

# KIC 003869393

## Q1-17 DR25 TCE Parameters

| TCE          | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | $R_{\star}$ ( $R_{\odot}$ ) | $T_{\star}$ (K) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 003869393-01 | OBS      | No   | 615.061210    | 151.776609   | 559.0       | 5.258            | 8.1 | 8.1 | 0.91                        | 6029            | 2.23                   | 0.53                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 003869393-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

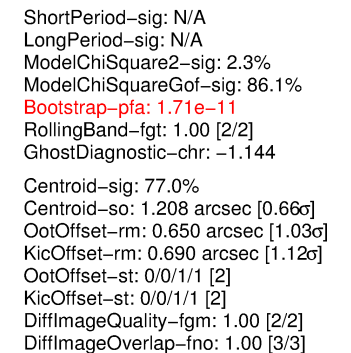
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

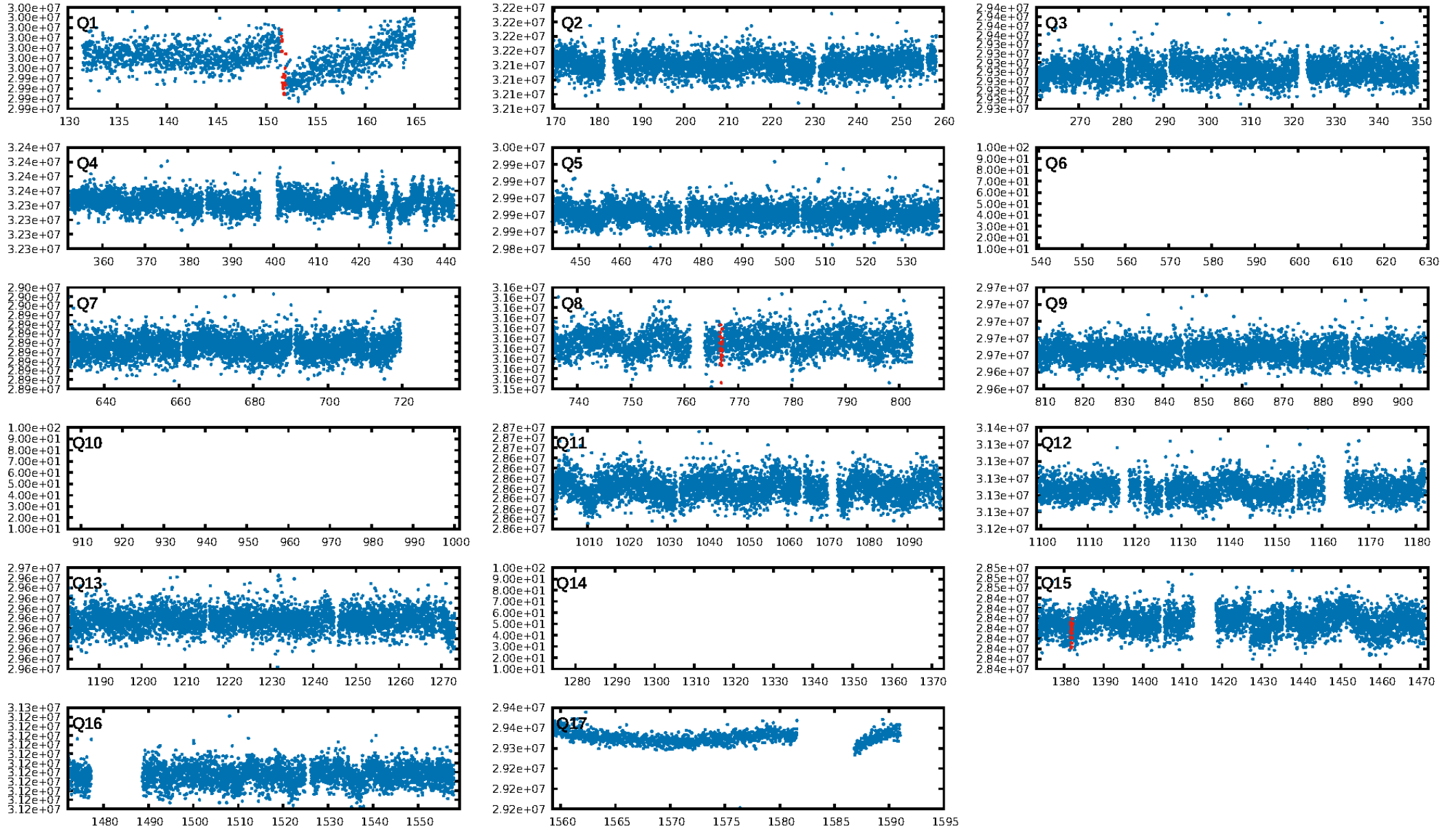
## Ephemeris Match Information For 003869393-01

No Significant Match Found

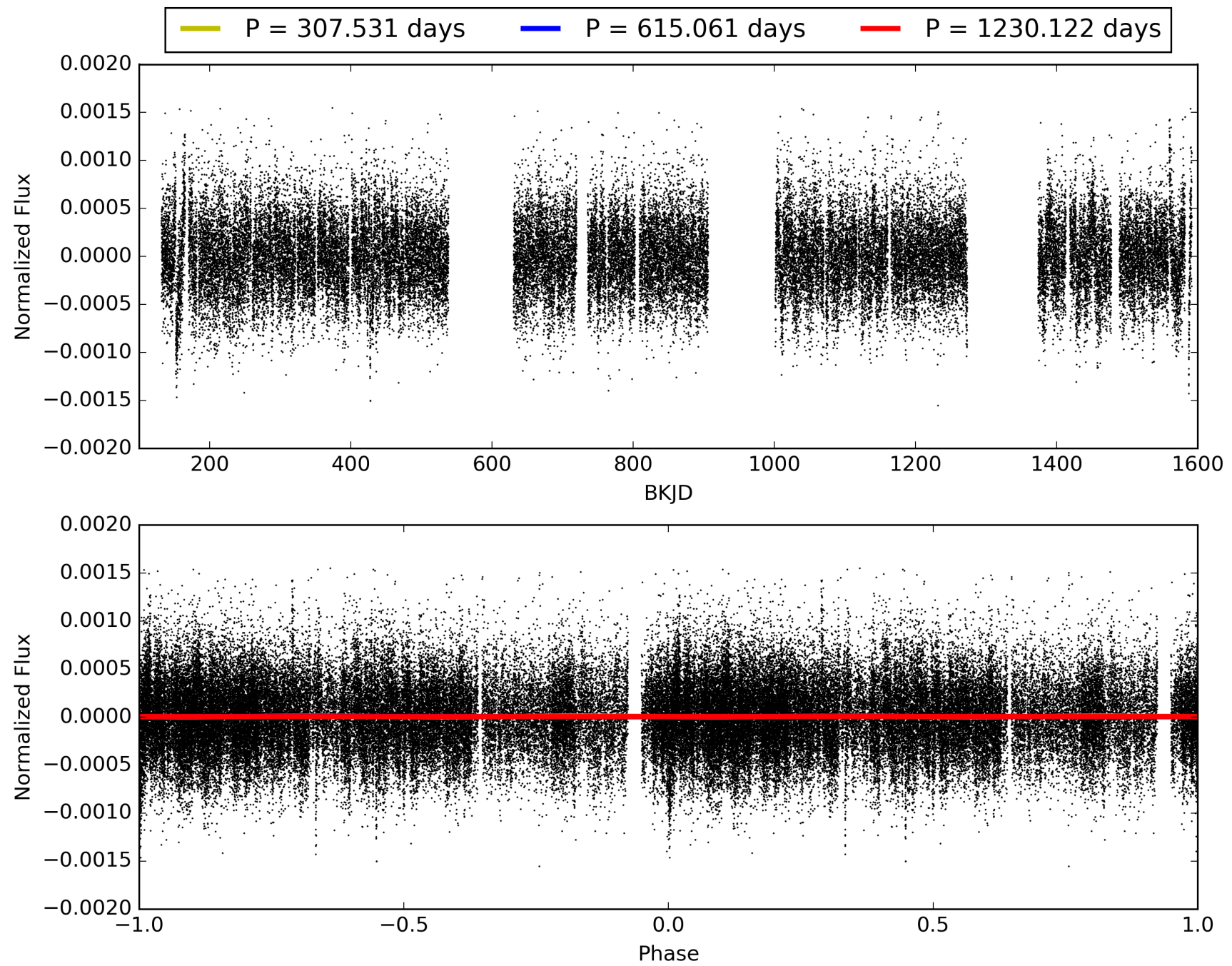
## KIC: 3869393    Candidate: 1 of 1    Period: 615.061 d



# TCE 003869393-01, PDC Light Curves

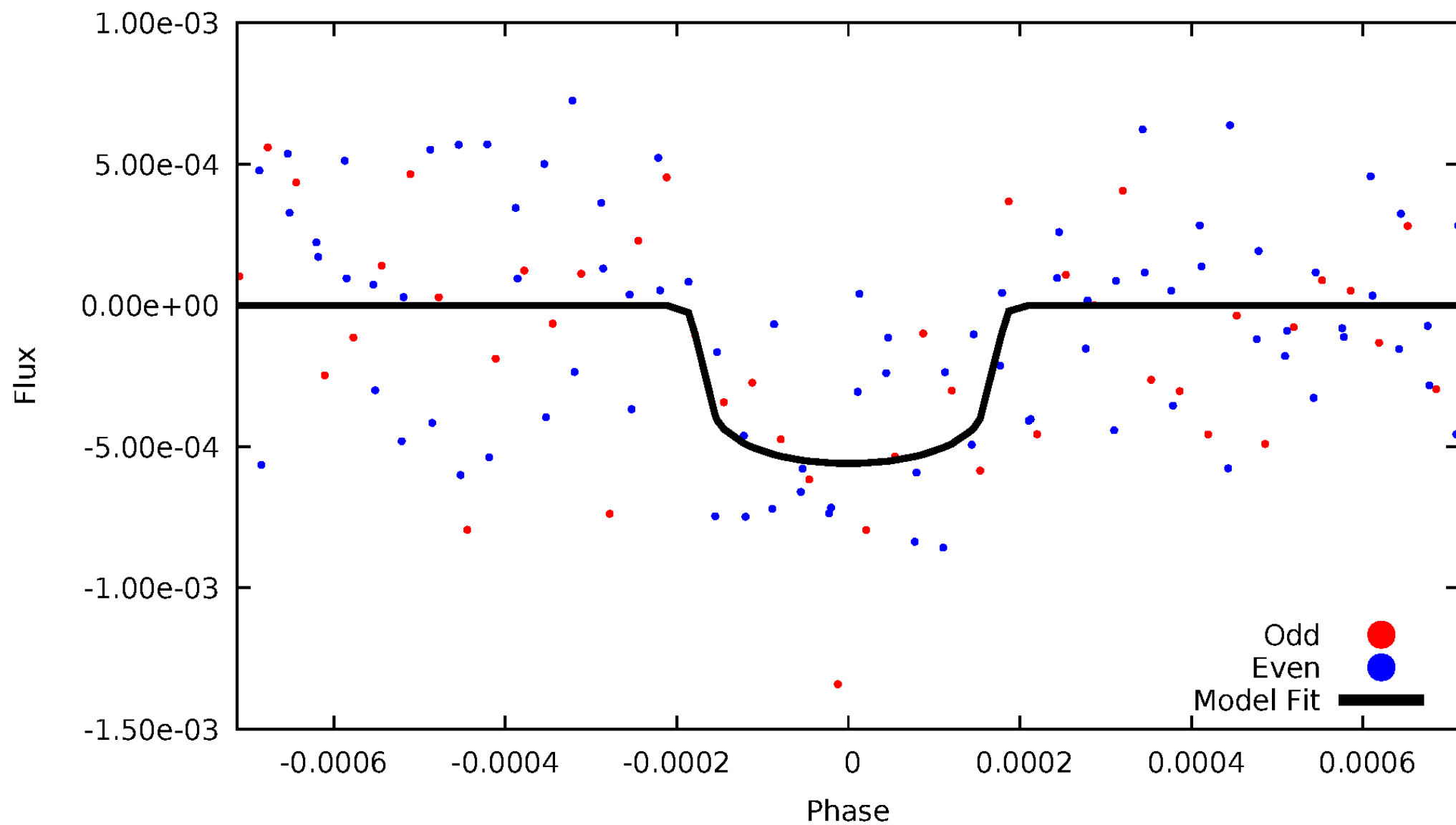


TCE 003869393-01



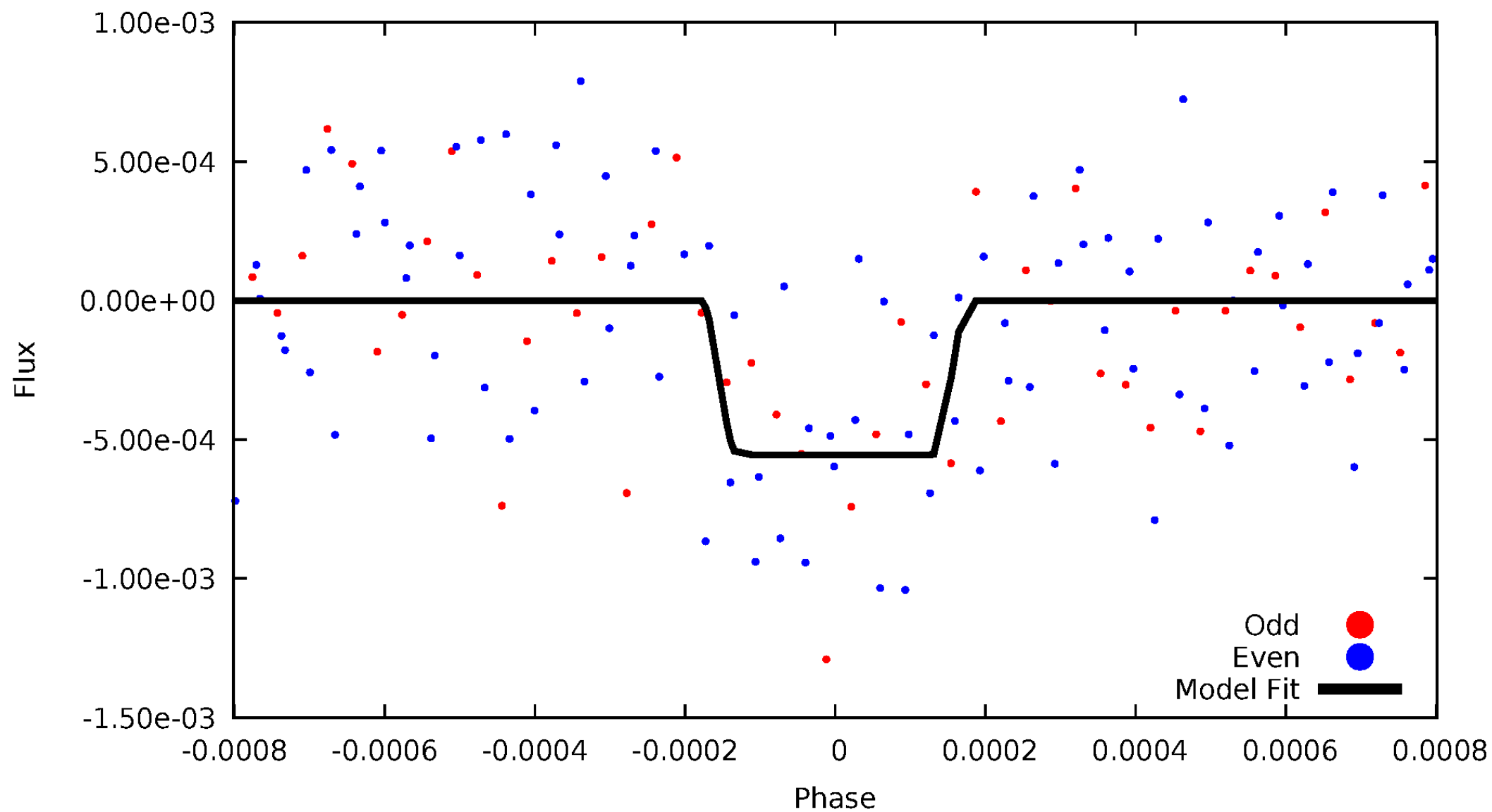
# DV Odd/Even

TCE 003869393-01



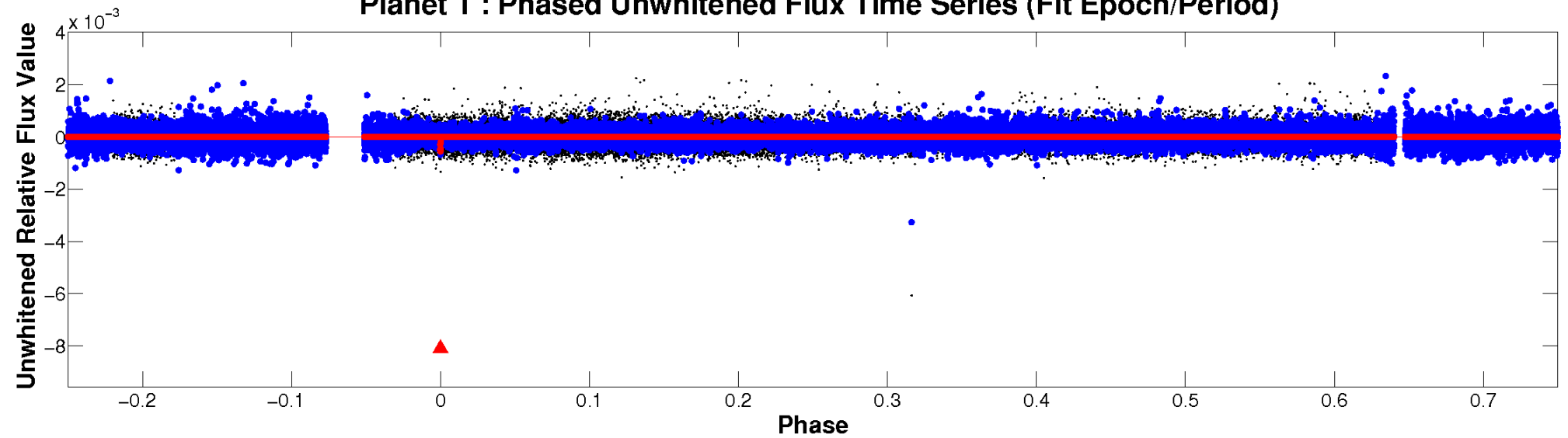
# ALT Odd/Even

TCE 003869393-01

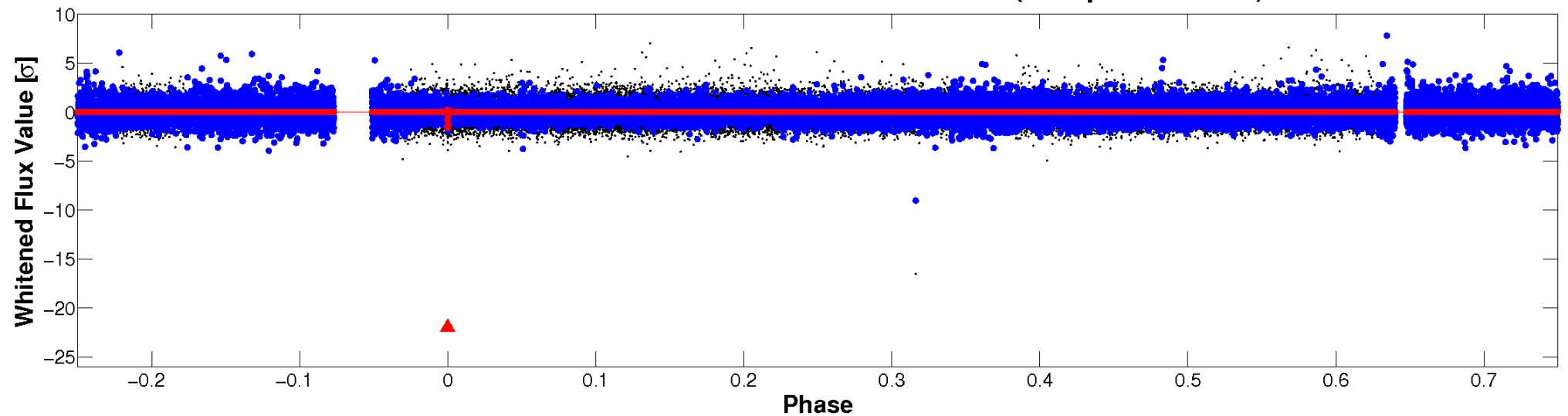


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

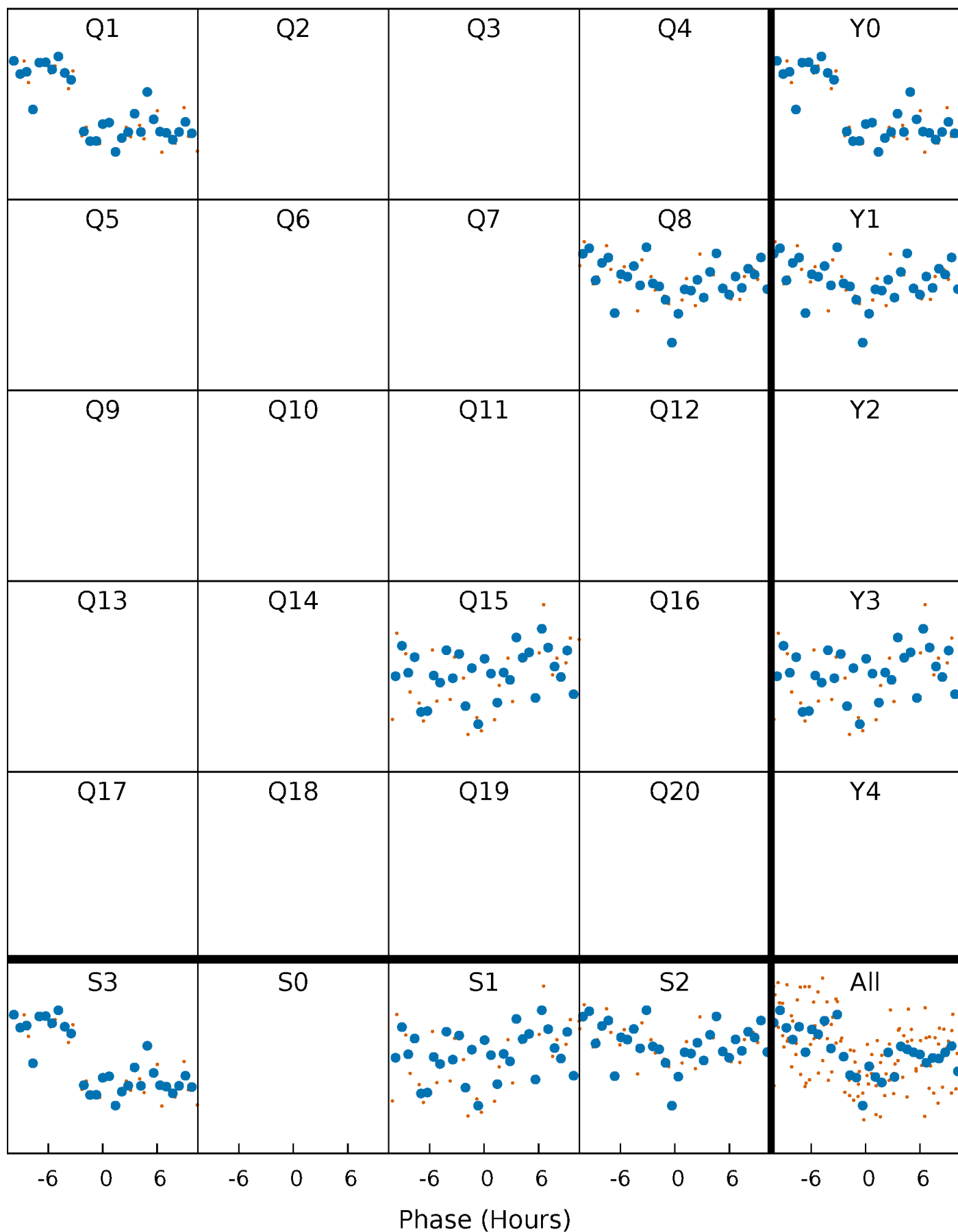


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

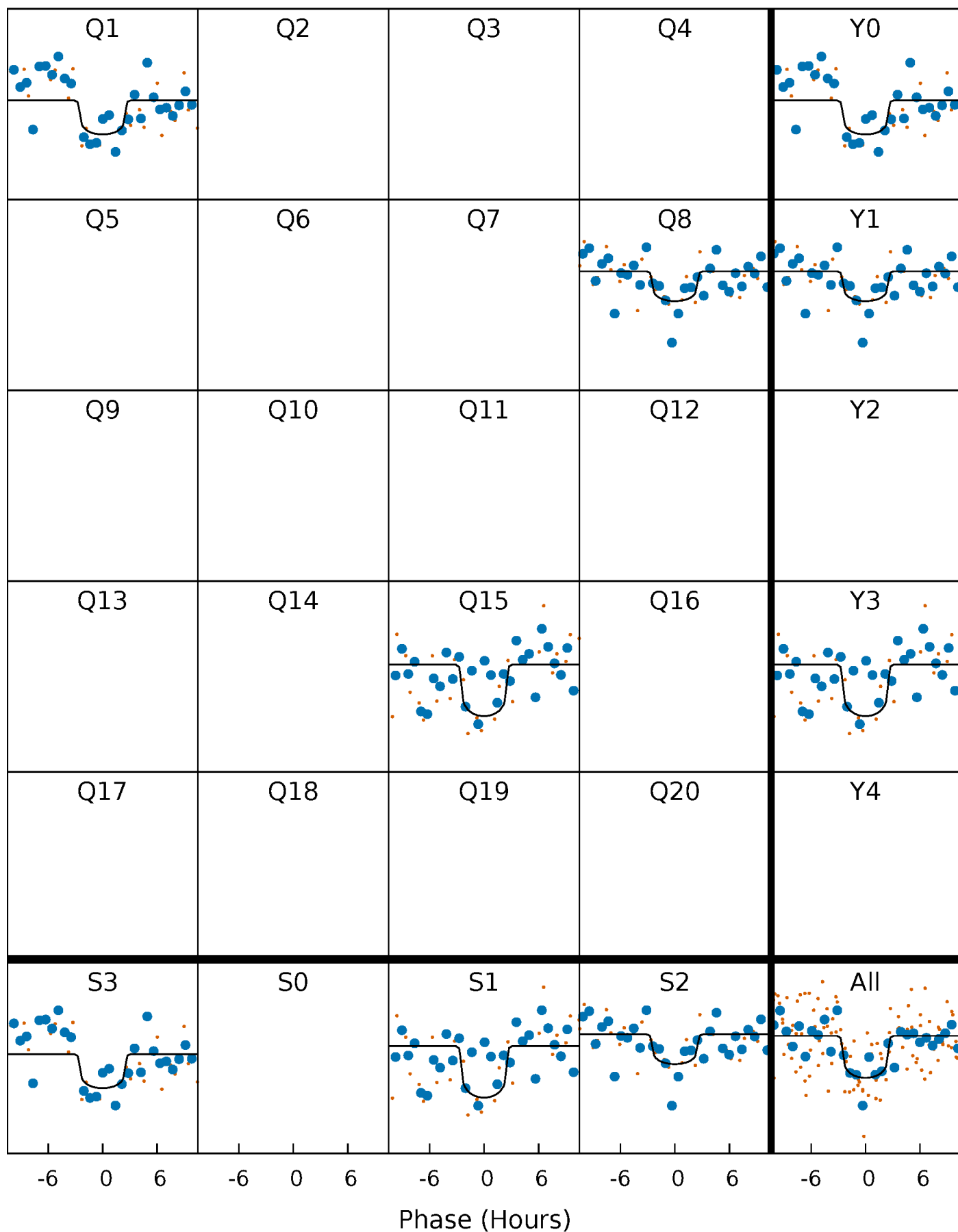
TCE 003869393-01 P=615.061210 Days  $T_0=151.776609$  (BKJD)





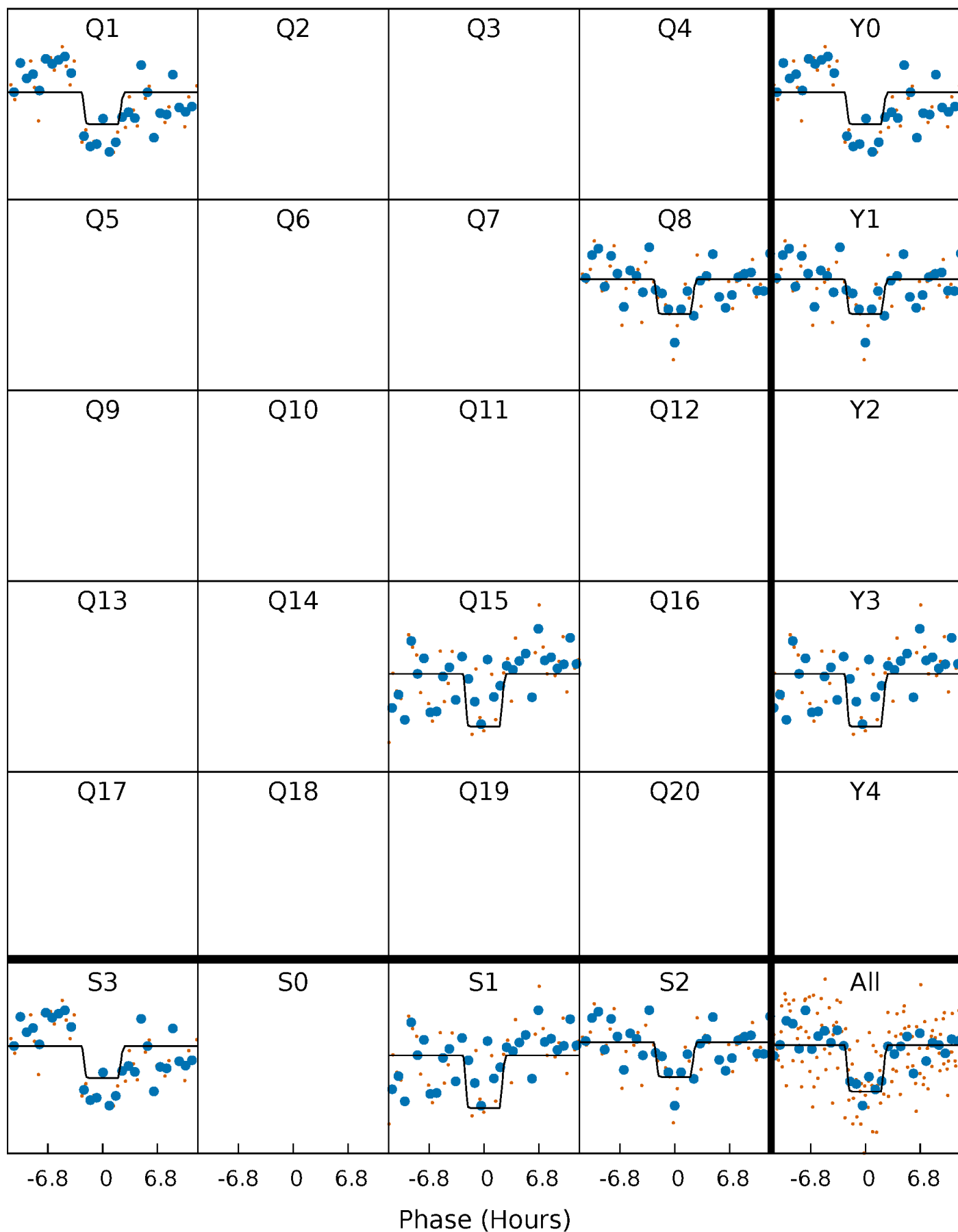
# DV Quarter-Phased Transit Curves

TCE 003869393-01 P=615.061210 Days  $T_0=151.776609$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

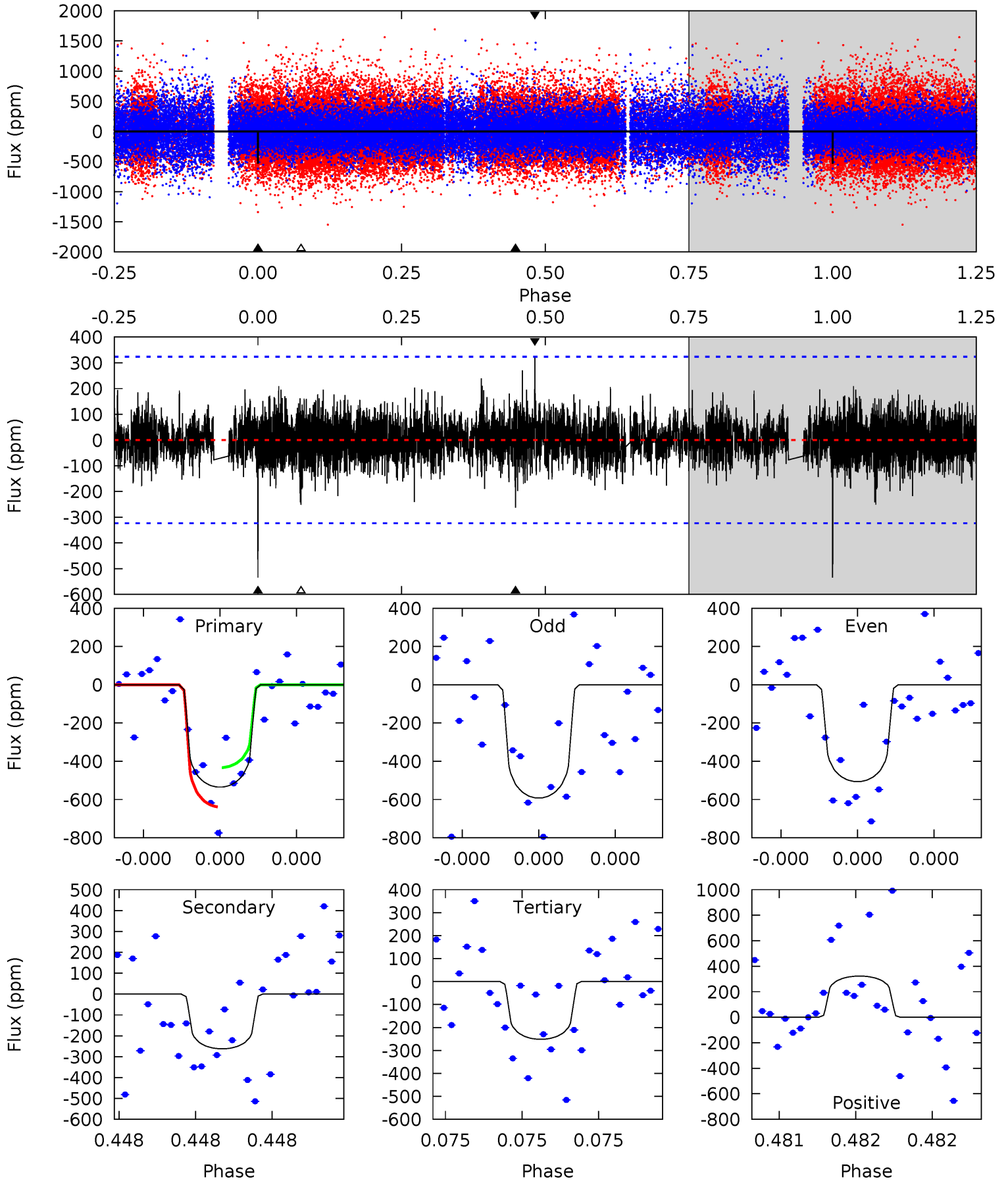
TCE 003869393-01 P=615.050156 Days  $T_0=151.787371$  (BKJD)



# DV Model-Shift Uniqueness Test

003869393-01, P = 615.061210 Days, E = 151.776609 Days

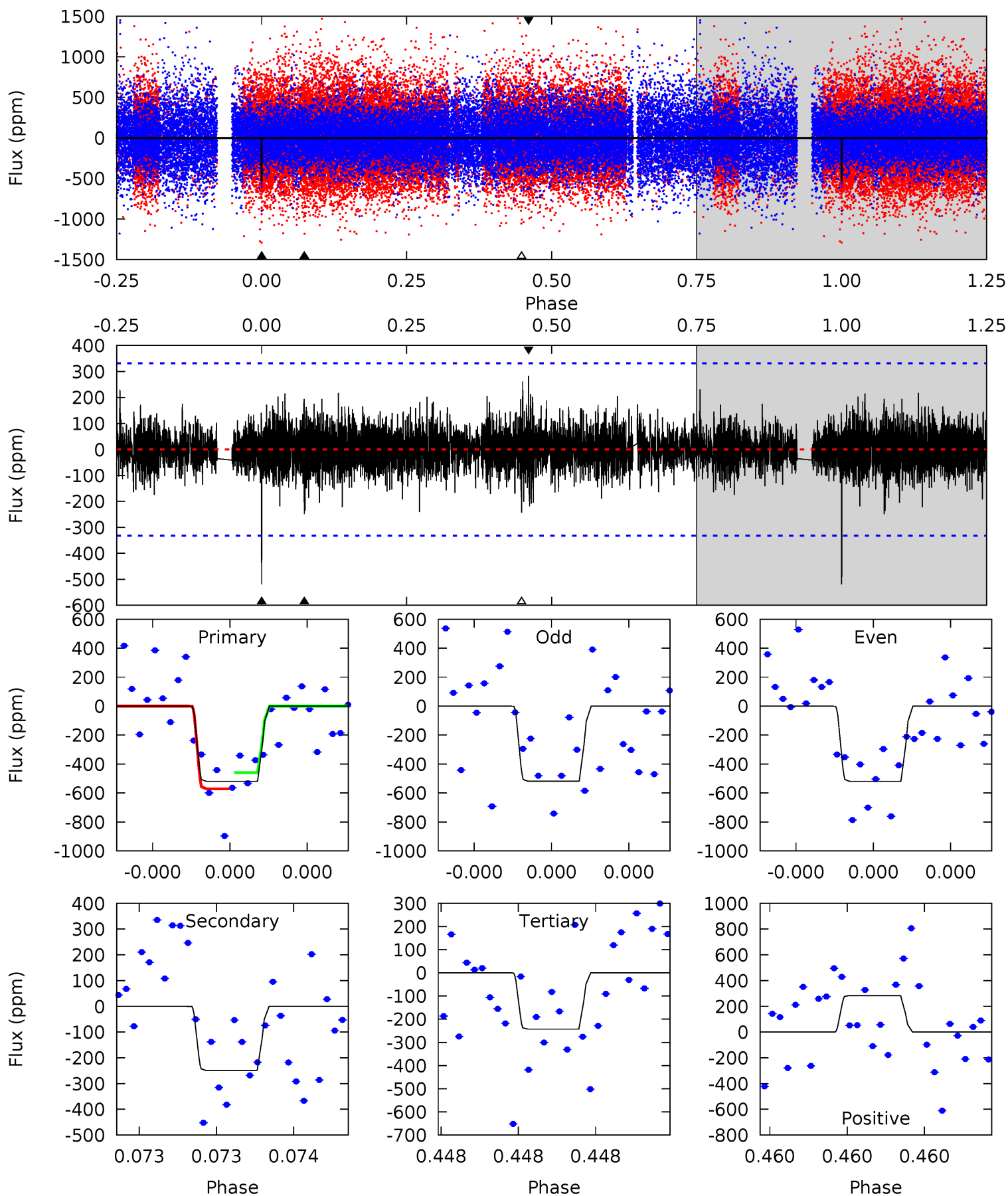
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.28 | 4.55 | 4.37 | 5.60 | 5.61            | 3.54            | 1.05             | 4.92    | 3.68    | 0.19    | -1.05   | 0.71    | 0.90 | 0.38  | 1.79 |



# Alt Model-Shift Uniqueness Test

003869393-01, P = 615.050156 Days, E = 151.787371 Days

| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.81 | 4.22 | 4.12 | 4.81 | 5.63            | 3.56            | 1.00             | 4.69    | 4.00    | 0.10    | -0.59   | 0.01    | 1.00 | 0.35  | 0.95 |



### Stellar Parameters For KIC 003869393

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6029^{+179}_{-179}$ | $4.468^{+0.081}_{-0.189}$ | $-0.520^{+0.300}_{-0.300}$ | $0.906^{+0.235}_{-0.108}$ | $0.879^{+0.108}_{-0.089}$ | $1.667^{+0.666}_{-0.814}$                 |
|        | +3%/-3%              | +2%/-4%                   | +58%/-58%                  | +26%/-12%                 | +12%/-10%                 | +40%/-49%                                 |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003869393-01 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$           |
|---------|---------------|------------------------|----------------------|-----------------------|----------------------------|
| DV      | $-262 \pm 58$ | $3.44^{+3.06}_{-2.26}$ | $308^{+22}_{-16}$    | $4358^{+3051}_{-837}$ | $21645^{+178515}_{-15535}$ |
| Alt.    | $-249 \pm 59$ | $3.57^{+3.07}_{-2.41}$ | $308^{+21}_{-15}$    | $4287^{+2932}_{-843}$ | $19124^{+163306}_{-13922}$ |

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

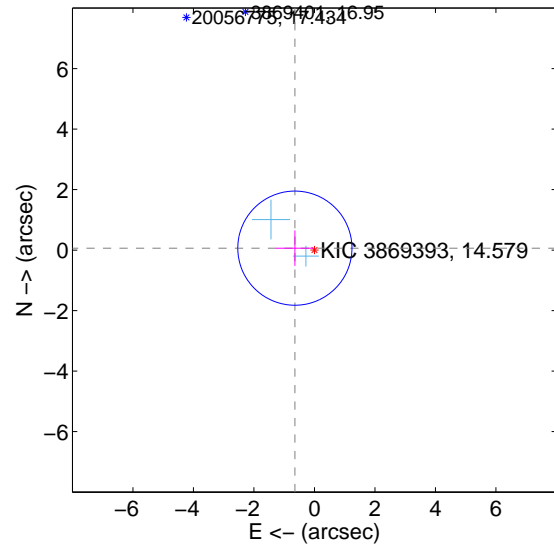
Supplemental centroid analysis for 003869393-01. Kepler magnitude: 14.58. Transit SNR 8.06

There are 2 quarters with good PRF difference image offsets

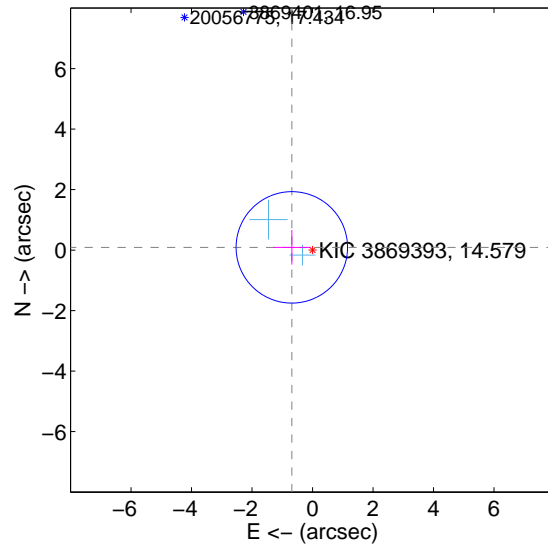
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.650 \pm 0.629$  | 1.03                | $0.647 \pm 0.629$ | $0.064 \pm 0.586$ |
| PRF-fit source offset from KIC position | $0.690 \pm 0.614$  | 1.12                | $0.684 \pm 0.615$ | $0.090 \pm 0.569$ |
| photometric centroid source offset      | $1.21 \pm 1.82$    | 0.66                | $1.17 \pm 1.82$   | $0.31 \pm 1.79$   |

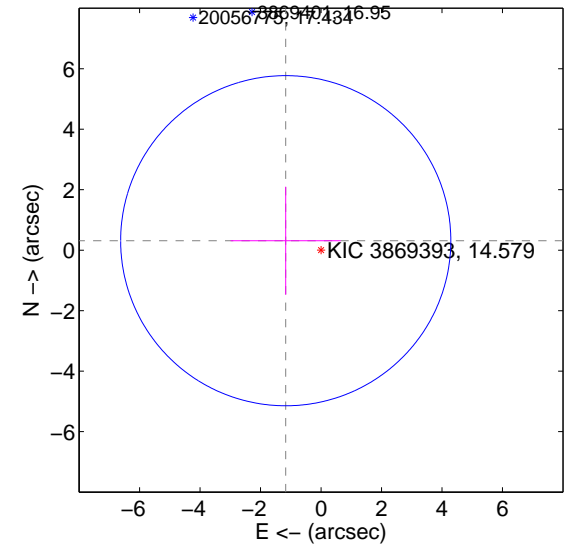
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

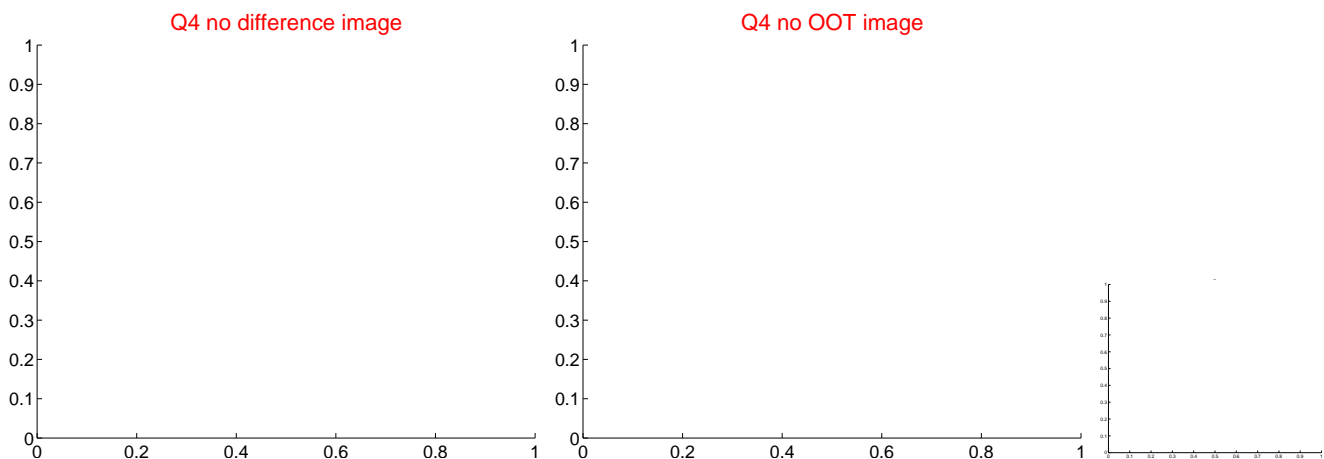
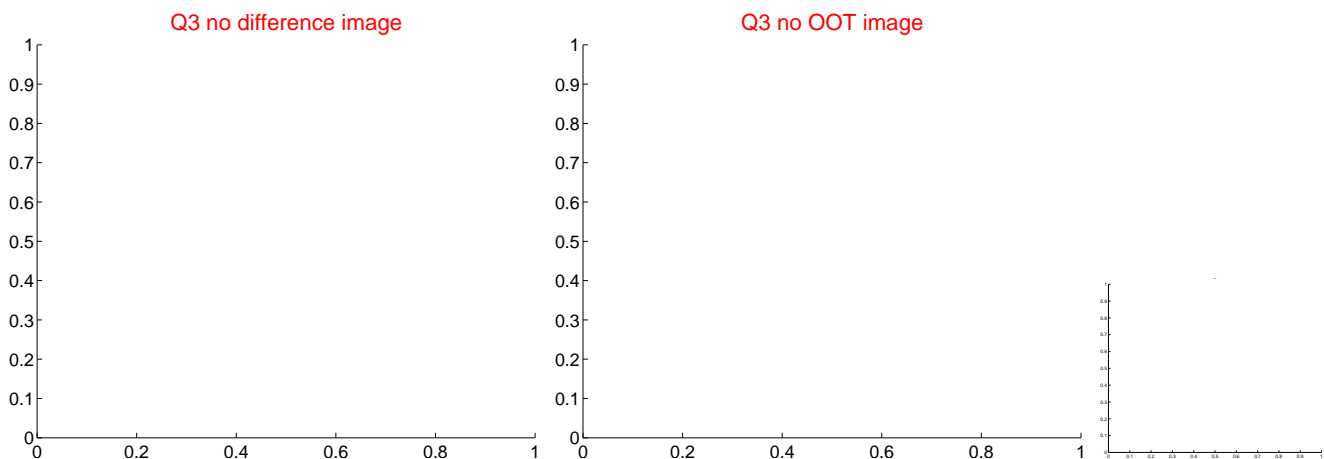
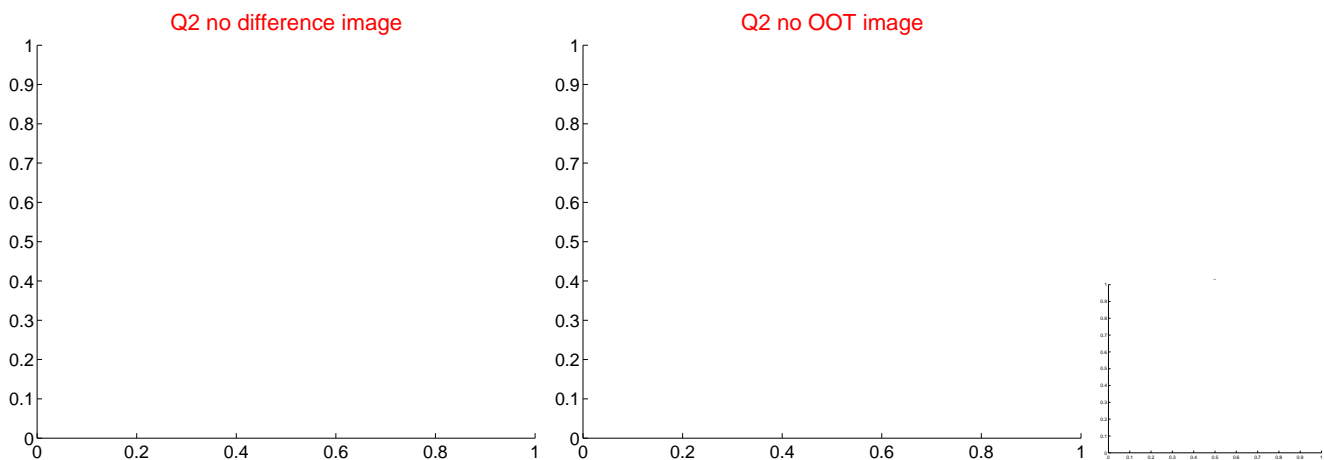
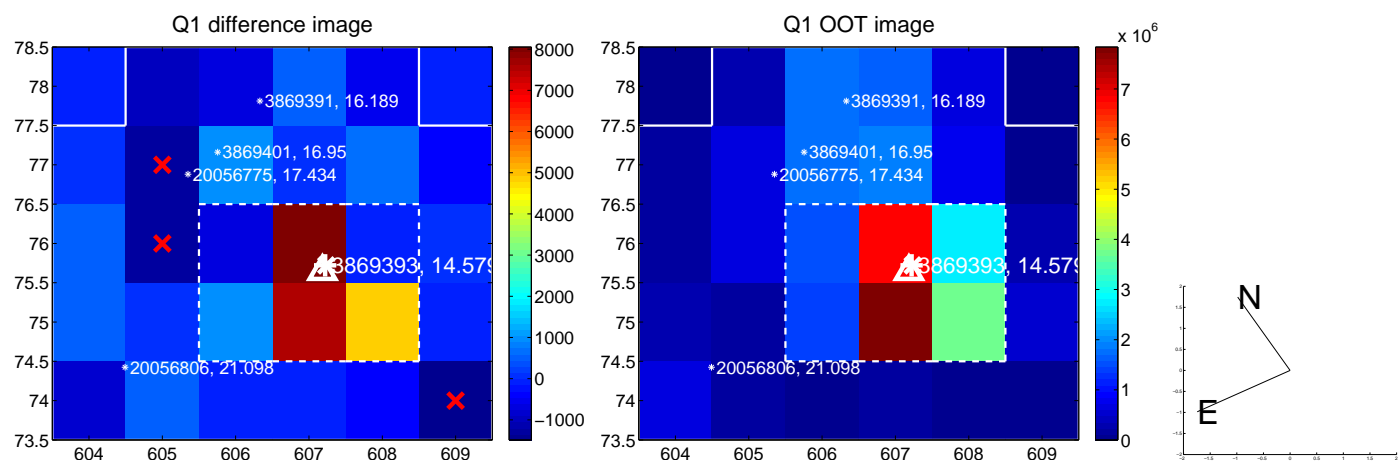


offset from photometric centroids

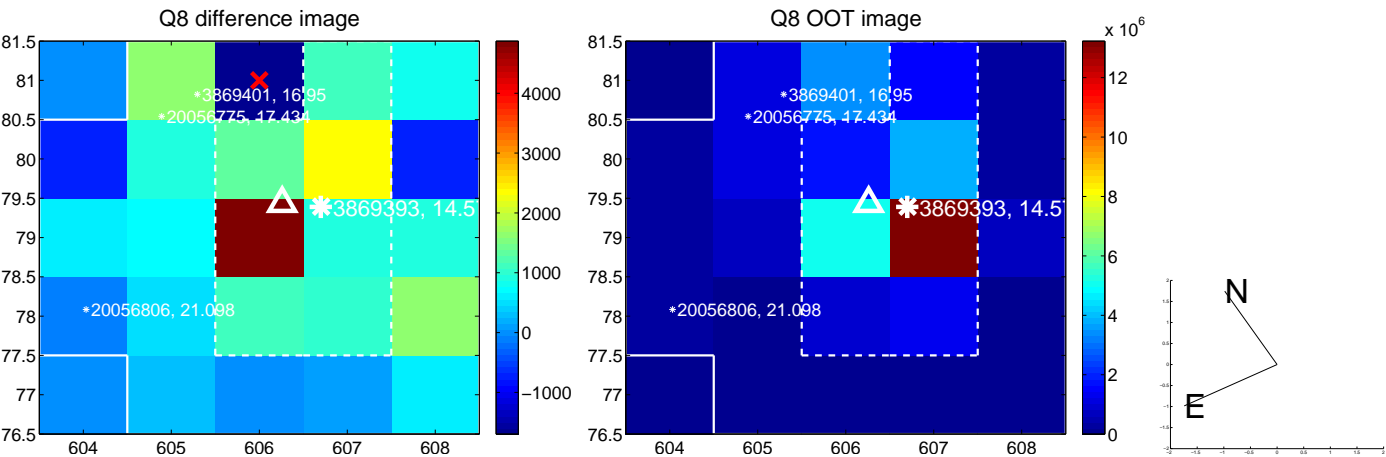


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

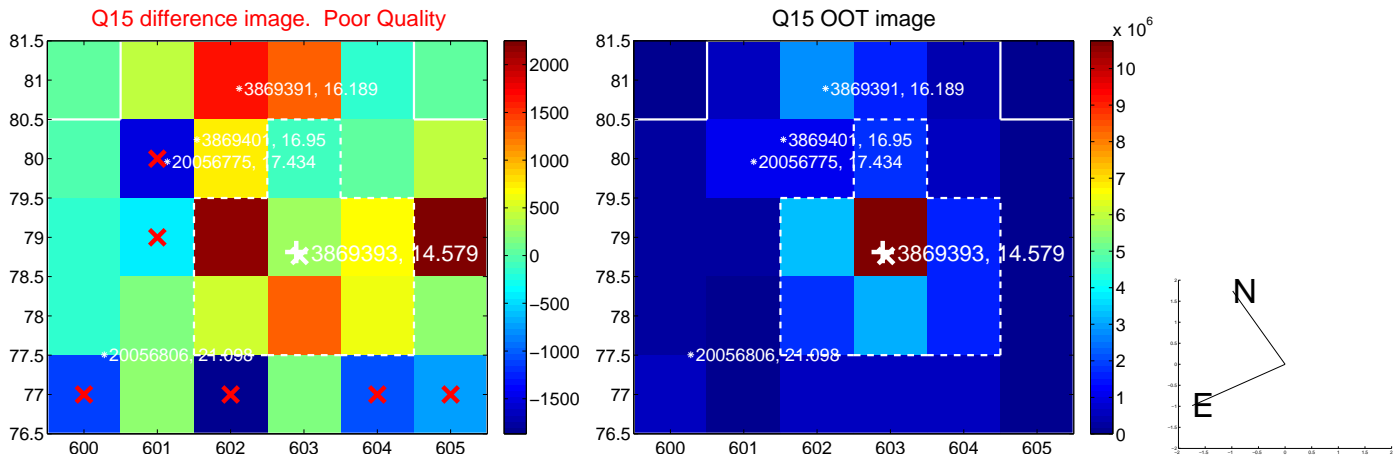




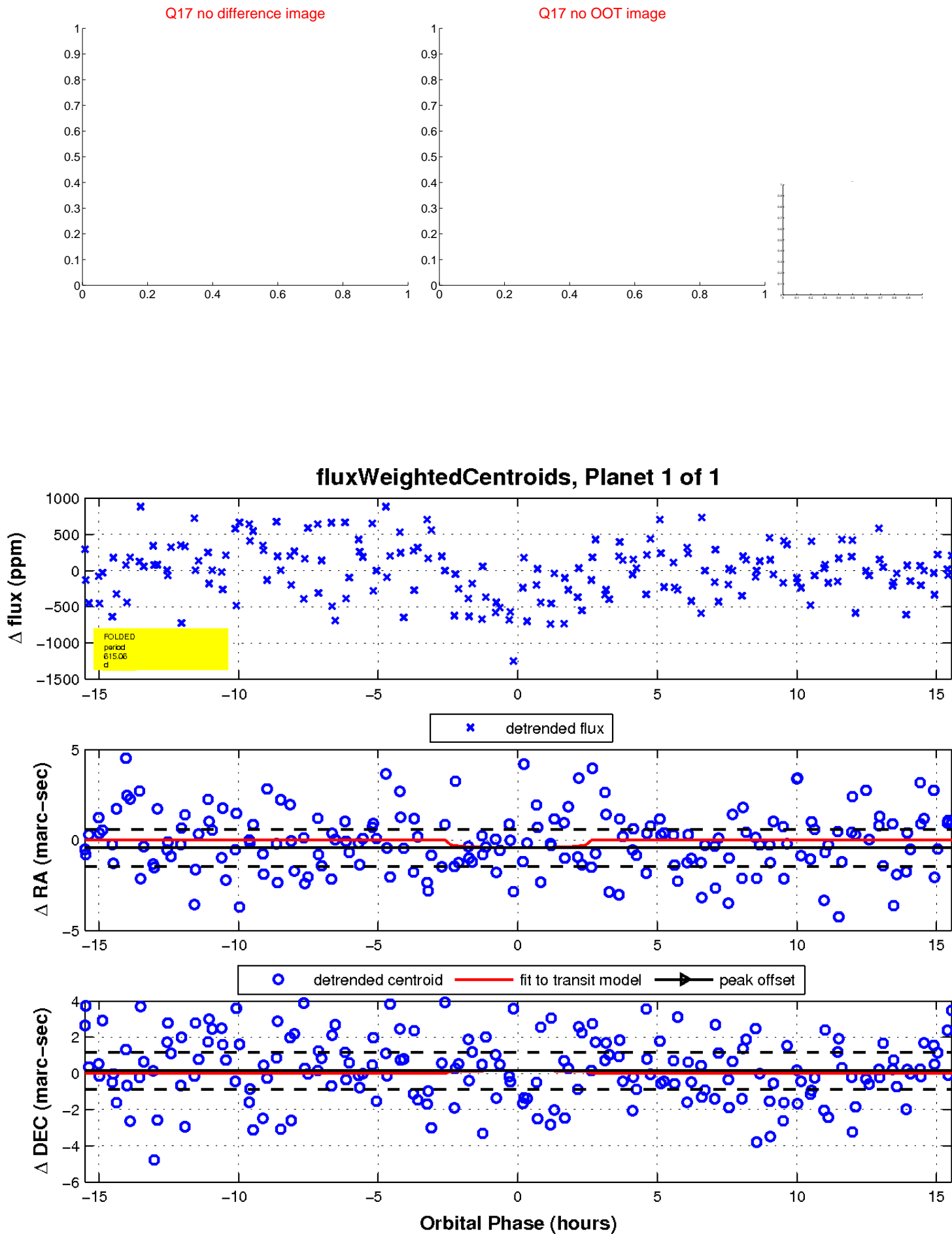
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

