

# KIC 009466836

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009466836-01 | OBS      | No   | 365.193961    | 325.669487   | 611.4       | 17.964           | 9.2 | 9.7 | 0.78                        | 5328            | 2.34                   | 0.49                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 009466836-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—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.

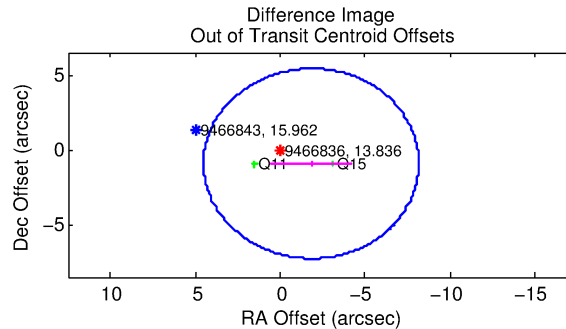
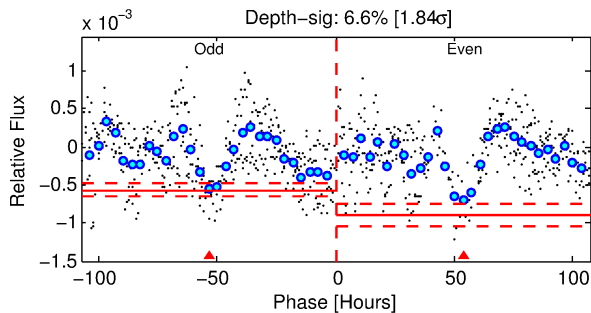
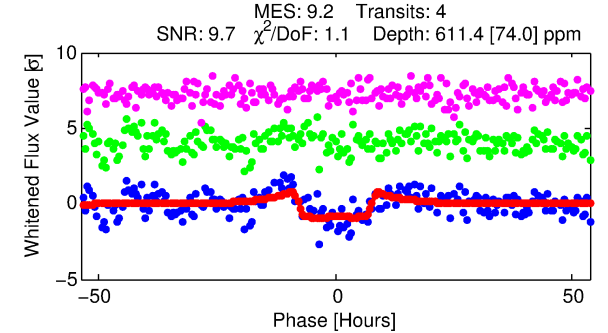
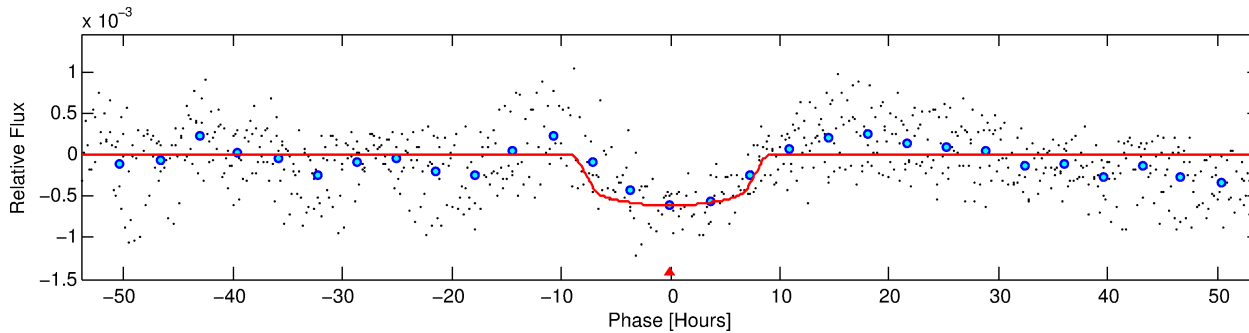
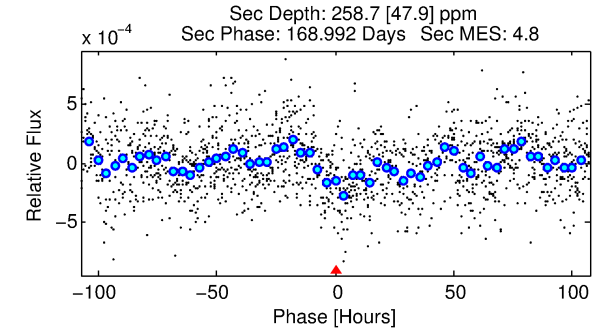
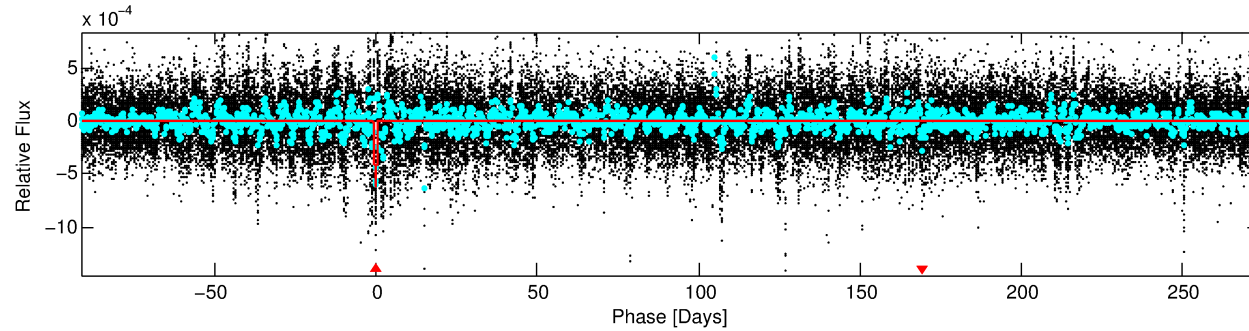
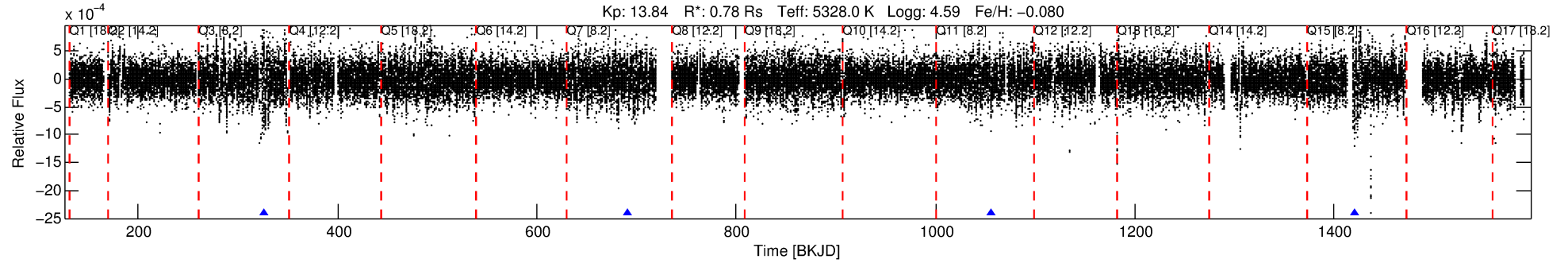
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009466836-01

No Significant Match Found

# DV One-Page Summary

KIC: 9466836 Candidate: 1 of 1 Period: 365.194 d



## DV Fit Results:

Period = 365.19396 [0.01000] d  
Epoch = 325.6695 [0.0190] BKJD  
Rp/R\* = 0.0273 [0.0024]  
a/R\* = 76.58 [17.24]  
b = 0.90 [0.05]  
Seff = 0.49 [0.12]  
Teff = 213 [13] K  
Rp = 2.34 [0.44] Re  
a = 0.9541 [0.1355] AU  
Ag = 23730.58 [7743.00] [3.06 $\sigma$ ]  
Teffp = 4089 [286] K [13.53 $\sigma$ ]

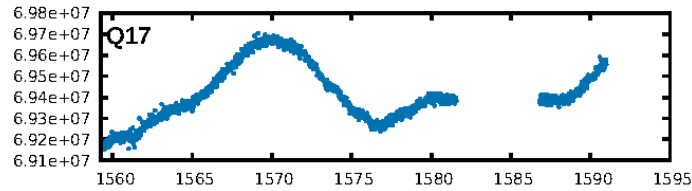
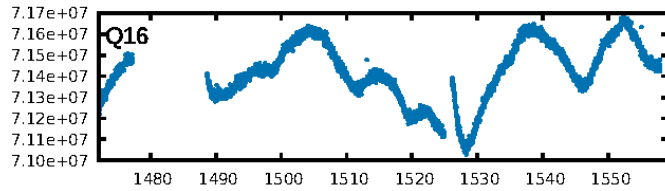
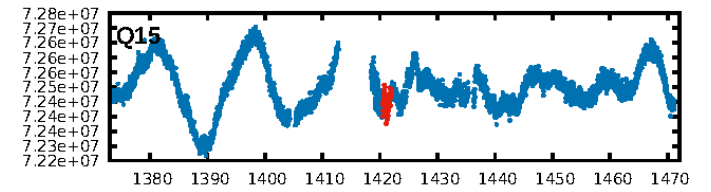
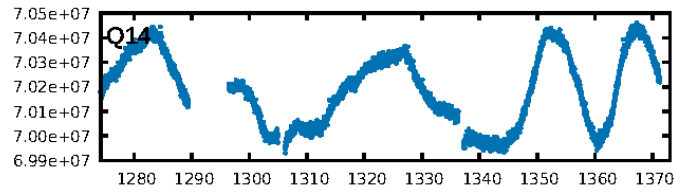
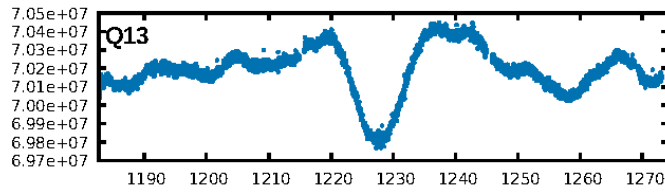
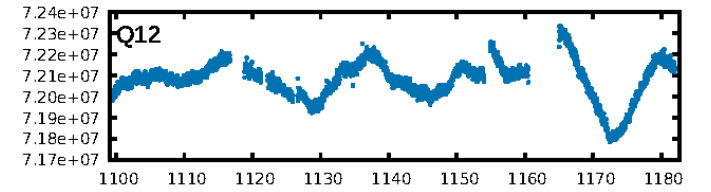
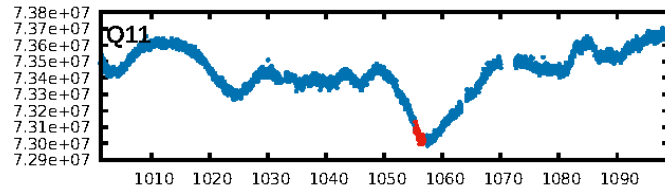
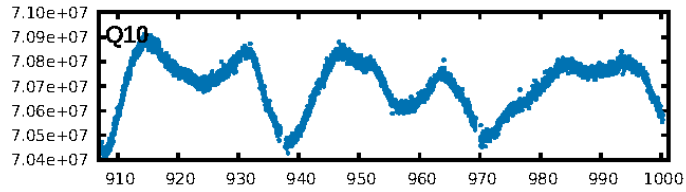
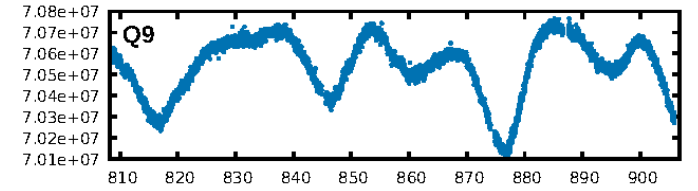
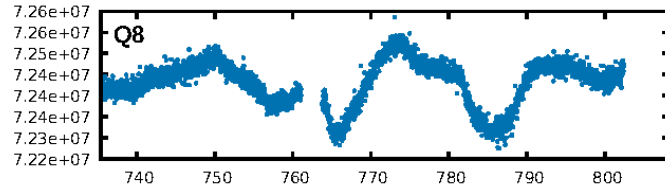
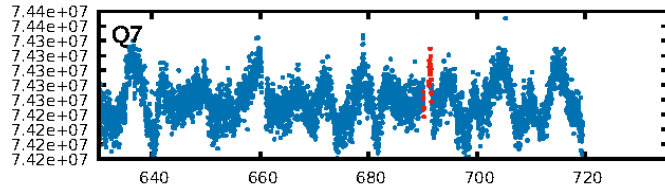
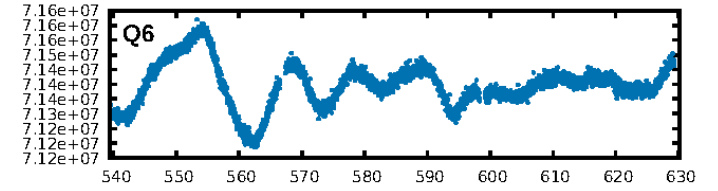
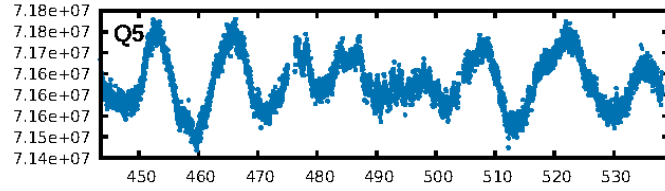
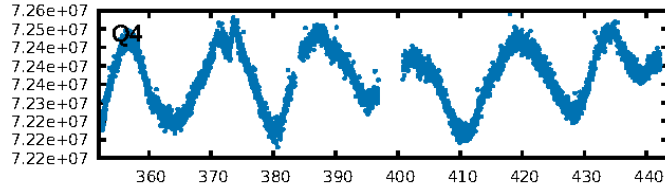
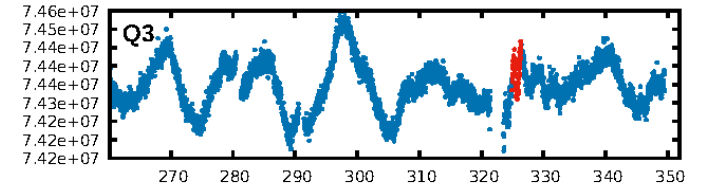
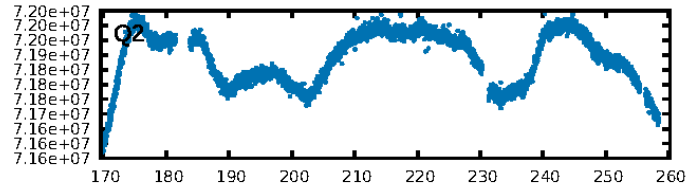
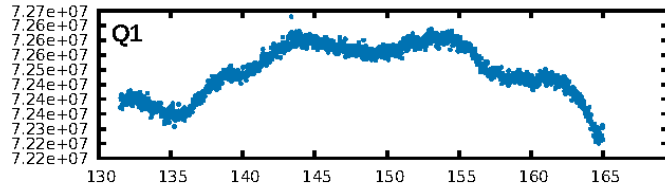
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.49e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -5.15  
Centroid-sig: 14.3%  
Centroid-so: 0.795 arcsec [1.15 $\sigma$ ]  
OotOffset-rm: 2.060 arcsec [0.97 $\sigma$ ]  
KicOffset-rm: 2.014 arcsec [0.95 $\sigma$ ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

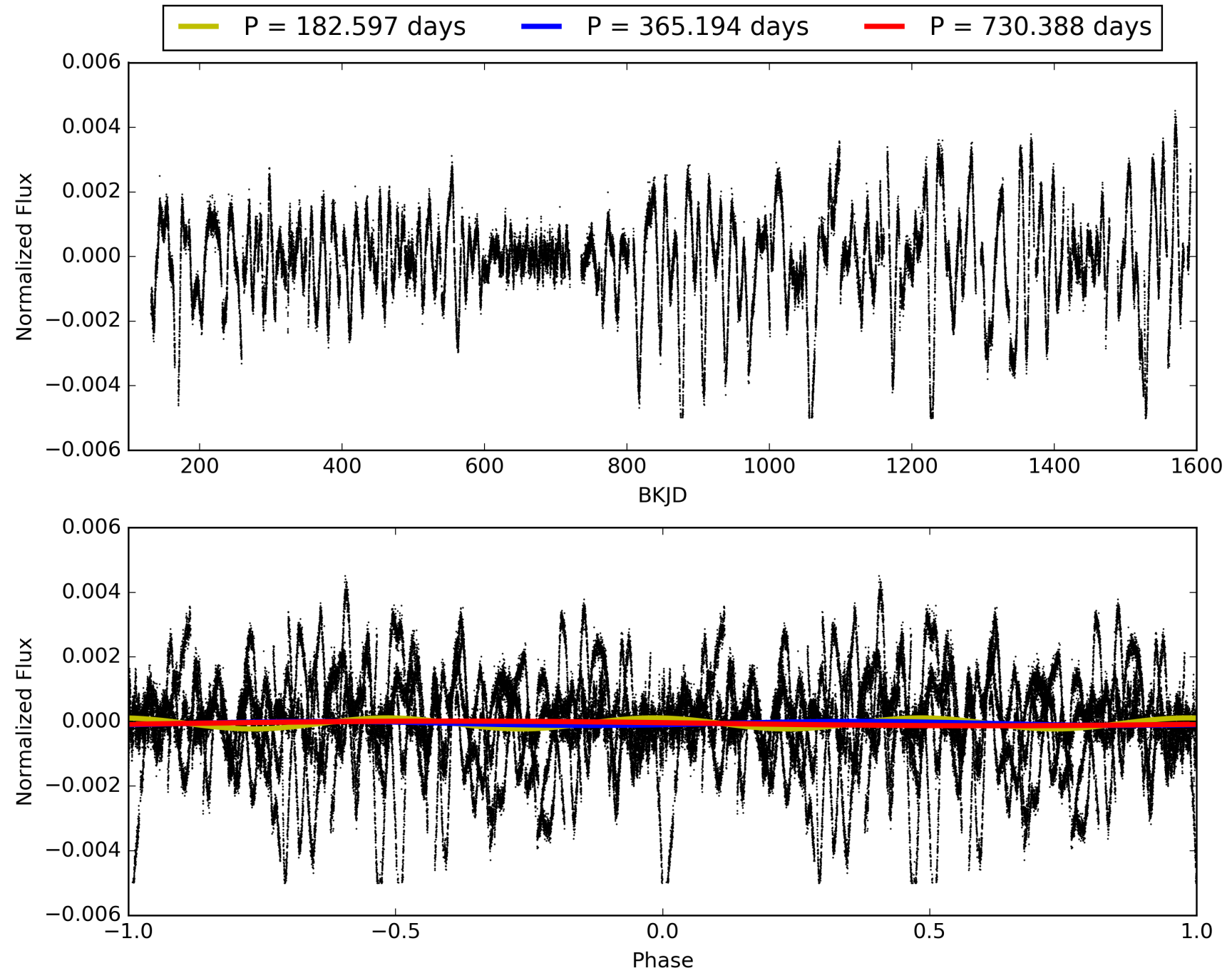
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:17:17 Z

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

# TCE 009466836-01, PDC Light Curves

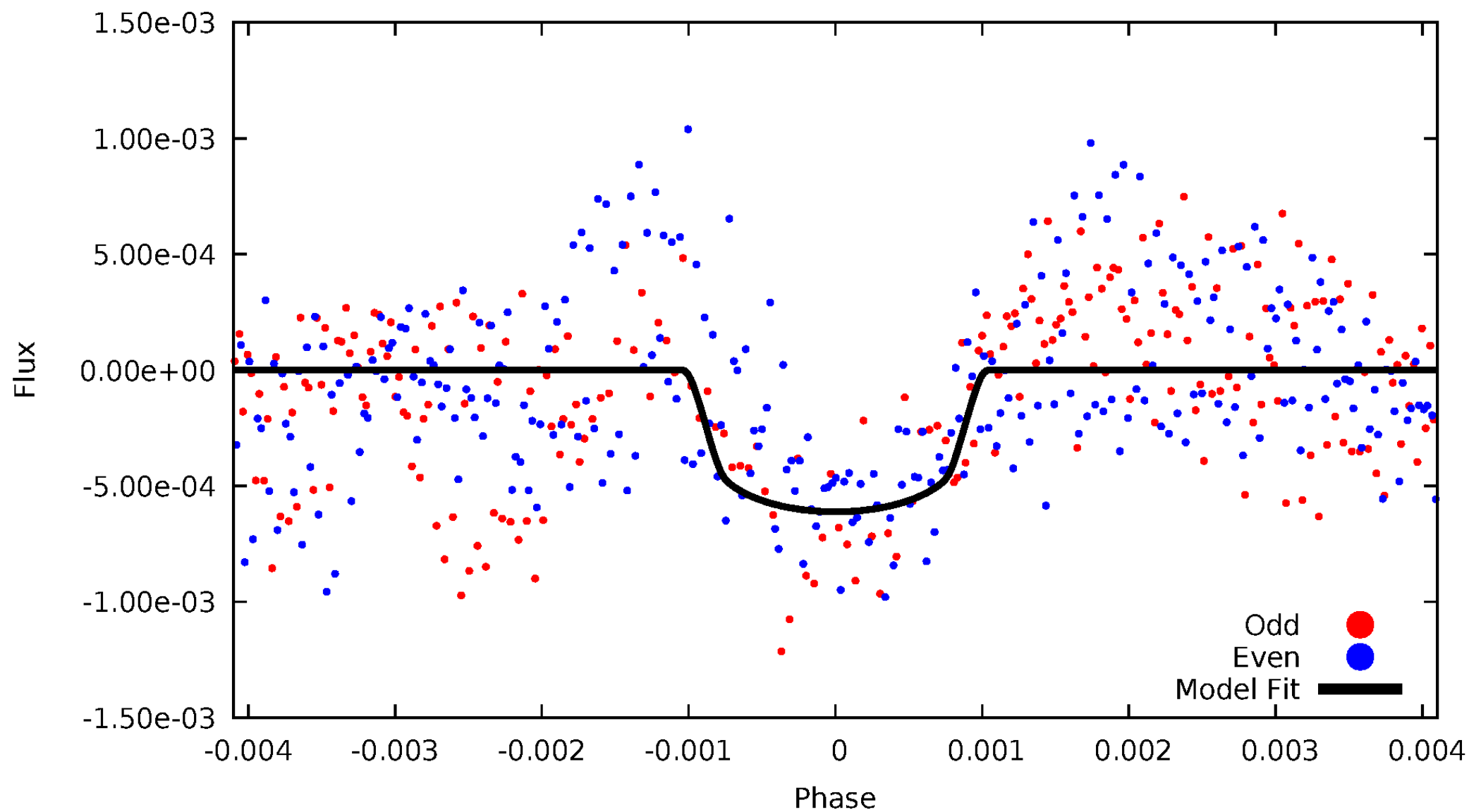


TCE 009466836-01



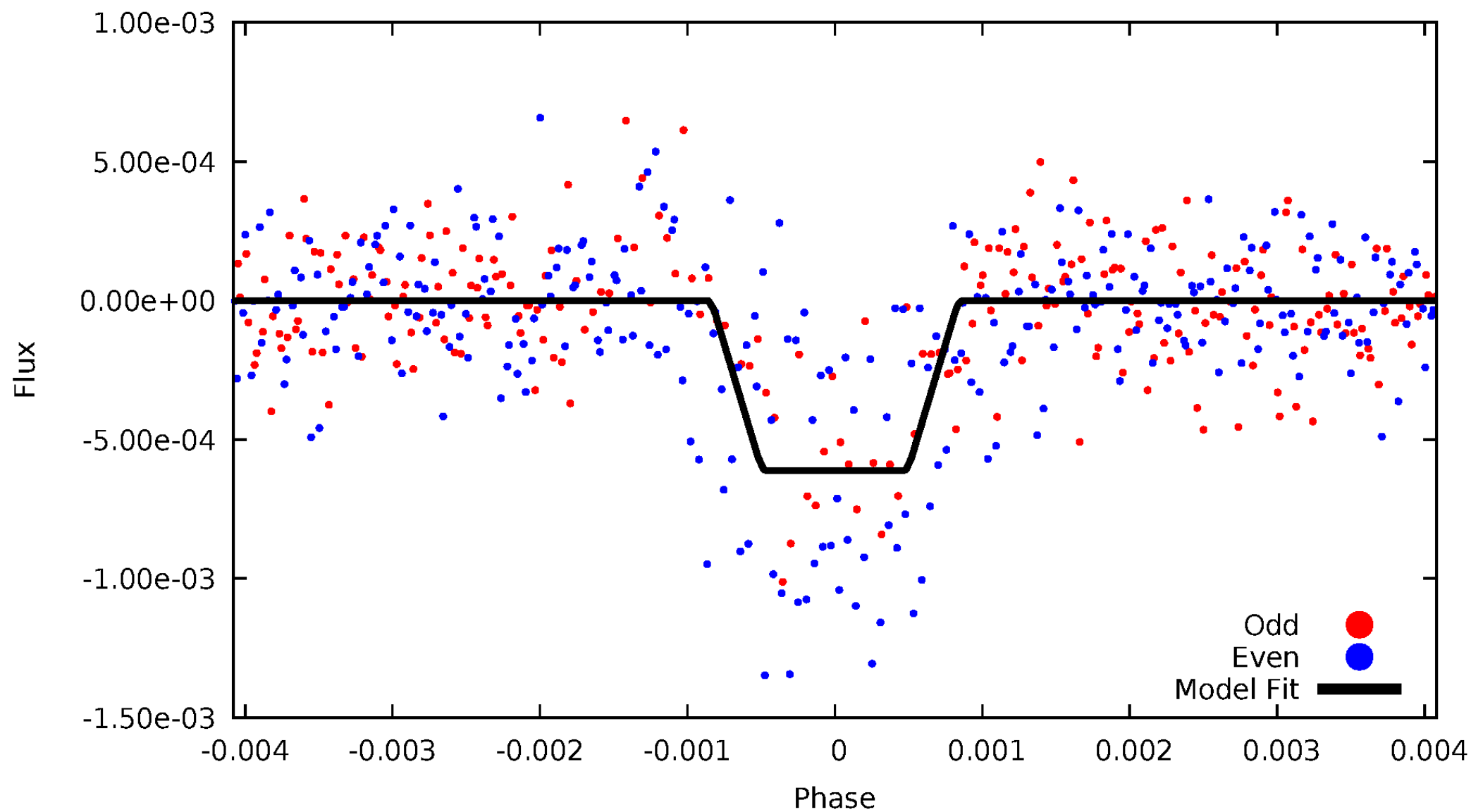
# DV Odd/Even

TCE 009466836-01



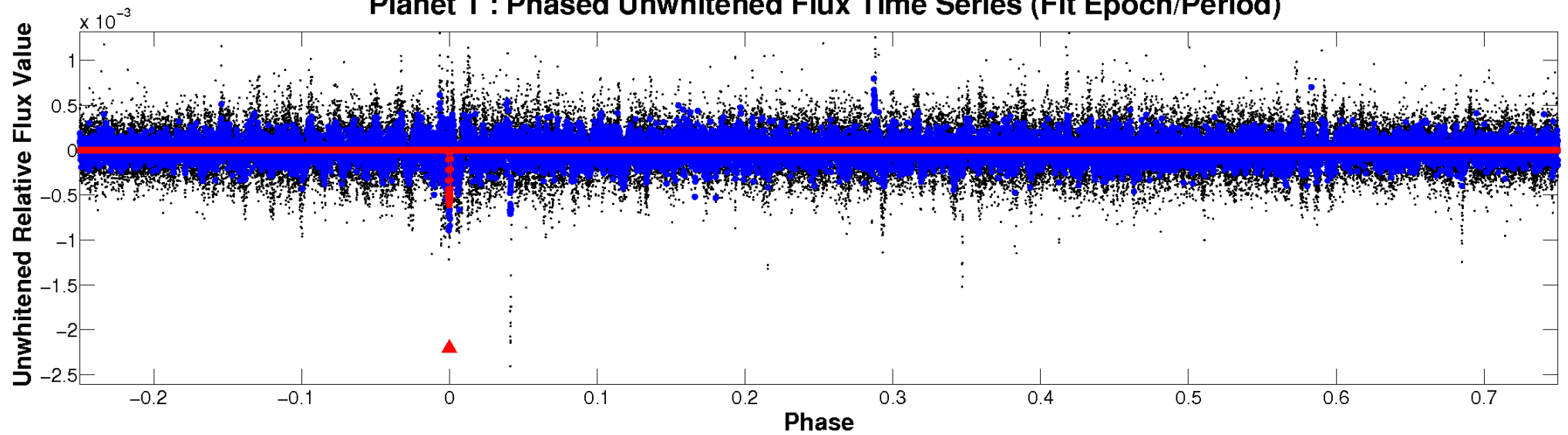
# ALT Odd/Even

TCE 009466836-01

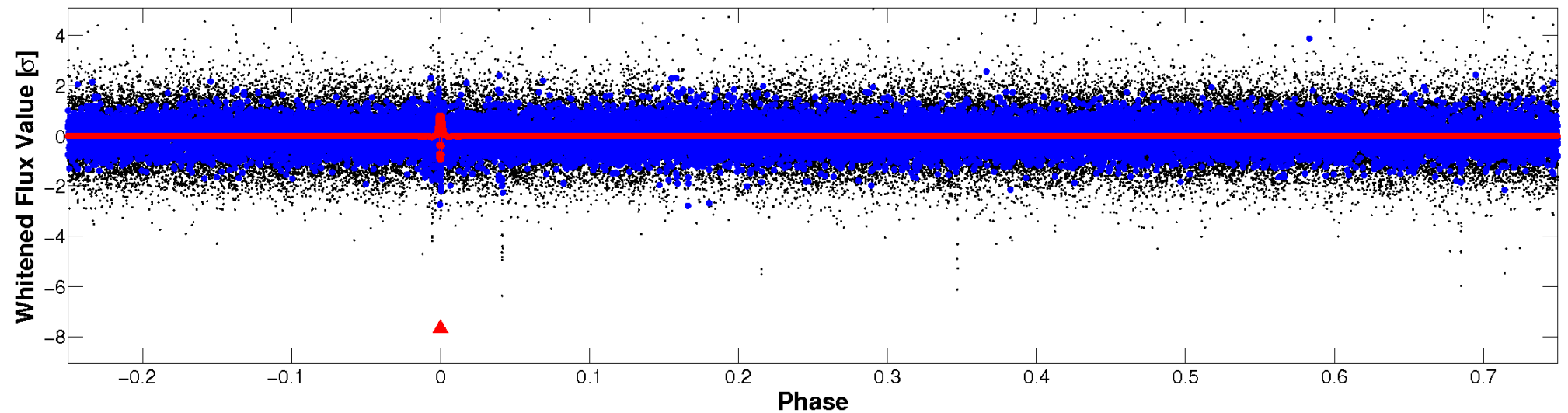


# Non-Whitened Vs. Whitened Light Curve

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

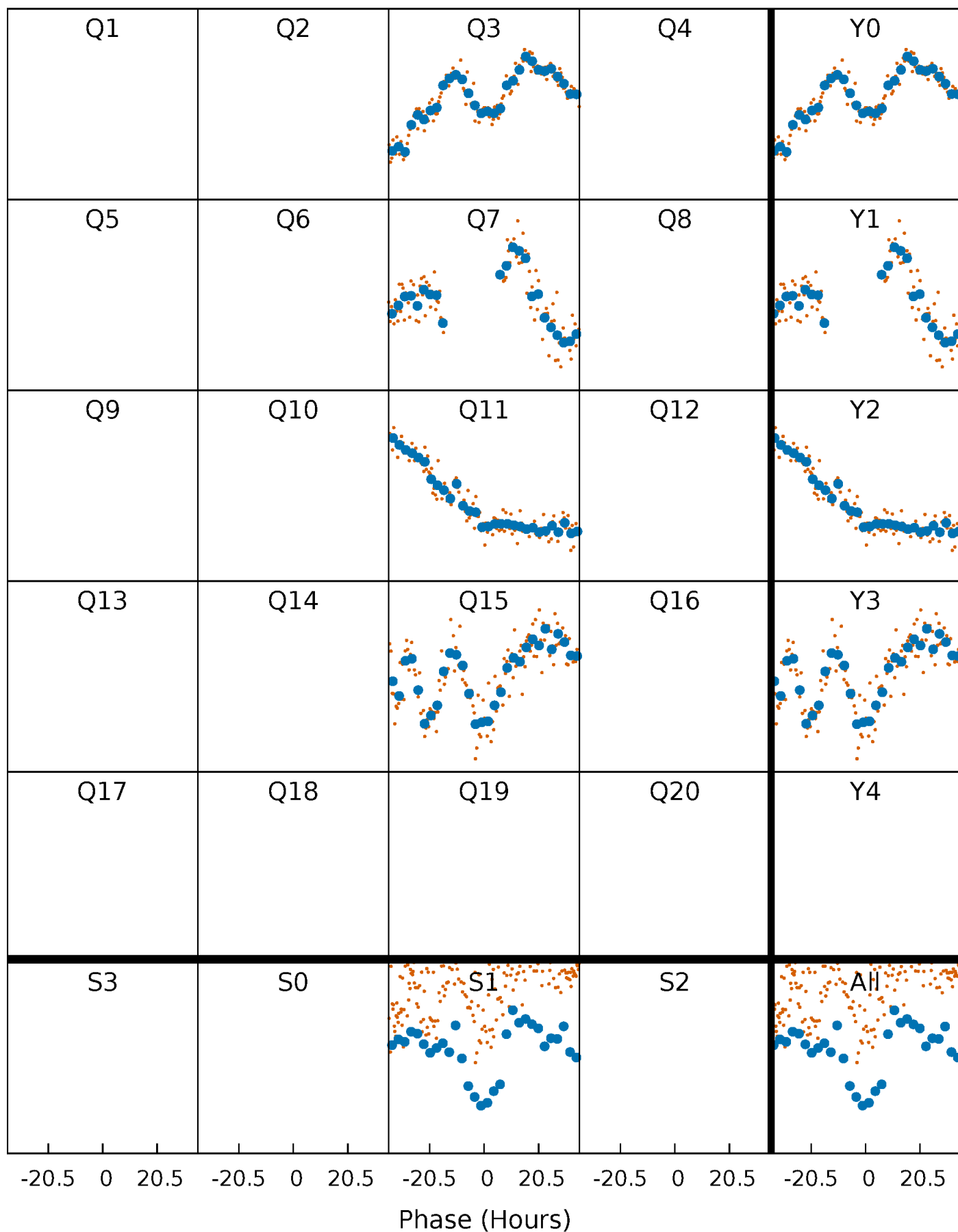


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

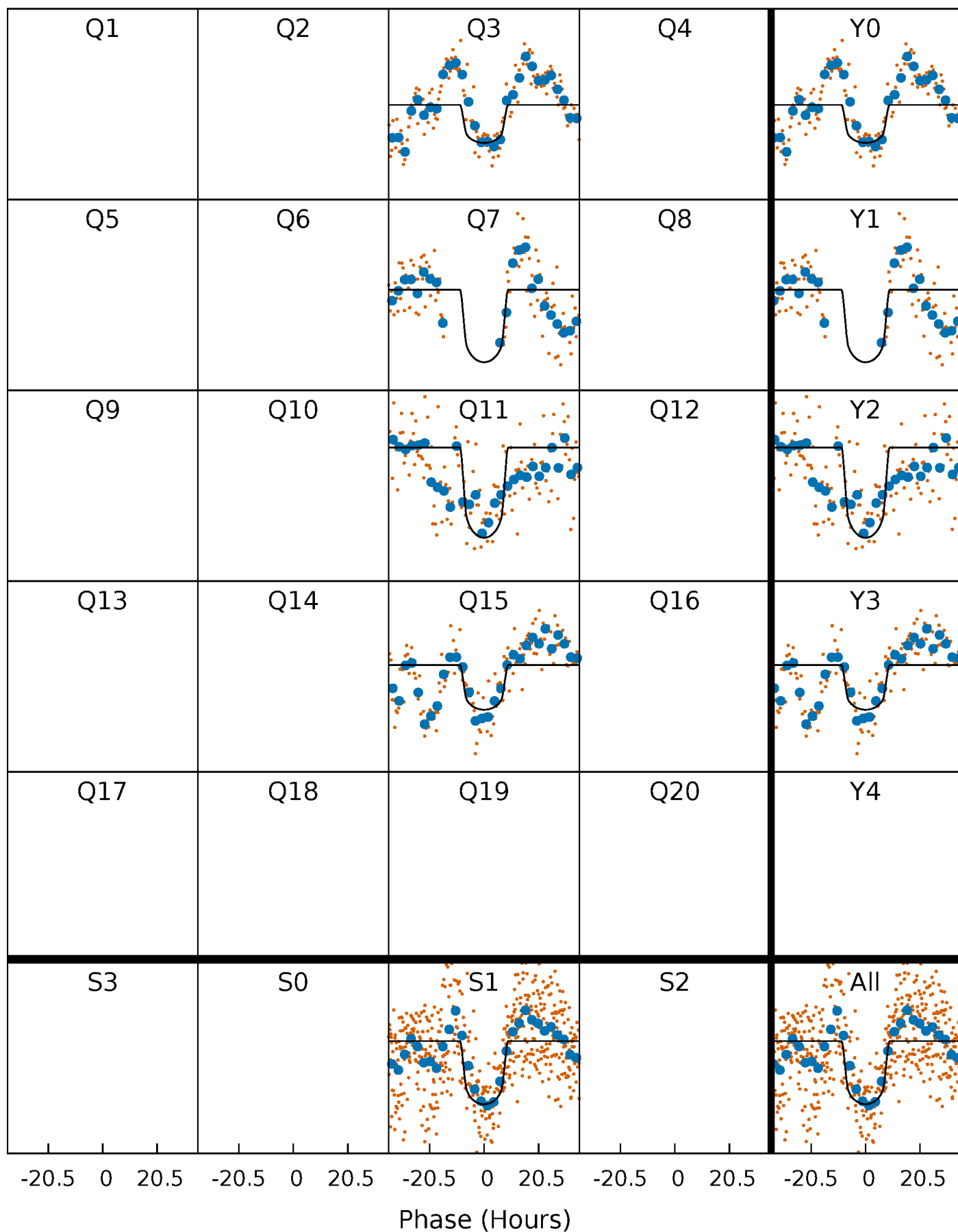
TCE 009466836-01 P=365.193961 Days  $T_0=325.669487$  (BKJD)





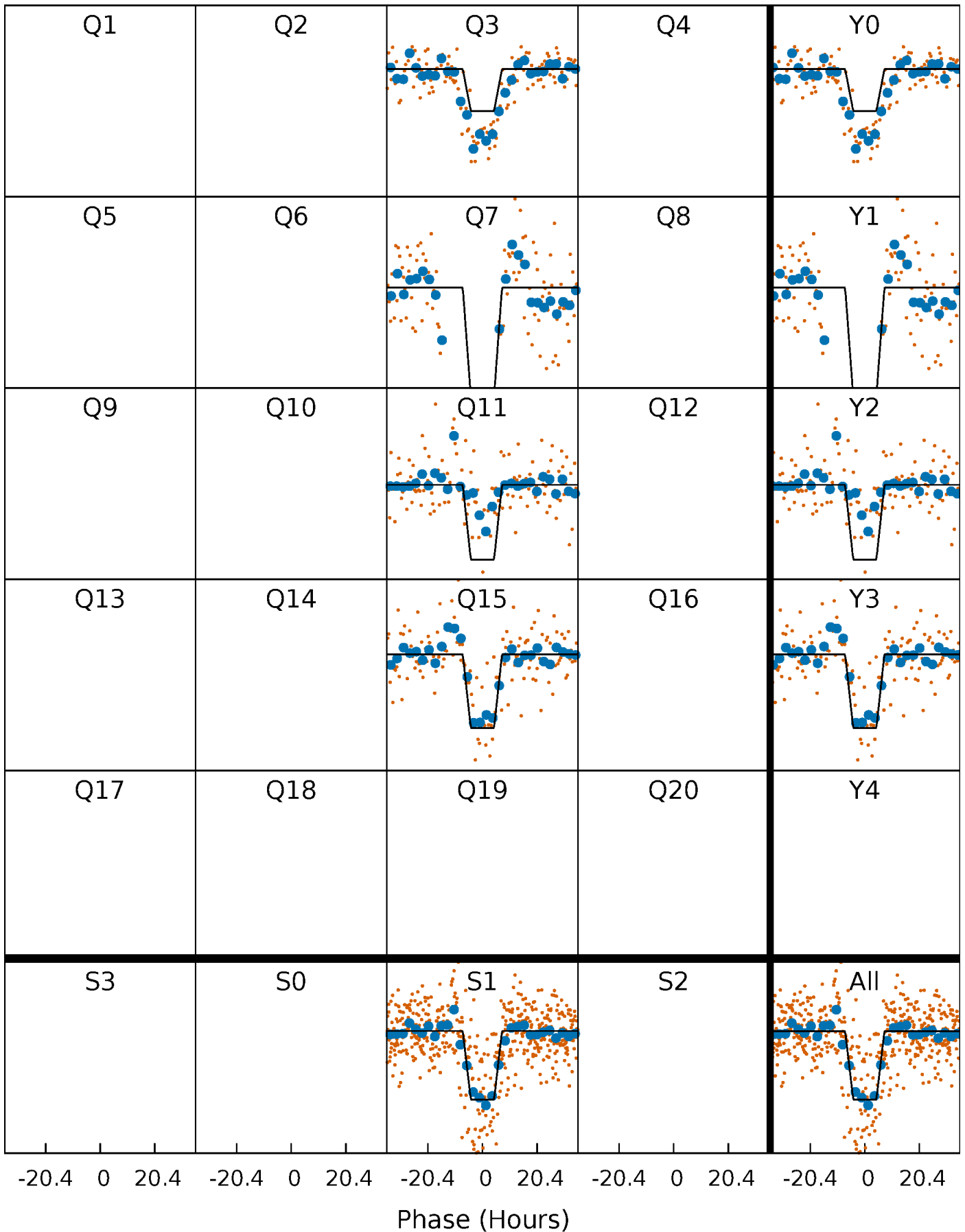
# DV Quarter-Phased Transit Curves

TCE 009466836-01 P=365.193961 Days  $T_0=325.669487$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

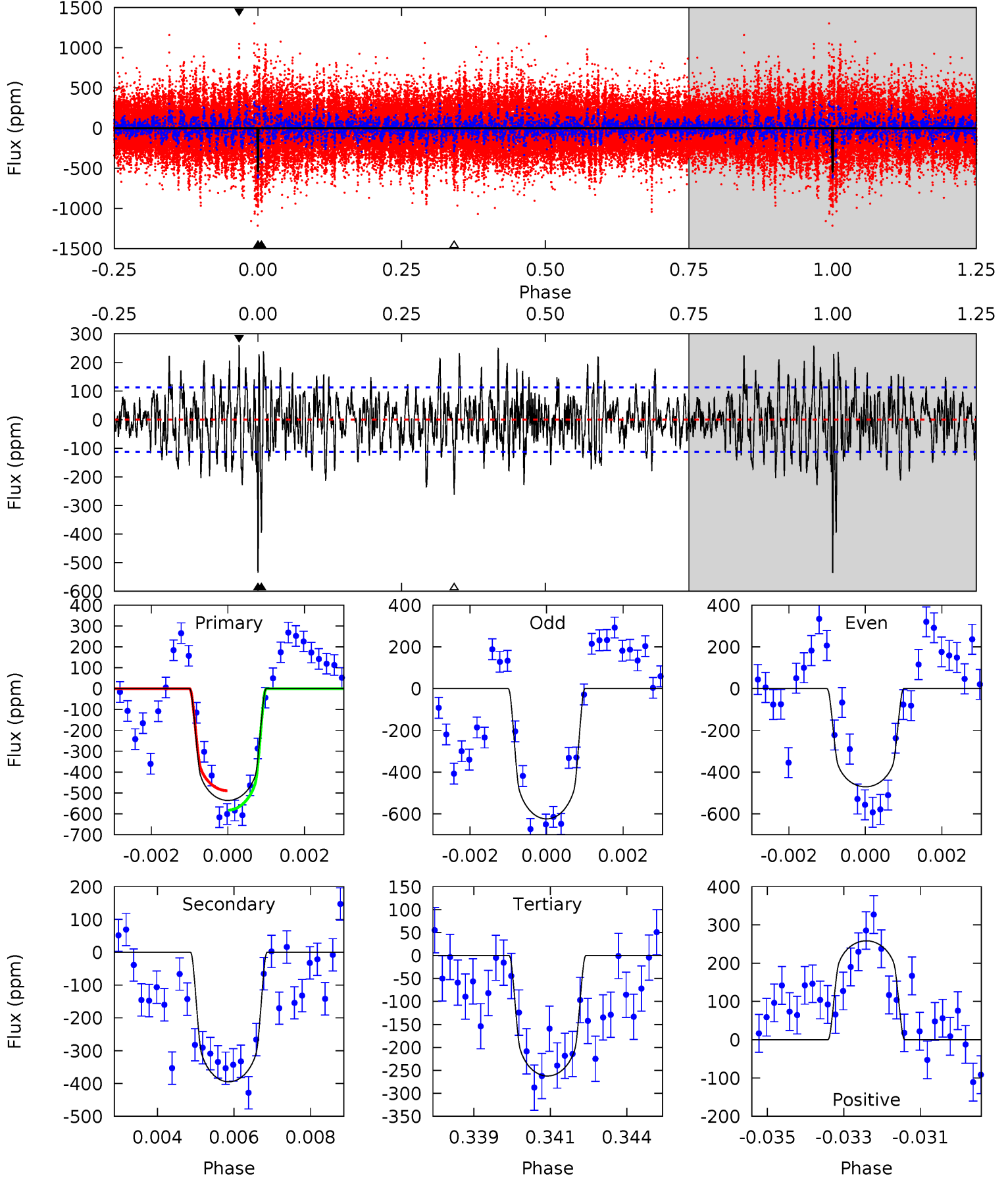
TCE 009466836-01 P=365.181773 Days  $T_0=325.701297$  (BKJD)



# DV Model-Shift Uniqueness Test

009466836-01, P = 365.193961 Days, E = 325.669487 Days

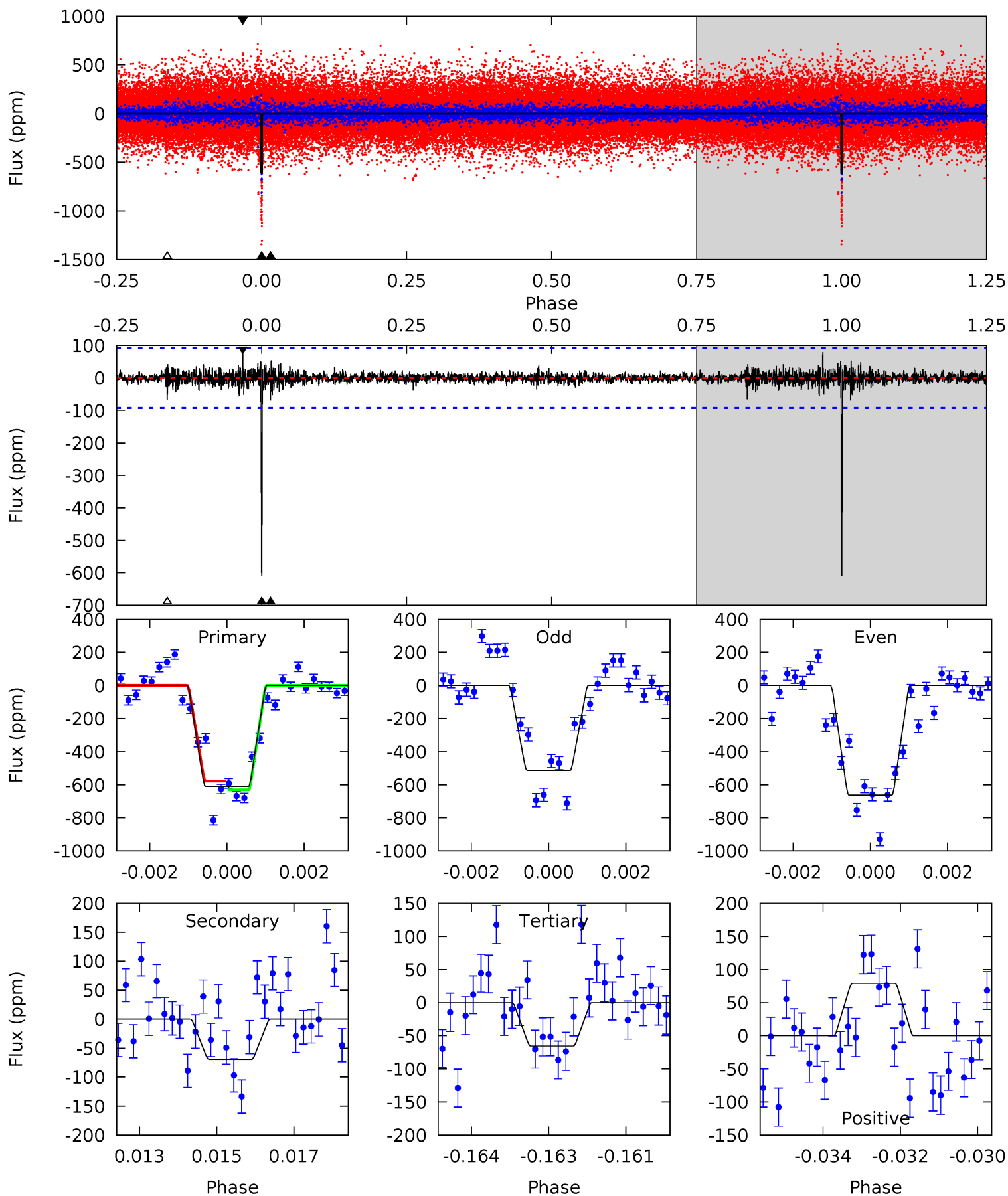
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.4 | 18.7 | 12.4 | 12.2 | 5.32            | 3.08            | 3.55             | 12.9    | 13.1    | 6.27    | 6.45    | 3.48    | 1.07 | 0.33  | 2.19 |



# Alt Model-Shift Uniqueness Test

009466836-01, P = 365.181773 Days, E = 325.701297 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 35.3 | 3.99 | 3.78 | 4.56 | 5.36            | 3.14            | 0.62             | 31.5    | 30.7    | 0.21    | -0.57   | 4.11    | 0.98 | 0.11  | 1.51 |



### Stellar Parameters For KIC 009466836

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5328^{+159}_{-143}$ | $4.588^{+0.030}_{-0.112}$ | $-0.080^{+0.300}_{-0.300}$ | $0.784^{+0.133}_{-0.061}$ | $0.876^{+0.070}_{-0.096}$ | $2.559^{+0.479}_{-0.892}$                 |
|        | +3%/-3%              | +1%/-2%                   | +375%/-375%                | +17%/-8%                  | +8%/-11%                  | +19%/-35%                                 |
| 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 009466836-01 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$        |
|---------|---------------|------------------------|----------------------|----------------------|-------------------------|
| DV      | $-395 \pm 21$ | $2.40^{+0.27}_{-0.24}$ | $303^{+14}_{-11}$    | $4662^{+220}_{-193}$ | $33973^{+7493}_{-6251}$ |
| Alt.    | $-69 \pm 17$  | $2.17^{+0.28}_{-0.23}$ | $302^{+13}_{-11}$    | $3536^{+207}_{-202}$ | $7234^{+2897}_{-2363}$  |

$T_{\text{max}}$  = 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  $A_{\text{obs}} \gg 1.0$

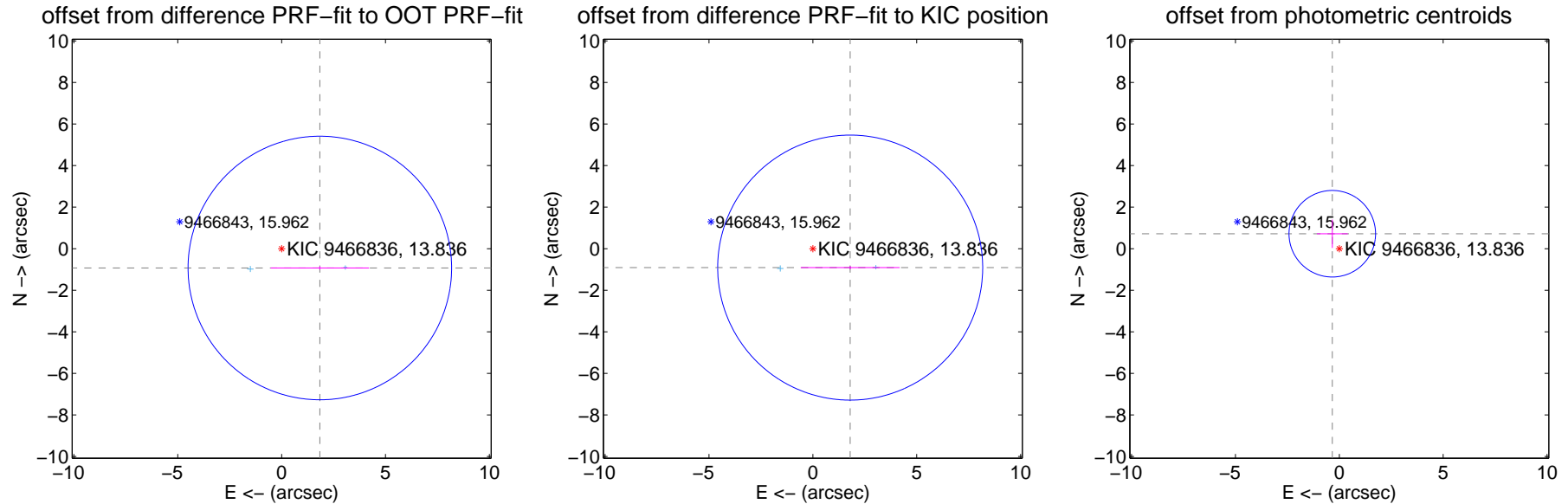
## DV Centroid Data

Supplemental centroid analysis for 009466836-01. Kepler magnitude: 13.84. Transit SNR 9.70

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $2.060 \pm 2.114$  | 0.97                | $-1.839 \pm 2.368$ | $-0.929 \pm 0.078$ |
| PRF-fit source offset from KIC position | $2.014 \pm 2.125$  | 0.95                | $-1.797 \pm 2.382$ | $-0.910 \pm 0.075$ |
| photometric centroid source offset      | $0.79 \pm 0.69$    | 1.15                | $0.34 \pm 0.74$    | $0.72 \pm 0.68$    |



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.

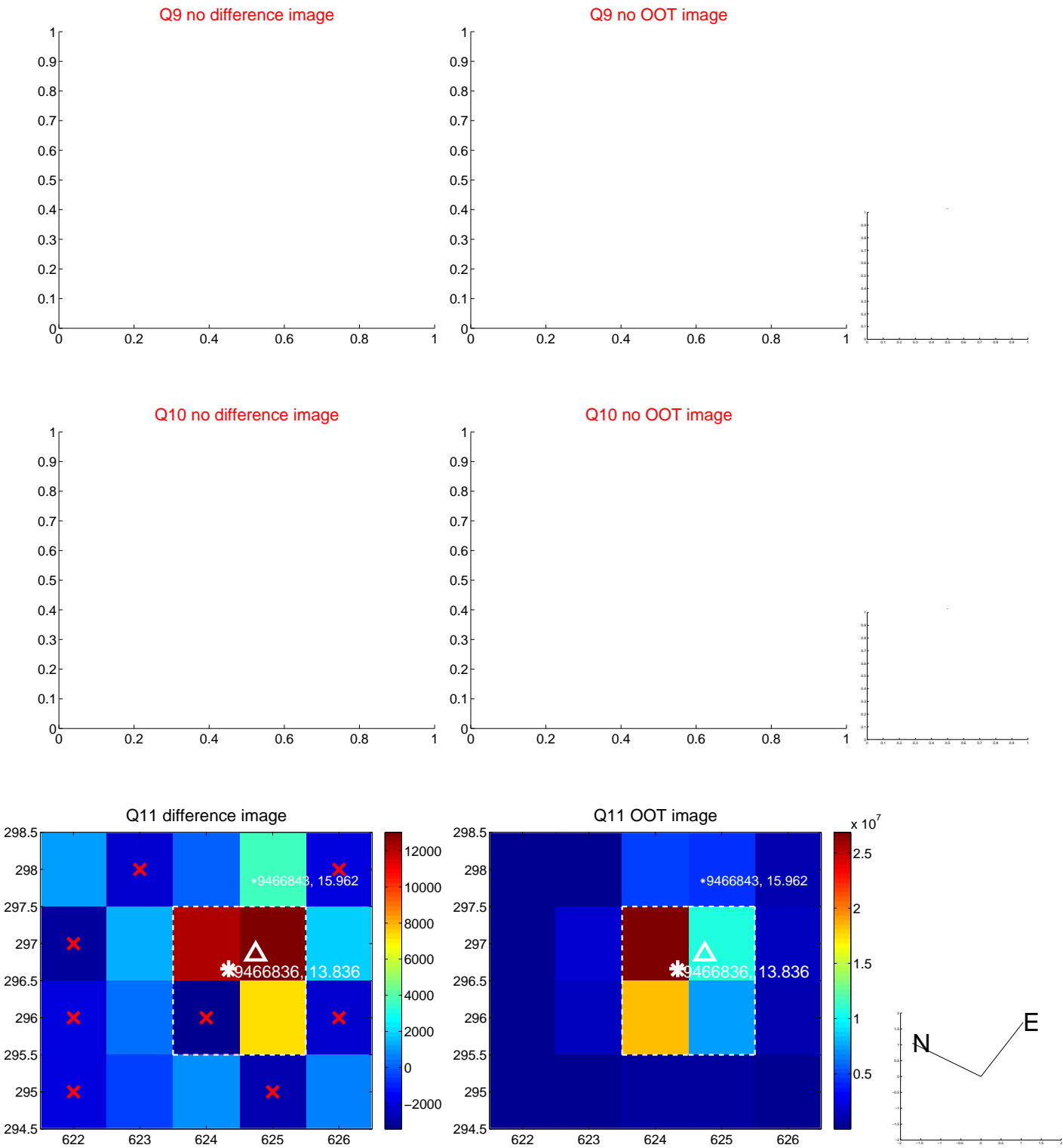


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

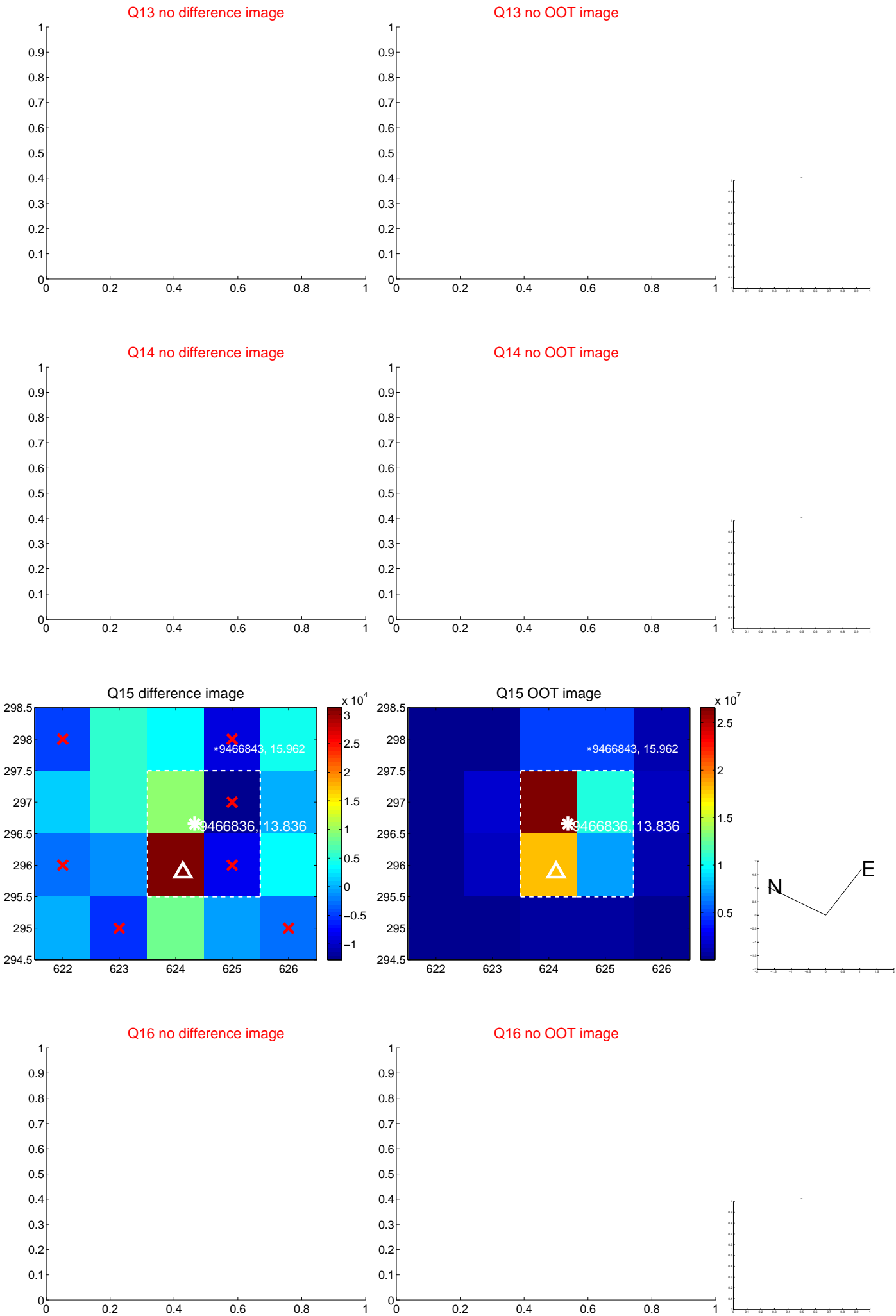




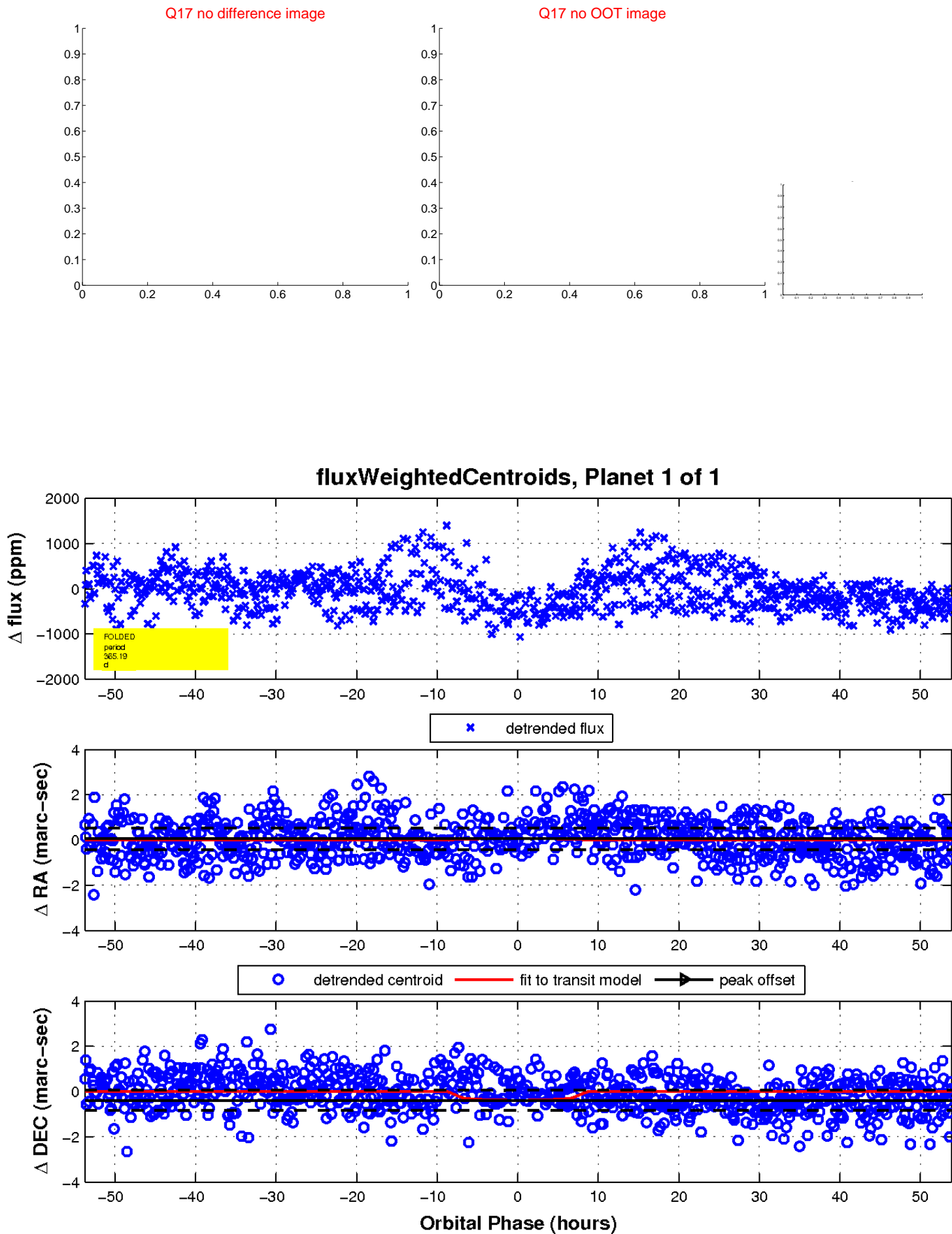
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

