

# KIC 008094221

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008094221-01 | OBS      | 6962.01 | 10.863447     | 141.625605   | 130.5       | 26.928           | 13.8 | 15.5 | 0.91                        | 5896            | 1.09                   | 98.13                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------|
| 008094221-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV   |

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

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

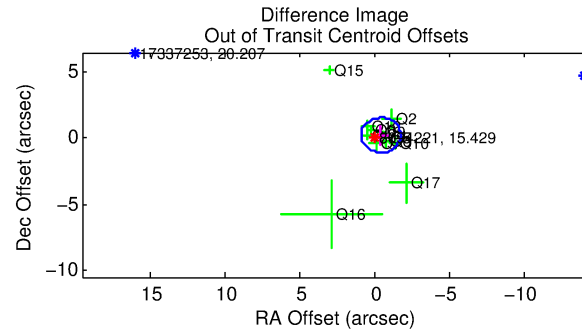
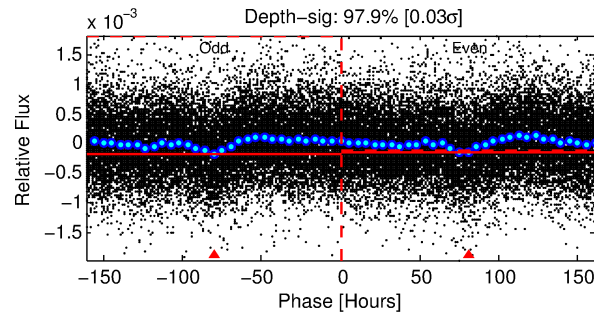
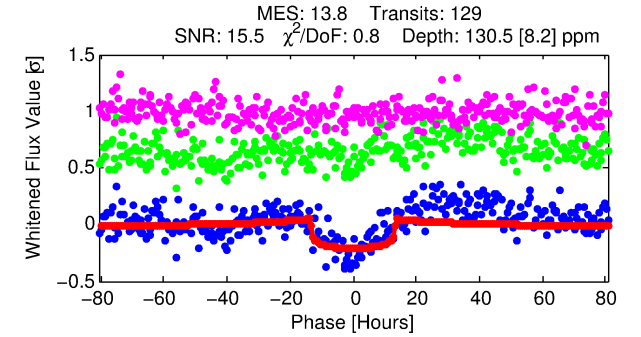
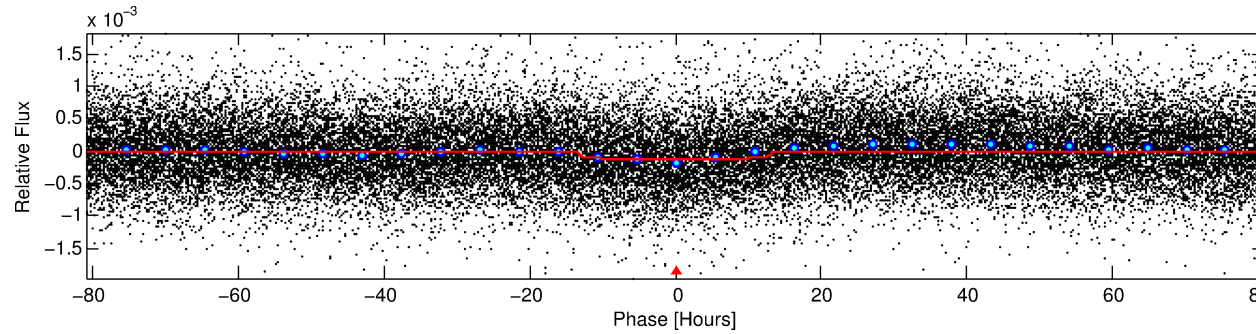
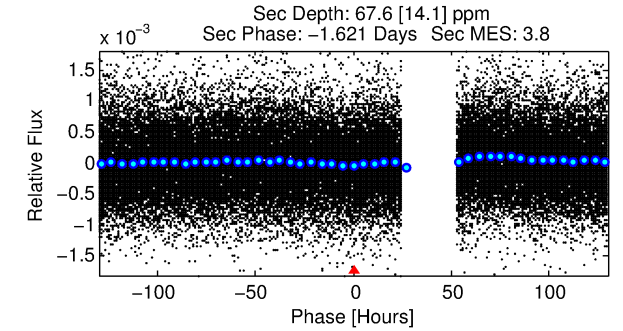
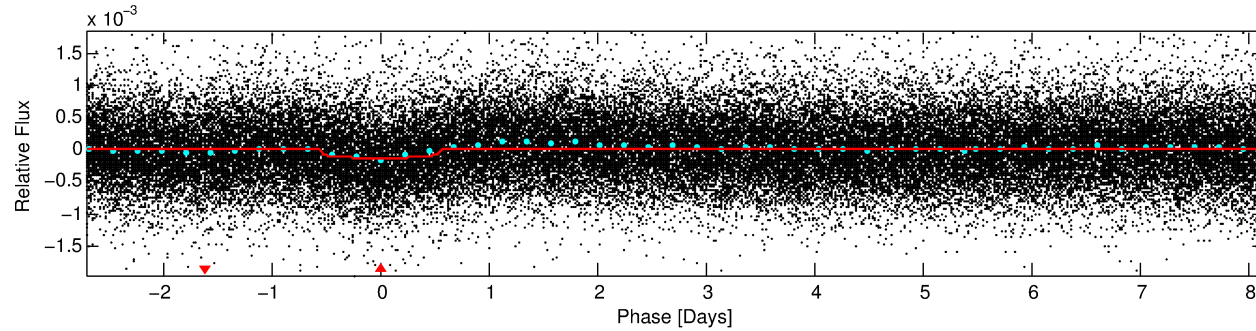
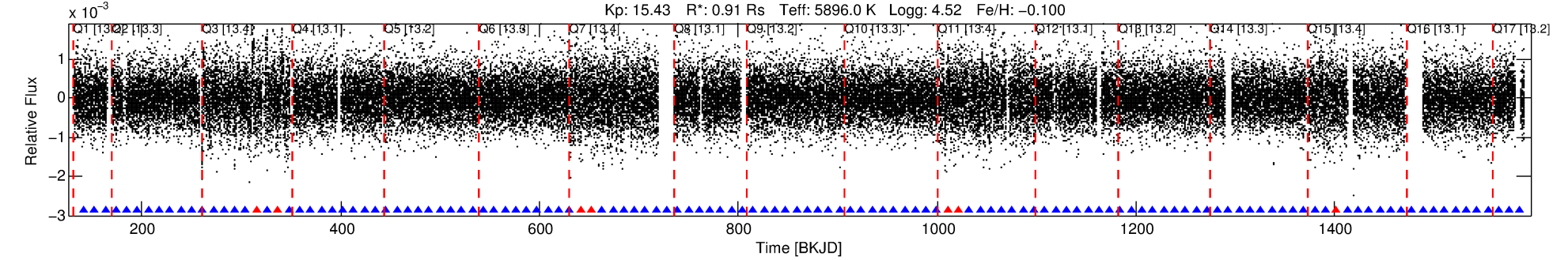
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008094221-01

No Significant Match Found

# DV One-Page Summary

KIC: 8094221 Candidate: 1 of 1 Period: 10.863 d  
KOI: K06962.01 Corr: 0.965



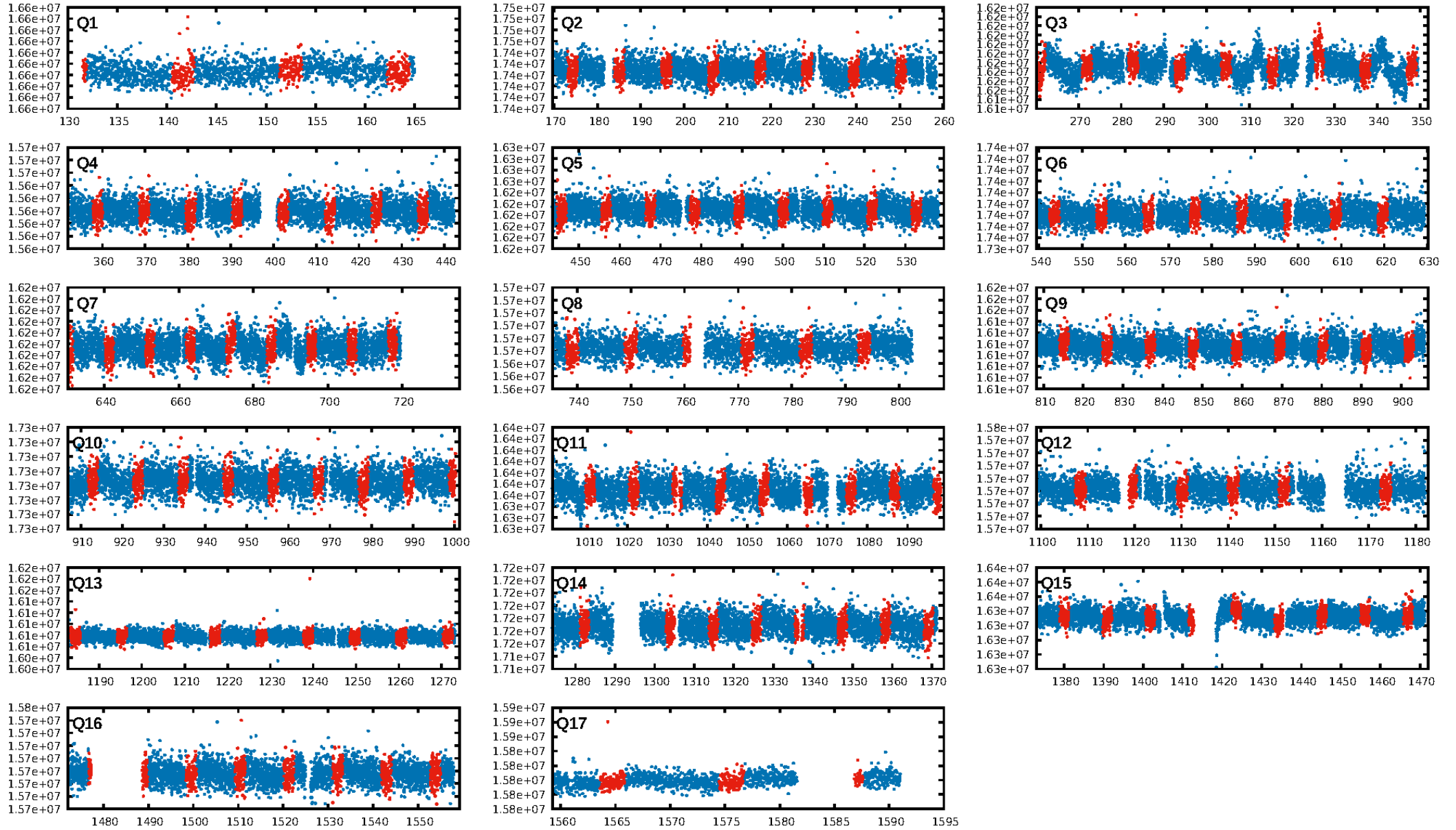
## DV Fit Results:

Period = 10.86345 [0.00024] d  
Epoch = 141.6256 [0.0178] BKJD  
Rp/R\* = 0.0109 [0.0026]  
a/R\* = 2.59 [2.43]  
b = 0.62 [1.12]  
Seff = 98.13 [39.67]  
Teff = 803 [81] K  
Rp = 1.09 [0.43] Re  
a = 0.0960 [0.0253] AU  
Ag = 287.57 [185.67] [1.54σ]  
Teffp = 5110 [686] K [6.24σ]

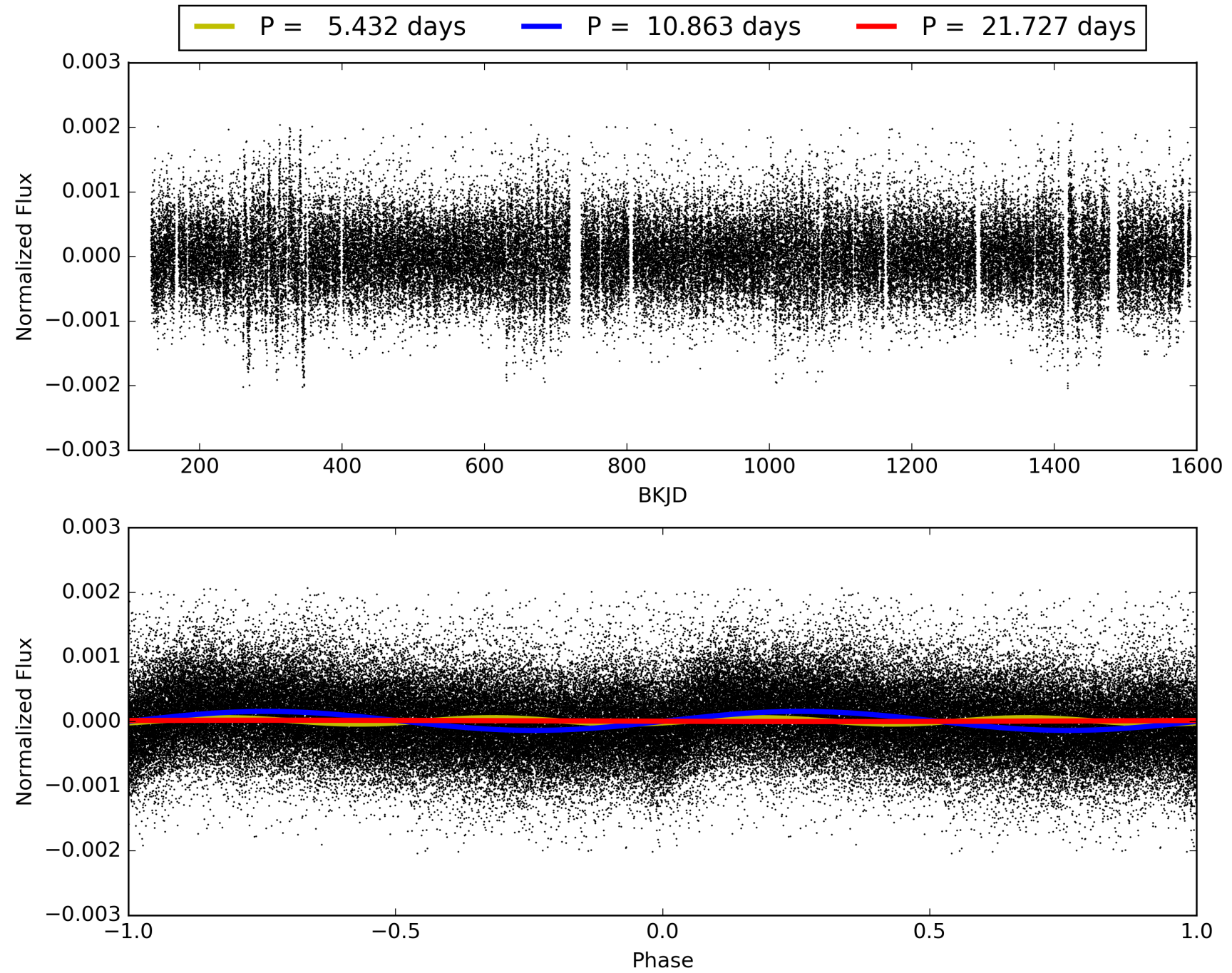
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 8.65e-45  
RollingBand-fgt: 0.94 [116/123]  
GhostDiagnostic-chr: -9.474  
Centroid-sig: 0.1%  
Centroid-so: 1.986 arcsec [2.44σ]  
OotOffset-rm: 0.521 arcsec [1.18σ]  
KicOffset-rm: 0.589 arcsec [1.28σ]  
OotOffset-st: 3/2/4/3 [12]  
KicOffset-st: 3/2/4/3 [12]  
DiffImageQuality-fgm: 0.75 [9/12]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008094221-01, PDC Light Curves

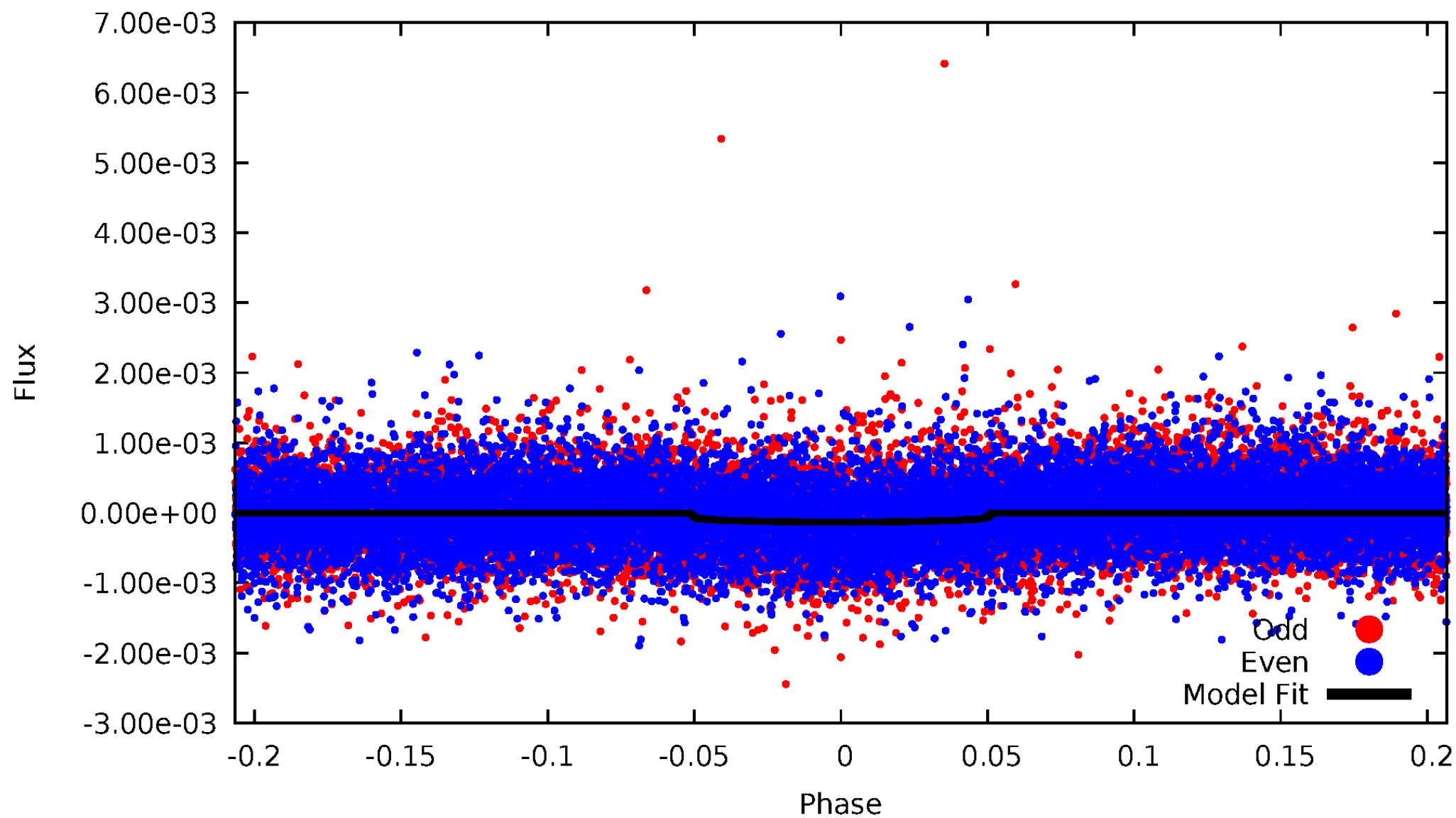


TCE 008094221-01



# DV Odd/Even

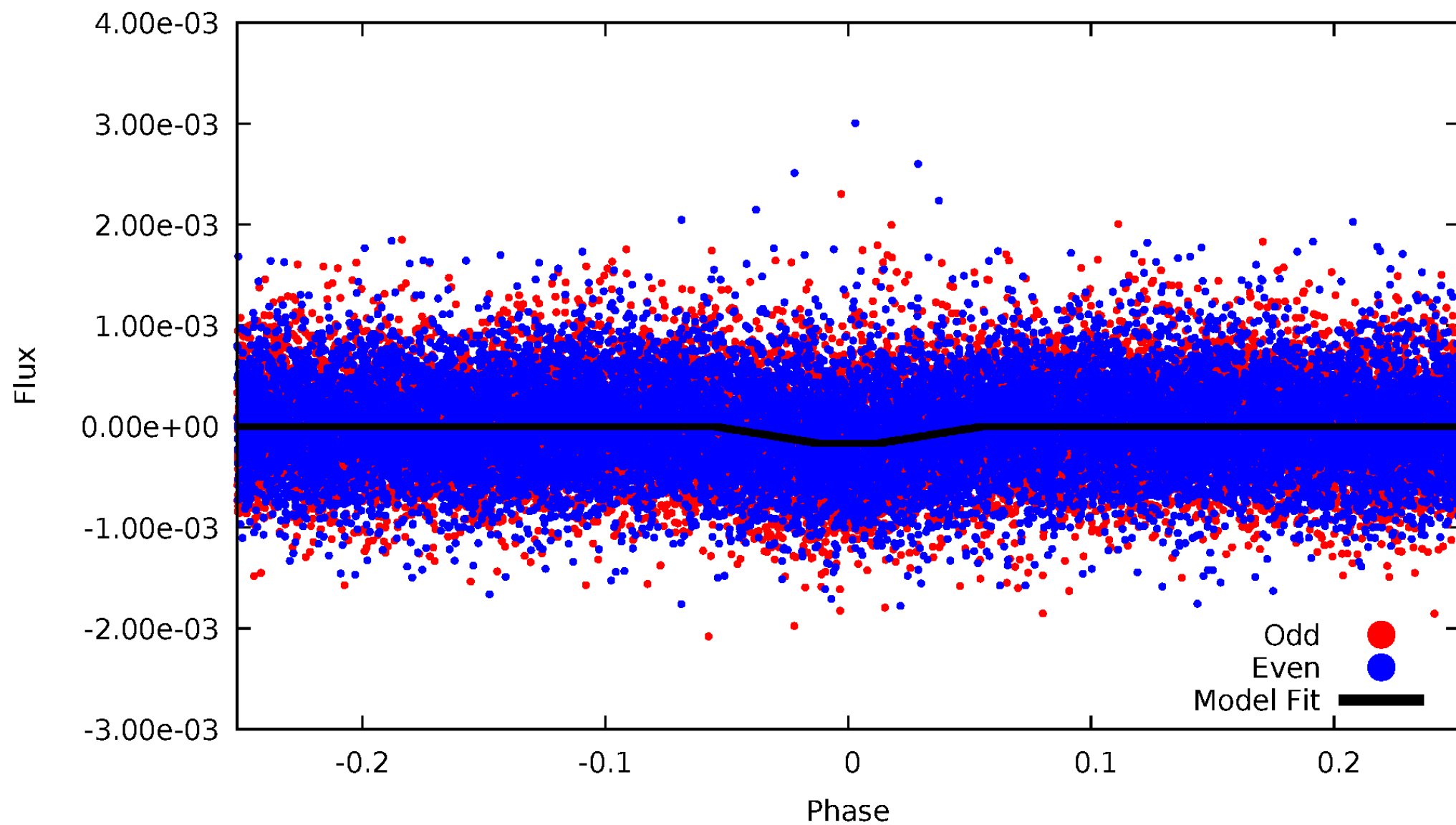
TCE 008094221-01





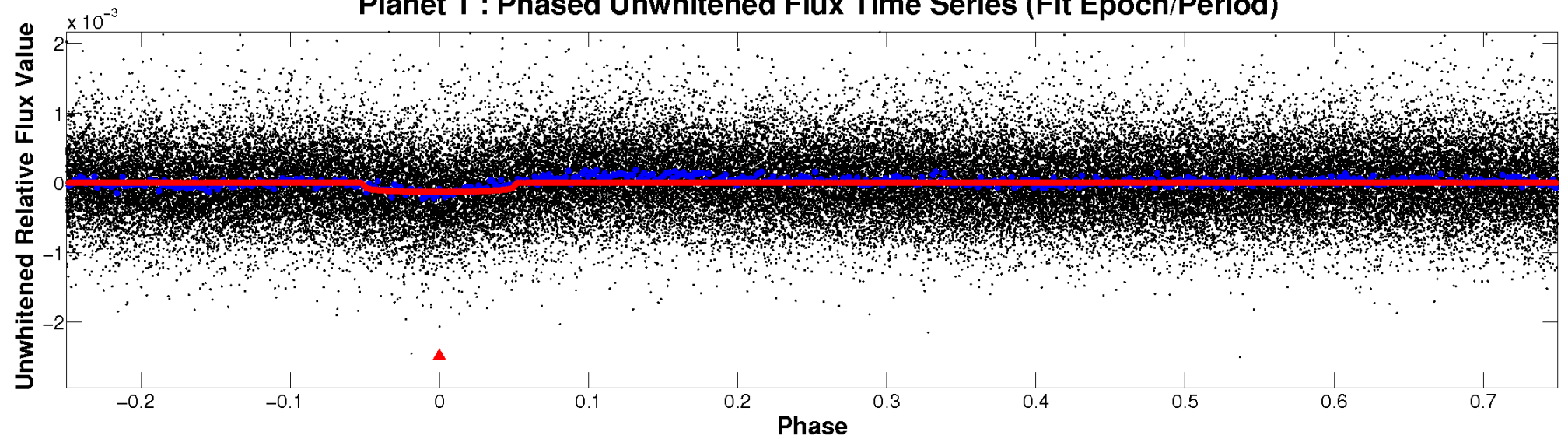
# ALT Odd/Even

TCE 008094221-01

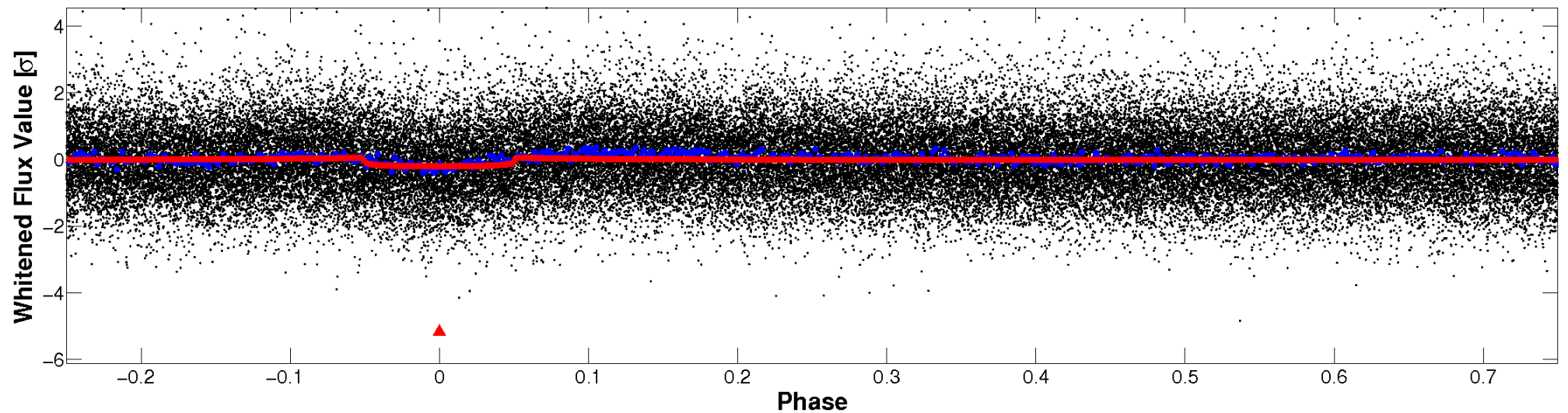


# Non-Whitened Vs. Whitened Light Curve

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

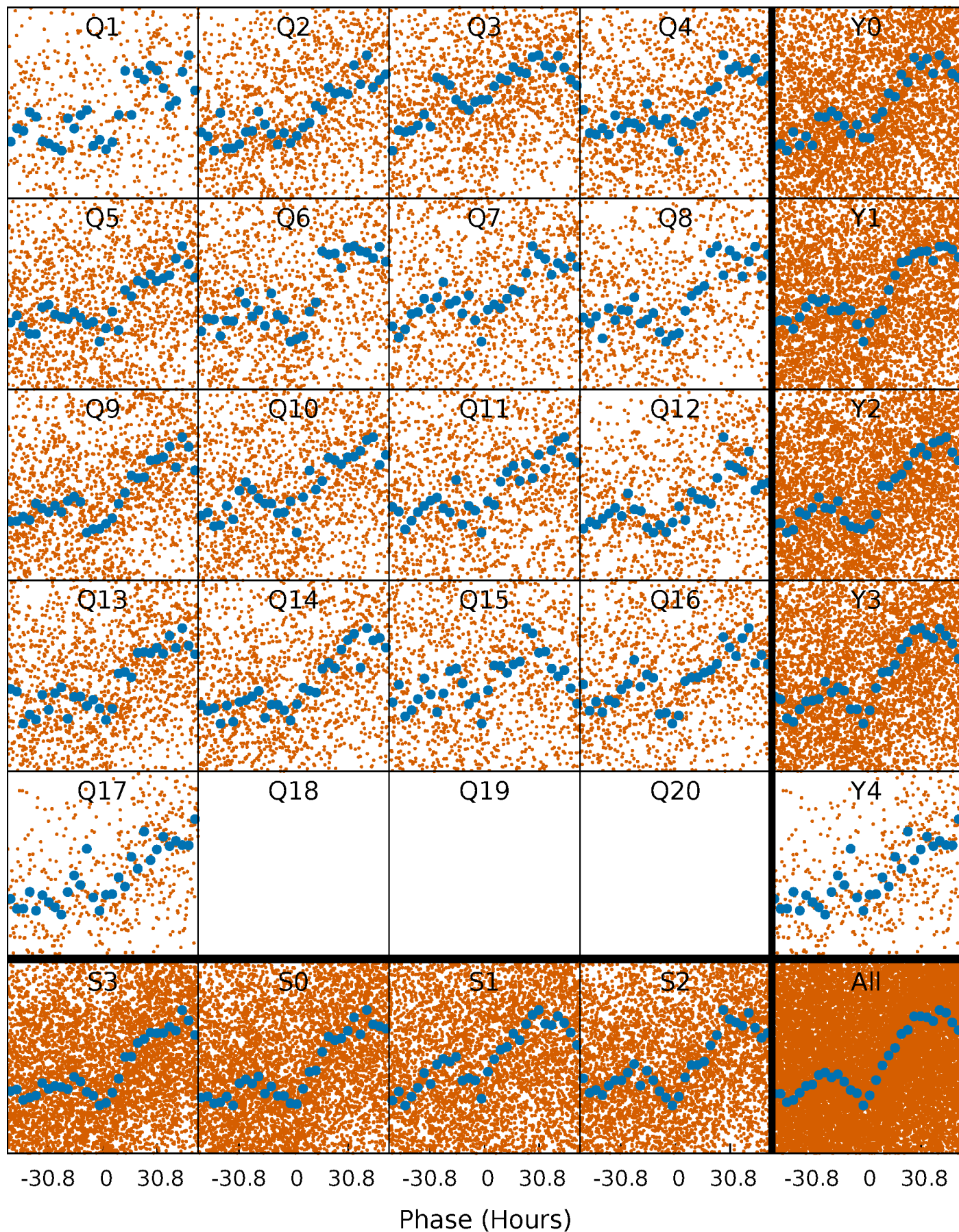


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

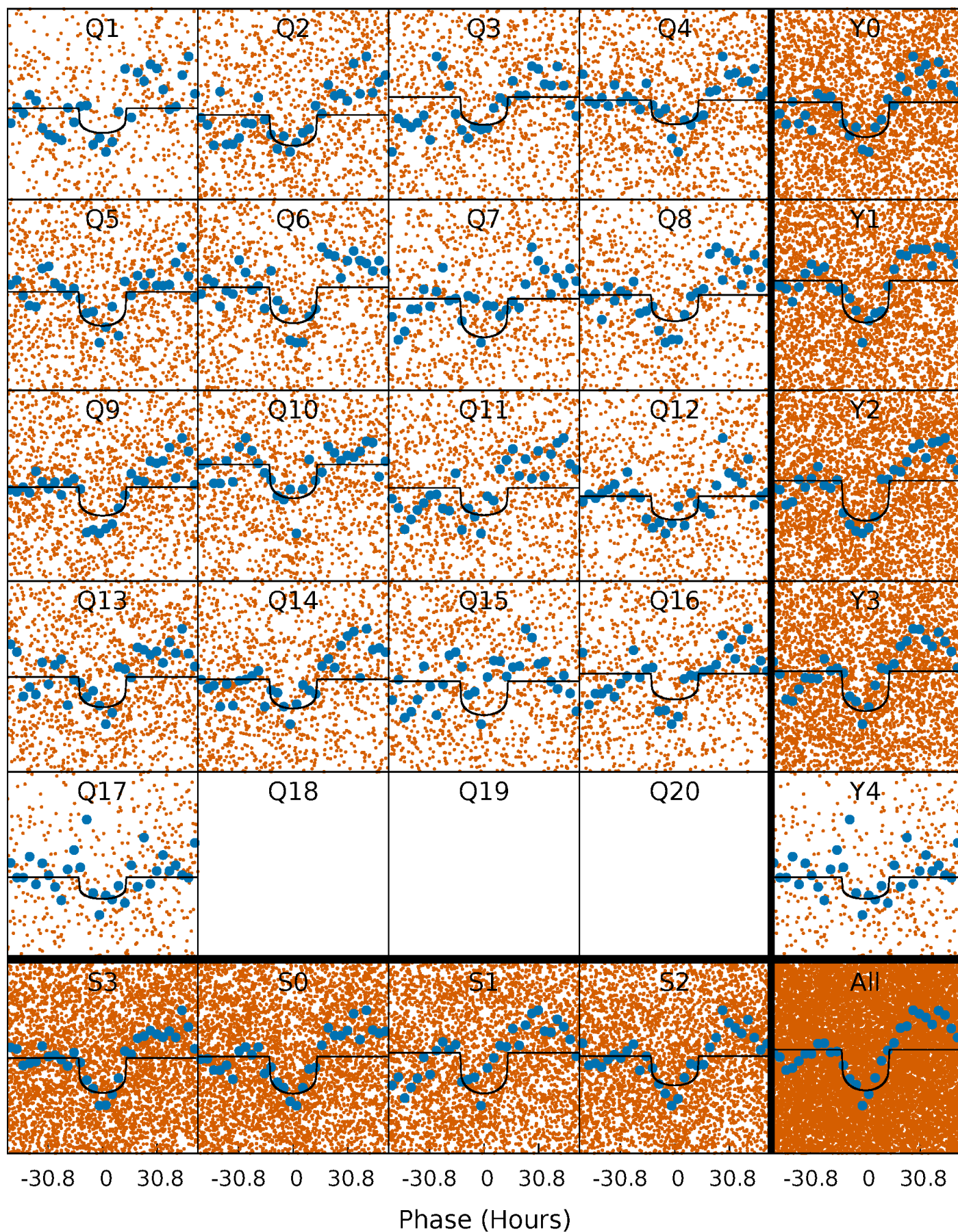
TCE 008094221-01 P= 10.863447 Days  $T_0=141.625605$  (BKJD)





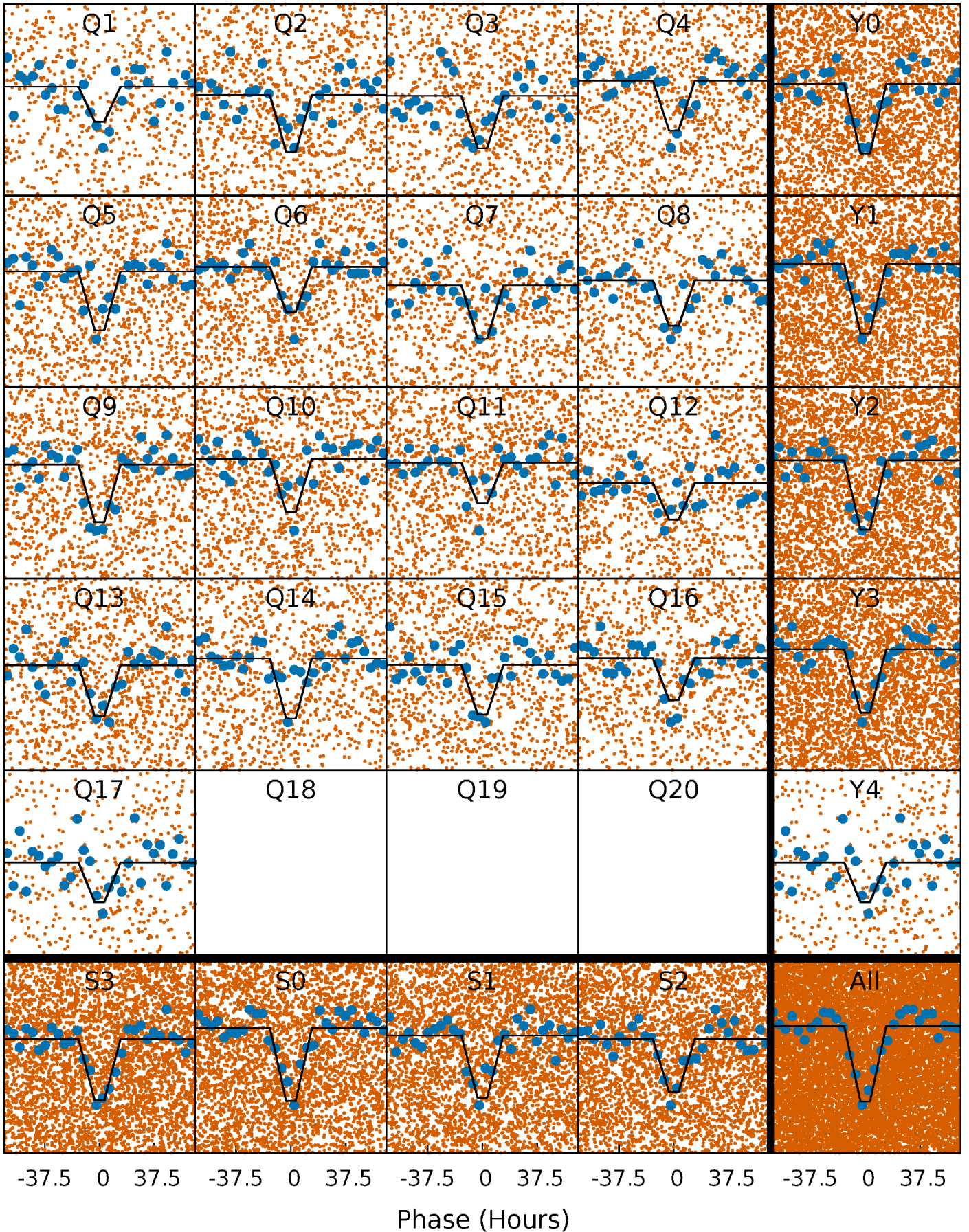
# DV Quarter-Phased Transit Curves

TCE 008094221-01 P= 10.863447 Days  $T_0=141.625605$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008094221-01 P= 10.862622 Days  $T_0=141.672222$  (BKJD)

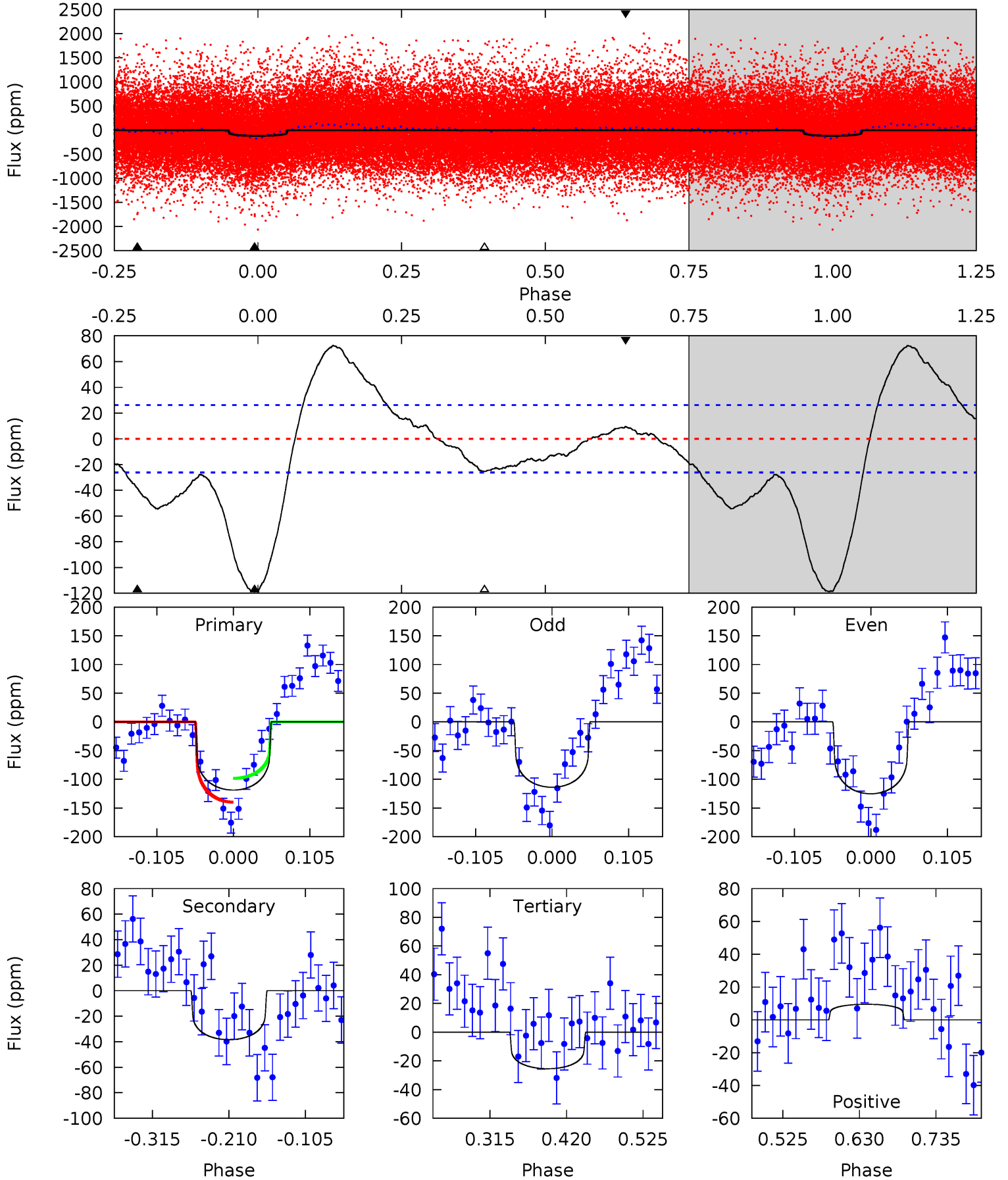




# DV Model-Shift Uniqueness Test

008094221-01, P = 10.863447 Days, E = 130.762158 Days

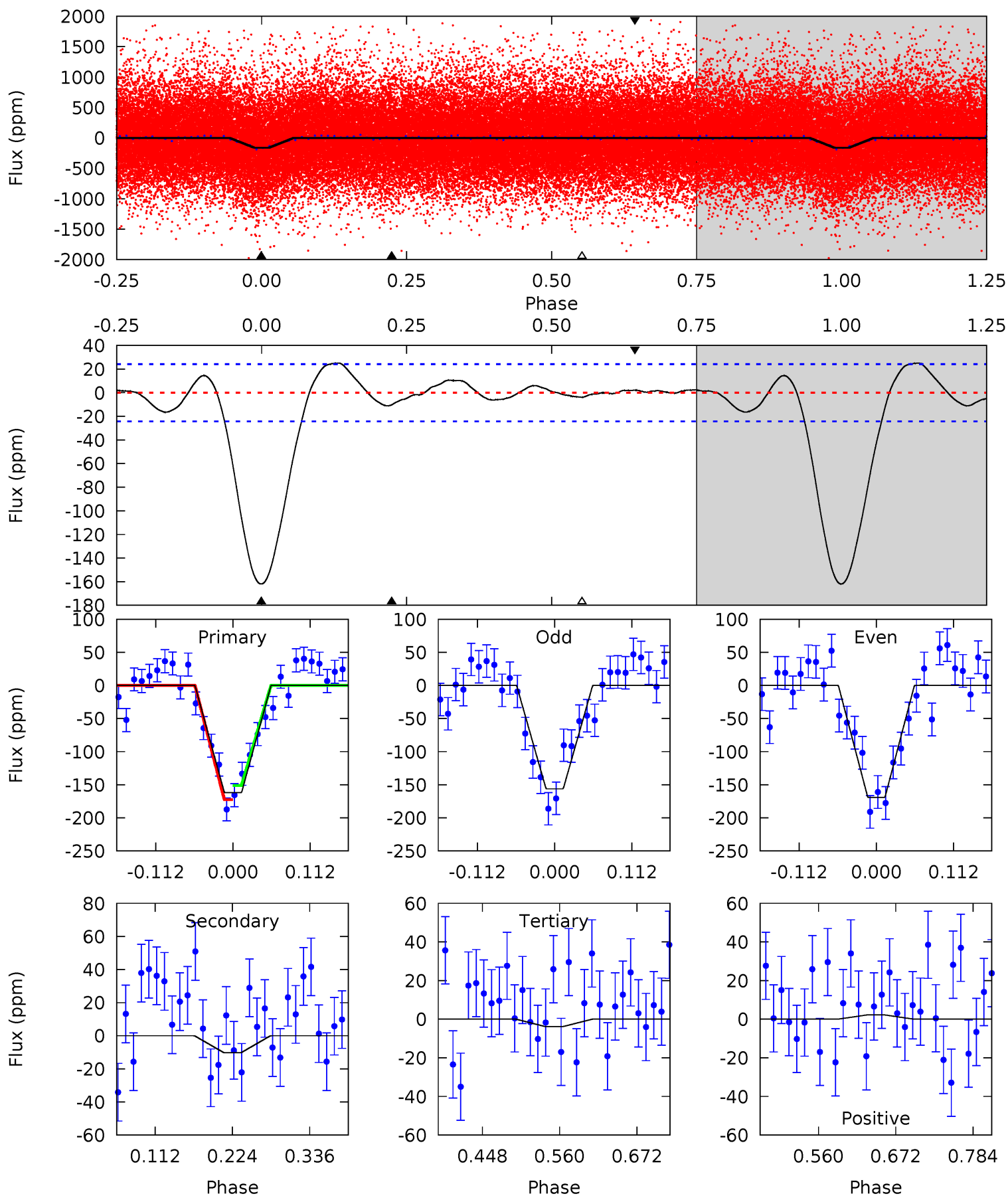
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.7 | 6.68 | 4.43 | 1.66 | 4.55            | 1.62            | 4.66             | 16.2    | 19.0    | 2.25    | 5.03    | 0.99    | 1.05 | 0.38  | 3.60 |



# Alt Model-Shift Uniqueness Test

008094221-01, P = 10.862622 Days, E = 130.809600 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 30.3 | 1.92 | 0.72 | 0.42 | 4.54            | 1.59            | 1.03             | 29.6    | 29.9    | 1.20    | 1.50    | 1.20    | 0.94 | 0.13  | 2.00 |





### Stellar Parameters For KIC 008094221

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5896^{+159}_{-194}$ | $4.516^{+0.052}_{-0.208}$ | $-0.100^{+0.300}_{-0.300}$ | $0.914^{+0.288}_{-0.096}$ | $1.000^{+0.120}_{-0.132}$ | $1.846^{+0.389}_{-0.982}$                 |
|        | +3%/-3%              | +1%/-5%                   | +300%/-300%                | +32%/-11%                 | +12%/-13%                 | +21%/-53%                                 |
| 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 008094221-01 / KOI 6962.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$   |
|---------|-------------|------------------------|----------------------|----------------------|--------------------|
| DV      | $-38 \pm 6$ | $1.14^{+0.31}_{-0.32}$ | $1138^{+85}_{-51}$   | $4596^{+595}_{-395}$ | $149^{+127}_{-58}$ |
| Alt.    | $-10 \pm 5$ | $1.36^{+0.30}_{-0.31}$ | $1141^{+80}_{-55}$   | $3393^{+375}_{-379}$ | $26^{+28}_{-14}$   |

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

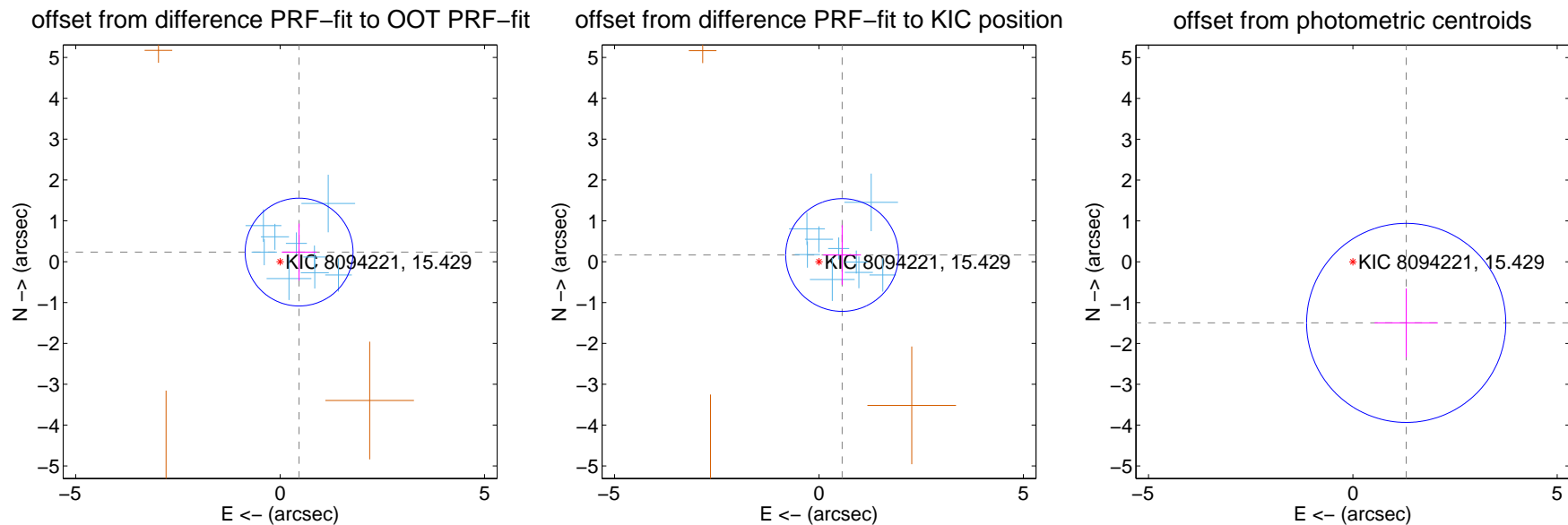
## DV Centroid Data

Supplemental centroid analysis for 008094221-01. Kepler magnitude: 15.43. Transit SNR 15.51

There are 9 quarters with good PRF difference image offsets

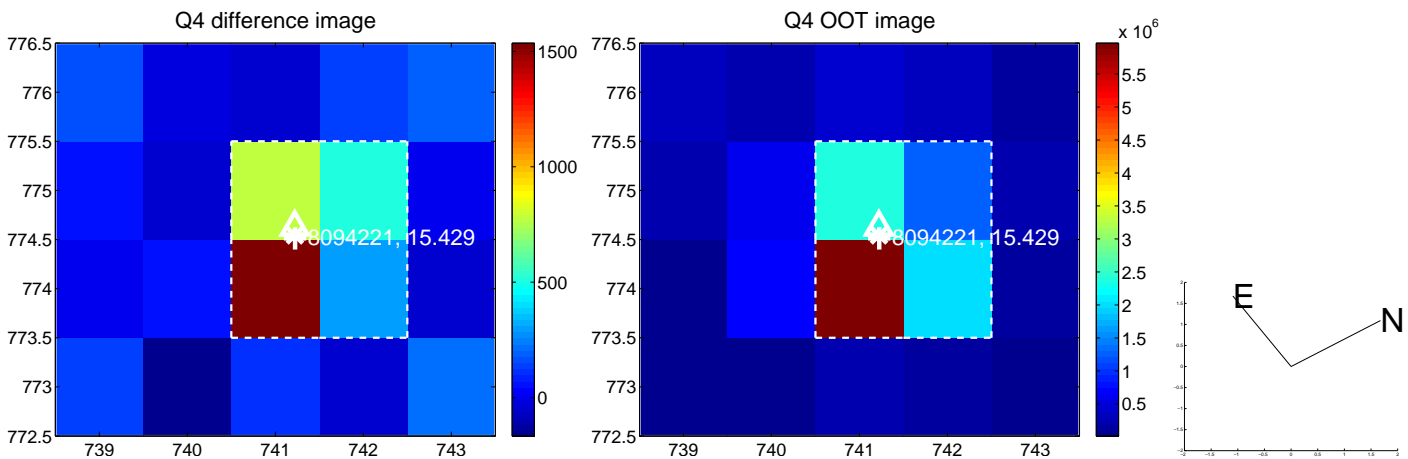
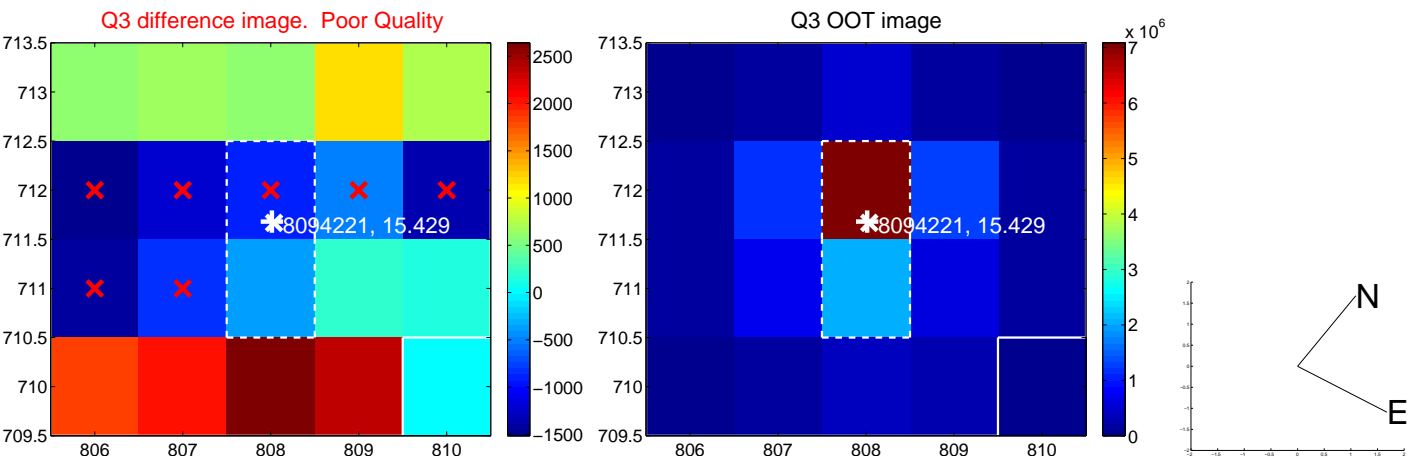
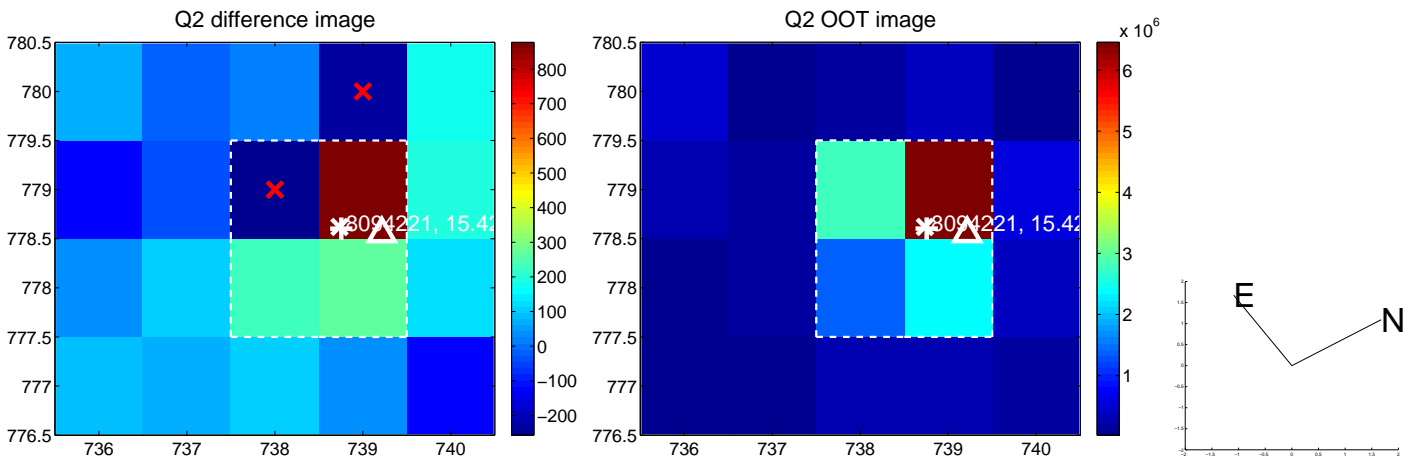
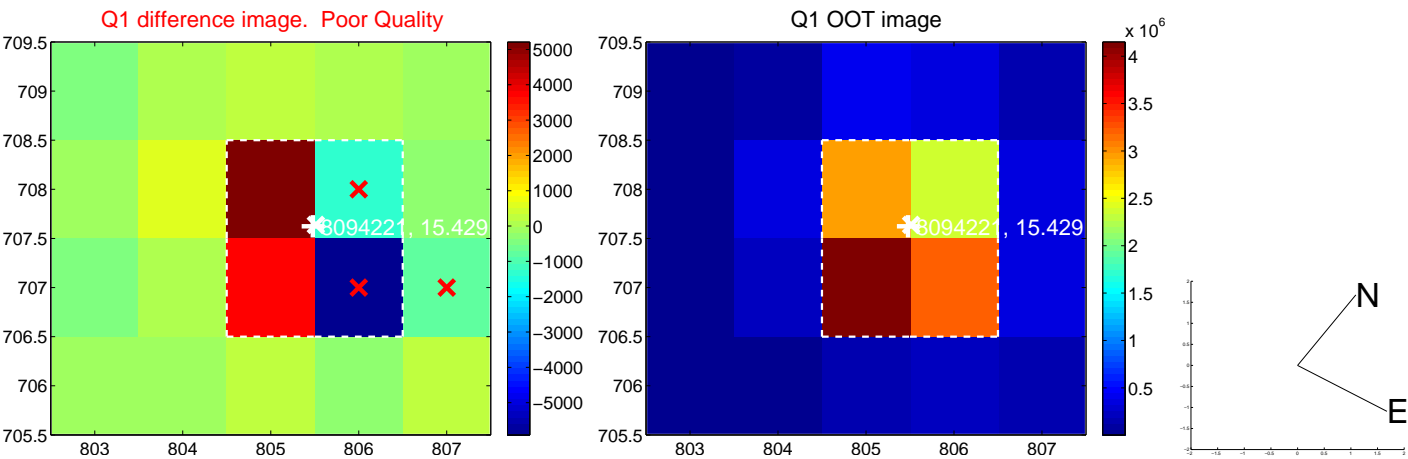
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.521 \pm 0.440$  | 1.18                | $-0.464 \pm 0.423$ | $0.235 \pm 0.698$ |
| PRF-fit source offset from KIC position | $0.589 \pm 0.460$  | 1.28                | $-0.565 \pm 0.461$ | $0.164 \pm 0.729$ |
| photometric centroid source offset      | $1.99 \pm 0.81$    | 2.44                | $-1.31 \pm 0.77$   | $-1.50 \pm 0.84$  |

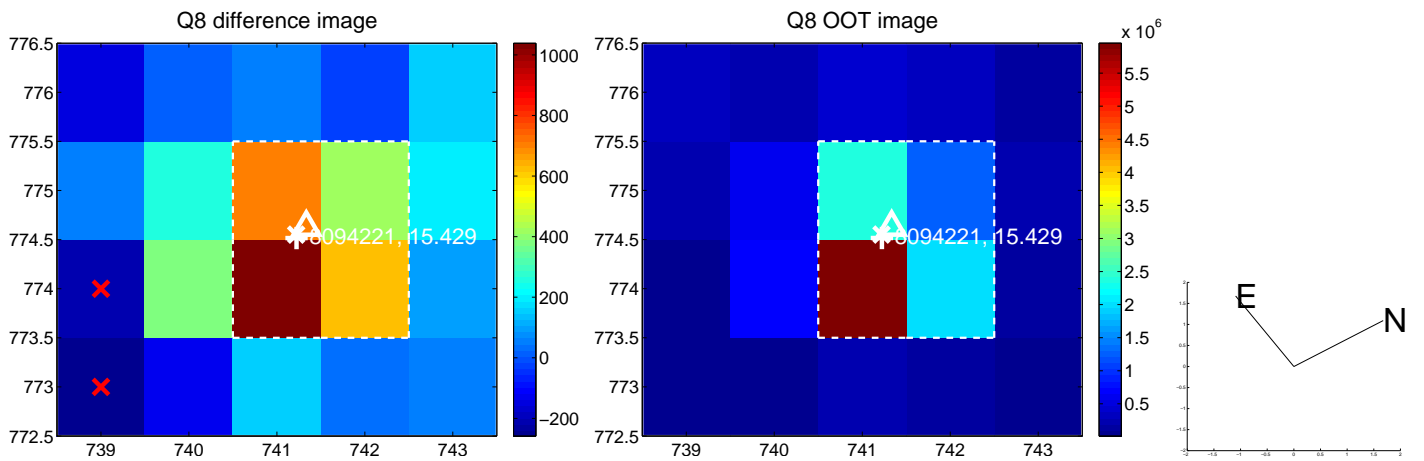
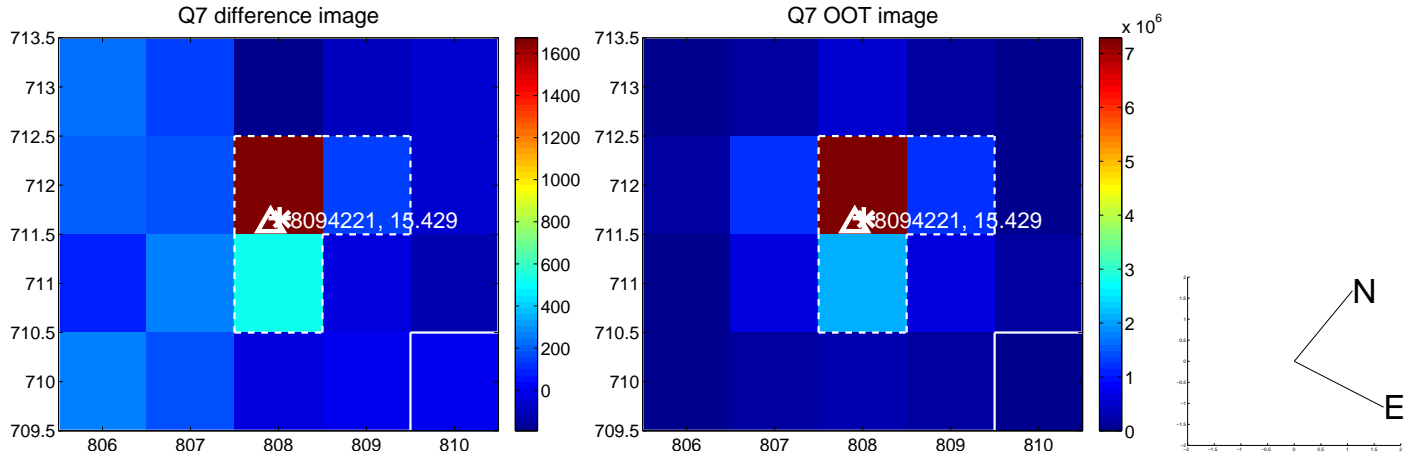
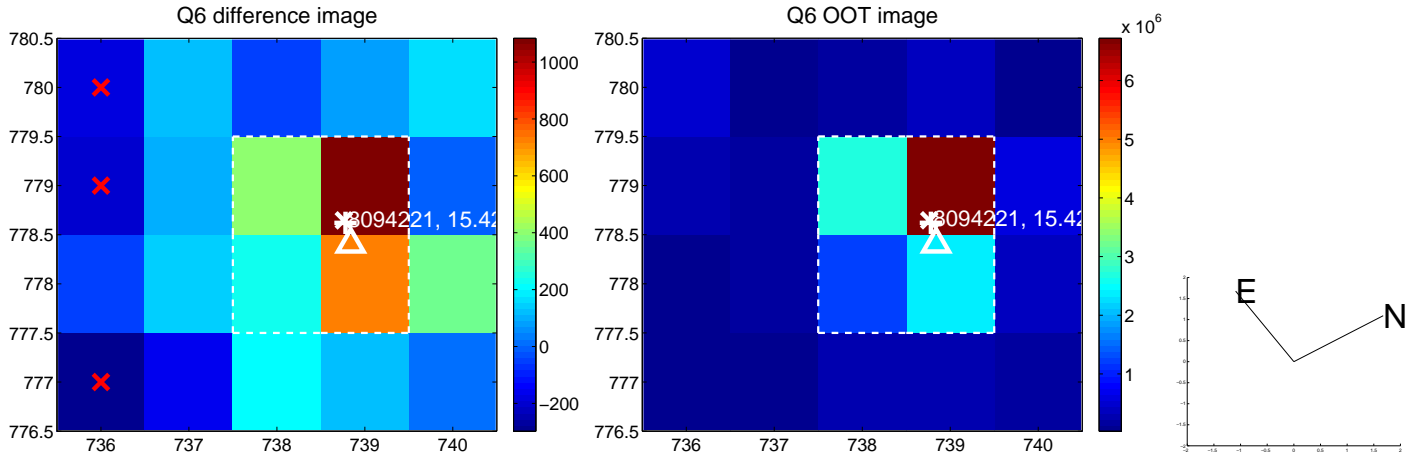
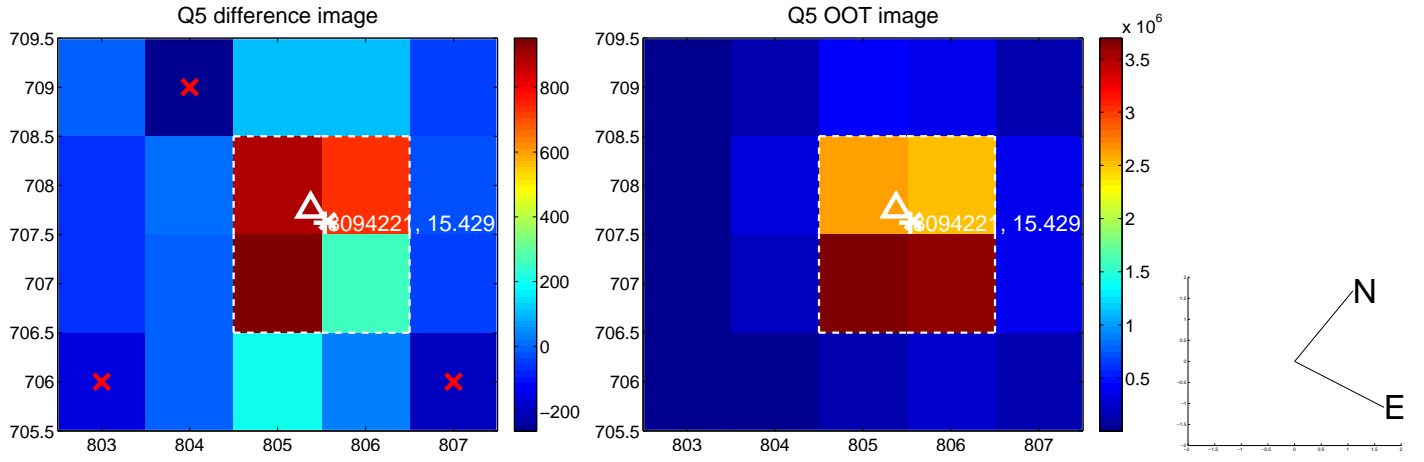


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

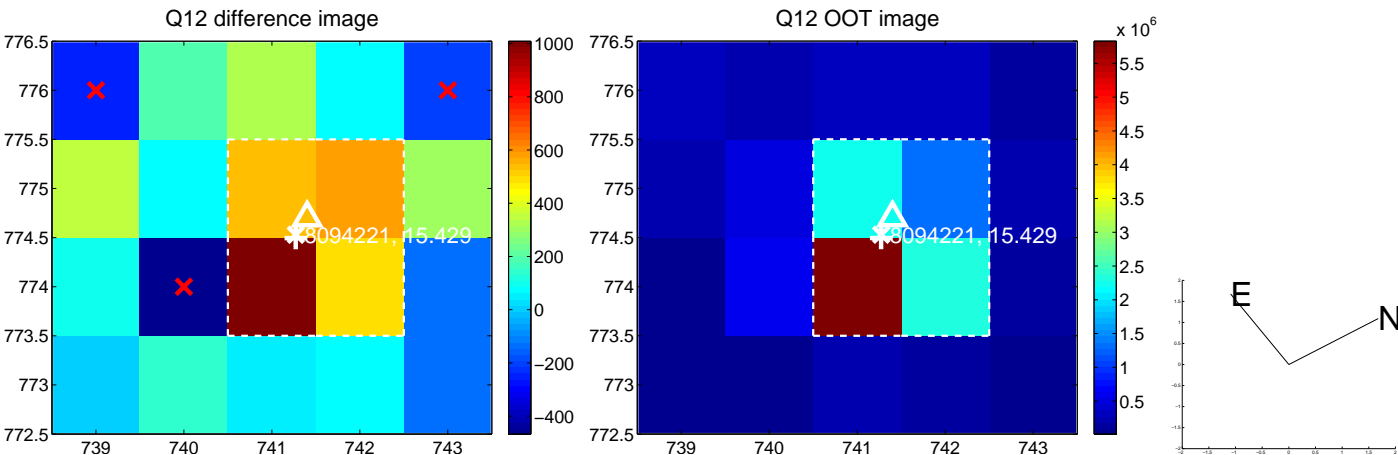
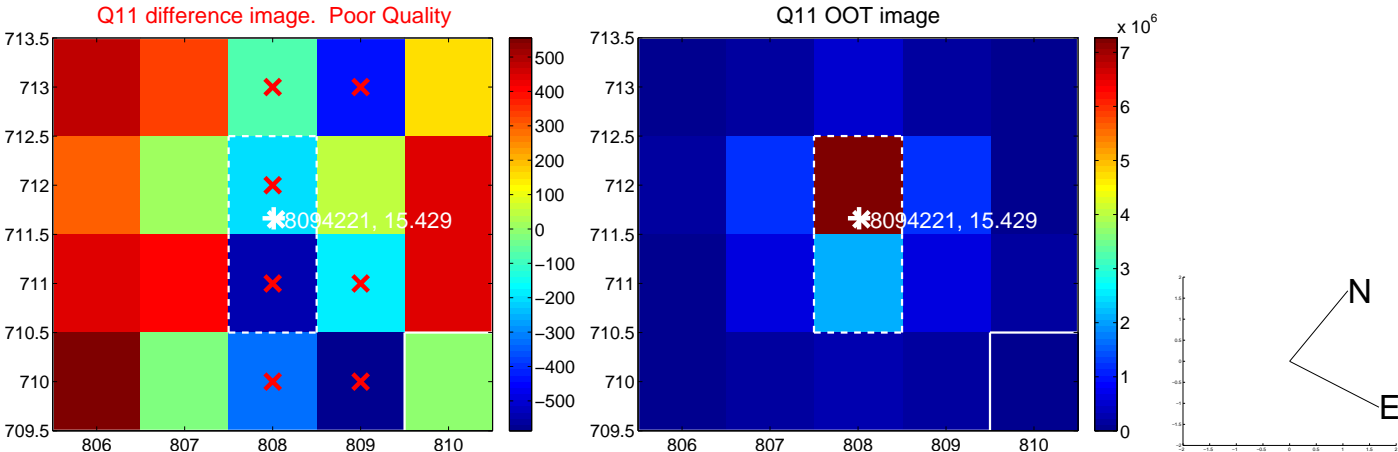
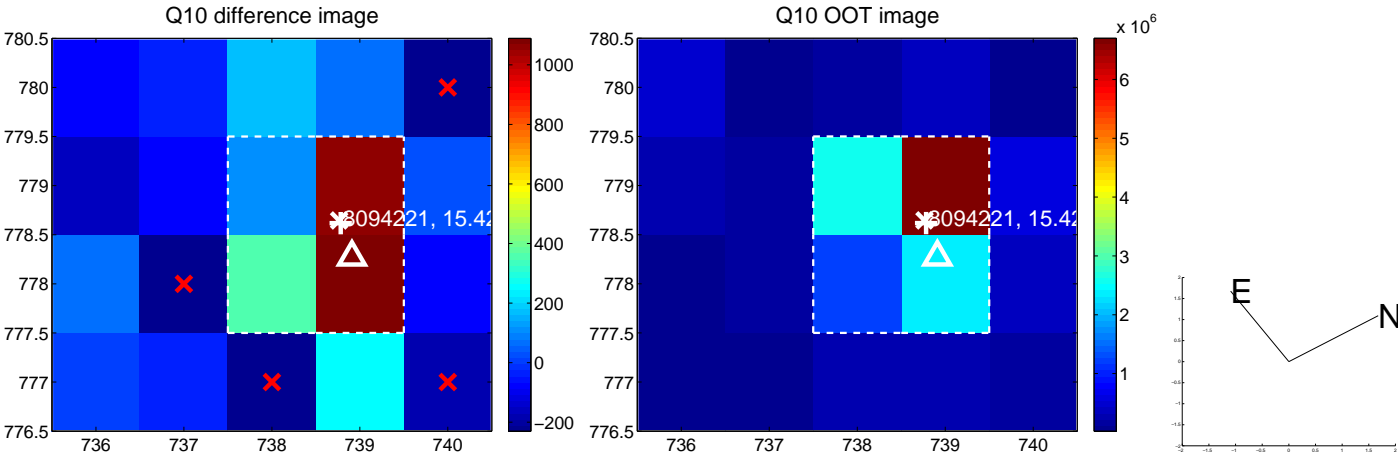
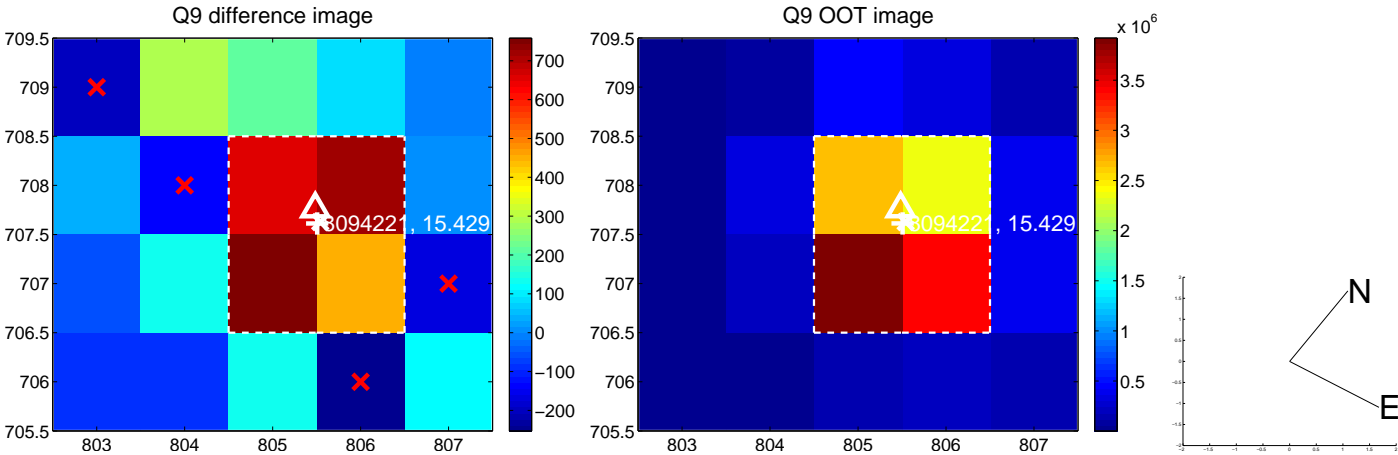


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

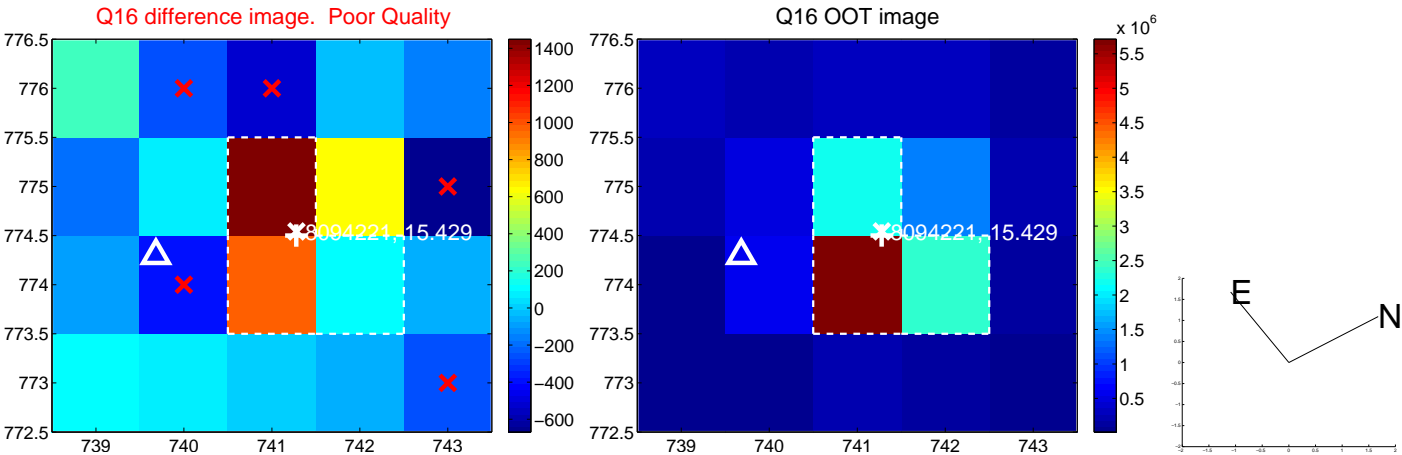
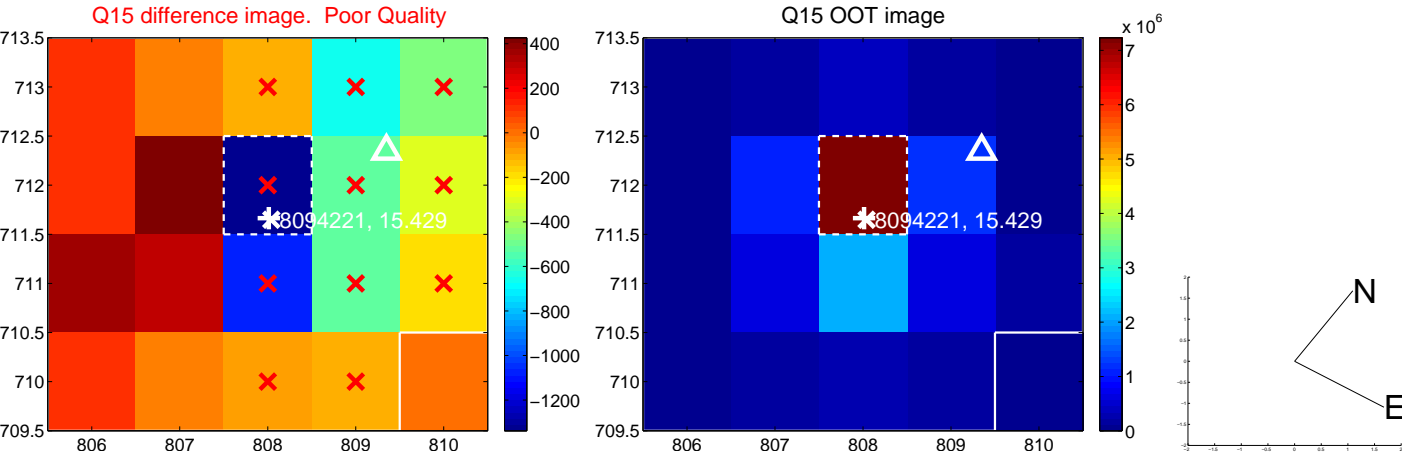
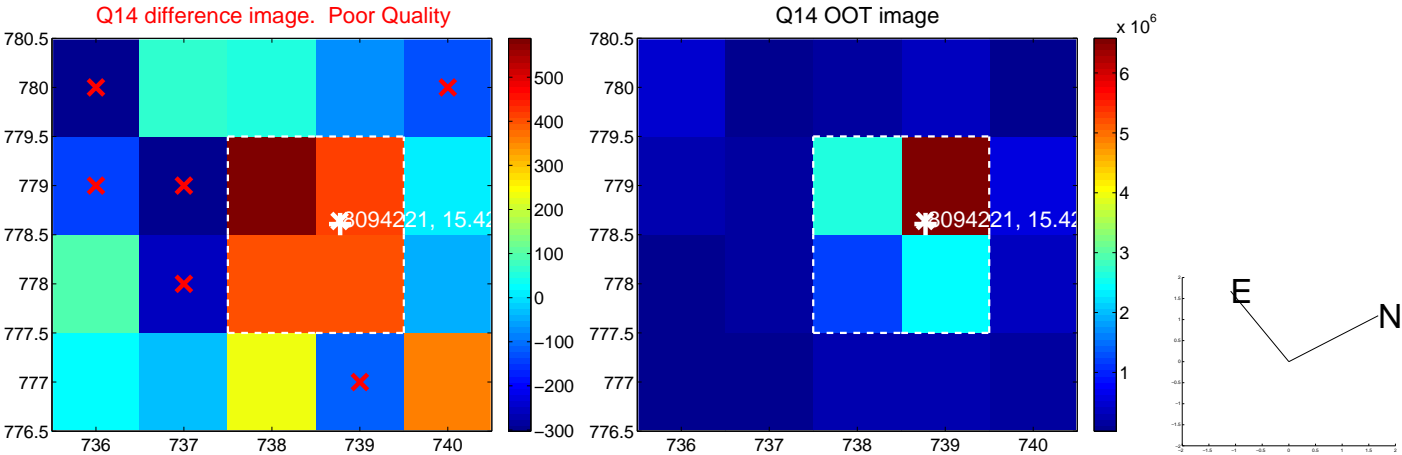
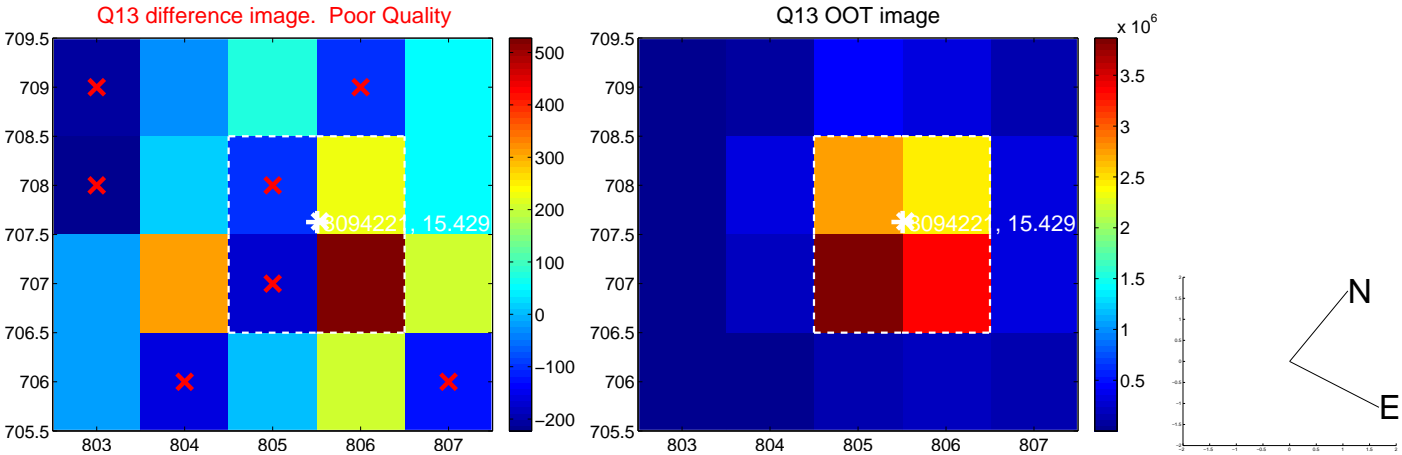




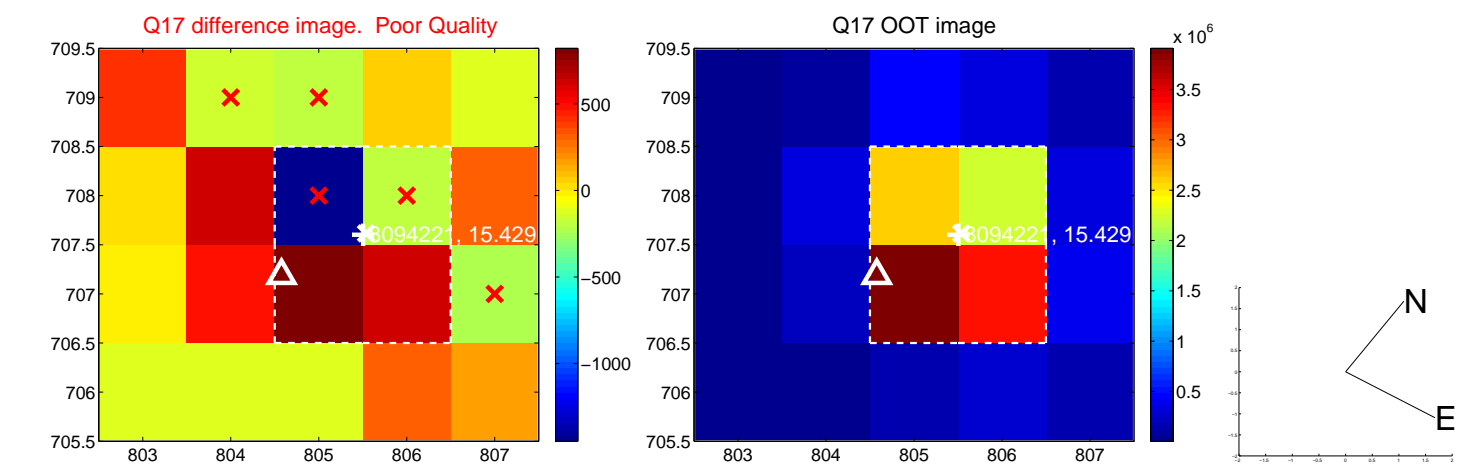
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



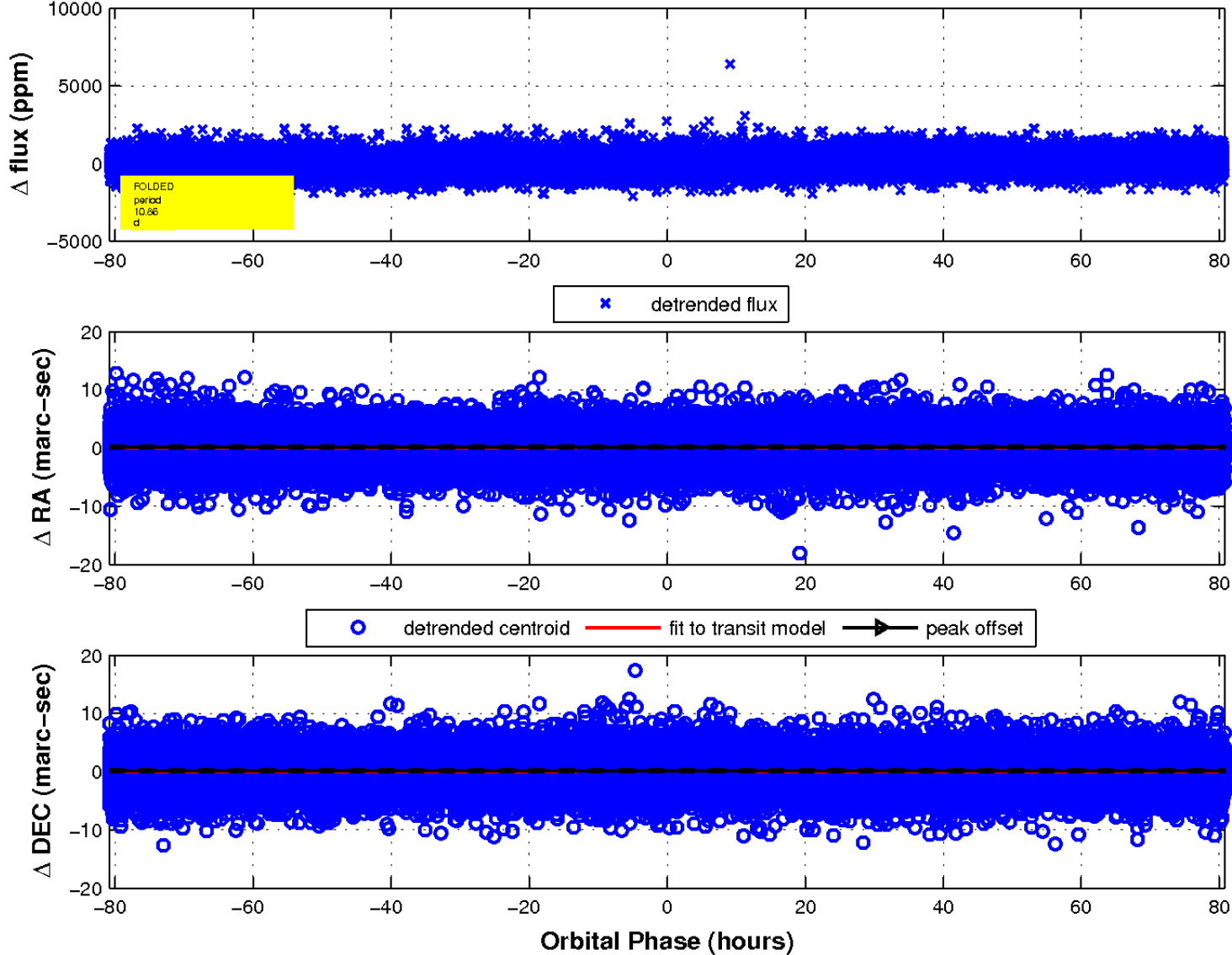
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

