

# KIC 007973419

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007973419-01 | OBS      | No   | 236.030072    | 206.607322   | 183.1       | 6.612            | 7.4 | 6.4 | 0.86                        | 5873            | 1.34                   | 1.46                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 007973419-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—MOD_NONUNIQ_ALT—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.

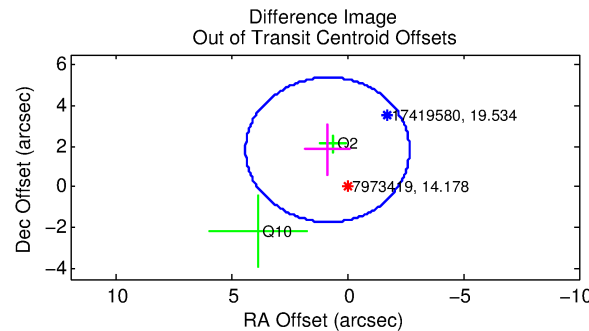
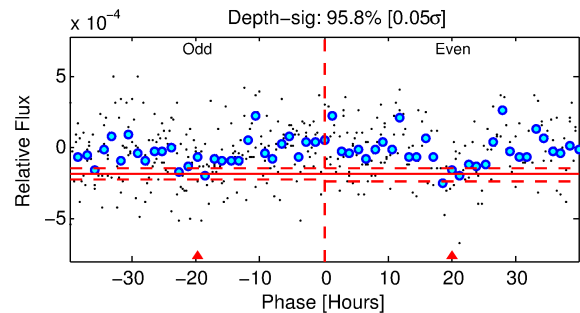
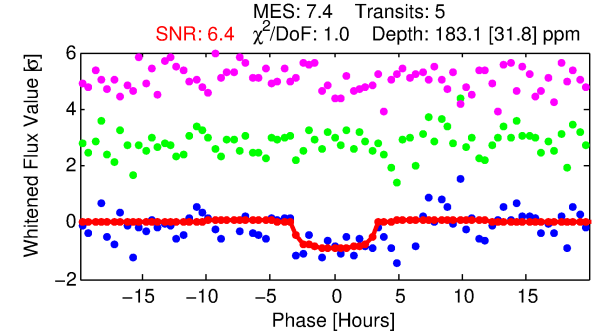
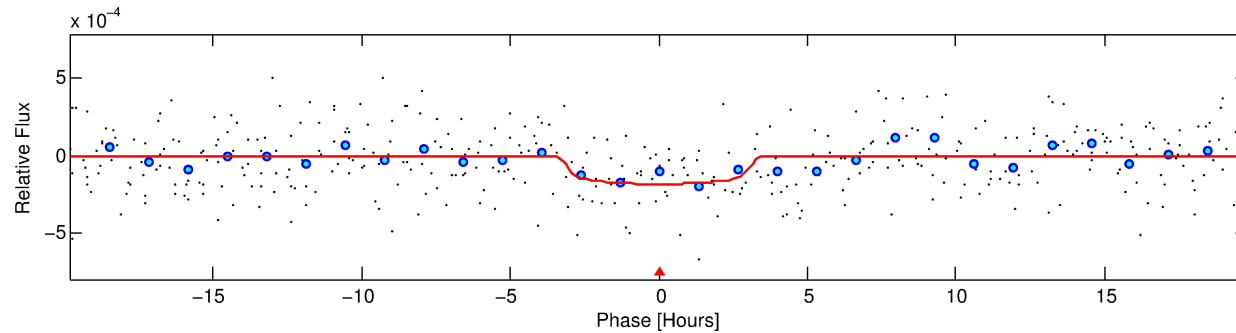
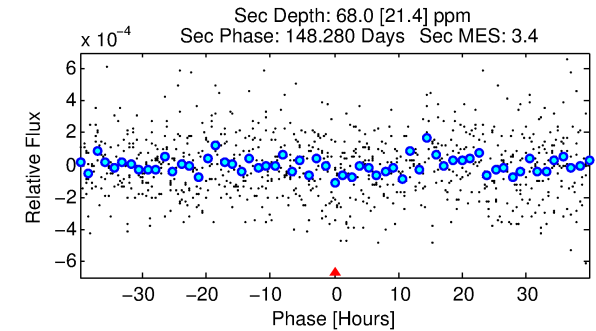
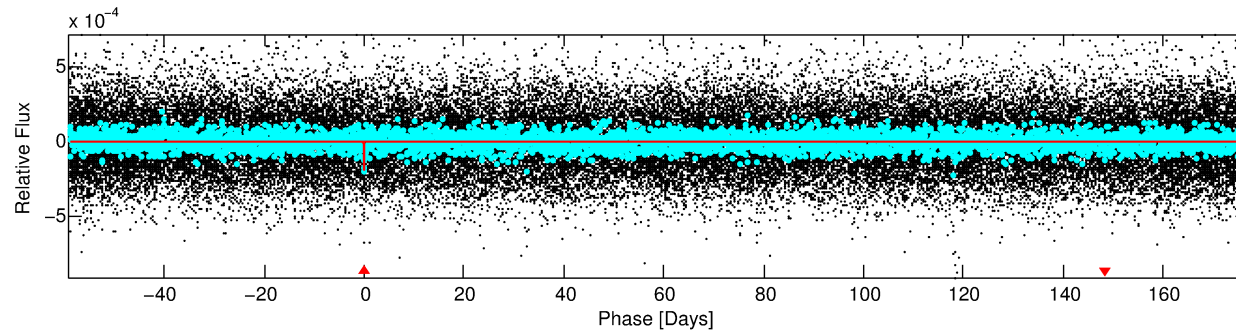
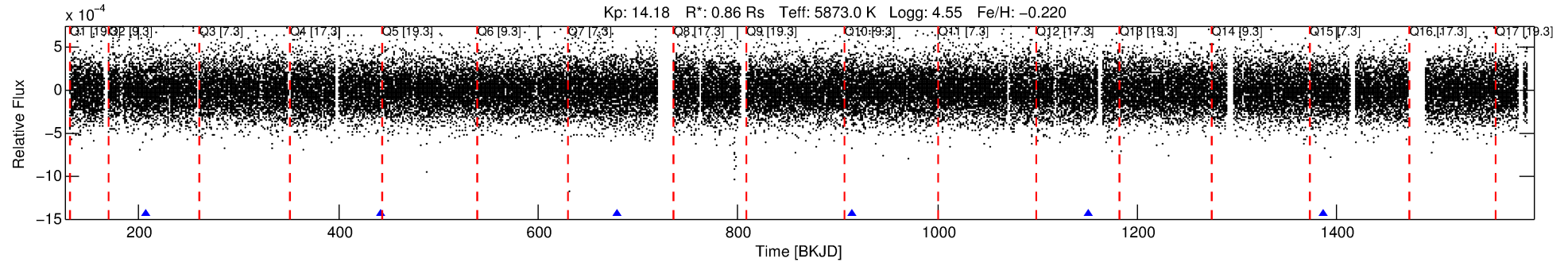
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007973419-01

No Significant Match Found

# DV One-Page Summary

KIC: 7973419 Candidate: 1 of 1 Period: 236.030 d



## DV Fit Results:

Period = 236.03007 [0.00634] d  
Epoch = 206.6073 [0.0228] BKJD  
Rp/R\* = 0.0142 [0.0122]  
a/R\* = 147.19 [620.54]  
b = 0.86 [1.31]  
Seff = 1.46 [0.56]  
Teq = 280 [27] K  
Rp = 1.34 [1.22] Re  
a = 0.7368 [0.1850] AU  
Ag = 11364.47 [20369.07] [0.56σ]  
Teffp = 4476 [1966] K [2.13σ]

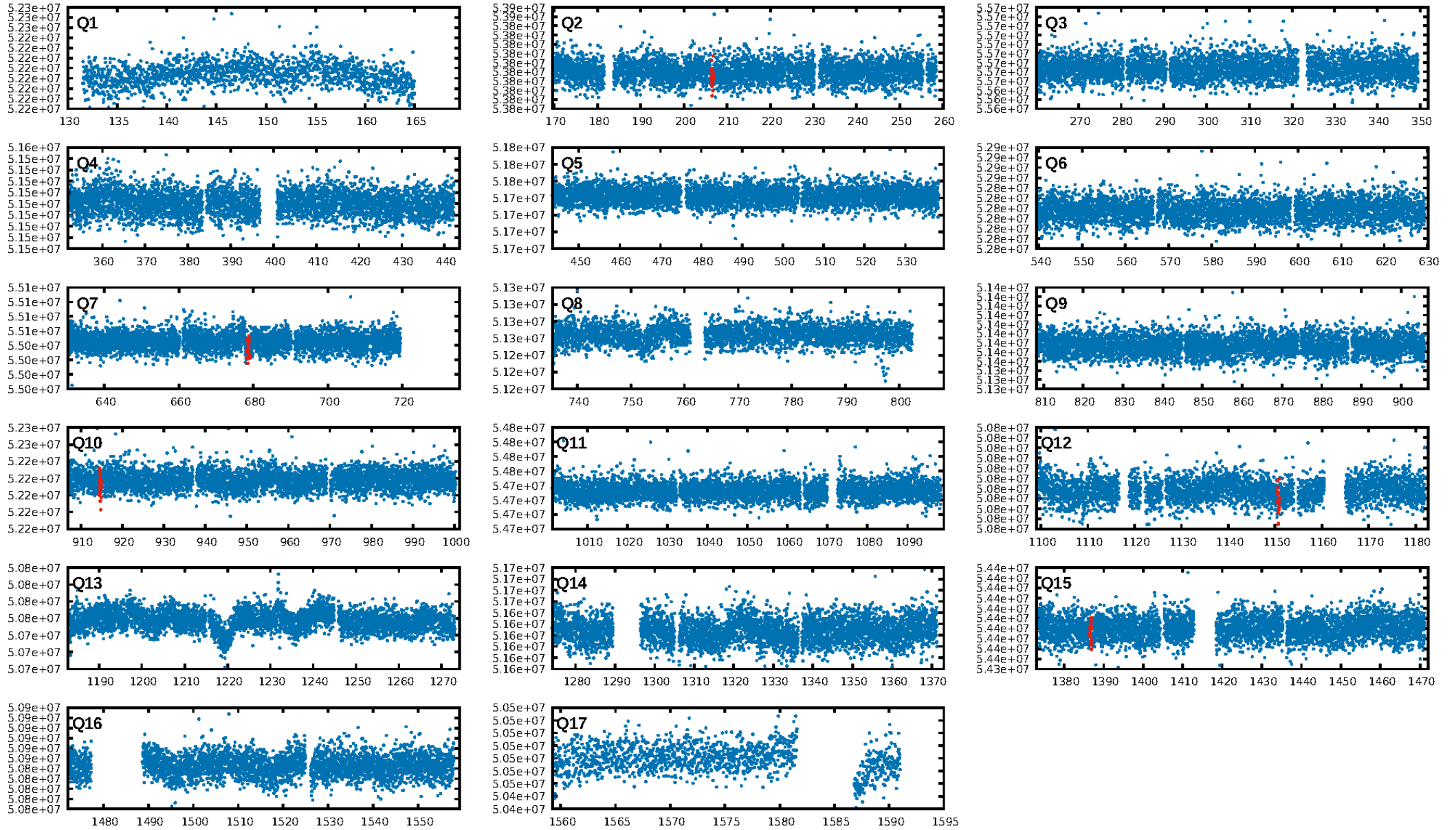
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 95.6%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 4.85e-14  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -3.334  
Centroid-sig: 1.8%  
Centroid-so: 3.564 arcsec [1.78σ]  
OotOffset-rm: 2.022 arcsec [1.71σ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-rm: 1.967 arcsec [1.66σ]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [4/4]

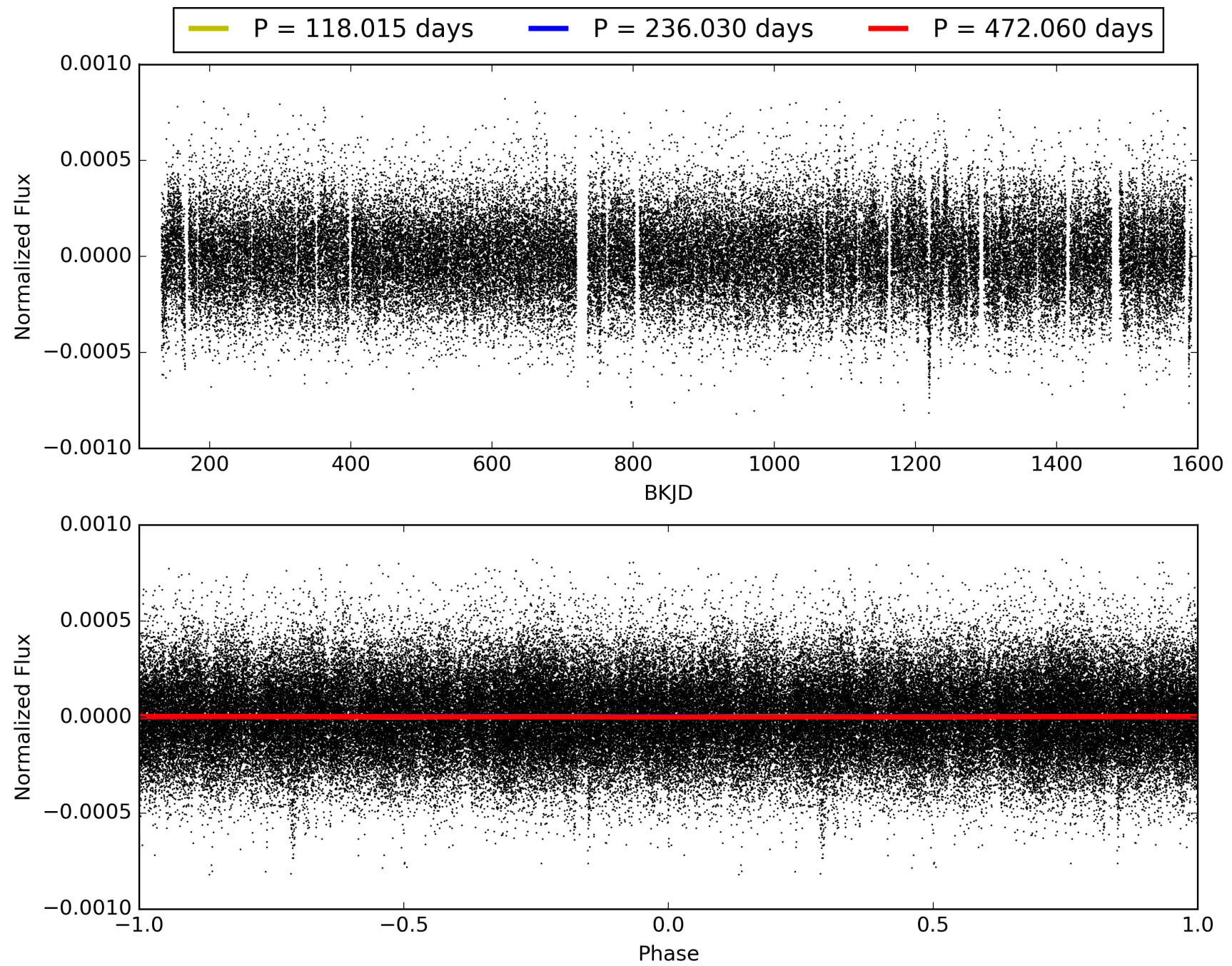
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:44:27 Z

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

# TCE 007973419-01, PDC Light Curves

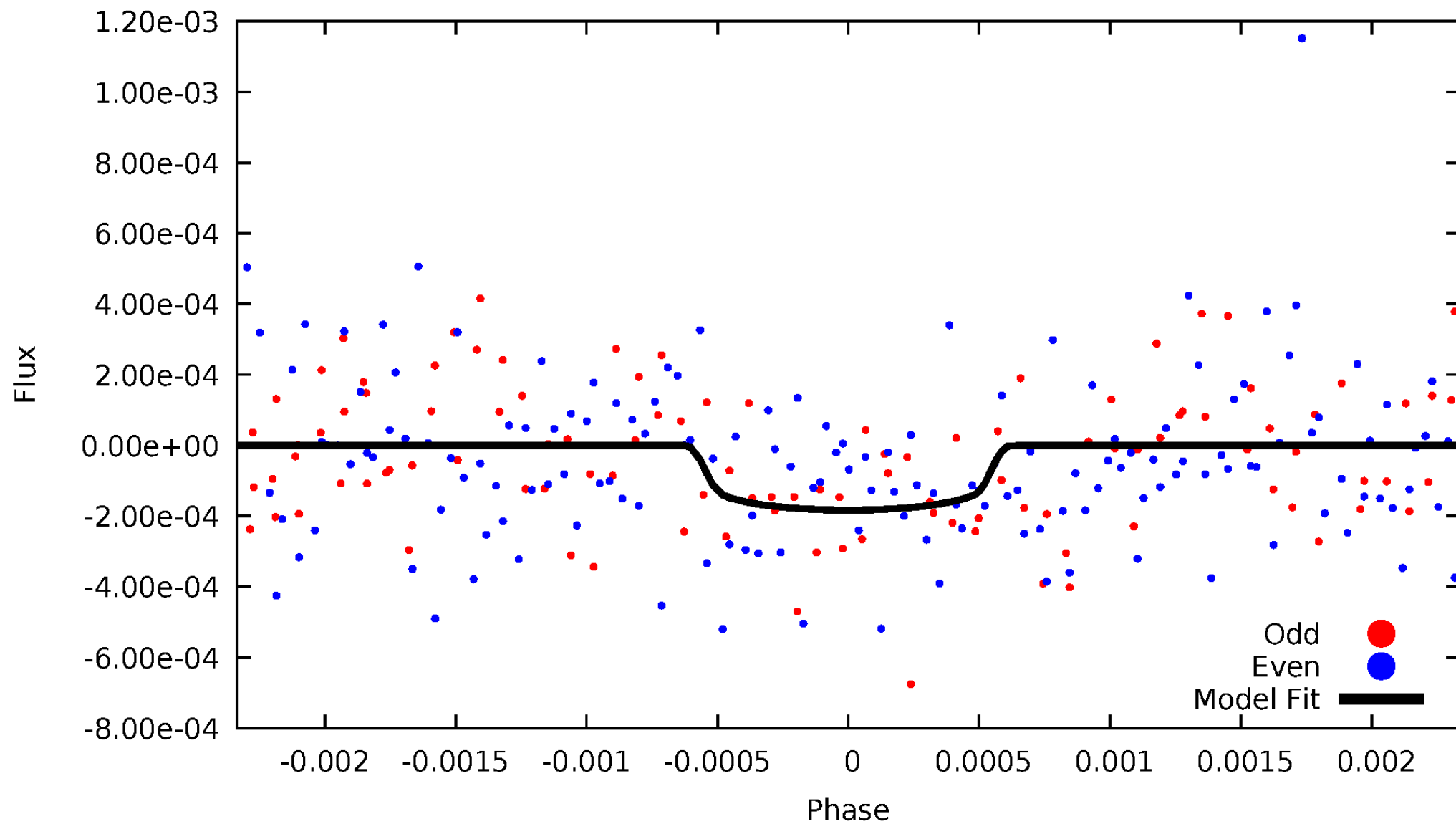


TCE 007973419-01



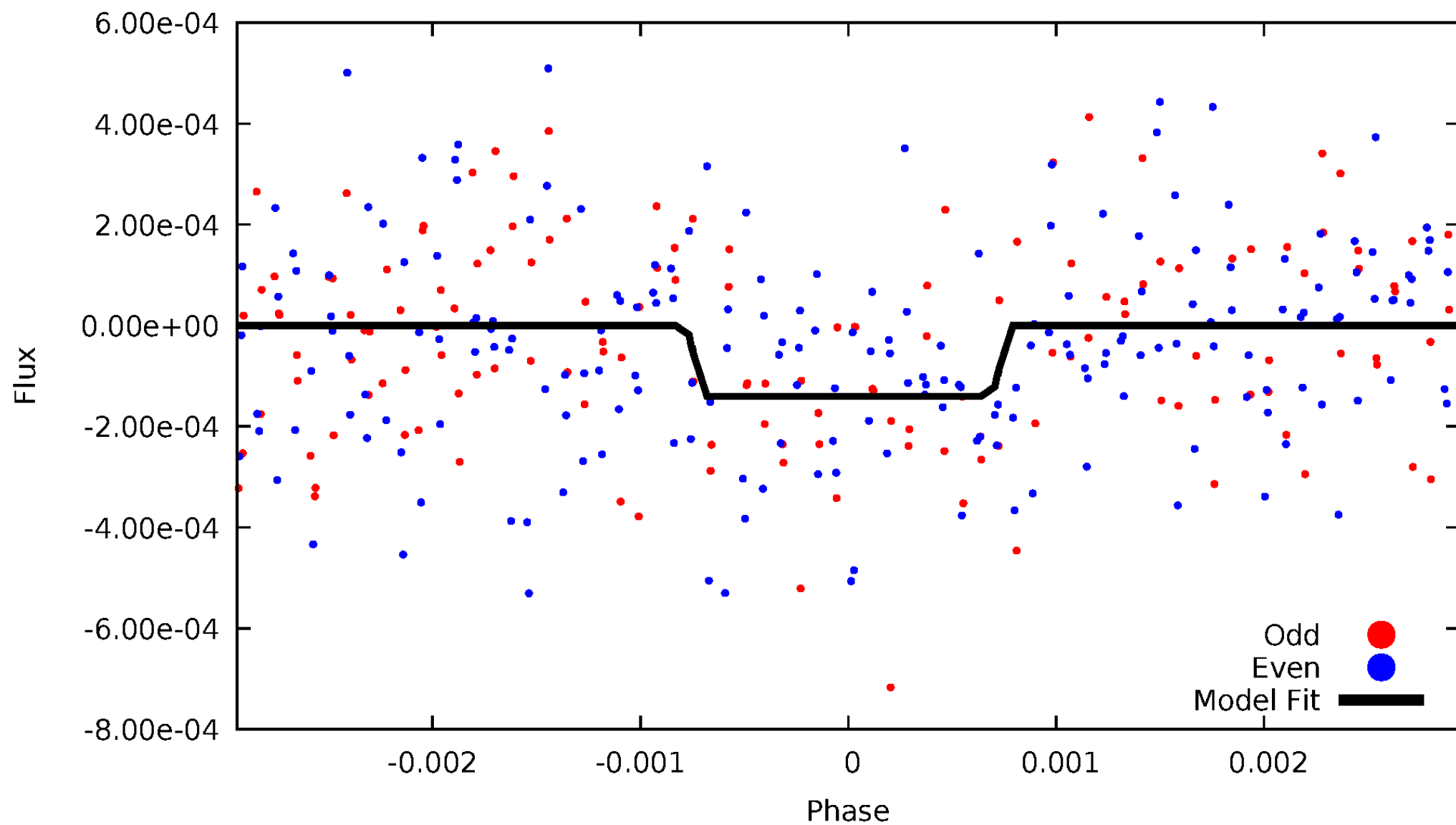
# DV Odd/Even

TCE 007973419-01



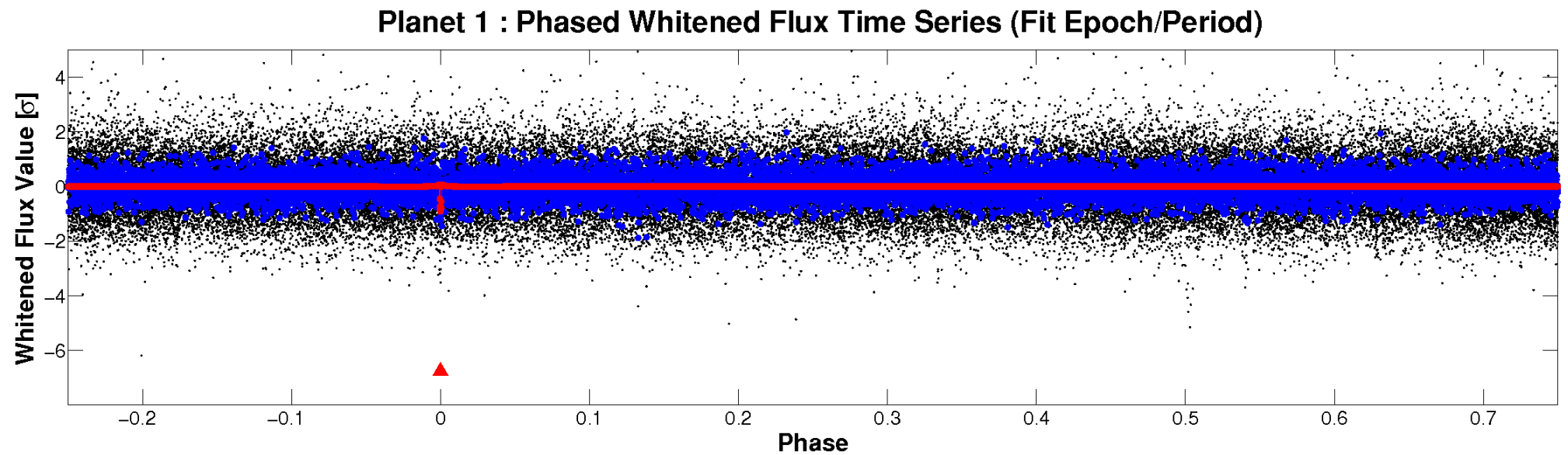
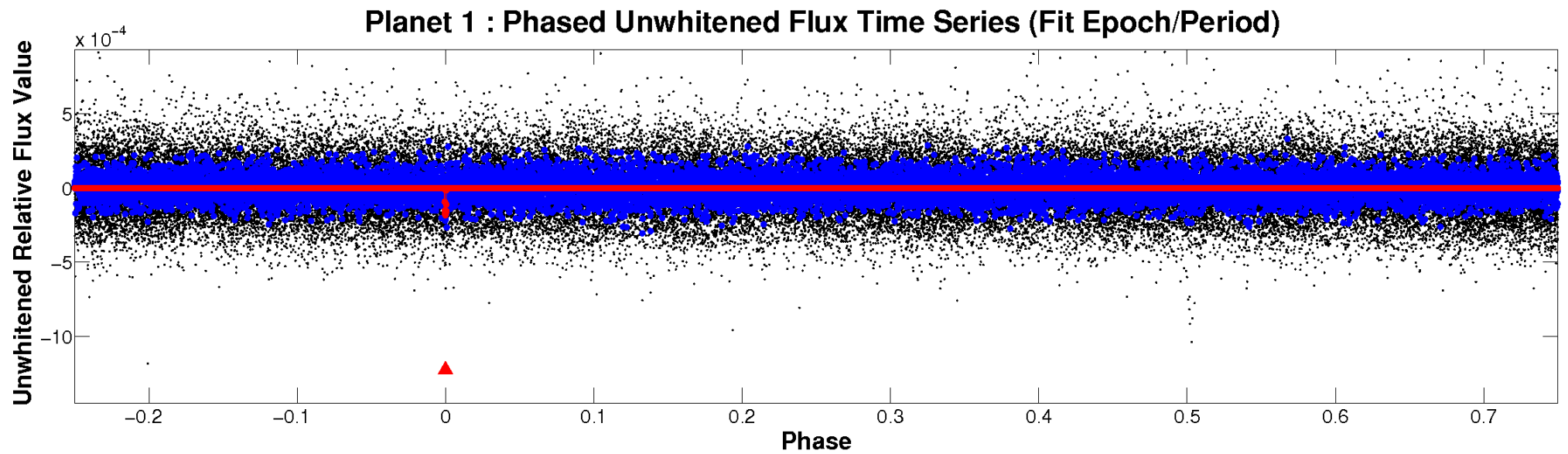
# ALT Odd/Even

TCE 007973419-01



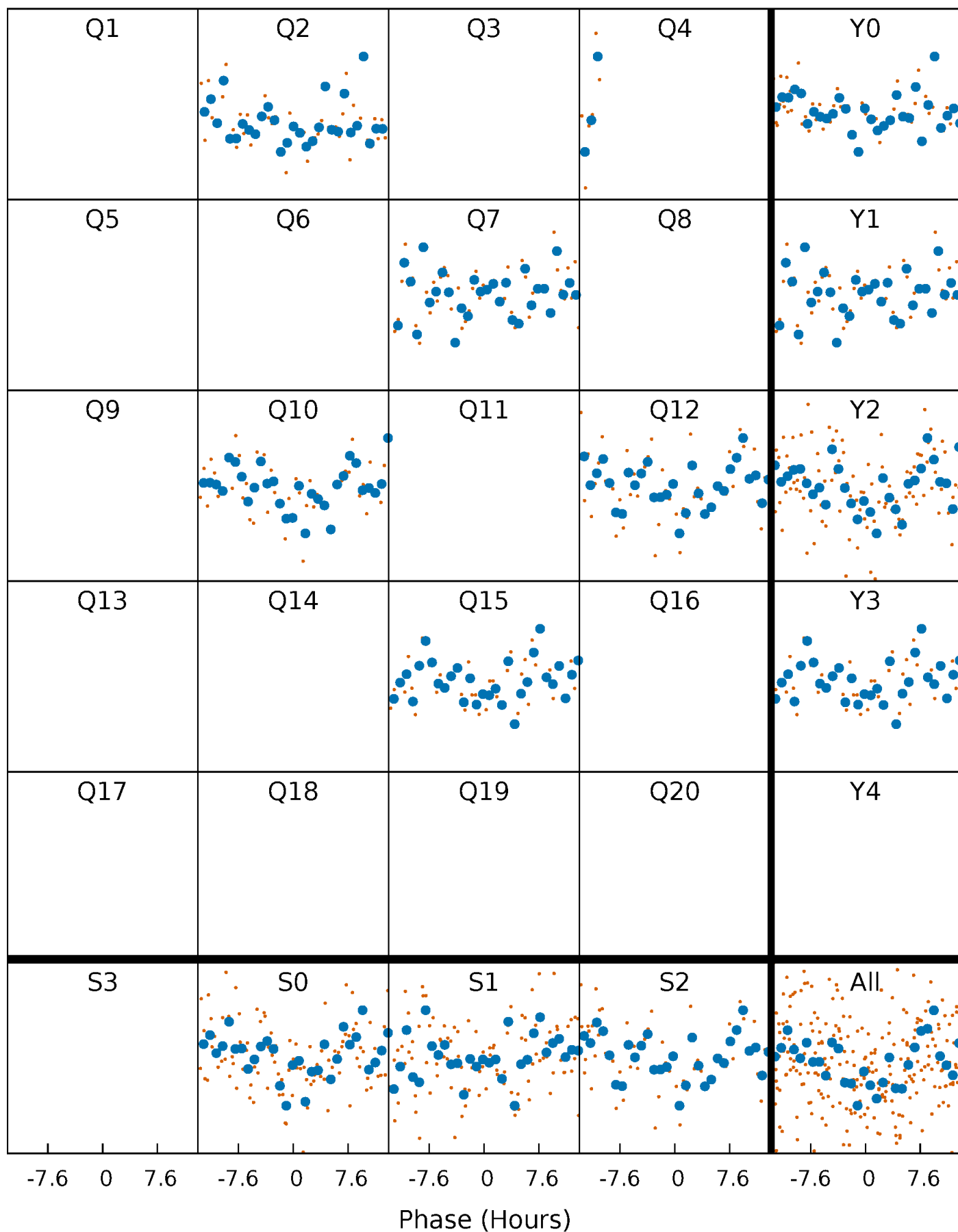


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

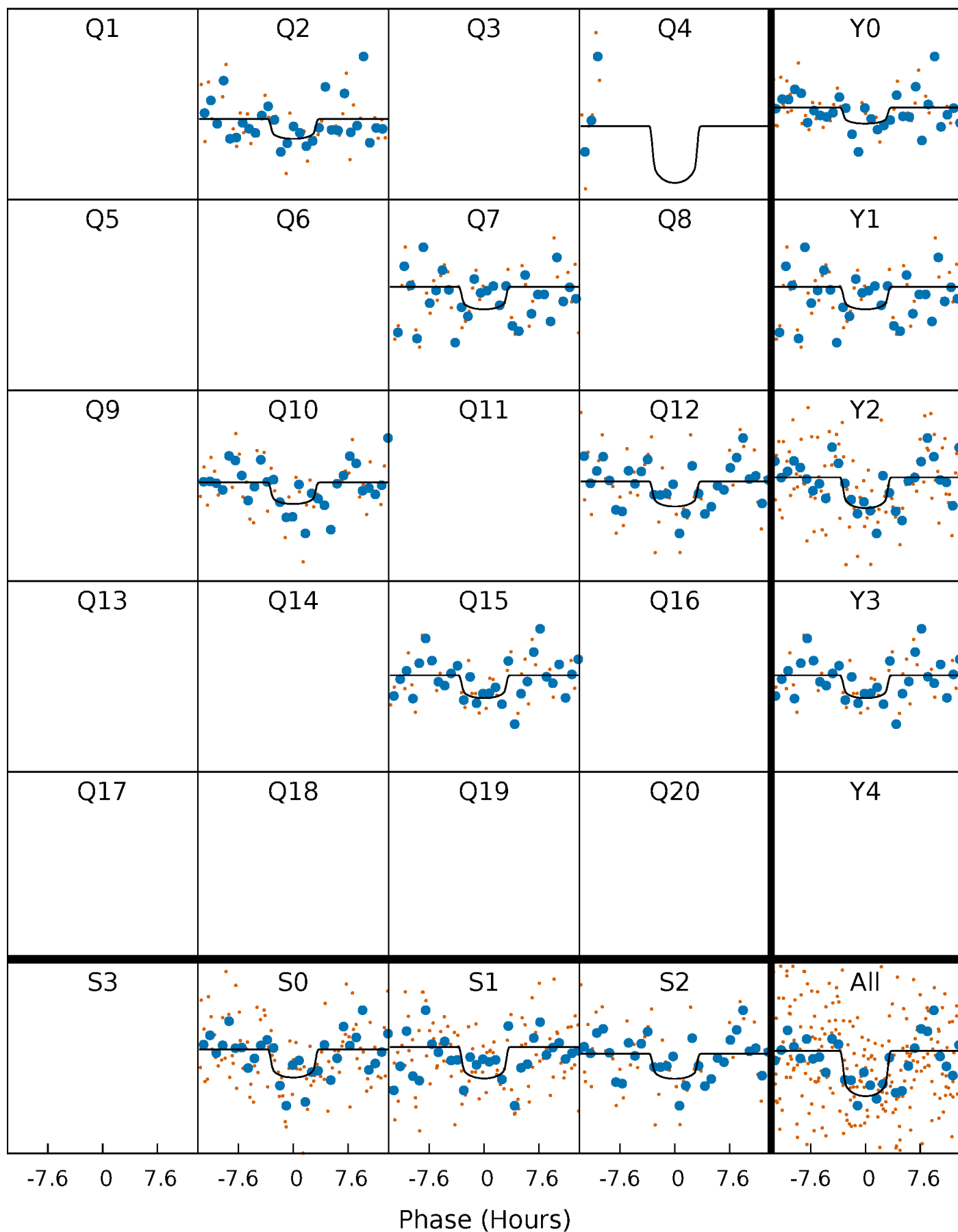
TCE 007973419-01 P=236.030072 Days  $T_0=206.607322$  (BKJD)





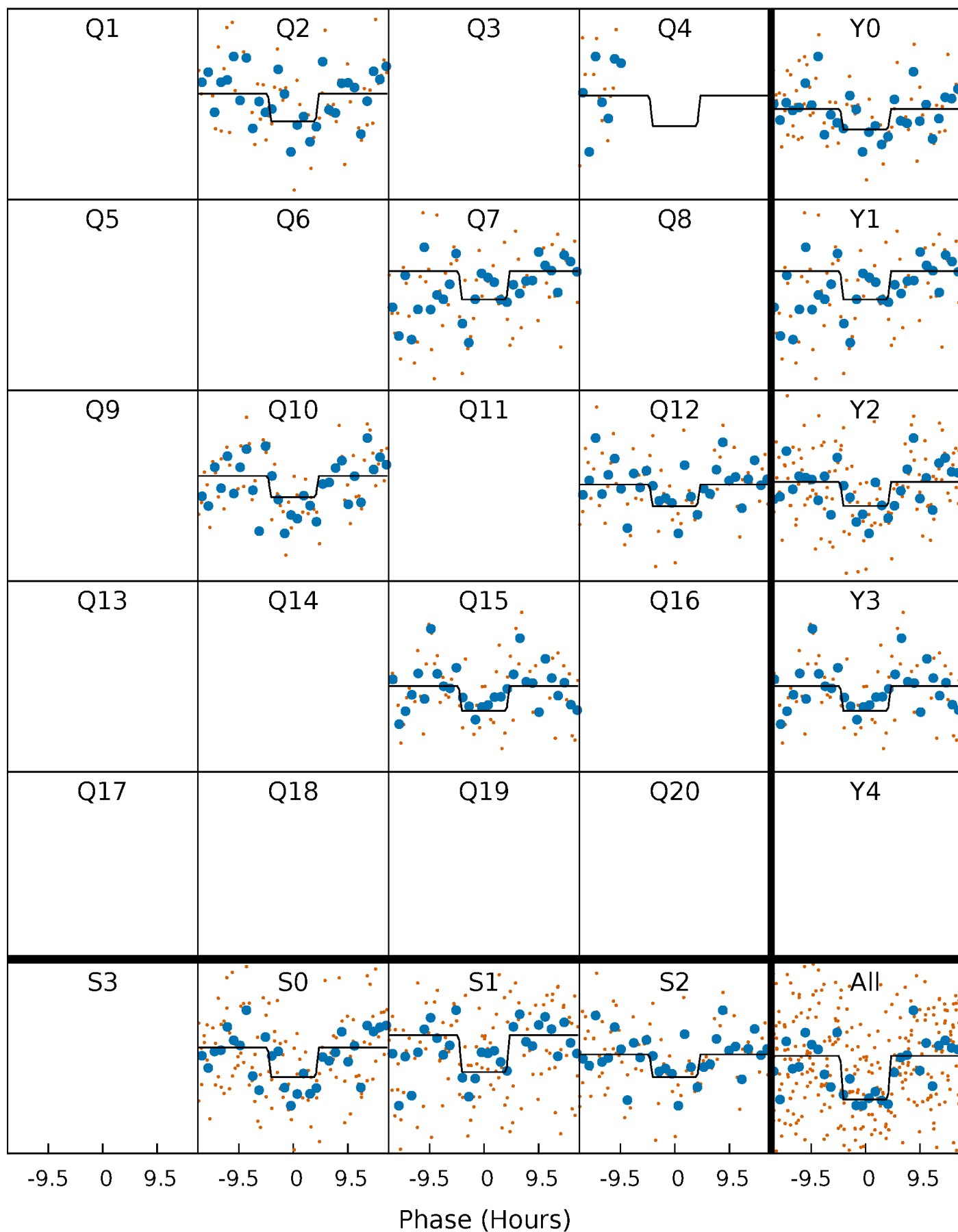
# DV Quarter-Phased Transit Curves

TCE 007973419-01 P=236.030072 Days  $T_0=206.607322$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

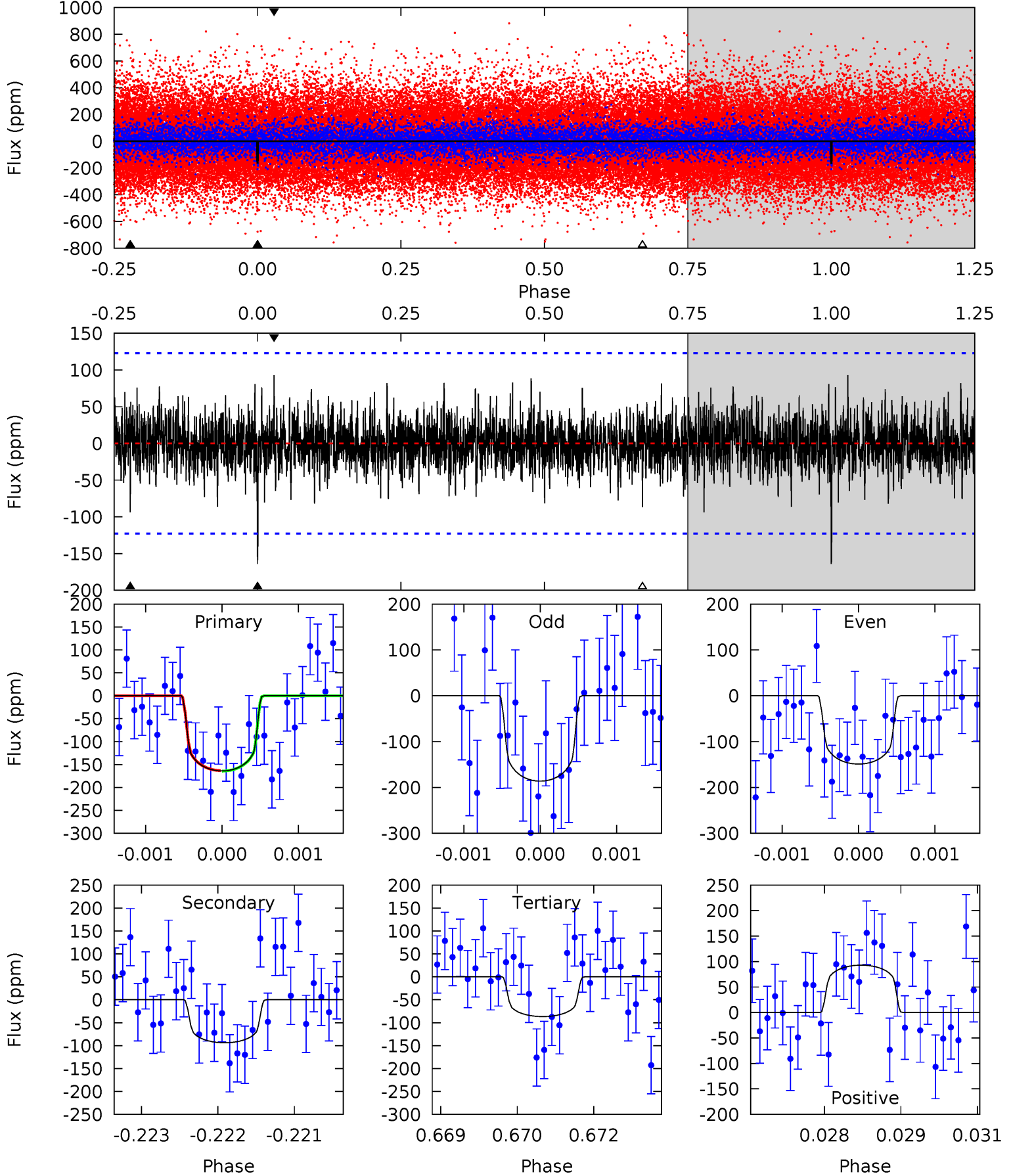
TCE 007973419-01 P=236.048485 Days  $T_0=206.560493$  (BKJD)



# DV Model-Shift Uniqueness Test

007973419-01, P = 236.030072 Days, E = 206.607322 Days

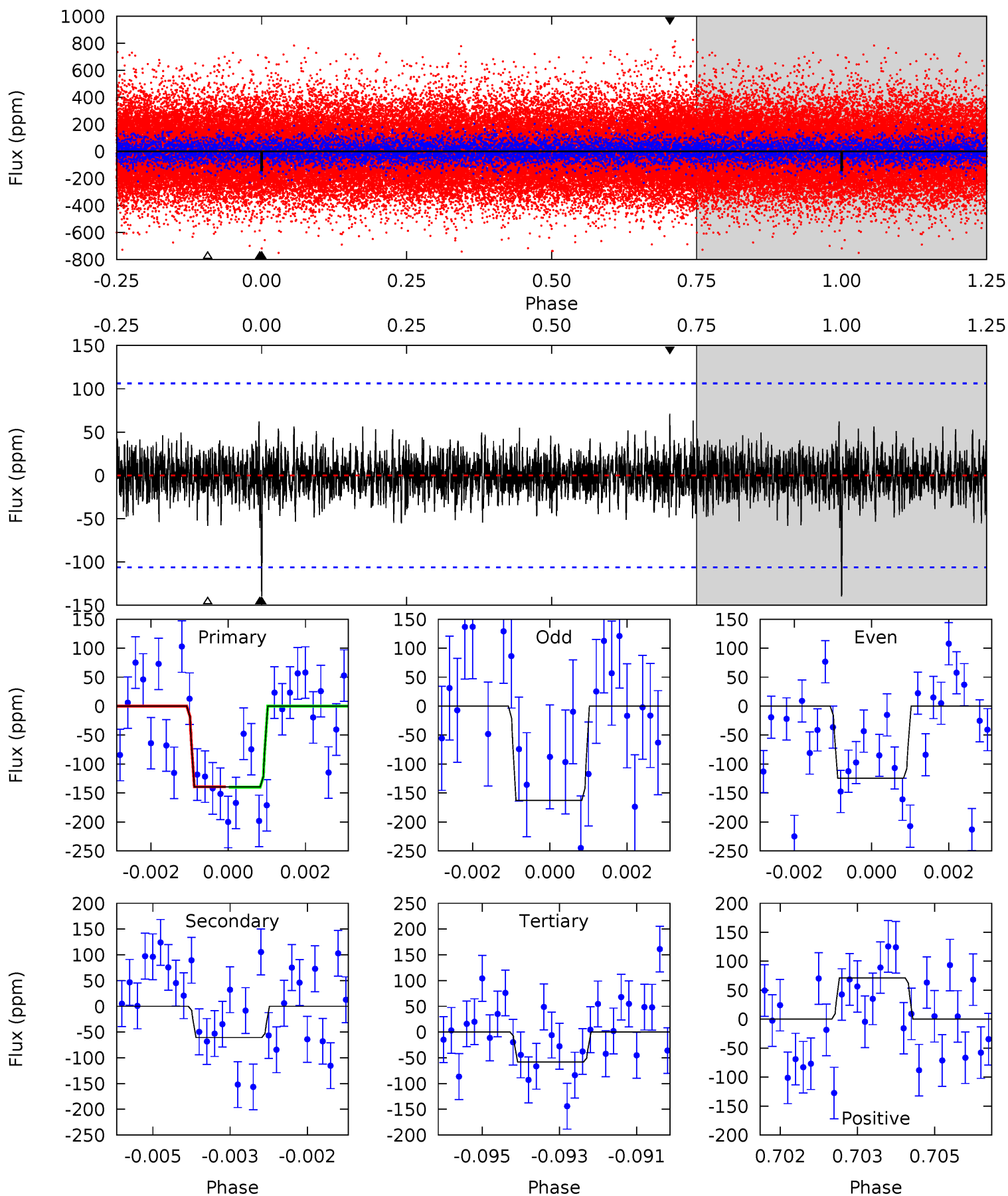
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.24 | 4.14 | 3.83 | 4.10 | 5.42            | 3.25            | 1.07             | 3.41    | 3.14    | 0.31    | 0.04    | 0.82    | 1.00 | 0.36  | 0.02 |



# Alt Model-Shift Uniqueness Test

007973419-01, P = 236.048485 Days, E = 206.560493 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.06 | 3.06 | 2.95 | 3.60 | 5.37            | 3.17            | 0.85             | 4.11    | 3.46    | 0.11    | -0.54   | 0.96    | 1.14 | 0.34  | 0.01 |



### Stellar Parameters For KIC 007973419

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M$ ( $M_{\odot}$ )       | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5873^{+157}_{-157}$ | $4.547^{+0.036}_{-0.204}$ | $-0.220^{+0.300}_{-0.300}$ | $0.863^{+0.254}_{-0.079}$ | $0.954^{+0.107}_{-0.119}$ | $2.094^{+0.420}_{-1.093}$                     |
|        | +3%/-3%              | +1%/-4%                   | +136%/-136%                | +29%/-9%                  | +11%/-12%                 | +20%/-52%                                     |
| 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 007973419-01 / KOI

| Detrend | Depth (ppm)  | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)     | $T_{obs}$ (K)         | $A_{obs}$                |
|---------|--------------|------------------------|-------------------|-----------------------|--------------------------|
| DV      | $-94 \pm 23$ | $1.62^{+1.17}_{-0.97}$ | $402^{+29}_{-19}$ | $4662^{+2474}_{-826}$ | $10332^{+53713}_{-6910}$ |
| Alt.    | $-61 \pm 20$ | $1.46^{+1.20}_{-0.89}$ | $401^{+26}_{-15}$ | $4469^{+2308}_{-923}$ | $8365^{+42569}_{-6079}$  |

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

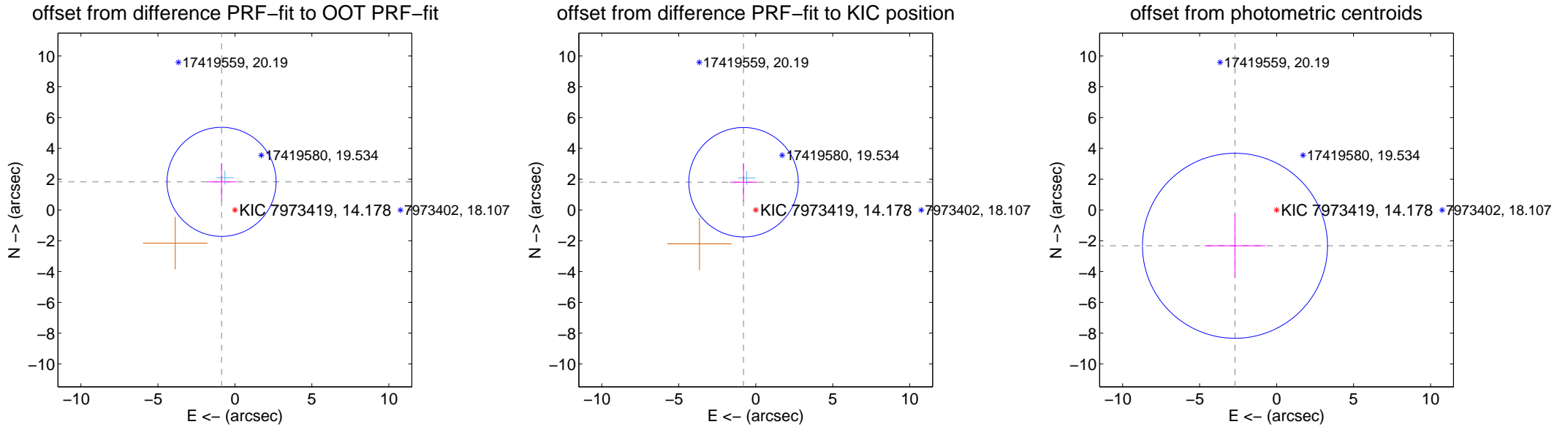
## DV Centroid Data

Supplemental centroid analysis for 007973419-01. Kepler magnitude: 14.18. Transit SNR 6.36

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $2.022 \pm 1.180$  | 1.71                | $0.867 \pm 0.951$ | $1.826 \pm 1.226$ |
| PRF-fit source offset from KIC position | $1.967 \pm 1.185$  | 1.66                | $0.794 \pm 0.904$ | $1.800 \pm 1.232$ |
| photometric centroid source offset      | $3.56 \pm 2.00$    | 1.78                | $2.70 \pm 1.97$   | $-2.32 \pm 2.04$  |



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.

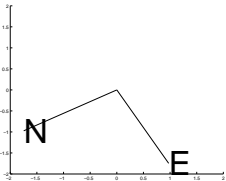
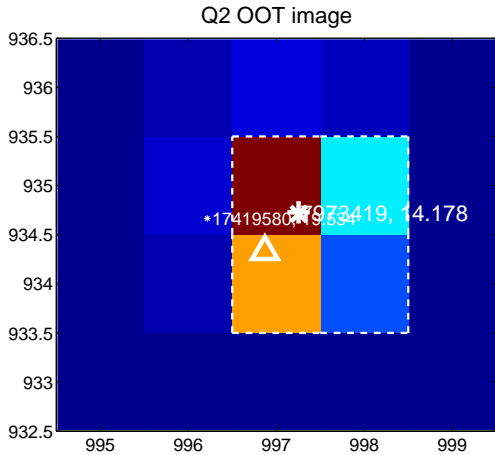
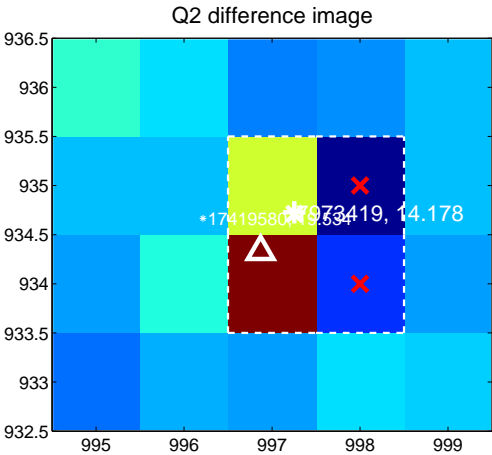


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

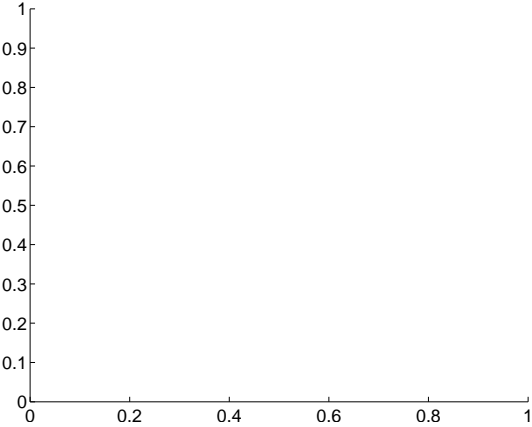
Q1 no difference image



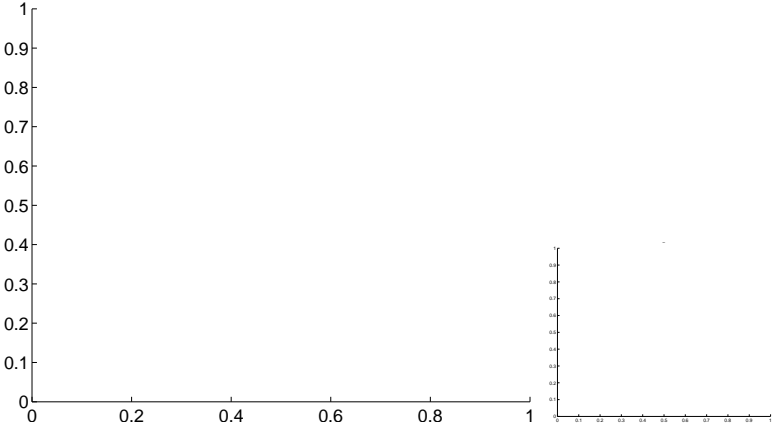
Q1 no OOT image



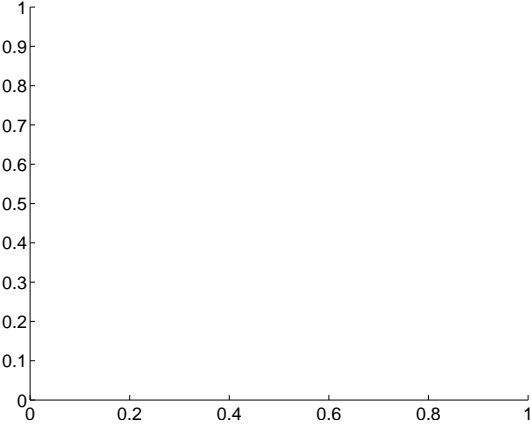
Q3 no difference image



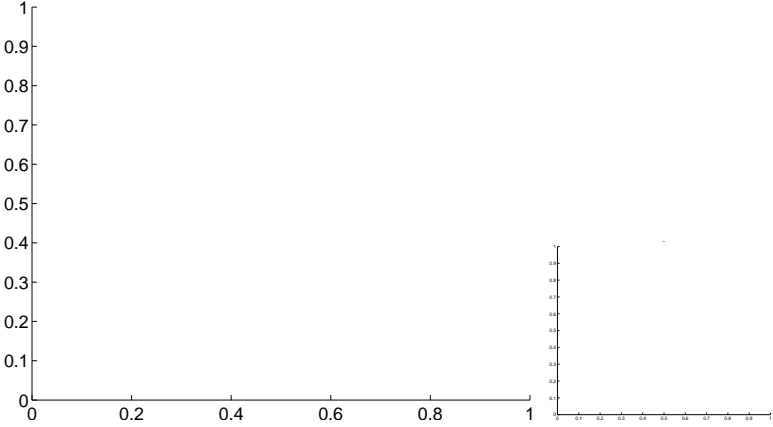
Q3 no OOT image



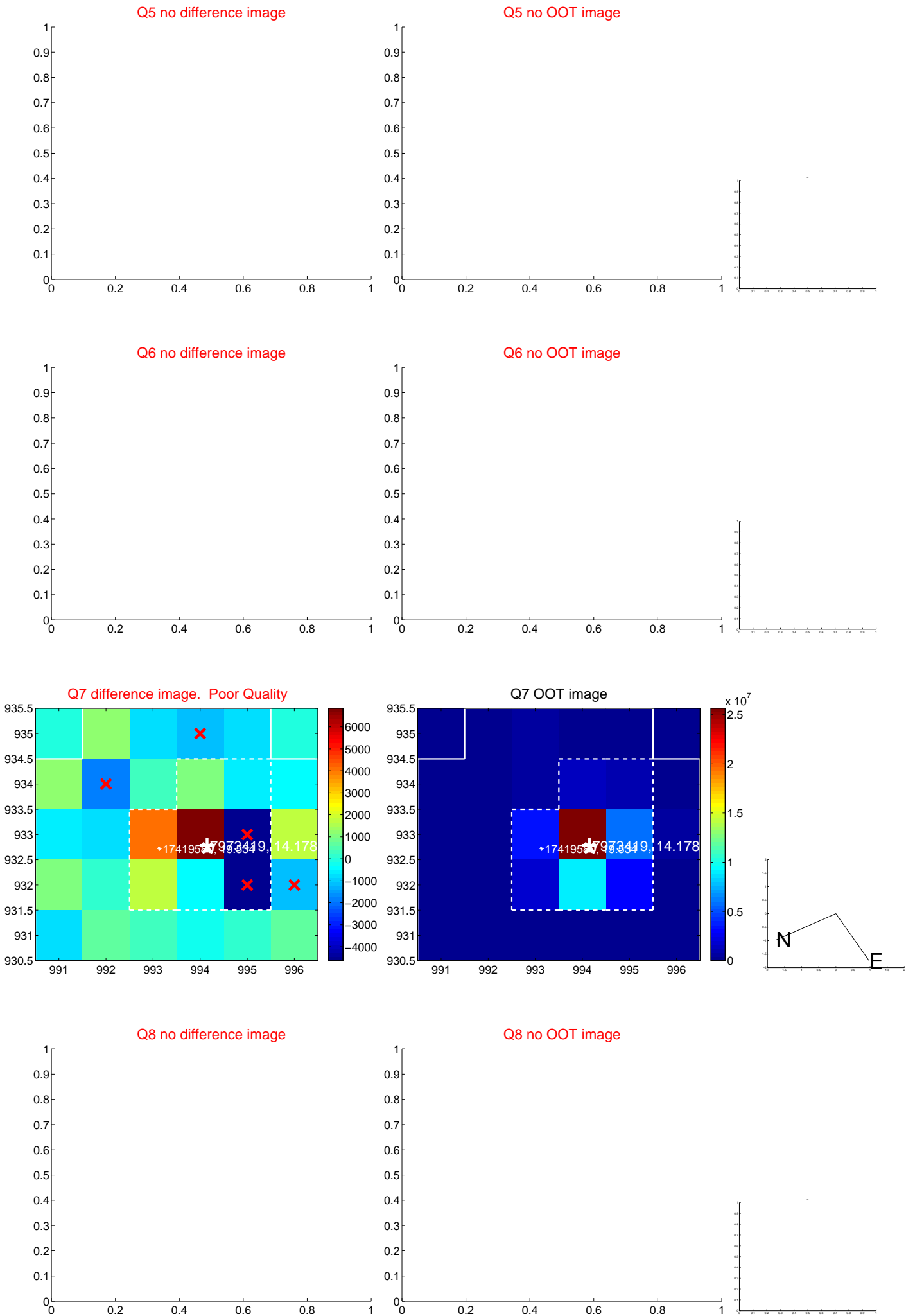
Q4 no difference image



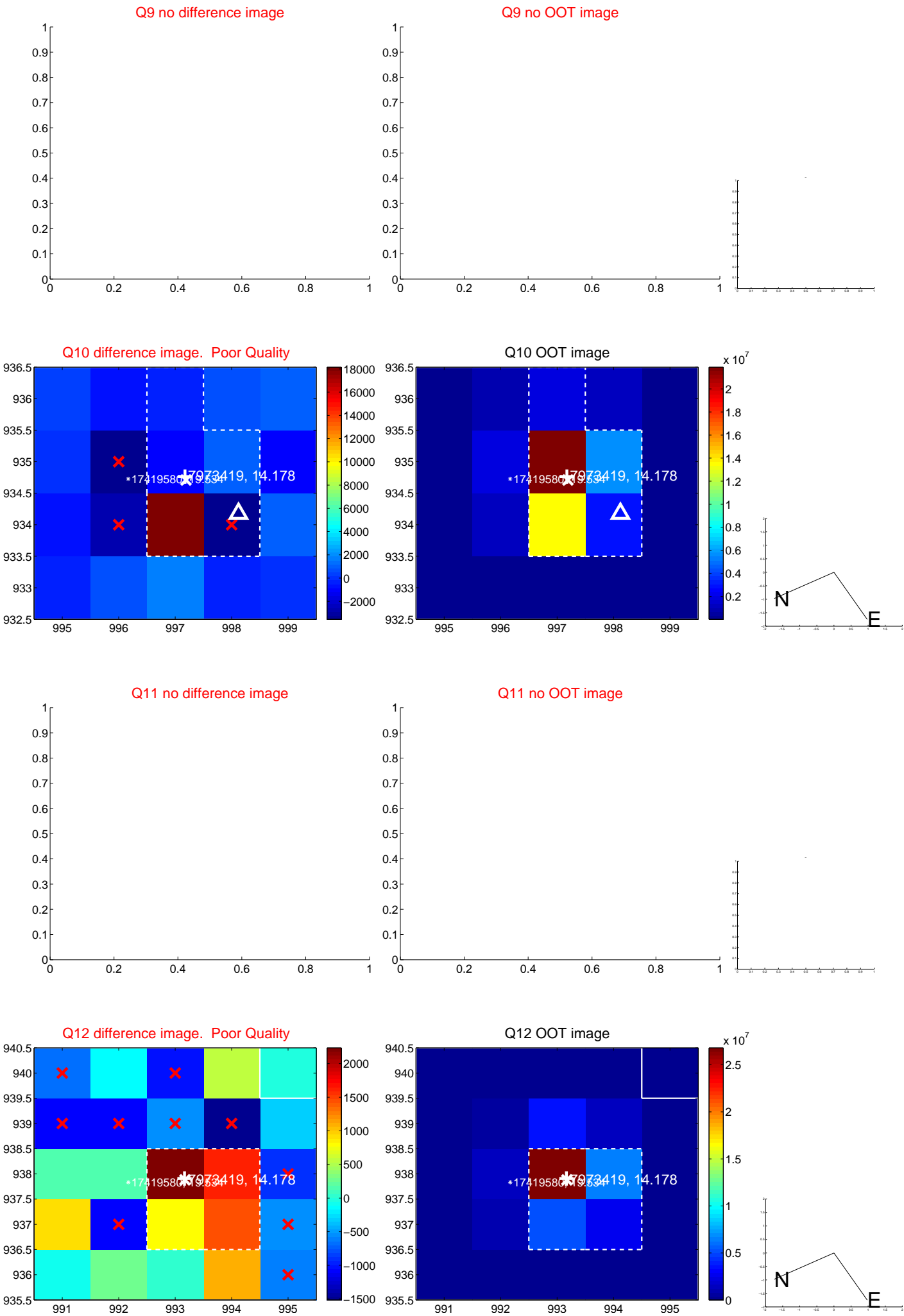
Q4 no OOT image



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



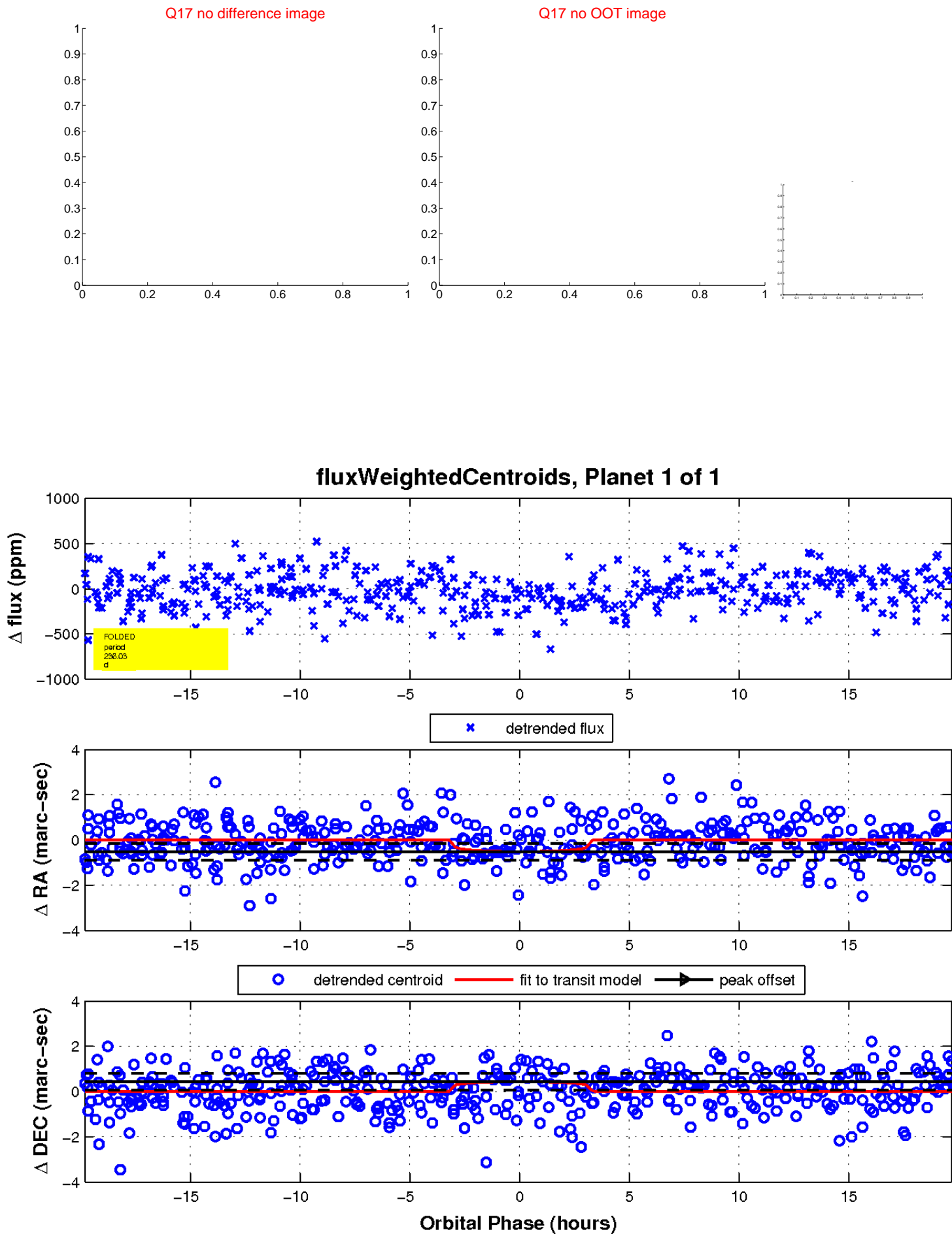
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

