

KIC 010074700

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 010074700-02 | OBS | No | 365.635723 | 417.157826 | 10796.8 | 46.112 | 97.8 | 214.3 | 4.78 | 5261 | 56.54 | 11.07 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------------------------------|
| 010074700-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

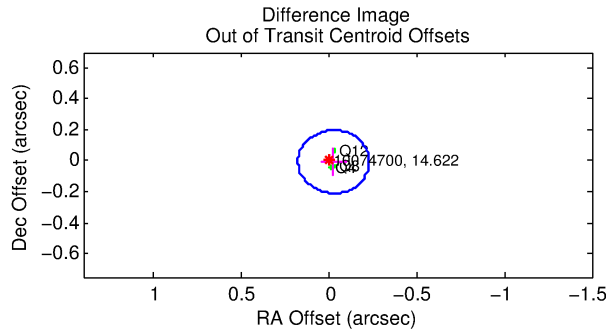
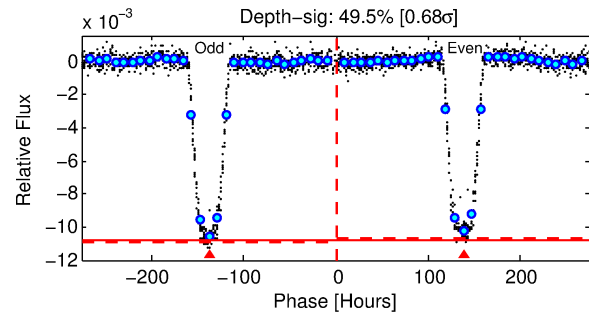
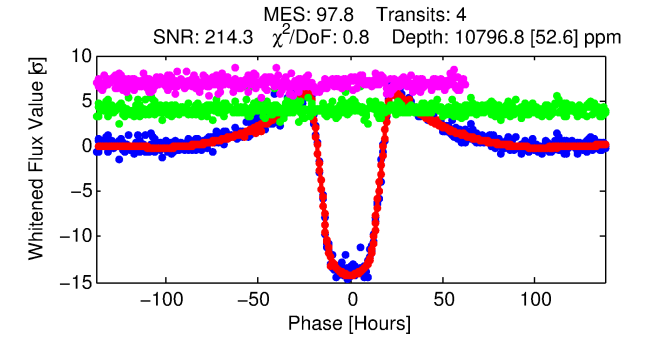
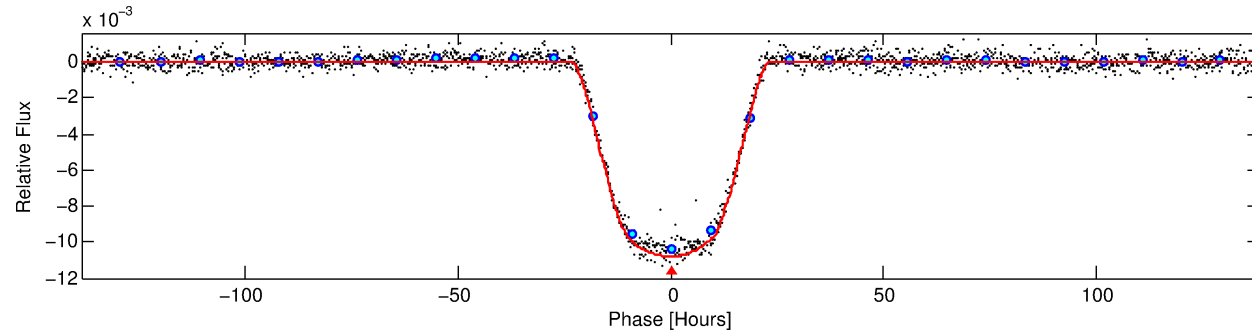
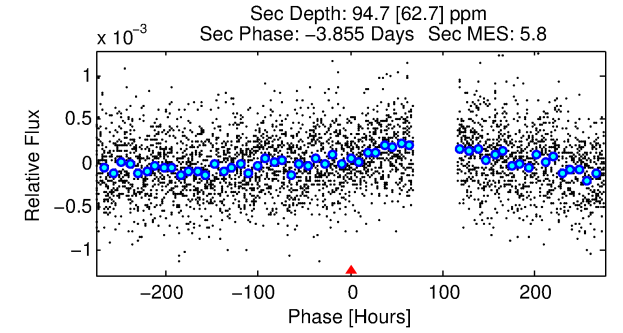
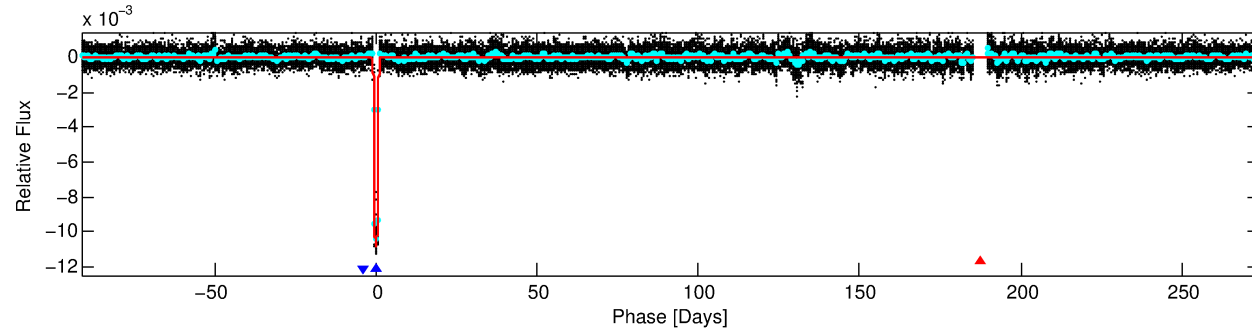
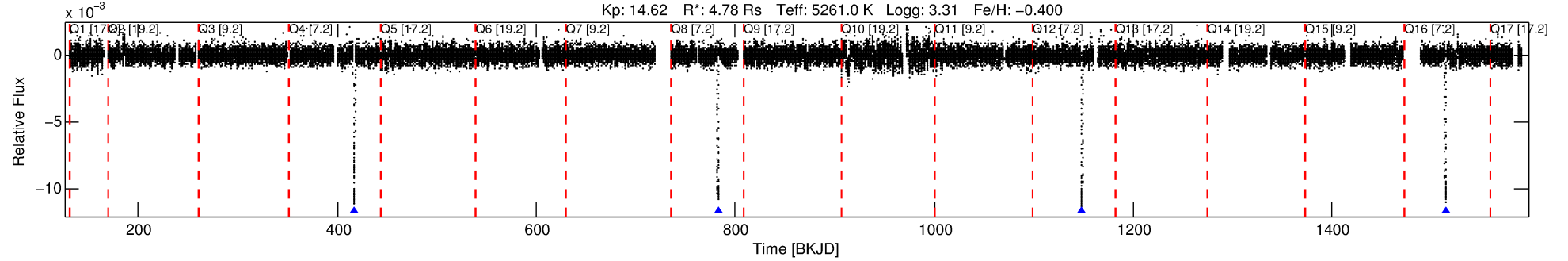
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010074700-02

No Significant Match Found

DV One-Page Summary

KIC: 10074700 Candidate: 2 of 2 Period: 365.636 d
KOI: K05760 Corr: No Ephemeris Match



DV Fit Results:

Period = 365.63572 [0.00163] d
Epoch = 417.1578 [0.0029] BKJD
Rp/R* = 0.1083 [0.0004]
a/R* = 44.58 [0.36]
b = 0.83 [0.00]
Seff = 11.07 [2.15]
Teq = 465 [23] K
Rp = 56.54 [12.34] Re
a = 1.1910 [0.1759] AU
Ag = 23.11 [15.72] [1.41 σ]
Teffp = 1577 [265] K [4.17 σ]

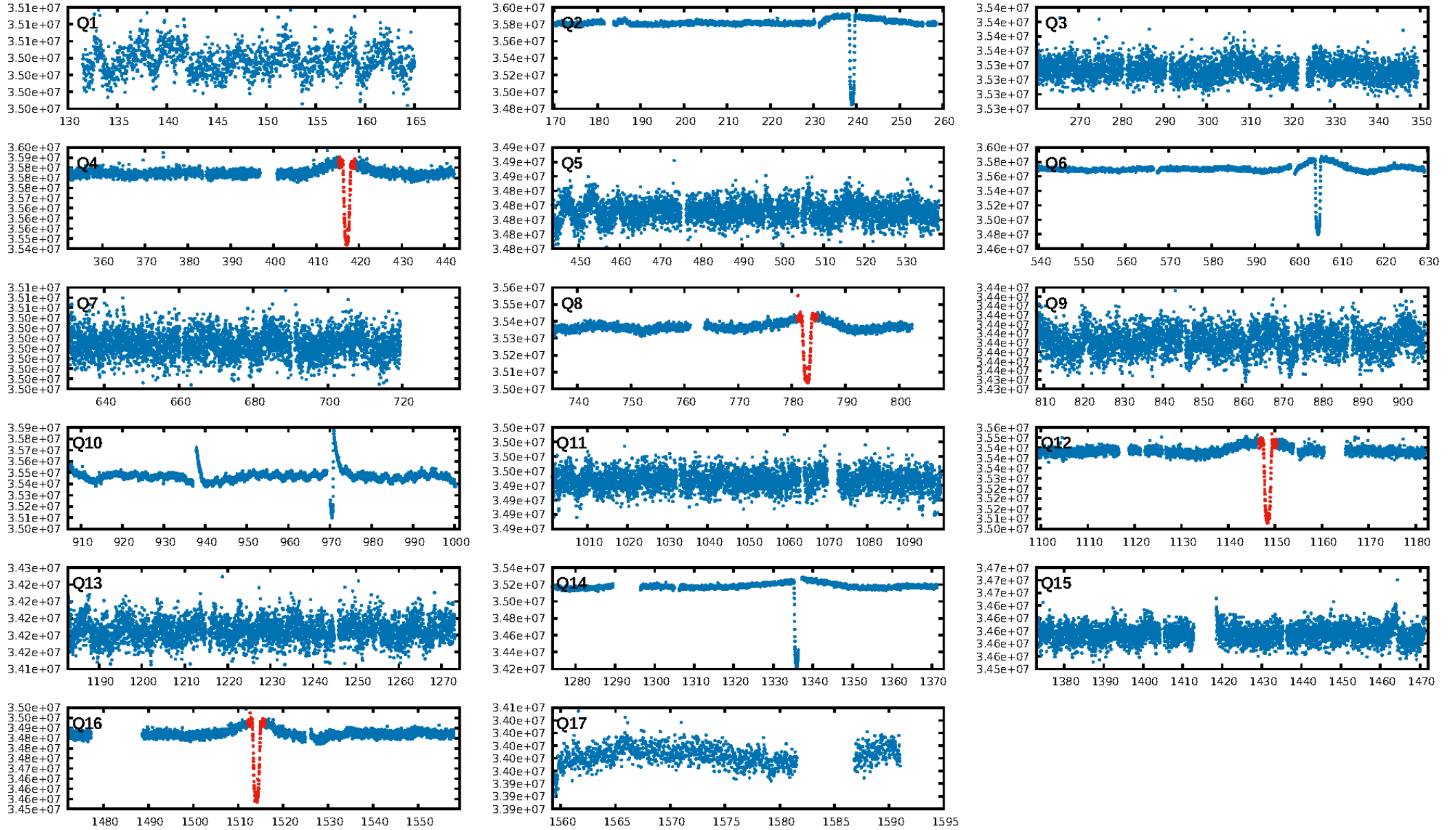
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 63.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.81
Centroid-sig: 0.0%
Centroid-so: 0.439 arcsec [12.59 σ]
OotOffset-rm: 0.028 arcsec [0.41 σ]
KicOffset-rm: 0.295 arcsec [4.33 σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

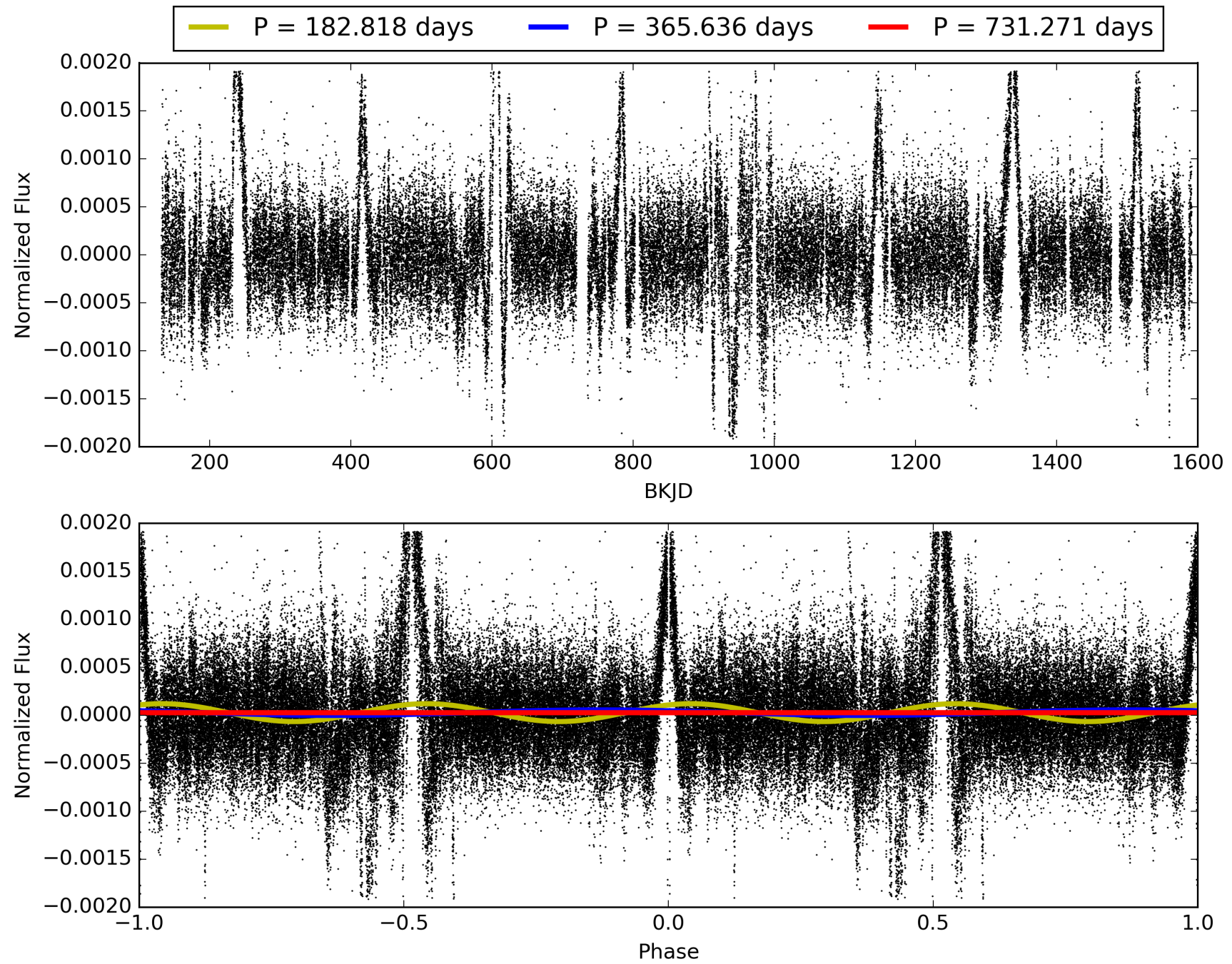
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:12:52 Z

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

TCE 010074700-02, PDC Light Curves

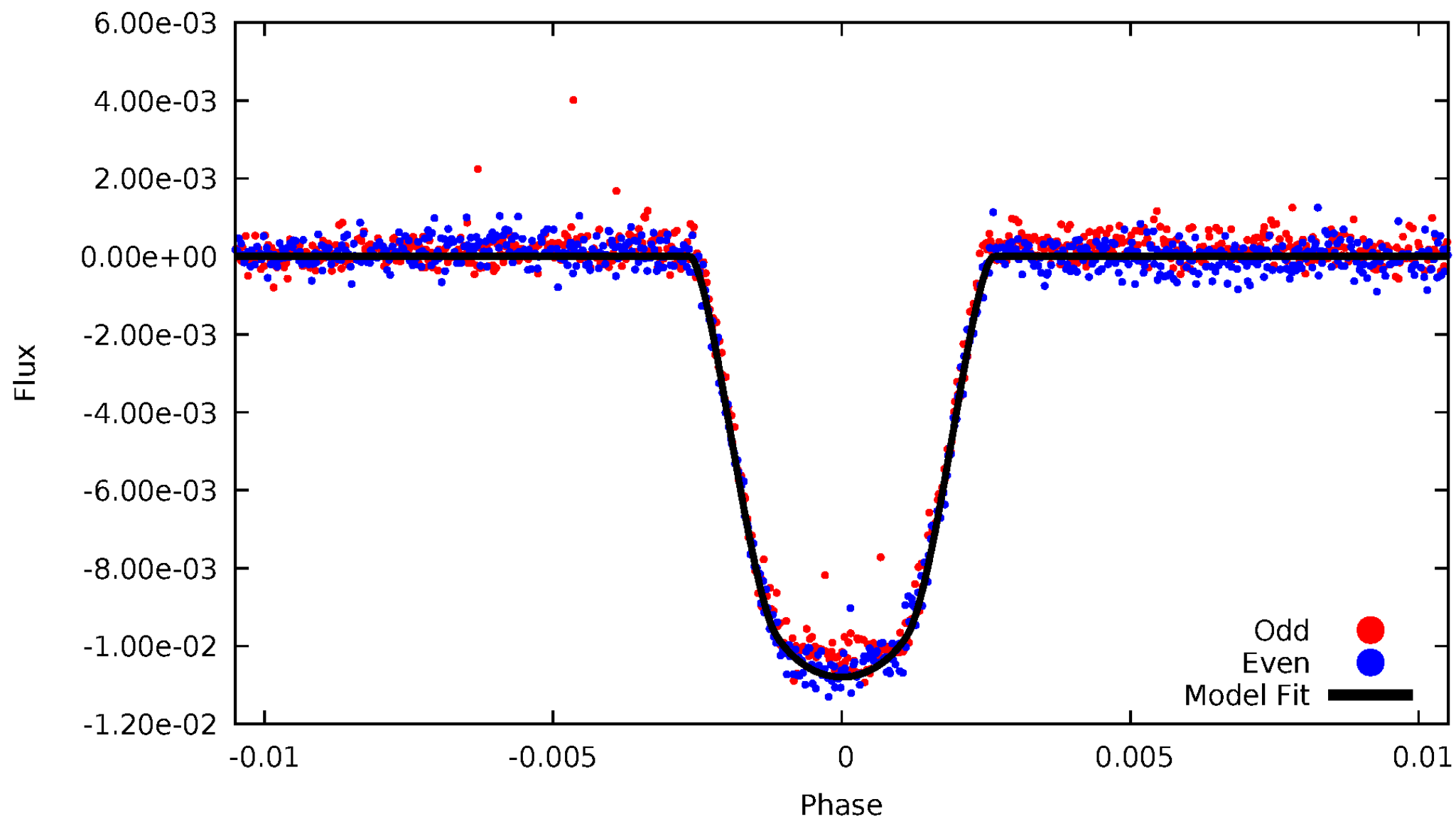


TCE 010074700-02



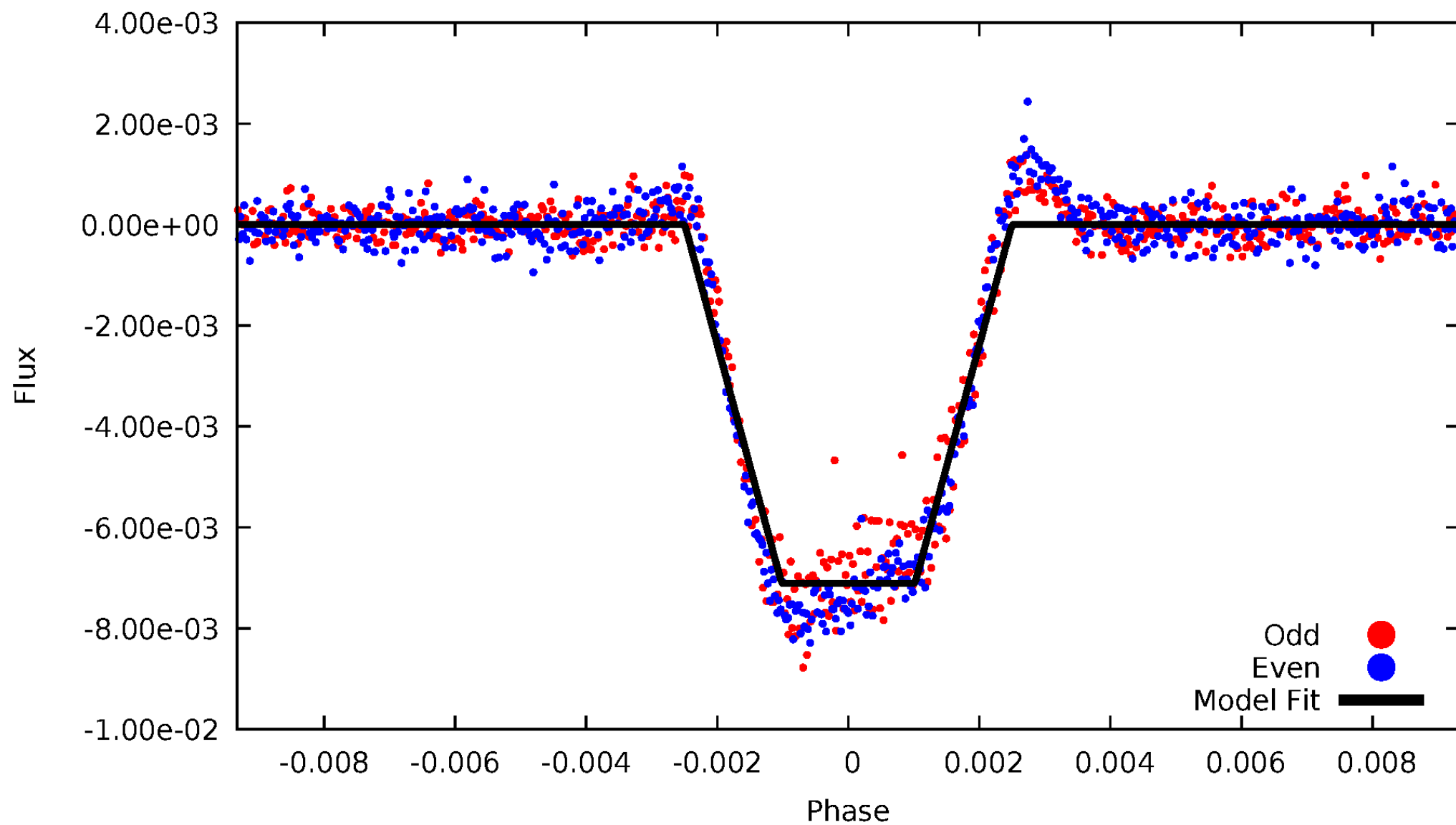
DV Odd/Even

TCE 010074700-02



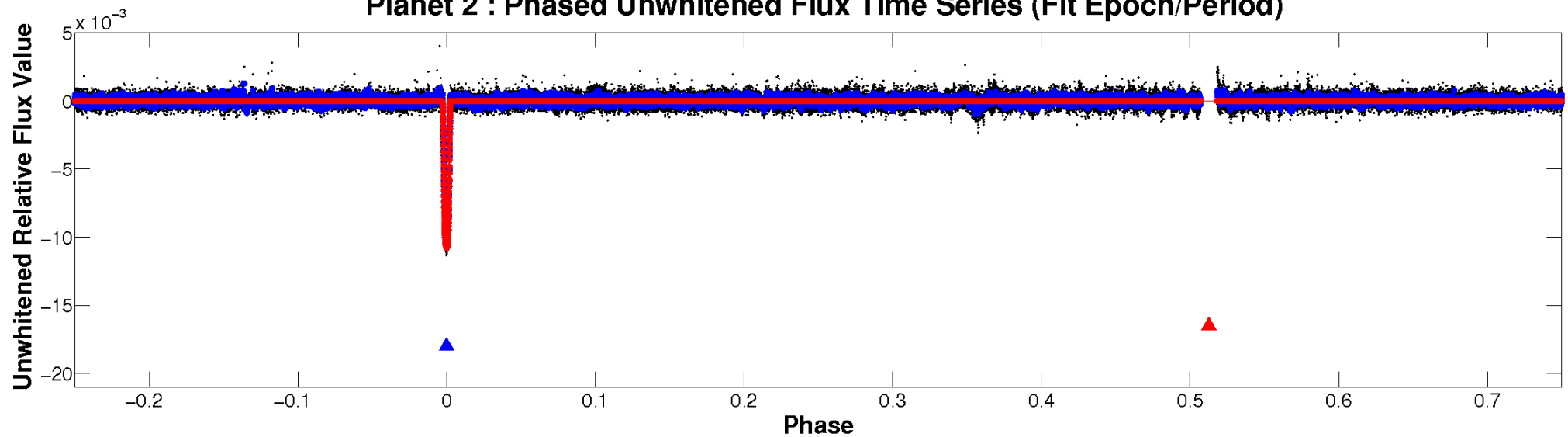
ALT Odd/Even

TCE 010074700-02

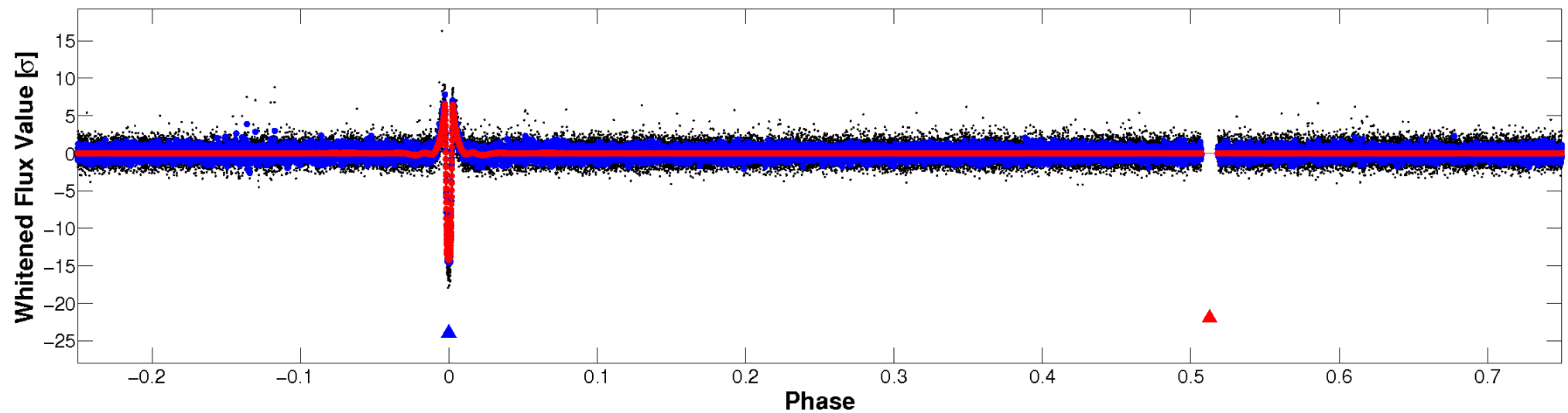


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

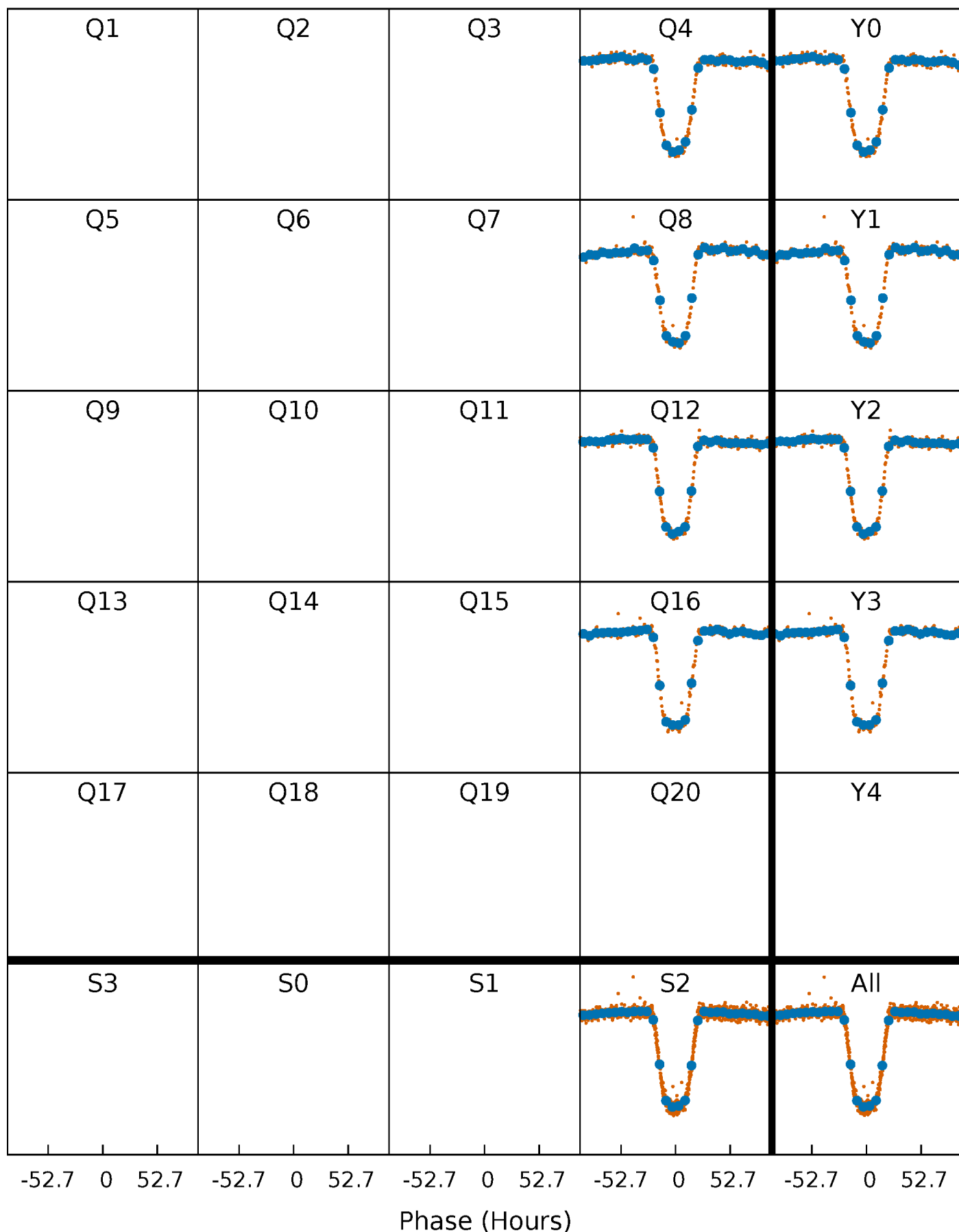


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



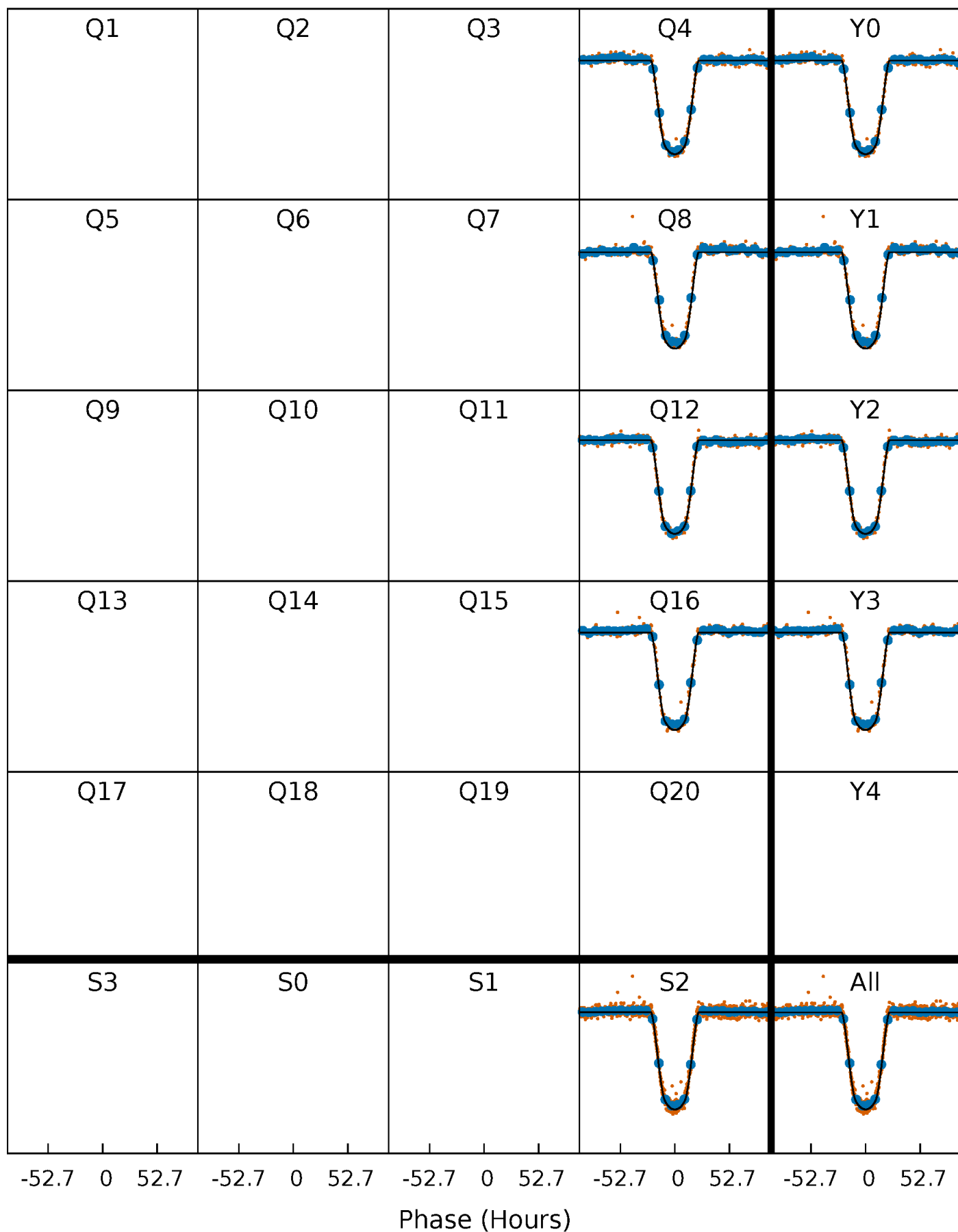
PDC Quarter-Phased Transit Curves

TCE 010074700-02 P=365.635723 Days $T_0=417.157826$ (BKJD)



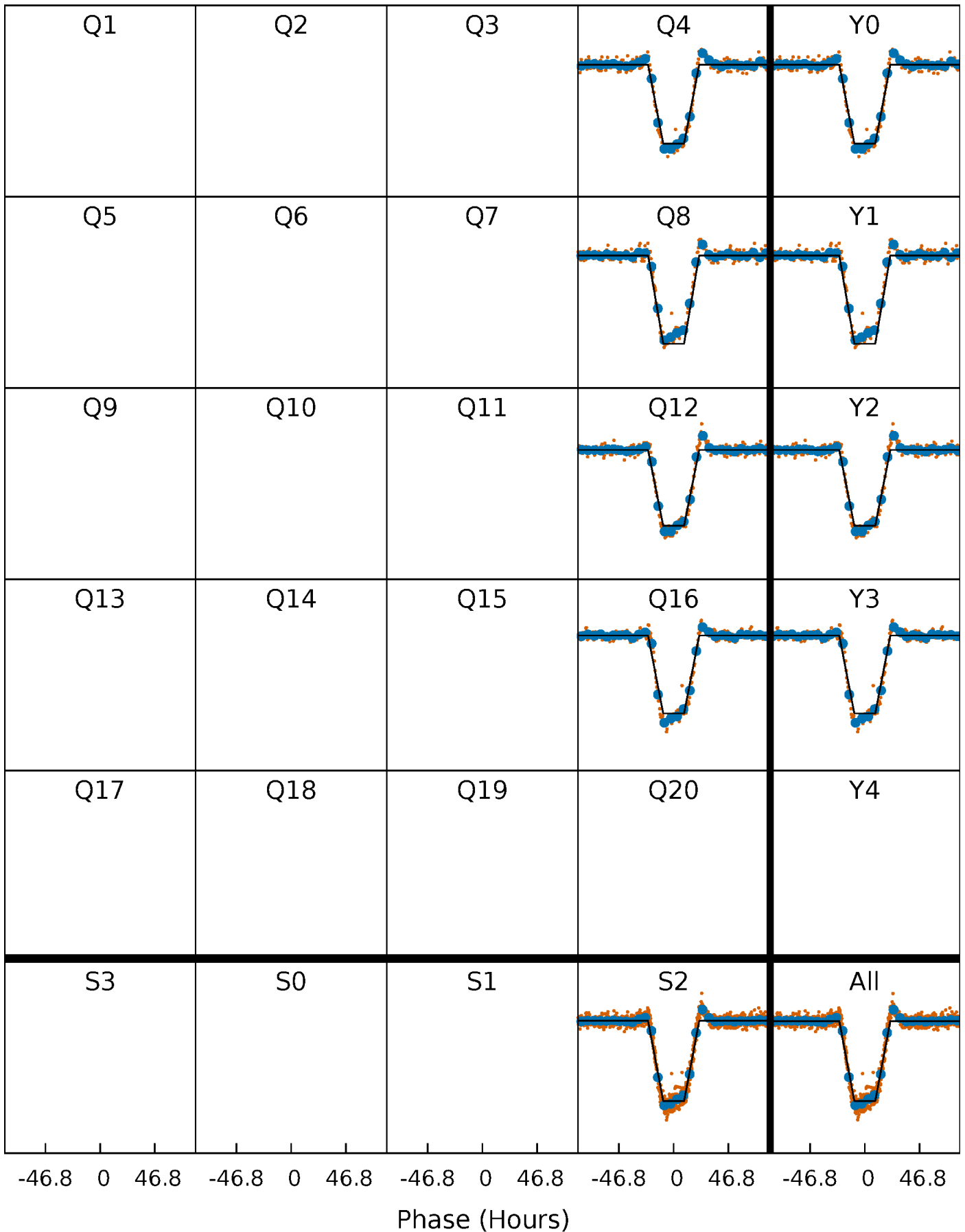
DV Quarter-Phased Transit Curves

TCE 010074700-02 $P=365.635723$ Days $T_0=417.157826$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

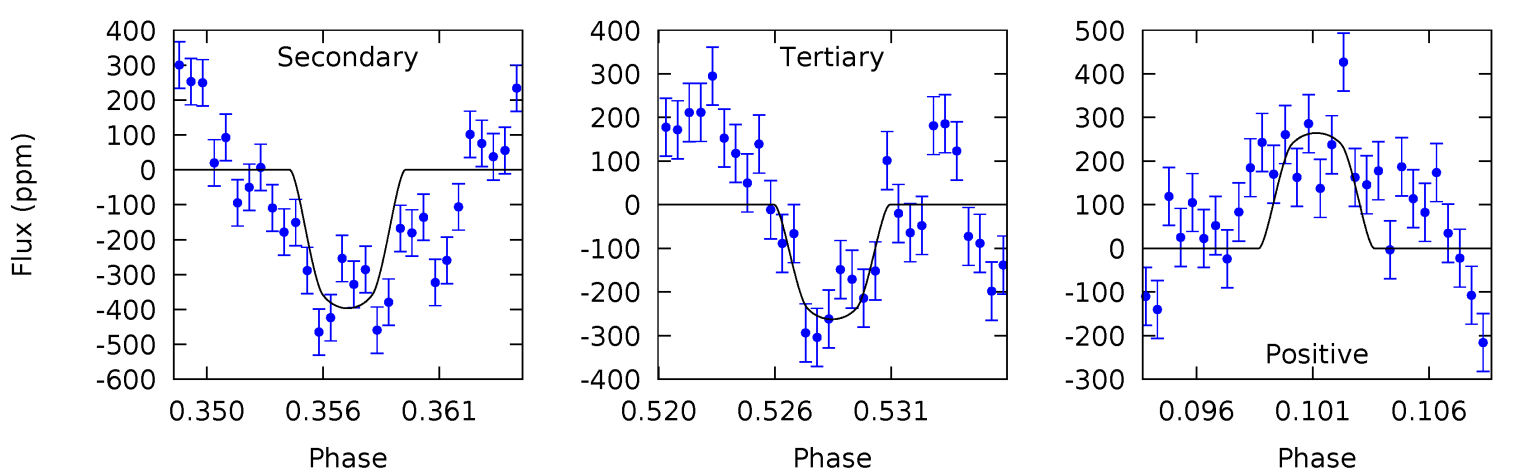
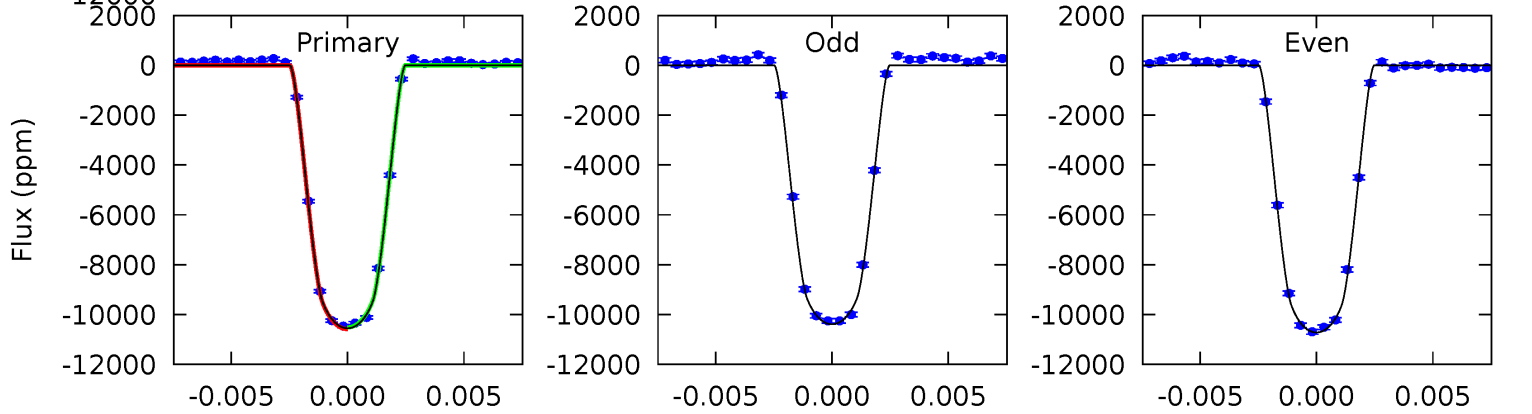
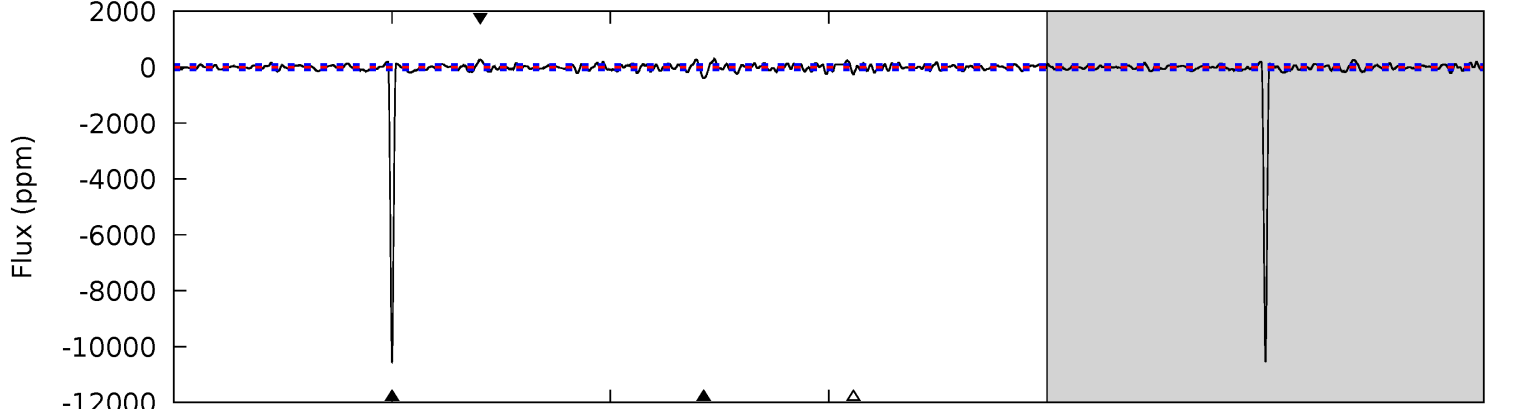
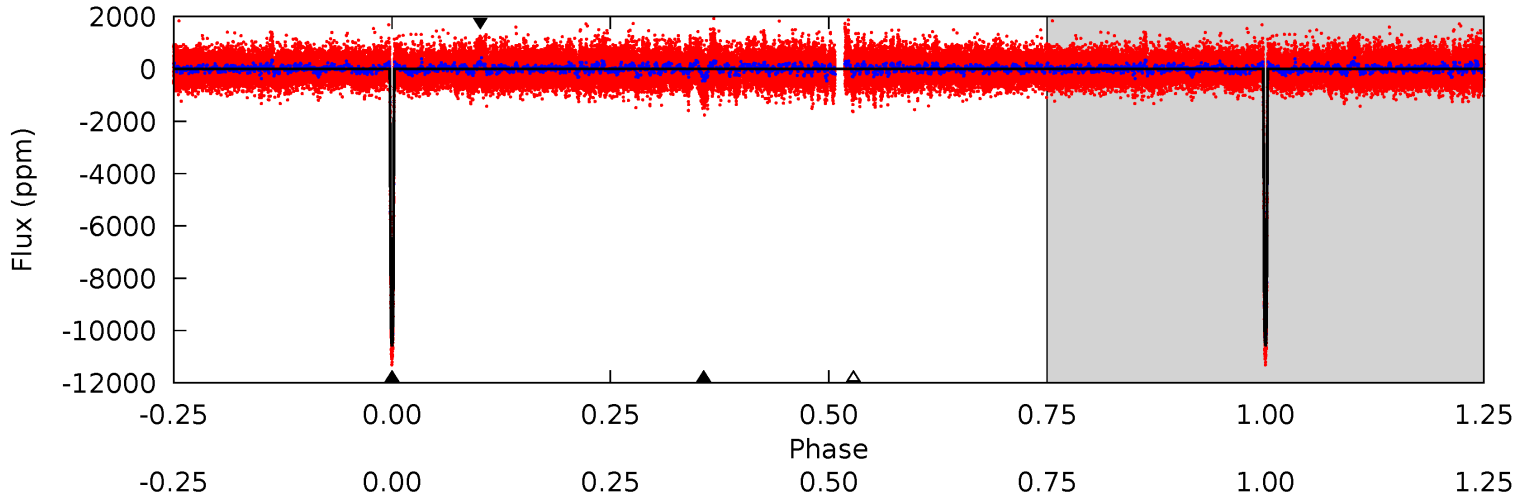
TCE 010074700-02 $P=365.624500$ Days $T_0=417.139046$ (BKJD)



DV Model-Shift Uniqueness Test

010074700-02, P = 365.635723 Days, E = 51.522103 Days

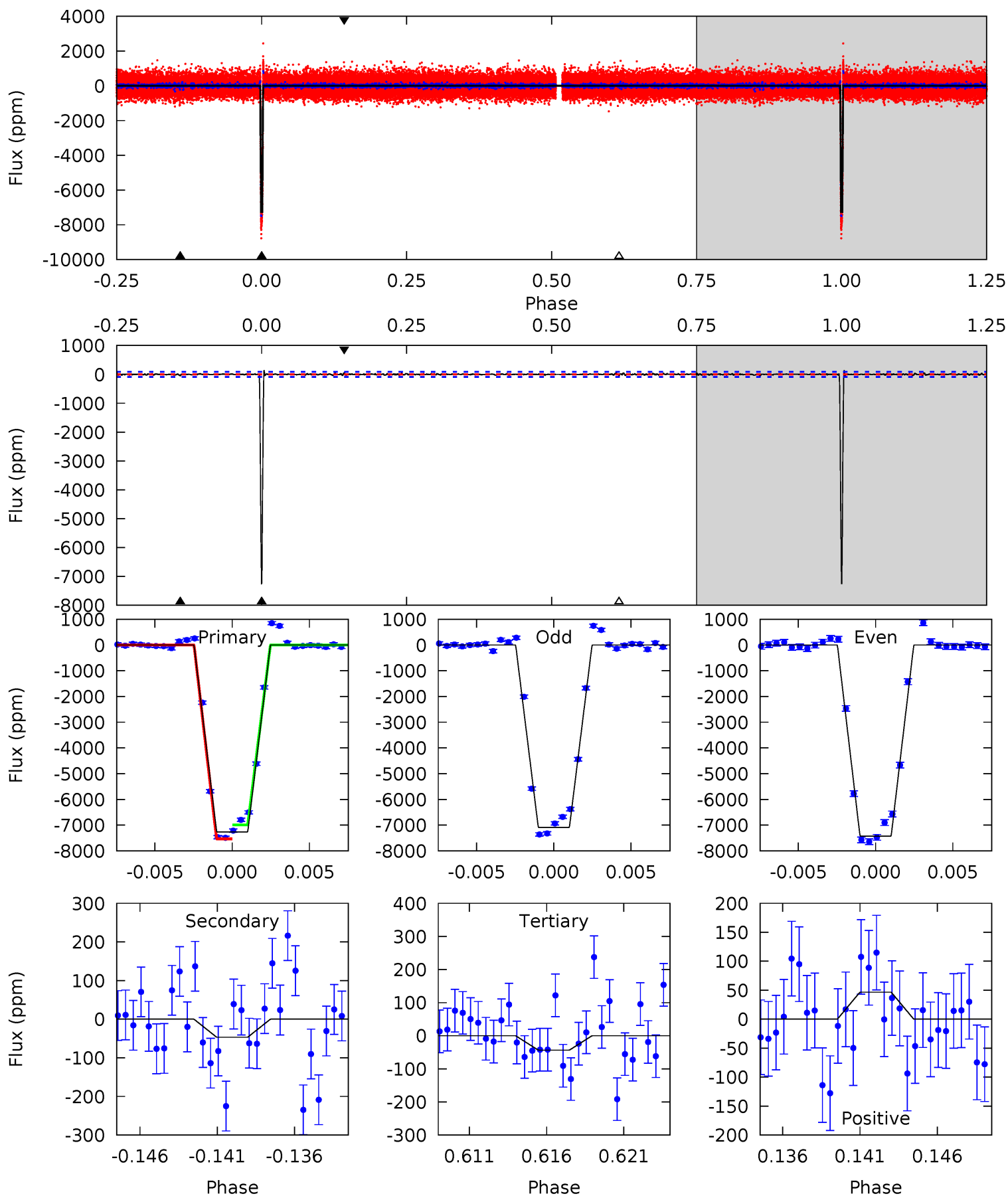
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 545.4 | 20.5 | 13.6 | 13.7 | 5.15 | 2.79 | 4.45 | 531.8 | 531.7 | 6.93 | 6.84 | 8.52 | 1.00 | 0.03 | 1.85 |



Alt Model-Shift Uniqueness Test

010074700-02, P = 365.624500 Days, E = 51.514546 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 419.1 | 2.69 | 2.50 | 2.70 | 5.16 | 2.80 | 0.61 | 416.6 | 416.4 | 0.19 | -0.00 | 9.83 | 0.97 | 0.02 | 15.7 |



Stellar Parameters For KIC 010074700

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5261^{+91}_{-156} | $3.305^{+0.027}_{-0.033}$ | $-0.400^{+0.150}_{-0.300}$ | $4.784^{+0.278}_{-1.044}$ | $1.685^{+0.217}_{-0.651}$ | $0.022^{+0.007}_{-0.002}$ |
| | +2%/-3% | +1%/-1% | +37%/-75% | +6%/-22% | +13%/-39% | +32%/-9% |
| Source | PHO1 | AST71 | 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 010074700-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|-------------------------|----------------------|----------------------|------------------|
| DV | -397 ± 19 | $58.12^{+1.92}_{-4.13}$ | 651^{+16}_{-22} | 2926^{+42}_{-55} | 95^{+8}_{-7} |
| Alt. | -47 ± 17 | $45.26^{+1.57}_{-2.64}$ | 650^{+17}_{-22} | 2364^{+99}_{-127} | 18^{+8}_{-7} |

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

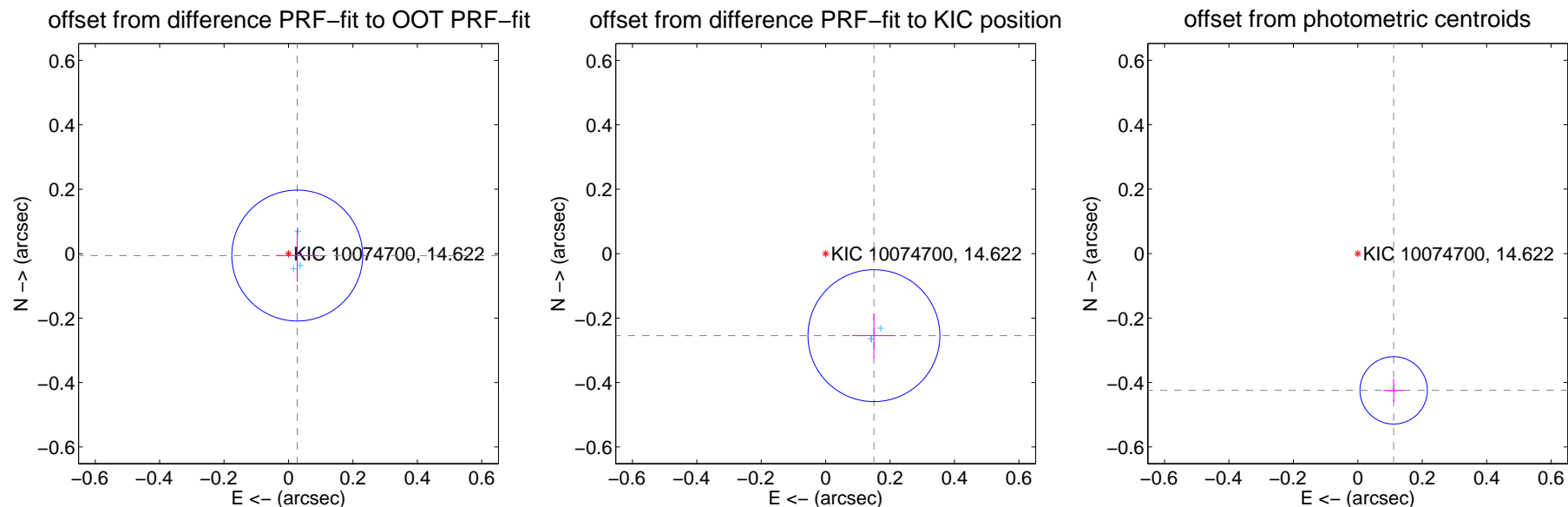
DV Centroid Data

Supplemental centroid analysis for 010074700-02. Kepler magnitude: 14.62. Transit SNR 214.28

There are 3 quarters with good PRF difference image offsets

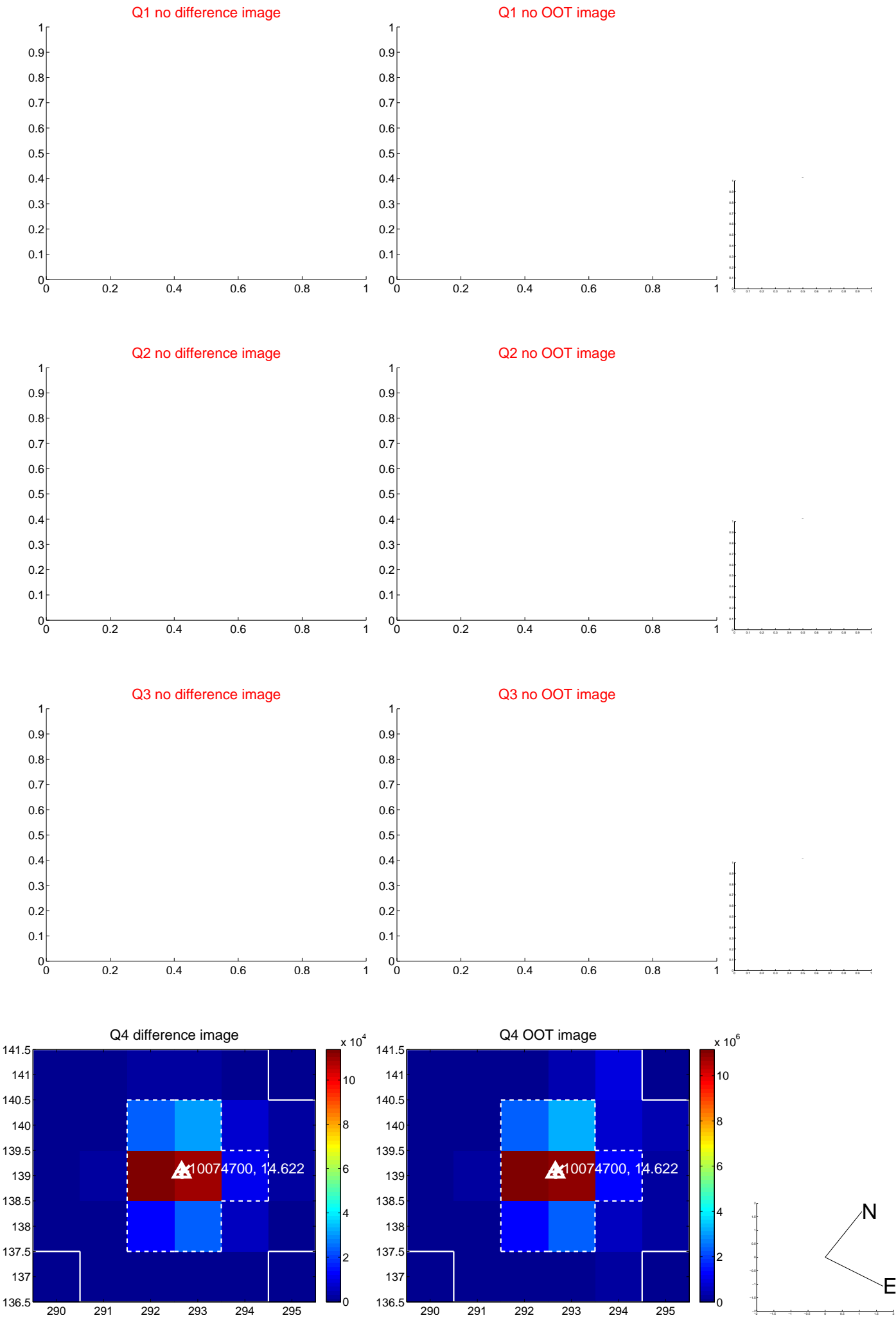
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.028 ± 0.068 | 0.41 | -0.027 ± 0.067 | -0.006 ± 0.081 |
| PRF-fit source offset from KIC position | 0.295 ± 0.068 | 4.33 | -0.150 ± 0.068 | -0.255 ± 0.068 |
| photometric centroid source offset | 0.44 ± 0.03 | 12.59 | -0.11 ± 0.03 | -0.42 ± 0.04 |

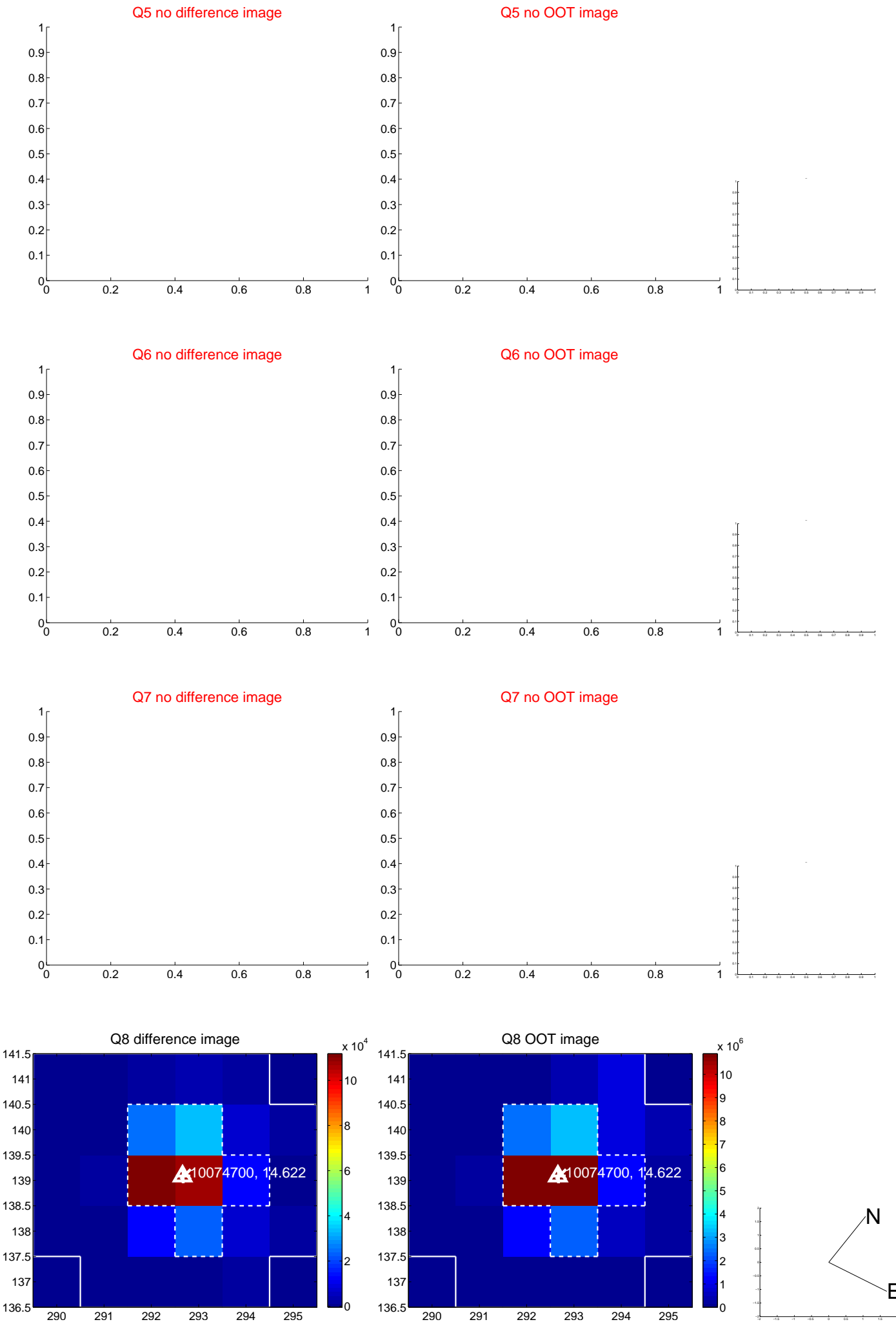


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

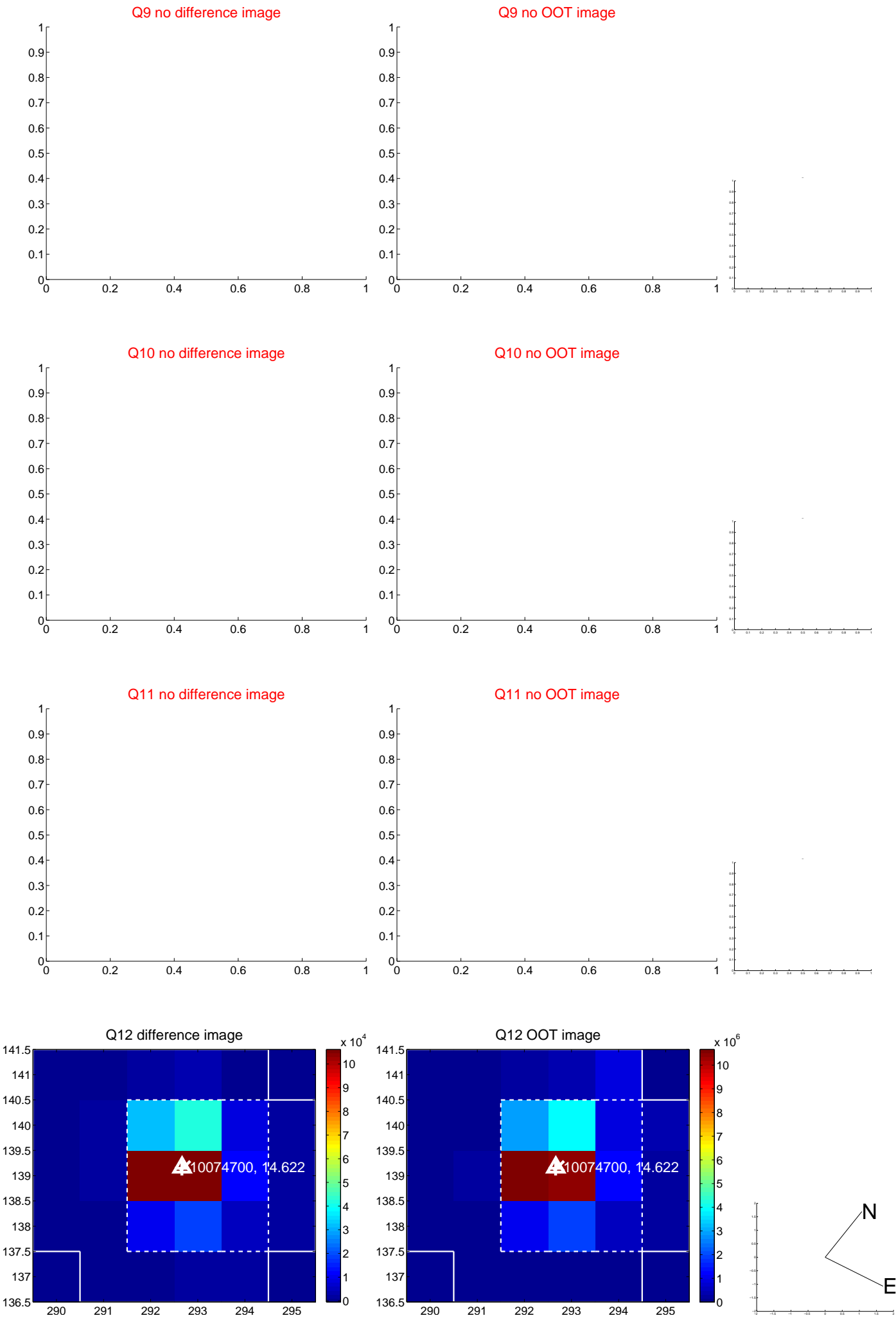
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

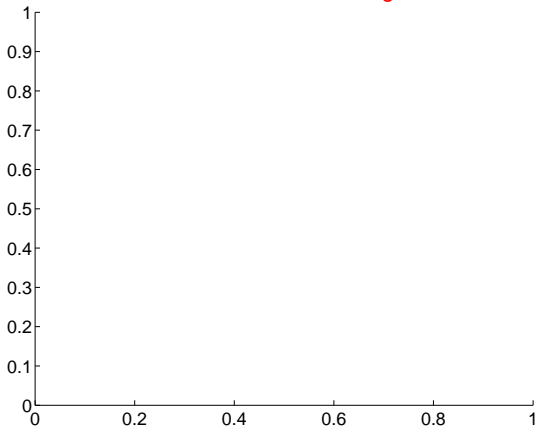


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

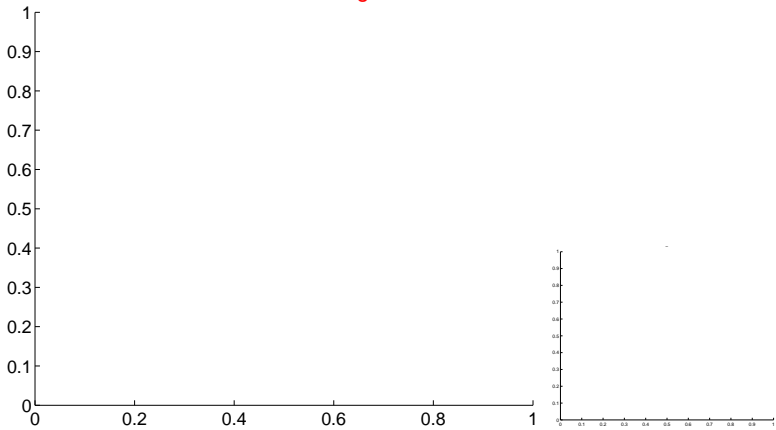


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

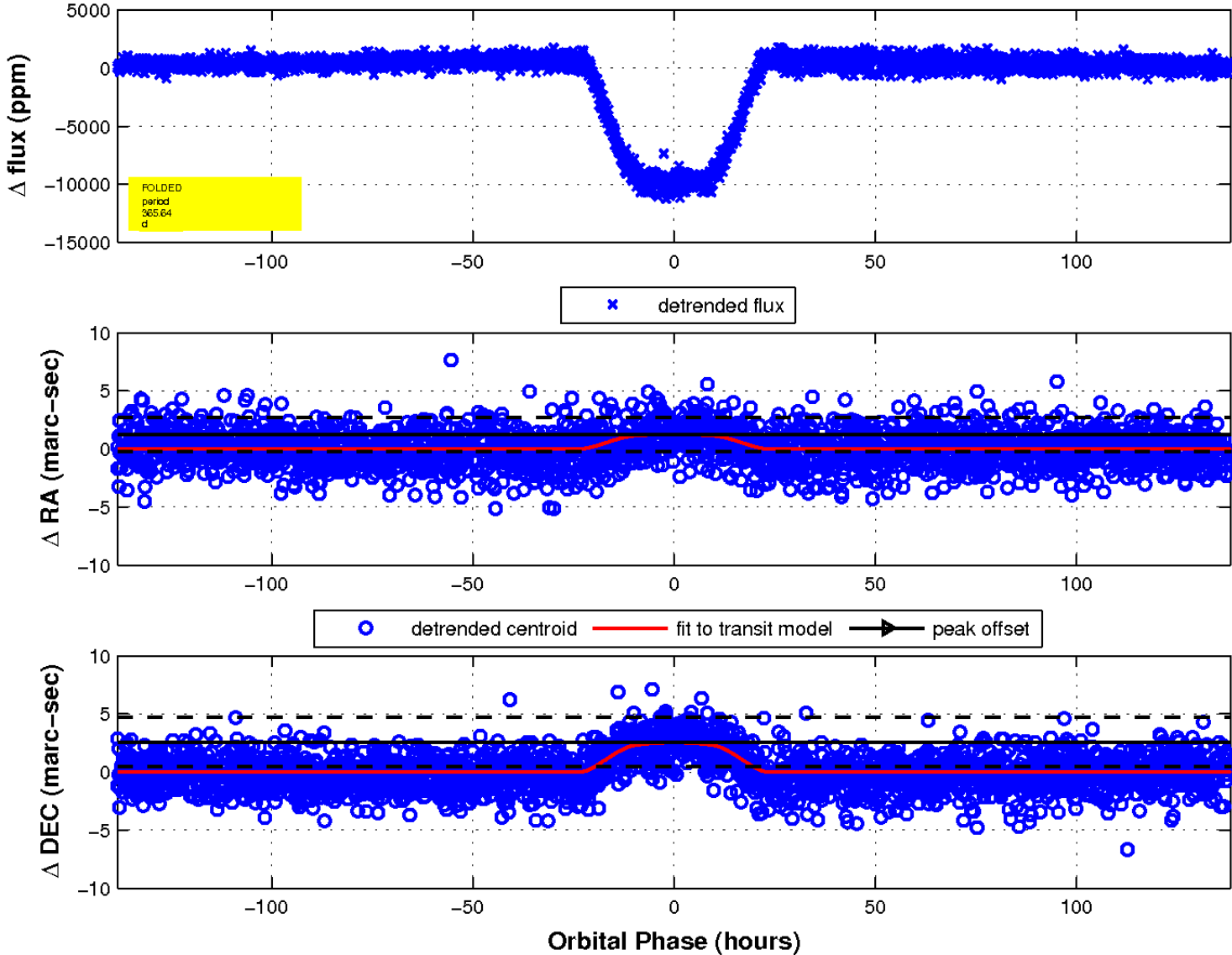
Q17 no difference image



Q17 no OOT image



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

