

KIC 005903312

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R _★ (R _☉) | T _★ (K) | R _p (R _⊕) | S _p (S _⊕) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|----------------------------------|--------------------|----------------------------------|----------------------------------|
| 005903312-01 | OBS | 0008.01 | 1.160148 | 132.148464 | 100.4 | 1.393 | 36.6 | 40.9 | 0.98 | 5842 | 1.17 | 2228.85 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005903312-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 1 | CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |

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 for comment definitions.

Ephemeris Match Information For 005903312-01

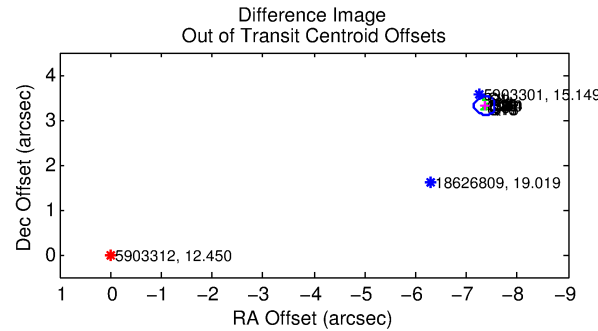
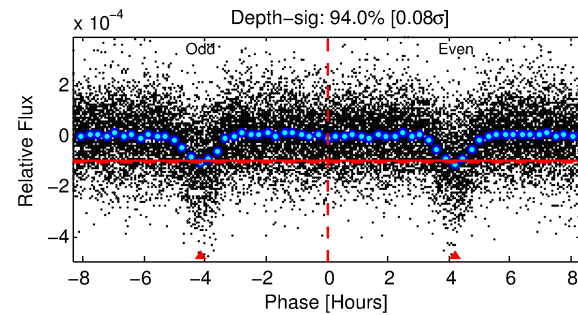
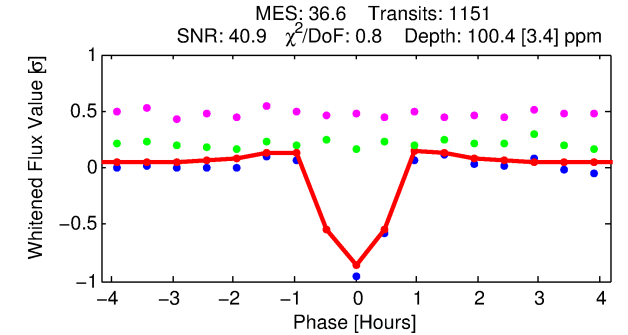
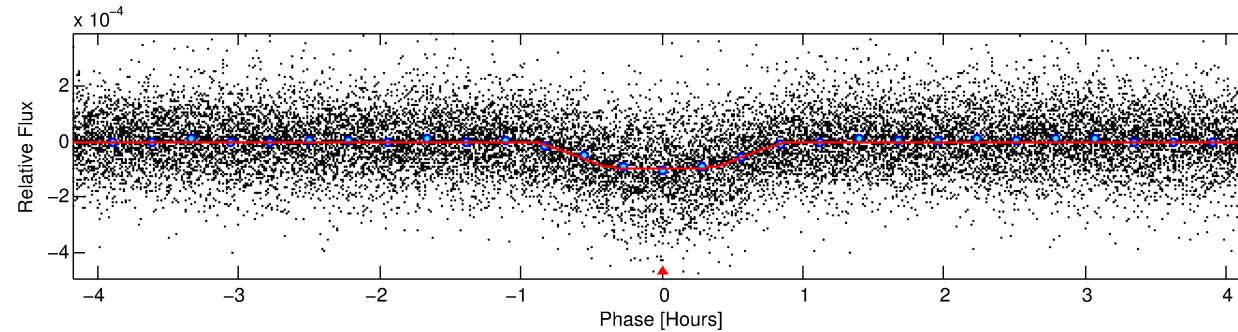
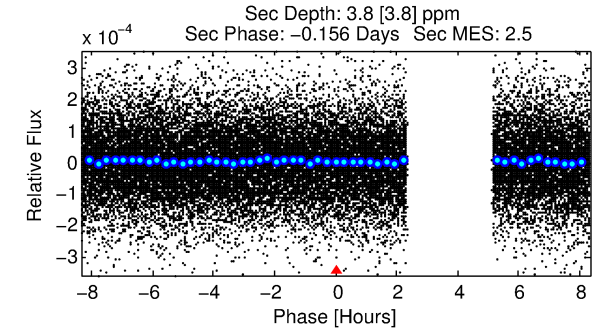
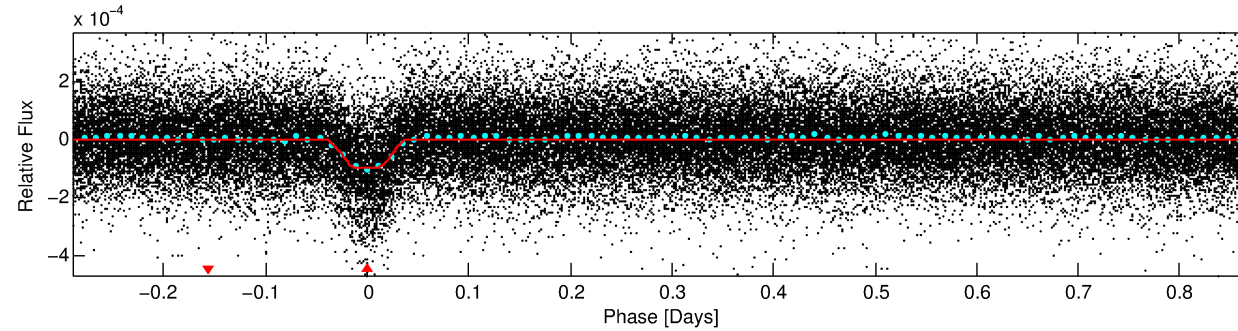
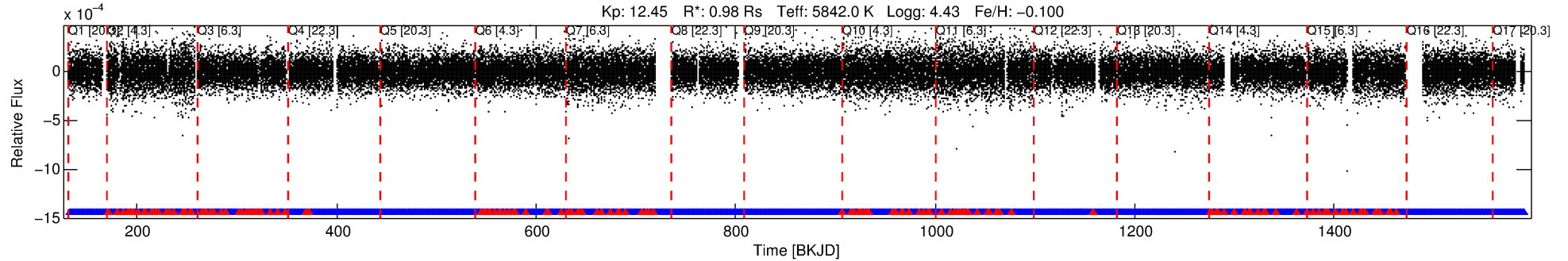
| TCE (1) | KIC | Parent (2) | Parent KIC | P ₁ :P ₂ | Dist (″) | ΔRow | ΔCol | m ₂ | m ₁ | D ₂ /D ₁ | Mechanism | Flag | σ _P | σ _T |
|--------------|---------|------------|------------|--------------------------------|----------|------|------|----------------|----------------|--------------------------------|------------|------|----------------|----------------|
| 005903312-01 | 5903312 | 3692.01 | 5903301 | 1:1 | 8.0 | -2 | -1 | 15.15 | 12.45 | 121.89 | Direct-PRF | 0 | 0.38 | 0.21 |

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant σ_P < 5.0 and σ_T < 5.0. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5903312 Candidate: 1 of 1 Period: 1.160 d
KOI: K00008.01 Corr: 0.973

Kp: 12.45 R*: 0.98 Rs Teff: 5842.0 K Logg: 4.43 Fe/H: -0.100



DV Fit Results:

Period = 1.16015 [0.00000] d
Epoch = 132.1485 [0.0005] BKJD
Rp/R* = 0.0109 [0.0017]
a/R* = 3.08 [2.14]
b = 0.90 [0.17]
Seff = 2228.85 [488.53]
Teq = 1752 [96] K
Rp = 1.17 [0.25] Re
a = 0.0213 [0.0028] AU
Ag = 0.70 [0.74] [-0.41σ]
Teff = 2475 [649] K [1.10σ]

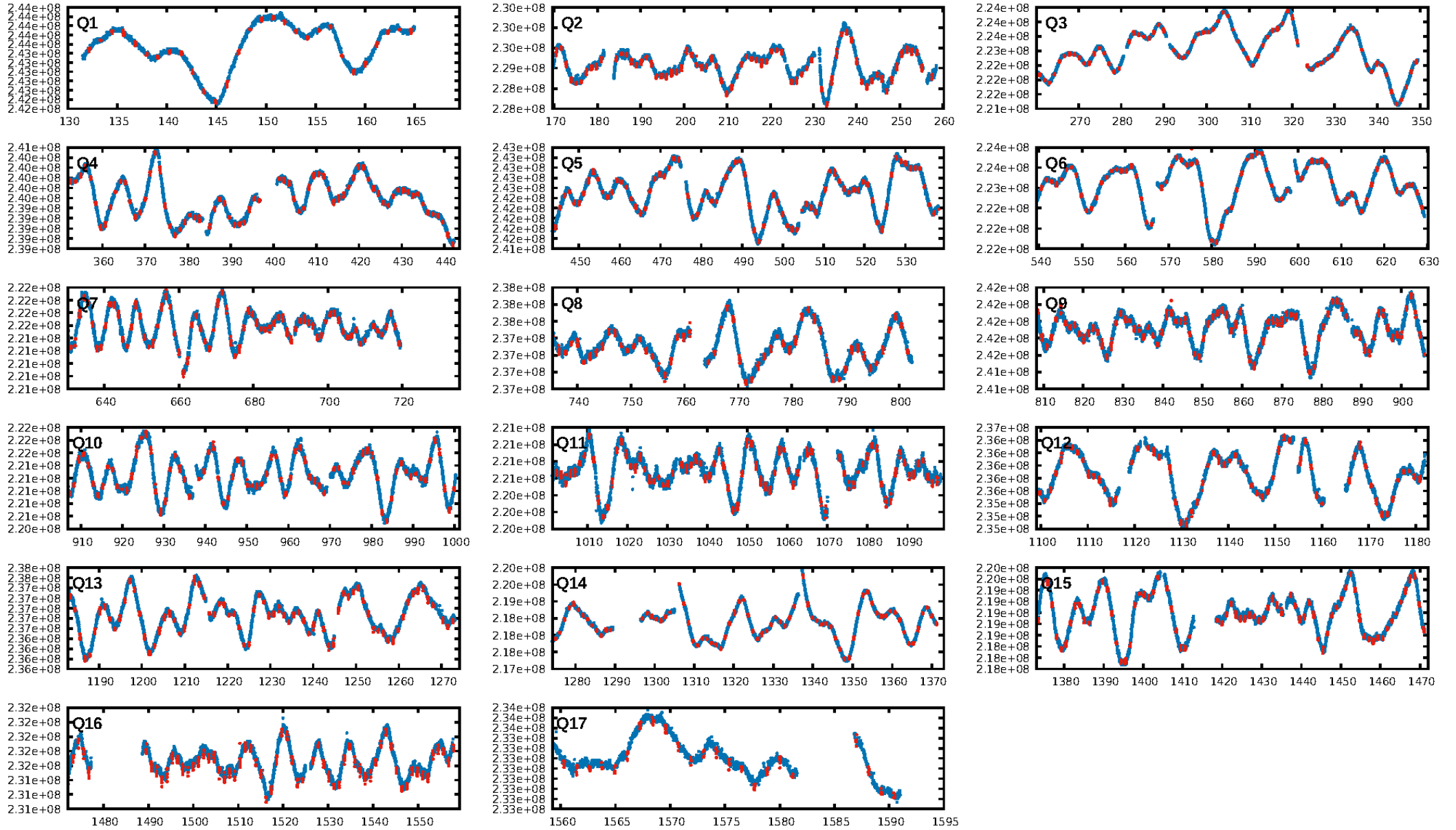
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 9.96e-274
RollingBand-fgt: 0.86 [949/1099]
GhostDiagnostic-chr: -0.1351
Centroid-sig: 0.0%
Centroid-so: 36.656 arcsec [154.93σ]
OotOffset-rm: 8.070 arcsec [119.44σ]
KicOffset-rm: 8.135 arcsec [118.65σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

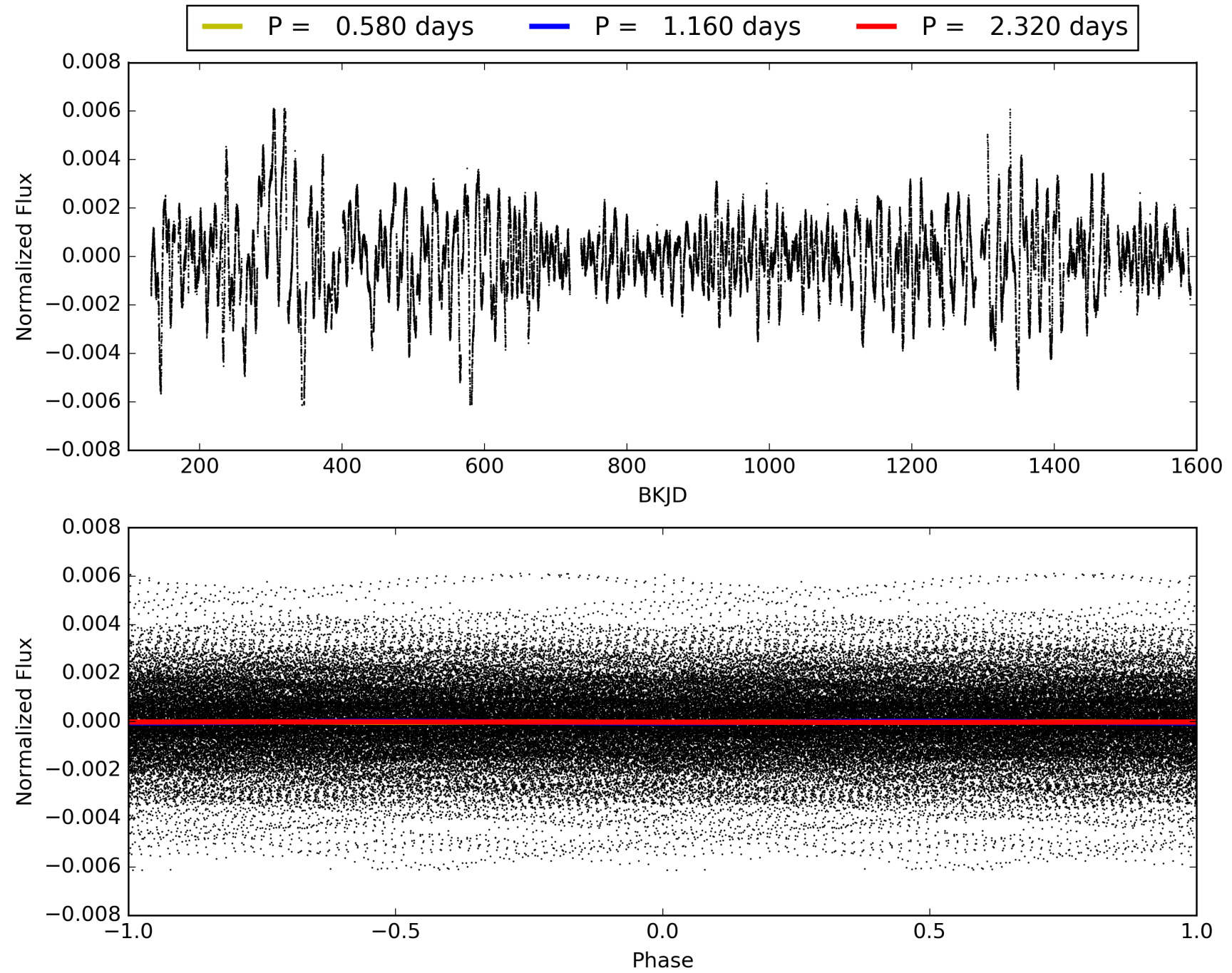
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:58:34 Z

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

TCE 005903312-01, PDC Light Curves

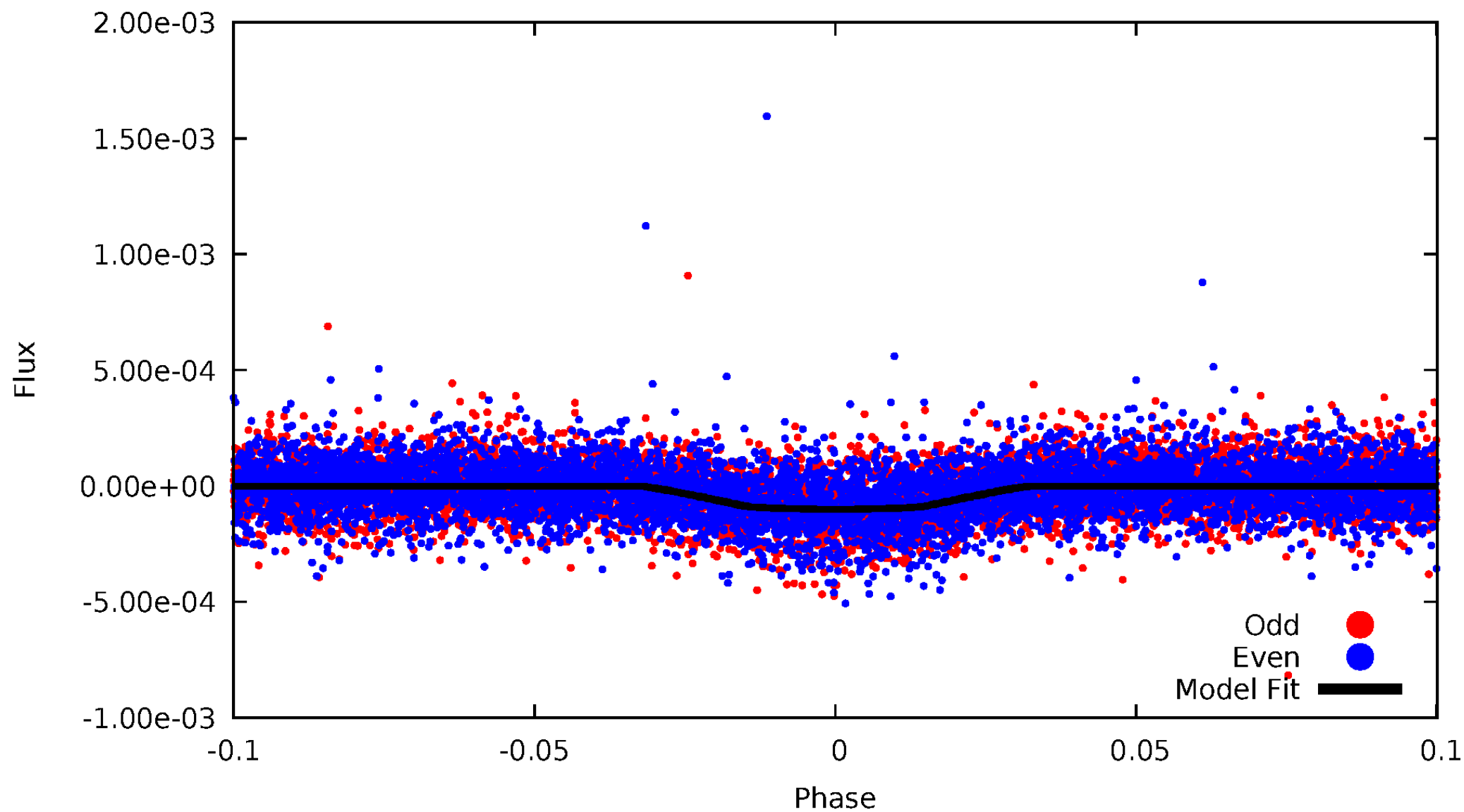


TCE 005903312-01



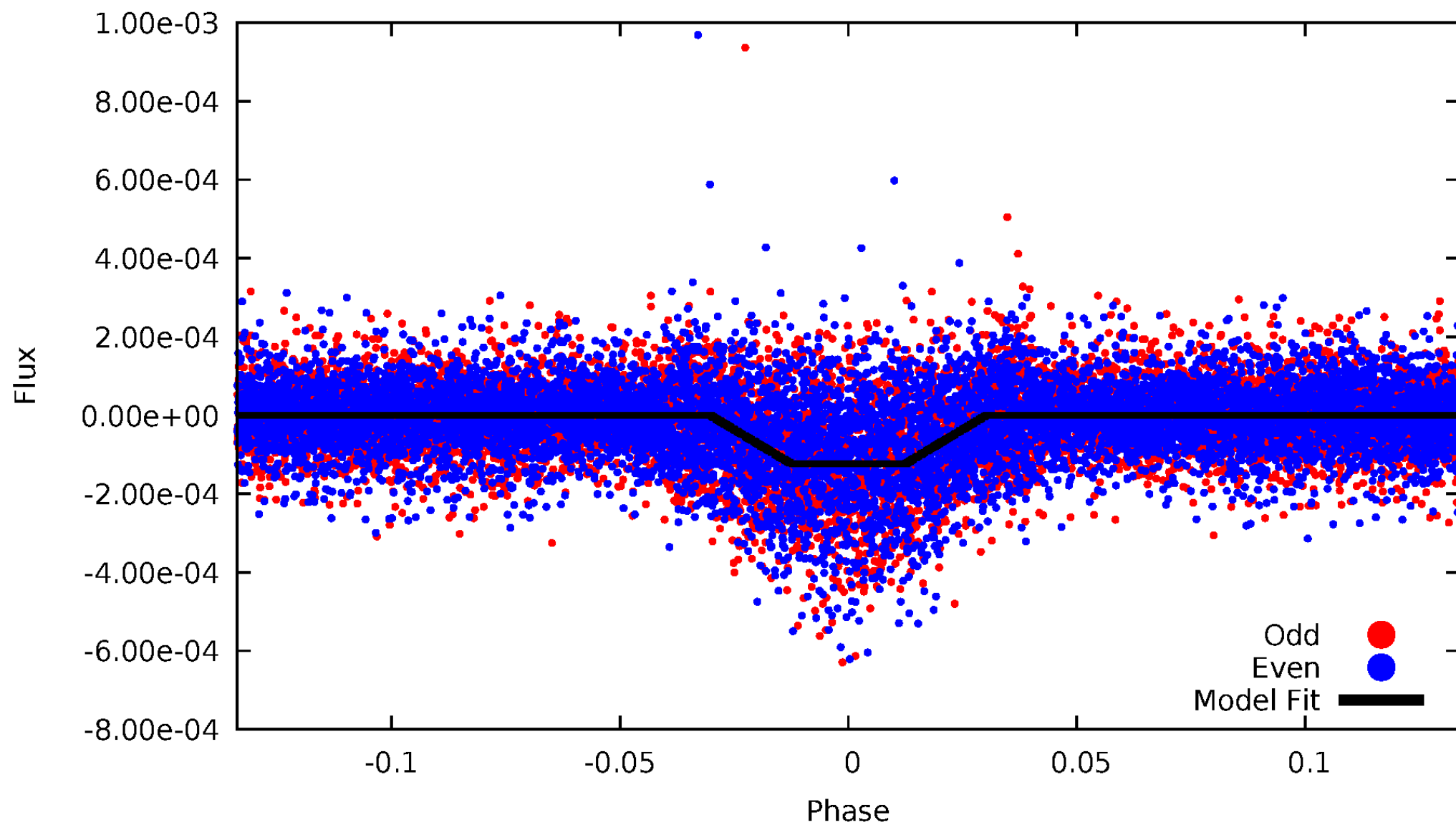
DV Odd/Even

TCE 005903312-01



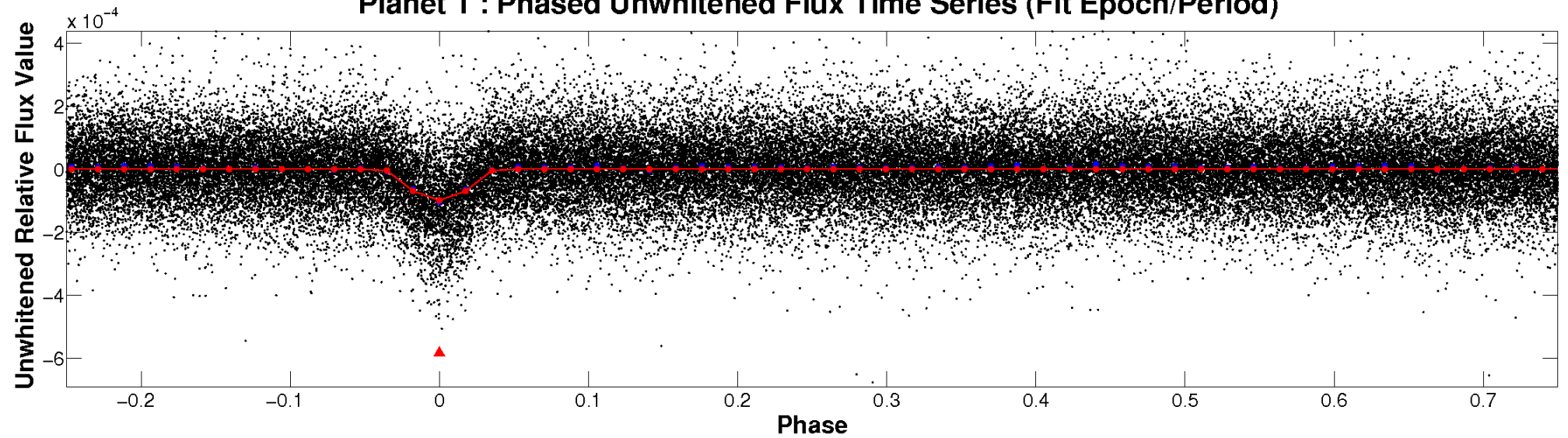
ALT Odd/Even

TCE 005903312-01

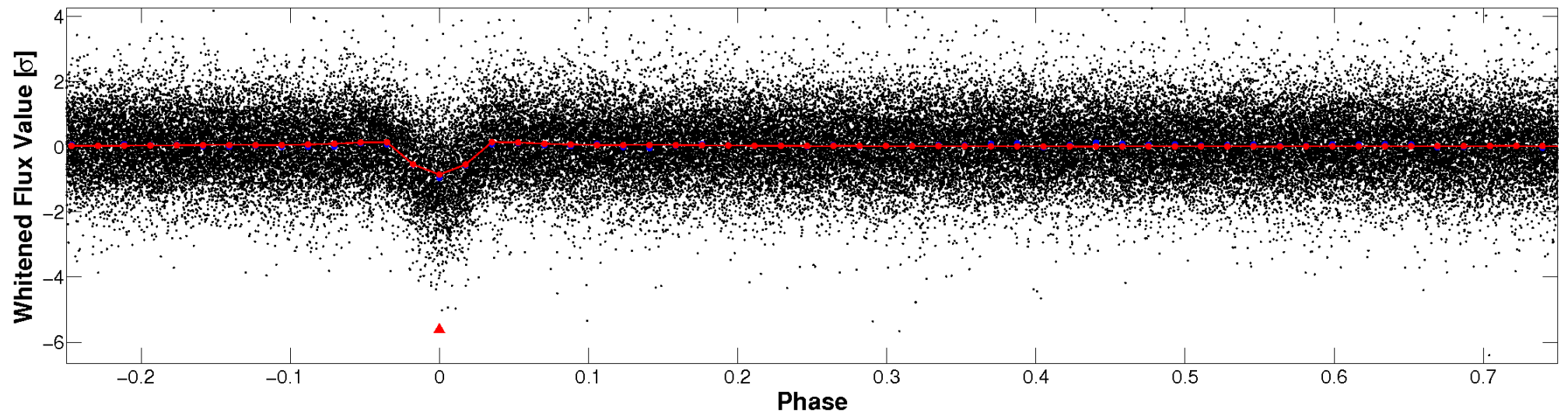


Non-Whitened Vs. Whitened Light Curve

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

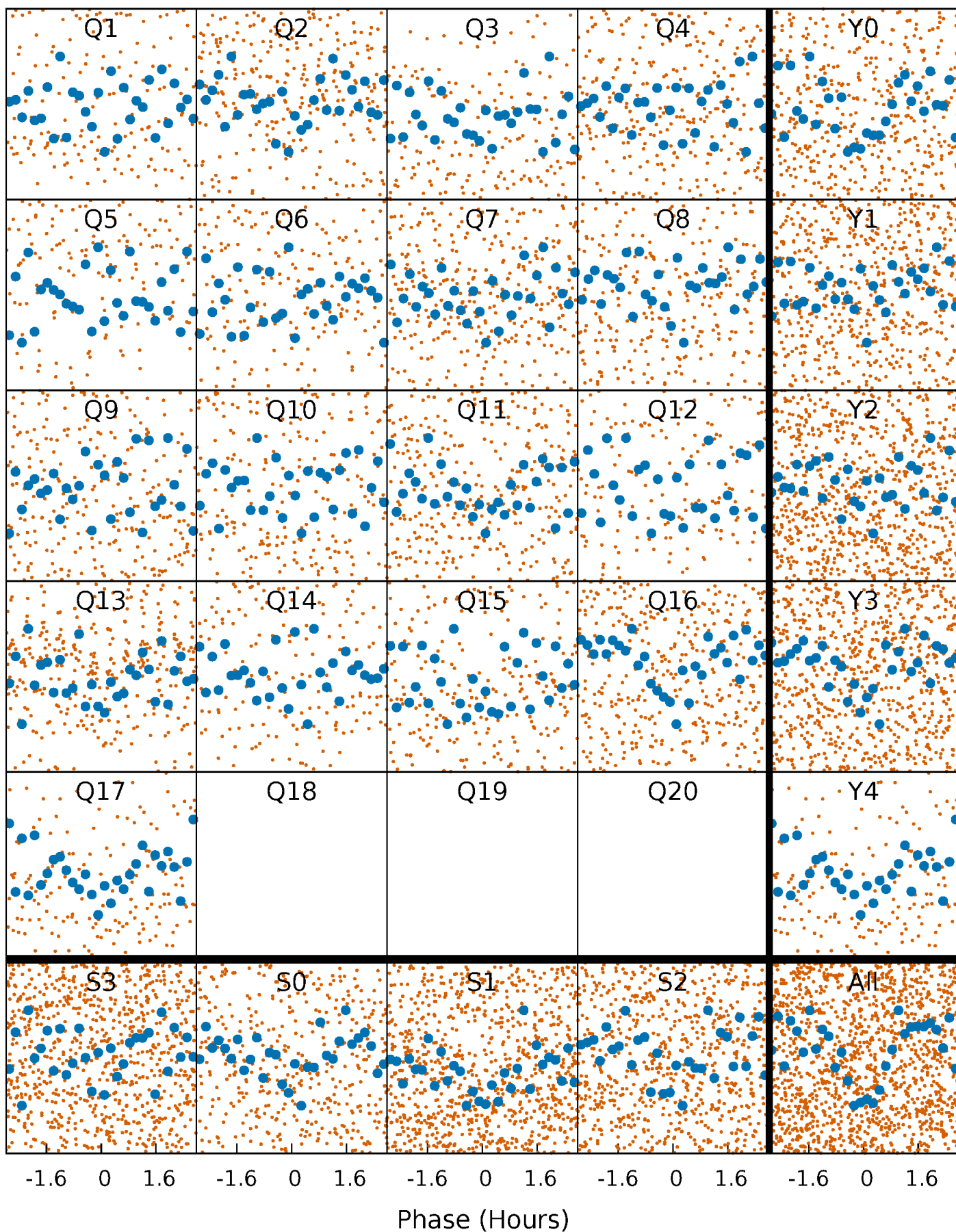


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



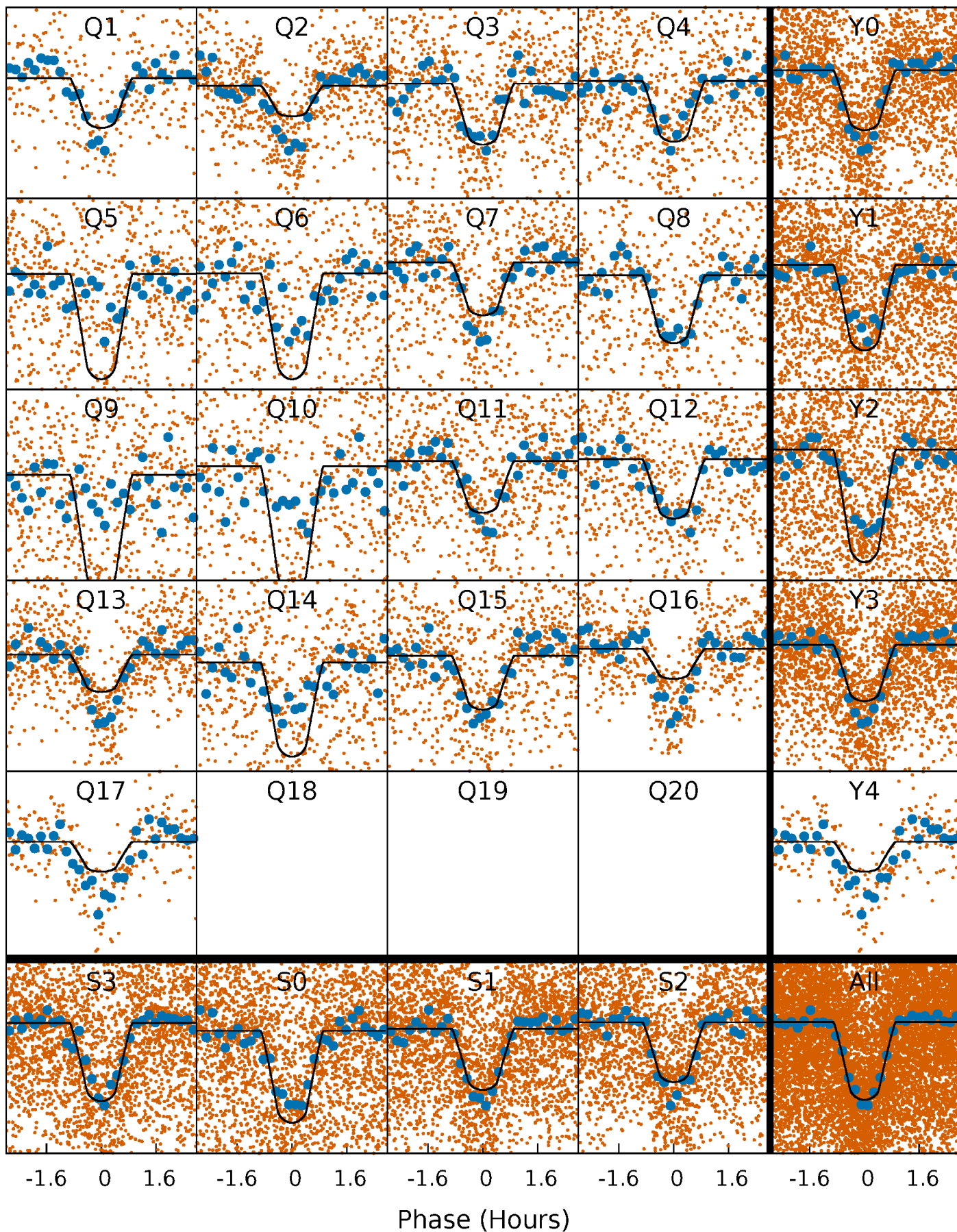
PDC Quarter-Phased Transit Curves

TCE 005903312-01 P= 1.160148 Days $T_0=132.148464$ (BKJD)



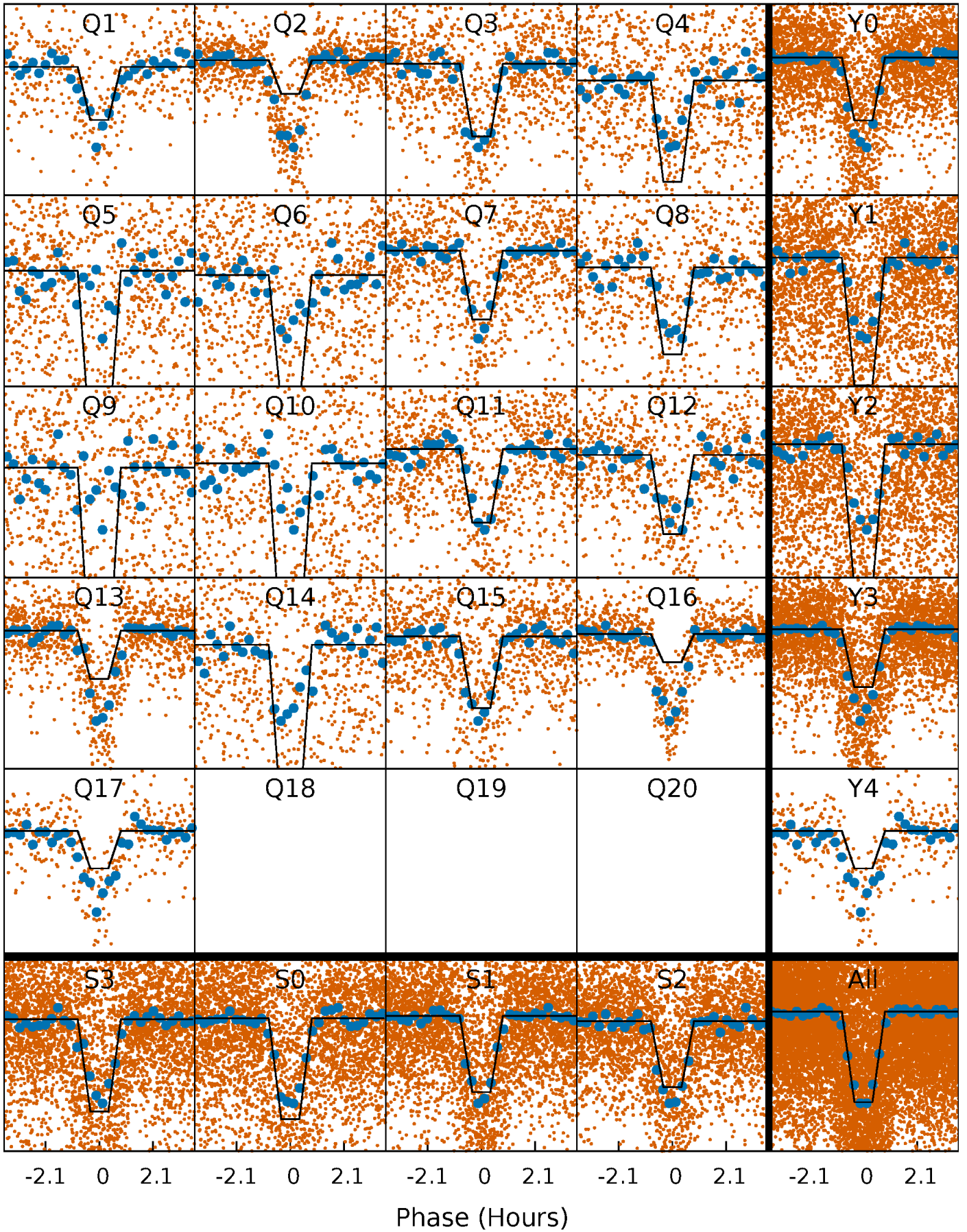
DV Quarter-Phased Transit Curves

TCE 005903312-01 P= 1.160148 Days $T_0=132.148464$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

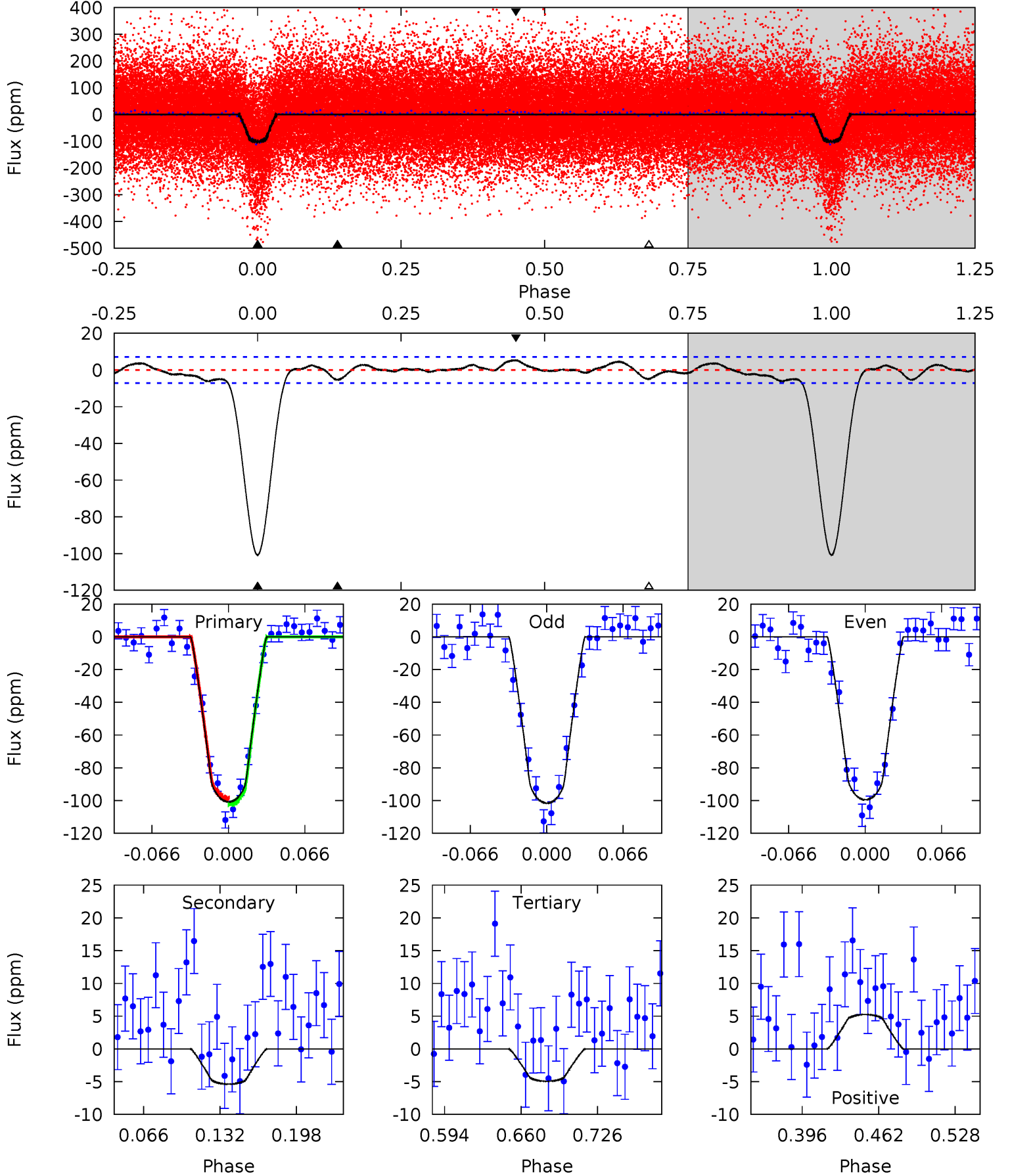
TCE 005903312-01 P= 1.160152 Days $T_0=132.146030$ (BKJD)



DV Model-Shift Uniqueness Test

005903312-01, P = 1.160148 Days, E = 130.988316 Days

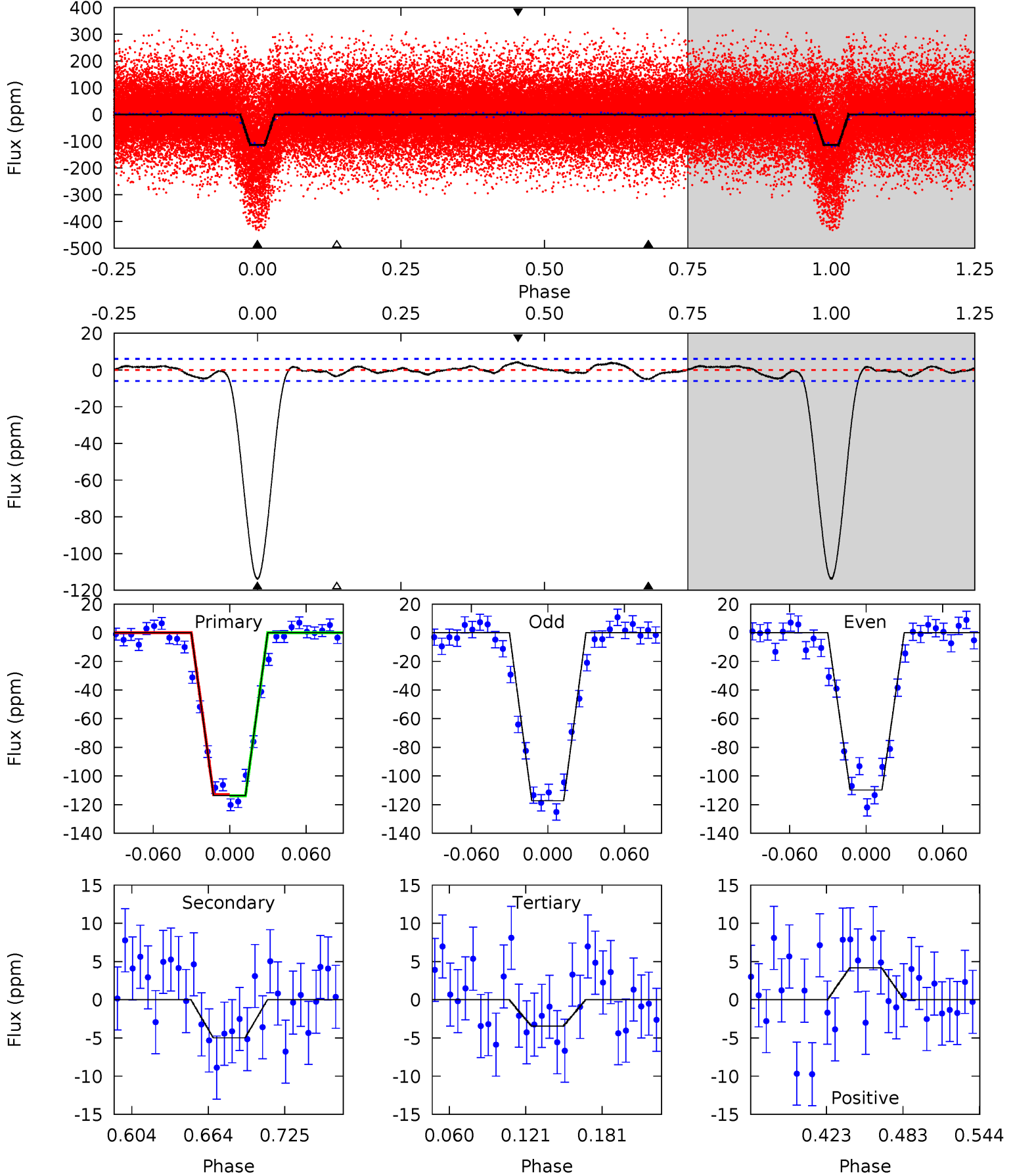
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 65.9 | 3.51 | 3.23 | 3.43 | 4.65 | 1.84 | 1.57 | 62.6 | 62.4 | 0.28 | 0.09 | 0.65 | 1.01 | 0.05 | 1.11 |



Alt Model-Shift Uniqueness Test

005903312-01, P = 1.160152 Days, E = 130.985878 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 88.0 | 3.85 | 2.67 | 3.23 | 4.67 | 1.88 | 1.42 | 85.3 | 84.7 | 1.18 | 0.62 | 2.88 | 1.06 | 0.04 | 0.30 |



Stellar Parameters For KIC 005903312

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5842^{+105}_{-117} | $4.433^{+0.072}_{-0.117}$ | $-0.100^{+0.150}_{-0.150}$ | $0.985^{+0.143}_{-0.083}$ | $0.959^{+0.060}_{-0.066}$ | $1.414^{+0.415}_{-0.452}$ |
| | +2%/-2% | +2%/-3% | +150%/-150% | +15%/-8% | +6%/-7% | +29%/-32% |
| Source | SPE18 | SPE18 | SPE18 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005903312-01 / KOI 0008.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|---------------------|----------------------|---------------------------|
| DV | -5 ± 2 | $1.18^{+0.23}_{-0.19}$ | 2461^{+114}_{-85} | 3078^{+268}_{-321} | $0.919^{+0.515}_{-0.341}$ |
| Alt. | -5 ± 1 | $1.21^{+0.20}_{-0.21}$ | 2463^{+100}_{-94} | 2999^{+286}_{-292} | $0.839^{+0.468}_{-0.296}$ |

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 $A_{obs} \gg 1.0$

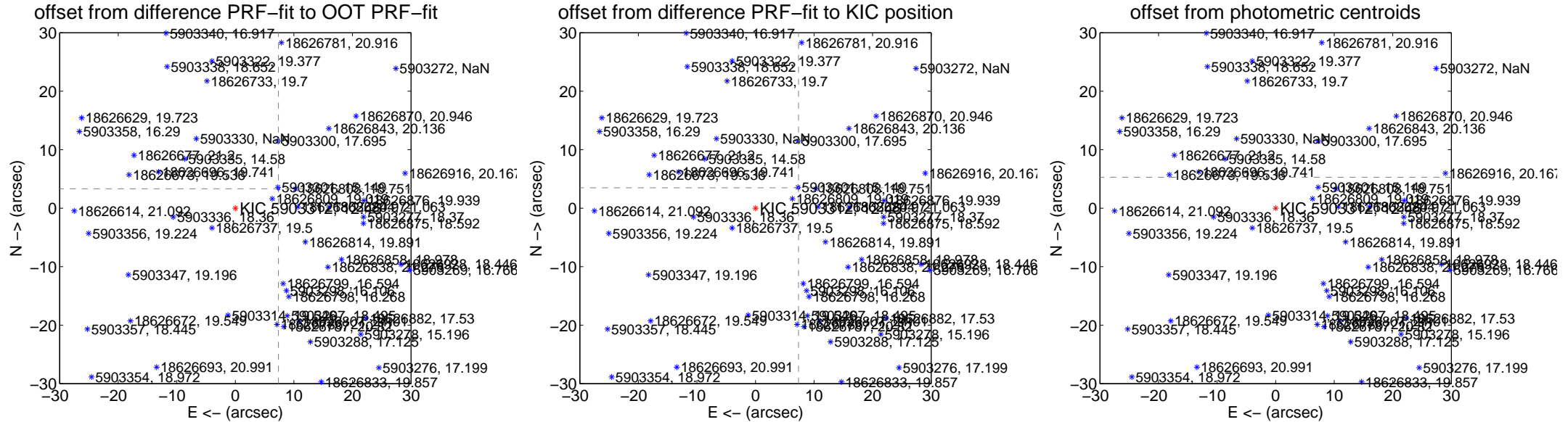
DV Centroid Data

Supplemental centroid analysis for 005903312-01. Kepler magnitude: 12.45. Transit SNR 40.95

There are 17 quarters with good PRF difference image offsets

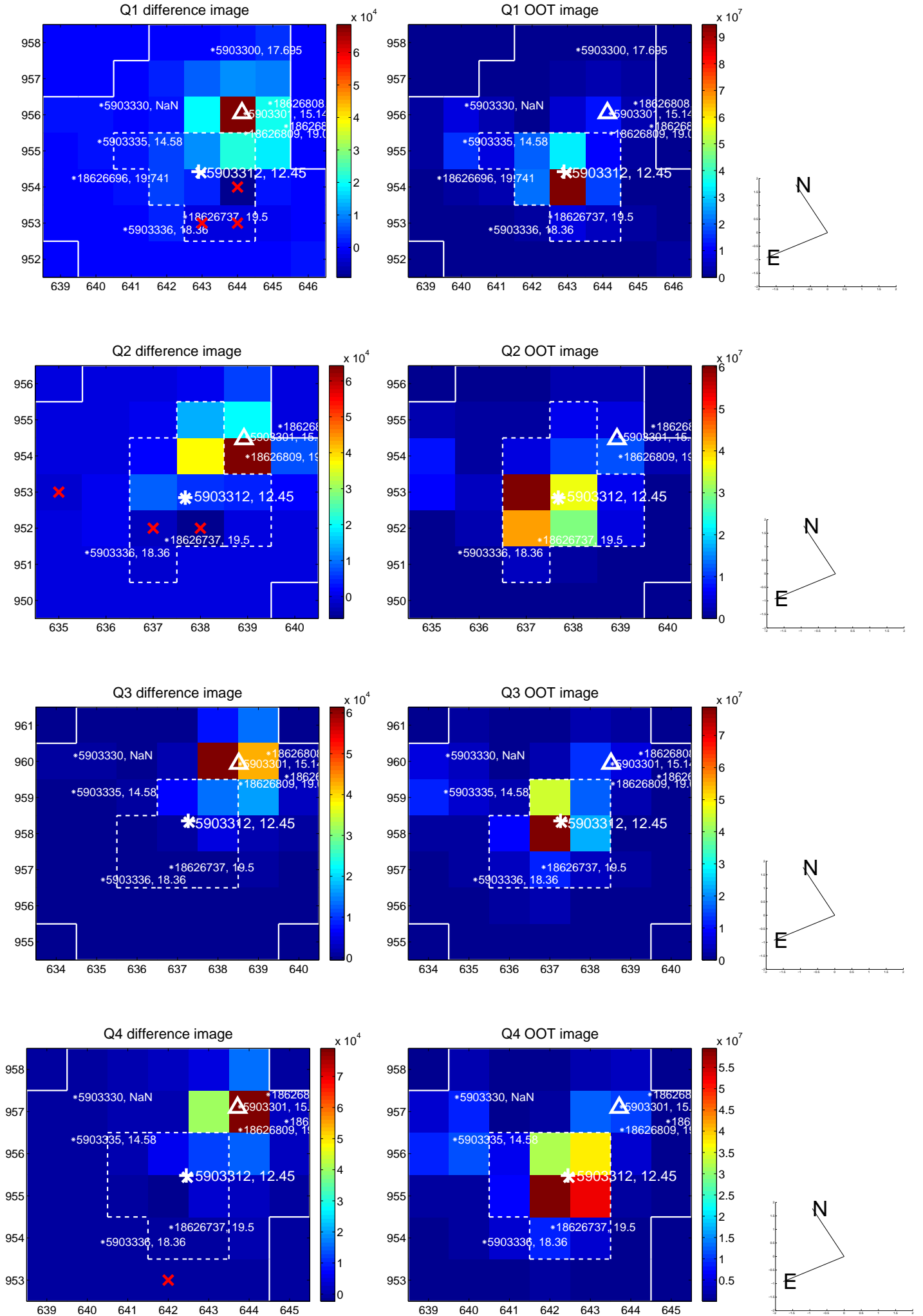
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 8.070 \pm 0.068 | 119.44 | -7.360 \pm 0.067 | 3.310 \pm 0.068 |
| PRF-fit source offset from KIC position | 8.135 \pm 0.069 | 118.65 | -7.348 \pm 0.069 | 3.491 \pm 0.068 |
| photometric centroid source offset | 36.66 \pm 0.24 | 154.93 | -36.27 \pm 0.24 | 5.28 \pm 0.23 |

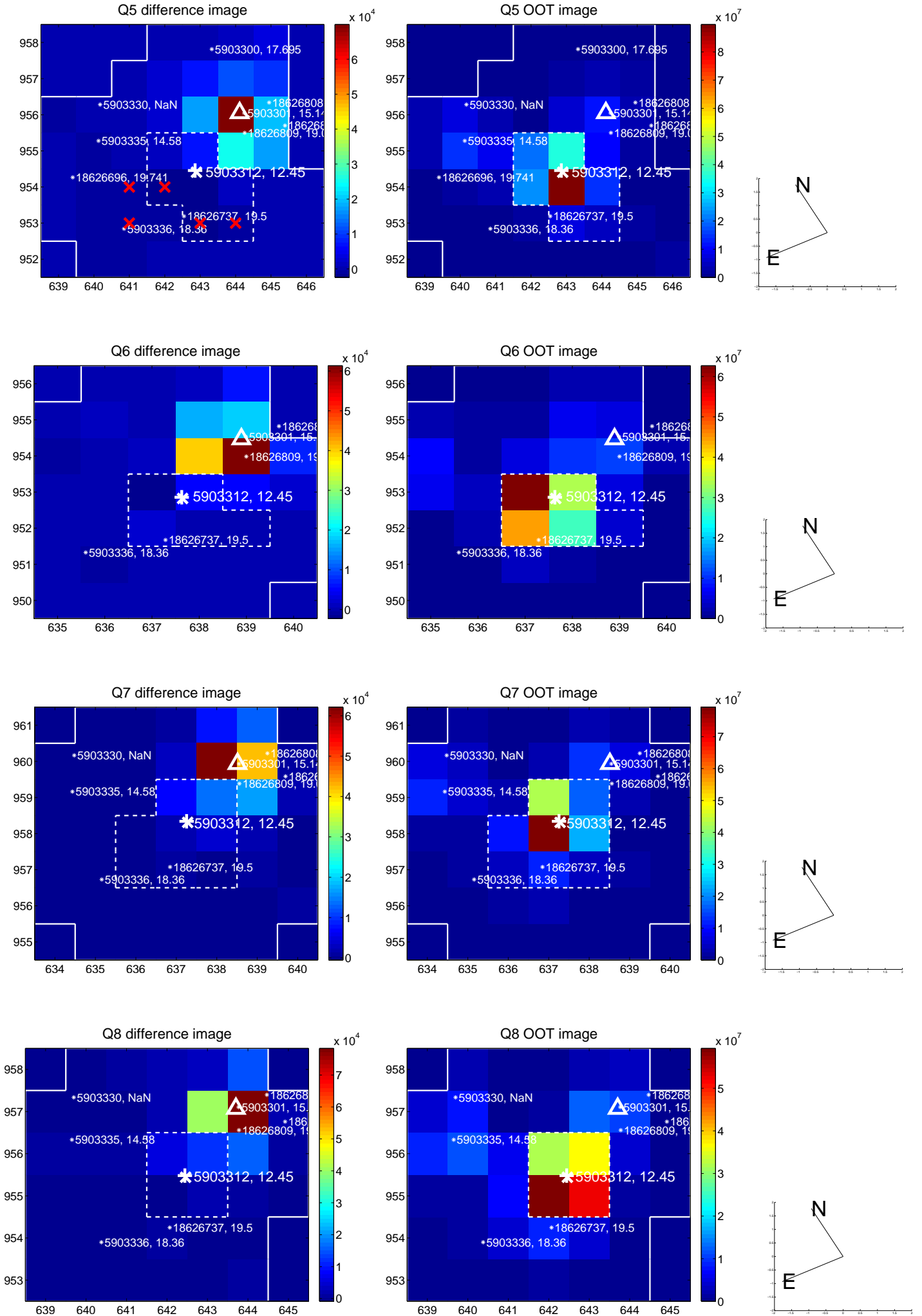


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

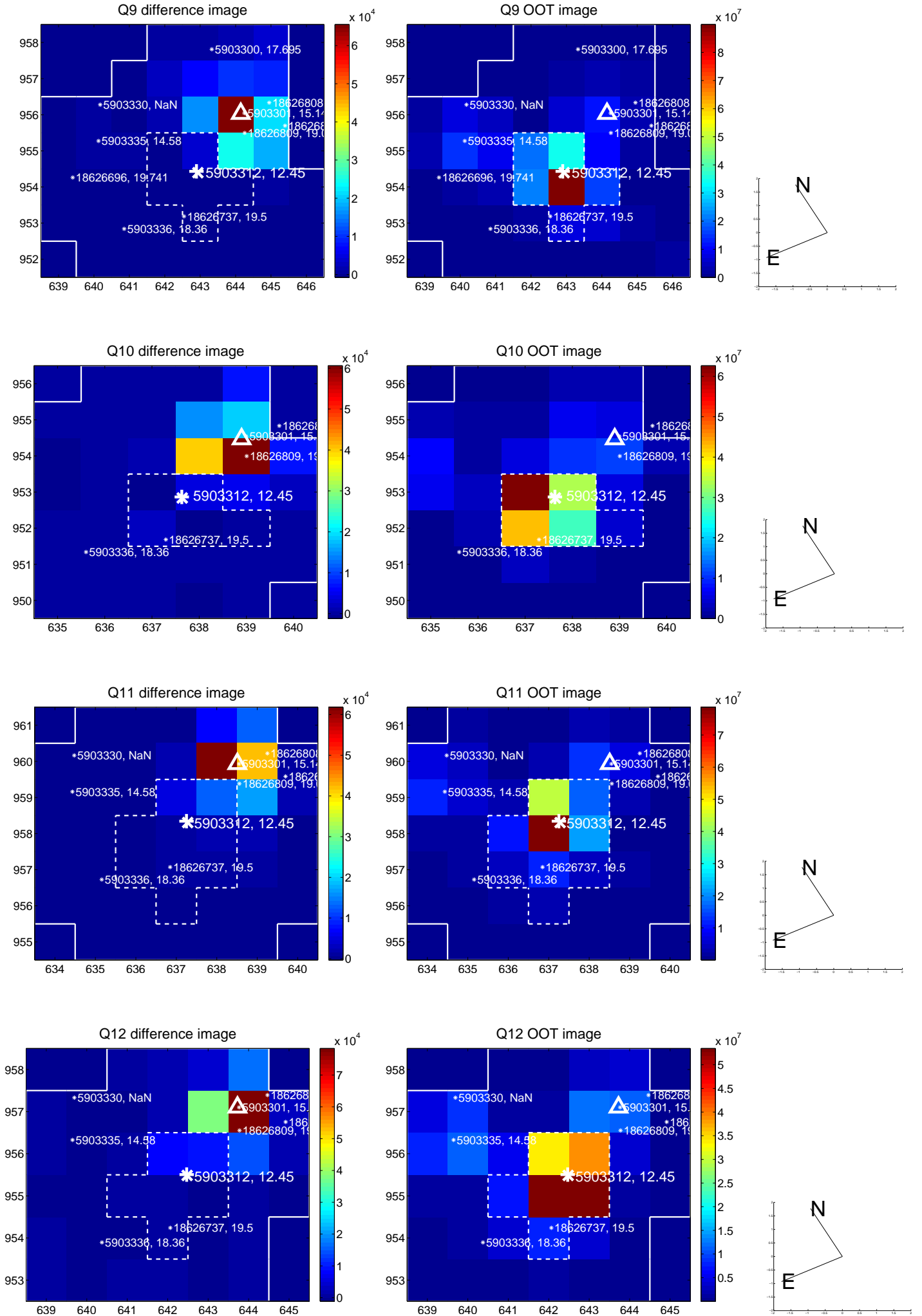
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



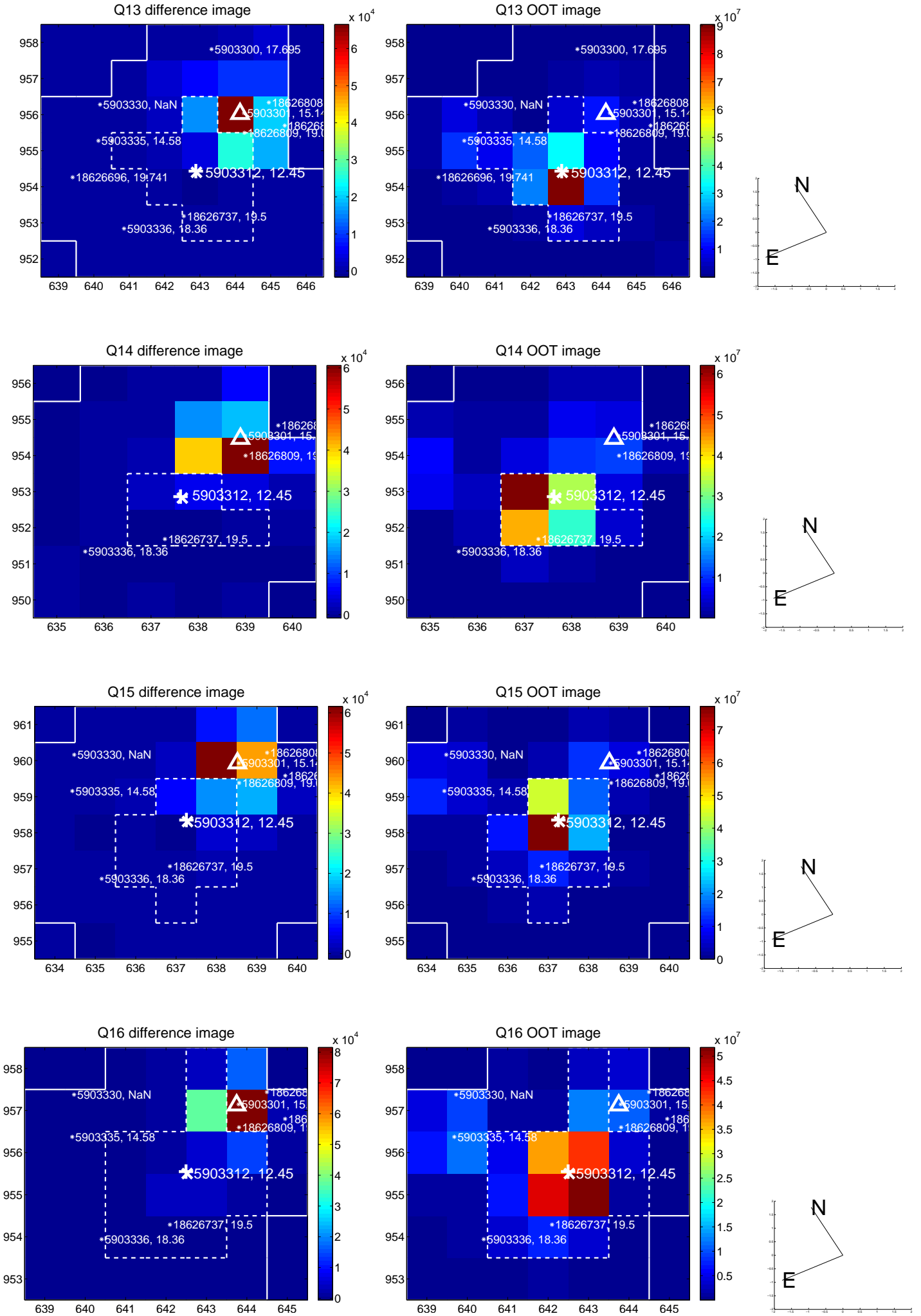
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



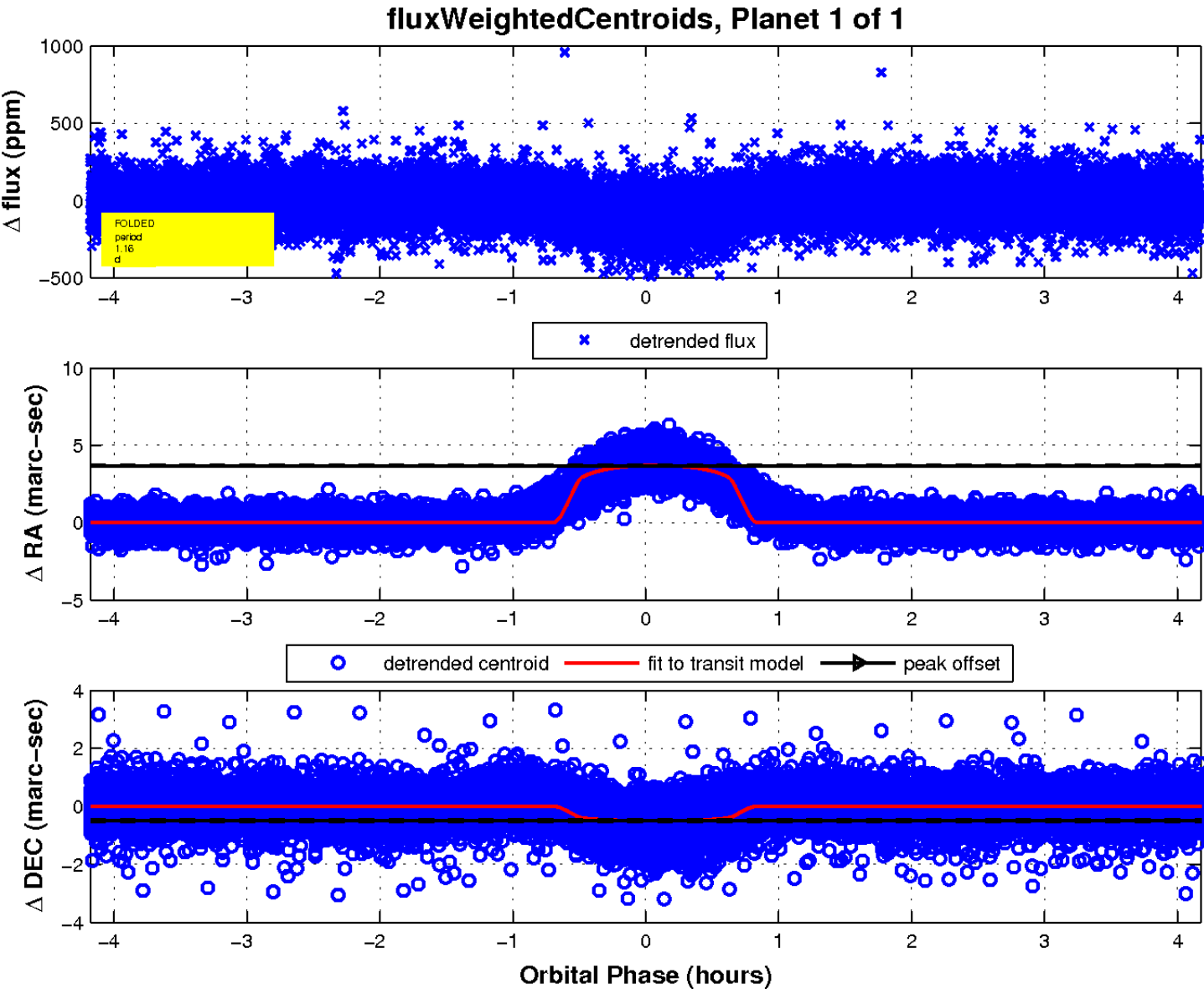
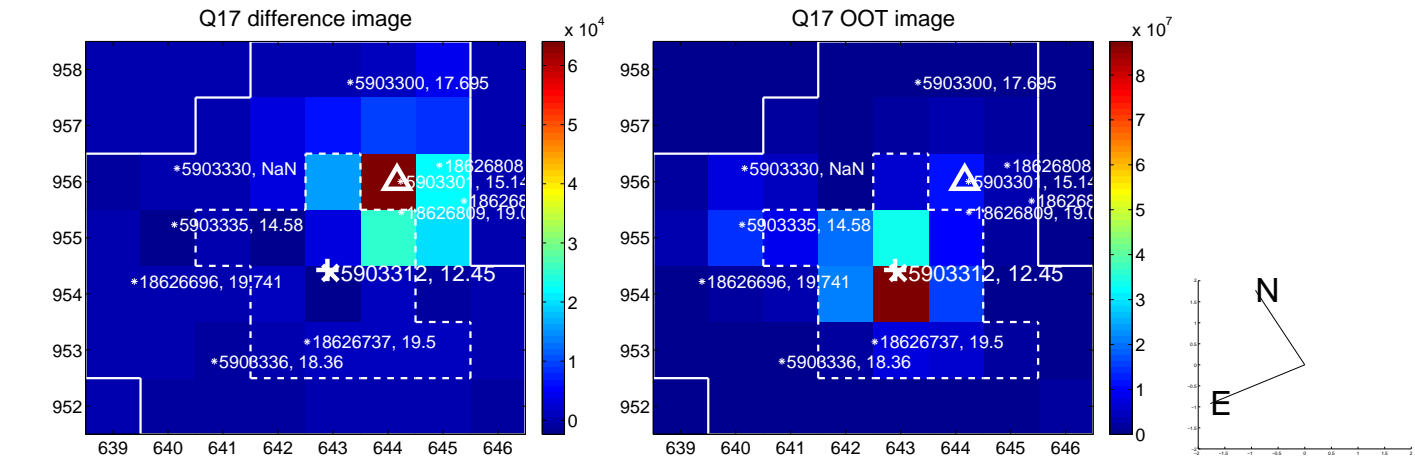
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

