

# KIC 008087018

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008087018-01 | OBS      | No   | 0.586555      | 131.655869   | 64.2        | 4.751            | 10.6 | 8.0 | 1.82                        | 7366            | 1.51                   | 33477.96               |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments                       |
|--------------|----------|------|-------|---|---|---|---|--------------------------------|
| 008087018-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—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.

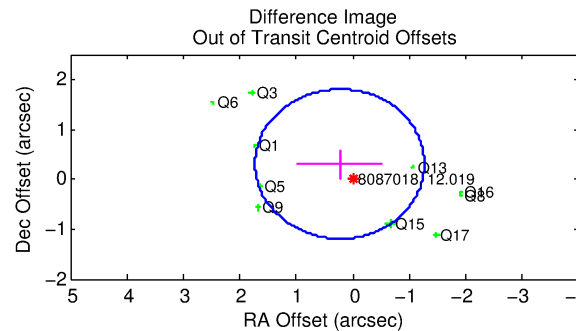
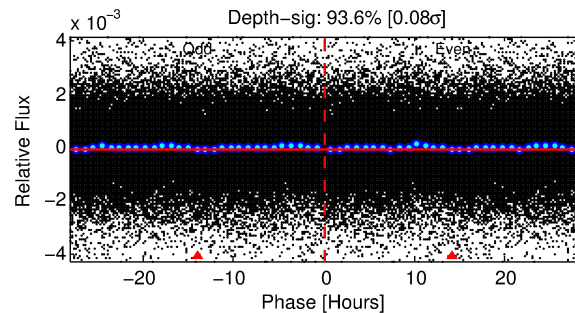
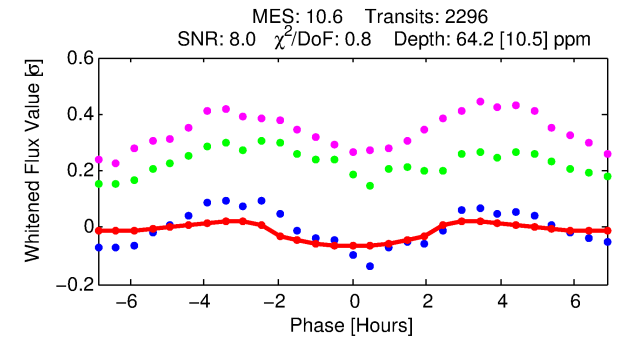
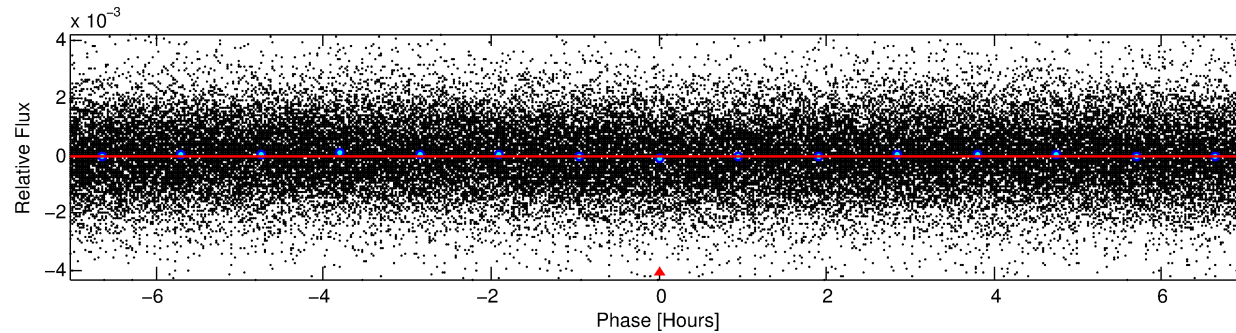
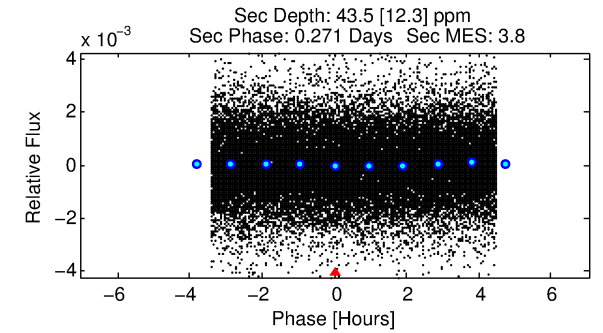
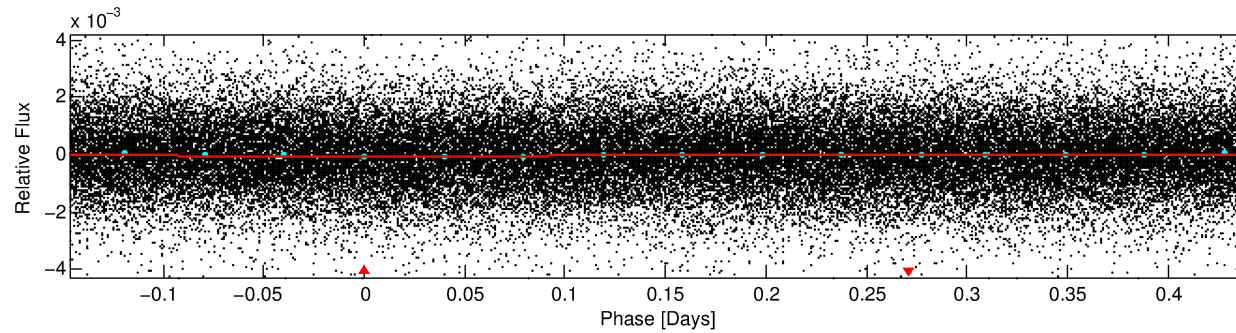
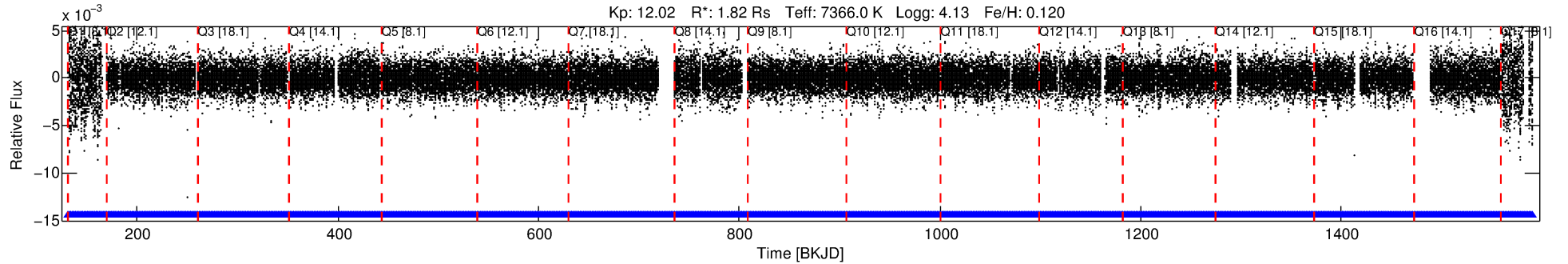
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008087018-01

No Significant Match Found

# DV One-Page Summary

KIC: 8087018 Candidate: 1 of 1 Period: 0.587 d



## DV Fit Results:

Period = 0.58656 [0.00001] d  
Epoch = 131.6559 [0.0054] BKJD  
Rp/R\* = 0.0076 [0.0126]  
a/R\* = 1.12 [2.34]  
b = 0.47 [16.72]  
Seff = 33477.97 [8134.33]  
Teff = 3449 [210] K  
Rp = 1.51 [2.52] Re  
a = 0.0162 [0.0027] AU  
Ag = 2.74 [9.14] [0.19σ]  
Teffp = 6863 [5704] K [0.60σ]

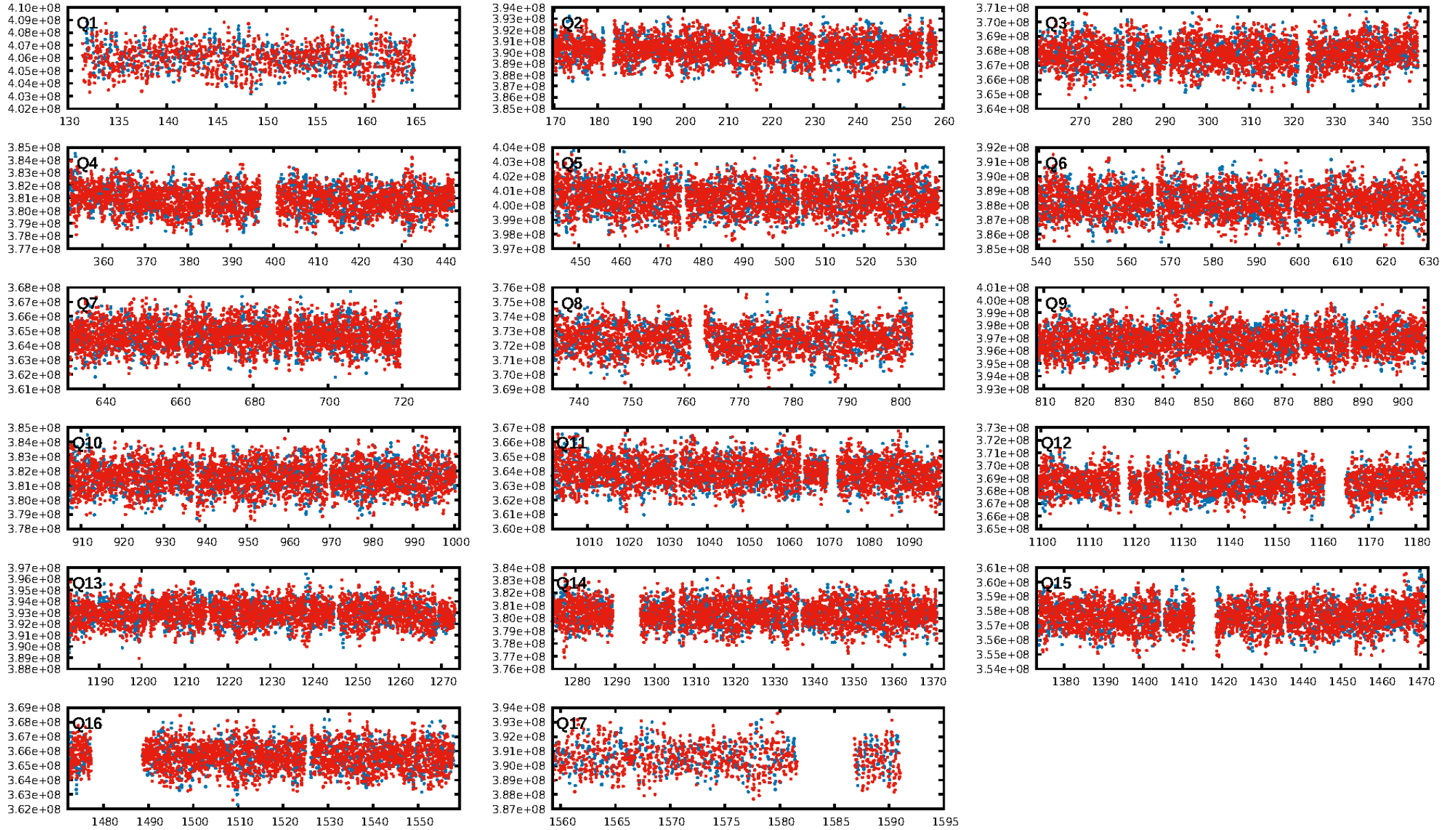
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2191/2191]  
**GhostDiagnostic-chr: 0.9605**  
Centroid-sig: 28.2%  
Centroid-so: 0.082 arcsec [0.74σ]  
OotOffset-rm: 0.383 arcsec [0.77σ]  
OotOffset-st: 1/2/2/5 [10]  
KicOffset-rm: 0.404 arcsec [0.70σ]  
KicOffset-st: 1/2/2/5 [10]  
DiffImageQuality-fgm: 0.80 [8/10]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:09:20 Z

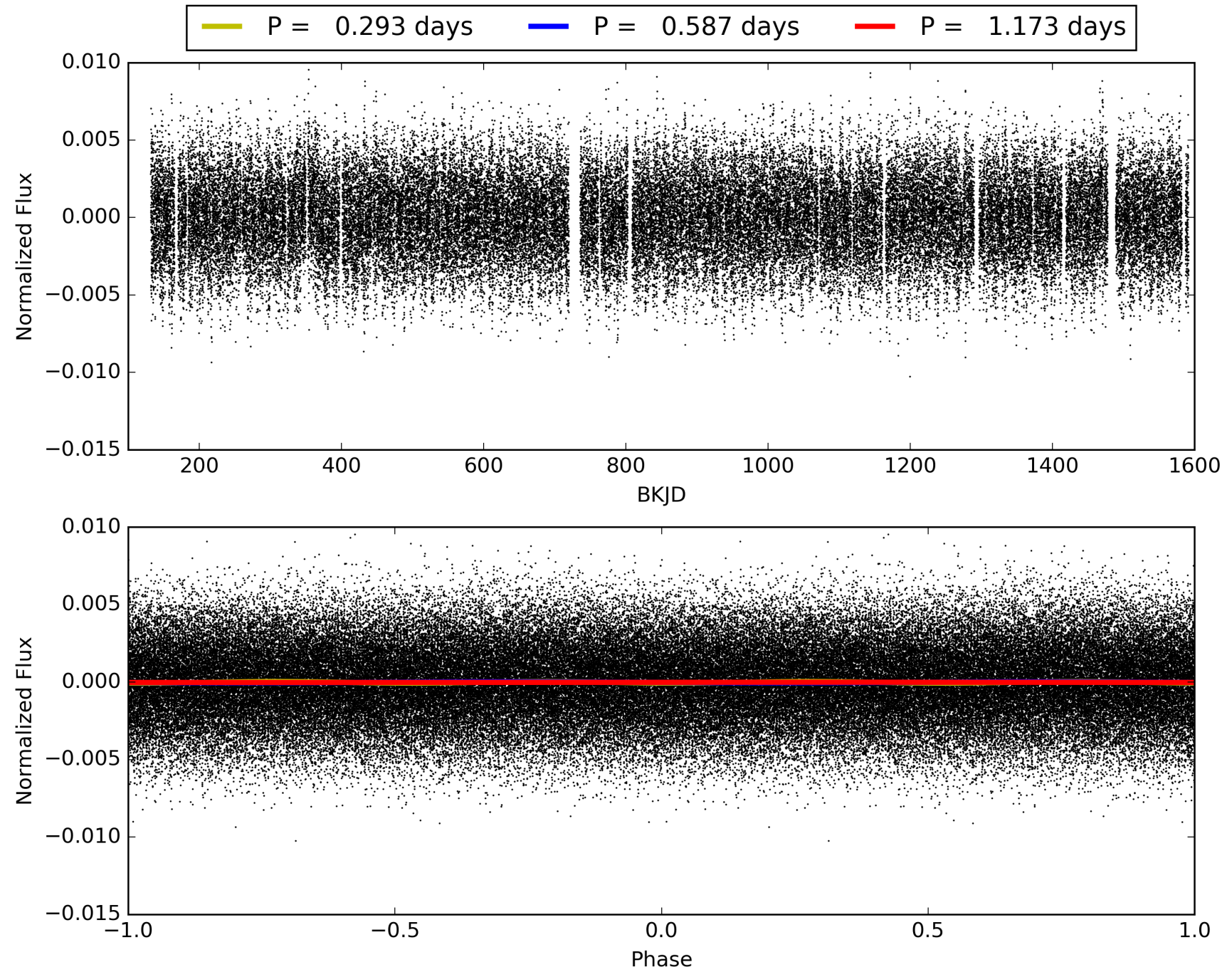
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008087018-01, PDC Light Curves



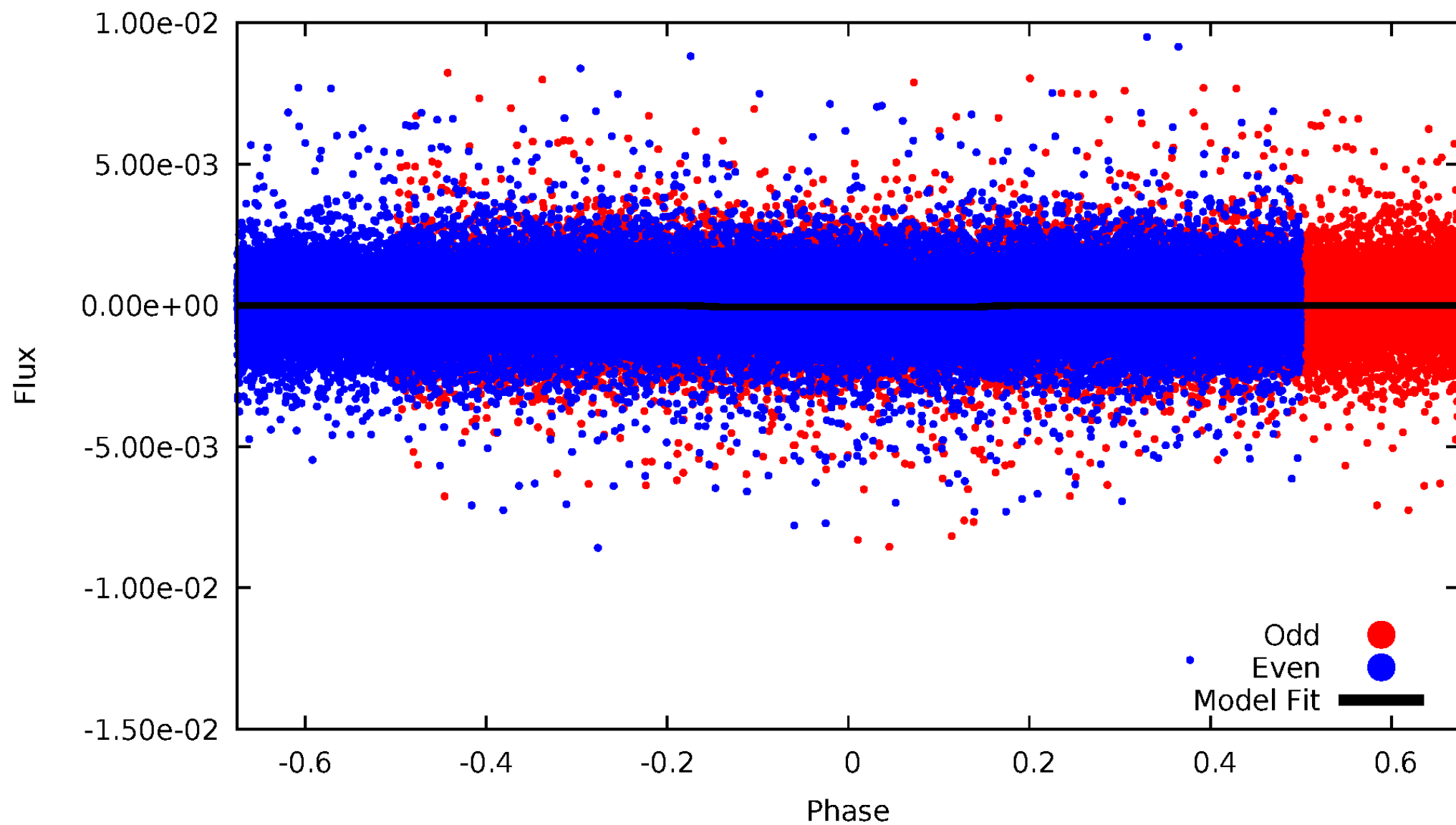


# TCE 008087018-01



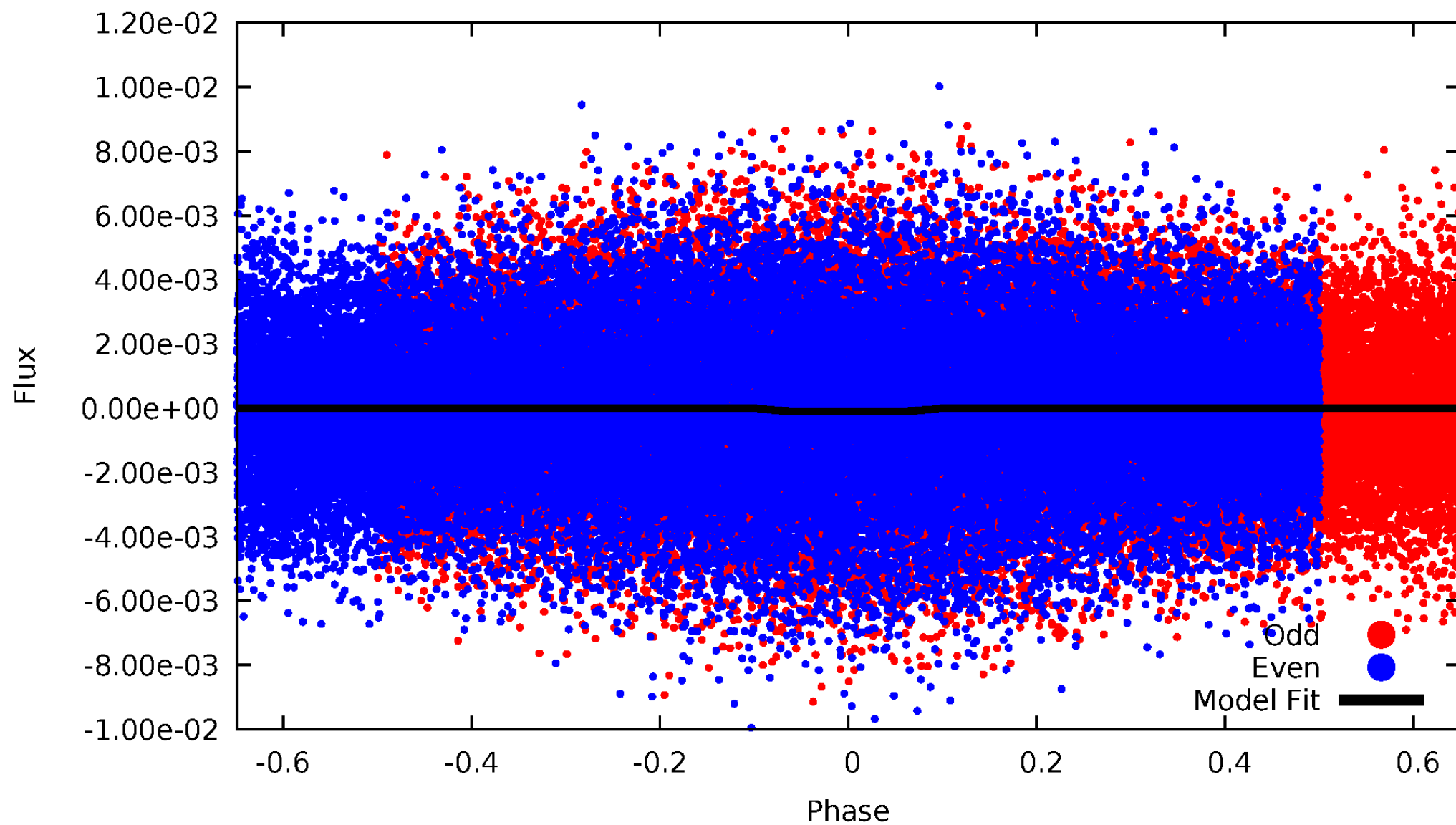
# DV Odd/Even

TCE 008087018-01

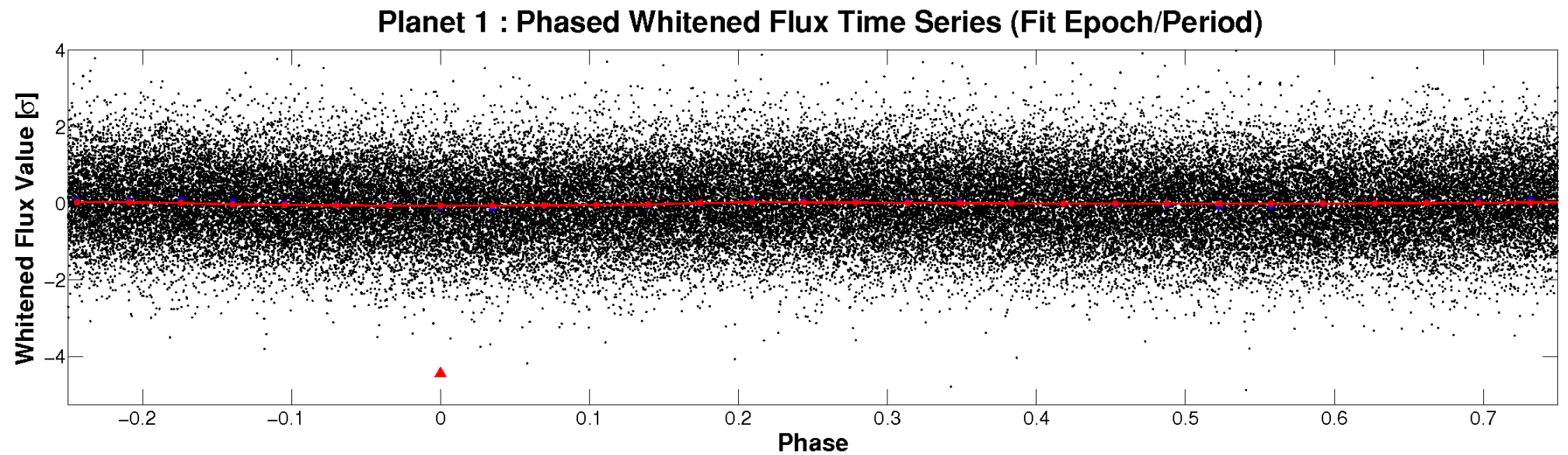
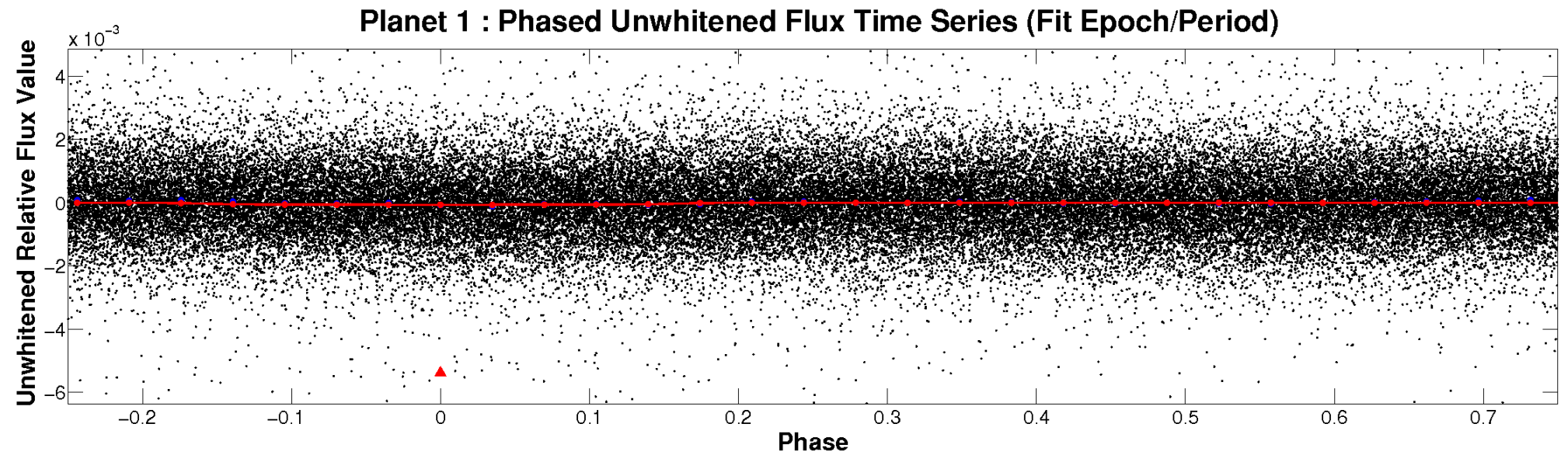


# ALT Odd/Even

TCE 008087018-01



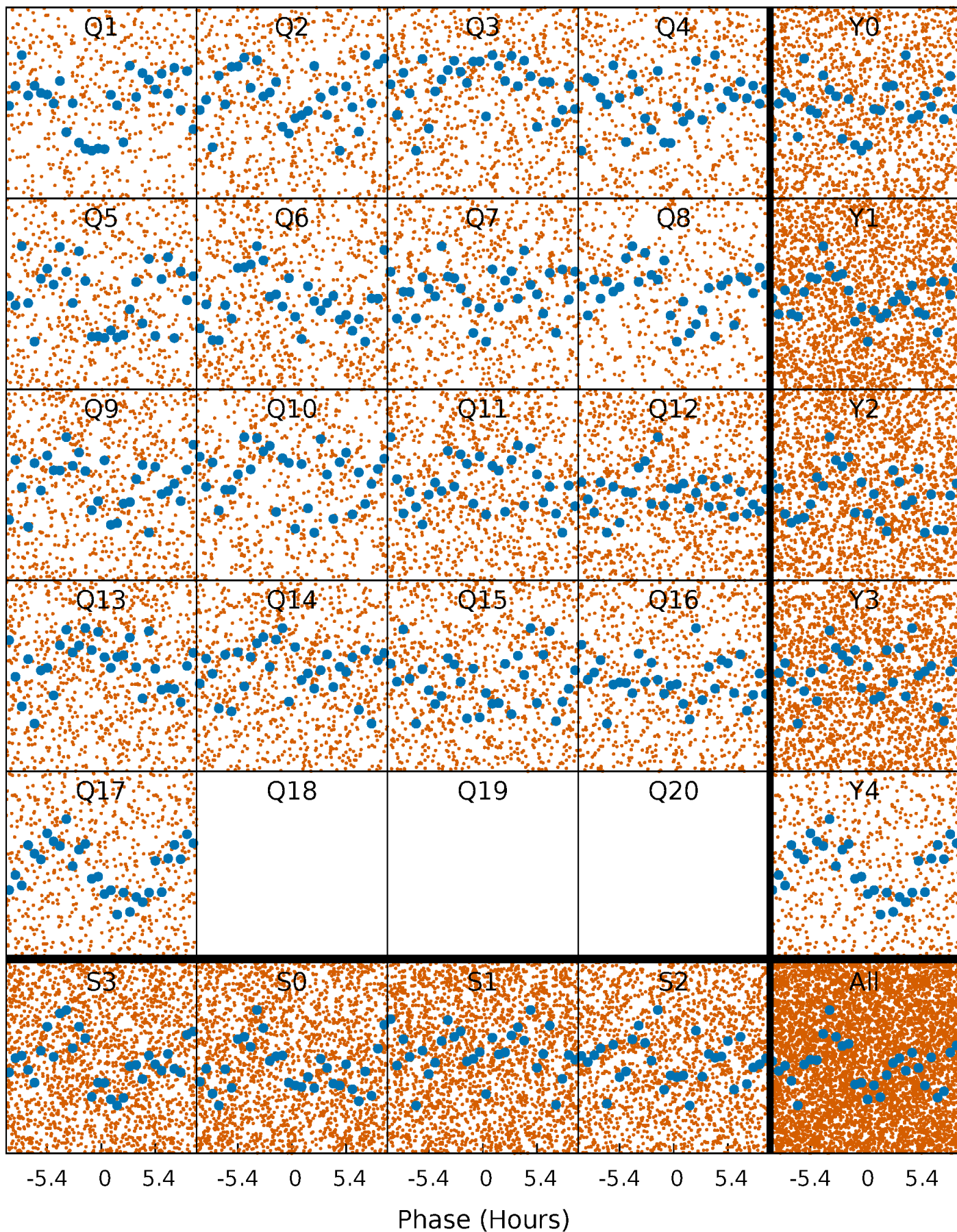
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

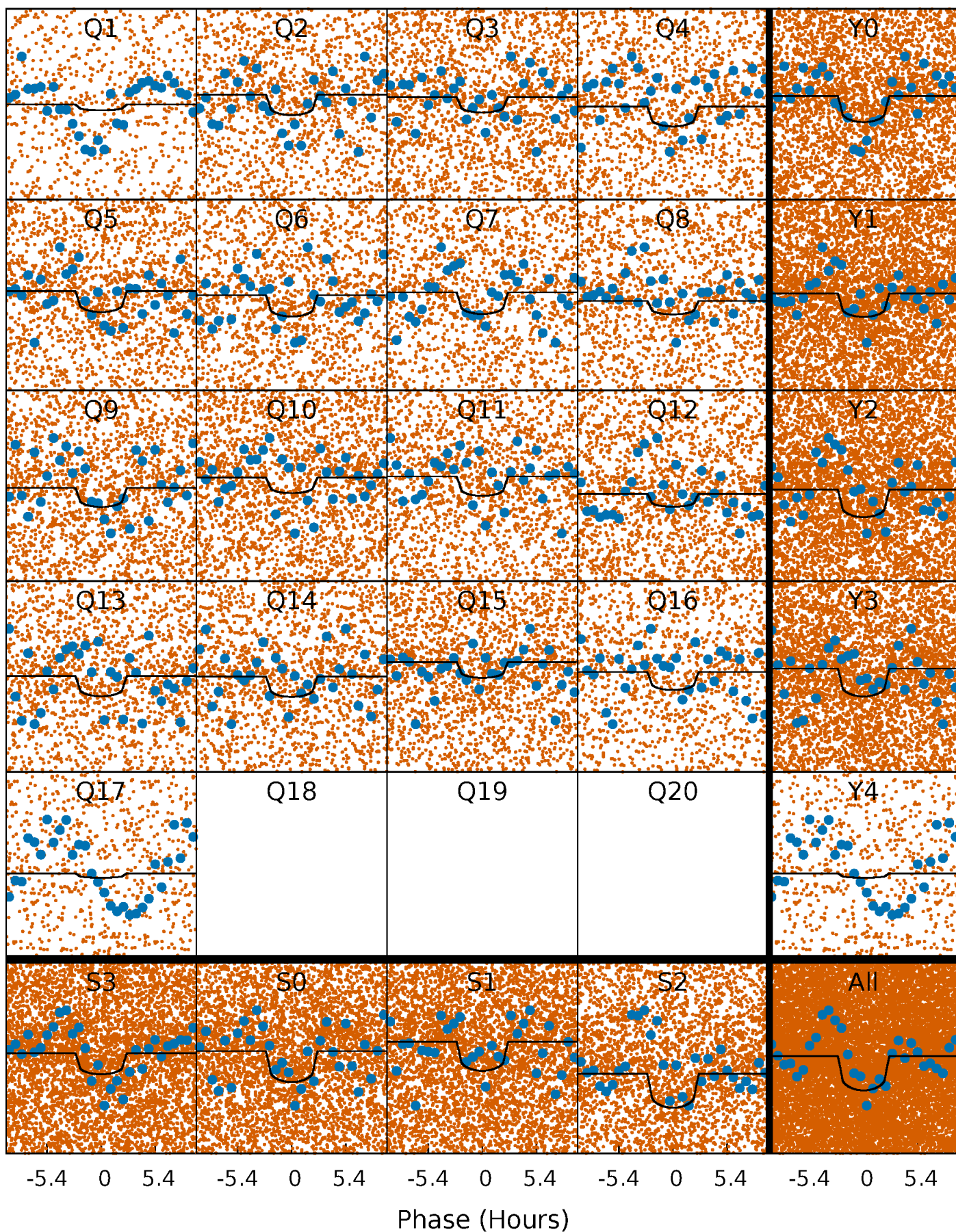
TCE 008087018-01 P= 0.586555 Days  $T_0=131.655869$  (BKJD)





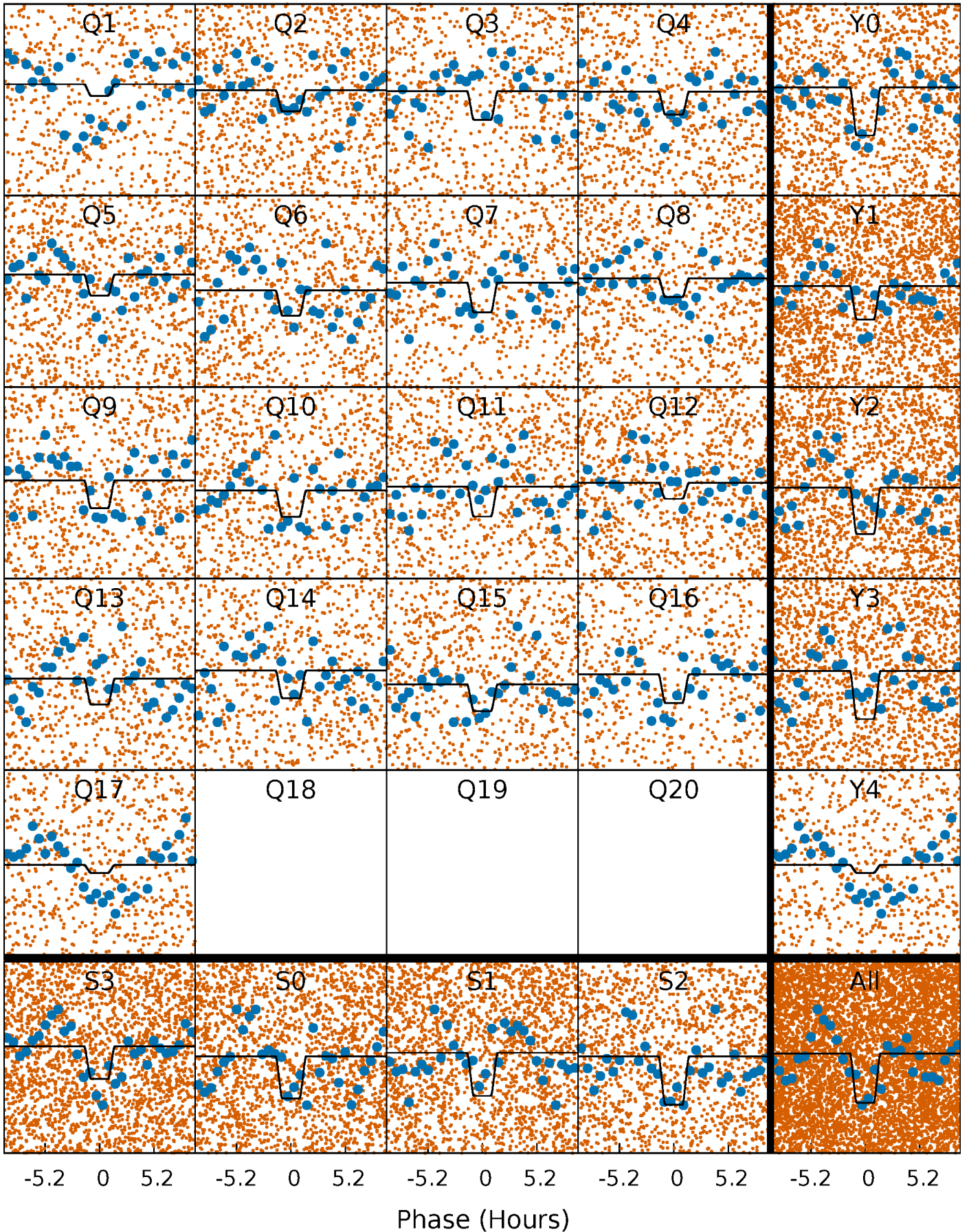
# DV Quarter-Phased Transit Curves

TCE 008087018-01 P= 0.586555 Days  $T_0=131.655869$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008087018-01 P= 0.586578 Days  $T_0=131.658314$  (BKJD)

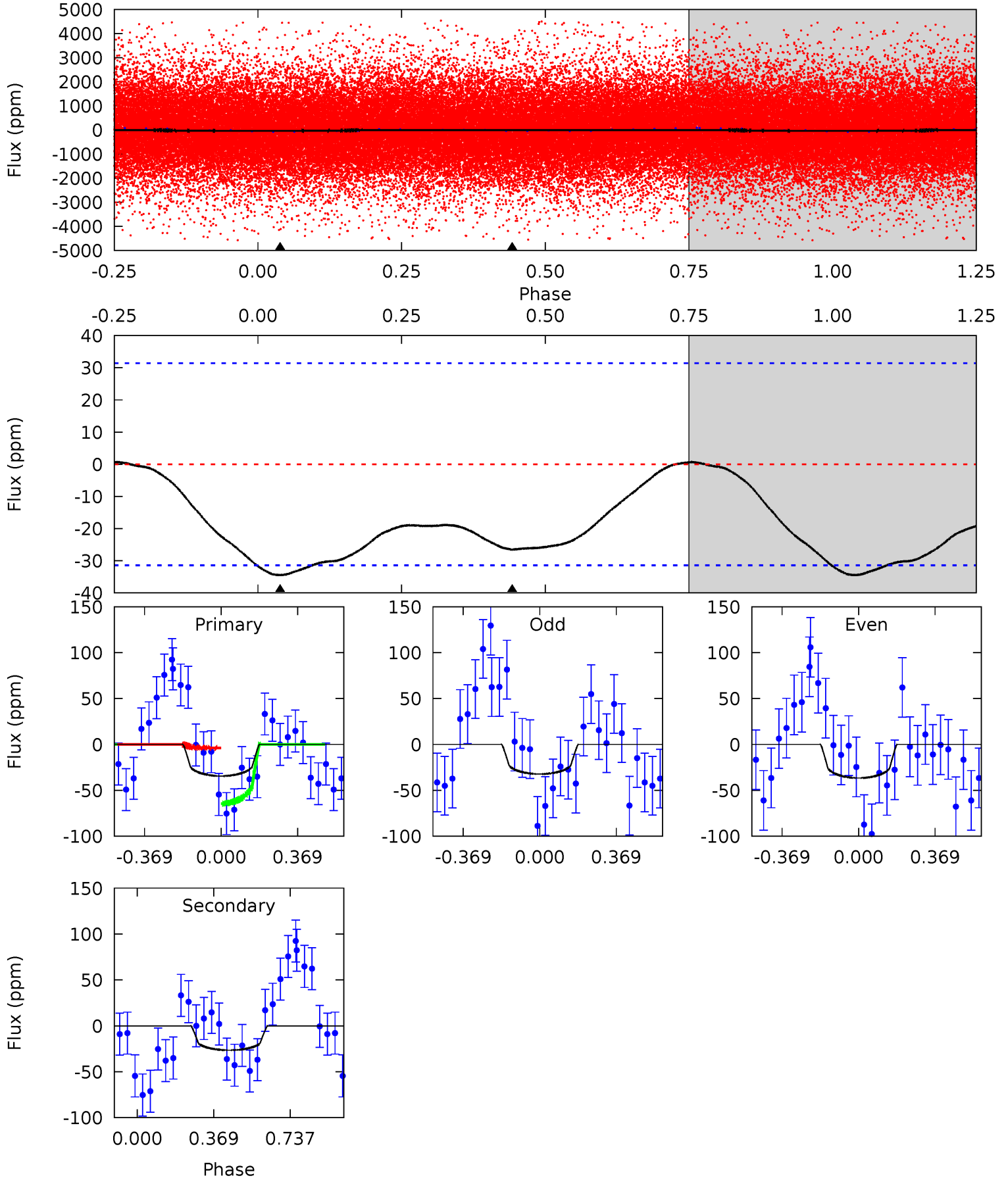




# DV Model-Shift Uniqueness Test

008087018-01, P = 0.586555 Days, E = 131.069314 Days

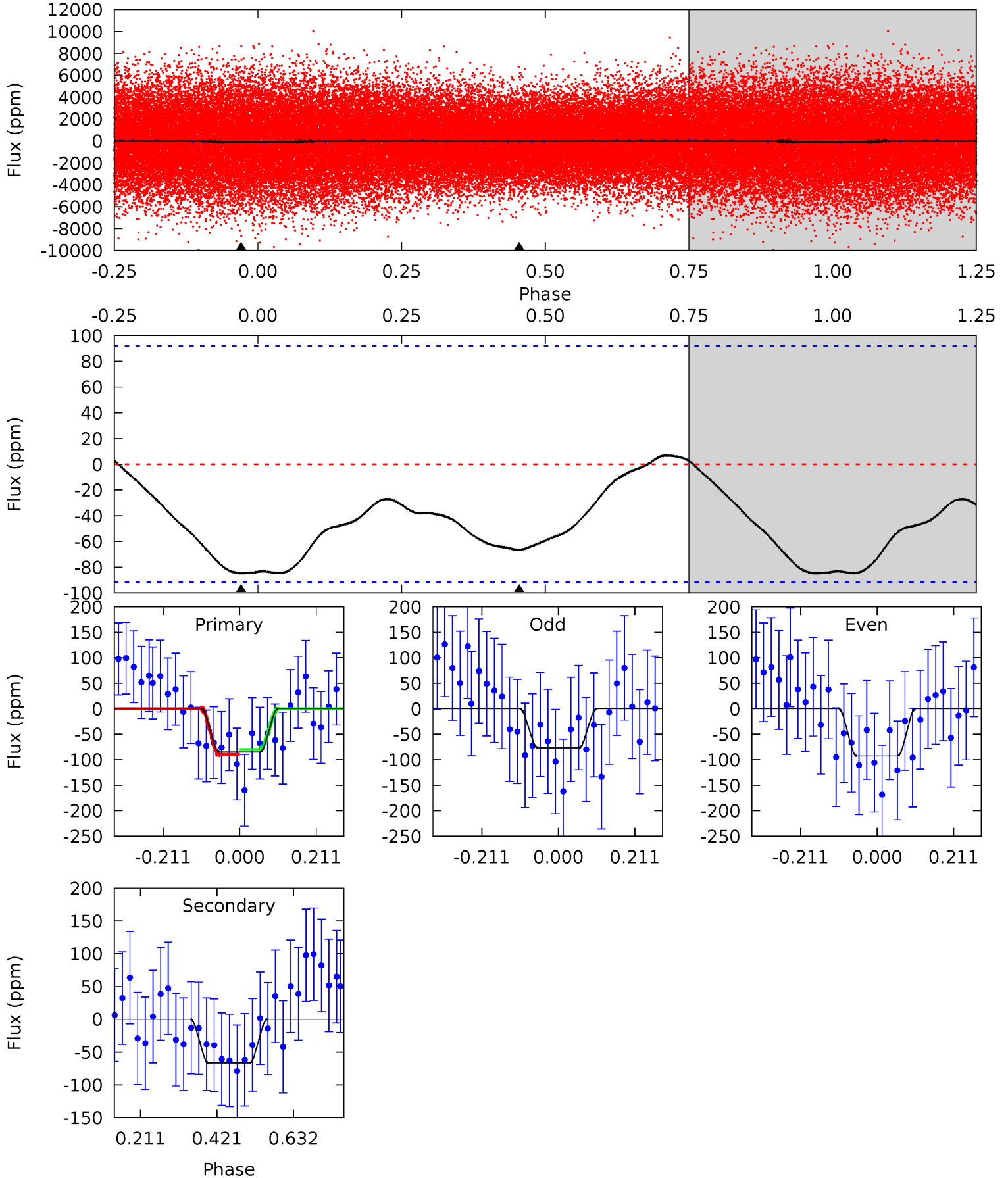
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.70 | 3.62 | 0   | 0   | 4.28            | 0.90            | 0.14             | 4.70    | 4.70    | 3.62    | 3.62    | 0.30    | 1.97 | 0.02  | 4.11 |



# Alt Model-Shift Uniqueness Test

008087018-01, P = 0.586578 Days, E = 131.071736 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  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.07 | 3.20 | 0   | 0   | 4.41            | 1.25            | 0.82             | 4.07    | 4.07    | 3.20    | 3.20    | 0.38    | 4.30 | 0.07  | 0.22 |





### Stellar Parameters For KIC 008087018

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
|        | $7366^{+73}_{-88}$  | $4.132^{+0.070}_{-0.130}$ | $0.120^{+0.150}_{-0.150}$ | $1.824^{+0.356}_{-0.192}$ | $1.645^{+0.127}_{-0.115}$ | $0.382^{+0.109}_{-0.142}$                 |
|        | +1%/-1%             | +2%/-3%                   | +125%/-125%               | +20%/-11%                 | +8%/-7%                   | +28%/-37%                                 |
| Source | SPE68               | SPE68                     | SPE68                     | DSEP                      |                           |   |

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

### Secondary Eclipse Parameters for KIC 008087018-01 / KOI

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{max} (K)$        | $T_{obs} (K)$          | $A_{obs}$                 |
|---------|--------------|------------------------|----------------------|------------------------|---------------------------|
| DV      | $-27 \pm 7$  | $2.43^{+2.32}_{-1.63}$ | $4831^{+202}_{-143}$ | $4334^{+4271}_{-8001}$ | $0.649^{+5.560}_{-0.487}$ |
| Alt.    | $-67 \pm 21$ | $2.84^{+2.26}_{-1.80}$ | $4847^{+230}_{-158}$ | $5148^{+4724}_{-2388}$ | $1.114^{+7.652}_{-0.797}$ |

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

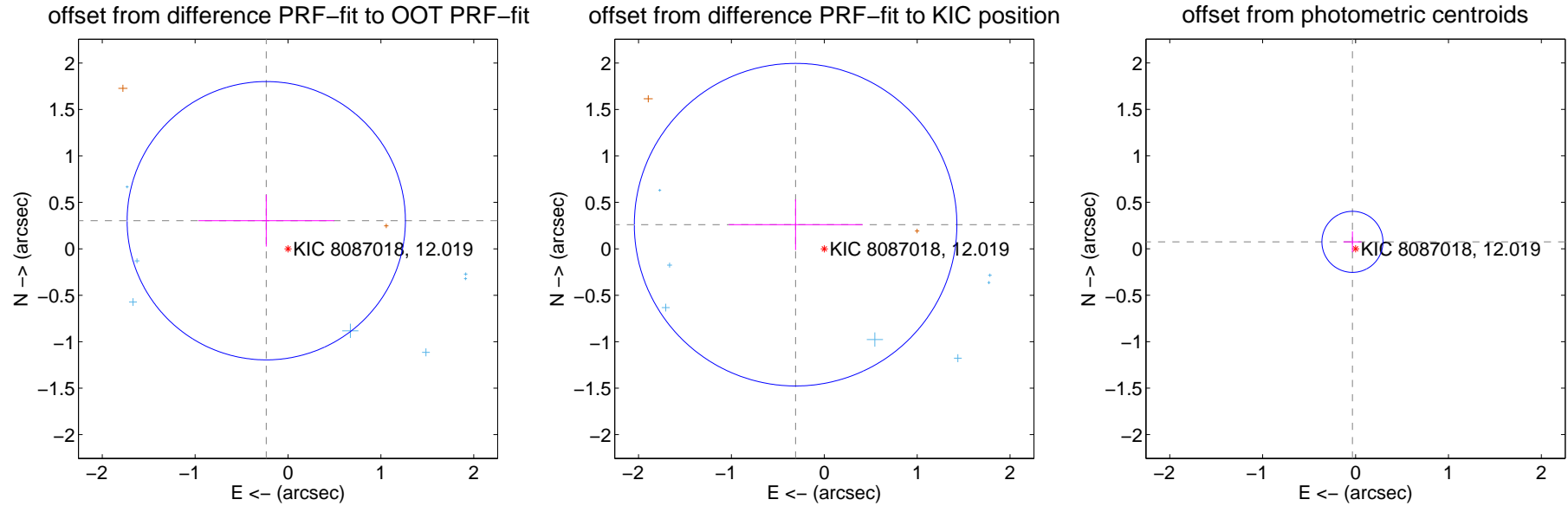
## DV Centroid Data

Supplemental centroid analysis for 008087018-01. Kepler magnitude: 12.02. Transit SNR 7.98

There are 8 quarters with good PRF difference image offsets

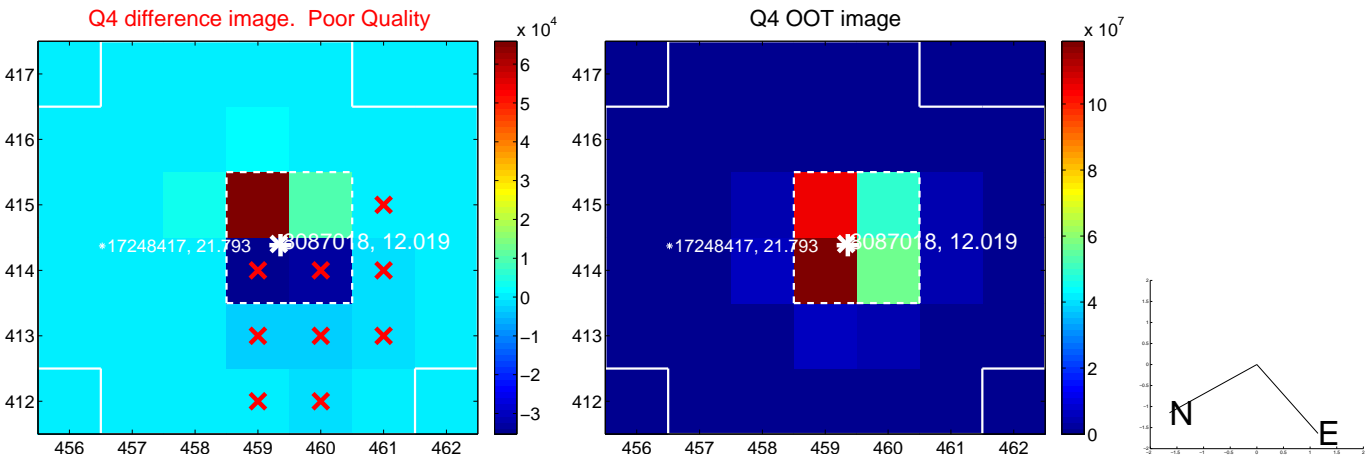
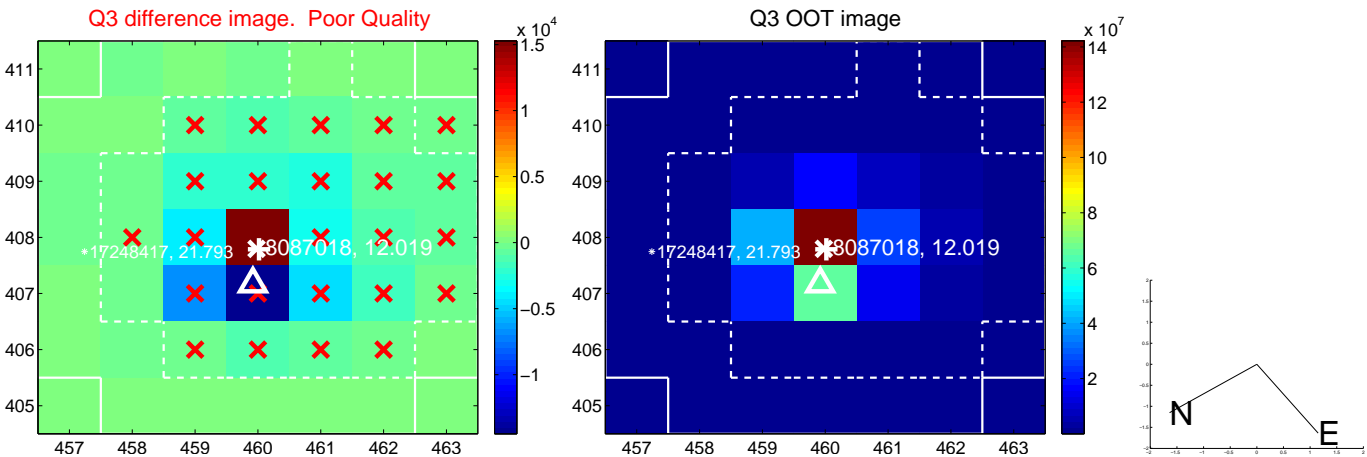
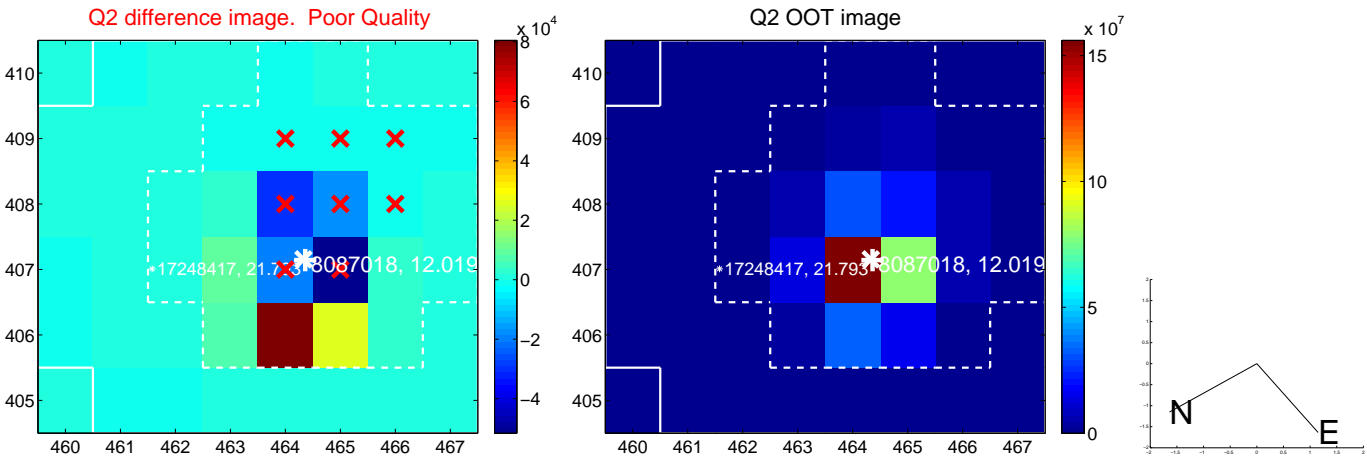
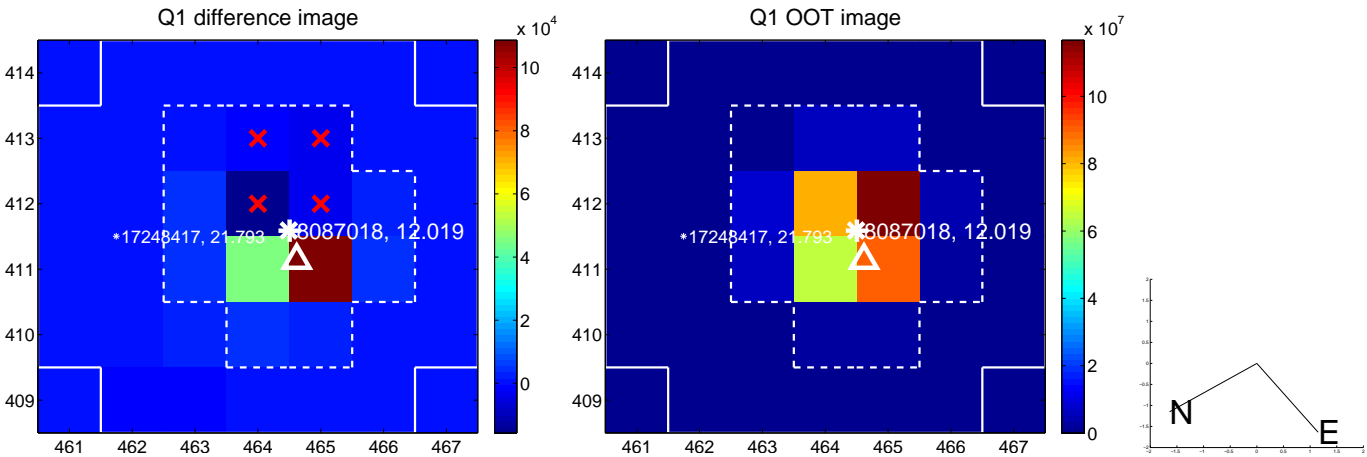
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec      |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT          | $0.383 \pm 0.499$  | 0.77                | $0.234 \pm 0.732$ | $0.302 \pm 0.278$ |
| PRF-fit source offset from KIC position | $0.404 \pm 0.579$  | 0.70                | $0.309 \pm 0.721$ | $0.260 \pm 0.273$ |
| photometric centroid source offset      | $0.08 \pm 0.11$    | 0.74                | $0.03 \pm 0.10$   | $0.07 \pm 0.11$   |

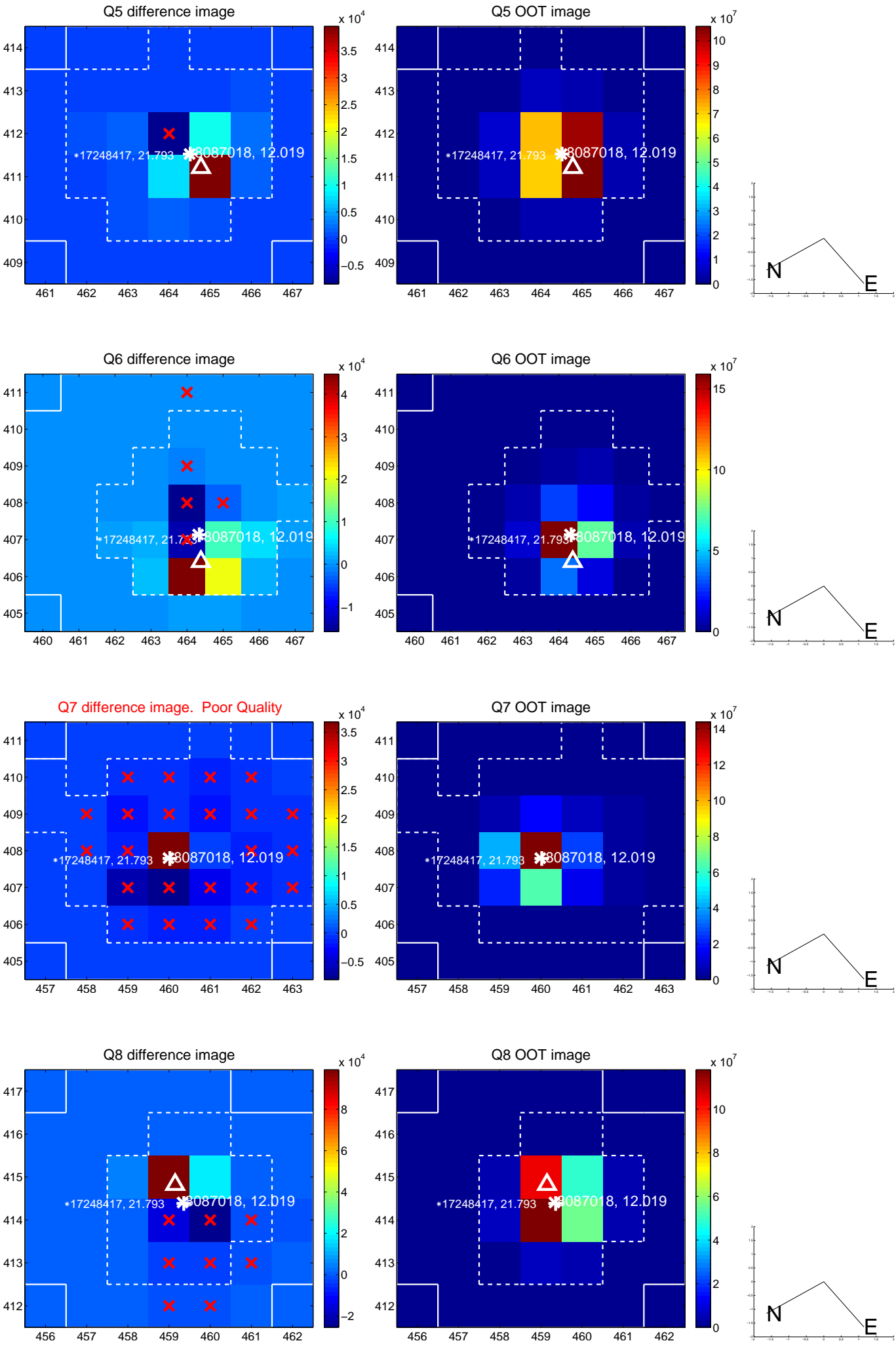


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

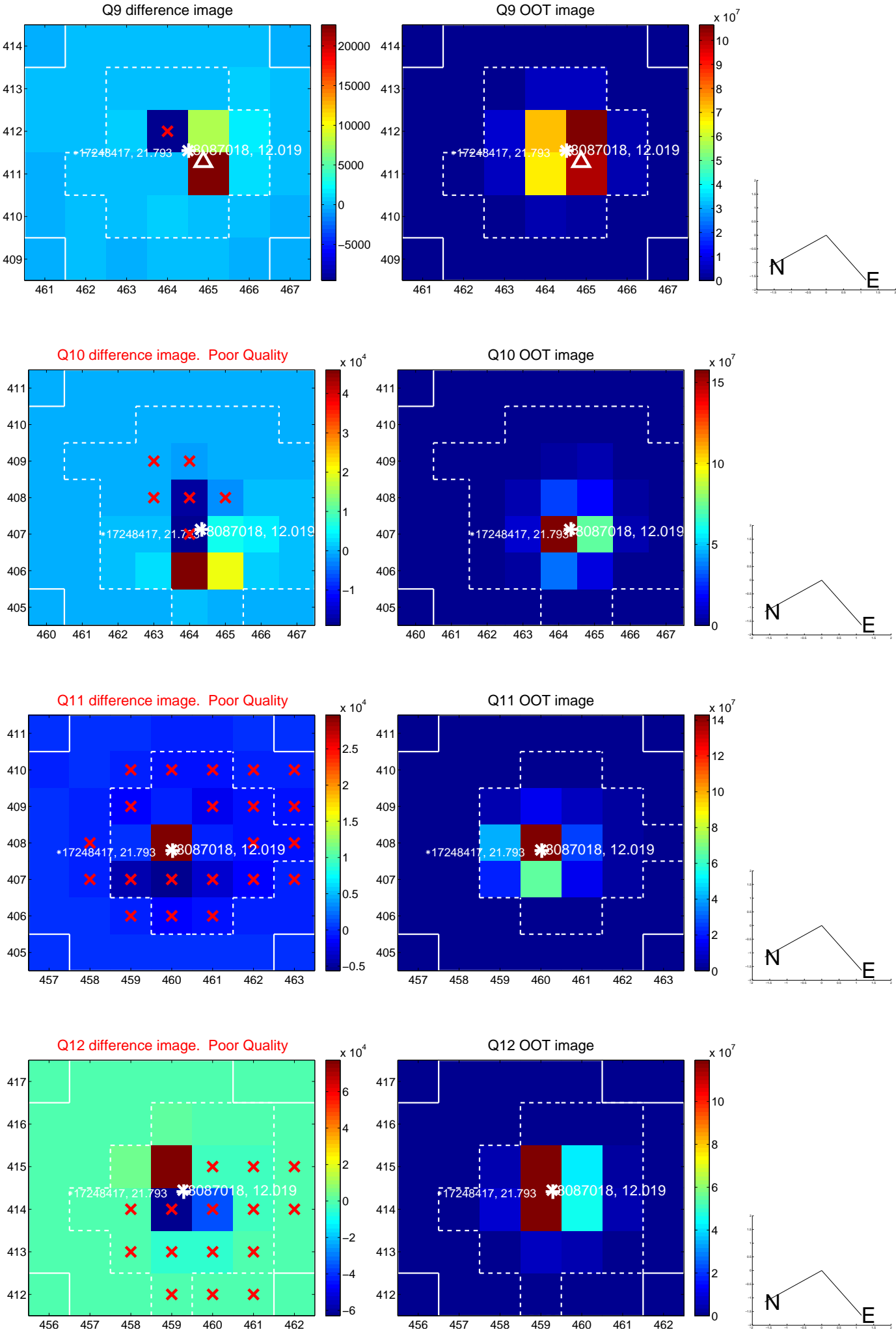


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

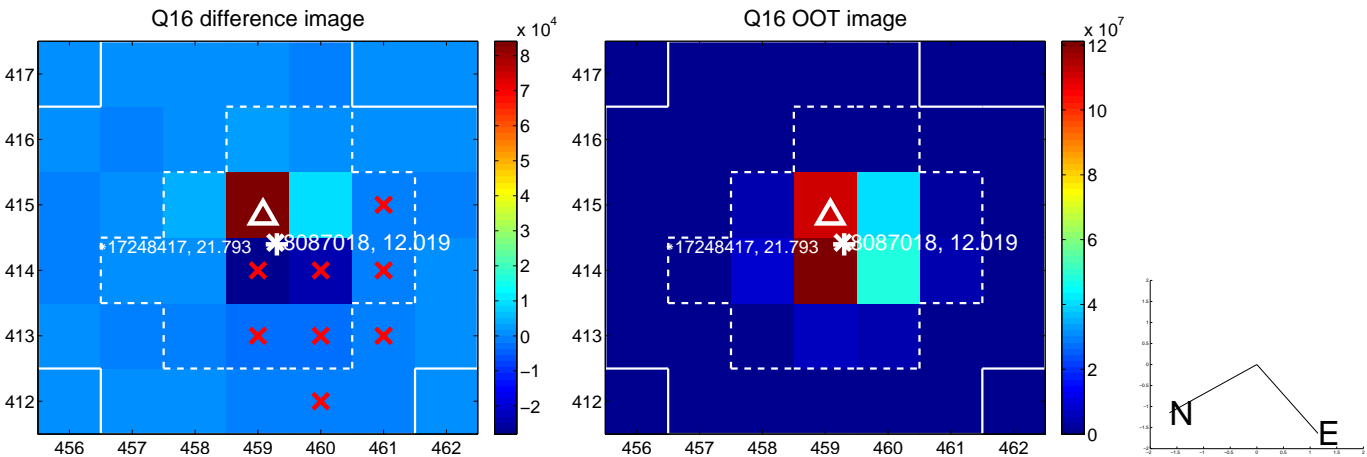
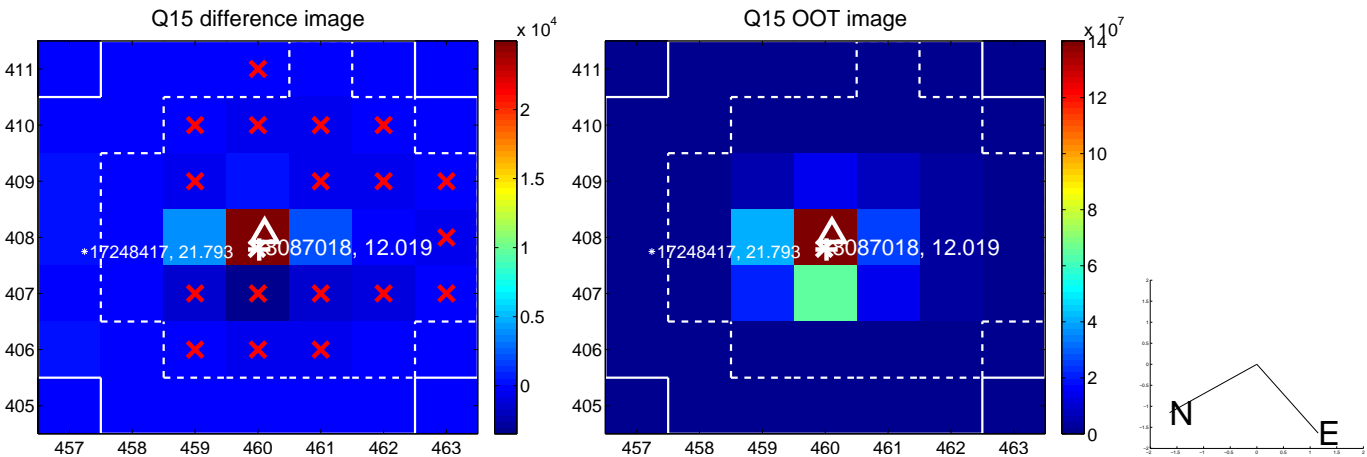
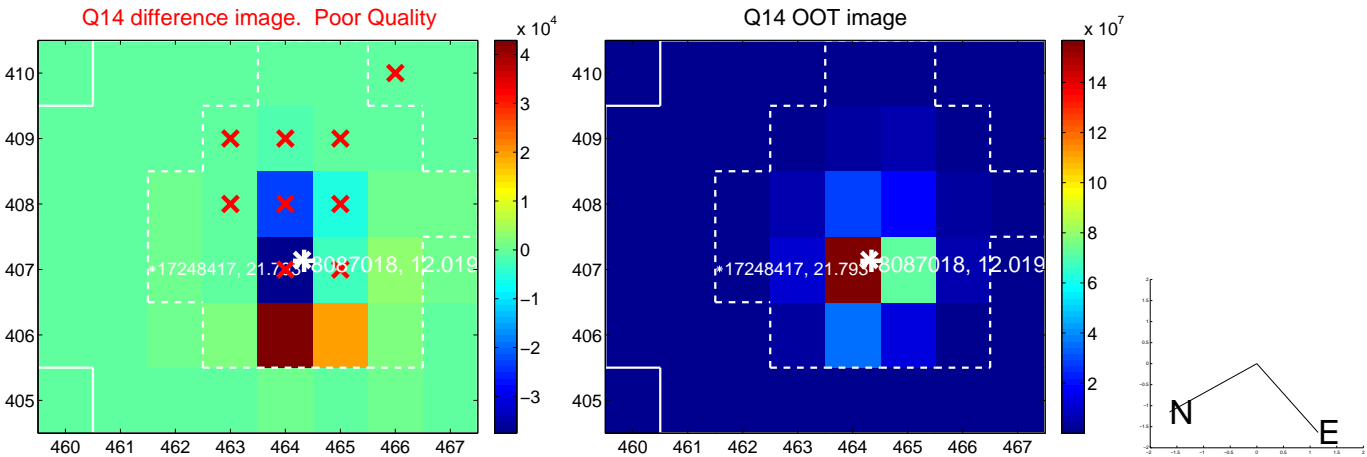
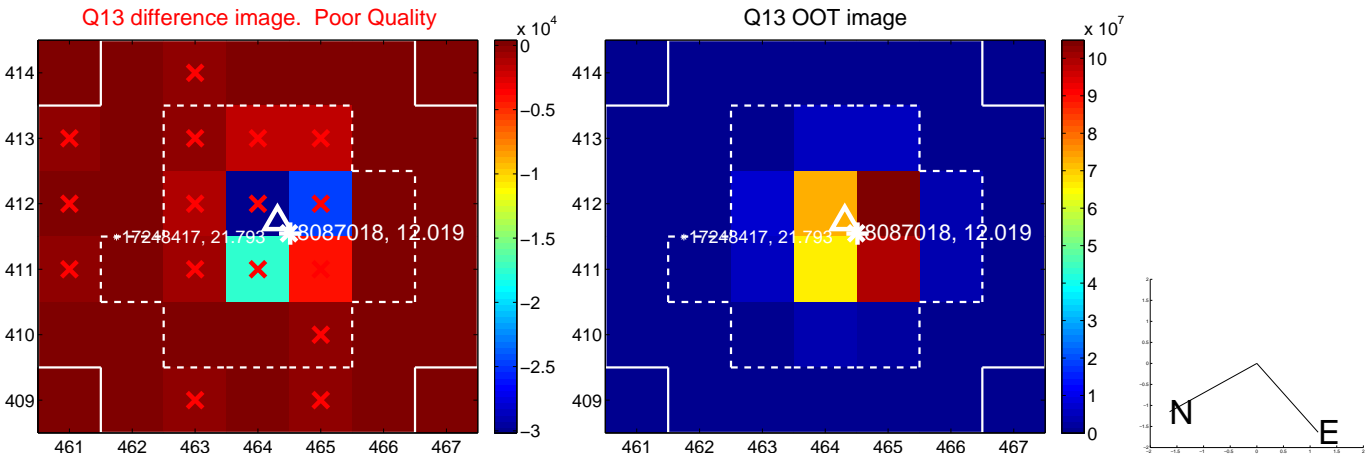




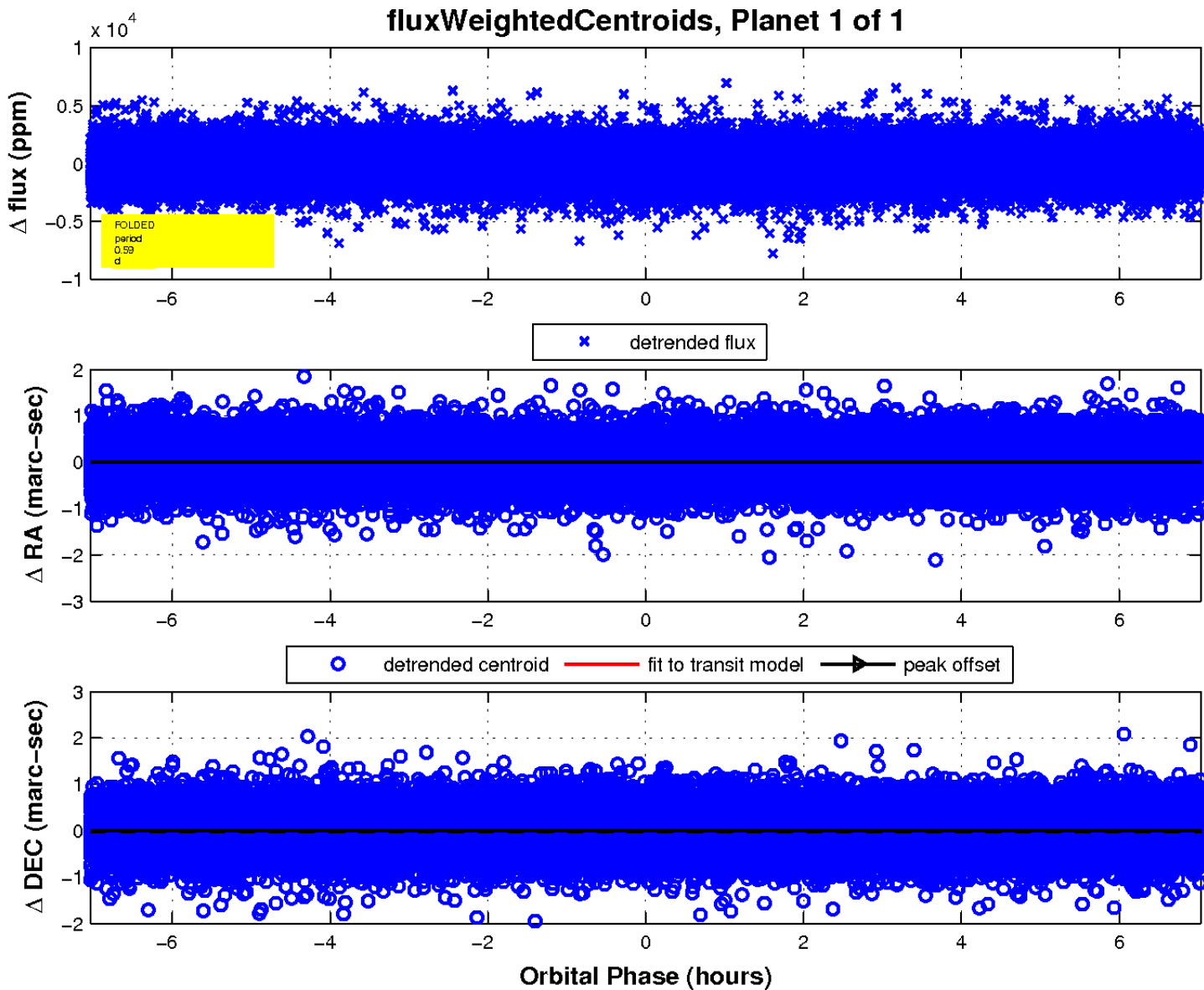
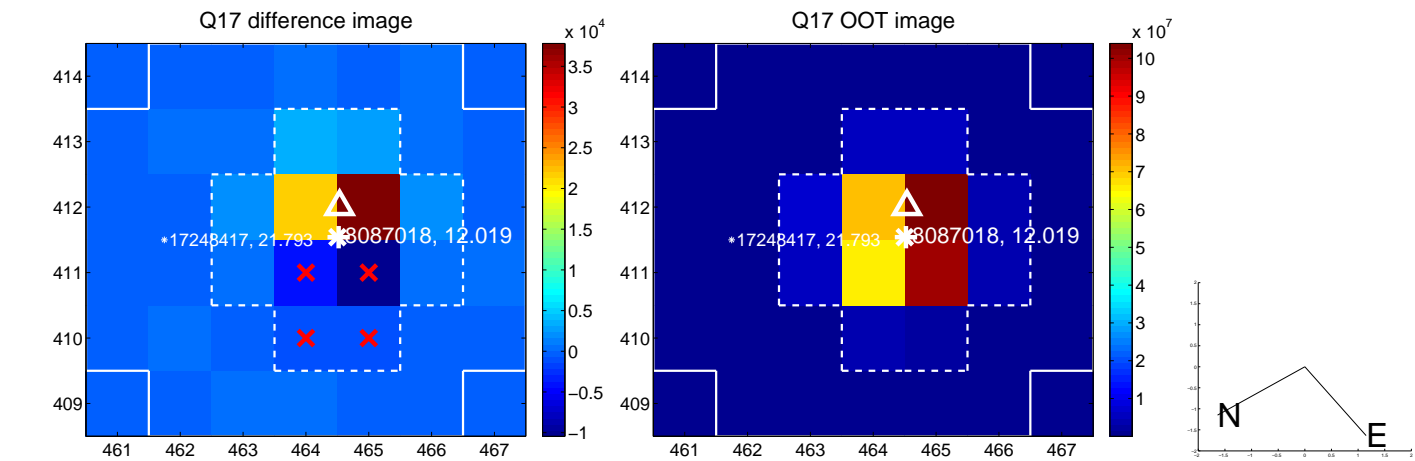
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

