

# KIC 009397900

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009397900-01 | OBS      | 7169.01 | 10.511881     | 140.926133   | 28.4        | 6.435            | 8.0 | 8.3 | 1.30                        | 6575            | 0.81                   | 289.72                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 009397900-01 | OBS      | PC   | 0.73  | 0 | 0 | 0 | 0 | NO_COMMENT |

**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 009397900-01

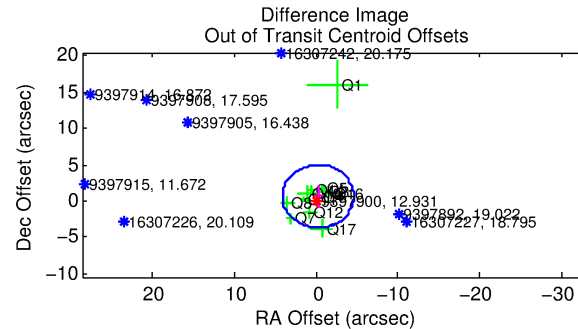
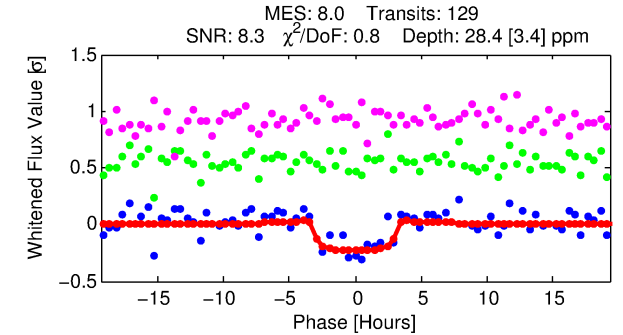
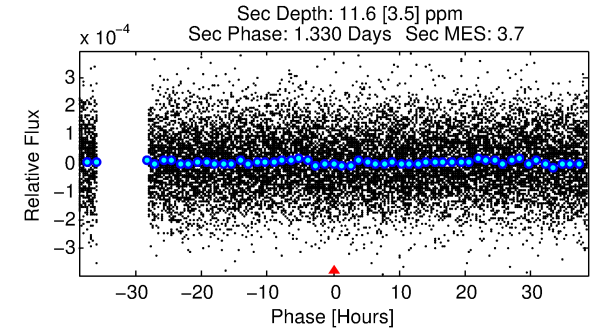
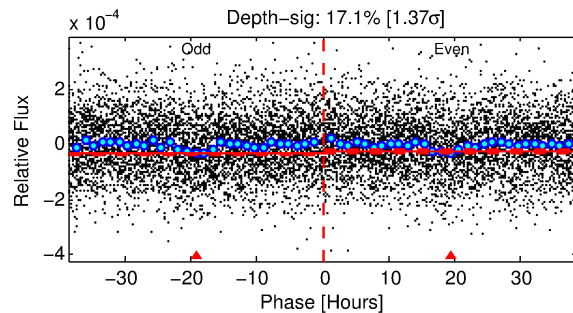
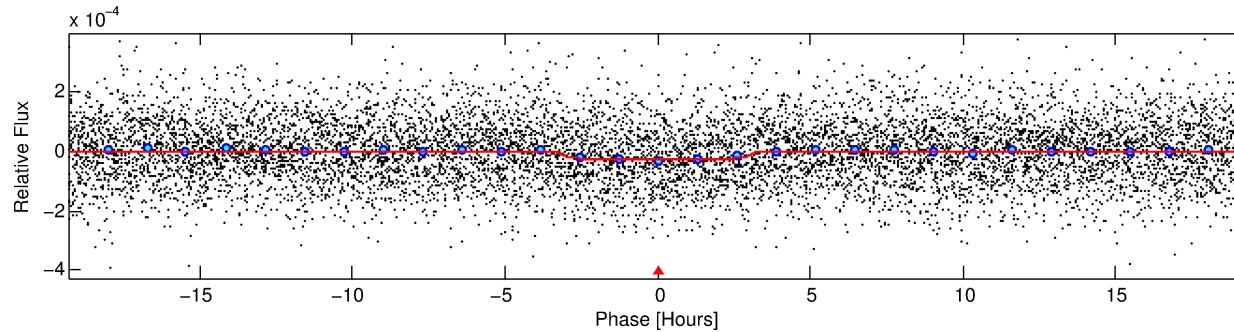
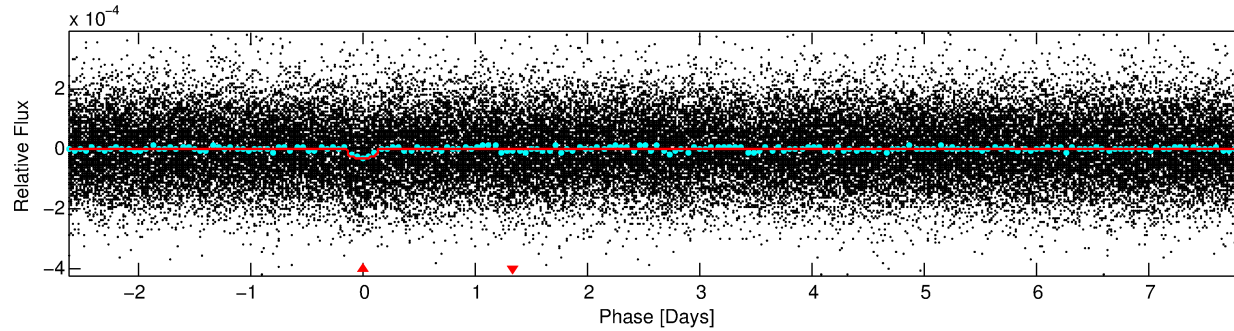
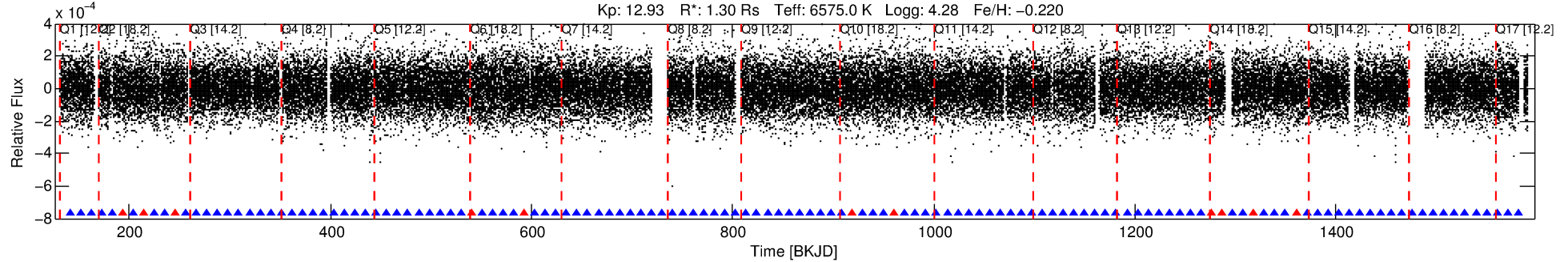
No Significant Match Found

# DV One-Page Summary

KIC: 9397900 Candidate: 1 of 1 Period: 10.512 d

KOI: K07169.01 Corr: 0.876

Kp: 12.93 R\*: 1.30 Rs Teff: 6575.0 K Logg: 4.28 Fe/H: -0.220



## DV Fit Results:

Period = 10.51188 [0.00015] d  
Epoch = 140.9261 [0.0117] BKJD  
Rp/R\* = 0.0057 [0.0019]  
a/R\* = 5.72 [10.76]  
b = 0.90 [0.42]  
Seff = 289.72 [116.22]  
Teq = 1052 [106] K  
Rp = 0.81 [0.37] Re  
a = 0.0992 [0.0256] AU  
Ag = 95.91 [78.90] [1.20σ]  
Teffp = 5090 [954] K [4.21σ]

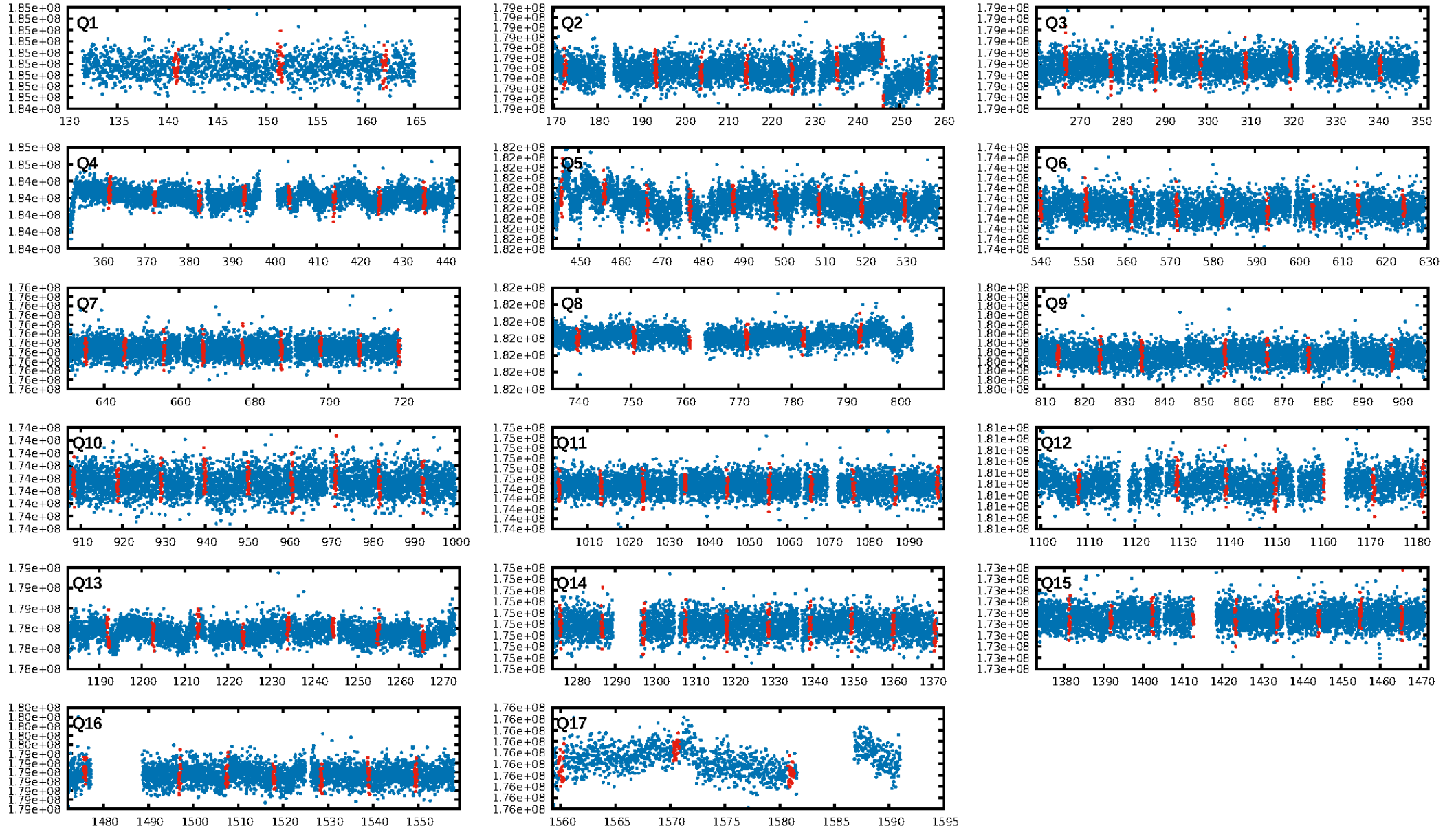
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 89.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.54e-15  
RollingBand-fgt: 0.91 [112/123]  
GhostDiagnostic-chr: -7.558  
Centroid-sig: 0.3%  
Centroid-so: 3.790 arcsec [2.48σ]  
OotOffset-rm: 0.671 arcsec [0.46σ]  
KicOffset-rm: 0.792 arcsec [0.60σ]  
OotOffset-st: 2/3/4/3 [12]  
KicOffset-st: 2/3/4/3 [12]  
DiffImageQuality-fgm: 0.58 [7/12]  
DiffImageOverlap-fno: 1.00 [17/17]

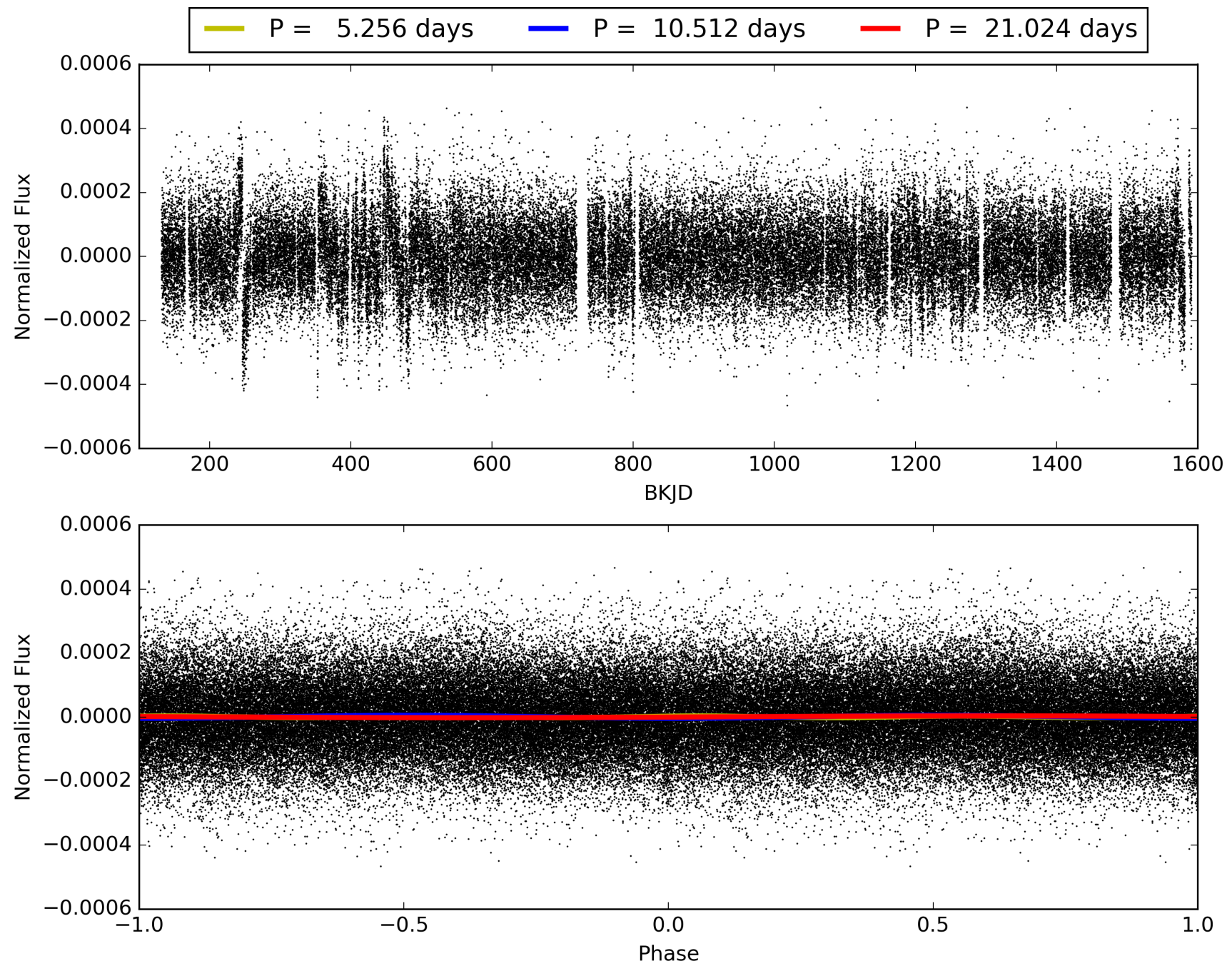
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:46:09 Z

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

# TCE 009397900-01, PDC Light Curves

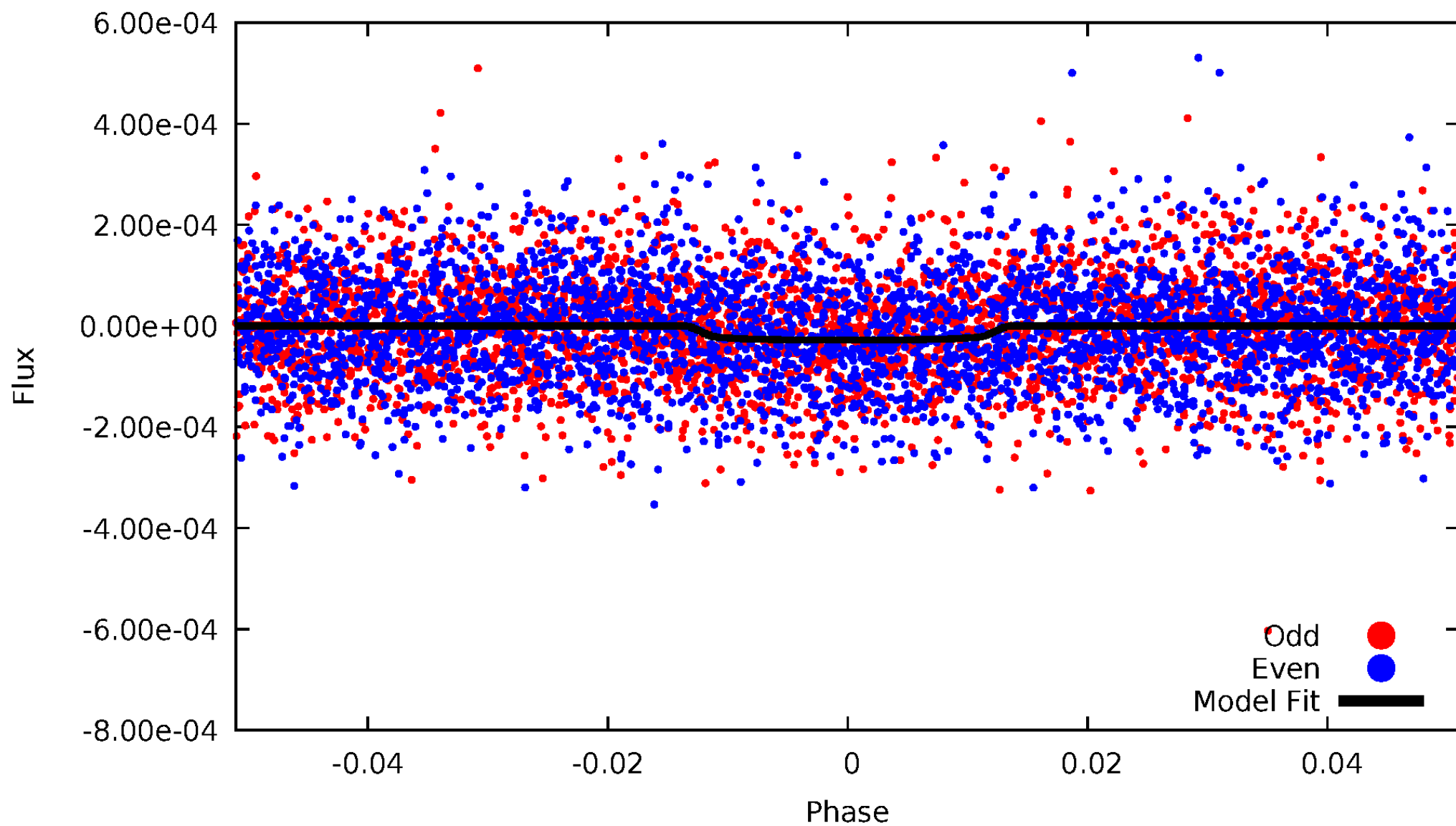


TCE 009397900-01



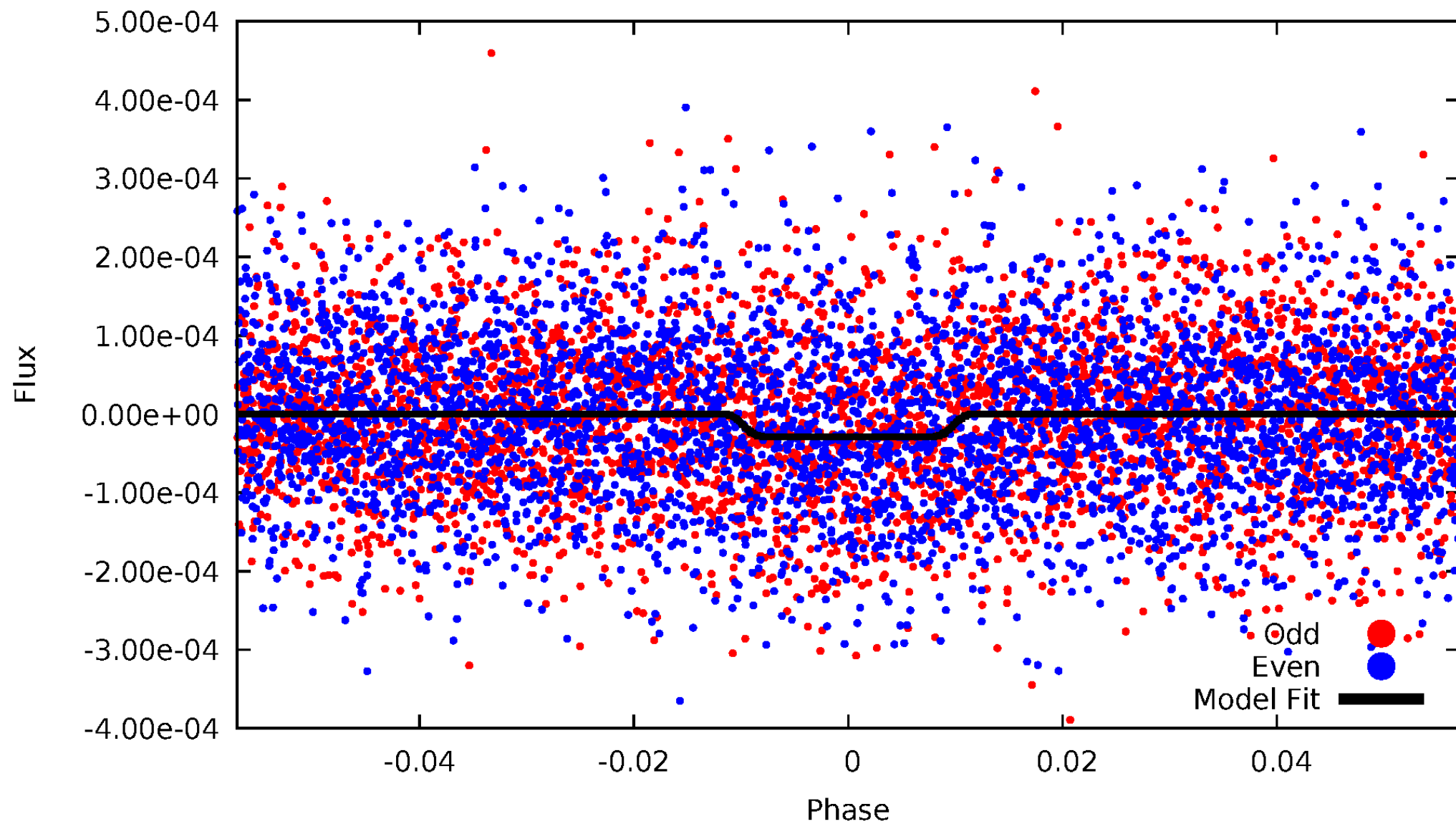
# DV Odd/Even

TCE 009397900-01



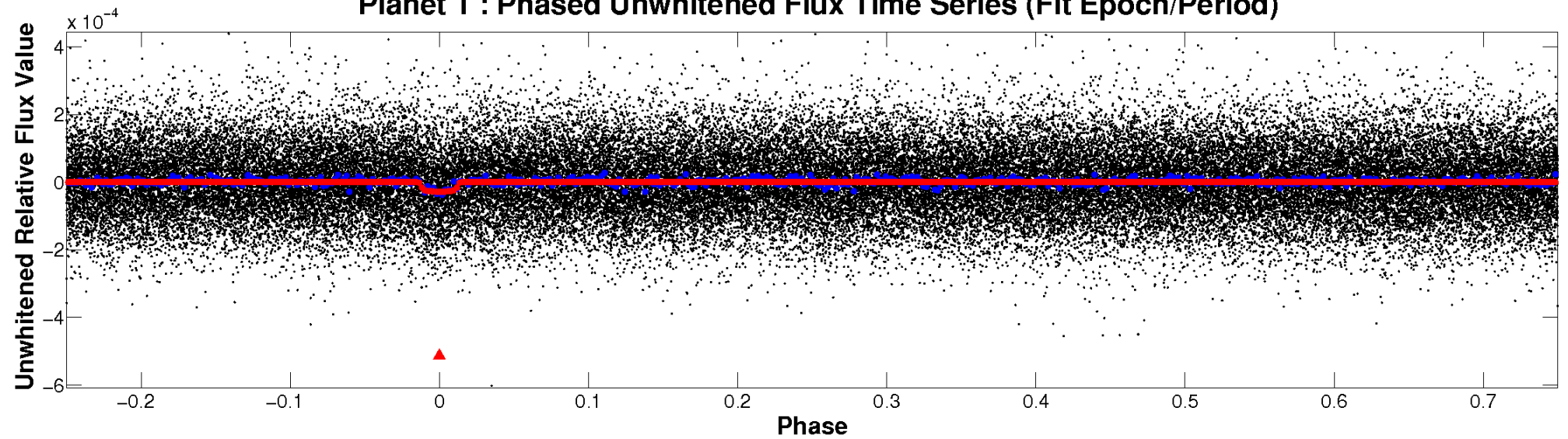
# ALT Odd/Even

TCE 009397900-01

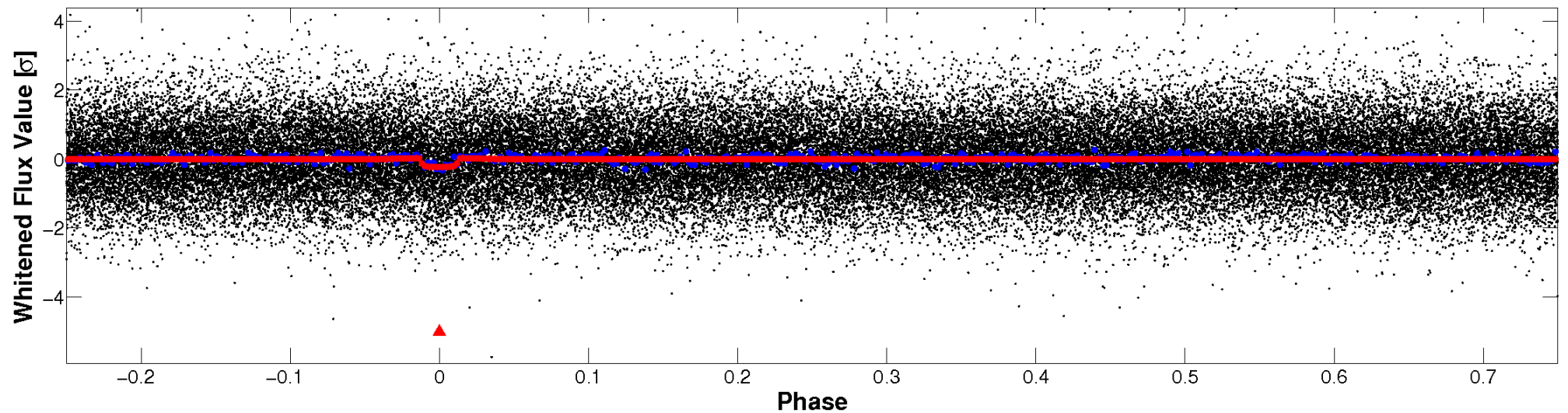


# Non-Whitened Vs. Whitened Light Curve

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

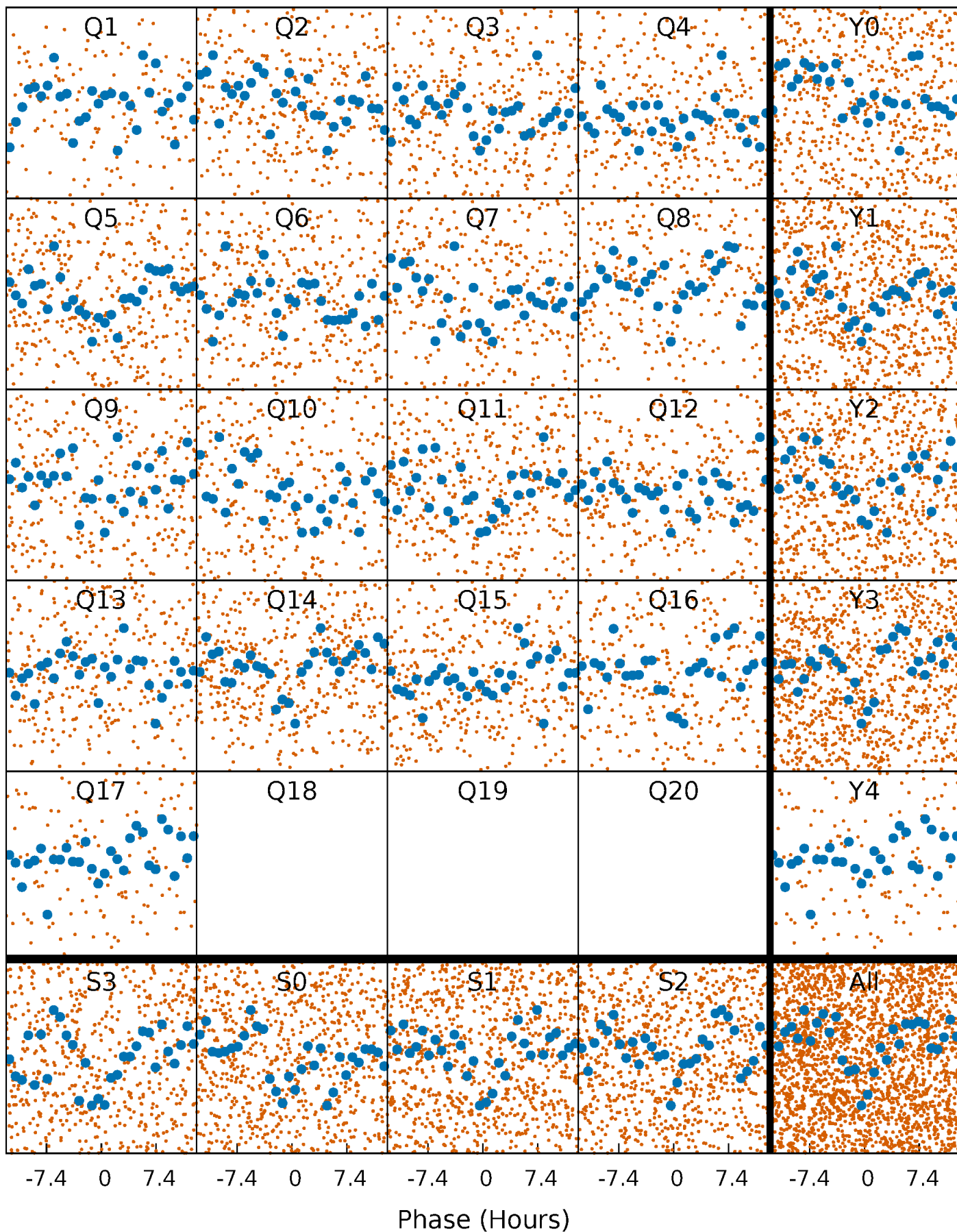


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



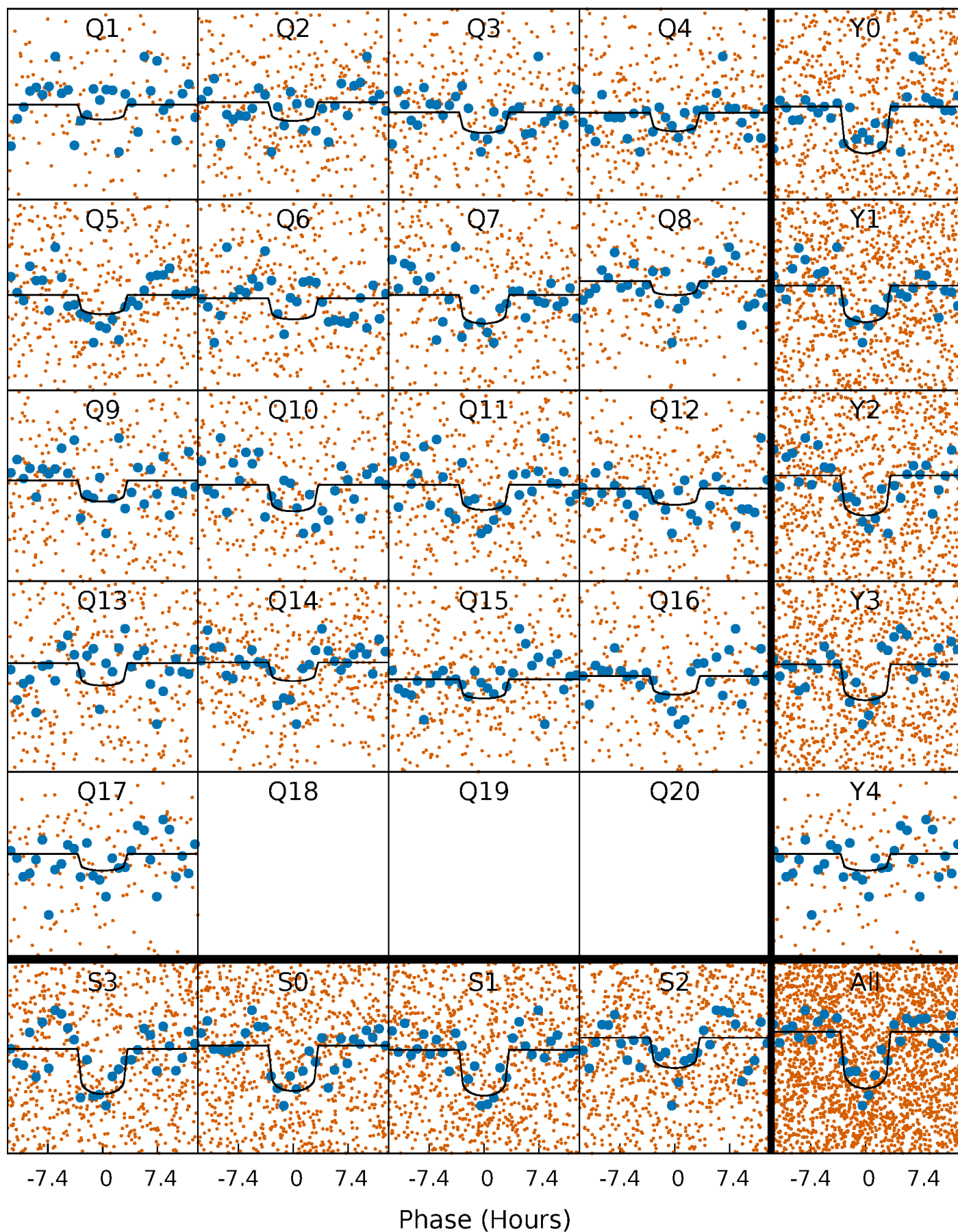
# PDC Quarter-Phased Transit Curves

TCE 009397900-01 P= 10.511881 Days  $T_0=140.926133$  (BKJD)



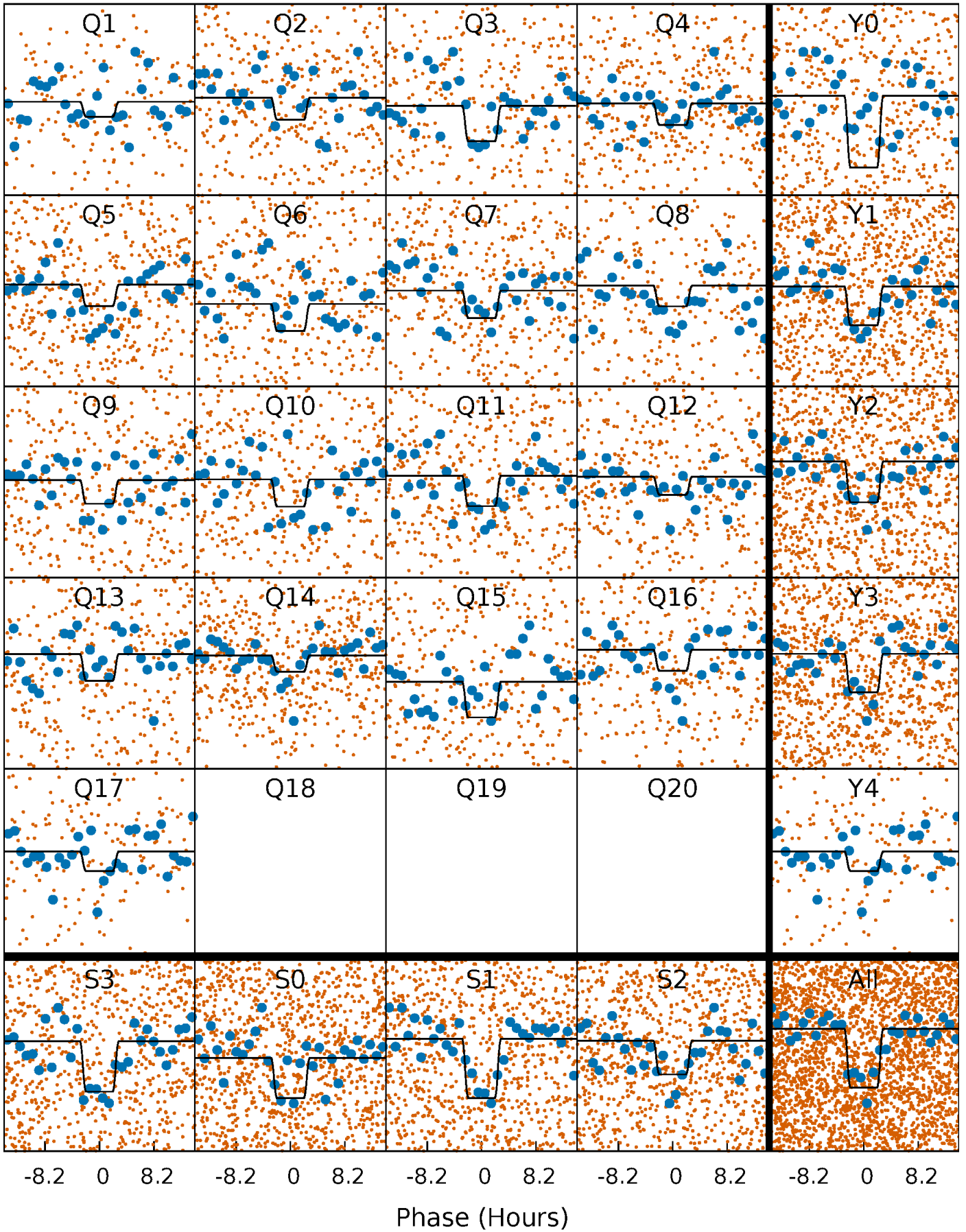
# DV Quarter-Phased Transit Curves

TCE 009397900-01 P= 10.511881 Days  $T_0=140.926133$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

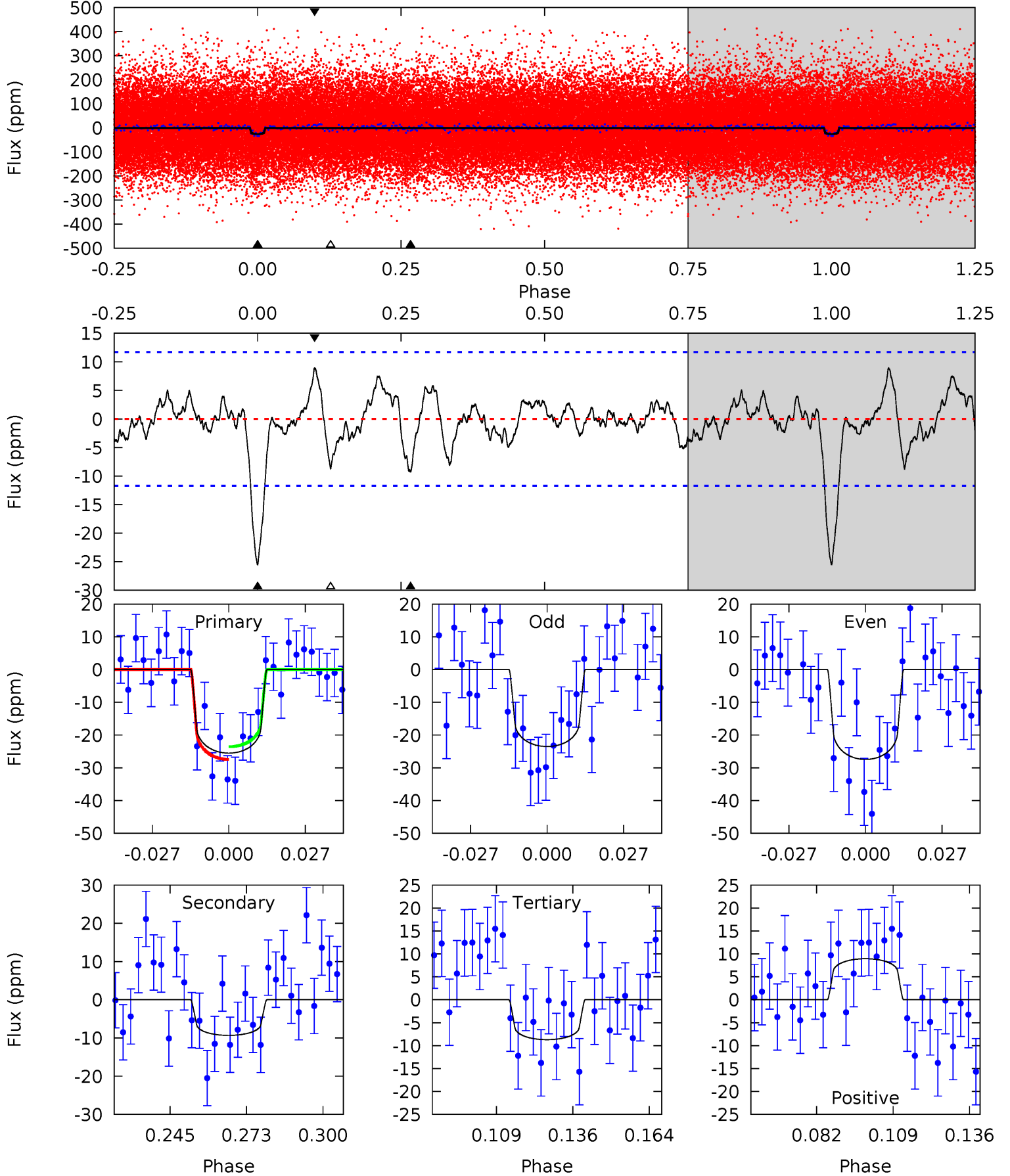
TCE 009397900-01 P= 10.511769 Days  $T_0=140.924419$  (BKJD)



# DV Model-Shift Uniqueness Test

009397900-01,  $P = 10.511881$  Days,  $E = 130.414252$  Days

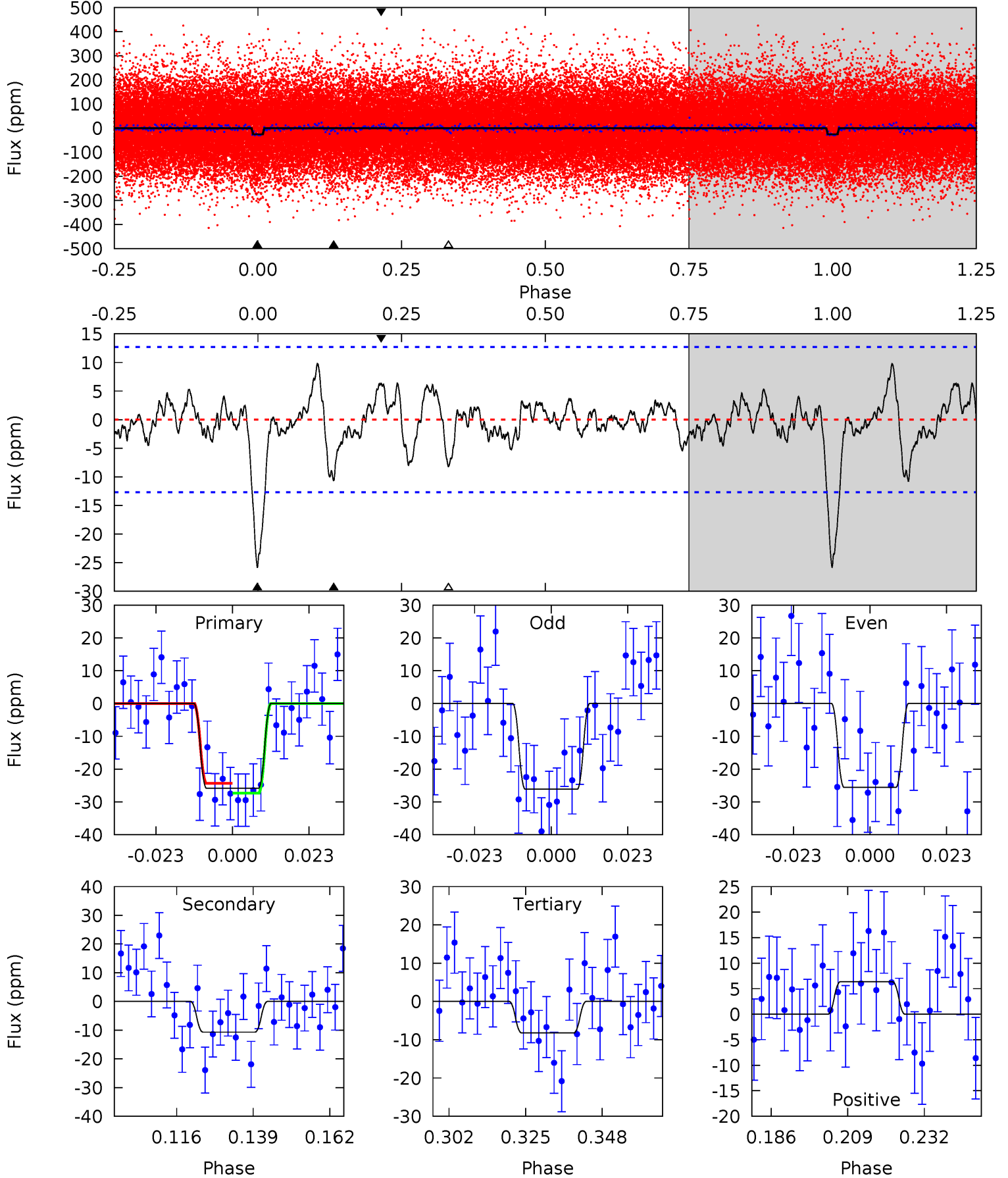
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.5 | 3.85 | 3.59 | 3.69 | 4.83            | 2.21            | 1.19             | 6.94    | 6.84    | 0.25    | 0.16    | 0.81    | 1.04 | 0.26  | 0.80 |



# Alt Model-Shift Uniqueness Test

009397900-01,  $P = 10.511769$  Days,  $E = 130.412650$  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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.89 | 4.09 | 3.15 | 2.44 | 4.86            | 2.27            | 1.09             | 6.74    | 7.45    | 0.94    | 1.65    | 0.12    | 0.94 | 0.27  | 0.58 |



### Stellar Parameters For KIC 009397900

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6575^{+181}_{-250}$ | $4.278^{+0.124}_{-0.201}$ | $-0.220^{+0.250}_{-0.300}$ | $1.305^{+0.404}_{-0.218}$ | $1.182^{+0.188}_{-0.169}$ | $0.749^{+0.445}_{-0.375}$                 |
|        | +3%/-4%              | +3%/-5%                   | +114%/-136%                | +31%/-17%                 | +16%/-14%                 | +59%/-50%                                 |
| Source | PHO54                | PHO54                     | PHO54                      | DSEP                      |                           |   |

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

### Secondary Eclipse Parameters for KIC 009397900-01 / KOI 7169.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$  | $A_{\text{obs}}$  |
|---------|-------------|------------------------|----------------------|-----------------------|-------------------|
| DV      | $-9 \pm 2$  | $0.82^{+0.32}_{-0.28}$ | $1478^{+109}_{-87}$  | $4888^{+1024}_{-648}$ | $74^{+101}_{-39}$ |
| Alt.    | $-11 \pm 3$ | $0.78^{+0.31}_{-0.27}$ | $1476^{+117}_{-87}$  | $5133^{+1156}_{-666}$ | $93^{+131}_{-48}$ |

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

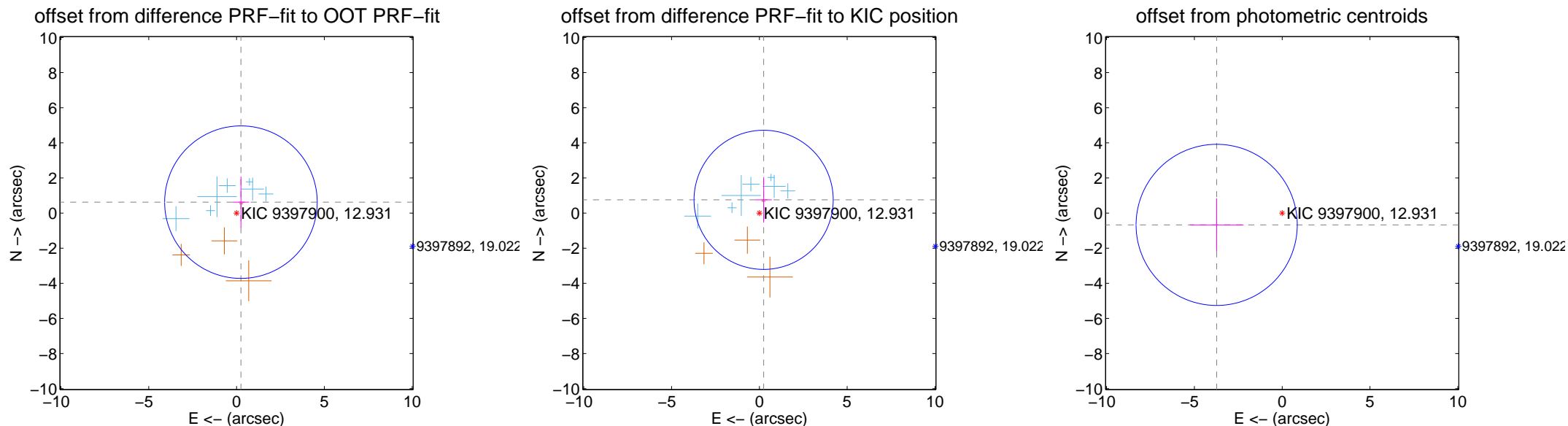
## DV Centroid Data

Supplemental centroid analysis for 009397900-01. Kepler magnitude: 12.93. Transit SNR 8.28

There are 7 quarters with good PRF difference image offsets

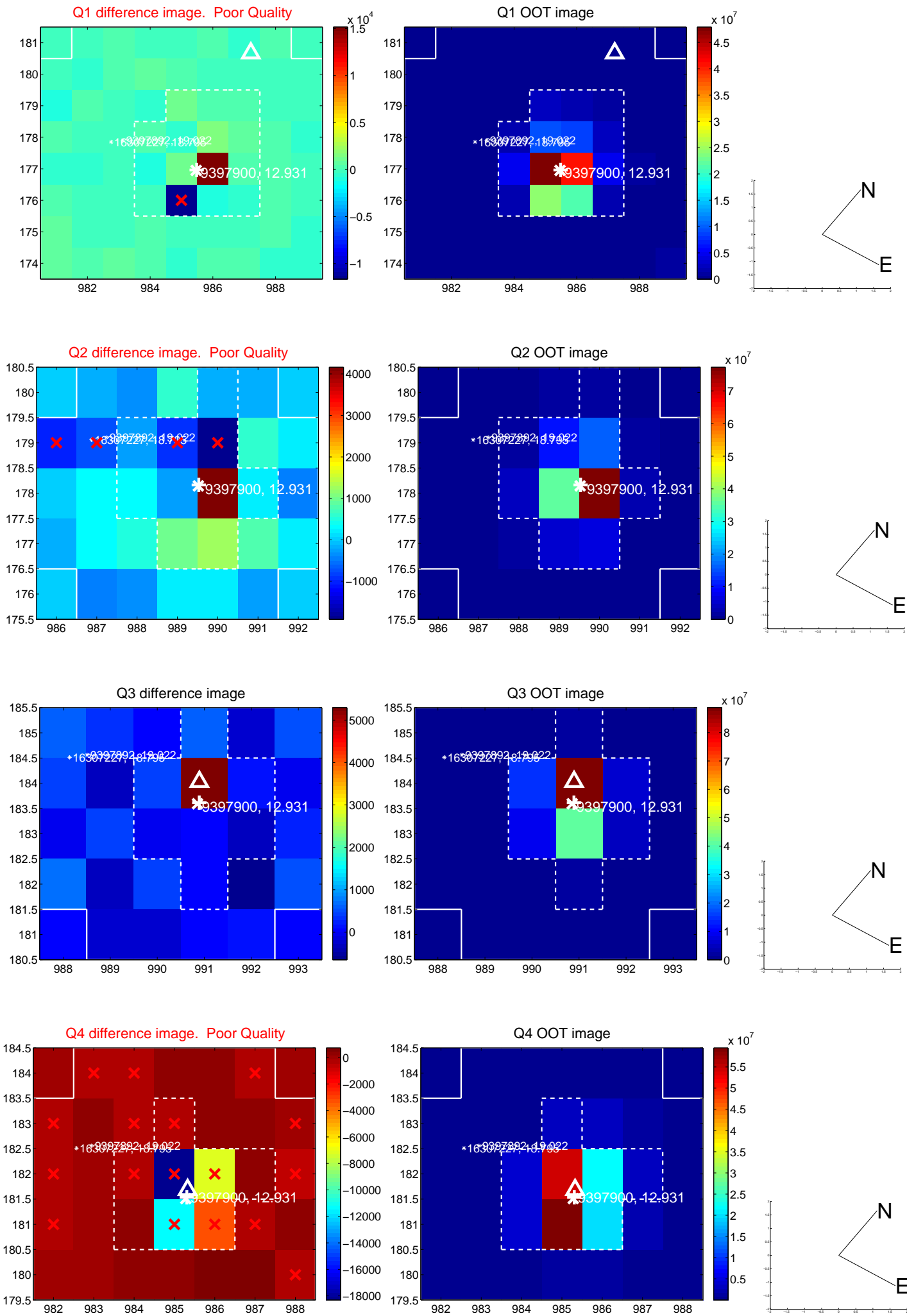
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec      |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT          | $0.671 \pm 1.448$  | 0.46                | $-0.250 \pm 0.465$ | $0.623 \pm 1.455$ |
| PRF-fit source offset from KIC position | $0.792 \pm 1.321$  | 0.60                | $-0.243 \pm 0.469$ | $0.754 \pm 1.301$ |
| photometric centroid source offset      | $3.79 \pm 1.53$    | 2.48                | $3.73 \pm 1.53$    | $-0.67 \pm 1.51$  |

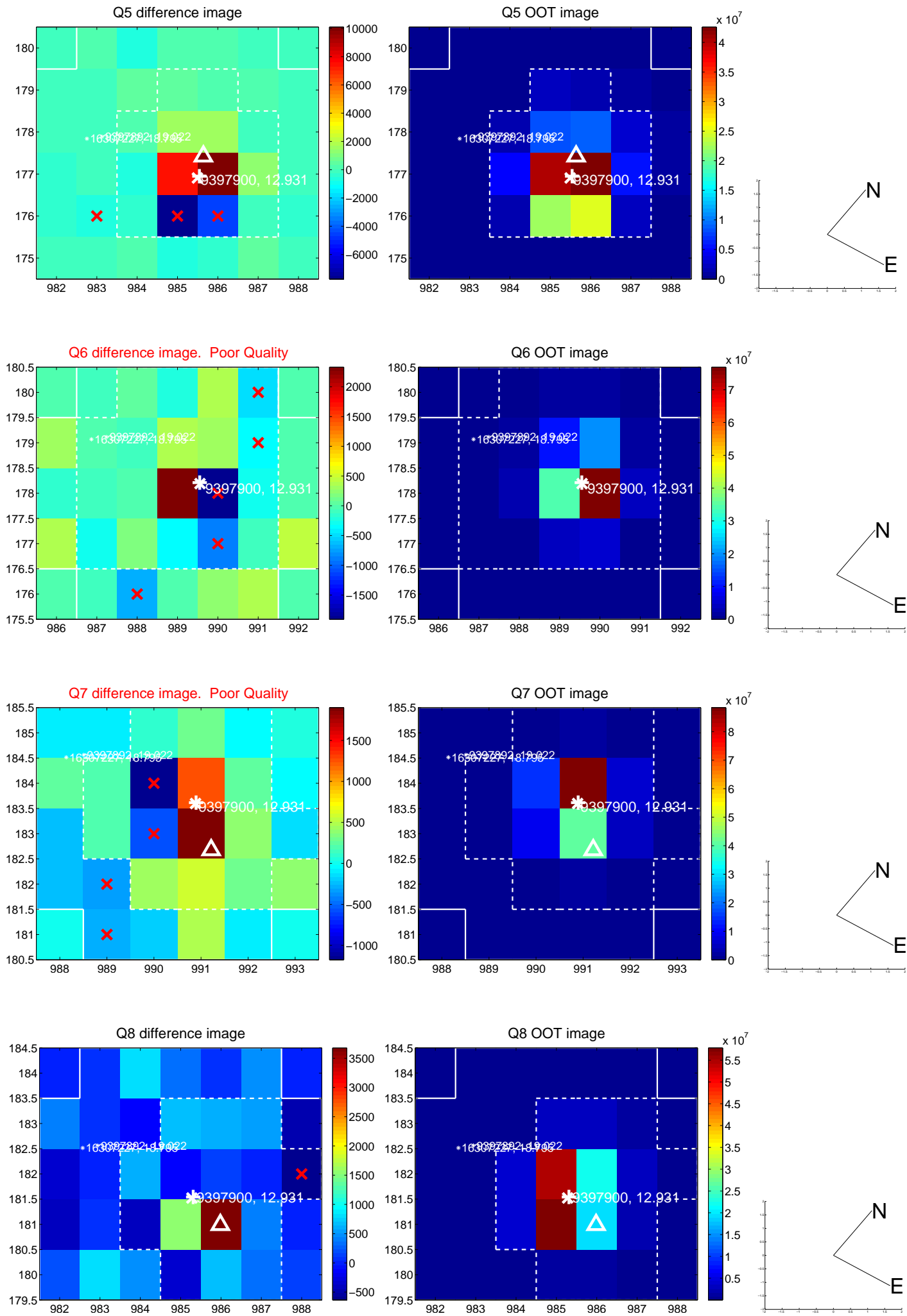


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

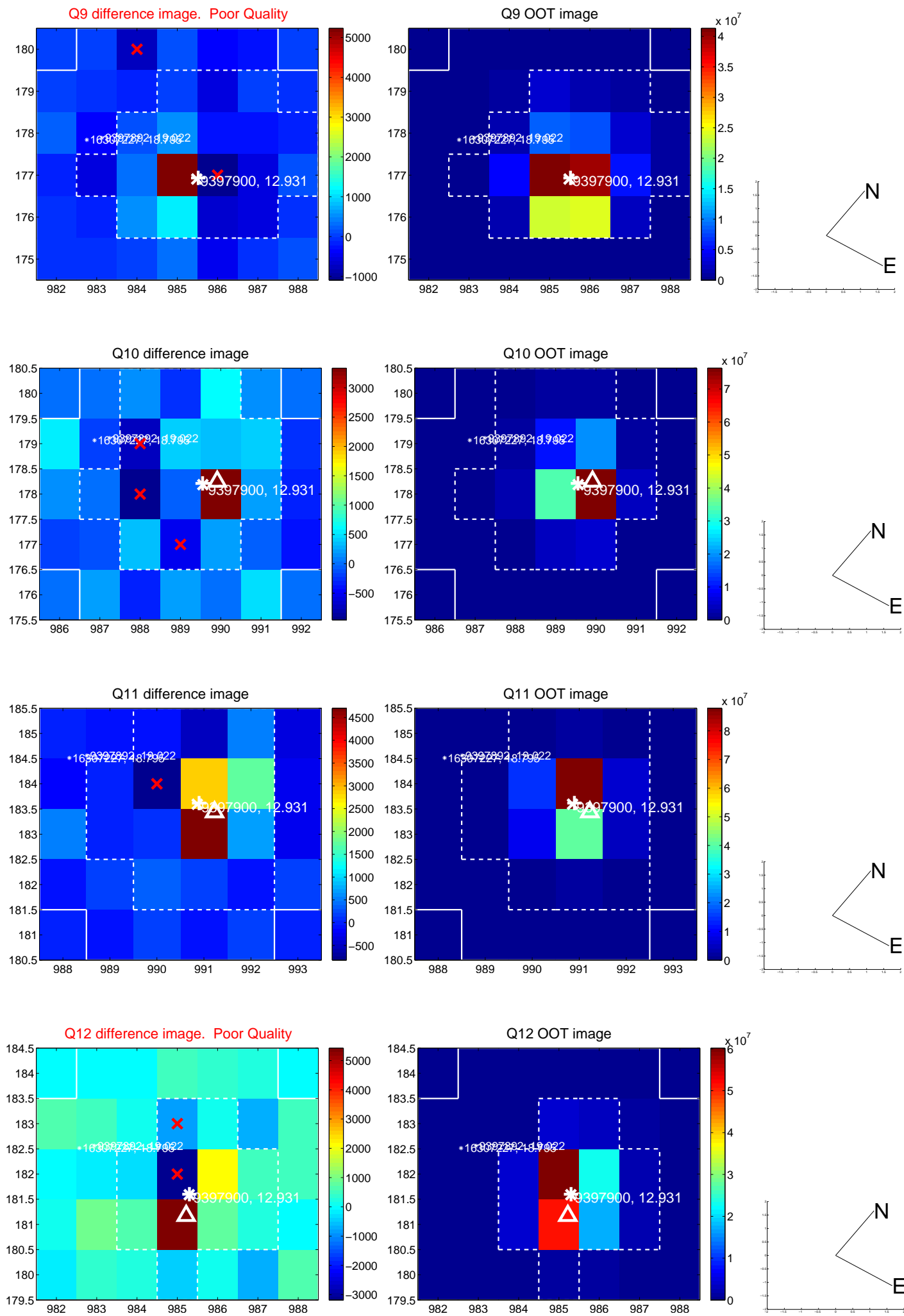
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



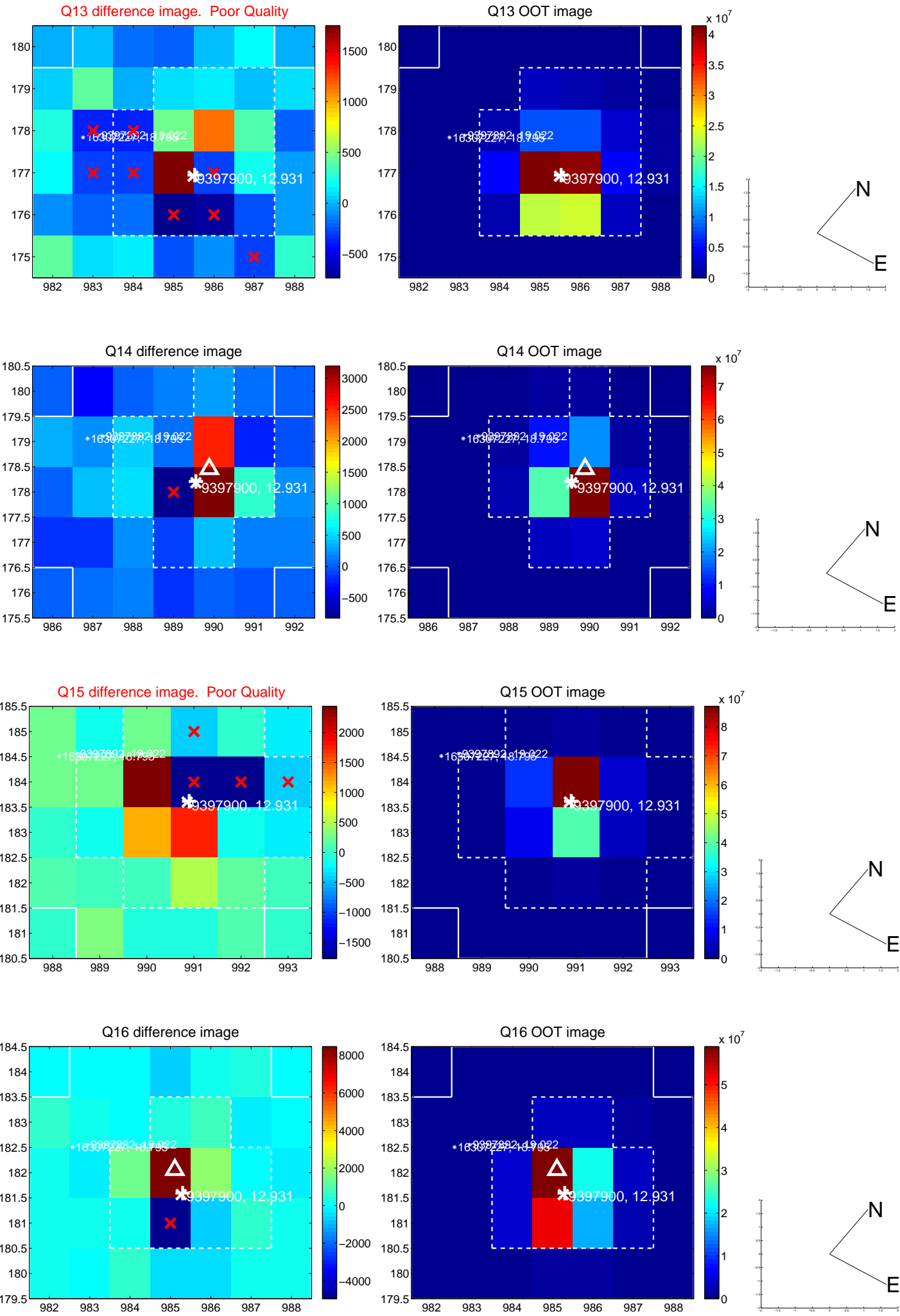
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



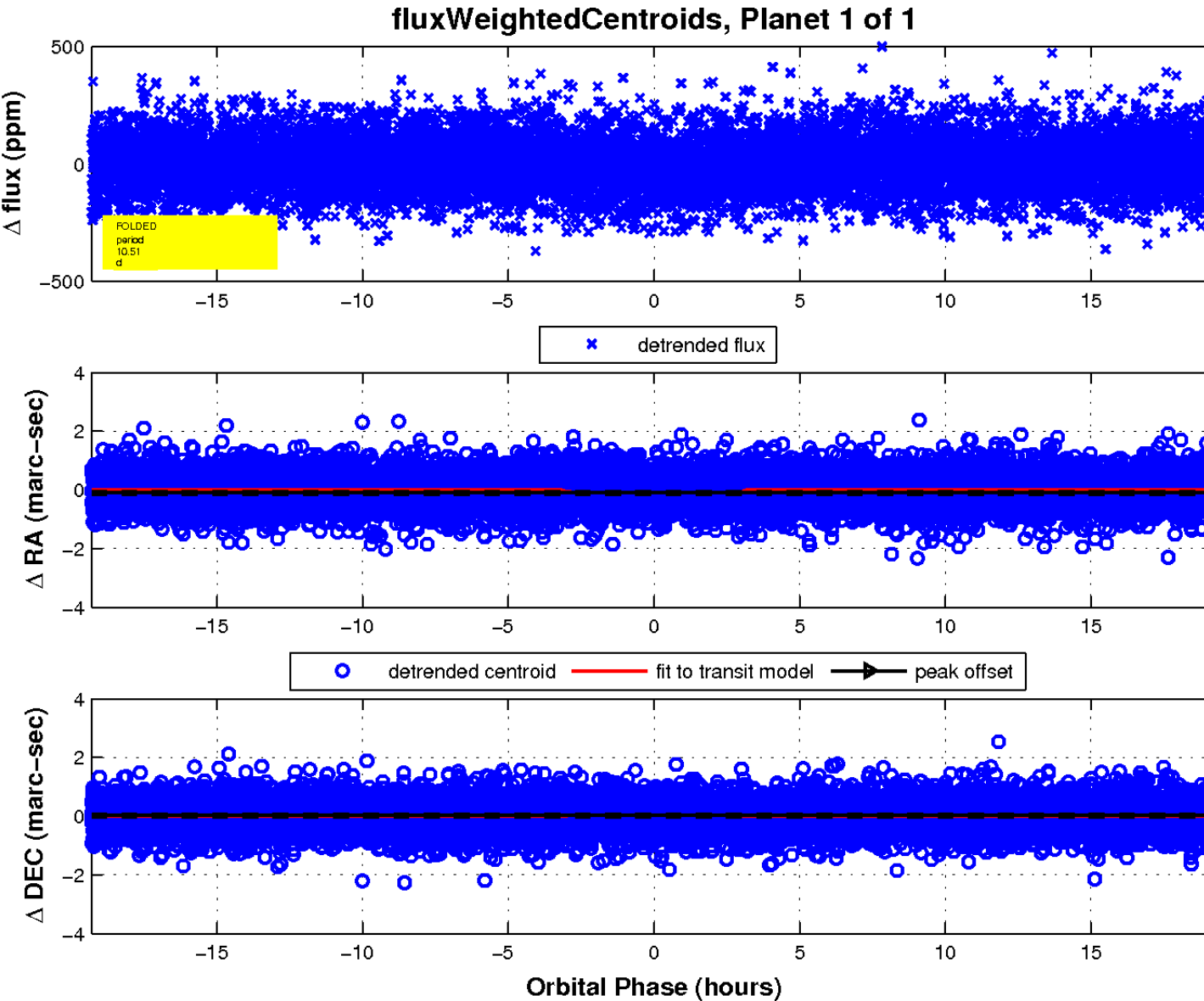
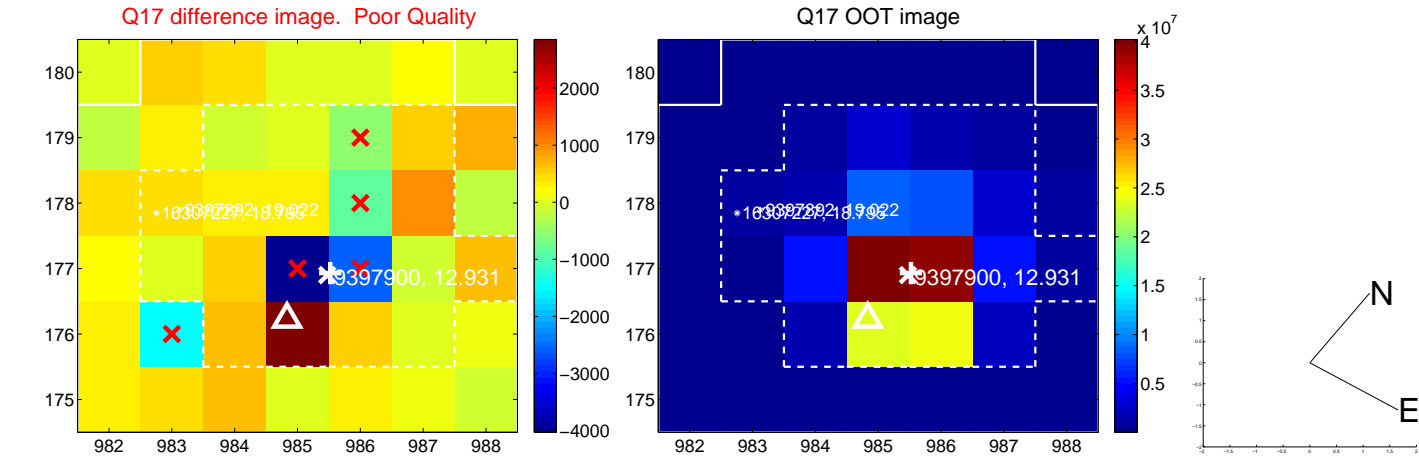
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

