

KIC 007870026

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007870026-01 | OBS | No | 127.437321 | 173.210509 | 855.6 | 3.644 | 13.4 | 8.9 | 0.94 | 5676 | 2.80 | 3.95 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007870026-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_CHASES_SKYE_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS— HALO_GHOST |

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

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

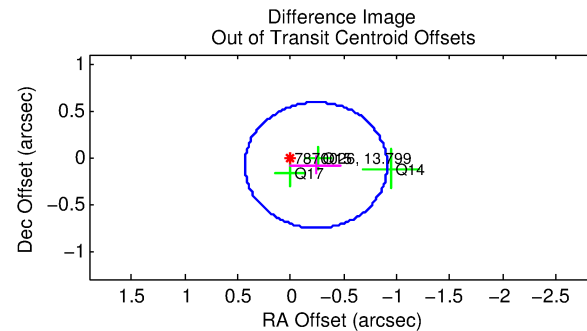
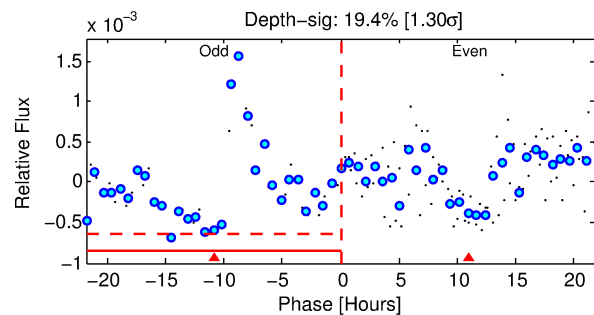
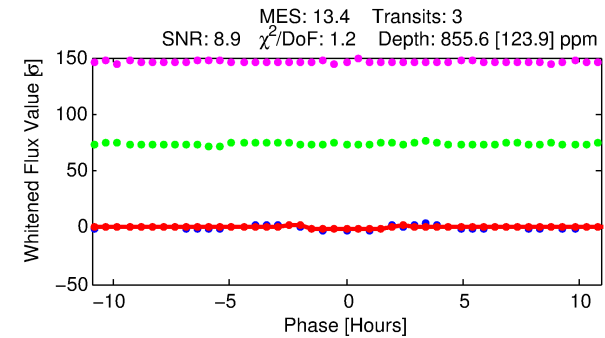
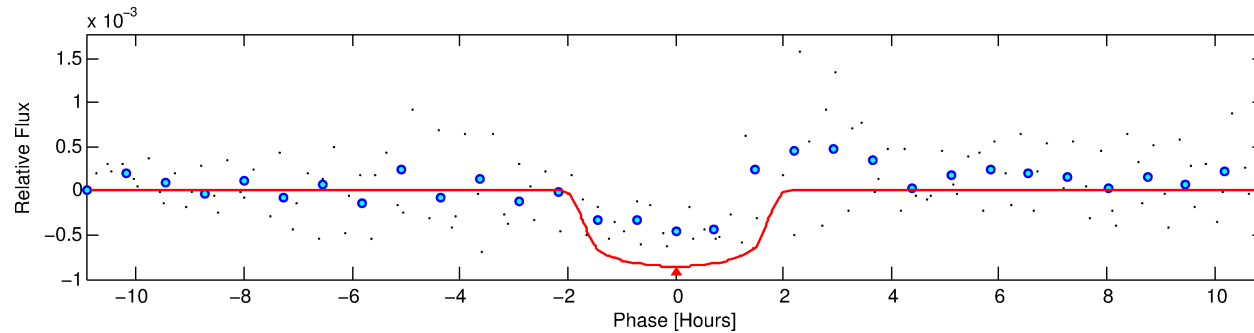
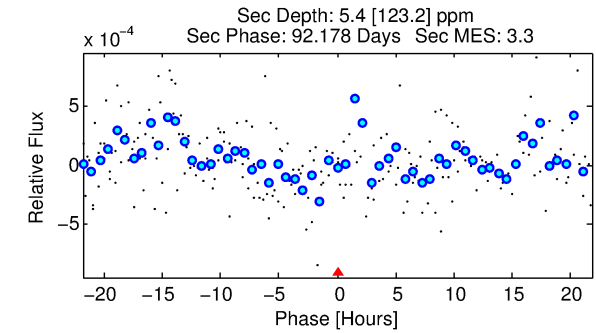
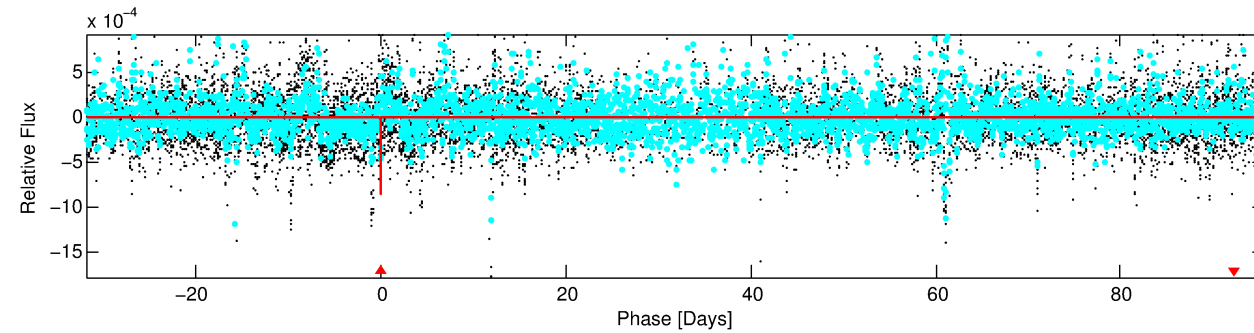
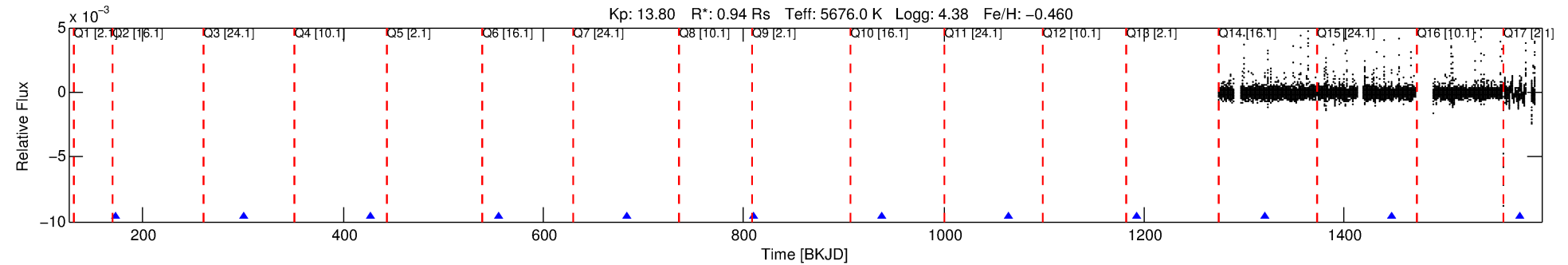
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007870026-01

No Significant Match Found

DV One-Page Summary

KIC: 7870026 Candidate: 1 of 1 Period: 127.437 d



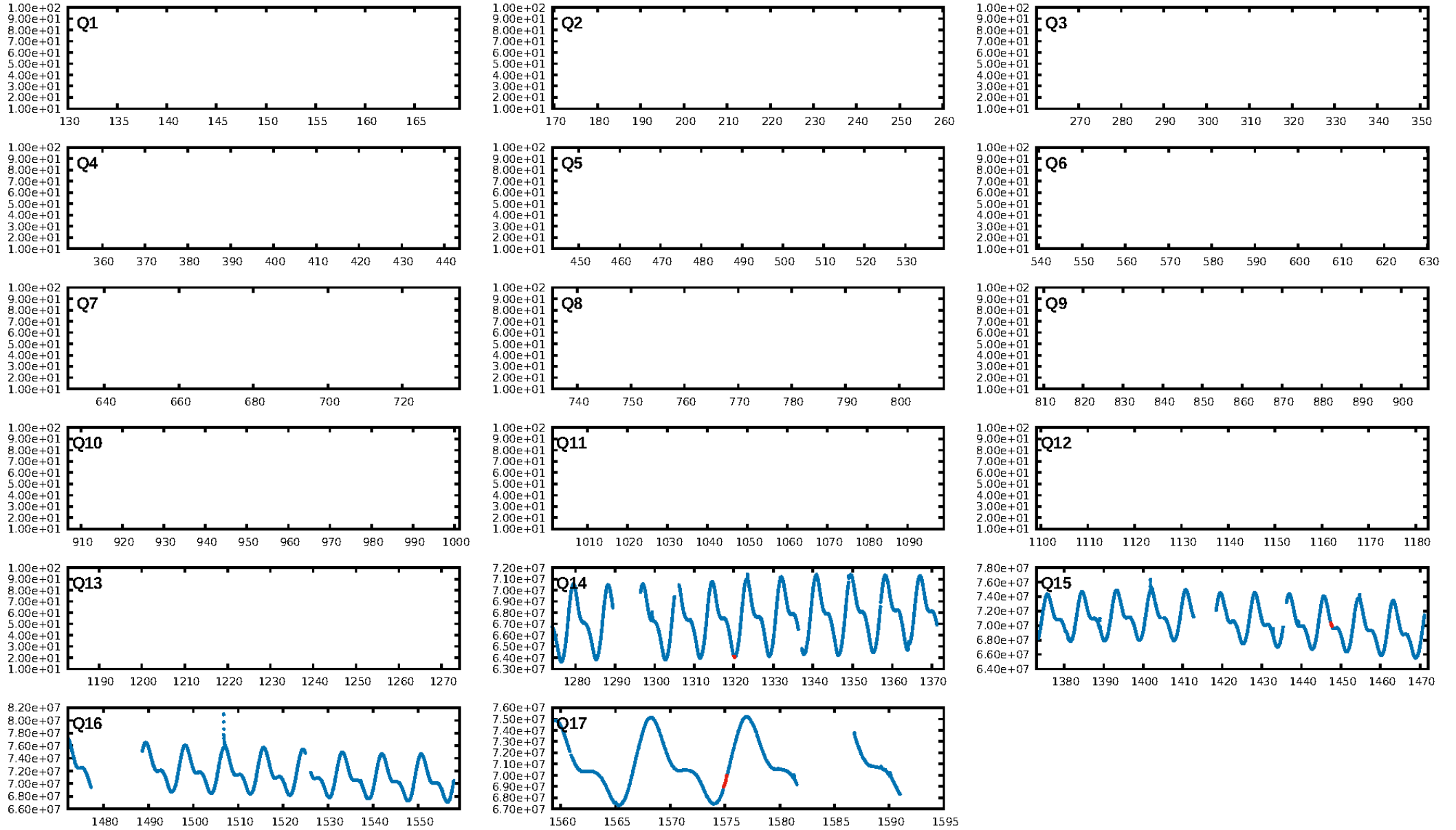
DV Fit Results:

Period = 127.43732 [0.00180] d
Epoch = 173.2105 [0.0183] BKJD
Rp/R* = 0.0274 [0.0386]
a/R* = 242.26 [1552.03]
b = 0.48 [10.27]
Seff = 3.95 [1.72]
Teq = 359 [39] K
Rp = 2.80 [4.04] Re
a = 0.4544 [0.1277] AU
Ag = 78.70 [1799.84] [0.04σ]
Teffp = 1655 [9461] K [0.14σ]

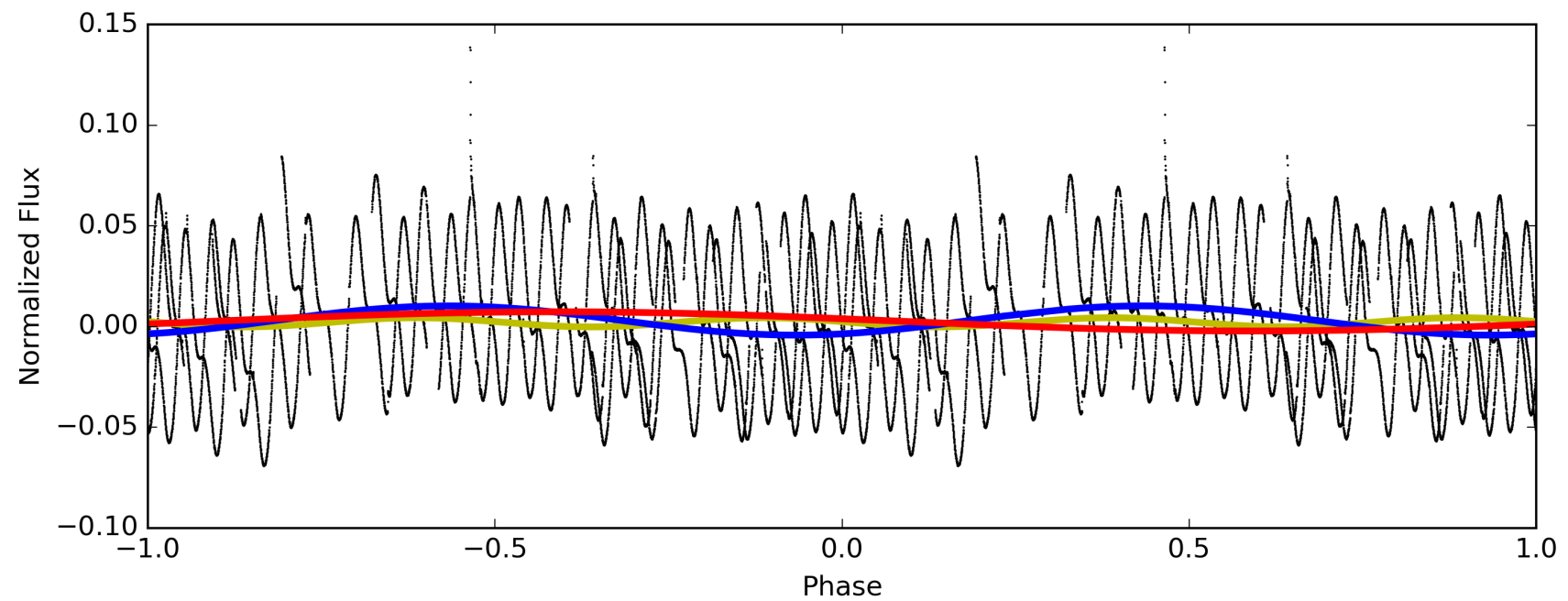
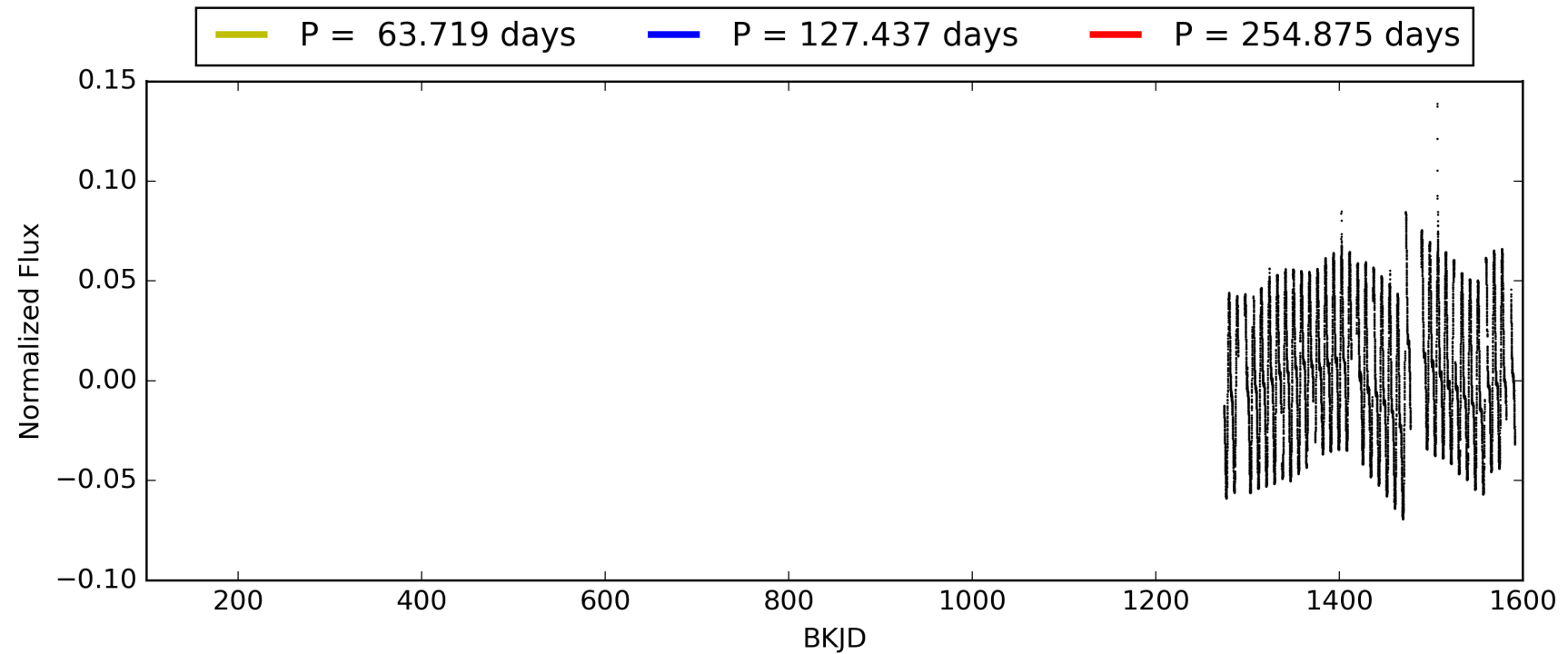
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.1%
ModelChiSquareGof-sig: 90.3%
Bootstrap-pfa: 7.12e-18
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.0562
Centroid-sig: 79.7%
Centroid-so: 0.551 arcsec [0.57σ]
OotOffset-rm: 0.256 arcsec [1.14σ]
KicOffset-rm: 0.127 arcsec [0.53σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 007870026-01, PDC Light Curves

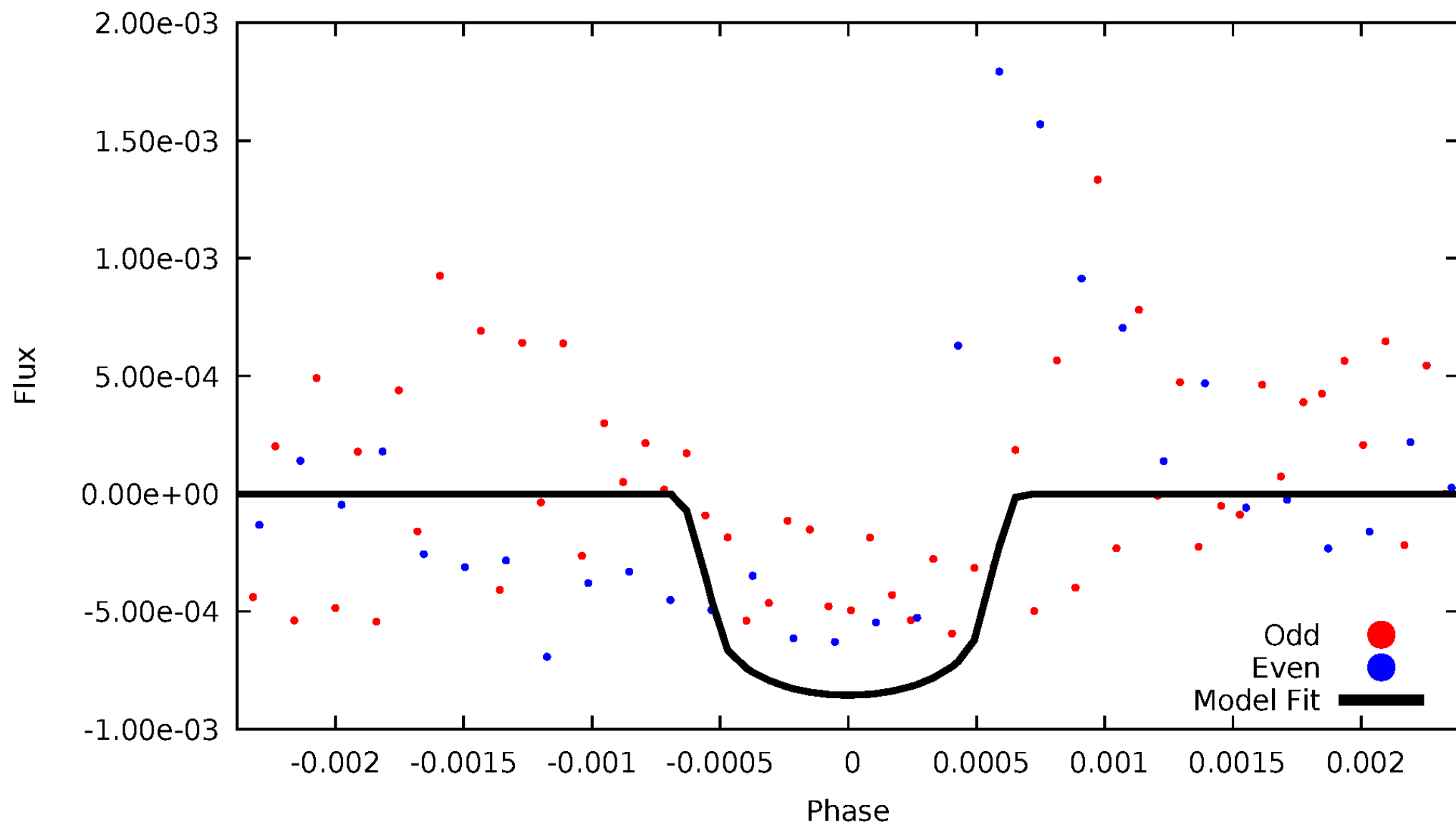


TCE 007870026-01



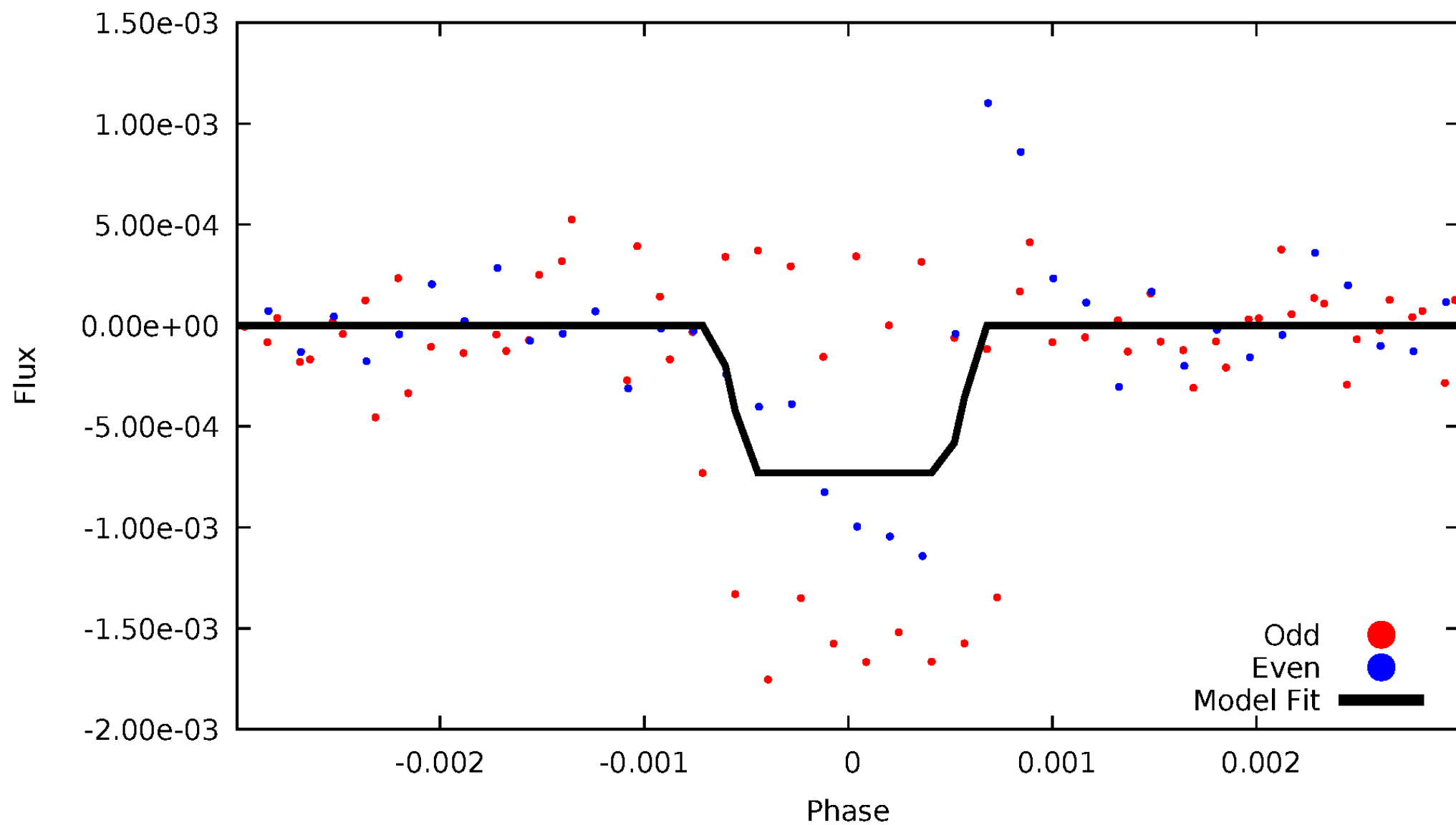
DV Odd/Even

TCE 007870026-01



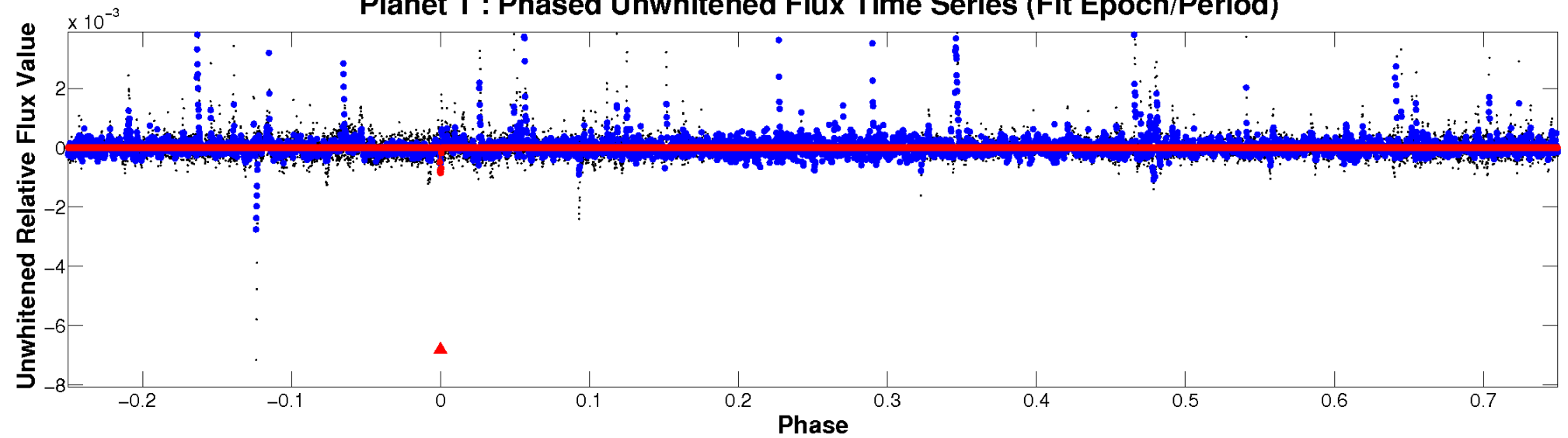
ALT Odd/Even

TCE 007870026-01

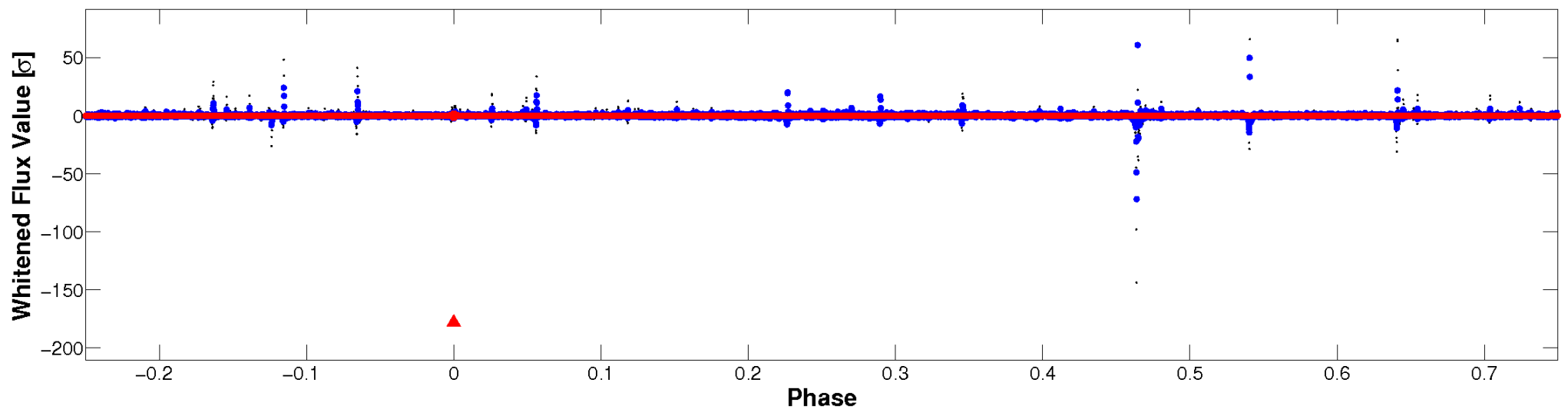


Non-Whitened Vs. Whitened Light Curve

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

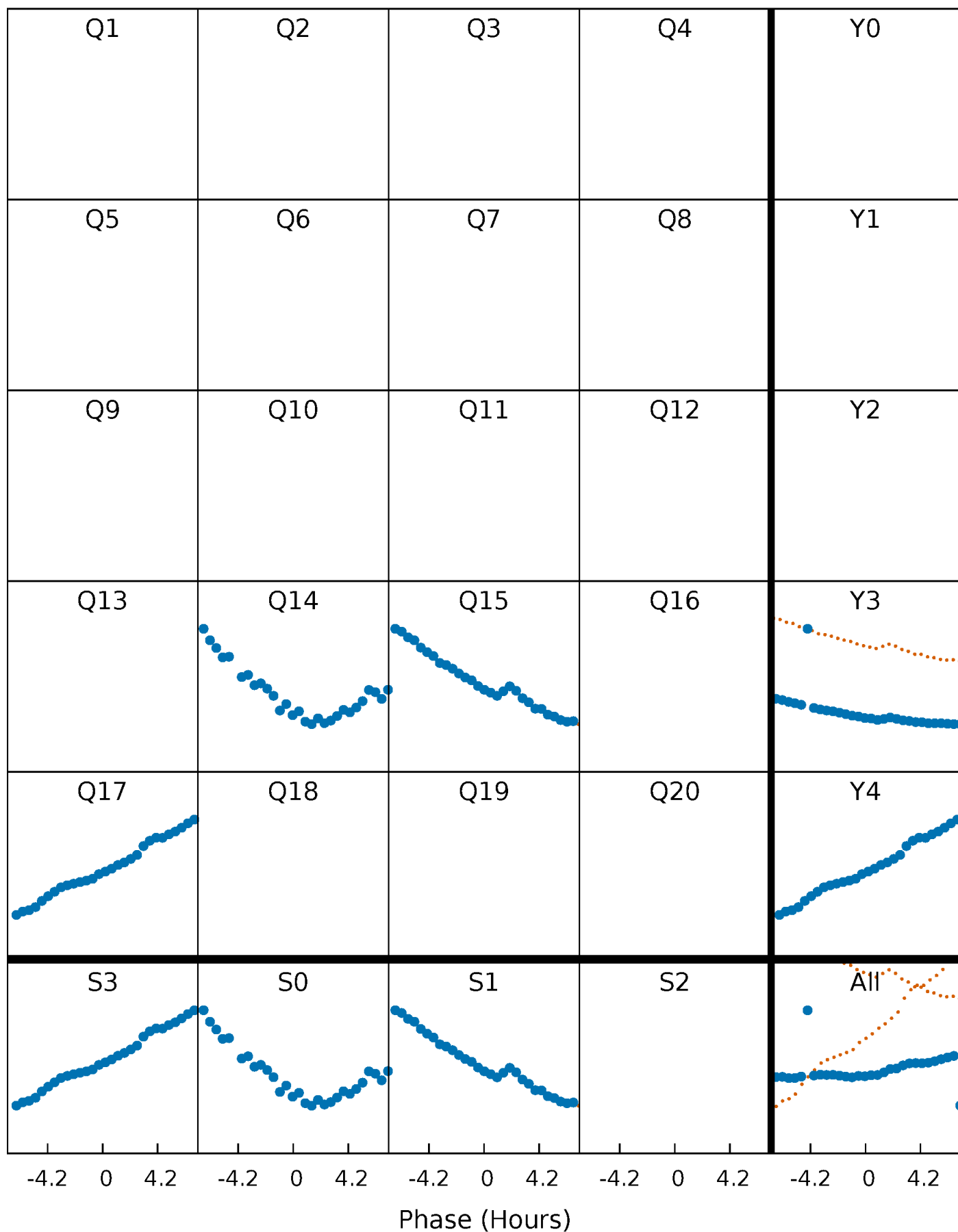


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



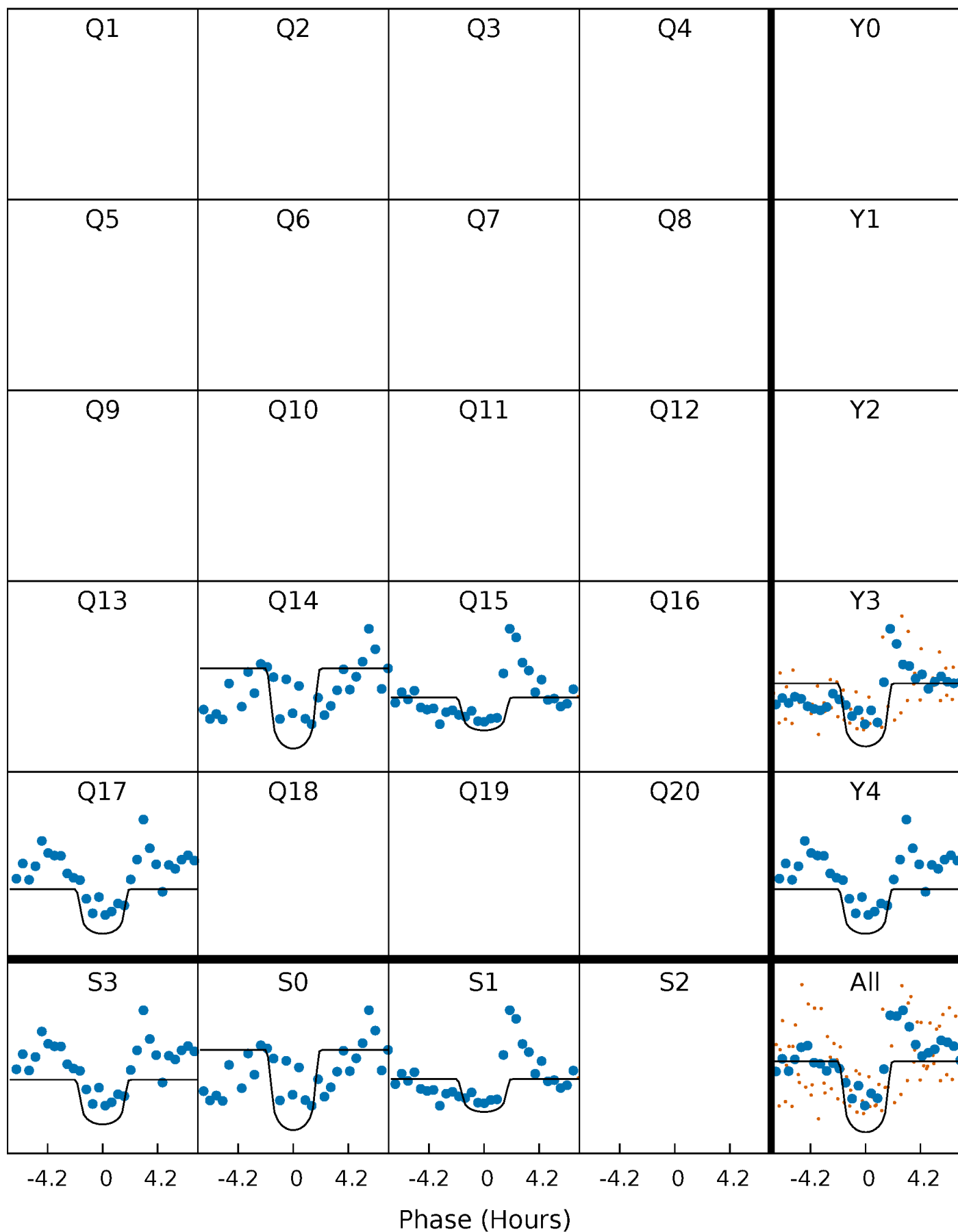
PDC Quarter-Phased Transit Curves

TCE 007870026-01 P=127.437321 Days $T_0=173.210509$ (BKJD)



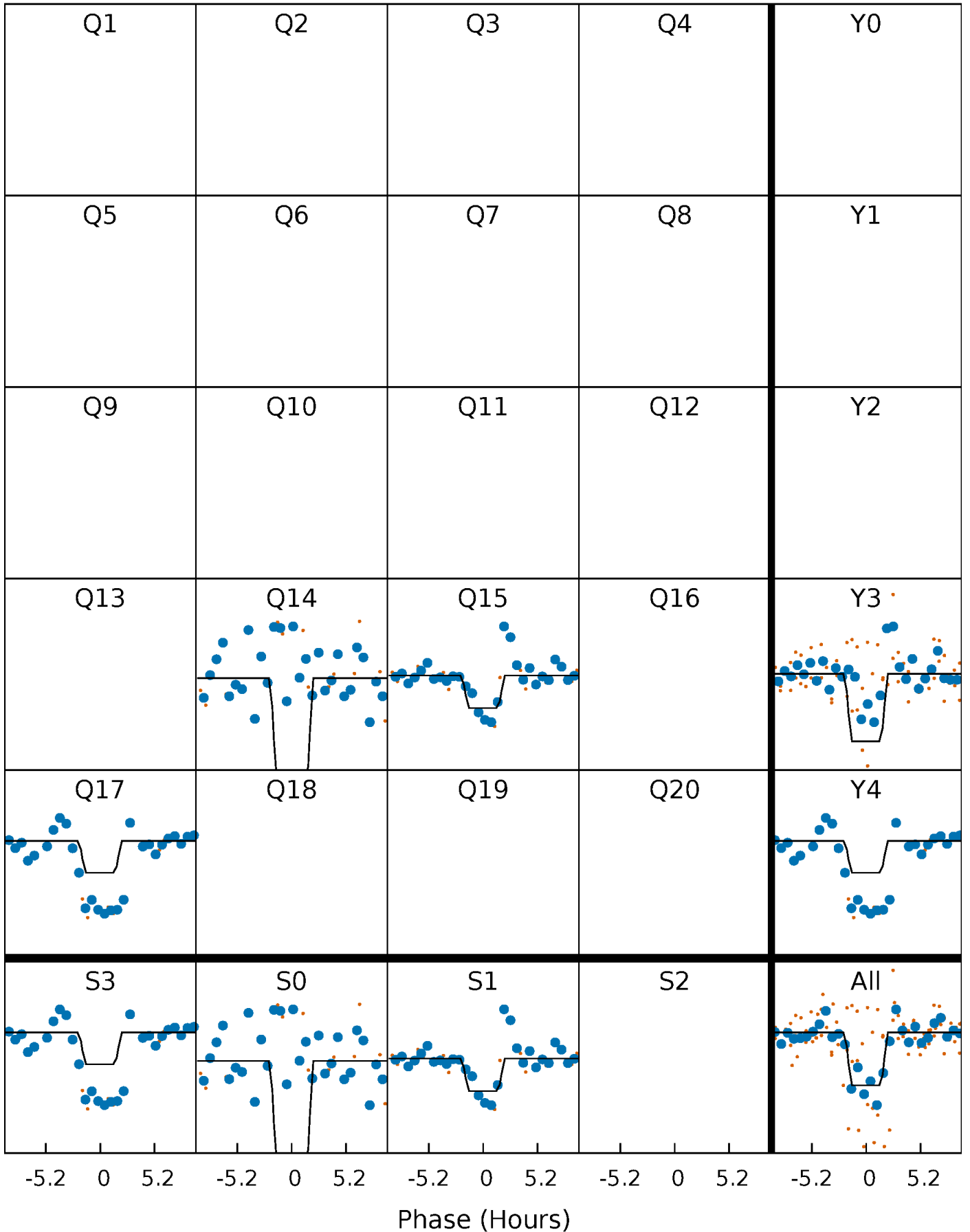
DV Quarter-Phased Transit Curves

TCE 007870026-01 P=127.437321 Days $T_0=173.210509$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

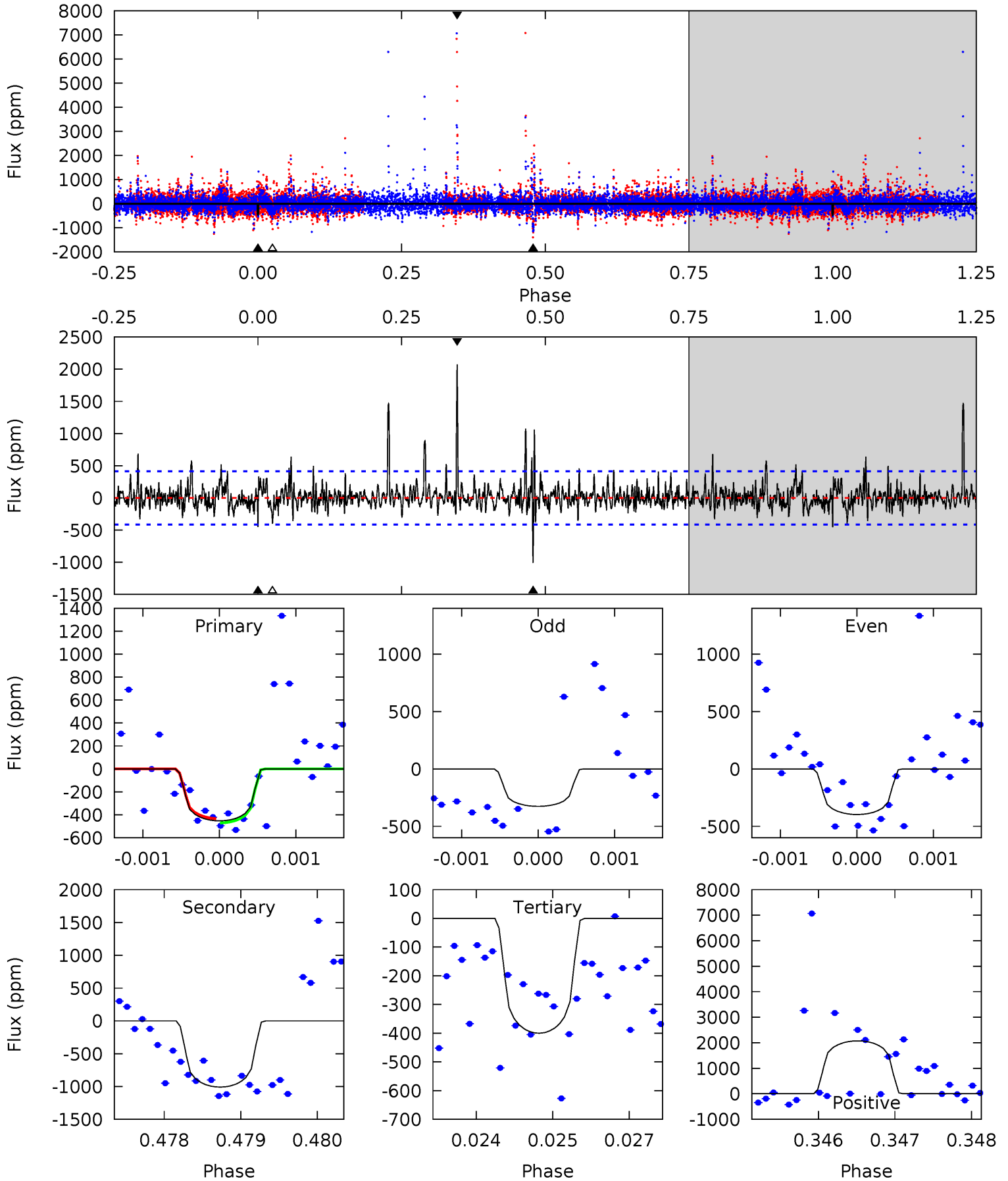
TCE 007870026-01 P=127.460182 Days $T_0=172.969680$ (BKJD)



DV Model-Shift Uniqueness Test

007870026-01, P = 127.437321 Days, E = 173.210509 Days

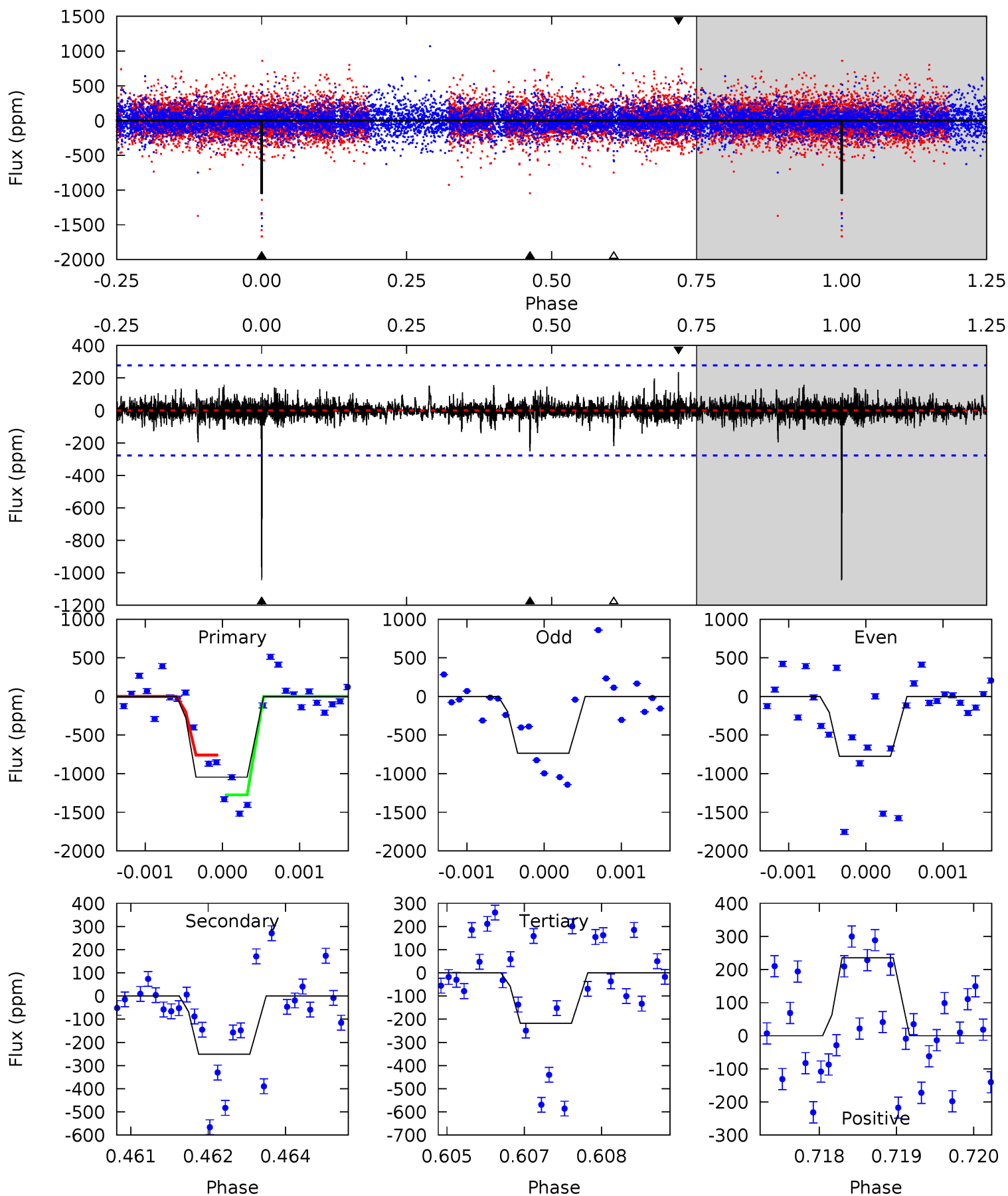
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.93 | 13.2 | 5.25 | 27.2 | 5.42 | 3.24 | 2.18 | 0.69 | -21.3 | 7.98 | -14.0 | 0.13 | 1.02 | 0.67 | 0.24 |



Alt Model-Shift Uniqueness Test

007870026-01, P = 127.460182 Days, E = 172.969680 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.3 | 4.88 | 4.24 | 4.57 | 5.41 | 3.22 | 0.73 | 16.1 | 15.8 | 0.64 | 0.30 | 0.27 | 1.02 | 0.18 | 4.77 |



Stellar Parameters For KIC 007870026

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5676^{+189}_{-189} | $4.382^{+0.189}_{-0.231}$ | $-0.460^{+0.300}_{-0.300}$ | $0.936^{+0.306}_{-0.165}$ | $0.770^{+0.125}_{-0.054}$ | $1.322^{+1.206}_{-0.728}$ |
| | +3%/-3% | +4%/-5% | +65%/-65% | +33%/-18% | +16%/-7% | +91%/-55% |
| 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 007870026-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|------------------------|-------------------|-----------------------|-------------------------|
| DV | -1008 ± 76 | $4.35^{+3.70}_{-2.85}$ | 500^{+47}_{-34} | 4911^{+3860}_{-905} | 5970^{+46586}_{-4141} |
| Alt. | -251 ± 51 | $4.01^{+3.66}_{-2.69}$ | 506^{+40}_{-37} | 3960^{+2275}_{-764} | 1748^{+15218}_{-1299} |

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

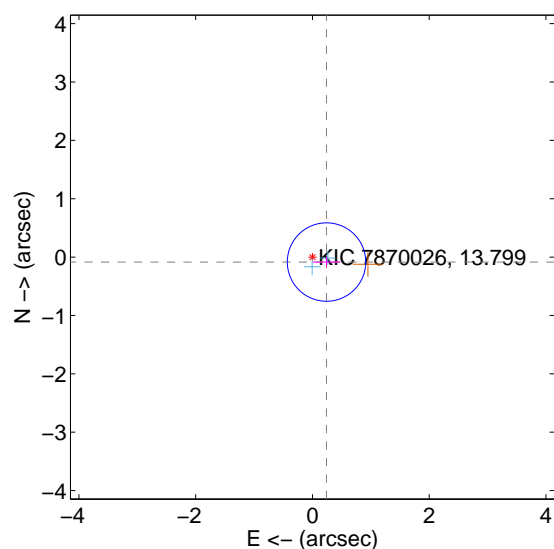
Supplemental centroid analysis for 007870026-01. Kepler magnitude: 13.80. Transit SNR 8.93

There are 2 quarters with good PRF difference image offsets

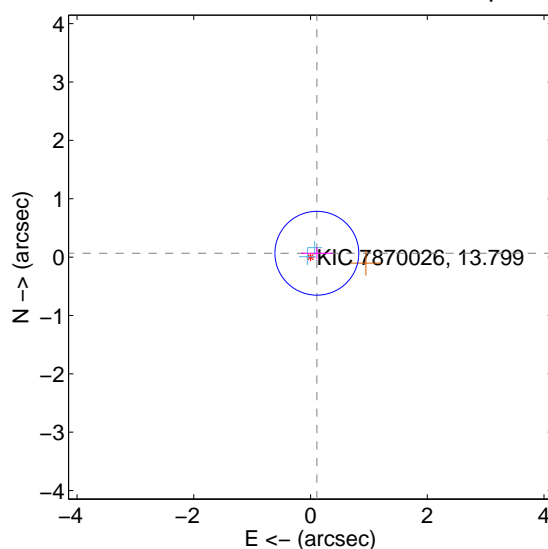
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.256 ± 0.224 | 1.14 | -0.241 ± 0.235 | -0.085 ± 0.086 |
| PRF-fit source offset from KIC position | 0.127 ± 0.239 | 0.53 | -0.109 ± 0.273 | 0.066 ± 0.105 |
| photometric centroid source offset | 0.55 ± 0.97 | 0.57 | -0.44 ± 0.97 | 0.33 ± 0.97 |

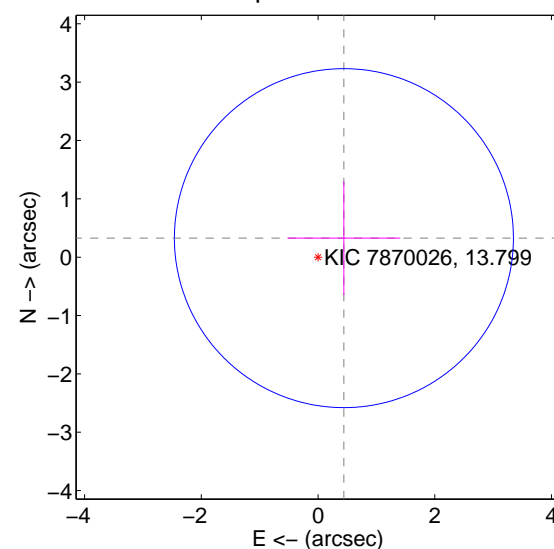
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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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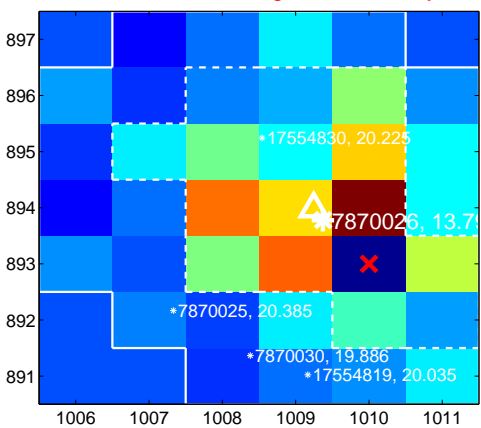
Q13 no difference image



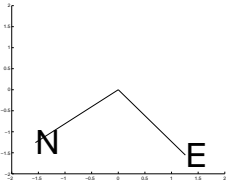
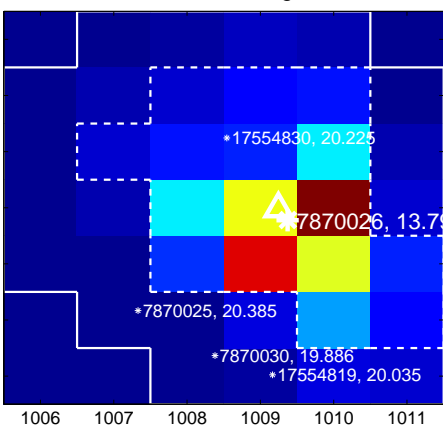
Q13 no OOT image



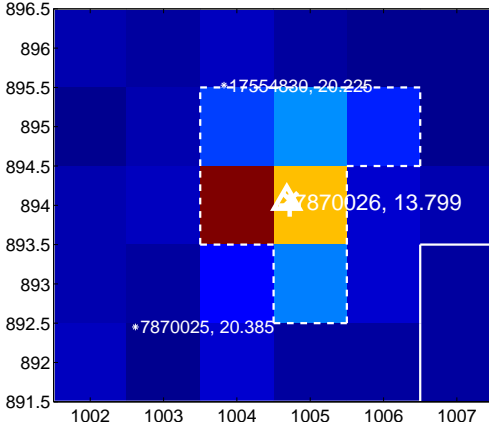
Q14 difference image. Poor Quality



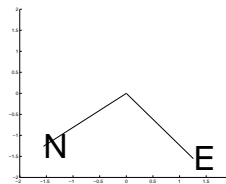
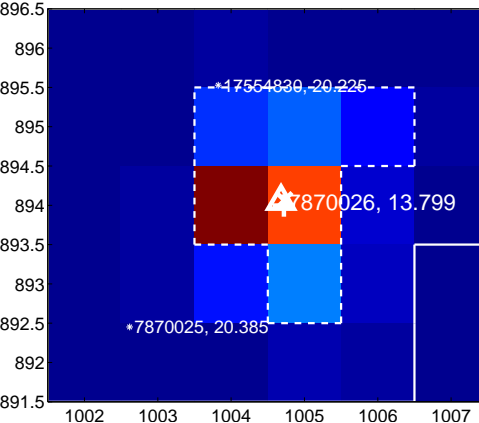
Q14 OOT image



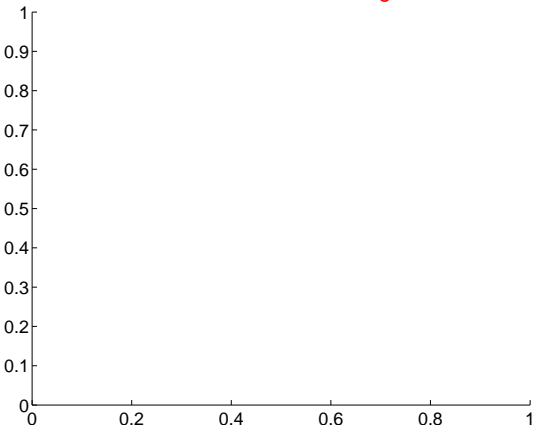
Q15 difference image



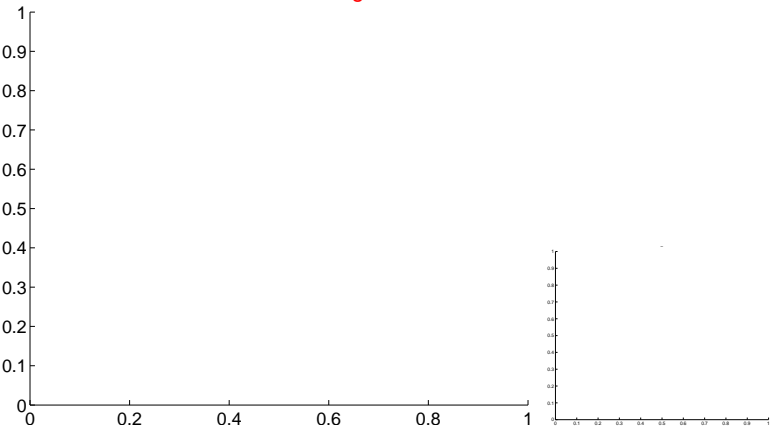
Q15 OOT image



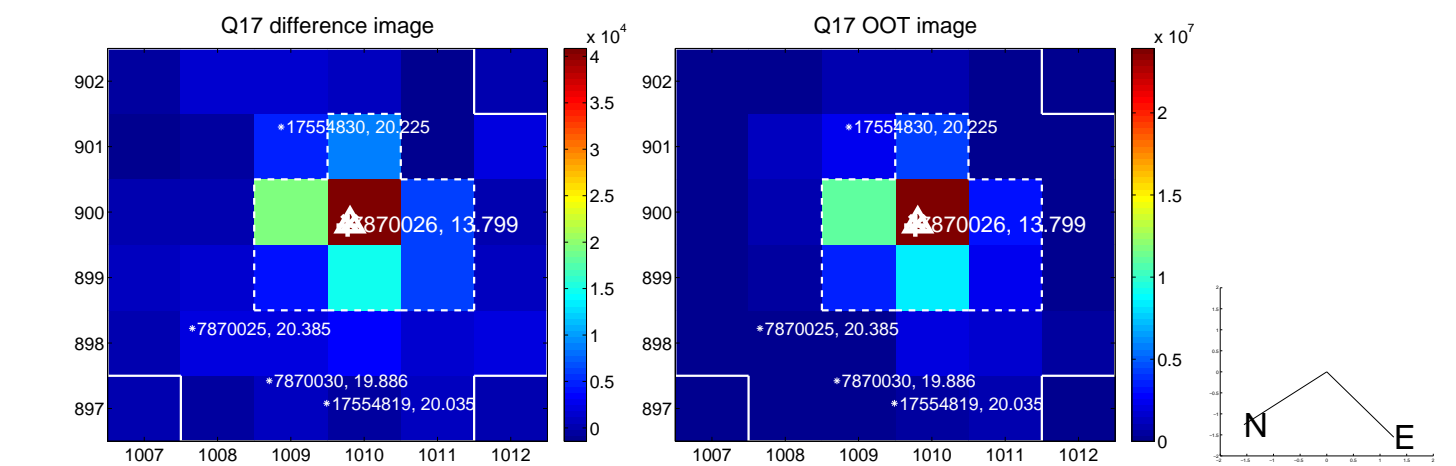
Q16 no difference image



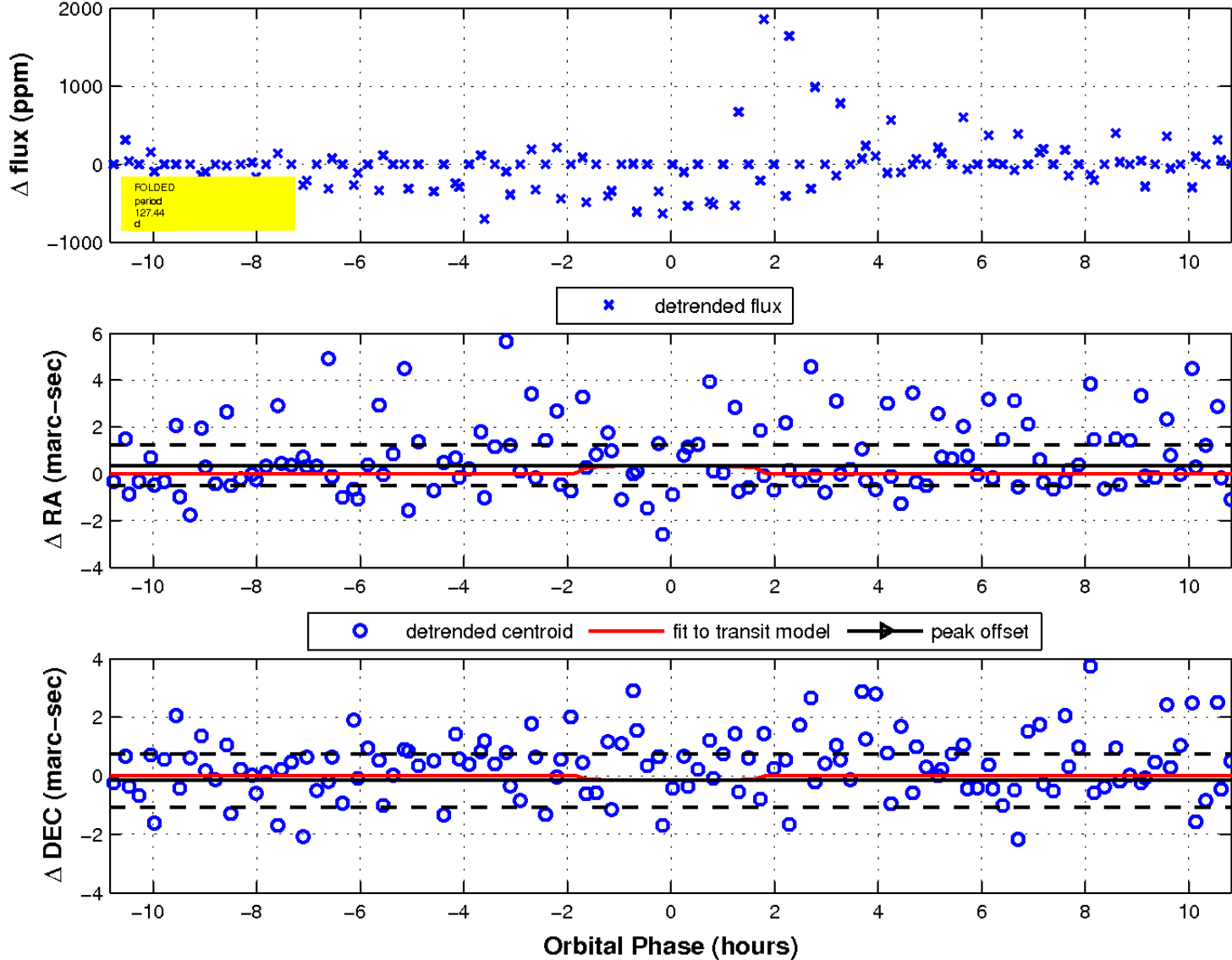
Q16 no OOT image



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

