

# KIC 010535424

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 010535424-01 | OBS      | No   | 332.079896    | 383.960914   | 1851.1      | 5.507            | 11.5 | 2.9 | 0.61                        | 5151            | 2.74                   | 0.37                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010535424-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

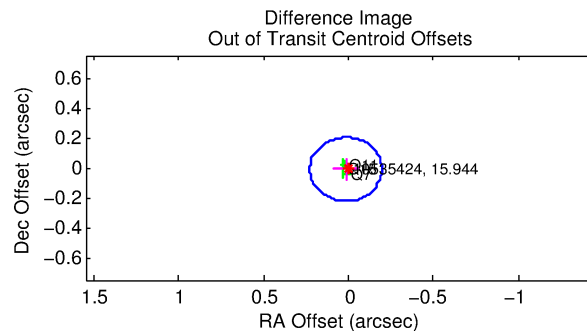
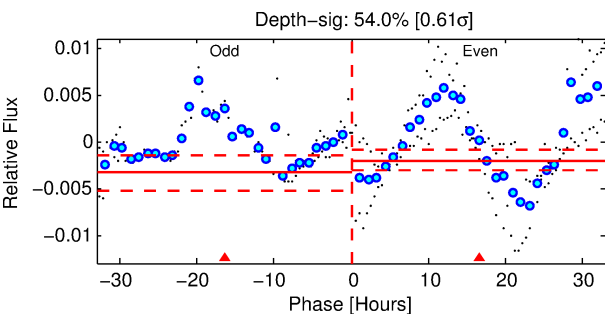
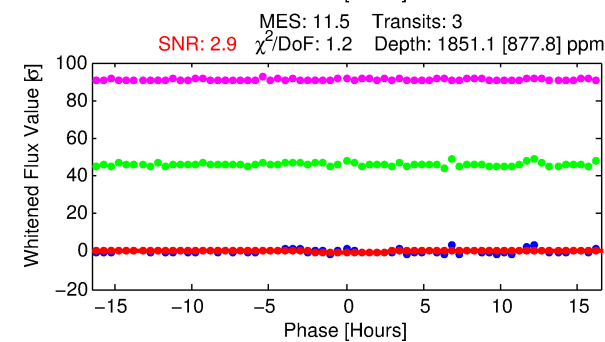
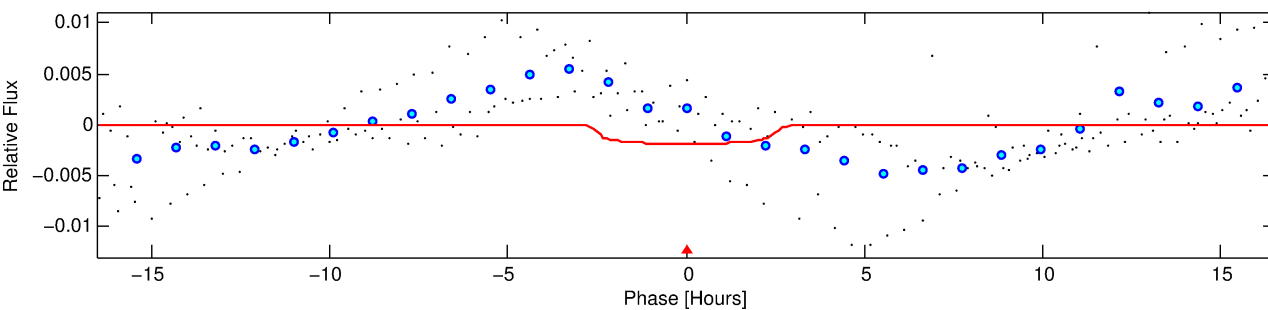
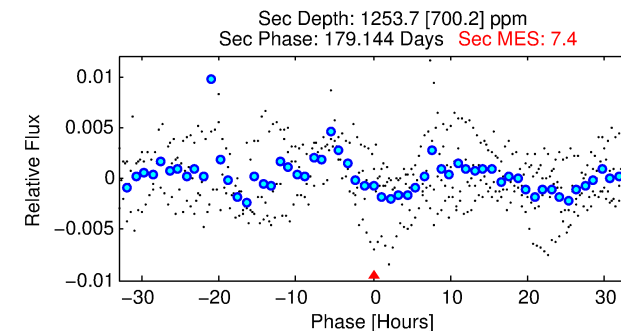
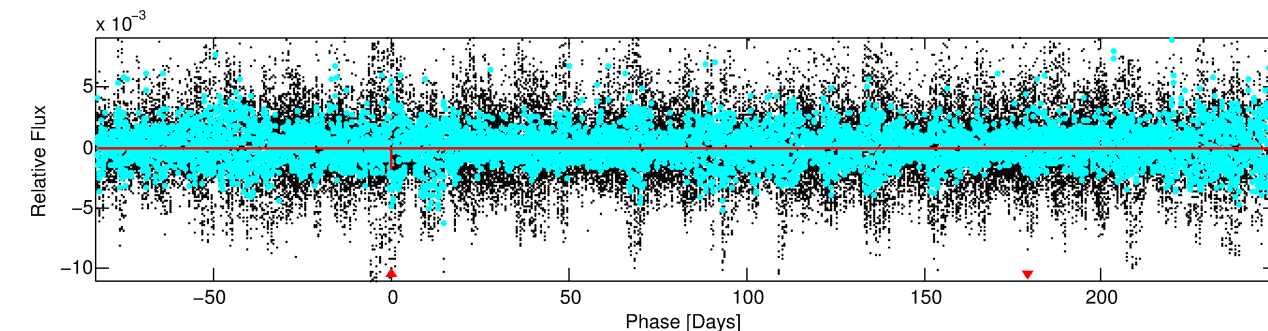
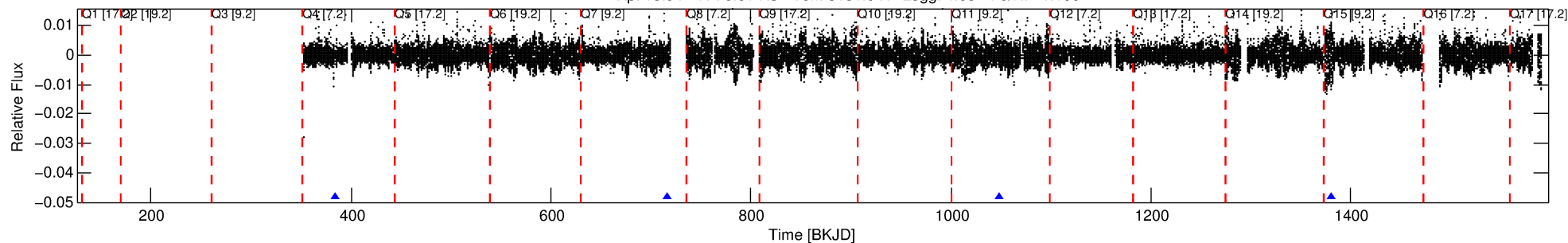
## Ephemeris Match Information For 010535424-01

No Significant Match Found

# DV One-Page Summary

KIC: 10535424 Candidate: 1 of 1 Period: 332.080 d

Kp: 15.94 R\*: 0.61 Rs Teff: 5151.0 K Logg: 4.65 Fe/H: -1.100



## DV Fit Results:

Period = 332.07990 [0.01251] d  
Epoch = 383.9609 [0.0241] BKJD  
Rp/R\* = 0.0413 [0.0350]  
a/R\* = 379.91 [1231.17]  
b = 0.64 [3.07]  
Seff = 0.37 [0.06]  
Teq = 199 [9] K  
Rp = 2.74 [2.33] Re  
a = 0.7940 [0.0549] AU  
Ag = 57812.14 [103305.95] [0.56σ]  
Teff = 4767 [2133] K [2.14σ]

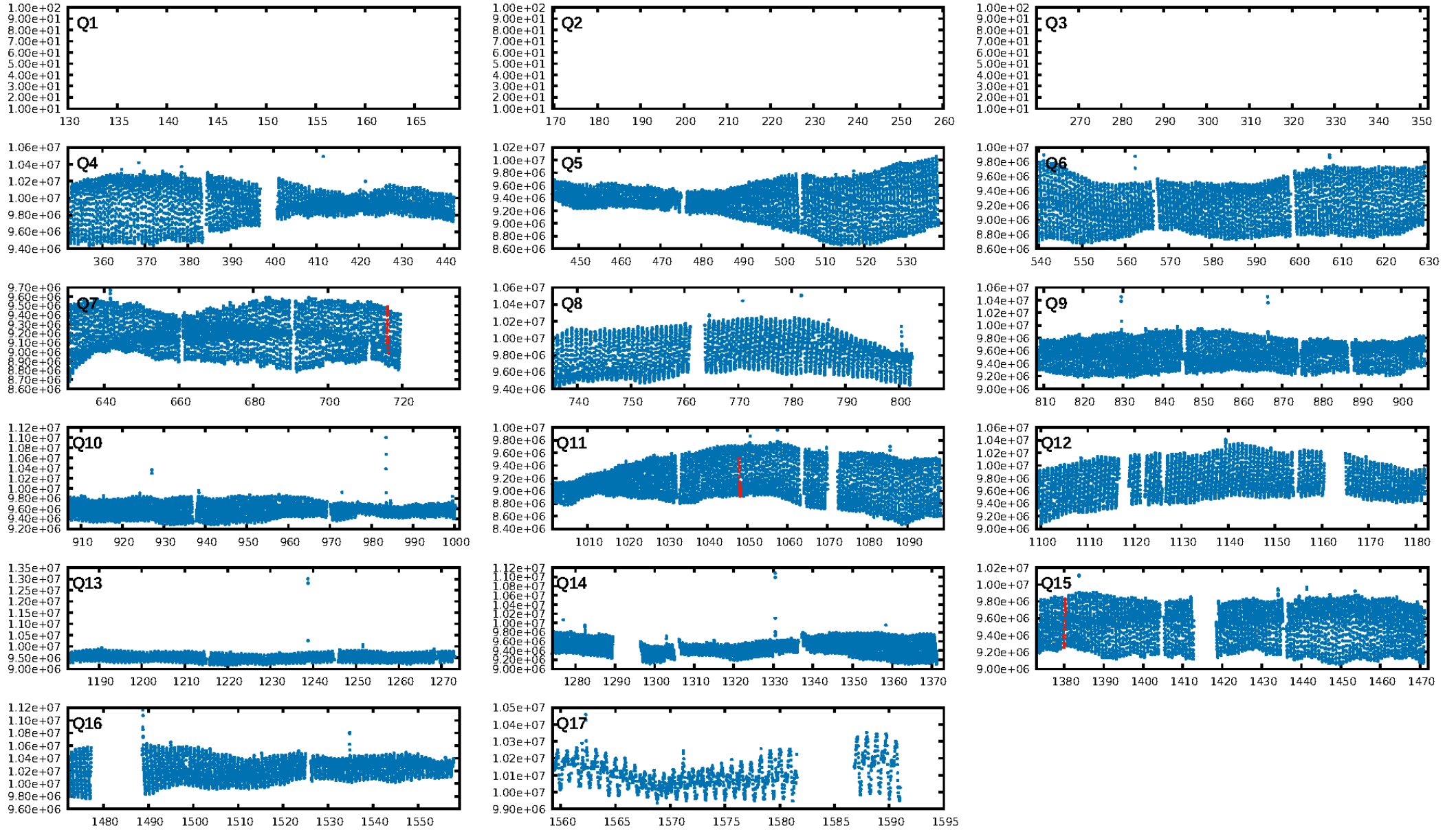
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 50.8%  
ModelChiSquareGof-sig: 93.4%  
**Bootstrap-pfa: 1.20e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.083  
Centroid-sig: 84.3%  
Centroid-so: 0.536 arcsec [0.46σ]  
OotOffset-rm: 0.020 arcsec [0.29σ]  
KicOffset-rm: 0.095 arcsec [1.26σ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

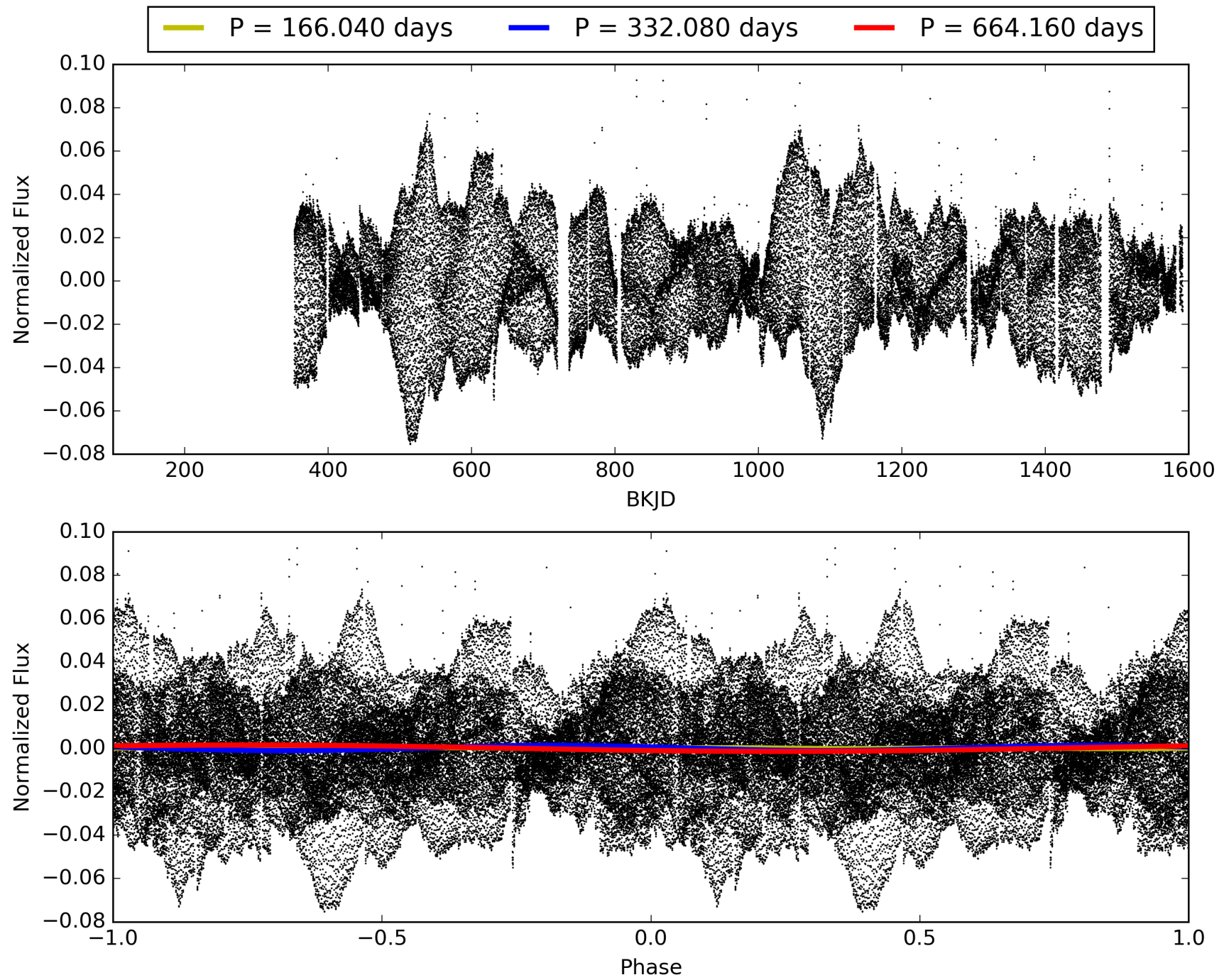
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:42:56 Z

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

# TCE 010535424-01, PDC Light Curves

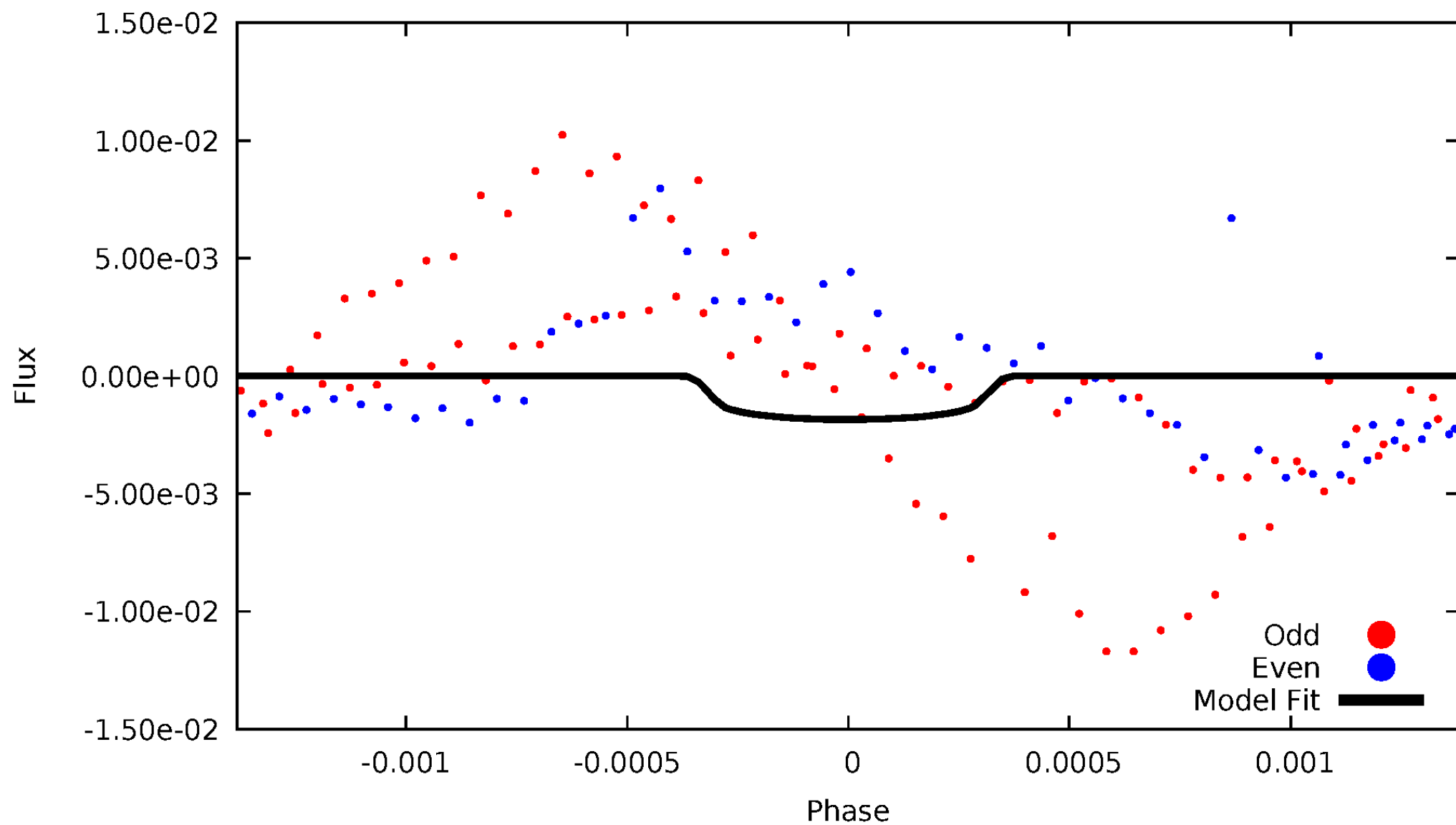


TCE 010535424-01



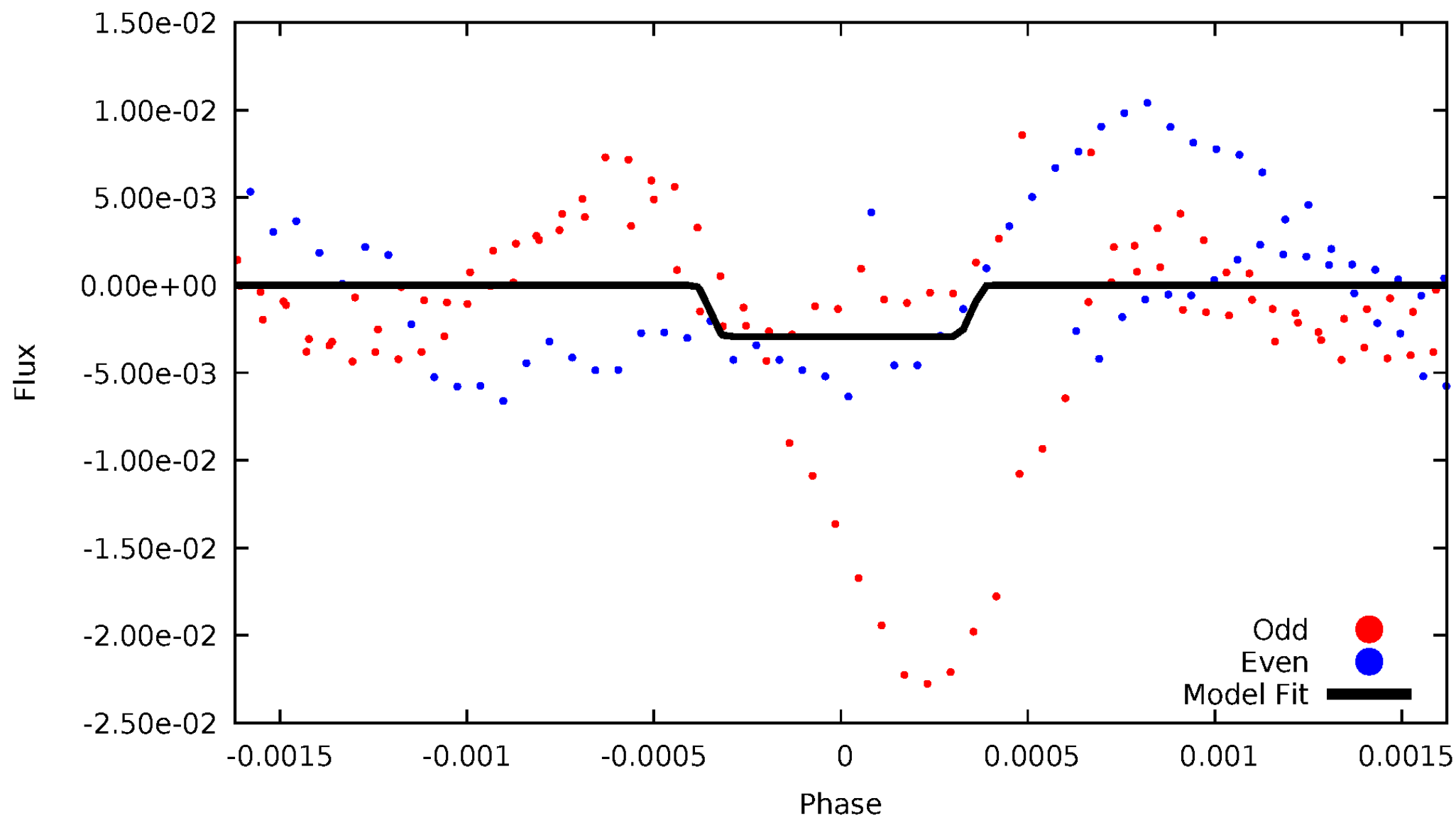
# DV Odd/Even

TCE 010535424-01



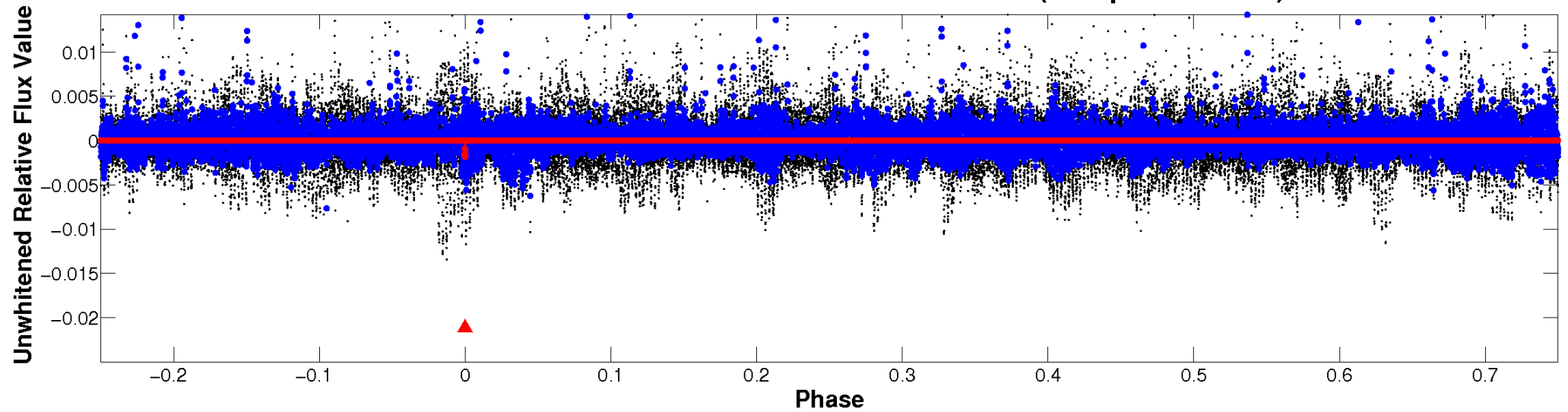
# ALT Odd/Even

TCE 010535424-01

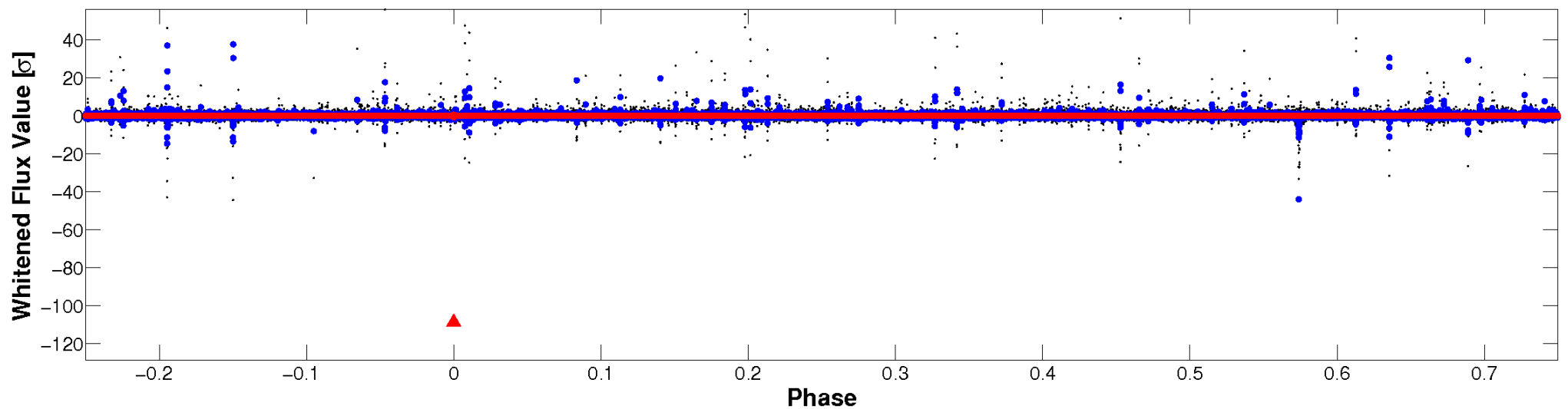


# Non-Whitened Vs. Whitened Light Curve

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

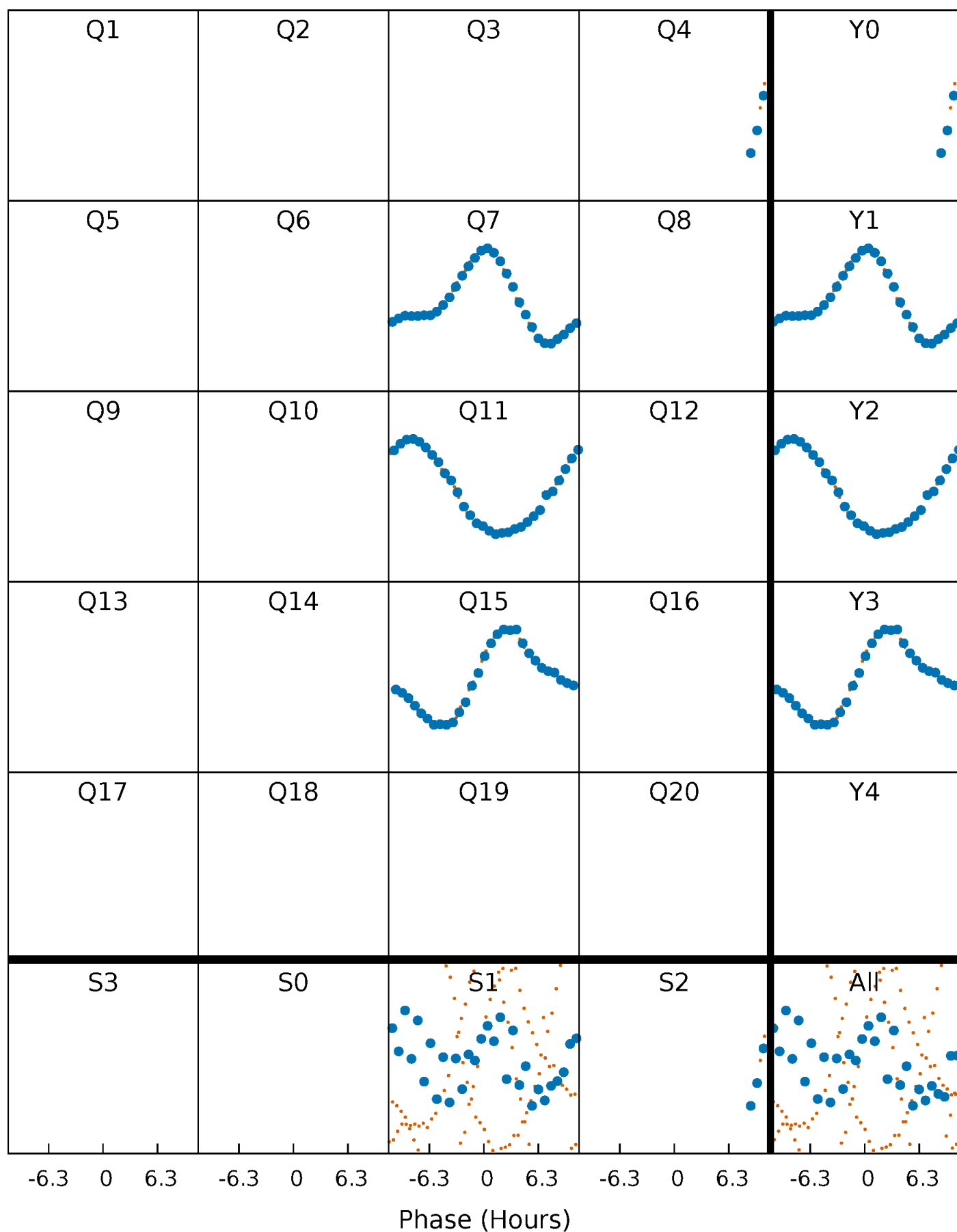


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

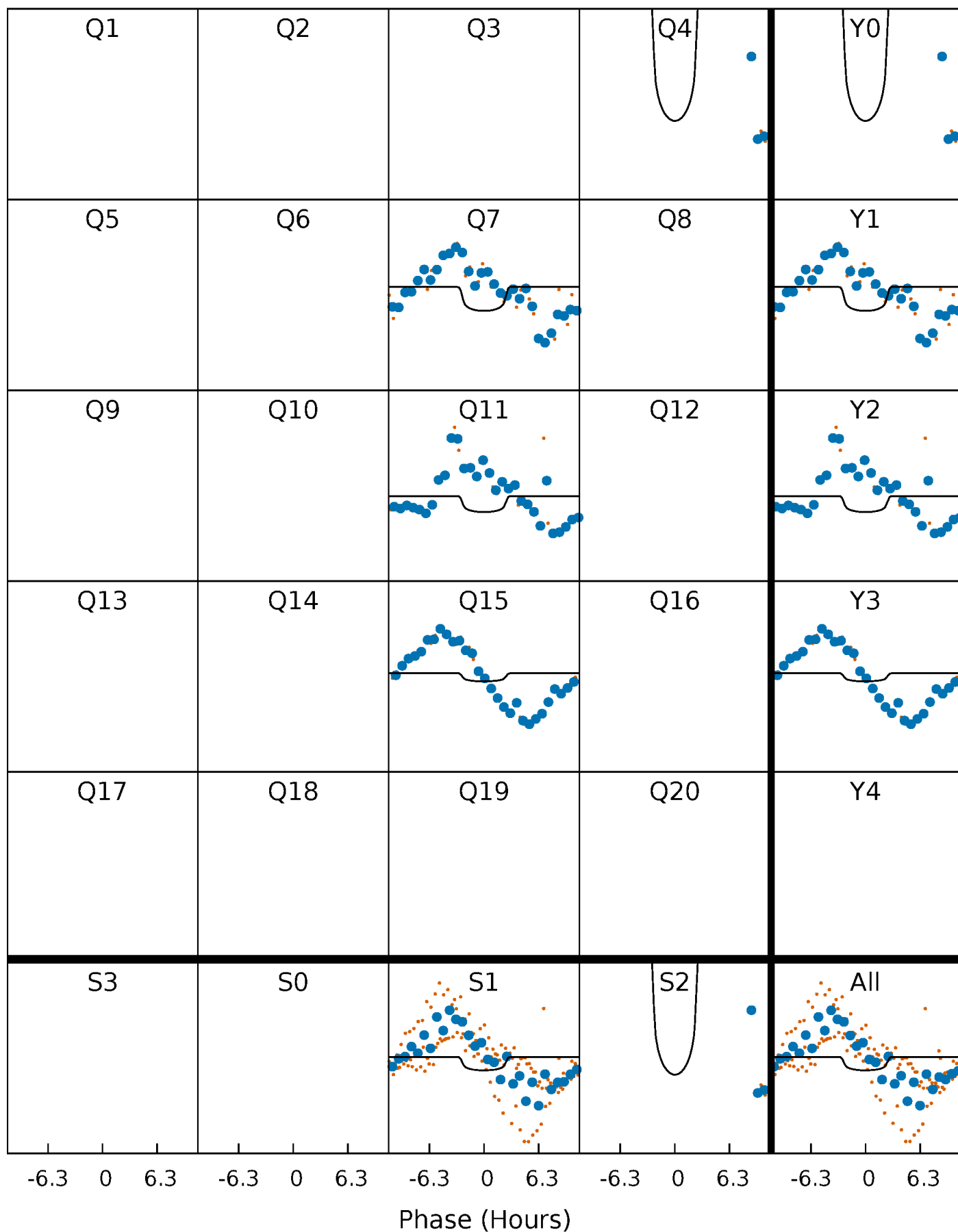
TCE 010535424-01 P=332.079896 Days  $T_0=383.960914$  (BKJD)





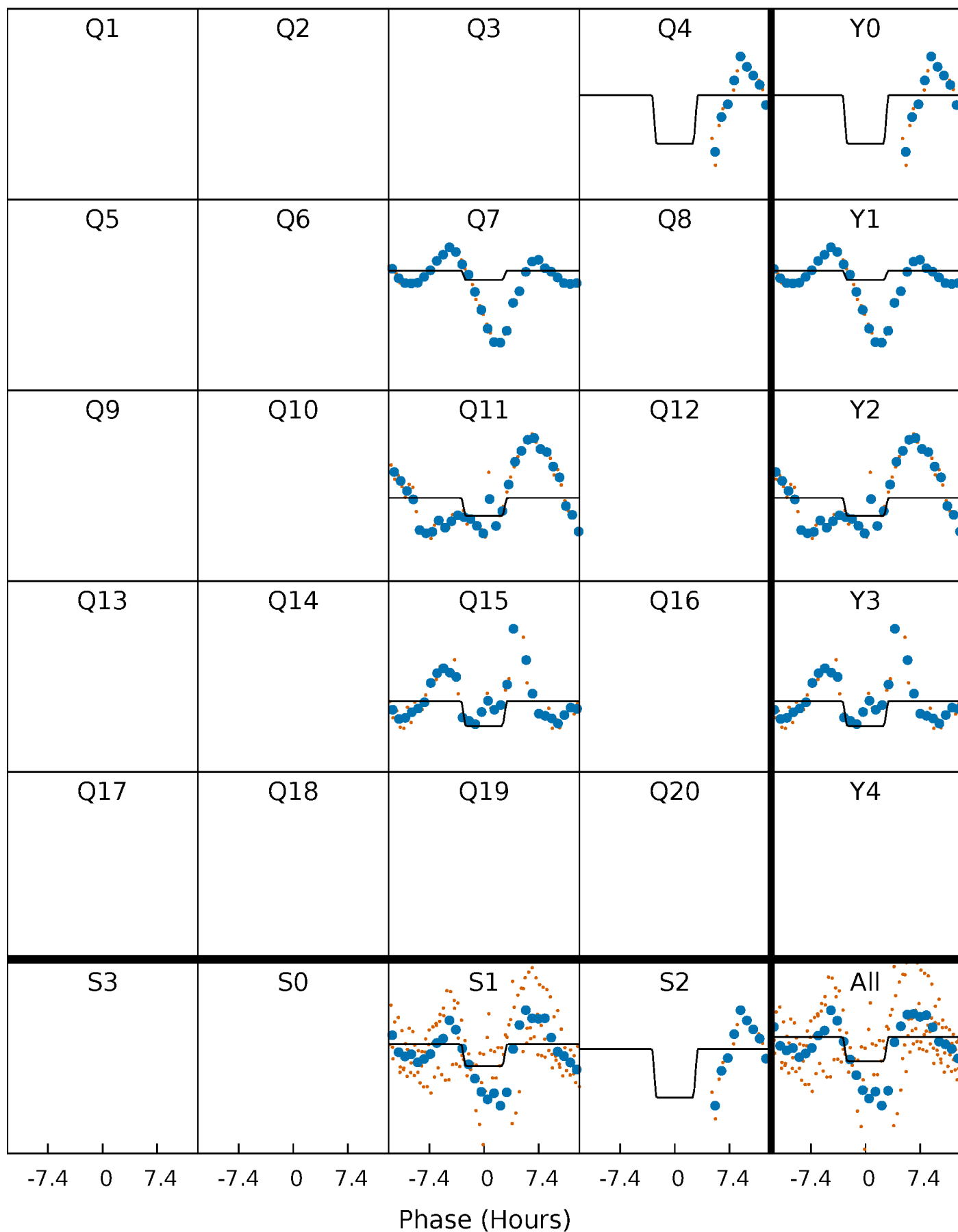
# DV Quarter-Phased Transit Curves

TCE 010535424-01 P=332.079896 Days  $T_0=383.960914$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

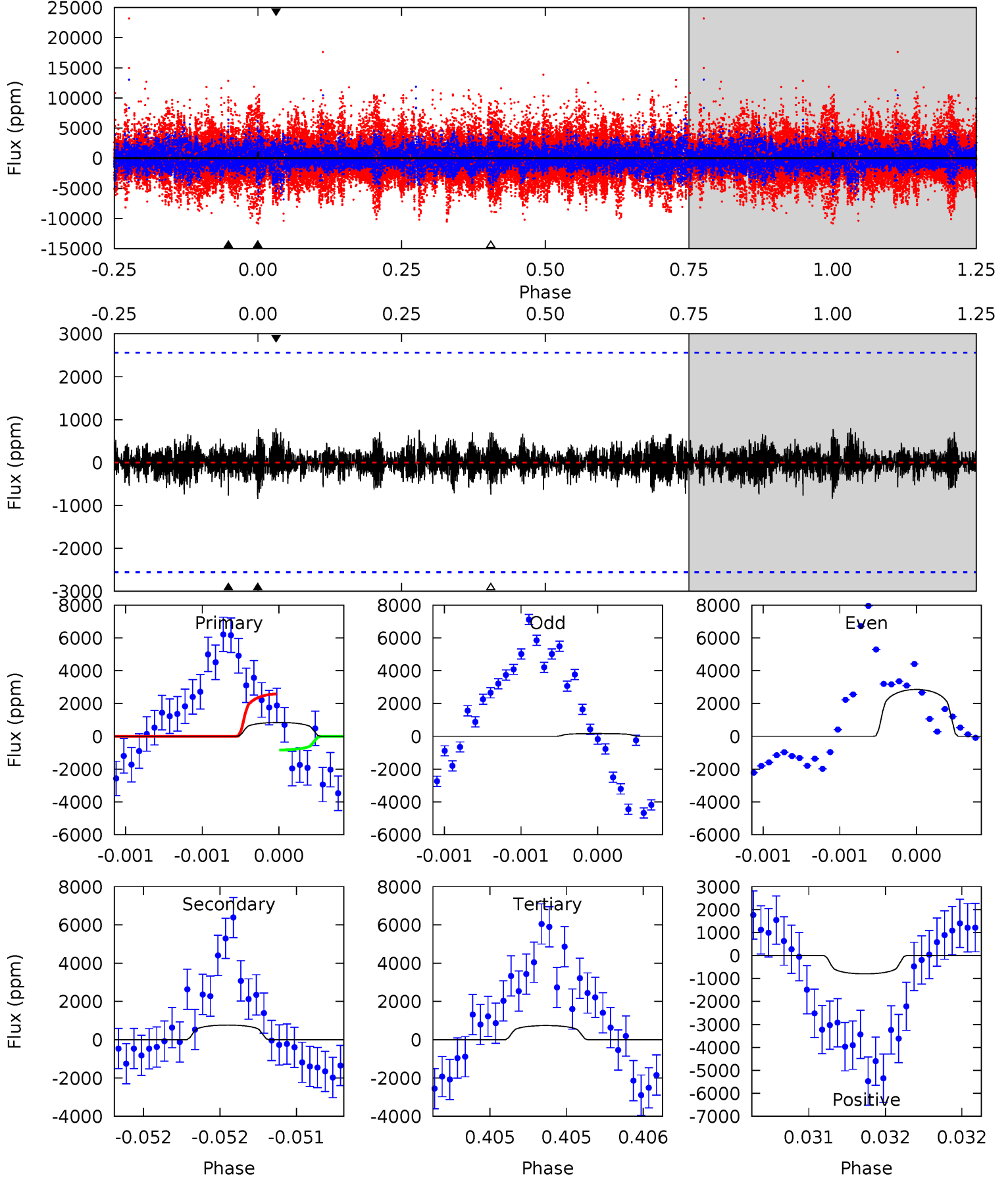
TCE 010535424-01 P=332.138179 Days  $T_0=384.105070$  (BKJD)



# DV Model-Shift Uniqueness Test

010535424-01, P = 332.079896 Days, E = 51.881018 Days

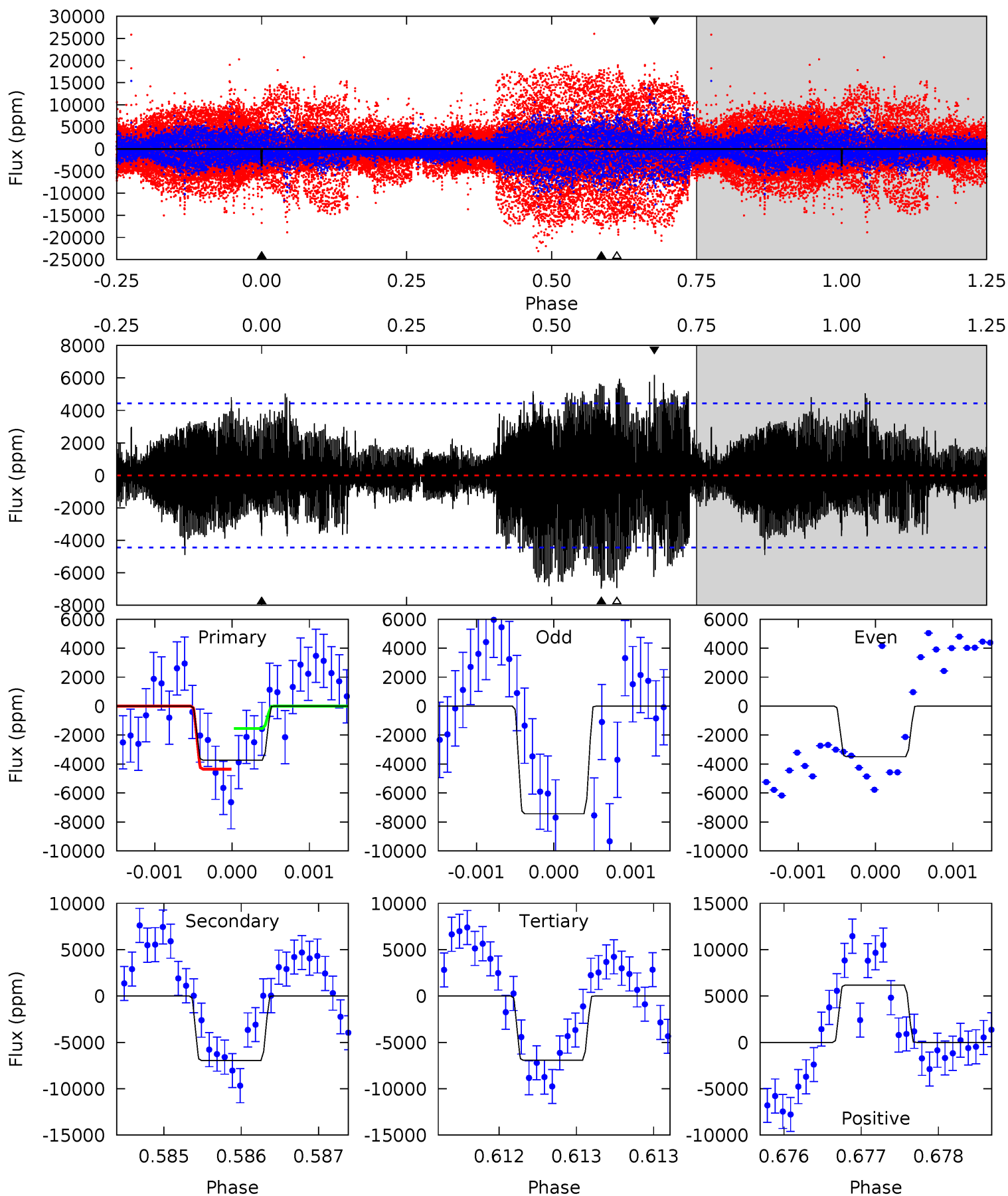
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.81 | 1.66 | 1.60 | 1.72 | 5.52            | 3.39            | 0.49             | 0.21    | 0.09    | 0.05    | -0.07   | 2.70    | 1.30 | 0.49  | 1.89 |



# Alt Model-Shift Uniqueness Test

010535424-01, P = 332.138179 Days, E = 51.966891 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.62 | 8.63 | 8.60 | 7.66 | 5.50            | 3.36            | 2.42             | -3.98   | -3.04   | 0.04    | 0.97    | 2.34    | 1.75 | 0.47  | 1.75 |



### Stellar Parameters For KIC 010535424

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5151^{+180}_{-180}$ | $4.652^{+0.060}_{-0.040}$ | $-1.100^{+0.300}_{-0.300}$ | $0.608^{+0.047}_{-0.047}$ | $0.605^{+0.052}_{-0.026}$ | $3.790^{+0.933}_{-0.517}$                     |
|        | +3%/-3%              | +1%/-1%                   | +27%/-27%                  | +8%/-8%                   | +9%/-4%                   | +25%/-14%                                     |
| Source | KIC0                 | 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 010535424-01 / KOI

| Detrend | Depth (ppm)     | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)   | $A_{\text{obs}}$             |
|---------|-----------------|------------------------|----------------------|------------------------|------------------------------|
| DV      | $-767 \pm 463$  | $3.07^{+2.11}_{-1.78}$ | $276^{+11}_{-11}$    | $4061^{+1824}_{-812}$  | $24217^{+124218}_{-18130}$   |
| Alt.    | $-6967 \pm 807$ | $3.76^{+2.36}_{-2.07}$ | $277^{+10}_{-11}$    | $6183^{+3828}_{-1251}$ | $173150^{+668744}_{-108382}$ |

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

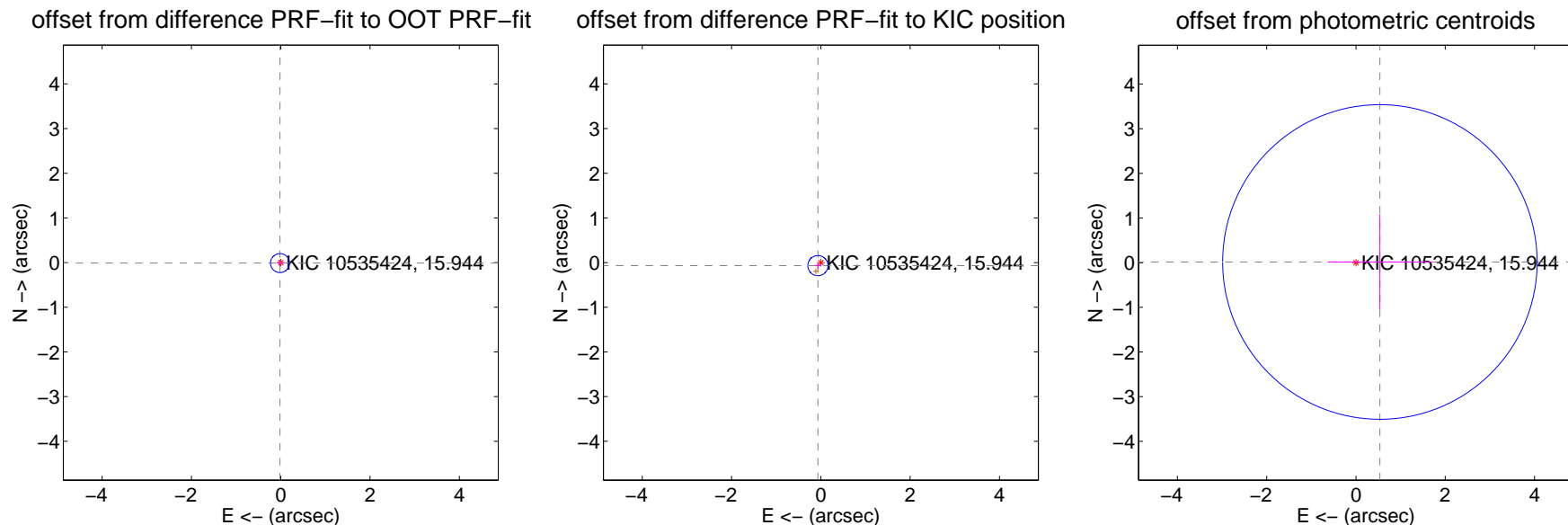
## DV Centroid Data

Supplemental centroid analysis for 010535424-01. Kepler magnitude: 15.94. Transit SNR 2.89

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.020 \pm 0.071$  | 0.29                | $0.017 \pm 0.071$ | $-0.011 \pm 0.071$ |
| PRF-fit source offset from KIC position | $0.095 \pm 0.075$  | 1.26                | $0.066 \pm 0.068$ | $-0.068 \pm 0.076$ |
| photometric centroid source offset      | $0.54 \pm 1.17$    | 0.46                | $-0.54 \pm 1.17$  | $0.02 \pm 1.07$    |

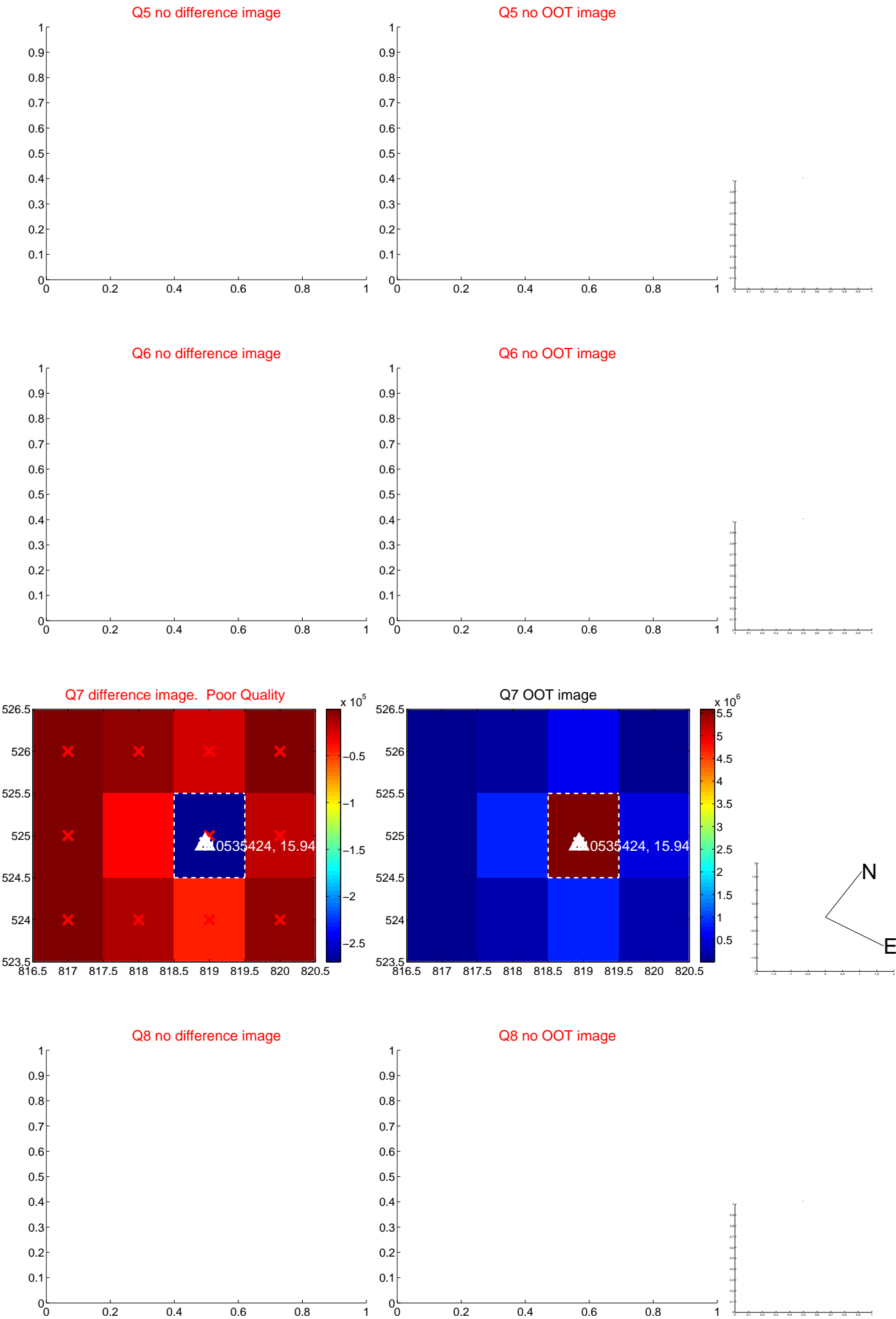


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

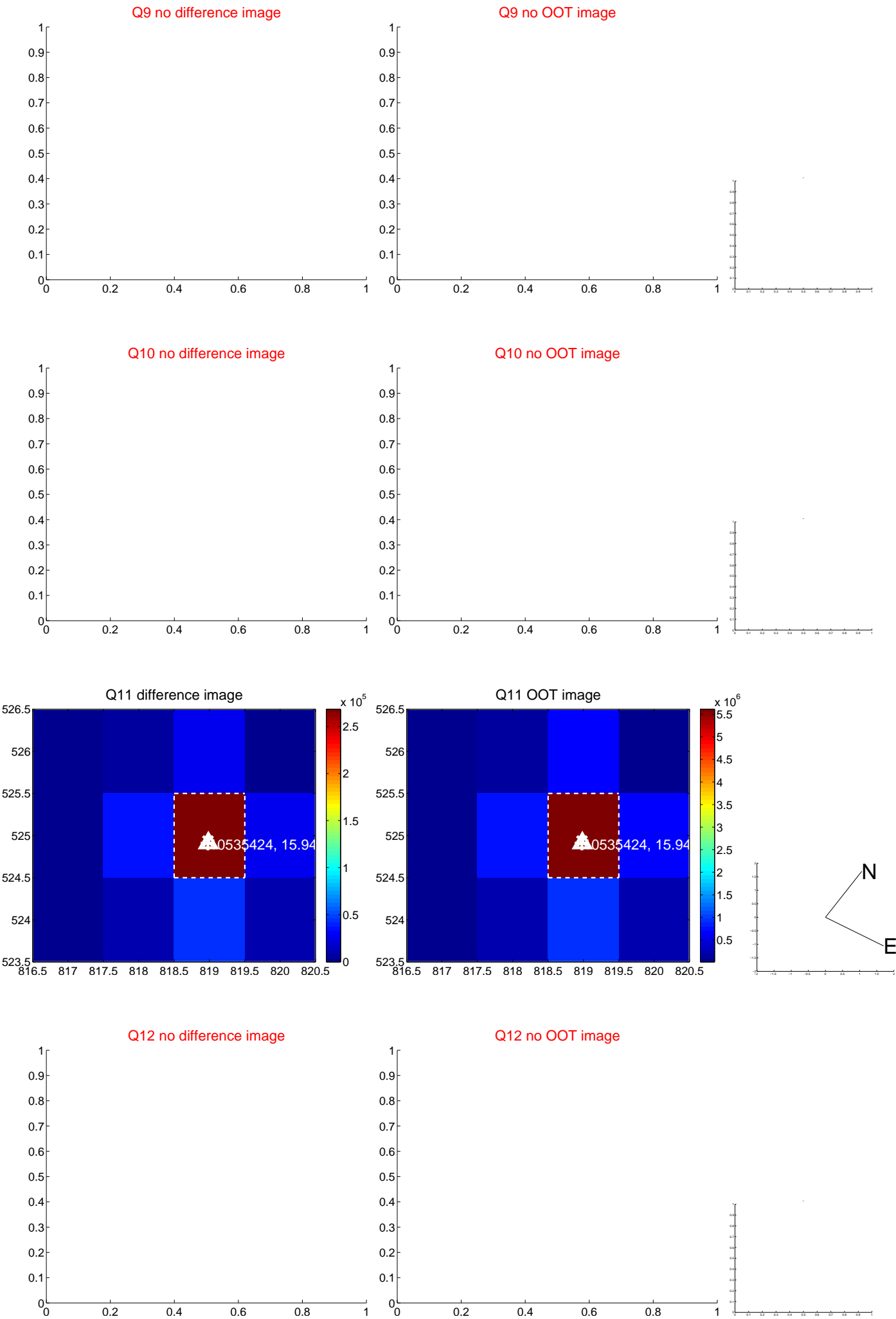


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

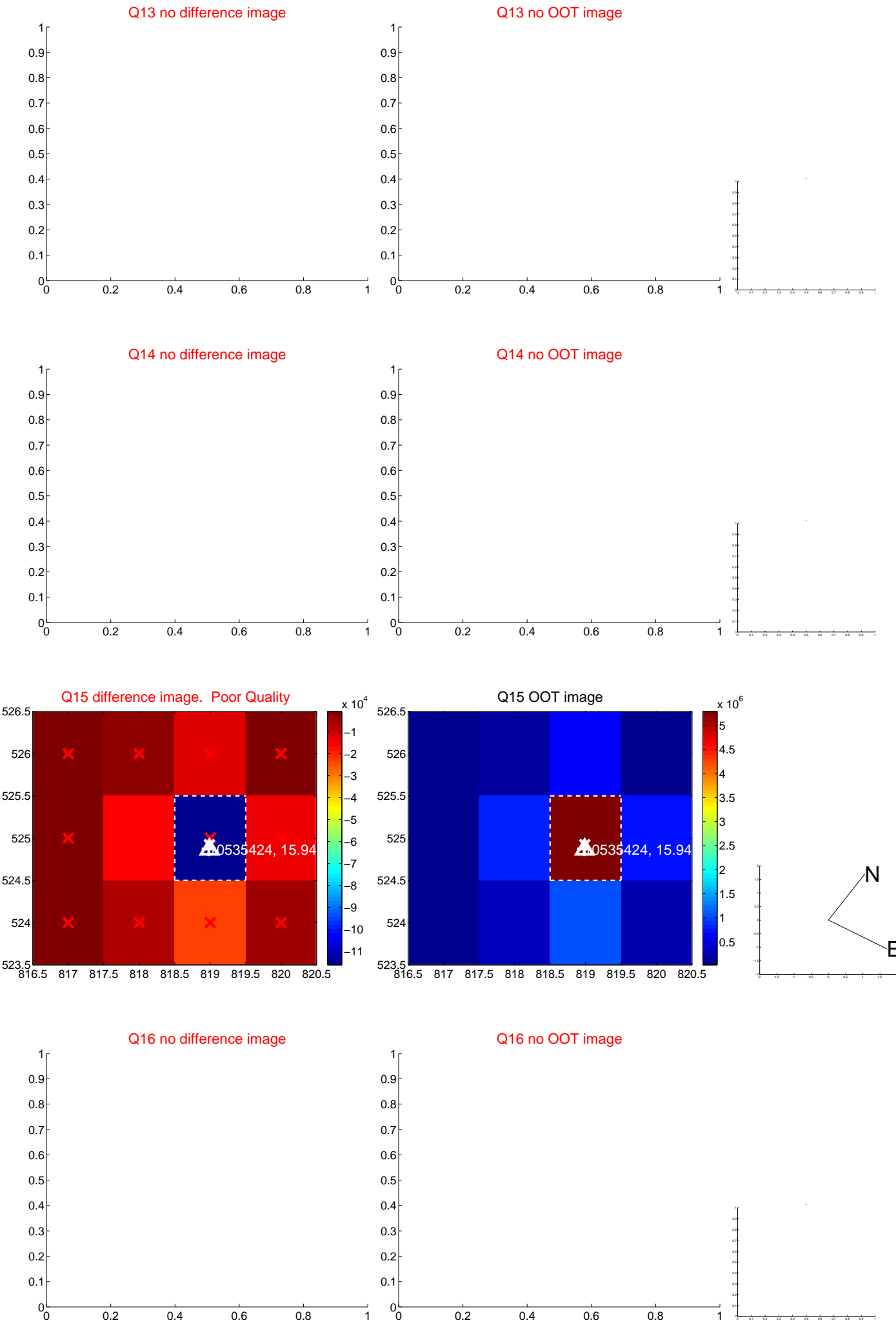




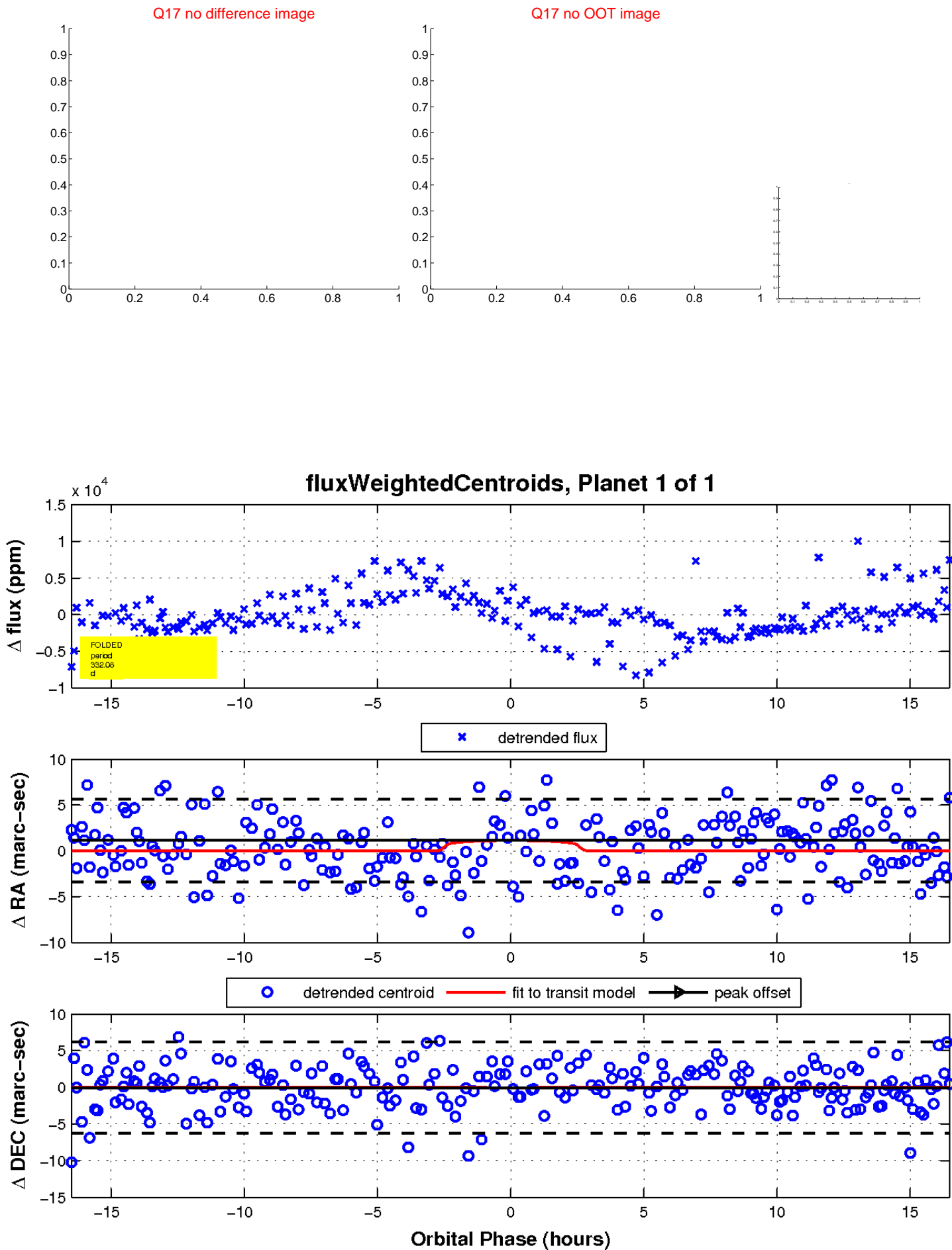
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

