

# KIC 010008394

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 010008394-01 | OBS      | No   | 3.506037      | 133.616864   | 19.8        | 11.854           | 10.0 | 7.7 | 1.48                        | 6931            | 0.73                   | 1825.40                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                      |
|--------------|----------|------|-------|---|---|---|---|---|
| 010008394-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |

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

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

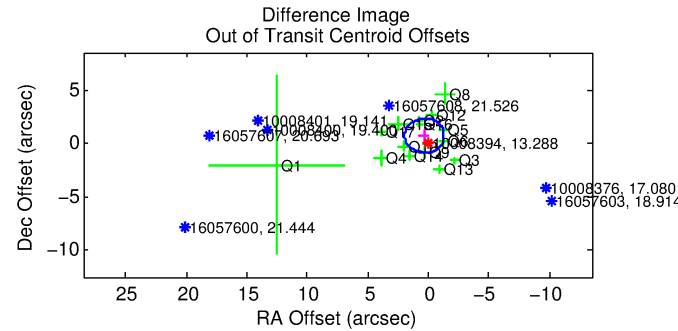
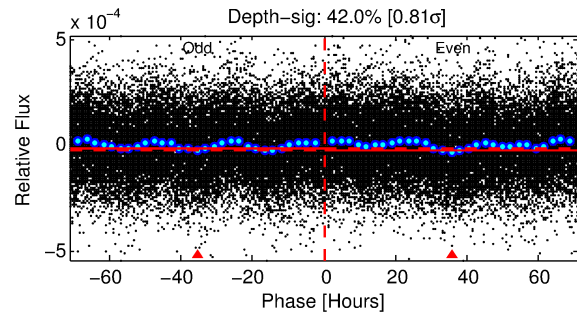
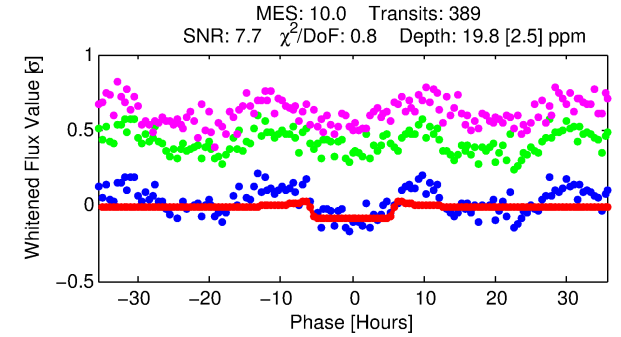
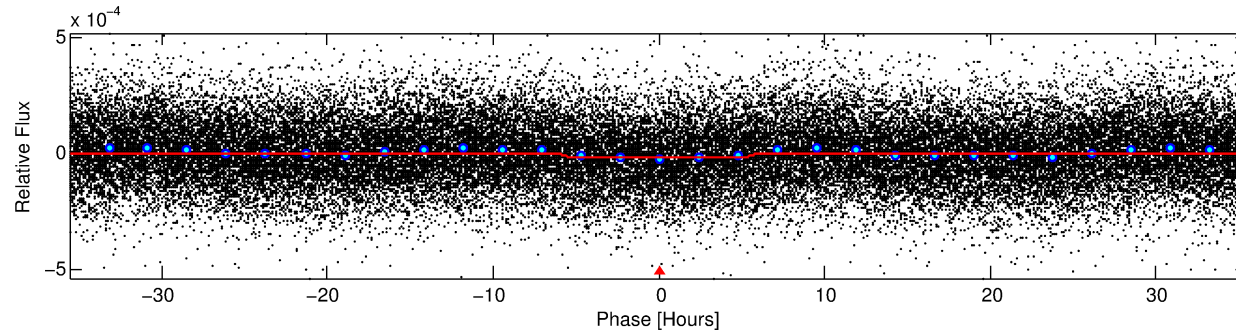
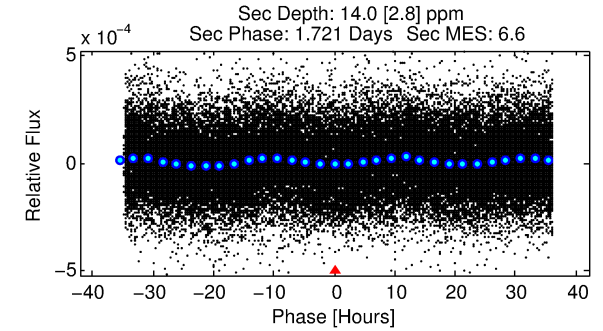
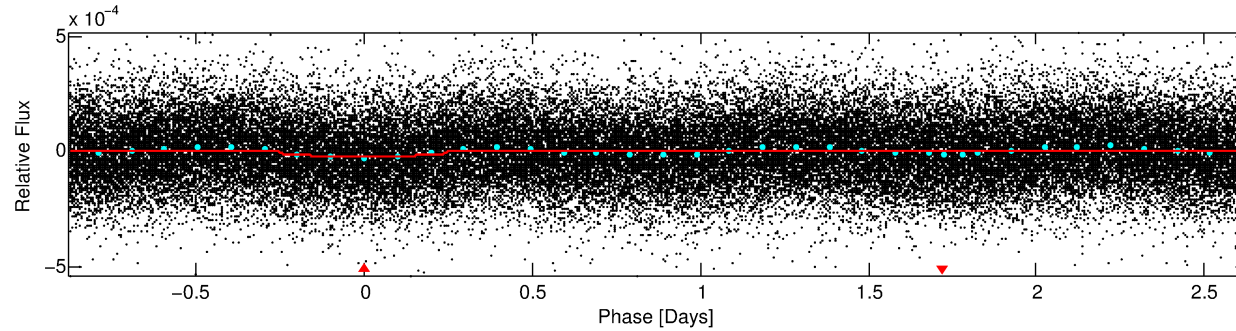
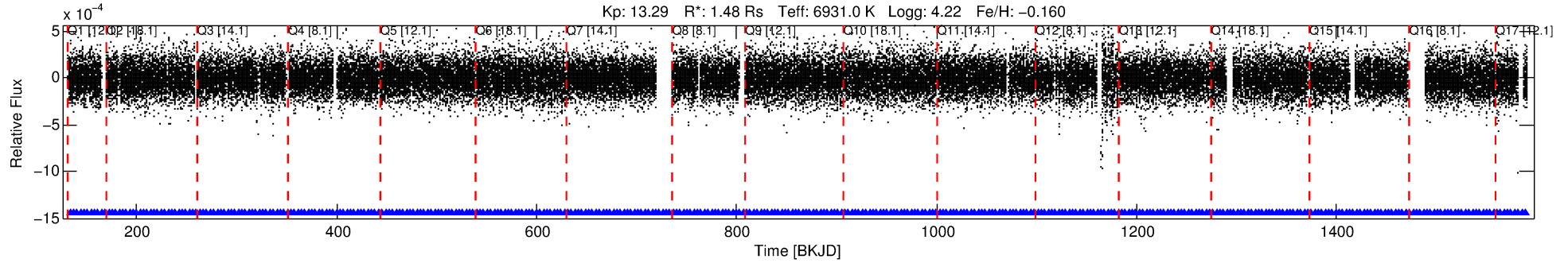
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010008394-01

No Significant Match Found

# DV One-Page Summary

KIC: 10008394 Candidate: 1 of 1 Period: 3.506 d



## DV Fit Results:

Period = 3.50604 [0.00005] d  
Epoch = 133.6169 [0.0094] BKJD  
Rp/R\* = 0.0045 [0.0011]  
a/R\* = 1.63 [1.39]  
b = 0.80 [0.62]  
Seff = 1825.41 [531.85]  
Teff = 1667 [121] K  
Rp = 0.73 [0.23] Re  
a = 0.0498 [0.0088] AU  
Ag = 36.23 [20.66] [1.71σ]  
Teffp = 6322 [846] K [5.45σ]

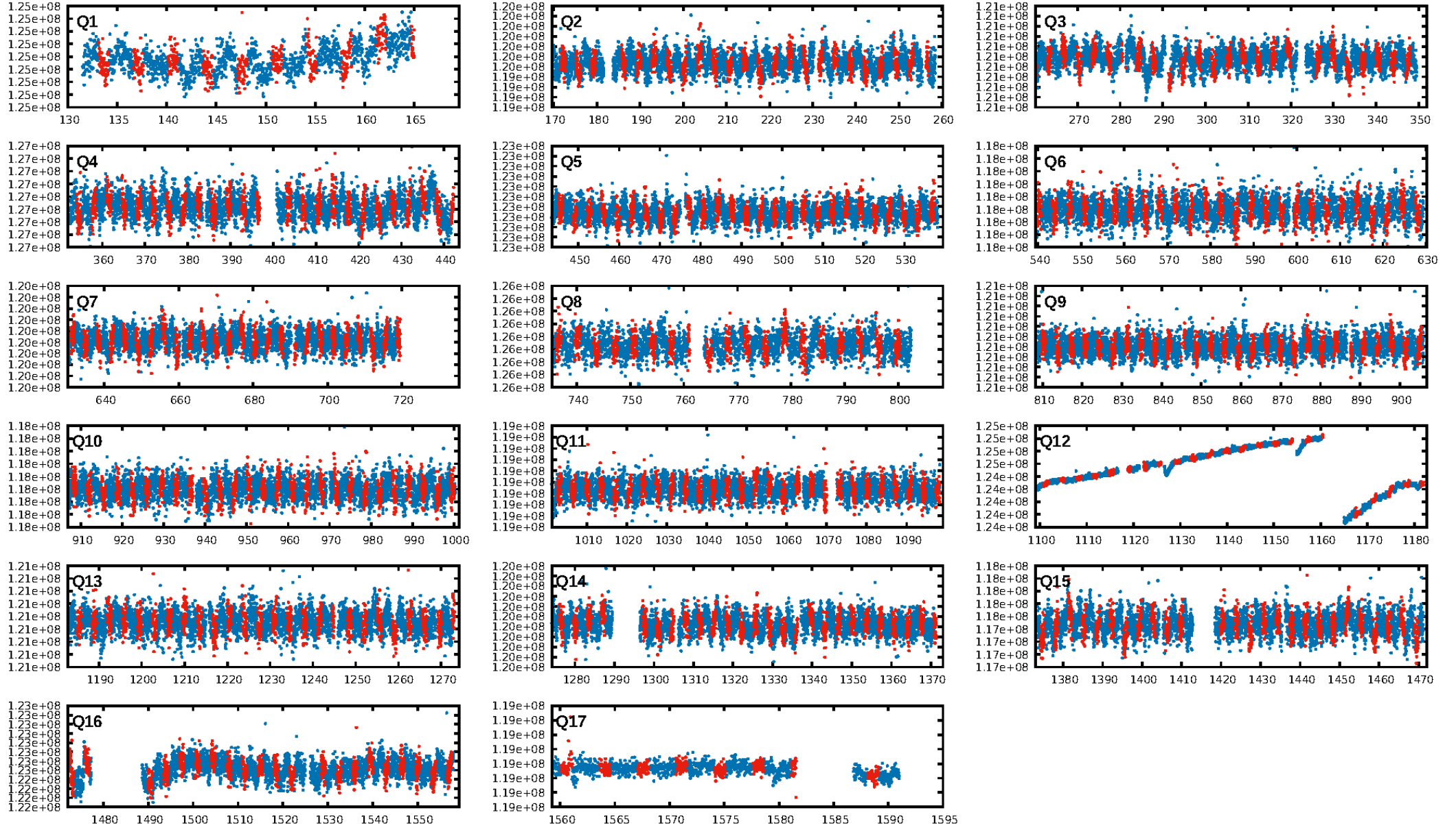
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.07e-19  
RollingBand-fgt: 1.00 [371/371]  
GhostDiagnostic-chr: -57.63  
Centroid-sig: 19.8%  
Centroid-so: 1.042 arcsec [1.02σ]  
OotOffset-rm: 0.790 arcsec [1.46σ]  
OotOffset-st: 4/2/4/5 [15]  
KicOffset-rm: 0.674 arcsec [1.22σ]  
KicOffset-st: 4/2/4/5 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 1.00 [17/17]

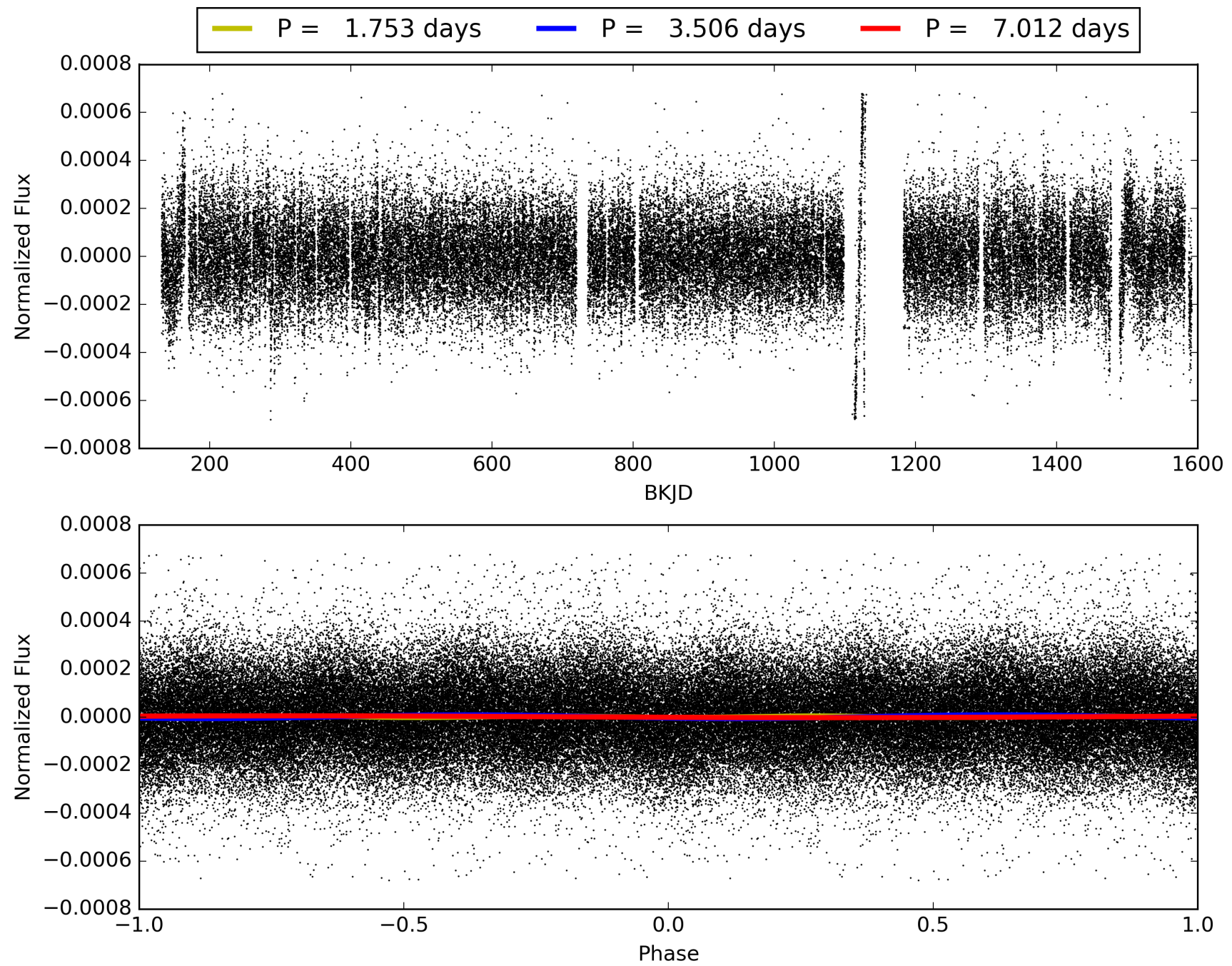
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:27:21 Z

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

# TCE 010008394-01, PDC Light Curves

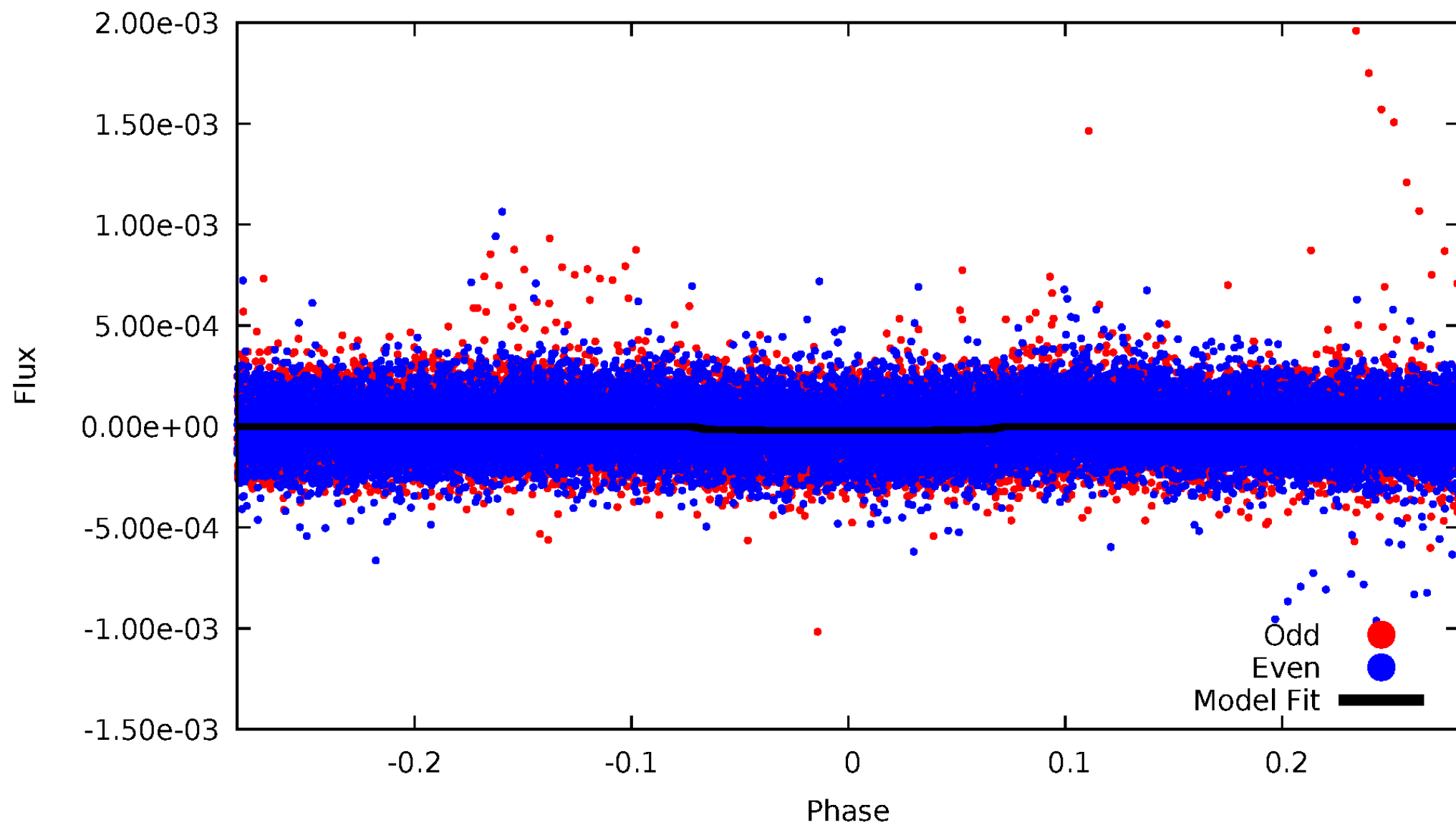


TCE 010008394-01



# DV Odd/Even

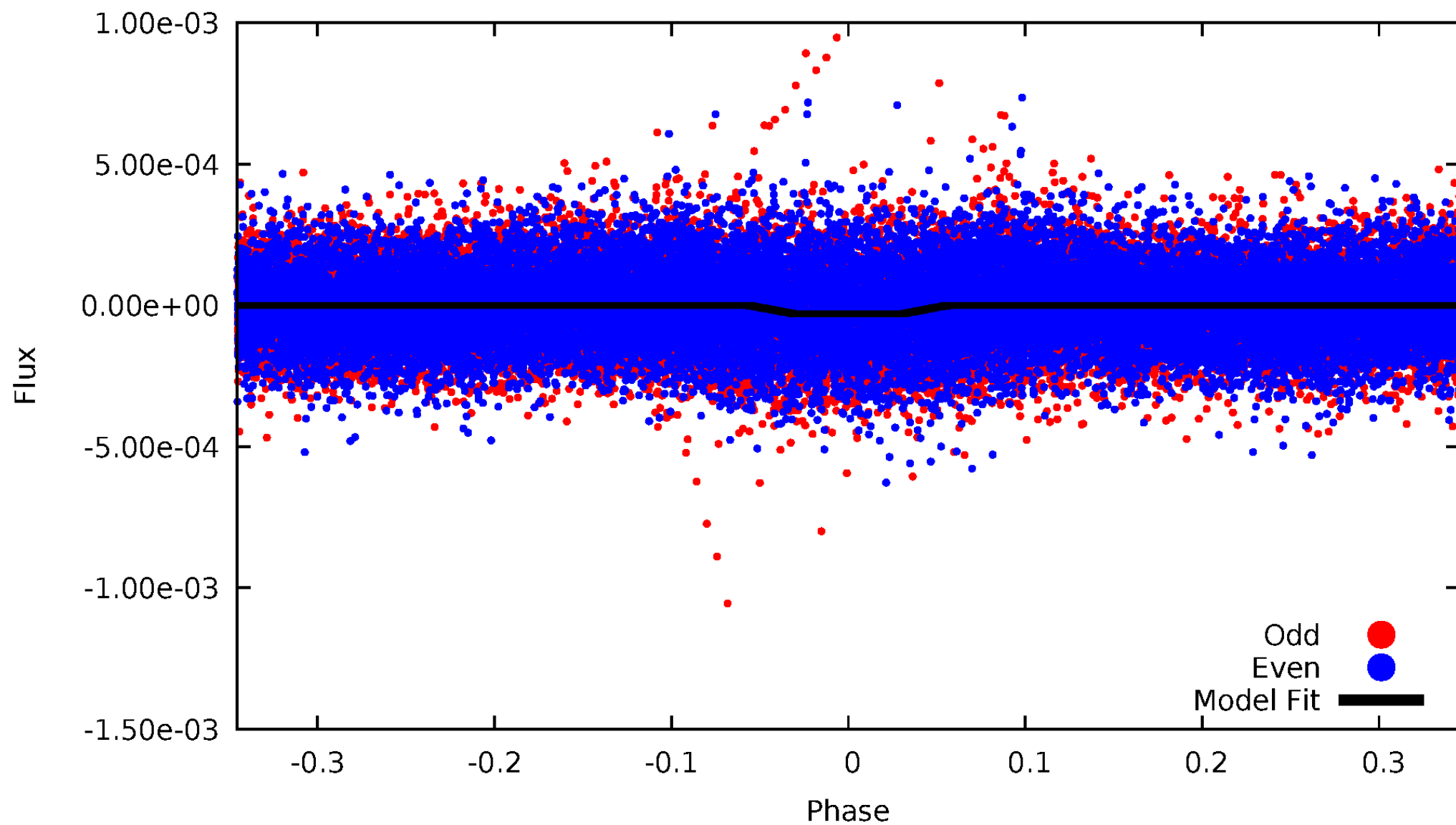
TCE 010008394-01





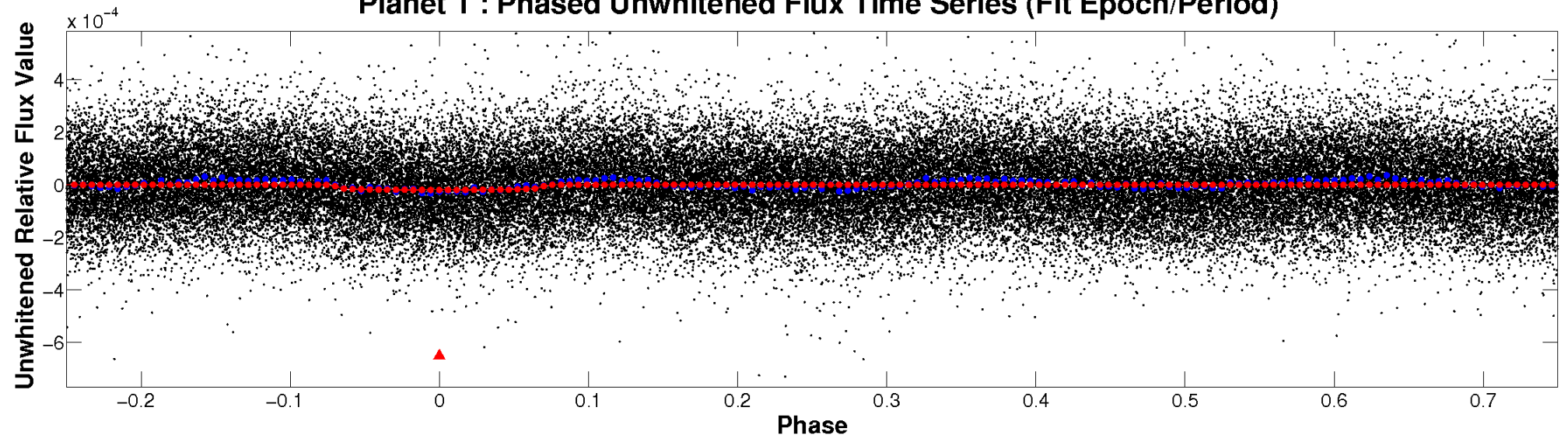
# ALT Odd/Even

TCE 010008394-01

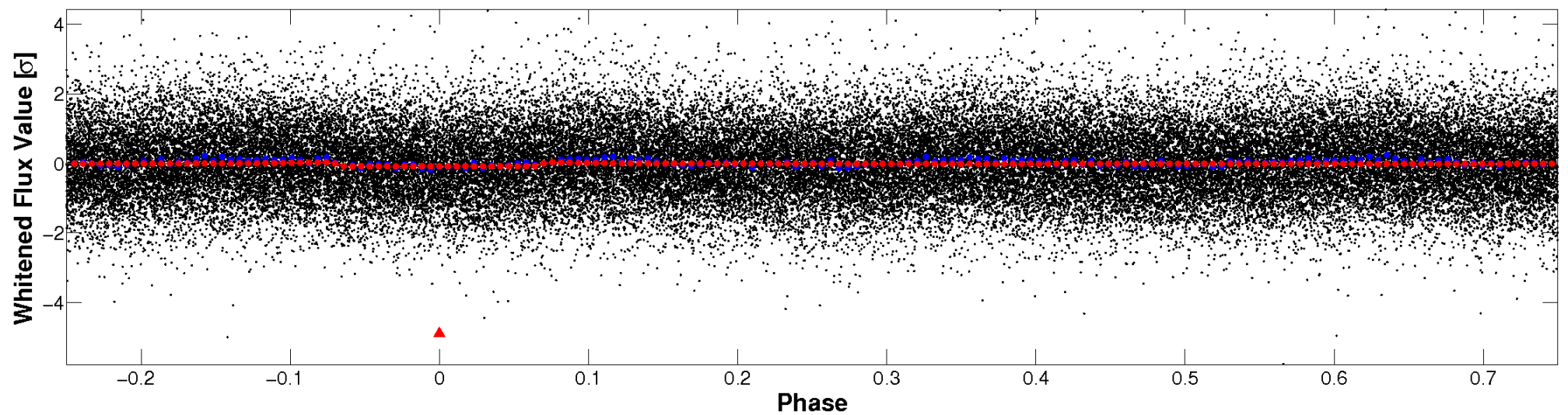


# Non-Whitened Vs. Whitened Light Curve

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

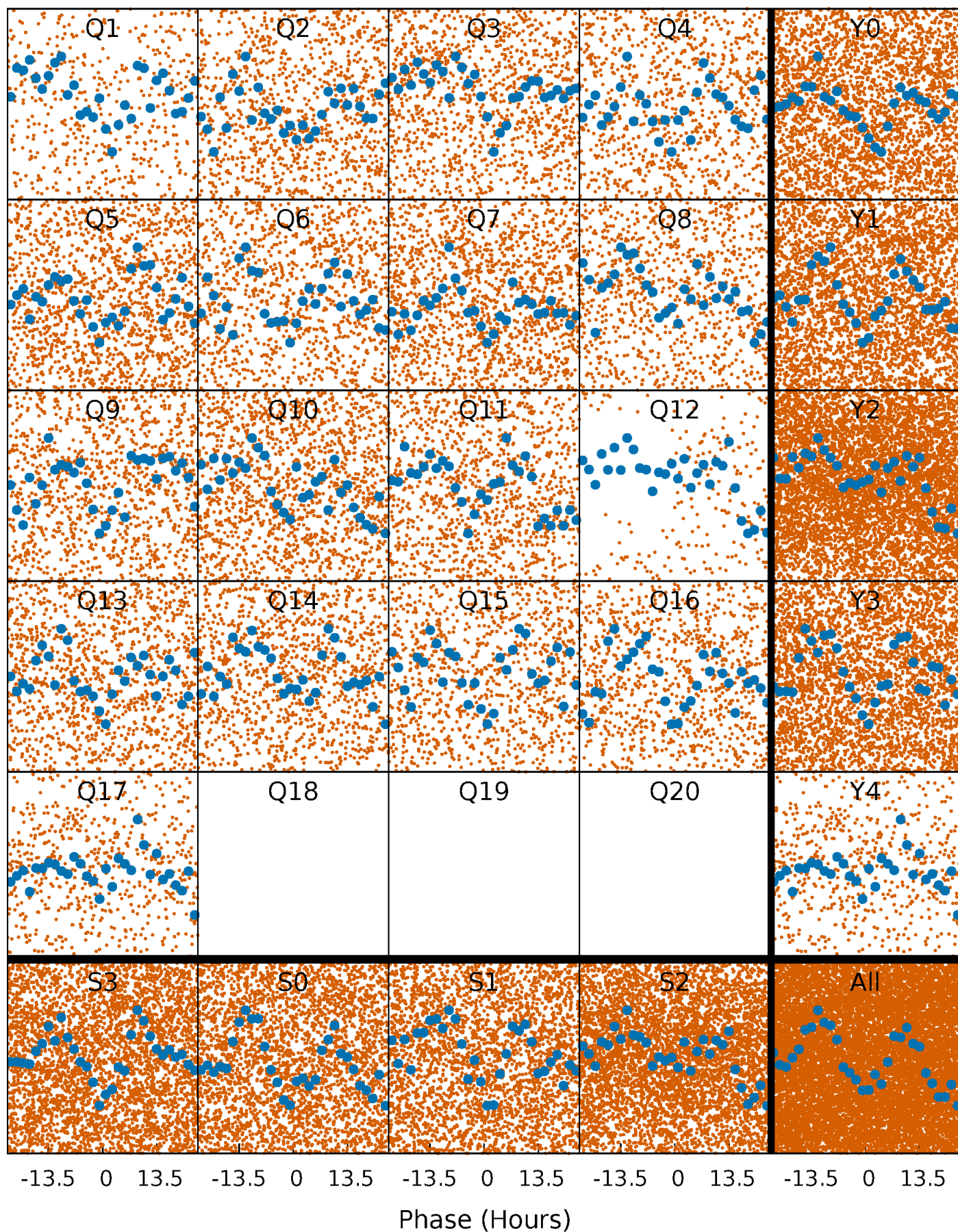


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

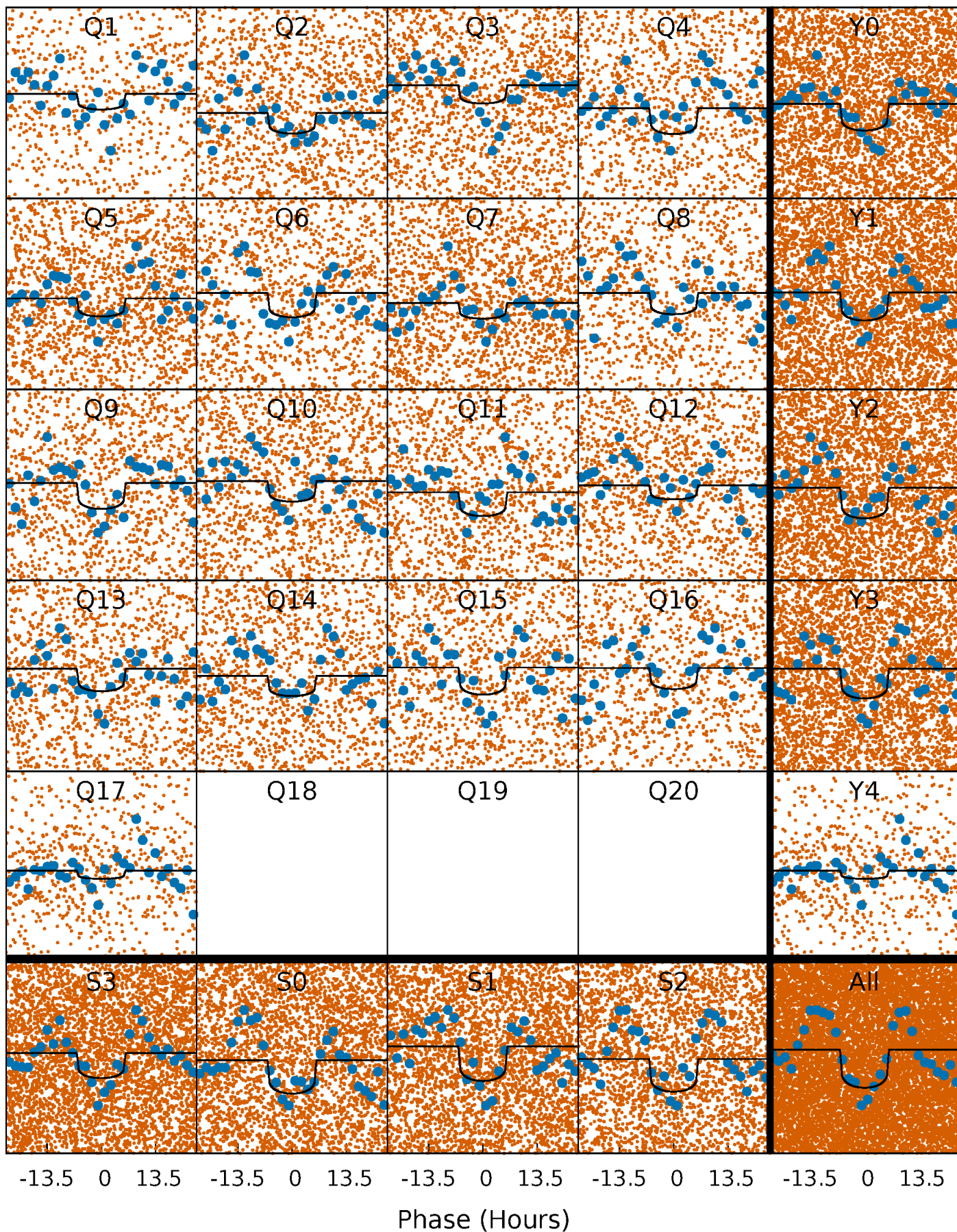
TCE 010008394-01 P= 3.506037 Days  $T_0=133.616864$  (BKJD)





# DV Quarter-Phased Transit Curves

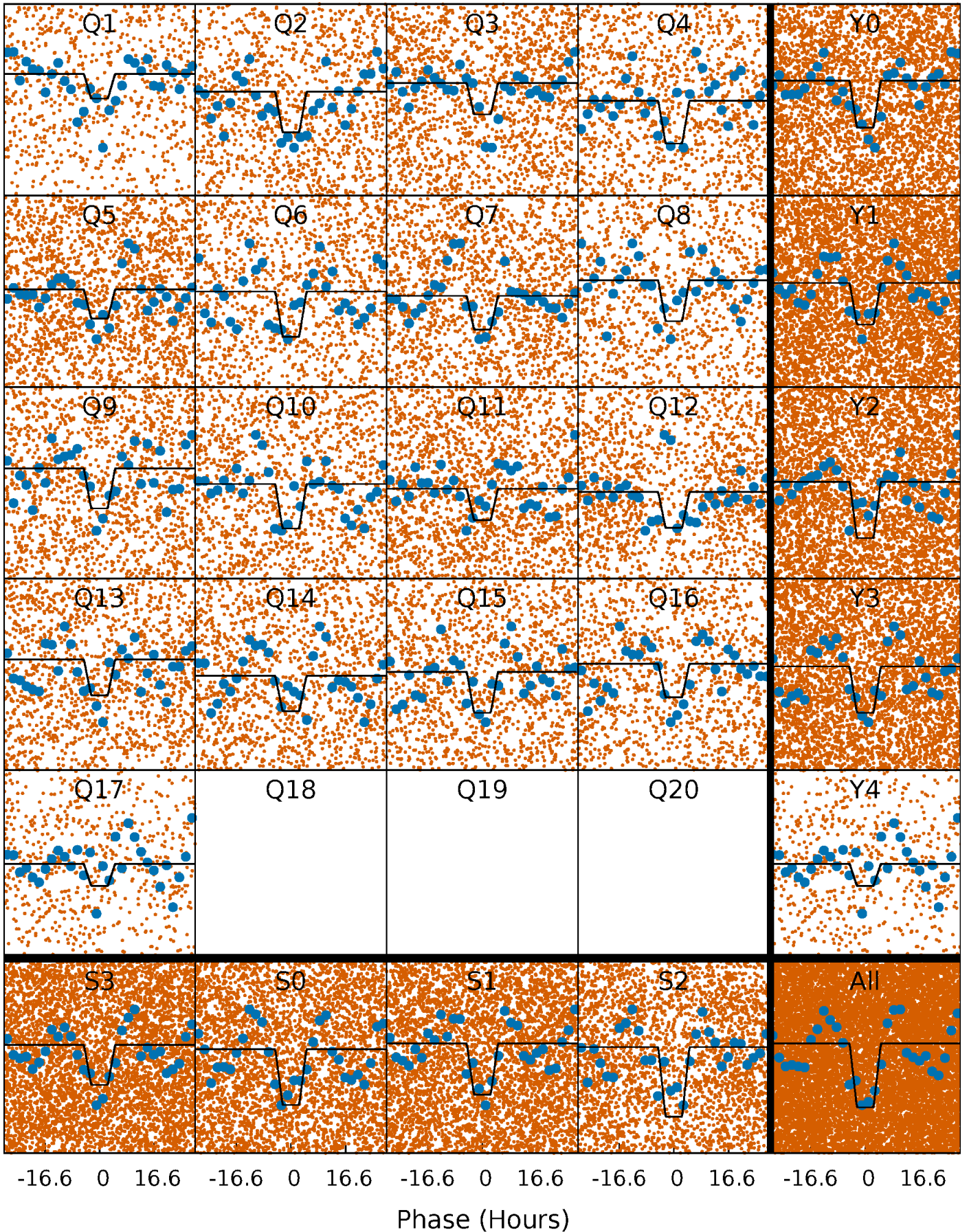
TCE 010008394-01   P= 3.506037 Days    $T_0=133.616864$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

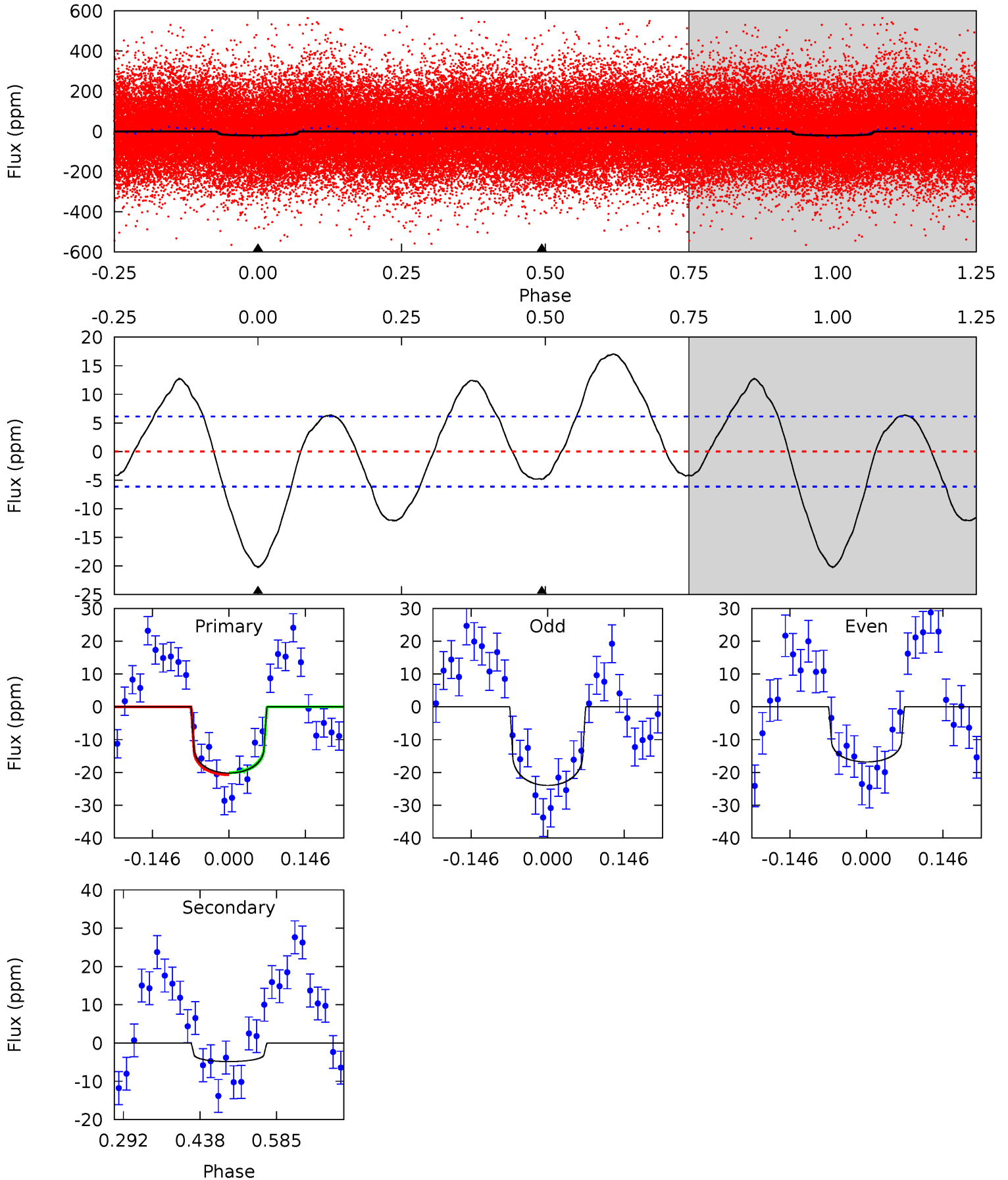
TCE 010008394-01 P= 3.505962 Days  $T_0=133.651874$  (BKJD)



# DV Model-Shift Uniqueness Test

010008394-01, P = 3.506037 Days, E = 130.110827 Days

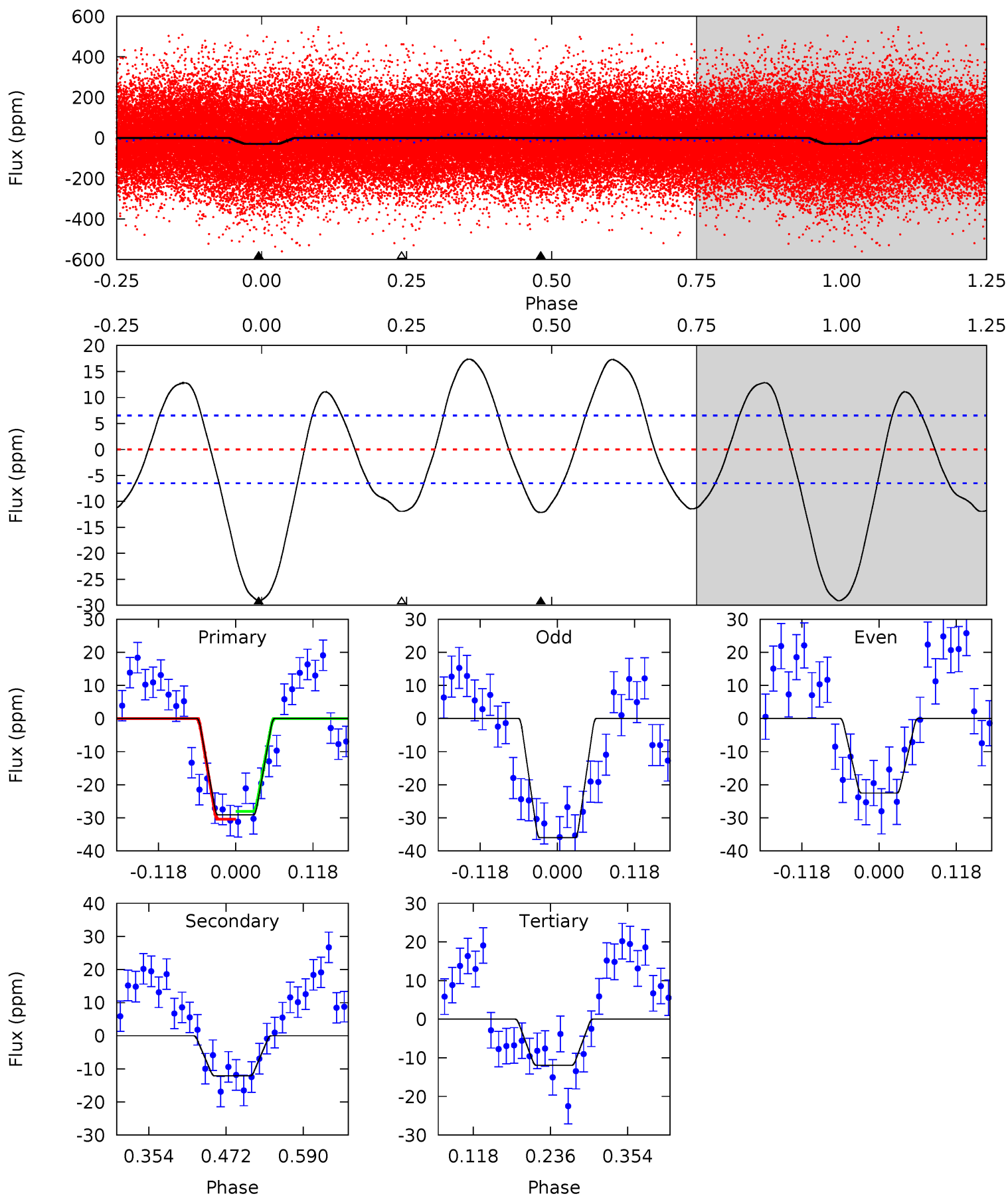
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.8 | 3.54 | 0   | 0   | 4.48            | 1.45            | 5.23             | 14.8    | 14.8    | 3.54    | 3.54    | 2.62    | 0.92 | 0.46  | 0.22 |



# Alt Model-Shift Uniqueness Test

010008394-01, P = 3.505962 Days, E = 130.145912 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  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.3 | 8.45 | 8.31 | 0   | 4.53            | 1.56            | 6.87             | 12.0    | 20.3    | 0.14    | 8.45    | 4.70    | 1.08 | 0.37  | 0.83 |





### Stellar Parameters For KIC 010008394

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6931^{+168}_{-264}$ | $4.225^{+0.108}_{-0.132}$ | $-0.160^{+0.250}_{-0.350}$ | $1.481^{+0.319}_{-0.261}$ | $1.354^{+0.150}_{-0.206}$ | $0.587^{+0.307}_{-0.238}$                 |
|        | +2%/-4%              | +3%/-3%                   | +156%/-219%                | +22%/-18%                 | +11%/-15%                 | +52%/-41%                                 |
| Source | PHO1                 | FLK73                     | 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 010008394-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$        | $T_{obs} (K)$        | $A_{obs}$       |
|---------|-------------|------------------------|----------------------|----------------------|-----------------|
| DV      | $-5 \pm 1$  | $0.72^{+0.20}_{-0.18}$ | $2338^{+134}_{-132}$ | $4881^{+685}_{-539}$ | $12^{+11}_{-5}$ |
| Alt.    | $-12 \pm 1$ | $0.90^{+0.20}_{-0.19}$ | $2326^{+146}_{-132}$ | $5438^{+618}_{-488}$ | $20^{+13}_{-7}$ |

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

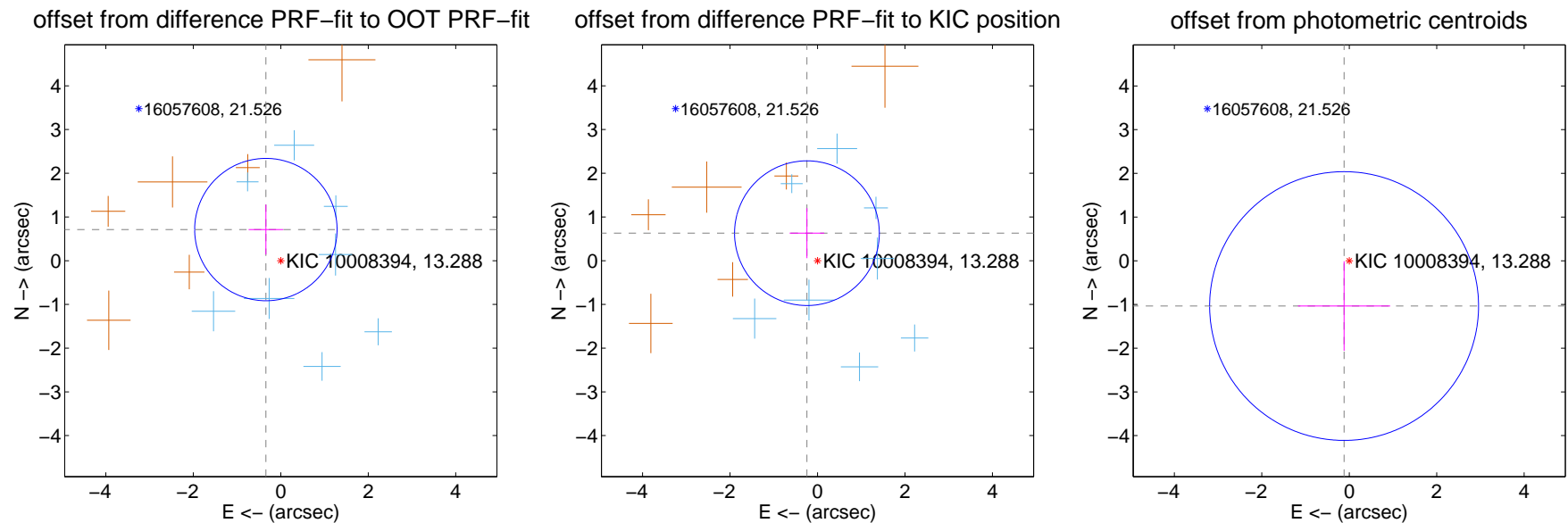
## DV Centroid Data

Supplemental centroid analysis for 010008394-01. Kepler magnitude: 13.29. Transit SNR 7.70

There are 8 quarters with good PRF difference image offsets

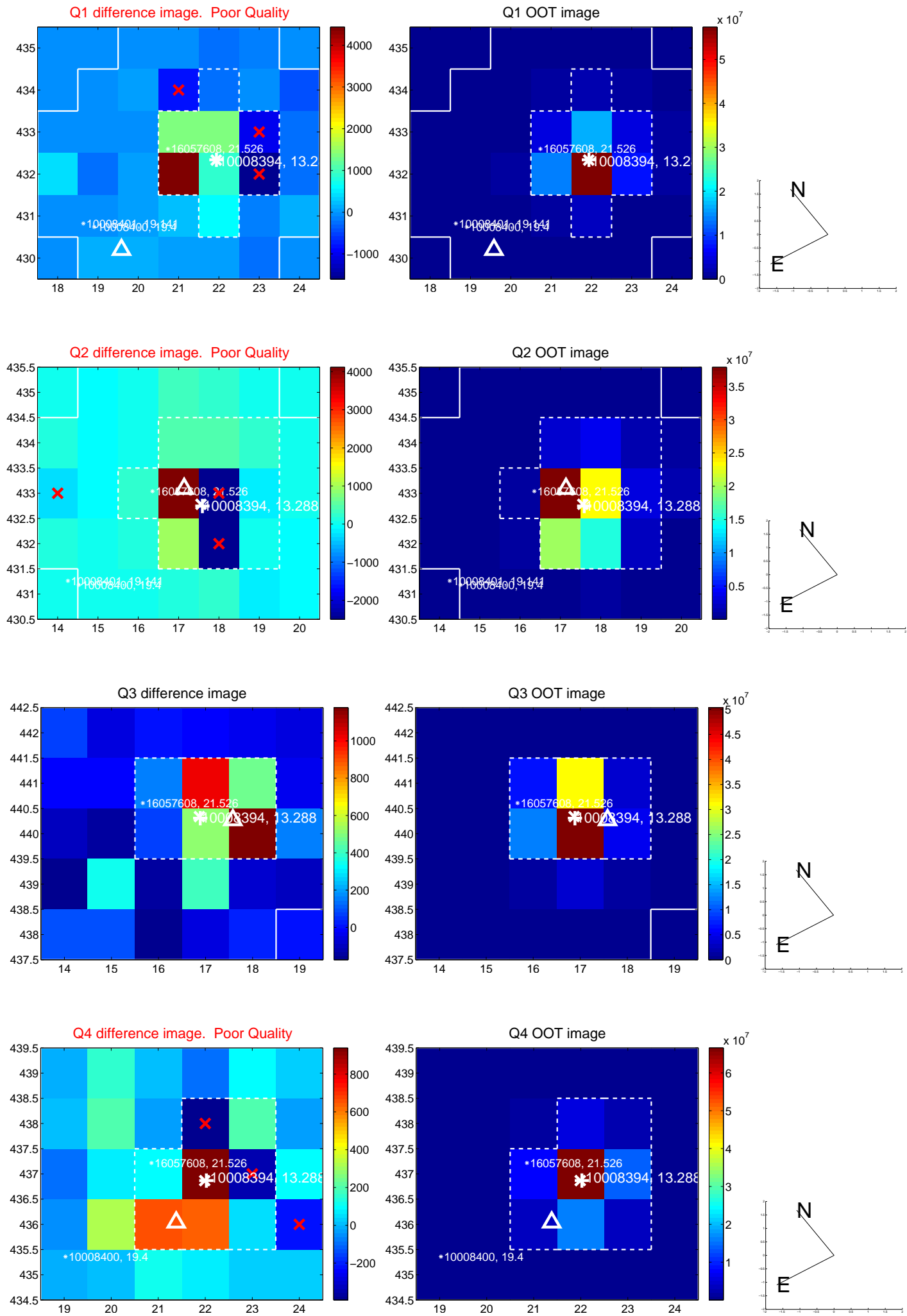
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.790 \pm 0.543$  | 1.46                | $0.341 \pm 0.395$ | $0.712 \pm 0.571$ |
| PRF-fit source offset from KIC position | $0.674 \pm 0.552$  | 1.22                | $0.242 \pm 0.395$ | $0.630 \pm 0.571$ |
| photometric centroid source offset      | $1.04 \pm 1.02$    | 1.02                | $0.12 \pm 1.05$   | $-1.04 \pm 1.02$  |

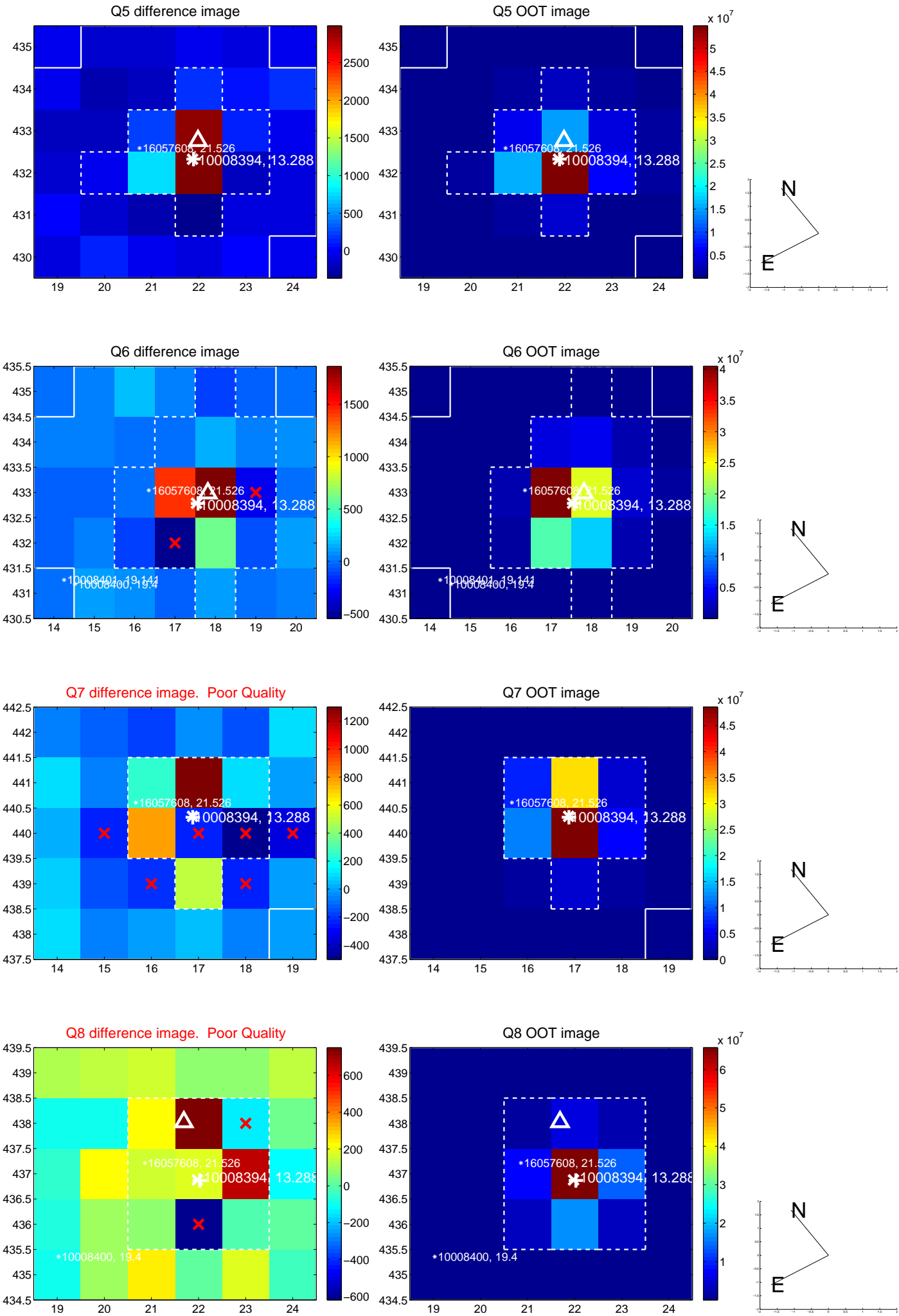


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

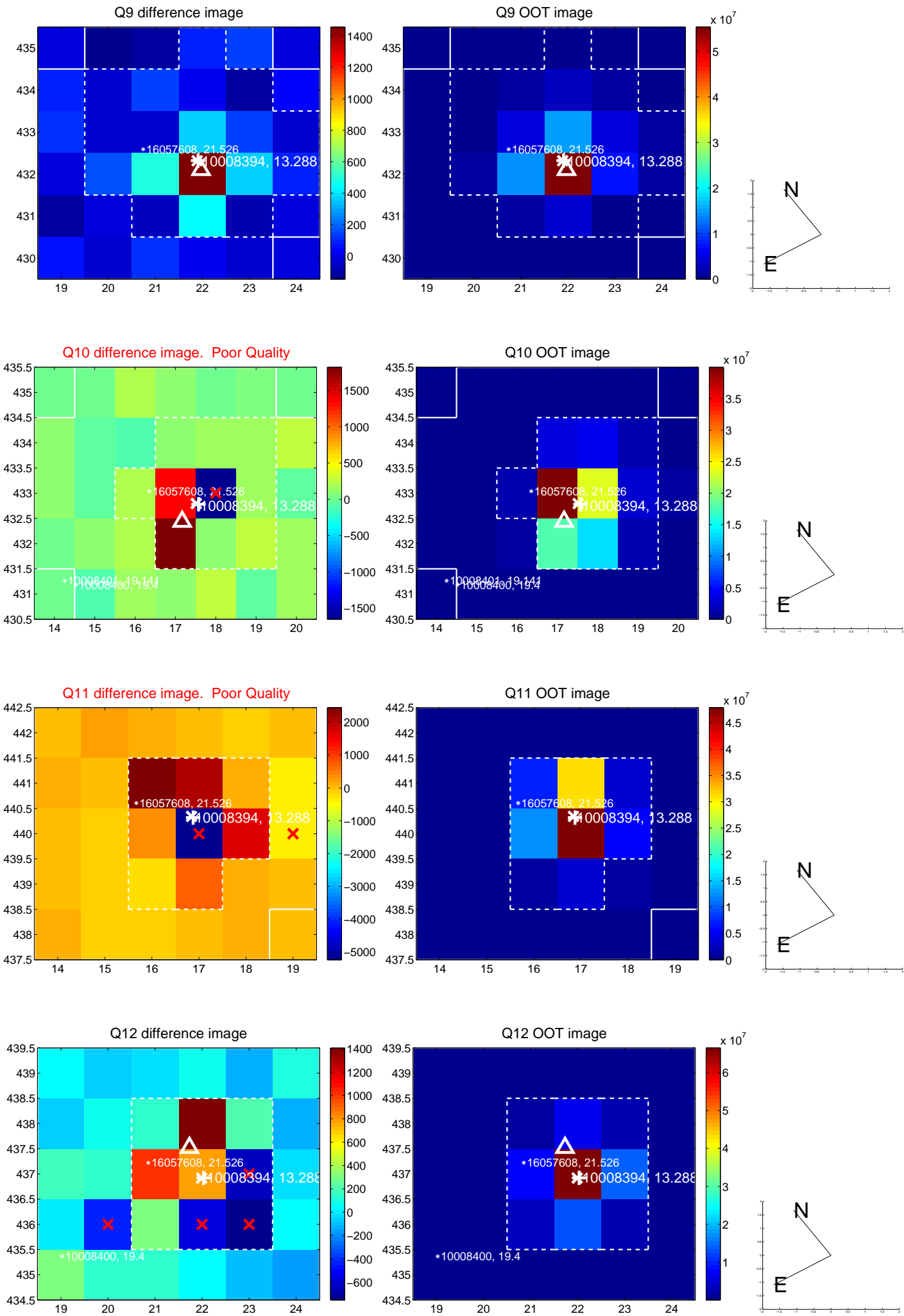


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

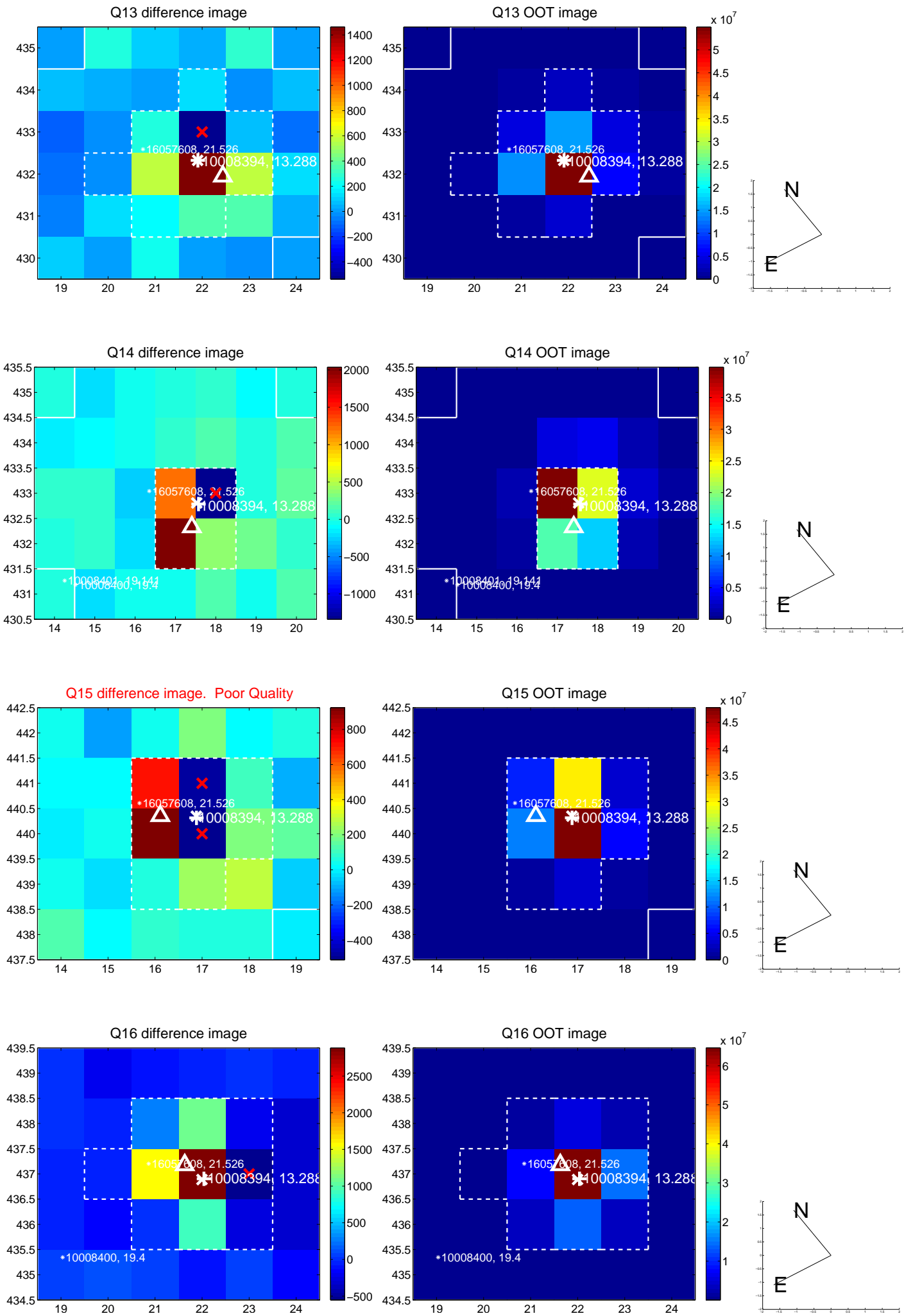




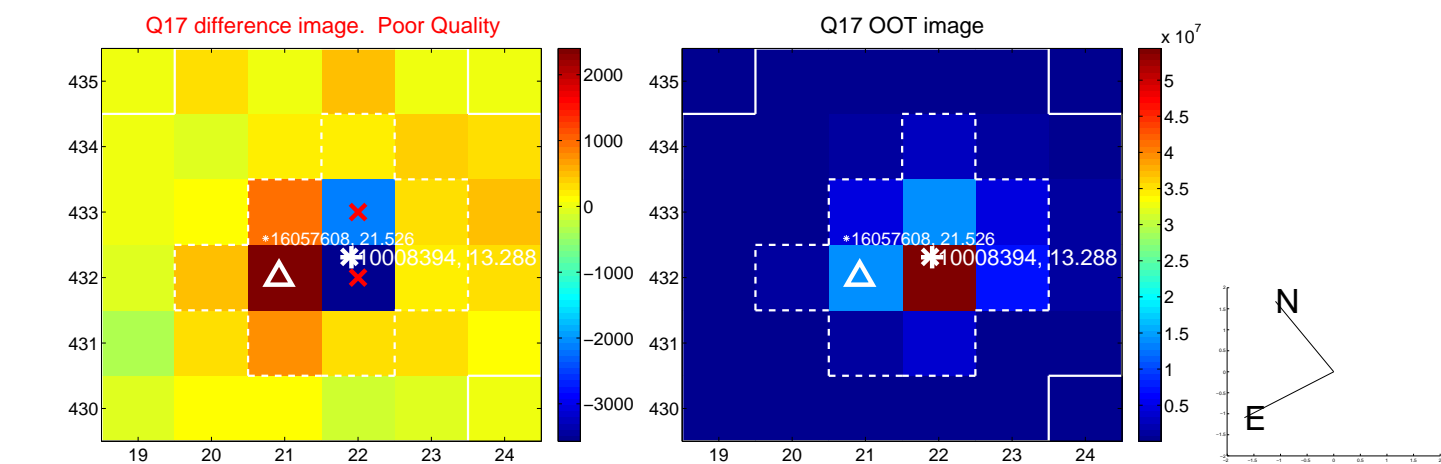
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



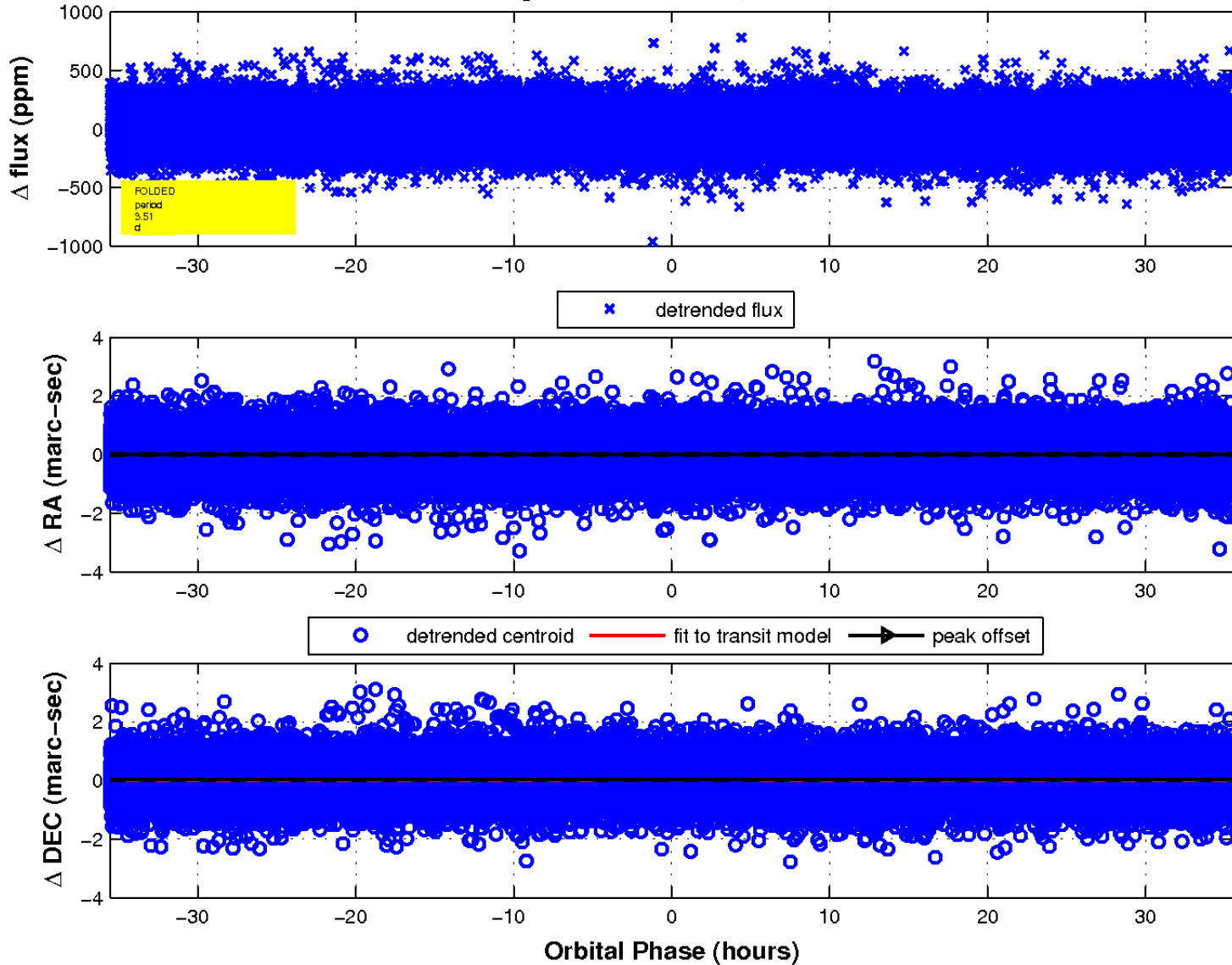
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

