

KIC 004071967

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 004071967-01 | OBS | No | 420.622260 | 428.659509 | 188.7 | 11.007 | 8.1 | 4.0 | 1.18 | 6215 | 1.72 | 1.35 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 004071967-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

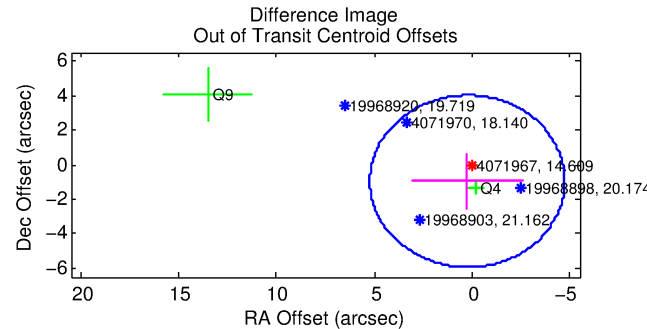
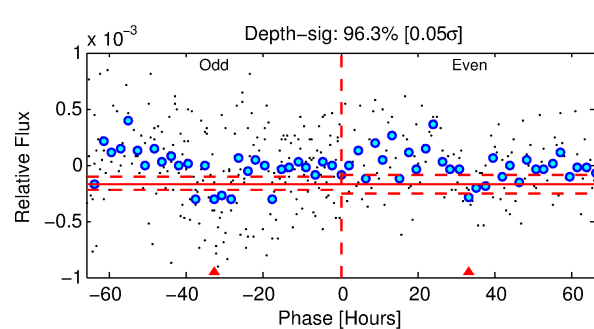
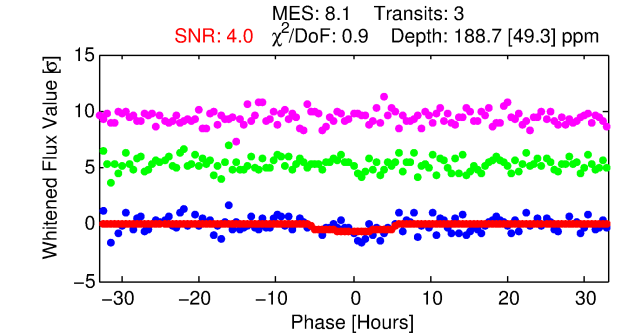
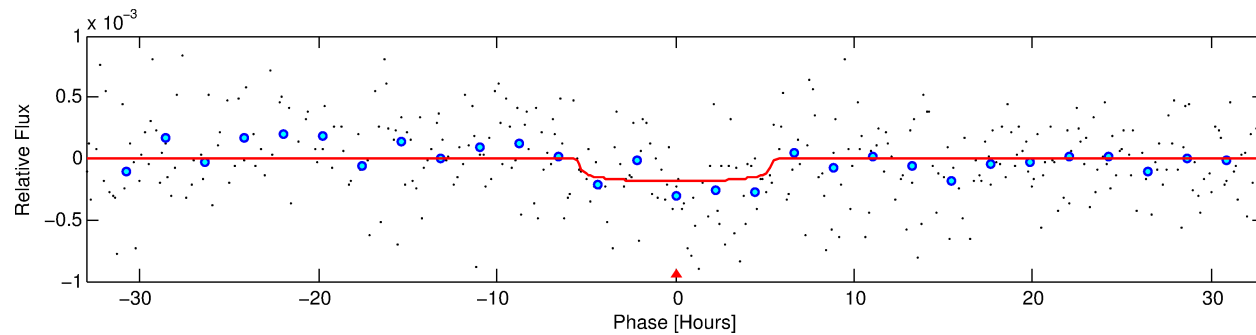
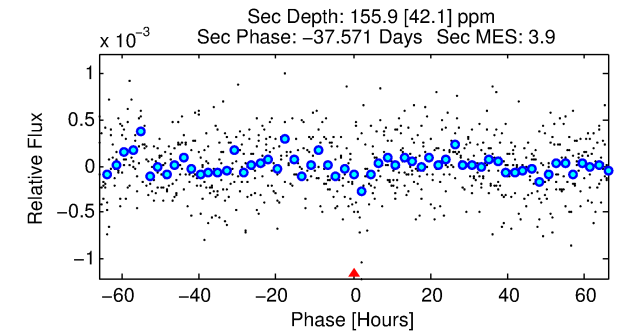
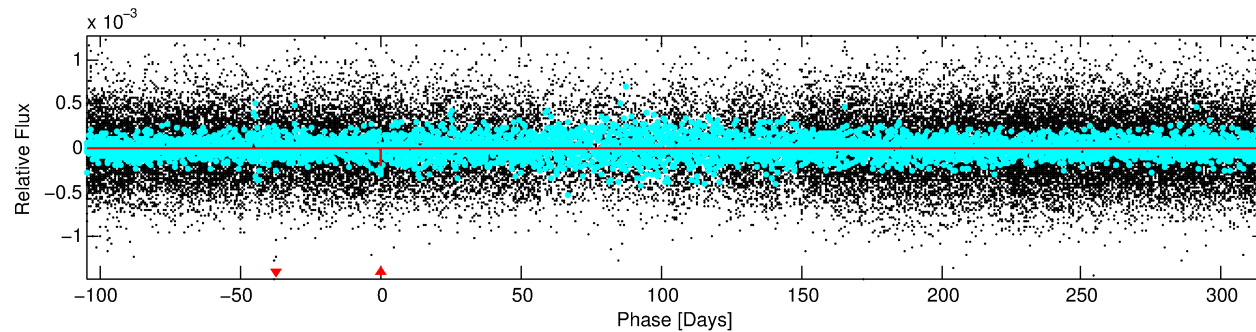
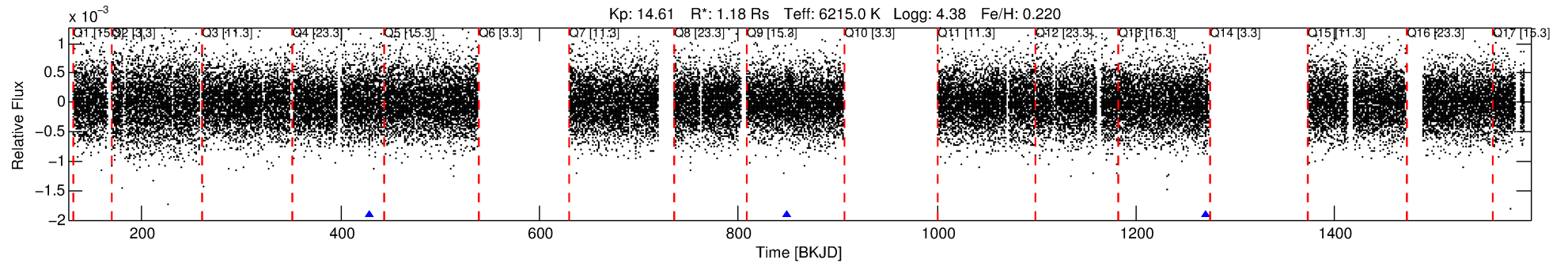
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004071967-01

No Significant Match Found

DV One-Page Summary

KIC: 4071967 Candidate: 1 of 1 Period: 420.622 d



DV Fit Results:

Period = 420.62226 [0.02979] d
Epoch = 428.6595 [0.0408] BKJD
Rp/R* = 0.0134 [0.0437]
a/R* = 219.10 [3482.86]
b = 0.68 [12.66]
Seff = 1.35 [0.59]
Teff = 275 [30] K
Rp = 1.72 [5.65] Re
a = 1.1739 [0.3416] AU
Ag = 39887.87 [261144.03] [0.15 σ]
Teffp = 6004 [9810] K [0.58 σ]

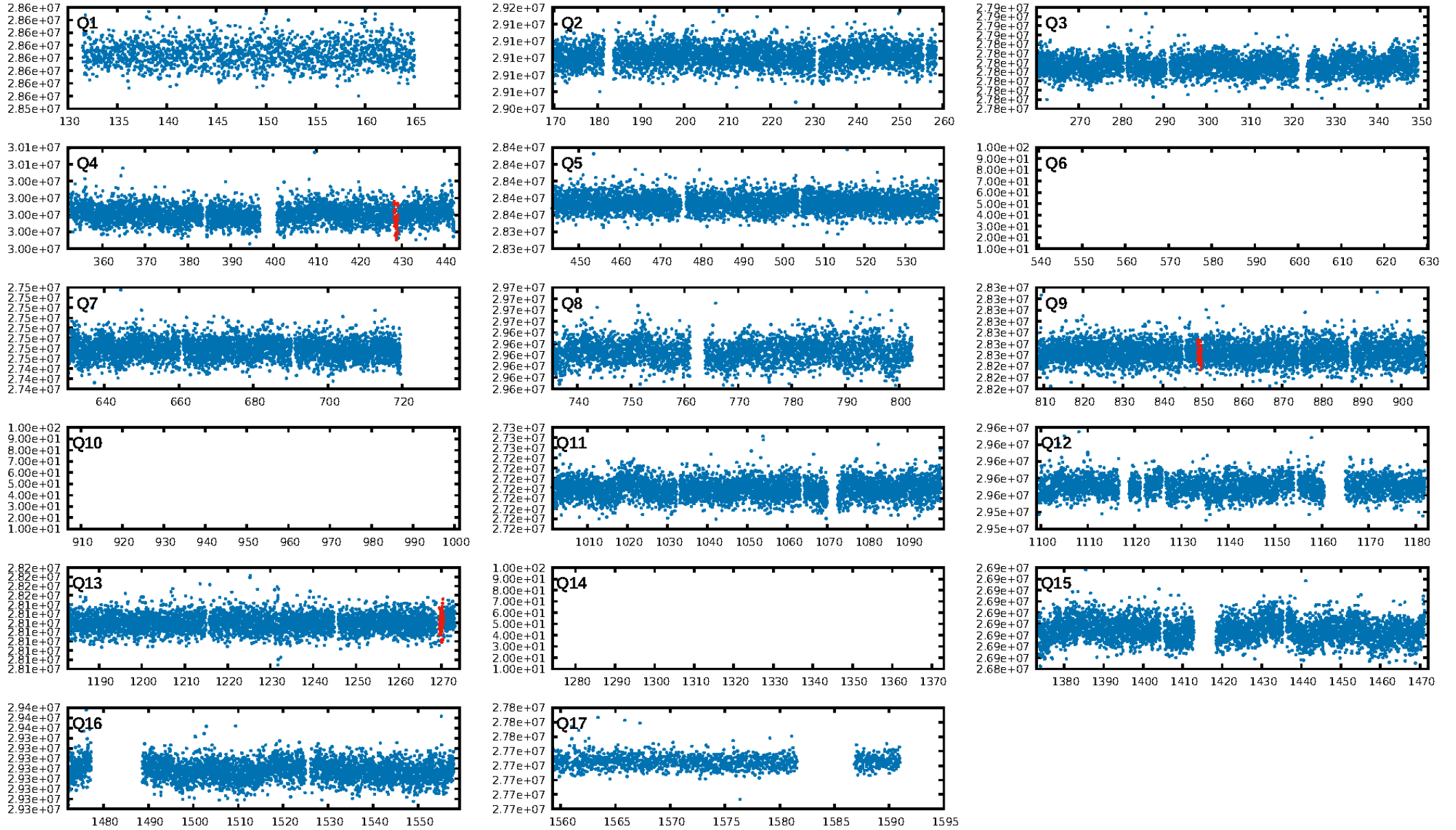
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 5.2%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 3.24e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -21.51
Centroid-sig: 3.7%
Centroid-so: 5.485 arcsec [1.40 σ]
OotOffset-rm: 0.992 arcsec [0.60 σ]
KicOffset-rm: 1.057 arcsec [0.60 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

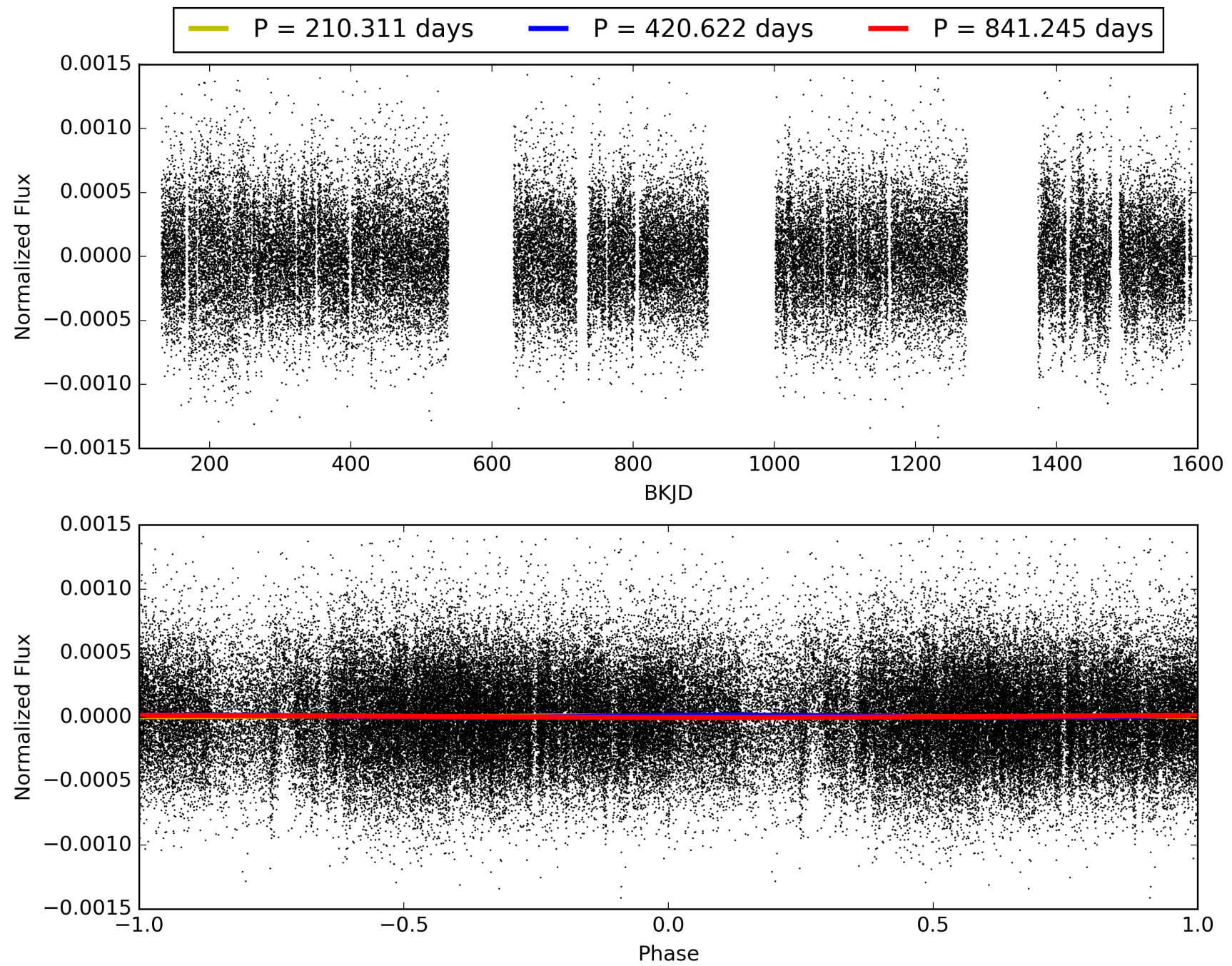
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:50:03 Z

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

TCE 004071967-01, PDC Light Curves

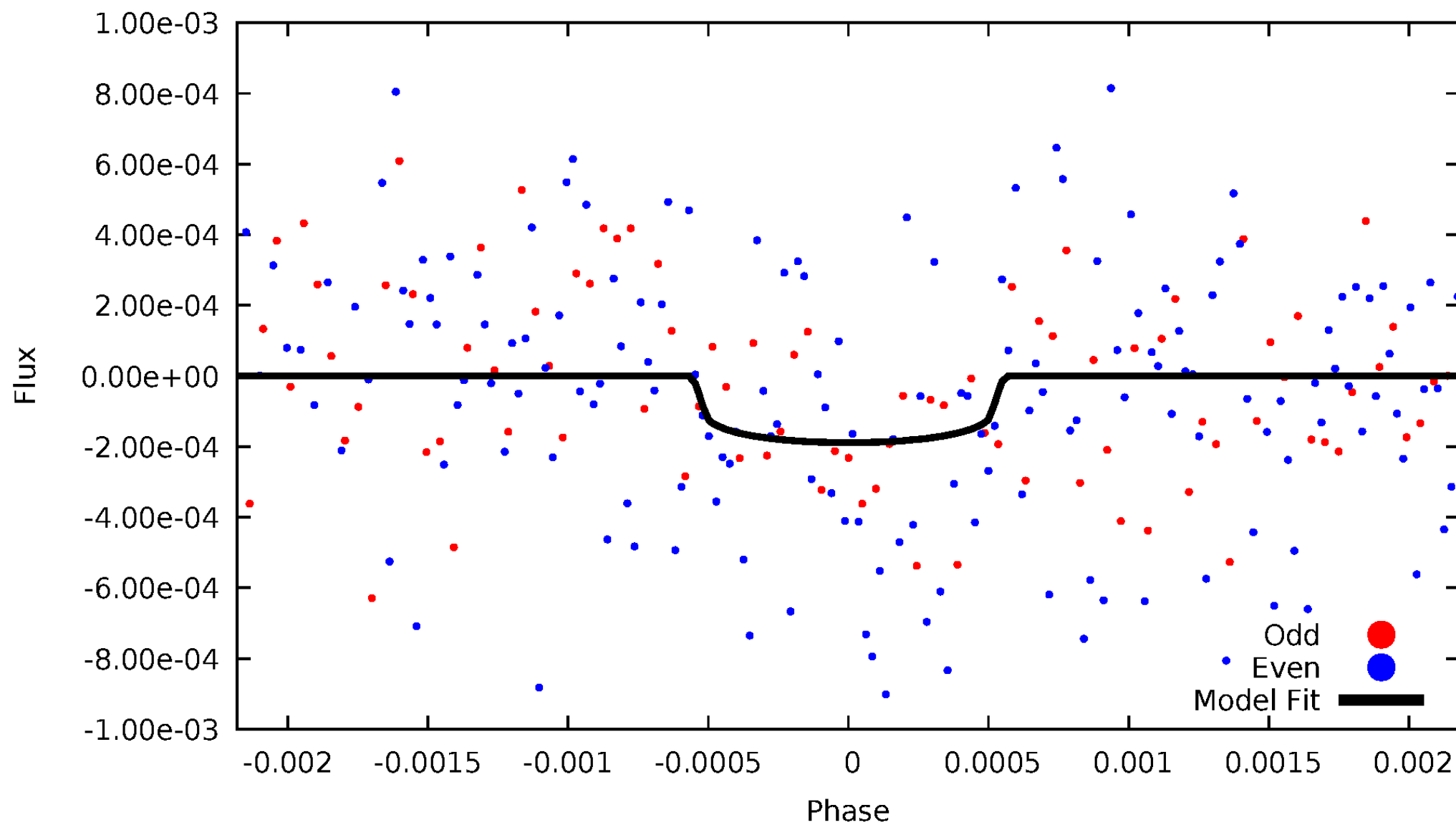


TCE 004071967-01



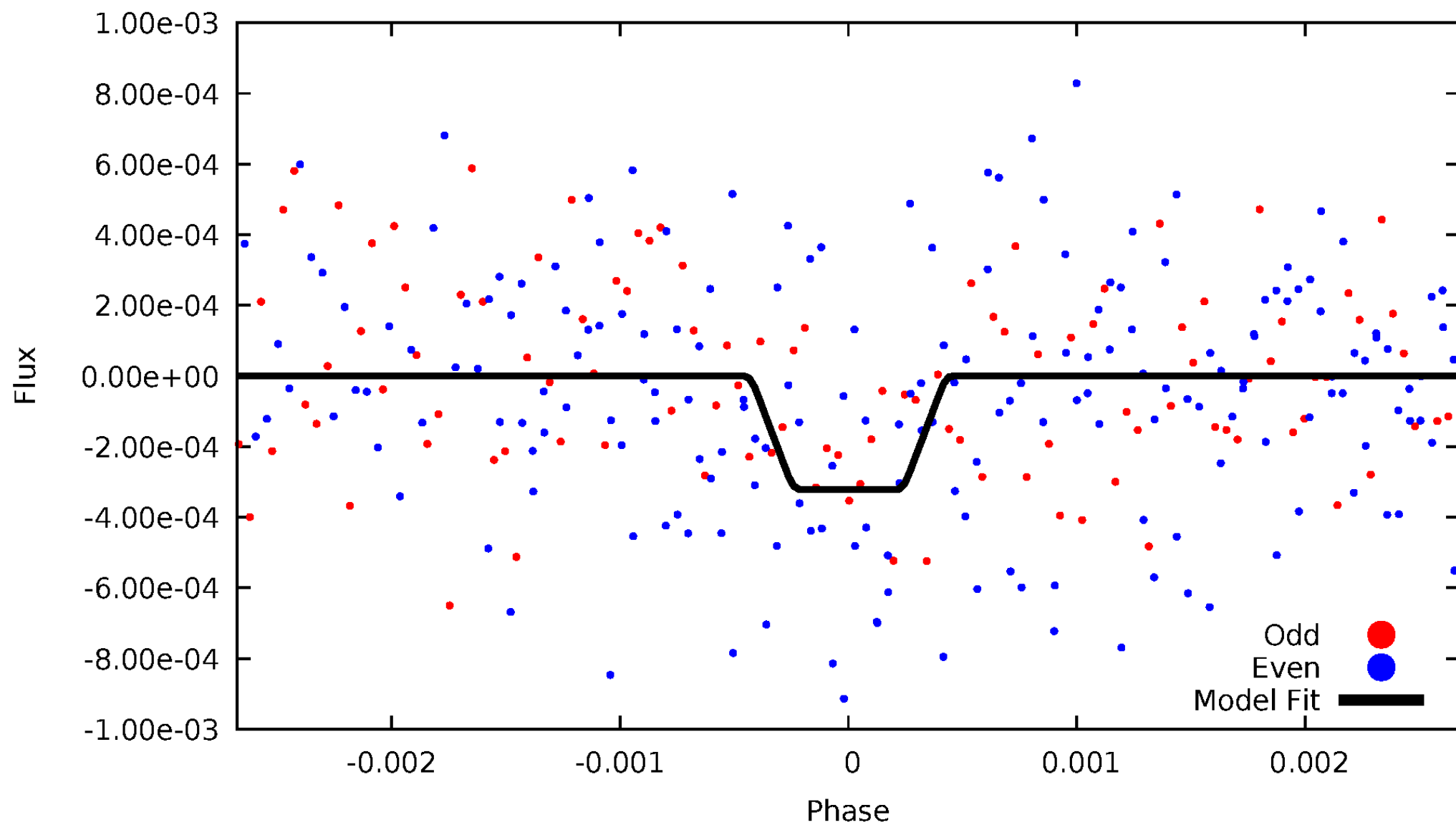
DV Odd/Even

TCE 004071967-01



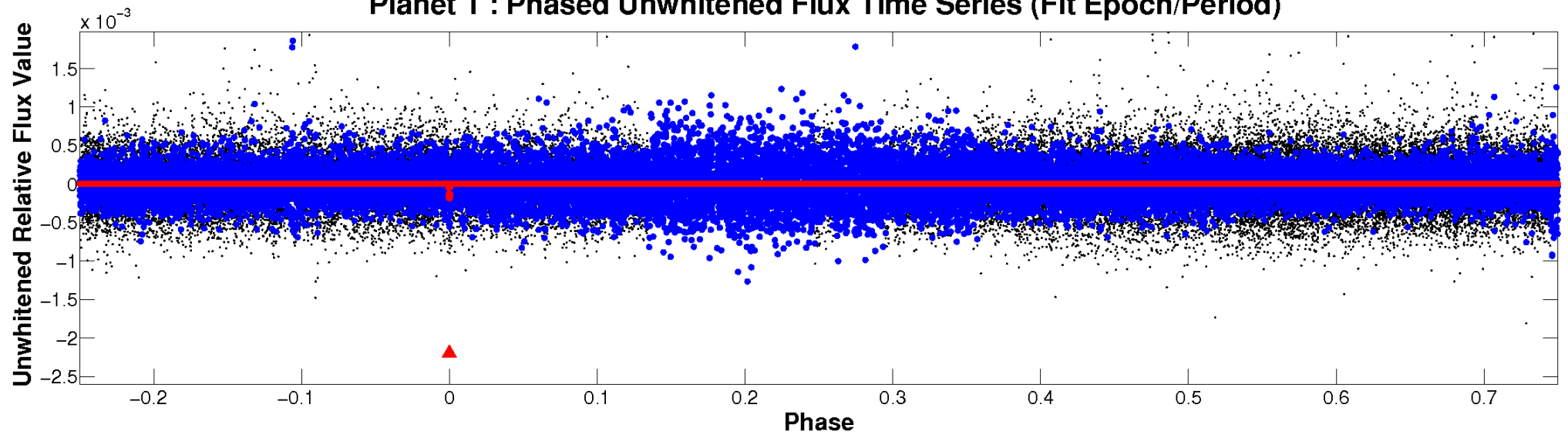
ALT Odd/Even

TCE 004071967-01

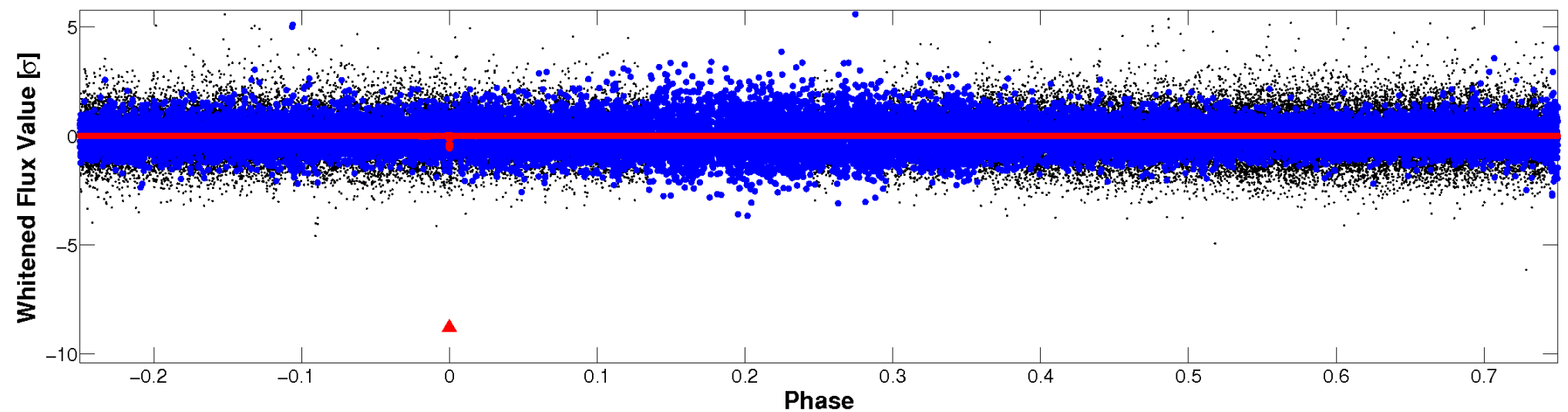


Non-Whitened Vs. Whitened Light Curve

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



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



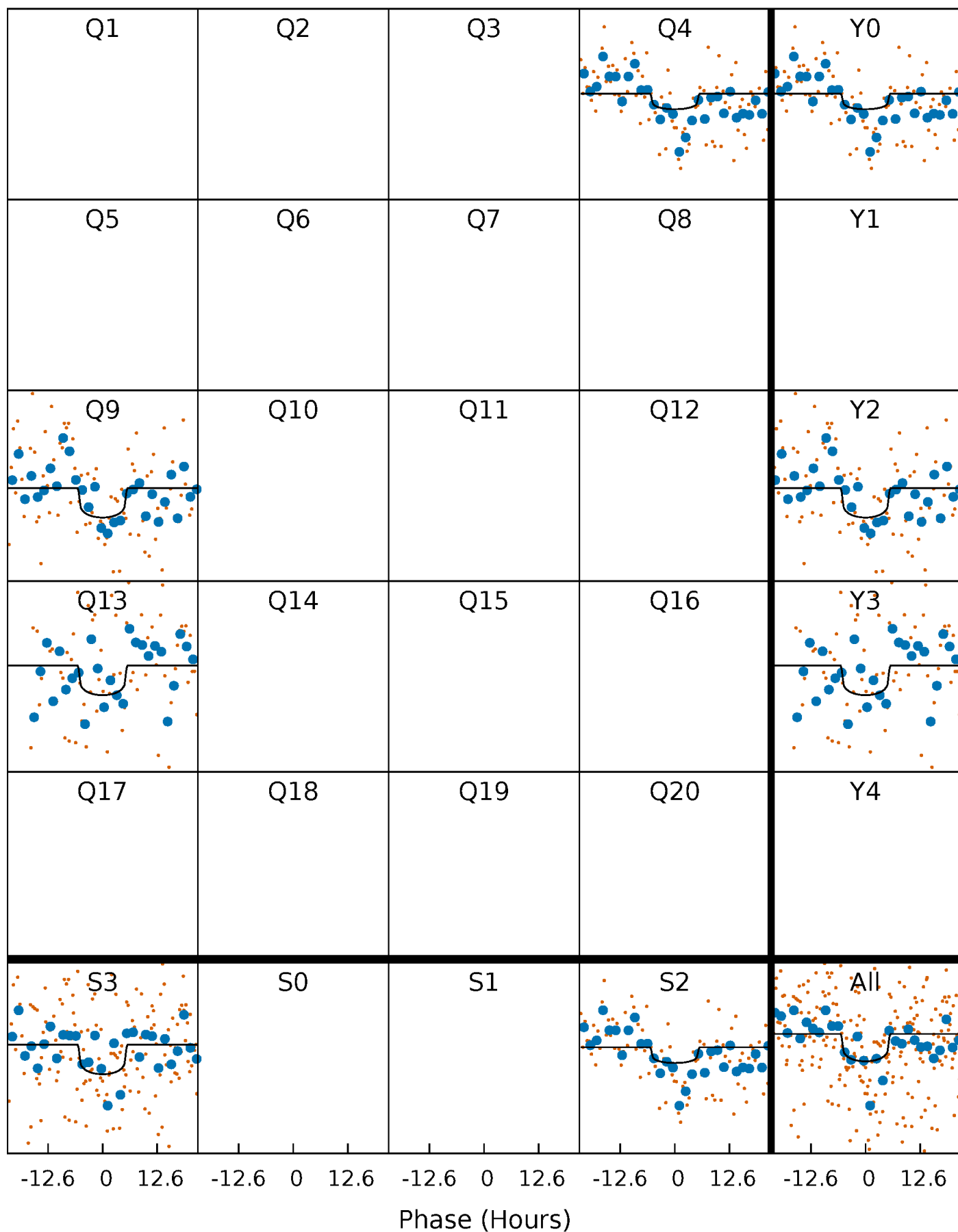
PDC Quarter-Phased Transit Curves

TCE 004071967-01 P=420.622260 Days $T_0=428.659509$ (BKJD)



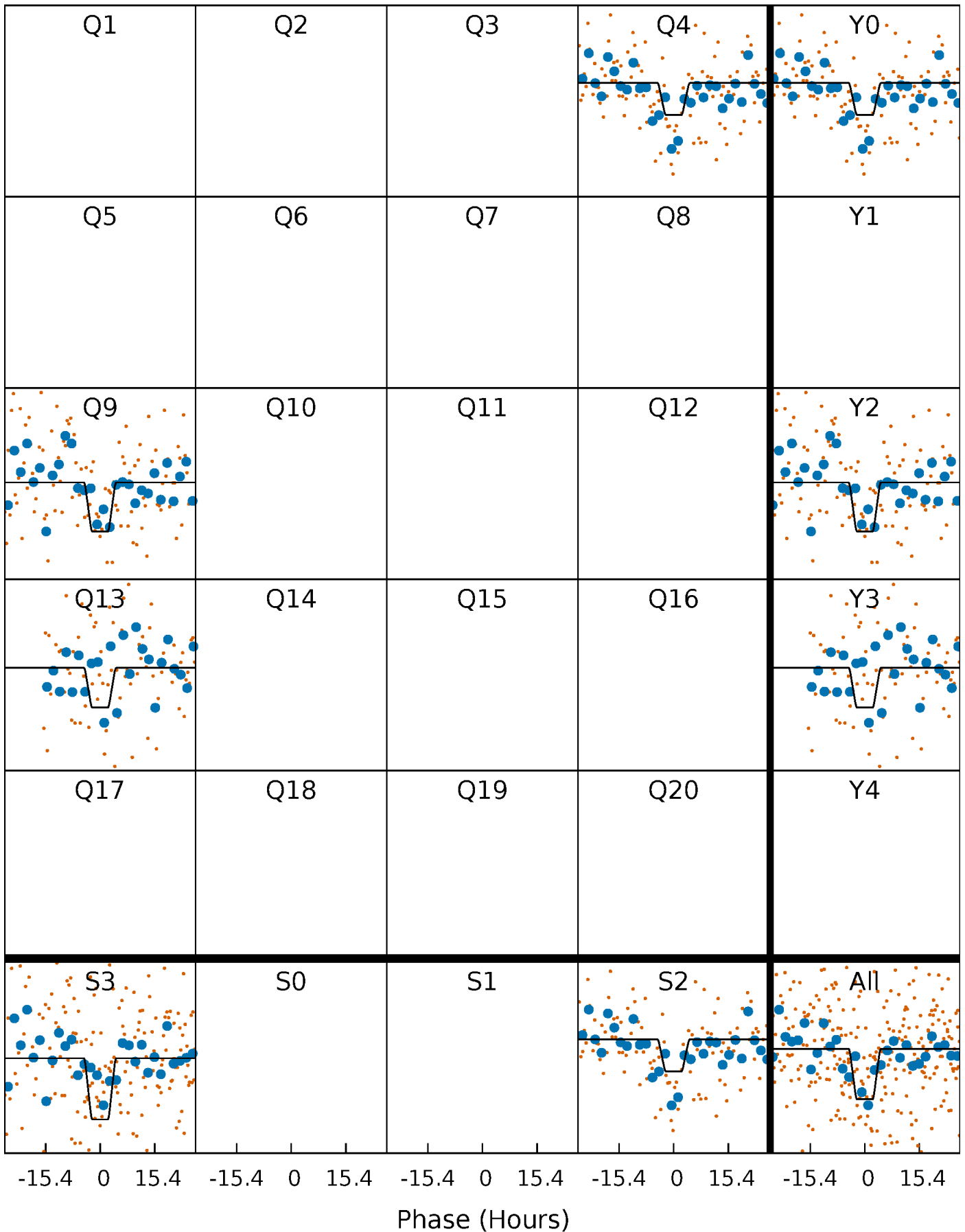
DV Quarter-Phased Transit Curves

TCE 004071967-01 $P=420.622260$ Days $T_0=428.659509$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

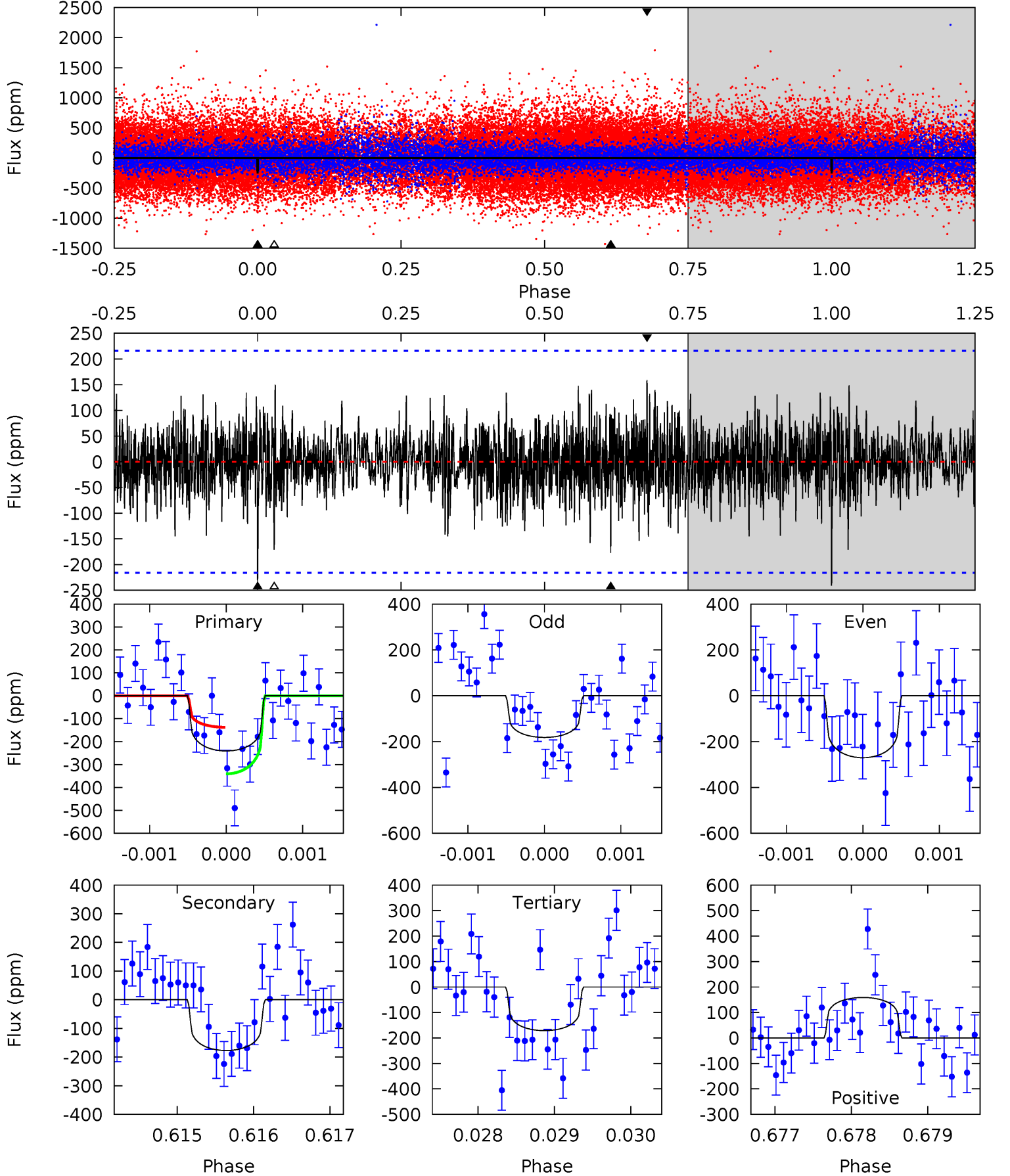
TCE 004071967-01 $P=420.577154$ Days $T_0=428.723904$ (BKJD)



DV Model-Shift Uniqueness Test

004071967-01, P = 420.622260 Days, E = 8.037249 Days

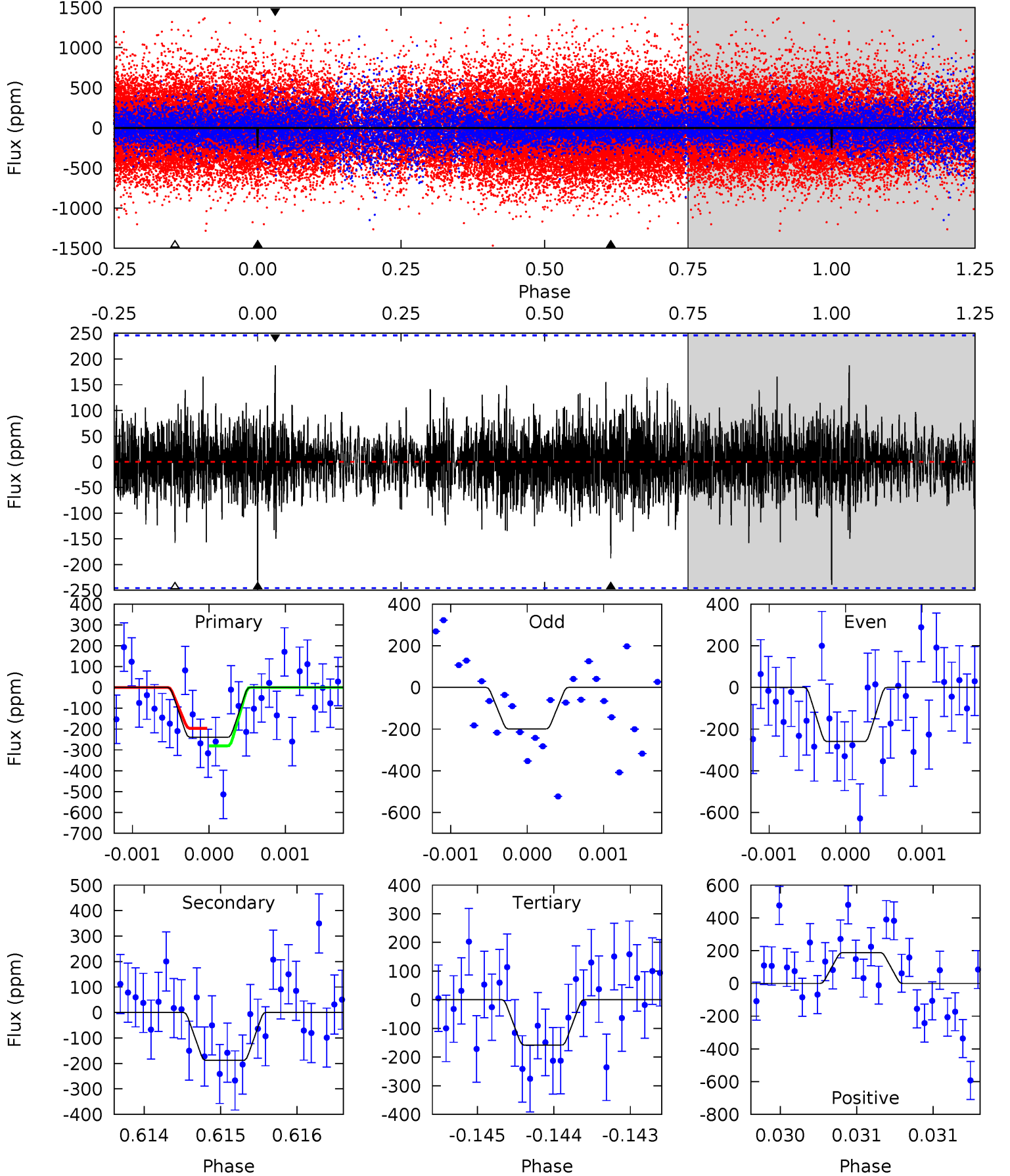
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.06 | 4.45 | 4.31 | 4.00 | 5.43 | 3.26 | 1.16 | 1.75 | 2.06 | 0.15 | 0.46 | 1.06 | 1.32 | 0.40 | 2.55 |



Alt Model-Shift Uniqueness Test

004071967-01, P = 420.577154 Days, E = 8.146750 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.33 | 4.19 | 3.52 | 4.18 | 5.48 | 3.34 | 0.97 | 1.81 | 1.15 | 0.67 | 0.01 | 0.64 | 1.20 | 0.44 | 0.93 |



Stellar Parameters For KIC 004071967

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6215^{+171}_{-236} | $4.381^{+0.072}_{-0.217}$ | $0.220^{+0.200}_{-0.300}$ | $1.179^{+0.422}_{-0.141}$ | $1.224^{+0.151}_{-0.168}$ | $1.051^{+0.328}_{-0.587}$ |
| | +3%/-4% | +2%/-5% | +91%/-136% | +36%/-12% | +12%/-14% | +31%/-56% |
| 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 004071967-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|-------------------------|
| DV | -177 ± 40 | $4.59^{+5.19}_{-3.24}$ | 391^{+30}_{-22} | 4108^{+3169}_{-893} | 6074^{+63490}_{-4799} |
| Alt. | -188 ± 45 | $4.97^{+4.82}_{-3.51}$ | 391^{+31}_{-21} | 4086^{+2640}_{-832} | 5668^{+56233}_{-4267} |

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 $A_{obs} \gg 1.0$

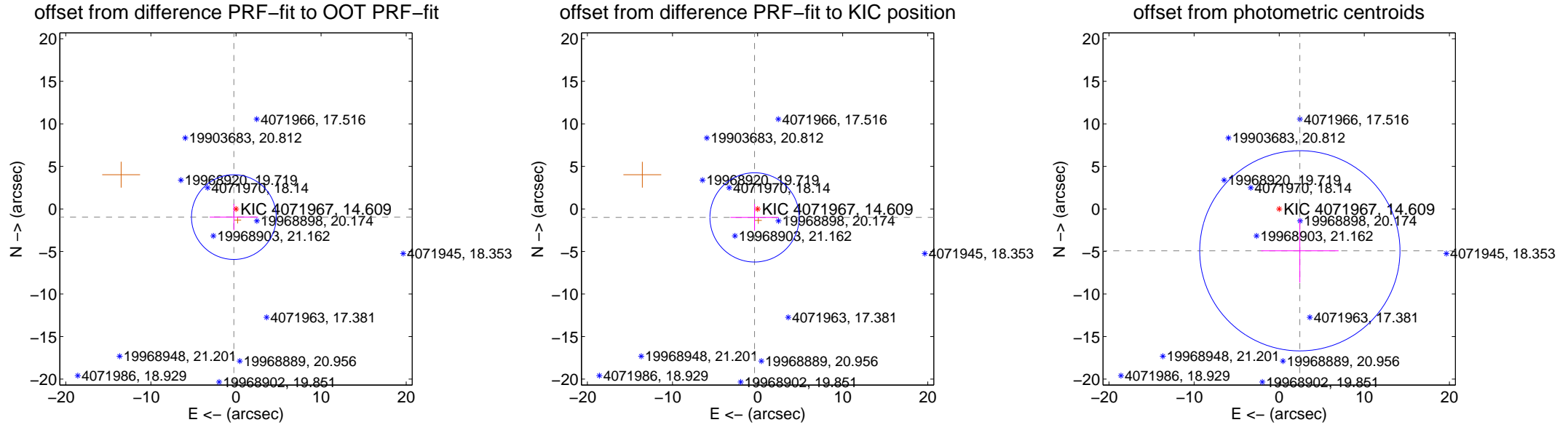
DV Centroid Data

Supplemental centroid analysis for 004071967-01. Kepler magnitude: 14.61. Transit SNR 3.99

There are 0 quarters with good PRF difference image offsets

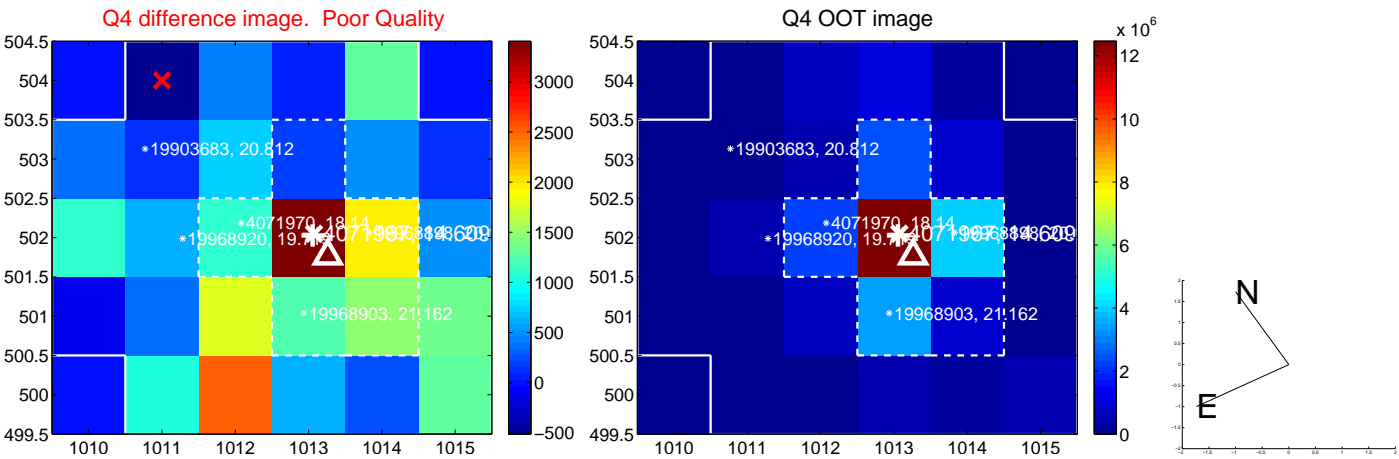
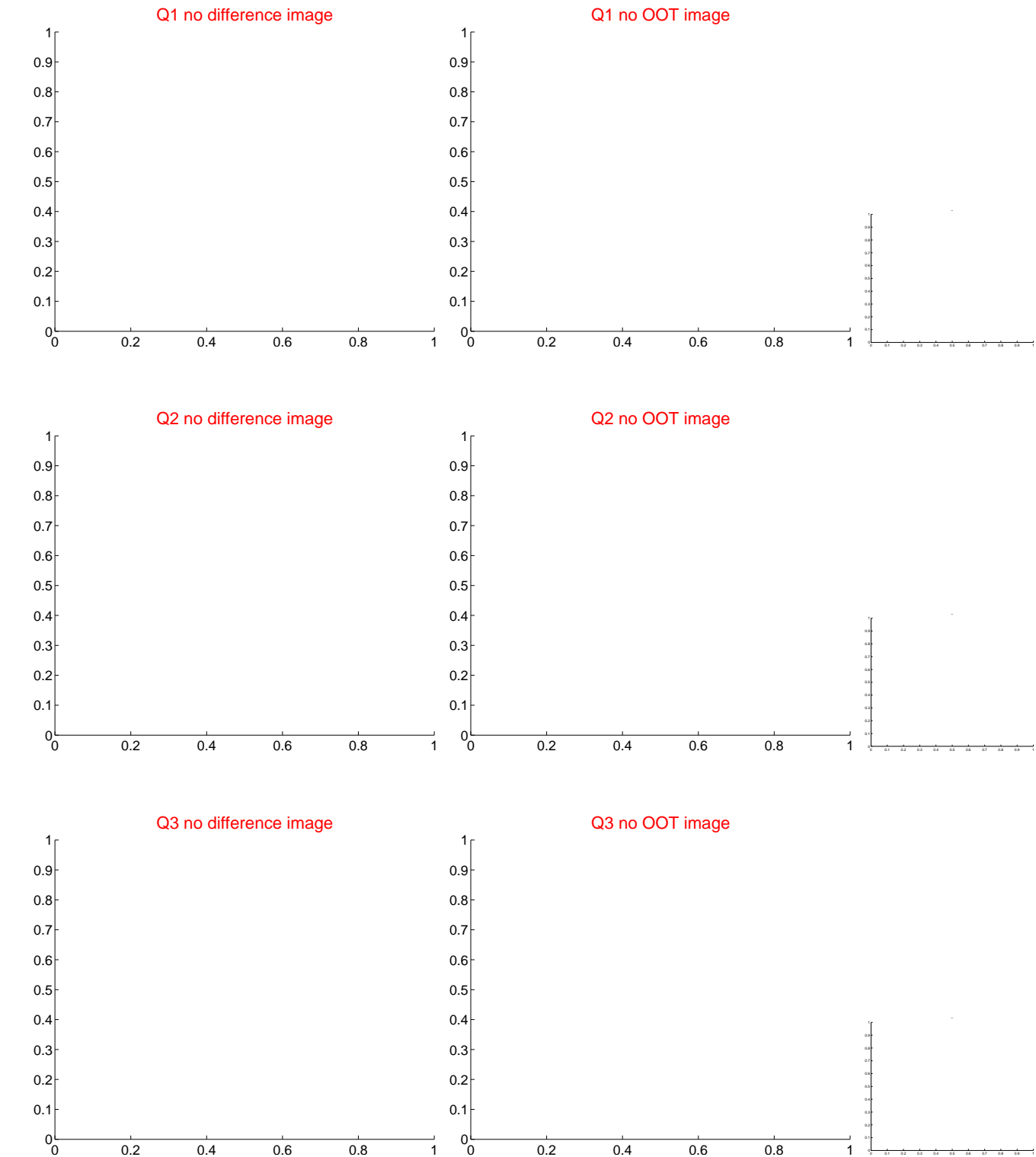
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.992 ± 1.659 | 0.60 | 0.251 ± 2.843 | -0.960 ± 1.545 |
| PRF-fit source offset from KIC position | 1.057 ± 1.748 | 0.60 | 0.358 ± 2.831 | -0.994 ± 1.554 |
| photometric centroid source offset | 5.48 ± 3.92 | 1.40 | -2.43 ± 4.56 | -4.92 ± 3.75 |

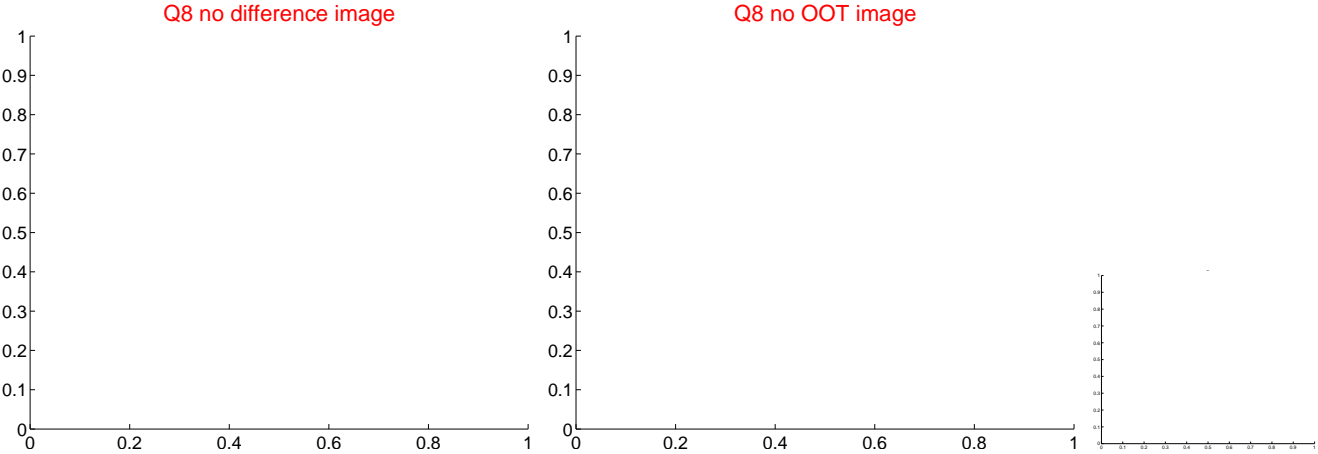


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



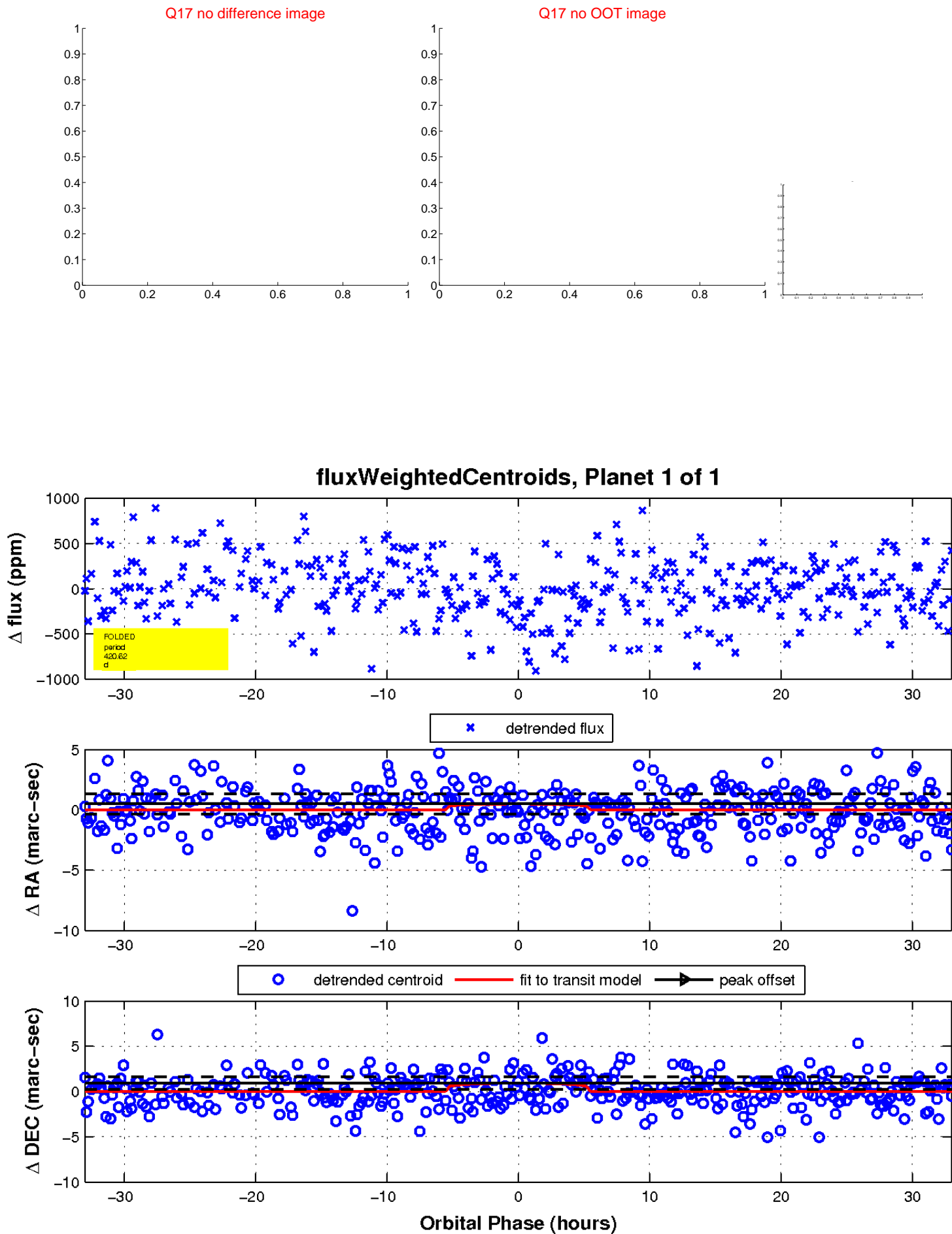
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

