

KIC 010153855

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010153855-01 | OBS | 1981.01 | 1.063793 | 131.523615 | 245.3 | 1.148 | 22.9 | 35.1 | 1.00 | 5265 | 1.92 | 1756.27 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--------------|
| 010153855-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | CENT_KIC_POS |

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

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

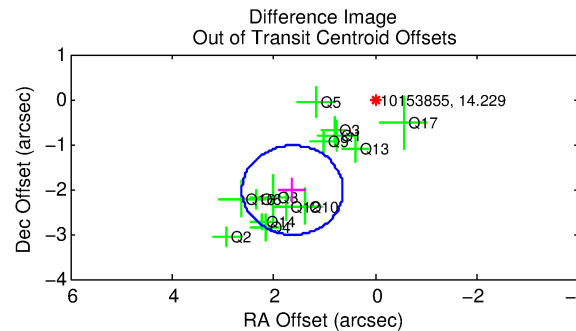
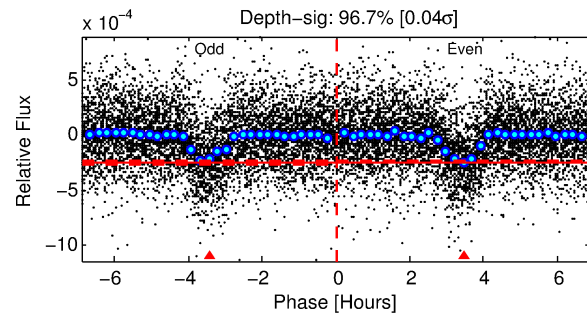
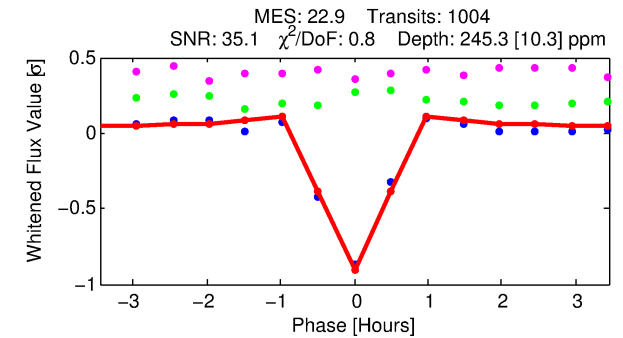
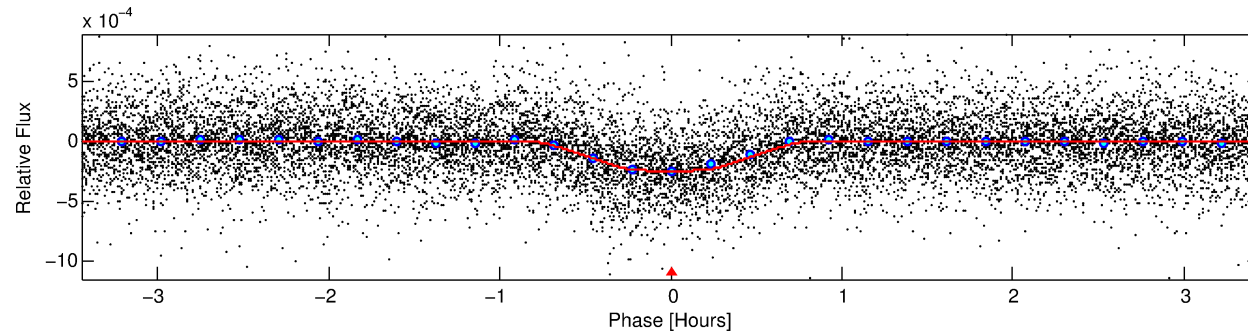
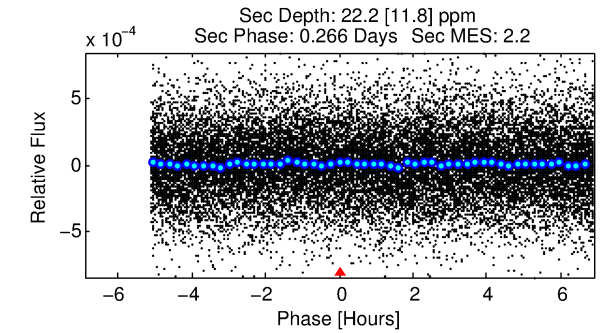
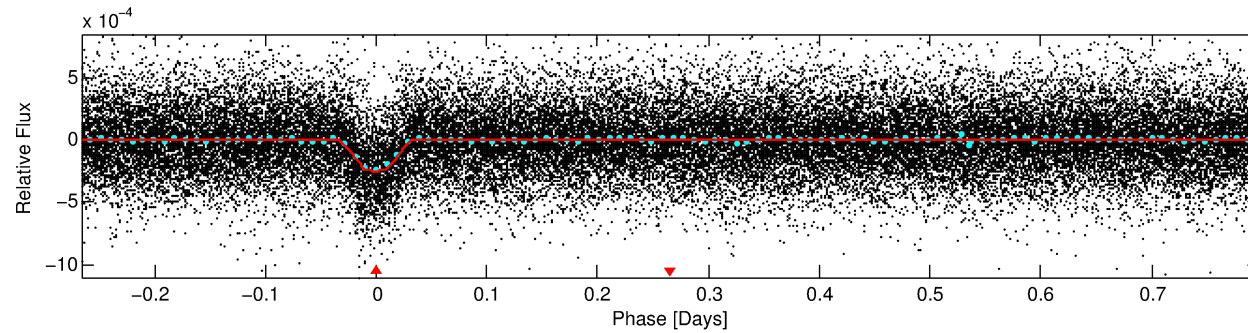
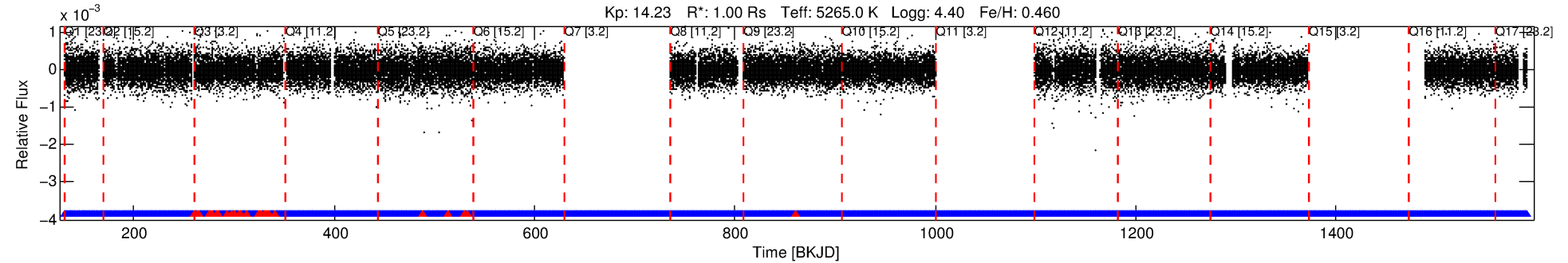
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010153855-01

No Significant Match Found

DV One-Page Summary

KIC: 10153855 Candidate: 1 of 1 Period: 1.064 d
KOI: K01981.01 Corr: 0.953



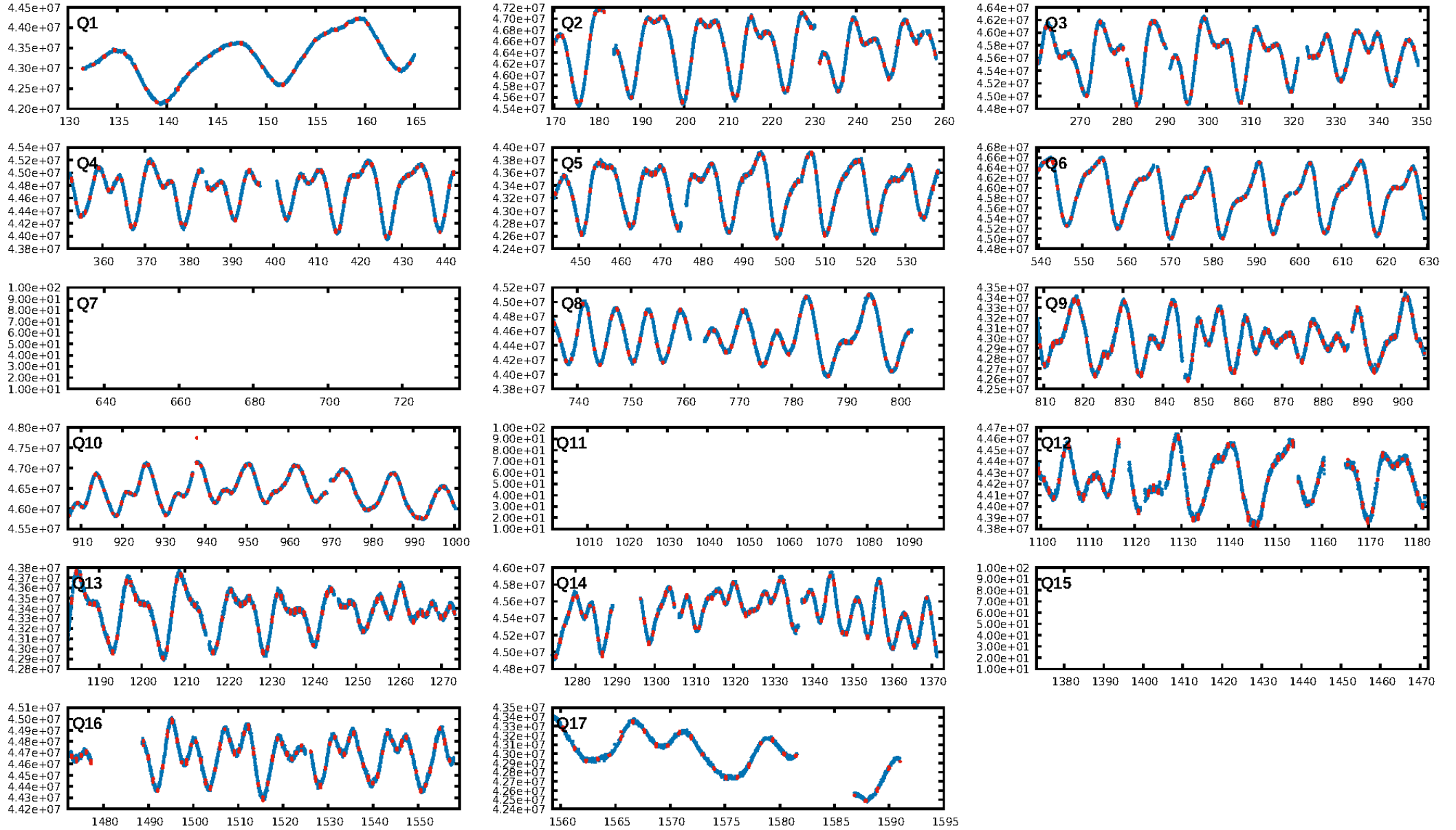
DV Fit Results:

Period = 1.06379 [0.00000] d
Epoch = 131.5236 [0.0005] BKJD
Rp/R* = 0.0176 [0.0046]
a/R* = 3.49 [3.39]
b = 0.90 [0.23]
Seff = 1756.27 [604.94]
Teff = 1651 [142] K
Rp = 1.92 [0.70] Re
a = 0.0198 [0.0043] AU
Ag = 1.30 [1.06] [0.29σ]
Teffp = 2727 [517] K [2.01σ]

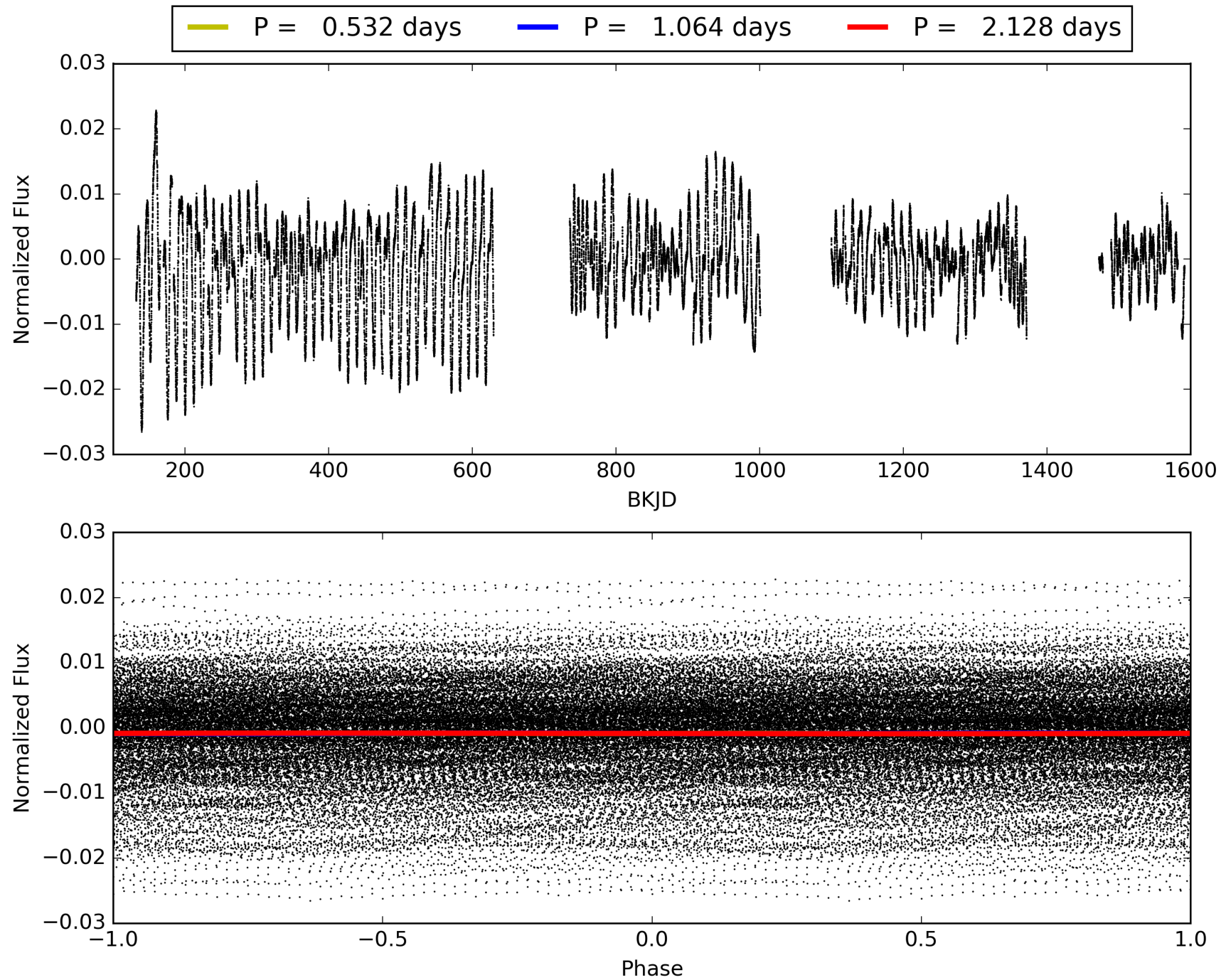
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.01e-110
RollingBand-fgt: 0.97 [917/947]
GhostDiagnostic-chr: 3.567
Centroid-sig: 0.0%
Centroid-so: 0.725 arcsec [3.03σ]
OotOffset-rm: 2.600 arcsec [7.85σ]
KicOffset-rm: 0.205 arcsec [1.46σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010153855-01, PDC Light Curves

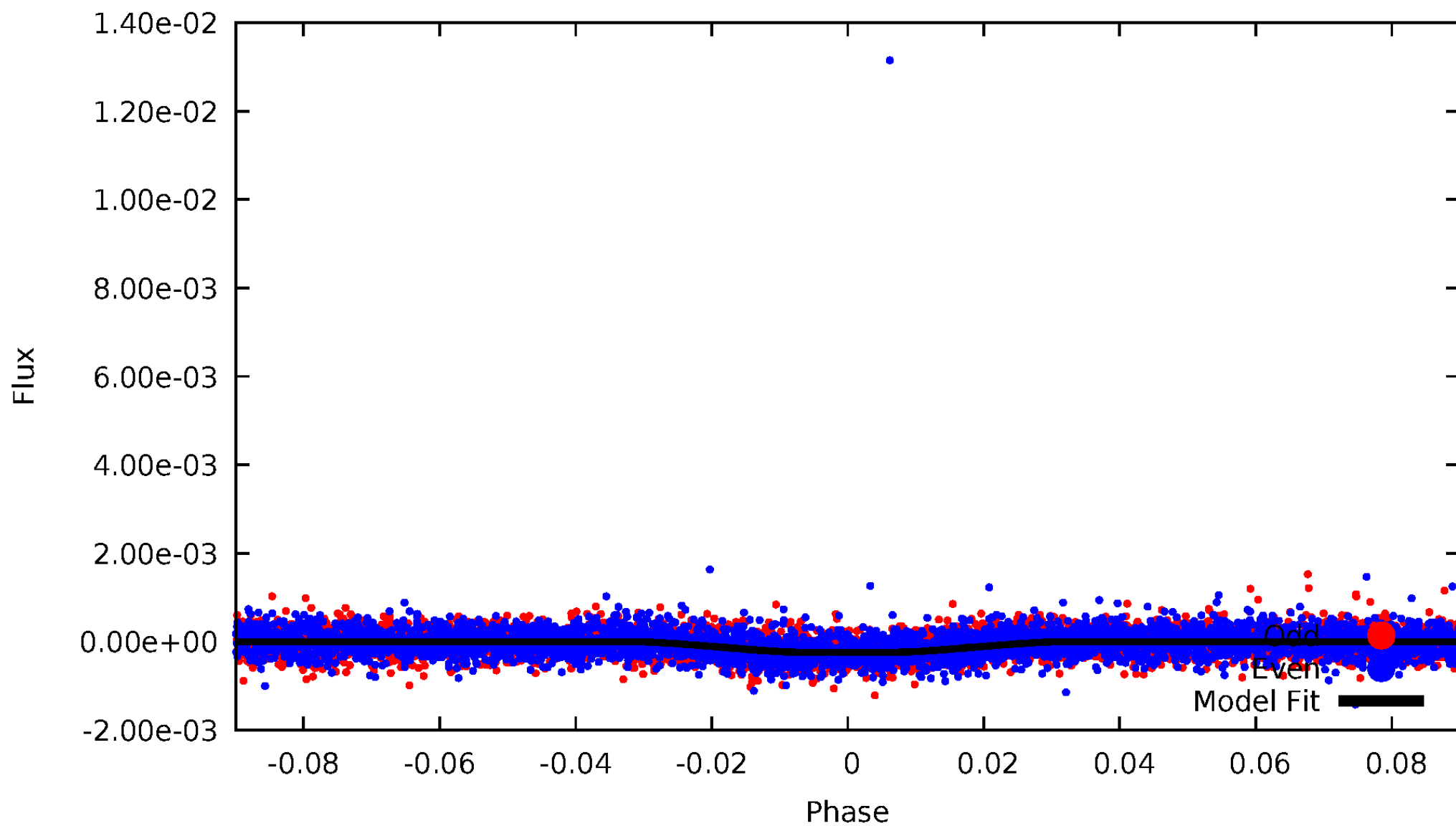


TCE 010153855-01



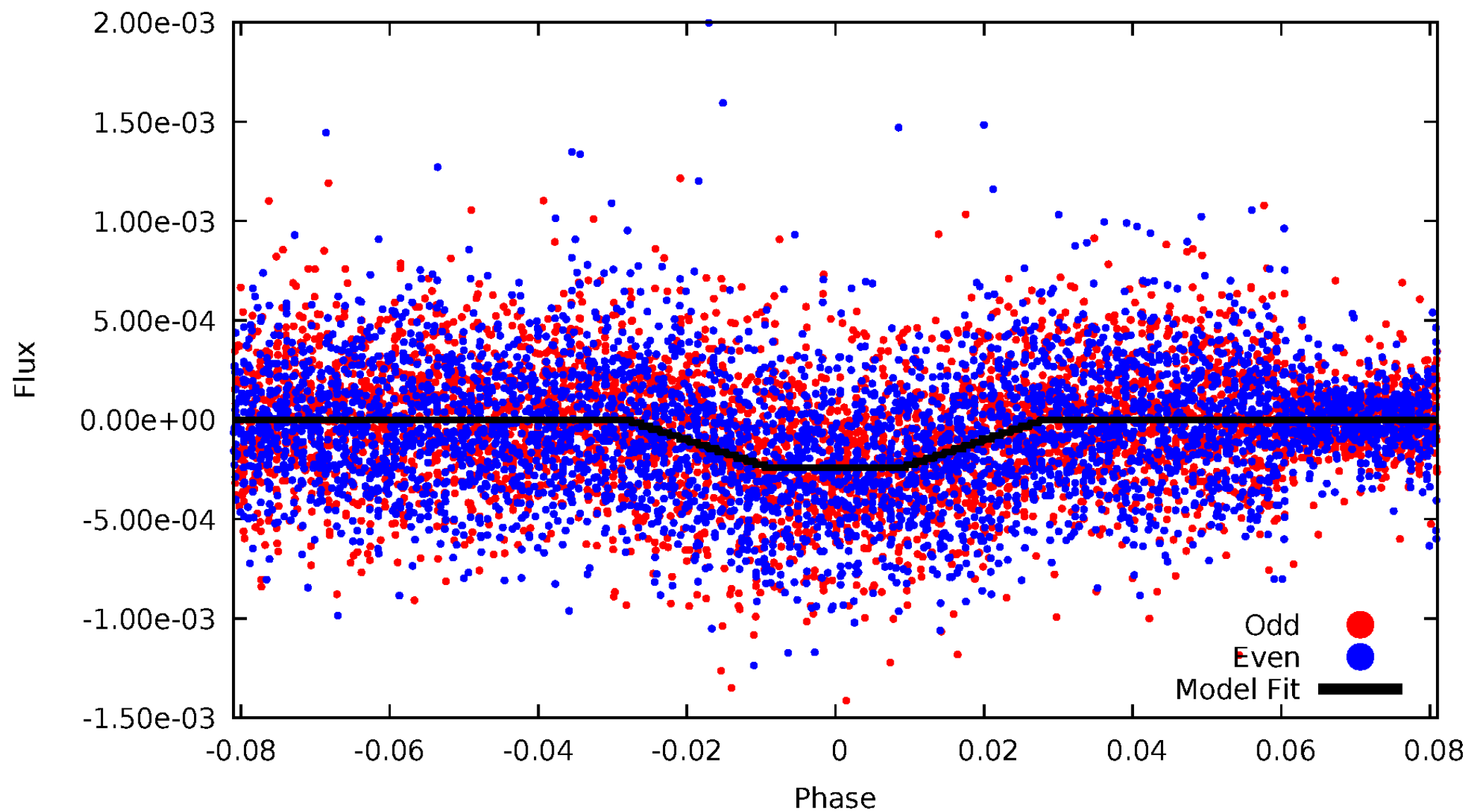
DV Odd/Even

TCE 010153855-01



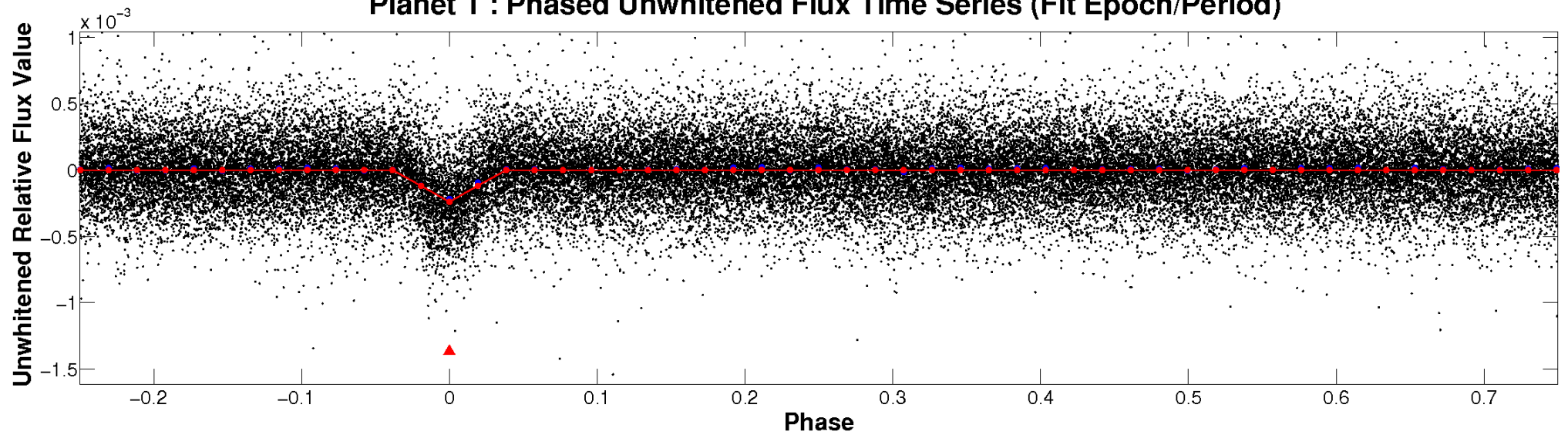
ALT Odd/Even

TCE 010153855-01

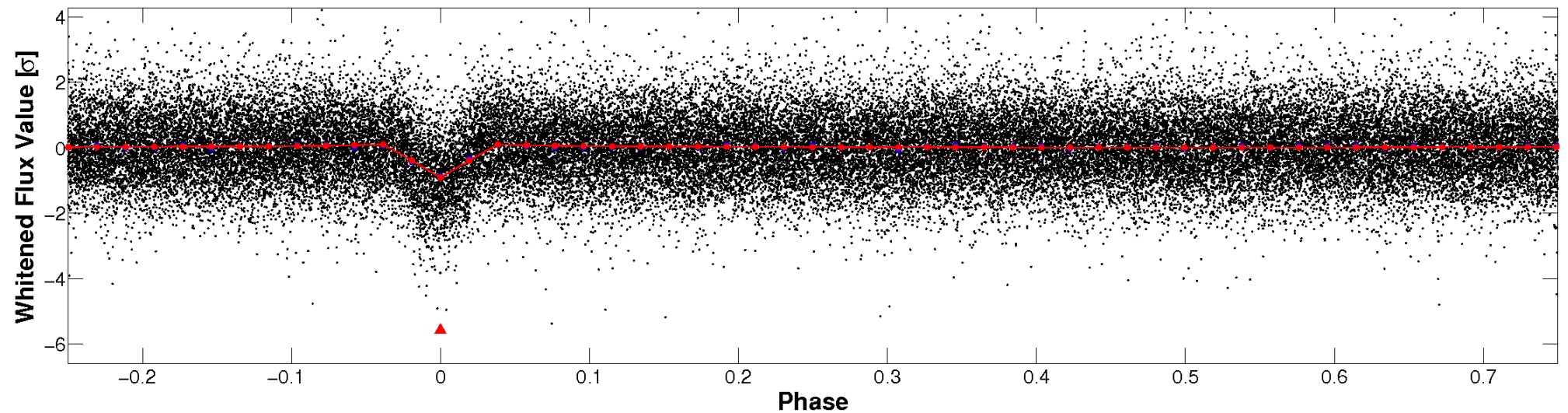


Non-Whitened Vs. Whitened Light Curve

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

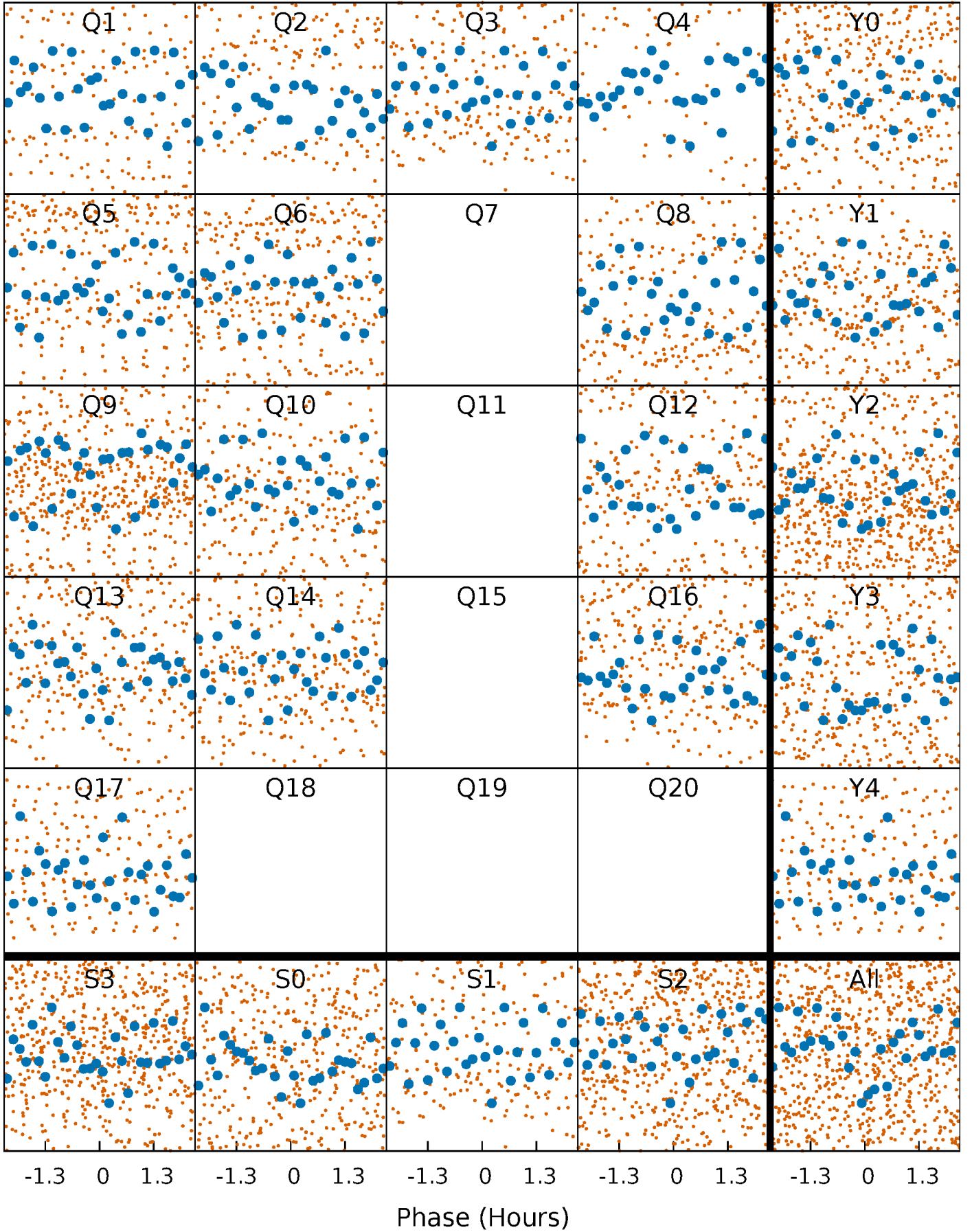


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



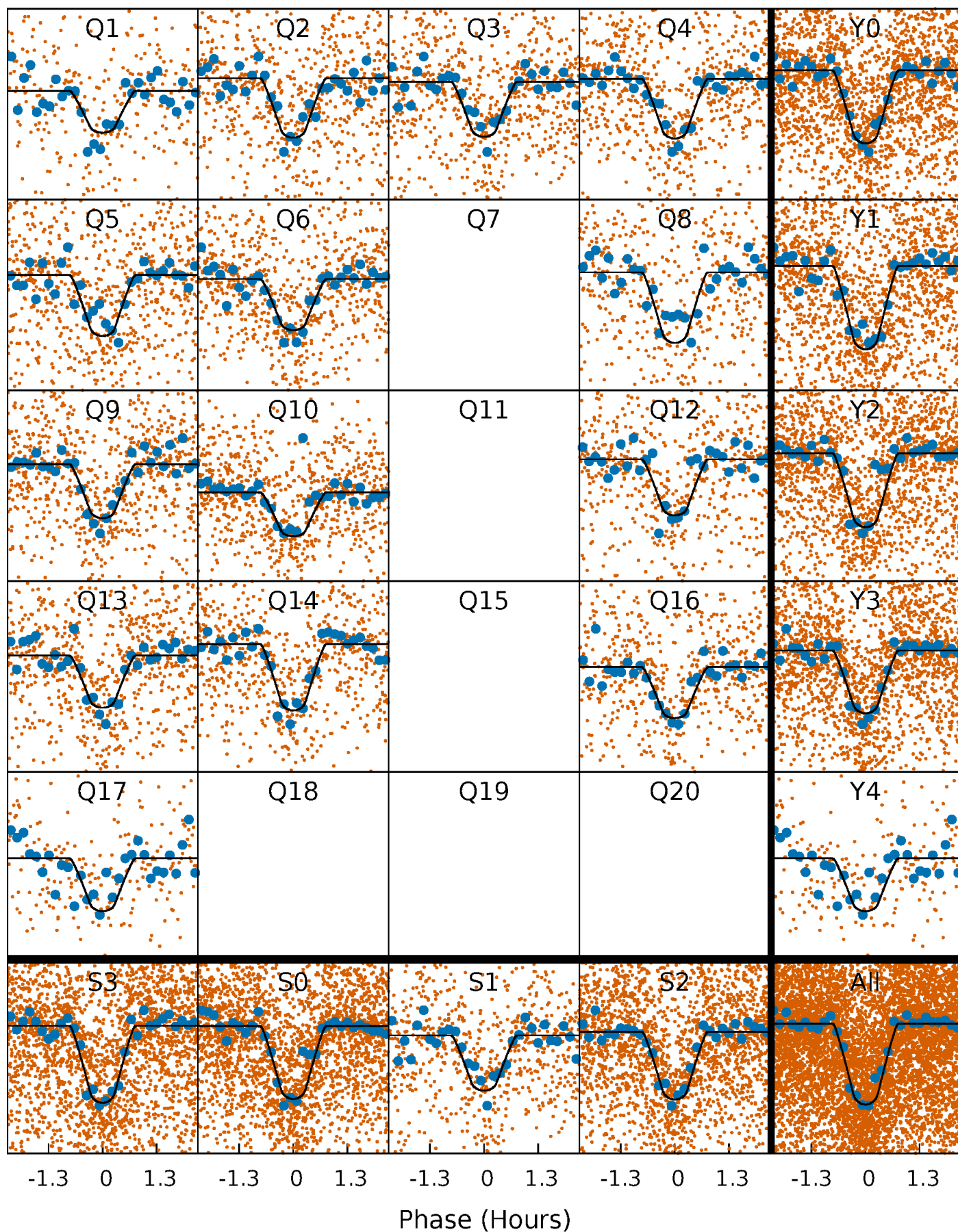
PDC Quarter-Phased Transit Curves

TCE 010153855-01 P= 1.063793 Days $T_0=131.523615$ (BKJD)



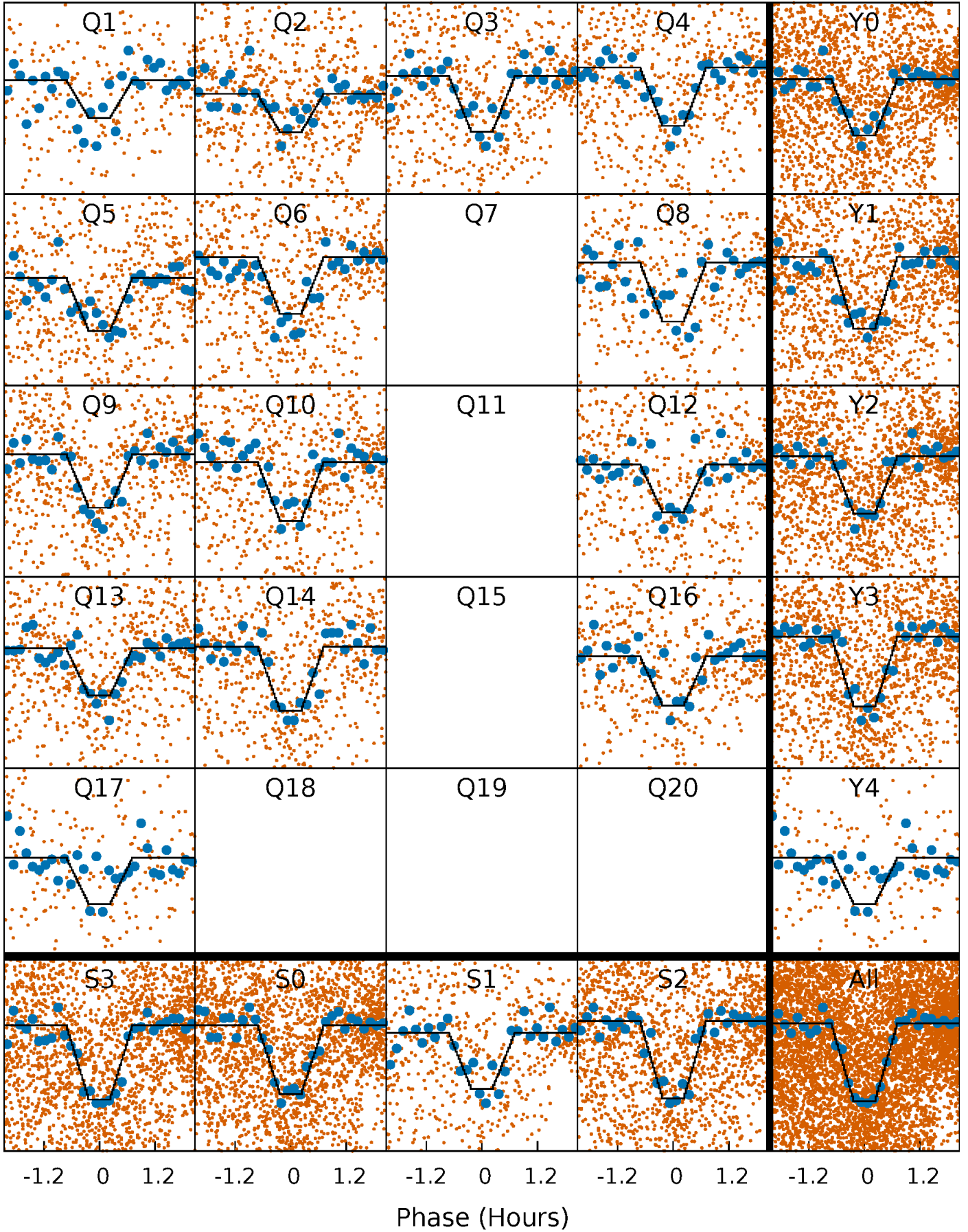
DV Quarter-Phased Transit Curves

TCE 010153855-01 P= 1.063793 Days $T_0=131.523615$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

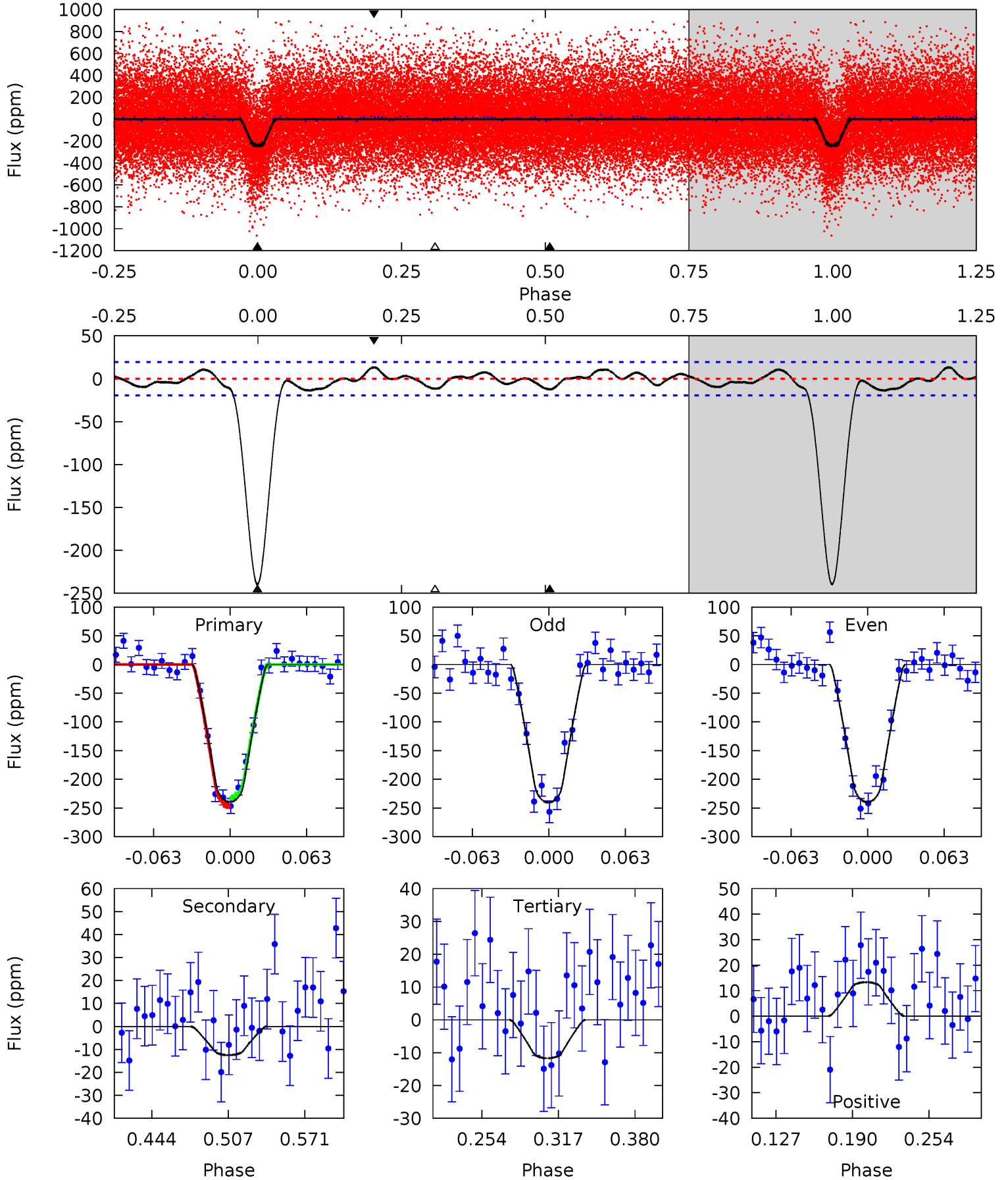
TCE 010153855-01 P= 1.063787 Days $T_0=131.525617$ (BKJD)



DV Model-Shift Uniqueness Test

010153855-01, P = 1.063793 Days, E = 130.459822 Days

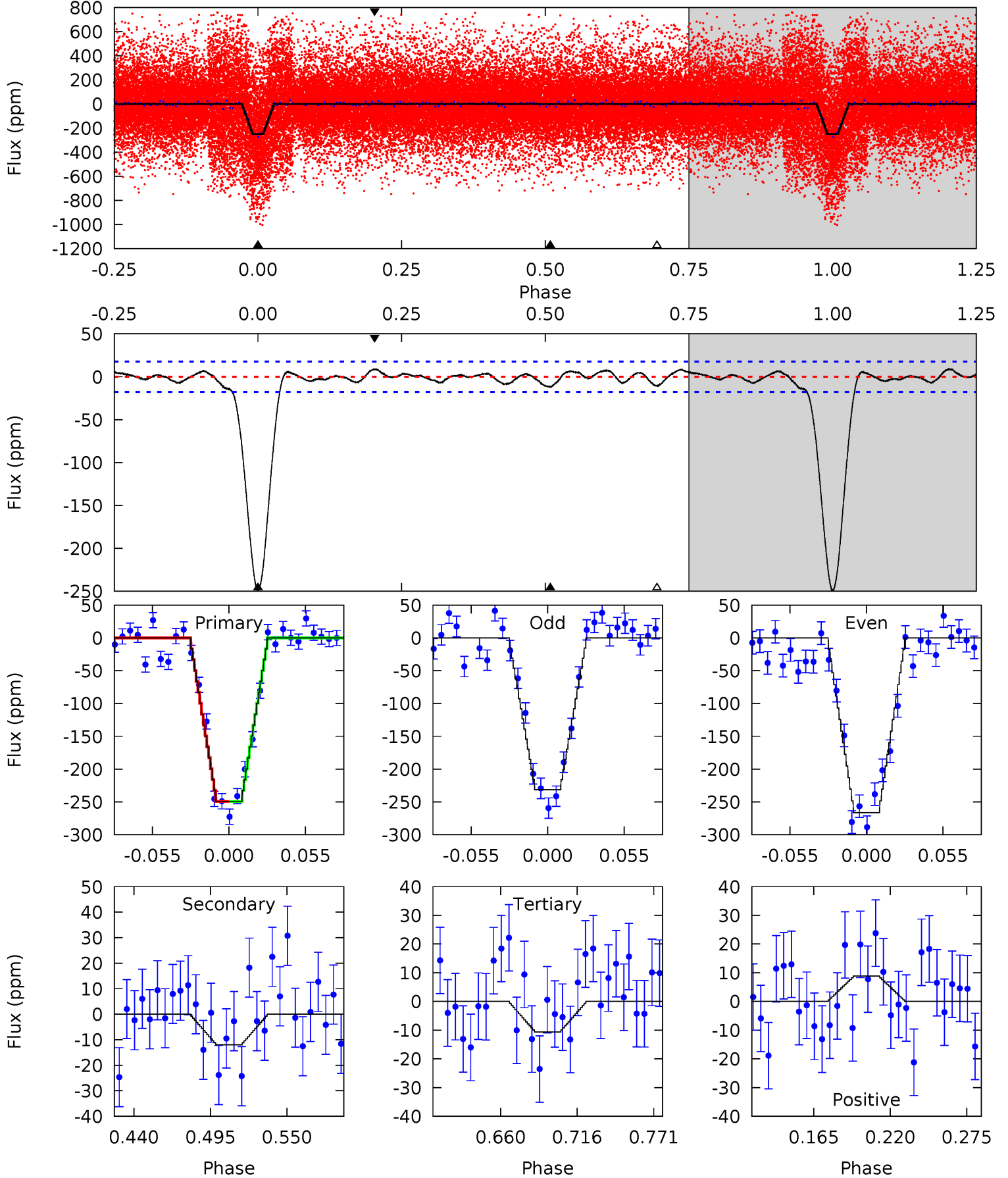
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 57.8 | 3.01 | 2.82 | 3.22 | 4.66 | 1.86 | 1.54 | 54.9 | 54.6 | 0.19 | -0.20 | 0.10 | 0.94 | 0.05 | 1.75 |



Alt Model-Shift Uniqueness Test

010153855-01, P = 1.063787 Days, E = 130.461830 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 66.4 | 3.20 | 2.83 | 2.35 | 4.69 | 1.92 | 1.16 | 63.6 | 64.1 | 0.37 | 0.85 | 4.65 | 0.98 | 0.03 | 0.00 |



Stellar Parameters For KIC 010153855

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5265^{+158}_{-158} | $4.400^{+0.135}_{-0.180}$ | $0.460^{+0.050}_{-0.250}$ | $1.002^{+0.251}_{-0.154}$ | $0.919^{+0.064}_{-0.064}$ | $1.286^{+0.711}_{-0.589}$ |
| | +3%/-3% | +3%/-4% | +11%/-54% | +25%/-15% | +7%/-7% | +55%/-46% |
| 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 010153855-01 / KOI 1981.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -12 ± 4 | $1.94^{+0.56}_{-0.55}$ | 2309^{+156}_{-115} | 2772^{+402}_{-514} | $0.676^{+0.702}_{-0.301}$ |
| Alt. | -12 ± 4 | $1.68^{+0.64}_{-0.51}$ | 2328^{+160}_{-146} | 2907^{+475}_{-494} | $0.875^{+1.020}_{-0.456}$ |

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 $A_{obs} \gg 1.0$

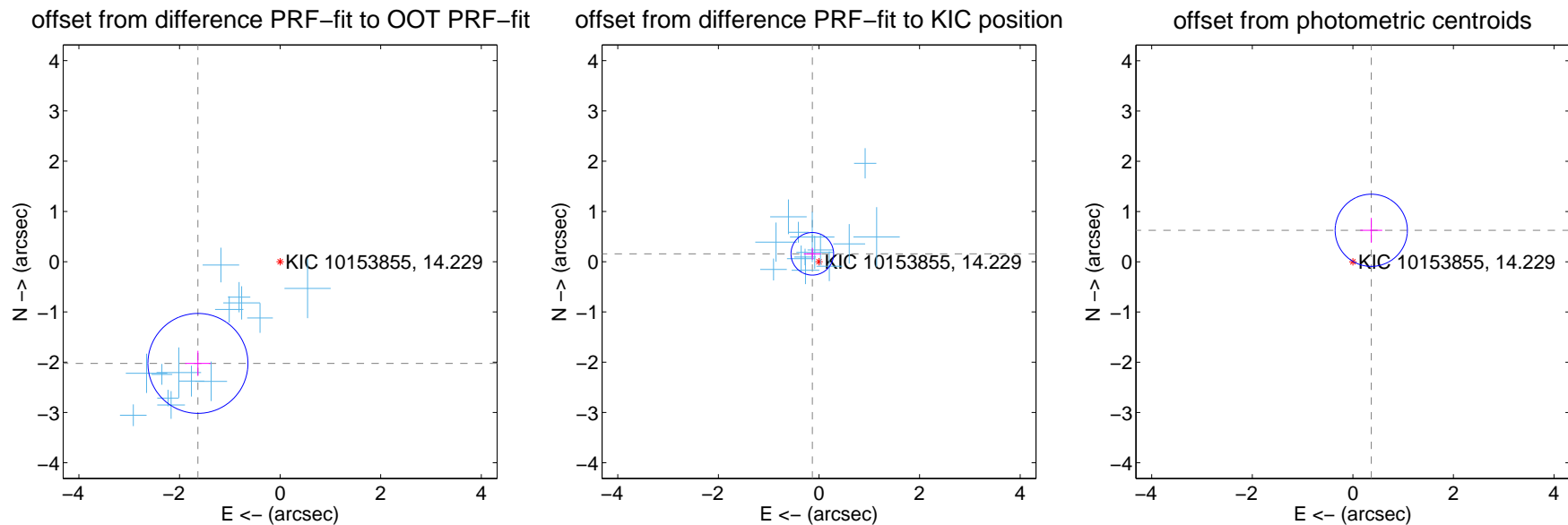
DV Centroid Data

Supplemental centroid analysis for 010153855-01. Kepler magnitude: 14.23. Transit SNR 35.13

There are 14 quarters with good PRF difference image offsets

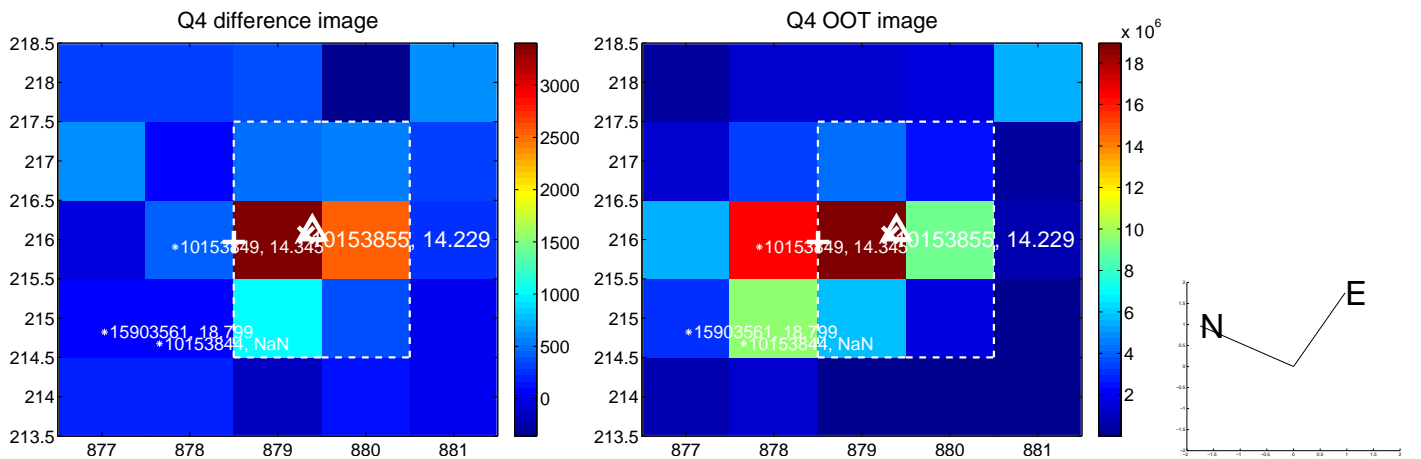
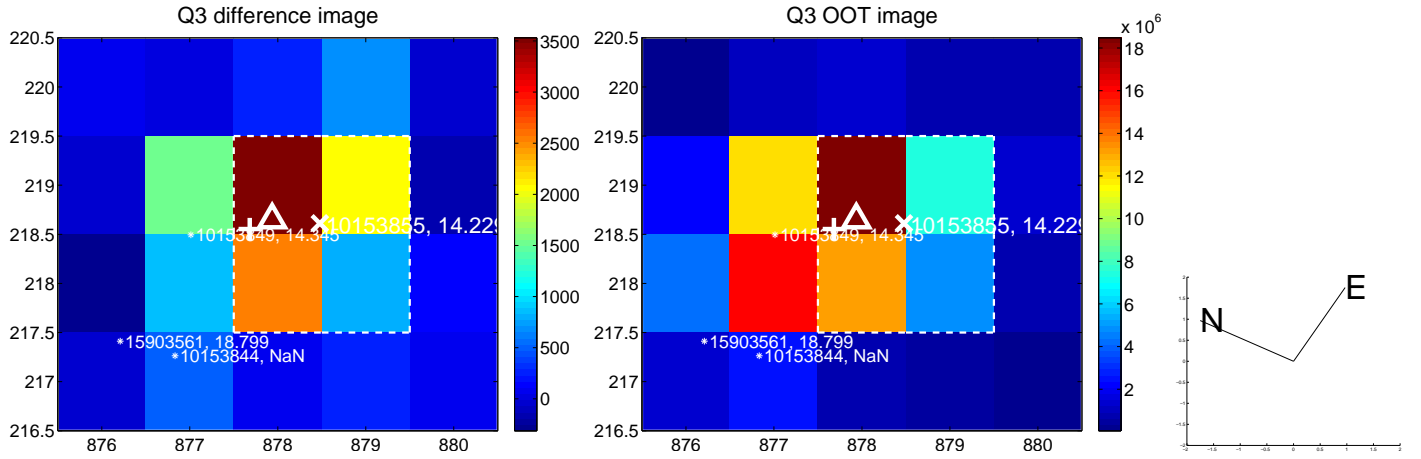
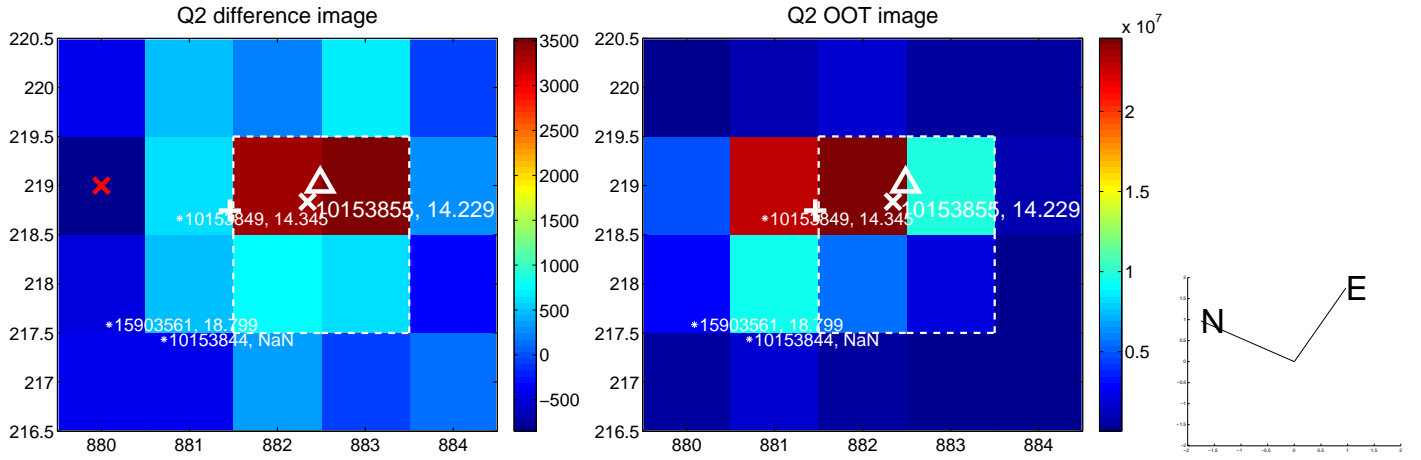
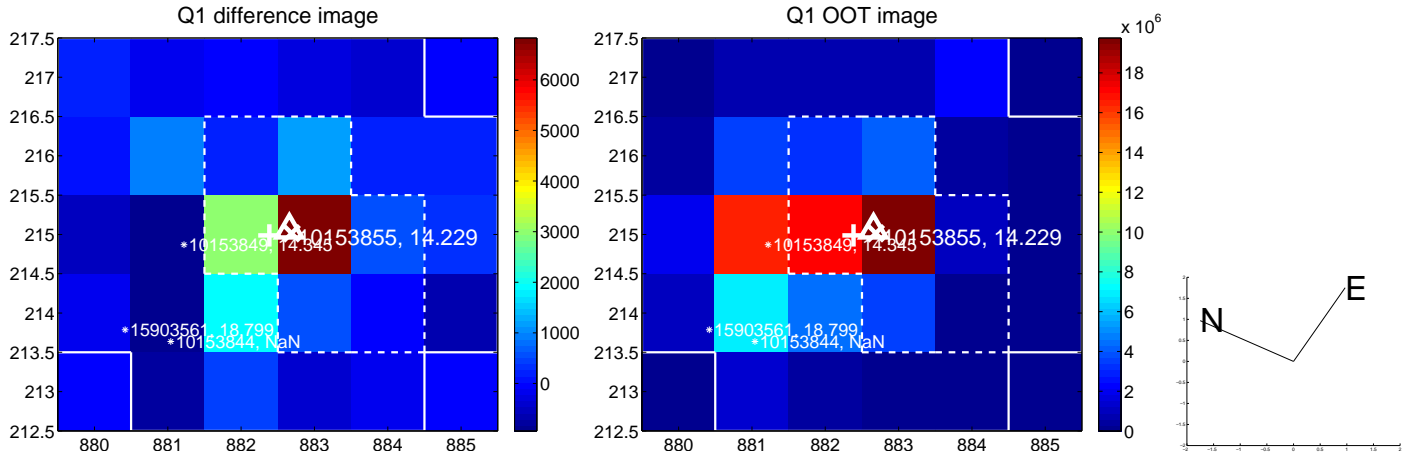
The direct PRF centroid is offset from the target star catalog position by about 1.19 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 2.600 ± 0.331 | 7.85 | 1.633 ± 0.253 | -2.023 ± 0.250 |
| PRF-fit source offset from KIC position | 0.205 ± 0.141 | 1.46 | 0.133 ± 0.169 | 0.157 ± 0.118 |
| photometric centroid source offset | 0.73 ± 0.24 | 3.03 | -0.37 ± 0.22 | 0.63 ± 0.25 |

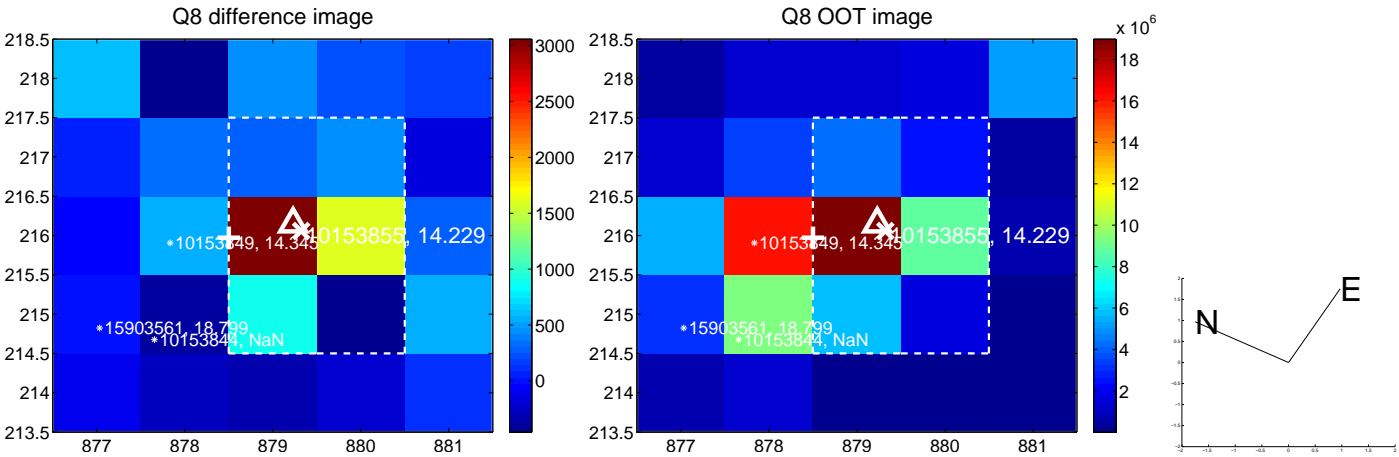
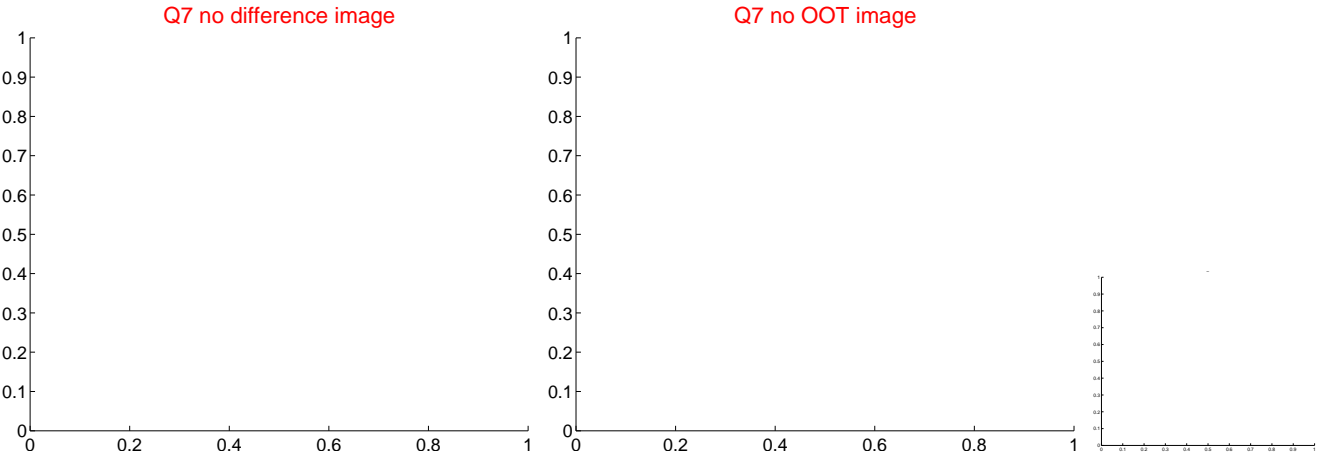
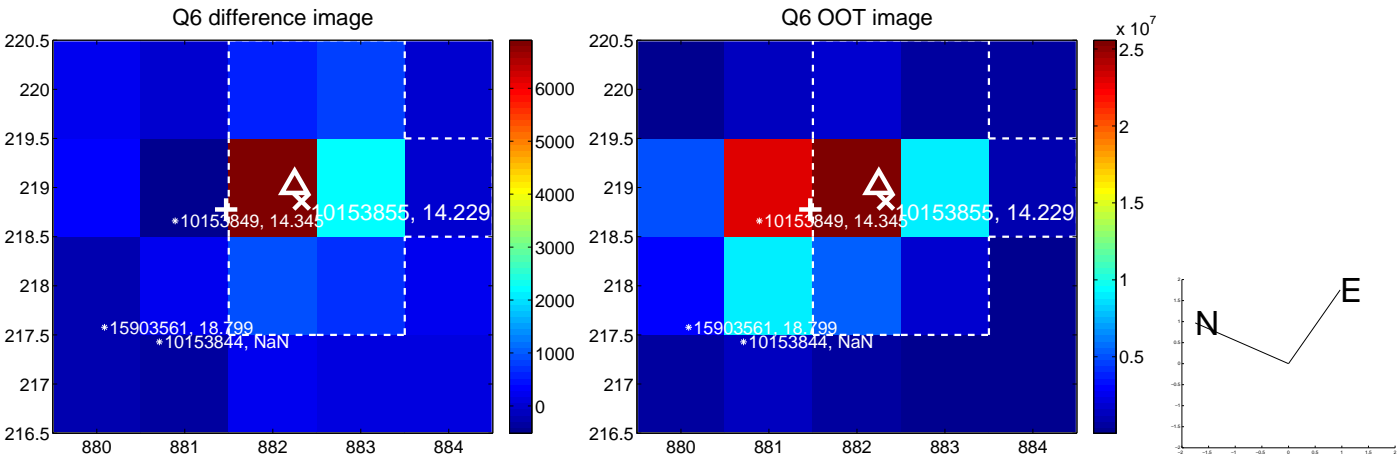
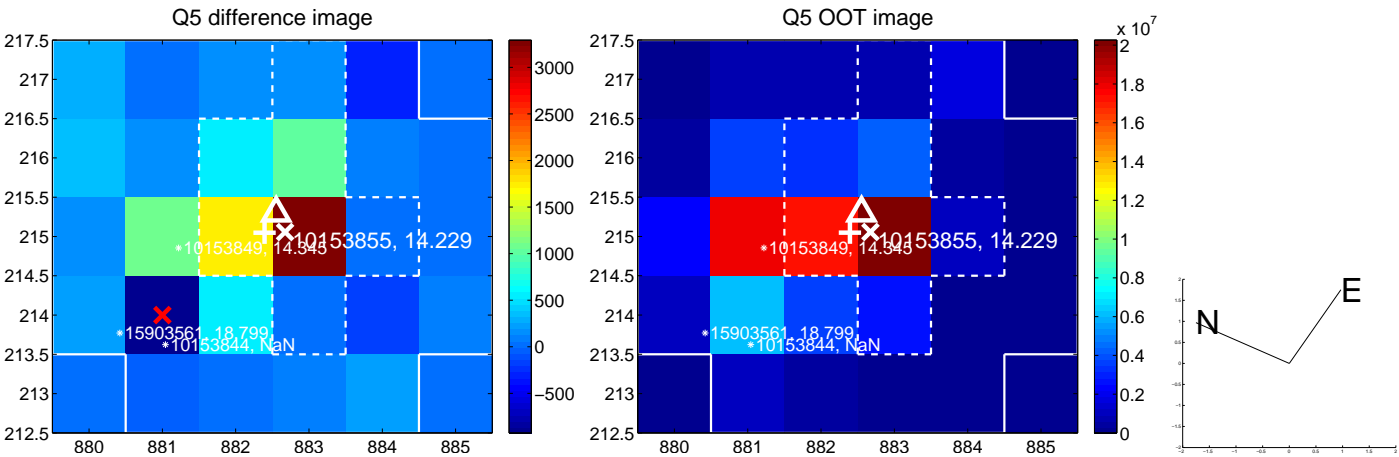


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

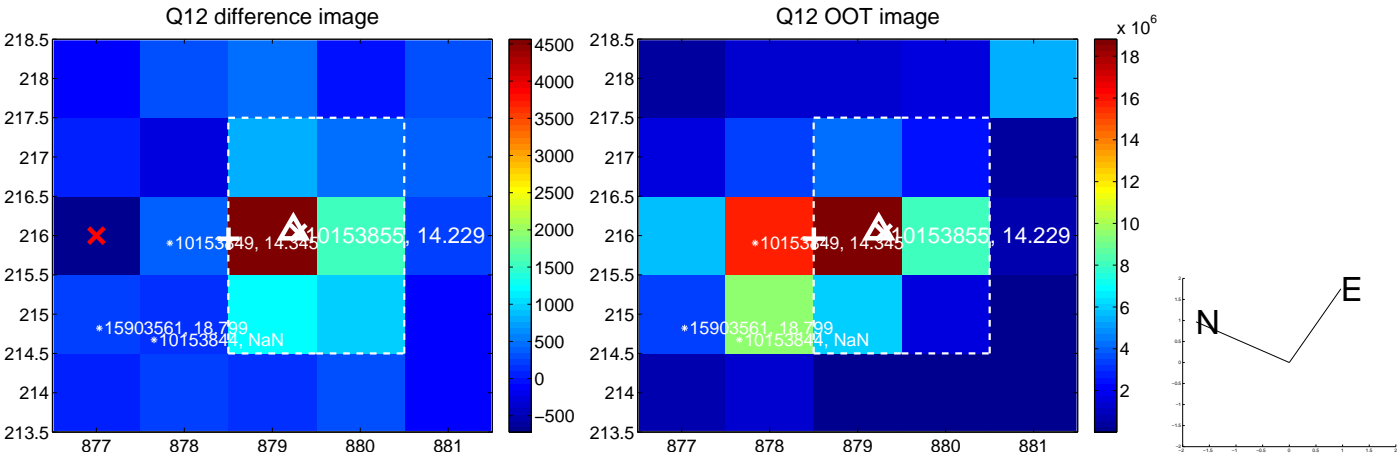
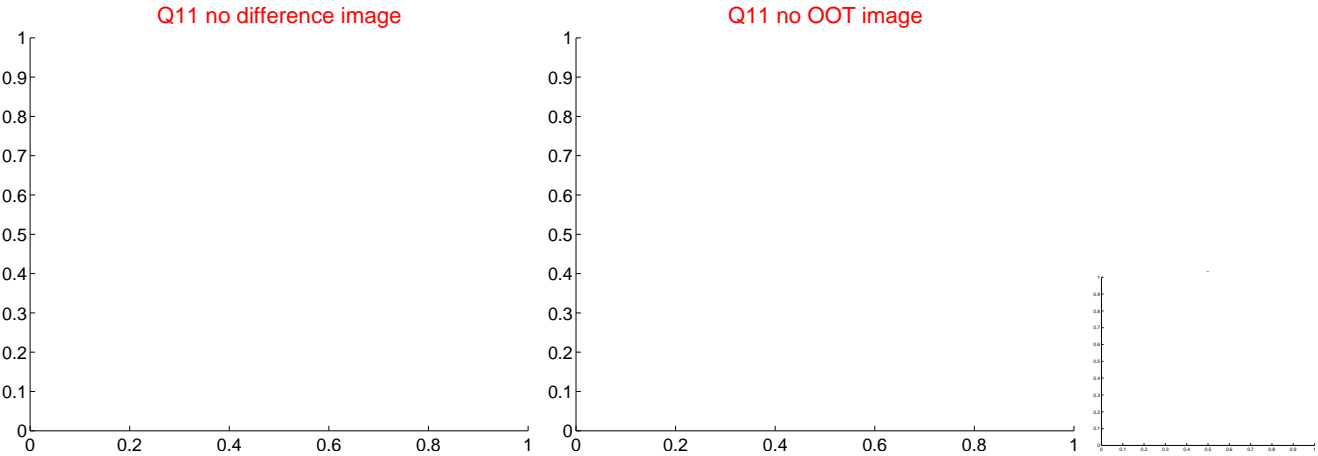
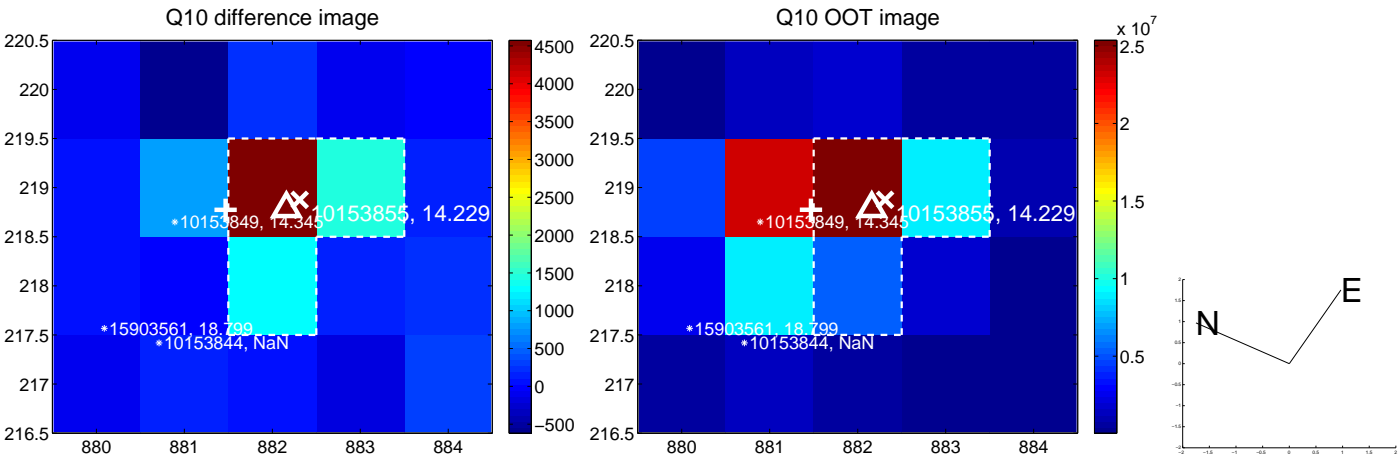
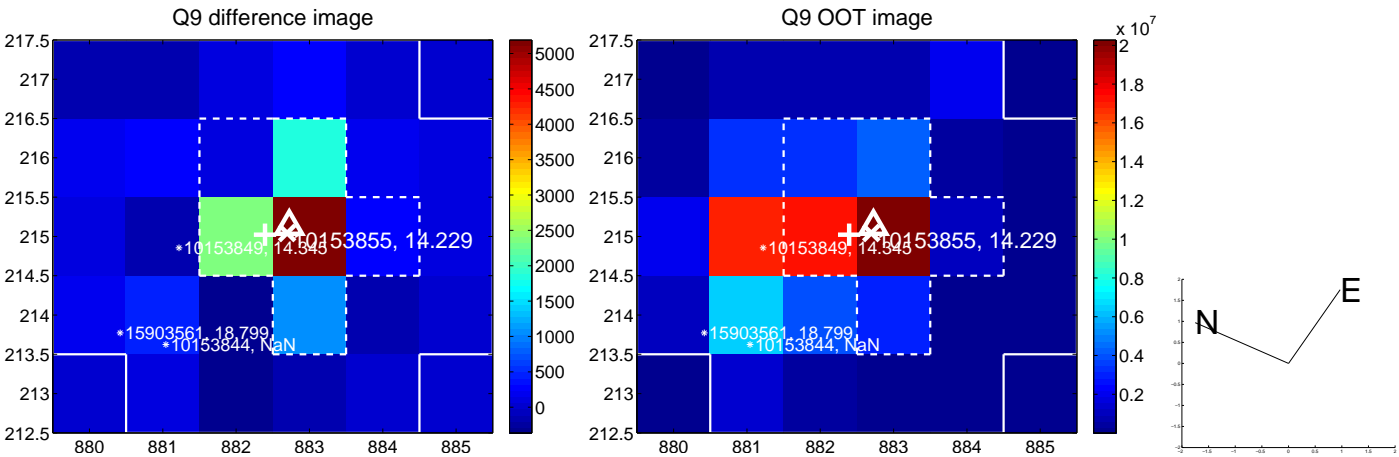
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



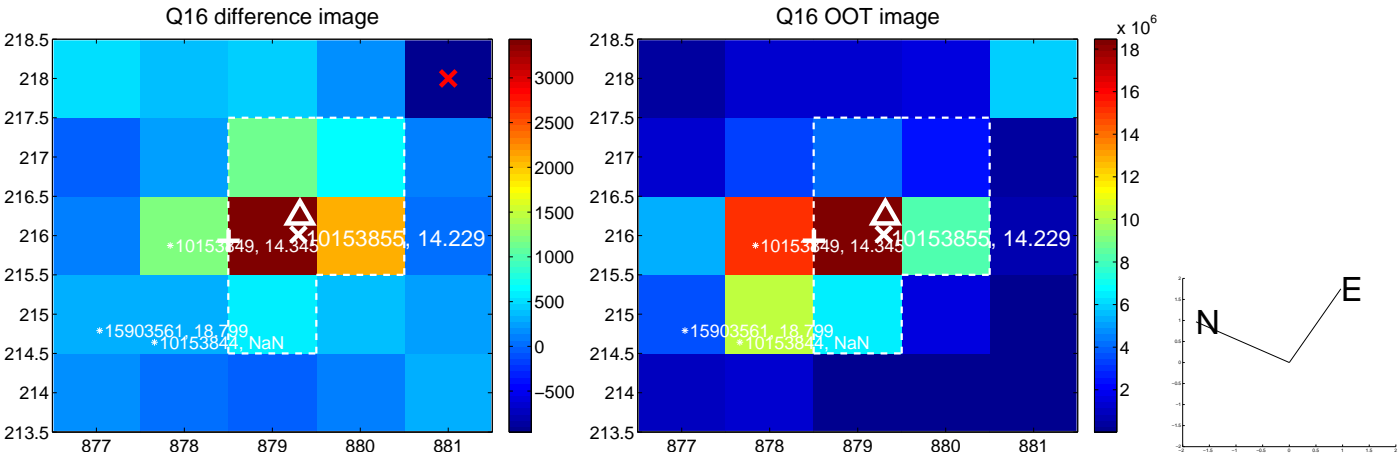
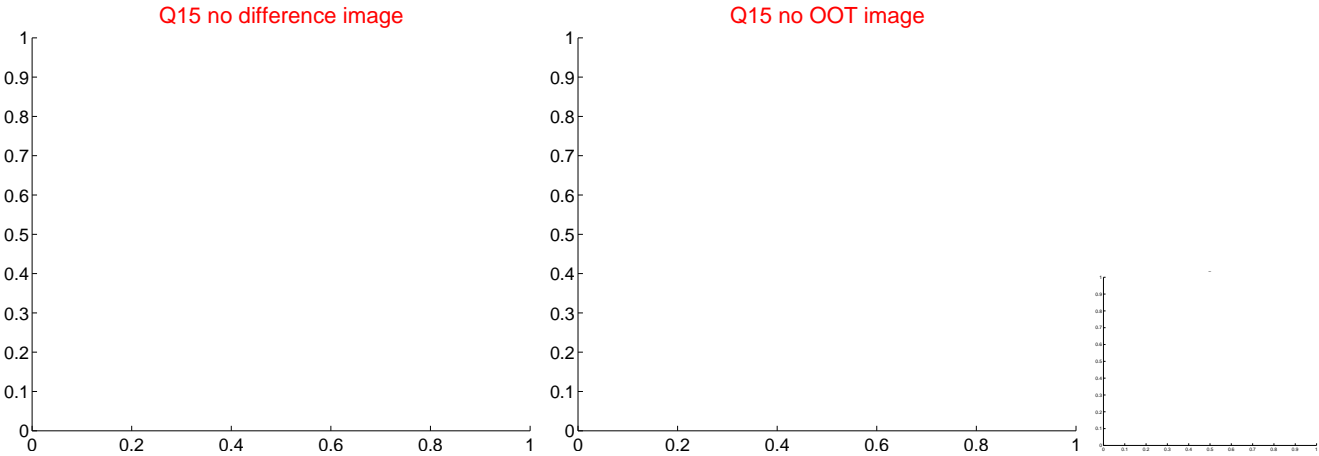
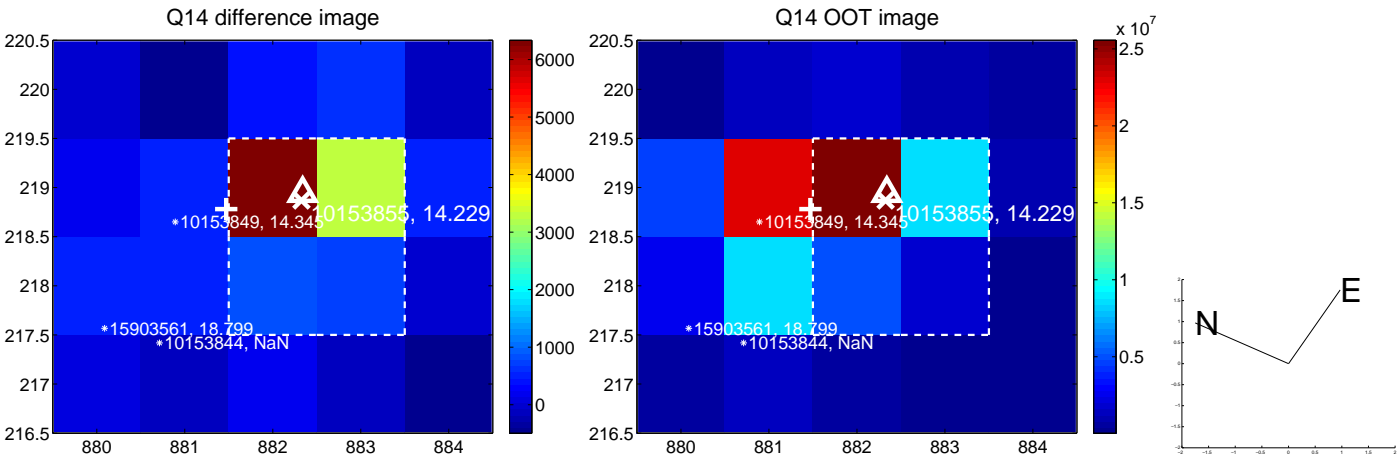
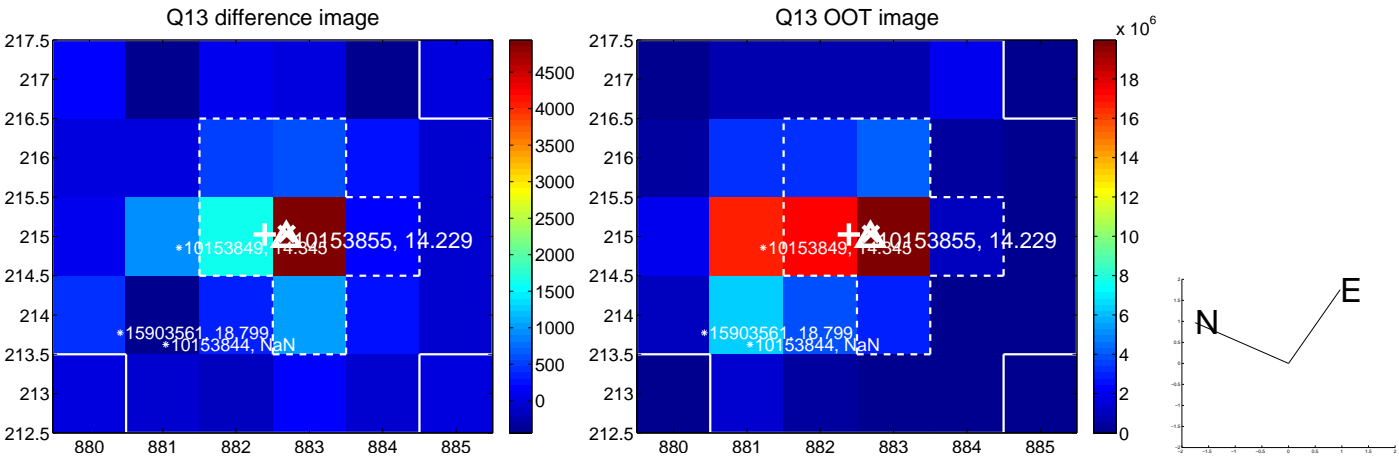
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



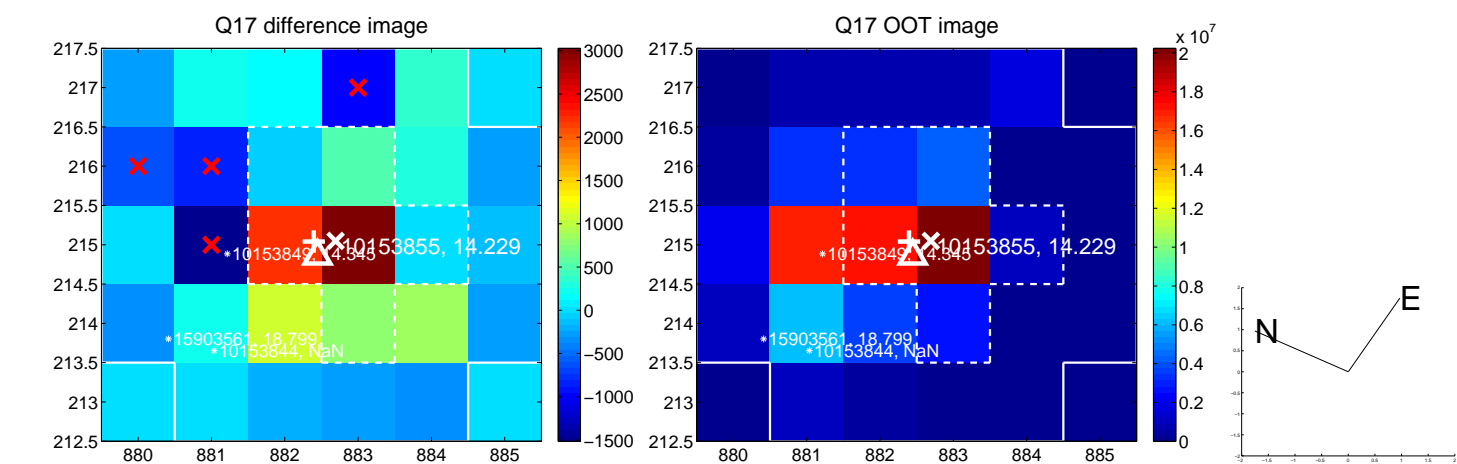
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



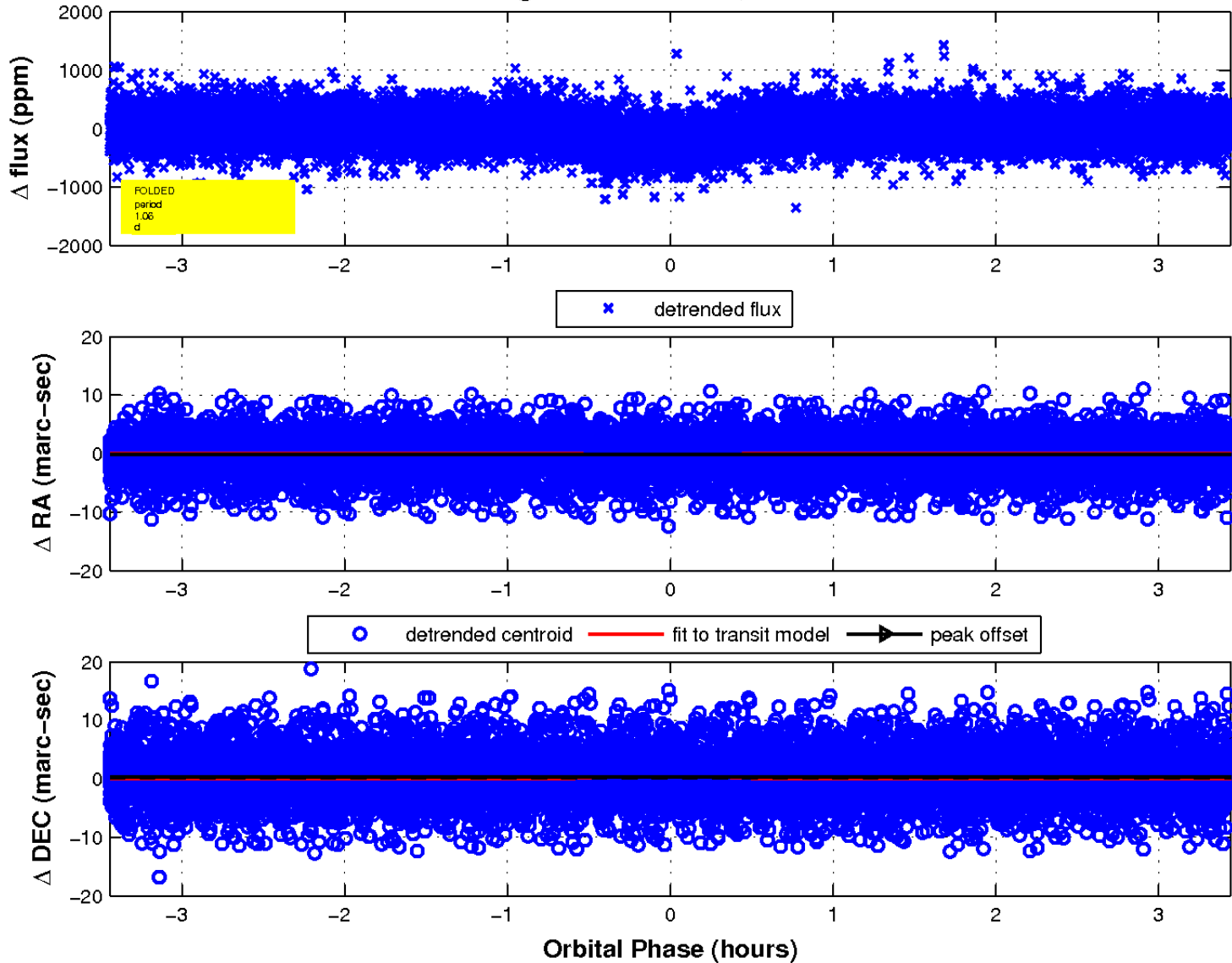
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

