

# KIC 005652983

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005652983-01 | OBS      | 0371.01 | 498.391658    | 244.082647   | 1657.3      | 6.278            | 42.0 | 41.7 | 3.11                        | 5134            | 18.38                  | 3.12                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments         |
|--------------|----------|------|-------|---|---|---|---|------------------|
| 005652983-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_SKYE |

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

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

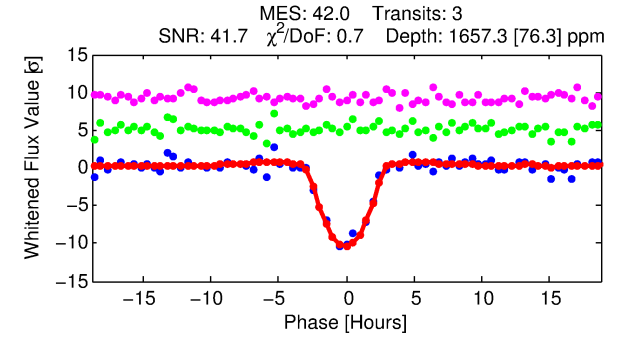
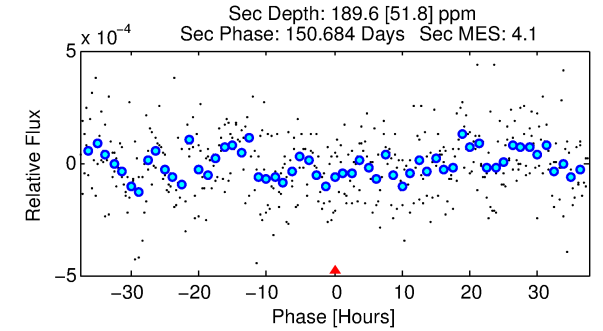
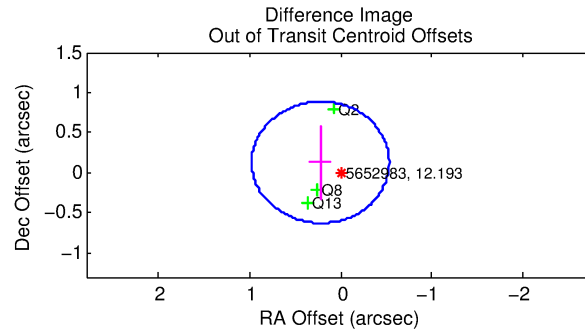
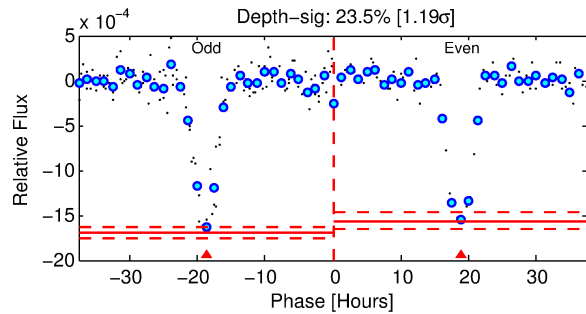
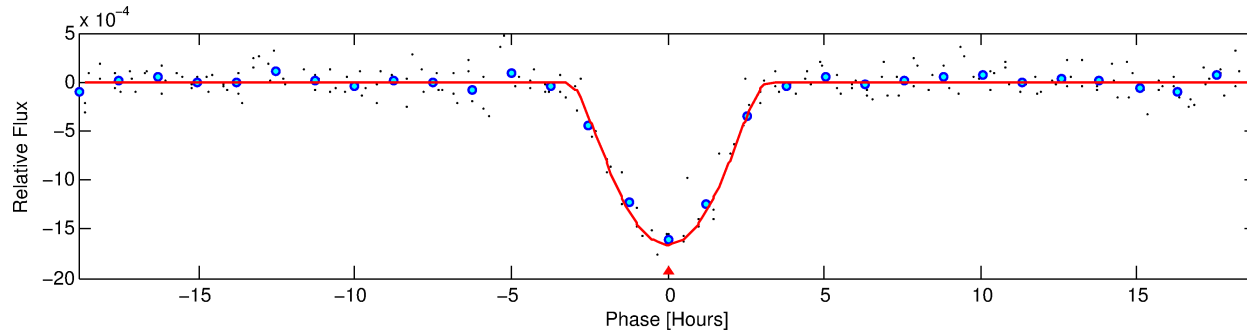
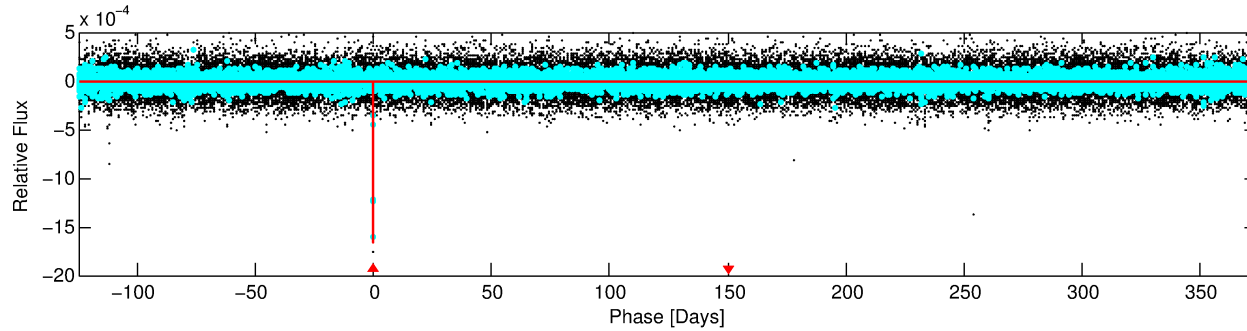
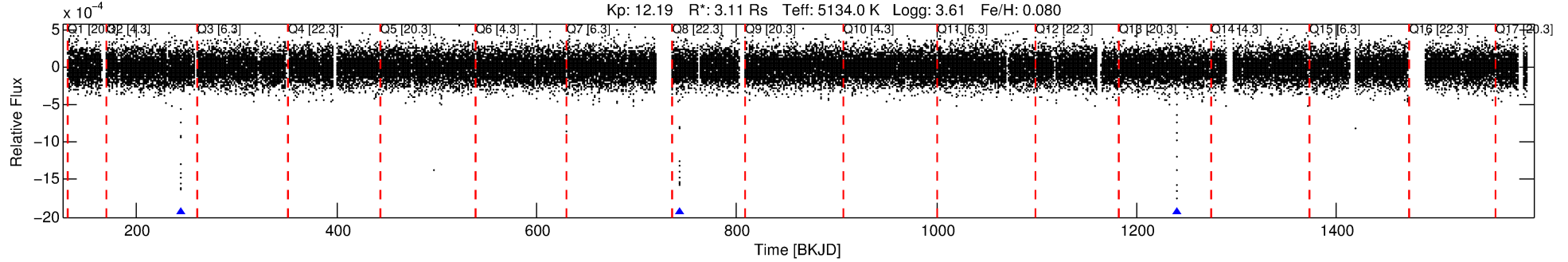
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005652983-01

No Significant Match Found

# DV One-Page Summary

KIC: 5652983 Candidate: 1 of 1 Period: 498.392 d  
KOI: K00371.01 Corr: 0.994



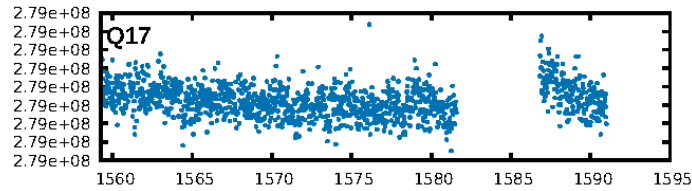
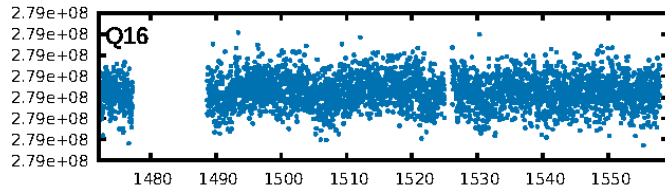
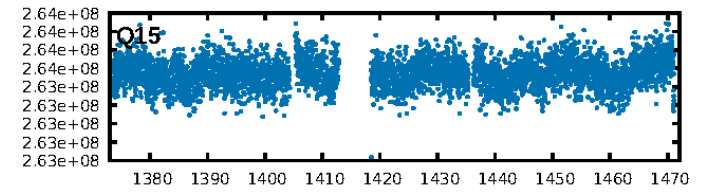
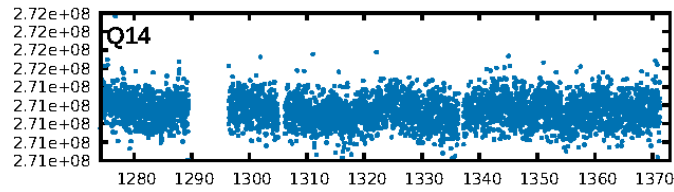
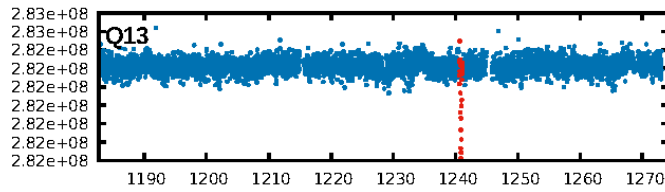
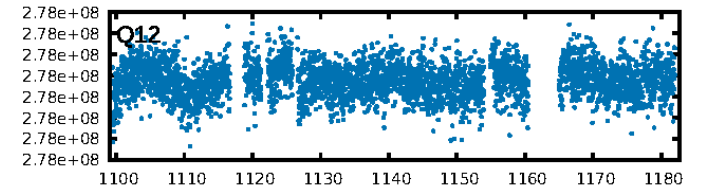
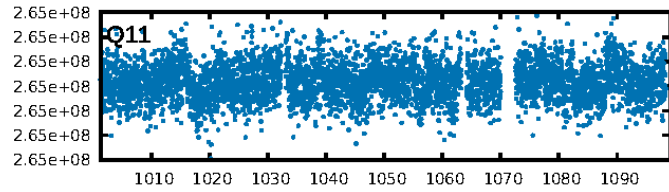
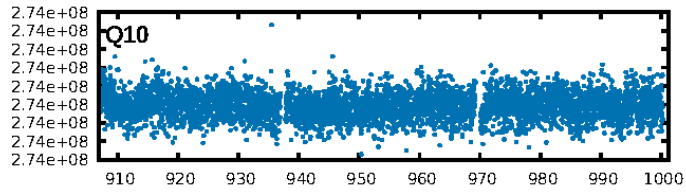
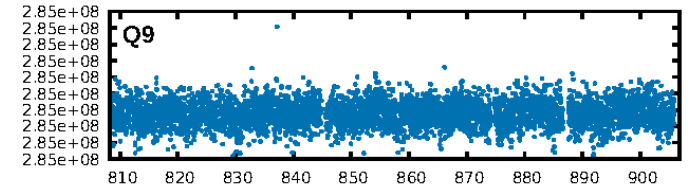
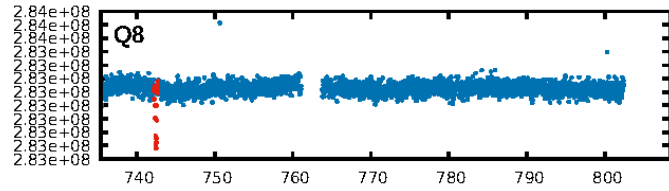
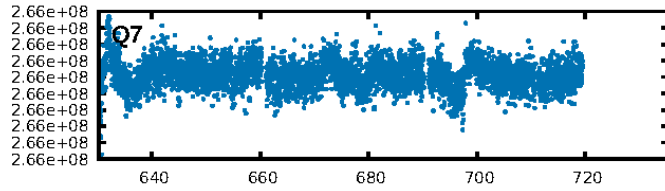
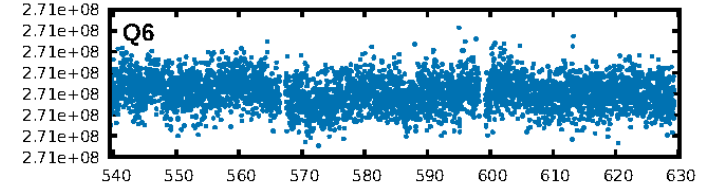
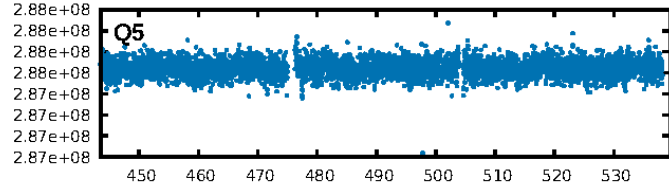
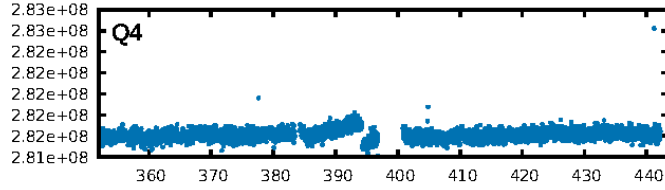
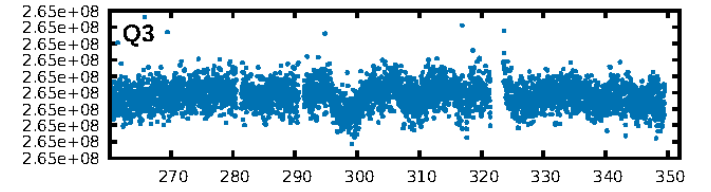
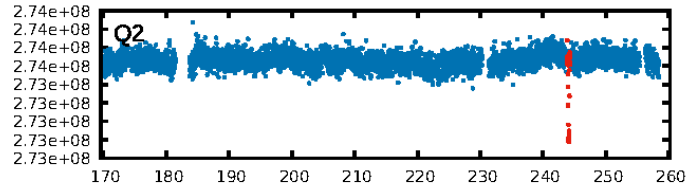
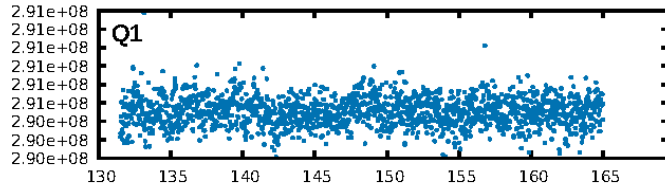
## DV Fit Results:

Period = 498.39166 [0.00215] d  
Epoch = 244.0826 [0.0028] BKJD  
Rp/R\* = 0.0542 [0.0117]  
a/R\* = 256.43 [26.11]  
b = 0.97 [0.03]  
Seff = 3.12 [0.32]  
Teq = 339 [9] K  
Rp = 18.38 [4.33] Re  
a = 1.3888 [0.0887] AU  
Ag = 596.00 [307.98] [1.93 $\sigma$ ]  
Teffp = 2588 [335] K [6.71 $\sigma$ ]

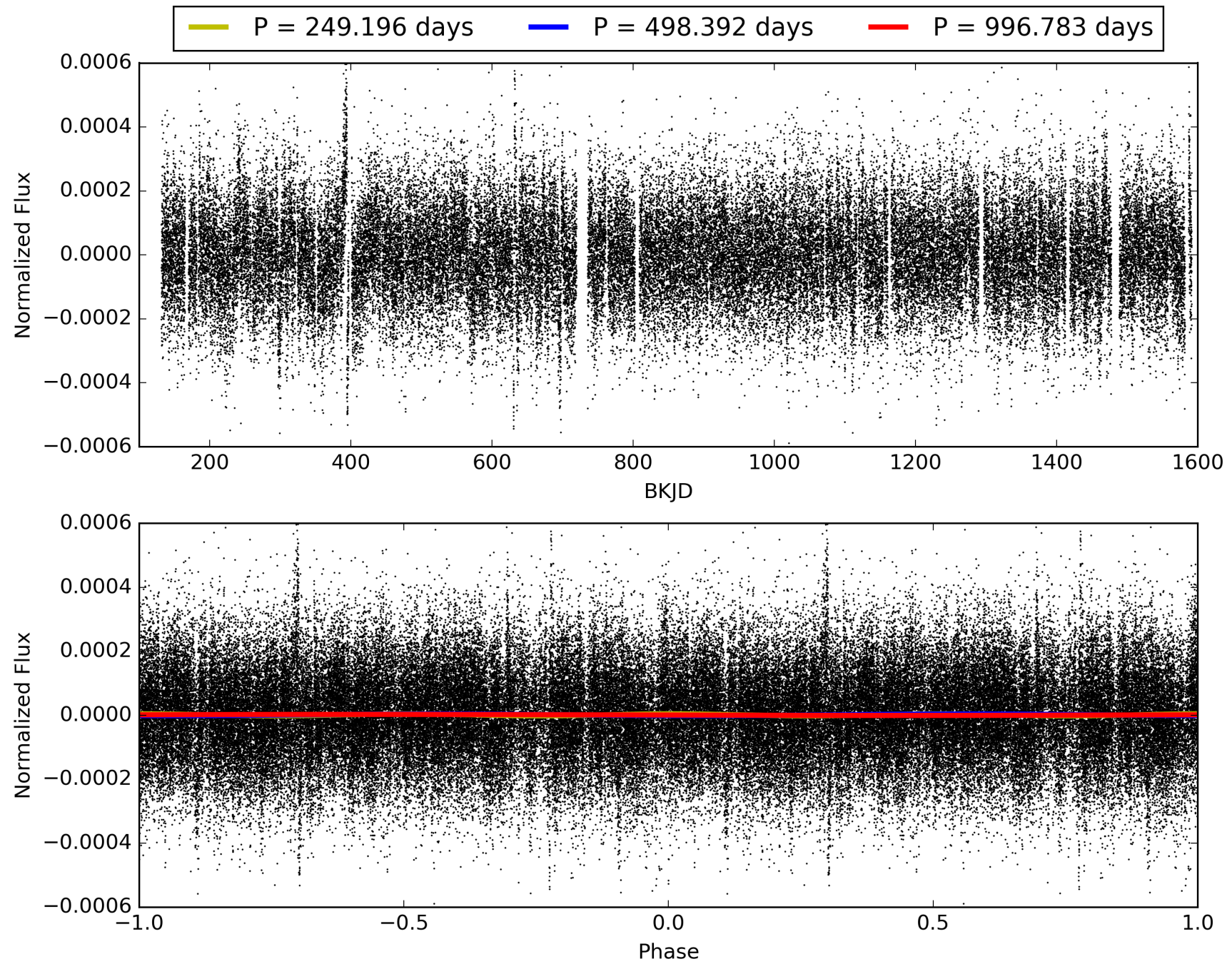
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 90.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.06e-245  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.729  
Centroid-sig: 0.1%  
Centroid-so: 0.380 arcsec [1.89 $\sigma$ ]  
OotOffset-rm: 0.256 arcsec [1.02 $\sigma$ ]  
KicOffset-rm: 0.397 arcsec [1.43 $\sigma$ ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 005652983-01, PDC Light Curves

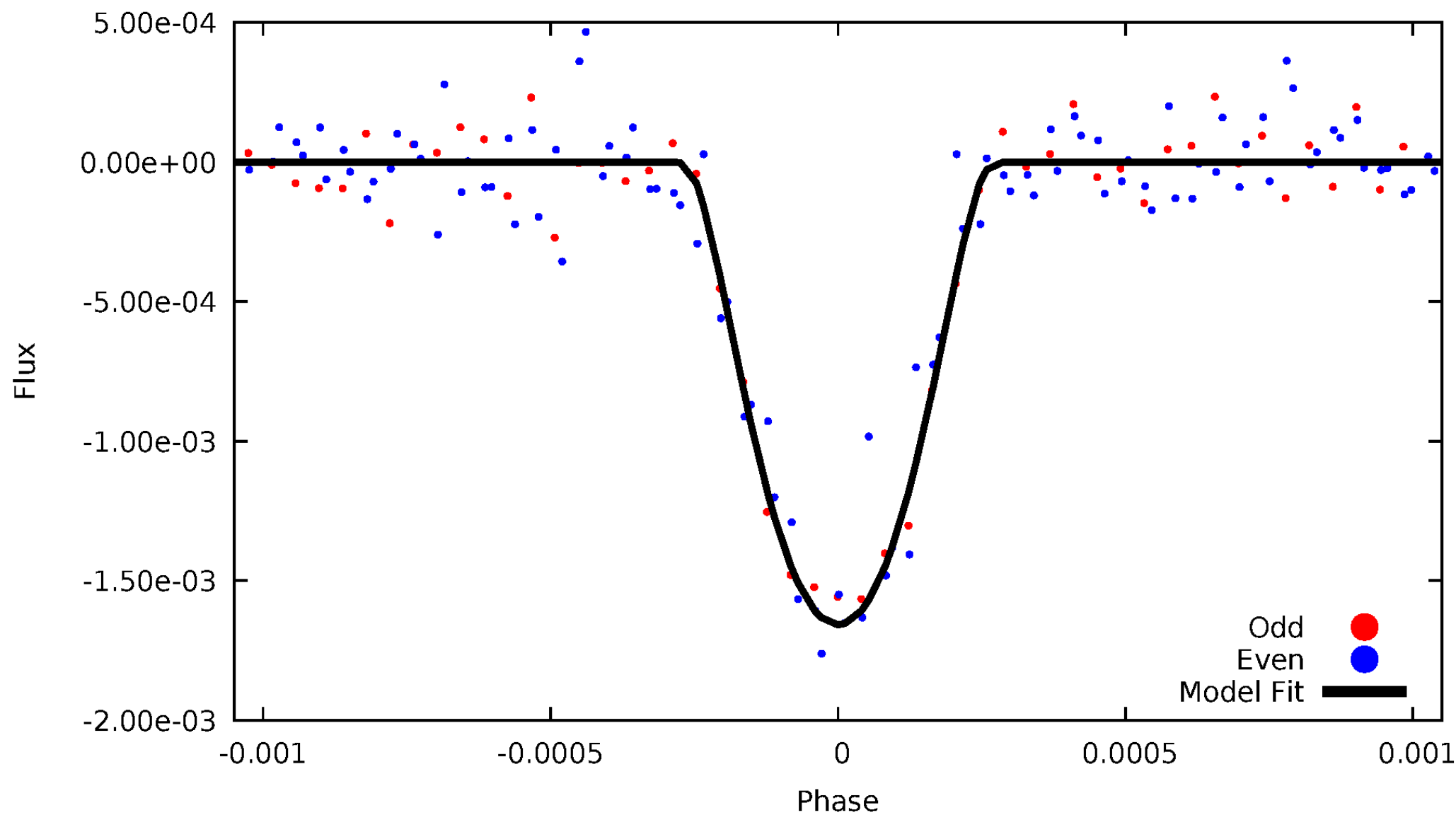


TCE 005652983-01



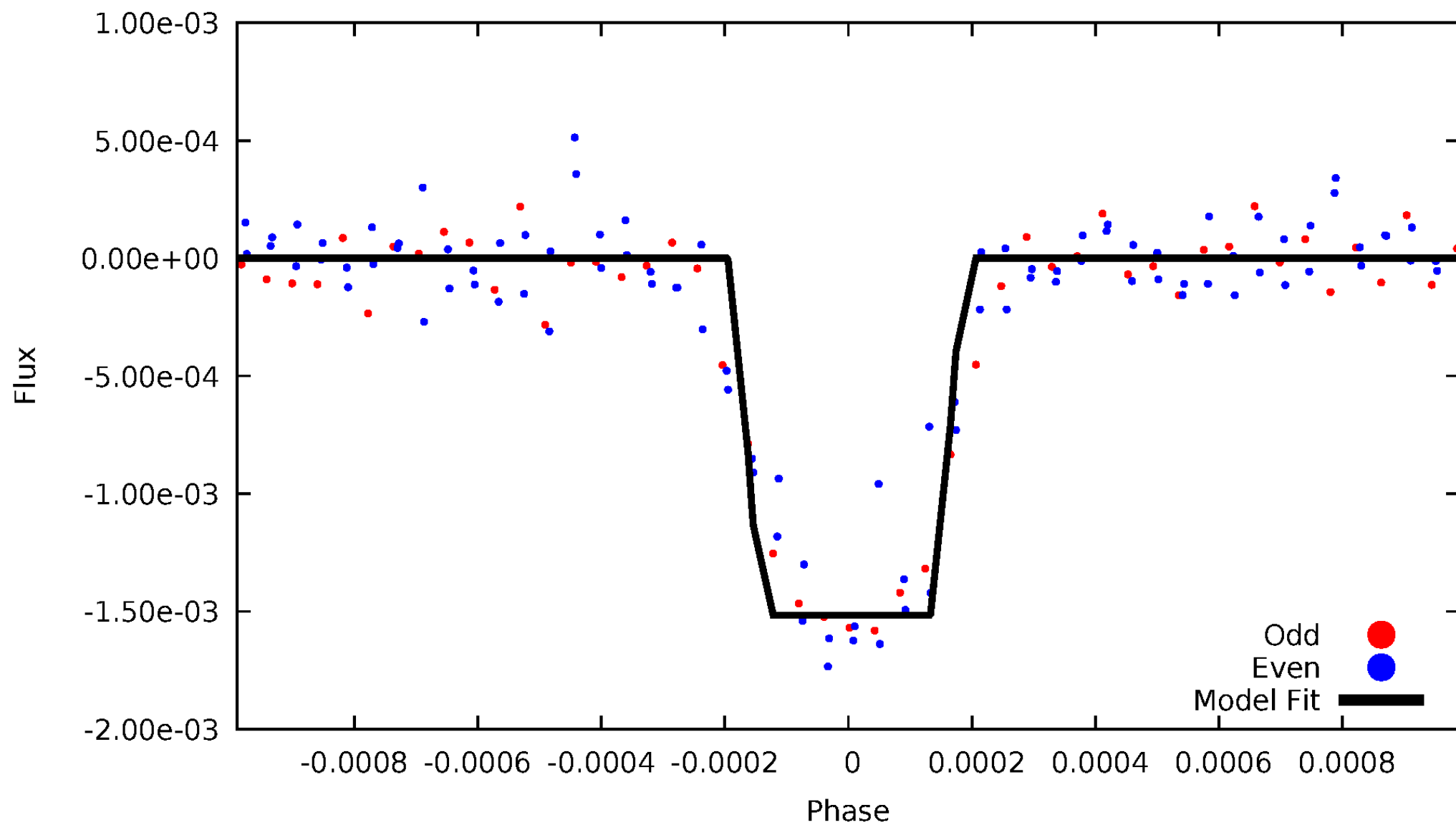
# DV Odd/Even

TCE 005652983-01



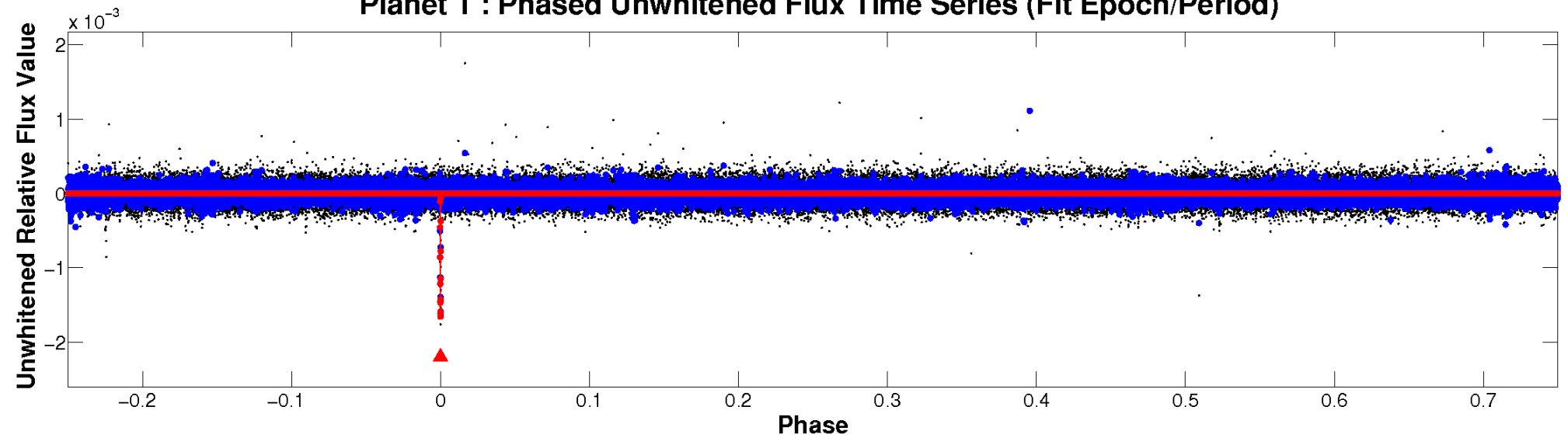
# ALT Odd/Even

TCE 005652983-01

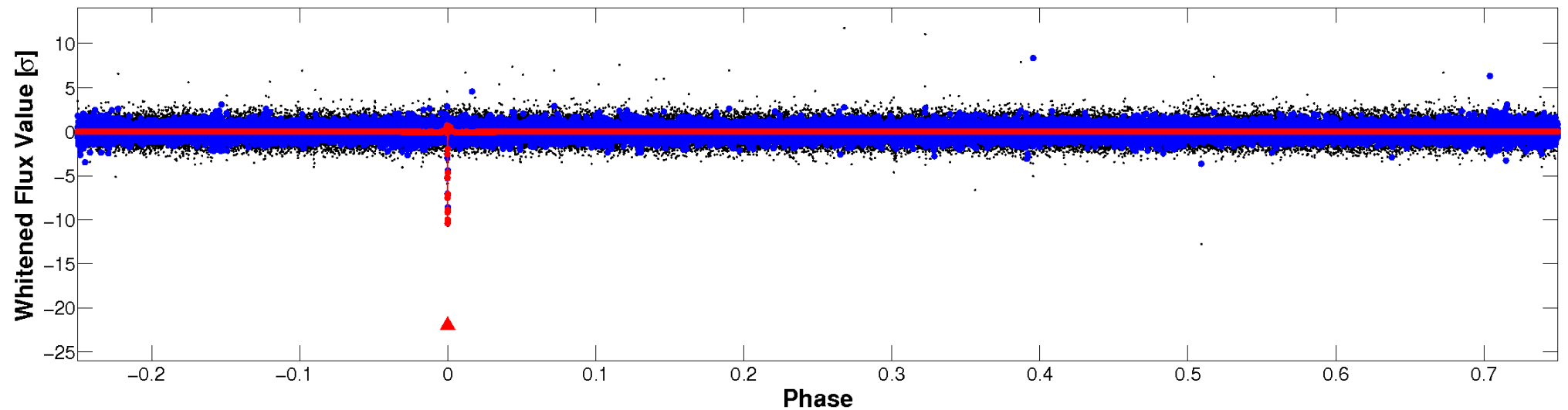


# Non-Whitened Vs. Whitened Light Curve

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

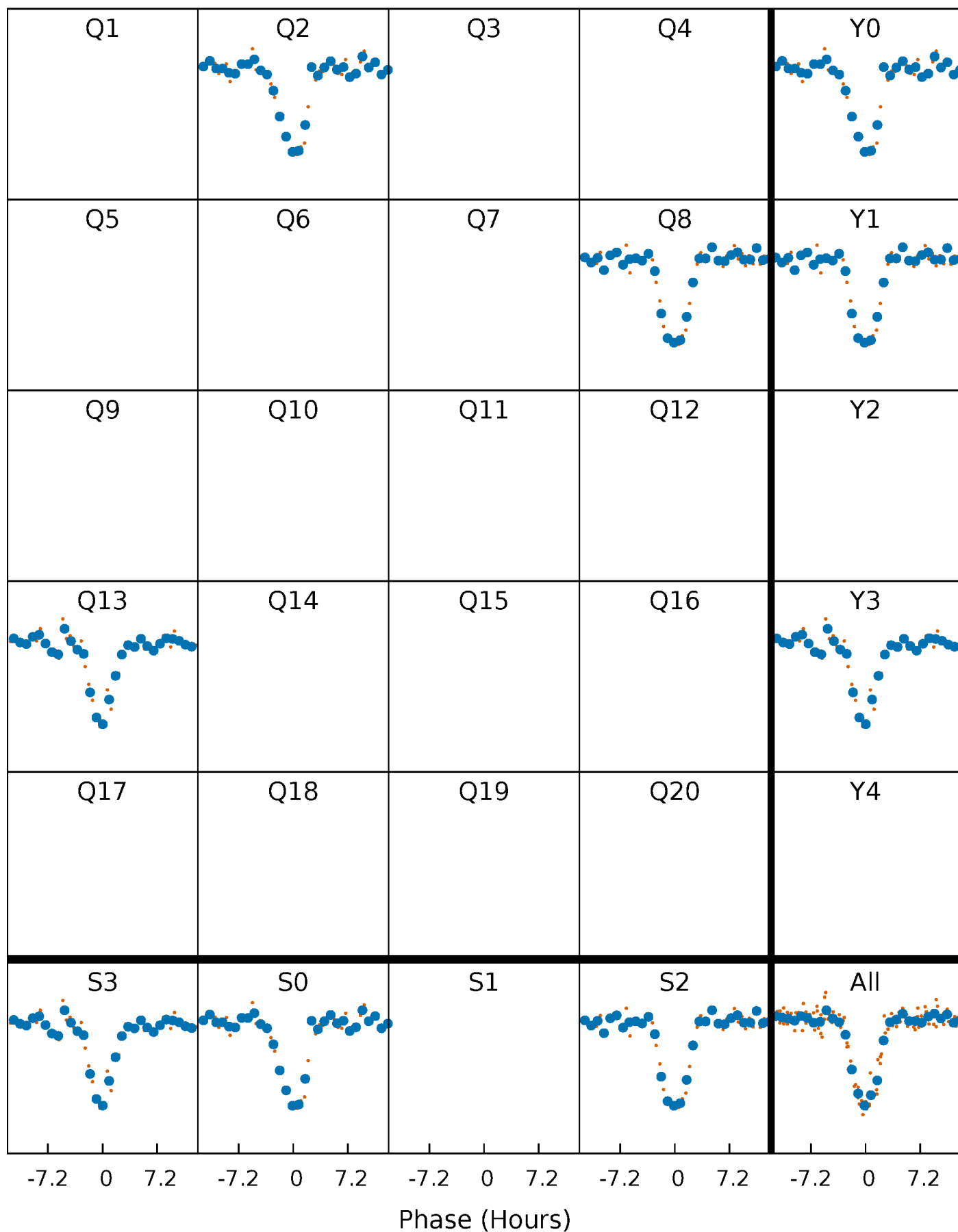


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

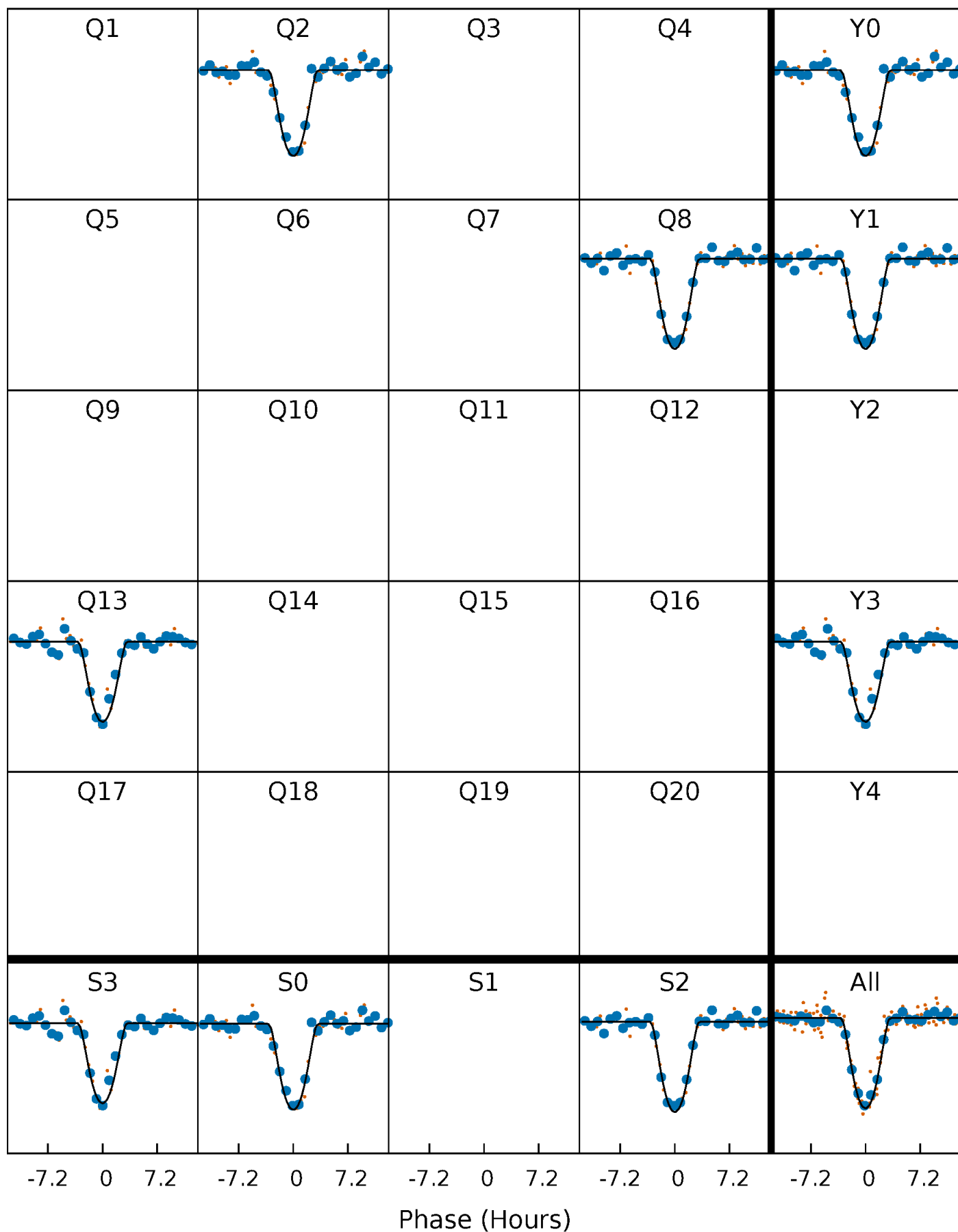
TCE 005652983-01 P=498.391658 Days  $T_0=244.082647$  (BKJD)





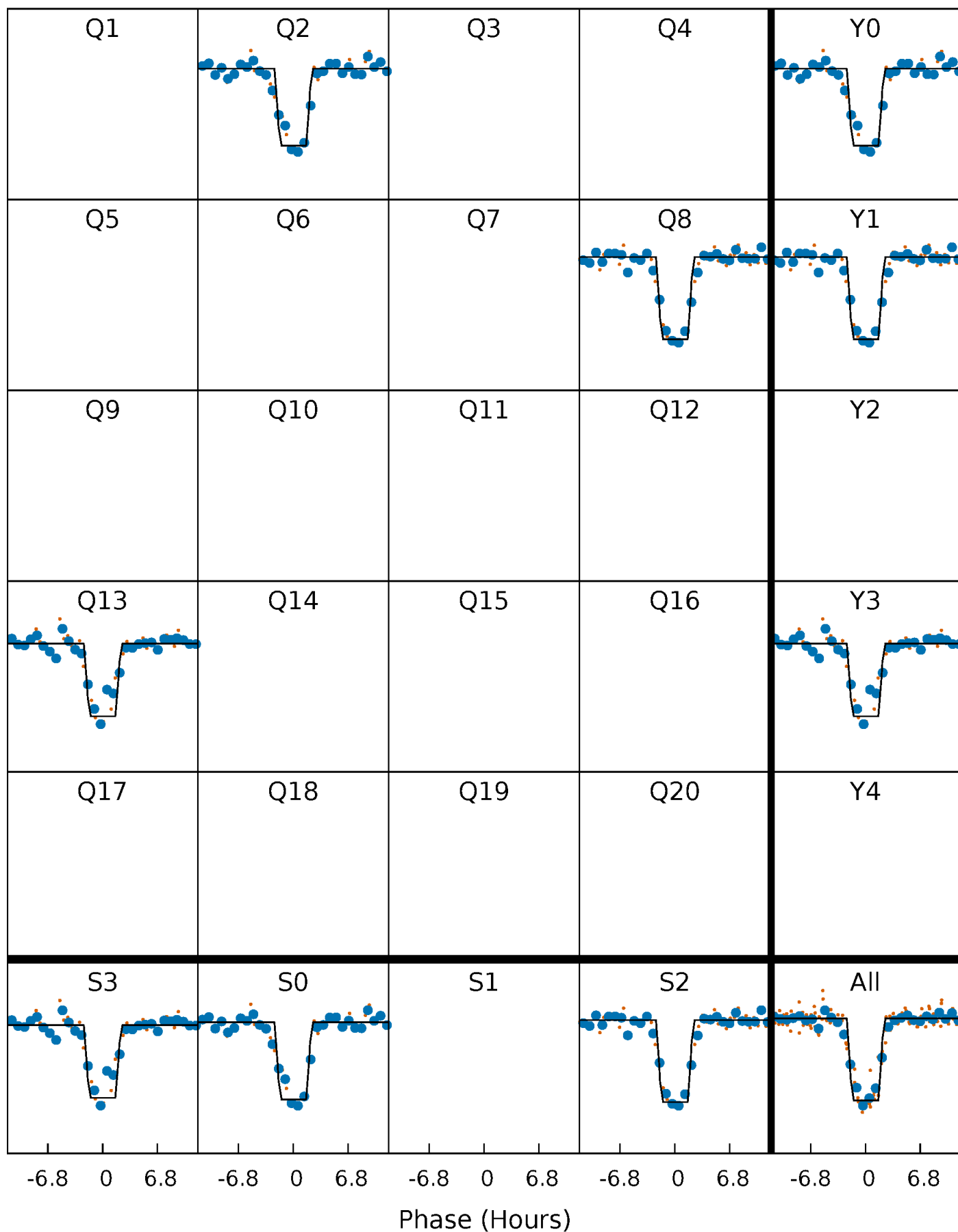
# DV Quarter-Phased Transit Curves

TCE 005652983-01 P=498.391658 Days  $T_0=244.082647$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

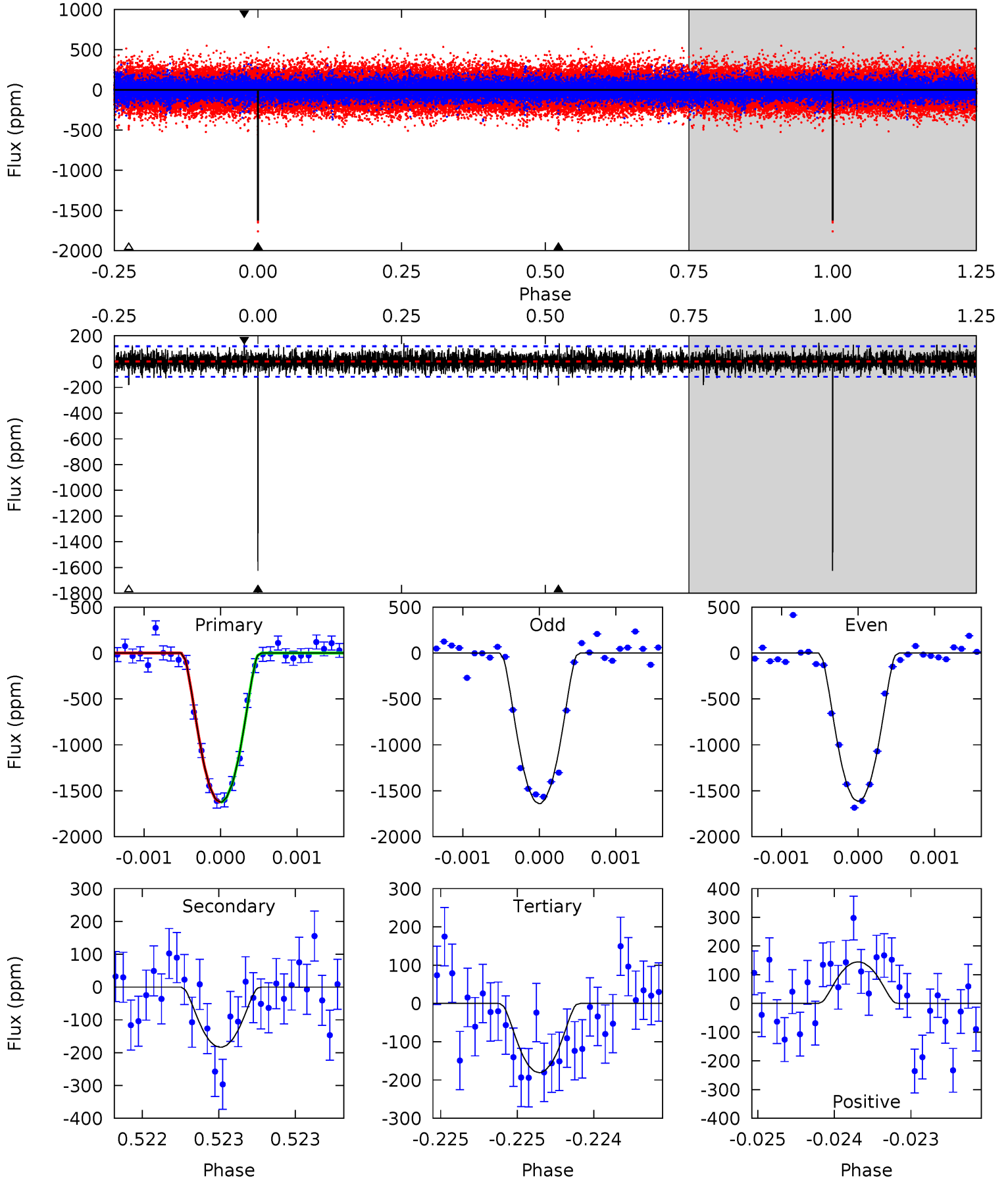
TCE 005652983-01 P=498.394962 Days  $T_0=244.078211$  (BKJD)



# DV Model-Shift Uniqueness Test

005652983-01, P = 498.391658 Days, E = 244.082647 Days

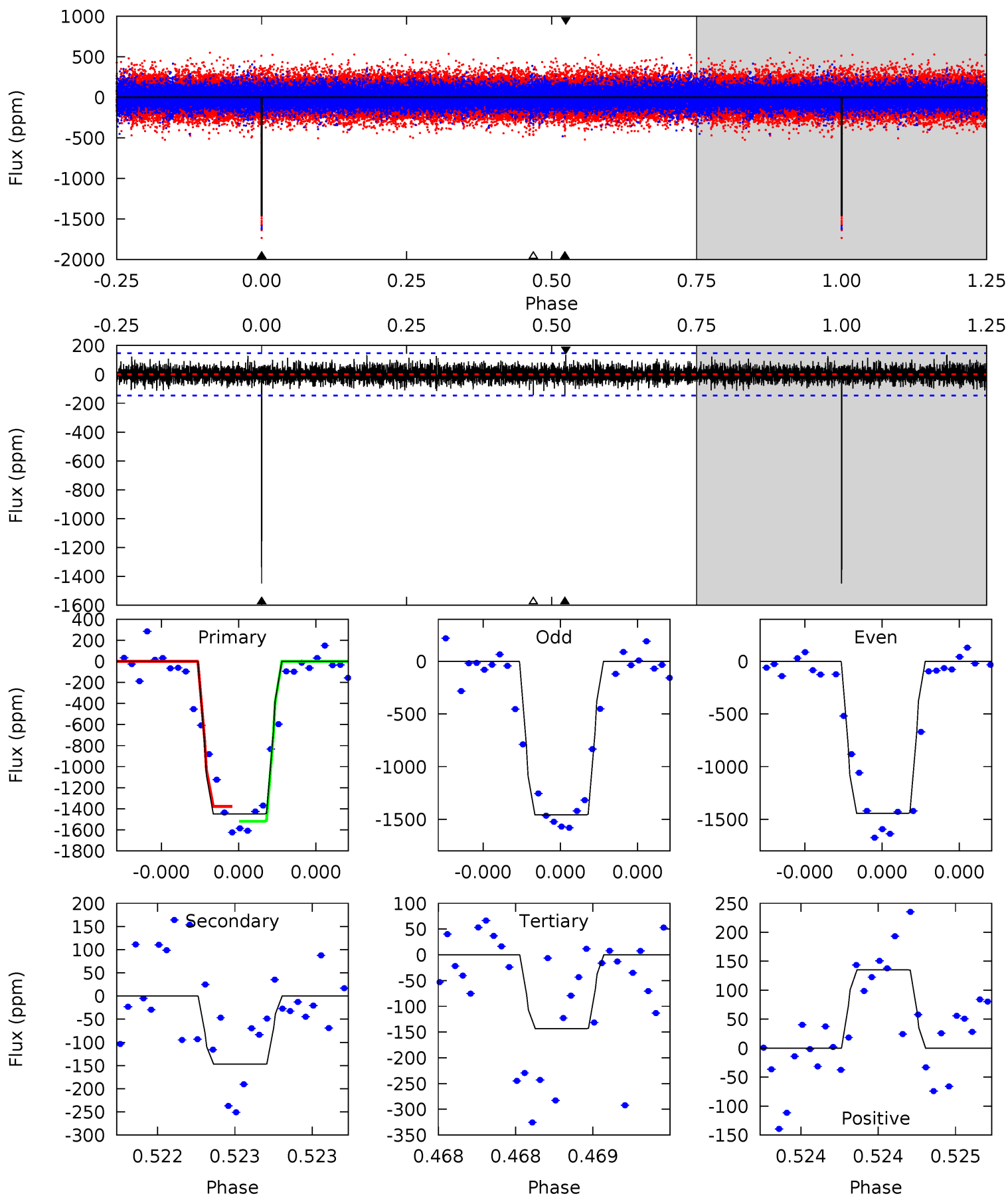
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 76.3 | 8.62 | 8.49 | 6.80 | 5.56            | 3.46            | 1.86             | 67.8    | 69.5    | 0.13    | 1.82    | 0.58    | 0.99 | 0.08  | 0.03 |



# Alt Model-Shift Uniqueness Test

005652983-01, P = 498.394962 Days, E = 244.078211 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 55.6 | 5.64 | 5.50 | 5.18 | 5.63            | 3.56            | 1.27             | 50.1    | 50.4    | 0.14    | 0.46    | 0.26    | 0.98 | 0.09  | 2.70 |



### Stellar Parameters For KIC 005652983

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
|        | $5134^{+68}_{-98}$  | $3.611^{+0.020}_{-0.014}$ | $0.080^{+0.150}_{-0.200}$ | $3.107^{+0.124}_{-0.289}$ | $1.438^{+0.103}_{-0.241}$ | $0.068^{+0.009}_{-0.004}$                 |
|        | +1%/-2%             | +1%/-0%                   | +188%/-250%               | +4%/-9%                   | +7%/-17%                  | +14%/-6%                                  |
| Source | SPE72               | AST8                      | SPE72                     | DSEP                      |                           |   |

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

### Secondary Eclipse Parameters for KIC 005652983-01 / KOI 0371.01

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$      | $T_{max} (K)$    | $T_{obs} (K)$        | $A_{obs}$            |
|---------|---------------|-------------------------|------------------|----------------------|----------------------|
| DV      | $-184 \pm 21$ | $18.35^{+4.12}_{-4.15}$ | $472^{+8}_{-10}$ | $3146^{+252}_{-186}$ | $581^{+378}_{-204}$  |
| Alt.    | $-147 \pm 26$ | $13.31^{+3.90}_{-4.16}$ | $472^{+8}_{-10}$ | $3341^{+460}_{-260}$ | $883^{+1054}_{-374}$ |

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

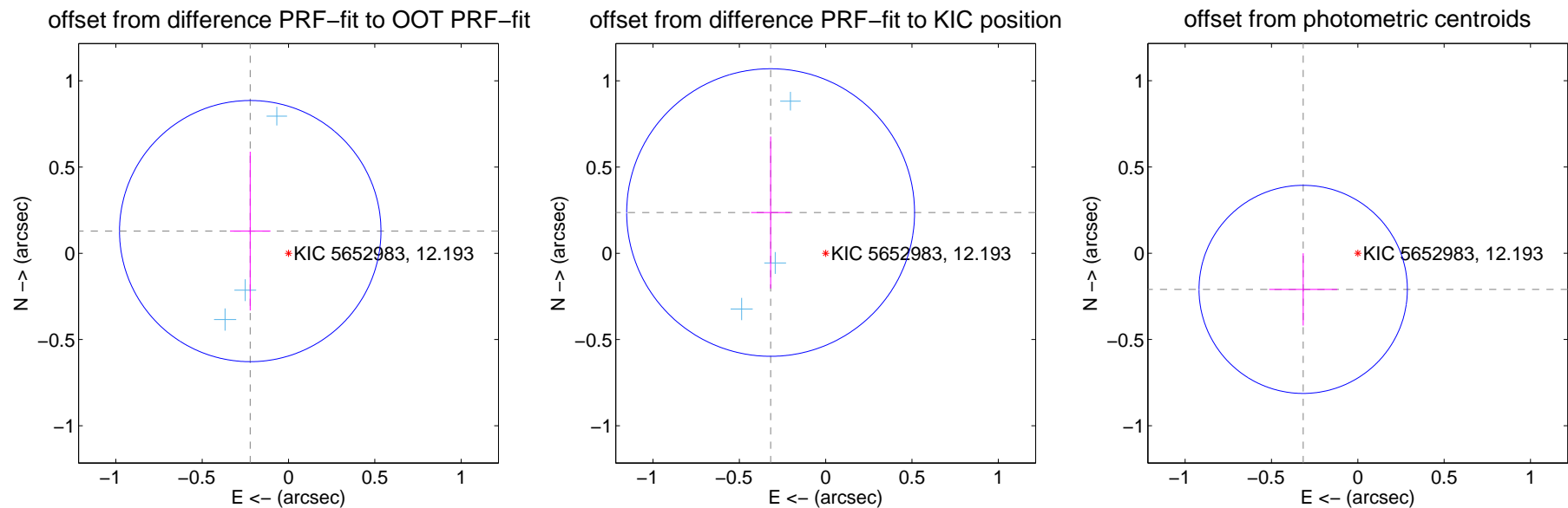
## DV Centroid Data

Supplemental centroid analysis for 005652983-01. Kepler magnitude: 12.19. Transit SNR 41.73

There are 3 quarters with good PRF difference image offsets

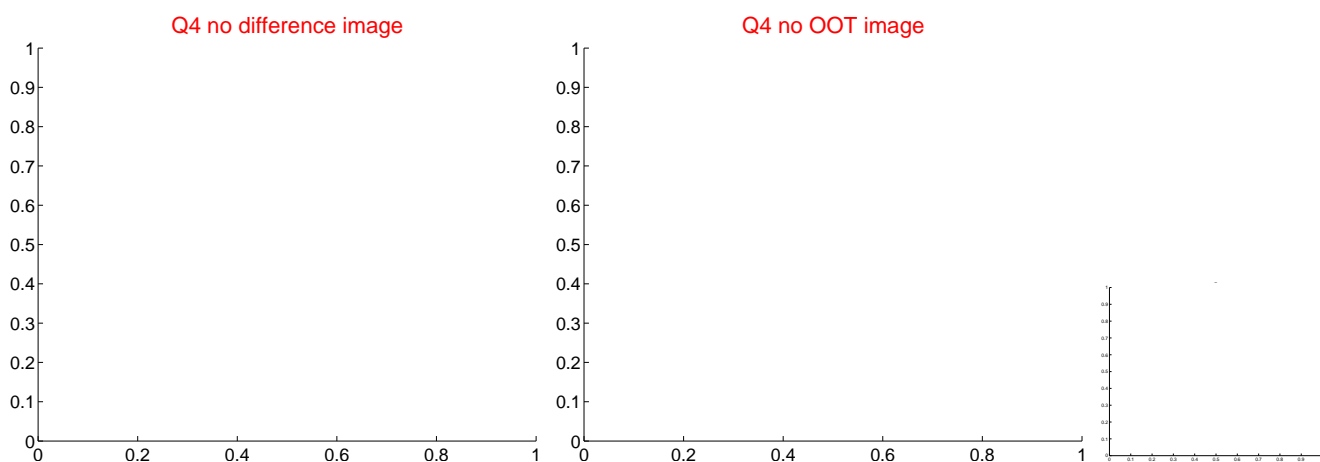
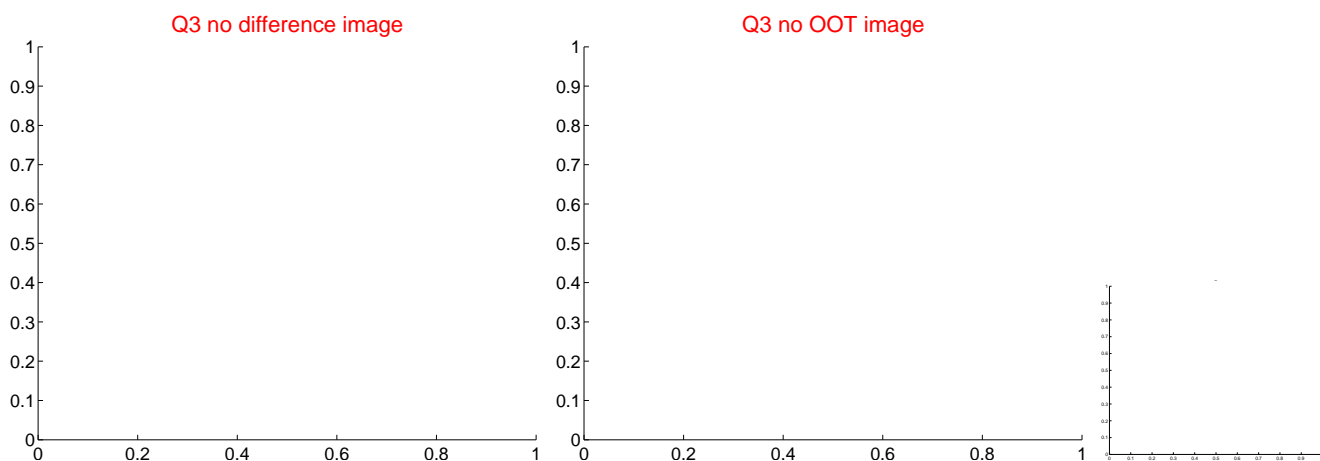
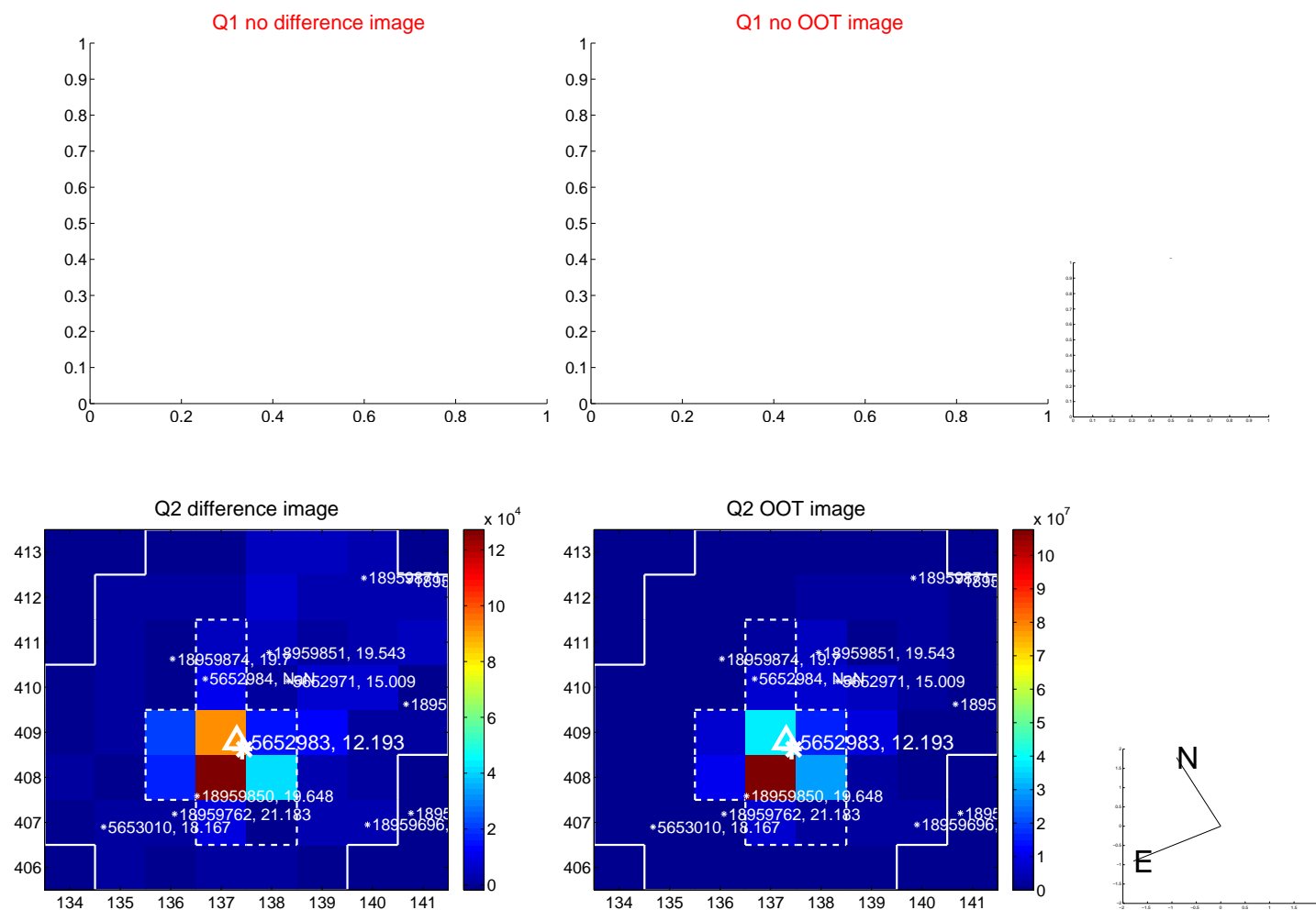
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.256 \pm 0.252$  | 1.02                | $0.222 \pm 0.117$ | $0.129 \pm 0.460$ |
| PRF-fit source offset from KIC position | $0.397 \pm 0.278$  | 1.43                | $0.319 \pm 0.113$ | $0.236 \pm 0.441$ |
| photometric centroid source offset      | $0.38 \pm 0.20$    | 1.89                | $0.32 \pm 0.20$   | $-0.21 \pm 0.21$  |



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



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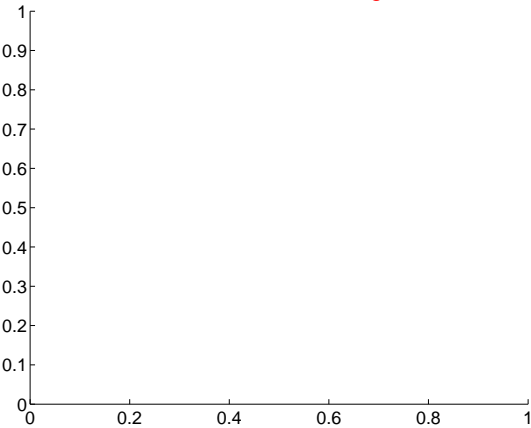
Q5 no difference image



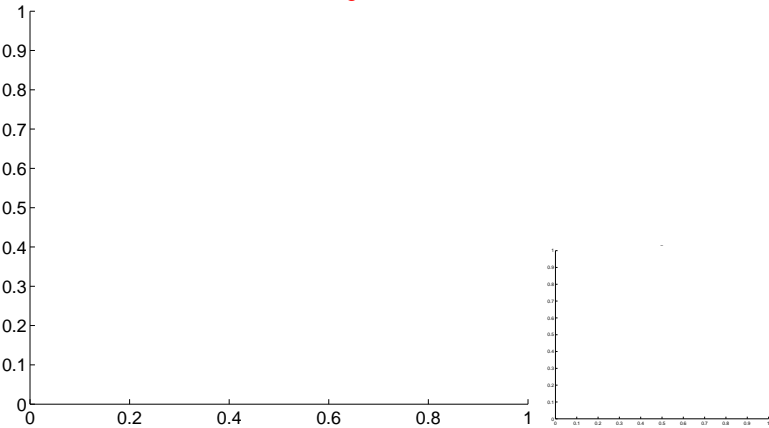
Q5 no OOT image



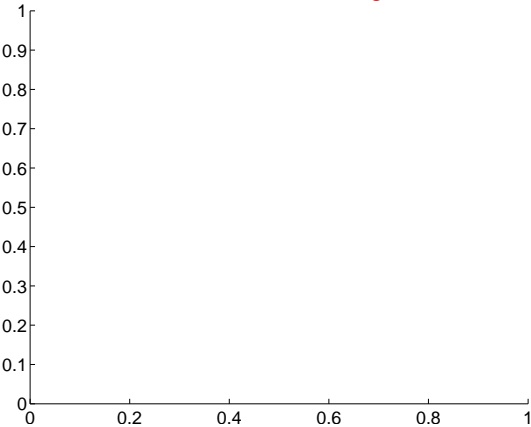
Q6 no difference image



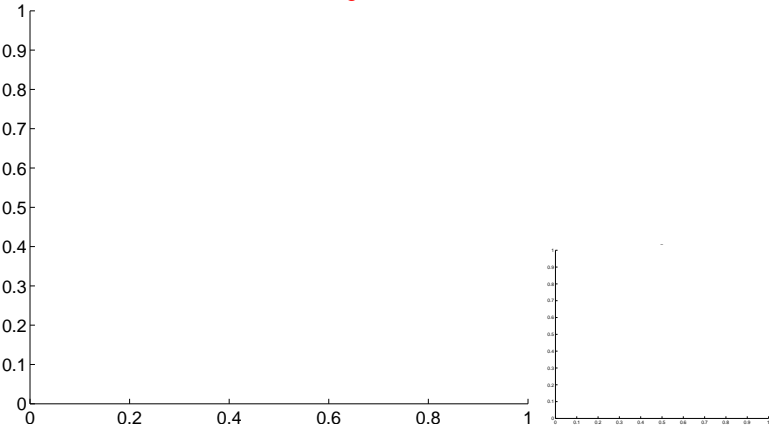
Q6 no OOT image



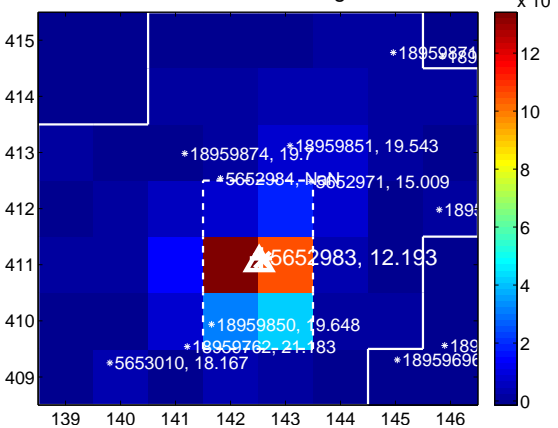
Q7 no difference image



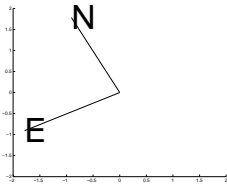
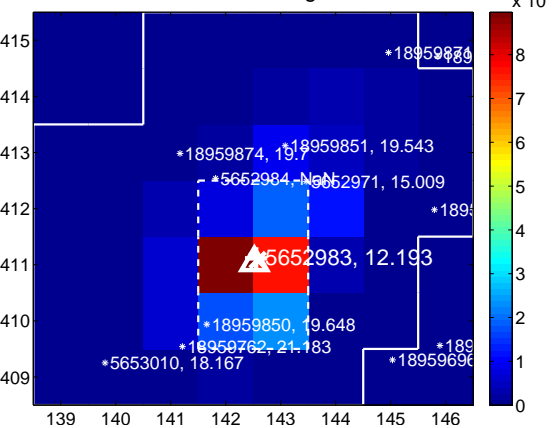
Q7 no OOT image



Q8 difference image



Q8 OOT image

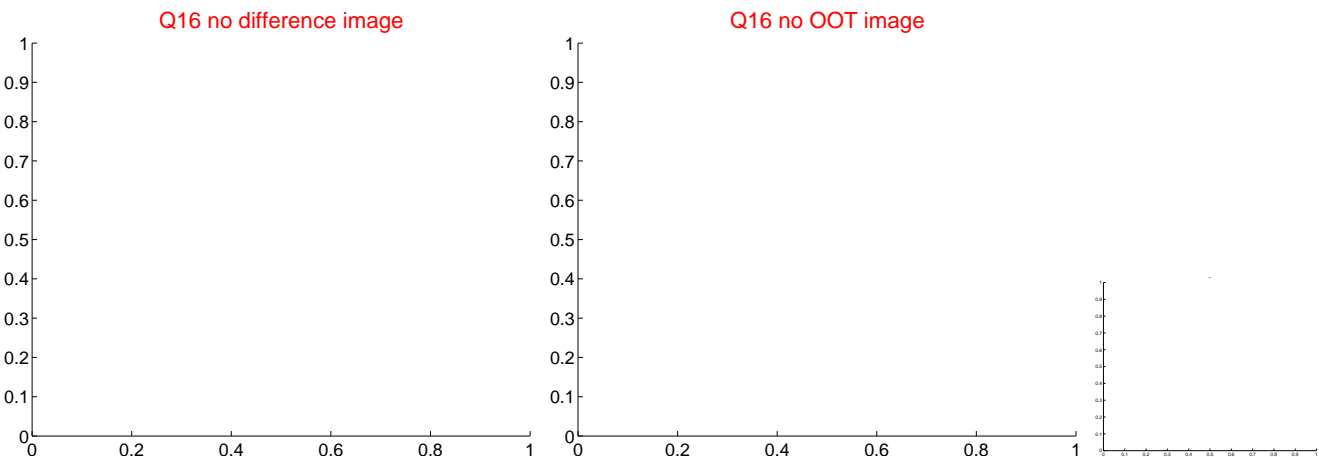
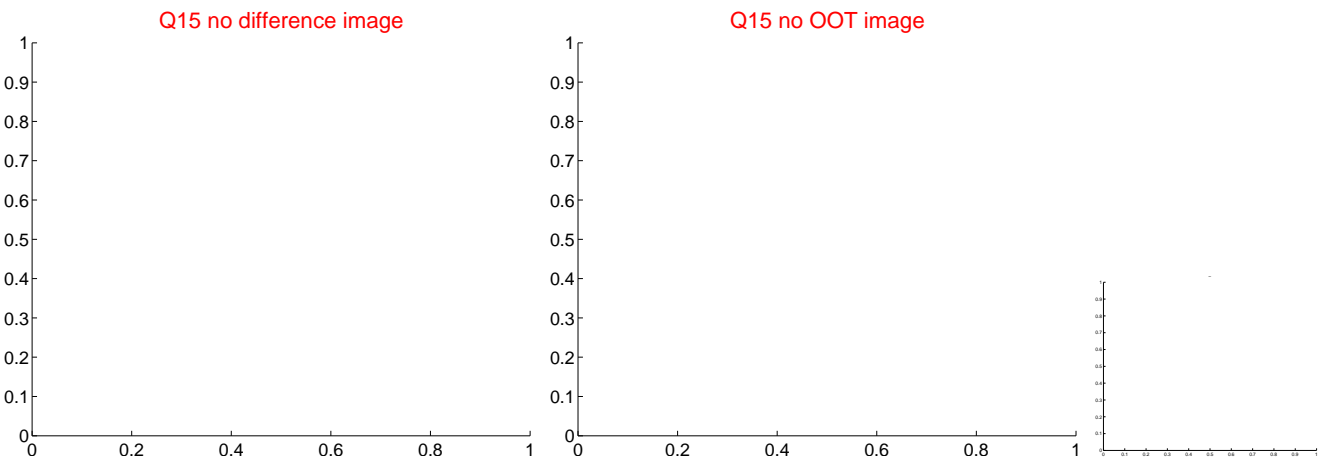
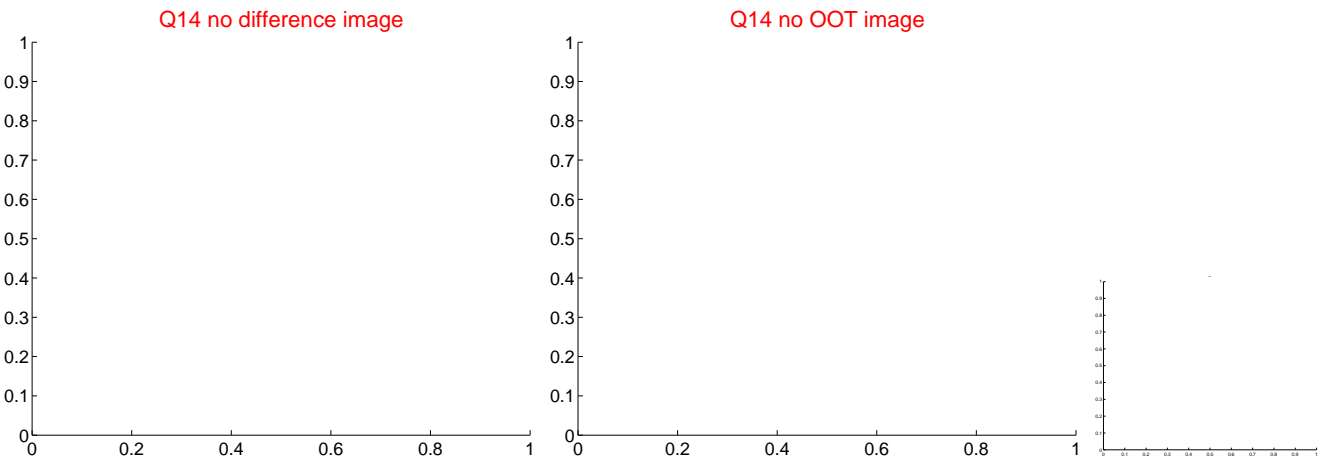
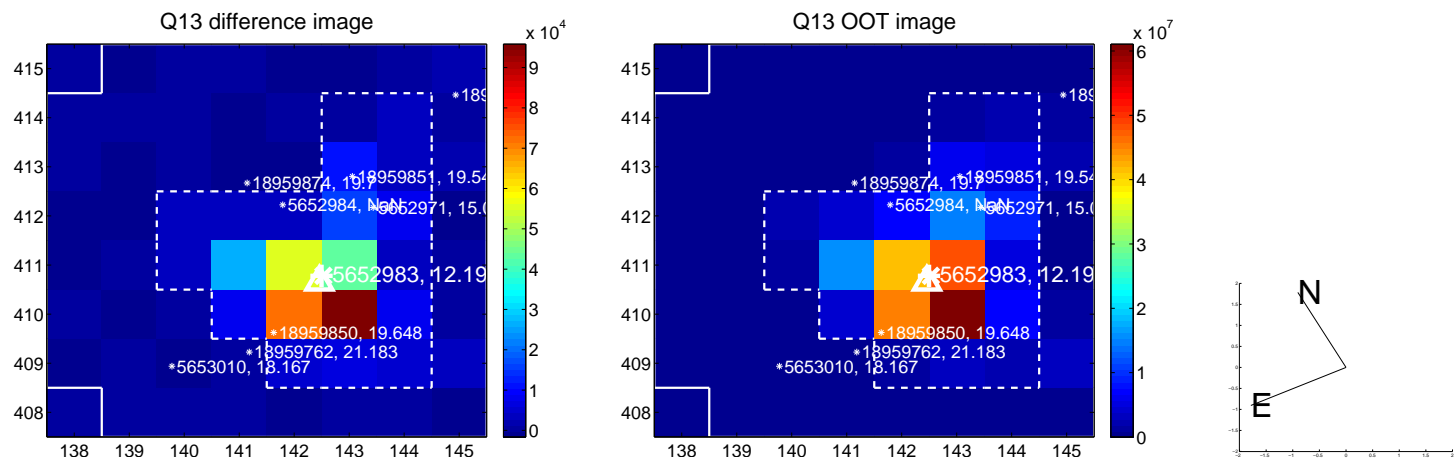




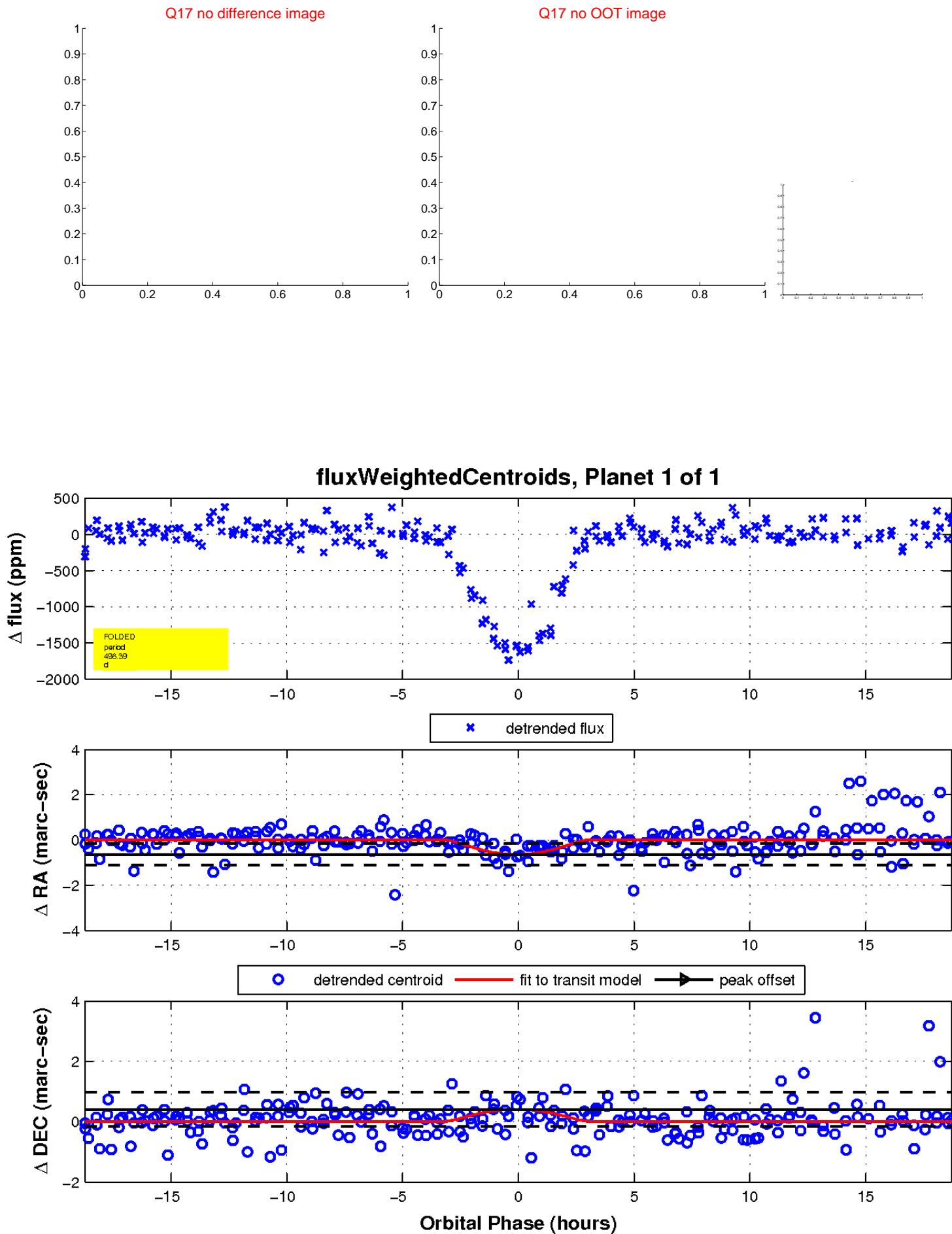
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

