

# KIC 005534965

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 005534965-01 | OBS      | 3557.01 | 243.821233    | 159.495834   | 56635.4     | 10.884           | 2228.5 | 2059.8 | 1.32                        | 6370            | 48.22                  | 4.19                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments      |
|--------------|----------|------|-------|---|---|---|---|---------------|
| 005534965-01 | OBS      | FP   | 0.00  | 0 | 1 | 0 | 0 | DEEP_V_SHAPED |

**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.

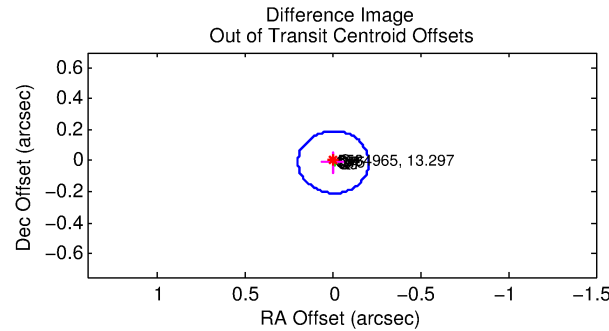
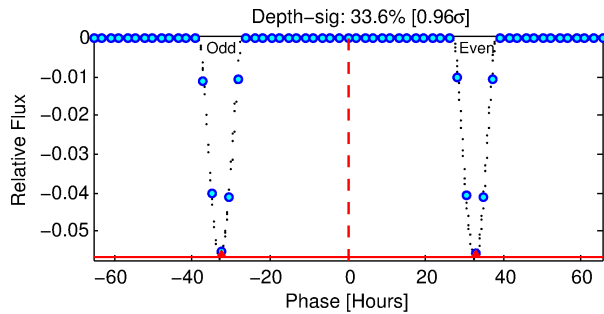
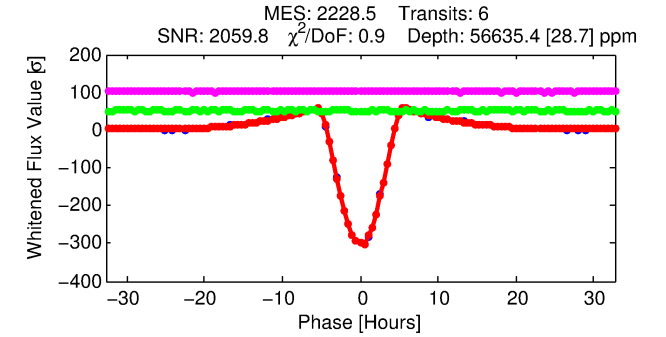
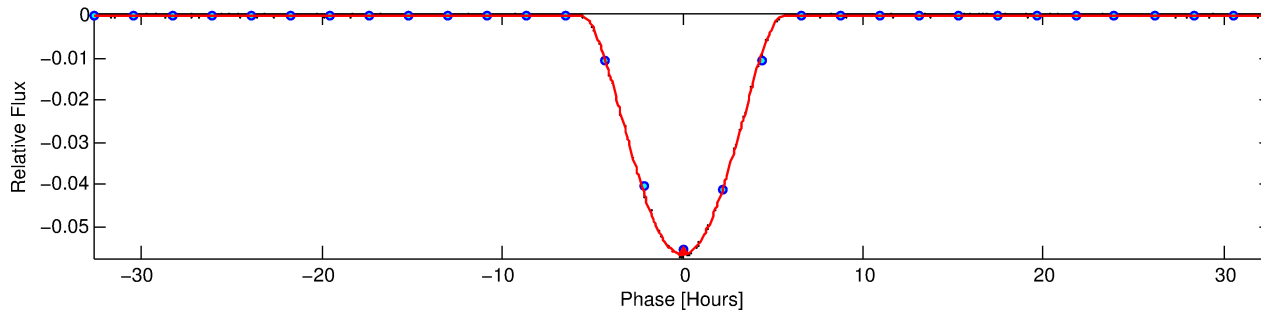
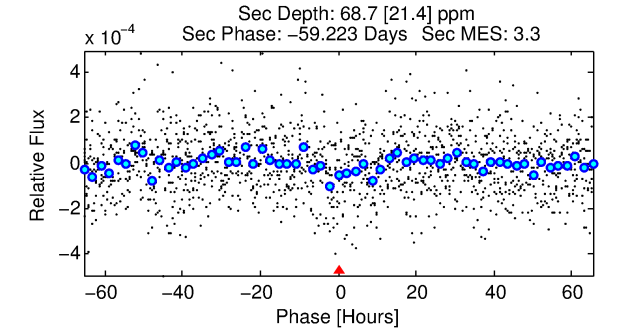
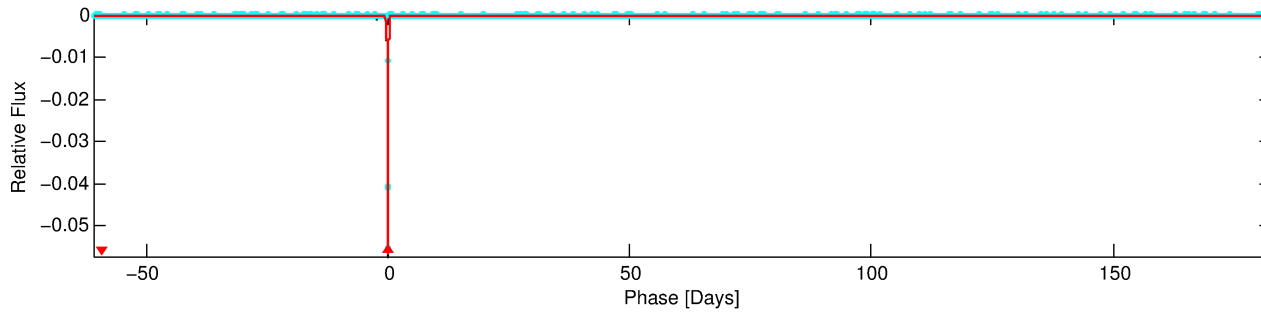
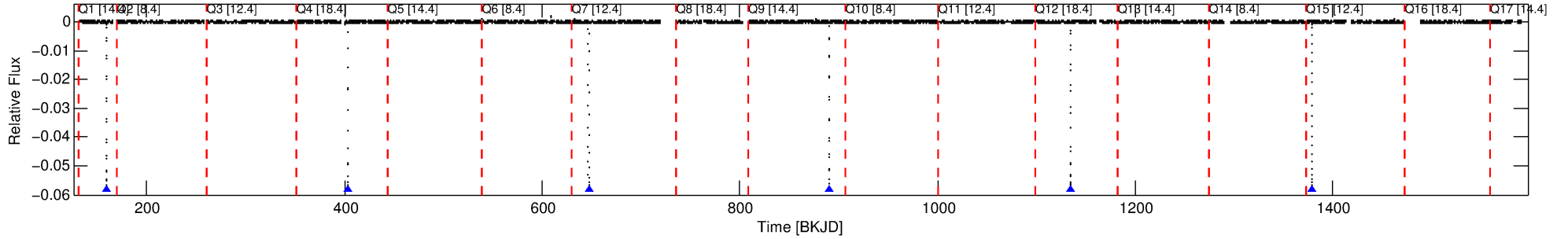
## Ephemeris Match Information For 005534965-01

No Significant Match Found

# DV One-Page Summary

KIC: 5534965 Candidate: 1 of 1 Period: 243.821 d  
KOI: K03557.01 Corr: 1.000

Kp: 13.30 R\*: 1.32 Rs Teff: 6370.0 K Logg: 4.23 Fe/H: -0.260



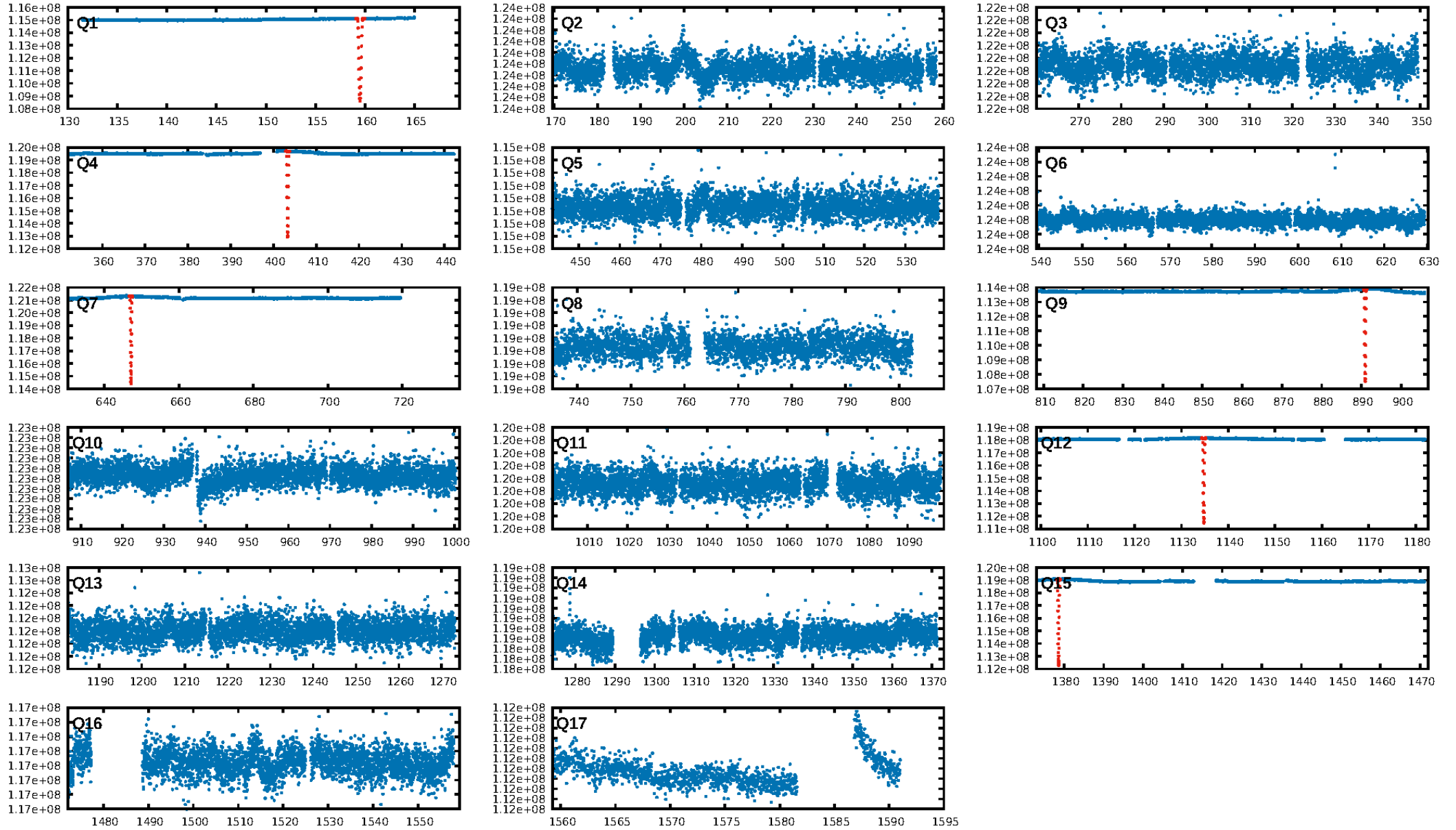
## DV Fit Results:

Period = 243.82123 [0.00003] d  
Epoch = 159.4958 [0.0001] BKJD  
Rp/R\* = 0.3358 [0.0083]  
a/R\* = 160.58 [0.17]  
b = 0.95 [0.01]  
Seff = 4.19 [1.06]  
Teq = 365 [23] K  
Rp = 48.22 [8.66] Re  
a = 0.7809 [0.1262] AU  
Ag = 9.91 [3.99] [2.24σ]  
Teffp = 1001 [80] K [7.65σ]

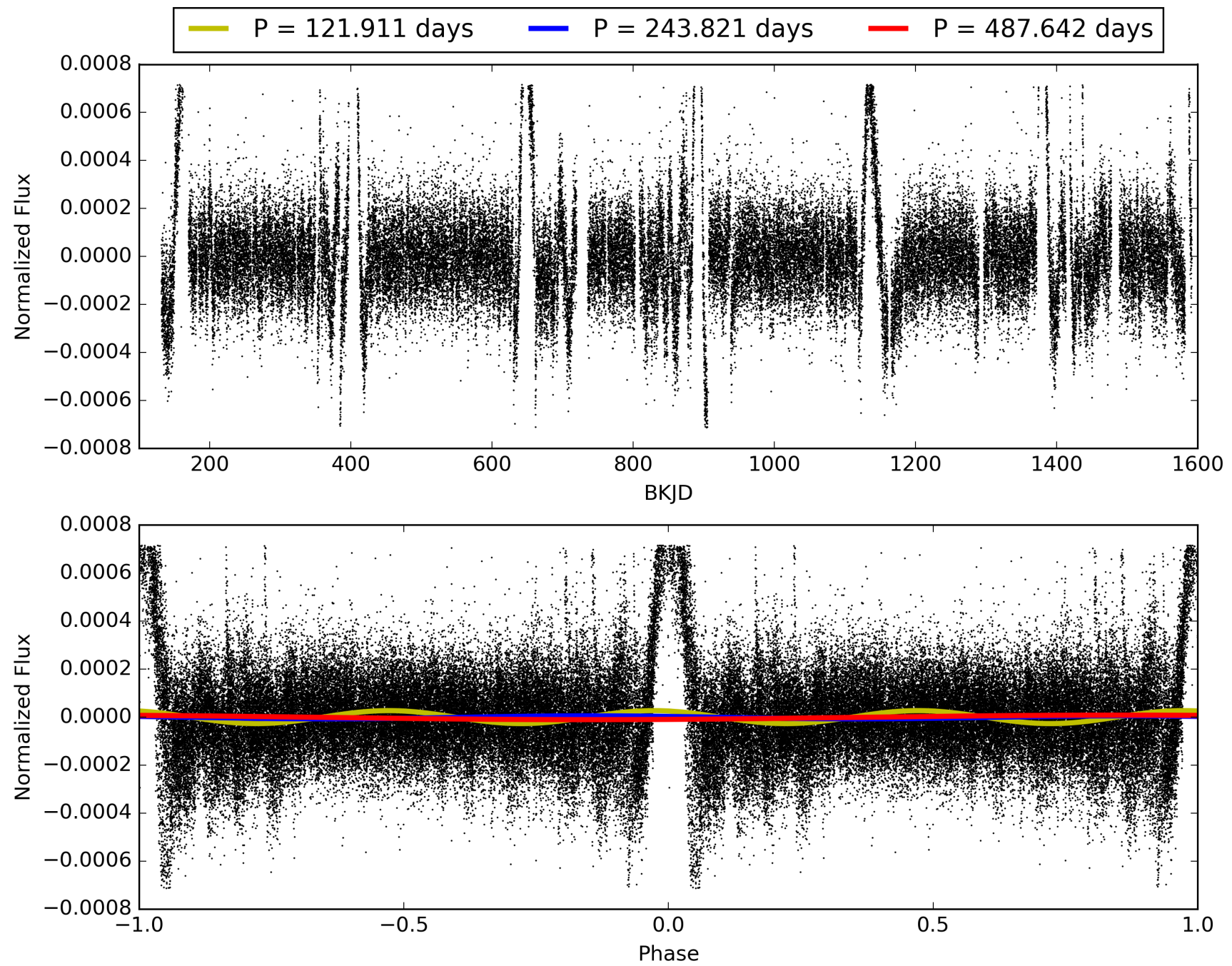
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 10.19  
Centroid-sig: 0.0%  
Centroid-so: 0.197 arcsec [45.25σ]  
OotOffset-rm: 0.009 arcsec [0.14σ]  
OotOffset-st: 0/2/1/2 [5]  
KicOffset-rm: 0.085 arcsec [1.20σ]  
KicOffset-st: 0/2/1/2 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

# TCE 005534965-01, PDC Light Curves

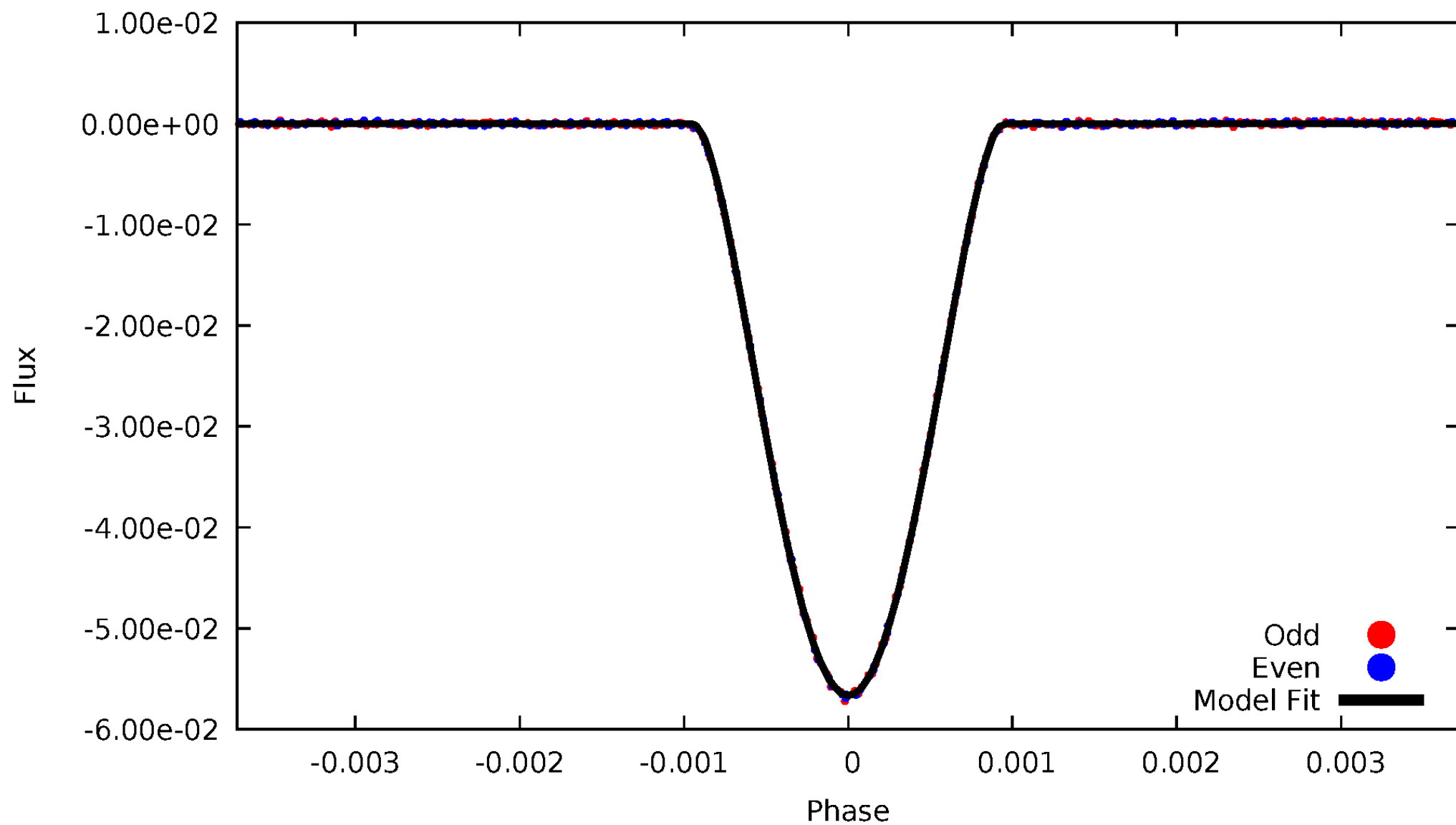


TCE 005534965-01



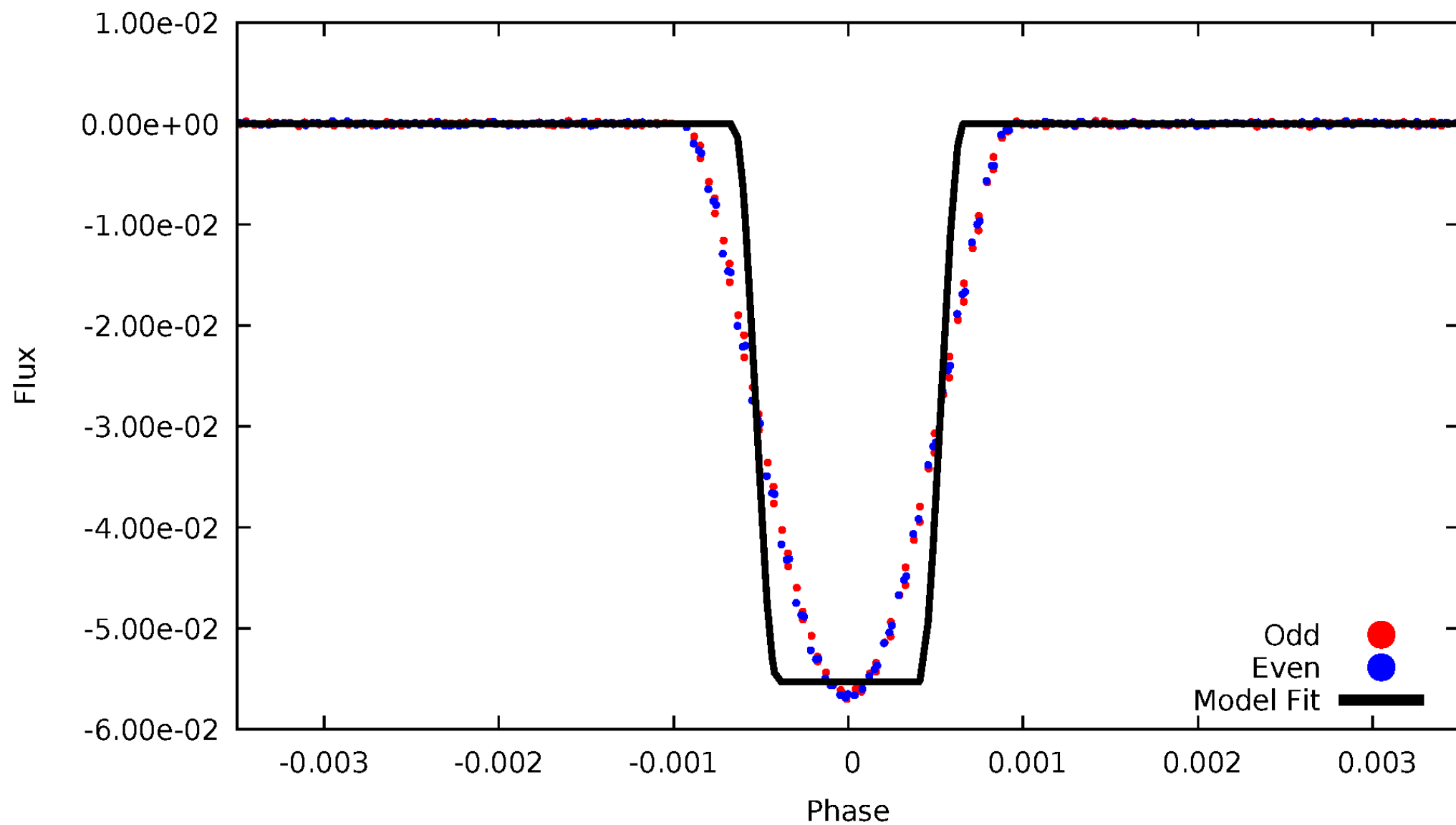
# DV Odd/Even

TCE 005534965-01



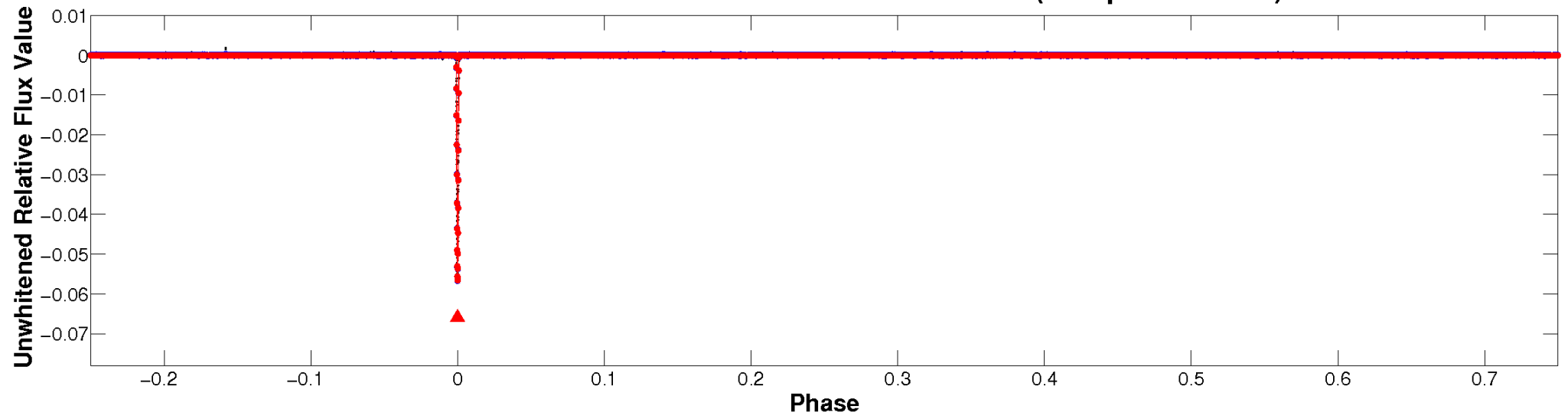
# ALT Odd/Even

TCE 005534965-01

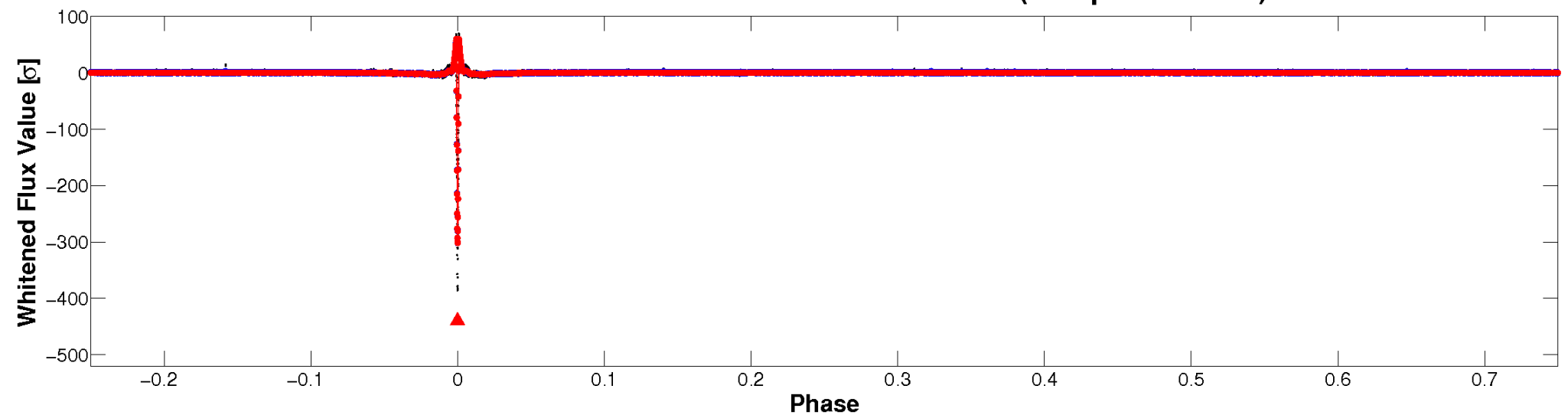


# Non-Whitened Vs. Whitened Light Curve

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

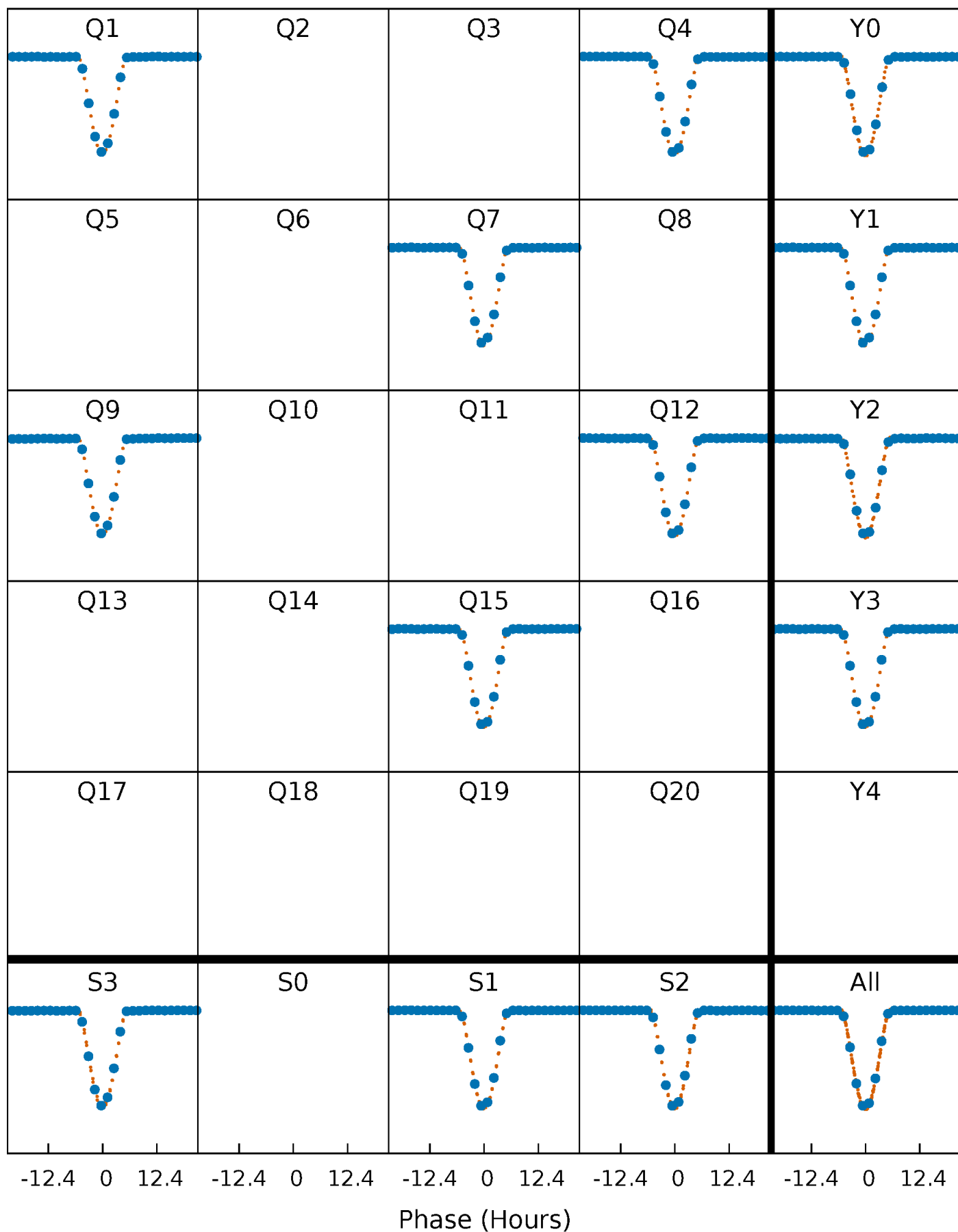


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

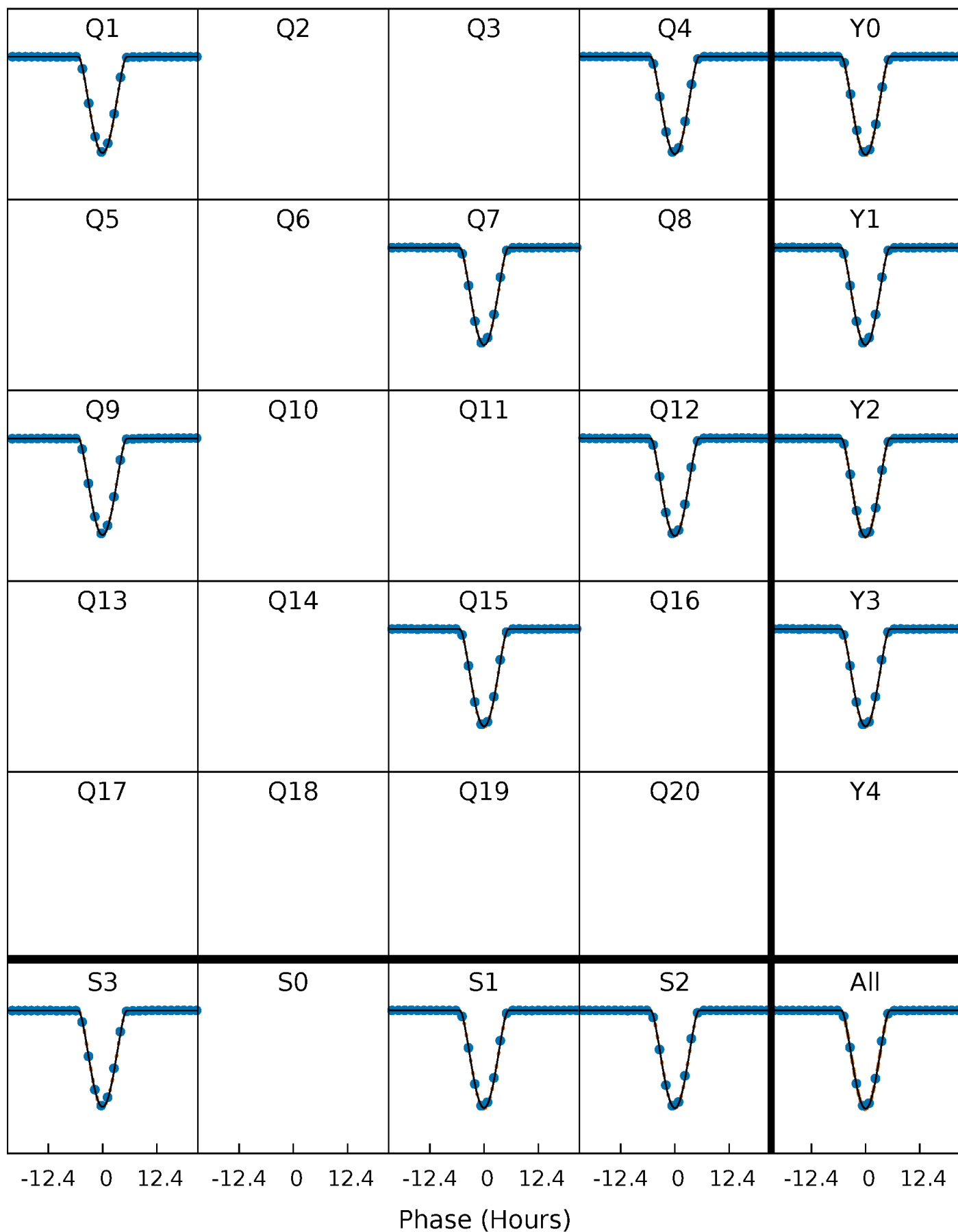
TCE 005534965-01 P=243.821233 Days  $T_0=159.495834$  (BKJD)





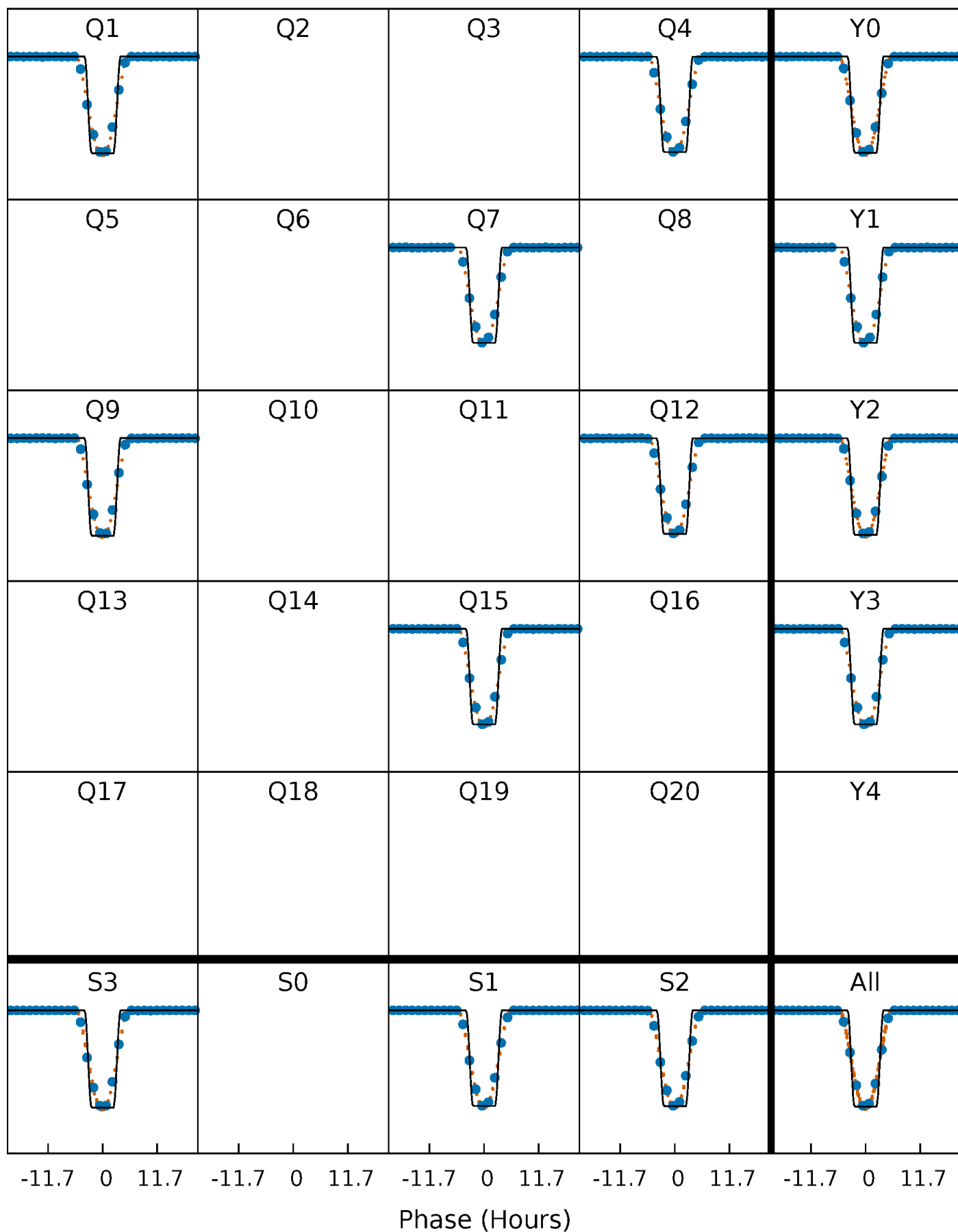
# DV Quarter-Phased Transit Curves

TCE 005534965-01 P=243.821233 Days  $T_0=159.495834$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

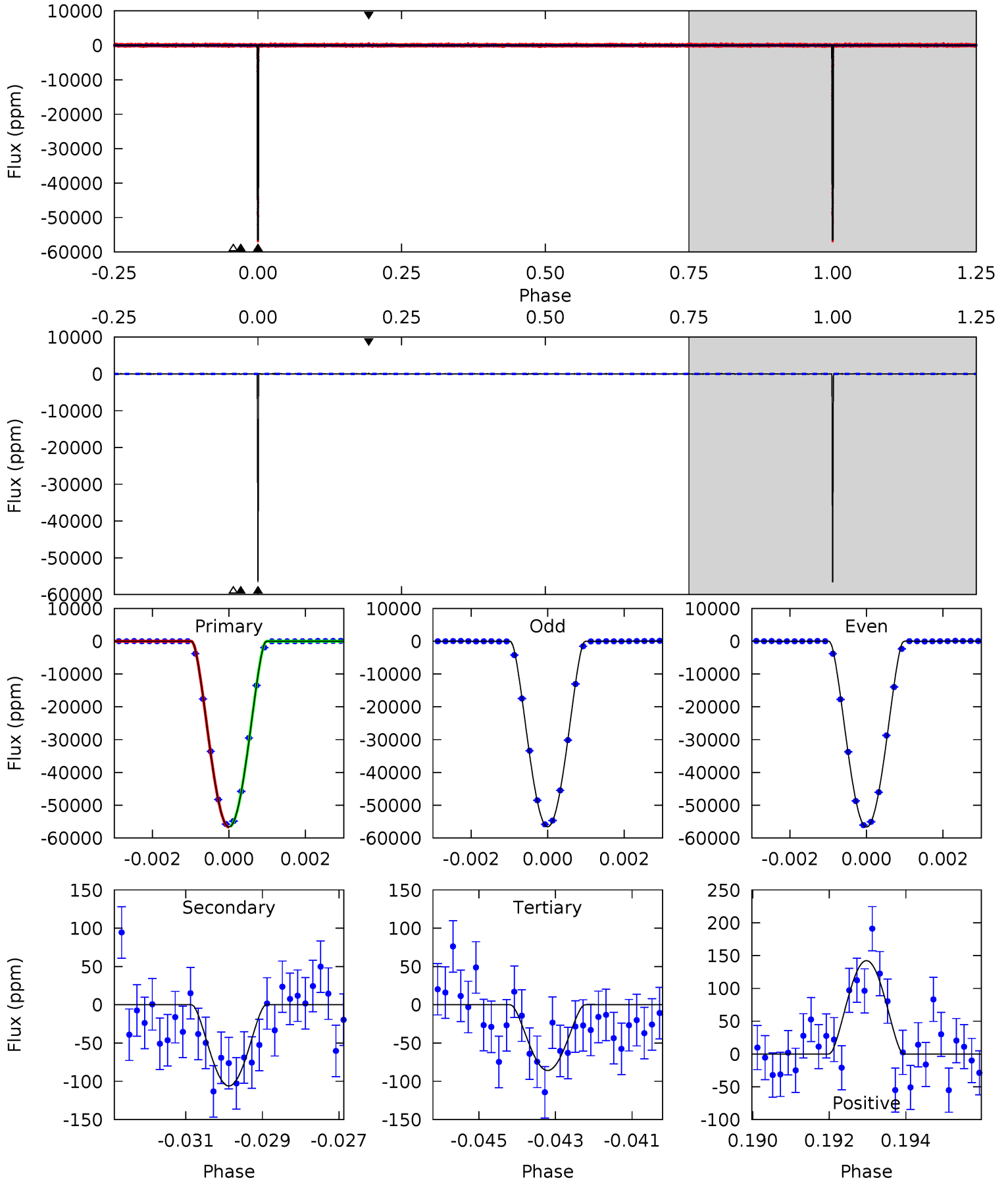
TCE 005534965-01 P=243.820049 Days  $T_0=159.498721$  (BKJD)



# DV Model-Shift Uniqueness Test

005534965-01, P = 243.821233 Days, E = 159.495834 Days

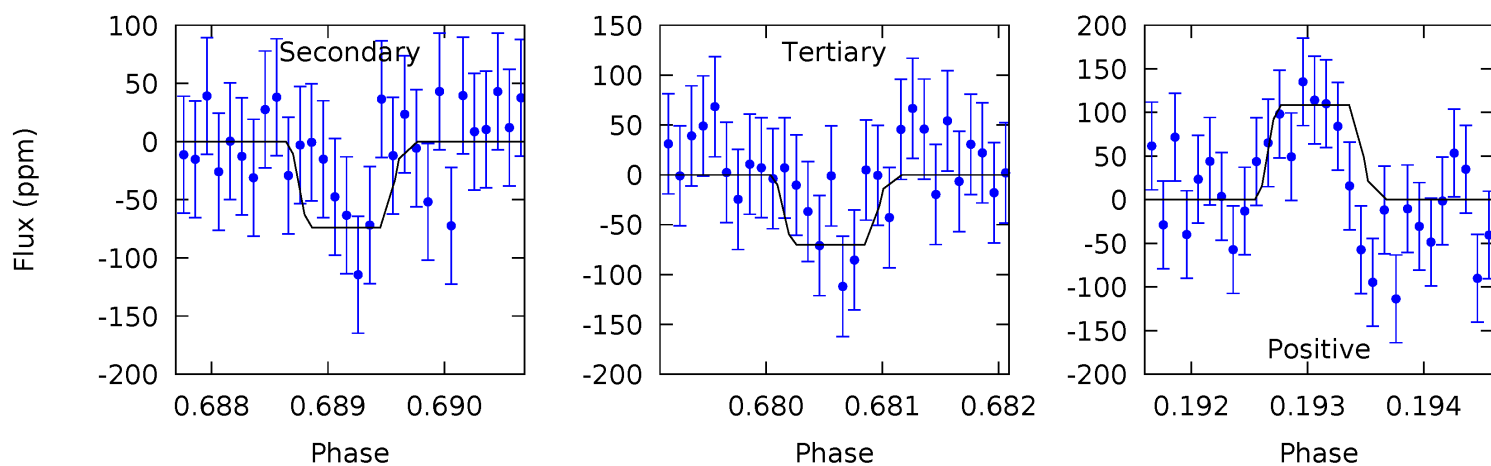
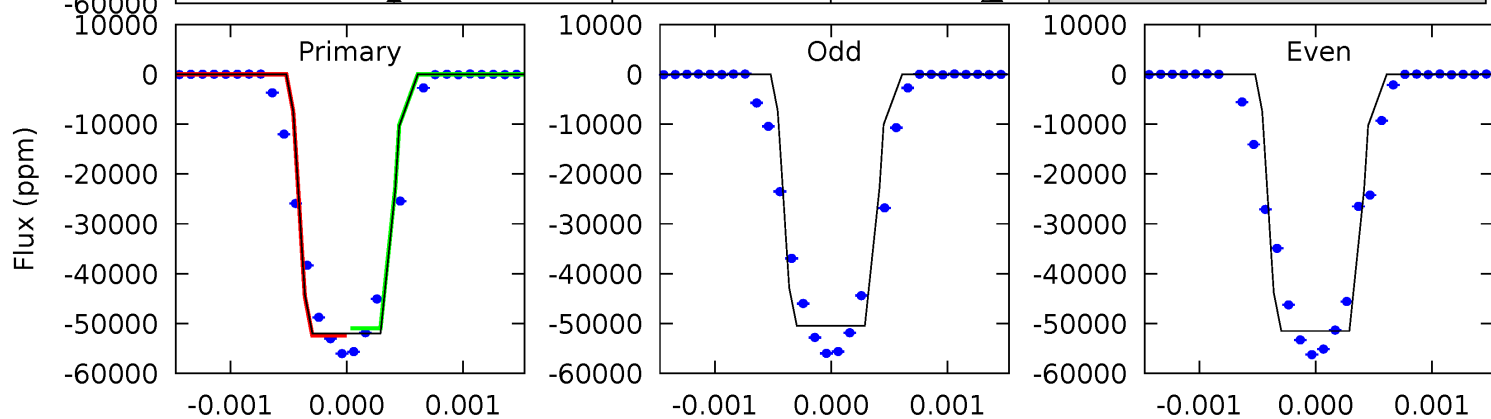
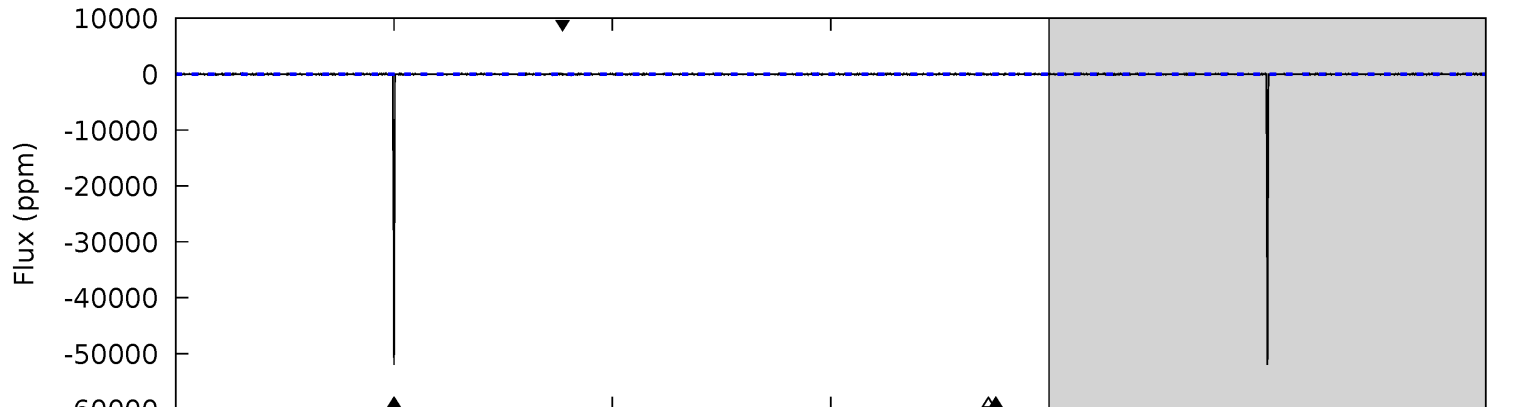
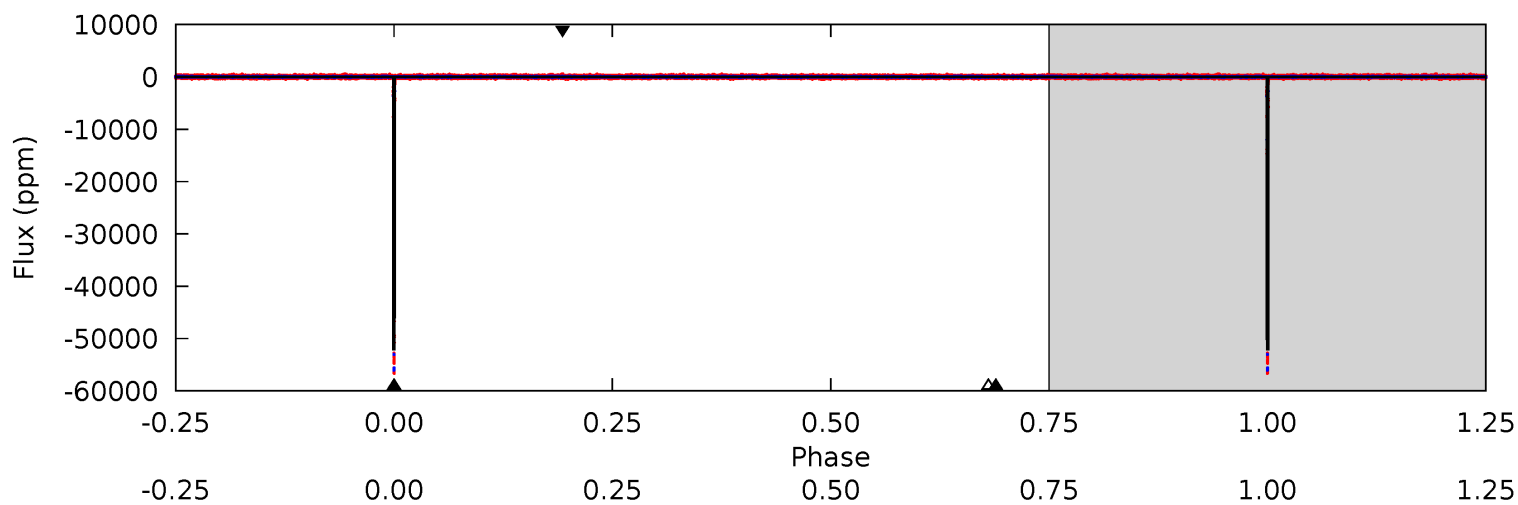
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5148 | 9.64 | 7.80 | 12.9 | 5.33            | 3.10            | 2.23             | 5141    | 5136    | 1.84    | -3.29   | 3.85    | 1.00 | 0.00  | 10.3 |



# Alt Model-Shift Uniqueness Test

005534965-01, P = 243.820049 Days, E = 159.498721 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3033 | 4.31 | 4.10 | 6.33 | 5.41            | 3.22            | 1.15             | 3029    | 3027    | 0.21    | -2.02   | 34.4    | 1.00 | 0.00  | 41.2 |



### Stellar Parameters For KIC 005534965

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6370^{+76}_{-76}$  | $4.228^{+0.143}_{-0.117}$ | $-0.260^{+0.150}_{-0.150}$ | $1.316^{+0.234}_{-0.210}$ | $1.064^{+0.103}_{-0.066}$ | $0.658^{+0.439}_{-0.246}$                 |
|        | +1%/-1%             | +3%/-3%                   | +58%/-58%                  | +18%/-16%                 | +10%/-6%                  | +67%/-37%                                 |
| Source | SPE68               | SPE68                     | SPE68                      | DSEP                      |                           |   |

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

### Secondary Eclipse Parameters for KIC 005534965-01 / KOI 3557.01

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$      | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$ |
|---------|---------------|-------------------------|----------------------|----------------------|------------------|
| DV      | $-106 \pm 11$ | $48.18^{+4.65}_{-4.69}$ | $508^{+23}_{-25}$    | $2092^{+28}_{-28}$   | $15^{+4}_{-3}$   |
| Alt.    | $-74 \pm 17$  | $33.84^{+3.63}_{-3.16}$ | $510^{+23}_{-24}$    | $2174^{+55}_{-61}$   | $22^{+7}_{-6}$   |

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

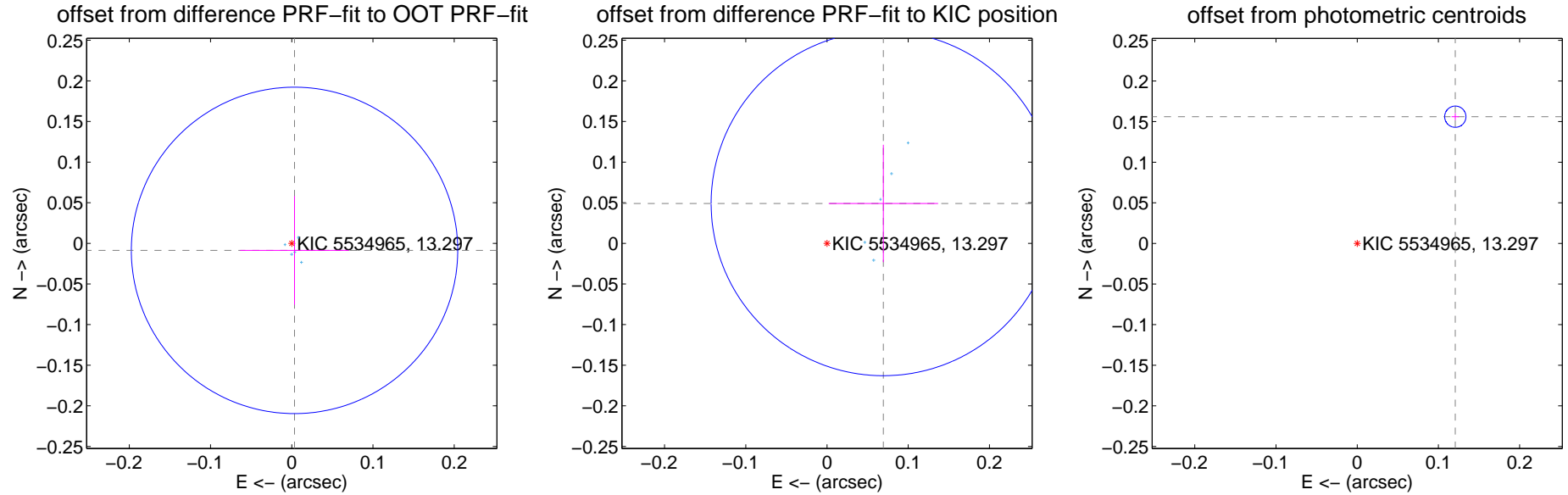
## DV Centroid Data

Supplemental centroid analysis for 005534965-01. Kepler magnitude: 13.30. Transit SNR 2059.82

There are 5 quarters with good PRF difference image offsets

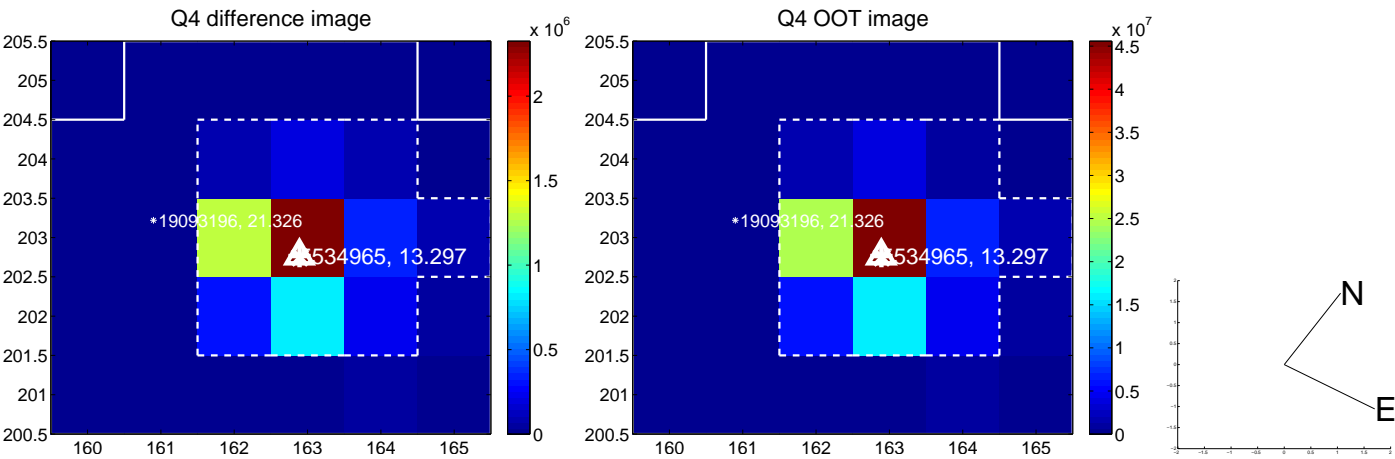
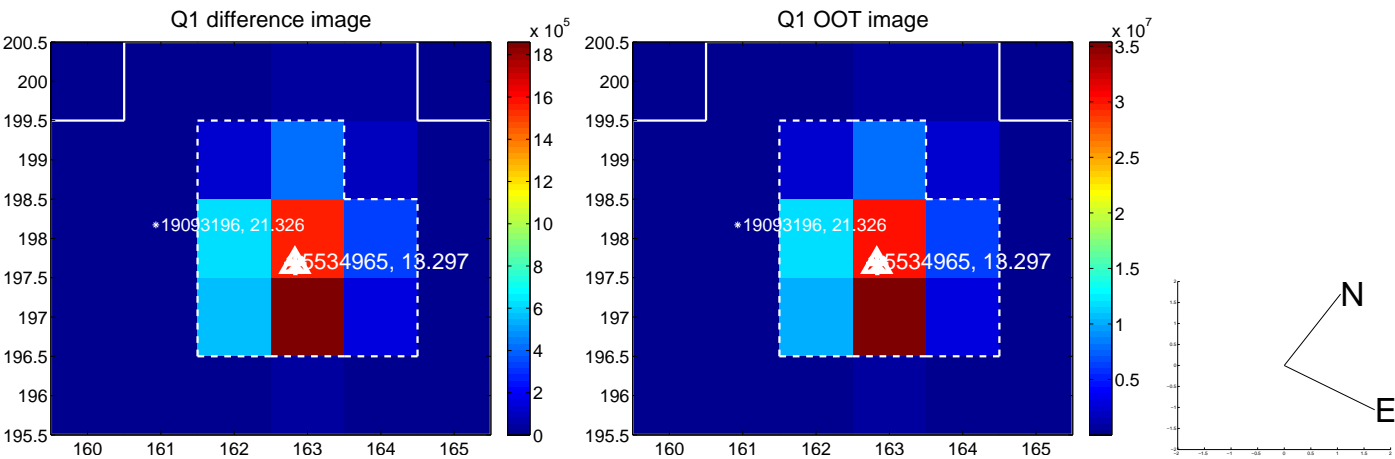
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.009 \pm 0.067$  | 0.14                | $-0.003 \pm 0.067$ | $-0.009 \pm 0.067$ |
| PRF-fit source offset from KIC position | $0.085 \pm 0.071$  | 1.20                | $-0.069 \pm 0.067$ | $0.049 \pm 0.072$  |
| photometric centroid source offset      | $0.20 \pm 0.00$    | 45.25               | $-0.12 \pm 0.00$   | $0.16 \pm 0.00$    |

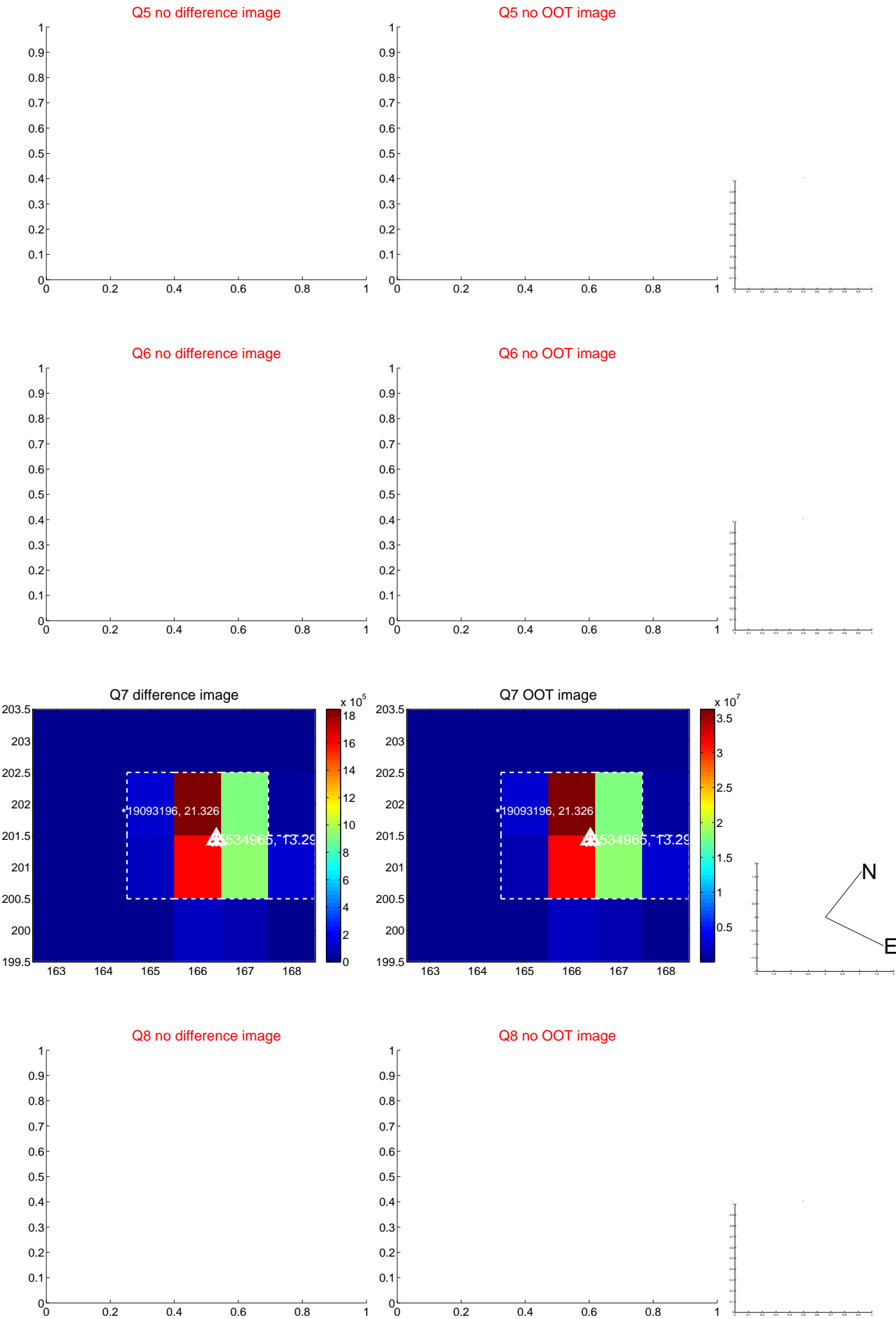


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

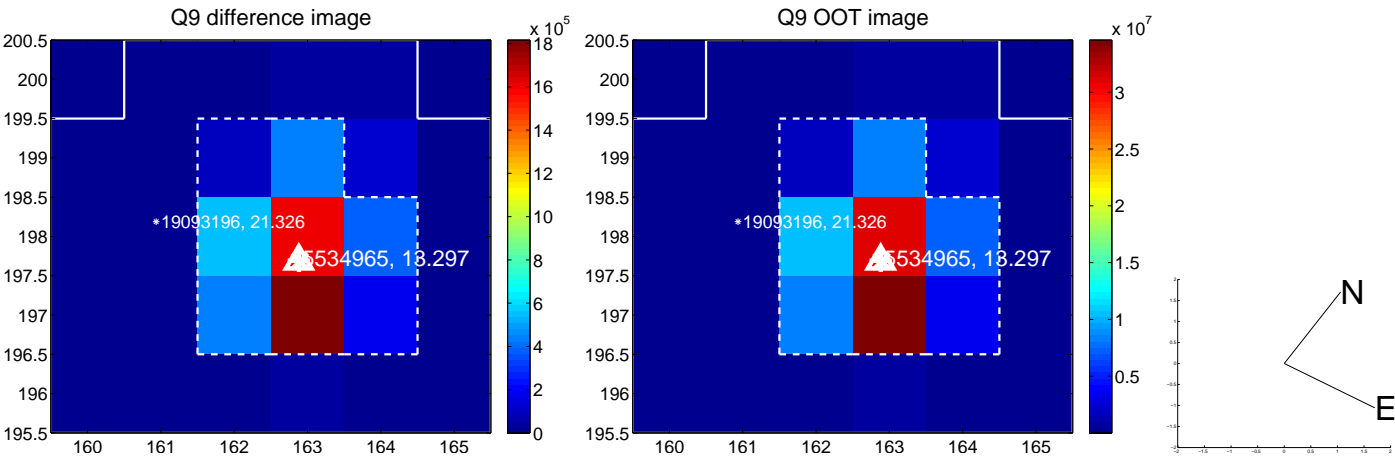


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

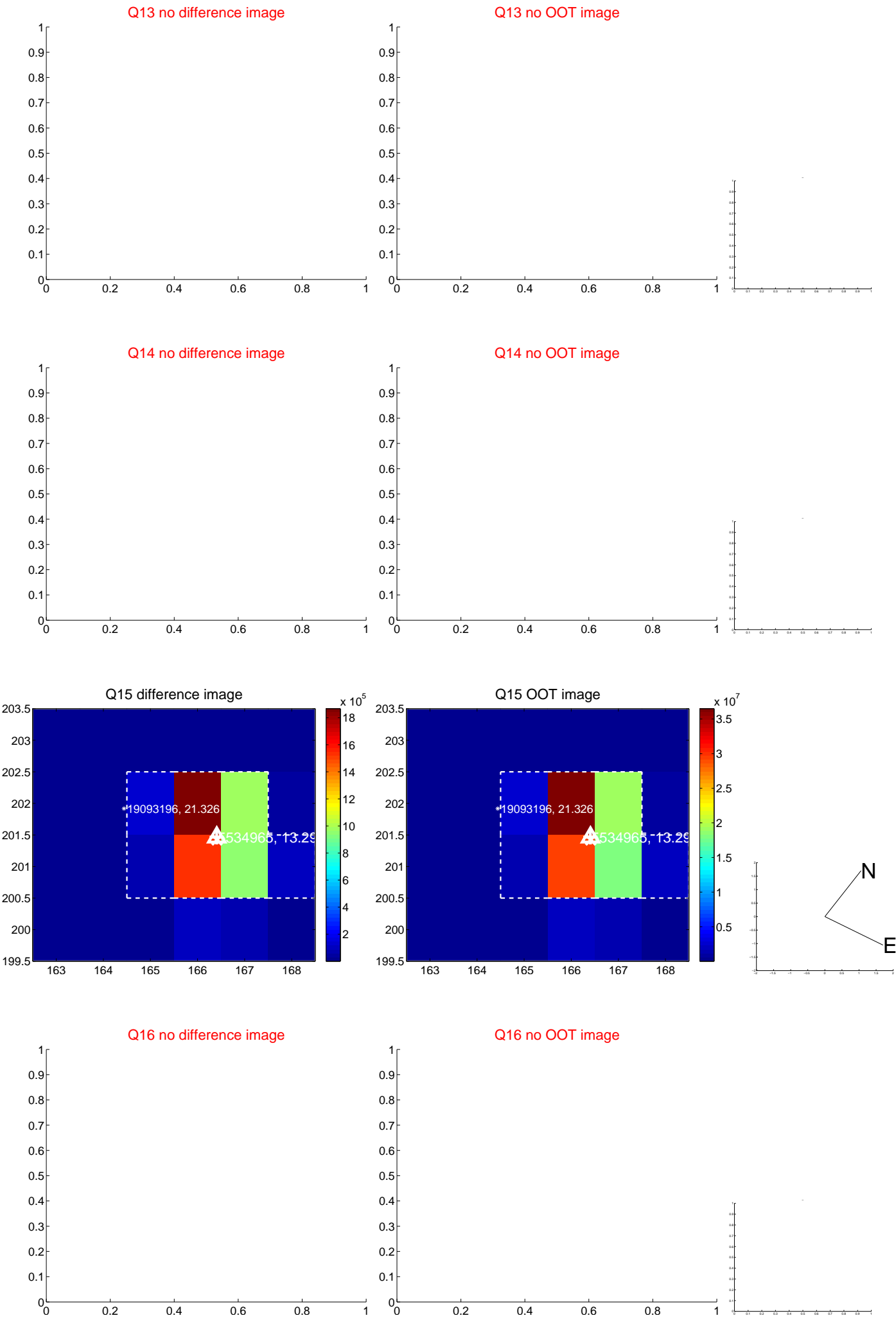




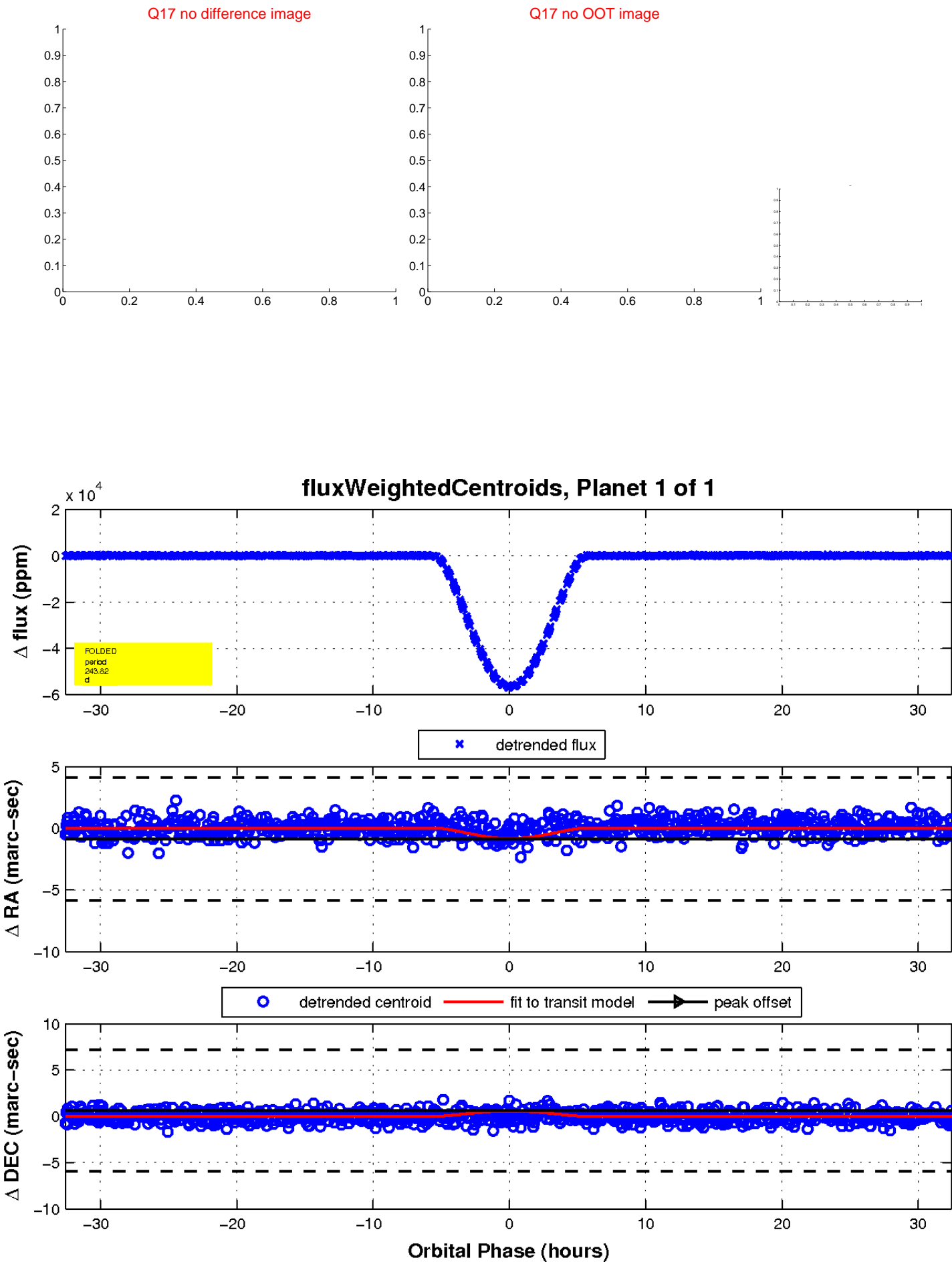
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

