

KIC 008547387

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008547387-01 | OBS | No | 370.238214 | 231.669303 | 2041.2 | 21.530 | 10.5 | 10.1 | 0.87 | 5623 | 6.74 | 0.68 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008547387-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 1 | INDIV_TRANS_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—EPHEM_MATCH |

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.

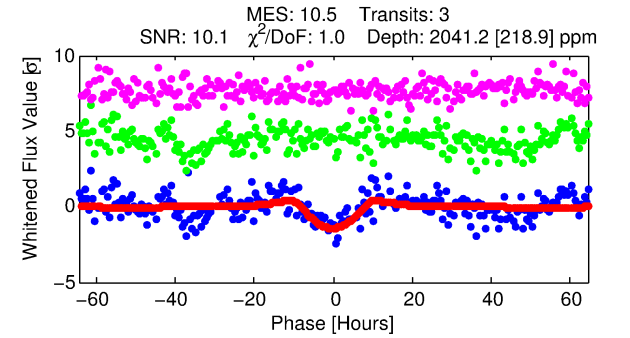
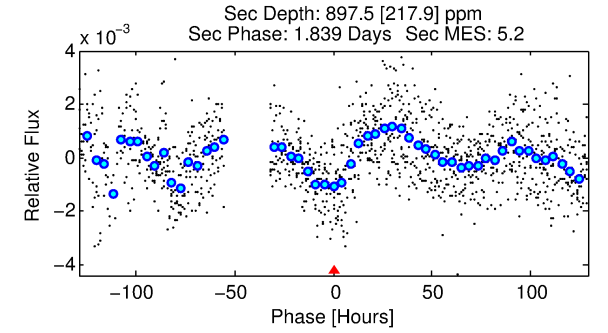
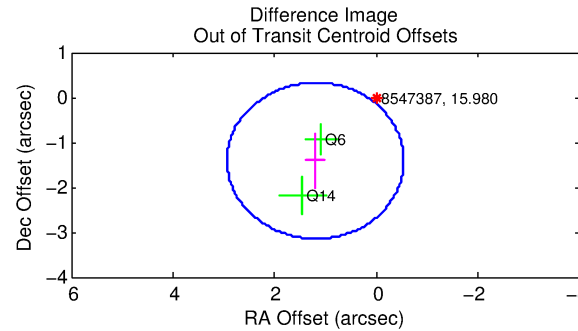
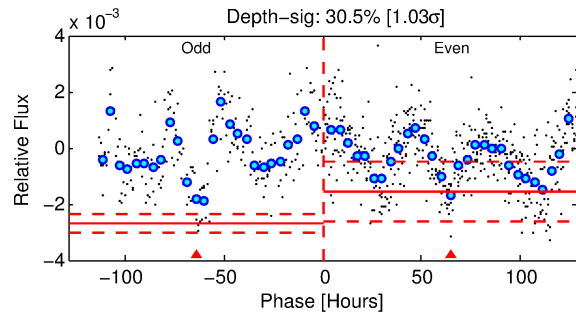
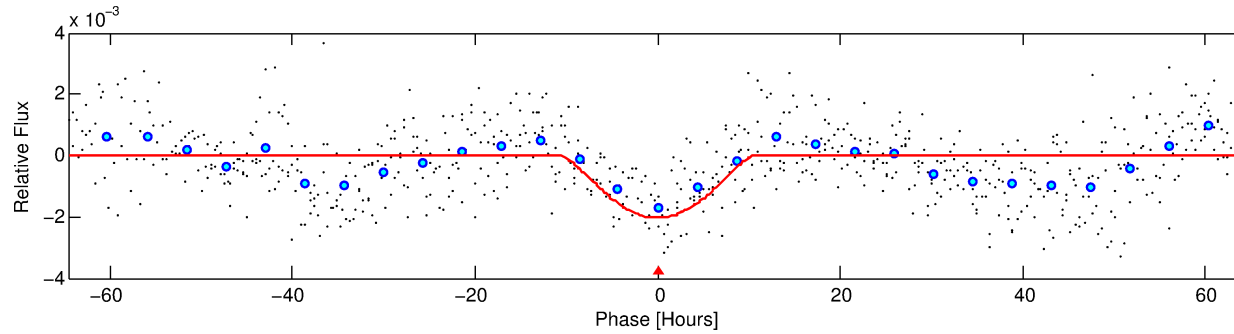
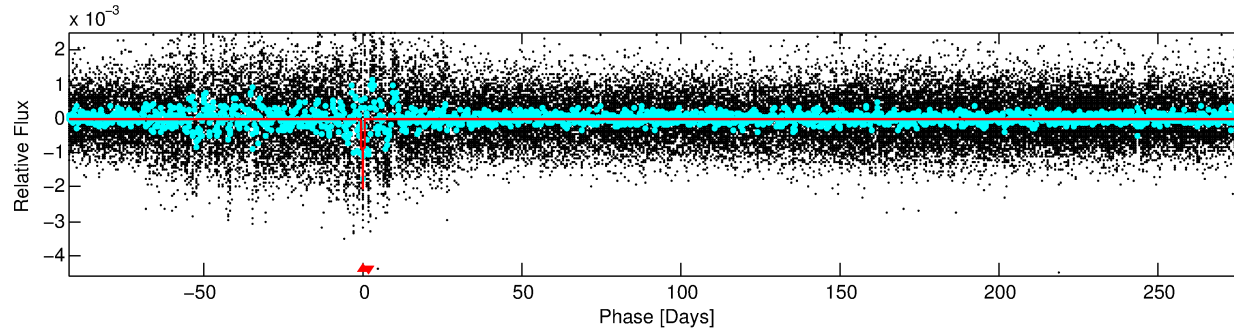
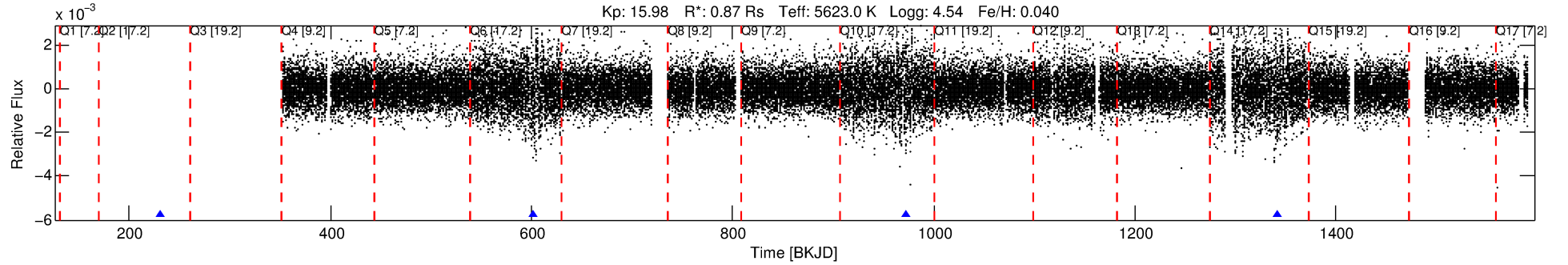
Ephemeris Match Information For 008547387-01

| TCE (1) | KIC | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ($''$) | Δ Row | Δ Col | m_2 | m_1 | D_2/D_1 | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|--------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 008547387-01 | 8547387 | 008374896-01 | 8374896 | 1:1 | 22905.5 | -101 | 121 | 15.07 | 15.98 | 0.57 | Reflection | 1 | 2.60 | 2.26 |

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8547387 Candidate: 1 of 1 Period: 370.238 d



DV Fit Results:

Period = 370.23821 [0.02605] d
Epoch = 231.6693 [0.0558] BKJD
Rp/R* = 0.0708 [0.1322]
a/R* = 54.66 [26.70]
b = 0.99 [0.21]
Seff = 0.68 [0.25]
Teq = 232 [21] K
Rp = 6.74 [12.71] Re
a = 0.9985 [0.2270] AU
Ag = 10834.43 [40691.85] [0.27σ]
Teffp = 3657 [3422] K [1.00σ]

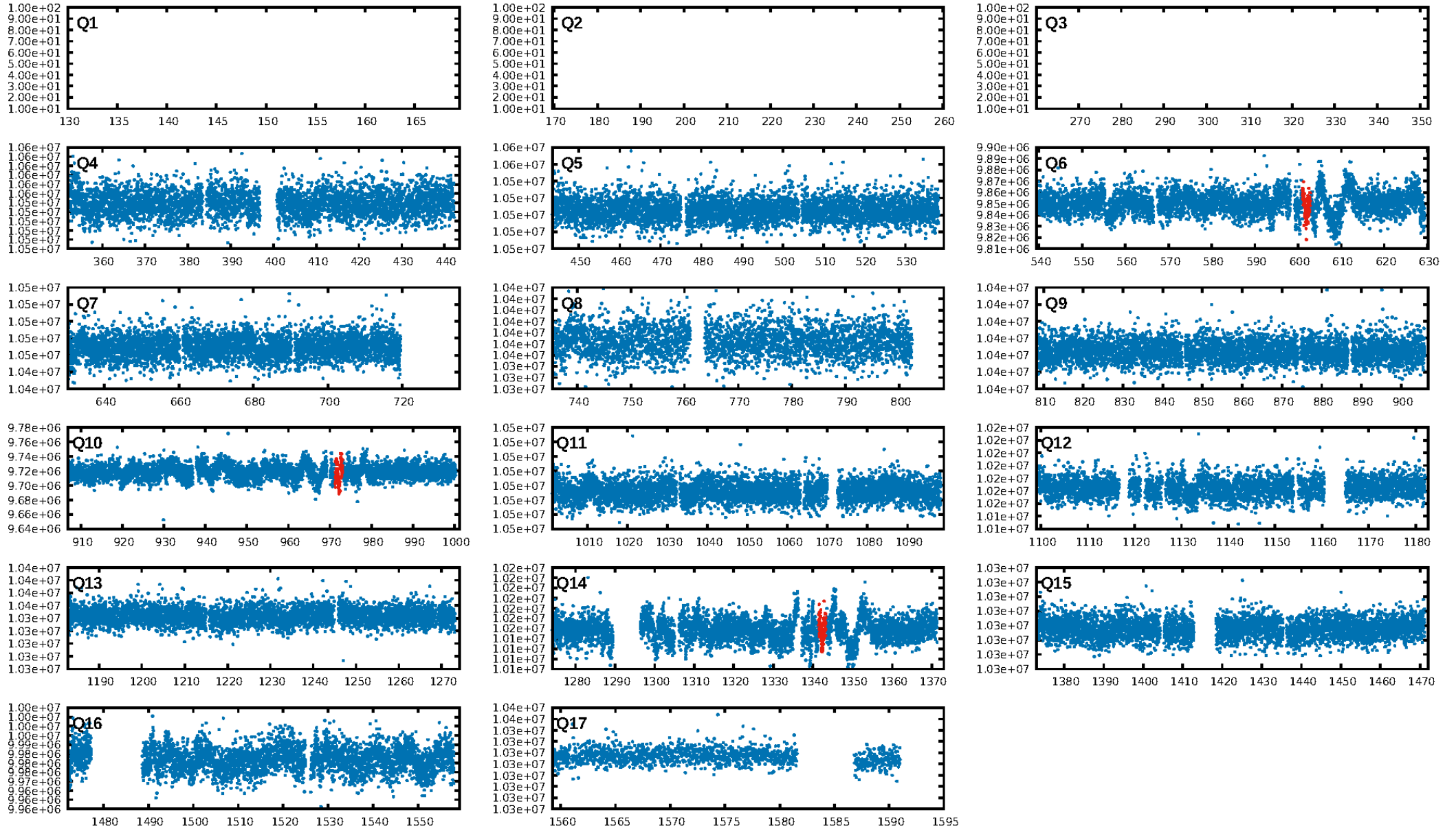
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.56e-18
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.882
Centroid-sig: 0.2%
Centroid-so: 3.273 arcsec [1.98σ]
OotOffset-rm: 1.854 arcsec [3.20σ]
KicOffset-rm: 1.804 arcsec [3.21σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

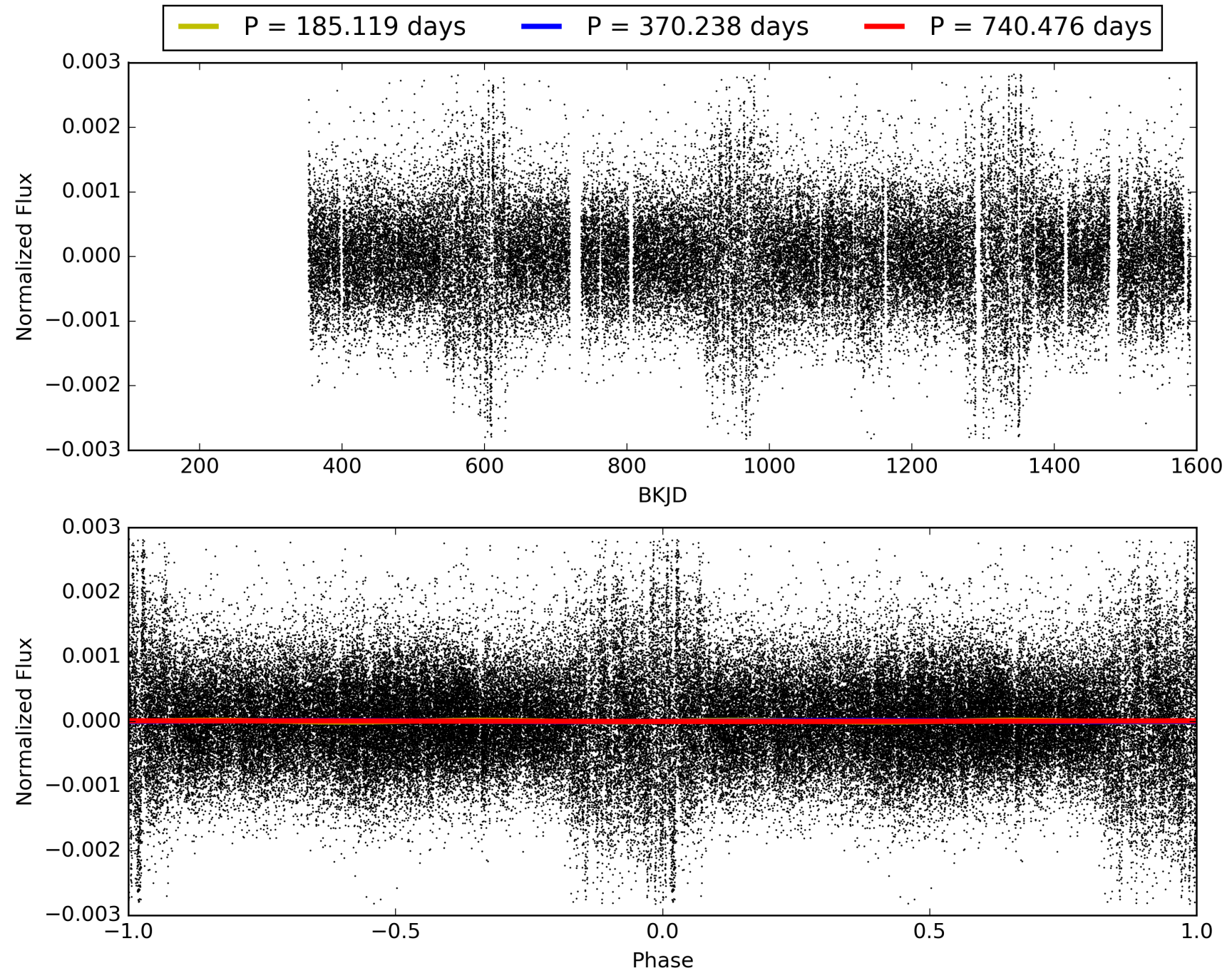
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:26:35 Z

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

TCE 008547387-01, PDC Light Curves

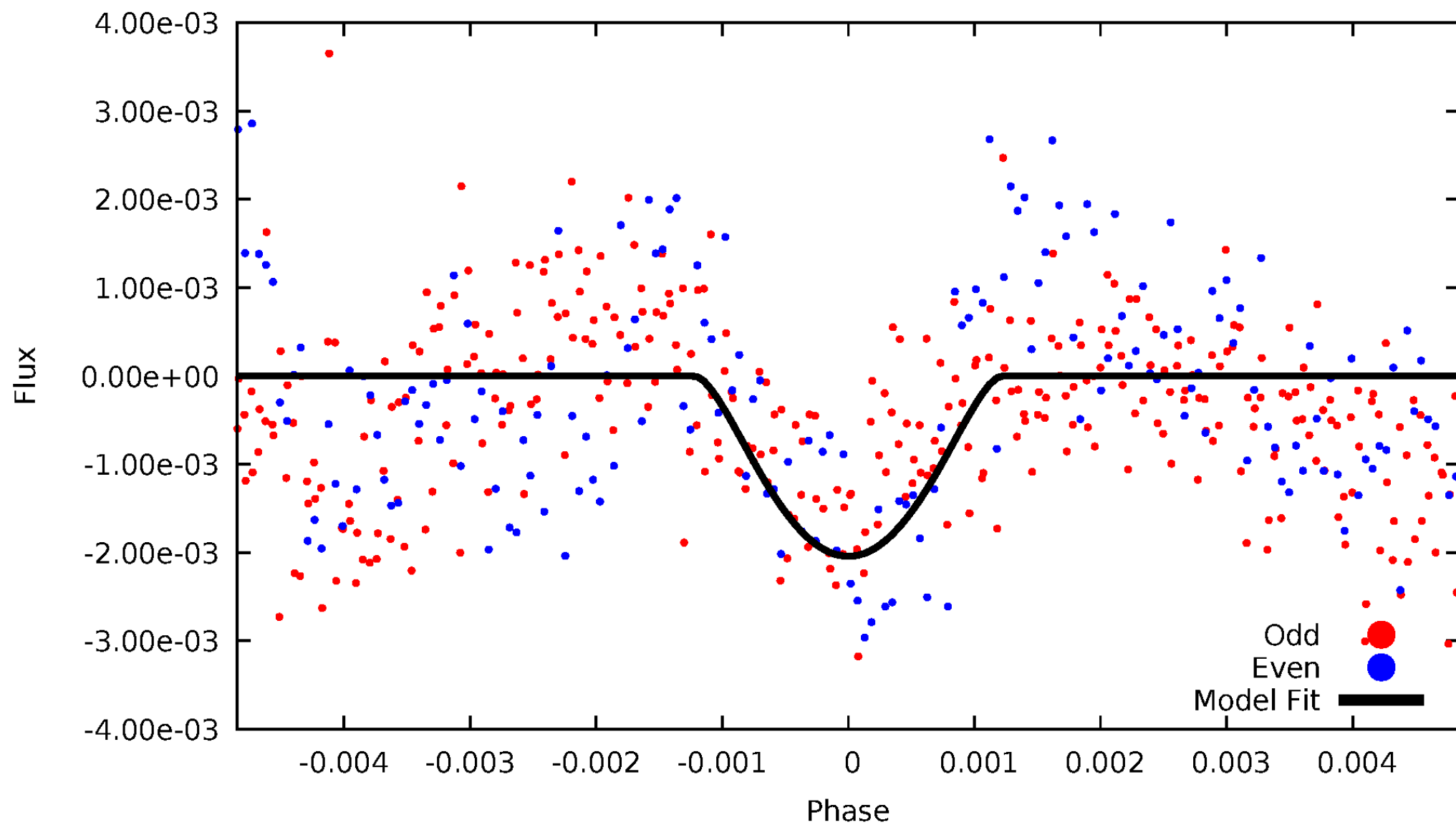


TCE 008547387-01



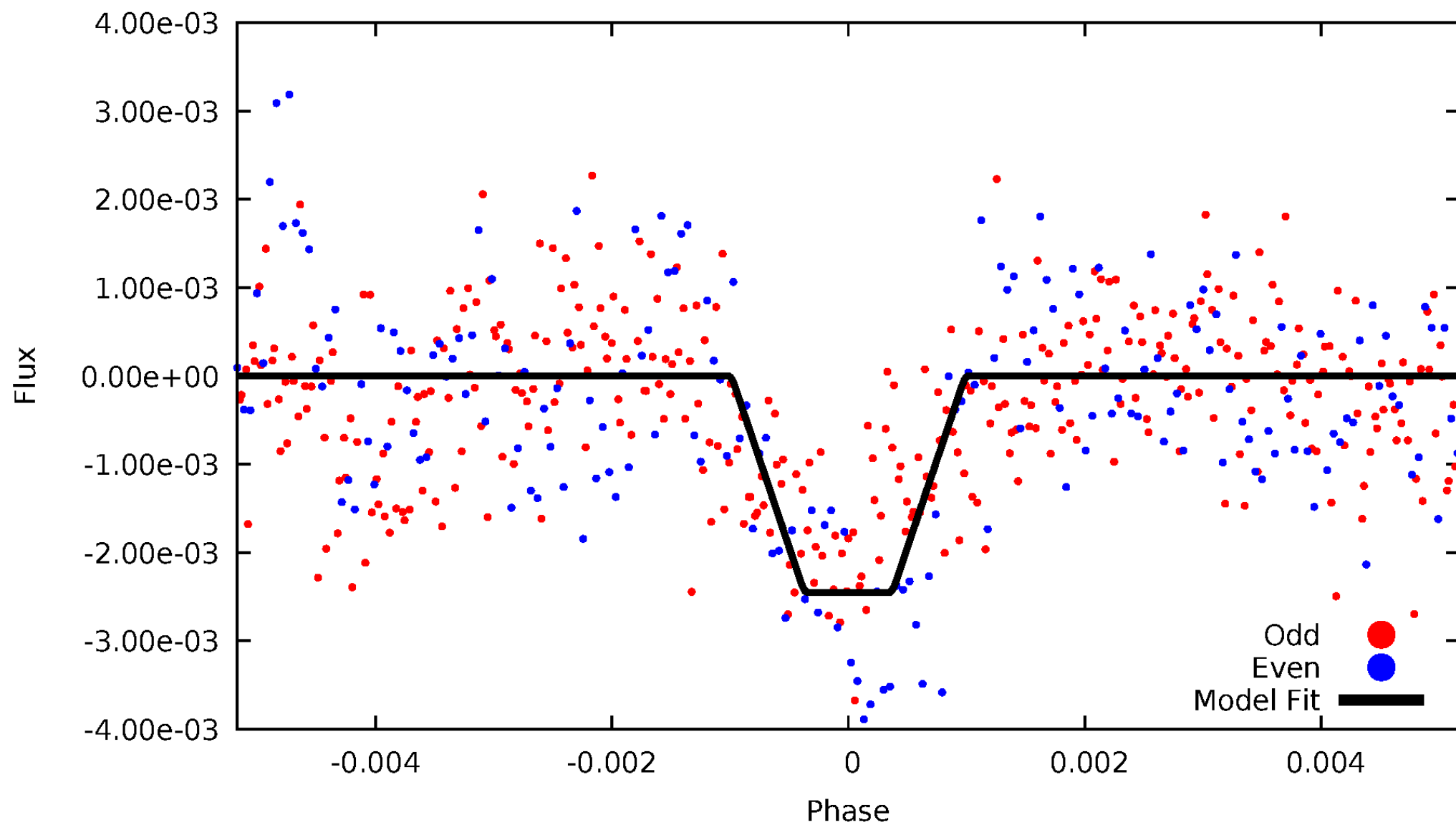
DV Odd/Even

TCE 008547387-01



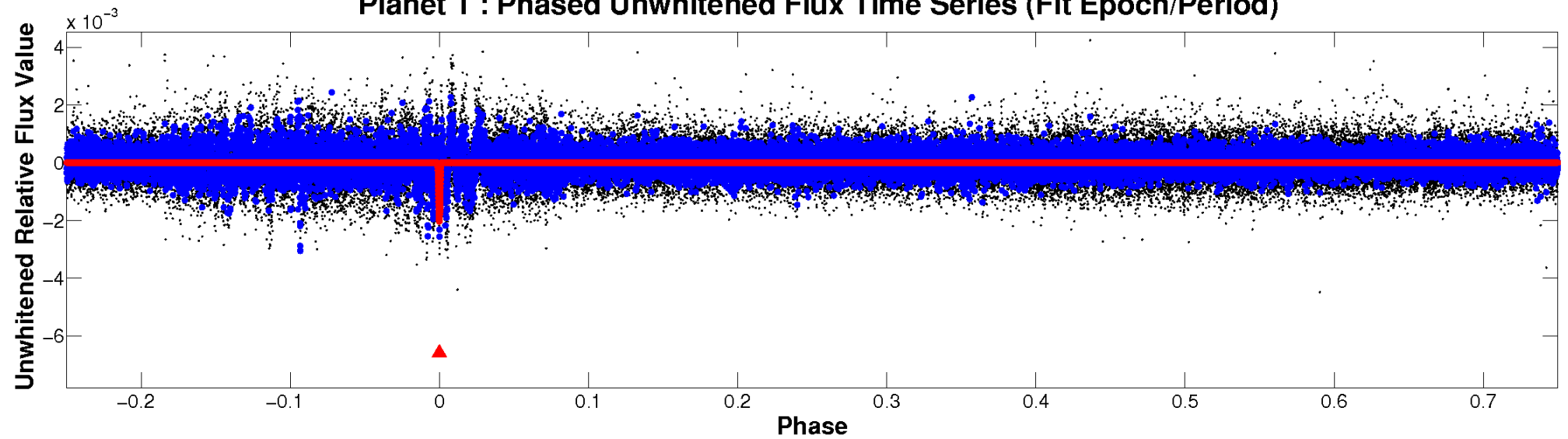
ALT Odd/Even

TCE 008547387-01

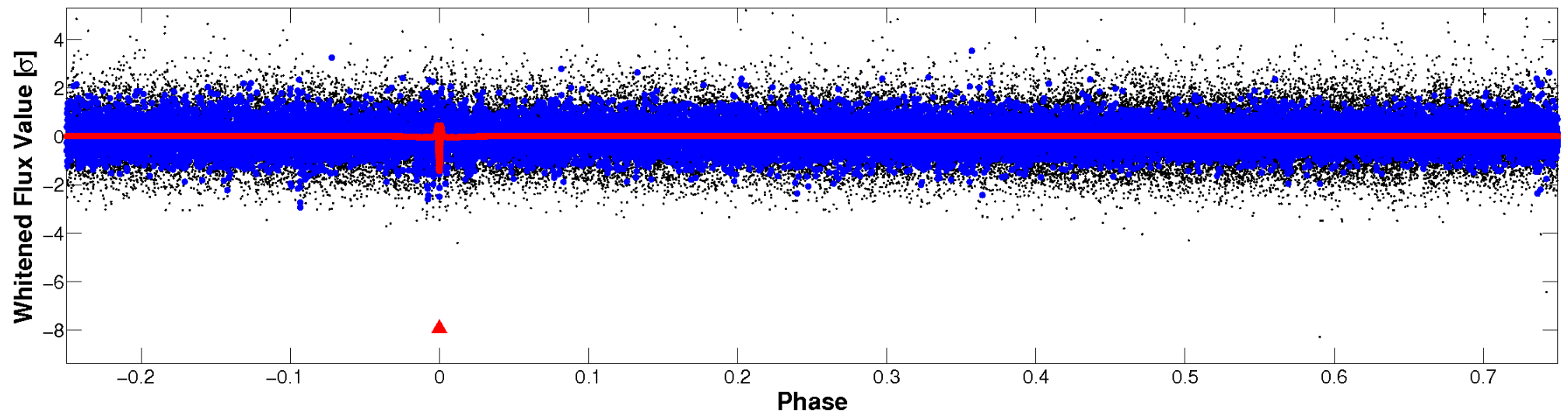


Non-Whitened Vs. Whitened Light Curve

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



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



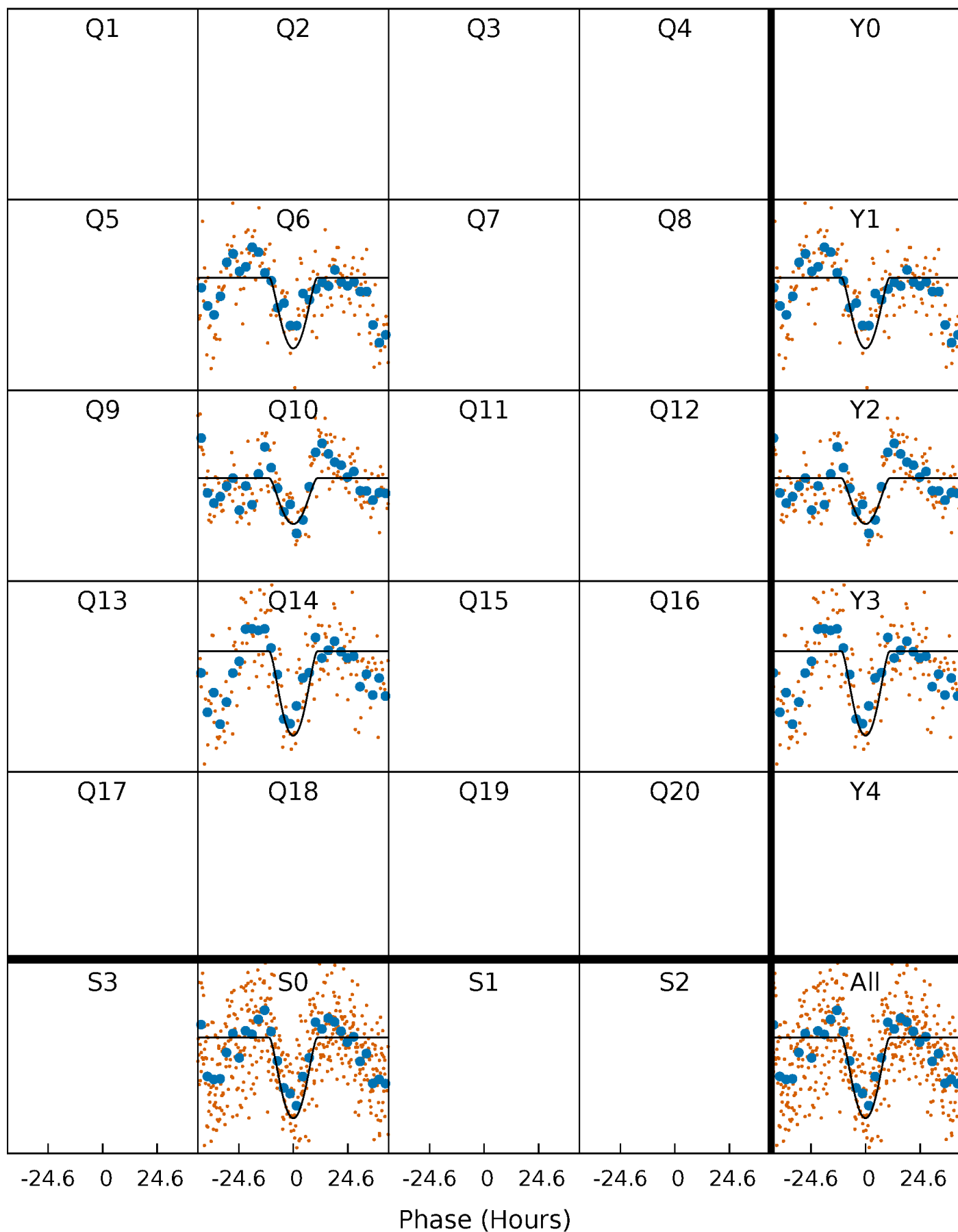
PDC Quarter-Phased Transit Curves

TCE 008547387-01 P=370.238214 Days $T_0=231.669303$ (BKJD)



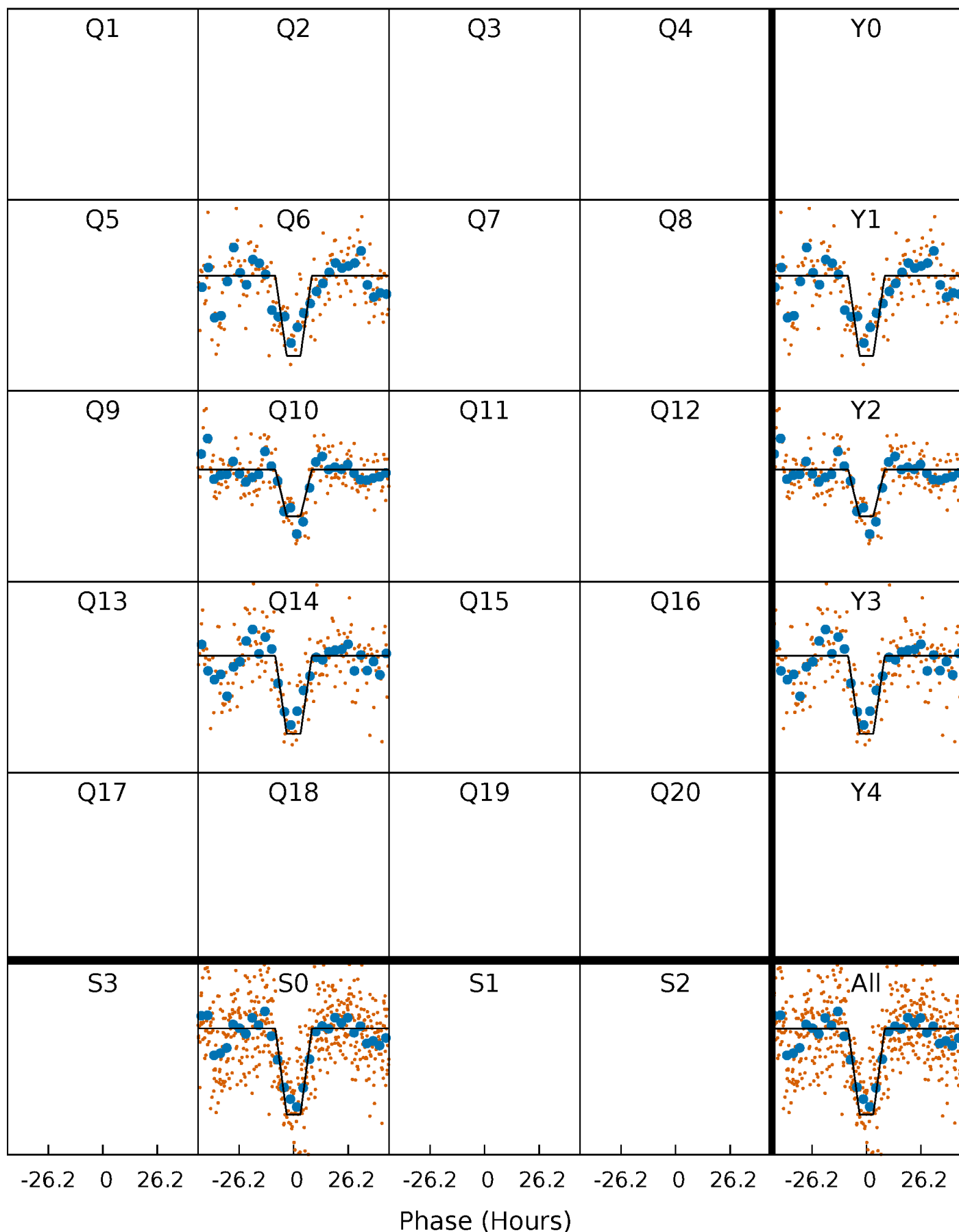
DV Quarter-Phased Transit Curves

TCE 008547387-01 P=370.238214 Days $T_0=231.669303$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

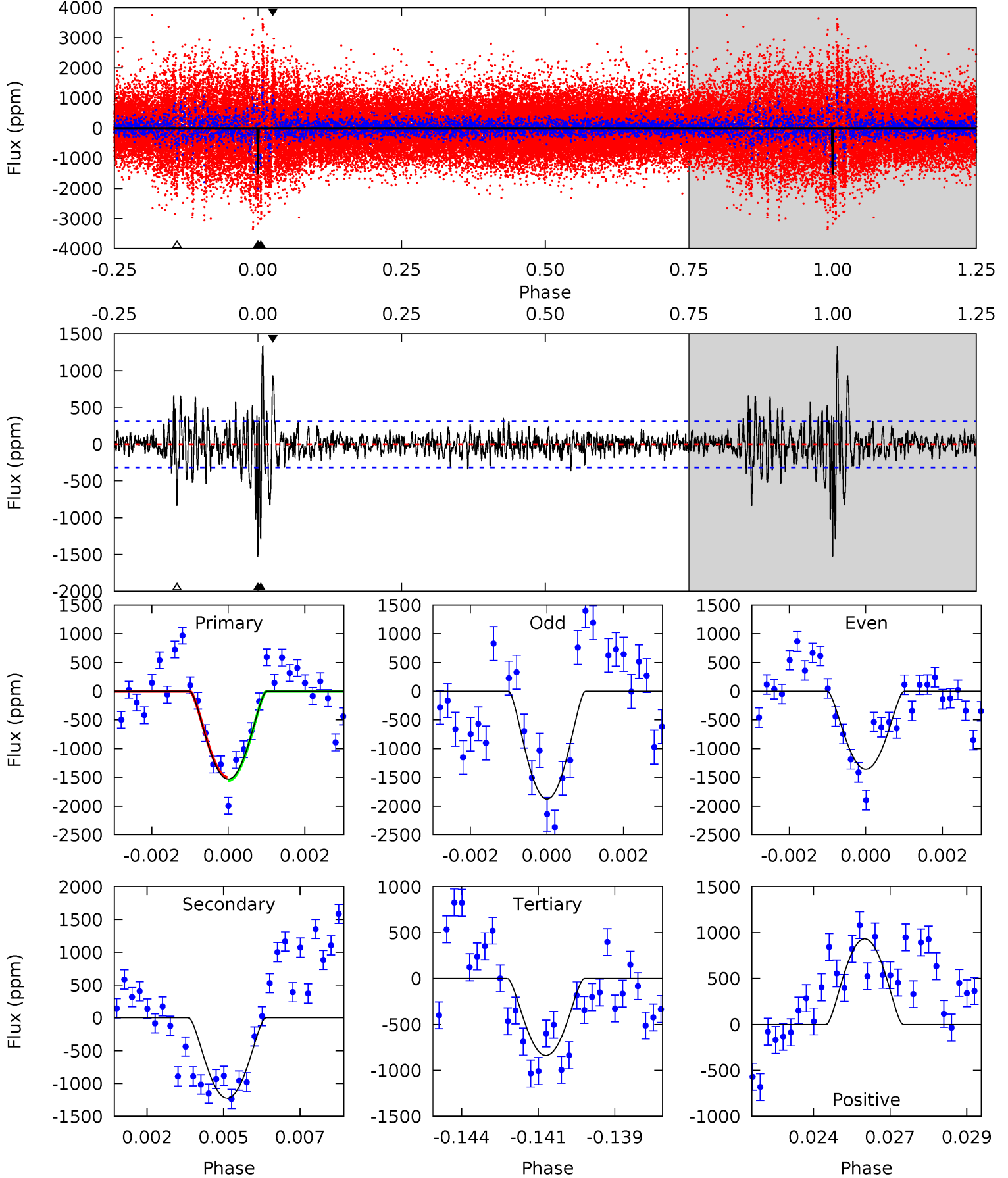
TCE 008547387-01 P=370.228862 Days $T_0=231.686901$ (BKJD)



DV Model-Shift Uniqueness Test

008547387-01, P = 370.238214 Days, E = 231.669303 Days

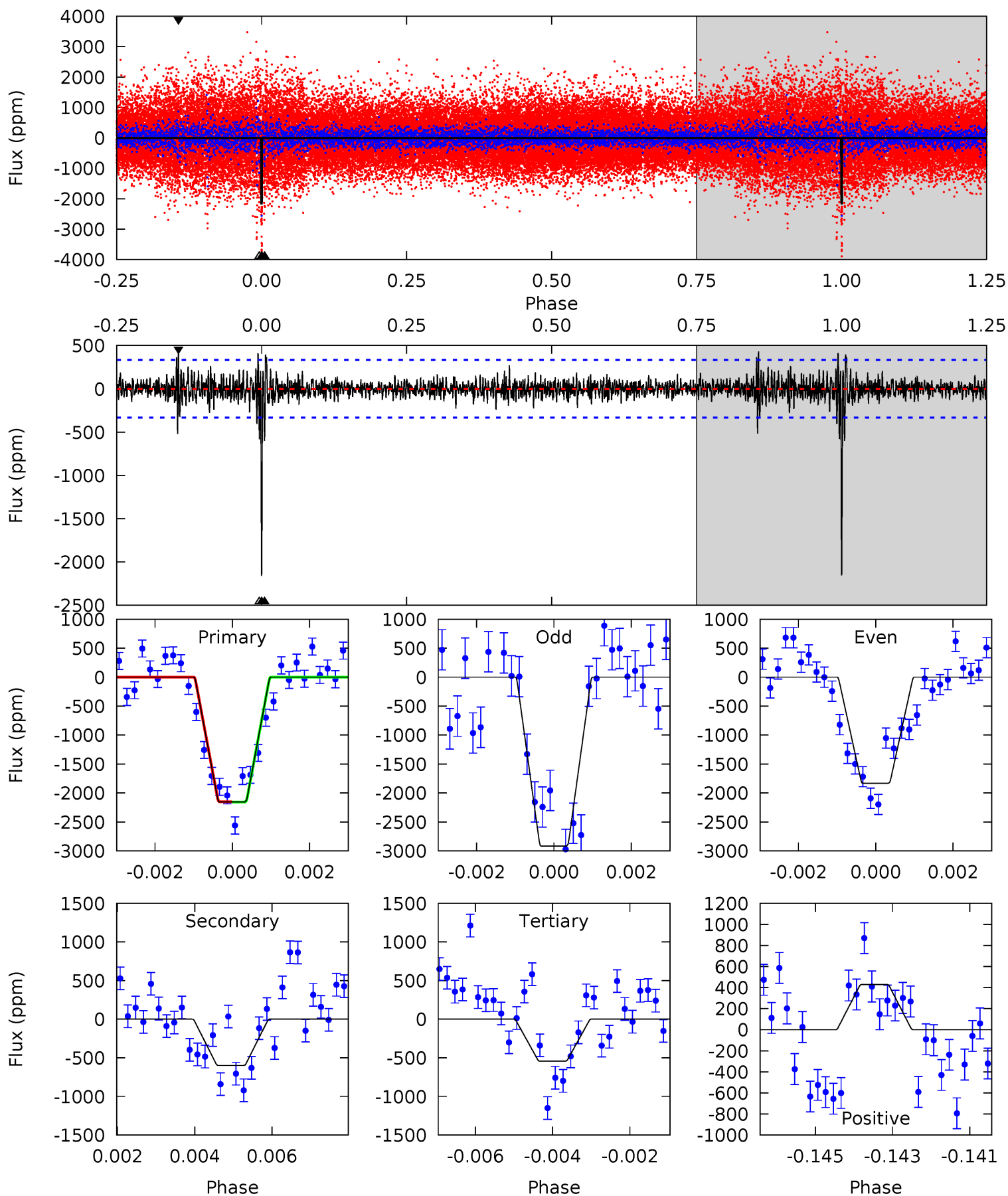
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.7 | 20.6 | 14.1 | 15.6 | 5.29 | 3.03 | 2.82 | 11.6 | 10.1 | 6.50 | 4.93 | 4.12 | 1.03 | 0.46 | 0.44 |



Alt Model-Shift Uniqueness Test

008547387-01, P = 370.228862 Days, E = 231.686901 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 34.4 | 9.58 | 8.70 | 6.87 | 5.32 | 3.08 | 1.25 | 25.7 | 27.6 | 0.88 | 2.71 | 8.28 | 1.15 | 0.17 | 0.06 |



Stellar Parameters For KIC 008547387

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5623^{+169}_{-203} | $4.543^{+0.034}_{-0.184}$ | $0.040^{+0.250}_{-0.300}$ | $0.872^{+0.233}_{-0.078}$ | $0.969^{+0.094}_{-0.115}$ | $2.059^{+0.388}_{-1.032}$ |
| | +3%/-4% | +1%/-4% | +625%/-750% | +27%/-9% | +10%/-12% | +19%/-50% |
| Source | KIC0 | 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 008547387-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|----------------|--------------------------|-------------------|-----------------------|-------------------------|
| DV | -1225 ± 60 | $12.01^{+10.93}_{-7.84}$ | 332^{+22}_{-14} | 3534^{+1720}_{-627} | 4518^{+33302}_{-3277} |
| Alt. | -599 ± 63 | $10.98^{+11.02}_{-7.27}$ | 332^{+20}_{-17} | 3213^{+1516}_{-555} | 2626^{+20806}_{-1966} |

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 $A_{obs} \gg 1.0$

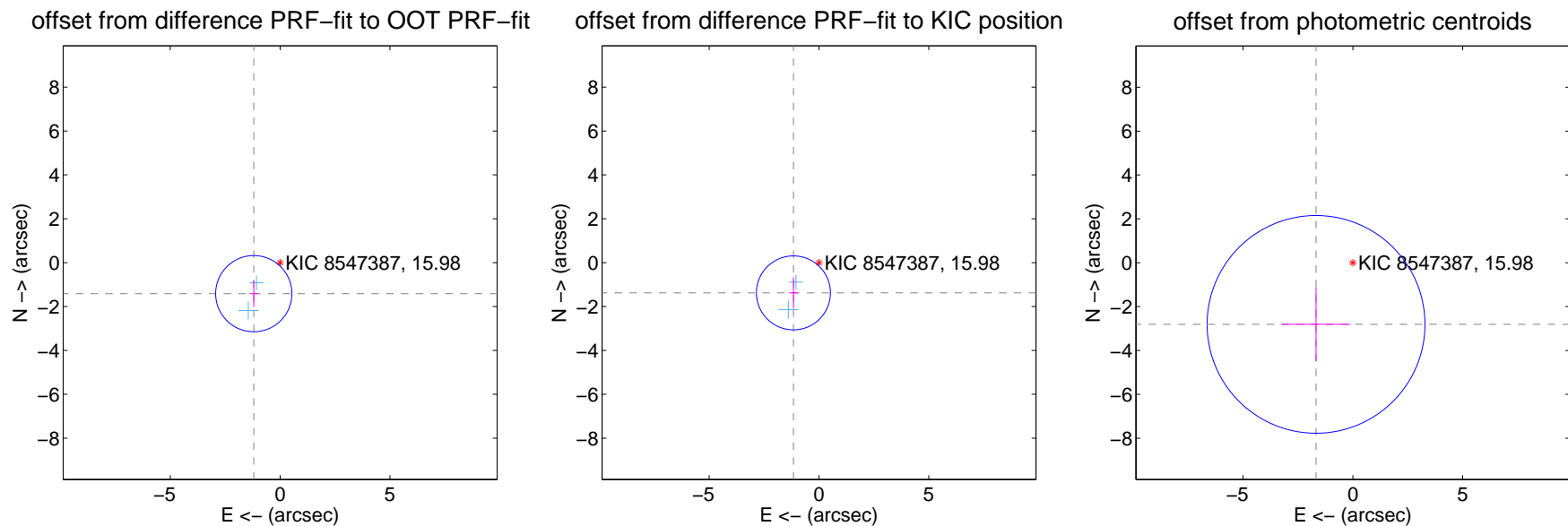
DV Centroid Data

Supplemental centroid analysis for 008547387-01. Kepler magnitude: 15.98. Transit SNR 10.11

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 1.854 ± 0.579 | 3.20 | 1.199 ± 0.190 | -1.413 ± 0.607 |
| PRF-fit source offset from KIC position | 1.804 ± 0.562 | 3.21 | 1.164 ± 0.202 | -1.377 ± 0.715 |
| photometric centroid source offset | 3.27 ± 1.65 | 1.98 | 1.68 ± 1.58 | -2.81 ± 1.68 |

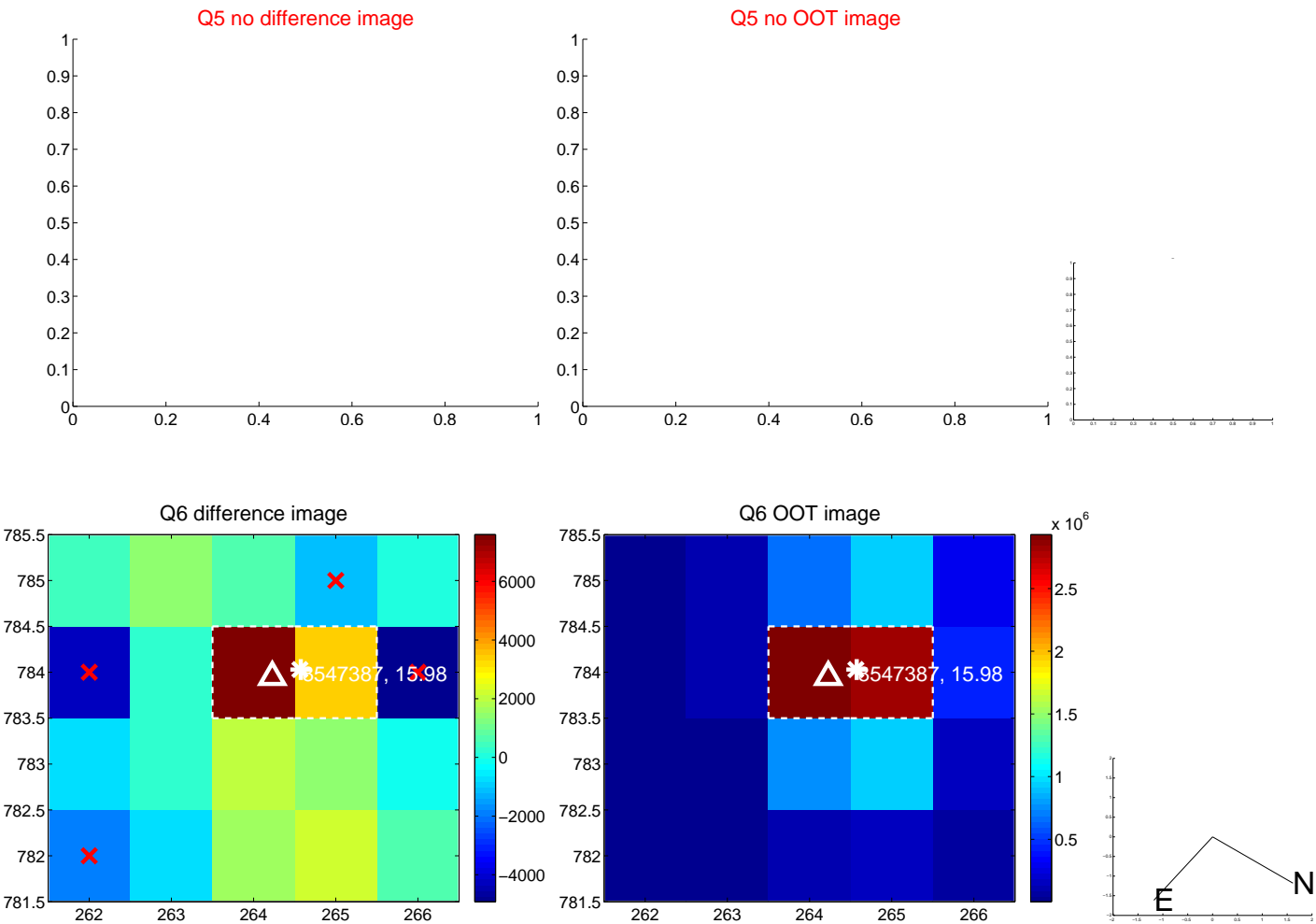


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



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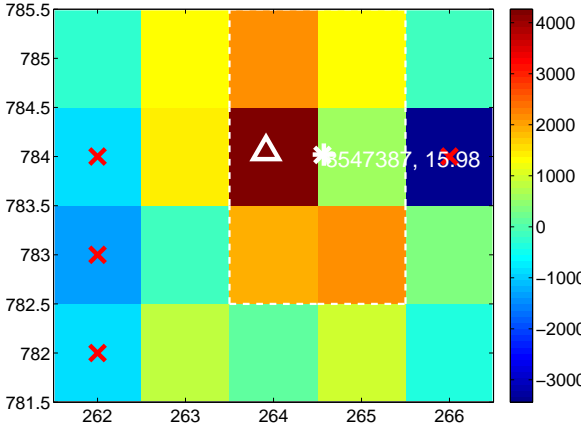
Q13 no difference image



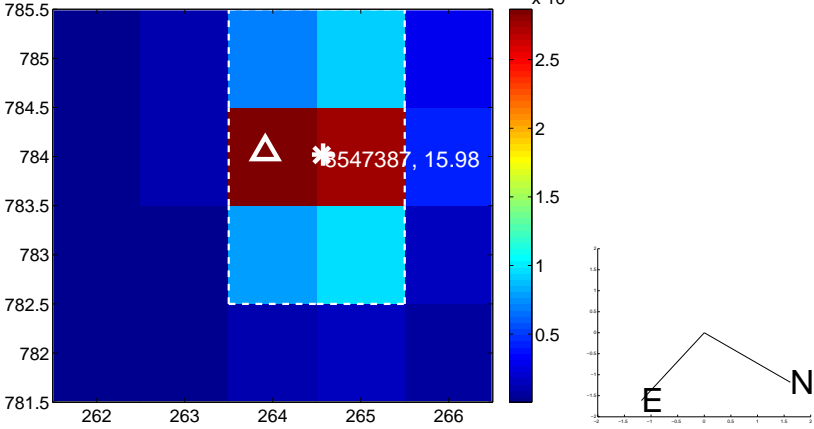
Q13 no OOT image



Q14 difference image



Q14 OOT image



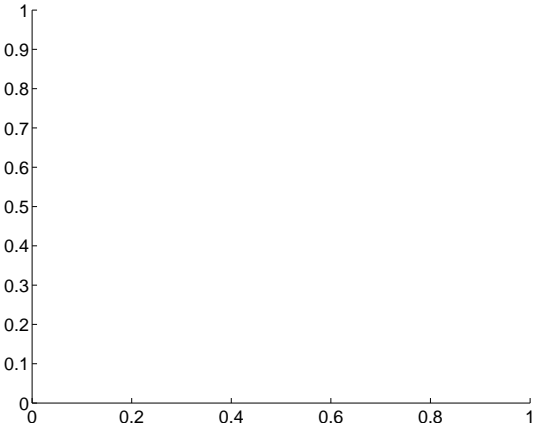
Q15 no difference image



Q15 no OOT image



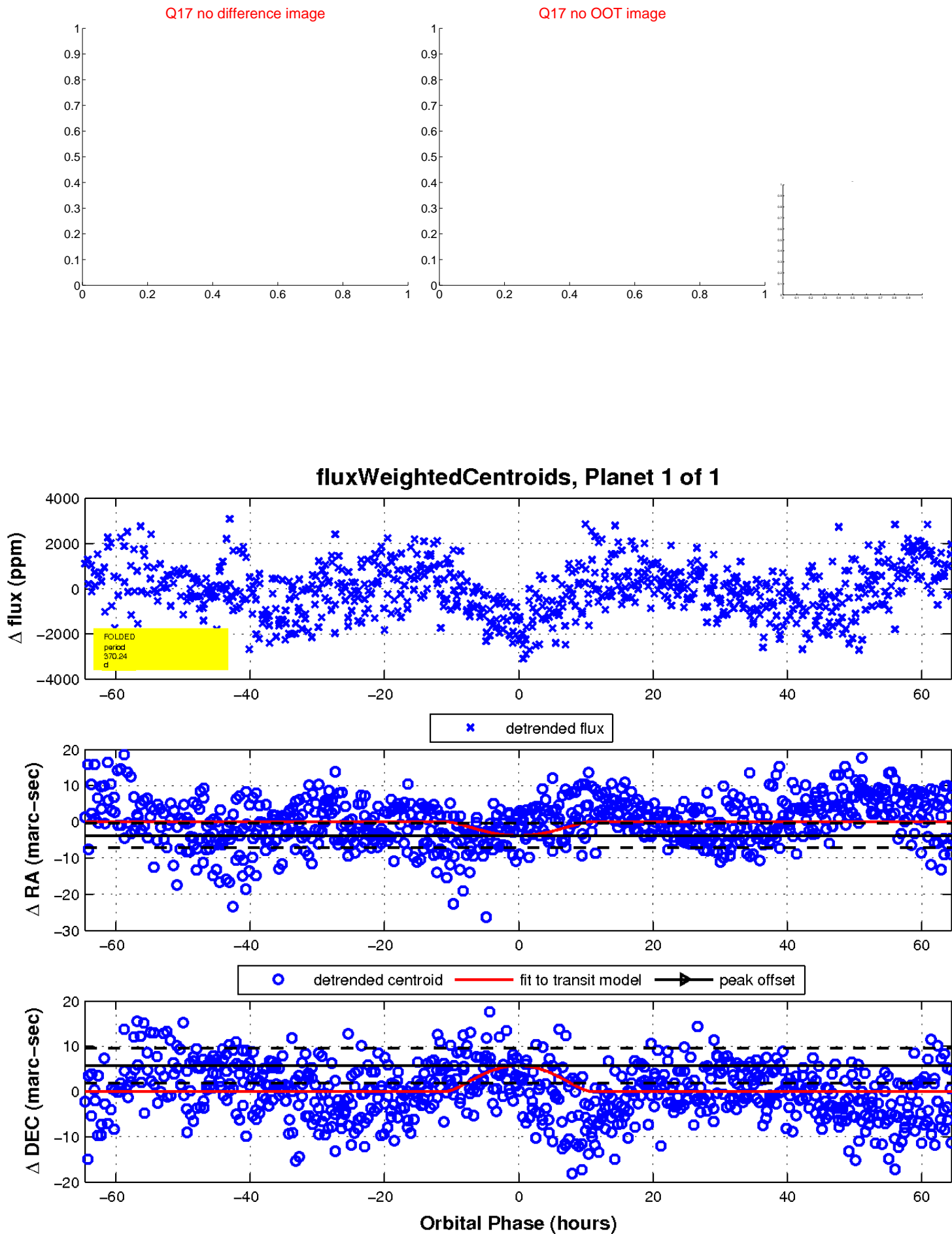
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

