

KIC 010259301

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 010259301-01 | OBS | 3608.01 | 244.832665 | 285.702728 | 40222.2 | 4.341 | 1007.9 | 690.2 | 0.99 | 6105 | 29.61 | 2.10 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------|
| 010259301-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | DEEP_V_SHAPED |

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.

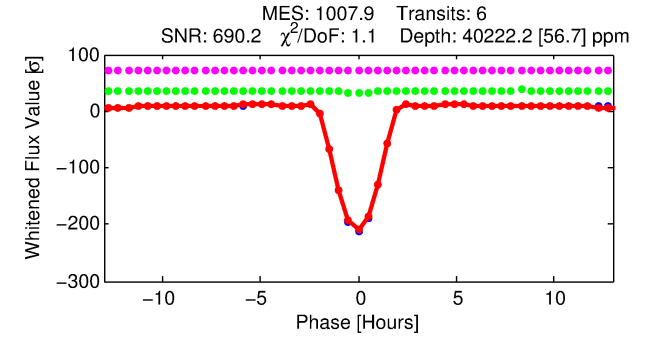
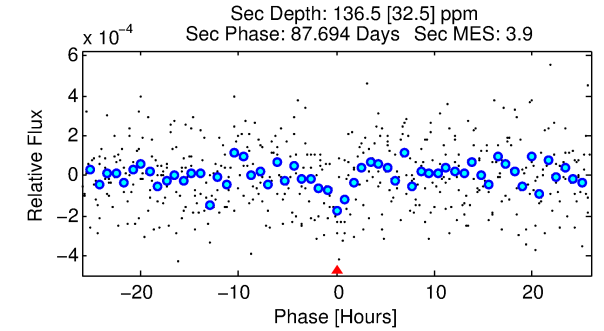
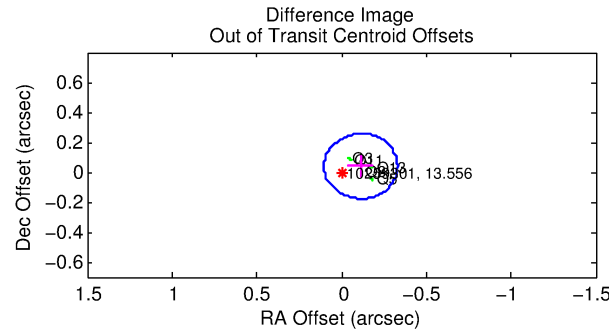
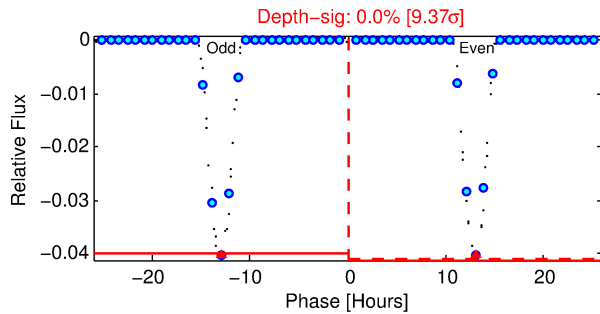
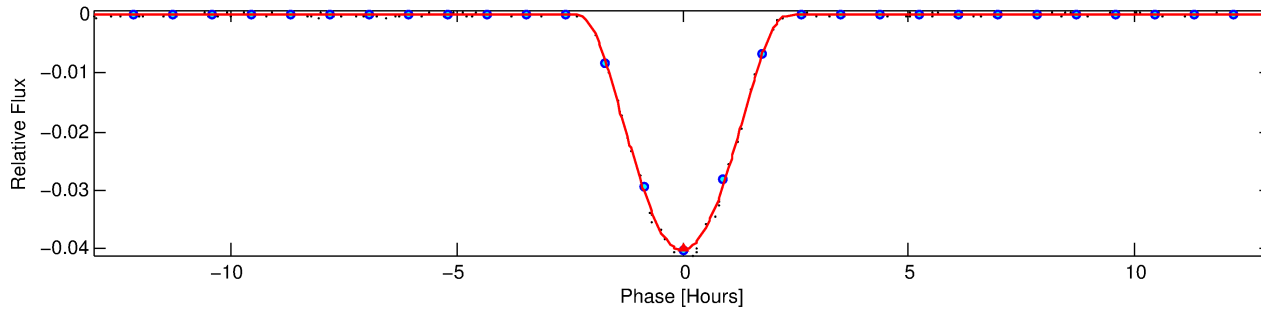
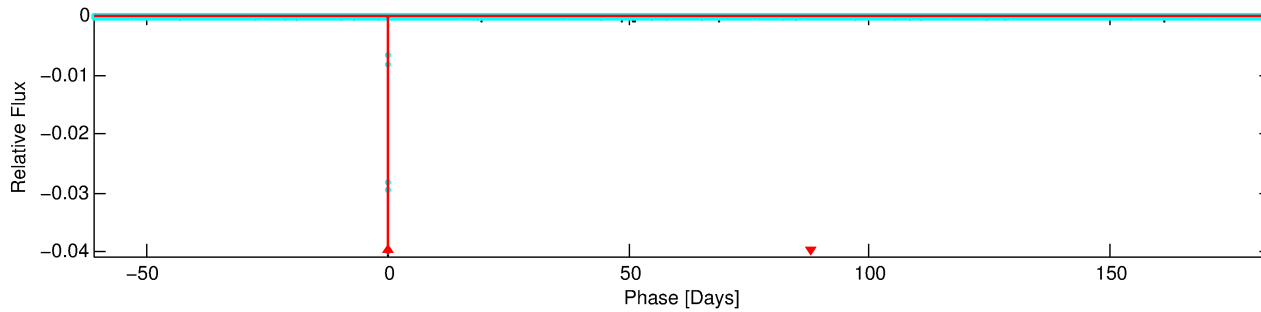
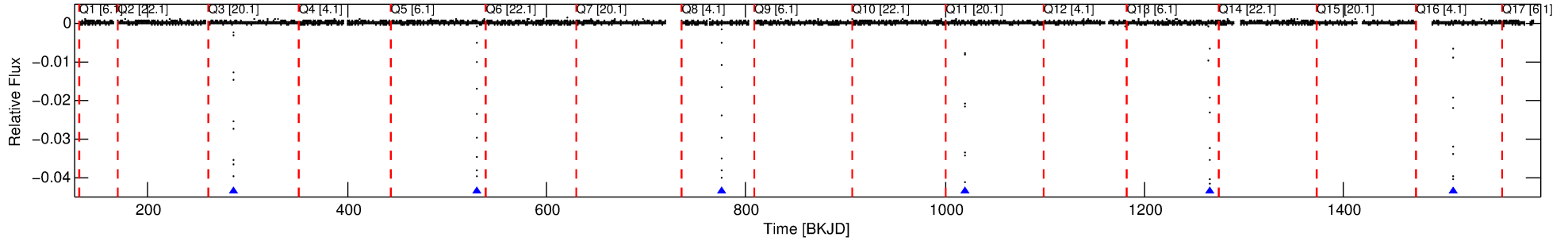
Ephemeris Match Information For 010259301-01

No Significant Match Found

DV One-Page Summary

KIC: 10259301 Candidate: 1 of 1 Period: 244.833 d
KOI: K03608.01 Corr: 0.998

Kp: 13.56 R*: 0.99 Rs Teff: 6105.0 K Logg: 4.44 Fe/H: -0.240



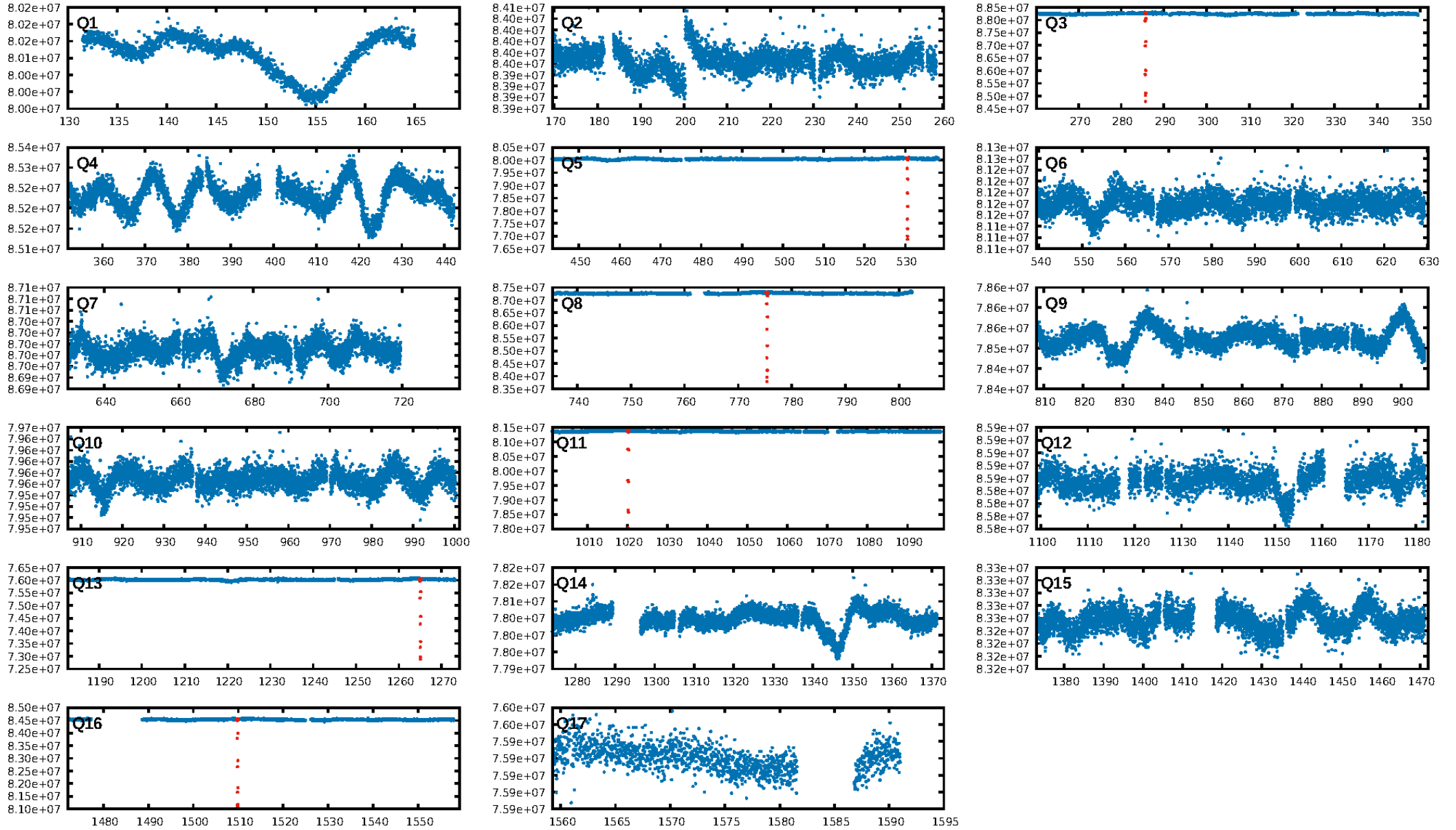
DV Fit Results:

Period = 244.83266 [0.00004] d
Epoch = 285.7027 [0.0001] BKJD
Rp/R* = 0.2732 [0.0137]
a/R* = 371.35 [1.94]
b = 0.94 [0.02]
Seff = 2.09 [0.81]
Teq = 307 [30] K
Rp = 29.61 [8.92] Re
a = 0.7654 [0.1925] AU
Ag = 50.20 [22.57] [2.18σ]
Teffp = 1262 [90] K [10.11σ]

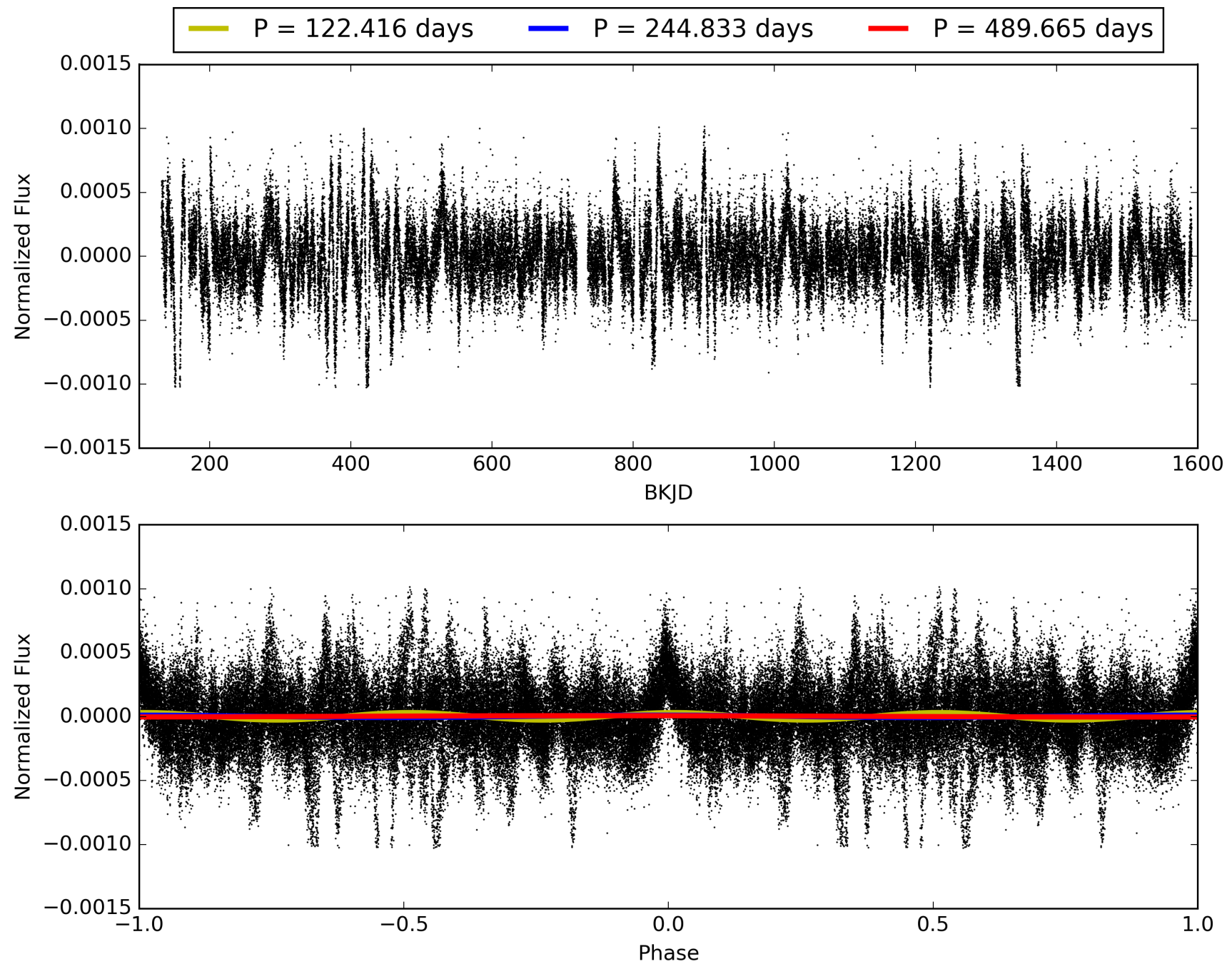
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 91.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 8.007
Centroid-sig: 0.0%
Centroid-so: 0.160 arcsec [16.48σ]
OotOffset-rm: 0.120 arcsec [1.66σ]
KicOffset-rm: 0.127 arcsec [1.49σ]
OotOffset-st: 0/2/1/2 [5]
KicOffset-st: 0/2/1/2 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [5/5]

TCE 010259301-01, PDC Light Curves

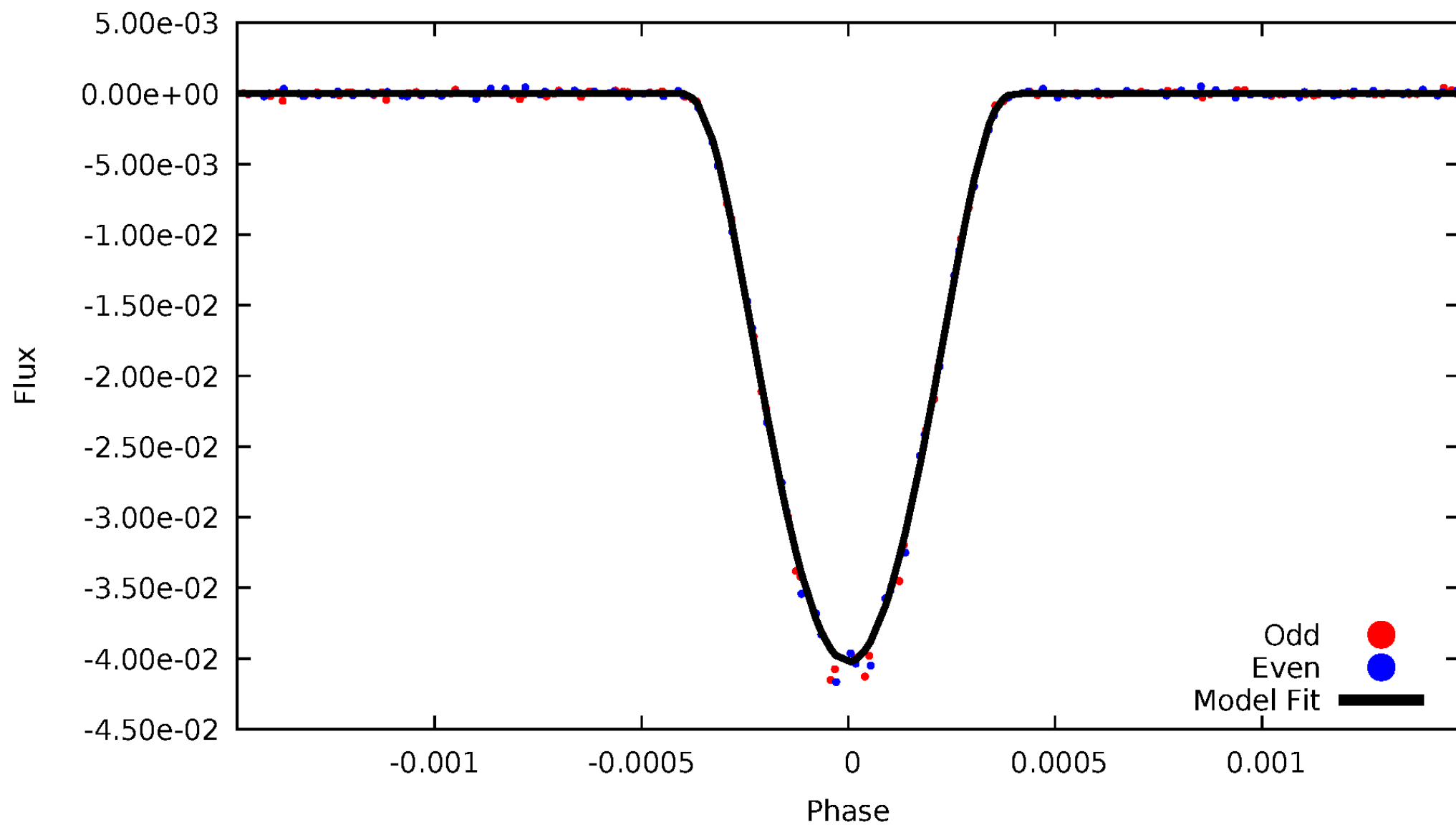


TCE 010259301-01



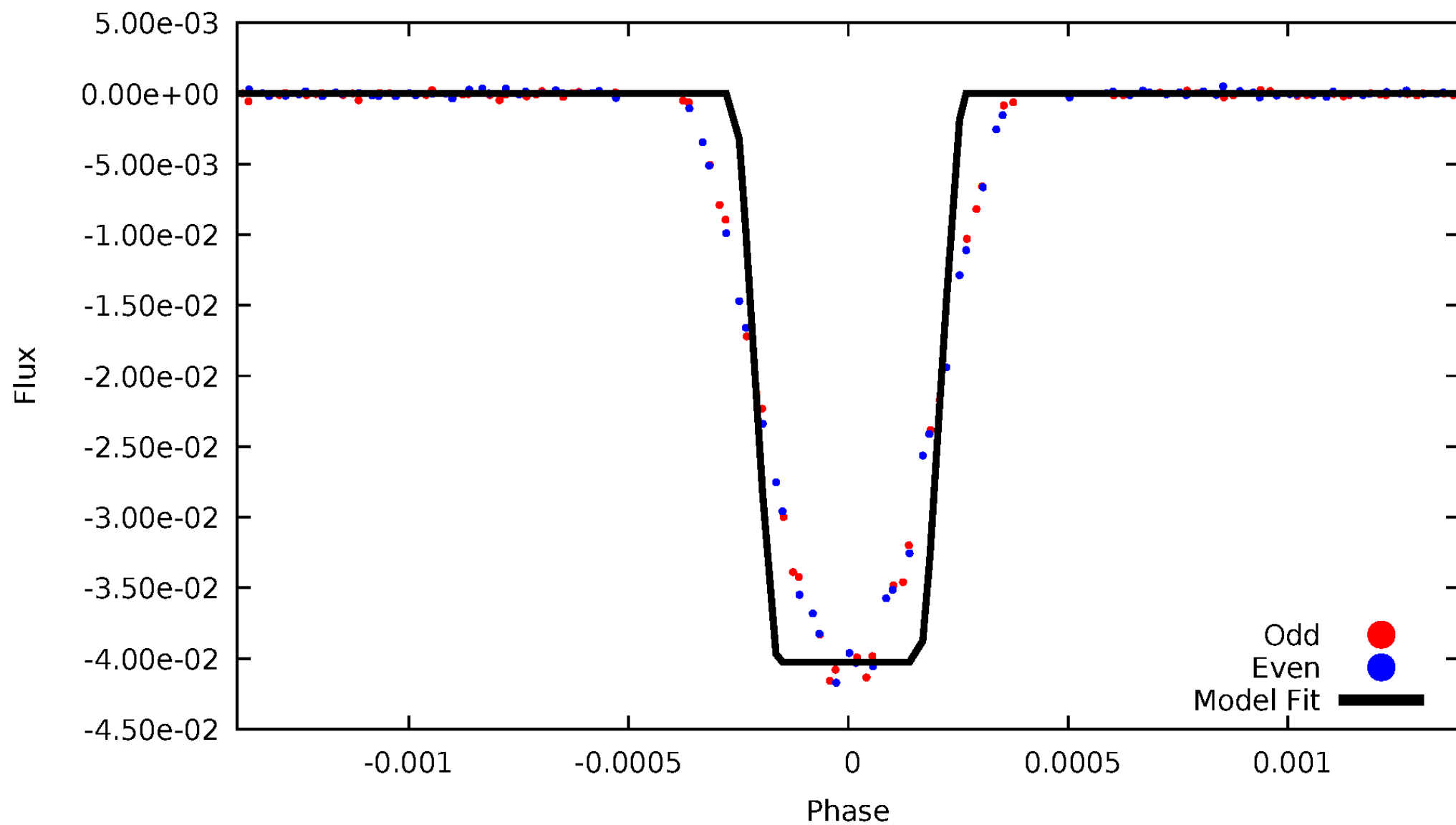
DV Odd/Even

TCE 010259301-01



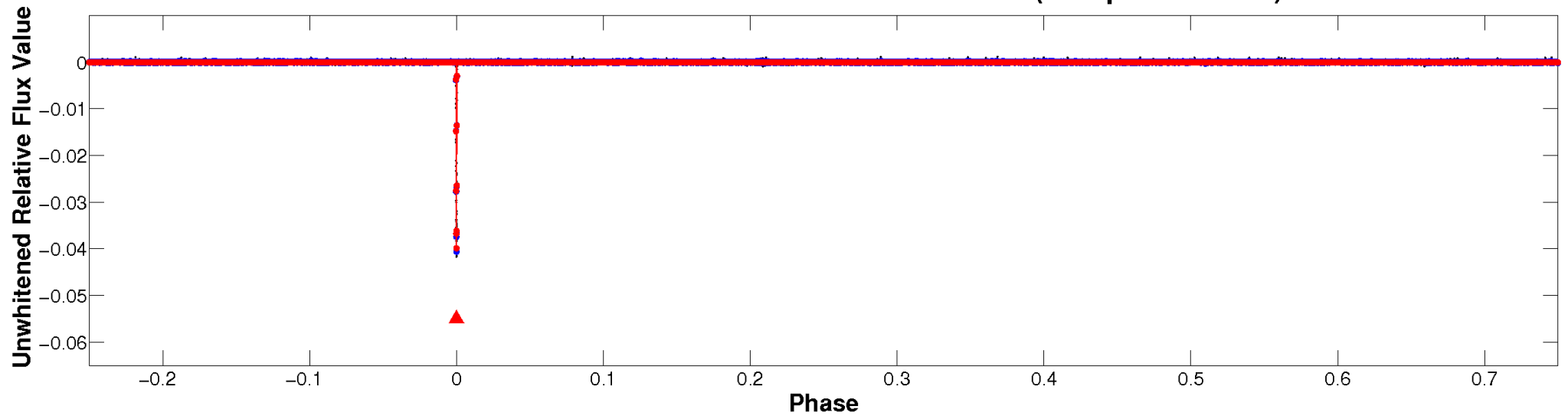
ALT Odd/Even

TCE 010259301-01

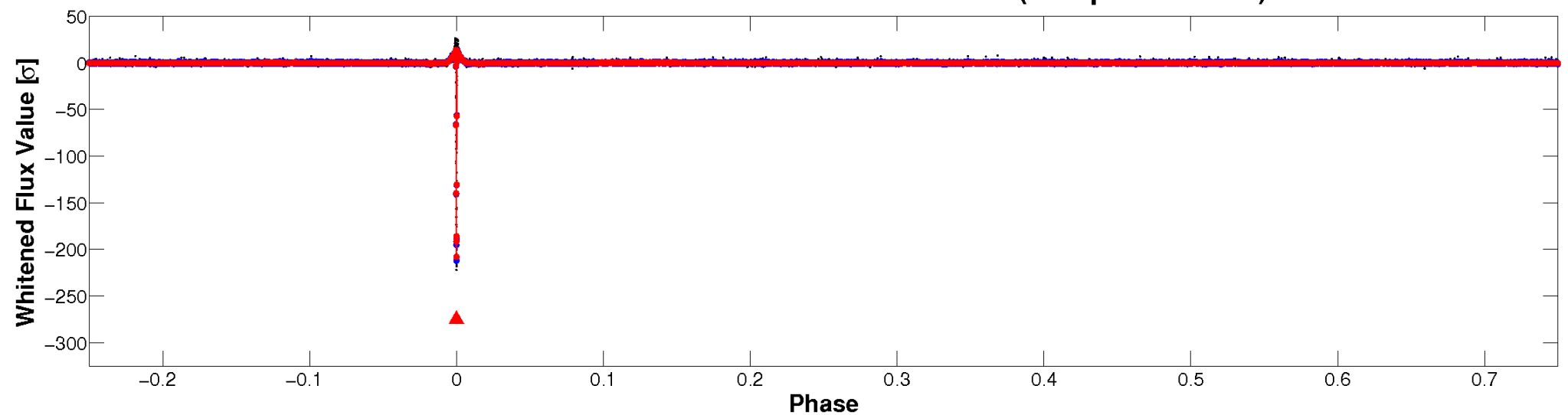


Non-Whitened Vs. Whitened Light Curve

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

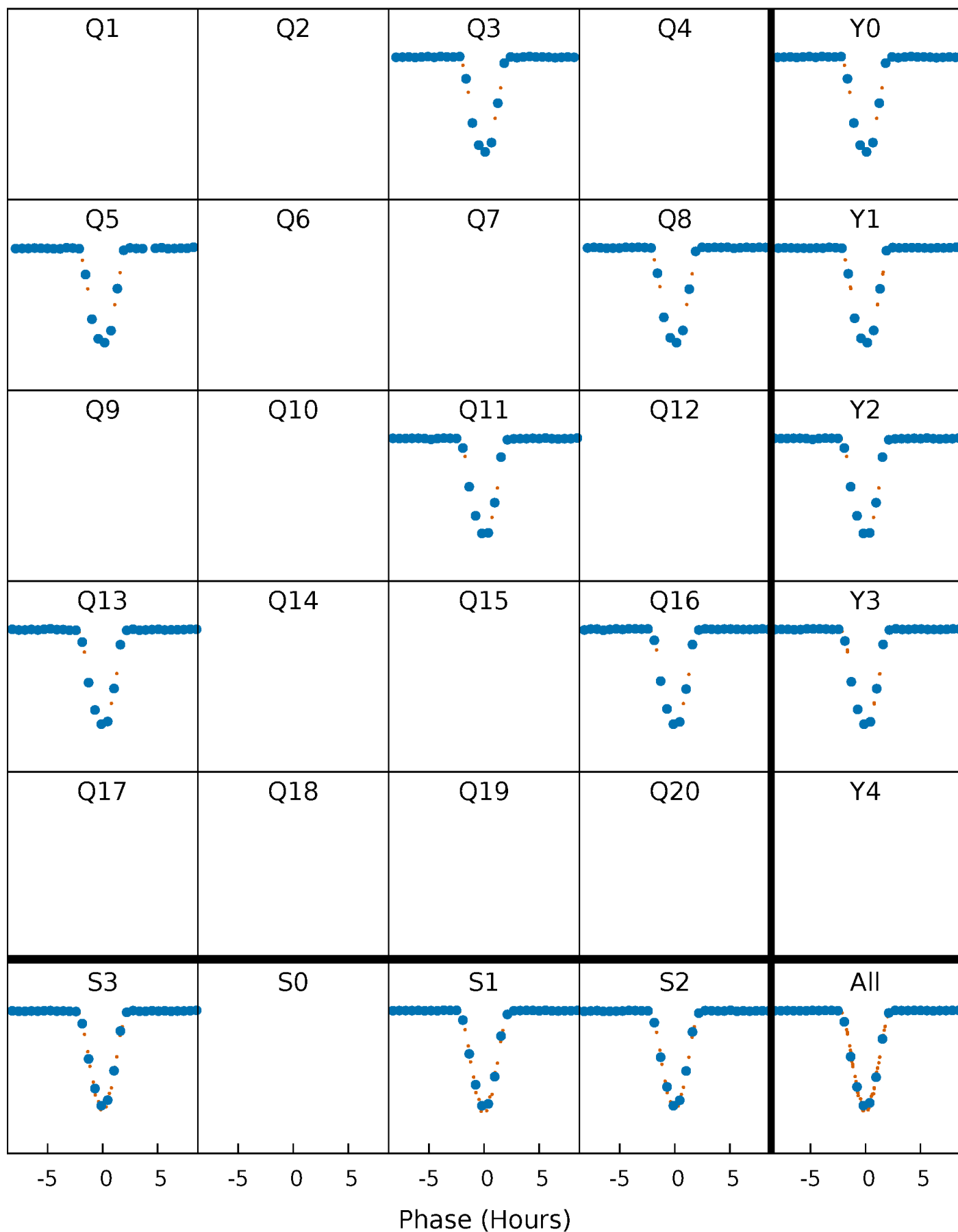


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



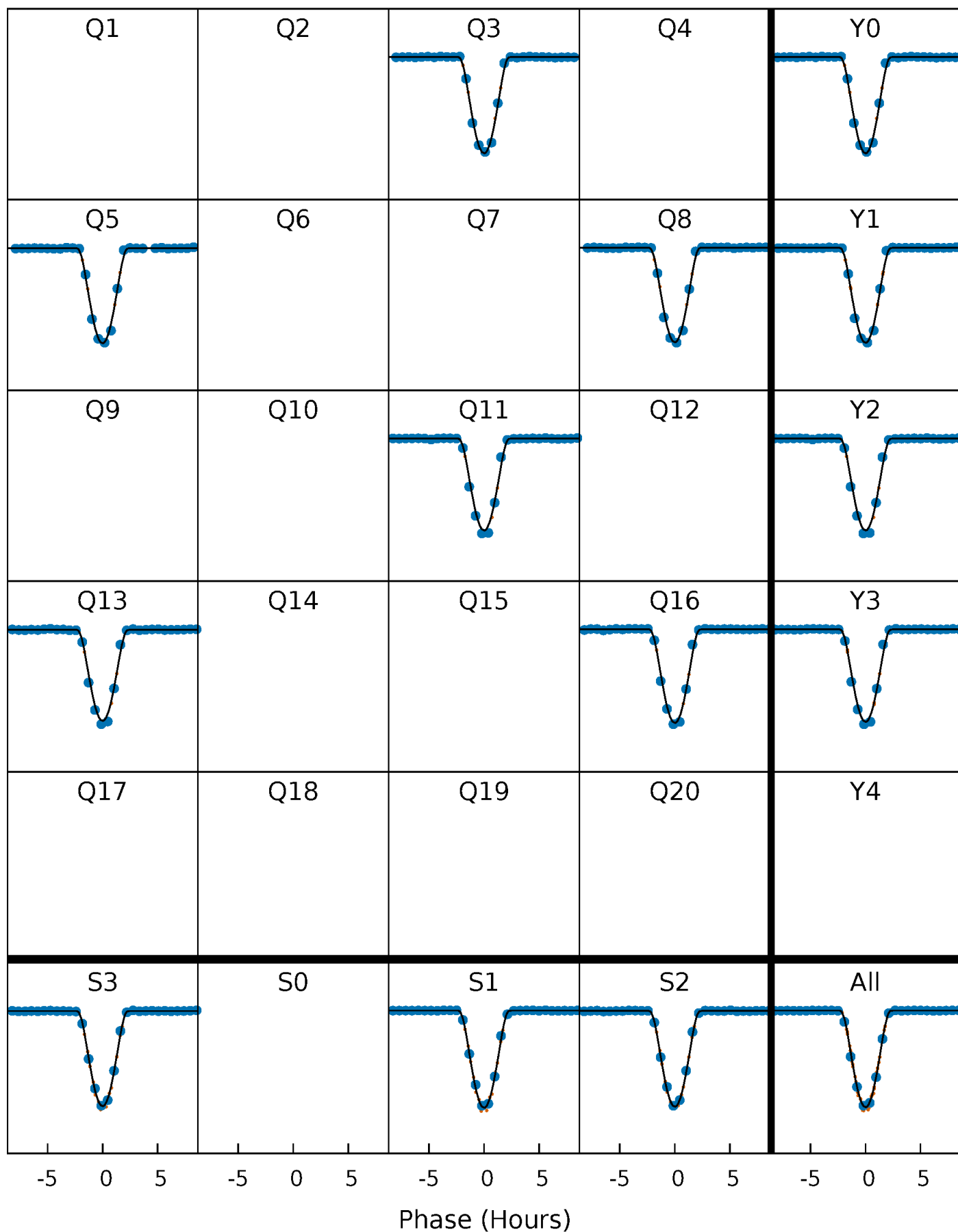
PDC Quarter-Phased Transit Curves

TCE 010259301-01 P=244.832665 Days $T_0=285.702728$ (BKJD)



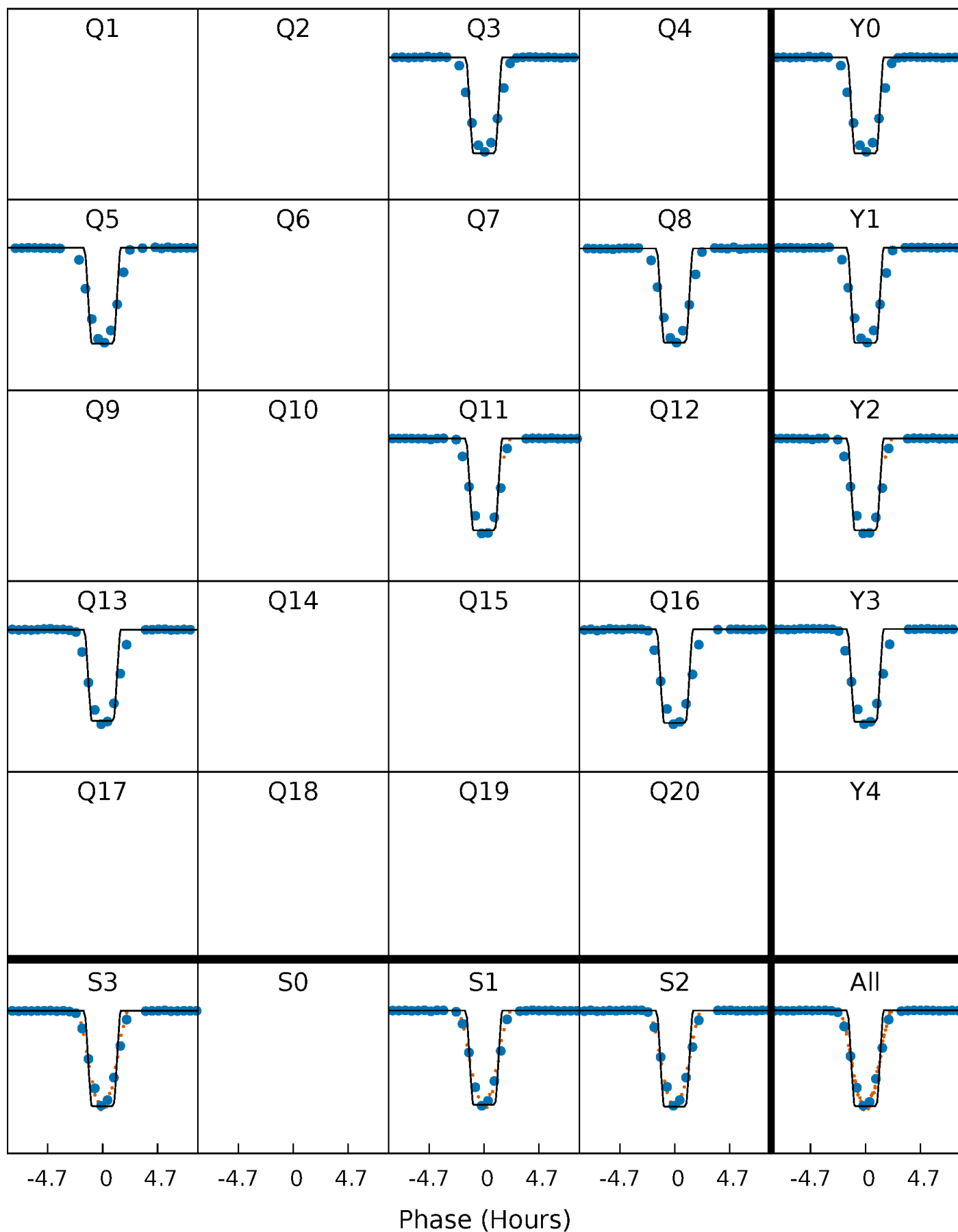
DV Quarter-Phased Transit Curves

TCE 010259301-01 P=244.832665 Days $T_0=285.702728$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

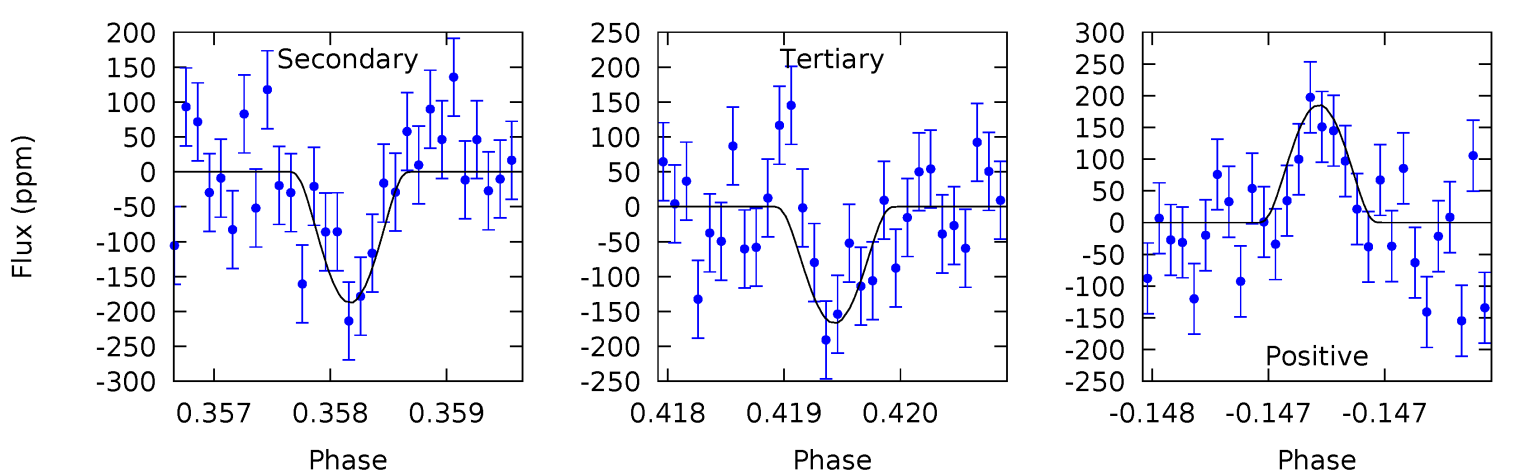
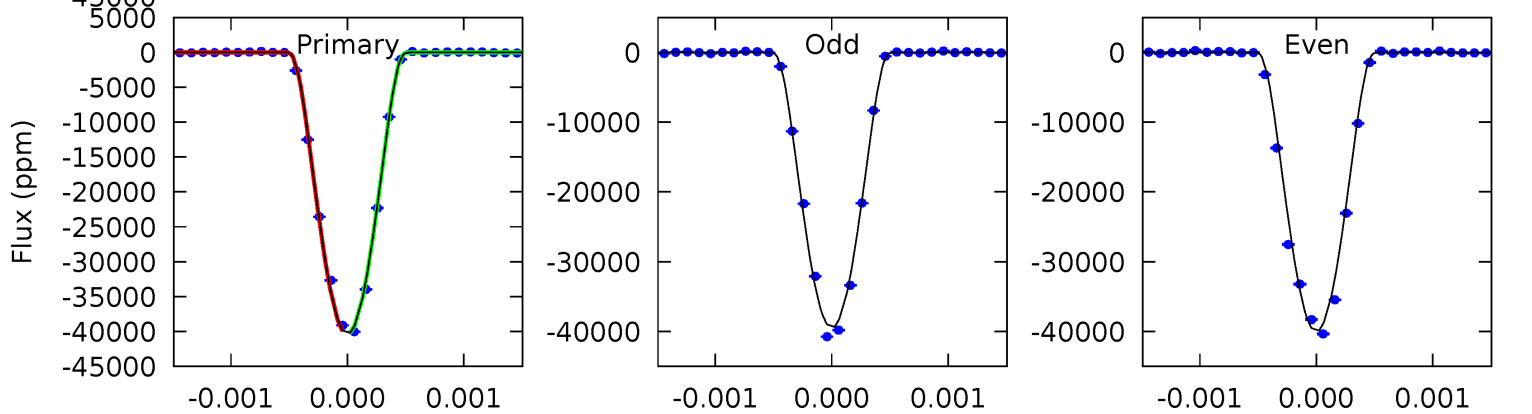
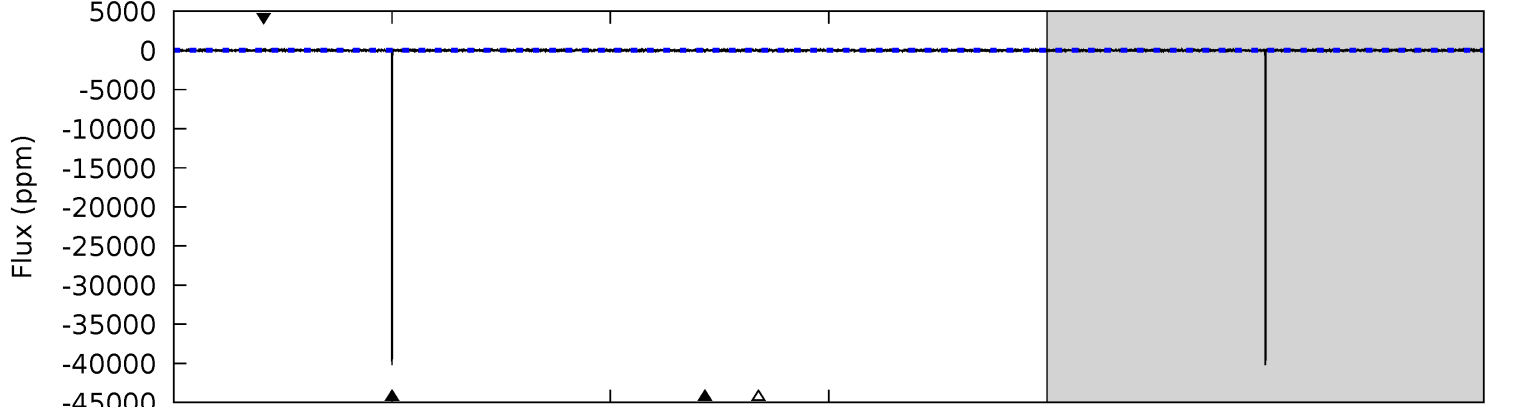
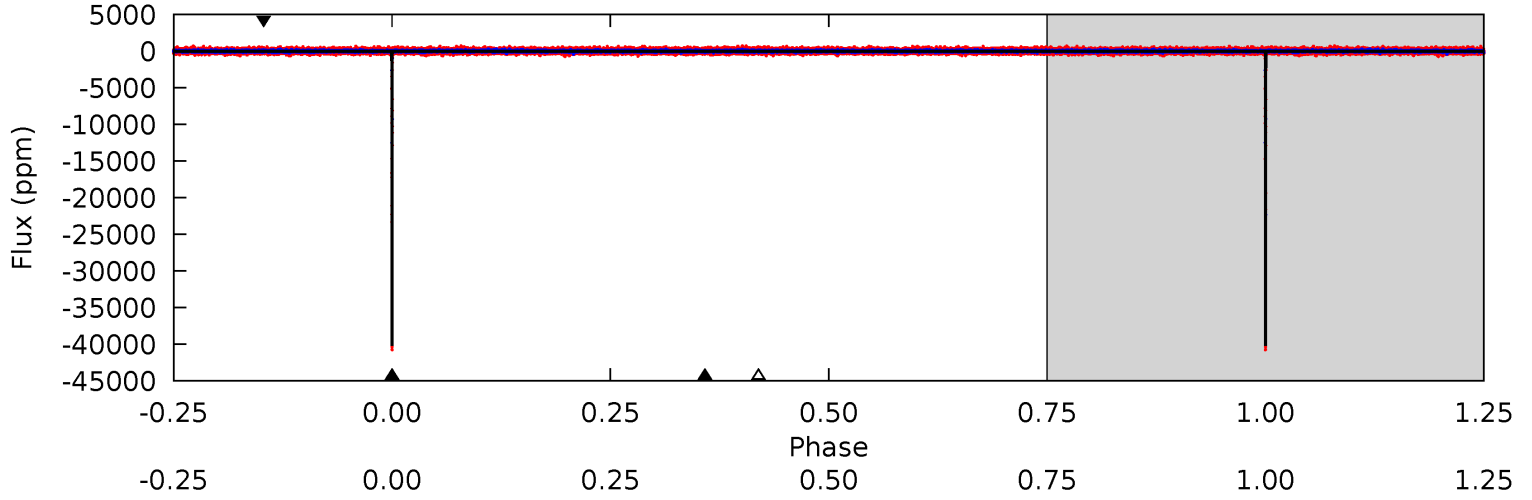
TCE 010259301-01 P=244.832325 Days $T_0=285.703564$ (BKJD)



DV Model-Shift Uniqueness Test

010259301-01, P = 244.832665 Days, E = 40.870063 Days

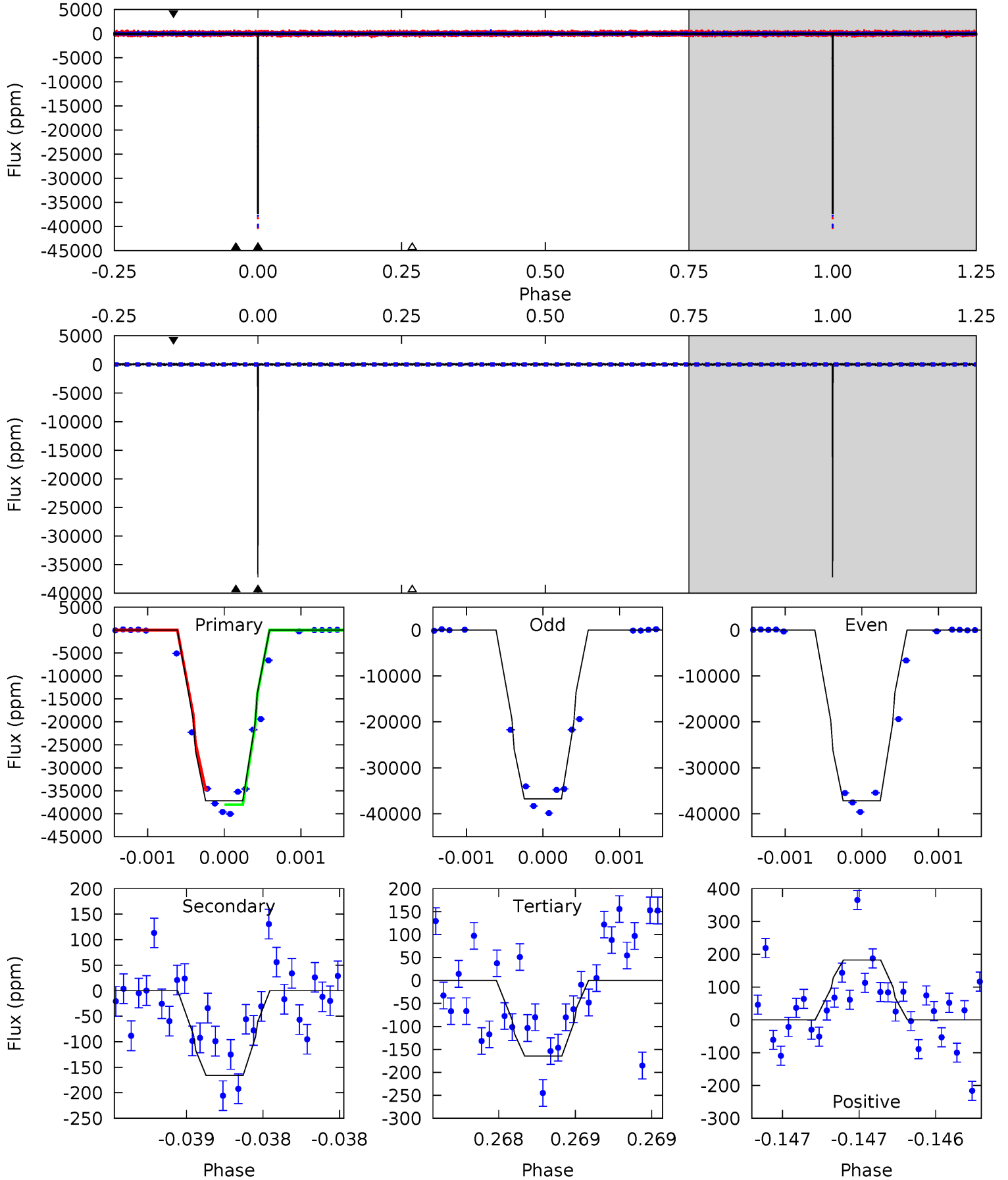
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 1752 | 8.16 | 7.26 | 8.06 | 5.49 | 3.36 | 1.84 | 1745 | 1744 | 0.90 | 0.10 | 11.0 | 1.01 | 0.00 | 0 |



Alt Model-Shift Uniqueness Test

010259301-01, P = 244.832325 Days, E = 40.871239 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 1048 | 4.67 | 4.63 | 5.14 | 5.57 | 3.47 | 3.31 | 1044 | 1043 | 0.04 | -0.47 | 5.64 | 1.00 | 0.00 | 0 |



Stellar Parameters For KIC 010259301

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6105^{+164}_{-182} | $4.443^{+0.067}_{-0.202}$ | $-0.240^{+0.300}_{-0.300}$ | $0.993^{+0.295}_{-0.126}$ | $0.997^{+0.142}_{-0.116}$ | $1.436^{+0.537}_{-0.759}$ |
| | +3%/-3% | +2%/-5% | +125%/-125% | +30%/-13% | +14%/-12% | +37%/-53% |
| 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 010259301-01 / KOI 3608.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|-------------------------|-------------------|--------------------|-------------------|
| DV | -187 ± 23 | $30.47^{+5.42}_{-2.94}$ | 437^{+31}_{-22} | 2291^{+50}_{-56} | 63^{+17}_{-17} |
| Alt. | -166 ± 35 | $22.37^{+3.86}_{-2.54}$ | 438^{+31}_{-22} | 2427^{+76}_{-90} | 101^{+40}_{-32} |

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 $A_{obs} \gg 1.0$

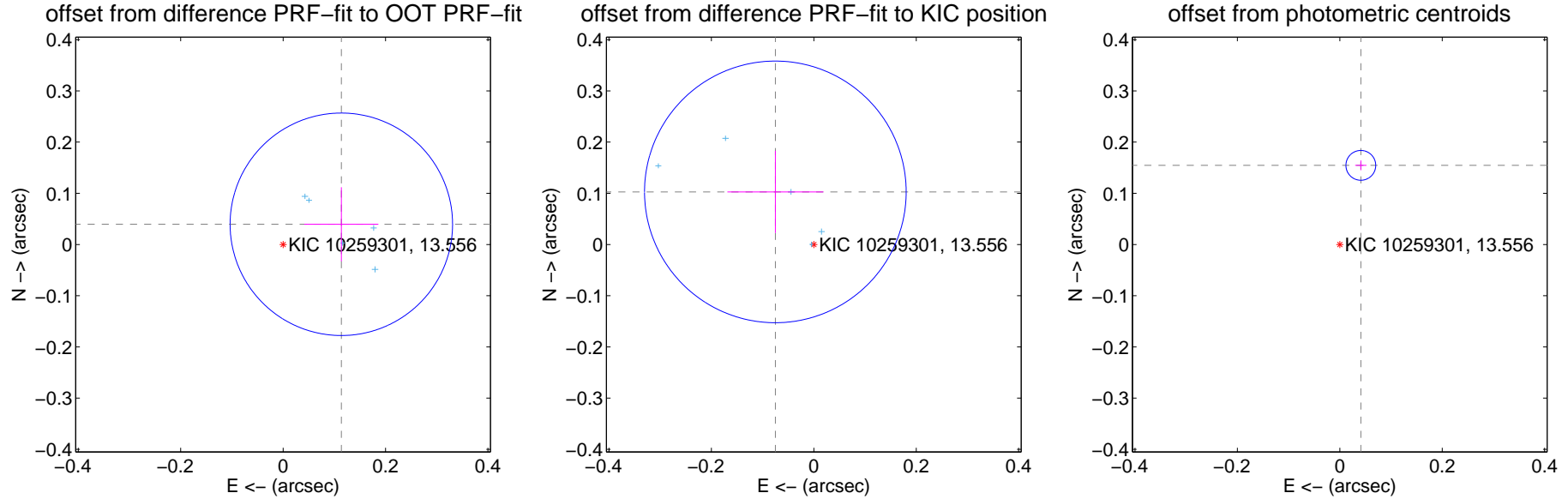
DV Centroid Data

Supplemental centroid analysis for 010259301-01. Kepler magnitude: 13.56. Transit SNR 690.23

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.120 ± 0.072 | 1.66 | -0.114 ± 0.072 | 0.039 ± 0.072 |
| PRF-fit source offset from KIC position | 0.127 ± 0.085 | 1.49 | 0.075 ± 0.094 | 0.103 ± 0.080 |
| photometric centroid source offset | 0.16 ± 0.01 | 16.48 | -0.04 ± 0.01 | 0.15 ± 0.01 |



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.

Q1 no difference image



Q1 no OOT image



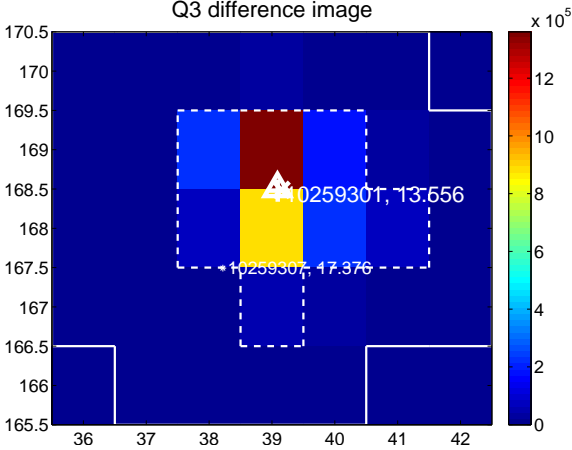
Q2 no difference image



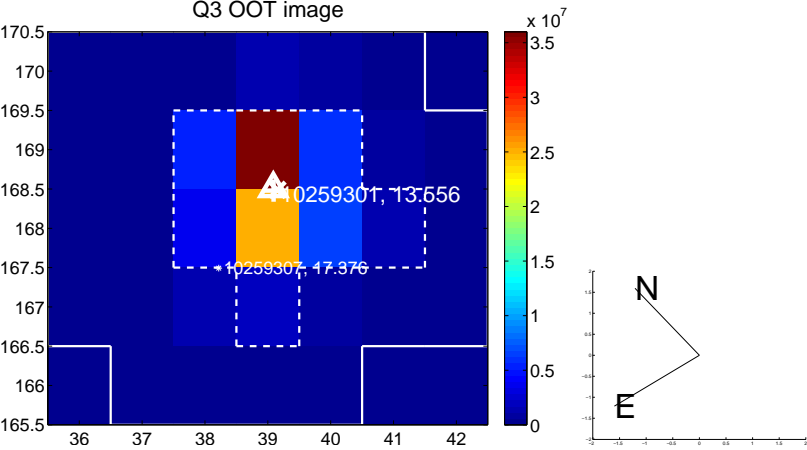
Q2 no OOT image



Q3 difference image



Q3 OOT image



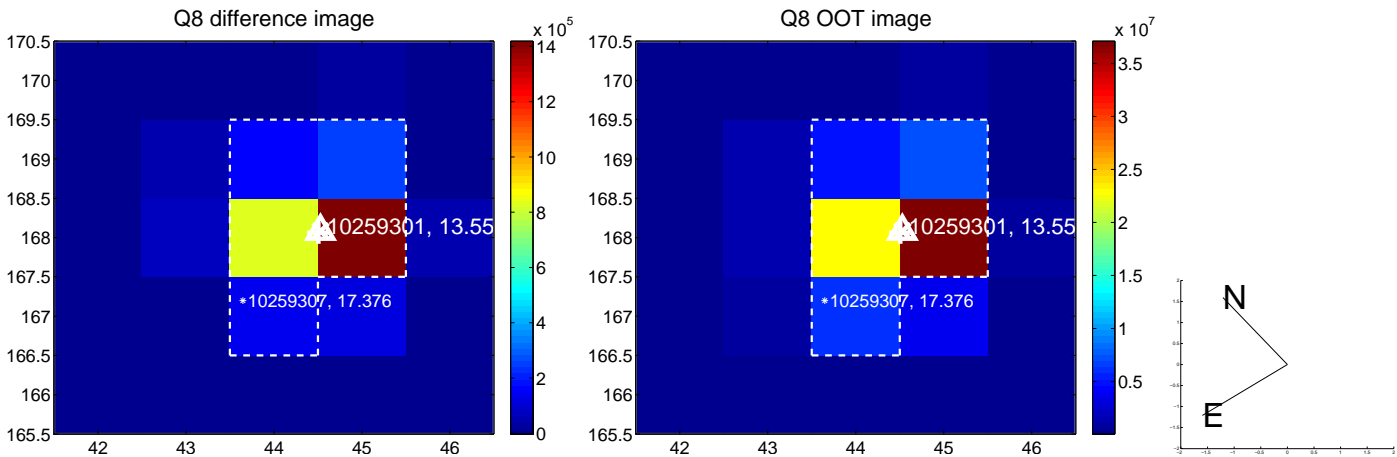
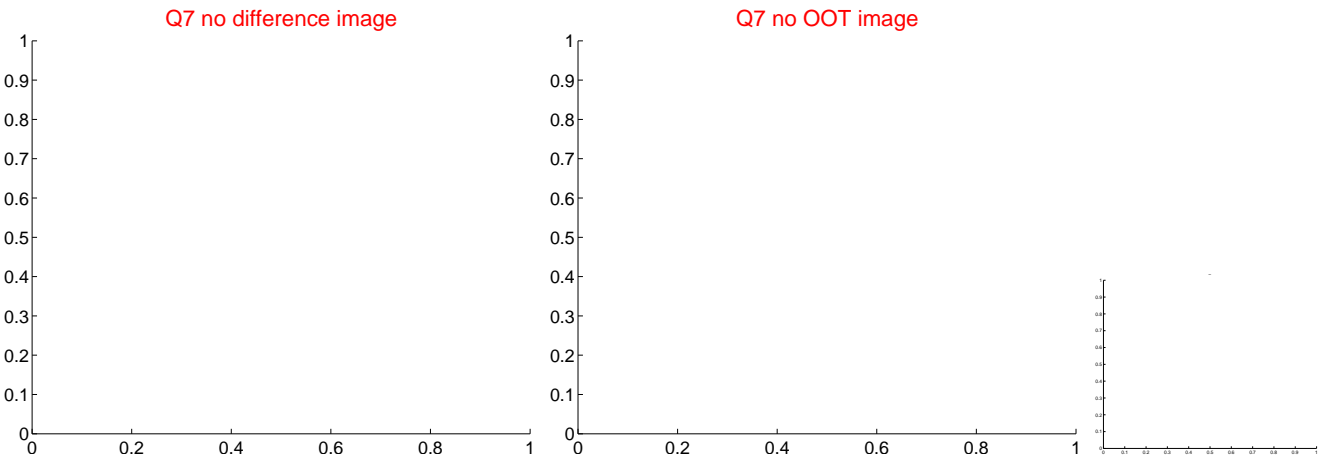
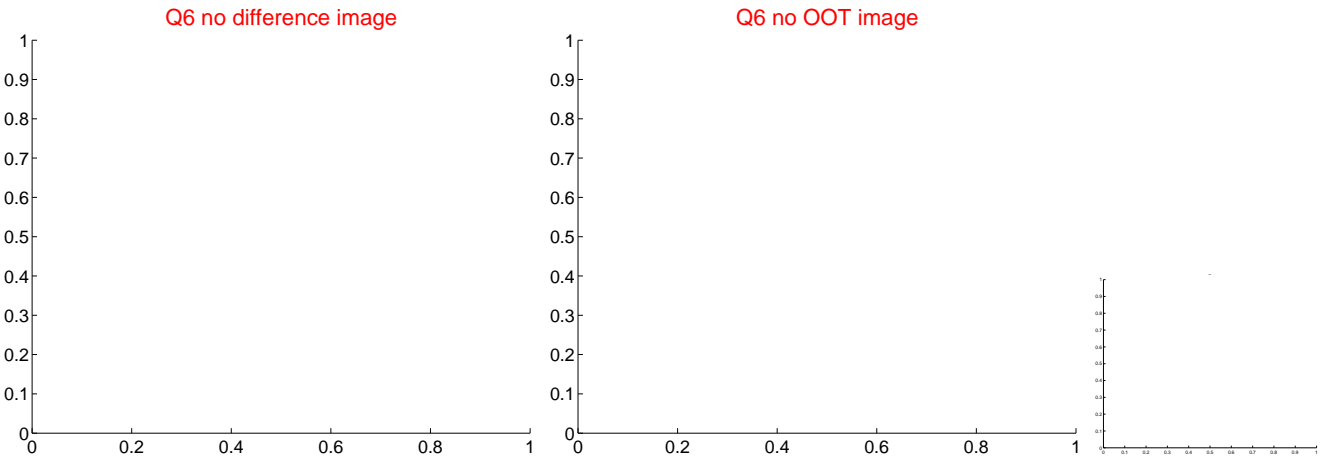
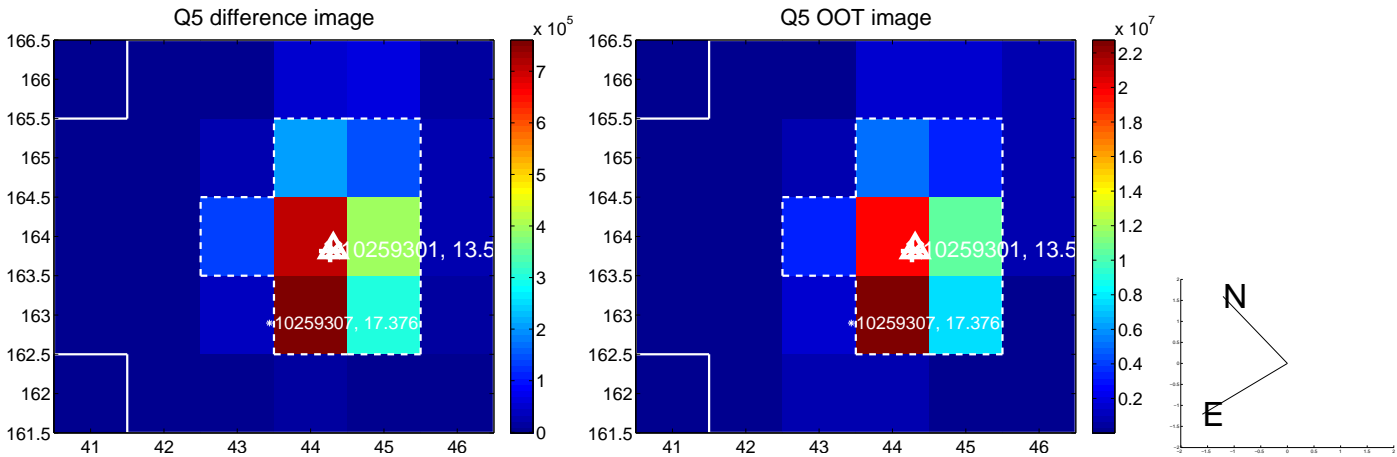
Q4 no difference image



Q4 no OOT image



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.

Q9 no difference image



Q9 no OOT image



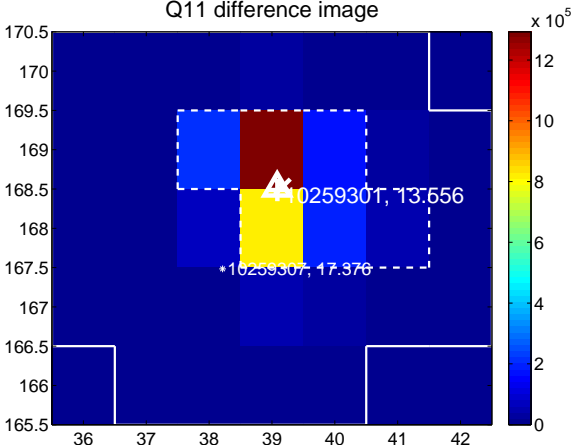
Q10 no difference image



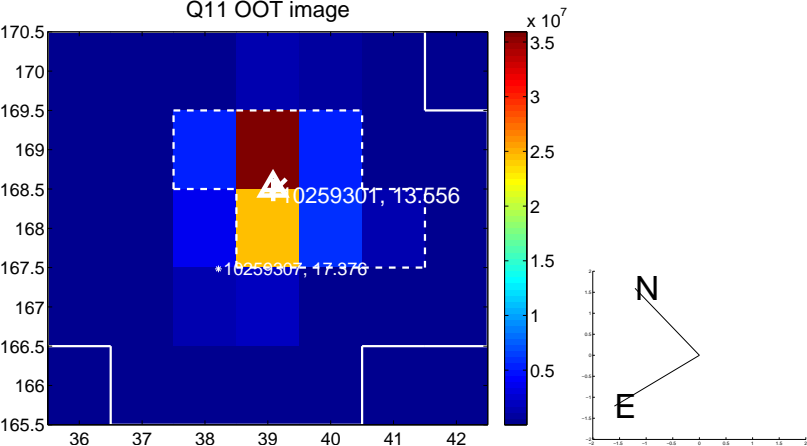
Q10 no OOT image



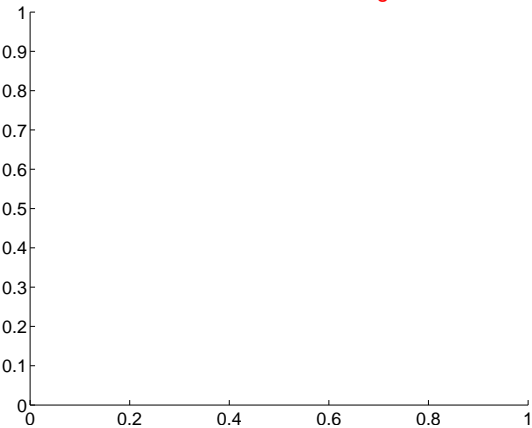
Q11 difference image



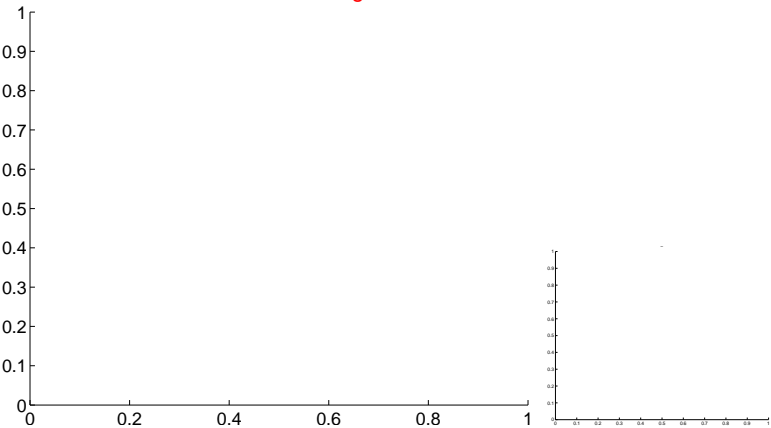
Q11 OOT image



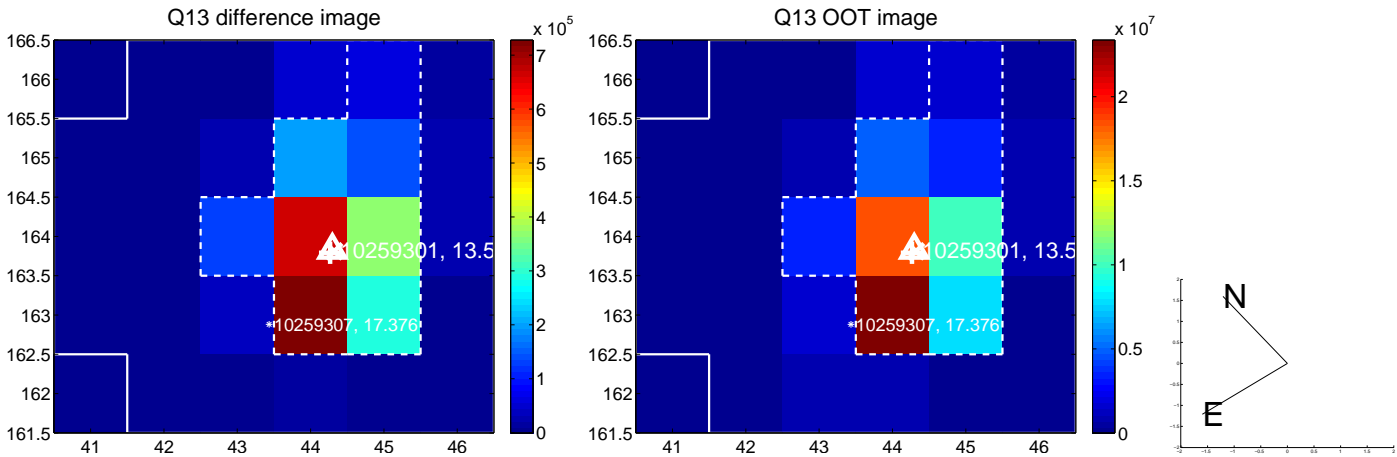
Q12 no difference image



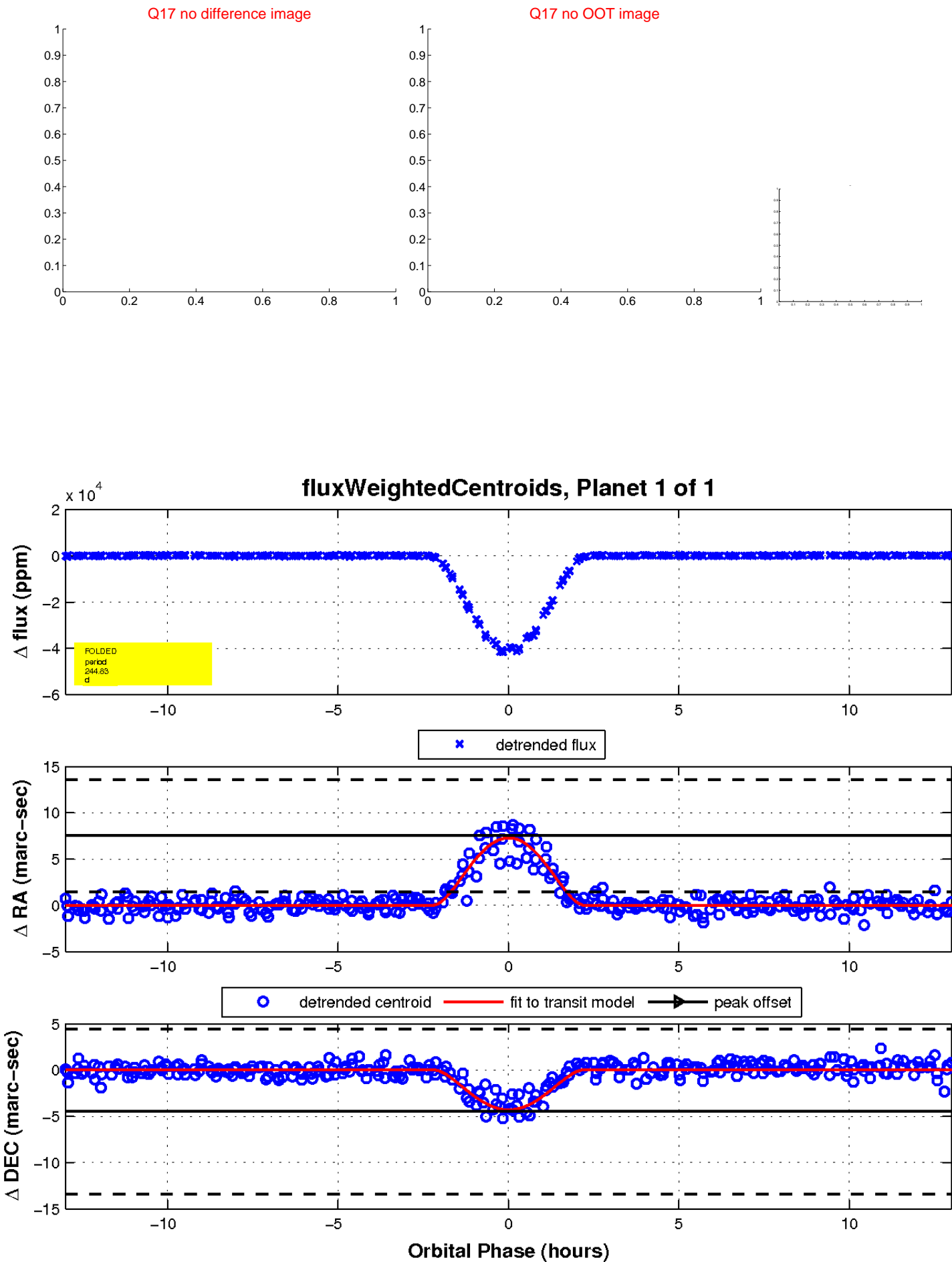
Q12 no OOT image



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

