

KIC 010749059

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010749059-01 | OBS | 3086.01 | 174.734765 | 252.527151 | 1223.3 | 10.450 | 14.3 | 14.4 | 0.90 | 5201 | 3.87 | 1.61 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------|
| 010749059-01 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | CENT_FEW_MEAS |

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.

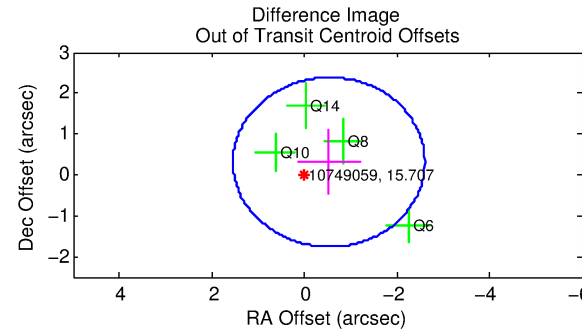
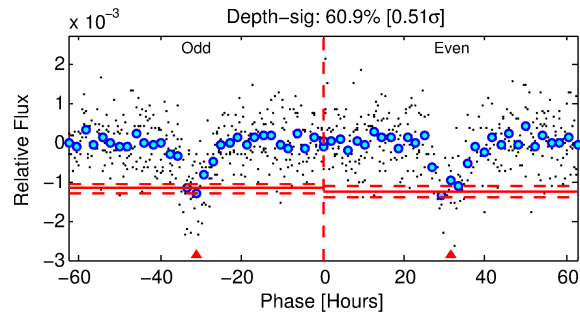
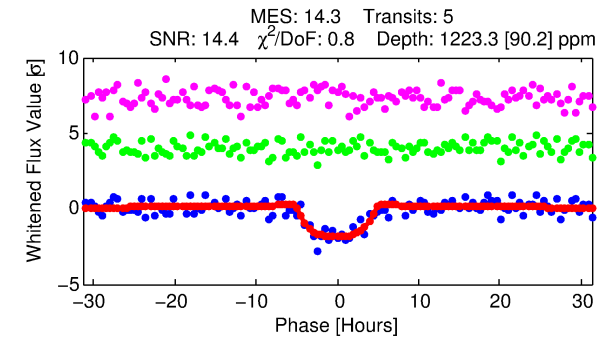
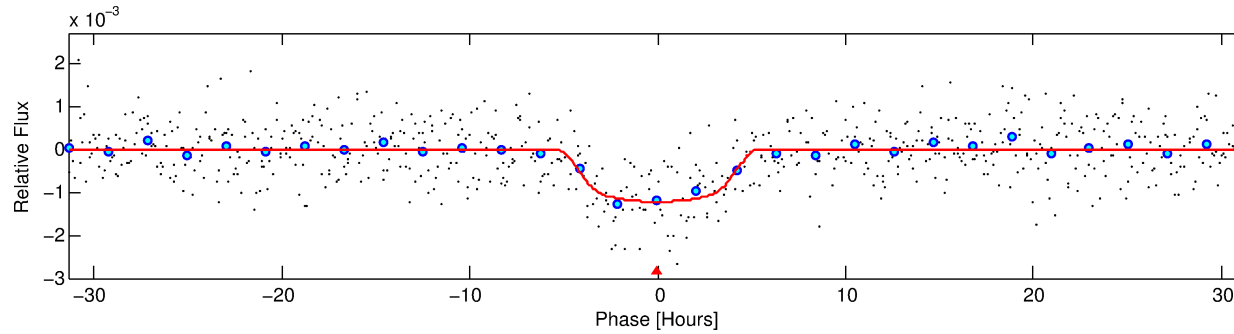
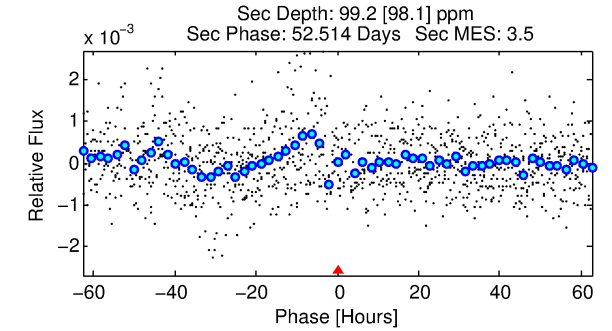
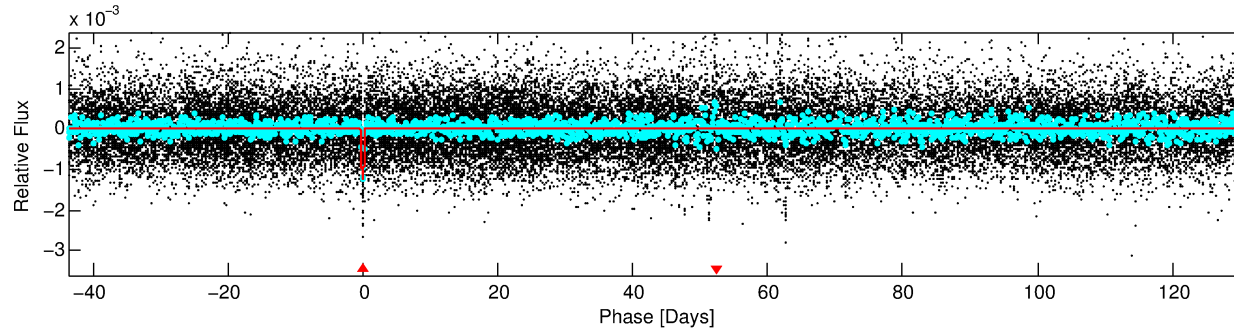
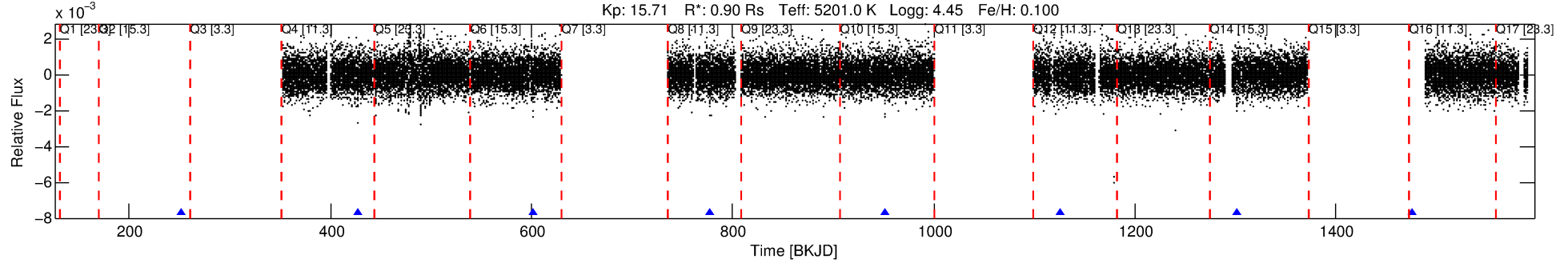
Ephemeris Match Information For 010749059-01

No Significant Match Found

DV One-Page Summary

KIC: 10749059 Candidate: 1 of 1 Period: 174.735 d
KOI: K03086.01 Corr: 0.889

Kp: 15.71 R*: 0.90 Rs Teff: 5201.0 K Logg: 4.45 Fe/H: 0.100



DV Fit Results:

Period = 174.73477 [0.00446] d
Epoch = 252.5272 [0.0168] BKJD
Rp/R* = 0.0395 [0.0033]
a/R* = 63.29 [16.73]
b = 0.91 [0.05]
Seff = 1.61 [0.28]
Teq = 287 [13] K
Rp = 3.87 [0.50] Re
a = 0.5730 [0.0574] AU
Ag = 1196.45 [1215.84] [0.98σ]
Teffp = 2610 [656] K [3.54σ]

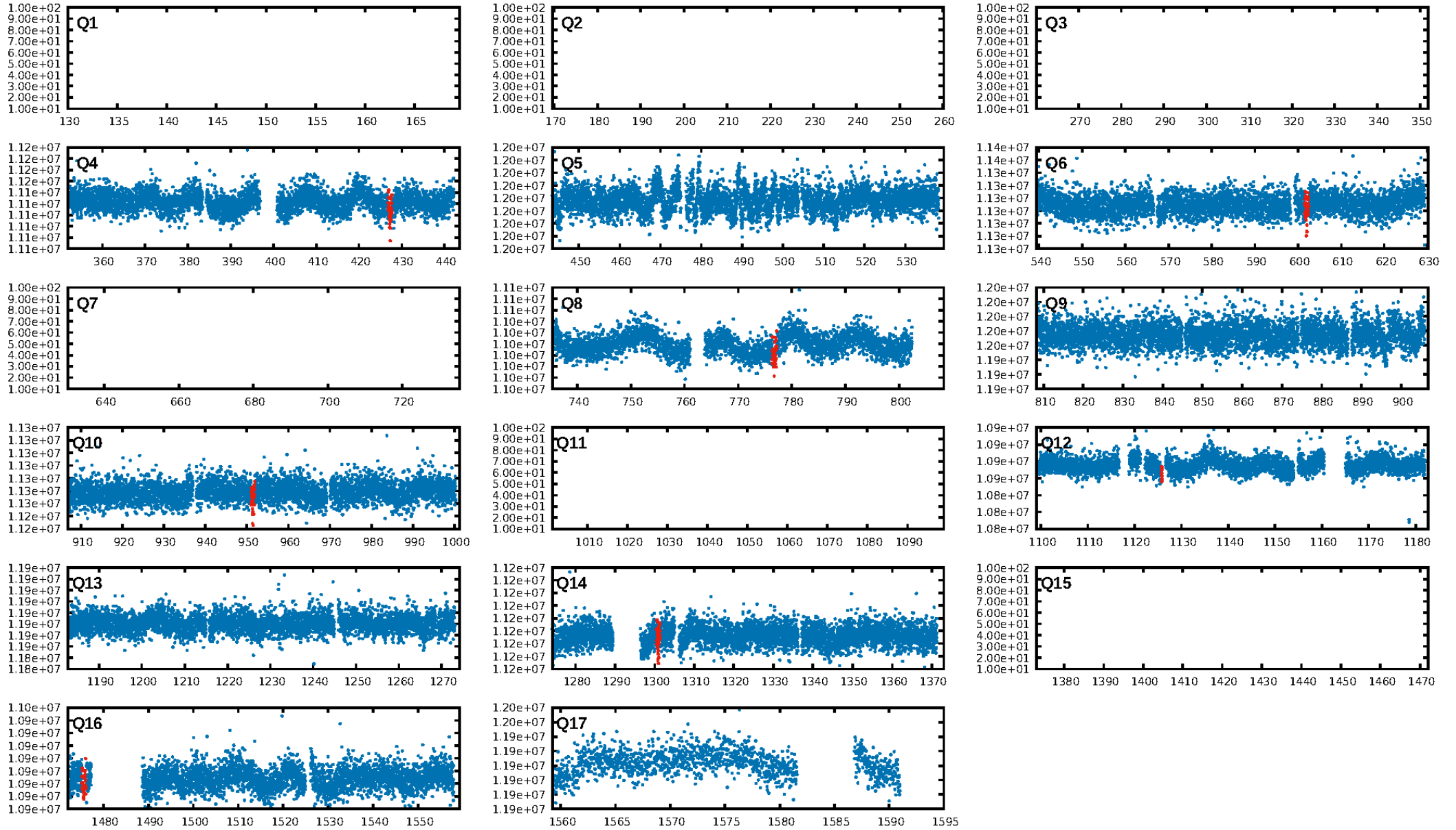
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.10e-35
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.613
Centroid-sig: 45.3%
Centroid-so: 0.980 arcsec [0.90σ]
OotOffset-rm: 0.614 arcsec [0.89σ]
KicOffset-rm: 0.727 arcsec [0.99σ]
OotOffset-st: 3/0/1/0 [4]
KicOffset-st: 3/0/1/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [5/5]

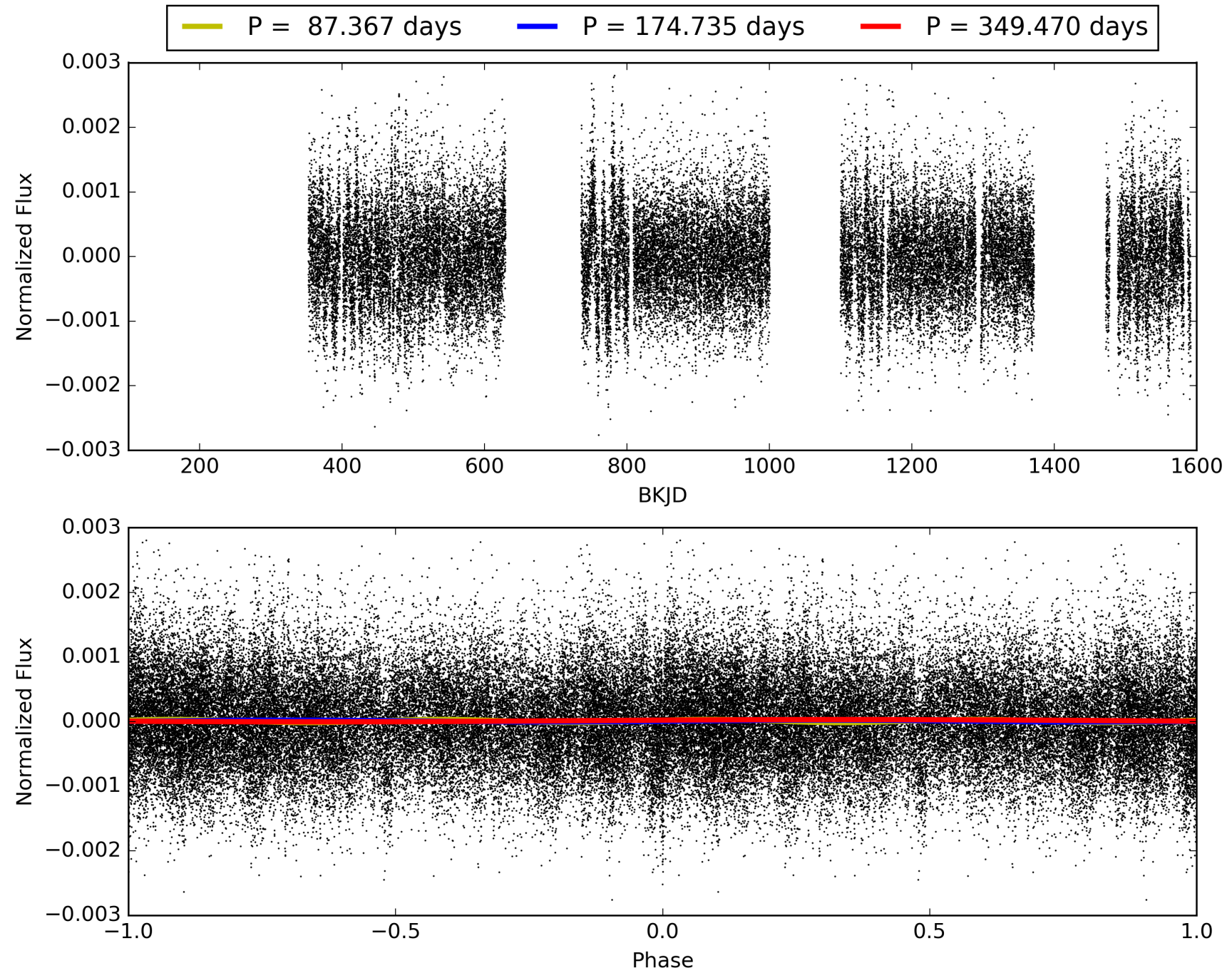
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:06:44 Z

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

TCE 010749059-01, PDC Light Curves

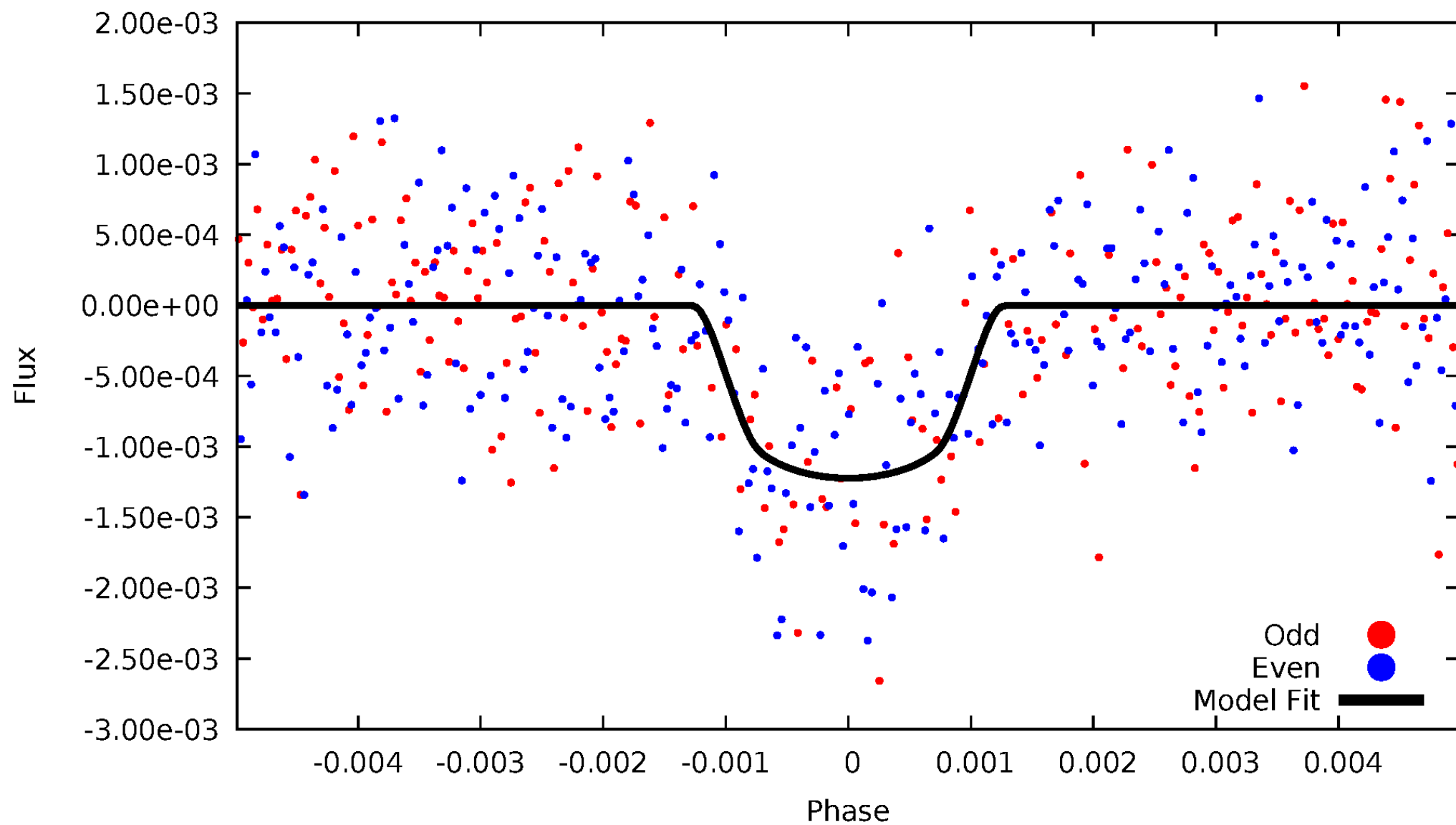


TCE 010749059-01



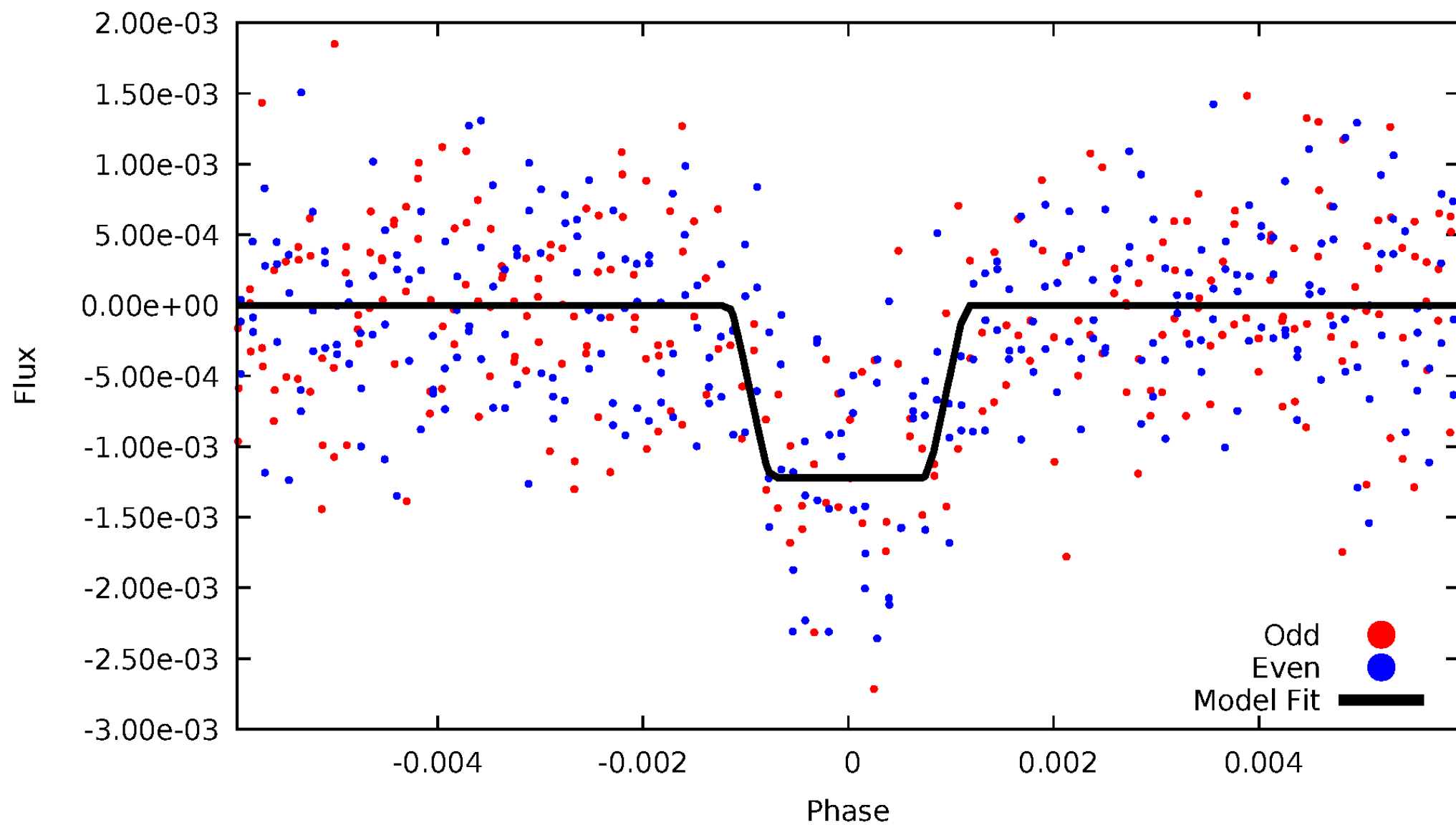
DV Odd/Even

TCE 010749059-01



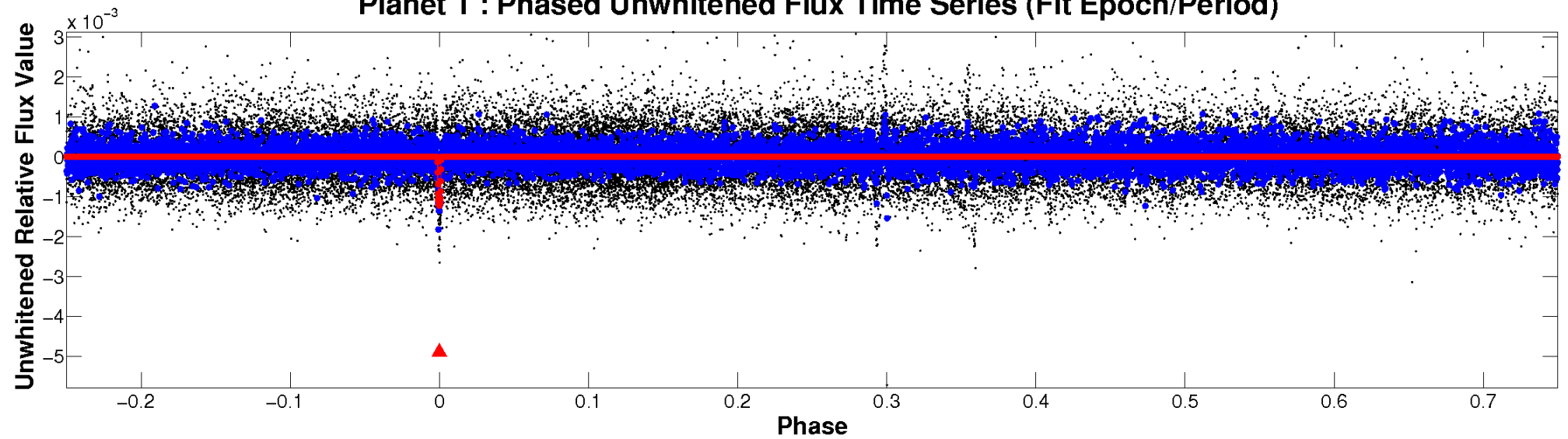
ALT Odd/Even

TCE 010749059-01

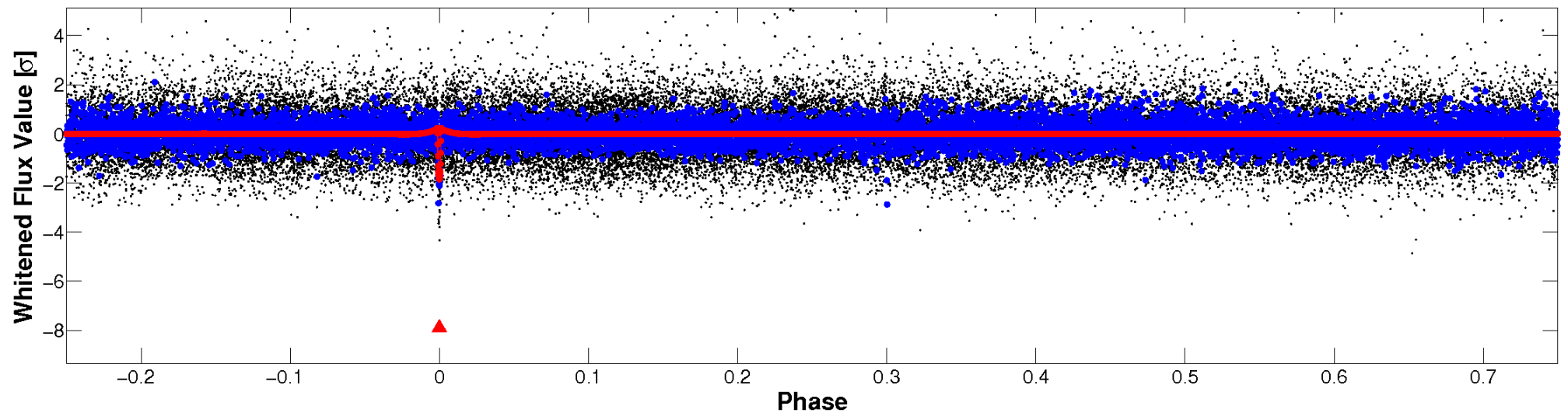


Non-Whitened Vs. Whitened Light Curve

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

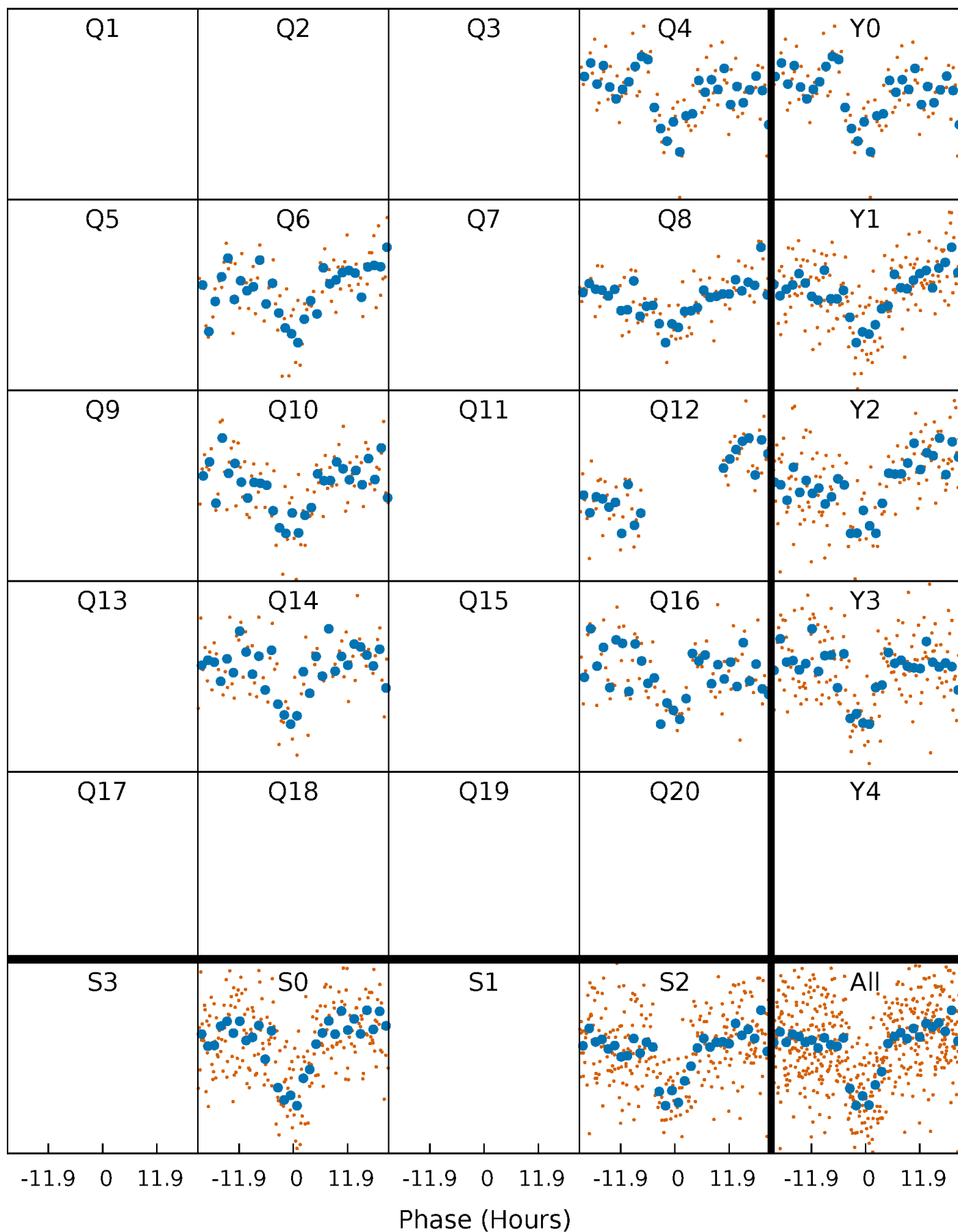


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



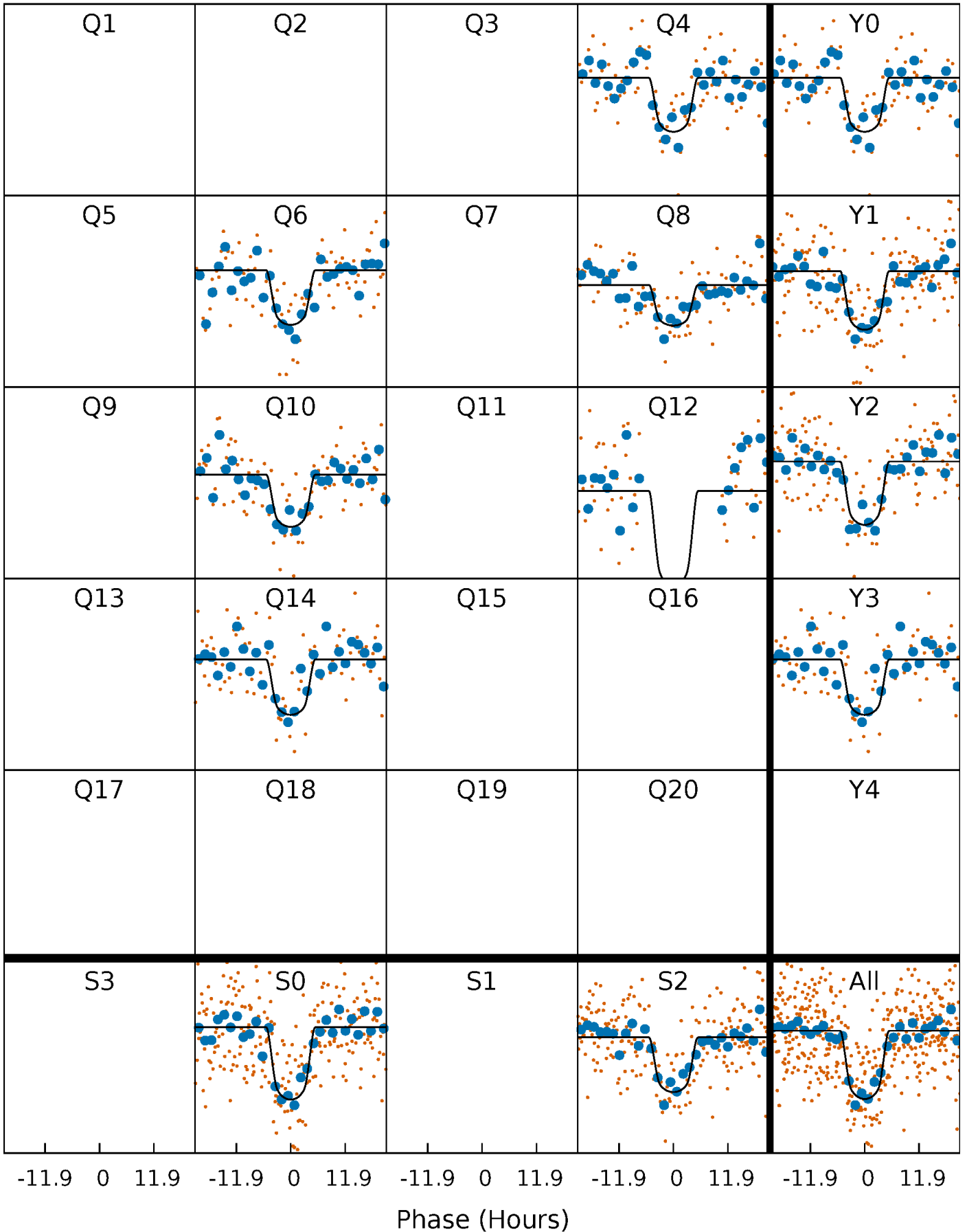
PDC Quarter-Phased Transit Curves

TCE 010749059-01 P=174.734765 Days $T_0=252.527151$ (BKJD)



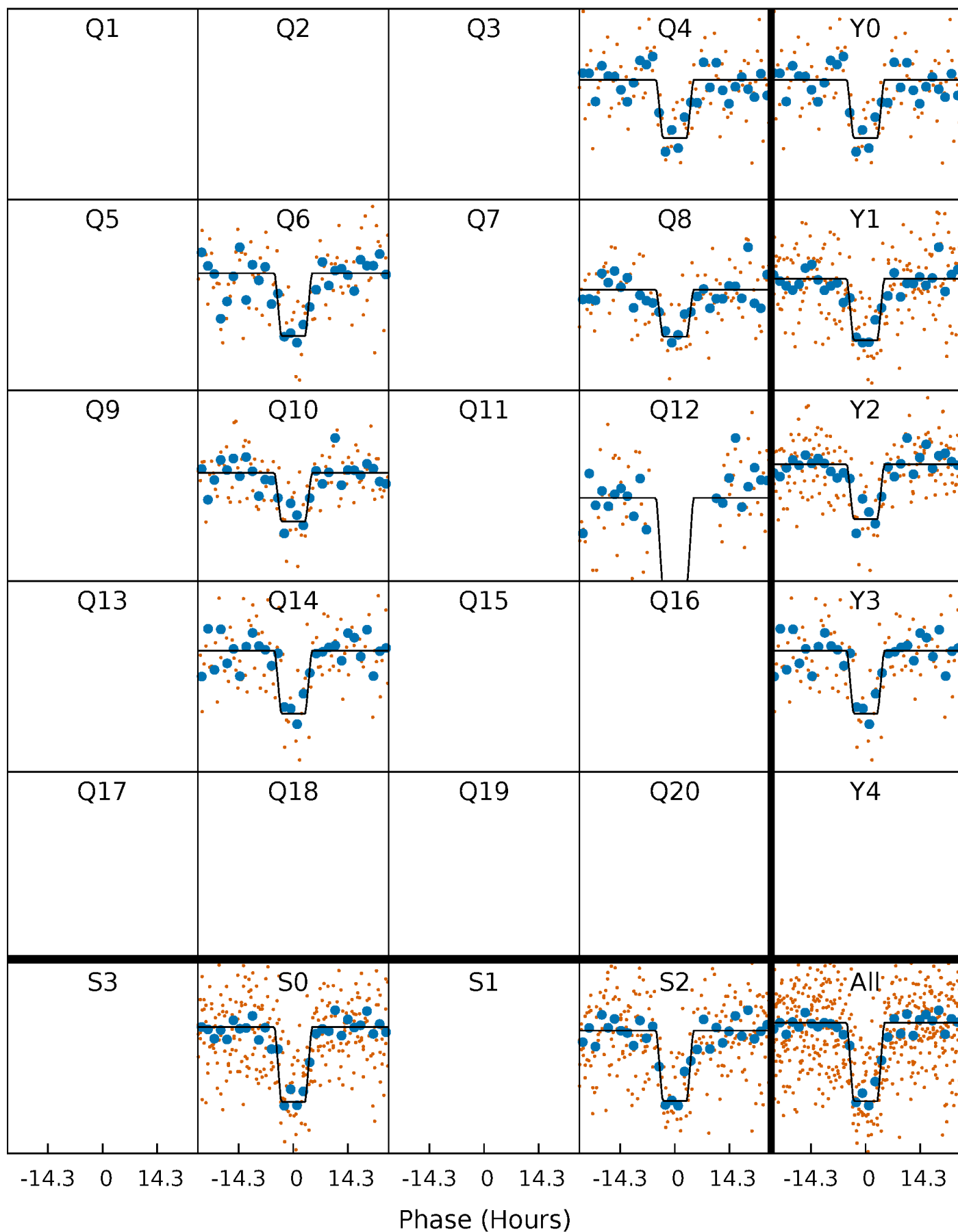
DV Quarter-Phased Transit Curves

TCE 010749059-01 P=174.734765 Days $T_0=252.527151$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

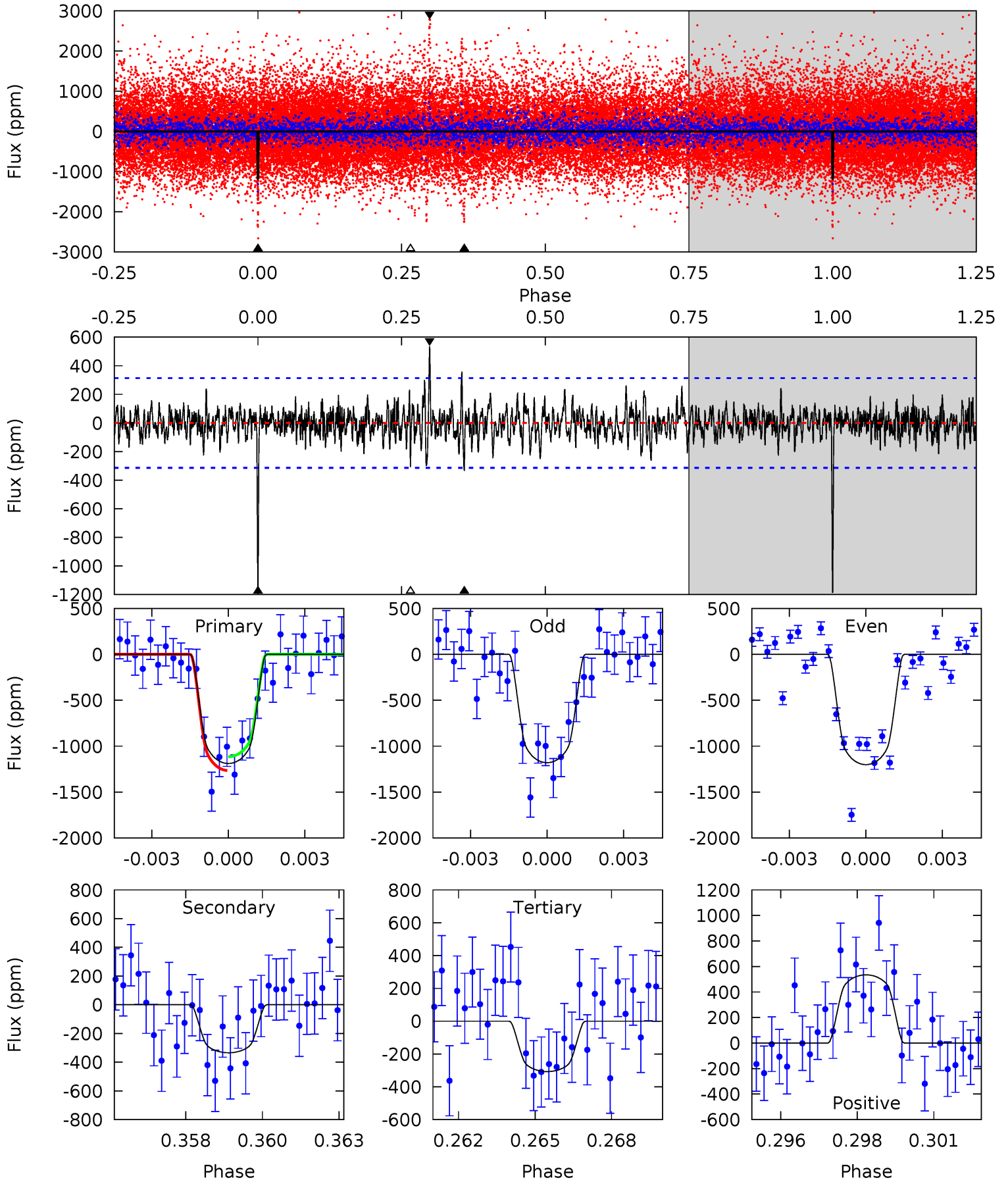
TCE 010749059-01 P=174.727372 Days $T_0=252.535202$ (BKJD)



DV Model-Shift Uniqueness Test

010749059-01, P = 174.734765 Days, E = 252.527151 Days

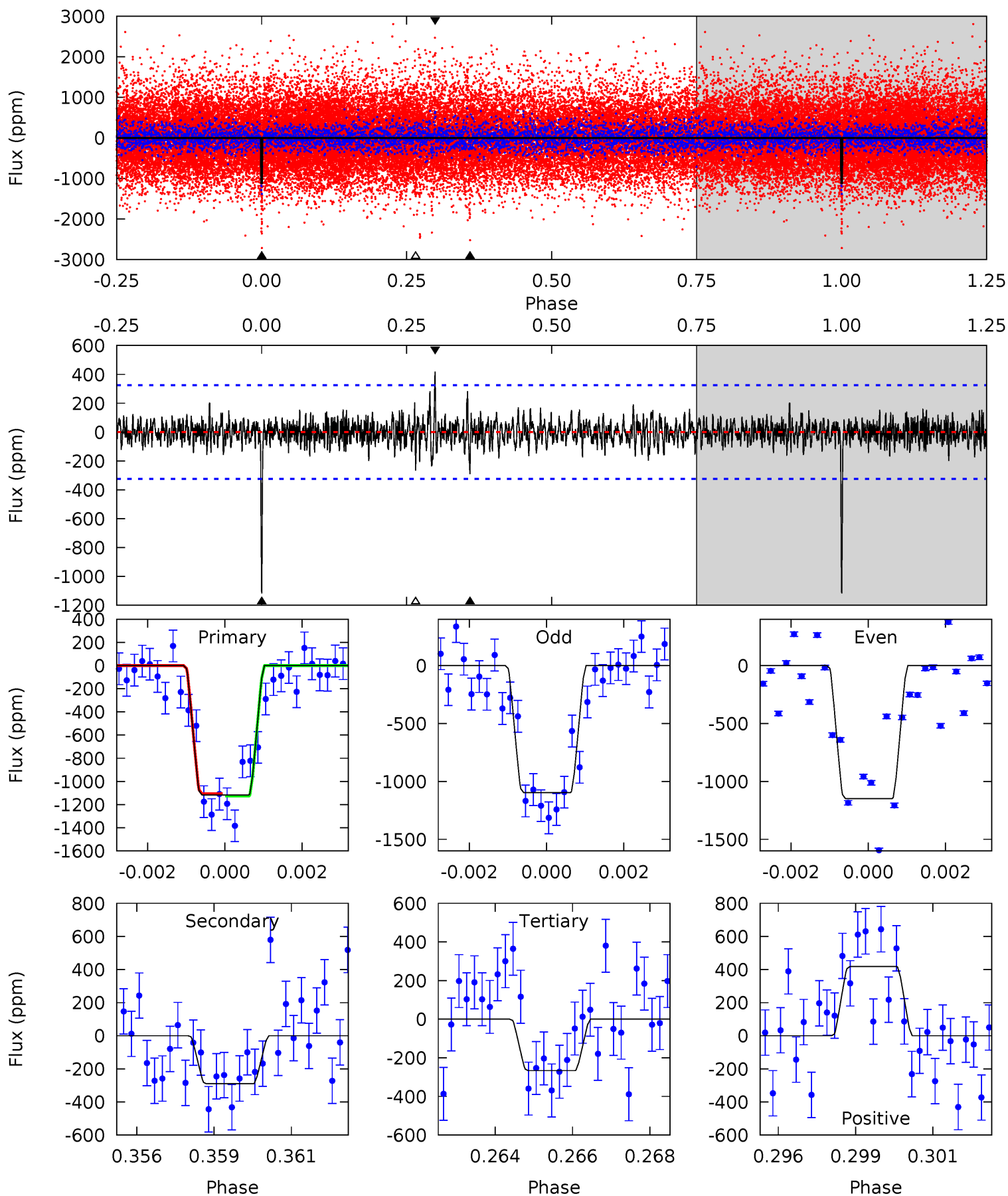
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.0 | 5.62 | 5.17 | 8.99 | 5.28 | 3.01 | 1.45 | 14.8 | 11.0 | 0.45 | -3.37 | 0.17 | 0.97 | 0.31 | 1.27 |



Alt Model-Shift Uniqueness Test

010749059-01, P = 174.727372 Days, E = 252.535202 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.2 | 4.74 | 4.35 | 6.82 | 5.30 | 3.05 | 1.08 | 13.9 | 11.4 | 0.39 | -2.08 | 0.41 | 0.97 | 0.27 | 0.16 |



Stellar Parameters For KIC 010749059

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5201^{+83}_{-83} | $4.447^{+0.098}_{-0.035}$ | $0.100^{+0.150}_{-0.150}$ | $0.897^{+0.051}_{-0.089}$ | $0.820^{+0.064}_{-0.032}$ | $1.602^{+0.651}_{-0.218}$ |
| | +2%/-2% | +2%/-1% | +150%/-150% | +6%/-10% | +8%/-4% | +41%/-14% |
| 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 010749059-01 / KOI 3086.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|----------------------|------------------------|
| DV | -334 ± 59 | $3.82^{+0.35}_{-0.37}$ | 398^{+10}_{-11} | 3859^{+177}_{-170} | 4137^{+1319}_{-922} |
| Alt. | -290 ± 61 | $3.39^{+0.36}_{-0.39}$ | 398^{+10}_{-12} | 3938^{+199}_{-213} | 4702^{+1648}_{-1280} |

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 $A_{obs} \gg 1.0$

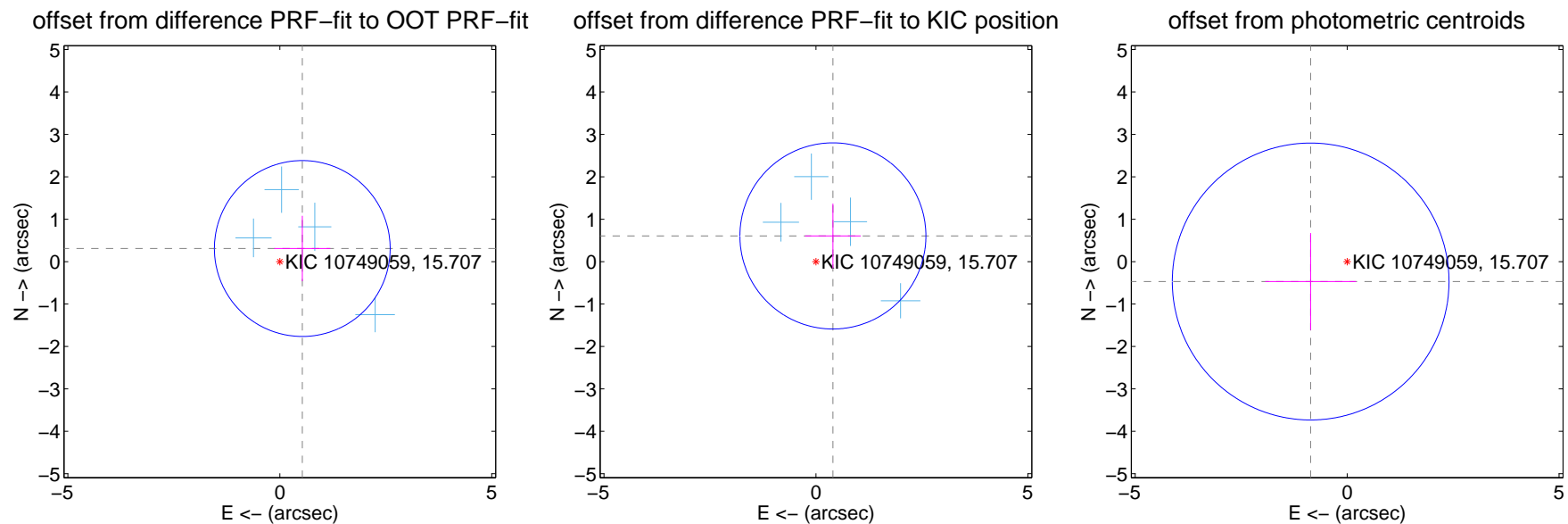
DV Centroid Data

Supplemental centroid analysis for 010749059-01. Kepler magnitude: 15.71. Transit SNR 14.37

There are 4 quarters with good PRF difference image offsets

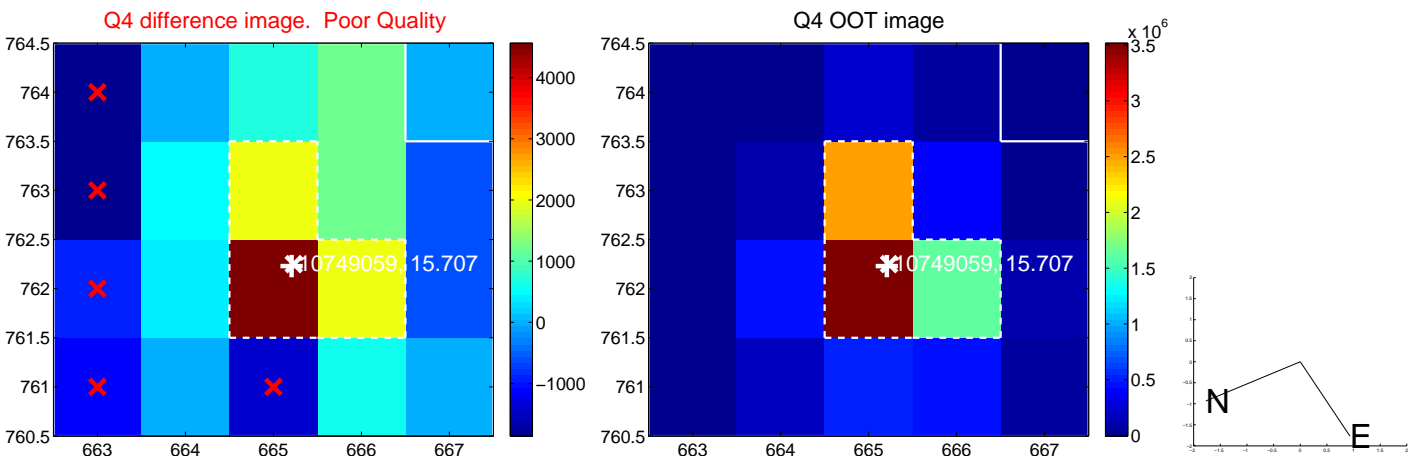
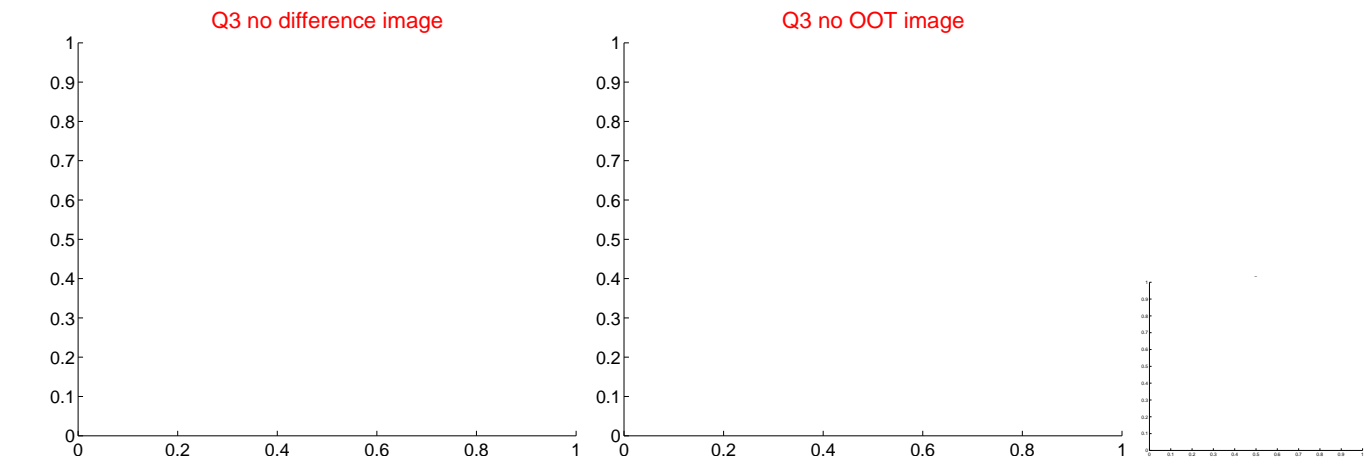
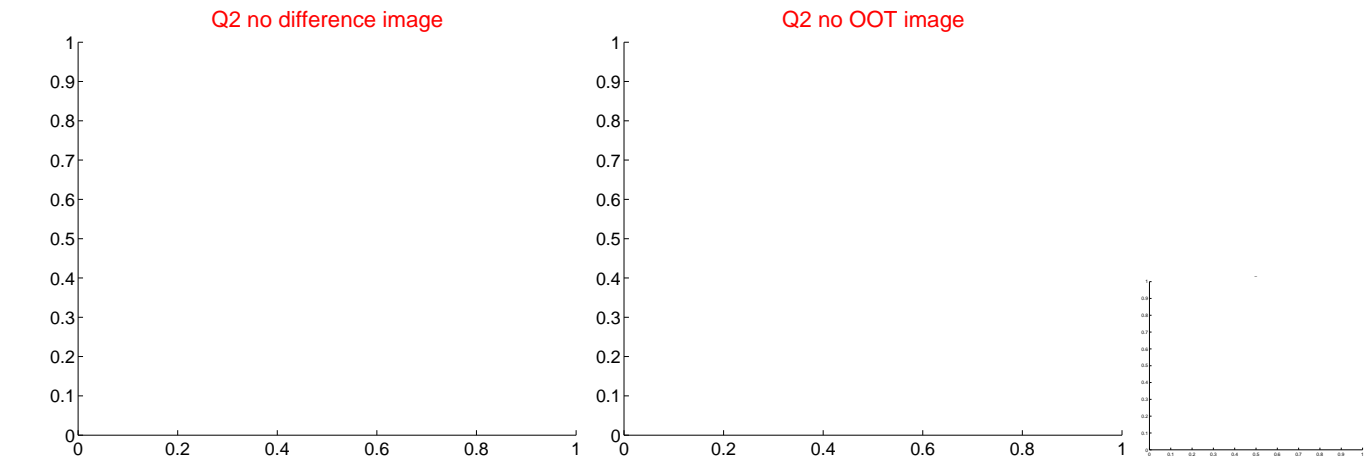
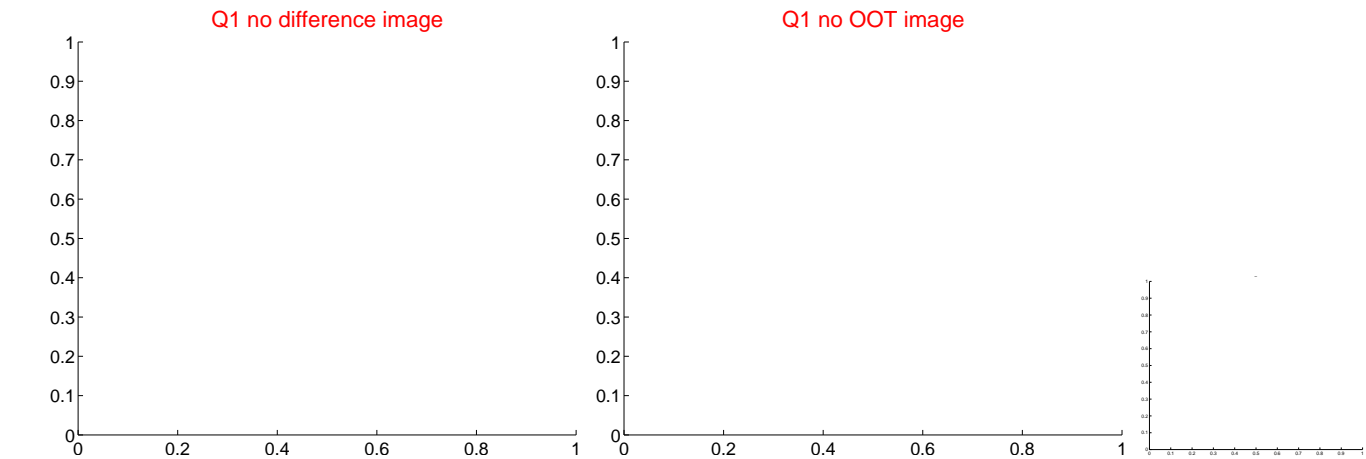
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.614 ± 0.691 | 0.89 | -0.530 ± 0.662 | 0.310 ± 0.771 |
| PRF-fit source offset from KIC position | 0.727 ± 0.732 | 0.99 | -0.401 ± 0.657 | 0.606 ± 0.762 |
| photometric centroid source offset | 0.98 ± 1.09 | 0.90 | 0.86 ± 1.07 | -0.47 ± 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 ×: 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.

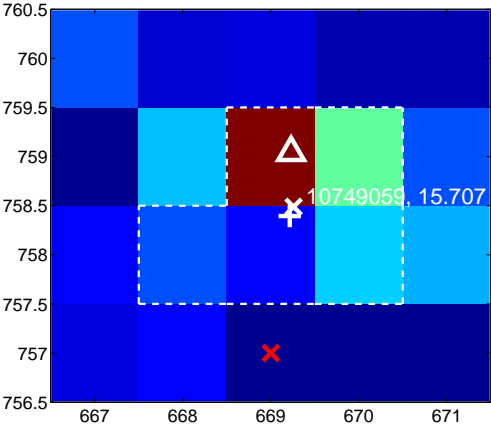
Q5 no difference image



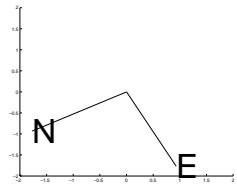
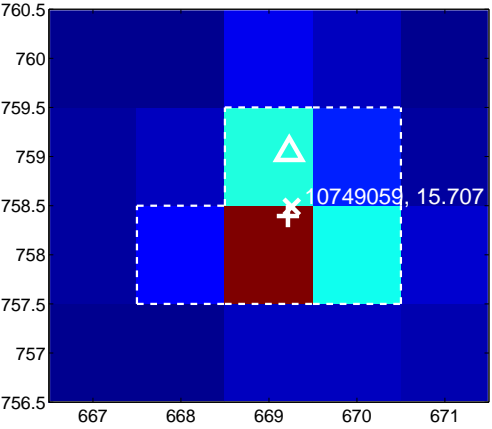
Q5 no OOT image



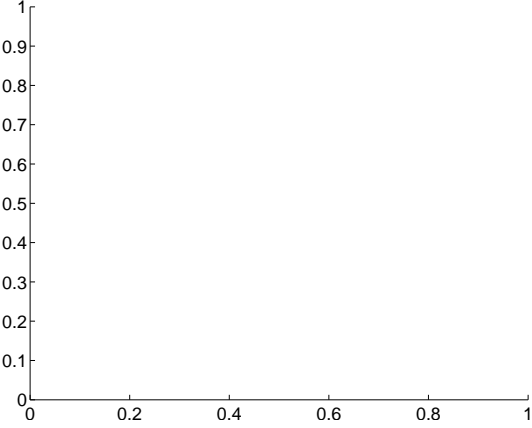
Q6 difference image



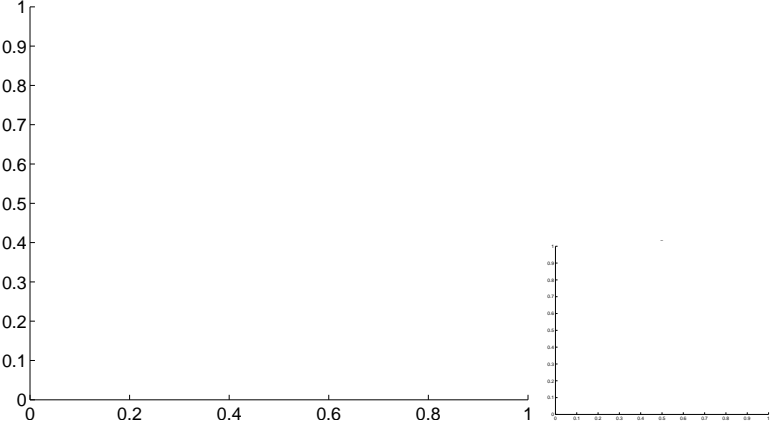
Q6 OOT image



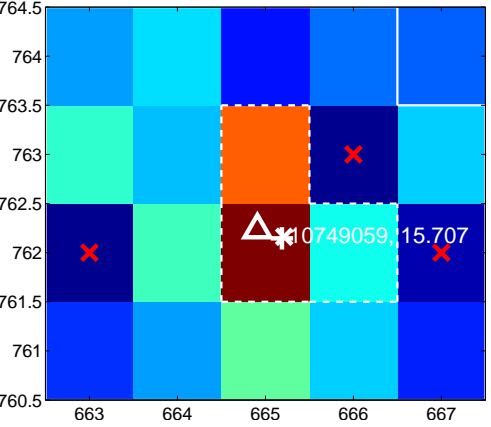
Q7 no difference image



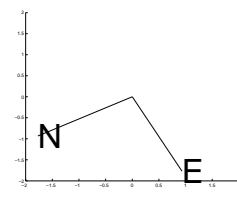
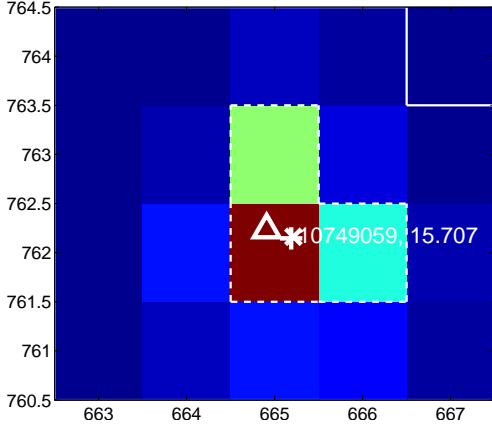
Q7 no OOT image



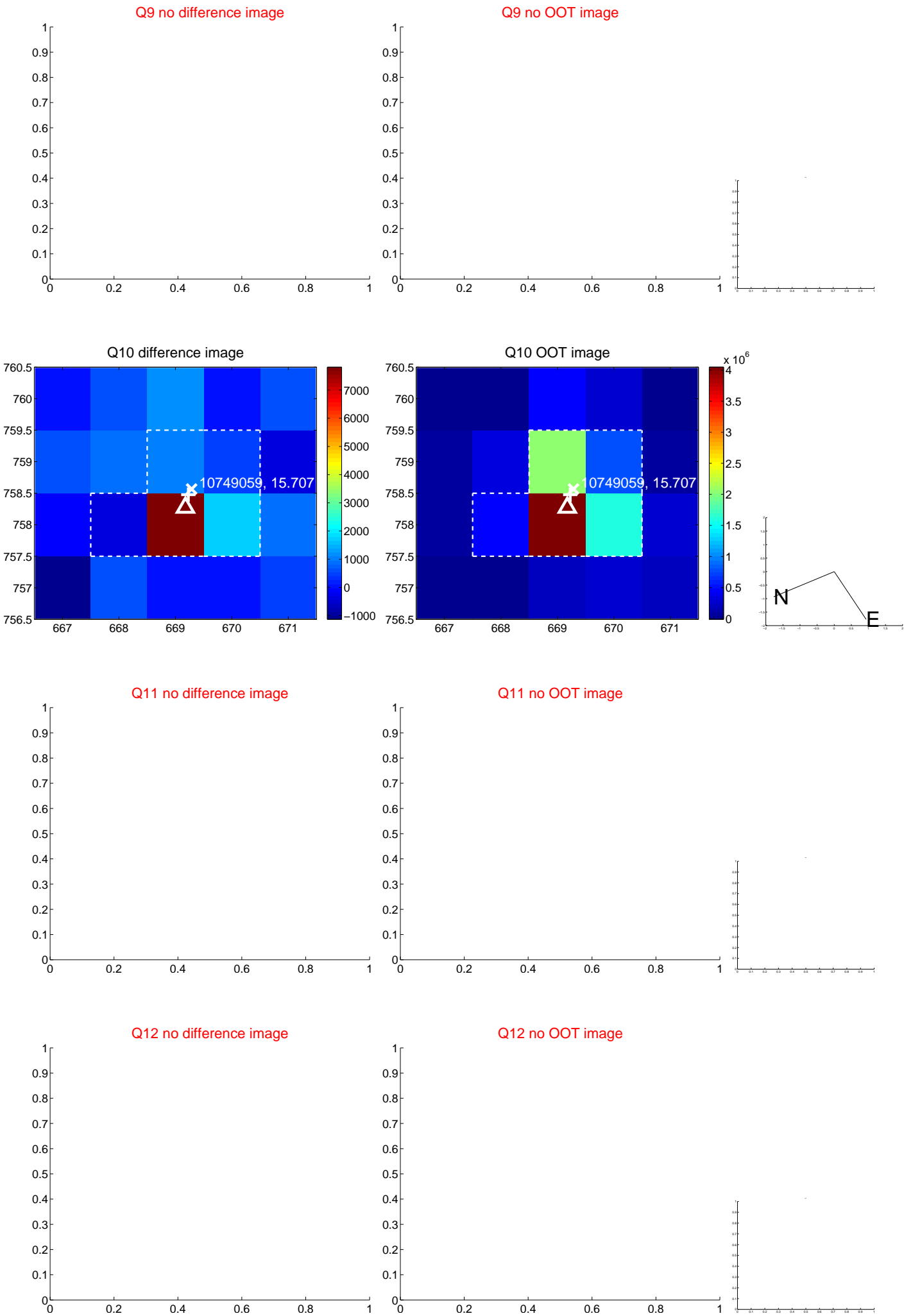
Q8 difference image



Q8 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.

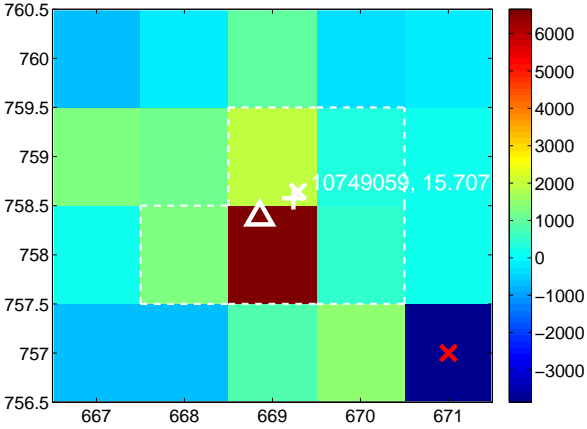
Q13 no difference image



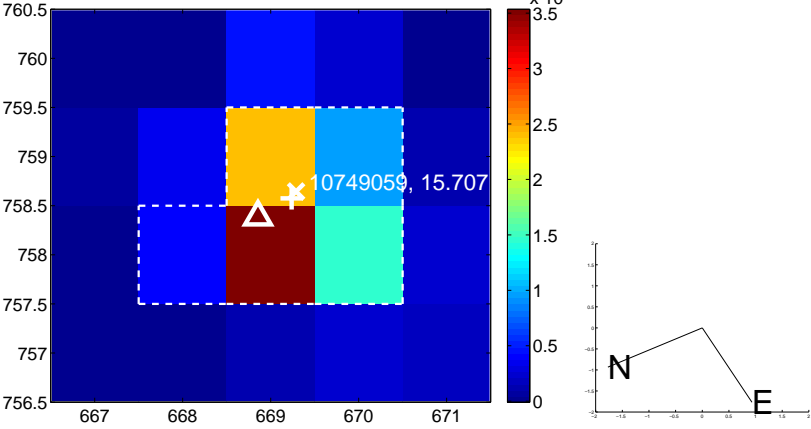
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



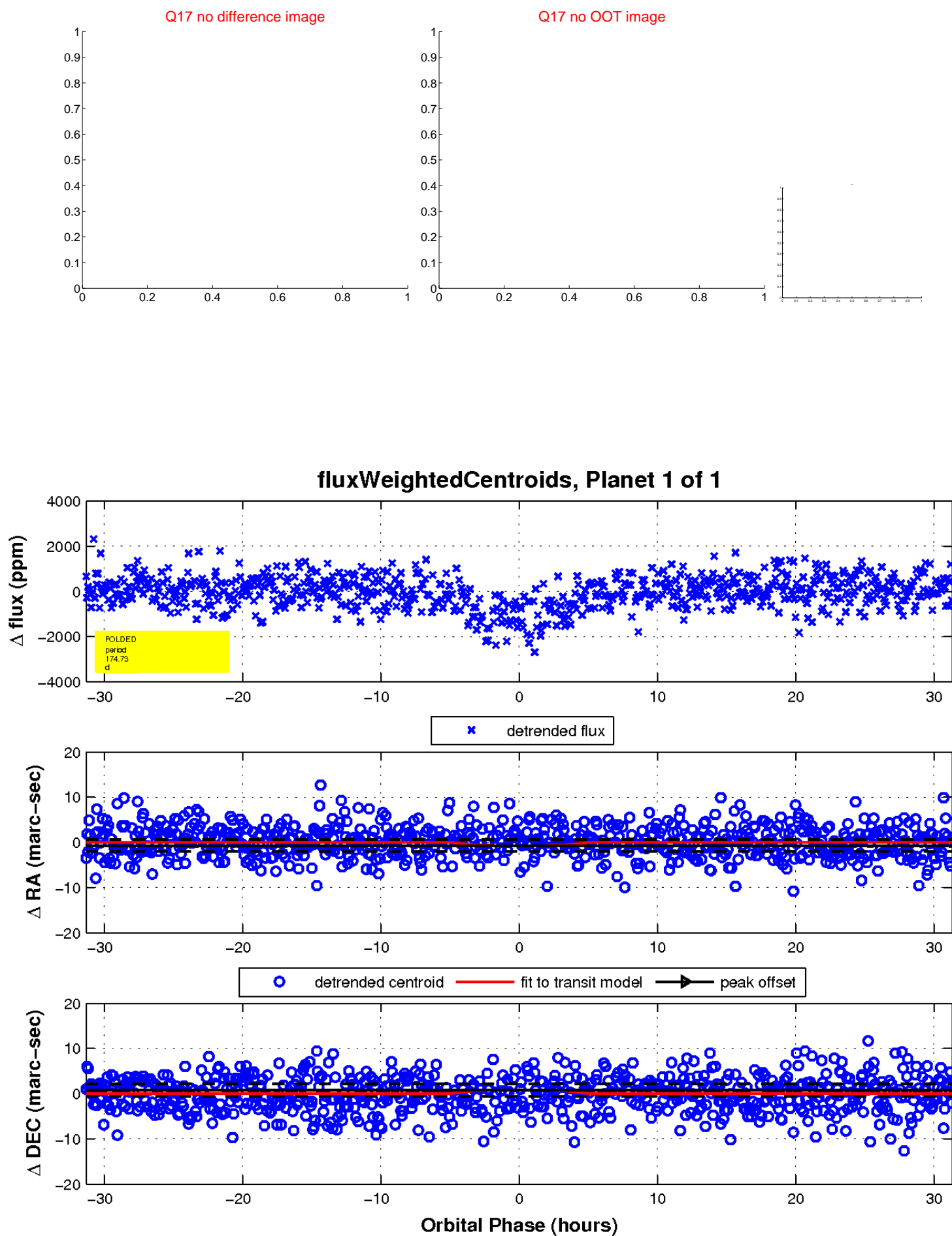
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

