

# KIC 007295570

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 007295570-01 | OBS      | 6035.01 | 3.603727      | 131.662148   | 15649.4     | 2.868            | 334.5 | 296.0 | 1.55                        | 5633            | 24.68                  | 1089.38                |
| 007295570-02 | OBS      | No      | 3.603745      | 133.456730   | 3520.3      | 2.890            | 78.0  | 78.5  | 1.55                        | 5633            | 17.28                  | 1089.37                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007295570-01 | OBS      | FP   | 0.00  | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_FEW_DIFFS |
| 007295570-02 | OBS      | FP   | 0.00  | 1 | 1 | 0 | 0 | IS_SEC_TCE—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.

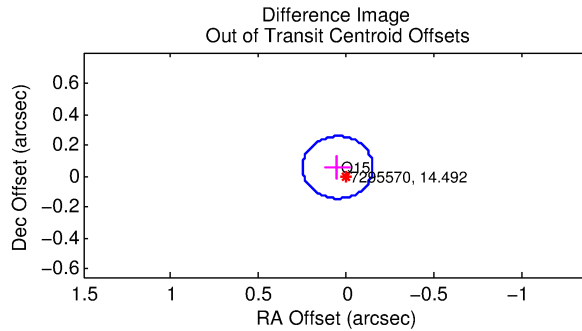
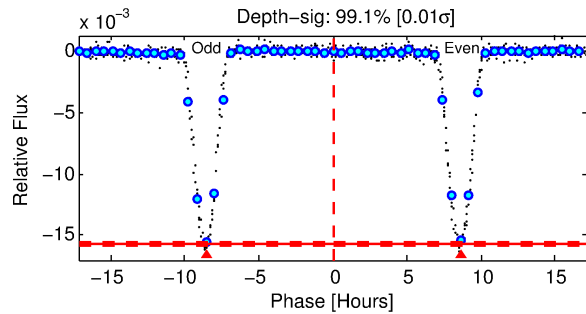
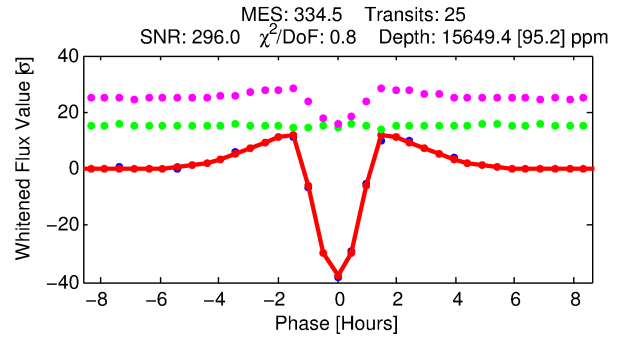
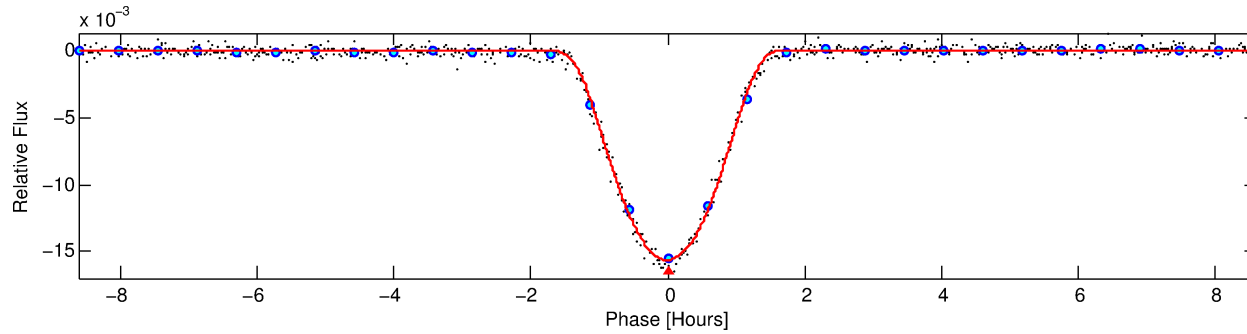
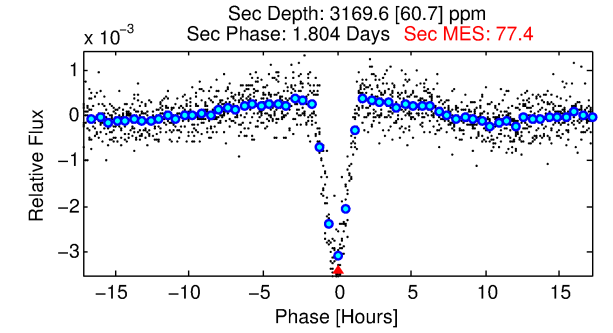
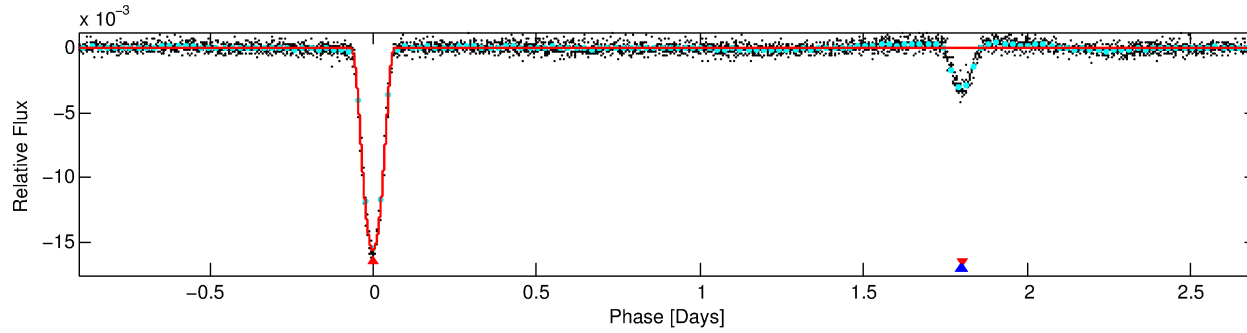
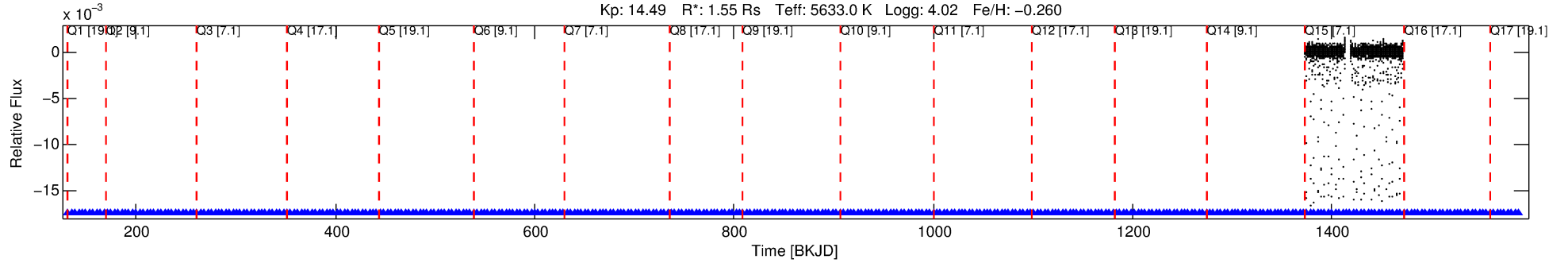
## Ephemeris Match Information For 007295570-01

No Significant Match Found

# DV One-Page Summary

KIC: 7295570 Candidate: 1 of 2 Period: 3.604 d  
KOI: K06035.01 Corr: 0.855

Kp: 14.49 R\*: 1.55 Rs Teff: 5633.0 K Logg: 4.02 Fe/H: -0.260



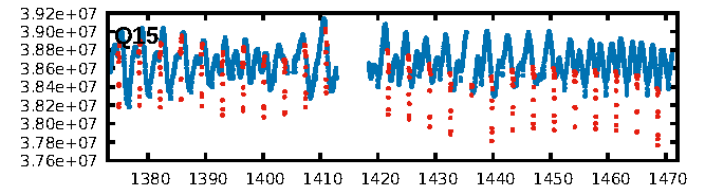
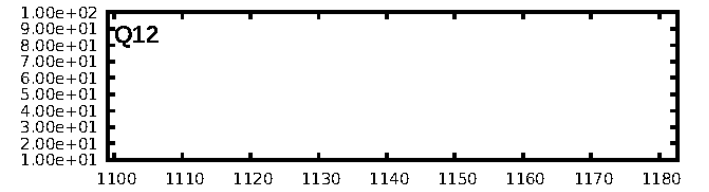
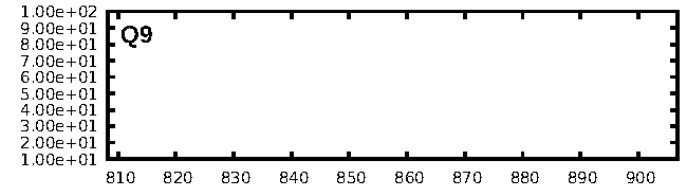
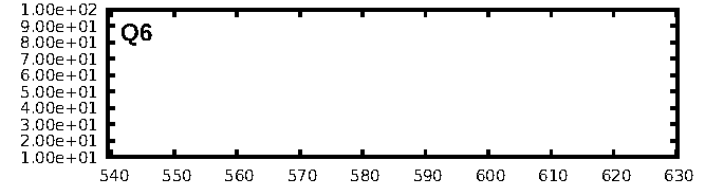
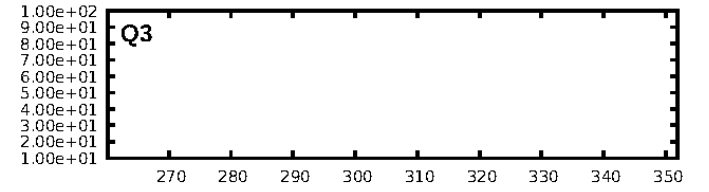
## DV Fit Results:

Period = 3.60373 [0.00000] d  
Epoch = 131.6621 [0.0002] BKJD  
Rp/R\* = 0.1462 [0.0037]  
a/R\* = 6.88 [0.08]  
b = 0.90 [0.01]  
Seff = 1089.38 [902.82]  
Teff = 1465 [304] K  
Rp = 24.68 [11.04] Re  
a = 0.0445 [0.0215] AU  
Ag = 5.67 [4.64] [1.01 $\sigma$ ]  
Teffp = 3496 [134] K [6.12 $\sigma$ ]

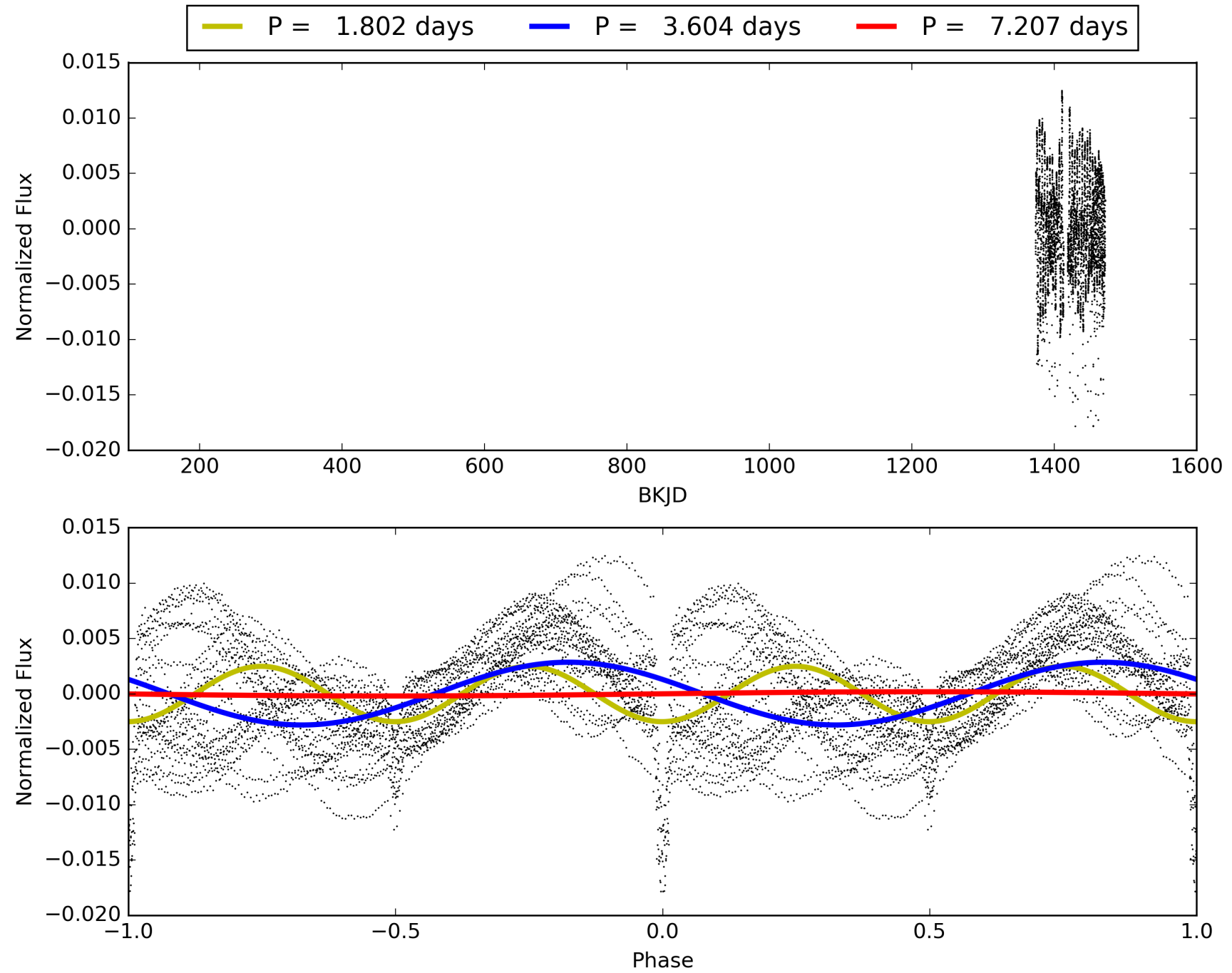
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: 97.4%  
ModelChiSquareGof-sig: 98.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [25/25]  
GhostDiagnostic-chr: 4.858  
Centroid-sig: 0.0%  
Centroid-so: 0.140 arcsec [4.76 $\sigma$ ]  
OotOffset-rm: 0.077 arcsec [1.14 $\sigma$ ]  
KicOffset-rm: 0.037 arcsec [0.56 $\sigma$ ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [1/1]

# TCE 007295570-01, PDC Light Curves

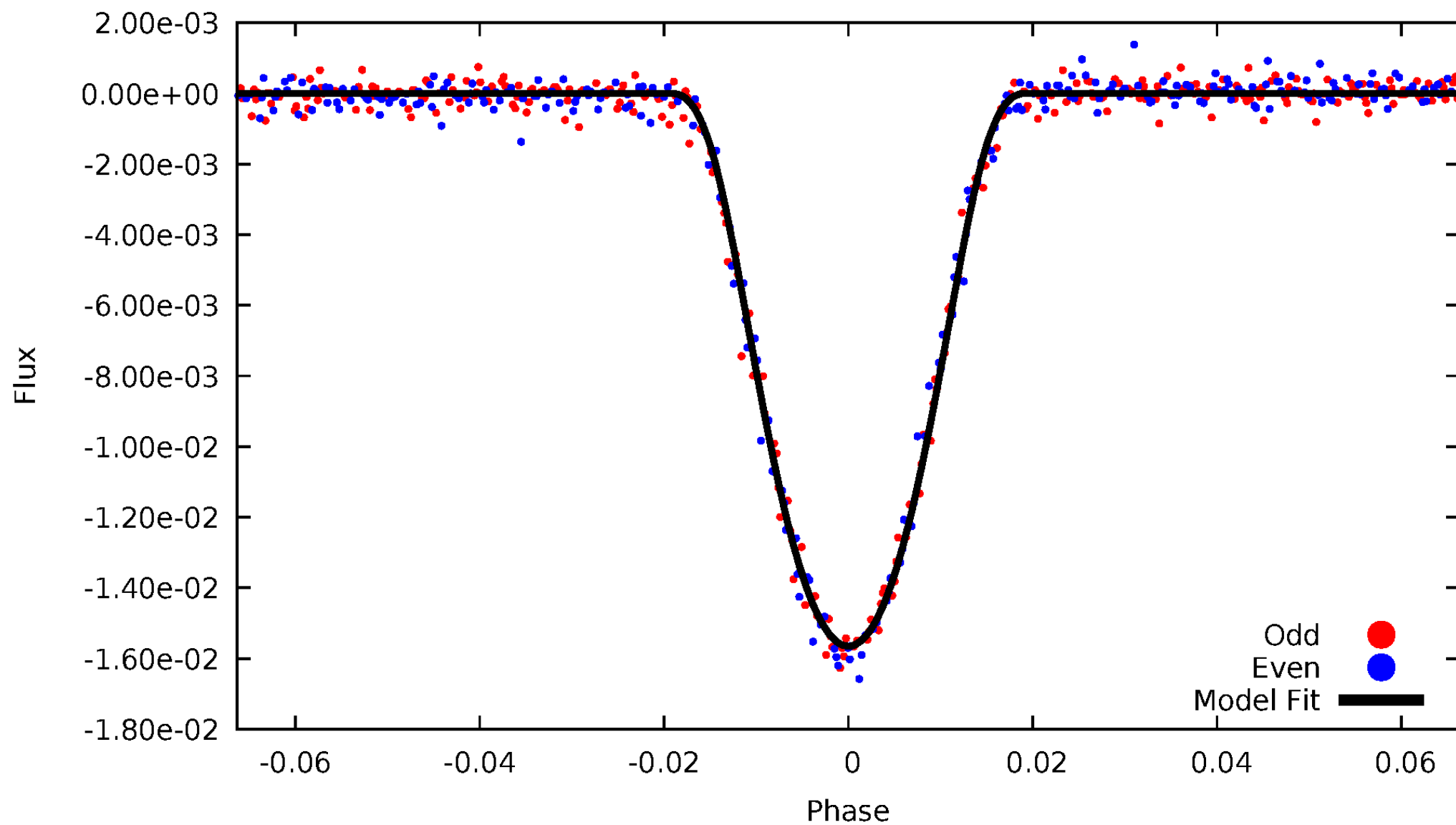


TCE 007295570-01



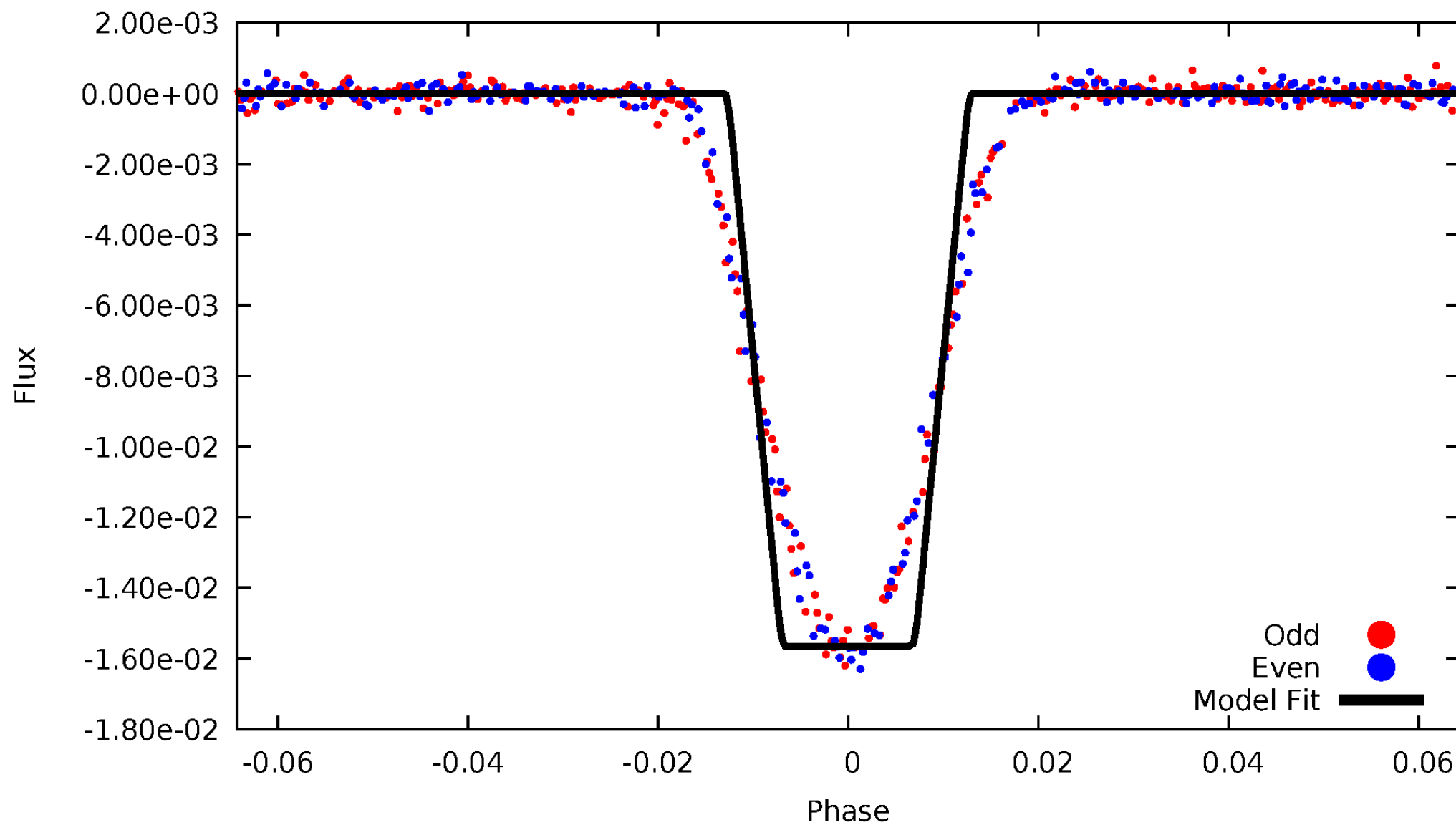
DV Odd/Even

TCE 007295570-01



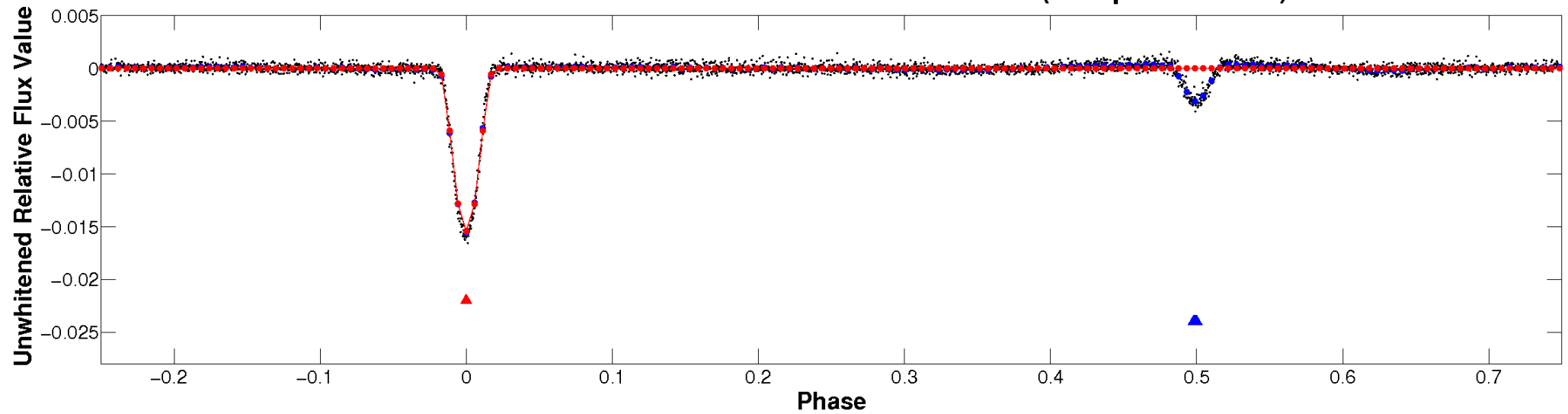
# ALT Odd/Even

TCE 007295570-01

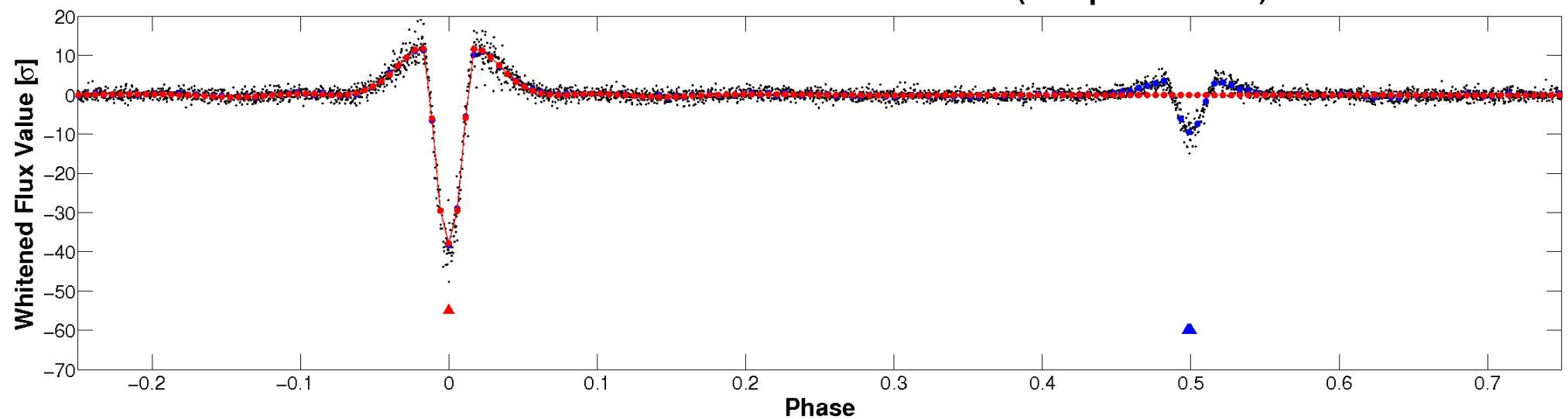


# Non-Whitened Vs. Whitened Light Curve

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

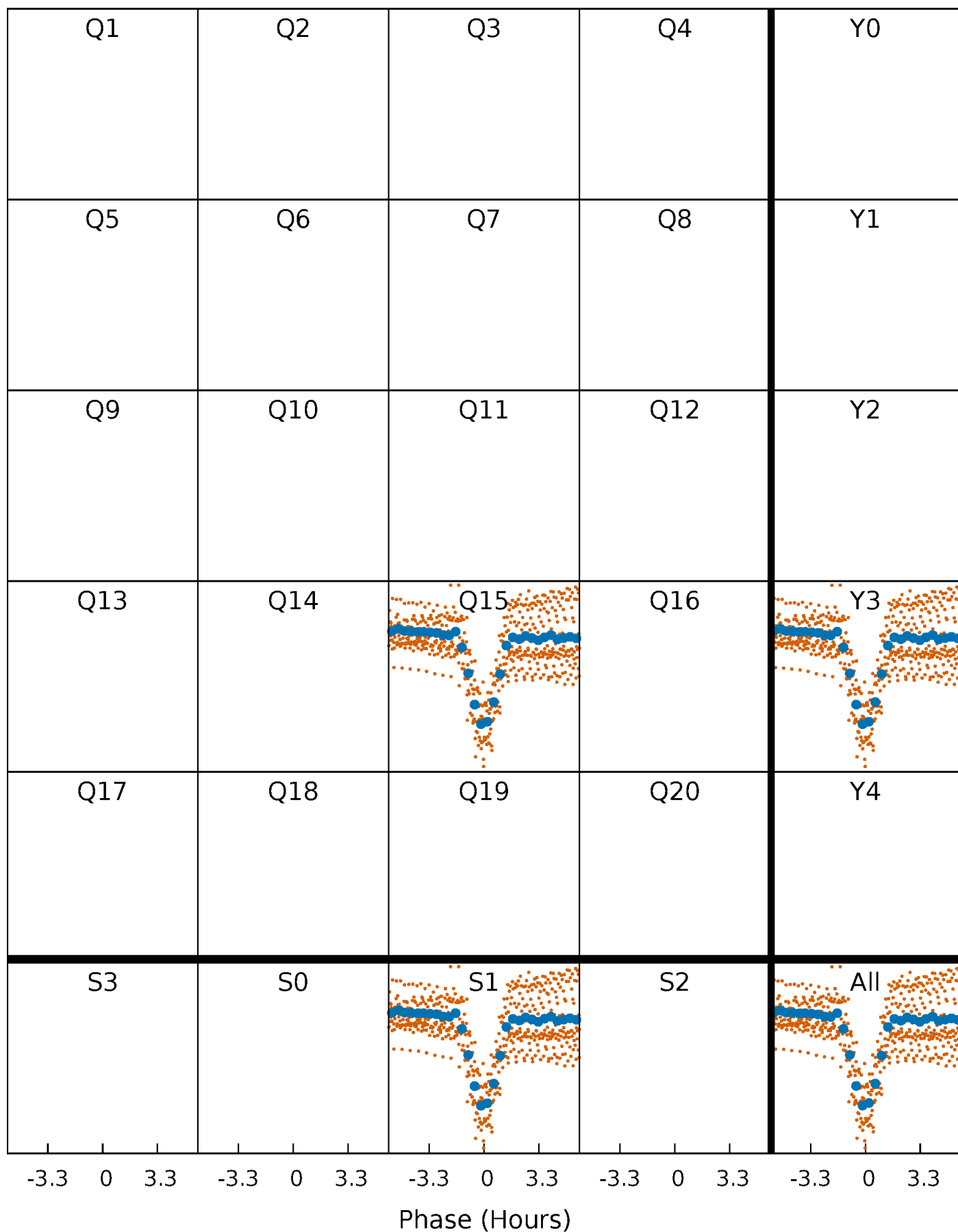


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

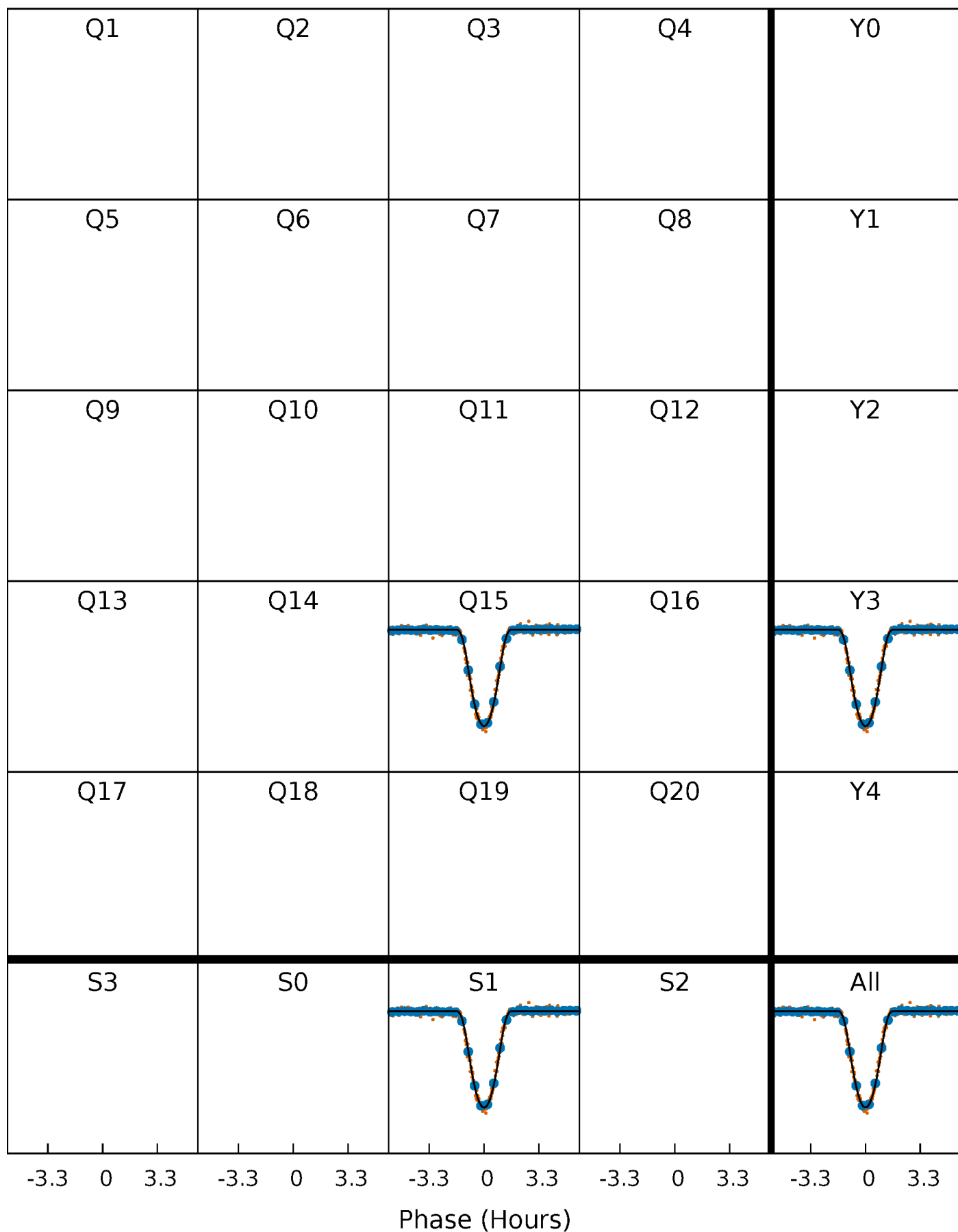
TCE 007295570-01 P= 3.603727 Days  $T_0=131.662148$  (BKJD)





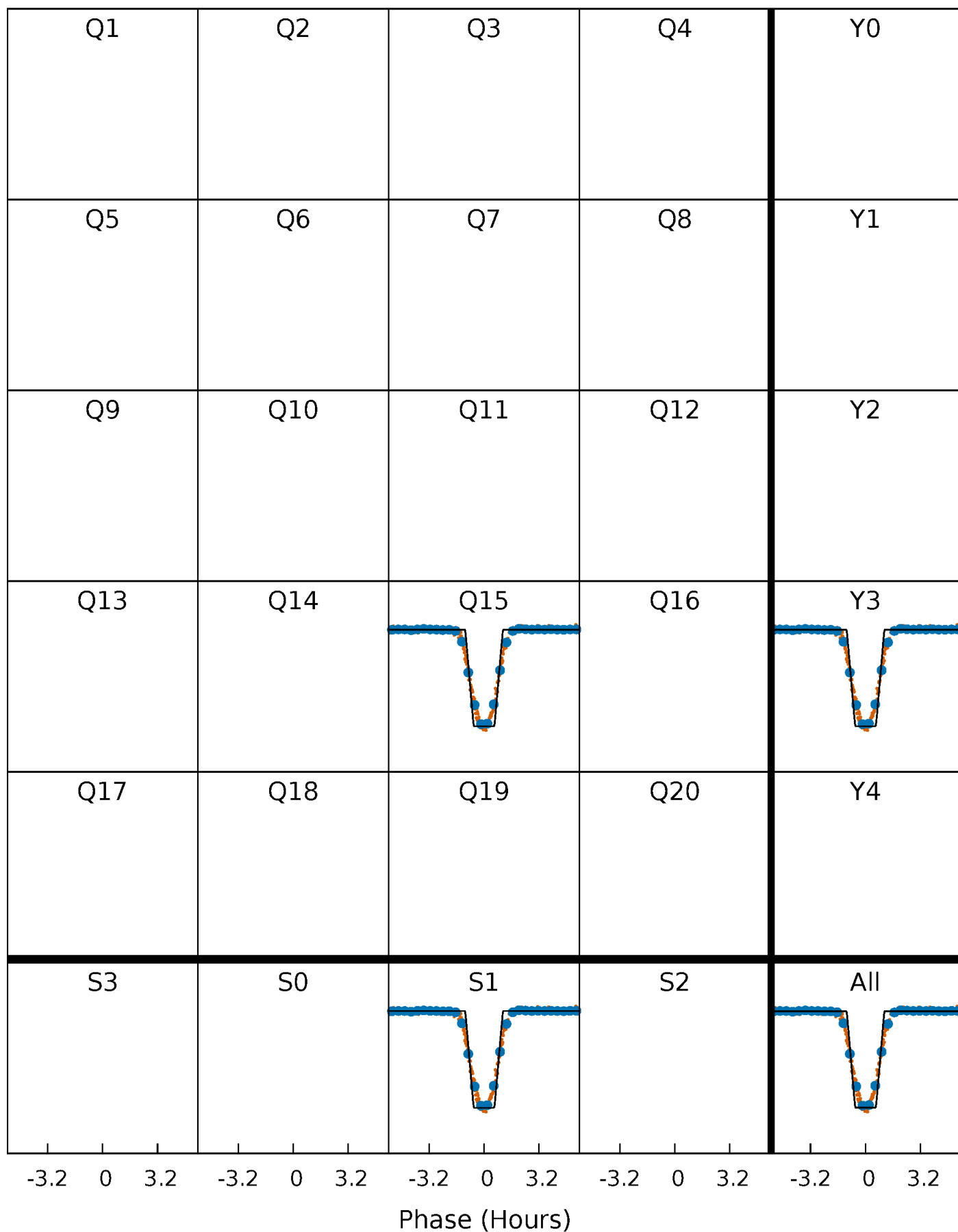
# DV Quarter-Phased Transit Curves

TCE 007295570-01   P= 3.603727 Days    $T_0=131.662148$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

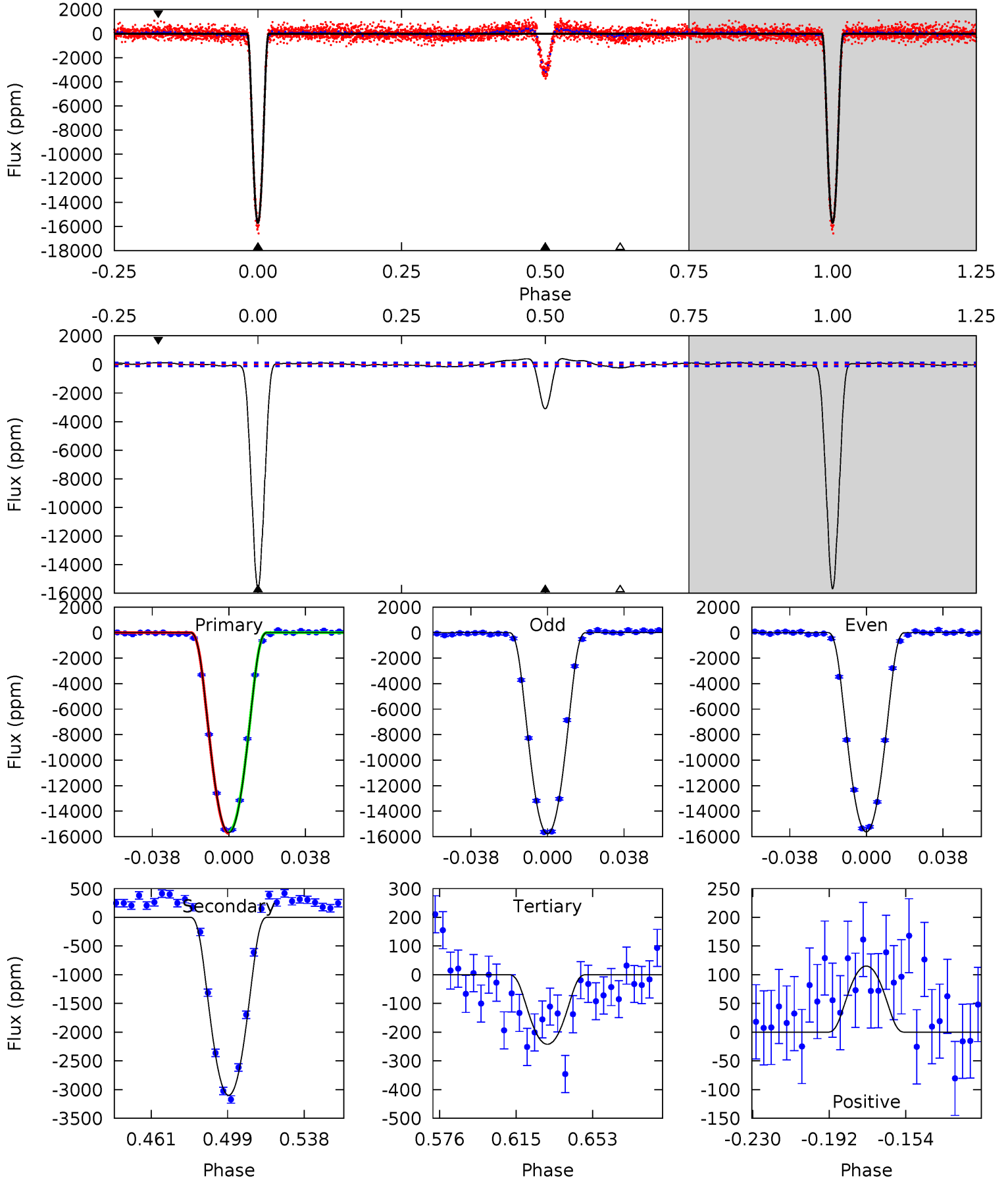
TCE 007295570-01 P= 3.603708 Days  $T_0=131.668499$  (BKJD)



# DV Model-Shift Uniqueness Test

007295570-01, P = 3.603727 Days, E = 131.662148 Days

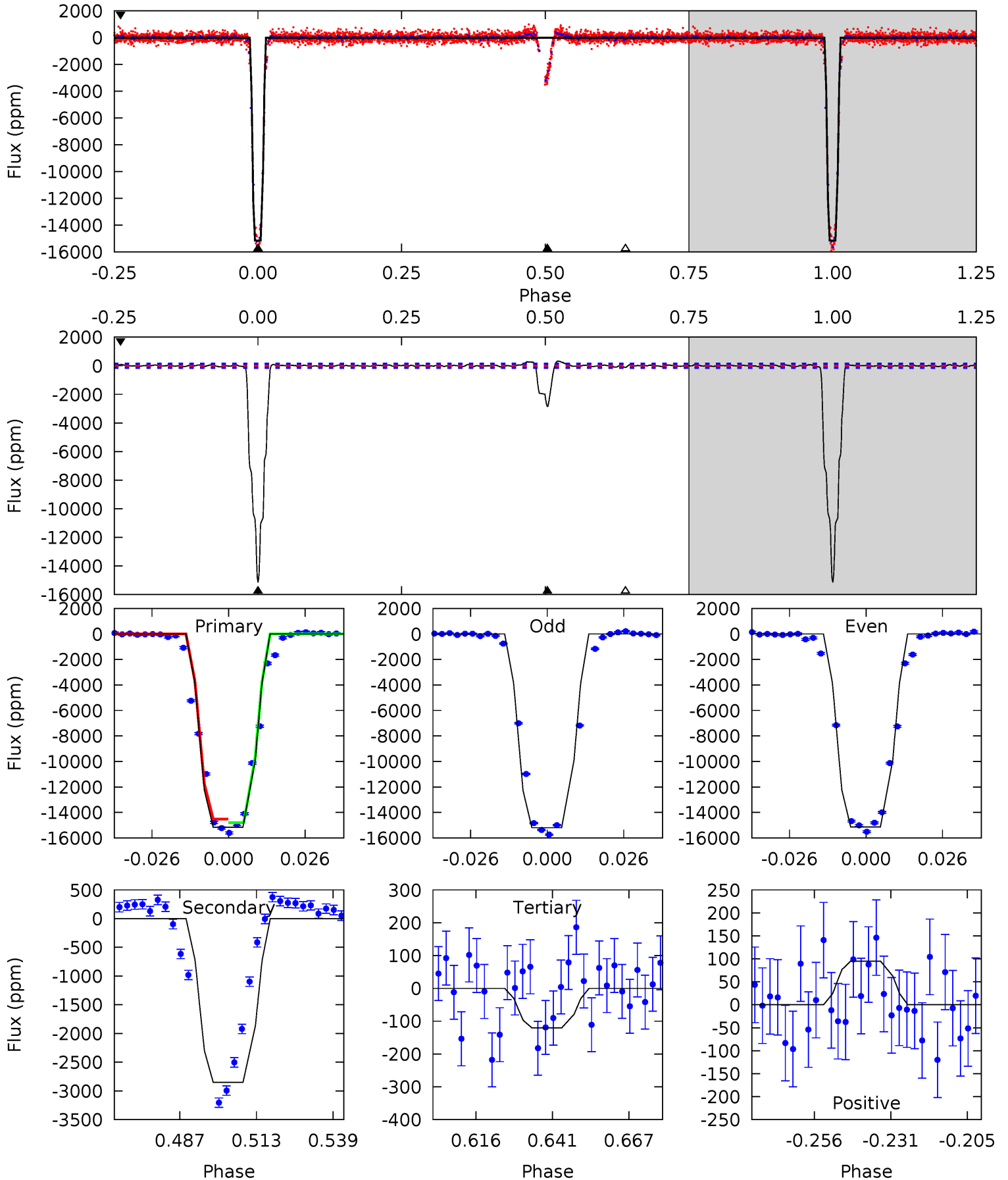
| Pri   | Sec   | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|-------|-------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 626.1 | 123.7 | 9.67 | 4.60 | 4.76            | 2.07            | 4.81             | 616.4   | 621.5   | 114.1   | 119.1   | 3.01    | 0.99 | 0.02  | 2.64 |



# Alt Model-Shift Uniqueness Test

007295570-01, P = 3.603708 Days, E = 131.668499 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  |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 501.0 | 94.3 | 3.98 | 3.14 | 4.84            | 2.23            | 1.68             | 497.0   | 497.8   | 90.3    | 91.2    | 0.97    | 1.00 | 0.02  | 3.60 |



### Stellar Parameters For KIC 007295570

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--|
|        | $5633^{+203}_{-169}$ | $4.016^{+0.495}_{-0.165}$ | $-0.260^{+0.300}_{-0.250}$ | $1.547^{+0.461}_{-0.691}$ | $0.907^{+0.122}_{-0.102}$ | $0.345^{+1.457}_{-0.174}$                    |
|        | +4%/-3%              | +12%/-4%                  | +115%/-96%                 | +30%/-45%                 | +13%/-11%                 | +422%/-50%                                   |
| 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 007295570-01 / KOI 6035.01

| Detrend | Depth (ppm)    | $R_p (R_{\oplus})$      | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$          |
|---------|----------------|-------------------------|----------------------|----------------------|---------------------------|
| DV      | $-3100 \pm 25$ | $23.83^{+4.30}_{-6.25}$ | $2005^{+180}_{-277}$ | $3809^{+105}_{-91}$  | $6.038^{+4.716}_{-1.621}$ |
| Alt.    | $-2852 \pm 30$ | $20.69^{+3.58}_{-4.80}$ | $2015^{+185}_{-246}$ | $3972^{+113}_{-110}$ | $7.440^{+4.675}_{-2.088}$ |

$T_{\text{max}}$  = 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

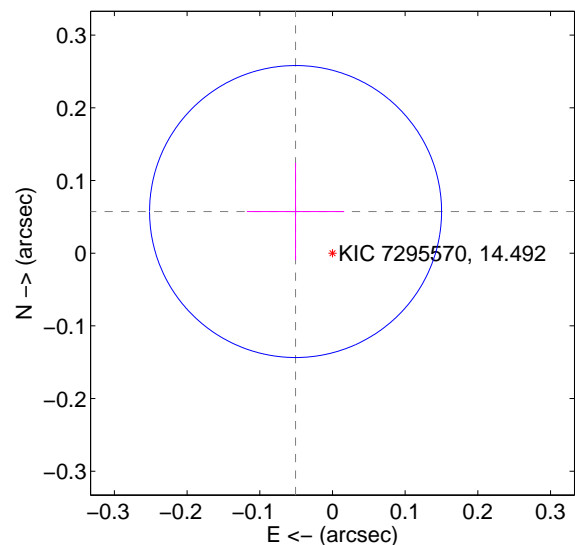
Supplemental centroid analysis for 007295570-01. Kepler magnitude: 14.49. Transit SNR 295.97

There are 1 quarters with good PRF difference image offsets

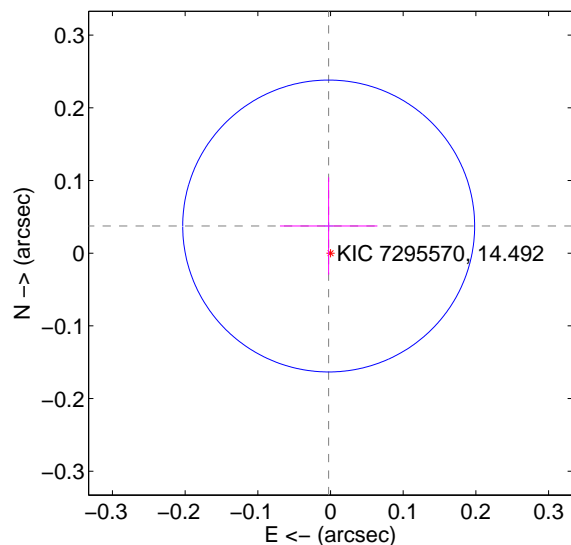
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.077 \pm 0.067$  | 1.14                | $0.051 \pm 0.067$ | $0.057 \pm 0.067$ |
| PRF-fit source offset from KIC position | $0.037 \pm 0.067$  | 0.56                | $0.003 \pm 0.067$ | $0.037 \pm 0.067$ |
| photometric centroid source offset      | $0.14 \pm 0.03$    | 4.76                | $-0.02 \pm 0.03$  | $0.14 \pm 0.03$   |

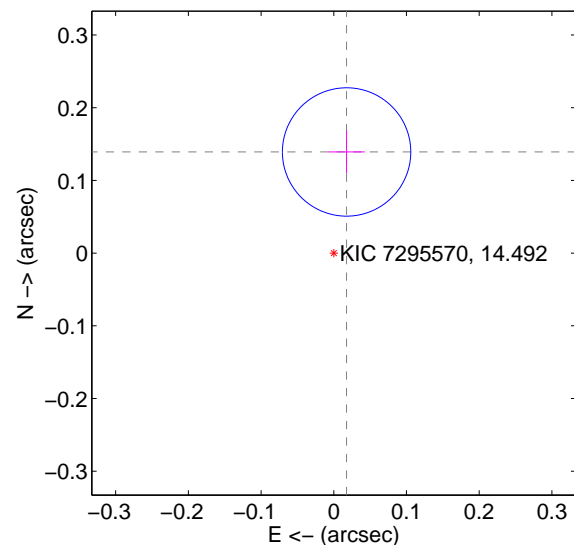
offset from difference PRF-fit to OOT PRF-fit



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.

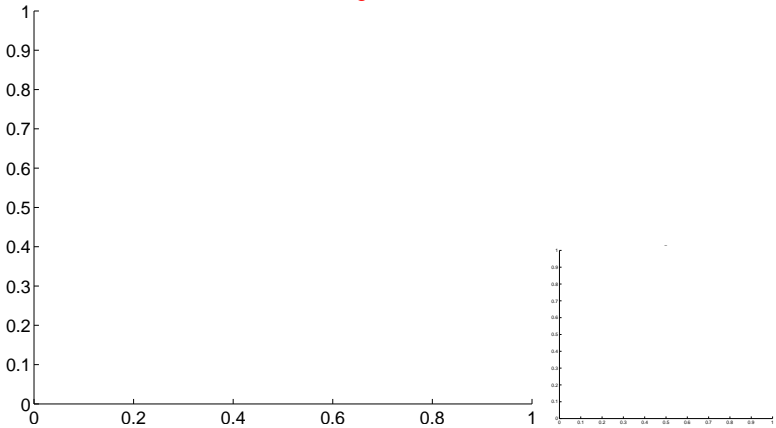


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q13 no difference image



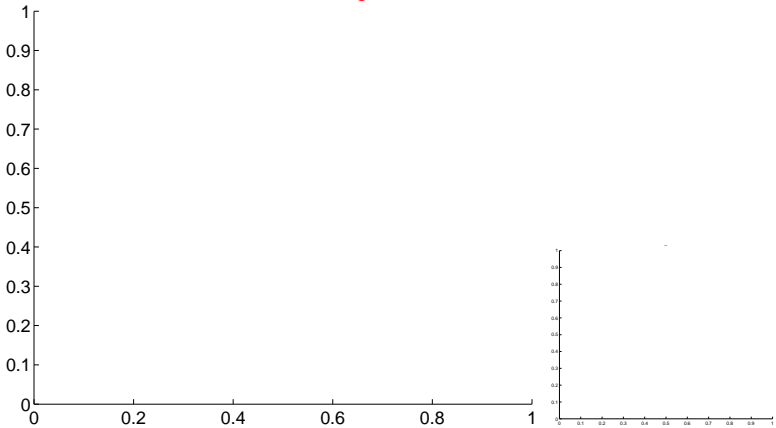
Q13 no OOT image



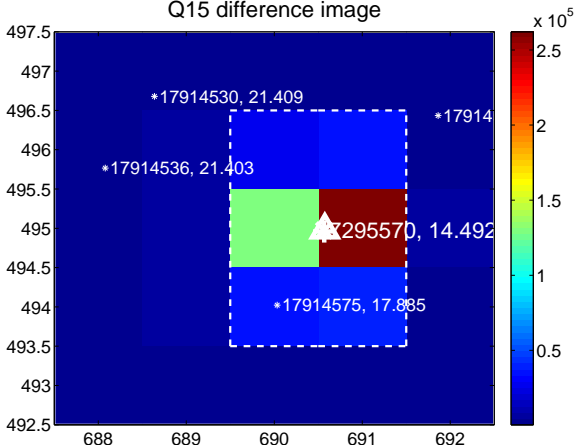
Q14 no difference image



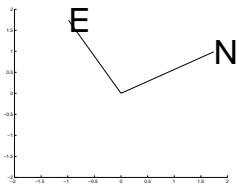
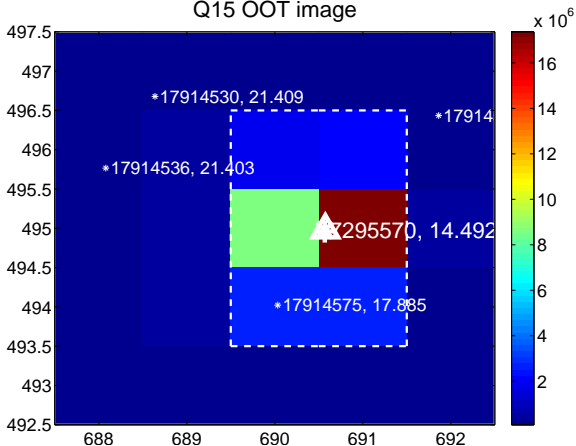
Q14 no OOT image



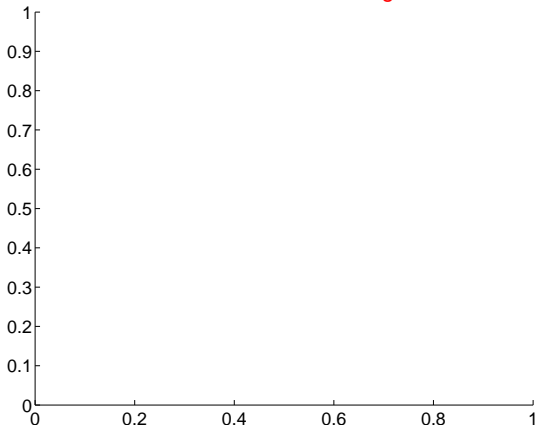
Q15 difference image



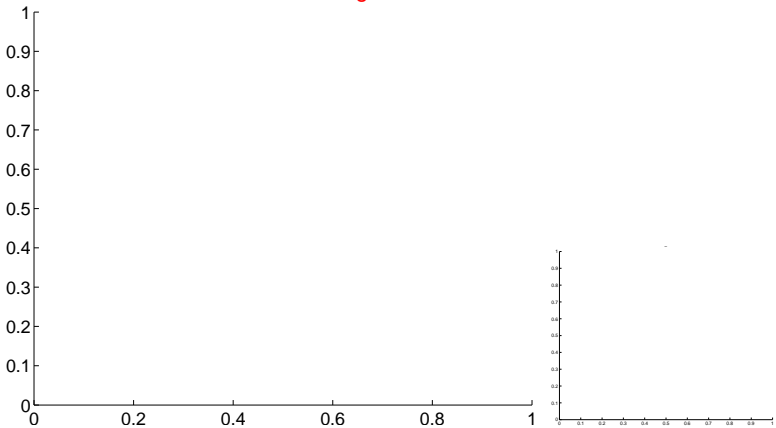
Q15 OOT image



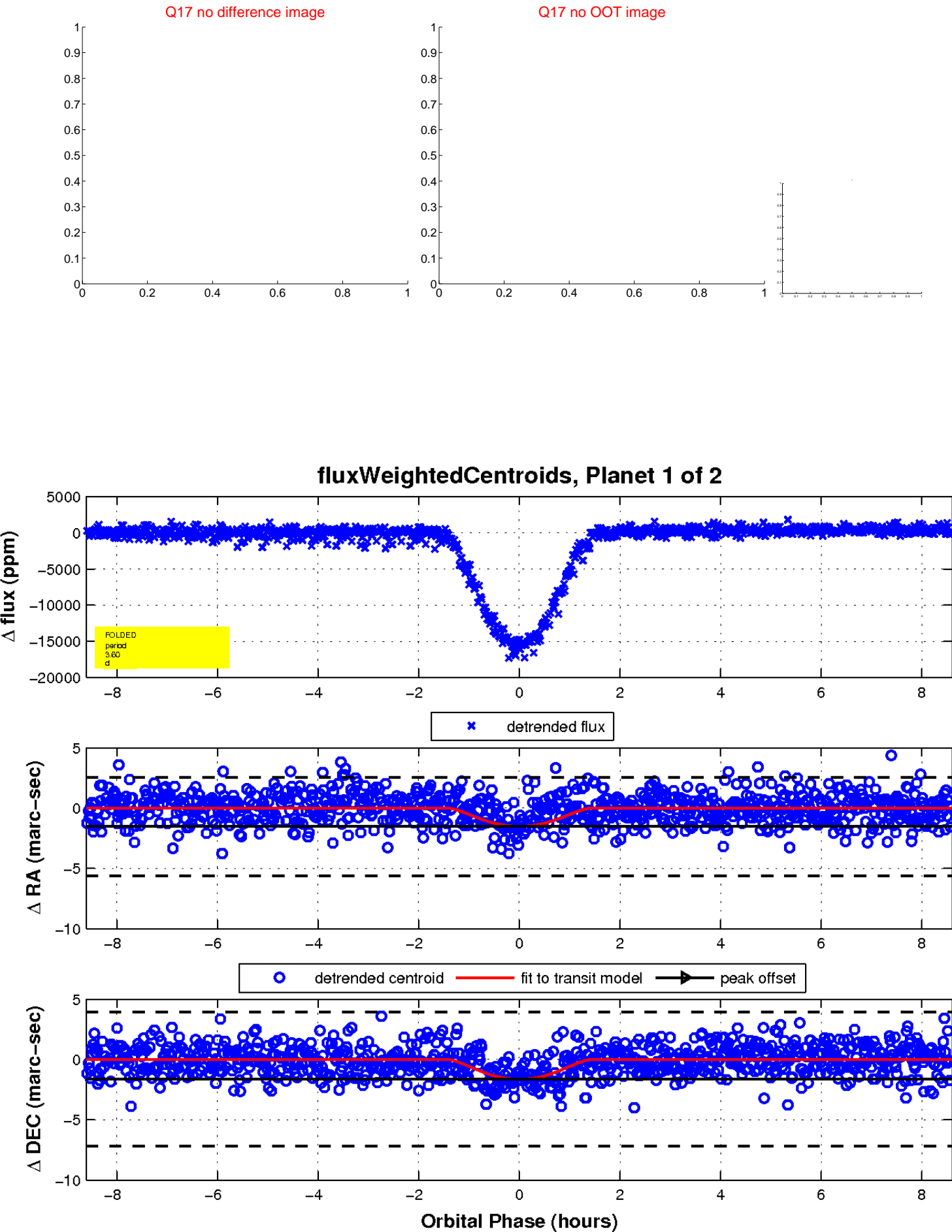
Q16 no difference image



Q16 no OOT image

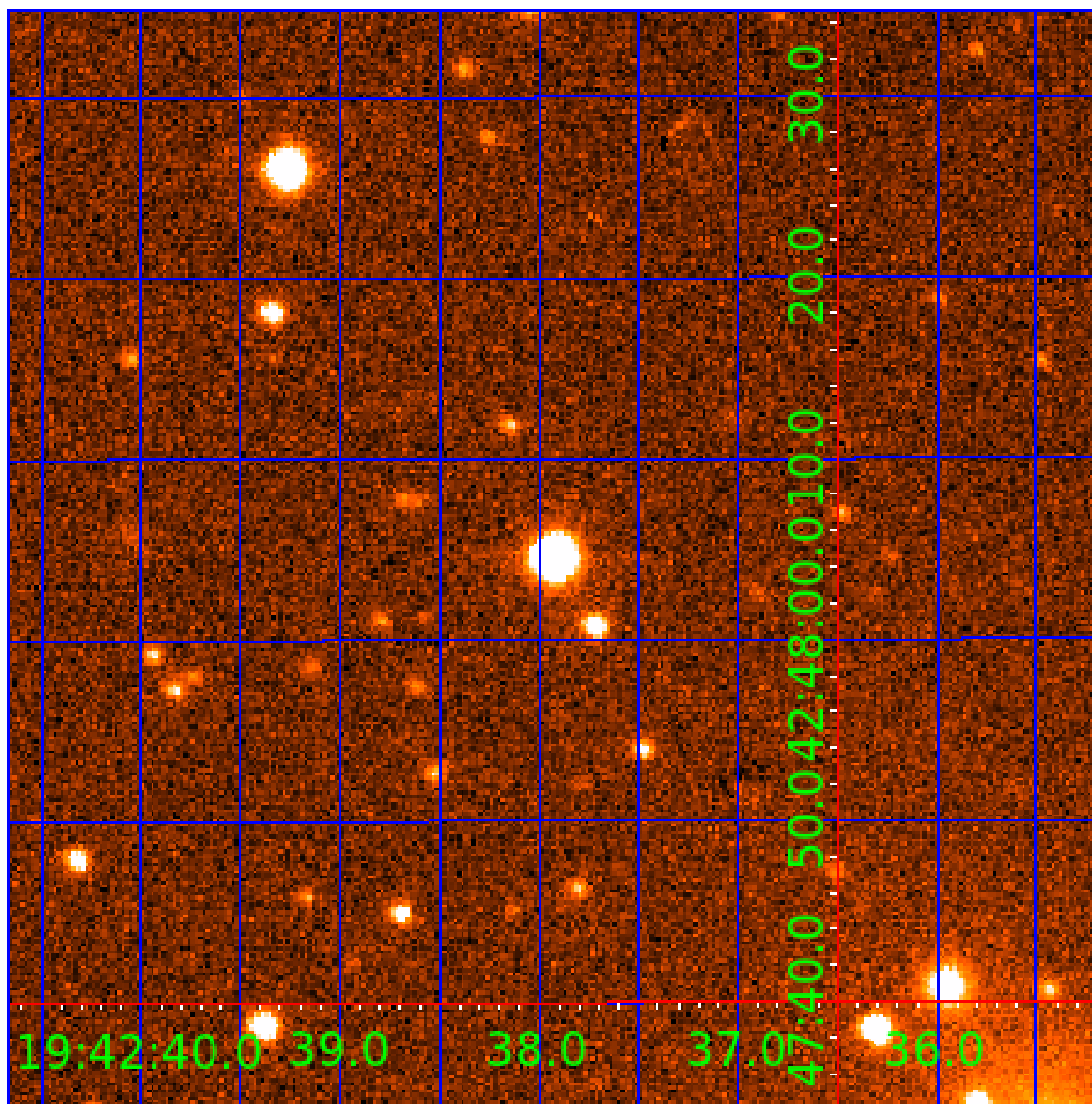


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007295570

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 007295570-01 | OBS      | 6035.01 | 3.603727      | 131.662148   | 15649.4     | 2.868            | 334.5 | 296.0 | 1.55                        | 5633            | 24.68                  | 1089.38                |
| 007295570-02 | OBS      | No      | 3.603745      | 133.456730   | 3520.3      | 2.890            | 78.0  | 78.5  | 1.55                        | 5633            | 17.28                  | 1089.37                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007295570-01 | OBS      | FP   | 0.00  | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_FEW_DIFFS |
| 007295570-02 | OBS      | FP   | 0.00  | 1 | 1 | 0 | 0 | IS_SEC_TCE—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.

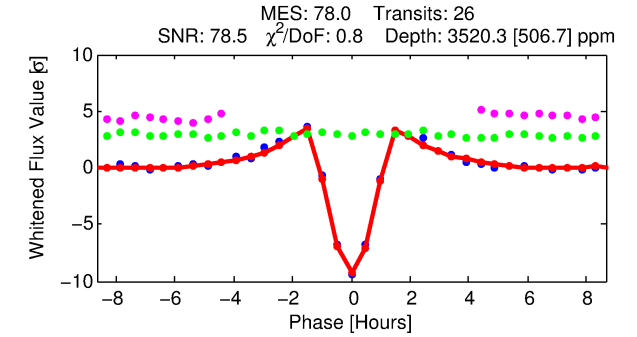
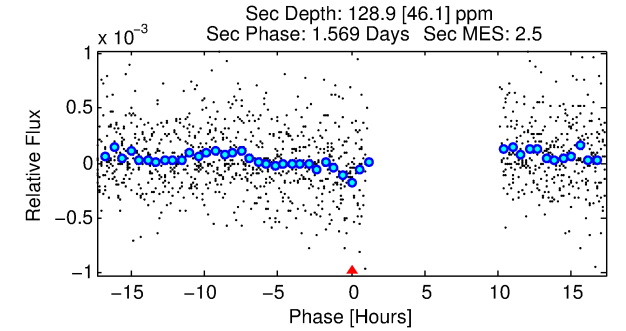
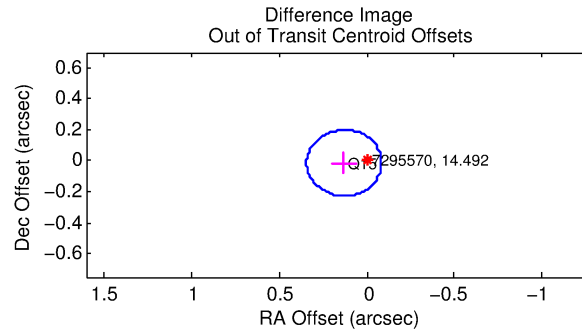
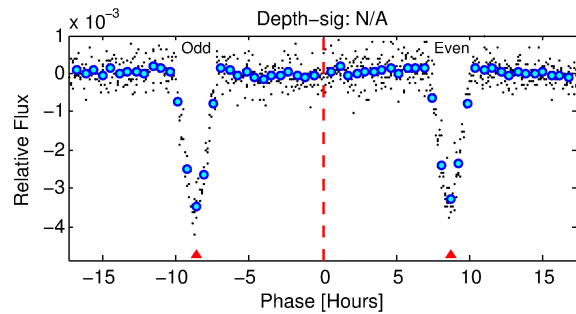
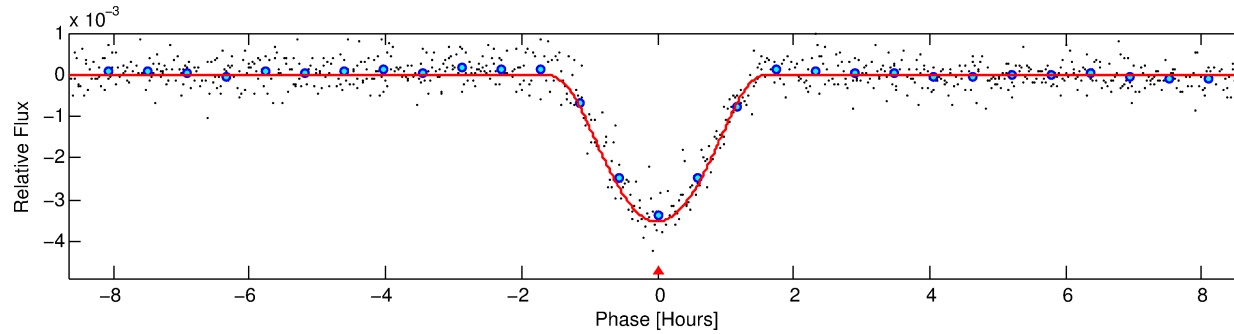
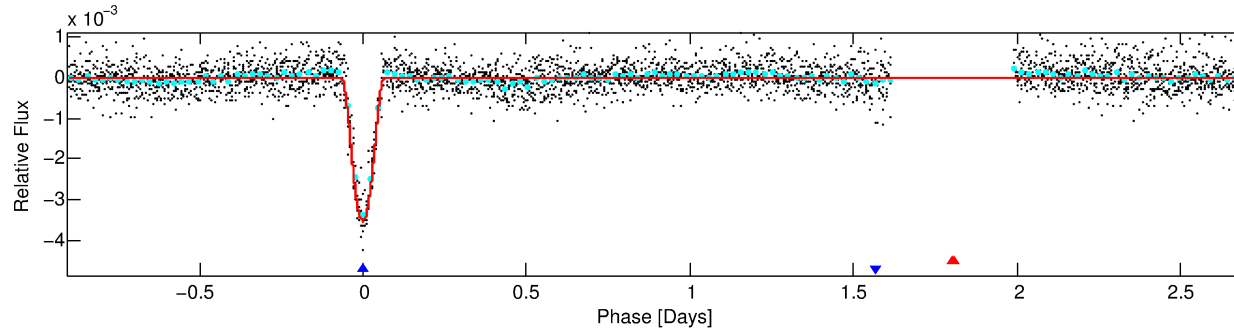
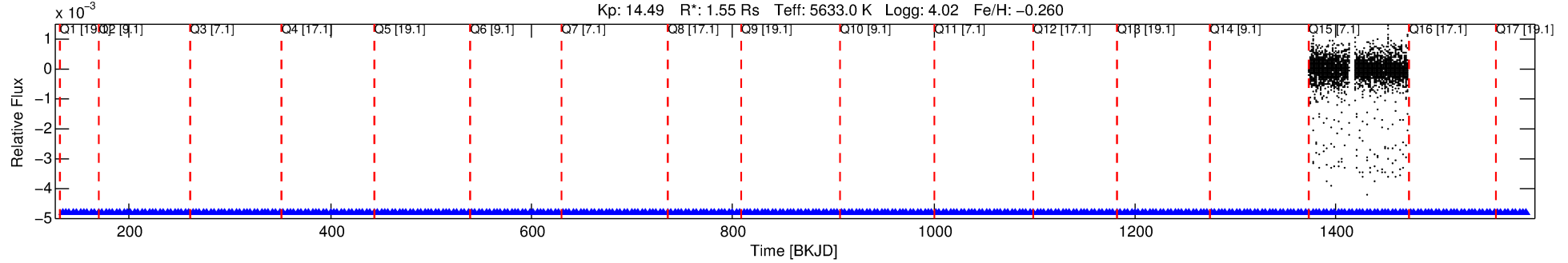
## Ephemeris Match Information For 007295570-02

No Significant Match Found

# DV One-Page Summary

KIC: 7295570 Candidate: 2 of 2 Period: 3.604 d  
KOI: K06035 Corr: No Ephemeris Match

Kp: 14.49 R\*: 1.55 Rs Teff: 5633.0 K Logg: 4.02 Fe/H: -0.260



## DV Fit Results:

Period = 3.60375 [0.00000] d  
Epoch = 133.4567 [0.0007] BKJD  
Rp/R\* = 0.1024 [0.0515]  
a/R\* = 4.54 [0.43]  
b = 1.00 [0.06]  
Seff = 1089.37 [902.82]  
Teq = 1465 [304] K  
Rp = 17.28 [11.62] Re  
a = 0.0445 [0.0215] AU  
Ag = 0.47 [0.63] [-0.84σ]  
Teffp = 1876 [505] K [0.70σ]

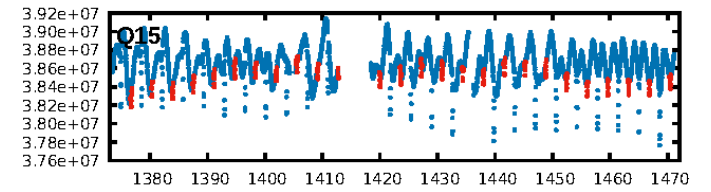
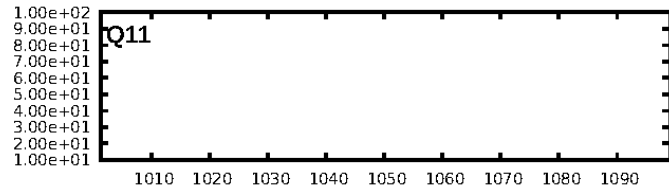
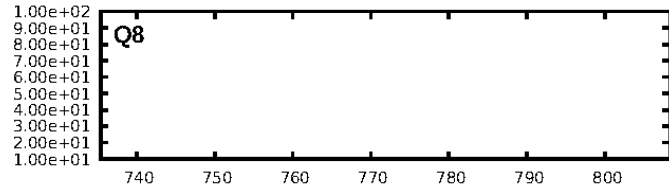
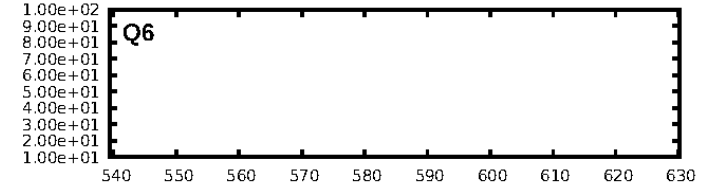
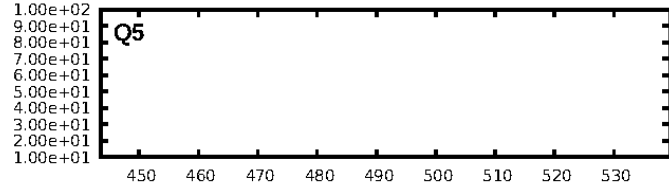
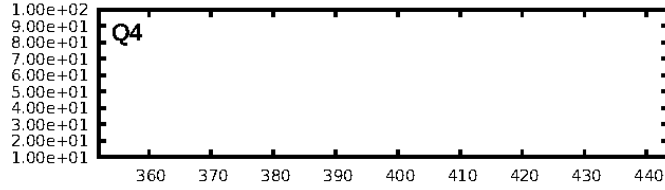
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00σ]**  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 53.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [26/26]  
GhostDiagnostic-chr: 4.48  
Centroid-sig: 48.2%  
Centroid-so: 0.042 arcsec [0.37σ]  
OotOffset-rm: 0.130 arcsec [1.83σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-rm: 0.085 arcsec [1.20σ]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [1/1]

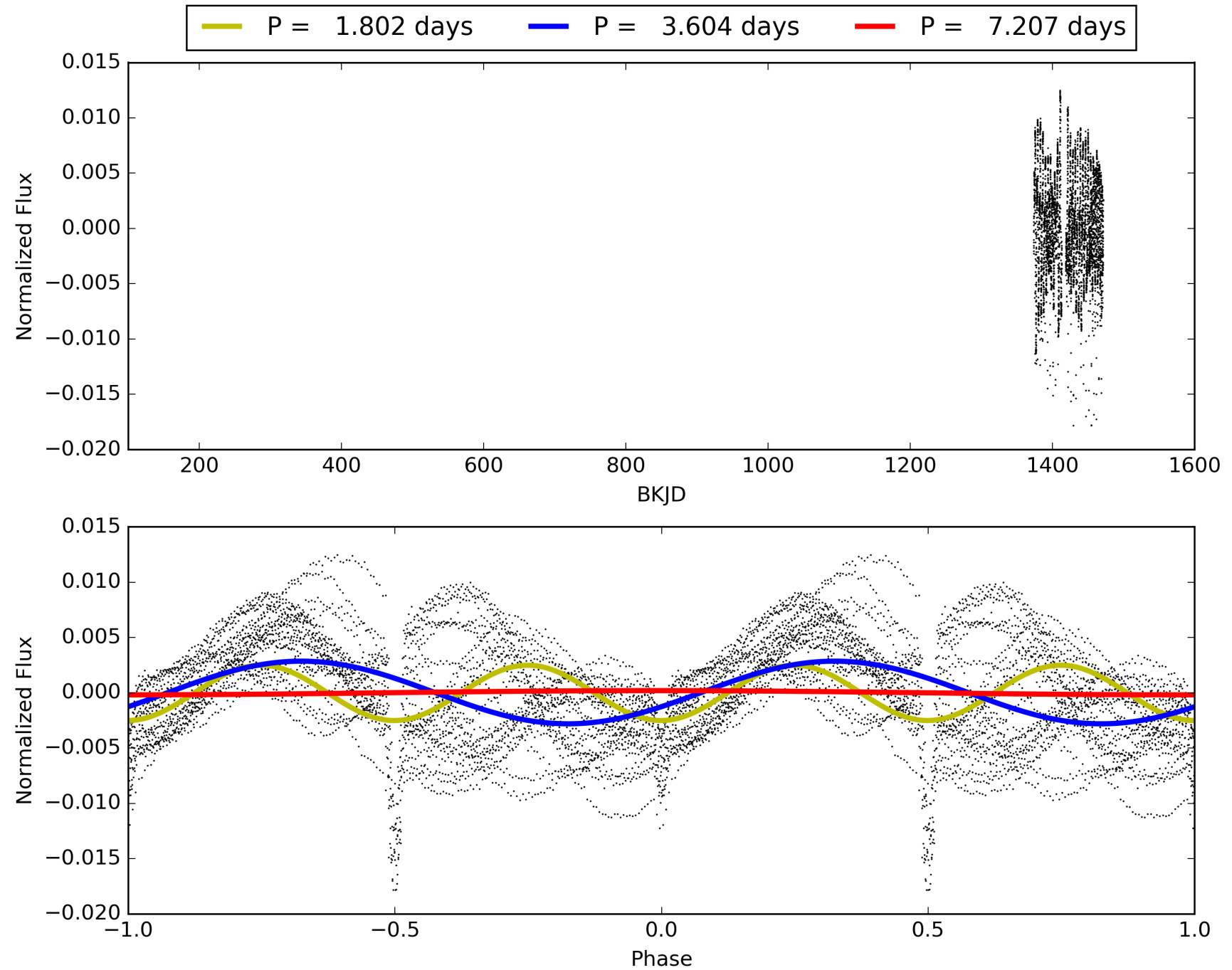
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:23:48 Z

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

# TCE 007295570-02, PDC Light Curves



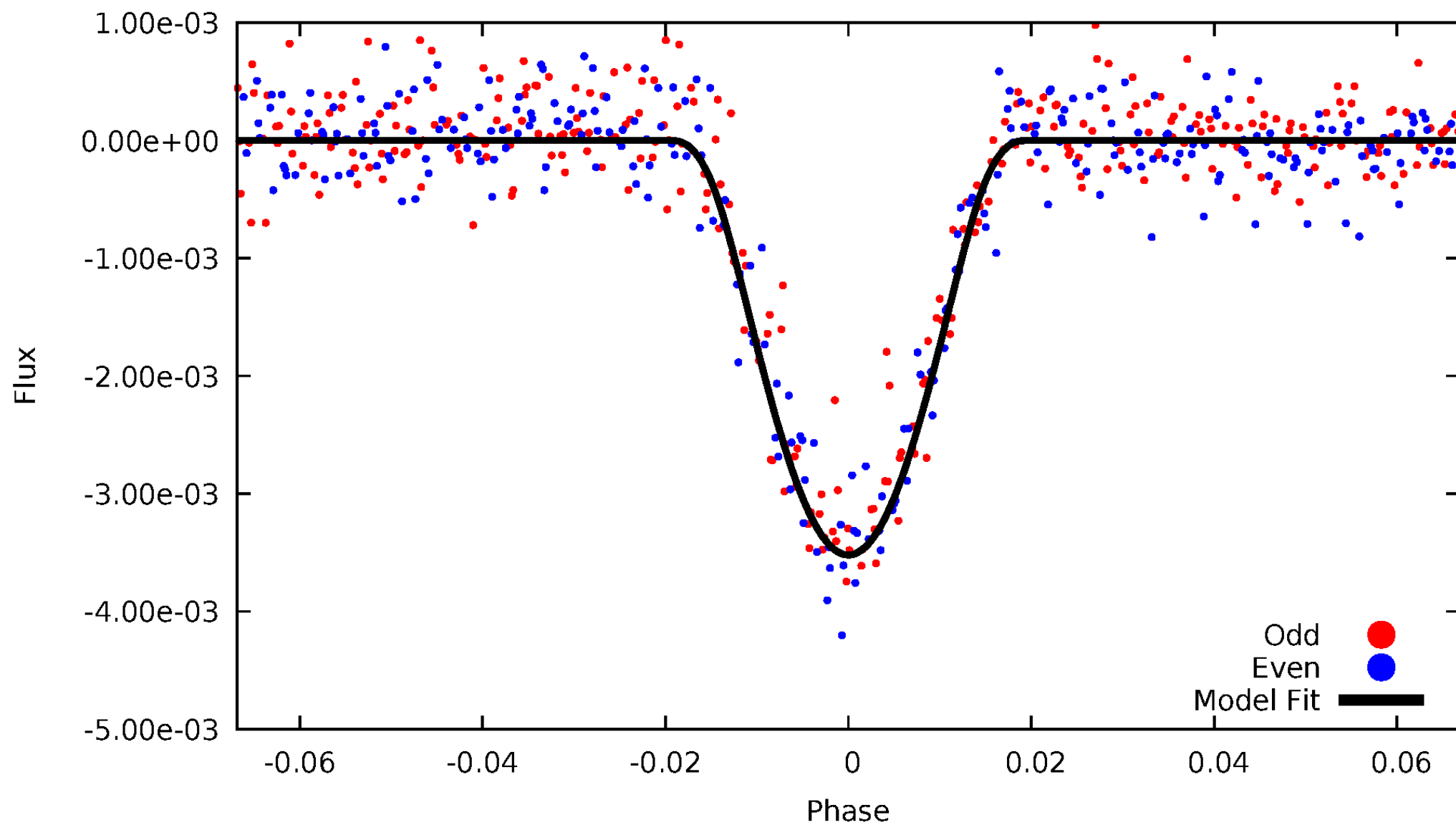
# TCE 007295570-02





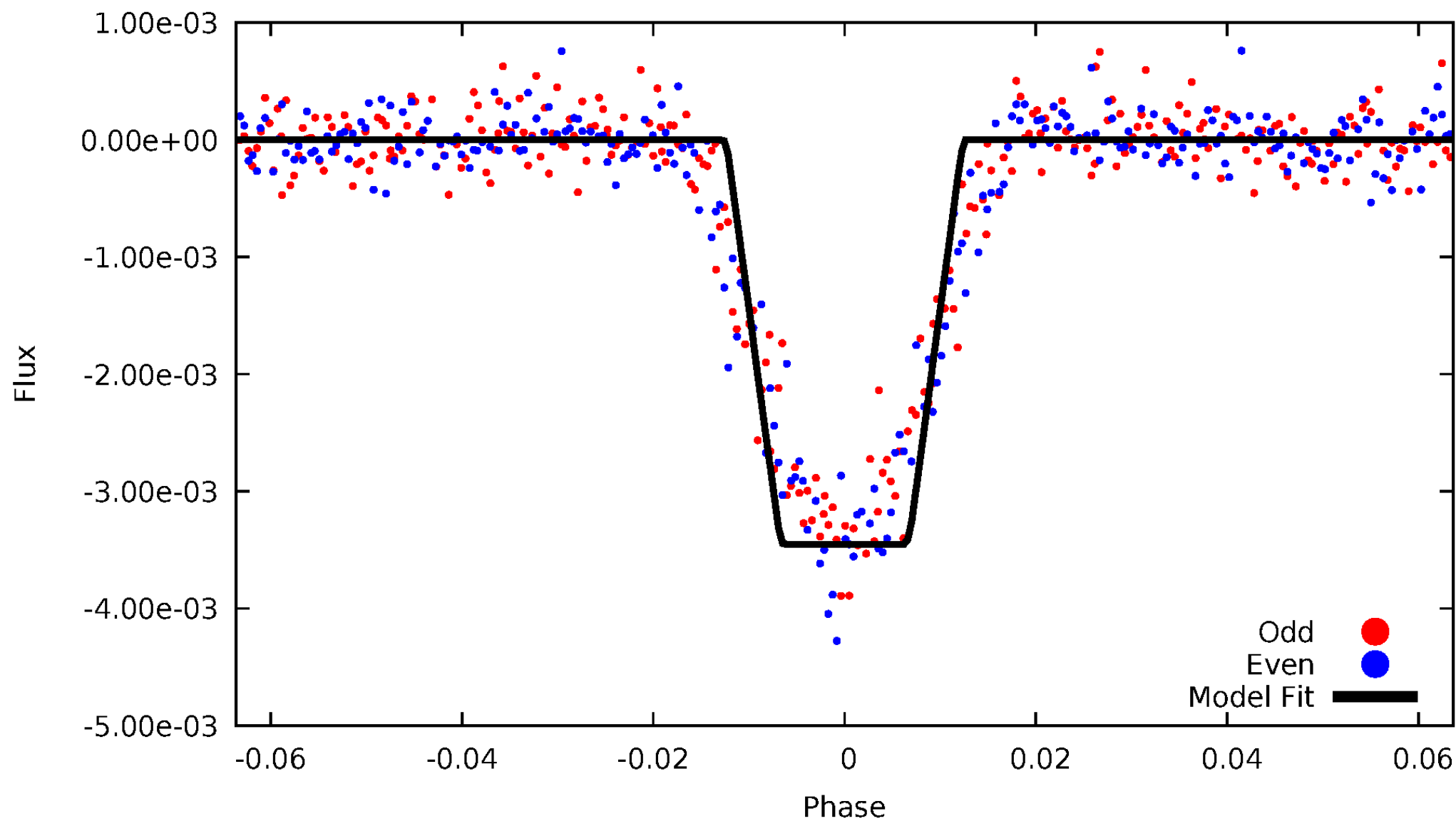
# DV Odd/Even

TCE 007295570-02



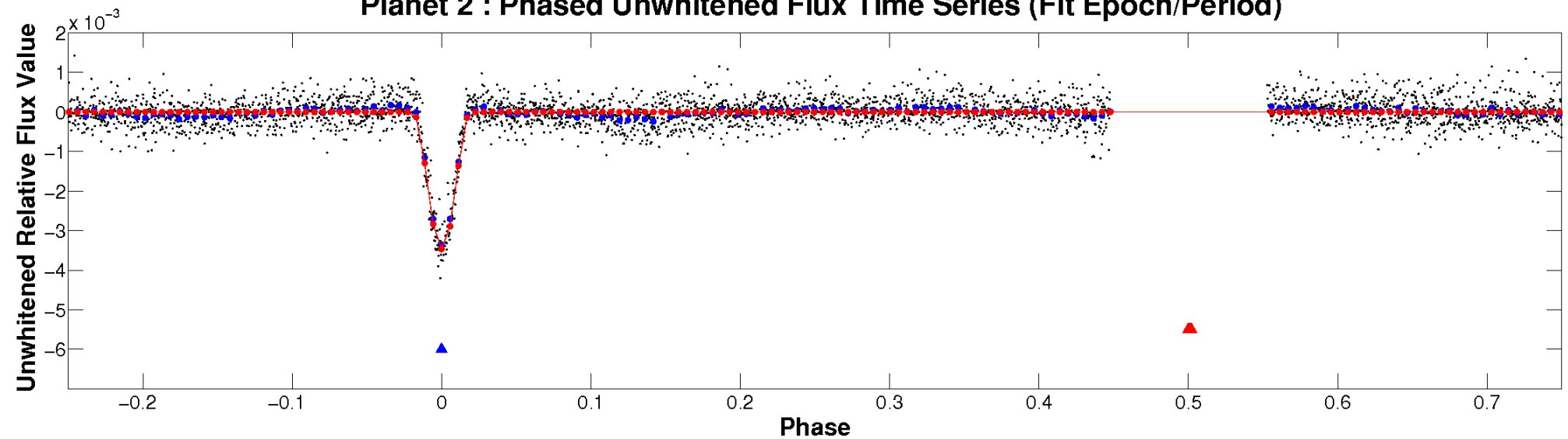
# ALT Odd/Even

TCE 007295570-02

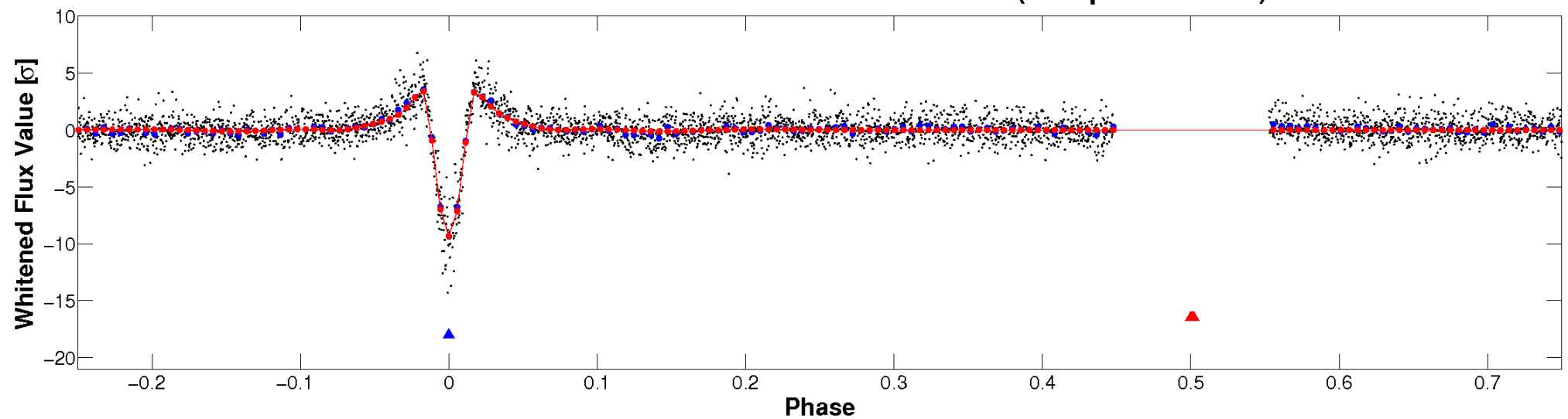


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

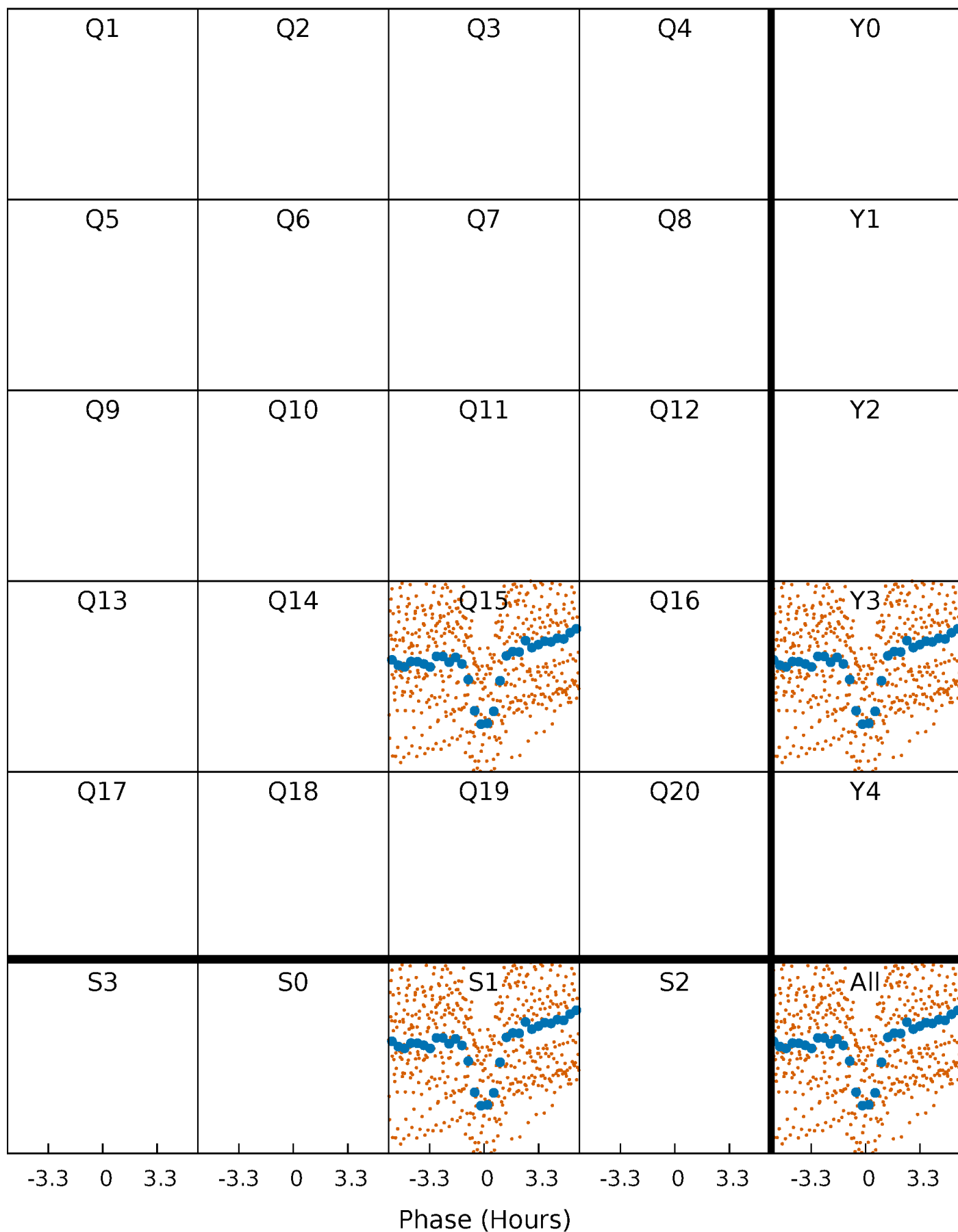


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



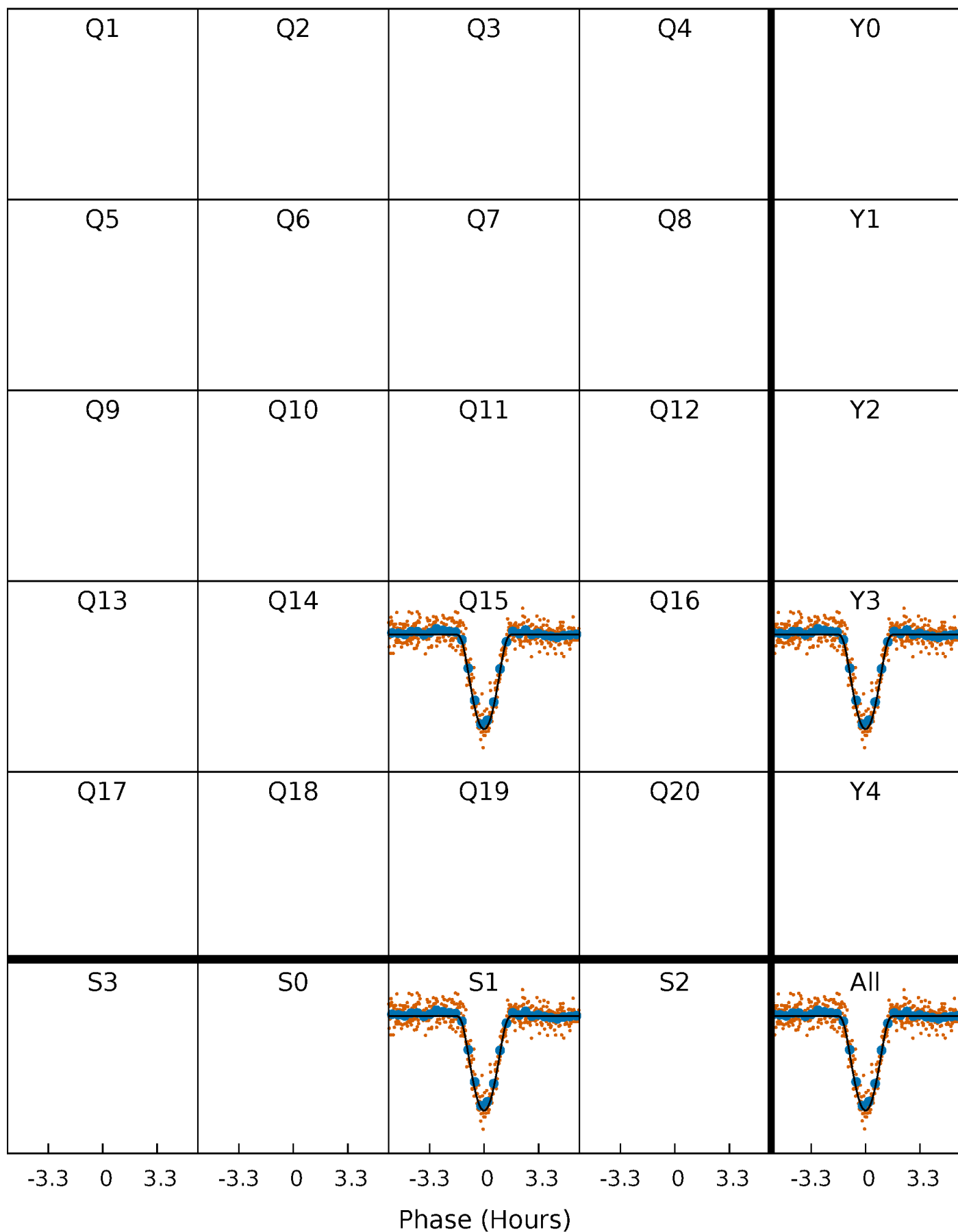
# PDC Quarter-Phased Transit Curves

TCE 007295570-02     $P = 3.603745$  Days     $T_0 = 133.456730$  (BKJD)



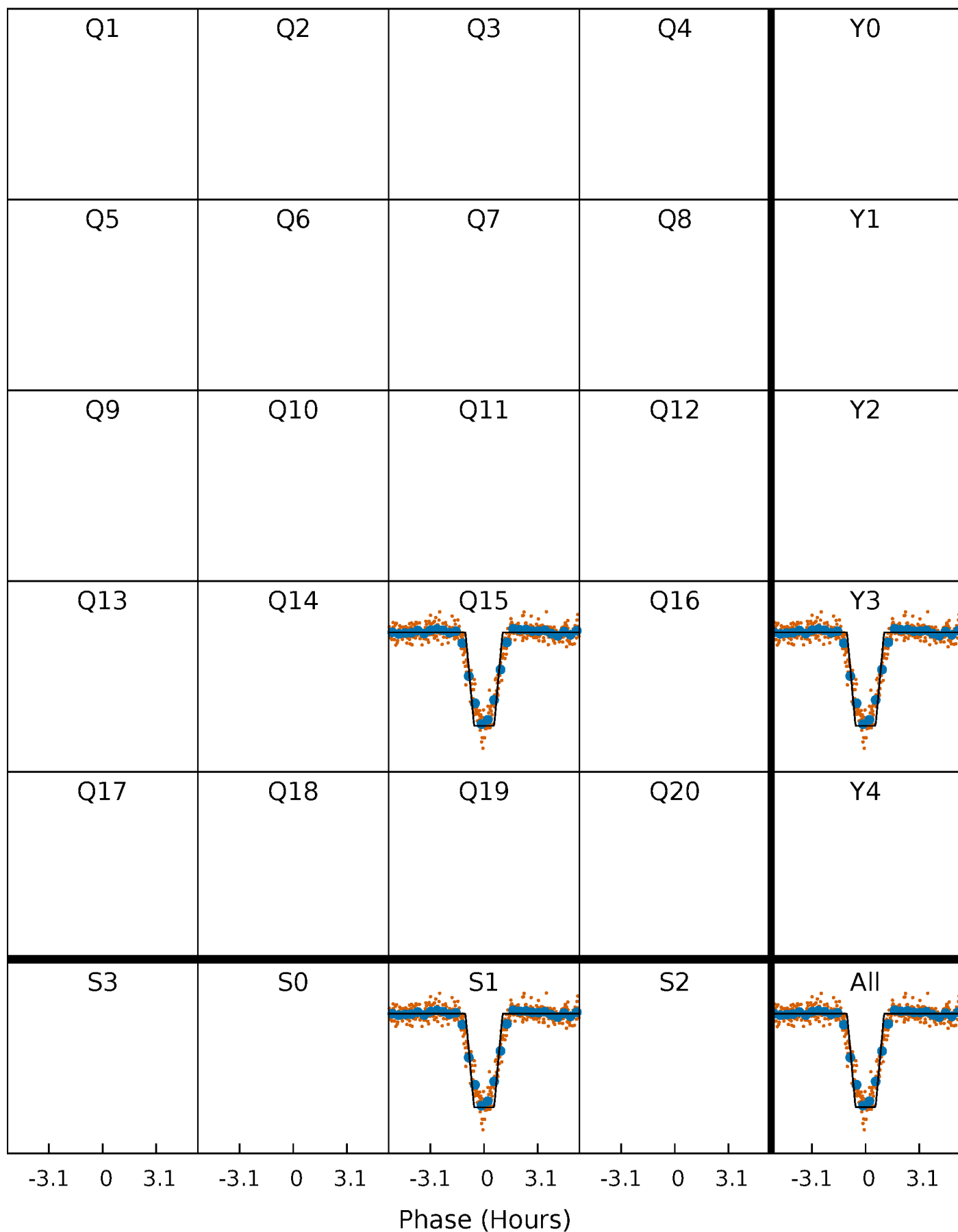
# DV Quarter-Phased Transit Curves

TCE 007295570-02   P= 3.603745 Days    $T_0=133.456730$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

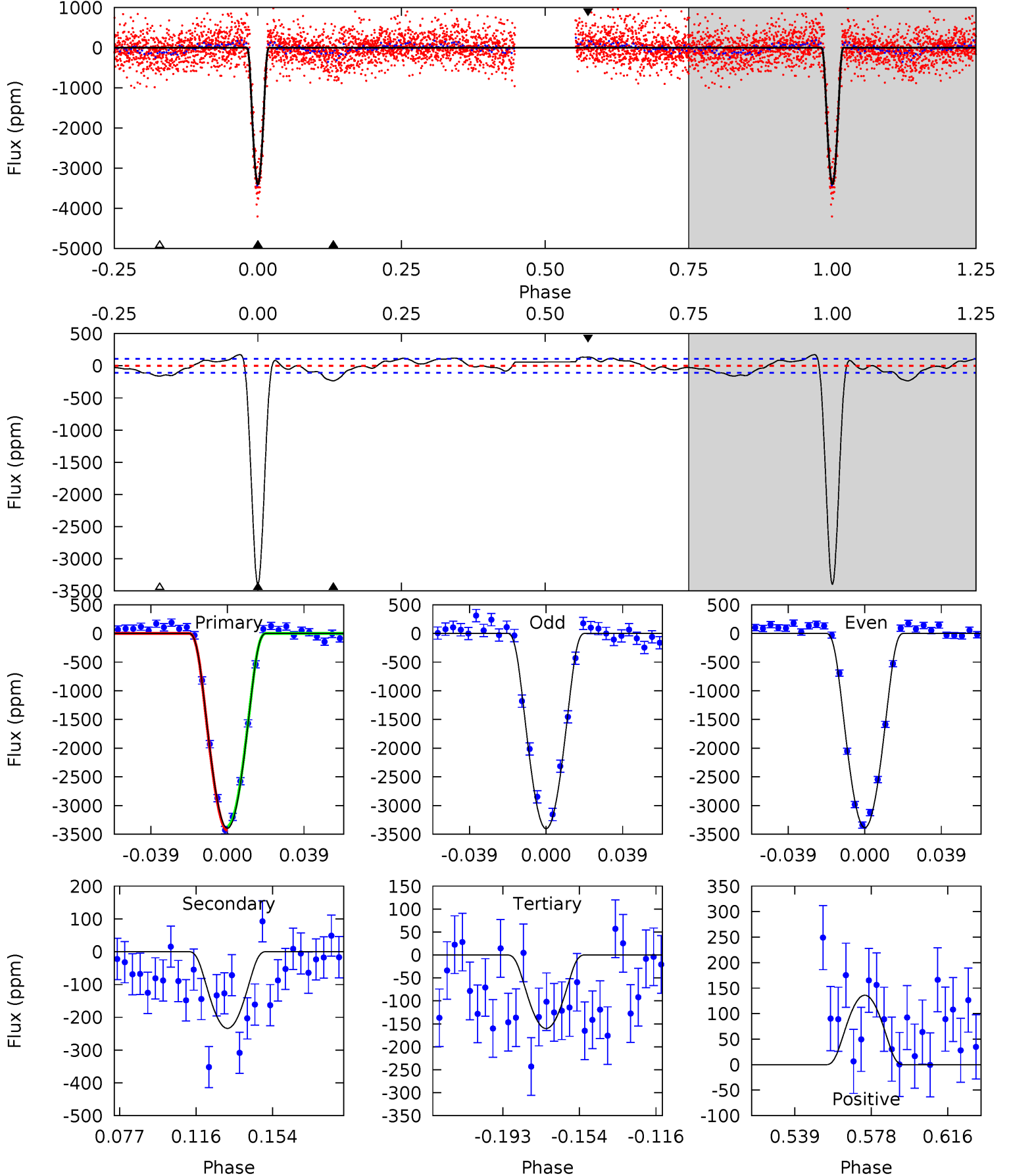
TCE 007295570-02     $P = 3.604008$  Days     $T_0 = 133.362662$  (BKJD)



# DV Model-Shift Uniqueness Test

007295570-02, P = 3.603745 Days, E = 133.456730 Days

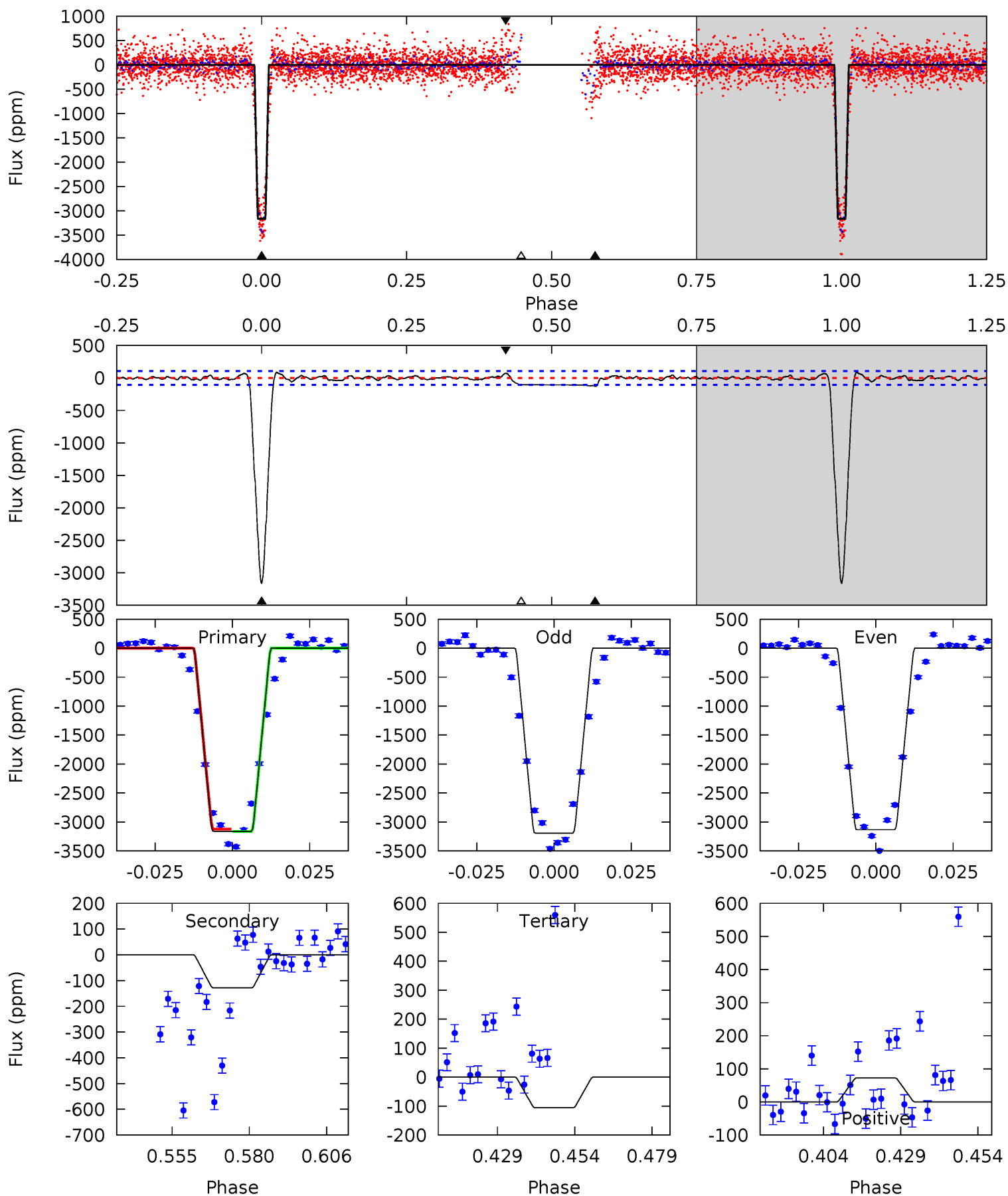
| Pri   | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 149.2 | 10.3 | 7.04 | 5.98 | 4.76            | 2.07            | 3.40             | 142.2   | 143.2   | 3.23    | 4.30    | 0.40    | 0.97 | 0.05  | 1.62 |



# Alt Model-Shift Uniqueness Test

007295570-02, P = 3.604008 Days, E = 133.362662 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  |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 144.8 | 5.88 | 4.83 | 3.33 | 4.85            | 2.24            | 1.09             | 139.9   | 141.4   | 1.05    | 2.55    | 1.31    | 1.01 | 0.03  | 0.94 |





### Stellar Parameters For KIC 007295570

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5633^{+203}_{-169}$ | $4.016^{+0.495}_{-0.165}$ | $-0.260^{+0.300}_{-0.250}$ | $1.547^{+0.461}_{-0.691}$ | $0.907^{+0.122}_{-0.102}$ | $0.345^{+1.457}_{-0.174}$                 |
|        | +4%/-3%              | +12%/-4%                  | +115%/-96%                 | +30%/-45%                 | +13%/-11%                 | +422%/-50%                                |
| 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 007295570-02 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$      | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$          |
|---------|---------------|-------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-234 \pm 23$ | $16.11^{+9.24}_{-8.07}$ | $2010^{+185}_{-258}$ | $2729^{+683}_{-530}$  | $0.987^{+3.026}_{-0.594}$ |
| Alt.    | $-128 \pm 22$ | $10.62^{+7.89}_{-6.63}$ | $2015^{+177}_{-251}$ | $2845^{+1101}_{-674}$ | $1.264^{+7.523}_{-0.862}$ |

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

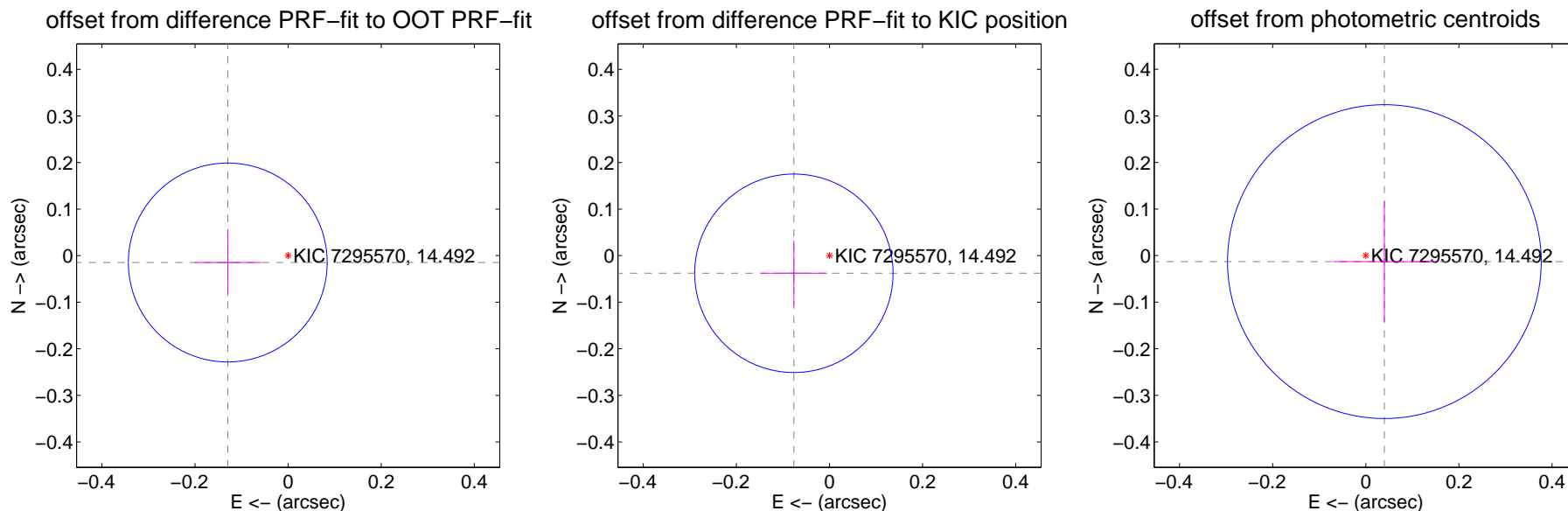
## DV Centroid Data

Supplemental centroid analysis for 007295570-02. Kepler magnitude: 14.49. Transit SNR 78.50

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.130 \pm 0.071$  | 1.83                | $0.130 \pm 0.071$ | $-0.015 \pm 0.070$ |
| PRF-fit source offset from KIC position | $0.085 \pm 0.071$  | 1.20                | $0.077 \pm 0.071$ | $-0.038 \pm 0.070$ |
| photometric centroid source offset      | $0.04 \pm 0.11$    | 0.37                | $-0.04 \pm 0.11$  | $-0.01 \pm 0.13$   |



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q13 no difference image



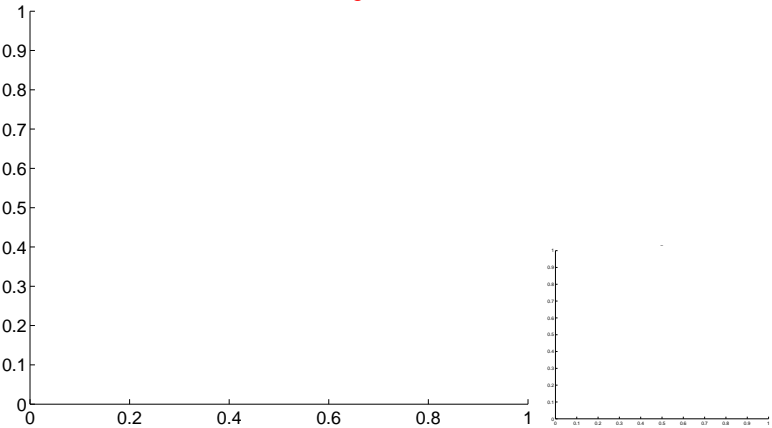
Q13 no OOT image



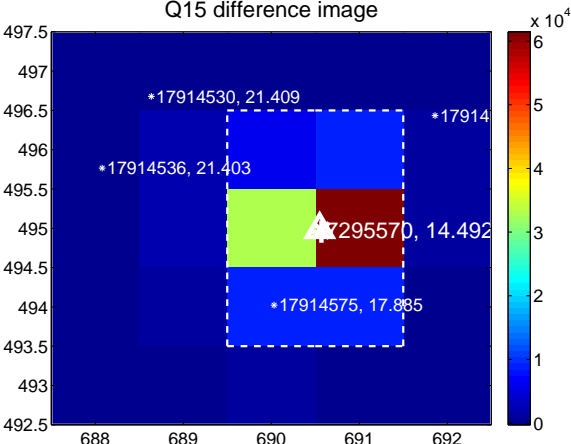
Q14 no difference image



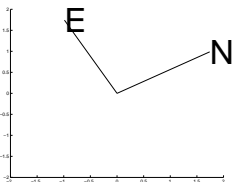
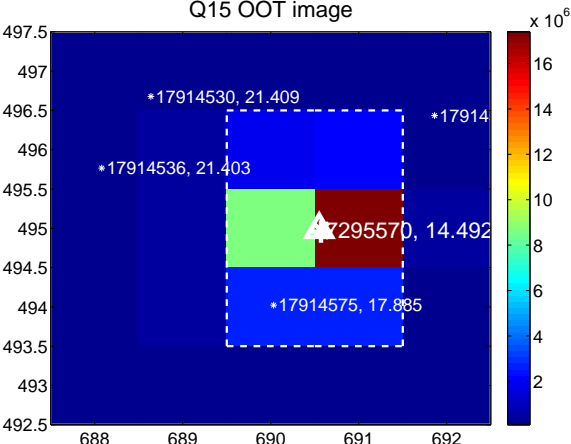
Q14 no OOT image



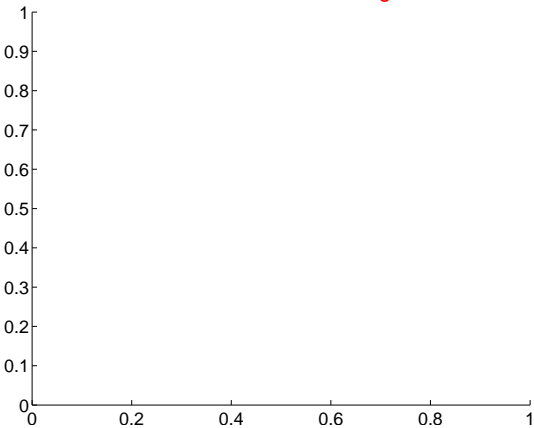
Q15 difference image



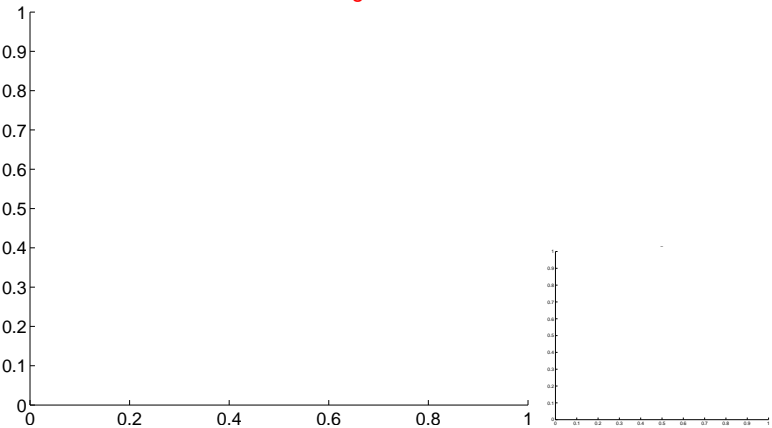
Q15 OOT image



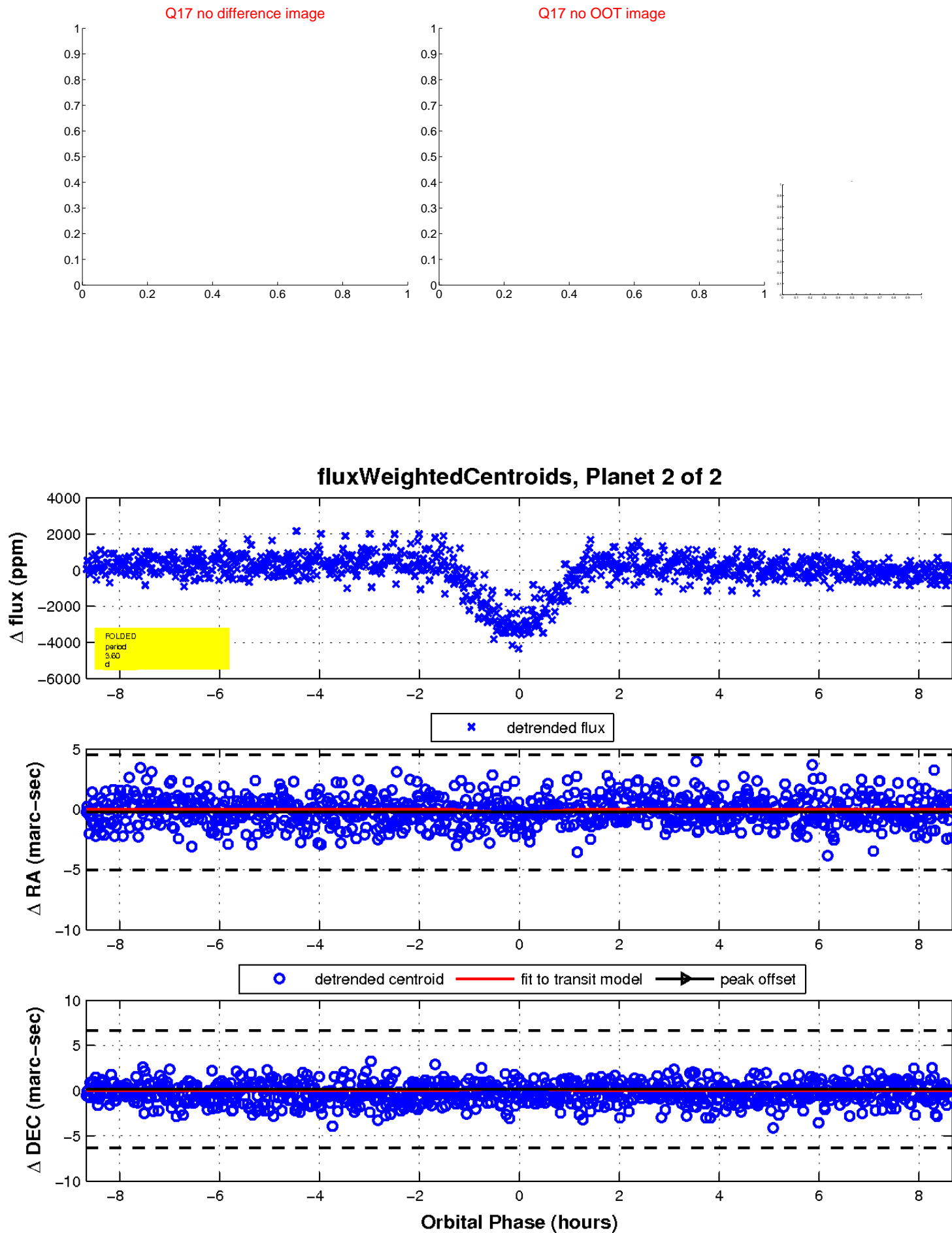
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

