

# KIC 009468384

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 009468384-01 | OBS      | 3466.01 | 11.082622     | 136.652626   | 269418.7    | 6.635            | 4499.2 | 2908.0 | 0.92                        | 5831            | 48.41                  | 93.79                  |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                            |
|--------------|----------|------|-------|---|---|---|---|-------------------------------------|
| 009468384-01 | OBS      | FP   | 0.00  | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT—CENT_KIC_POS |

**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.

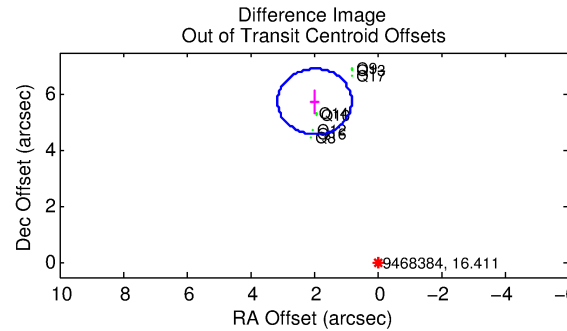
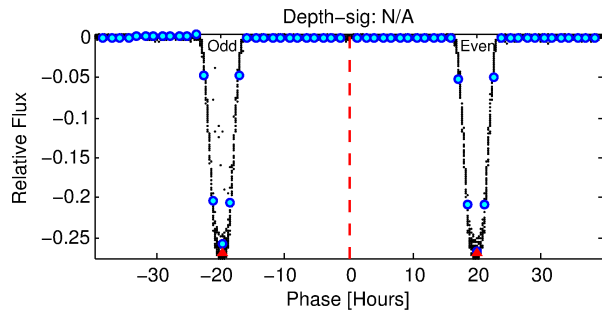
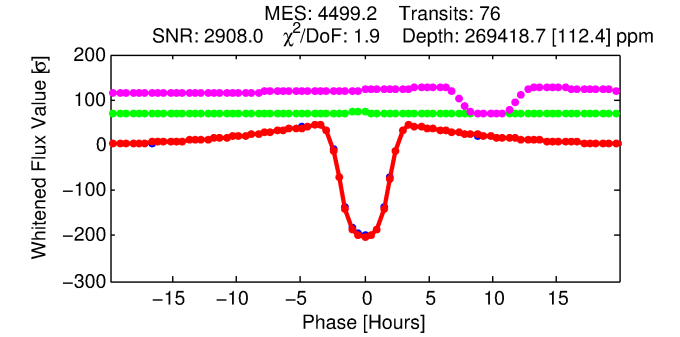
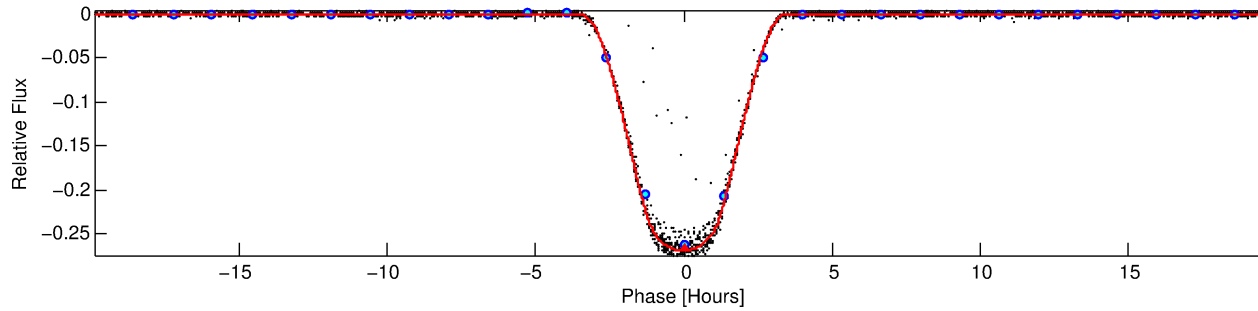
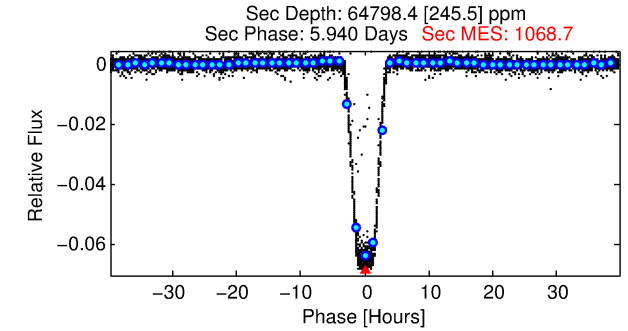
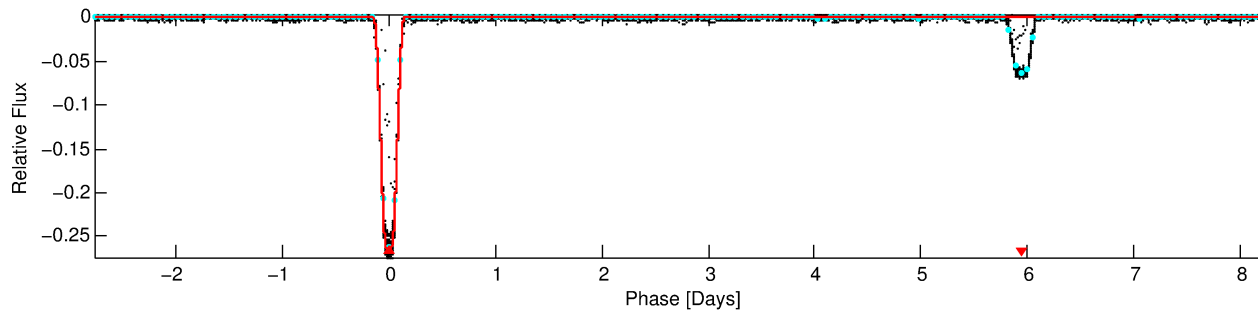
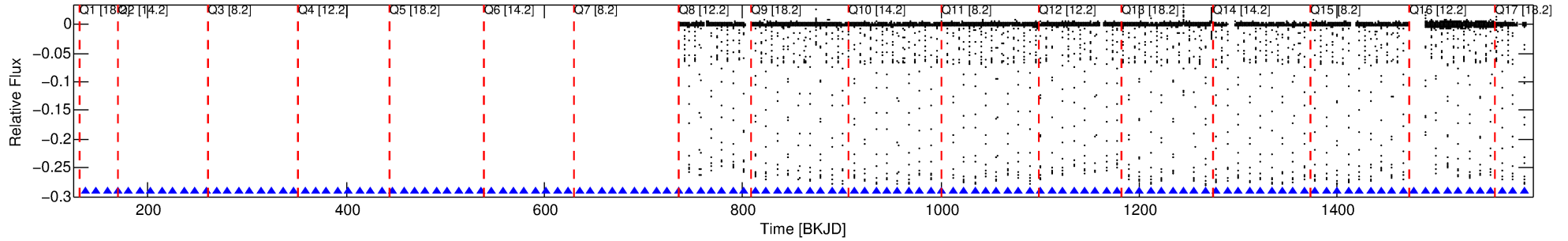
## Ephemeris Match Information For 009468384-01

No Significant Match Found

# DV One-Page Summary

KIC: 9468384 Candidate: 1 of 1 Period: 11.083 d  
KOI: K03466.01 Corr: 0.998

Kp: 16.41 R\*: 0.92 Rs Teff: 5831.0 K Logg: 4.50 Fe/H: -0.060



## DV Fit Results:

Period = 11.08262 [0.00000] d  
Epoch = 136.6526 [0.0001] BKJD  
Rp/R\* = 0.4812 [0.0002]  
a/R\* = 18.73 [0.01]  
b = 0.21 [0.00]  
Seff = 93.79 [38.12]  
Teq = 794 [81] K  
Rp = 48.41 [15.18] Re  
a = 0.0969 [0.0255] AU  
Ag = 142.78 [54.49] [2.60σ]  
Teffp = 4241 [148] K [20.41σ]

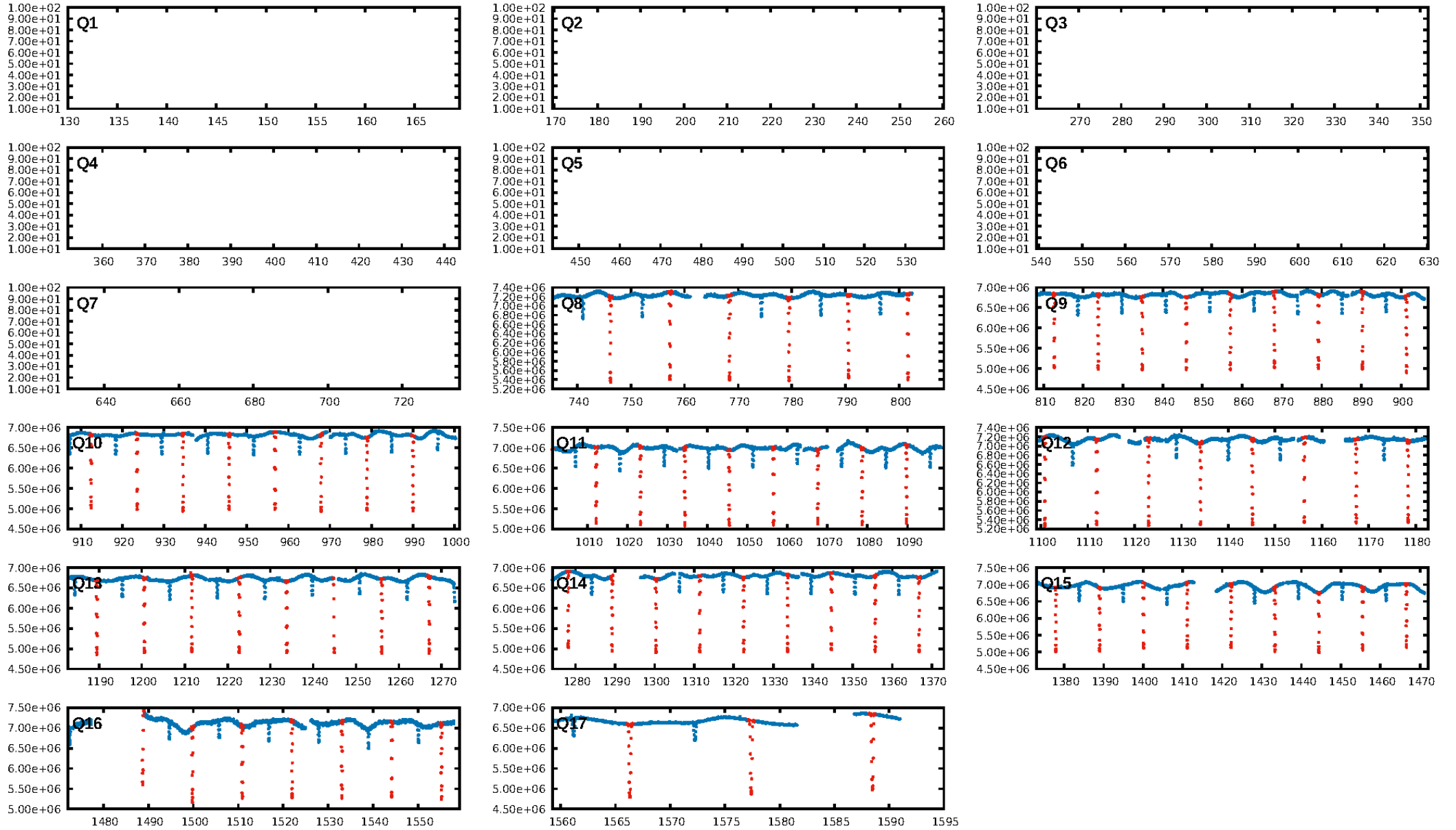
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 9.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [73/73]  
GhostDiagnostic-chr: 3.543  
Centroid-sig: 0.0%  
Centroid-so: 2.944 arcsec [1728.90σ]  
OotOffset-rm: 6.078 arcsec [15.65σ]  
KicOffset-rm: 0.056 arcsec [0.84σ]  
OotOffset-st: 2/0/3/3 [8]  
KicOffset-st: 2/2/3/3 [10]  
DiffImageQuality-fgm: 1.00 [10/10]  
DiffImageOverlap-fno: 1.00 [10/10]

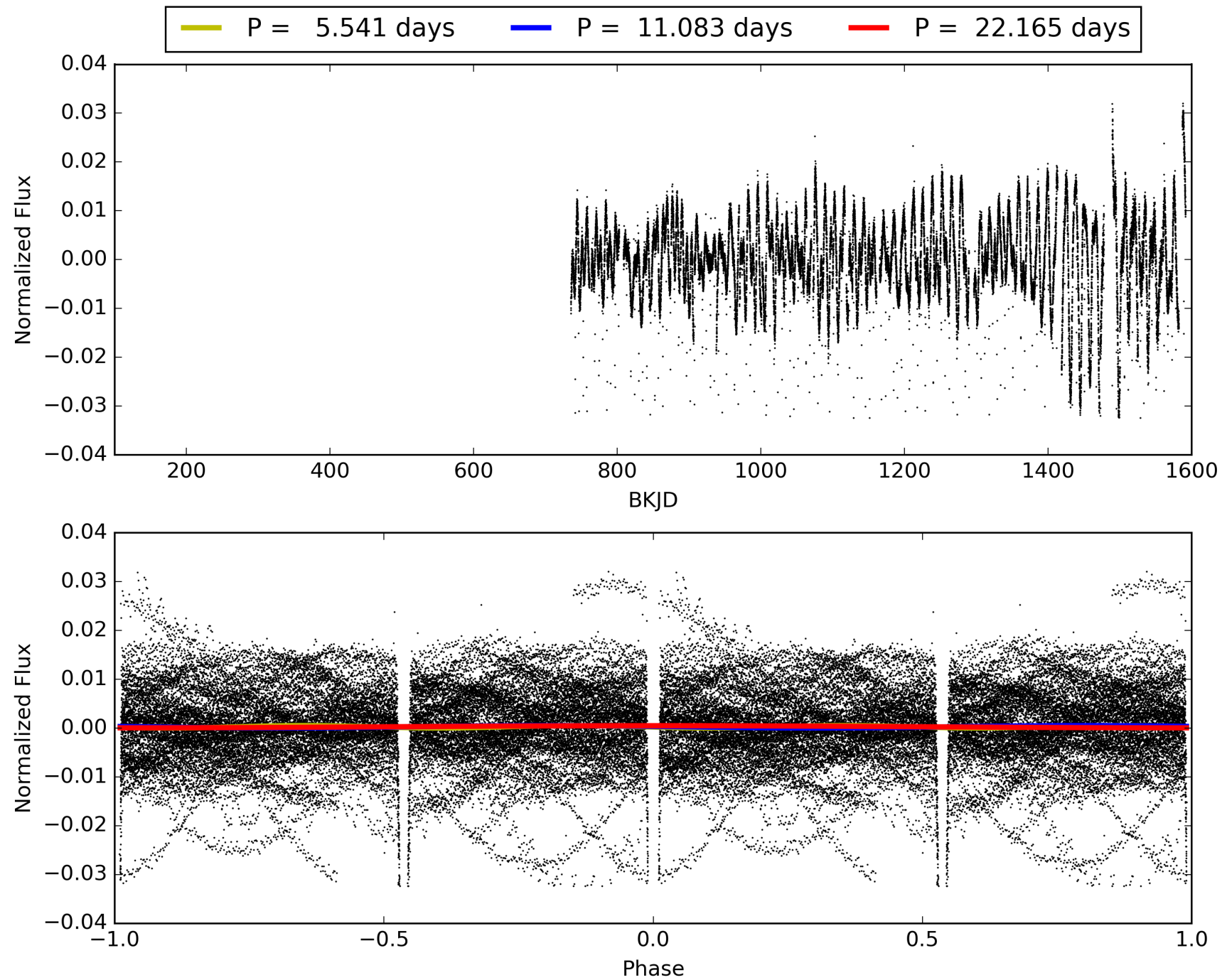
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:24:52 Z

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

# TCE 009468384-01, PDC Light Curves

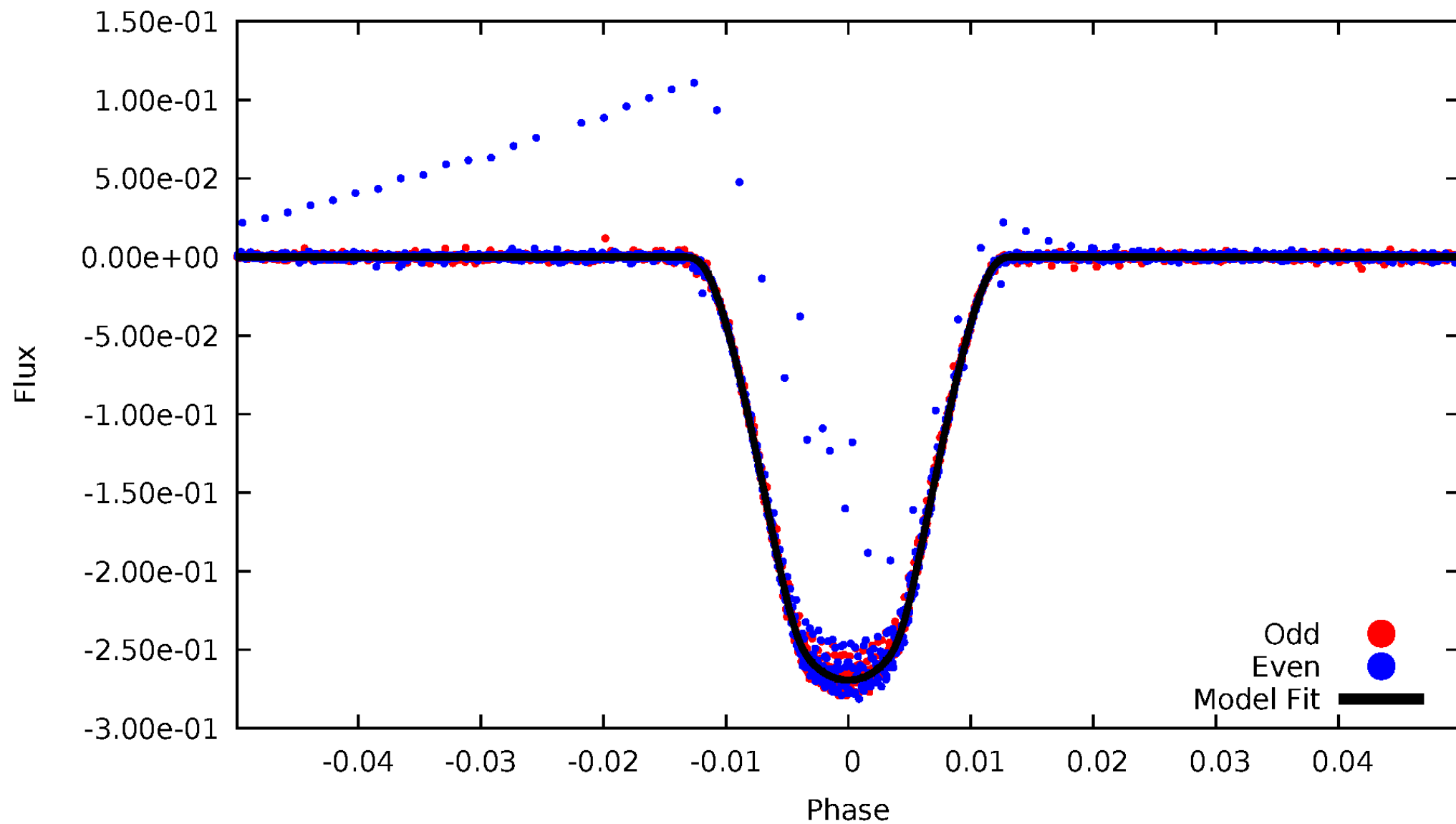


TCE 009468384-01



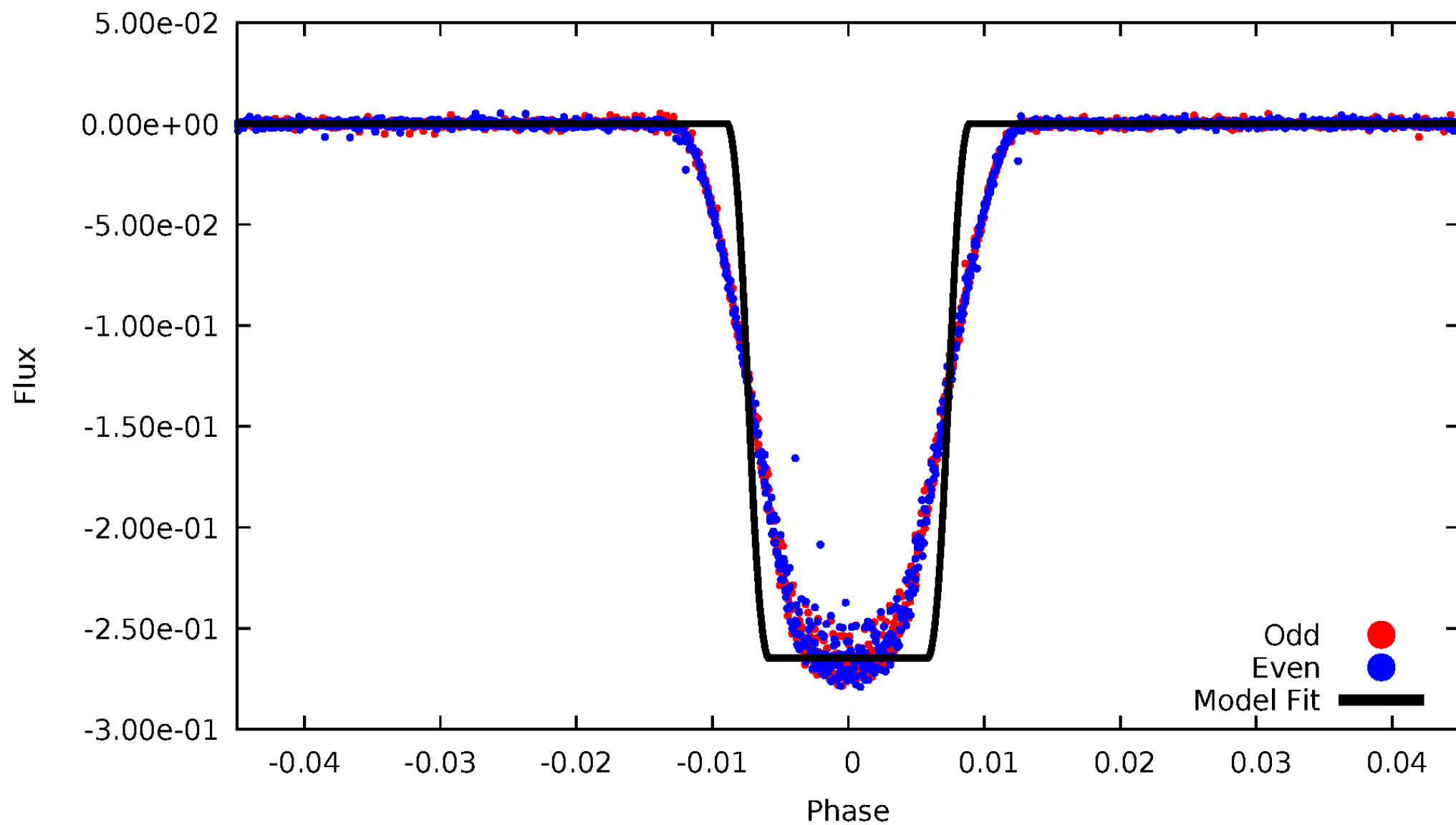
# DV Odd/Even

TCE 009468384-01



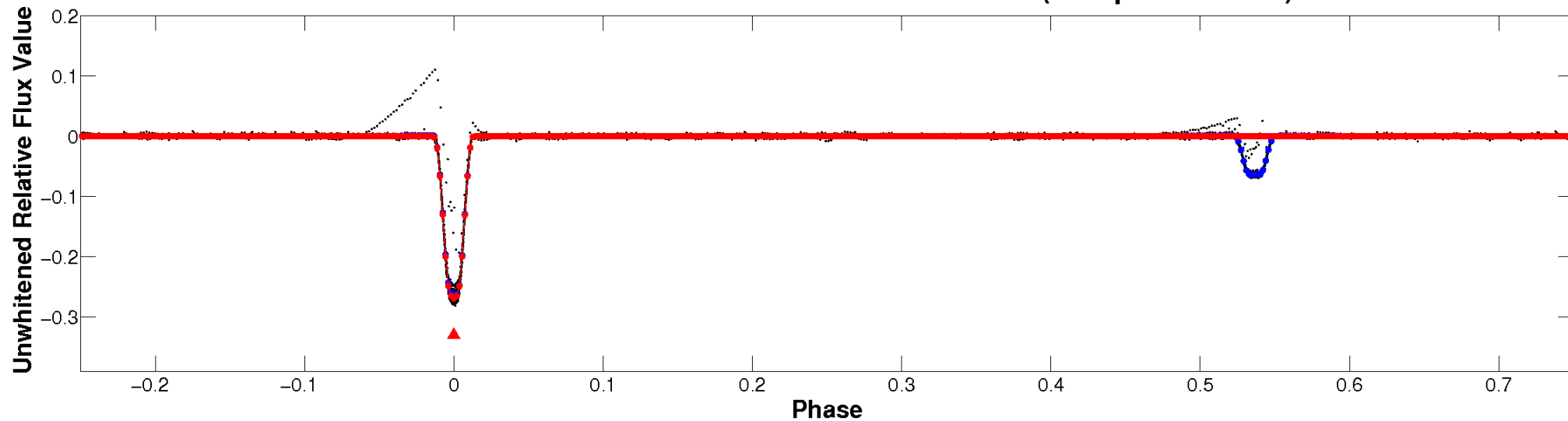
# ALT Odd/Even

TCE 009468384-01

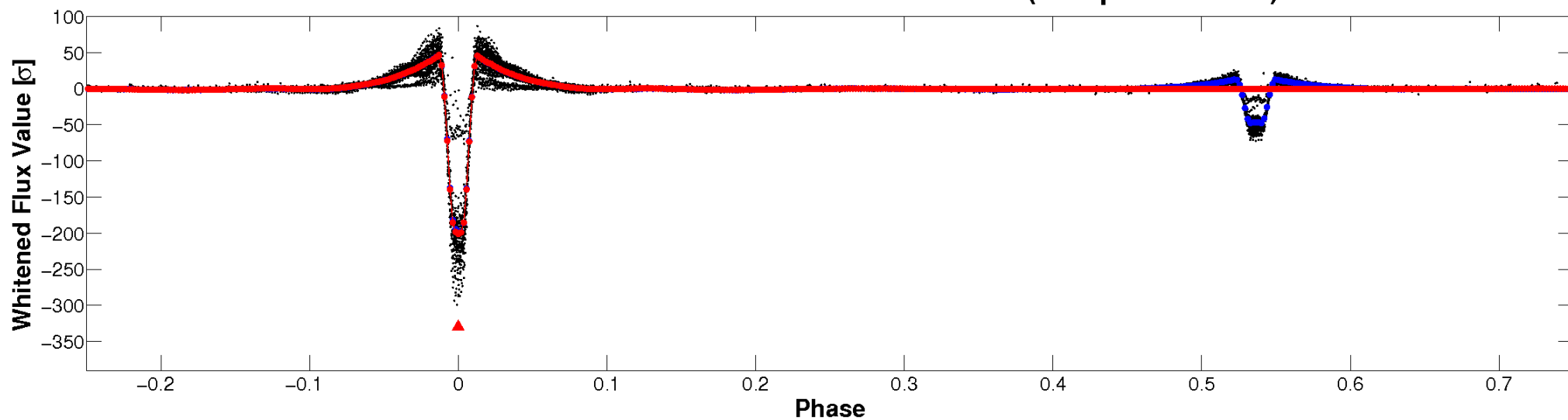


# Non-Whitened Vs. Whitened Light Curve

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

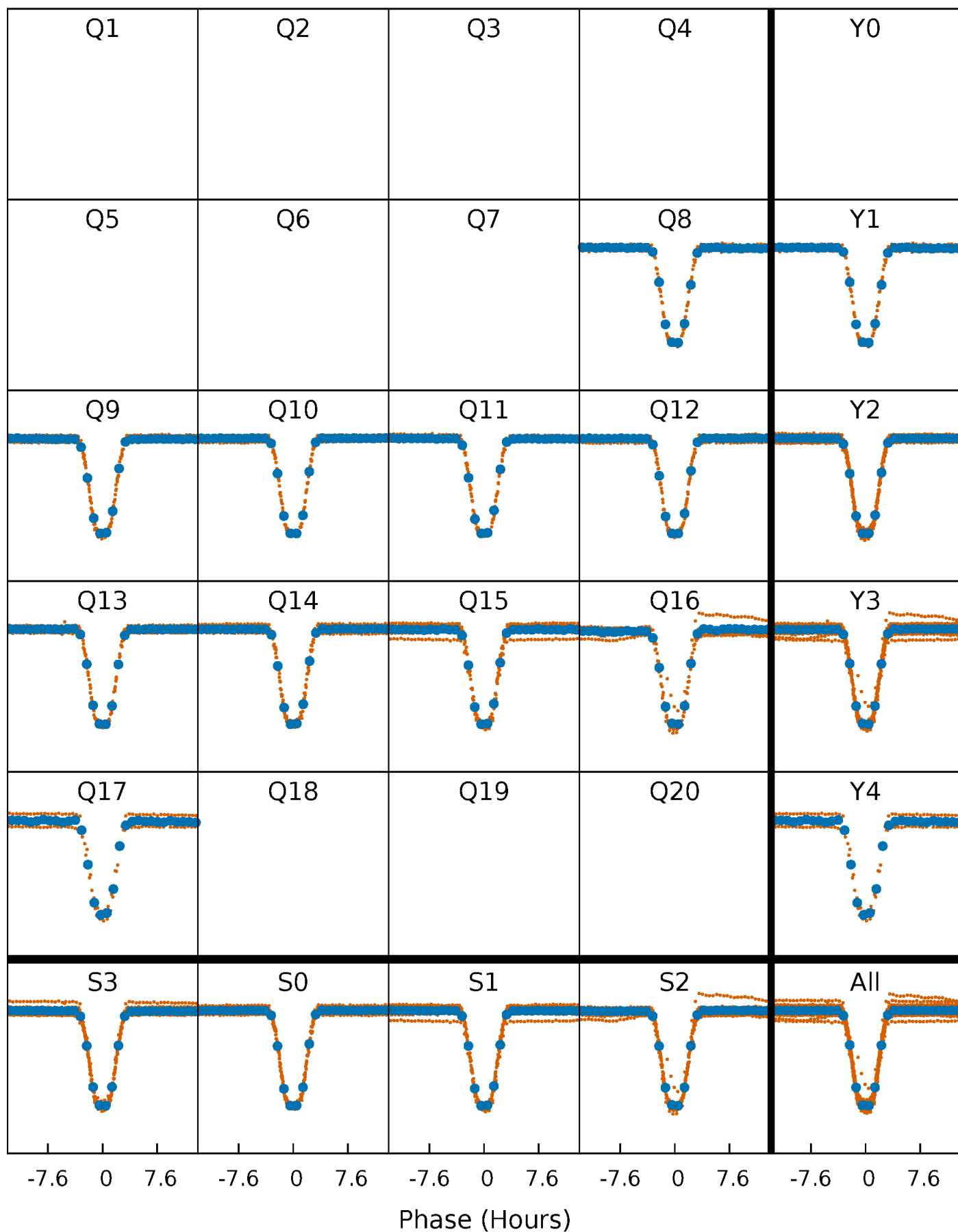


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

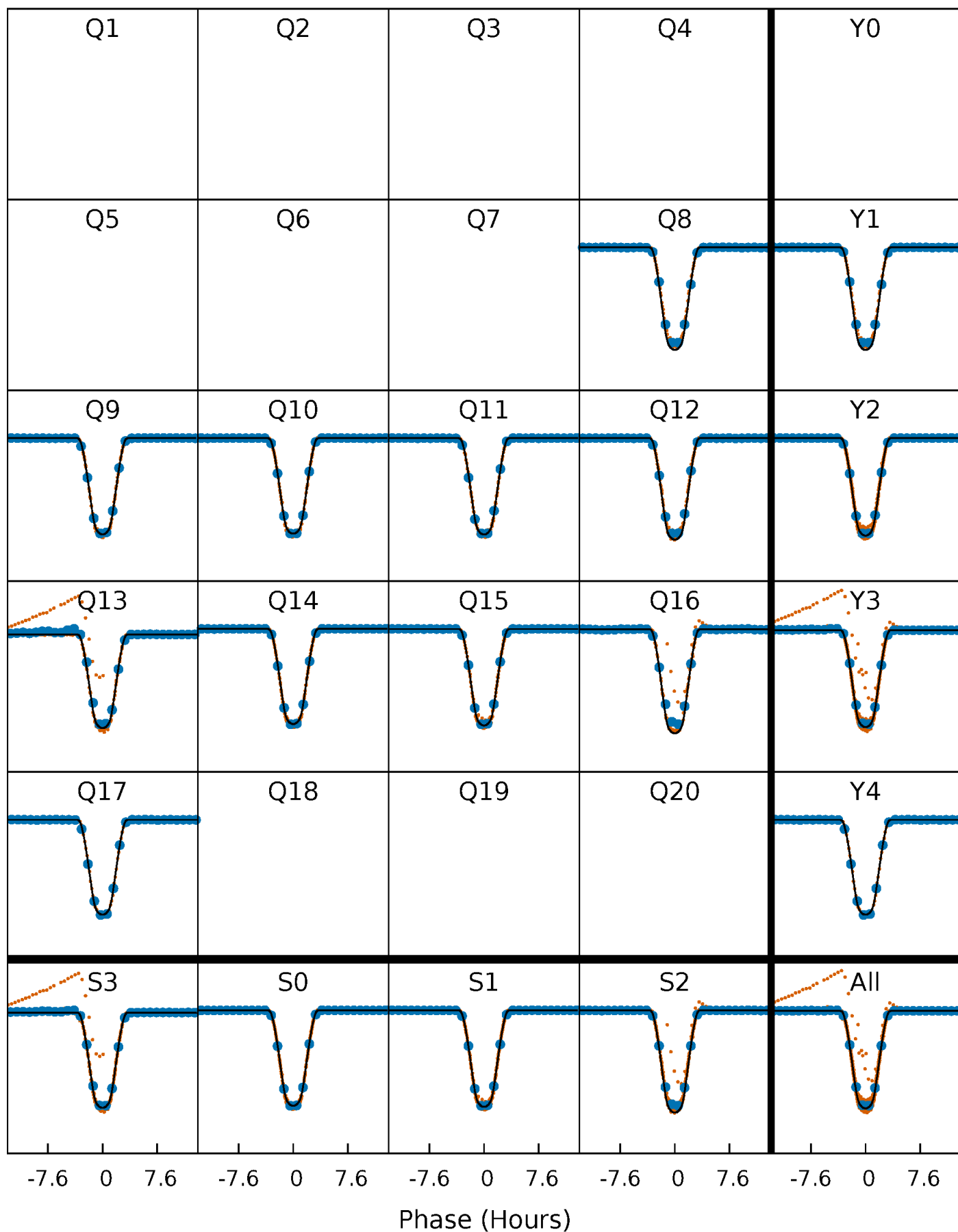
TCE 009468384-01 P= 11.082622 Days  $T_0=136.652626$  (BKJD)





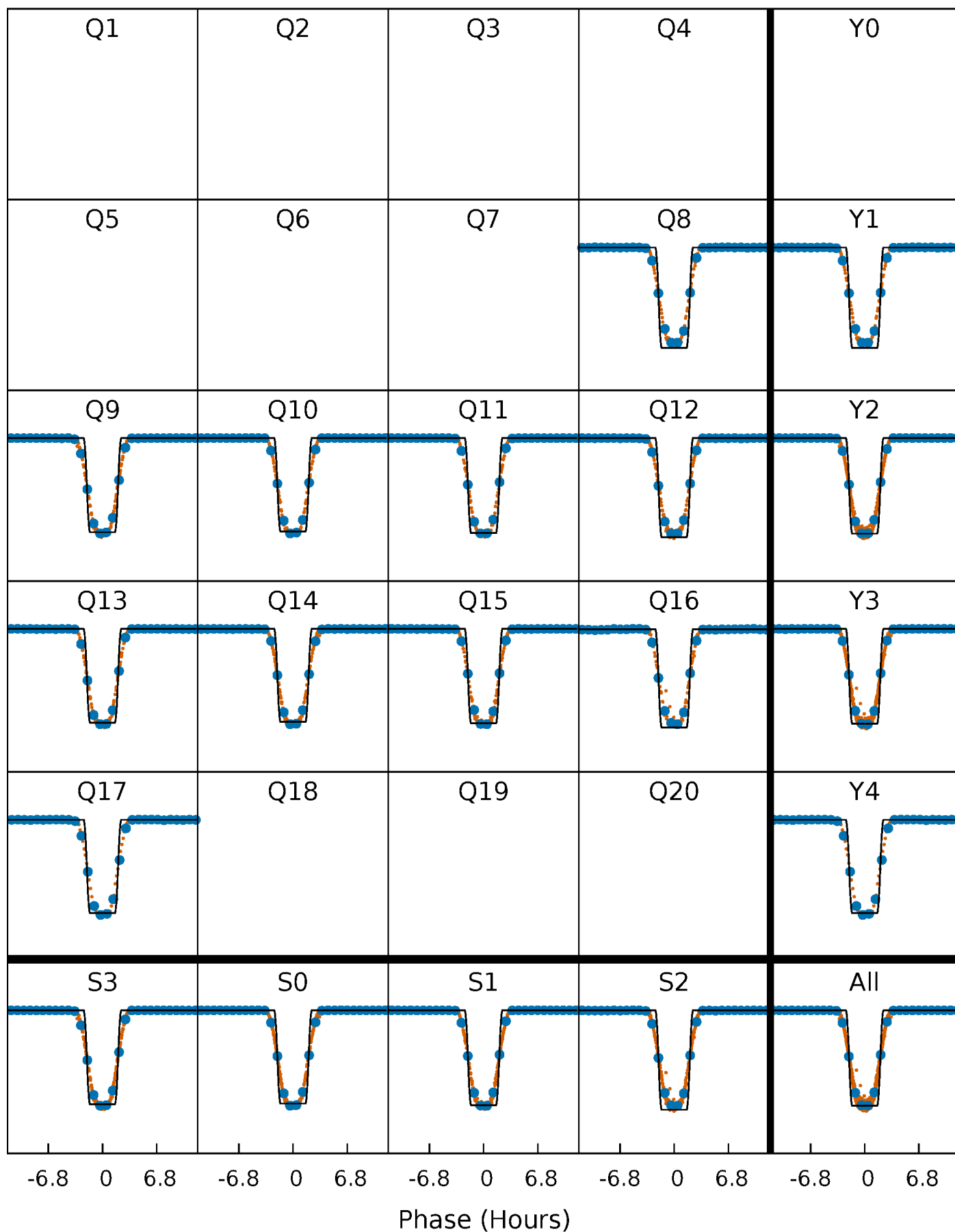
# DV Quarter-Phased Transit Curves

TCE 009468384-01 P= 11.082622 Days  $T_0=136.652626$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

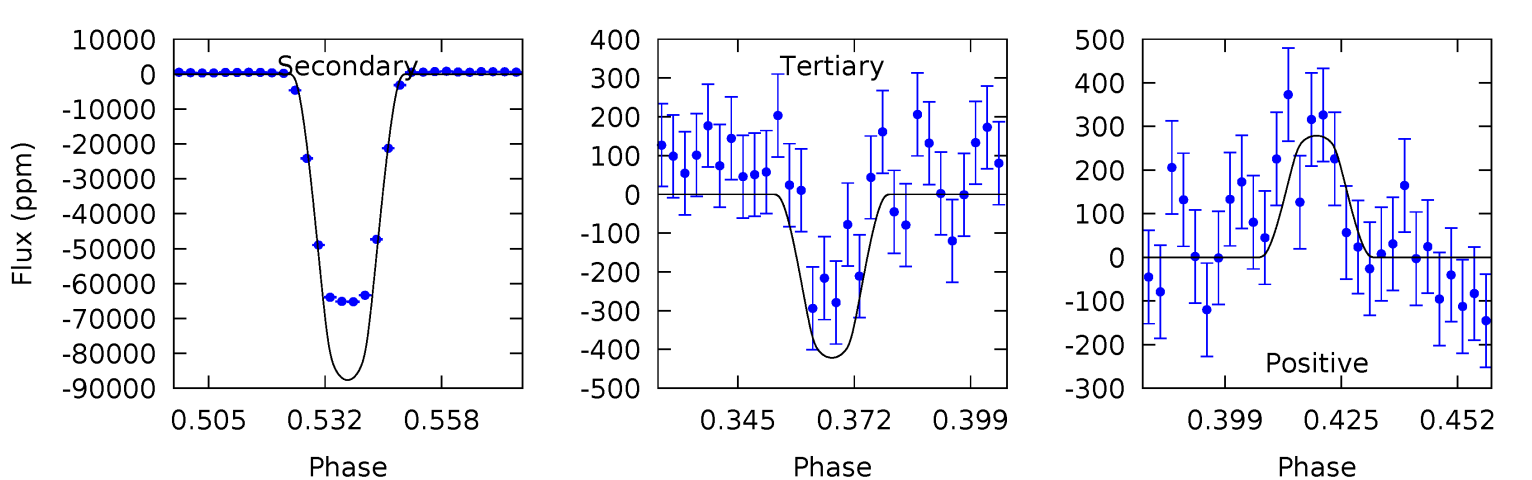
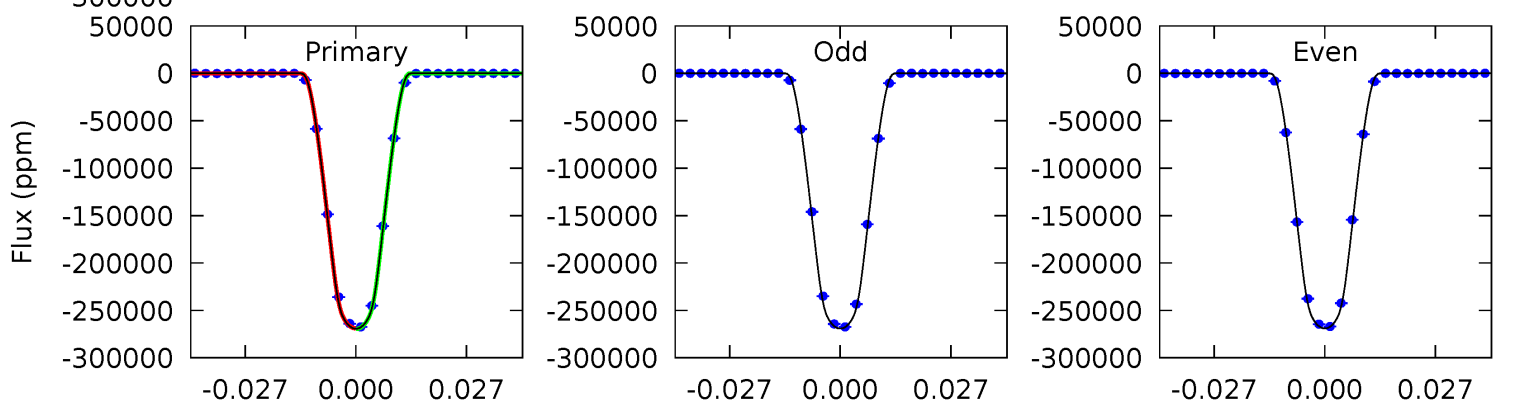
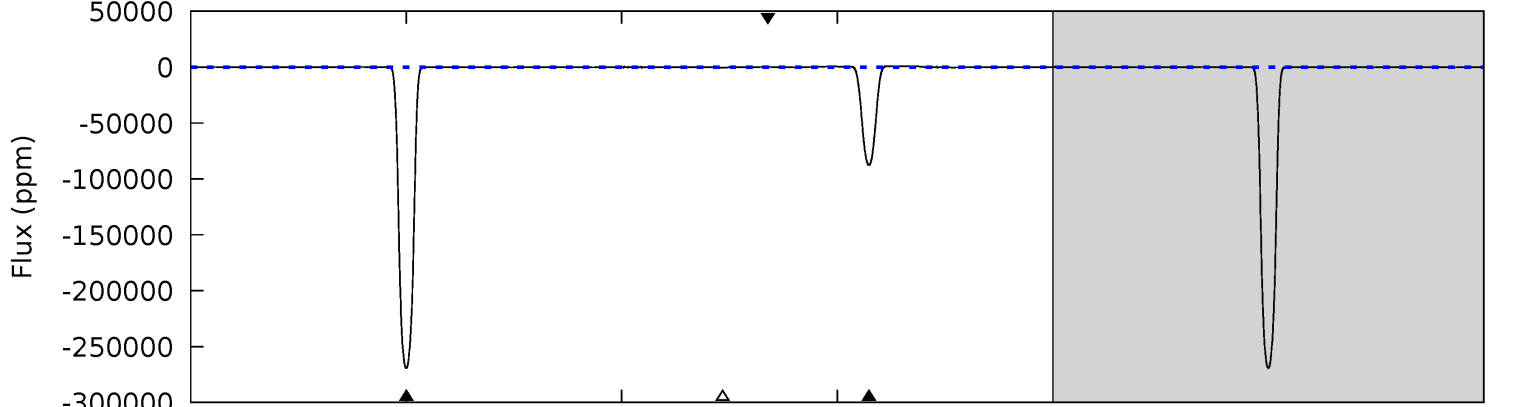
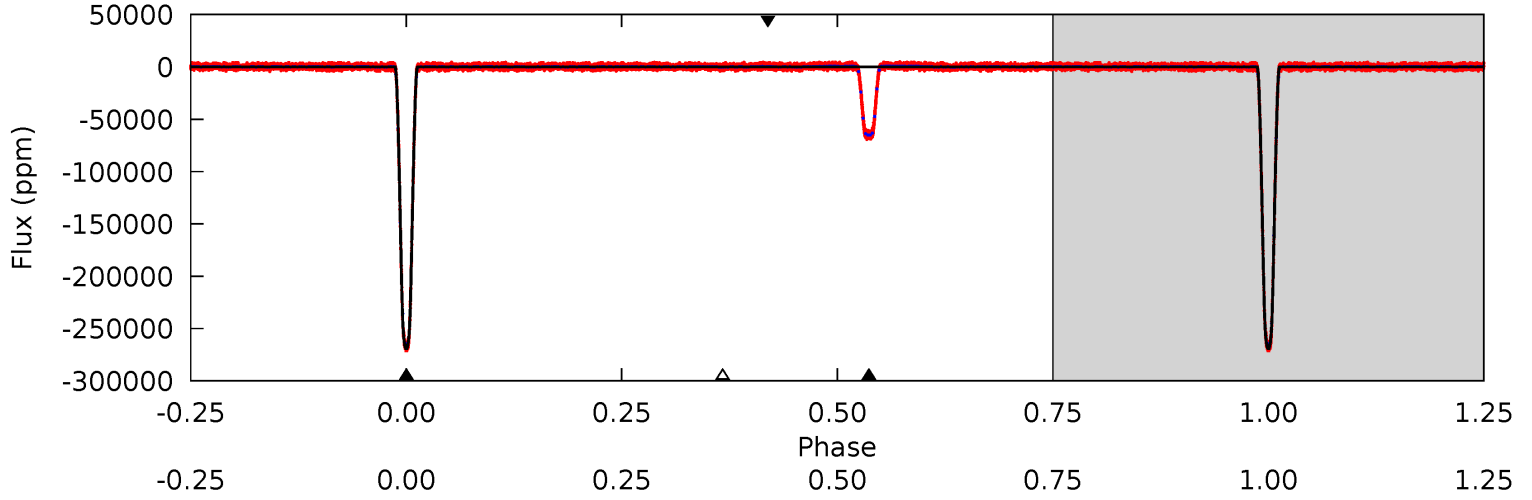
TCE 009468384-01 P= 11.082607 Days  $T_0=136.653956$  (BKJD)



# DV Model-Shift Uniqueness Test

009468384-01, P = 11.082622 Days, E = 136.652626 Days

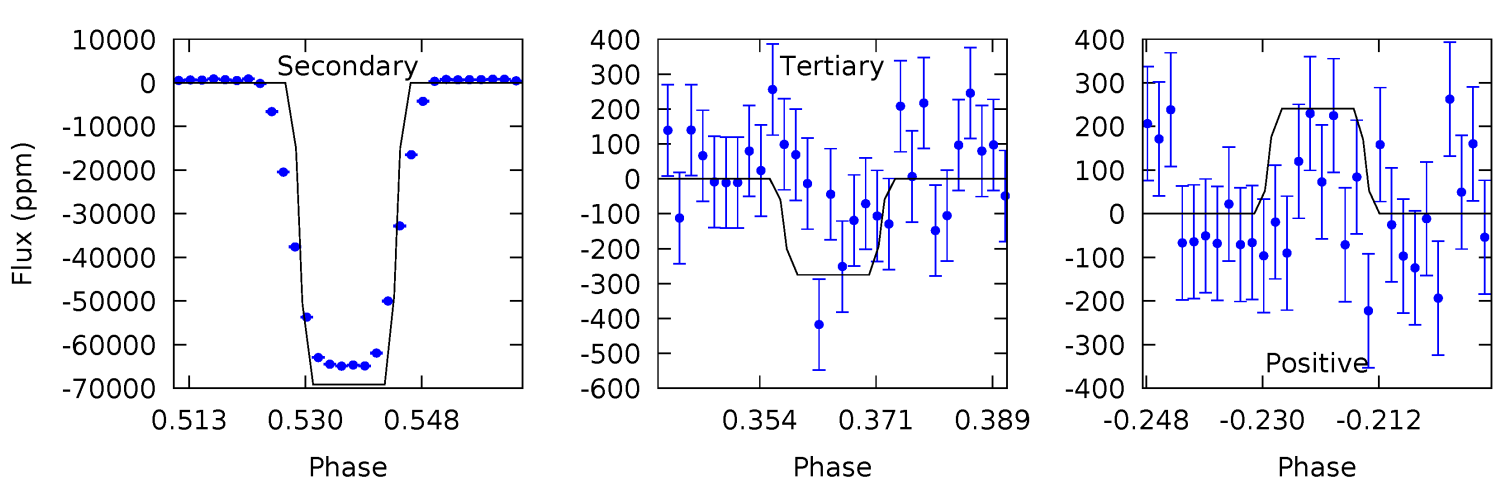
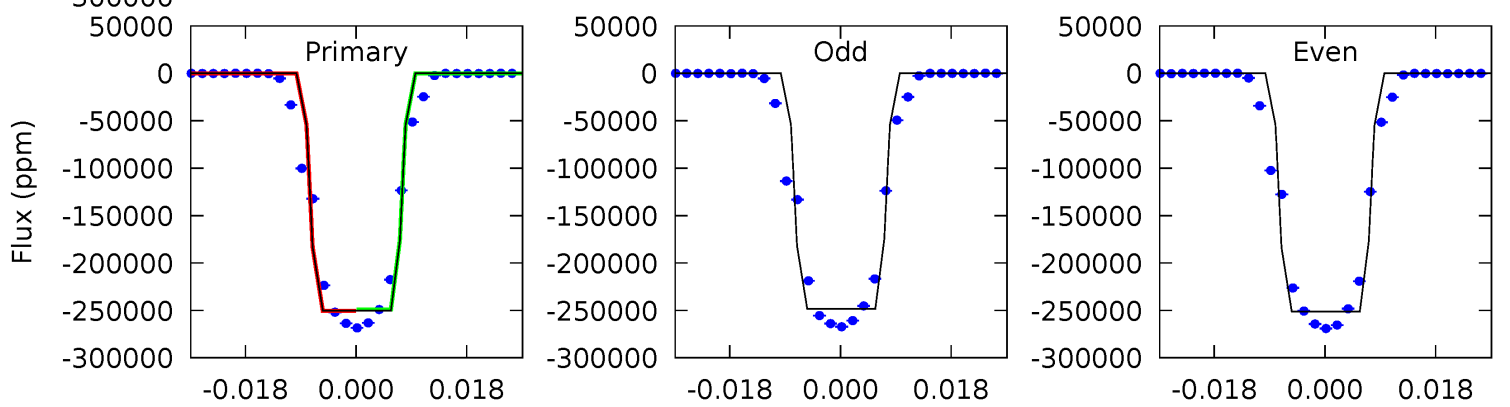
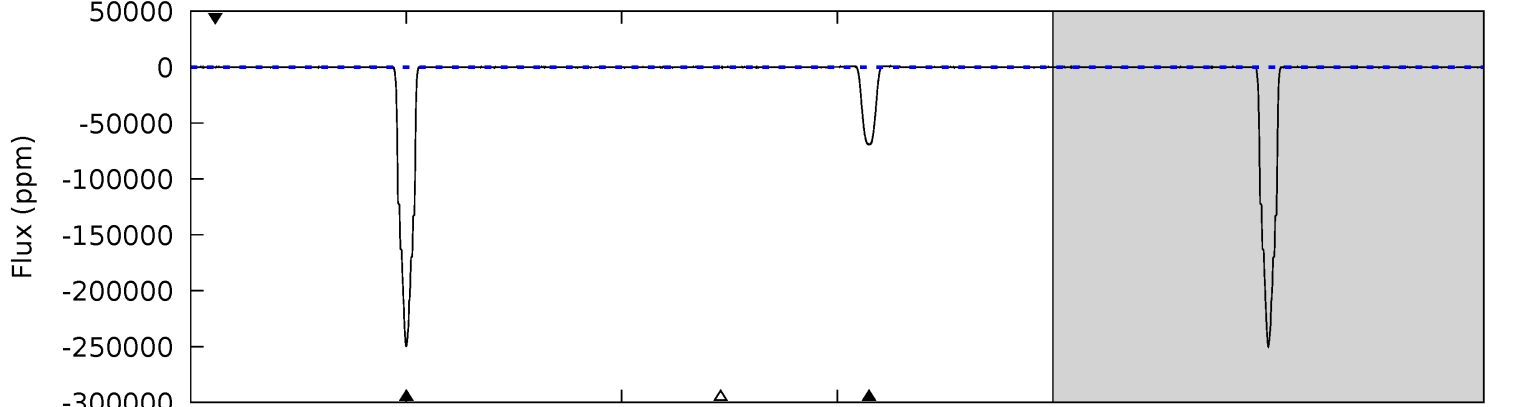
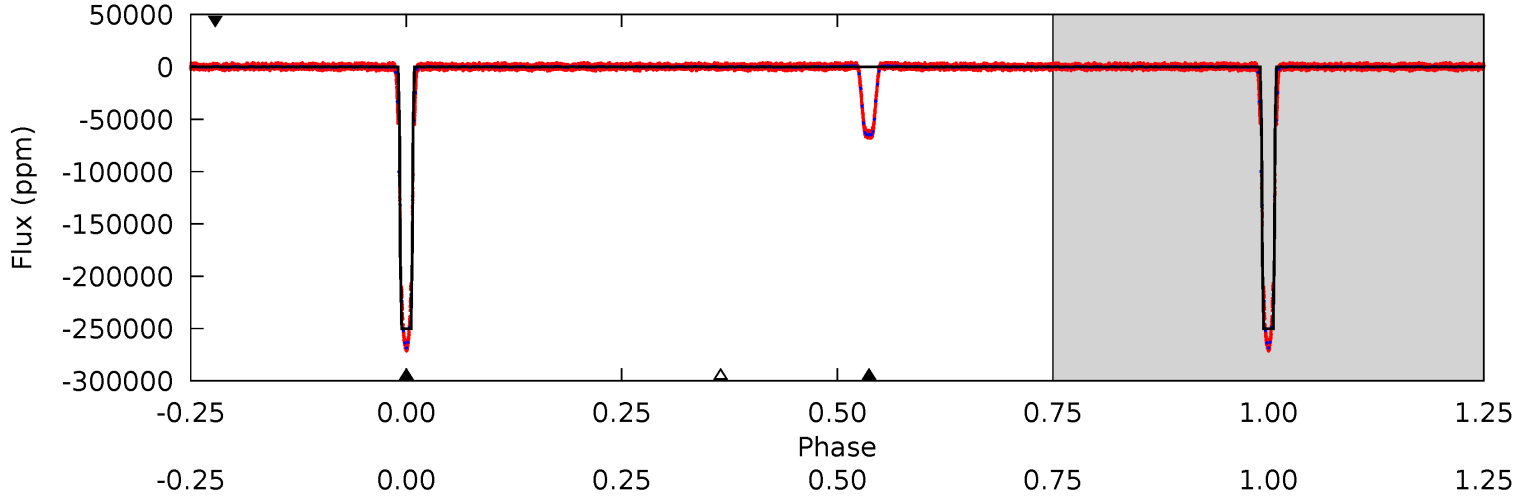
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 6496 | 2114 | 10.2 | 6.73 | 4.84            | 2.22            | 4.73             | 6486    | 6489    | 2104    | 2107    | 2.15    | 0.98 | 0.00  | 0   |



# Alt Model-Shift Uniqueness Test

009468384-01, P = 11.082607 Days, E = 136.653956 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  |
|------|-------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3571 | 987.0 | 3.92 | 3.44 | 4.92            | 2.37            | 2.01             | 3567    | 3568    | 983.0   | 983.5   | 19.4    | 0.99 | 0.00  | 1.28 |



### Stellar Parameters For KIC 009468384

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5831^{+163}_{-204}$ | $4.503^{+0.052}_{-0.208}$ | $-0.060^{+0.250}_{-0.300}$ | $0.922^{+0.289}_{-0.096}$ | $0.988^{+0.126}_{-0.113}$ | $1.773^{+0.475}_{-0.896}$                 |
|        | +3%/-3%              | +1%/-5%                   | +417%/-500%                | +31%/-10%                 | +13%/-11%                 | +27%/-51%                                 |
| 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 009468384-01 / KOI 3466.01

| Detrend | Depth (ppm)     | $R_p (R_{\oplus})$      | $T_{max} (K)$      | $T_{obs} (K)$        | $A_{obs}$         |
|---------|-----------------|-------------------------|--------------------|----------------------|-------------------|
| DV      | $-87660 \pm 41$ | $50.36^{+8.38}_{-4.01}$ | $1136^{+87}_{-58}$ | $4802^{+119}_{-151}$ | $194^{+30}_{-47}$ |
| Alt.    | $-69143 \pm 70$ | $53.13^{+8.29}_{-3.86}$ | $1129^{+79}_{-54}$ | $4440^{+98}_{-121}$  | $134^{+19}_{-31}$ |

$T_{max}$  = 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

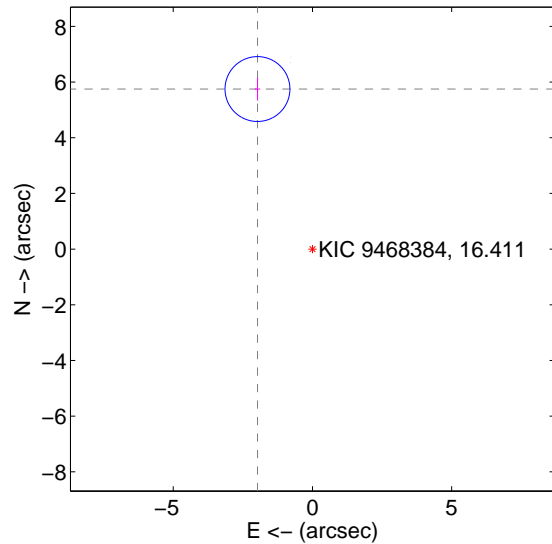
Supplemental centroid analysis for 009468384-01. Kepler magnitude: 16.41. Transit SNR 2908.02

There are 10 quarters with good PRF difference image offsets

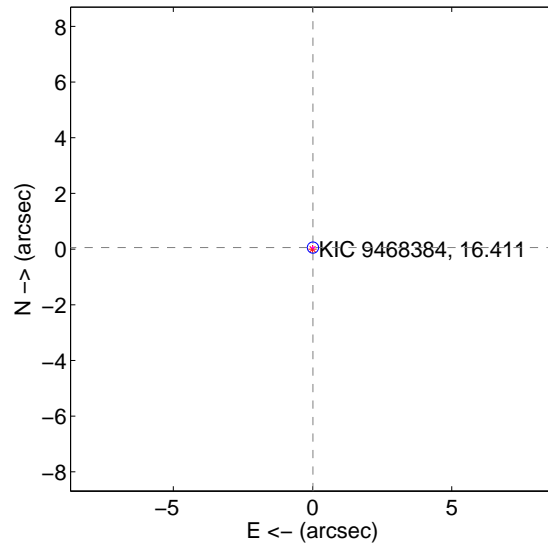
The OOT PRF centroid is offset from the target star catalog position by about 6.69 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $6.078 \pm 0.388$  | 15.65               | $1.974 \pm 0.097$  | $5.748 \pm 0.409$ |
| PRF-fit source offset from KIC position | $0.056 \pm 0.067$  | 0.84                | $-0.016 \pm 0.067$ | $0.054 \pm 0.067$ |
| photometric centroid source offset      | $2.94 \pm 0.00$    | 1728.91             | $-0.89 \pm 0.00$   | $-2.81 \pm 0.00$  |

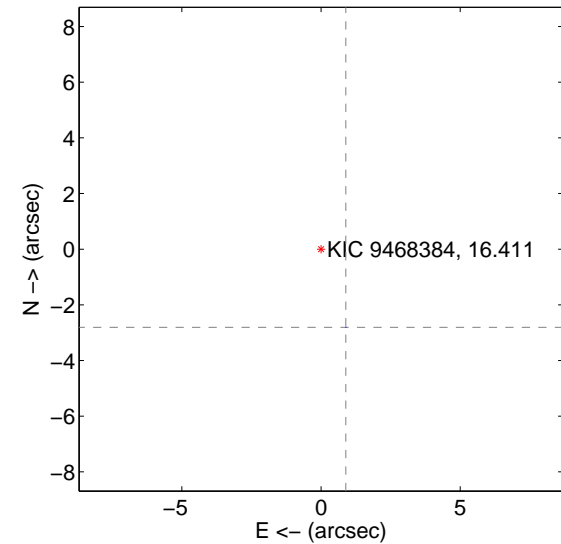
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

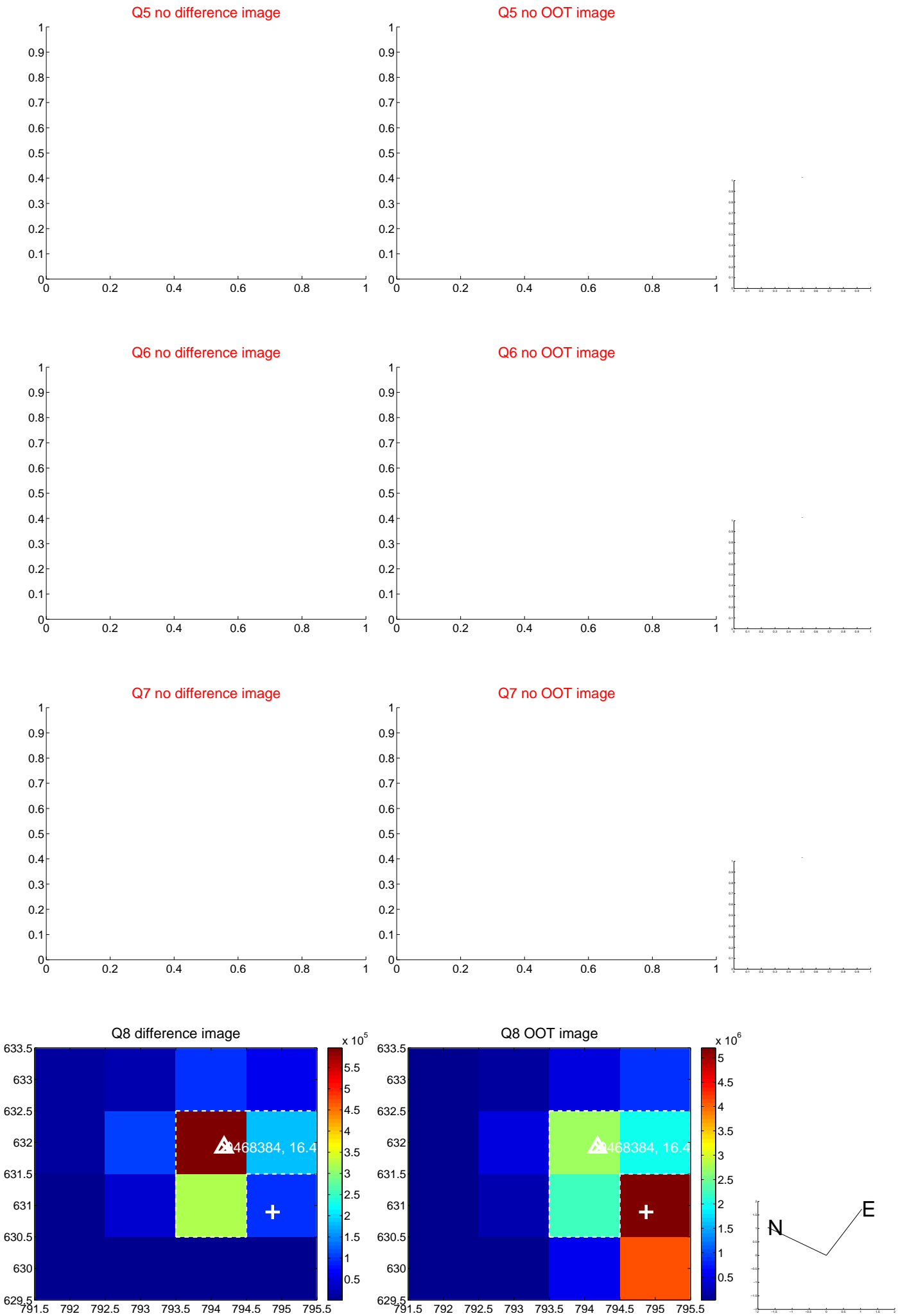


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

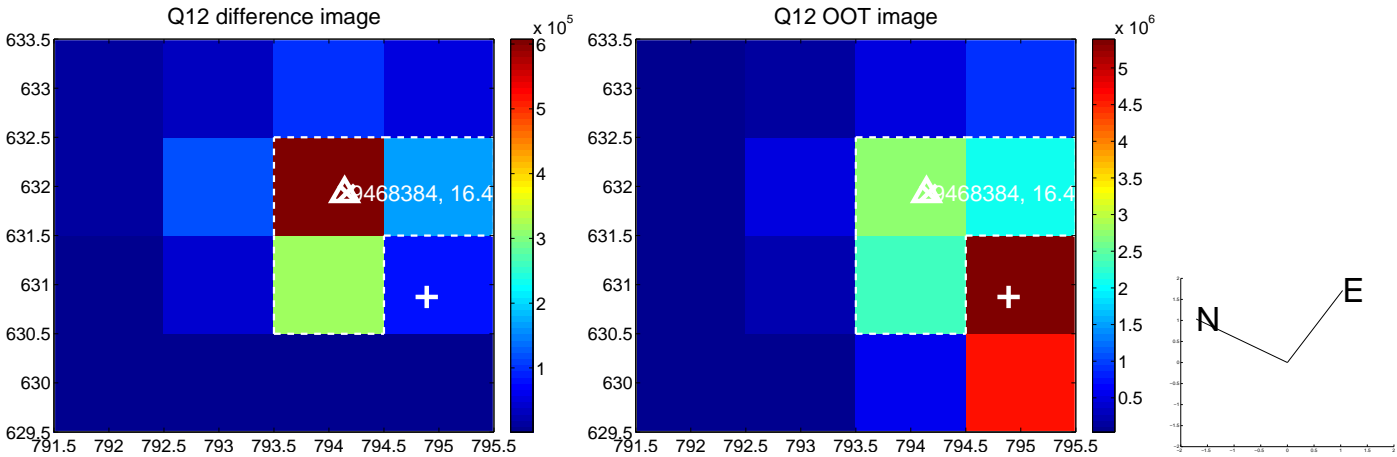
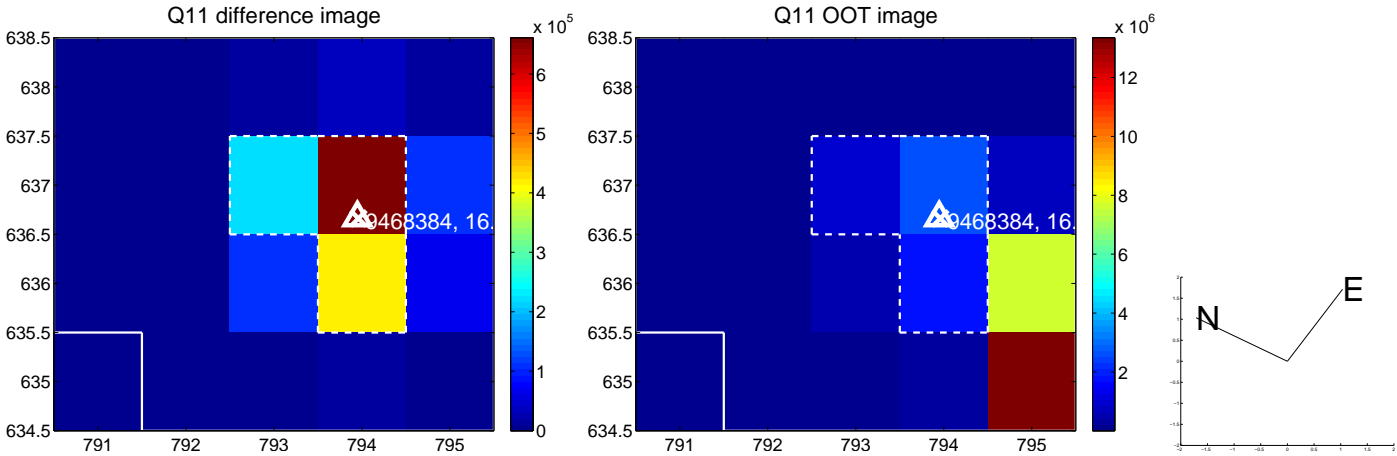
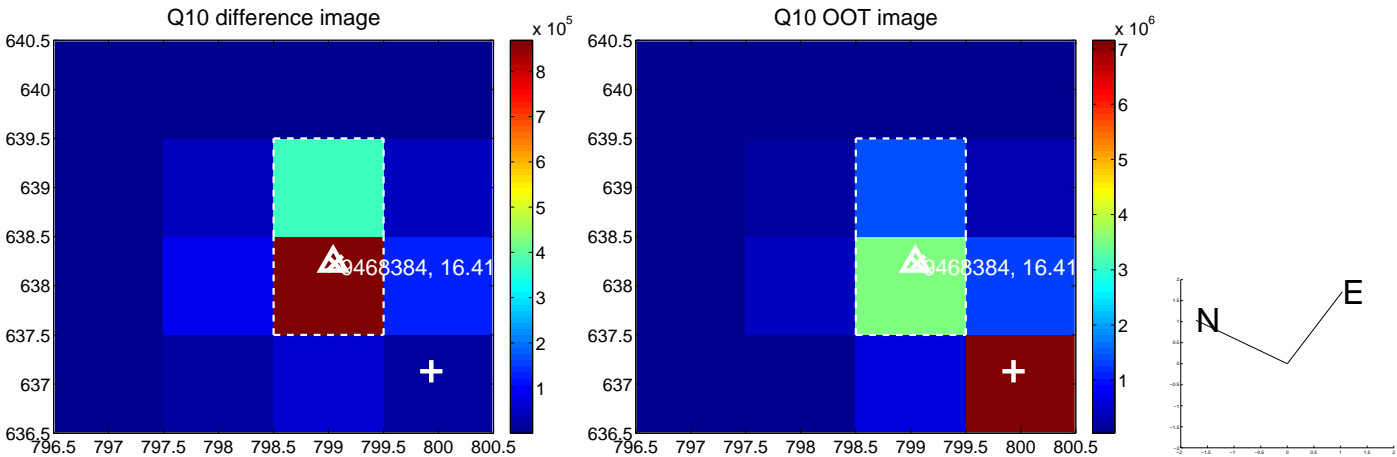
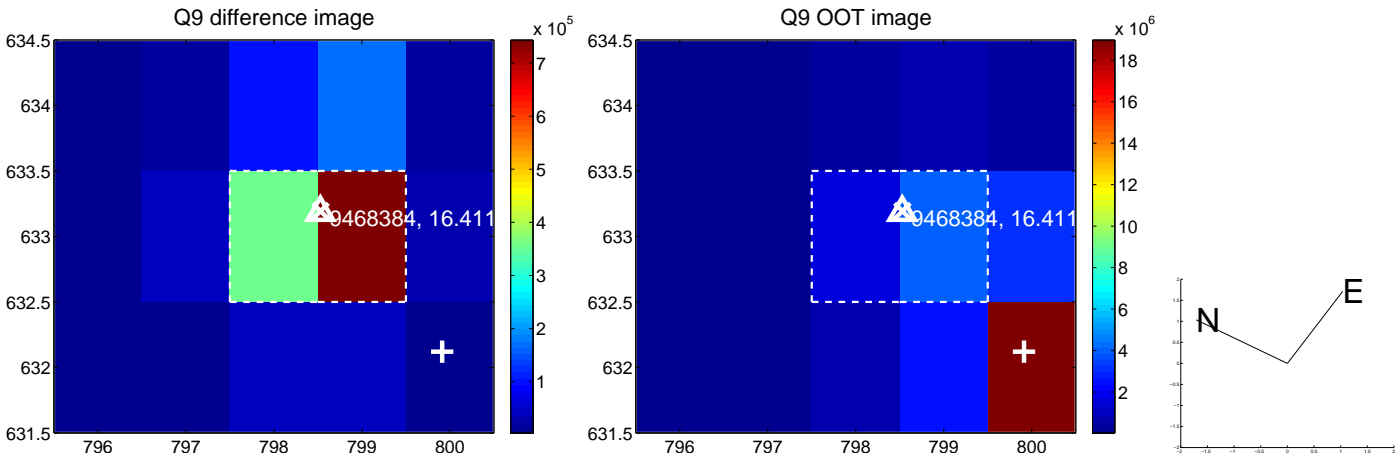


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

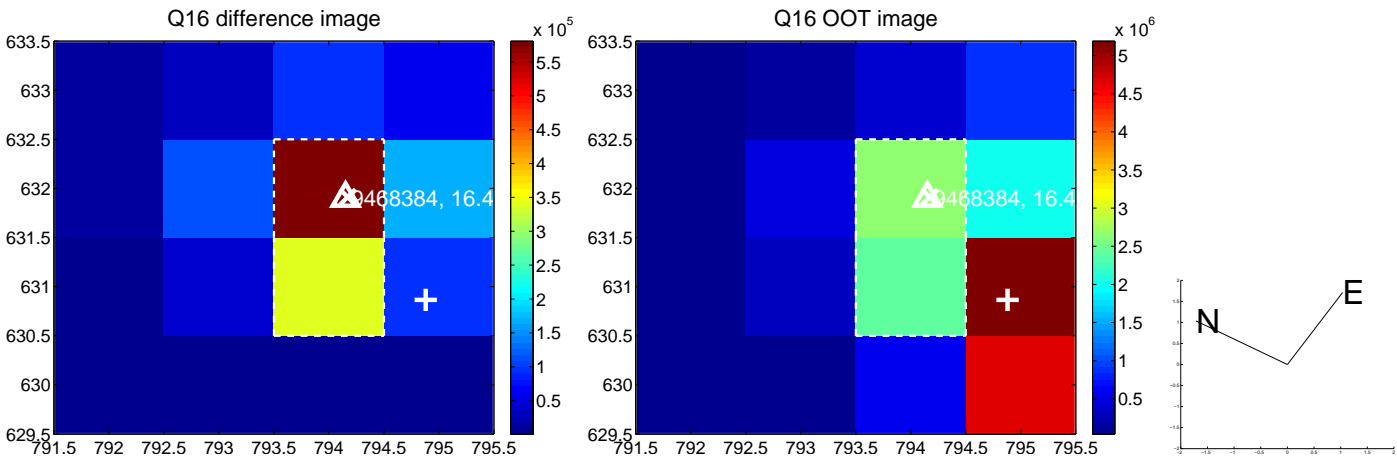
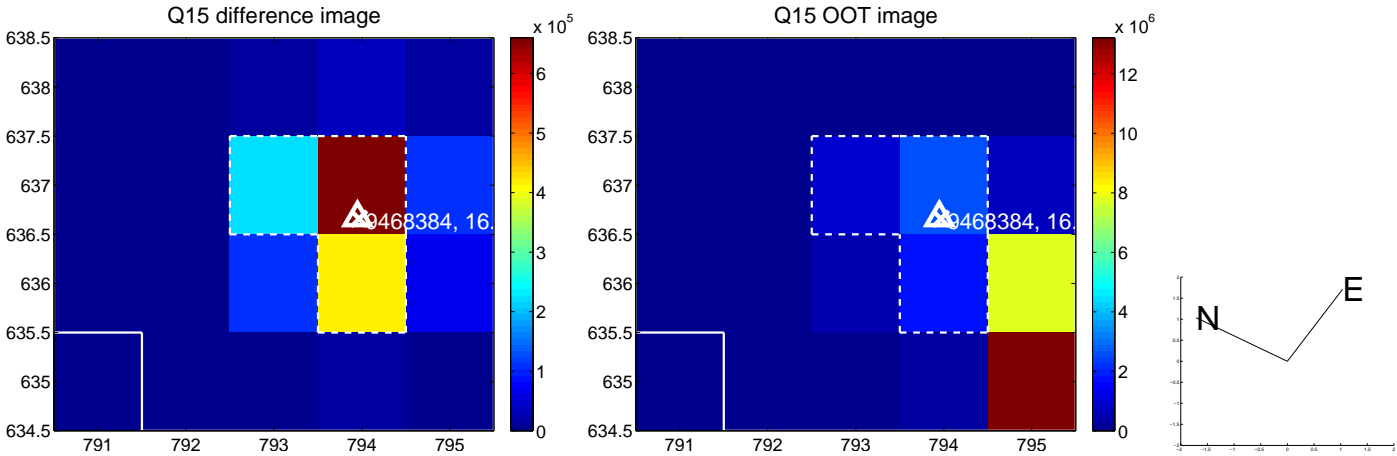
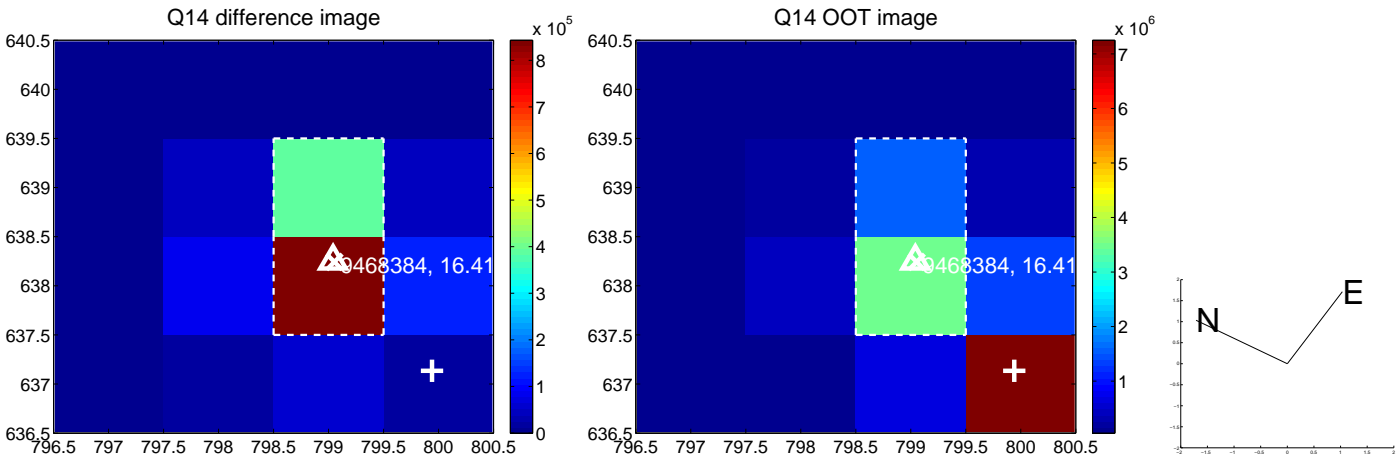
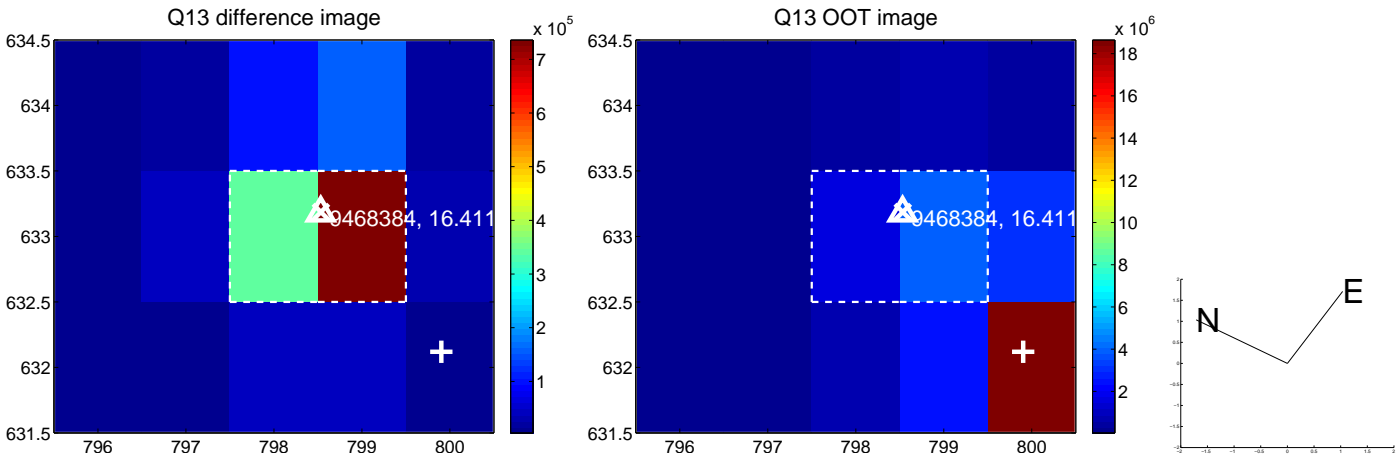




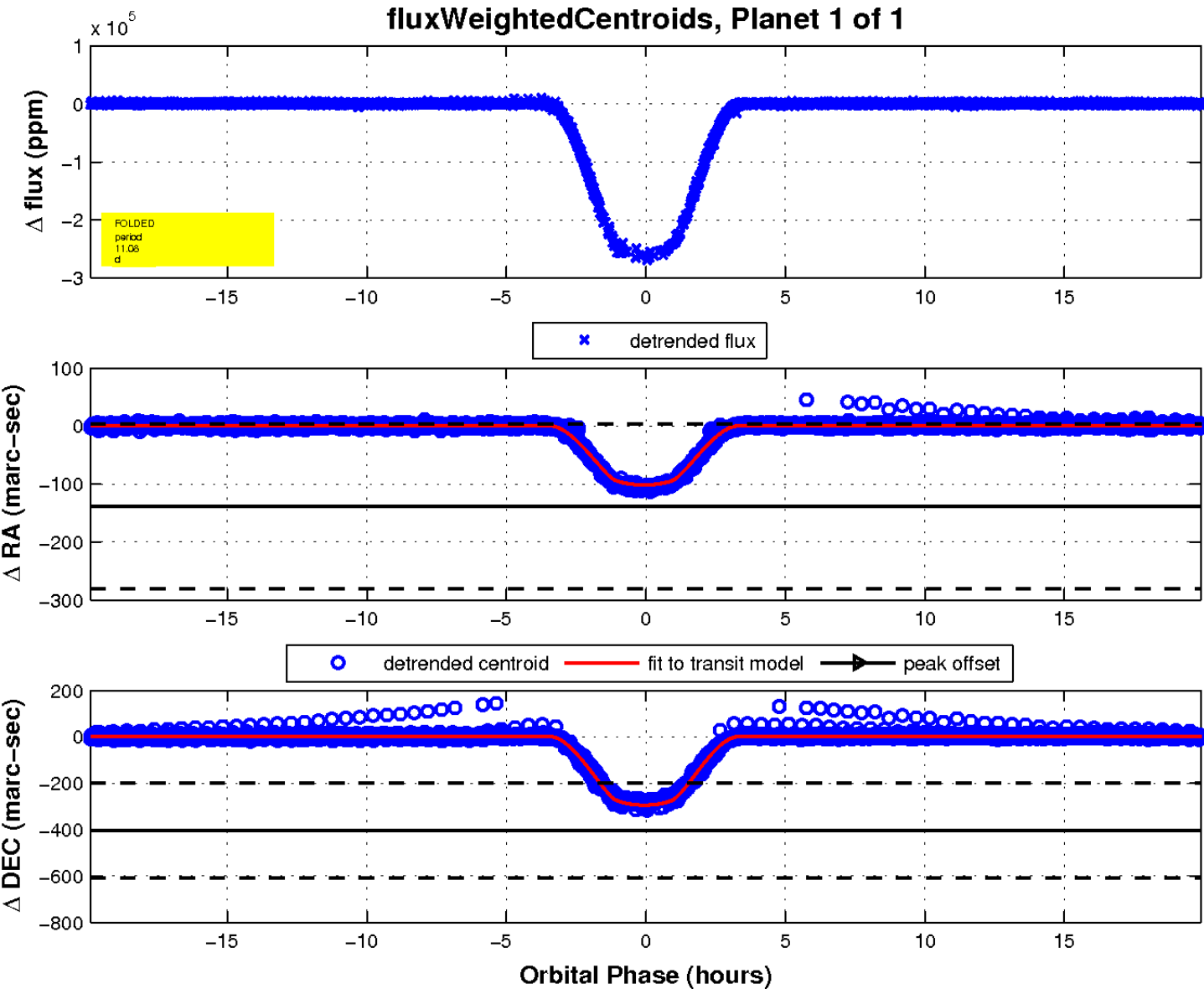
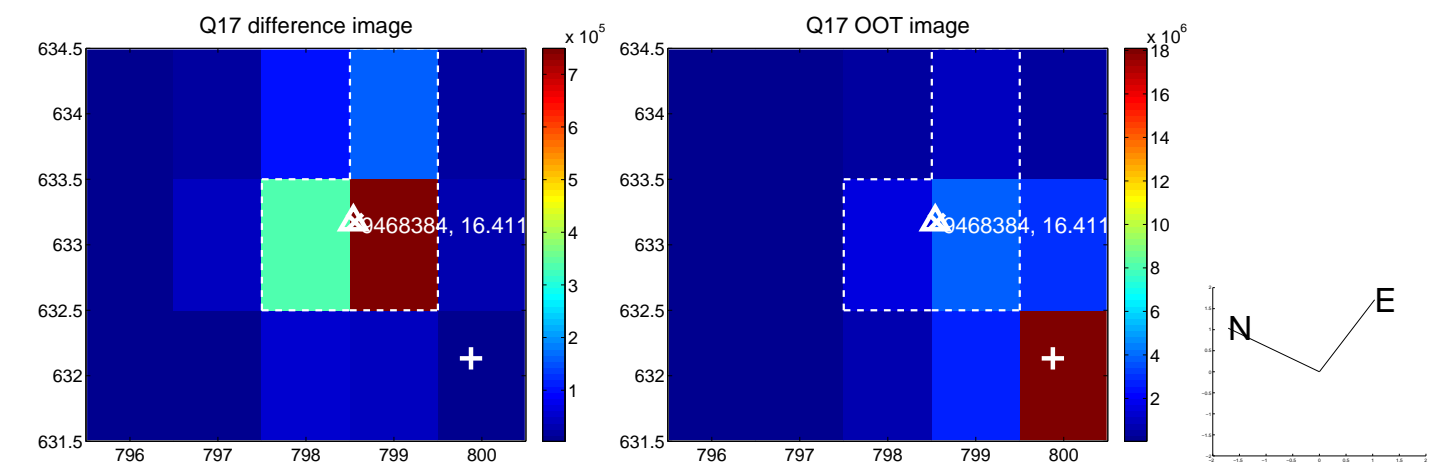
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

