

KIC 004902202

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 004902202-01 | OBS | 4717.01 | 216.468108 | 175.339578 | 1068.6 | 10.337 | 10.0 | 10.2 | 1.16 | 5645 | 3.97 | 2.49 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------------------------|
| 004902202-01 | OBS | FP | 0.41 | 1 | 0 | 0 | 0 | INCONSISTENT_TRANS—CENT_FEW_MEAS |

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 004902202-01

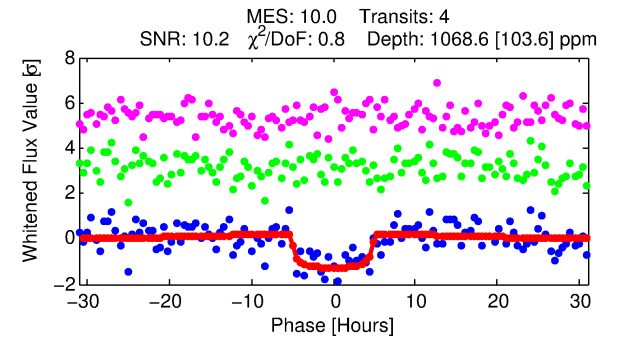
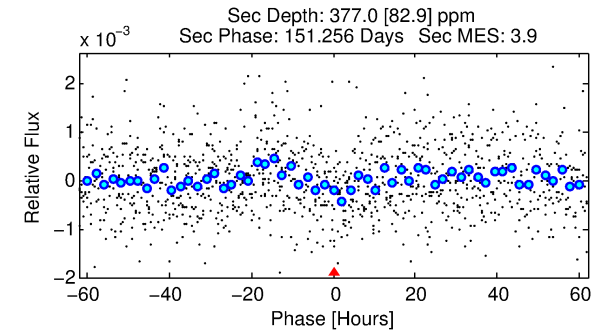
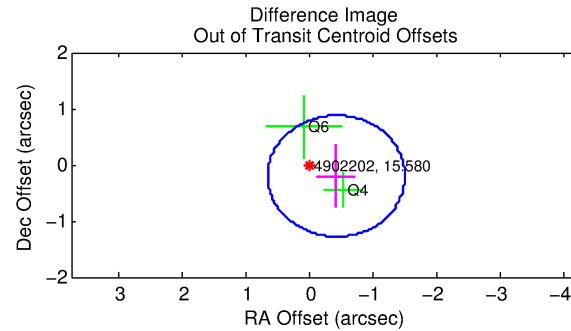
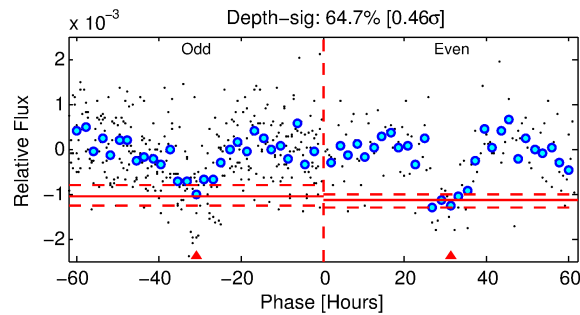
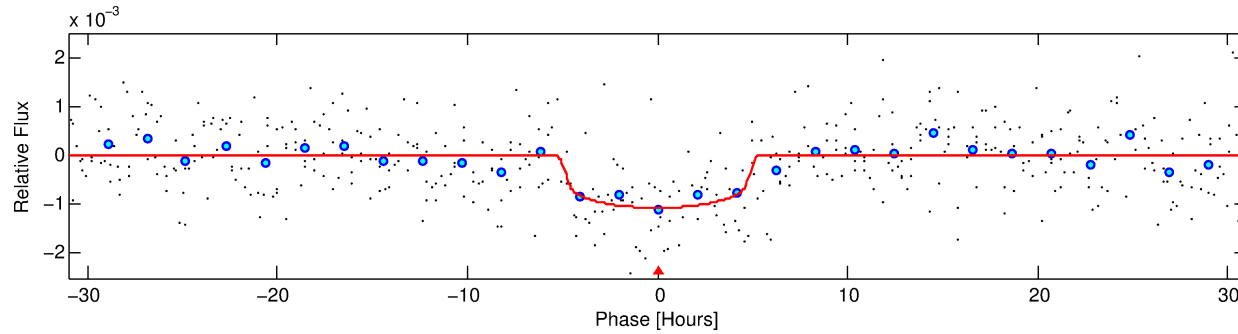
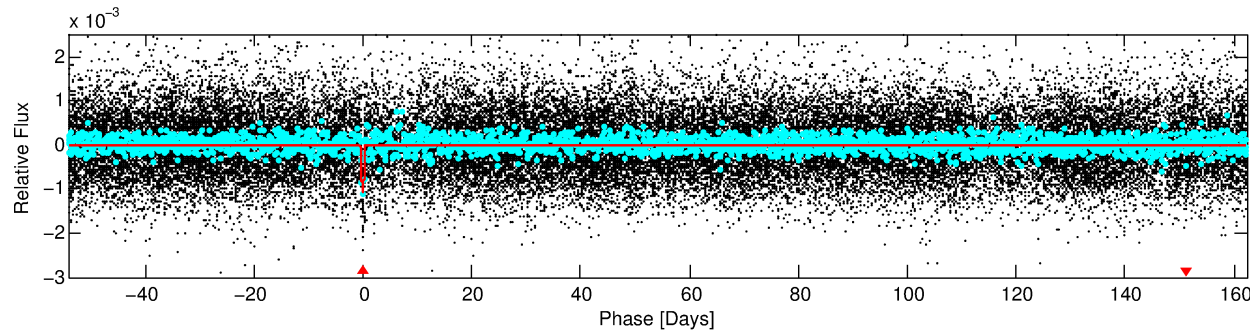
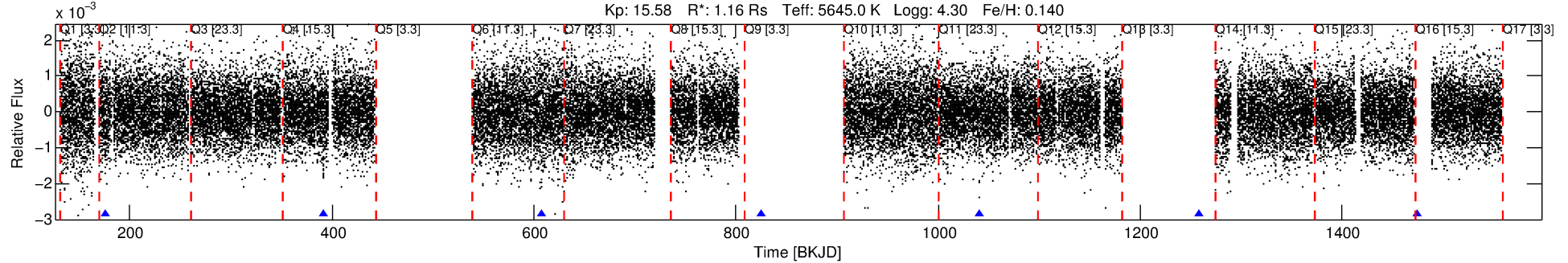
No Significant Match Found

DV One-Page Summary

KIC: 4902202 Candidate: 1 of 1 Period: 216.468 d

KOI: K04717.01 Corr: 0.951

Kp: 15.58 R*: 1.16 Rs Teff: 5645.0 K Logg: 4.30 Fe/H: 0.140



DV Fit Results:

Period = 216.46811 [0.00521] d
Epoch = 175.3396 [0.0134] BKJD
Rp/R* = 0.0315 [0.0148]
a/R* = 128.45 [247.41]
b = 0.65 [1.75]
Seff = 2.49 [0.59]
Teq = 320 [19] K
Rp = 3.97 [1.96] Re
a = 0.6983 [0.1004] AU
Ag = 6428.33 [6390.31] [1.01σ]
Teffp = 4434 [1073] K [3.83σ]

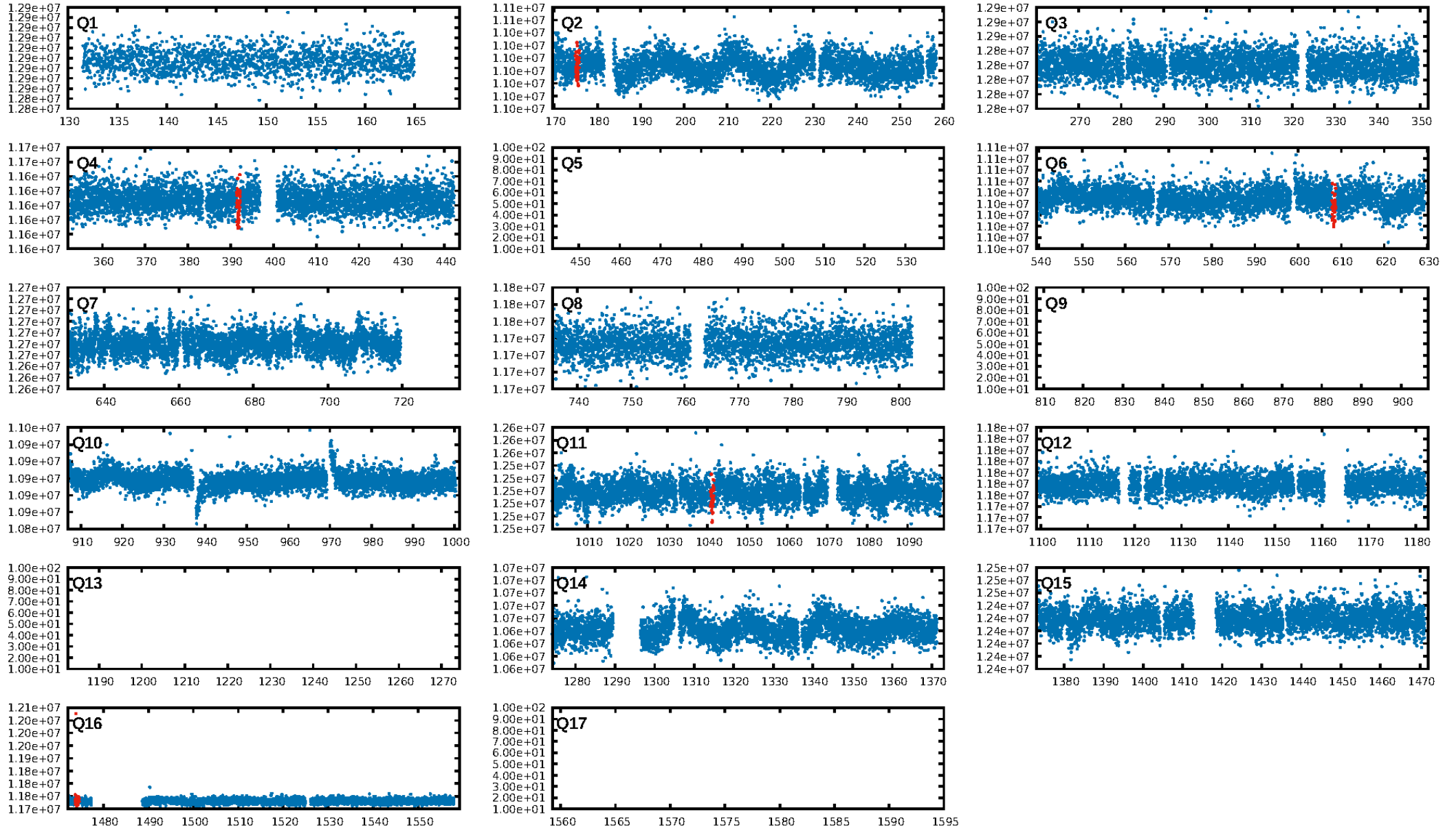
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 47.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.99e-19
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.489
Centroid-sig: 38.0%
Centroid-so: 0.530 arcsec [0.38σ]
OotOffset-rm: 0.465 arcsec [1.29σ]
KicOffset-rm: 0.443 arcsec [1.22σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

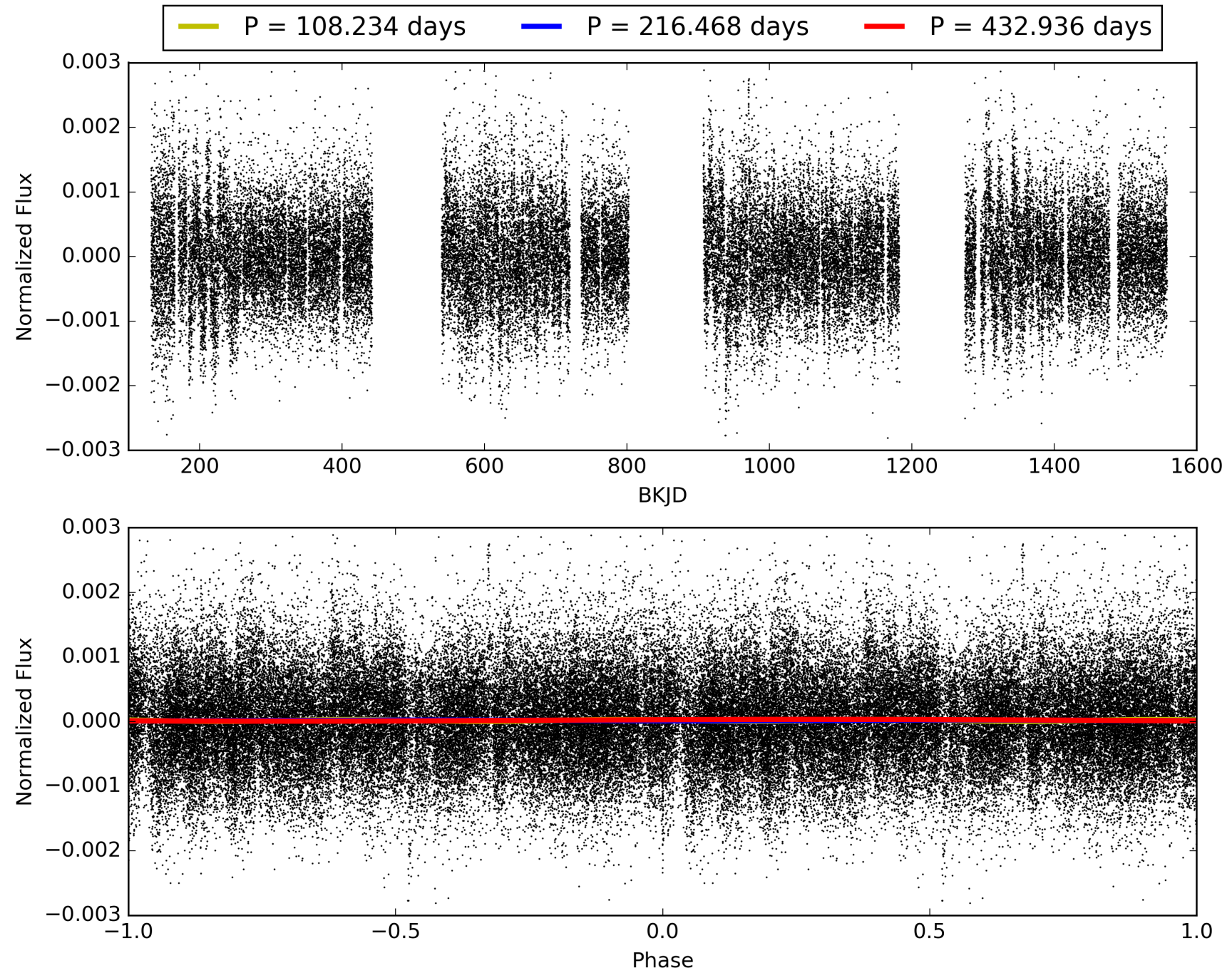
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:35:53 Z

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

TCE 004902202-01, PDC Light Curves

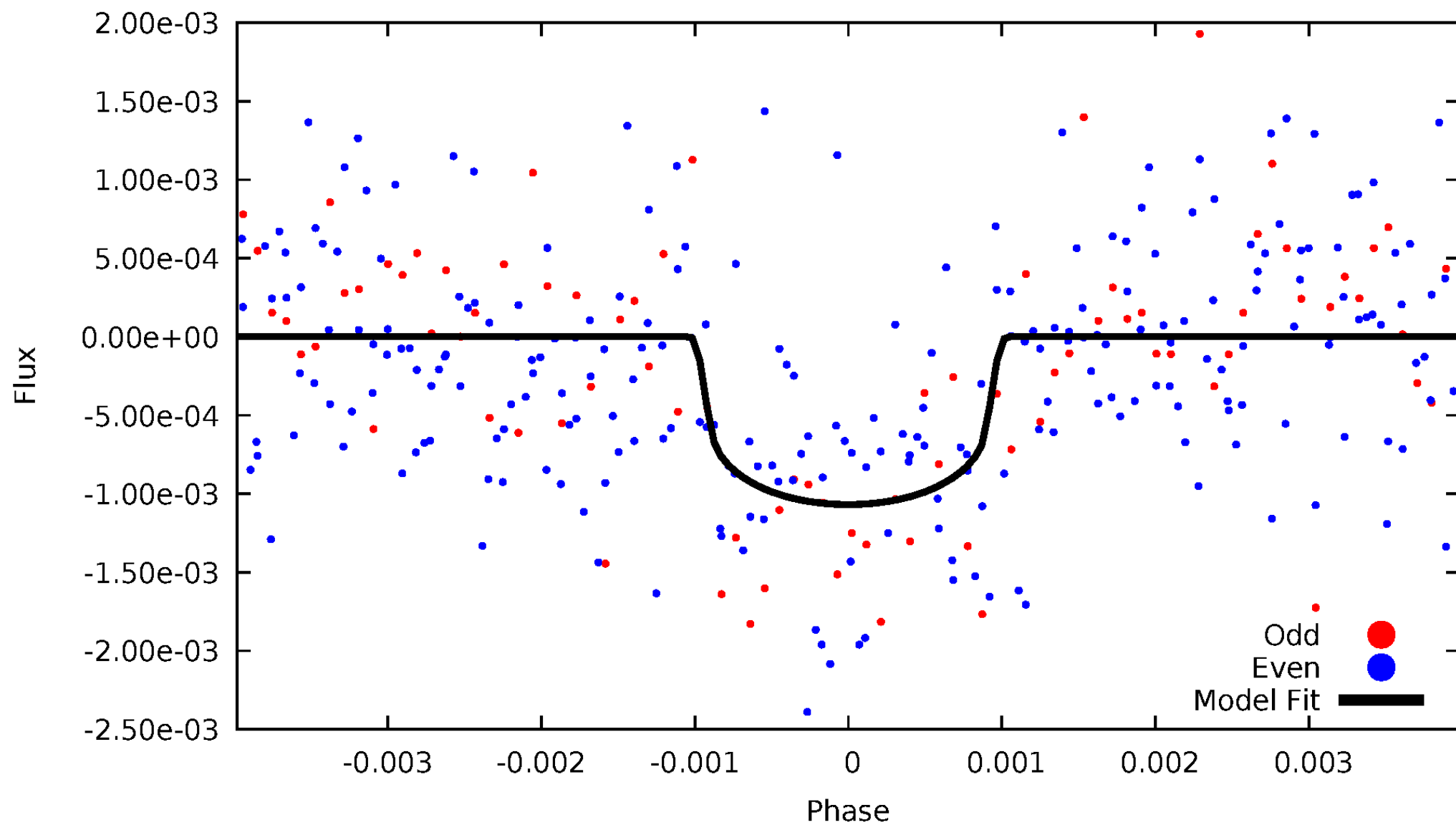


TCE 004902202-01



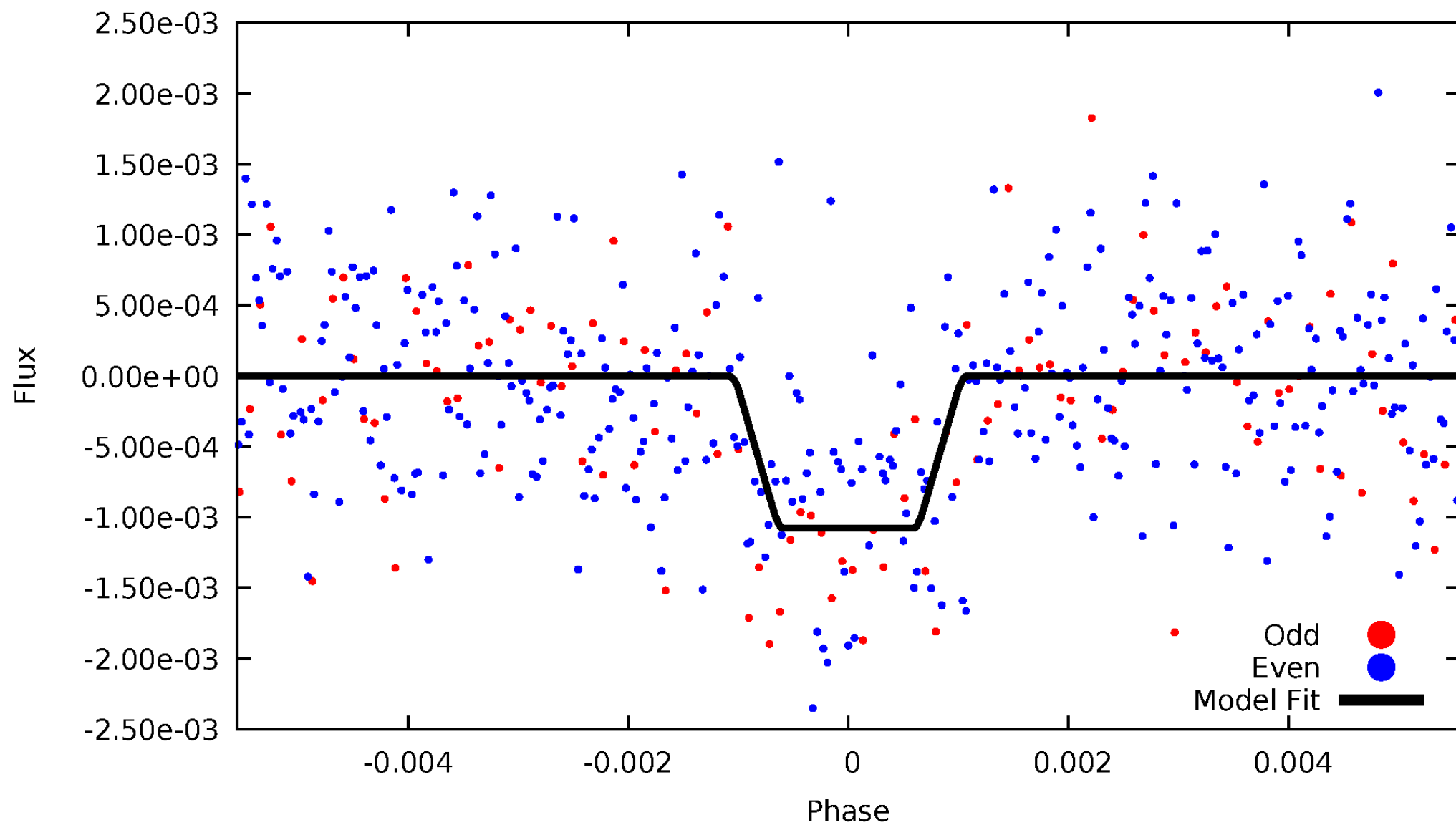
DV Odd/Even

TCE 004902202-01

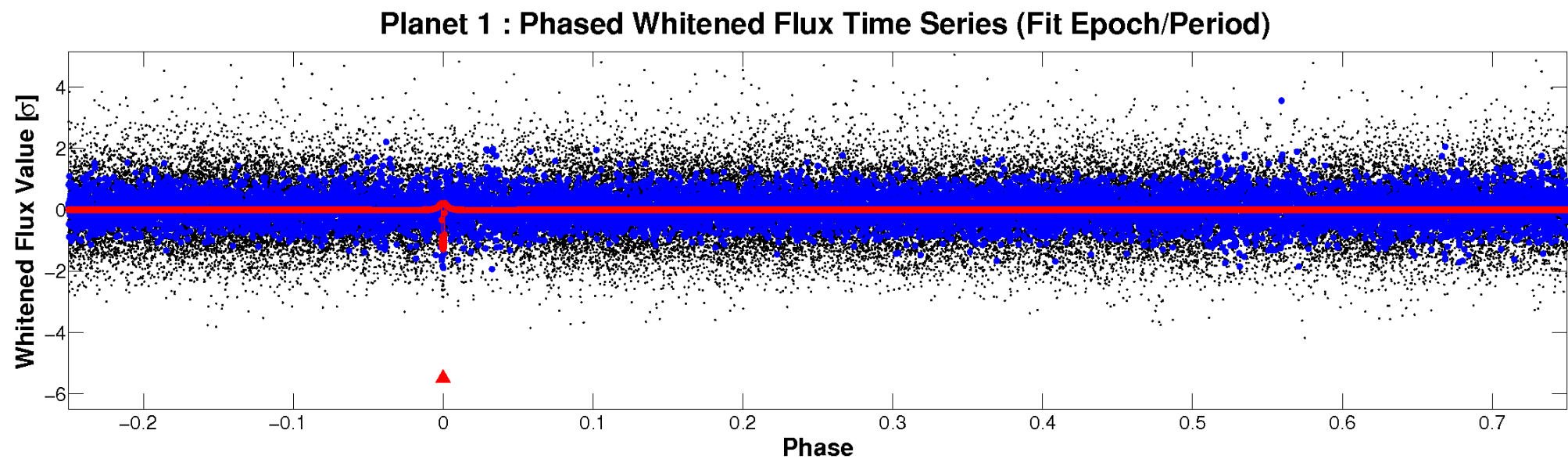
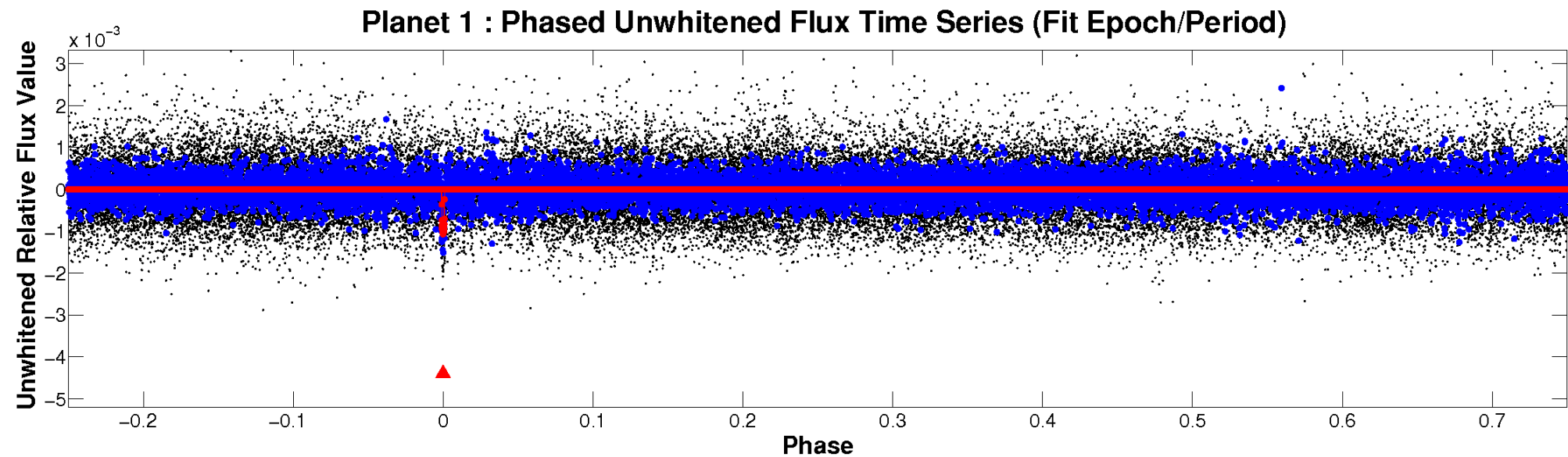


ALT Odd/Even

TCE 004902202-01

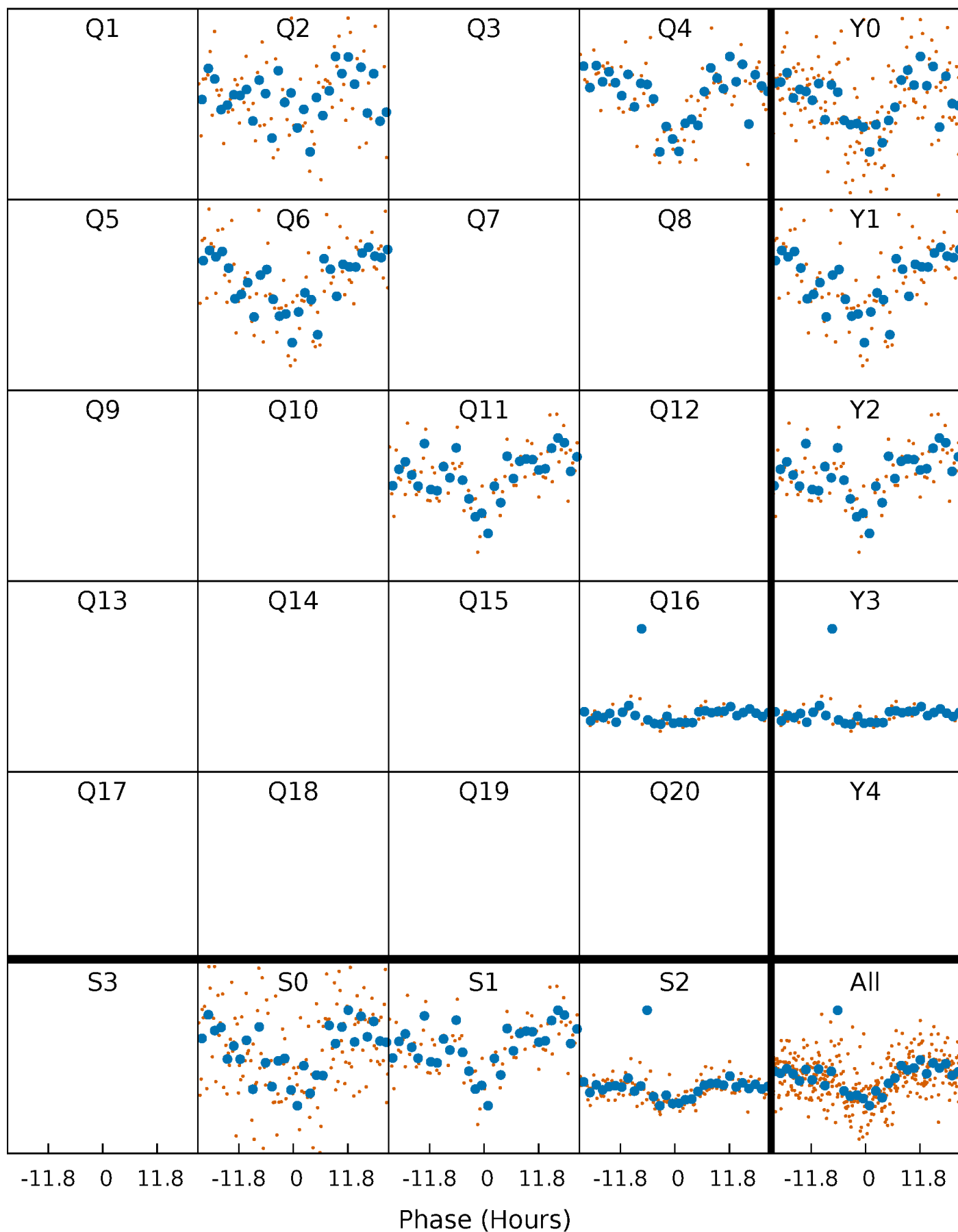


Non-Whitened Vs. Whitened Light Curve



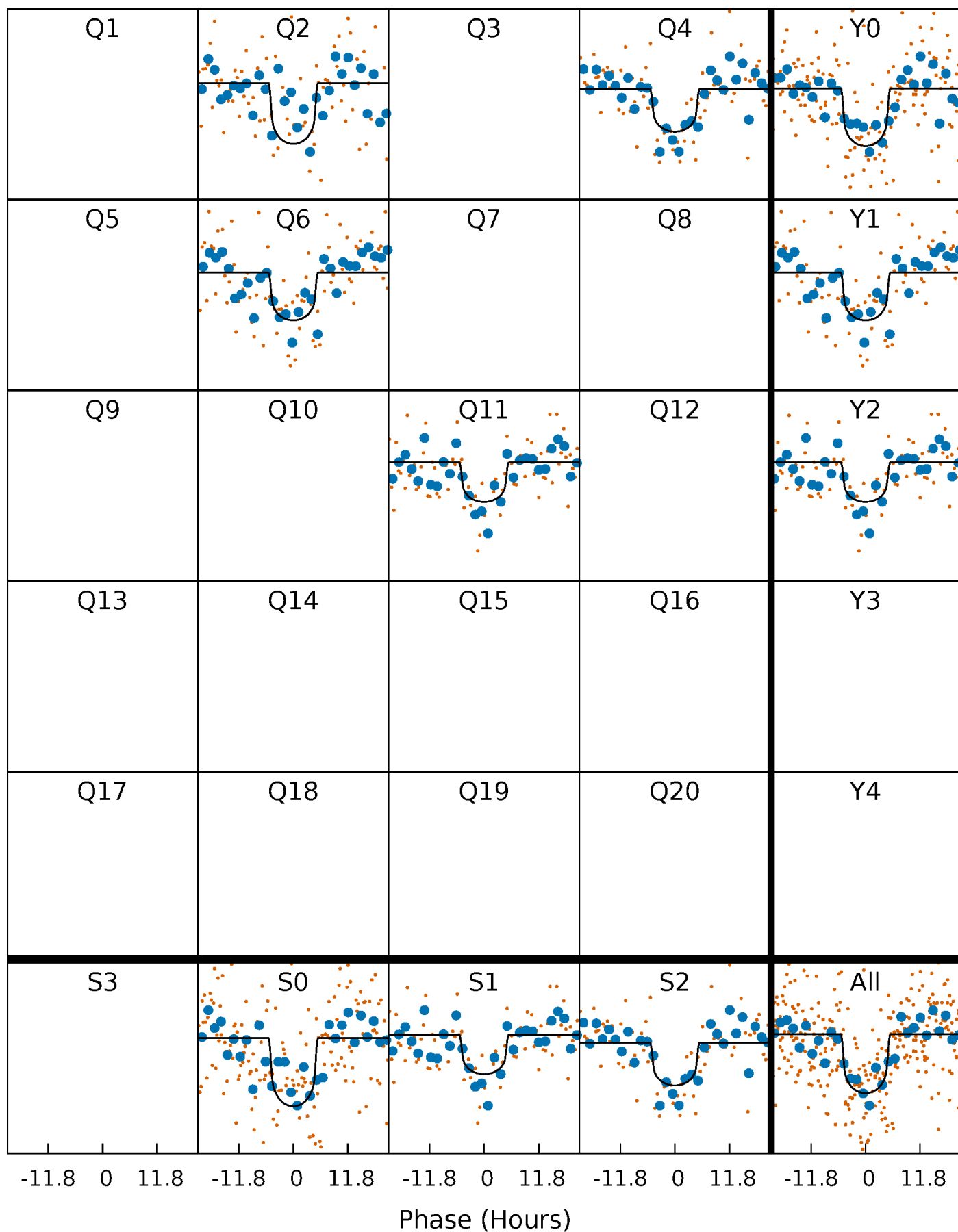
PDC Quarter-Phased Transit Curves

TCE 004902202-01 P=216.468108 Days $T_0=175.339578$ (BKJD)



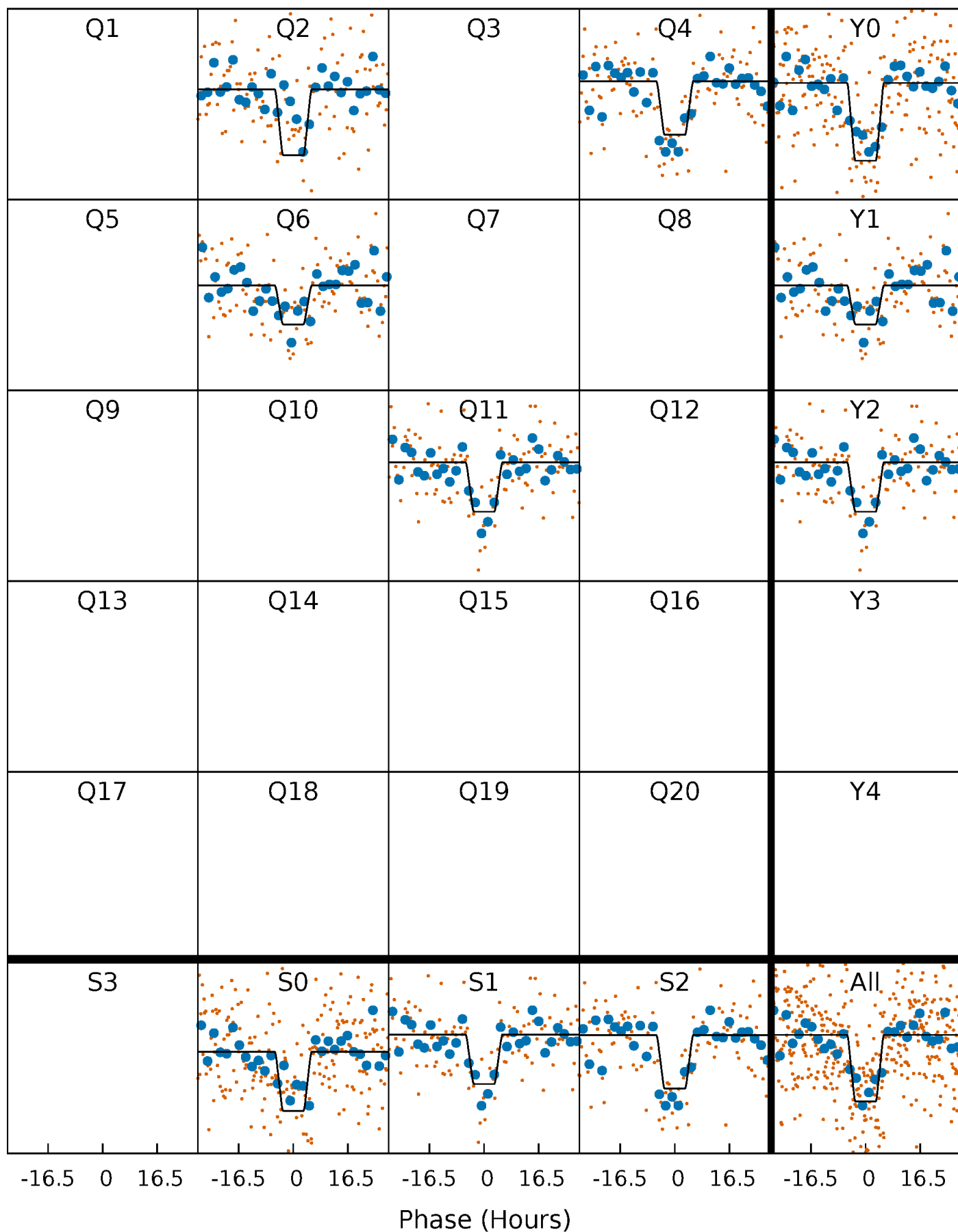
DV Quarter-Phased Transit Curves

TCE 004902202-01 P=216.468108 Days $T_0=175.339578$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

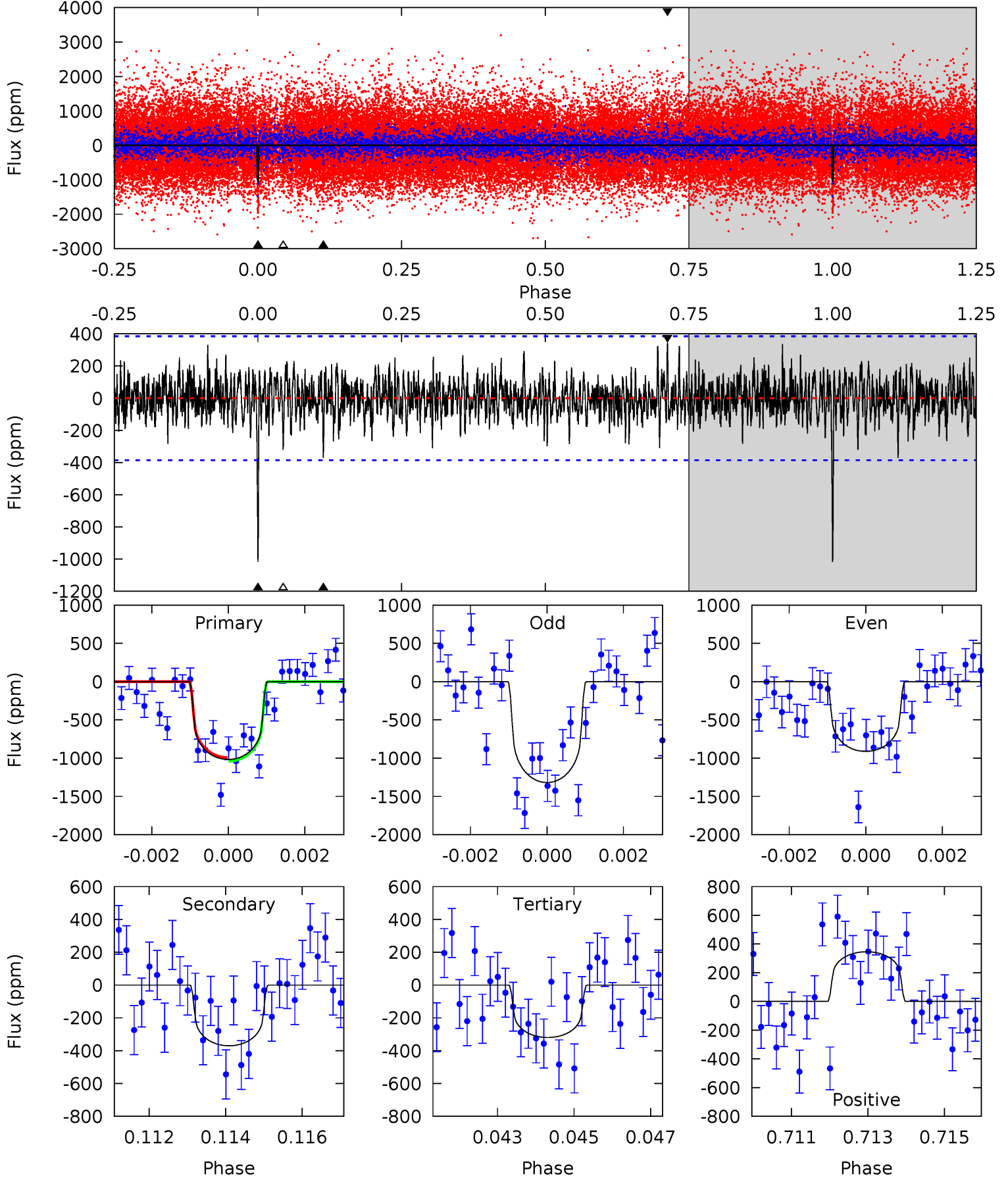
TCE 004902202-01 P=216.466323 Days $T_0=175.358485$ (BKJD)



DV Model-Shift Uniqueness Test

004902202-01, P = 216.468108 Days, E = 175.339578 Days

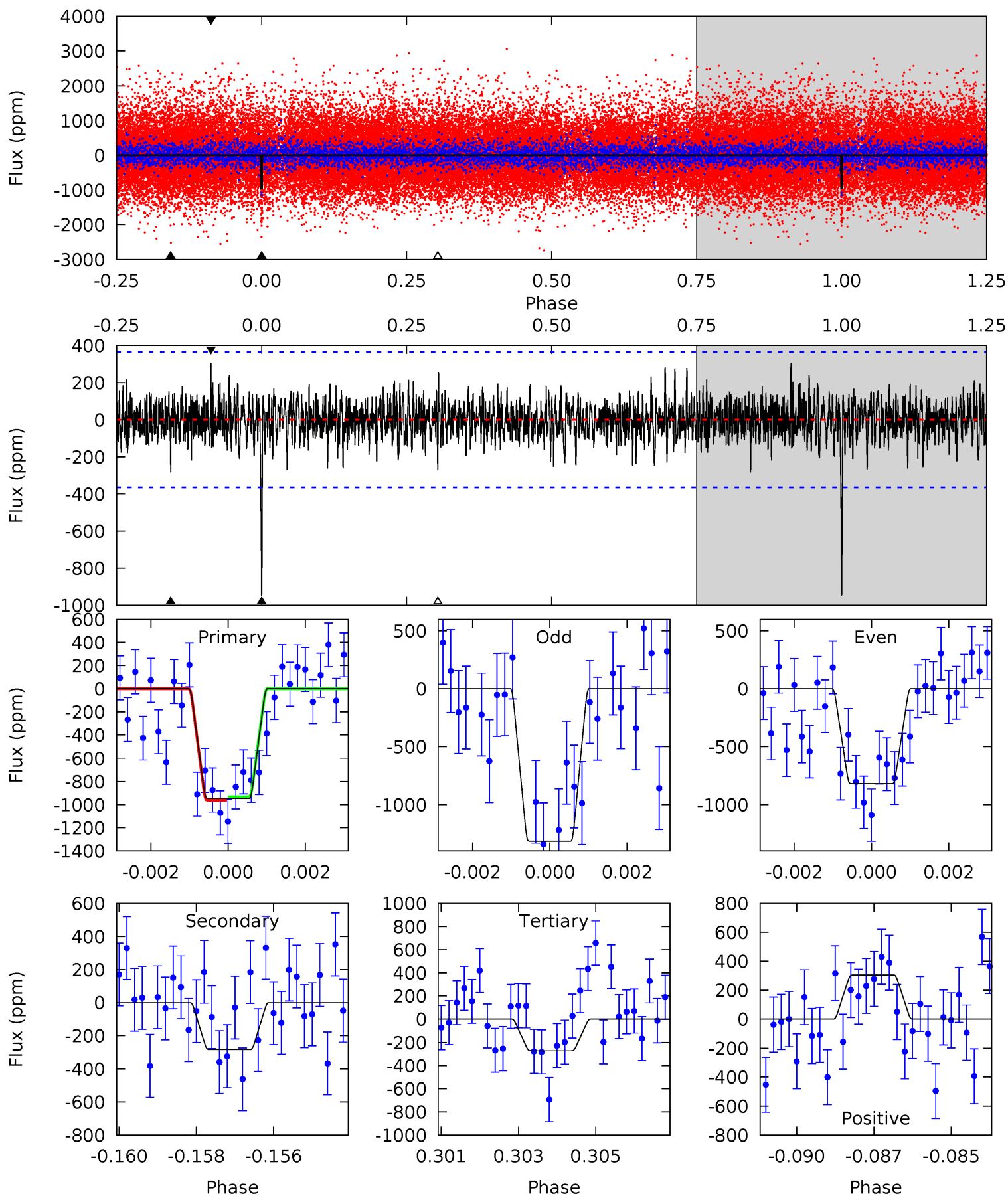
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.1 | 5.12 | 4.42 | 4.79 | 5.32 | 3.09 | 1.30 | 9.63 | 9.26 | 0.70 | 0.33 | 2.50 | 0.91 | 0.25 | 0.32 |



Alt Model-Shift Uniqueness Test

004902202-01, P = 216.466323 Days, E = 175.358485 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.8 | 4.12 | 3.96 | 4.44 | 5.32 | 3.07 | 1.15 | 9.82 | 9.34 | 0.16 | -0.33 | 3.23 | 0.92 | 0.24 | 0.22 |



Stellar Parameters For KIC 004902202

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5645^{+76}_{-76} | $4.299^{+0.137}_{-0.112}$ | $0.140^{+0.150}_{-0.150}$ | $1.155^{+0.170}_{-0.170}$ | $0.969^{+0.072}_{-0.051}$ | $0.885^{+0.555}_{-0.292}$ |
| | +1%/-1% | +3%/-3% | +107%/-107% | +15%/-15% | +7%/-5% | +63%/-33% |
| Source | SPE90 | SPE90 | SPE90 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 004902202-01 / KOI 4717.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|-------------------------|
| DV | -370 ± 72 | $3.85^{+2.01}_{-1.71}$ | 448^{+19}_{-20} | 4624^{+1338}_{-656} | 6839^{+14569}_{-4016} |
| Alt. | -283 ± 69 | $4.15^{+1.77}_{-1.91}$ | 447^{+18}_{-20} | 4266^{+1141}_{-536} | 4516^{+9955}_{-2499} |

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

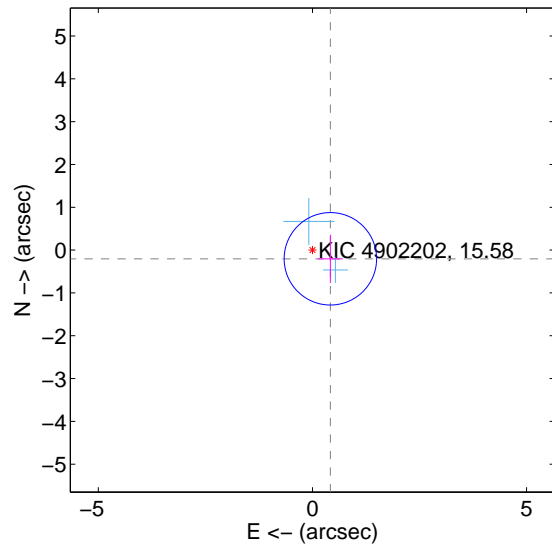
Supplemental centroid analysis for 004902202-01. Kepler magnitude: 15.58. Transit SNR 10.25

There are 2 quarters with good PRF difference image offsets

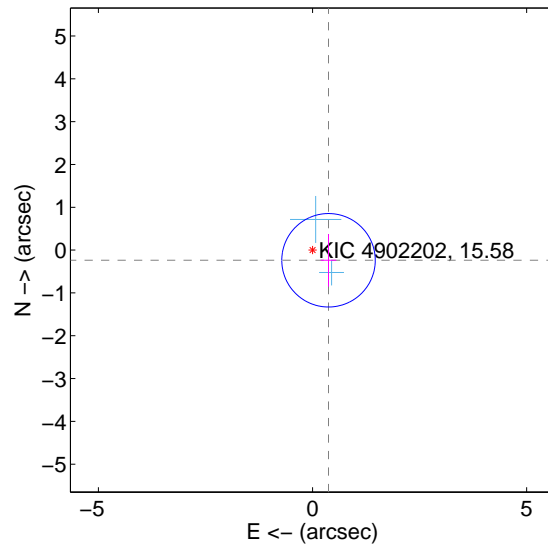
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.465 ± 0.360 | 1.29 | -0.419 ± 0.292 | -0.203 ± 0.562 |
| PRF-fit source offset from KIC position | 0.443 ± 0.364 | 1.22 | -0.374 ± 0.183 | -0.238 ± 0.614 |
| photometric centroid source offset | 0.53 ± 1.39 | 0.38 | 0.47 ± 1.40 | 0.25 ± 1.36 |

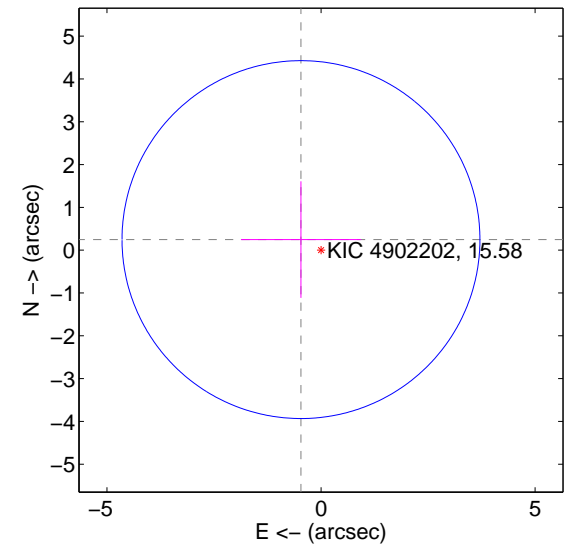
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

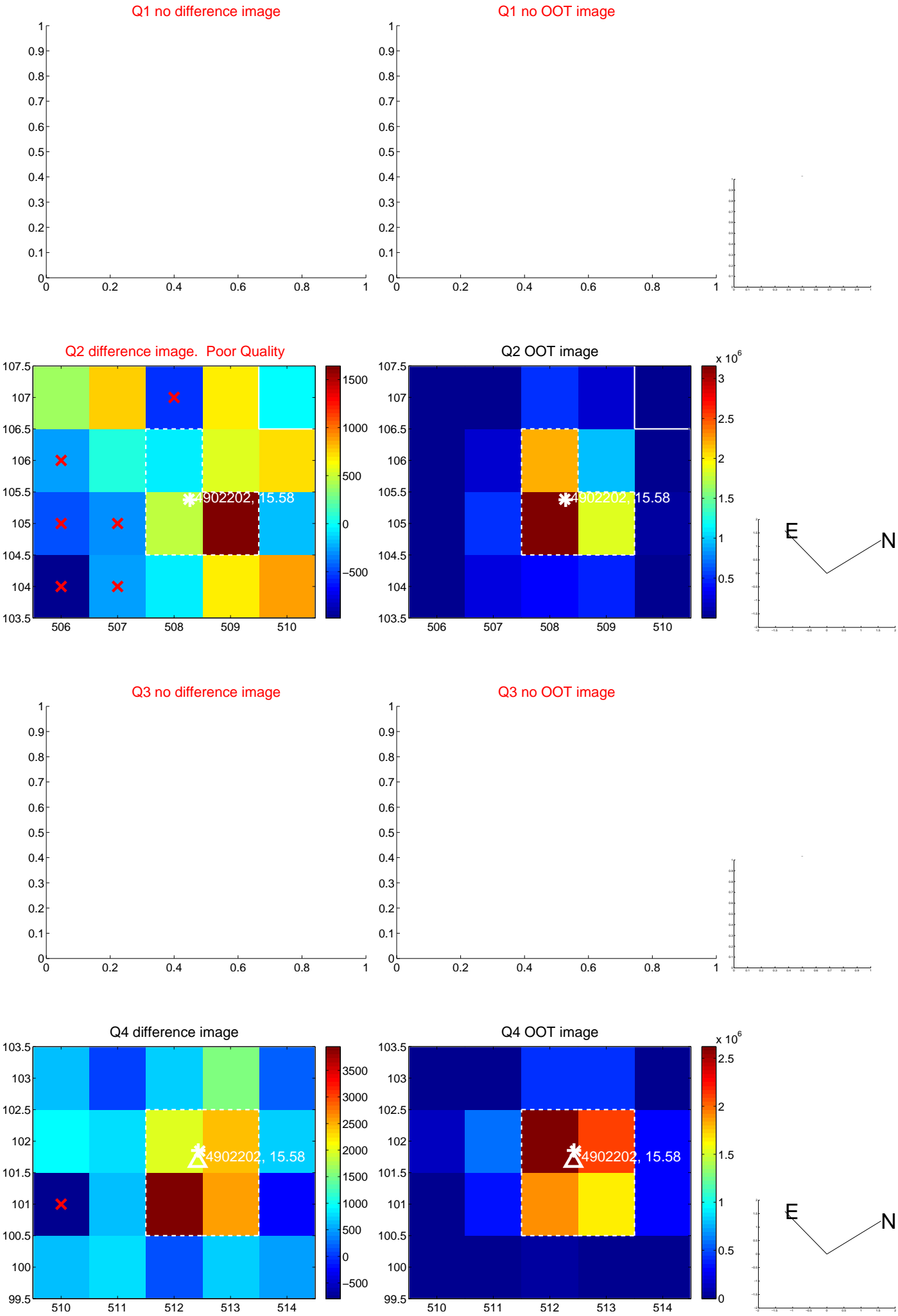


offset from photometric centroids

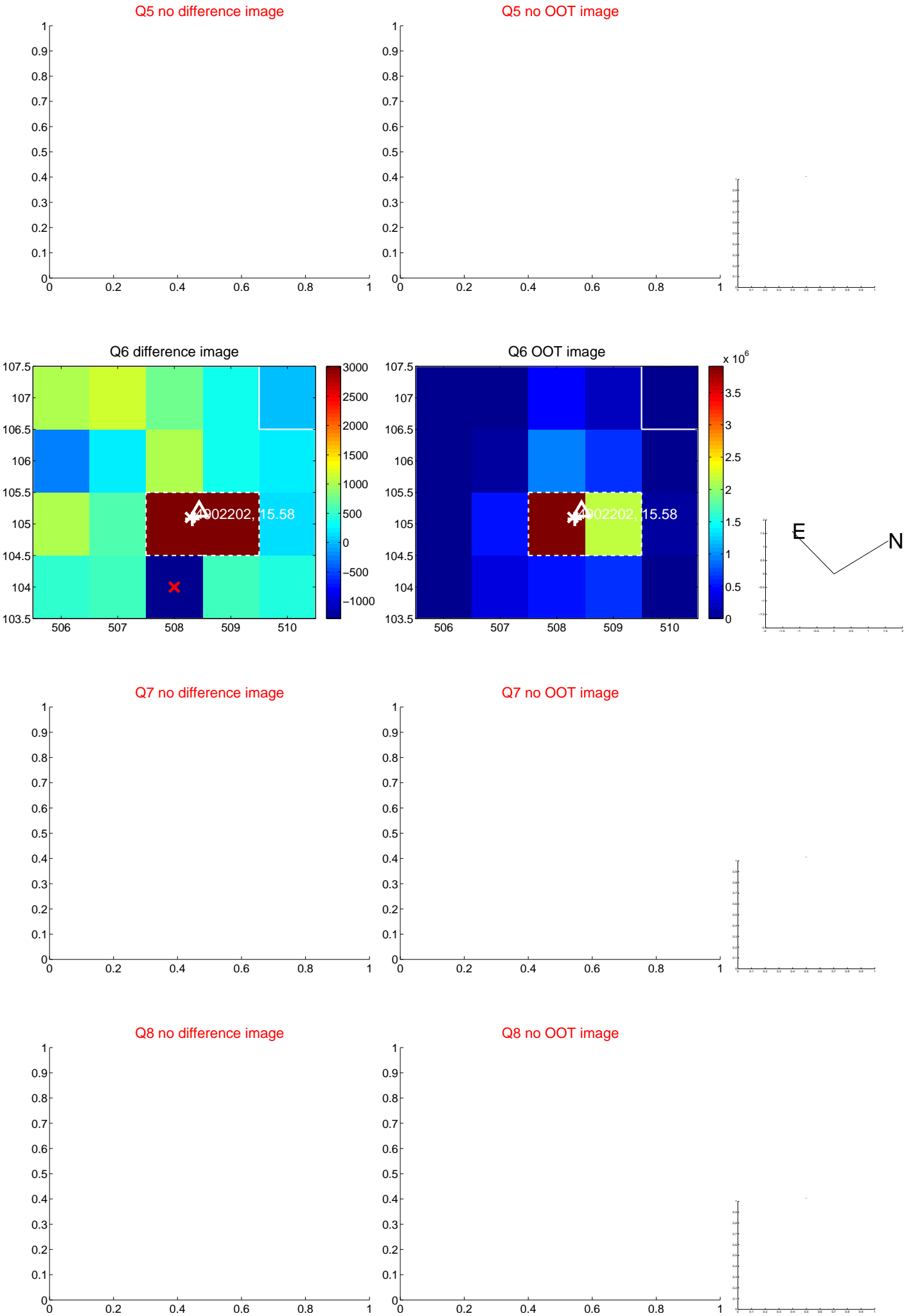


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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.



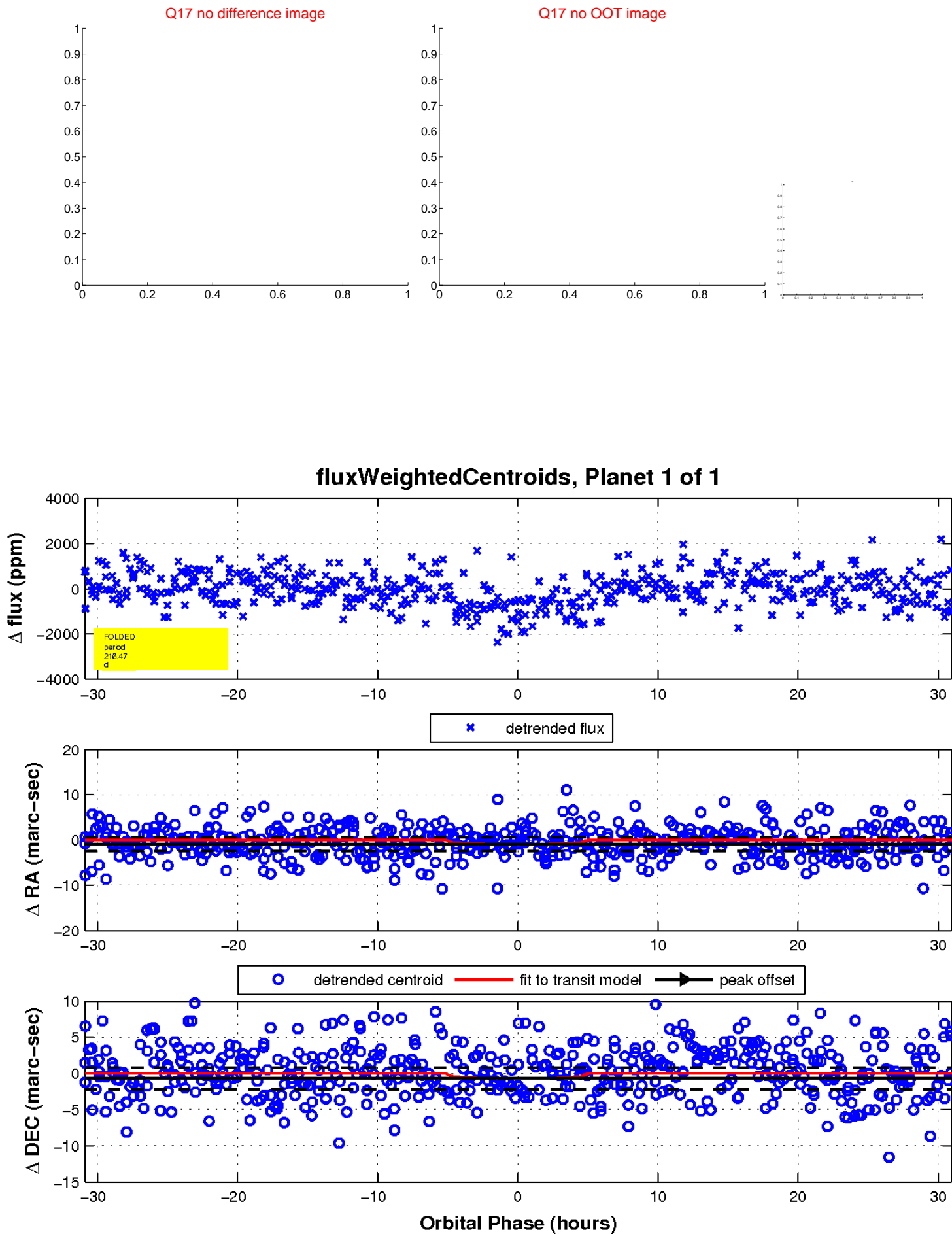
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

