

KIC 009182928

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009182928-01 | OBS | No | 1.241379 | 132.562218 | 986.7 | 2.156 | 18.6 | 20.7 | 1.92 | 6270 | 7.86 | 9468.75 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|-----------------------|
| 009182928-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—CENT_FEW_DIFFS |

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

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

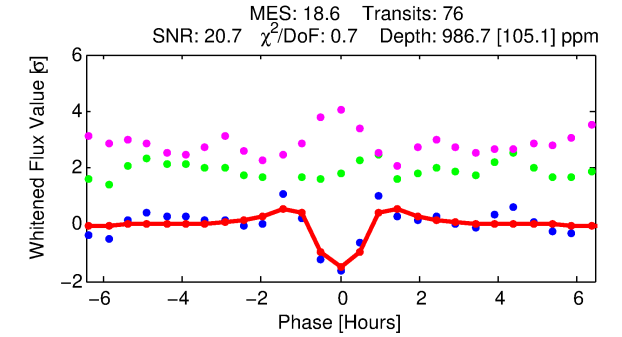
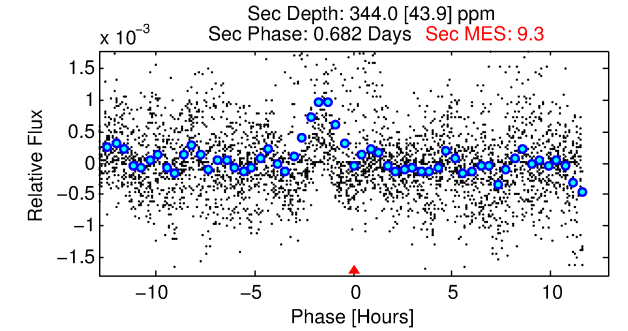
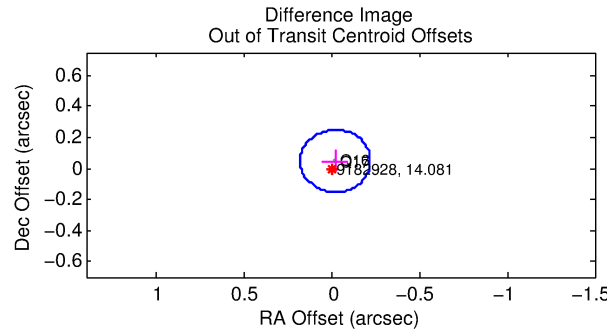
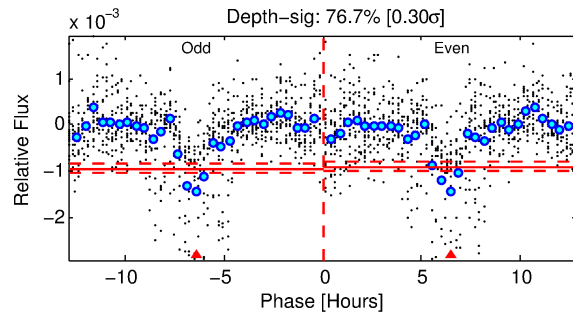
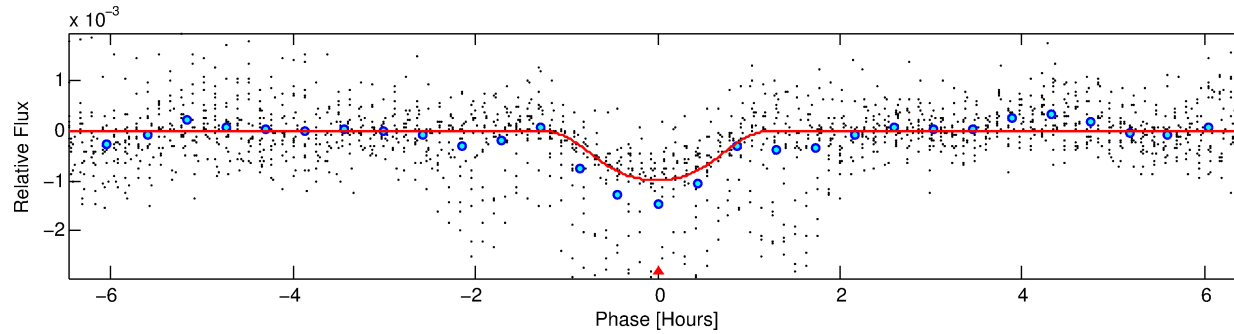
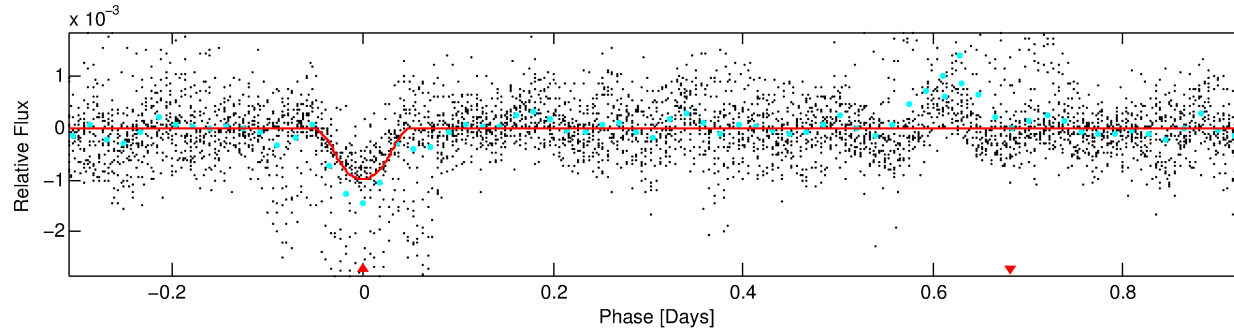
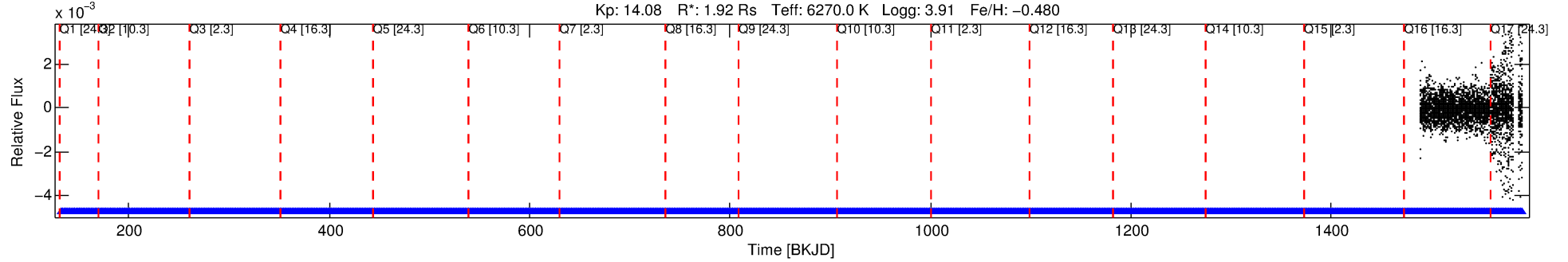
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009182928-01

No Significant Match Found

DV One-Page Summary

KIC: 9182928 Candidate: 1 of 1 Period: 1.241 d



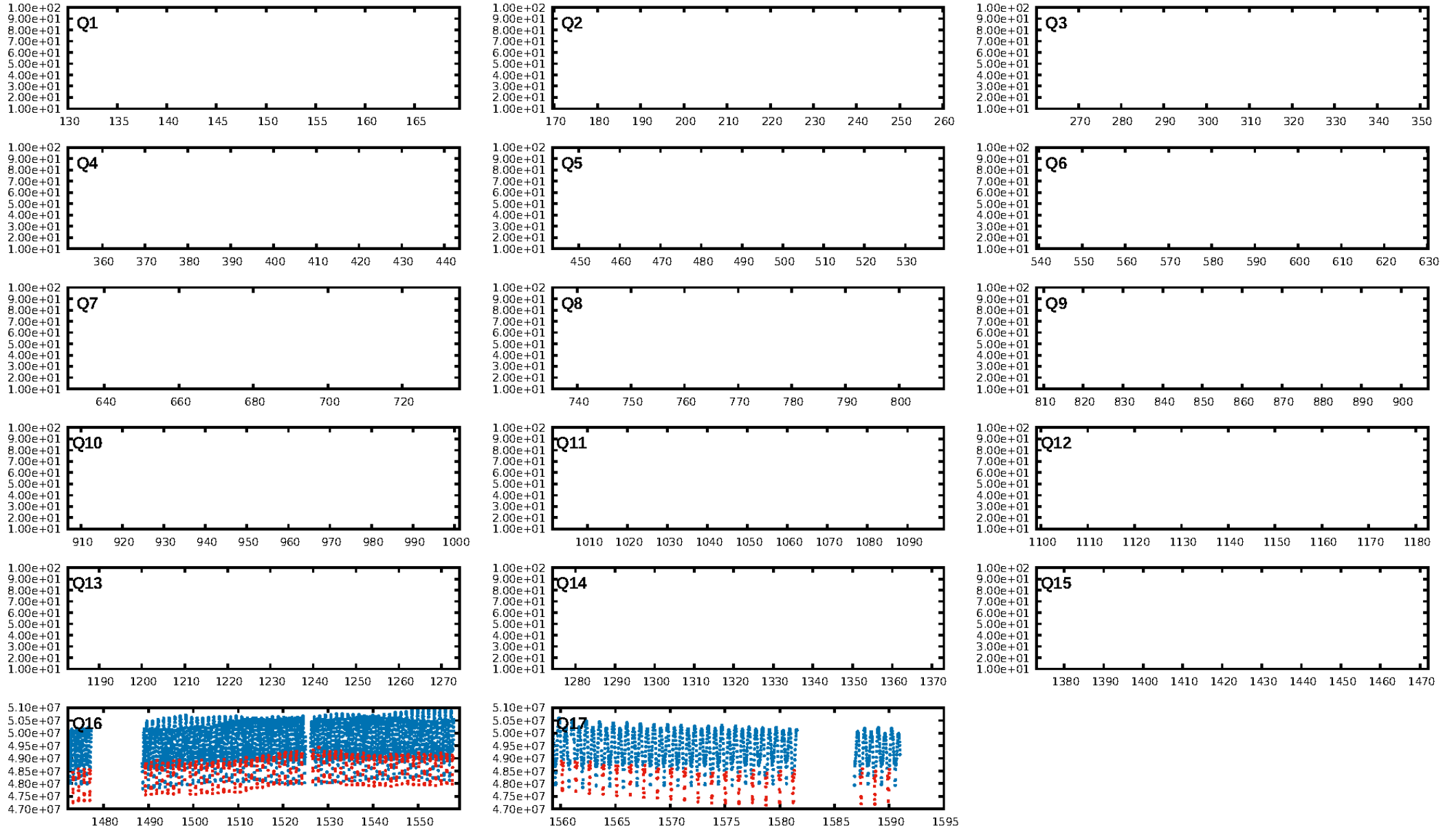
DV Fit Results:

Period = 1.24138 [0.00000] d
Epoch = 132.5622 [0.0009] BKJD
Rp/R* = 0.0375 [0.0040]
a/R* = 1.94 [0.14]
b = 0.97 [0.01]
Seff = 9468.75 [7813.44]
Teff = 2515 [519] K
Rp = 7.86 [3.74] Re
a = 0.0232 [0.0113] AU
Ag = 1.65 [1.40] [0.47 σ]
Teffp = 4409 [320] K [3.10 σ]

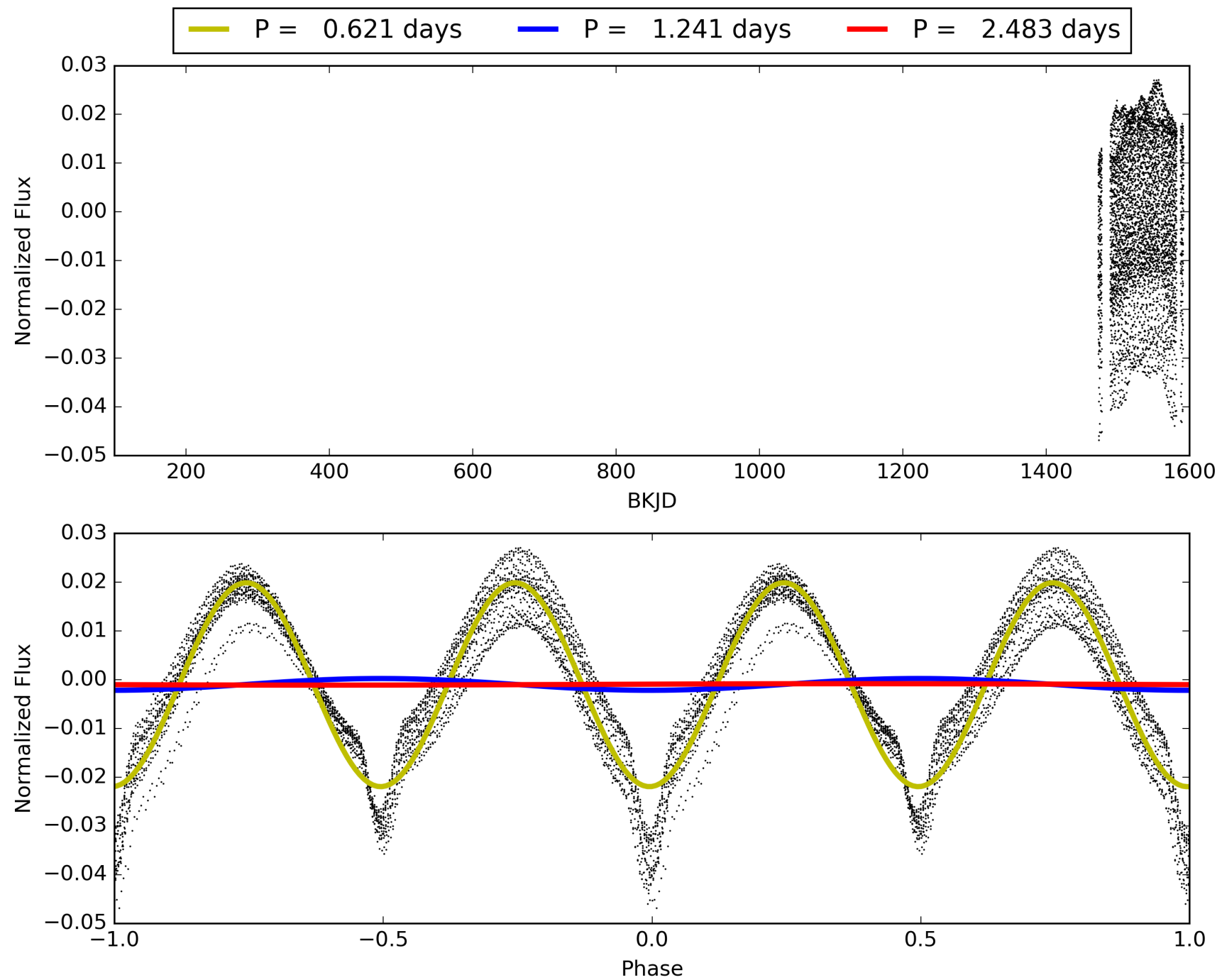
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 68.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.72e-77
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: 0.401
Centroid-sig: 0.0%
Centroid-so: 1.144 arcsec [2.71 σ]
OotOffset-rm: 0.052 arcsec [0.78 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.094 arcsec [1.39 σ]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009182928-01, PDC Light Curves

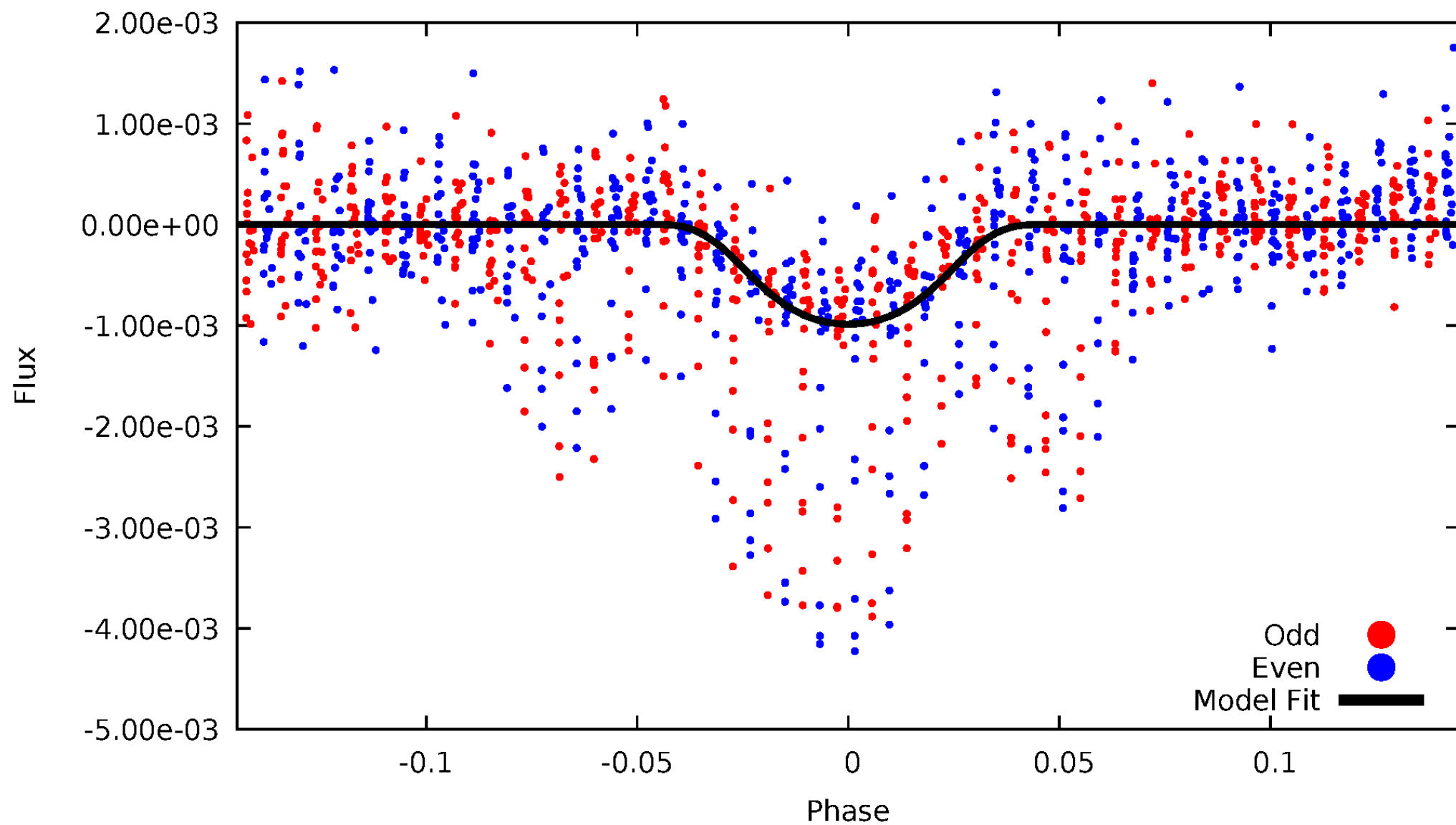


TCE 009182928-01



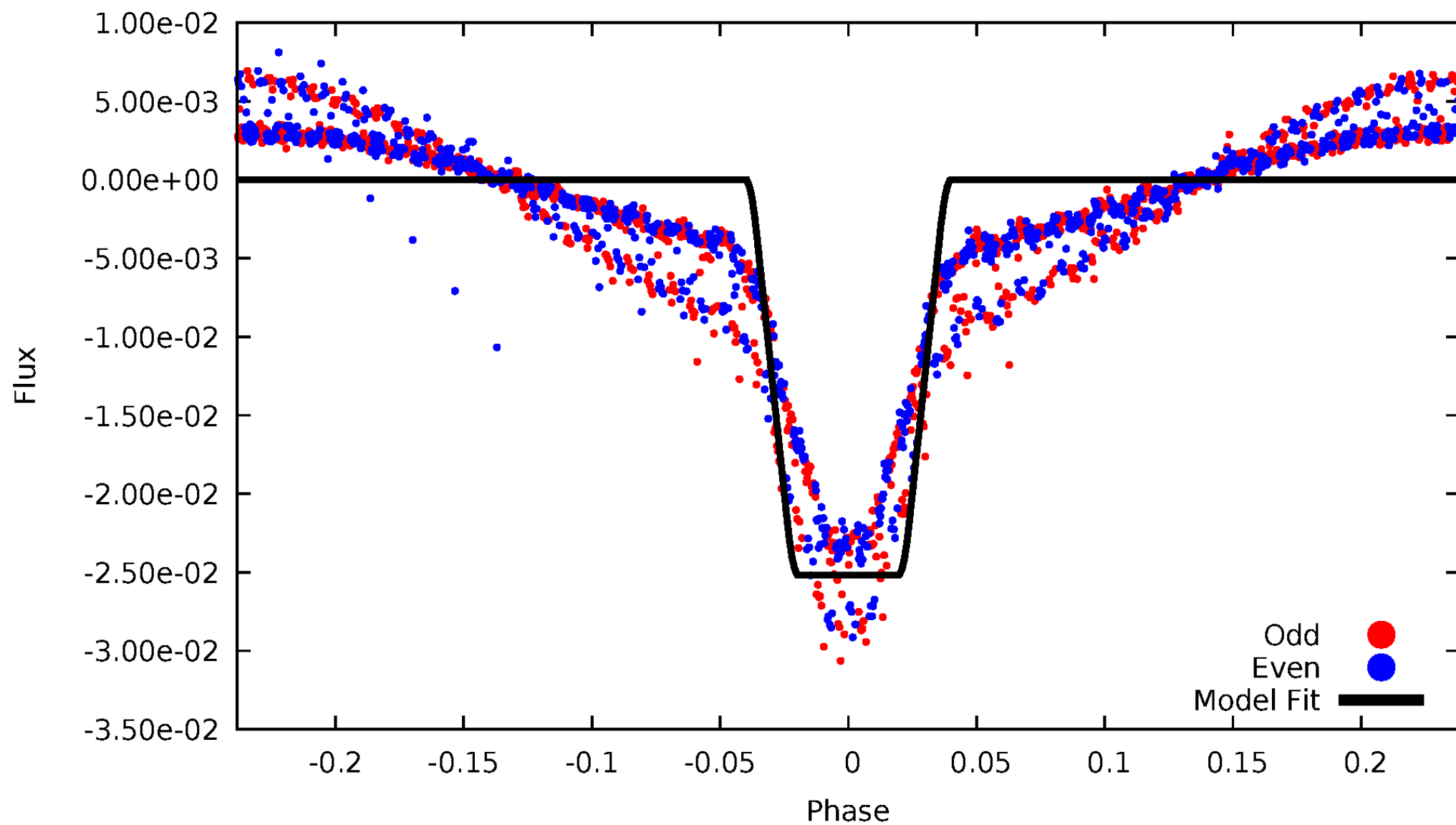
DV Odd/Even

TCE 009182928-01



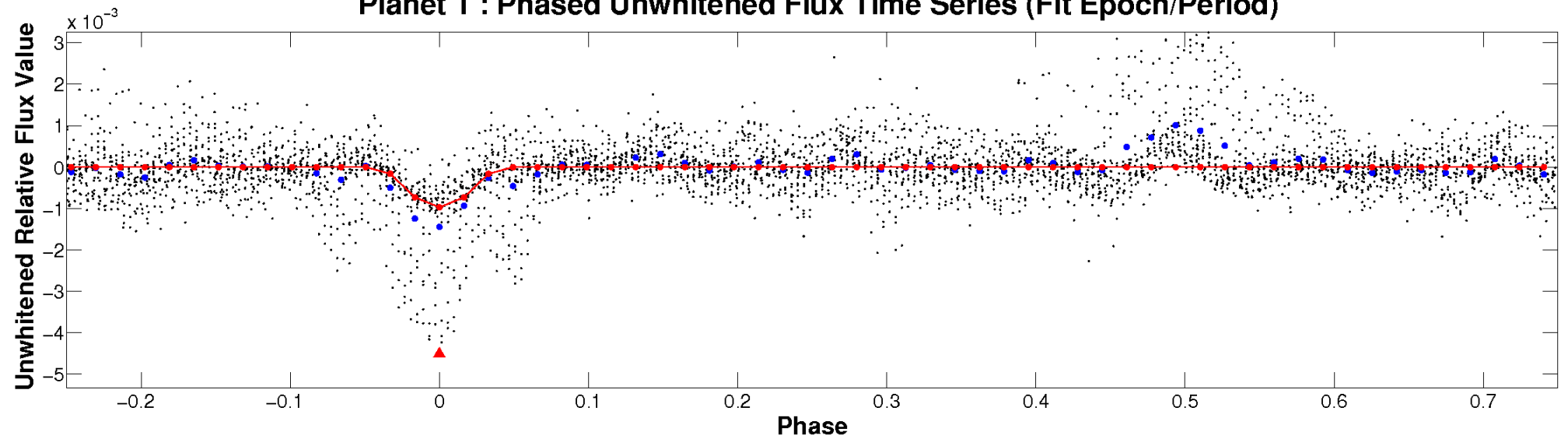
ALT Odd/Even

TCE 009182928-01

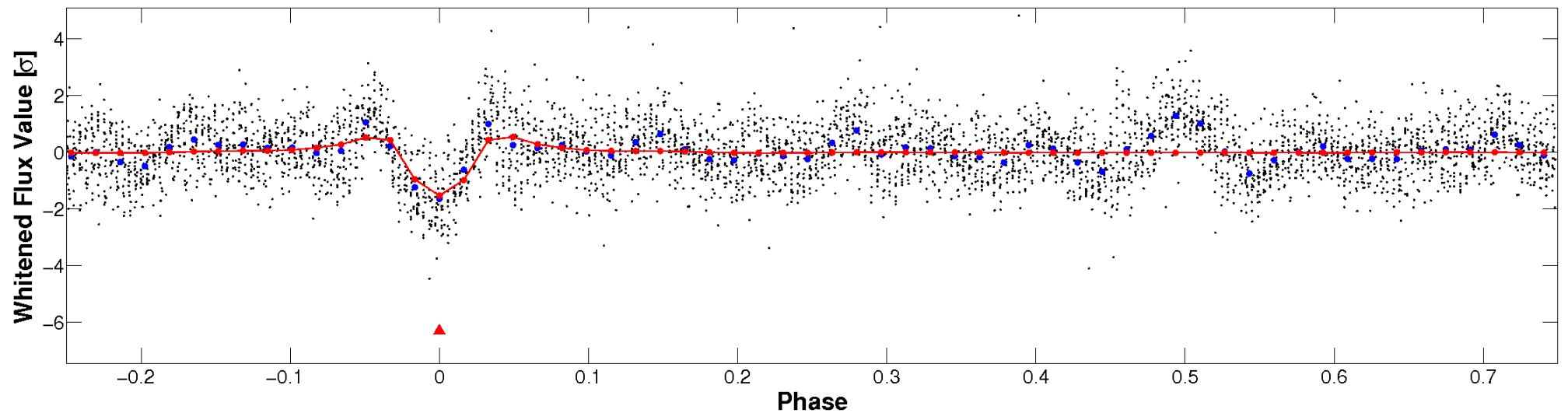


Non-Whitened Vs. Whitened Light Curve

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

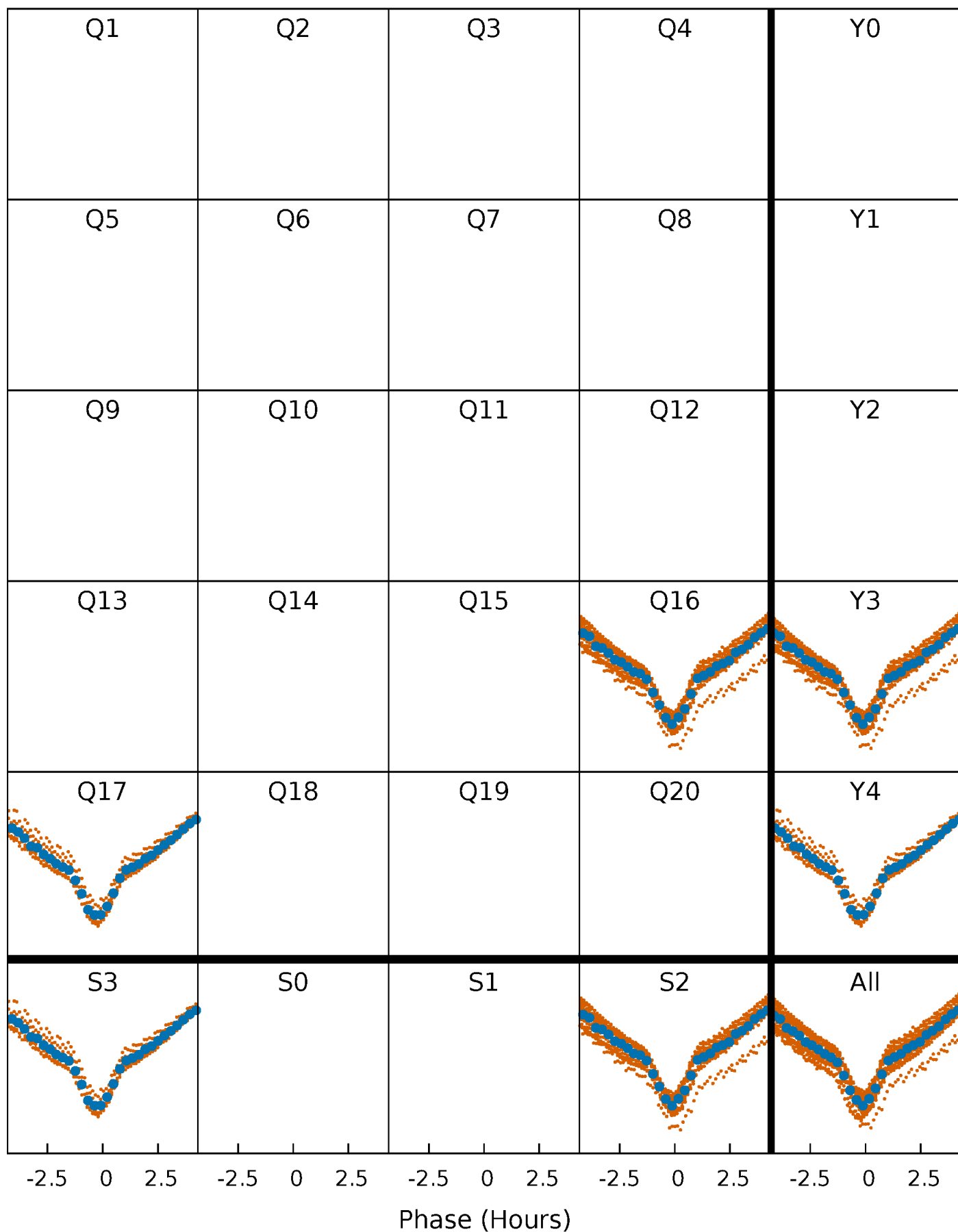


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



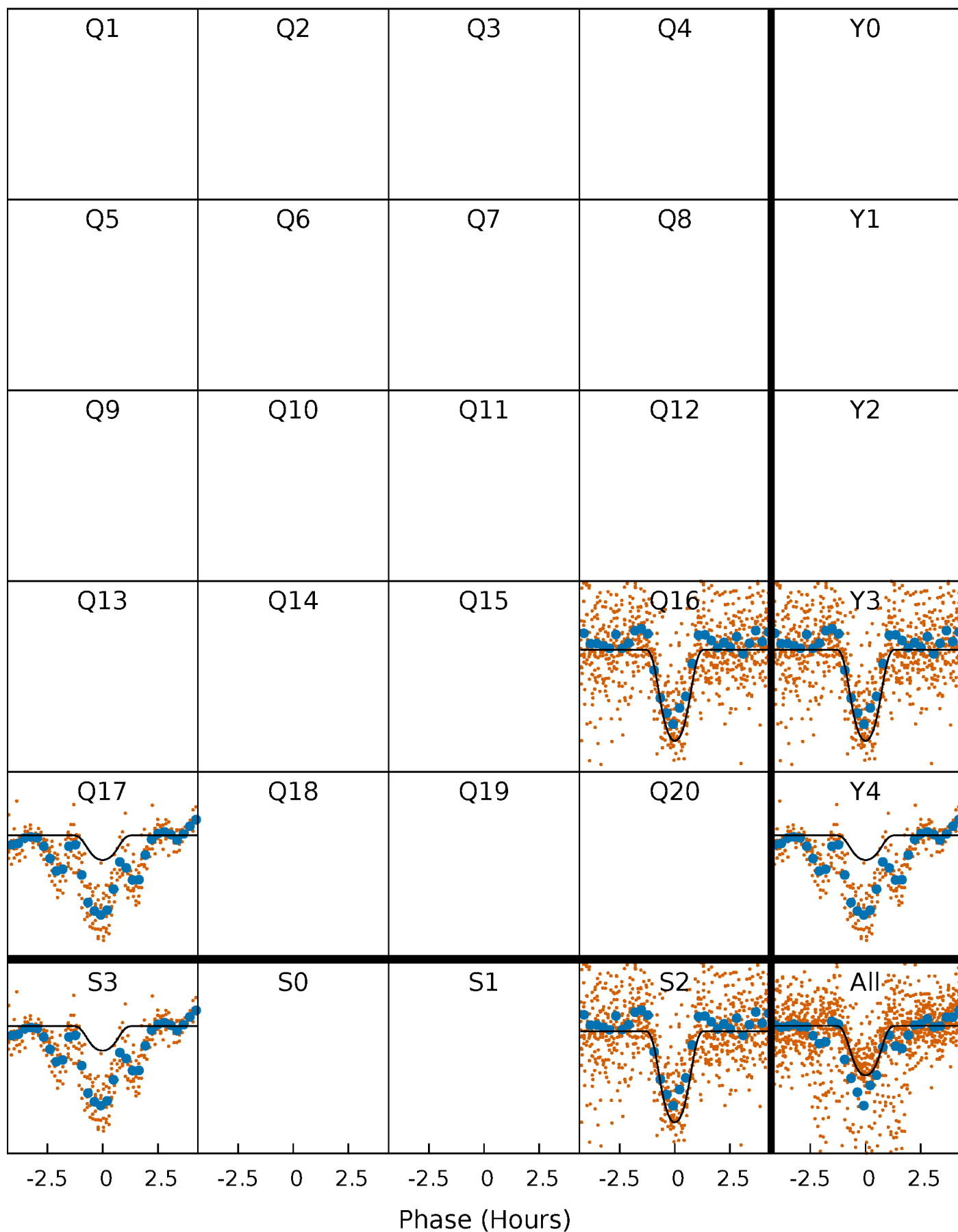
PDC Quarter-Phased Transit Curves

TCE 009182928-01 P= 1.241379 Days $T_0=132.562218$ (BKJD)



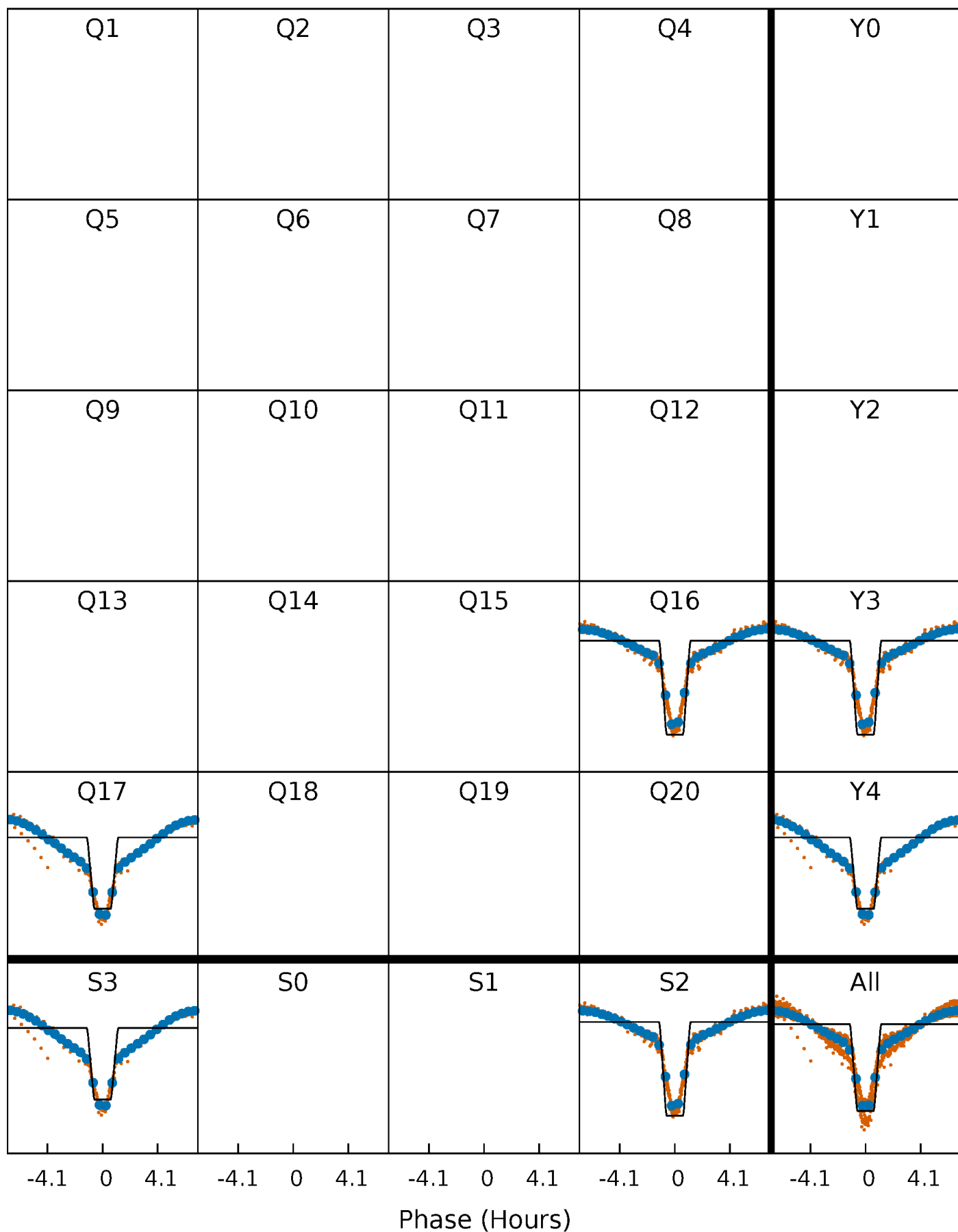
DV Quarter-Phased Transit Curves

TCE 009182928-01 P= 1.241379 Days $T_0=132.562218$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

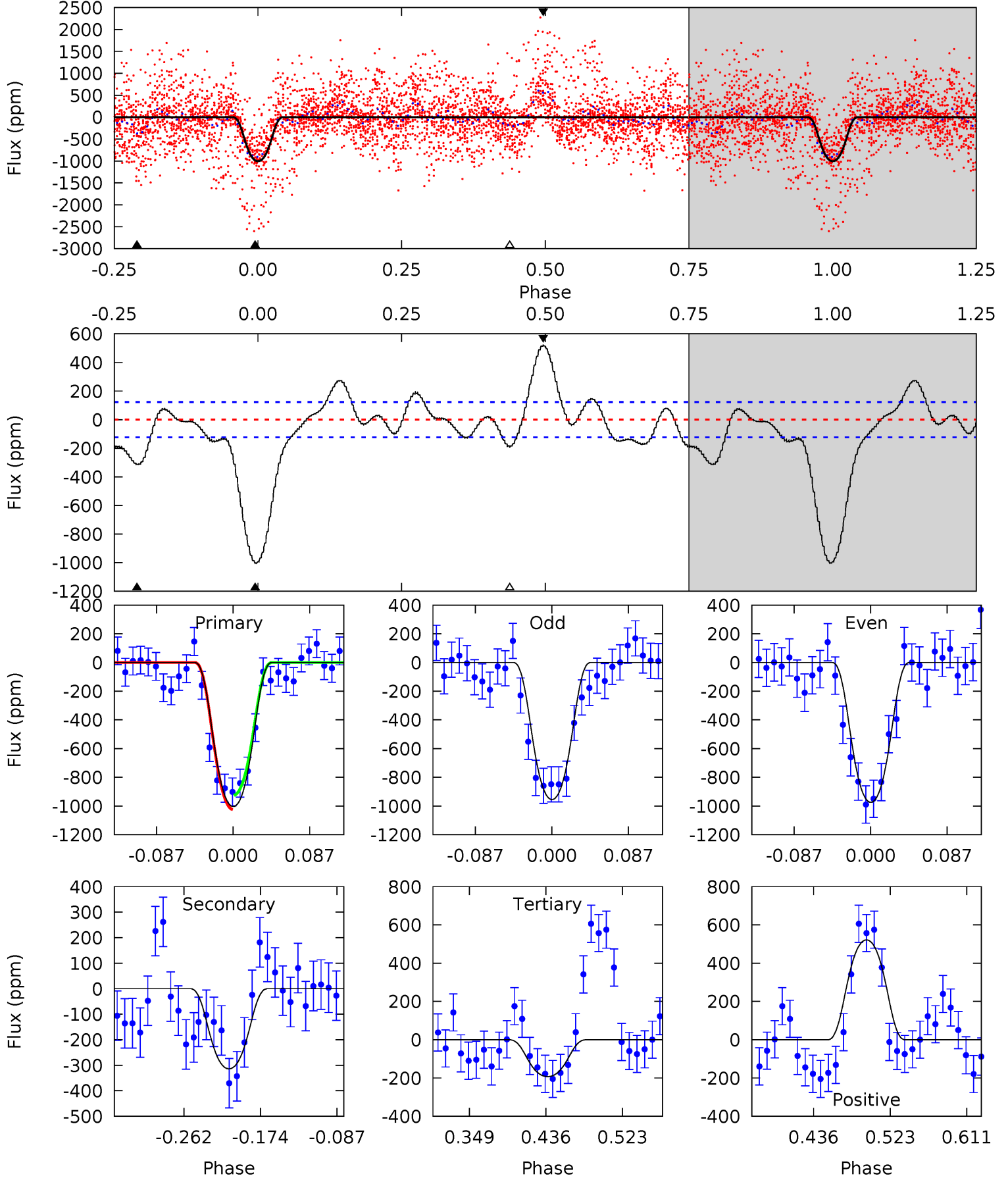
TCE 009182928-01 P= 1.241233 Days $T_0=132.721558$ (BKJD)



DV Model-Shift Uniqueness Test

009182928-01, P = 1.241379 Days, E = 132.562218 Days

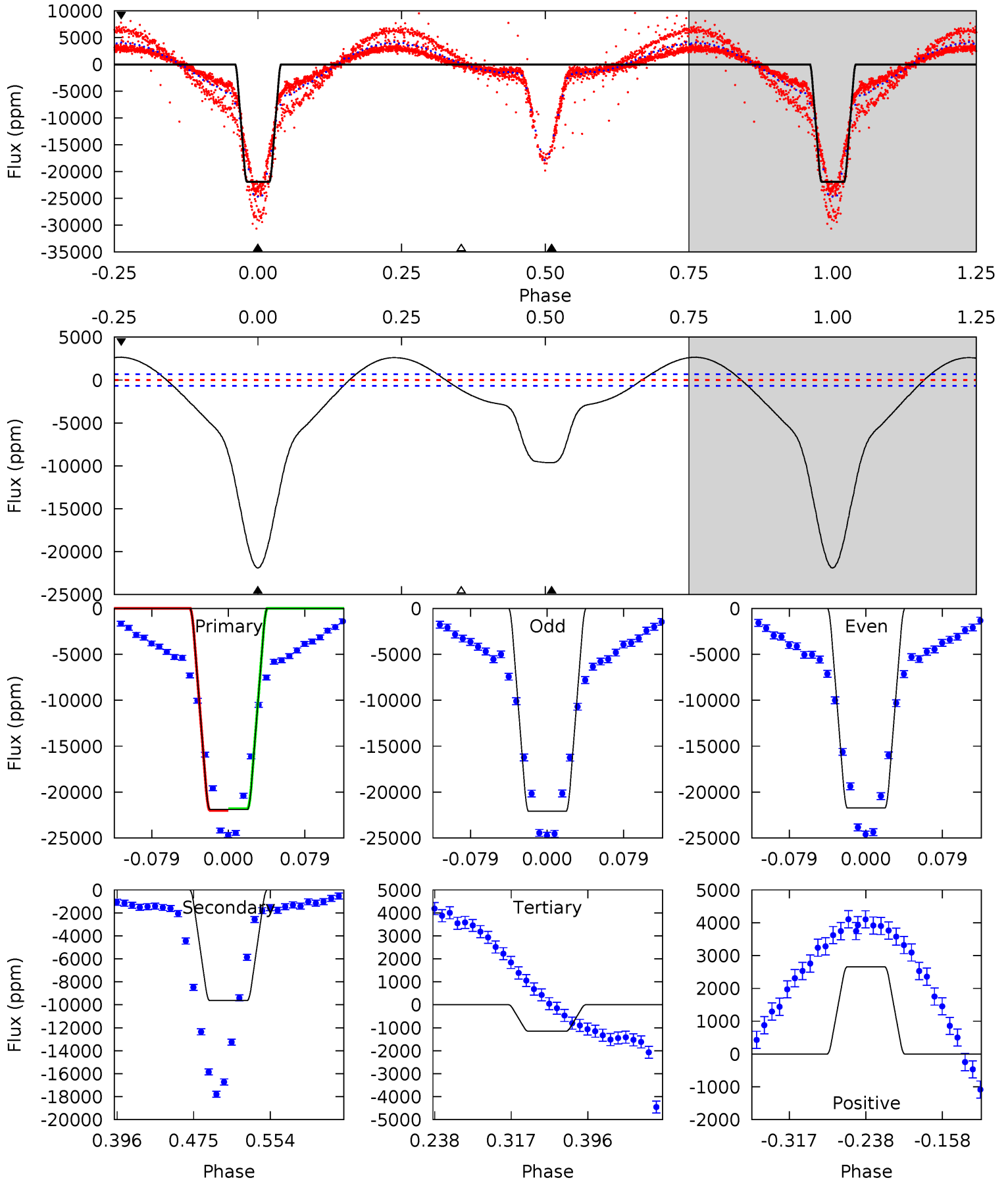
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 37.5 | 11.7 | 7.20 | 19.5 | 4.59 | 1.71 | 5.47 | 30.3 | 18.0 | 4.54 | -7.76 | 0.36 | 1.60 | 0.34 | 1.90 |



Alt Model-Shift Uniqueness Test

009182928-01, P = 1.241233 Days, E = 132.721558 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 149.5 | 65.8 | 7.87 | 18.1 | 4.61 | 1.76 | 15.1 | 141.6 | 131.4 | 57.9 | 47.7 | 1.23 | 1.06 | 0.11 | 0.61 |



Stellar Parameters For KIC 009182928

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6270^{+198}_{-242} | $3.906^{+0.488}_{-0.122}$ | $-0.480^{+0.300}_{-0.300}$ | $1.920^{+0.480}_{-0.892}$ | $1.084^{+0.156}_{-0.191}$ | $0.216^{+0.934}_{-0.092}$ |
| | +3%/-4% | +12%/-3% | +62%/-62% | +25%/-46% | +14%/-18% | +433%/-43% |
| 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 009182928-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|-------------------------|----------------------|----------------------|---------------------------|
| DV | -314 ± 27 | $7.39^{+1.59}_{-1.89}$ | 3400^{+306}_{-416} | 4313^{+289}_{-223} | $1.709^{+1.299}_{-0.525}$ |
| Alt. | -9635 ± 146 | $31.66^{+4.99}_{-7.77}$ | 3401^{+296}_{-443} | 4916^{+155}_{-178} | $2.931^{+1.986}_{-0.716}$ |

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

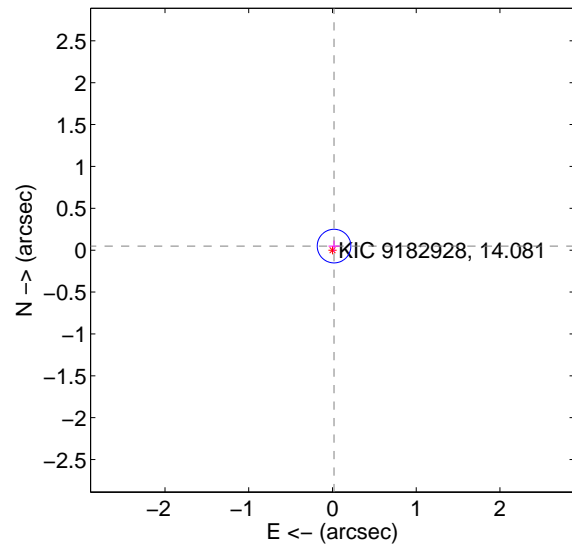
Supplemental centroid analysis for 009182928-01. Kepler magnitude: 14.08. Transit SNR 20.72

There are 2 quarters with good PRF difference image offsets

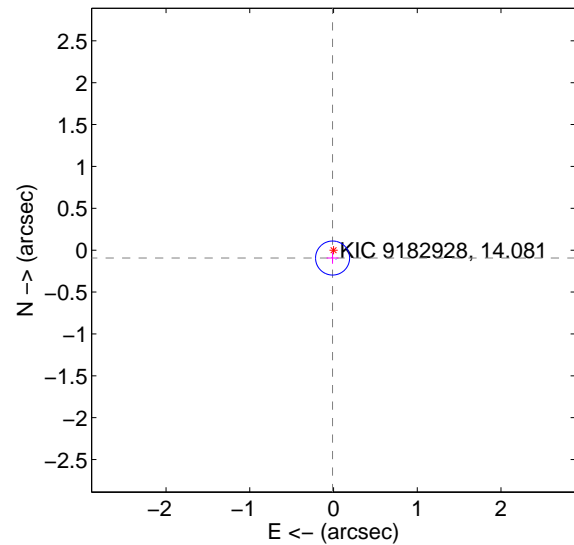
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.052 ± 0.067 | 0.78 | -0.019 ± 0.067 | 0.049 ± 0.067 |
| PRF-fit source offset from KIC position | 0.094 ± 0.068 | 1.39 | 0.011 ± 0.071 | -0.094 ± 0.068 |
| photometric centroid source offset | 1.14 ± 0.42 | 2.71 | 0.62 ± 0.34 | 0.96 ± 0.45 |

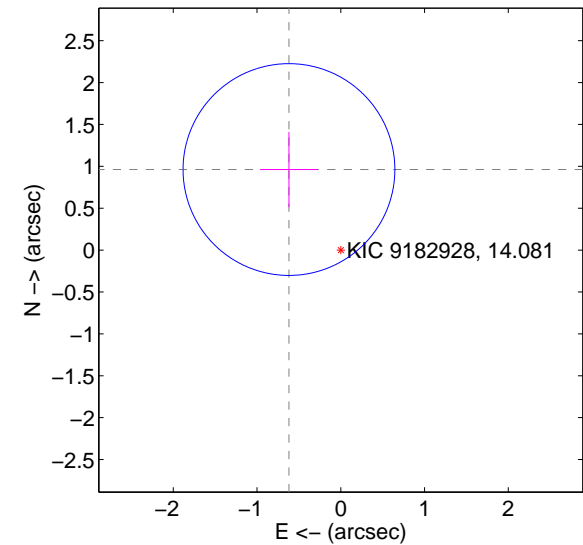
offset from difference PRF-fit to OOT PRF-fit



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.



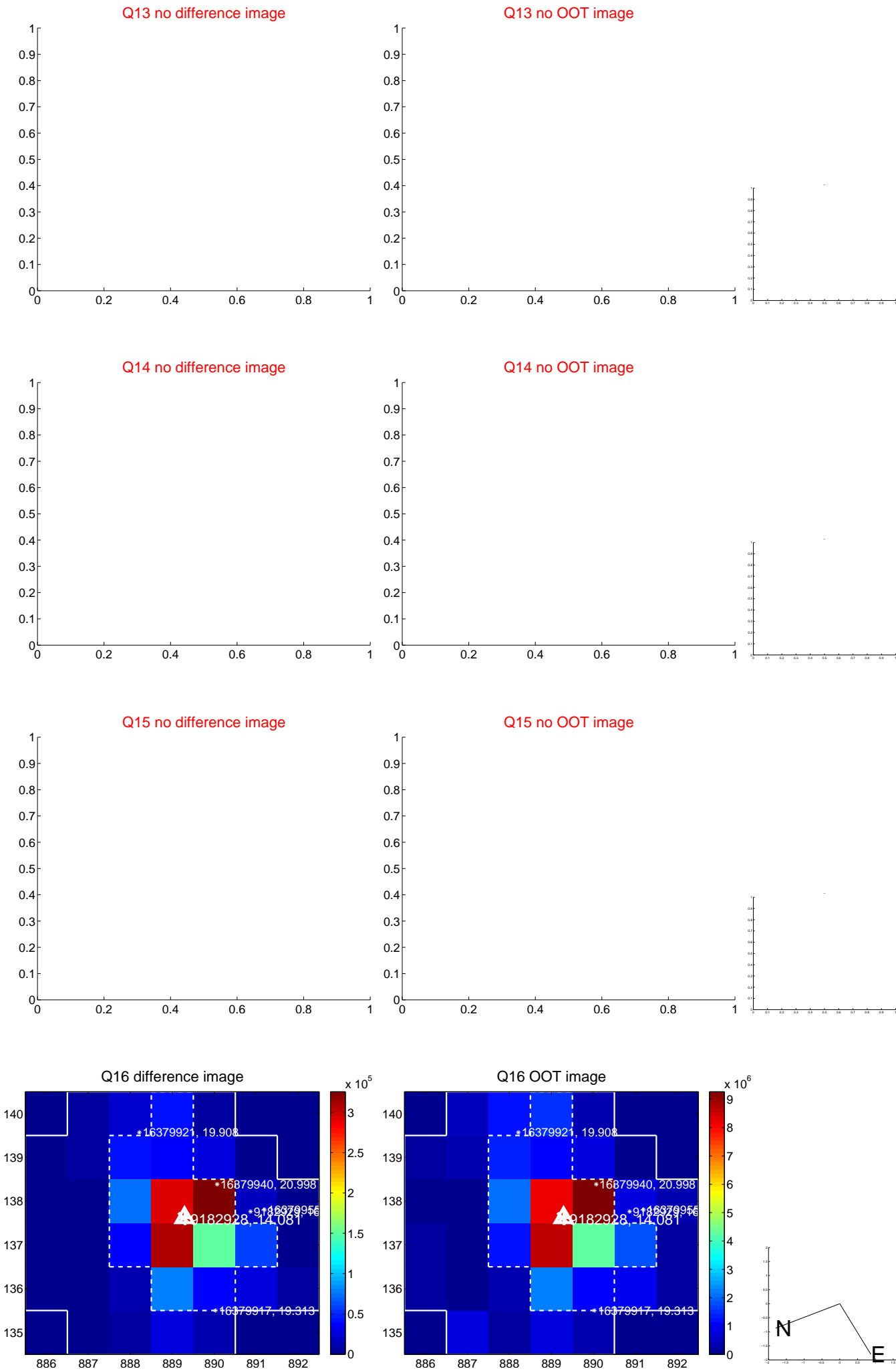
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



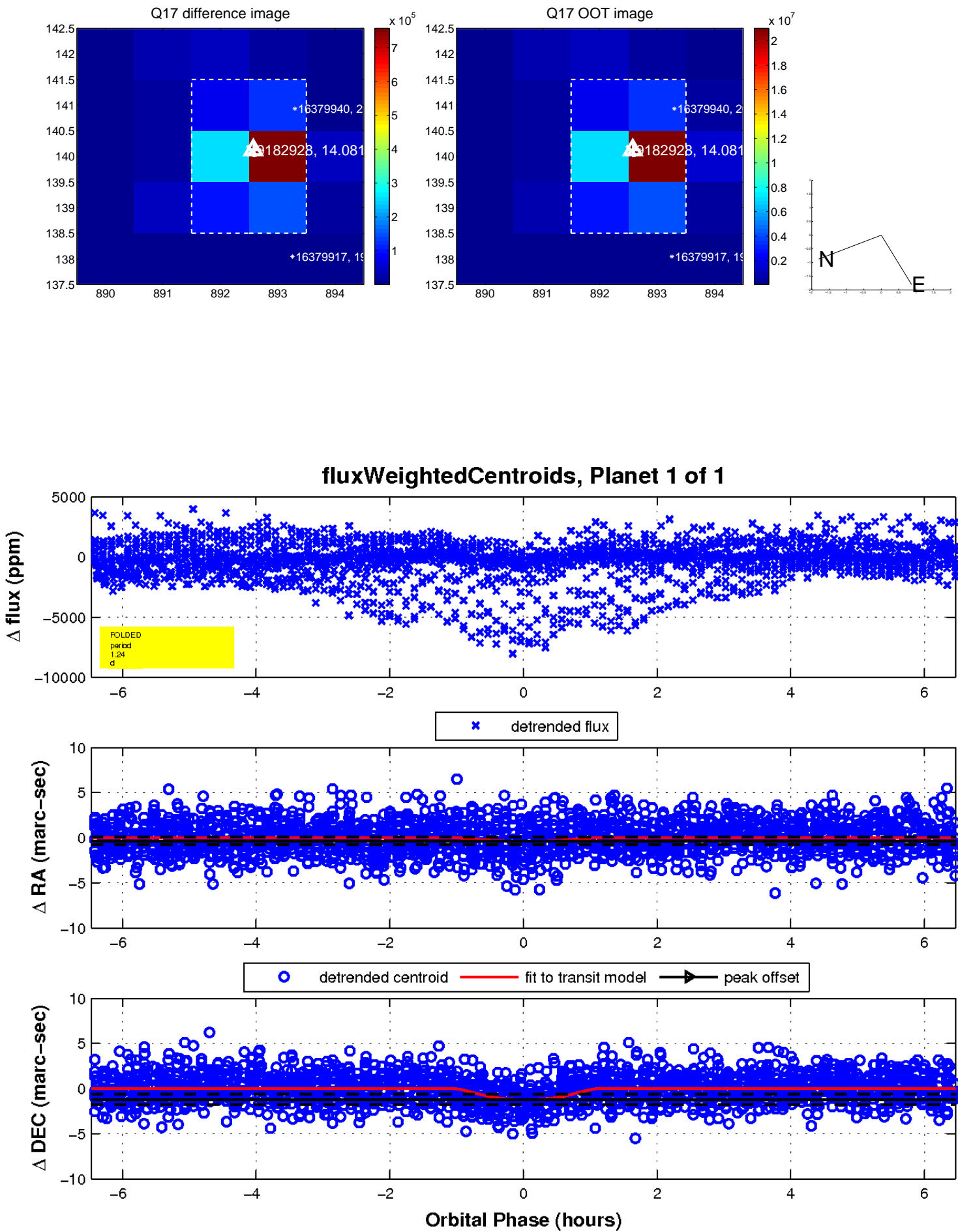
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

