

# KIC 007620108

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007620108-01 | OBS      | No   | 366.870990    | 237.892062   | 1199.1      | 24.019           | 10.8 | 11.2 | 0.91                        | 5877            | 4.39                   | 0.96                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 007620108-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

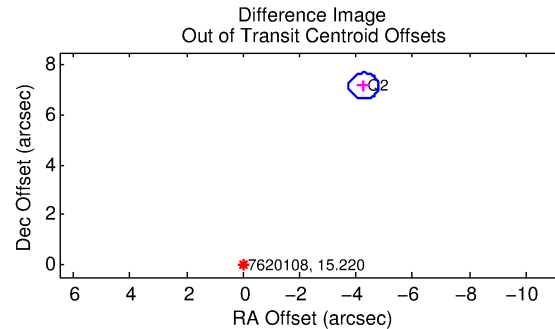
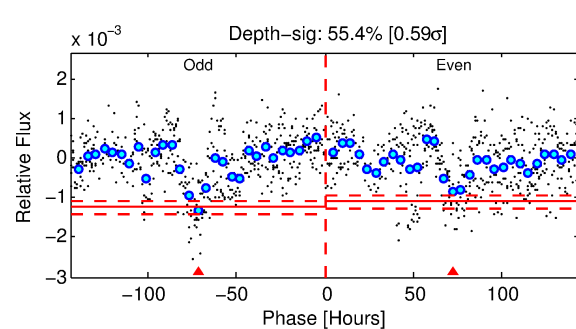
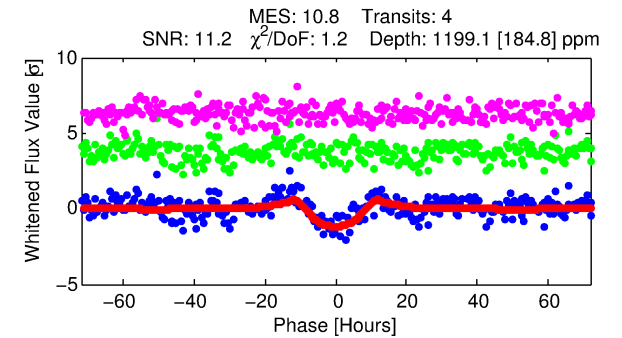
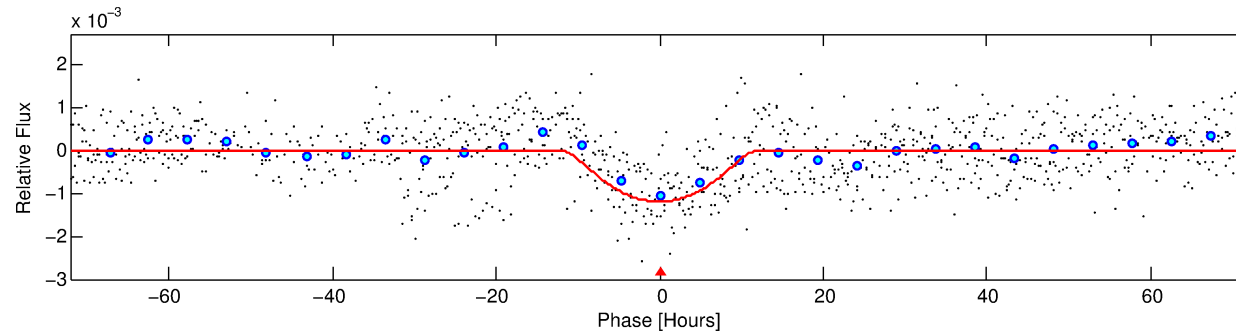
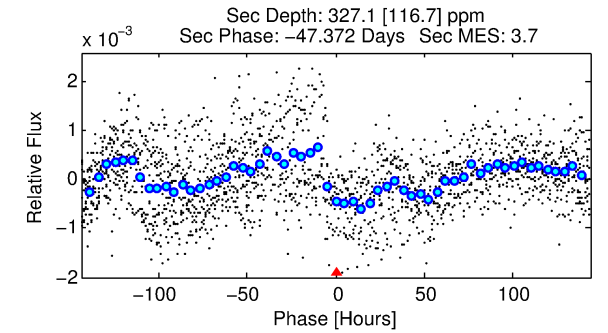
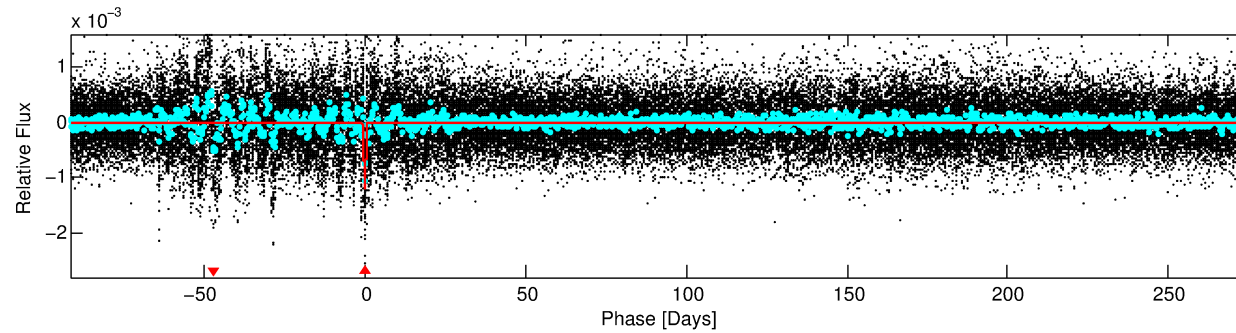
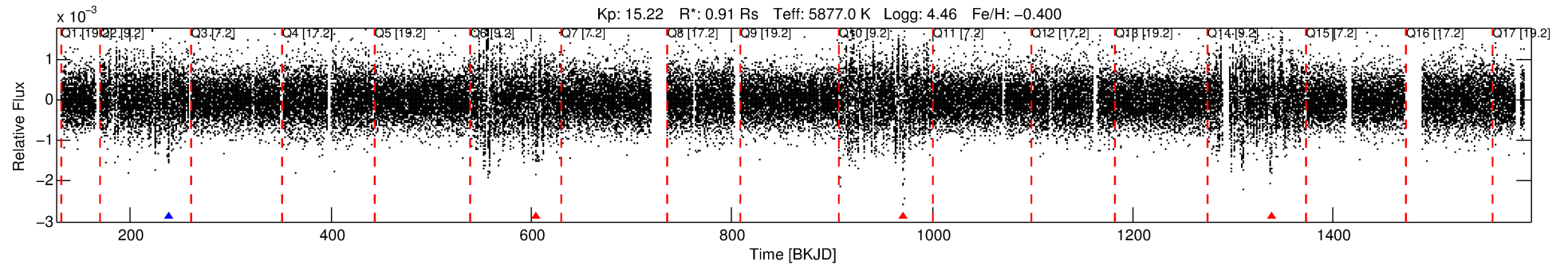
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007620108-01

No Significant Match Found

# DV One-Page Summary

KIC: 7620108 Candidate: 1 of 1 Period: 366.871 d



## DV Fit Results:

Period = 366.87099 [0.01787] d  
Epoch = 237.8921 [0.0316] BKJD  
Rp/R\* = 0.0444 [0.0188]  
a/R\* = 44.85 [9.68]  
b = 0.97 [0.04]  
Seff = 0.96 [0.33]  
Teq = 253 [22] K  
Rp = 4.39 [2.18] Re  
a = 0.9560 [0.2097] AU  
Ag = 8527.38 [8292.17] [1.03σ]  
Teff = 3752 [869] K [4.03σ]

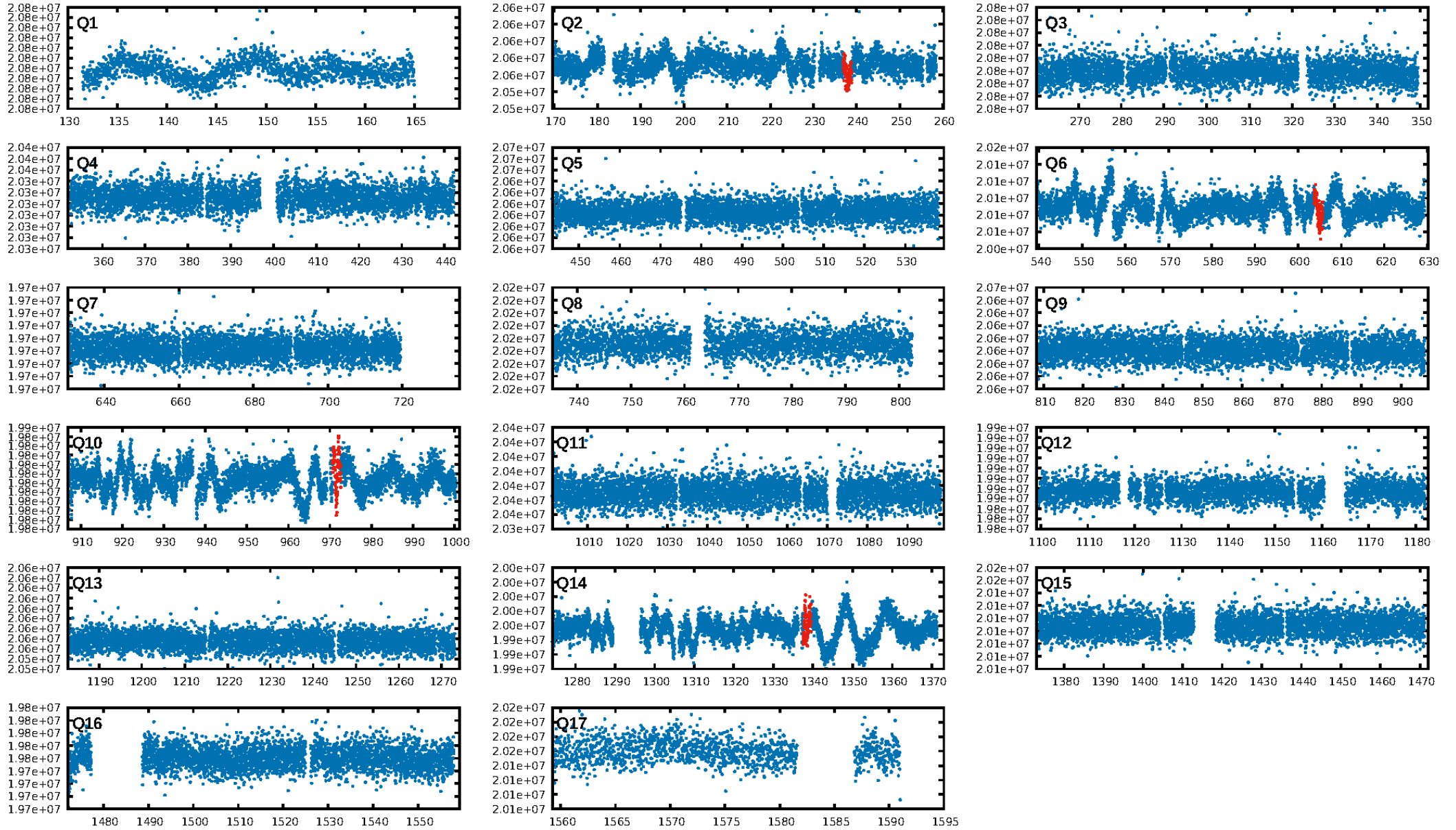
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 93.2%  
Bootstrap-pfa: 2.16e-16  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 2.844  
Centroid-sig: 1.4%  
Centroid-so: 4.200 arcsec [1.99σ]  
OotOffset-rm: 8.333 arcsec [47.72σ]  
KicOffset-rm: 8.347 arcsec [47.83σ]  
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]

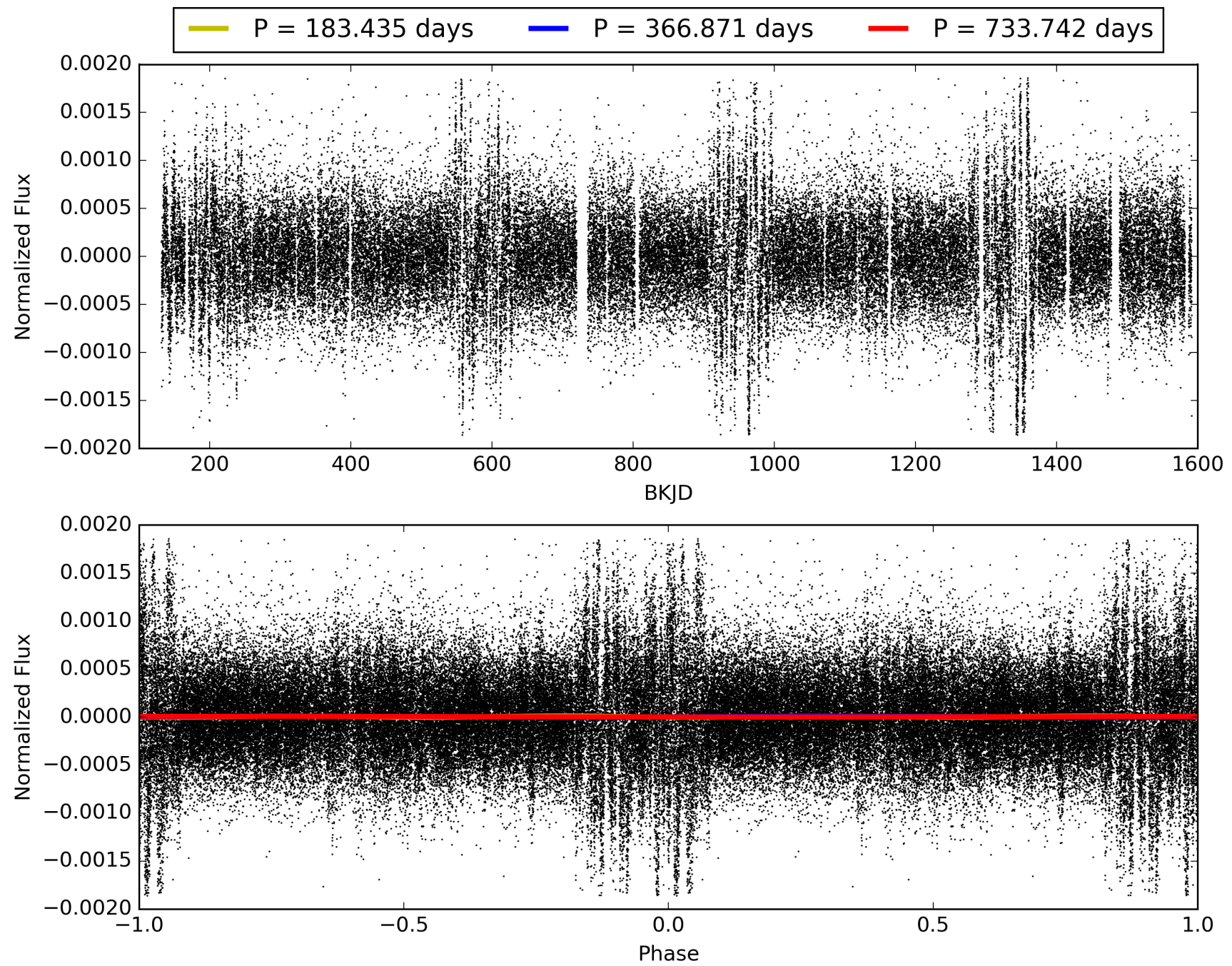
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:46:15 Z

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

# TCE 007620108-01, PDC Light Curves

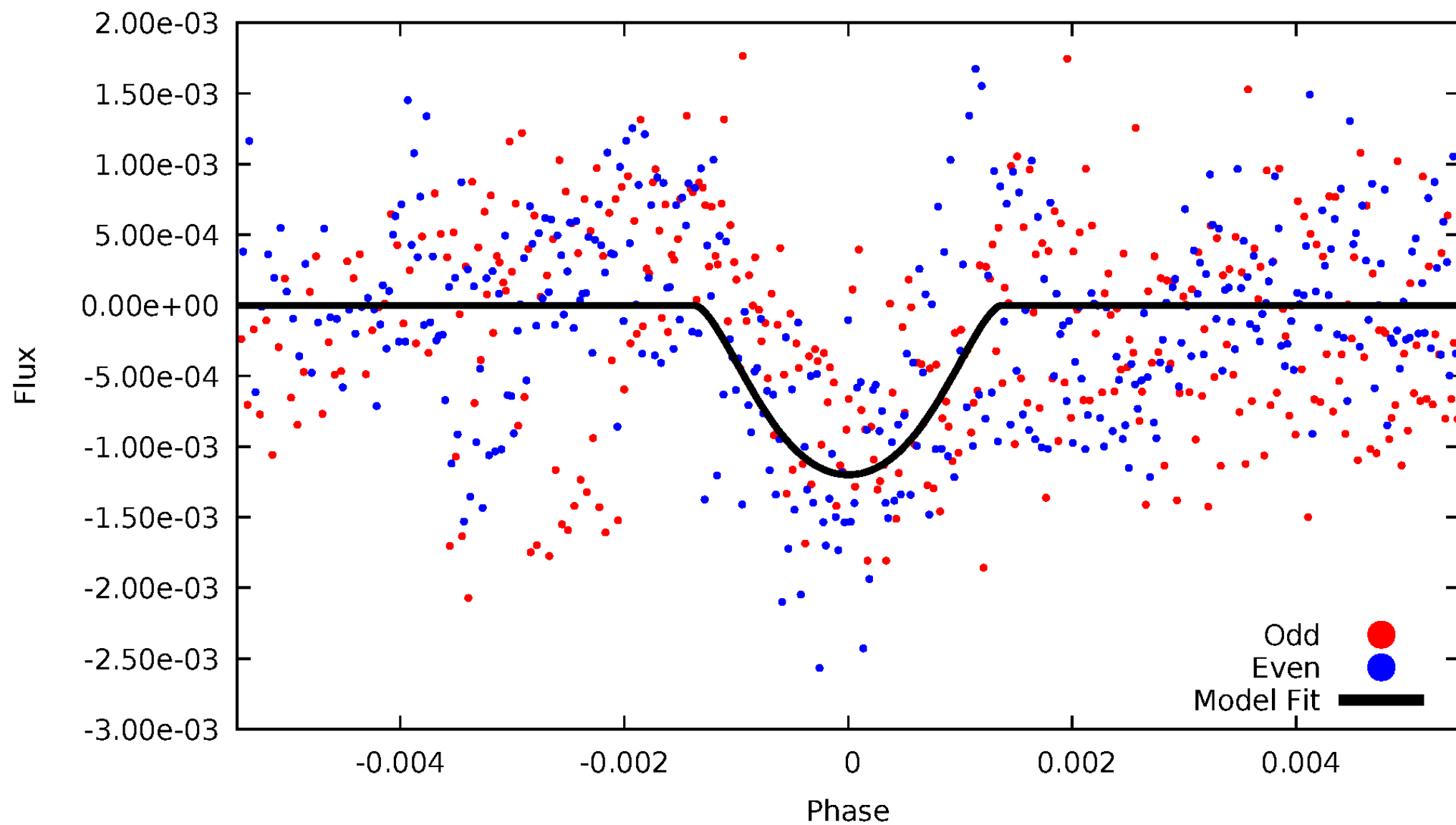


TCE 007620108-01



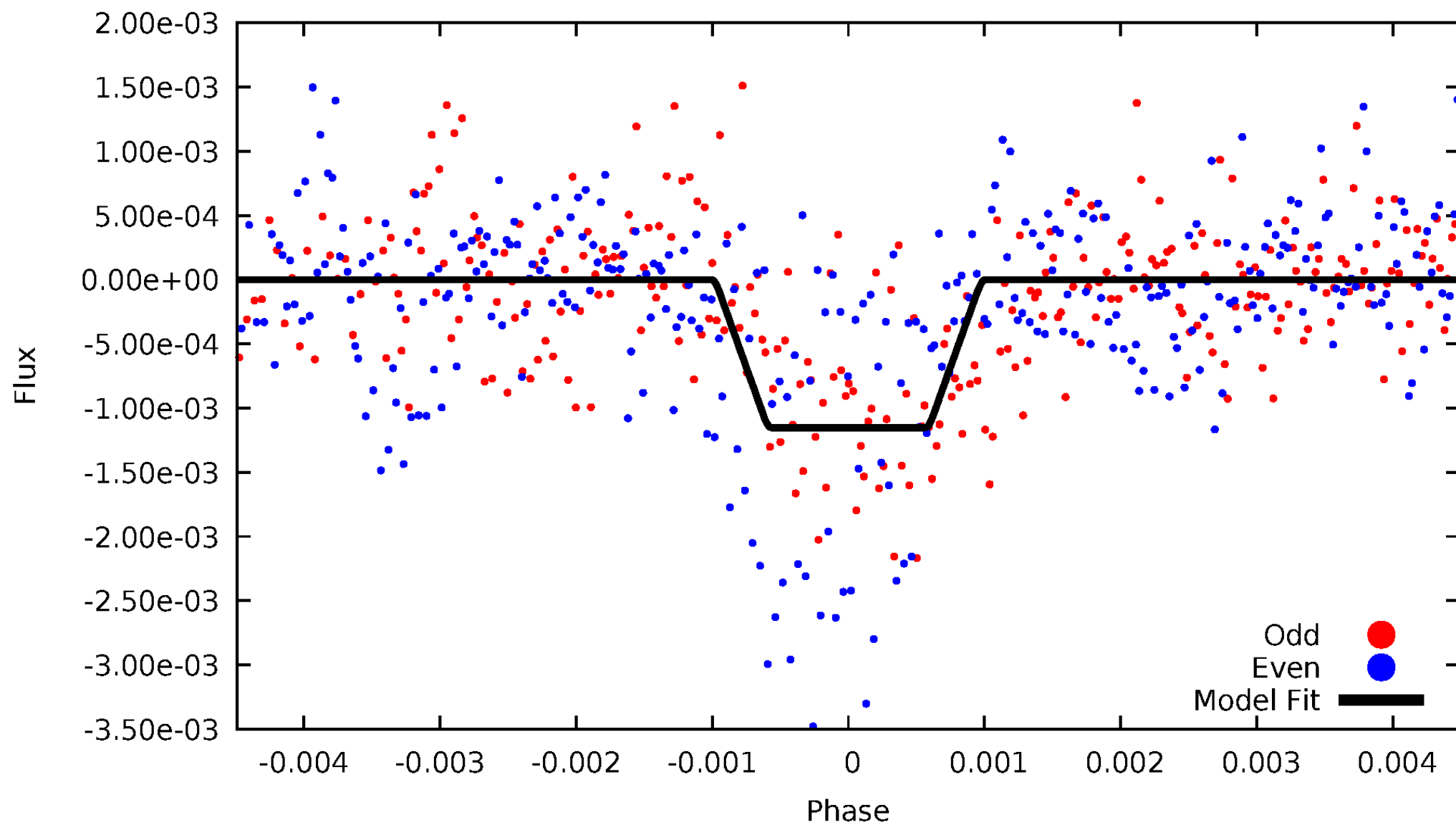
# DV Odd/Even

TCE 007620108-01



# ALT Odd/Even

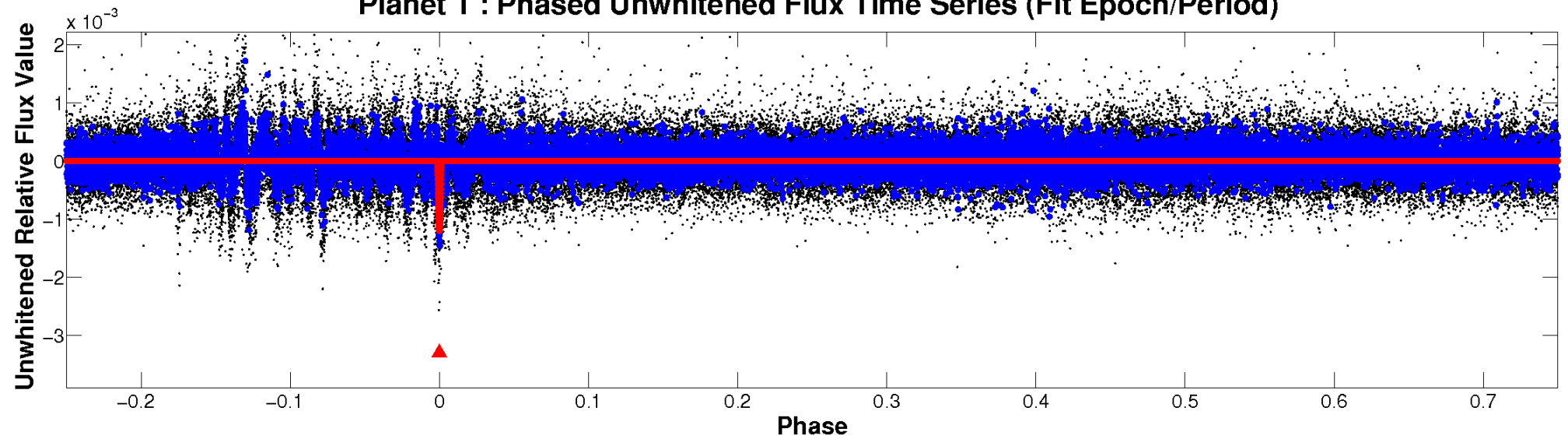
TCE 007620108-01



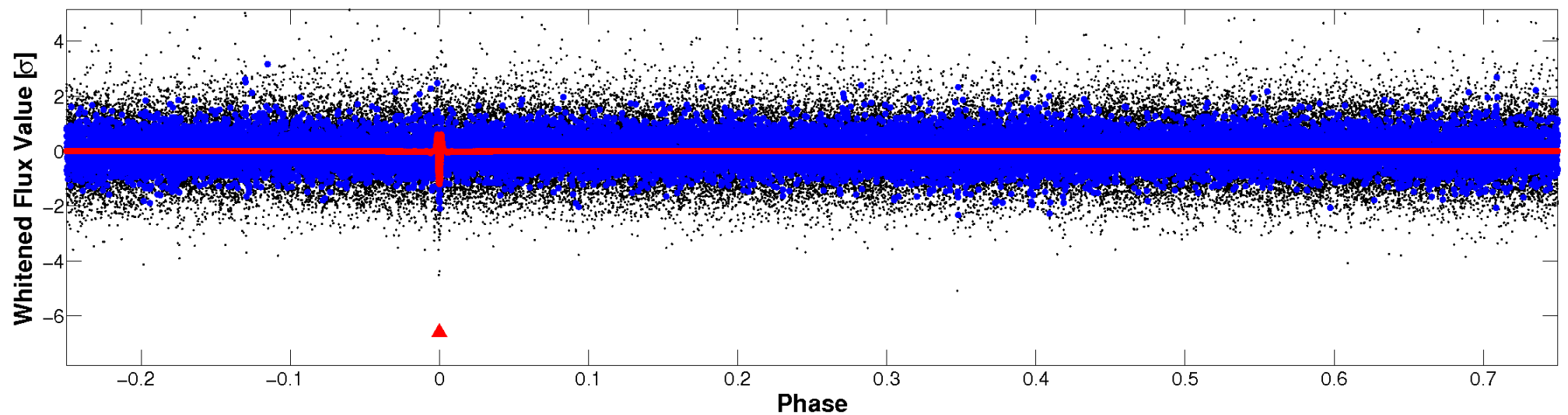


# Non-Whitened Vs. Whitened Light Curve

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

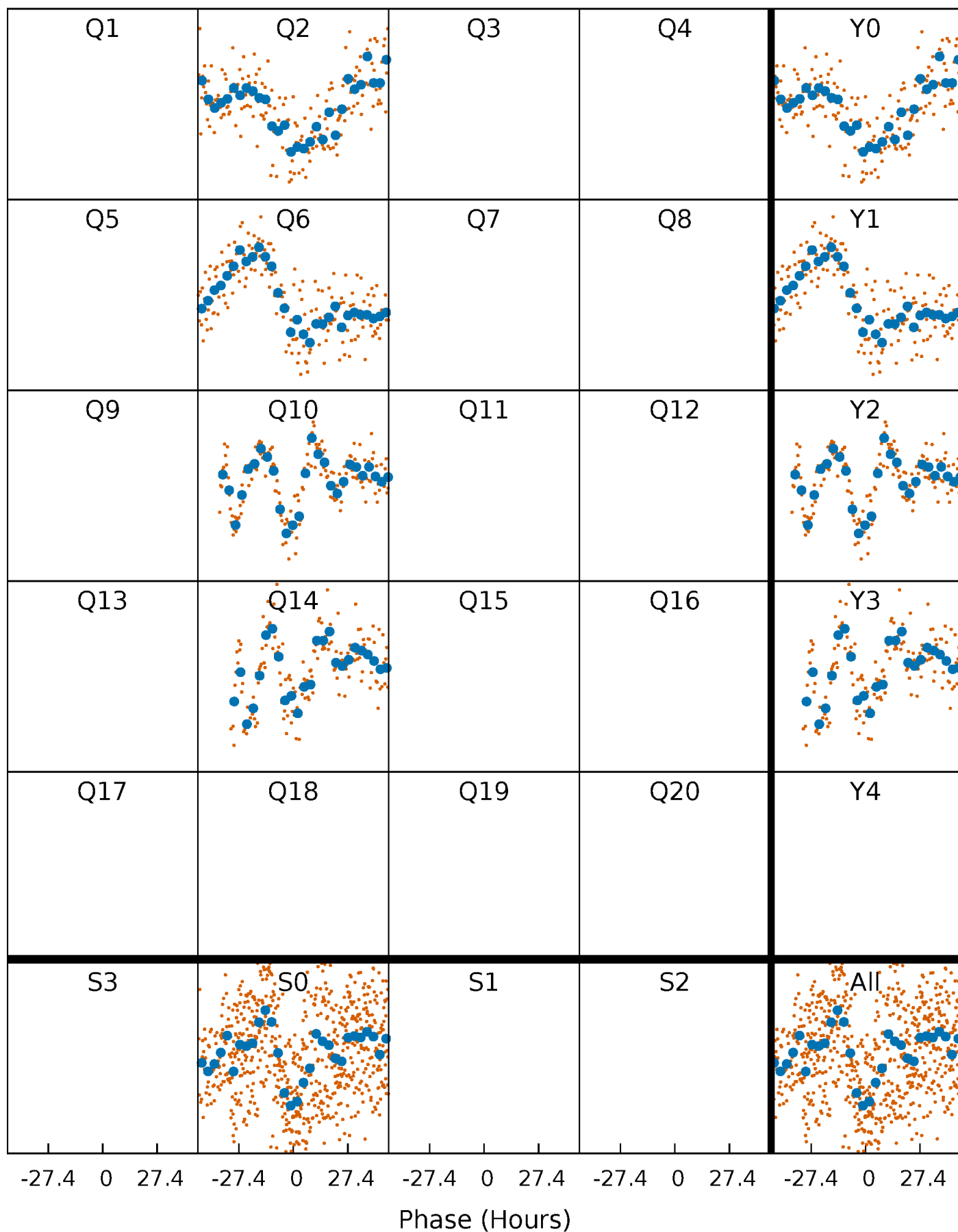


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

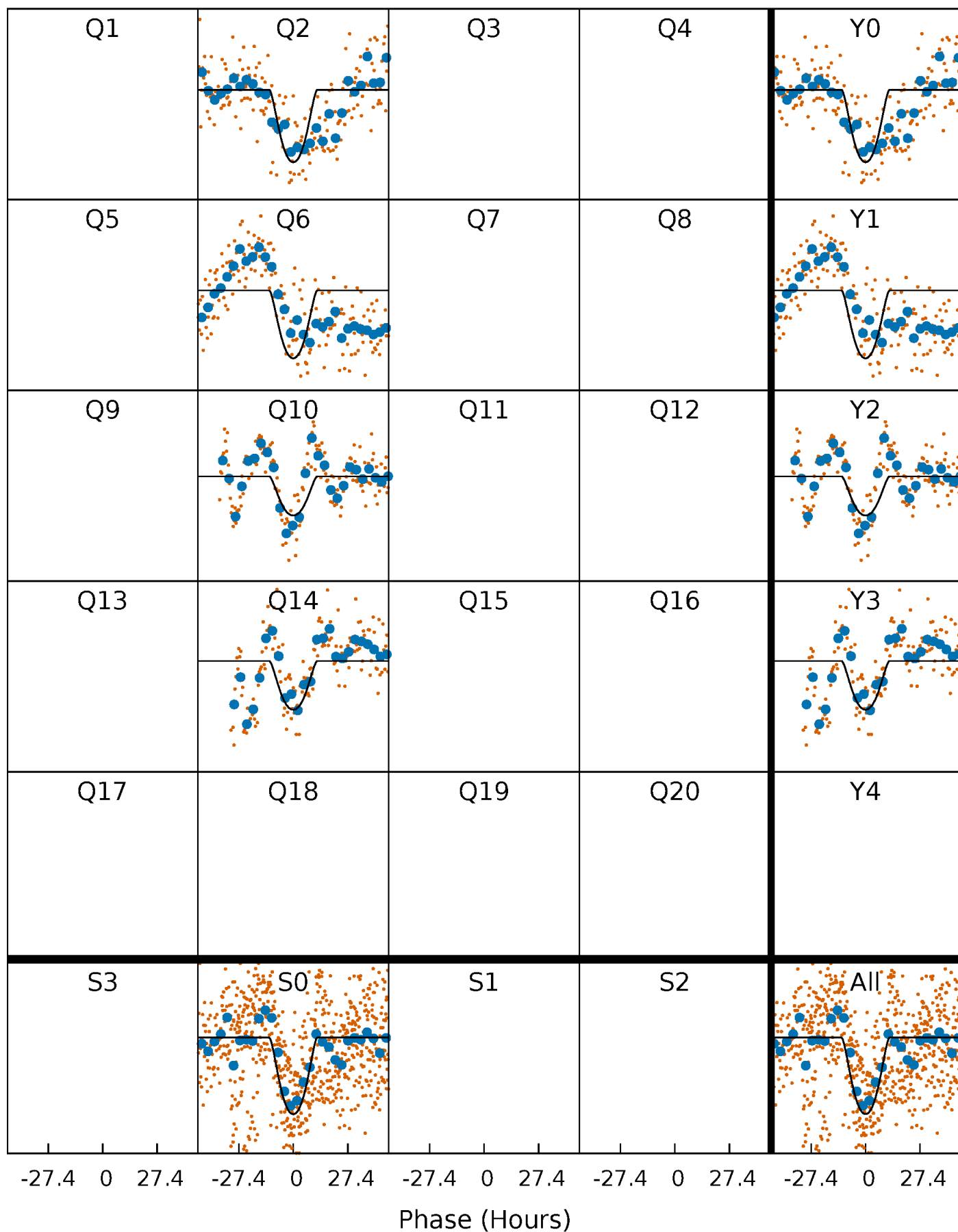
TCE 007620108-01 P=366.870990 Days  $T_0=237.892062$  (BKJD)





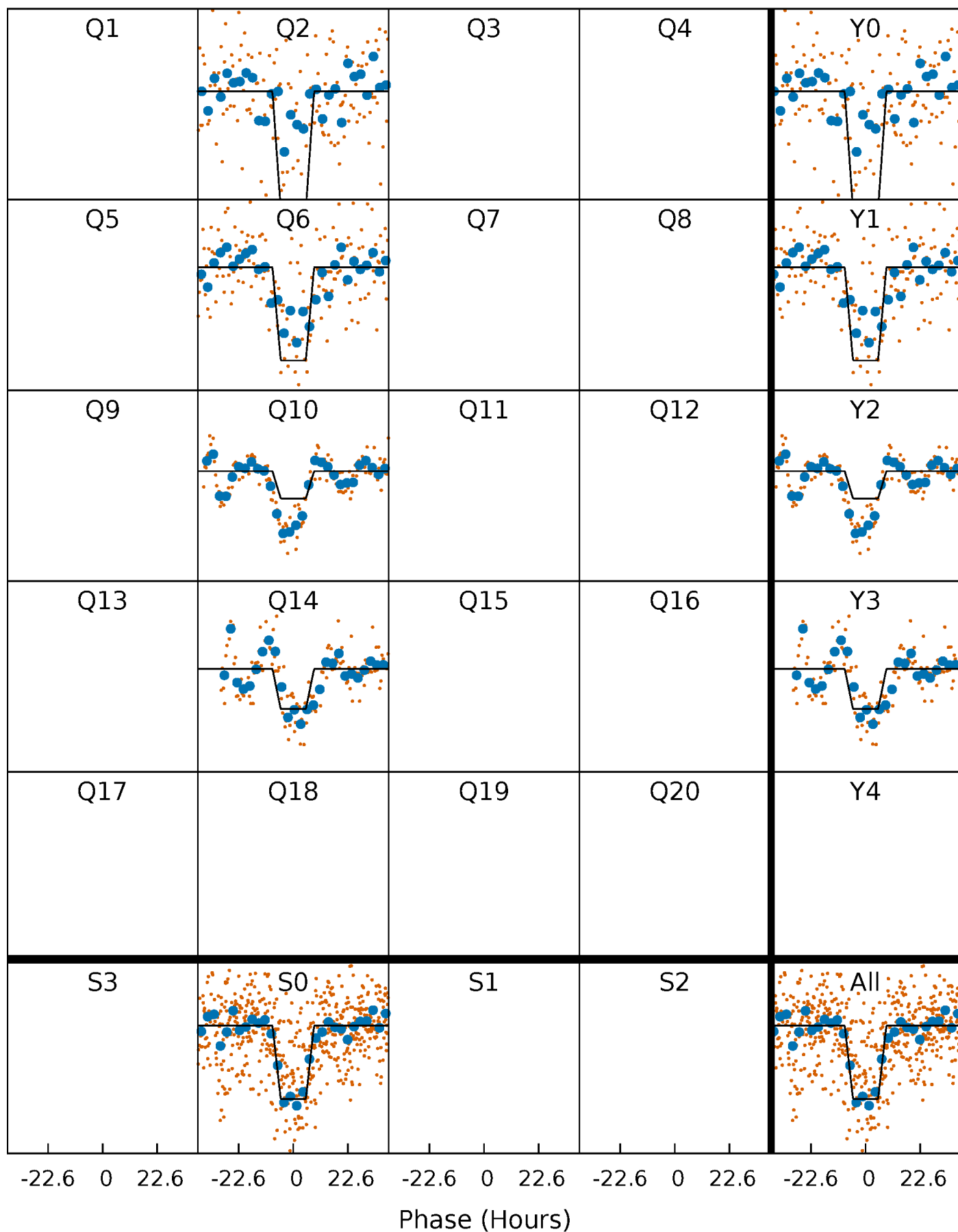
# DV Quarter-Phased Transit Curves

TCE 007620108-01 P=366.870990 Days  $T_0=237.892062$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

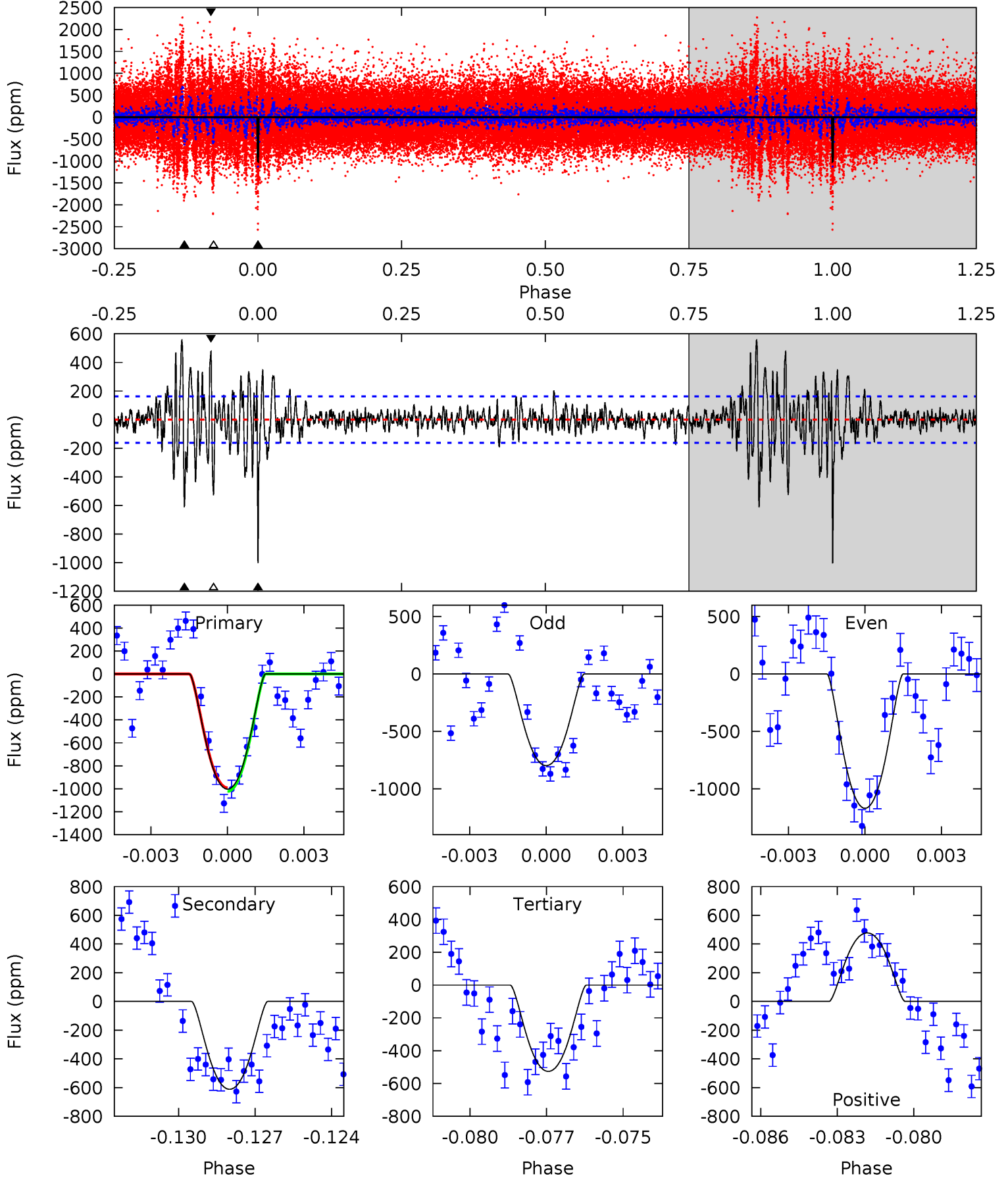
TCE 007620108-01 P=366.809647 Days  $T_0=238.015457$  (BKJD)



# DV Model-Shift Uniqueness Test

007620108-01, P = 366.870990 Days, E = 237.892062 Days

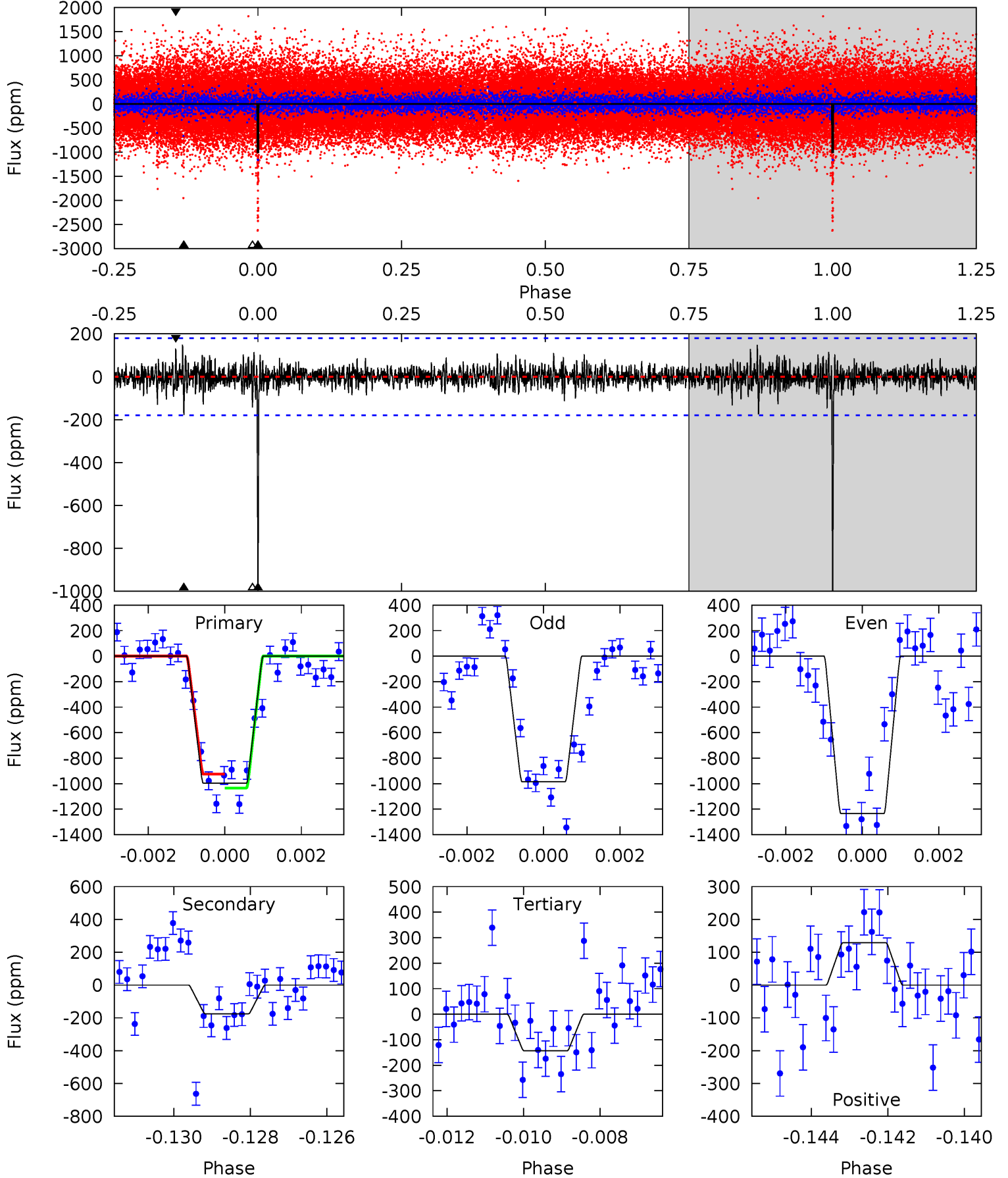
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 32.6 | 19.9 | 17.1 | 15.5 | 5.27            | 2.99            | 3.45             | 15.5    | 17.1    | 2.78    | 4.36    | 6.08    | 1.00 | 0.36  | 0.51 |



# Alt Model-Shift Uniqueness Test

007620108-01, P = 366.809647 Days, E = 238.015457 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 29.6 | 5.20 | 4.25 | 3.82 | 5.33            | 3.09            | 0.97             | 25.3    | 25.8    | 0.95    | 1.38    | 3.83    | 1.16 | 0.13  | 1.60 |



### Stellar Parameters For KIC 007620108

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5877^{+175}_{-175}$ | $4.460^{+0.094}_{-0.175}$ | $-0.400^{+0.300}_{-0.300}$ | $0.907^{+0.236}_{-0.109}$ | $0.867^{+0.108}_{-0.081}$ | $1.634^{+0.698}_{-0.791}$                     |
|        | +3%/-3%              | +2%/-4%                   | +75%/-75%                  | +26%/-12%                 | +12%/-9%                  | +43%/-48%                                     |
| 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 007620108-01 / KOI

| Detrend | Depth (ppm)   | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)         | $A_{obs}$                |
|---------|---------------|------------------------|-------------------|-----------------------|--------------------------|
| DV      | $-612 \pm 31$ | $4.52^{+1.97}_{-1.81}$ | $357^{+20}_{-19}$ | $4543^{+1166}_{-569}$ | $15010^{+27807}_{-7737}$ |
| Alt.    | $-175 \pm 34$ | $3.59^{+1.94}_{-1.94}$ | $356^{+22}_{-18}$ | $3927^{+1385}_{-524}$ | $6792^{+25426}_{-4007}$  |

$T_{max}$  = 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

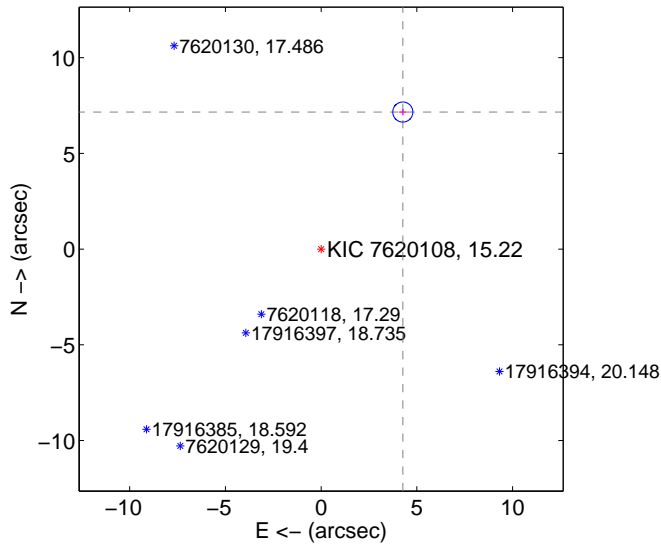
Supplemental centroid analysis for 007620108-01. Kepler magnitude: 15.22. Transit SNR 11.17

There are 0 quarters with good PRF difference image offsets

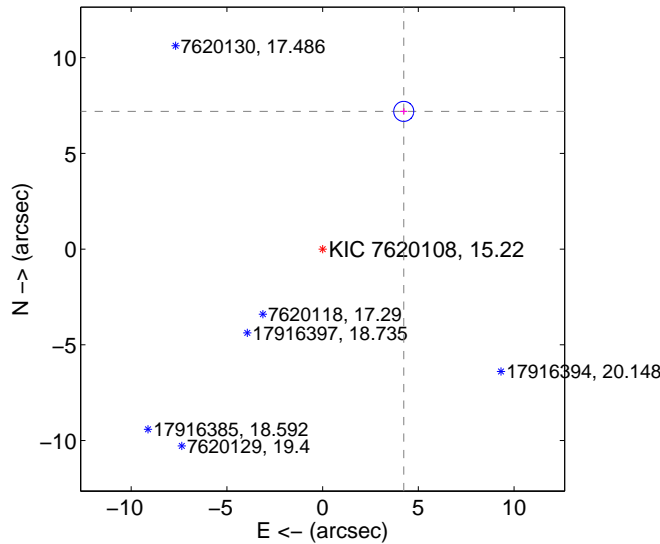
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | 8.333 $\pm$ 0.175  | 47.72               | -4.266 $\pm$ 0.189 | 7.158 $\pm$ 0.169 |
| PRF-fit source offset from KIC position | 8.347 $\pm$ 0.175  | 47.83               | -4.236 $\pm$ 0.189 | 7.192 $\pm$ 0.169 |
| photometric centroid source offset      | 4.20 $\pm$ 2.11    | 1.99                | -3.94 $\pm$ 2.12   | -1.46 $\pm$ 2.04  |

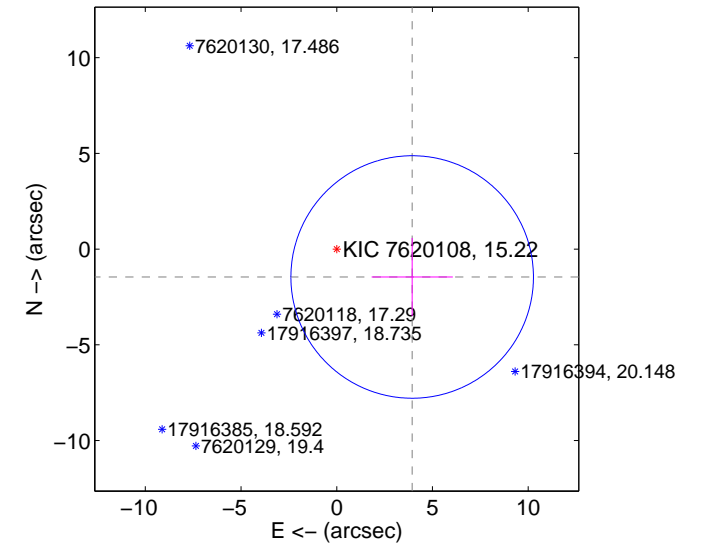
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



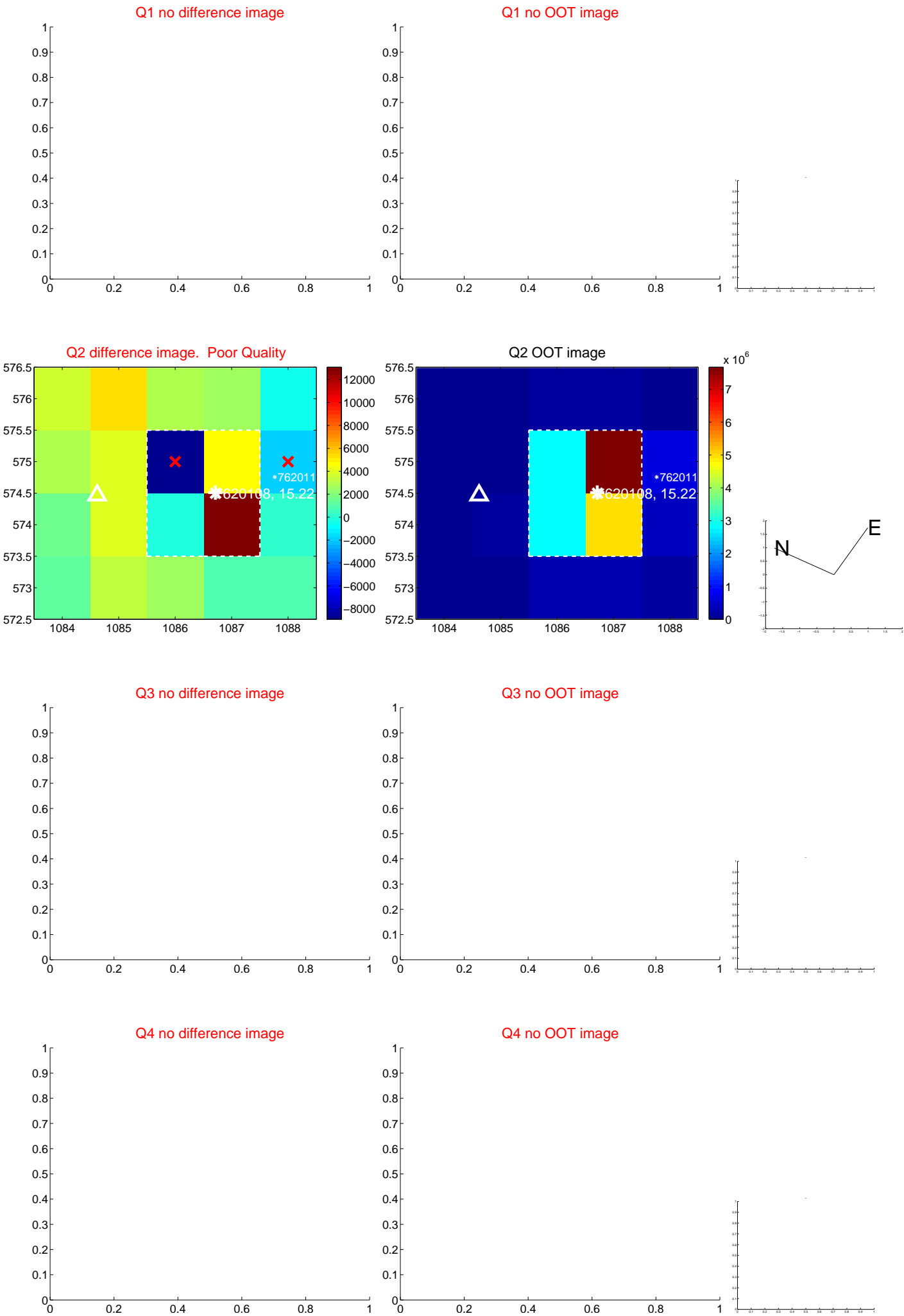
offset from photometric centroids



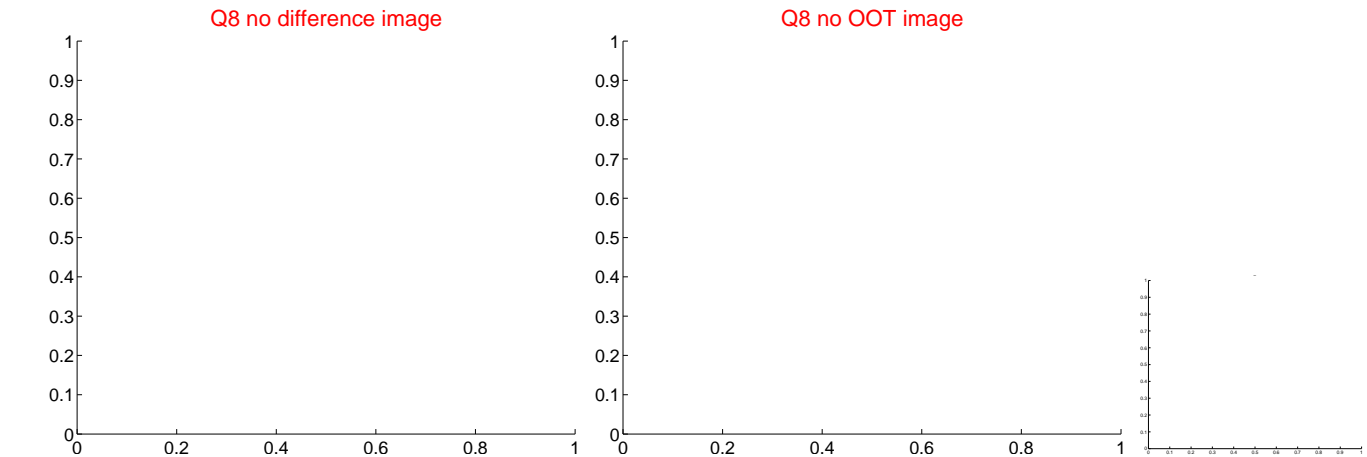
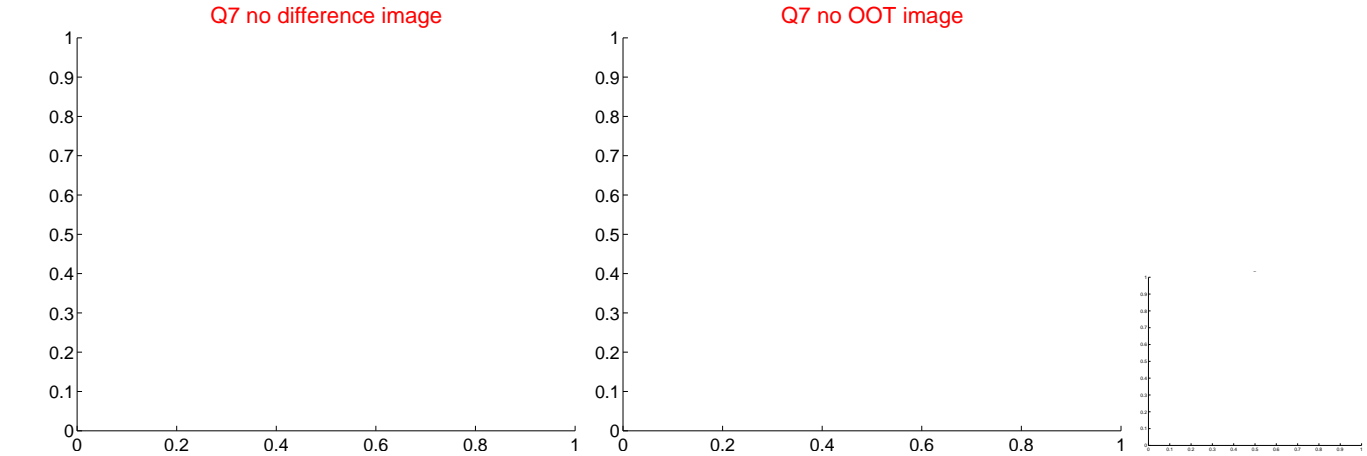
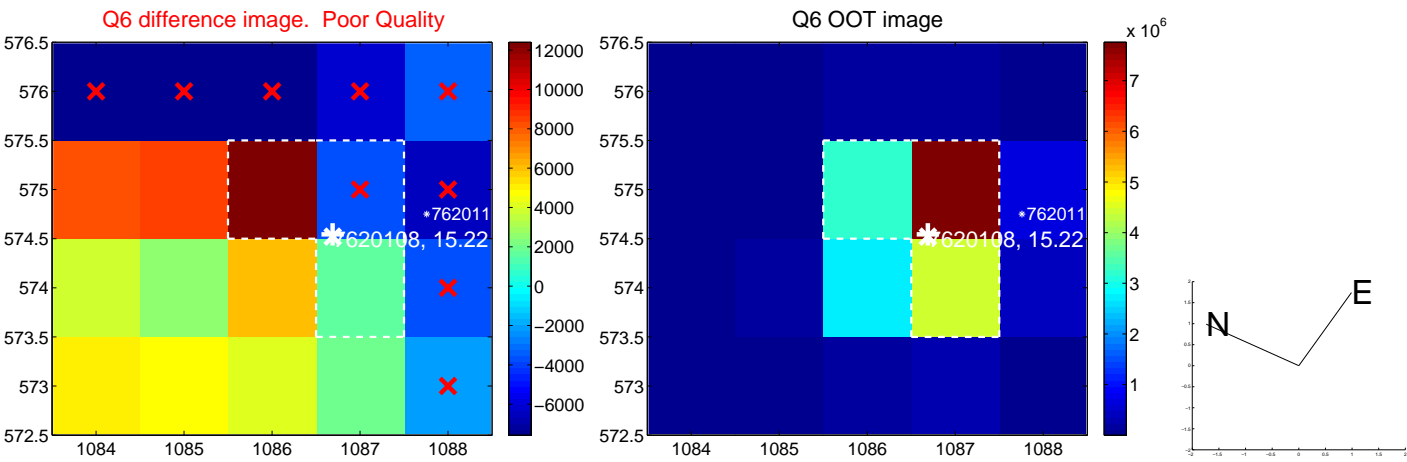
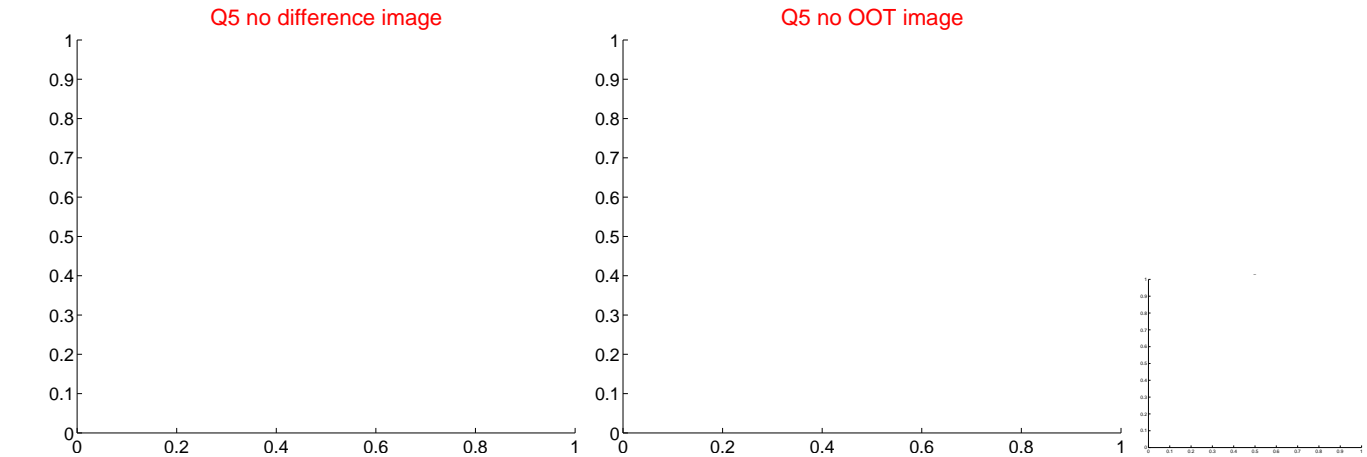
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



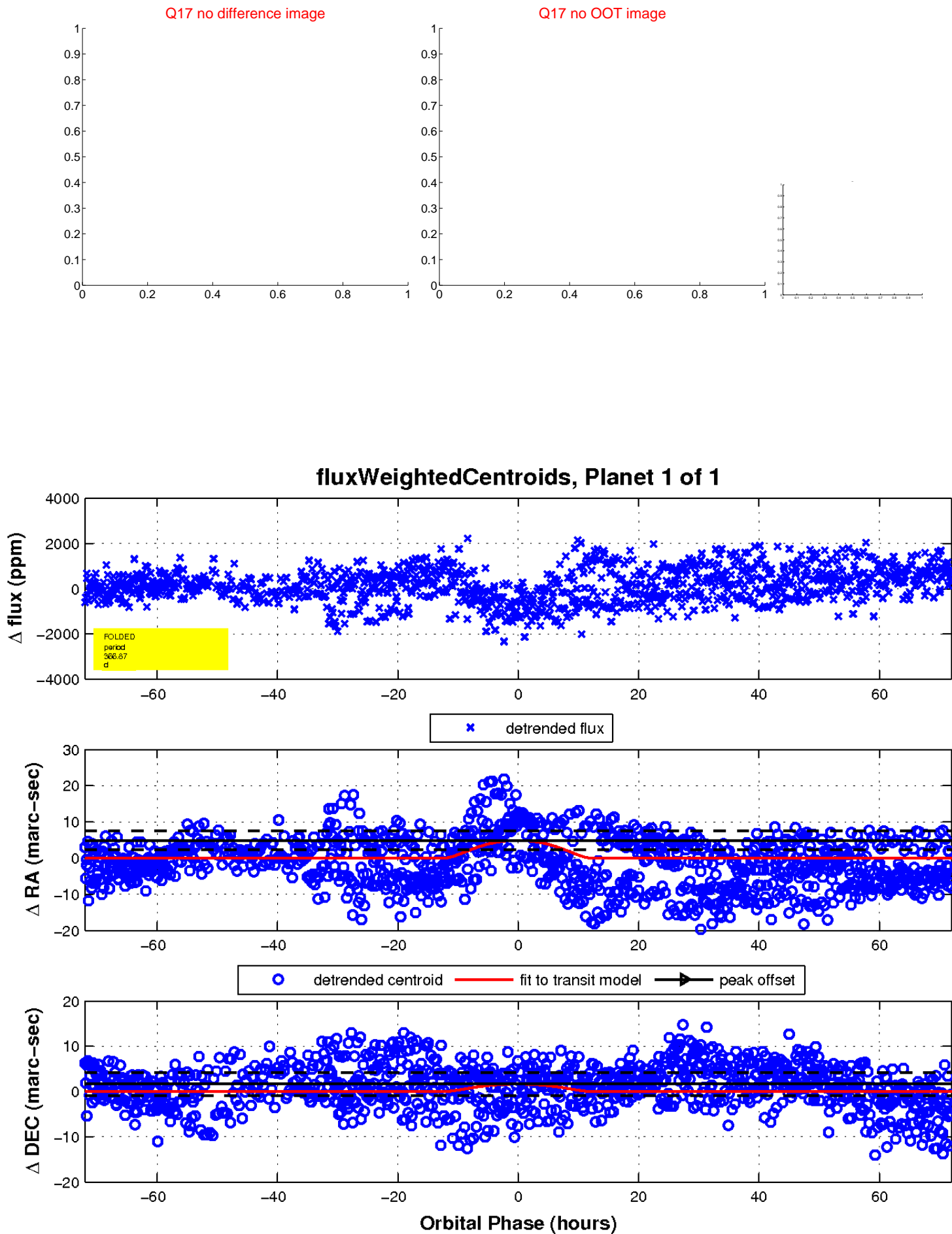
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

