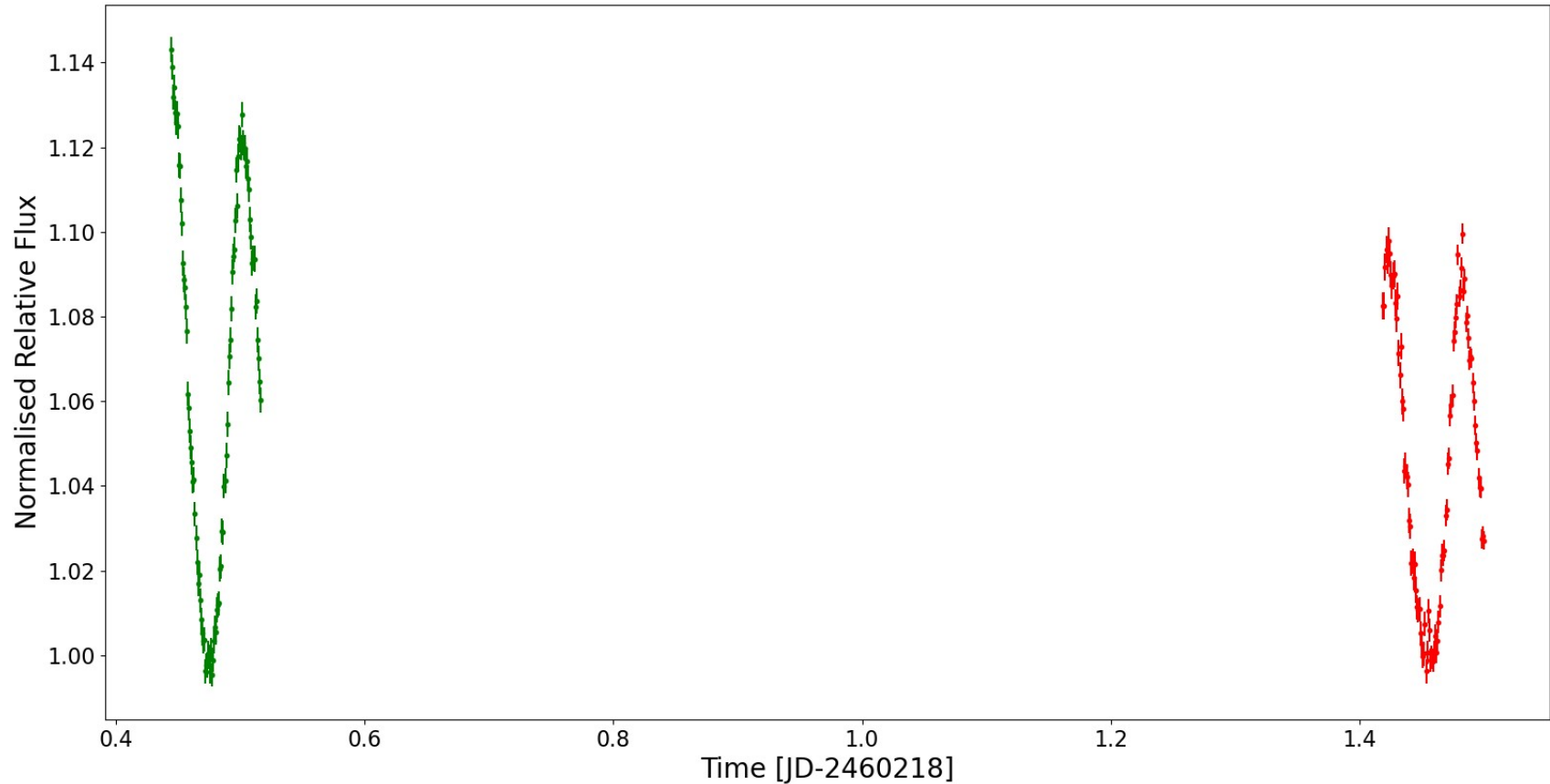


The variable star data were taken on two different nights, so when we plot them together in one figure, they don't look very good...



Ephemeris

$$T_{obs} = T_0 + E * P$$

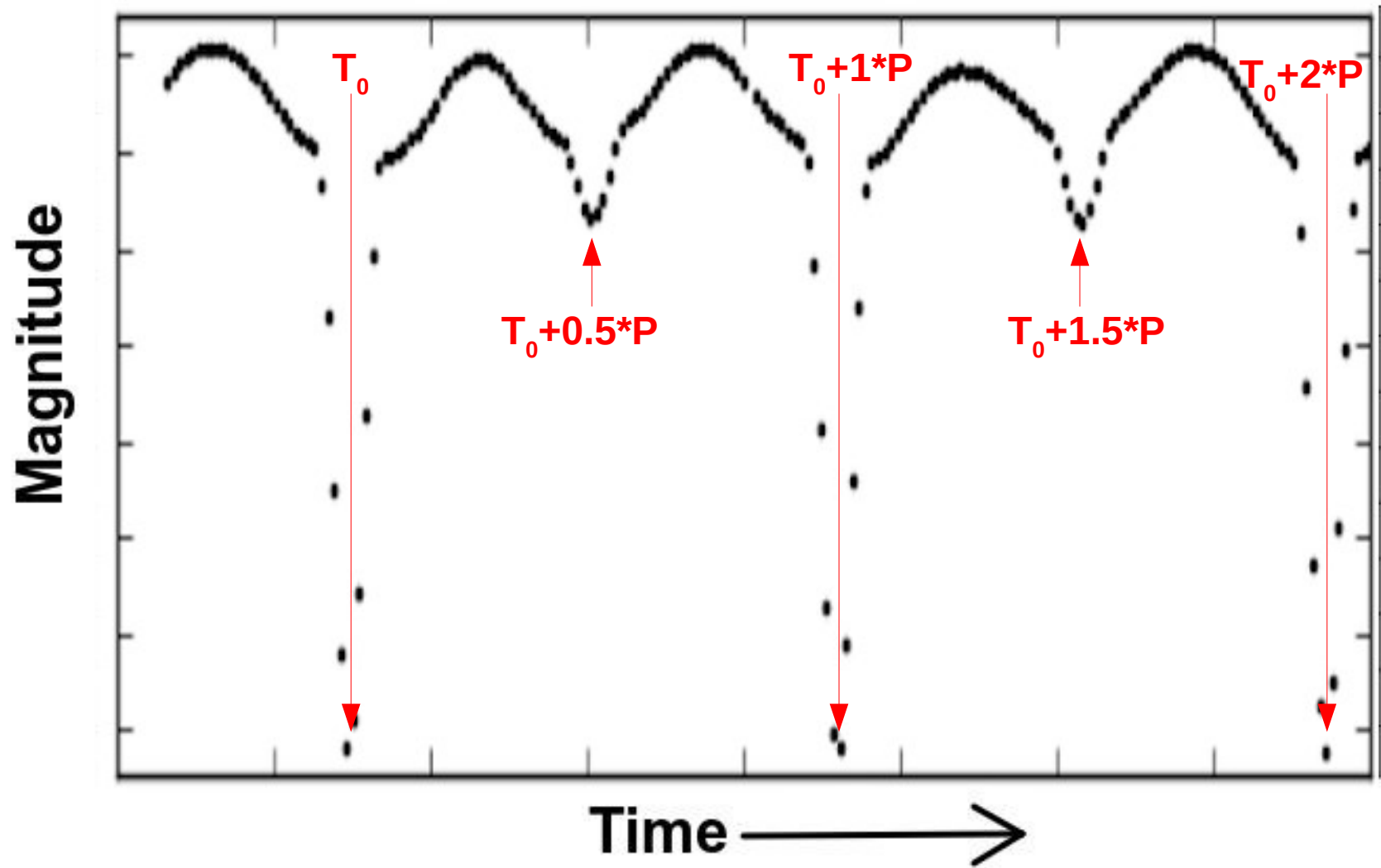
- T_{obs} = the timestamp of each data point, usually in some JD format (JD, MJD, HJD, BMJD...)
- T_0 = a reference time, e.g. the first observed time of mid-eclipse
the first observed pulsation maximum
- E = the cycle number (just that, a number)
- P = the variability period (pulsation period, orbital period etc)

Phase-folding data

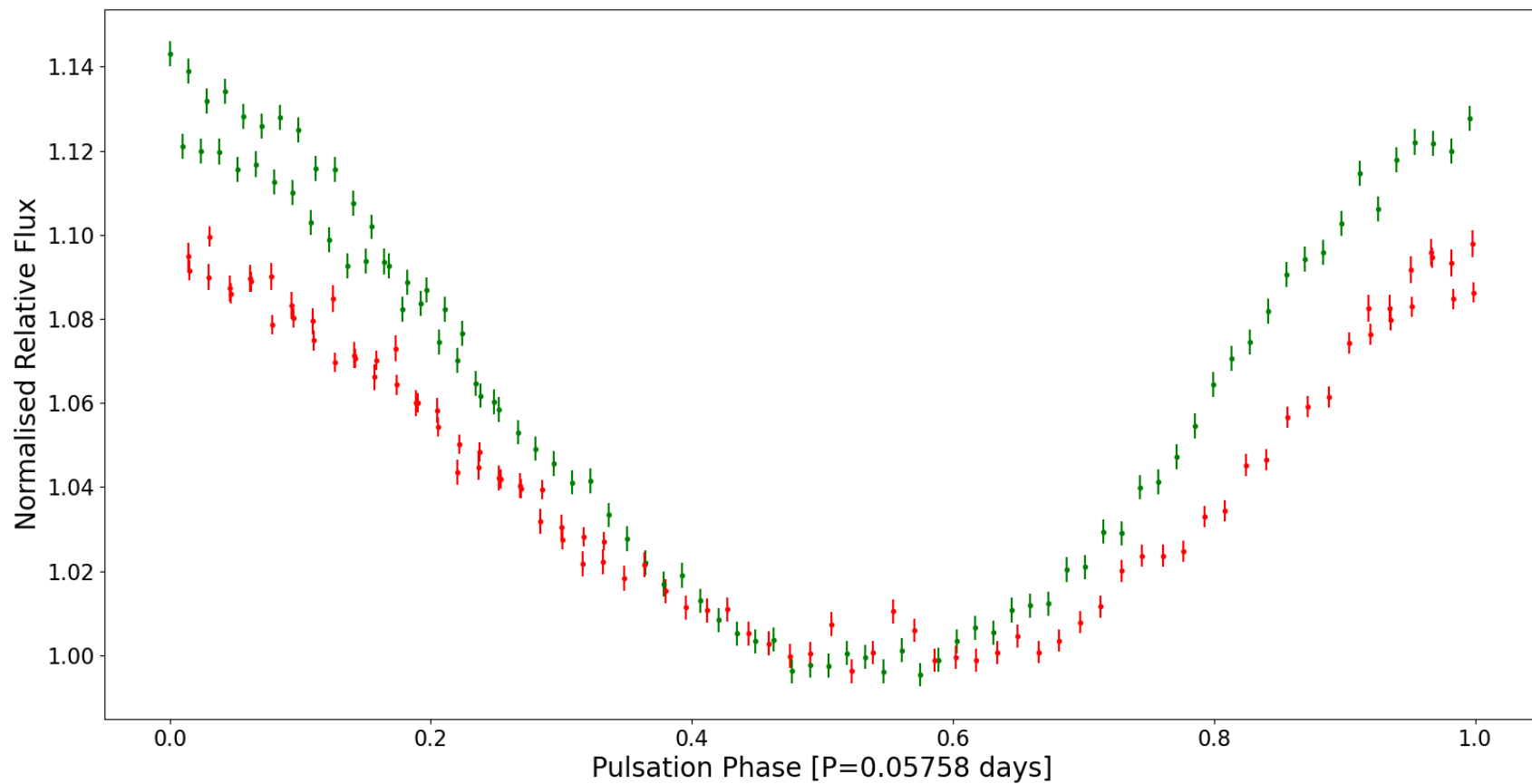
$$E = \frac{T_{obs} - T_0}{P}$$

- Calculating E allows us to see how many full periods have passed between T_0 and T_{obs} (the integer part of the resulting E)
- It also allows us to calculate on what *phase* (= percentage of one full cycle) our observations were taken (the decimal part)
- Example results for E :

$E = 1.14$	Cycle: 1	Phase: 0.14
$E = 58.14$	Cycle: 58	Phase: 0.14
$E = 1786.14$	Cycle: 1786	Phase: 0.14



Pulsation Period: 0.0575814 days



Getting the magnitude

$$mag_T = \frac{-\ln\left(\sum_i 2.512^{-mag_{C_i}}\right)}{\ln(2.512)} - 2.5 \log(rel_flux_T)$$

Where mag_{C_i} is the catalogue magnitude of the i-th comparison star (i=2, 3, 4...)

rel_flux_T you can get directly from your full Table of measurements and it is defined as:

$$rel_flux_T = \frac{Source - Sky_T}{\sum_i Source - Sky_C_i}$$

Getting the magnitude error

$$Mag_Err_T = 2.5 * \log \left(1 + \sqrt{\frac{Source_Error_T1^2}{Source - Sky_T1^2} + \frac{\sum_i Source_Err_C_i^2}{\left(\sum_i Source - Sky_C_i\right)^2}} \right)$$

All the different variables that enter in the Equation above,
you can get directly from the AstrolmageJ Measurements Table!

https://catalogs.mast.stsci.edu/panstarrs/



The Panoramic Survey Telescope & Rapid Response System (Pan-STARRS or PS1) is a wide-field imaging facility developed at the University of Hawaii's Institute for Astronomy for a variety of scientific studies from the nearby to the very distant Universe. The PS1 catalog includes measurements in five filters (grizy) covering 30,000 square degrees of the sky north of declination -30 degrees, with typically ~12 epochs for each filter. This interface allows searches for the mean measurements and the deeper stacked measurements from images combining all the epochs. The DR2 release also includes the detection catalog containing all the multi-epoch observations.

Target Supply the central coordinates or target name.

Coordinates

Target name

Target

Object name or RA and Dec

Resolve Target

Search Radius

1

Arcseconds

Max = 30 arcminutes

Crossmatch a List of Targets Upload a CSV file.

What to Search Select the catalog type and release to search.

Release

PS1 DR1

PS1 DR2

Catalog

Mean object

Stacked object

Forced mean
object

Detections

[View Mean Search Table](#)

Display Columns Select the columns that will be displayed. 5 selected

Coordinates Here

Once you put the coordinates, click this button

Catalog

Mean object

Stacked object

Forced mean
object

Detections

[View Mean Search Table](#)

Display Columns

Select the columns that will be displayed. 5 selected

- | | | | | |
|---|---|---|--|--|
| <input checked="" type="checkbox"/> objName | <input type="checkbox"/> raMeanErr | <input type="checkbox"/> gMeanPSFMagMax | <input type="checkbox"/> rFlags | <input type="checkbox"/> zMeanKronMagErr |
| <input type="checkbox"/> objAltName1 | <input type="checkbox"/> decMeanErr | <input type="checkbox"/> gMeanKronMag | <input type="checkbox"/> iQfPerfect | <input type="checkbox"/> zMeanKronMagStd |
| <input type="checkbox"/> objAltName2 | <input type="checkbox"/> epochMean | <input type="checkbox"/> gMeanKronMagErr | <input type="checkbox"/> iMeanPSFMag | <input type="checkbox"/> zMeanKronMagNpt |
| <input type="checkbox"/> objAltName3 | <input type="checkbox"/> posMeanChisq | <input type="checkbox"/> gMeanKronMagStd | <input type="checkbox"/> iMeanPSFMagErr | <input type="checkbox"/> zMeanApMag |
| <input type="checkbox"/> objID | <input type="checkbox"/> cx | <input type="checkbox"/> gMeanKronMagNpt | <input type="checkbox"/> iMeanPSFMagStd | <input type="checkbox"/> zMeanApMagErr |
| <input type="checkbox"/> uniquePspOBid | <input type="checkbox"/> cy | <input type="checkbox"/> gMeanApMag | <input type="checkbox"/> iMeanPSFMagNpt | <input type="checkbox"/> zMeanApMagStd |
| <input type="checkbox"/> ippObjID | <input type="checkbox"/> cz | <input type="checkbox"/> gMeanApMagErr | <input type="checkbox"/> iMeanPSFMagMin | <input type="checkbox"/> zMeanApMagNpt |
| <input type="checkbox"/> surveyID | <input type="checkbox"/> lambda | <input type="checkbox"/> gMeanApMagStd | <input type="checkbox"/> iMeanPSFMagMax | <input type="checkbox"/> zFlags |
| <input type="checkbox"/> htmlID | <input type="checkbox"/> beta | <input type="checkbox"/> gMeanApMagNpt | <input type="checkbox"/> iMeanKronMag | <input type="checkbox"/> yQfPerfect |
| <input type="checkbox"/> zoneID | <input type="checkbox"/> l | <input type="checkbox"/> gFlags | <input type="checkbox"/> iMeanKronMagErr | <input type="checkbox"/> yMeanPSFMag |
| <input type="checkbox"/> tessID | <input type="checkbox"/> b | <input type="checkbox"/> rQfPerfect | <input type="checkbox"/> iMeanKronMagStd | <input type="checkbox"/> yMeanPSFMagErr |
| <input type="checkbox"/> projectionID | <input type="checkbox"/> nStackObjectRows | <input checked="" type="checkbox"/> rMeanPSFMag | <input type="checkbox"/> iMeanKronMagNpt | <input type="checkbox"/> yMeanPSFMagStd |
| <input type="checkbox"/> skyCellID | <input type="checkbox"/> nStackDetections | <input type="checkbox"/> rMeanPSFMagErr | <input type="checkbox"/> iMeanApMag | <input type="checkbox"/> yMeanPSFMagNpt |
| <input type="checkbox"/> randomID | <input type="checkbox"/> nDetections | <input type="checkbox"/> rMeanPSFMagStd | <input type="checkbox"/> iMeanApMagErr | <input type="checkbox"/> yMeanPSFMagMin |
| <input type="checkbox"/> batchID | <input type="checkbox"/> ng | <input type="checkbox"/> rMeanPSFMagNpt | <input type="checkbox"/> iMeanApMagStd | <input type="checkbox"/> yMeanPSFMagMax |
| <input type="checkbox"/> dvoRegionID | <input type="checkbox"/> nr | <input type="checkbox"/> rMeanPSFMagMin | <input type="checkbox"/> iMeanApMagNpt | <input type="checkbox"/> yMeanKronMag |
| <input type="checkbox"/> processingVersion | <input type="checkbox"/> ni | <input type="checkbox"/> rMeanPSFMagMax | <input type="checkbox"/> iFlags | <input type="checkbox"/> yMeanKronMagErr |
| <input type="checkbox"/> objInfoFlag | <input type="checkbox"/> nz | <input type="checkbox"/> rMeanKronMag | <input type="checkbox"/> zQfPerfect | <input type="checkbox"/> yMeanKronMagStd |
| <input type="checkbox"/> qualityFlag | <input type="checkbox"/> ny | <input type="checkbox"/> rMeanKronMagErr | <input type="checkbox"/> zMeanPSFMag | <input type="checkbox"/> yMeanKronMagNpt |
| <input type="checkbox"/> raStack | <input type="checkbox"/> gQfPerfect | <input type="checkbox"/> rMeanKronMagStd | <input type="checkbox"/> zMeanPSFMagErr | <input type="checkbox"/> yMeanApMag |
| <input type="checkbox"/> decStack | <input checked="" type="checkbox"/> gMeanPSFMag | <input type="checkbox"/> rMeanKronMagNpt | <input type="checkbox"/> zMeanPSFMagStd | <input type="checkbox"/> yMeanApMagErr |
| <input type="checkbox"/> raStackErr | <input type="checkbox"/> gMeanPSFMagErr | <input type="checkbox"/> rMeanApMag | <input type="checkbox"/> zMeanPSFMagNpt | <input type="checkbox"/> yMeanApMagStd |
| <input type="checkbox"/> decStackErr | <input type="checkbox"/> gMeanPSFMagStd | <input type="checkbox"/> rMeanApMagErr | <input type="checkbox"/> zMeanPSFMagMin | <input type="checkbox"/> yMeanApMagNpt |
| <input checked="" type="checkbox"/> raMean | <input type="checkbox"/> gMeanPSFMagNpt | <input type="checkbox"/> rMeanApMagStd | <input type="checkbox"/> zMeanPSFMagMax | <input type="checkbox"/> yFlags |
| <input checked="" type="checkbox"/> decMean | <input type="checkbox"/> gMeanPSFMagMin | <input type="checkbox"/> rMeanApMagNpt | <input type="checkbox"/> zMeanKronMag | |

Select All

Clear All

Select Recommended



Expand
this menu

First clear the
selected options