

KIC 009658118

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|---------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009658118-01 | OBS | 3516.01 | 24.061946 | 138.359642 | 260962.0 | 12.000 | 15926.9 | -1.0 | 1.14 | 6461 | 59.20 | 74.54 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009658118-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_ALT—MOD_ODDEVEN_ALT—CENT_NOFITS |

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.

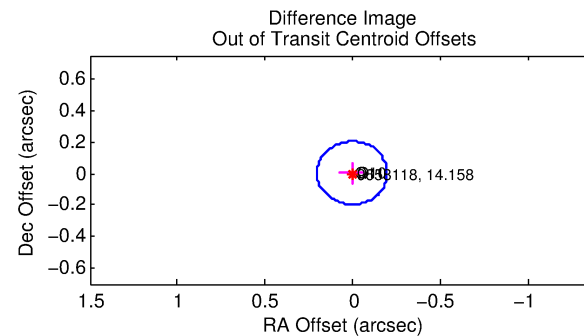
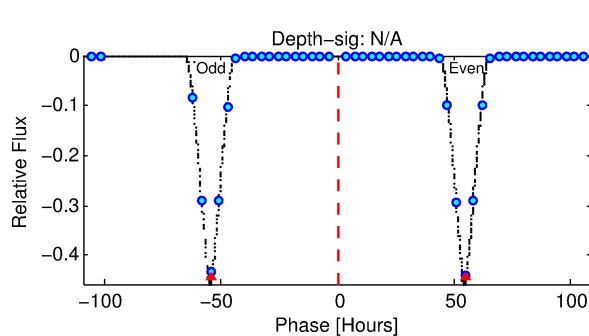
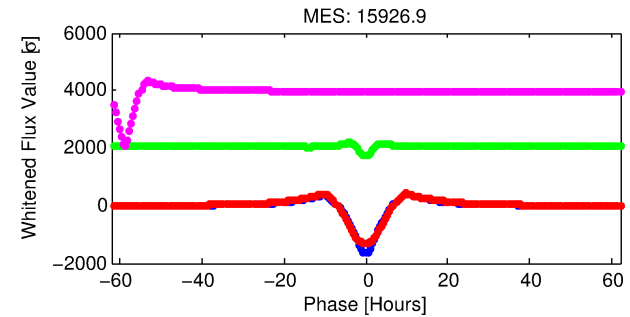
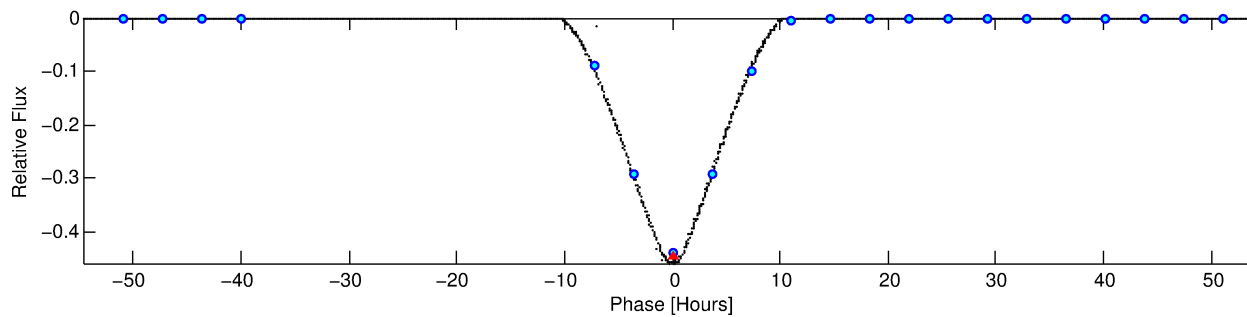
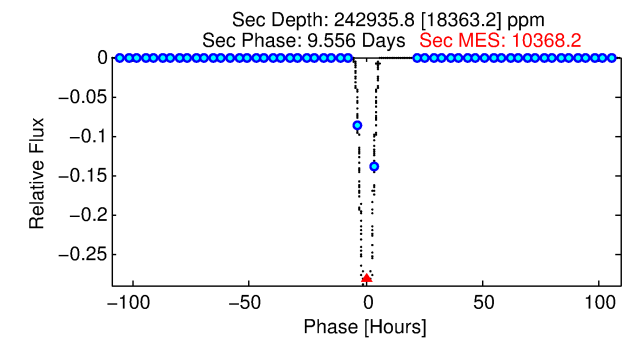
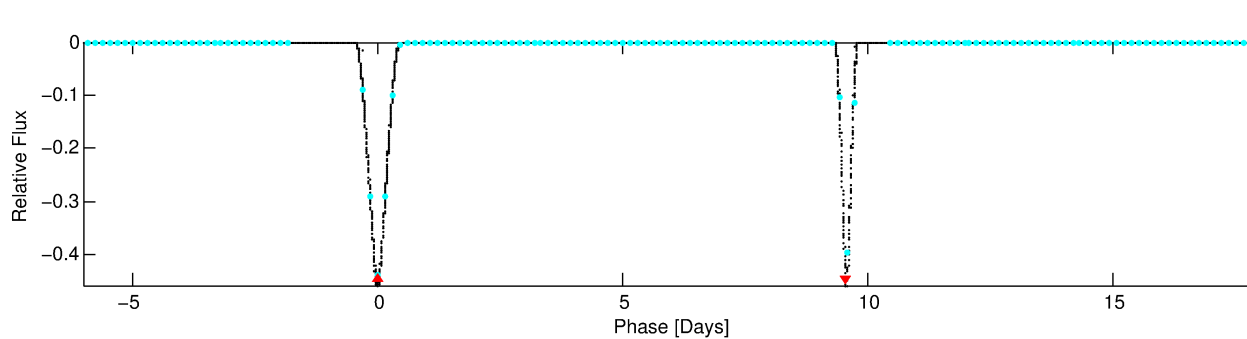
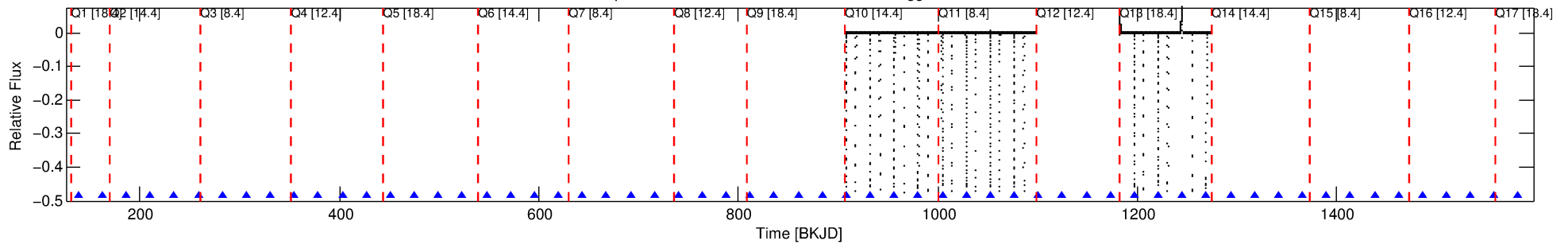
Ephemeris Match Information For 009658118-01

No Significant Match Found

DV One-Page Summary

KIC: 9658118 Candidate: 1 of 1 Period: 24.062 d
KOI: K03516.01 Corr: 0.752

Kp: 14.16 R*: 1.14 Rs Teff: 6461.0 K Logg: 4.34 Fe/H: -0.400



TPS TCE Results:

Period = 24.06195 d
Epoch = 138.3596 BKJD

DV fit results are unavailable

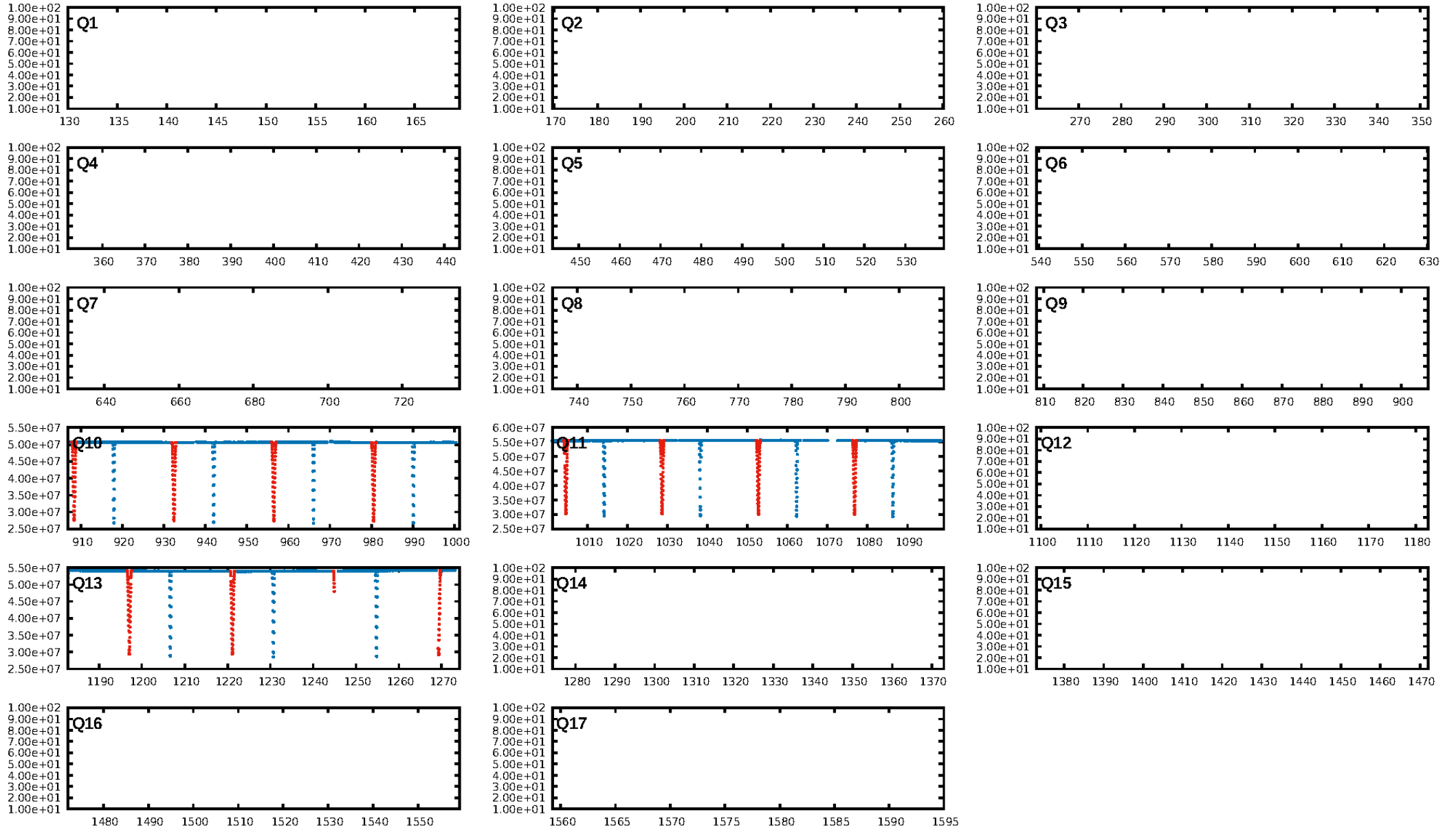
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 6.311
Centroid-sig: 0.0%
Centroid-so: 0.090 arcsec [119.54σ]
OotOffset-rm: 0.008 arcsec [0.11σ]
KicOffset-rm: 0.127 arcsec [1.77σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

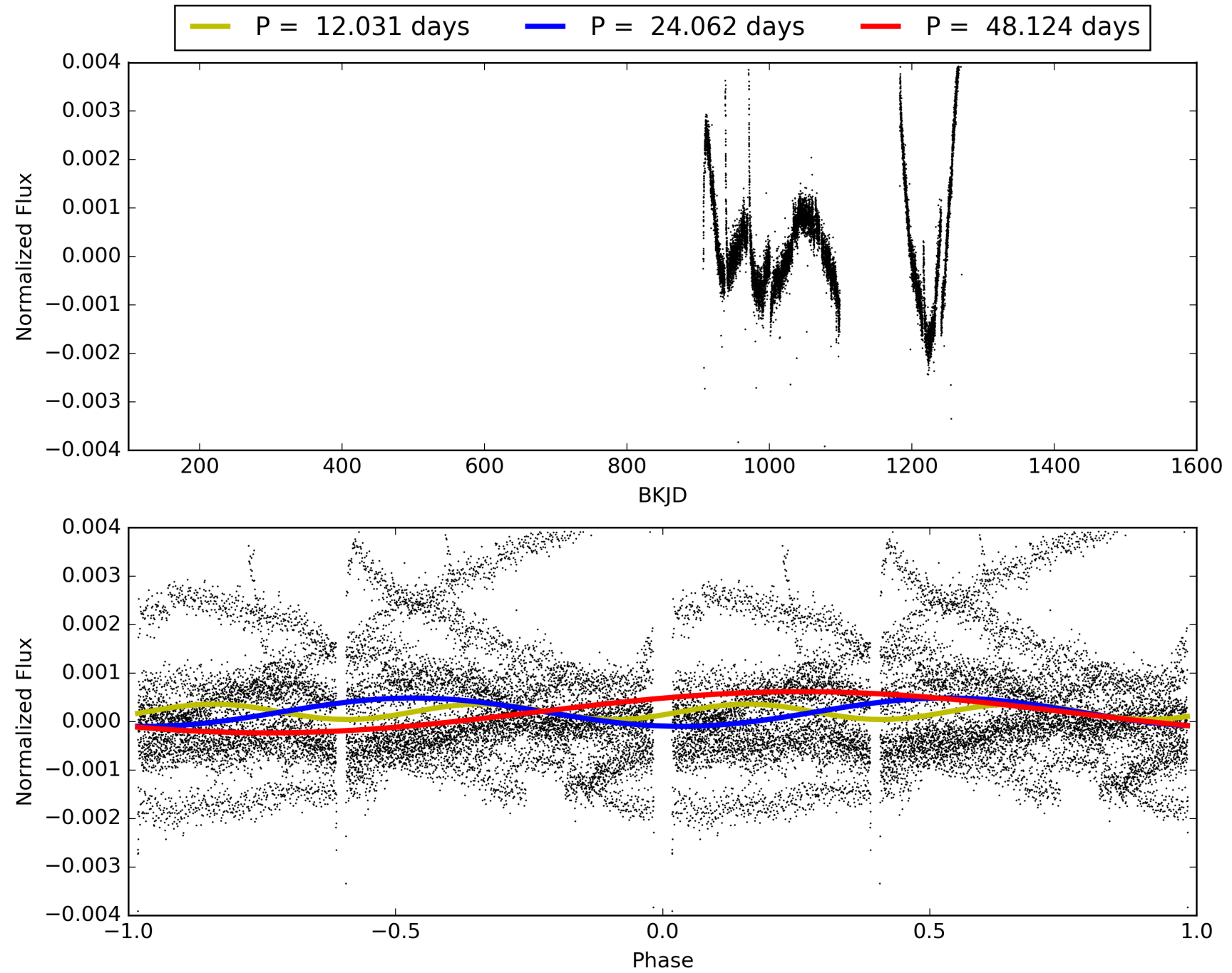
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:21:32 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009658118-01, PDC Light Curves

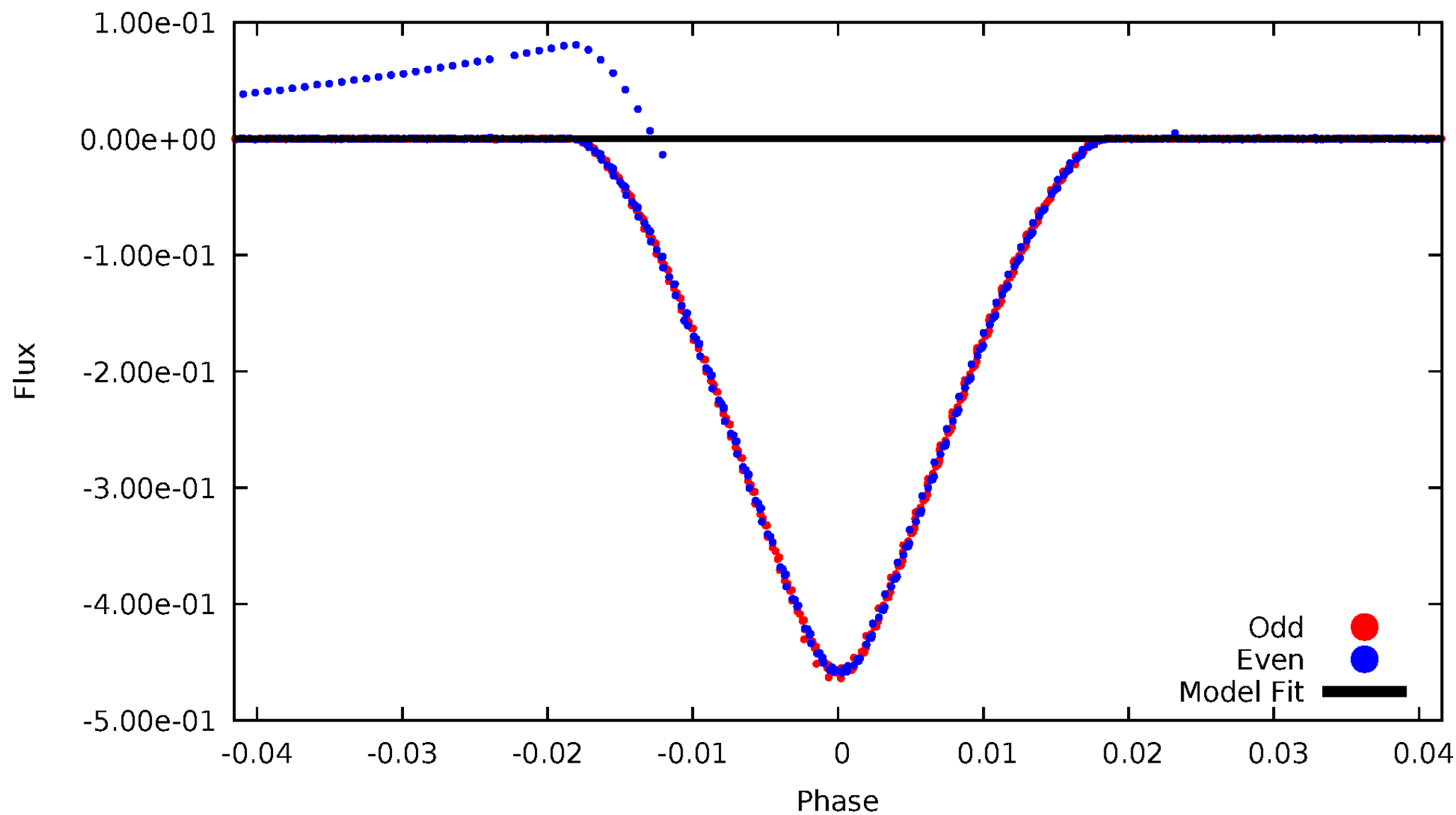


TCE 009658118-01



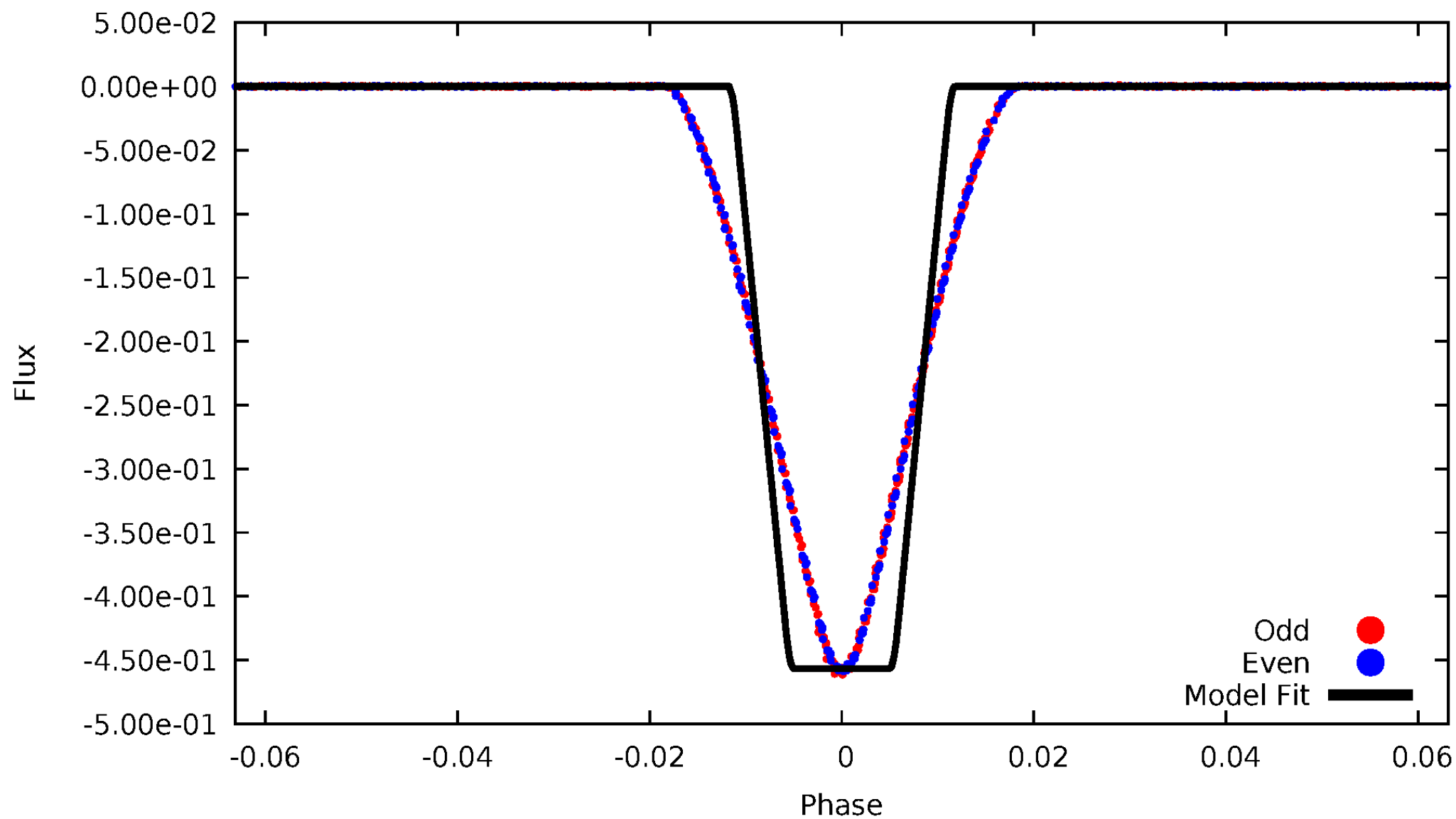
DV Odd/Even

TCE 009658118-01



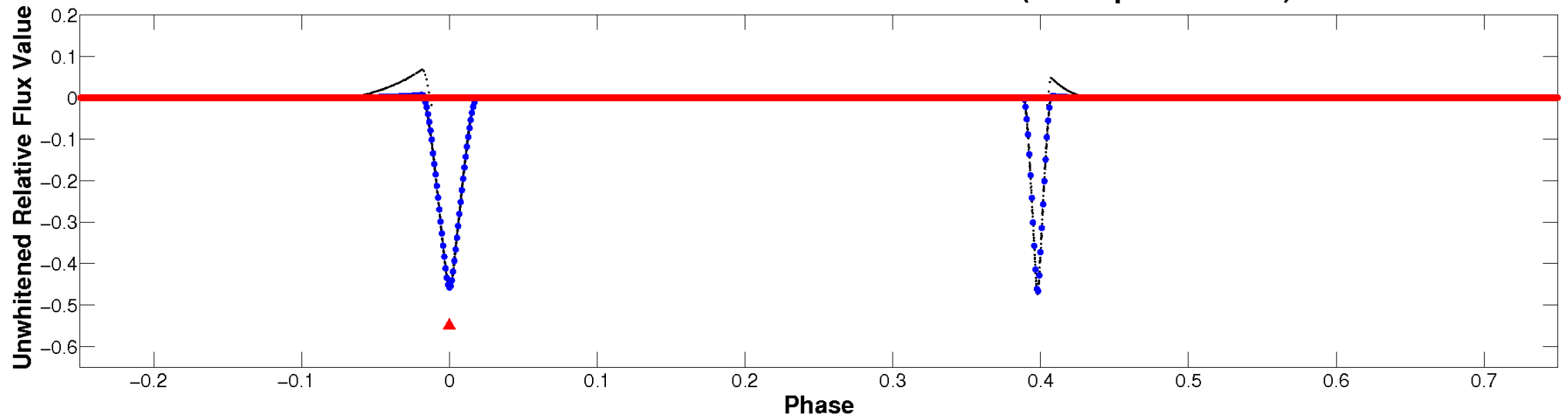
ALT Odd/Even

TCE 009658118-01



Non-Whitened Vs. Whitened Light Curve

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

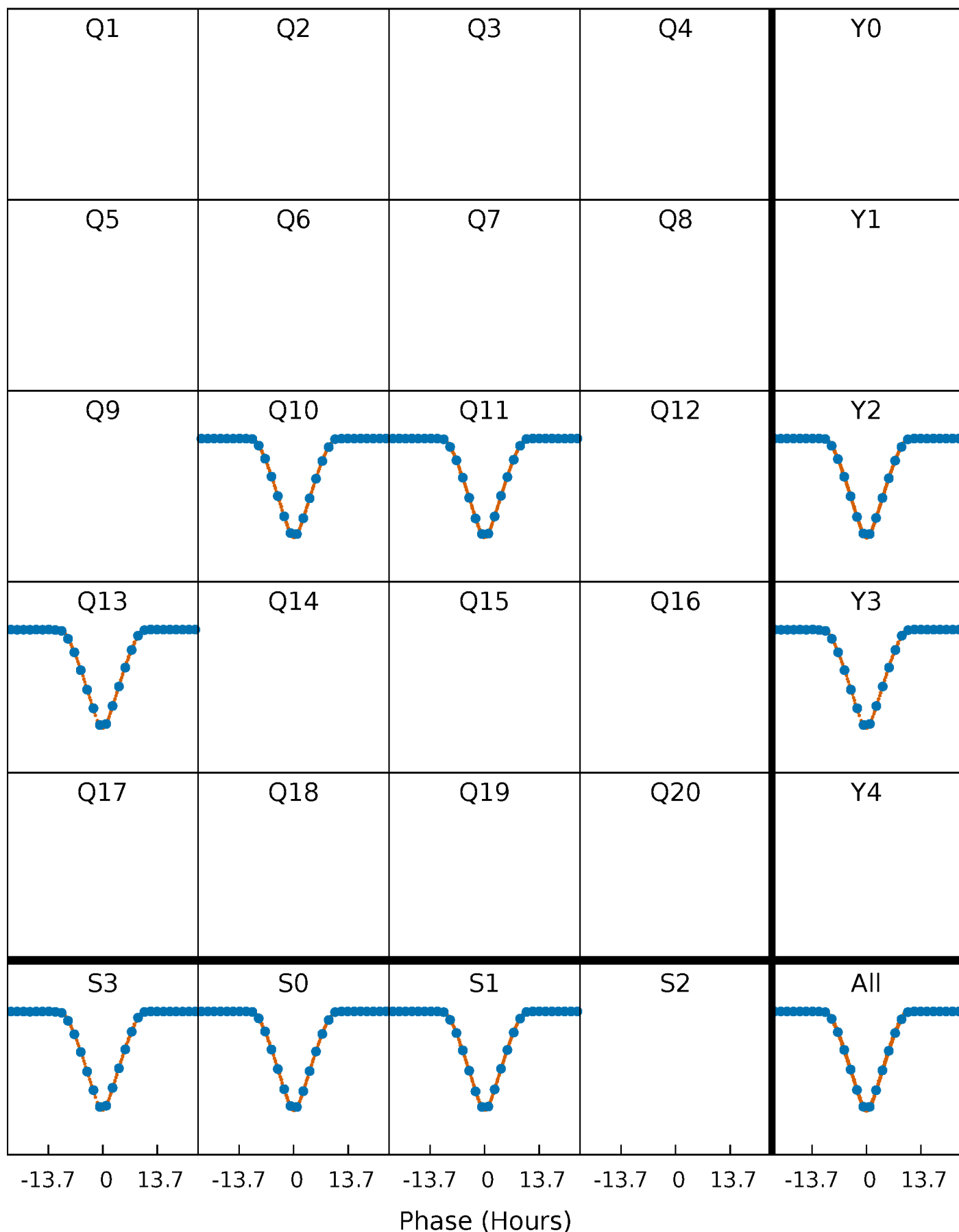


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



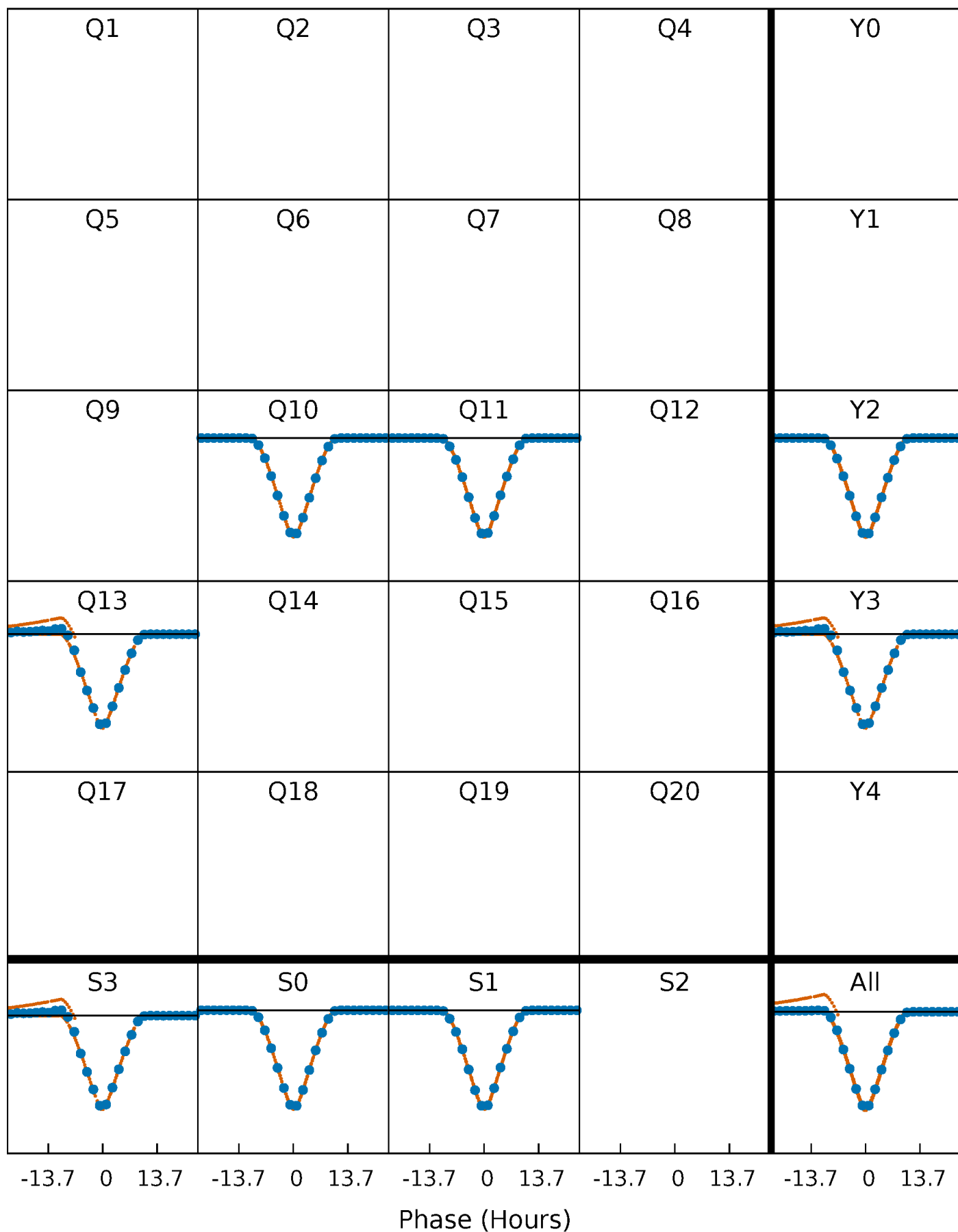
PDC Quarter-Phased Transit Curves

TCE 009658118-01 P= 24.061946 Days $T_0=138.359642$ (BKJD)



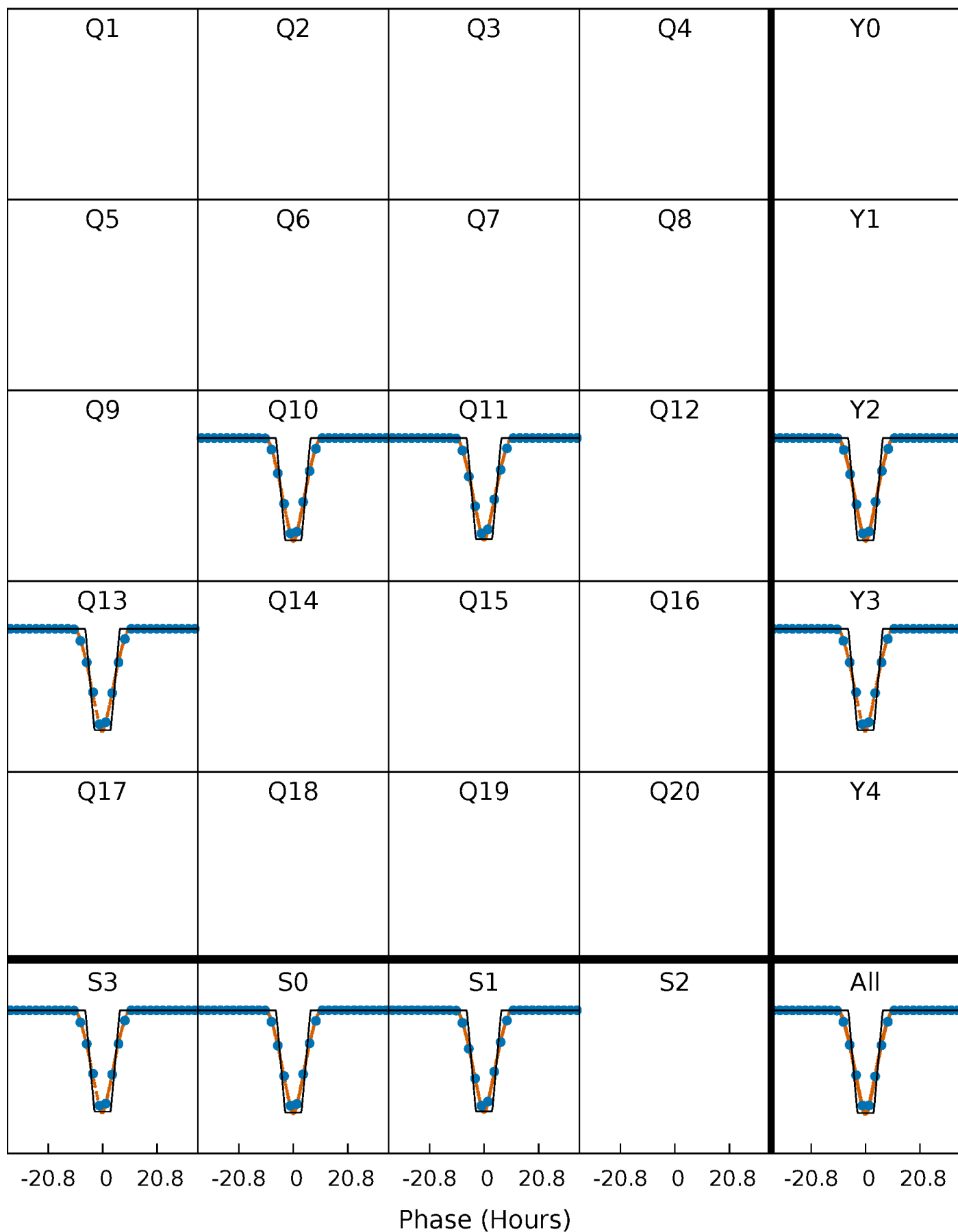
DV Quarter-Phased Transit Curves

TCE 009658118-01 P= 24.061946 Days $T_0=138.359642$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

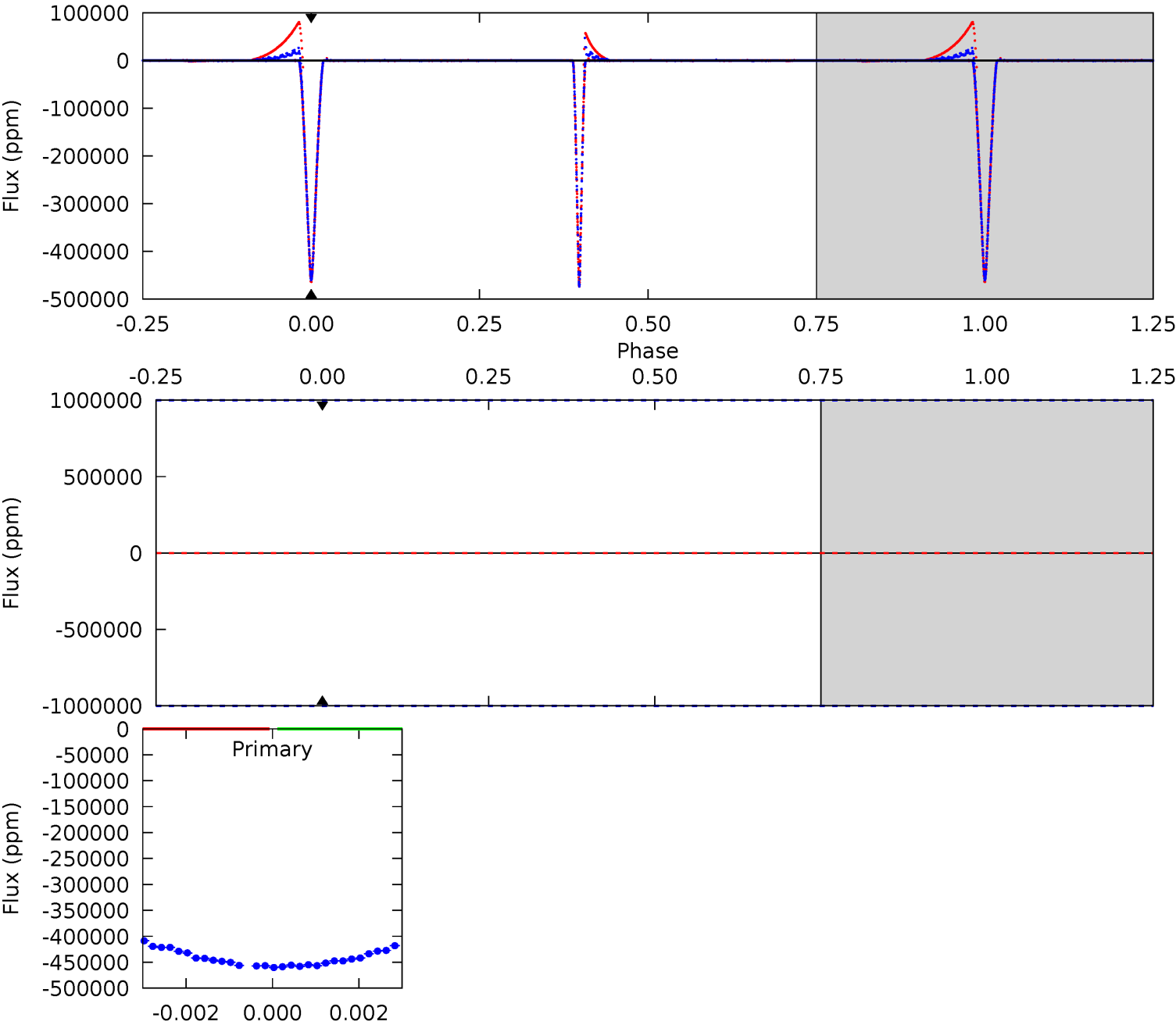
TCE 009658118-01 P= 24.061946 Days $T_0=138.361868$ (BKJD)



DV Model-Shift Uniqueness Test

009658118-01, P = 24.061946 Days, E = 138.359642 Days

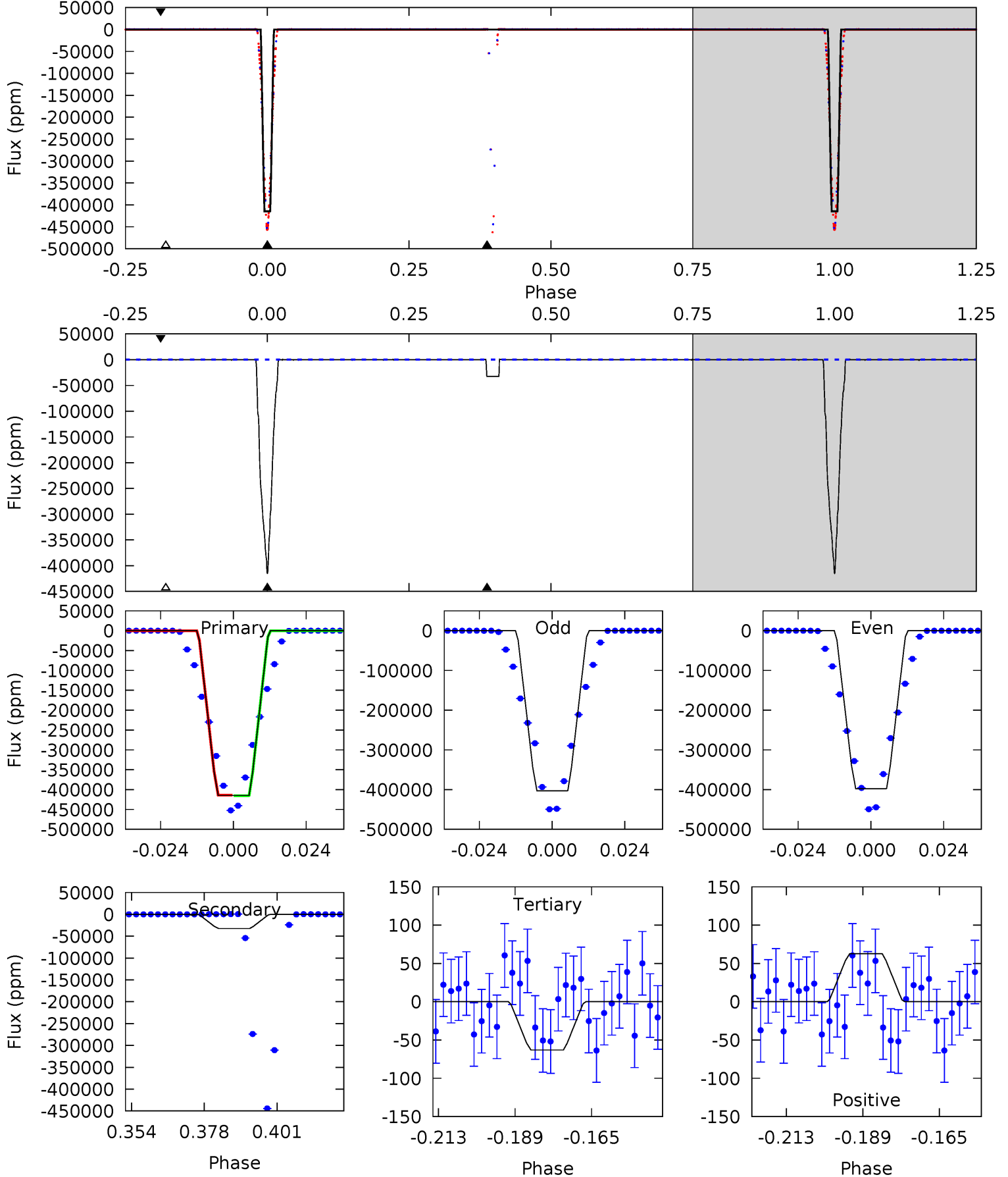
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Alt Model-Shift Uniqueness Test

009658118-01, P = 24.061946 Days, E = 138.361868 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 18984 | 1489 | 2.88 | 2.87 | 4.86 | 2.26 | 1.29 | 18981 | 18981 | 1486 | 1486 | 148.6 | 1.00 | 0.00 | 0 |



Stellar Parameters For KIC 009658118

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6461^{+181}_{-250} | $4.338^{+0.108}_{-0.186}$ | $-0.400^{+0.250}_{-0.300}$ | $1.138^{+0.330}_{-0.178}$ | $1.027^{+0.160}_{-0.117}$ | $0.981^{+0.556}_{-0.485}$ |
| | +3%/-4% | +2%/-4% | +62%/-75% | +29%/-16% | +16%/-11% | +57%/-49% |
| 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 009658118-01 / KOI 3516.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|---------------------------|----------------------|-------------------------|--------------------------------|
| DV | 0 ± 1000000 | $60.45^{+14.92}_{-13.17}$ | 1054^{+76}_{-58} | -2641^{+8178}_{-2597} | $-4.403^{+493.943}_{-354.823}$ |
| Alt. | -32546 ± 22 | $86.27^{+18.53}_{-15.72}$ | 1054^{+74}_{-58} | 3750^{+219}_{-200} | 67^{+31}_{-21} |

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

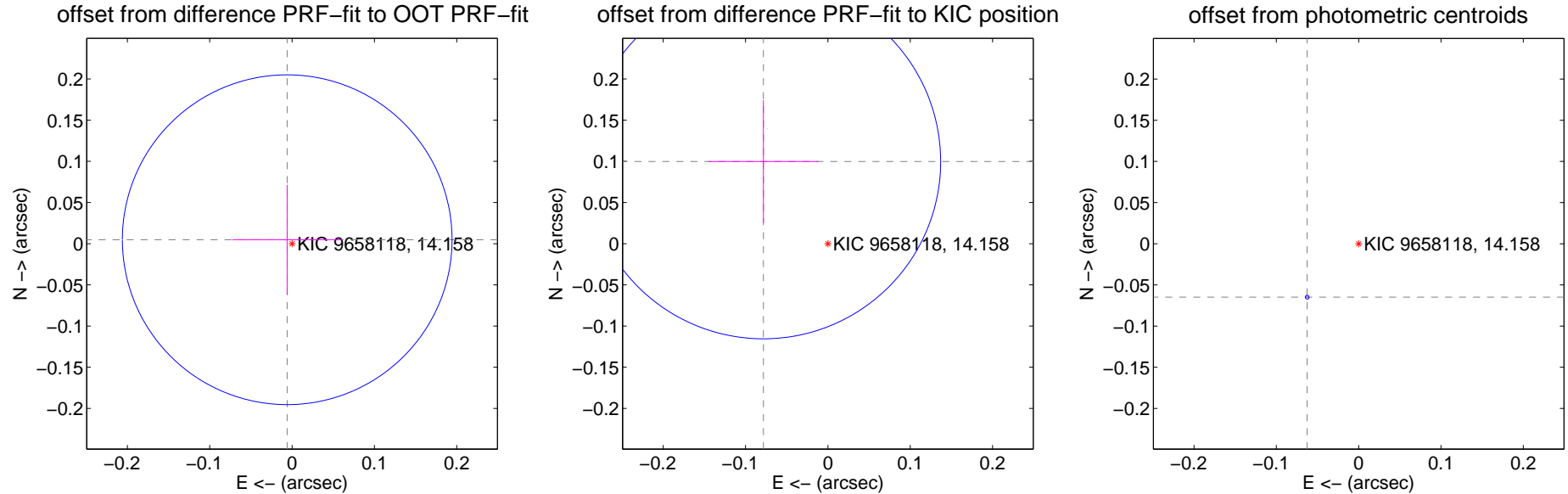
DV Centroid Data

Supplemental centroid analysis for 009658118-01. Kepler magnitude: 14.16. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.008 ± 0.067 | 0.11 | 0.006 ± 0.067 | 0.005 ± 0.067 |
| PRF-fit source offset from KIC position | 0.127 ± 0.072 | 1.77 | 0.078 ± 0.067 | 0.100 ± 0.075 |
| photometric centroid source offset | 0.09 ± 0.00 | 119.54 | 0.06 ± 0.00 | -0.06 ± 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.



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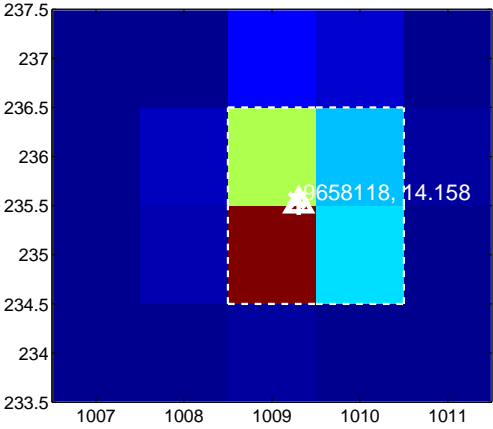
Q9 no difference image



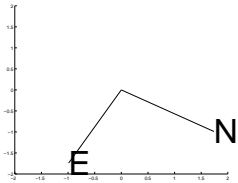
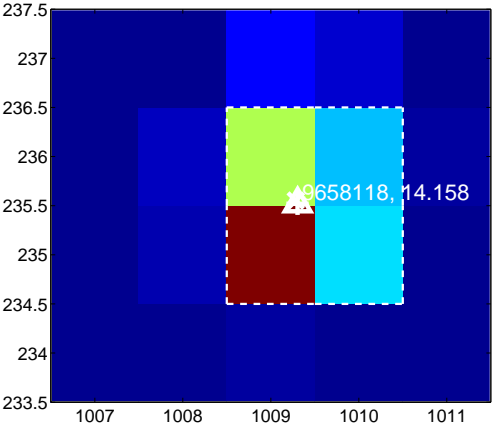
Q9 no OOT image



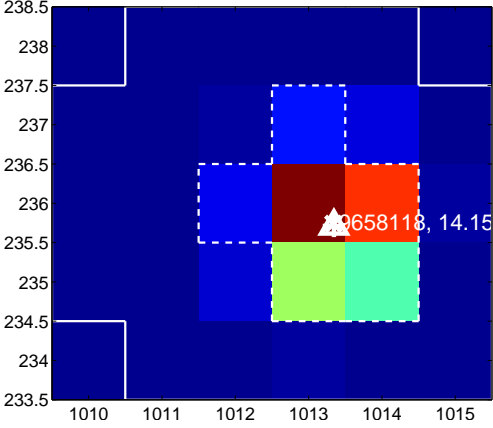
Q10 difference image



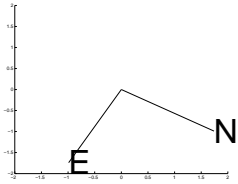
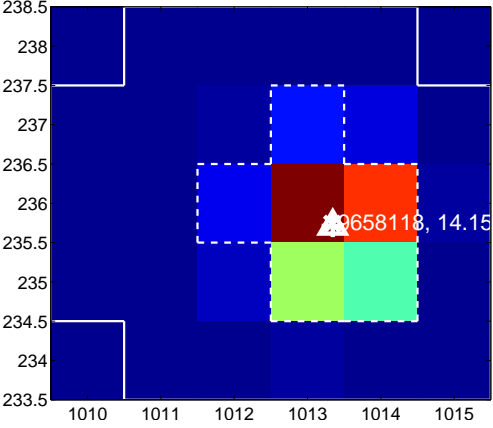
Q10 OOT image



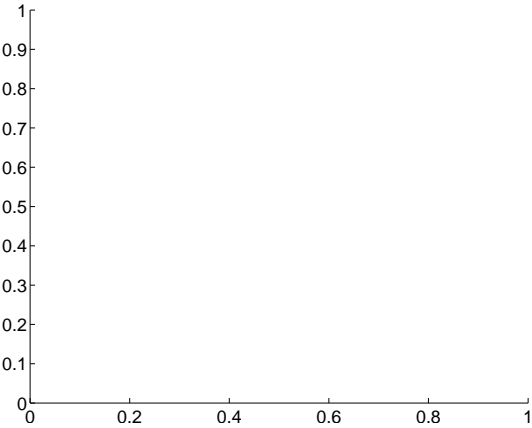
Q11 difference image



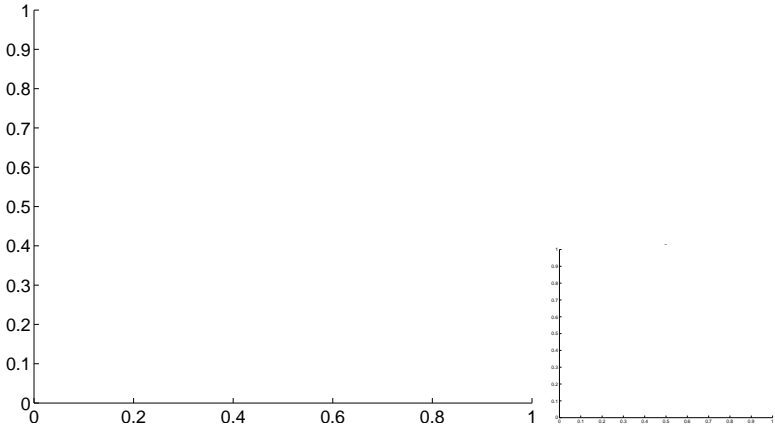
Q11 OOT image



Q12 no difference image



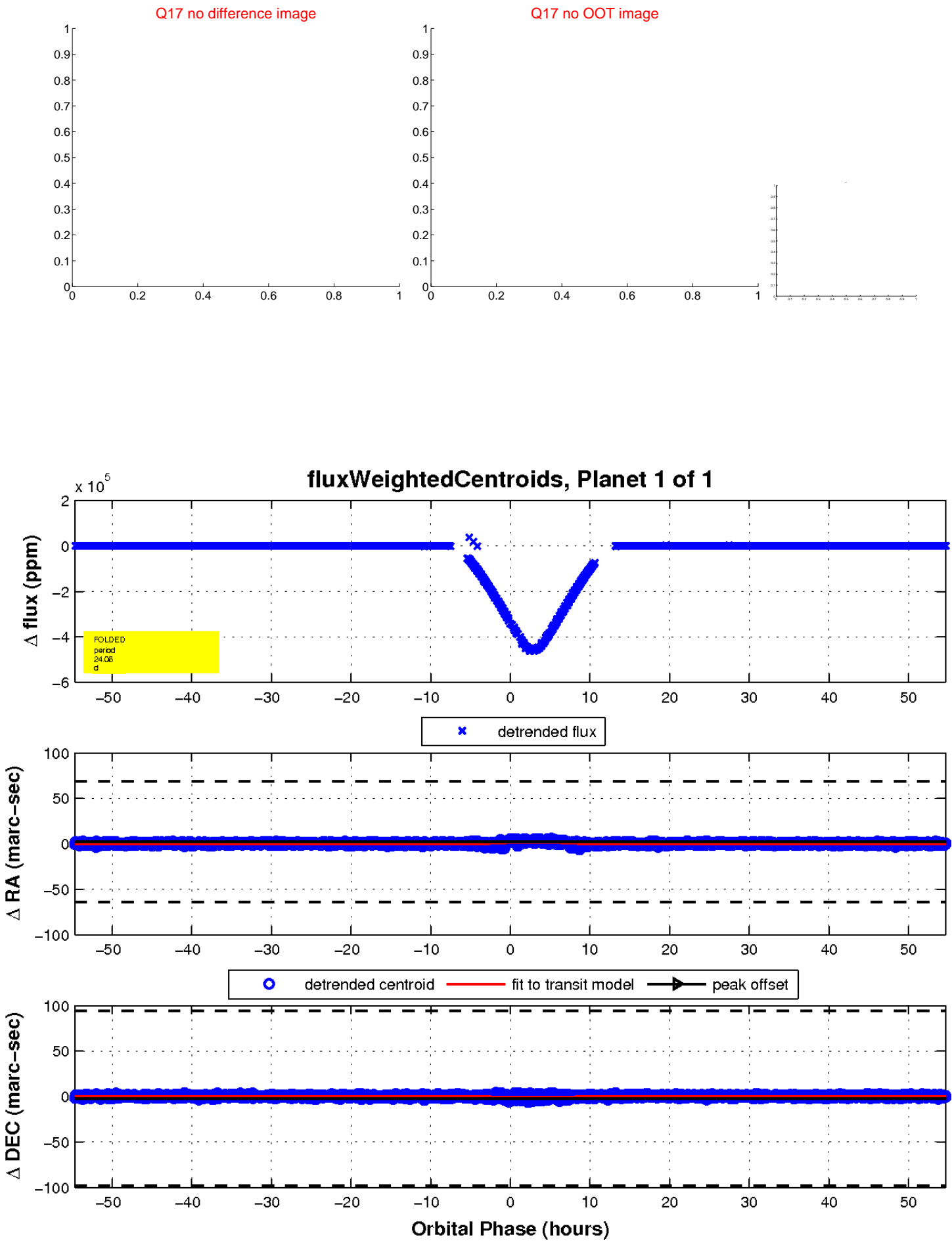
Q12 no OOT image



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

Declination

