

KIC 009839062

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009839062-01 | OBS | 7968.01 | 424.622632 | 218.260895 | 5200.9 | 9.759 | 64.8 | 62.4 | 1.02 | 6339 | 8.24 | 1.17 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------|
| 009839062-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_SKYE |

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

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

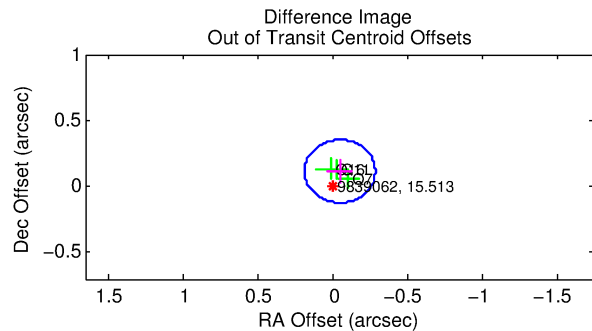
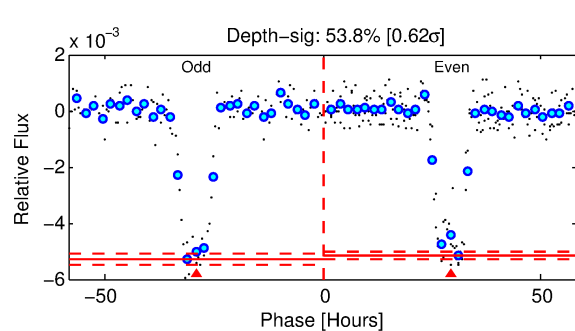
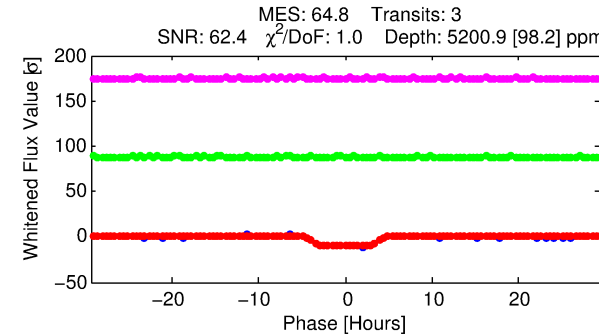
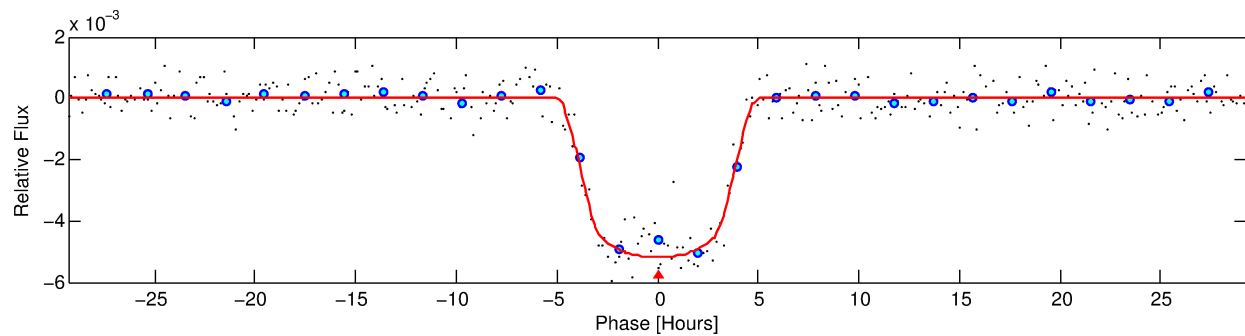
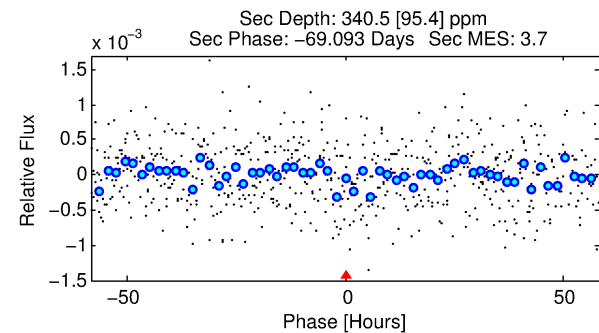
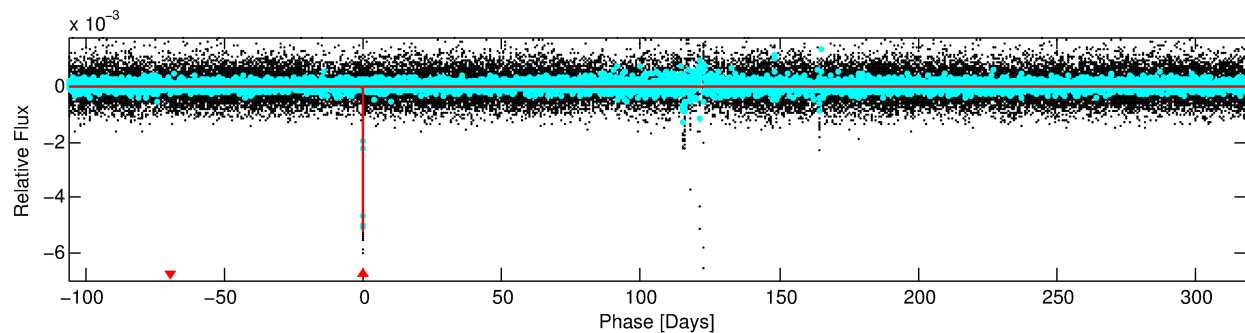
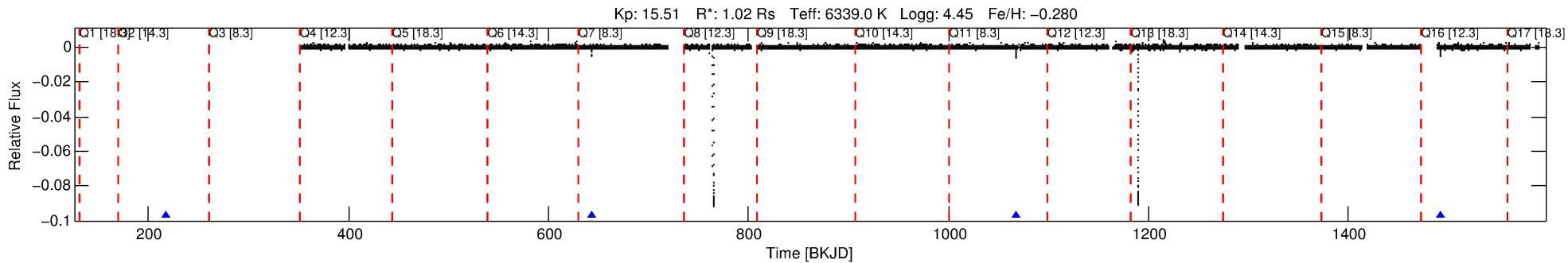
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009839062-01

No Significant Match Found

DV One-Page Summary

KIC: 9839062 Candidate: 1 of 1 Period: 424.623 d



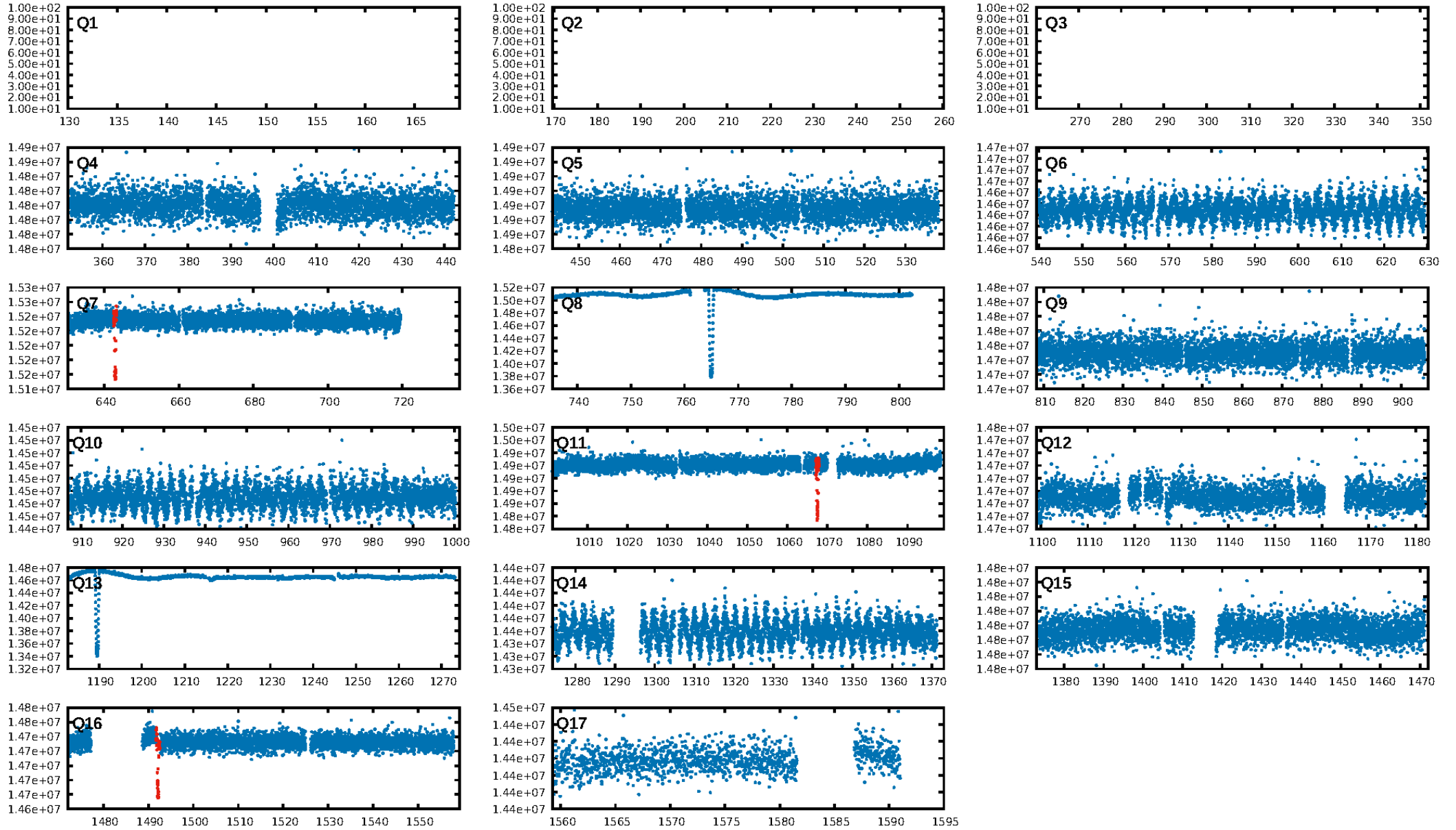
DV Fit Results:

Period = 424.62263 [0.00235] d
Epoch = 218.2609 [0.0050] BKJD
Rp/R* = 0.0742 [0.0013]
a/R* = 225.89 [13.68]
b = 0.83 [0.02]
Seff = 1.17 [0.51]
Teq = 265 [29] K
Rp = 8.24 [2.71] Re
a = 1.1322 [0.3152] AU
Ag = 3539.76 [1754.98] [2.02σ]
Teffp = 3161 [254] K [11.35σ]

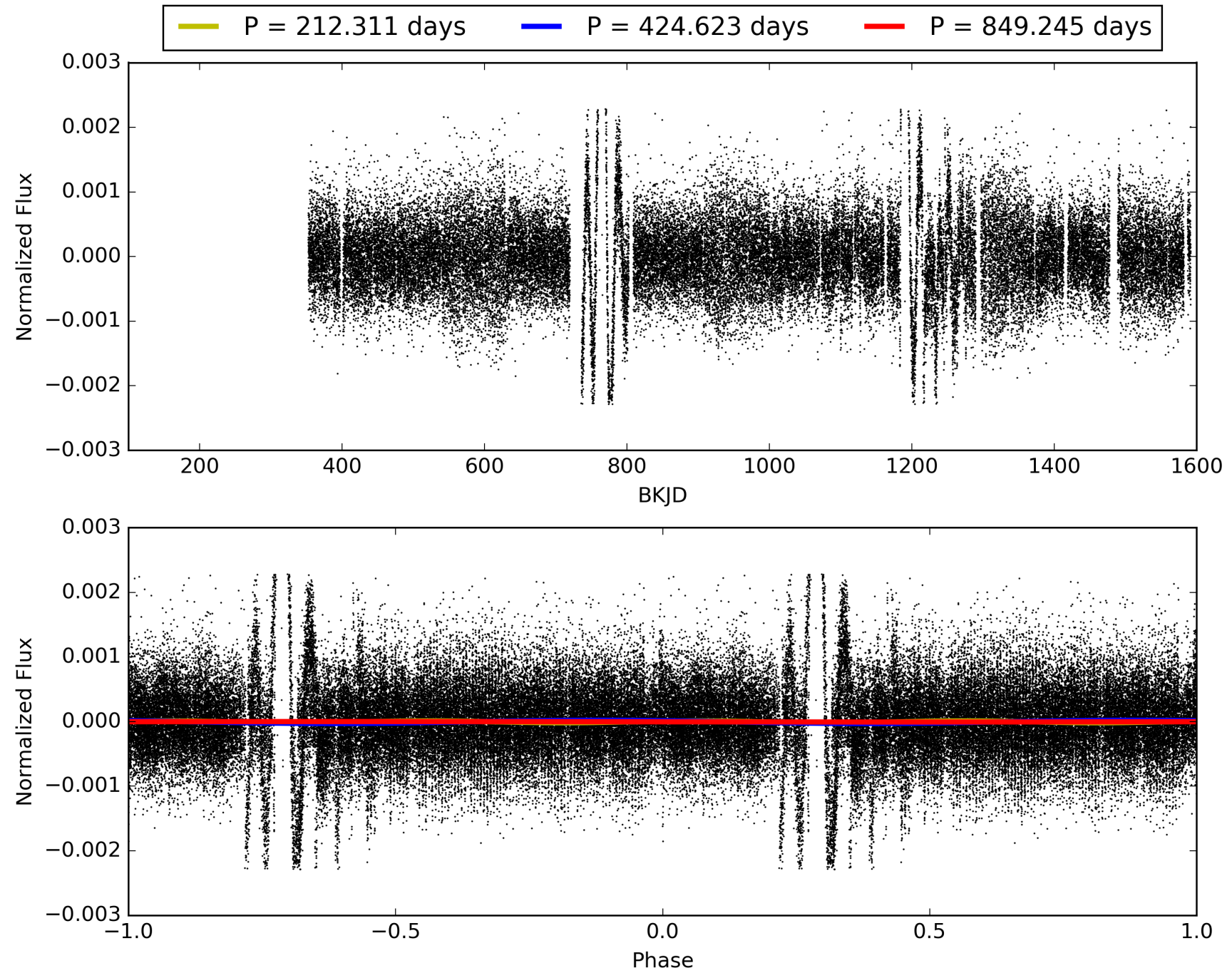
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 52.2%
ModelChiSquareGof-sig: 91.5%
Bootstrap-pfa: 9.37e-273
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 9.047
Centroid-sig: 49.5%
Centroid-so: 0.435 arcsec [2.00σ]
OotOffset-rm: 0.125 arcsec [1.58σ]
KicOffset-rm: 0.300 arcsec [3.72σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009839062-01, PDC Light Curves

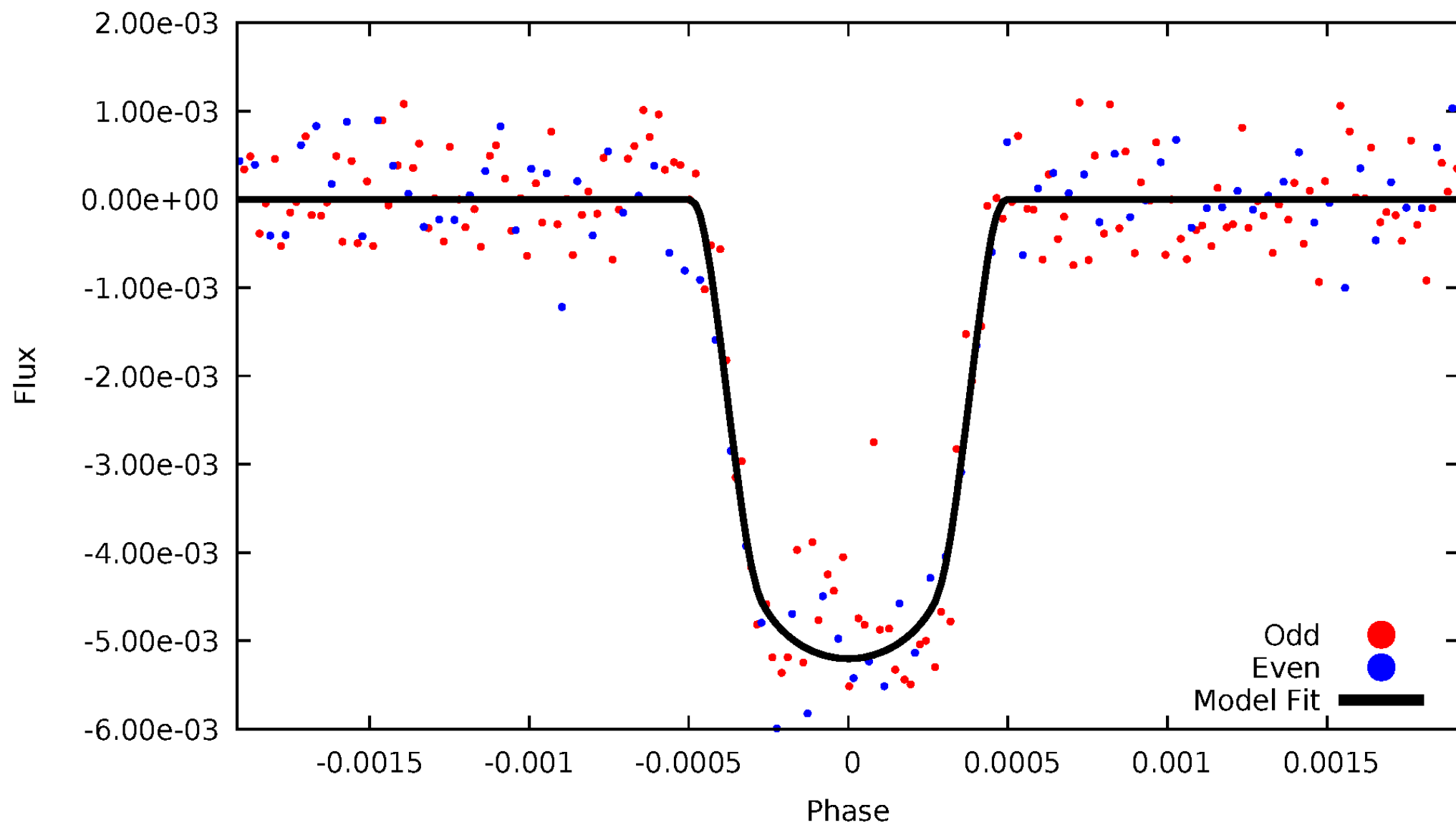


TCE 009839062-01



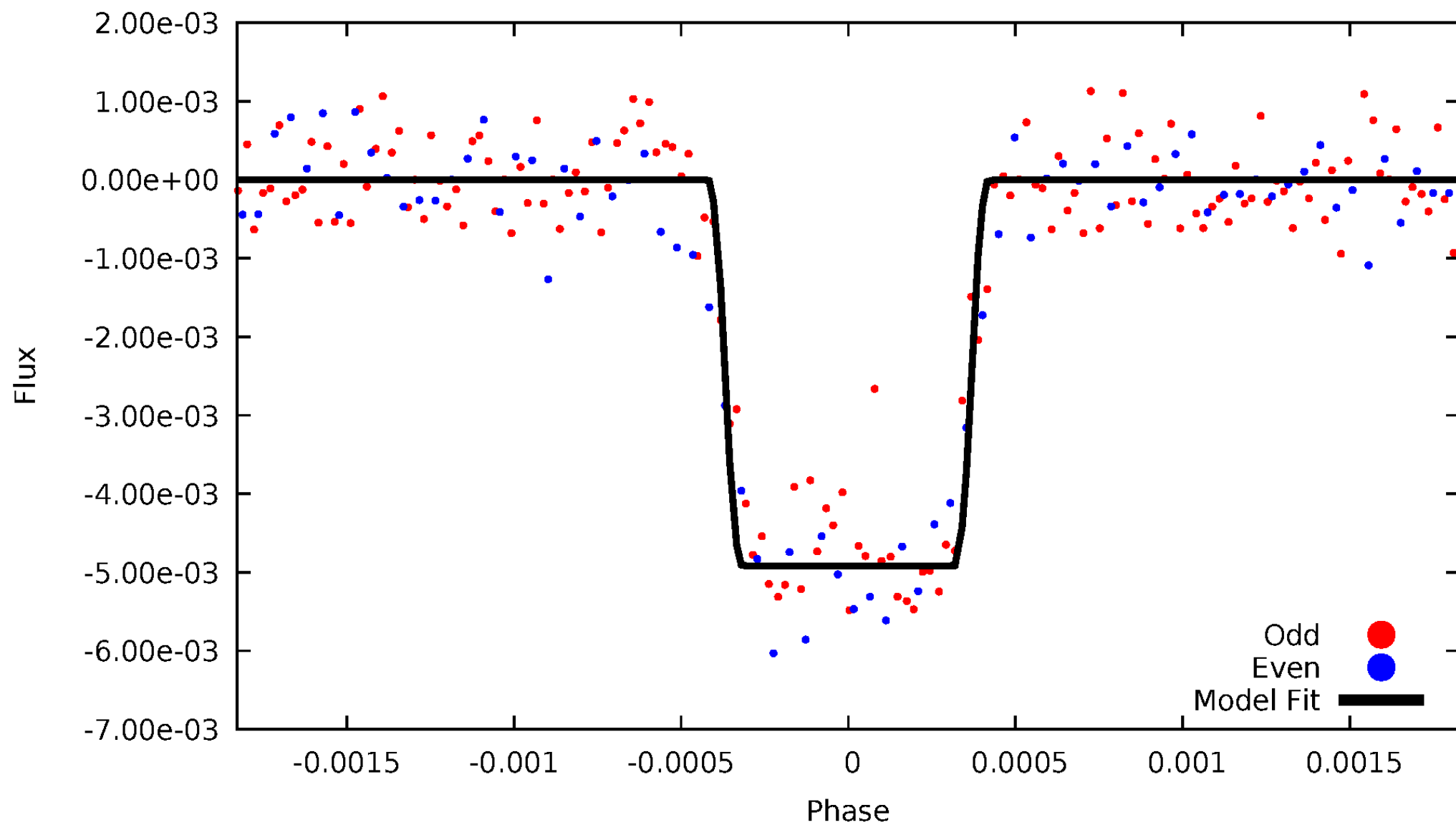
DV Odd/Even

TCE 009839062-01



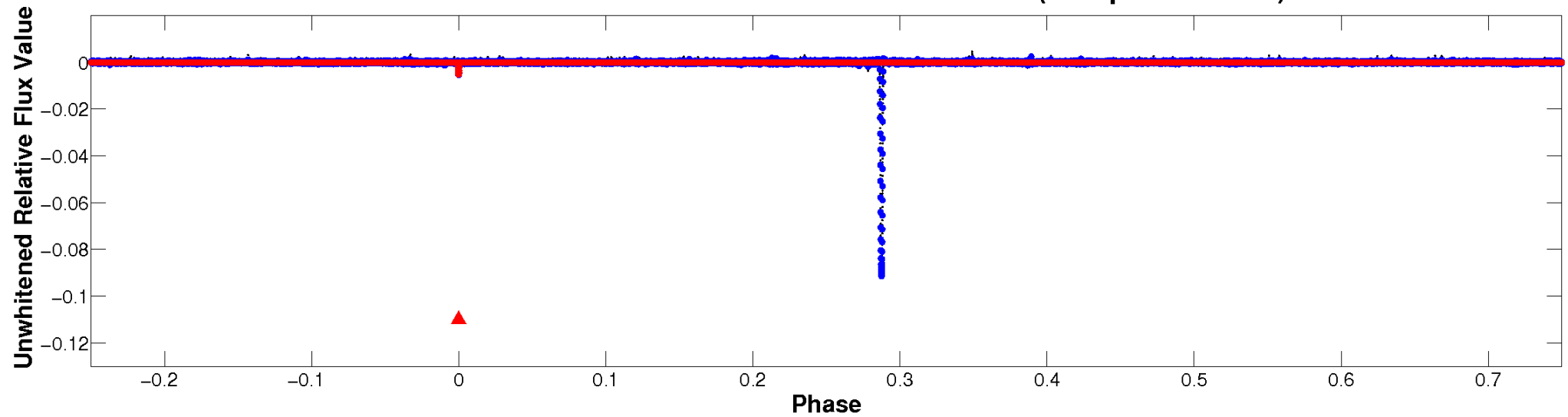
ALT Odd/Even

TCE 009839062-01

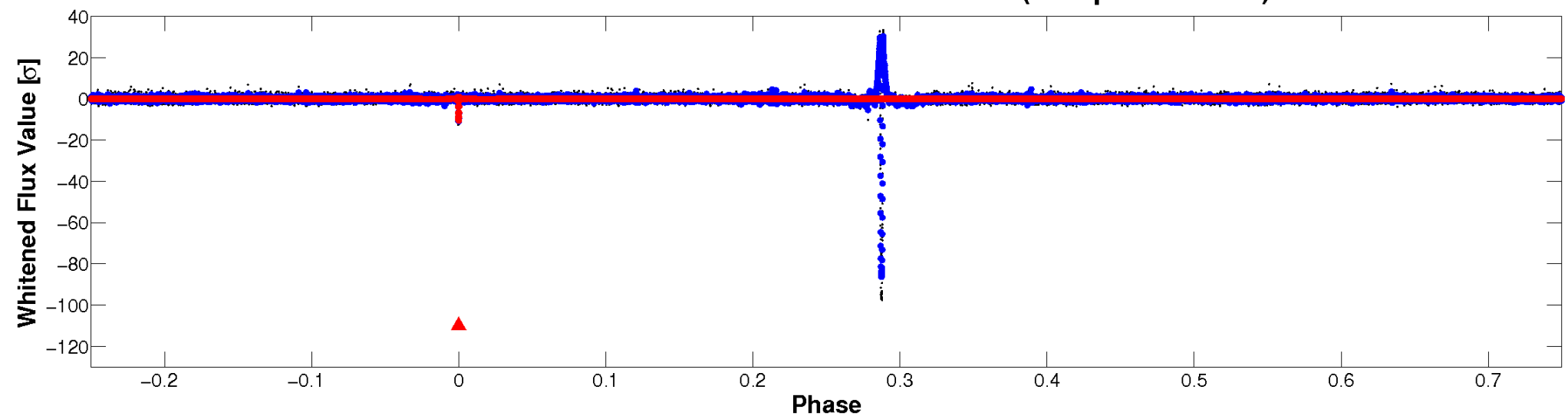


Non-Whitened Vs. Whitened Light Curve

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

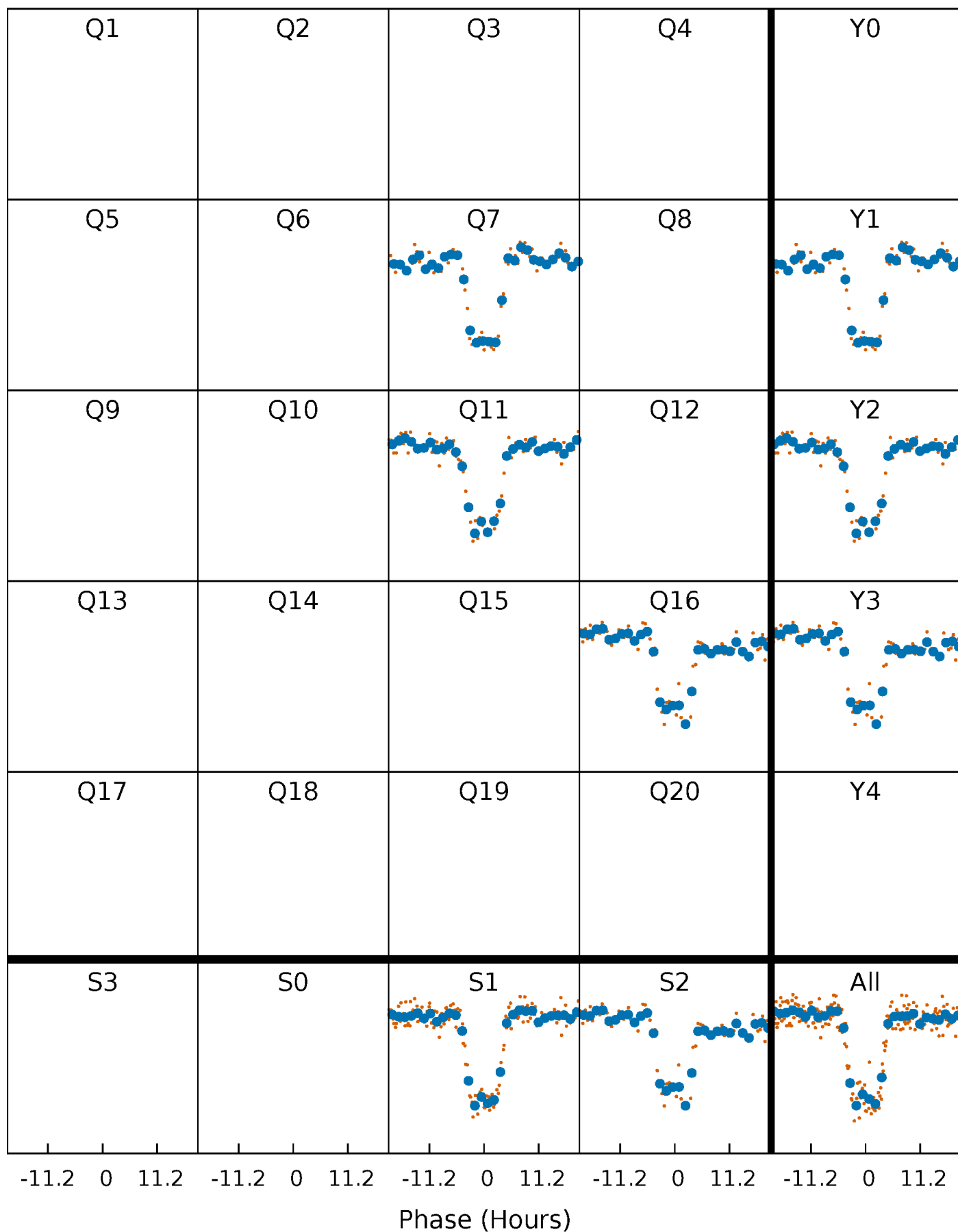


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



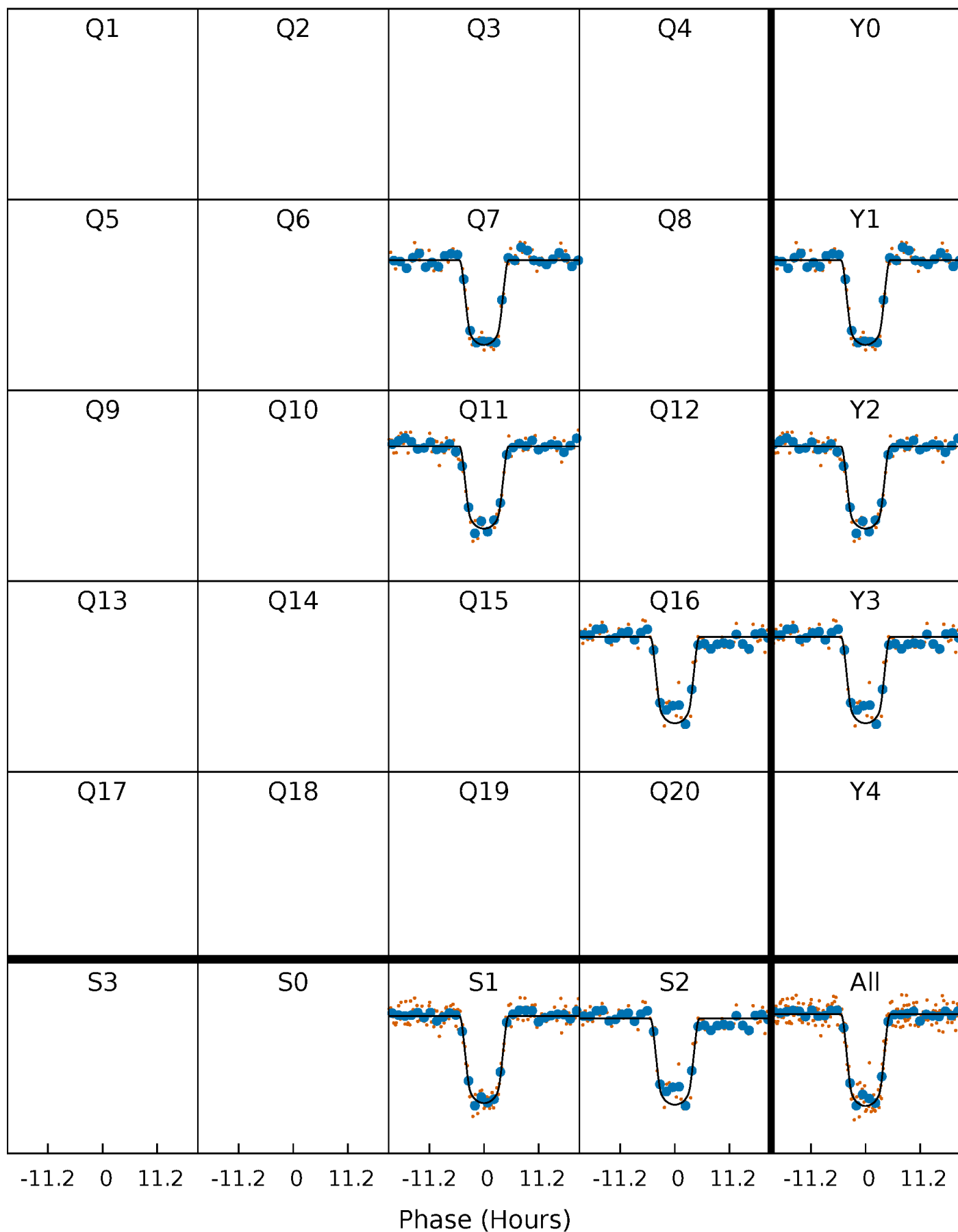
PDC Quarter-Phased Transit Curves

TCE 009839062-01 P=424.622633 Days $T_0=218.260895$ (BKJD)



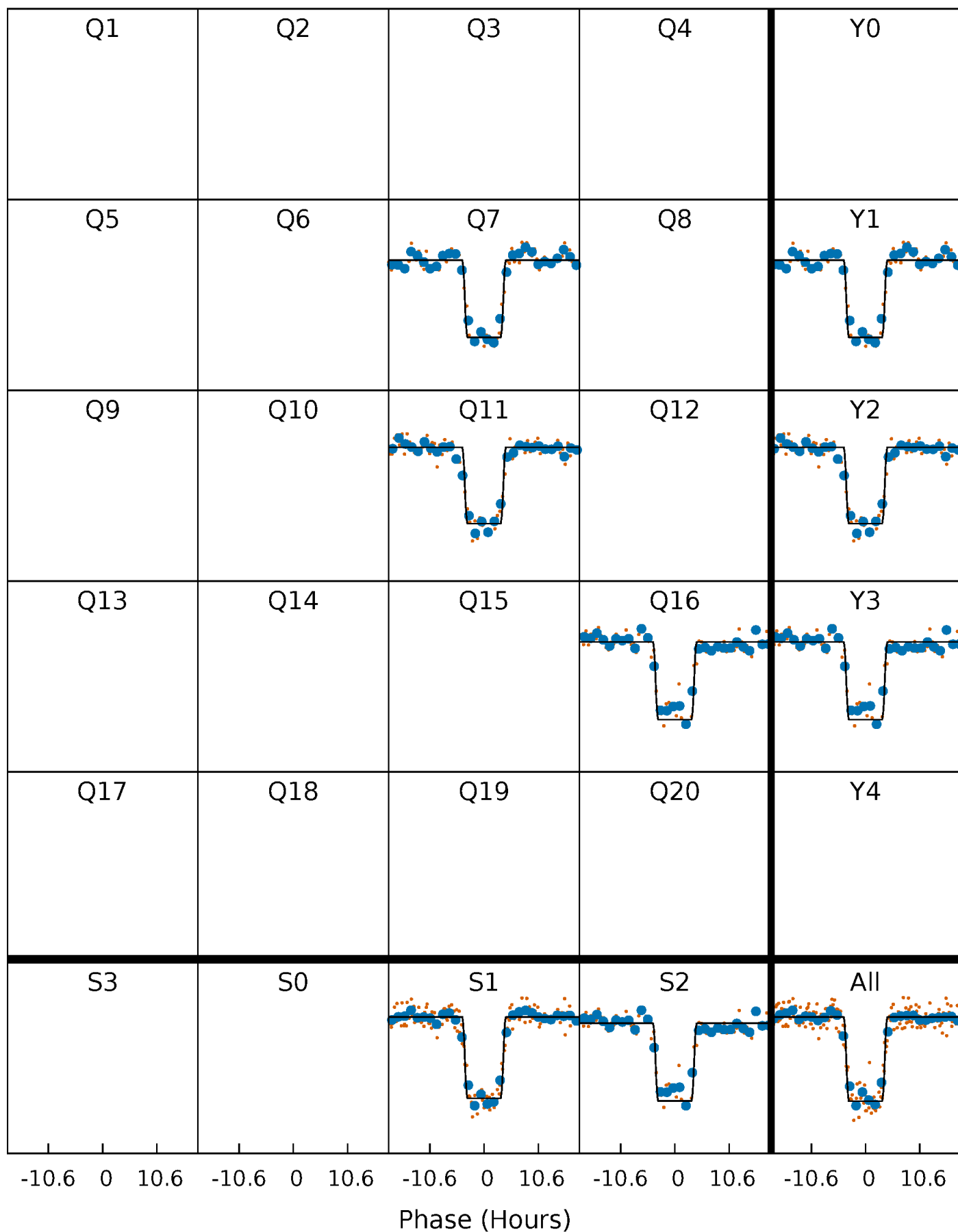
DV Quarter-Phased Transit Curves

TCE 009839062-01 P=424.622633 Days $T_0=218.260895$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

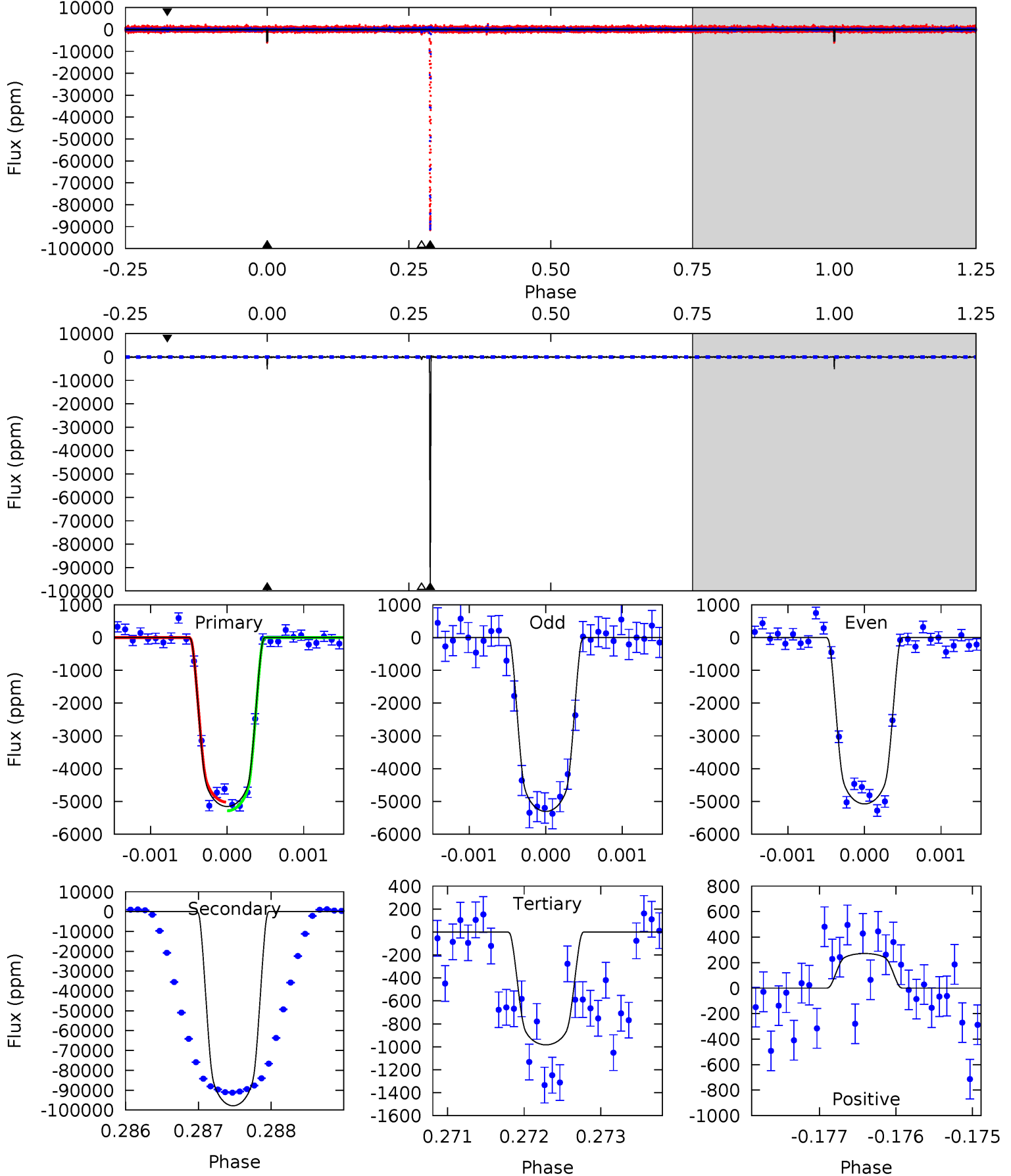
TCE 009839062-01 P=424.622999 Days $T_0=218.260284$ (BKJD)



DV Model-Shift Uniqueness Test

009839062-01, P = 424.622633 Days, E = 218.260895 Days

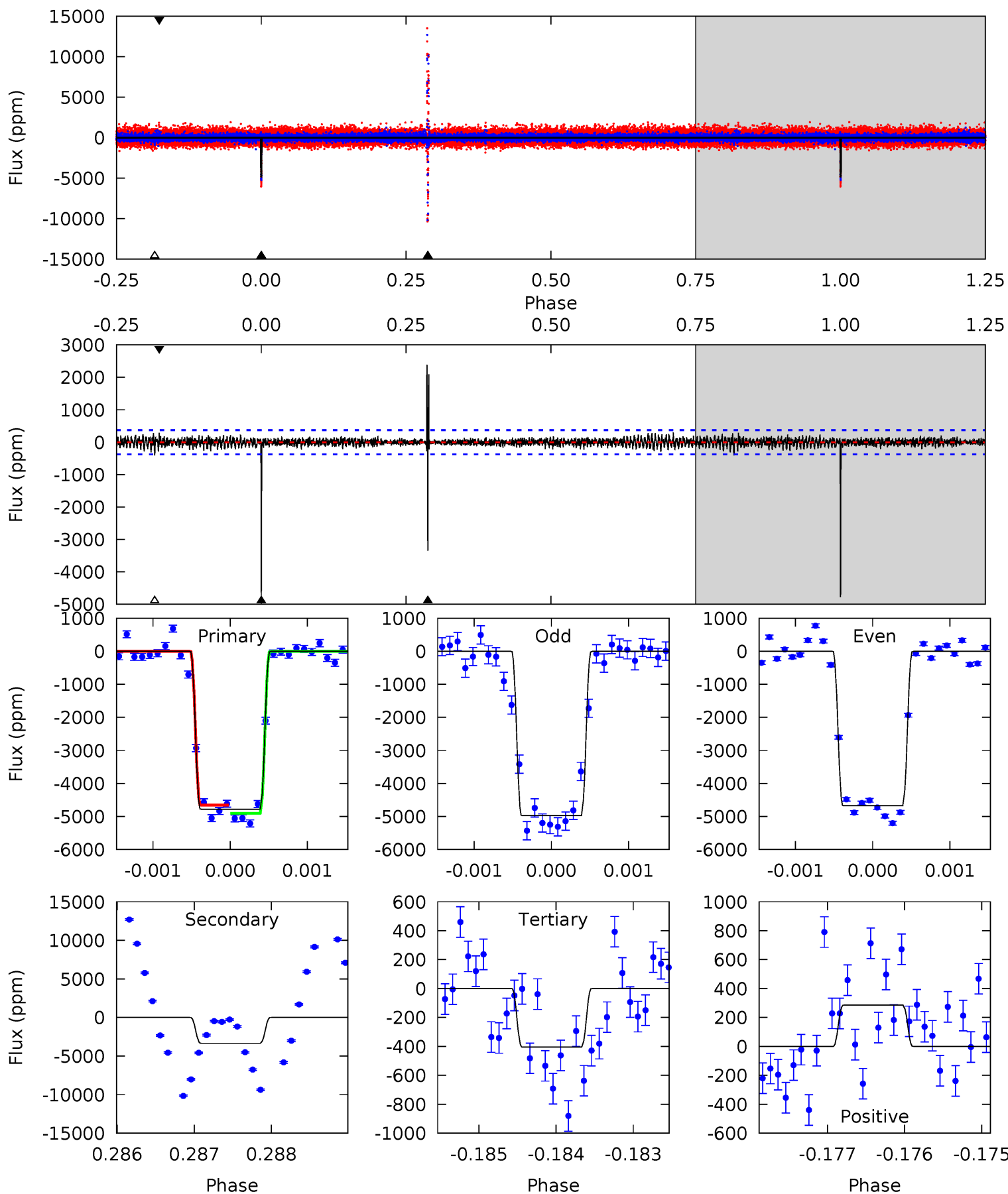
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 87.3 | 1658 | 16.7 | 4.60 | 5.45 | 3.29 | 6.32 | 70.7 | 82.7 | 1641 | 1653 | 1.81 | 0.98 | 0.01 | 0.73 |



Alt Model-Shift Uniqueness Test

009839062-01, P = 424.622999 Days, E = 218.260284 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 70.2 | 49.2 | 5.94 | 4.19 | 5.49 | 3.35 | 1.37 | 64.3 | 66.0 | 43.2 | 45.0 | 2.06 | 0.99 | 0.33 | 1.73 |



Stellar Parameters For KIC 009839062

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6339^{+176}_{-242} | $4.454^{+0.056}_{-0.224}$ | $-0.280^{+0.250}_{-0.300}$ | $1.017^{+0.334}_{-0.111}$ | $1.069^{+0.158}_{-0.143}$ | $1.432^{+0.415}_{-0.759}$ |
| | +3%/-4% | +1%/-5% | +89%/-107% | +33%/-11% | +15%/-13% | +29%/-53% |
| 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 009839062-01 / KOI 7968.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|------------------------|----------------------|-------------------------|-------------------------------|
| DV | -97871 ± 59 | $8.52^{+1.55}_{-0.79}$ | 379^{+28}_{-19} | 19488^{+1323}_{-1483} | $1038040^{+165898}_{-258864}$ |
| Alt. | -3347 ± 68 | $8.01^{+1.39}_{-0.66}$ | 379^{+30}_{-21} | 5765^{+168}_{-210} | 36324^{+5538}_{-9480} |

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

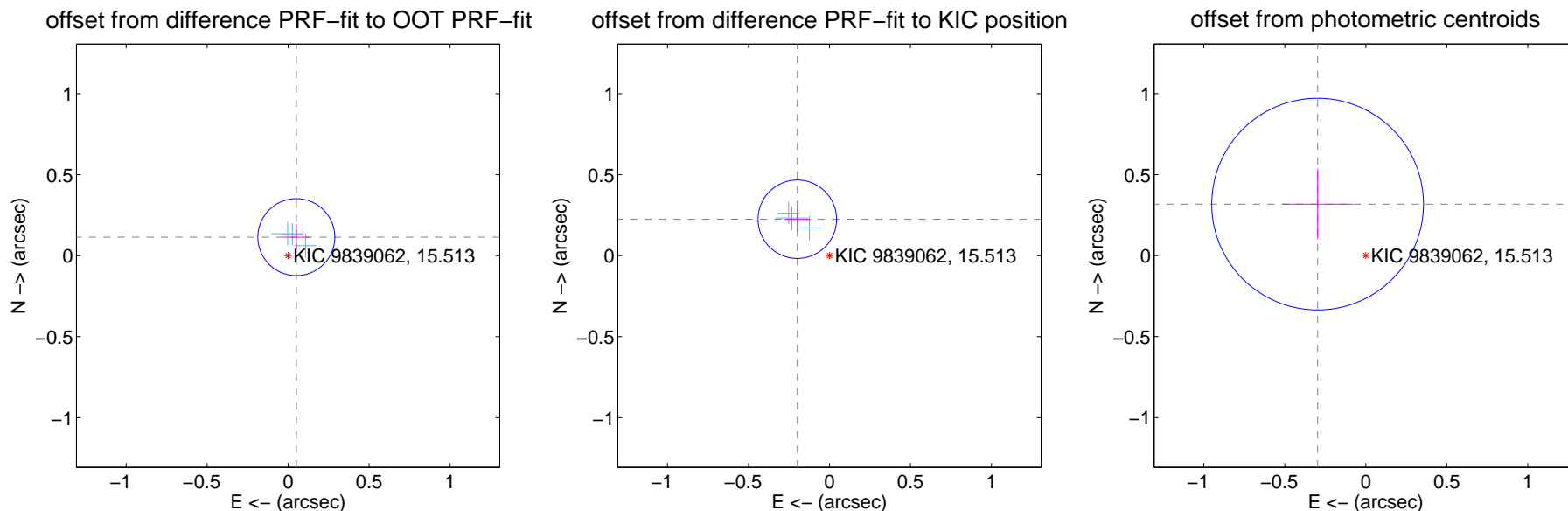
DV Centroid Data

Supplemental centroid analysis for 009839062-01. Kepler magnitude: 15.51. Transit SNR 62.41

There are 3 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 | 0.125 ± 0.079 | 1.58 | -0.051 ± 0.081 | 0.114 ± 0.079 |
| PRF-fit source offset from KIC position | 0.300 ± 0.081 | 3.72 | 0.199 ± 0.077 | 0.225 ± 0.072 |
| photometric centroid source offset | 0.44 ± 0.22 | 2.00 | 0.30 ± 0.22 | 0.32 ± 0.22 |



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.

Q5 no difference image



Q5 no OOT image



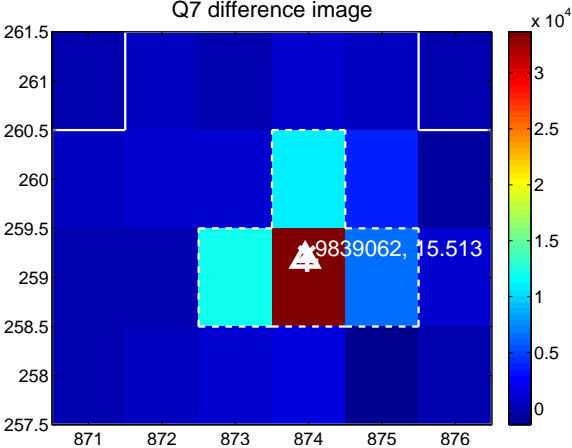
Q6 no difference image



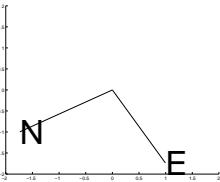
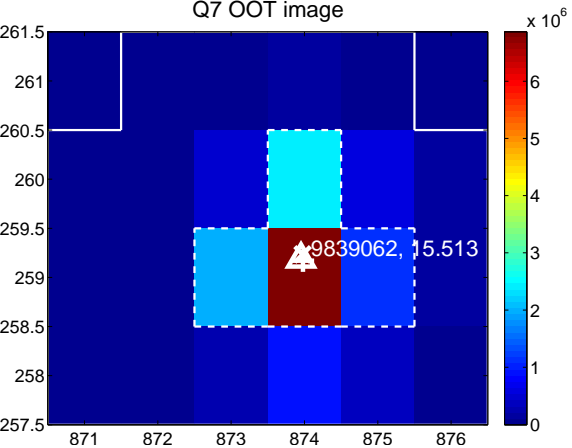
Q6 no OOT image



Q7 difference image



Q7 OOT image



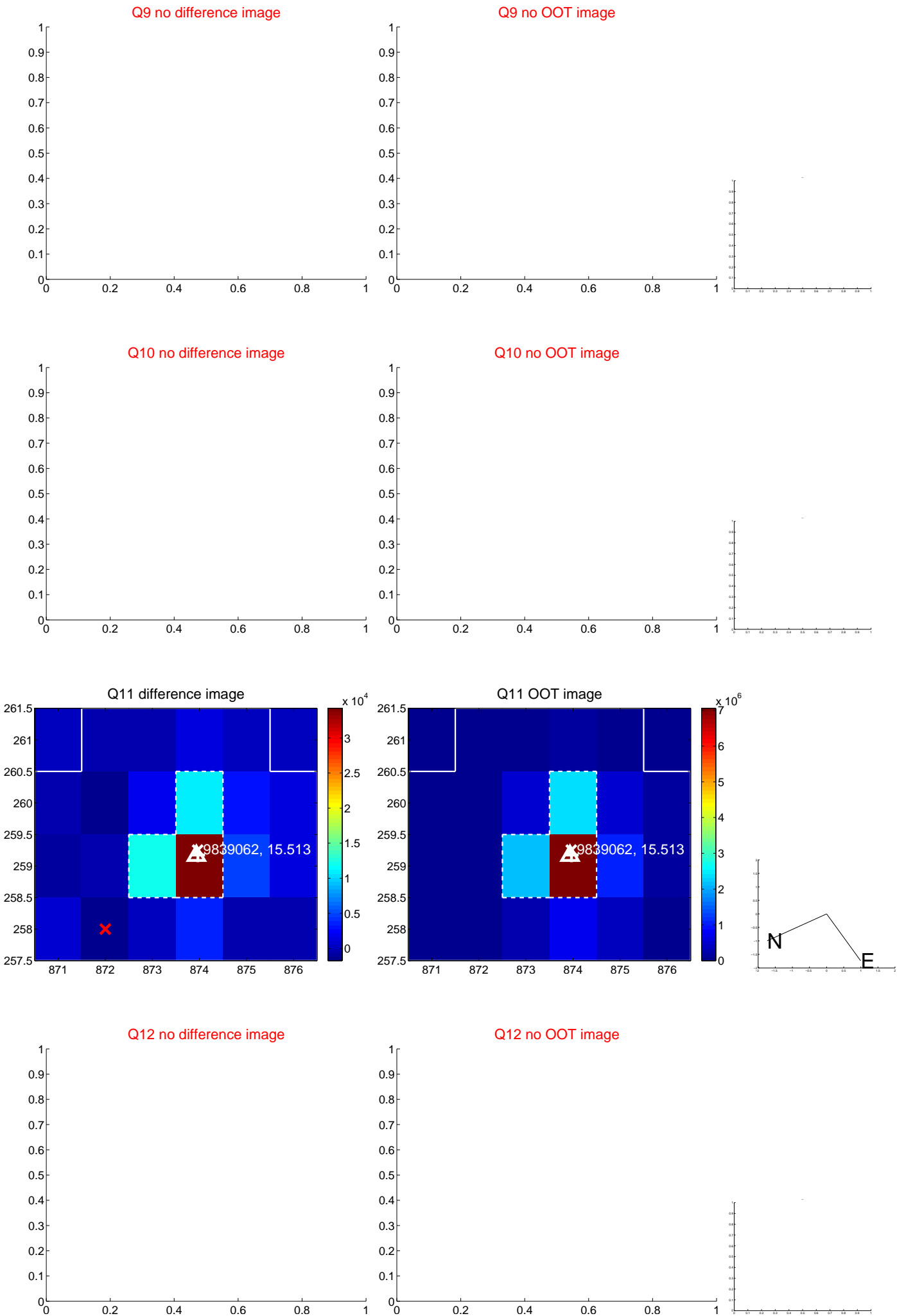
Q8 no difference image



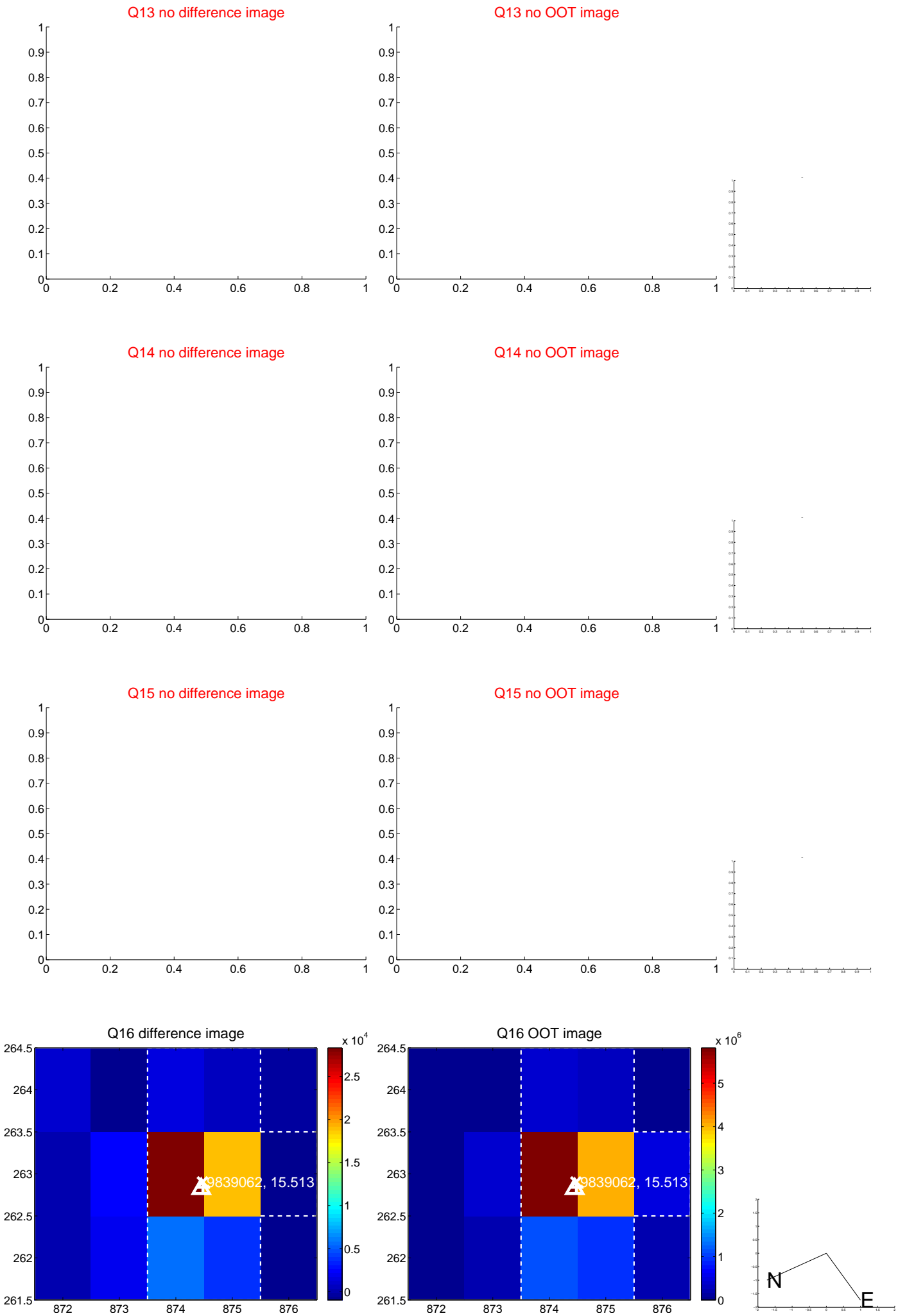
Q8 no OOT image



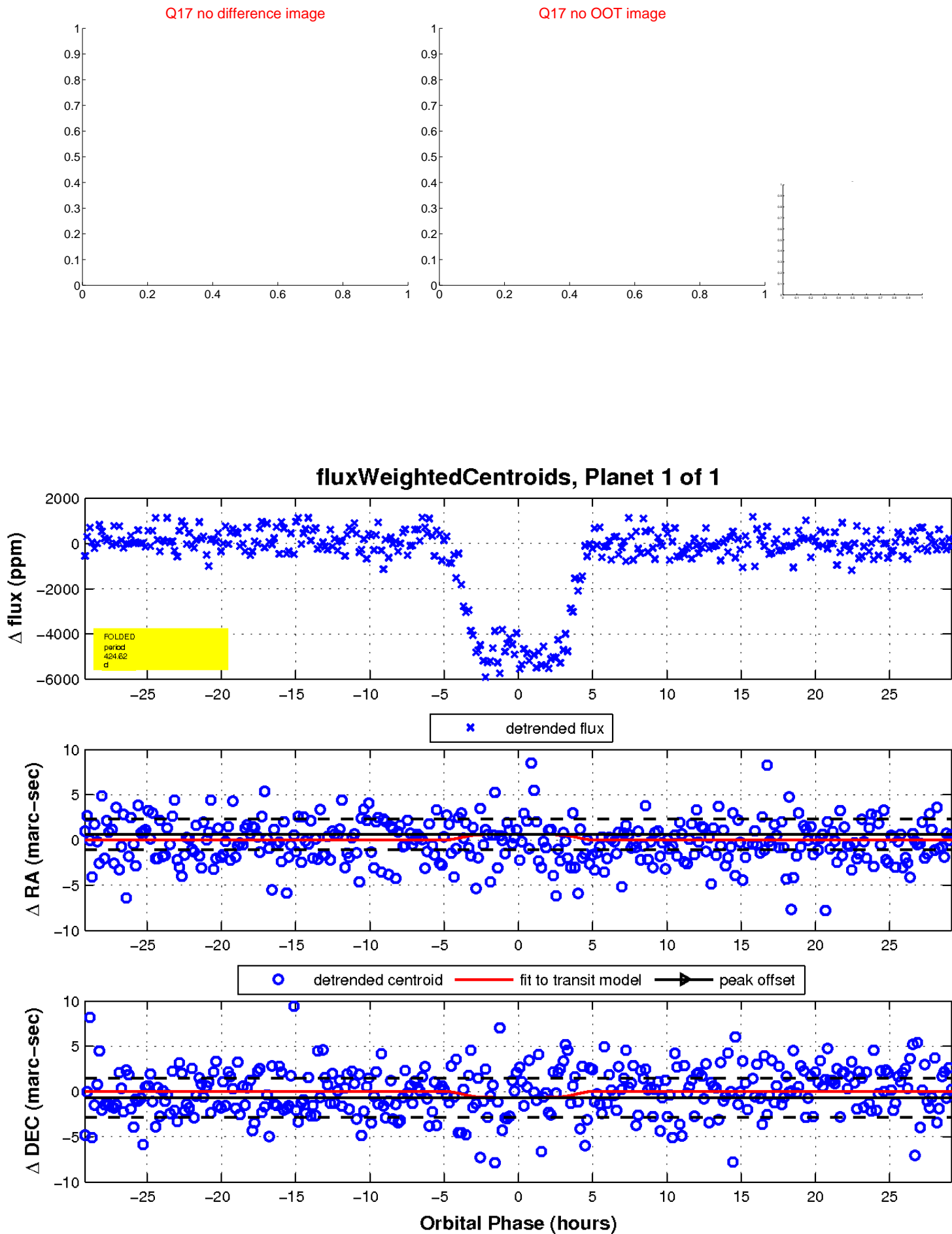
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

