

# KIC 003732821

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 003732821-01 | OBS      | 1207.01 | 13.734680     | 142.330858   | 741.7       | 2.547            | 26.3 | 30.5 | 0.77                        | 5196            | 2.56                   | 38.21                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 003732821-01 | OBS      | PC   | 1.00  | 0 | 0 | 0 | 0 | NO_COMMENT |

**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 003732821-01

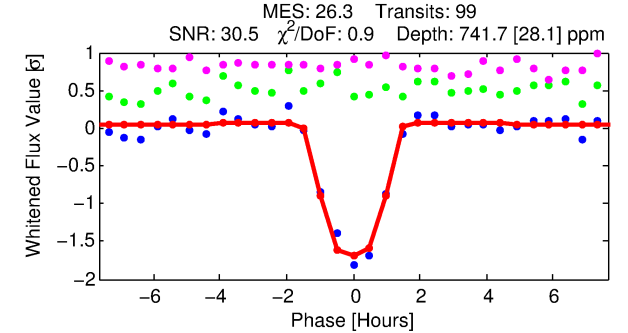
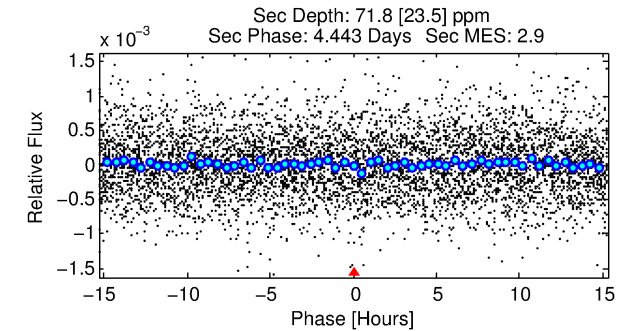
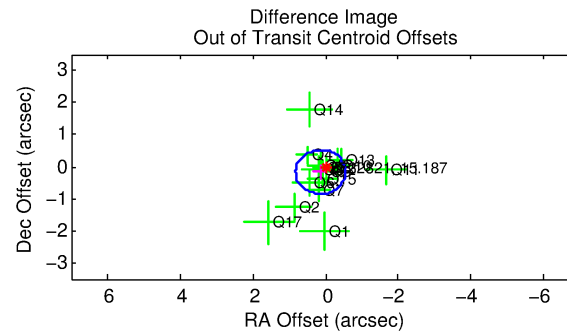
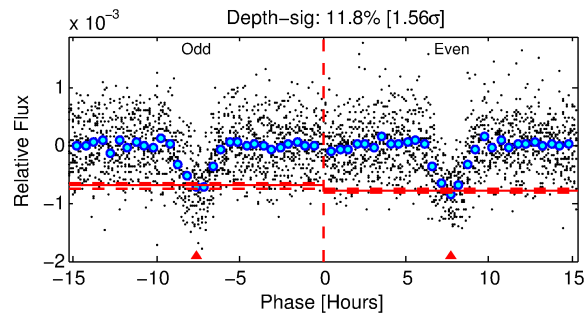
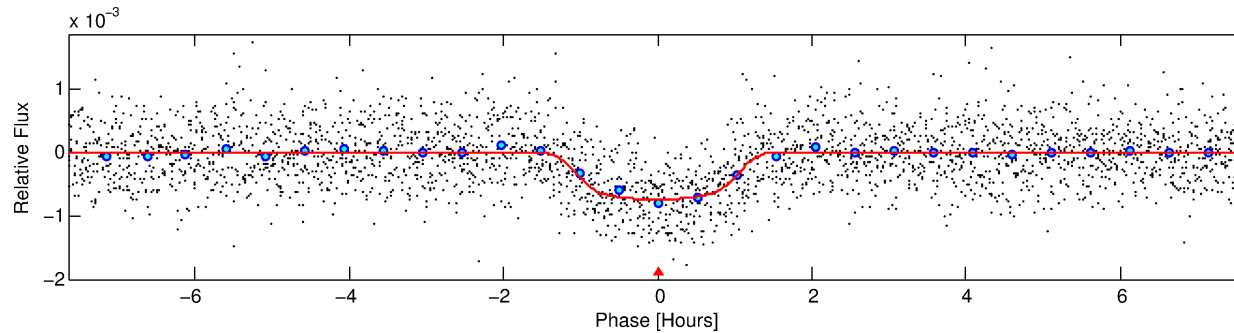
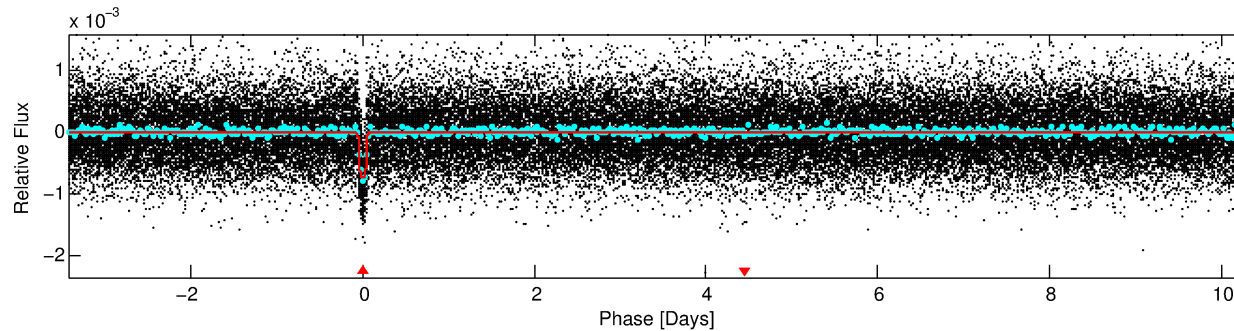
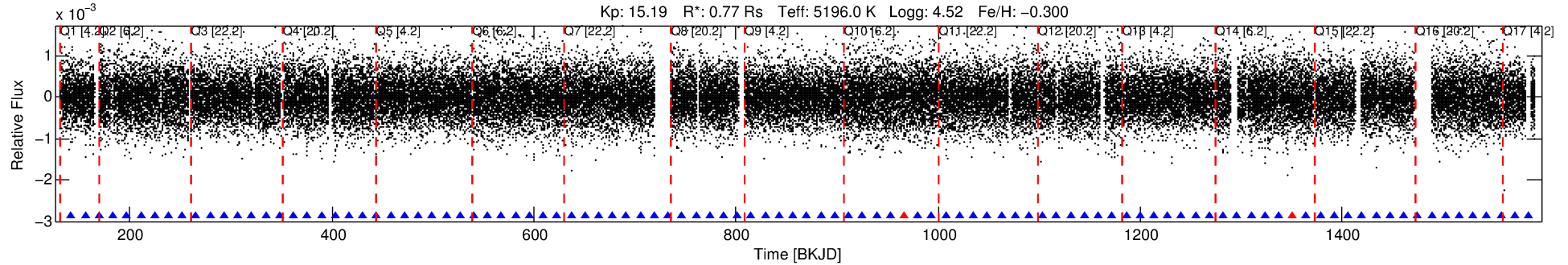
No Significant Match Found

# DV One-Page Summary

KIC: 3732821 Candidate: 1 of 1 Period: 13.735 d

KOI: K01207.01 Corr: 0.963

Kp: 15.19 R\*: 0.77 Rs Teff: 5196.0 K Logg: 4.52 Fe/H: -0.300



## DV Fit Results:

Period = 13.73468 [0.00004] d  
Epoch = 142.3309 [0.0021] BKJD  
Rp/R\* = 0.0303 [0.0034]  
a/R\* = 20.28 [8.92]  
b = 0.91 [0.09]  
Seff = 38.21 [7.44]  
Teq = 634 [31] K  
Rp = 2.55 [0.41] Re  
a = 0.1009 [0.0103] AU  
Ag = 61.63 [26.21] [2.31σ]  
Teffp = 2746 [284] K [7.40σ]

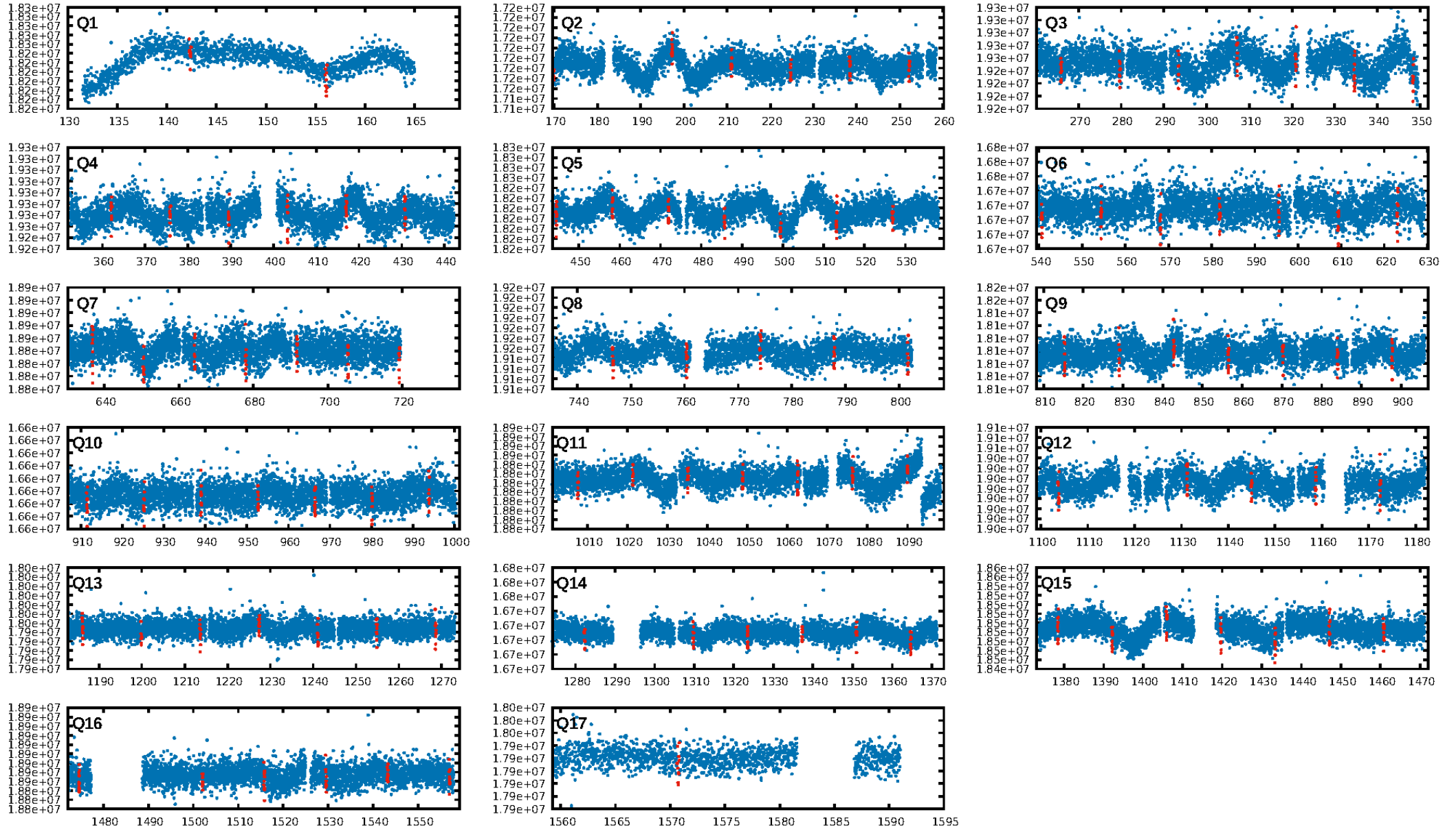
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.76e-149  
RollingBand-fgt: 0.98 [94/96]  
GhostDiagnostic-chr: 5.717  
Centroid-sig: 0.0%  
Centroid-so: 1.539 arcsec [3.37σ]  
OotOffset-rm: 0.215 arcsec [0.94σ]  
KicOffset-rm: 0.231 arcsec [1.08σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

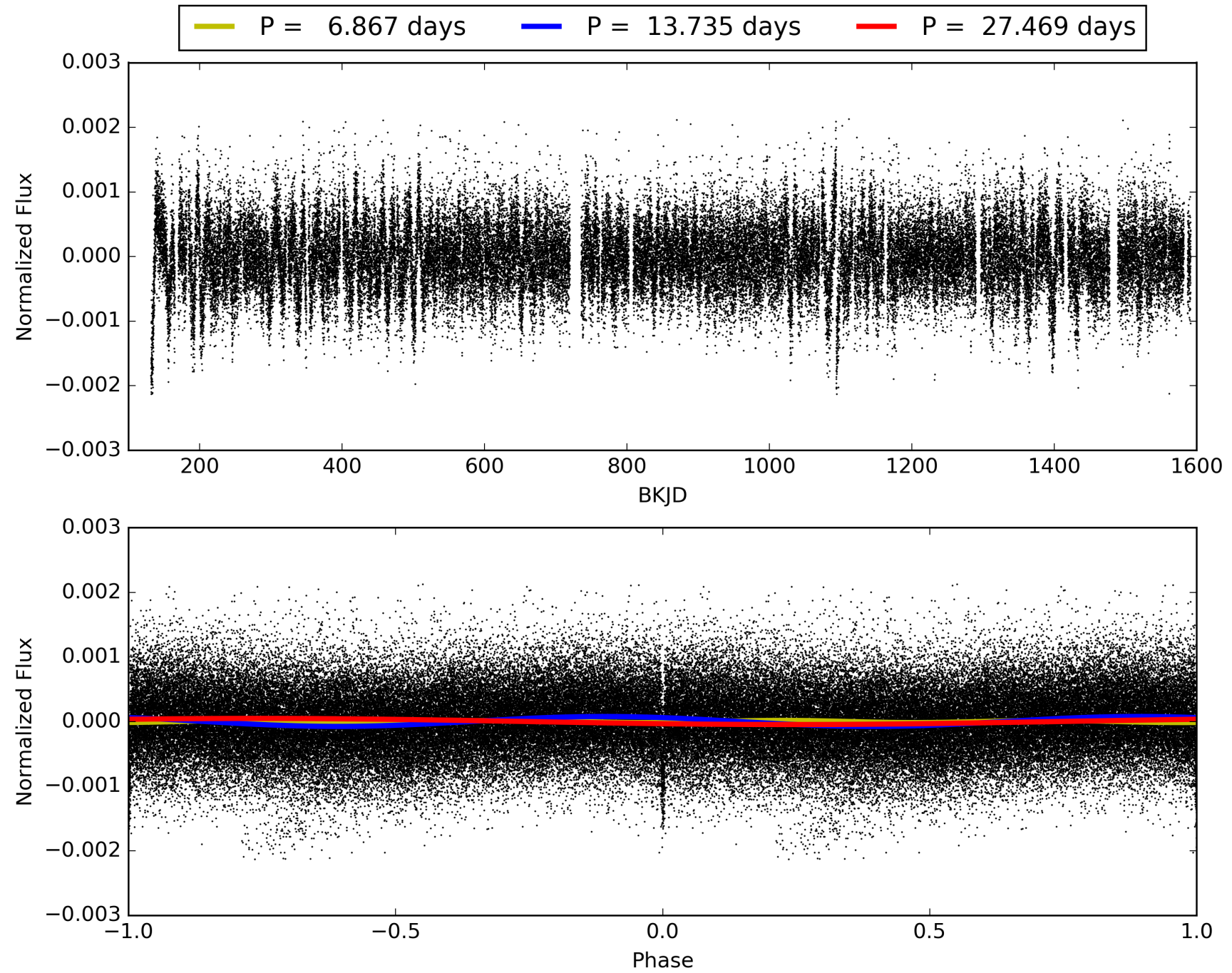
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:08:04 Z

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

# TCE 003732821-01, PDC Light Curves

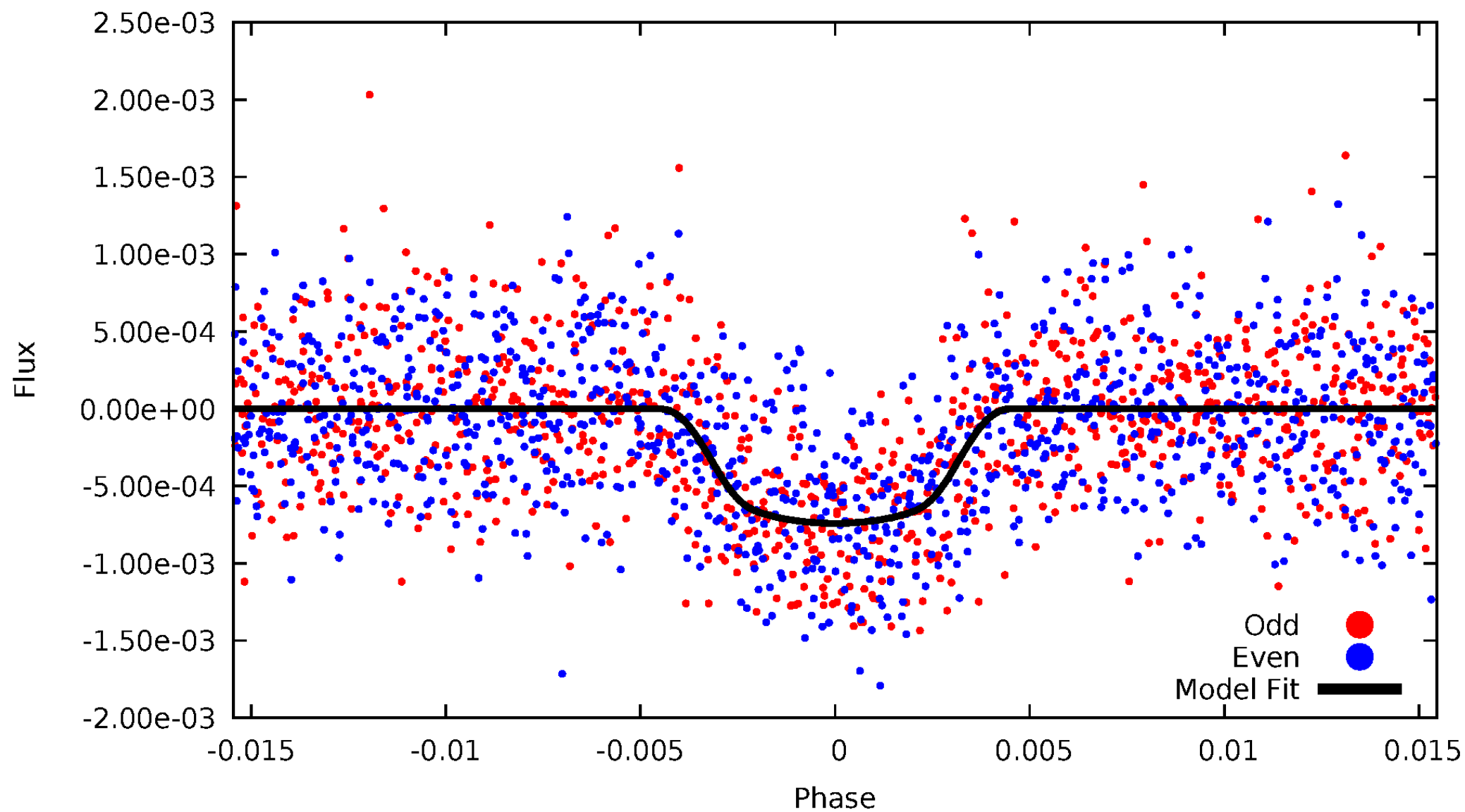


TCE 003732821-01



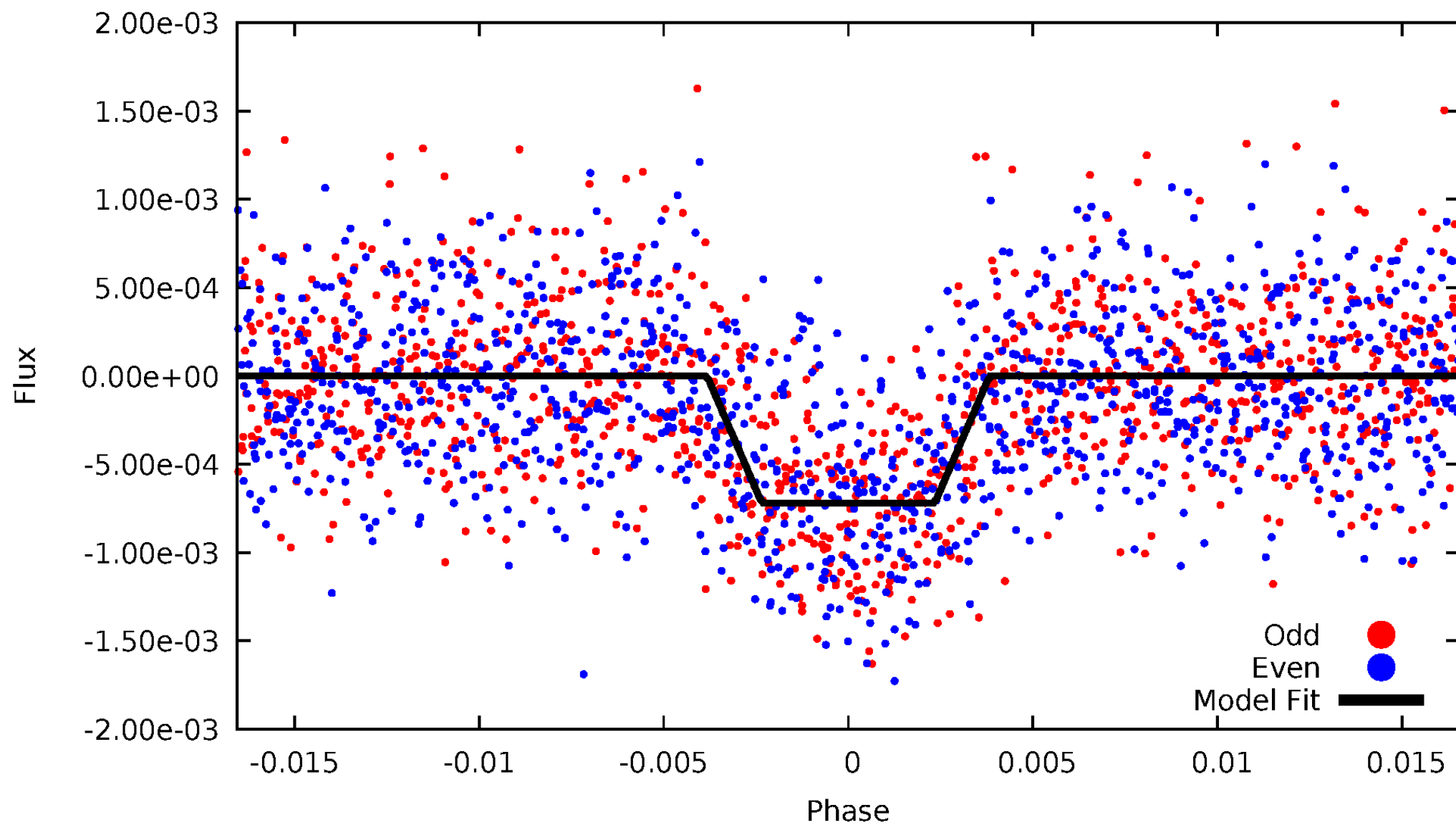
# DV Odd/Even

TCE 003732821-01



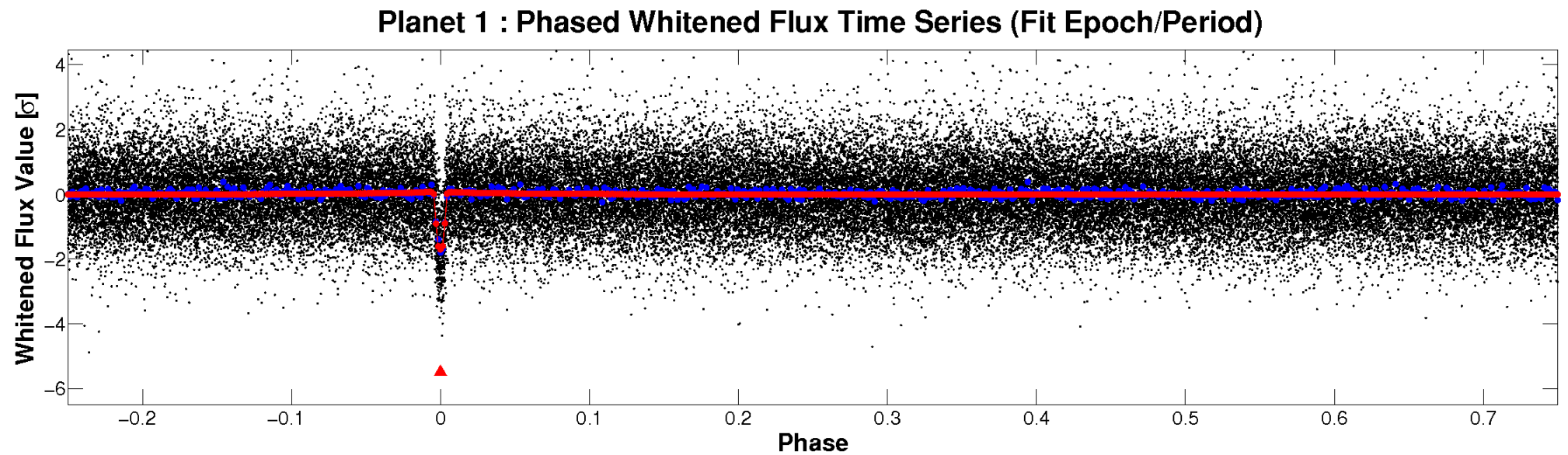
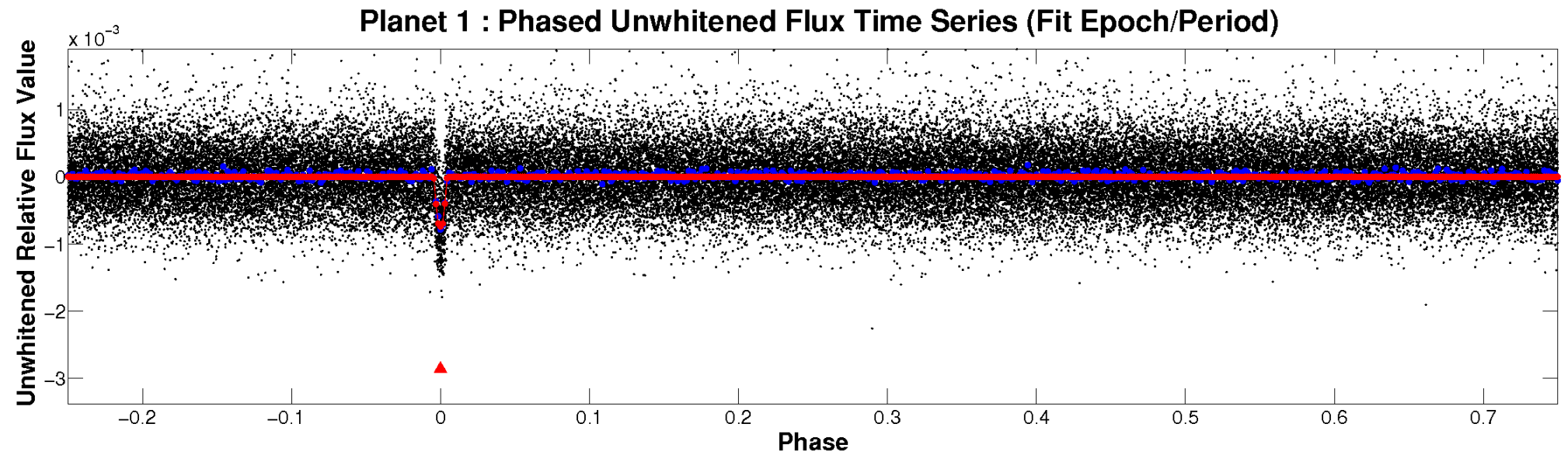
# ALT Odd/Even

TCE 003732821-01



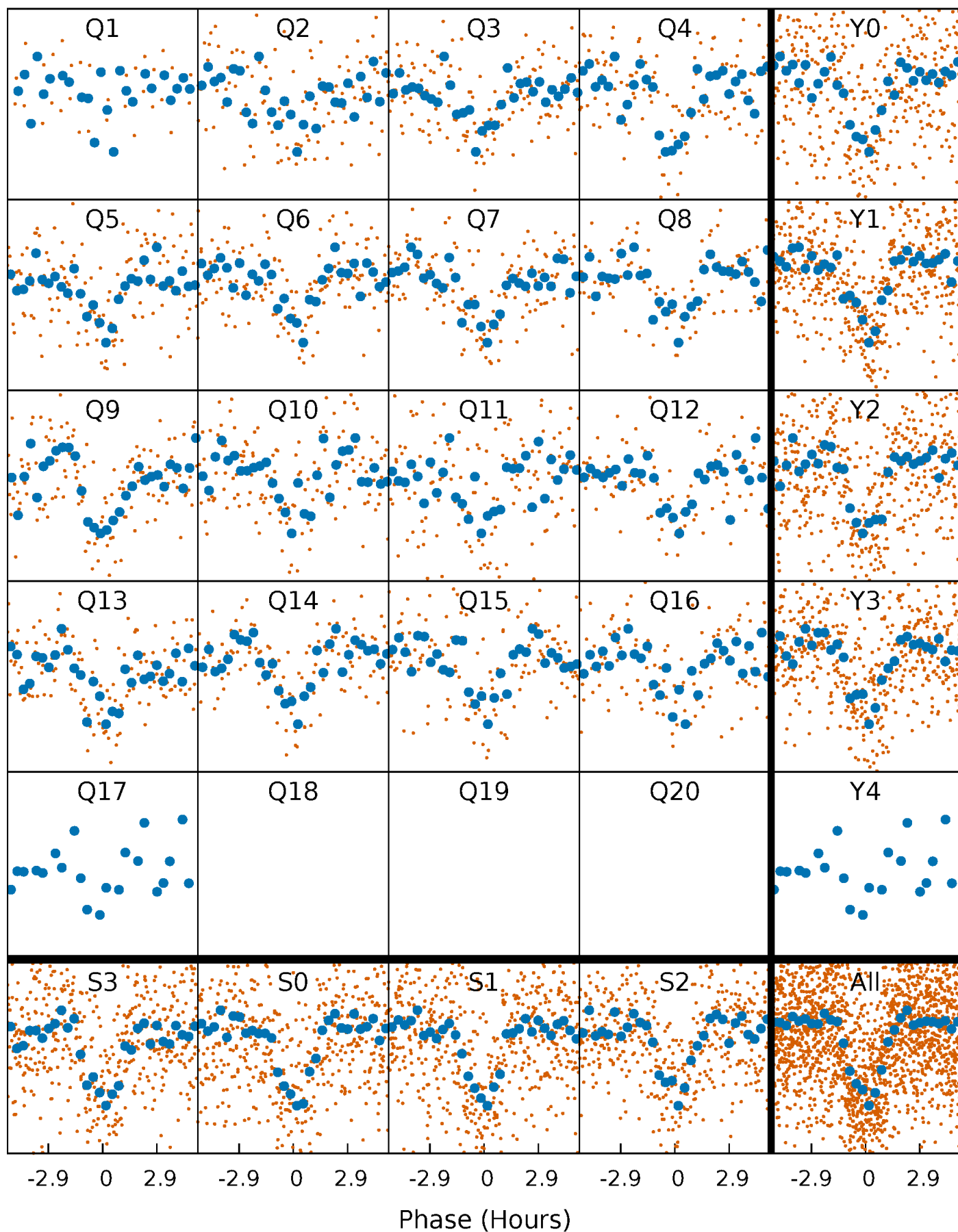


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

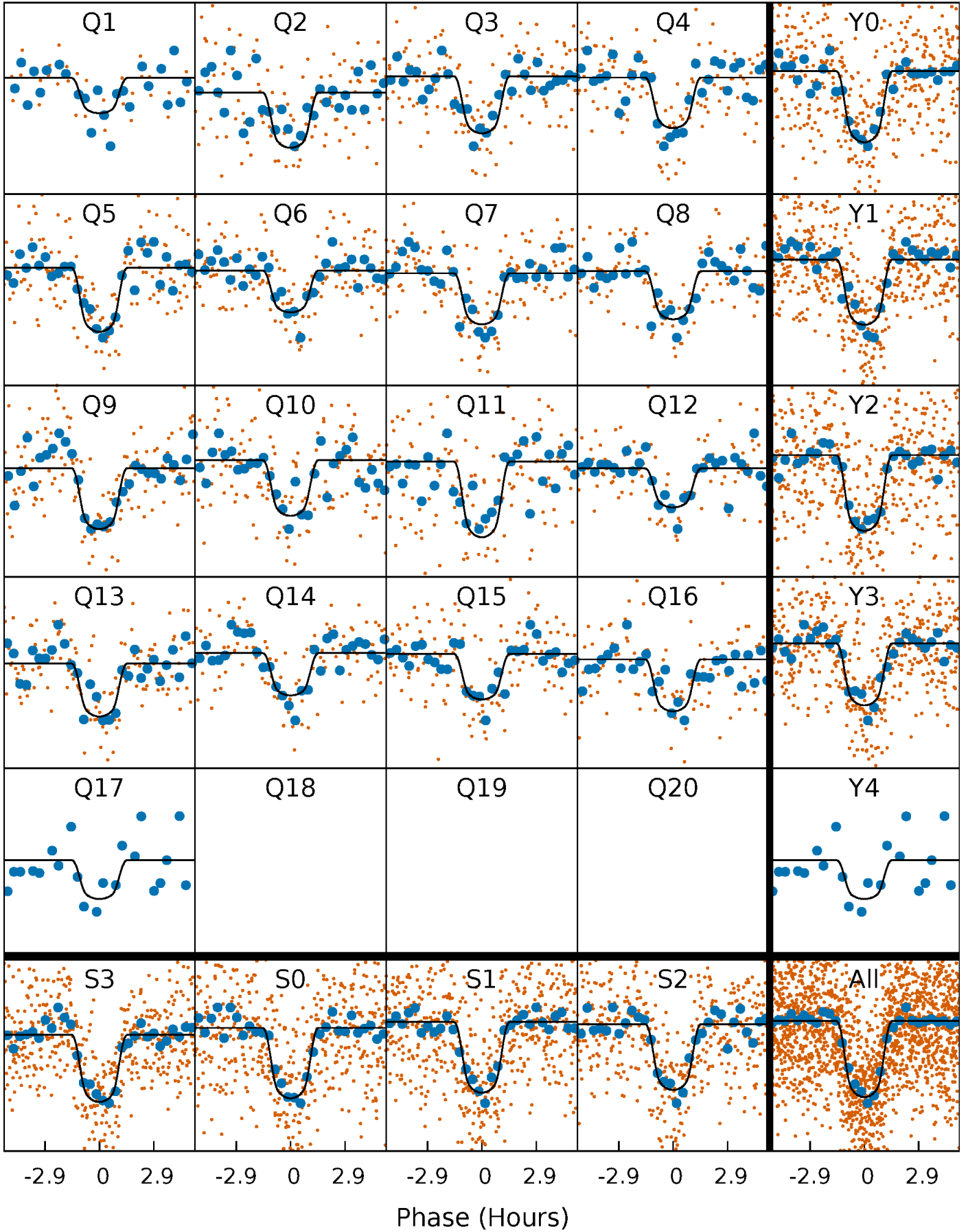
TCE 003732821-01 P= 13.734680 Days  $T_0=142.330858$  (BKJD)





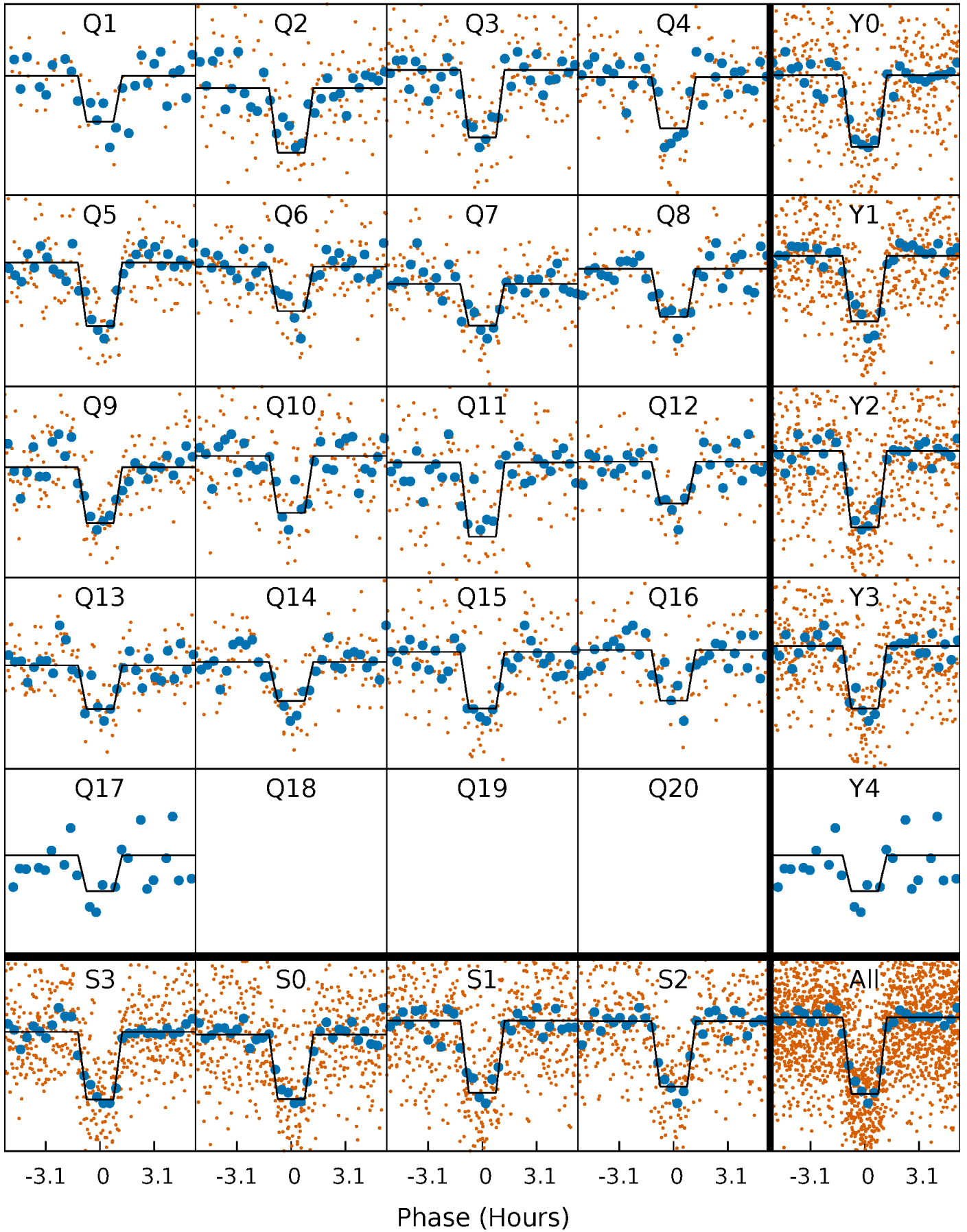
# DV Quarter-Phased Transit Curves

TCE 003732821-01 P= 13.734680 Days  $T_0=142.330858$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

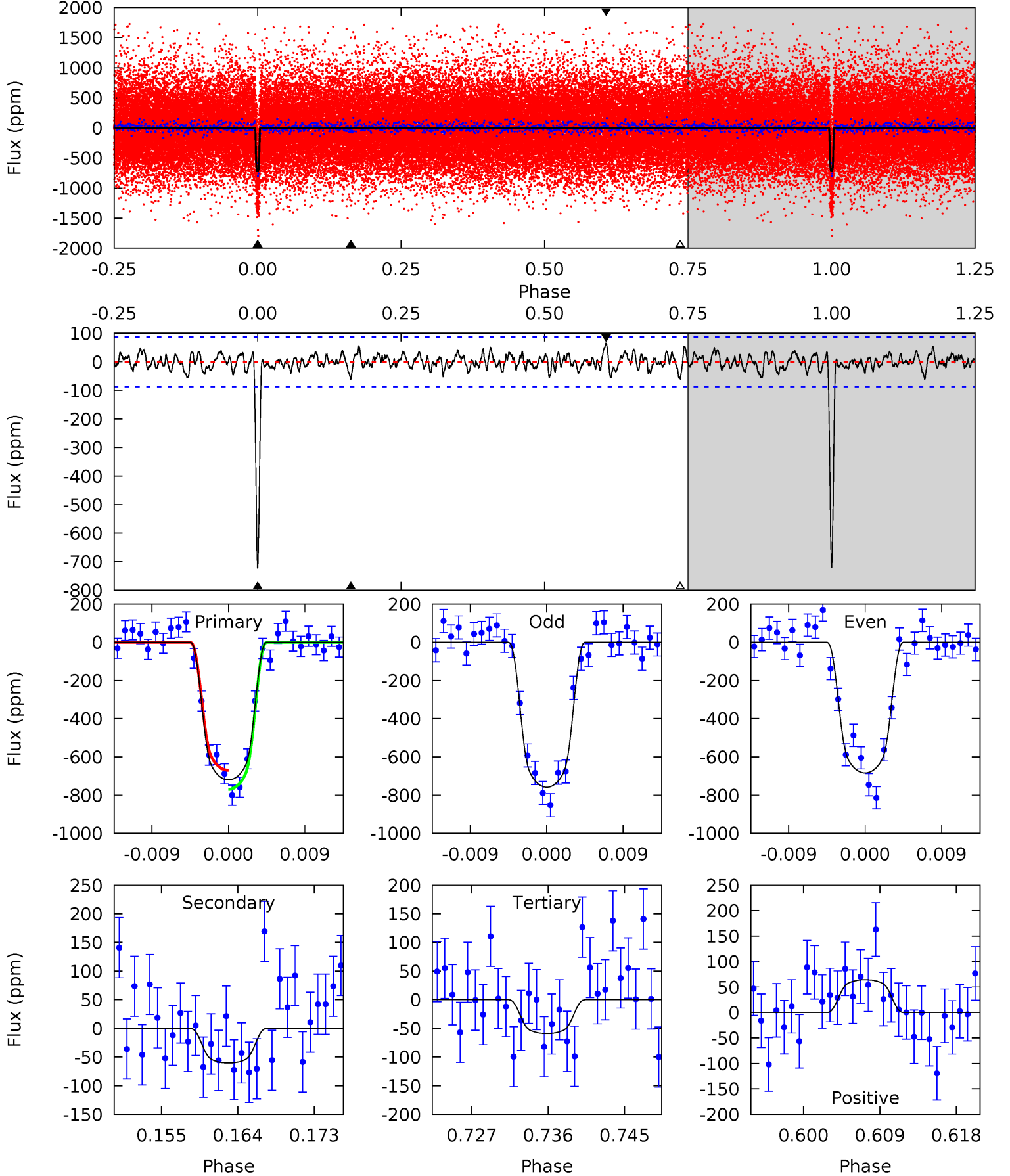
TCE 003732821-01 P= 13.734739 Days  $T_0=142.327451$  (BKJD)



# DV Model-Shift Uniqueness Test

003732821-01,  $P = 13.734680$  Days,  $E = 128.596178$  Days

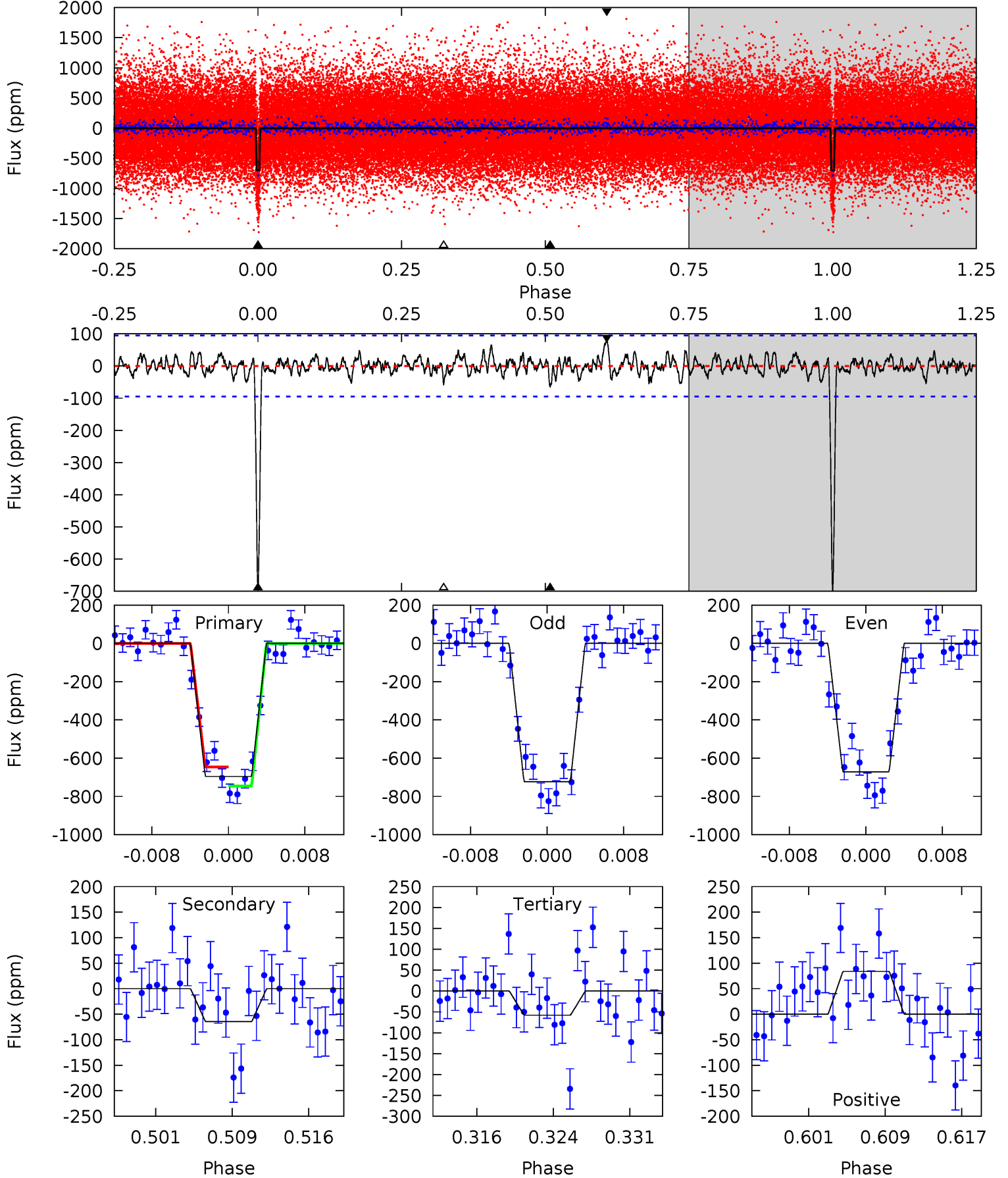
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 41.7 | 3.50 | 3.43 | 3.73 | 5.04            | 2.61            | 1.22             | 38.3    | 38.0    | 0.07    | -0.23   | 2.16    | 0.96 | 0.08  | 2.88 |



# Alt Model-Shift Uniqueness Test

003732821-01, P = 13.734739 Days, E = 128.592712 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 37.2 | 3.45 | 3.09 | 4.48 | 5.08            | 2.66            | 1.12             | 34.1    | 32.8    | 0.36    | -1.03   | 1.37    | 0.97 | 0.11  | 2.67 |



### Stellar Parameters For KIC 003732821

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5196^{+153}_{-138}$ | $4.524^{+0.088}_{-0.072}$ | $-0.300^{+0.350}_{-0.300}$ | $0.772^{+0.088}_{-0.088}$ | $0.726^{+0.103}_{-0.051}$ | $2.226^{+0.838}_{-0.513}$                 |
|        | +3%/-3%              | +2%/-2%                   | +117%/-100%                | +11%/-11%                 | +14%/-7%                  | +38%/-23%                                 |
| 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 003732821-01 / KOI 1207.01

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$ |
|---------|--------------|------------------------|----------------------|----------------------|------------------|
| DV      | $-60 \pm 17$ | $2.57^{+0.33}_{-0.32}$ | $887^{+36}_{-40}$    | $3201^{+179}_{-178}$ | $52^{+23}_{-17}$ |
| Alt.    | $-64 \pm 19$ | $2.27^{+0.33}_{-0.32}$ | $886^{+38}_{-36}$    | $3345^{+221}_{-198}$ | $70^{+36}_{-23}$ |

$T_{\text{max}}$  = 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

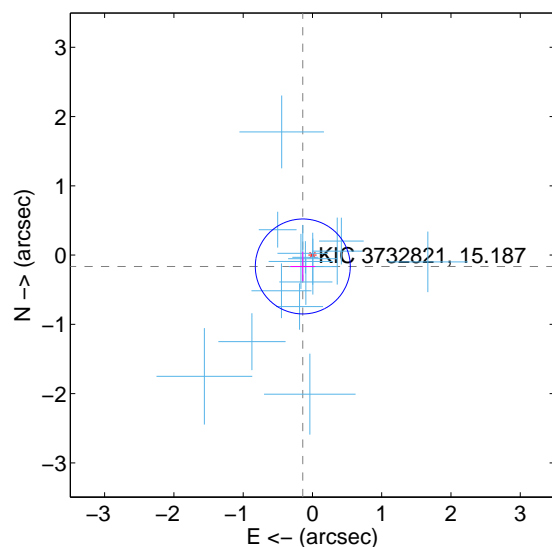
Supplemental centroid analysis for 003732821-01. Kepler magnitude: 15.19. Transit SNR 30.51

There are 16 quarters with good PRF difference image offsets

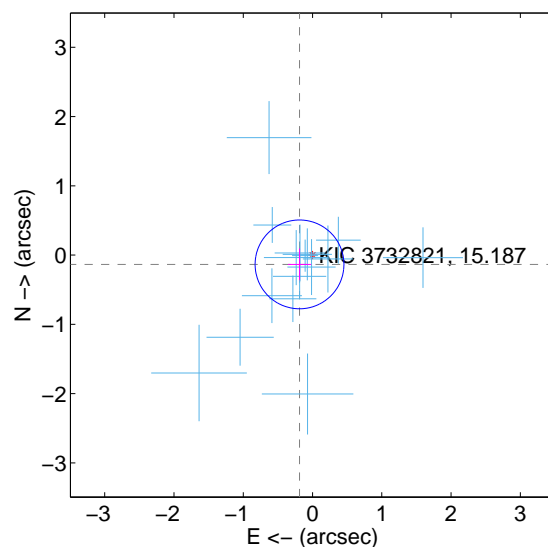
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.215 \pm 0.228$  | 0.94                | $0.139 \pm 0.180$ | $-0.164 \pm 0.213$ |
| PRF-fit source offset from KIC position | $0.231 \pm 0.214$  | 1.08                | $0.188 \pm 0.168$ | $-0.134 \pm 0.228$ |
| photometric centroid source offset      | $1.54 \pm 0.46$    | <b>3.37</b>         | $-1.42 \pm 0.45$  | $-0.59 \pm 0.48$   |

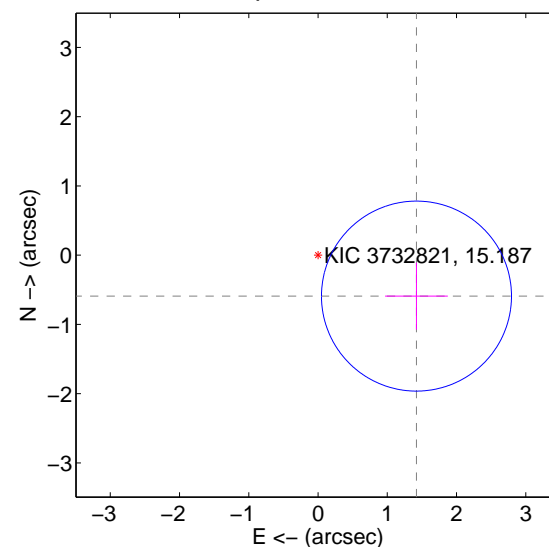
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

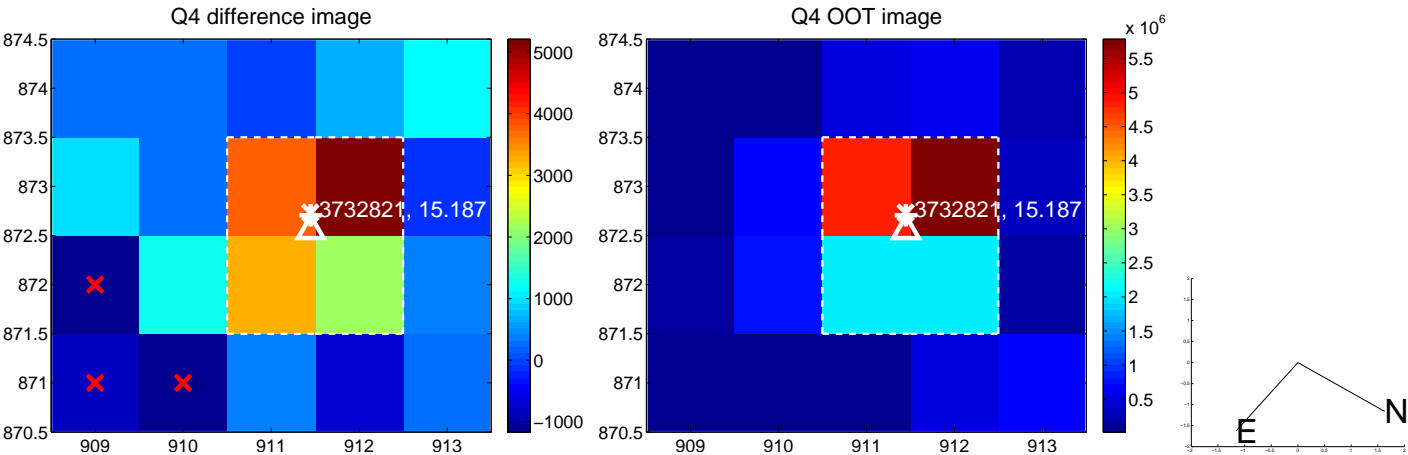
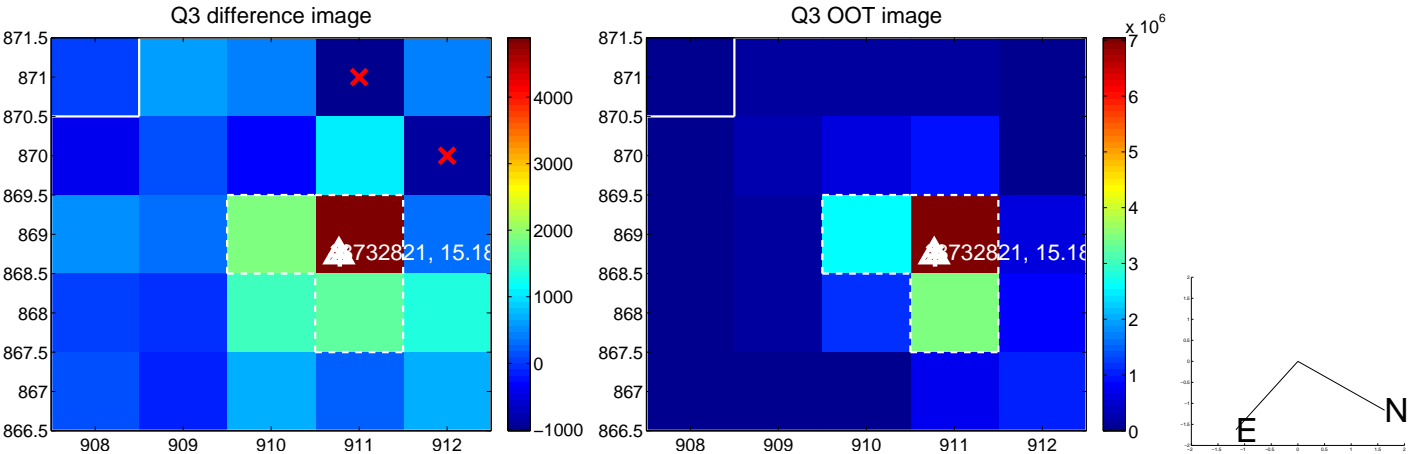
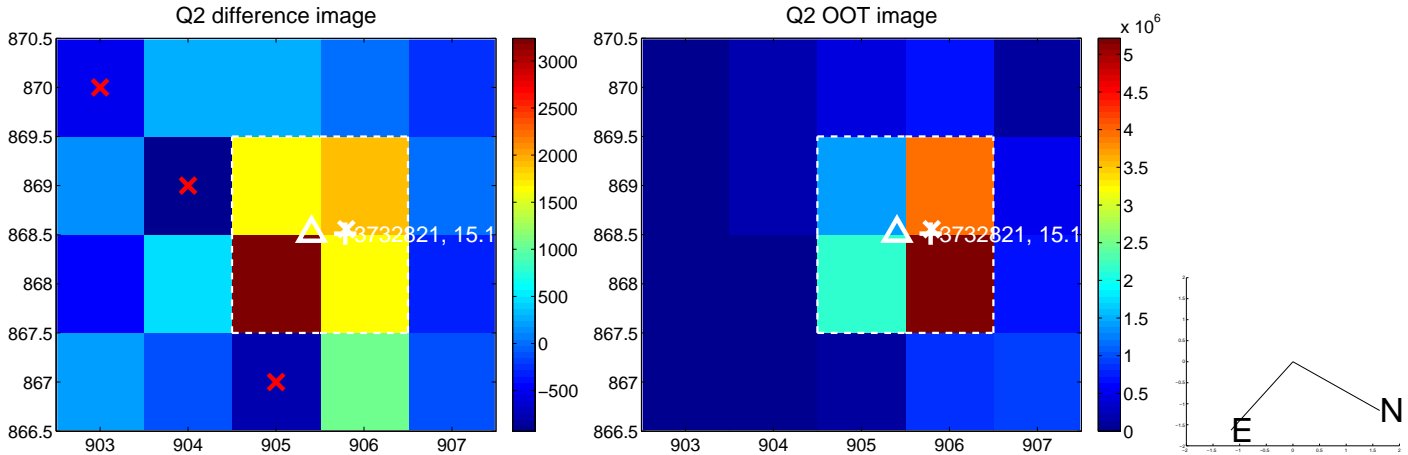
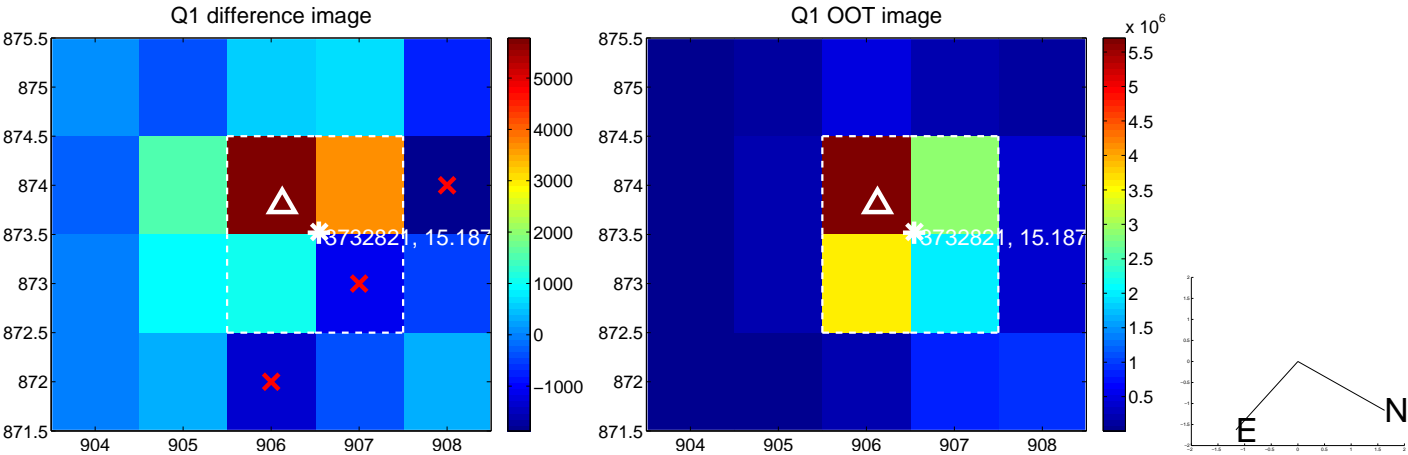


offset from photometric centroids

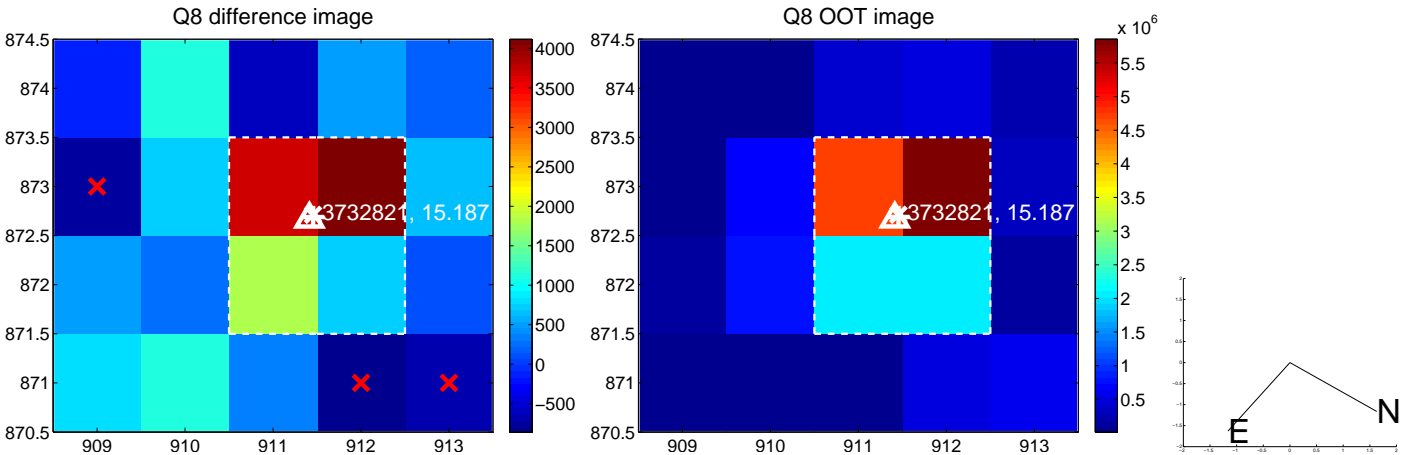
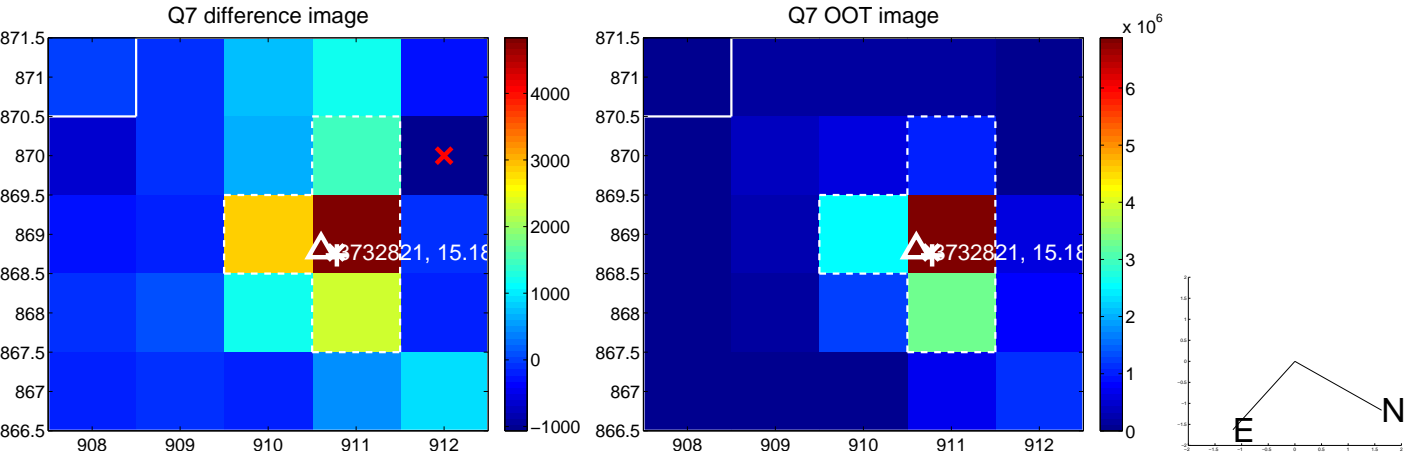
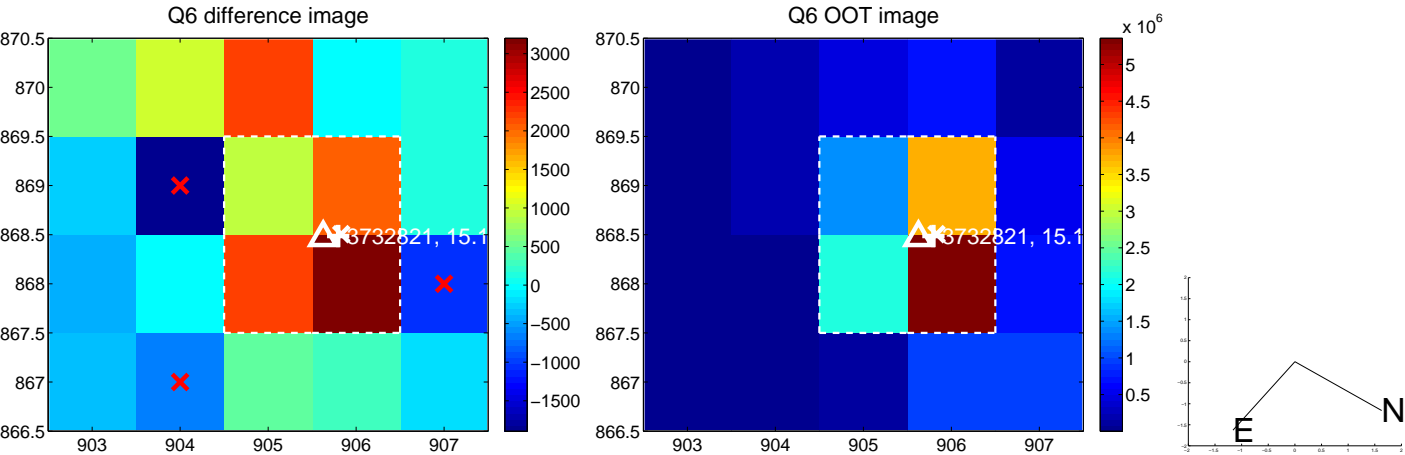
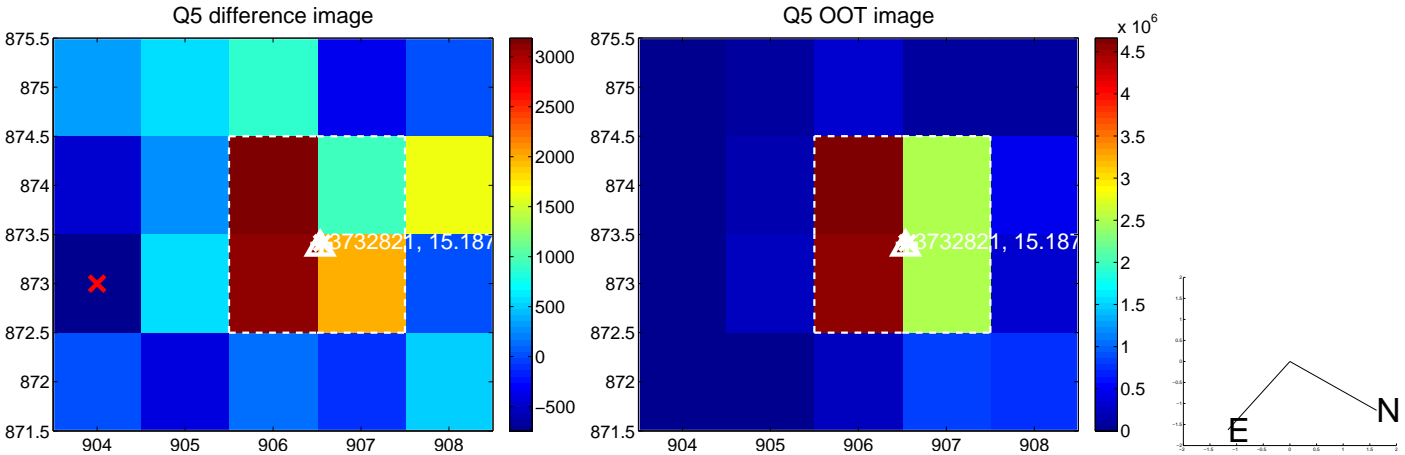


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

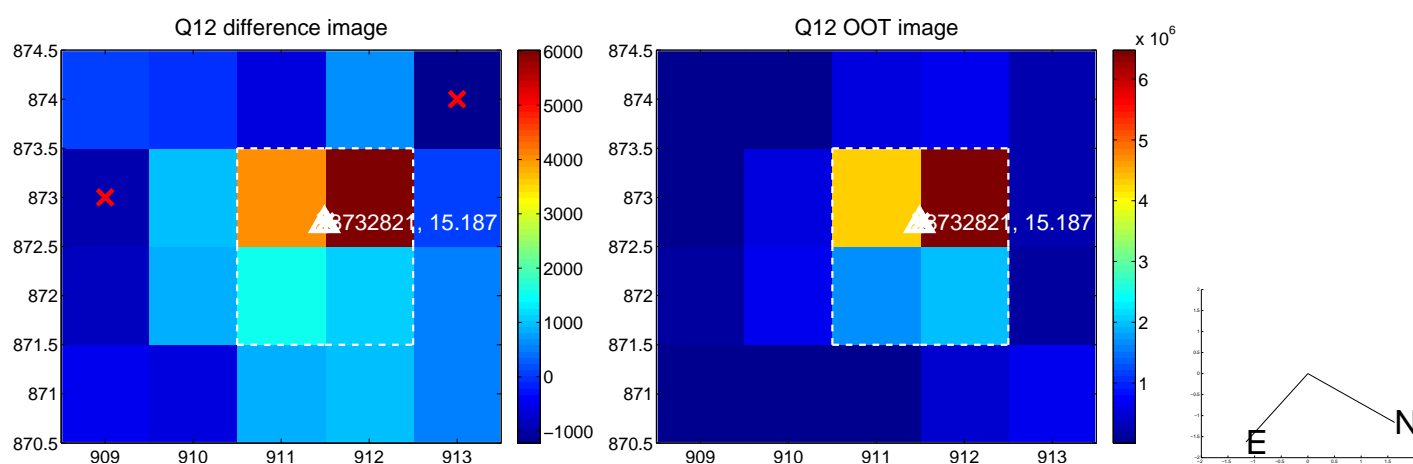
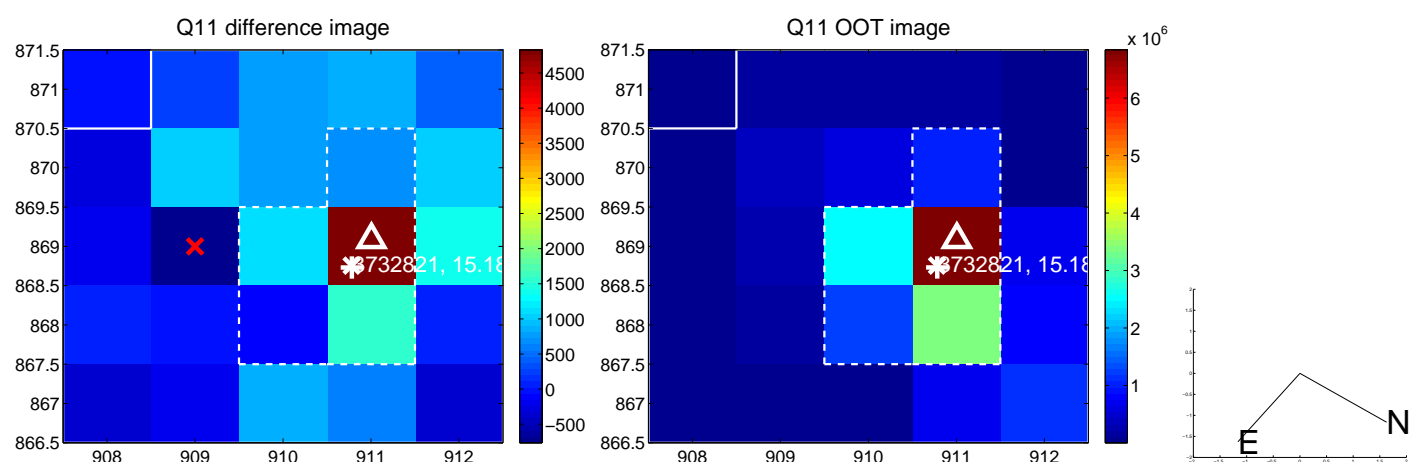
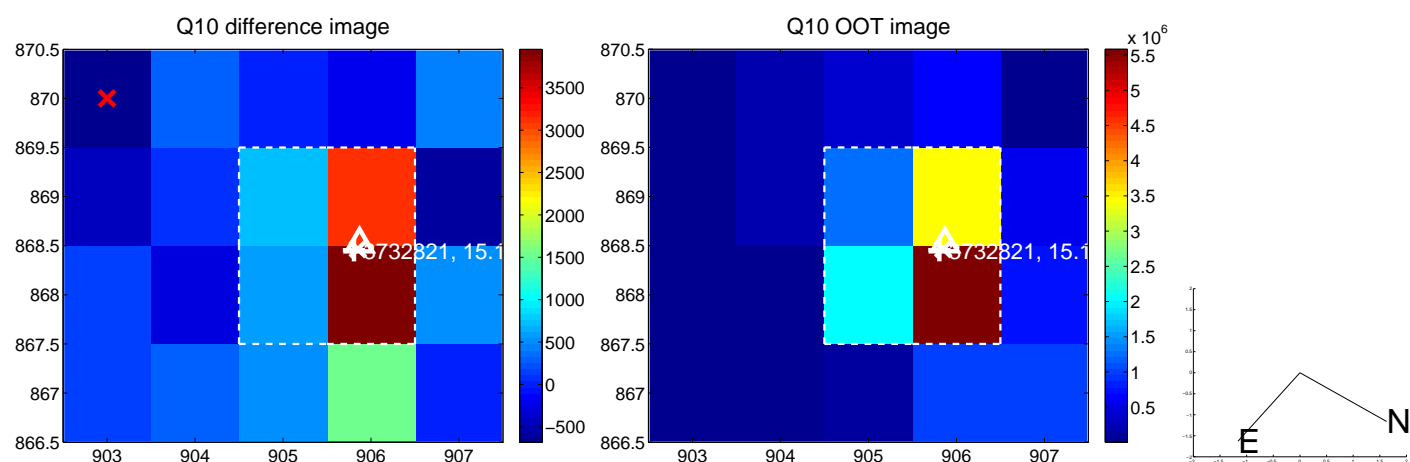
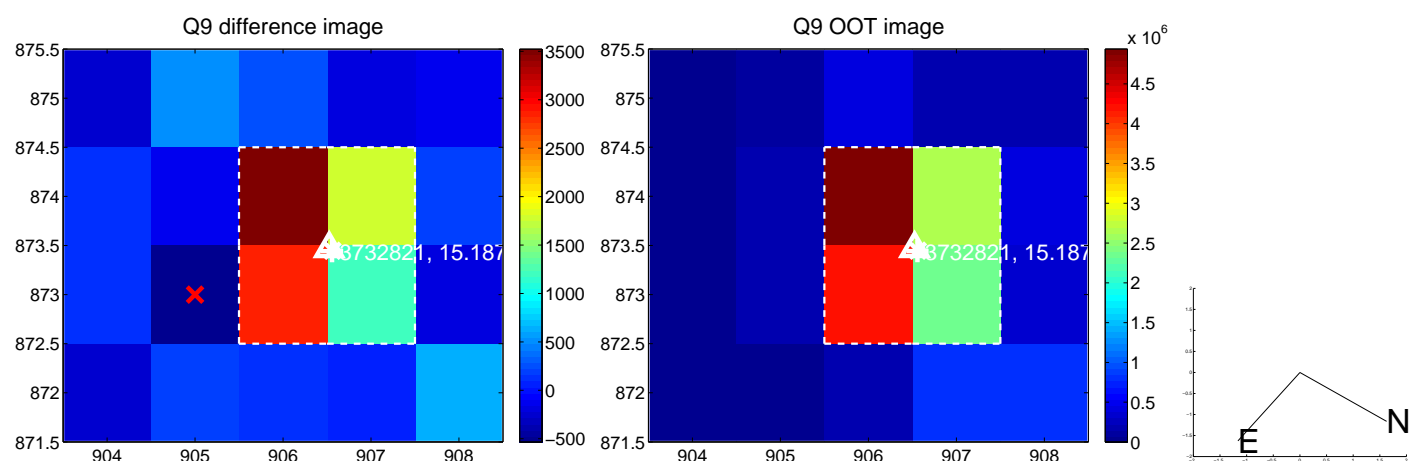
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



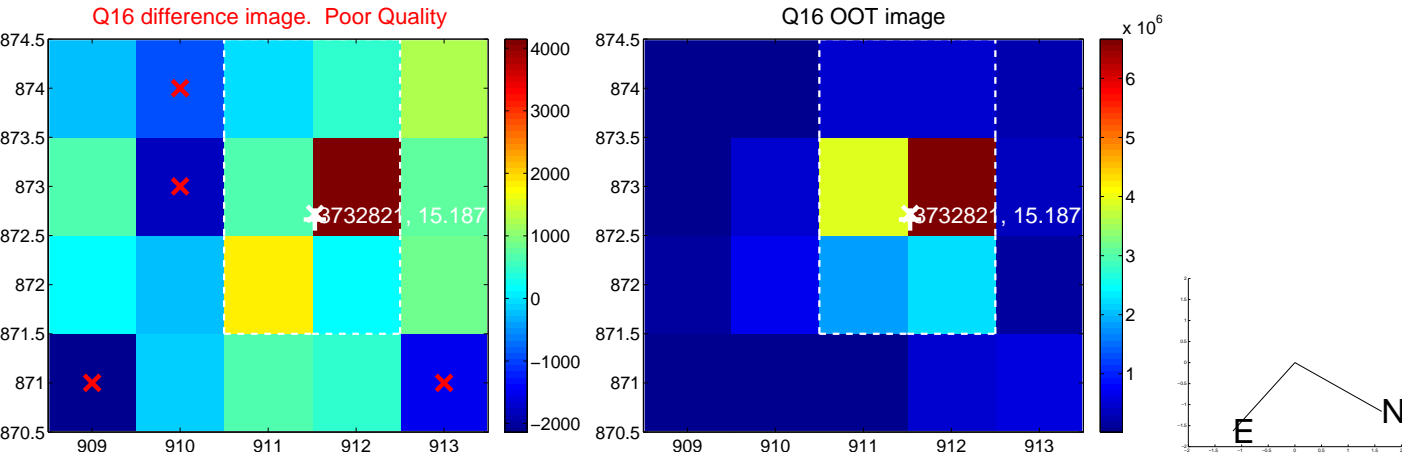
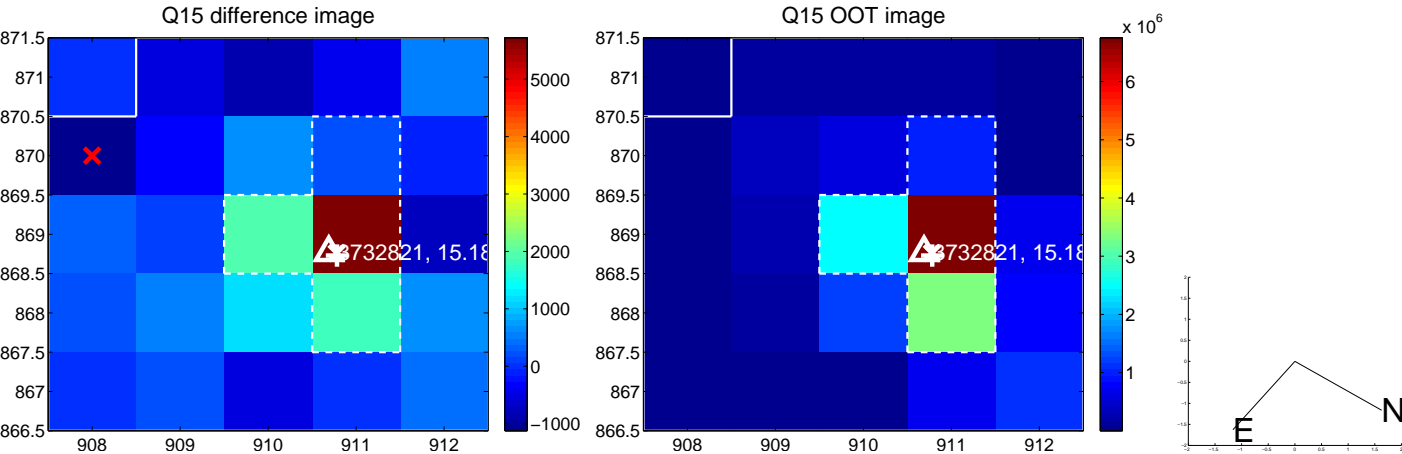
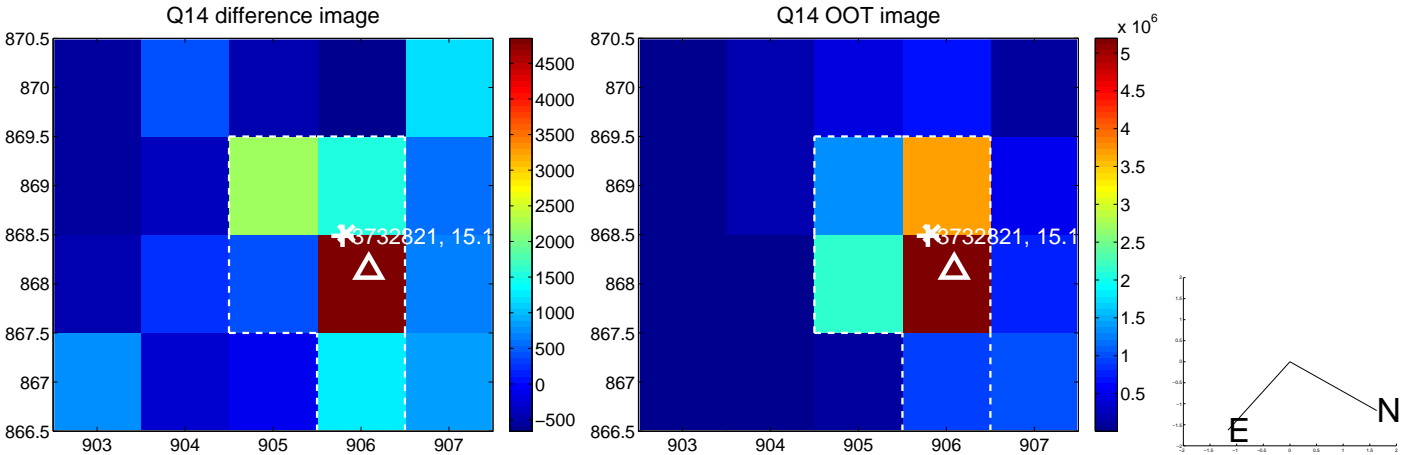
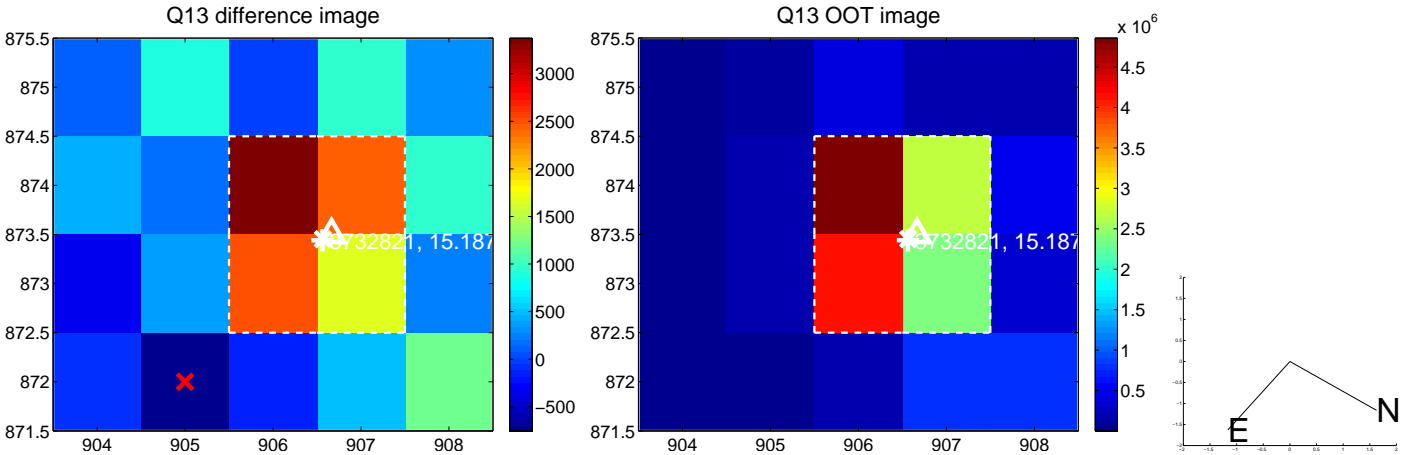
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

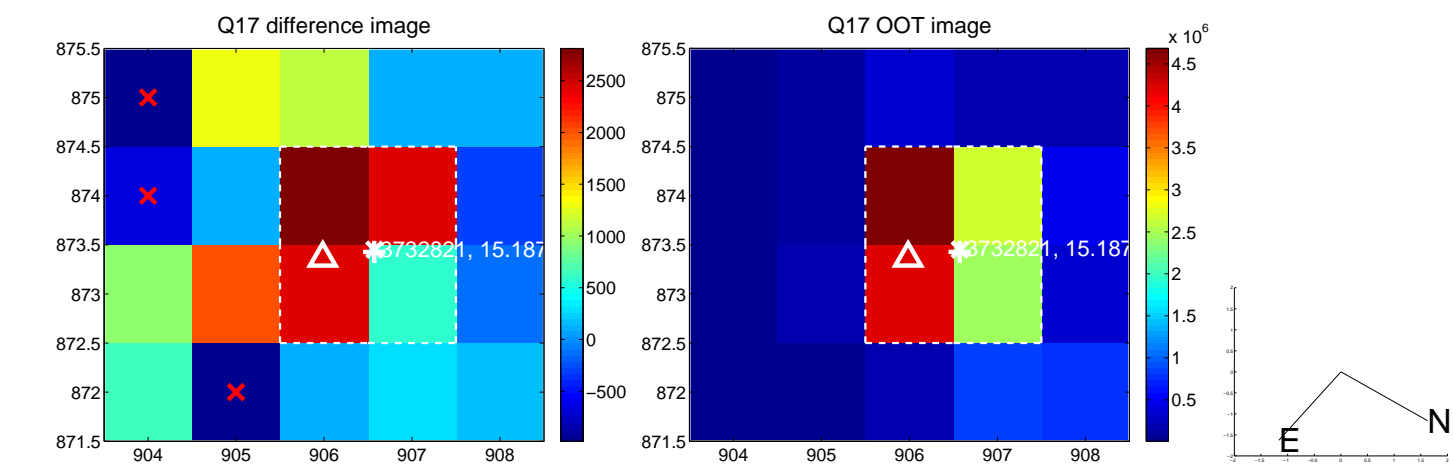


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

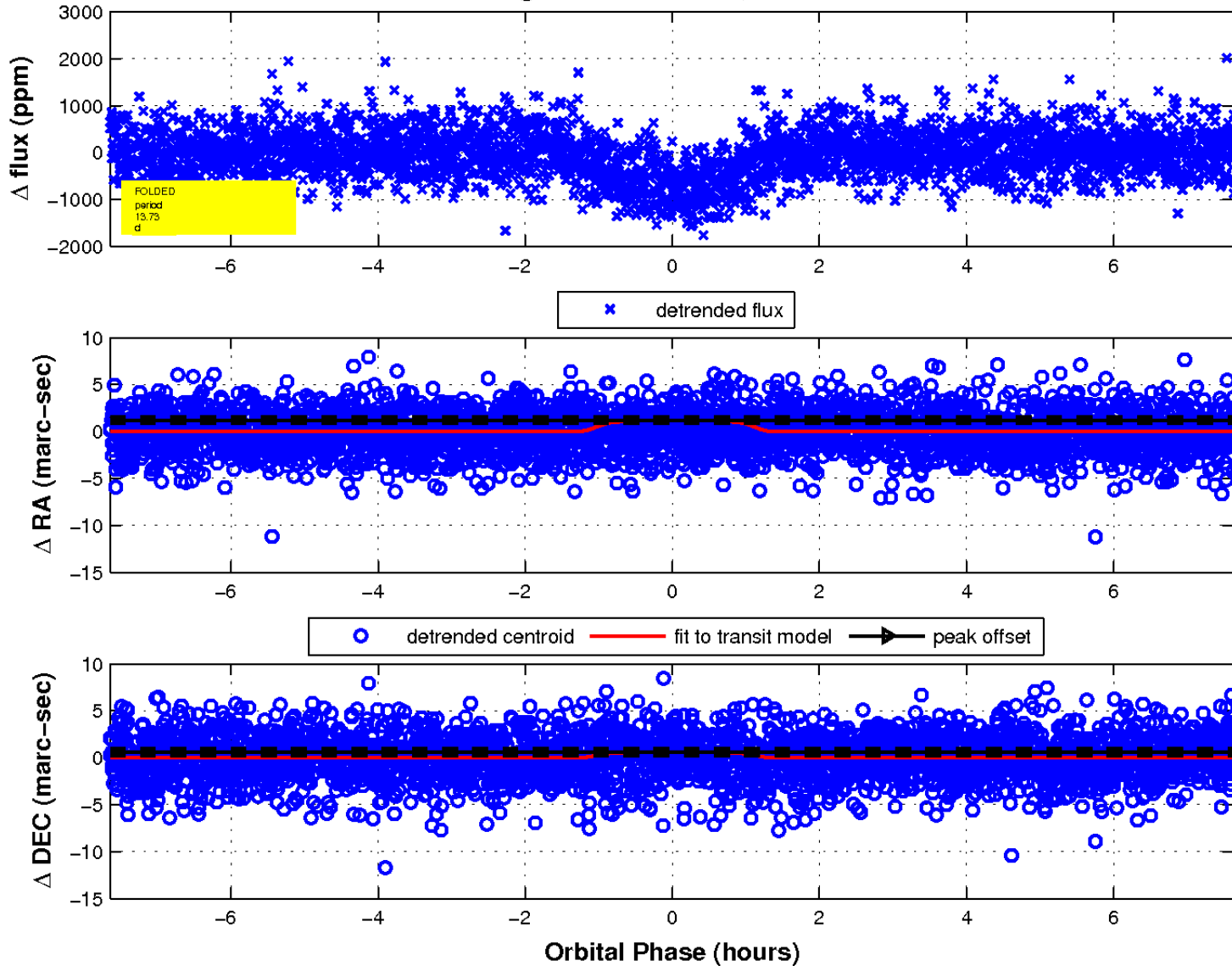




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

