

# KIC 008232115

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008232115-01 | OBS      | No   | 357.063679    | 276.382466   | 129.7       | 4.357            | 9.1 | 5.6 | 153.06                      | 3286            | 200.29                 | 2318.15                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 008232115-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |

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

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

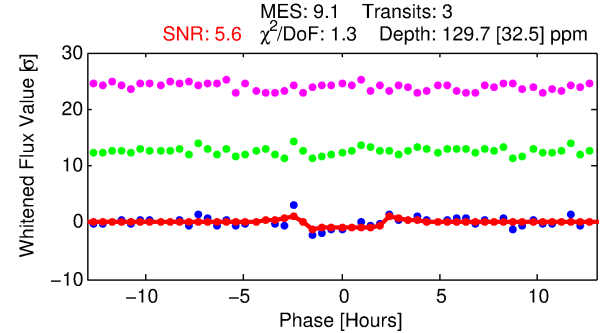
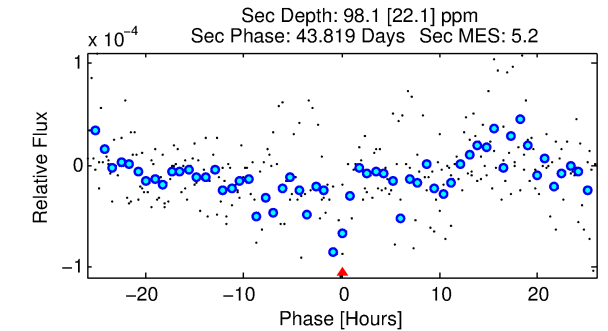
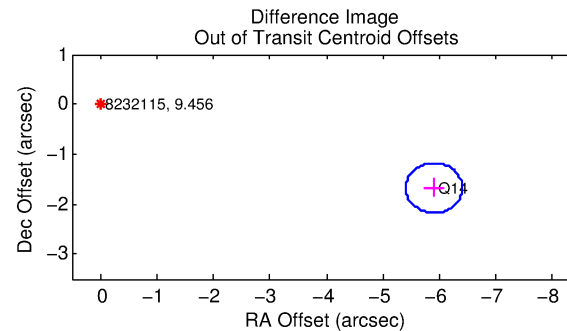
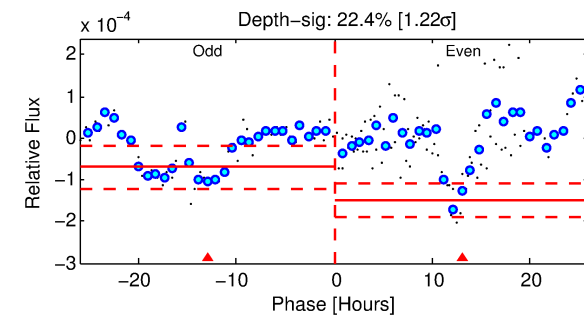
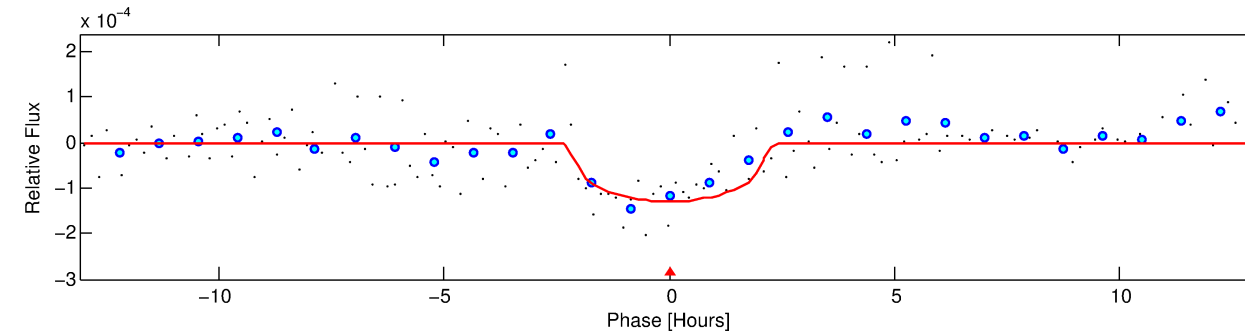
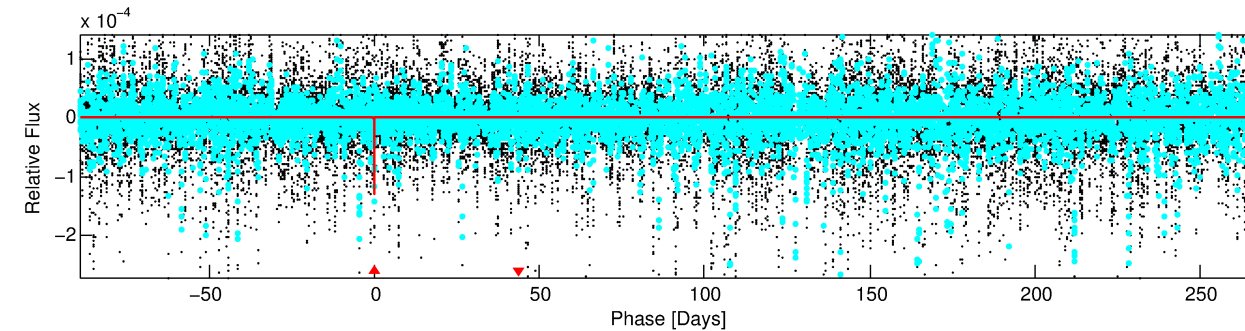
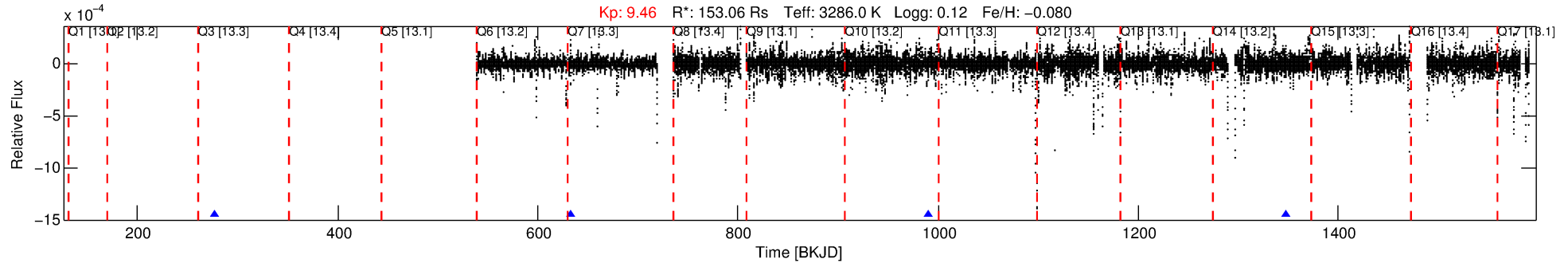
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008232115-01

No Significant Match Found

# DV One-Page Summary

KIC: 8232115 Candidate: 1 of 1 Period: 357.064 d



## DV Fit Results:

Period = 357.06368 [0.00591] d  
Epoch = 276.3825 [0.0114] BKJD  
Rp/R\* = 0.0120 [0.0065]  
a/R\* = 387.34 [587.91]  
b = 0.80 [0.70]  
Seff = 2318.15 [832.49]  
Teq = 1769 [159] K  
Rp = 200.29 [113.78] Re  
a = 1.0275 [0.2003] AU  
Ag = 1.42 [1.63] [0.26σ]  
Teffp = 2987 [829] K [1.44σ]

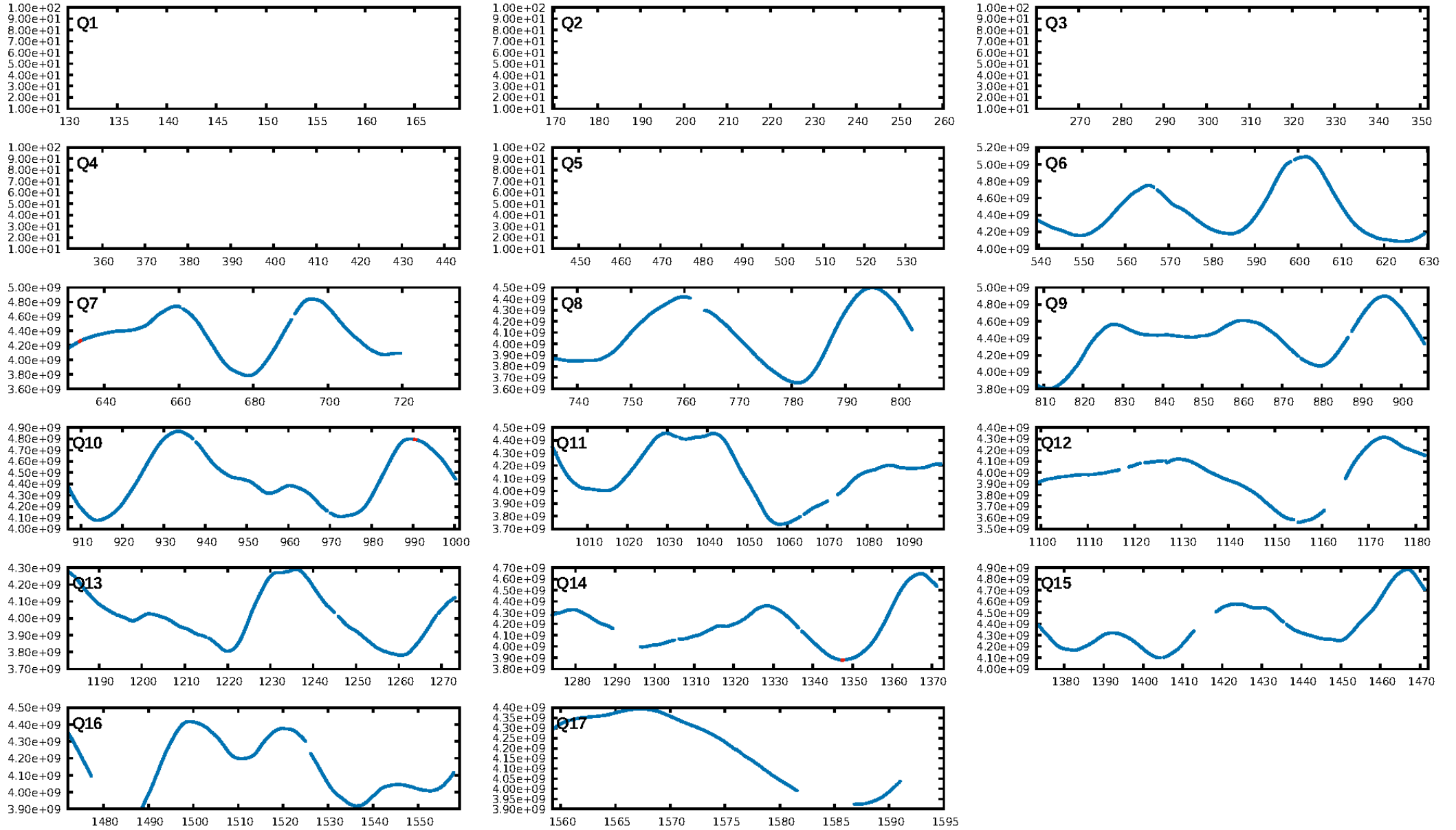
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 51.7%  
ModelChiSquareGof-sig: 72.3%  
Bootstrap-pfa: 1.07e-08  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 29.6%  
Centroid-so: 8.792 arcsec [0.82σ]  
OotOffset-rm: 6.133 arcsec [36.82σ]  
KicOffset-rm: 5.025 arcsec [30.17σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

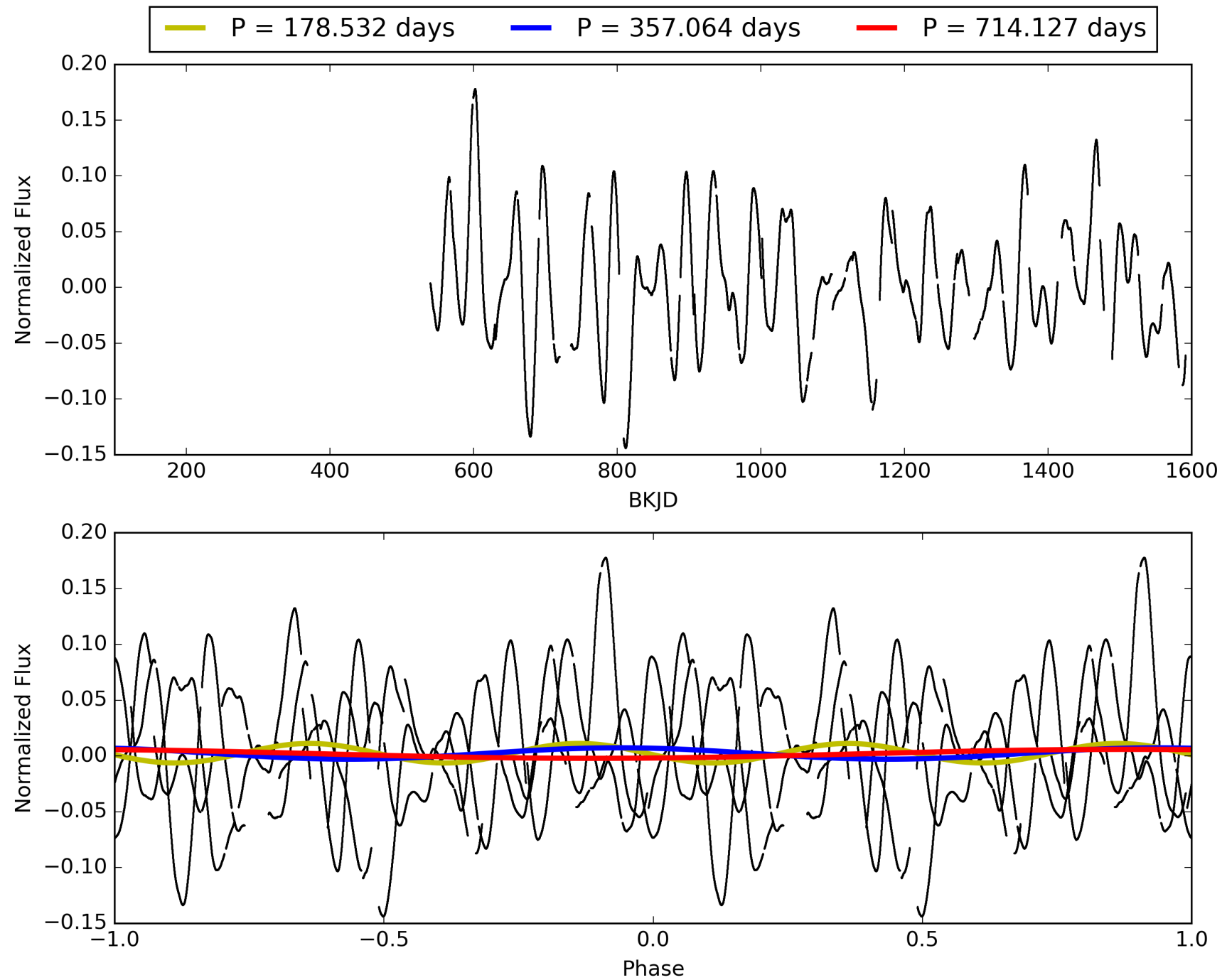
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:19:36 Z

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

# TCE 008232115-01, PDC Light Curves

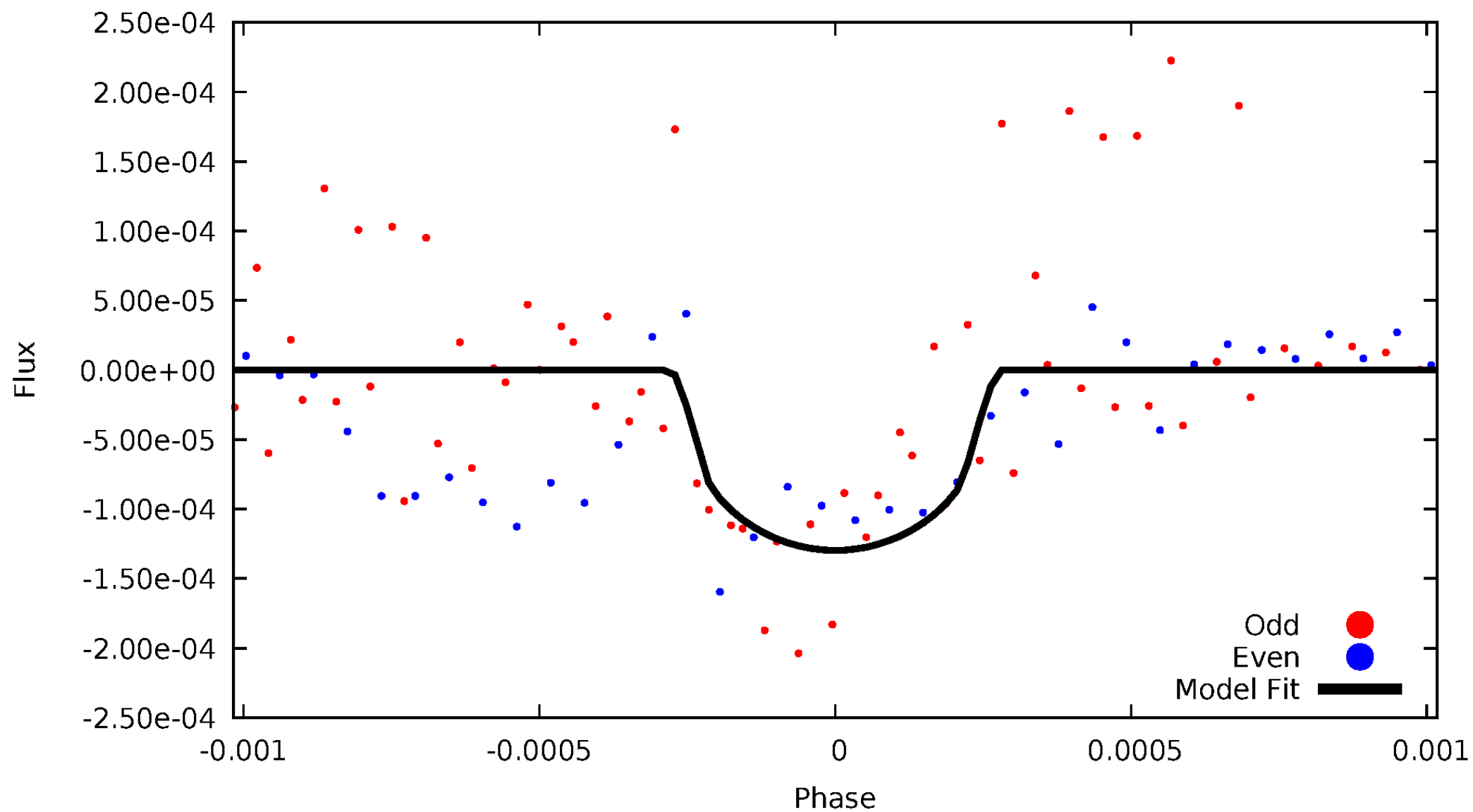


# TCE 008232115-01



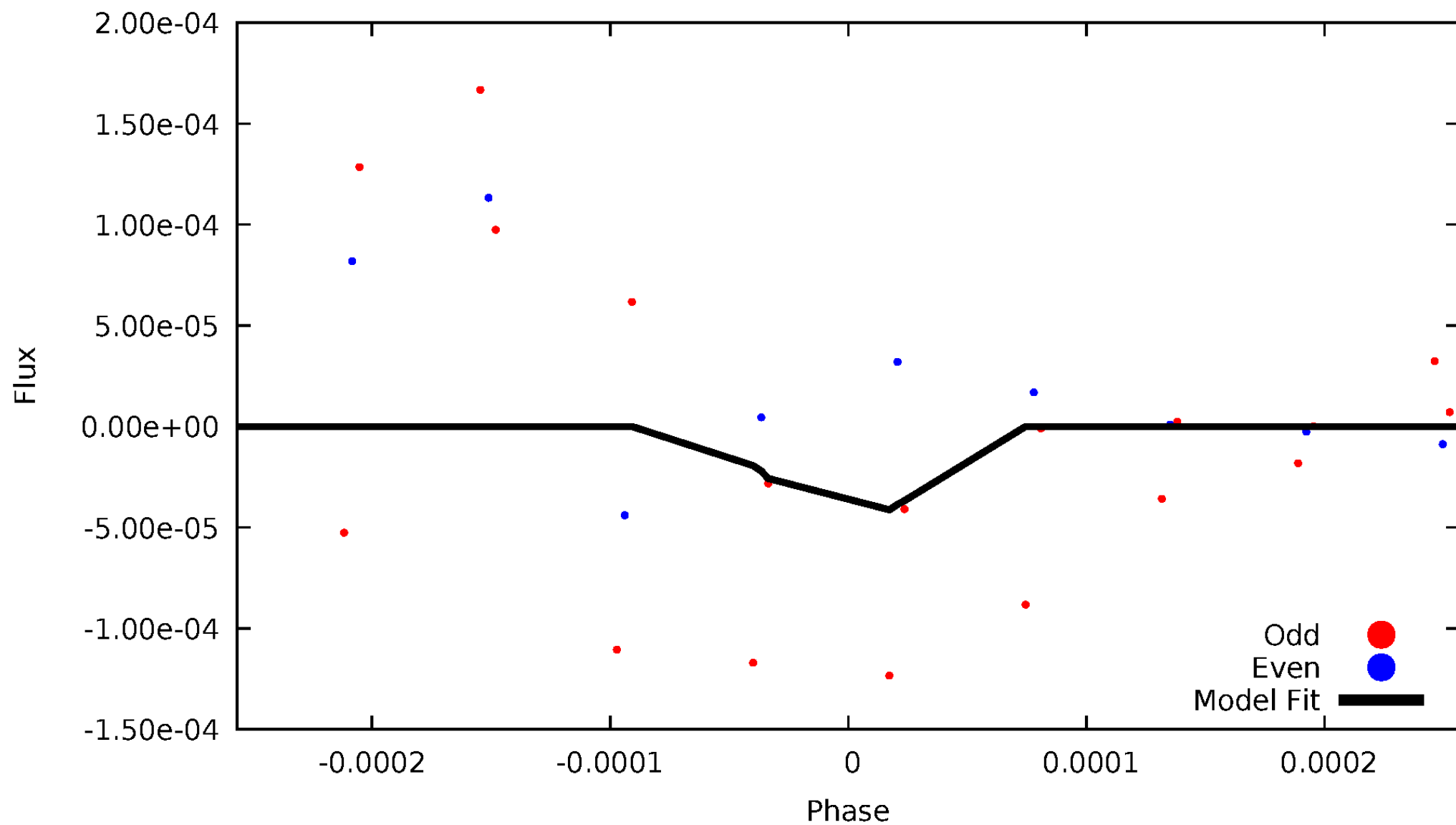
# DV Odd/Even

TCE 008232115-01



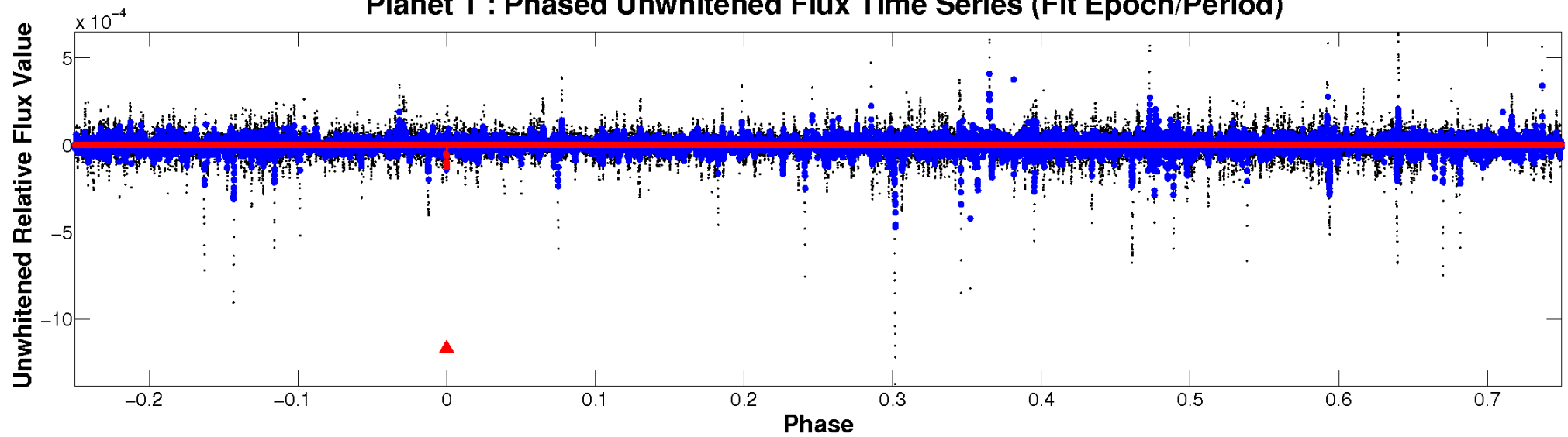
# ALT Odd/Even

TCE 008232115-01

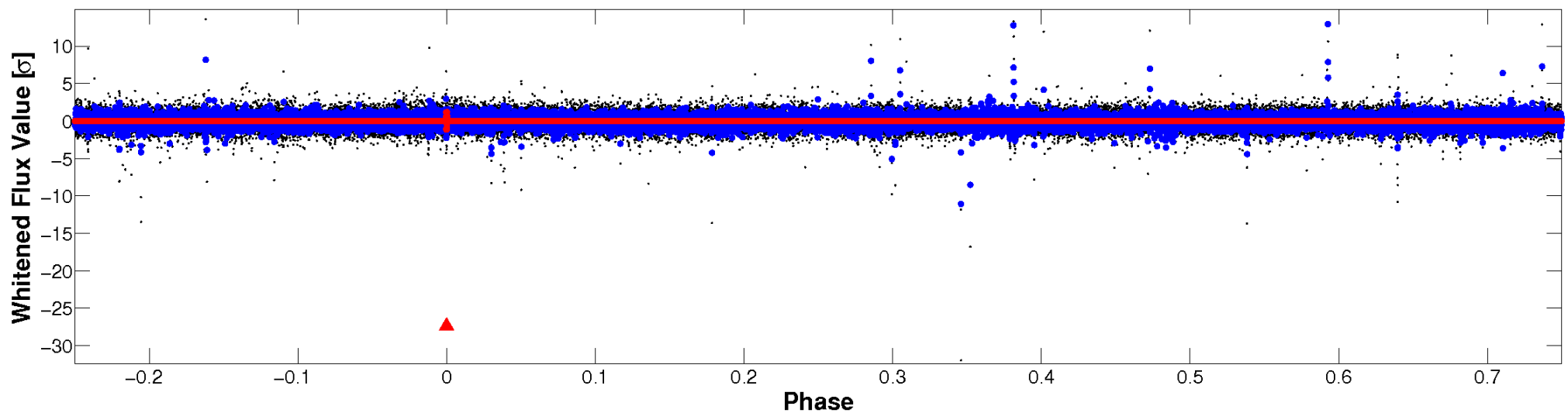


# Non-Whitened Vs. Whitened Light Curve

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

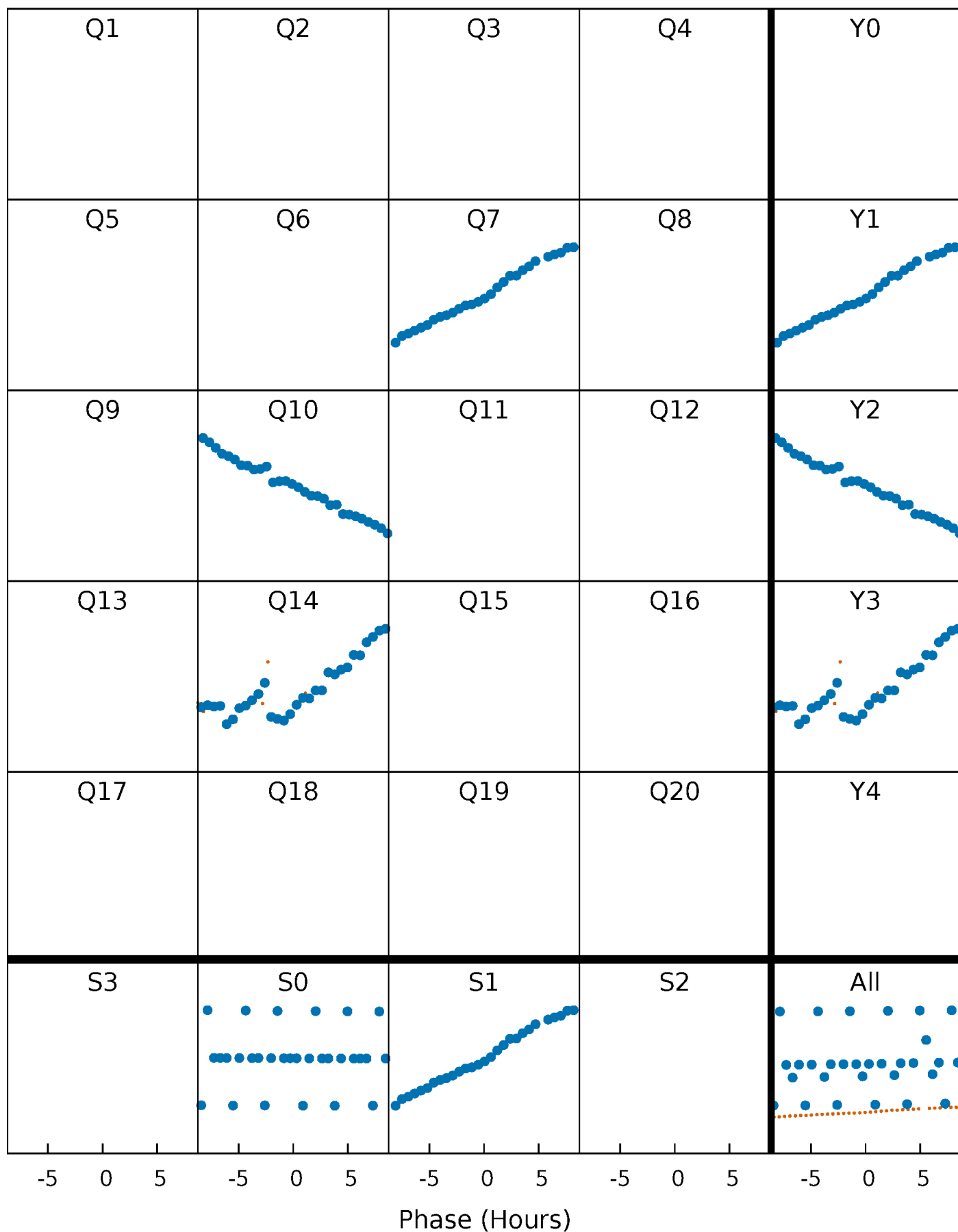


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

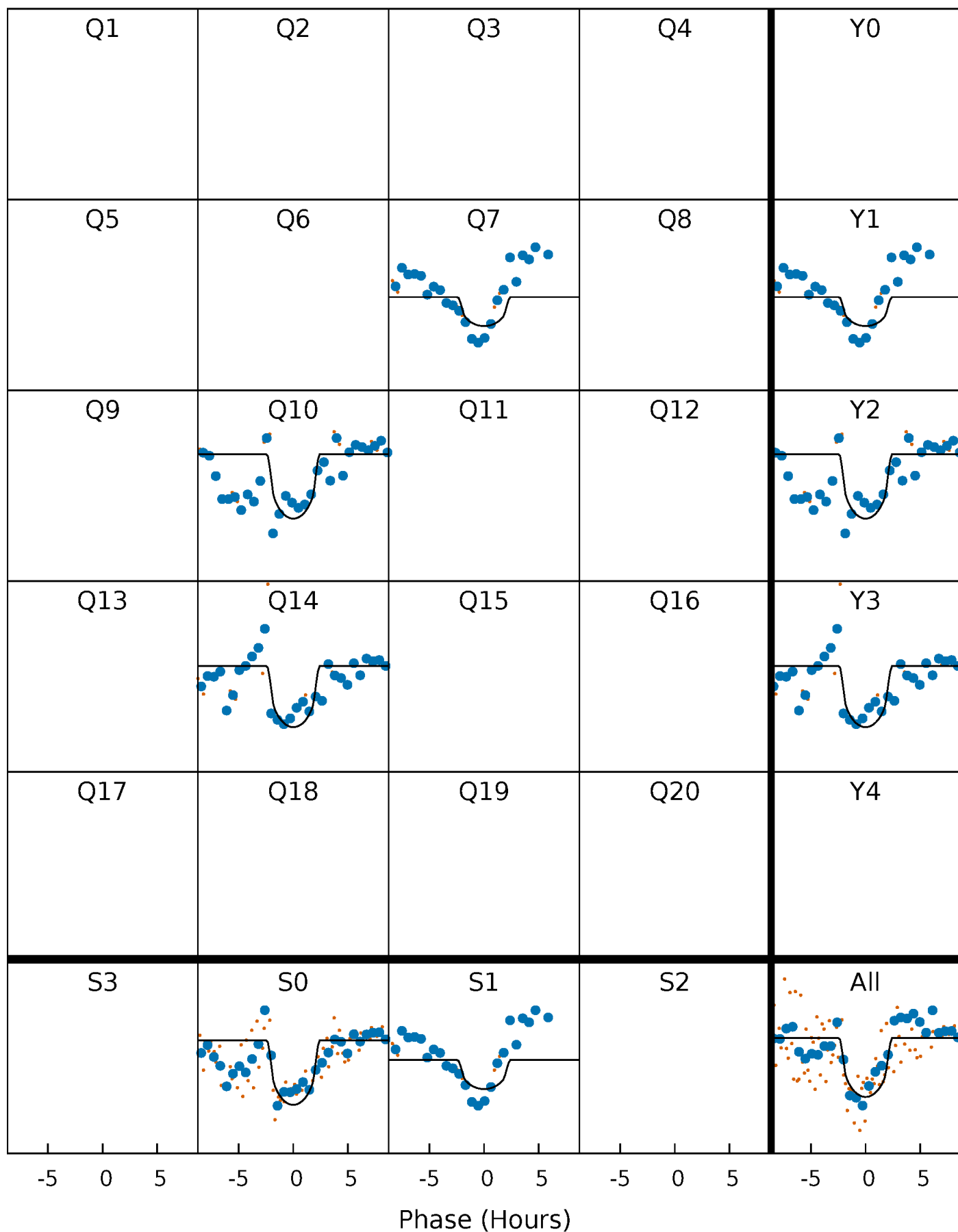
TCE 008232115-01 P=357.063679 Days  $T_0=276.382466$  (BKJD)





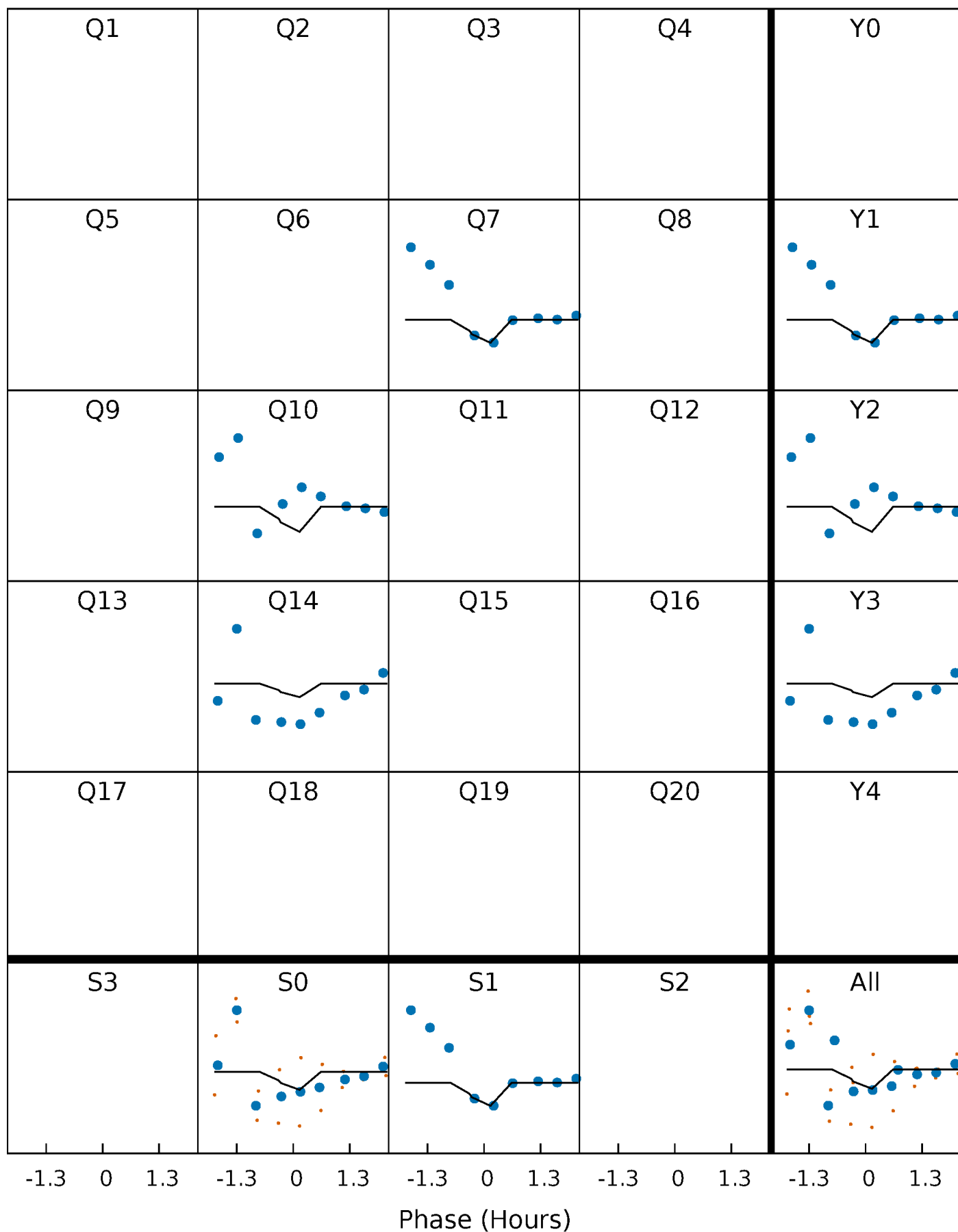
# DV Quarter-Phased Transit Curves

TCE 008232115-01 P=357.063679 Days  $T_0=276.382466$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

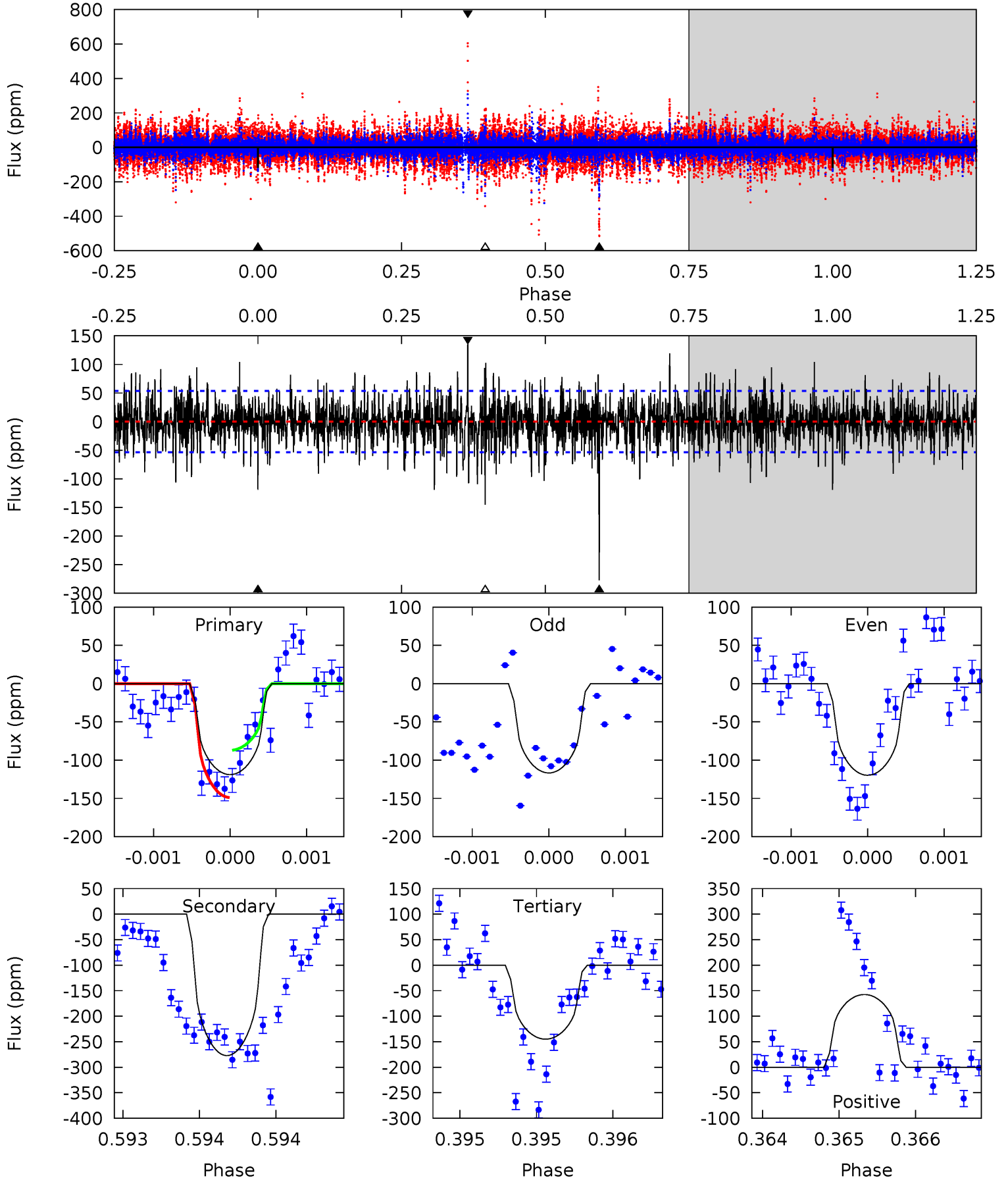
TCE 008232115-01 P=357.058185 Days  $T_0=276.357383$  (BKJD)



# DV Model-Shift Uniqueness Test

008232115-01, P = 357.063679 Days, E = 276.382466 Days

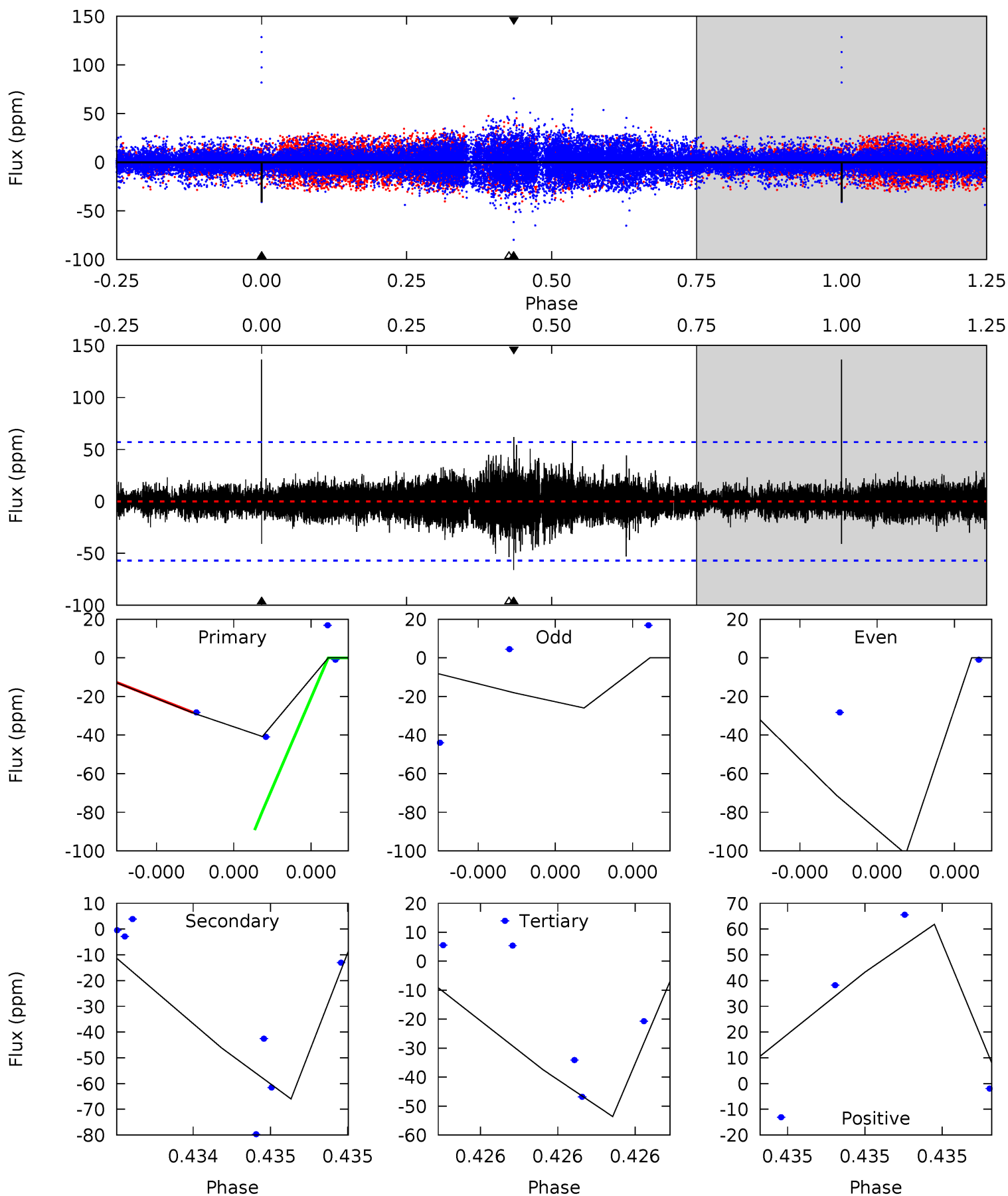
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.3 | 28.8 | 15.0 | 14.8 | 5.56            | 3.45            | 2.80             | -2.71   | -2.45   | 13.7    | 14.0    | 0.12    | 1.01 | 0.34  | 3.24 |



# Alt Model-Shift Uniqueness Test

008232115-01, P = 357.058185 Days, E = 276.357383 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.23 | 6.85 | 5.57 | 6.42 | 5.92            | 4.00            | 0.85             | -1.33   | -2.19   | 1.29    | 0.43    | 6.26    | 1.20 | 0.67  | 4.11 |



### Stellar Parameters For KIC 008232115

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )          | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|---------------------|---------------------------|----------------------------|------------------------------|---------------------------|---|
|        | $3286^{+117}_{-88}$ | $0.123^{+0.200}_{-0.050}$ | $-0.080^{+0.250}_{-0.150}$ | $153.058^{+9.192}_{-27.576}$ | $1.134^{+0.189}_{-0.155}$ | $0.000^{+0.000}_{-0.000}$                     |
|        | +4%/-3%             | +163%/-41%                | +312%/-188%                | +6%/-18%                     | +17%/-14%                 | +93%/-14%                                     |
| 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 008232115-01 / KOI

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ )      | $T_{max}$ (K)        | $T_{obs}$ (K)         | $A_{obs}$                  |
|---------|---------------|-----------------------------|----------------------|-----------------------|----------------------------|
| DV      | $-277 \pm 10$ | $198.05^{+105.42}_{-92.08}$ | $2439^{+109}_{-126}$ | $3579^{+1017}_{-496}$ | $4.168^{+10.614}_{-2.390}$ |
| Alt.    | $-66 \pm 10$  | $133.86^{+101.51}_{-76.27}$ | $2434^{+114}_{-133}$ | $3186^{+1190}_{-605}$ | $2.154^{+10.309}_{-1.460}$ |

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

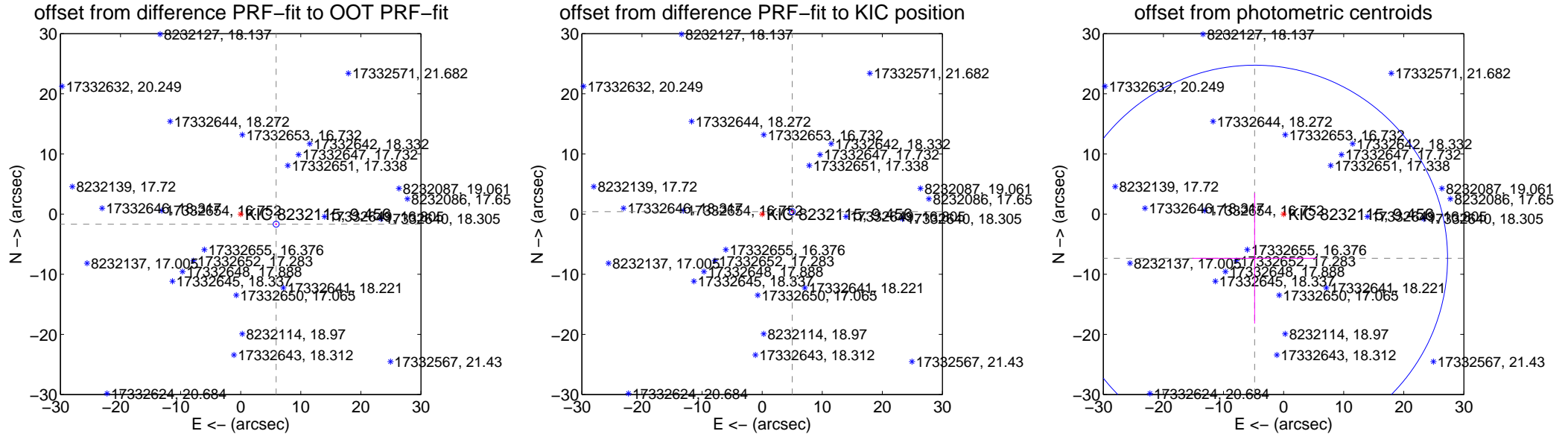
## DV Centroid Data

Supplemental centroid analysis for 008232115-01. **Kepler magnitude: 9.46.** Transit SNR 5.62

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.26 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          | <b><math>6.133 \pm 0.167</math></b> | <b>36.82</b>        | $-5.899 \pm 0.167$ | $-1.677 \pm 0.167$ |
| PRF-fit source offset from KIC position | <b><math>5.025 \pm 0.167</math></b> | <b>30.17</b>        | $-5.009 \pm 0.167$ | $0.402 \pm 0.167$  |
| photometric centroid source offset      | $8.79 \pm 10.70$                    | 0.82                | $4.82 \pm 10.38$   | $-7.35 \pm 10.84$  |



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.



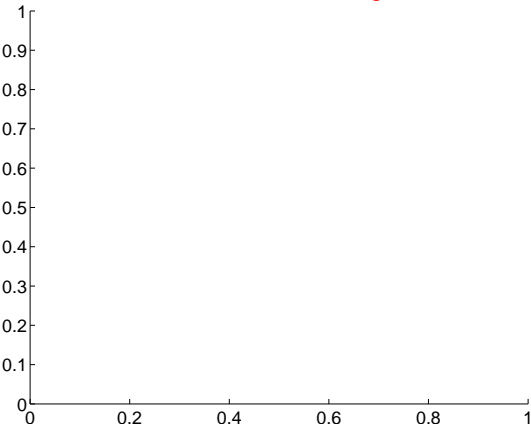
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



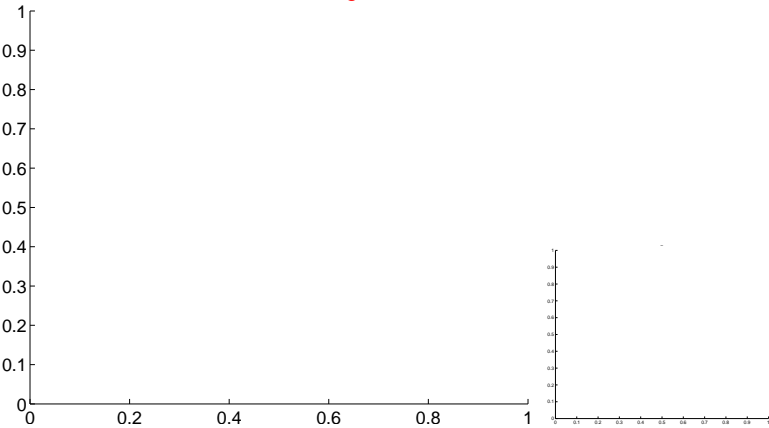


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

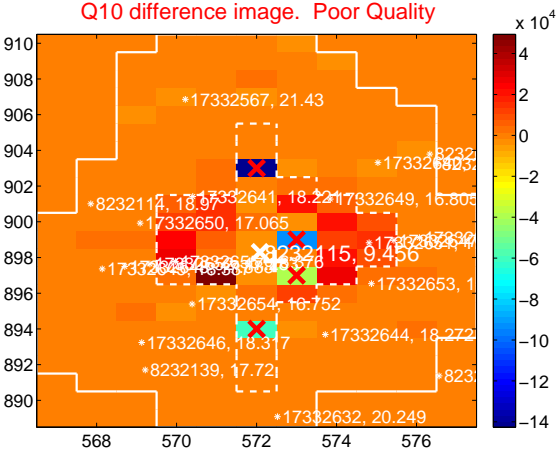
Q9 no difference image



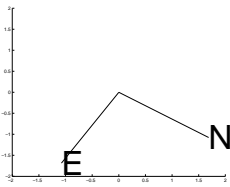
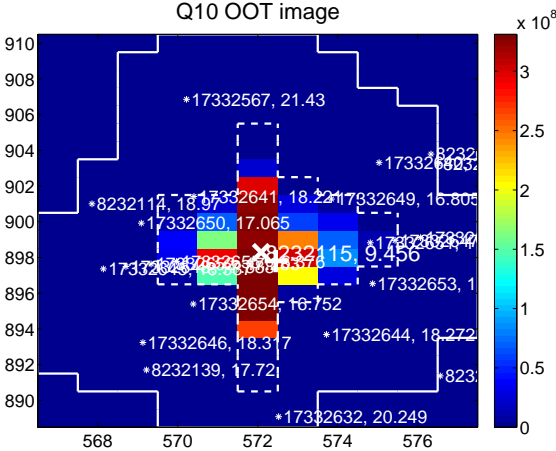
Q9 no OOT image



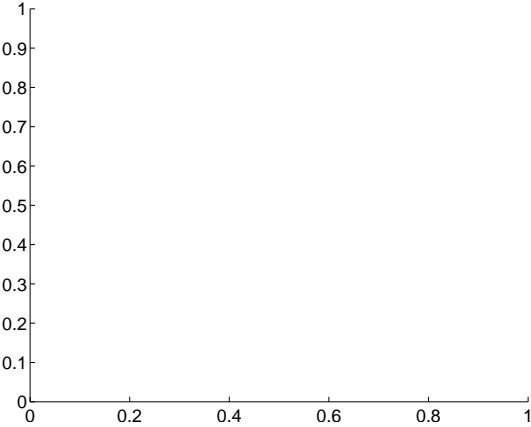
Q10 difference image. Poor Quality



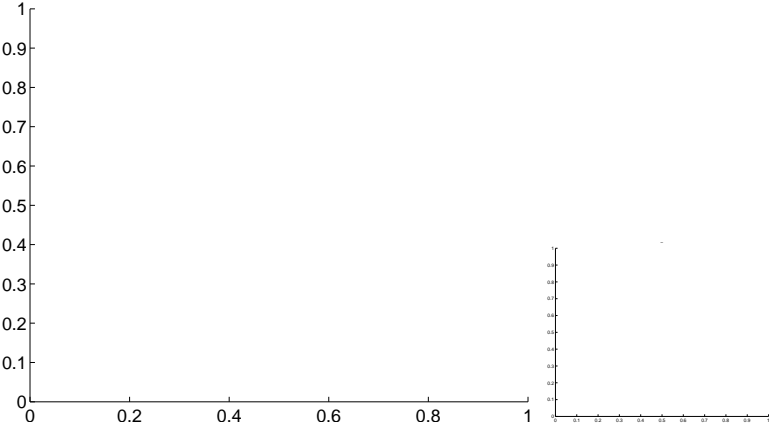
Q10 OOT image



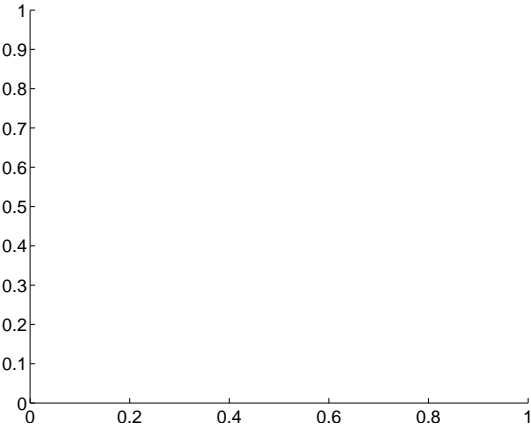
Q11 no difference image



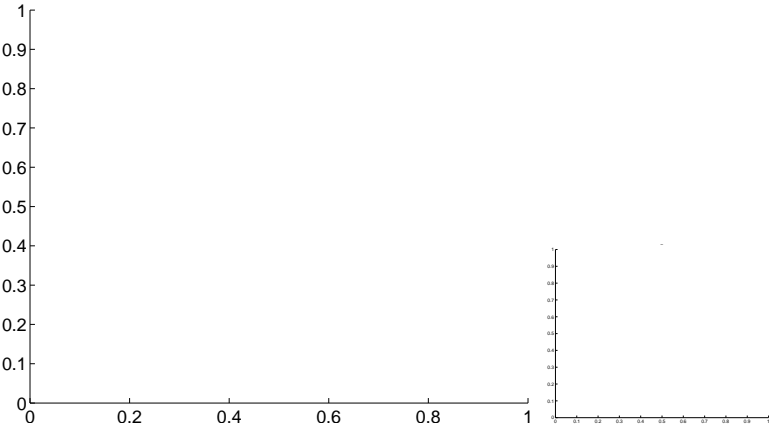
Q11 no OOT image



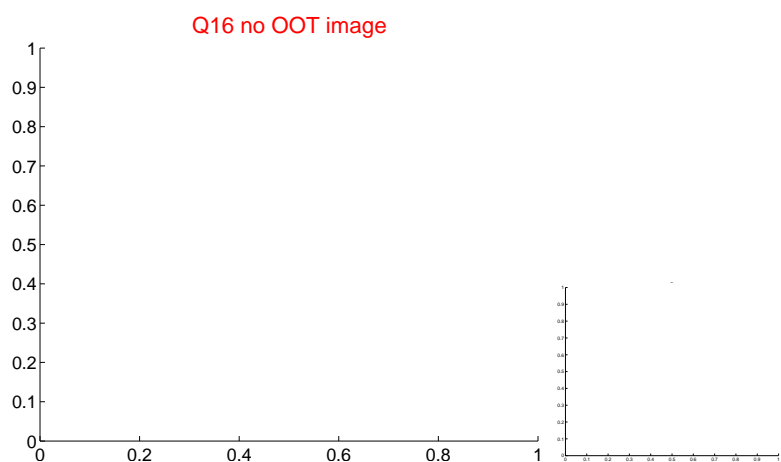
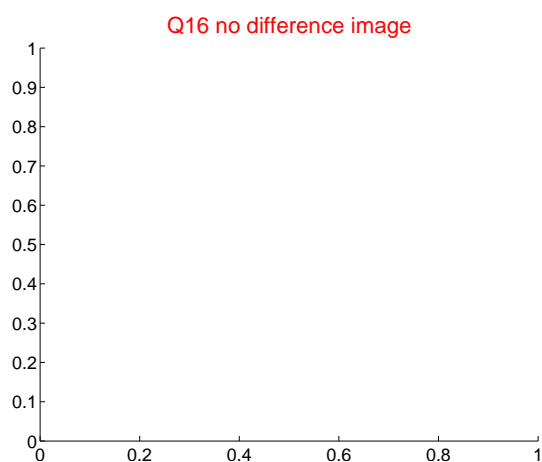
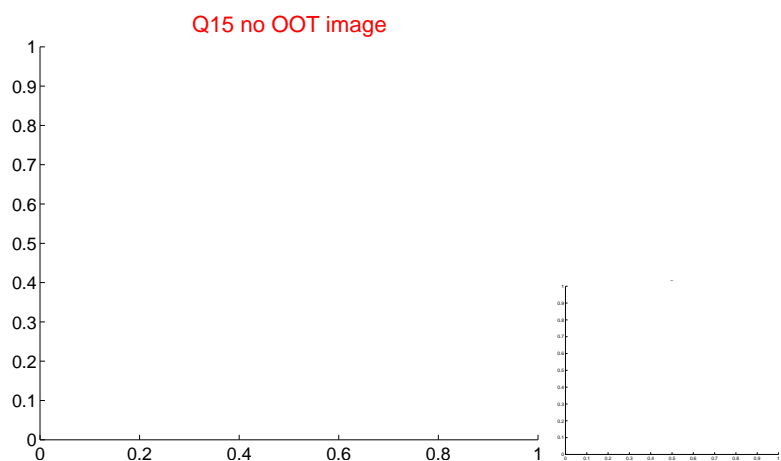
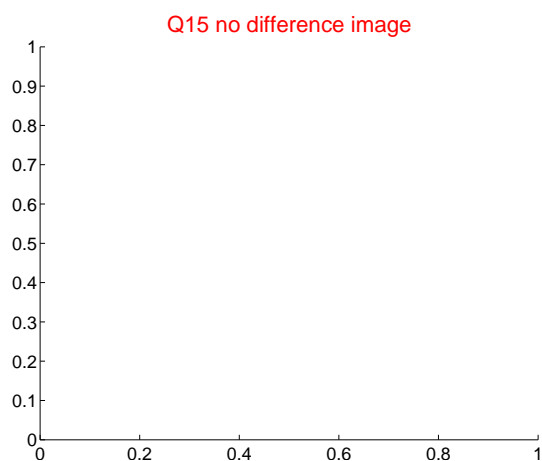
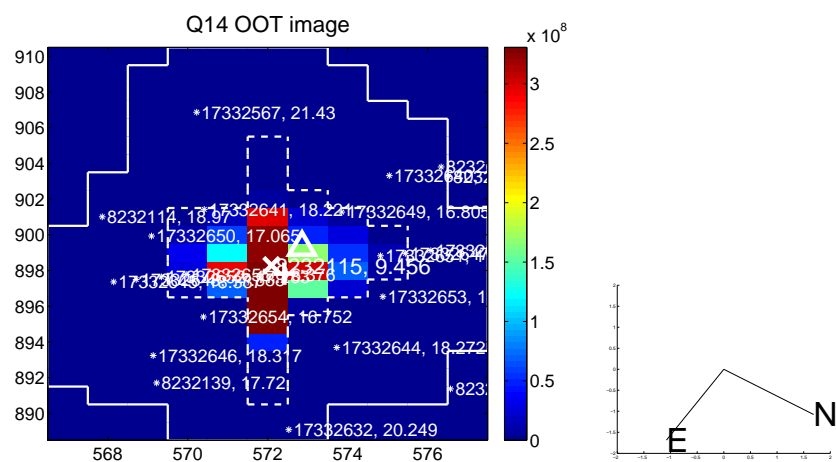
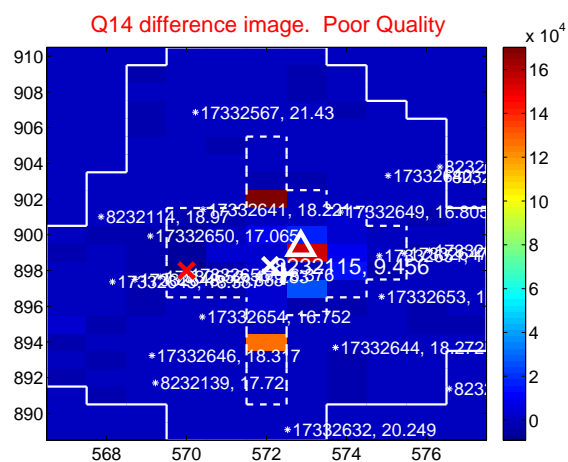
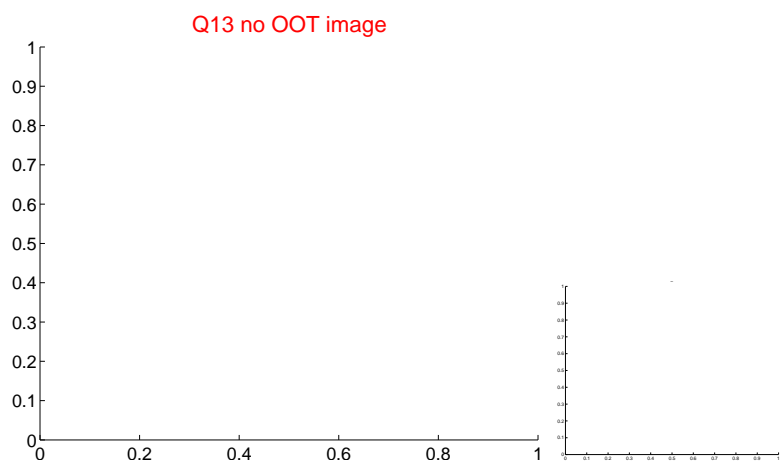
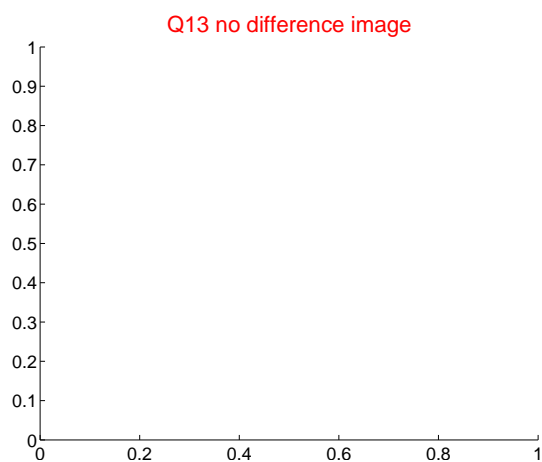
Q12 no difference image



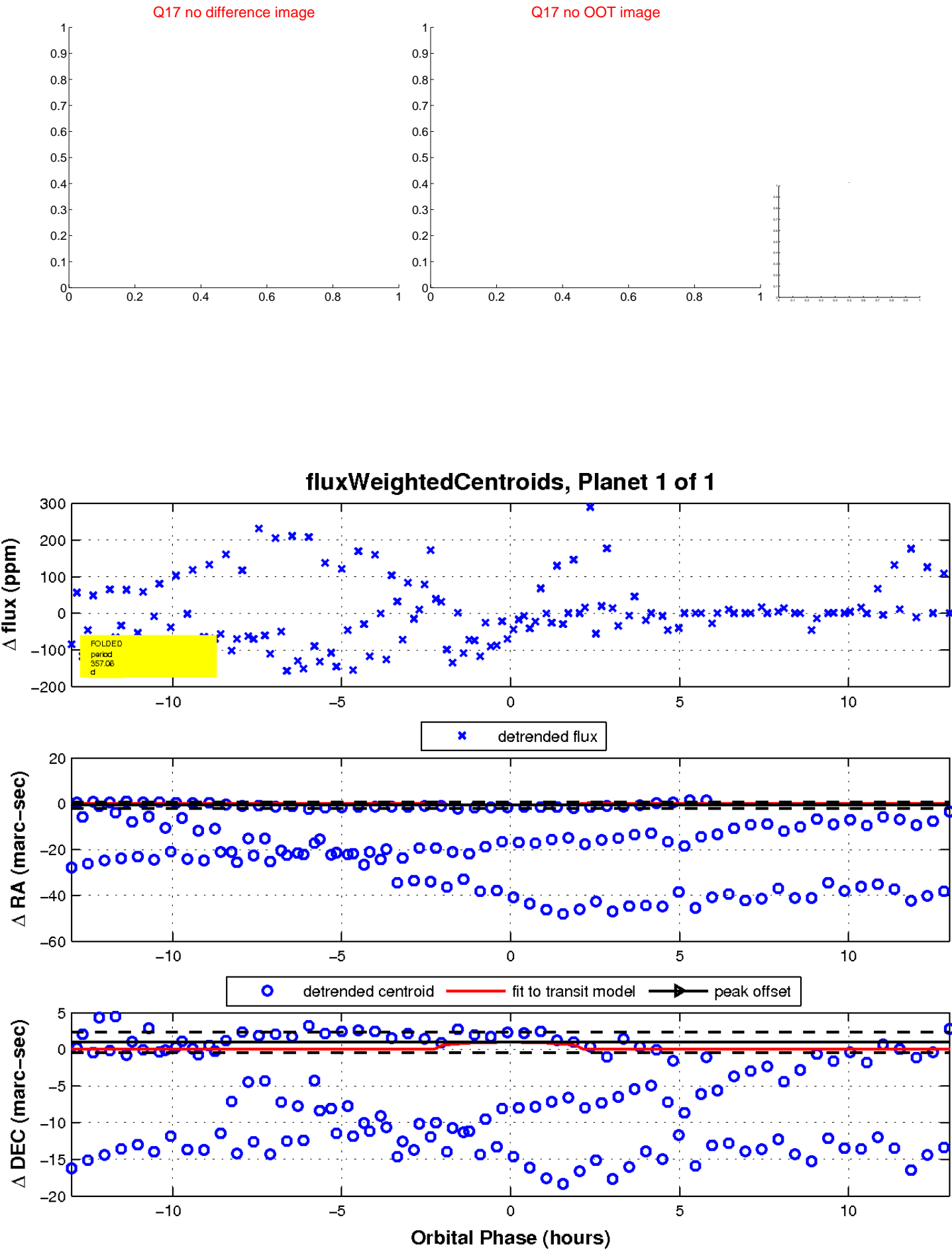
Q12 no OOT image



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

