

# KIC 008264402

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008264402-01 | OBS      | 4037.01 | 215.959580    | 271.352478   | 401.5       | 9.994            | 16.4 | 18.0 | 1.31                        | 6163            | 3.32                   | 4.04                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 008264402-01 | OBS      | PC   | 0.96  | 0 | 0 | 0 | 0 | NO_COMMENT |

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

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

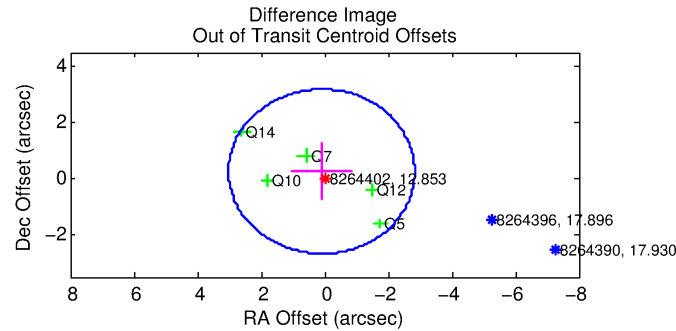
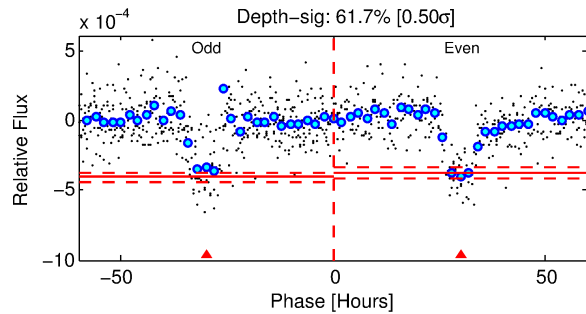
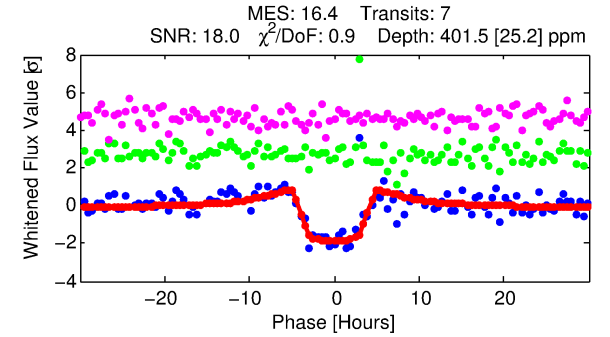
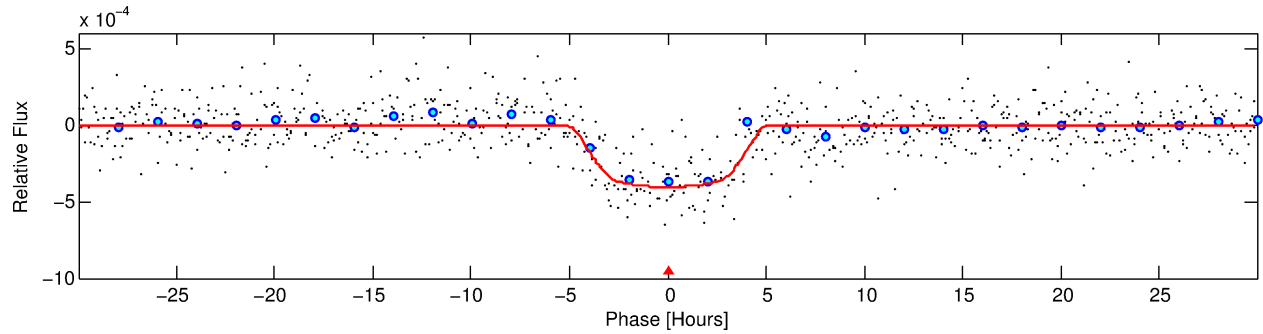
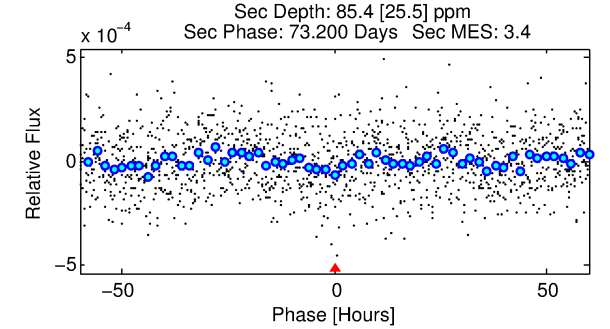
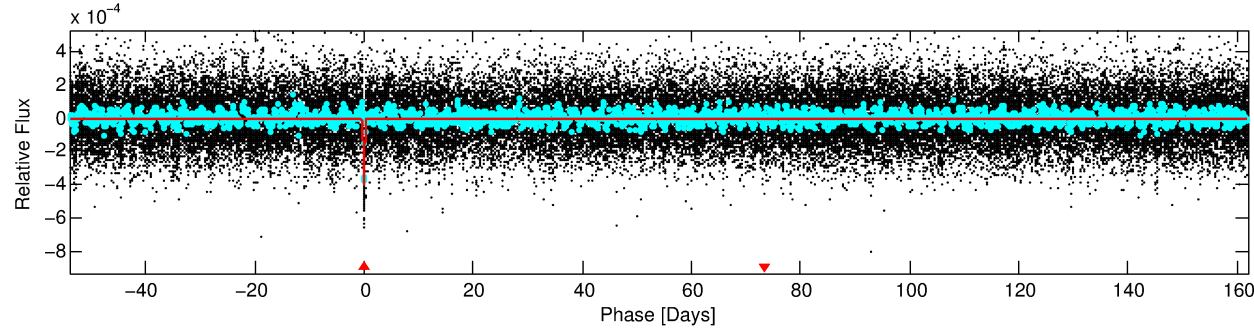
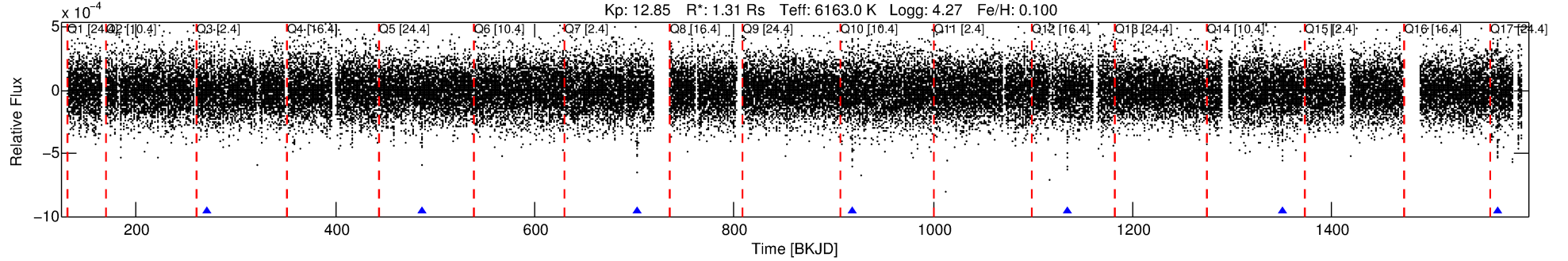
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008264402-01

No Significant Match Found

# DV One-Page Summary

KIC: 8264402 Candidate: 1 of 1 Period: 215.960 d  
KOI: K04037.01 Corr: 0.975



## DV Fit Results:

Period = 215.95958 [0.00257] d  
Epoch = 271.3525 [0.0093] BKJD  
Rp/R\* = 0.0232 [0.0010]  
a/R\* = 60.85 [7.83]  
b = 0.95 [0.01]  
Seff = 4.04 [0.94]  
Teq = 362 [21] K  
Rp = 3.32 [0.60] Re  
a = 0.7427 [0.1126] AU  
Ag = 2345.94 [902.24] [2.60σ]  
Teffp = 3890 [308] K [11.45σ]

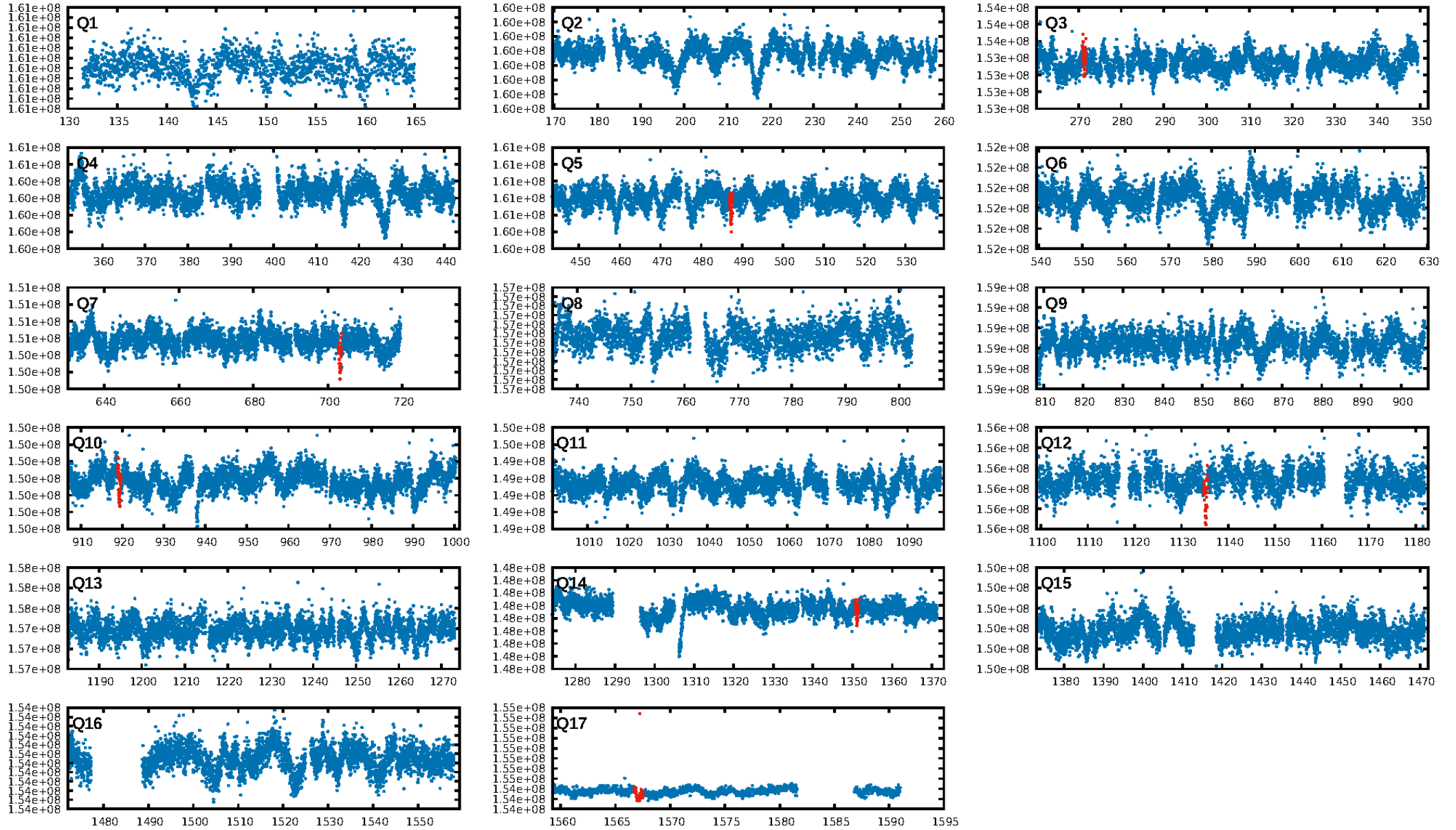
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 20.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.06e-47  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 3.26  
Centroid-sig: 84.1%  
Centroid-so: 0.637 arcsec [1.22σ]  
OotOffset-rm: 0.273 arcsec [0.28σ]  
KicOffset-rm: 0.286 arcsec [0.29σ]  
OotOffset-st: 2/1/1/1 [5]  
KicOffset-st: 2/1/1/1 [5]  
DiffImageQuality-fgm: 0.80 [4/5]  
DiffImageOverlap-fno: 1.00 [6/6]

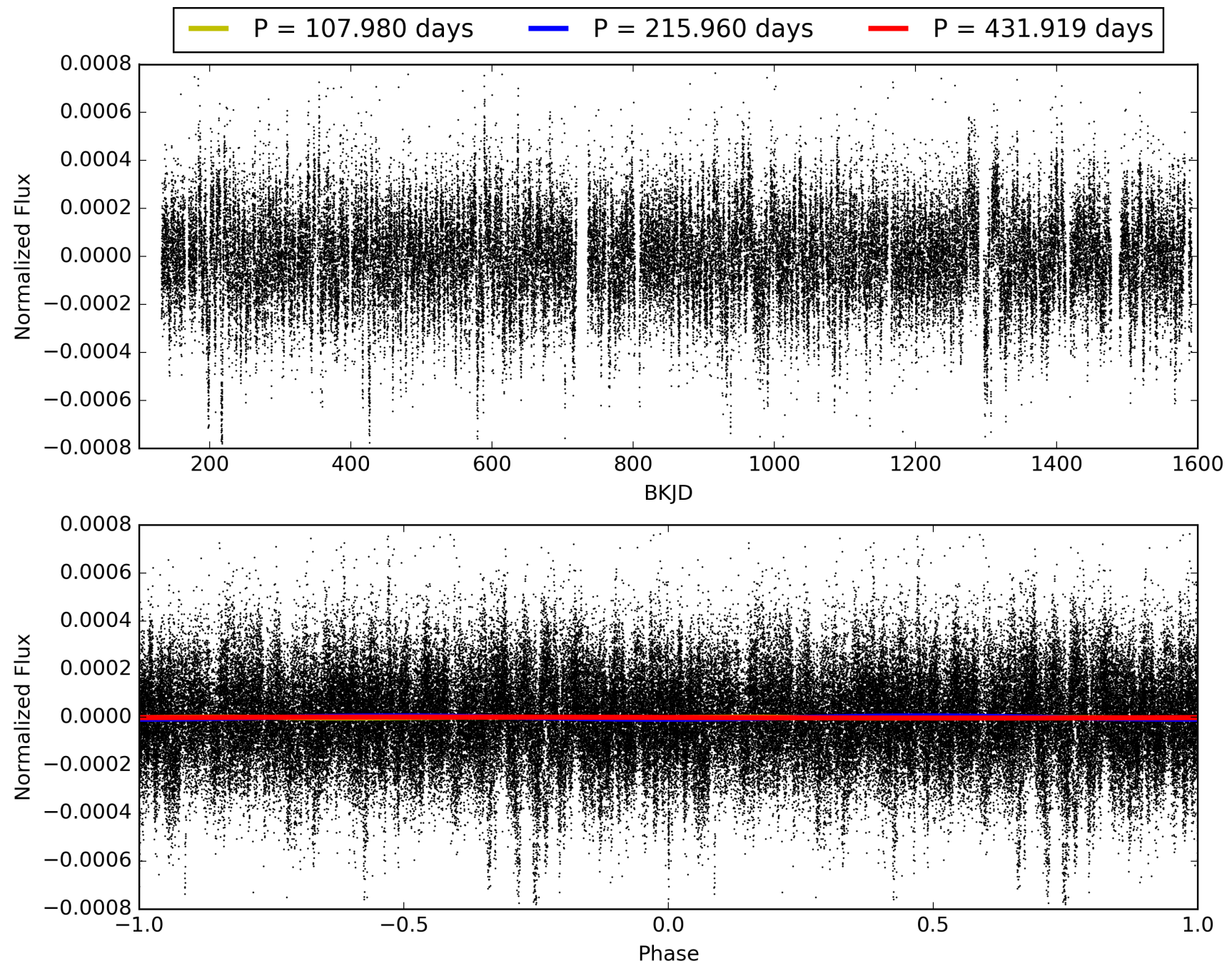
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:26:36 Z

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

# TCE 008264402-01, PDC Light Curves

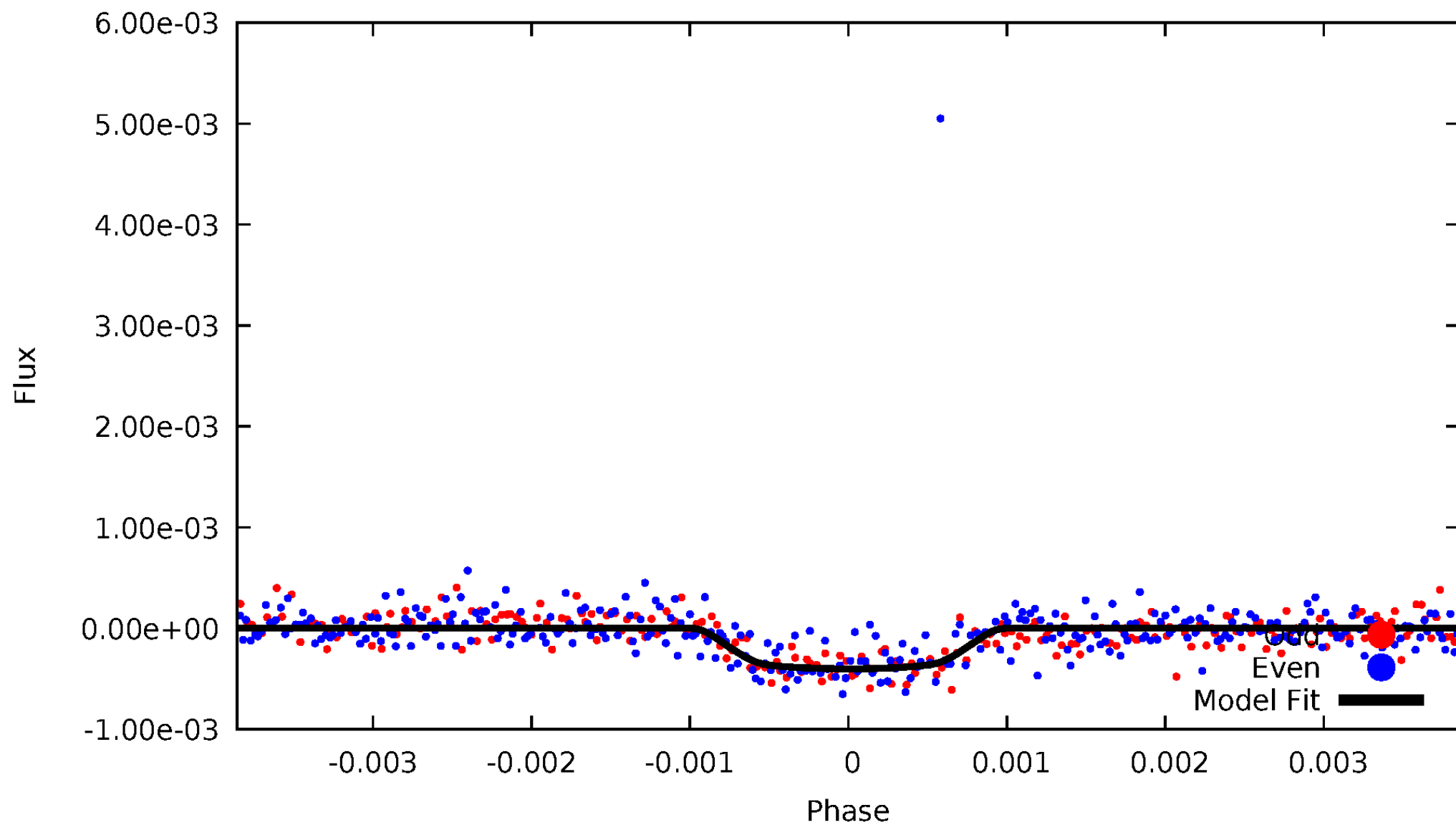


TCE 008264402-01



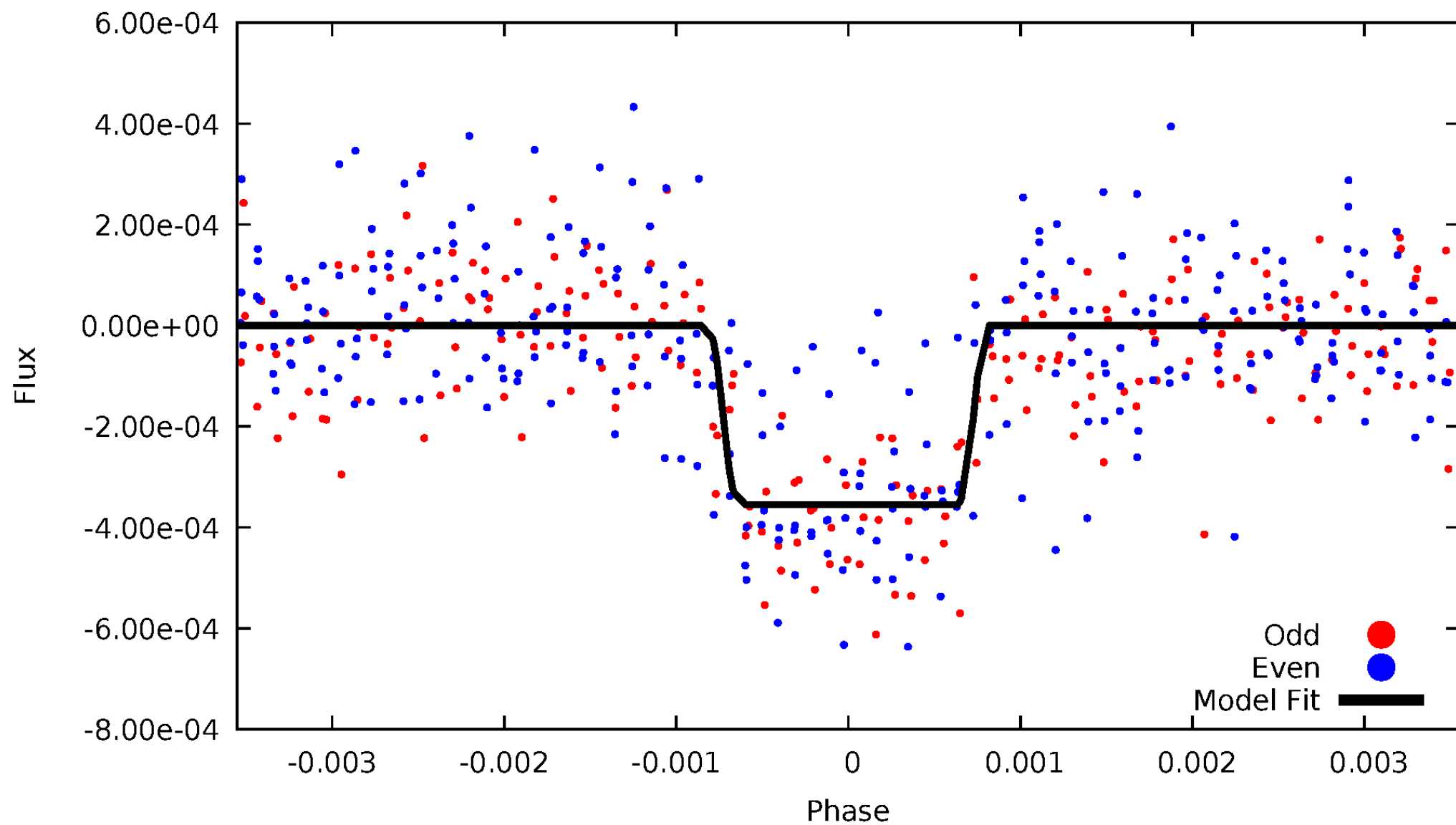
# DV Odd/Even

TCE 008264402-01



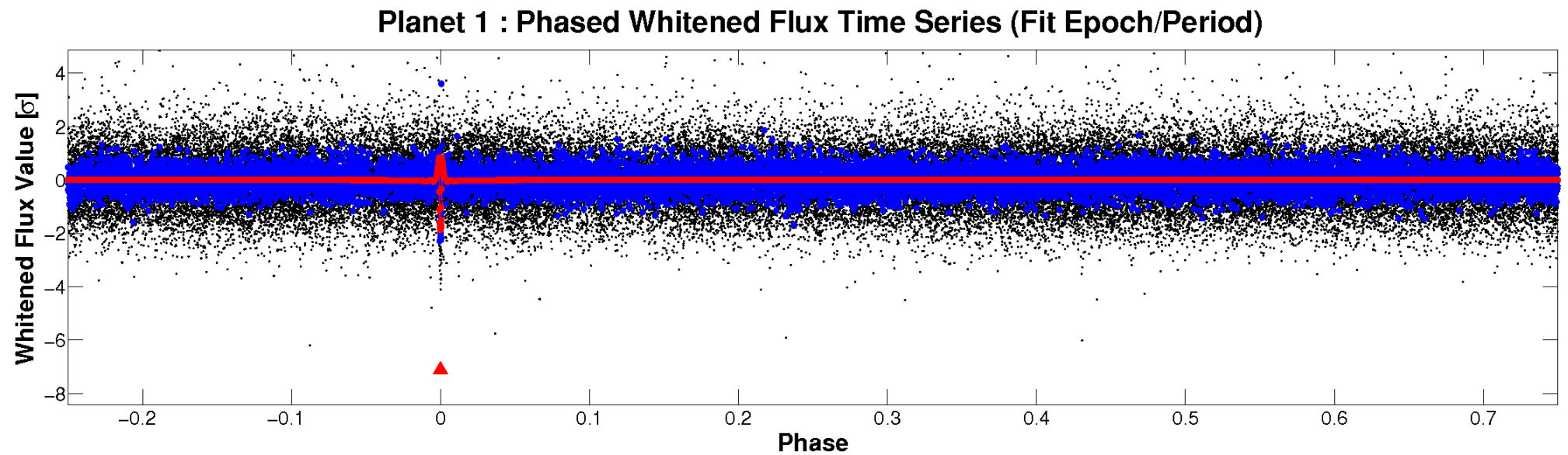
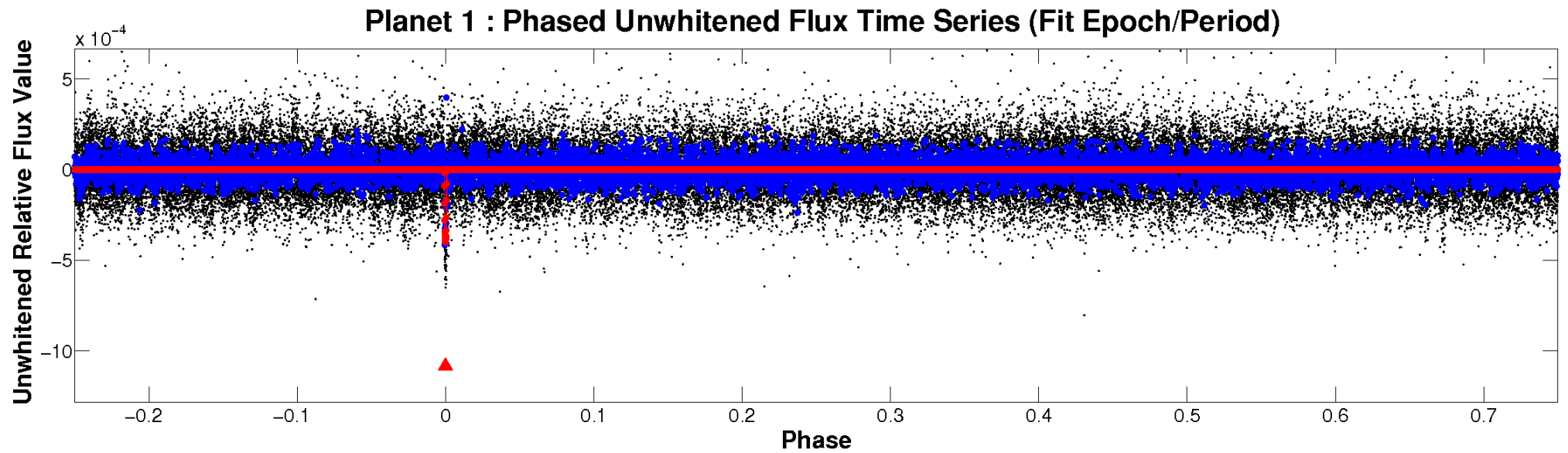
# ALT Odd/Even

TCE 008264402-01



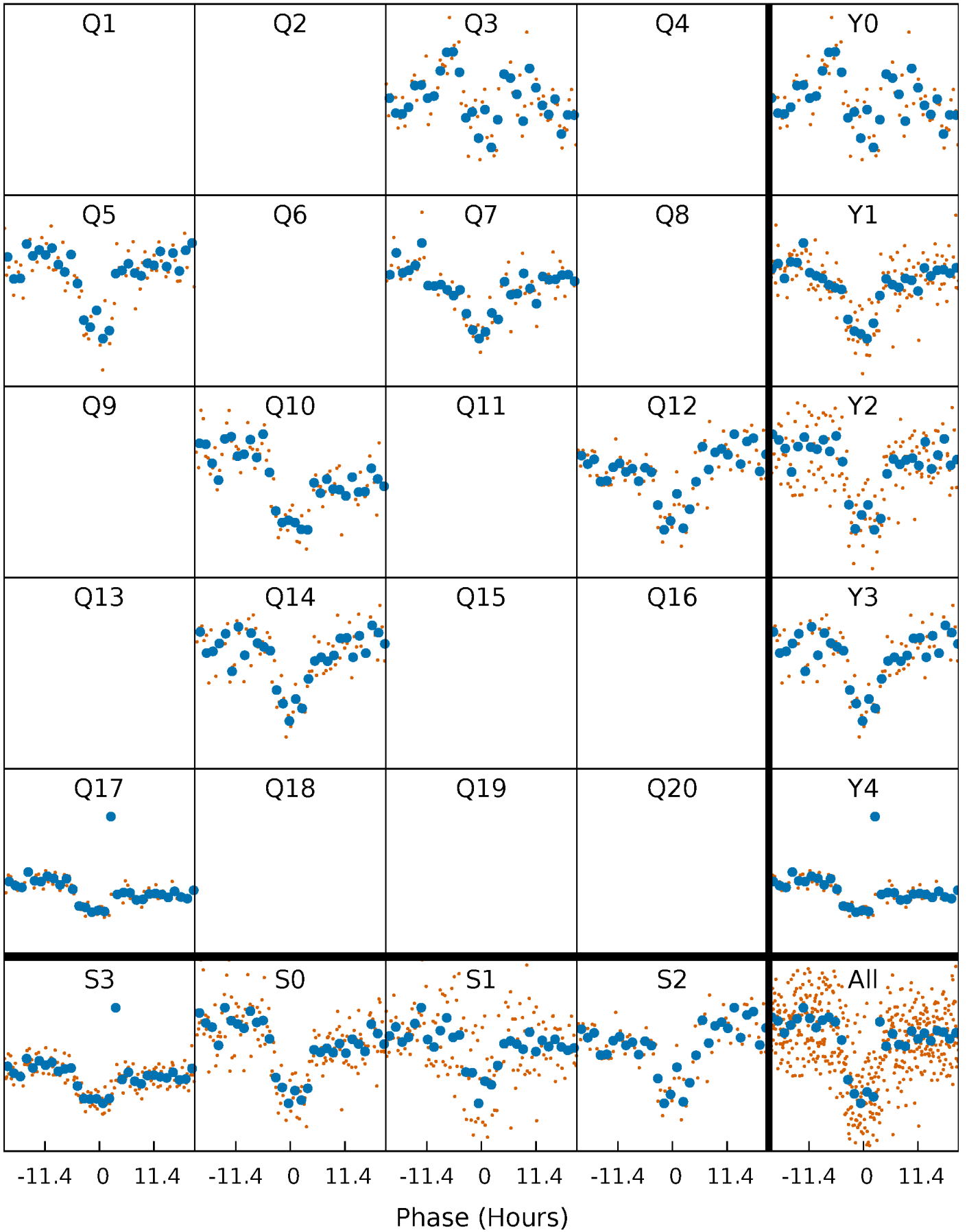


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

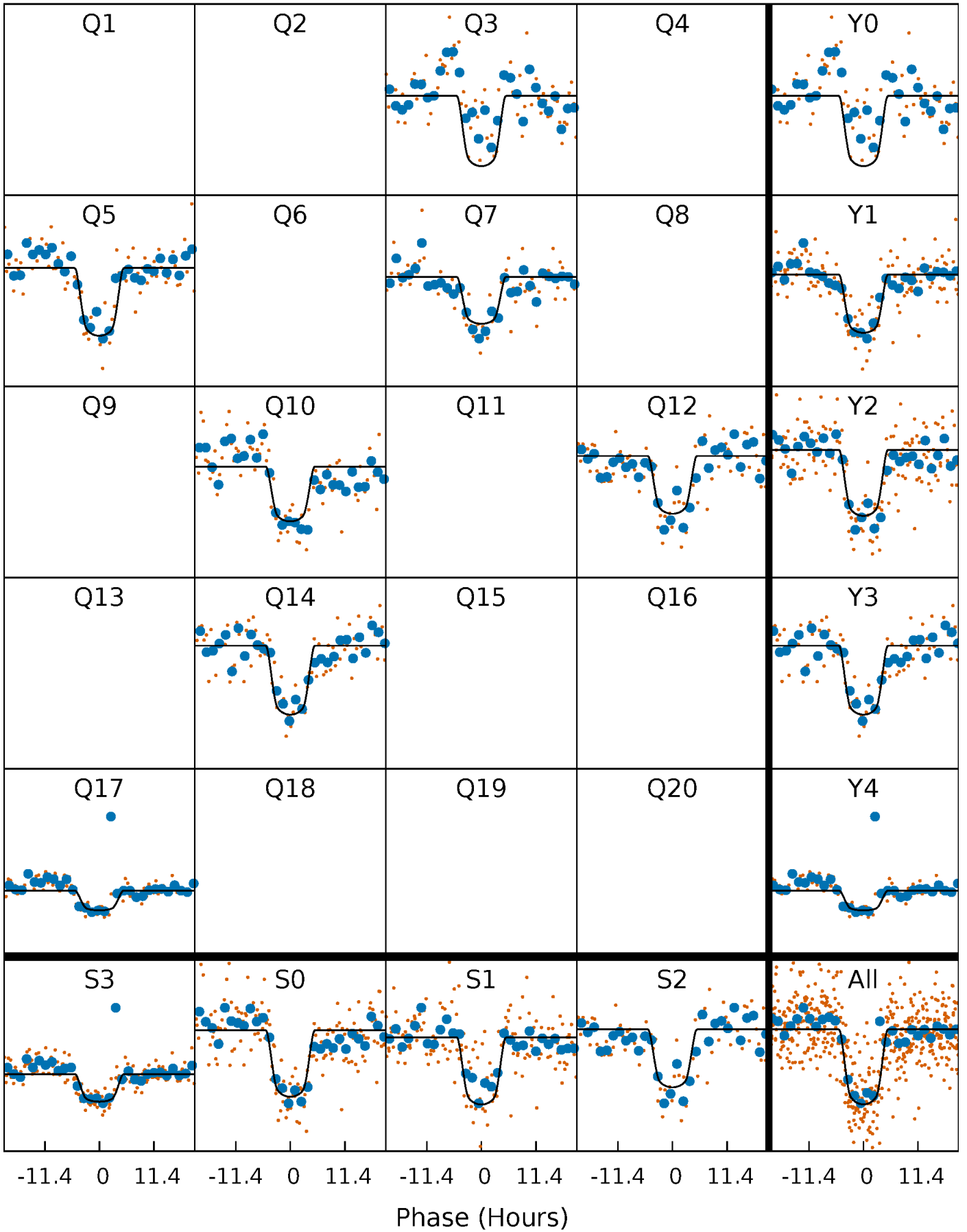
TCE 008264402-01   P=215.959580 Days    $T_0=271.352478$  (BKJD)





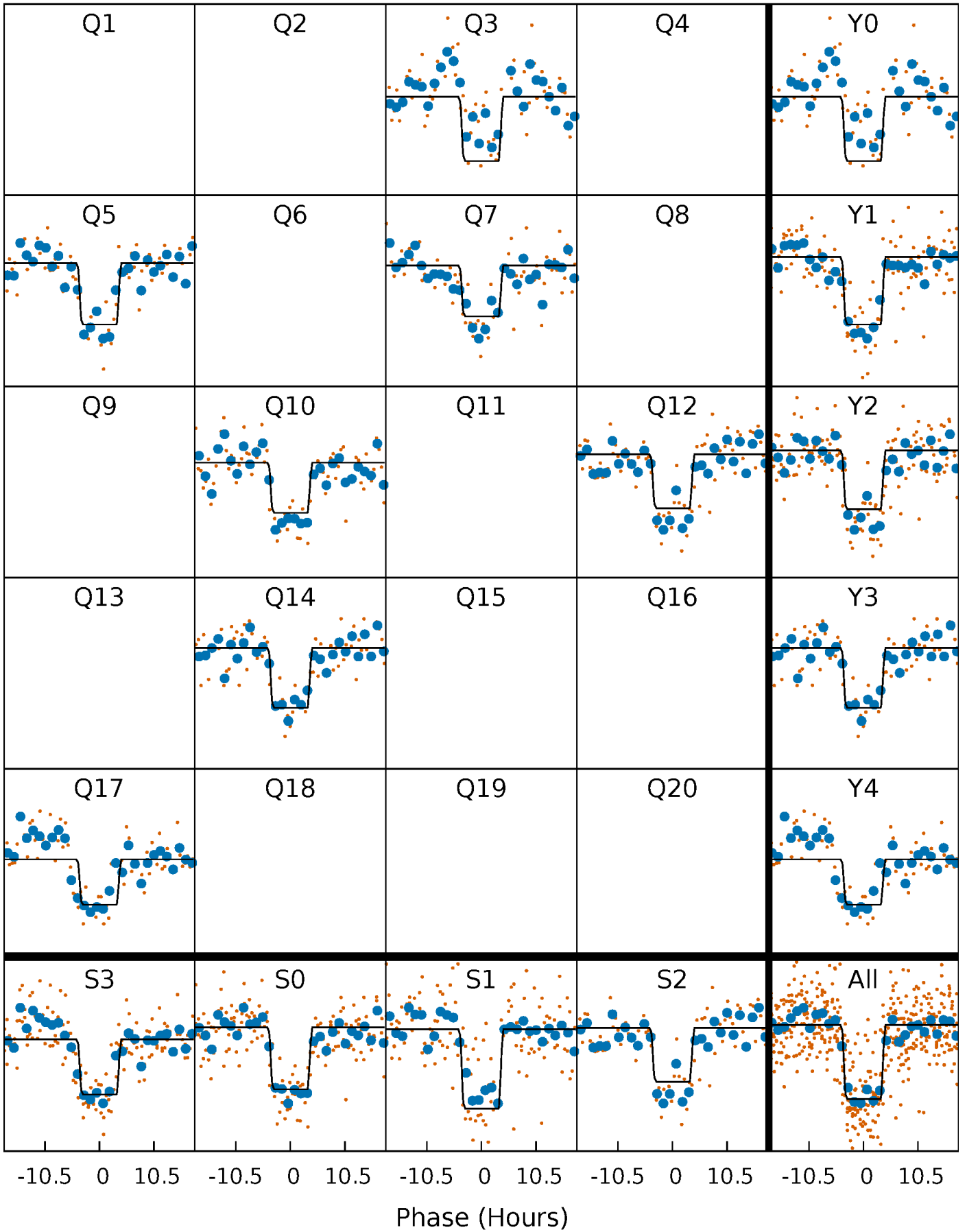
# DV Quarter-Phased Transit Curves

TCE 008264402-01     $P=215.959580$  Days     $T_0=271.352478$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

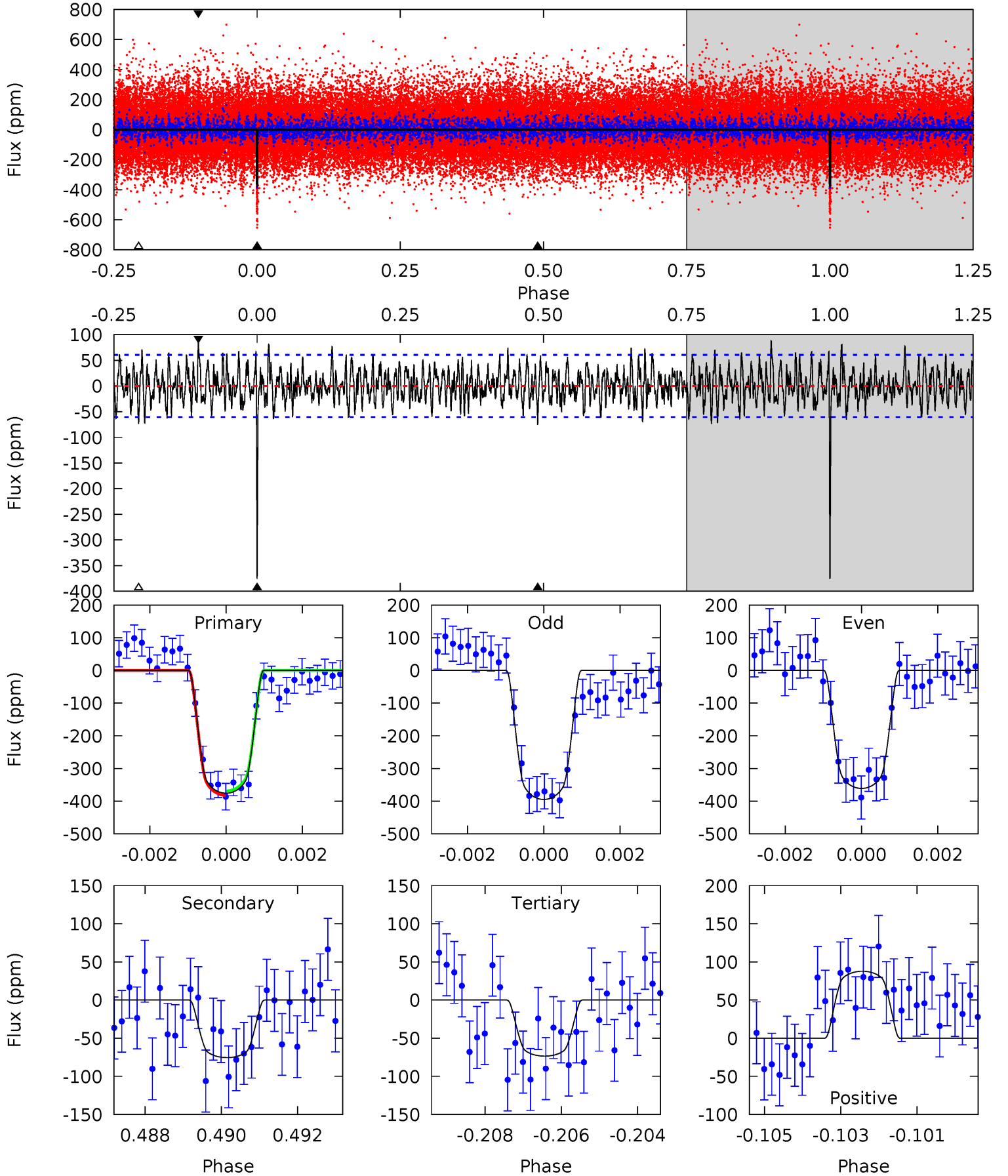
TCE 008264402-01     $P=215.962296$  Days     $T_0=271.344704$  (BKJD)



# DV Model-Shift Uniqueness Test

008264402-01,  $P = 215.959580$  Days,  $E = 55.392898$  Days

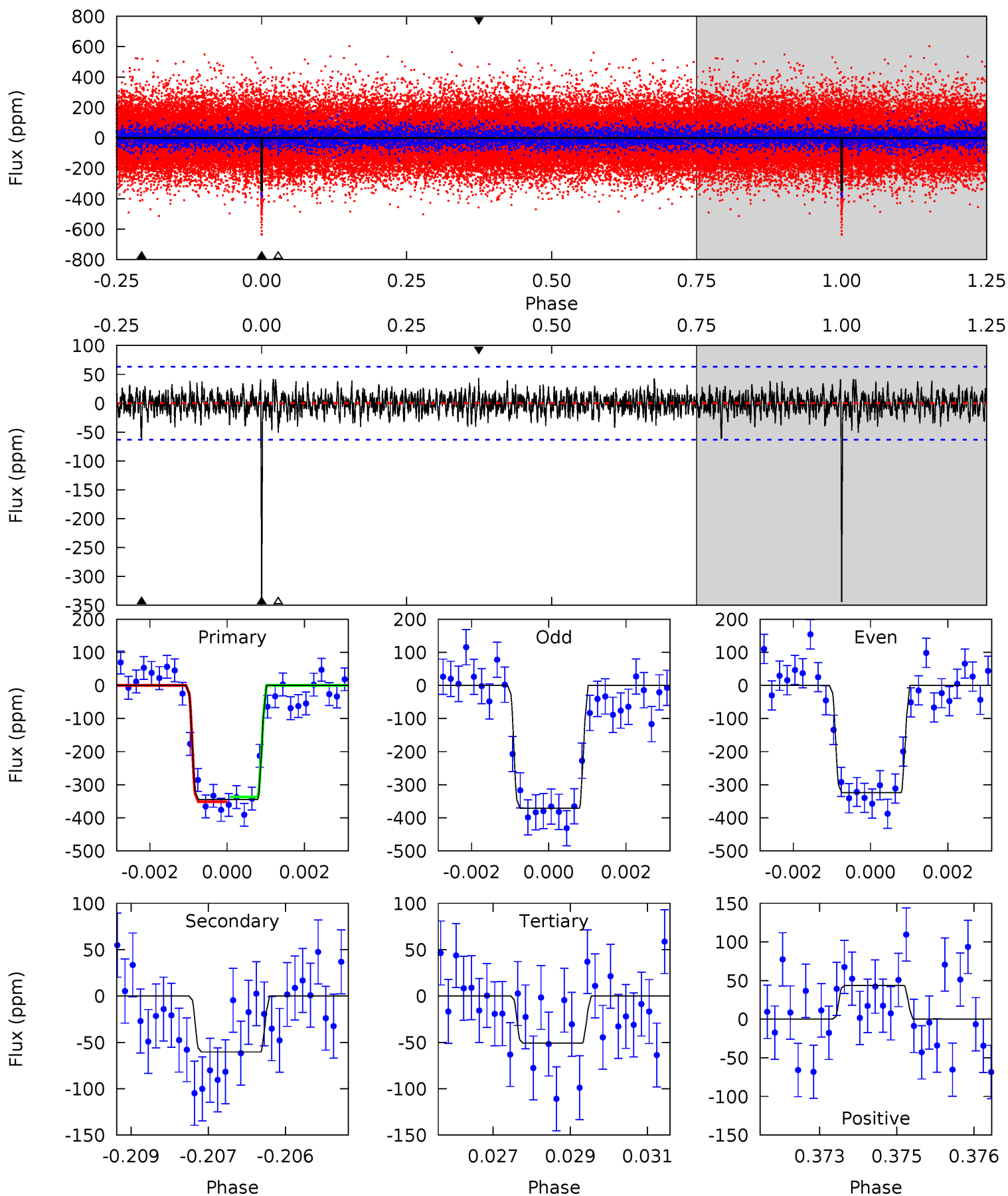
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 33.1 | 6.64 | 6.47 | 7.72 | 5.32            | 3.09            | 2.37             | 26.6    | 25.3    | 0.17    | -1.08   | 1.48    | 0.91 | 0.19  | 0.61 |



# Alt Model-Shift Uniqueness Test

008264402-01, P = 215.962296 Days, E = 55.382408 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 29.3 | 5.14 | 4.32 | 3.71 | 5.37            | 3.15            | 1.17             | 25.0    | 25.6    | 0.81    | 1.42    | 2.00    | 0.97 | 0.11  | 0.62 |



### Stellar Parameters For KIC 008264402

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
|        | $6163^{+73}_{-86}$   | $4.270^{+0.103}_{-0.126}$ | $0.100^{+0.150}_{-0.150}$ | $1.313^{+0.230}_{-0.167}$ | $1.174^{+0.094}_{-0.085}$ | $0.731^{+0.337}_{-0.270}$                 |
|        | +1%/-1%              | +2%/-3%                   | +150%/-150%               | +18%/-13%                 | +8%/-7%                   | +46%/-37%                                 |
| Source | SPE90                | SPE90                     | SPE90                     | DSEP                      |                           |   |

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

### Secondary Eclipse Parameters for KIC 008264402-01 / KOI 4037.01

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$        | $A_{obs}$            |
|---------|--------------|------------------------|-------------------|----------------------|----------------------|
| DV      | $-75 \pm 11$ | $3.35^{+0.39}_{-0.30}$ | $506^{+26}_{-19}$ | $4072^{+137}_{-149}$ | $2040^{+567}_{-505}$ |
| Alt.    | $-60 \pm 12$ | $2.72^{+0.30}_{-0.24}$ | $506^{+22}_{-18}$ | $4227^{+169}_{-190}$ | $2497^{+701}_{-648}$ |

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

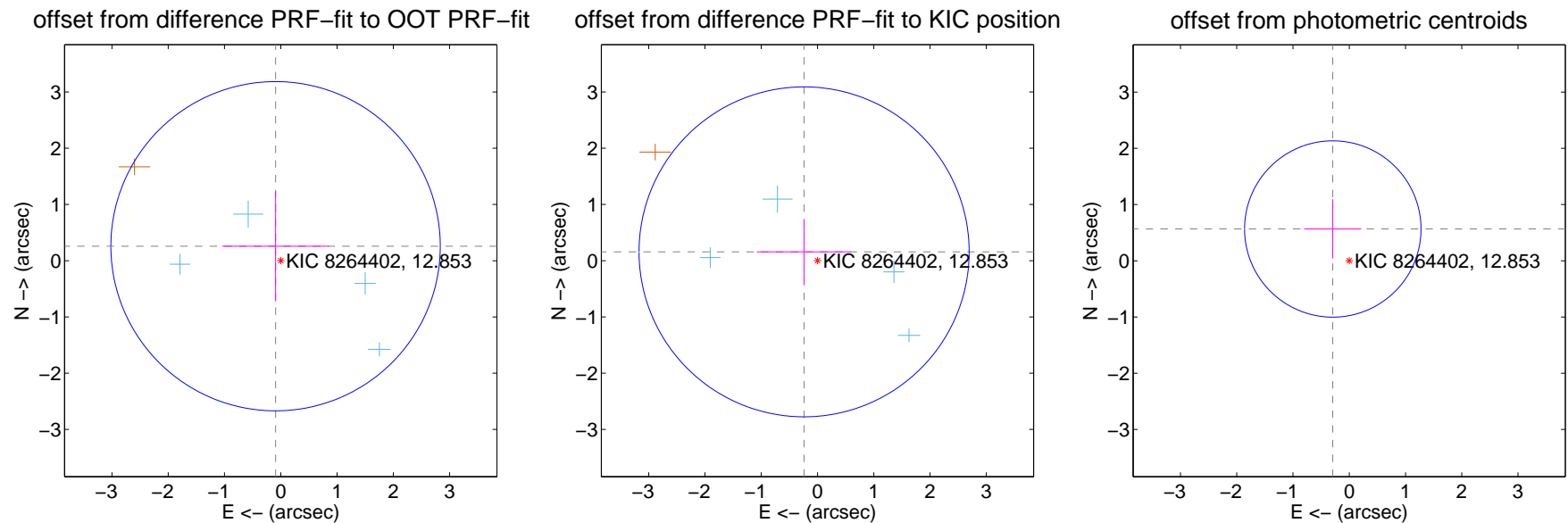
## DV Centroid Data

Supplemental centroid analysis for 008264402-01. Kepler magnitude: 12.85. Transit SNR 18.01

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

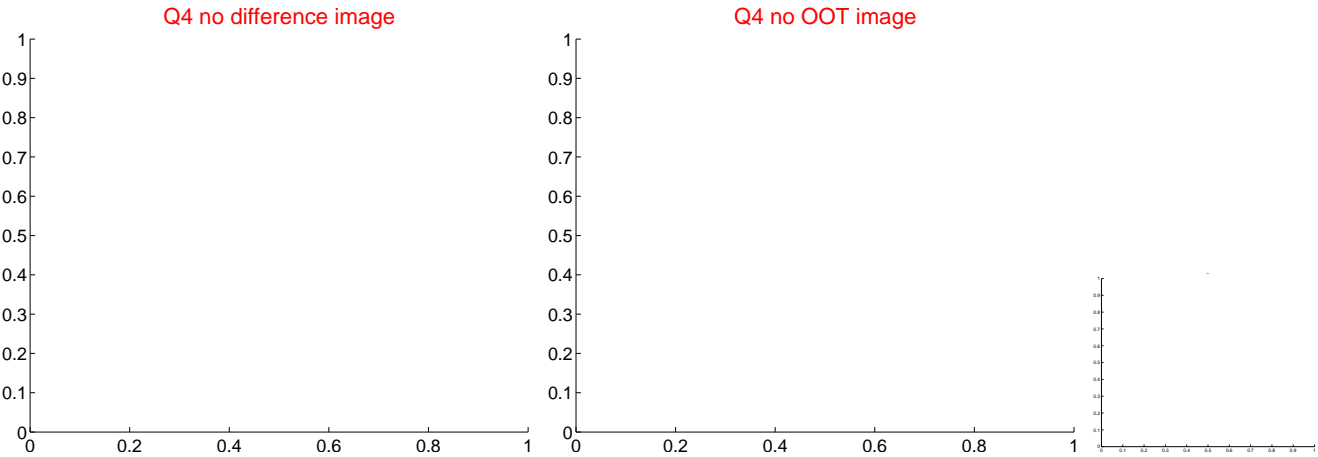
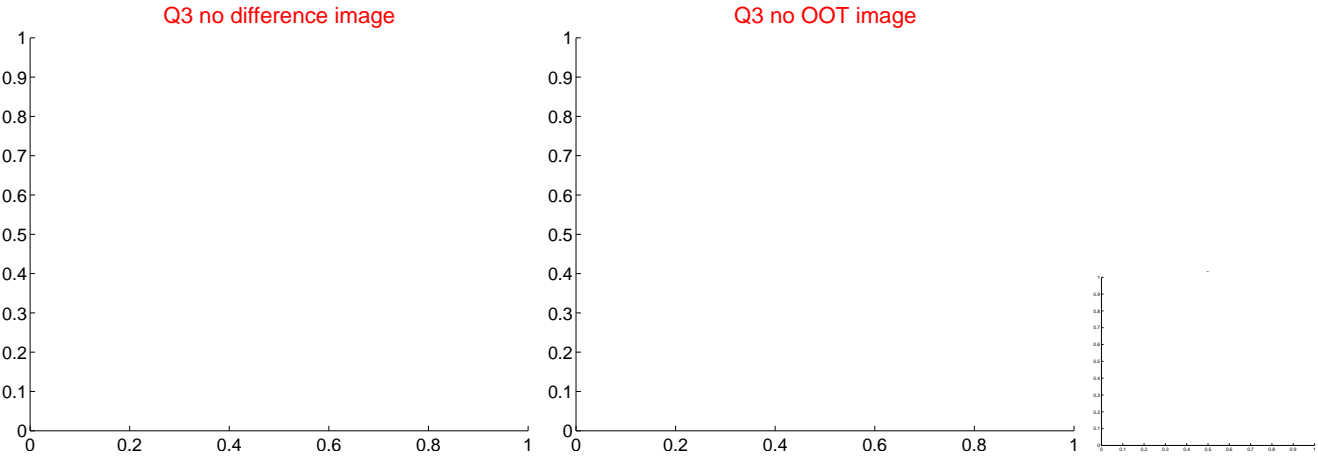
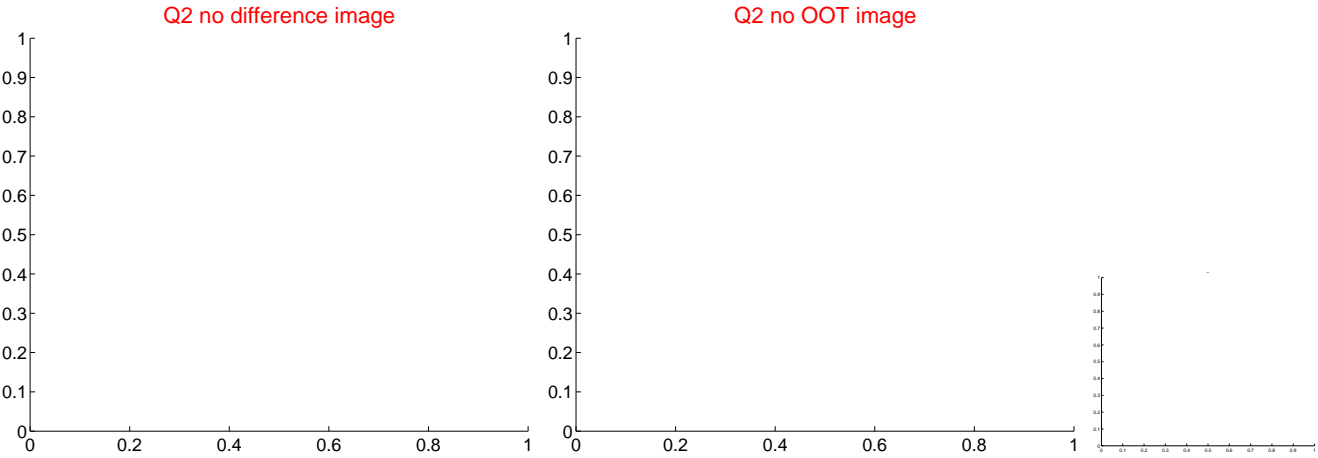
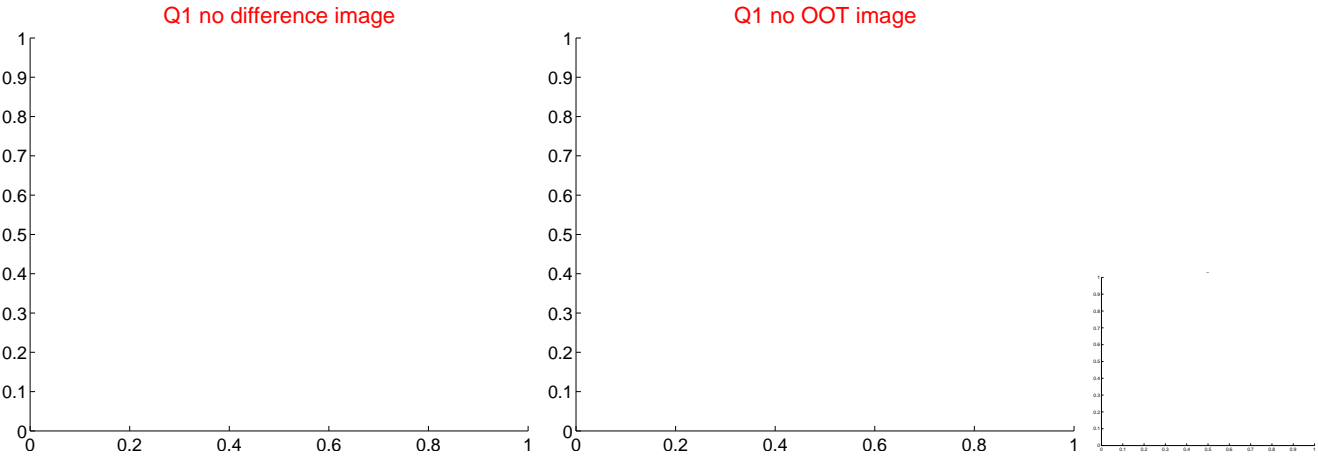
|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.273 \pm 0.976$  | 0.28                | $0.092 \pm 0.948$ | $0.257 \pm 0.979$ |
| PRF-fit source offset from KIC position | $0.286 \pm 0.978$  | 0.29                | $0.238 \pm 0.838$ | $0.157 \pm 0.579$ |
| photometric centroid source offset      | $0.64 \pm 0.52$    | 1.22                | $0.29 \pm 0.51$   | $0.57 \pm 0.53$   |



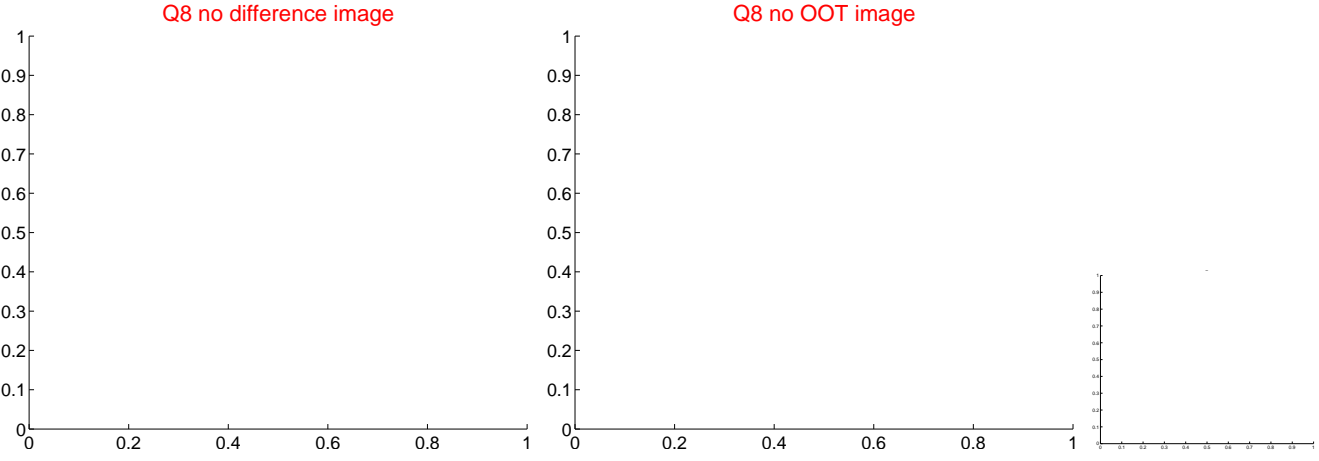
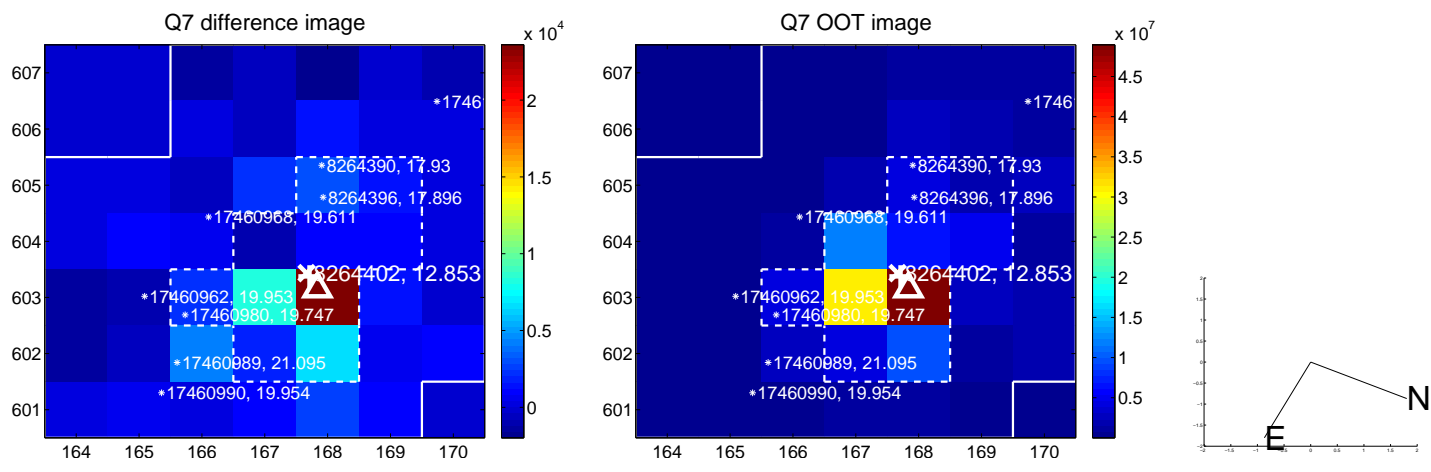
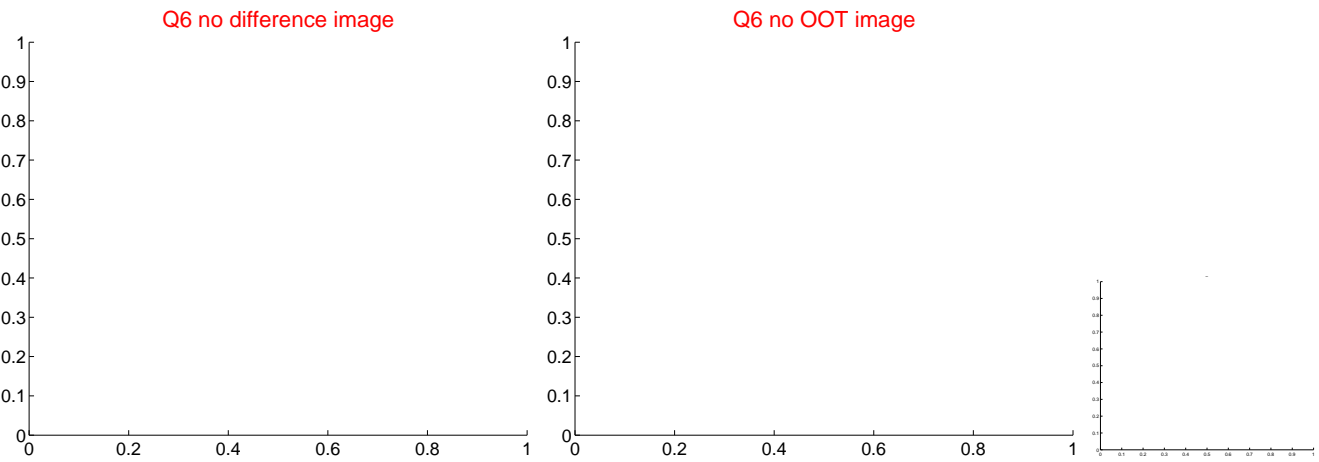
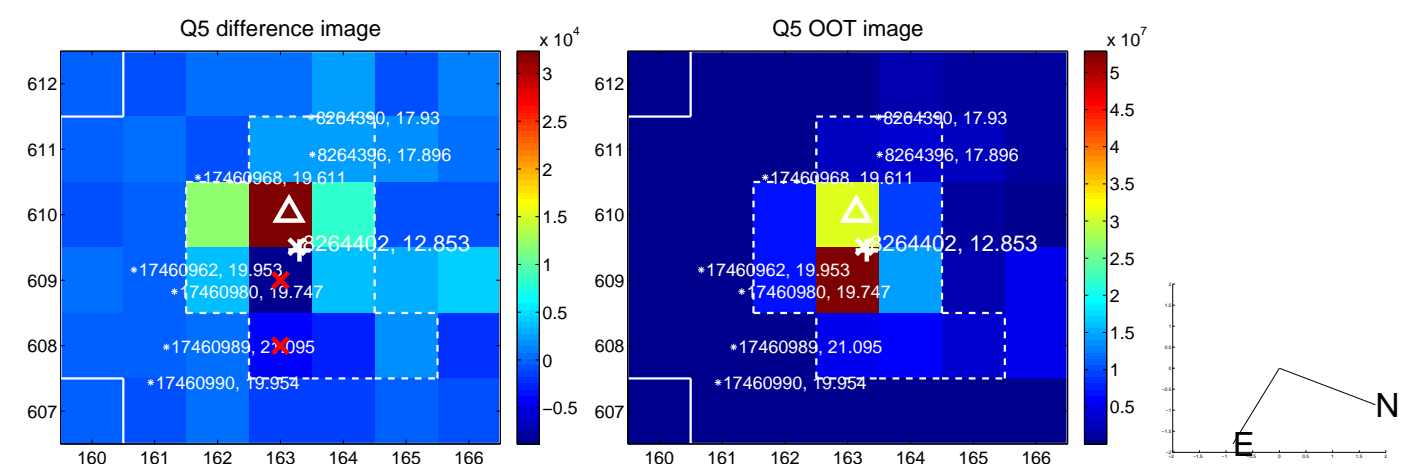
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

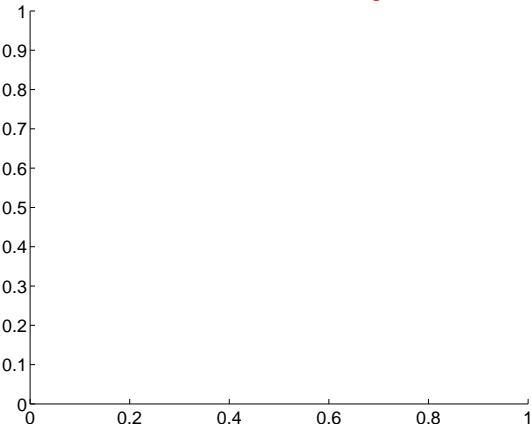


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

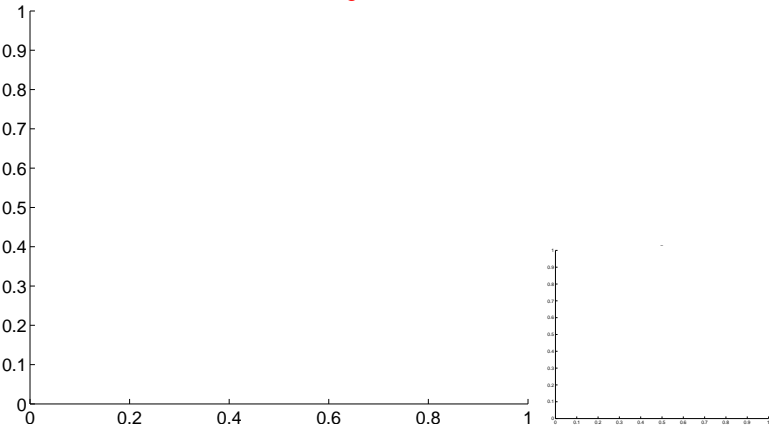


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

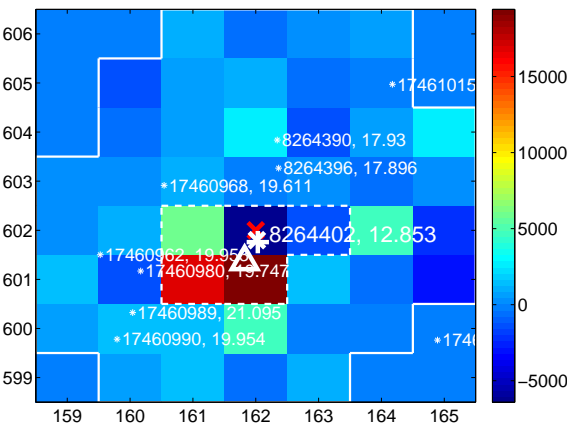
Q9 no difference image



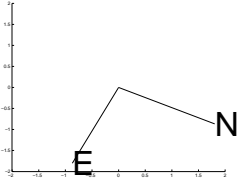
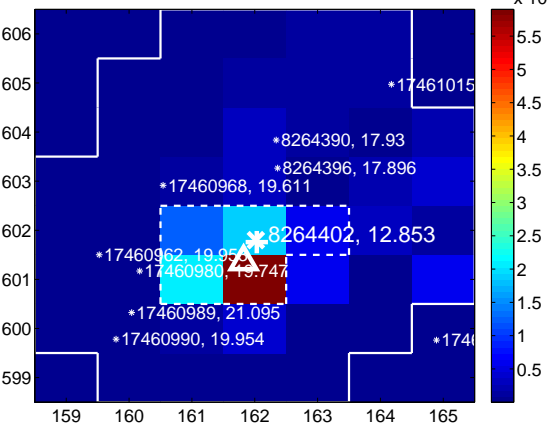
Q9 no OOT image



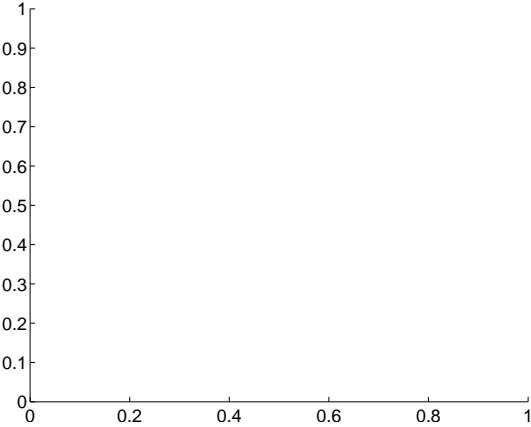
Q10 difference image



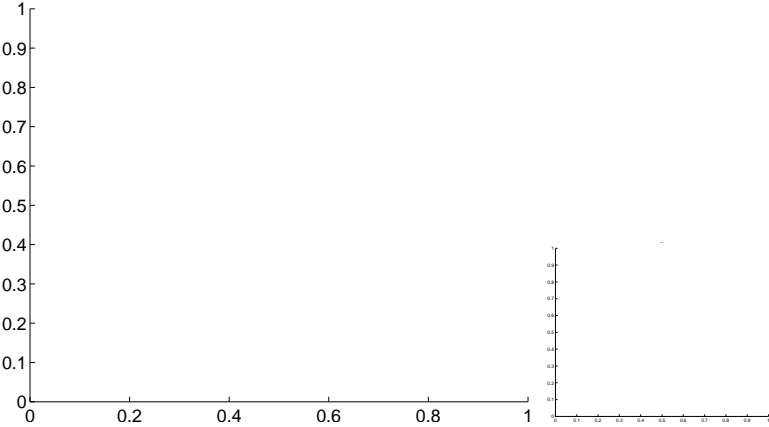
Q10 OOT image



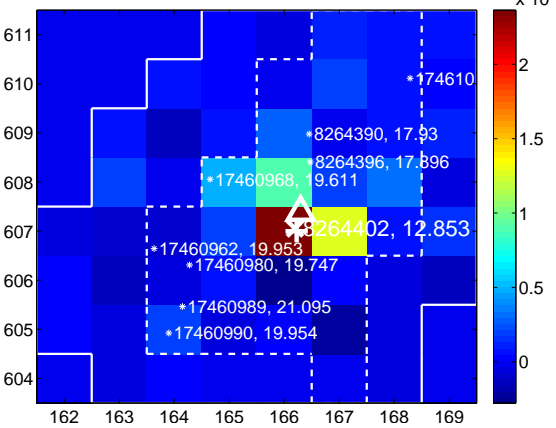
Q11 no difference image



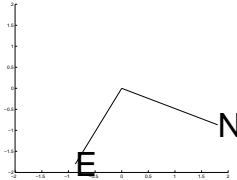
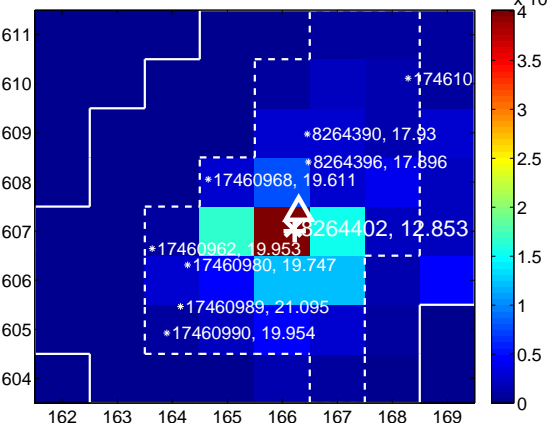
Q11 no OOT image



Q12 difference image

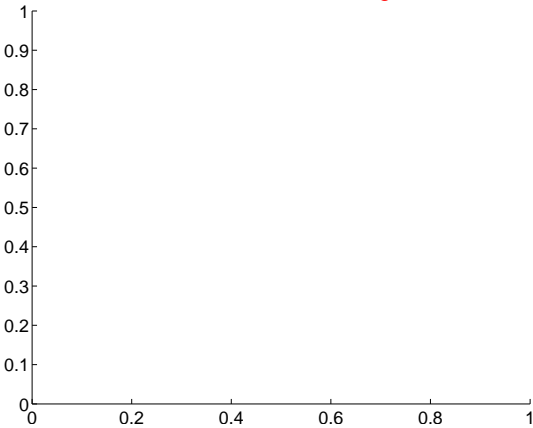


Q12 OOT image

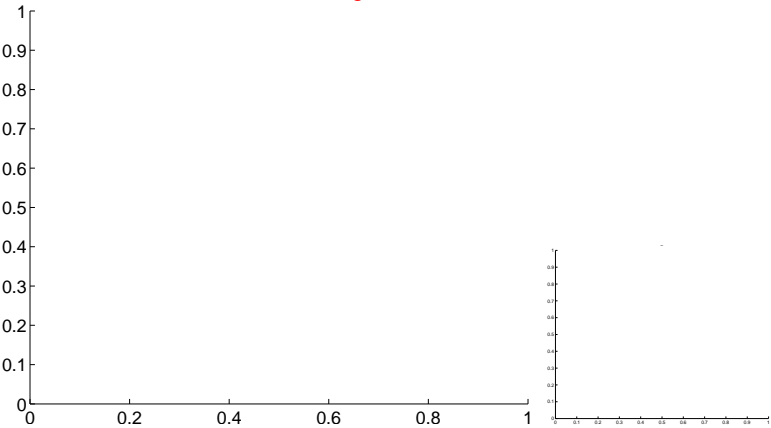


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

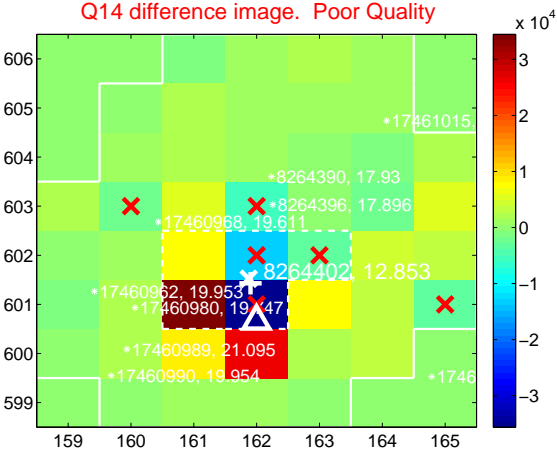
Q13 no difference image



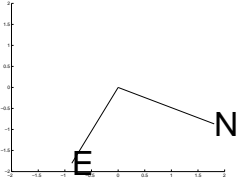
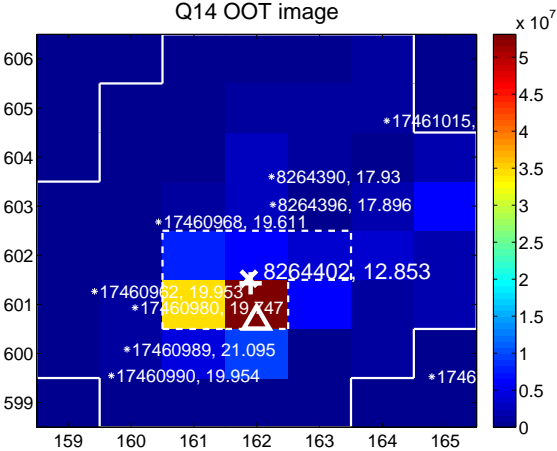
Q13 no OOT image



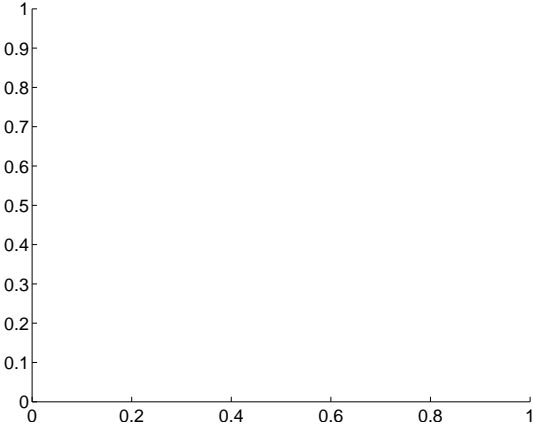
Q14 difference image. Poor Quality



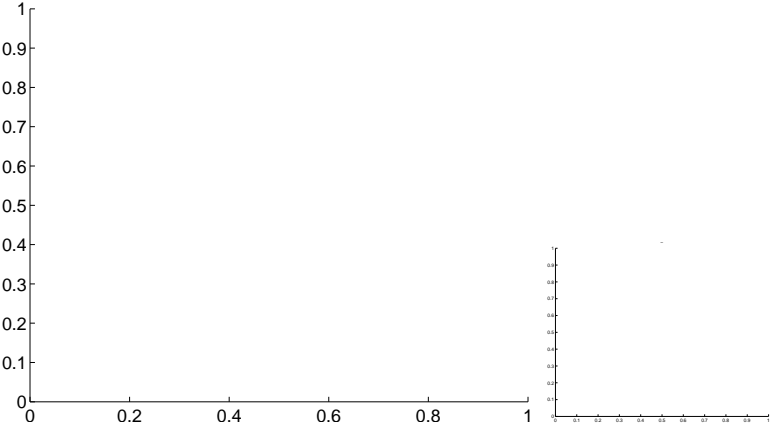
Q14 OOT image



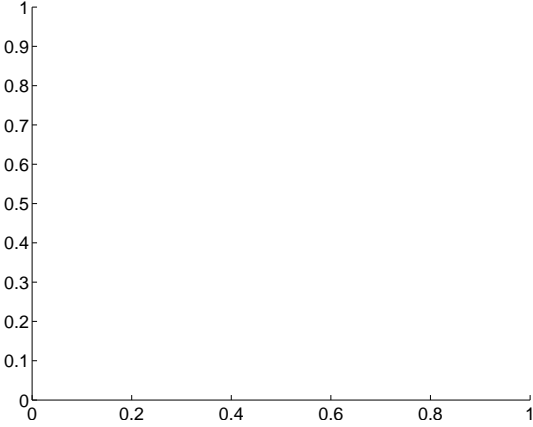
Q15 no difference image



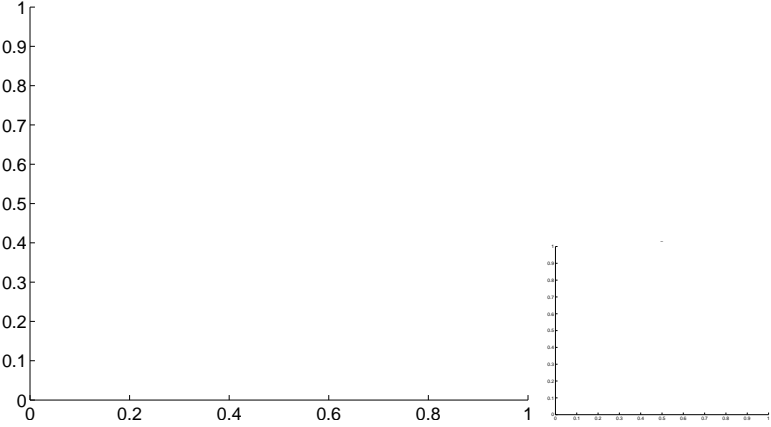
Q15 no OOT image



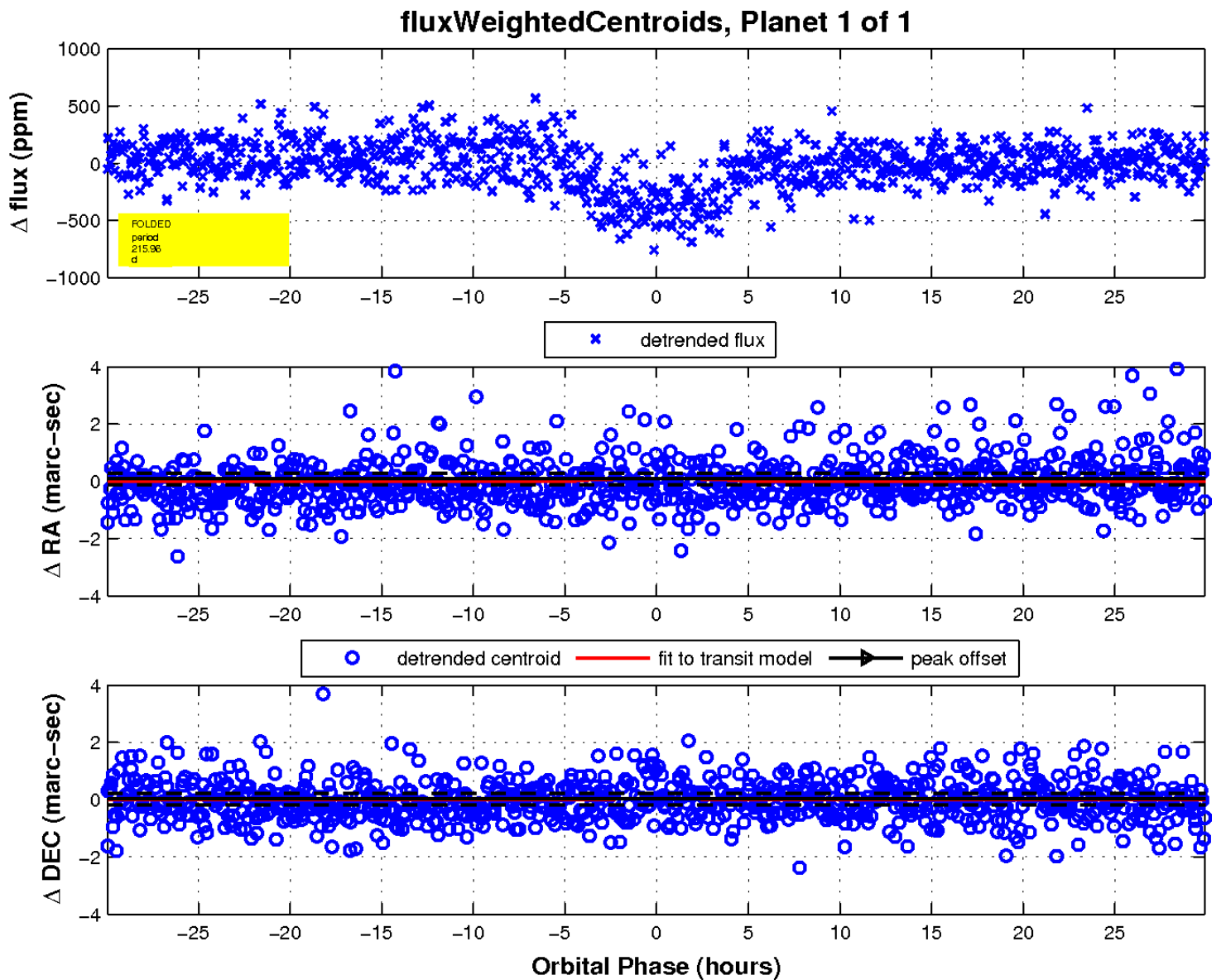
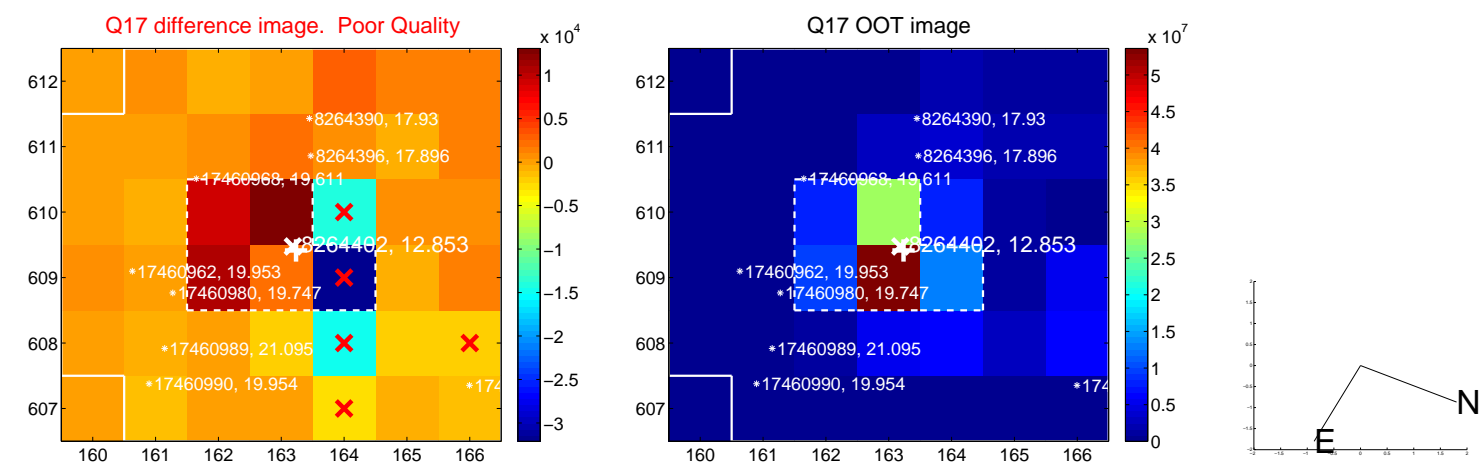
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

