

# KIC 006130860

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006130860-01 | OBS      | No   | 79.185332     | 180.307128   | 153.9       | 10.379           | 7.3 | 7.8 | 0.80                        | 5891            | 1.07                   | 5.78                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments  |
|--------------|----------|------|-------|---|---|---|---|---|
| 006130860-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

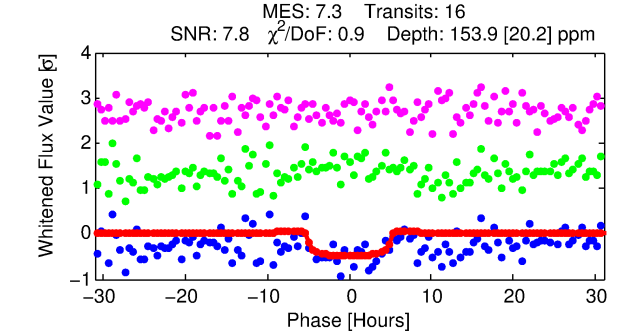
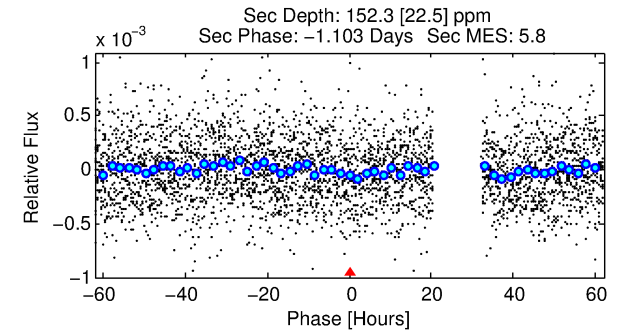
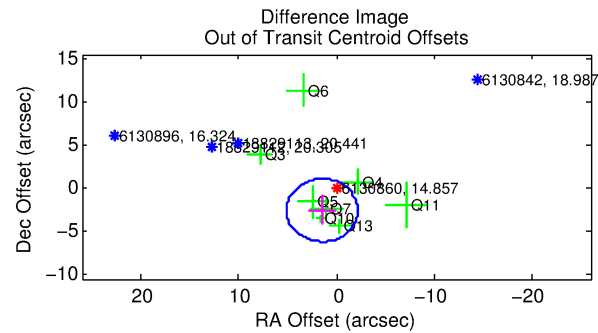
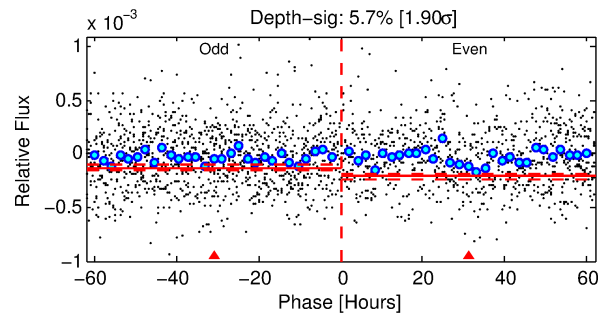
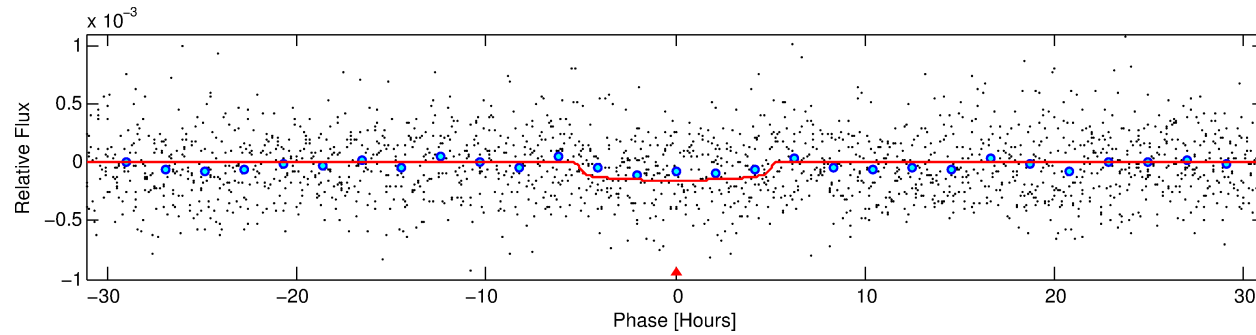
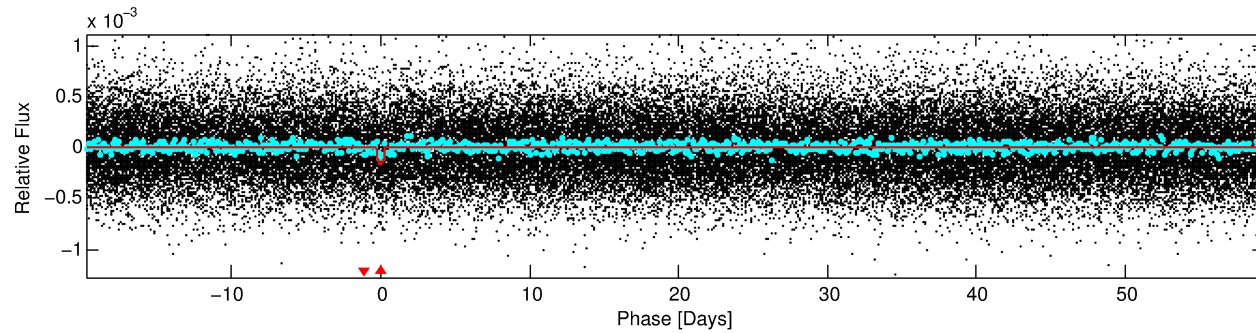
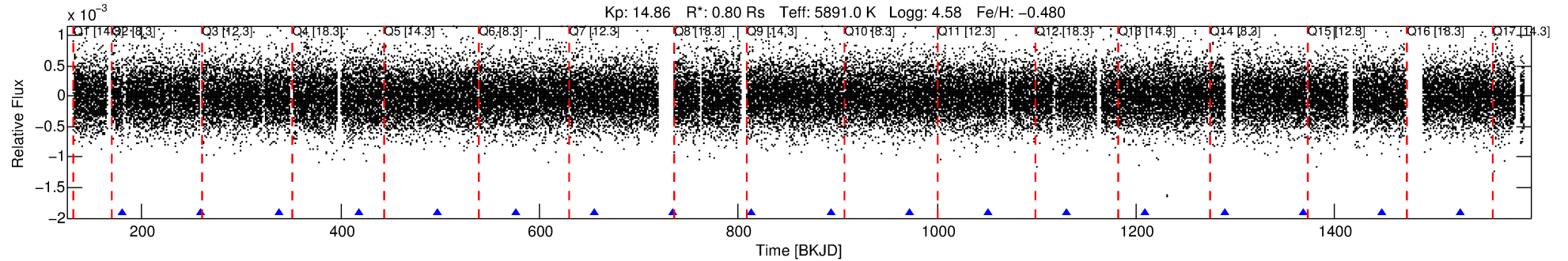
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006130860-01

No Significant Match Found

# DV One-Page Summary

KIC: 6130860 Candidate: 1 of 1 Period: 79.185 d



## DV Fit Results:

Period = 79.18533 [0.00212] d  
Epoch = 180.3071 [0.0223] BKJD  
Rp/R\* = 0.0123 [0.0087]  
a/R\* = 40.17 [141.36]  
b = 0.74 [2.15]  
Seff = 5.77 [2.06]  
Teff = 395 [35] K  
Rp = 1.07 [0.81] Re  
a = 0.3458 [0.0796] AU  
Ag = 8686.15 [12687.29] [0.68 $\sigma$ ]  
Teffp = 5900 [2104] K [2.62 $\sigma$ ]

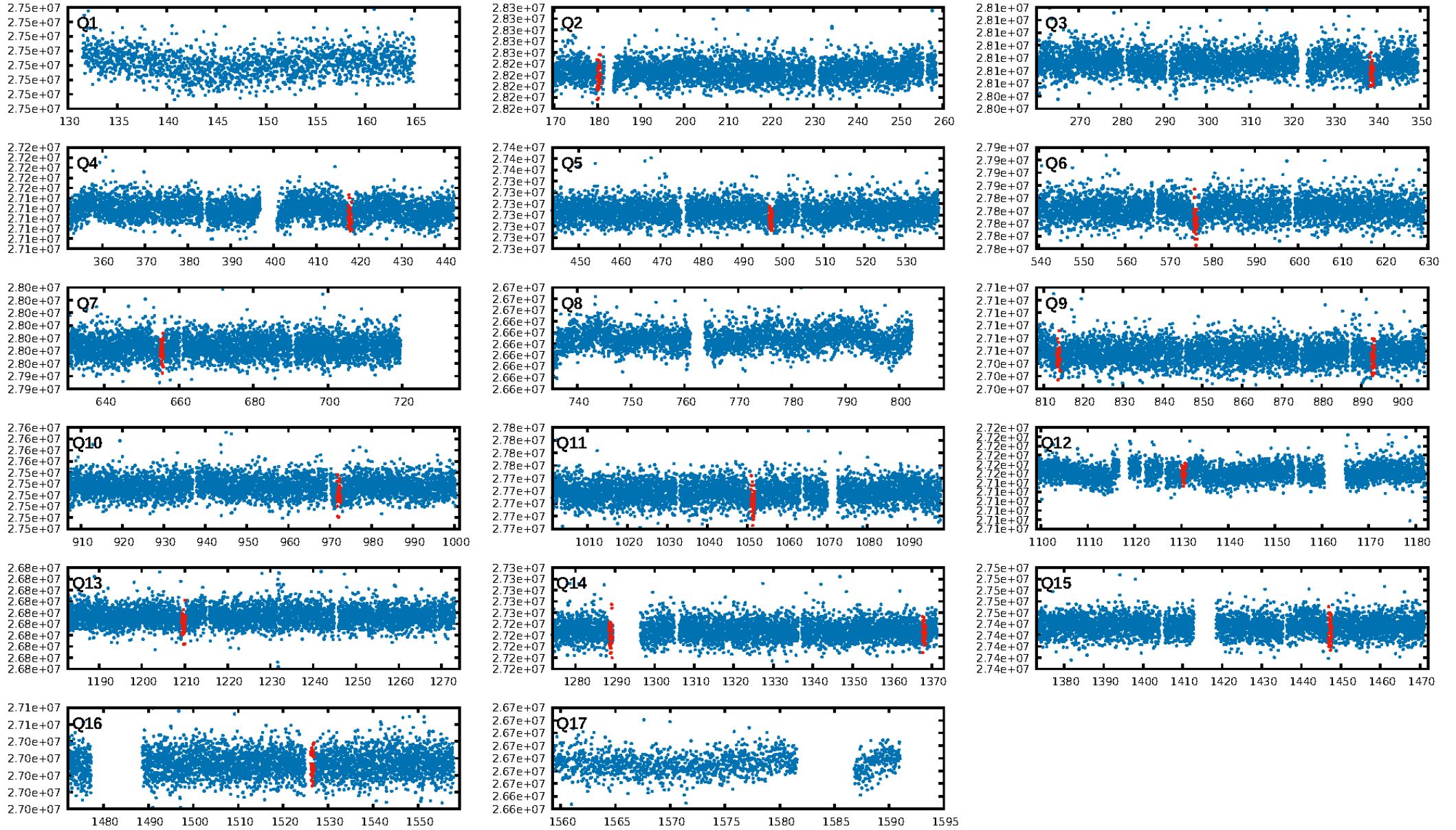
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 34.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.17e-13  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: 1.317  
Centroid-sig: 2.8%  
Centroid-so: 3.291 arcsec [1.79 $\sigma$ ]  
OotOffset-rm: 2.945 arcsec [2.43 $\sigma$ ]  
KicOffset-rm: 3.146 arcsec [2.06 $\sigma$ ]  
OotOffset-st: 2/3/1/2 [8]  
KicOffset-st: 2/3/1/2 [8]  
DiffImageQuality-fgm: 0.12 [1/8]  
DiffImageOverlap-fno: 1.00 [12/12]

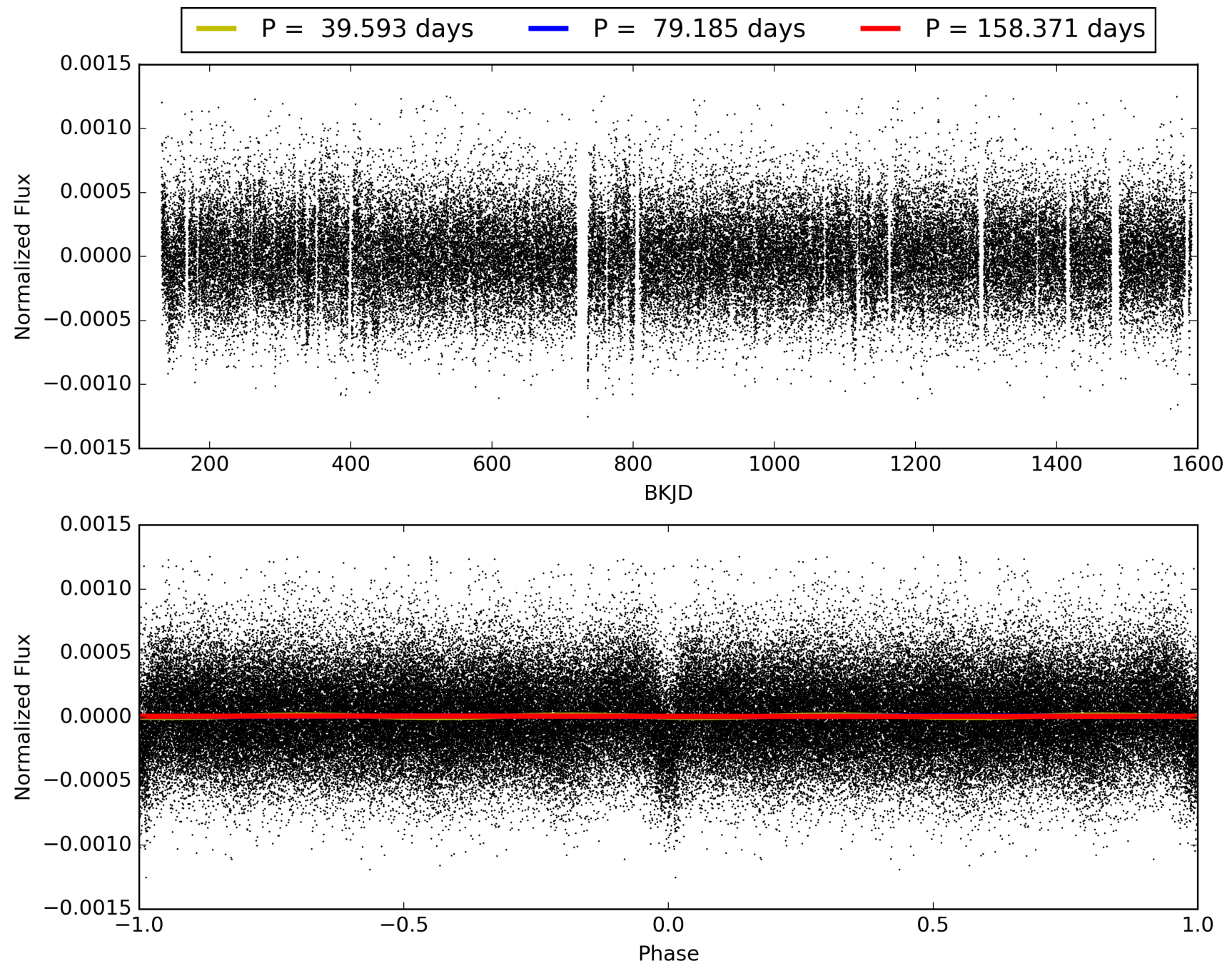
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:44:59 Z

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

# TCE 006130860-01, PDC Light Curves

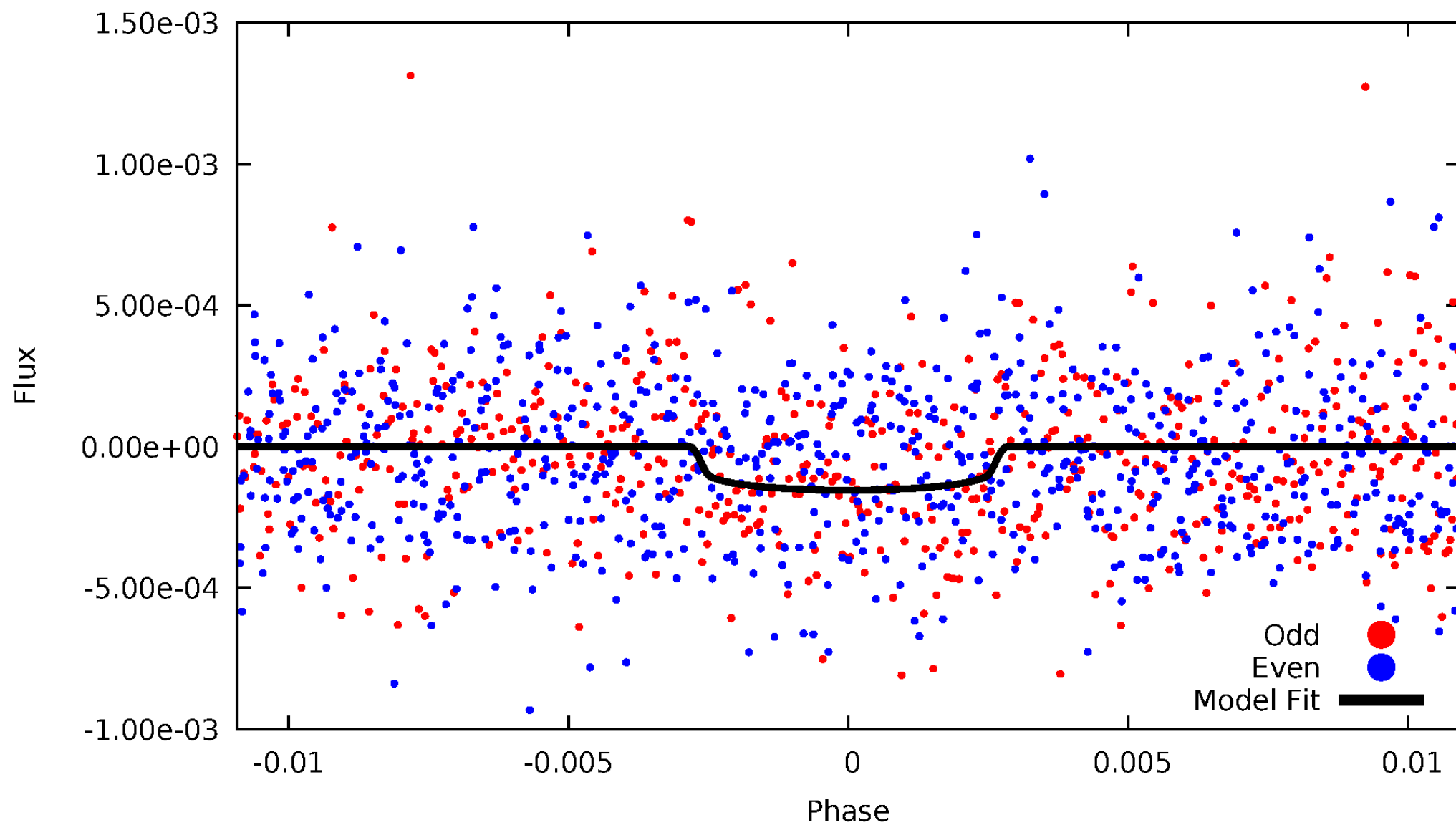


TCE 006130860-01



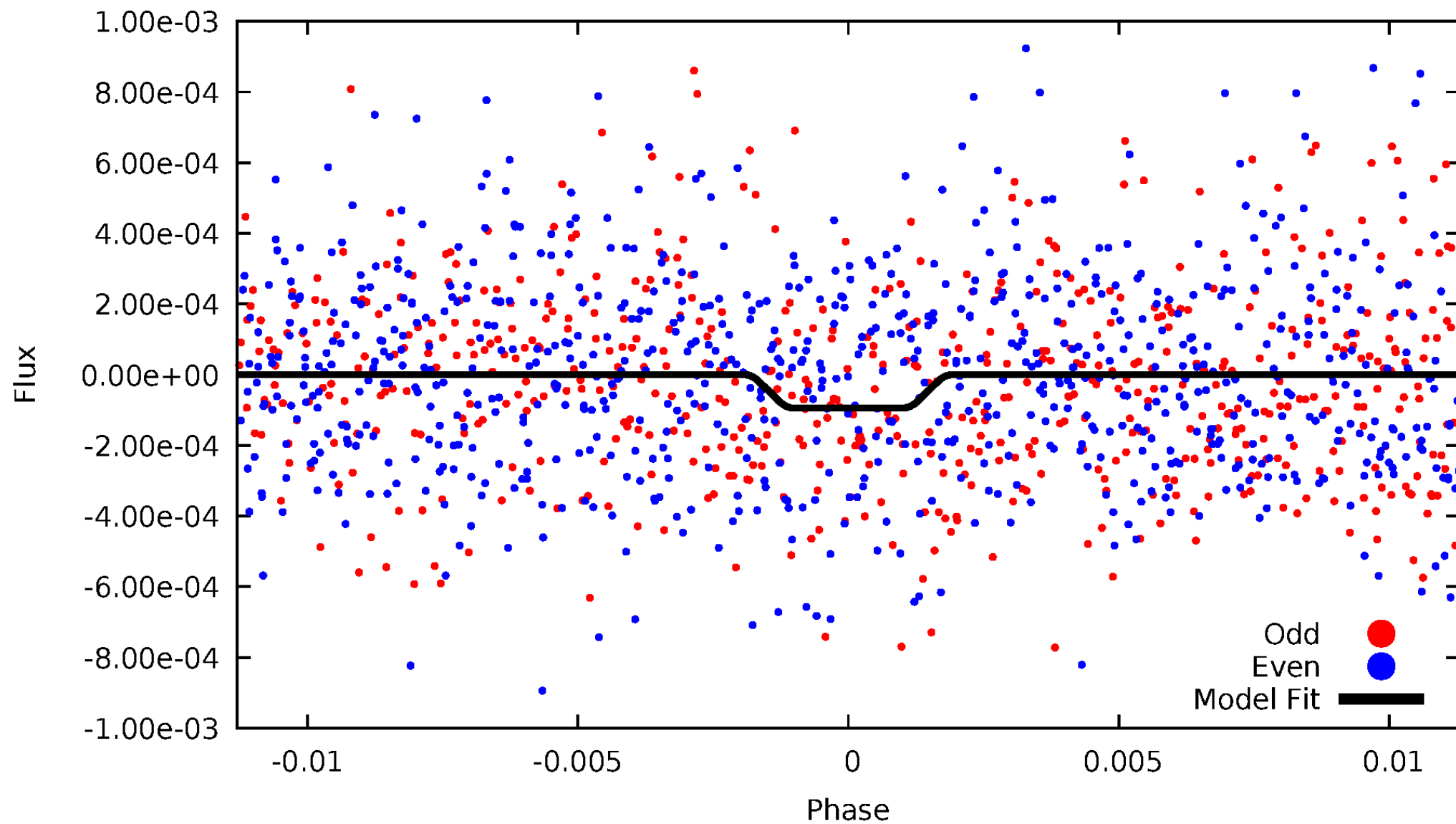
# DV Odd/Even

TCE 006130860-01

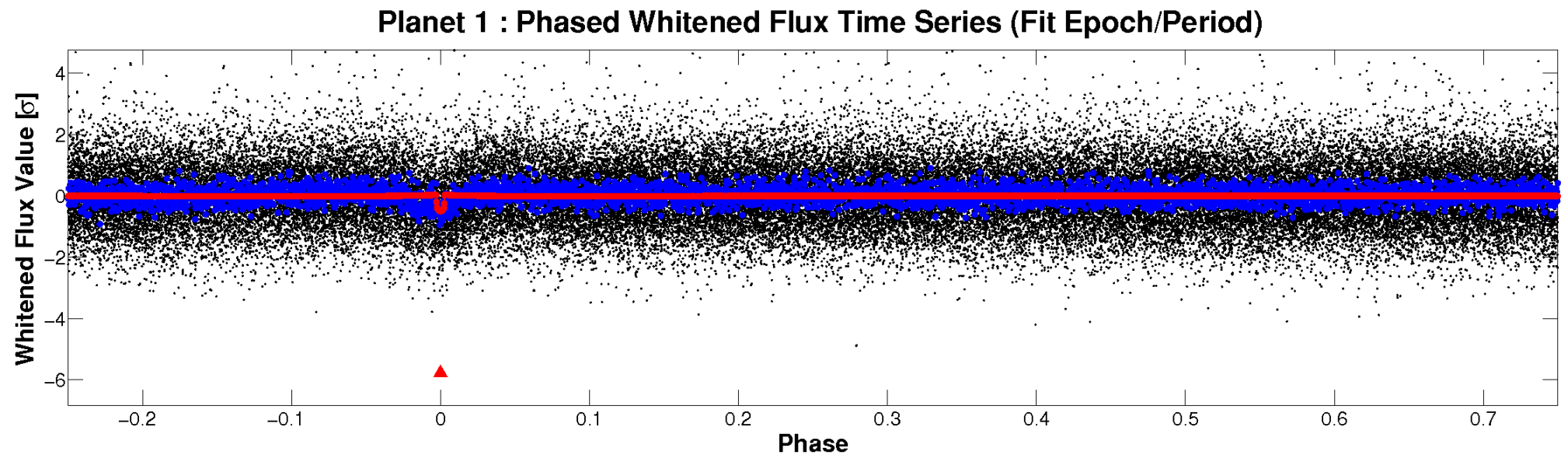
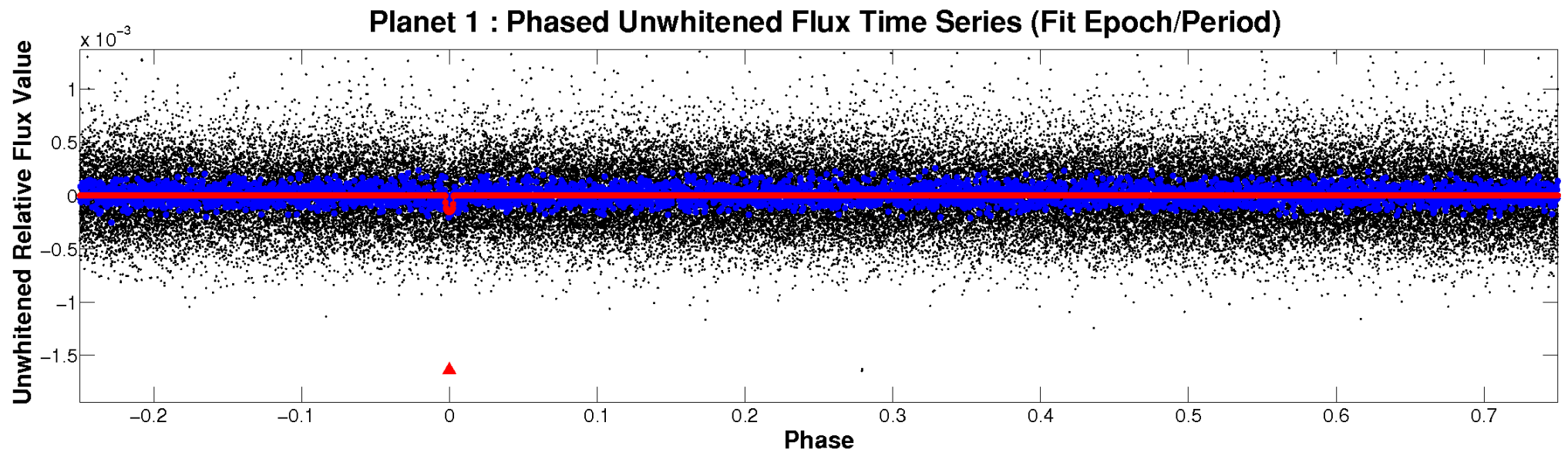


# ALT Odd/Even

TCE 006130860-01

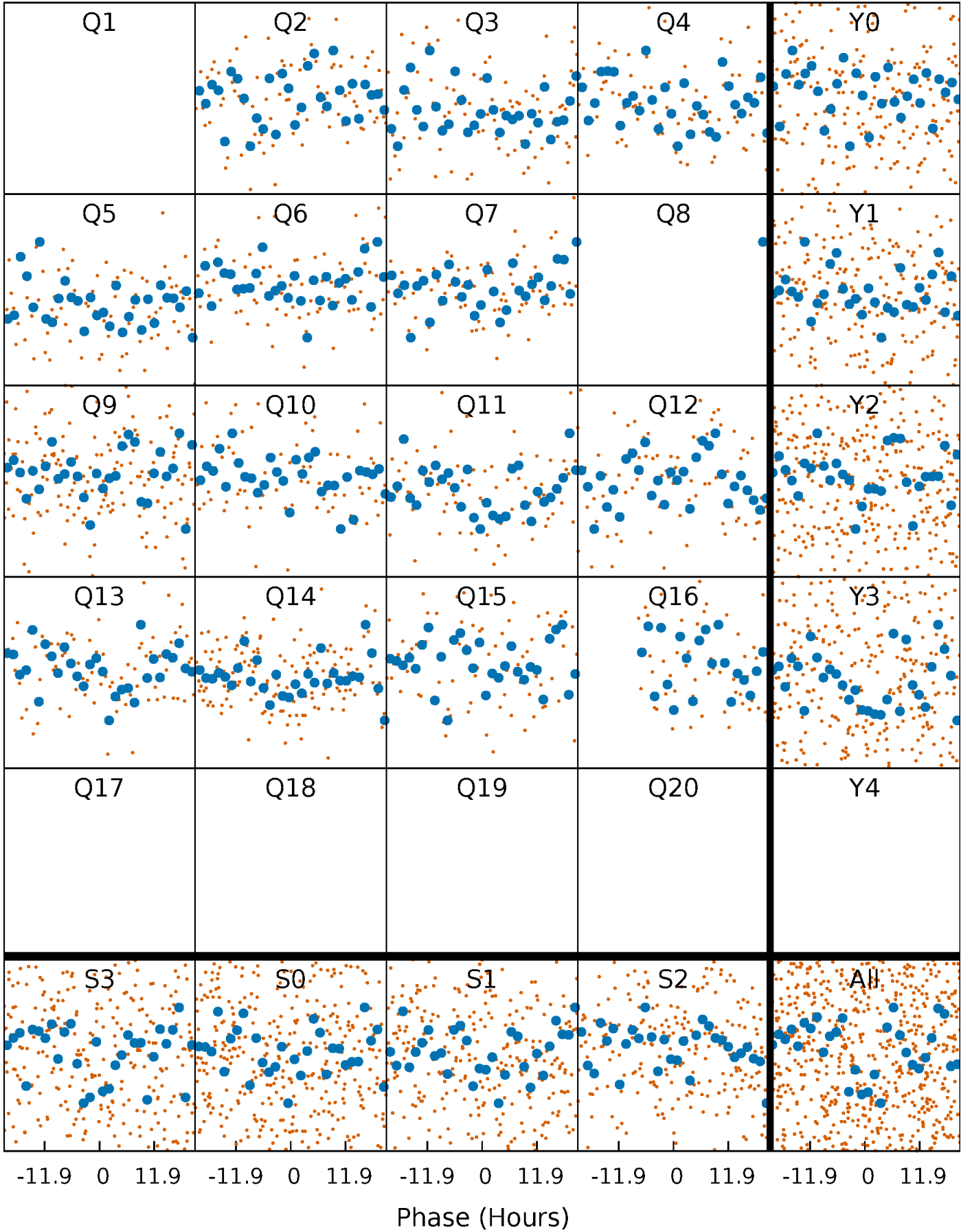


# Non-Whitened Vs. Whitened Light Curve



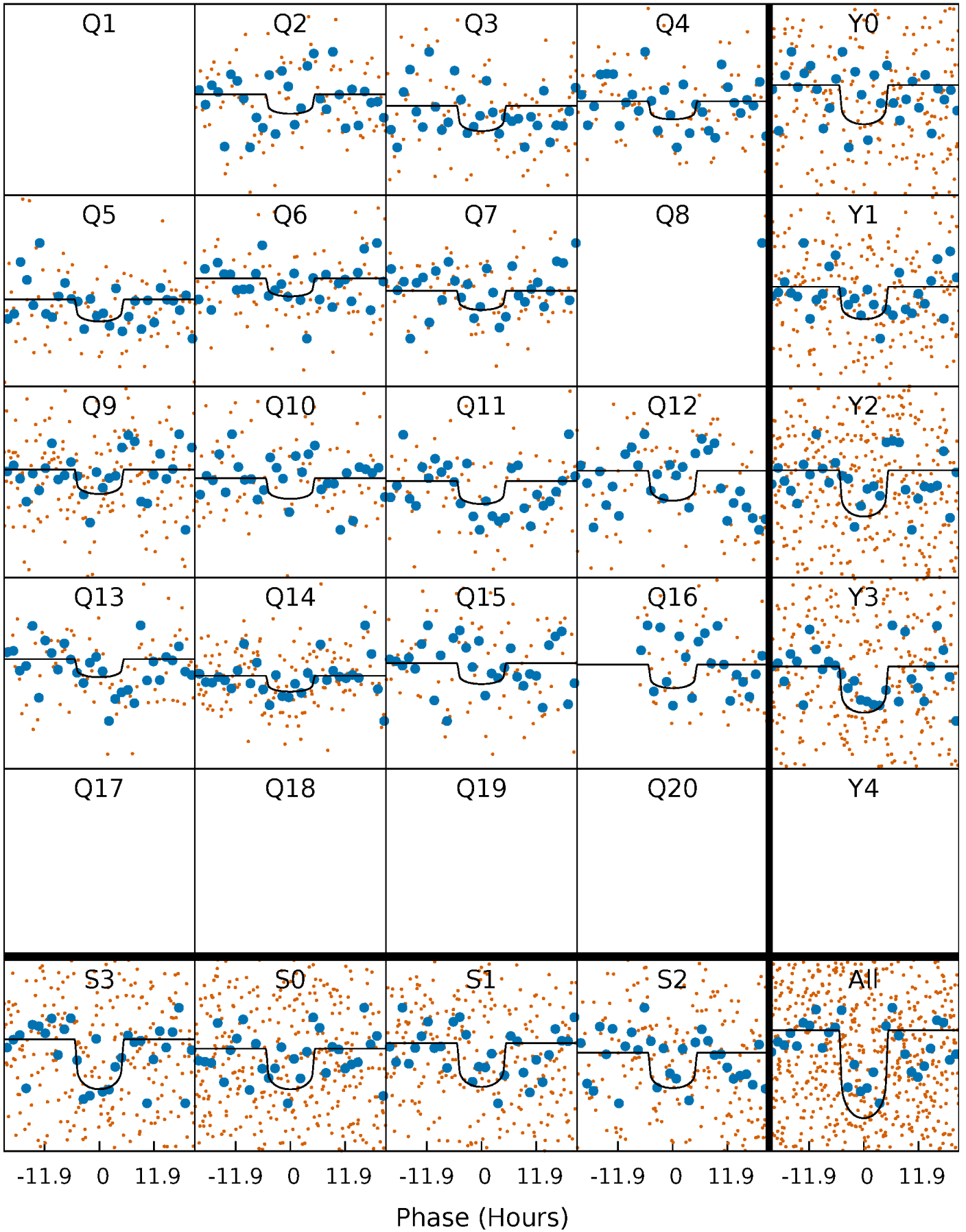
# PDC Quarter-Phased Transit Curves

TCE 006130860-01   P= 79.185332 Days    $T_0=180.307128$  (BKJD)



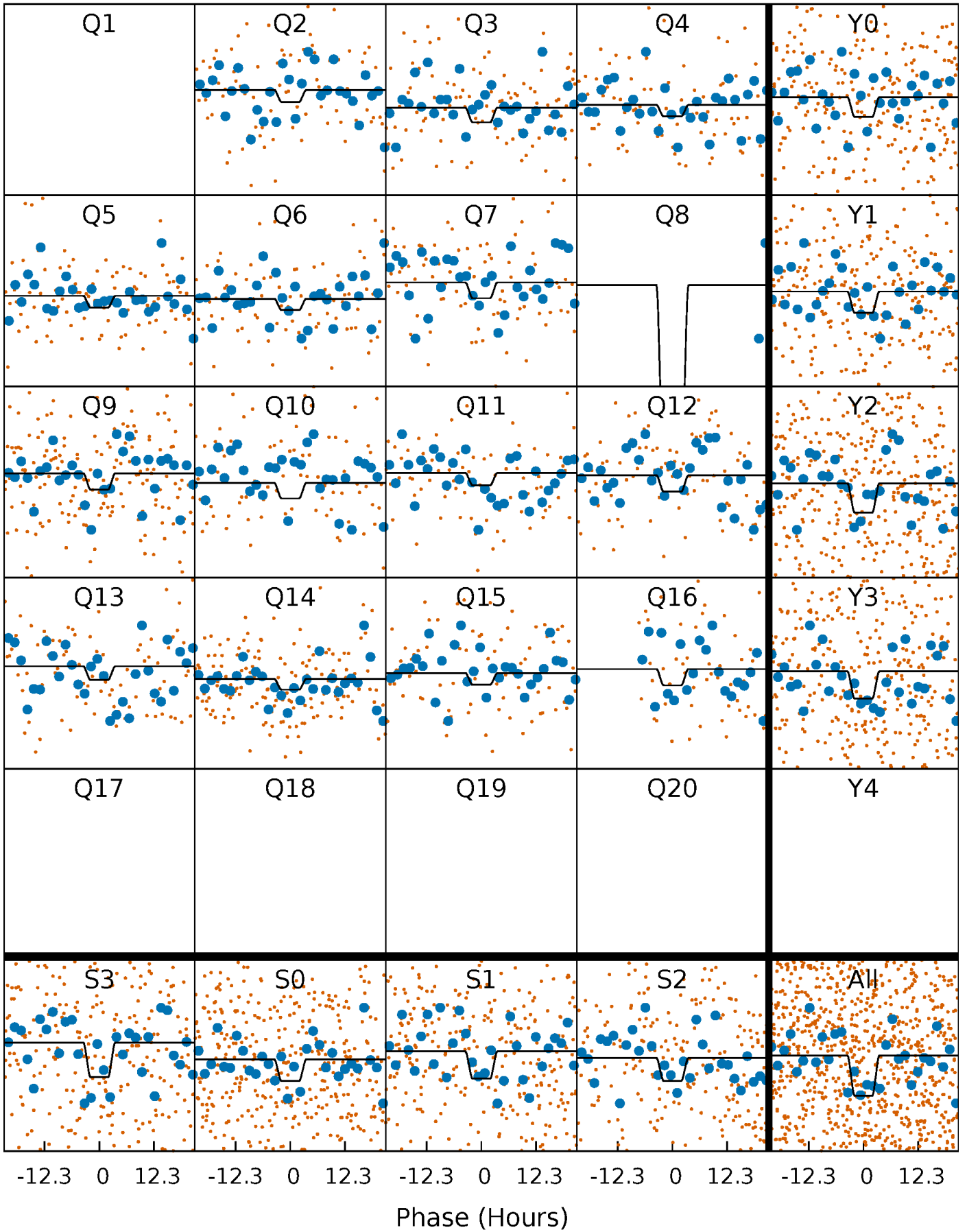
# DV Quarter-Phased Transit Curves

TCE 006130860-01 P= 79.185332 Days  $T_0=180.307128$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

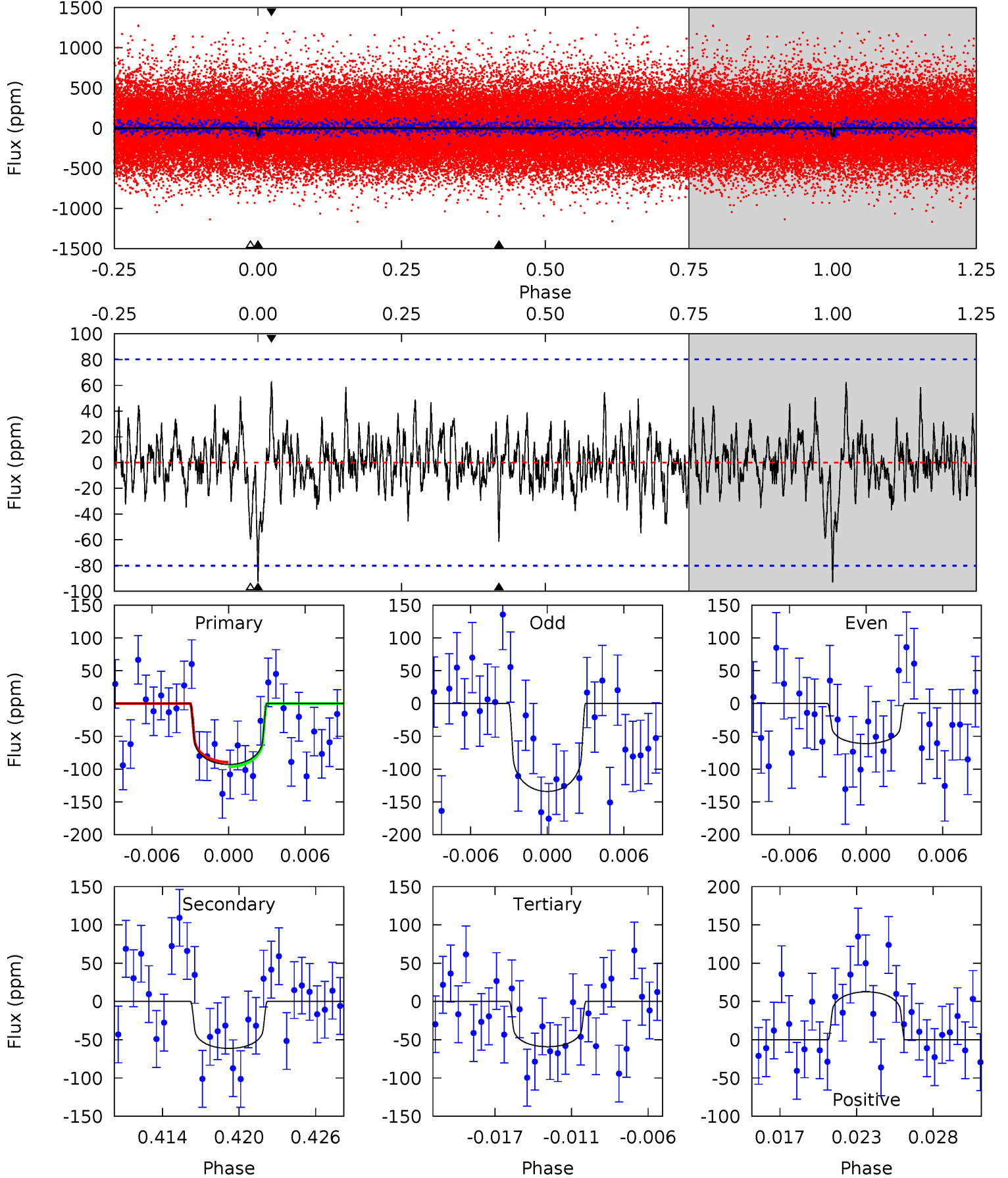
TCE 006130860-01 P= 79.185173 Days  $T_0=180.306582$  (BKJD)



# DV Model-Shift Uniqueness Test

006130860-01, P = 79.185332 Days, E = 101.121796 Days

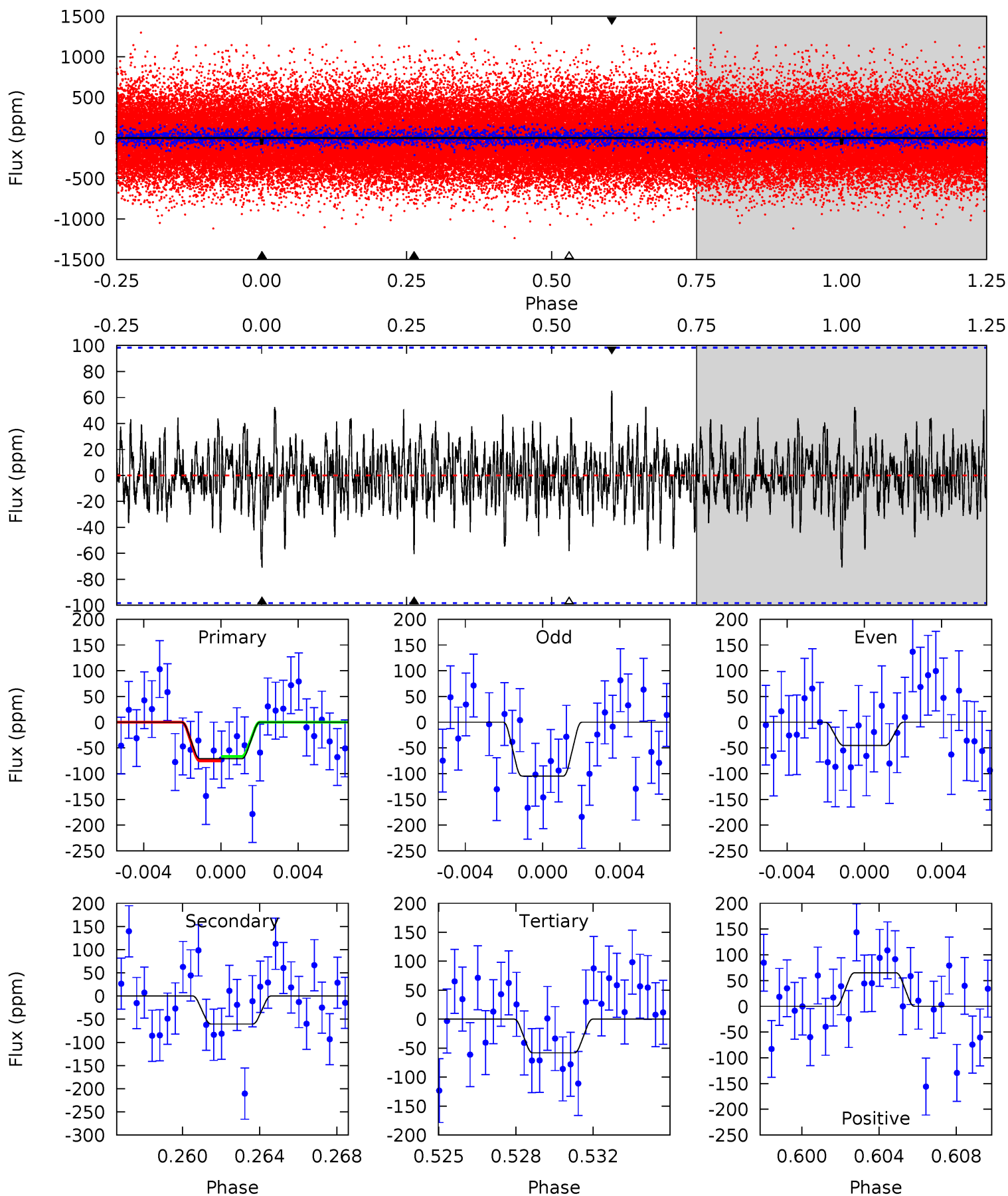
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.95 | 3.93 | 3.79 | 4.01 | 5.13            | 2.77            | 1.11             | 2.16    | 1.95    | 0.14    | -0.08   | 2.32    | 1.39 | 0.40  | 0.22 |



# Alt Model-Shift Uniqueness Test

006130860-01, P = 79.185173 Days, E = 101.121409 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.76 | 3.20 | 3.08 | 3.44 | 5.21            | 2.90            | 0.94             | 0.67    | 0.31    | 0.12    | -0.25   | 1.55    | 1.32 | 0.48  | 0.22 |



### Stellar Parameters For KIC 006130860

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5891^{+159}_{-177}$ | $4.576^{+0.035}_{-0.184}$ | $-0.480^{+0.300}_{-0.300}$ | $0.800^{+0.218}_{-0.058}$ | $0.888^{+0.087}_{-0.096}$ | $2.443^{+0.445}_{-1.184}$                 |
|        | +3%/-3%              | +1%/-4%                   | +62%/-62%                  | +27%/-7%                  | +10%/-11%                 | +18%/-48%                                 |
| 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 006130860-01 / KOI

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{max} (K)$     | $T_{obs} (K)$          | $A_{obs}$               |
|---------|--------------|------------------------|-------------------|------------------------|-------------------------|
| DV      | $-61 \pm 16$ | $1.22^{+0.83}_{-0.69}$ | $566^{+36}_{-24}$ | $4700^{+2127}_{-868}$  | $2762^{+11341}_{-1896}$ |
| Alt.    | $-60 \pm 19$ | $0.99^{+0.81}_{-0.59}$ | $563^{+36}_{-25}$ | $5002^{+2960}_{-1031}$ | $3946^{+18930}_{-2795}$ |

$T_{max}$  = 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

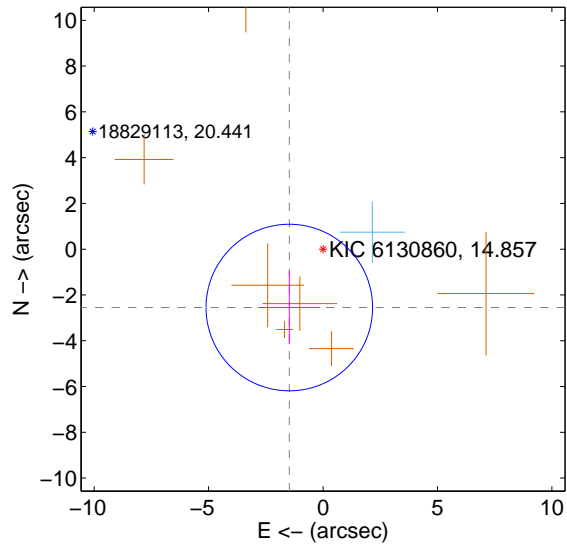
Supplemental centroid analysis for 006130860-01. Kepler magnitude: 14.86. Transit SNR 7.81

There are 1 quarters with good PRF difference image offsets

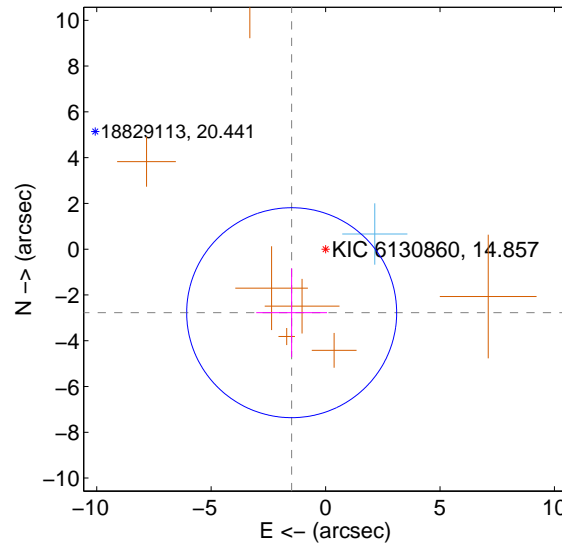
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $2.945 \pm 1.213$  | 2.43                | $1.474 \pm 1.348$ | $-2.550 \pm 1.597$ |
| PRF-fit source offset from KIC position | $3.146 \pm 1.529$  | 2.06                | $1.481 \pm 1.545$ | $-2.775 \pm 1.937$ |
| photometric centroid source offset      | $3.29 \pm 1.84$    | 1.79                | $-2.95 \pm 1.89$  | $-1.47 \pm 1.61$   |

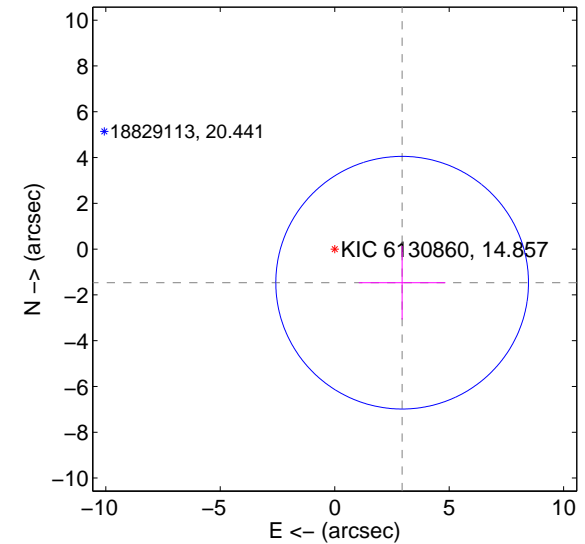
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

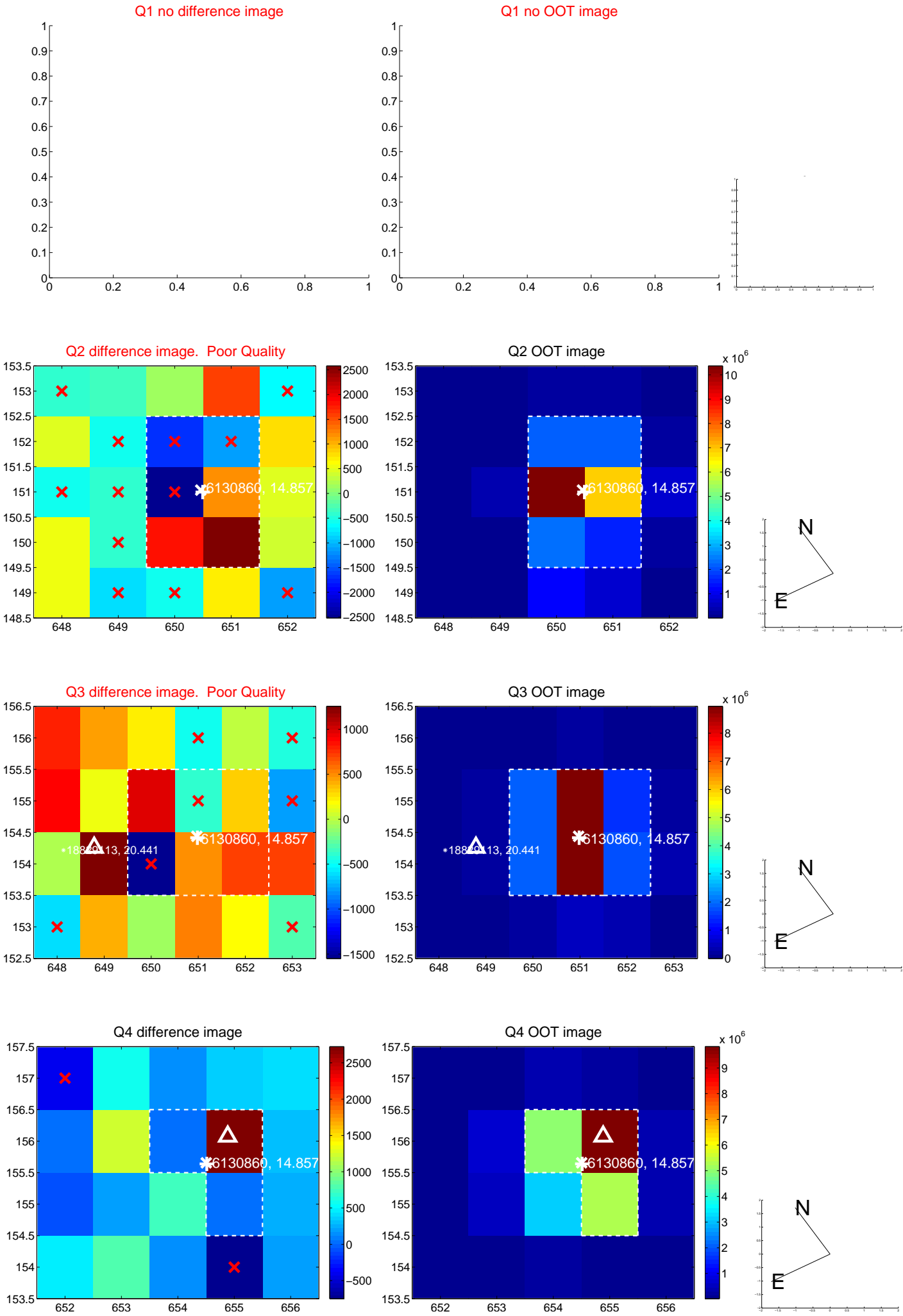


offset from photometric centroids

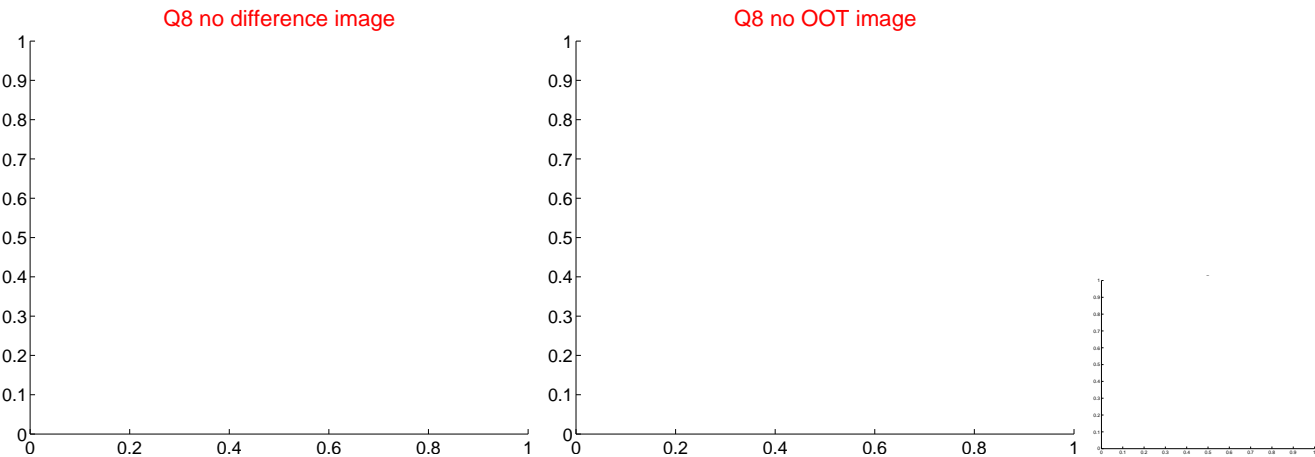
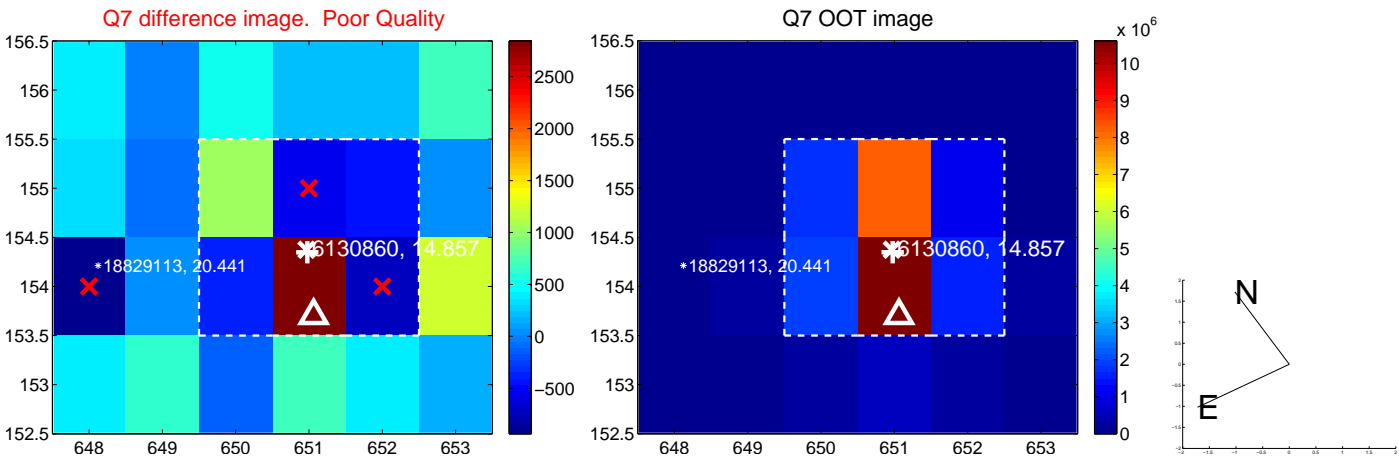
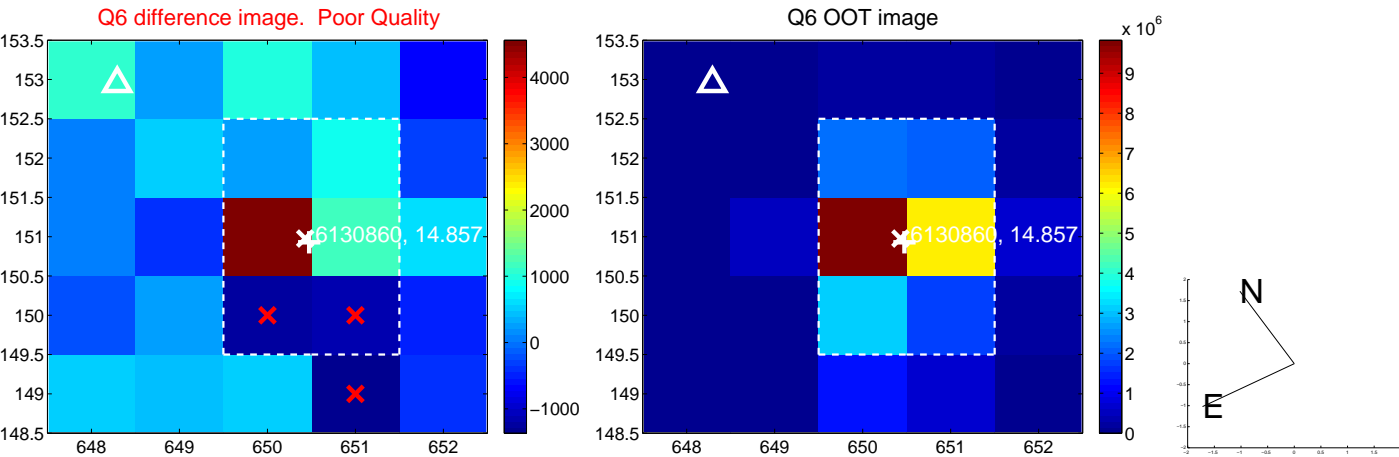
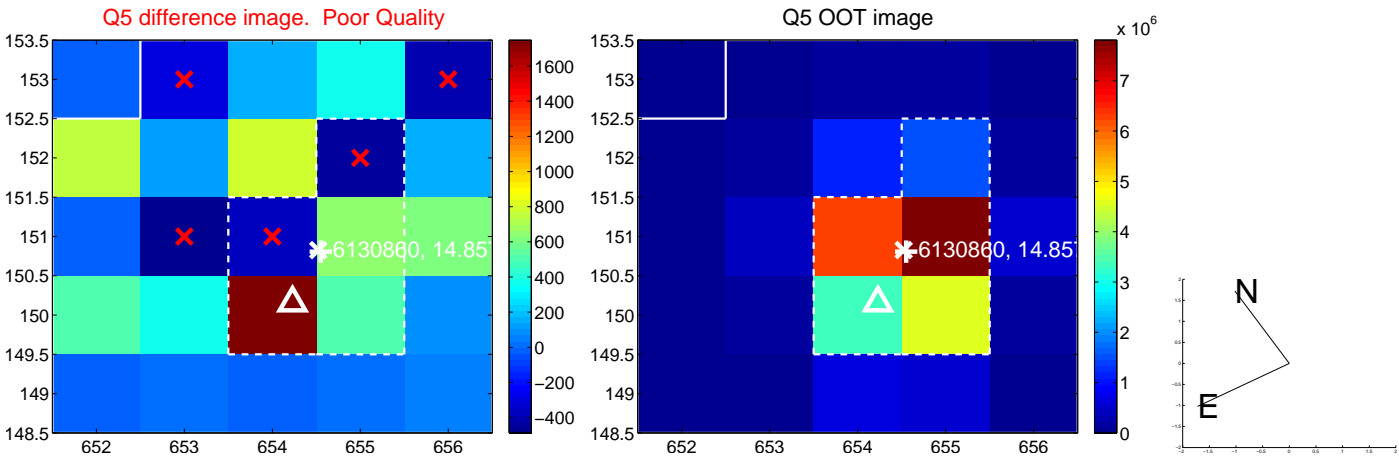


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

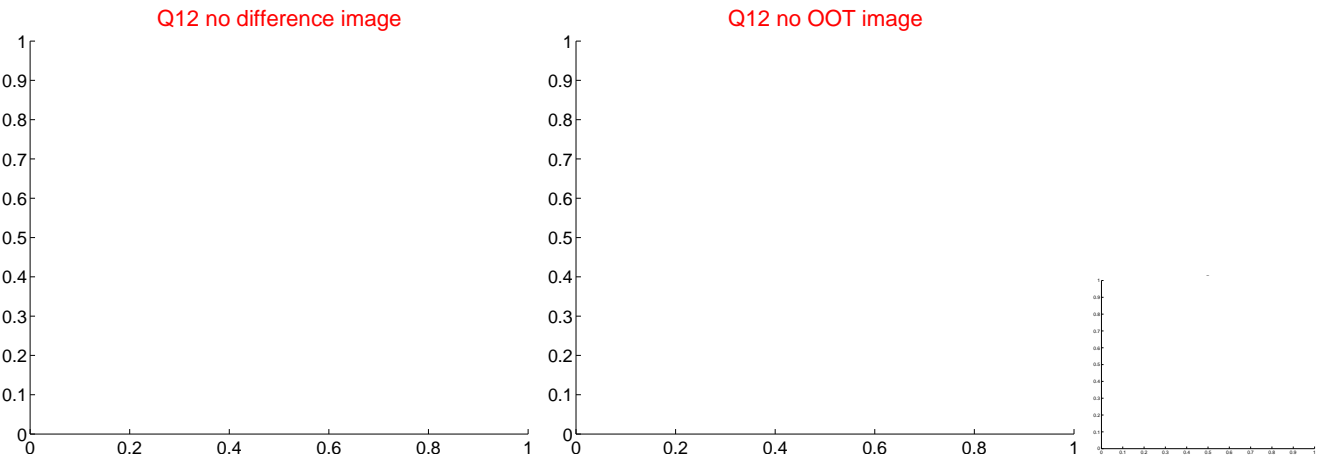
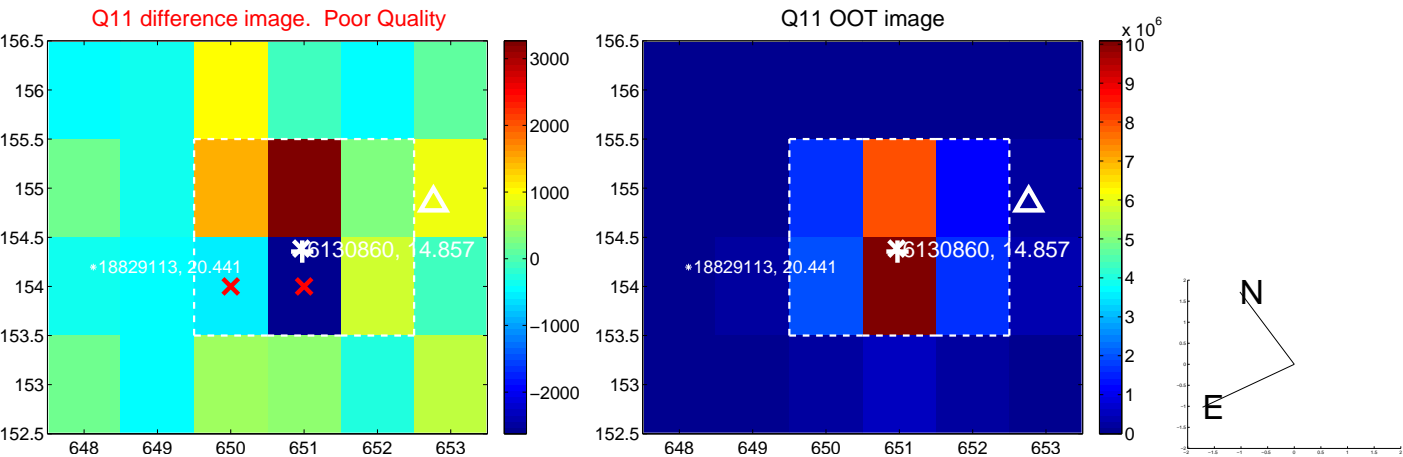
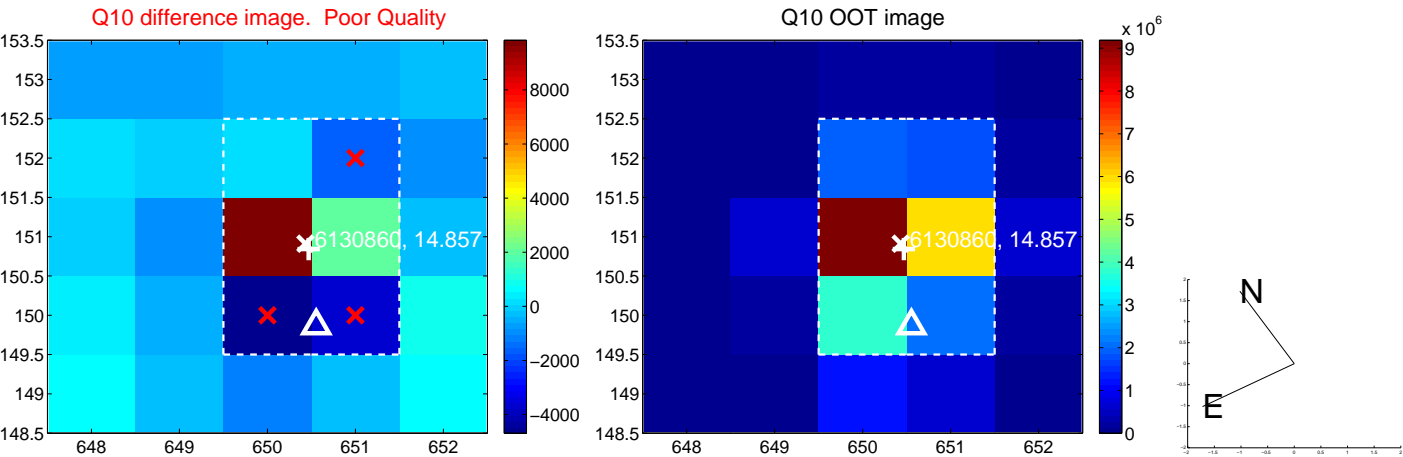
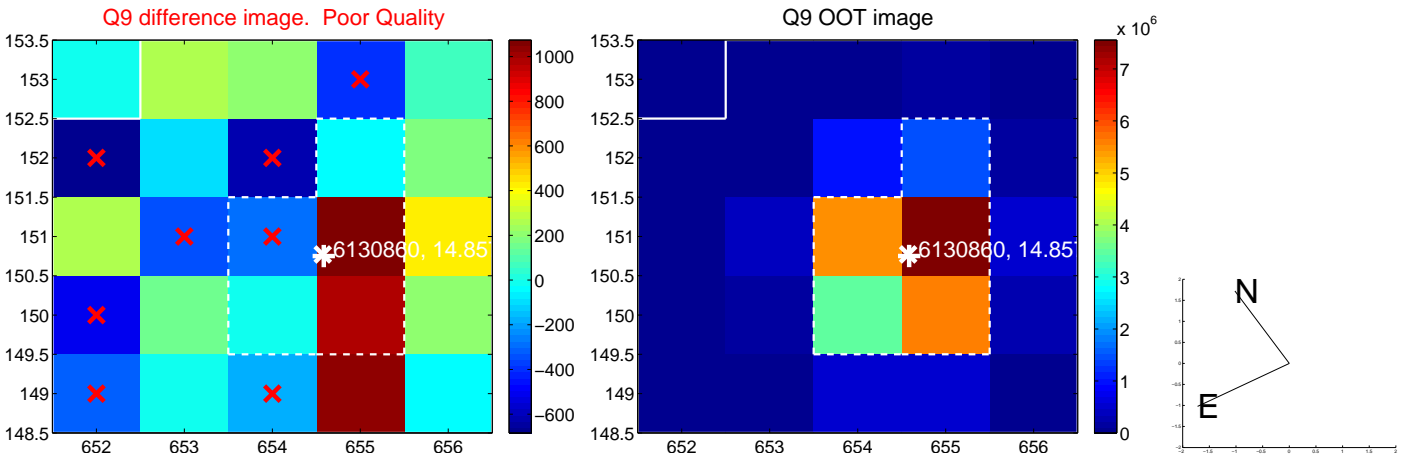
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



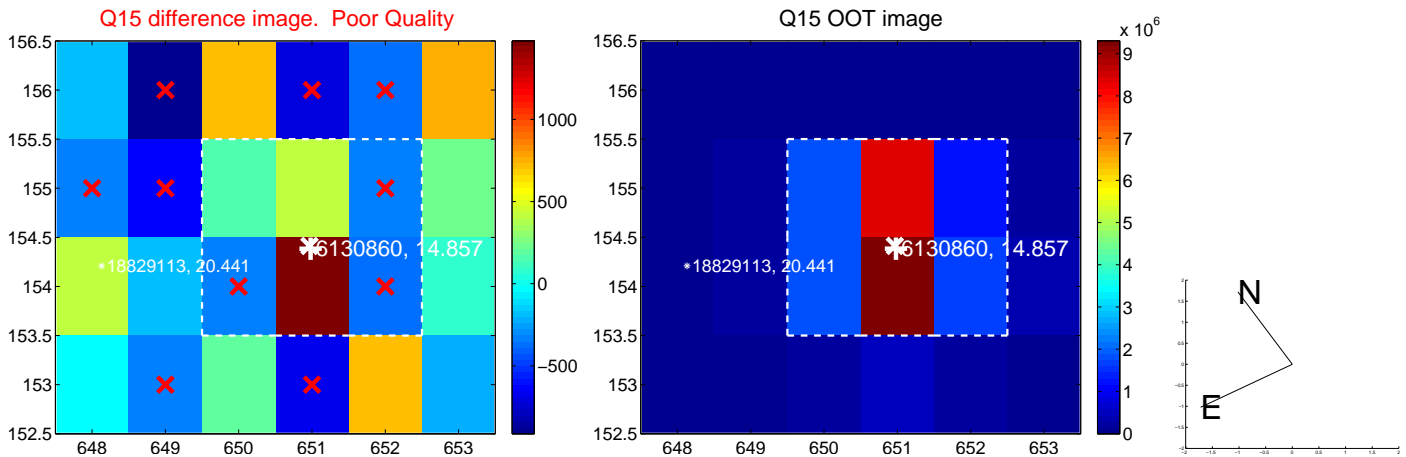
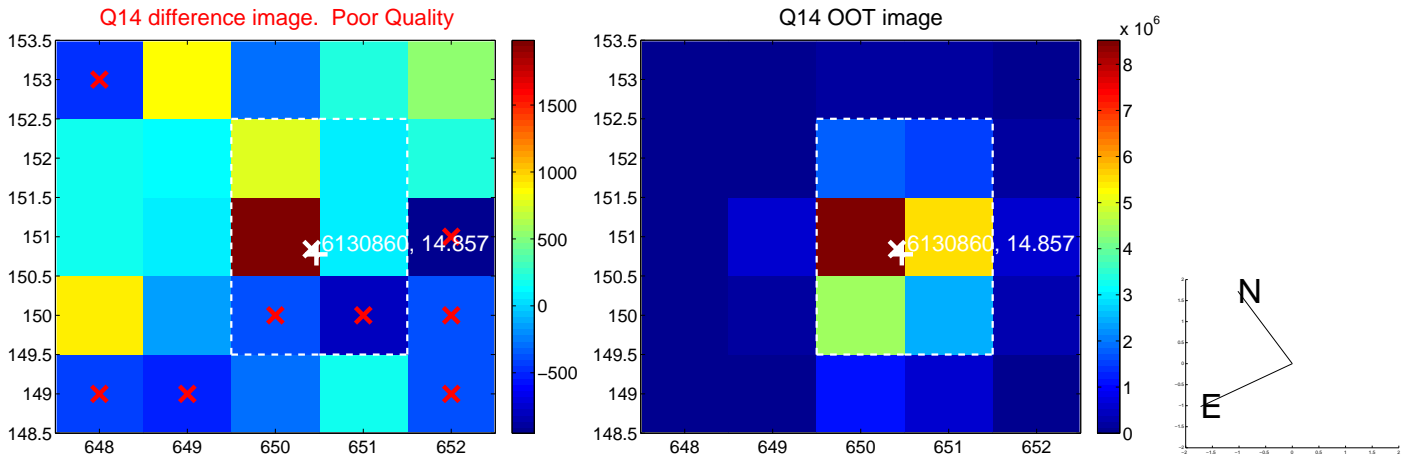
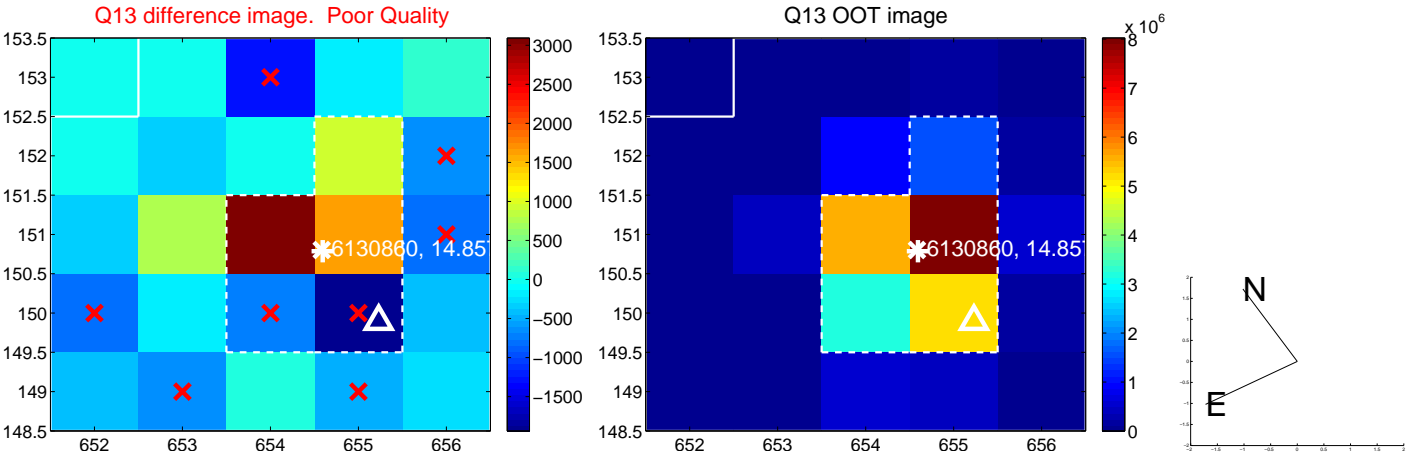
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



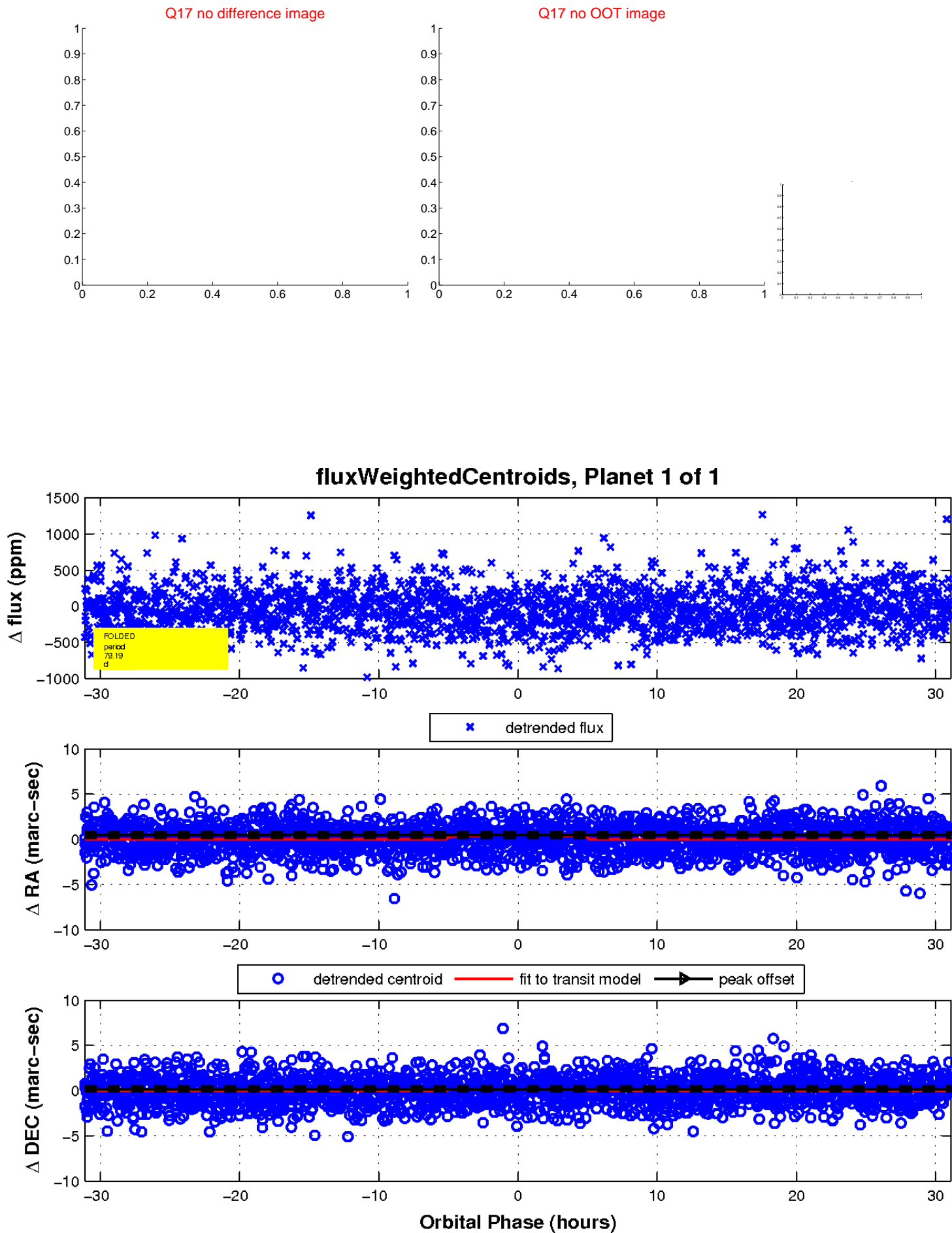
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

