

KIC 012734396

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|------|-----------------------------|-----------------|------------------------|------------------------|
| 012734396-01 | OBS | 4303.01 | 200.721746 | 280.071478 | 742.1 | 10.066 | 9.7 | 11.2 | 1.17 | 5566 | 3.33 | 2.72 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 012734396-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_SKYE--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.

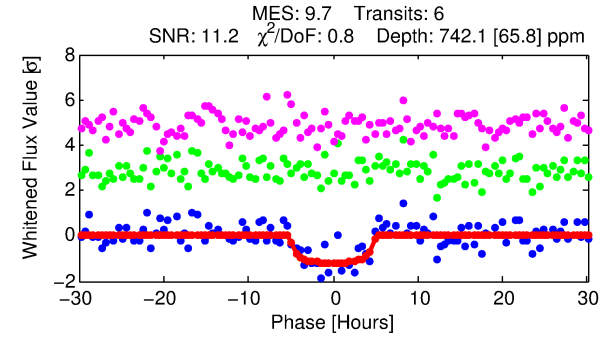
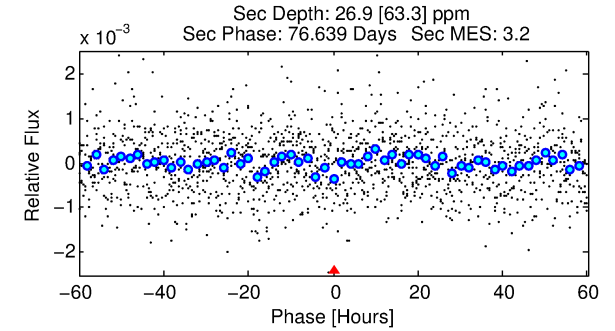
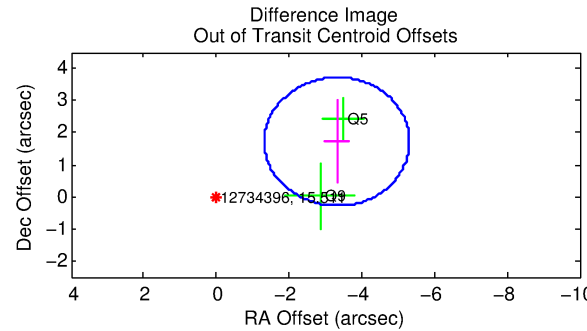
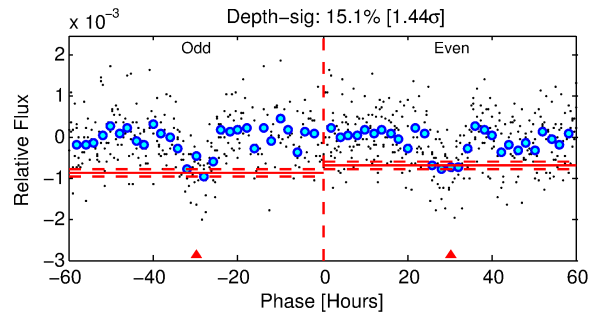
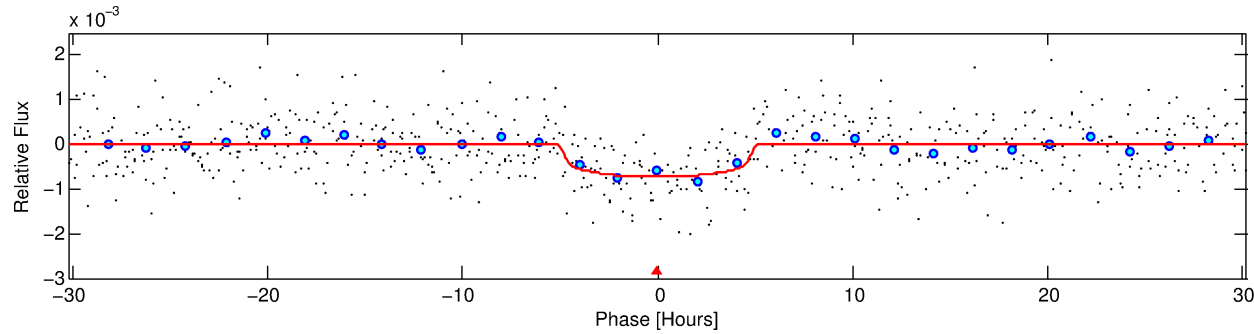
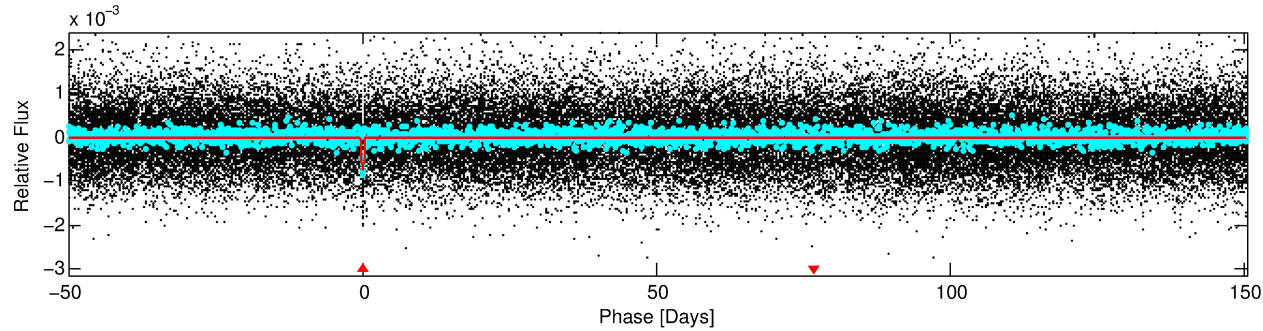
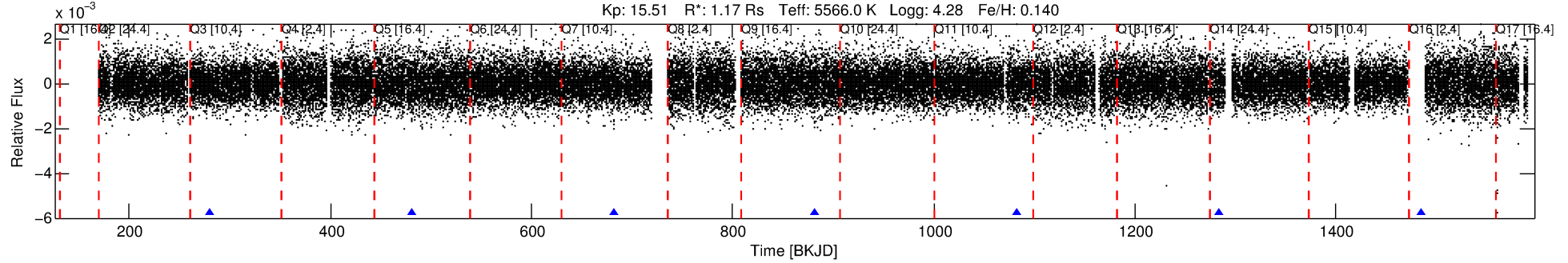
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012734396-01

No Significant Match Found

DV One-Page Summary

KIC: 12734396 Candidate: 1 of 1 Period: 200.722 d
KOI: K04303.01 Corr: 0.993



DV Fit Results:

Period = 200.72175 [0.00444] d
Epoch = 280.0715 [0.0138] BKJD
Rp/R* = 0.0260 [0.0152]
a/R* = 124.03 [292.09]
b = 0.62 [2.33]
Seff = 2.72 [0.76]
Teq = 328 [23] K
Rp = 3.33 [2.03] Re
a = 0.6575 [0.1119] AU
Ag = 577.57 [1527.38] [0.38 σ]
Teffp = 2483 [1633] K [1.32 σ]

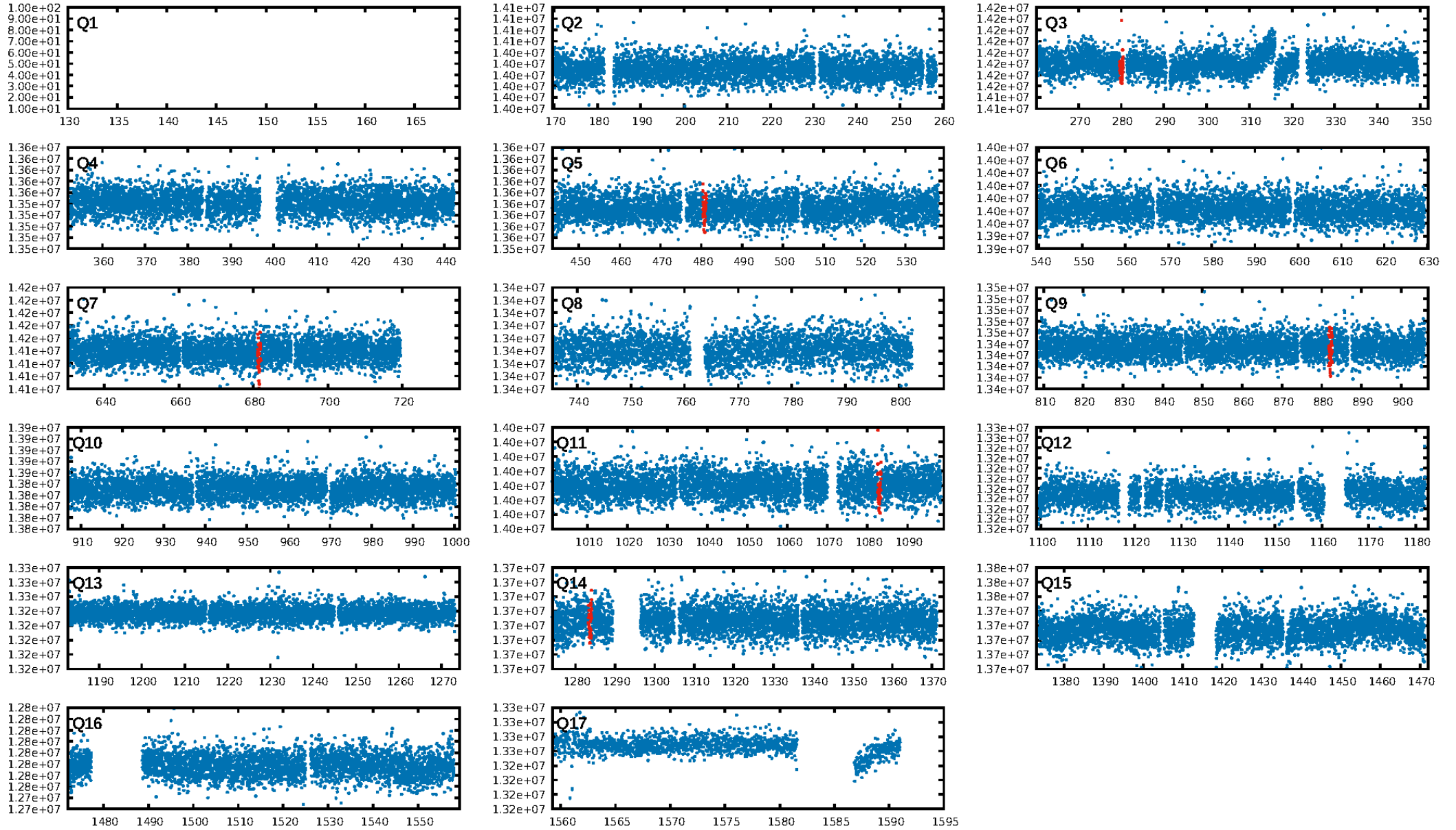
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 60.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.09e-16
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.588
Centroid-sig: 2.3%
Centroid-so: 1.435 arcsec [1.03 σ]
OotOffset-rm: 3.731 arcsec [5.60 σ]
KicOffset-rm: 3.840 arcsec [5.49 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

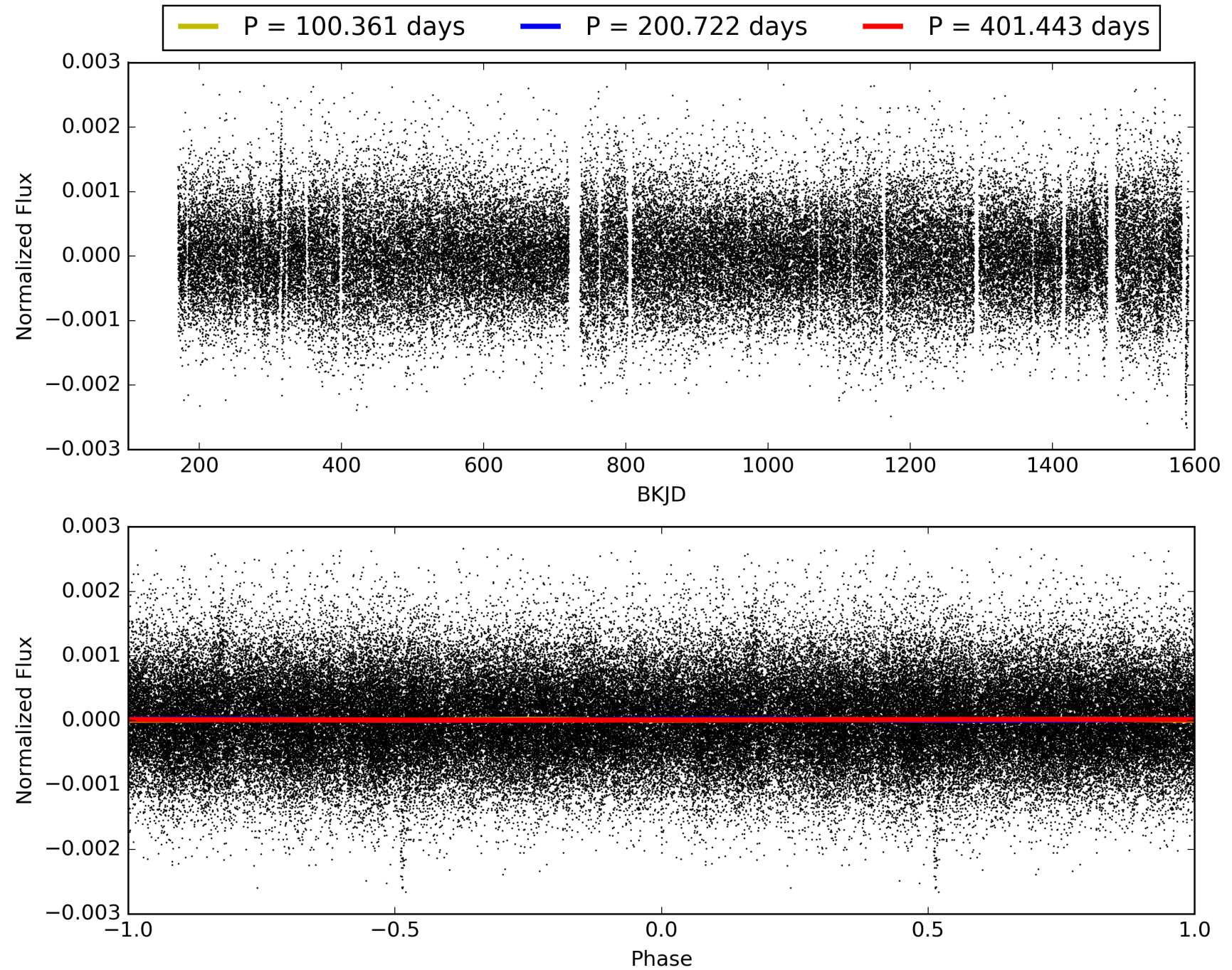
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:39:49 Z

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

TCE 012734396-01, PDC Light Curves

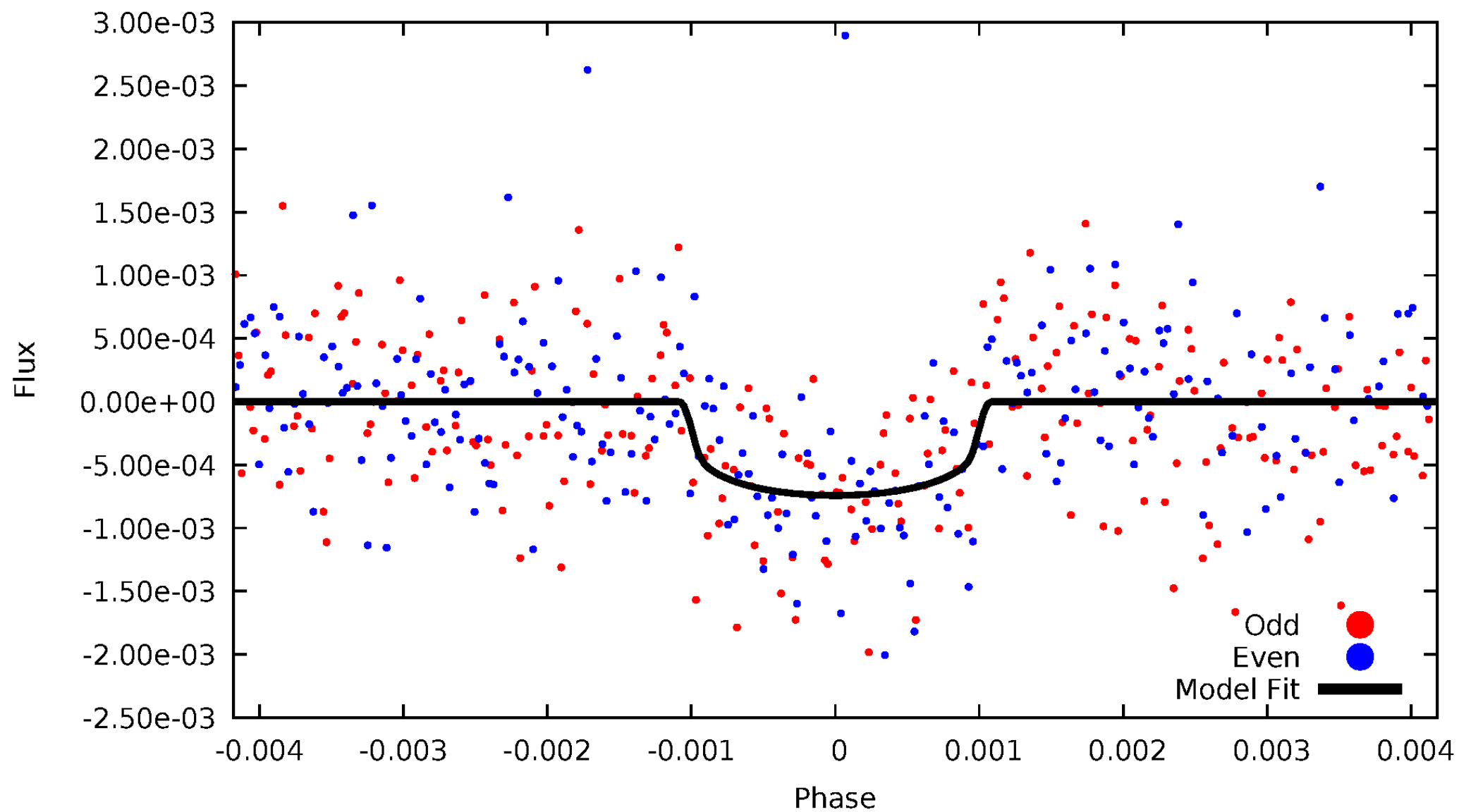


TCE 012734396-01



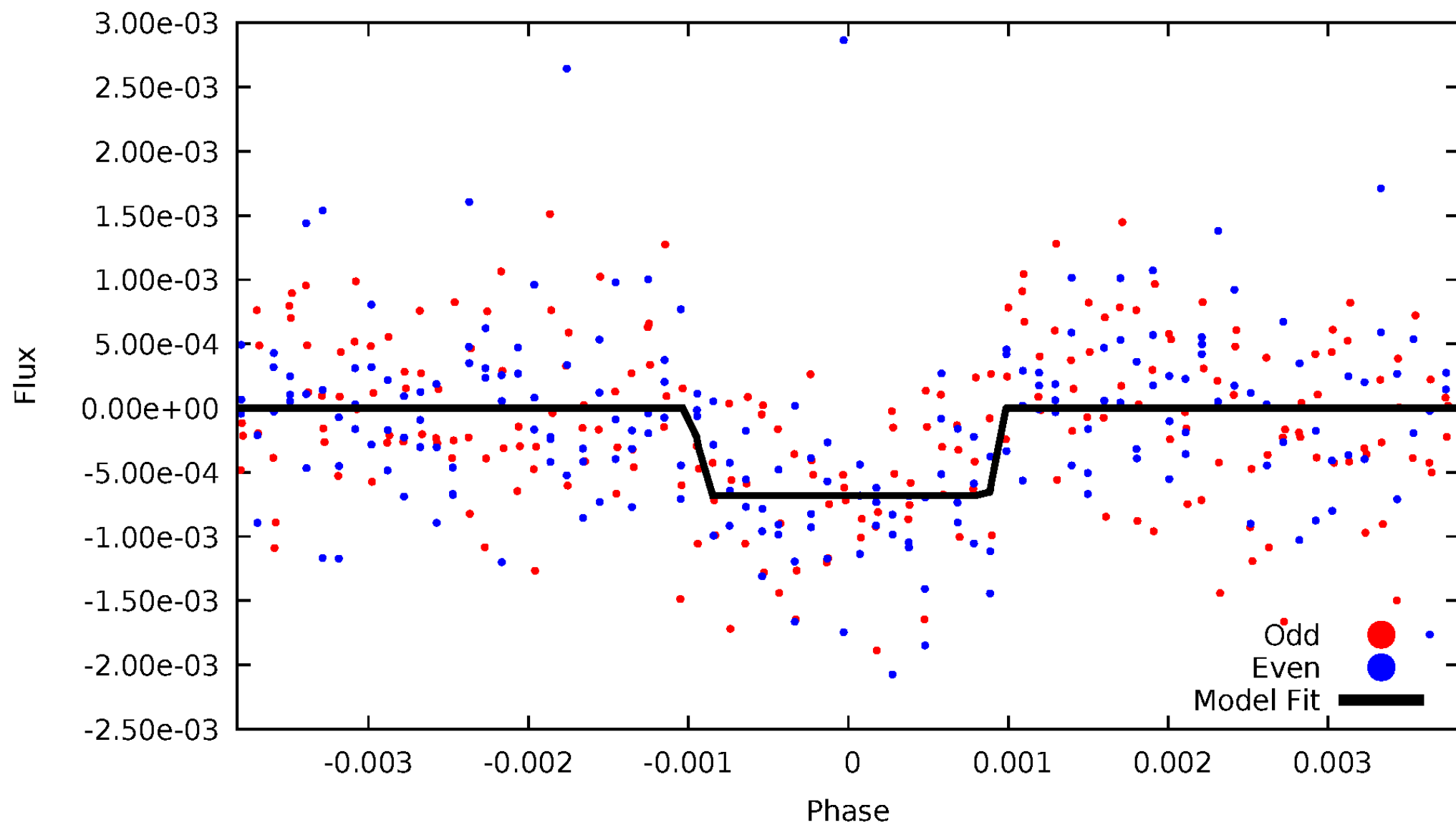
DV Odd/Even

TCE 012734396-01



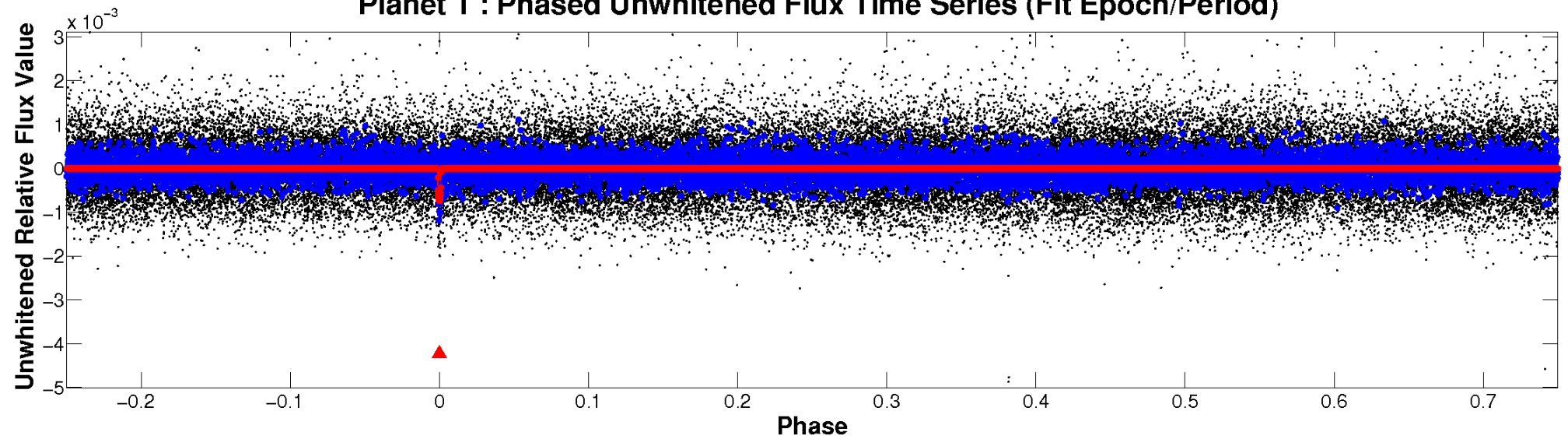
ALT Odd/Even

TCE 012734396-01

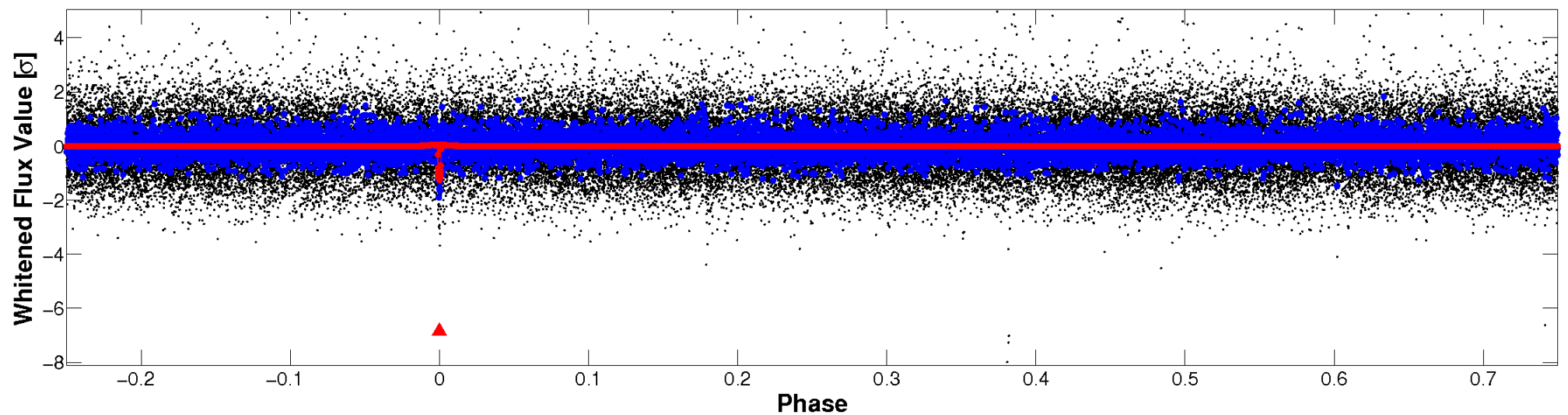


Non-Whitened Vs. Whitened Light Curve

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

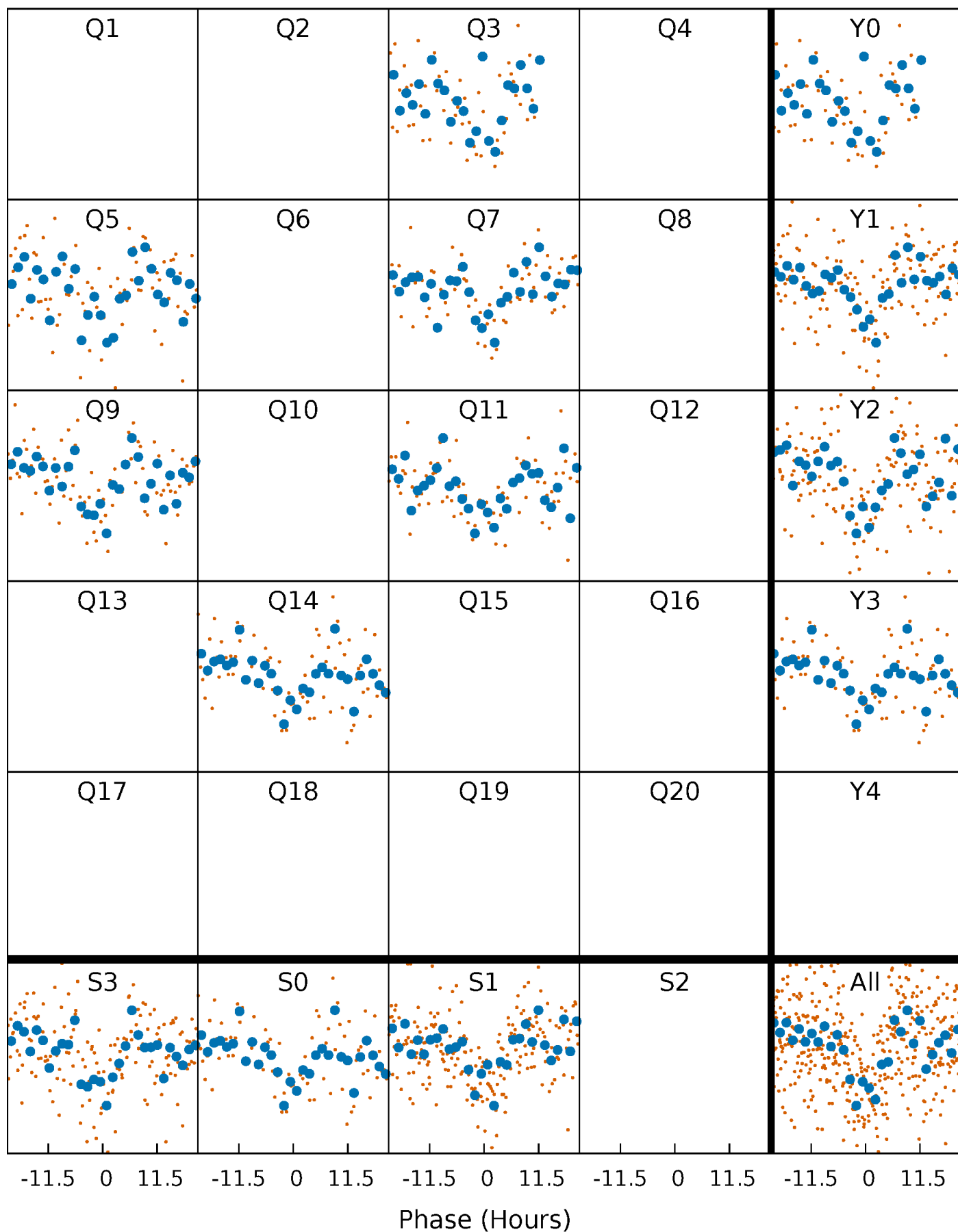


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



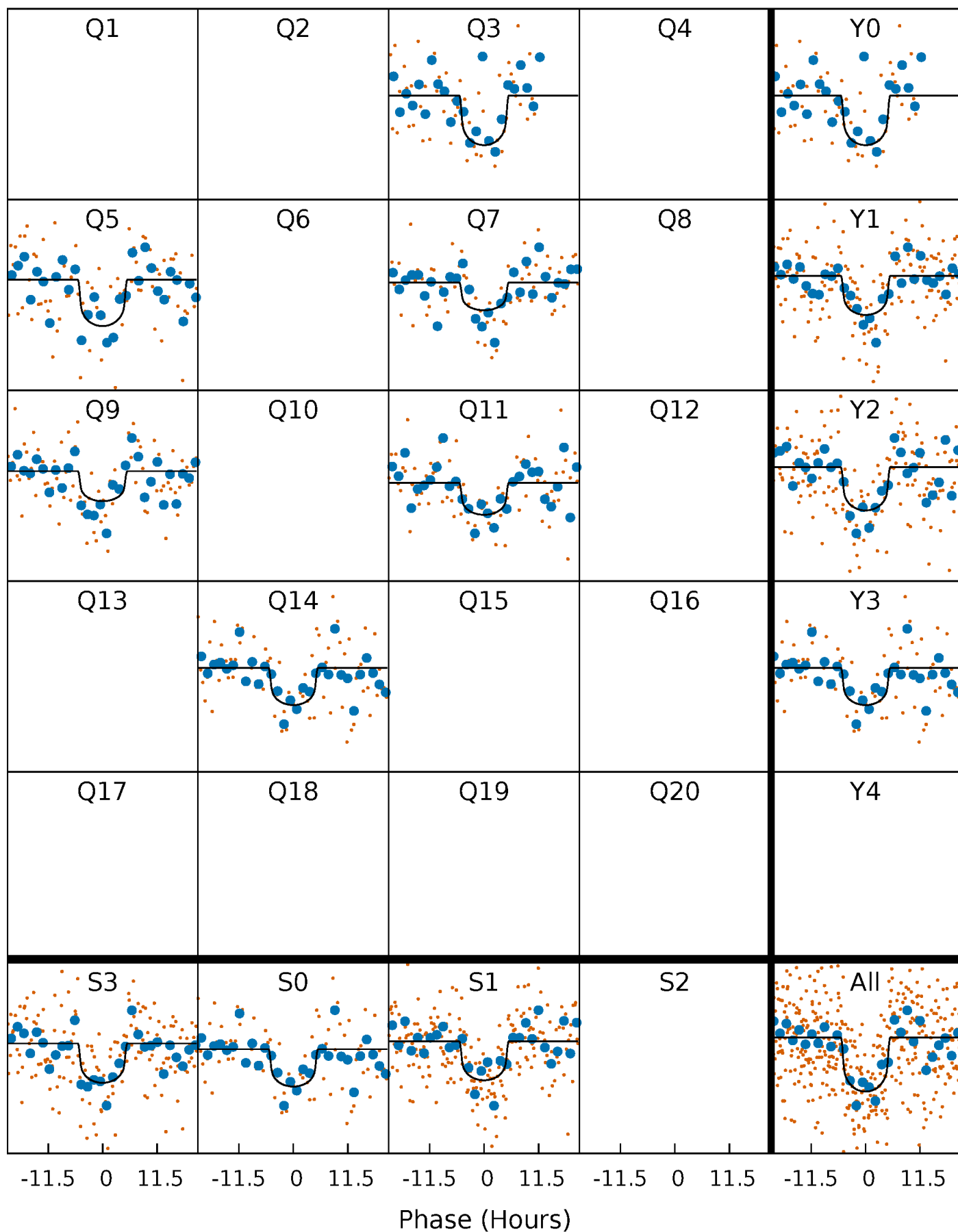
PDC Quarter-Phased Transit Curves

TCE 012734396-01 P=200.721746 Days $T_0=280.071478$ (BKJD)



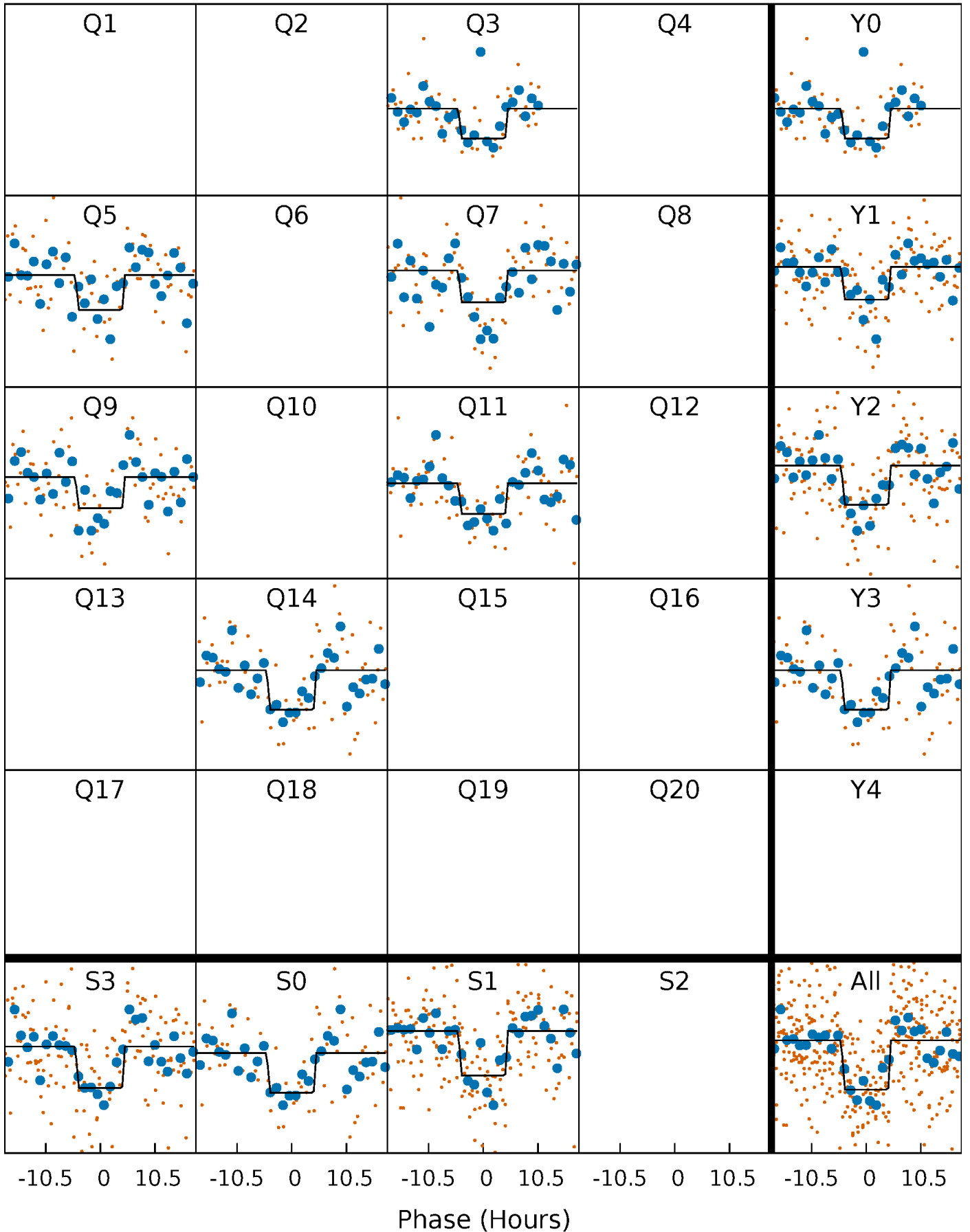
DV Quarter-Phased Transit Curves

TCE 012734396-01 $P=200.721746$ Days $T_0=280.071478$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

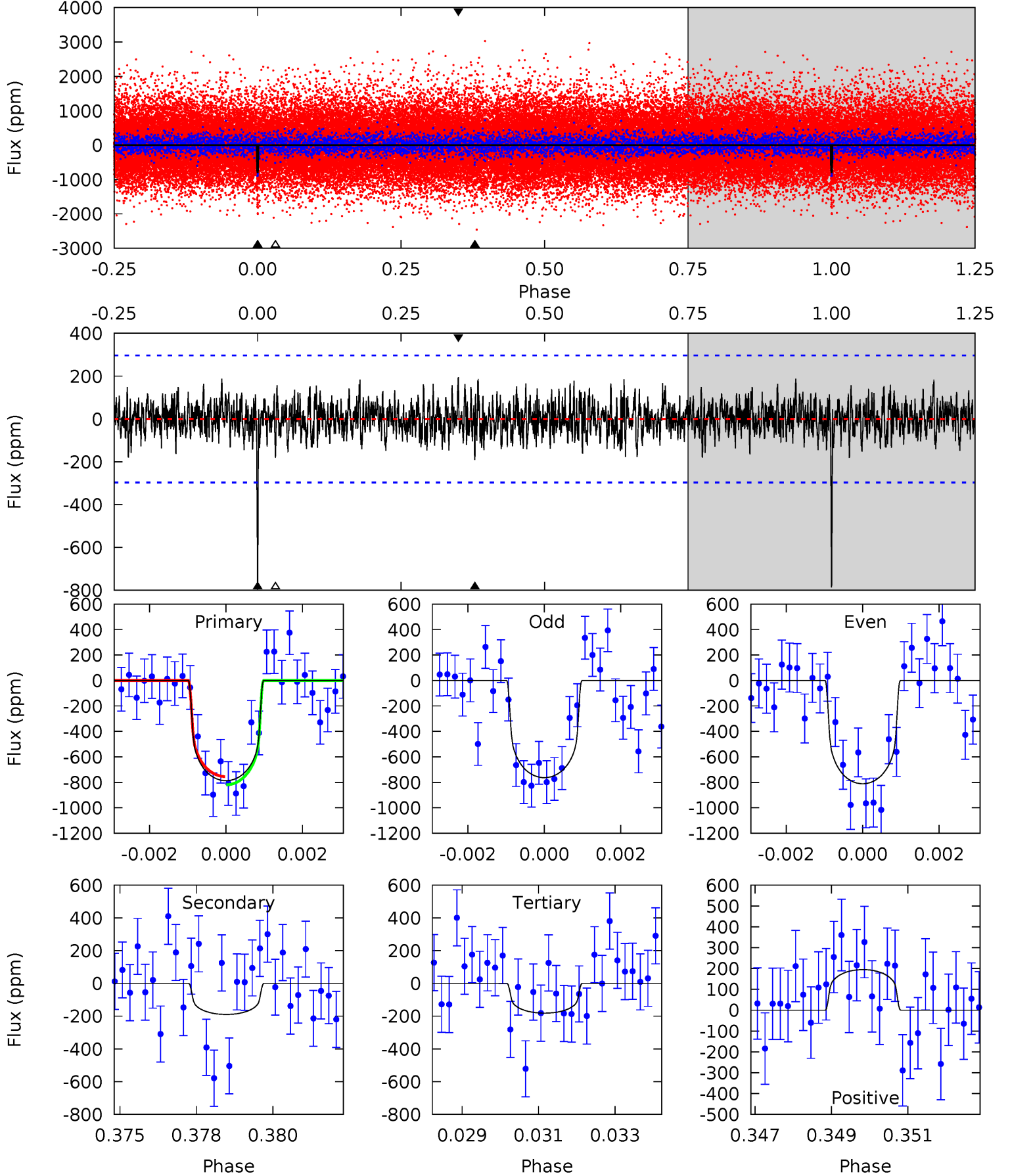
TCE 012734396-01 P=200.718860 Days $T_0=280.091119$ (BKJD)



DV Model-Shift Uniqueness Test

012734396-01, $P = 200.721746$ Days, $E = 79.349732$ Days

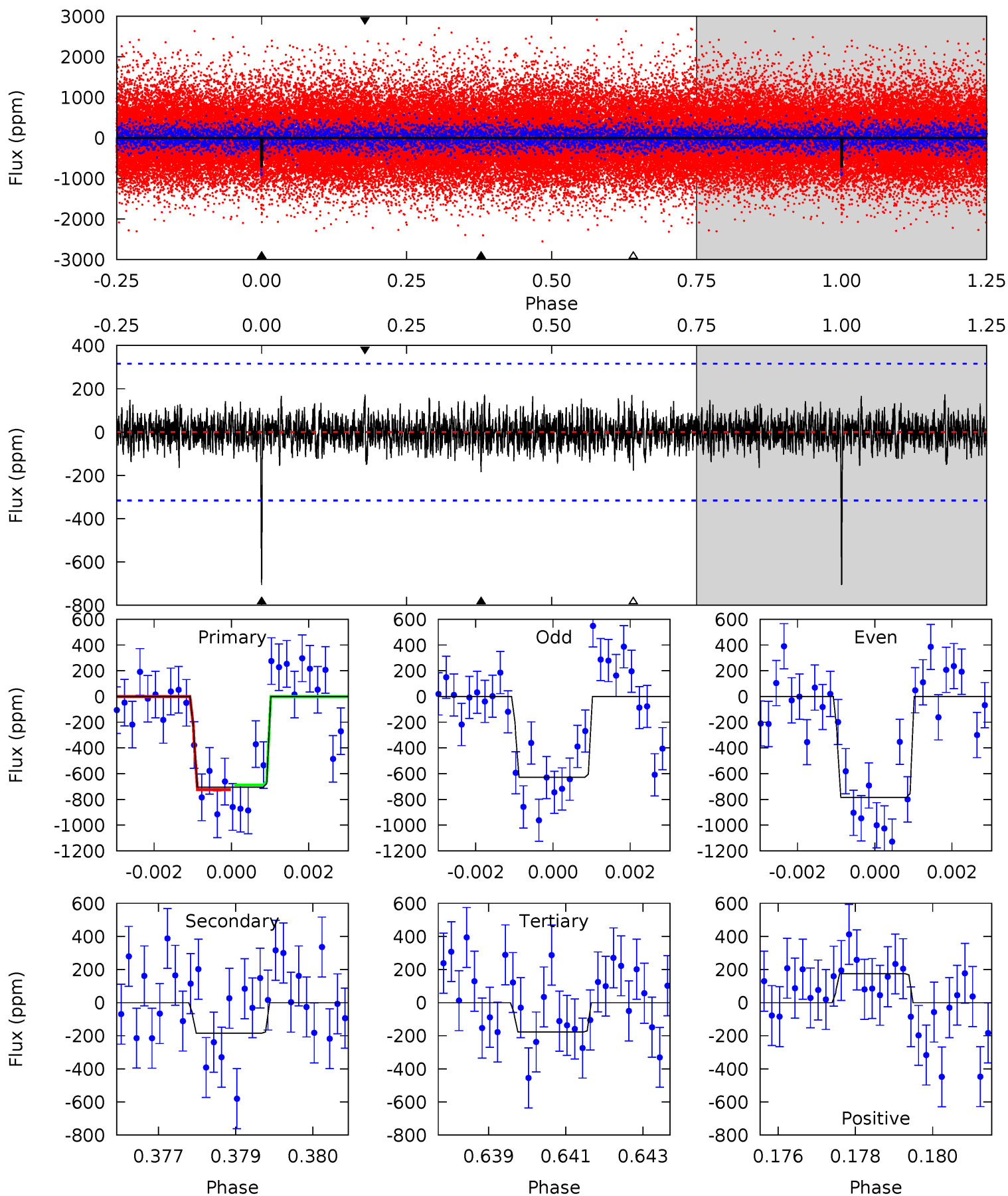
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.1 | 3.40 | 3.25 | 3.49 | 5.31 | 3.06 | 1.10 | 10.8 | 10.6 | 0.15 | -0.09 | 0.43 | 0.96 | 0.20 | 0.58 |



Alt Model-Shift Uniqueness Test

012734396-01, P = 200.718860 Days, E = 79.372259 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.9 | 3.11 | 2.99 | 2.94 | 5.33 | 3.10 | 0.85 | 8.92 | 8.97 | 0.12 | 0.17 | 1.31 | 0.94 | 0.20 | 0.31 |



Stellar Parameters For KIC 012734396

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5566^{+83}_{-75} | $4.275^{+0.162}_{-0.108}$ | $0.140^{+0.150}_{-0.150}$ | $1.170^{+0.186}_{-0.204}$ | $0.940^{+0.068}_{-0.045}$ | $0.827^{+0.573}_{-0.265}$ |
| | +1%/-1% | +4%/-3% | +107%/-107% | +16%/-17% | +7%/-5% | +69%/-32% |
| 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 012734396-01 / KOI 4303.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|-------------------------|
| DV | -190 ± 56 | $3.30^{+1.98}_{-1.71}$ | 457^{+21}_{-25} | 4221^{+1560}_{-615} | 4025^{+13162}_{-2497} |
| Alt. | -184 ± 59 | $3.45^{+1.98}_{-1.67}$ | 456^{+21}_{-23} | 4148^{+1370}_{-625} | 3494^{+11215}_{-2165} |

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 $A_{obs} \gg 1.0$

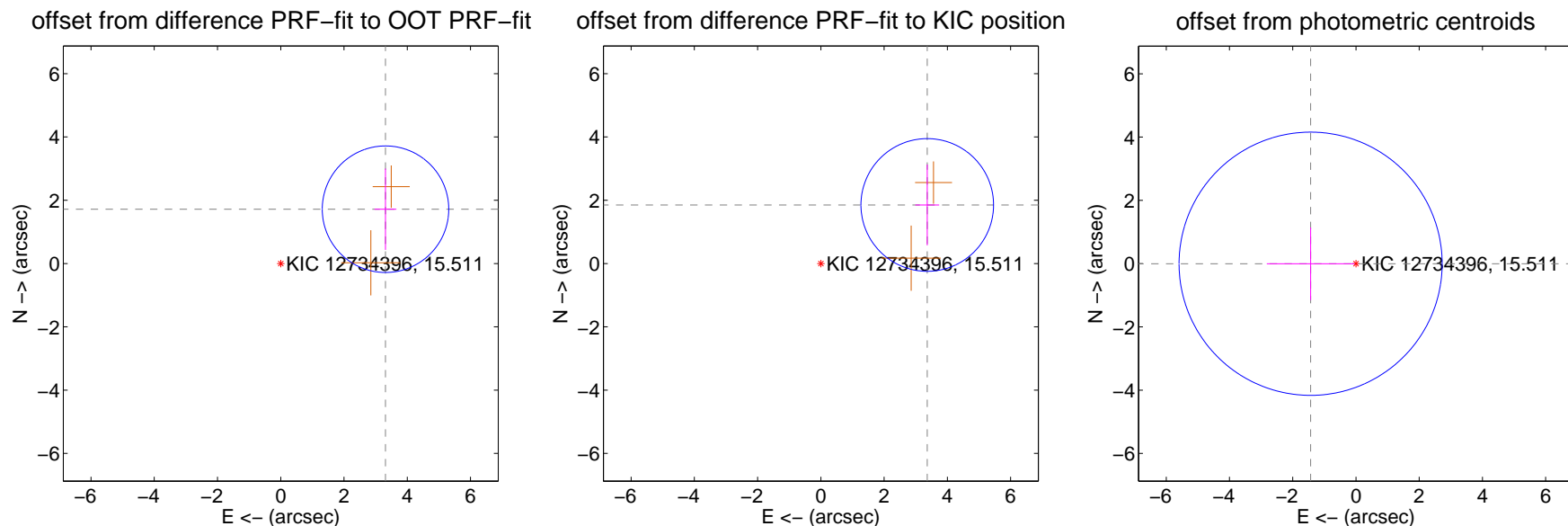
DV Centroid Data

Supplemental centroid analysis for 012734396-01. Kepler magnitude: 15.51. Transit SNR 11.17

There are 0 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 | 3.731 ± 0.666 | 5.60 | -3.312 ± 0.346 | 1.717 ± 1.286 |
| PRF-fit source offset from KIC position | 3.840 ± 0.699 | 5.49 | -3.364 ± 0.378 | 1.851 ± 1.276 |
| photometric centroid source offset | 1.43 ± 1.39 | 1.03 | 1.43 ± 1.39 | -0.00 ± 1.14 |

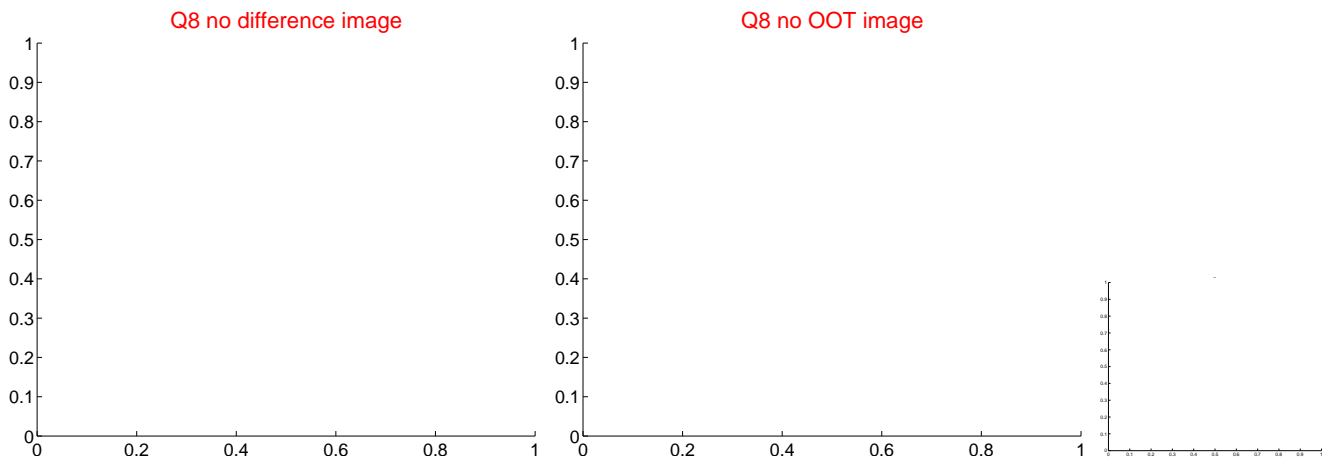
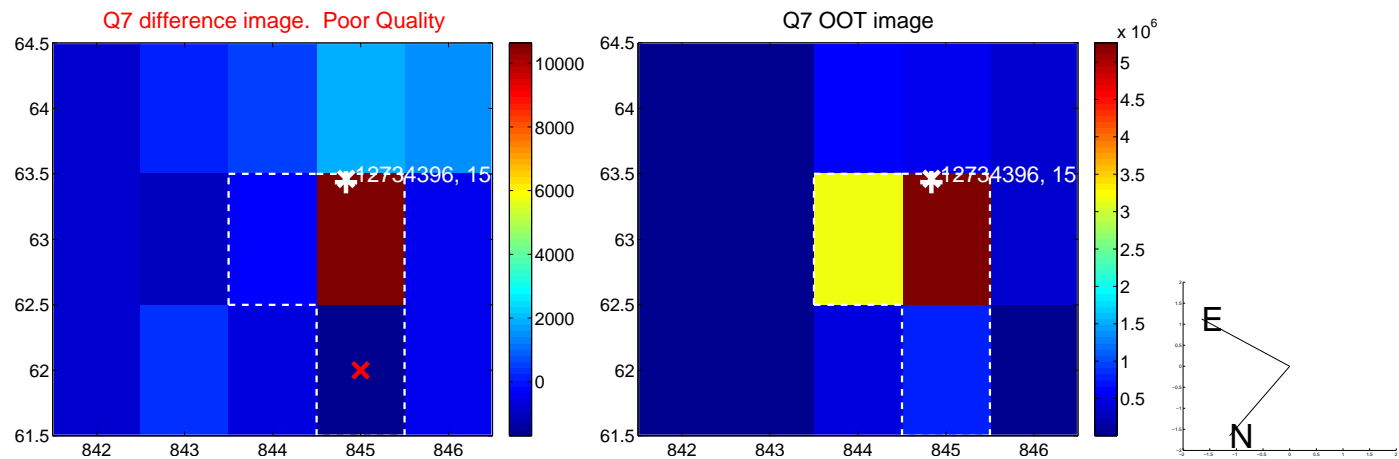
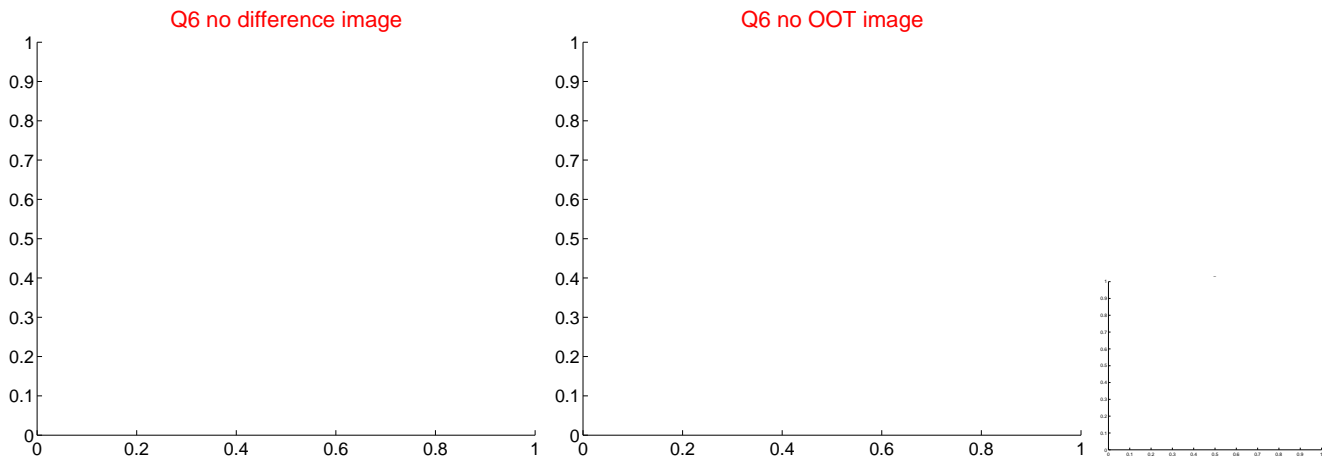
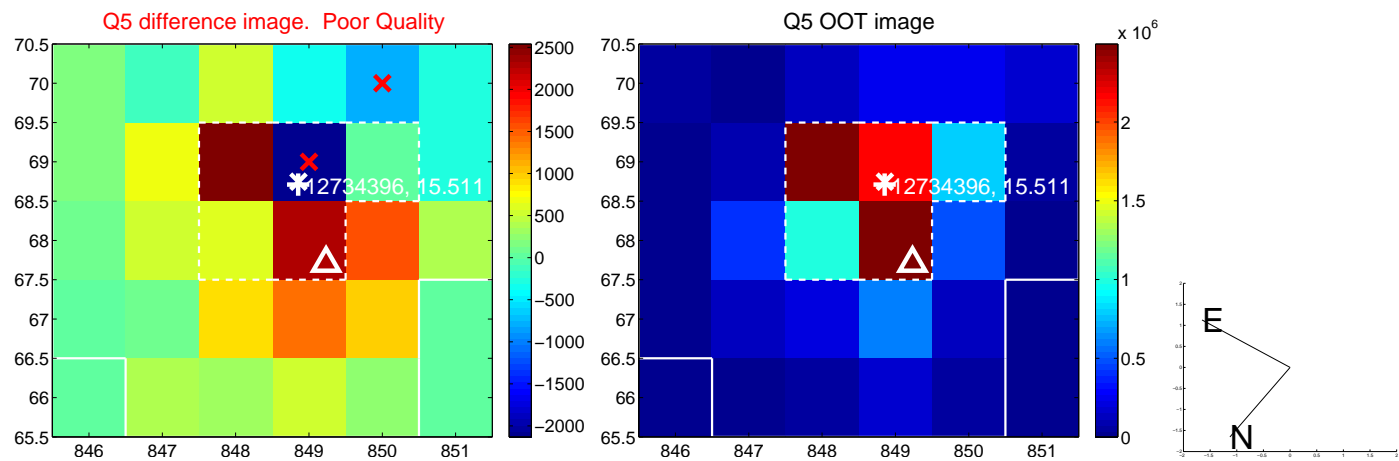


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

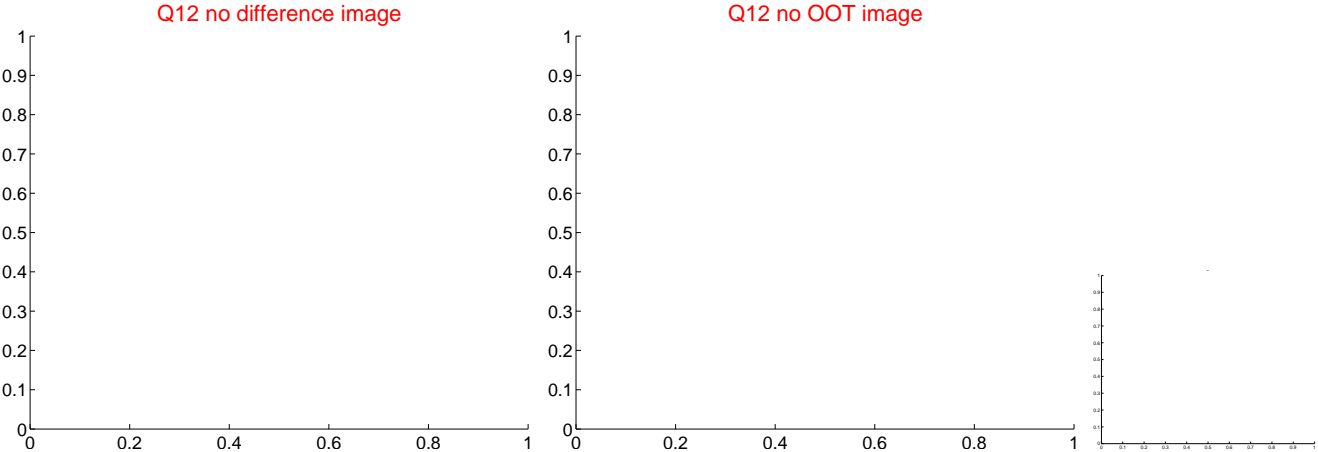
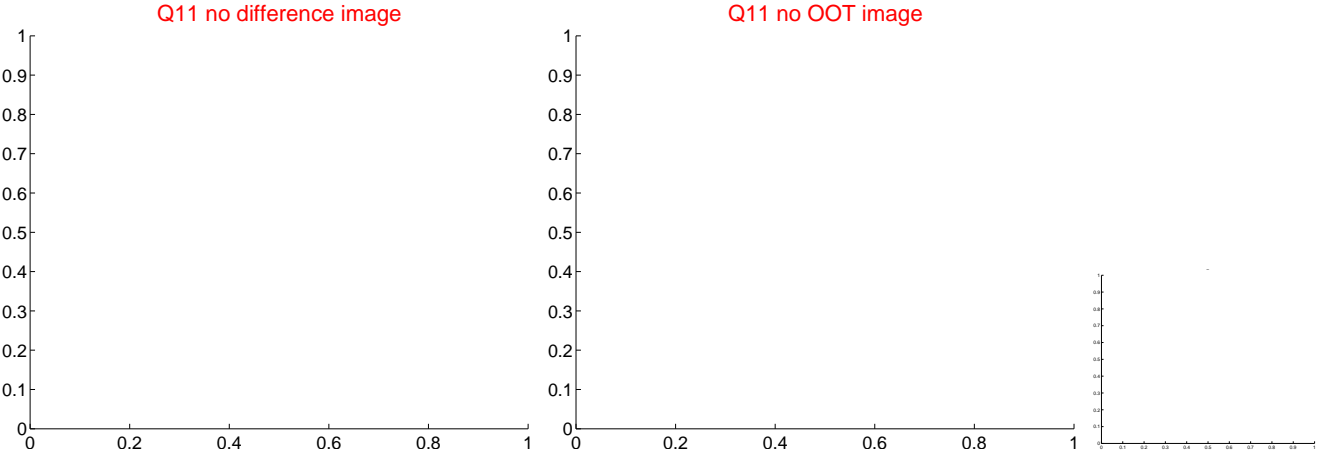
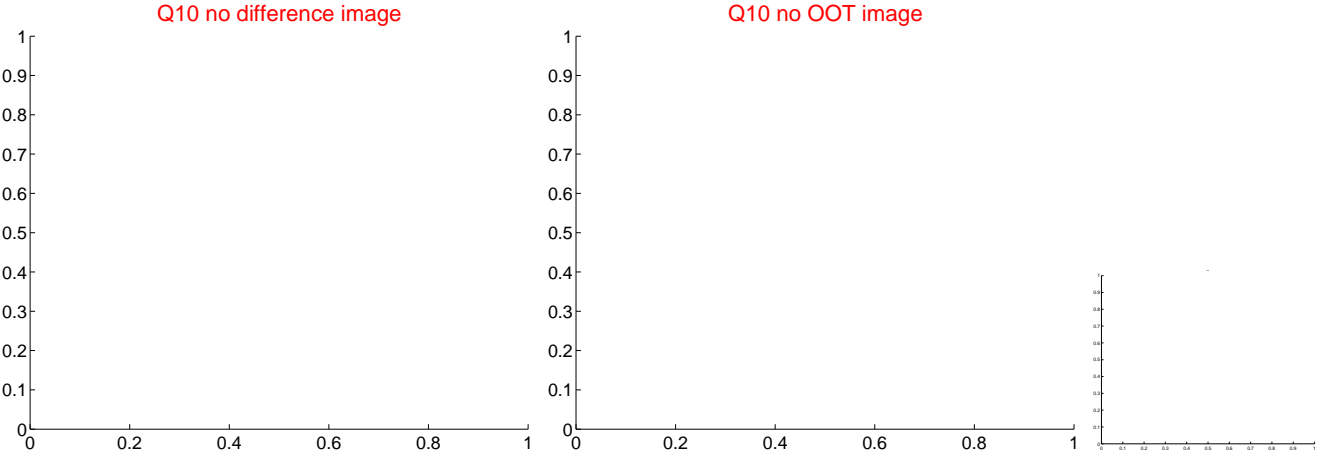
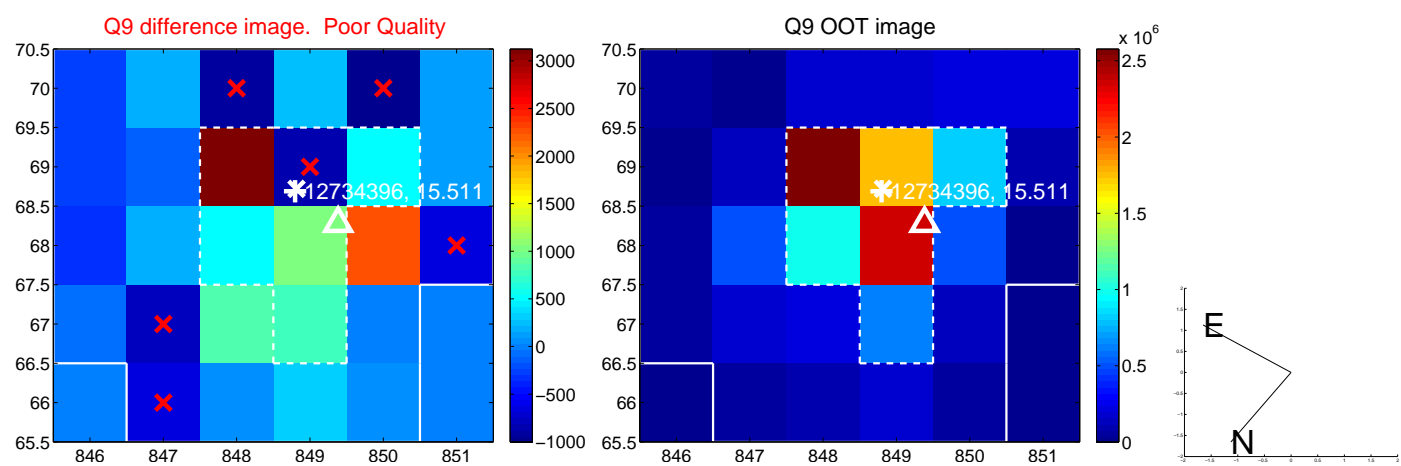
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



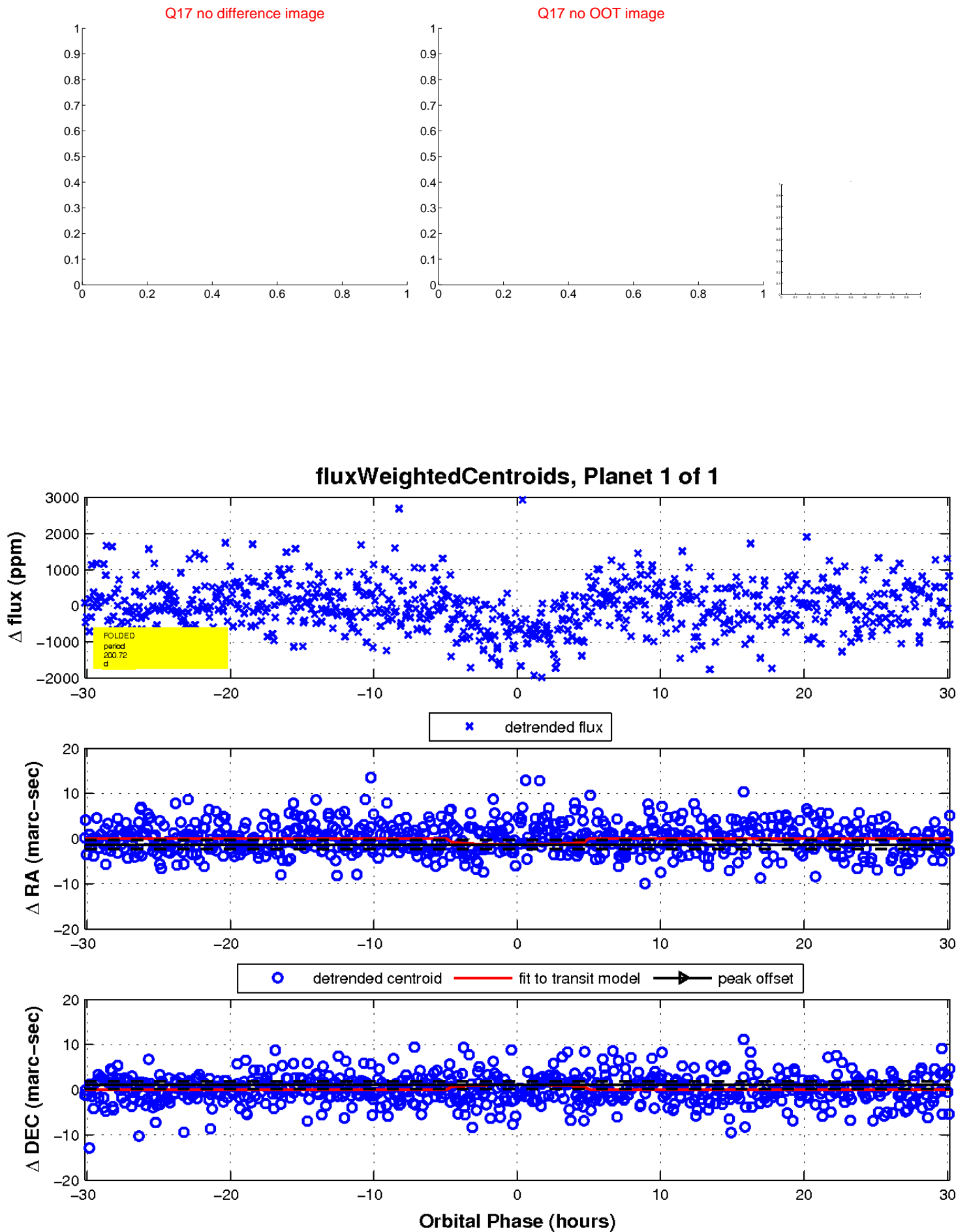
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

Declination

