

# KIC 003130300

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 003130300-01 | OBS      | 1105.01 | 5.765739      | 133.308323   | 230.7       | 2.926            | 18.8 | 19.6 | 4.43                        | 5772            | 7.91                   | 3523.09                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                        |
|--------------|----------|------|-------|---|---|---|---|---------------------------------|
| 003130300-01 | OBS      | FP   | 0.00  | 0 | 0 | 1 | 0 | CENT_RESOLVED_OFFSET—HALO_GHOST |

**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.

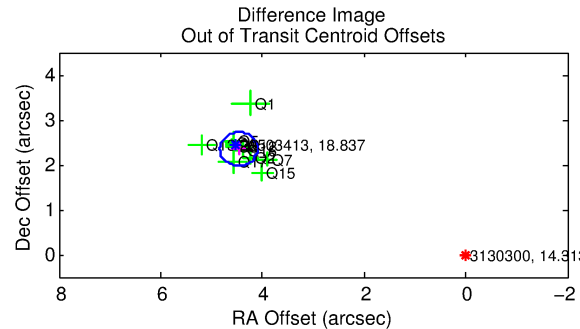
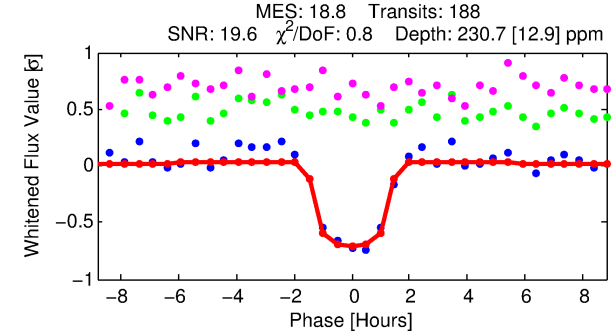
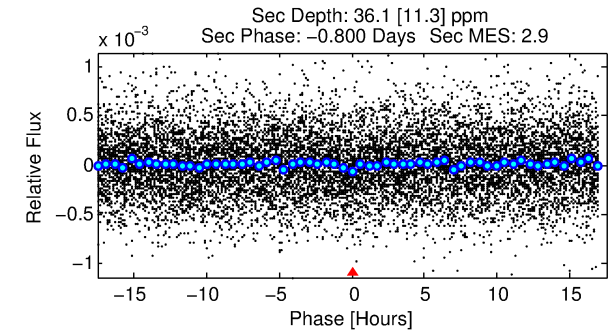
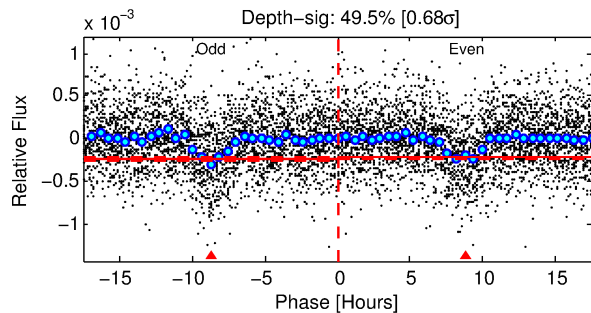
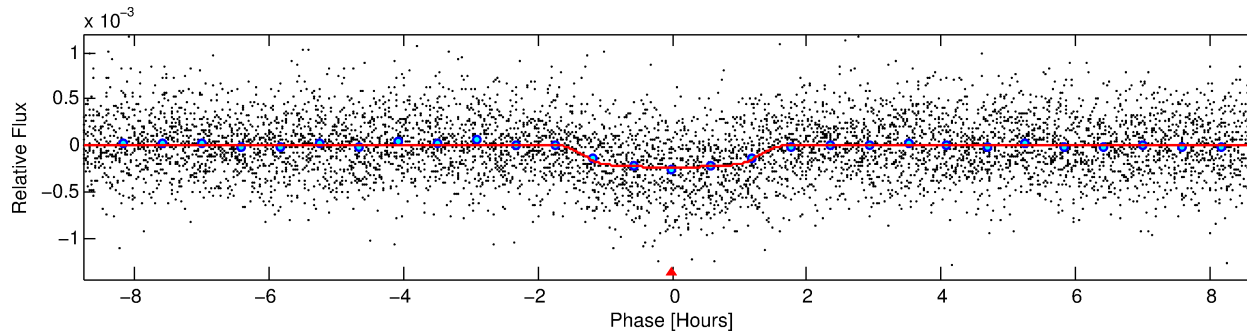
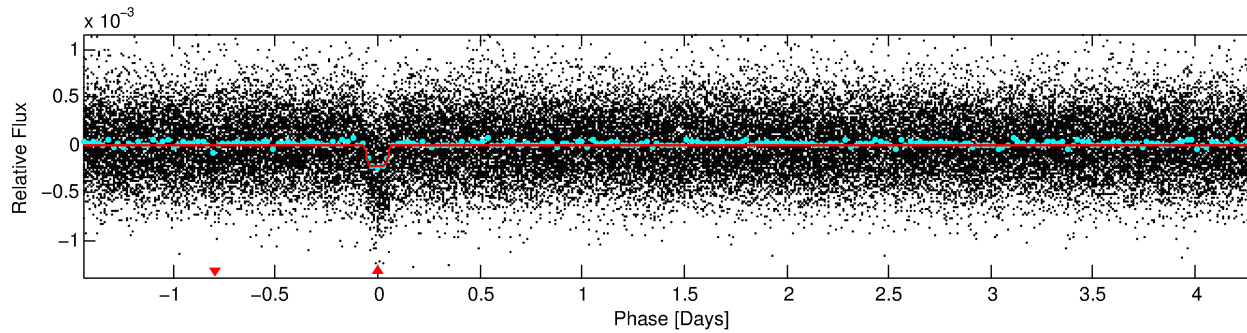
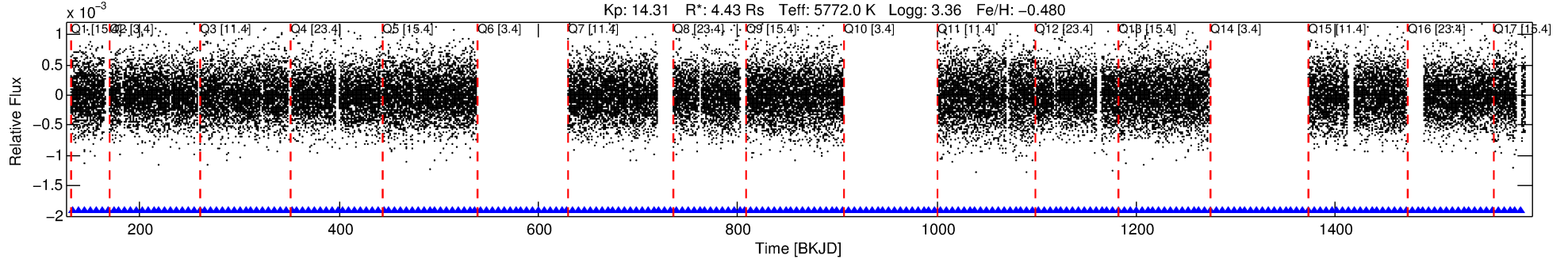
## Ephemeris Match Information For 003130300-01

No Significant Match Found

# DV One-Page Summary

KIC: 3130300 Candidate: 1 of 1 Period: 5.766 d  
KOI: K01105.01 Corr: 0.970

Kp: 14.31 R\*: 4.43 Rs Teff: 5772.0 K Logg: 3.36 Fe/H: -0.480



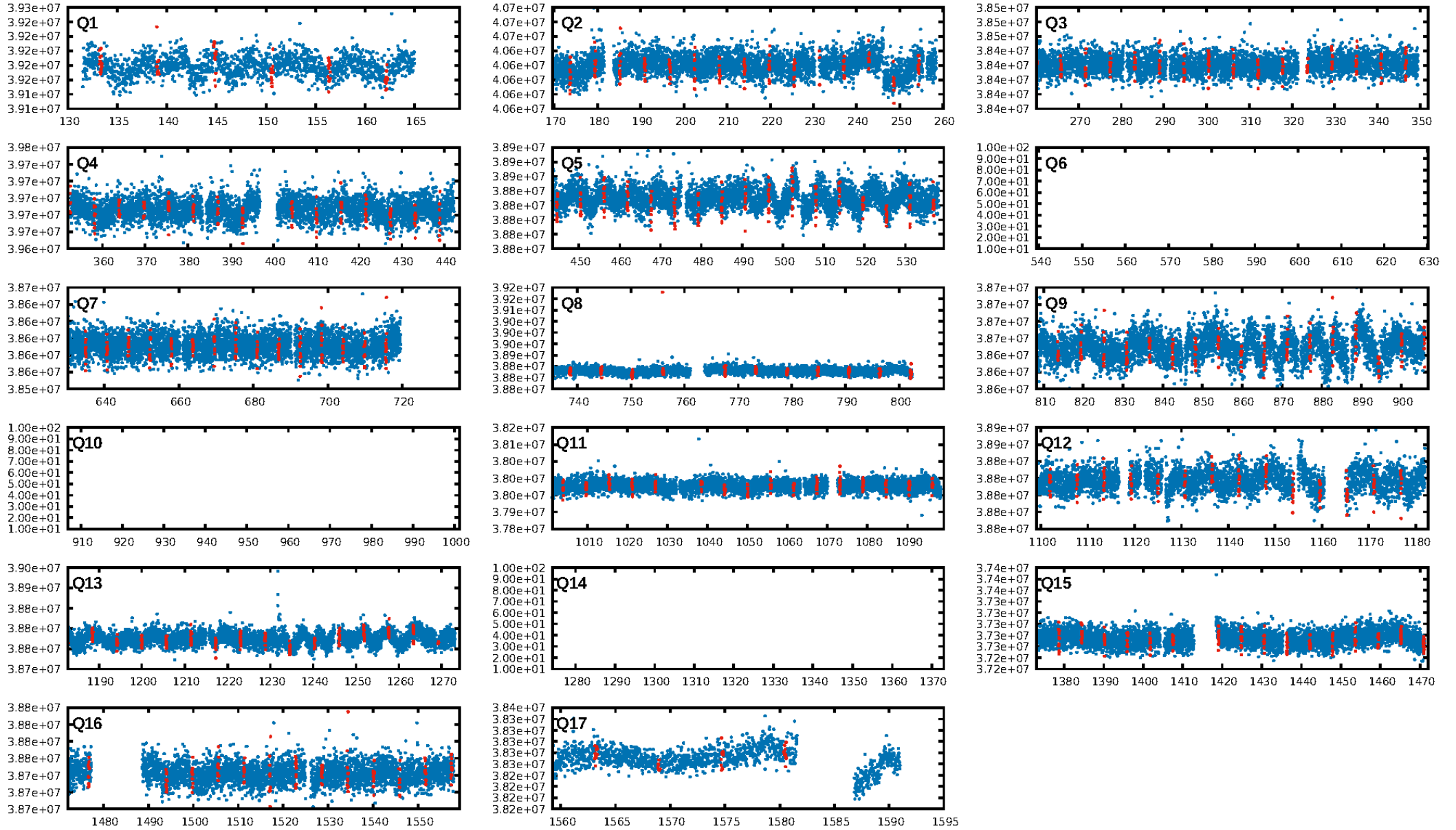
## DV Fit Results:

Period = 5.76574 [0.00002] d  
Epoch = 133.3083 [0.0027] BKJD  
Rp/R\* = 0.0163 [0.0043]  
a/R\* = 7.31 [9.60]  
b = 0.89 [0.30]  
Seff = 3523.09 [1606.39]  
Teq = 1965 [224] K  
Rp = 7.91 [3.36] Re  
a = 0.0745 [0.0222] AU  
Ag = 1.76 [1.34] [0.57σ]  
Teffp = 3500 [536] K [2.65σ]

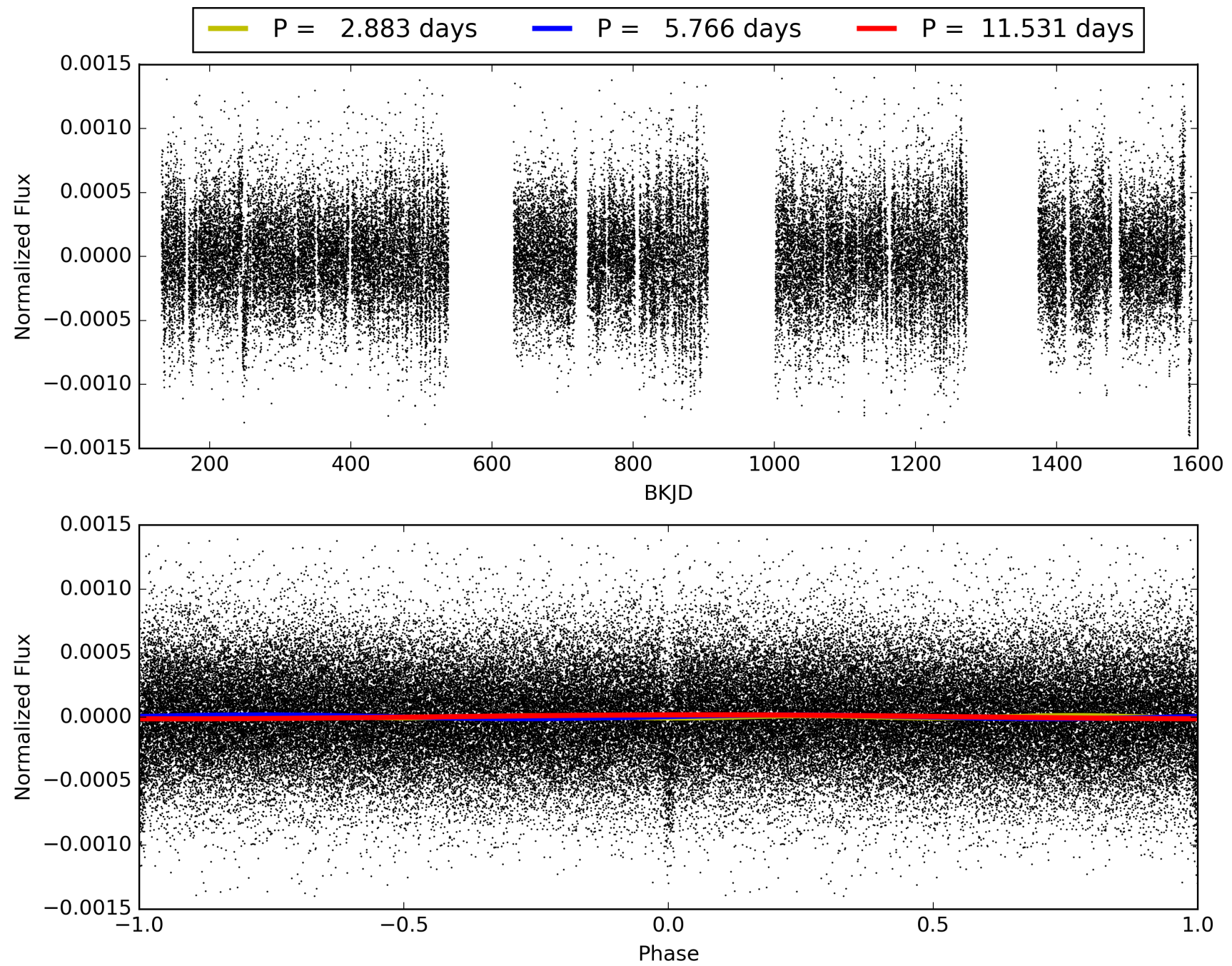
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 59.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.81e-77  
RollingBand-fgt: 1.00 [178/178]  
GhostDiagnostic-chr: 0.1973  
Centroid-sig: 0.0%  
Centroid-so: 11.028 arcsec [16.73σ]  
OotOffset-rm: 5.047 arcsec [40.57σ]  
KicOffset-rm: 5.090 arcsec [34.56σ]  
OotOffset-st: 1/2/4/5 [12]  
KicOffset-st: 1/2/4/5 [12]  
DiffImageQuality-fgm: 1.00 [12/12]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003130300-01, PDC Light Curves

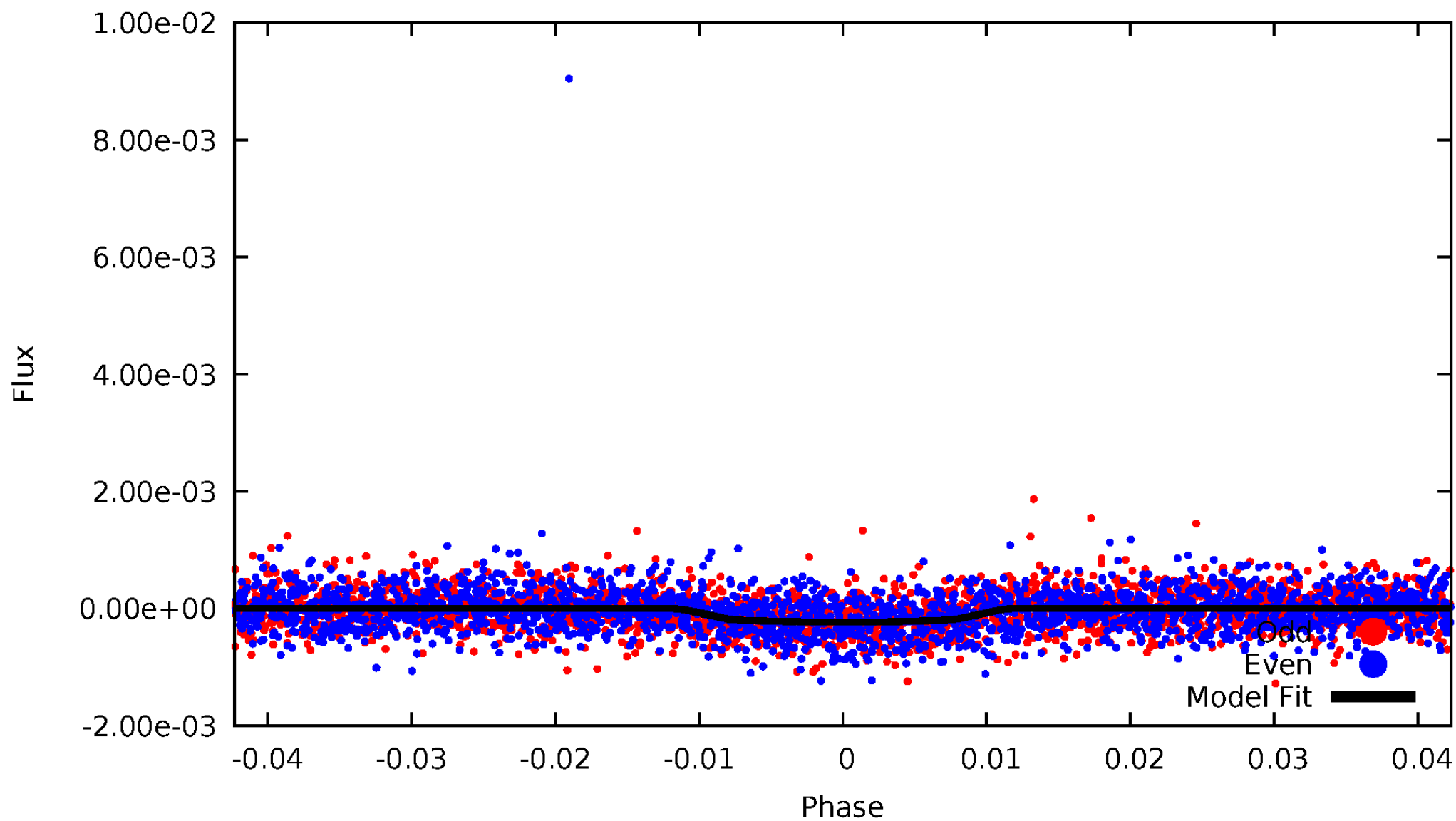


TCE 003130300-01



# DV Odd/Even

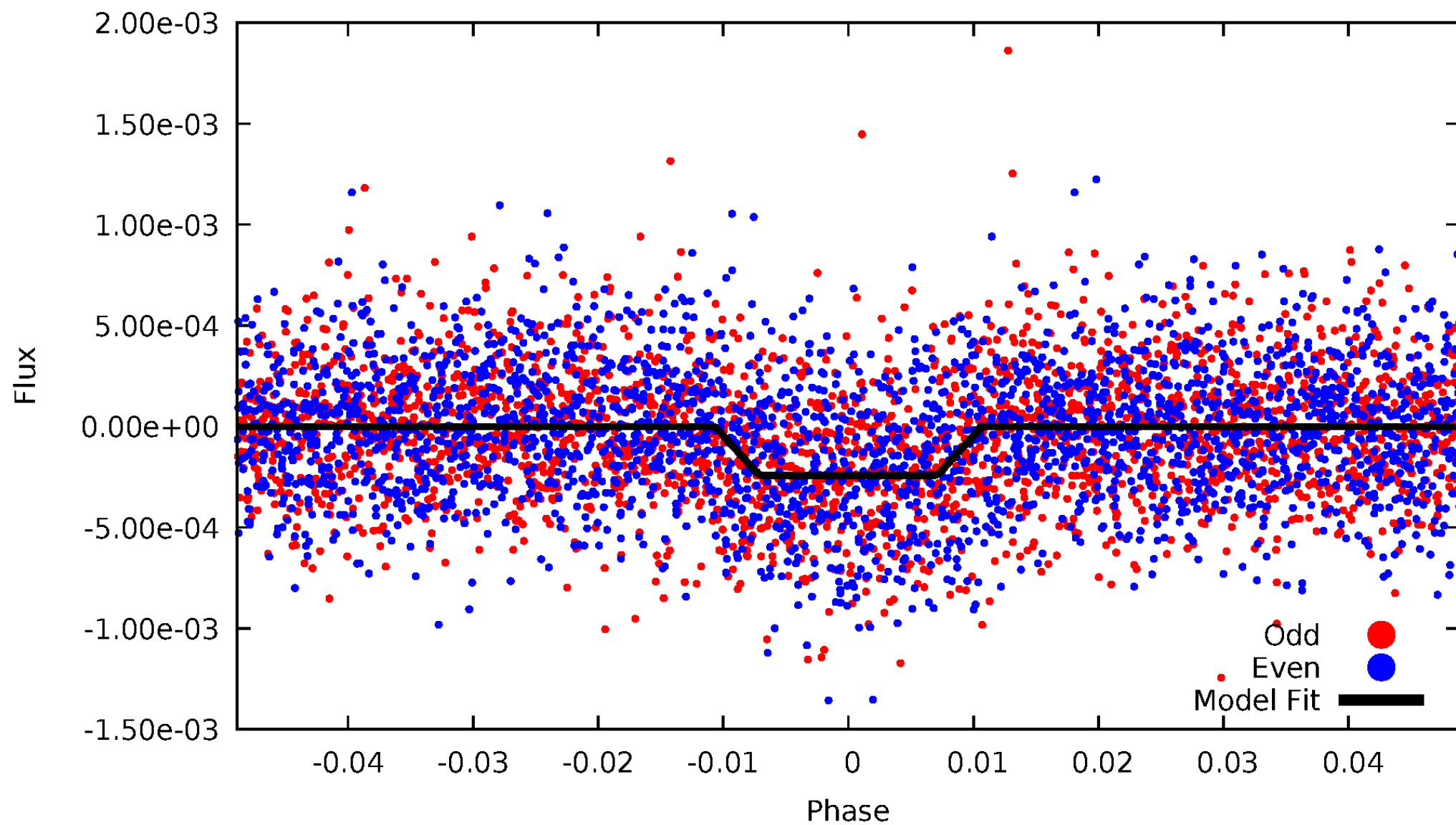
TCE 003130300-01





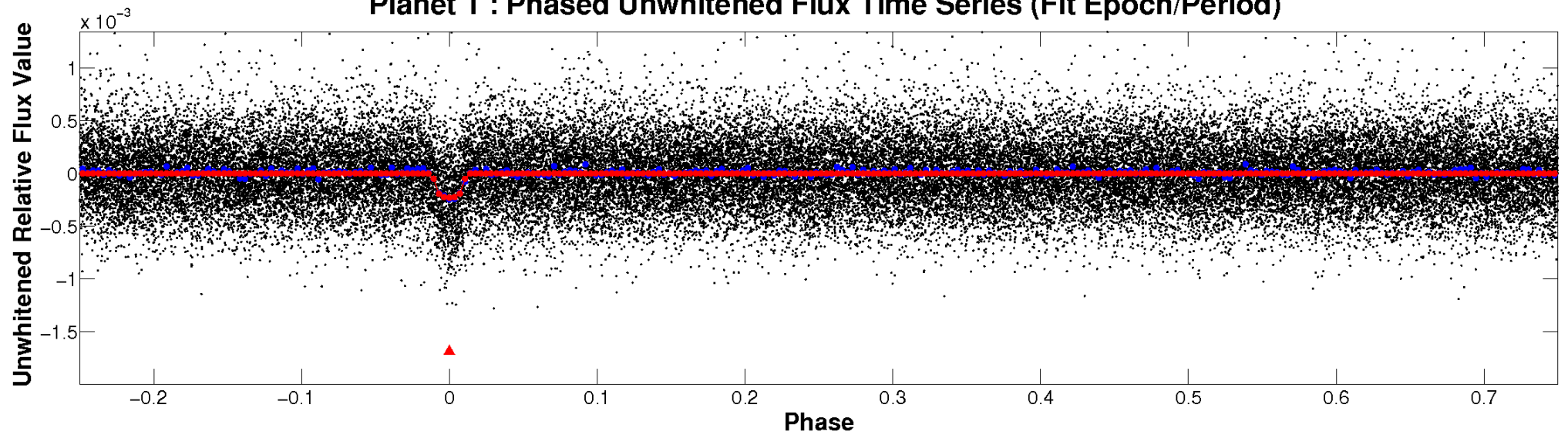
# ALT Odd/Even

TCE 003130300-01

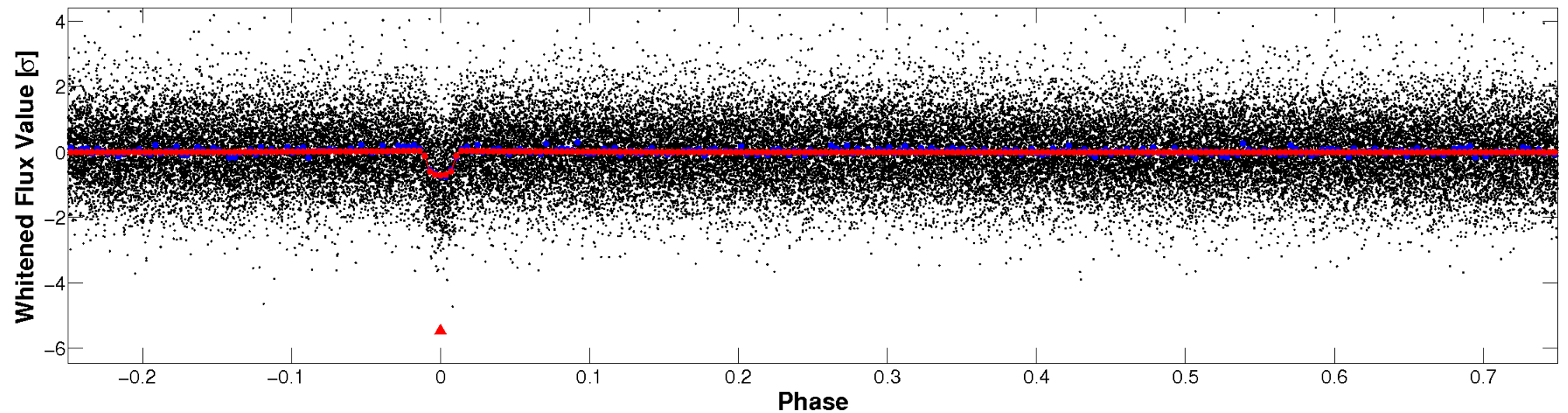


# Non-Whitened Vs. Whitened Light Curve

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

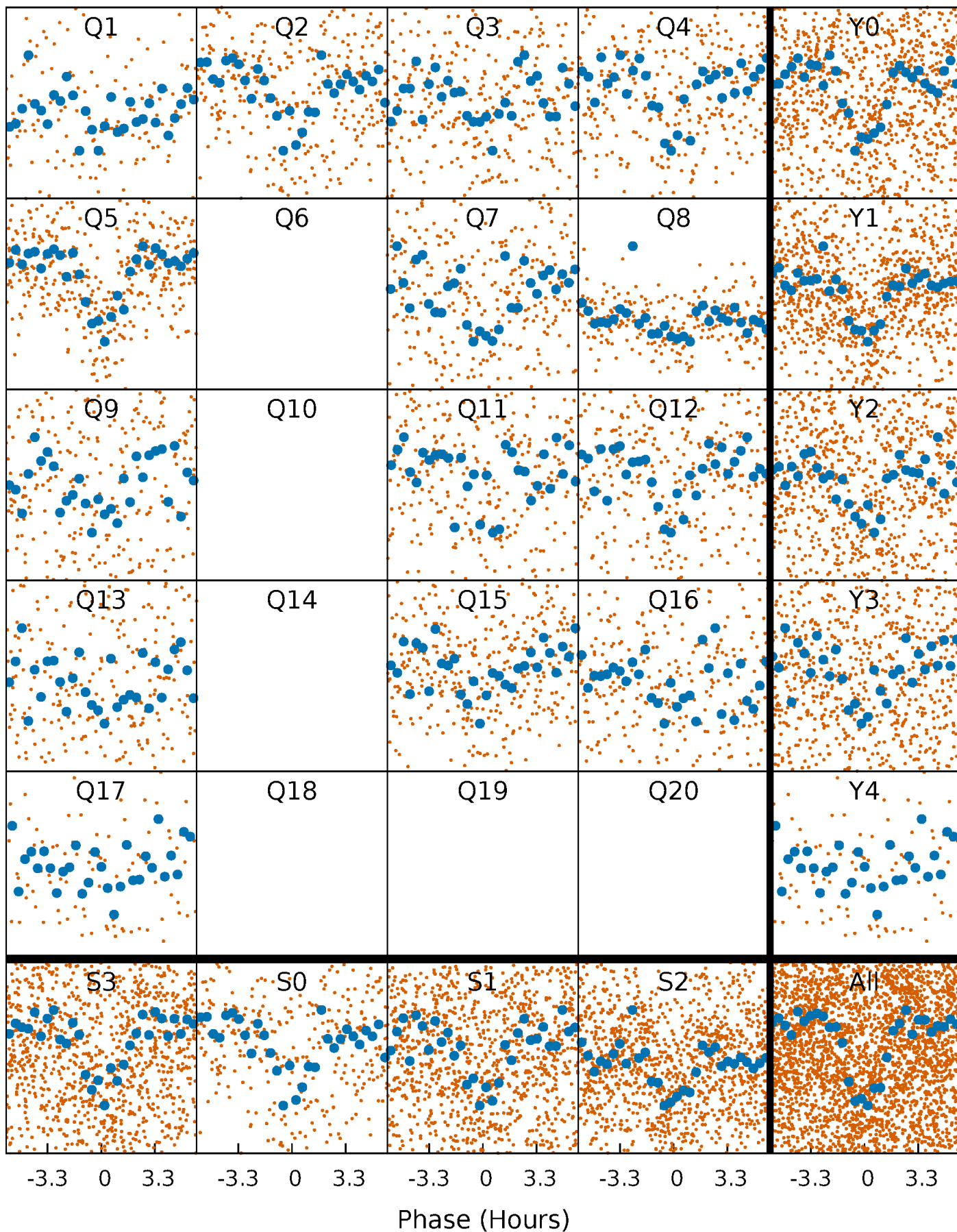


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

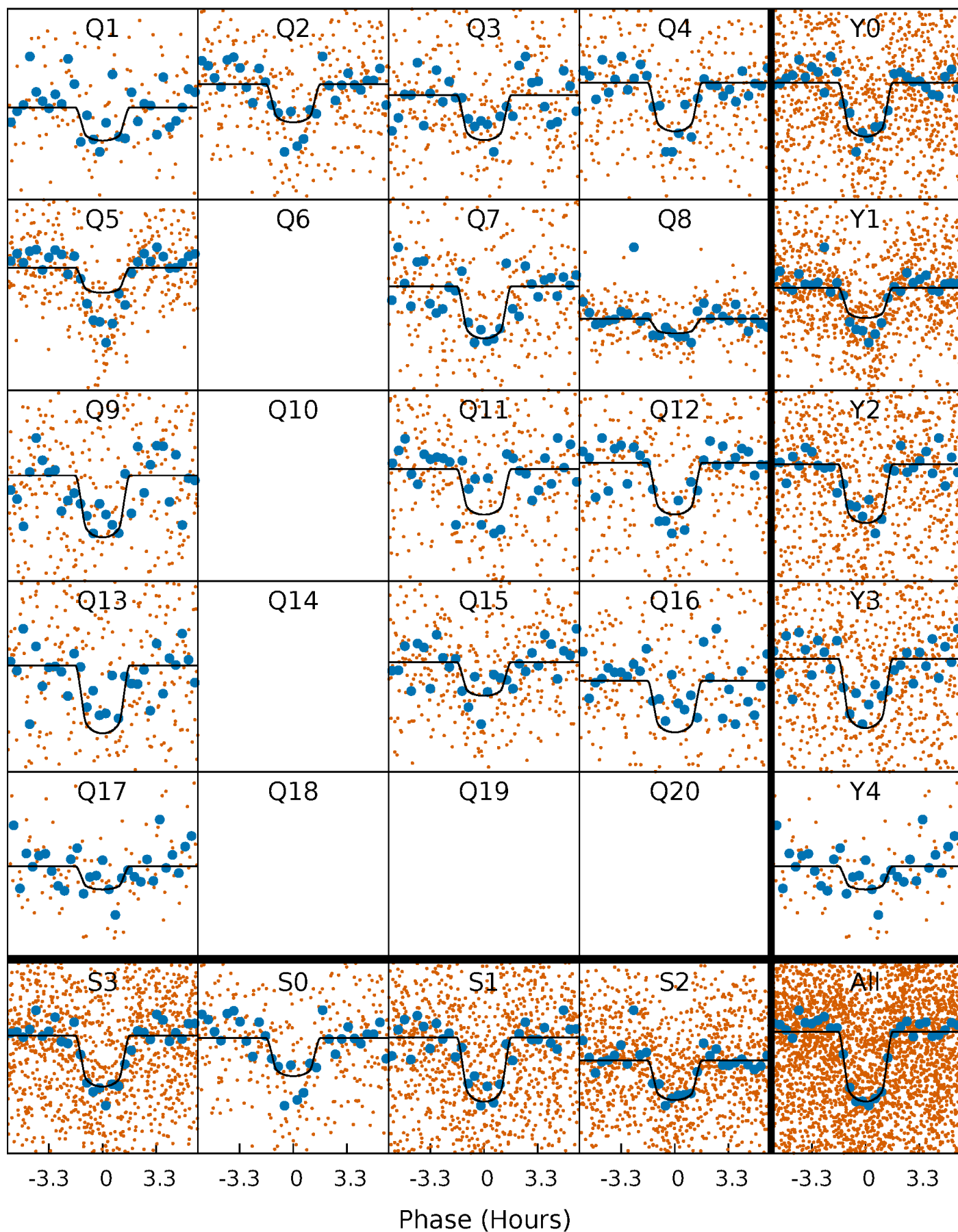
TCE 003130300-01   P= 5.765739 Days    $T_0=133.308323$  (BKJD)





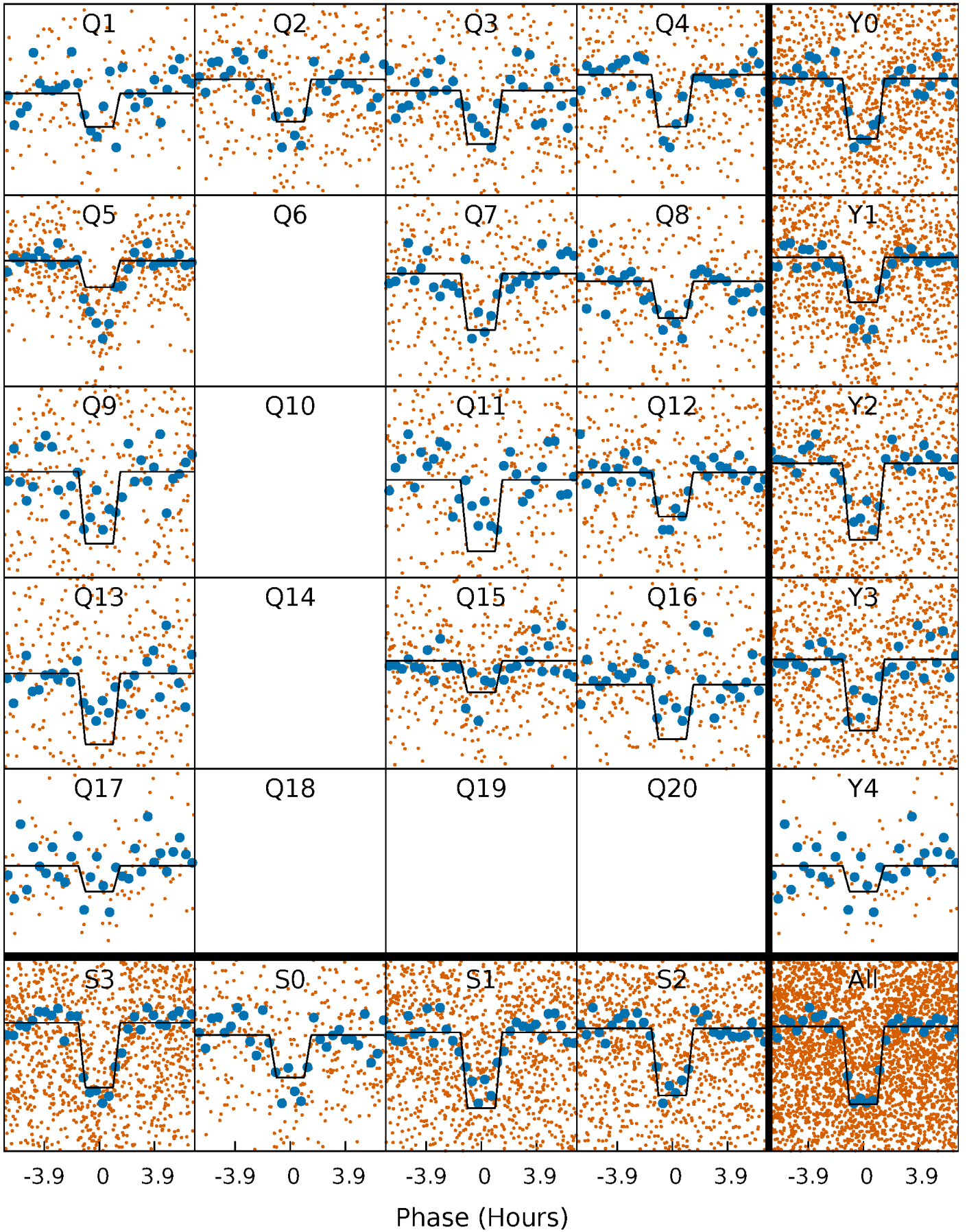
# DV Quarter-Phased Transit Curves

TCE 003130300-01 P= 5.765739 Days  $T_0=133.308323$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

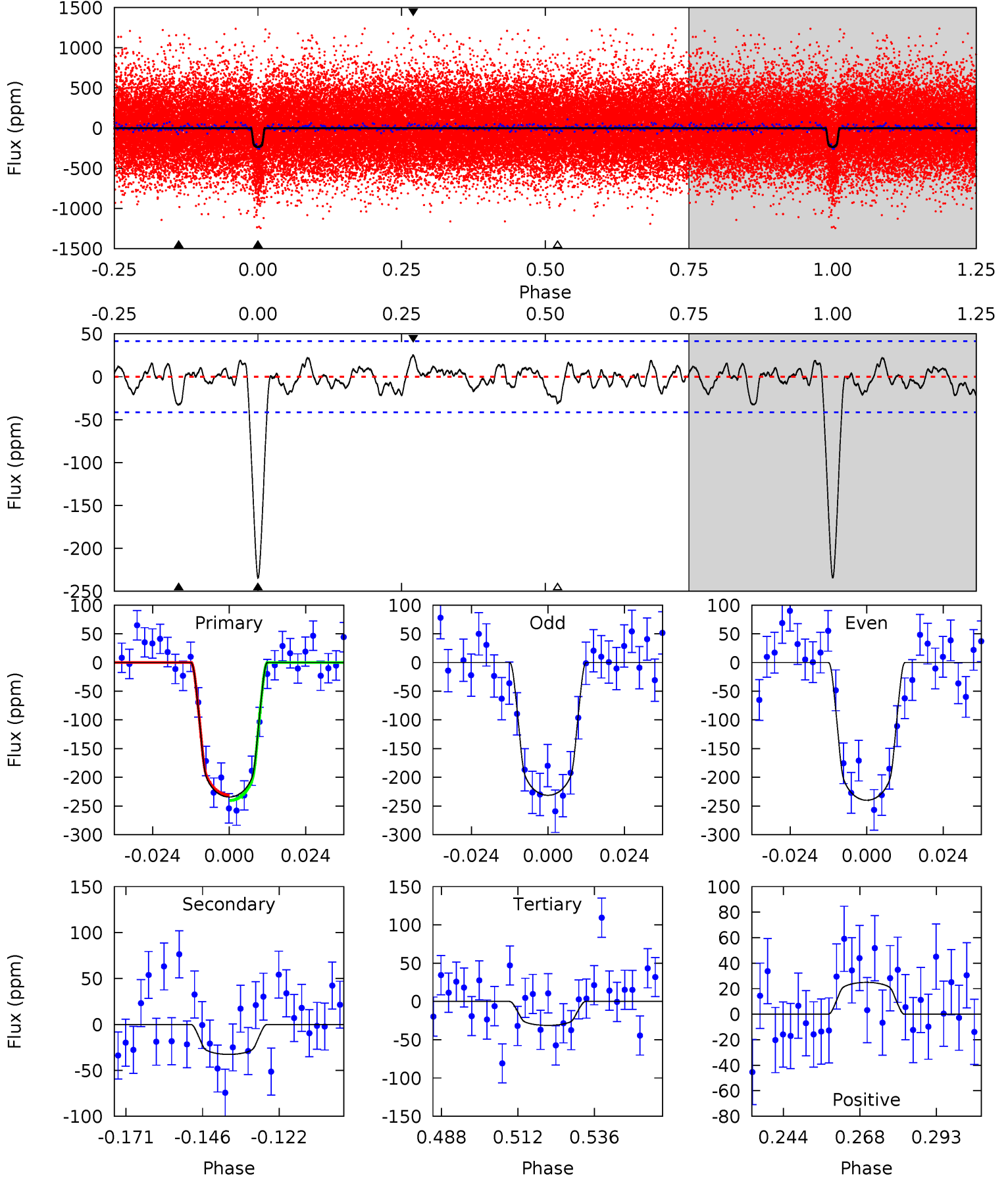
TCE 003130300-01 P= 5.765753 Days  $T_0=133.307781$  (BKJD)



# DV Model-Shift Uniqueness Test

003130300-01, P = 5.765739 Days, E = 127.542584 Days

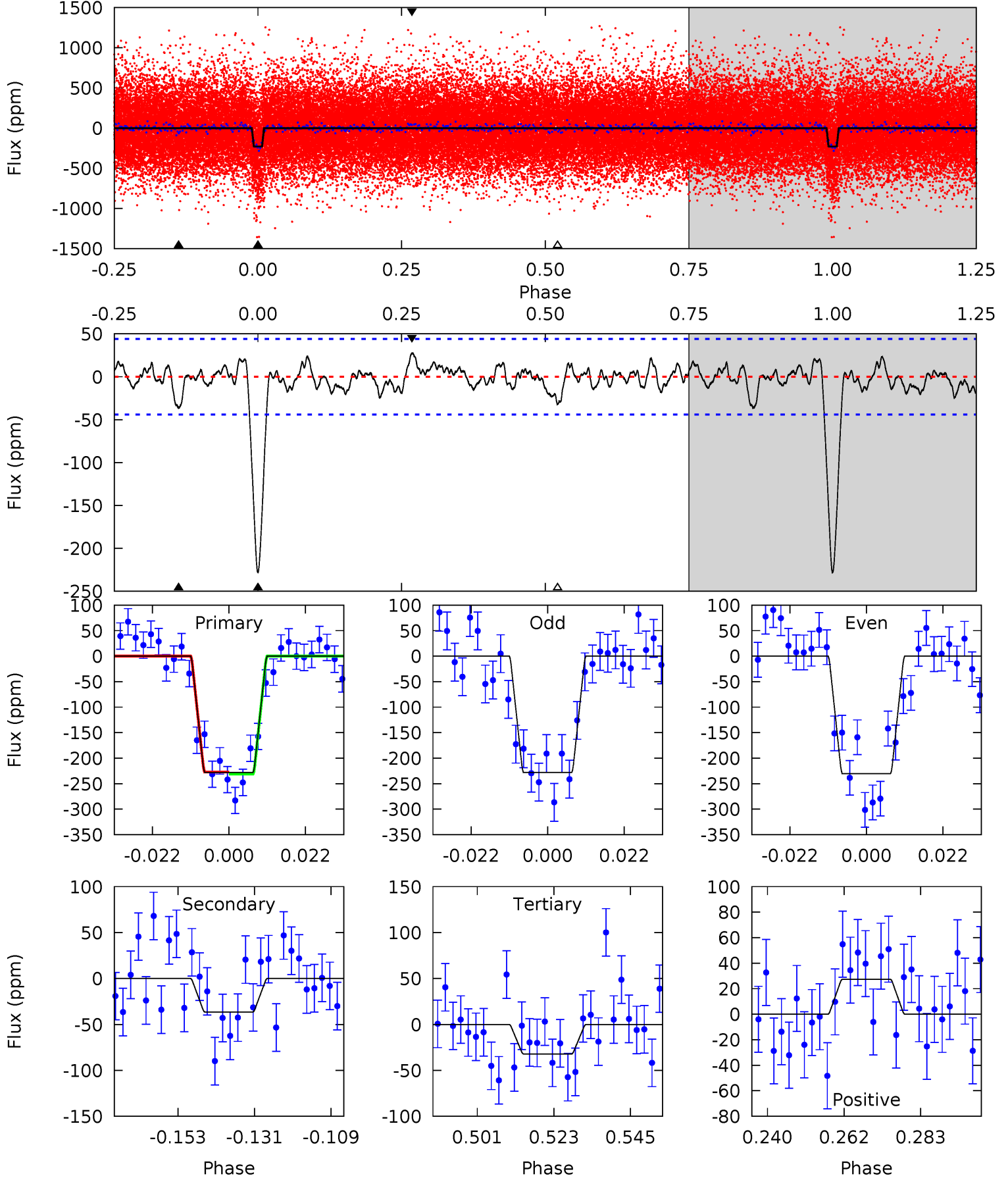
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 27.5 | 3.82 | 3.66 | 2.93 | 4.85            | 2.25            | 1.18             | 23.8    | 24.5    | 0.16    | 0.90    | 0.51    | 0.97 | 0.10  | 0.56 |



# Alt Model-Shift Uniqueness Test

003130300-01, P = 5.765753 Days, E = 127.542028 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.2 | 4.02 | 3.56 | 3.02 | 4.87            | 2.29            | 1.15             | 21.6    | 22.1    | 0.46    | 1.00    | 0.13    | 1.01 | 0.11  | 0.20 |



### Stellar Parameters For KIC 003130300

|        | $T_{\text{eff}} (K)$ | $\log(g)$                 | $[\text{Fe}/\text{H}]$     | $R (R_{\odot})$           | $M (M_{\odot})$           | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5772^{+78}_{-86}$   | $3.364^{+0.256}_{-0.080}$ | $-0.480^{+0.150}_{-0.200}$ | $4.434^{+0.531}_{-1.486}$ | $1.657^{+0.131}_{-0.394}$ | $0.027^{+0.047}_{-0.007}$                 |
|        | +1%/-1%              | +8%/-2%                   | +31%/-42%                  | +12%/-34%                 | +8%/-24%                  | +175%/-27%                                |
| 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 003130300-01 / KOI 1105.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | $A_{\text{obs}}$          |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV      | $-33 \pm 9$ | $7.47^{+2.41}_{-2.33}$ | $2714^{+109}_{-217}$ | $3649^{+500}_{-402}$ | $1.702^{+1.889}_{-0.753}$ |
| Alt.    | $-36 \pm 9$ | $7.01^{+2.32}_{-2.18}$ | $2701^{+122}_{-211}$ | $3827^{+562}_{-420}$ | $2.145^{+2.381}_{-0.963}$ |

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



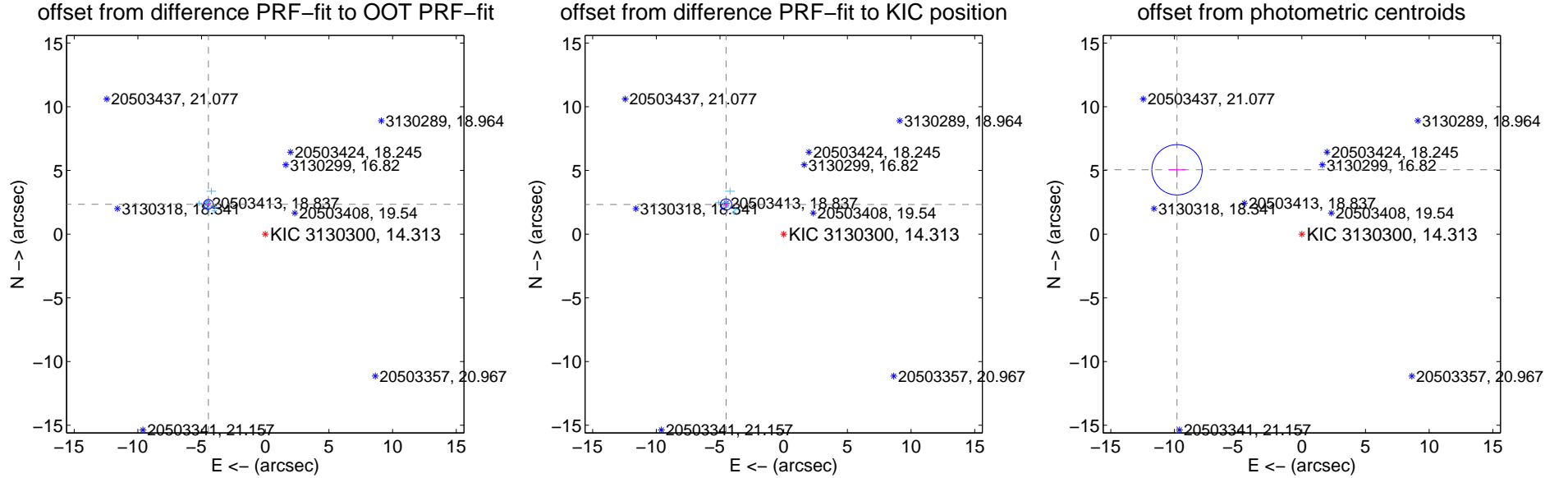
## DV Centroid Data

Supplemental centroid analysis for 003130300-01. Kepler magnitude: 14.31. Transit SNR 19.56

There are 12 quarters with good PRF difference image offsets

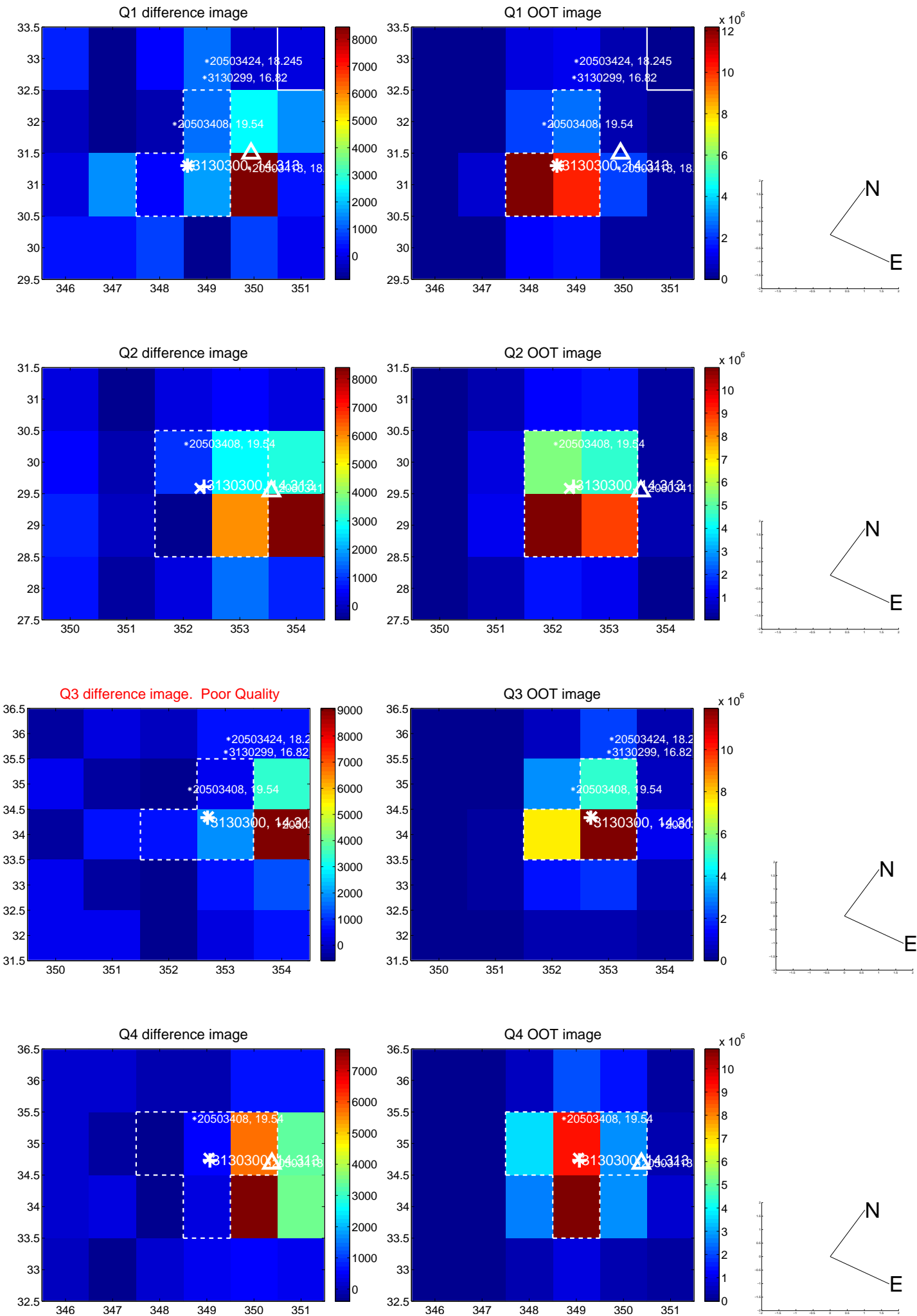
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

|   | Distance in arcsec                  | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|-------------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | <b>5.047 <math>\pm</math> 0.124</b> | <b>40.57</b>        | 4.467 $\pm$ 0.114 | 2.347 $\pm$ 0.129 |
| PRF-fit source offset from KIC position | <b>5.090 <math>\pm</math> 0.147</b> | <b>34.56</b>        | 4.526 $\pm$ 0.133 | 2.330 $\pm$ 0.139 |
| photometric centroid source offset      | <b>11.03 <math>\pm</math> 0.66</b>  | <b>16.73</b>        | 9.80 $\pm$ 0.68   | 5.05 $\pm$ 0.59   |

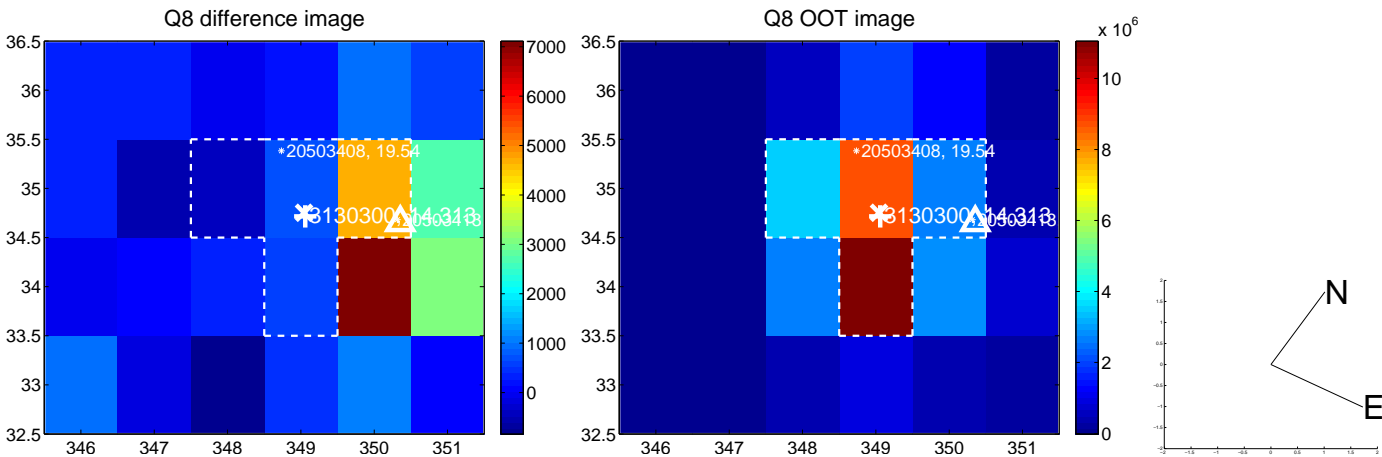
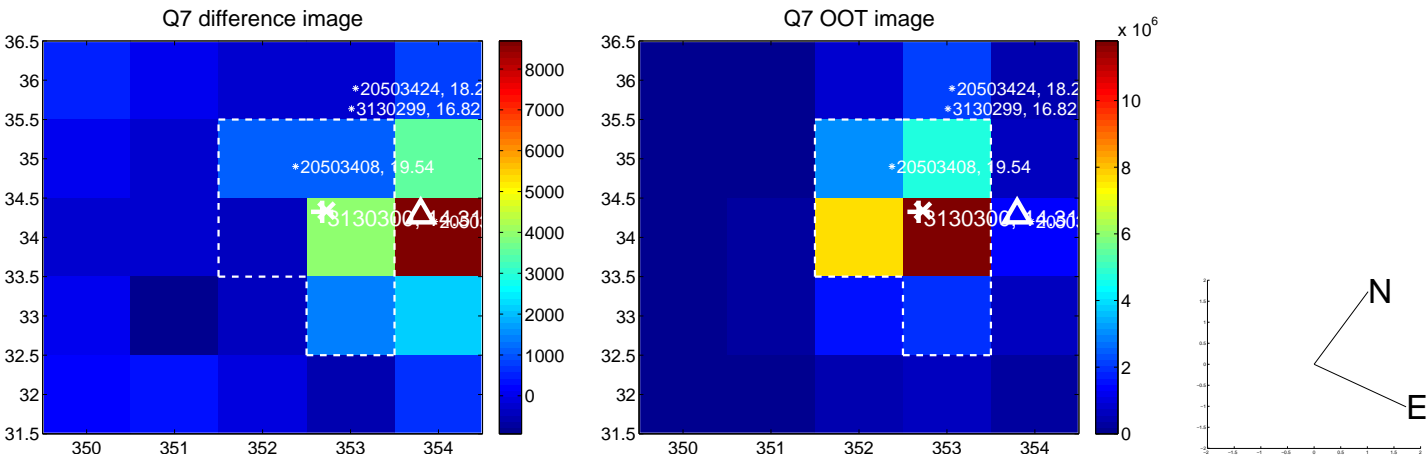
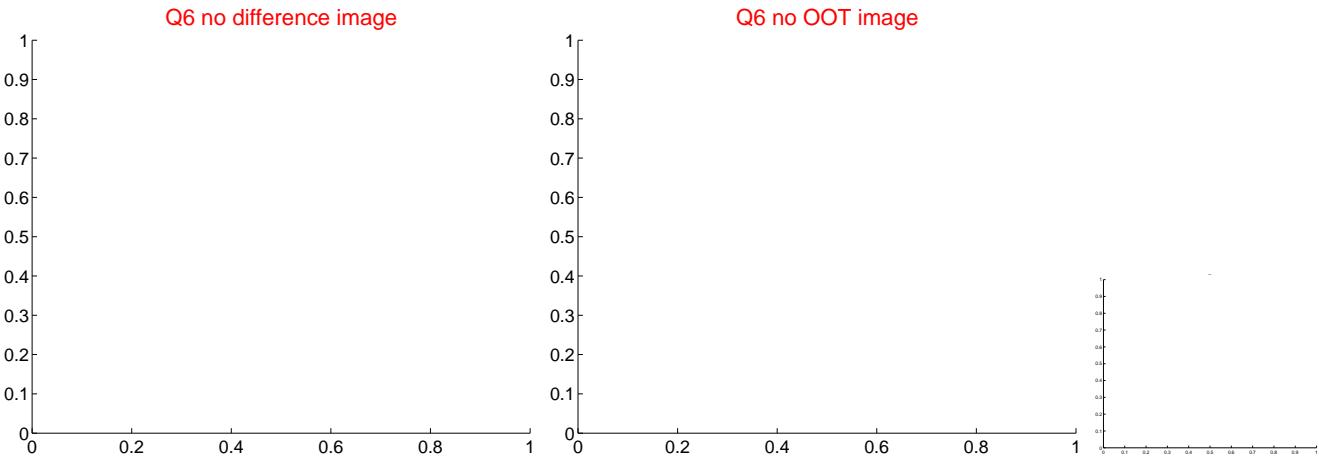
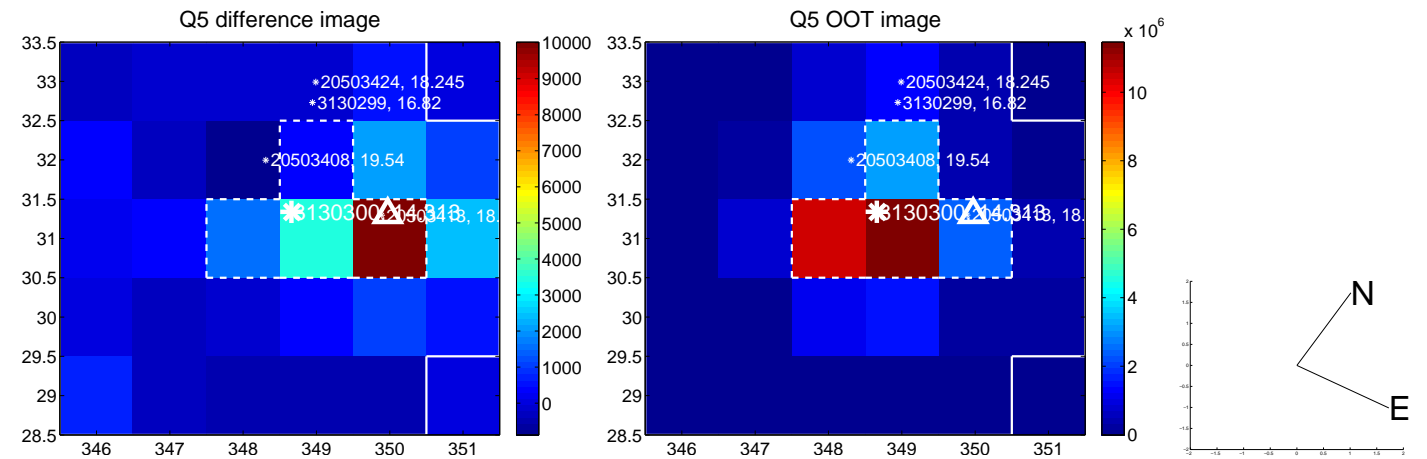


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

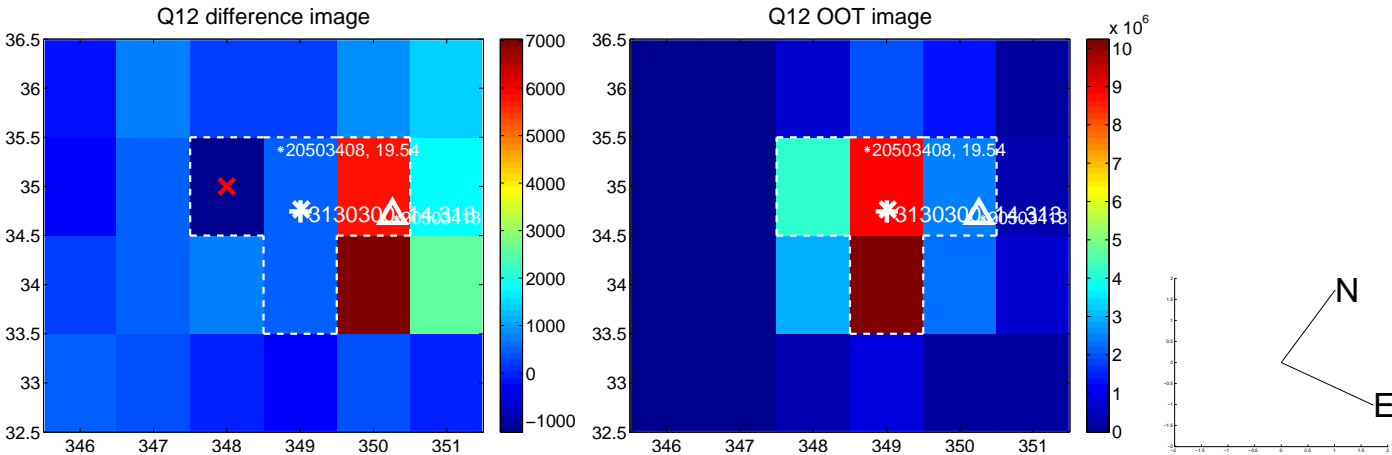
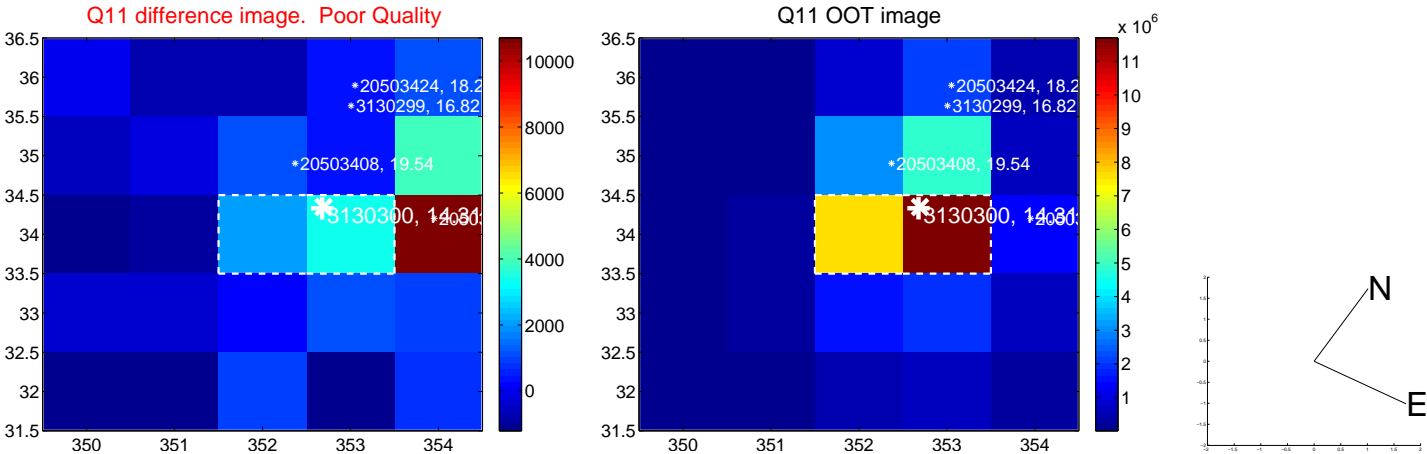
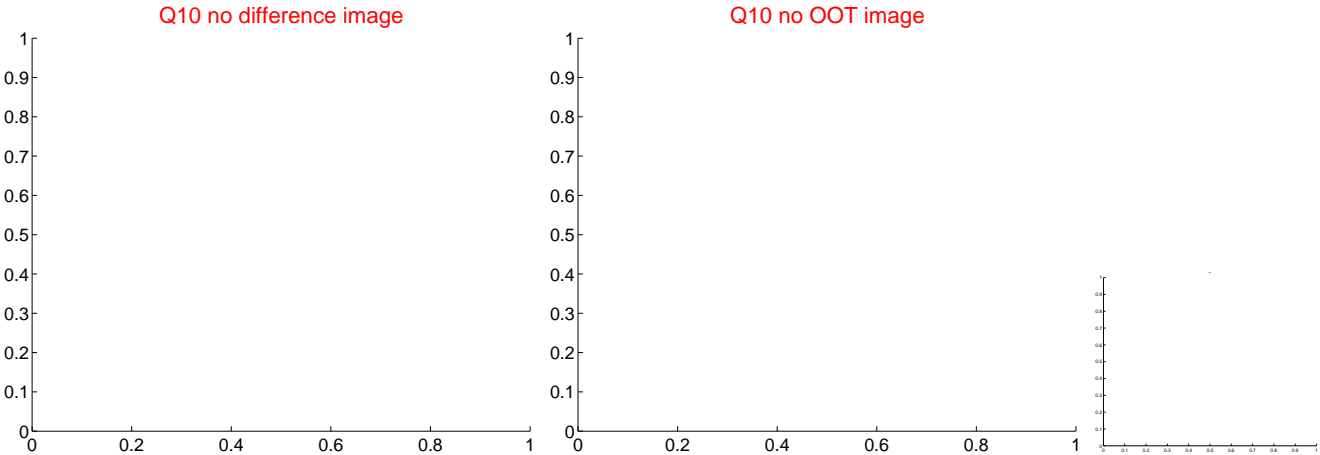
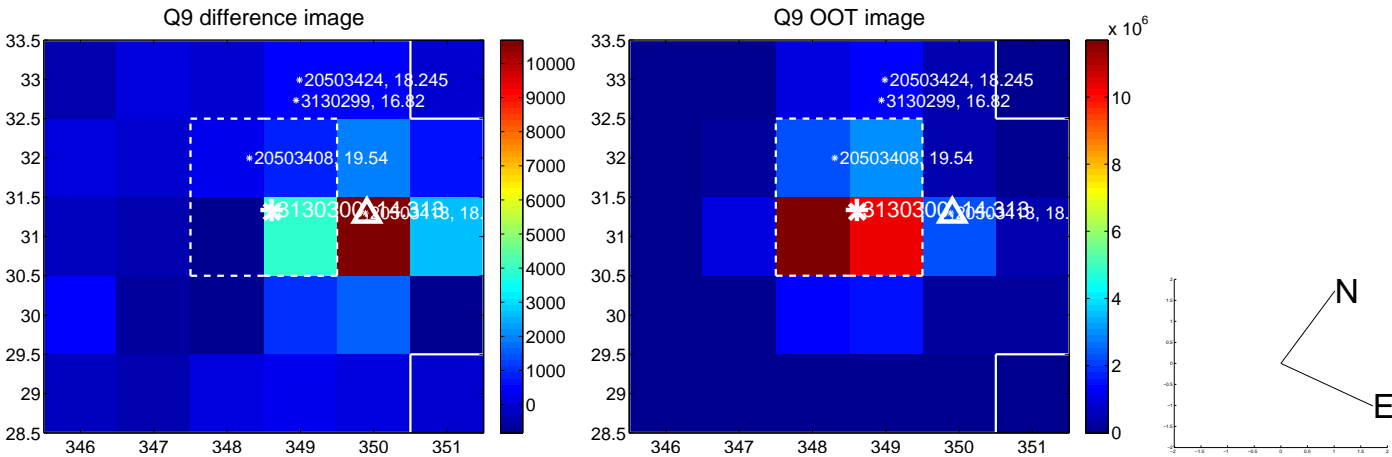
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



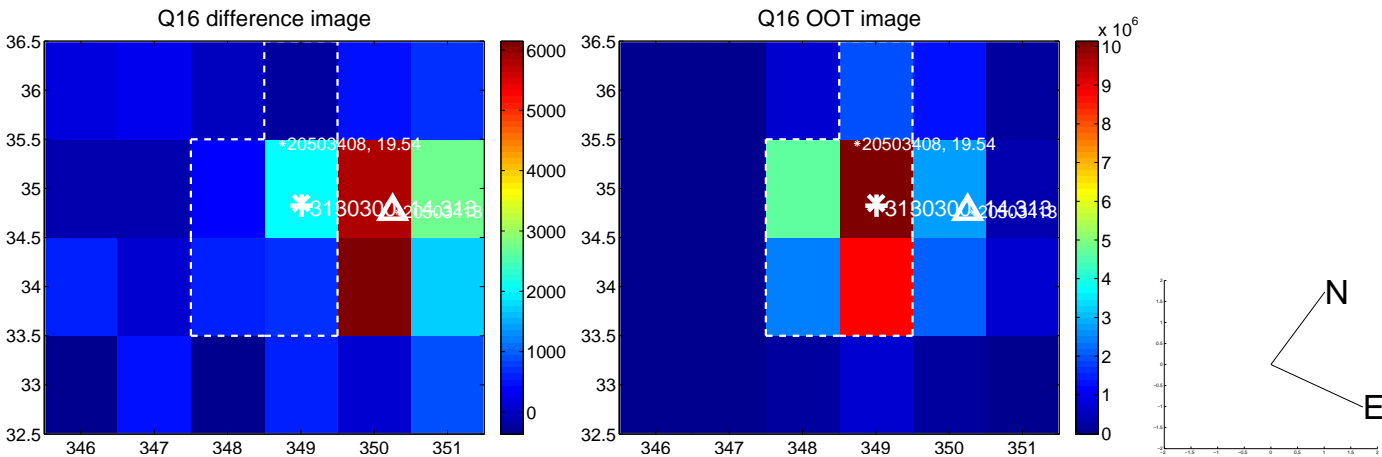
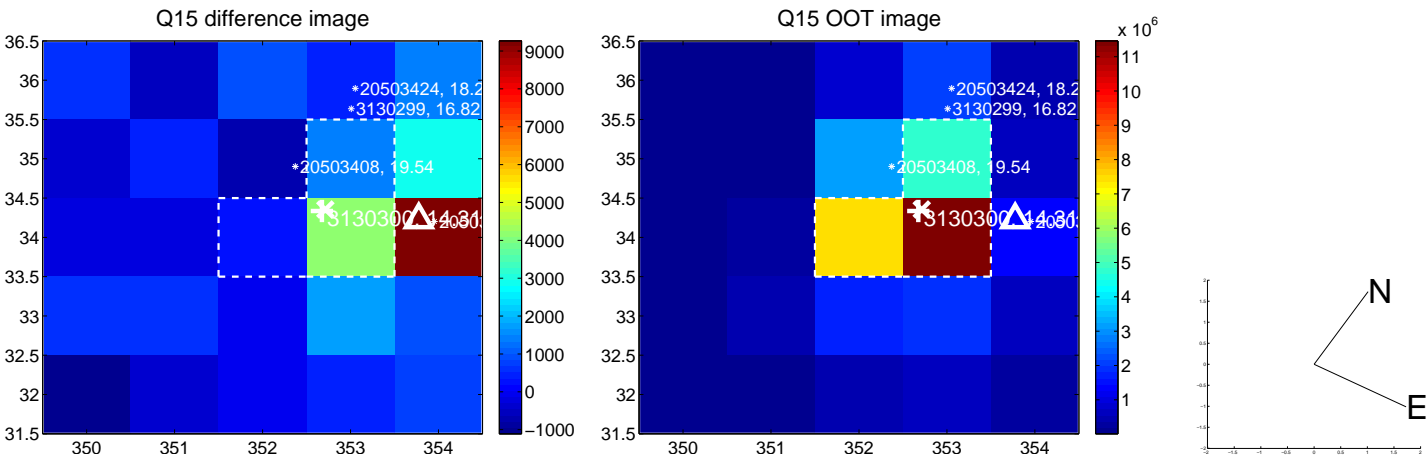
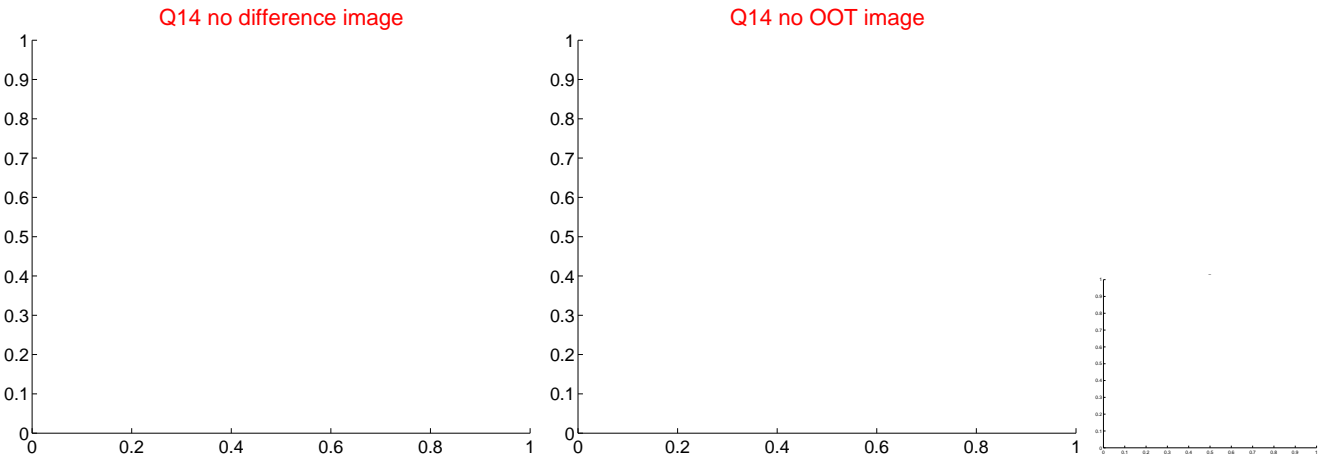
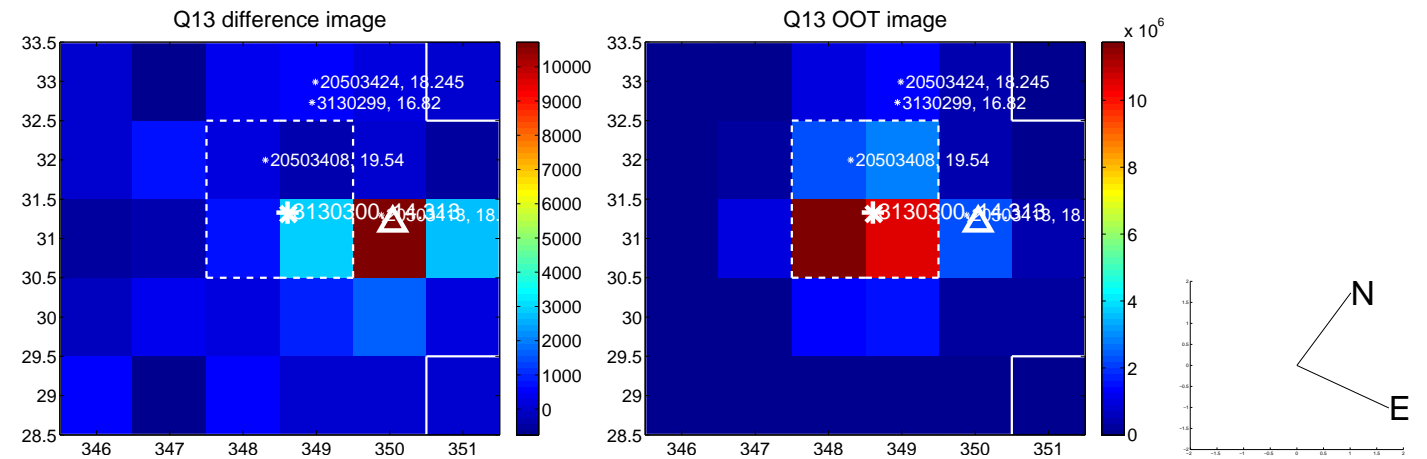
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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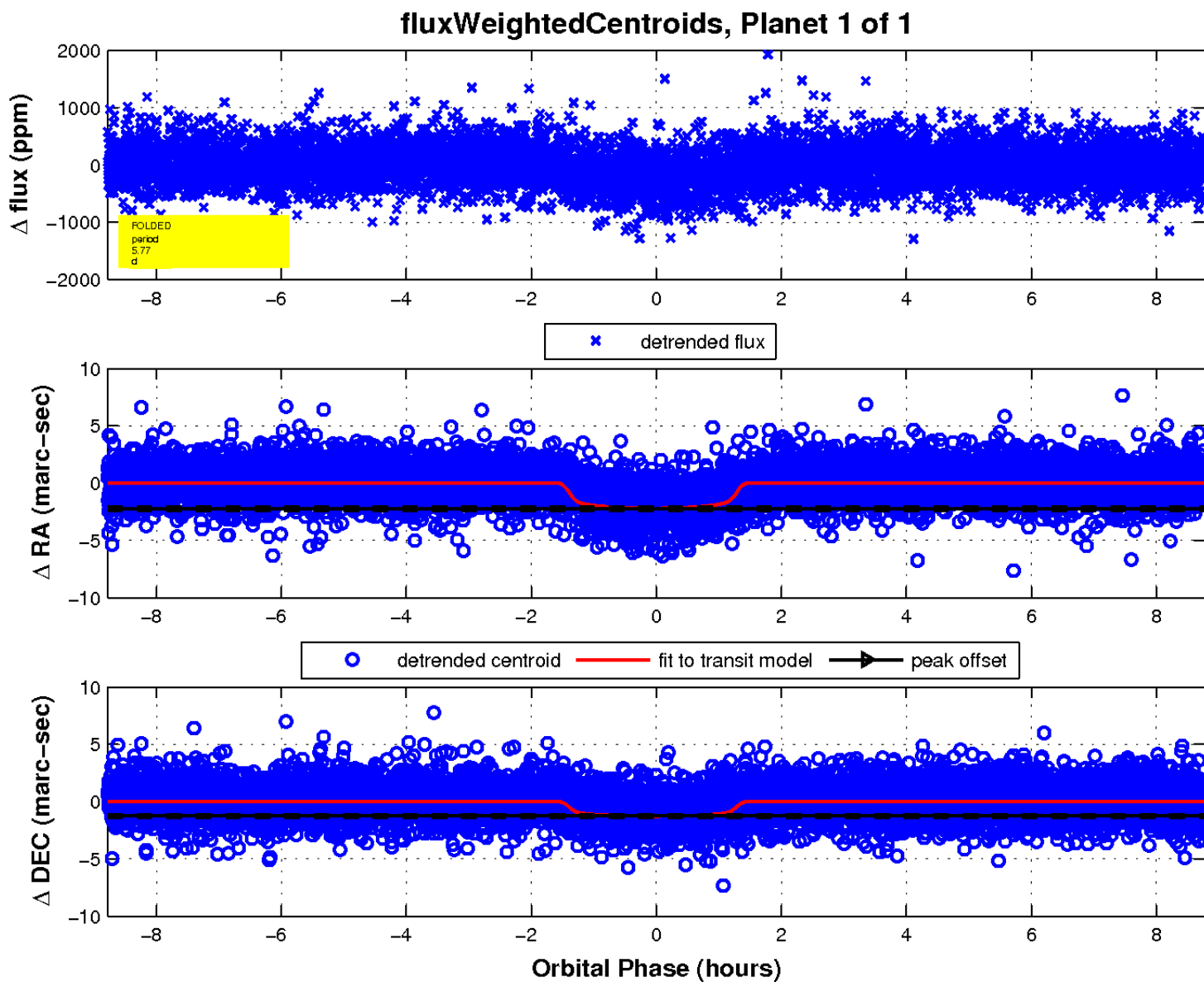
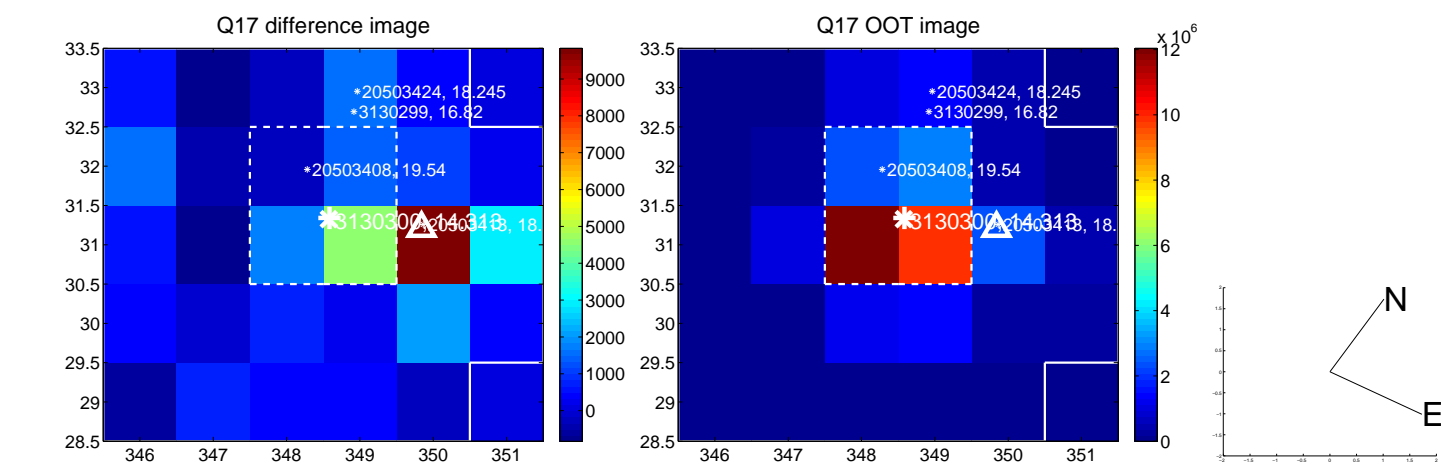


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



# UKIRT Image

Declination

