

# KIC 011852982

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011852982-01 | OBS      | 0247.01 | 13.815034     | 139.681233   | 1034.9      | 2.467            | 41.5 | 48.1 | 0.51                        | 3732            | 2.00                   | 5.52                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 011852982-01 | 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.

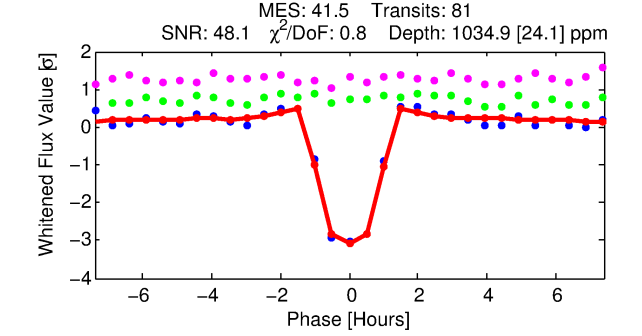
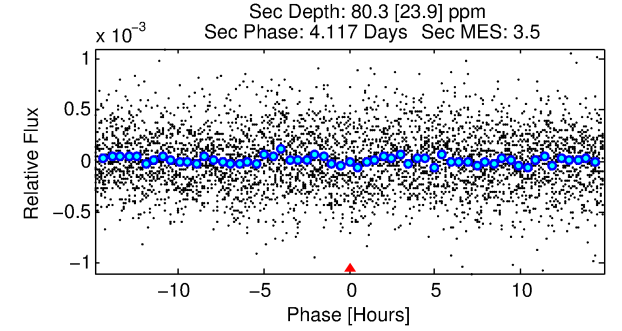
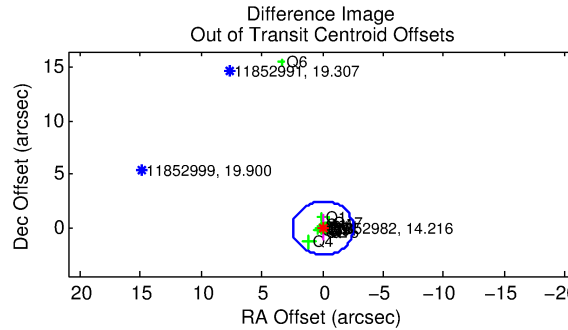
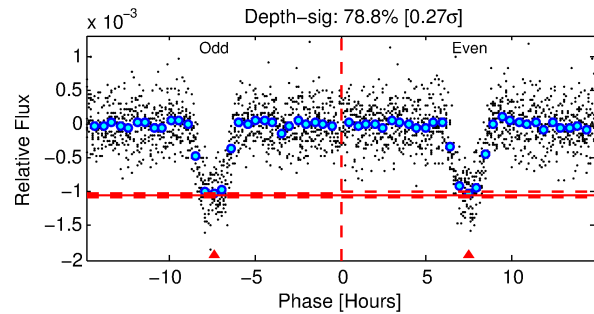
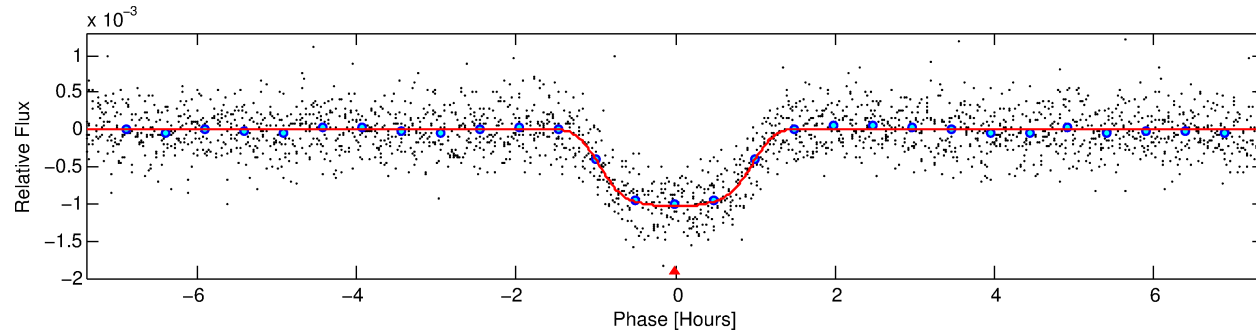
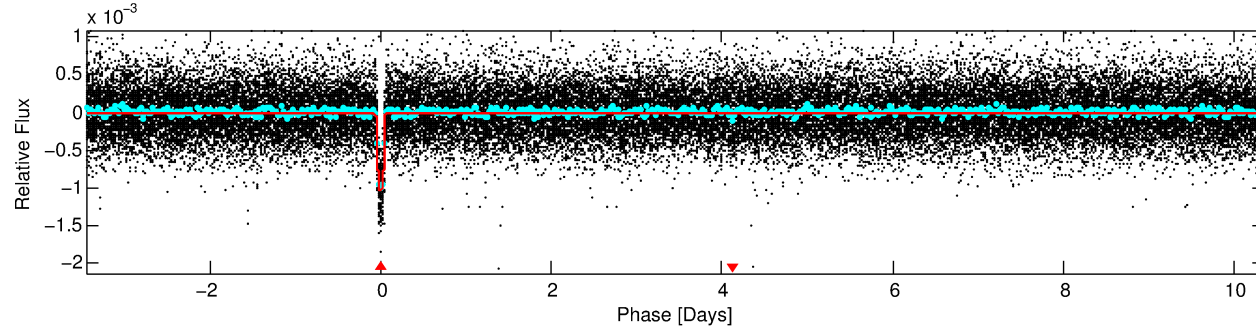
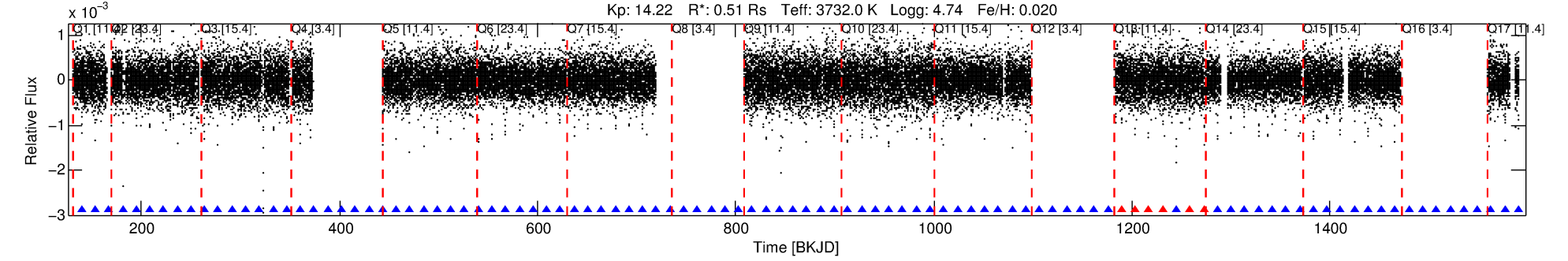
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011852982-01

No Significant Match Found

# DV One-Page Summary

KIC: 11852982 Candidate: 1 of 1 Period: 13.815 d  
KOI: K00247.01 Corr: 0.995



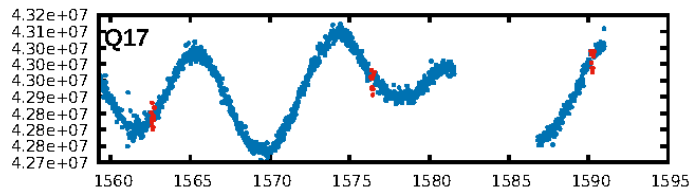
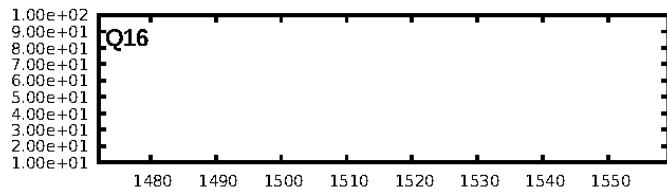
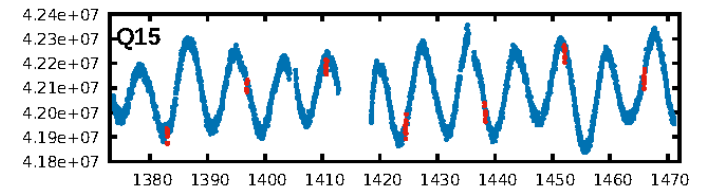
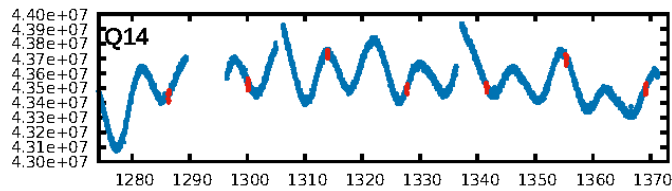
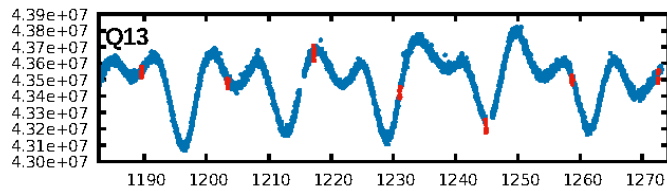
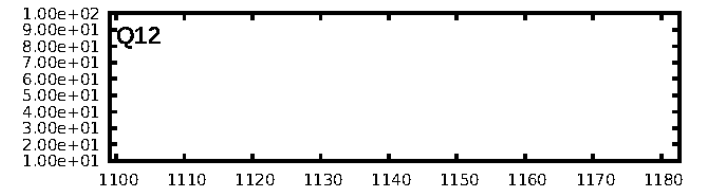
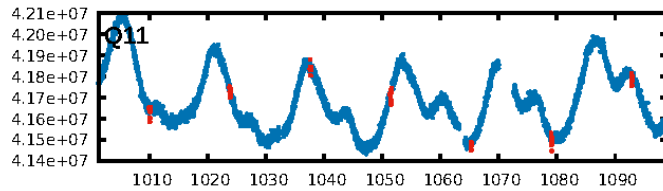
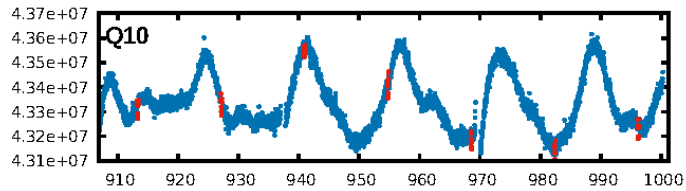
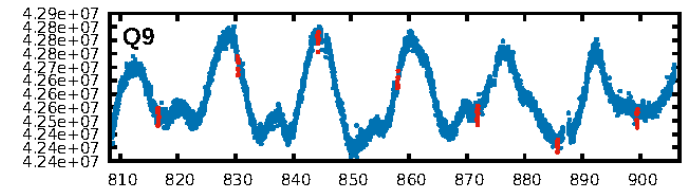
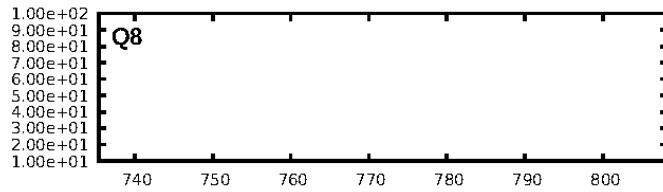
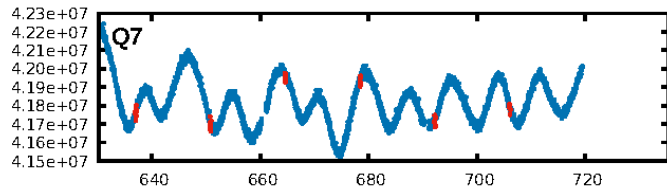
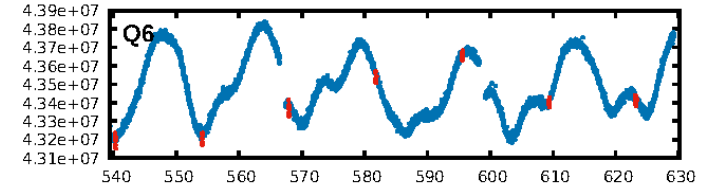
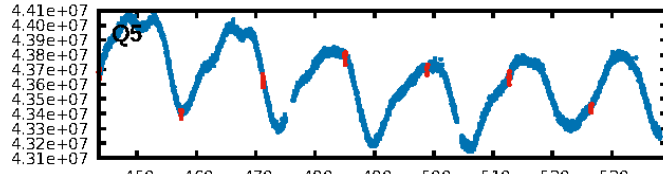
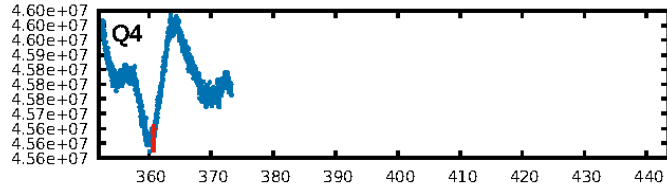
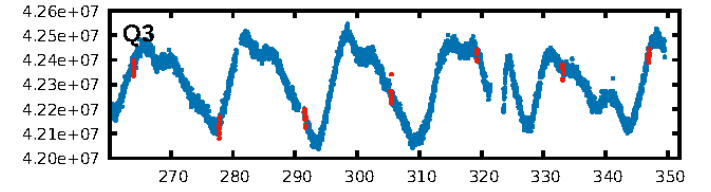
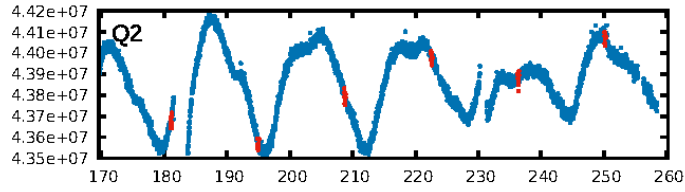
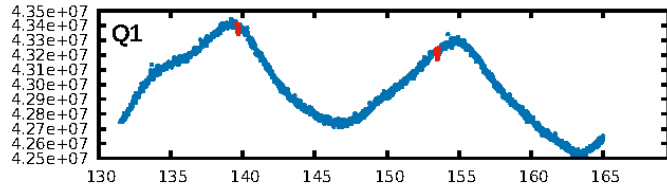
## DV Fit Results:

Period = 13.81503 [0.00002] d  
Epoch = 139.6812 [0.0011] BKJD  
Rp/R\* = 0.0361 [0.0013]  
a/R\* = 20.52 [2.76]  
b = 0.92 [0.02]  
Seff = 5.52 [0.75]  
Teq = 391 [13] K  
Rp = 2.00 [0.21] Re  
a = 0.0903 [0.0069] AU  
Ag = 89.74 [29.01] [3.06 $\sigma$ ]  
Teffp = 1860 [148] K [9.87 $\sigma$ ]

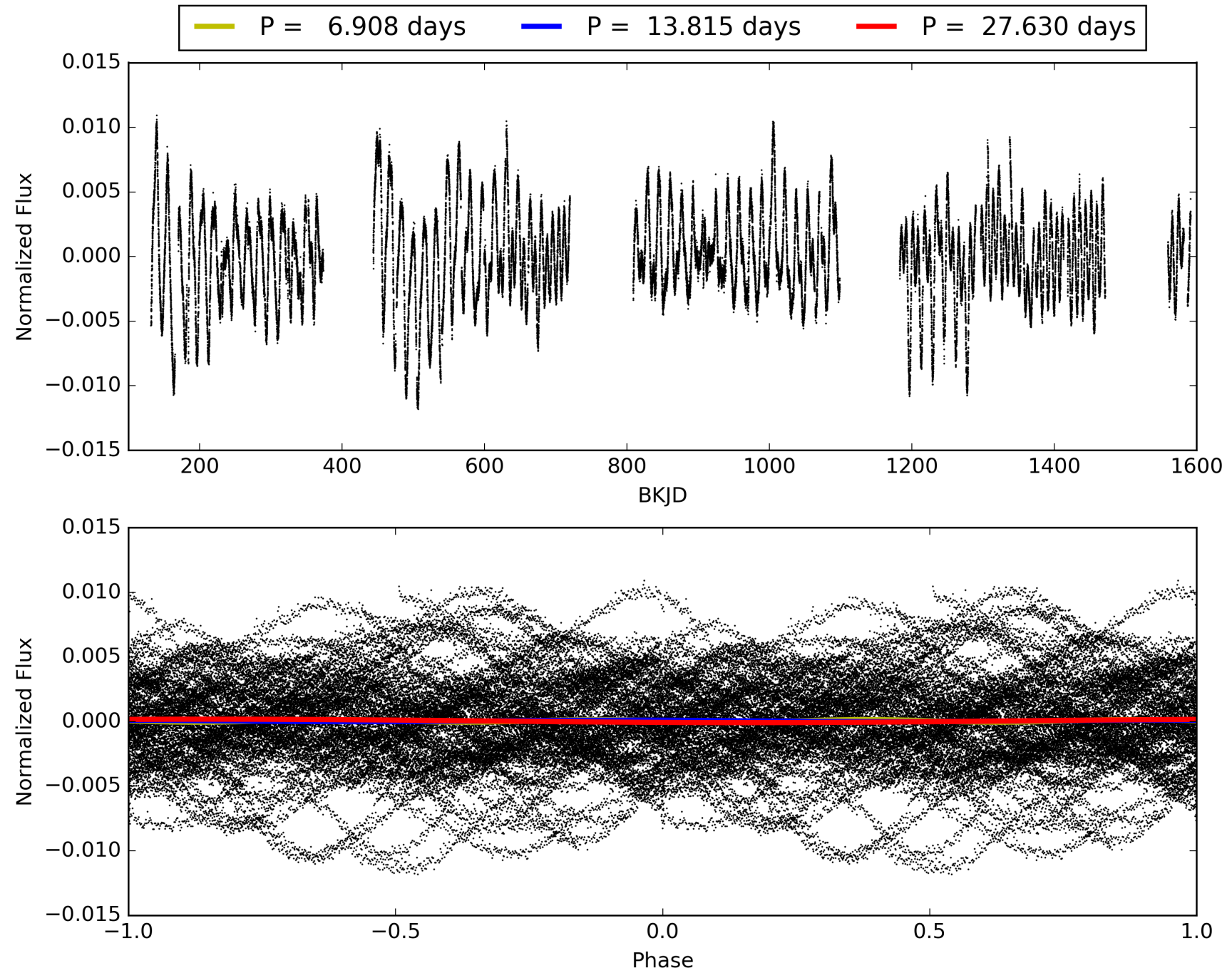
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.92 [69/75]  
GhostDiagnostic-chr: 8.043  
Centroid-sig: 1.4%  
Centroid-so: 0.747 arcsec [3.01 $\sigma$ ]  
OotOffset-rm: 0.060 arcsec [0.07 $\sigma$ ]  
KicOffset-rm: 0.276 arcsec [2.17 $\sigma$ ]  
OotOffset-st: 4/4/1/5 [14]  
KicOffset-st: 4/4/1/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 011852982-01, PDC Light Curves

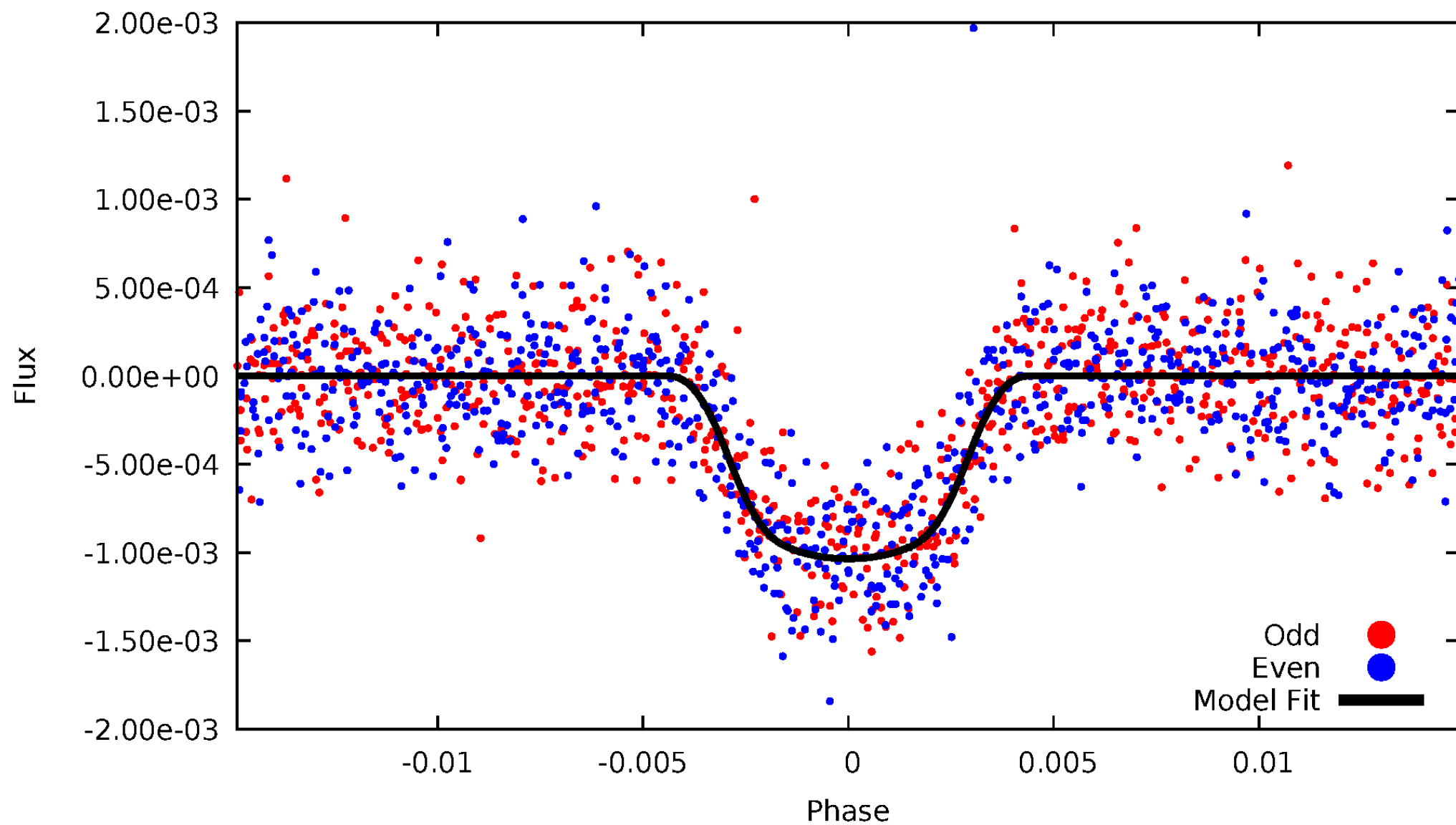


TCE 011852982-01



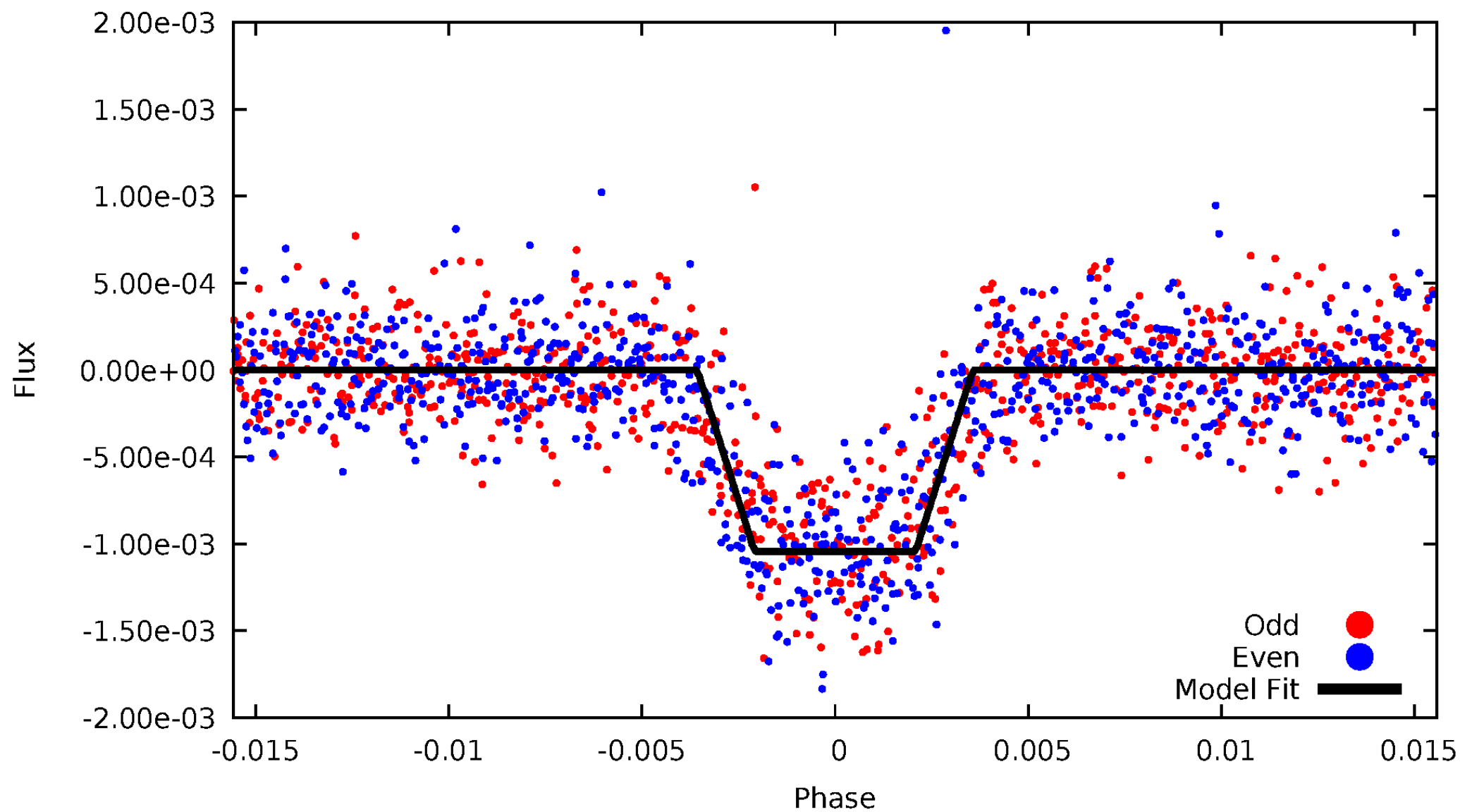
# DV Odd/Even

TCE 011852982-01



# ALT Odd/Even

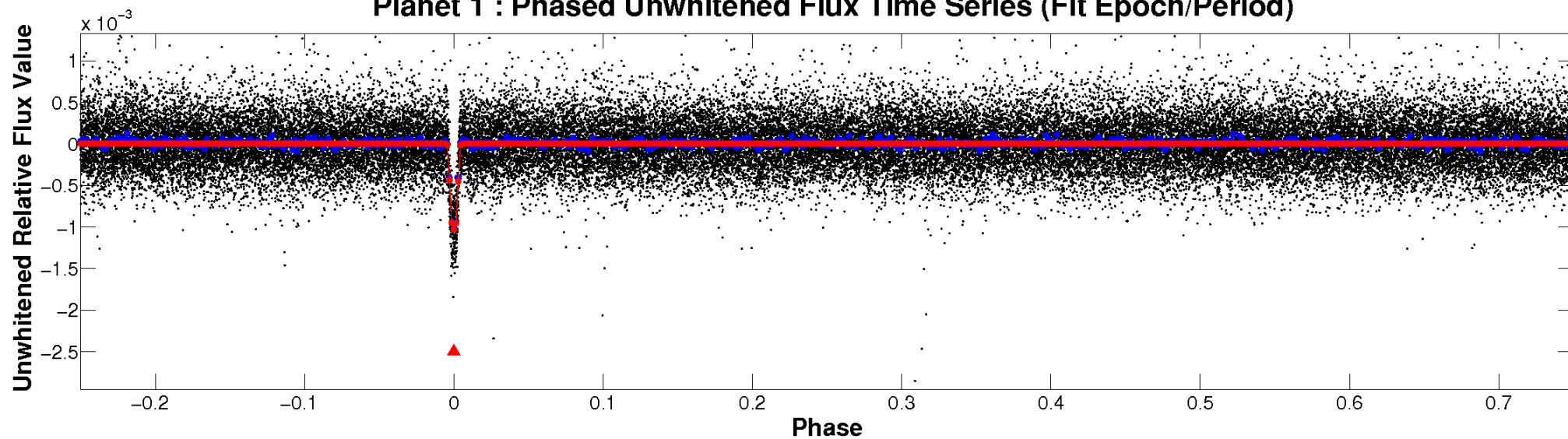
TCE 011852982-01



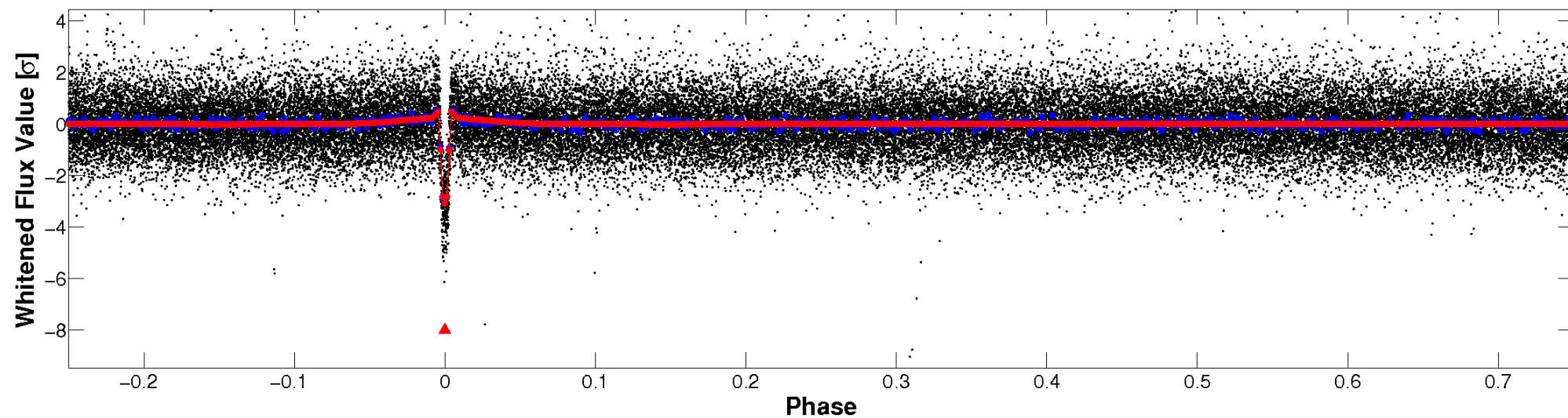


# Non-Whitened Vs. Whitened Light Curve

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

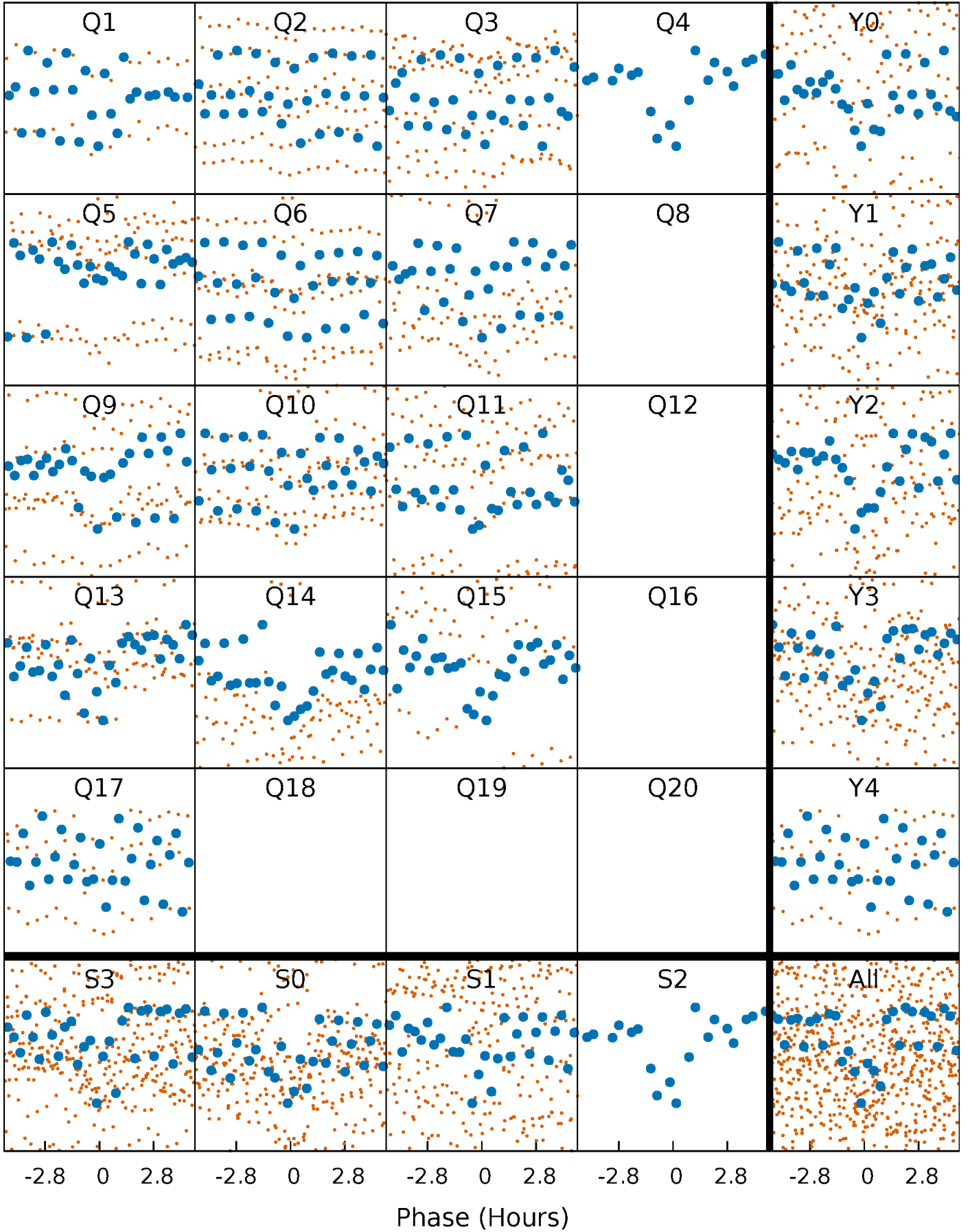


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

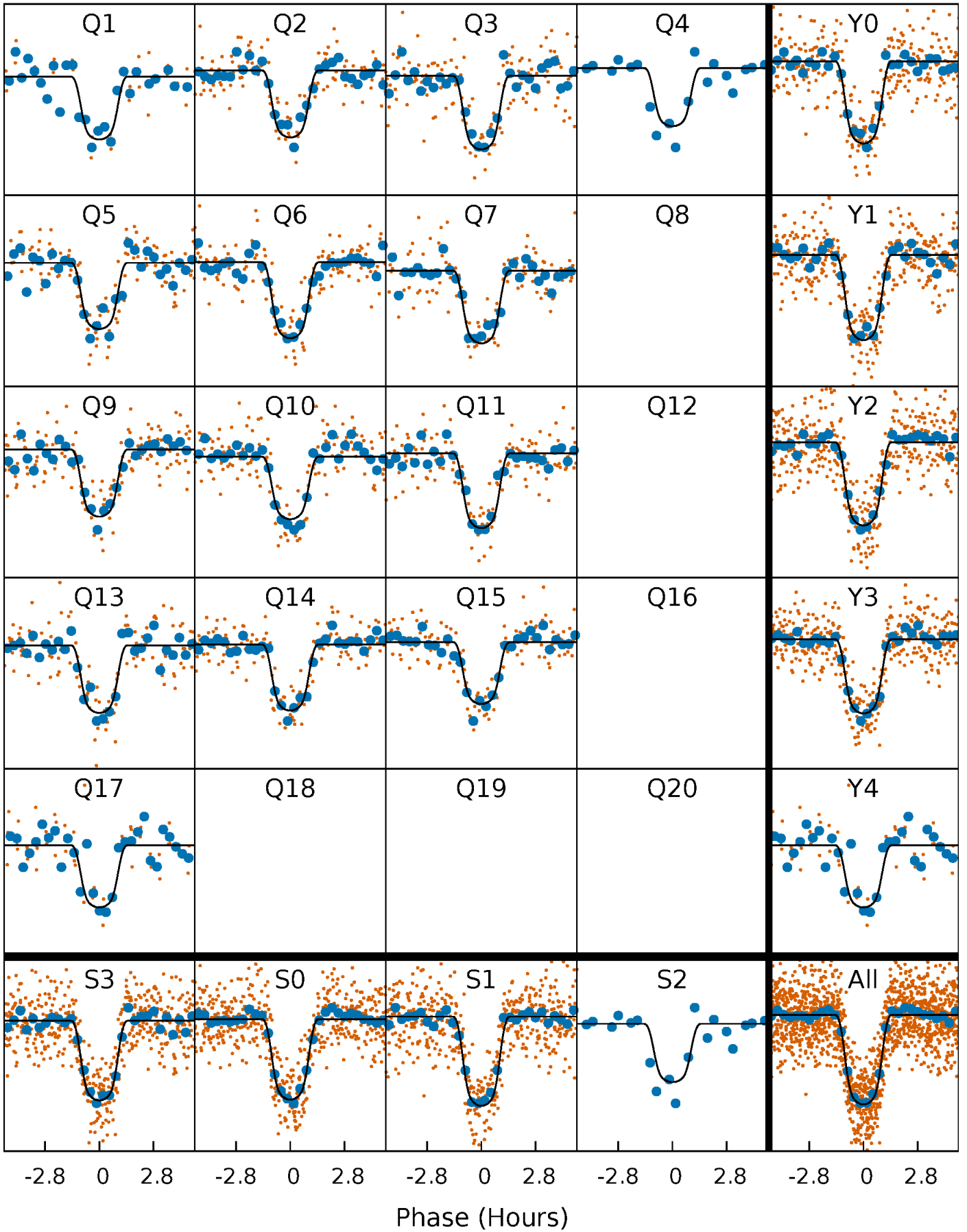
TCE 011852982-01   P= 13.815034 Days    $T_0=139.681233$  (BKJD)





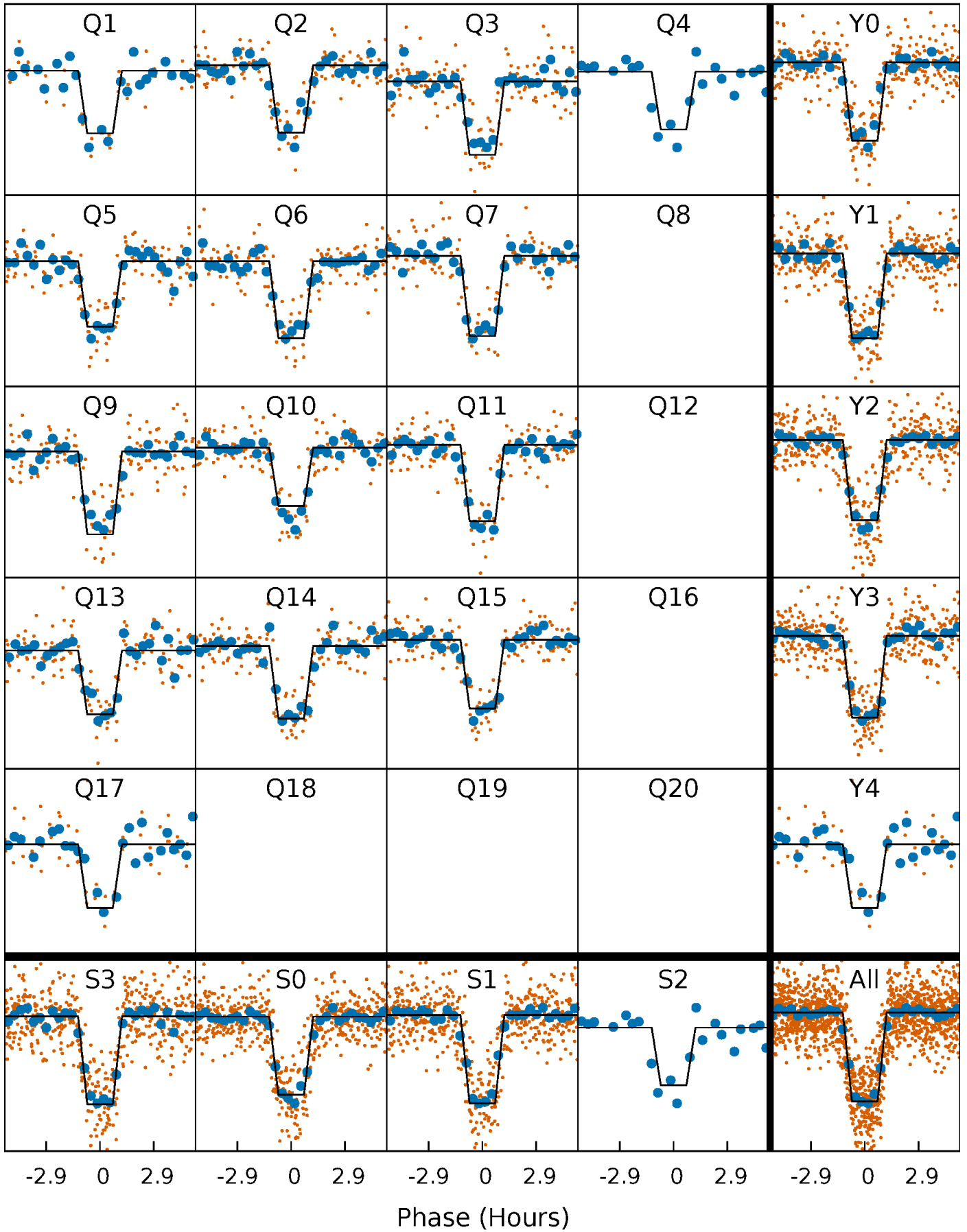
# DV Quarter-Phased Transit Curves

TCE 011852982-01 P= 13.815034 Days  $T_0=139.681233$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

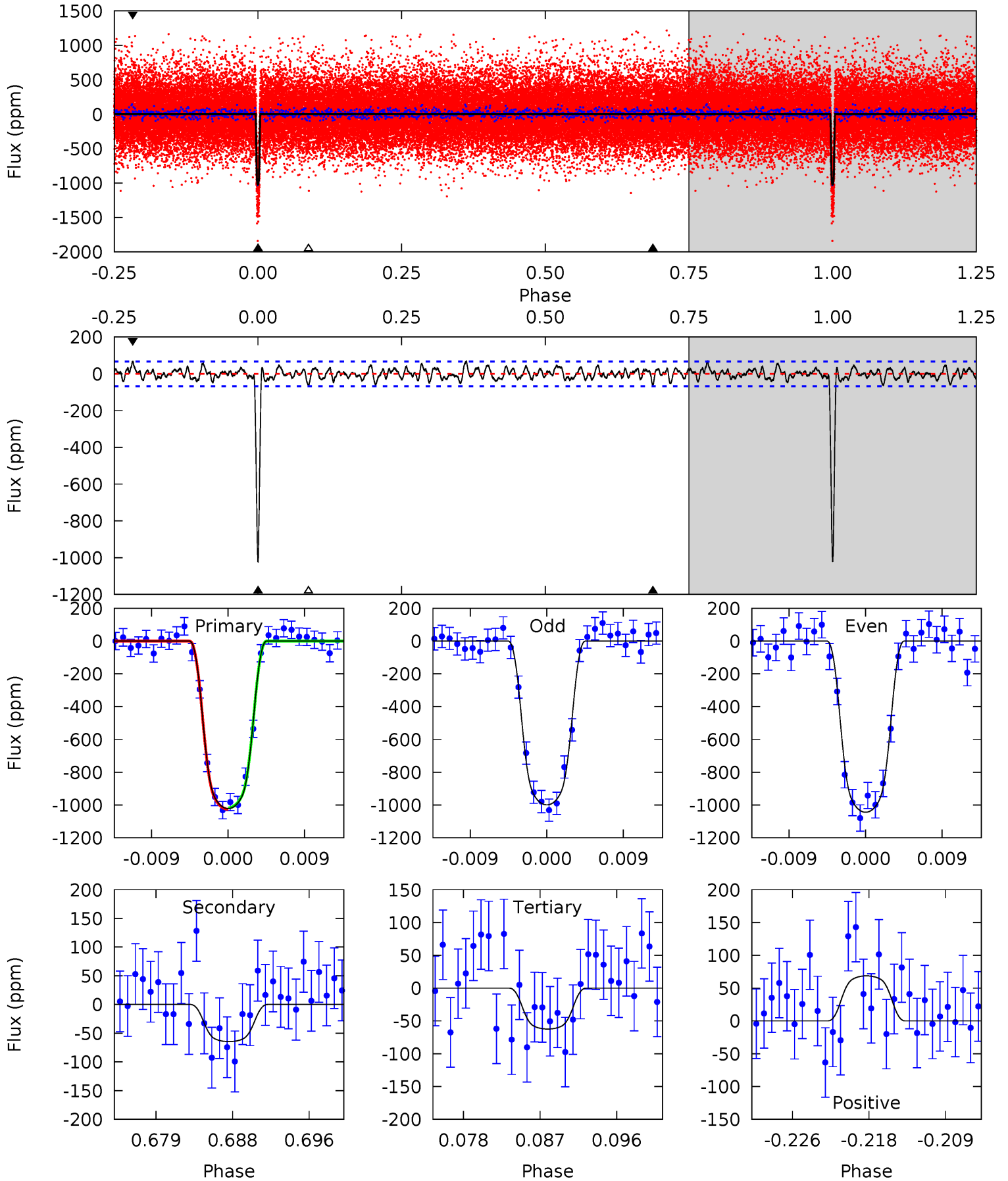
TCE 011852982-01   P= 13.814976 Days    $T_0=139.684344$  (BKJD)



# DV Model-Shift Uniqueness Test

011852982-01,  $P = 13.815034$  Days,  $E = 125.866199$  Days

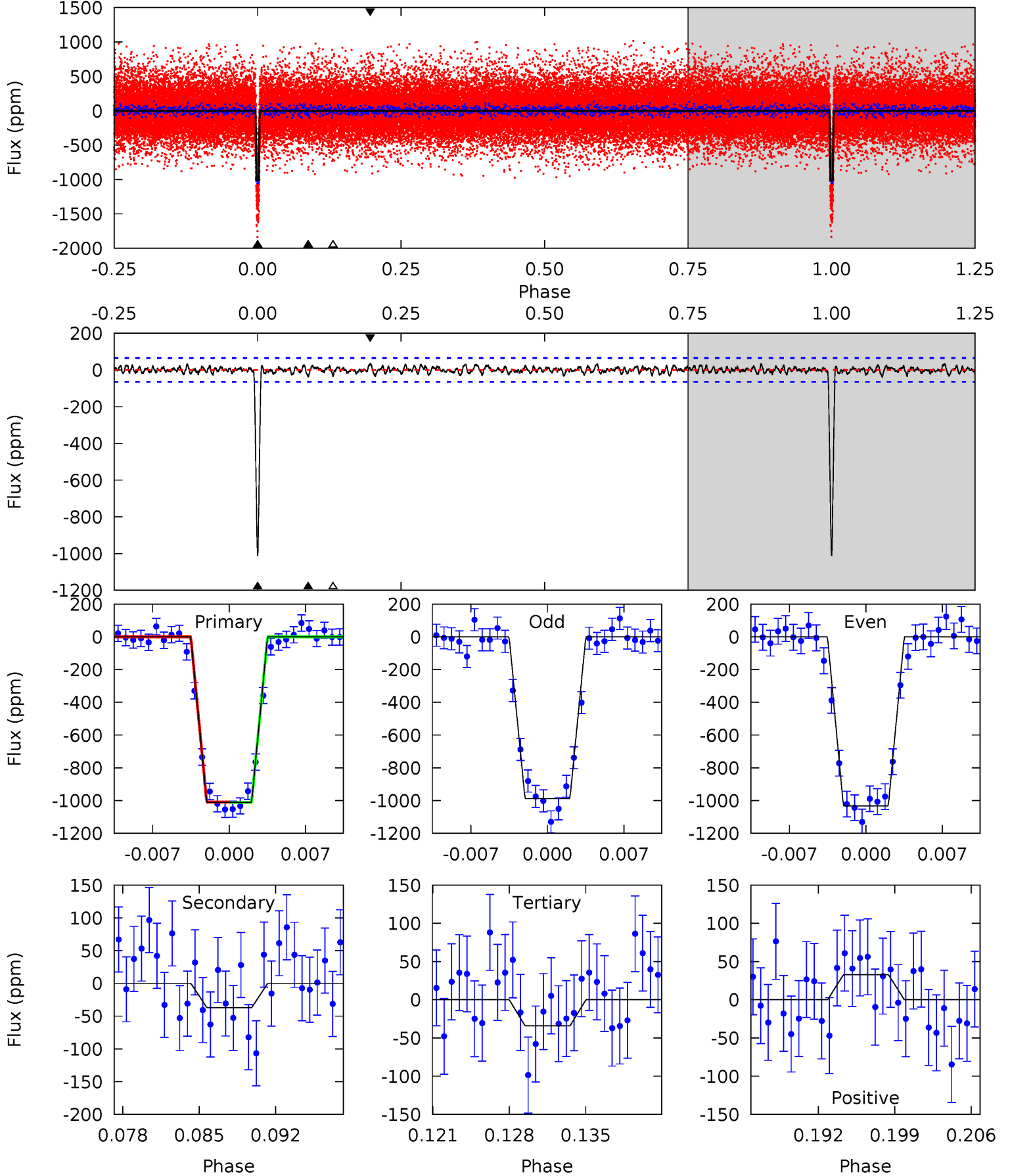
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 76.4 | 4.84 | 4.67 | 5.13 | 5.05            | 2.62            | 1.69             | 71.7    | 71.3    | 0.17    | -0.29   | 1.68    | 1.00 | 0.06  | 0.31 |



# Alt Model-Shift Uniqueness Test

011852982-01,  $P = 13.814976$  Days,  $E = 125.869368$  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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 79.2 | 2.90 | 2.68 | 2.58 | 5.09            | 2.69            | 0.97             | 76.5    | 76.6    | 0.22    | 0.32    | 1.74    | 0.95 | 0.03  | 0.08 |



### Stellar Parameters For KIC 011852982

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
|        | $3732^{+75}_{-83}$  | $4.736^{+0.052}_{-0.024}$ | $0.020^{+0.150}_{-0.150}$ | $0.509^{+0.034}_{-0.050}$ | $0.515^{+0.039}_{-0.042}$ | $5.504^{+1.279}_{-0.586}$                 |
|        | +2%/-2%             | +1%/-1%                   | +750%/-750%               | +7%/-10%                  | +8%/-8%                   | +23%/-11%                                 |
| Source | SPE70               | SPE60                     | SPE70                     | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011852982-01 / KOI 0247.01

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$       | $A_{obs}$        |
|---------|--------------|------------------------|-------------------|---------------------|------------------|
| DV      | $-65 \pm 13$ | $1.99^{+0.11}_{-0.12}$ | $543^{+13}_{-15}$ | $2437^{+76}_{-77}$  | $74^{+18}_{-17}$ |
| Alt.    | $-37 \pm 13$ | $1.79^{+0.11}_{-0.11}$ | $542^{+15}_{-13}$ | $2347^{+96}_{-115}$ | $53^{+20}_{-18}$ |

$T_{max}$  = 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

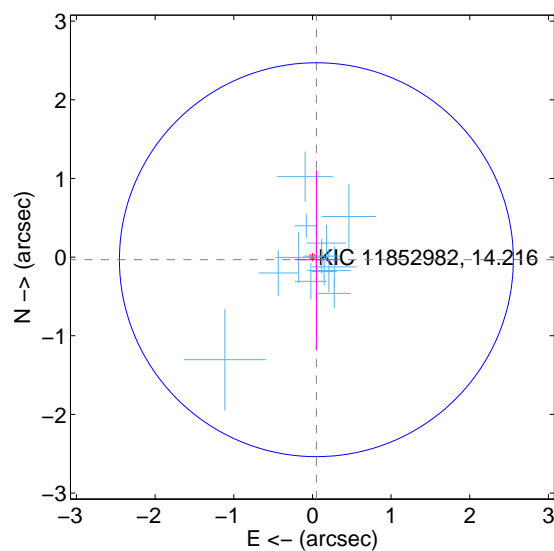
Supplemental centroid analysis for 011852982-01. Kepler magnitude: 14.22. Transit SNR 48.14

There are 14 quarters with good PRF difference image offsets

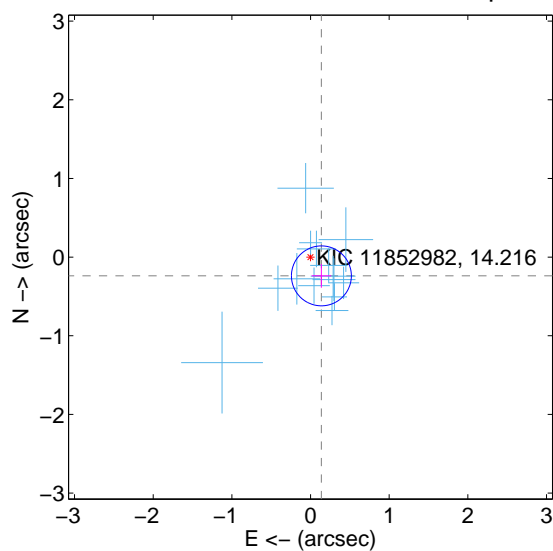
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.060 \pm 0.835$  | 0.07                | $-0.050 \pm 0.275$ | $-0.033 \pm 1.140$ |
| PRF-fit source offset from KIC position | $0.276 \pm 0.127$  | 2.17                | $-0.138 \pm 0.124$ | $-0.239 \pm 0.151$ |
| photometric centroid source offset      | $0.75 \pm 0.25$    | 3.01                | $-0.75 \pm 0.25$   | $0.01 \pm 0.25$    |

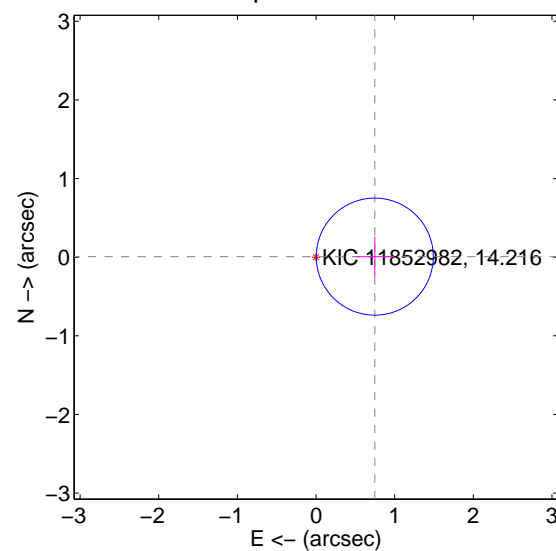
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



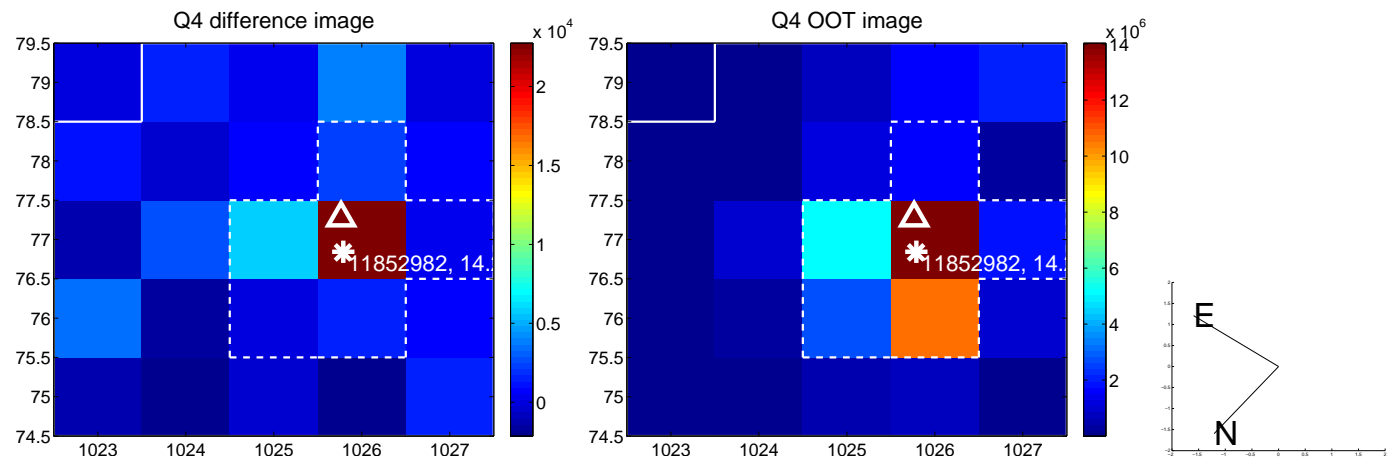
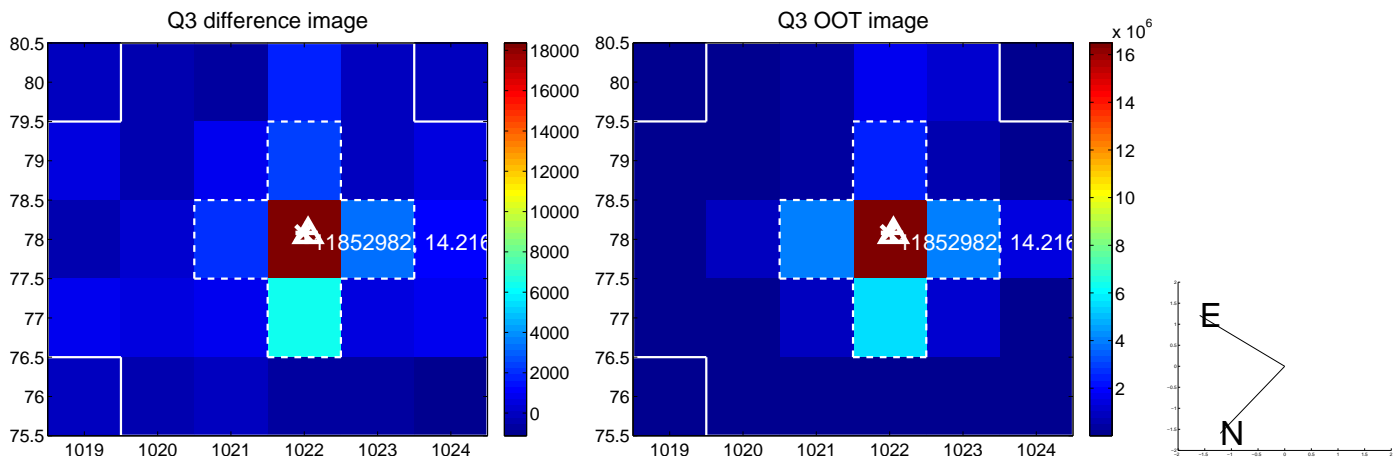
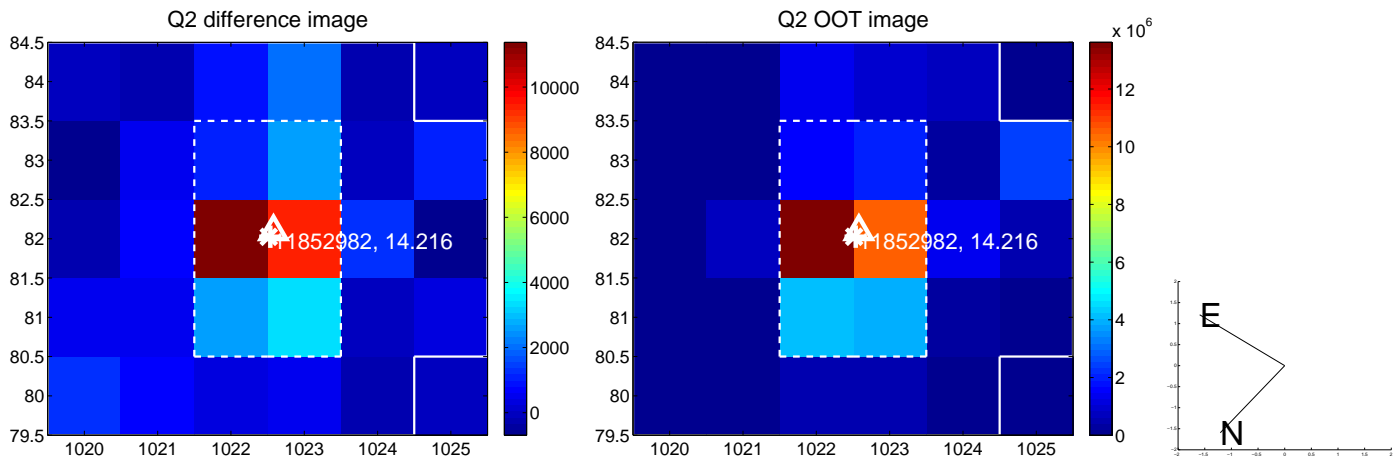
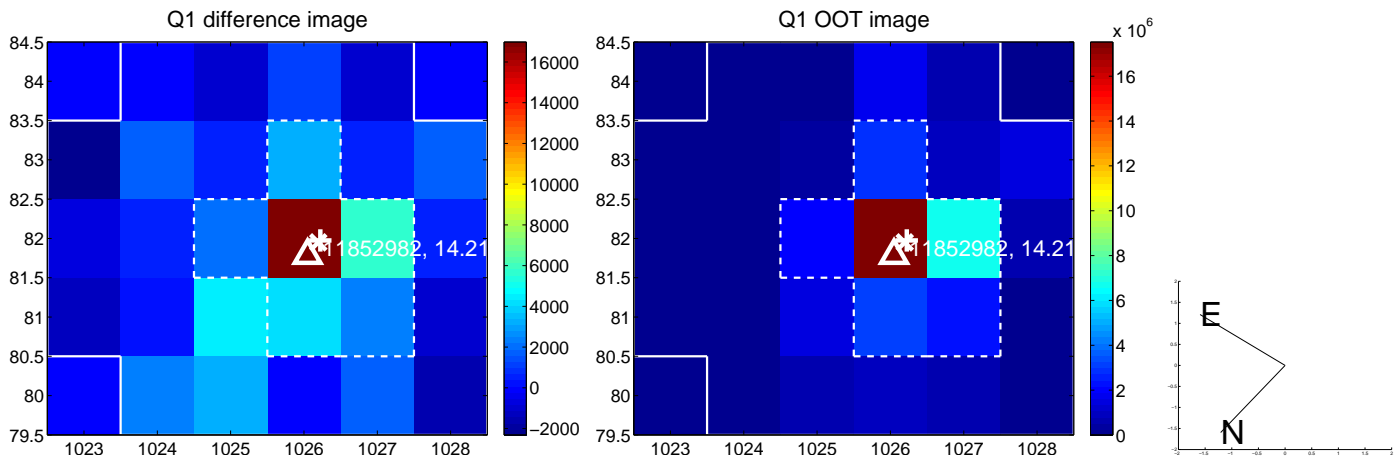
offset from photometric centroids



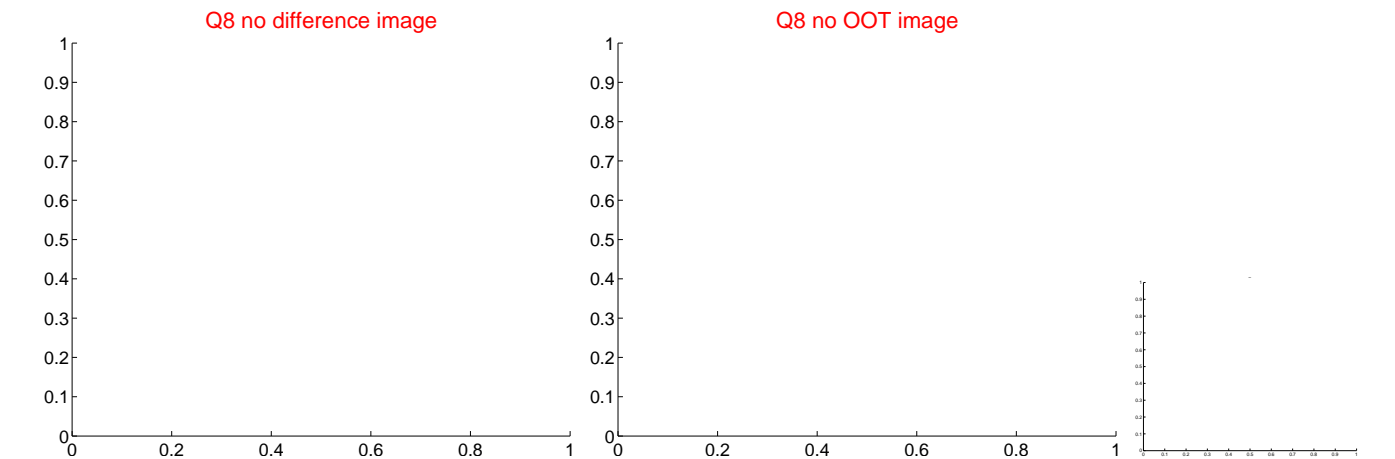
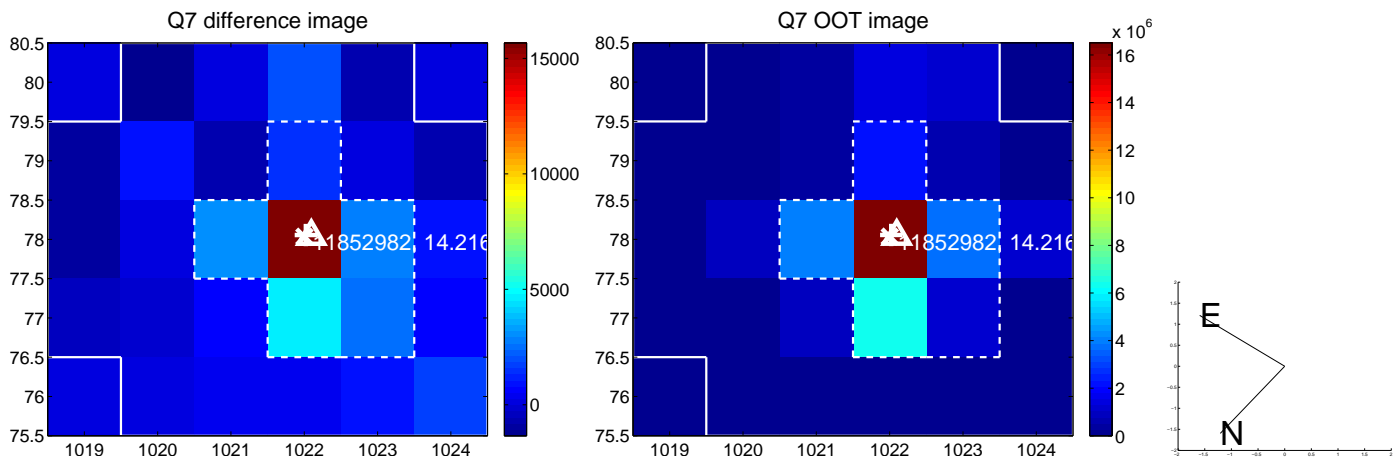
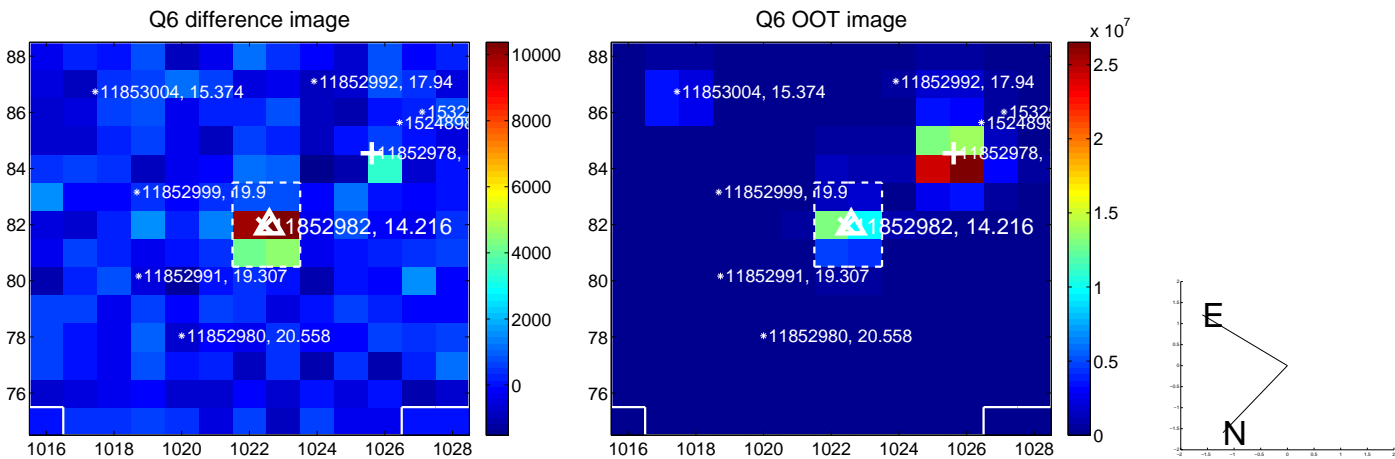
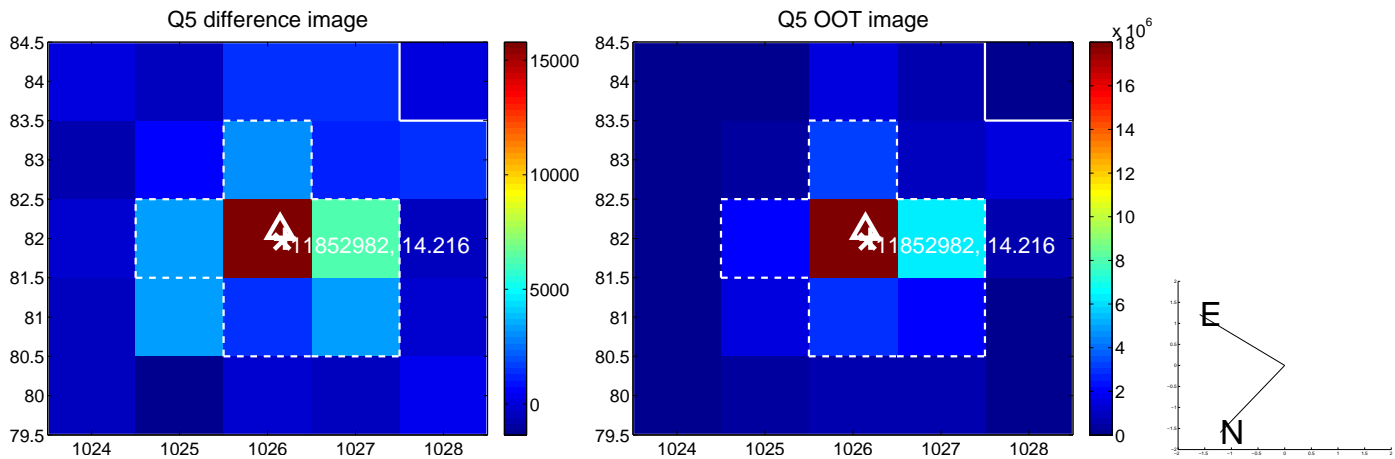
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



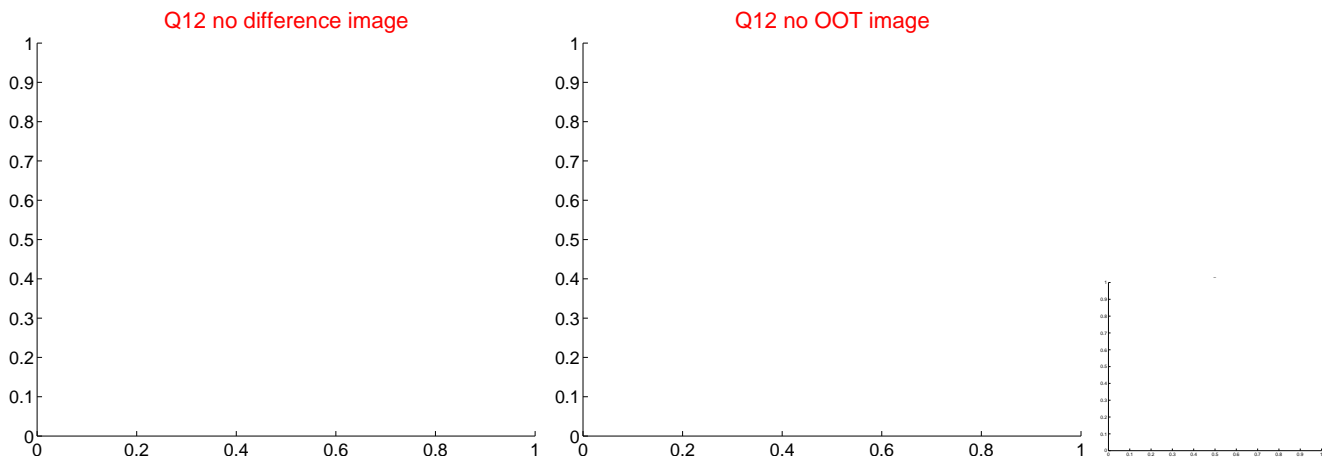
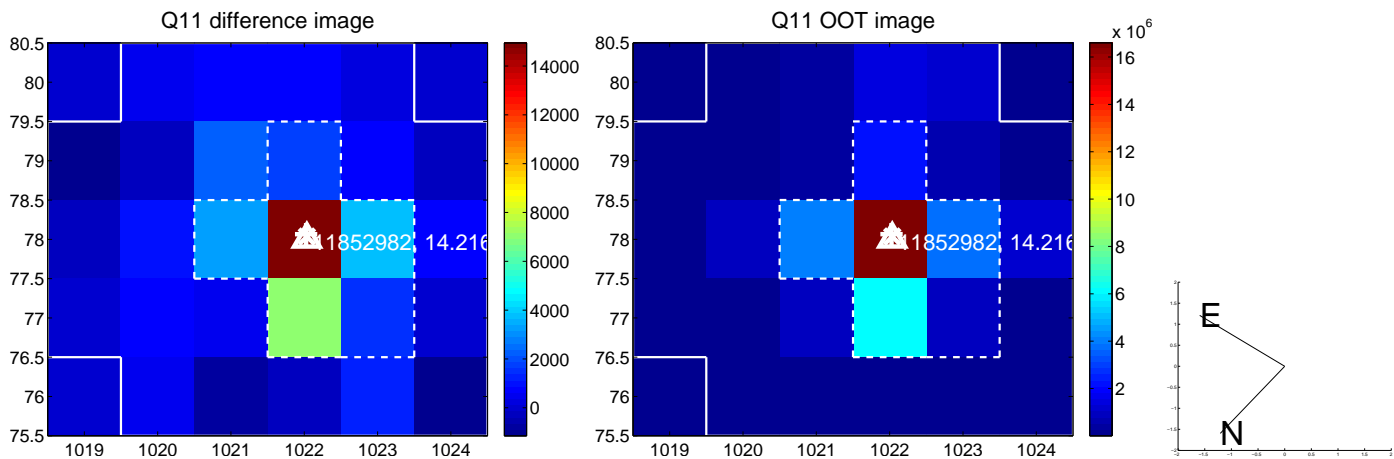
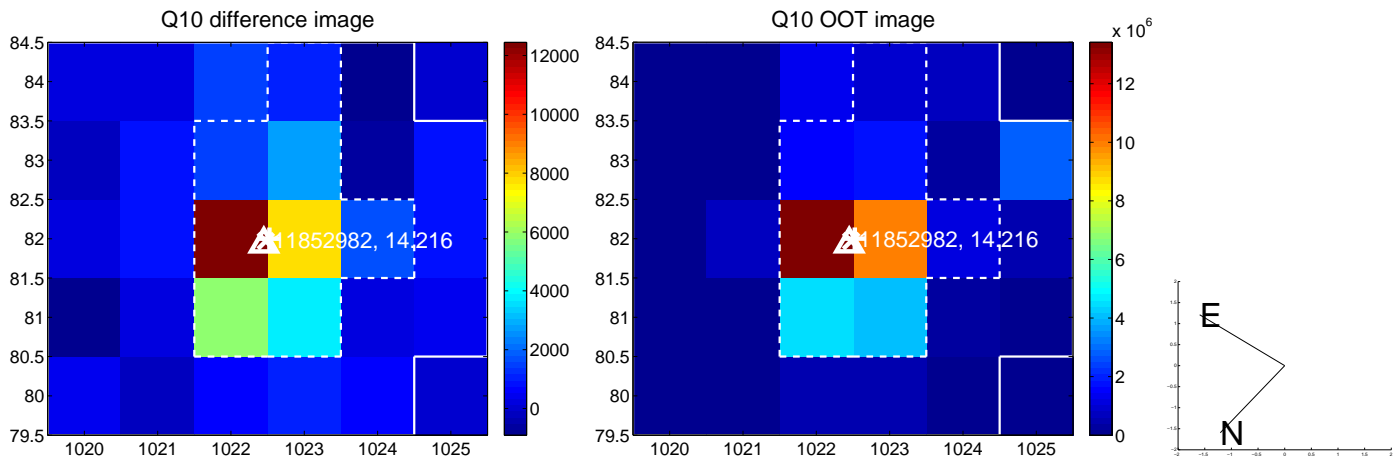
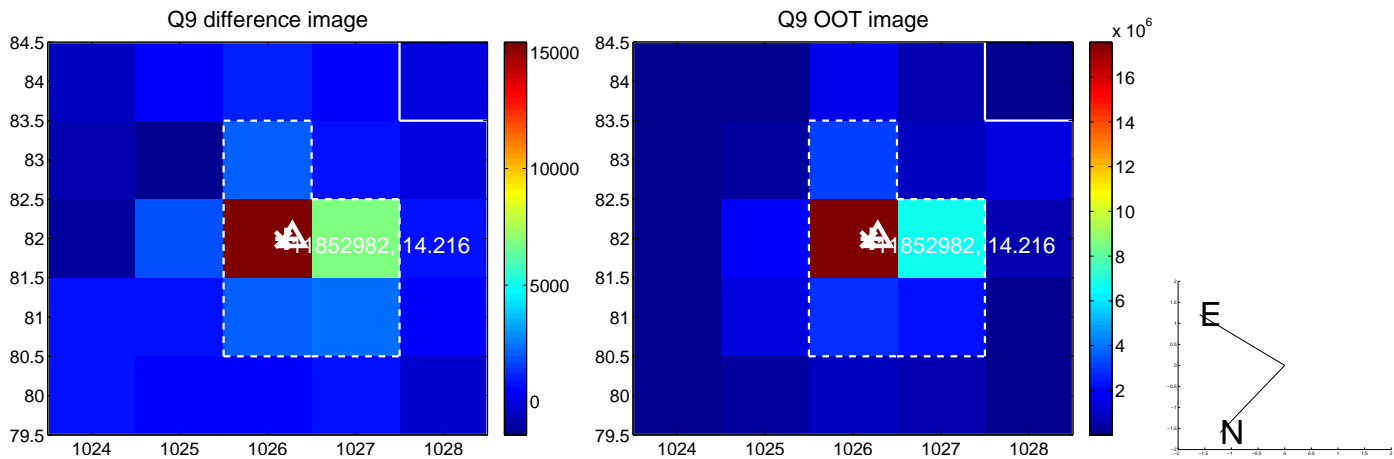
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



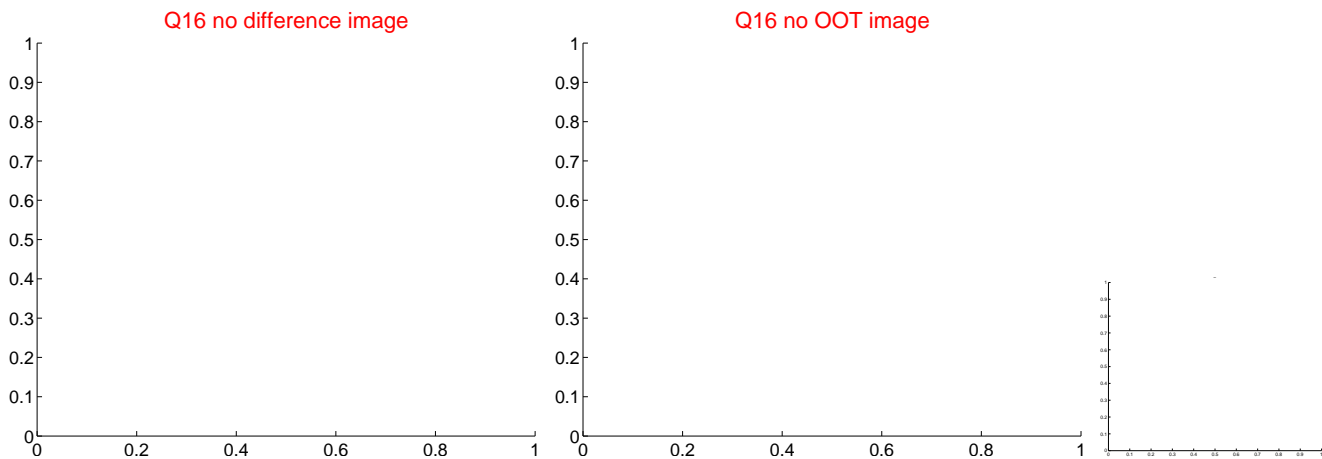
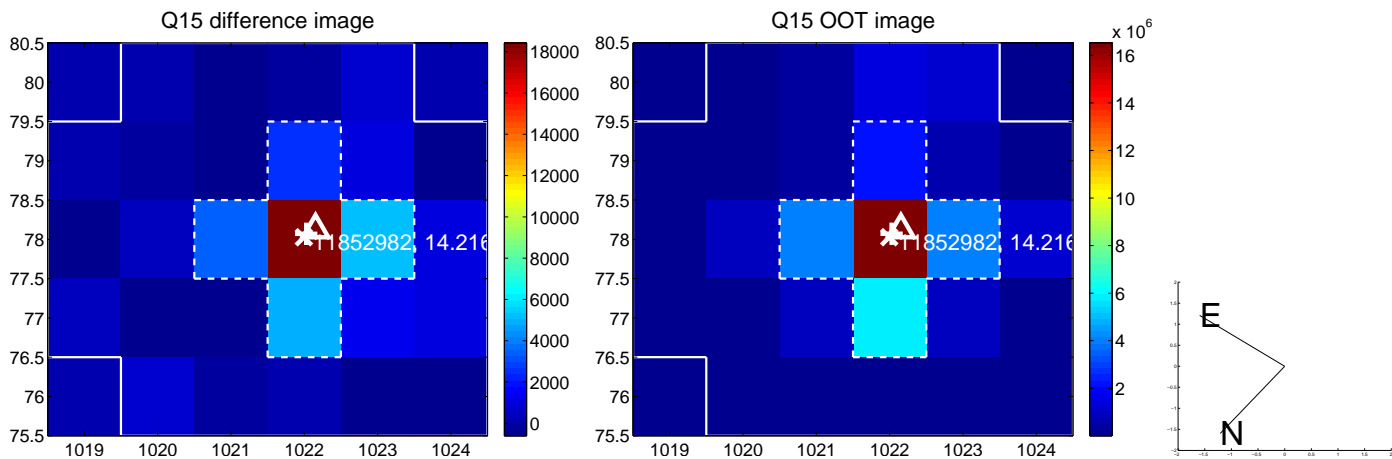
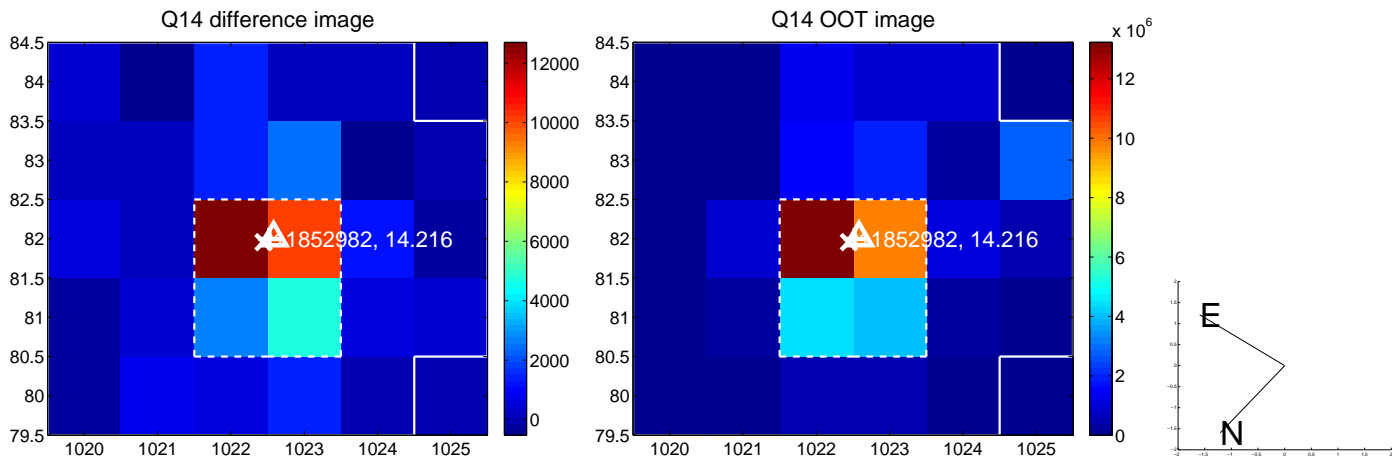
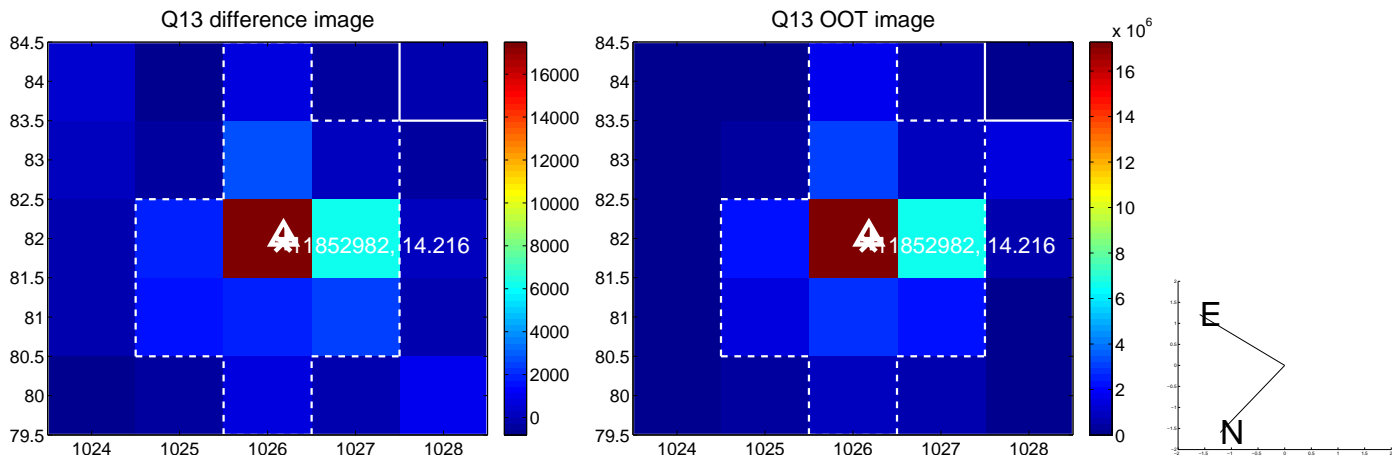
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



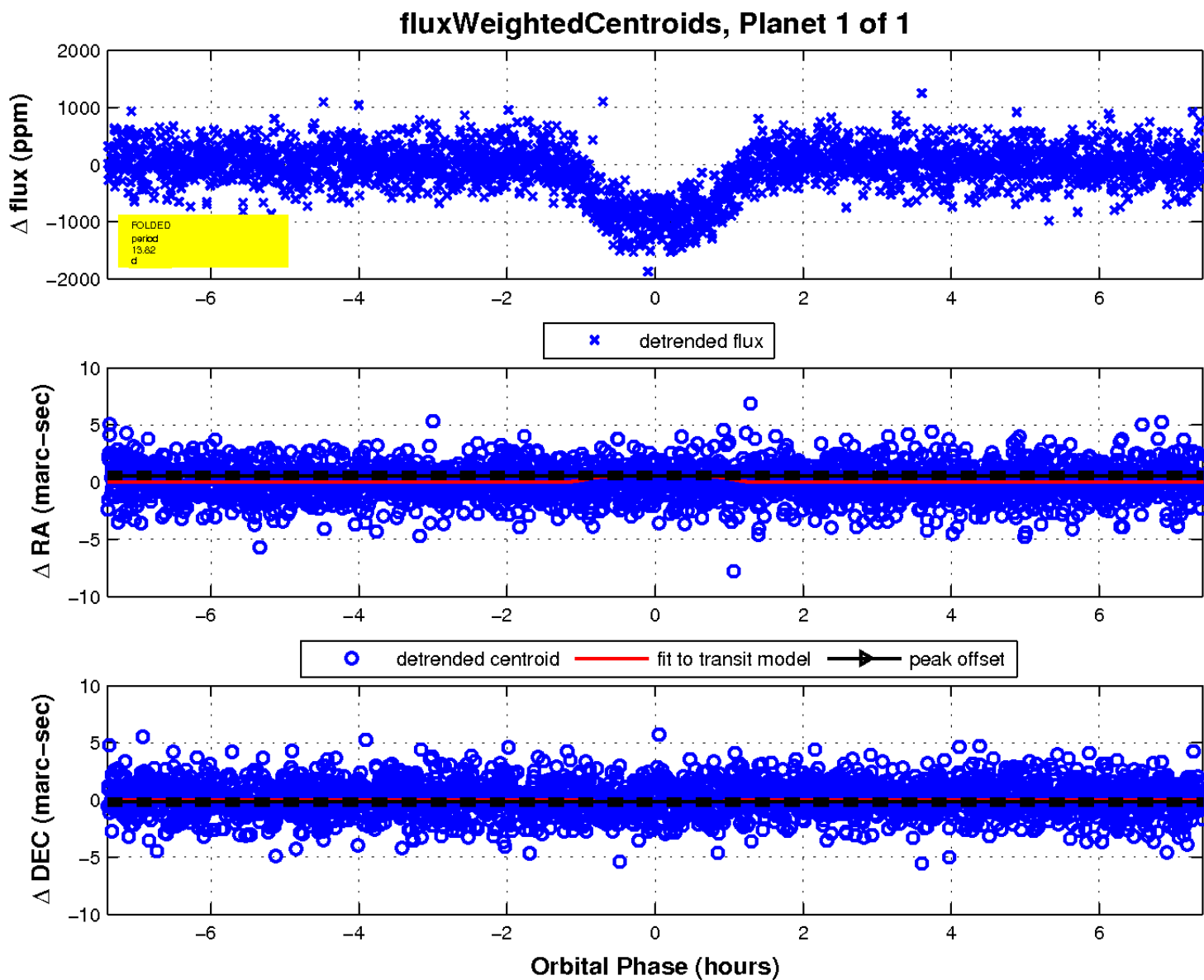
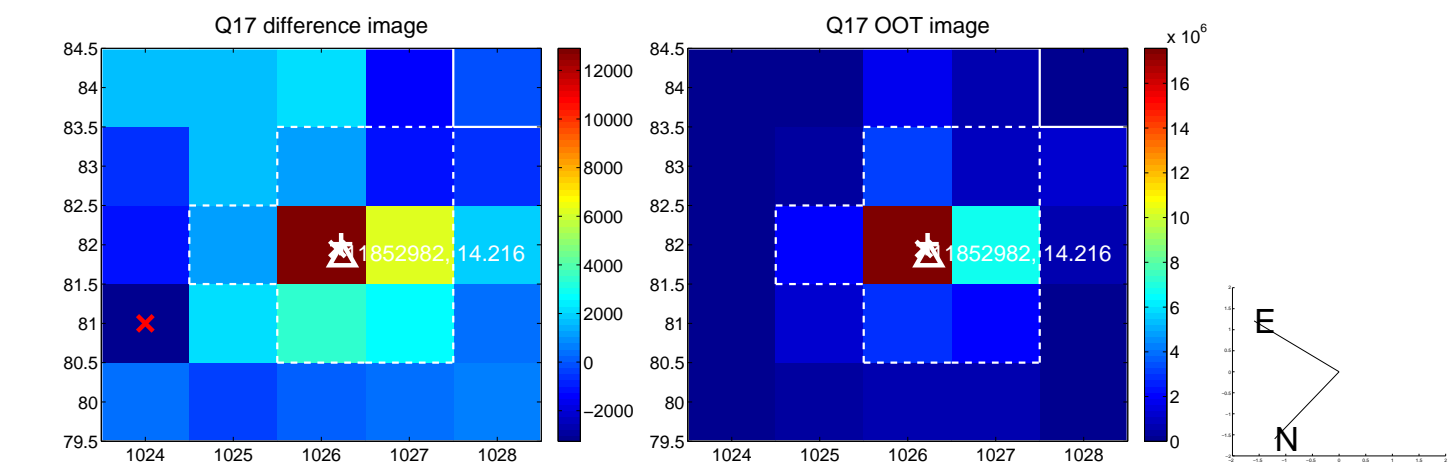
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

