

KIC 008161320

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008161320-01 | OBS | No | 374.319811 | 264.546248 | 440.9 | 30.628 | 9.0 | 8.6 | 1.02 | 6126 | 2.20 | 1.20 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008161320-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

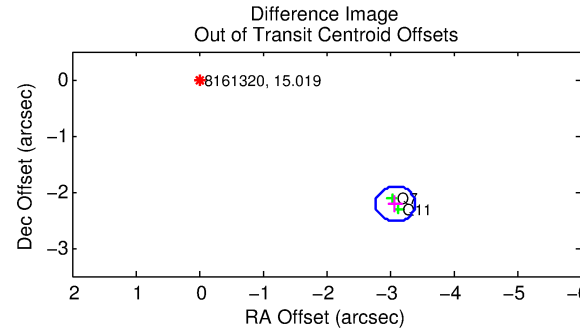
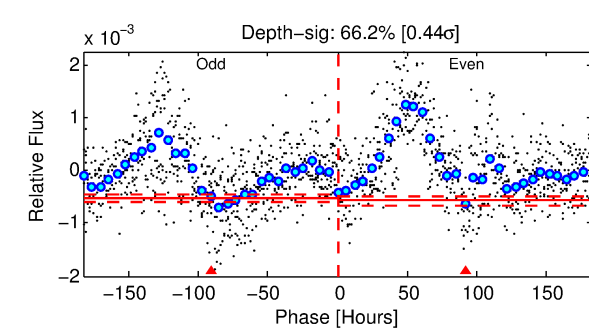
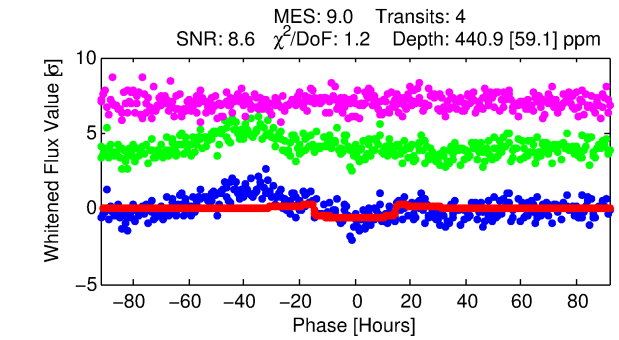
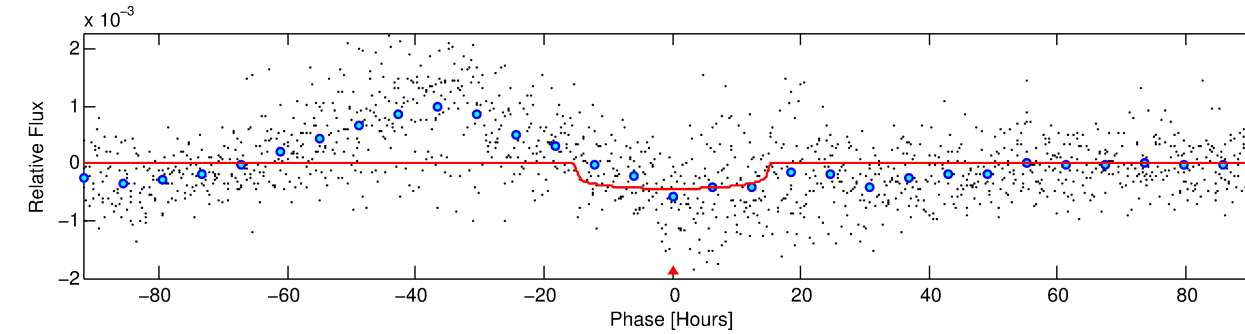
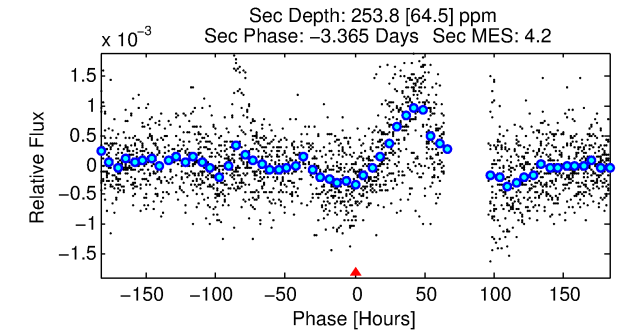
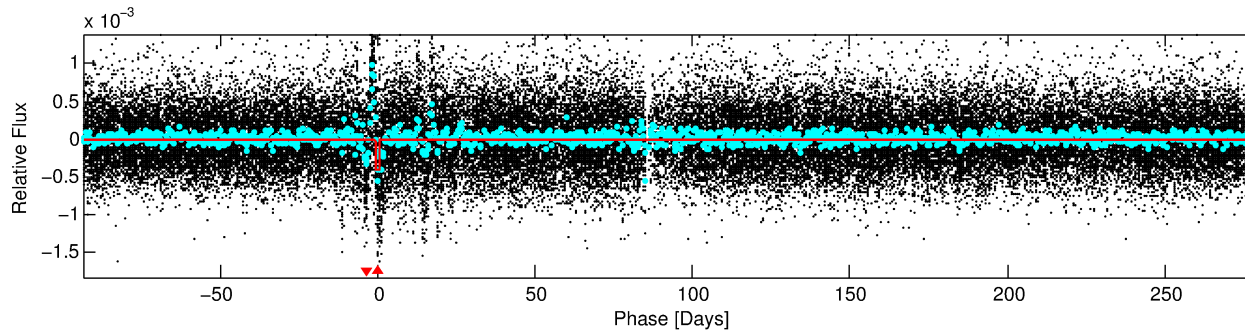
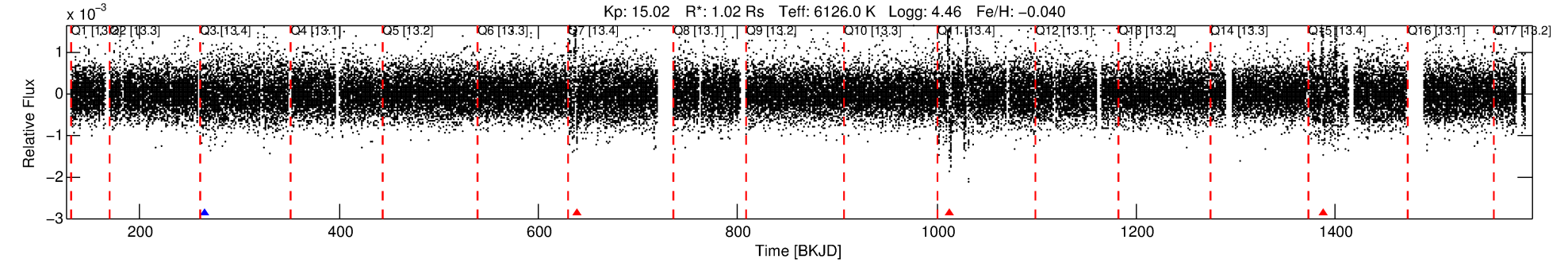
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161320-01

No Significant Match Found

DV One-Page Summary

KIC: 8161320 Candidate: 1 of 1 Period: 374.320 d



DV Fit Results:

Period = 374.31981 [0.01640] d
Epoch = 264.5462 [0.0295] BKJD
Rp/R* = 0.0198 [0.0065]
a/R* = 82.68 [128.08]
b = 0.51 [2.29]
Seff = 1.20 [0.48]
Teq = 267 [27] K
Rp = 2.20 [1.01] Re
a = 1.0468 [0.2746] AU
Ag = 31504.58 [25111.63] [1.25σ]
Teffp = 5498 [986] K [5.30σ]

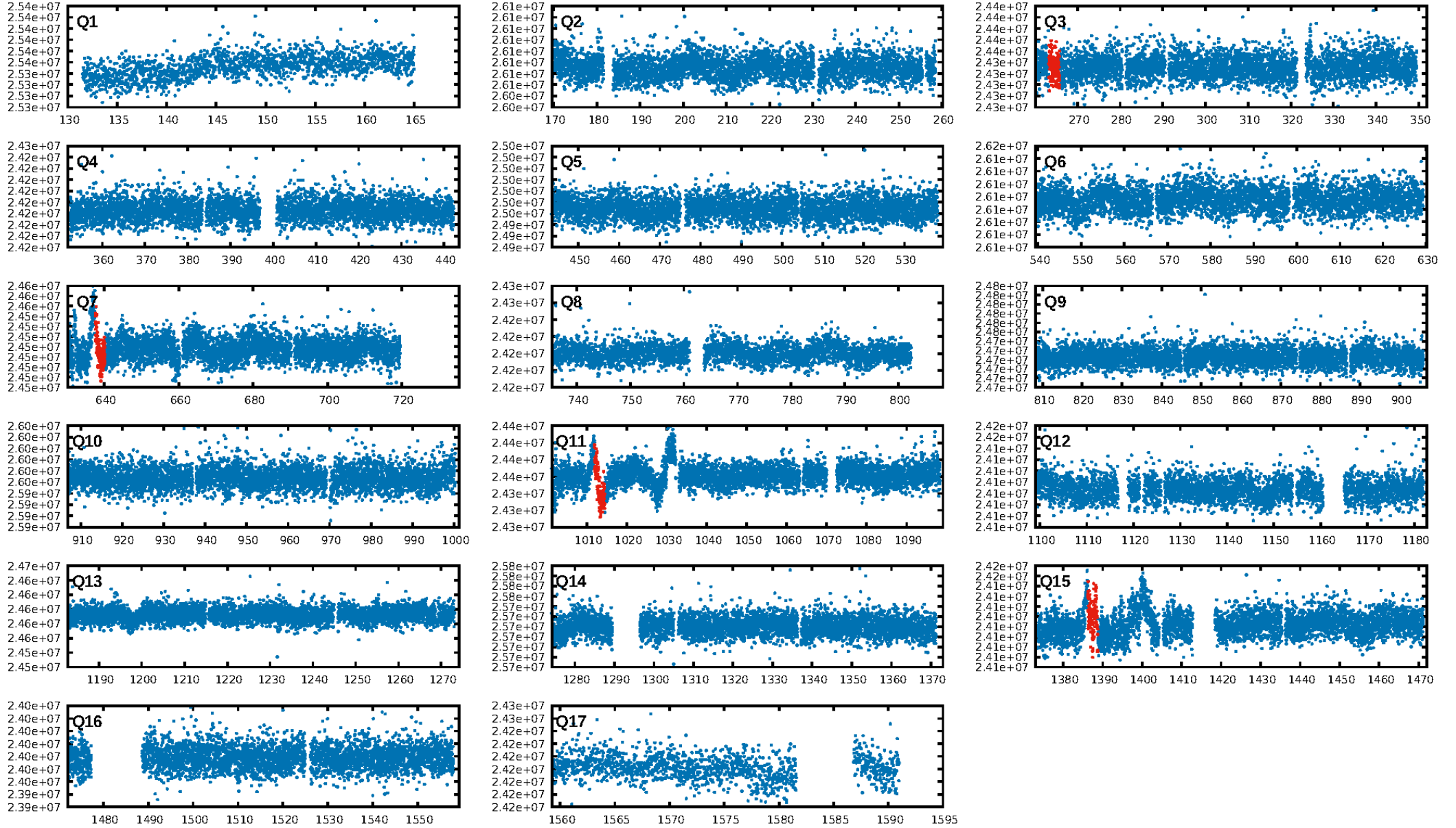
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: 3.32e-11
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: 1.171
Centroid-sig: 13.3%
Centroid-so: 2.046 arcsec [1.11σ]
OotOffset-rm: 3.800 arcsec [36.80σ]
KicOffset-rm: 3.843 arcsec [34.81σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

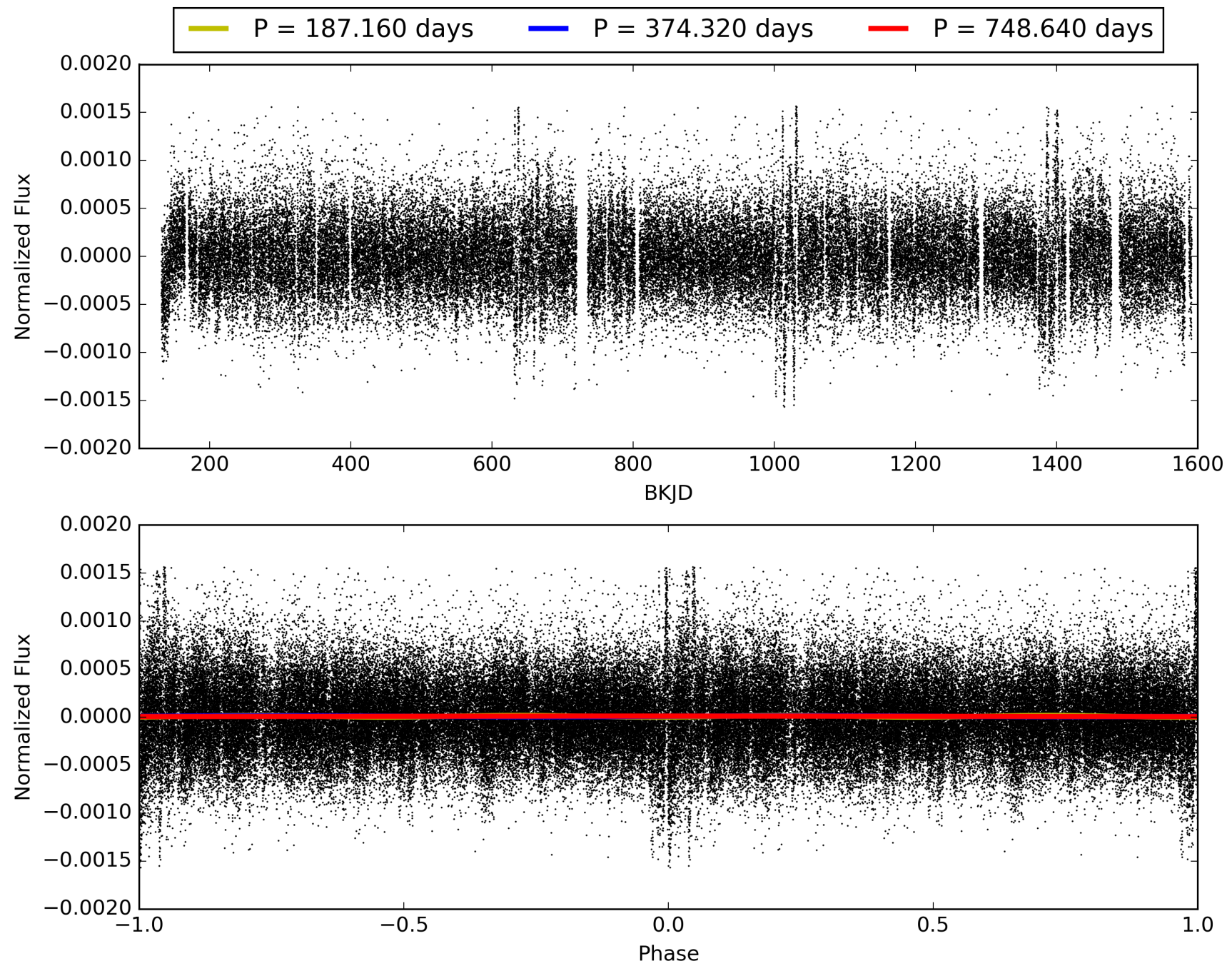
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:27:43 Z

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

TCE 008161320-01, PDC Light Curves

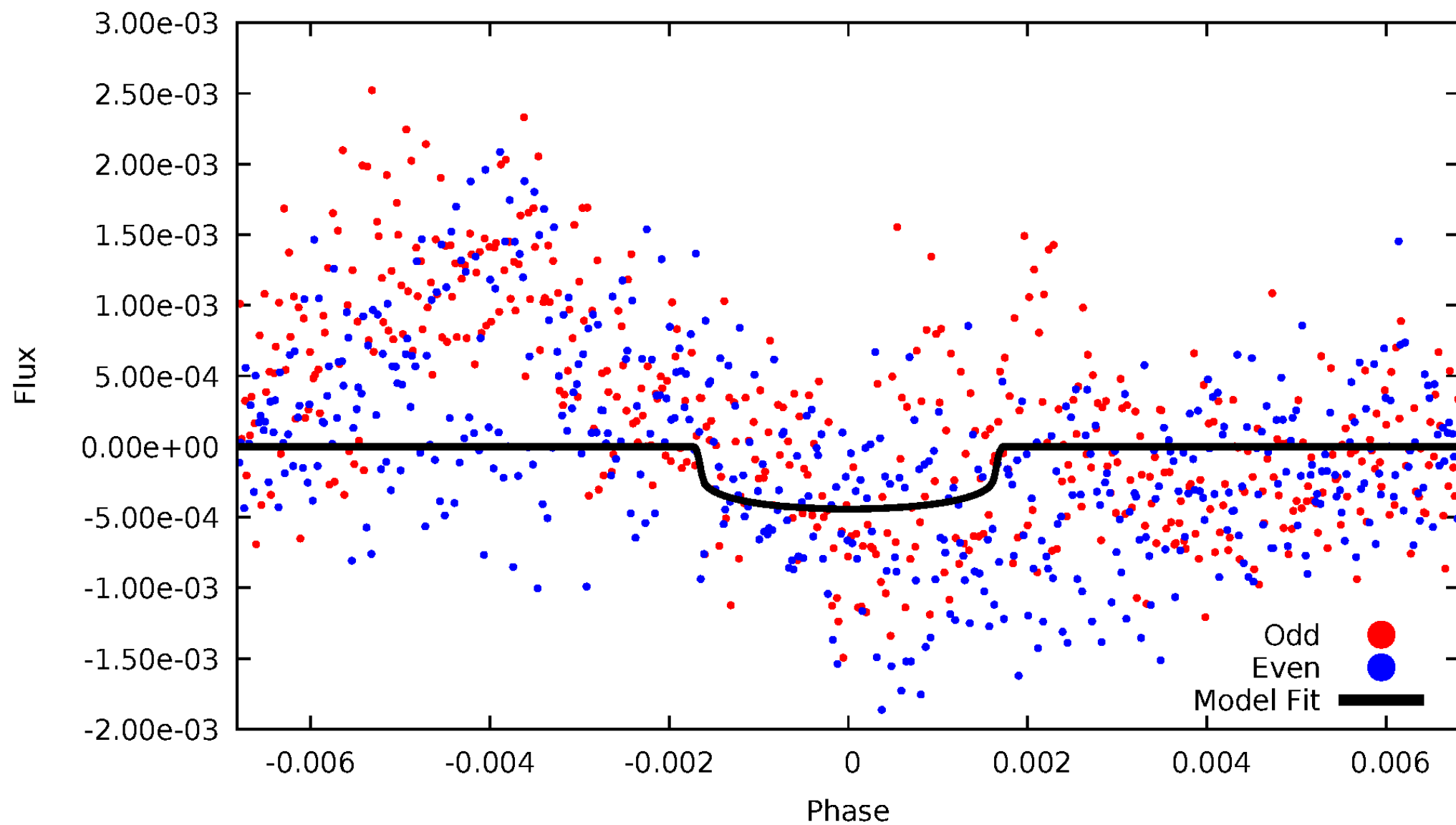


TCE 008161320-01



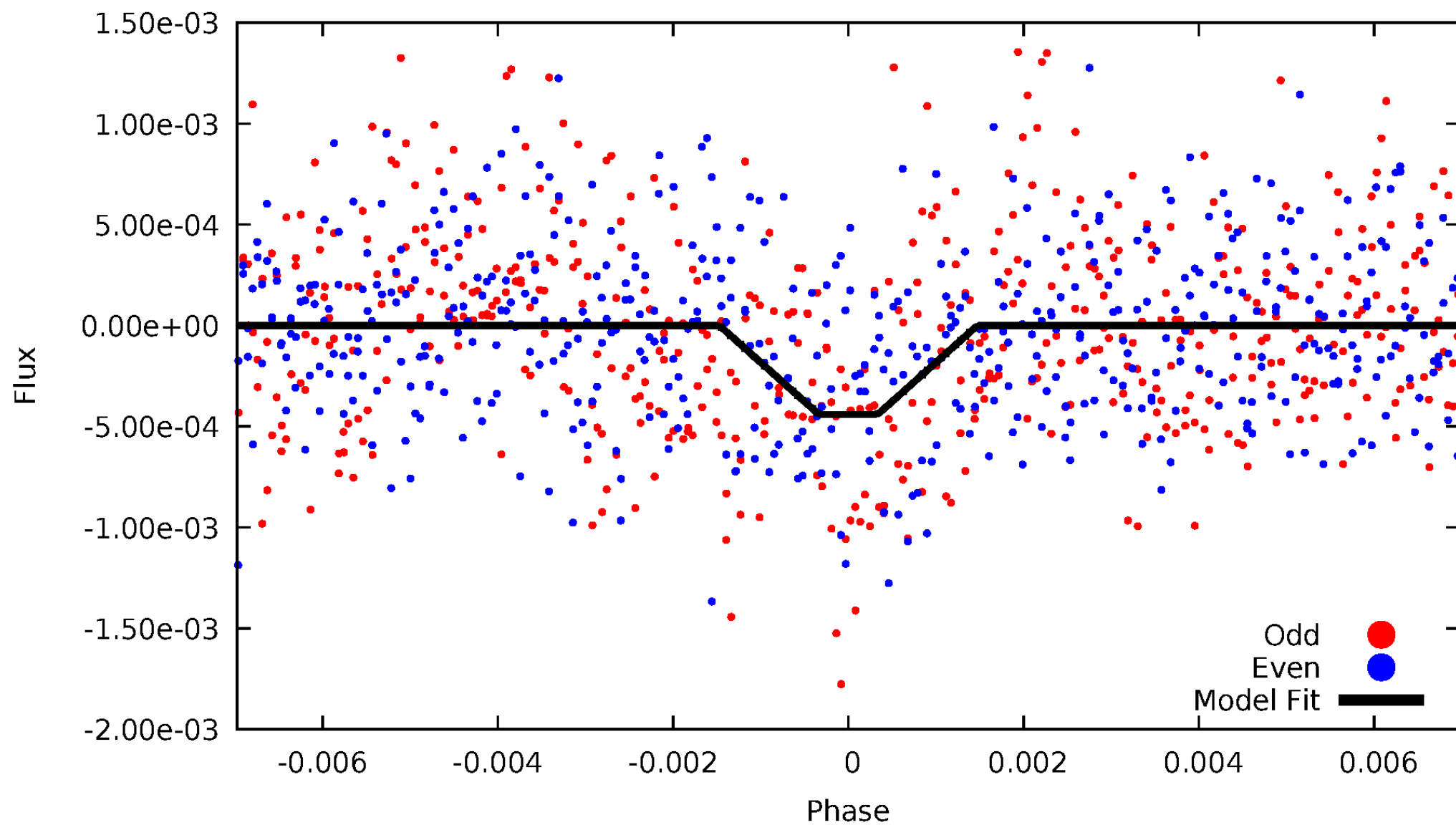
DV Odd/Even

TCE 008161320-01



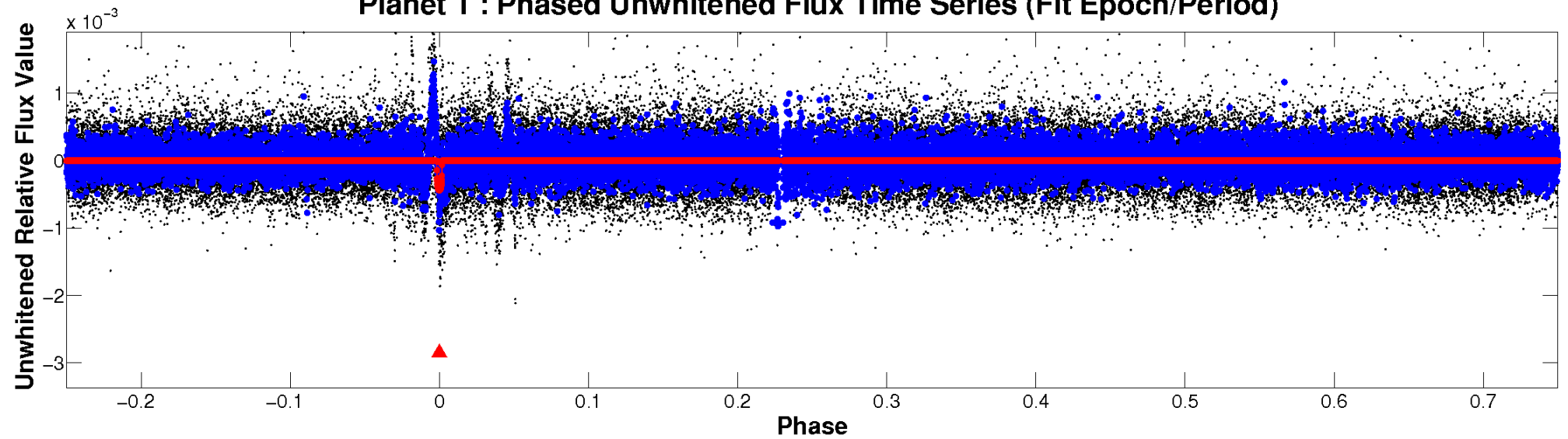
ALT Odd/Even

TCE 008161320-01

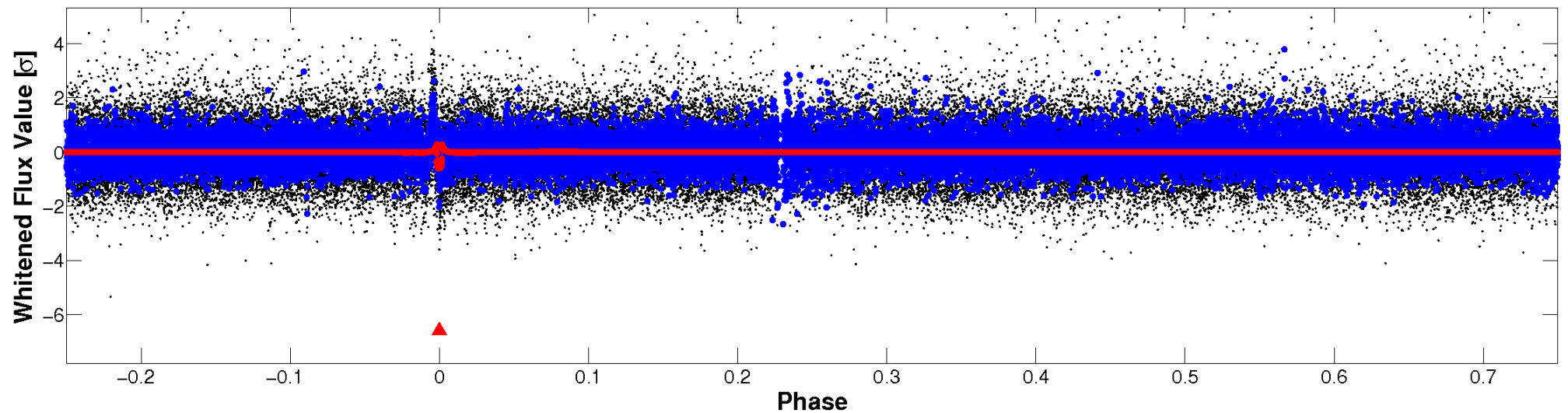


Non-Whitened Vs. Whitened Light Curve

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

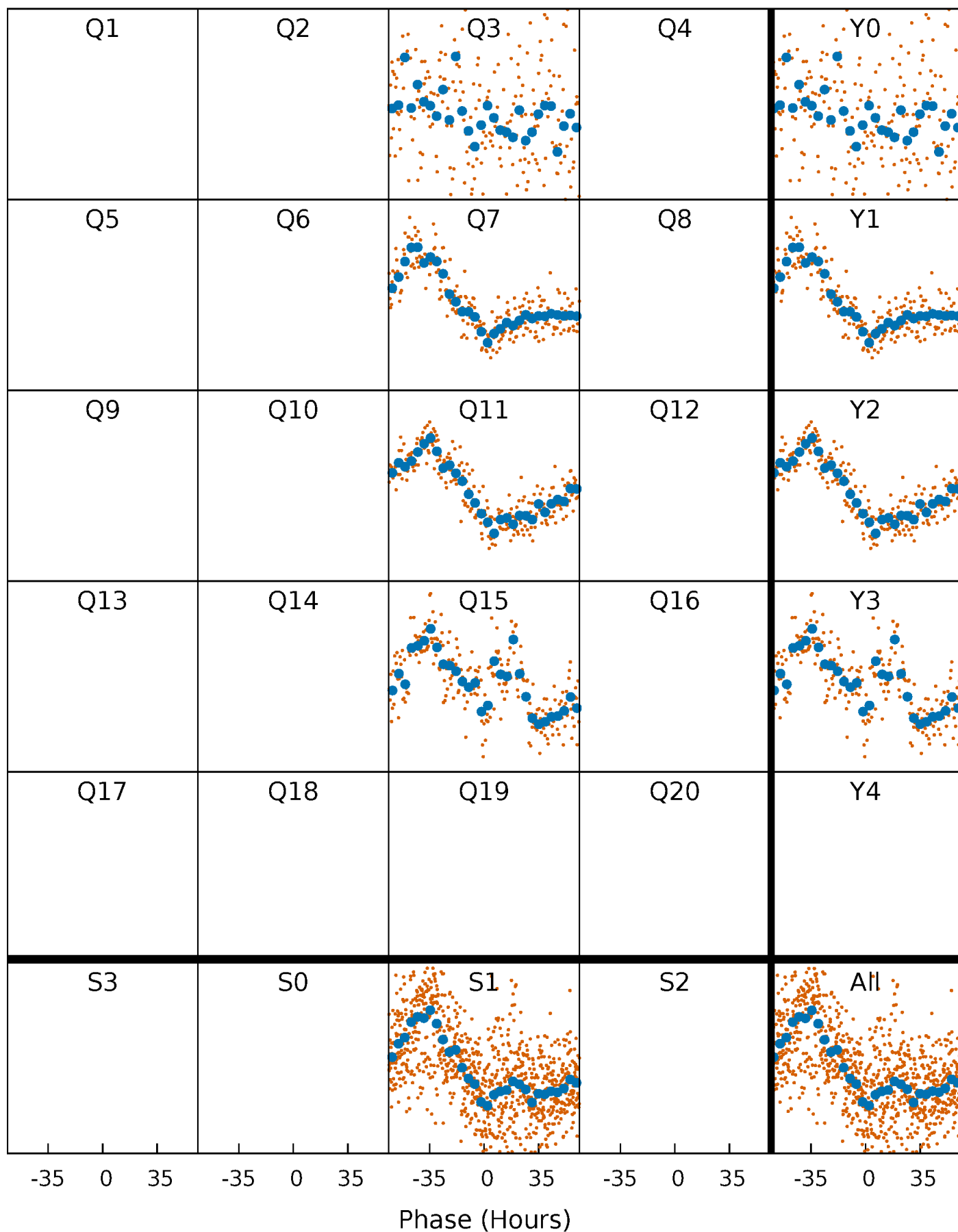


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



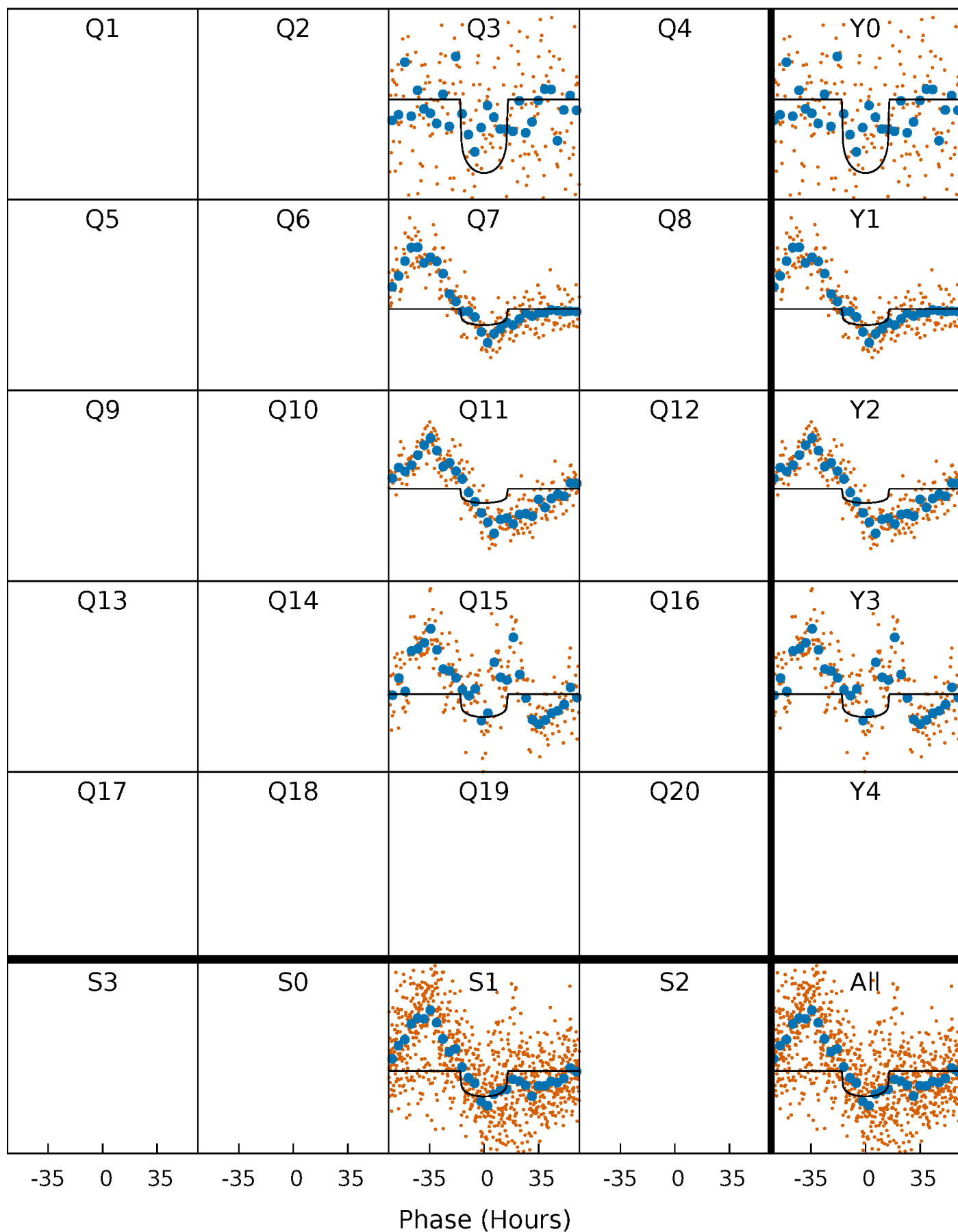
PDC Quarter-Phased Transit Curves

TCE 008161320-01 P=374.319811 Days $T_0=264.546248$ (BKJD)



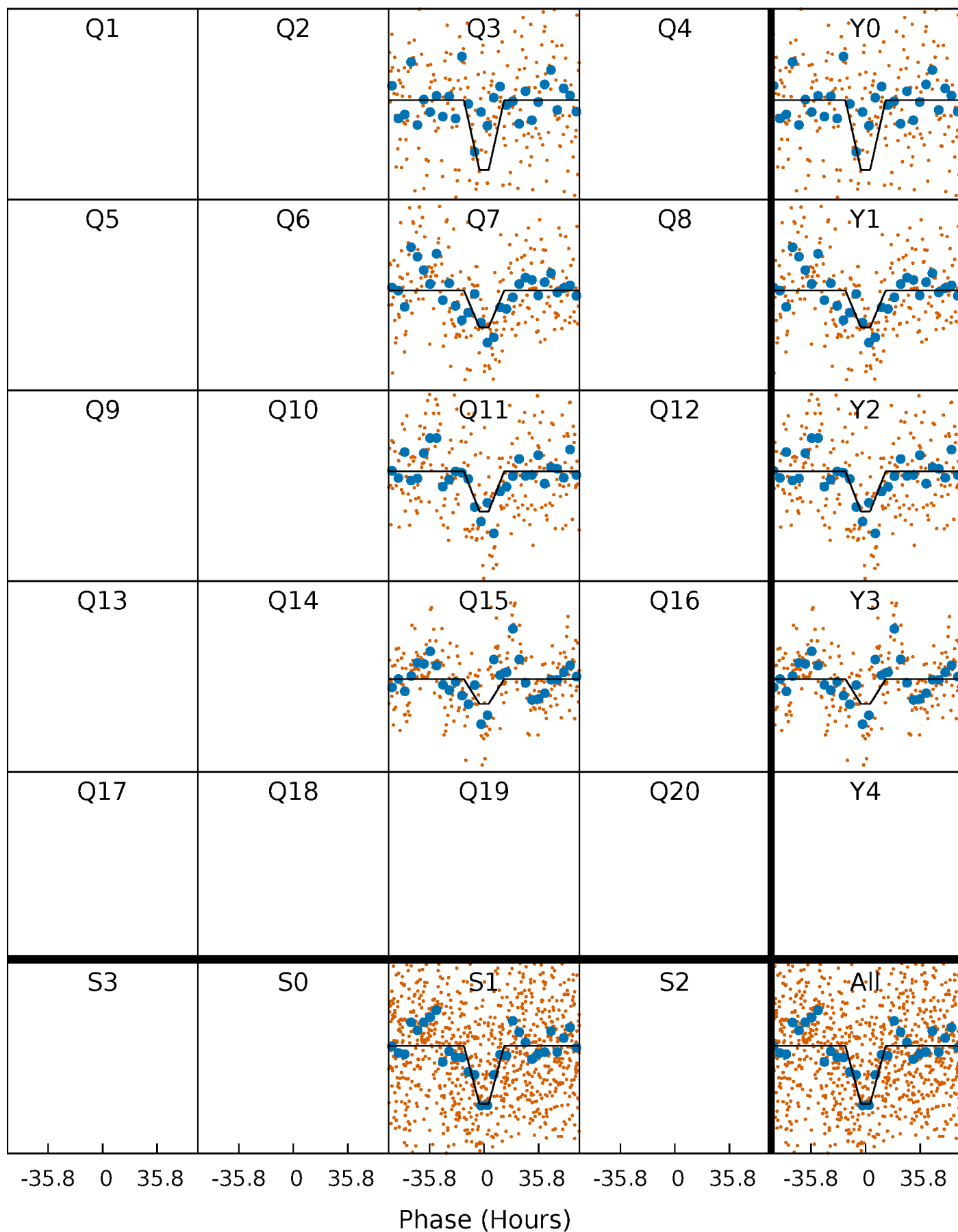
DV Quarter-Phased Transit Curves

TCE 008161320-01 P=374.319811 Days $T_0=264.546248$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

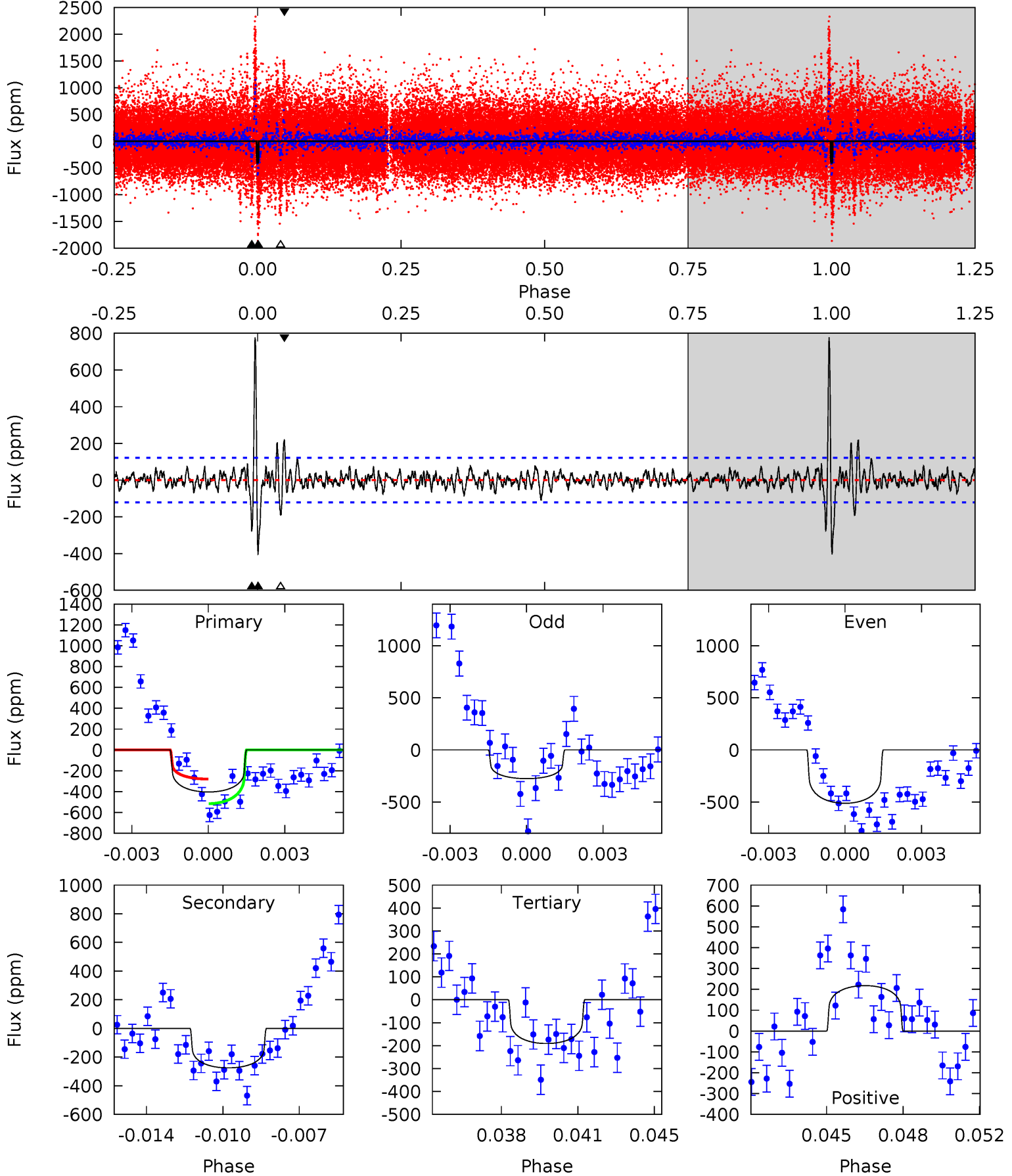
TCE 008161320-01 P=374.363253 Days $T_0=264.425759$ (BKJD)



DV Model-Shift Uniqueness Test

008161320-01, P = 374.319811 Days, E = 264.546248 Days

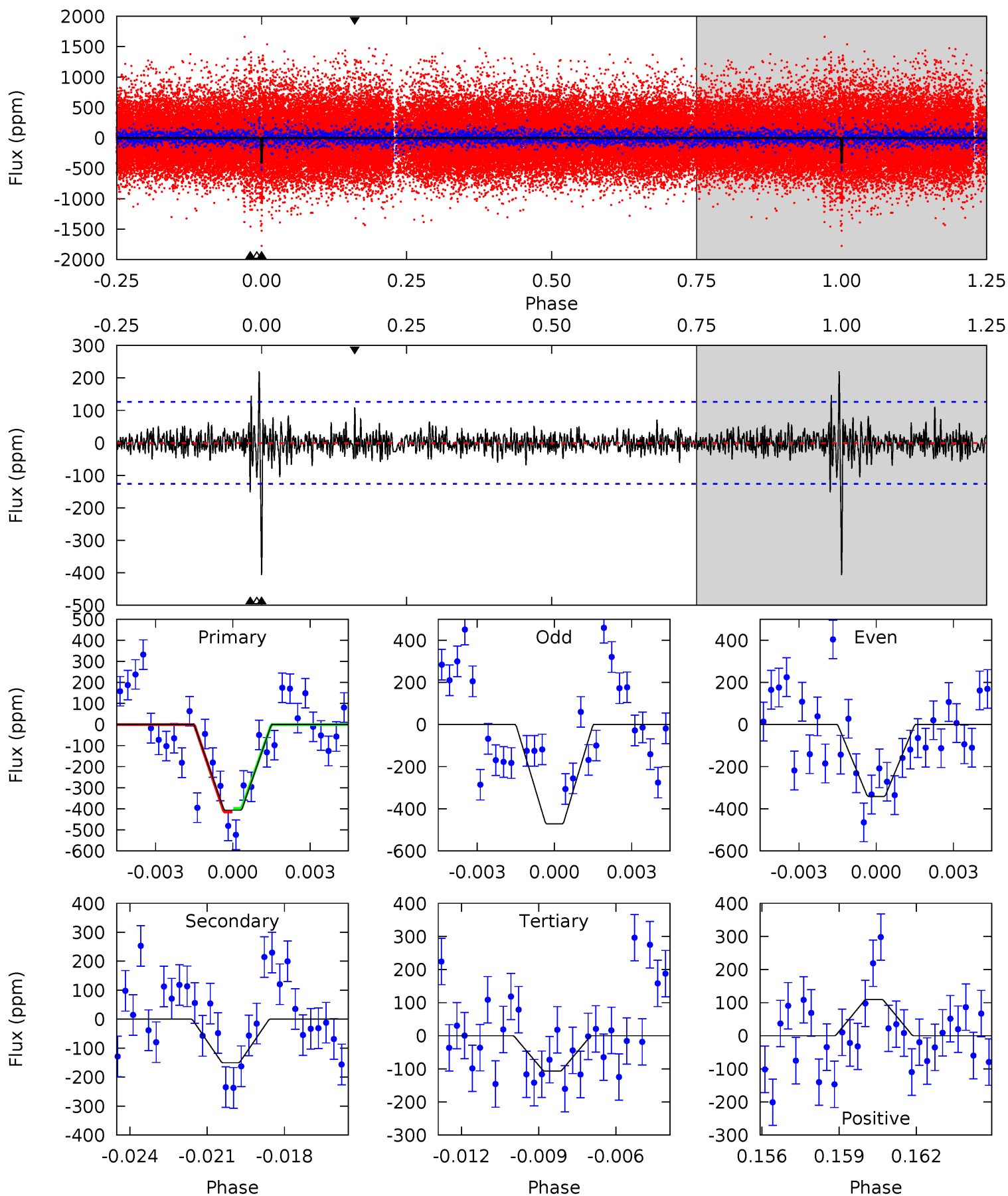
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.4 | 11.8 | 8.20 | 9.36 | 5.23 | 2.92 | 2.40 | 9.15 | 7.99 | 3.63 | 2.47 | 5.11 | 1.05 | 0.66 | 5.11 |



Alt Model-Shift Uniqueness Test

008161320-01, P = 374.363253 Days, E = 264.425759 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.9 | 6.25 | 4.44 | 4.55 | 5.26 | 2.97 | 1.01 | 12.5 | 12.4 | 1.81 | 1.70 | 2.71 | 0.86 | 0.35 | 0.36 |



Stellar Parameters For KIC 008161320

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6126^{+165}_{-220} | $4.458^{+0.054}_{-0.202}$ | $-0.040^{+0.250}_{-0.350}$ | $1.021^{+0.324}_{-0.108}$ | $1.090^{+0.139}_{-0.153}$ | $1.442^{+0.413}_{-0.771}$ |
| | +3%/-4% | +1%/-5% | +625%/-875% | +32%/-11% | +13%/-14% | +29%/-53% |
| 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 008161320-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|---------------------------|
| DV | -275 ± 23 | $2.32^{+0.83}_{-0.77}$ | 379^{+26}_{-18} | 5580^{+1210}_{-665} | 30032^{+37682}_{-13252} |
| Alt. | -150 ± 24 | $2.42^{+0.84}_{-0.77}$ | 380^{+27}_{-18} | 4786^{+845}_{-517} | 15301^{+16635}_{-7204} |

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

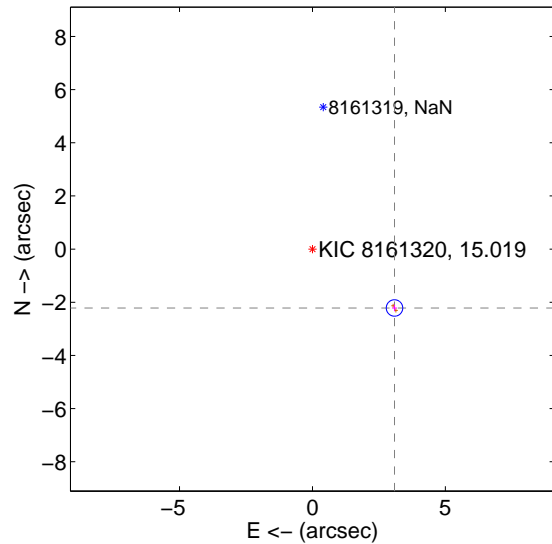
Supplemental centroid analysis for 008161320-01. Kepler magnitude: 15.02. Transit SNR 8.63

There are 0 quarters with good PRF difference image offsets

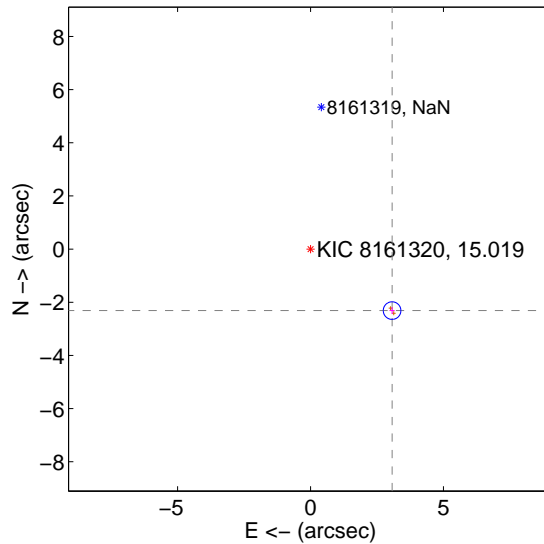
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 3.800 ± 0.103 | 36.80 | -3.087 ± 0.090 | -2.215 ± 0.125 |
| PRF-fit source offset from KIC position | 3.843 ± 0.110 | 34.81 | -3.068 ± 0.098 | -2.314 ± 0.130 |
| photometric centroid source offset | 2.05 ± 1.85 | 1.11 | -0.49 ± 1.15 | 1.99 ± 1.88 |

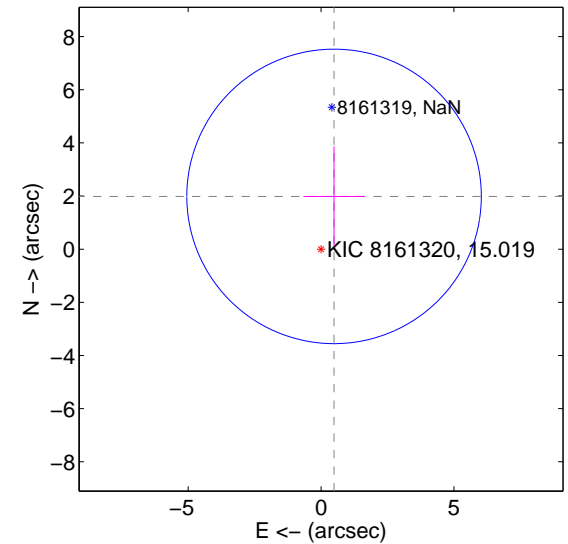
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

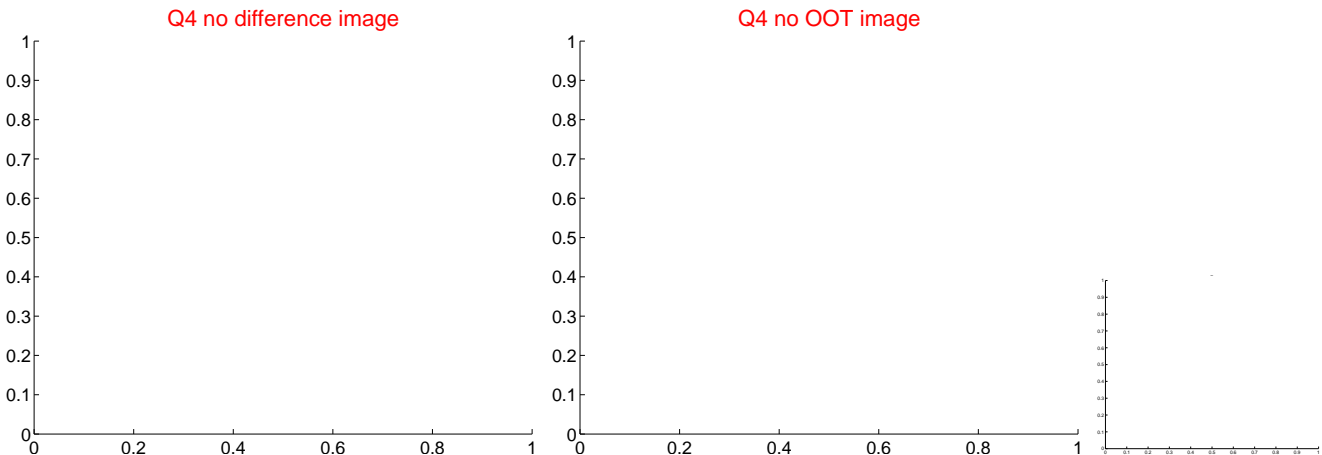
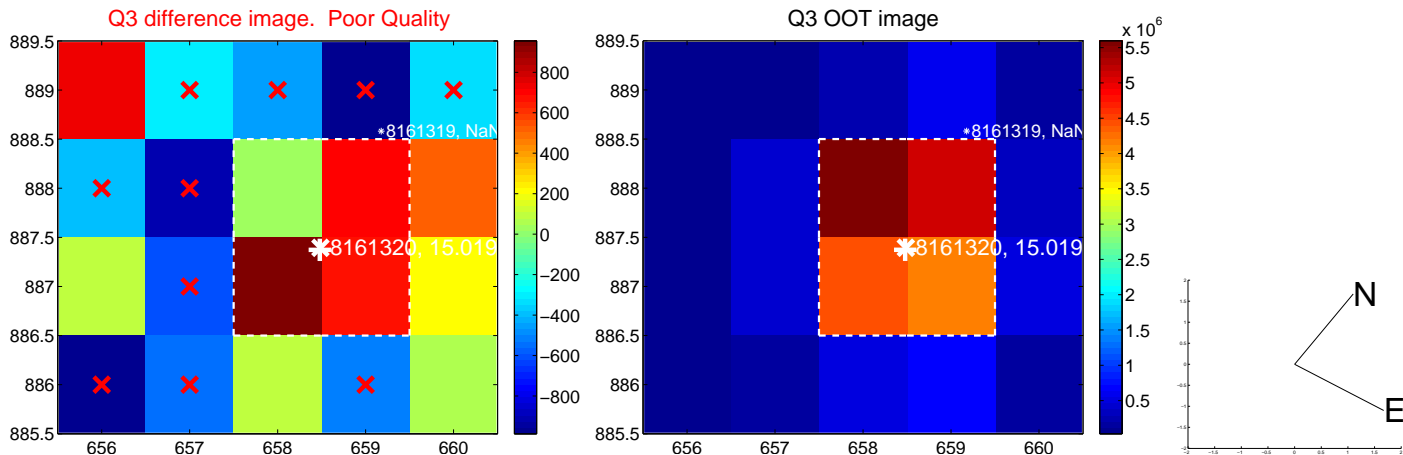
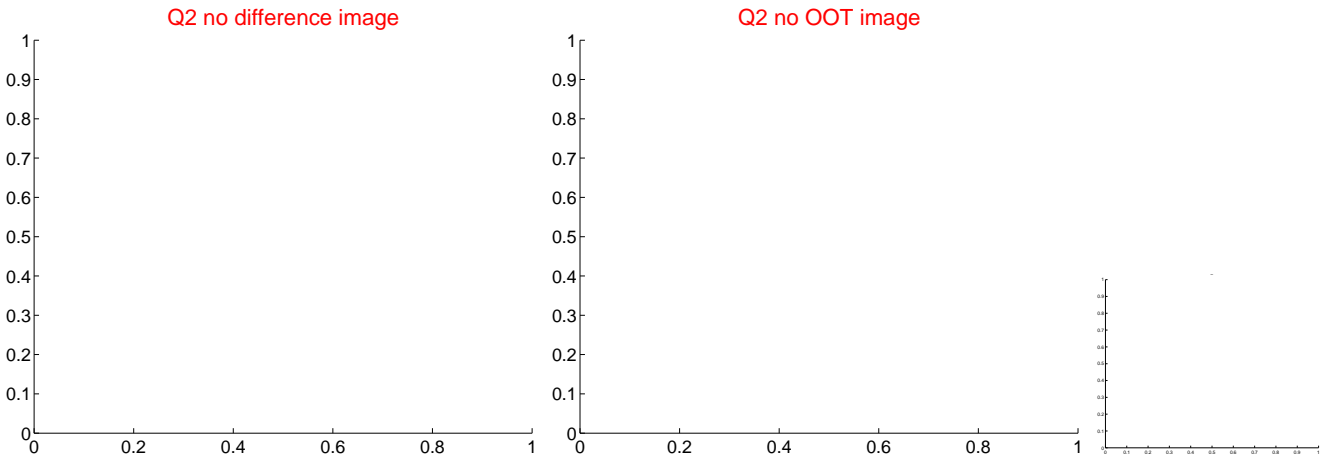
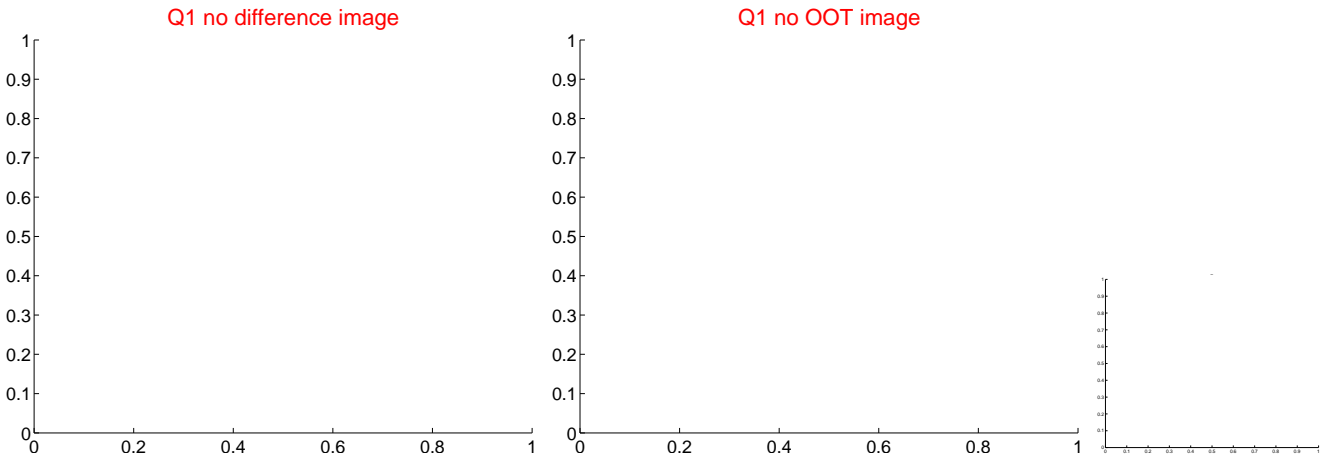


offset from photometric centroids

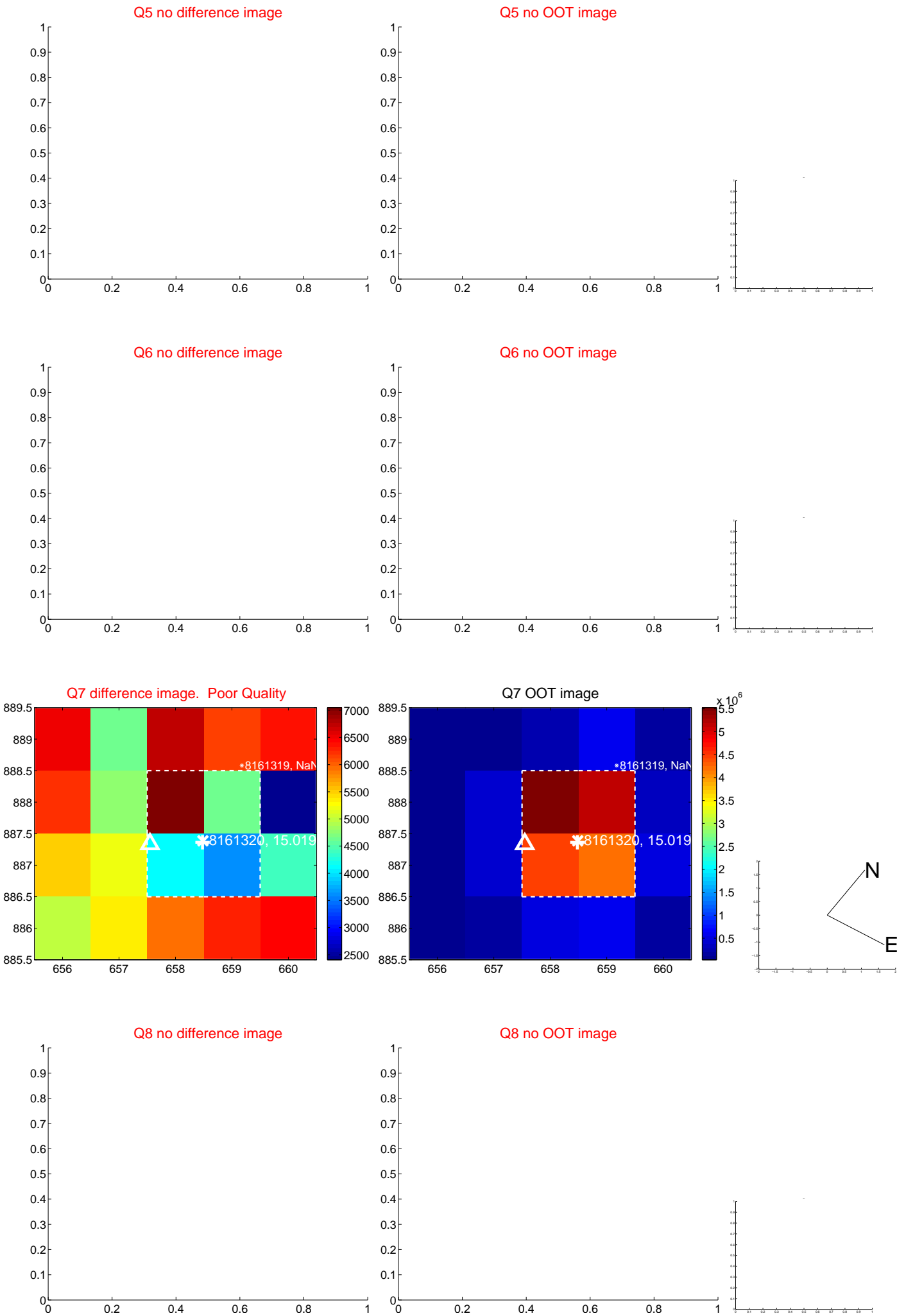


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

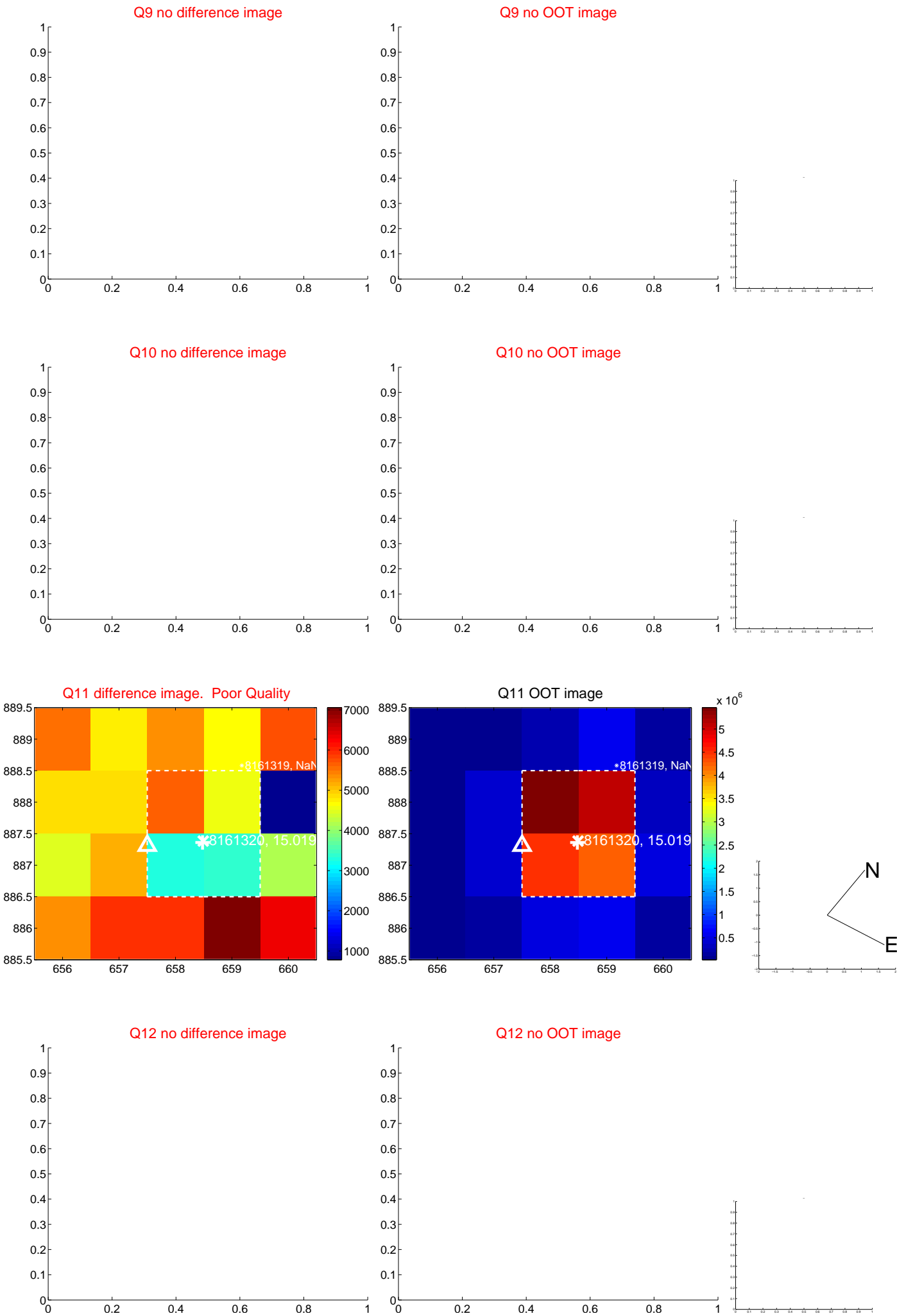
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



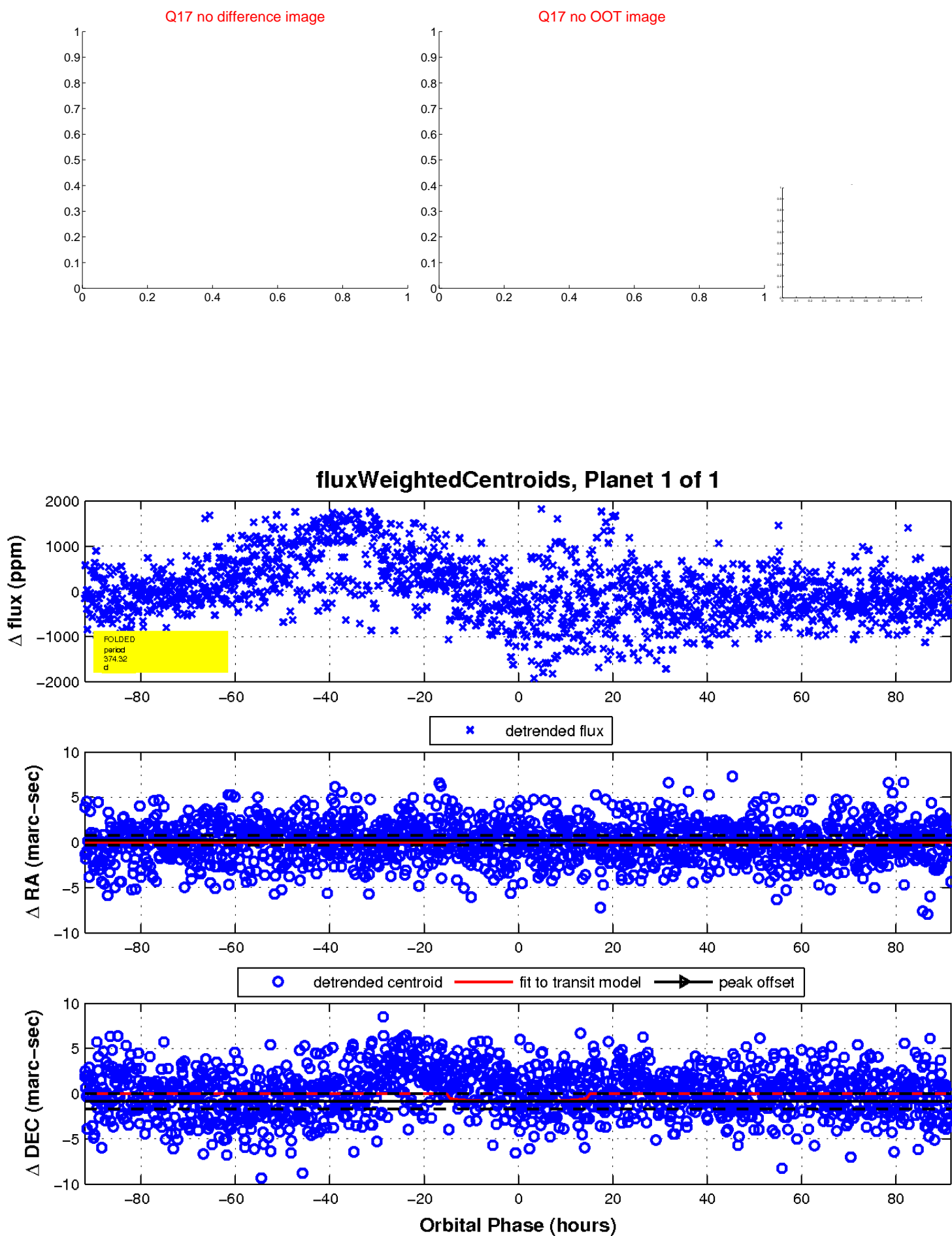
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

