

# KIC 011859333

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 011859333-01 | OBS      | No   | 1.515714      | 131.718230   | 28.8        | 3.505            | 7.9 | 6.4 | 0.78                        | 5600            | 0.50                   | 951.09                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------|
| 011859333-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV   |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

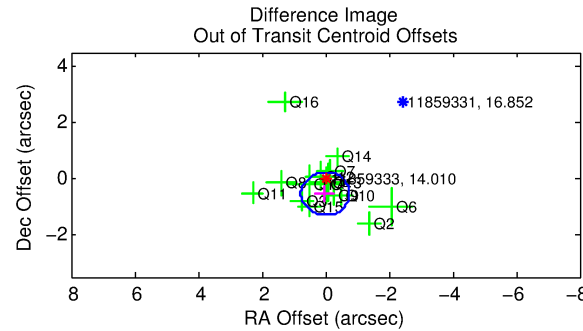
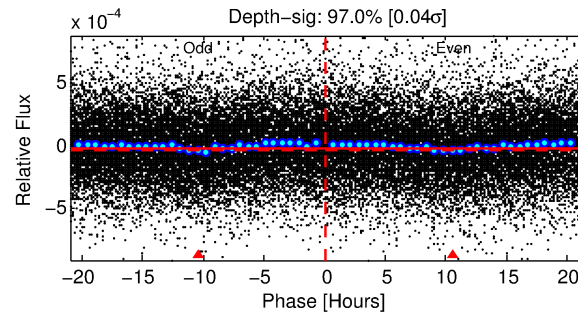
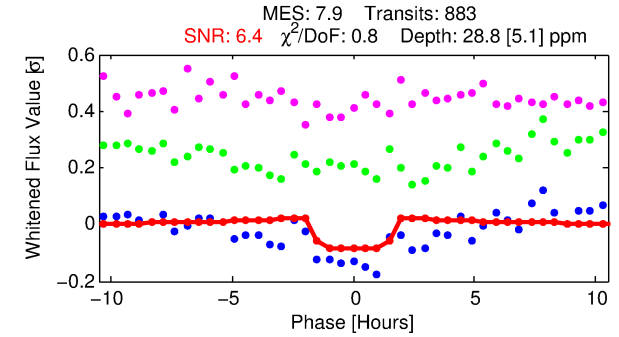
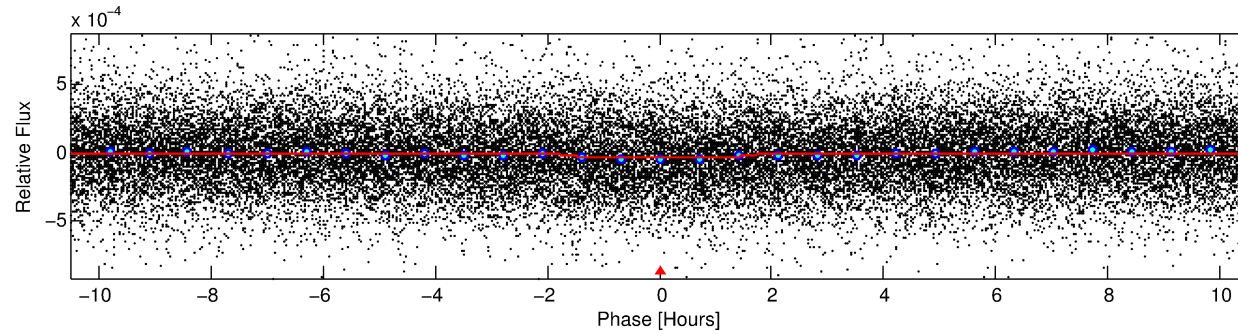
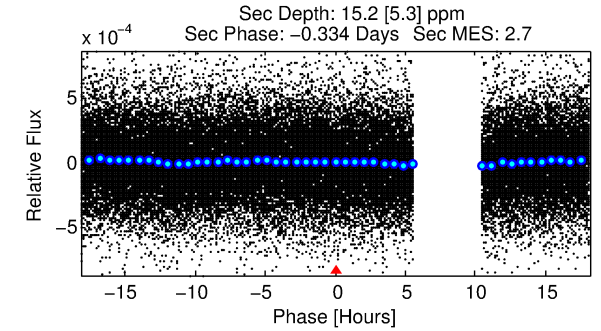
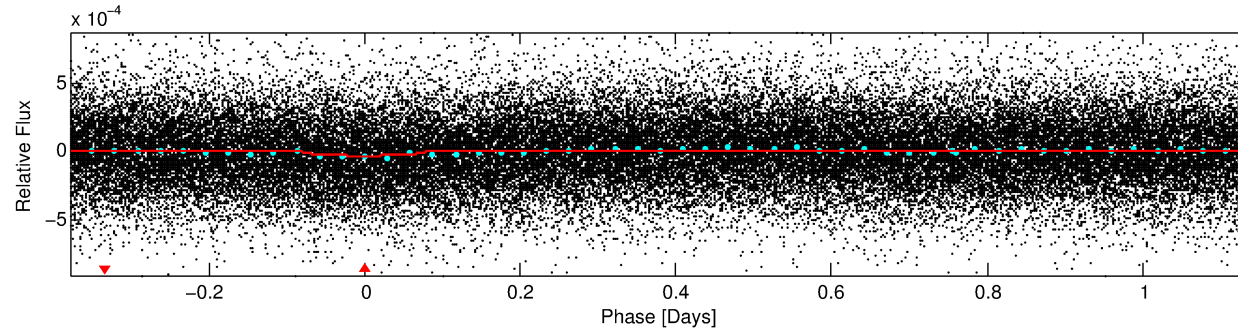
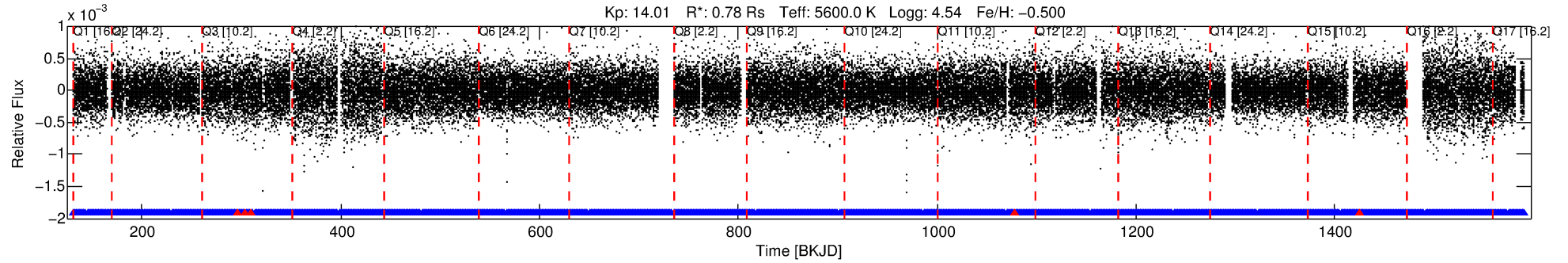
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011859333-01

No Significant Match Found

# DV One-Page Summary

KIC: 11859333 Candidate: 1 of 1 Period: 1.516 d



## DV Fit Results:

Period = 1.51571 [0.00002] d  
Epoch = 131.7182 [0.0055] BKJD  
Rp/R\* = 0.0058 [0.0037]  
a/R\* = 1.74 [3.68]  
b = 0.90 [0.66]  
Seff = 951.09 [239.55]  
Teff = 1416 [89] K  
Rp = 0.50 [0.33] Re  
a = 0.0237 [0.0037] AU  
Ag = 19.02 [25.60] [0.70σ]  
Teffp = 4572 [1522] K [2.07σ]

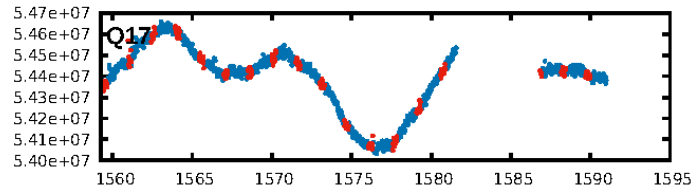
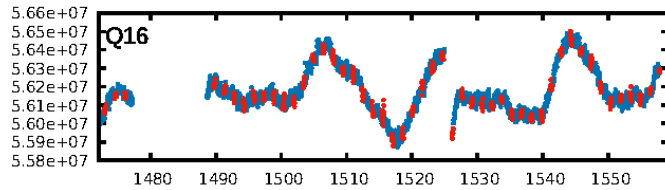
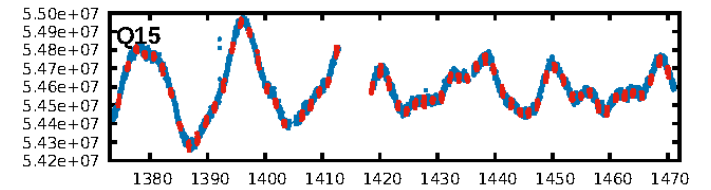
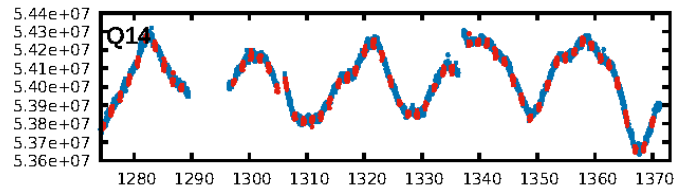
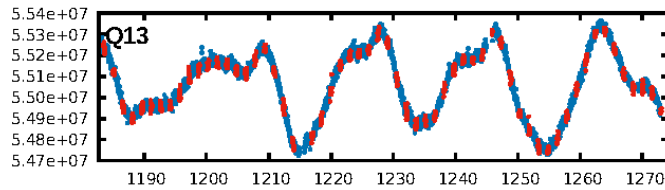
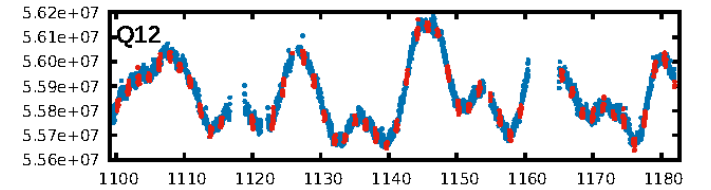
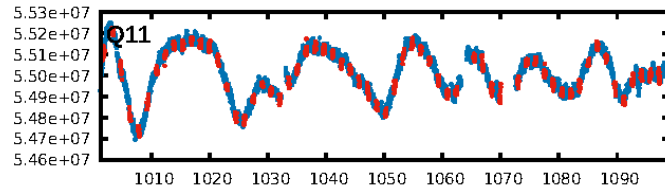
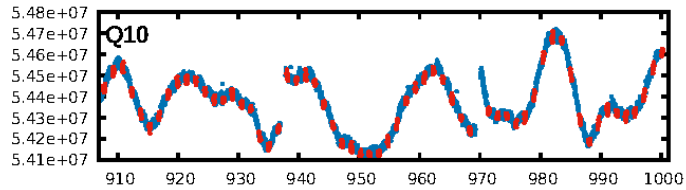
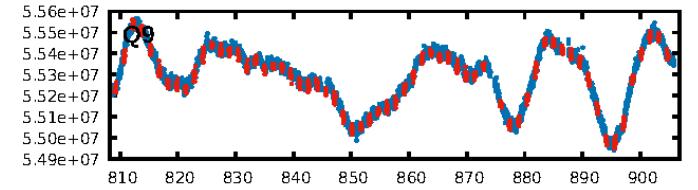
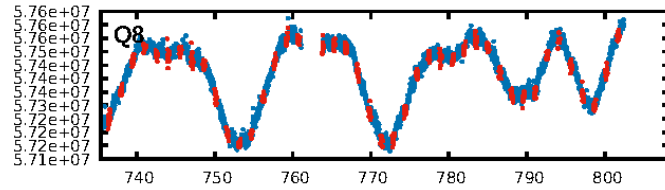
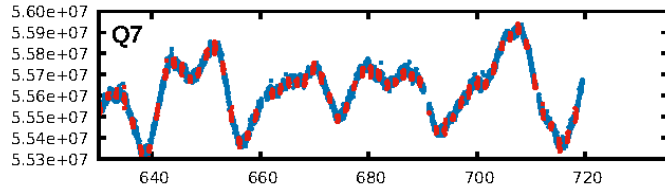
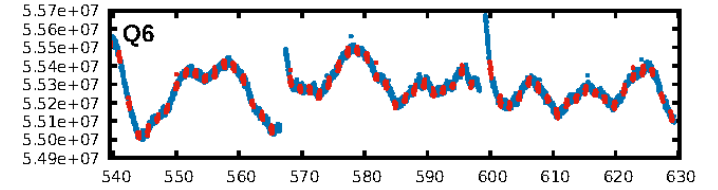
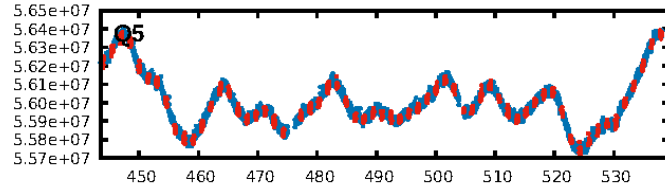
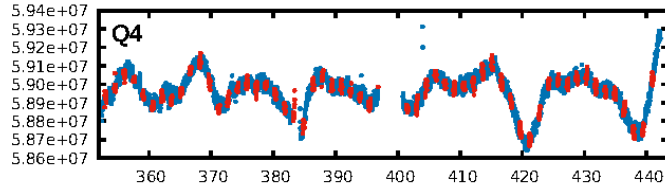
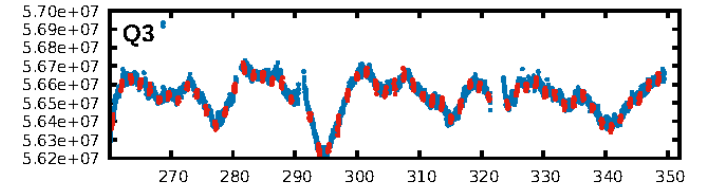
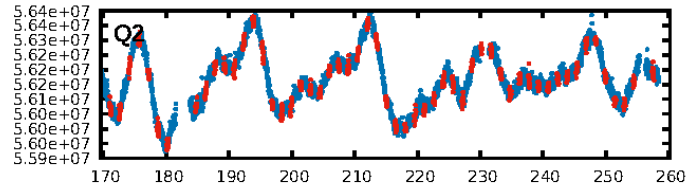
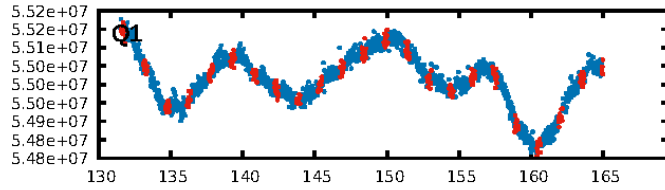
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.13e-13  
RollingBand-fgt: 0.99 [837/842]  
**GhostDiagnostic-chr: 0.9816**  
Centroid-sig: 0.4%  
Centroid-so: 3.267 arcsec [2.01σ]  
OotOffset-rm: 0.533 arcsec [2.09σ]  
KicOffset-rm: 0.781 arcsec [2.86σ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.80 [12/15]  
DiffImageOverlap-fno: 1.00 [17/17]

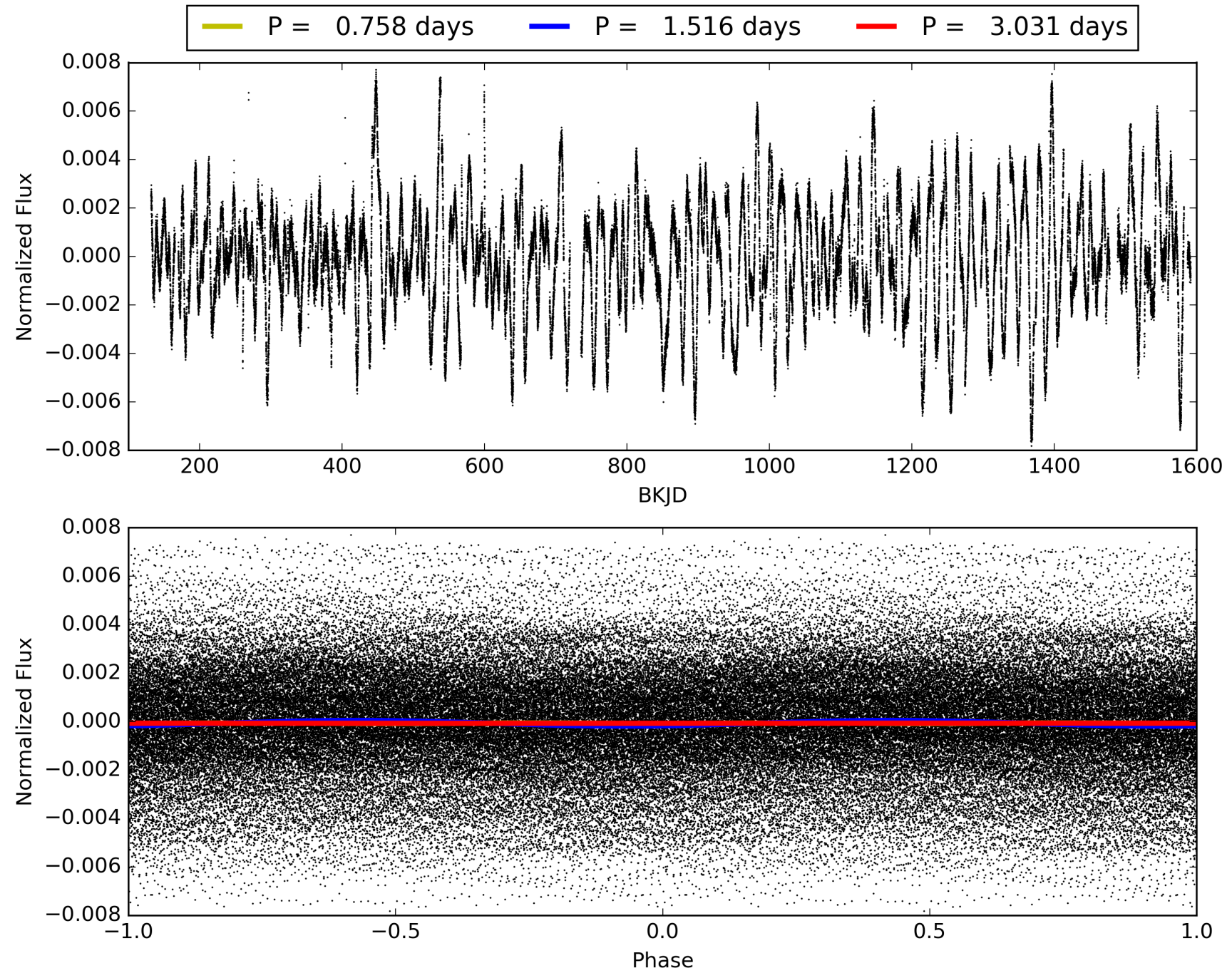
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:09:28 Z

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

# TCE 011859333-01, PDC Light Curves

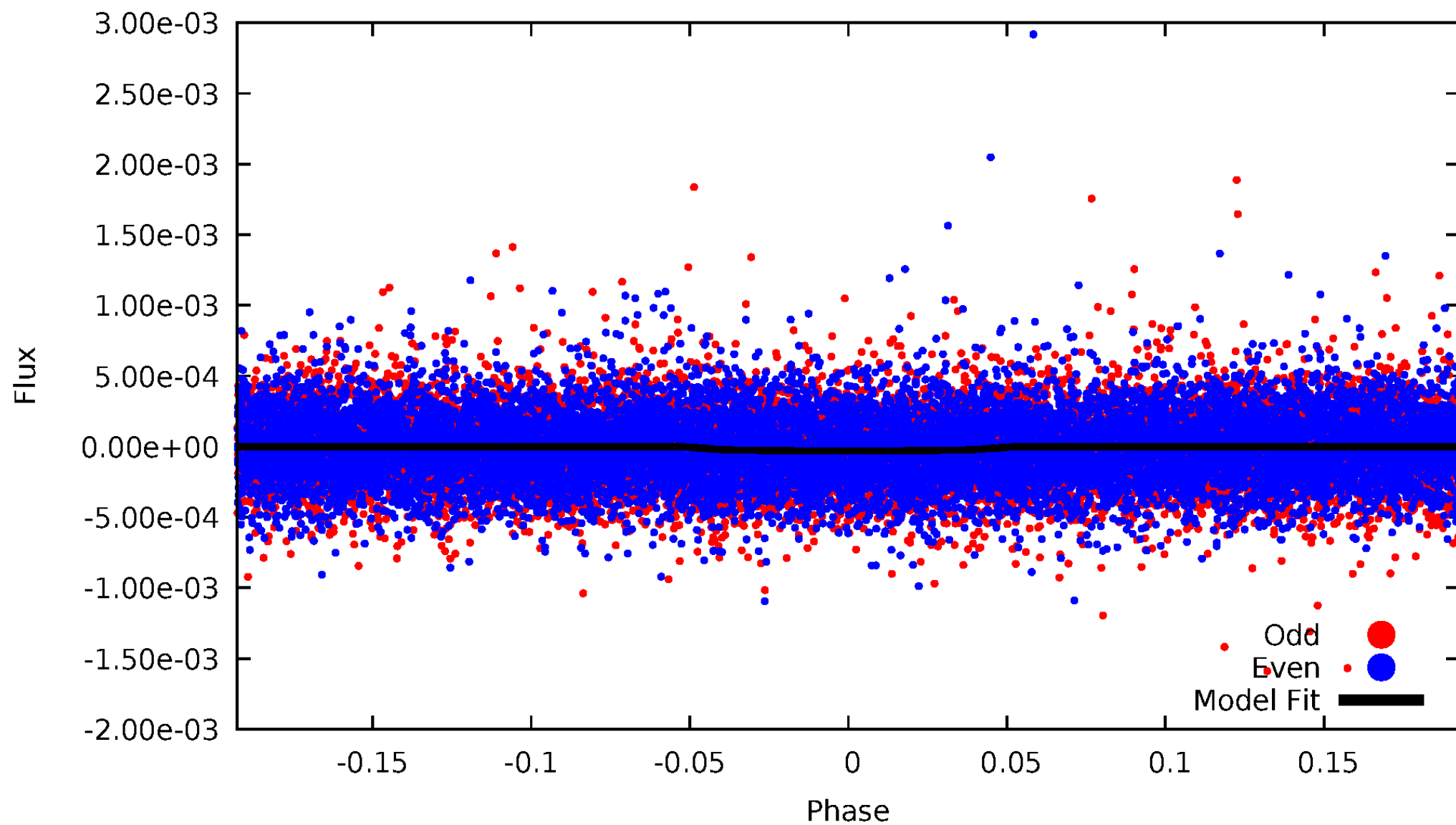


# TCE 011859333-01



# DV Odd/Even

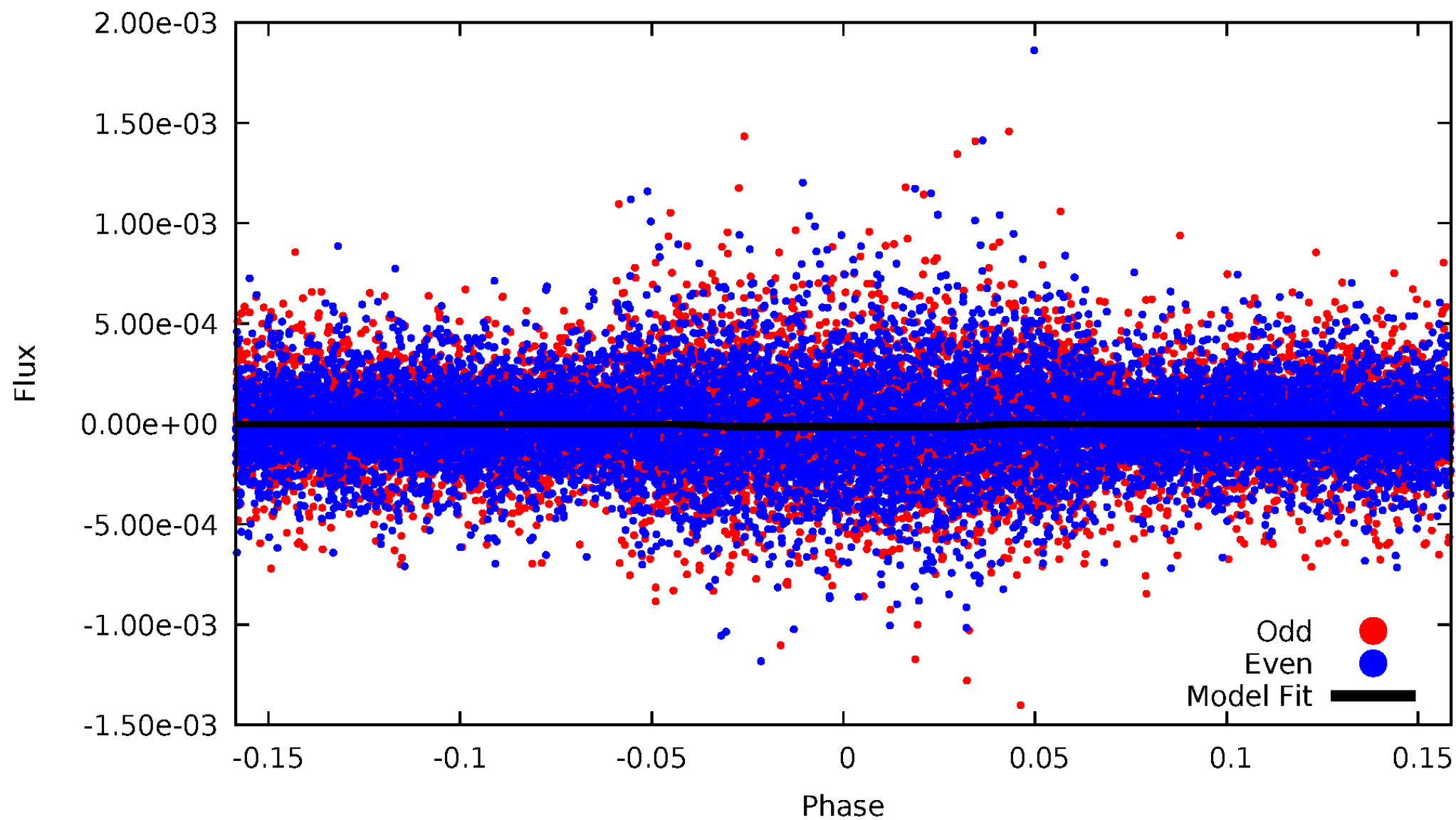
TCE 011859333-01



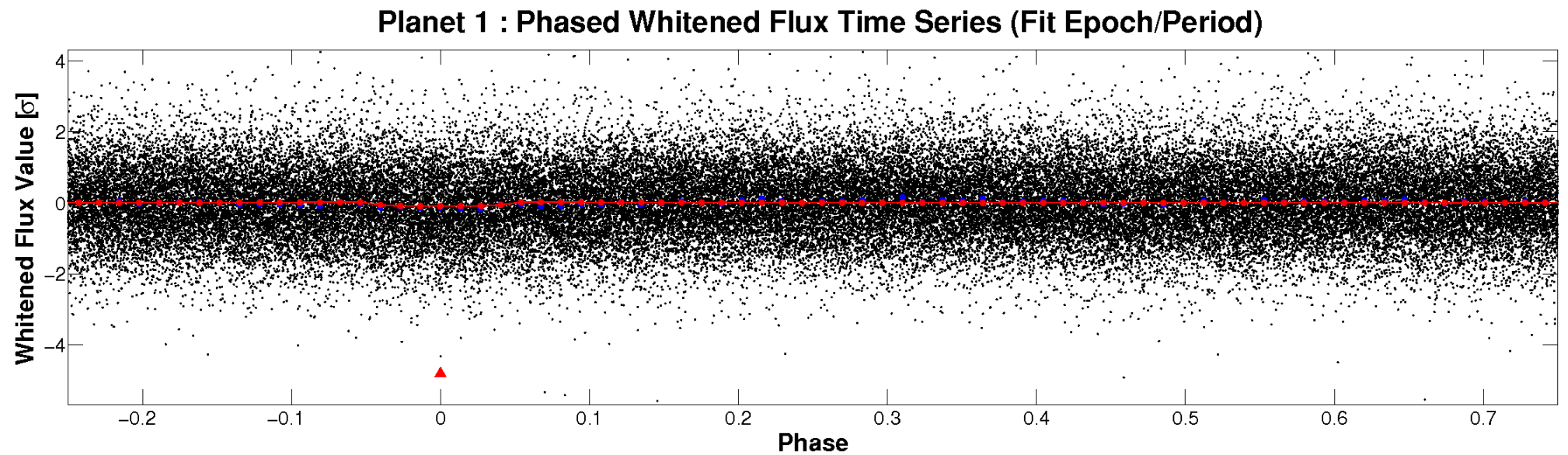
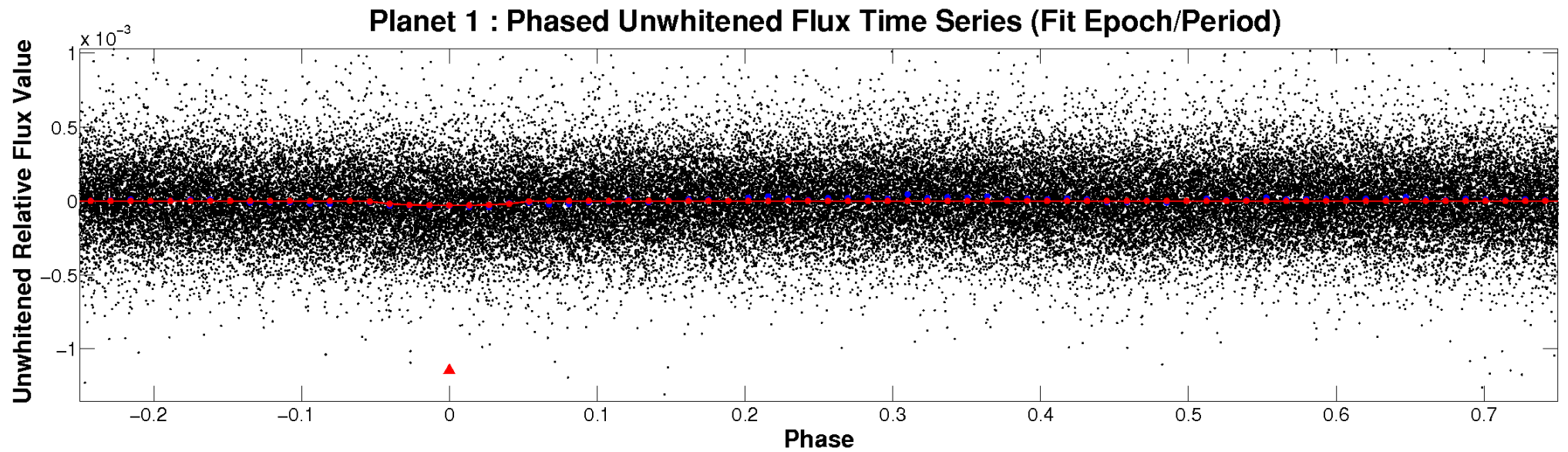


# ALT Odd/Even

TCE 011859333-01

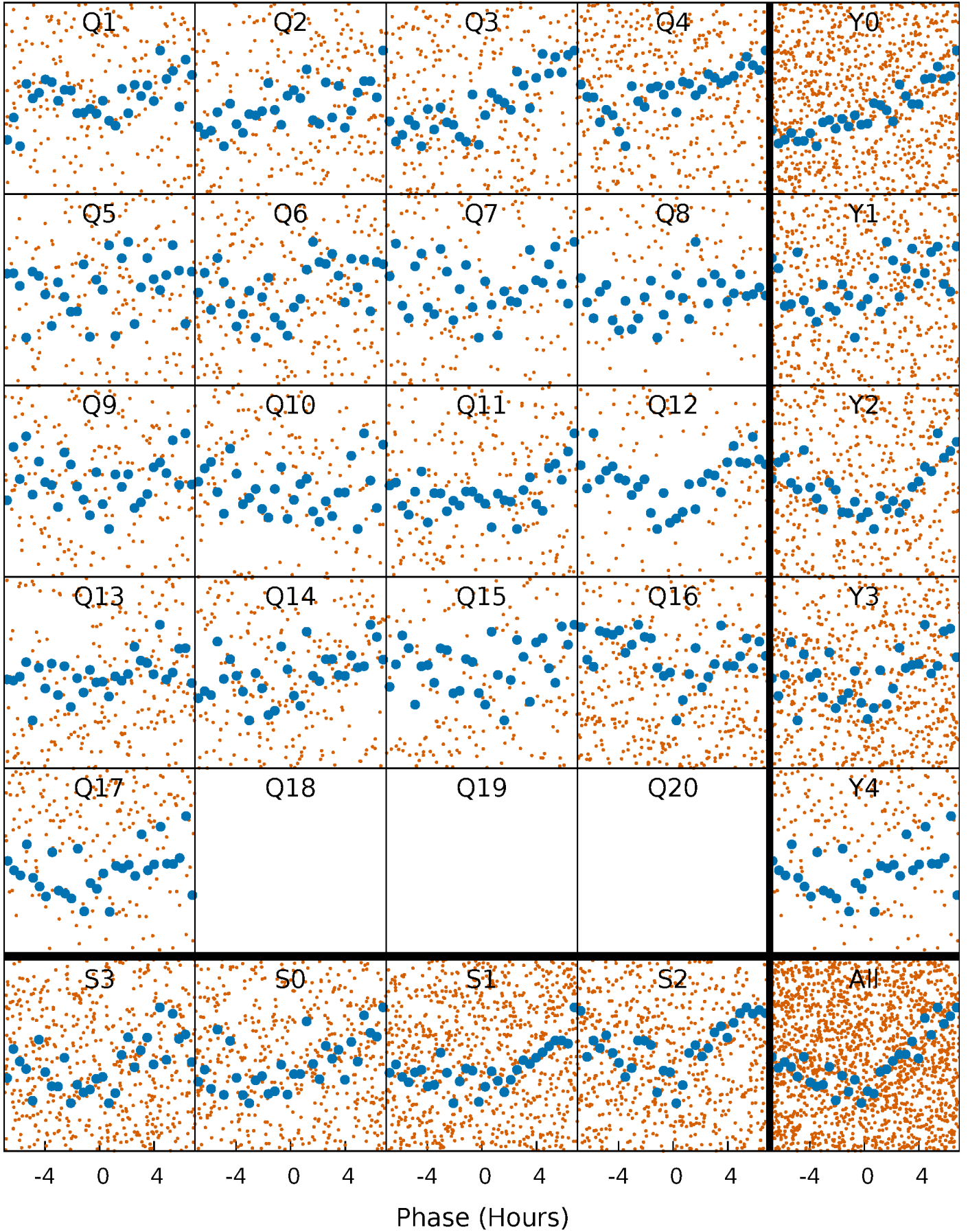


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

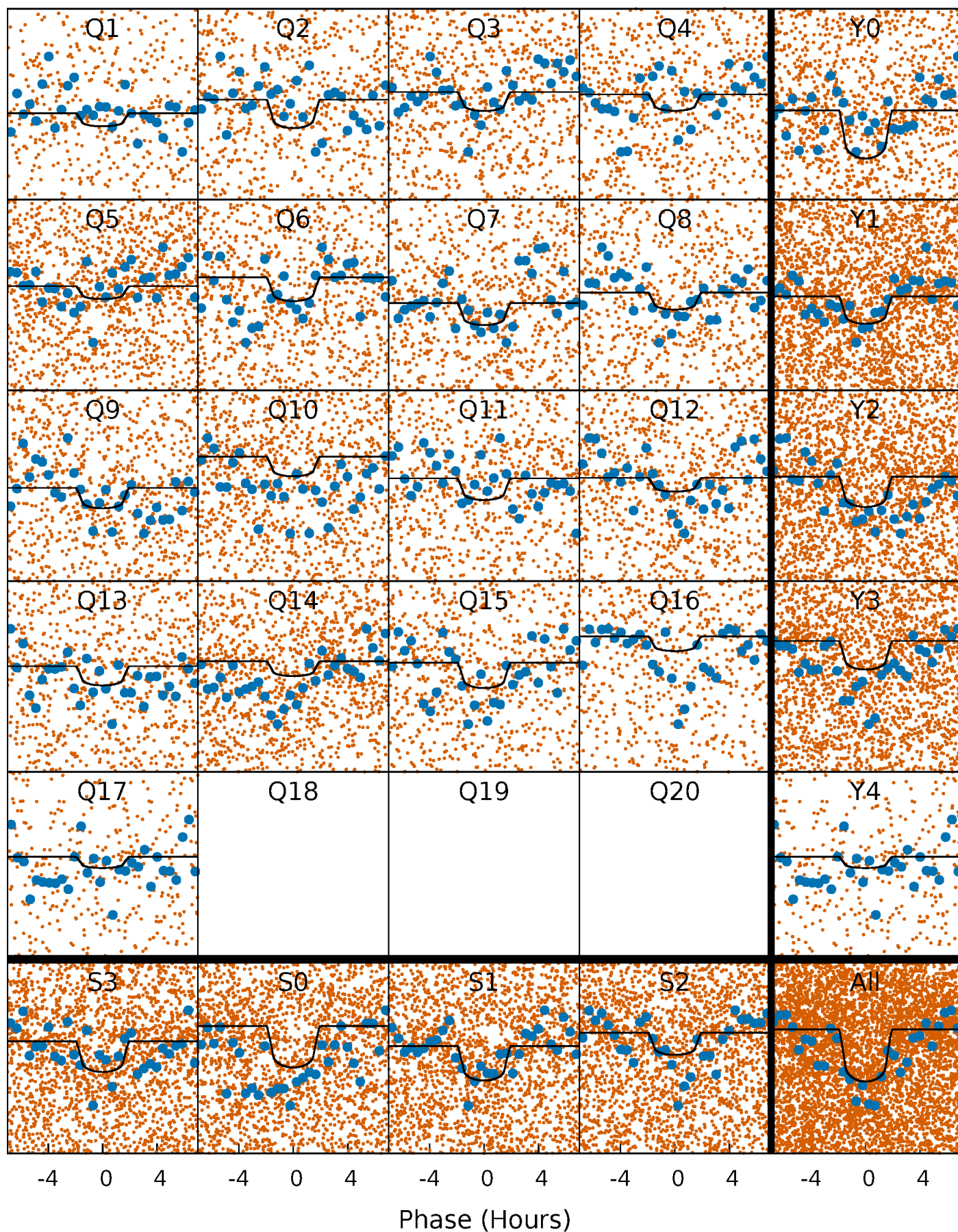
TCE 011859333-01 P= 1.515714 Days  $T_0=131.718230$  (BKJD)





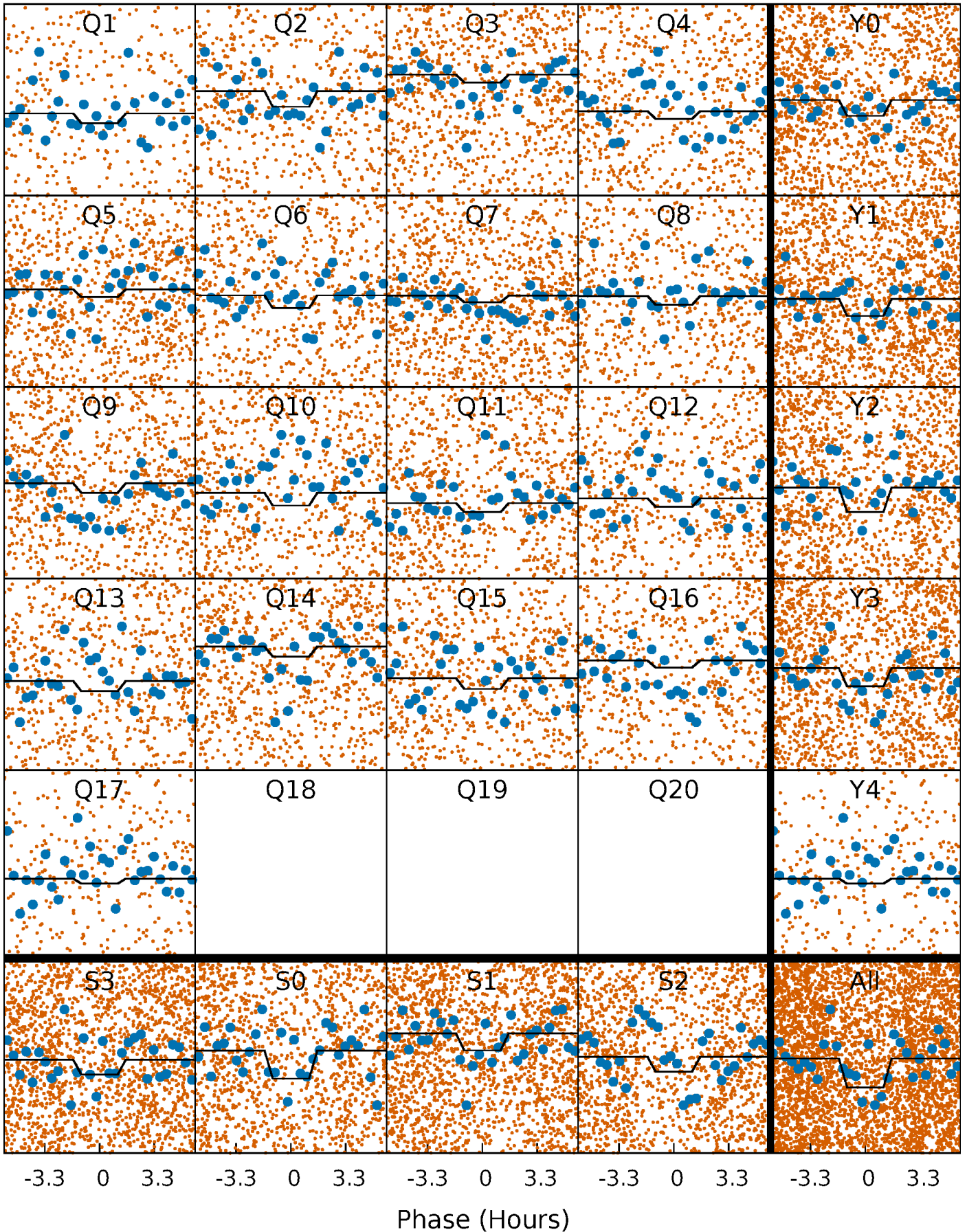
# DV Quarter-Phased Transit Curves

TCE 011859333-01 P= 1.515714 Days  $T_0=131.718230$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

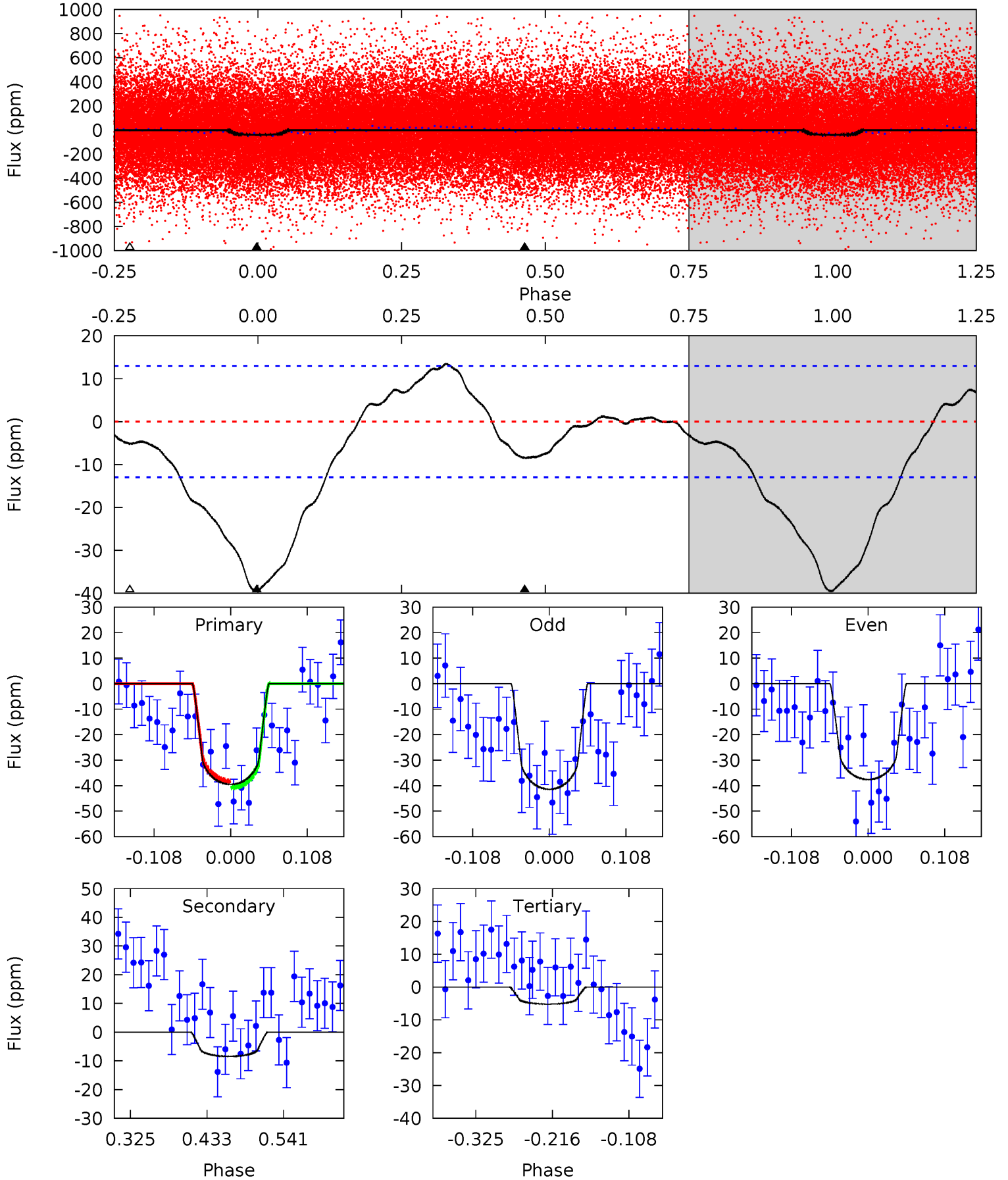
TCE 011859333-01 P= 1.515704 Days  $T_0=131.712481$  (BKJD)



# DV Model-Shift Uniqueness Test

011859333-01, P = 1.515714 Days, E = 130.202516 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  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.9 | 2.97 | 1.83 | 0   | 4.55            | 1.61            | 2.66             | 12.1    | 13.9    | 1.14    | 2.97    | 0.68    | 0.90 | 0.25  | 0.38 |

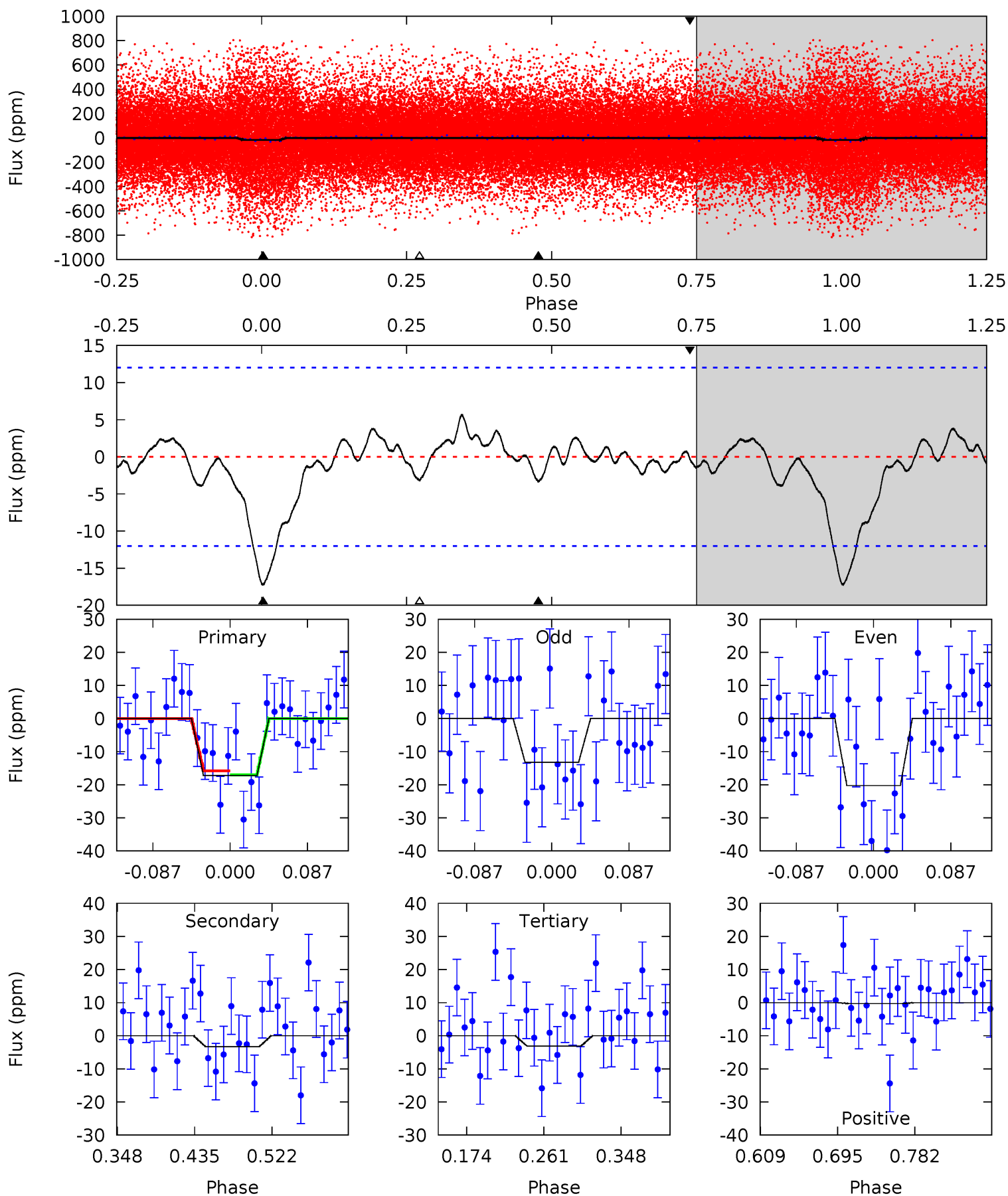




# Alt Model-Shift Uniqueness Test

011859333-01, P = 1.515704 Days, E = 130.196777 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  |
|------|------|------|-------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.60 | 1.28 | 1.21 | -0.11 | 4.59            | 1.71            | 0.71             | 5.38    | 6.71    | 0.06    | 1.39    | 1.34    | 0.75 | 0.25  | 0.24 |



### Stellar Parameters For KIC 011859333

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5600^{+151}_{-151}$ | $4.544^{+0.067}_{-0.124}$ | $-0.500^{+0.300}_{-0.300}$ | $0.780^{+0.146}_{-0.085}$ | $0.776^{+0.095}_{-0.055}$ | $2.301^{+0.656}_{-0.805}$                     |
|        | +3%/-3%              | +1%/-3%                   | +60%/-60%                  | +19%/-11%                 | +12%/-7%                  | +28%/-35%                                     |
| 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 011859333-01 / KOI

| Detrend | Depth (ppm) | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)      | $T_{obs}$ (K)         | $A_{obs}$                  |
|---------|-------------|------------------------|--------------------|-----------------------|----------------------------|
| DV      | $-8 \pm 3$  | $0.54^{+0.30}_{-0.29}$ | $1993^{+94}_{-87}$ | $4085^{+1540}_{-698}$ | $8.819^{+31.812}_{-5.600}$ |
| Alt.    | $-3 \pm 3$  | $0.41^{+0.30}_{-0.27}$ | $2000^{+91}_{-82}$ | $3636^{+2058}_{-962}$ | $4.765^{+38.526}_{-4.013}$ |

$T_{max}$  = 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

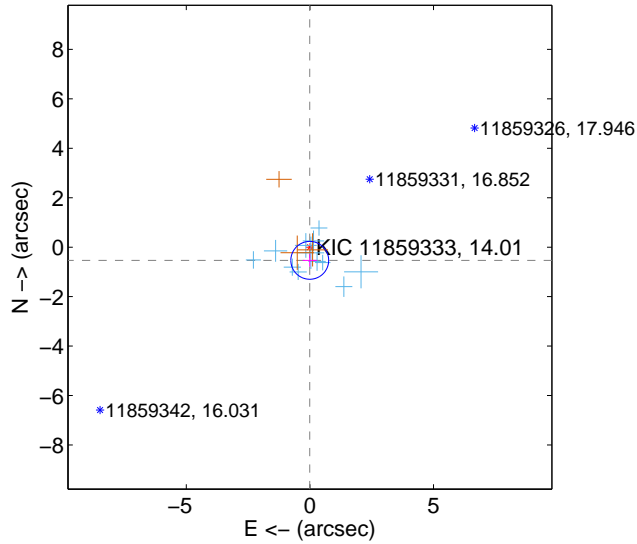
Supplemental centroid analysis for 011859333-01. Kepler magnitude: 14.01. Transit SNR 6.39

There are 12 quarters with good PRF difference image offsets

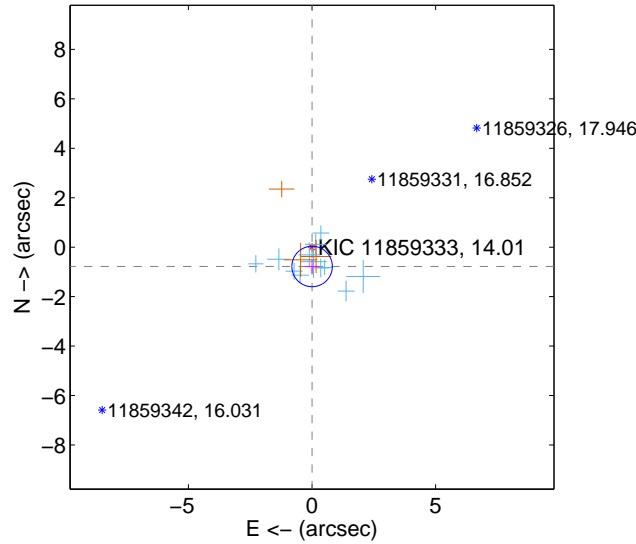
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $0.533 \pm 0.255$  | 2.09                | $0.006 \pm 0.289$  | $-0.533 \pm 0.256$ |
| PRF-fit source offset from KIC position | $0.781 \pm 0.273$  | 2.86                | $-0.004 \pm 0.283$ | $-0.781 \pm 0.272$ |
| photometric centroid source offset      | $3.27 \pm 1.63$    | 2.01                | $-1.15 \pm 1.68$   | $-3.06 \pm 1.62$   |

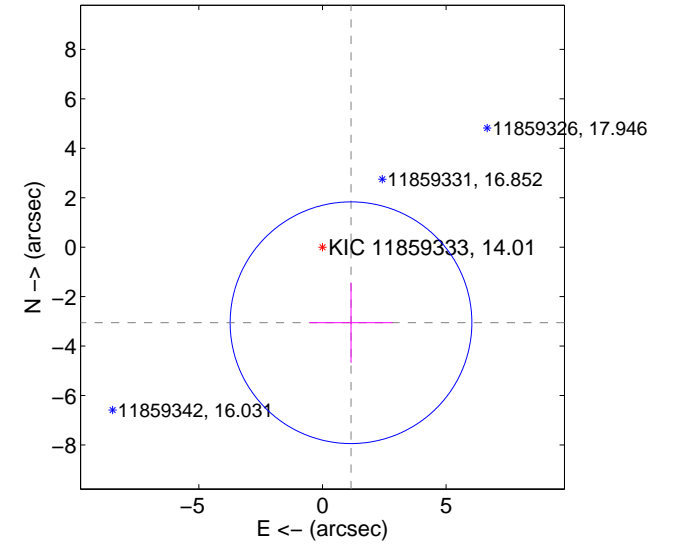
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

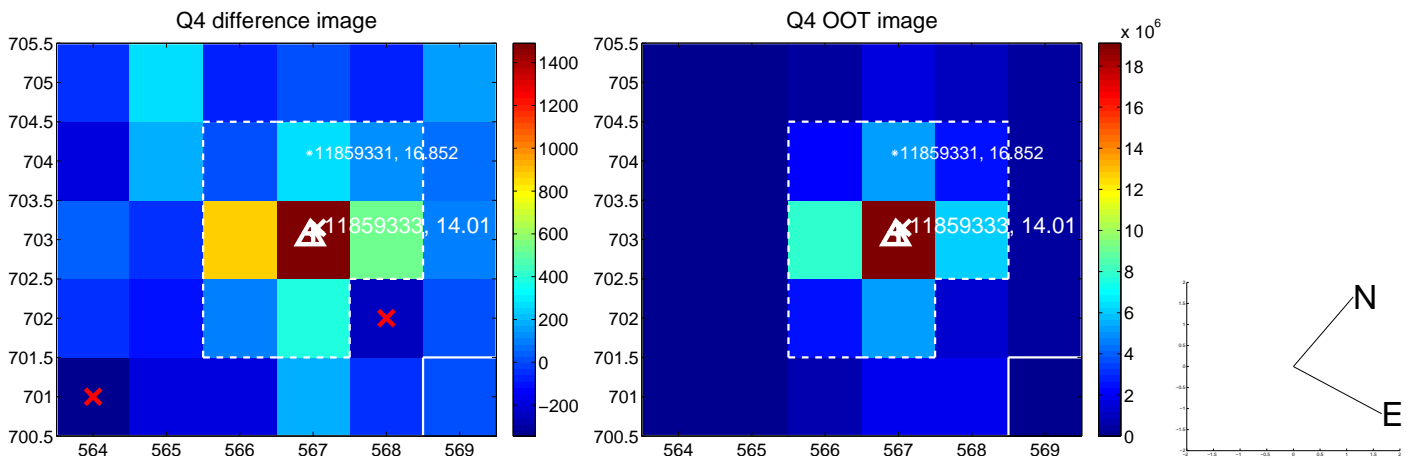
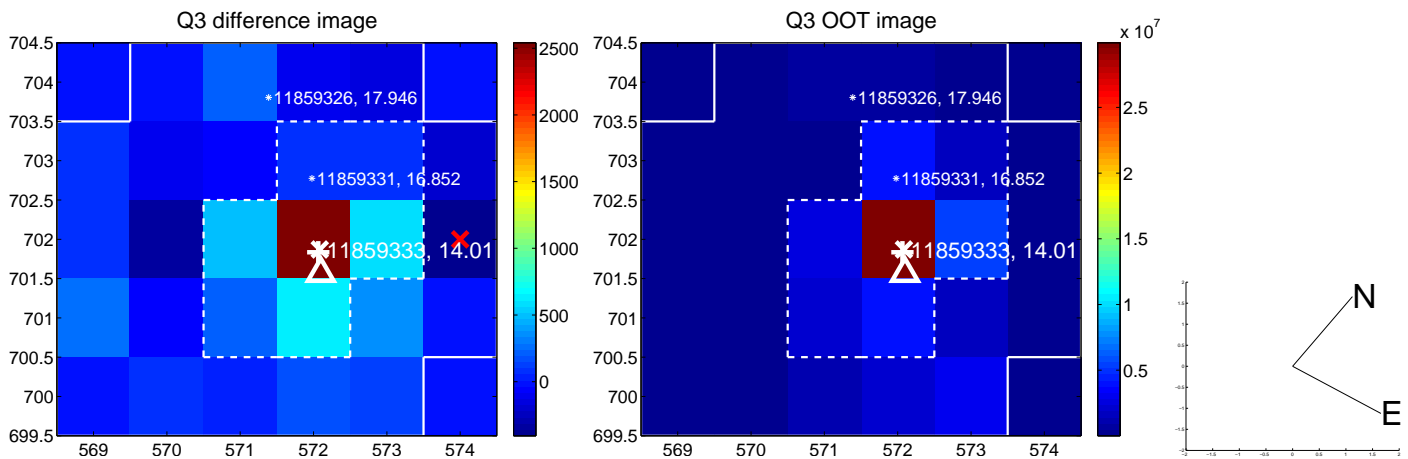
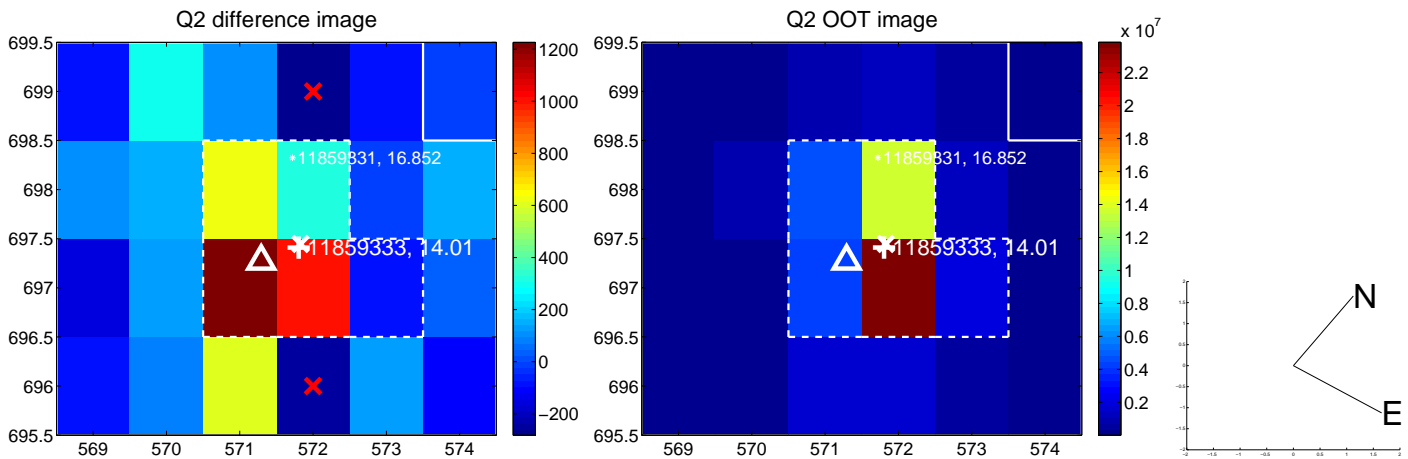
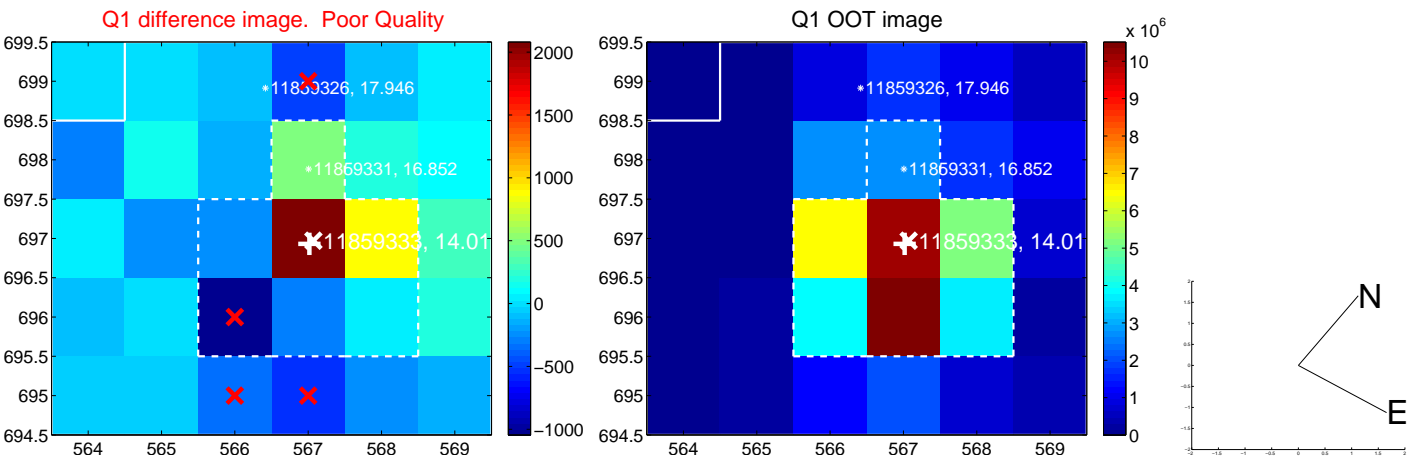


offset from photometric centroids

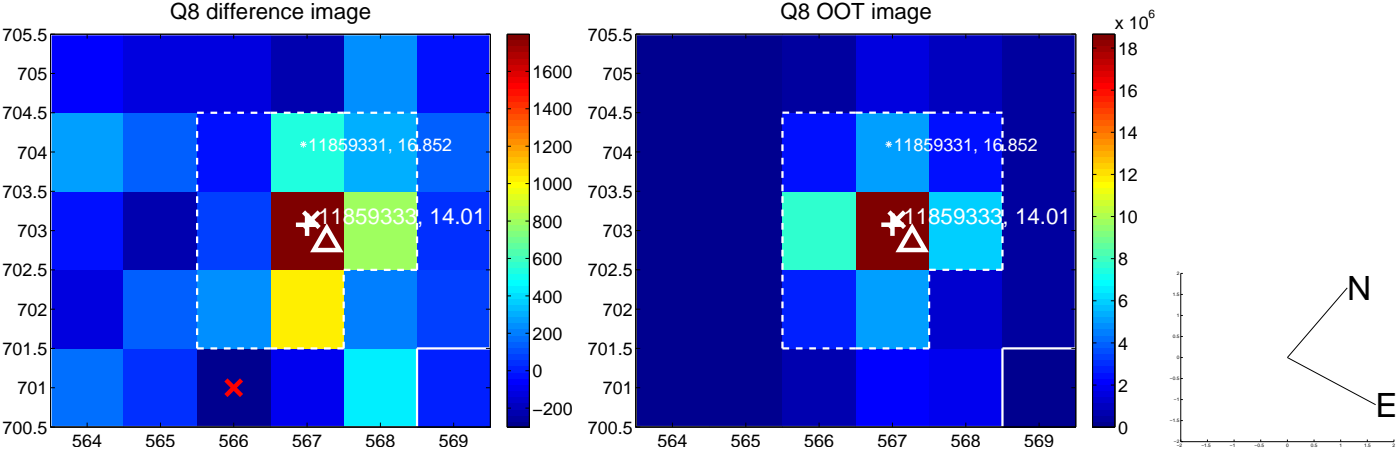
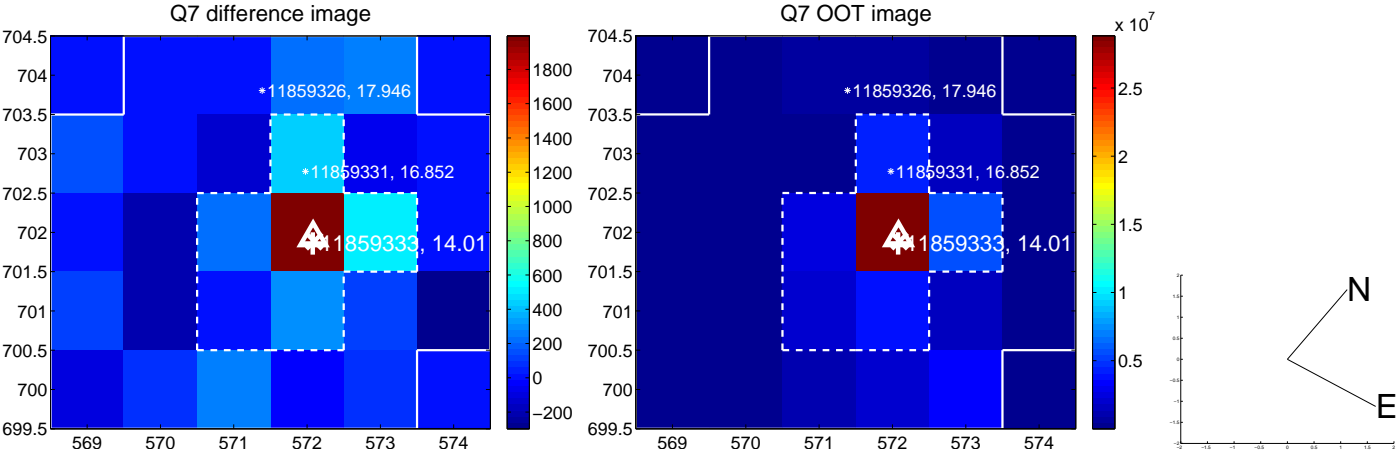
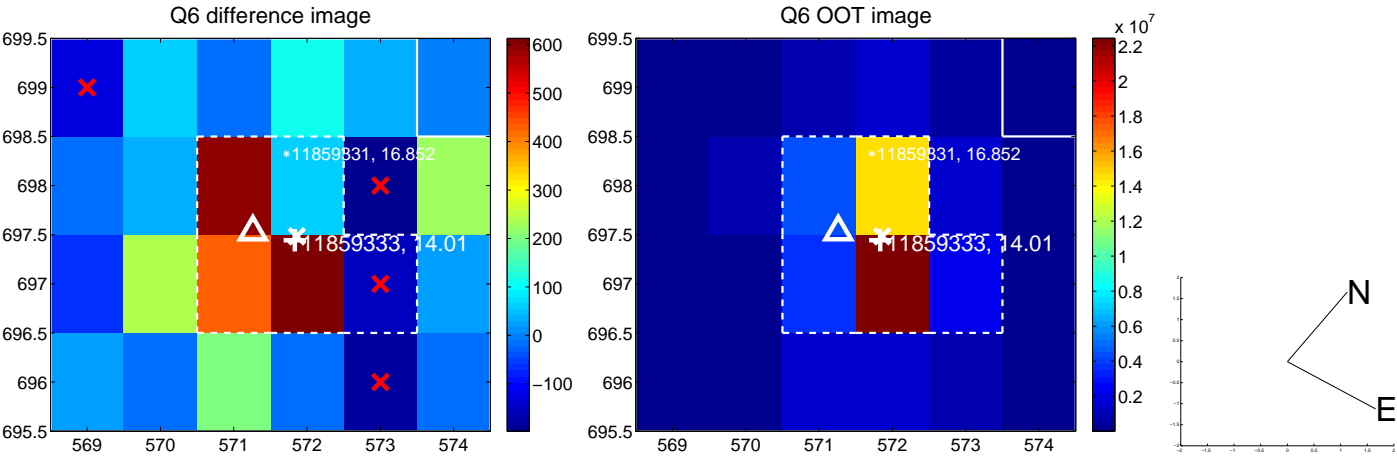
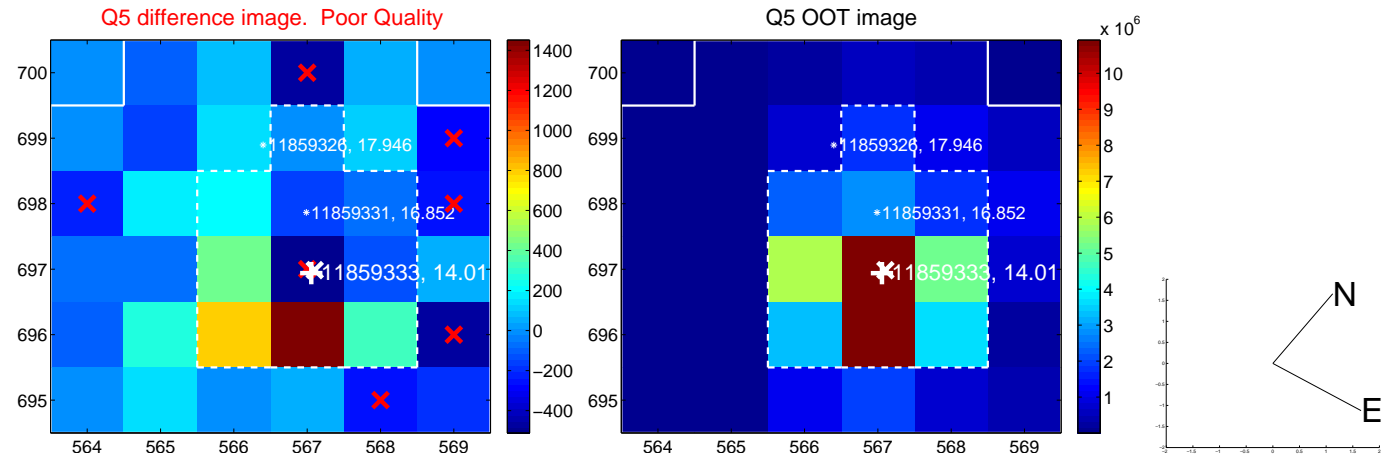


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

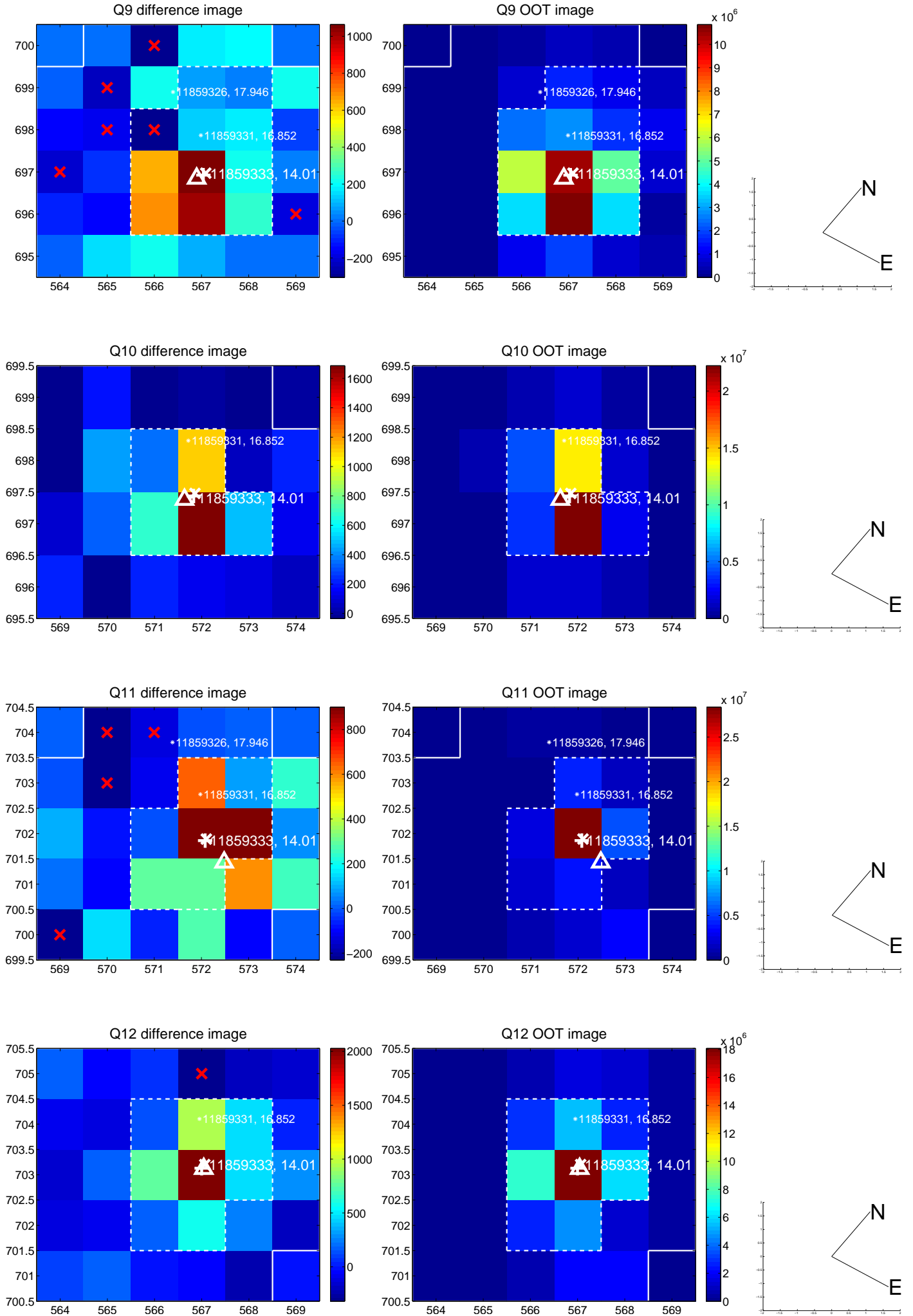
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



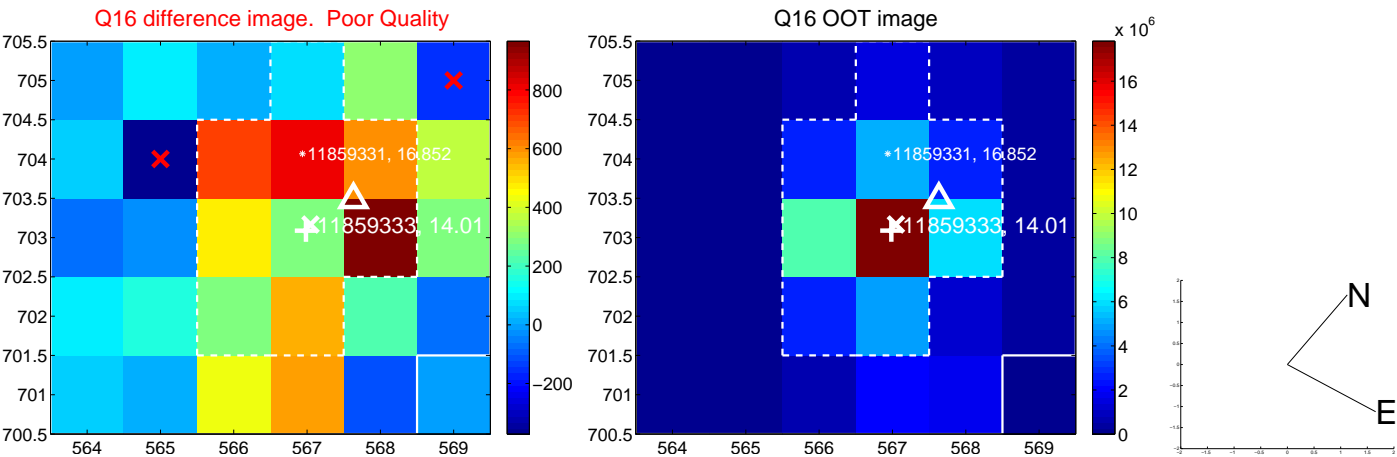
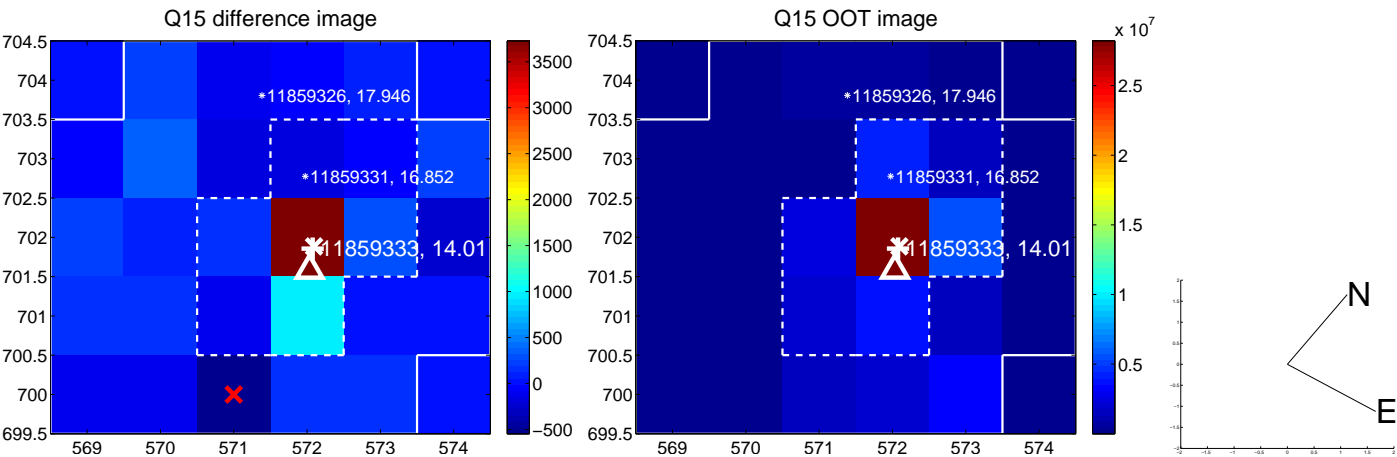
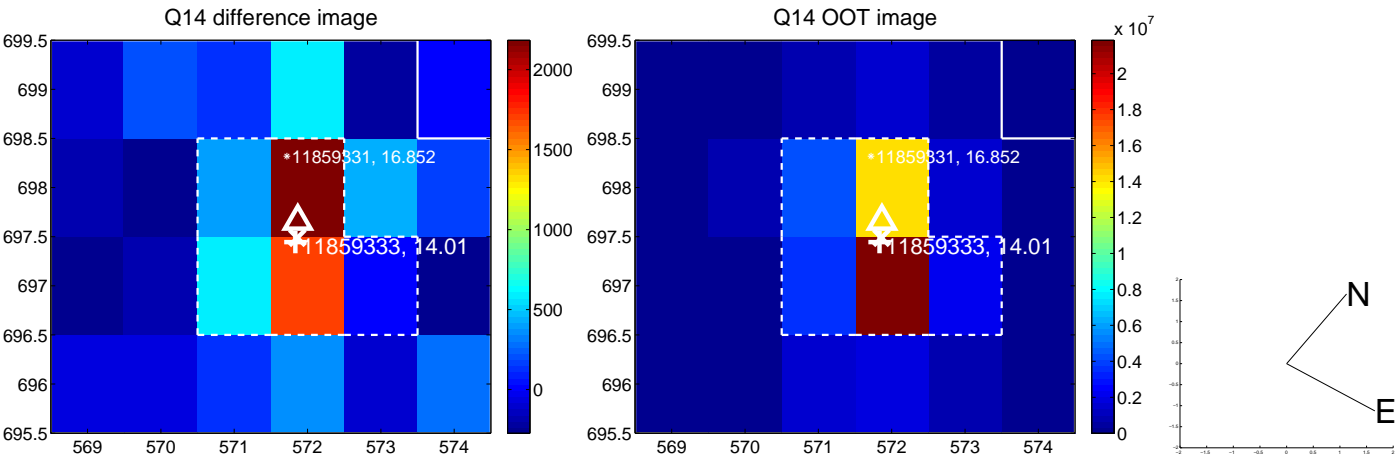
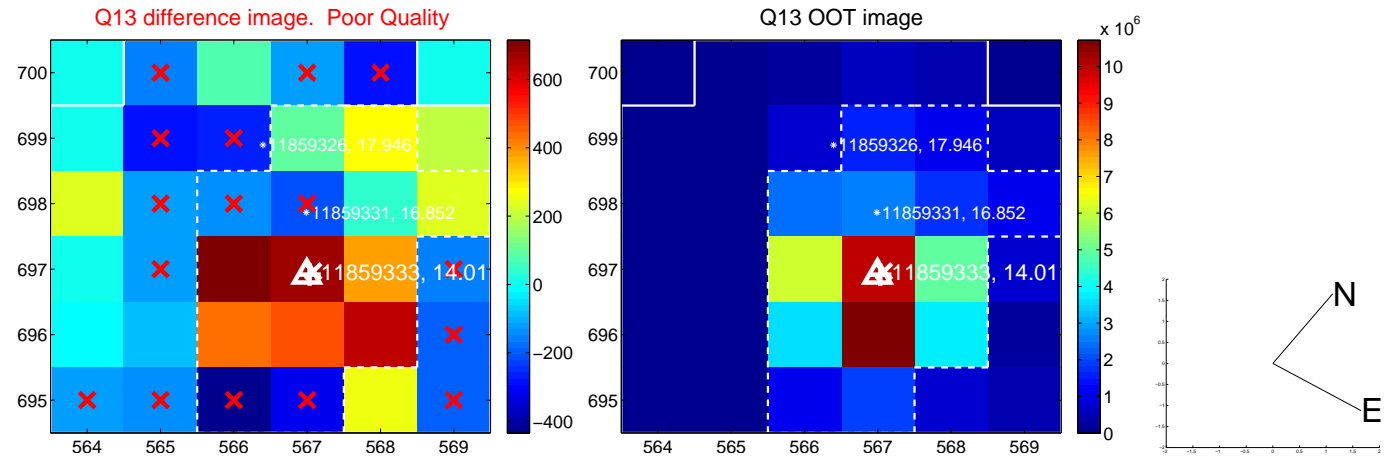
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

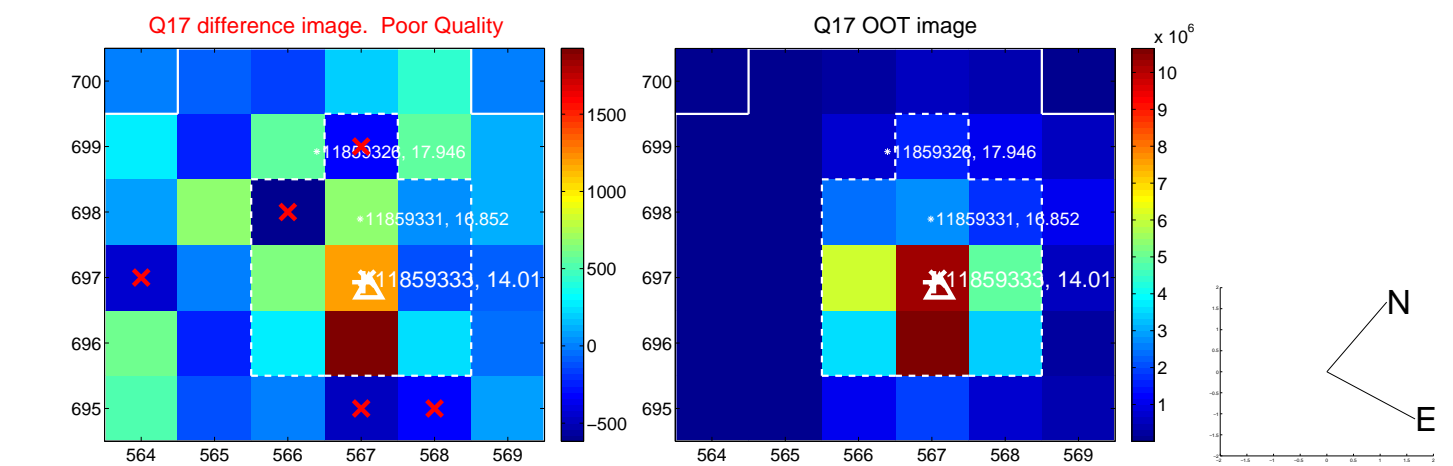


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

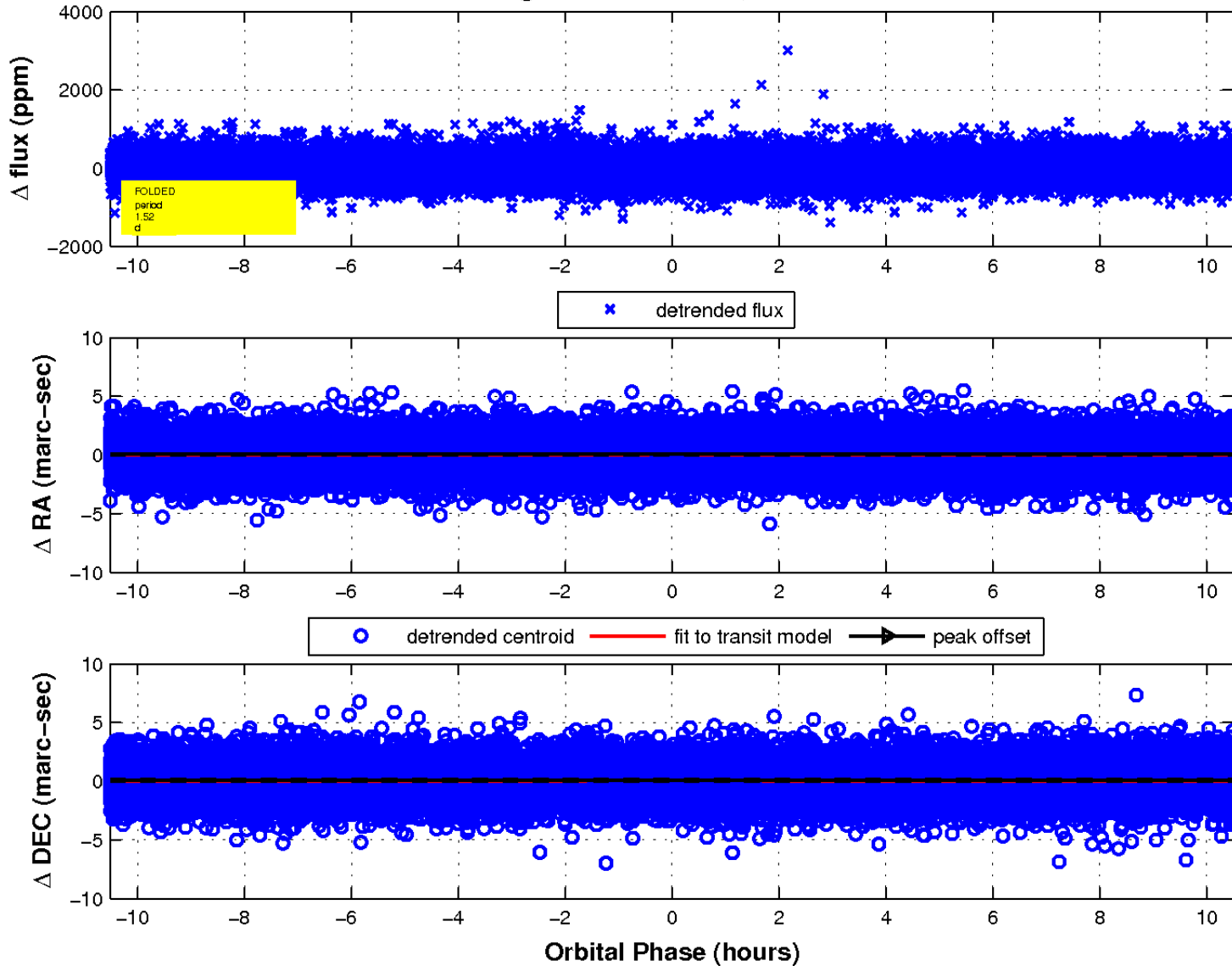




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

