

KIC 008718439

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008718439-01 | OBS | No | 620.285716 | 314.561012 | 560.1 | 11.292 | 8.3 | 7.6 | 0.97 | 5701 | 2.43 | 0.47 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008718439-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—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.

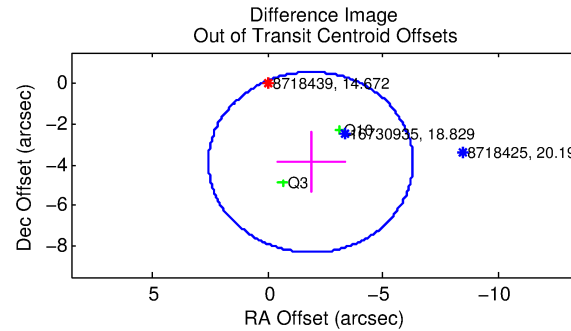
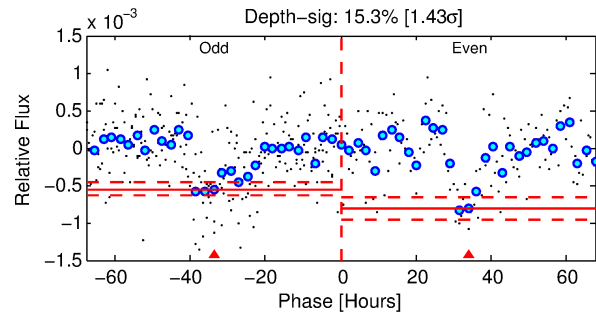
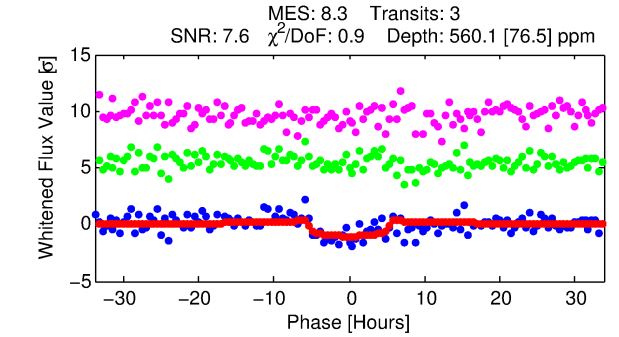
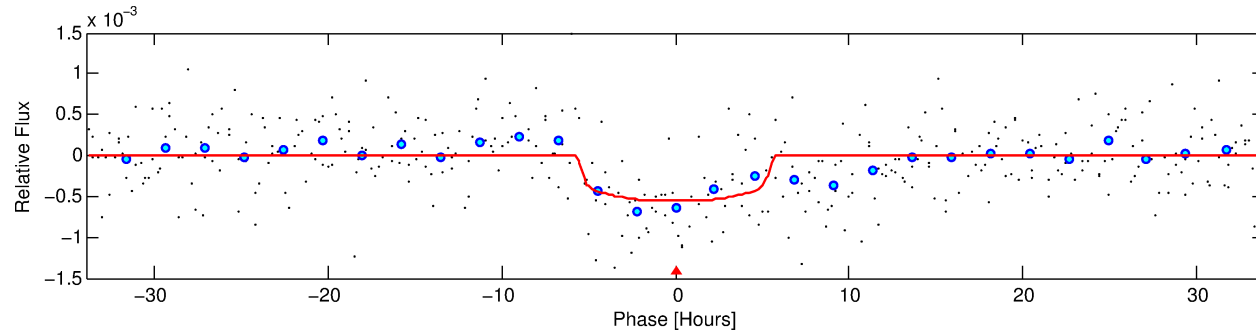
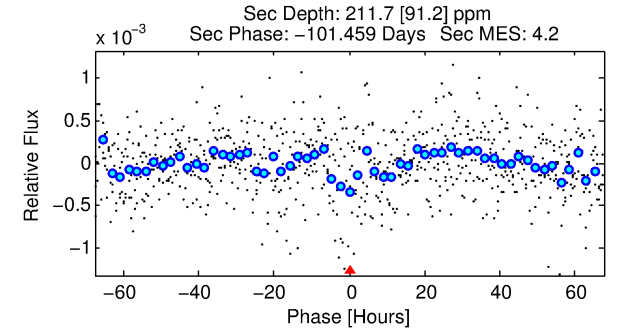
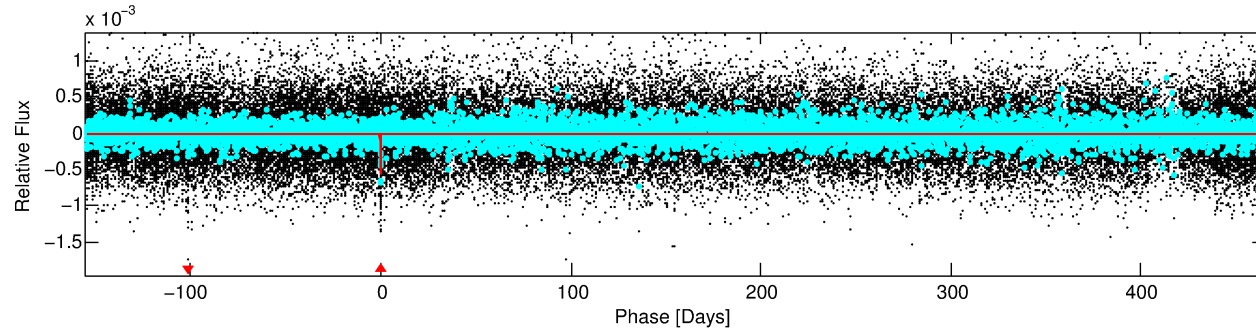
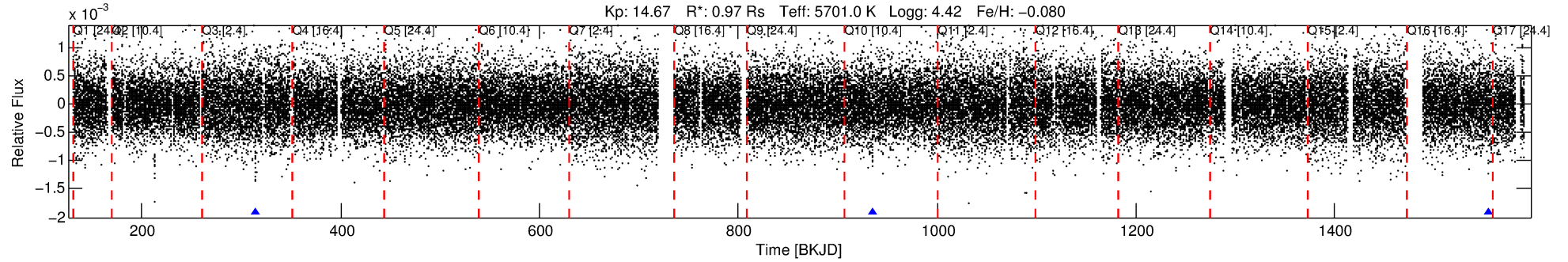
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008718439-01

No Significant Match Found

DV One-Page Summary

KIC: 8718439 Candidate: 1 of 1 Period: 620.286 d



DV Fit Results:

Period = 620.28572 [0.01627] d
Epoch = 314.5610 [0.0227] BKJD
Rp/R* = 0.0229 [0.0132]
a/R* = 329.29 [818.31]
b = 0.66 [2.17]
Seff = 0.47 [0.17]
Teq = 211 [19] K
Rp = 2.43 [1.54] Re
a = 1.3820 [0.3154] AU
Ag = 37756.48 [48325.82] [0.78 σ]
Teff = 4548 [1410] K [3.08 σ]

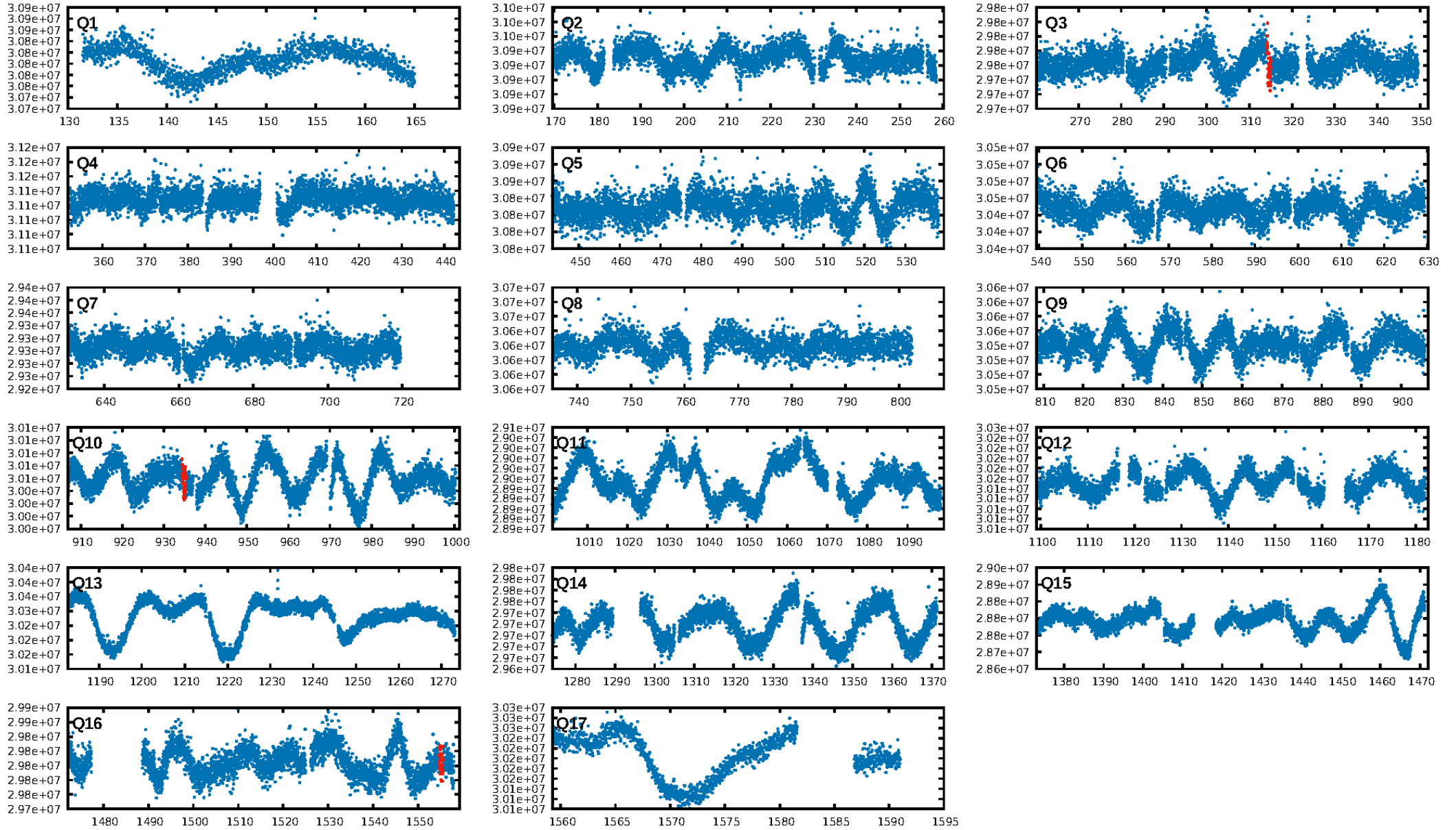
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 25.3%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.81e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.694
Centroid-sig: 3.7%
Centroid-so: 3.132 arcsec [1.75 σ]
OotOffset-rm: 4.312 arcsec [2.93 σ]
KicOffset-rm: 4.393 arcsec [2.87 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

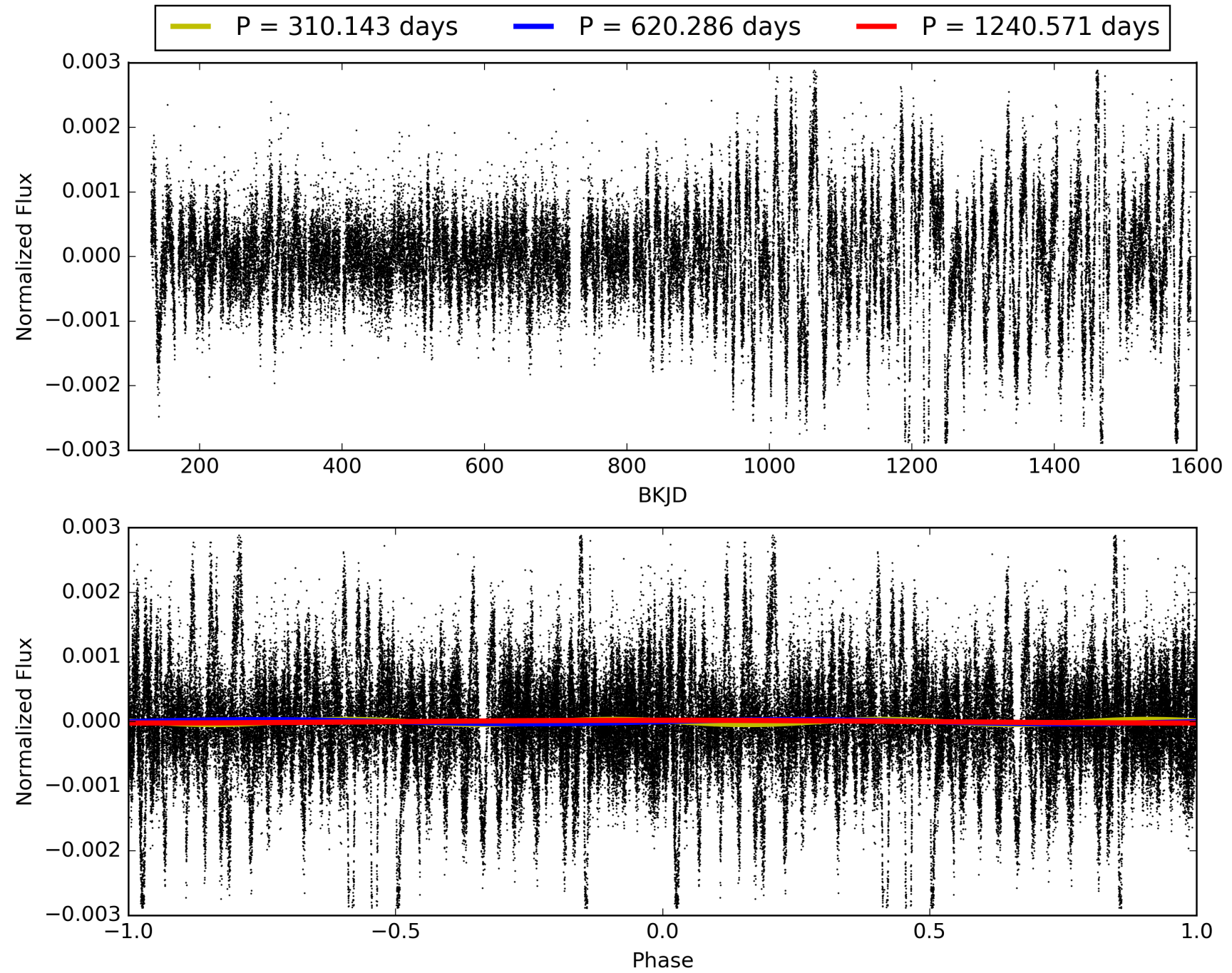
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:15:23 Z

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

TCE 008718439-01, PDC Light Curves

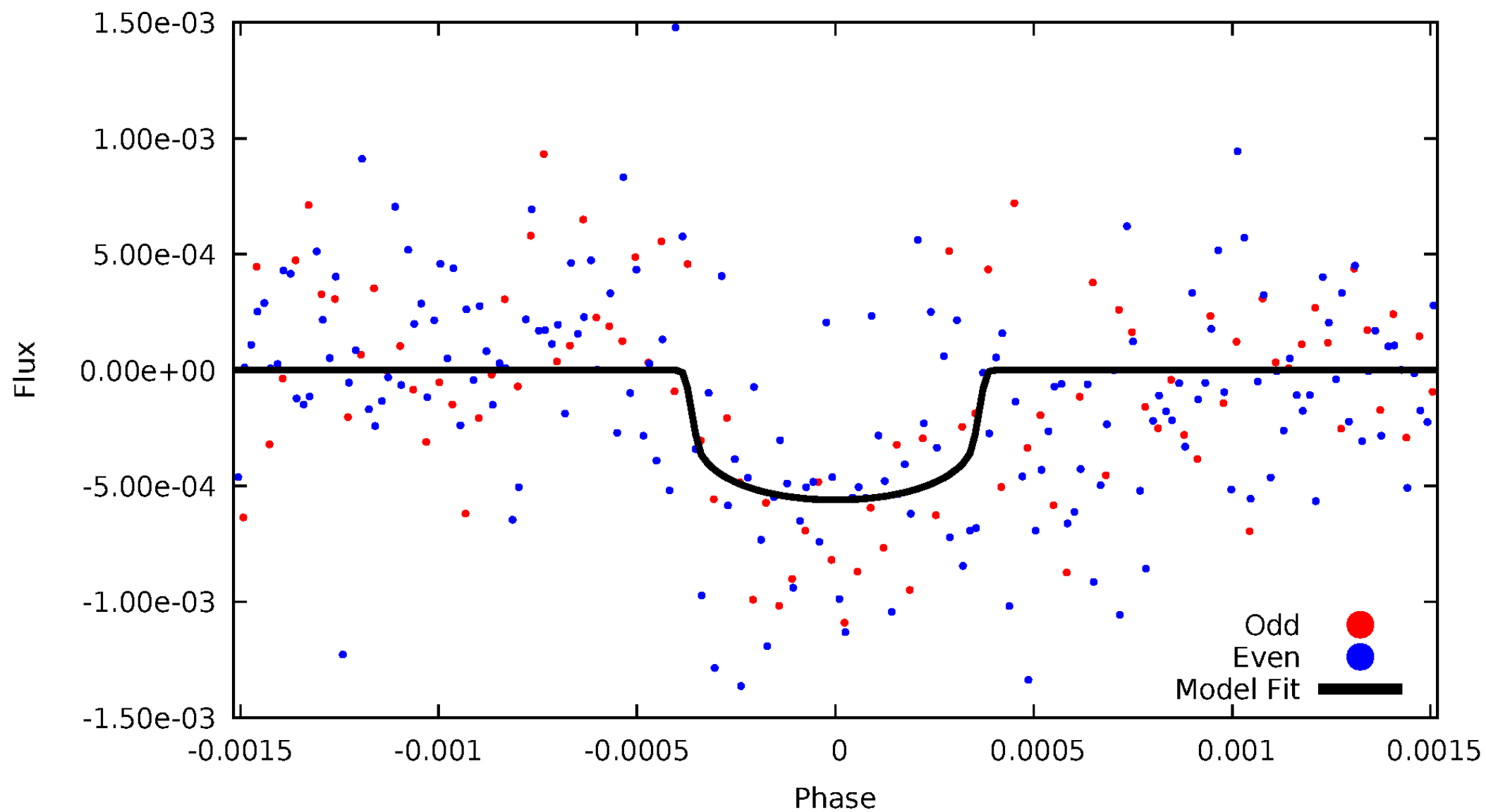


TCE 008718439-01



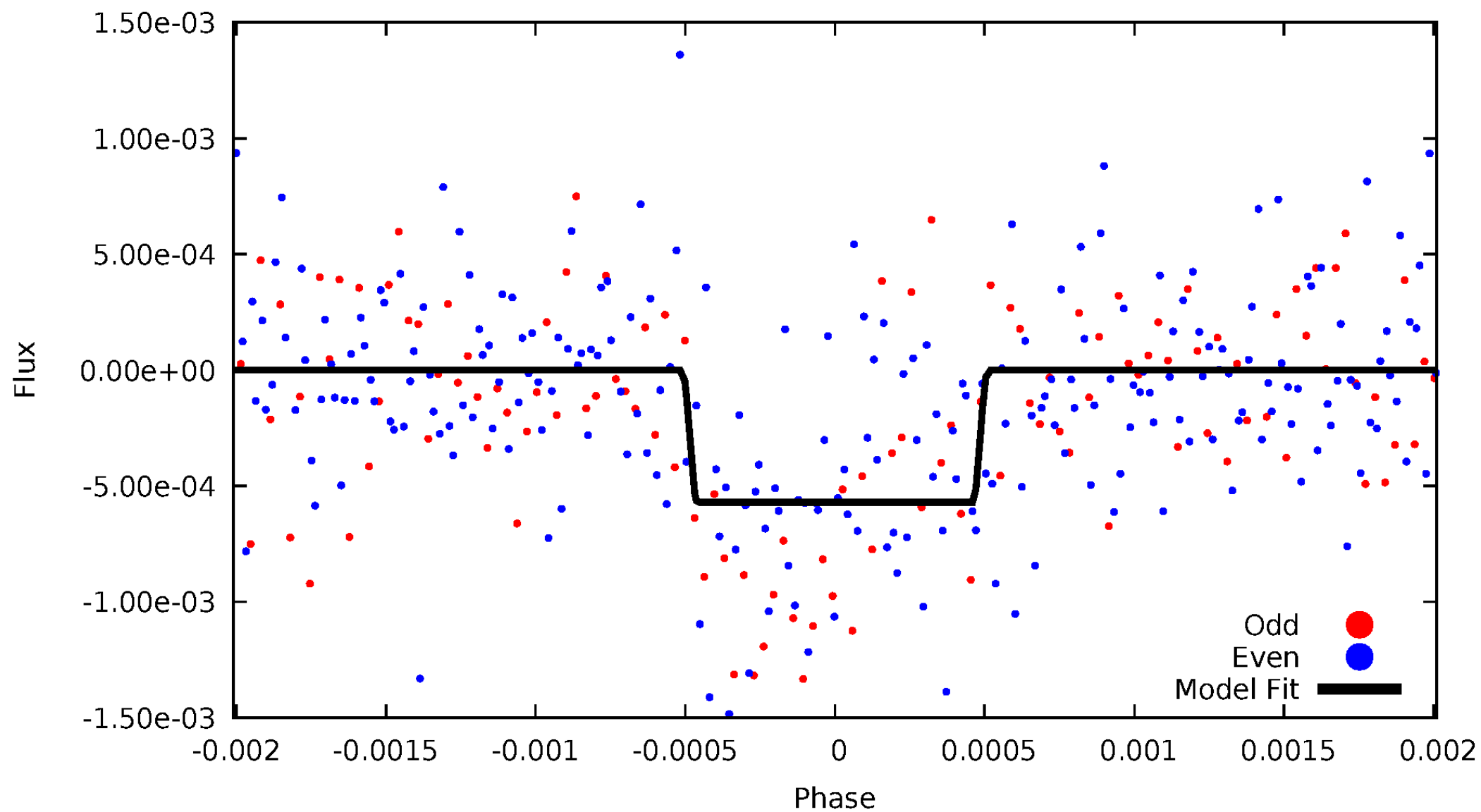
DV Odd/Even

TCE 008718439-01



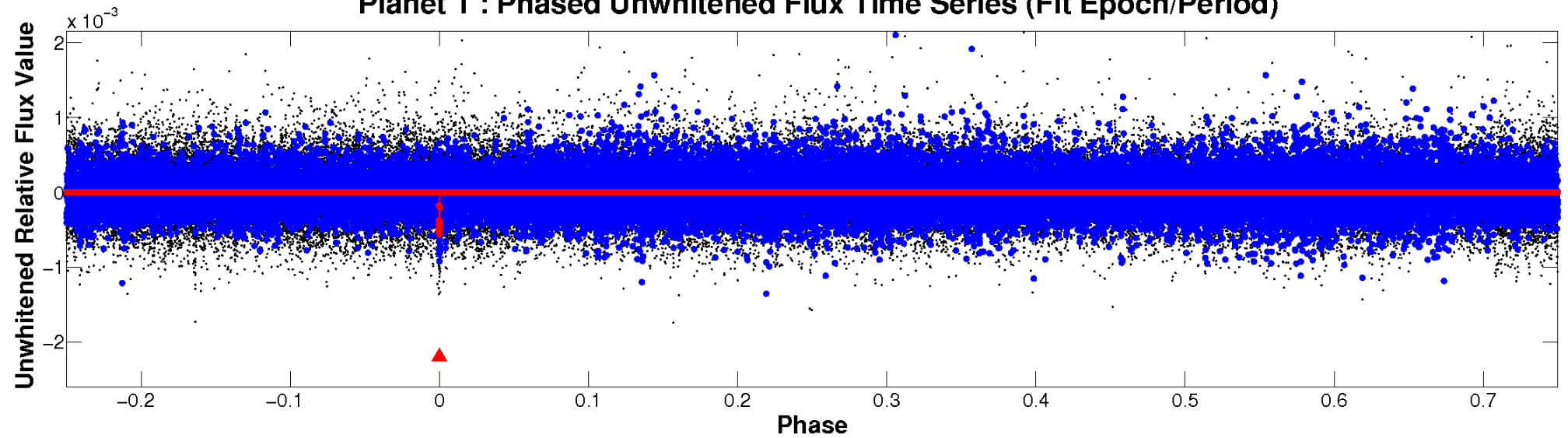
ALT Odd/Even

TCE 008718439-01

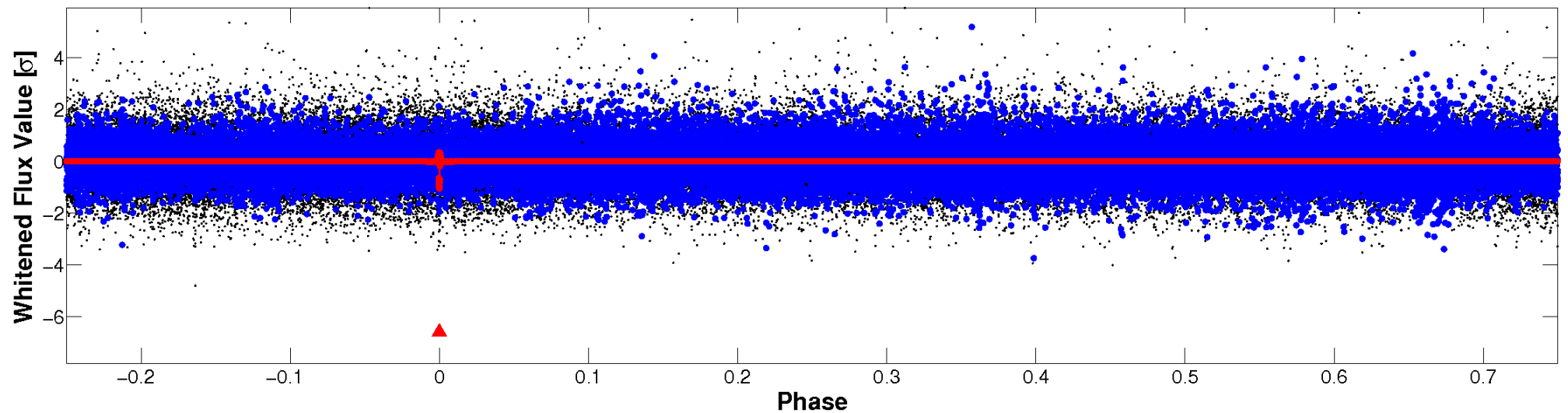


Non-Whitened Vs. Whitened Light Curve

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



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



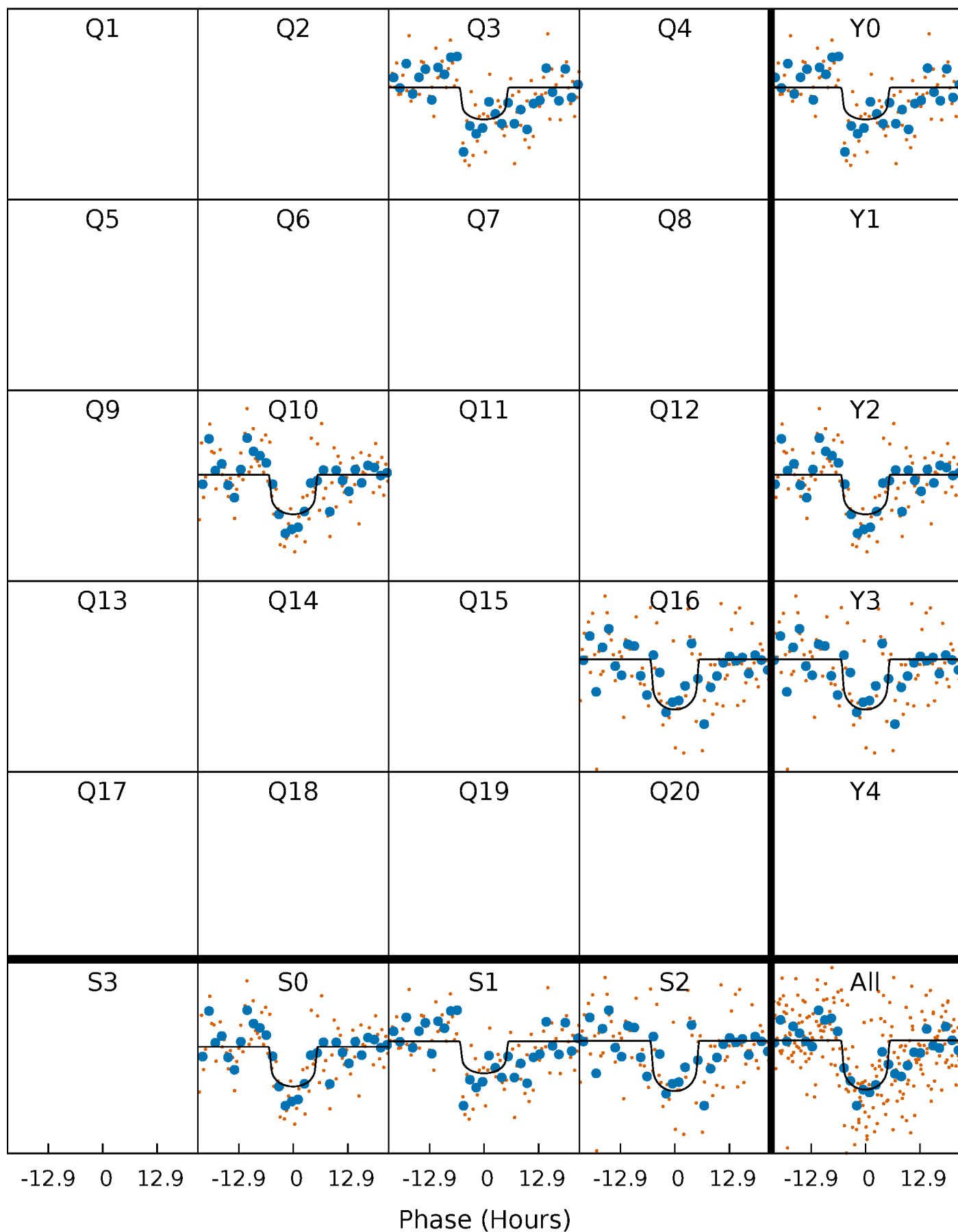
PDC Quarter-Phased Transit Curves

TCE 008718439-01 P=620.285716 Days $T_0=314.561012$ (BKJD)



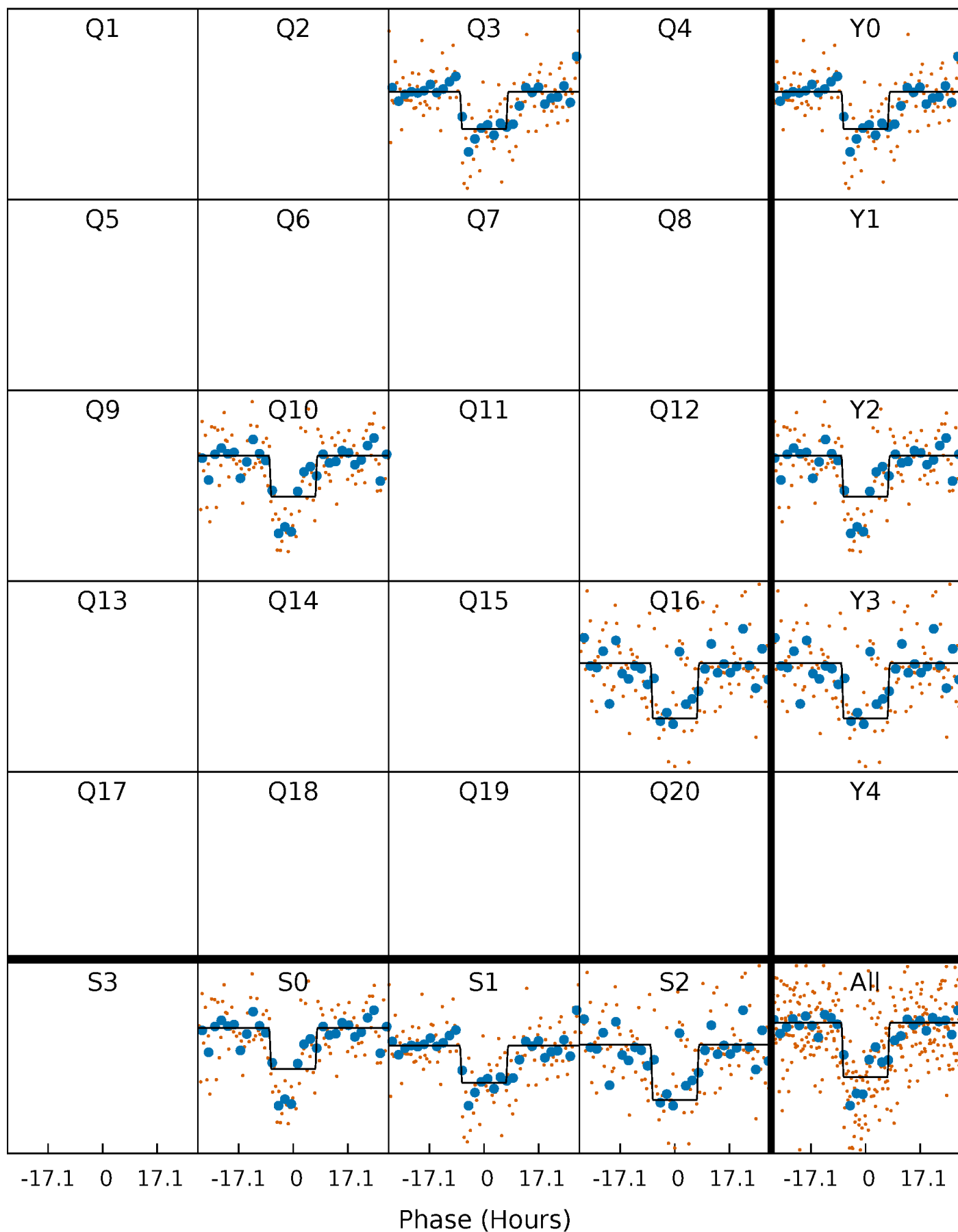
DV Quarter-Phased Transit Curves

TCE 008718439-01 P=620.285716 Days $T_0=314.561012$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

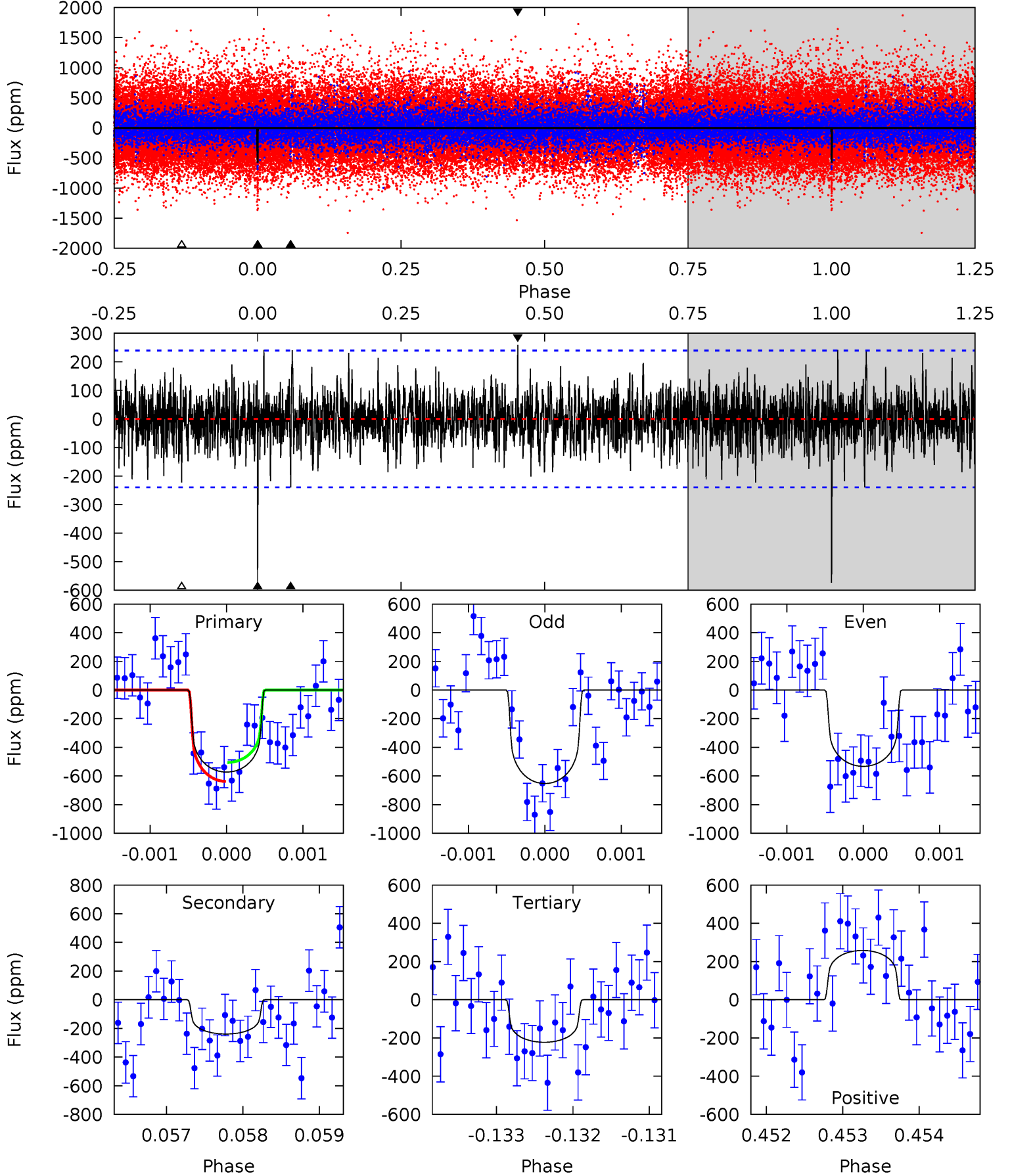
TCE 008718439-01 P=620.294770 Days $T_0=314.632132$ (BKJD)



DV Model-Shift Uniqueness Test

008718439-01, P = 620.285716 Days, E = 314.561012 Days

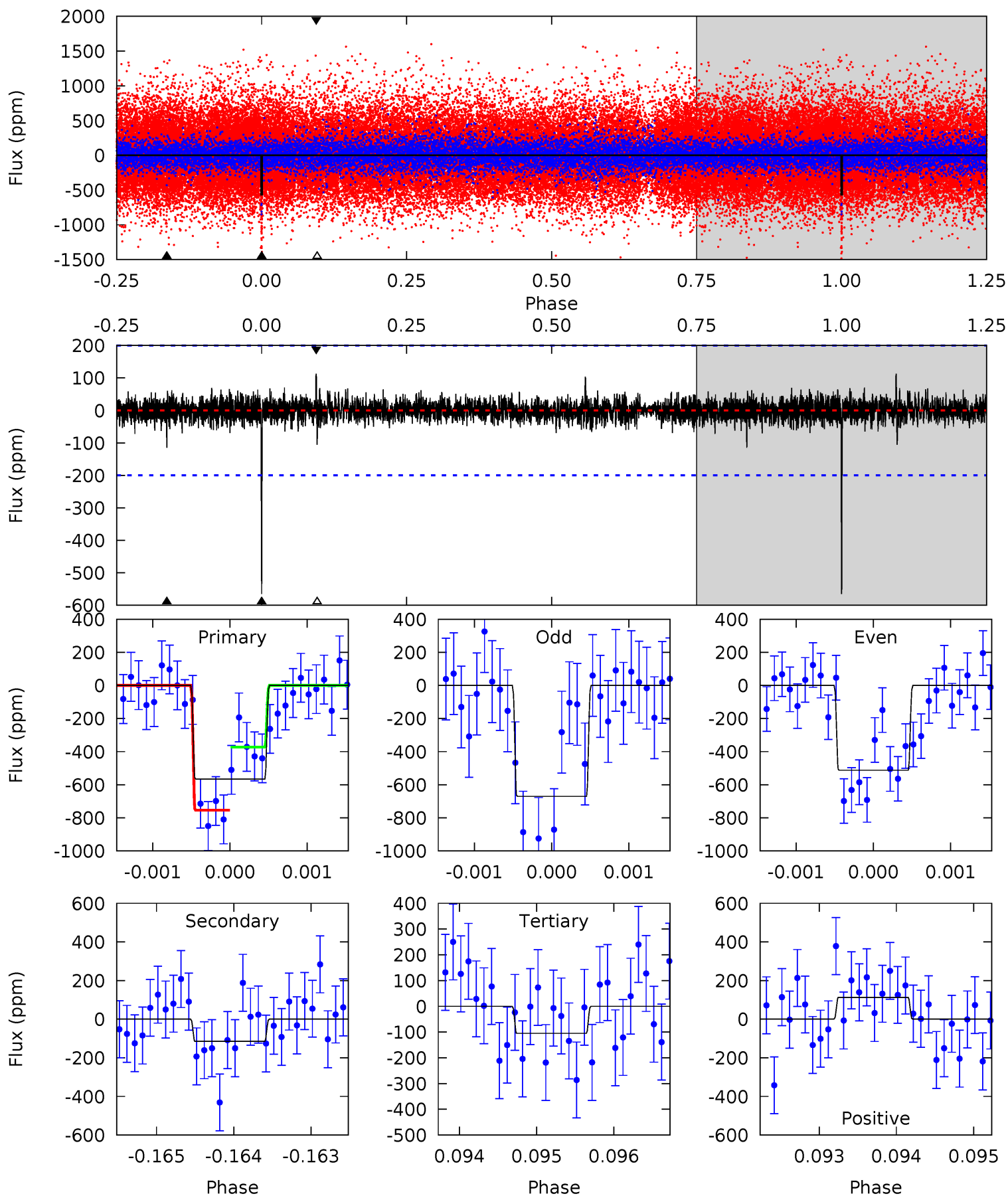
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.1 | 5.49 | 5.10 | 5.91 | 5.49 | 3.36 | 1.45 | 8.03 | 7.22 | 0.38 | -0.43 | 1.30 | 0.88 | 0.31 | 1.52 |



Alt Model-Shift Uniqueness Test

008718439-01, P = 620.294770 Days, E = 314.632132 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.4 | 3.14 | 2.87 | 3.09 | 5.45 | 3.29 | 0.55 | 12.6 | 12.3 | 0.27 | 0.05 | 2.03 | 0.85 | 0.17 | 5.21 |



Stellar Parameters For KIC 008718439

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5701^{+152}_{-169} | $4.423^{+0.101}_{-0.188}$ | $-0.080^{+0.300}_{-0.300}$ | $0.973^{+0.258}_{-0.139}$ | $0.915^{+0.115}_{-0.083}$ | $1.398^{+0.727}_{-0.685}$ |
| | +3%/-3% | +2%/-4% | +375%/-375% | +27%/-14% | +13%/-9% | +52%/-49% |
| Source | PHO1 | 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 008718439-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|----------------------------|
| DV | -239 ± 44 | $2.58^{+1.52}_{-1.32}$ | 298^{+20}_{-15} | 4744^{+1827}_{-787} | $38609^{+122858}_{-24235}$ |
| Alt. | -115 ± 37 | $2.74^{+1.48}_{-1.31}$ | 298^{+21}_{-16} | 4016^{+1143}_{-569} | 15669^{+41751}_{-9535} |

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 $A_{obs} \gg 1.0$

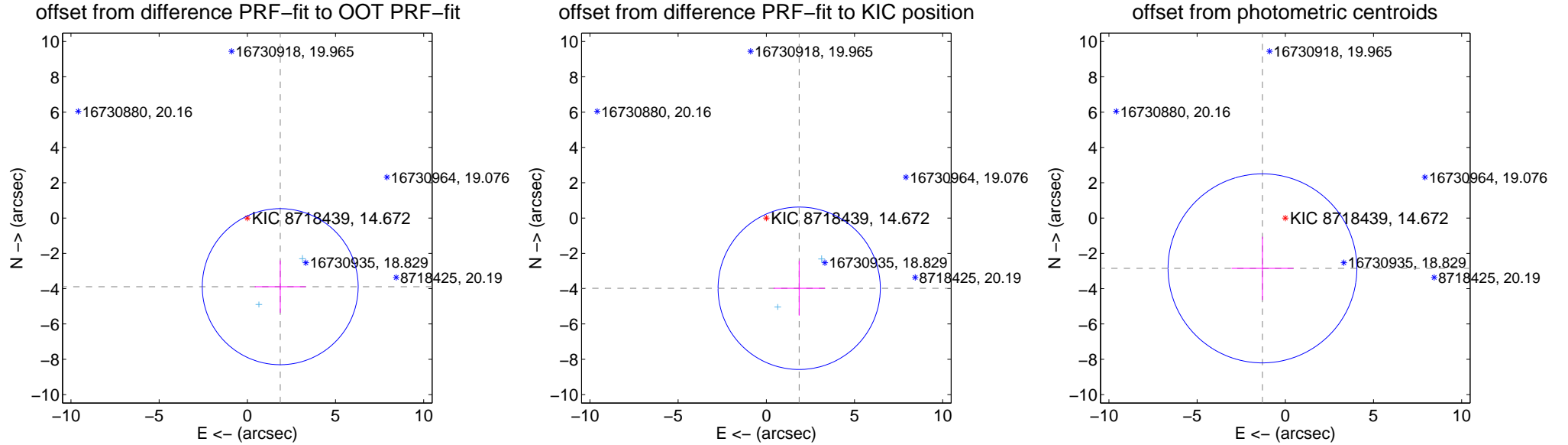
DV Centroid Data

Supplemental centroid analysis for 008718439-01. Kepler magnitude: 14.67. Transit SNR 7.56

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 4.312 ± 1.473 | 2.93 | -1.865 ± 1.446 | -3.888 ± 1.479 |
| PRF-fit source offset from KIC position | 4.393 ± 1.533 | 2.87 | -1.864 ± 1.456 | -3.978 ± 1.550 |
| photometric centroid source offset | 3.13 ± 1.78 | 1.75 | 1.30 ± 1.75 | -2.85 ± 1.79 |



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.

Q1 no difference image



Q1 no OOT image



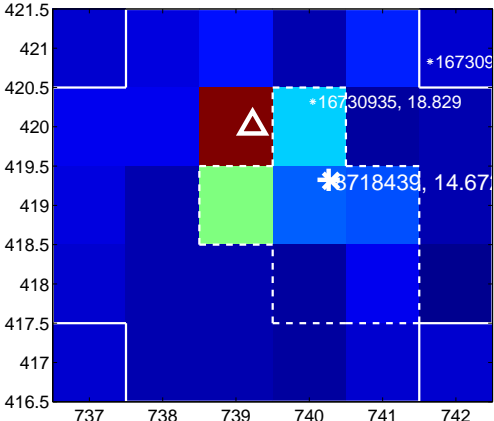
Q2 no difference image



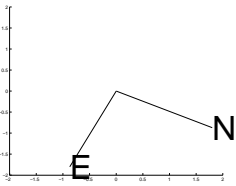
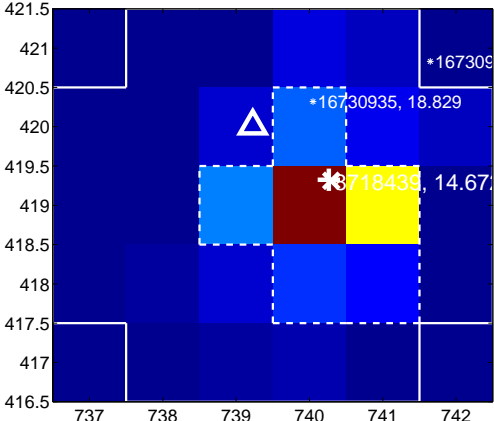
Q2 no OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image



Q4 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.

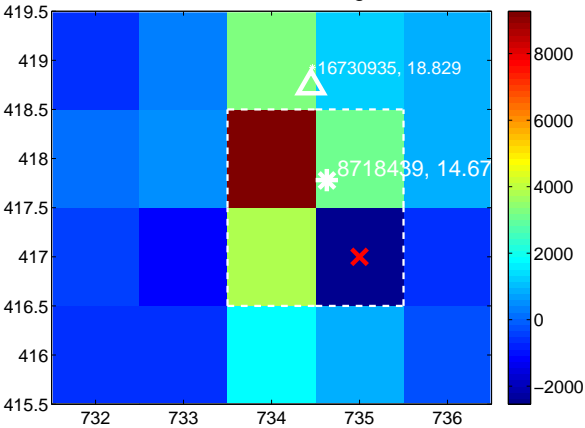
Q9 no difference image



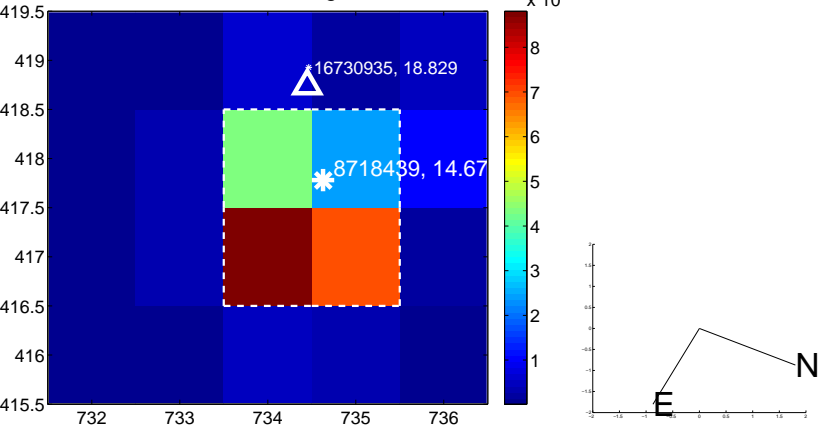
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



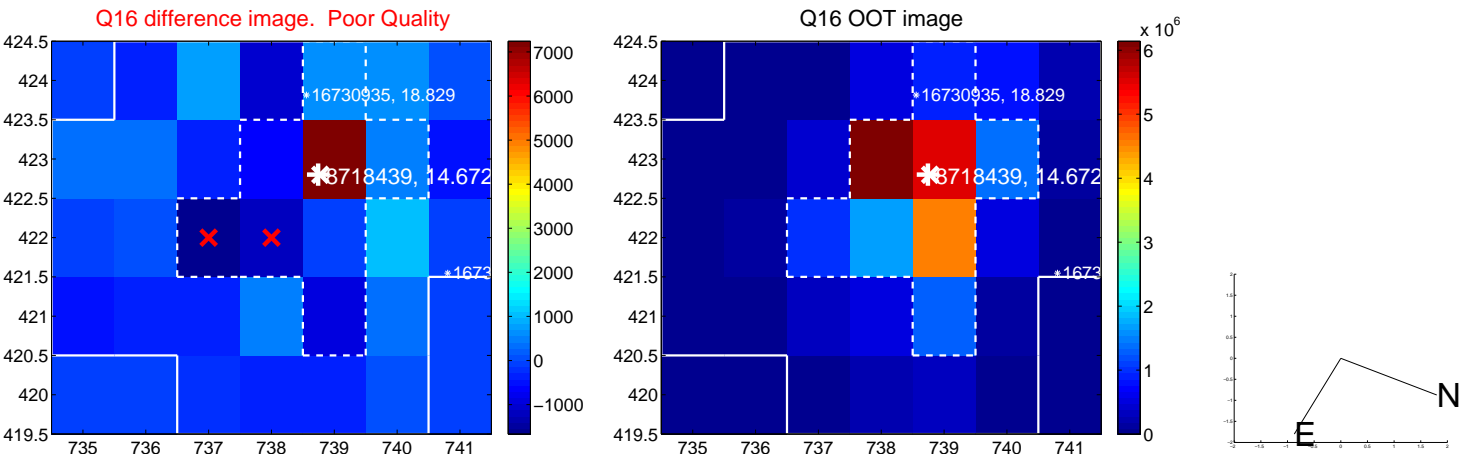
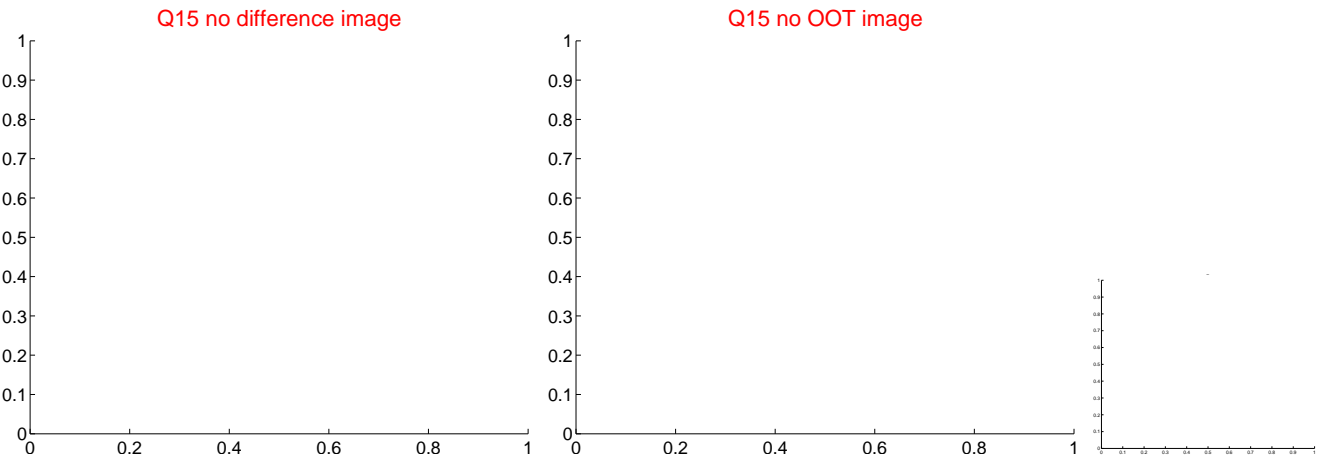
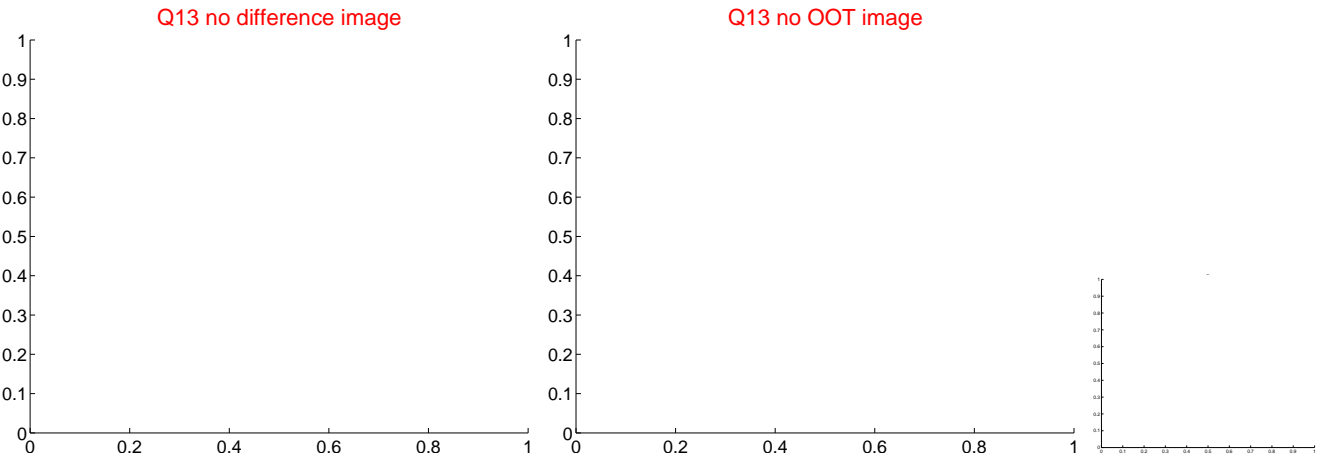
Q12 no difference image



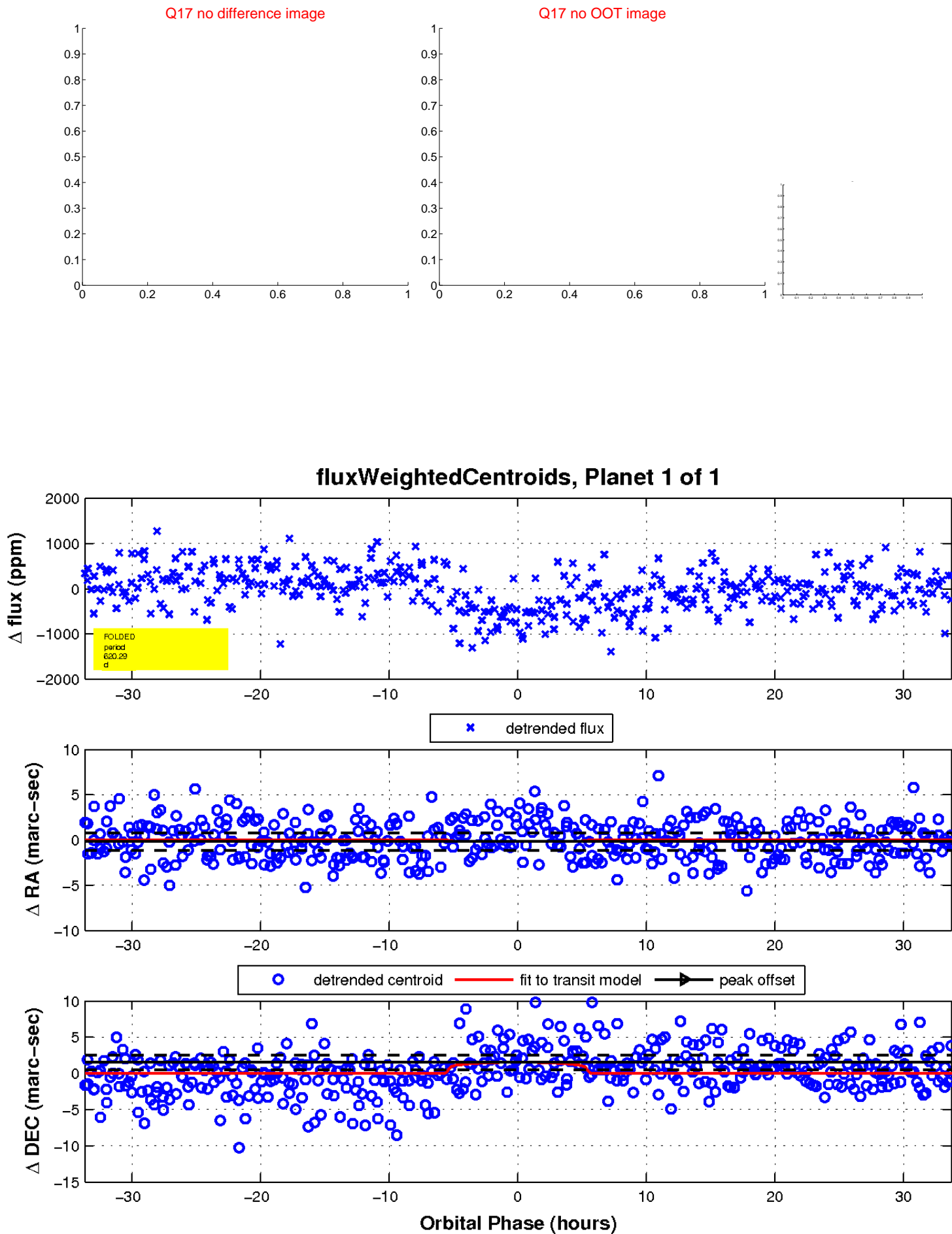
Q12 no OOT image



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.



UKIRT Image

Declination

