

KIC 010407430

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 _⊕) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|-----|----------------------------------|--------------------|----------------------------------|----------------------------------|
| 010407430-01 | OBS | 7322.01 | 0.933650 | 131.612776 | 47.2 | 4.119 | 10.1 | 8.1 | 0.87 | 5766 | 0.64 | 2289.95 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------------------|
| 010407430-01 | OBS | FP | 0.00 | 0 | 0 | 0 | 1 | CENT_FEW_DIFFS—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 010407430-01

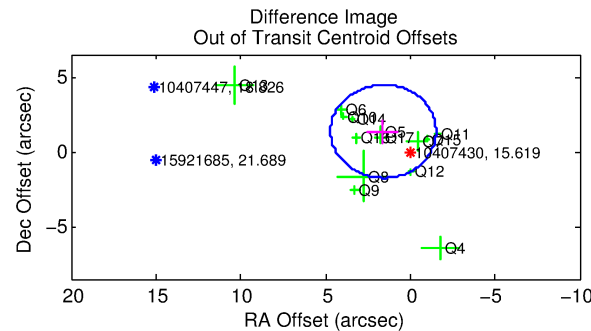
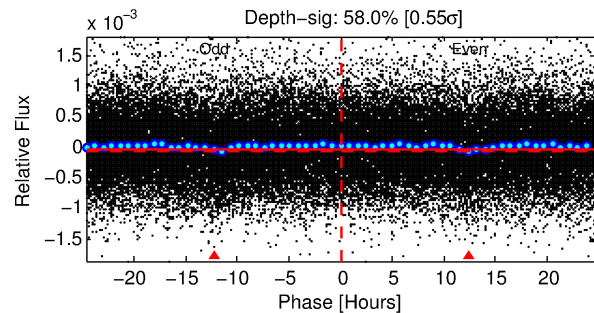
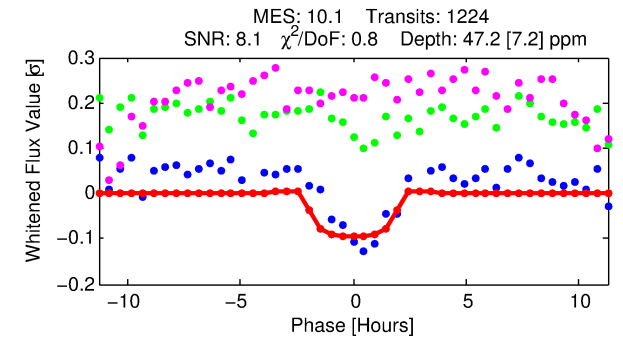
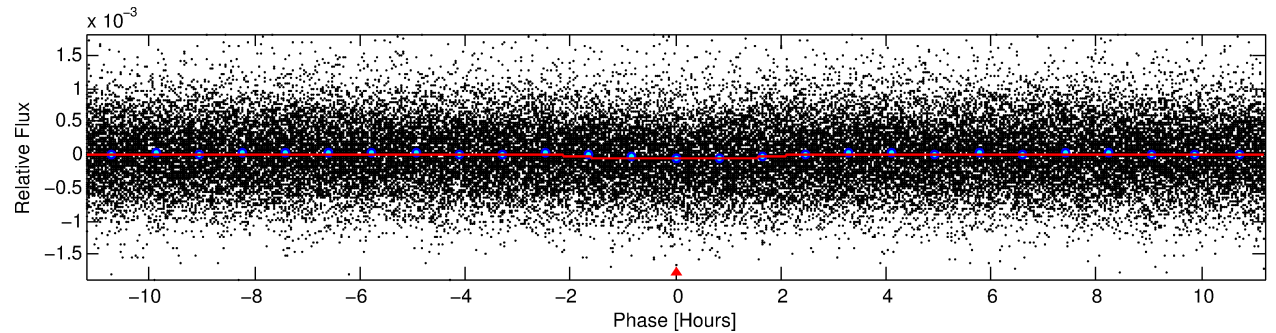
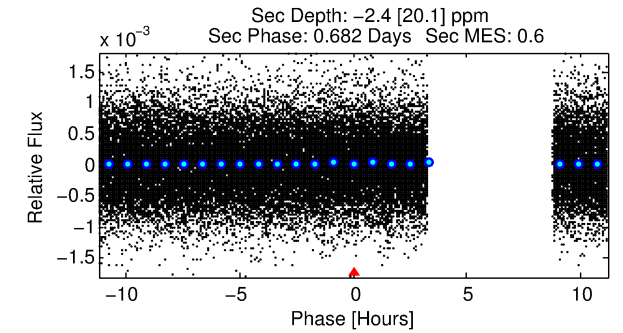
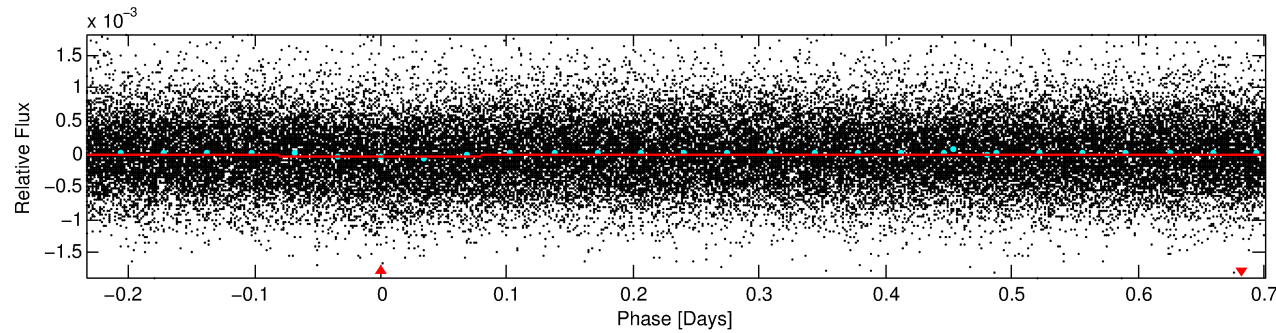
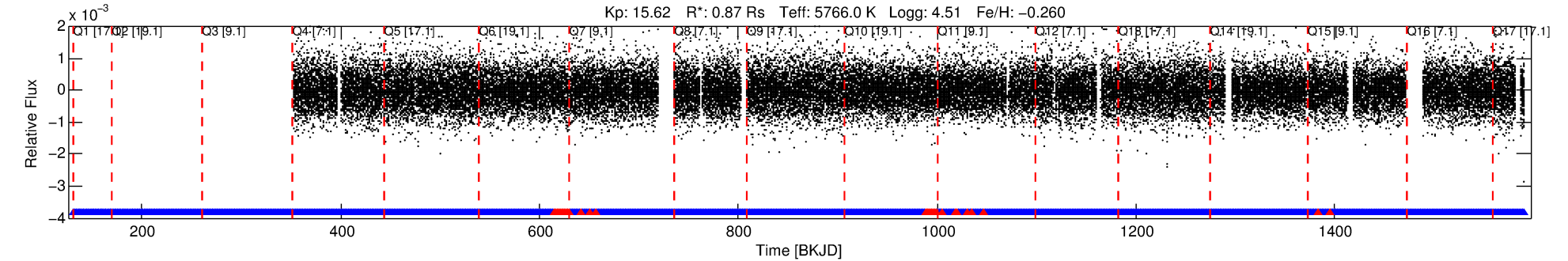
| TCE (1) | KIC | Parent (2) | Parent KIC | P ₁ :P ₂ | Dist (″) | ΔRow | ΔCol | m ₂ | m ₁ | D ₂ /D ₁ | Mechanism | Flag | σ _P | σ _T |
|--------------|----------|---------------|------------|--------------------------------|----------|------|------|----------------|----------------|--------------------------------|------------|------|----------------|----------------|
| 010407430-01 | 10407430 | V2083-Cyg-pri | 10342012 | 1:2 | 306.4 | -11 | -75 | 6.90 | 15.62 | 4219.60 | Direct-PRF | 0 | 4.64 | 0.34 |

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: 10407430 Candidate: 1 of 1 Period: 0.934 d
KOI: K07322 Corr: No Ephemeris Match

Kp: 15.62 R*: 0.87 Rs Teff: 5766.0 K Logg: 4.51 Fe/H: -0.260



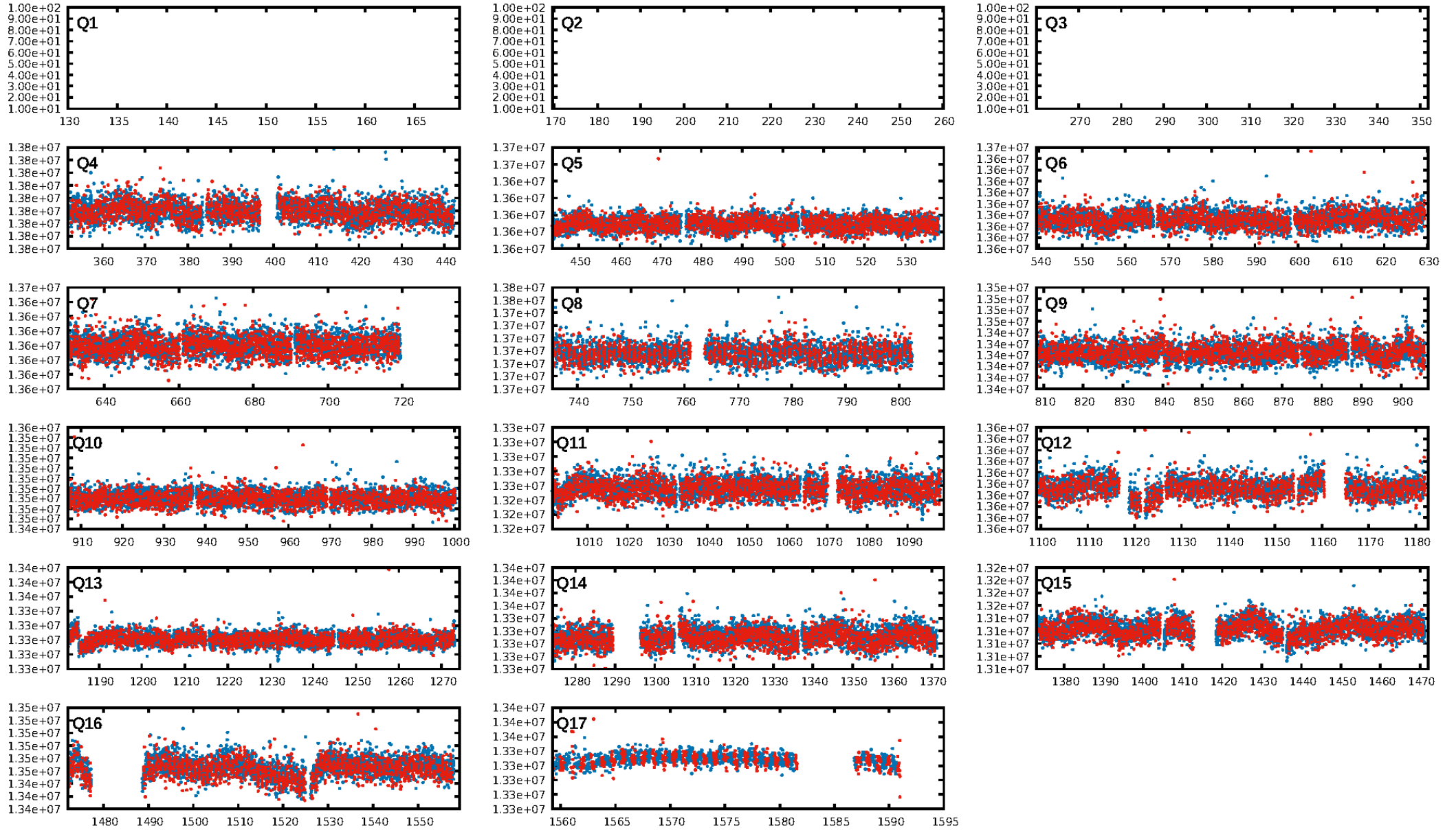
DV Fit Results:

Period = 0.93365 [0.00001] d
Epoch = 131.6128 [0.0061] BKJD
Rp/R* = 0.0068 [0.0066]
a/R* = 1.46 [3.47]
b = 0.73 [2.85]
Seff = 2289.95 [826.55]
Teff = 1764 [159] K
Rp = 0.64 [0.65] Re
a = 0.0180 [0.0043] AU
Ag = N/A
Teffp = N/A

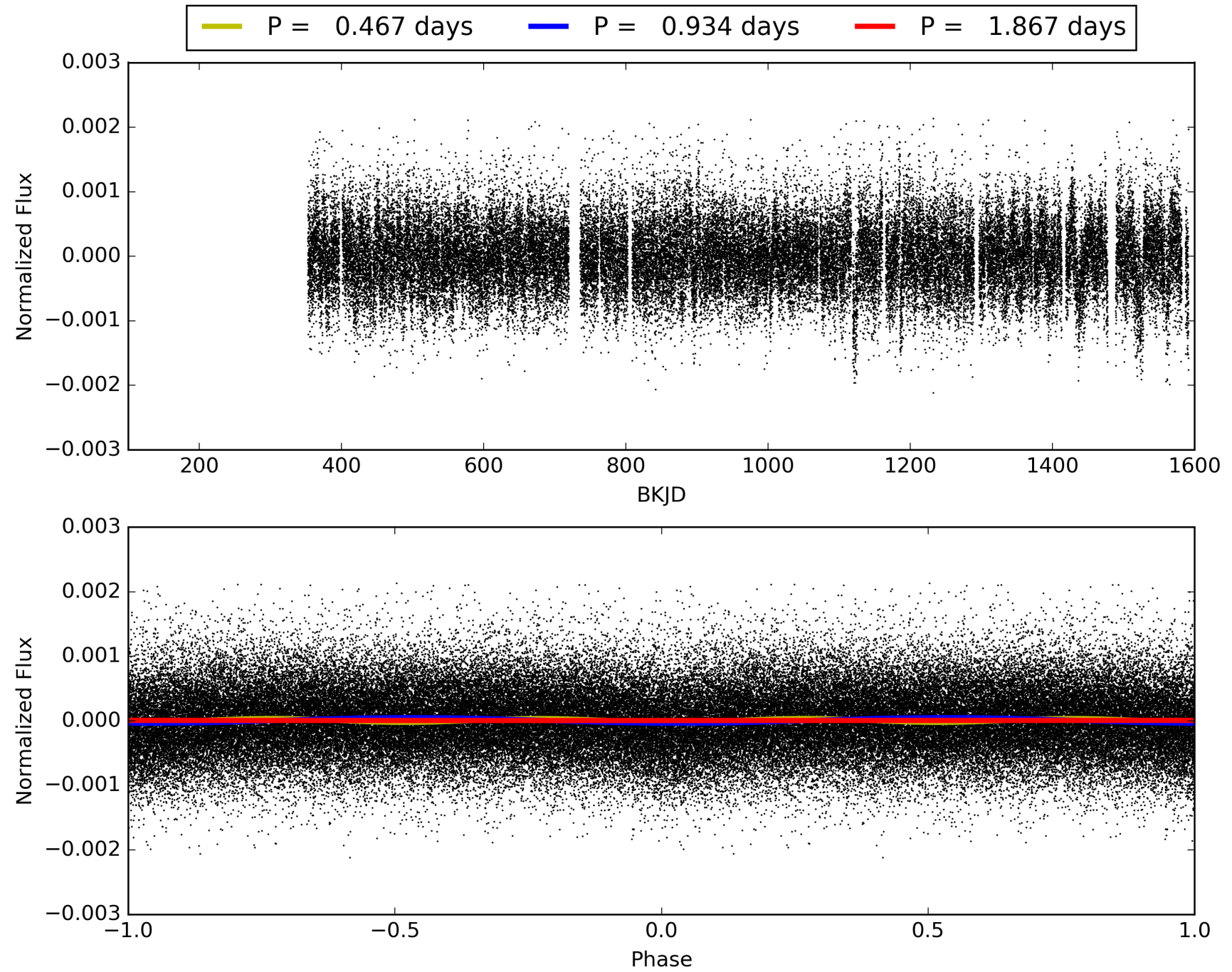
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.01e-22
RollingBand-fgt: 0.97 [1155/1194]
GhostDiagnostic-chr: -0.6542
Centroid-sig: 44.5%
Centroid-so: 1.462 arcsec [0.80 sigma]
OotOffset-rm: 2.089 arcsec [2.02 sigma]
KicOffset-rm: 2.132 arcsec [2.33 sigma]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010407430-01, PDC Light Curves

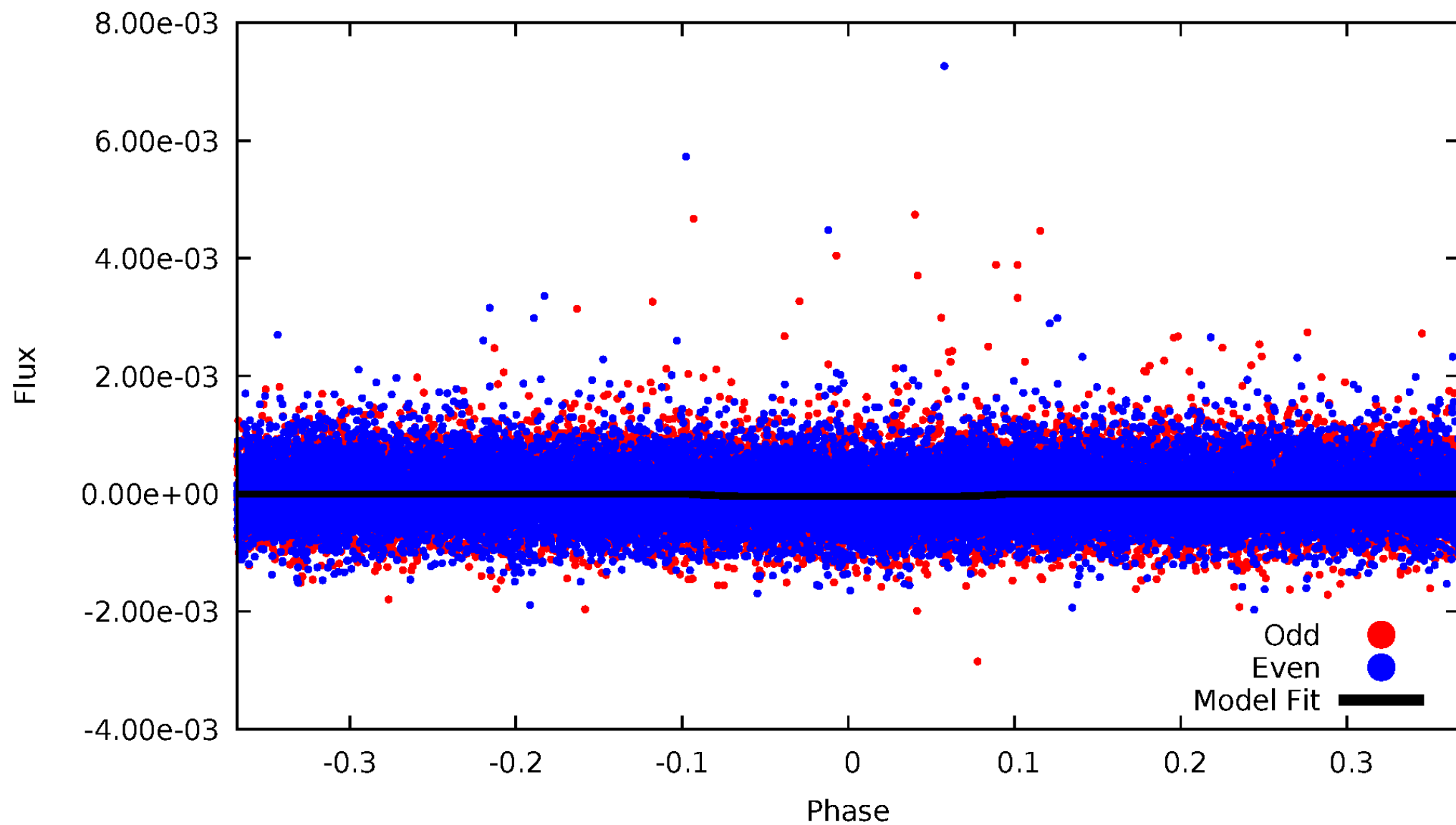


TCE 010407430-01



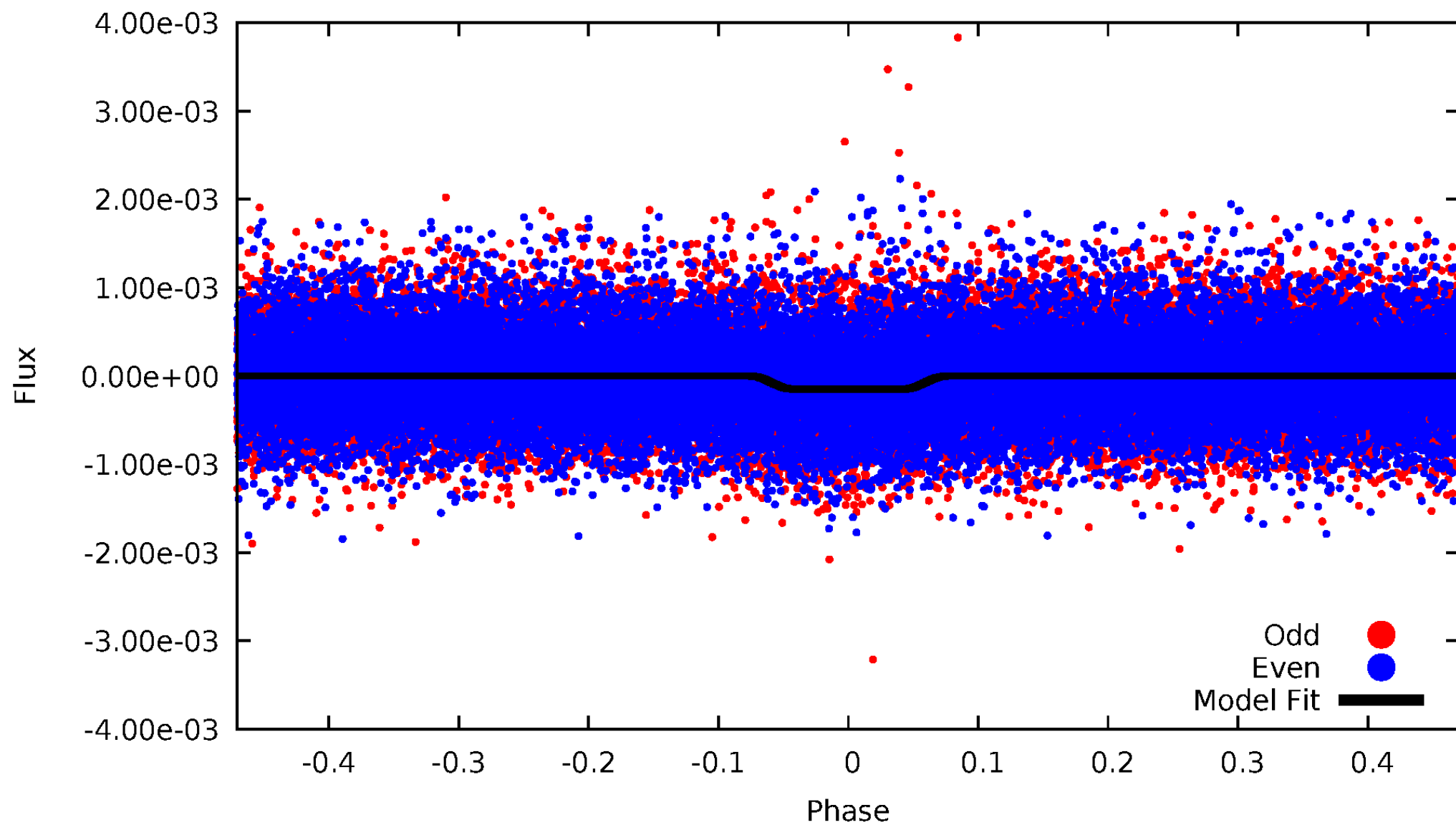
DV Odd/Even

TCE 010407430-01



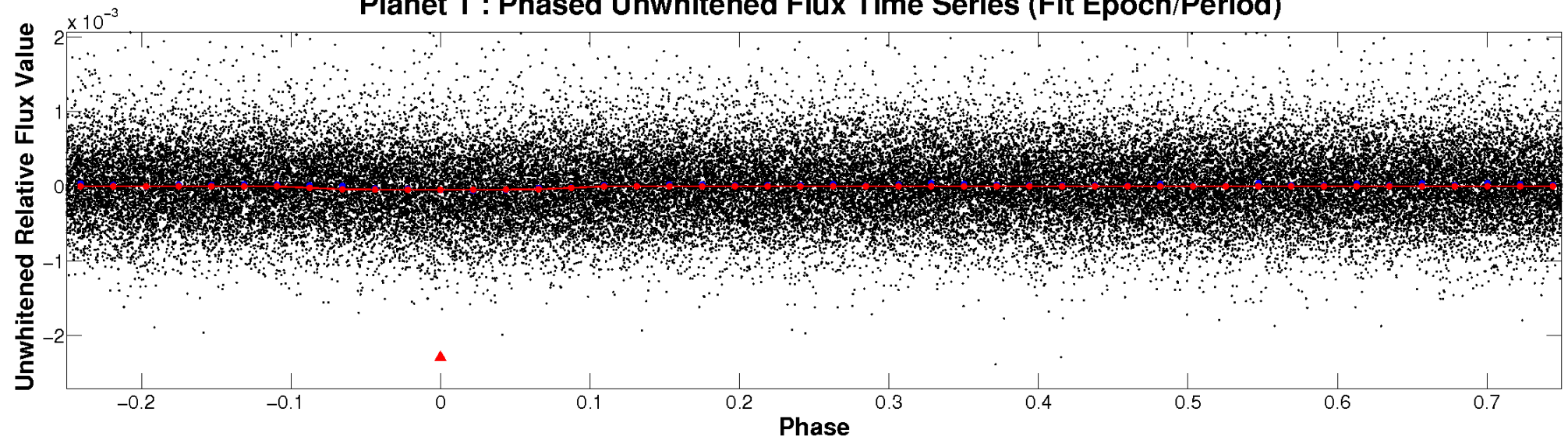
ALT Odd/Even

TCE 010407430-01

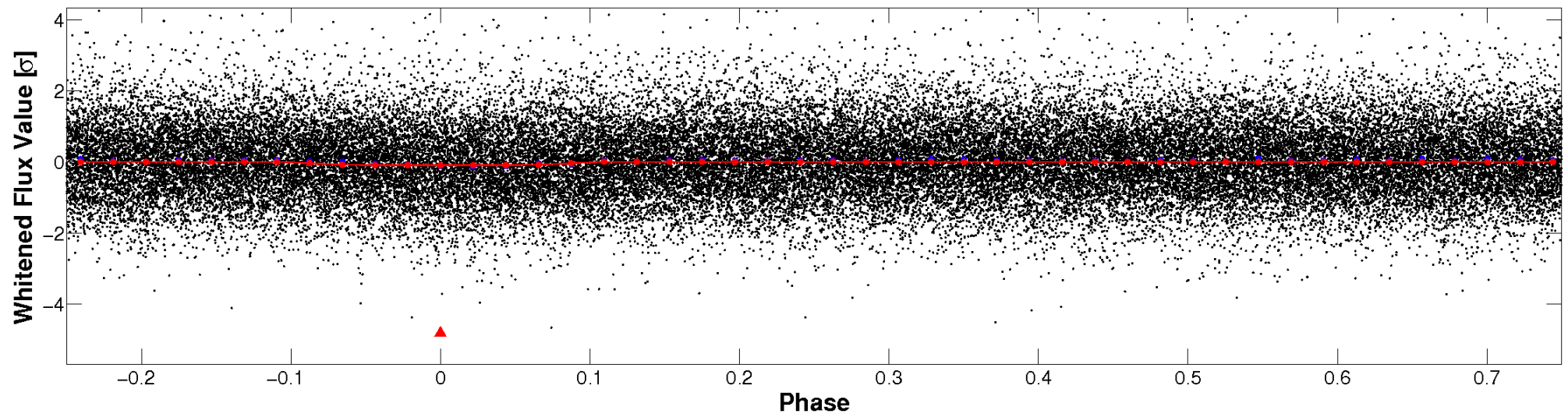


Non-Whitened Vs. Whitened Light Curve

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

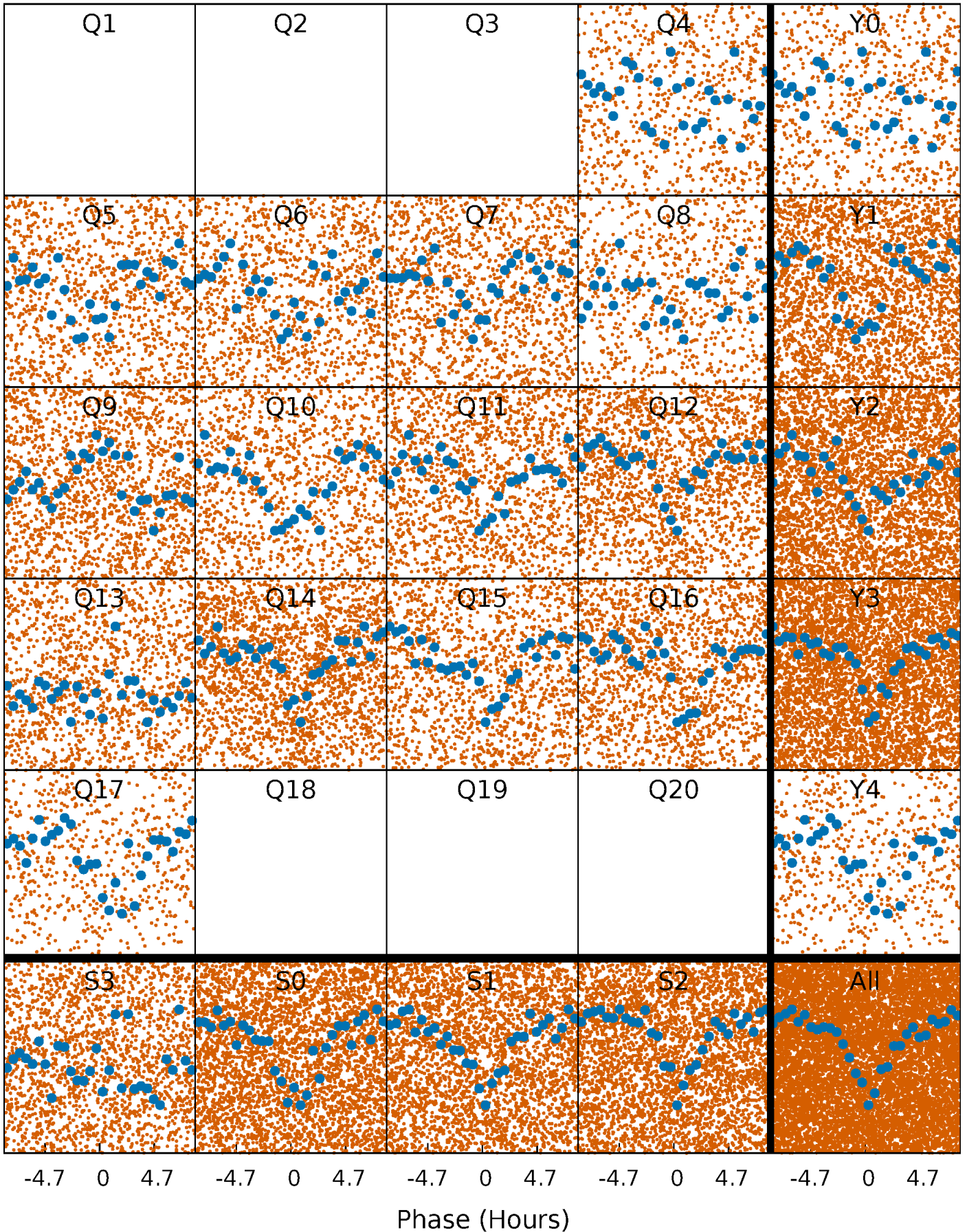


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



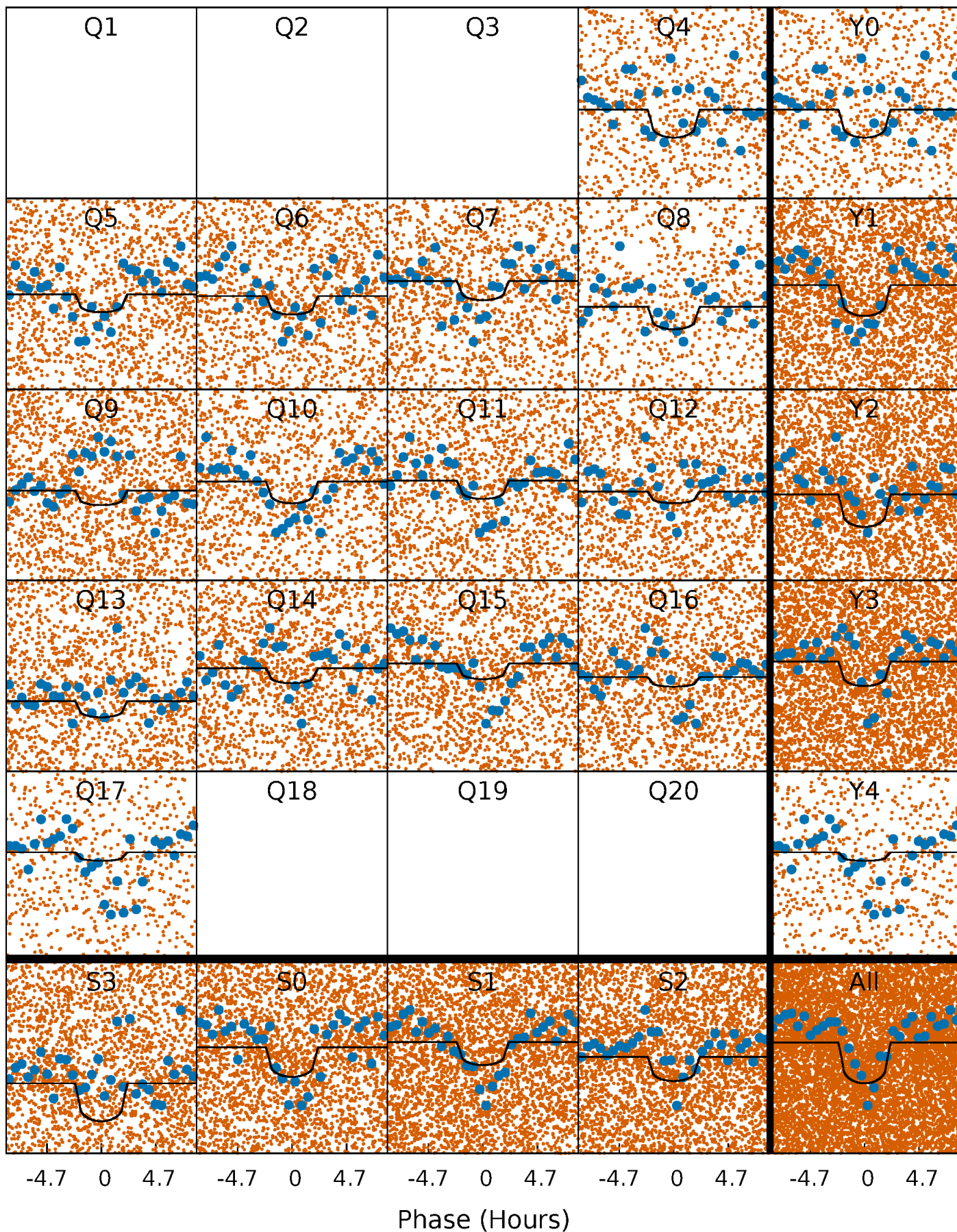
PDC Quarter-Phased Transit Curves

TCE 010407430-01 P= 0.933650 Days $T_0=131.612776$ (BKJD)



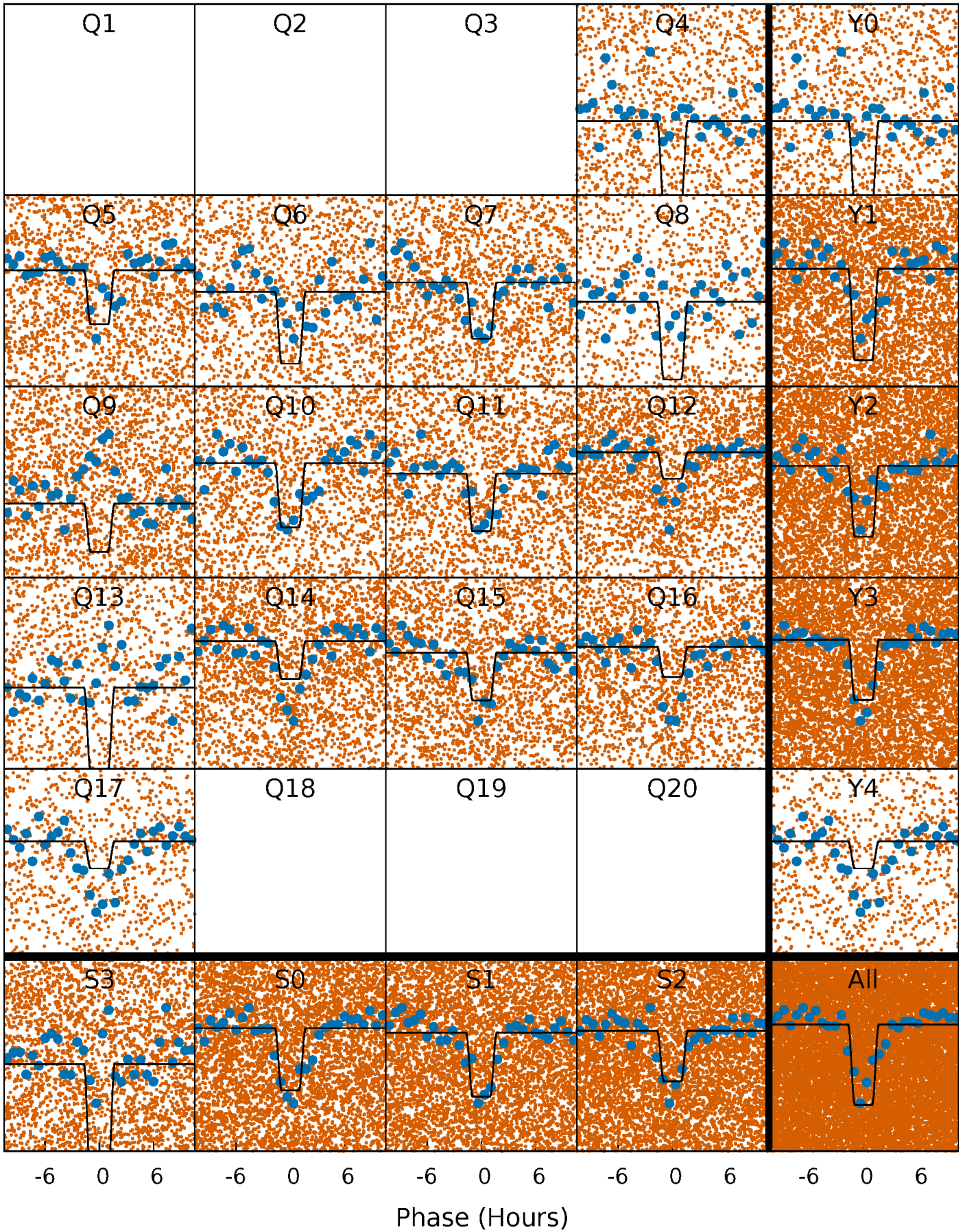
DV Quarter-Phased Transit Curves

TCE 010407430-01 P= 0.933650 Days $T_0=131.612776$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

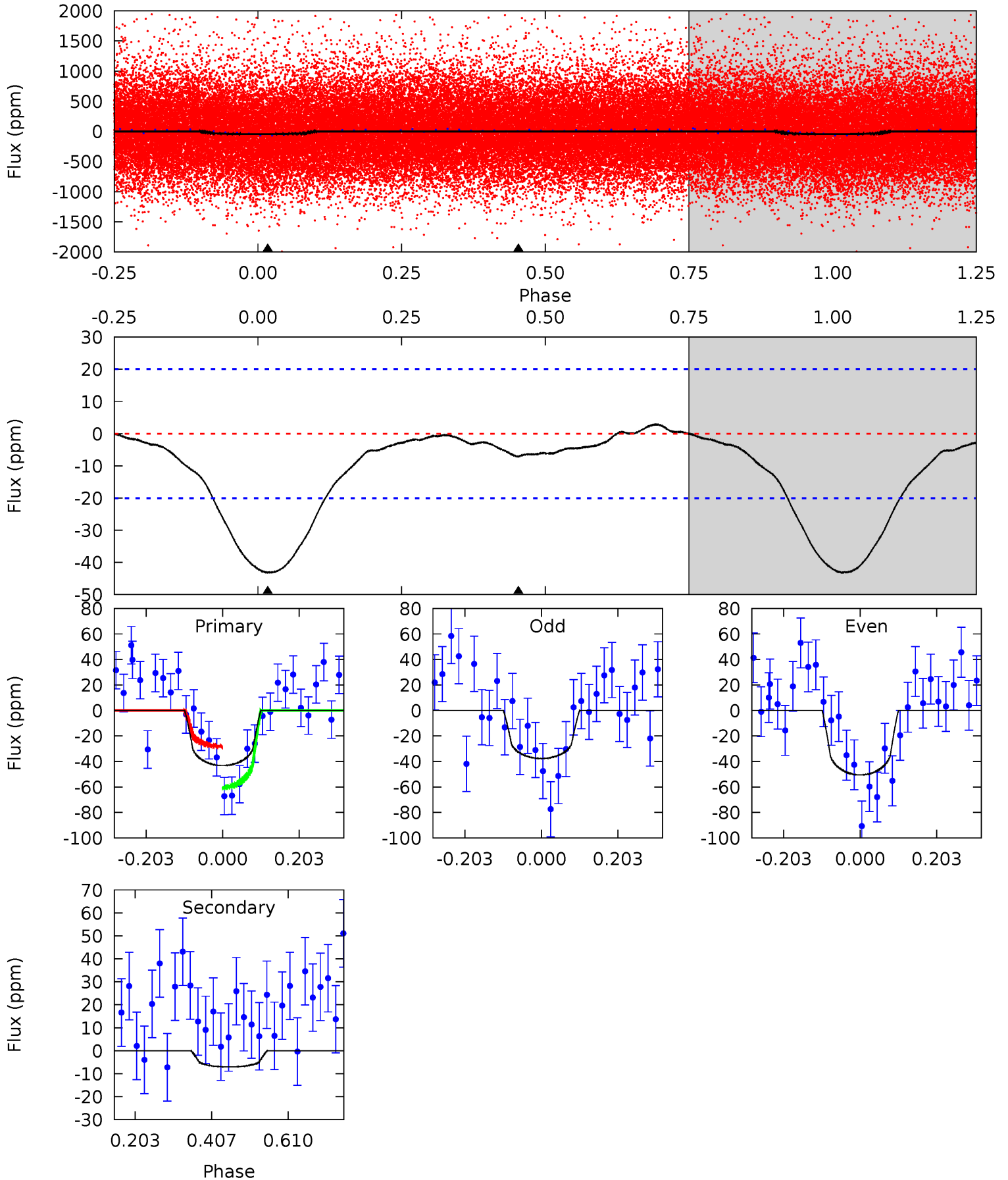
TCE 010407430-01 P= 0.933740 Days $T_0=131.527137$ (BKJD)



DV Model-Shift Uniqueness Test

010407430-01, P = 0.933650 Days, E = 131.612776 Days

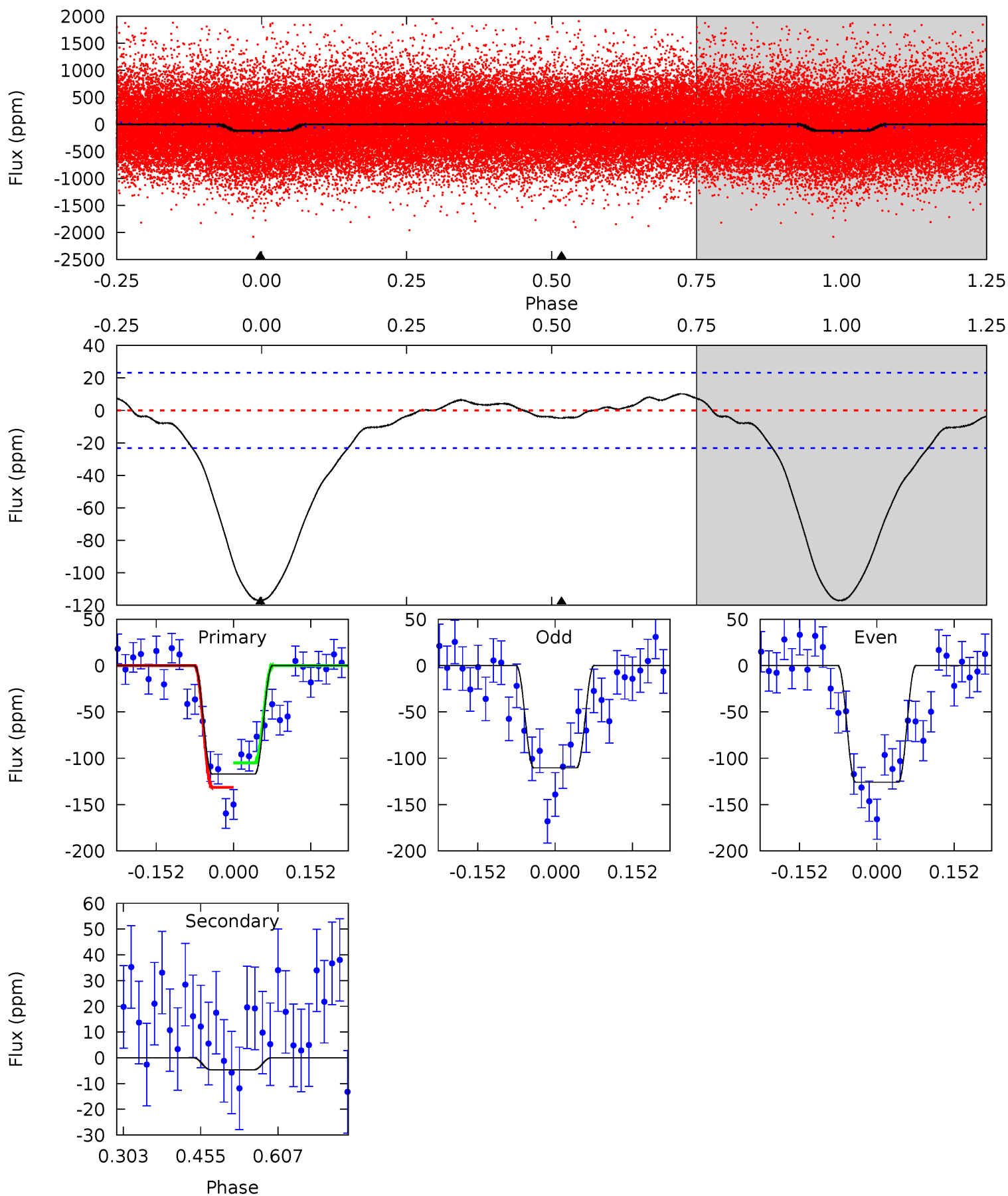
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.49 | 1.56 | 0 | 0 | 4.41 | 1.27 | 0.46 | 9.49 | 9.49 | 1.56 | 1.56 | 1.42 | 0.79 | 0.06 | 3.55 |



Alt Model-Shift Uniqueness Test

010407430-01, P = 0.933740 Days, E = 131.527137 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 22.6 | 0.90 | 0 | 0 | 4.48 | 1.43 | 1.49 | 22.6 | 22.6 | 0.90 | 0.90 | 1.50 | 0.94 | 0.08 | 2.56 |



Stellar Parameters For KIC 010407430

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5766^{+172}_{-189} | $4.514^{+0.060}_{-0.180}$ | $-0.260^{+0.300}_{-0.300}$ | $0.866^{+0.249}_{-0.083}$ | $0.895^{+0.110}_{-0.090}$ | $1.939^{+0.511}_{-0.985}$ |
| | +3%/-3% | +1%/-4% | +115%/-115% | +29%/-10% | +12%/-10% | +26%/-51% |
| Source | KIC0 | 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 010407430-01 / KOI 7322.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -7 ± 5 | $0.80^{+0.57}_{-0.50}$ | 2501^{+158}_{-110} | 3569^{+1736}_{-1134} | $1.826^{+11.523}_{-1.443}$ |
| Alt. | -5 ± 5 | $1.26^{+0.67}_{-0.66}$ | 2497^{+167}_{-113} | 2634^{+1151}_{-5496} | $0.491^{+1.921}_{-0.528}$ |

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 $A_{obs} \gg 1.0$

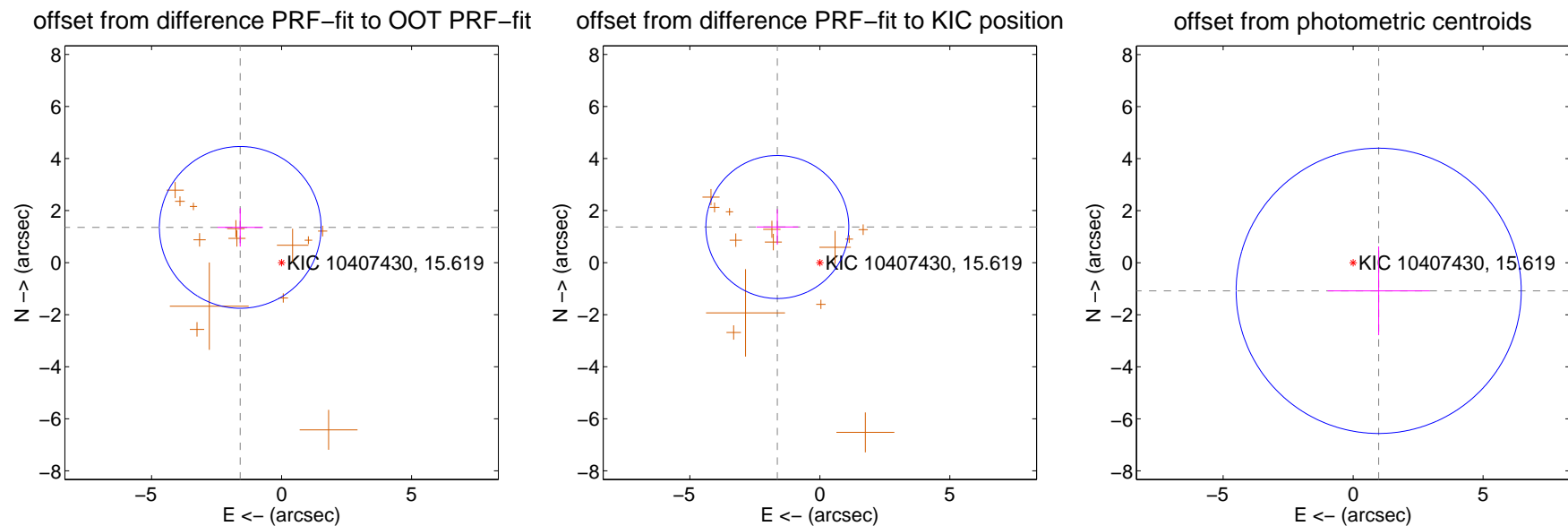
DV Centroid Data

Supplemental centroid analysis for 010407430-01. Kepler magnitude: 15.62. Transit SNR 8.11

There are 0 quarters with good PRF difference image offsets

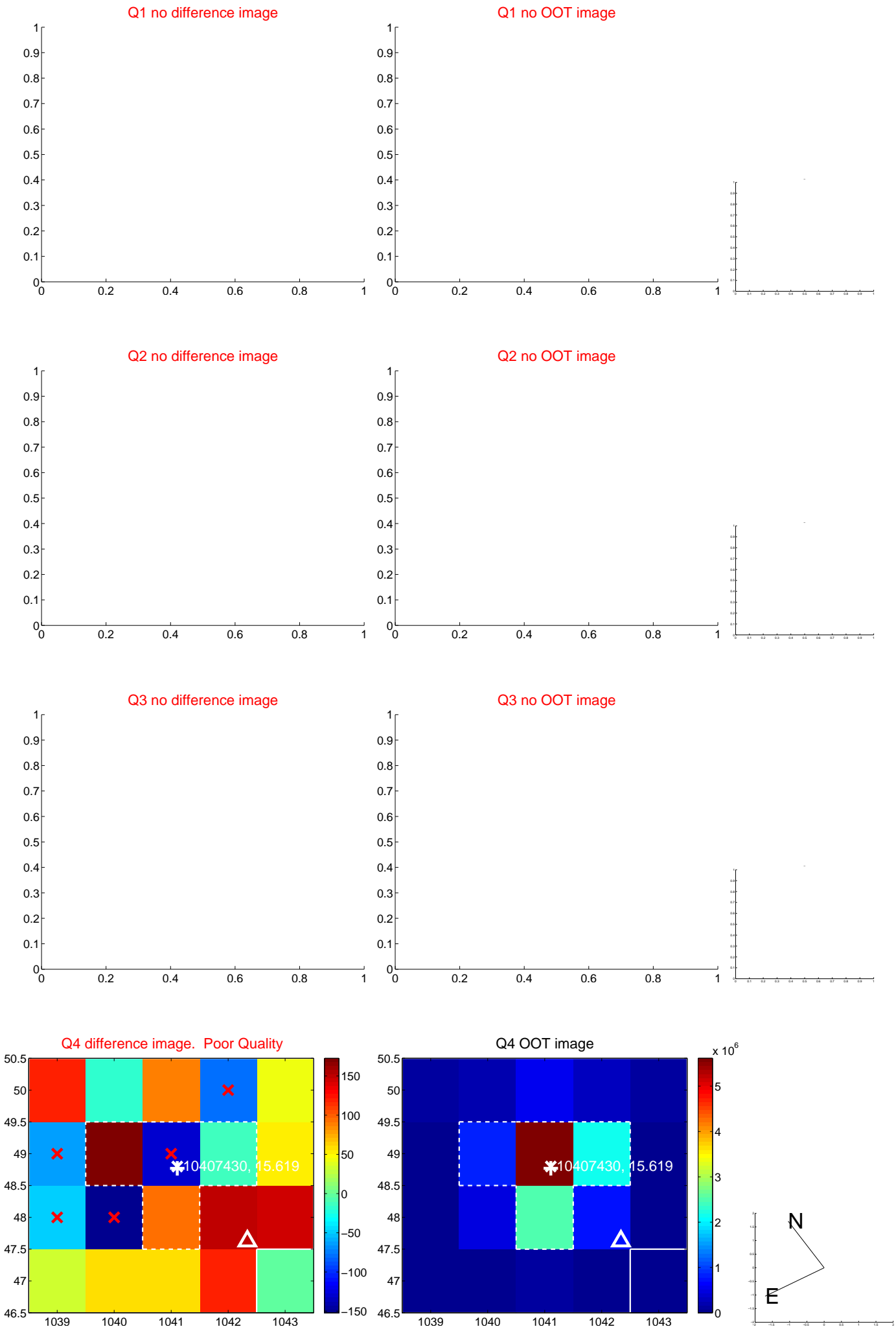
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 2.089 ± 1.036 | 2.02 | 1.590 ± 0.874 | 1.355 ± 0.737 |
| PRF-fit source offset from KIC position | 2.132 ± 0.916 | 2.33 | 1.634 ± 0.800 | 1.370 ± 0.682 |
| photometric centroid source offset | 1.46 ± 1.83 | 0.80 | -0.98 ± 1.96 | -1.08 ± 1.71 |

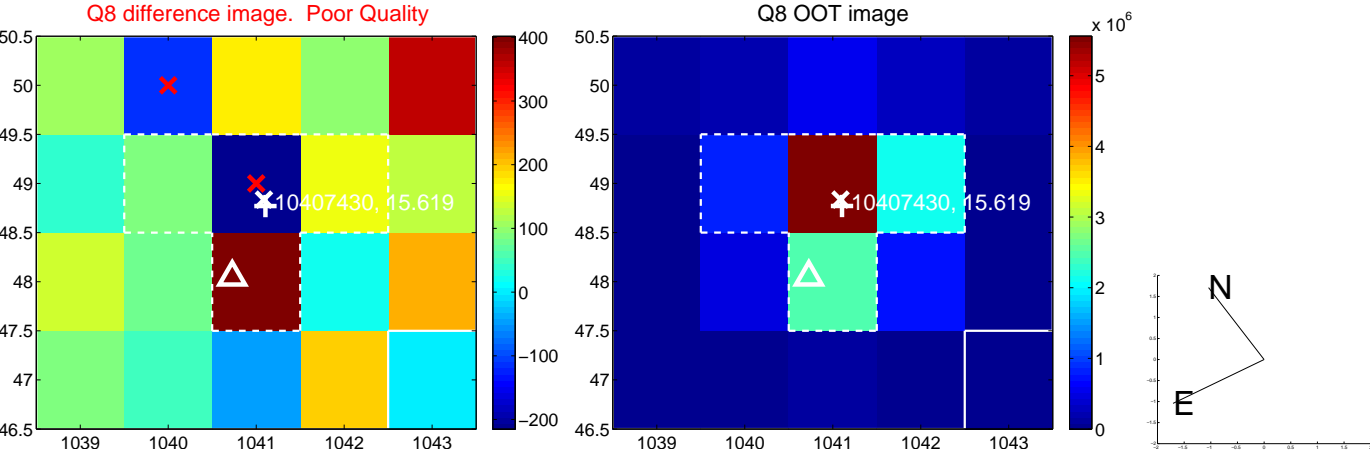
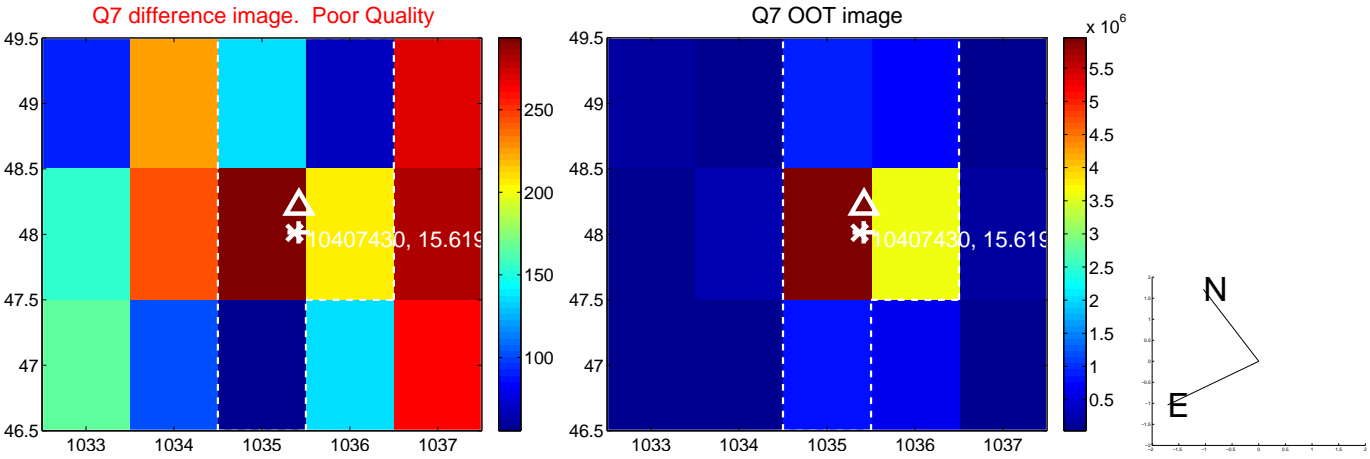
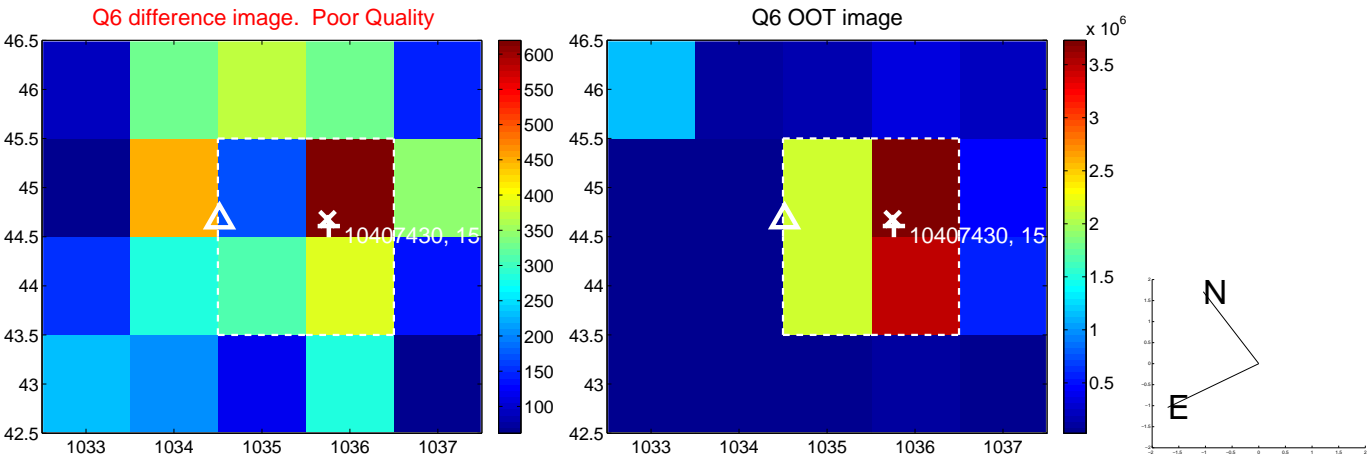
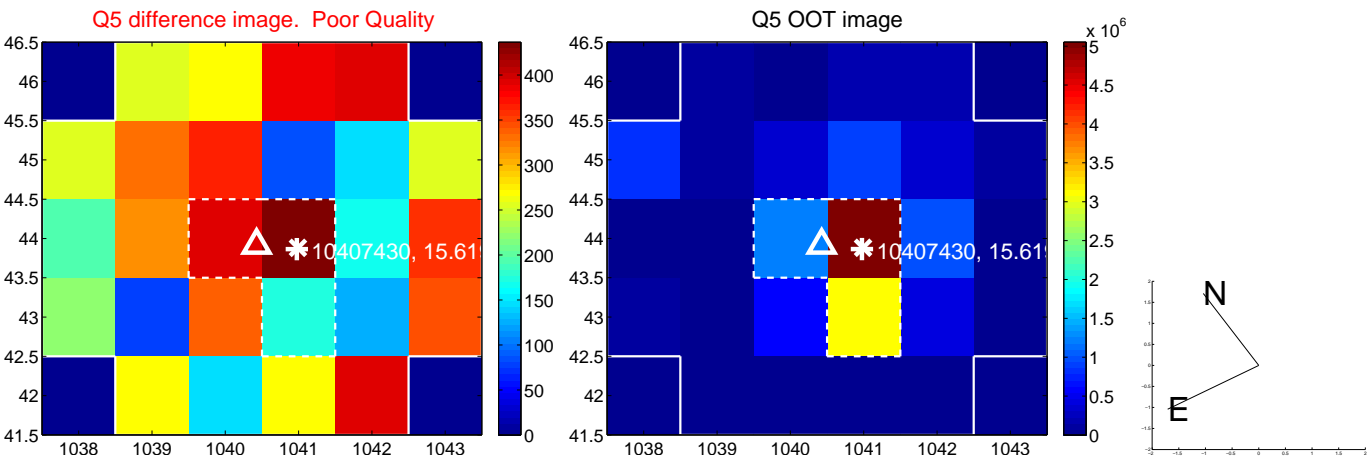


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

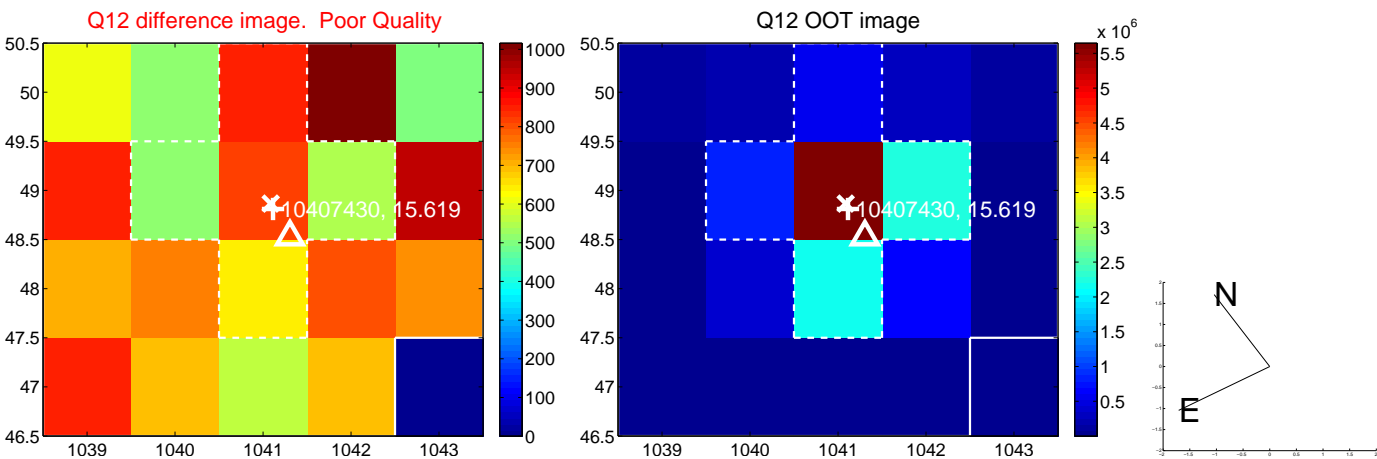
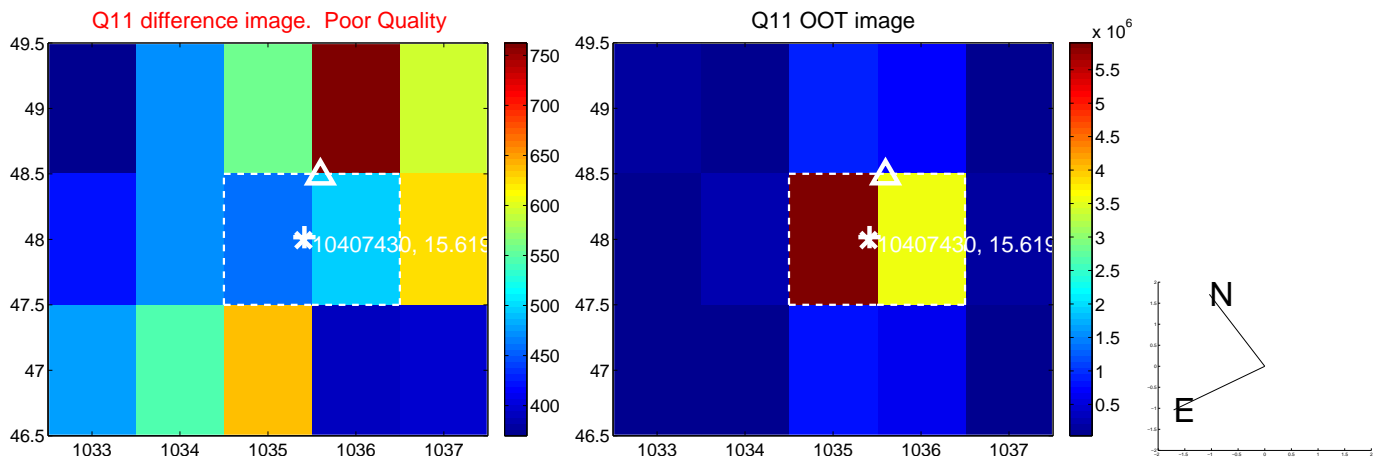
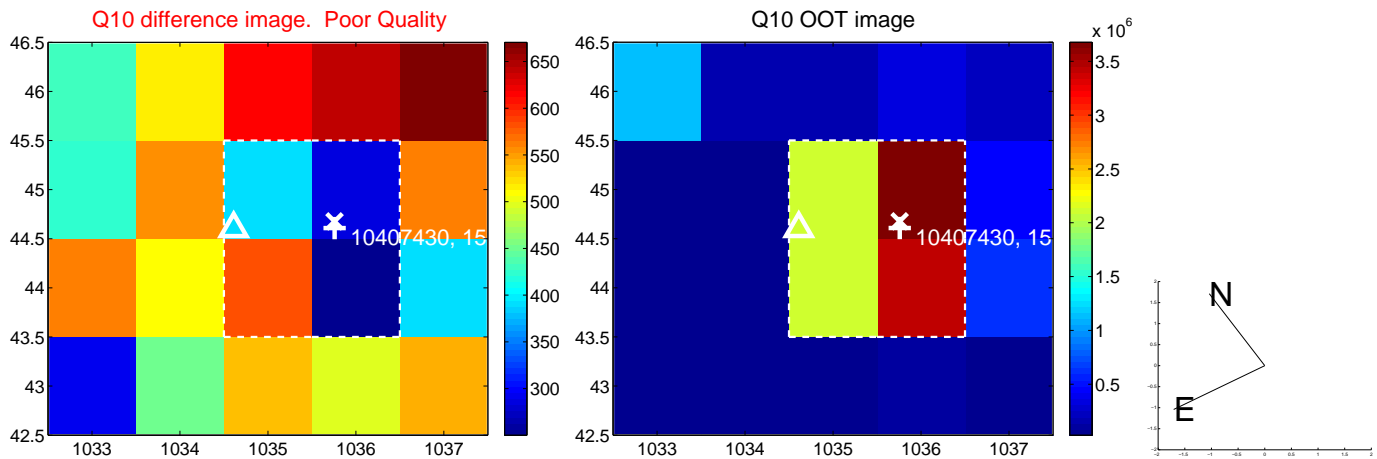
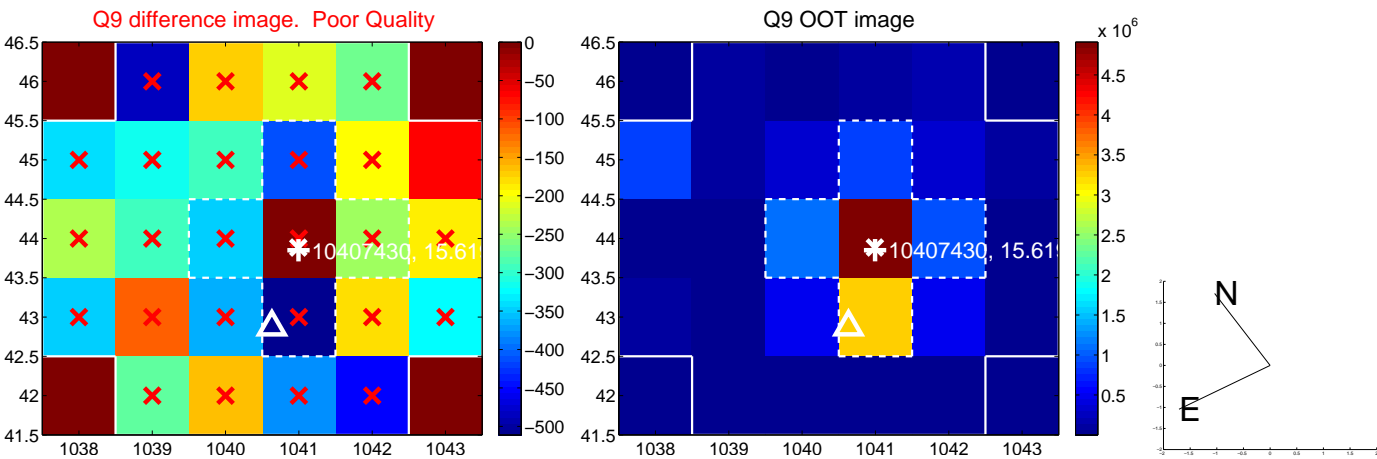
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



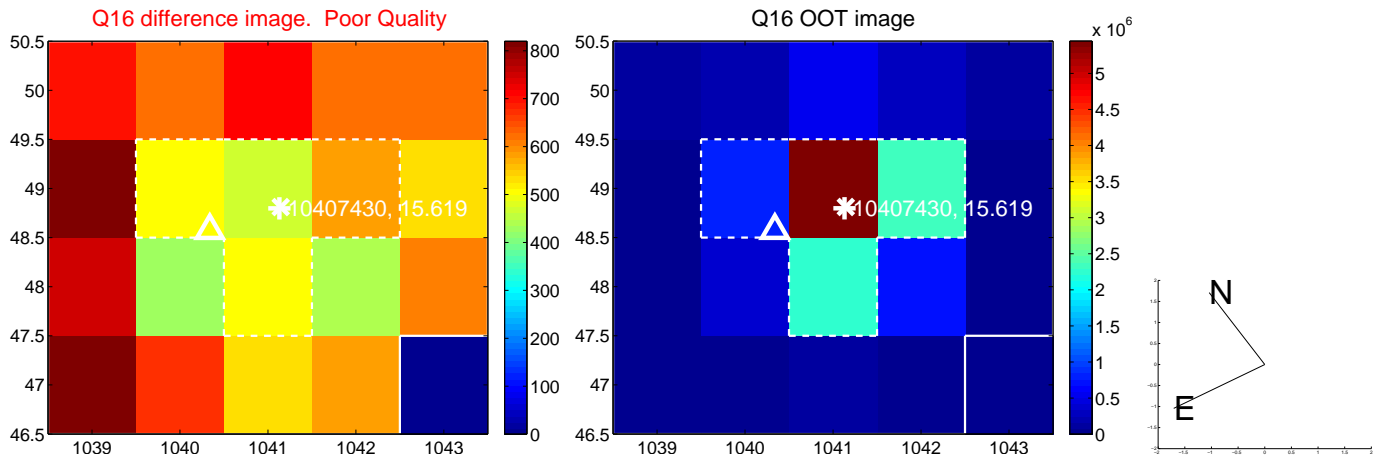
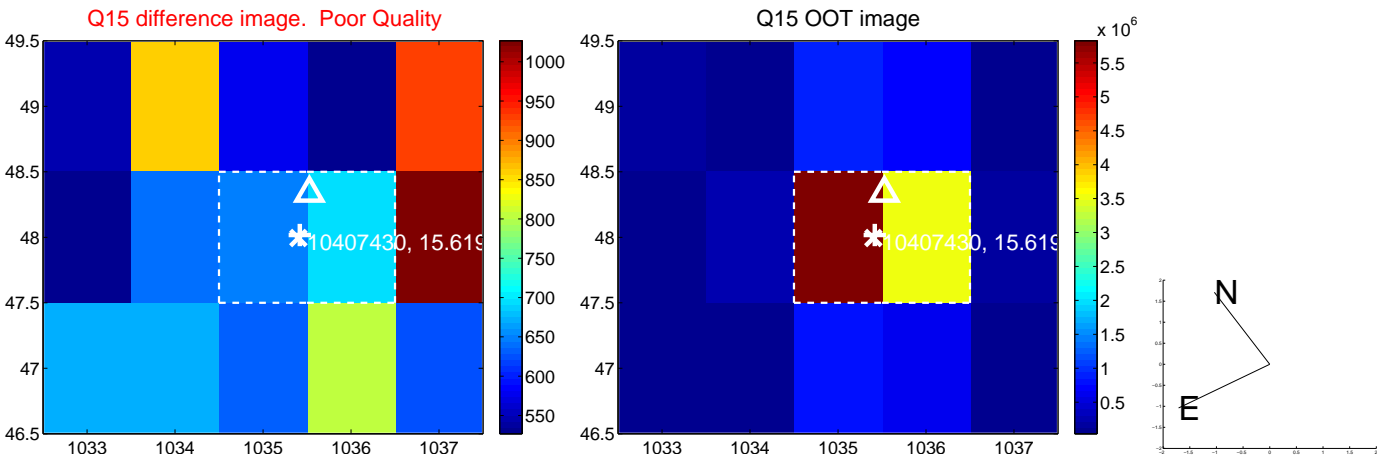
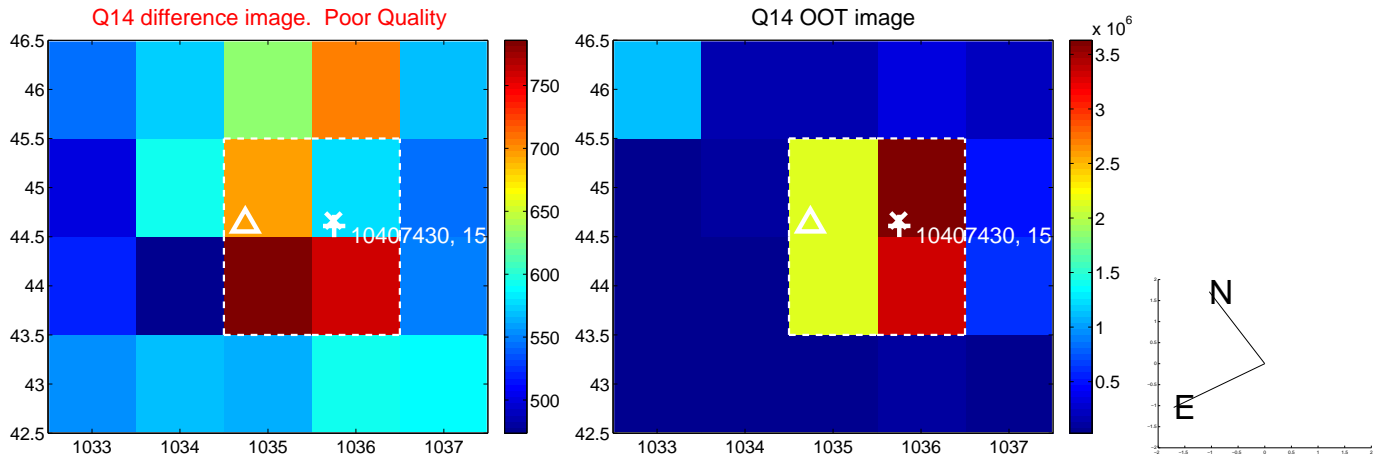
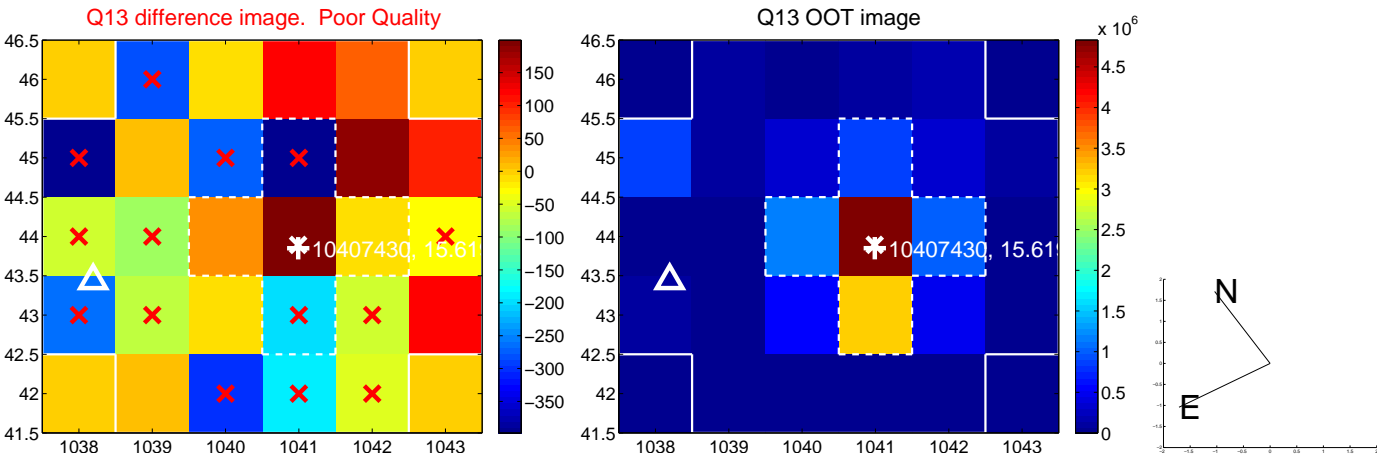
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



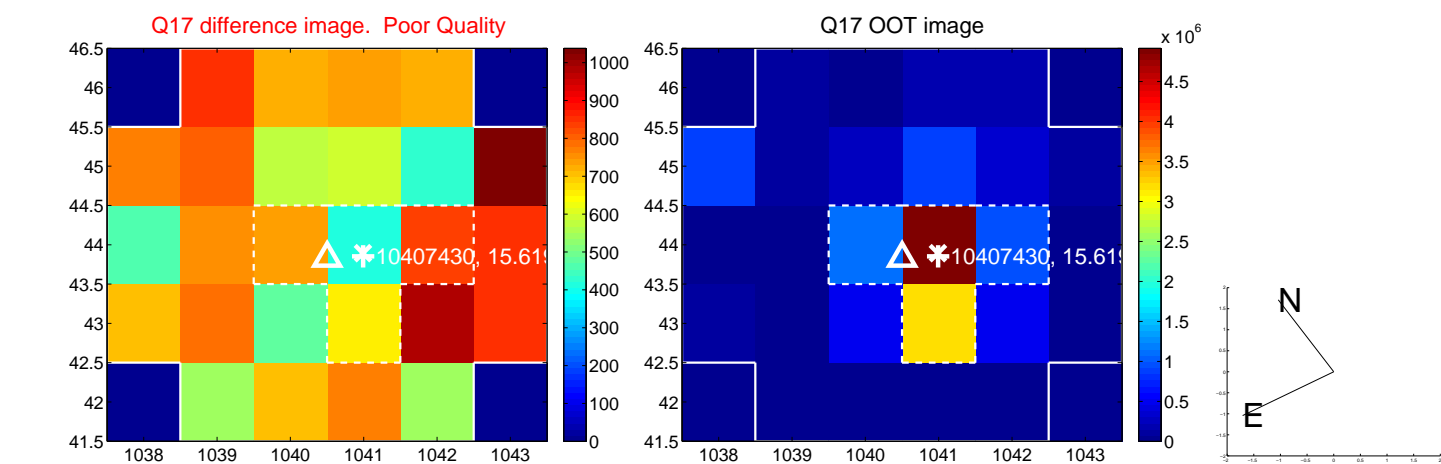
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



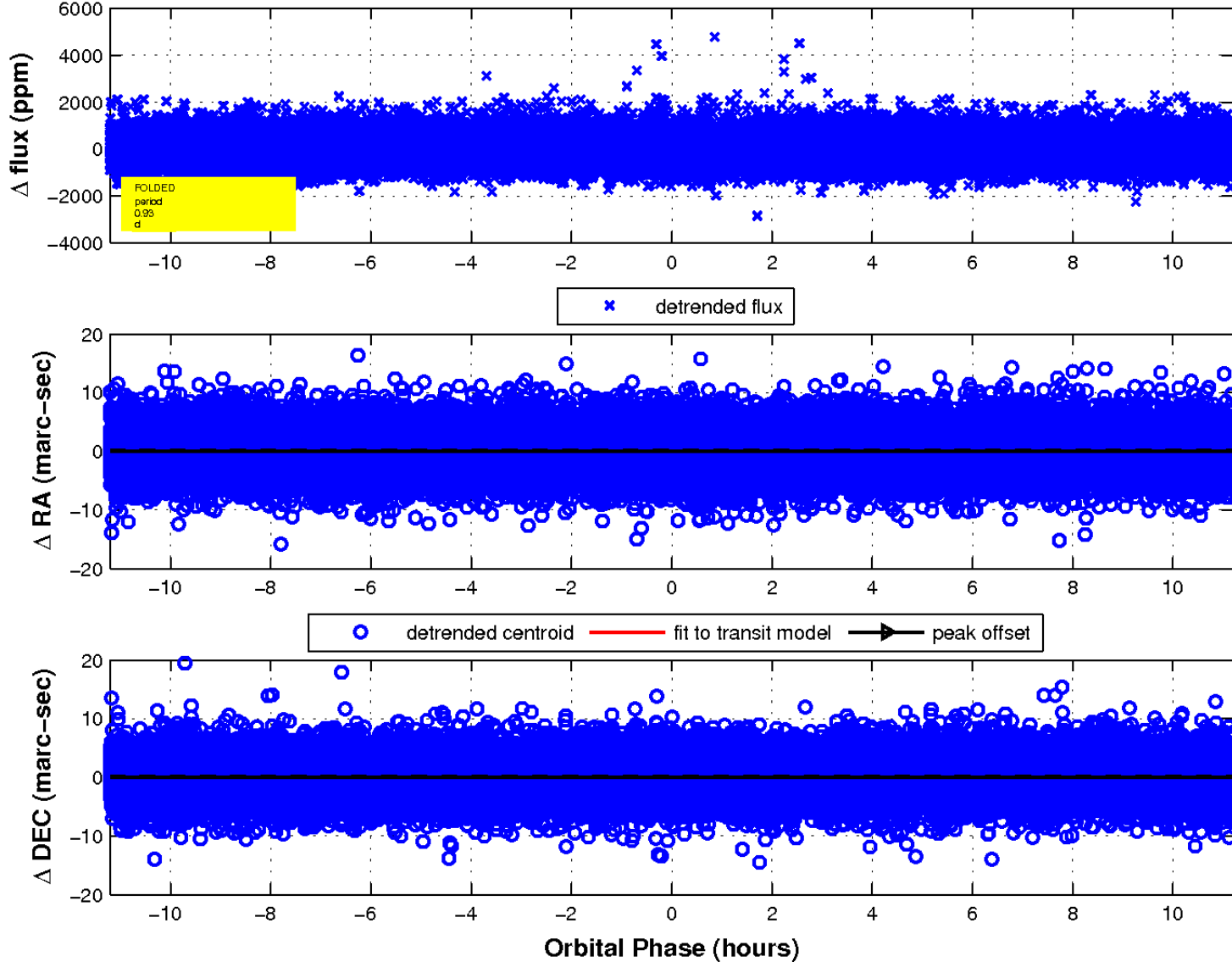
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

