

KIC 005461440

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005461440-01 | OBS | 0504.01 | 40.606952 | 158.647925 | 655.3 | 6.166 | 28.8 | 32.3 | 1.03 | 5538 | 3.18 | 17.43 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--------------|
| 005461440-01 | OBS | PC | 0.93 | 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.

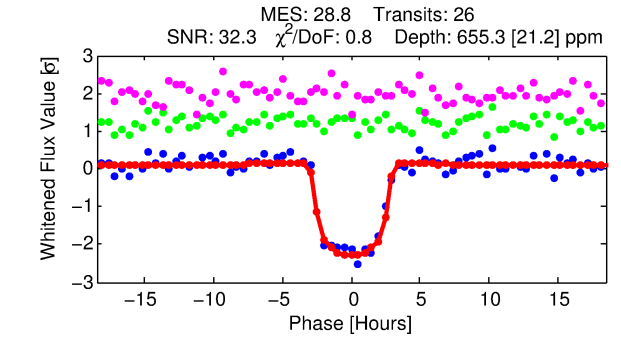
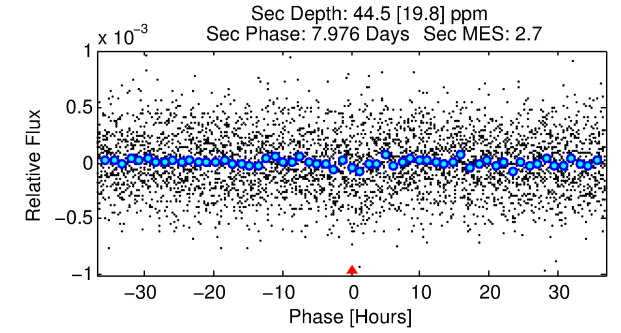
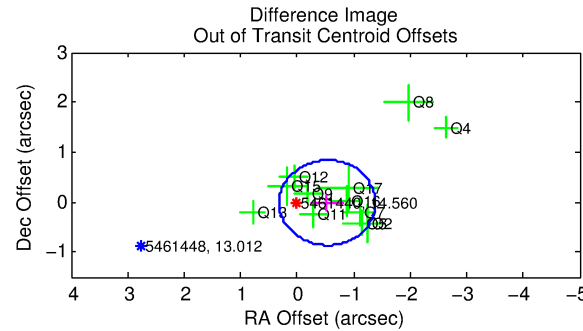
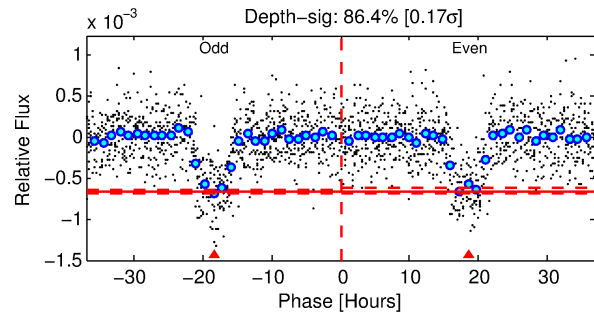
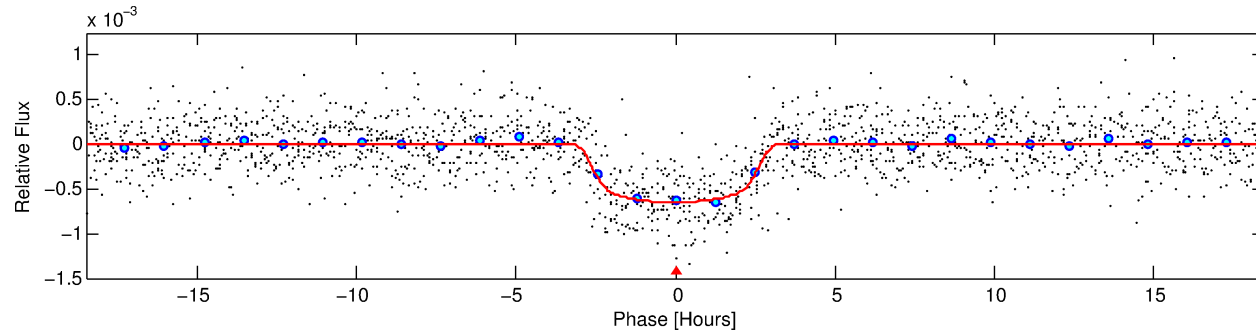
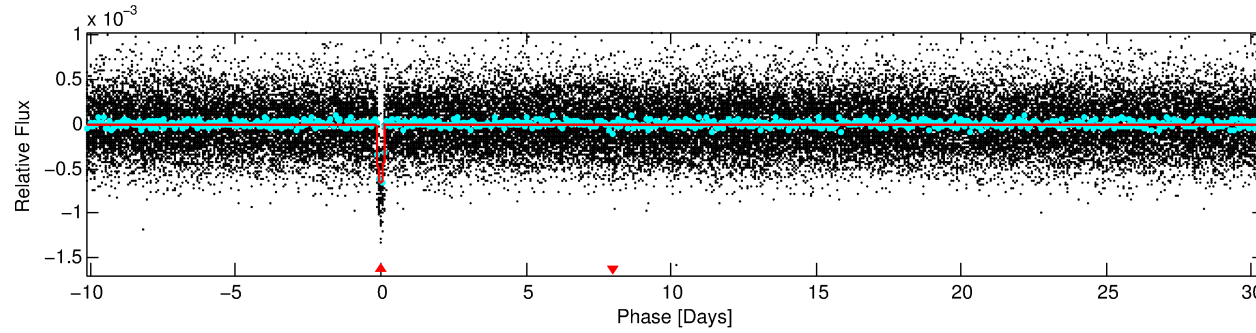
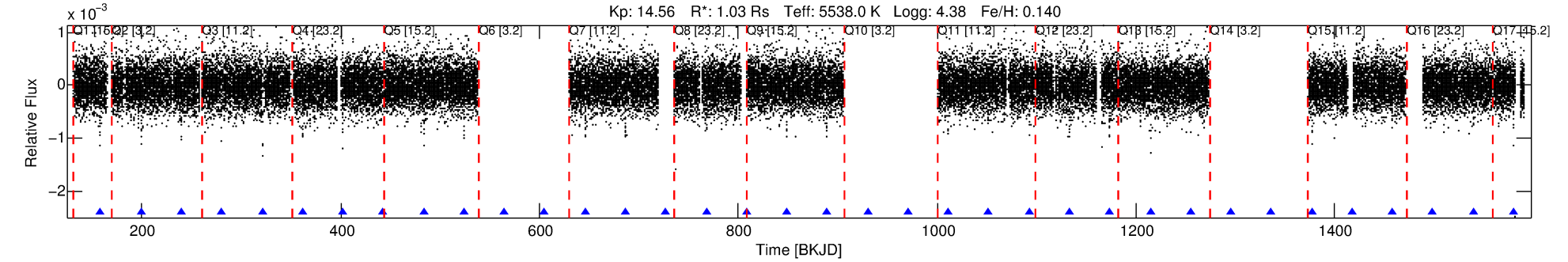
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005461440-01

No Significant Match Found

DV One-Page Summary

KIC: 5461440 Candidate: 1 of 1 Period: 40.607 d
KOI: K00504.01 Corr: 0.963



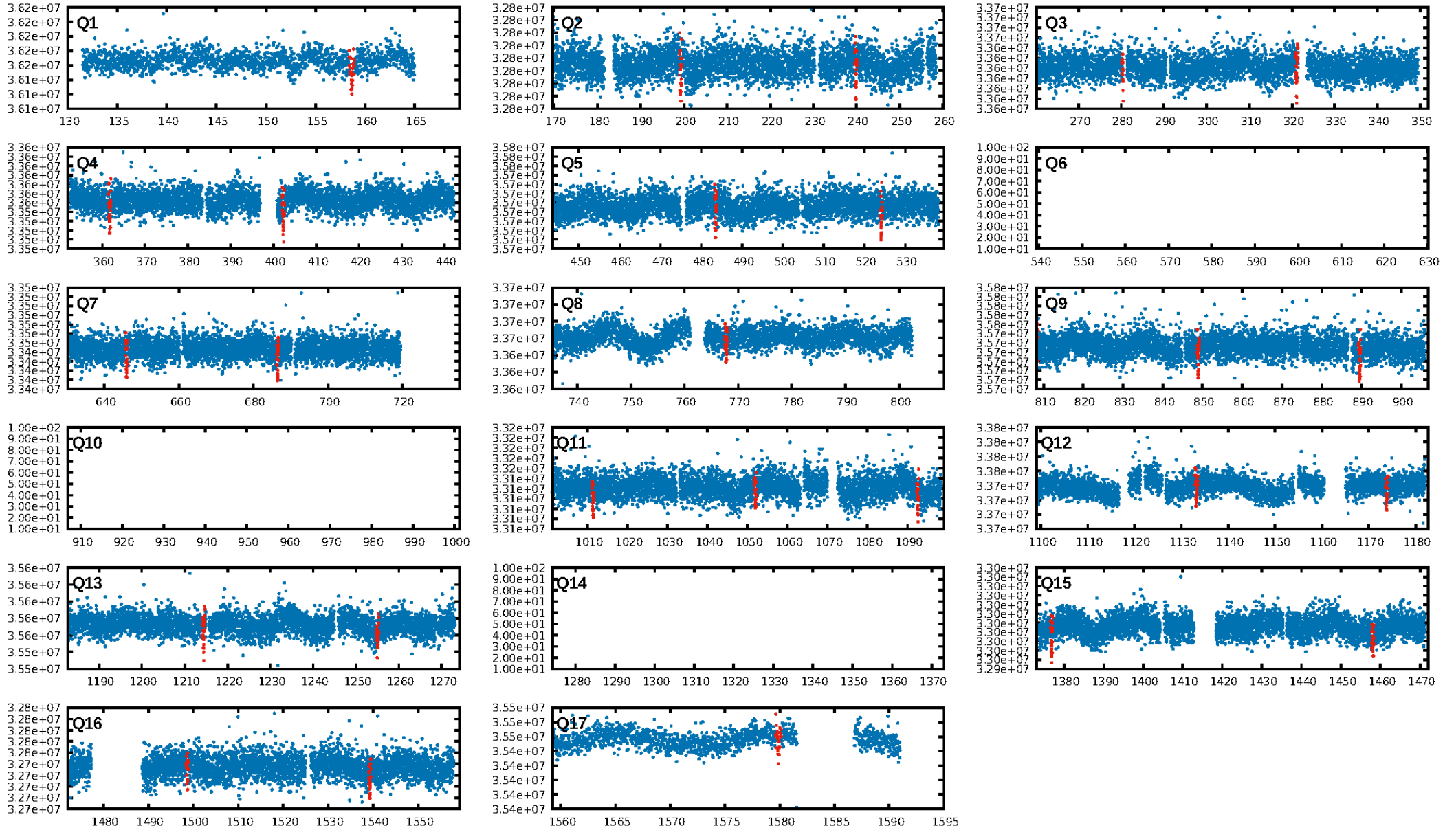
DV Fit Results:

Period = 40.60695 [0.00019] d
Epoch = 158.6479 [0.0040] BKJD
Rp/R* = 0.0284 [0.0013]
a/R* = 24.28 [4.35]
b = 0.91 [0.04]
Seff = 17.43 [3.66]
Teff = 521 [27] K
Rp = 3.18 [0.47] Re
a = 0.2258 [0.0292] AU
Ag = 123.27 [61.21] [2.00 σ]
Teffp = 2684 [307] K [7.01 σ]

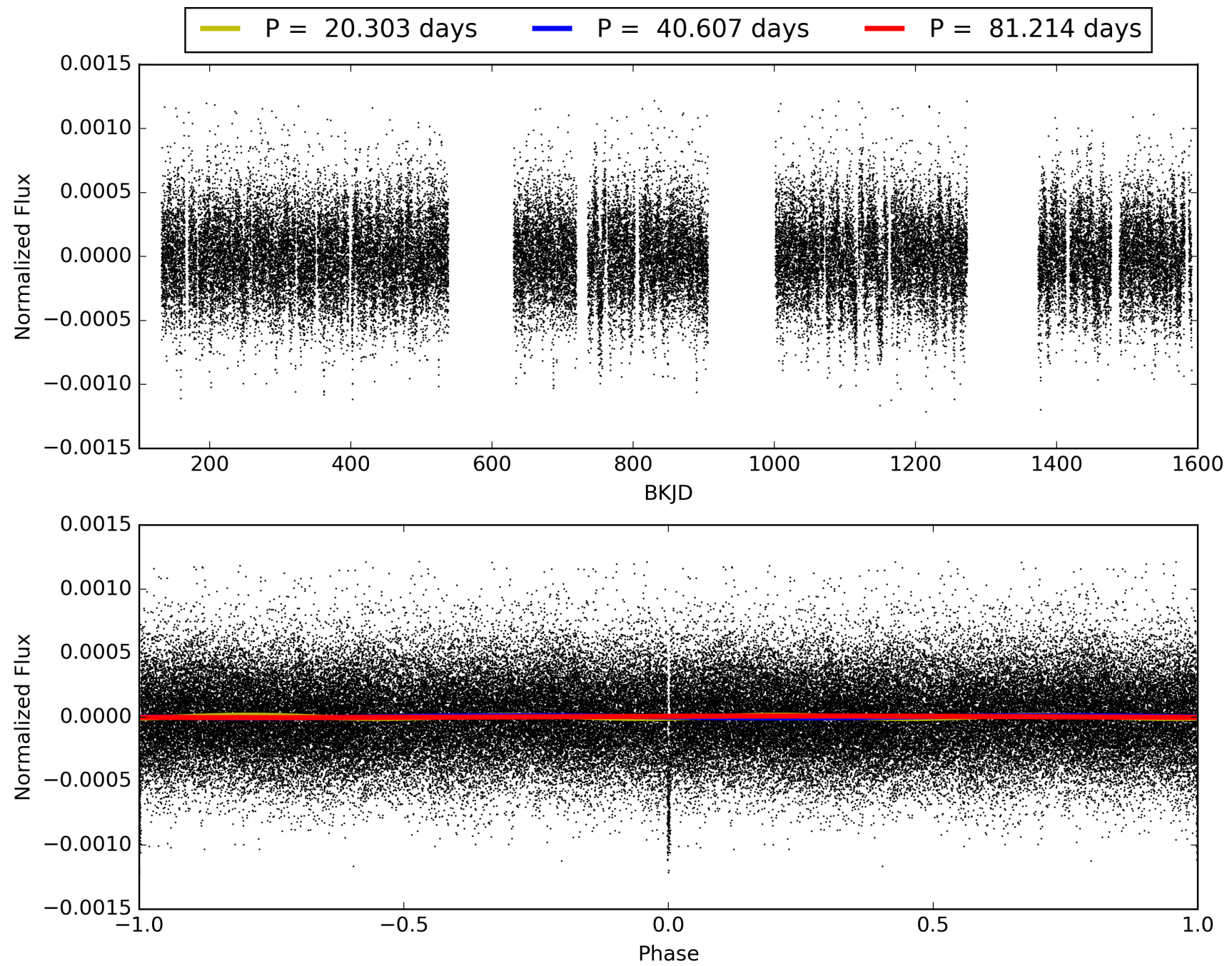
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 80.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.44e-176
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 5.168
Centroid-sig: 0.0%
Centroid-so: 0.316 arcsec [0.80 σ]
OotOffset-rm: 0.531 arcsec [1.87 σ]
KicOffset-rm: 0.354 arcsec [1.80 σ]
OotOffset-st: 1/3/4/4 [12]
KicOffset-st: 1/3/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005461440-01, PDC Light Curves

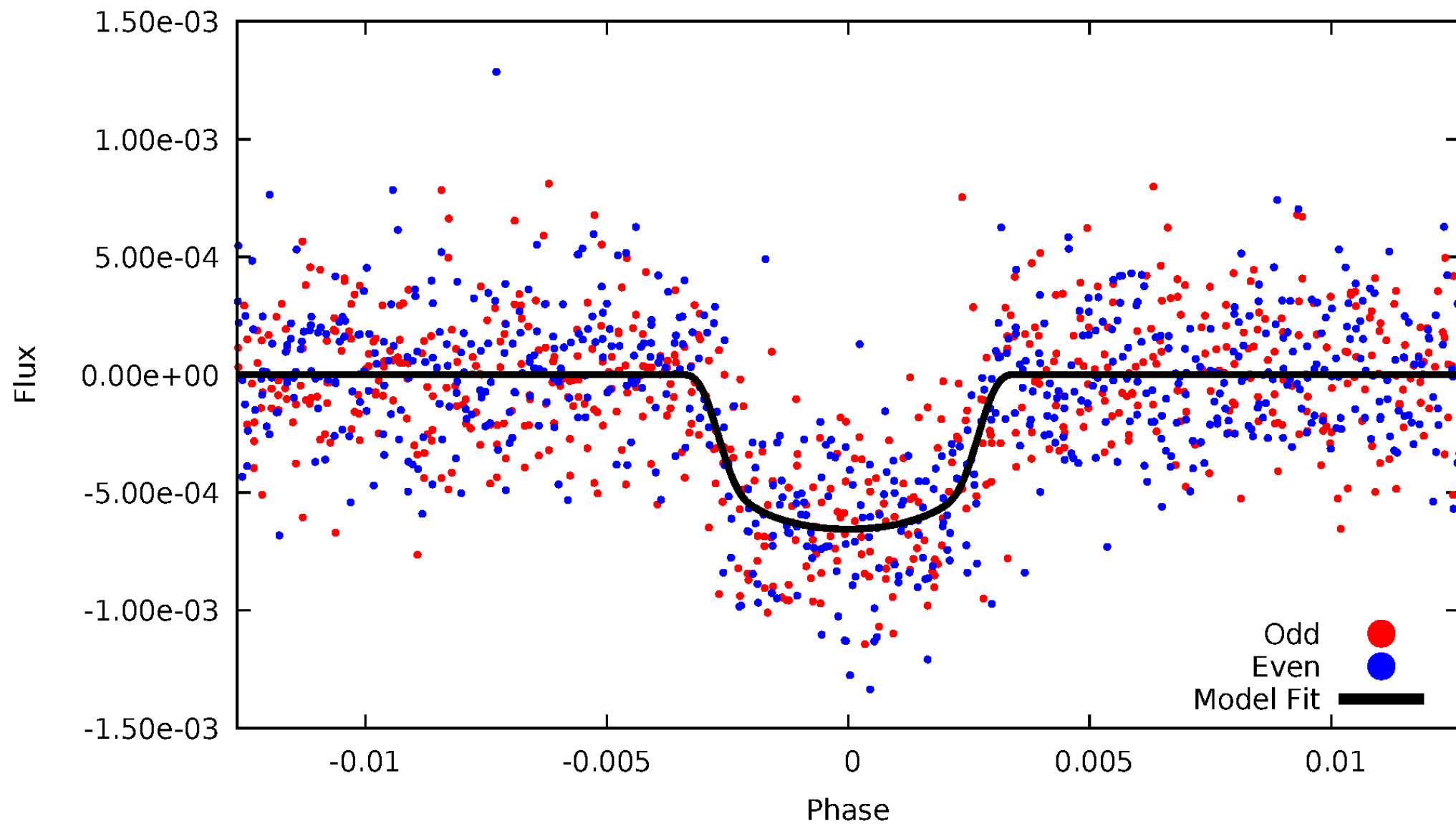


TCE 005461440-01



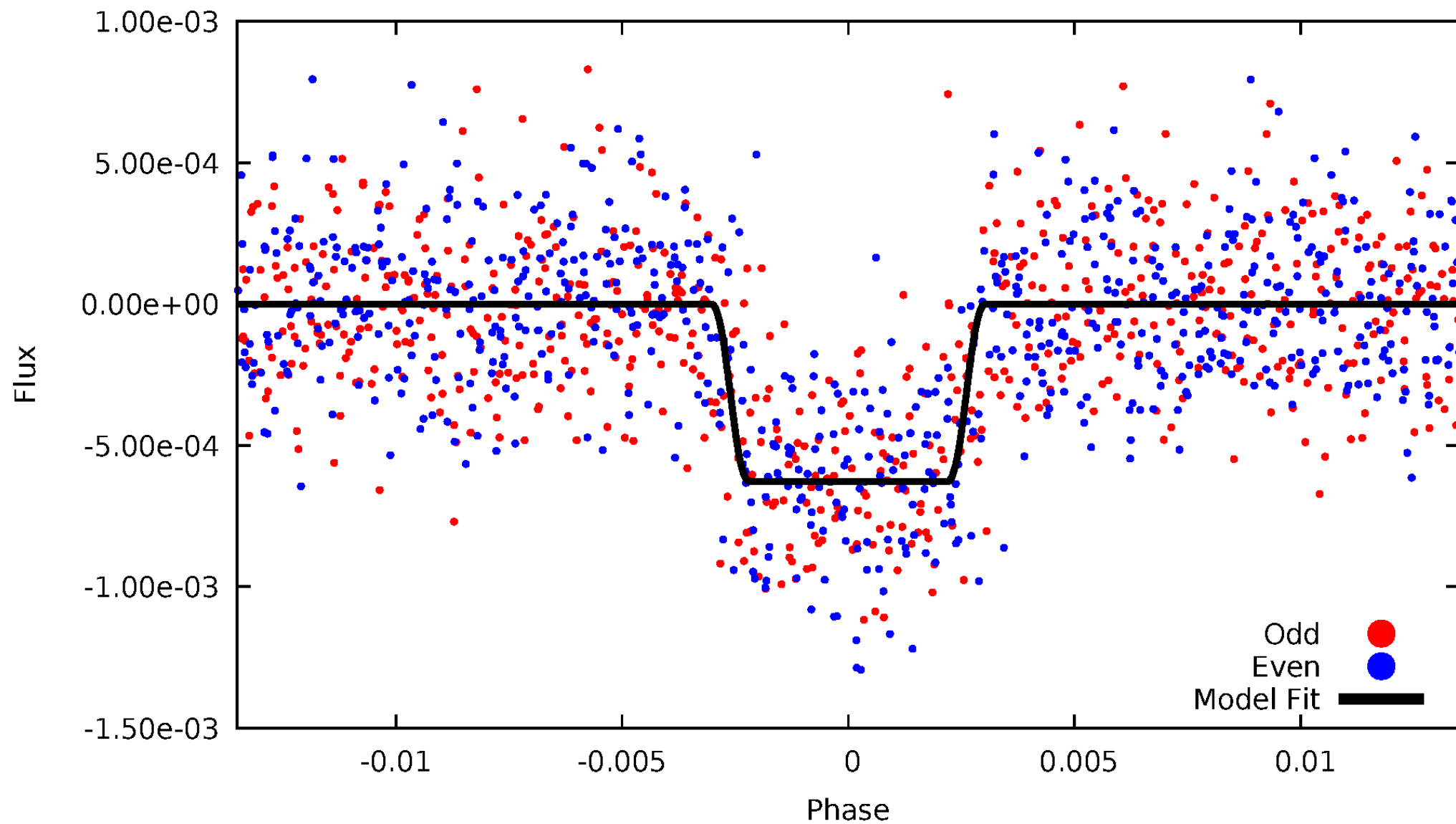
DV Odd/Even

TCE 005461440-01

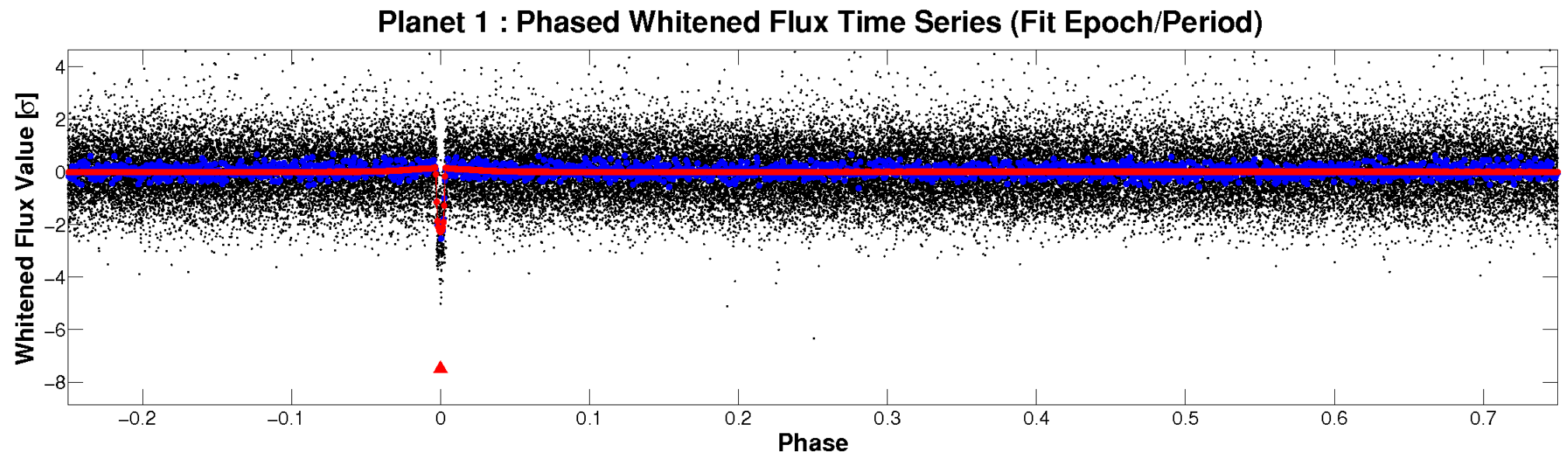
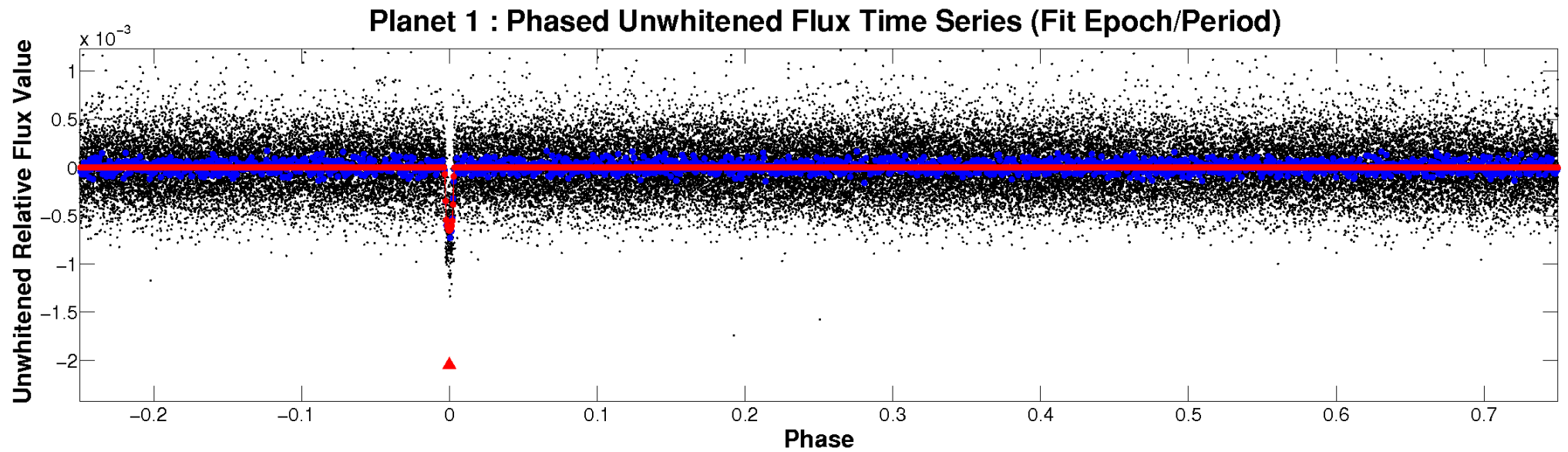


ALT Odd/Even

TCE 005461440-01

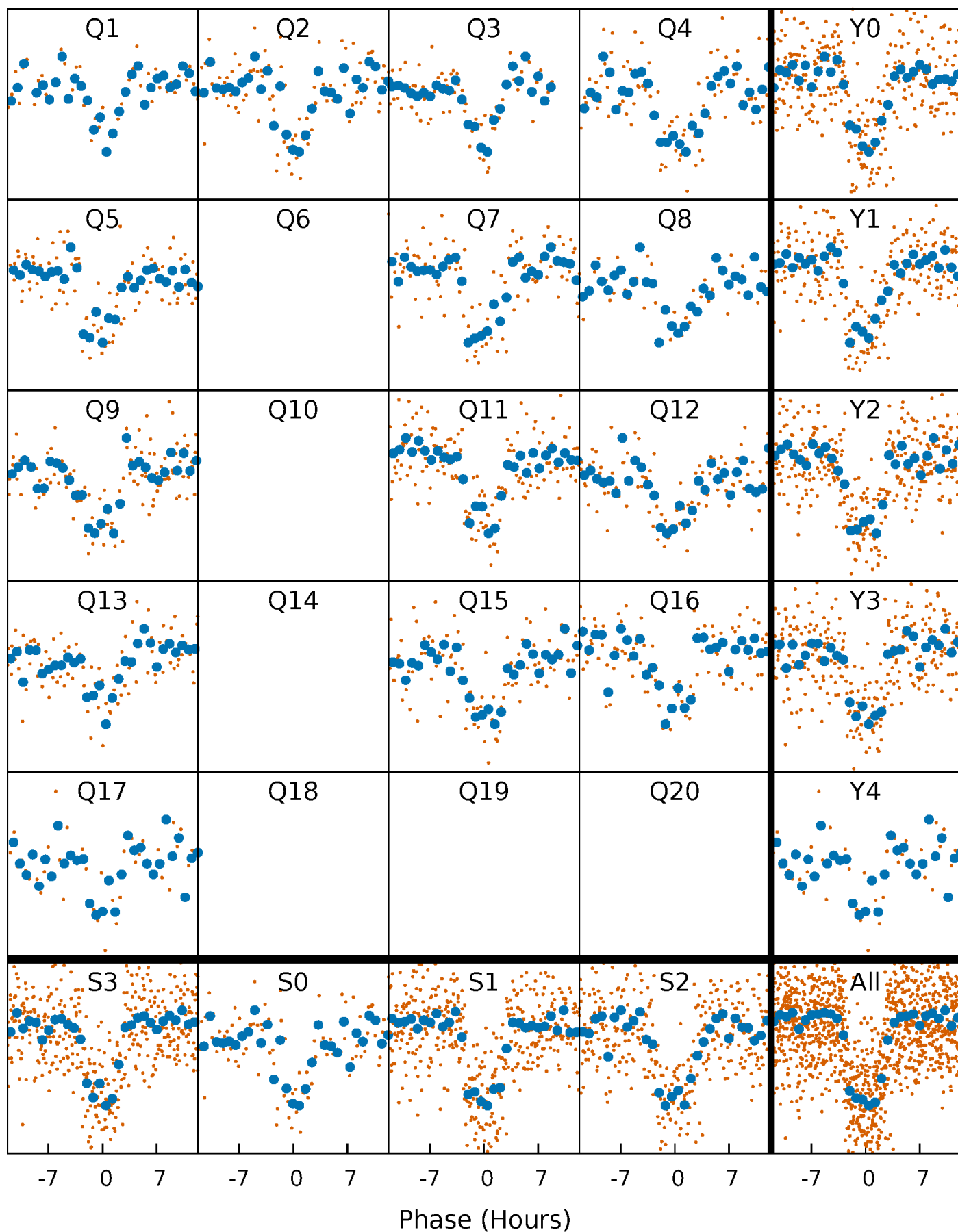


Non-Whitened Vs. Whitened Light Curve



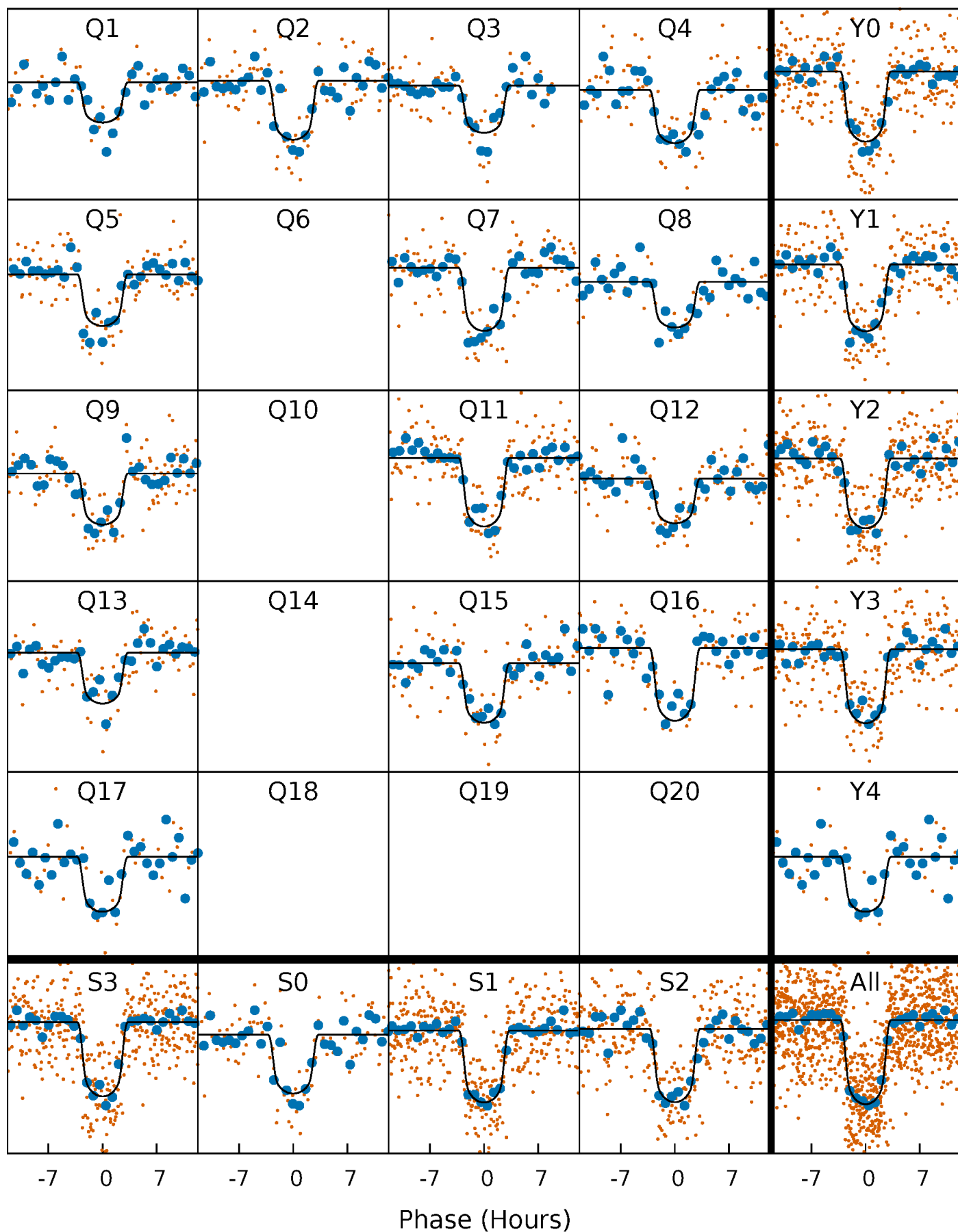
PDC Quarter-Phased Transit Curves

TCE 005461440-01 P= 40.606952 Days $T_0=158.647925$ (BKJD)



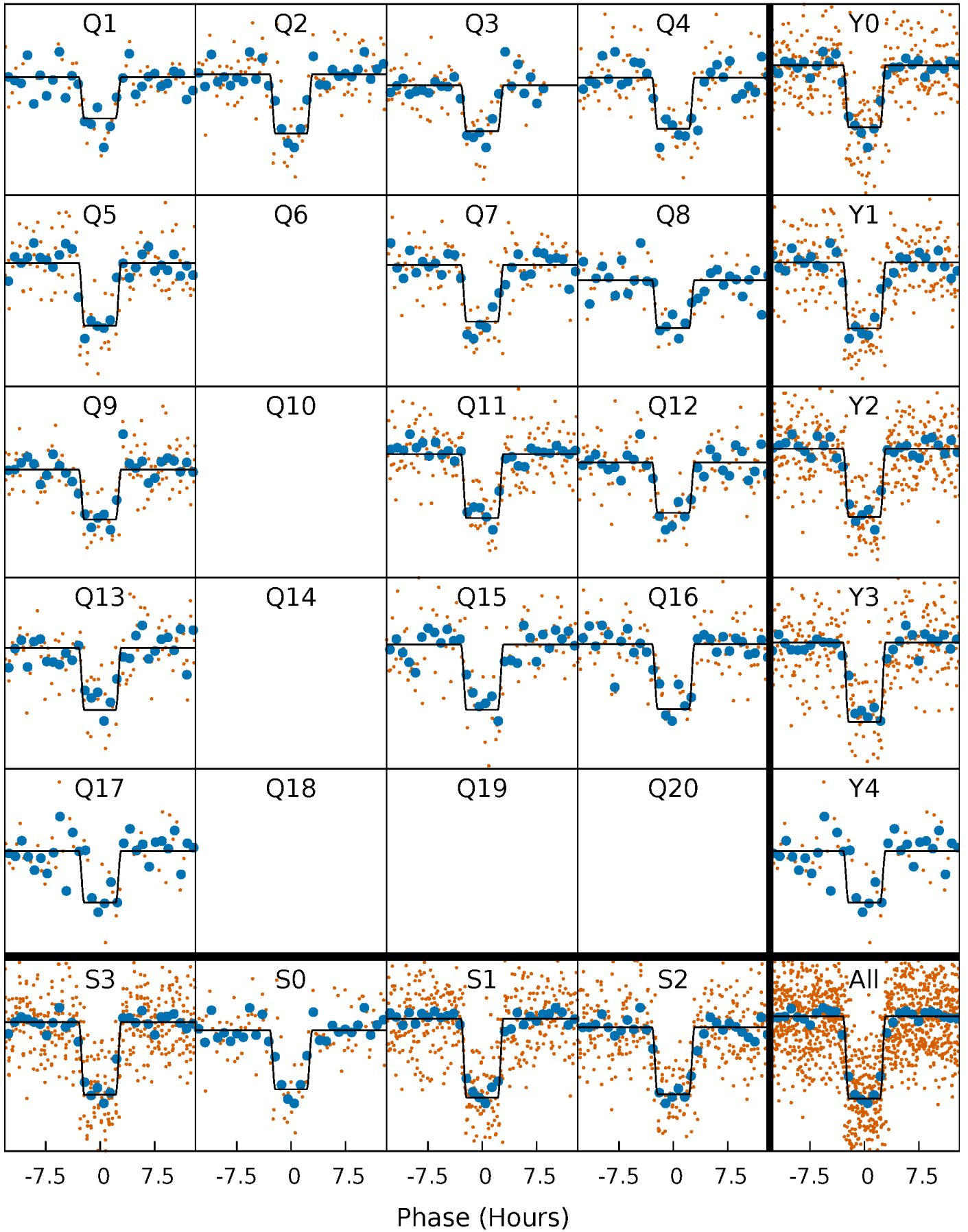
DV Quarter-Phased Transit Curves

TCE 005461440-01 P= 40.606952 Days $T_0=158.647925$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

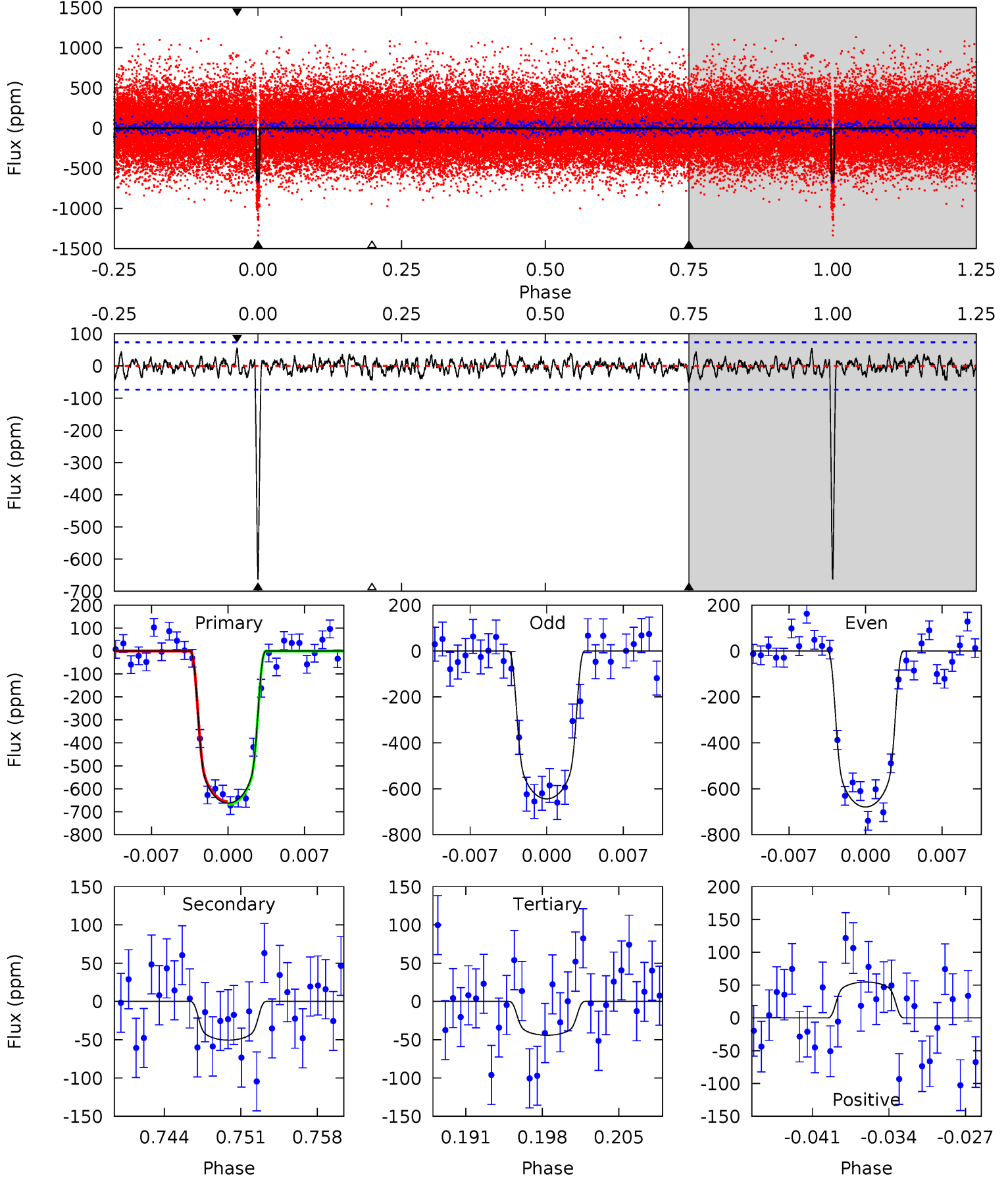
TCE 005461440-01 P= 40.606022 Days $T_0=158.662529$ (BKJD)



DV Model-Shift Uniqueness Test

005461440-01, $P = 40.606952$ Days, $E = 118.040973$ Days

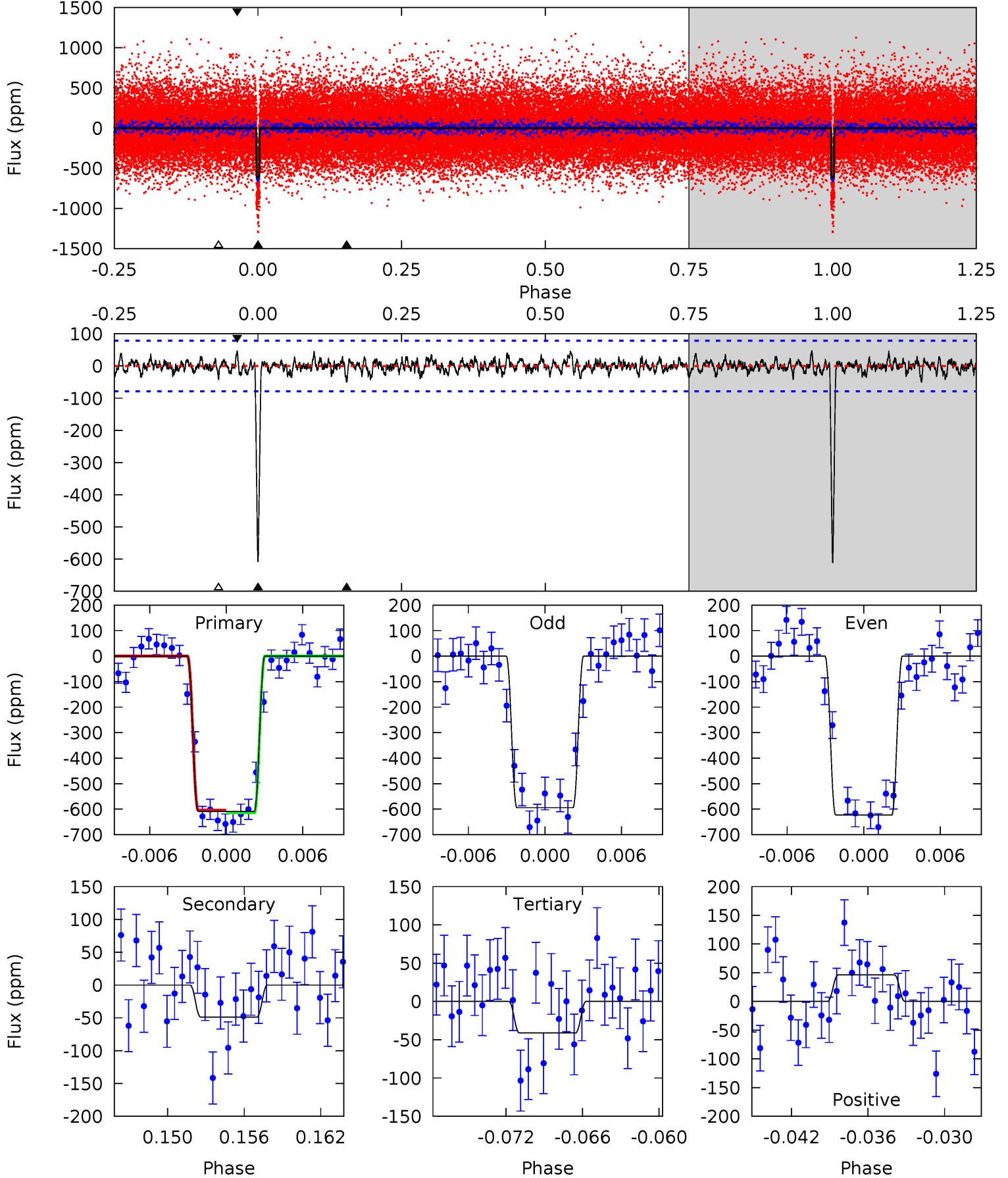
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 45.8 | 3.49 | 3.05 | 3.77 | 5.10 | 2.71 | 1.11 | 42.7 | 42.0 | 0.44 | -0.28 | 1.22 | 0.95 | 0.08 | 0.43 |



Alt Model-Shift Uniqueness Test

005461440-01, $P = 40.606022$ Days, $E = 118.056507$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 39.8 | 3.19 | 2.68 | 3.03 | 5.12 | 2.75 | 0.92 | 37.1 | 36.7 | 0.51 | 0.16 | 0.94 | 0.96 | 0.07 | 0.35 |



Stellar Parameters For KIC 005461440

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5538^{+74}_{-83} | $4.384^{+0.116}_{-0.105}$ | $0.140^{+0.150}_{-0.150}$ | $1.027^{+0.144}_{-0.118}$ | $0.930^{+0.062}_{-0.048}$ | $1.210^{+0.531}_{-0.367}$ |
| | +1%/-1% | +3%/-2% | +107%/-107% | +14%/-11% | +7%/-5% | +44%/-30% |
| Source | SPE90 | SPE90 | SPE90 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005461440-01 / KOI 0504.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|-------------------|
| DV | -51 ± 14 | $3.18^{+0.30}_{-0.26}$ | 726^{+31}_{-27} | 3301^{+162}_{-167} | 137^{+57}_{-43} |
| Alt. | -49 ± 15 | $2.80^{+0.29}_{-0.24}$ | 729^{+28}_{-30} | 3418^{+173}_{-182} | 172^{+67}_{-55} |

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

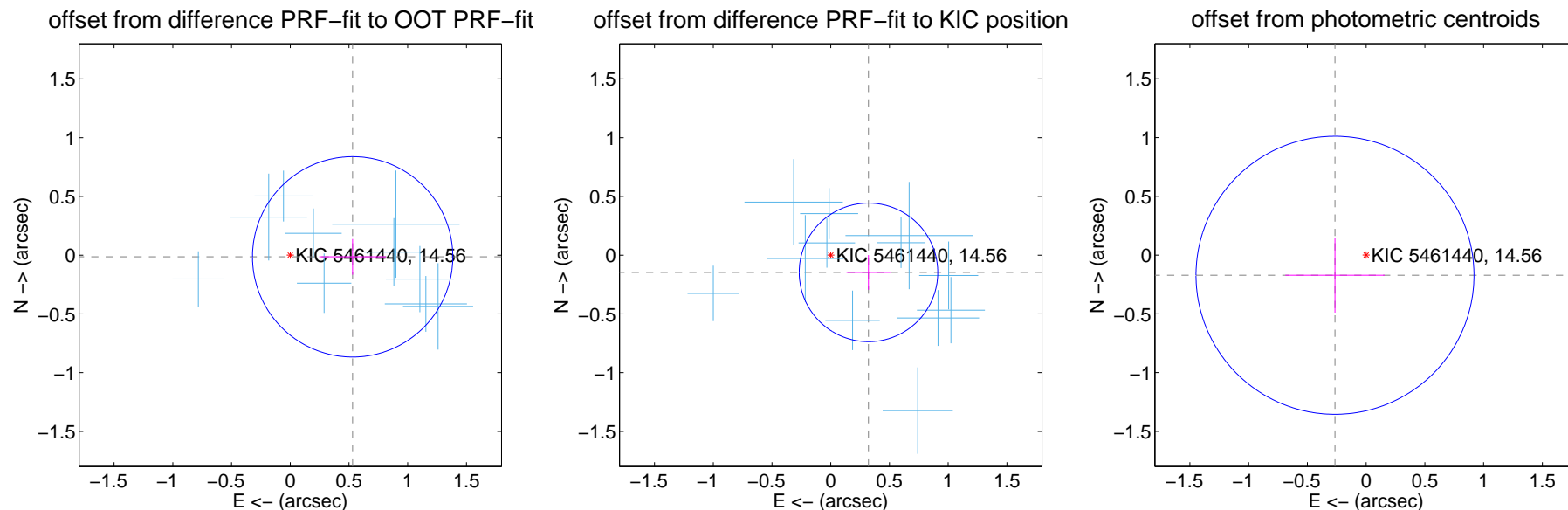
DV Centroid Data

Supplemental centroid analysis for 005461440-01. Kepler magnitude: 14.56. Transit SNR 32.29

There are 12 quarters with good PRF difference image offsets

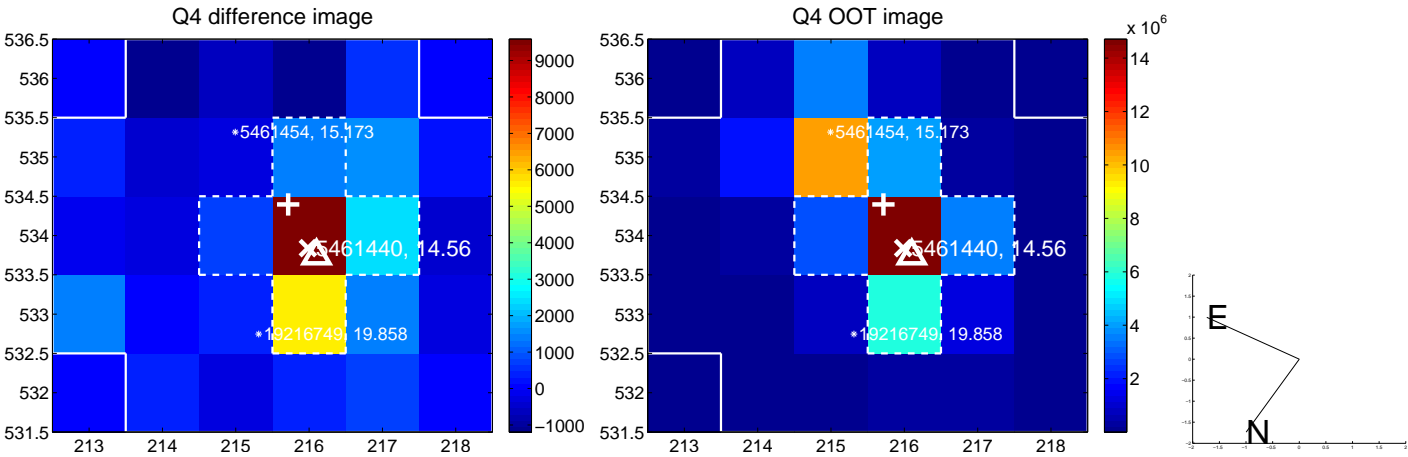
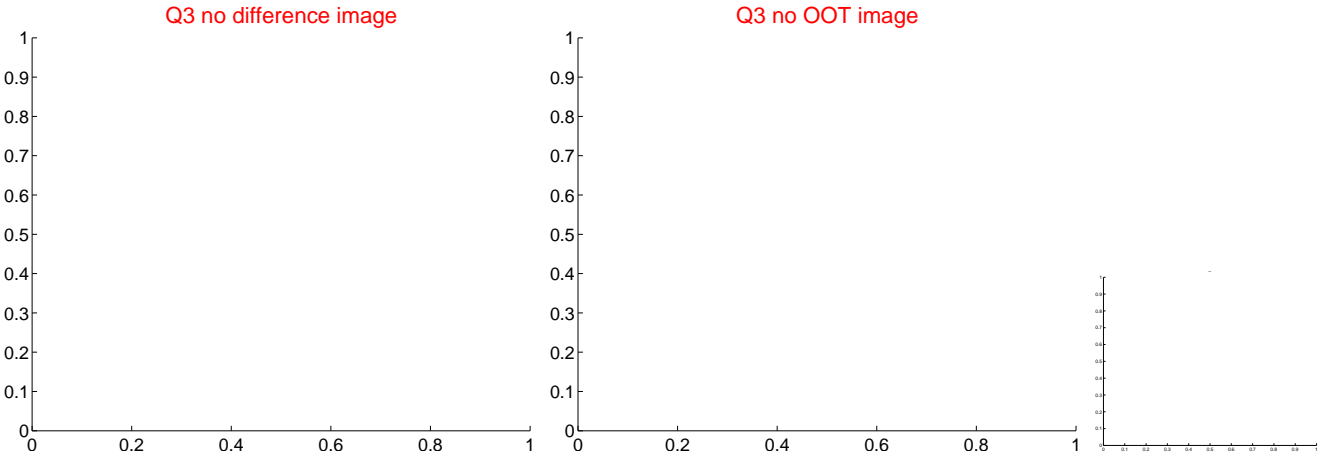
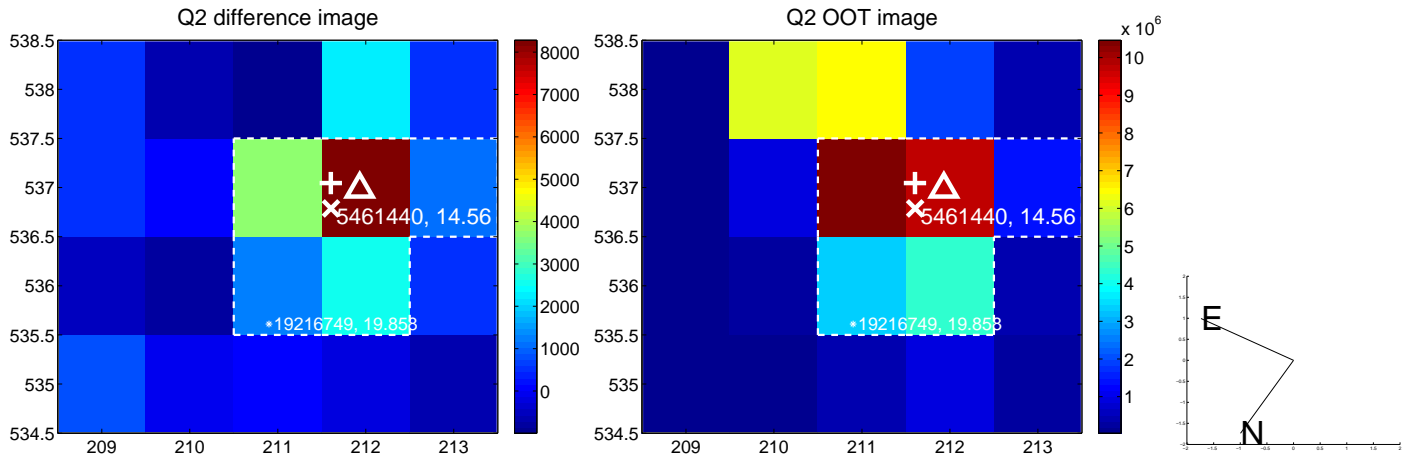
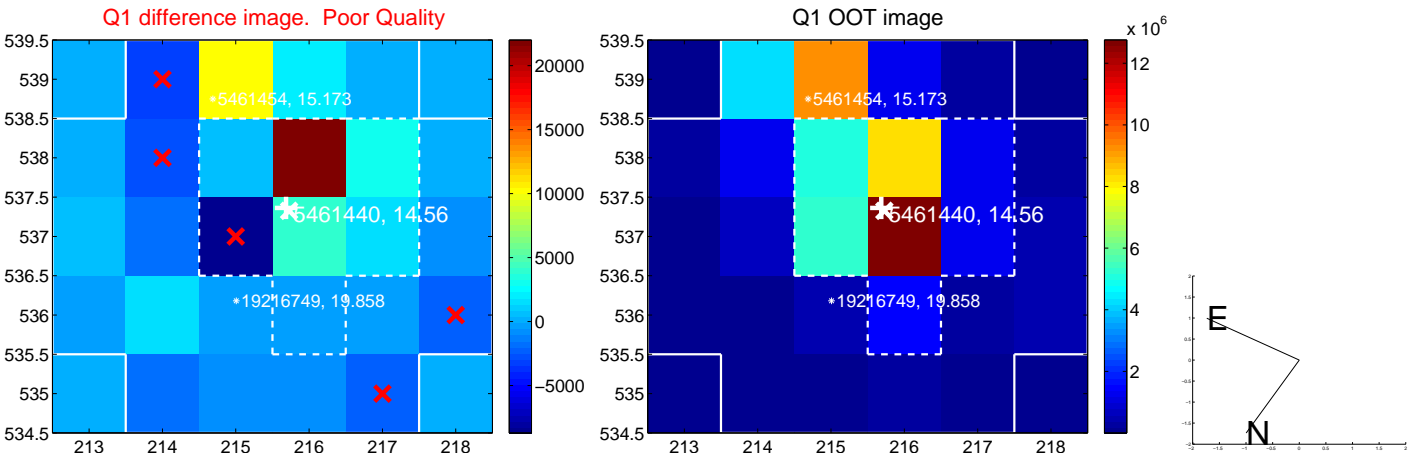
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.531 ± 0.284 | 1.87 | -0.531 ± 0.284 | -0.014 ± 0.152 |
| PRF-fit source offset from KIC position | 0.354 ± 0.197 | 1.80 | -0.322 ± 0.187 | -0.147 ± 0.147 |
| photometric centroid source offset | 0.32 ± 0.39 | 0.80 | 0.27 ± 0.42 | -0.17 ± 0.32 |

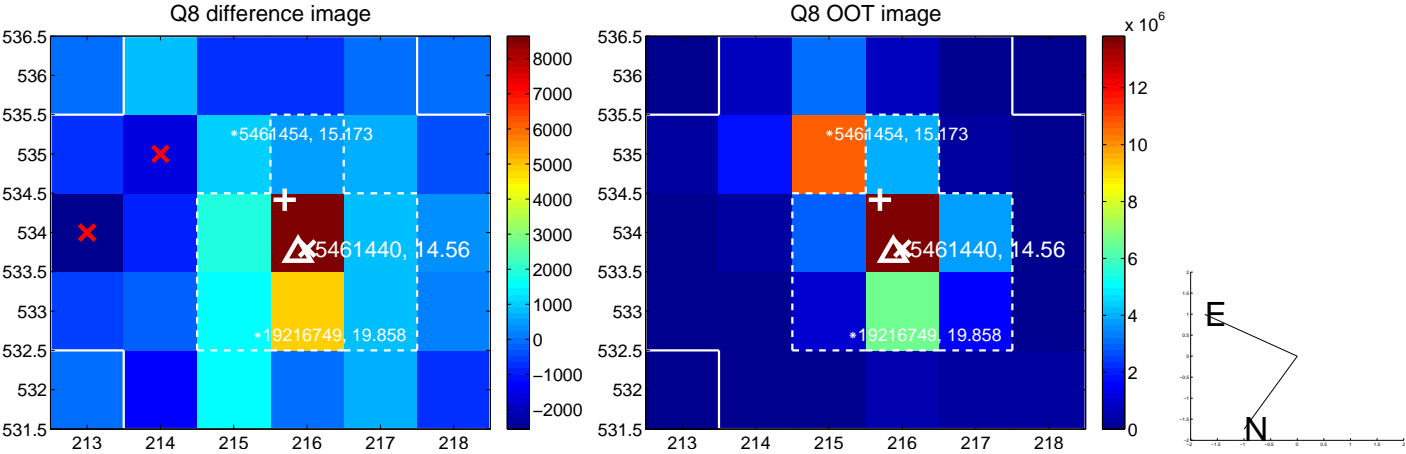
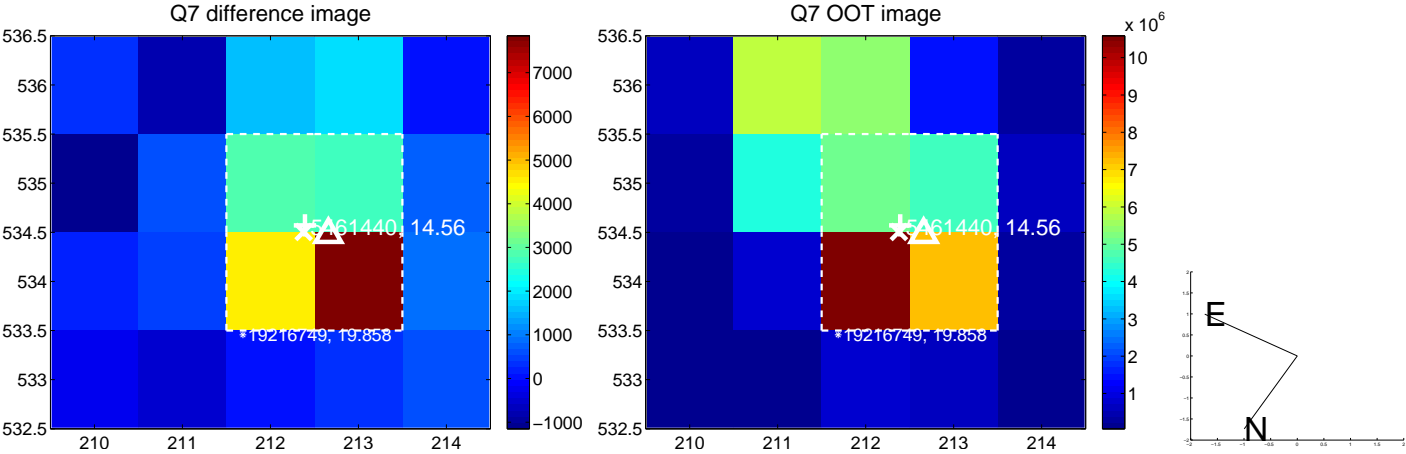
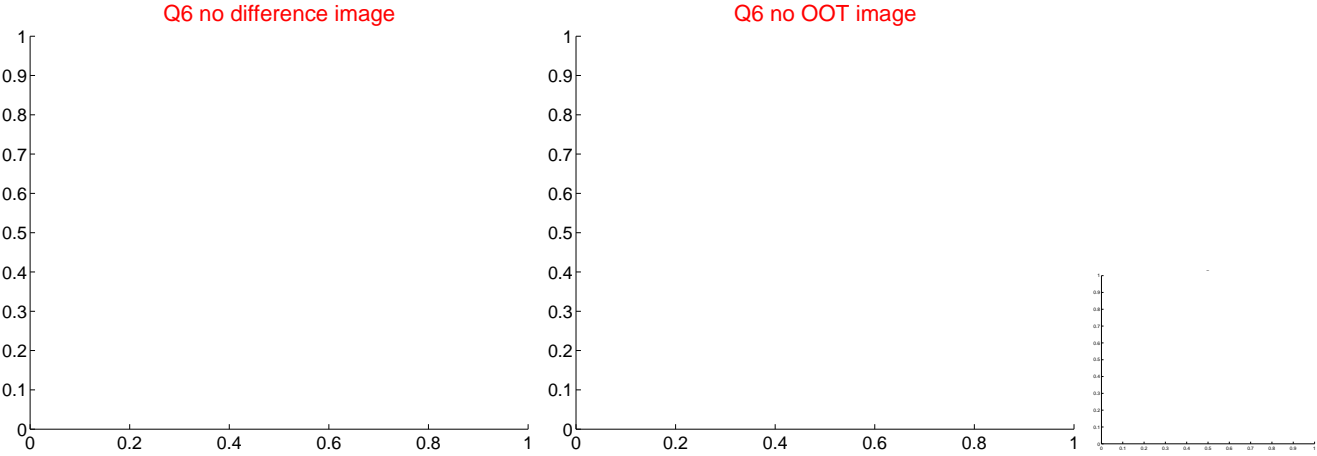
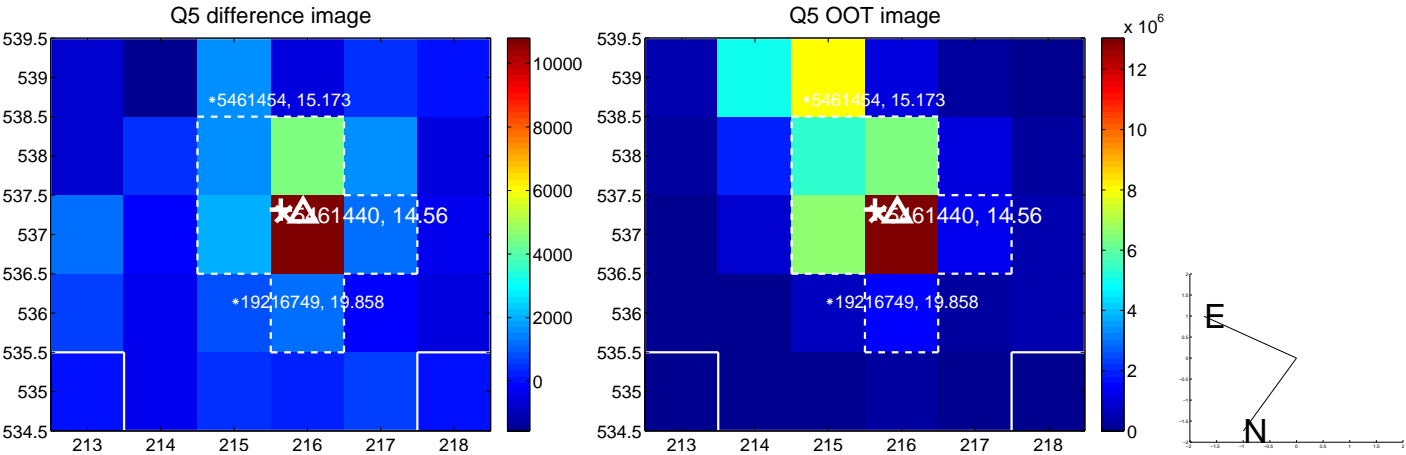


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

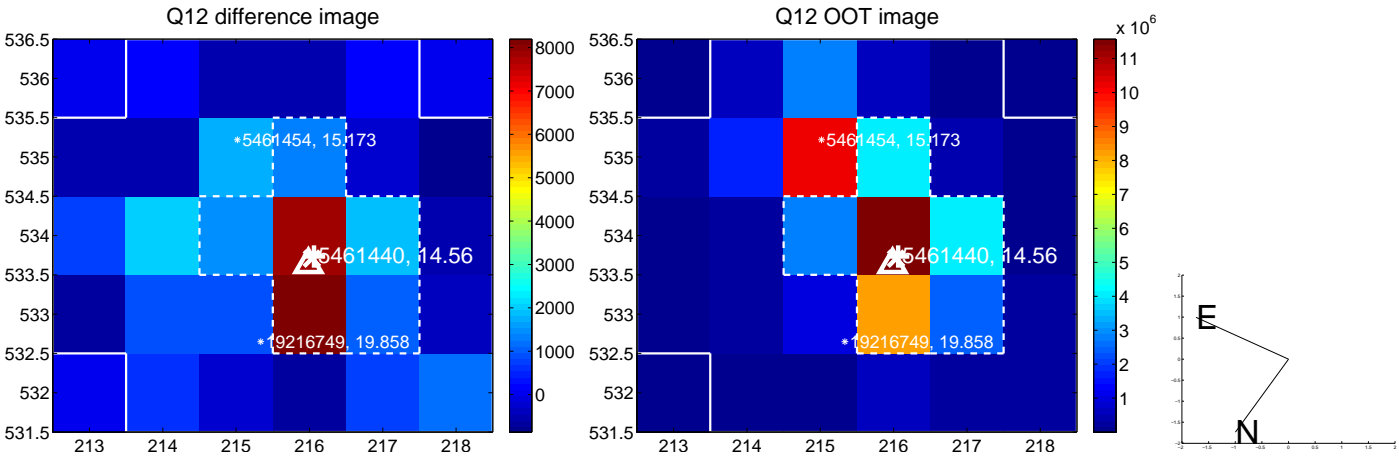
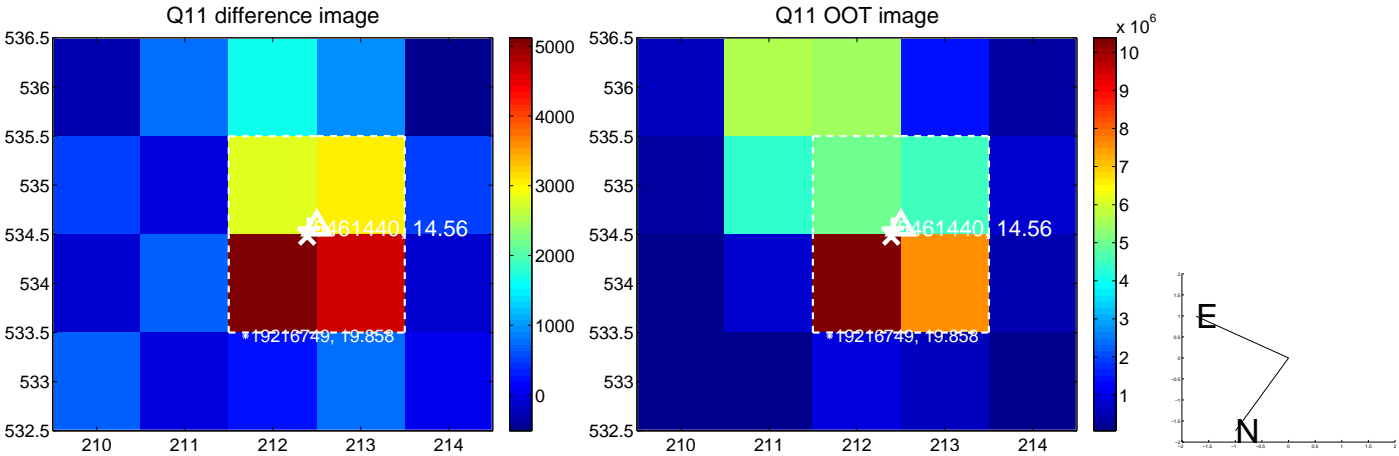
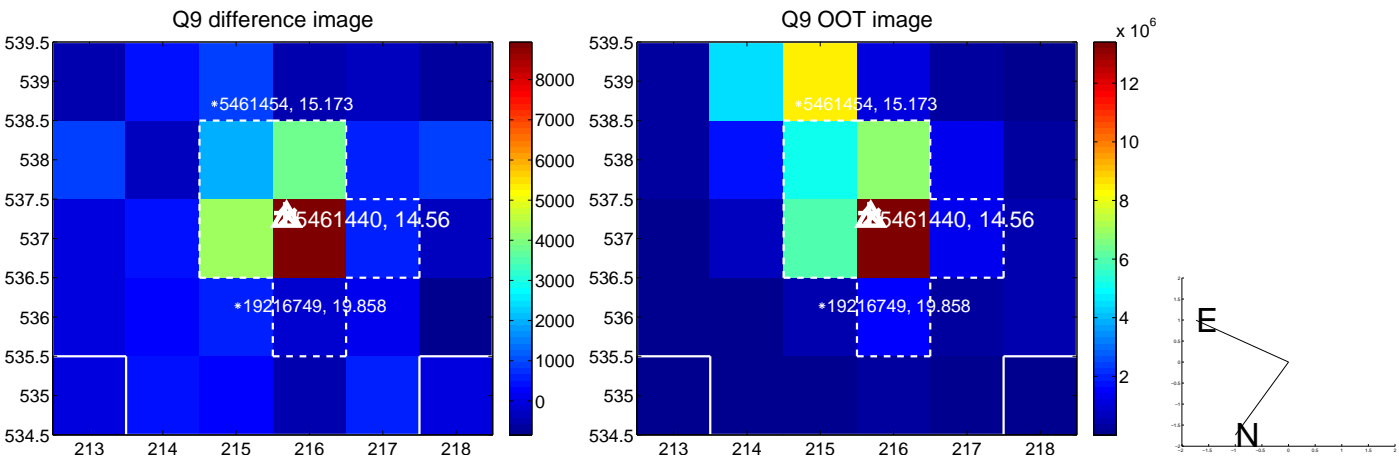
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



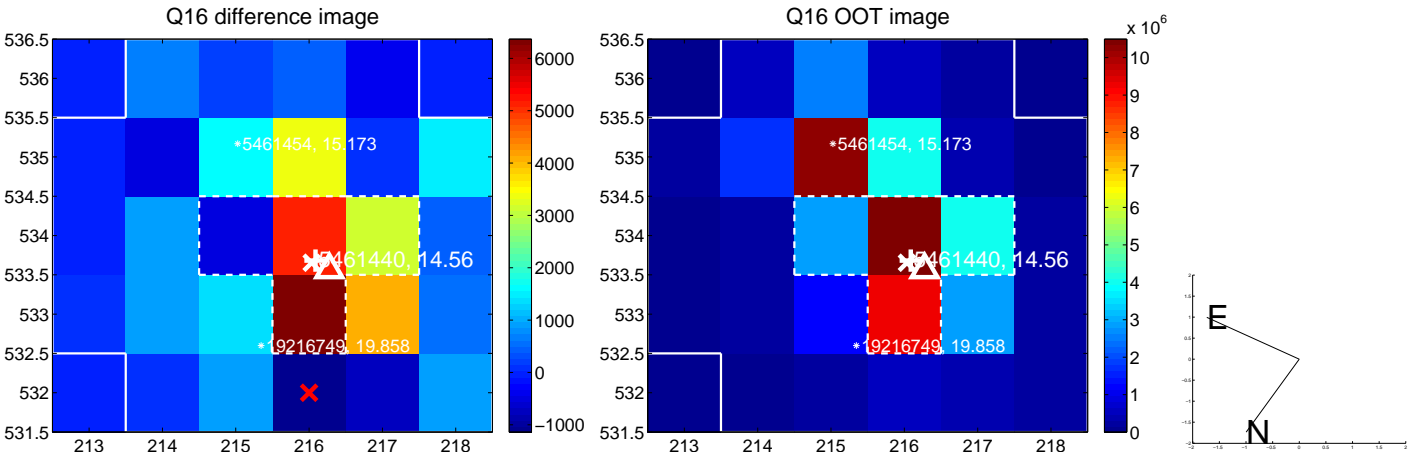
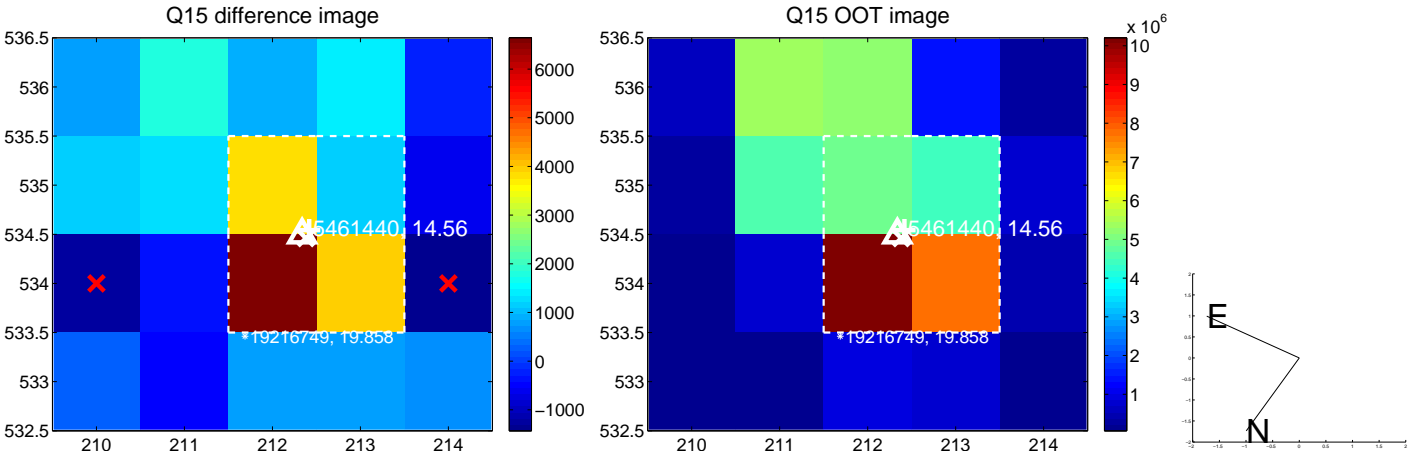
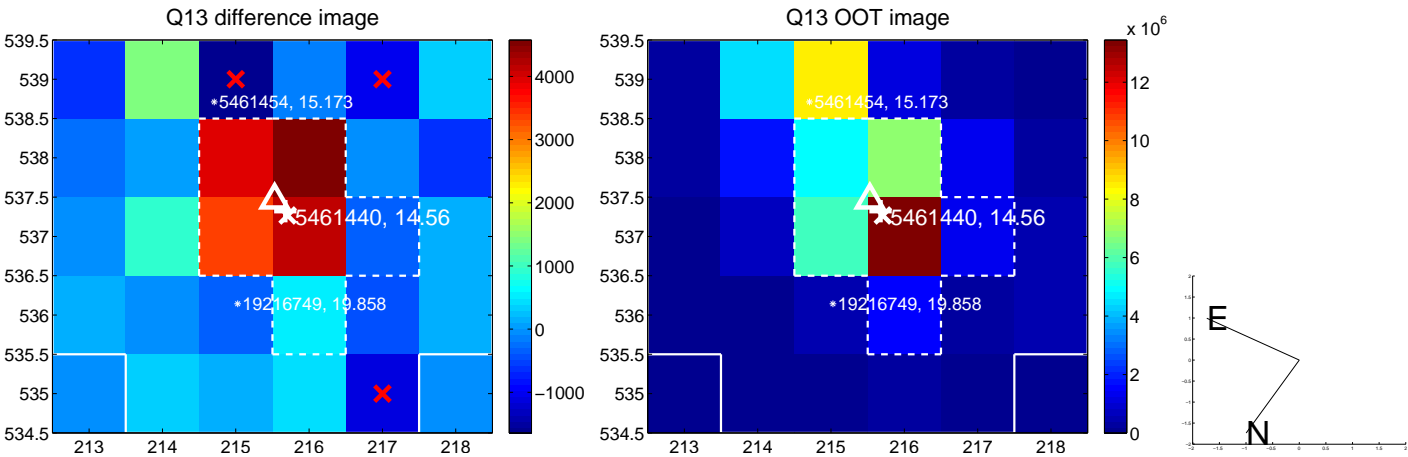
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



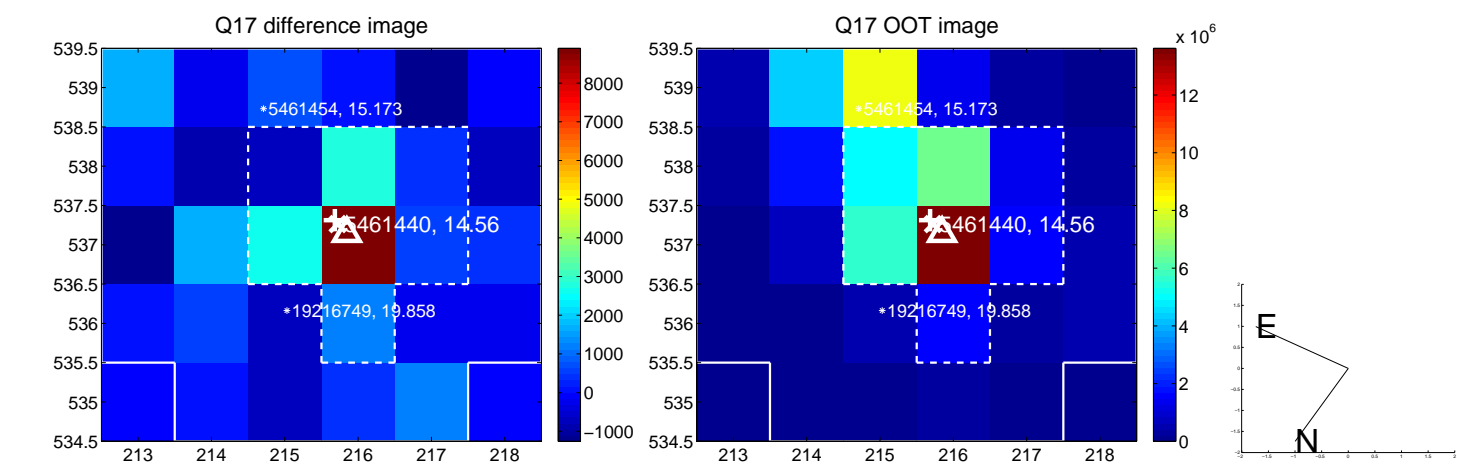
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



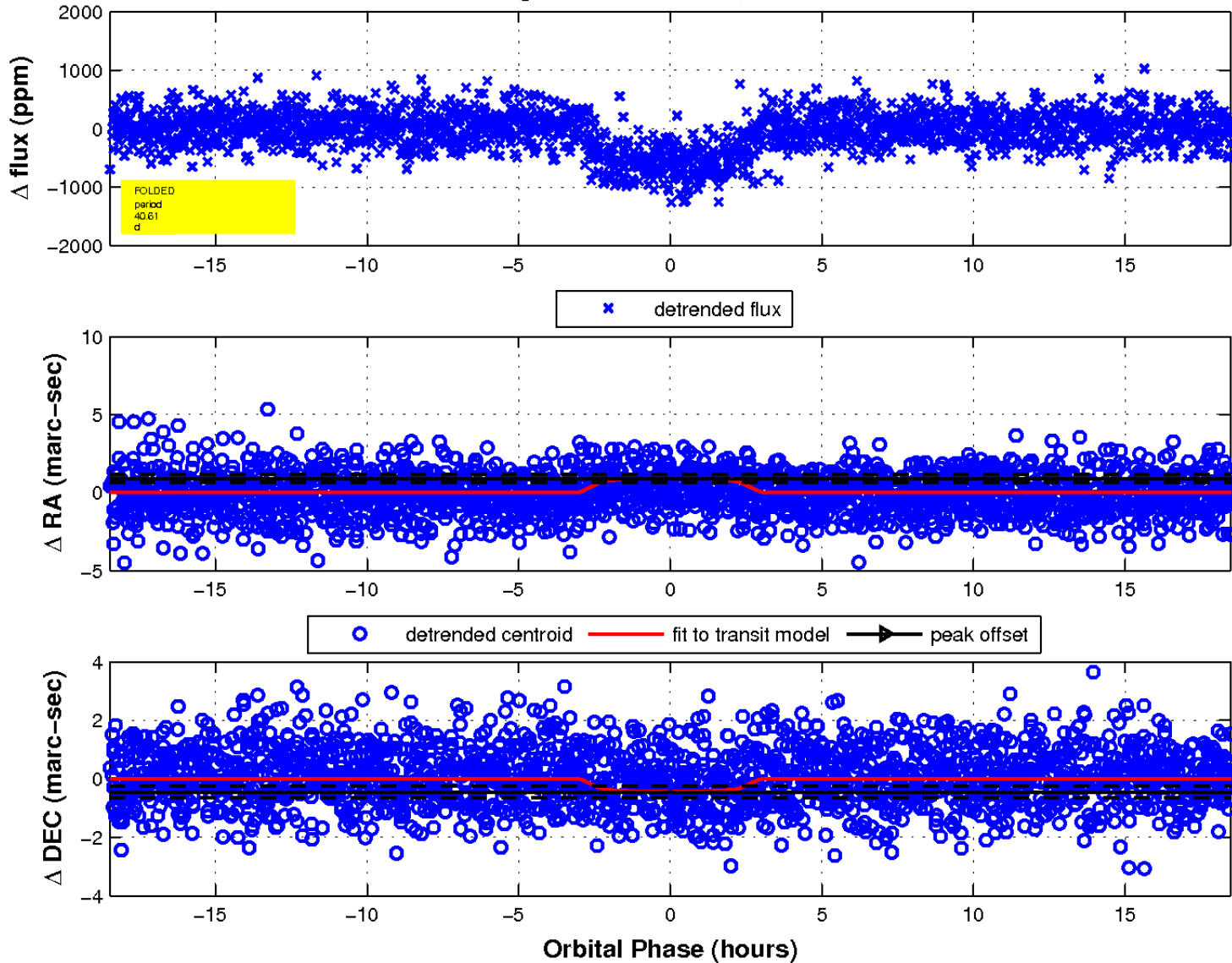
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

