

# KIC 008196381

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008196381-01 | OBS      | No   | 1.448667      | 132.530164   | 14.4        | 2.946            | 7.4 | 4.8 | 1.59                        | 7083            | 0.72                   | 7243.51                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                                      |
|--------------|----------|------|-------|---|---|---|---|-----------------------------------------------|
| 008196381-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |

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

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

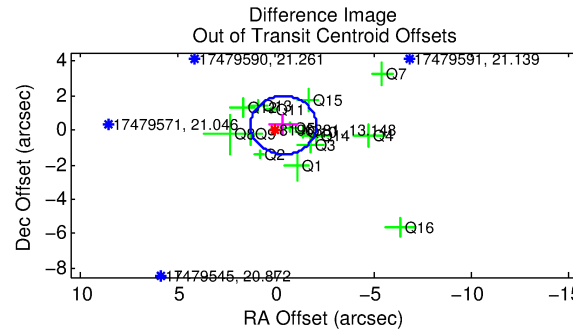
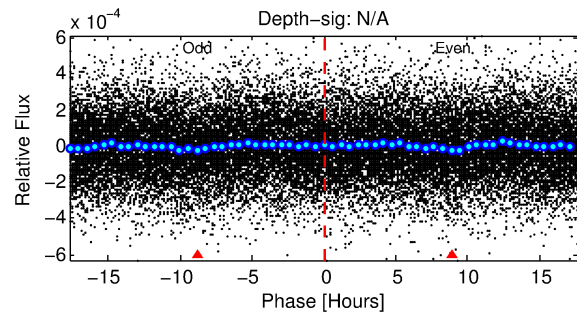
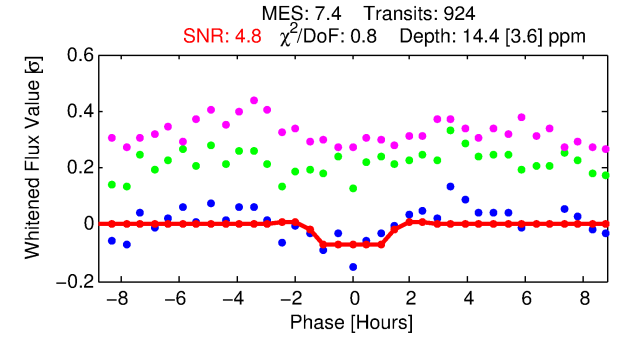
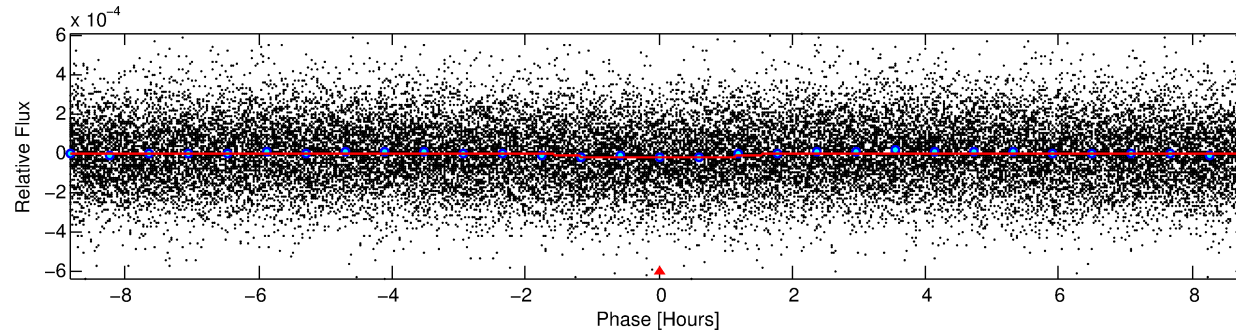
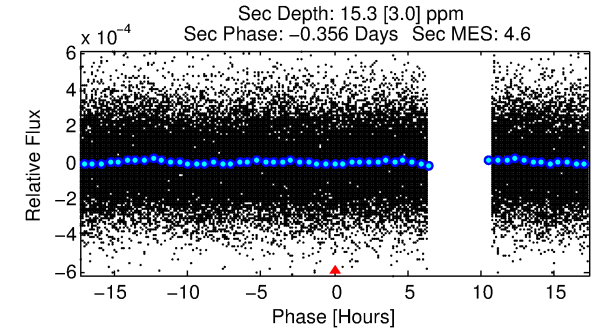
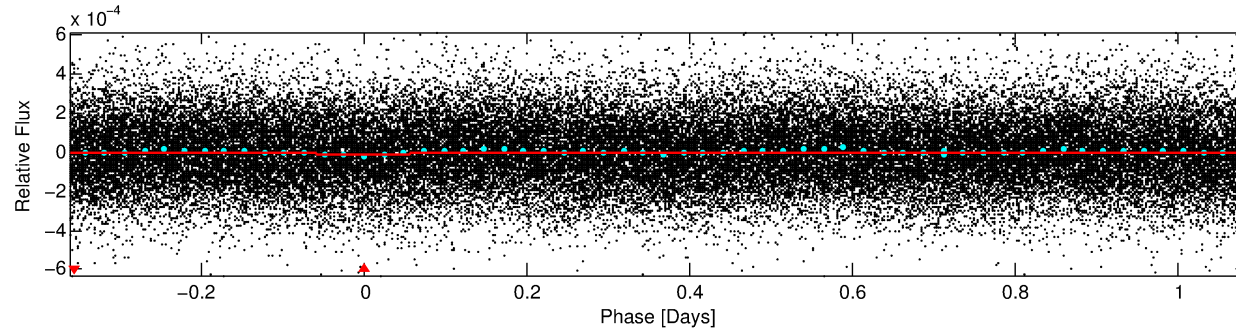
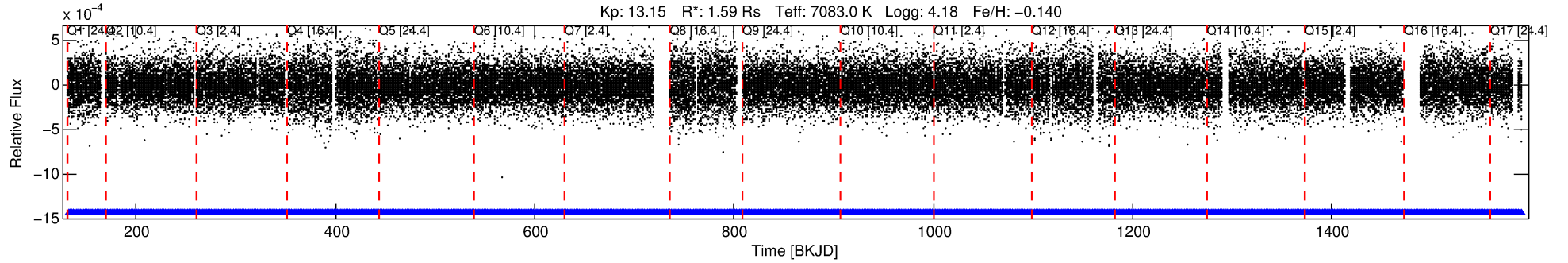
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008196381-01

No Significant Match Found

# DV One-Page Summary

KIC: 8196381 Candidate: 1 of 1 Period: 1.449 d



## DV Fit Results:

Period = 1.44867 [0.00003] d  
Epoch = 132.5302 [0.0071] BKJD  
Rp/R\* = 0.0042 [0.0025]  
a/R\* = 1.67 [4.04]  
b = 0.94 [0.51]  
Seff = 7243.51 [2856.12]  
Teq = 2352 [232] K  
Rp = 0.72 [0.49] Re  
a = 0.0281 [0.0072] AU  
Ag = 12.68 [15.94] [0.73σ]  
Teffp = 6863 [2082] K [2.15σ]

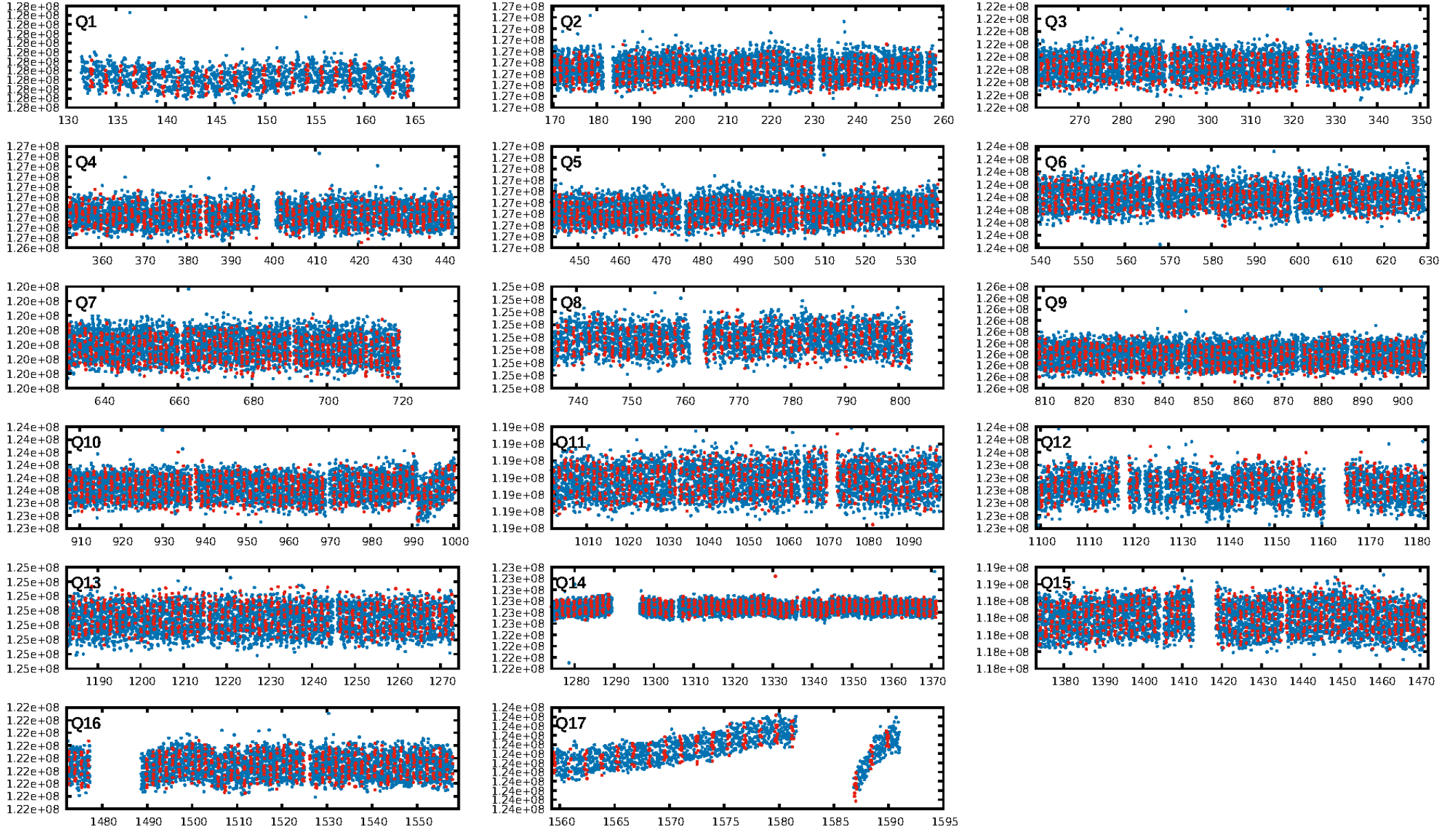
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 4.20e-12**  
RollingBand-fgt: 1.00 [882/882]  
GhostDiagnostic-chr: 13.01  
Centroid-sig: 51.8%  
Centroid-so: 1.712 arcsec [0.70σ]  
OotOffset-rm: 0.468 arcsec [0.83σ]  
KicOffset-rm: 0.548 arcsec [1.02σ]  
OotOffset-st: 3/4/4/4 [15]  
KicOffset-st: 3/4/4/4 [15]  
DiffImageQuality-fgm: 0.67 [10/15]  
DiffImageOverlap-fno: 1.00 [17/17]

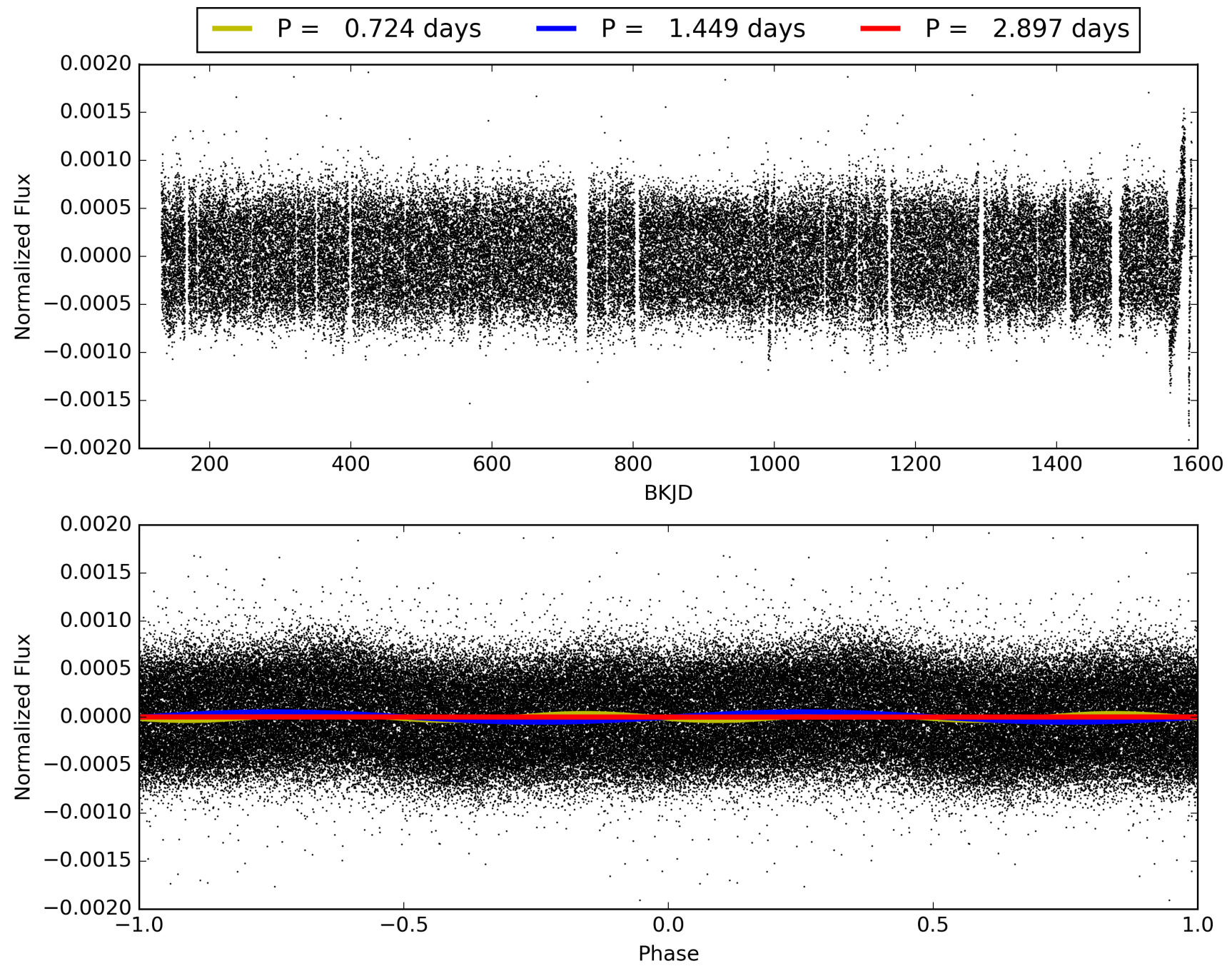
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:03:44 Z

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

# TCE 008196381-01, PDC Light Curves



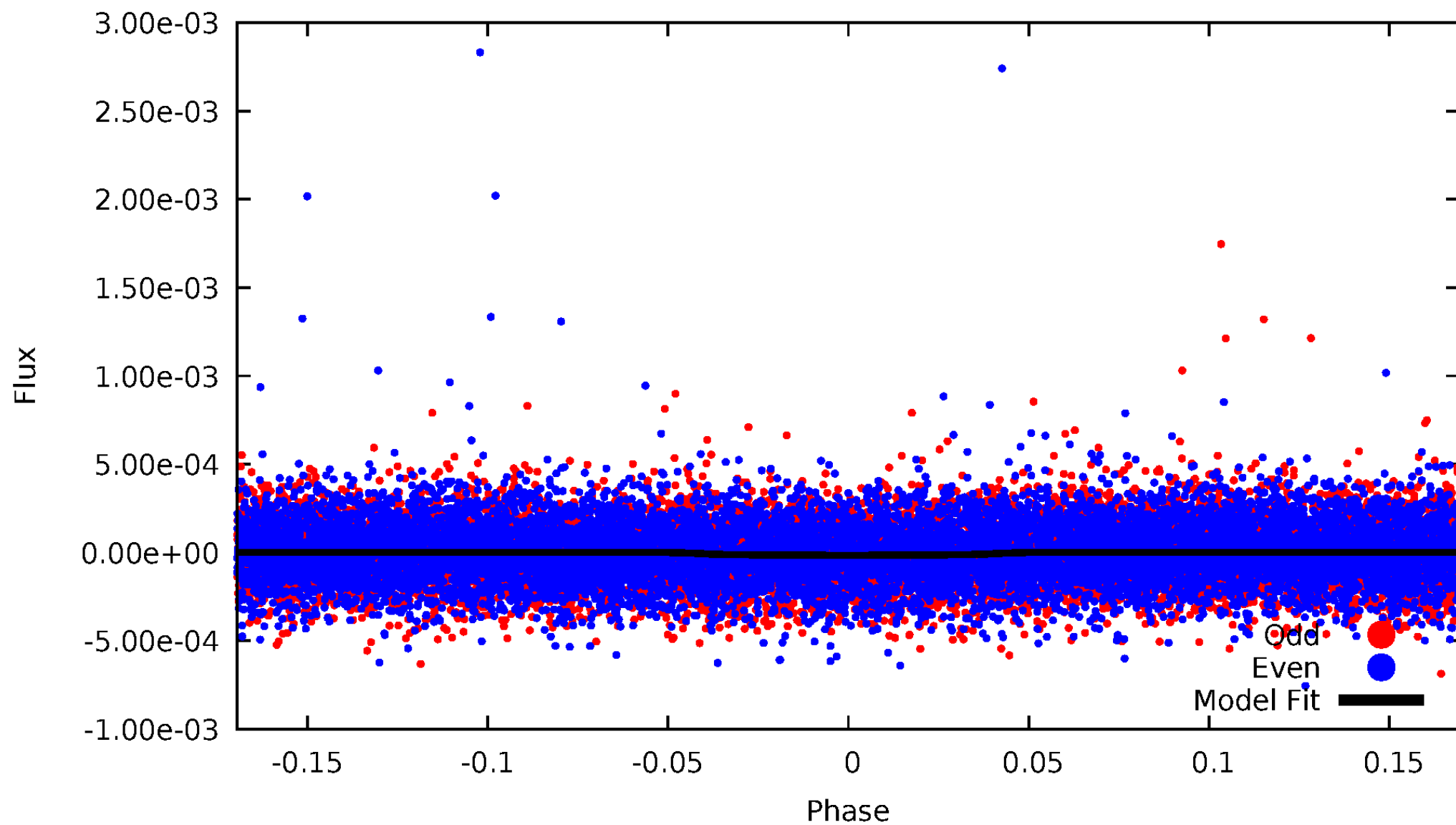
TCE 008196381-01





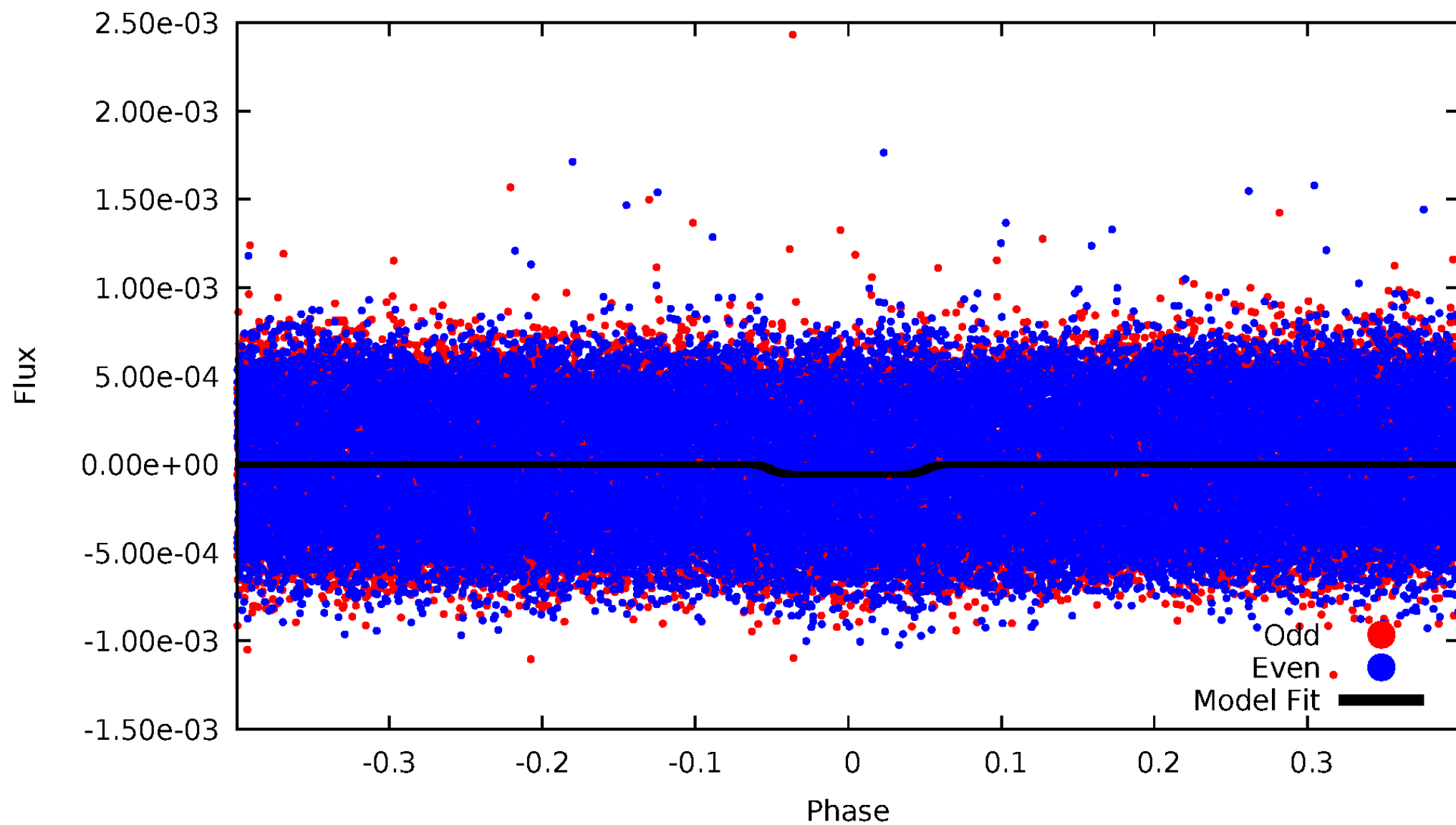
# DV Odd/Even

TCE 008196381-01



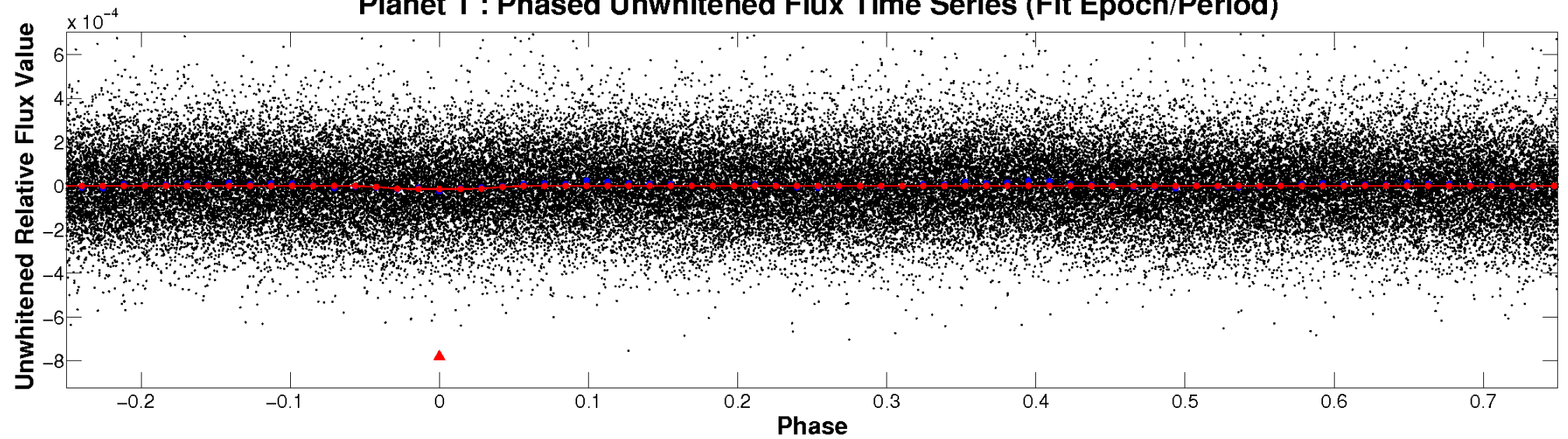
# ALT Odd/Even

TCE 008196381-01

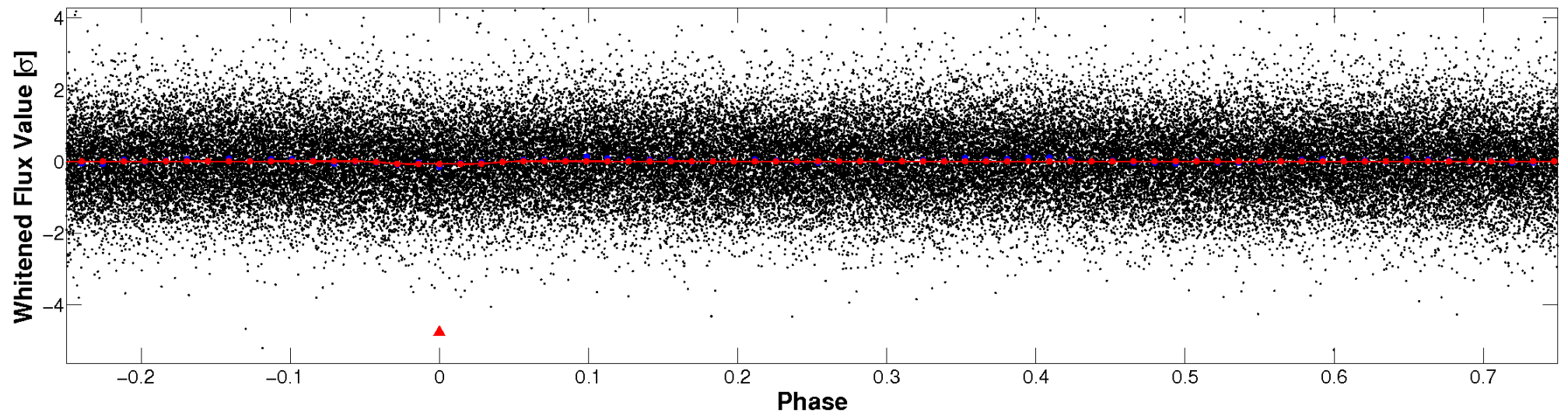


# Non-Whitened Vs. Whitened Light Curve

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

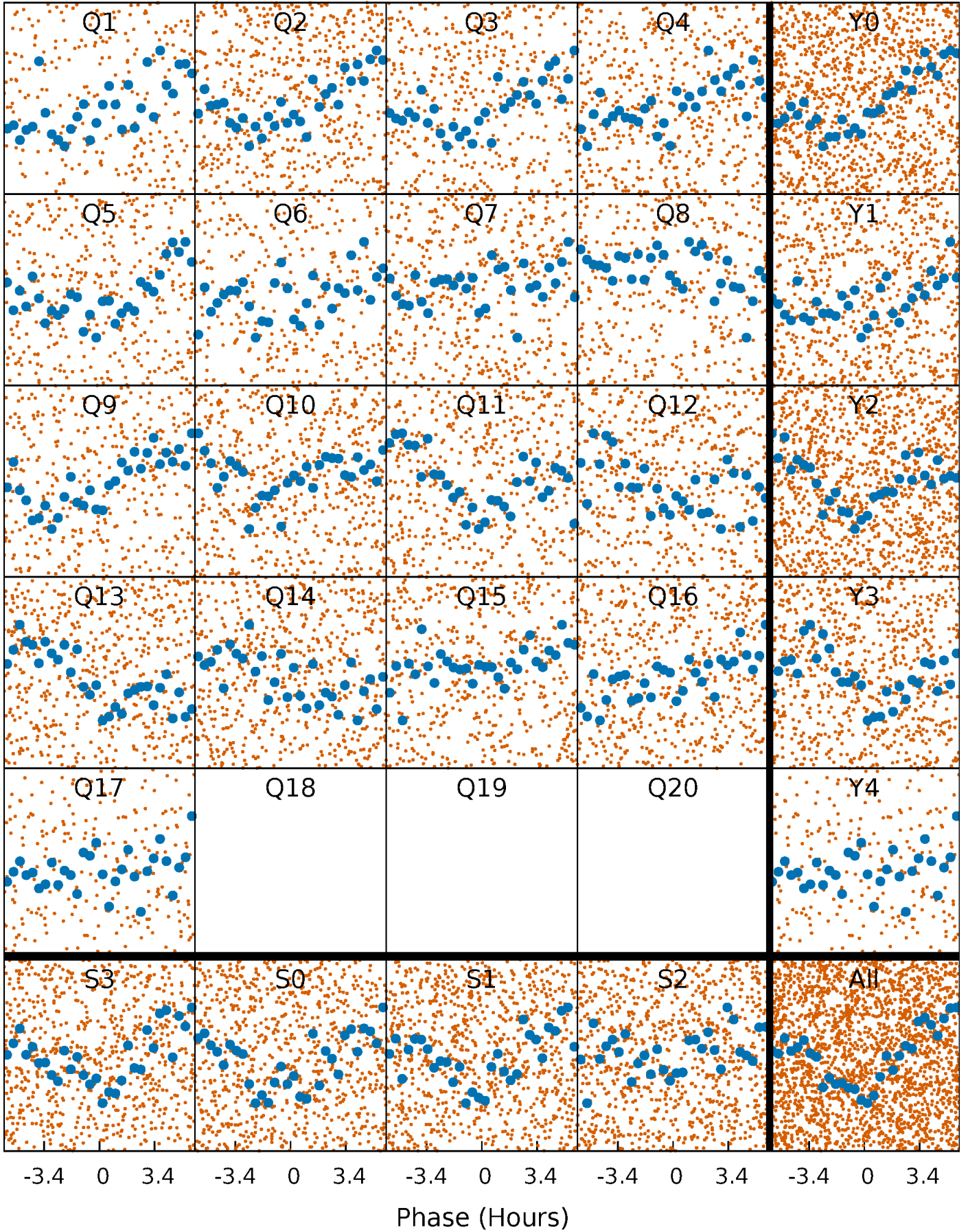


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

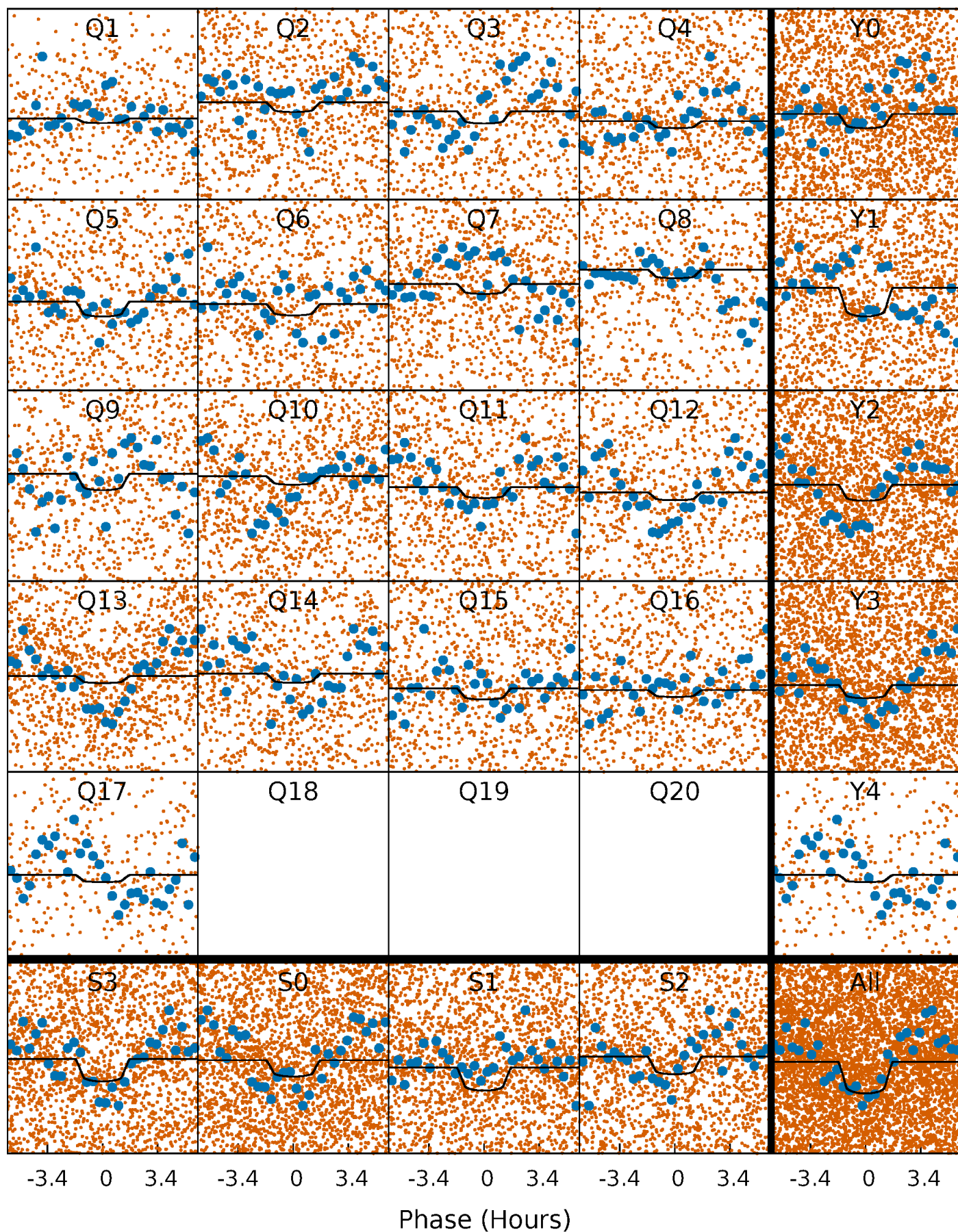
TCE 008196381-01   P= 1.448667 Days    $T_0=132.530165$  (BKJD)





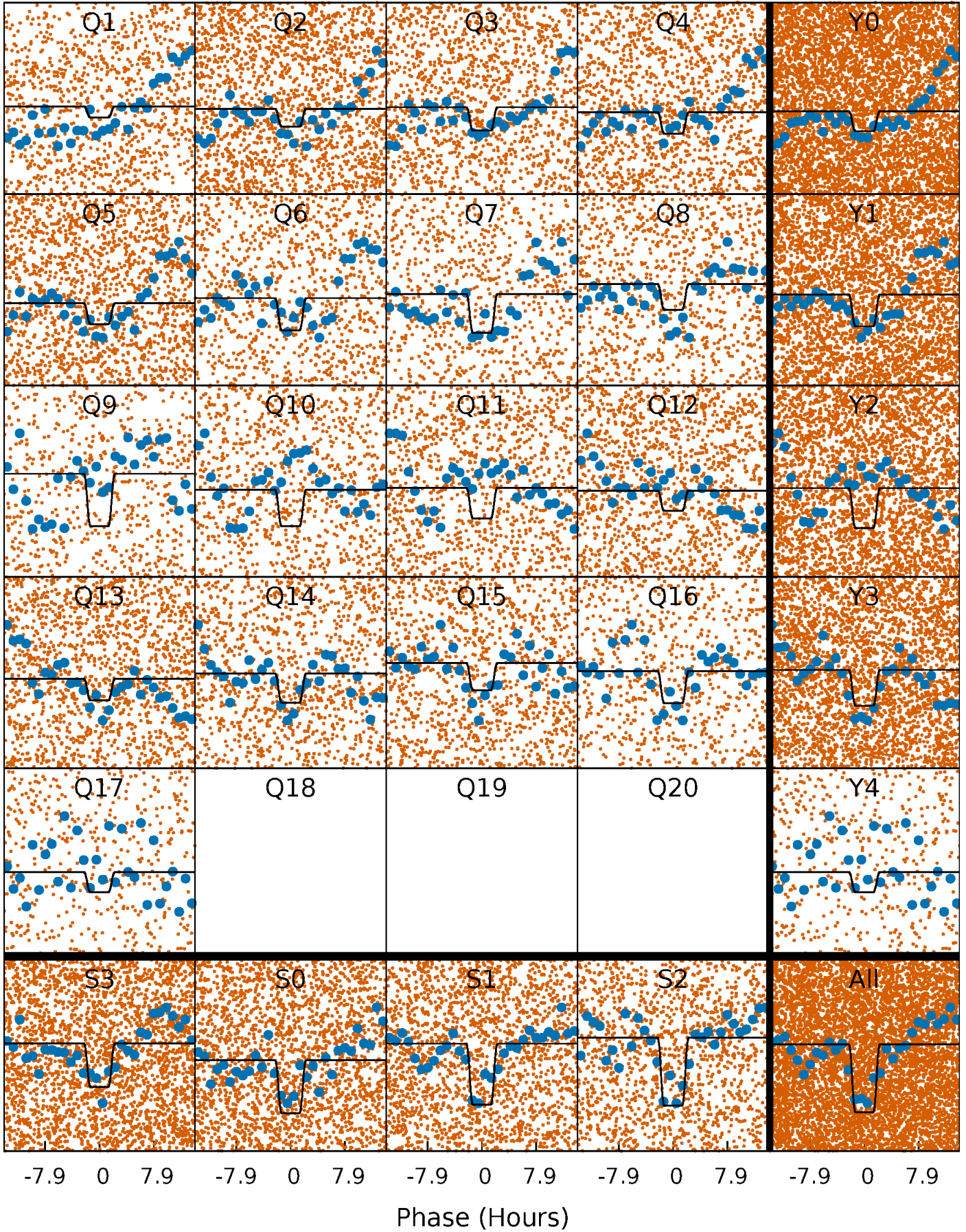
# DV Quarter-Phased Transit Curves

TCE 008196381-01   P= 1.448667 Days    $T_0=132.530165$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008196381-01 P= 1.449319 Days  $T_0=132.425049$  (BKJD)

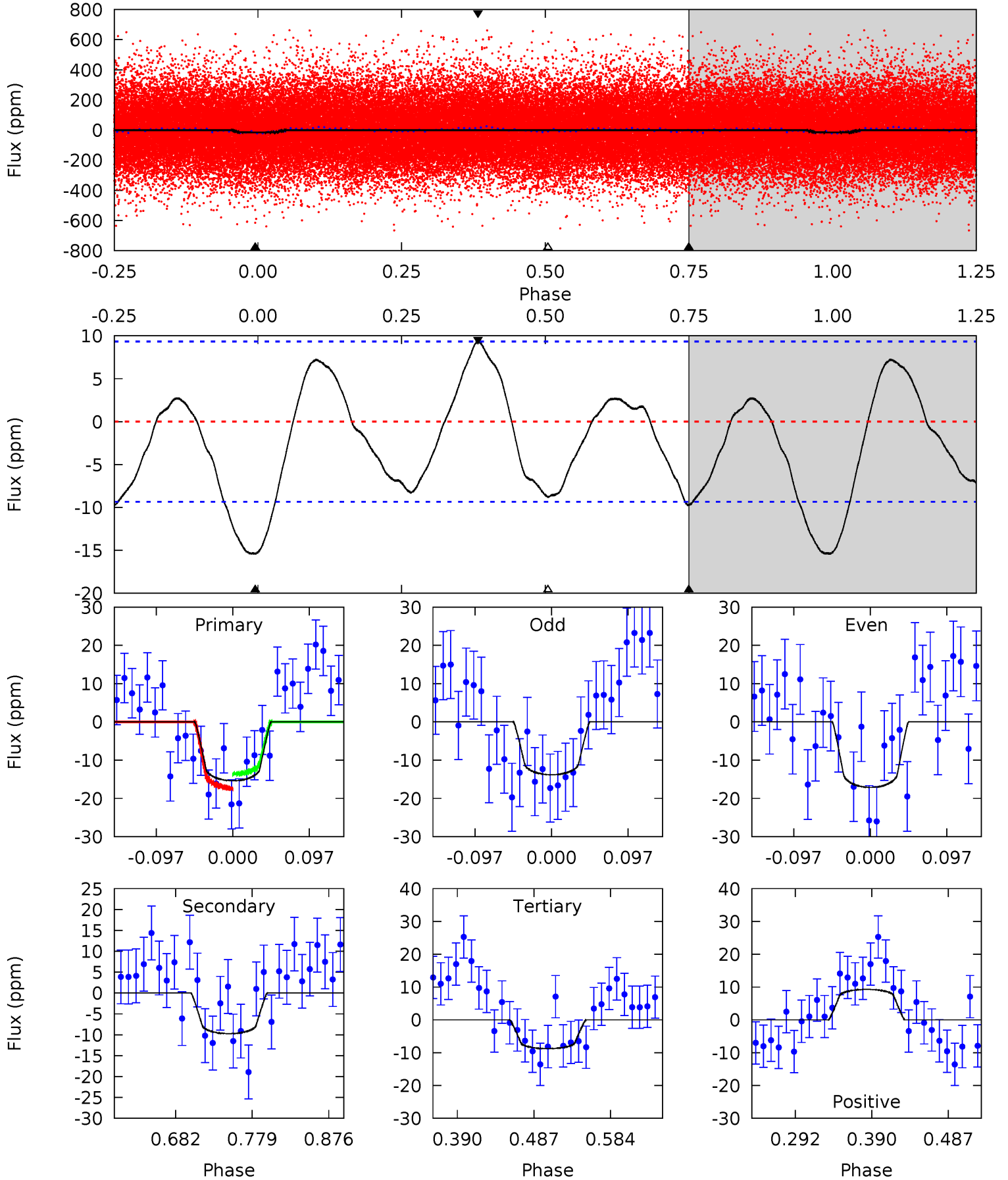




# DV Model-Shift Uniqueness Test

008196381-01, P = 1.448667 Days, E = 131.081498 Days

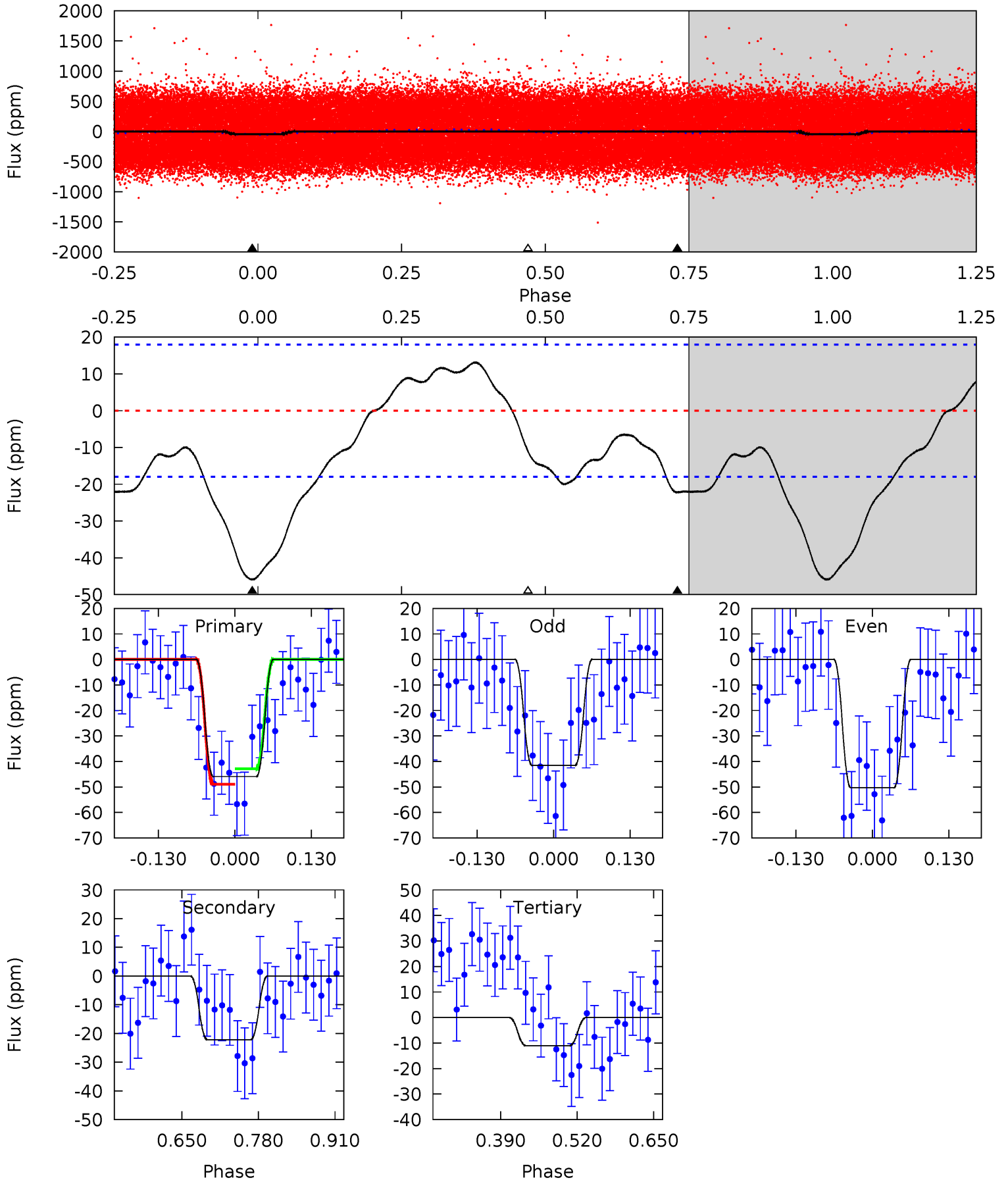
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.52 | 4.76 | 4.29 | 4.54 | 4.57            | 1.66            | 2.55             | 3.23    | 2.98    | 0.46    | 0.21    | 0.81    | 0.95 | 0.38  | 0.89 |



# Alt Model-Shift Uniqueness Test

008196381-01, P = 1.449319 Days, E = 130.975730 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  |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.5 | 5.57 | 2.77 | 0   | 4.51            | 1.51            | 2.77             | 8.74    | 11.5    | 2.79    | 5.57    | 1.10    | 1.02 | 0.22  | 0.77 |





### Stellar Parameters For KIC 008196381

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $7083^{+200}_{-275}$ | $4.183^{+0.128}_{-0.192}$ | $-0.140^{+0.250}_{-0.350}$ | $1.593^{+0.504}_{-0.294}$ | $1.415^{+0.218}_{-0.239}$ | $0.493^{+0.304}_{-0.251}$                 |
|        | +3%/-4%              | +3%/-5%                   | +179%/-250%                | +32%/-18%                 | +15%/-17%                 | +62%/-51%                                 |
| 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 008196381-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$        | $T_{obs} (K)$          | $A_{obs}$                  |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV      | $-10 \pm 2$ | $0.75^{+0.45}_{-0.39}$ | $3288^{+257}_{-206}$ | $5926^{+3340}_{-1188}$ | $7.582^{+24.559}_{-4.897}$ |
| Alt.    | $-22 \pm 4$ | $1.30^{+0.48}_{-0.46}$ | $3294^{+243}_{-206}$ | $5513^{+1319}_{-766}$  | $5.709^{+7.708}_{-2.828}$  |

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

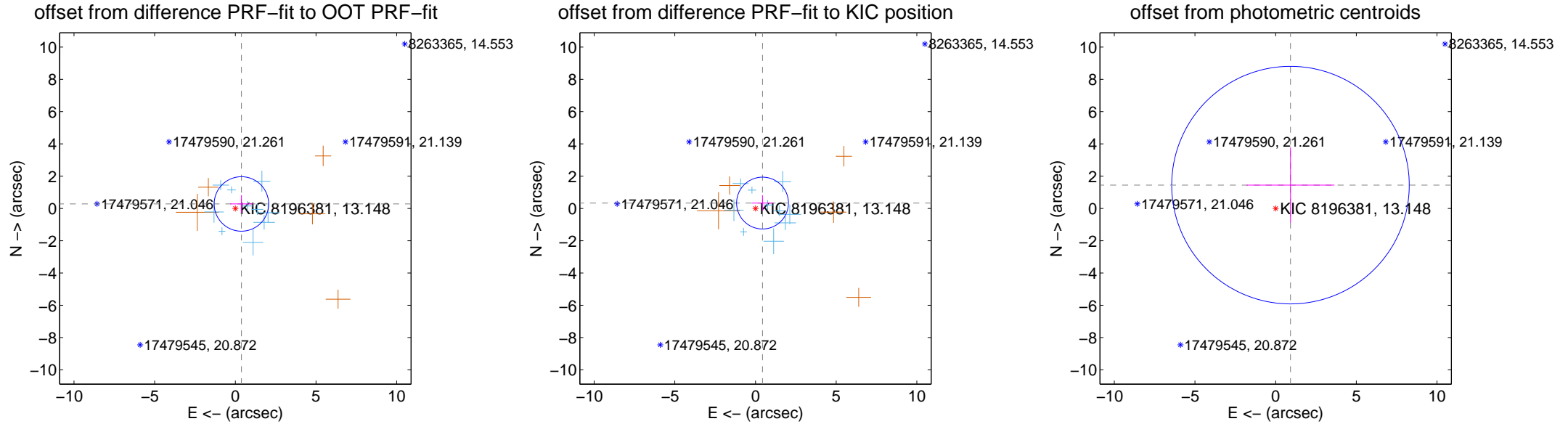
## DV Centroid Data

Supplemental centroid analysis for 008196381-01. Kepler magnitude: 13.15. Transit SNR 4.78

There are 10 quarters with good PRF difference image offsets

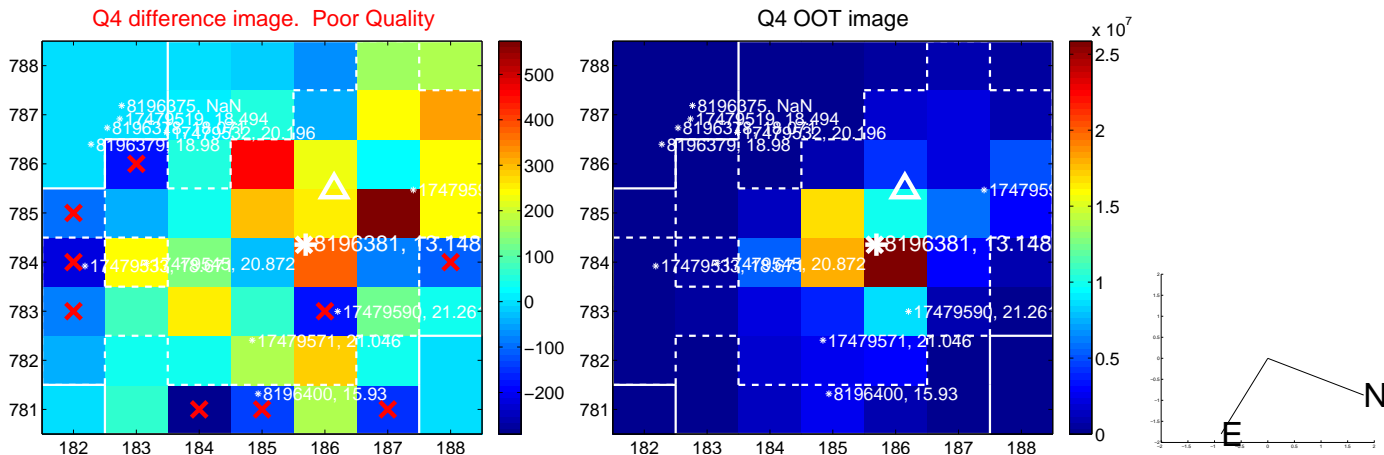
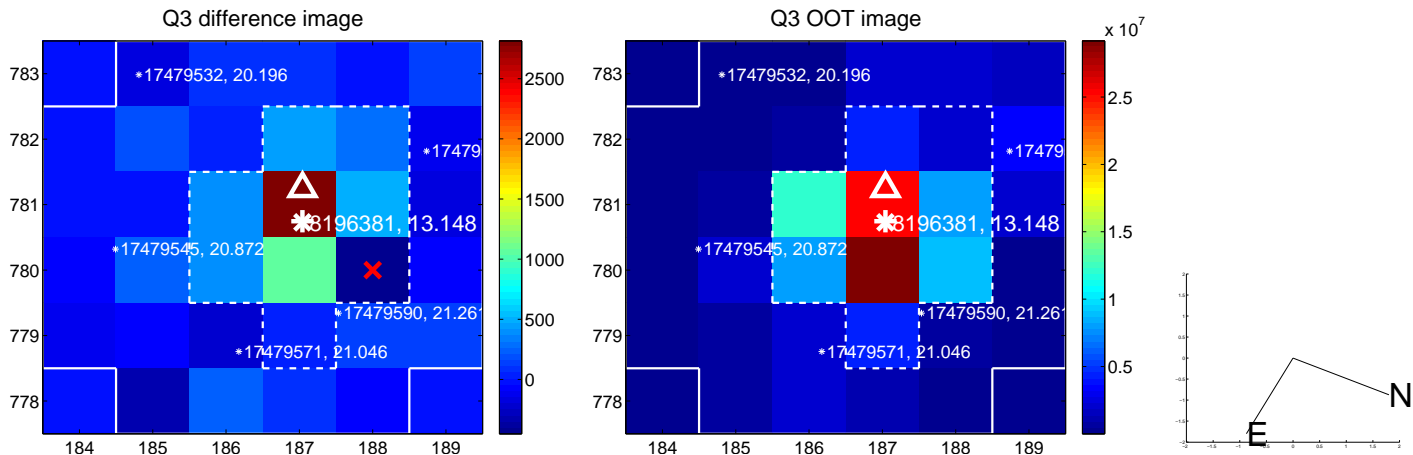
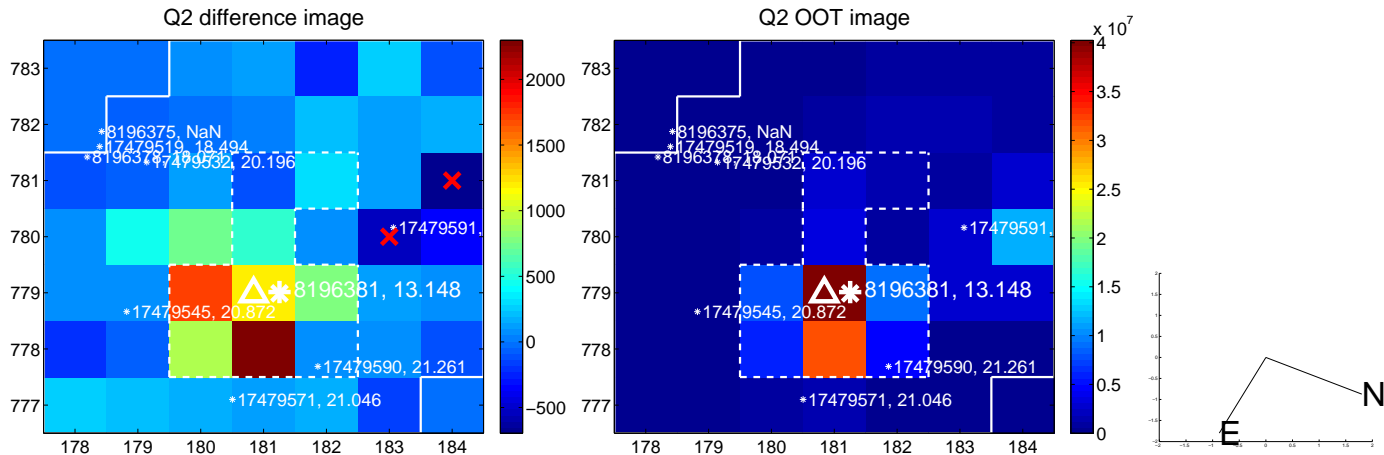
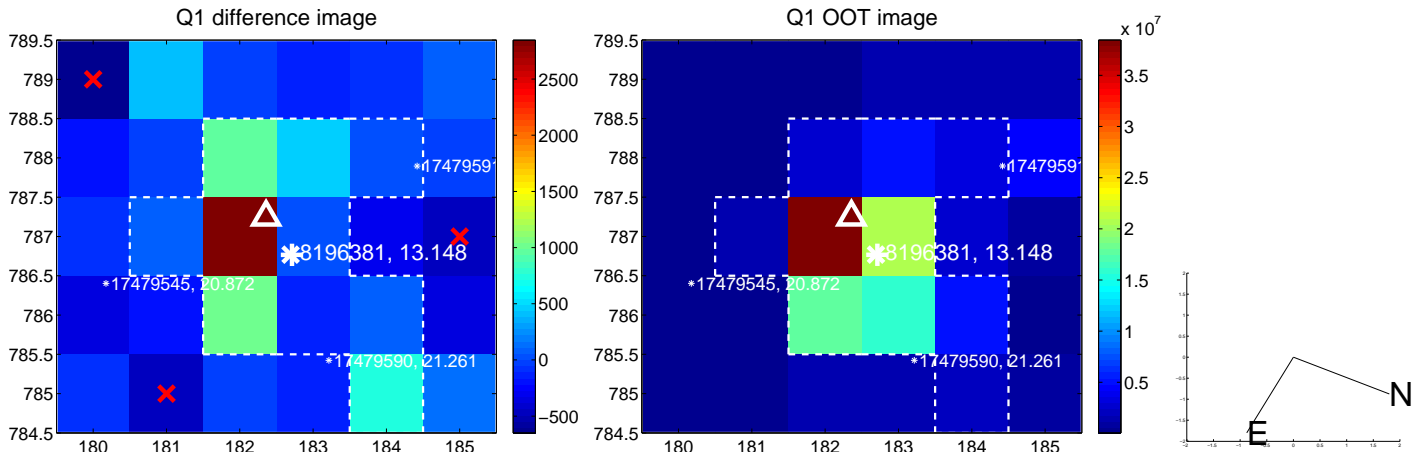
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.468 \pm 0.563$  | 0.83                | $-0.377 \pm 0.705$ | $0.278 \pm 0.544$ |
| PRF-fit source offset from KIC position | $0.548 \pm 0.535$  | 1.02                | $-0.435 \pm 0.663$ | $0.333 \pm 0.486$ |
| photometric centroid source offset      | $1.71 \pm 2.45$    | 0.70                | $-0.92 \pm 2.72$   | $1.44 \pm 2.33$   |

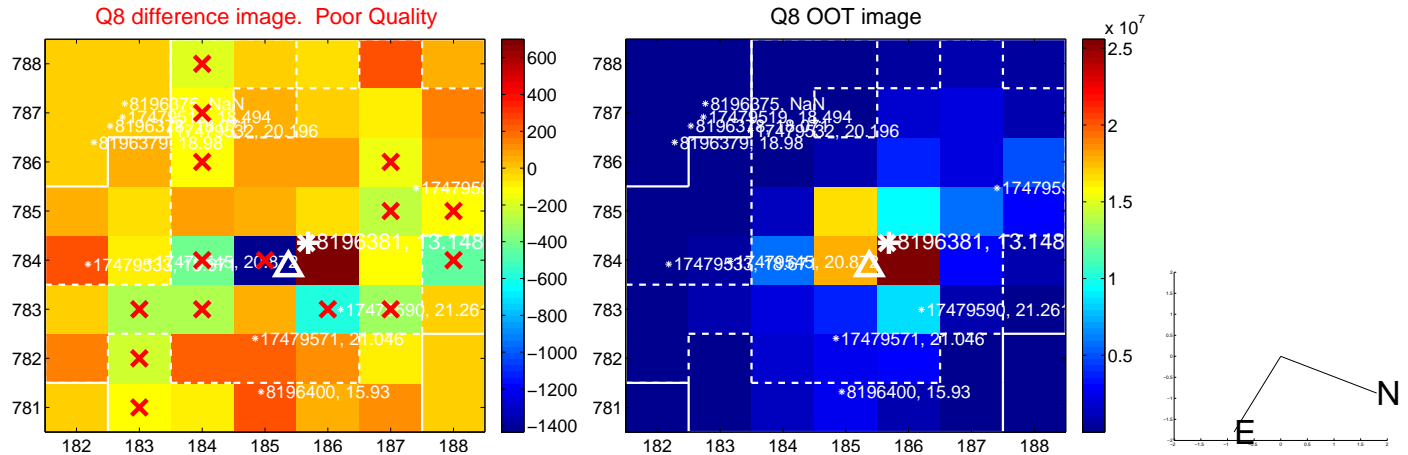
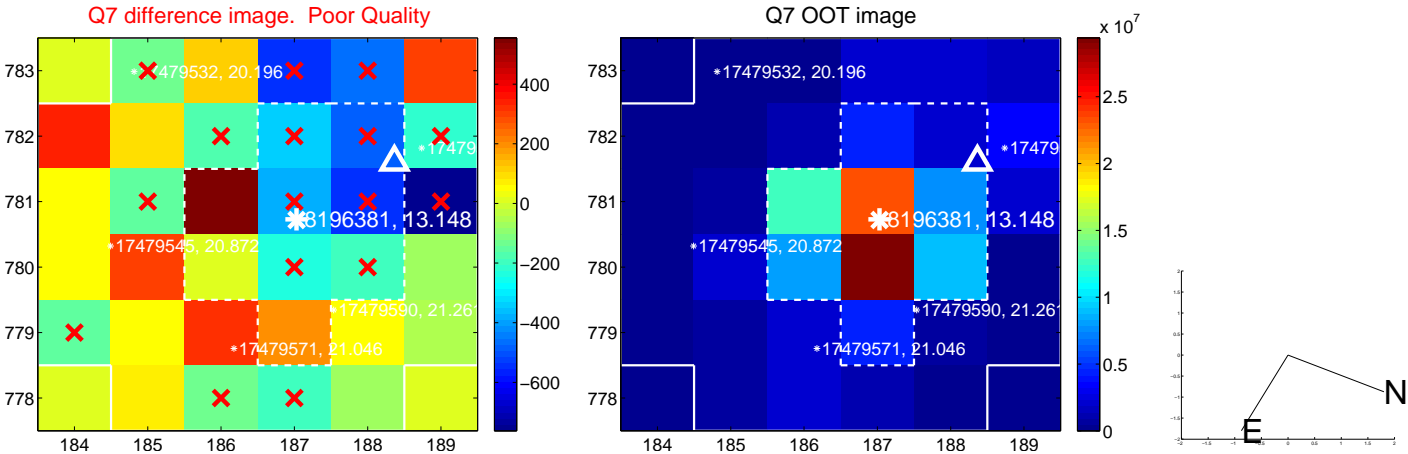
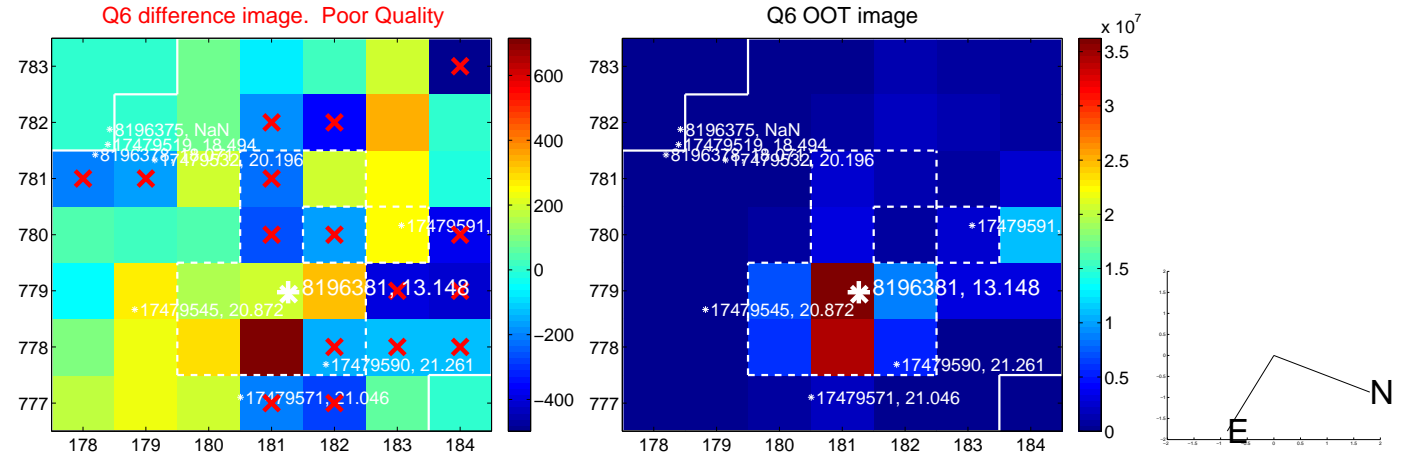
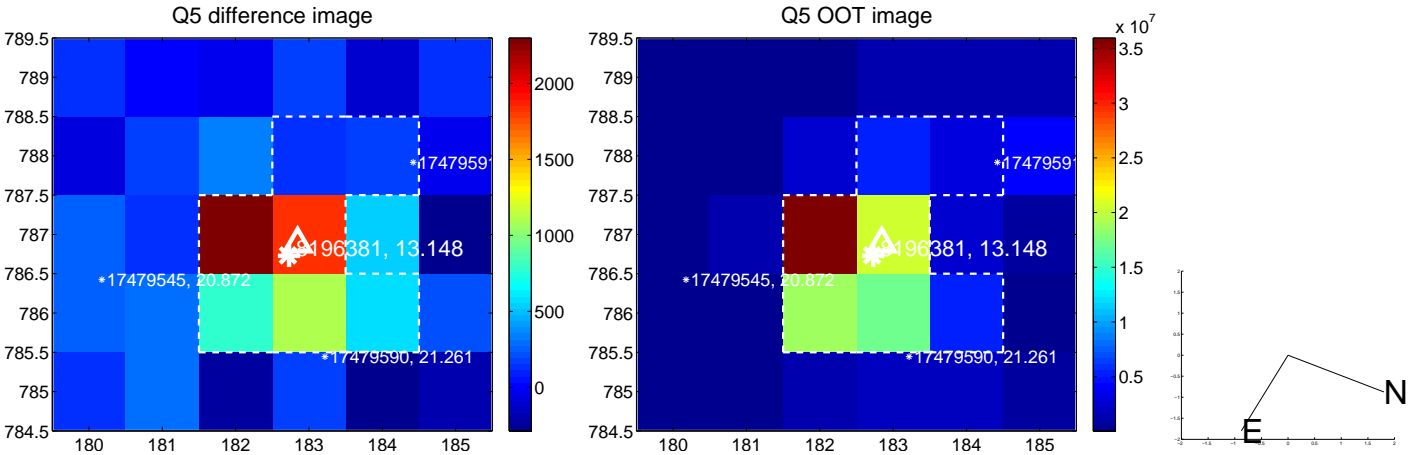


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

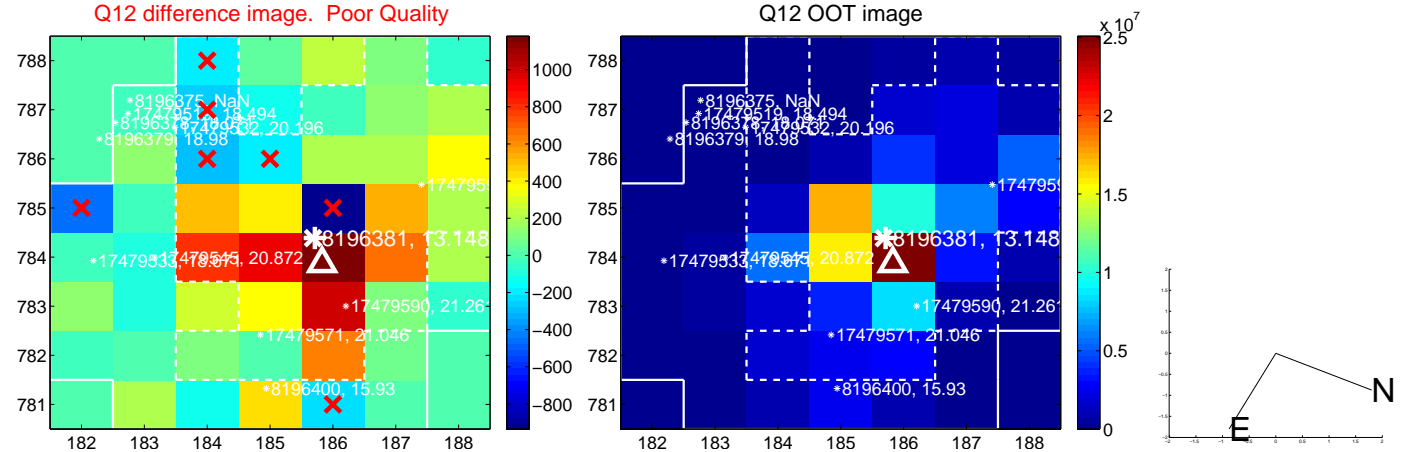
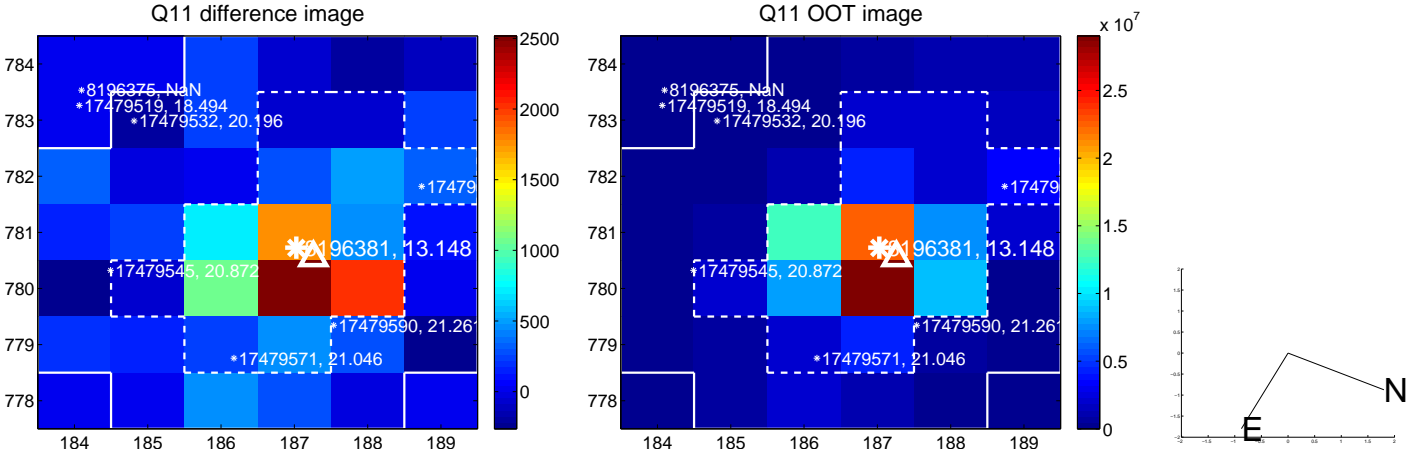
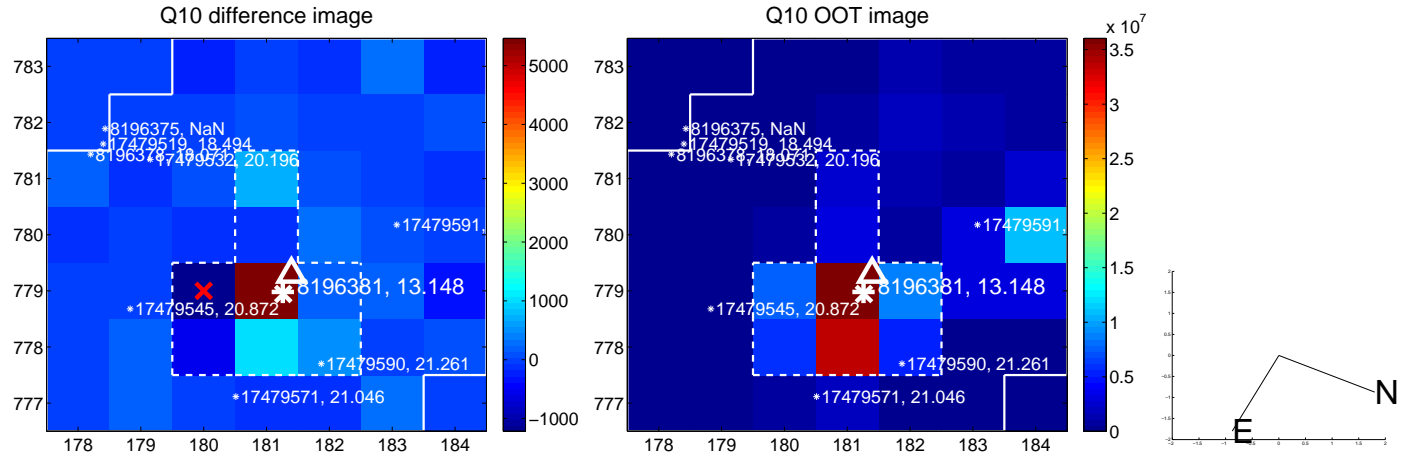
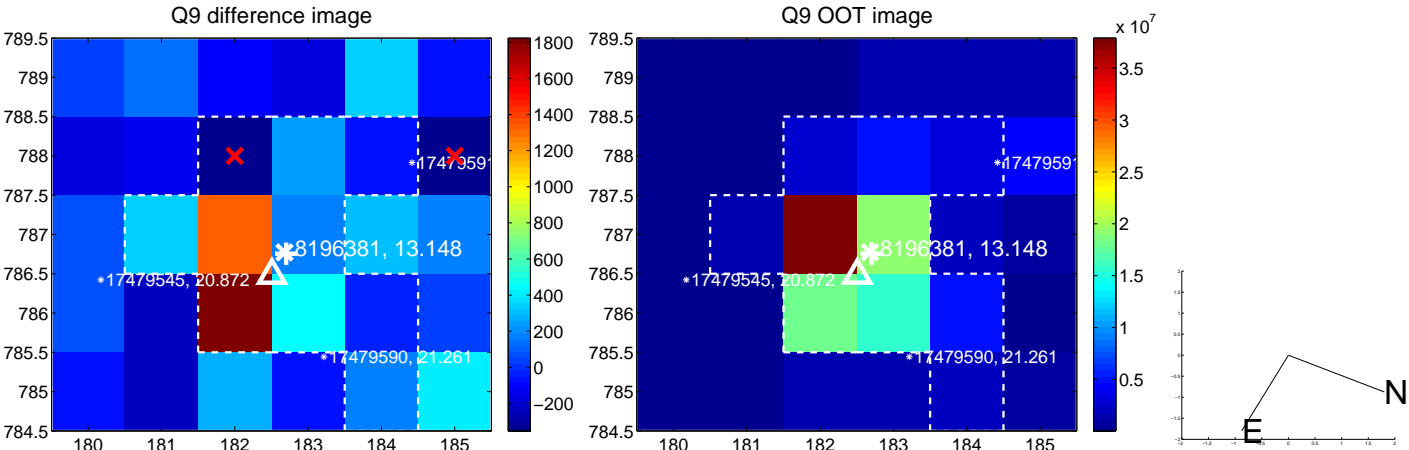


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

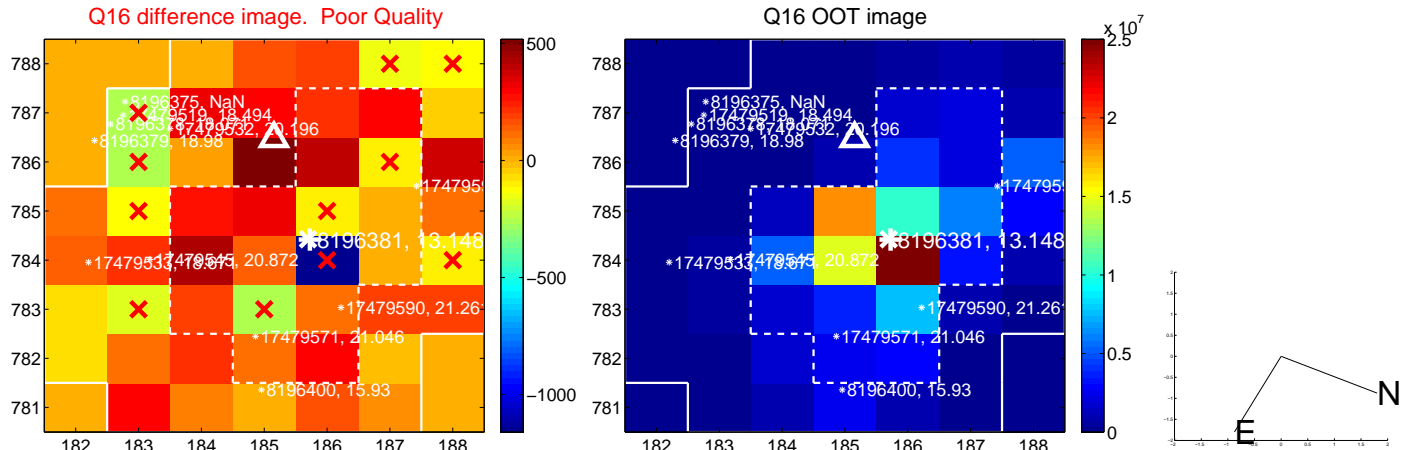
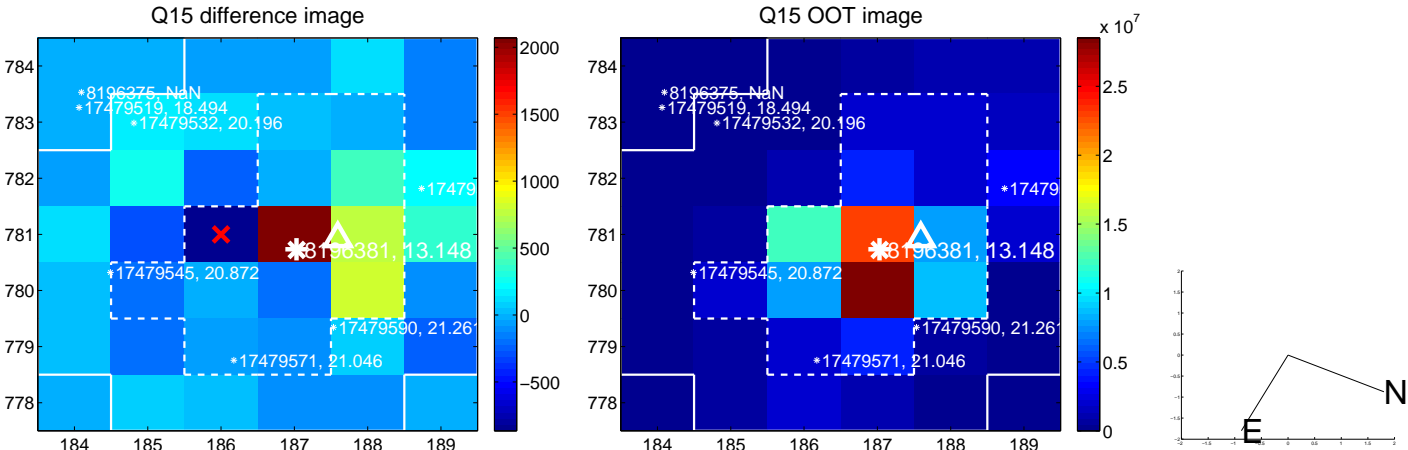
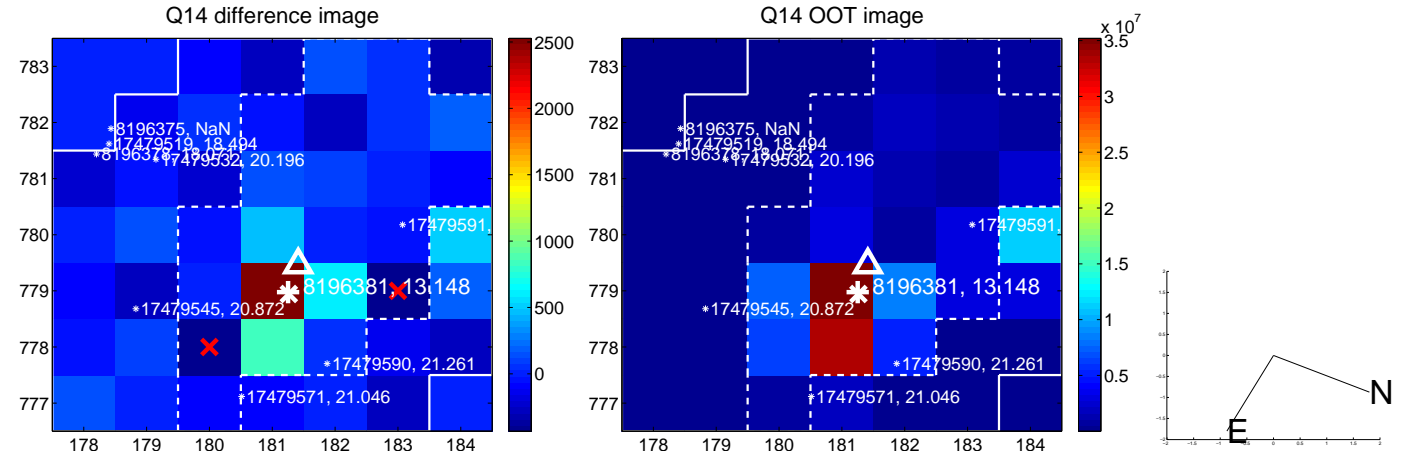
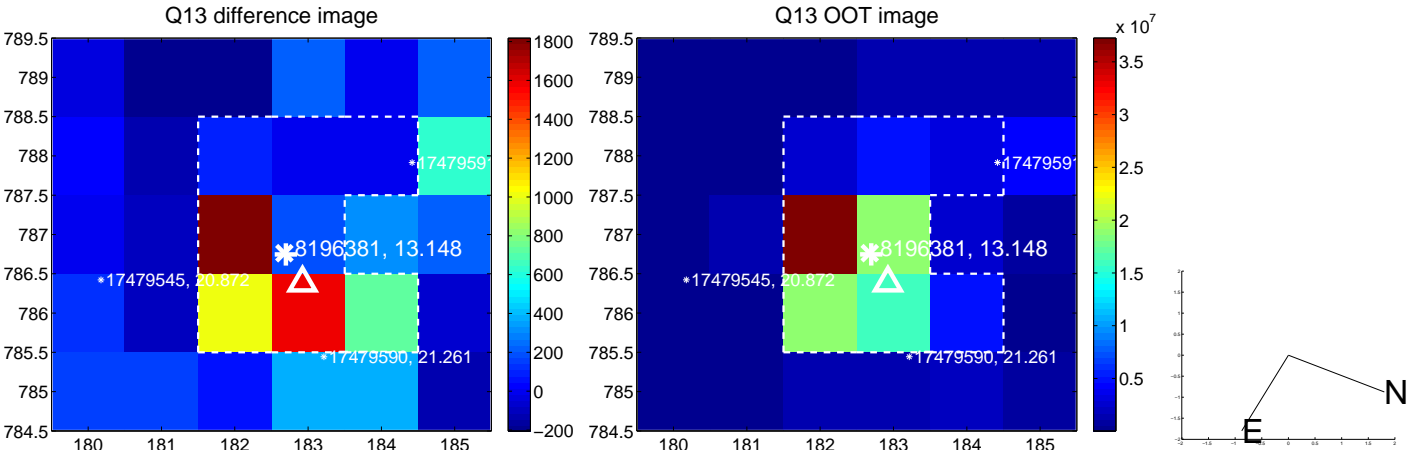




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





# UKIRT Image

Declination

