

# KIC 008733469

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008733469-01 | OBS      | No   | 500.824815    | 142.546869   | 2249.2      | 3.521            | 11.8 | 7.7 | 0.74                        | 5491            | 3.56                   | 0.38                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 008733469-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS |

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

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

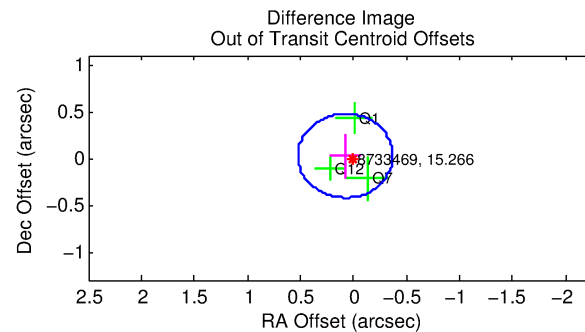
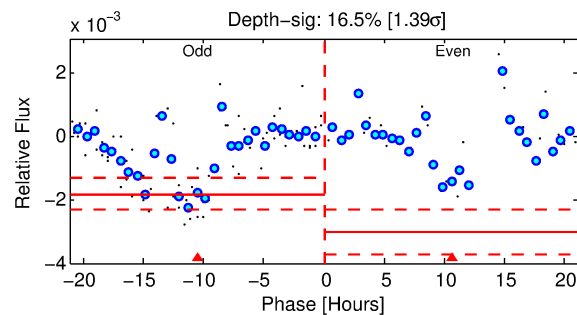
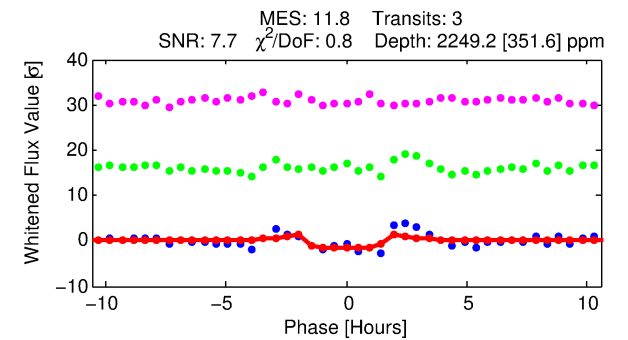
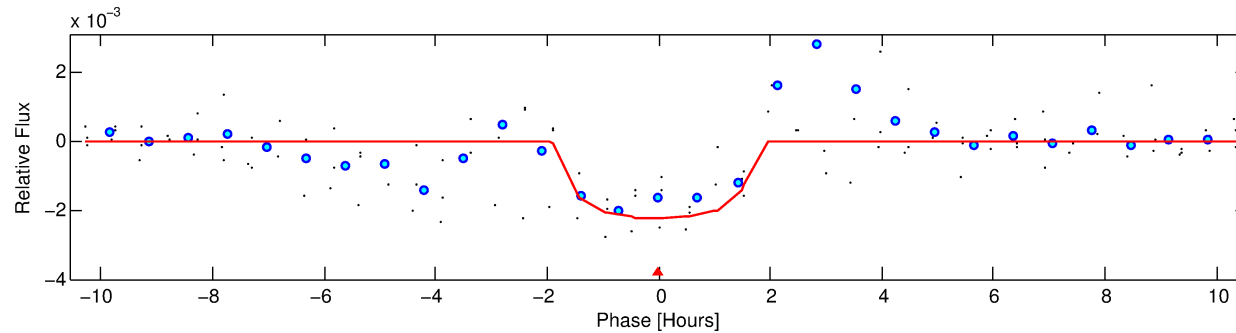
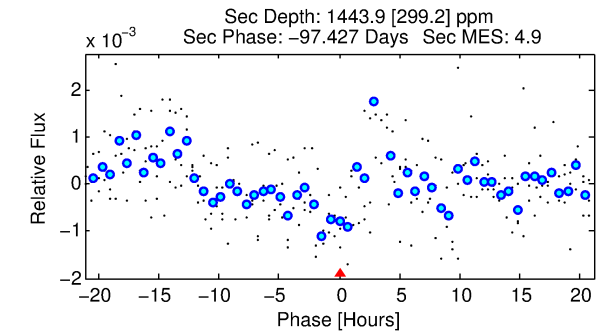
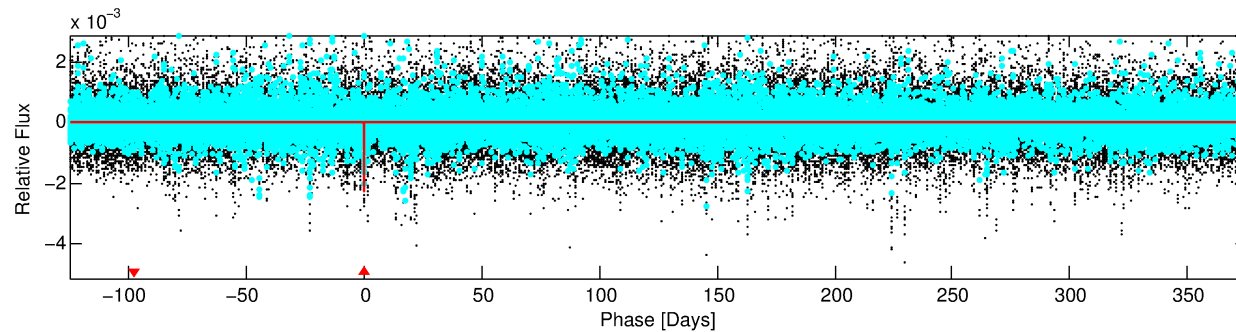
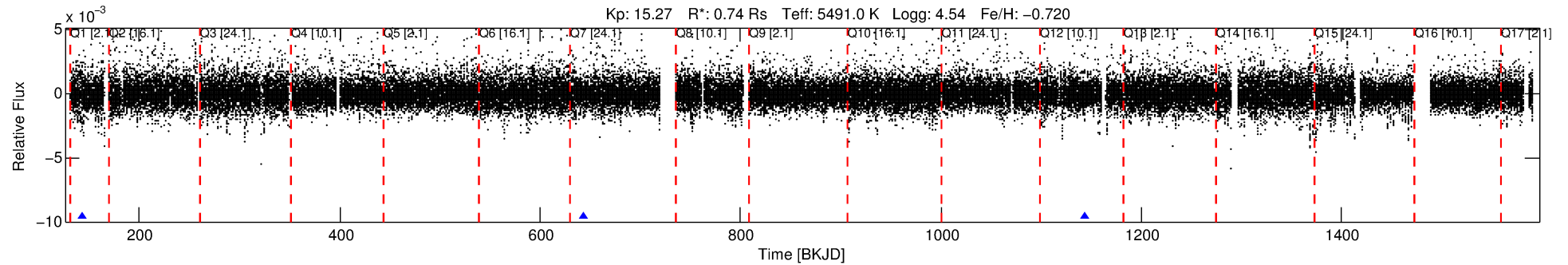
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008733469-01

No Significant Match Found

# DV One-Page Summary

KIC: 8733469 Candidate: 1 of 1 Period: 500.825 d



## DV Fit Results:

Period = 500.82481 [0.00391] d  
Epoch = 142.5469 [0.0061] BKJD  
Rp/R\* = 0.0439 [0.0322]  
a/R\* = 1054.24 [3381.31]  
b = 0.39 [7.11]  
Seff = 0.38 [0.08]  
Teq = 200 [11] K  
Rp = 3.57 [2.66] Re  
a = 1.0920 [0.1281] AU  
Ag = 74510.34 [111282.56] [0.67 $\sigma$ ]  
Teffp = 5108 [1899] K [2.58 $\sigma$ ]

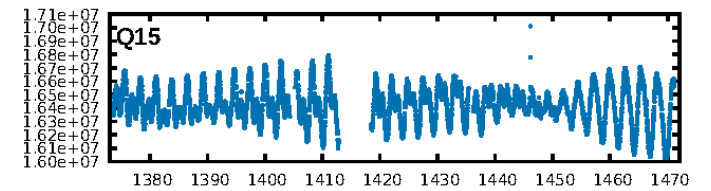
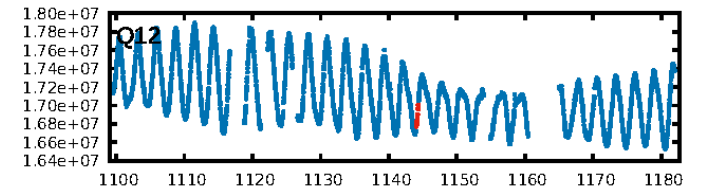
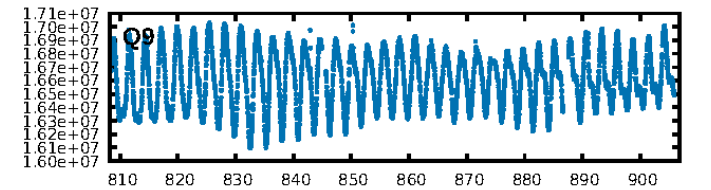
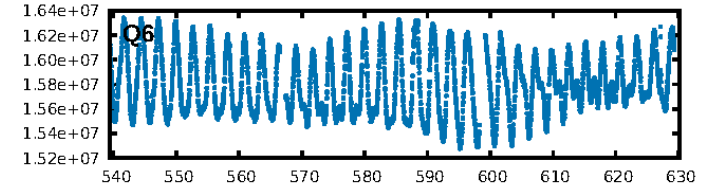
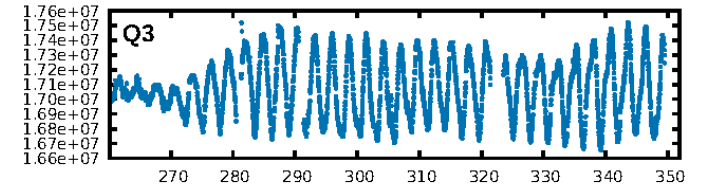
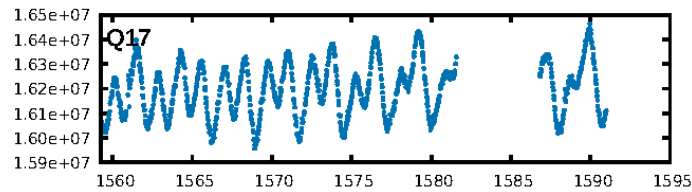
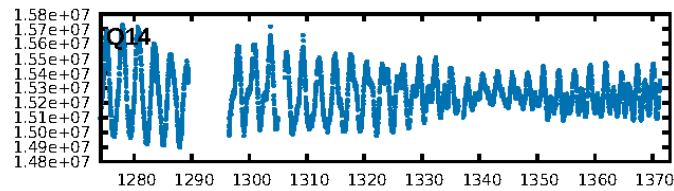
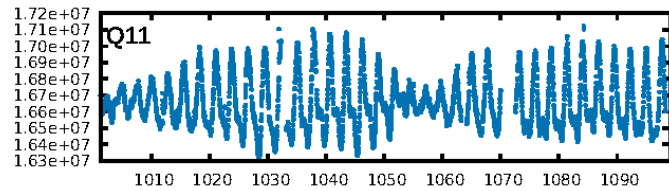
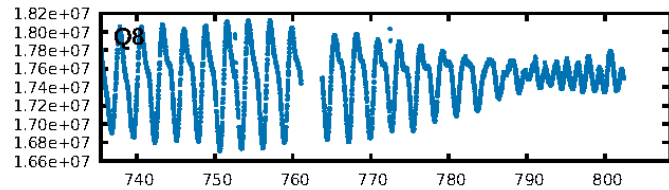
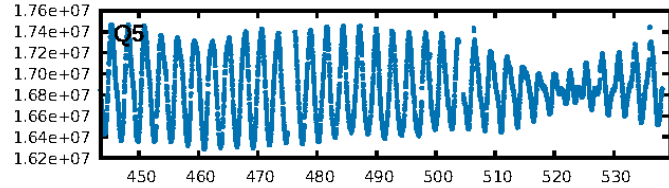
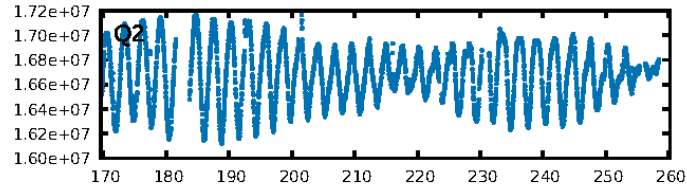
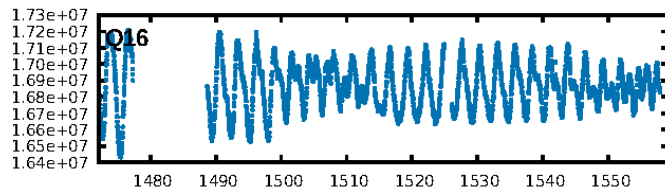
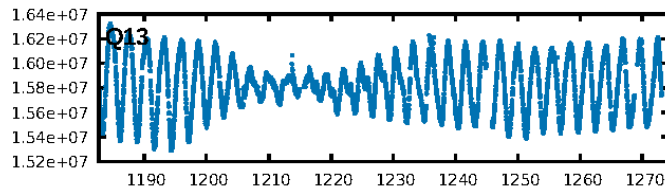
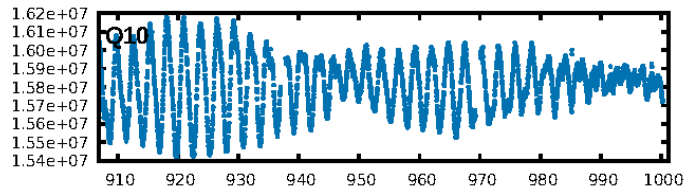
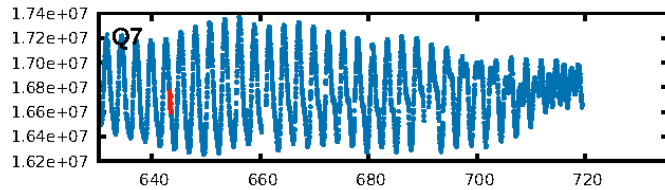
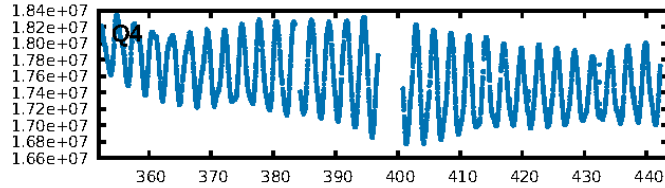
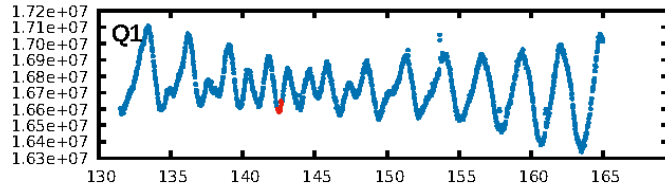
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 72.7%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 2.99e-10**  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 1.578  
Centroid-sig: 56.8%  
Centroid-so: 0.563 arcsec [0.66 $\sigma$ ]  
OotOffset-rm: 0.080 arcsec [0.53 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-rm: 0.276 arcsec [1.51 $\sigma$ ]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

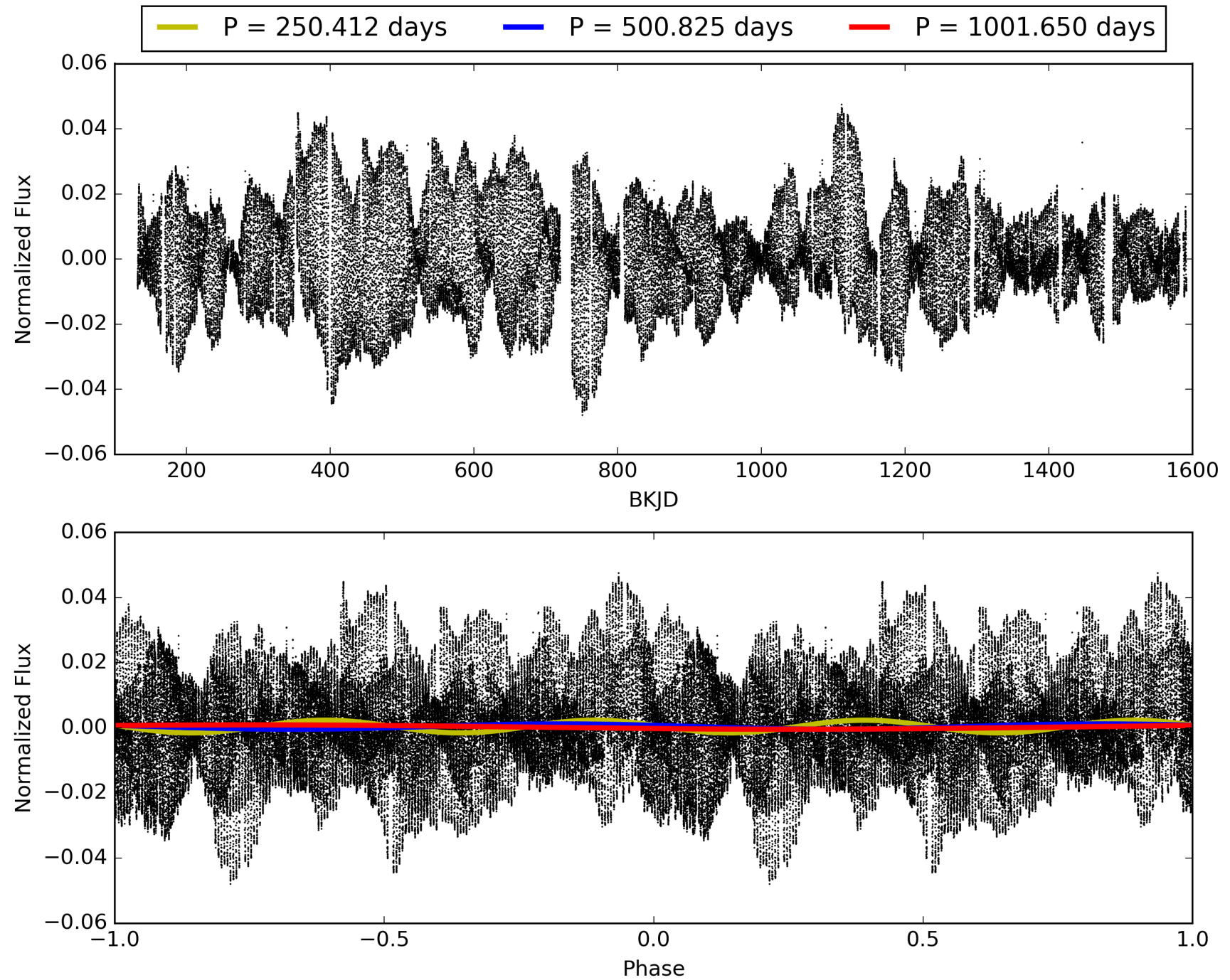
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:59:11 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008733469-01, PDC Light Curves

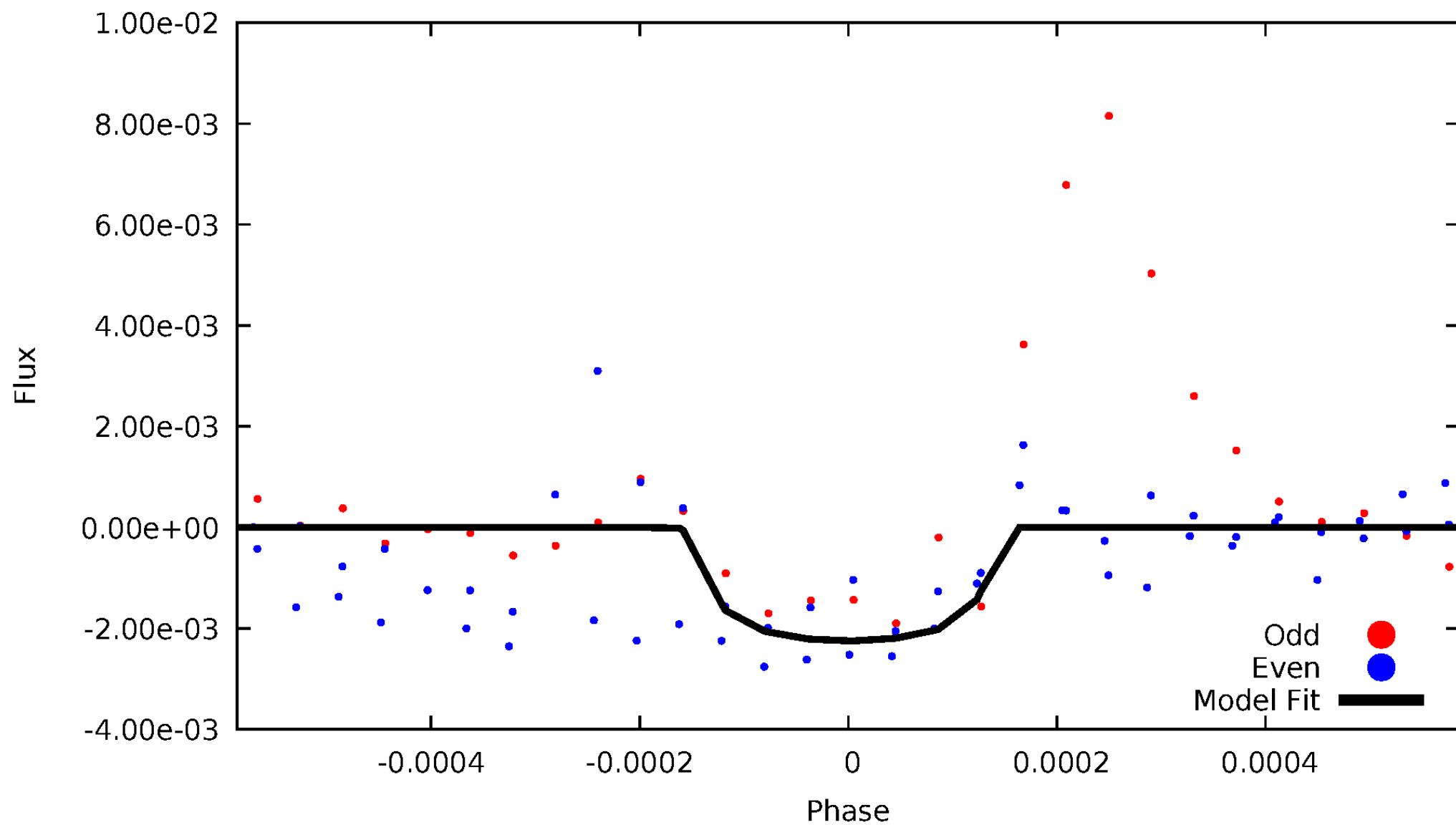


TCE 008733469-01



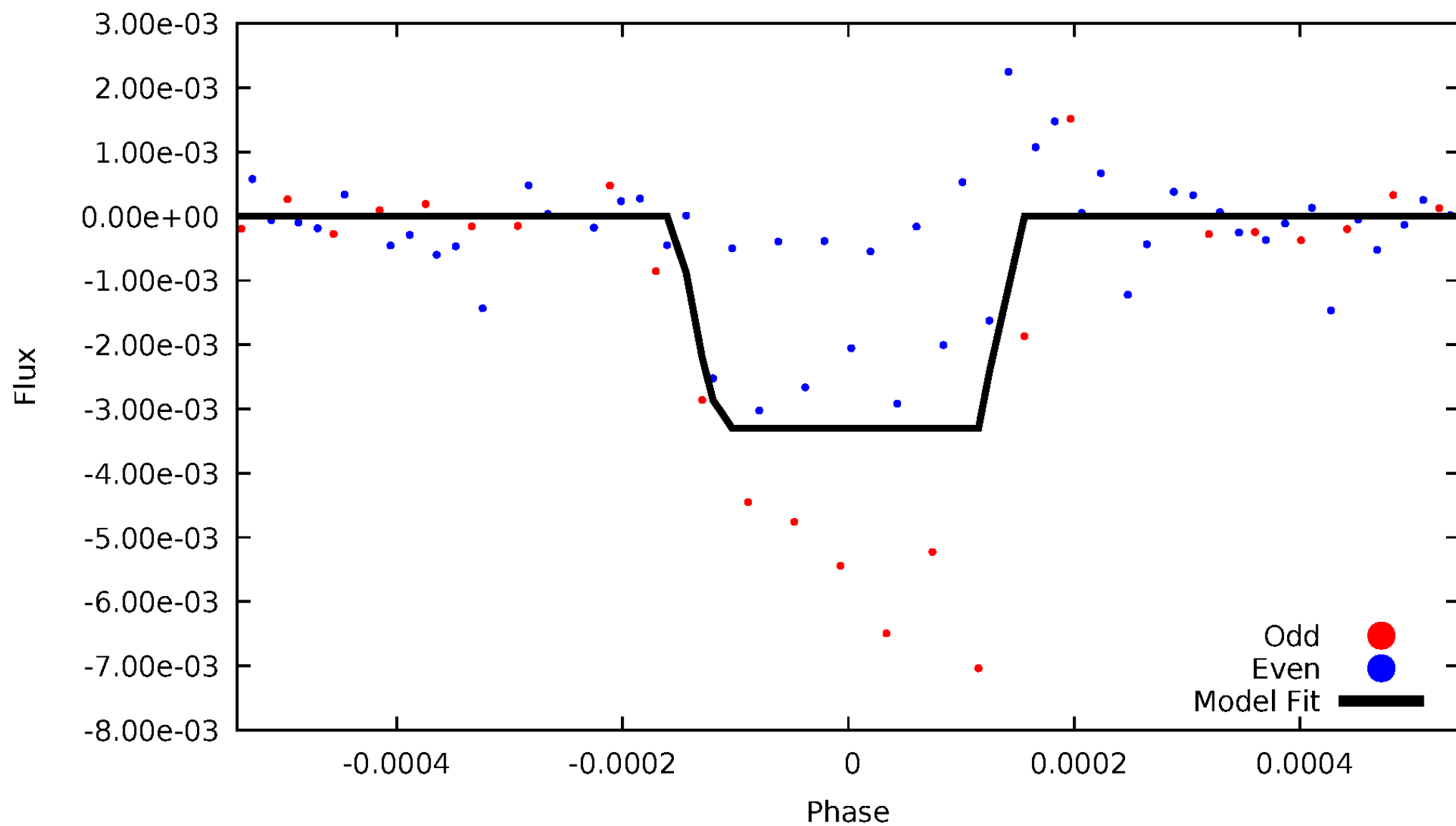
# DV Odd/Even

TCE 008733469-01



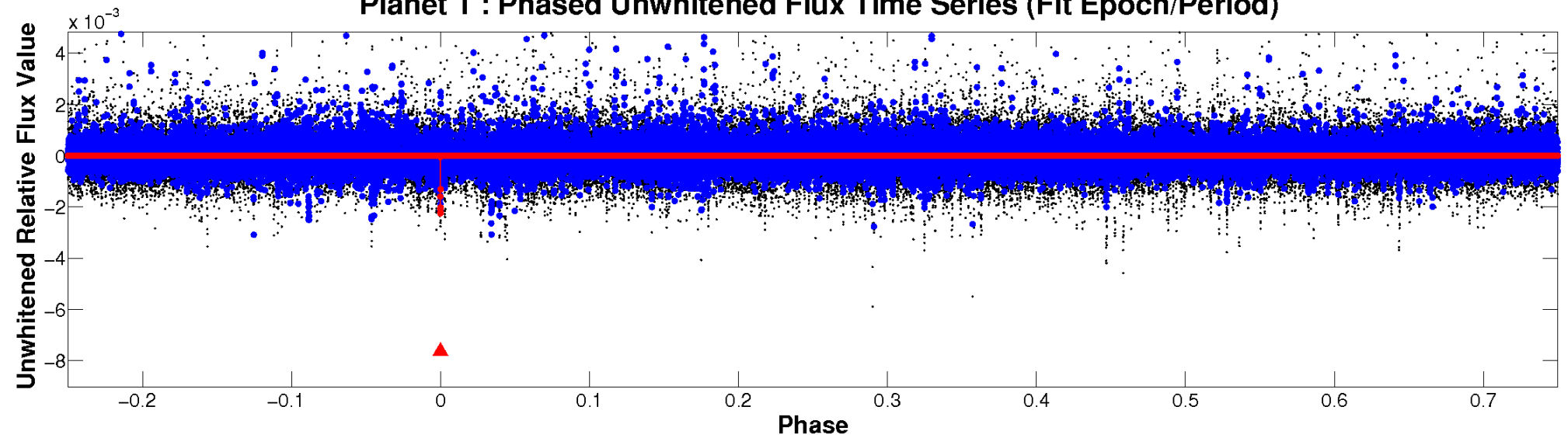
# ALT Odd/Even

TCE 008733469-01

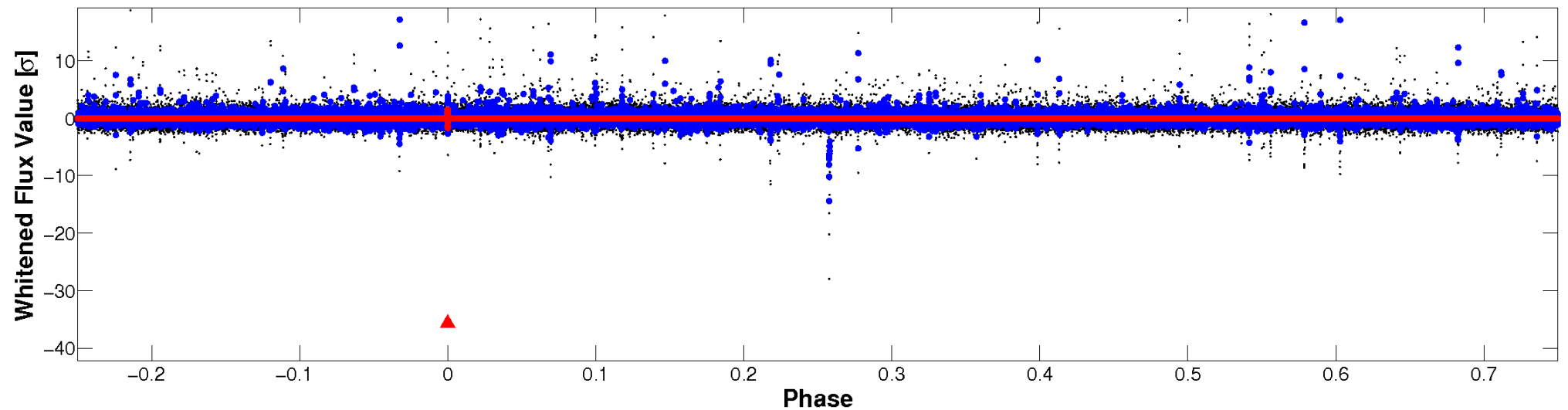


# Non-Whitened Vs. Whitened Light Curve

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

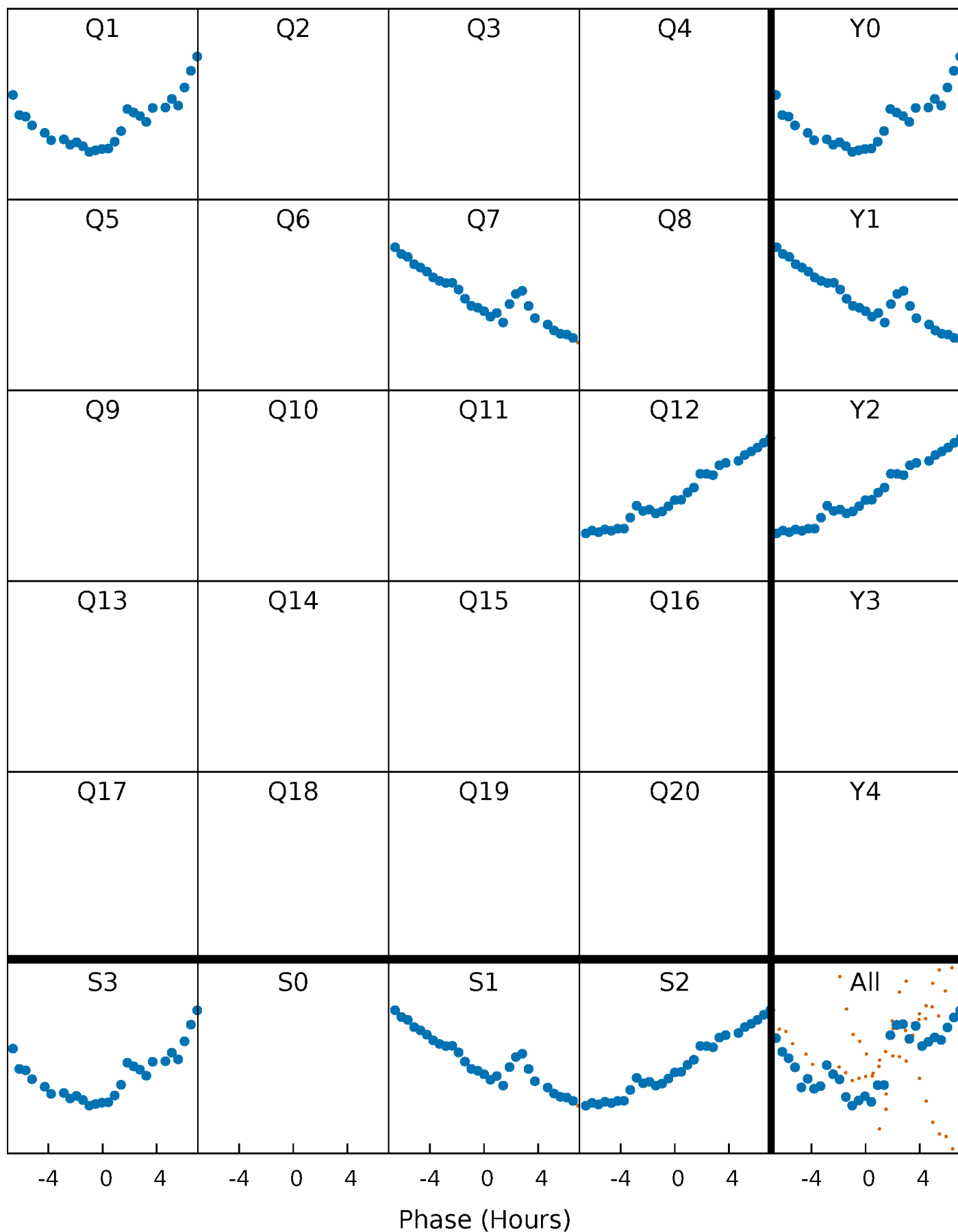


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

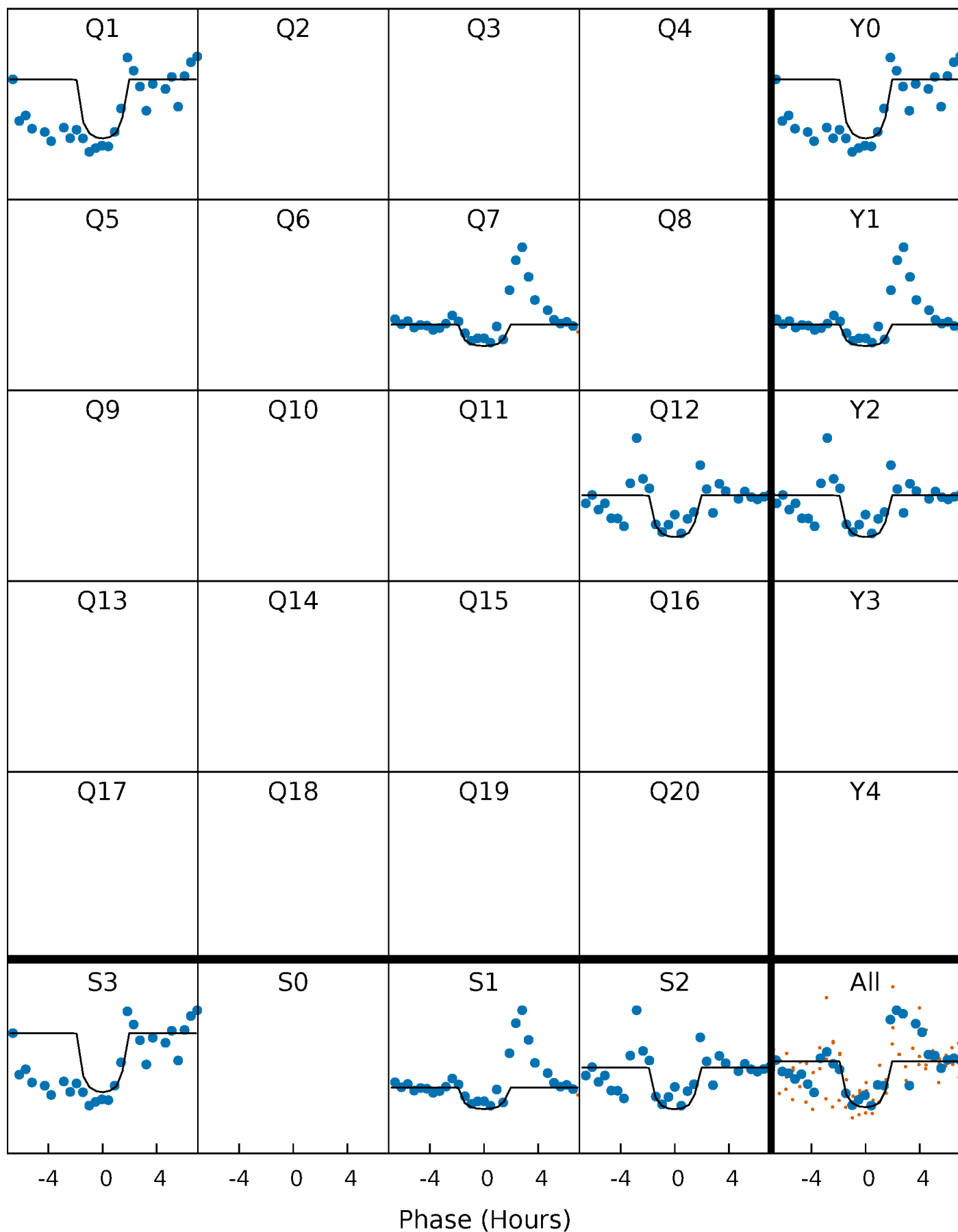
TCE 008733469-01 P=500.824815 Days  $T_0=142.546869$  (BKJD)





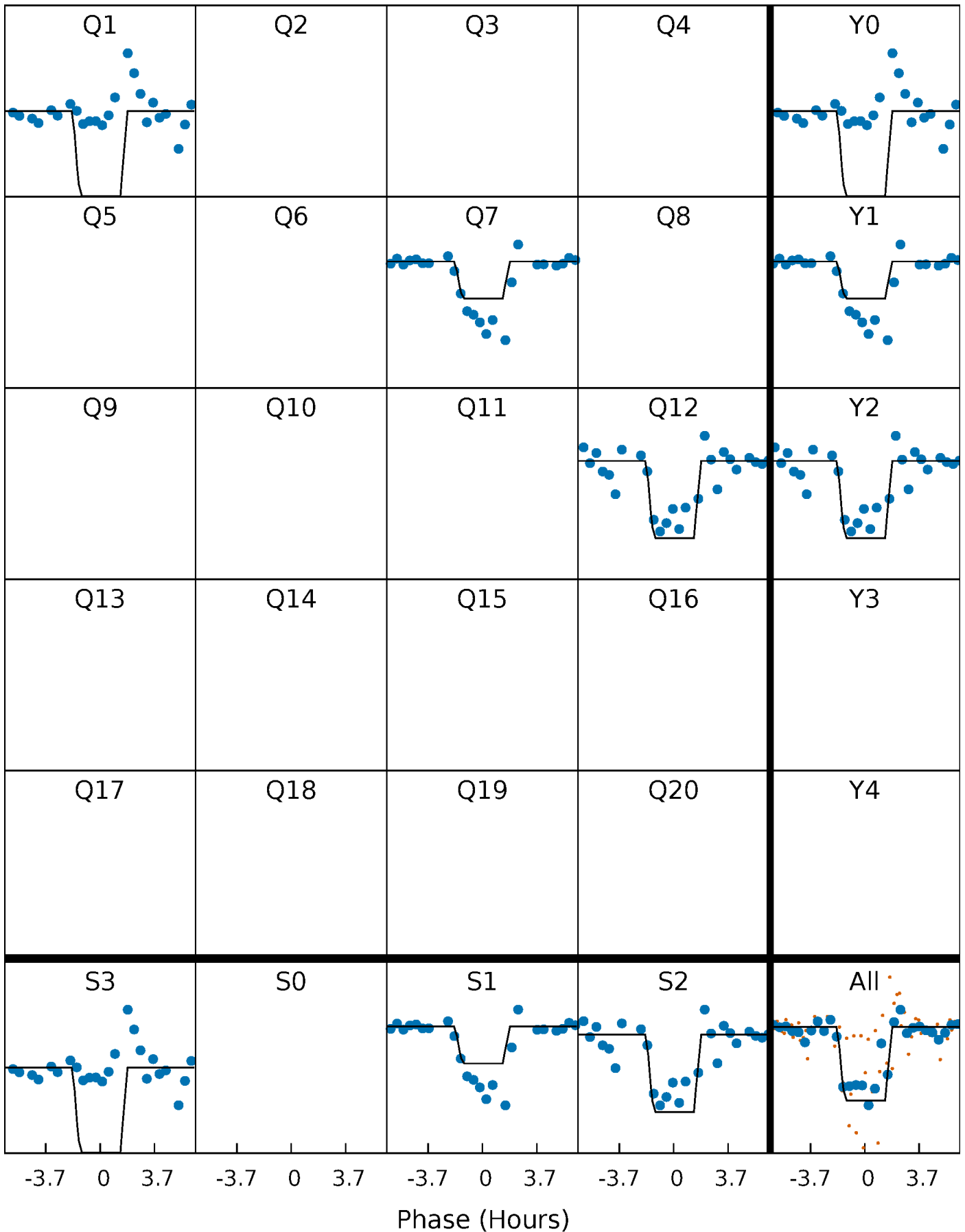
# DV Quarter-Phased Transit Curves

TCE 008733469-01 P=500.824815 Days  $T_0=142.546869$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

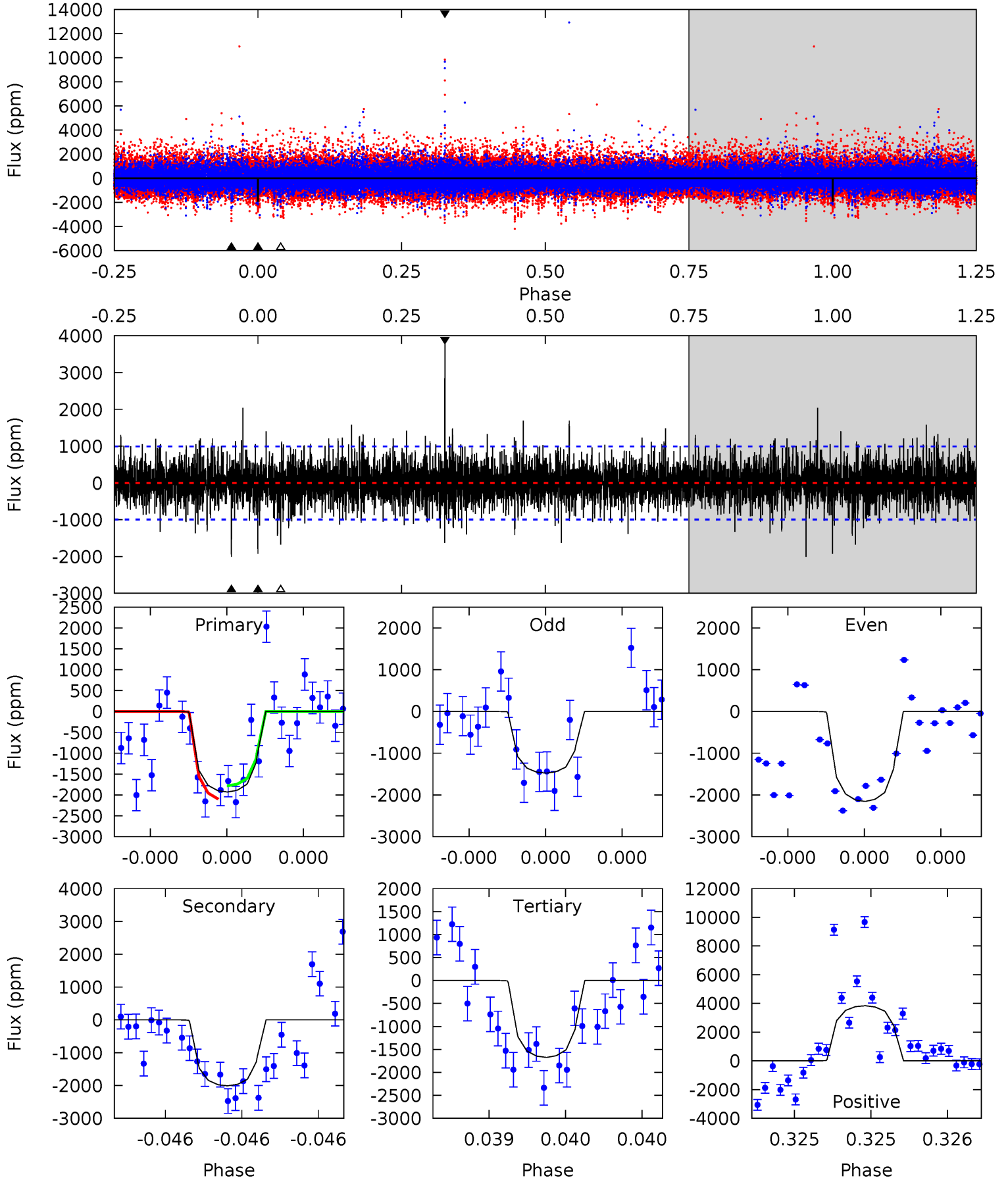
TCE 008733469-01 P=500.819744 Days  $T_0=142.557978$  (BKJD)



# DV Model-Shift Uniqueness Test

008733469-01, P = 500.824815 Days, E = 142.546869 Days

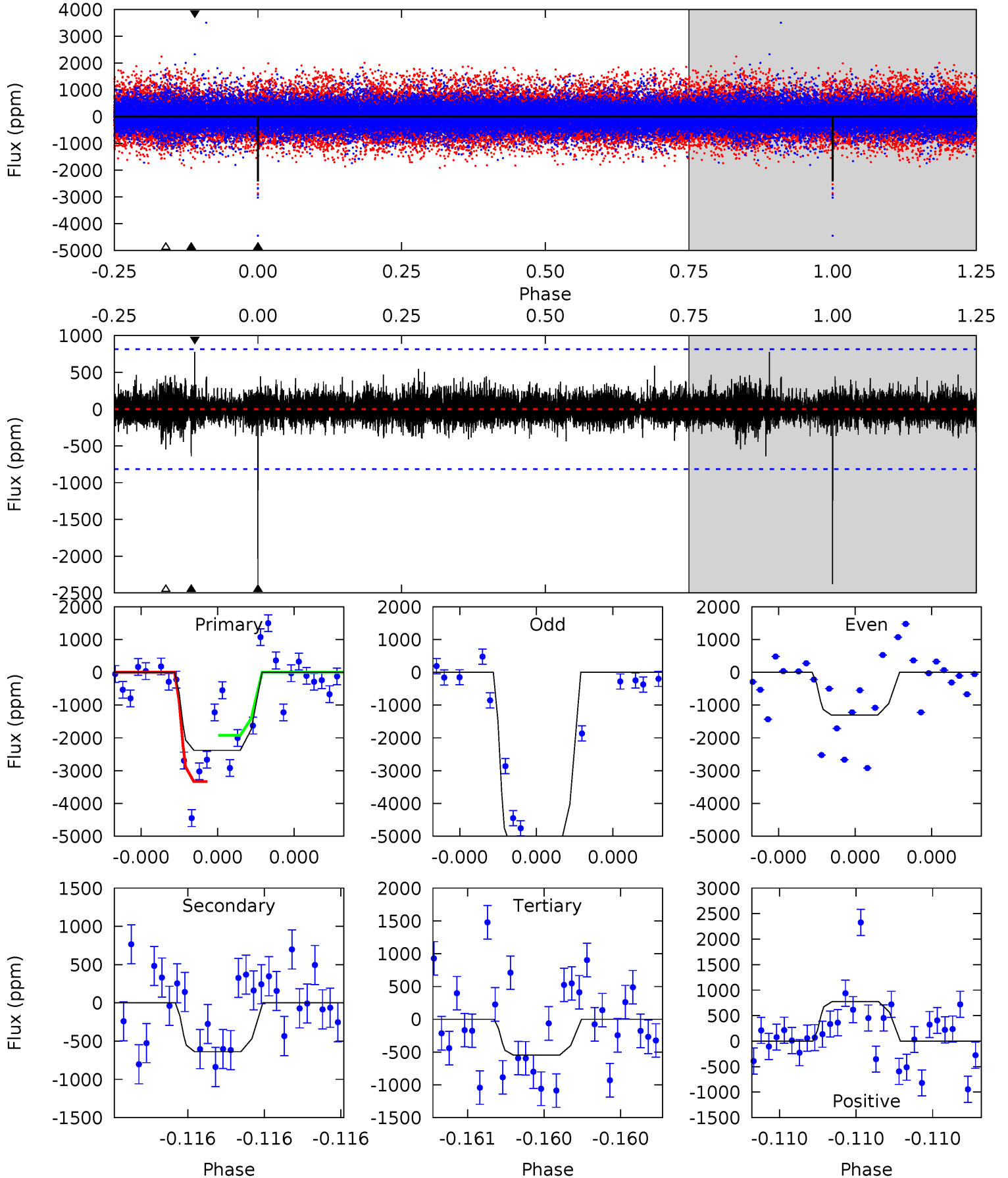
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.0 | 11.4 | 9.52 | 21.8 | 5.65            | 3.60            | 2.17             | 1.45    | -10.9   | 1.91    | -10.4   | 1.69    | 1.13 | 0.66  | 0.90 |



# Alt Model-Shift Uniqueness Test

008733469-01, P = 500.819744 Days, E = 142.557978 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 |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 16.6 | 4.44 | 3.80 | 5.39 | 5.67            | 3.63            | 0.74             | 12.8    | 11.2    | 0.63    | -0.96   | 18.7    | 1.06 | 0.25  | 0   |



### Stellar Parameters For KIC 008733469

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5491^{+165}_{-165}$ | $4.535^{+0.104}_{-0.085}$ | $-0.720^{+0.350}_{-0.300}$ | $0.744^{+0.096}_{-0.087}$ | $0.691^{+0.087}_{-0.035}$ | $2.364^{+0.984}_{-0.637}$                     |
|        | +3%/-3%              | +2%/-2%                   | +49%/-42%                  | +13%/-12%                 | +13%/-5%                  | +42%/-27%                                     |
| 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 008733469-01 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)         | $A_{obs}$                  |
|---------|-----------------|------------------------|-------------------|-----------------------|----------------------------|
| DV      | $-2009 \pm 176$ | $3.76^{+2.45}_{-2.02}$ | $279^{+13}_{-12}$ | $5422^{+2708}_{-978}$ | $94302^{+345944}_{-59610}$ |
| Alt.    | $-638 \pm 144$  | $4.72^{+2.45}_{-2.41}$ | $279^{+12}_{-14}$ | $3935^{+1164}_{-534}$ | $18936^{+56620}_{-10960}$  |

$T_{max}$  = Theoretical Maximum Planetary Temperature

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

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

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

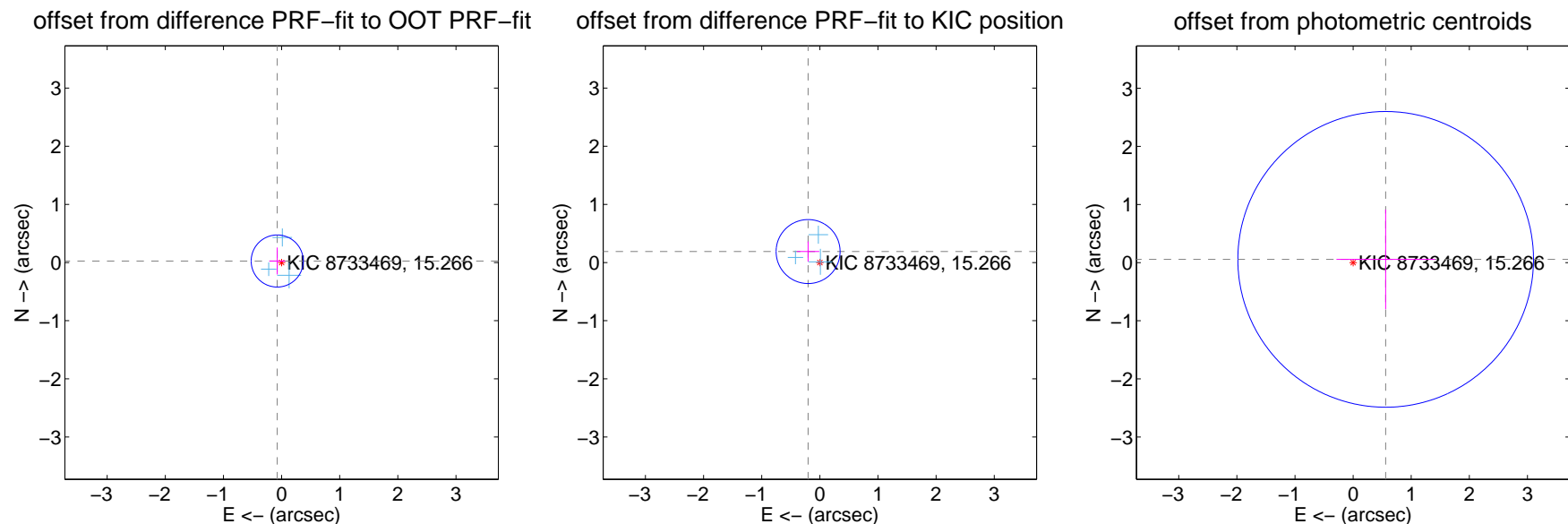
## DV Centroid Data

Supplemental centroid analysis for 008733469-01. Kepler magnitude: 15.27. Transit SNR 7.70

There are 3 quarters with good PRF difference image offsets

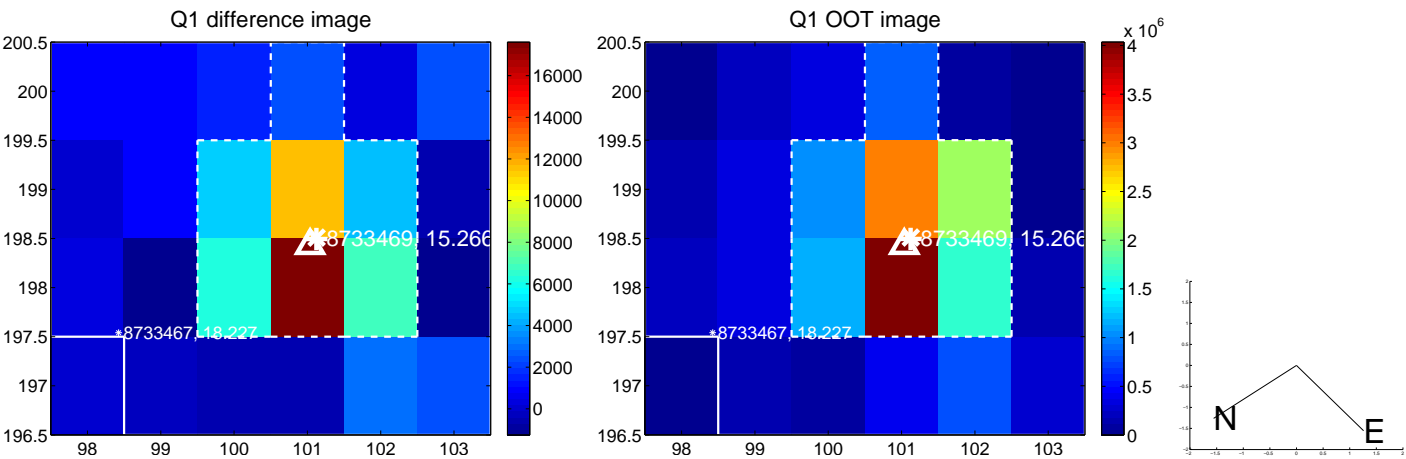
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.080 \pm 0.149$  | 0.53                | $0.075 \pm 0.135$ | $0.026 \pm 0.233$ |
| PRF-fit source offset from KIC position | $0.276 \pm 0.183$  | 1.51                | $0.202 \pm 0.192$ | $0.189 \pm 0.173$ |
| photometric centroid source offset      | $0.56 \pm 0.85$    | 0.66                | $-0.56 \pm 0.85$  | $0.06 \pm 0.86$   |

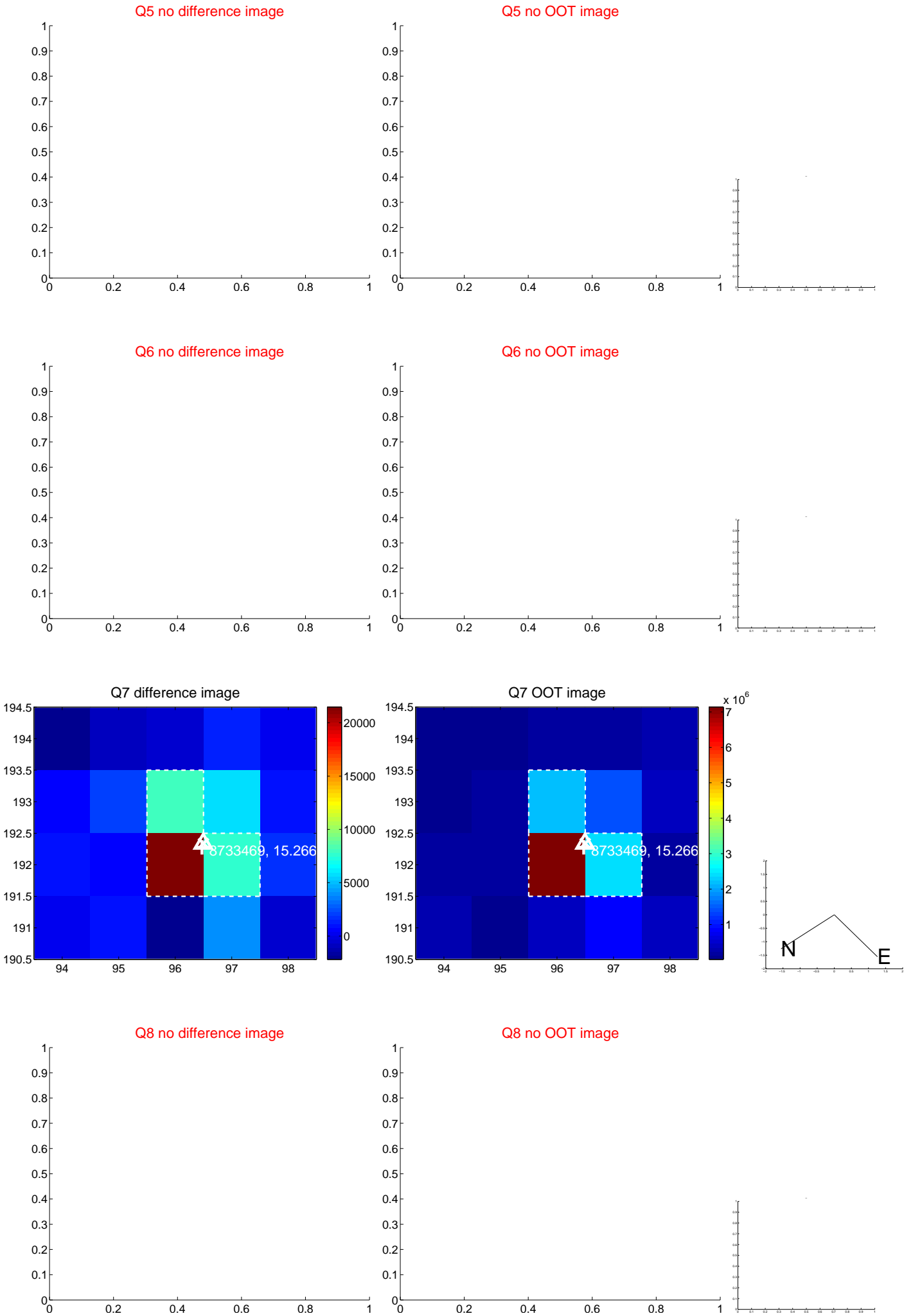


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

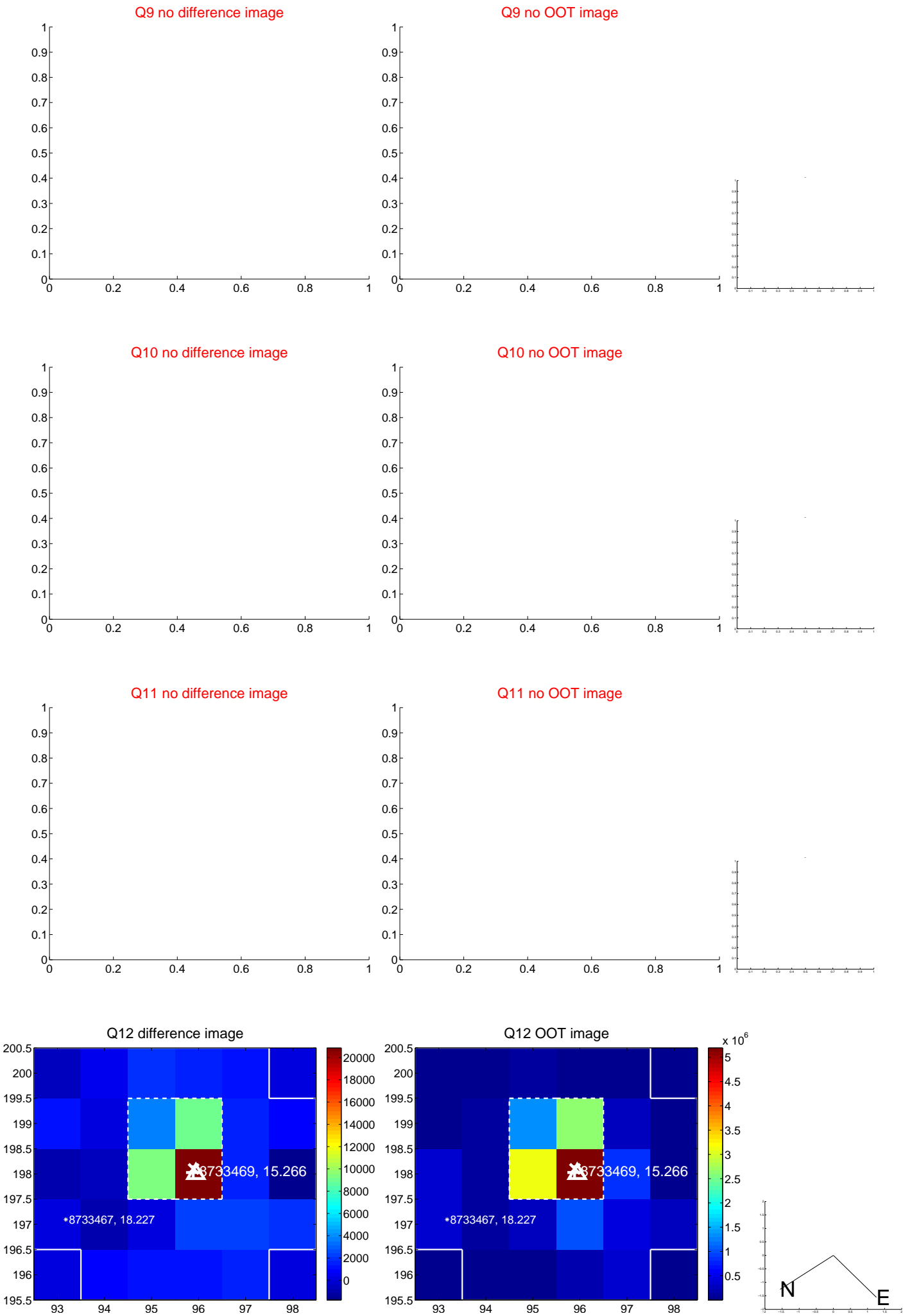


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





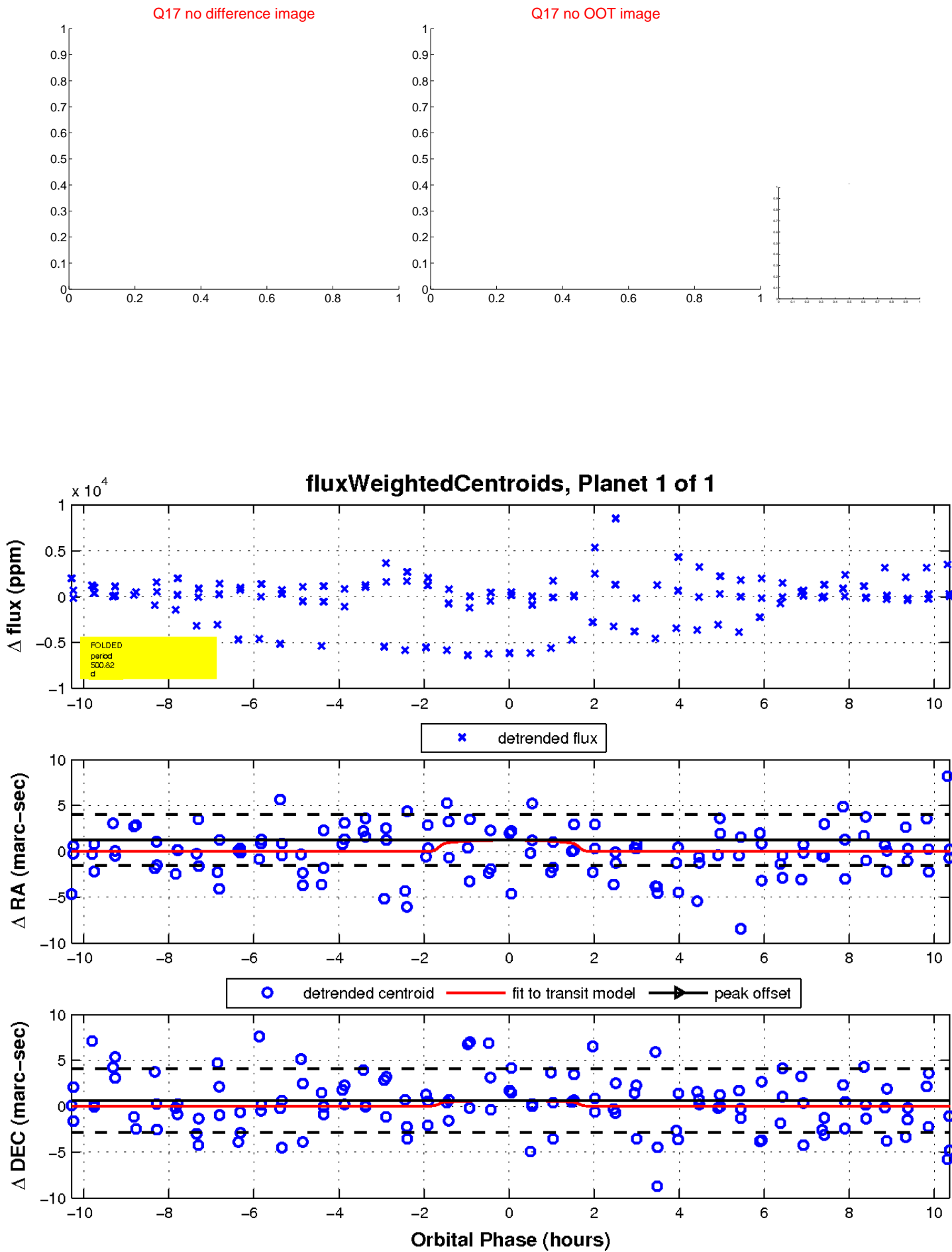
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



# UKIRT Image

Declination

