

# KIC 009472074

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009472074-01 | OBS      | 2735.01 | 0.558842      | 131.580390   | 269.7       | 0.881            | 21.3 | 26.9 | 0.79                        | 5151            | 1.61                   | 2416.71                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 009472074-01 | 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 009472074-01

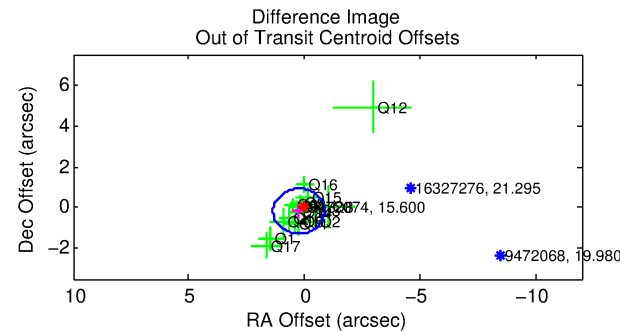
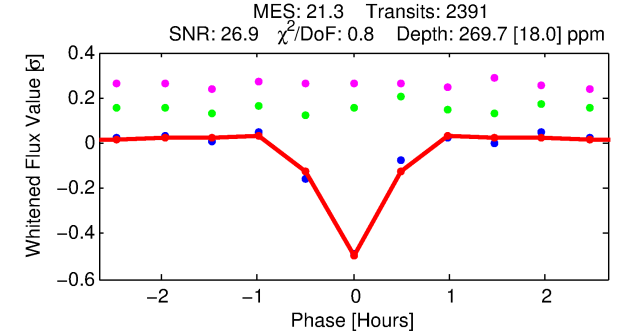
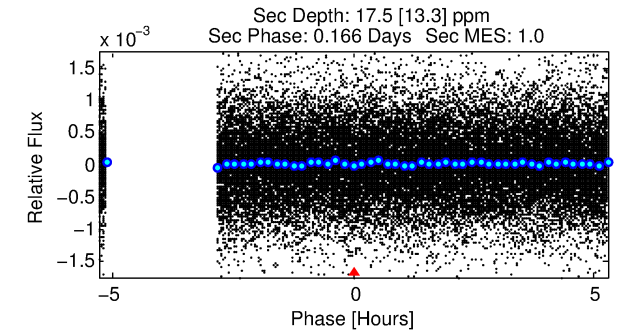
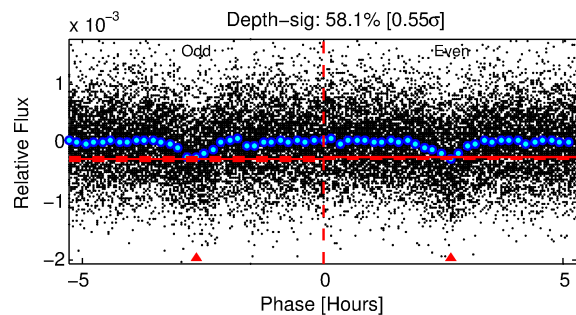
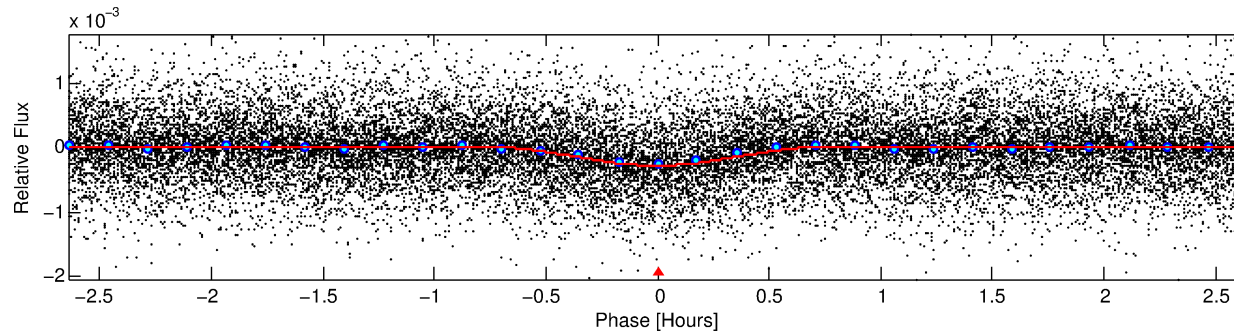
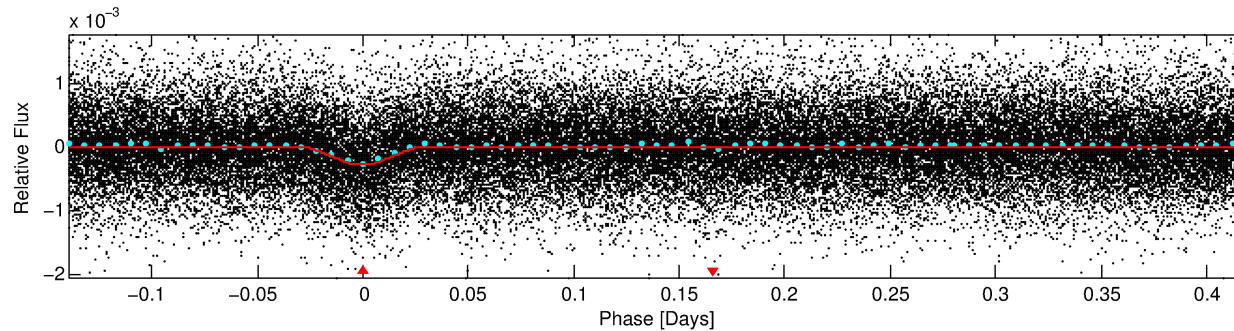
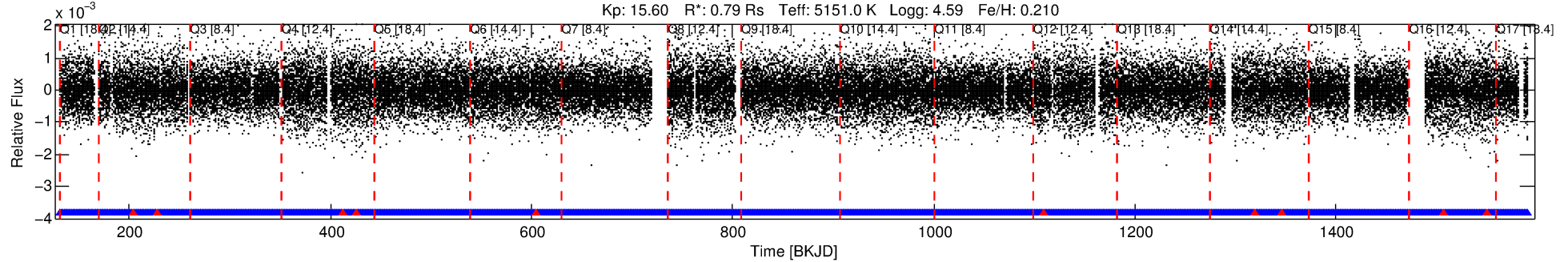
No Significant Match Found

# DV One-Page Summary

KIC: 9472074 Candidate: 1 of 1 Period: 0.559 d

KOI: K02735.01 Corr: 0.933

Kp: 15.60 R\*: 0.79 Rs Teff: 5151.0 K Logg: 4.59 Fe/H: 0.210



## DV Fit Results:

Period = 0.55884 [0.00000] d  
Epoch = 131.5804 [0.0006] BKJD  
Rp/R\* = 0.0186 [0.0065]  
a/R\* = 2.48 [2.88]  
b = 0.90 [0.30]  
Seff = 2416.71 [522.70]  
Teq = 1788 [97] K  
Rp = 1.61 [0.60] Re  
a = 0.0128 [0.0015] AU  
Ag = 0.61 [0.64] [-0.61σ]  
Teffp = 2442 [632] K [1.02σ]

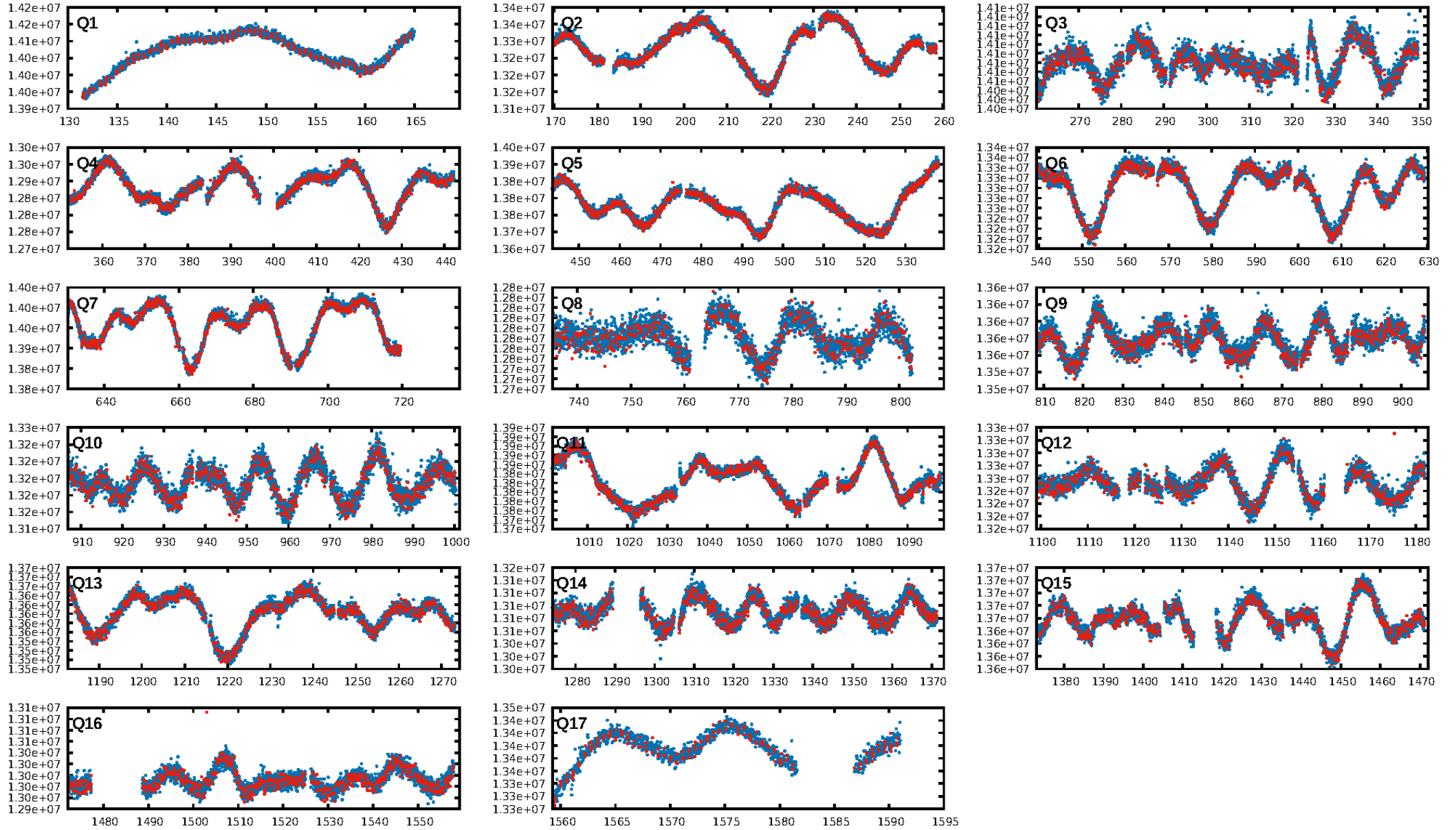
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.06e-90  
RollingBand-fgt: 1.00 [2273/2283]  
GhostDiagnostic-chr: 2.724  
Centroid-sig: 31.0%  
Centroid-so: 0.436 arcsec [0.98σ]  
OotOffset-rm: 0.309 arcsec [0.84σ]  
KicOffset-rm: 0.253 arcsec [1.48σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 1.00 [17/17]

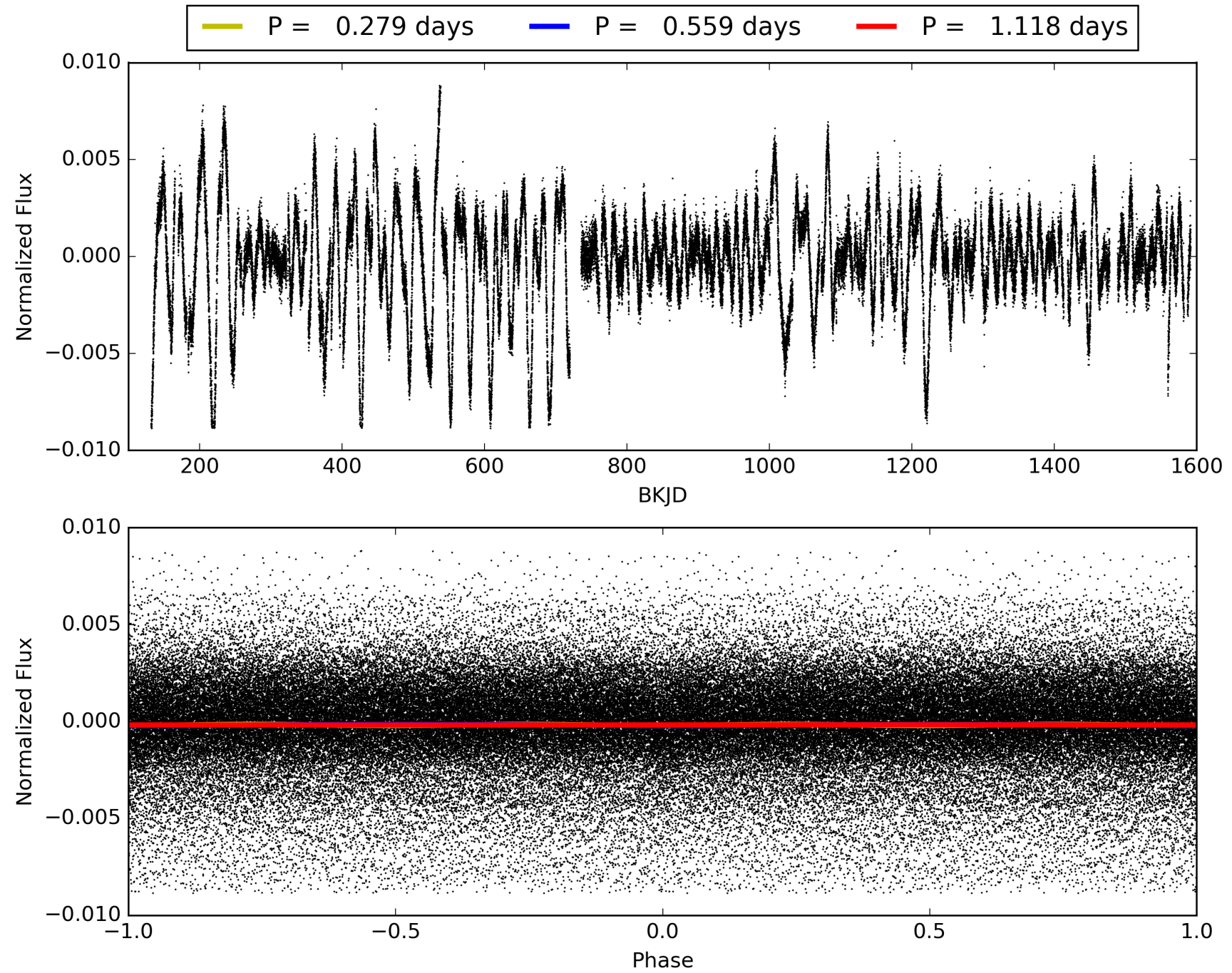
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 15:53:26 Z

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

# TCE 009472074-01, PDC Light Curves

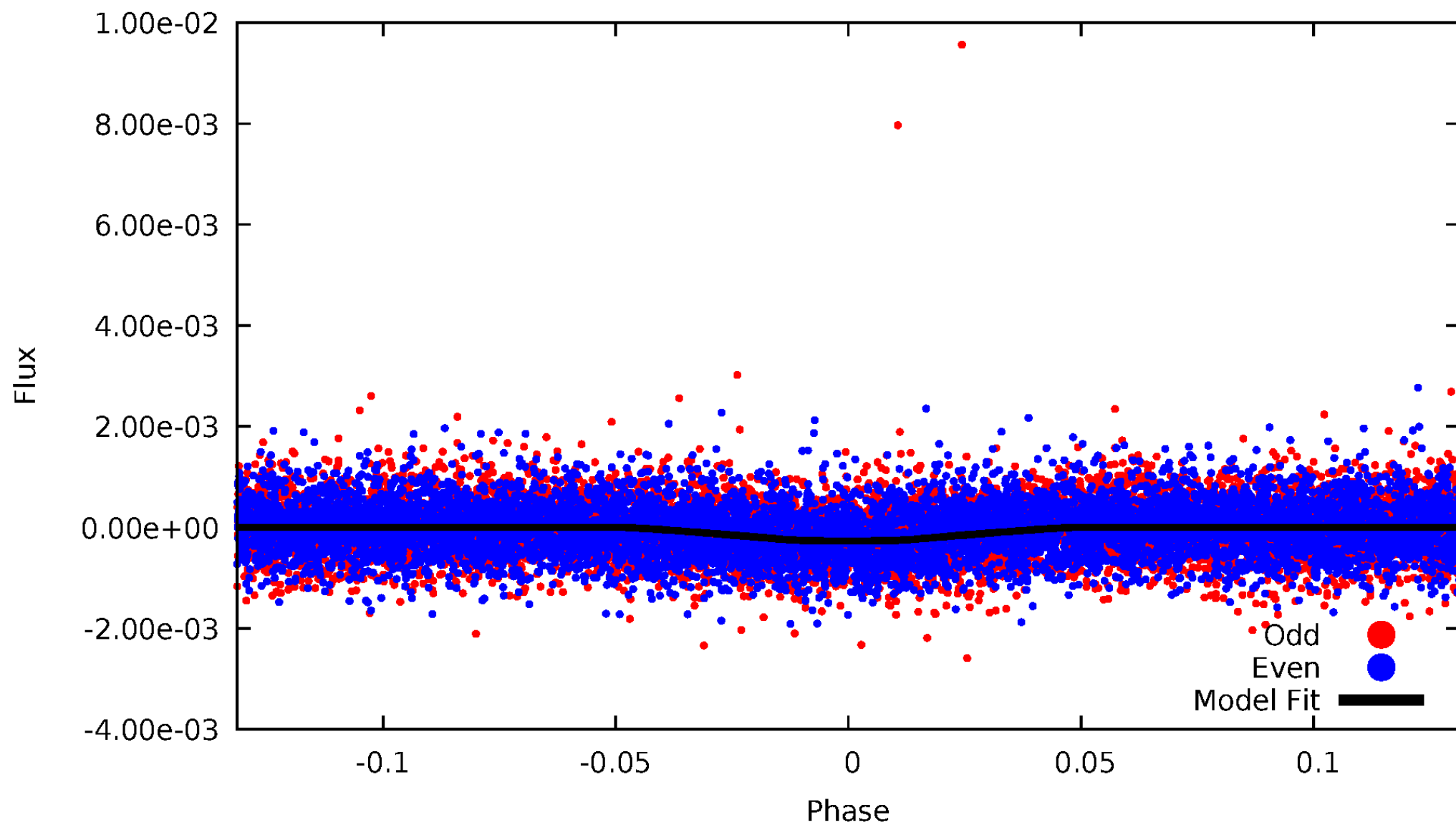


TCE 009472074-01



# DV Odd/Even

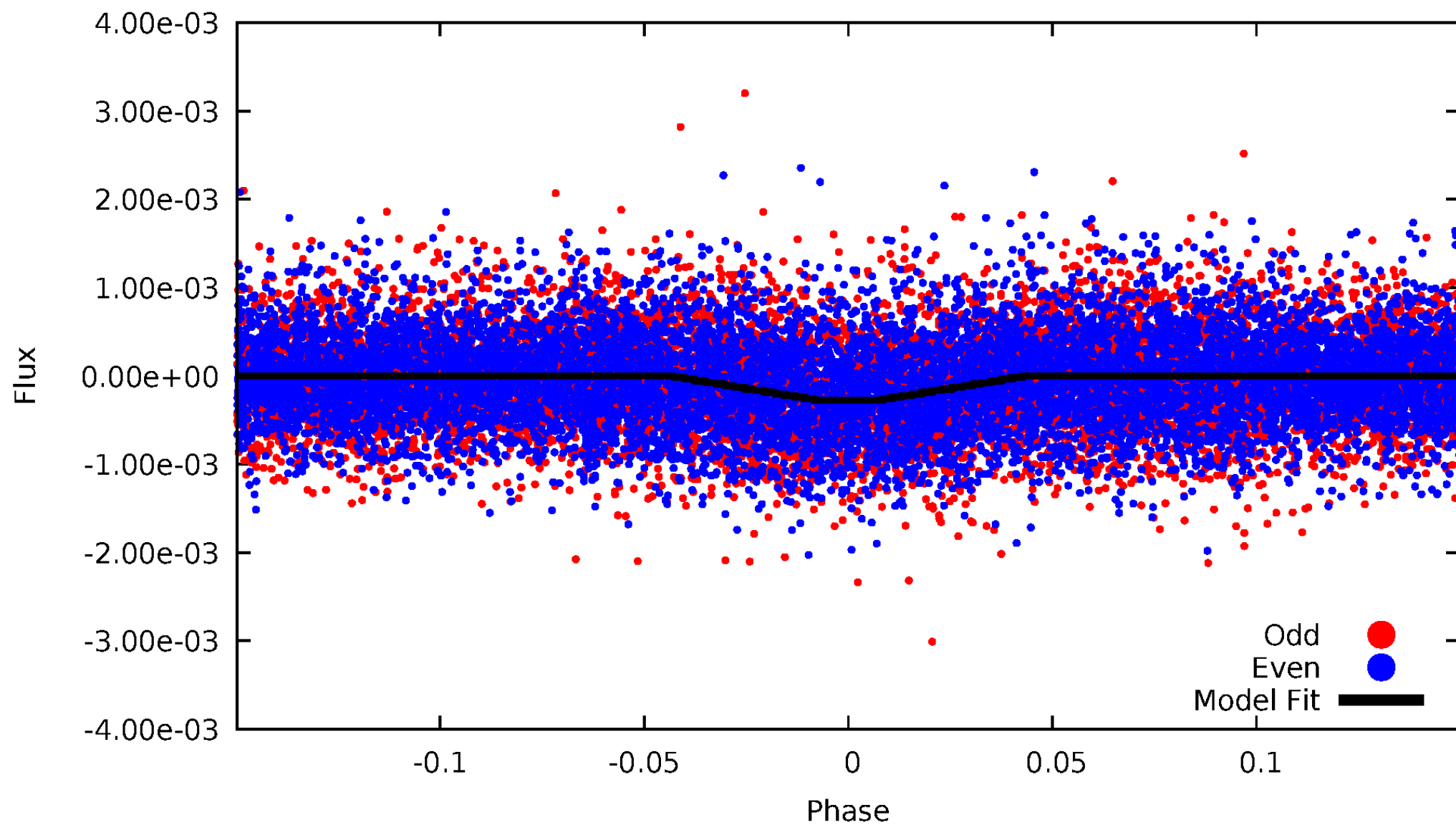
TCE 009472074-01



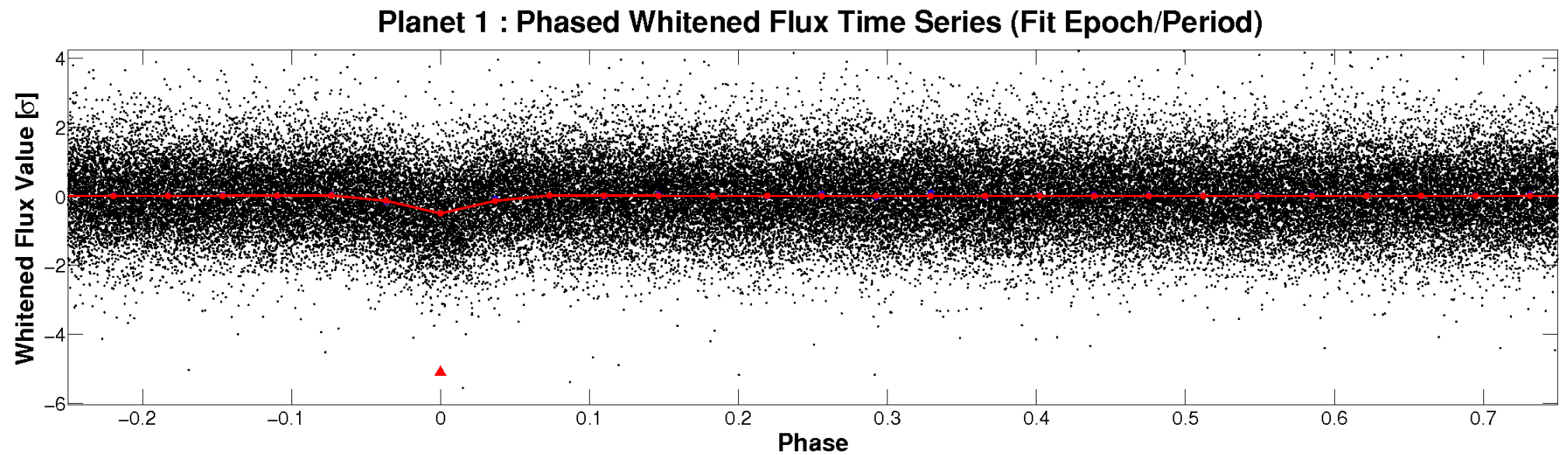
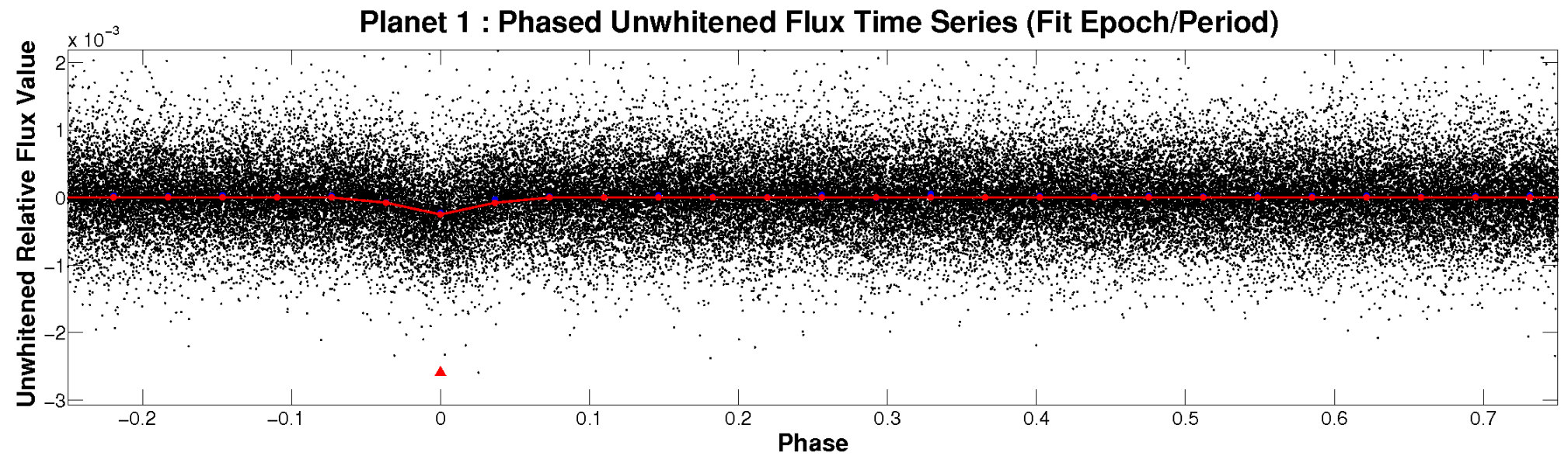


# ALT Odd/Even

TCE 009472074-01

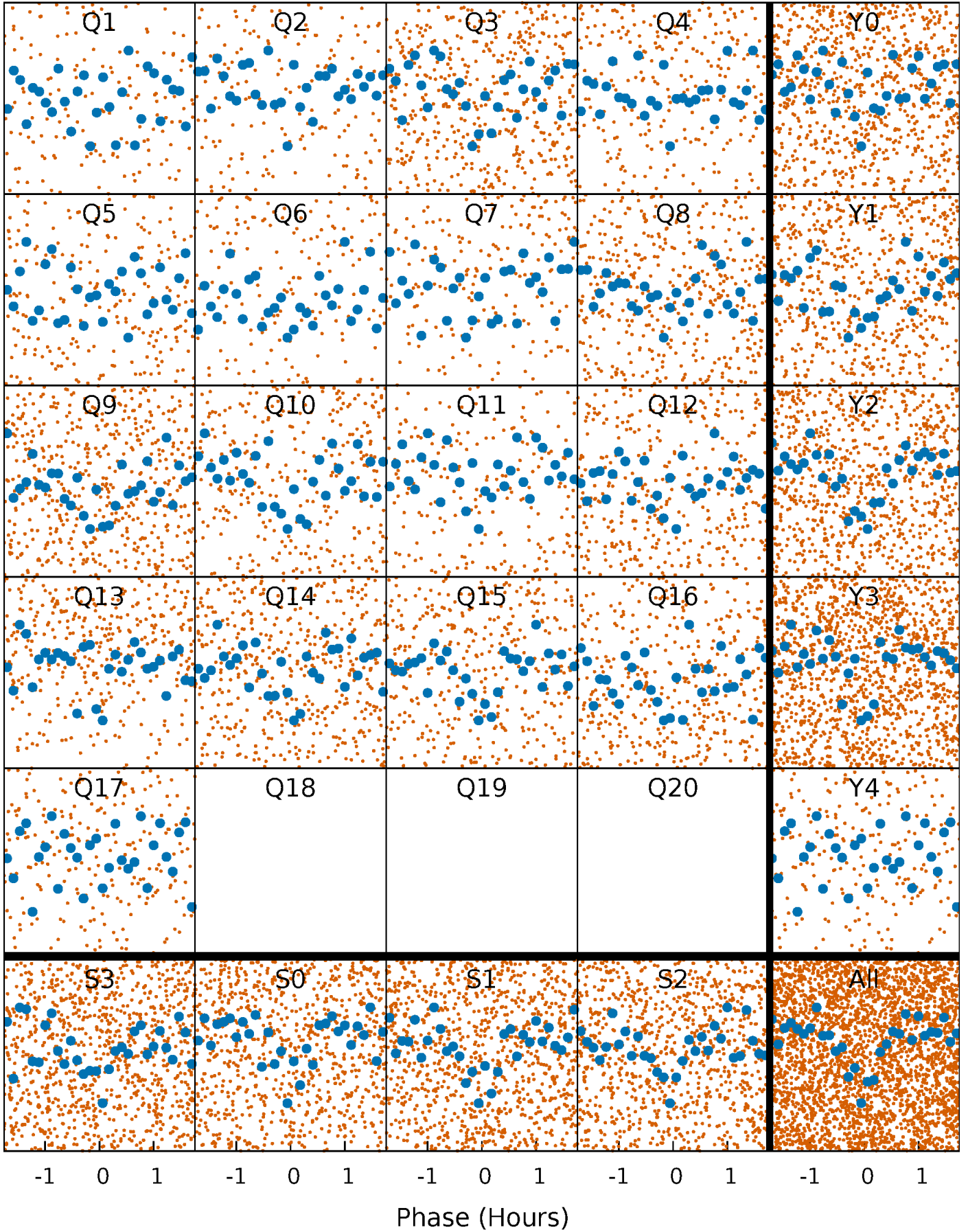


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

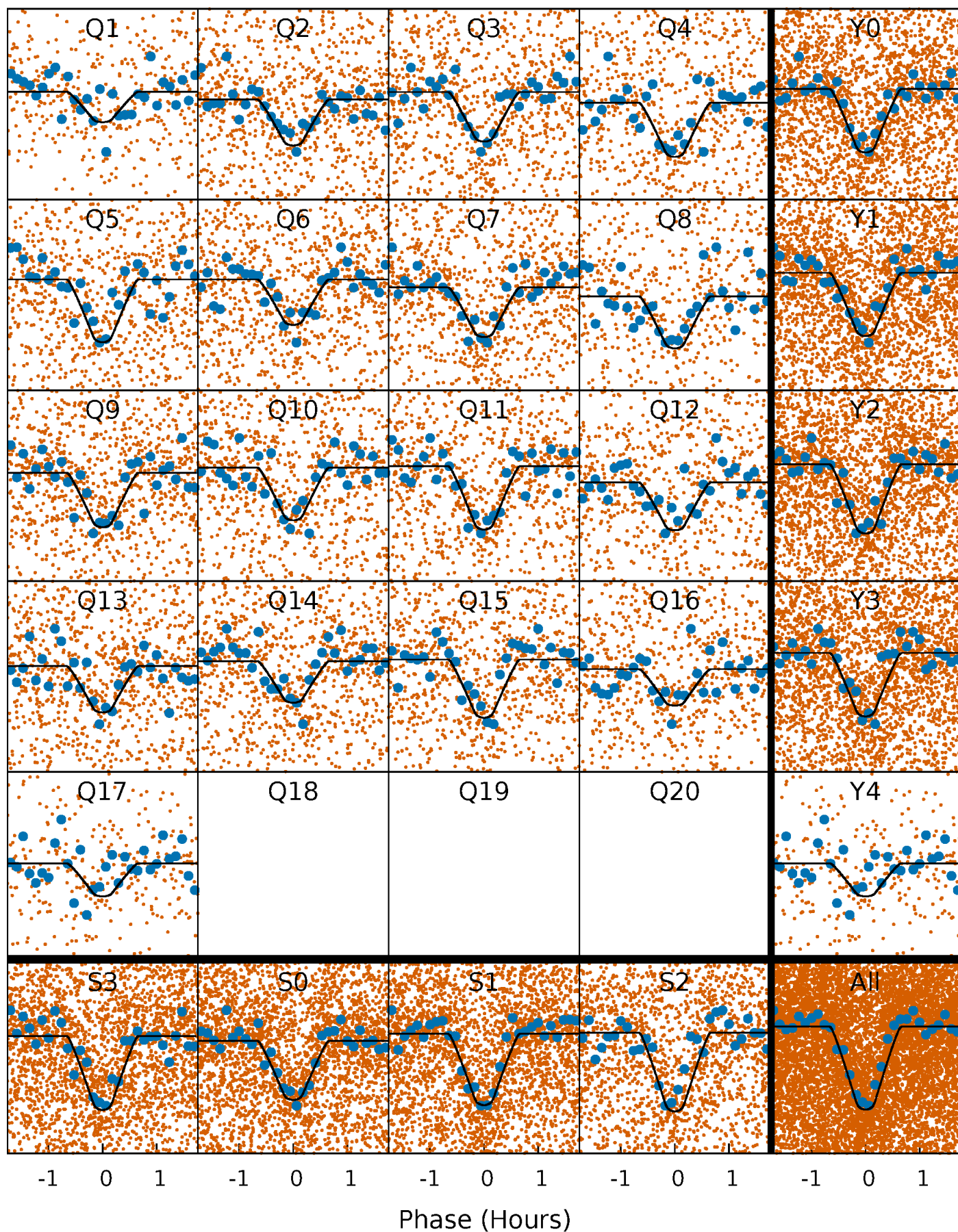
TCE 009472074-01 P= 0.558842 Days  $T_0=131.580390$  (BKJD)





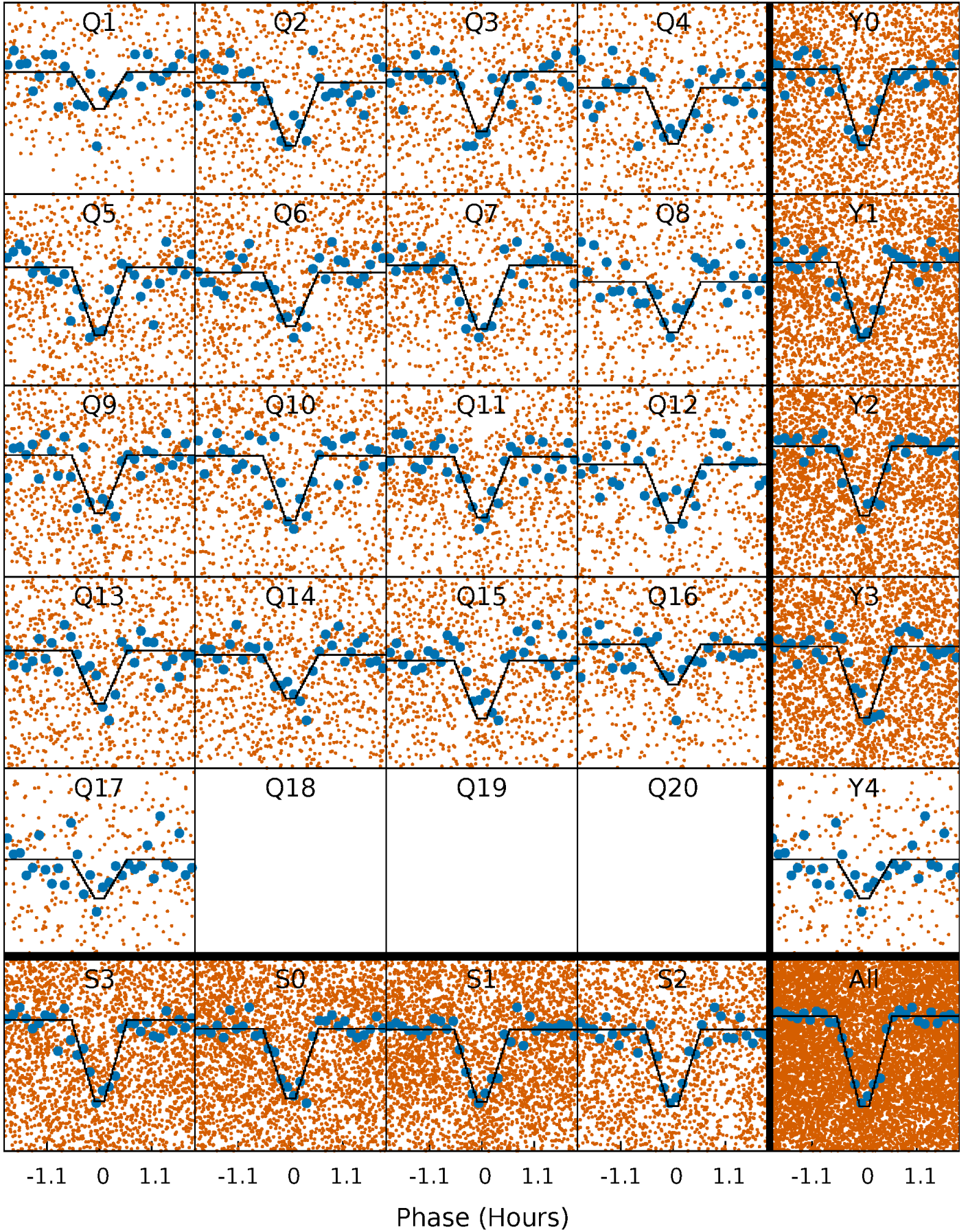
# DV Quarter-Phased Transit Curves

TCE 009472074-01   P= 0.558842 Days    $T_0=131.580390$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009472074-01 P= 0.558837 Days  $T_0=131.585285$  (BKJD)

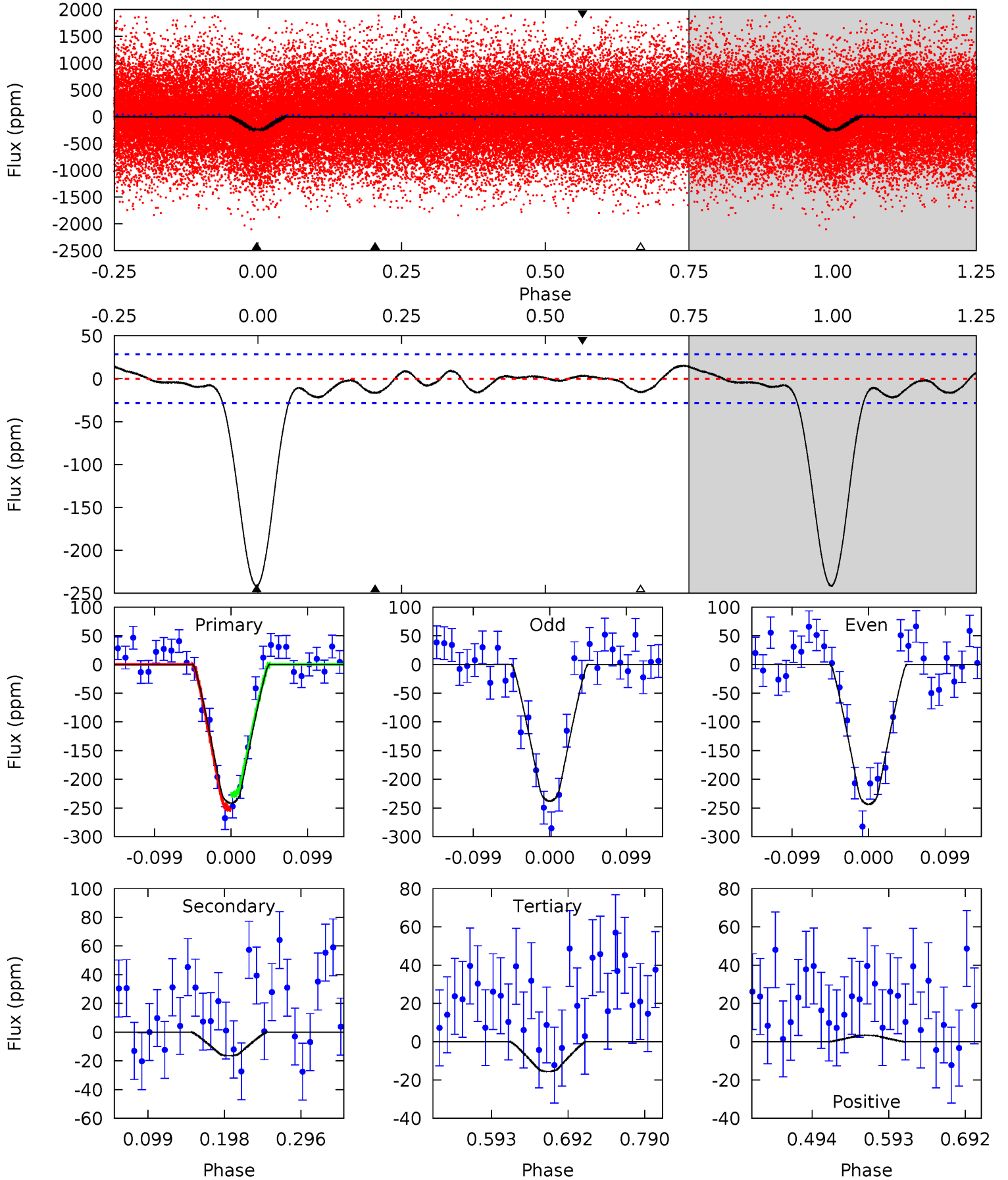




# DV Model-Shift Uniqueness Test

009472074-01, P = 0.558842 Days, E = 131.021548 Days

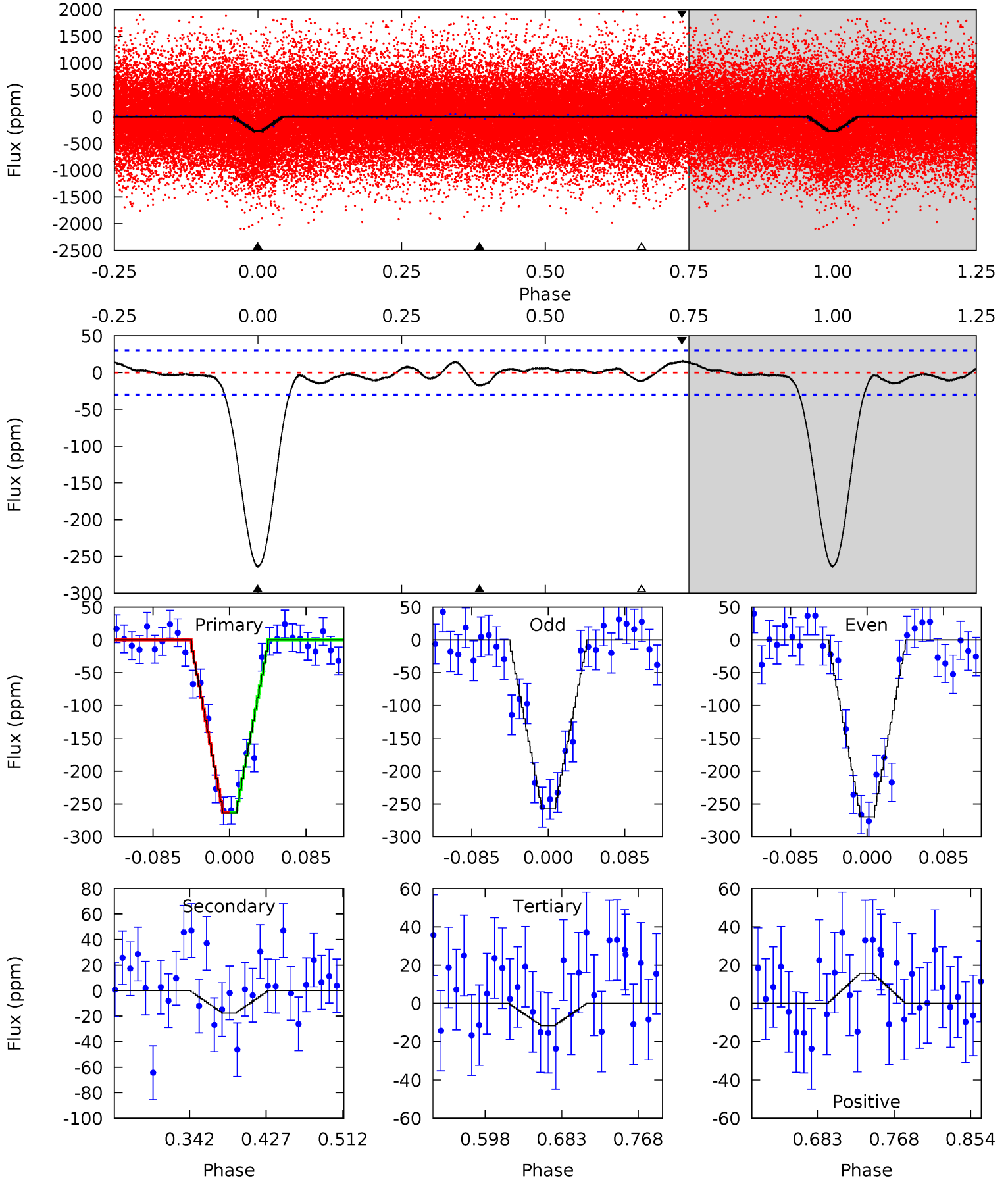
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 38.9 | 2.65 | 2.50 | 0.54 | 4.57            | 1.65            | 1.23             | 36.4    | 38.3    | 0.15    | 2.10    | 0.46    | 0.90 | 0.06  | 1.96 |



# Alt Model-Shift Uniqueness Test

009472074-01, P = 0.558837 Days, E = 131.026448 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 40.9 | 2.73 | 1.80 | 2.43 | 4.60            | 1.72            | 1.07             | 39.1    | 38.4    | 0.93    | 0.30    | 0.97    | 0.94 | 0.06  | 0.01 |





### Stellar Parameters For KIC 009472074

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $5151^{+154}_{-138}$ | $4.592^{+0.024}_{-0.102}$ | $0.210^{+0.200}_{-0.300}$ | $0.792^{+0.106}_{-0.053}$ | $0.903^{+0.046}_{-0.092}$ | $2.557^{+0.332}_{-0.786}$                 |
|        | +3%/-3%              | +1%/-2%                   | +95%/-143%                | +13%/-7%                  | +5%/-10%                  | +13%/-31%                                 |
| 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 009472074-01 / KOI 2735.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$       | $T_{obs} (K)$         | $A_{obs}$                 |
|---------|-------------|------------------------|---------------------|-----------------------|---------------------------|
| DV      | $-16 \pm 6$ | $1.69^{+0.56}_{-0.61}$ | $2535^{+101}_{-88}$ | $2667^{+619}_{-4982}$ | $0.508^{+0.762}_{-0.274}$ |
| Alt.    | $-18 \pm 6$ | $1.48^{+0.58}_{-0.56}$ | $2543^{+99}_{-94}$  | $2940^{+663}_{-817}$  | $0.729^{+1.267}_{-0.399}$ |

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

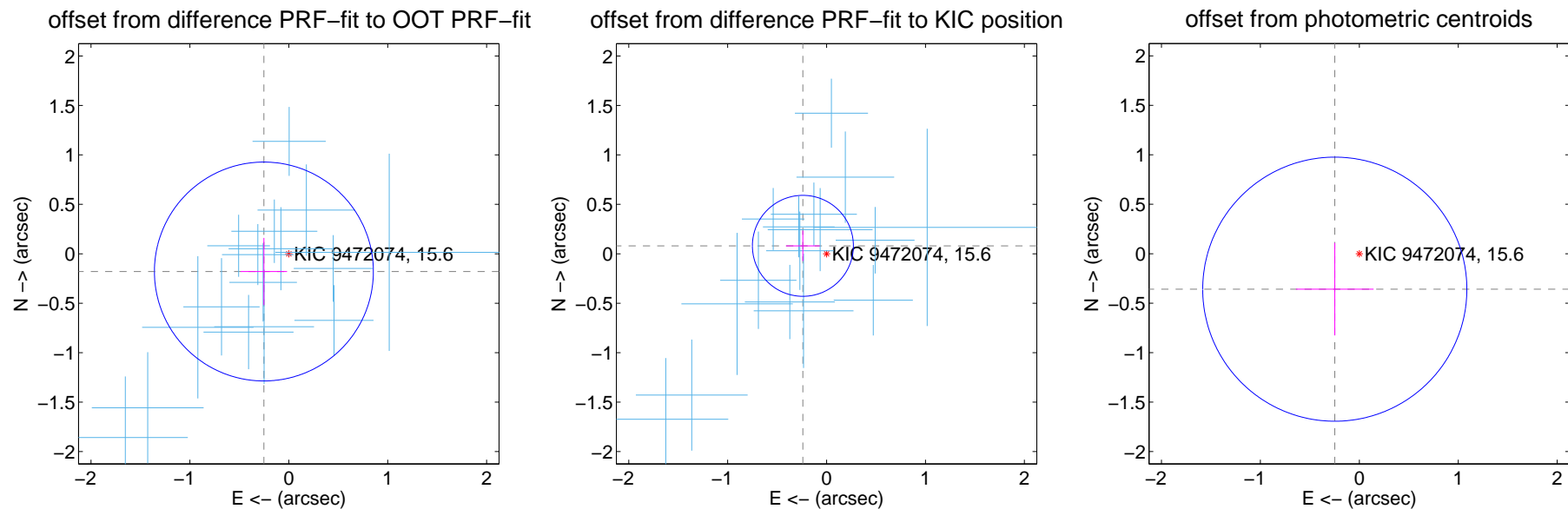
## DV Centroid Data

Supplemental centroid analysis for 009472074-01. Kepler magnitude: 15.60. Transit SNR 26.92

There are 16 quarters with good PRF difference image offsets

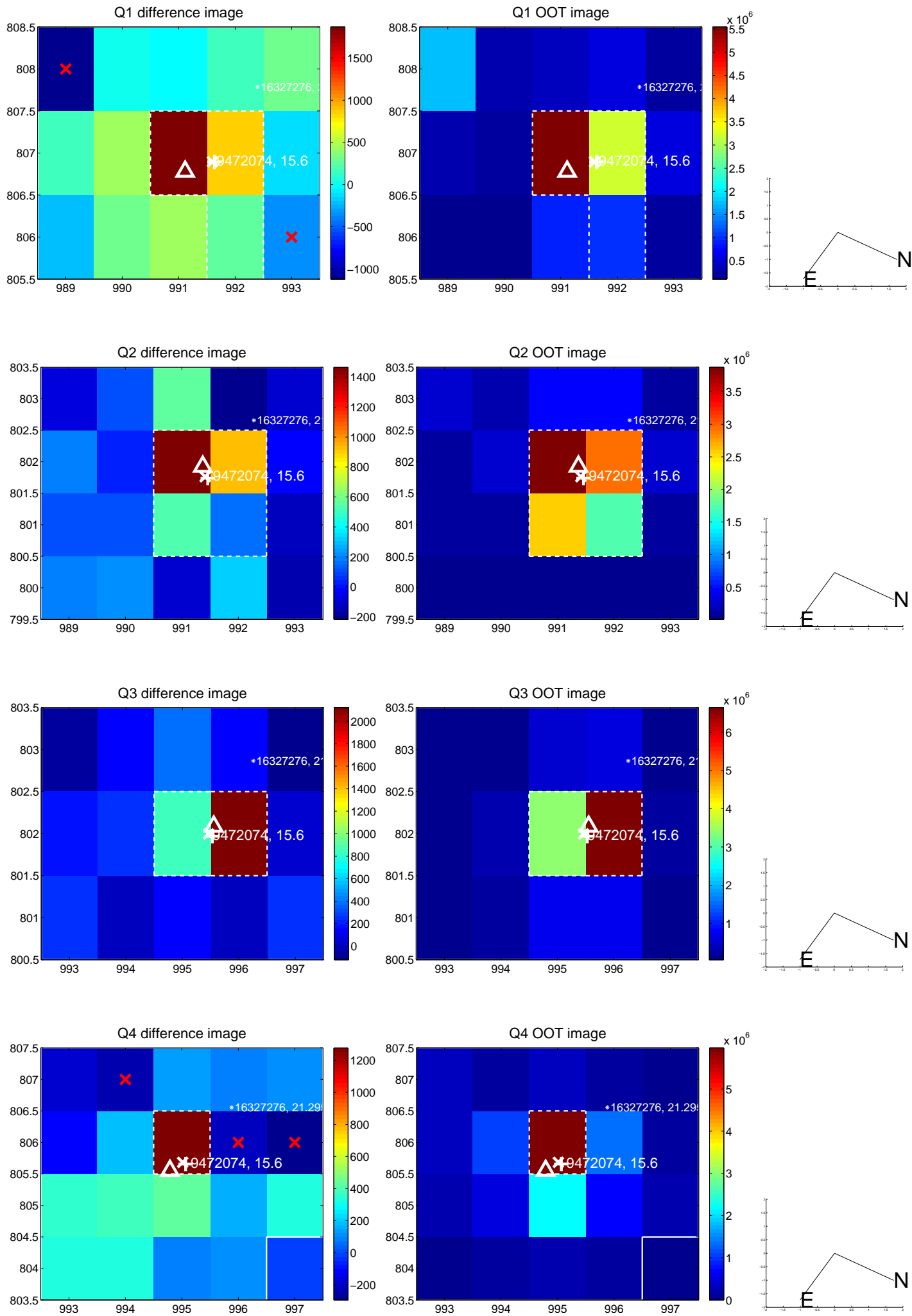
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|-----------------------------------------|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.309 \pm 0.369$  | 0.84                | $0.252 \pm 0.234$ | $-0.179 \pm 0.339$ |
| PRF-fit source offset from KIC position | $0.253 \pm 0.170$  | 1.48                | $0.239 \pm 0.172$ | $0.080 \pm 0.154$  |
| photometric centroid source offset      | $0.44 \pm 0.44$    | 0.98                | $0.25 \pm 0.39$   | $-0.36 \pm 0.47$   |

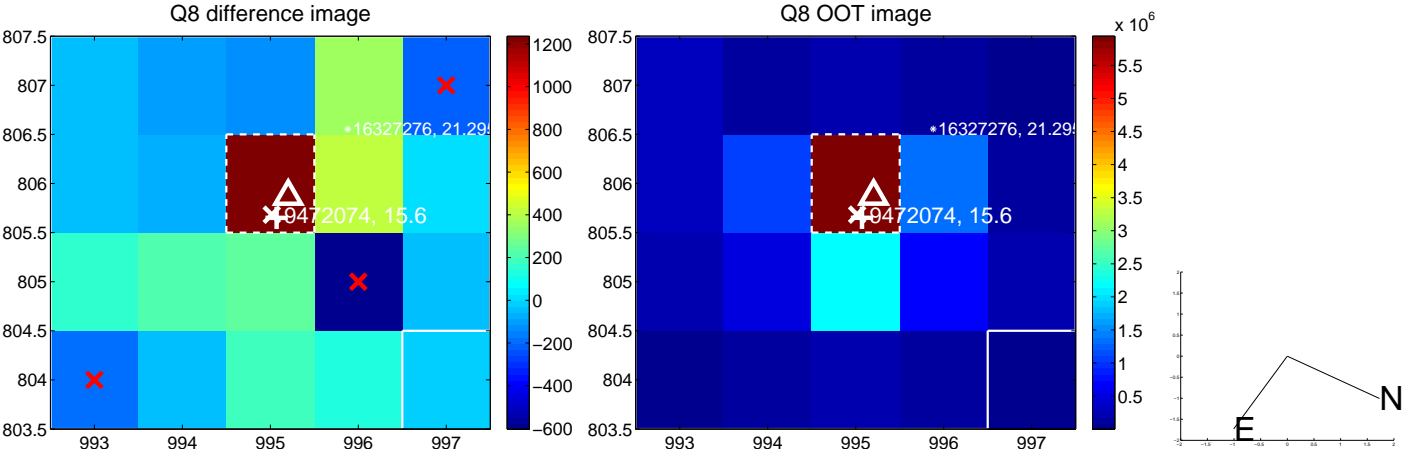
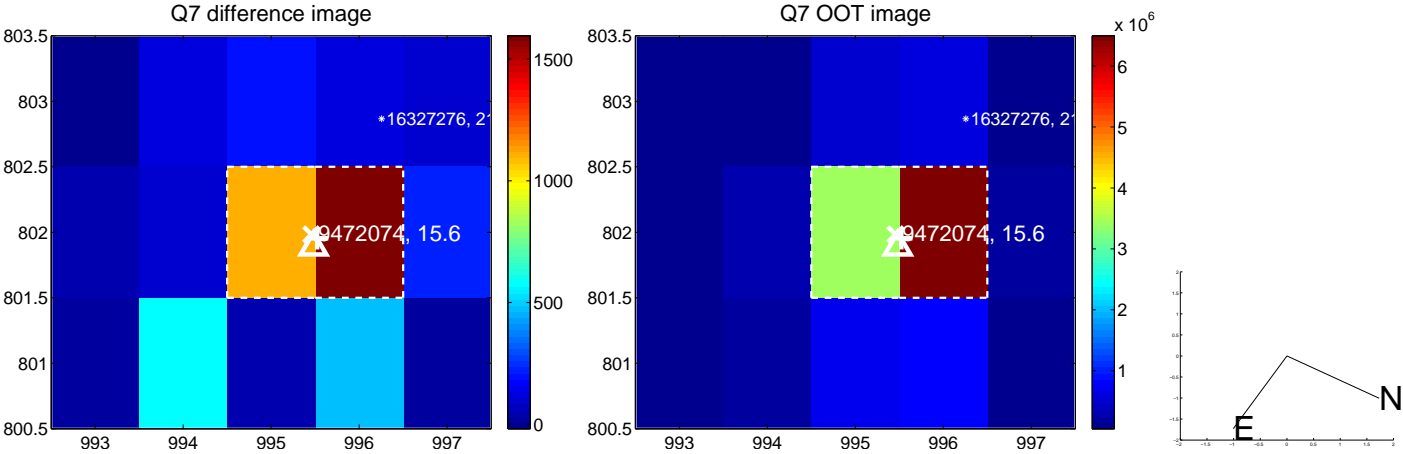
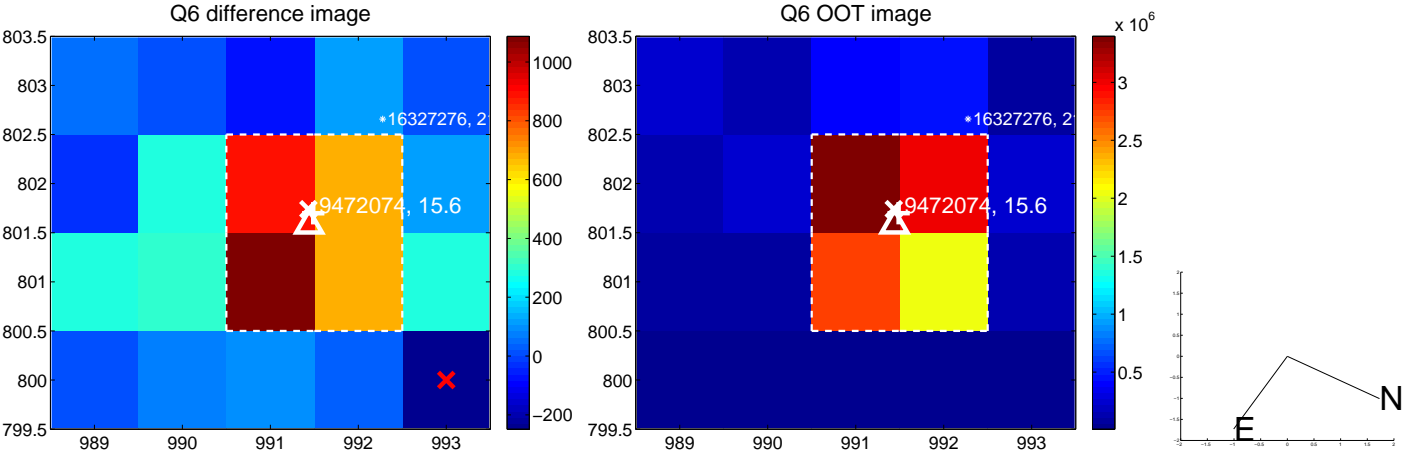
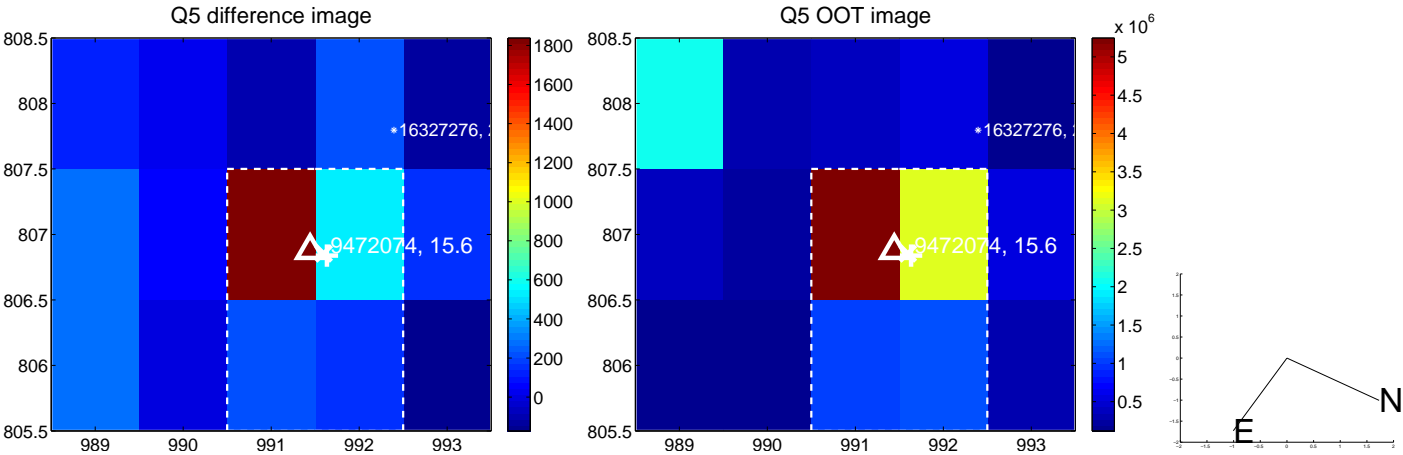


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

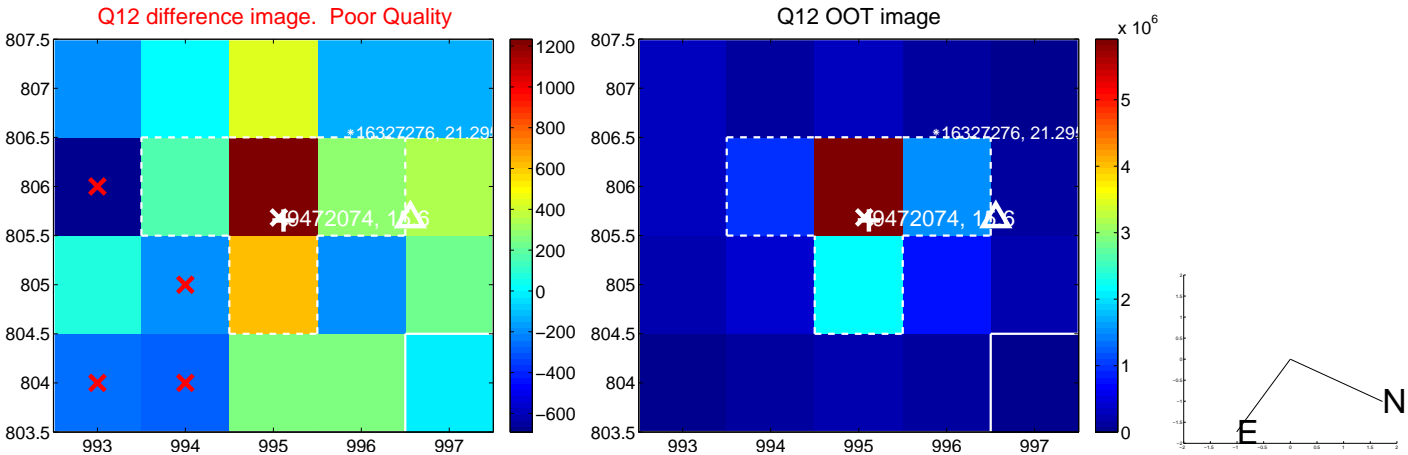
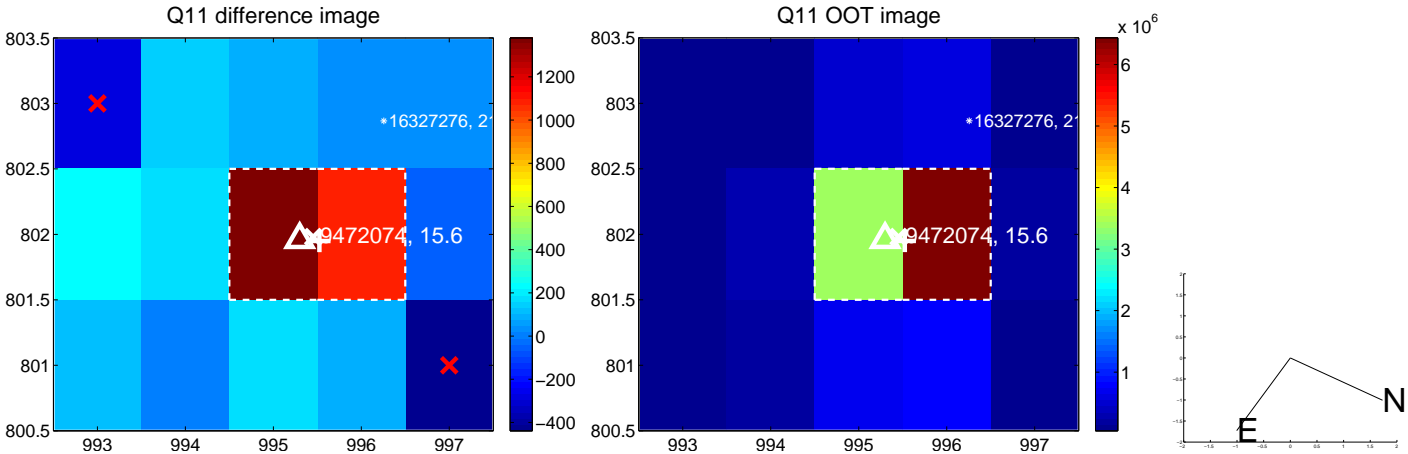
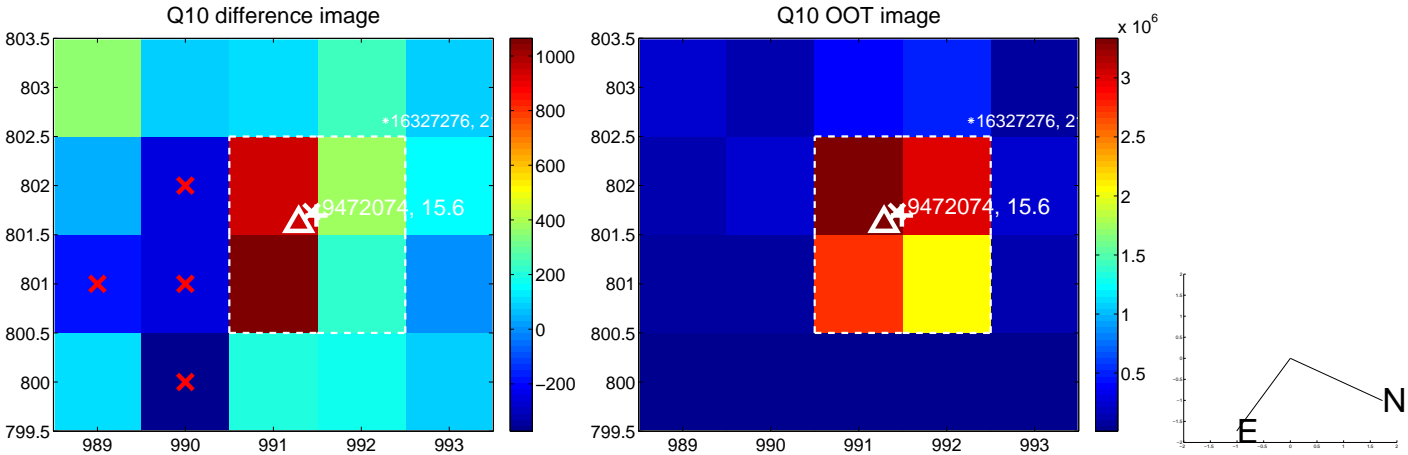
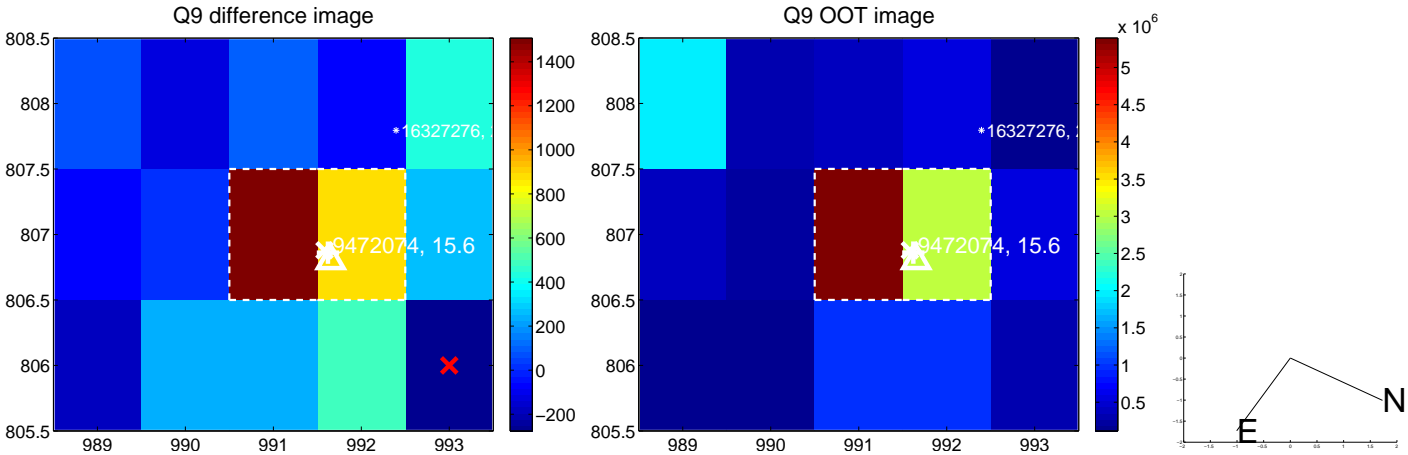


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

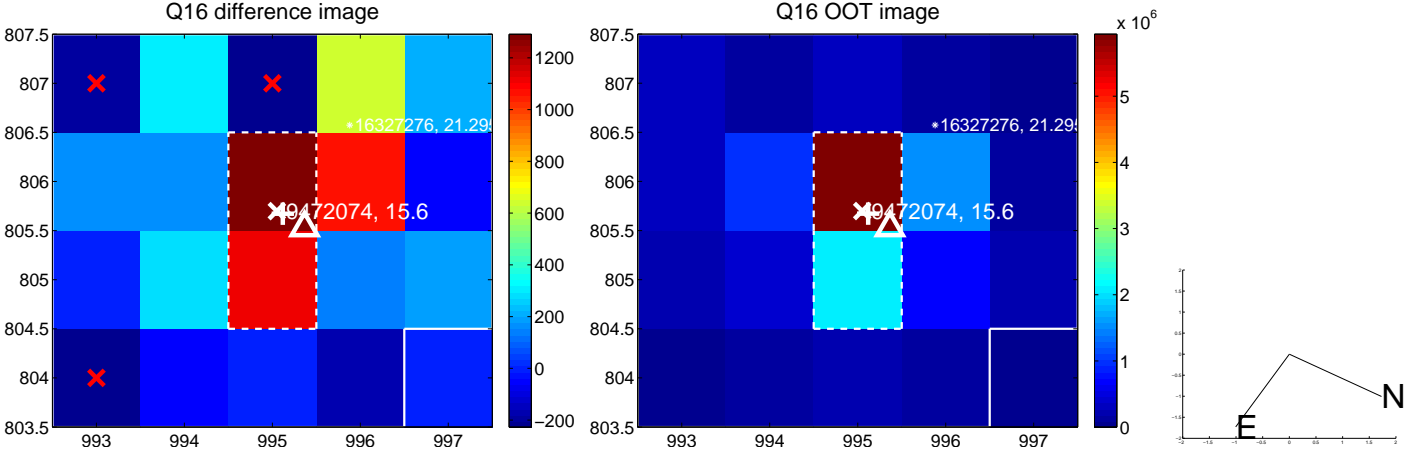
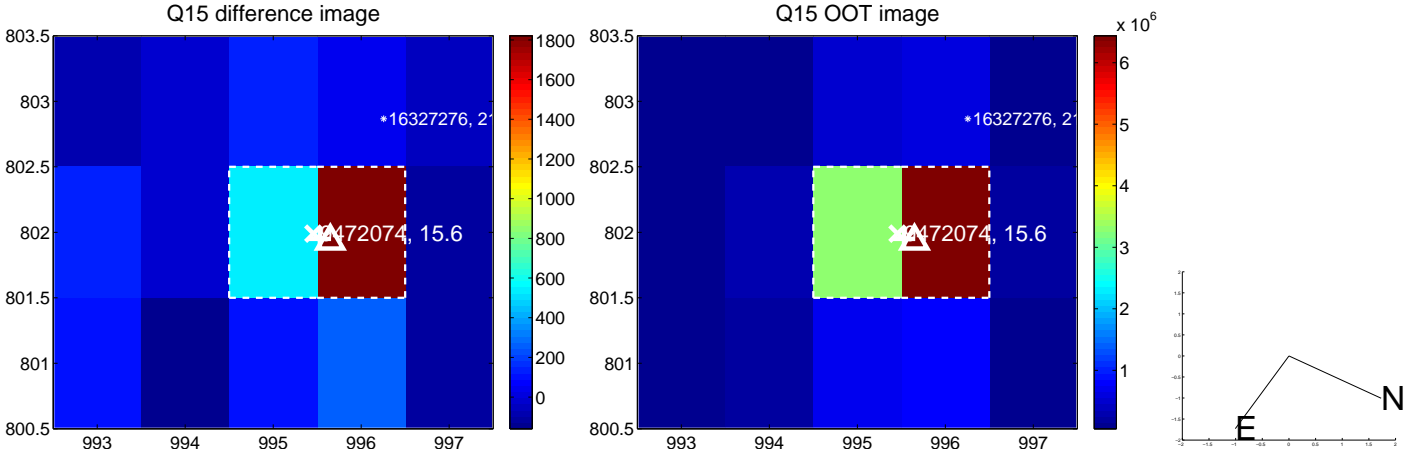
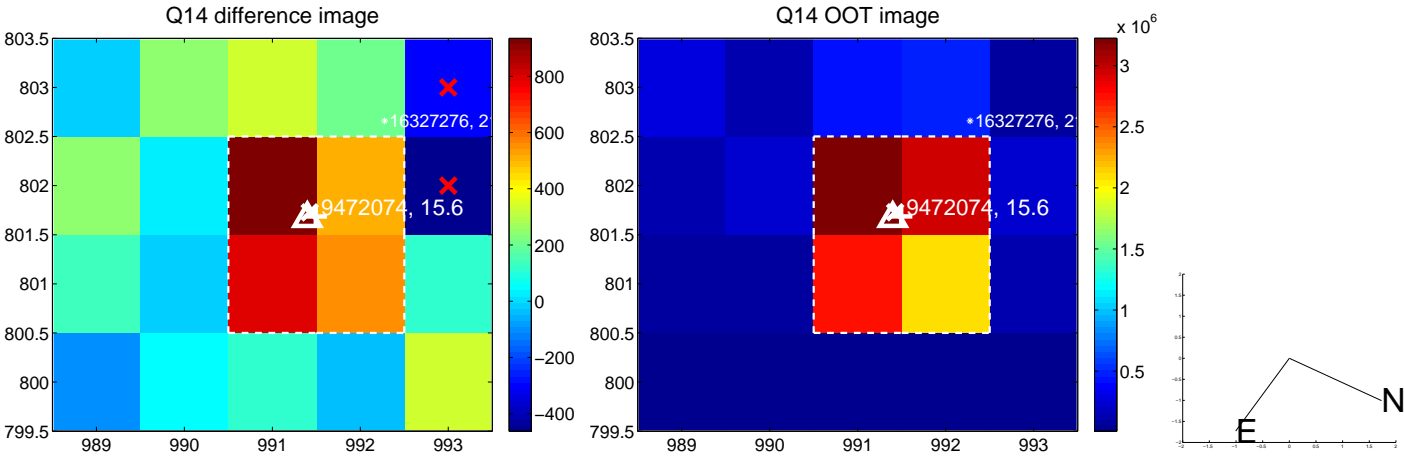
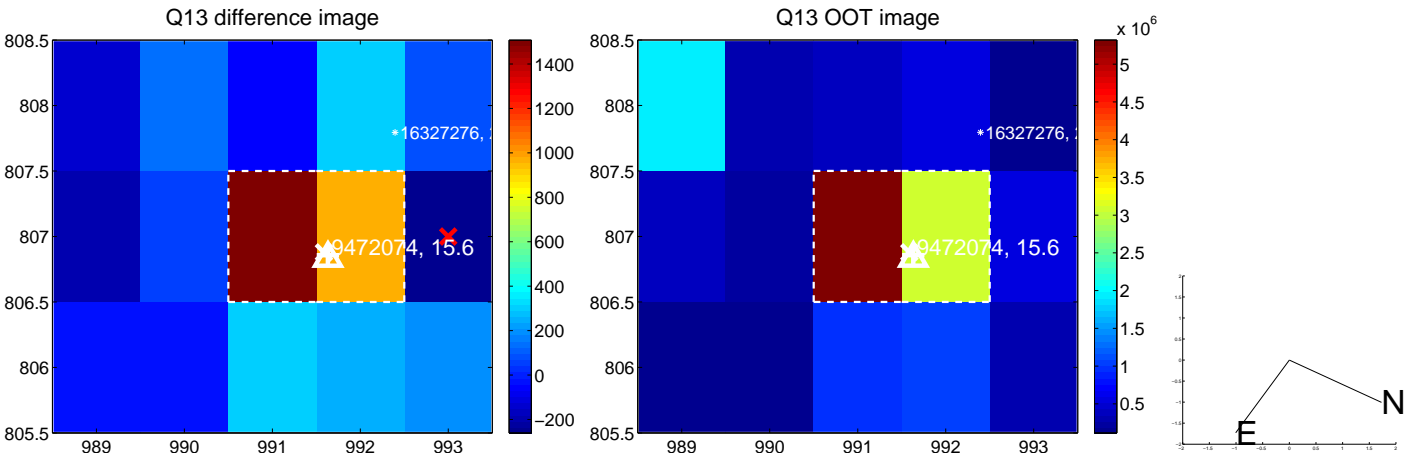




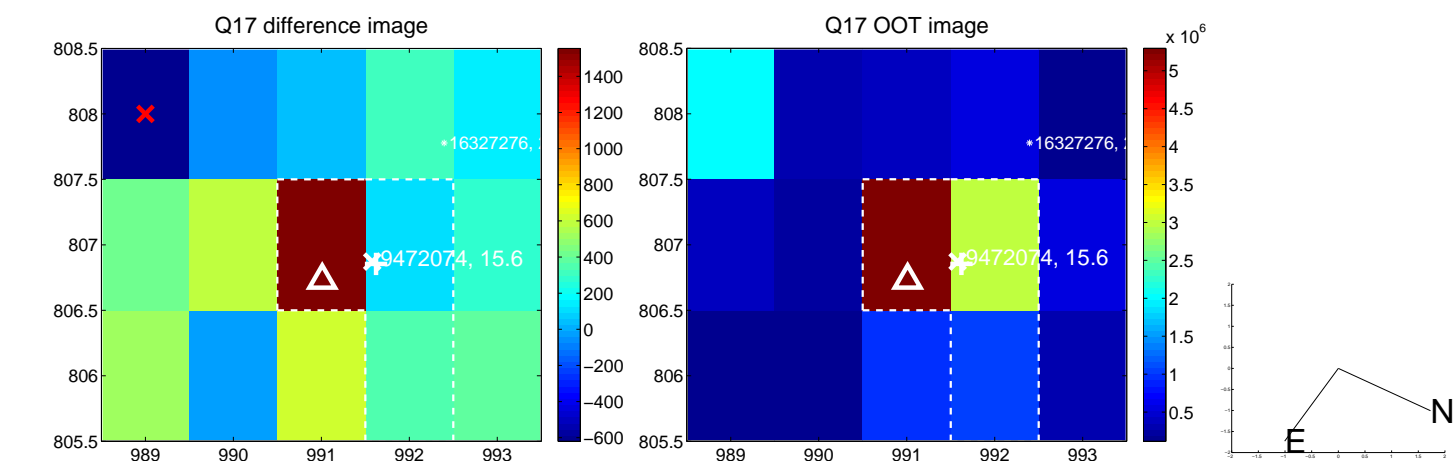
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



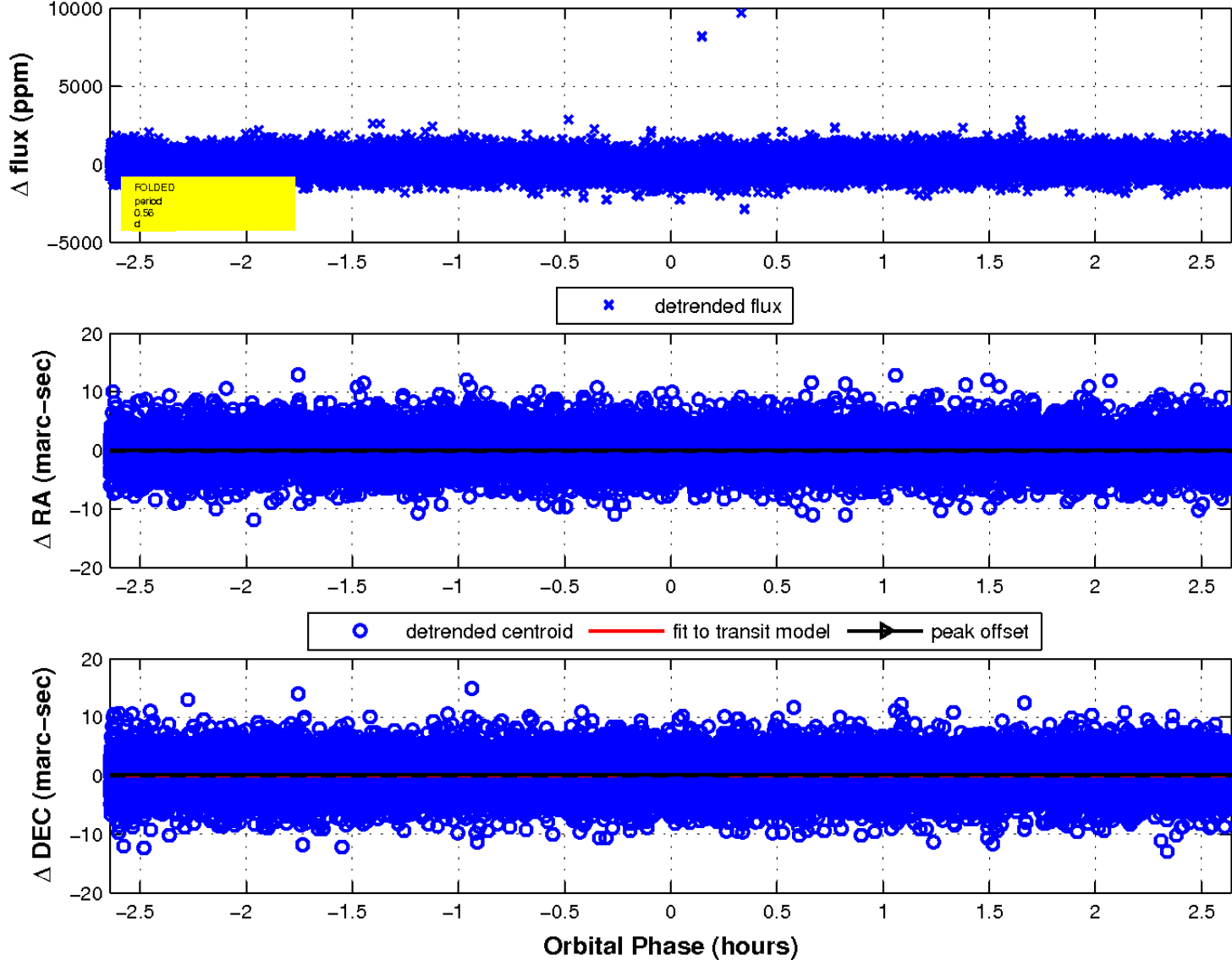
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

