

# KIC 006447481

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006447481-01 | OBS      | No   | 253.450414    | 185.594836   | 1035.6      | 5.827            | 10.5 | 5.8 | 0.73                        | 5160            | 2.42                   | 0.68                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 006447481-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |

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

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

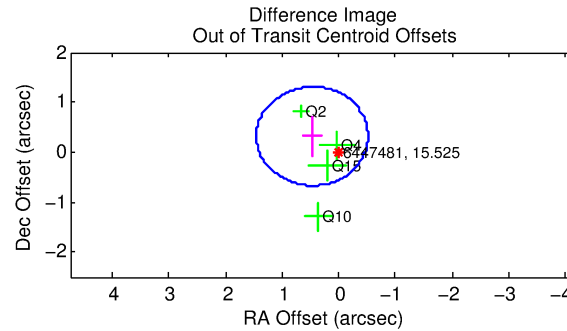
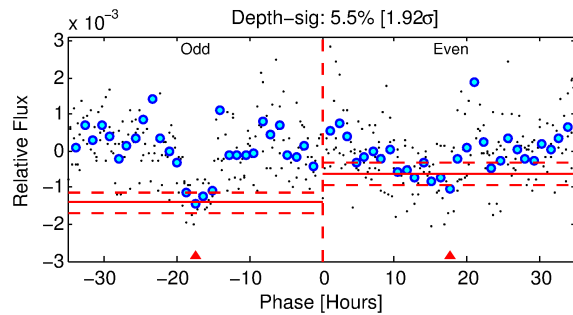
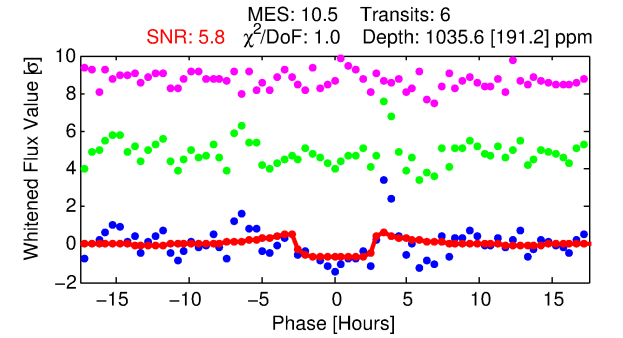
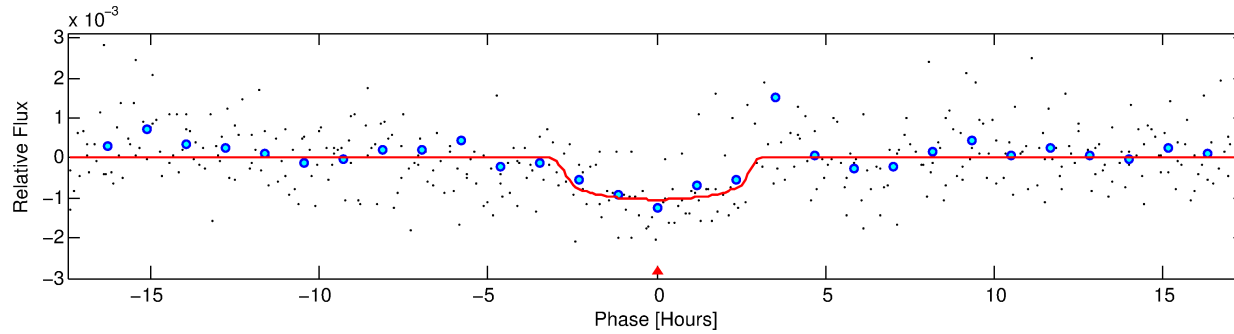
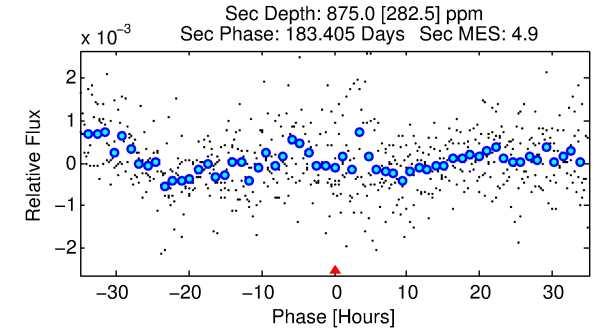
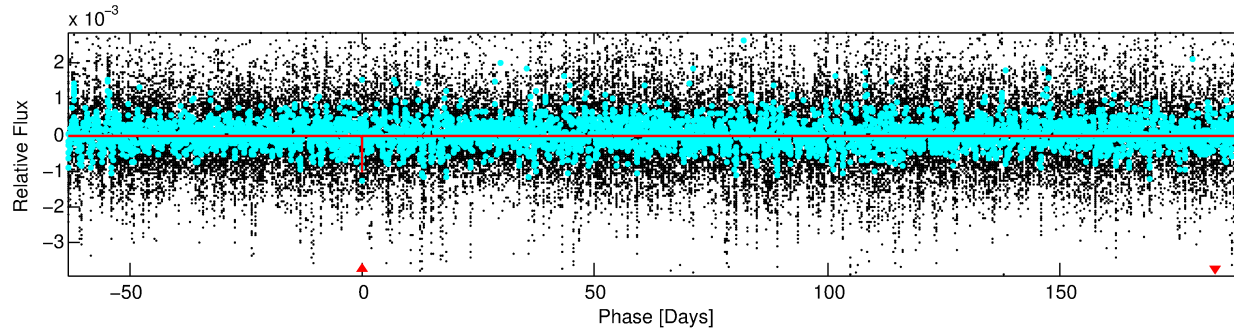
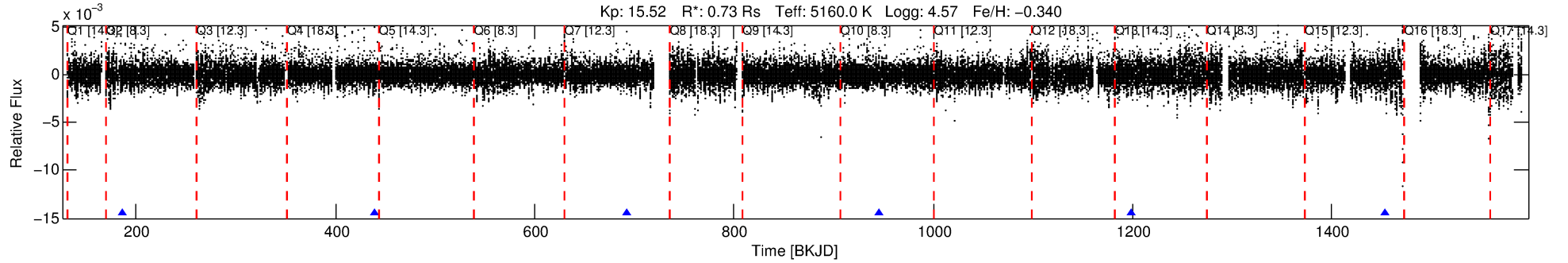
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006447481-01

No Significant Match Found

# DV One-Page Summary

KIC: 6447481 Candidate: 1 of 1 Period: 253.450 d



## DV Fit Results:

Period = 253.45041 [0.00327] d  
Epoch = 185.5948 [0.0096] BKJD  
Rp/R\* = 0.0304 [0.0347]  
a/R\* = 282.89 [1198.18]  
b = 0.58 [4.91]  
Seff = 0.68 [0.12]  
Teff = 232 [10] K  
Rp = 2.42 [2.78] Re  
a = 0.7055 [0.0659] AU  
Ag = 40899.65 [94390.05] [0.43σ]  
Teffp = 5091 [2937] K [1.65σ]

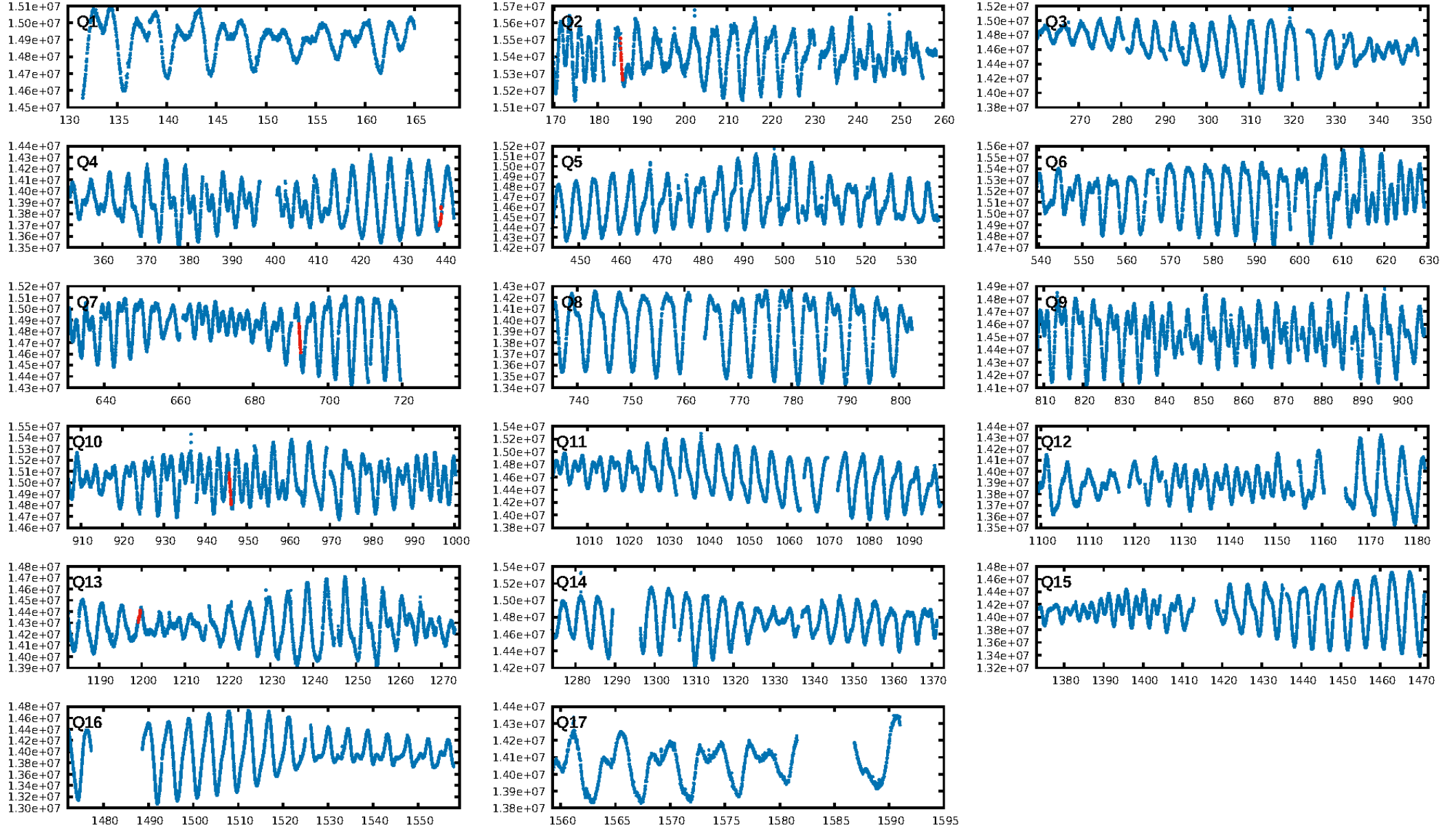
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 7.6%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.40e-10**  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: 0.4498**  
Centroid-sig: 26.3%  
Centroid-so: 1.162 arcsec [1.12σ]  
OotOffset-rm: 0.568 arcsec [1.72σ]  
OotOffset-st: 2/1/1/0 [4]  
KicOffset-rm: 0.616 arcsec [2.13σ]  
KicOffset-st: 2/1/1/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

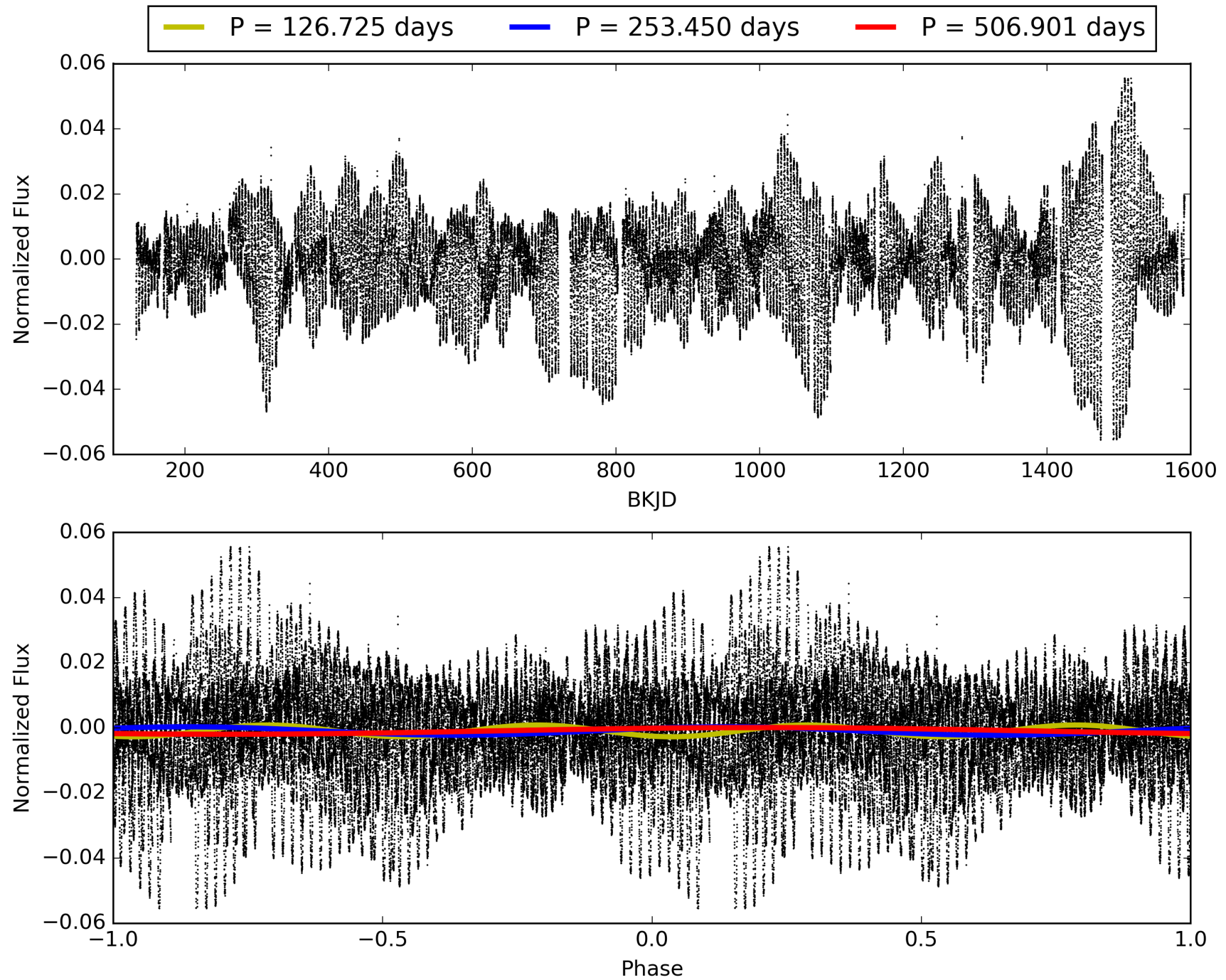
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:44:58 Z

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

# TCE 006447481-01, PDC Light Curves

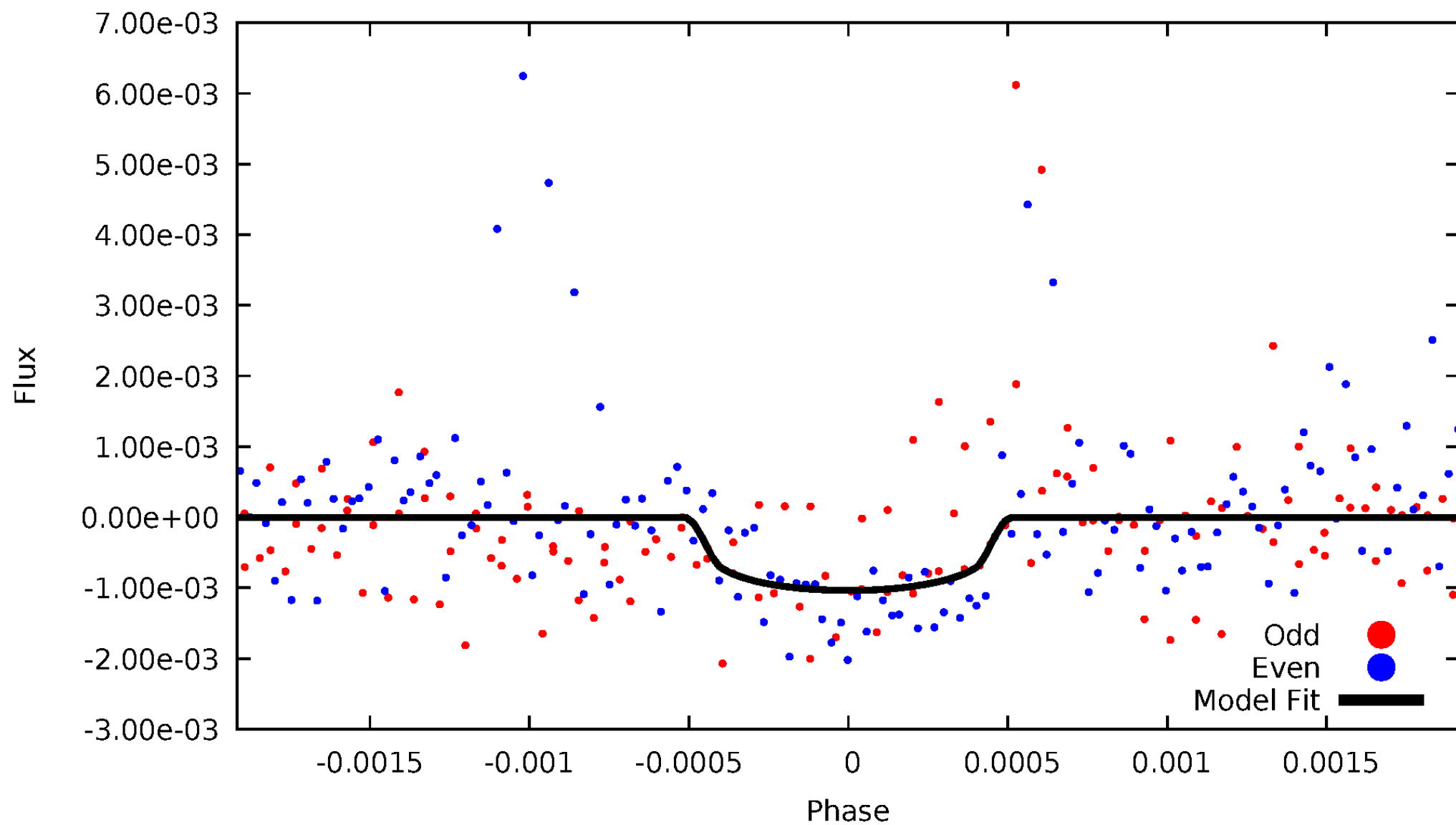


TCE 006447481-01



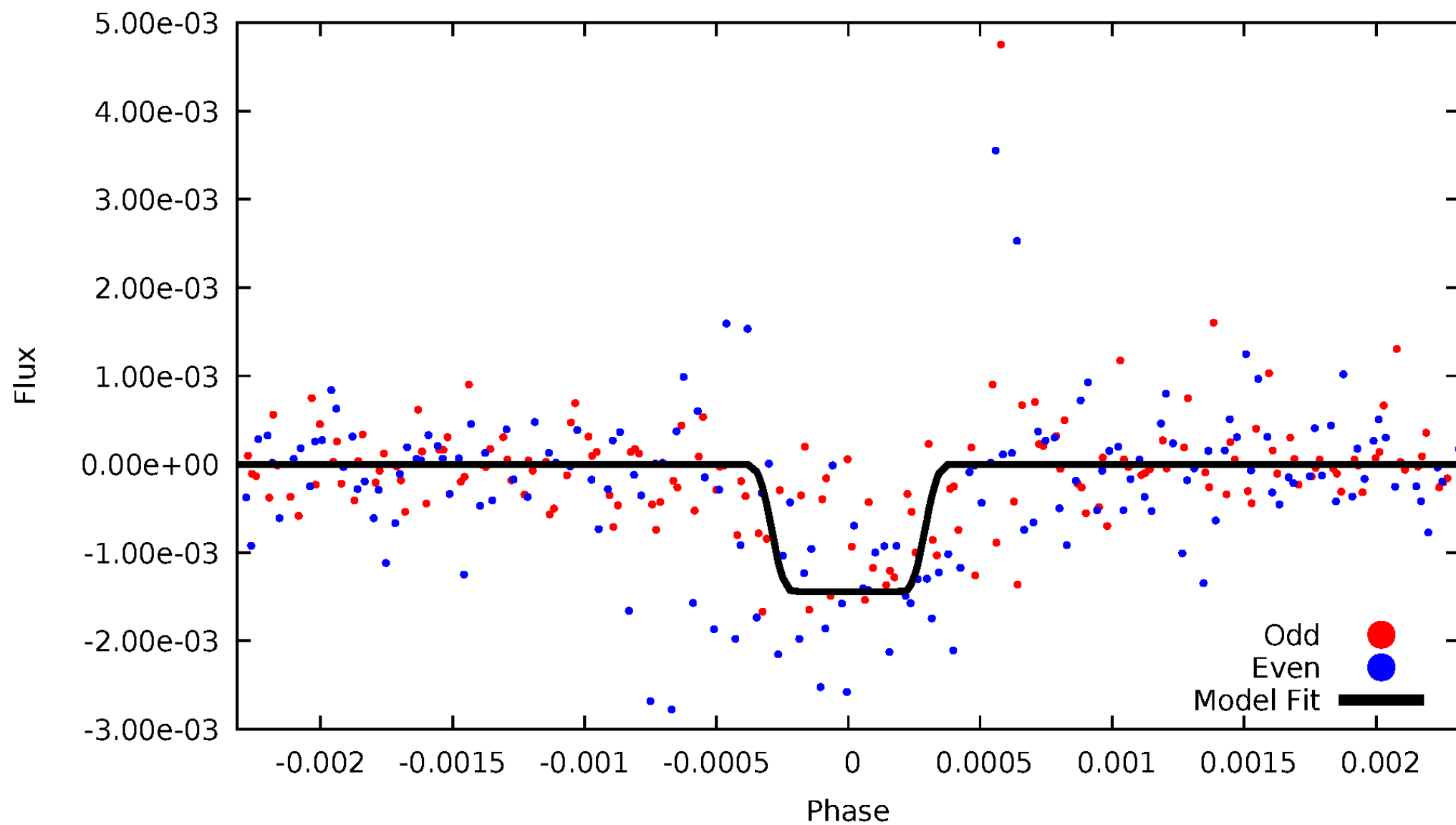
# DV Odd/Even

TCE 006447481-01



# ALT Odd/Even

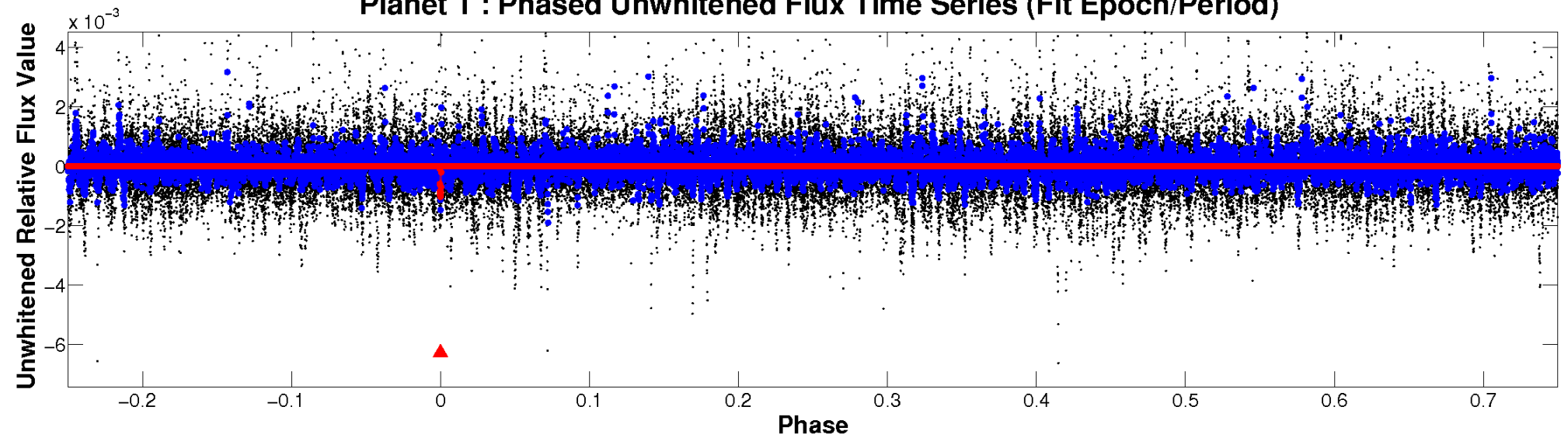
TCE 006447481-01



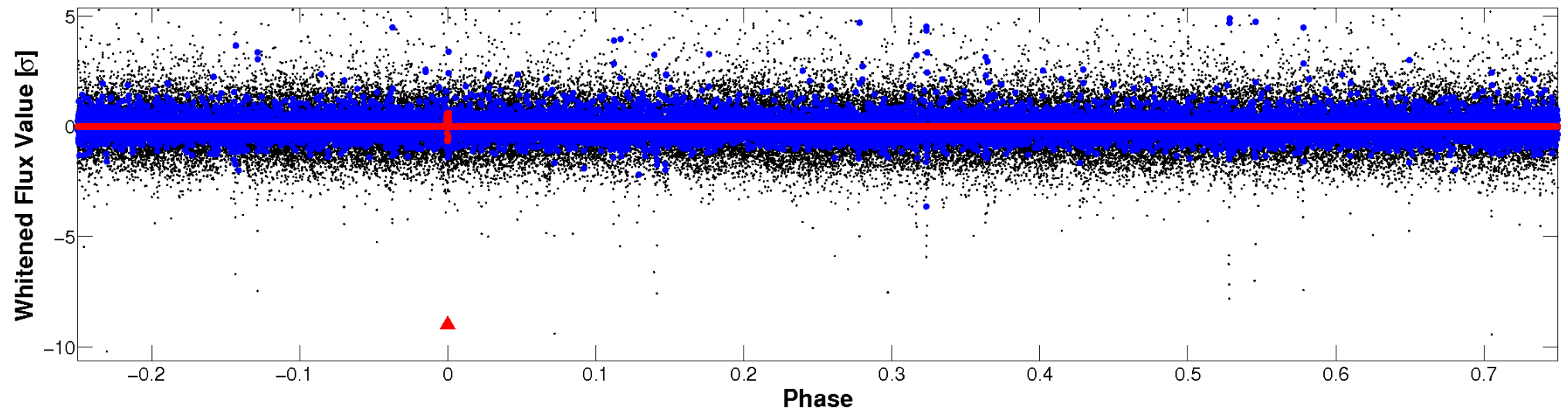


# Non-Whitened Vs. Whitened Light Curve

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

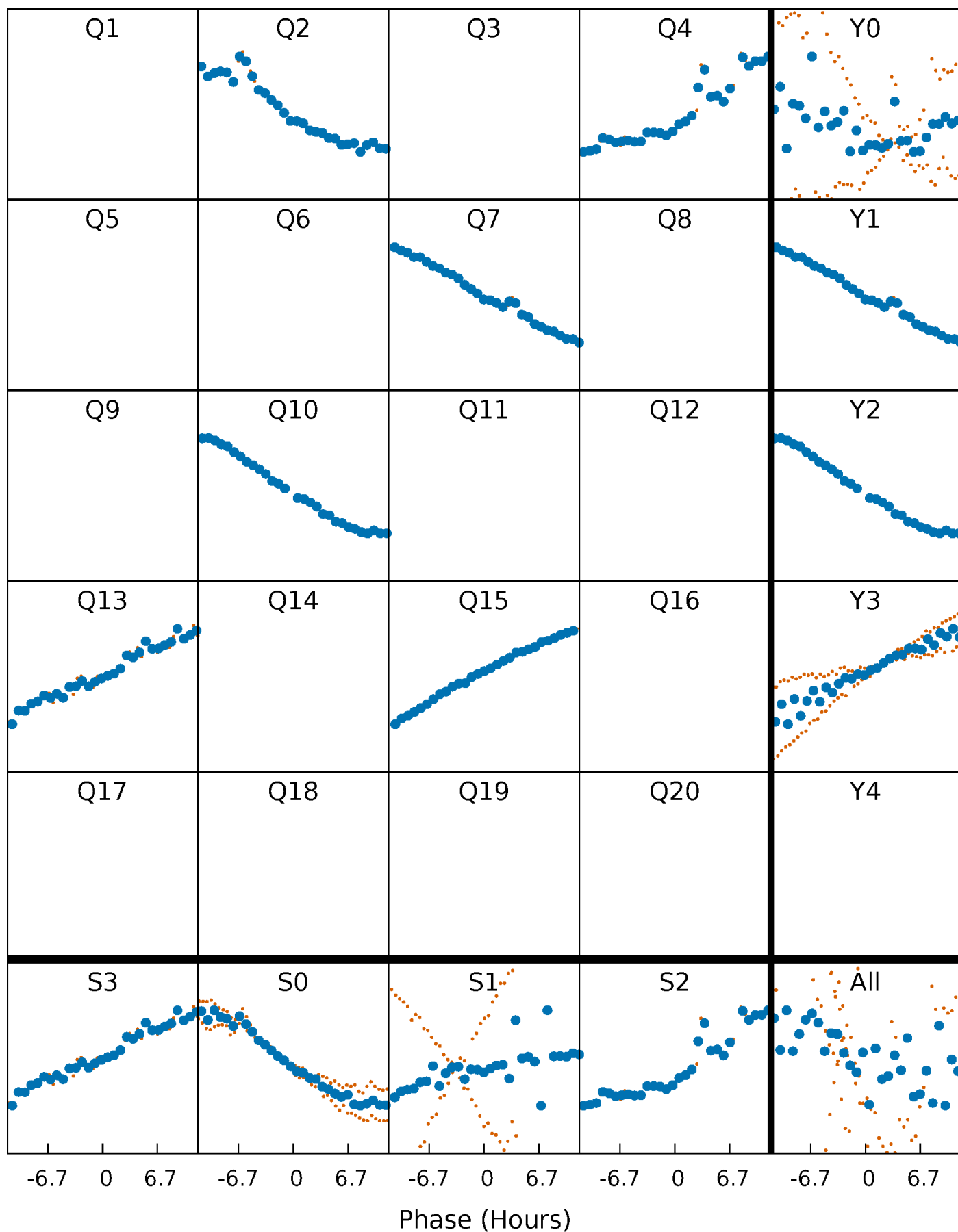


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

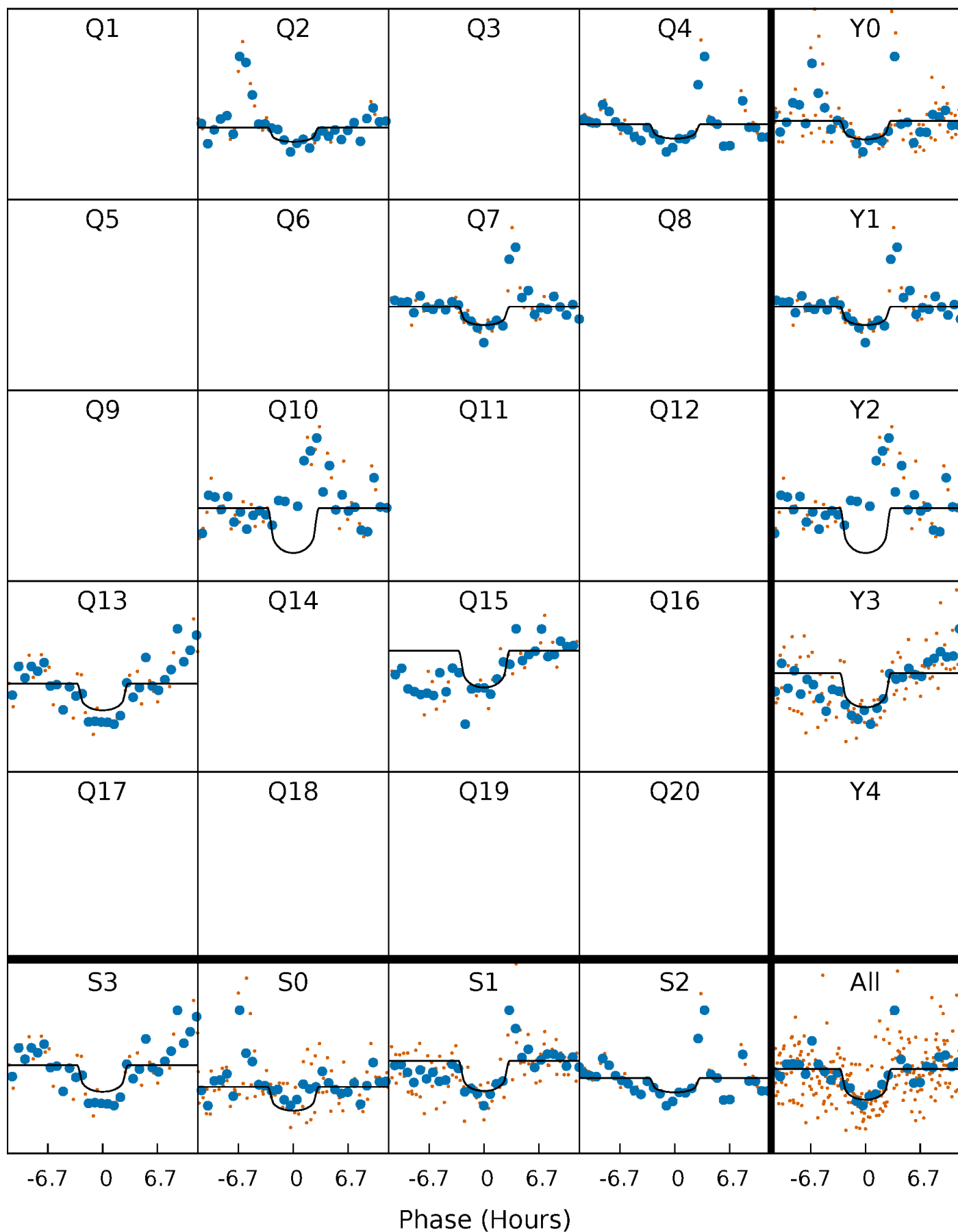
TCE 006447481-01 P=253.450414 Days  $T_0=185.594837$  (BKJD)





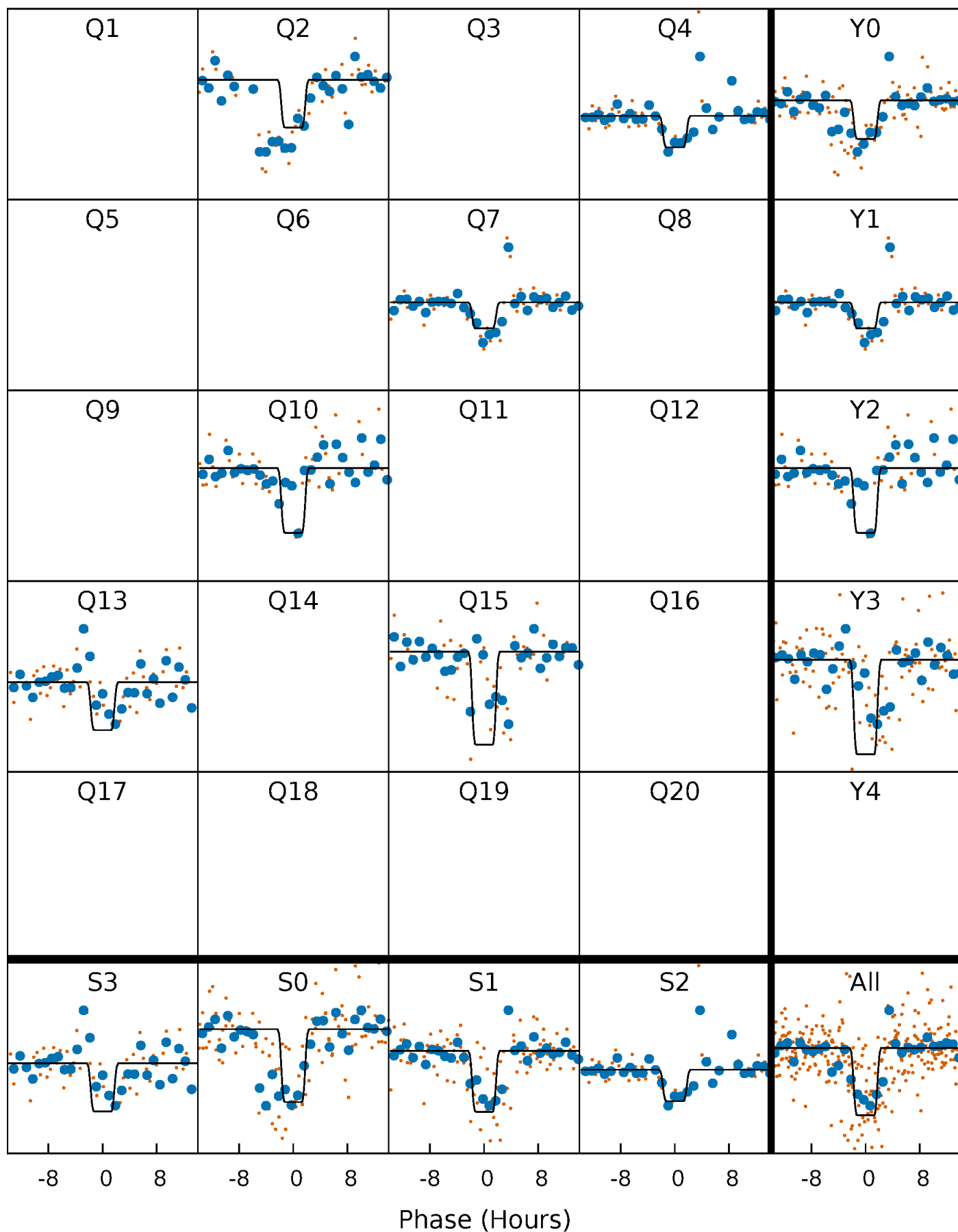
# DV Quarter-Phased Transit Curves

TCE 006447481-01 P=253.450414 Days  $T_0=185.594837$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

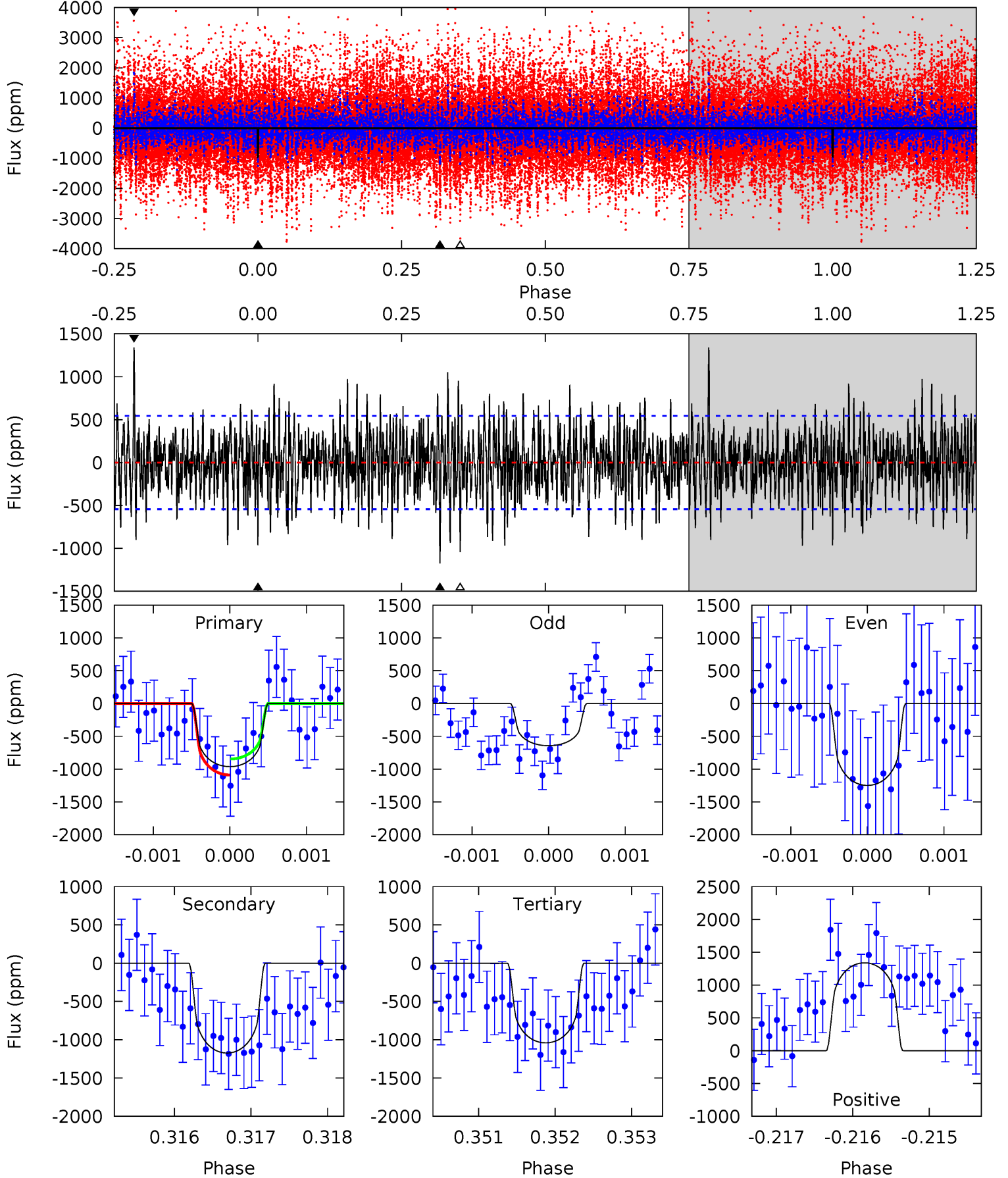
TCE 006447481-01 P=253.444256 Days  $T_0=185.608168$  (BKJD)



# DV Model-Shift Uniqueness Test

006447481-01, P = 253.450414 Days, E = 185.594837 Days

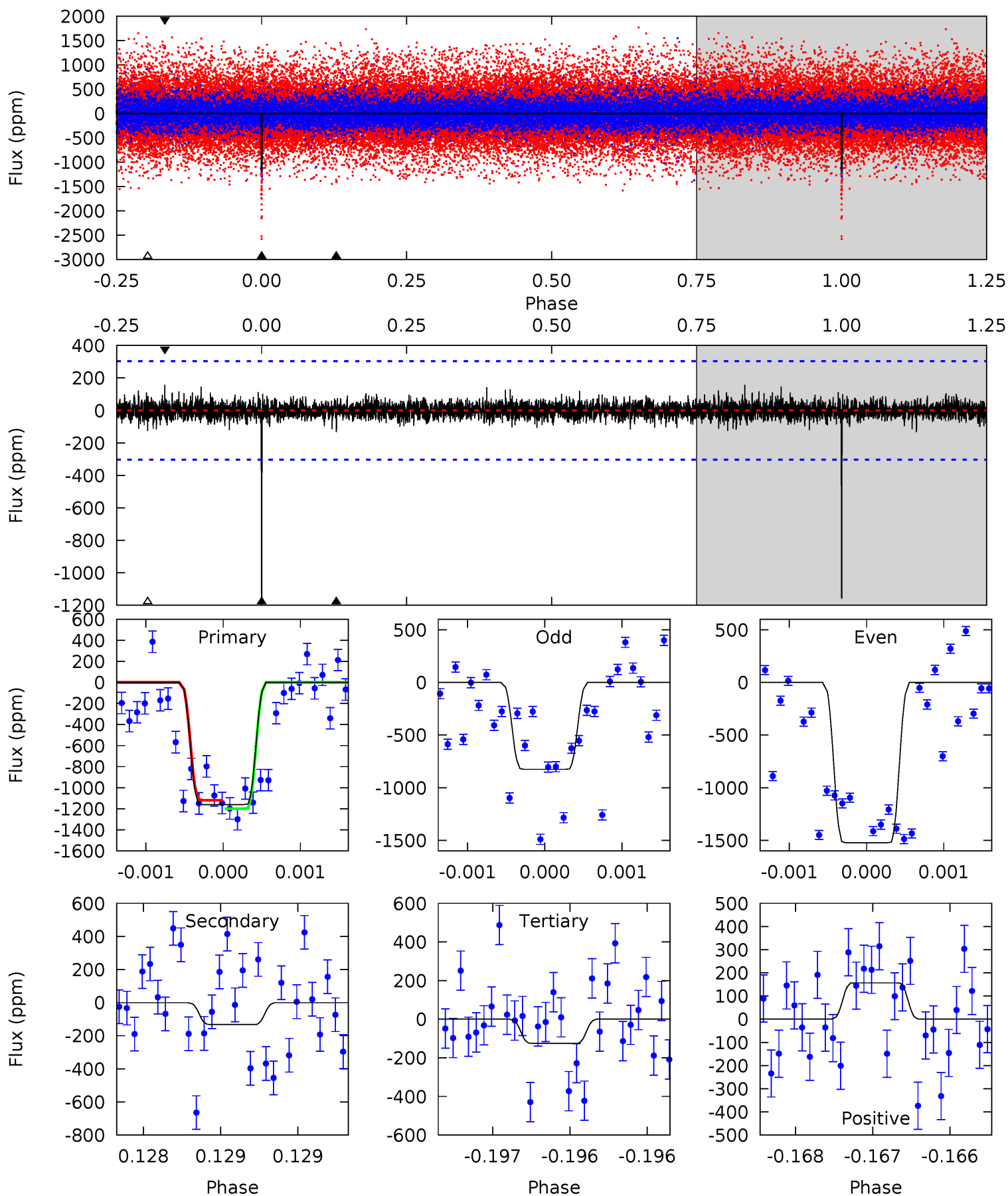
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.64 | 11.8 | 10.4 | 13.4 | 5.45            | 3.28            | 3.15             | -0.78   | -3.77   | 1.33    | -1.65   | 2.97    | 0.82 | 0.53  | 1.23 |



# Alt Model-Shift Uniqueness Test

006447481-01, P = 253.444256 Days, E = 185.608168 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.1 | 2.40 | 2.28 | 2.85 | 5.52            | 3.40            | 0.57             | 18.8    | 18.2    | 0.13    | -0.45   | 6.29    | 1.09 | 0.12  | 0.74 |



### Stellar Parameters For KIC 006447481

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5160^{+153}_{-153}$ | $4.574^{+0.060}_{-0.060}$ | $-0.340^{+0.300}_{-0.300}$ | $0.730^{+0.089}_{-0.073}$ | $0.728^{+0.095}_{-0.059}$ | $2.641^{+0.676}_{-0.537}$                     |
|        | +3%/-3%              | +1%/-1%                   | +88%/-88%                  | +12%/-10%                 | +13%/-8%                  | +26%/-20%                                     |
| 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 006447481-01 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)  | $A_{\text{obs}}$           |
|---------|-----------------|------------------------|----------------------|-----------------------|----------------------------|
| DV      | $-1174 \pm 100$ | $3.07^{+2.31}_{-1.95}$ | $323^{+13}_{-12}$    | $4916^{+3315}_{-971}$ | $34155^{+205739}_{-22979}$ |
| Alt.    | $-132 \pm 55$   | $3.43^{+2.52}_{-2.04}$ | $324^{+12}_{-13}$    | $3209^{+1069}_{-530}$ | $3033^{+13951}_{-2205}$    |

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

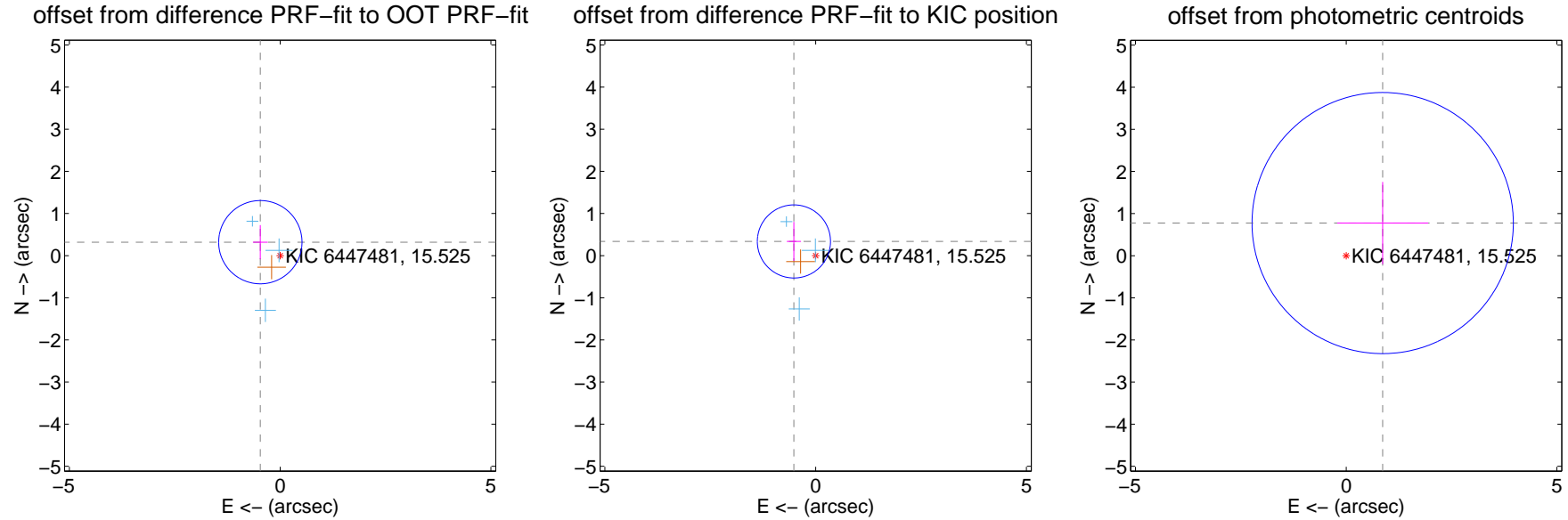
## DV Centroid Data

Supplemental centroid analysis for 006447481-01. Kepler magnitude: 15.53. Transit SNR 5.84

There are 3 quarters with good PRF difference image offsets

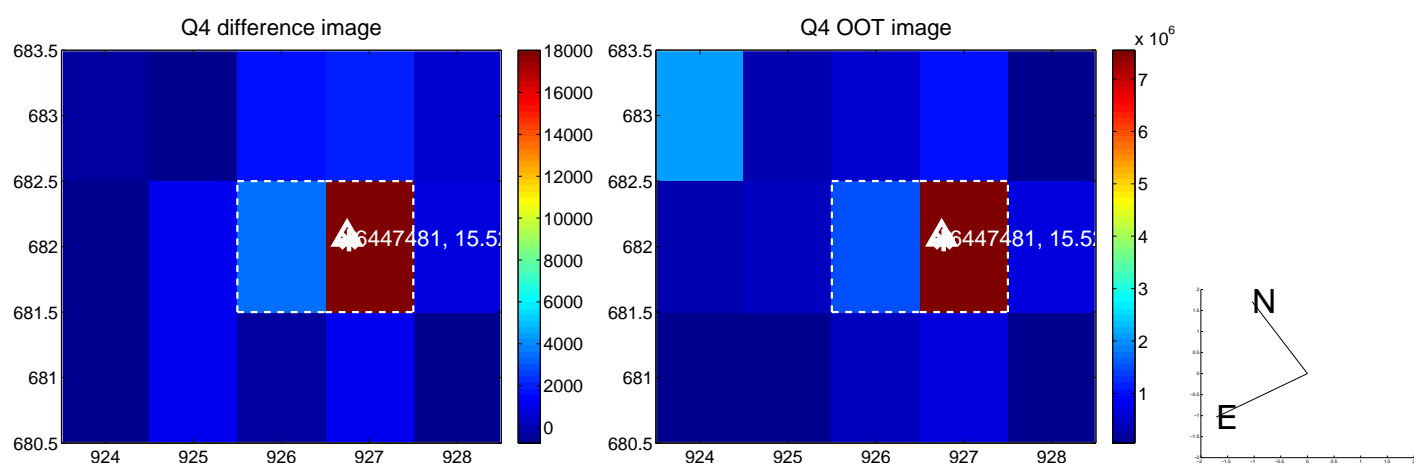
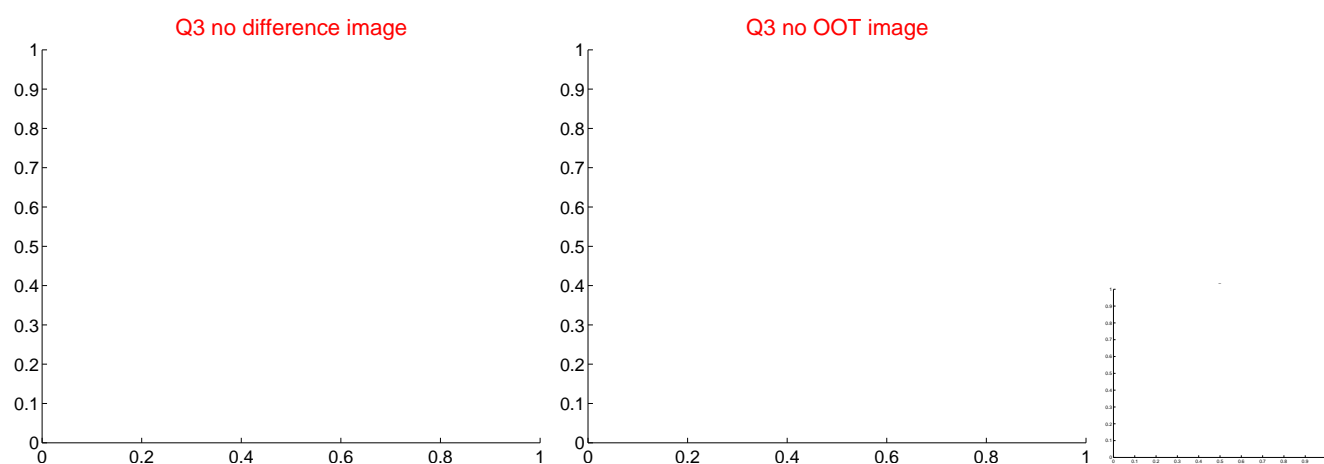
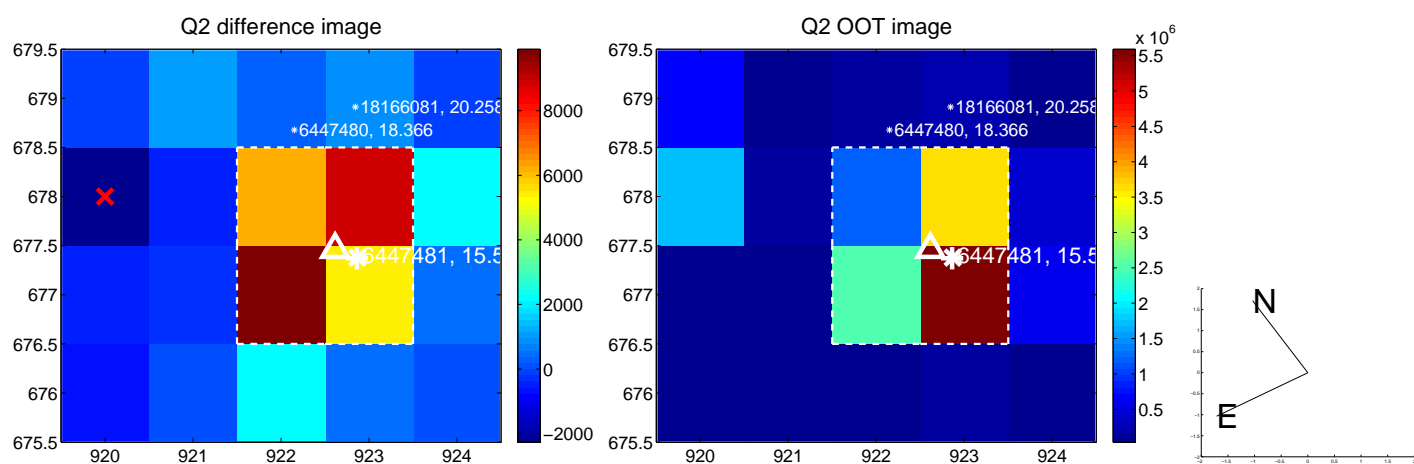
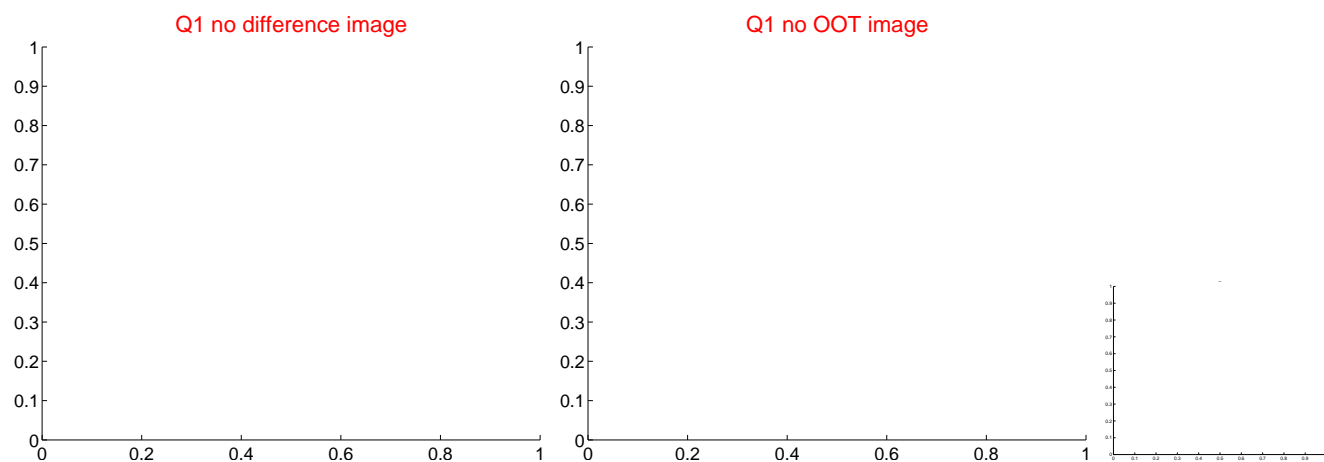
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.568 \pm 0.329$  | 1.72                | $0.470 \pm 0.176$ | $0.319 \pm 0.405$ |
| PRF-fit source offset from KIC position | $0.616 \pm 0.289$  | 2.13                | $0.516 \pm 0.168$ | $0.337 \pm 0.462$ |
| photometric centroid source offset      | $1.16 \pm 1.03$    | 1.12                | $-0.87 \pm 1.08$  | $0.78 \pm 0.97$   |



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

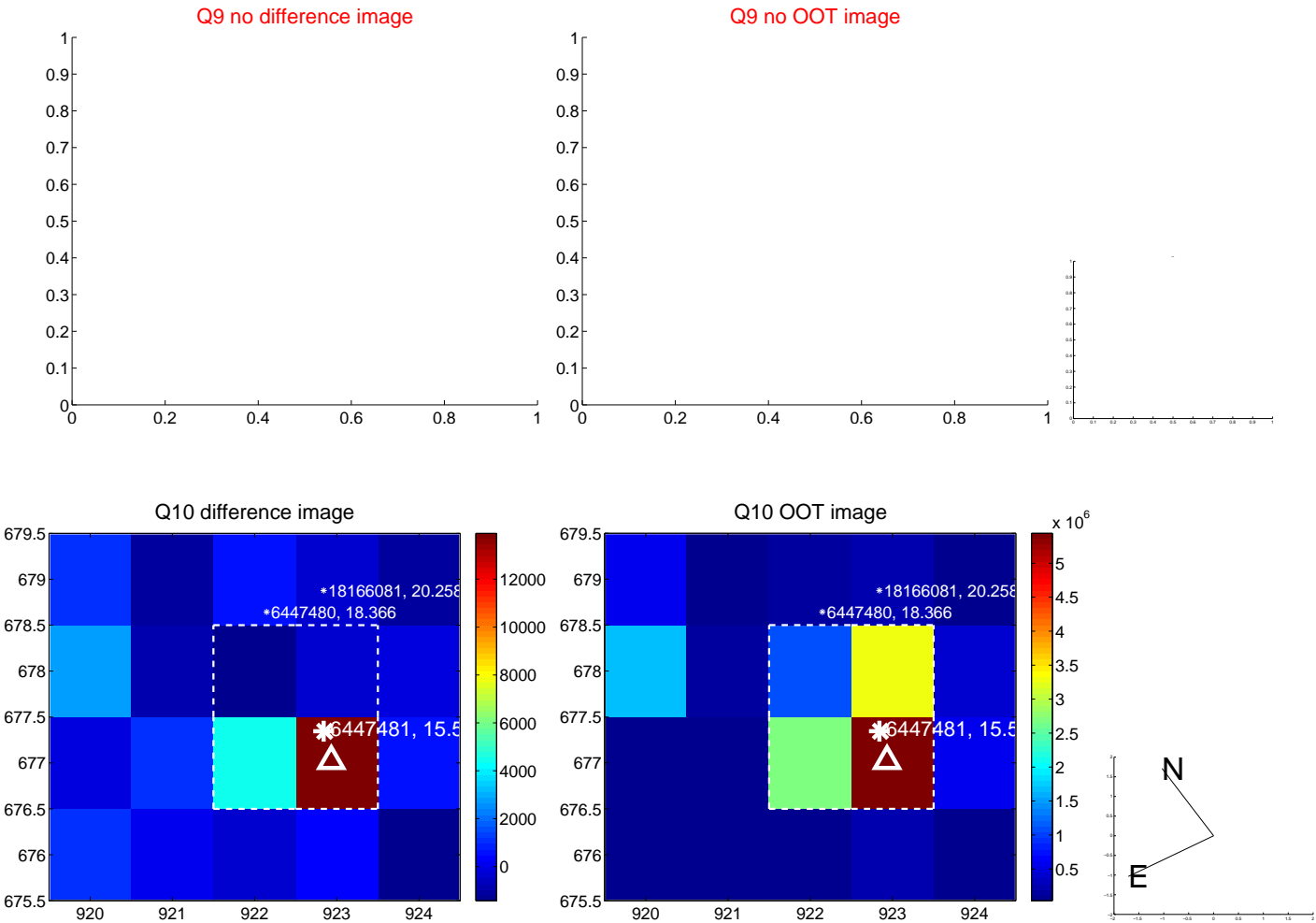




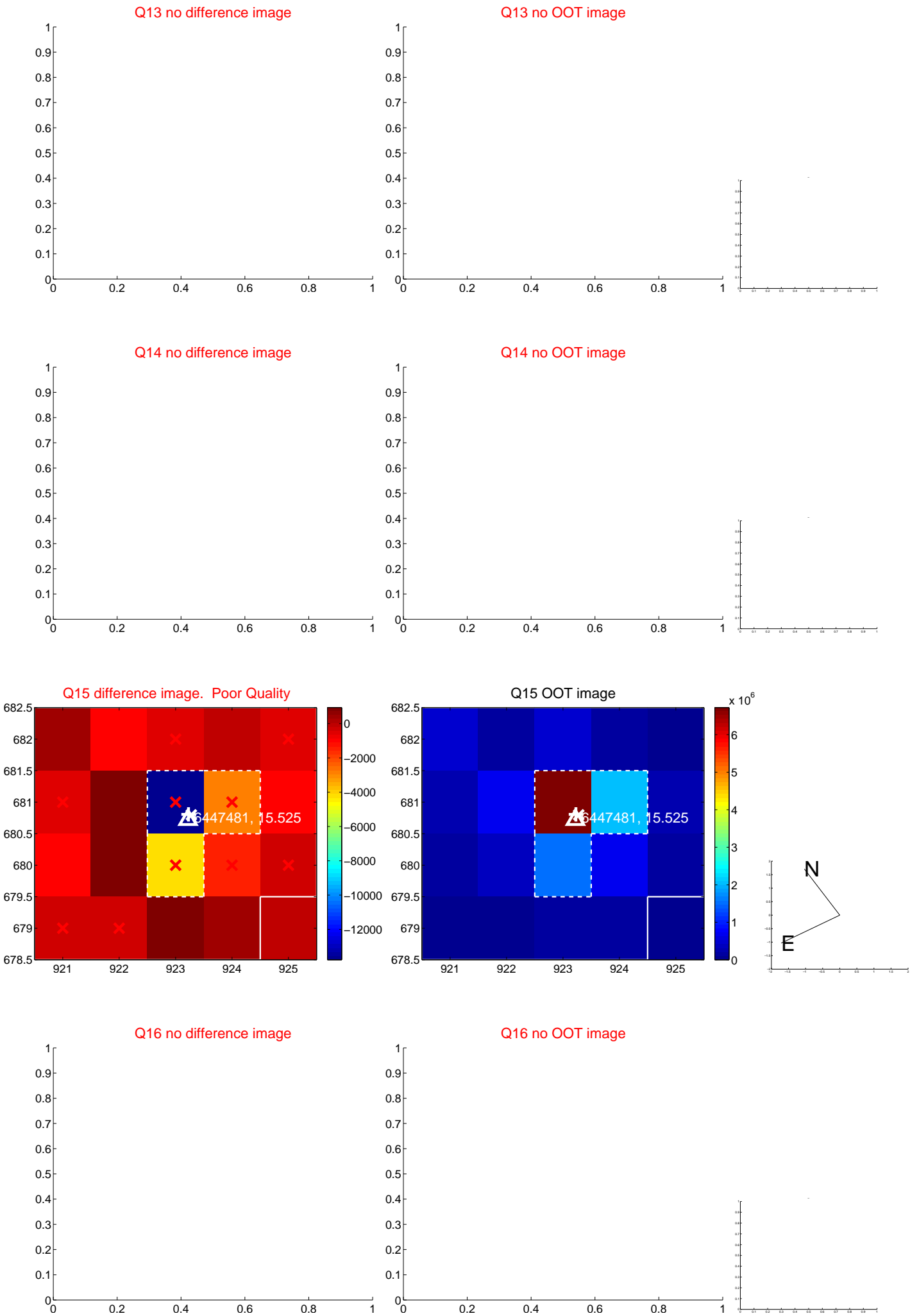
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



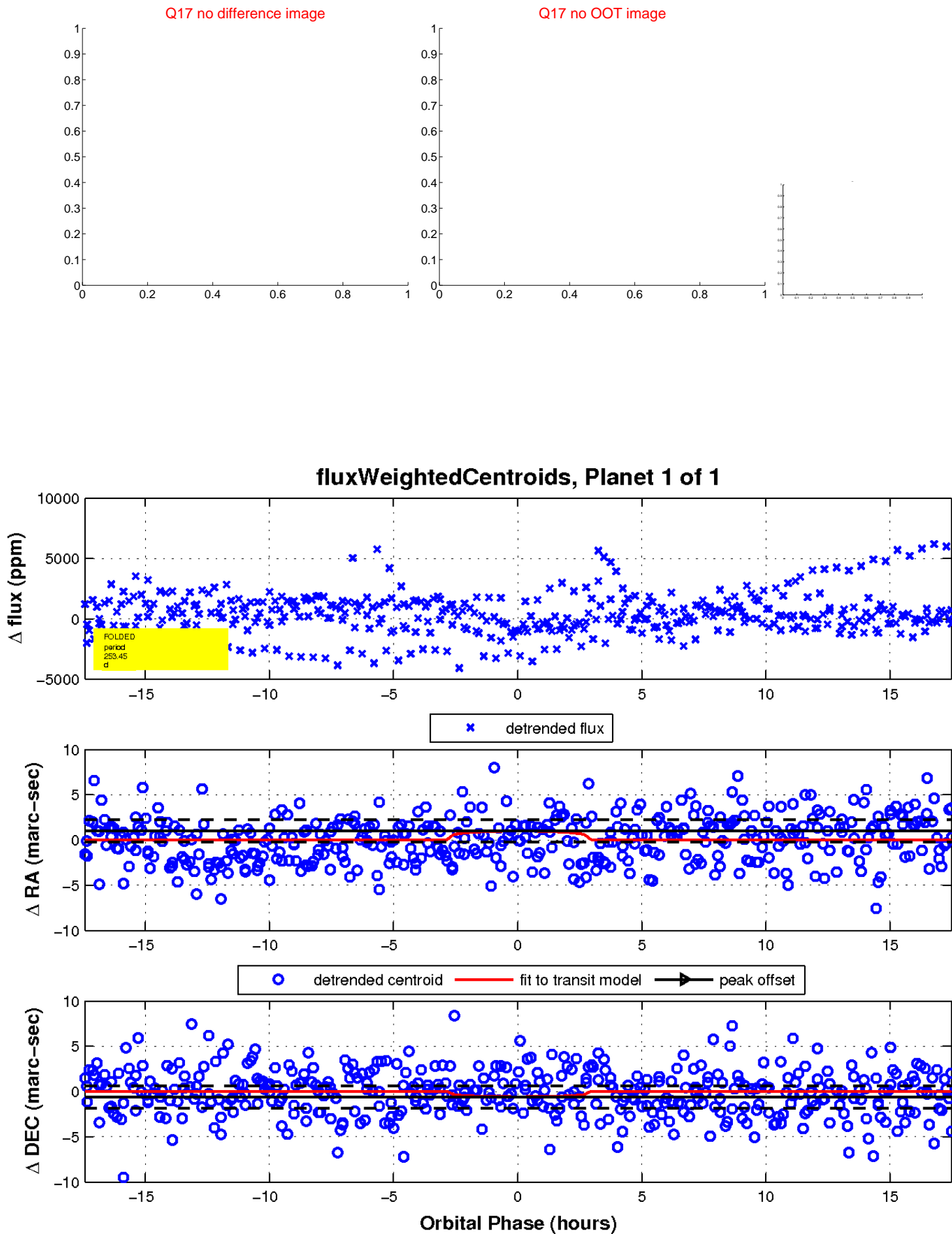
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

