

KIC 008507073

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 008507073-01 | OBS | 5527.01 | 209.063046 | 300.828181 | 250320.9 | 10.047 | 3250.9 | 1853.5 | 1.02 | 6130 | 64.66 | 2.78 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------|
| 008507073-01 | 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.

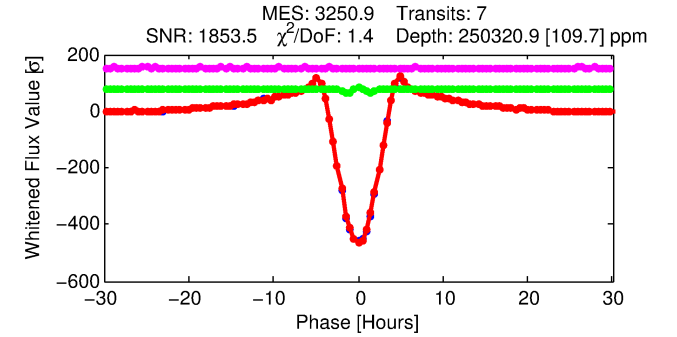
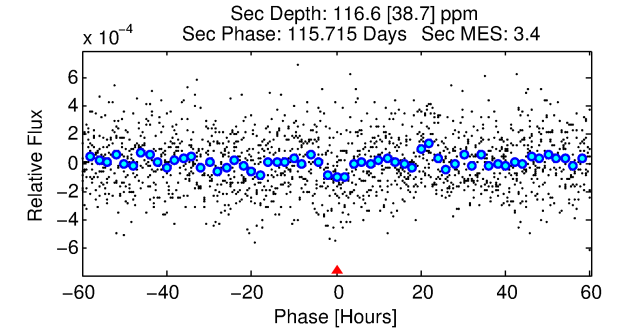
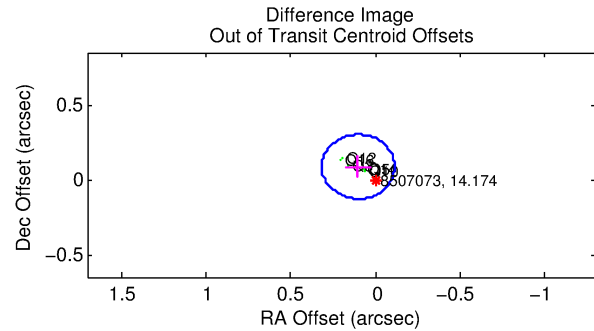
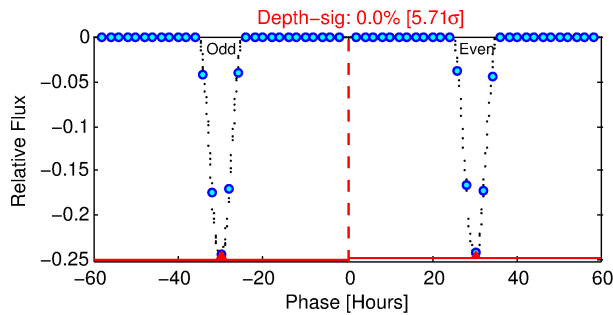
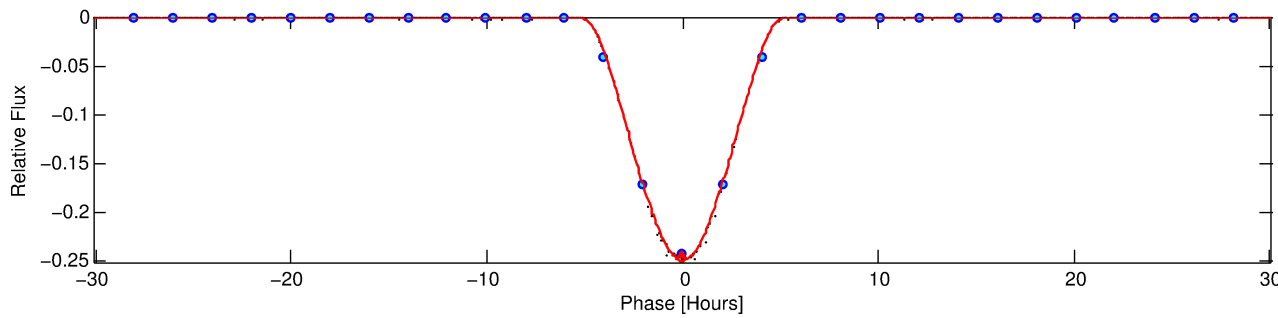
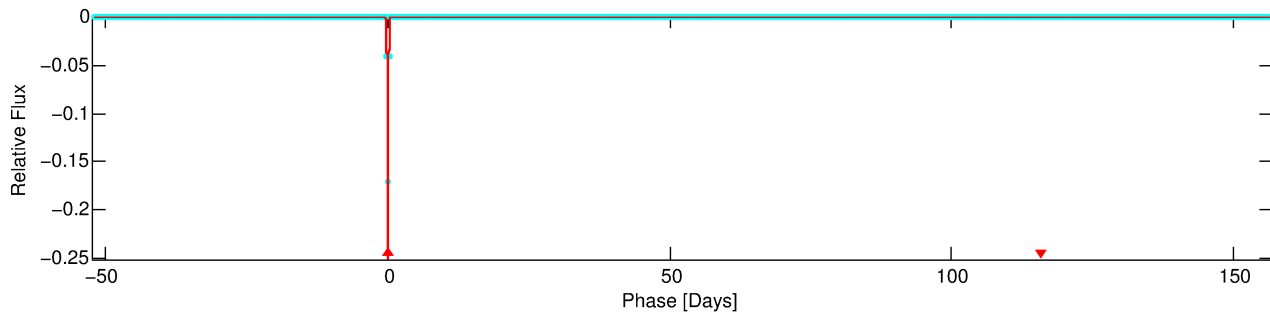
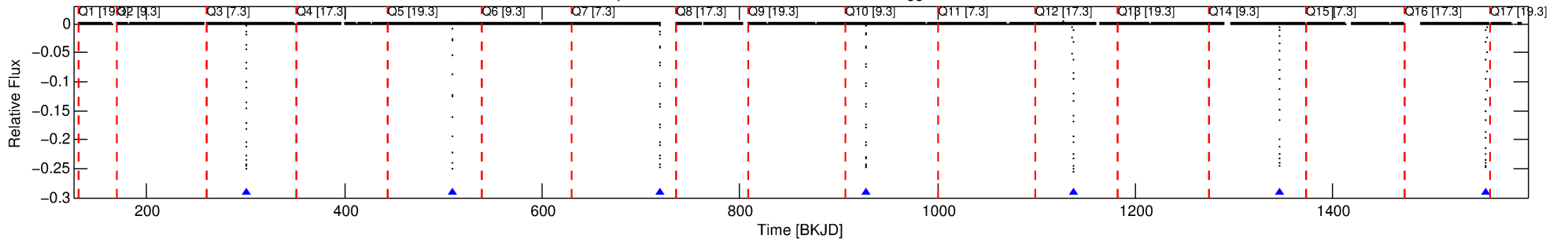
Ephemeris Match Information For 008507073-01

No Significant Match Found

DV One-Page Summary

KIC: 8507073 Candidate: 1 of 1 Period: 209.063 d
KOI: K05527.01 Corr: 0.994

Kp: 14.17 R*: 1.02 Rs Teff: 6130.0 K Logg: 4.42 Fe/H: -0.200



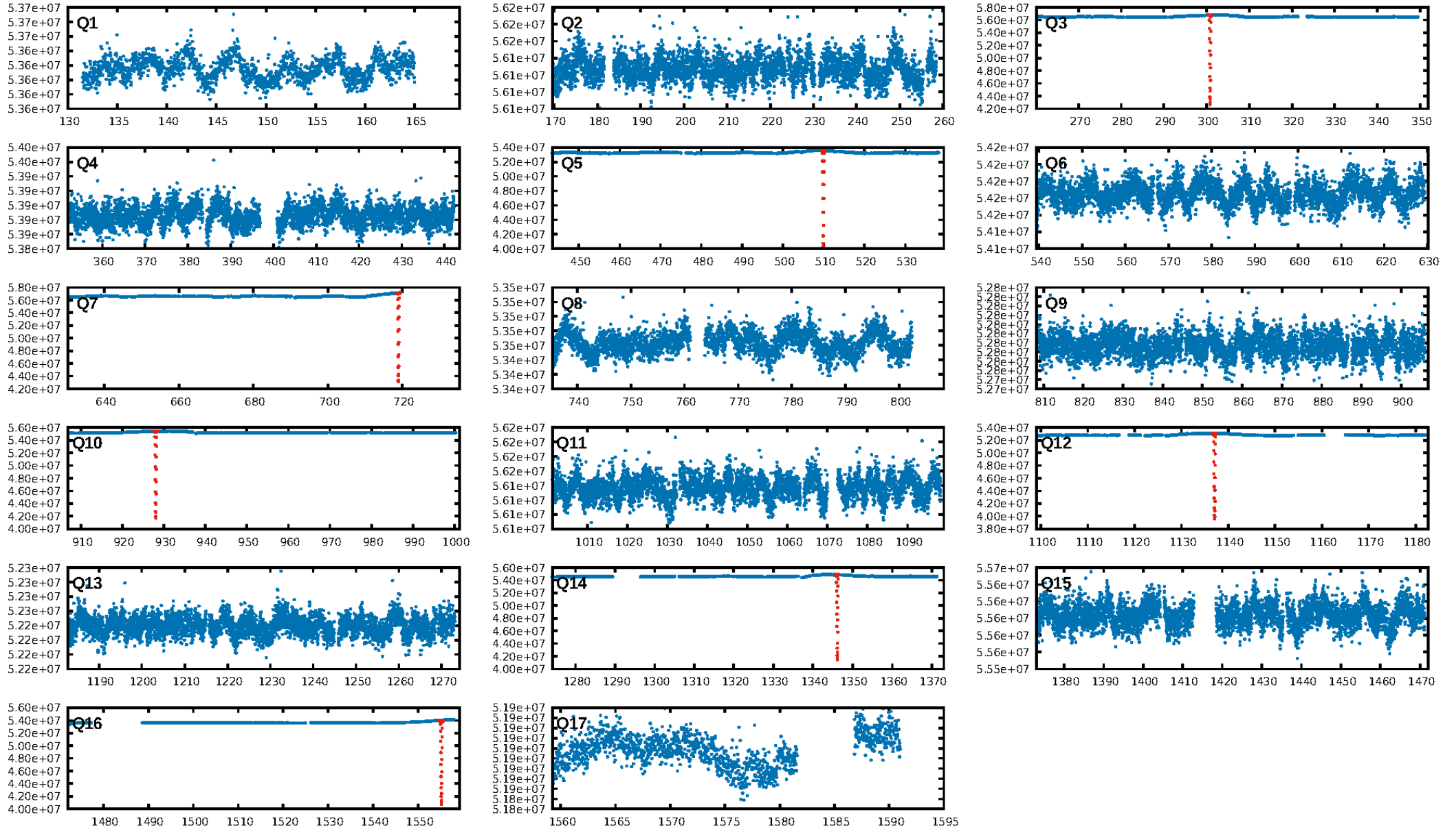
DV Fit Results:

Period = 209.06305 [0.00002] d
Epoch = 300.8282 [0.0001] BKJD
Rp/R* = 0.5786 [0.0235]
a/R* = 223.16 [1.21]
b = 0.72 [0.04]
Seff = 2.78 [1.10]
Teff = 329 [33] K
Rp = 64.66 [20.37] Re
a = 0.6909 [0.1797] AU
Ag = 7.33 [3.71] [1.70σ]
Teffp = 837 [77] K [6.1σ]

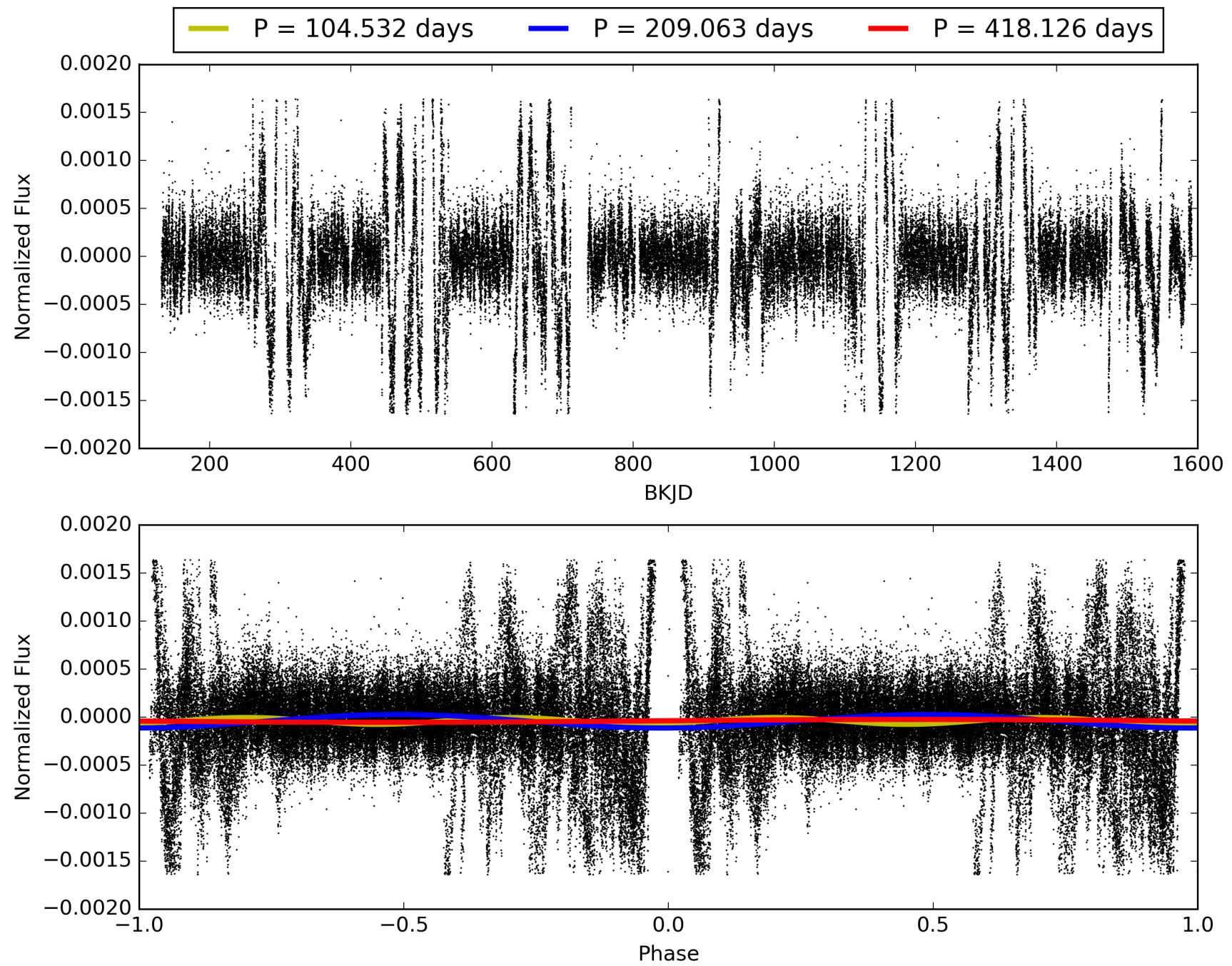
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 5.546
Centroid-sig: 0.0%
Centroid-so: 0.109 arcsec [72.25σ]
OotOffset-rm: 0.134 arcsec [1.87σ]
KicOffset-rm: 0.083 arcsec [1.23σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 008507073-01, PDC Light Curves

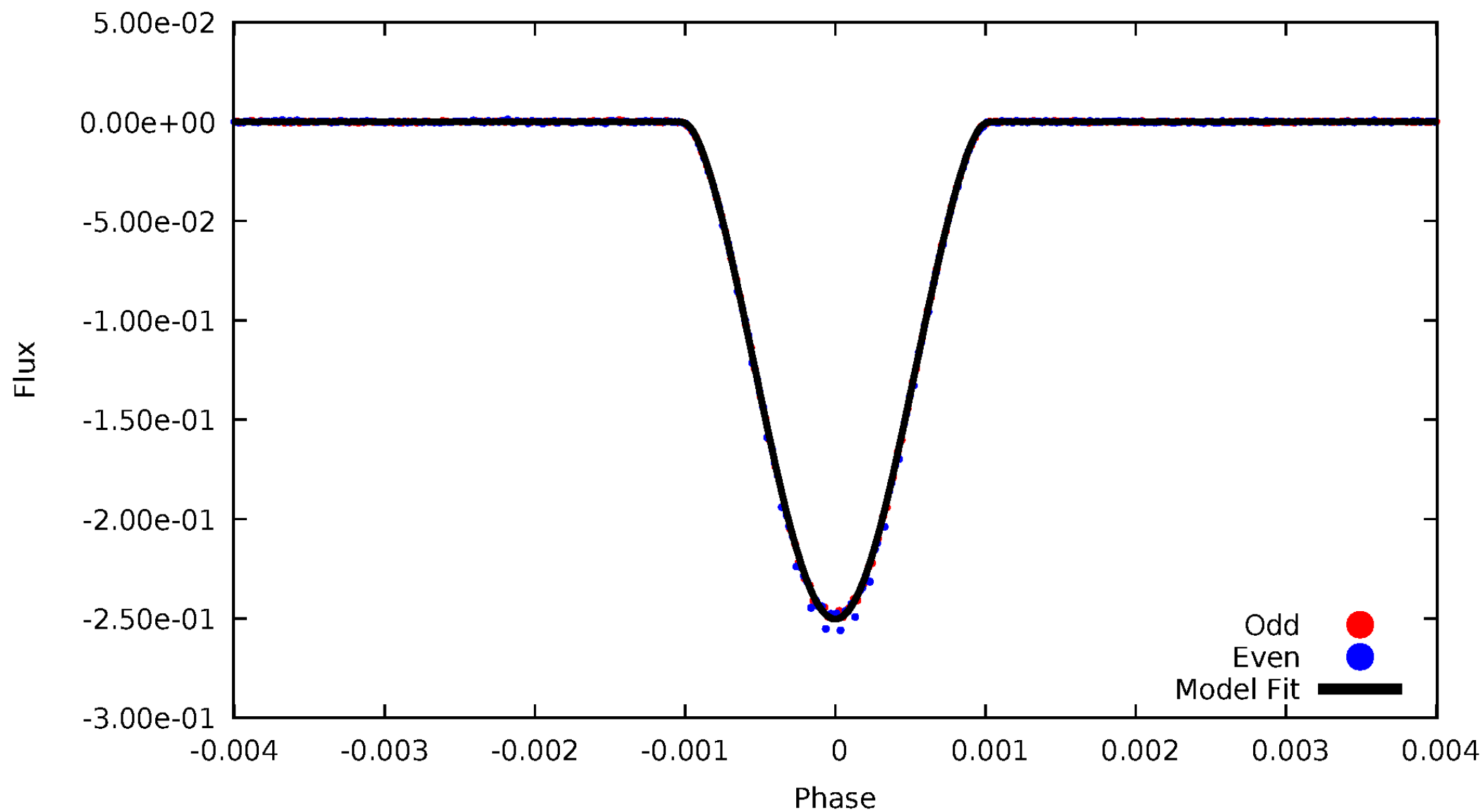


TCE 008507073-01



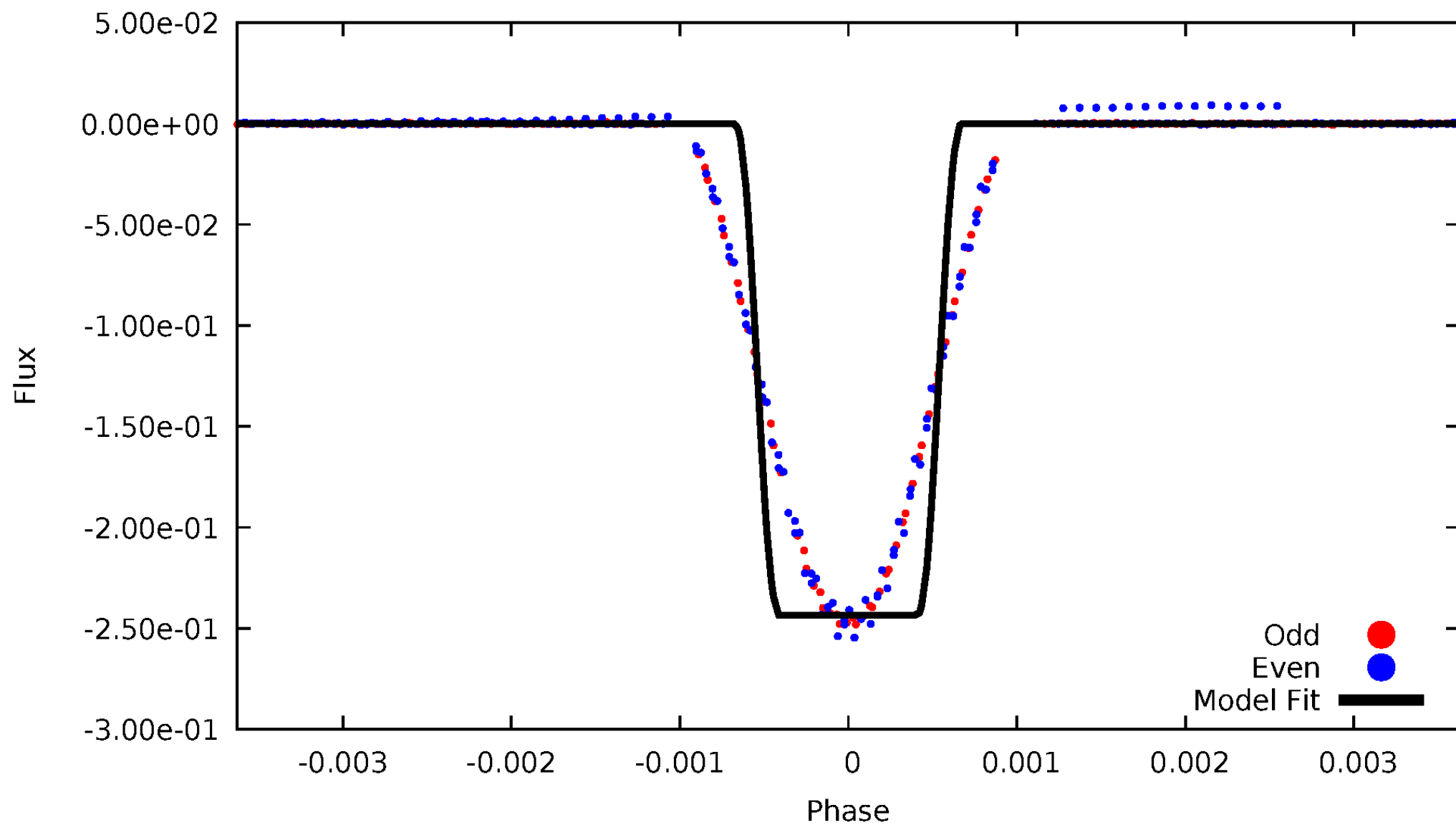
DV Odd/Even

TCE 008507073-01



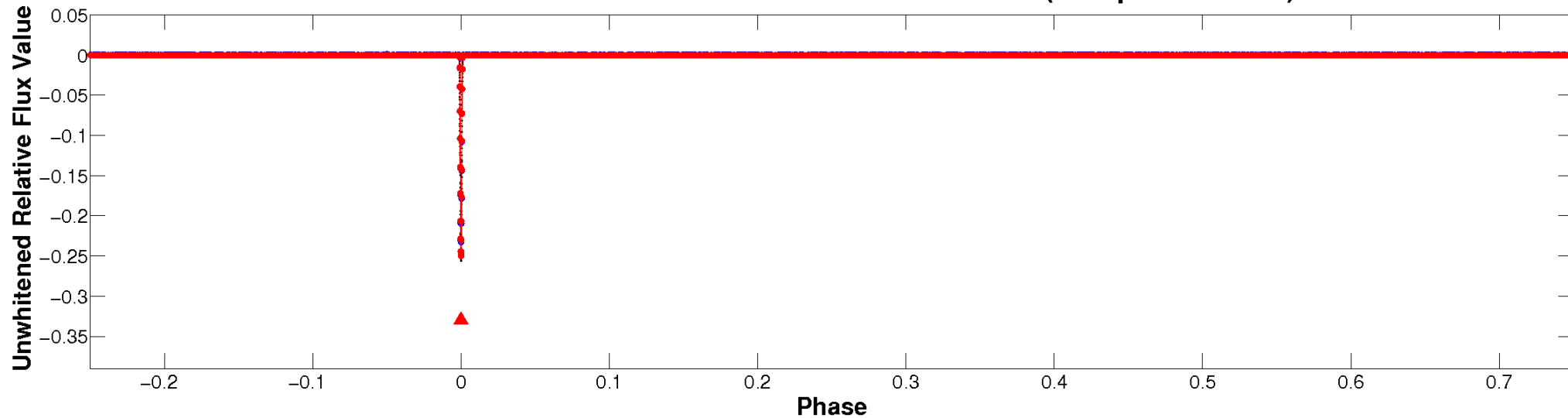
ALT Odd/Even

TCE 008507073-01

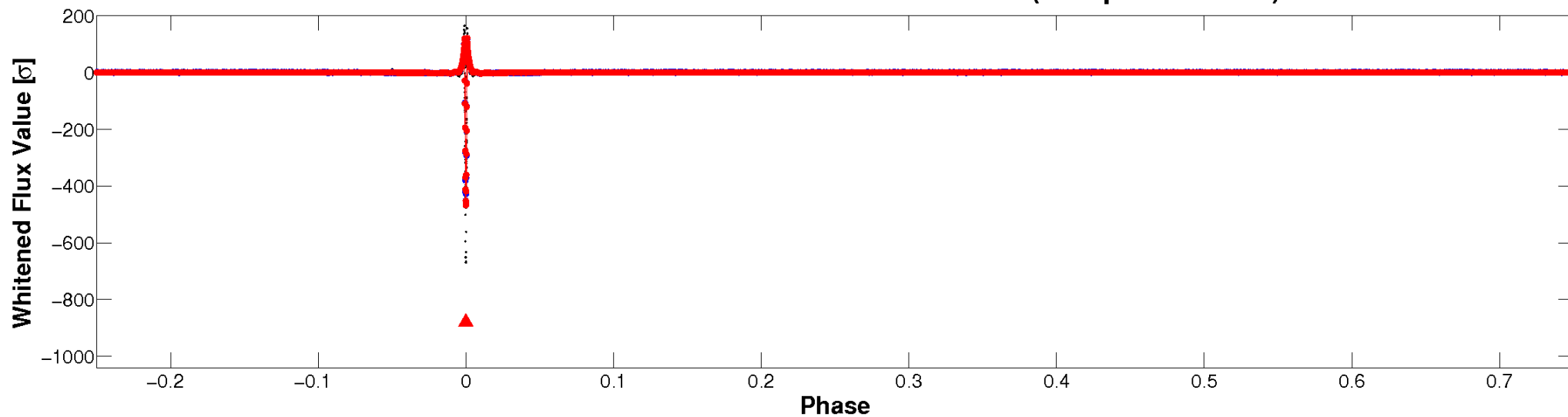


Non-Whitened Vs. Whitened Light Curve

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

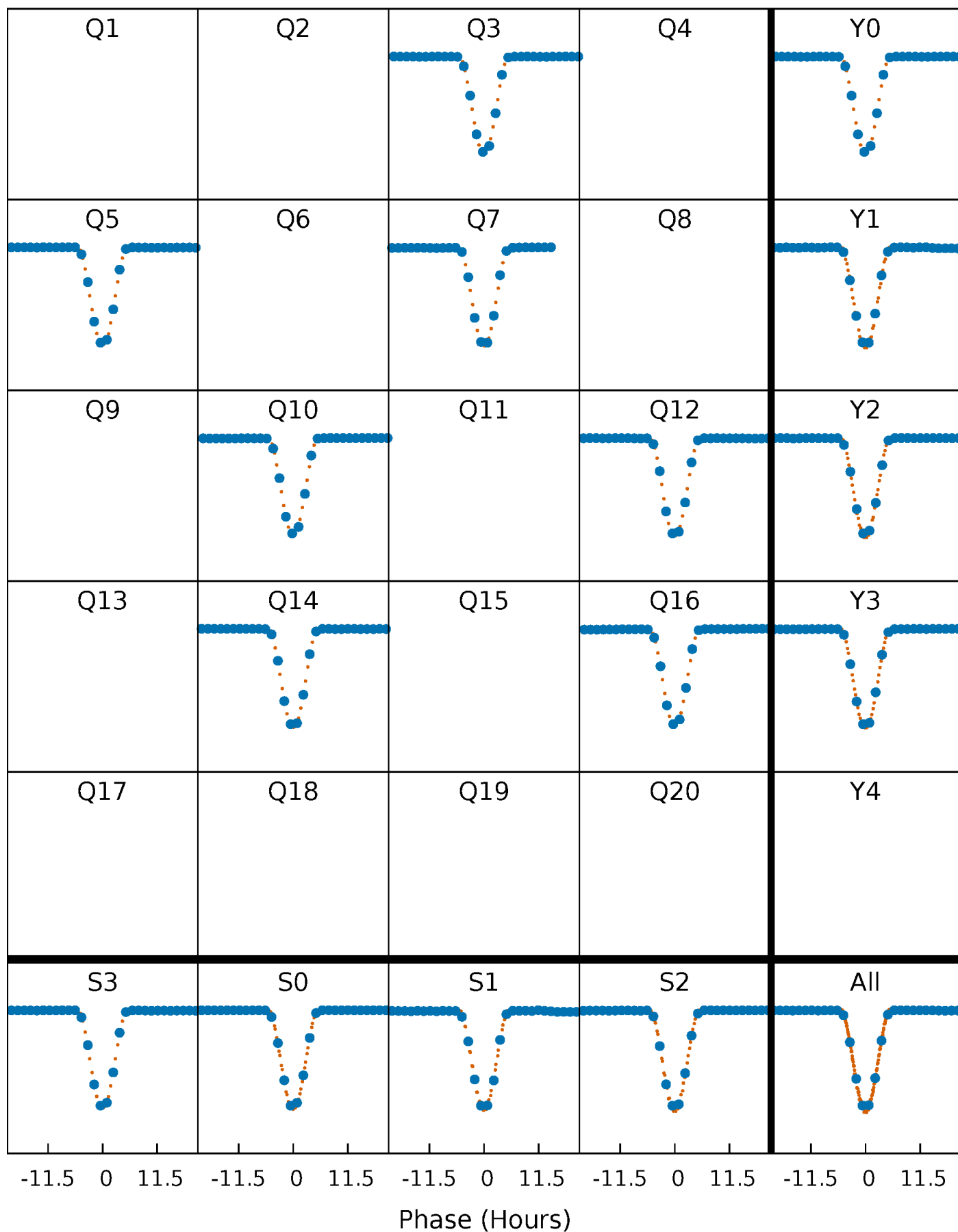


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



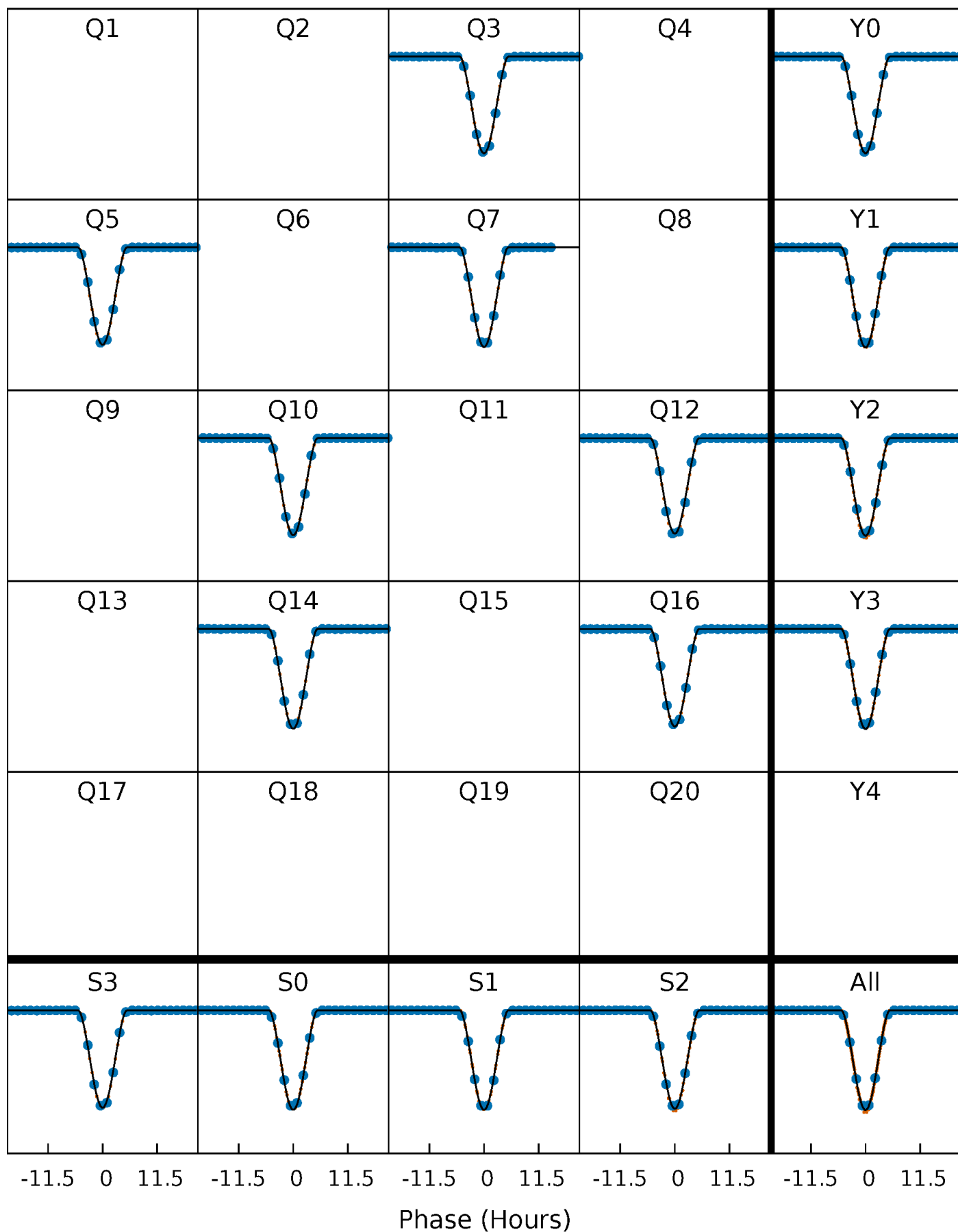
PDC Quarter-Phased Transit Curves

TCE 008507073-01 P=209.063046 Days $T_0=300.828181$ (BKJD)



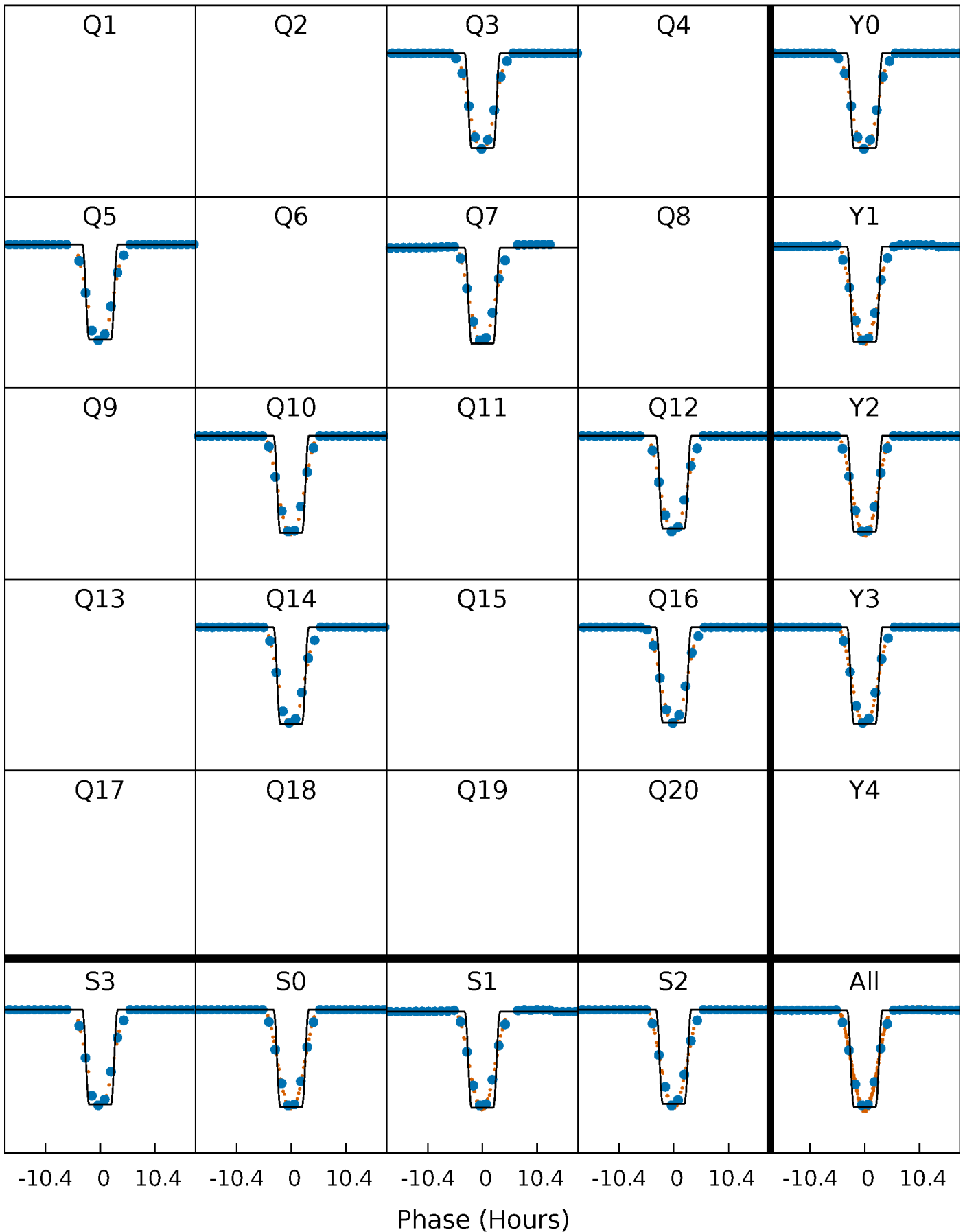
DV Quarter-Phased Transit Curves

TCE 008507073-01 P=209.063046 Days $T_0=300.828181$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

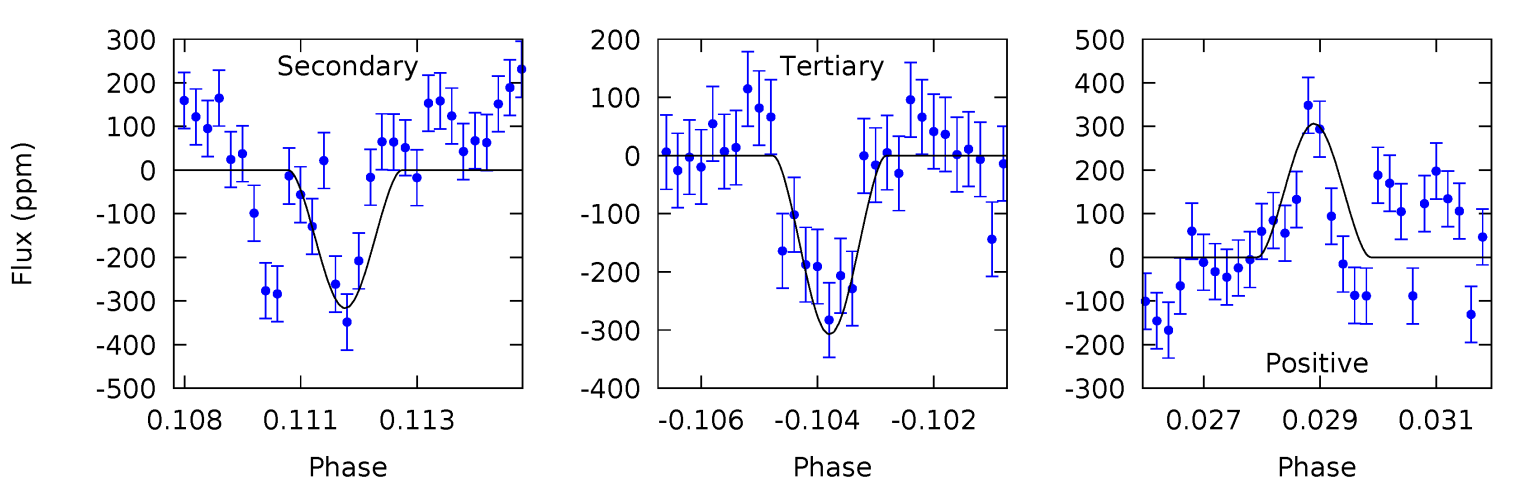
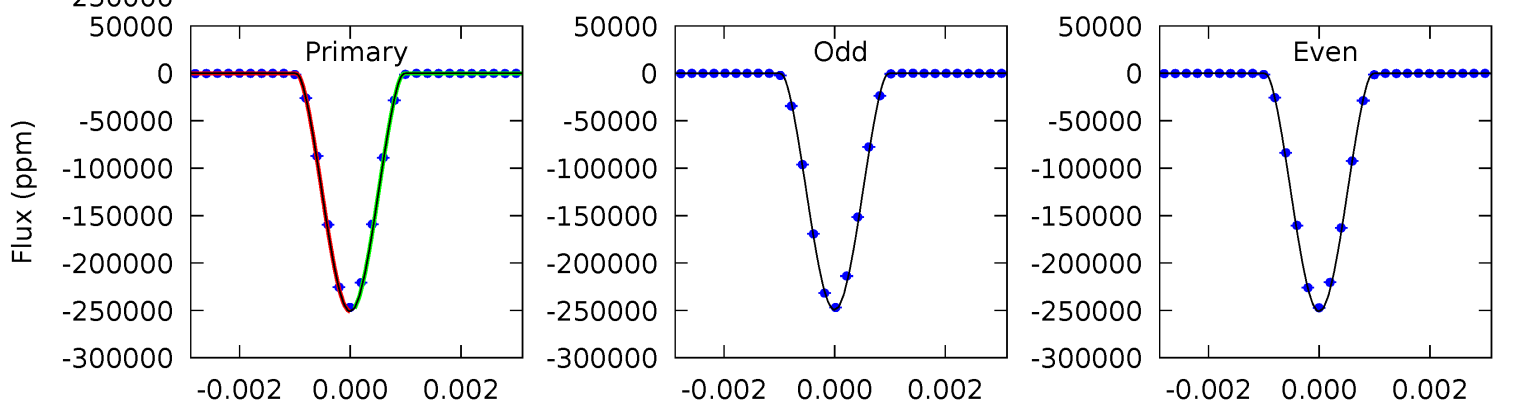
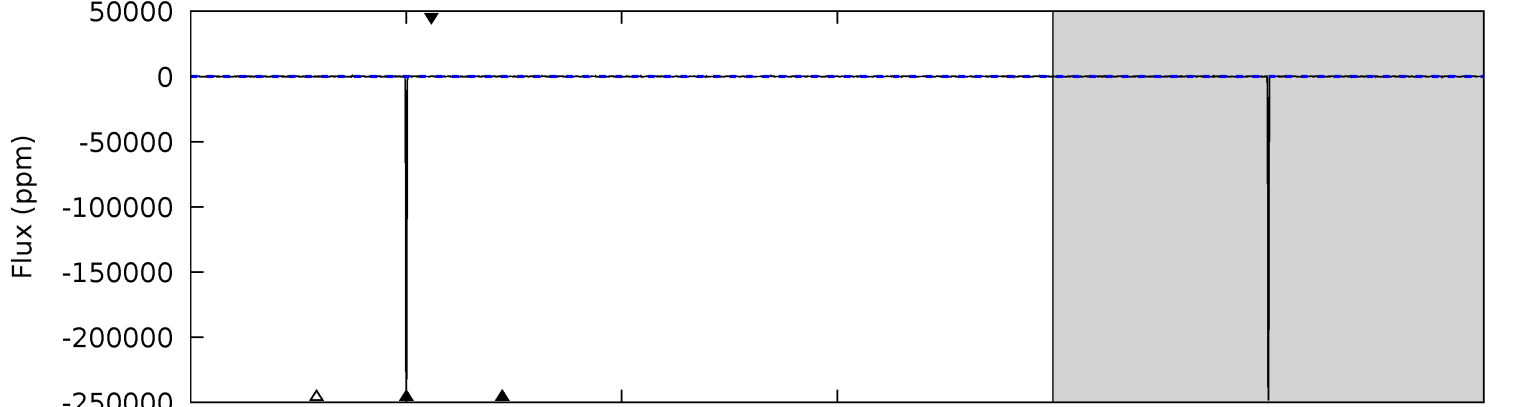
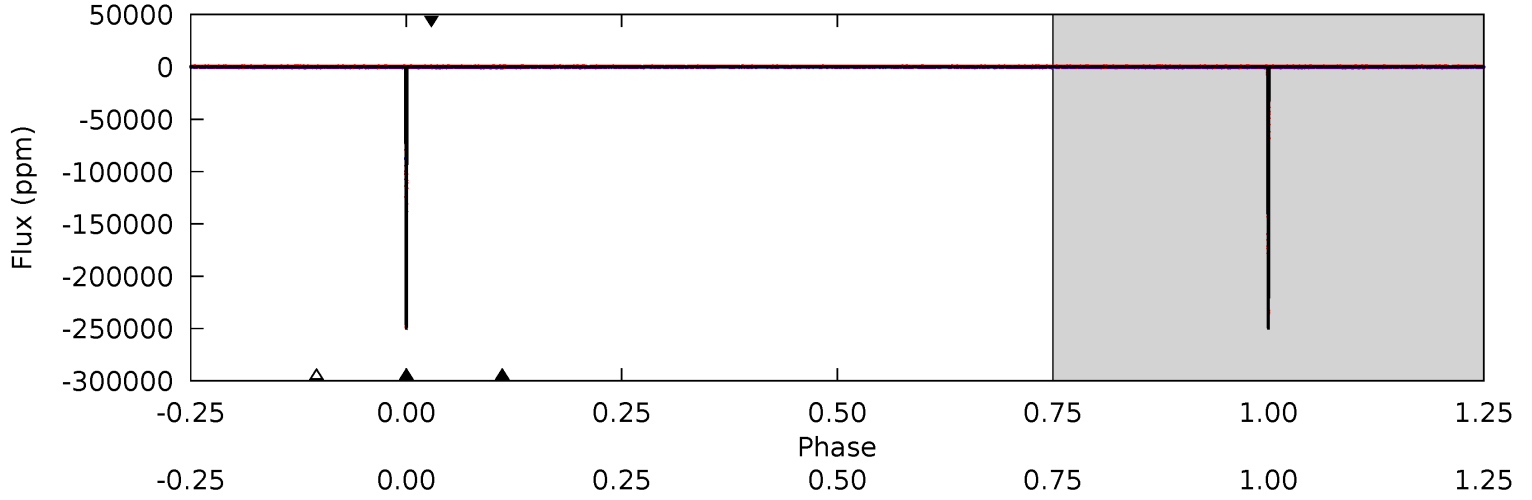
TCE 008507073-01 P=209.062564 Days $T_0=300.829774$ (BKJD)



DV Model-Shift Uniqueness Test

008507073-01, P = 209.063046 Days, E = 91.765135 Days

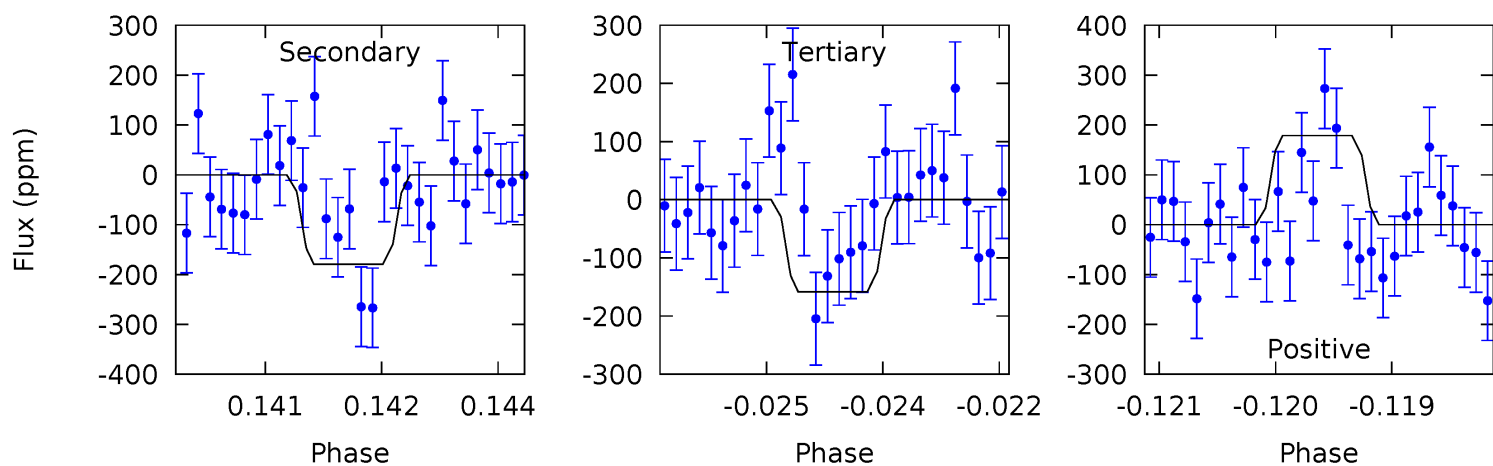
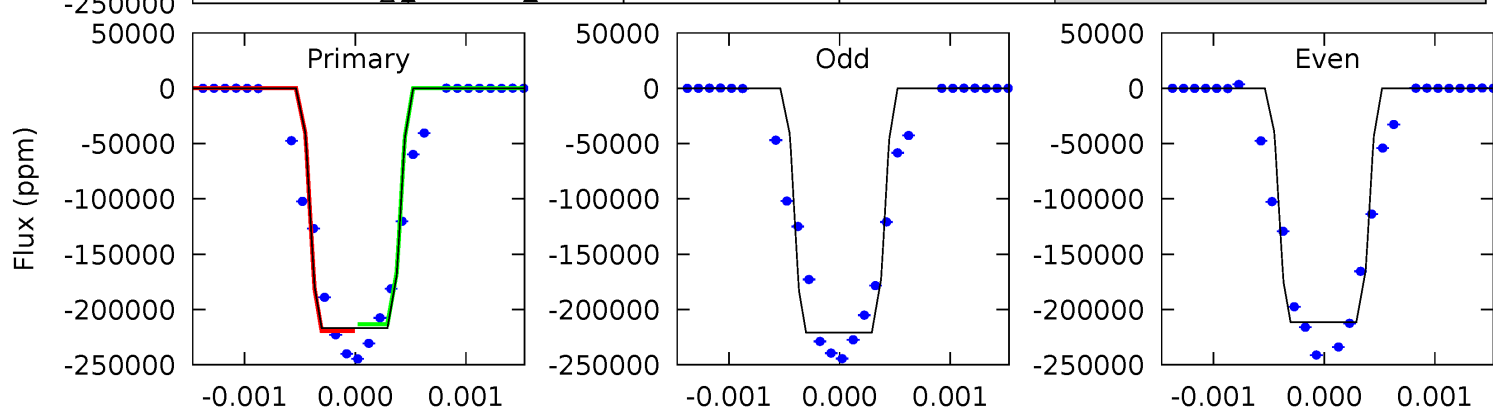
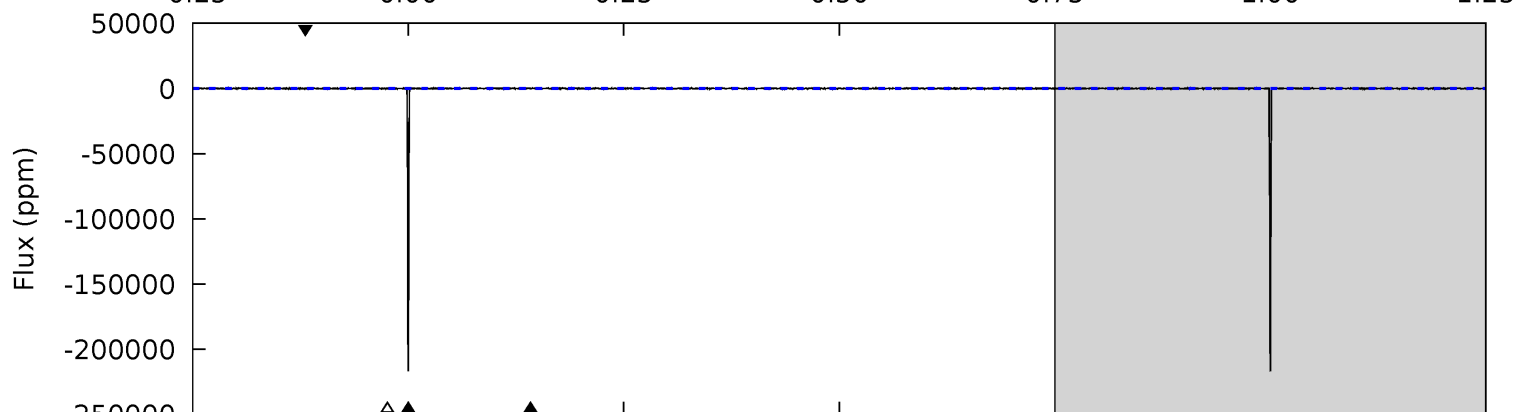
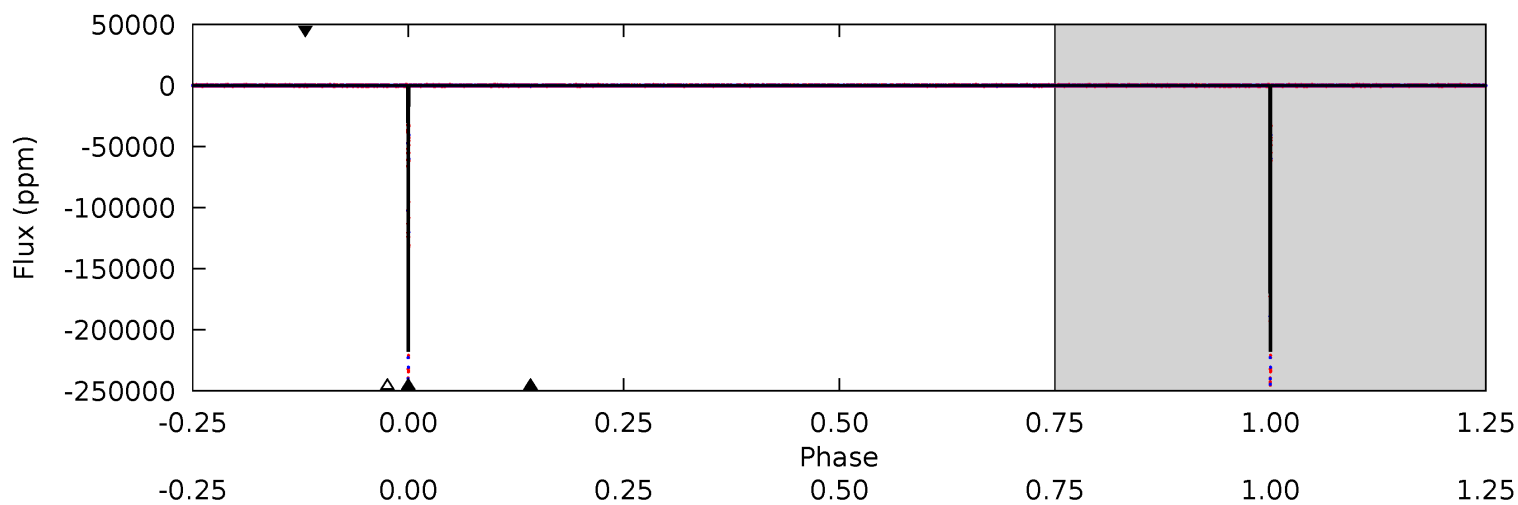
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10600 | 13.4 | 13.0 | 12.9 | 5.32 | 3.08 | 3.21 | 10587 | 10587 | 0.39 | 0.42 | 35.6 | 1.00 | 0.00 | 68.5 |



Alt Model-Shift Uniqueness Test

008507073-01, P = 209.062564 Days, E = 91.767210 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6891 | 5.69 | 5.03 | 5.68 | 5.40 | 3.21 | 4.74 | 6886 | 6886 | 0.65 | 0.01 | 150.3 | 1.00 | 0.00 | 91.3 |



Stellar Parameters For KIC 008507073

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6130^{+164}_{-200} | $4.420^{+0.072}_{-0.203}$ | $-0.200^{+0.250}_{-0.350}$ | $1.024^{+0.320}_{-0.137}$ | $1.005^{+0.153}_{-0.125}$ | $1.318^{+0.493}_{-0.691}$ |
| | +3%/-3% | +2%/-5% | +125%/-175% | +31%/-13% | +15%/-12% | +37%/-52% |
| 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 008507073-01 / KOI 5527.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|--------------------------|----------------------|----------------------|------------------|
| DV | -313 ± 23 | $67.46^{+10.79}_{-7.76}$ | 469^{+34}_{-24} | 2059^{+33}_{-35} | 18^{+4}_{-4} |
| Alt. | -179 ± 31 | $56.53^{+9.24}_{-5.58}$ | 467^{+30}_{-23} | 2004^{+46}_{-50} | 14^{+4}_{-4} |

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 $A_{\text{obs}} \gg 1.0$

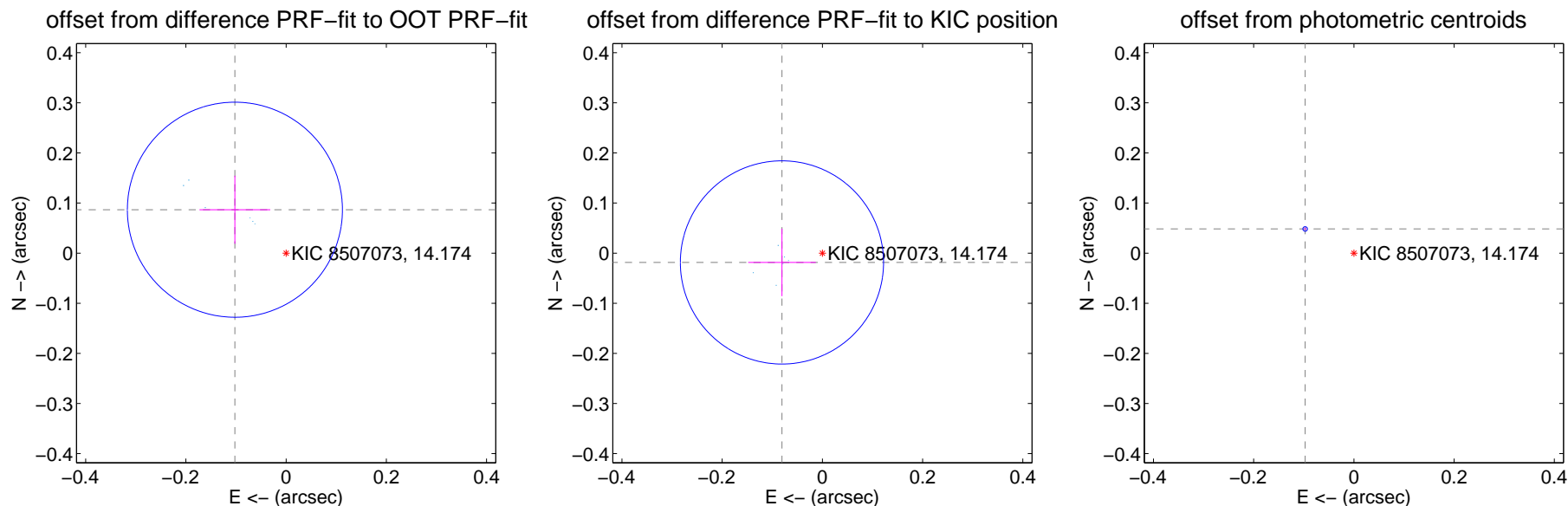
DV Centroid Data

Supplemental centroid analysis for 008507073-01. Kepler magnitude: 14.17. Transit SNR 1853.50

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.134 ± 0.072 | 1.87 | 0.102 ± 0.071 | 0.087 ± 0.068 |
| PRF-fit source offset from KIC position | 0.083 ± 0.068 | 1.23 | 0.081 ± 0.067 | -0.019 ± 0.067 |
| photometric centroid source offset | 0.11 ± 0.00 | 72.25 | 0.10 ± 0.00 | 0.05 ± 0.00 |



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



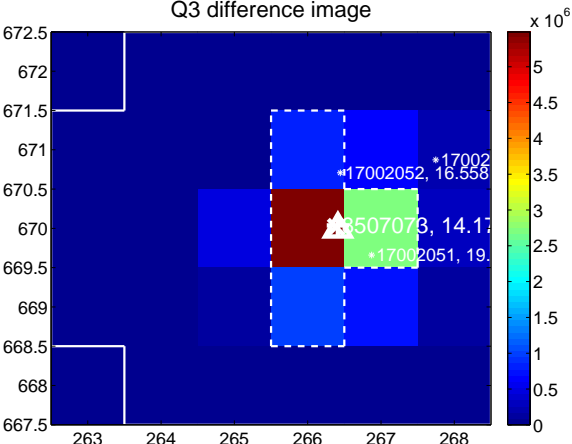
Q2 no difference image



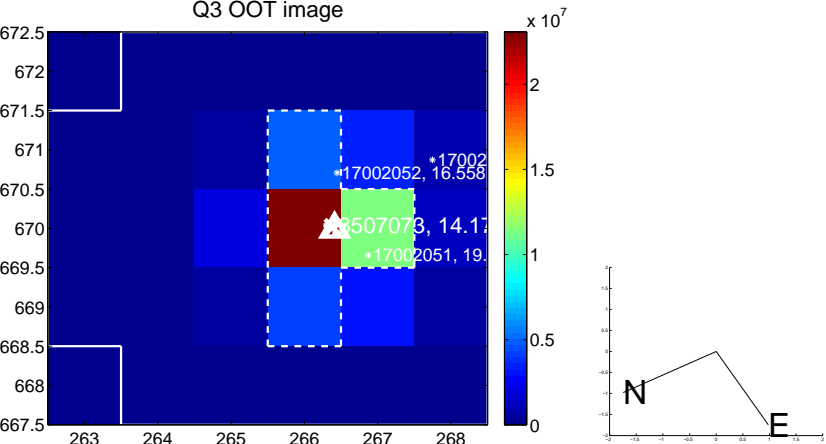
Q2 no OOT image



Q3 difference image



Q3 OOT image



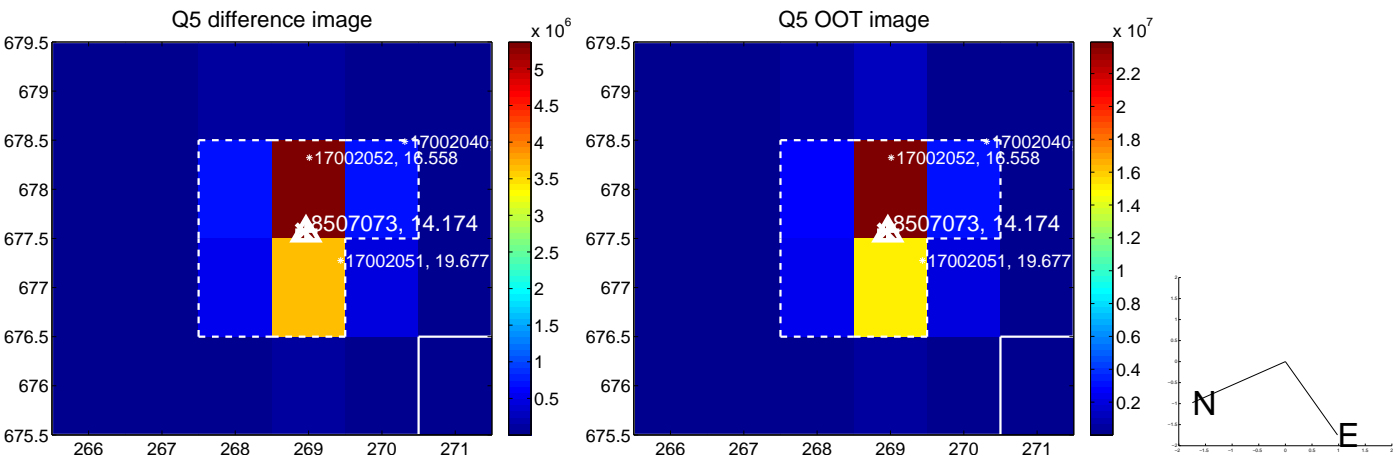
Q4 no difference image



Q4 no OOT image



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

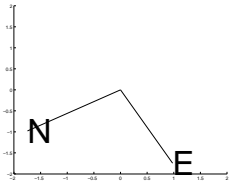
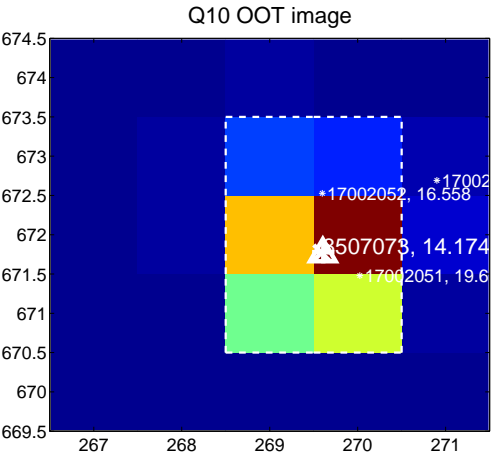
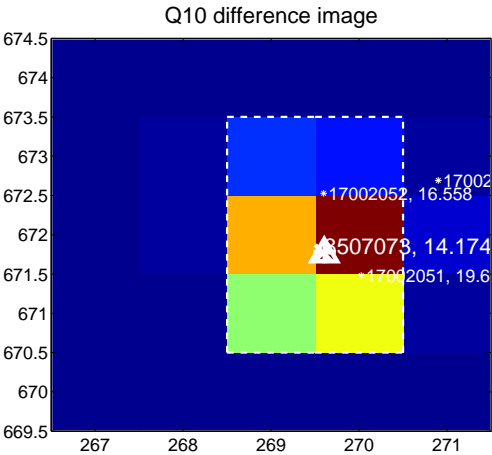


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

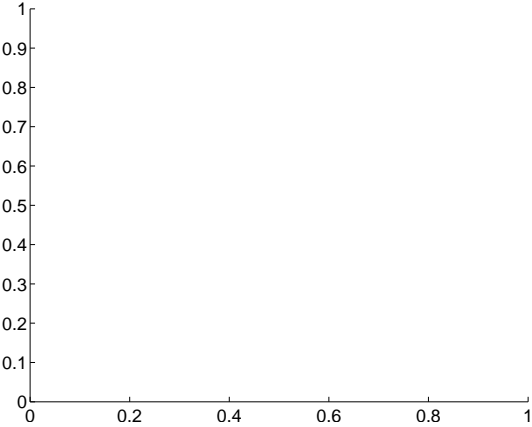
Q9 no difference image



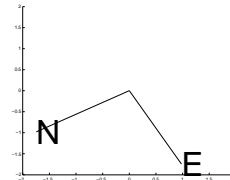
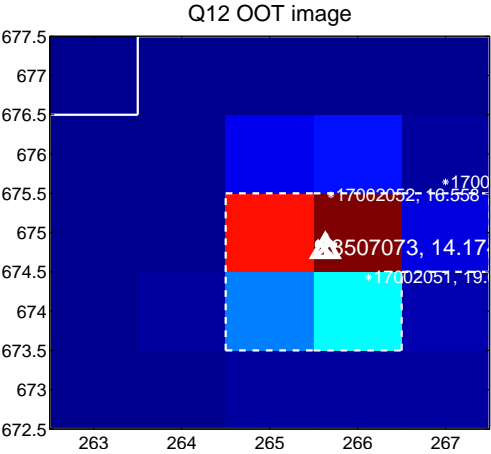
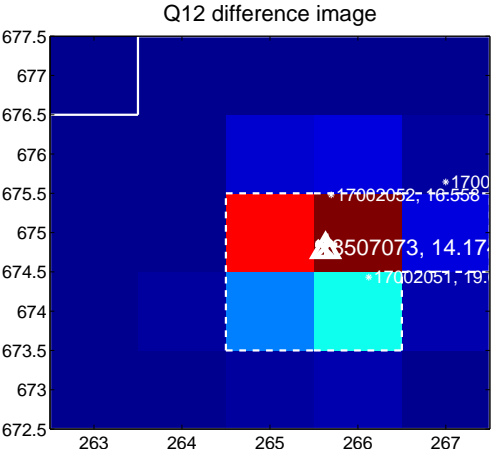
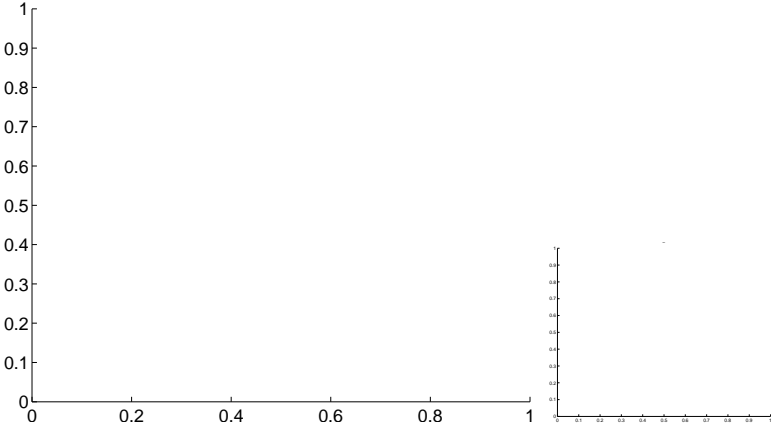
Q9 no OOT image



Q11 no difference image



Q11 no OOT image



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

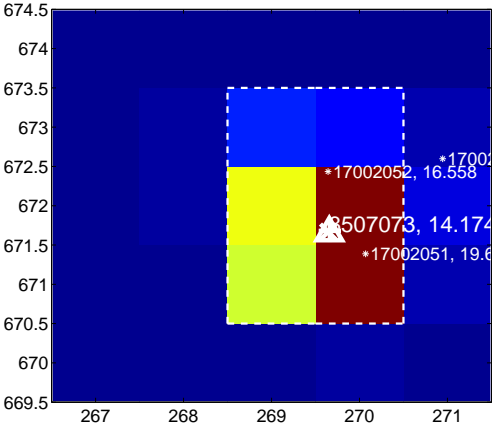
Q13 no difference image



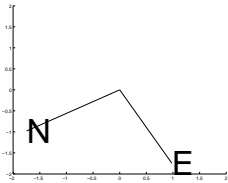
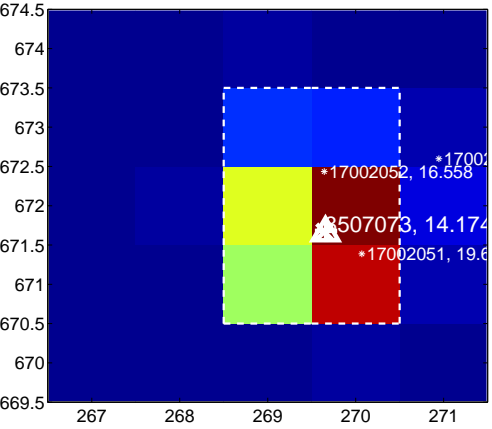
Q13 no OOT image



Q14 difference image



Q14 OOT image



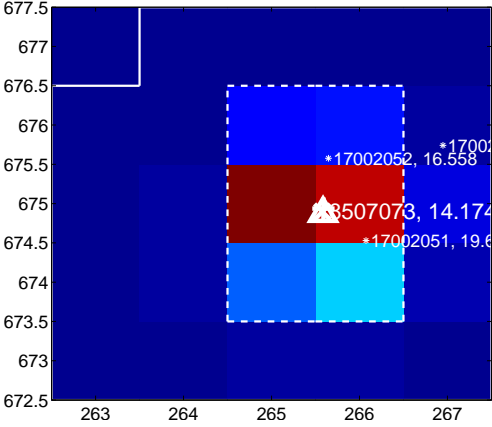
Q15 no difference image



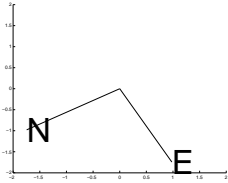
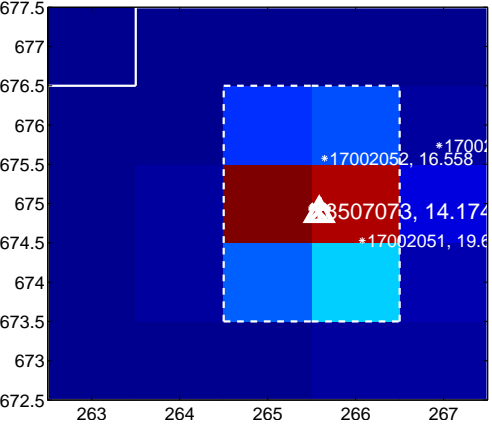
Q15 no OOT image



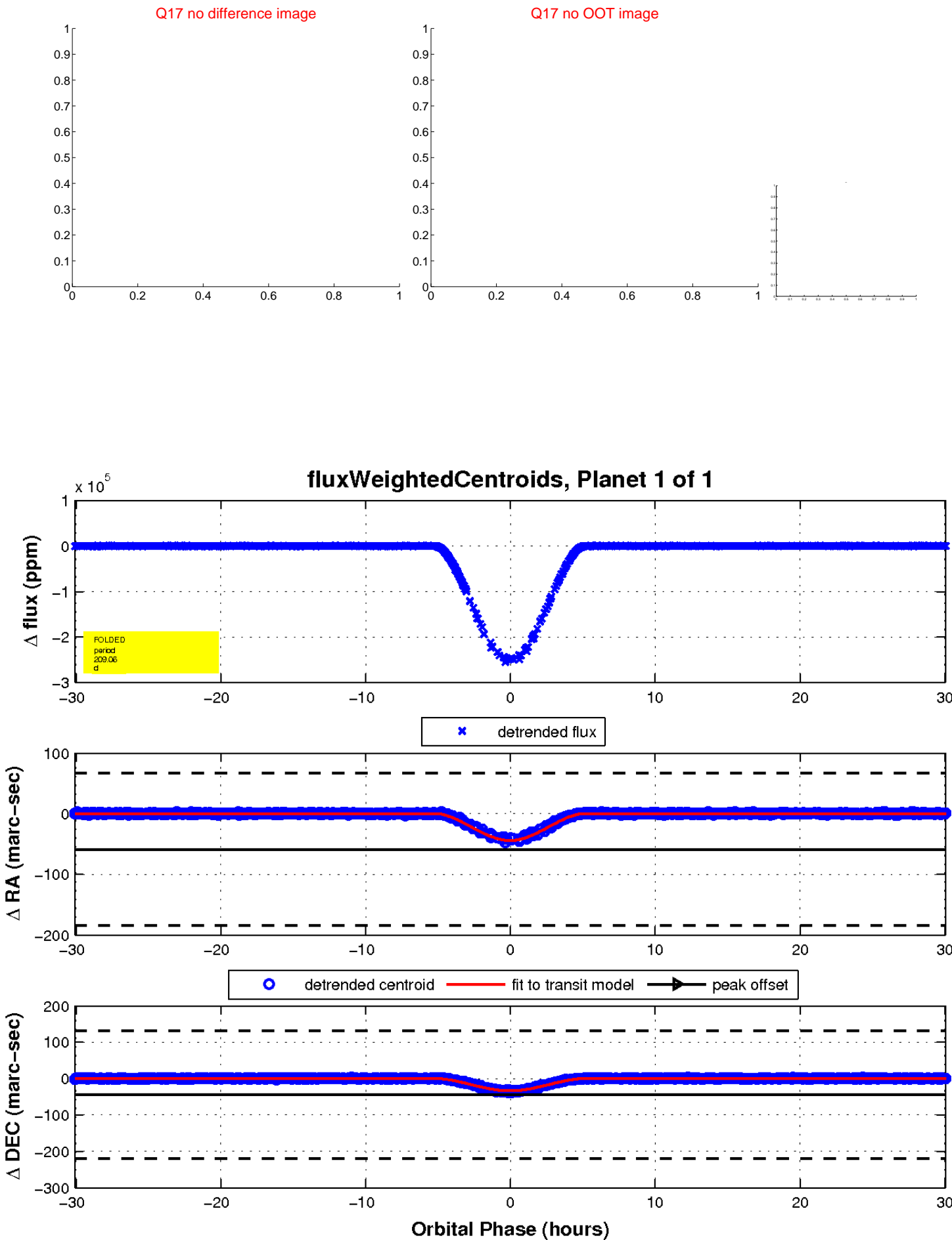
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

