

# KIC 007340624

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007340624-01 | OBS      | 8138.01 | 369.279873    | 233.395836   | 833.7       | 16.044           | 7.4 | 7.5 | 0.95                        | 5900            | 2.81                   | 0.93                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                        |
|--------------|----------|------|-------|---|---|---|---|---------------------------------|
| 007340624-01 | OBS      | FP   | 0.03  | 1 | 0 | 0 | 0 | ALL_TRANS_CHASES—CENT_FEW_DIFFS |

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

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

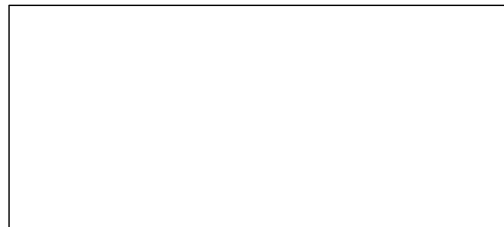
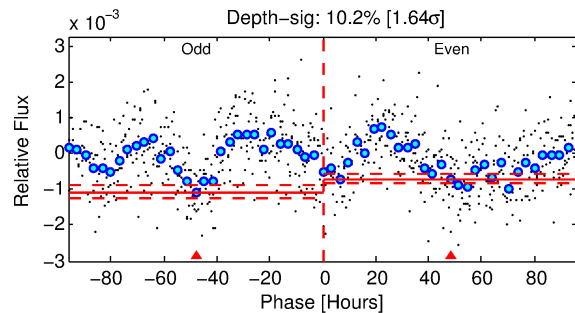
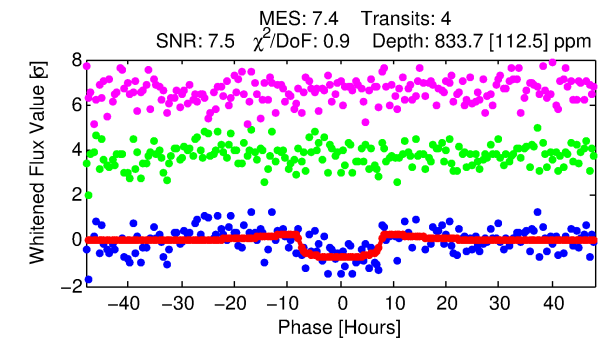
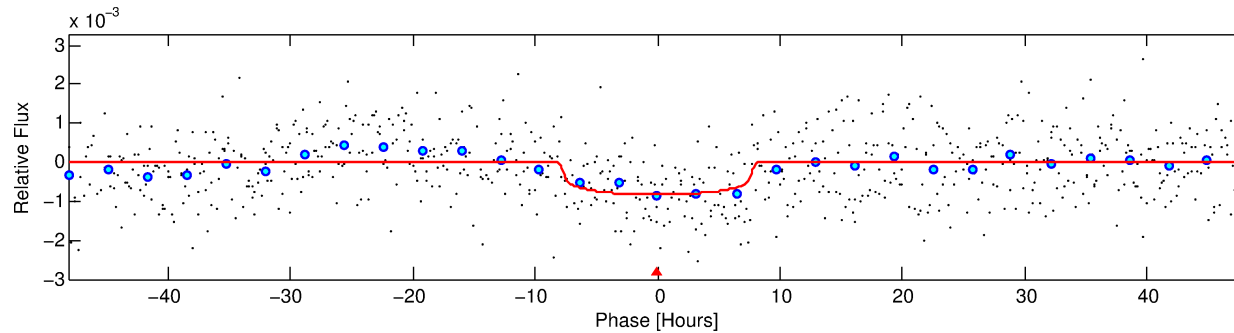
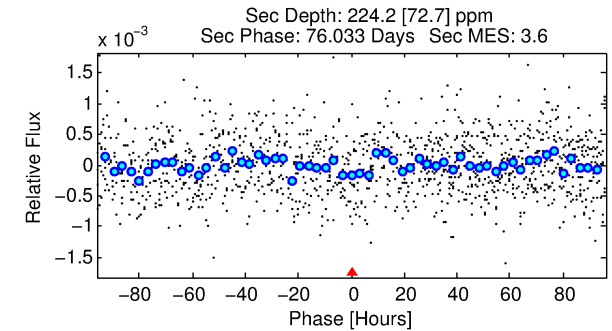
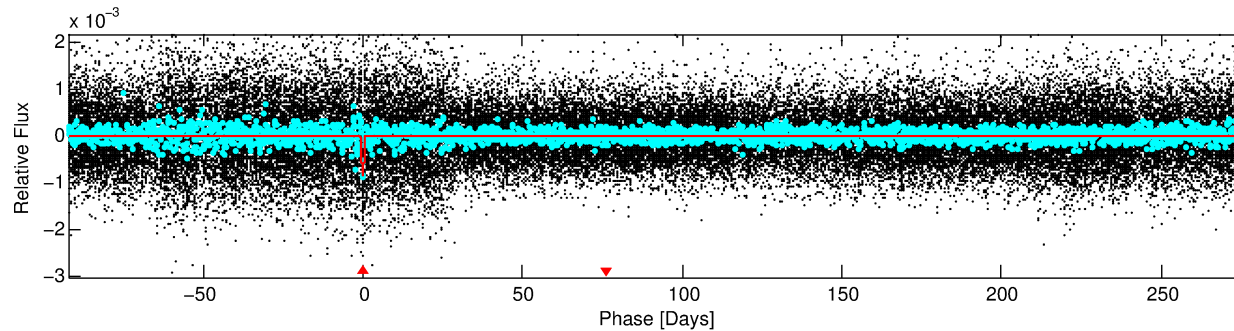
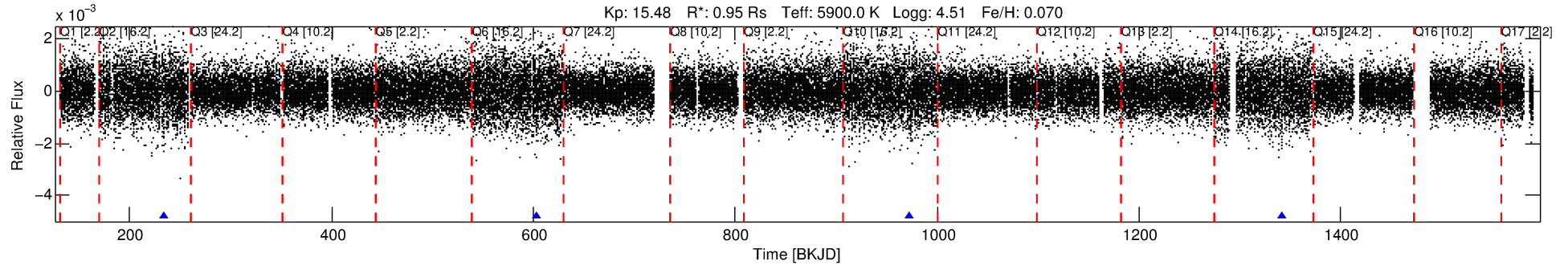
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007340624-01

No Significant Match Found

# DV One-Page Summary

KIC: 7340624 Candidate: 1 of 1 Period: 369.280 d



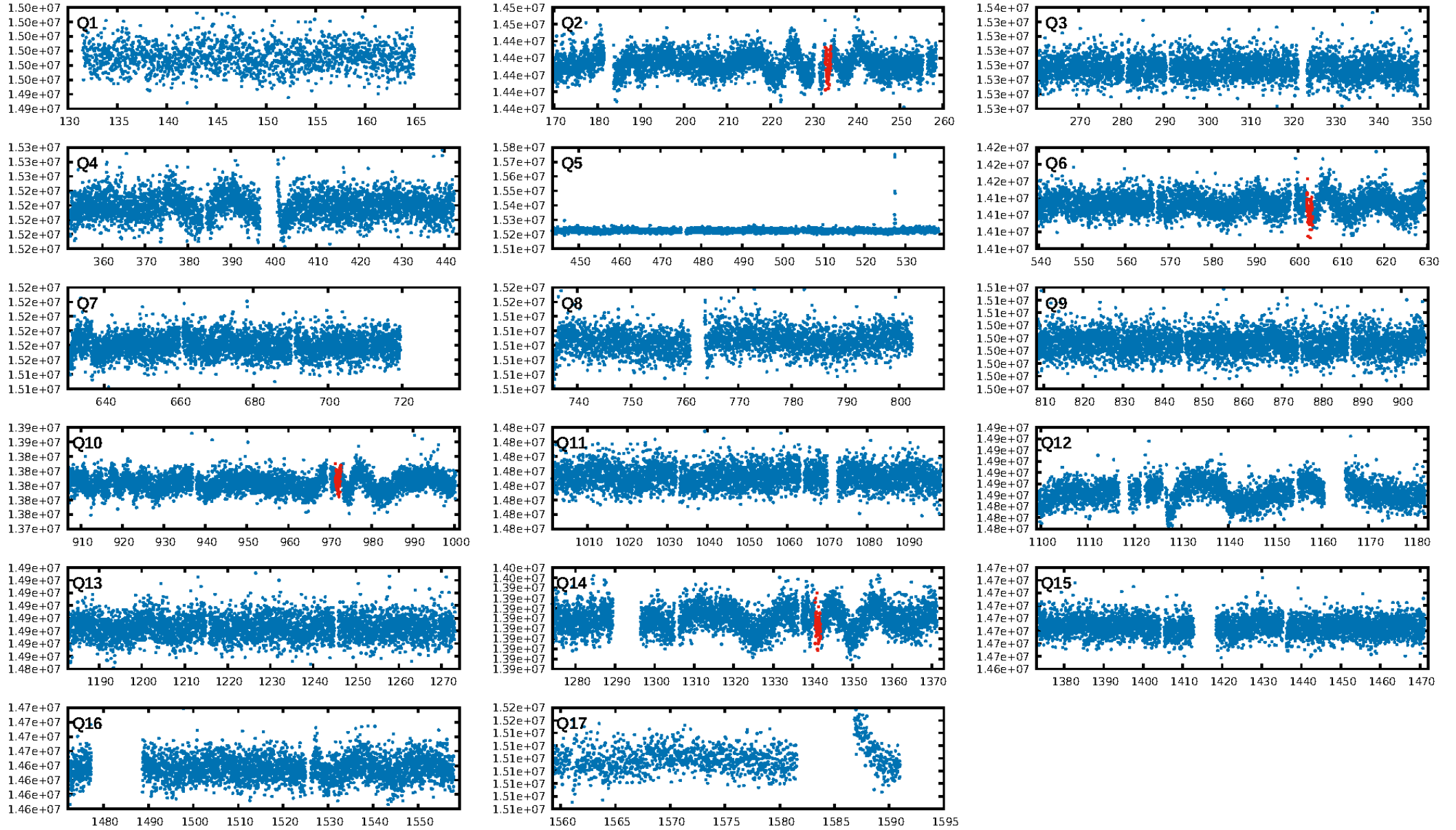
## DV Fit Results:

Period = 369.27987 [0.01150] d  
Epoch = 233.3958 [0.0219] BKJD  
Rp/R\* = 0.0270 [0.0136]  
a/R\* = 158.19 [351.47]  
b = 0.50 [3.40]  
Seff = 0.93 [0.39]  
Teq = 250 [26] K  
Rp = 2.81 [1.66] Re  
a = 1.0289 [0.2763] AU  
Ag = 16570.55 [18738.67] [0.88σ]  
Teffp = 4390 [1170] K [3.54σ]

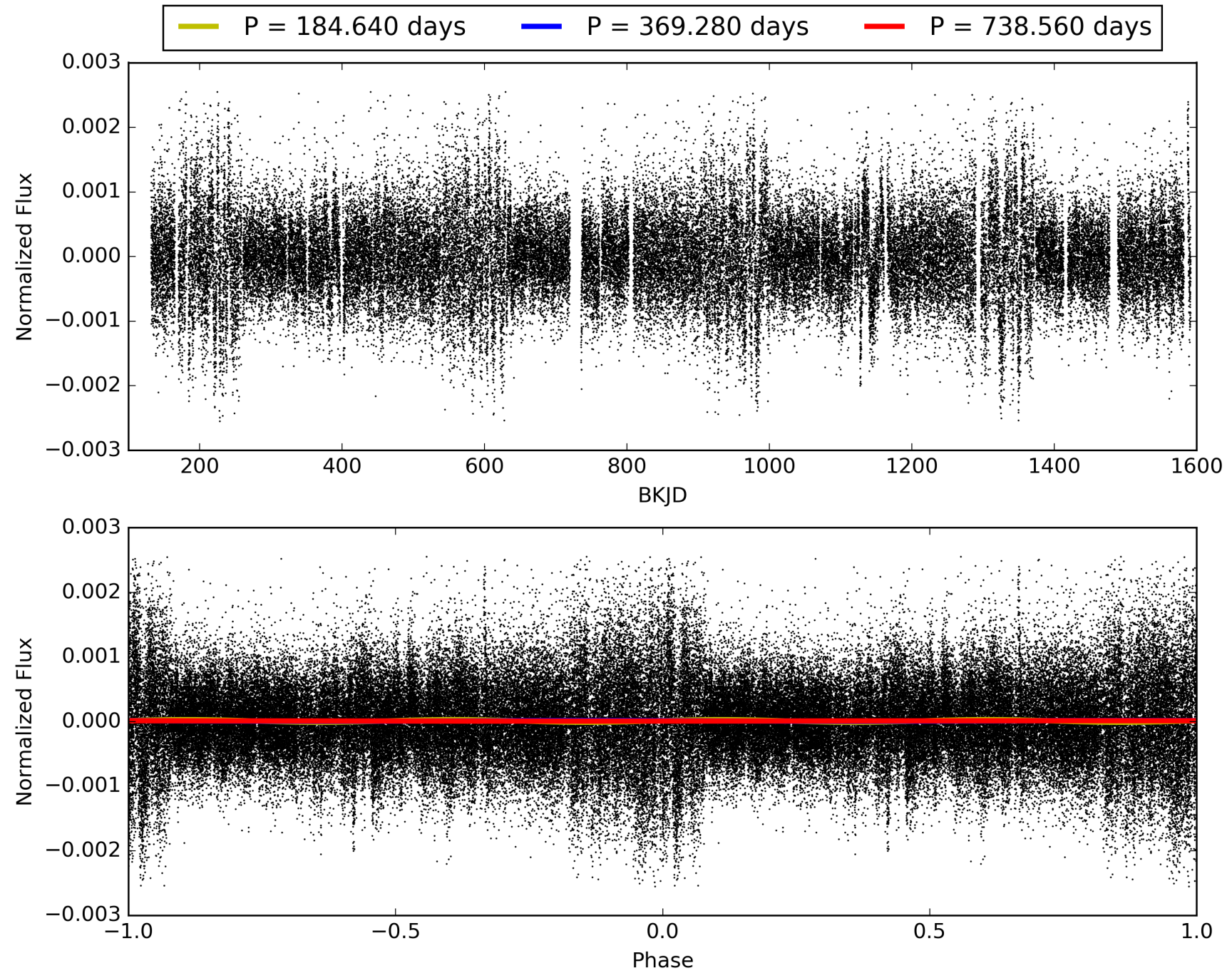
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 58.6%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.50e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -3.808  
Centroid-sig: 74.3%  
Centroid-so: 1.115 arcsec [0.52σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

# TCE 007340624-01, PDC Light Curves

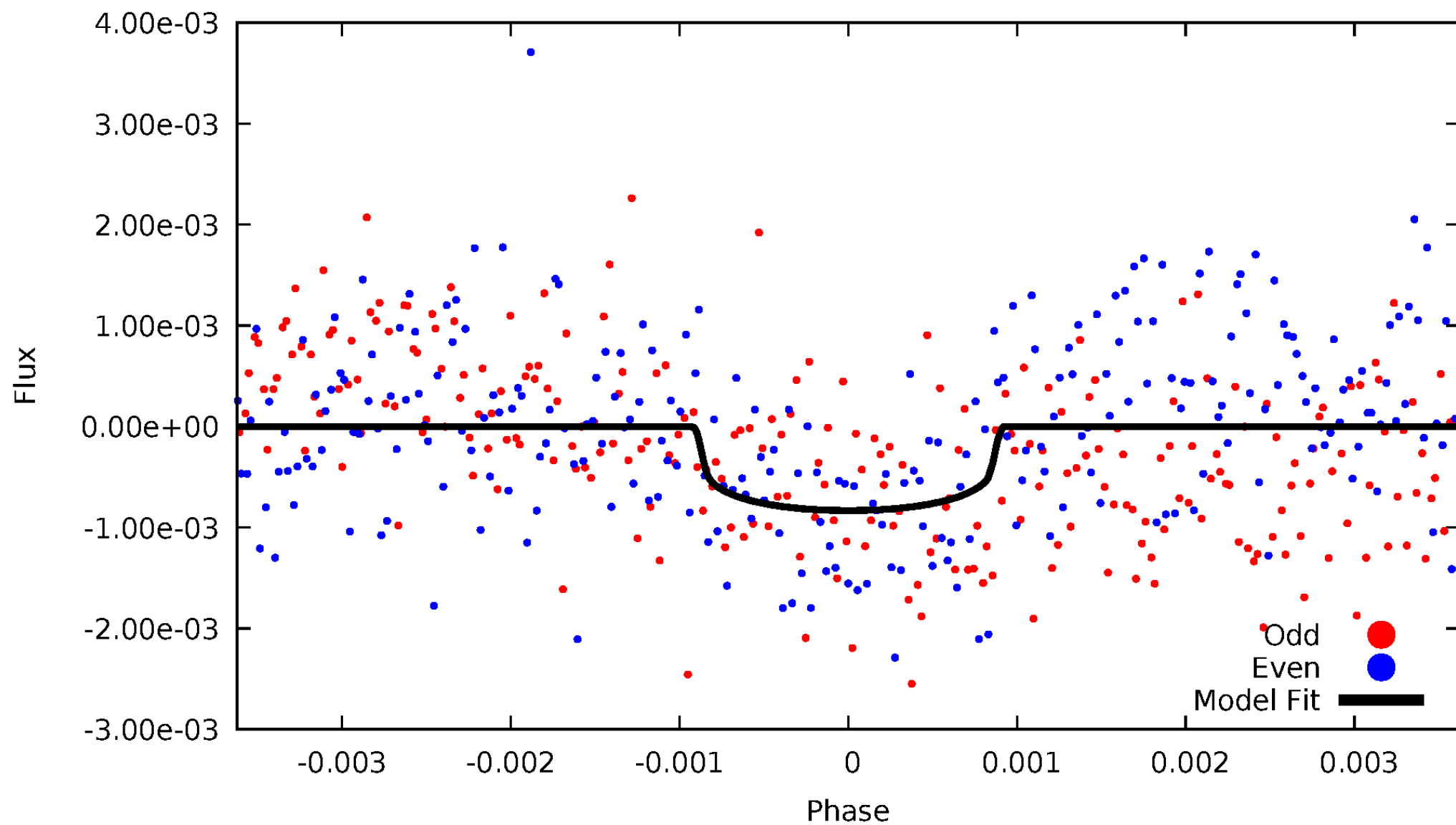


TCE 007340624-01



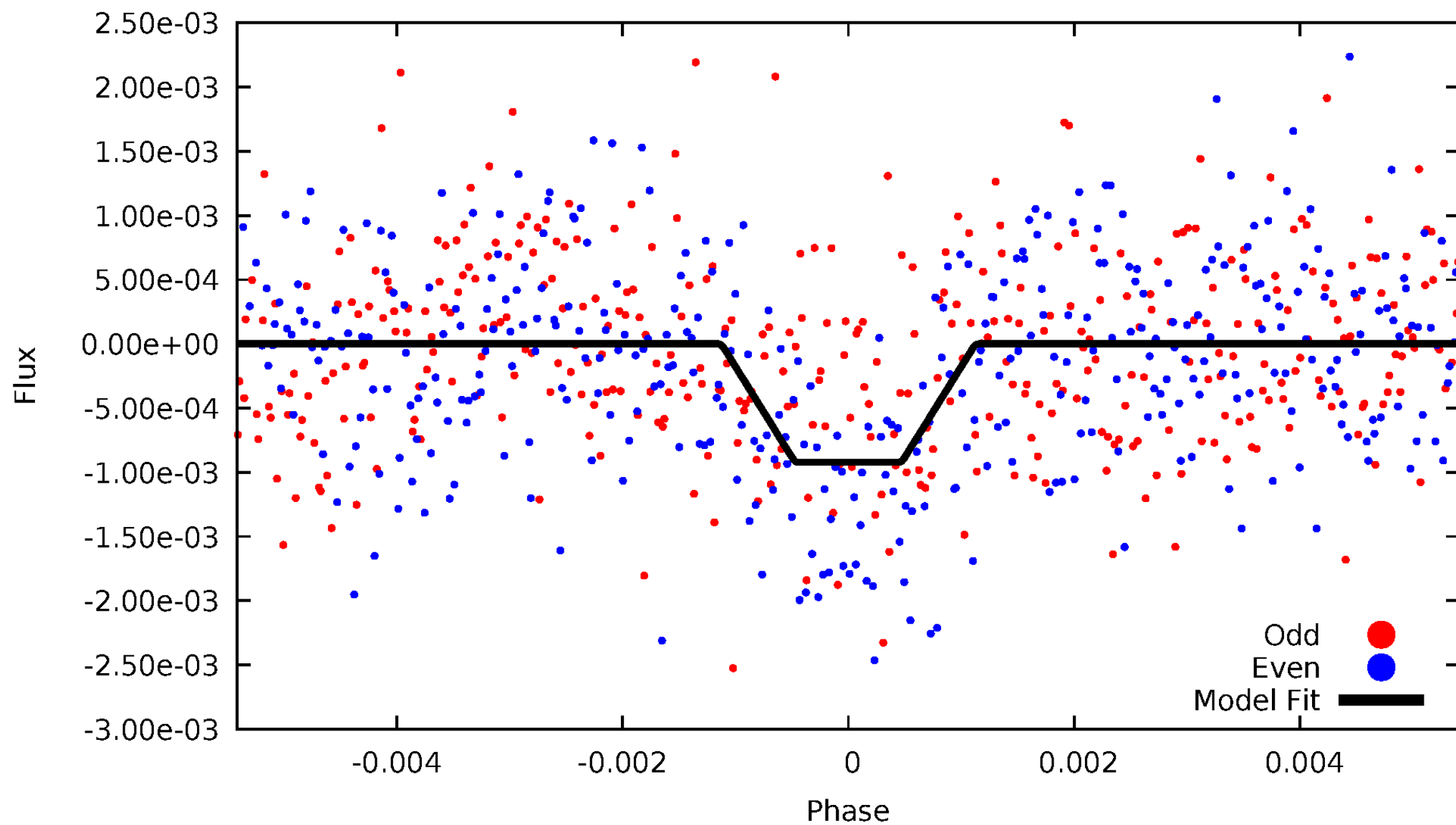
# DV Odd/Even

TCE 007340624-01



# ALT Odd/Even

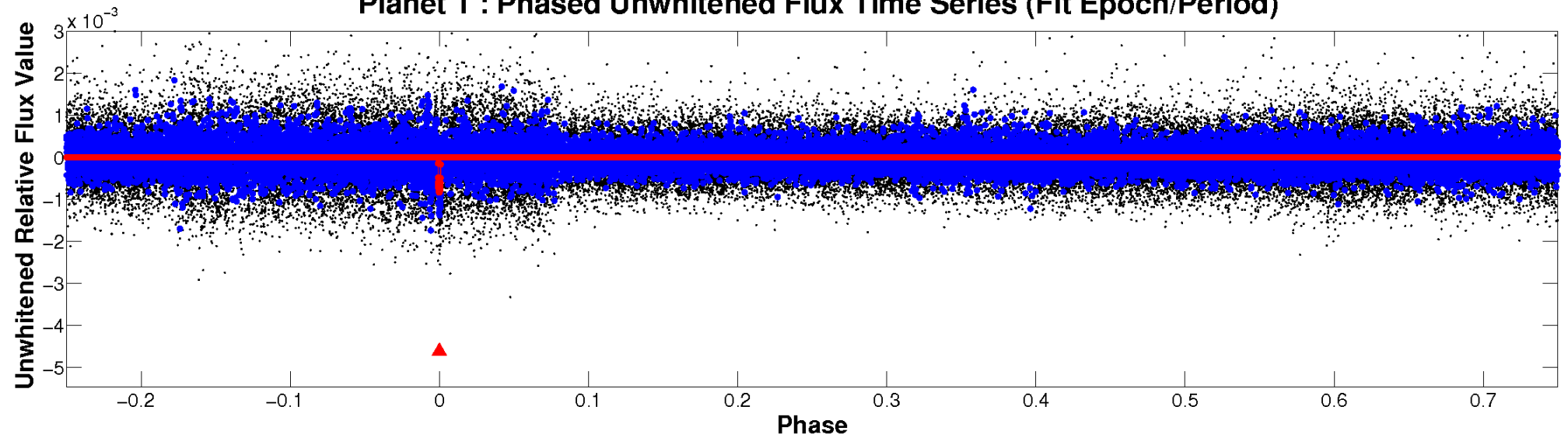
TCE 007340624-01



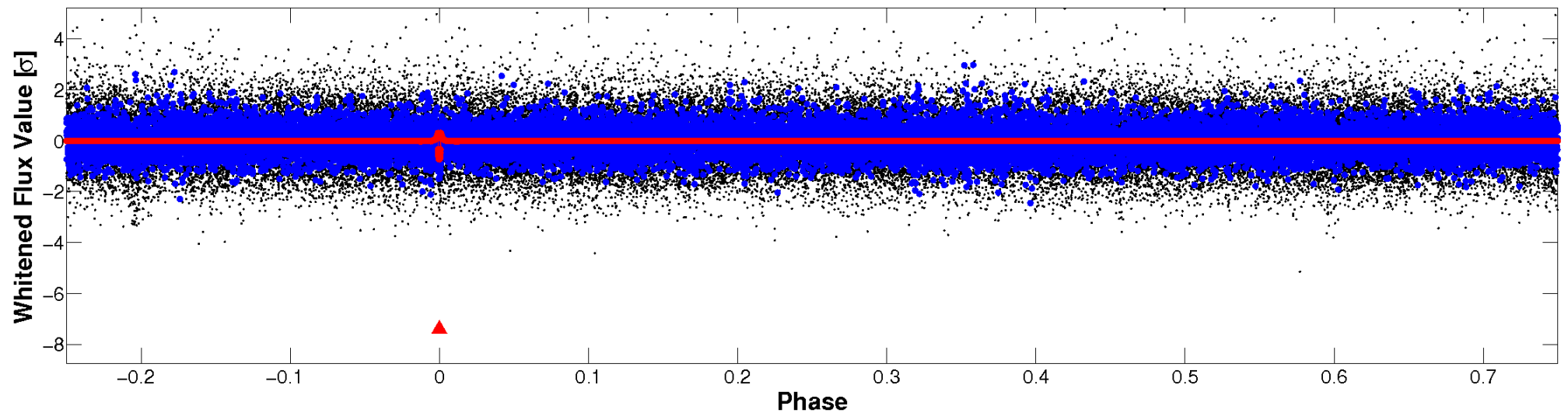


# Non-Whitened Vs. Whitened Light Curve

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

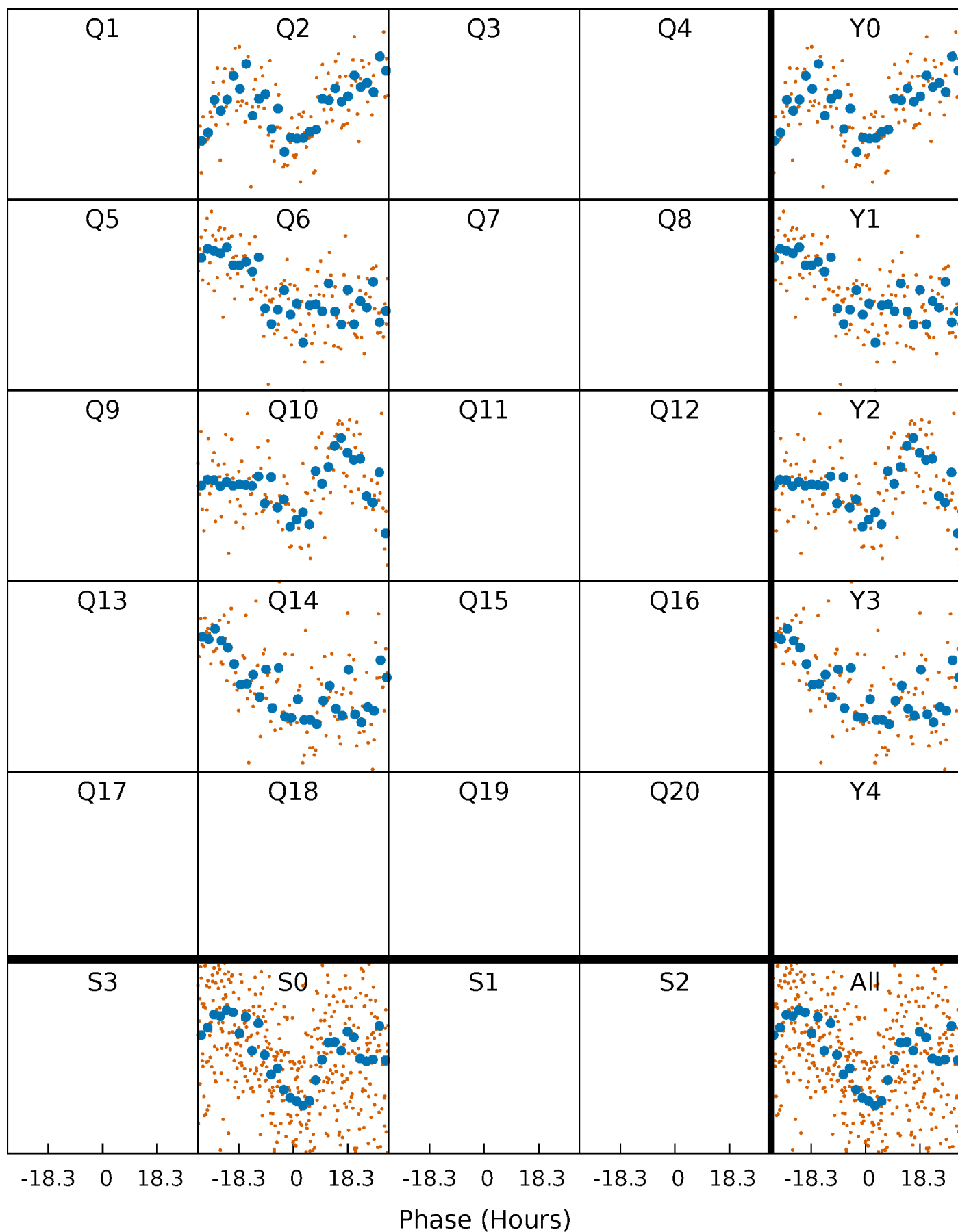


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 007340624-01 P=369.279873 Days  $T_0=233.395836$  (BKJD)





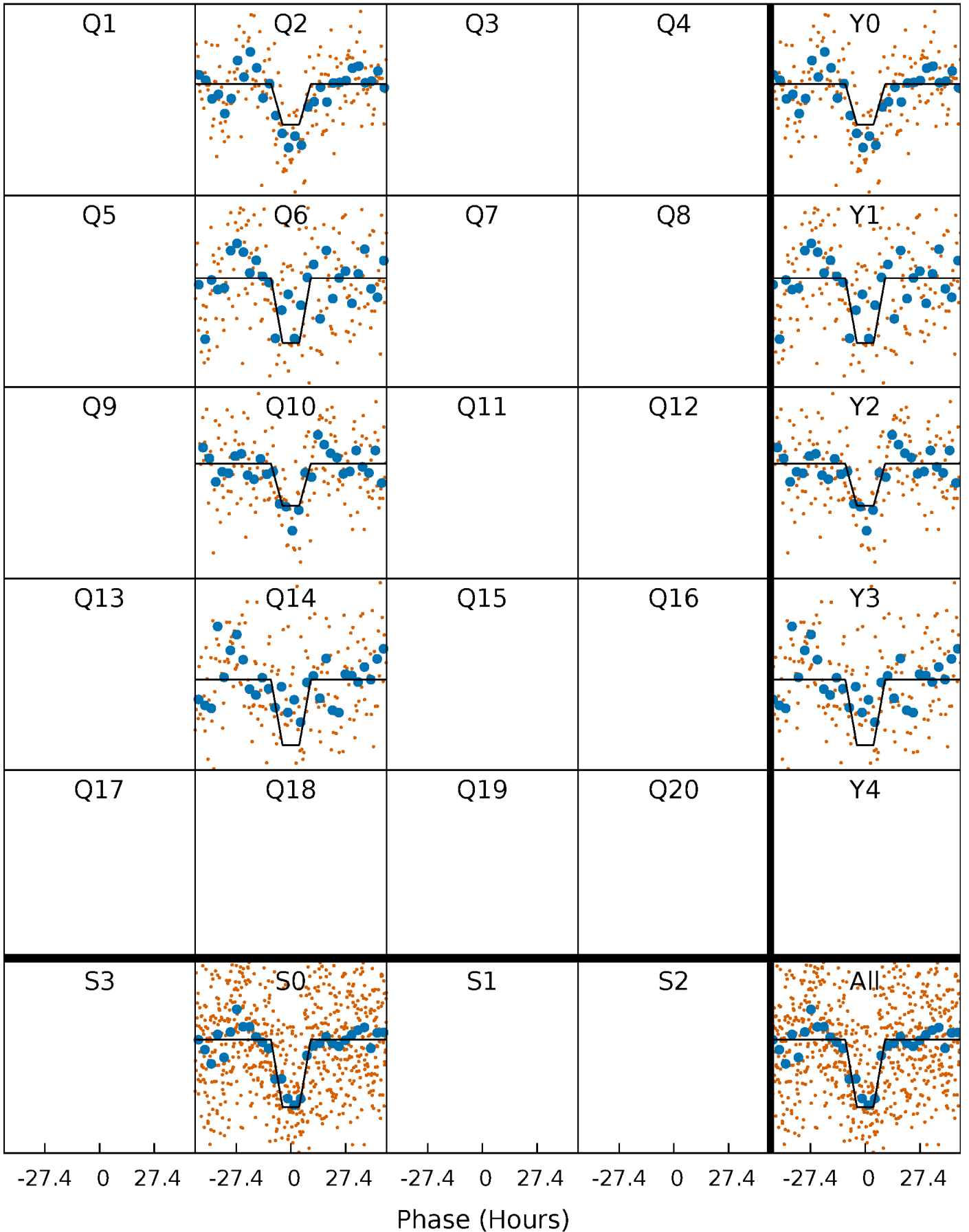
# DV Quarter-Phased Transit Curves

TCE 007340624-01 P=369.279873 Days  $T_0=233.395836$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

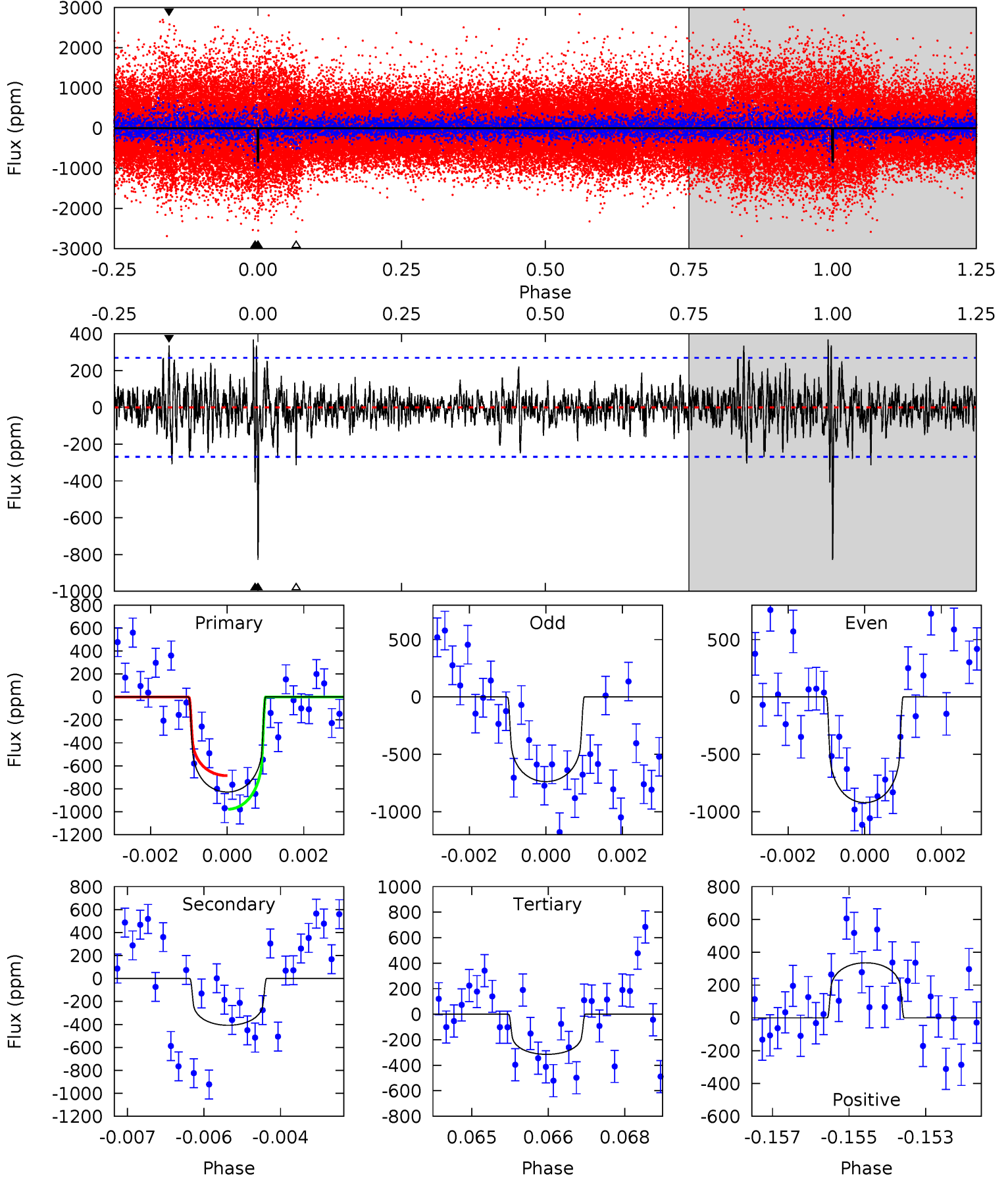
TCE 007340624-01 P=369.288919 Days  $T_0=233.412116$  (BKJD)



# DV Model-Shift Uniqueness Test

007340624-01, P = 369.279873 Days, E = 233.395836 Days

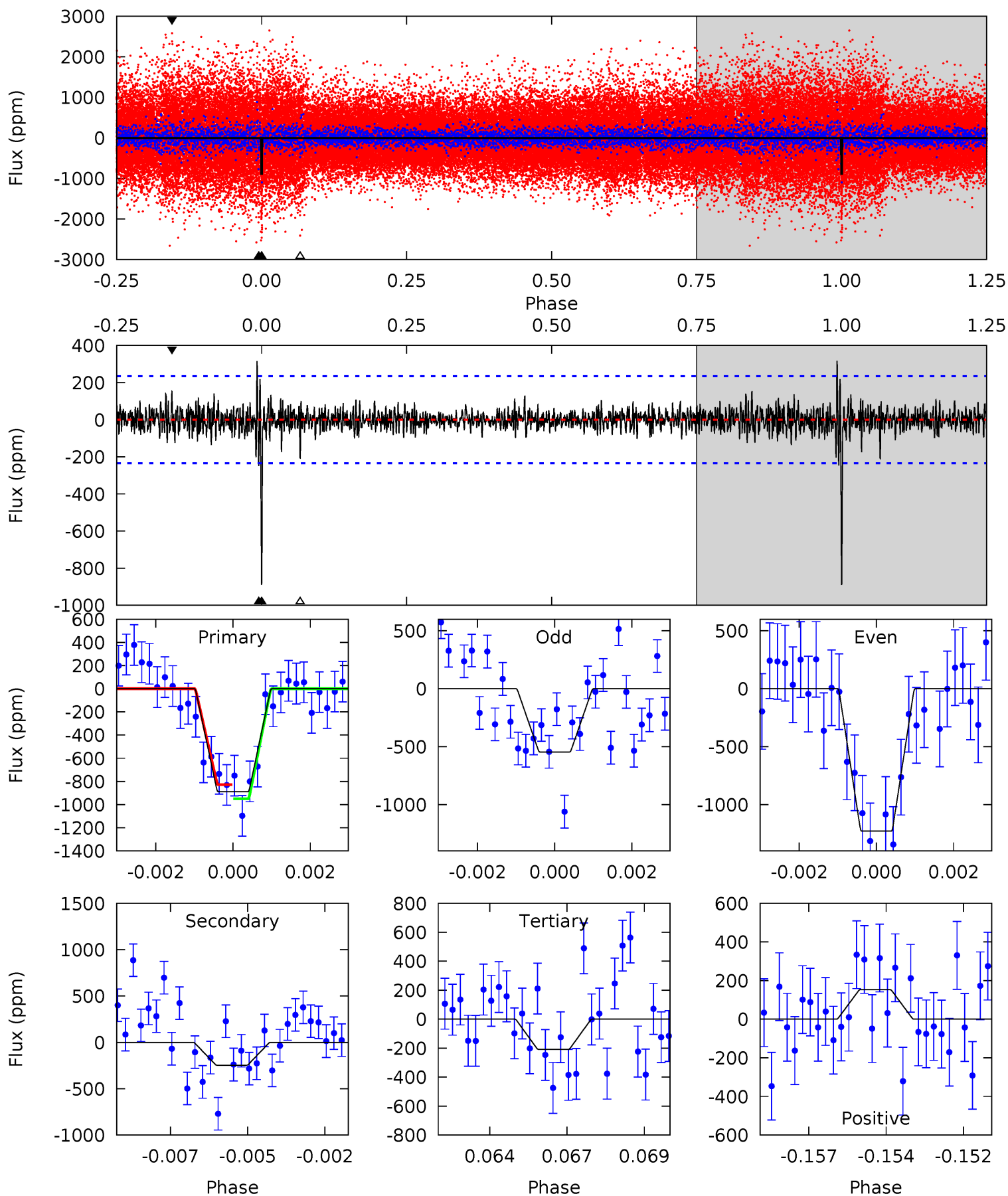
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.4 | 8.09 | 6.25 | 6.67 | 5.34            | 3.11            | 1.45             | 10.2    | 9.78    | 1.84    | 1.42    | 1.82    | 1.12 | 0.31  | 2.91 |



# Alt Model-Shift Uniqueness Test

007340624-01, P = 369.288919 Days, E = 233.412116 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.1 | 5.57 | 4.72 | 3.46 | 5.30            | 3.05            | 0.96             | 15.4    | 16.6    | 0.84    | 2.11    | 7.74    | 1.06 | 0.26  | 1.37 |



### Stellar Parameters For KIC 007340624

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
|        | $5900^{+158}_{-193}$ | $4.509^{+0.039}_{-0.221}$ | $0.070^{+0.250}_{-0.300}$ | $0.951^{+0.297}_{-0.099}$ | $1.065^{+0.115}_{-0.153}$ | $1.745^{+0.355}_{-0.906}$                 |
|        | +3%/-3%              | +1%/-5%                   | +357%/-429%               | +31%/-10%                 | +11%/-14%                 | +20%/-52%                                 |
| 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 007340624-01 / KOI 8138.01

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$          |
|---------|---------------|------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-407 \pm 50$ | $3.03^{+1.64}_{-1.42}$ | $359^{+27}_{-17}$    | $5082^{+1831}_{-766}$ | $25277^{+59628}_{-14969}$ |
| Alt.    | $-246 \pm 44$ | $3.39^{+1.57}_{-1.48}$ | $360^{+25}_{-17}$    | $4371^{+1209}_{-538}$ | $12089^{+25491}_{-6560}$  |

$T_{\text{max}}$  = 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

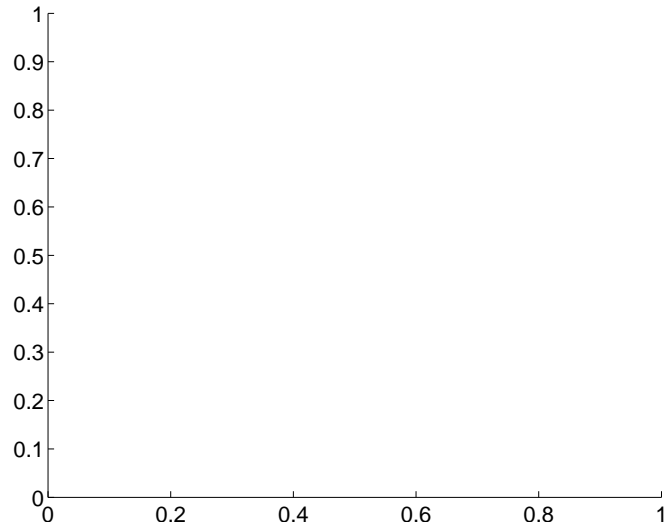
Supplemental centroid analysis for 007340624-01. Kepler magnitude: 15.48. Transit SNR 7.48

There are 0 quarters with good PRF difference image offsets

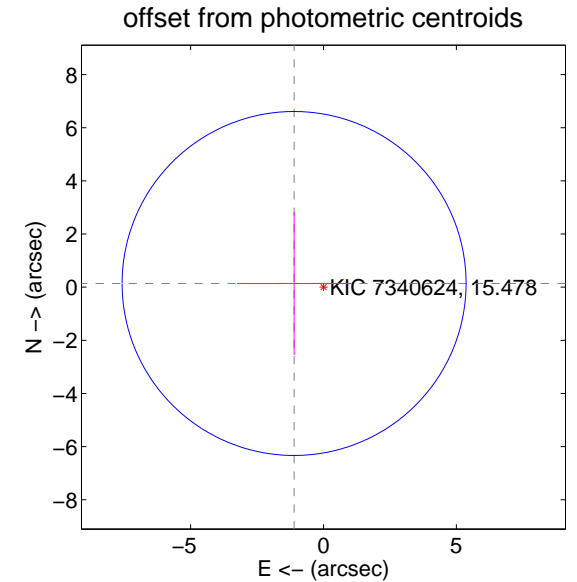
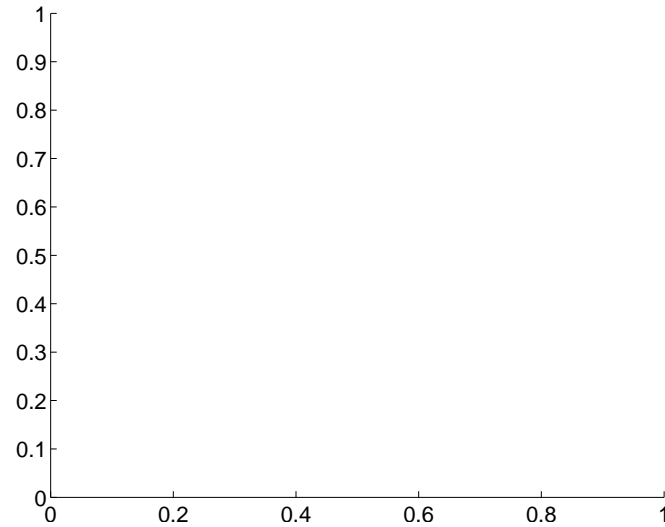
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA     | $\Delta$ Dec    |
|---|--------------------|---------------------|-----------------|-----------------|
| PRF-fit source offset from OOT          | —                  | —                   | —               | —               |
| PRF-fit source offset from KIC position | —                  | —                   | —               | —               |
| photometric centroid source offset      | $1.12 \pm 2.16$    | 0.52                | $1.11 \pm 2.15$ | $0.14 \pm 2.69$ |

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



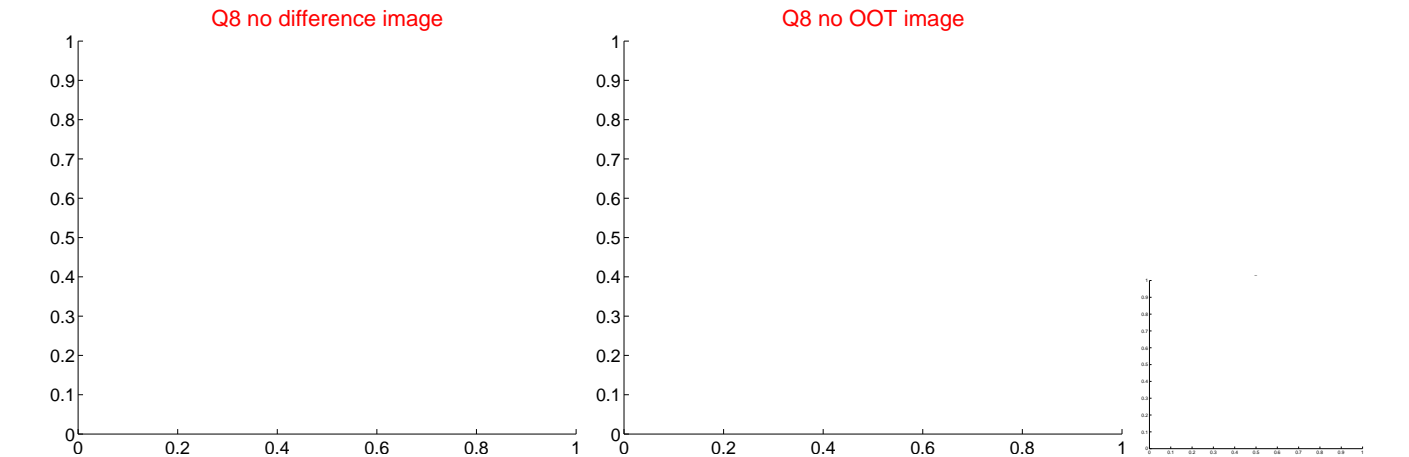
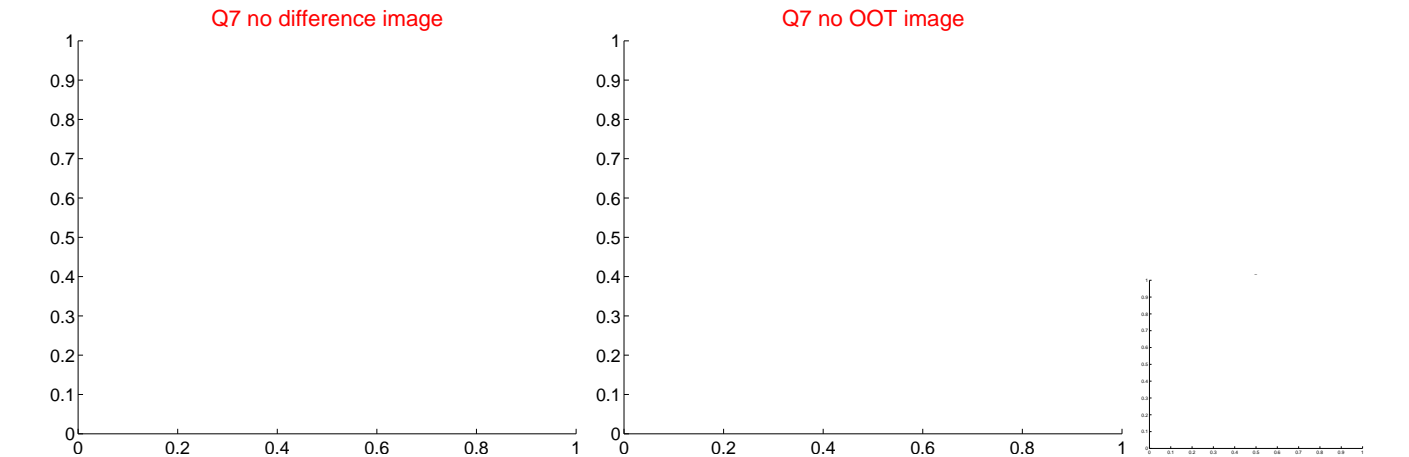
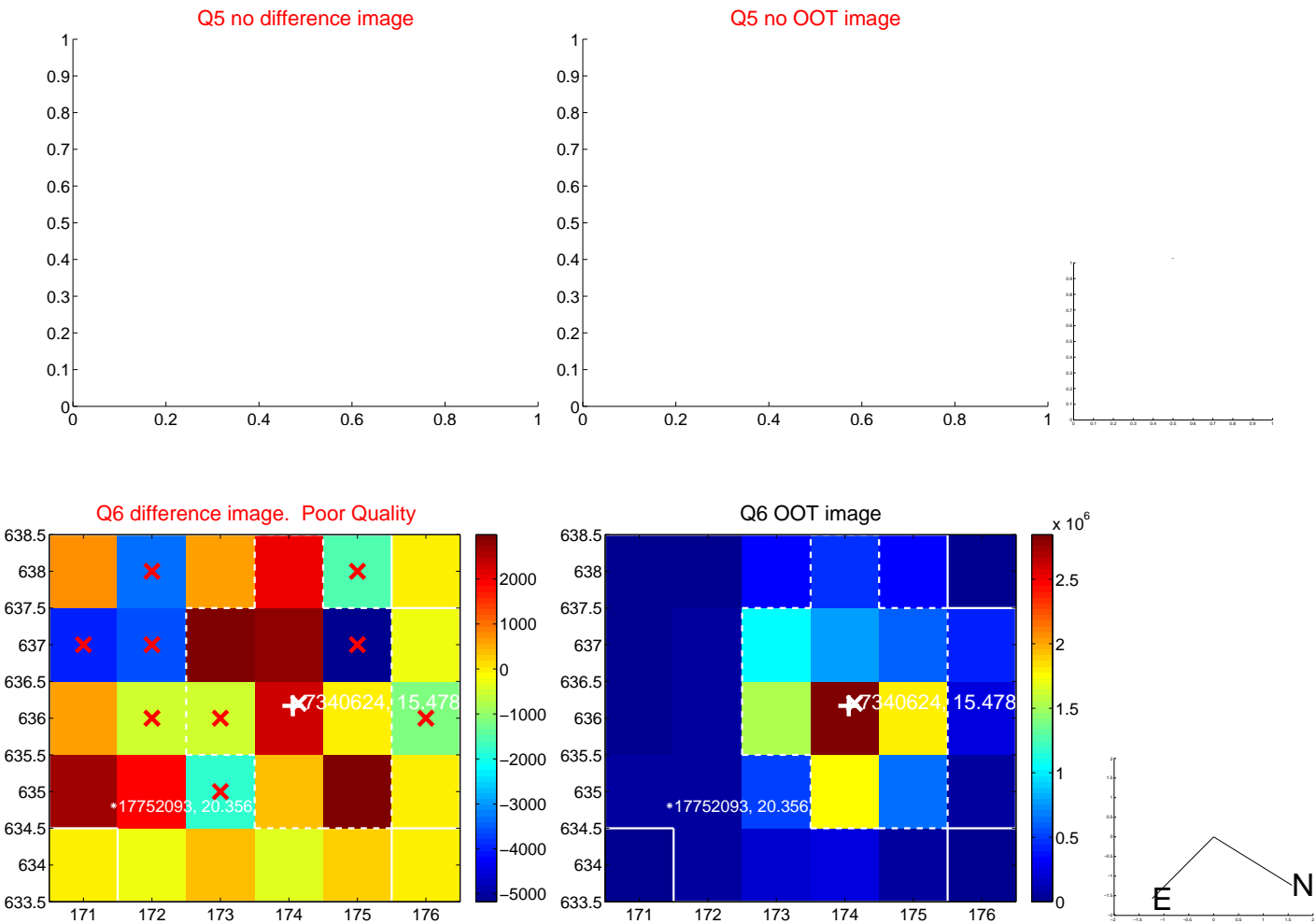
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



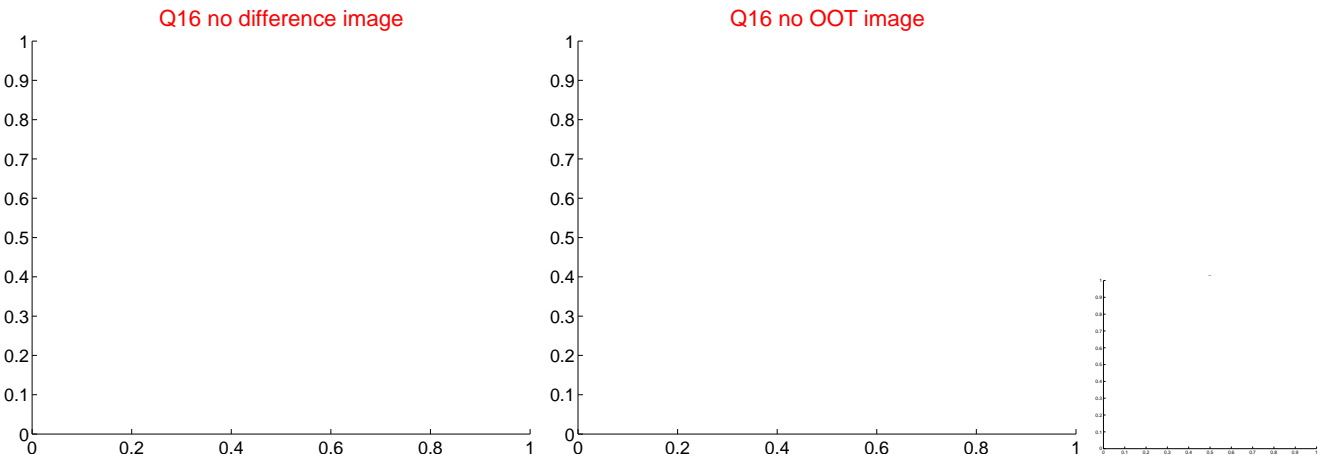
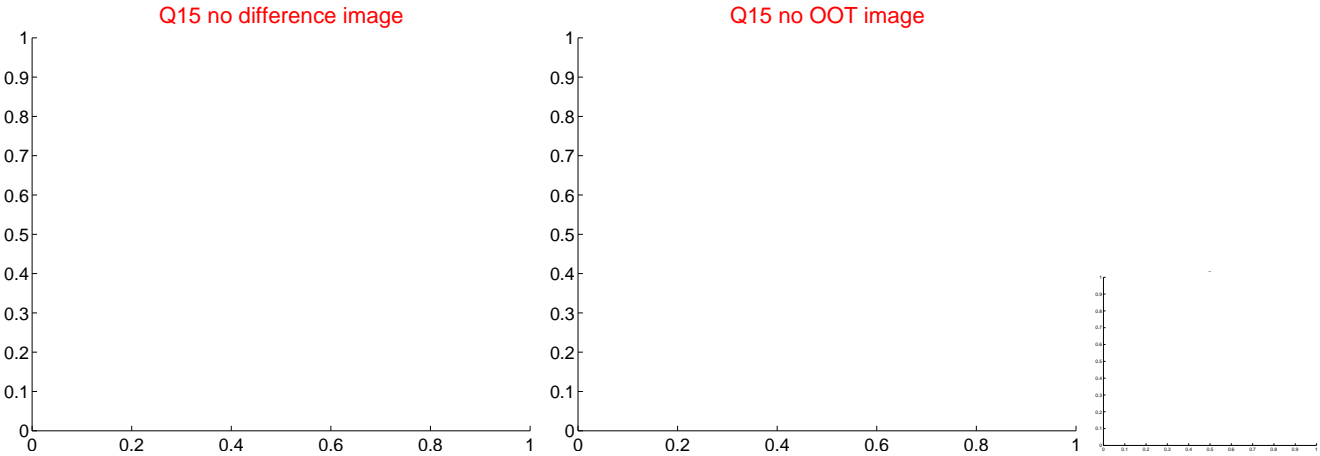
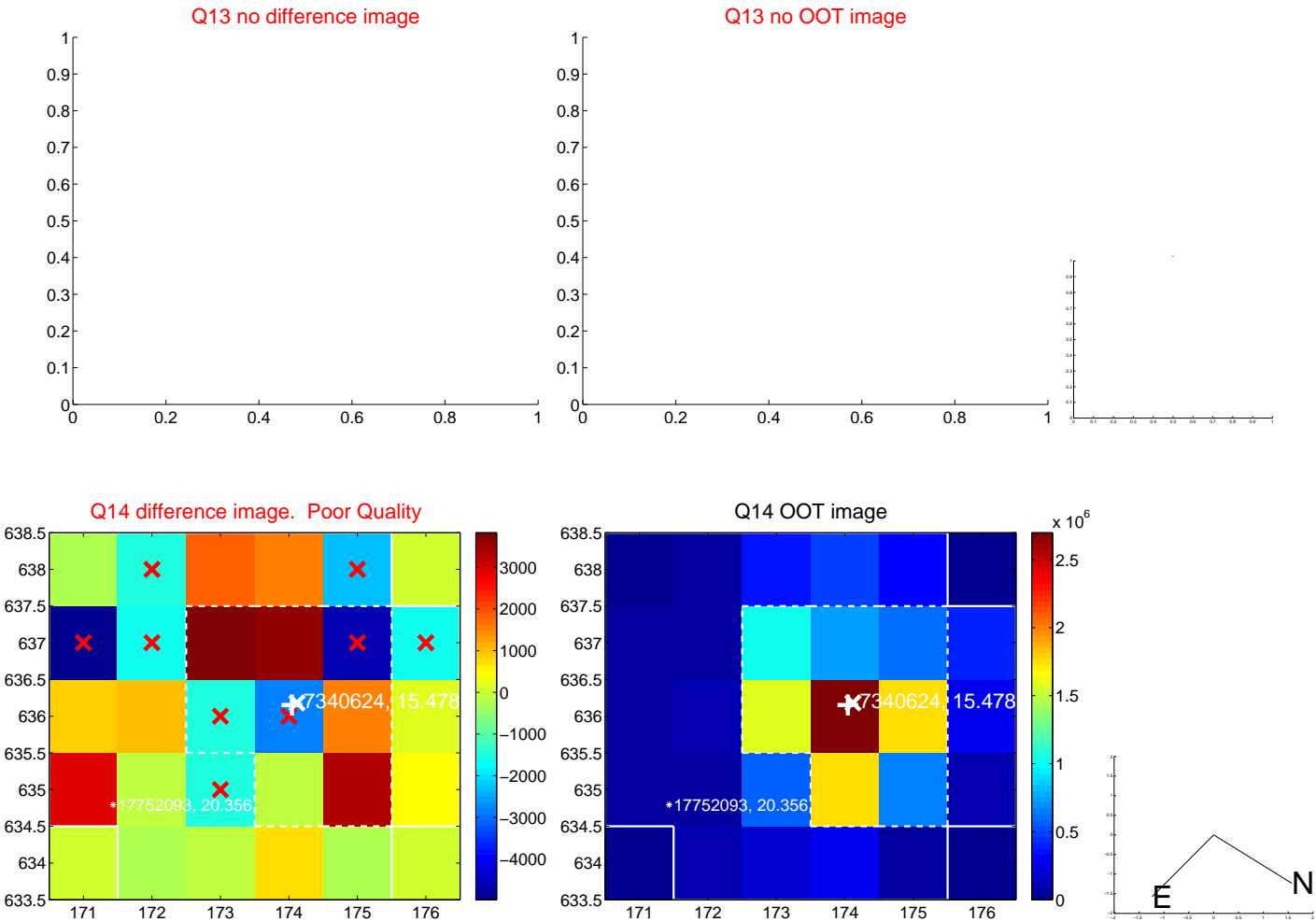
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



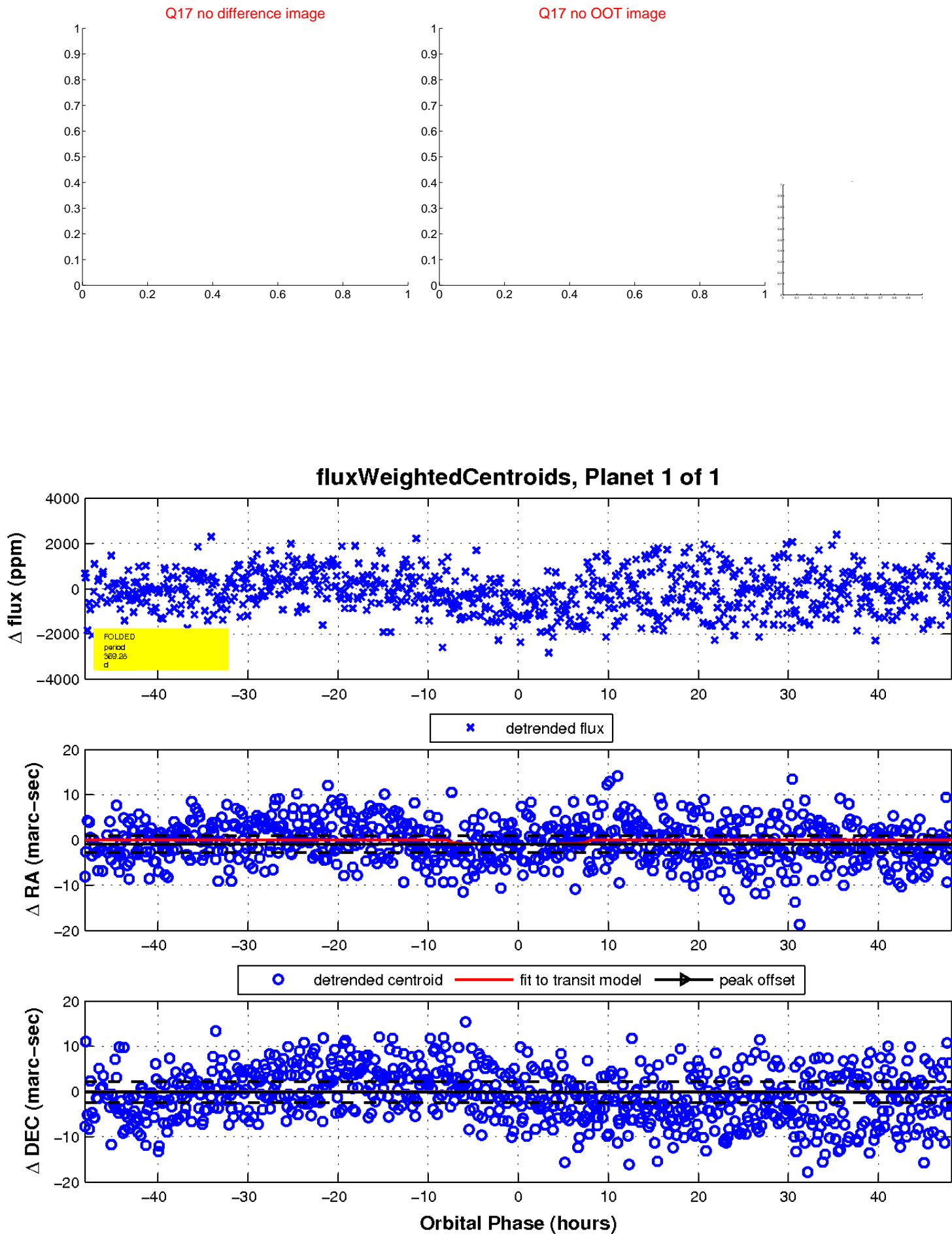
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

