

# KIC 011084309

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 011084309-01 | OBS      | No   | 358.170012    | 373.686981   | 414.7       | 19.504           | 9.5 | 8.5 | 1.42                        | 6481            | 3.92                   | 2.86                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 011084309-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

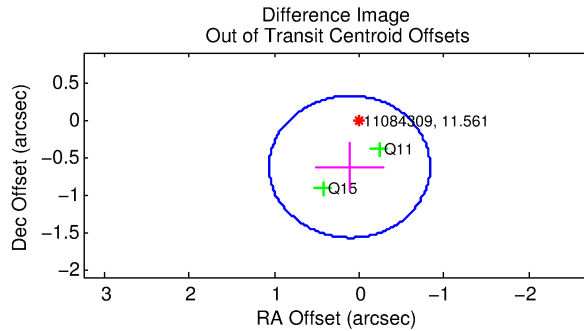
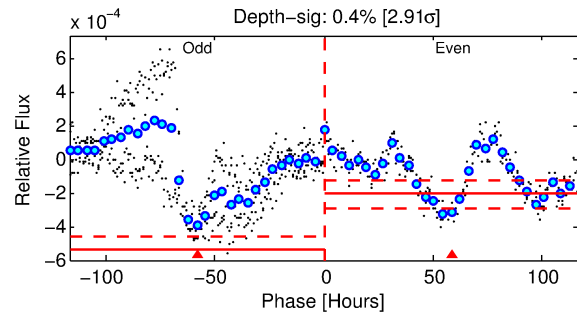
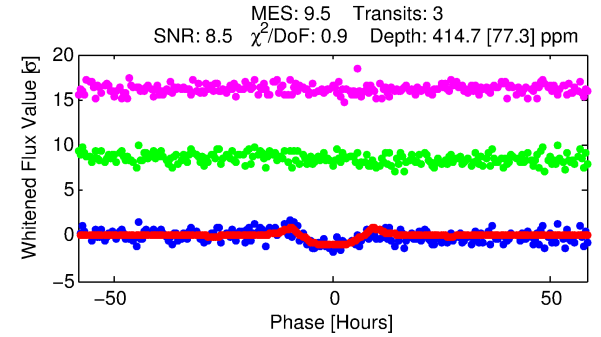
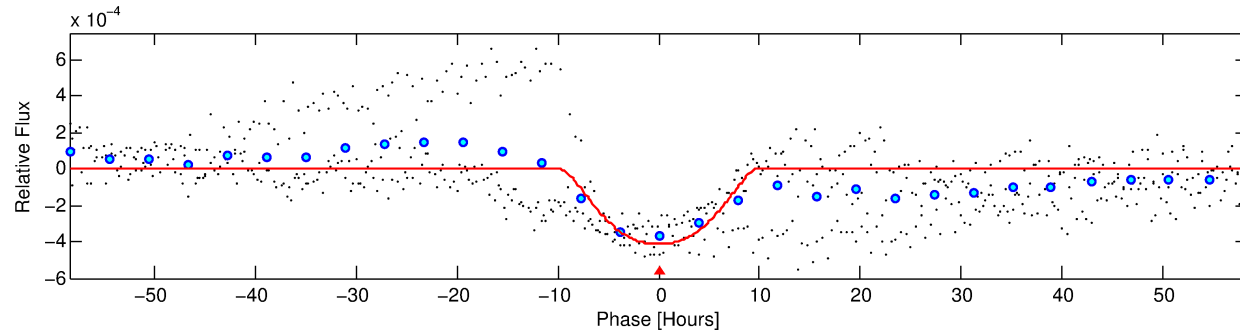
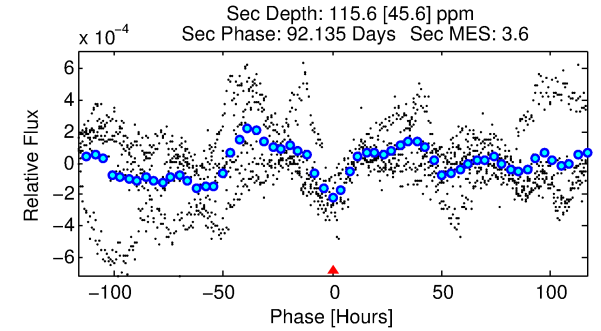
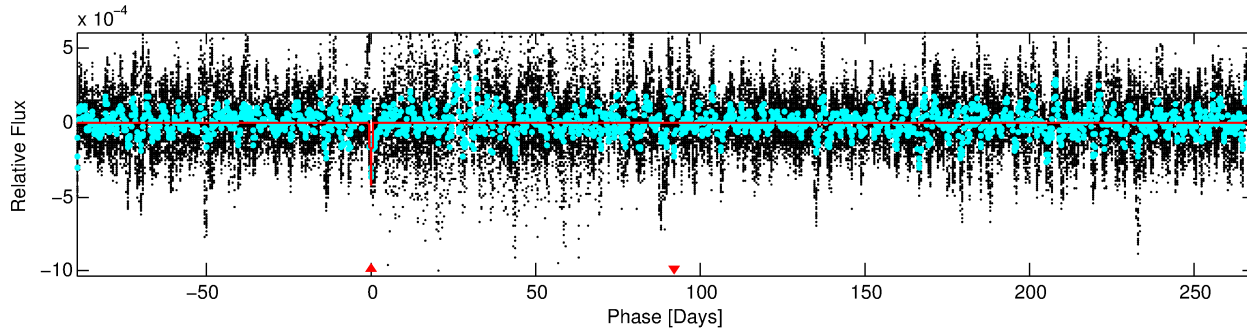
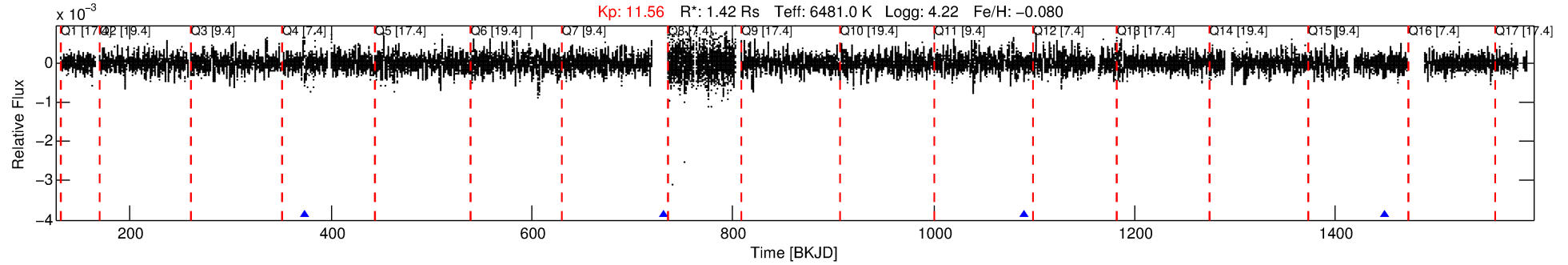
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011084309-01

No Significant Match Found

# DV One-Page Summary

KIC: 11084309 Candidate: 1 of 1 Period: 358.170 d



## DV Fit Results:

Period = 358.17001 [0.01130] d  
Epoch = 373.6870 [0.0223] BKJD  
Rp/R\* = 0.0253 [0.0041]  
a/R\* = 42.84 [4.69]  
b = 0.98 [0.01]  
Seff = 2.86 [0.79]  
Teq = 332 [23] K  
Rp = 3.92 [1.07] Re  
a = 1.0577 [0.1904] AU  
Ag = 4627.31 [2640.78] [1.75σ]  
Teffp = 4228 [552] K [7.05σ]

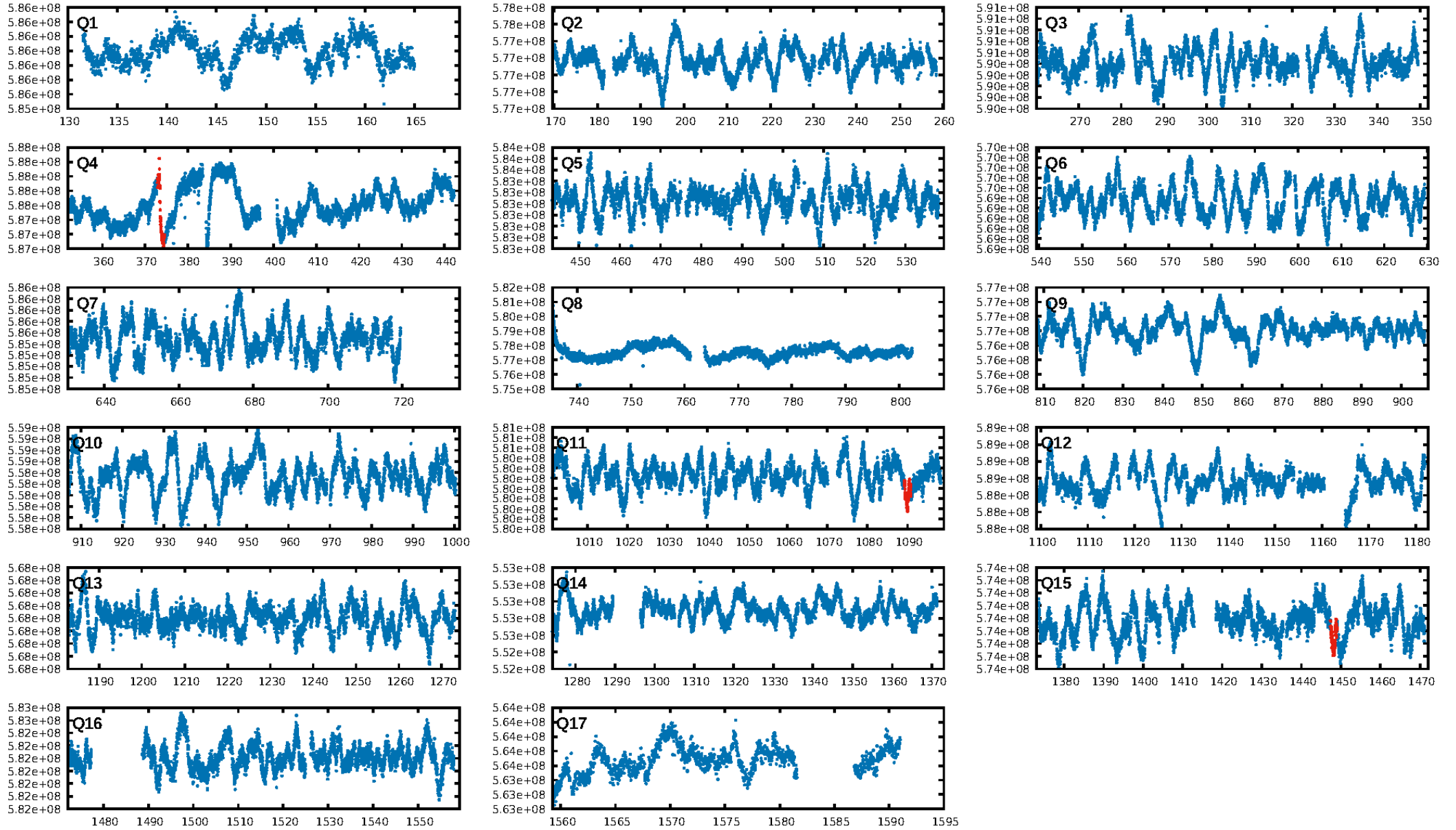
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.4%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 1.08e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.858  
Centroid-sig: 57.6%  
Centroid-so: 0.286 arcsec [1.18σ]  
OotOffset-rm: 0.638 arcsec [2.02σ]  
KicOffset-rm: 0.580 arcsec [1.83σ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

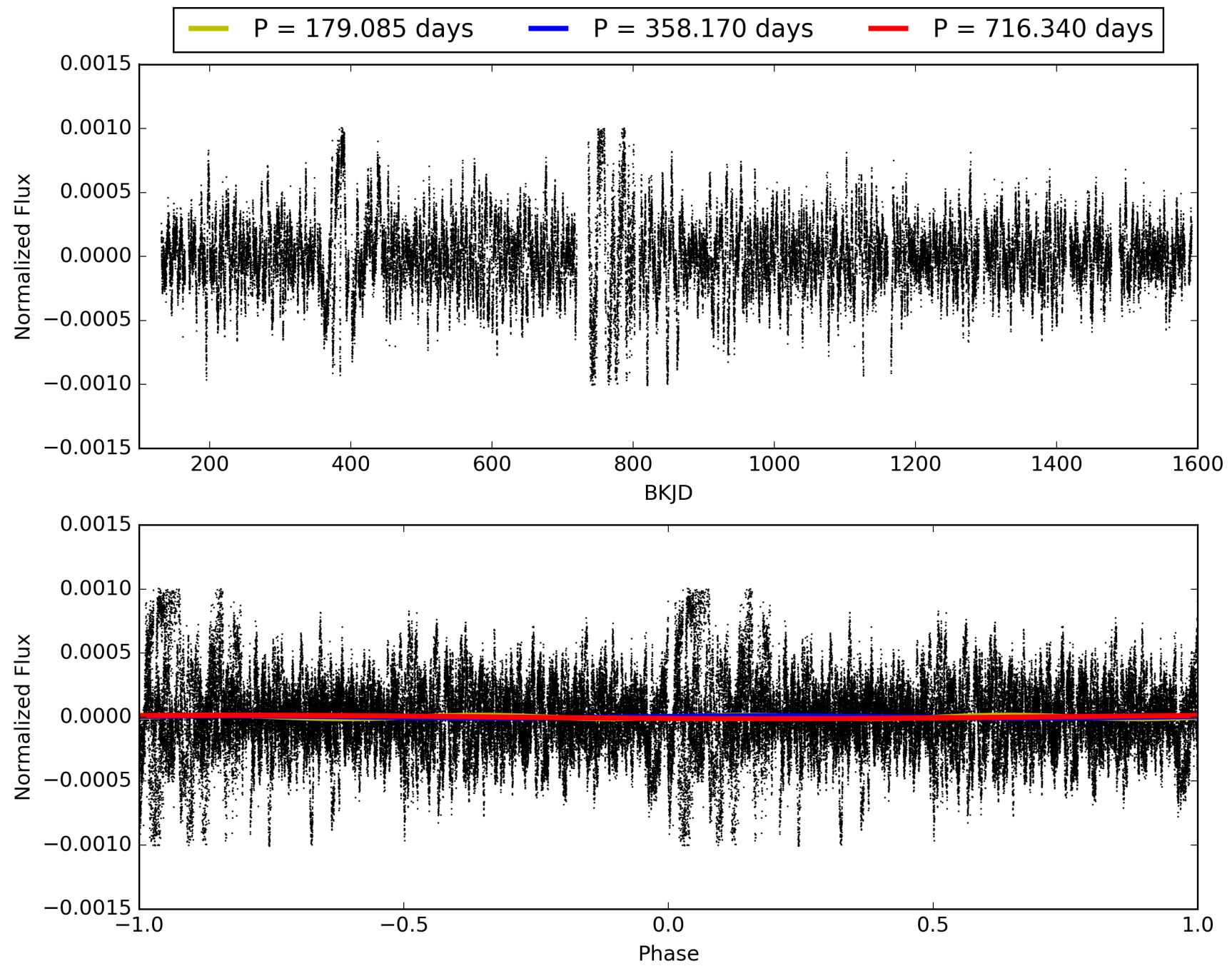
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:32:04 Z

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

# TCE 011084309-01, PDC Light Curves

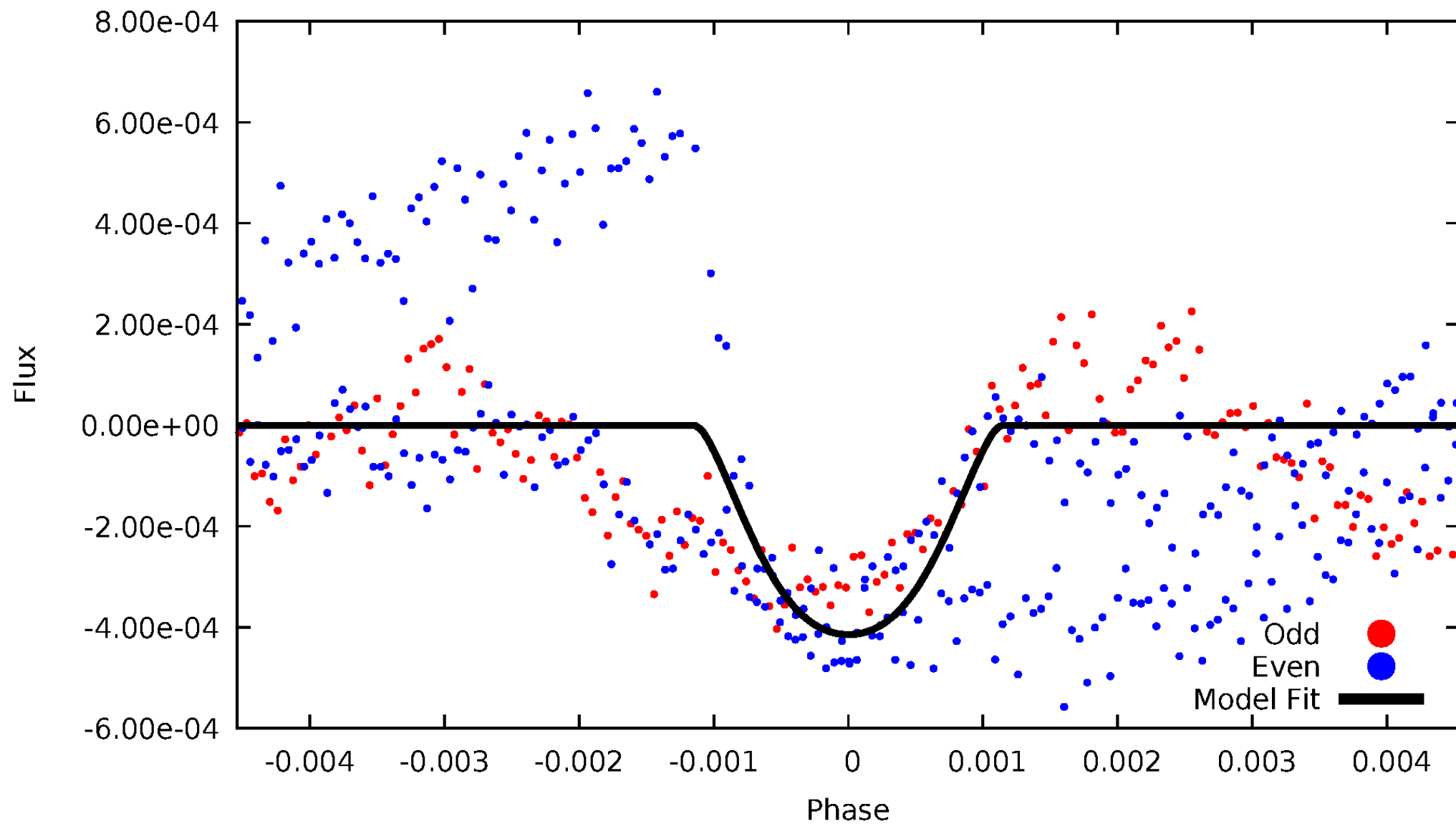


# TCE 011084309-01



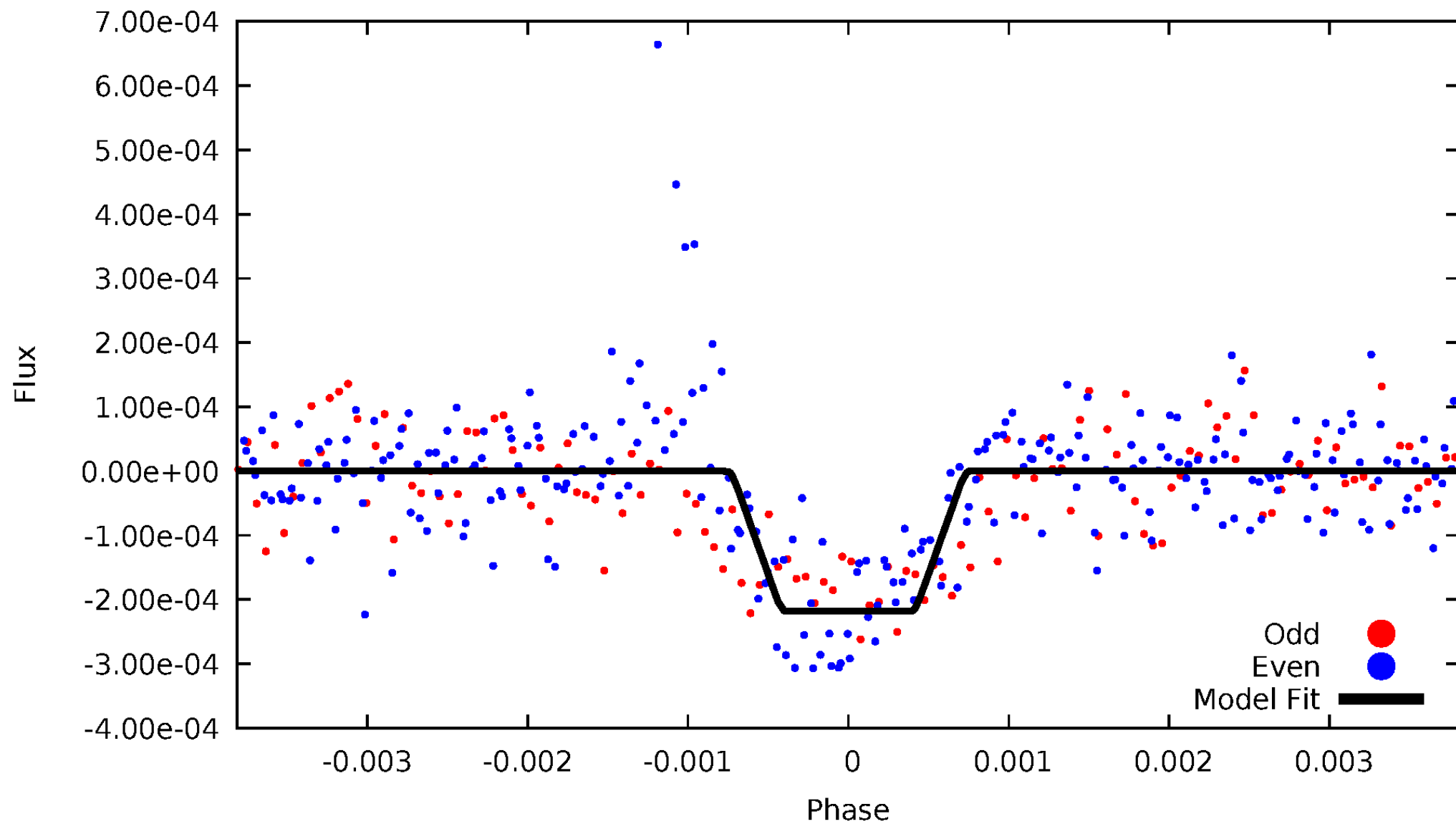
# DV Odd/Even

TCE 011084309-01



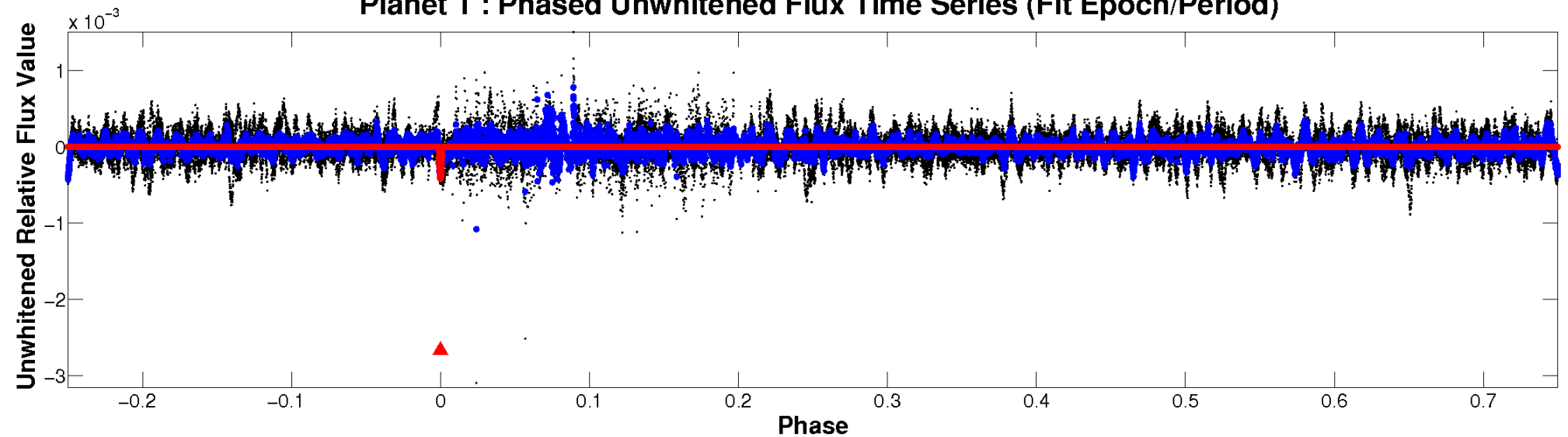
# ALT Odd/Even

TCE 011084309-01

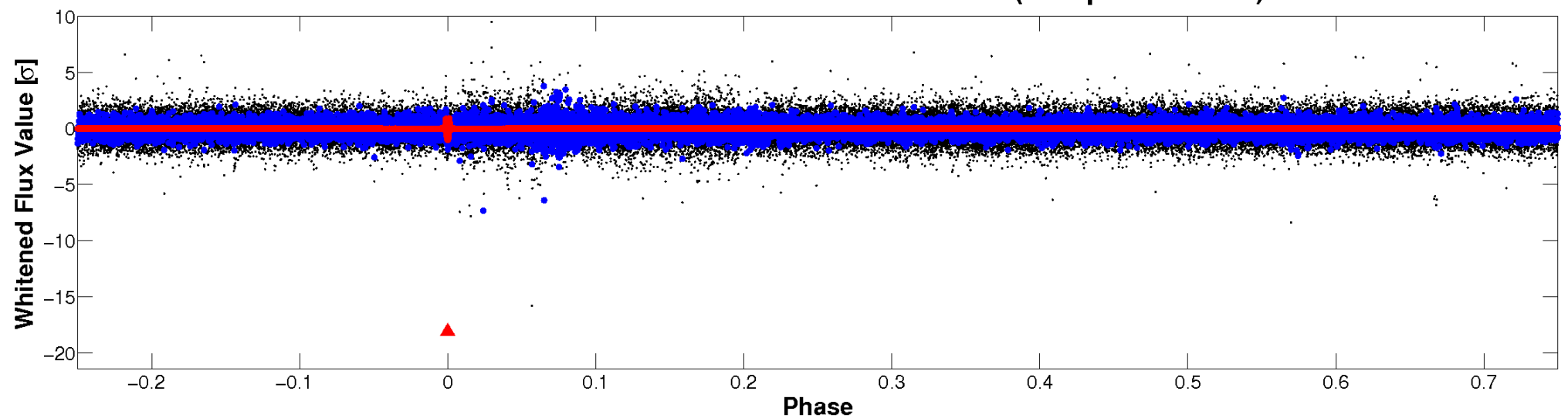


# Non-Whitened Vs. Whitened Light Curve

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

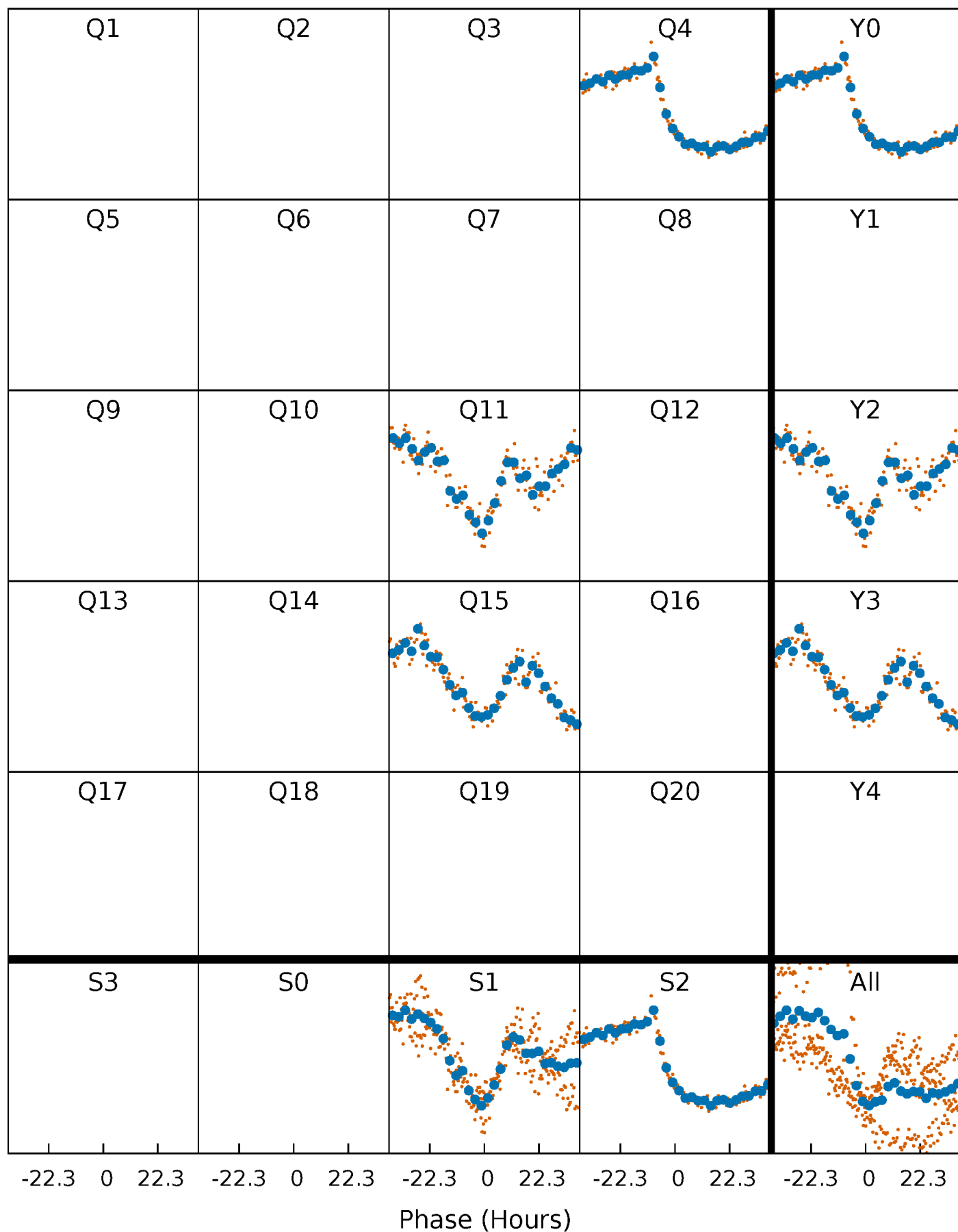


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

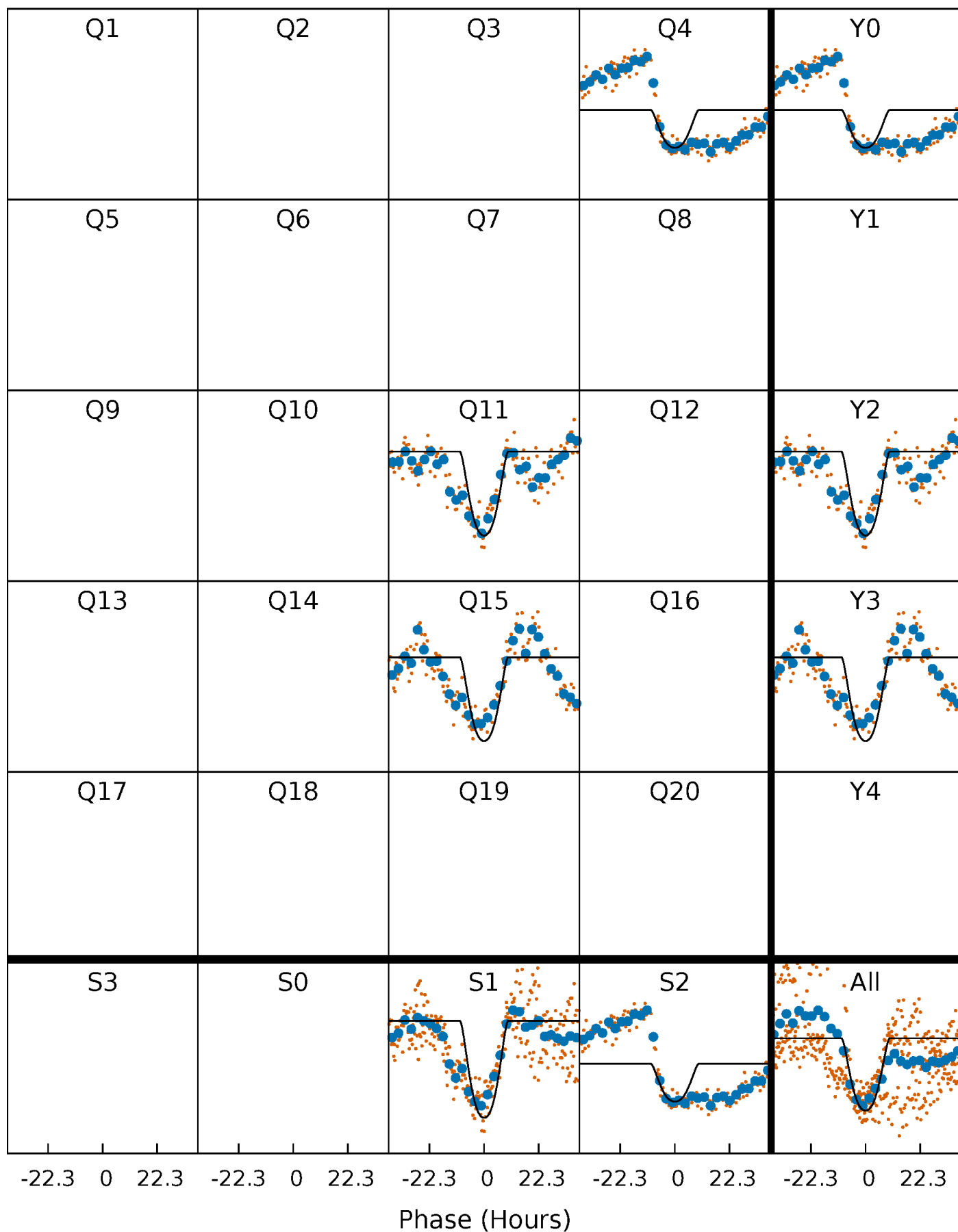
TCE 011084309-01 P=358.170012 Days  $T_0=373.686981$  (BKJD)





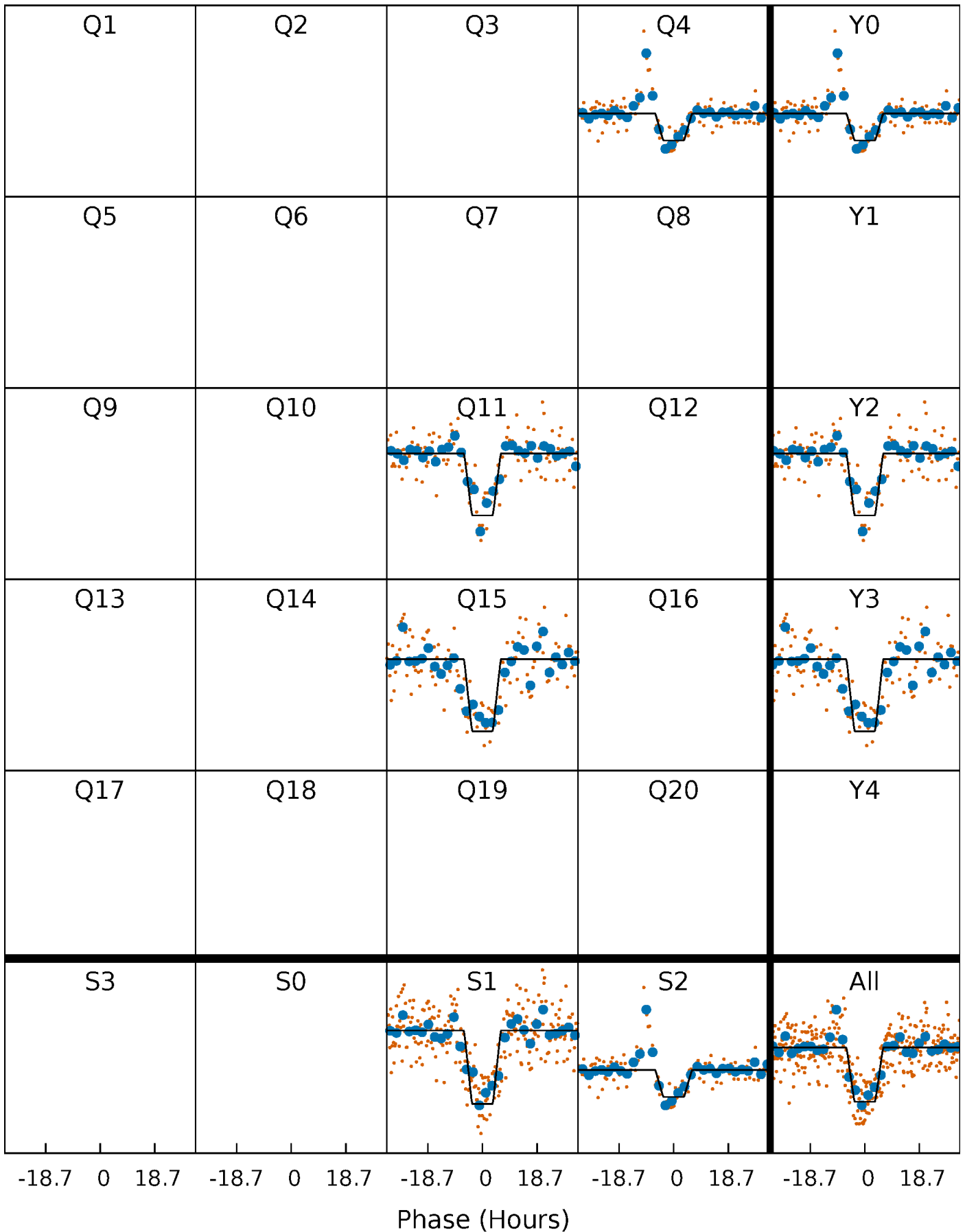
# DV Quarter-Phased Transit Curves

TCE 011084309-01 P=358.170012 Days  $T_0=373.686981$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

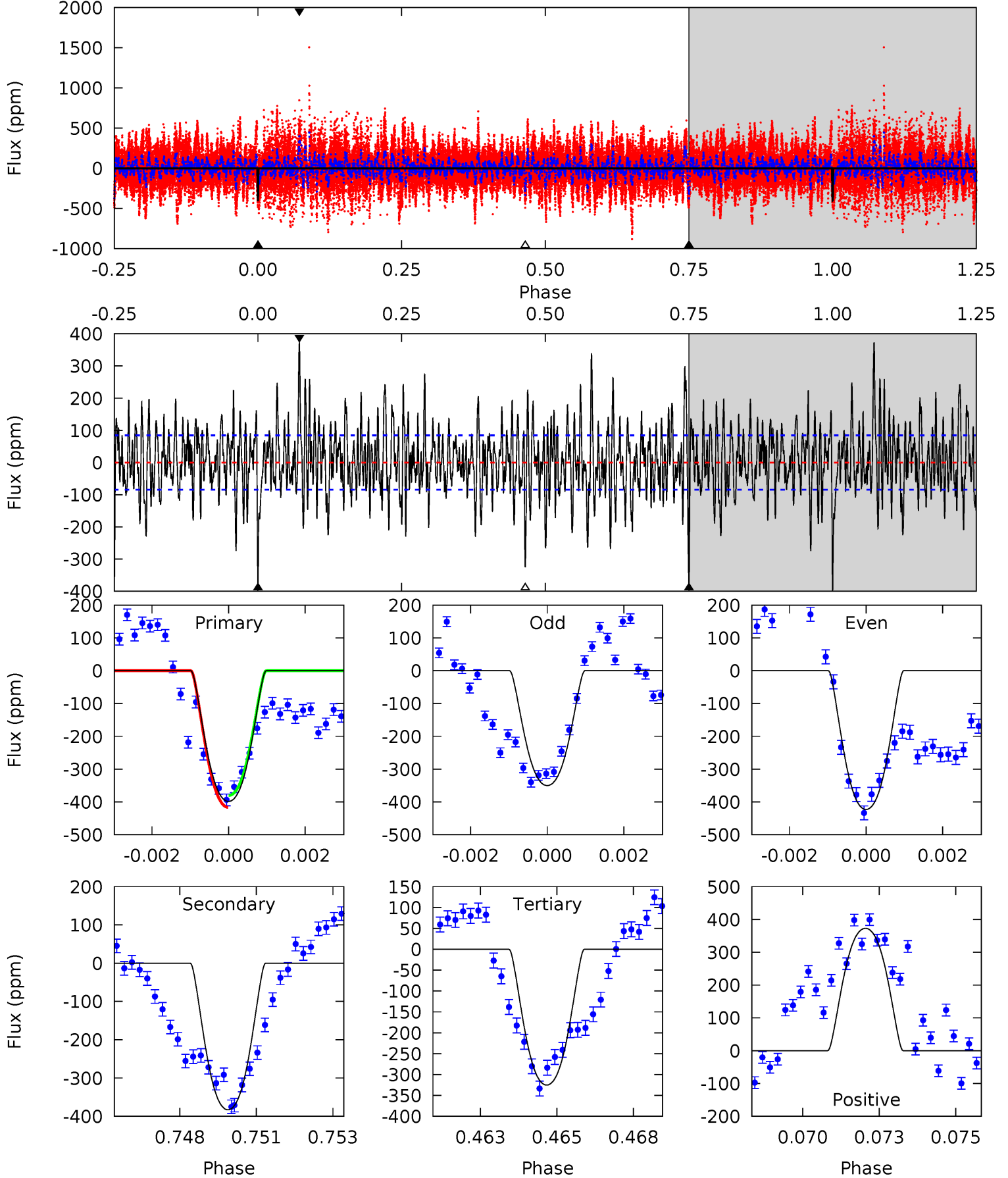
TCE 011084309-01 P=358.173062 Days  $T_0=373.705907$  (BKJD)



# DV Model-Shift Uniqueness Test

011084309-01, P = 358.170012 Days, E = 15.516969 Days

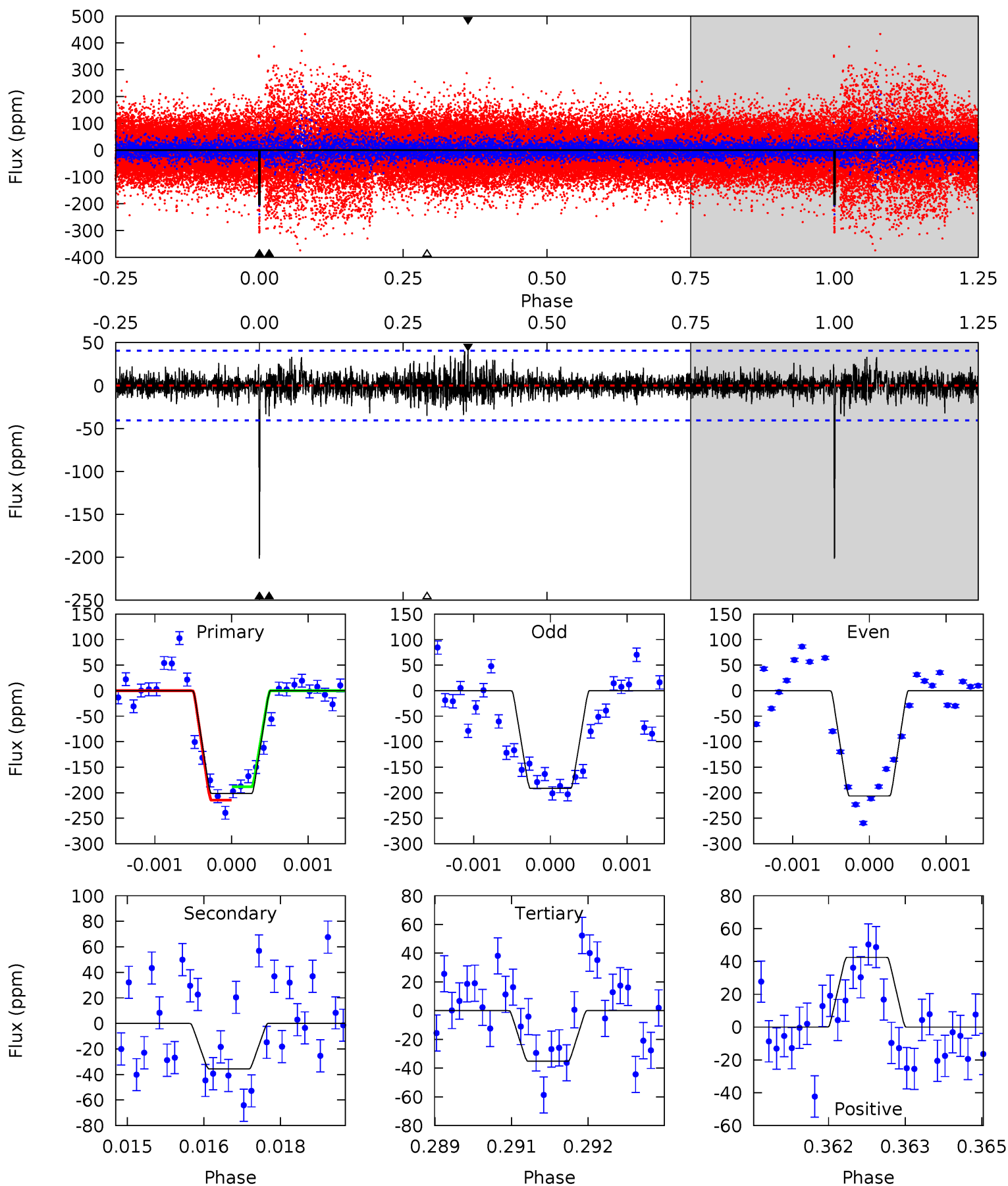
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.0 | 24.1 | 20.4 | 23.4 | 5.30            | 3.04            | 5.88             | 4.61    | 1.61    | 3.63    | 0.64    | 2.15    | 1.03 | 0.48  | 1.14 |



# Alt Model-Shift Uniqueness Test

011084309-01,  $P = 358.173062$  Days,  $E = 15.532845$  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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 26.7 | 4.71 | 4.66 | 5.62 | 5.38            | 3.18            | 1.16             | 22.0    | 21.0    | 0.06    | -0.91   | 0.89    | 1.05 | 0.17  | 1.72 |



### Stellar Parameters For KIC 011084309

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6481^{+144}_{-176}$ | $4.222^{+0.135}_{-0.135}$ | $-0.080^{+0.250}_{-0.300}$ | $1.422^{+0.314}_{-0.257}$ | $1.231^{+0.157}_{-0.172}$ | $0.603^{+0.380}_{-0.232}$                 |
|        | +2%/-3%              | +3%/-3%                   | +312%/-375%                | +22%/-18%                 | +13%/-14%                 | +63%/-38%                                 |
| 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 011084309-01 / KOI

| Detrend | Depth (ppm)   | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$        |
|---------|---------------|------------------------|----------------------|----------------------|-------------------------|
| DV      | $-383 \pm 16$ | $3.87^{+0.86}_{-0.74}$ | $463^{+24}_{-27}$    | $5707^{+541}_{-446}$ | $15558^{+8481}_{-4986}$ |
| Alt.    | $-36 \pm 8$   | $2.28^{+0.74}_{-0.63}$ | $462^{+29}_{-26}$    | $4345^{+583}_{-438}$ | $4199^{+3931}_{-1927}$  |

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

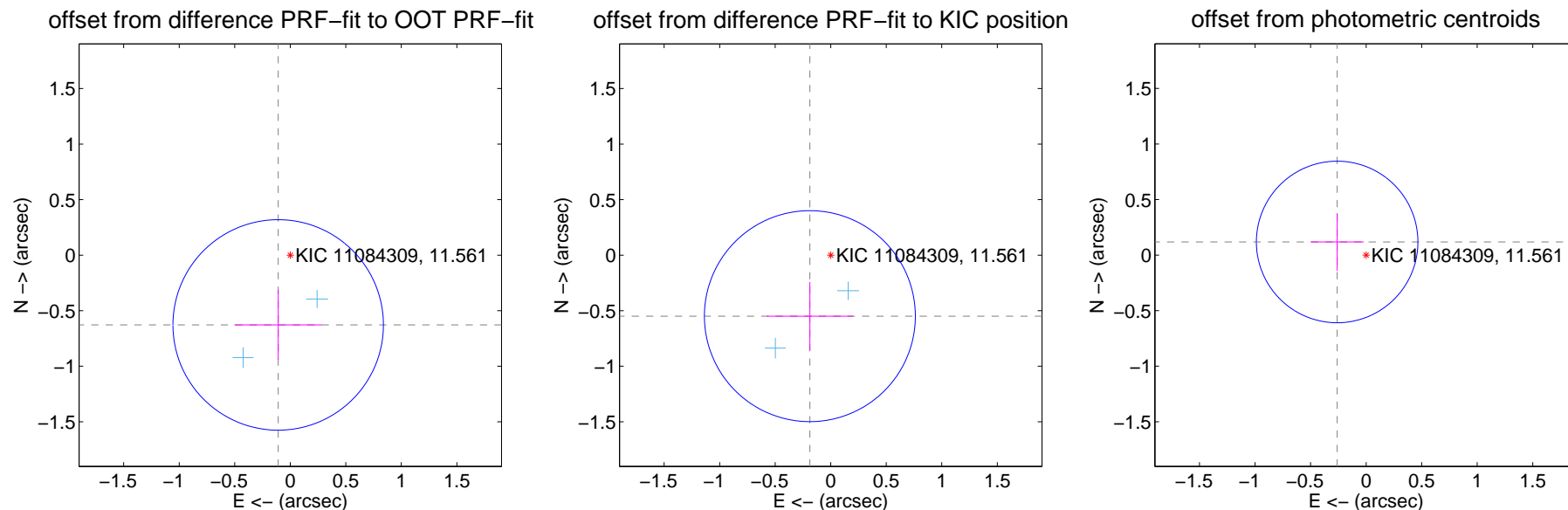
## DV Centroid Data

Supplemental centroid analysis for 011084309-01. **Kepler magnitude: 11.56.** Transit SNR 8.54

**There are 2 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.638 \pm 0.316$  | 2.02                | $0.109 \pm 0.394$ | $-0.628 \pm 0.313$ |
| PRF-fit source offset from KIC position | $0.580 \pm 0.317$  | 1.83                | $0.188 \pm 0.388$ | $-0.549 \pm 0.307$ |
| photometric centroid source offset      | $0.29 \pm 0.24$    | 1.18                | $0.26 \pm 0.24$   | $0.12 \pm 0.26$    |



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.

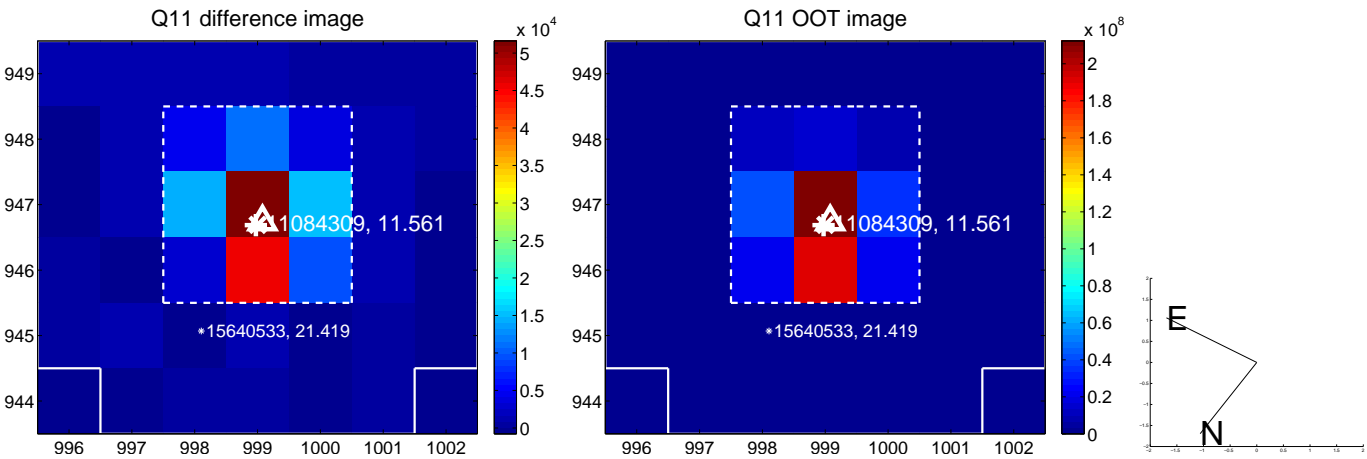


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

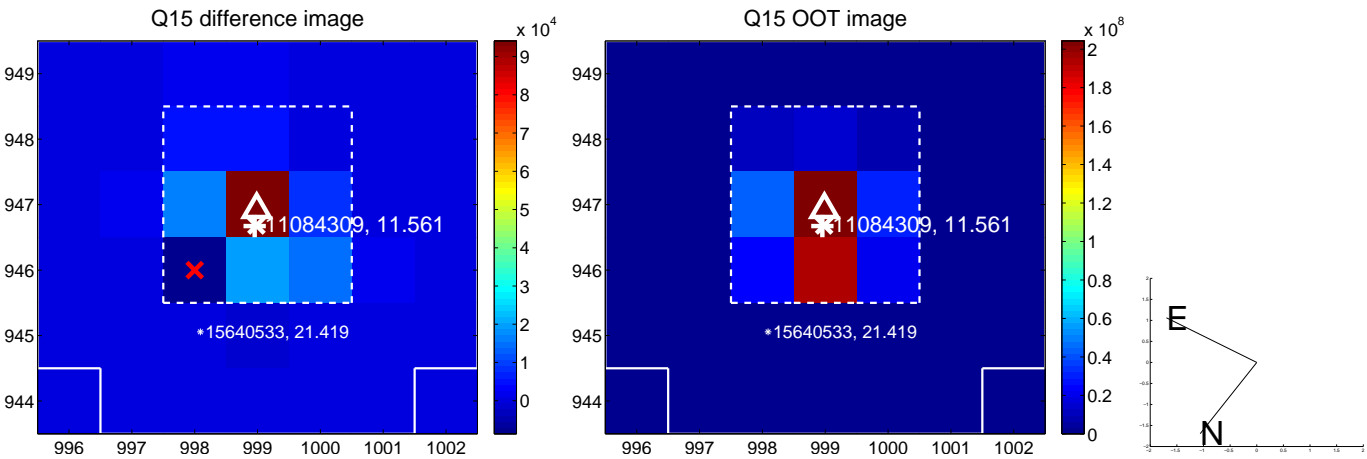




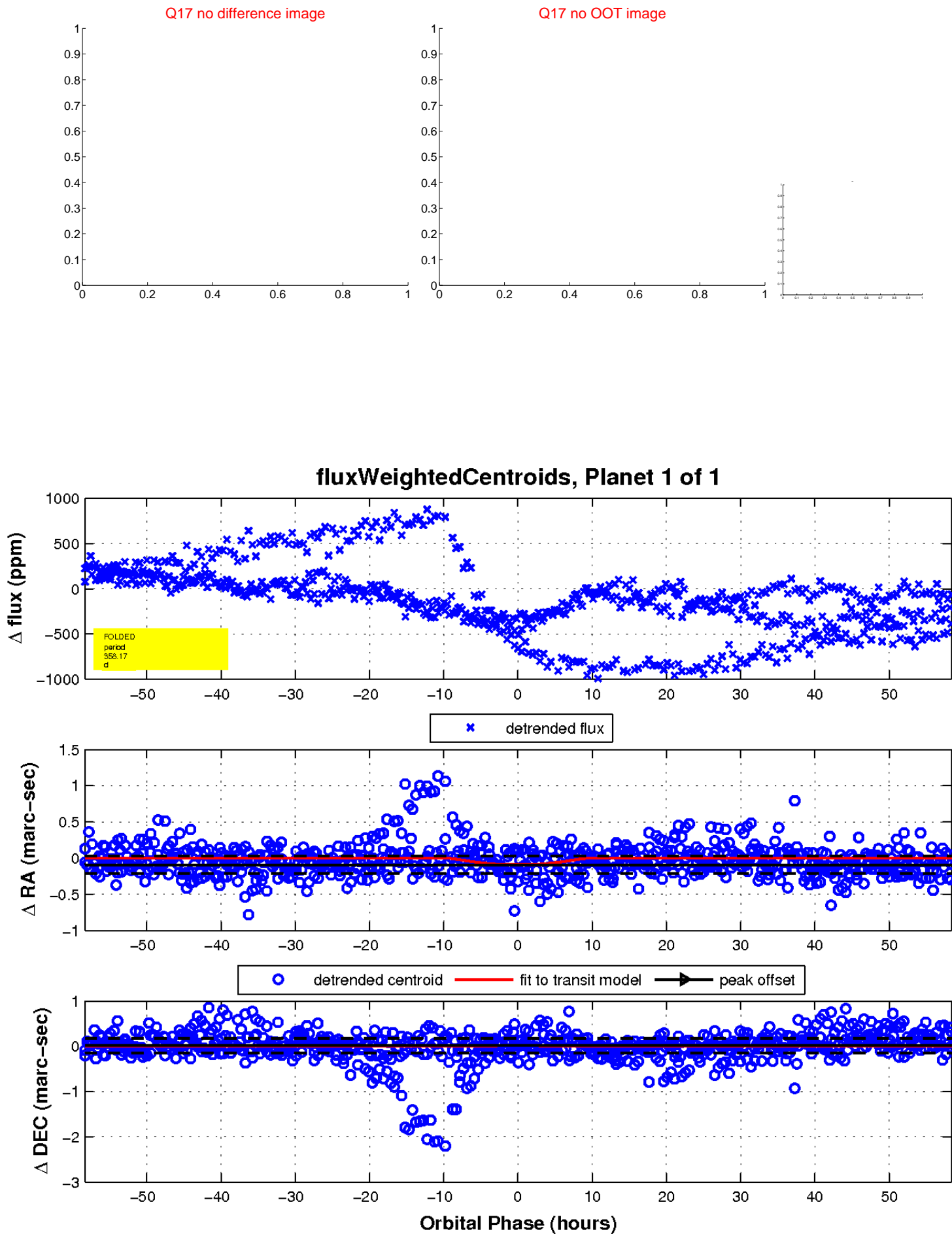
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

