

# KIC 010273162

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 010273162-01 | OBS      | No   | 363.640743    | 140.983211   | 832.9       | 16.224           | 7.9 | 7.4 | 1.03                        | 6108            | 3.23                   | 1.23                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 010273162-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—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.

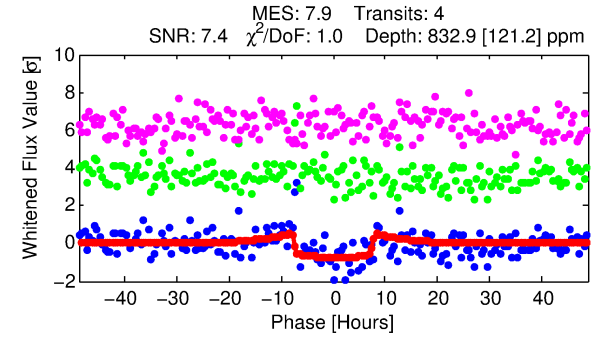
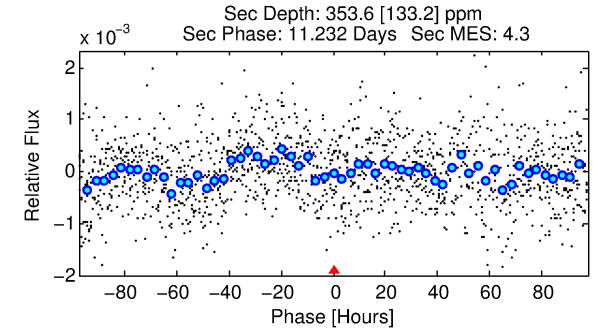
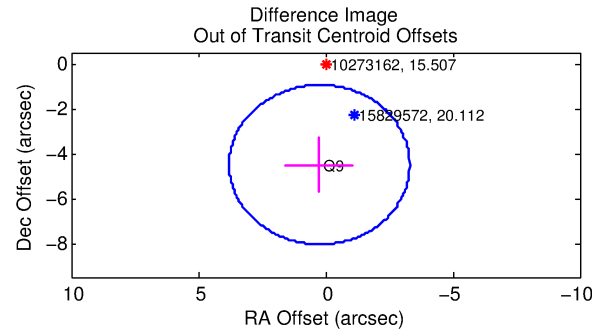
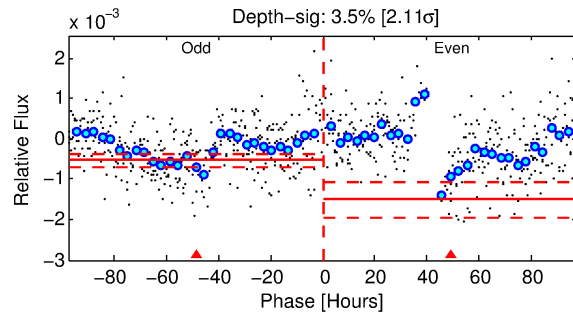
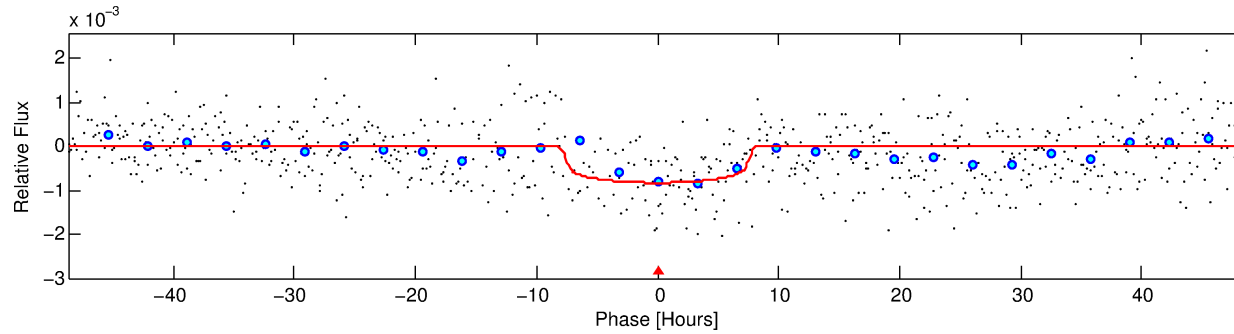
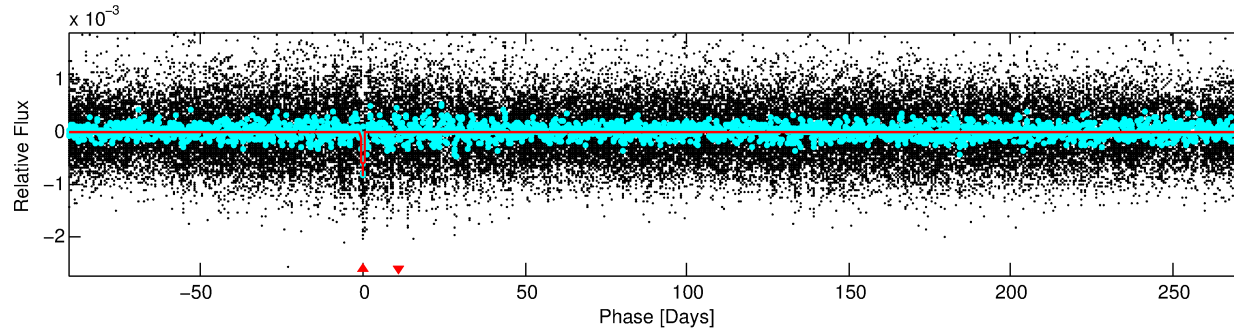
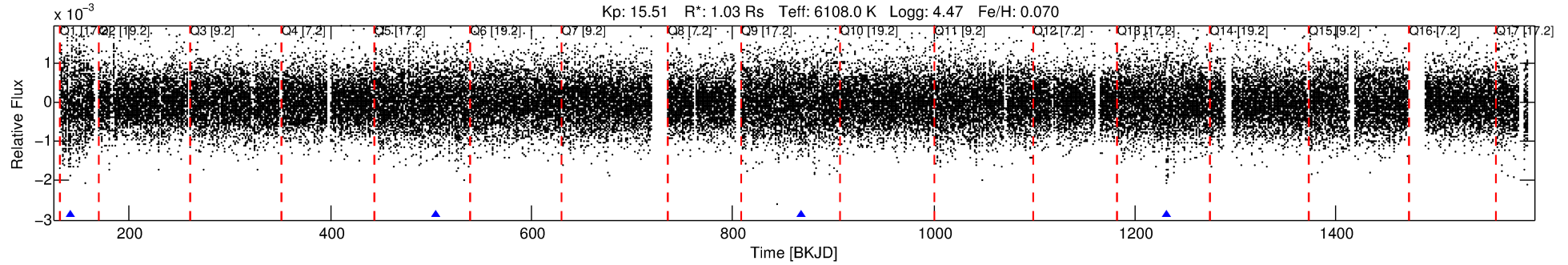
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010273162-01

No Significant Match Found

# DV One-Page Summary

KIC: 10273162 Candidate: 1 of 1 Period: 363.641 d



## DV Fit Results:

Period = 363.64074 [0.01046] d  
Epoch = 140.9832 [0.0211] BKJD  
Rp/R\* = 0.0287 [0.0051]  
a/R\* = 120.25 [90.26]  
b = 0.75 [0.44]  
Seff = 1.23 [0.56]  
Teq = 268 [31] K  
Rp = 3.23 [1.26] Re  
a = 1.0392 [0.3066] AU  
Ag = 20154.84 [13621.14] [1.48 $\sigma$ ]  
Teffp = 4942 [669] K [6.98 $\sigma$ ]

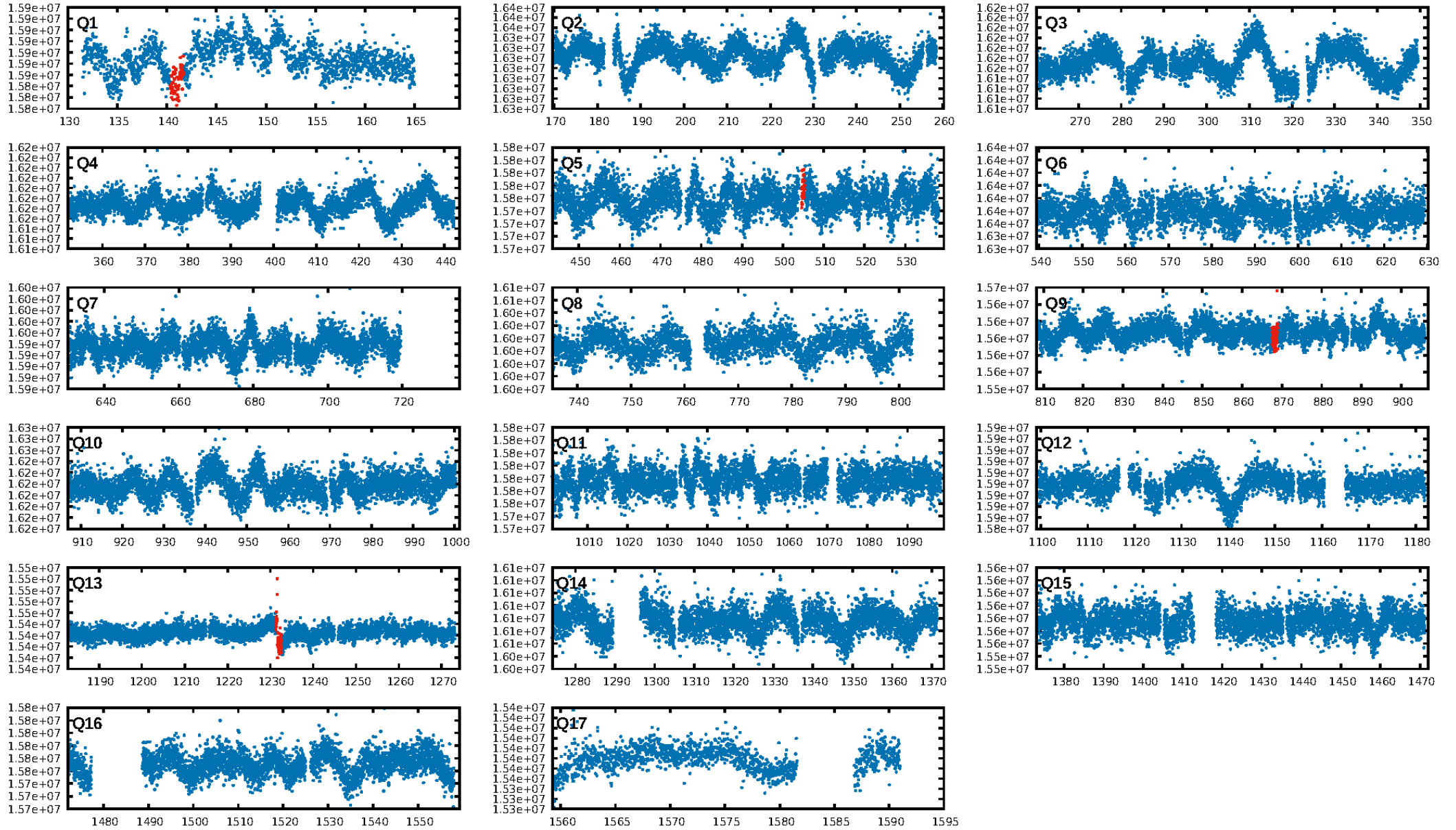
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.69e-11**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.507**  
Centroid-sig: 59.3%  
Centroid-so: 1.674 arcsec [0.83 $\sigma$ ]  
**OotOffset-rm: 4.510 arcsec [3.81 $\sigma$ ]**  
**KicOffset-rm: 4.530 arcsec [3.83 $\sigma$ ]**  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

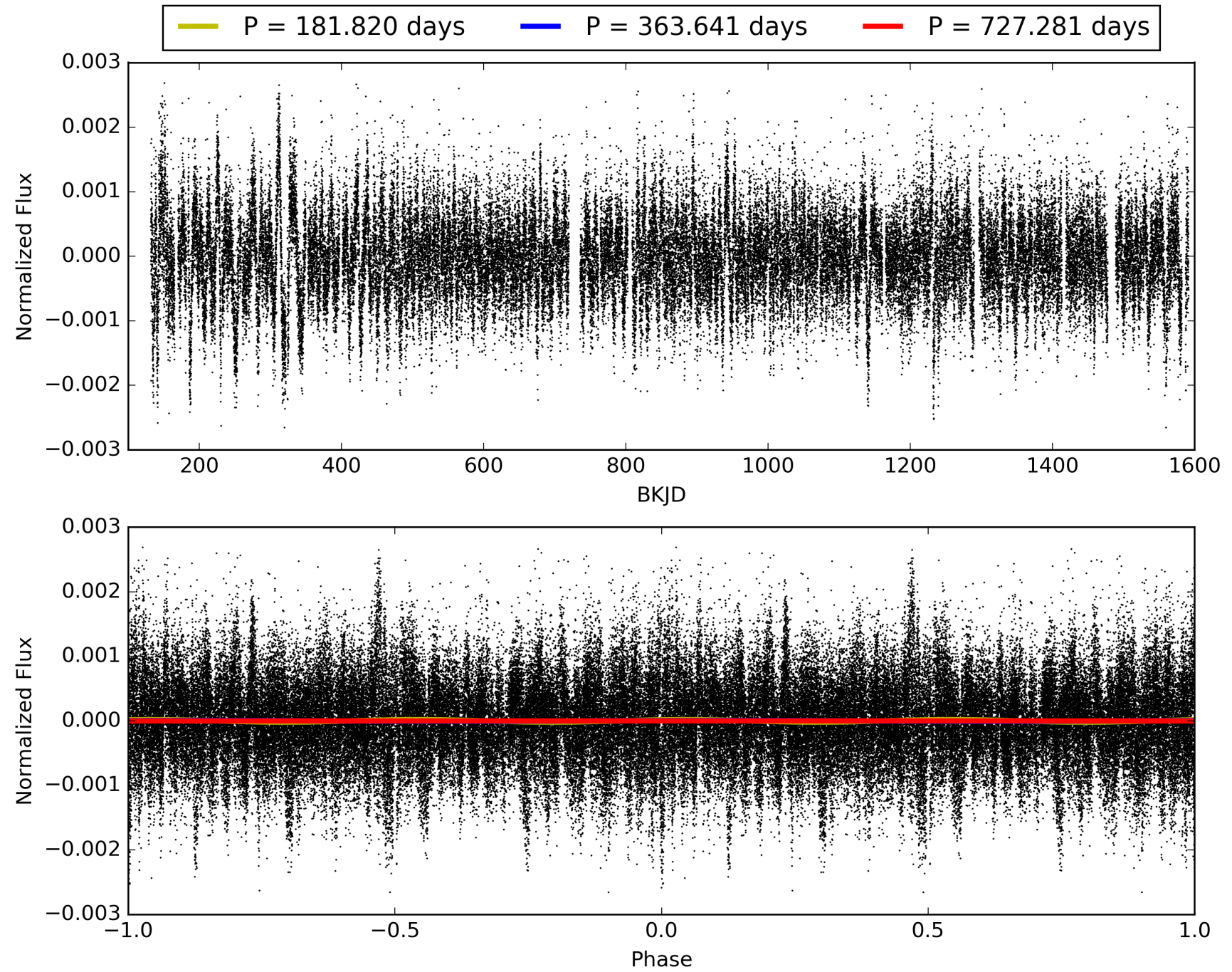
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:12:31 Z

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

# TCE 010273162-01, PDC Light Curves

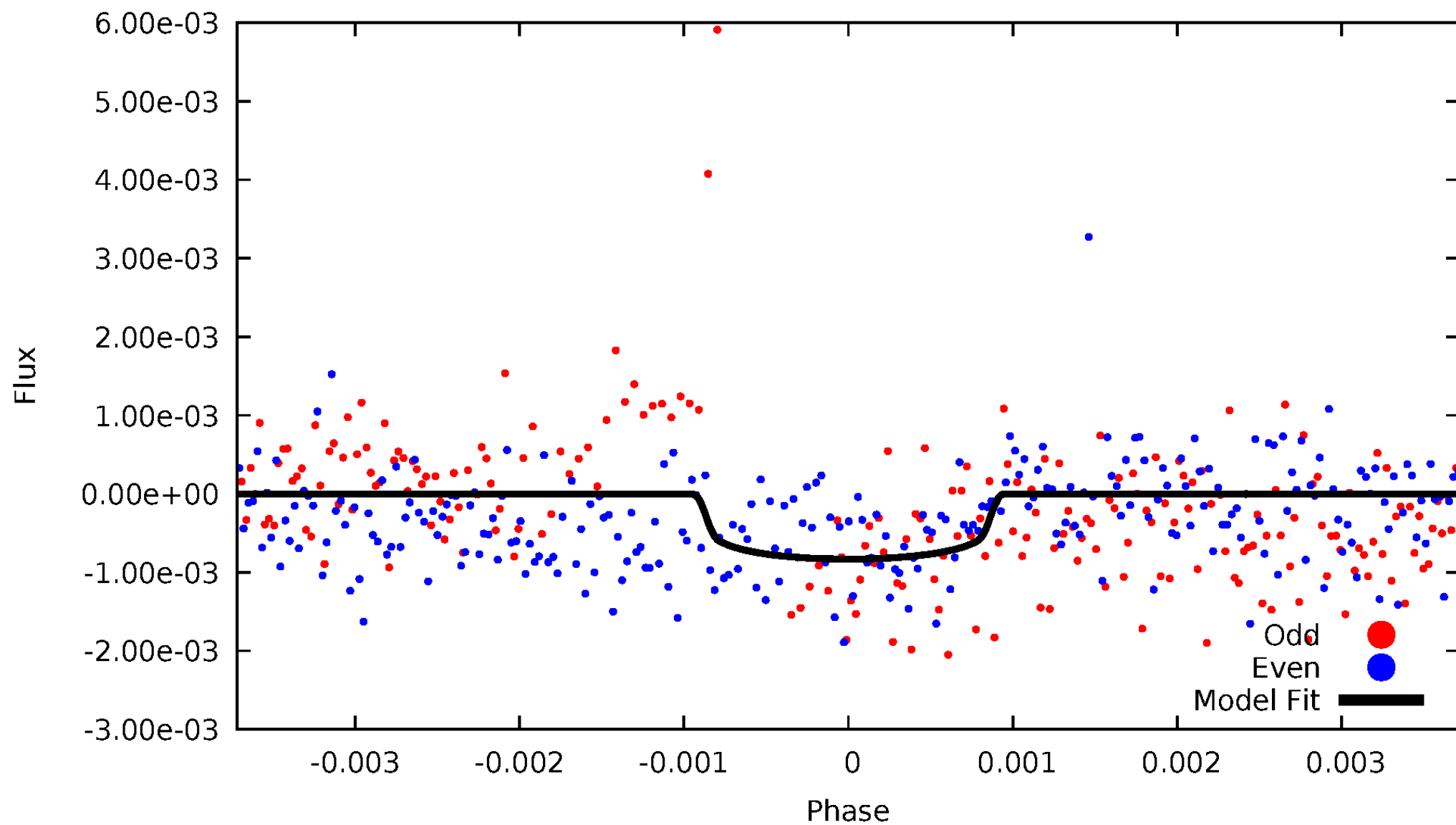


# TCE 010273162-01



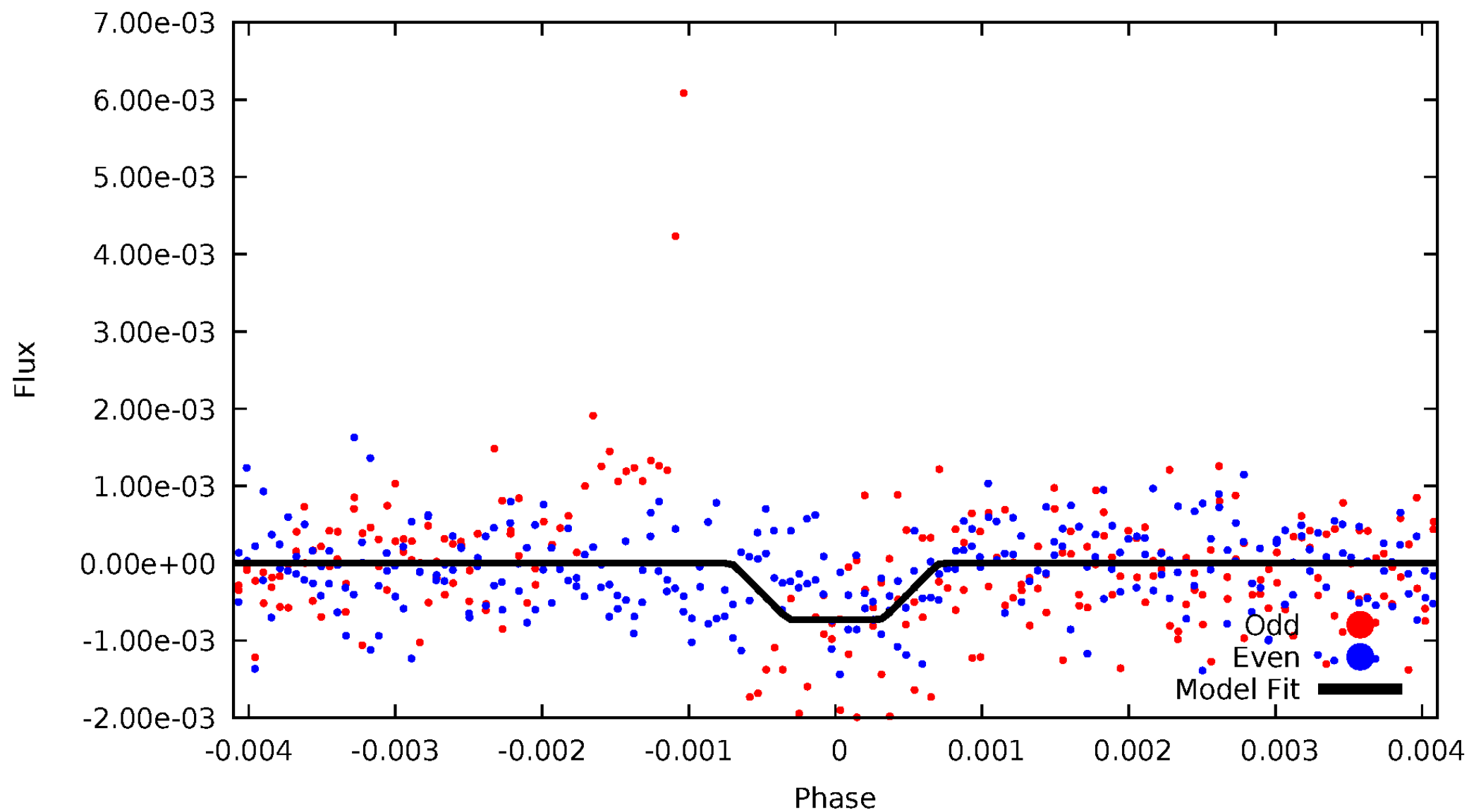
# DV Odd/Even

TCE 010273162-01



# ALT Odd/Even

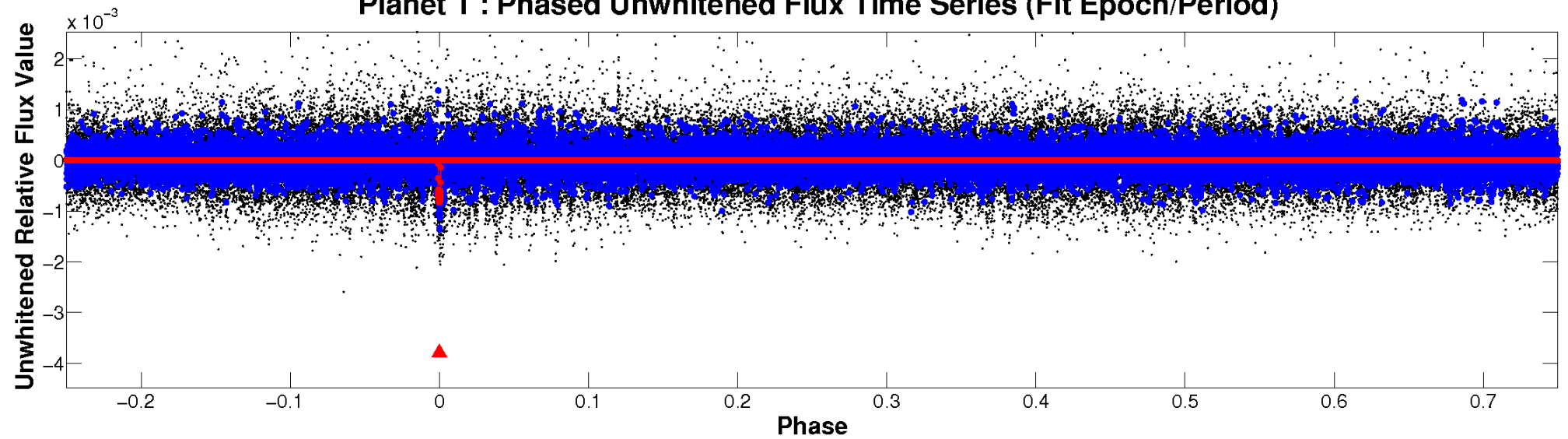
TCE 010273162-01



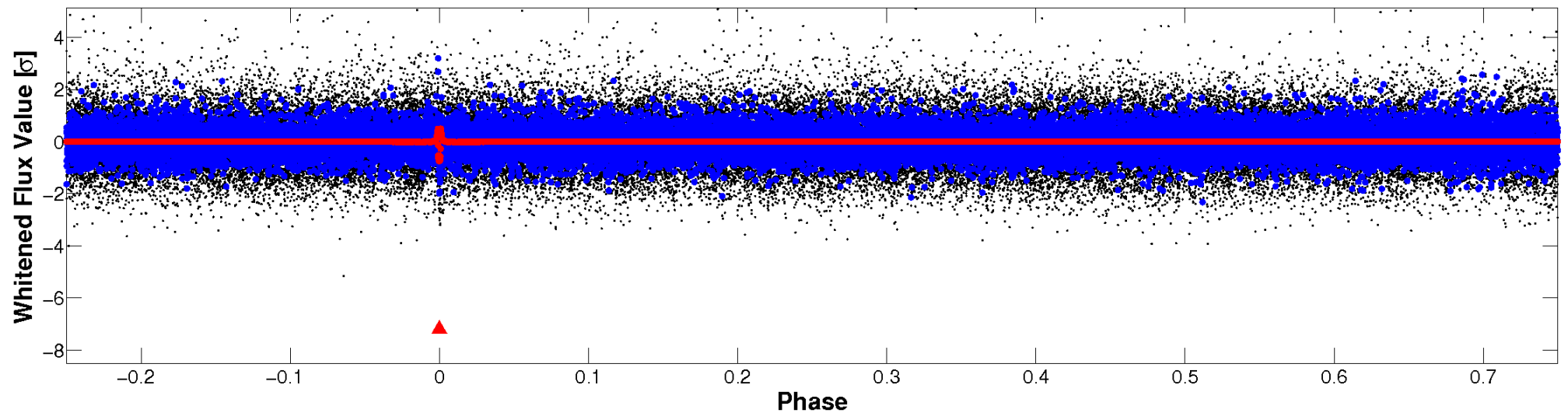


# Non-Whitened Vs. Whitened Light Curve

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

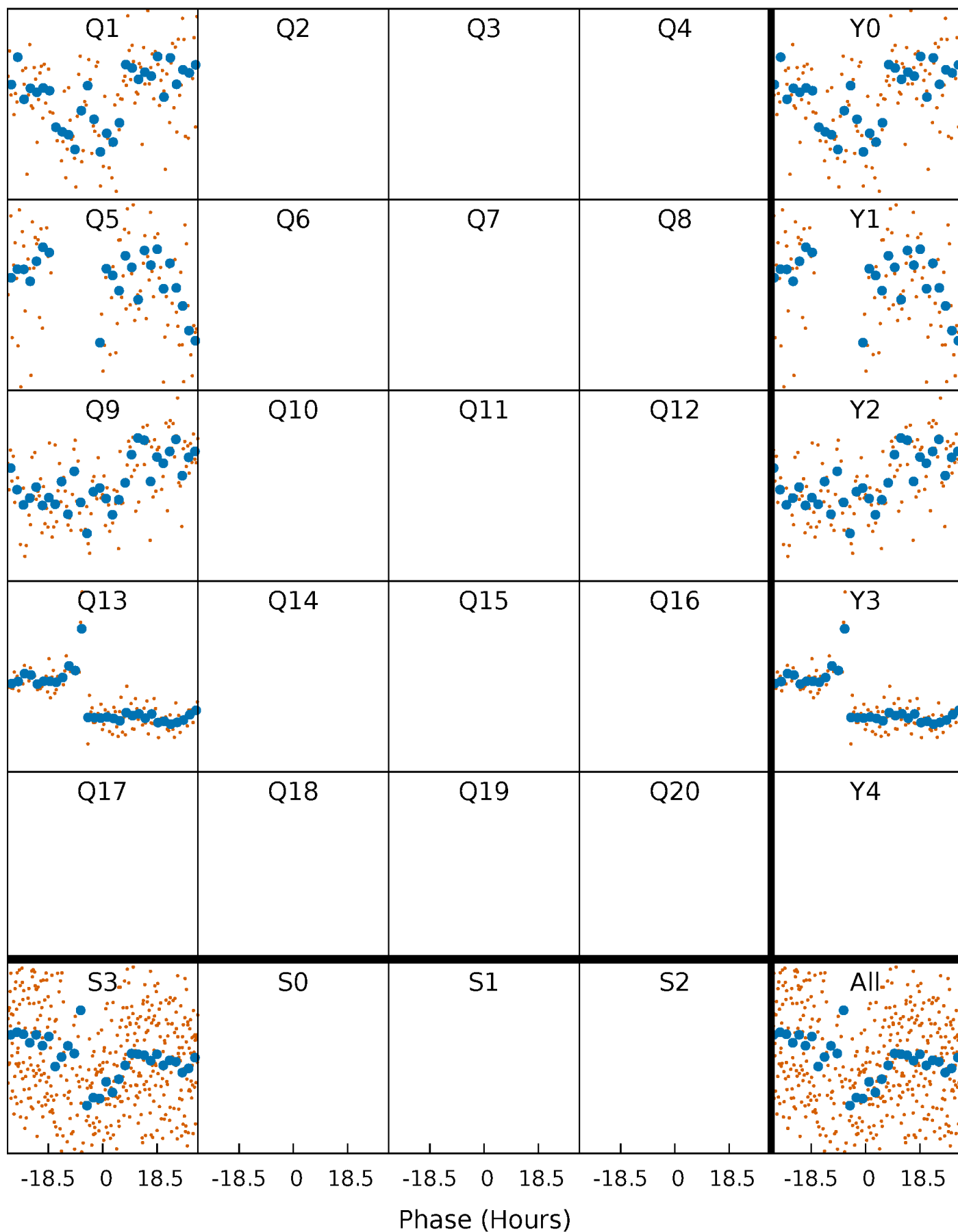


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 010273162-01     $P=363.640743$  Days     $T_0=140.983211$  (BKJD)





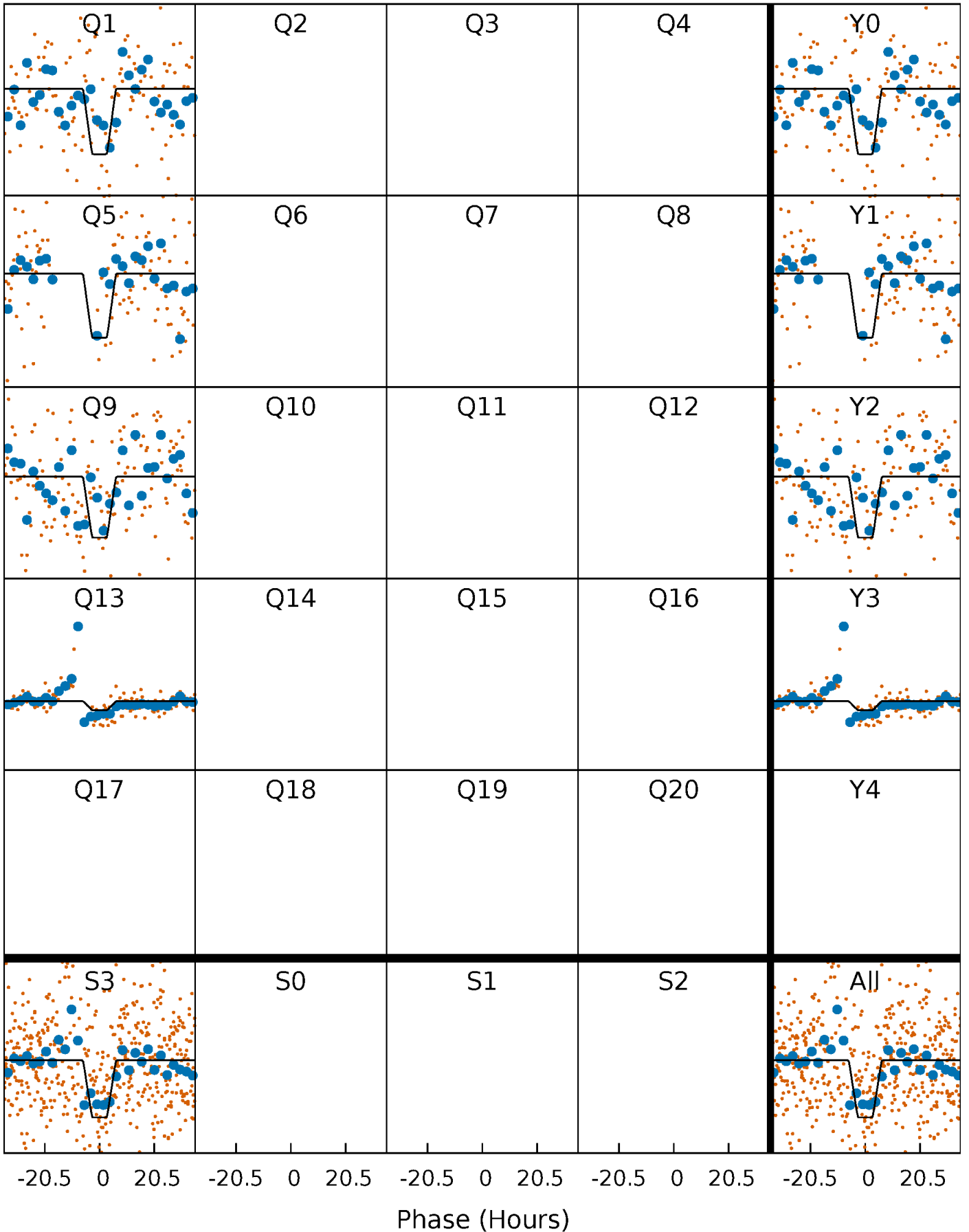
# DV Quarter-Phased Transit Curves

TCE 010273162-01     $P=363.640743$  Days     $T_0=140.983211$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

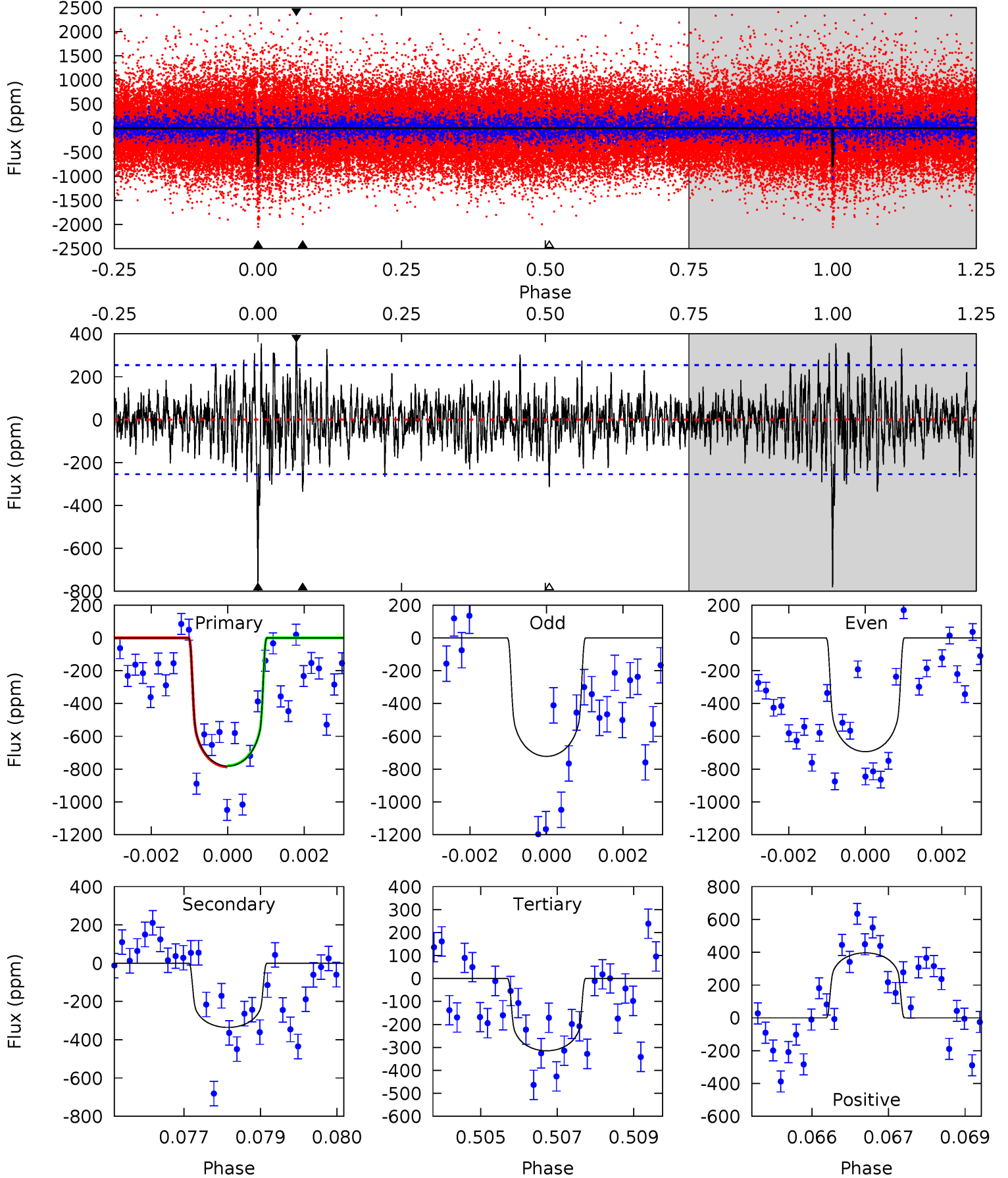
TCE 010273162-01     $P=363.676501$  Days     $T_0=140.961989$  (BKJD)



# DV Model-Shift Uniqueness Test

010273162-01, P = 363.640743 Days, E = 140.983211 Days

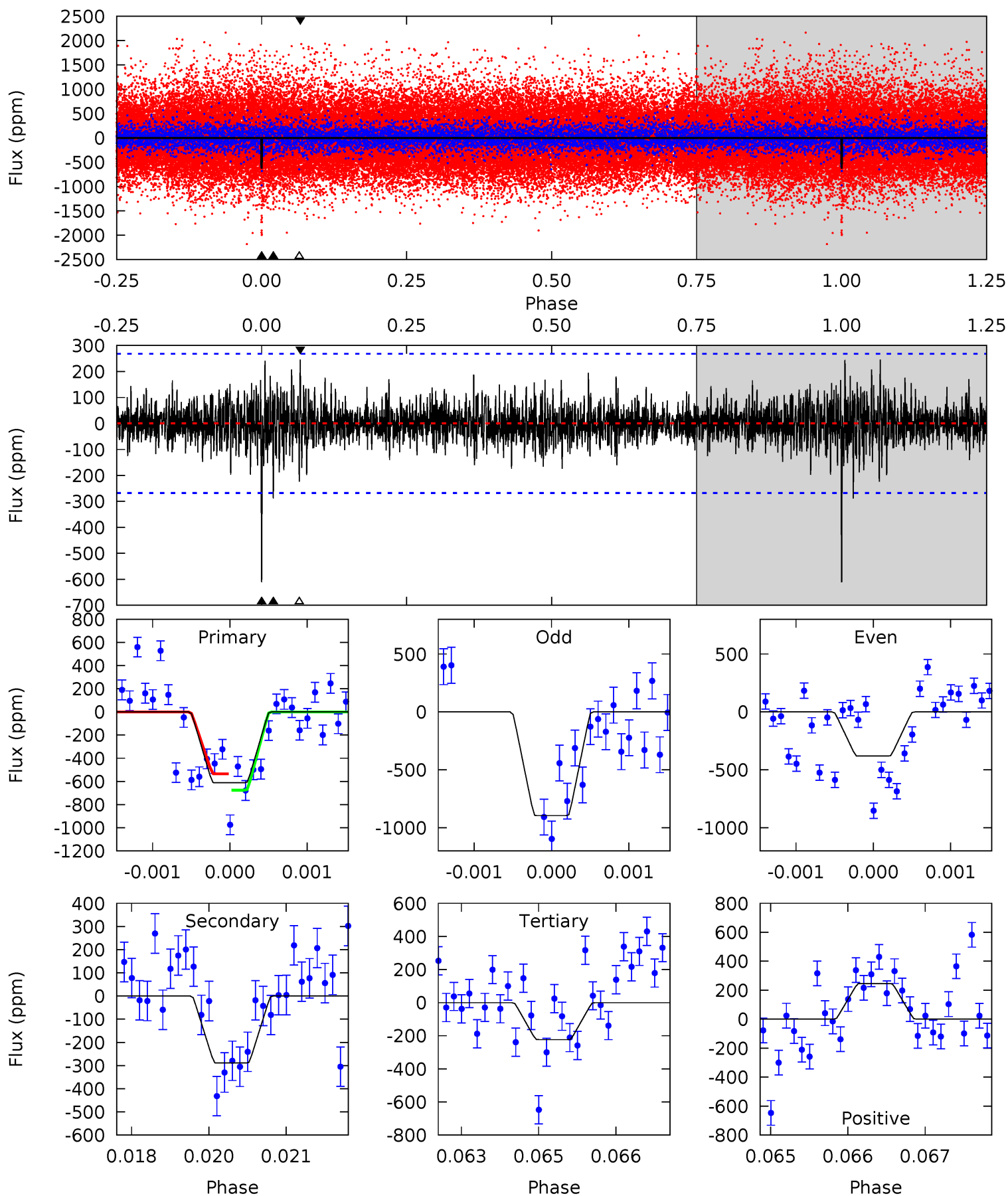
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.4 | 7.04 | 6.60 | 8.31 | 5.34            | 3.11            | 1.91             | 9.80    | 8.09    | 0.44    | -1.27   | 0.30    | 1.00 | 0.34  | 0.08 |



# Alt Model-Shift Uniqueness Test

010273162-01, P = 363.676501 Days, E = 140.961989 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 | 5.81 | 4.49 | 4.94 | 5.39            | 3.19            | 1.12             | 7.80    | 7.35    | 1.32    | 0.87    | 5.12    | 1.51 | 0.29  | 1.41 |



### Stellar Parameters For KIC 010273162

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
|        | $6108^{+193}_{-236}$ | $4.466^{+0.056}_{-0.238}$ | $0.070^{+0.250}_{-0.300}$ | $1.030^{+0.358}_{-0.119}$ | $1.132^{+0.151}_{-0.166}$ | $1.457^{+0.343}_{-0.830}$                 |
|        | +3%/-4%              | +1%/-5%                   | +357%/-429%               | +35%/-12%                 | +13%/-15%                 | +24%/-57%                                 |
| 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 010273162-01 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$        | $A_{obs}$                |
|---------|---------------|------------------------|-------------------|----------------------|--------------------------|
| DV      | $-336 \pm 48$ | $3.35^{+0.87}_{-0.68}$ | $383^{+30}_{-20}$ | $4959^{+517}_{-395}$ | $16960^{+10536}_{-6228}$ |
| Alt.    | $-289 \pm 50$ | $3.22^{+0.72}_{-0.68}$ | $384^{+32}_{-21}$ | $4909^{+570}_{-389}$ | $15912^{+10922}_{-5799}$ |

$T_{max}$  = 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

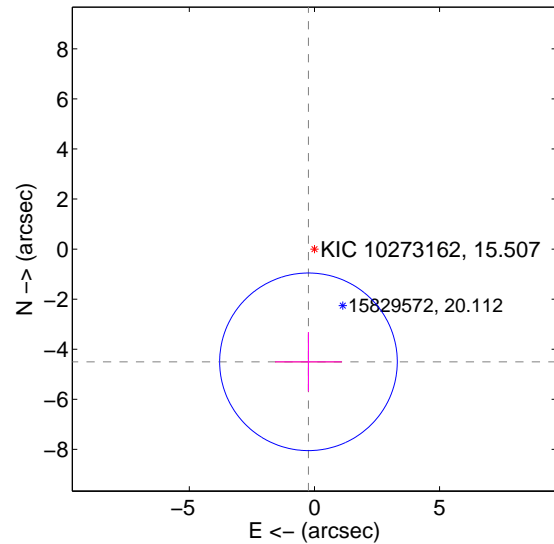
Supplemental centroid analysis for 010273162-01. Kepler magnitude: 15.51. Transit SNR 7.44

There are 0 quarters with good PRF difference image offsets

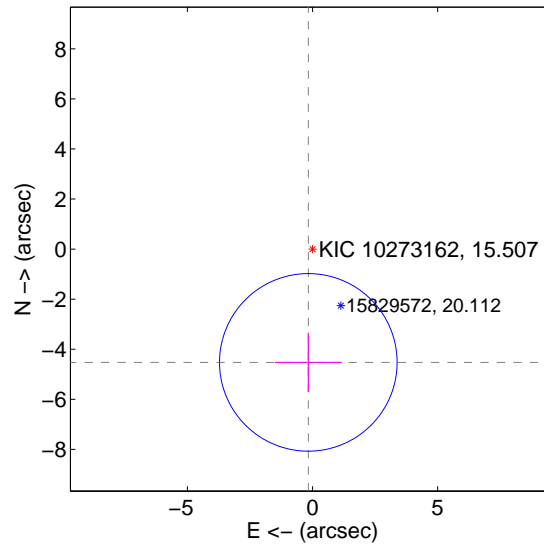
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $4.510 \pm 1.183$  | 3.81                | $0.239 \pm 1.334$ | $-4.503 \pm 1.182$ |
| PRF-fit source offset from KIC position | $4.530 \pm 1.183$  | 3.83                | $0.168 \pm 1.334$ | $-4.527 \pm 1.182$ |
| photometric centroid source offset      | $1.67 \pm 2.02$    | 0.83                | $-1.64 \pm 2.03$  | $-0.32 \pm 1.89$   |

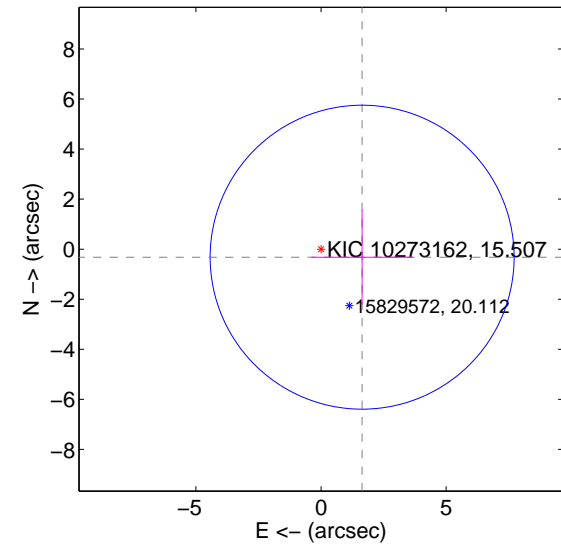
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



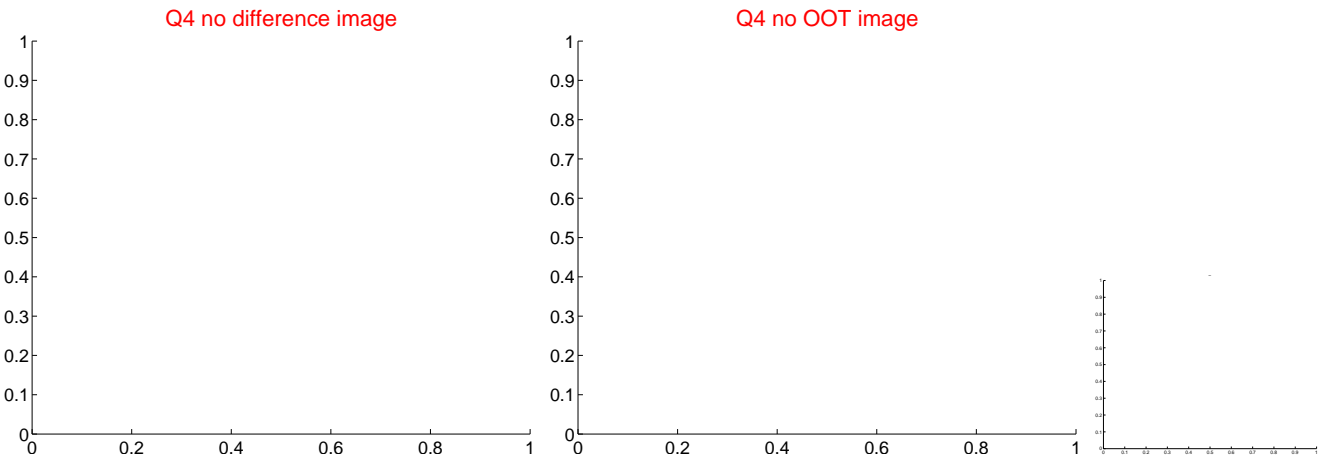
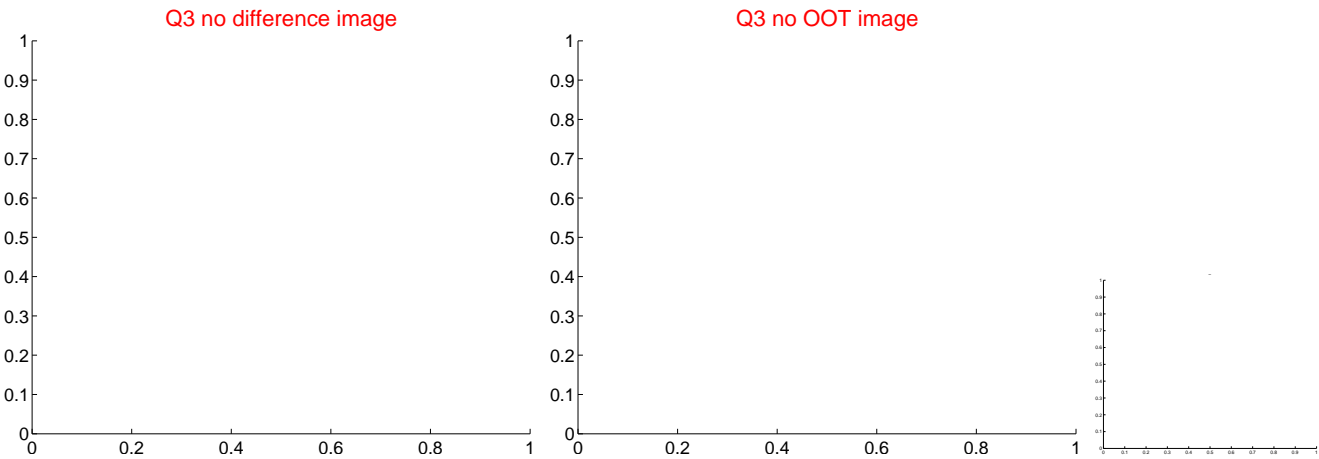
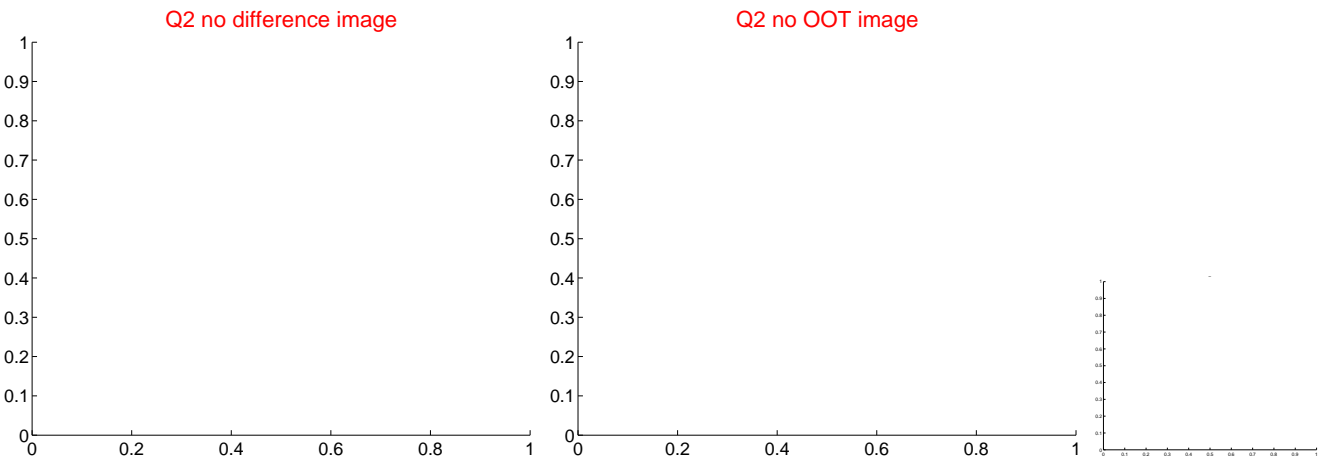
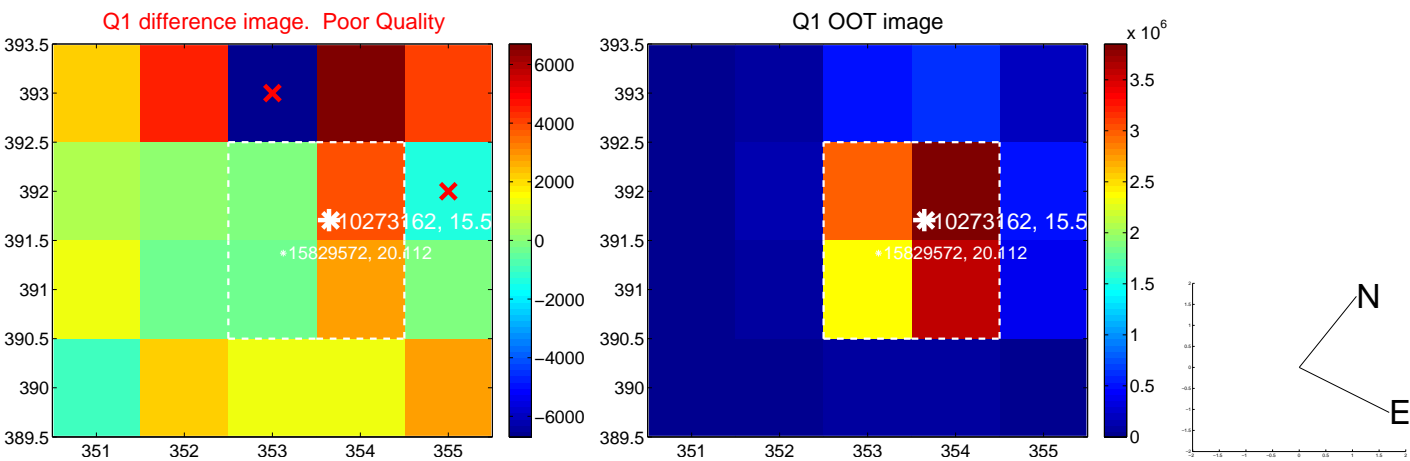
offset from photometric centroids



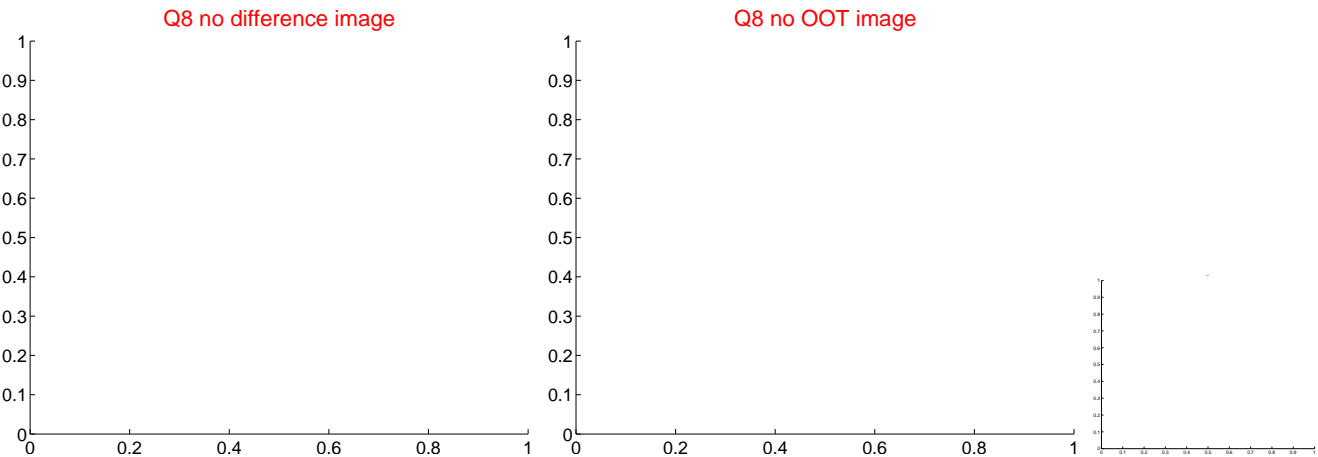
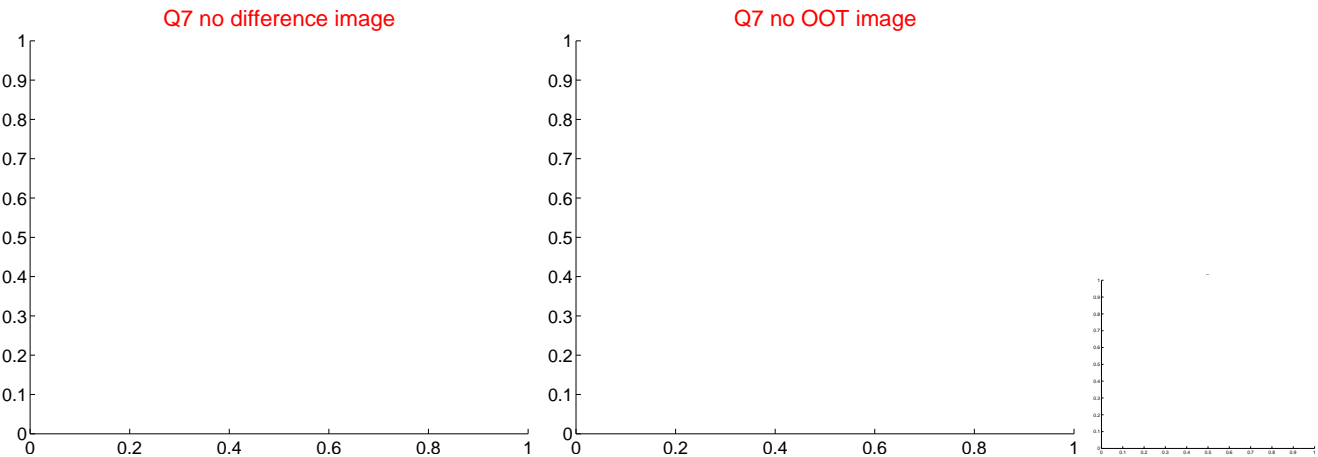
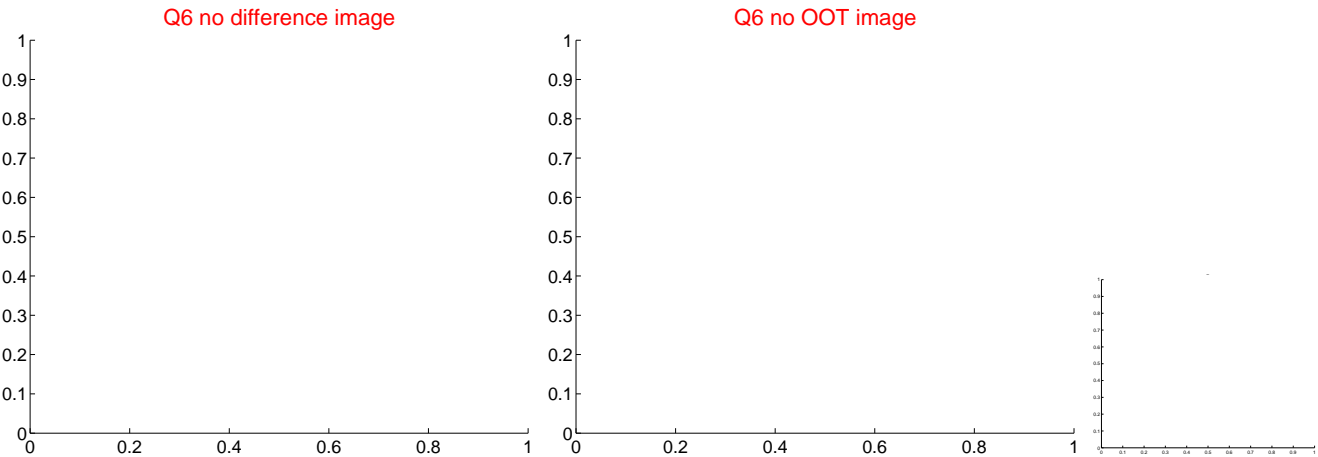
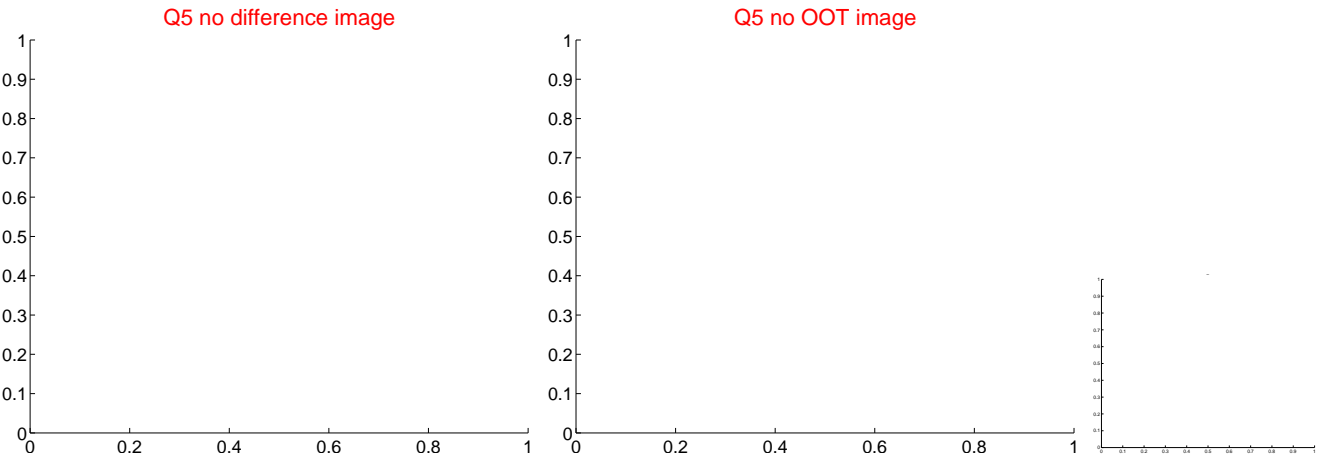
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



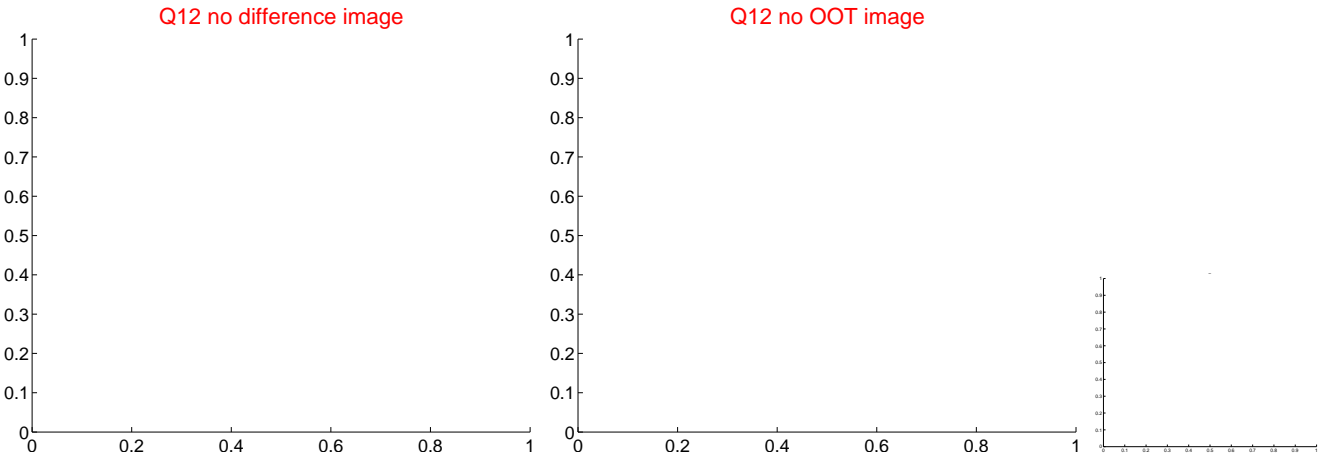
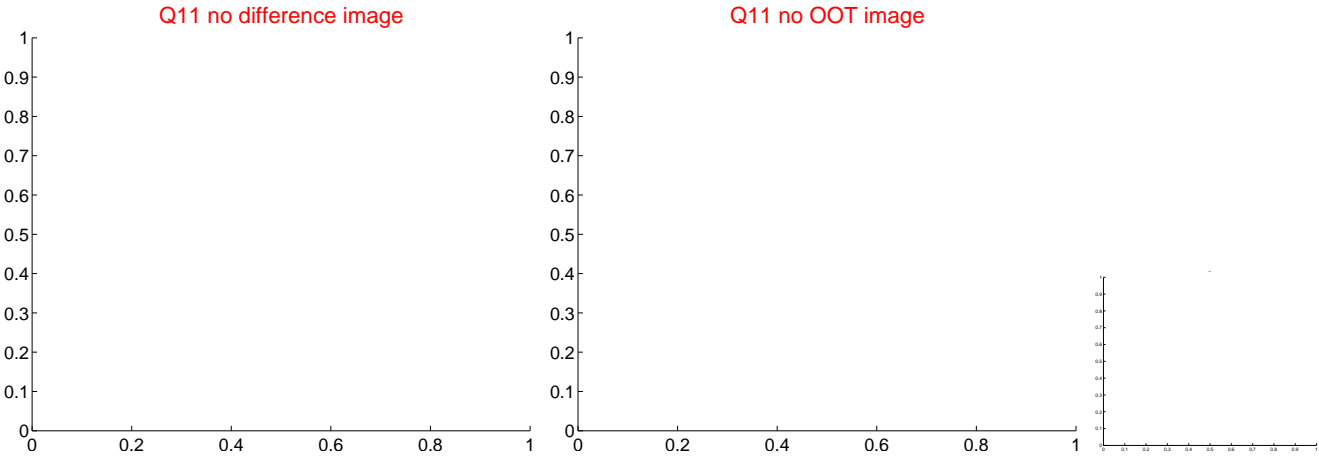
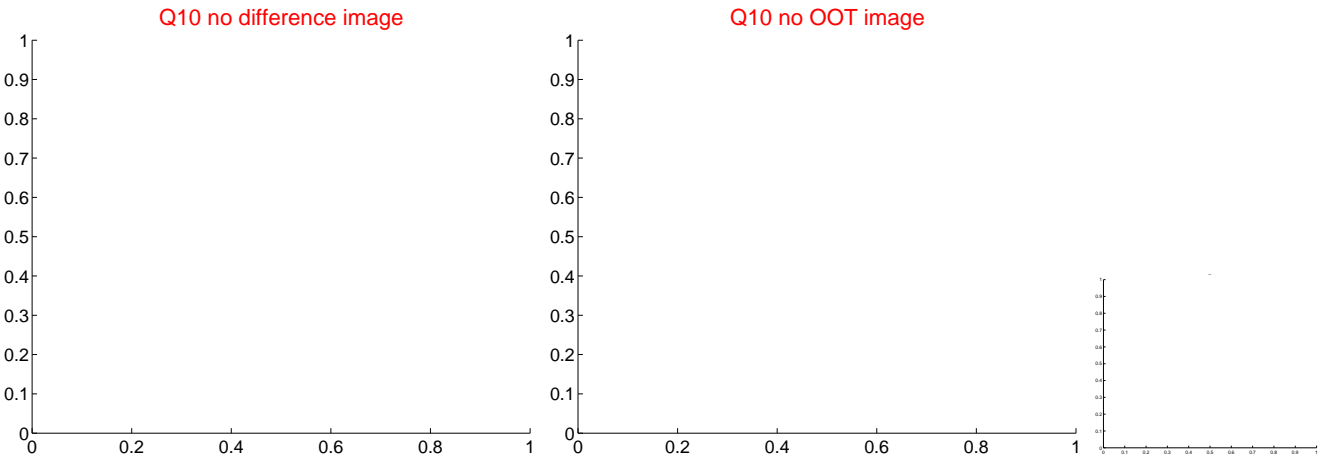
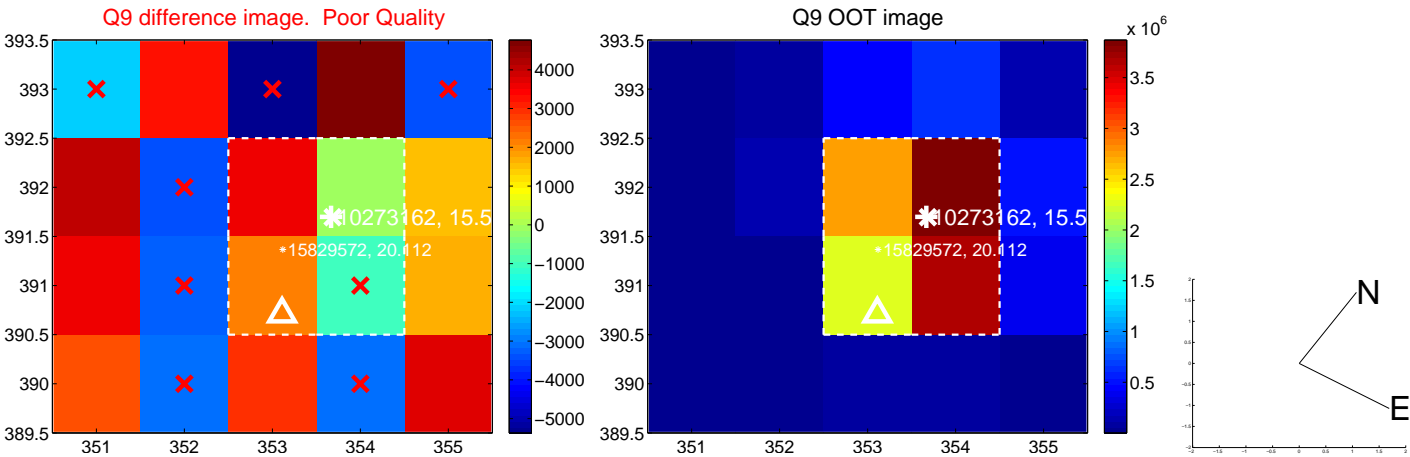
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



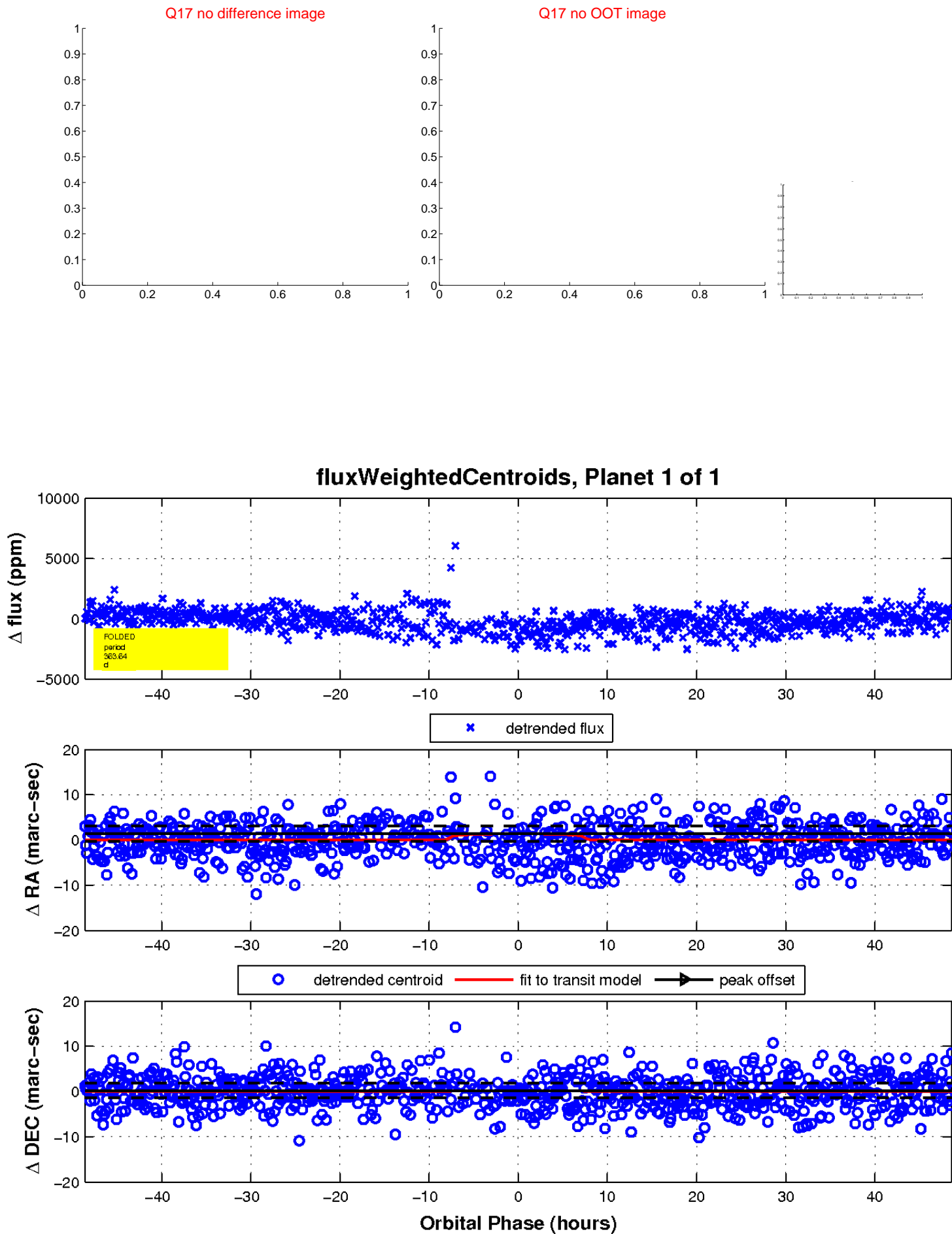
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

