

KIC 002301577

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 002301577-01 | OBS | No | 439.006693 | 238.018545 | 1267.5 | 4.325 | 7.9 | 7.4 | 11.95 | 4842 | 56.66 | 41.44 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 002301577-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT |

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

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

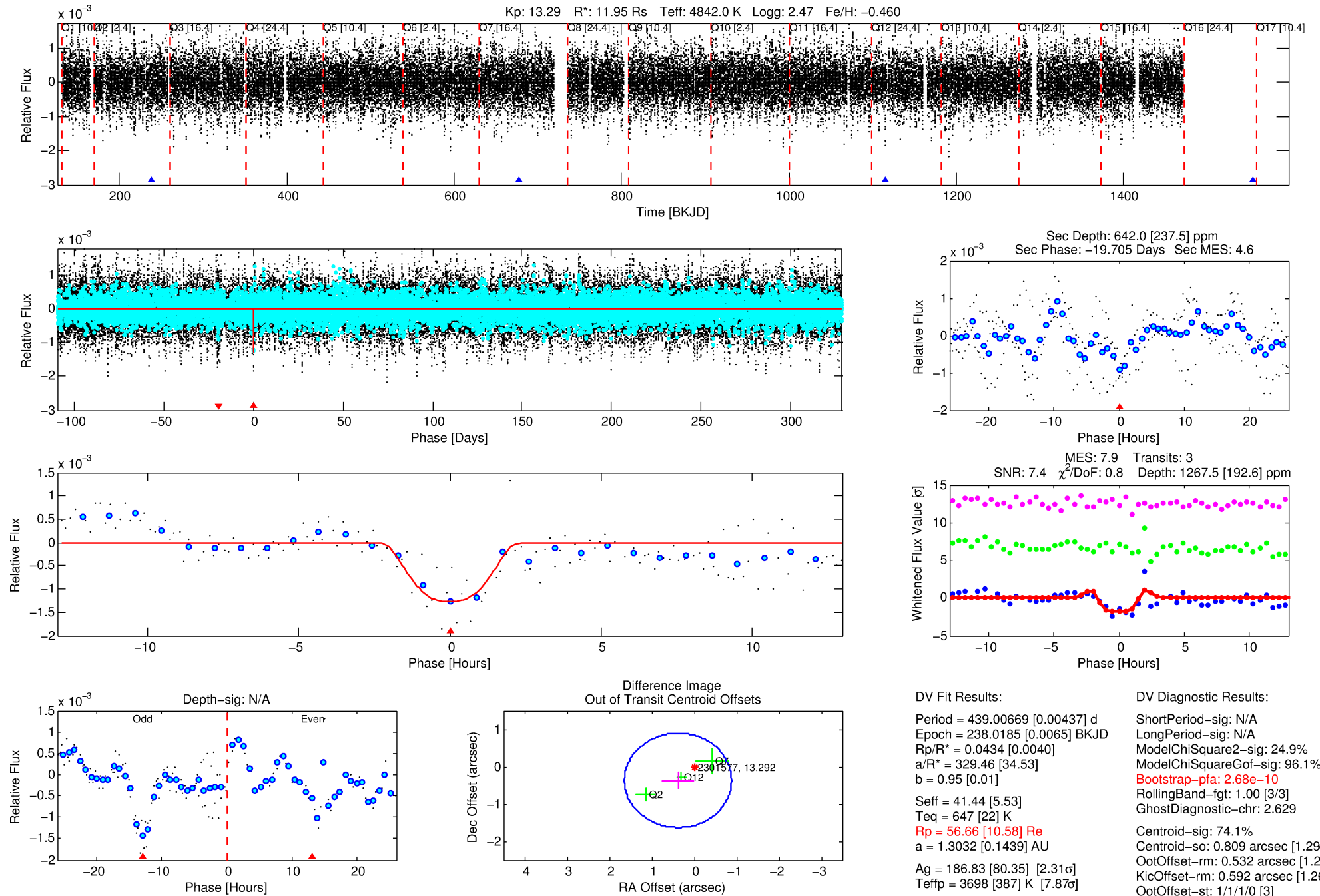
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002301577-01

No Significant Match Found

DV One-Page Summary

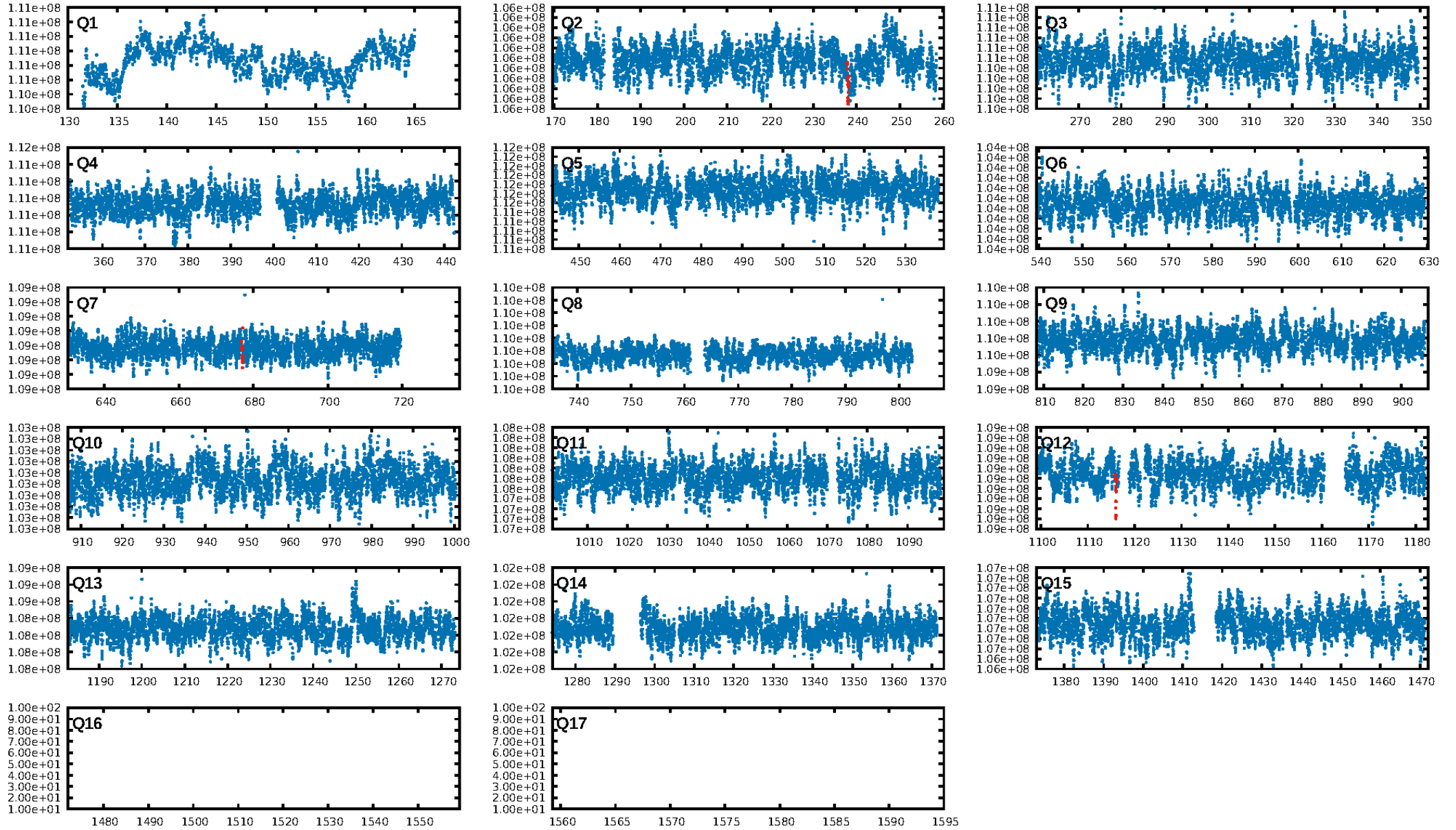
KIC: 2301577 Candidate: 1 of 1 Period: 439.007 d



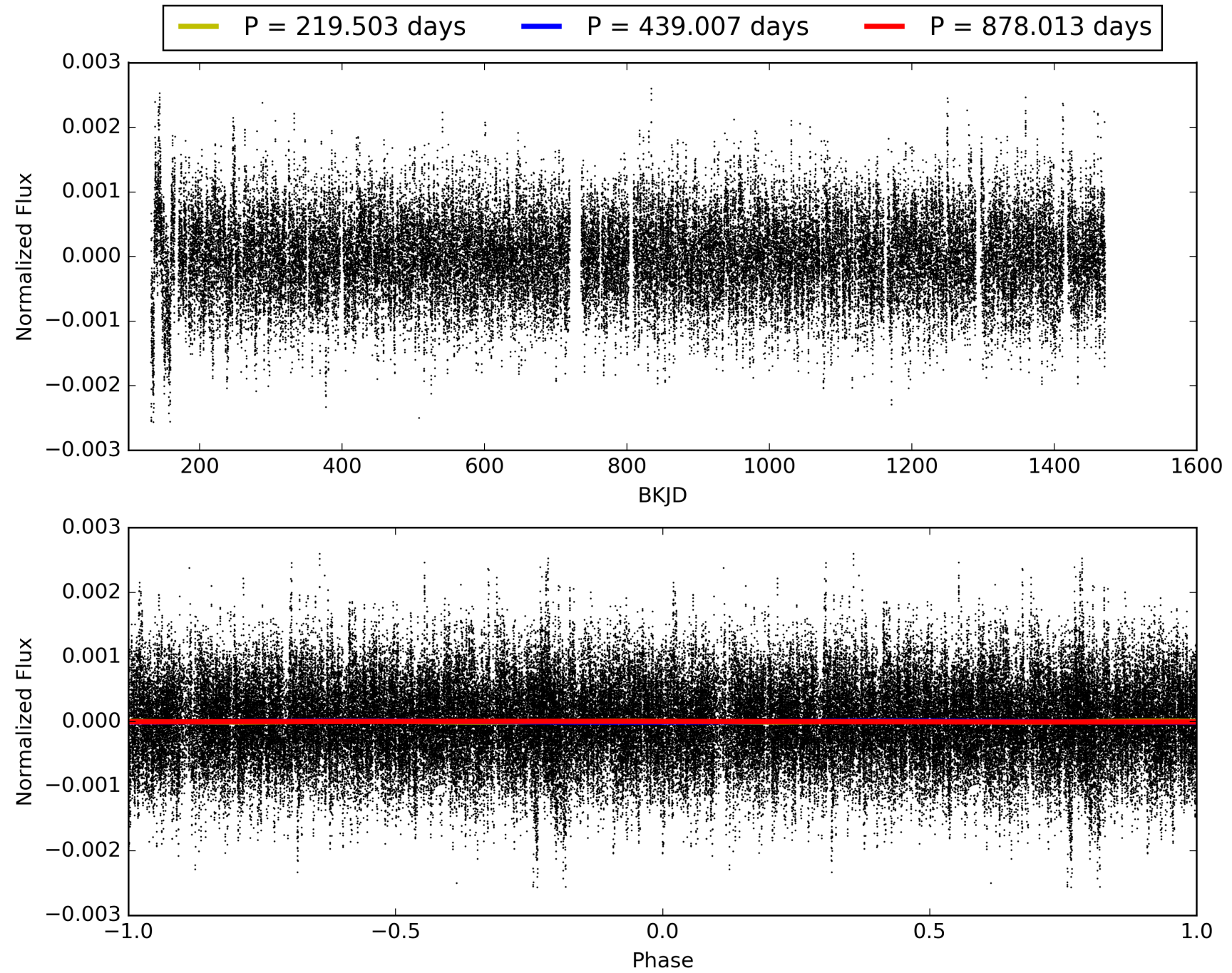
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:57:21 Z

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

TCE 002301577-01, PDC Light Curves

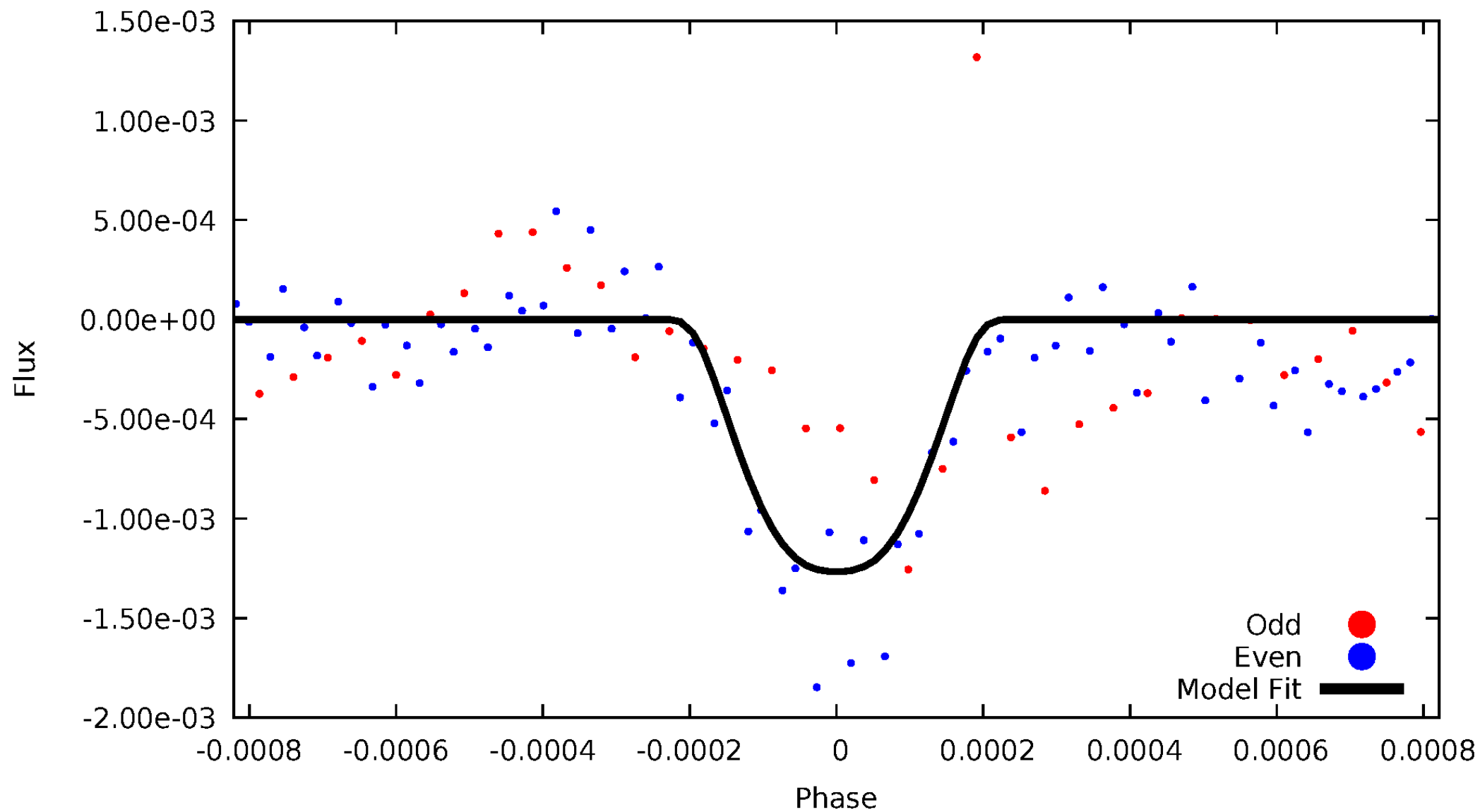


TCE 002301577-01



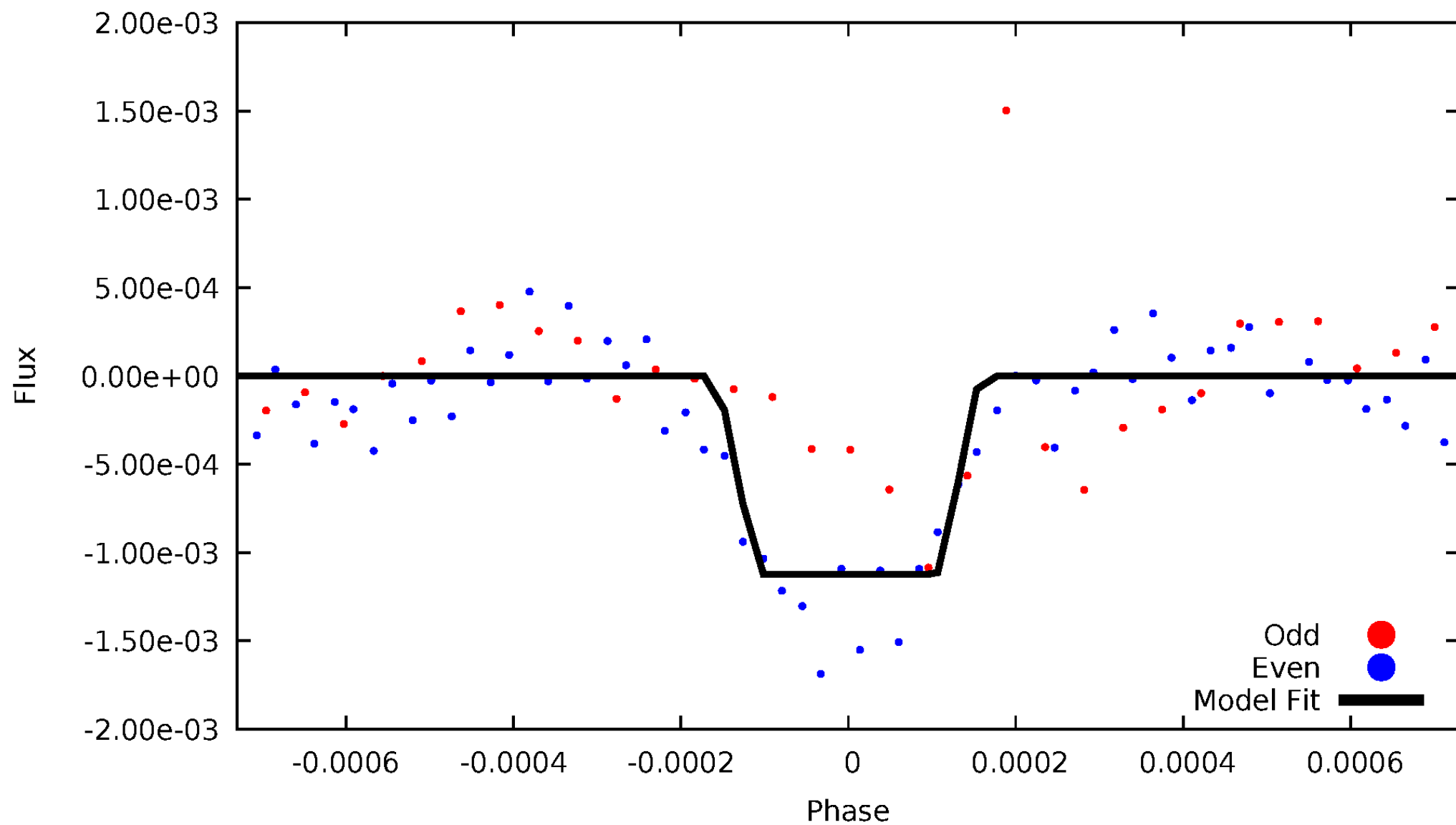
DV Odd/Even

TCE 002301577-01



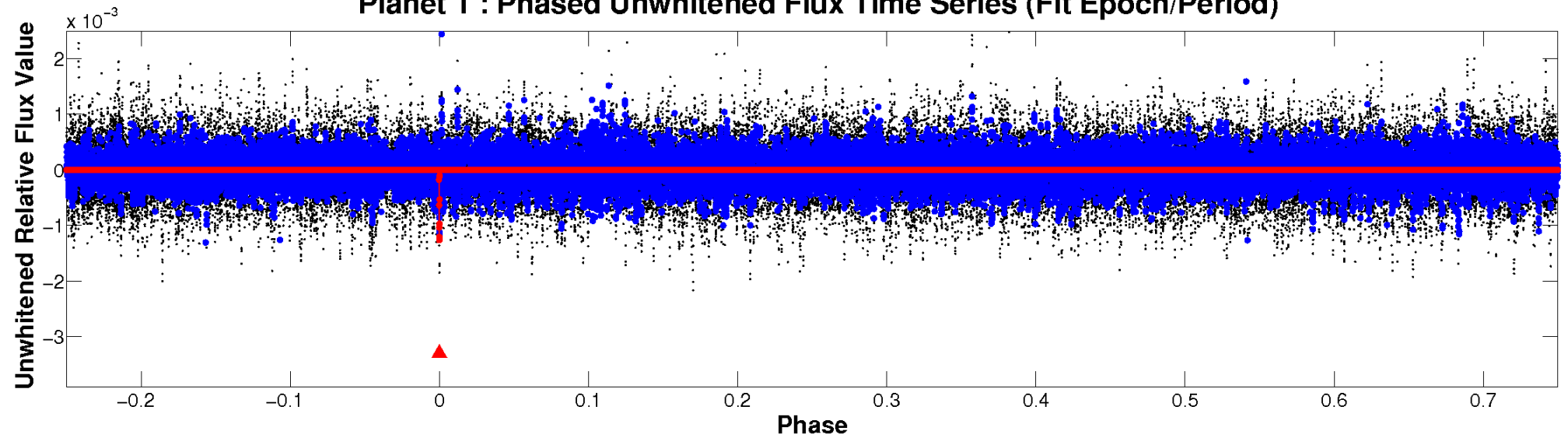
ALT Odd/Even

TCE 002301577-01

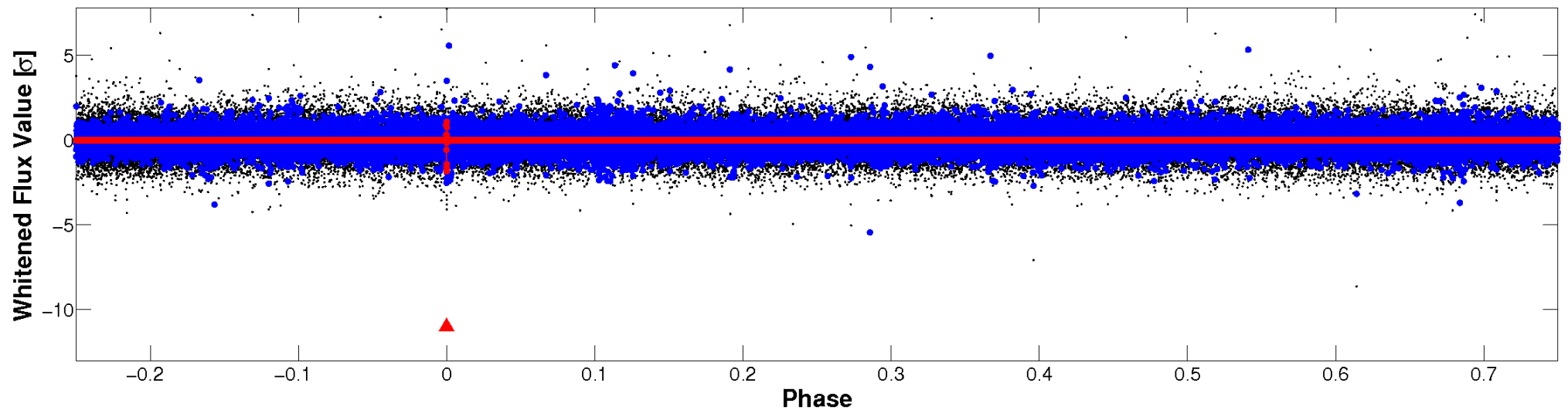


Non-Whitened Vs. Whitened Light Curve

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

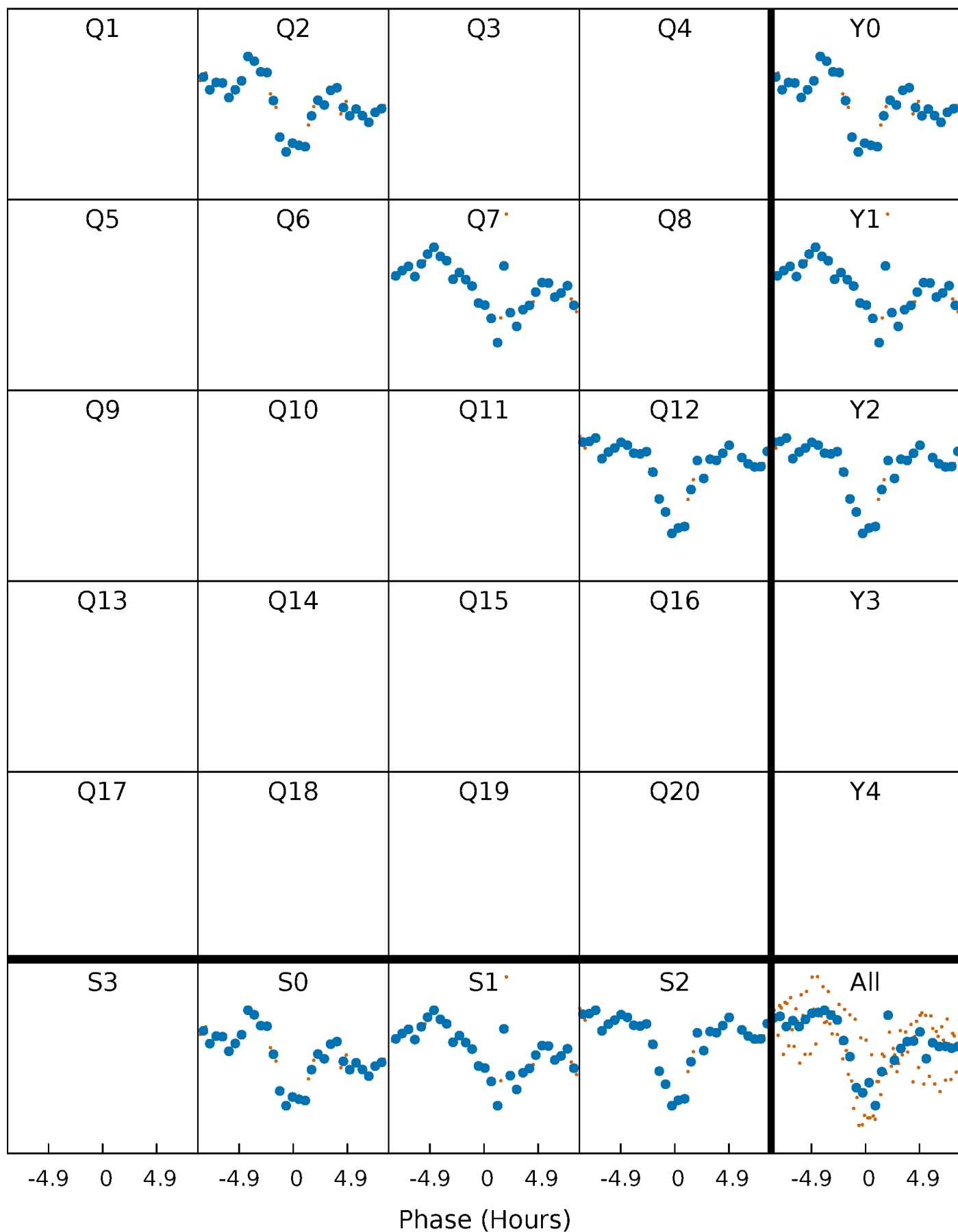


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



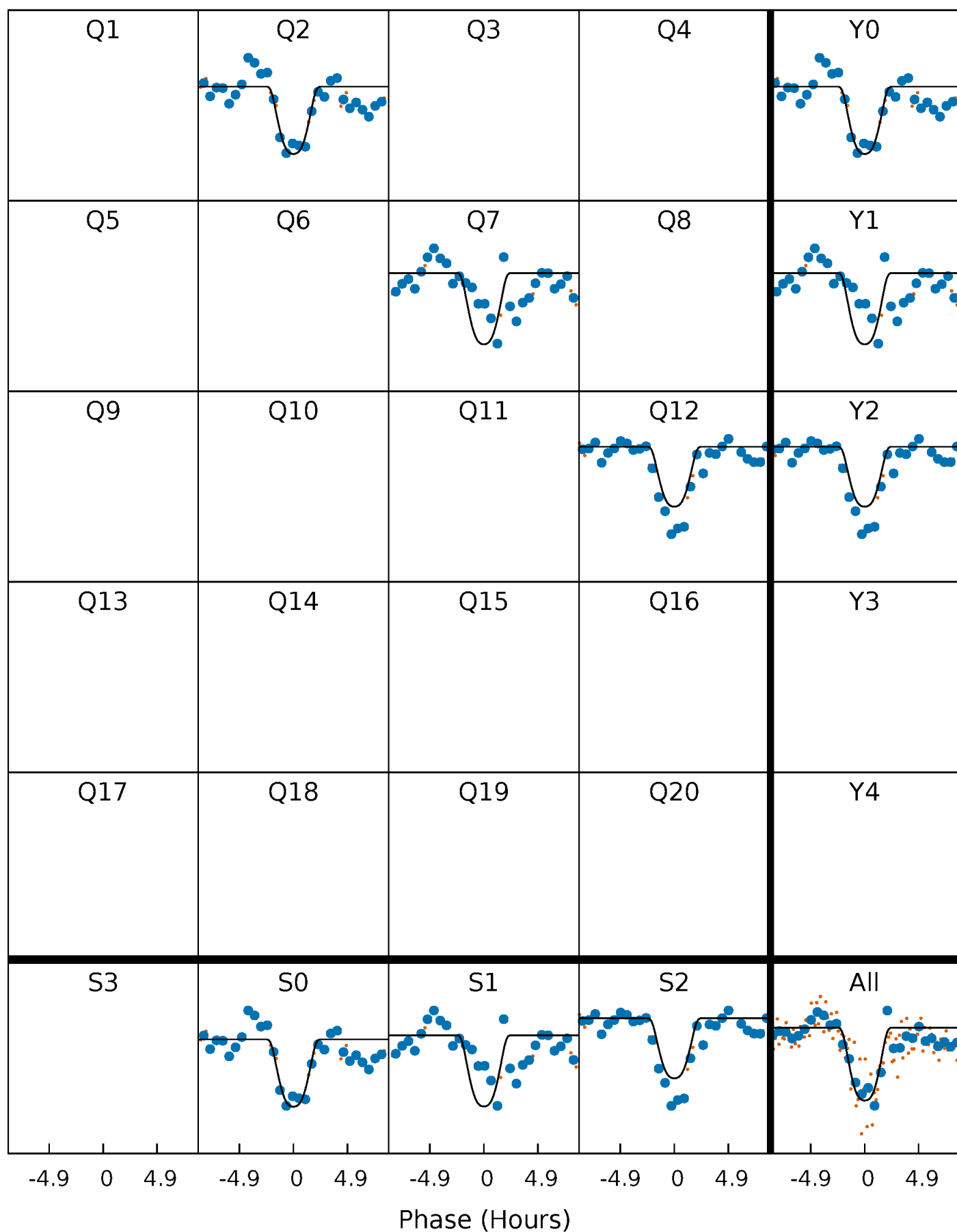
PDC Quarter-Phased Transit Curves

TCE 002301577-01 $P=439.006693$ Days $T_0=238.018545$ (BKJD)



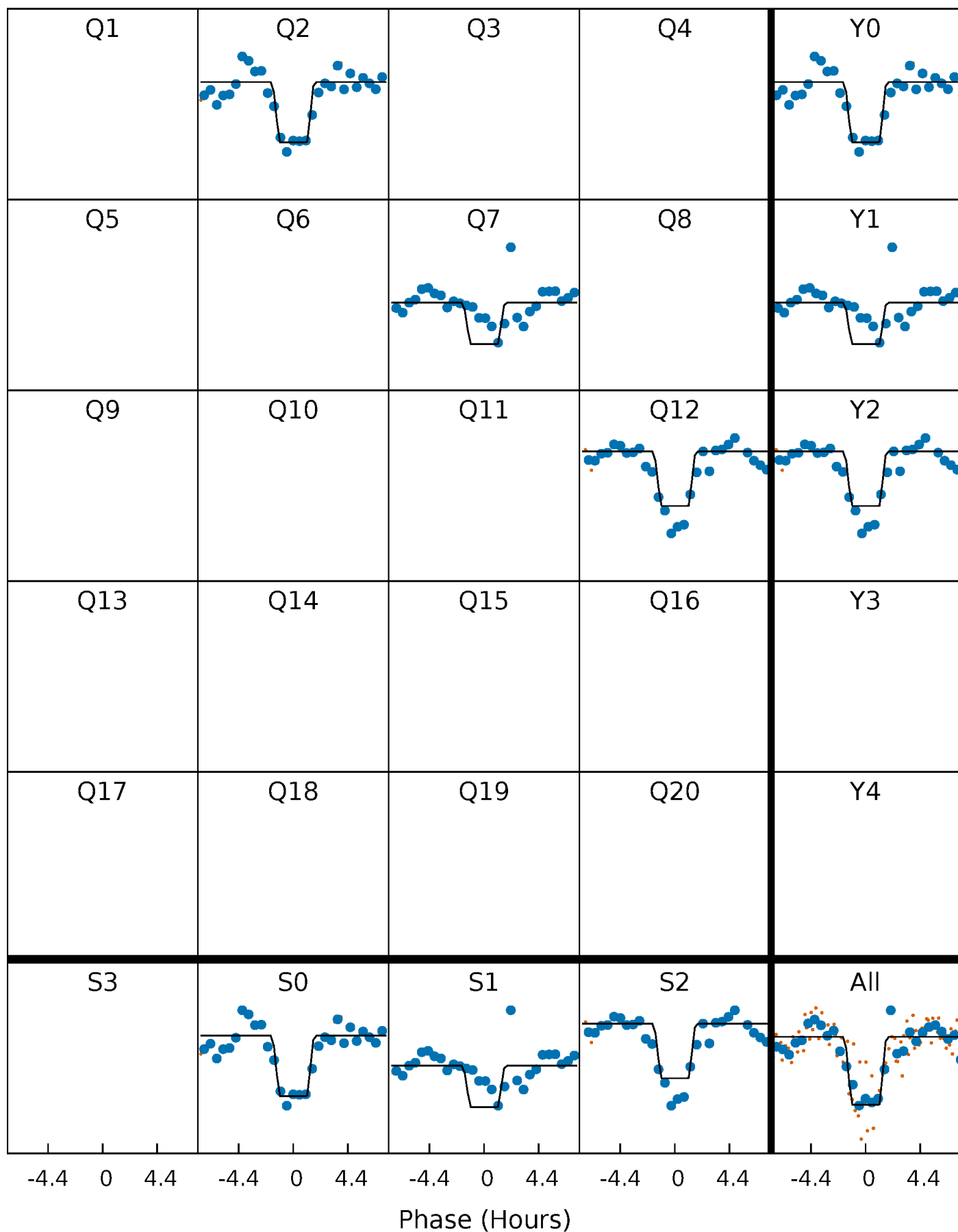
DV Quarter-Phased Transit Curves

TCE 002301577-01 P=439.006693 Days $T_0=238.018545$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

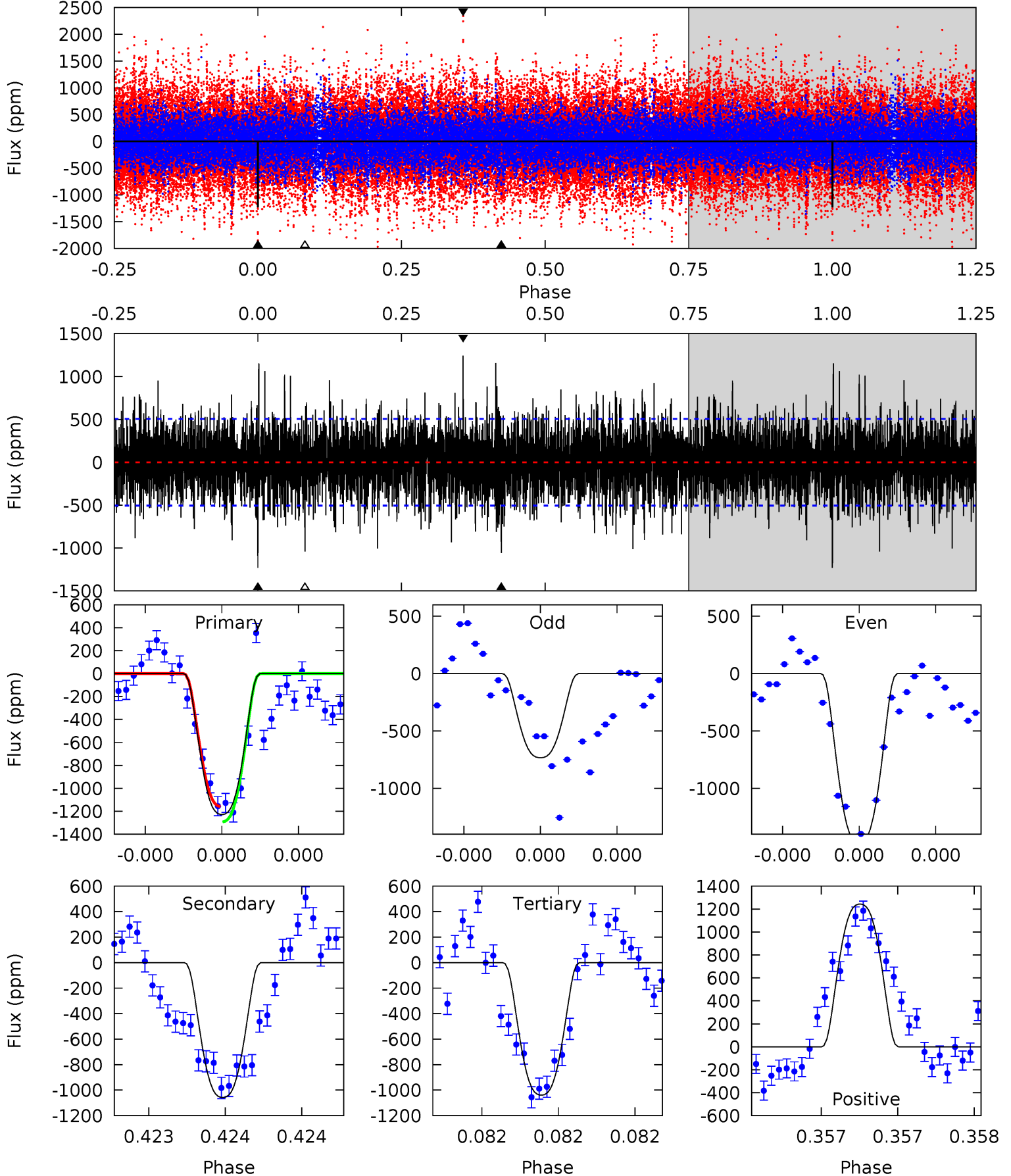
TCE 002301577-01 P=439.008225 Days $T_0=238.018105$ (BKJD)



DV Model-Shift Uniqueness Test

002301577-01, P = 439.006693 Days, E = 238.018545 Days

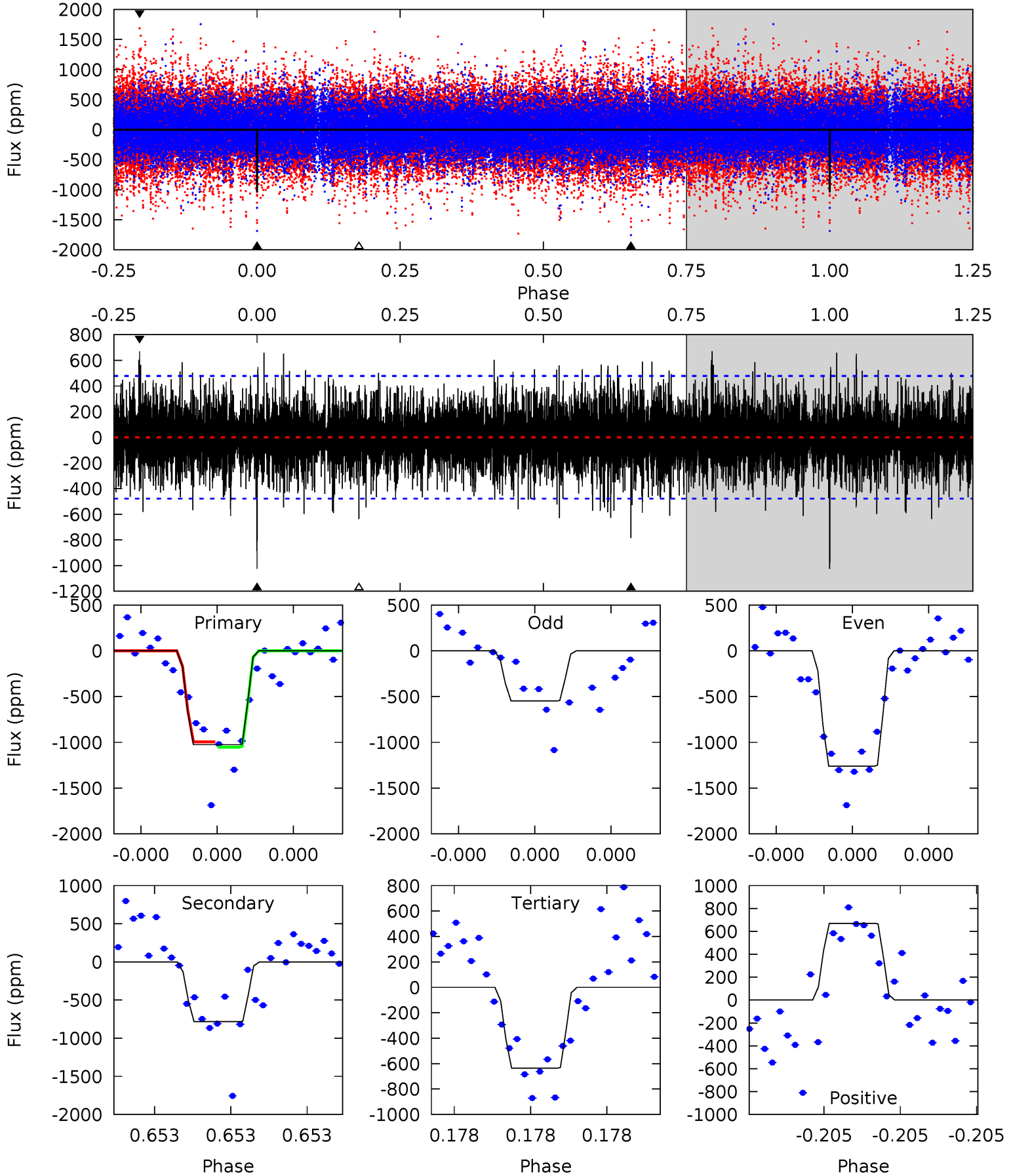
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.6 | 11.7 | 11.5 | 13.7 | 5.59 | 3.51 | 3.05 | 2.10 | -0.16 | 0.21 | -2.05 | 3.84 | 1.02 | 0.50 | 0.73 |



Alt Model-Shift Uniqueness Test

002301577-01, P = 439.008225 Days, E = 238.018105 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.1 | 9.25 | 7.50 | 7.91 | 5.65 | 3.59 | 2.06 | 4.60 | 4.19 | 1.74 | 1.33 | 4.01 | 0.90 | 0.40 | 0.33 |



Stellar Parameters For KIC 002301577

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|----------------------------|----------------------------|---------------------------|---|
| | 4842^{+53}_{-77} | $2.468^{+0.030}_{-0.030}$ | $-0.460^{+0.100}_{-0.150}$ | $11.954^{+0.894}_{-1.937}$ | $1.532^{+0.196}_{-0.457}$ | $0.001^{+0.000}_{-0.000}$ |
| | +1%/-2% | +1%/-1% | +22%/-33% | +7%/-16% | +13%/-30% | +25%/-11% |
| Source | SPE68 | AST9 | SPE68 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 002301577-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|-------------------------|----------------------|----------------------|--------------------|
| DV | -1058 ± 90 | $57.18^{+6.17}_{-6.31}$ | 905^{+17}_{-20} | 4317^{+197}_{-157} | 308^{+73}_{-58} |
| Alt. | -783 ± 85 | $44.01^{+6.35}_{-5.96}$ | 905^{+18}_{-21} | 4493^{+260}_{-221} | 379^{+125}_{-89} |

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

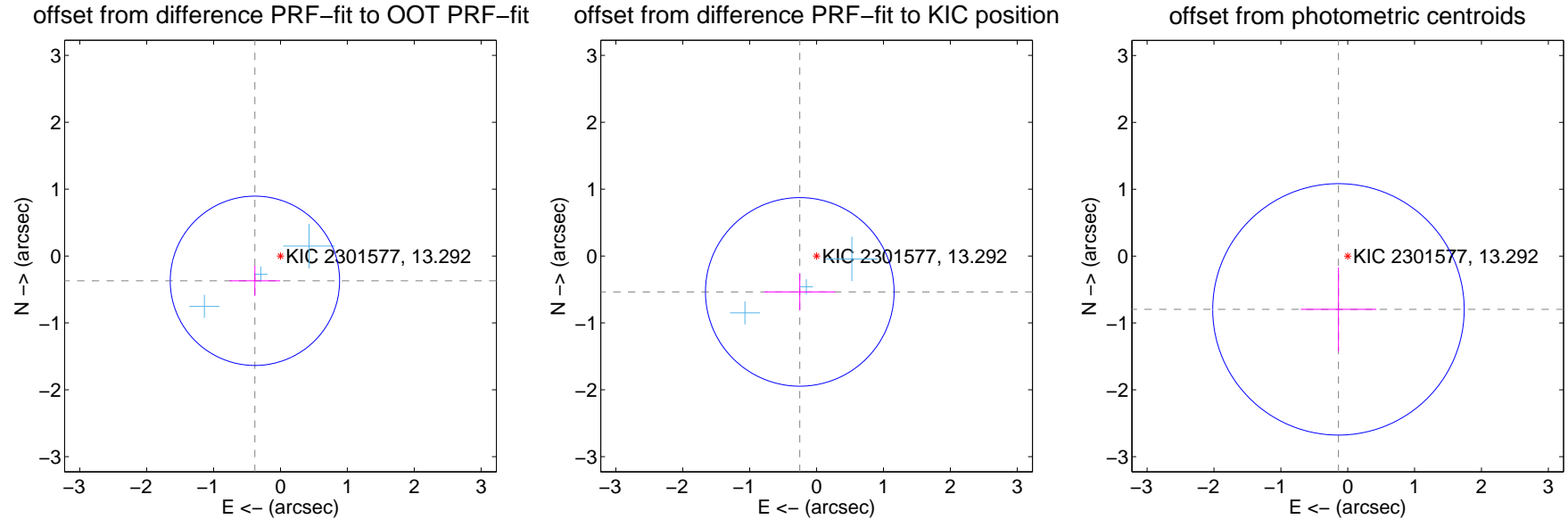
DV Centroid Data

Supplemental centroid analysis for 002301577-01. Kepler magnitude: 13.29. Transit SNR 7.35

There are 3 quarters with good PRF difference image offsets

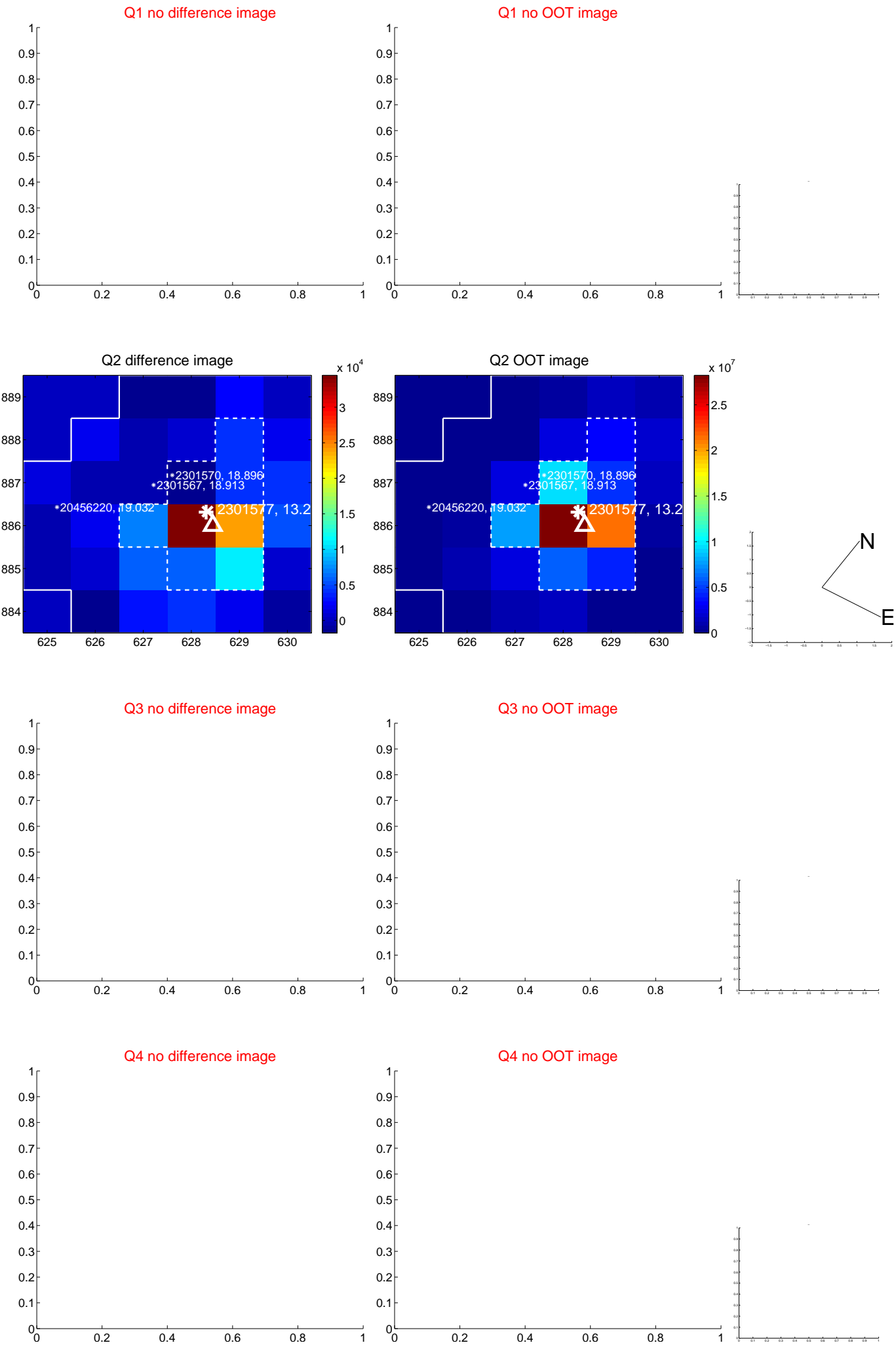
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.532 ± 0.422 | 1.26 | 0.382 ± 0.378 | -0.370 ± 0.224 |
| PRF-fit source offset from KIC position | 0.592 ± 0.470 | 1.26 | 0.251 ± 0.530 | -0.537 ± 0.276 |
| photometric centroid source offset | 0.81 ± 0.63 | 1.29 | 0.14 ± 0.57 | -0.80 ± 0.63 |

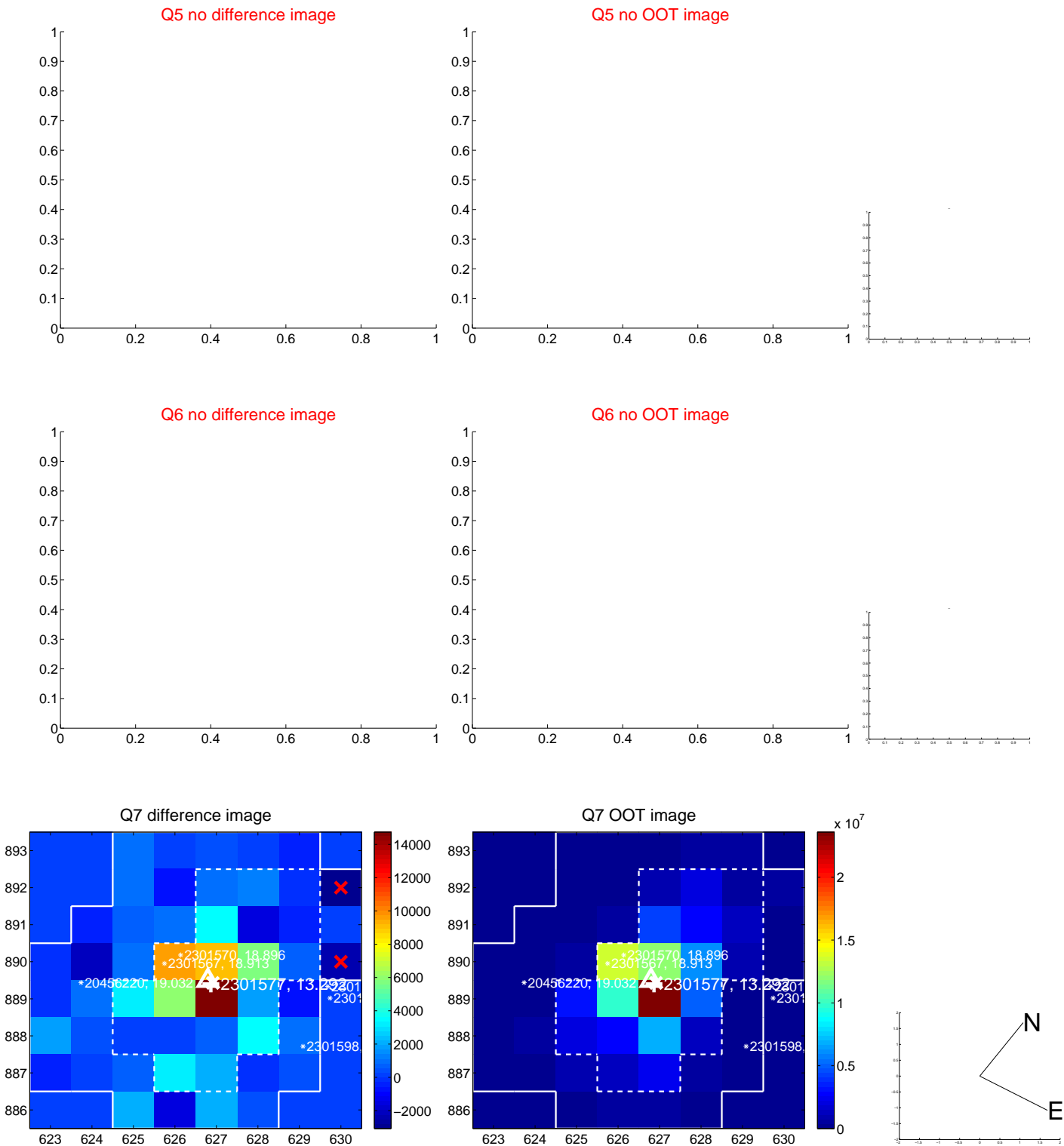


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q9 no difference image



Q9 no OOT image



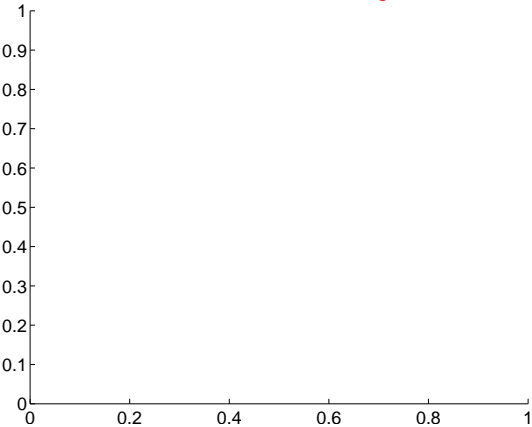
Q10 no difference image



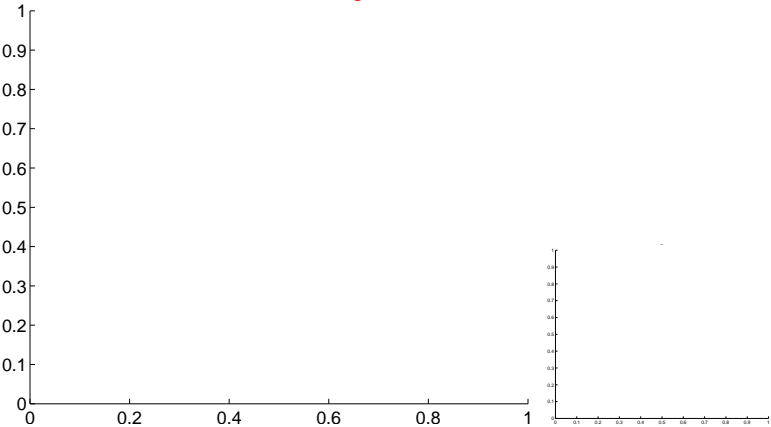
Q10 no OOT image



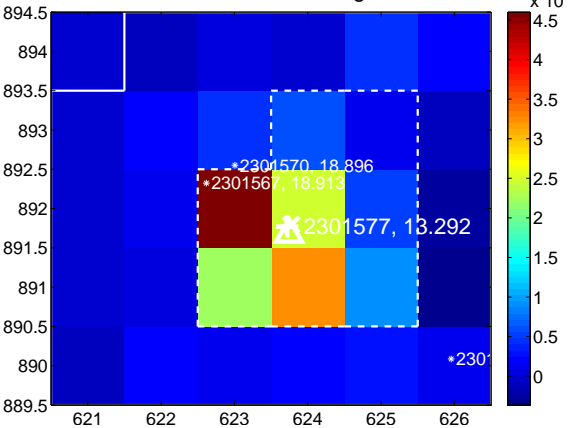
Q11 no difference image



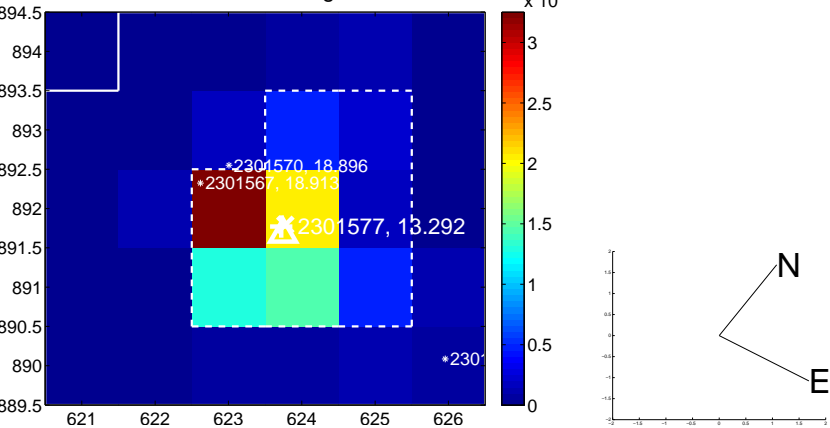
Q11 no OOT image



Q12 difference image



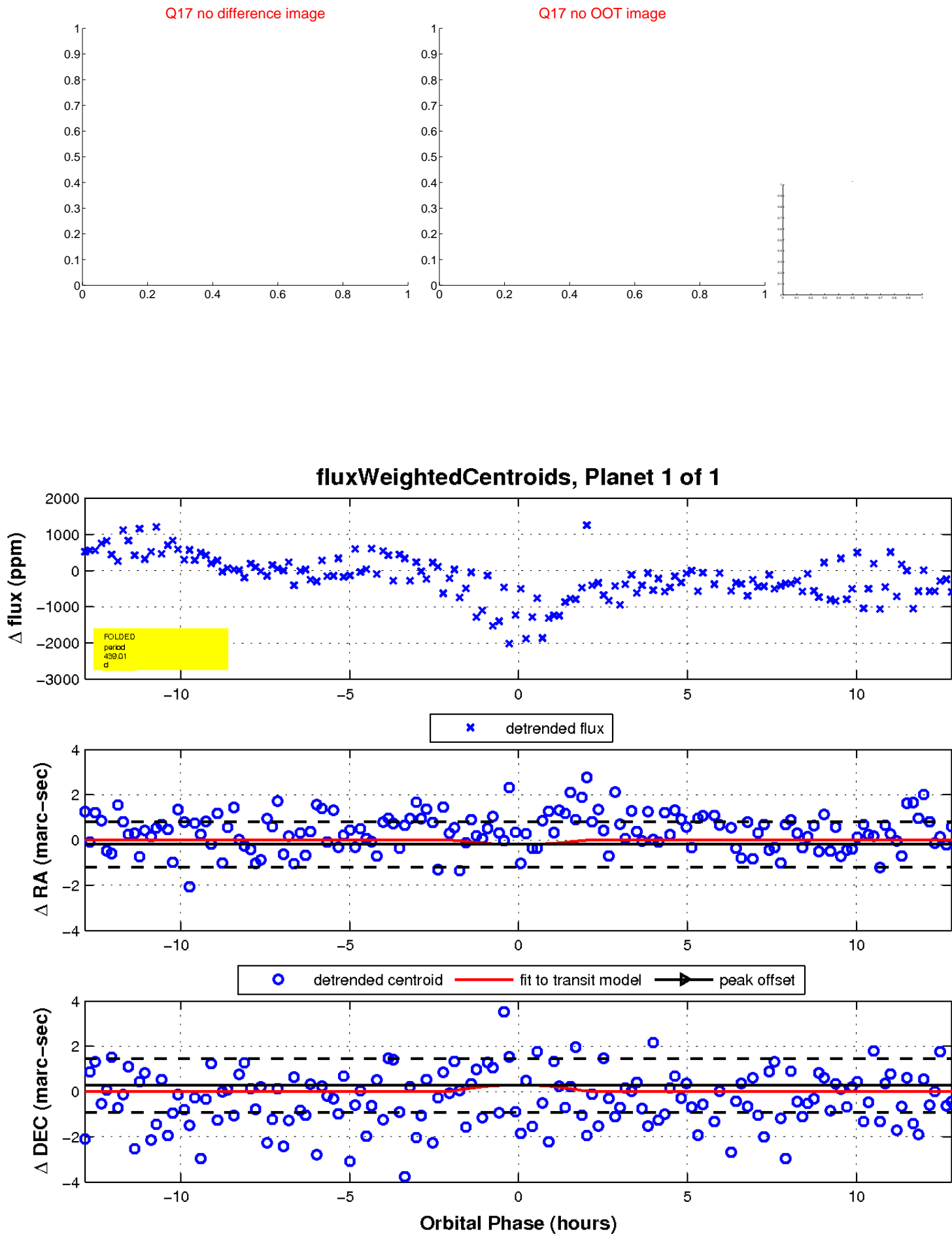
Q12 OOT image



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

