

# KIC 010735575

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010735575-01 | OBS      | 8214.01 | 1.674979      | 131.795810   | 54.5        | 2.909            | 27.4 | 30.4 | 84.46                       | 3940            | 58.56                  | 0.00                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 010735575-01 | OBS      | FP   | 0.00  | 0 | 1 | 1 | 1 | PLANET_IN_STAR—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |

**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.

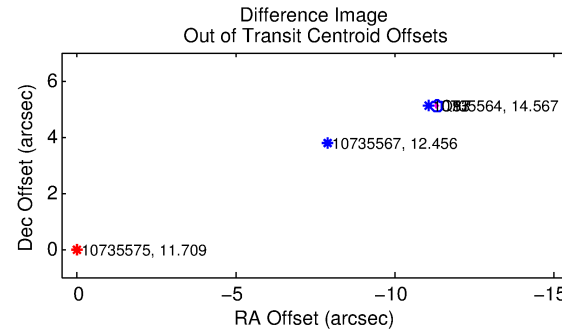
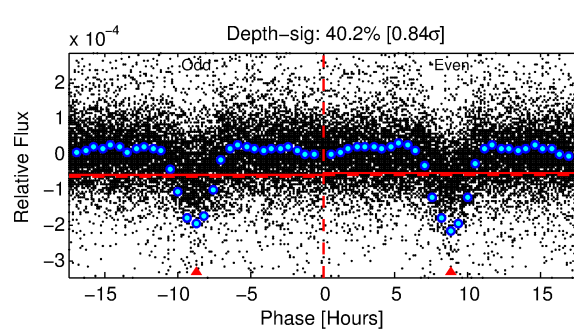
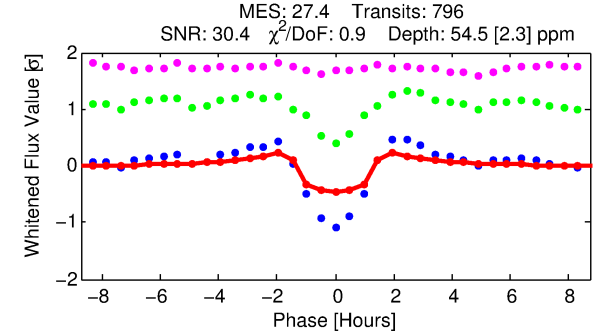
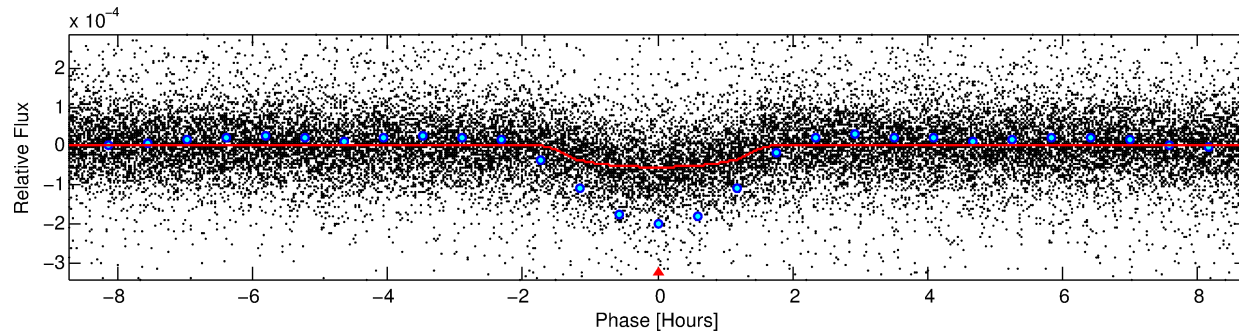
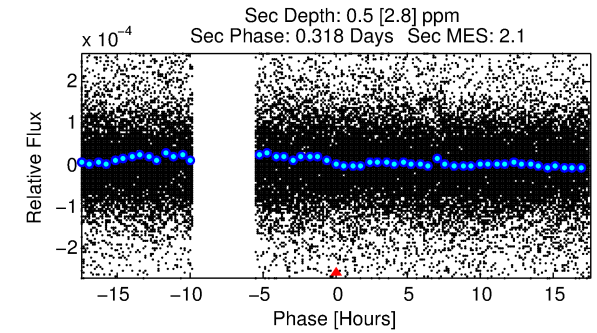
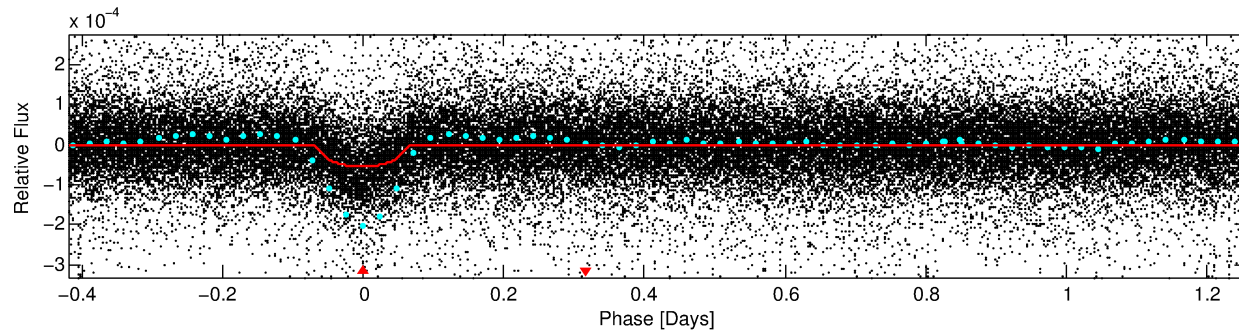
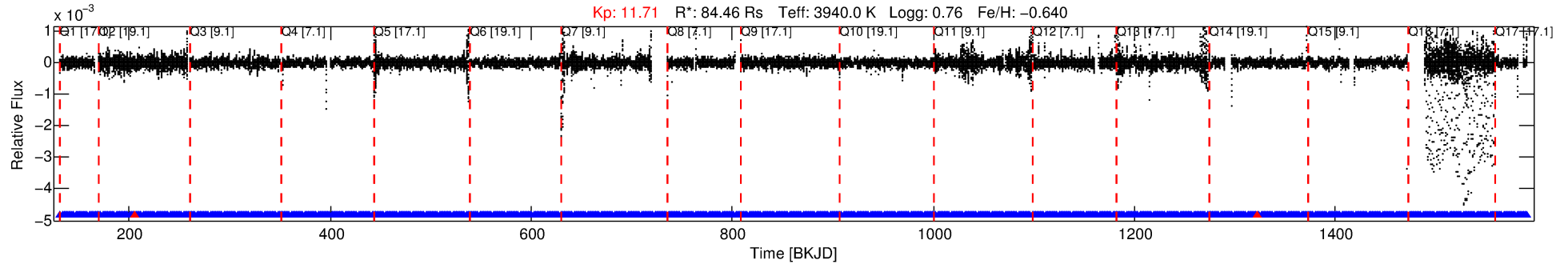
## Ephemeris Match Information For 010735575-01

| TCE (1)      | KIC      | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ( $''$ ) | $\Delta$ Row | $\Delta$ Col | $m_2$ | $m_1$ | $D_2/D_1$ | Mechanism  | Flag | $\sigma_P$ | $\sigma_T$ |
|--------------|----------|------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 010735575-01 | 10735575 | 3617.01    | 10735564   | 1:1       | 12.1          | -2           | -2           | 14.57 | 11.71 | 4515.30   | Direct-PRF | 0    | 0.29       | 0.17       |

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10735575 Candidate: 1 of 1 Period: 1.675 d



## DV Fit Results:

Period = 1.67498 [0.00000] d  
Epoch = 131.7958 [0.0010] BKJD  
Rp/R\* = 0.0064 [0.0013]  
a/R\* = 4.47 [2.07]  
b = 0.00 [202.70]  
Seff = N/A  
Teq = N/A  
Rp = 58.56 [18.41] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

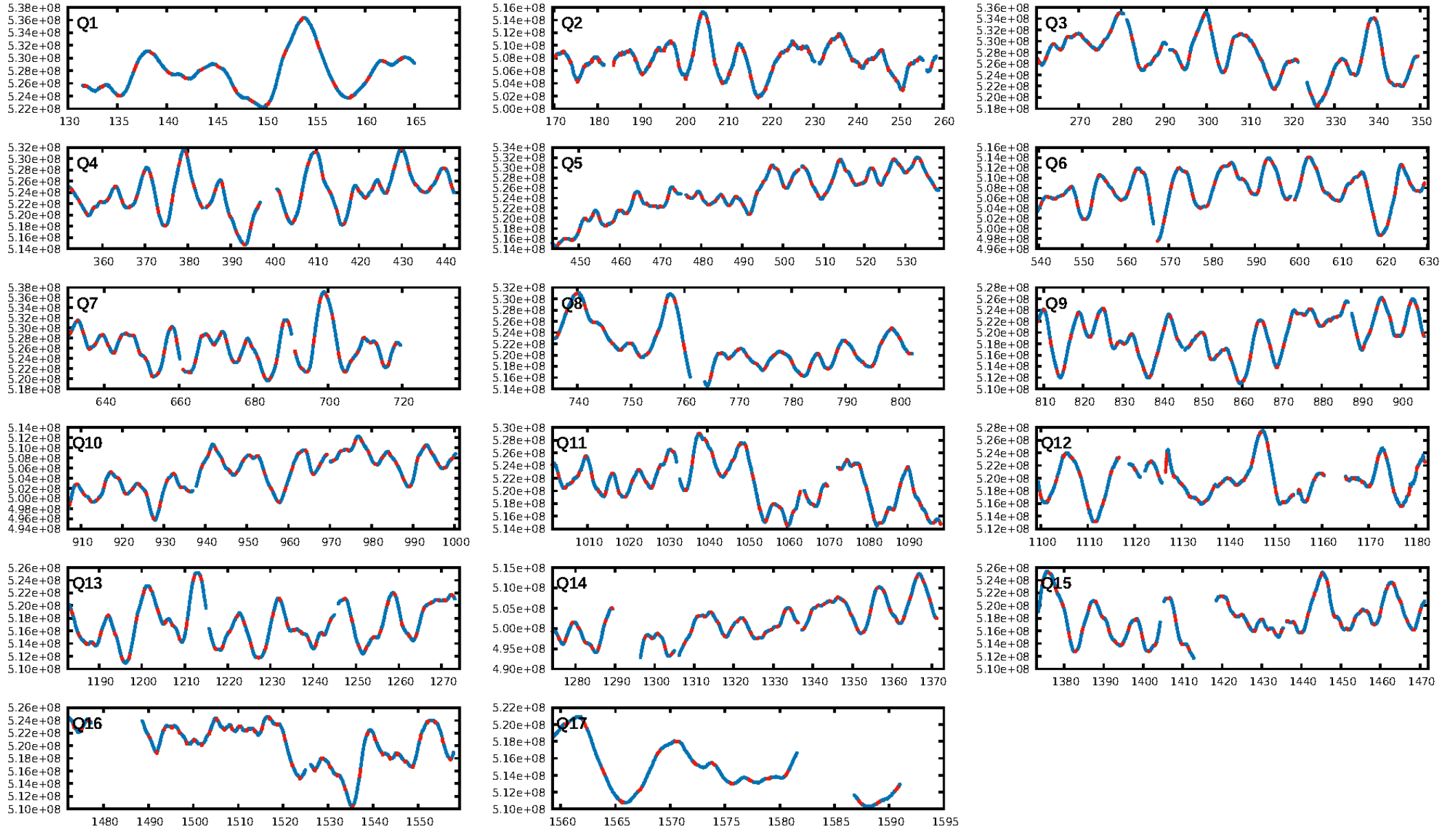
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.57e-148  
RollingBand-fgt: 1.00 [758/760]  
GhostDiagnostic-chr: -0.08458  
Centroid-sig: 0.0%  
Centroid-so: N/A  
OotOffset-rm: 12.386 arcsec [185.20σ]  
KicOffset-rm: 12.265 arcsec [183.11σ]  
OotOffset-st: 0/0/0/5 [5]  
KicOffset-st: 0/0/0/5 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [17/17]

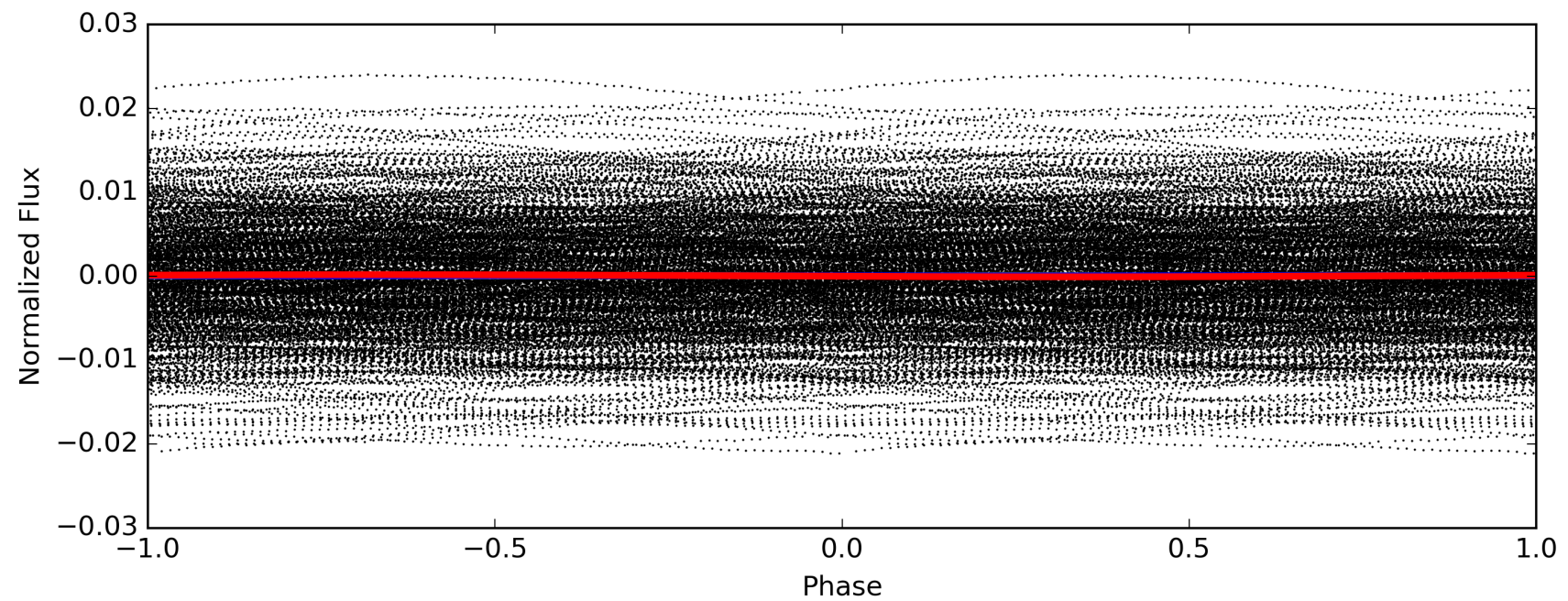
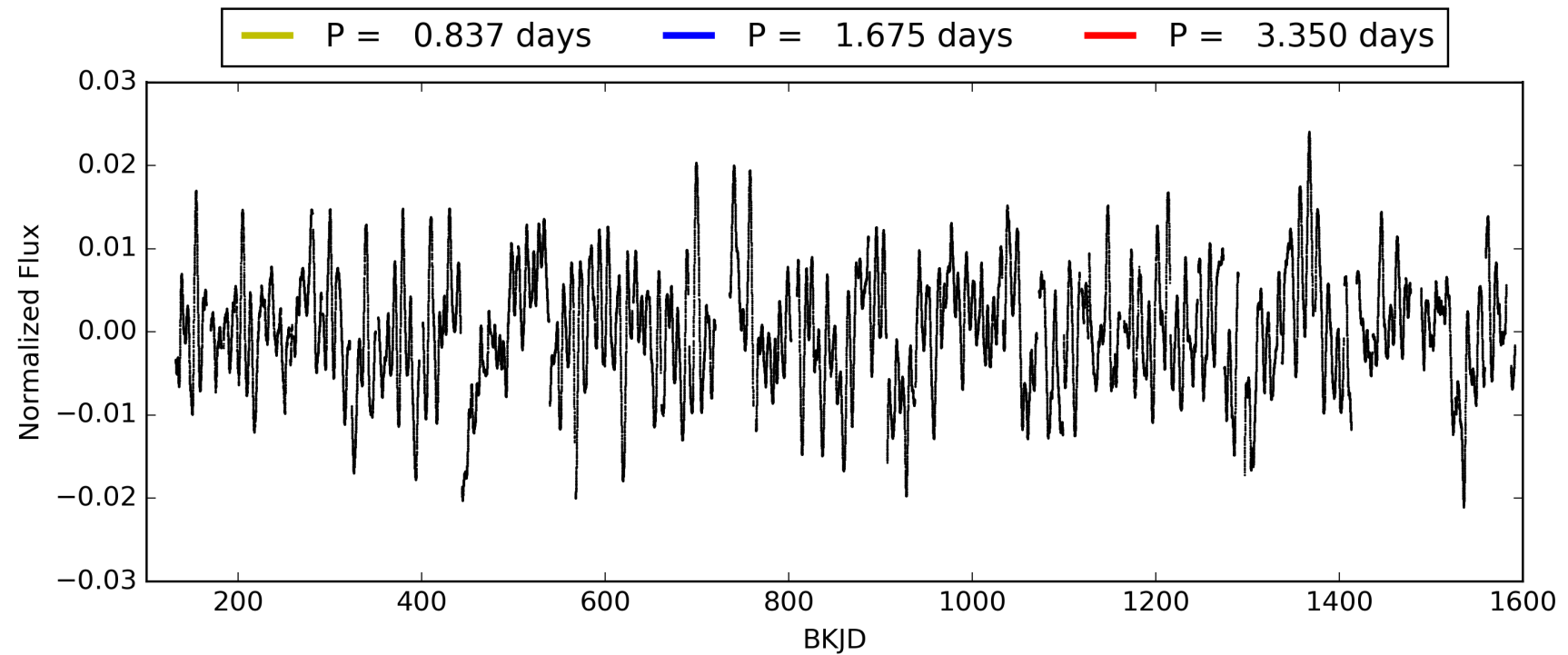
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:23:02 Z

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

# TCE 010735575-01, PDC Light Curves

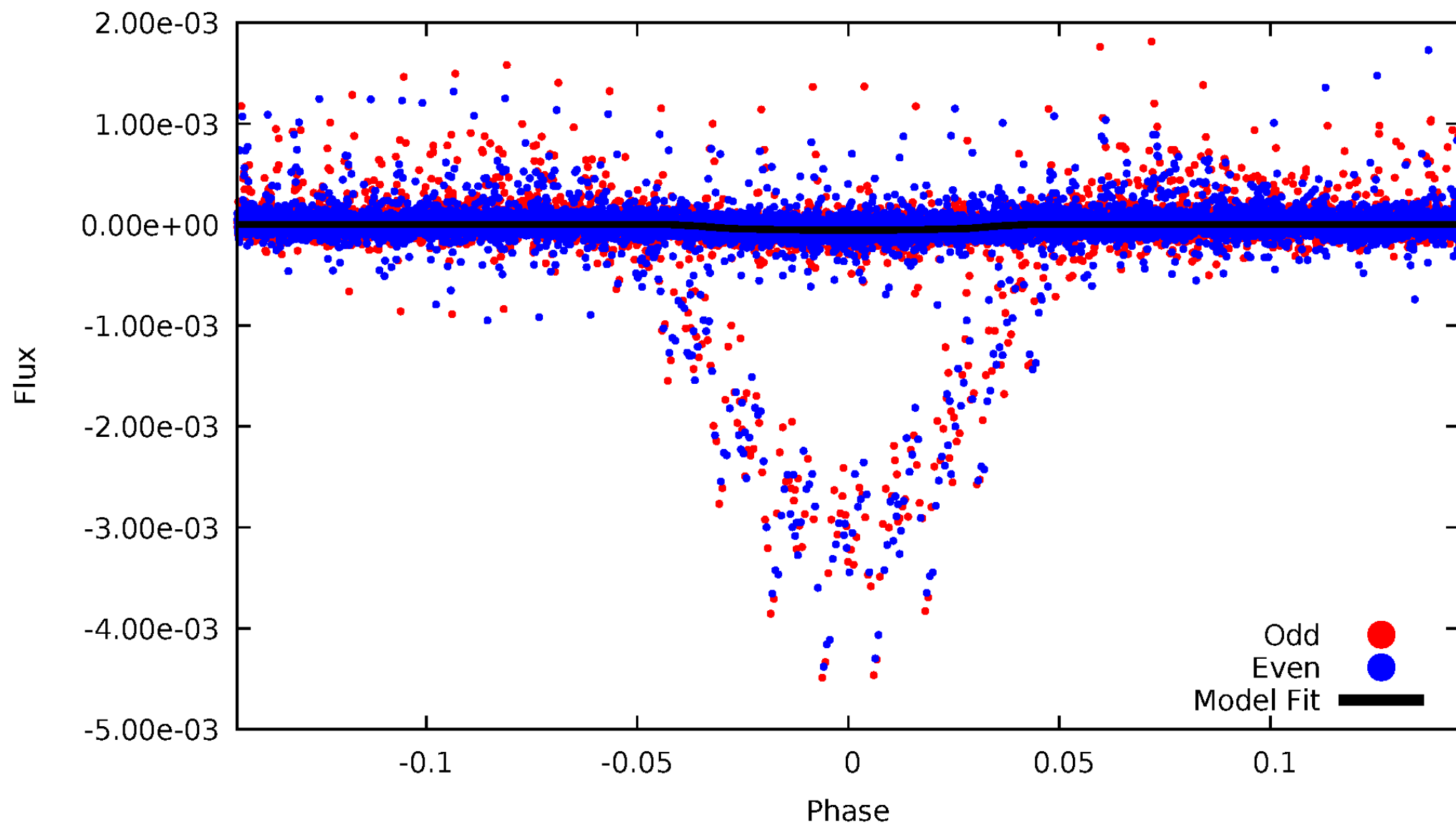


TCE 010735575-01



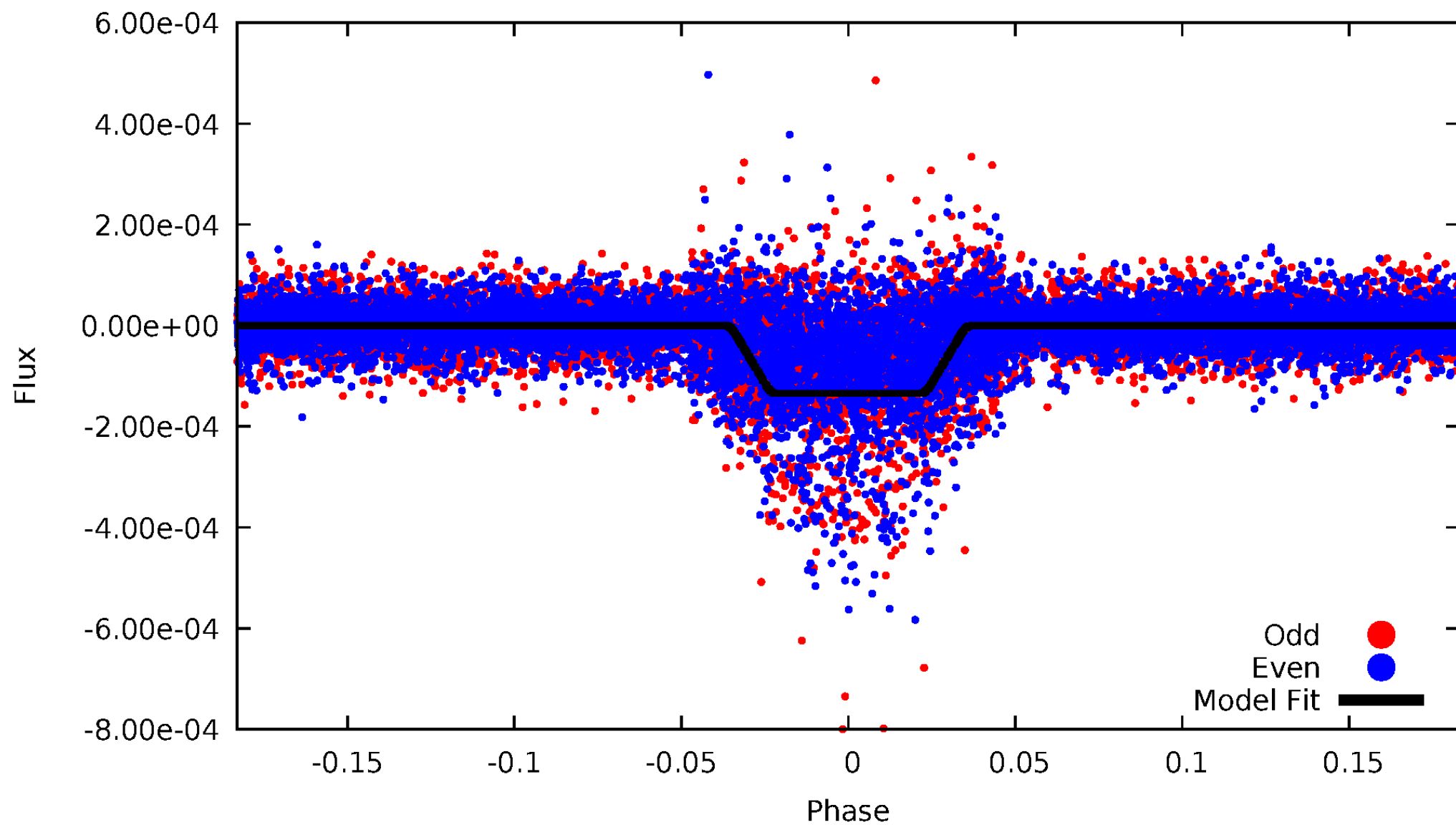
# DV Odd/Even

TCE 010735575-01



# ALT Odd/Even

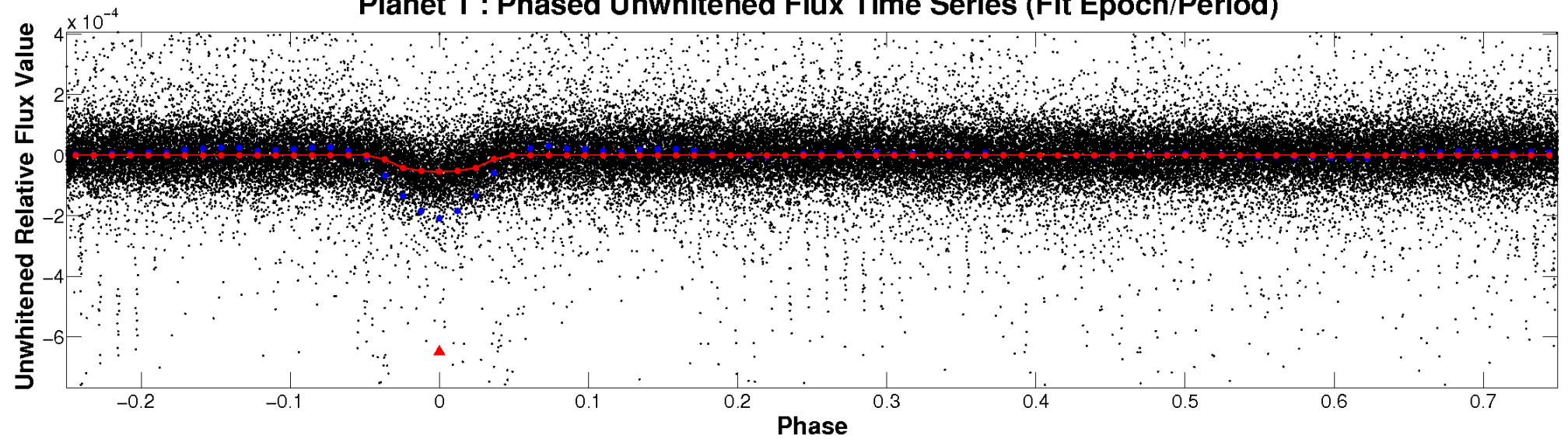
TCE 010735575-01



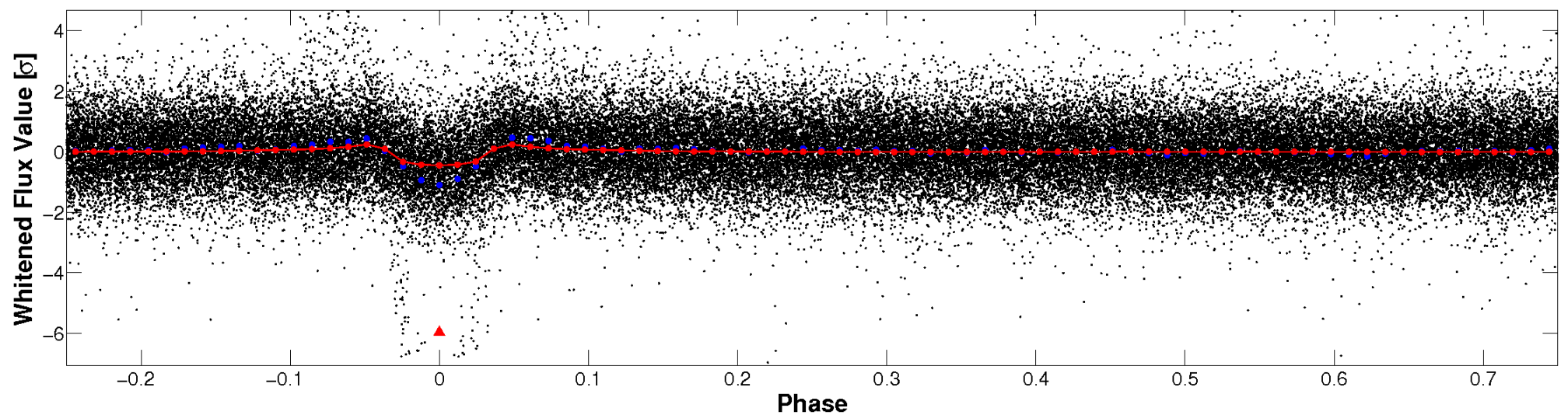


# Non-Whitened Vs. Whitened Light Curve

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

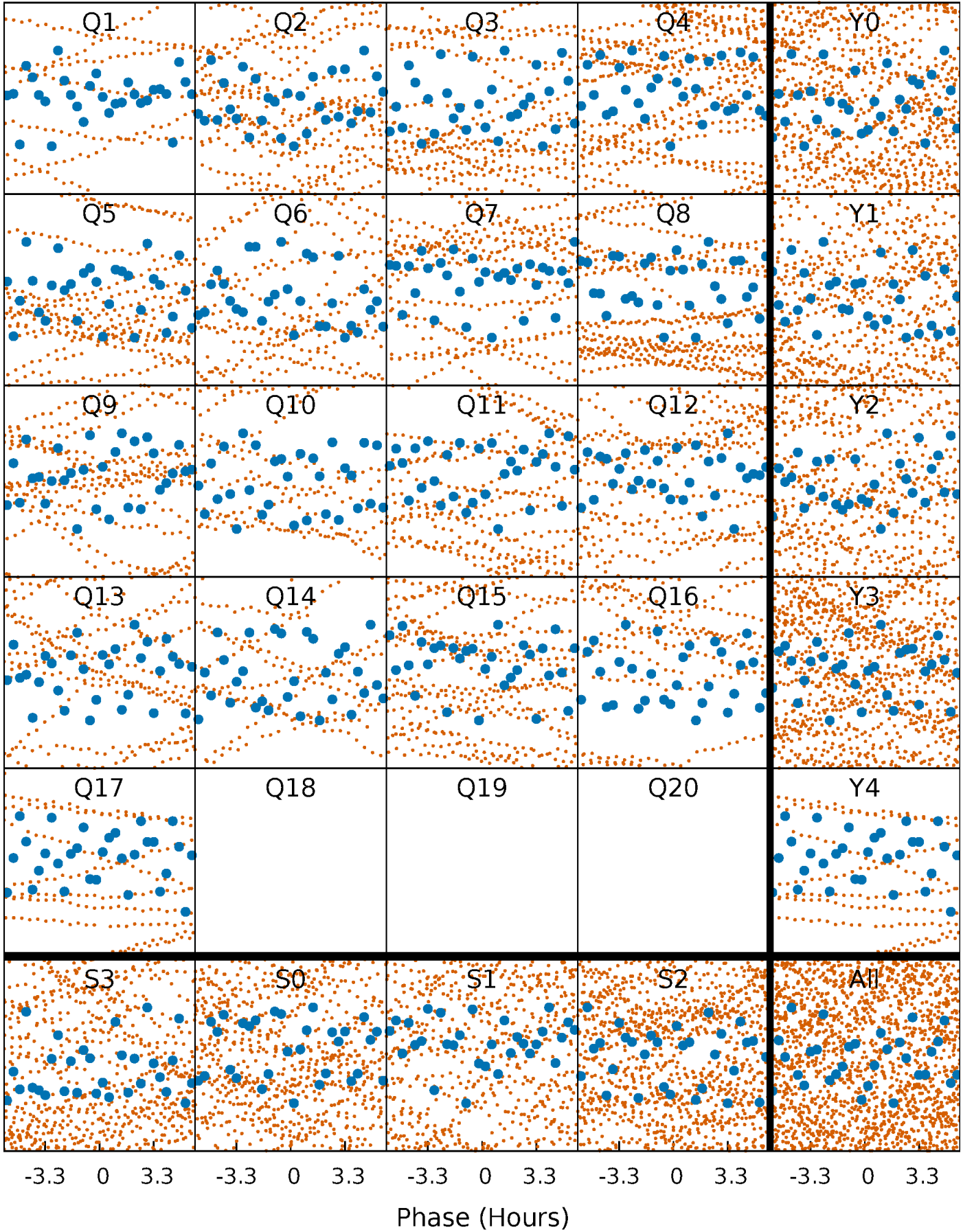


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

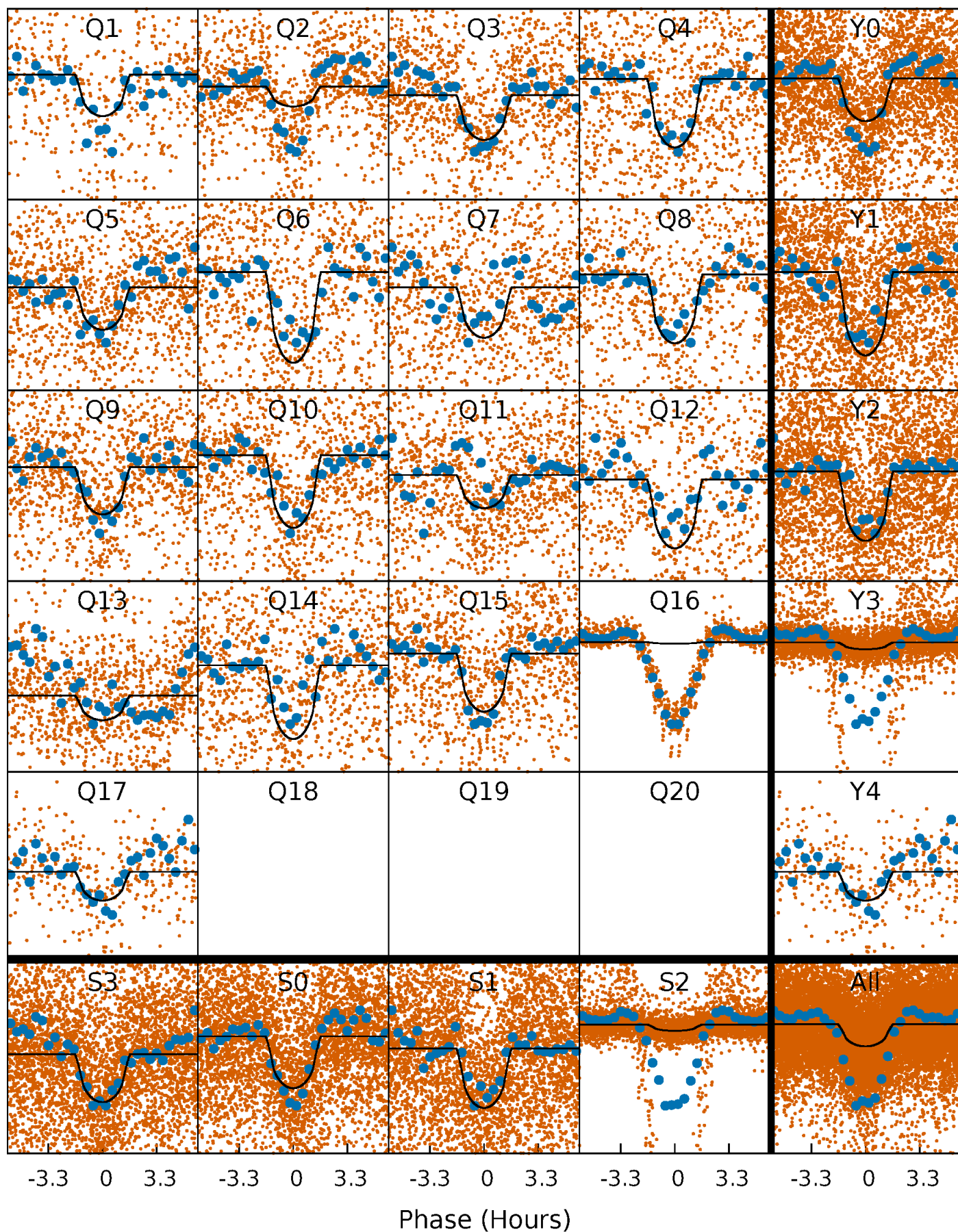
TCE 010735575-01 P= 1.674979 Days  $T_0=131.795810$  (BKJD)





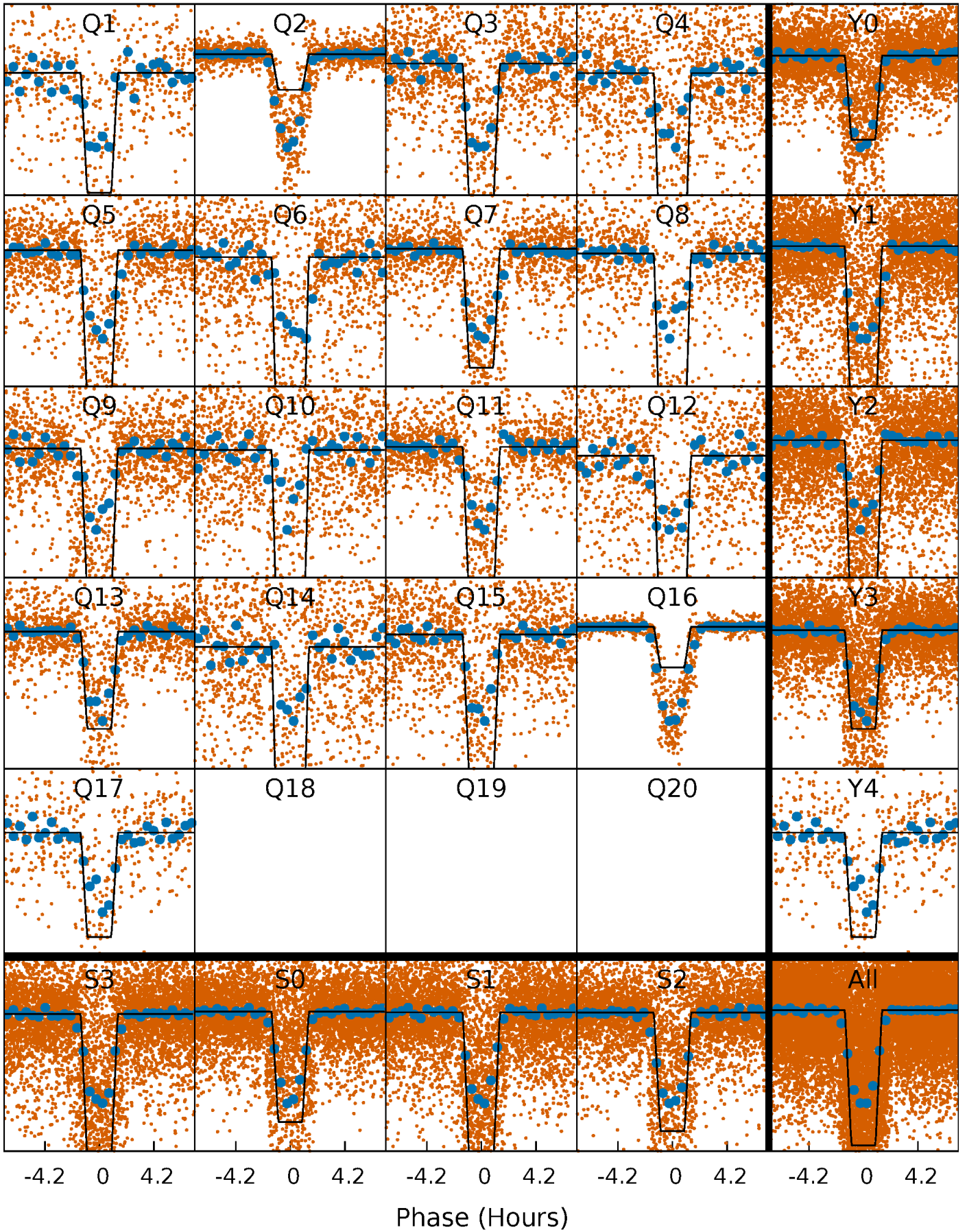
# DV Quarter-Phased Transit Curves

TCE 010735575-01 P= 1.674979 Days  $T_0=131.795810$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

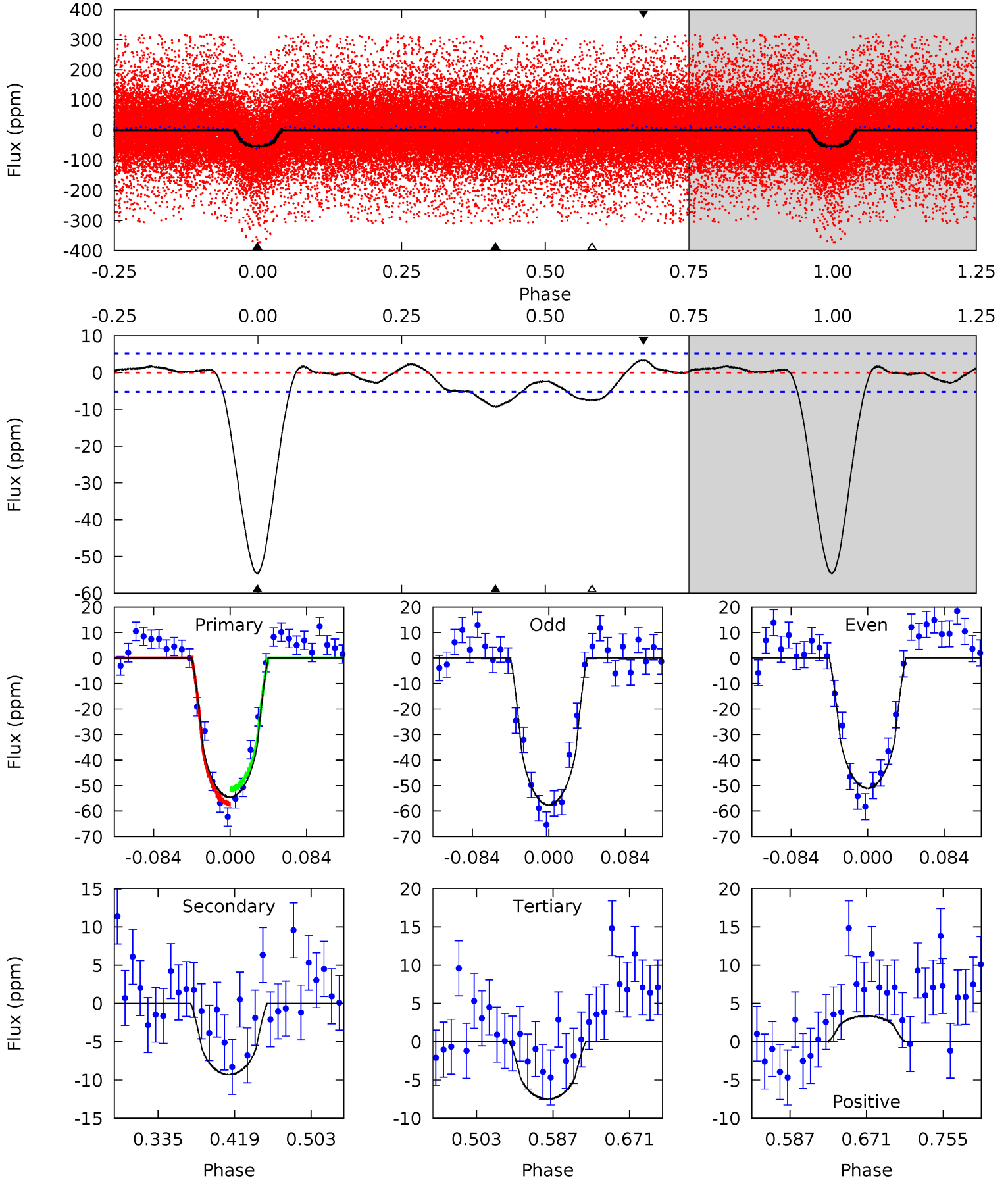
TCE 010735575-01 P= 1.674978 Days  $T_0=131.798711$  (BKJD)



# DV Model-Shift Uniqueness Test

010735575-01, P = 1.674979 Days, E = 130.120831 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 48.1 | 8.20 | 6.61 | 2.98 | 4.60            | 1.73            | 2.41             | 41.5    | 45.1    | 1.59    | 5.22    | 2.92    | 3.43 | 0.06  | 2.44 |

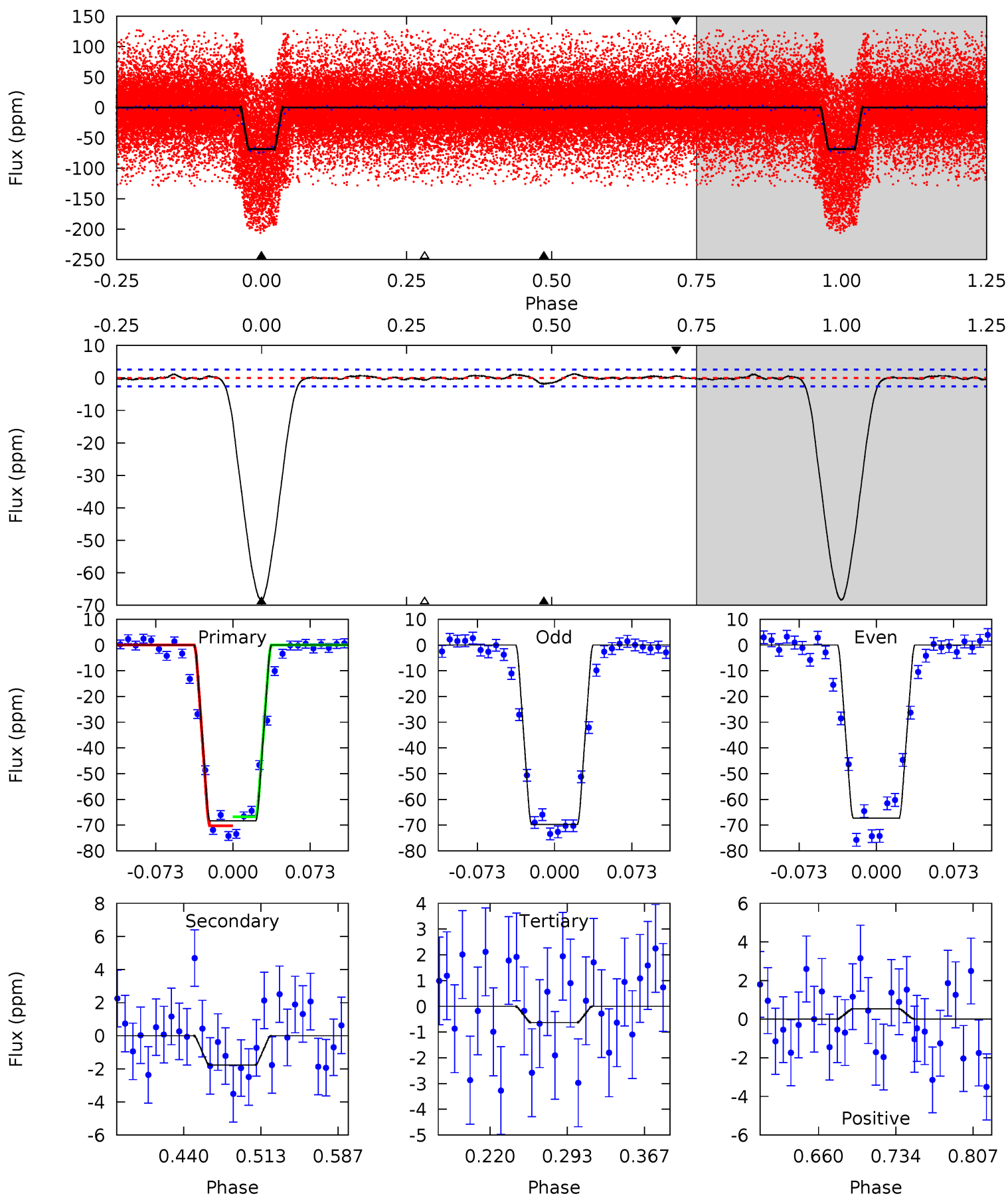




# Alt Model-Shift Uniqueness Test

010735575-01, P = 1.674978 Days, E = 130.123733 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  |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 122.7 | 3.17 | 1.13 | 0.96 | 4.63            | 1.79            | 0.59             | 121.6   | 121.8   | 2.04    | 2.21    | 2.20    | 1.21 | 0.02  | 3.21 |



### Stellar Parameters For KIC 010735575

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )          | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|---------------------|---------------------------|----------------------------|------------------------------|---------------------------|---|
|        | $3940^{+63}_{-63}$  | $0.760^{+0.137}_{-0.112}$ | $-0.640^{+0.150}_{-0.150}$ | $84.461^{+11.105}_{-20.623}$ | $1.498^{+0.084}_{-0.475}$ | $0.000^{+0.000}_{-0.000}$                     |
|        | +2%/-2%             | +18%/-15%                 | +23%/-23%                  | +13%/-24%                    | +6%/-32%                  | +72%/-31%                                     |
| Source | SPE74               | SPE74                     | SPE74                      | DSEP                         |                           |   |

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

### Secondary Eclipse Parameters for KIC 010735575-01 / KOI 8214.01

| Detrend | Depth (ppm) | $R_p$ ( $R_{\oplus}$ )     | $T_{max}$ (K)         | $T_{obs}$ (K)          | $A_{obs}$                 |
|---------|-------------|----------------------------|-----------------------|------------------------|---------------------------|
| DV      | $-9 \pm 1$  | $57.05^{+14.18}_{-12.64}$  | $12588^{+582}_{-633}$ | $-10318^{+812}_{-794}$ | $0.002^{+0.001}_{-0.001}$ |
| Alt.    | $-2 \pm 1$  | $105.55^{+16.28}_{-16.03}$ | $12625^{+524}_{-655}$ | $-10370^{+817}_{-735}$ | $0.000^{+0.000}_{-0.000}$ |

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



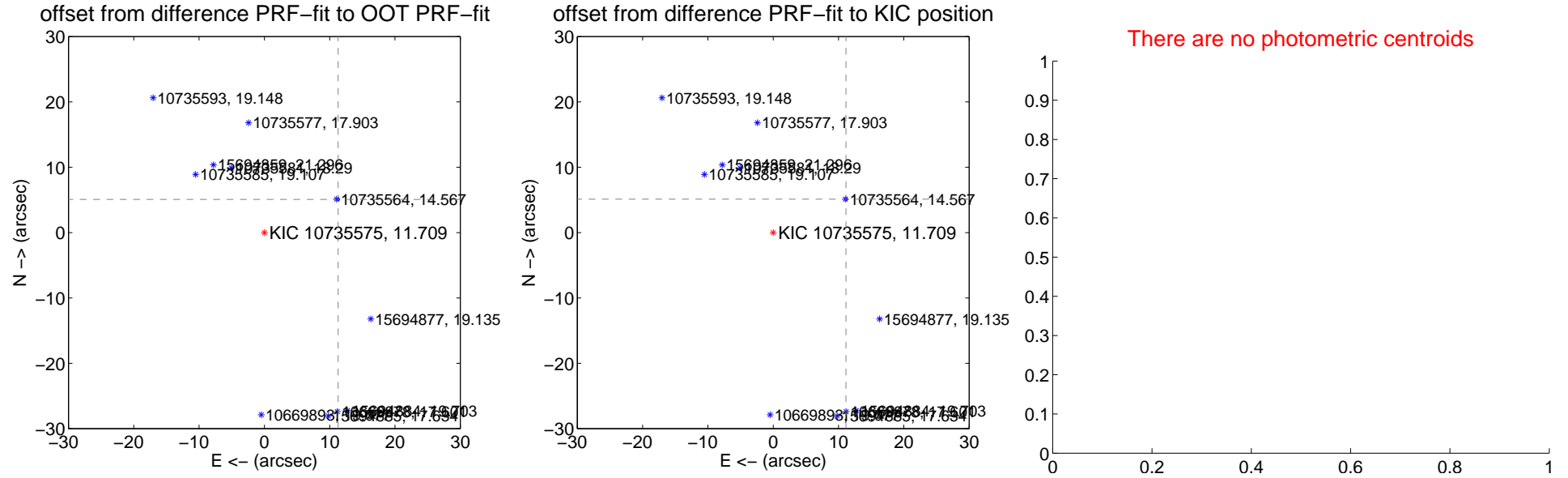
## DV Centroid Data

Supplemental centroid analysis for 010735575-01. **Kepler magnitude: 11.71.** Transit SNR 30.37

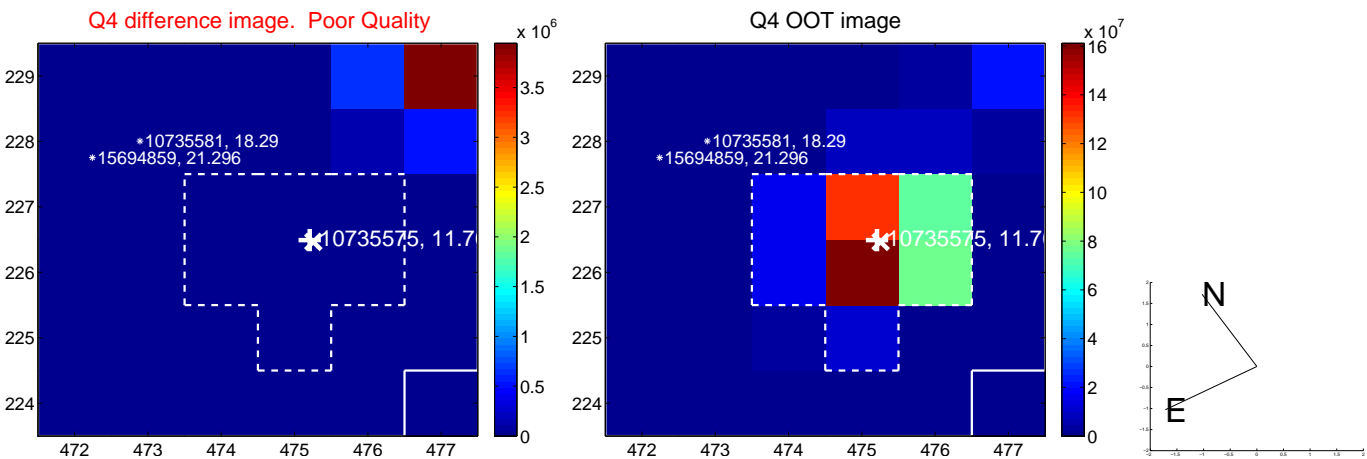
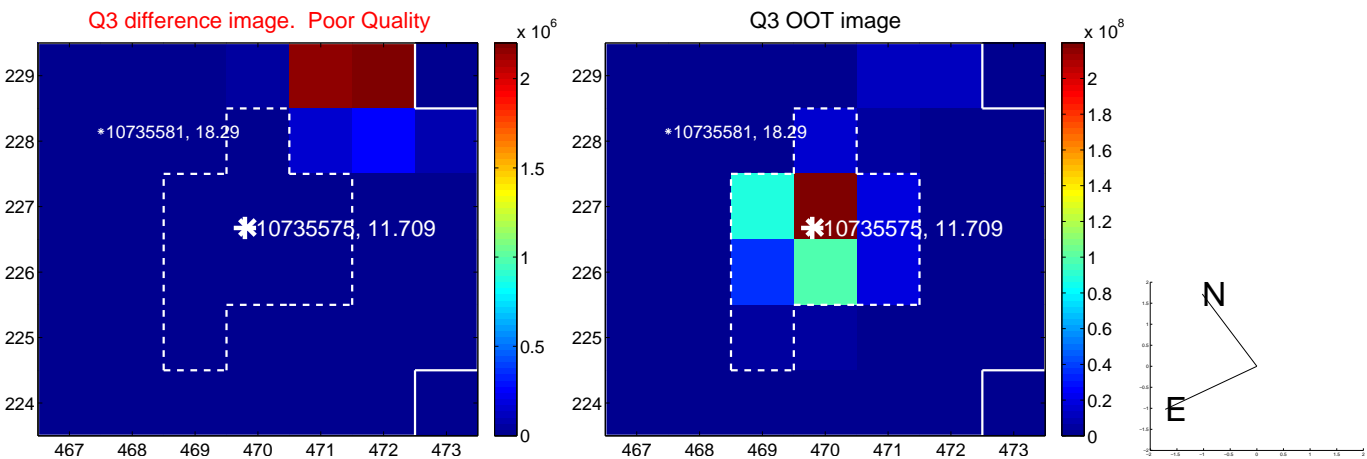
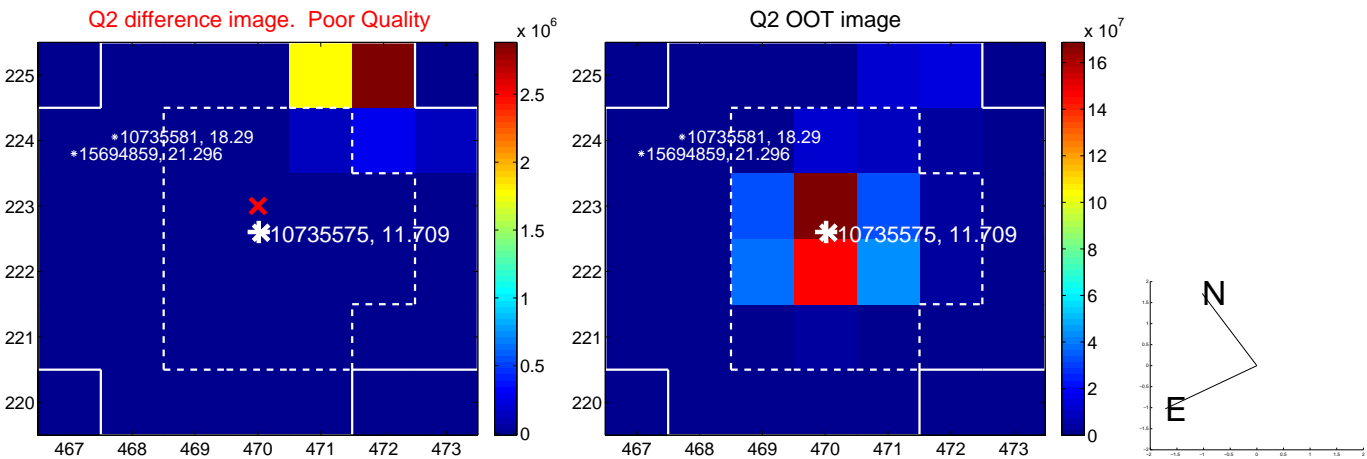
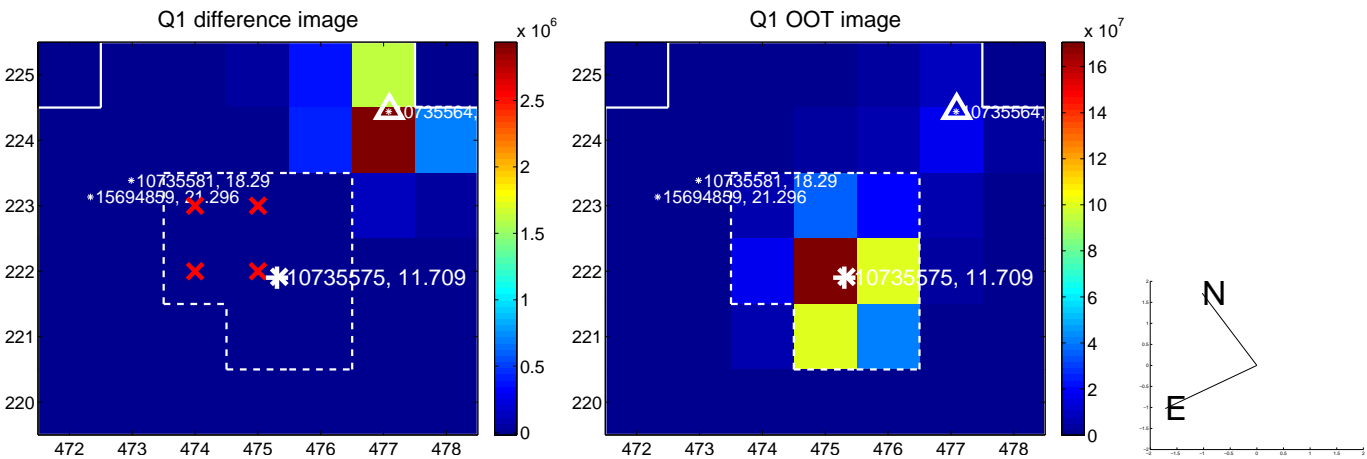
There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

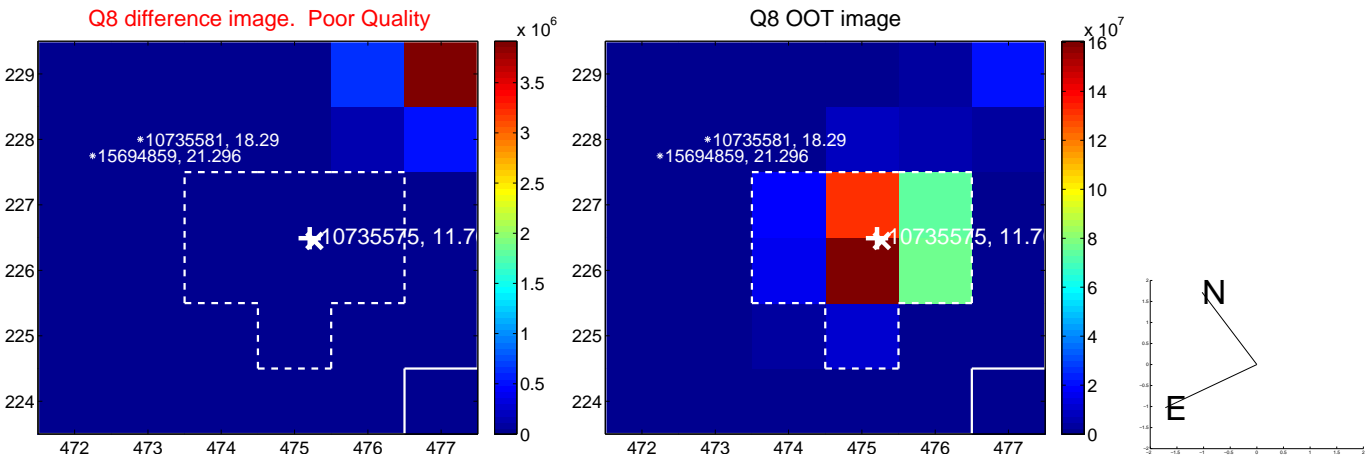
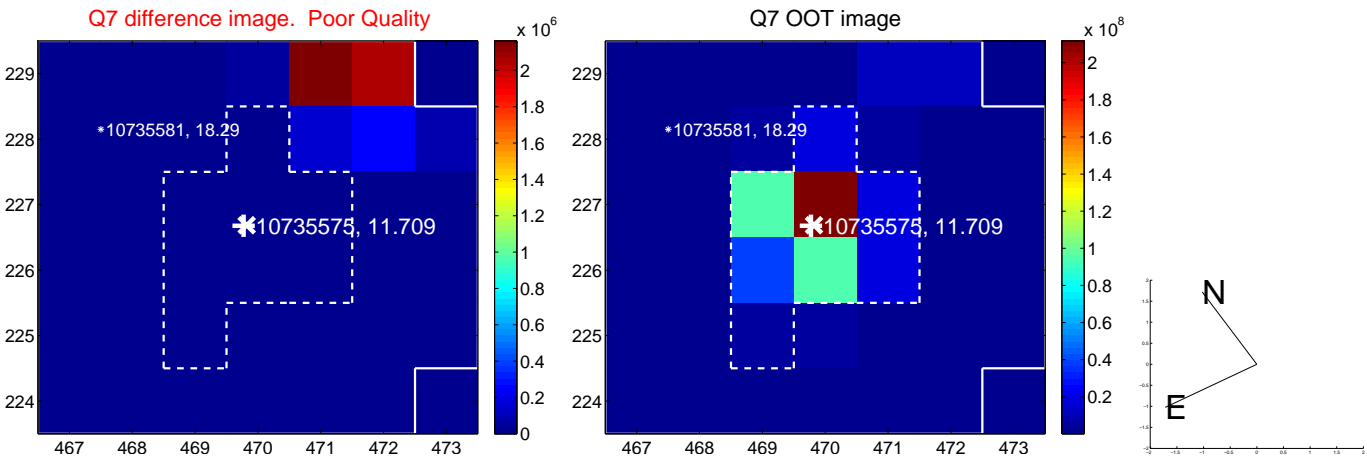
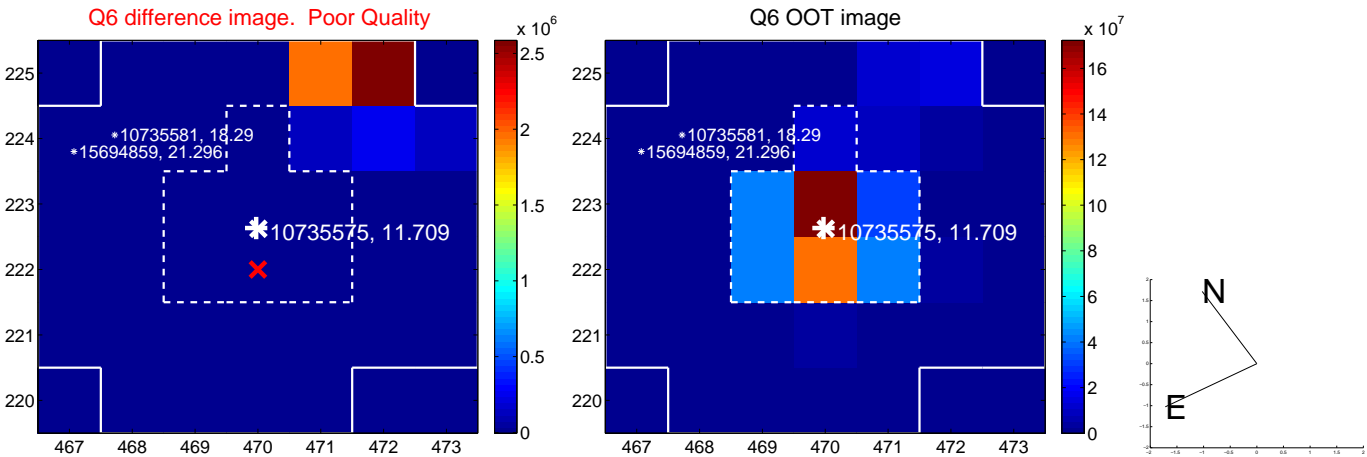
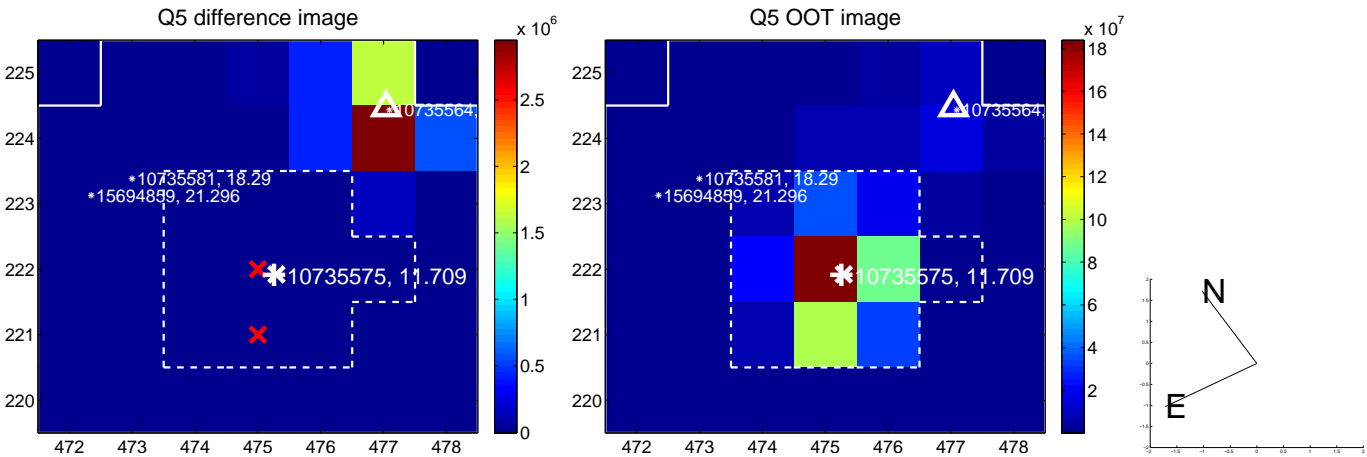
|   | Distance in arcsec                   | Distance / $\sigma$ | $\Delta$ RA         | $\Delta$ Dec      |
|---|--------------------------------------|---------------------|---------------------|-------------------|
| PRF-fit source offset from OOT          | <b>12.386 <math>\pm</math> 0.067</b> | <b>185.20</b>       | -11.296 $\pm$ 0.067 | 5.080 $\pm$ 0.067 |
| PRF-fit source offset from KIC position | <b>12.265 <math>\pm</math> 0.067</b> | <b>183.11</b>       | -11.143 $\pm$ 0.067 | 5.125 $\pm$ 0.068 |
| photometric centroid source offset      | —                                    | —                   | —                   | —                 |



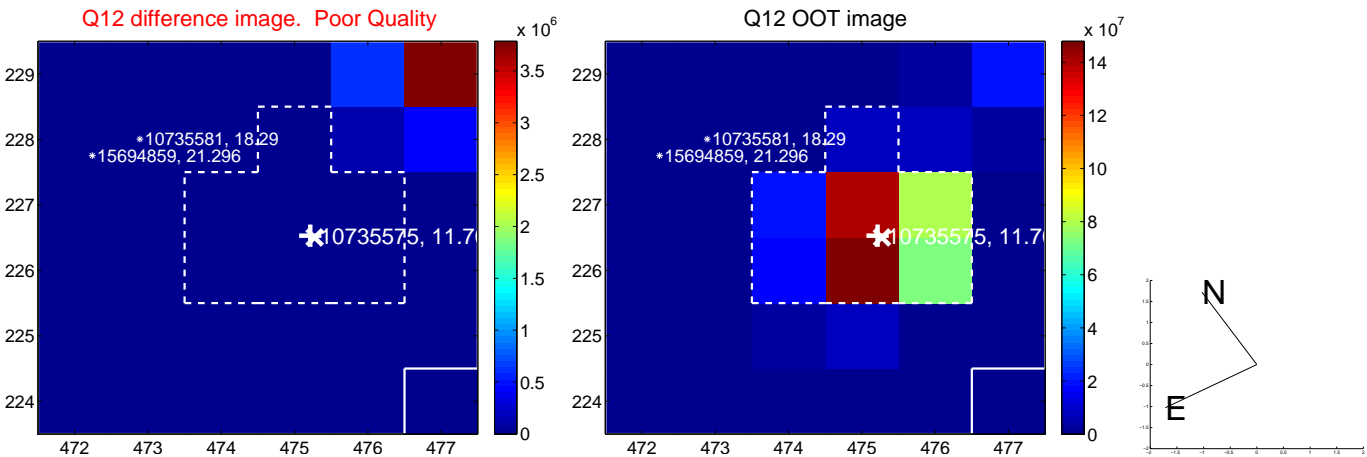
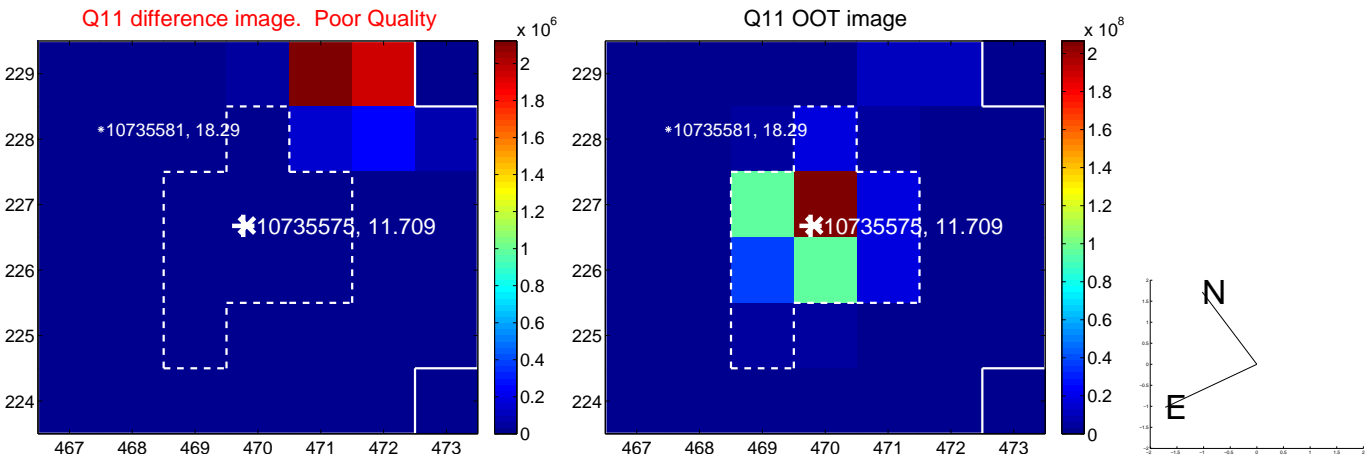
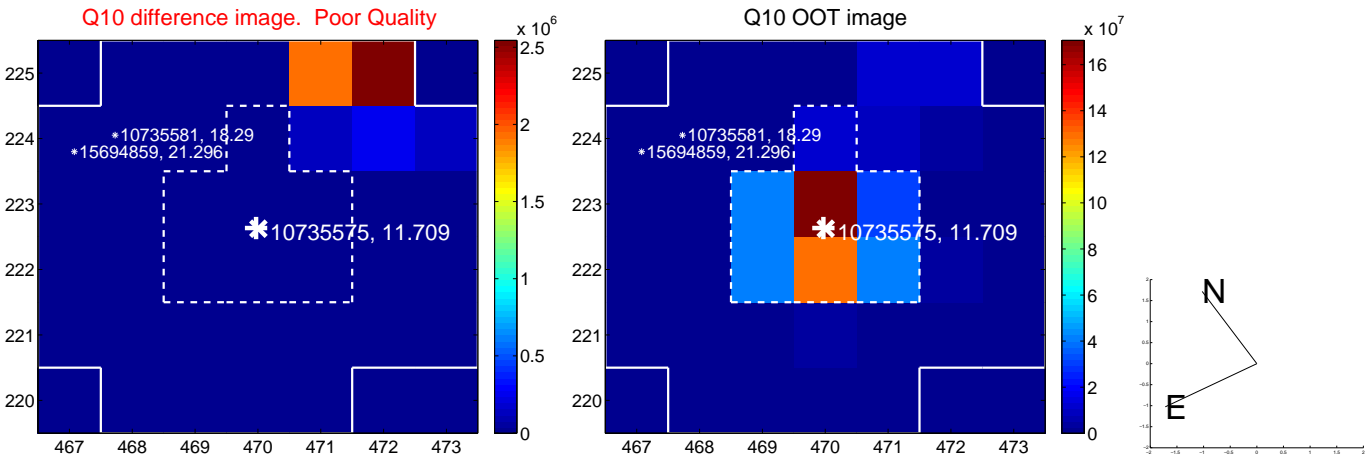
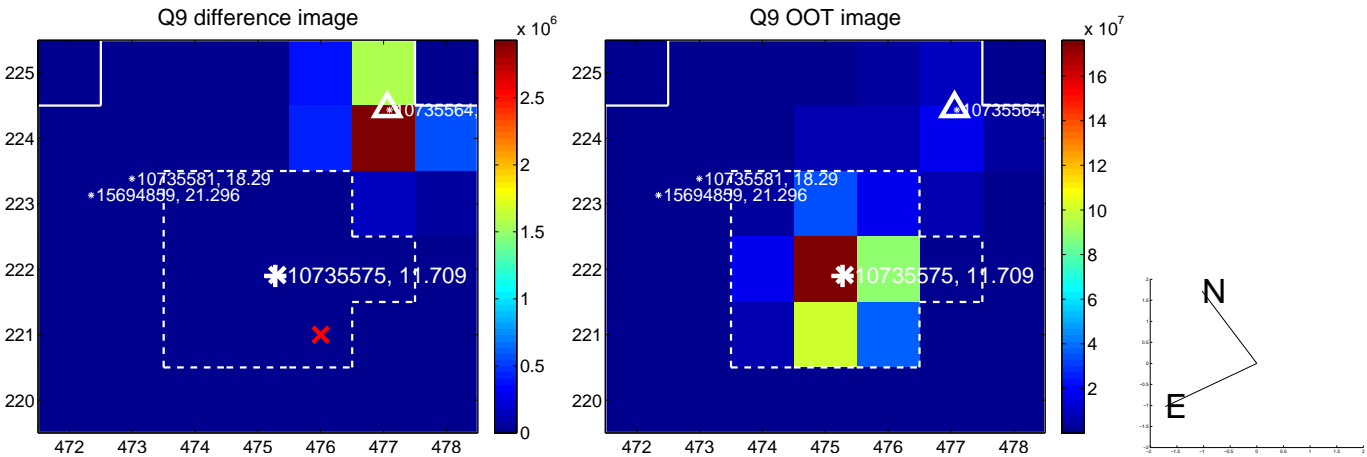
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



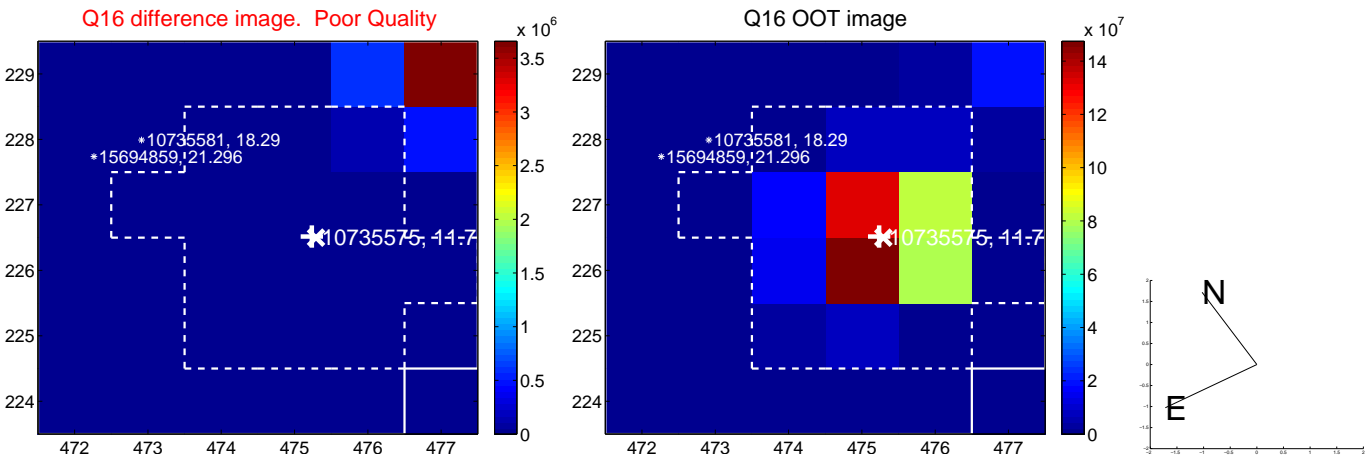
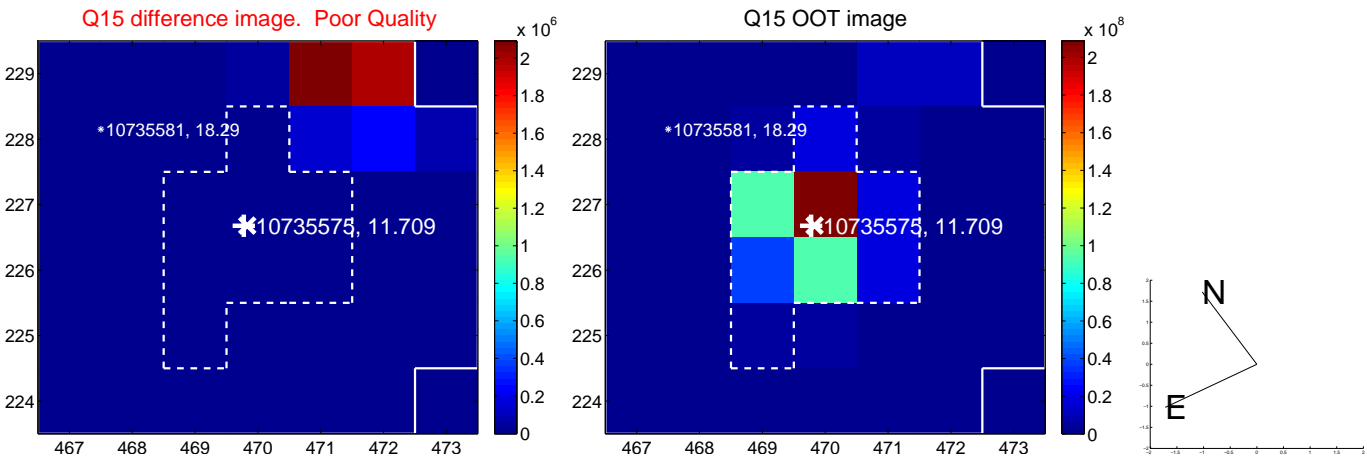
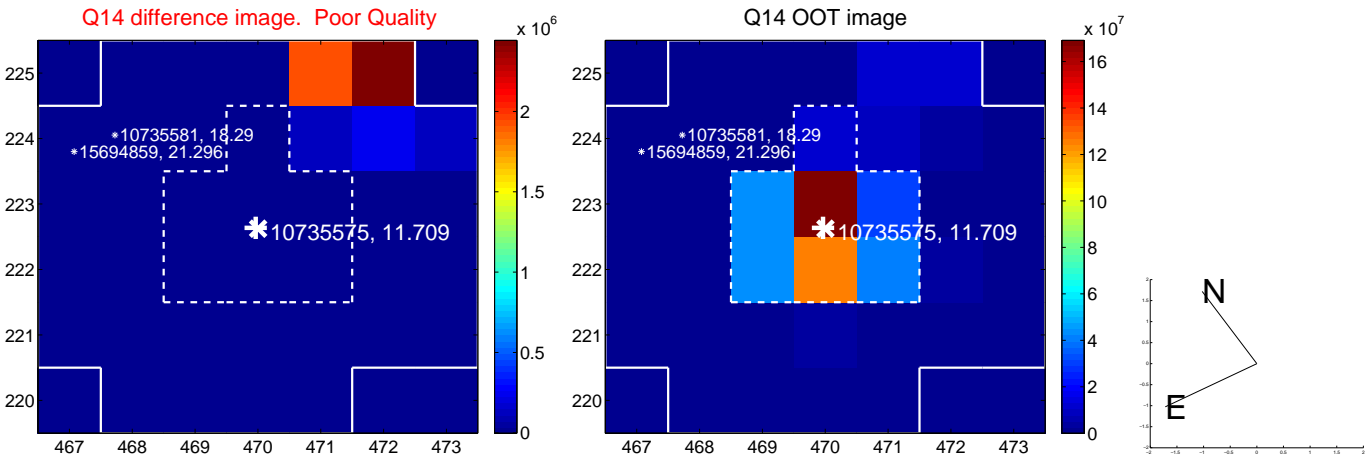
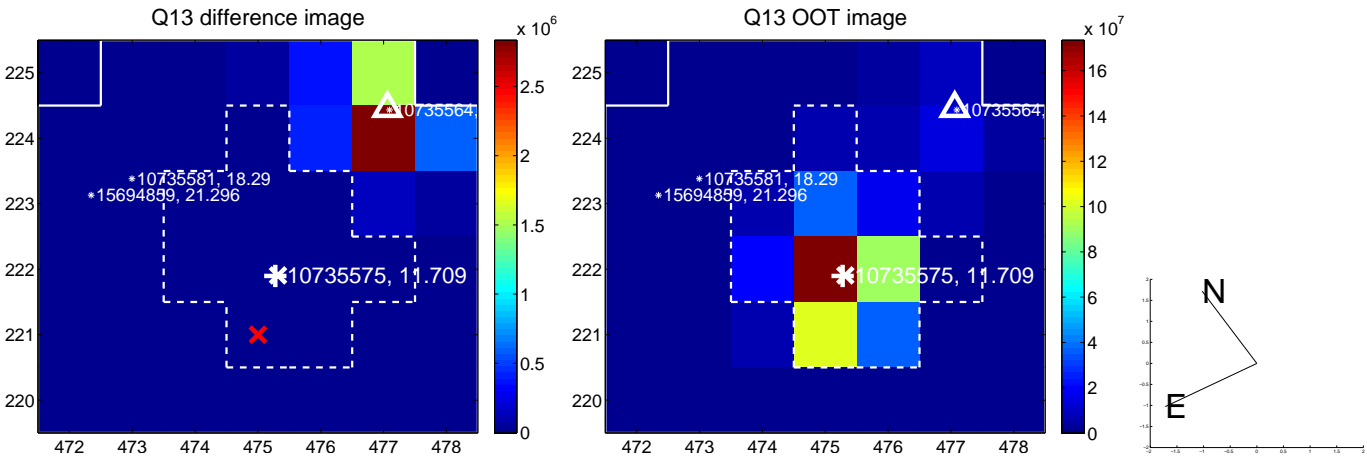
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

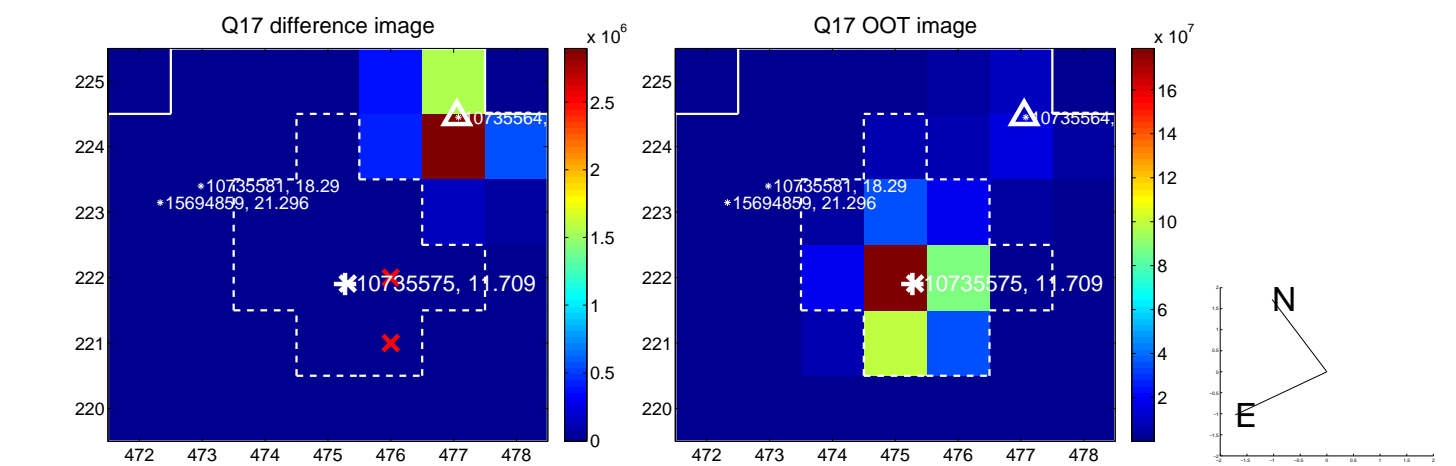


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

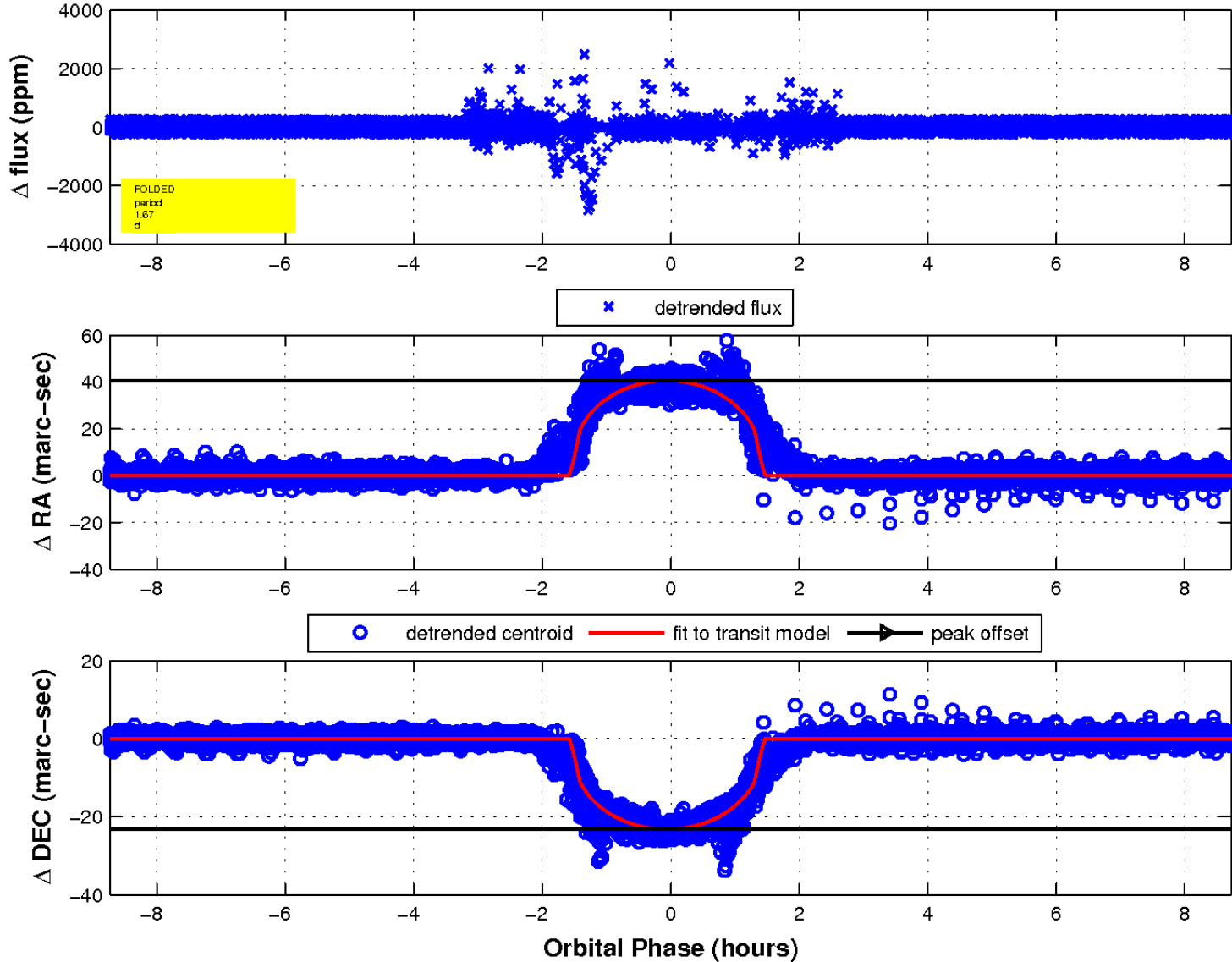




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

