

# KIC 008947099

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008947099-01 | OBS      | No   | 579.799378    | 340.205158   | 102.0       | 28.801           | 7.9 | 8.7 | 1.20                        | 6306            | 1.28                   | 1.09                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                  |
|--------------|----------|------|-------|---|---|---|---|---|
| 008947099-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_SKYE--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.

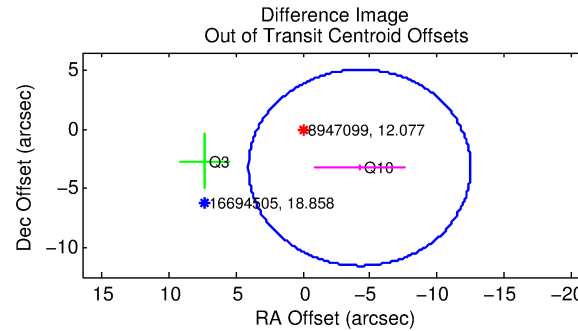
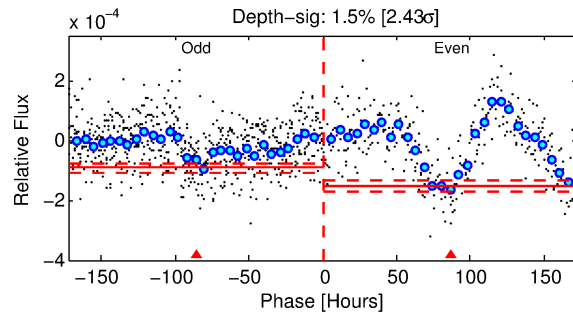
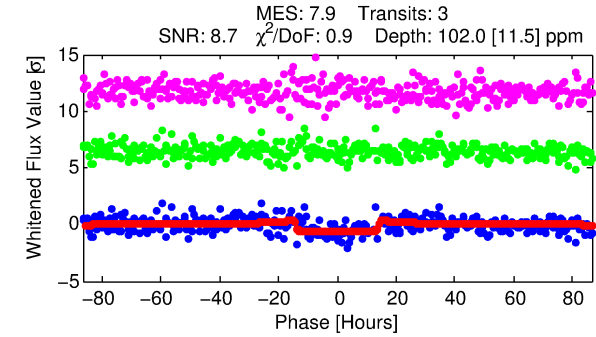
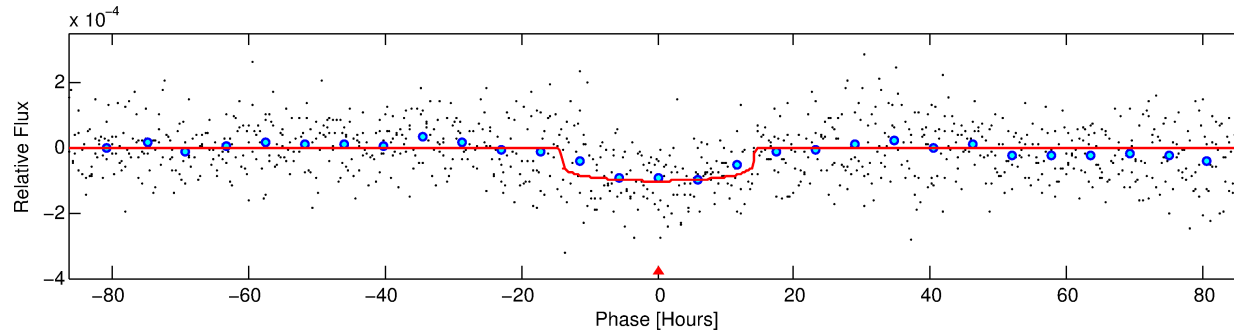
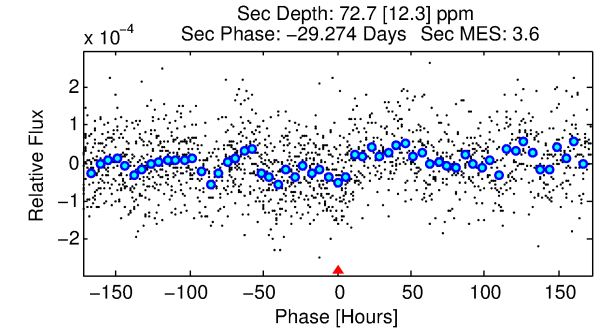
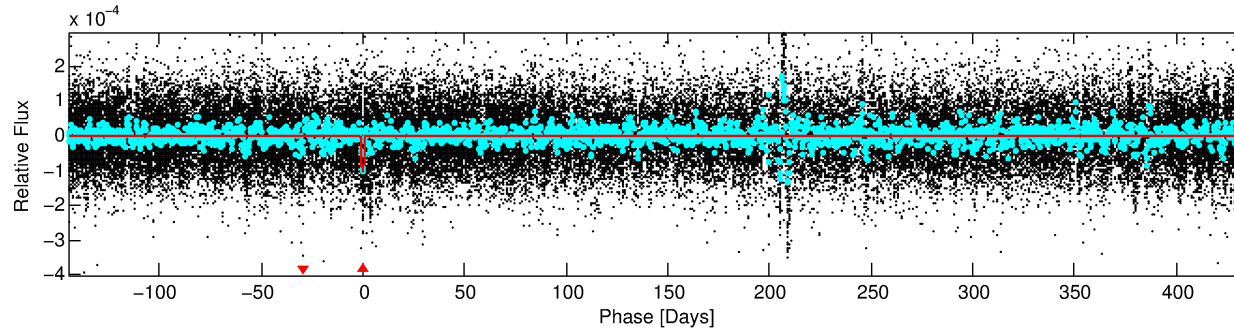
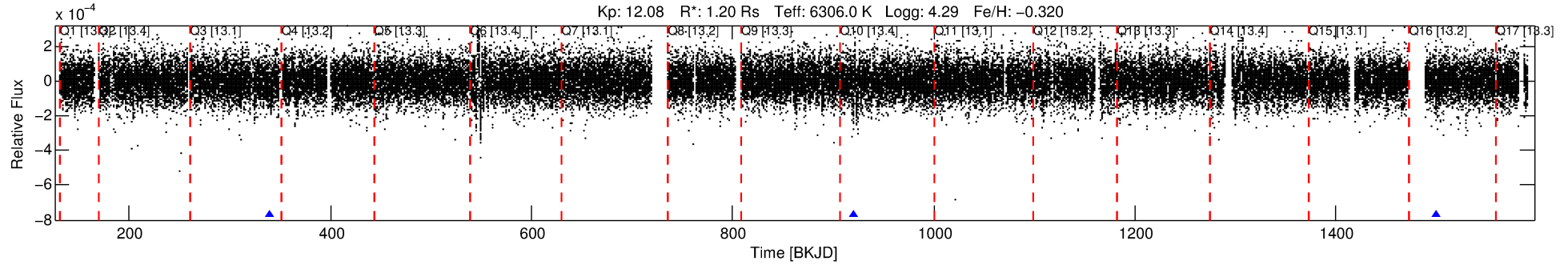
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008947099-01

No Significant Match Found

# DV One-Page Summary

KIC: 8947099 Candidate: 1 of 1 Period: 579.799 d



## DV Fit Results:

Period = 579.79938 [0.01431] d  
Epoch = 340.2052 [0.0203] BKJD  
Rp/R\* = 0.0097 [0.0029]  
a/R\* = 121.41 [188.80]  
b = 0.63 [1.50]  
Seff = 1.09 [0.30]  
Teq = 261 [18] K  
Rp = 1.28 [0.46] Re  
a = 1.3667 [0.2338] AU  
Ag = 45873.76 [30784.13] [1.49σ]  
Teffp = 5898 [934] K [6.04σ]

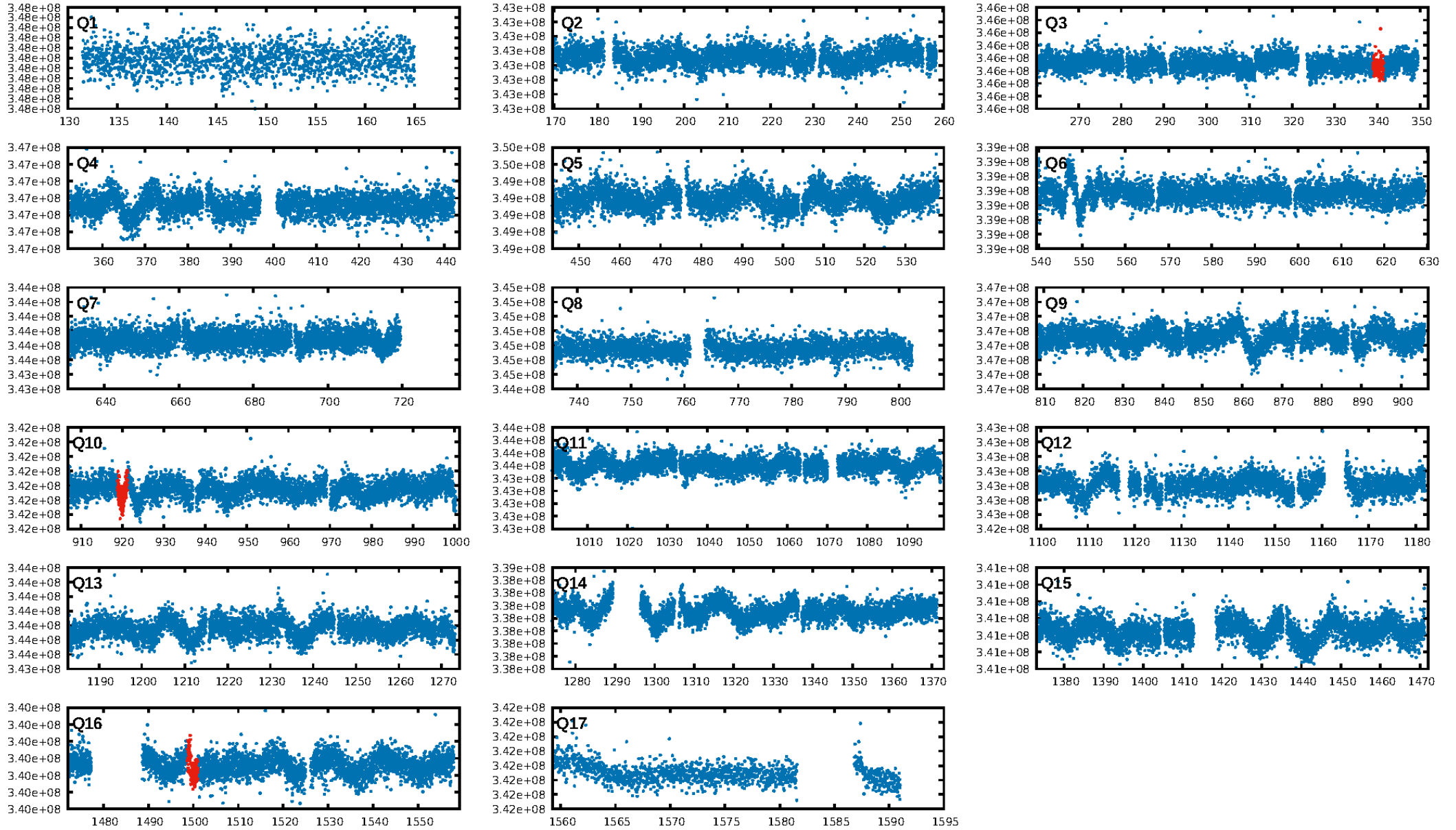
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.33e-13  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.729**  
Centroid-sig: 0.9%  
Centroid-so: 2.843 arcsec [1.92σ]  
OotOffset-rm: 5.337 arcsec [1.93σ]  
KicOffset-rm: 5.161 arcsec [2.14σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

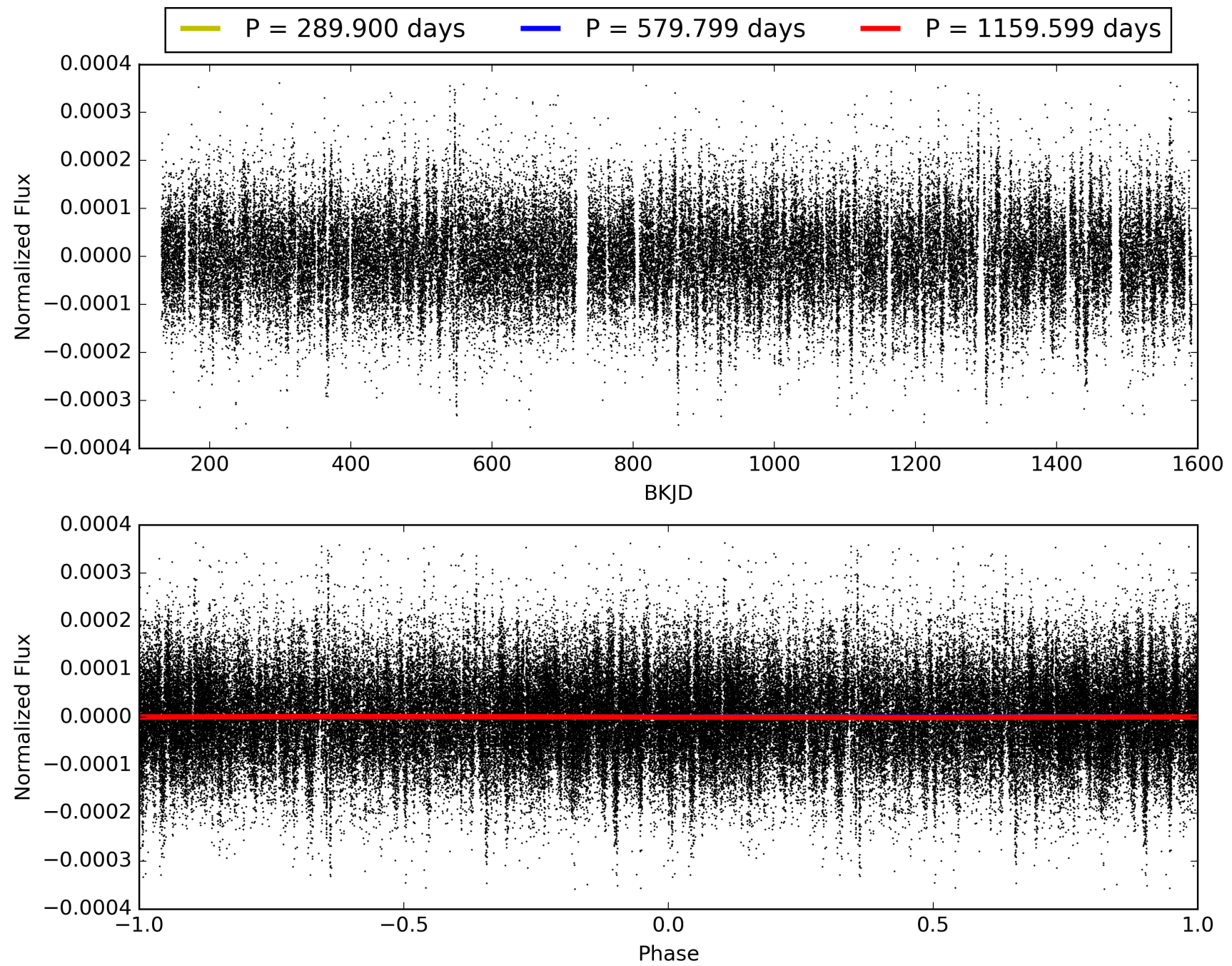
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:20:07 Z

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

# TCE 008947099-01, PDC Light Curves

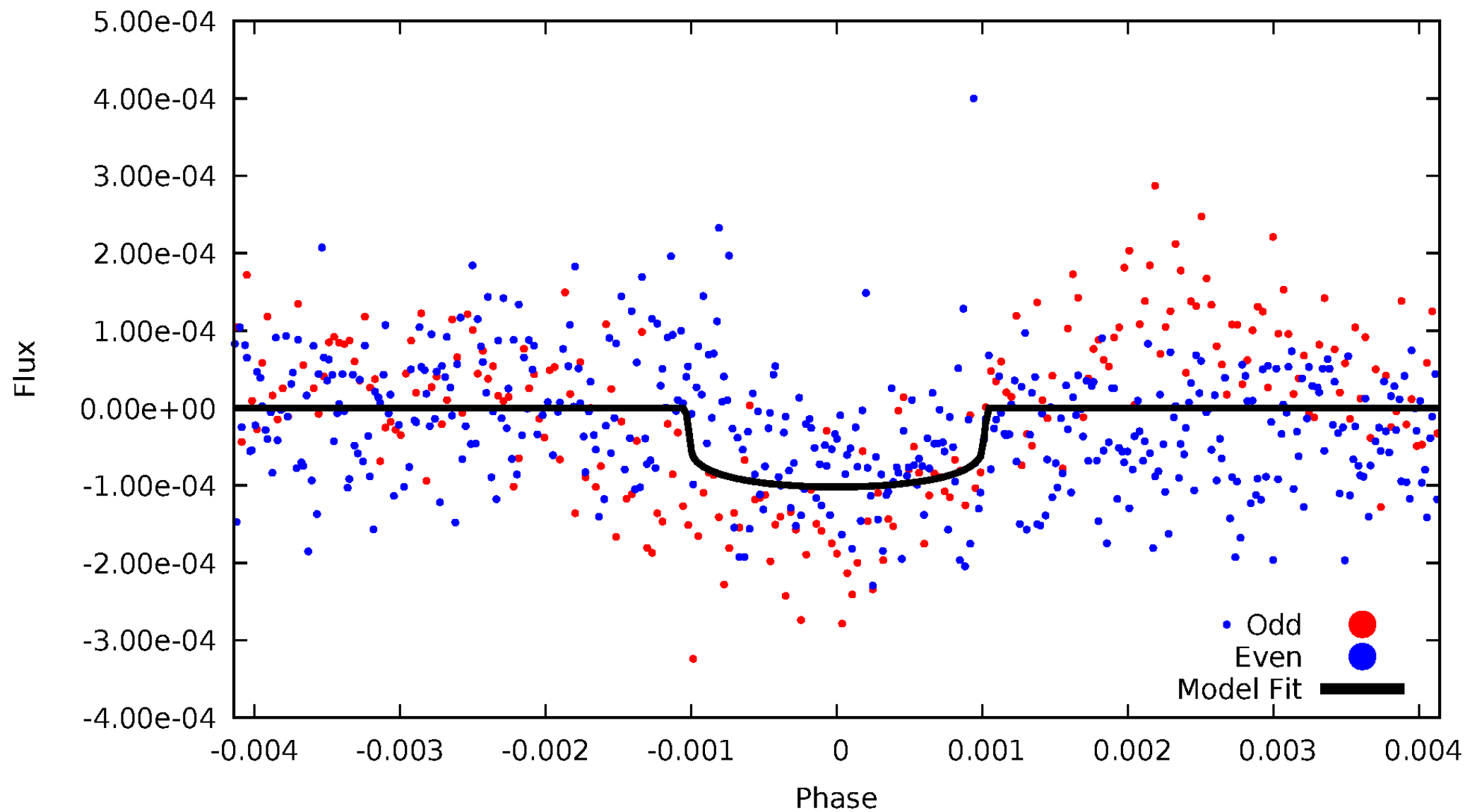


TCE 008947099-01



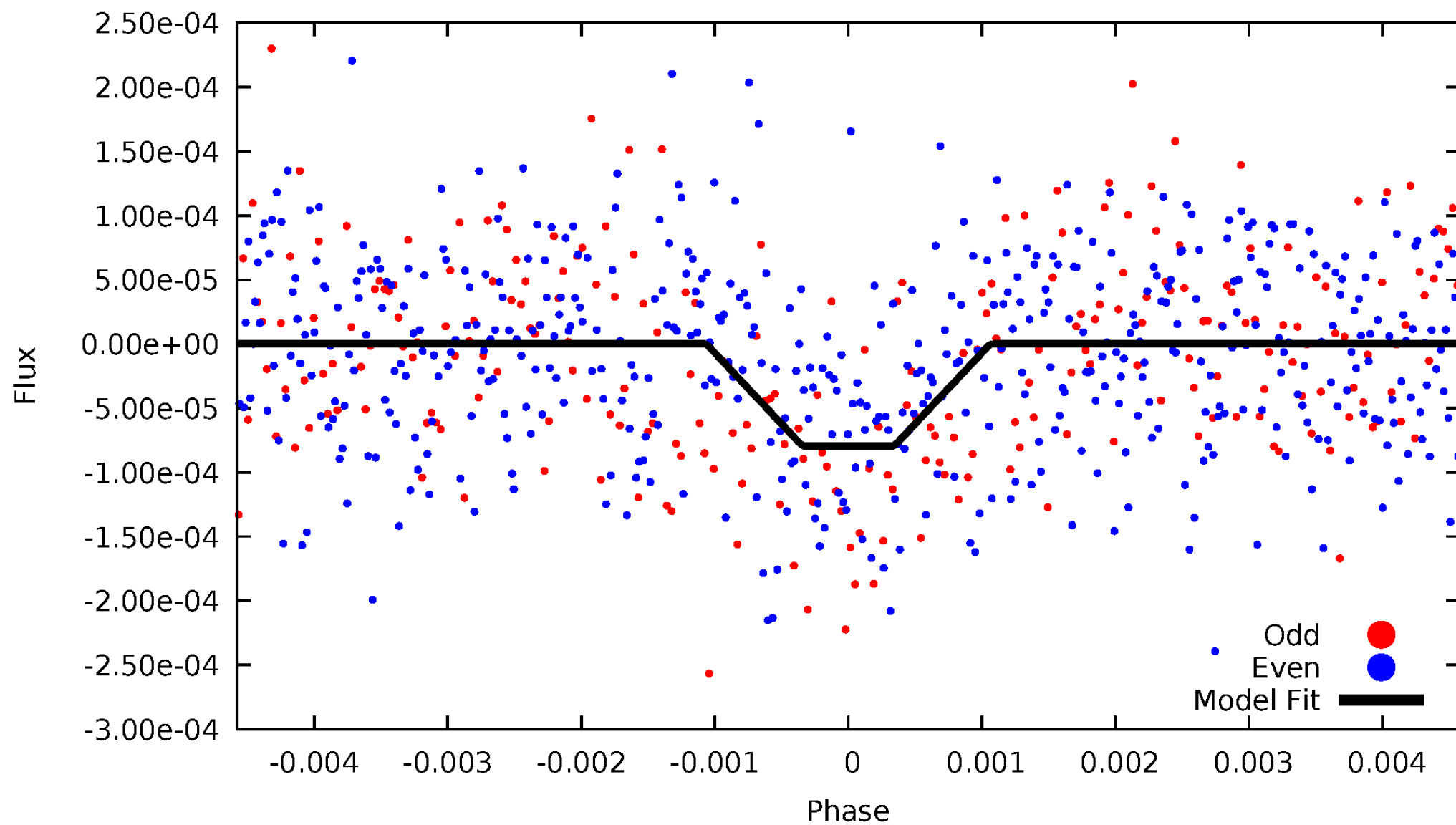
# DV Odd/Even

TCE 008947099-01



# ALT Odd/Even

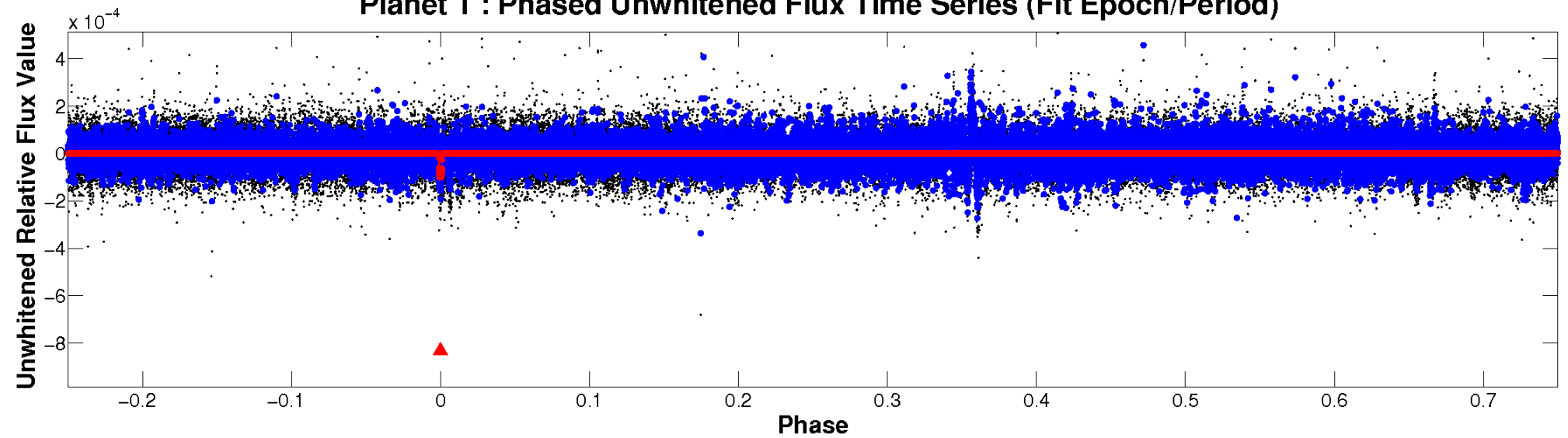
TCE 008947099-01



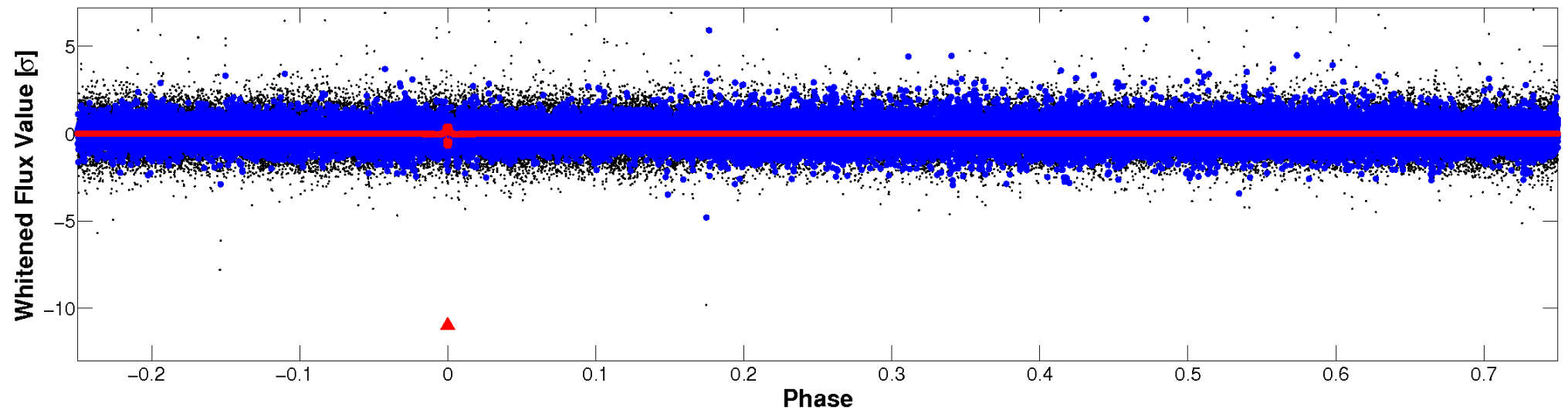


# Non-Whitened Vs. Whitened Light Curve

**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

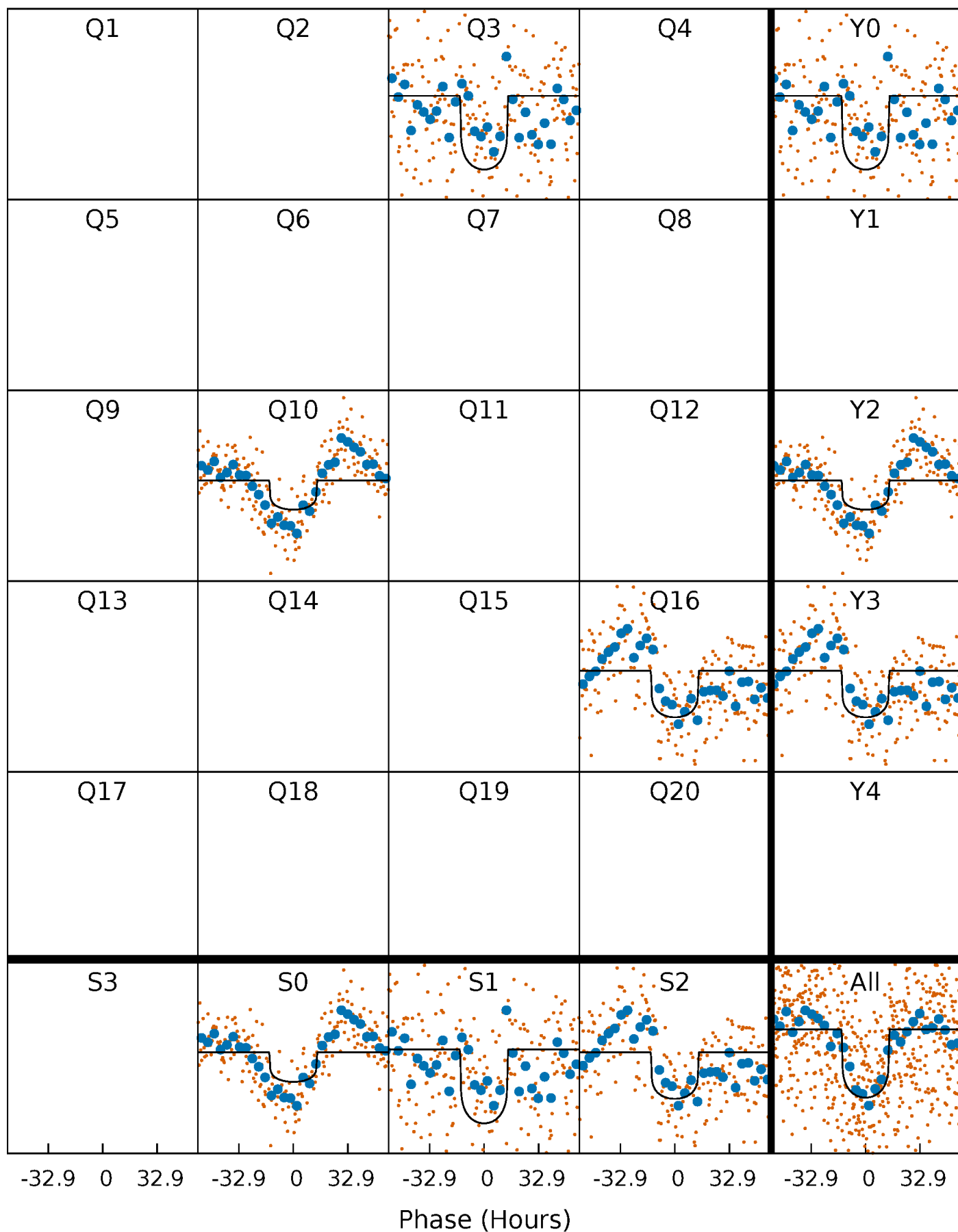
TCE 008947099-01 P=579.799377 Days  $T_0=340.205158$  (BKJD)





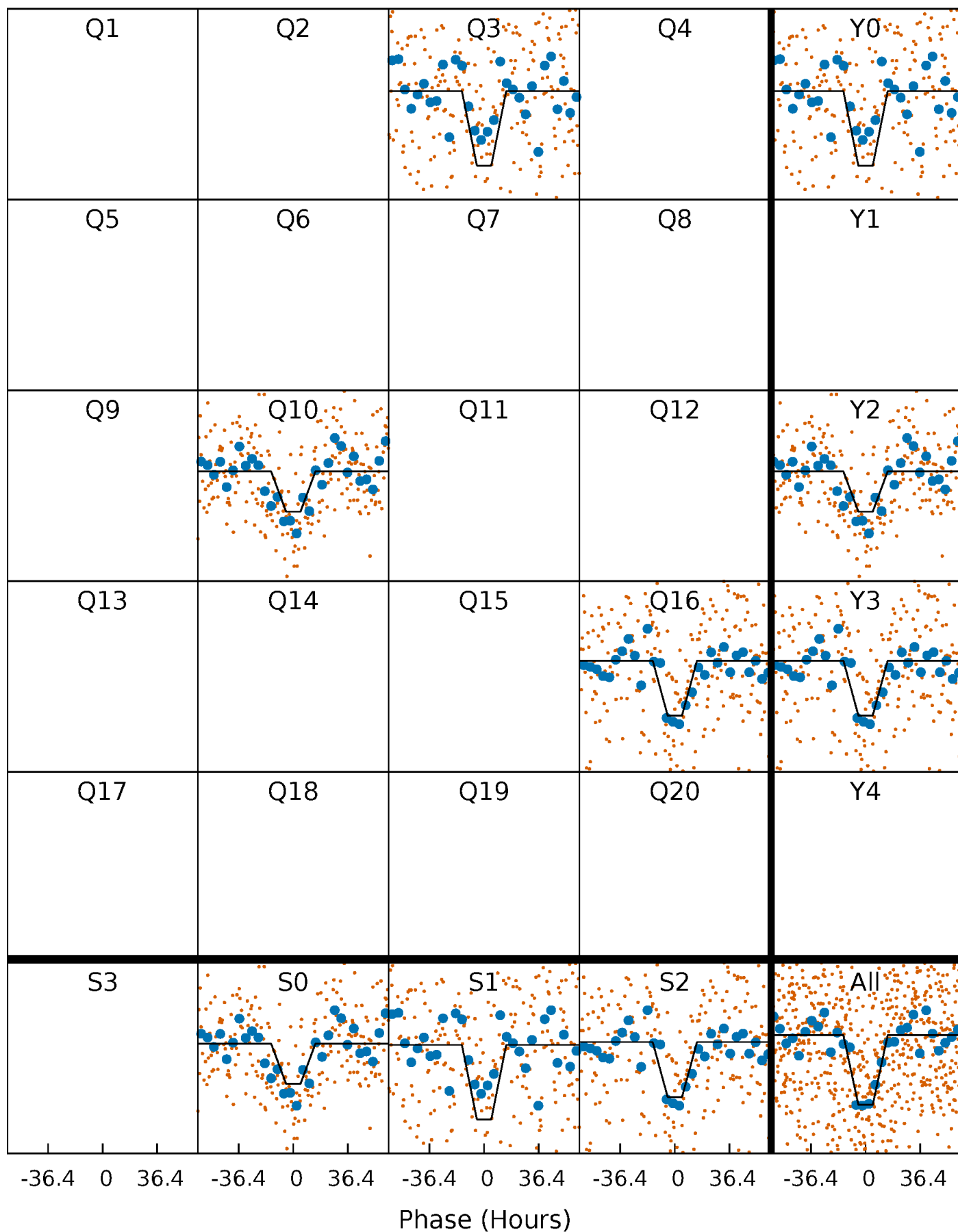
# DV Quarter-Phased Transit Curves

TCE 008947099-01 P=579.799377 Days  $T_0=340.205158$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

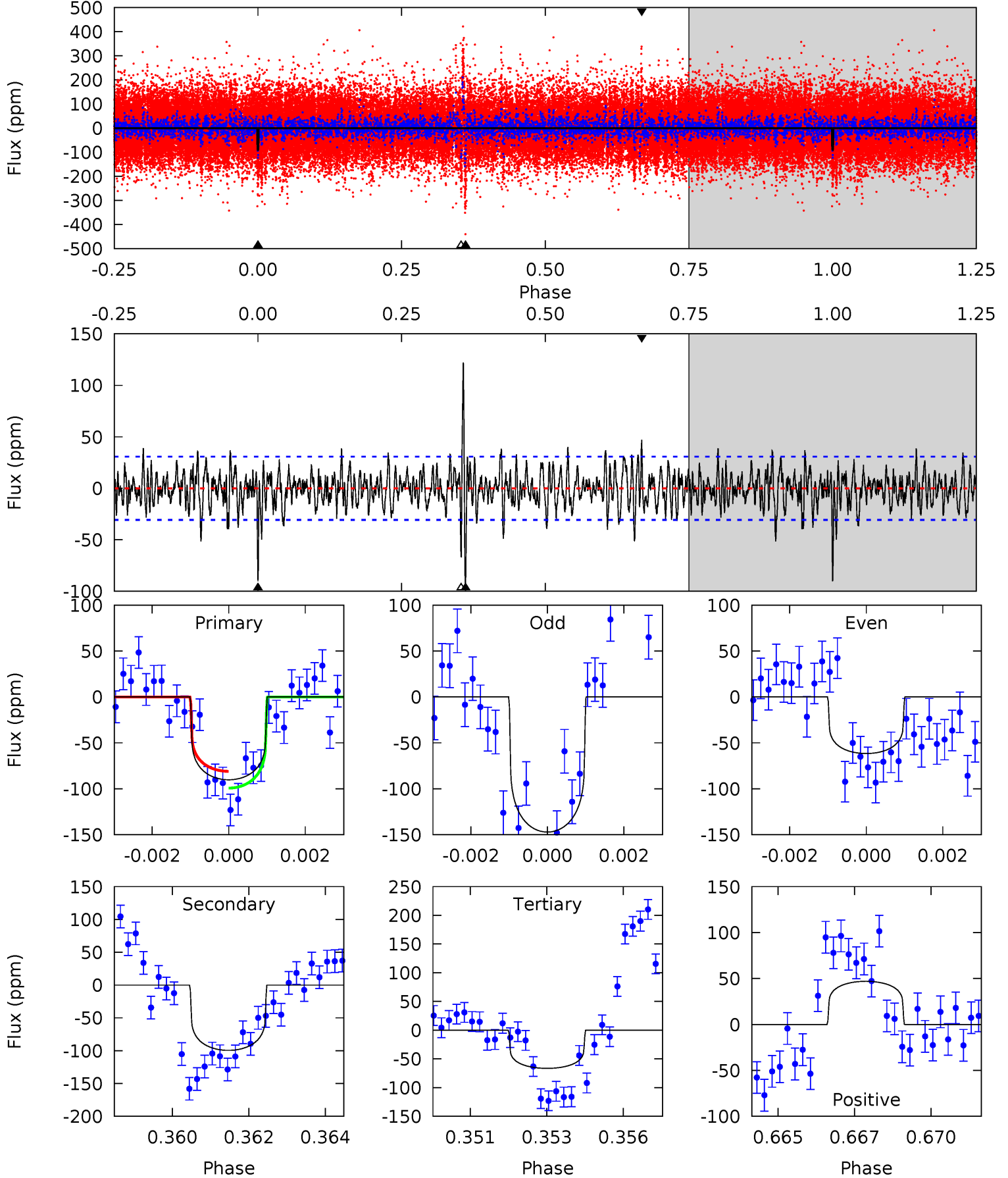
TCE 008947099-01 P=579.727342 Days  $T_0=340.310389$  (BKJD)



# DV Model-Shift Uniqueness Test

008947099-01, P = 579.799377 Days, E = 340.205158 Days

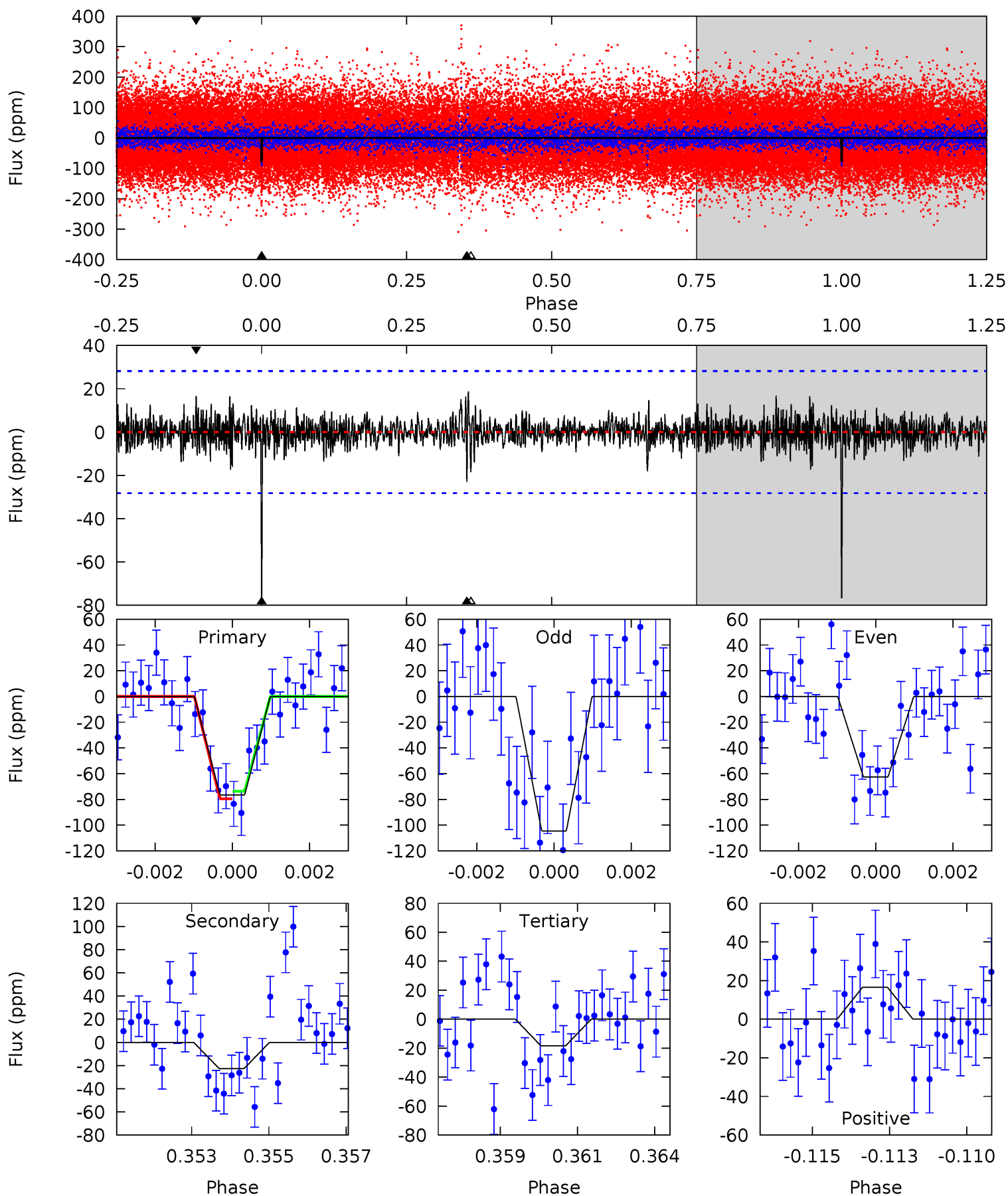
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.6 | 17.2 | 11.5 | 8.12 | 5.32            | 3.08            | 2.61             | 4.10    | 7.49    | 5.71    | 9.10    | 7.06    | 1.12 | 0.55  | 1.58 |



# Alt Model-Shift Uniqueness Test

008947099-01, P = 579.727342 Days, E = 340.310389 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.4 | 4.28 | 3.47 | 3.13 | 5.31            | 3.07            | 0.84             | 11.0    | 11.3    | 0.81    | 1.15    | 3.76    | 0.88 | 0.19  | 0.55 |



### Stellar Parameters For KIC 008947099

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6306^{+157}_{-172}$ | $4.285^{+0.135}_{-0.135}$ | $-0.320^{+0.250}_{-0.300}$ | $1.200^{+0.245}_{-0.200}$ | $1.011^{+0.148}_{-0.111}$ | $0.824^{+0.530}_{-0.323}$                 |
|        | +2%/-3%              | +3%/-3%                   | +78%/-94%                  | +20%/-17%                 | +15%/-11%                 | +64%/-39%                                 |
| Source | PHO1                 | FLK73                     | 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 008947099-01 / KOI

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$          |
|---------|--------------|------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-100 \pm 6$ | $1.29^{+0.43}_{-0.41}$ | $365^{+20}_{-21}$    | $6370^{+1485}_{-782}$ | $61986^{+71764}_{-27688}$ |
| Alt.    | $-23 \pm 5$  | $1.16^{+0.40}_{-0.36}$ | $363^{+22}_{-19}$    | $4713^{+830}_{-532}$  | $17324^{+18949}_{-8748}$  |

$T_{\text{max}}$  = 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

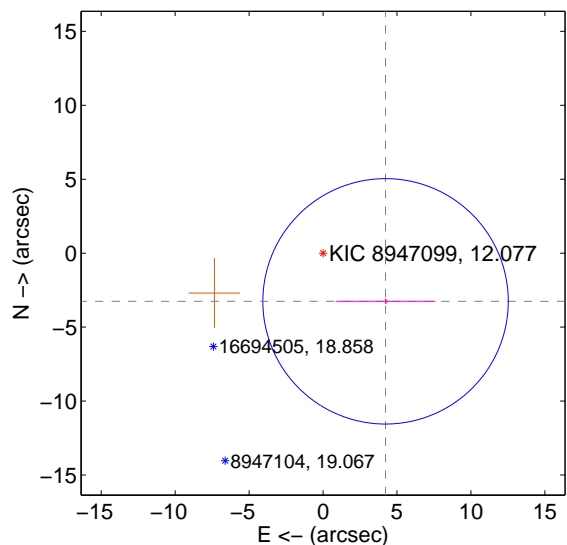
Supplemental centroid analysis for 008947099-01. Kepler magnitude: 12.08. Transit SNR 8.71

There are 0 quarters with good PRF difference image offsets

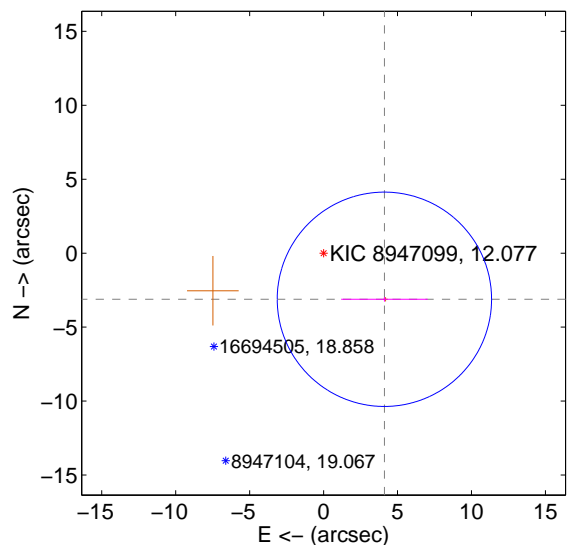
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $5.337 \pm 2.766$  | 1.93                | $-4.228 \pm 3.366$ | $-3.257 \pm 0.176$ |
| PRF-fit source offset from KIC position | $5.161 \pm 2.416$  | 2.14                | $-4.112 \pm 2.921$ | $-3.118 \pm 0.160$ |
| photometric centroid source offset      | $2.84 \pm 1.48$    | 1.92                | $2.33 \pm 1.54$    | $-1.63 \pm 1.33$   |

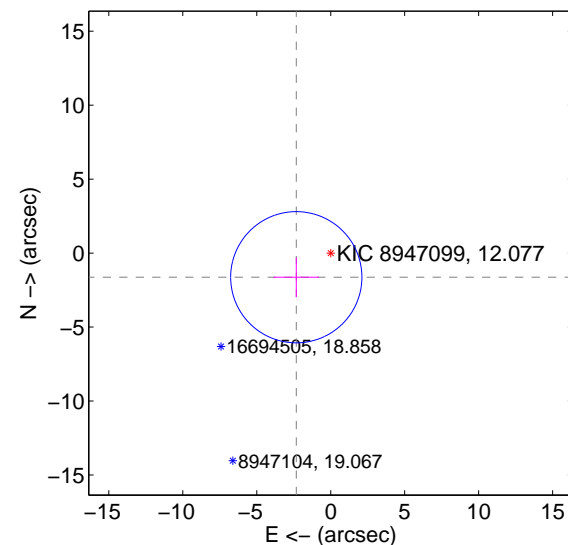
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

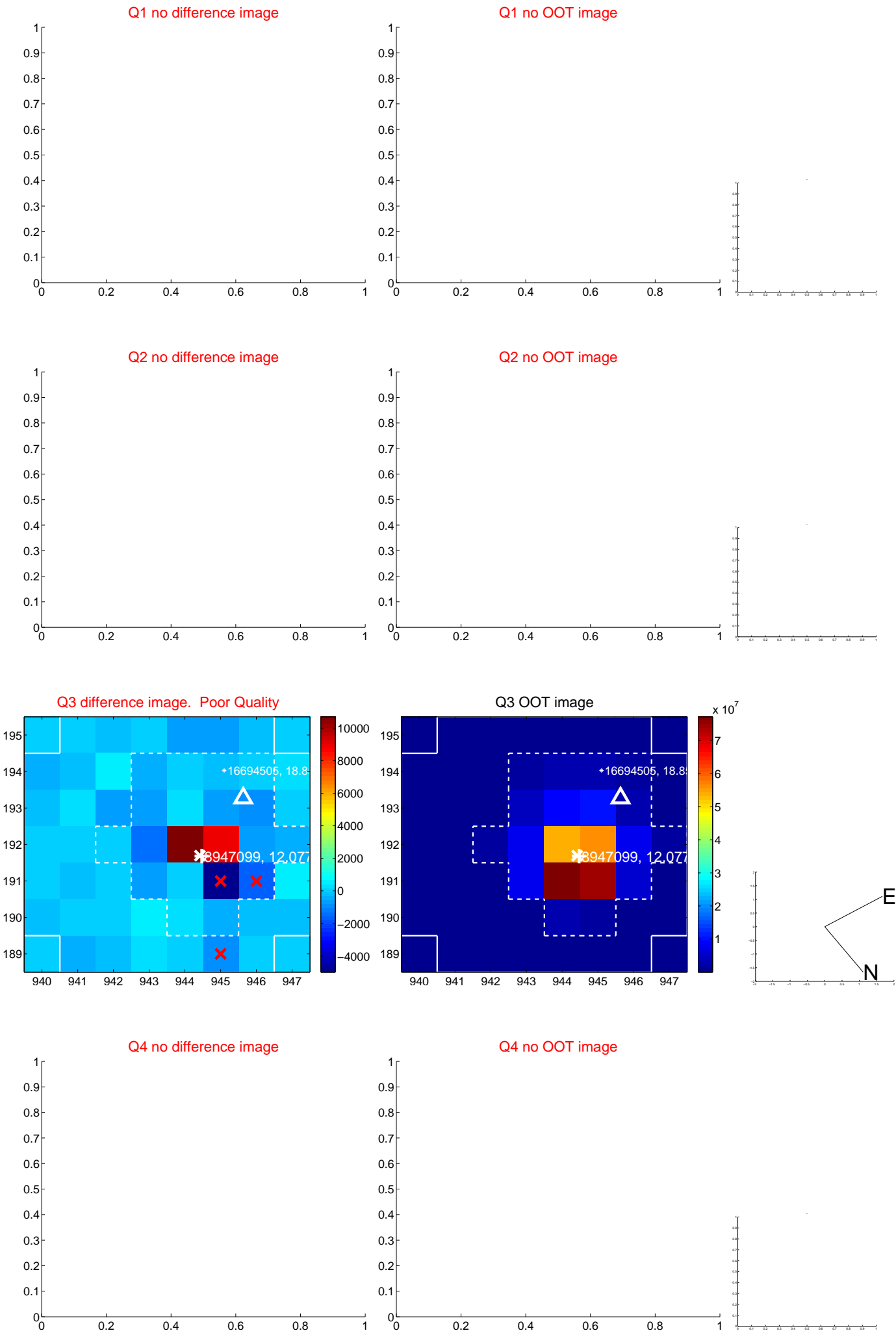


offset from photometric centroids



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.

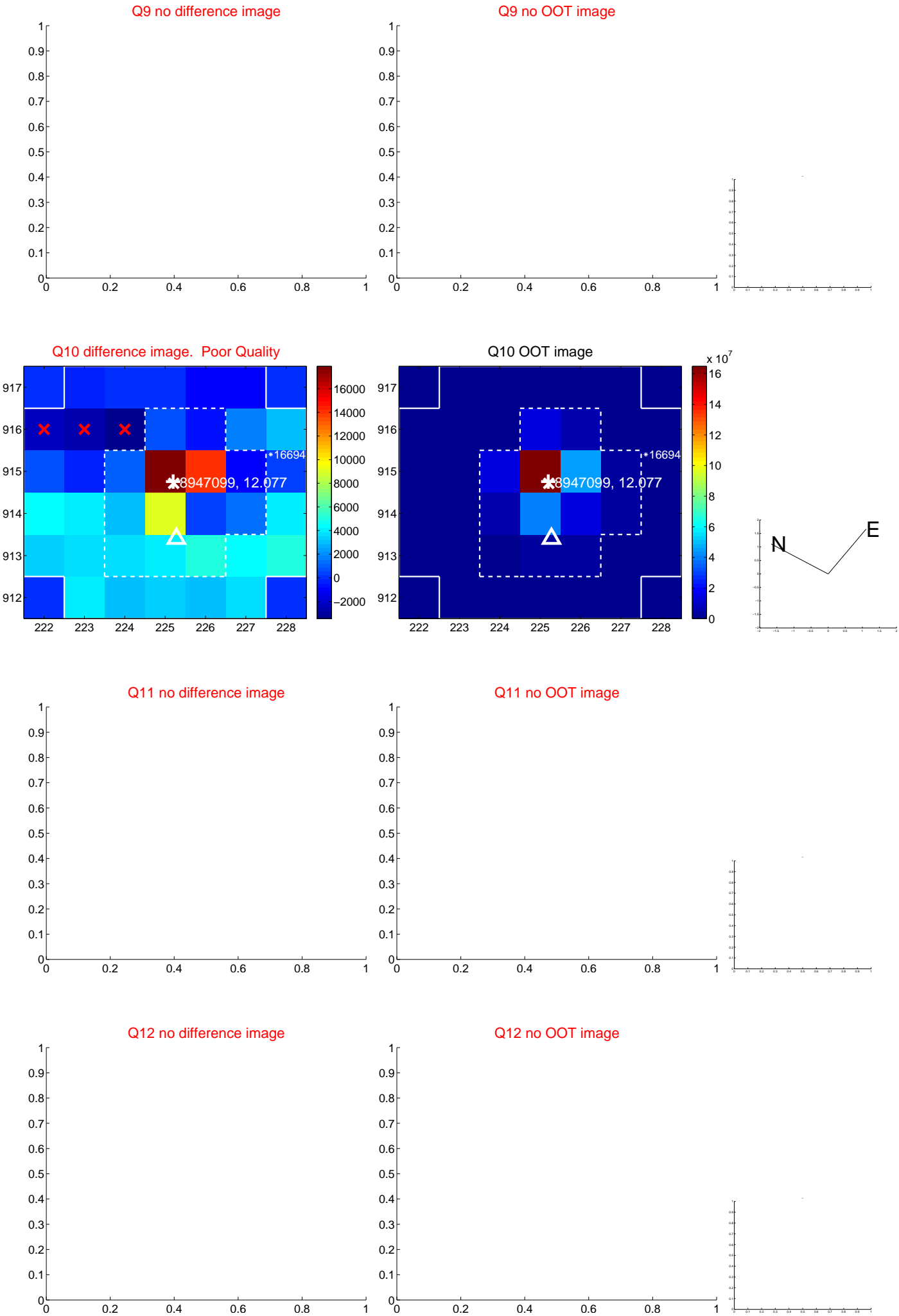




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



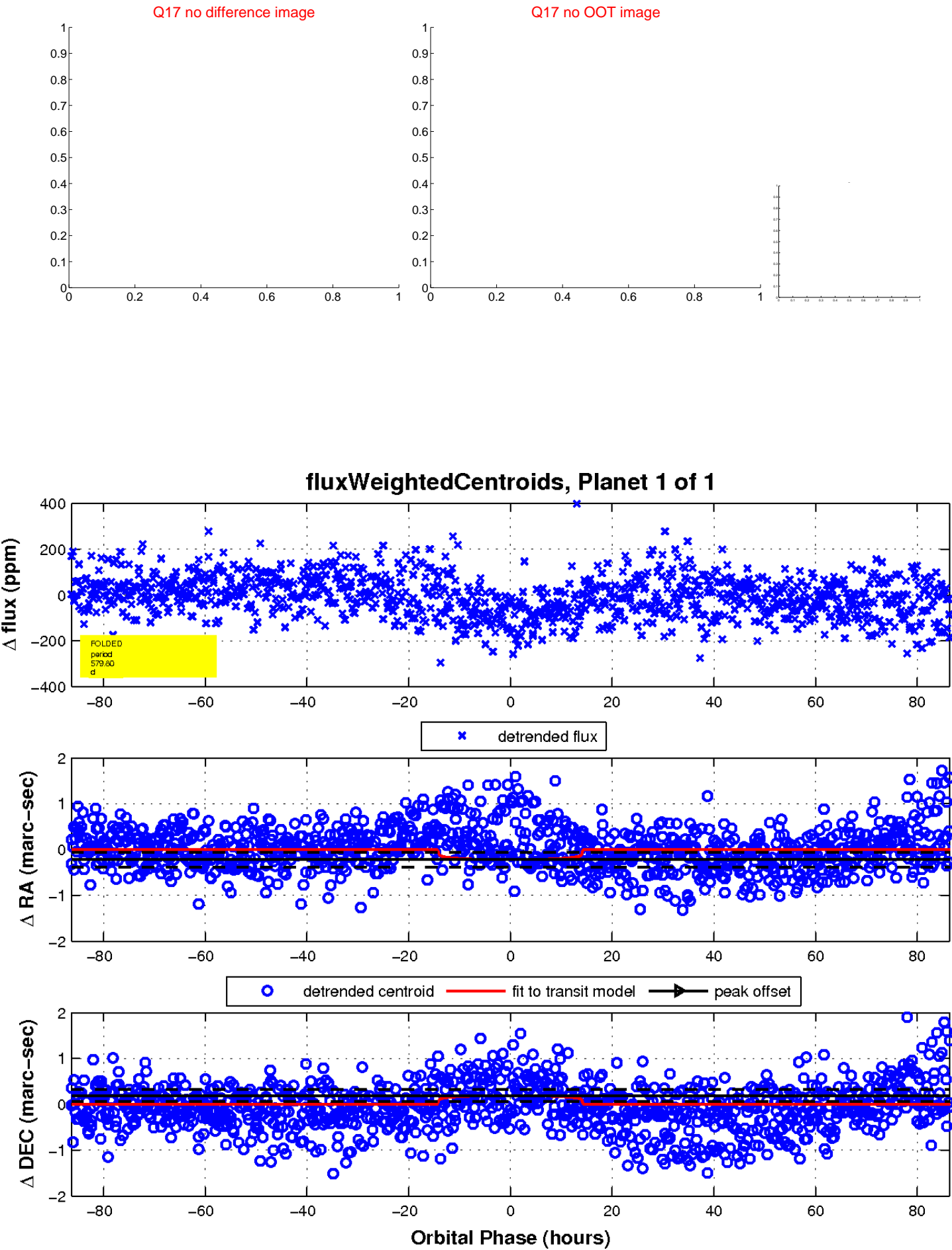
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

