

KIC 004949751

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 004949751-01 | OBS | 0404.01 | 31.805155 | 154.584275 | 4442.1 | 7.748 | 190.8 | 160.2 | 0.86 | 5931 | 10.19 | 22.08 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 004949751-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 0 | DEEP_V_SHAPED—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST |

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

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

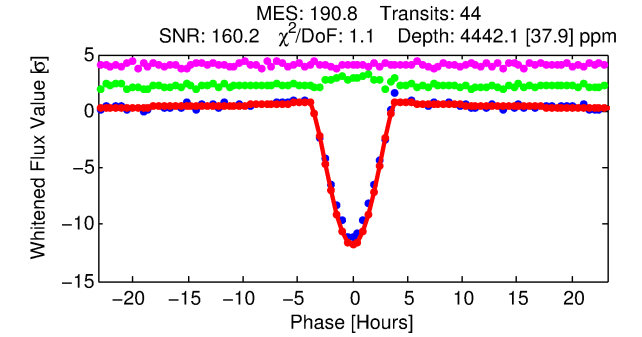
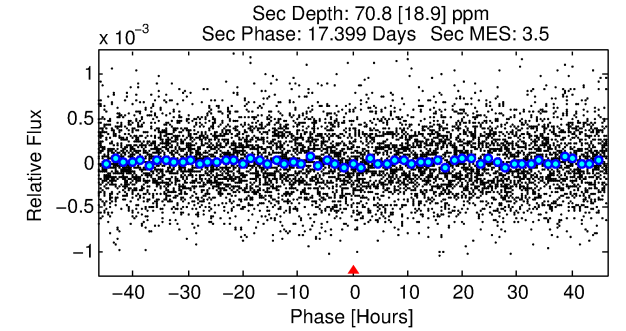
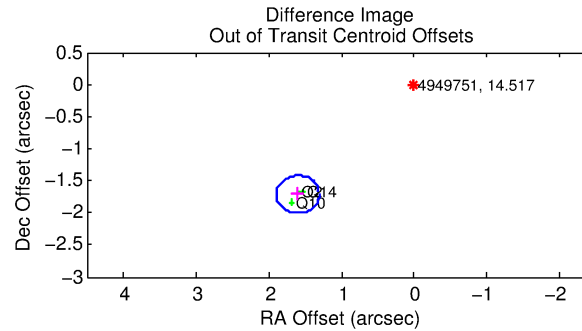
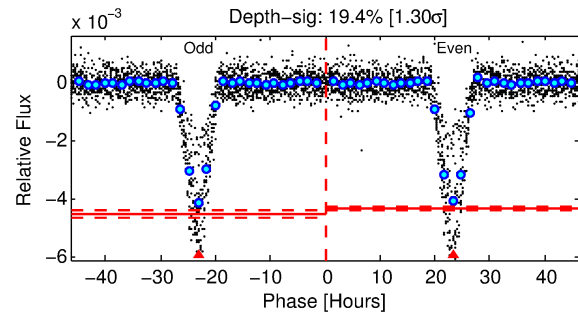
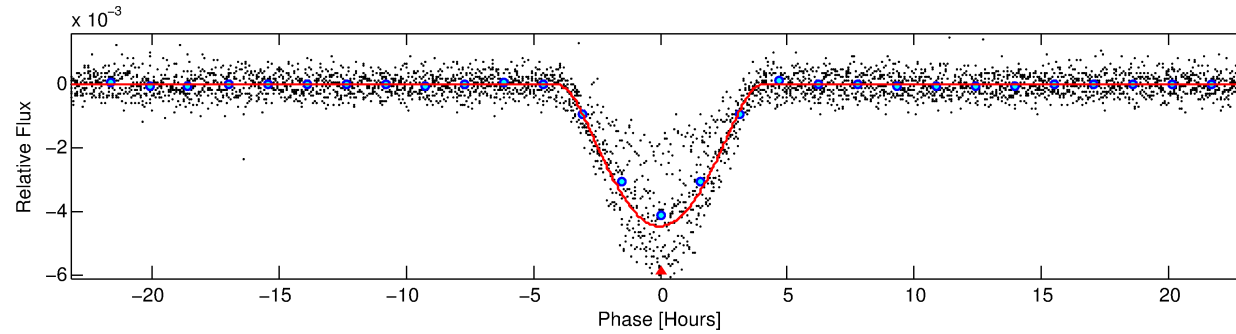
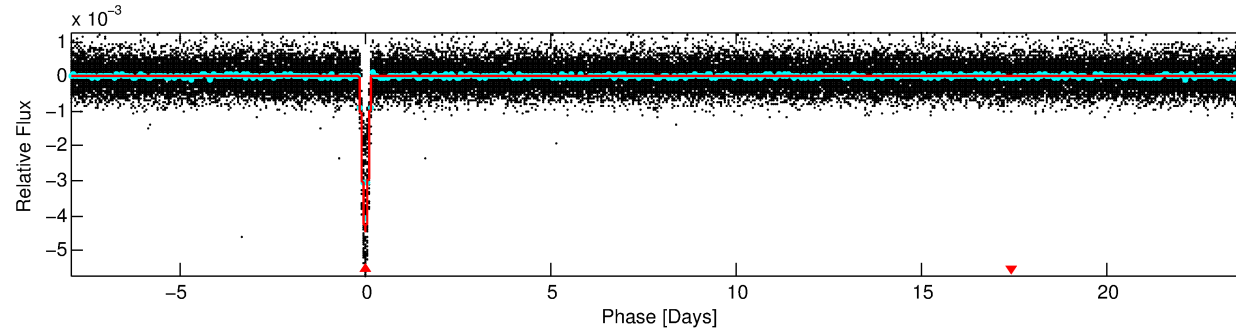
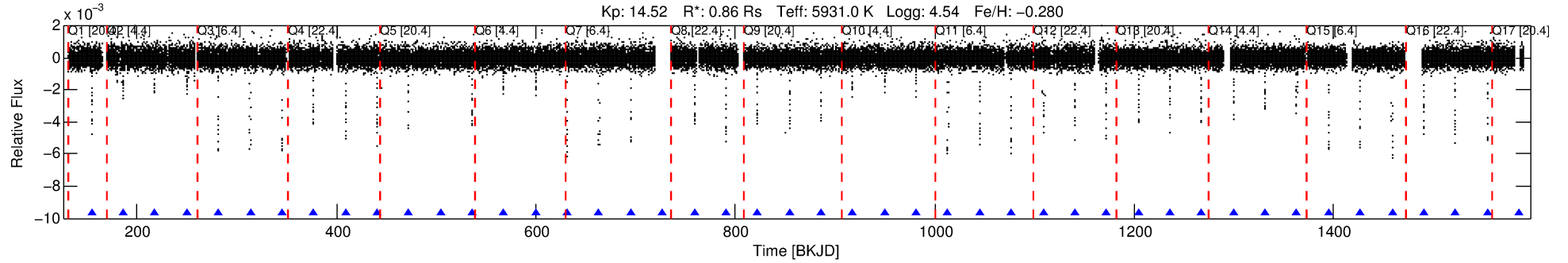
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004949751-01

No Significant Match Found

DV One-Page Summary

KIC: 4949751 Candidate: 1 of 1 Period: 31.805 d
KOI: K00404.01 Corr: 0.982



DV Fit Results:

Period = 31.80515 [0.00004] d
Epoch = 154.5843 [0.0011] BKJD
Rp/R* = 0.1082 [0.0241]
a/R* = 15.38 [0.68]
b = 0.99 [0.04]
Seff = 22.08 [7.42]
Teq = 553 [46] K
Rp = 10.19 [3.42] Re
a = 0.1934 [0.0416] AU
Ag = 14.03 [8.54] [1.53 σ]
Teffp = 1654 [219] K [4.91 σ]

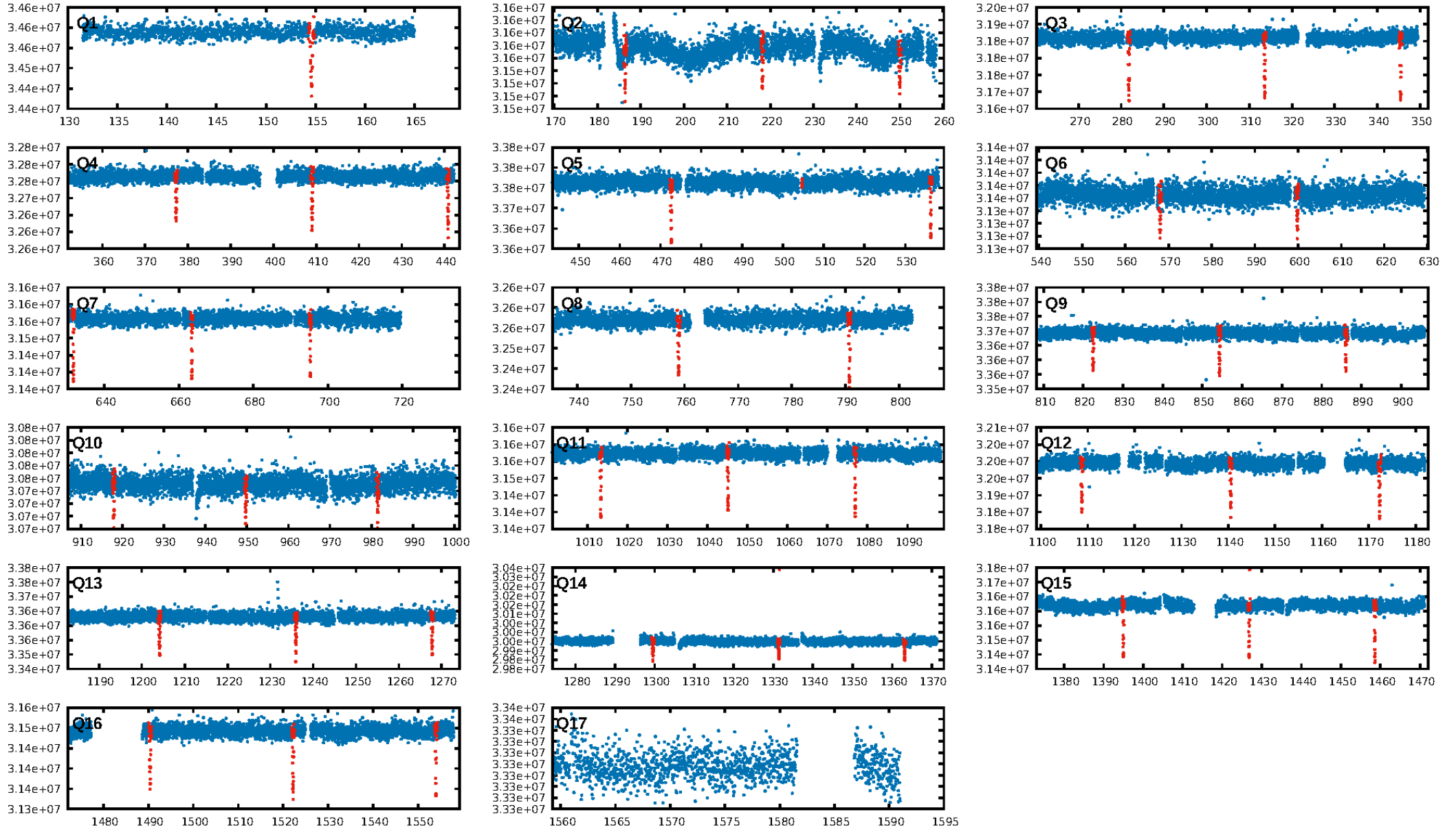
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 97.4%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [43/43]
GhostDiagnostic-chr: -0.1804
Centroid-sig: 0.0%
Centroid-so: 6.943 arcsec [148.32 σ]
OotOffset-rm: 2.344 arcsec [23.94 σ]
KicOffset-rm: 3.358 arcsec [25.48 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [15/15]

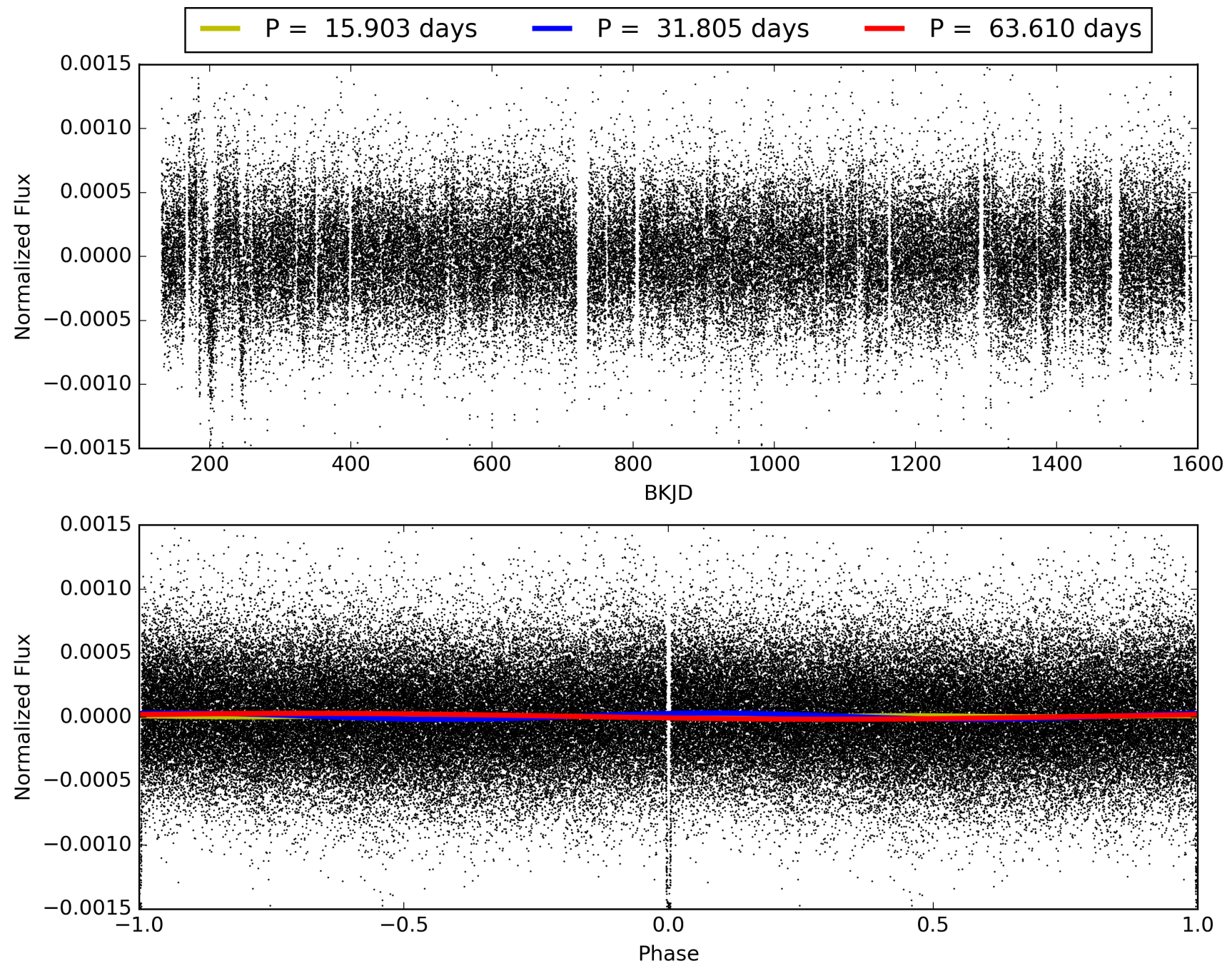
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:47:14 Z

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

TCE 004949751-01, PDC Light Curves

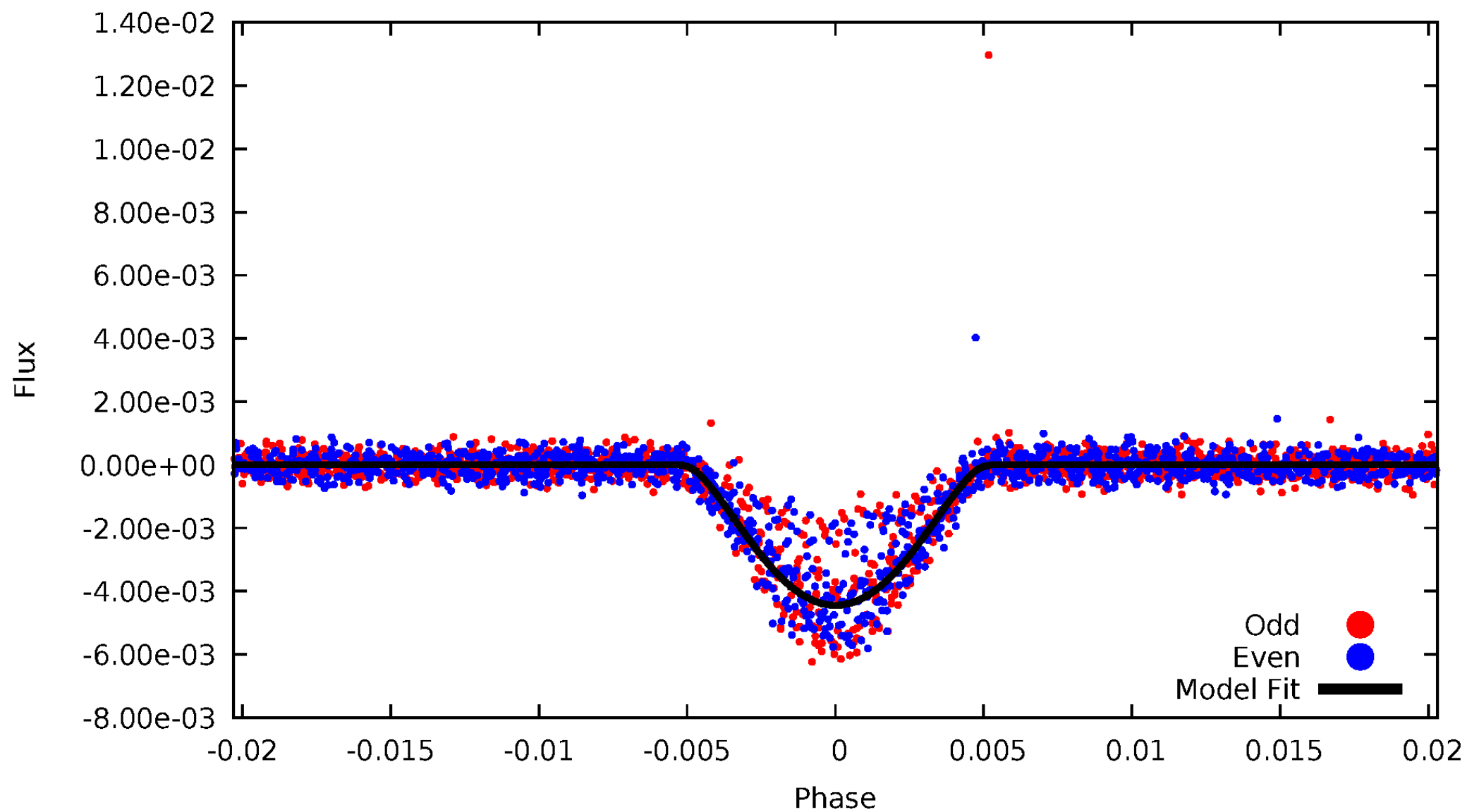


TCE 004949751-01



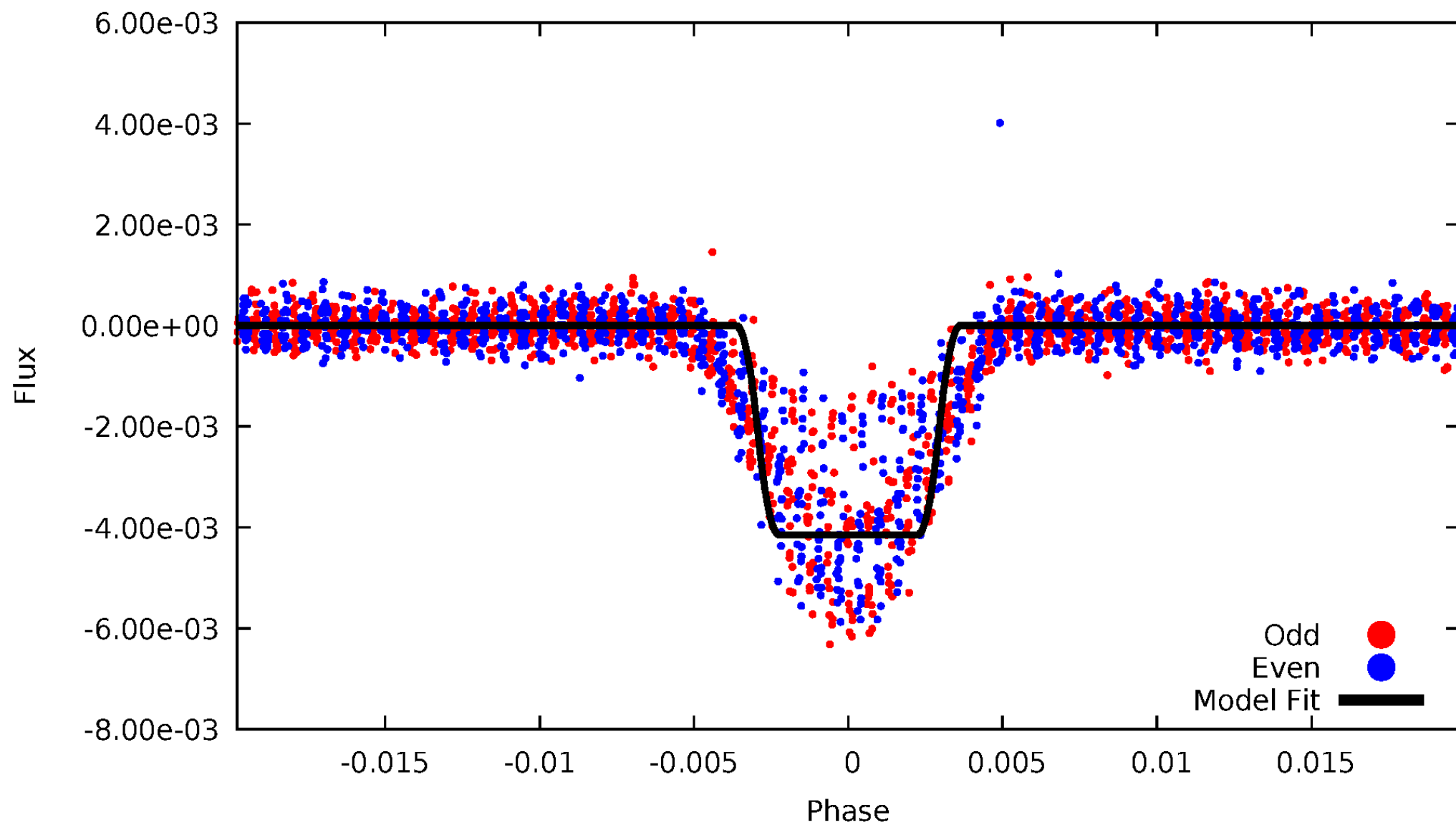
DV Odd/Even

TCE 004949751-01



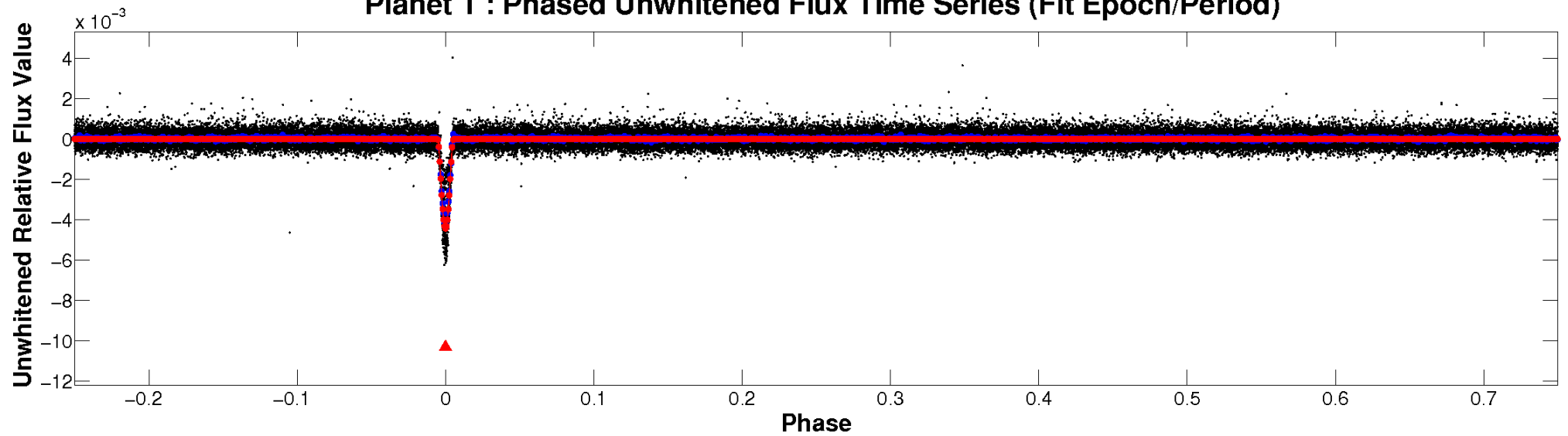
ALT Odd/Even

TCE 004949751-01

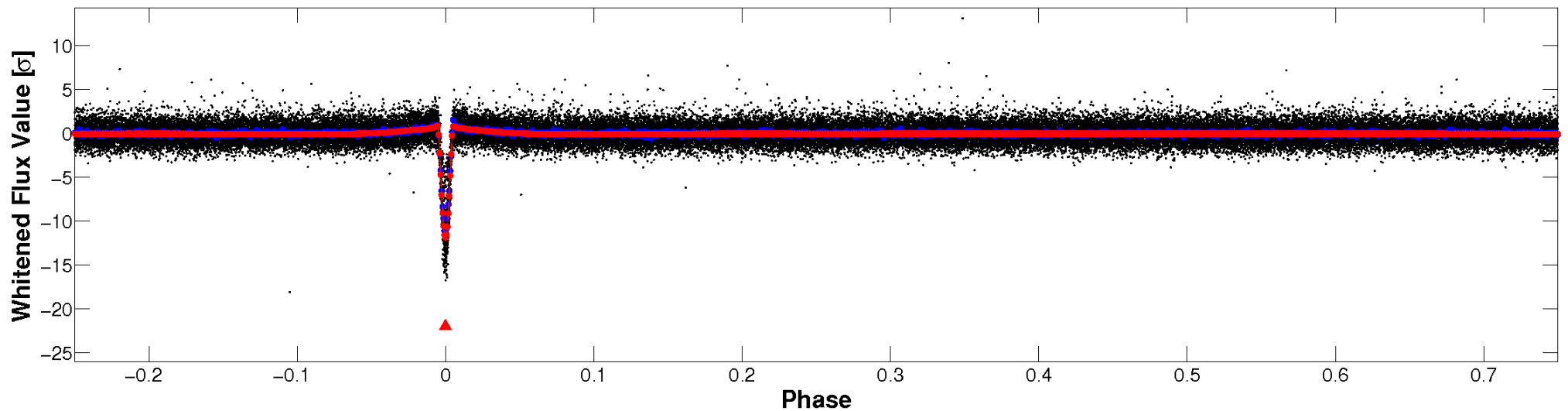


Non-Whitened Vs. Whitened Light Curve

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

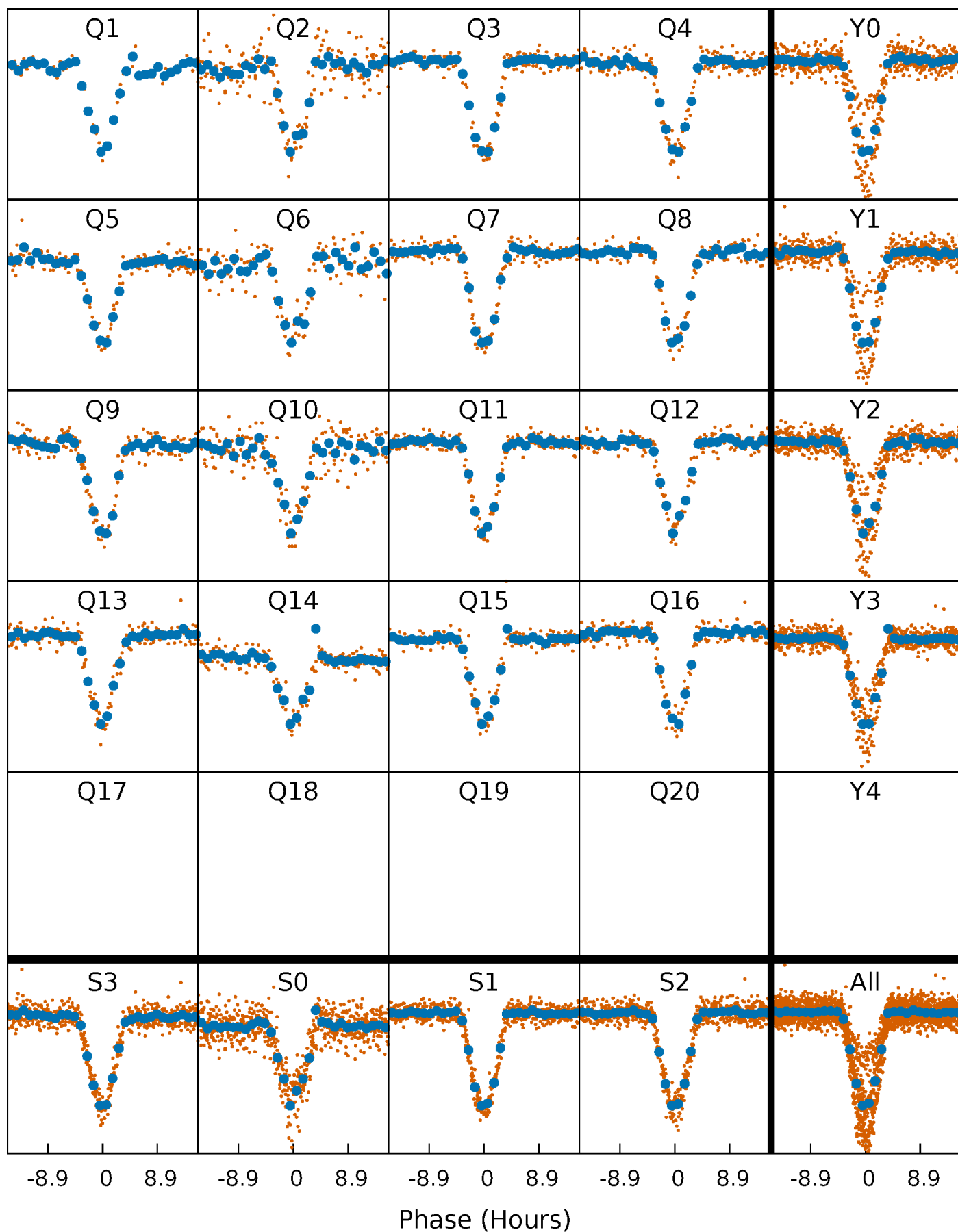


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



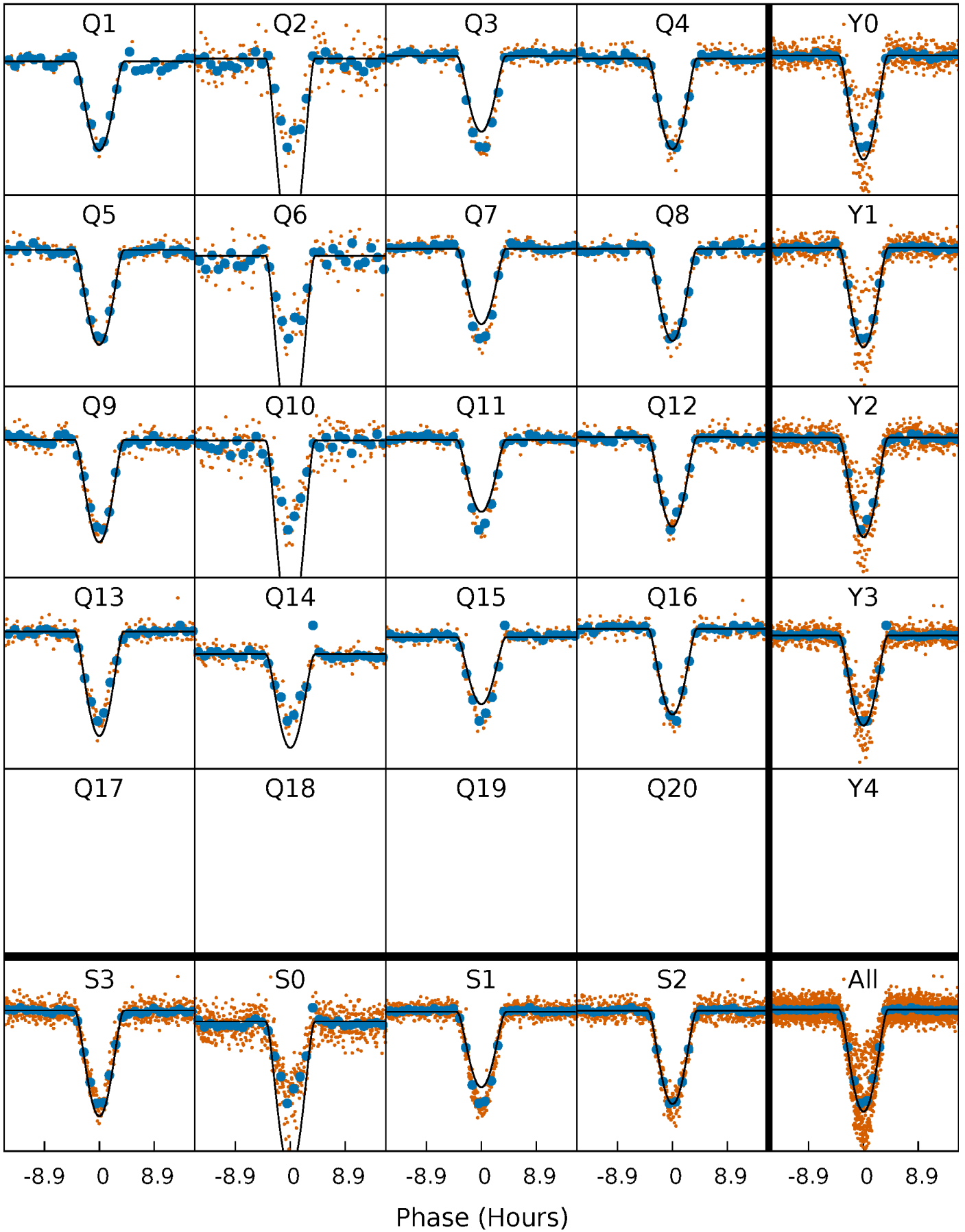
PDC Quarter-Phased Transit Curves

TCE 004949751-01 P= 31.805155 Days $T_0=154.584275$ (BKJD)



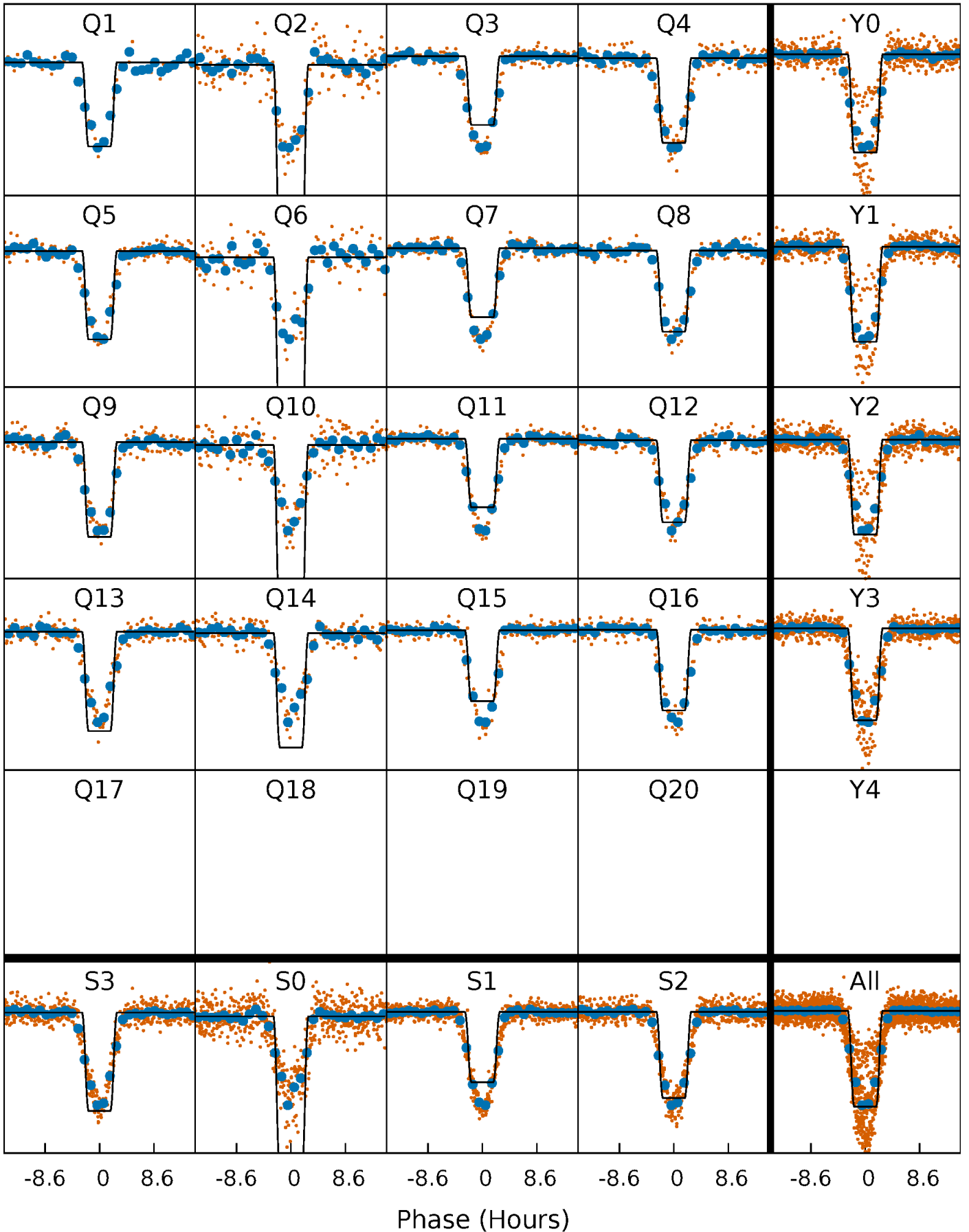
DV Quarter-Phased Transit Curves

TCE 004949751-01 P= 31.805155 Days $T_0=154.584275$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

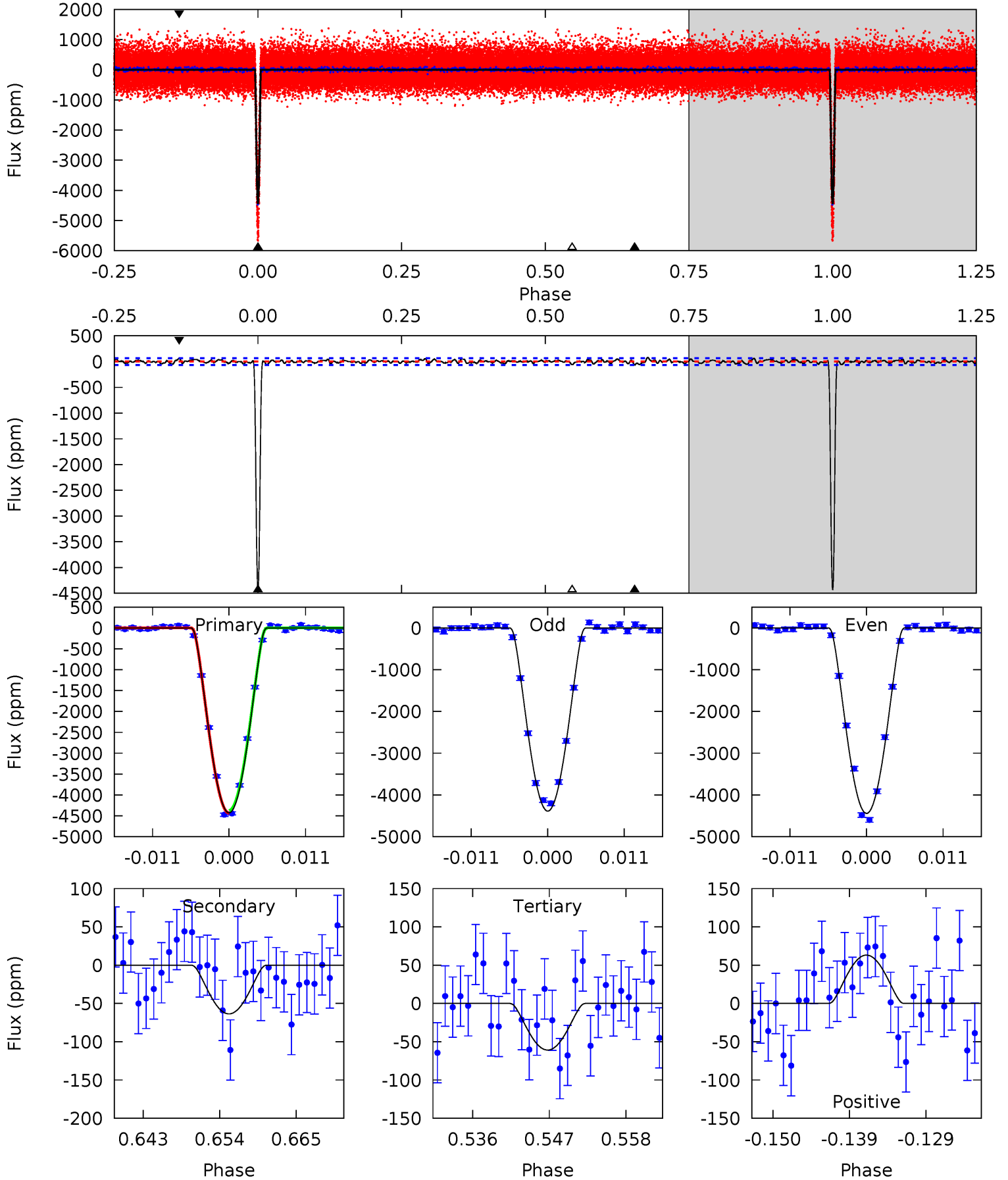
TCE 004949751-01 P= 31.804838 Days $T_0=154.591089$ (BKJD)



DV Model-Shift Uniqueness Test

004949751-01, P = 31.805155 Days, E = 122.779120 Days

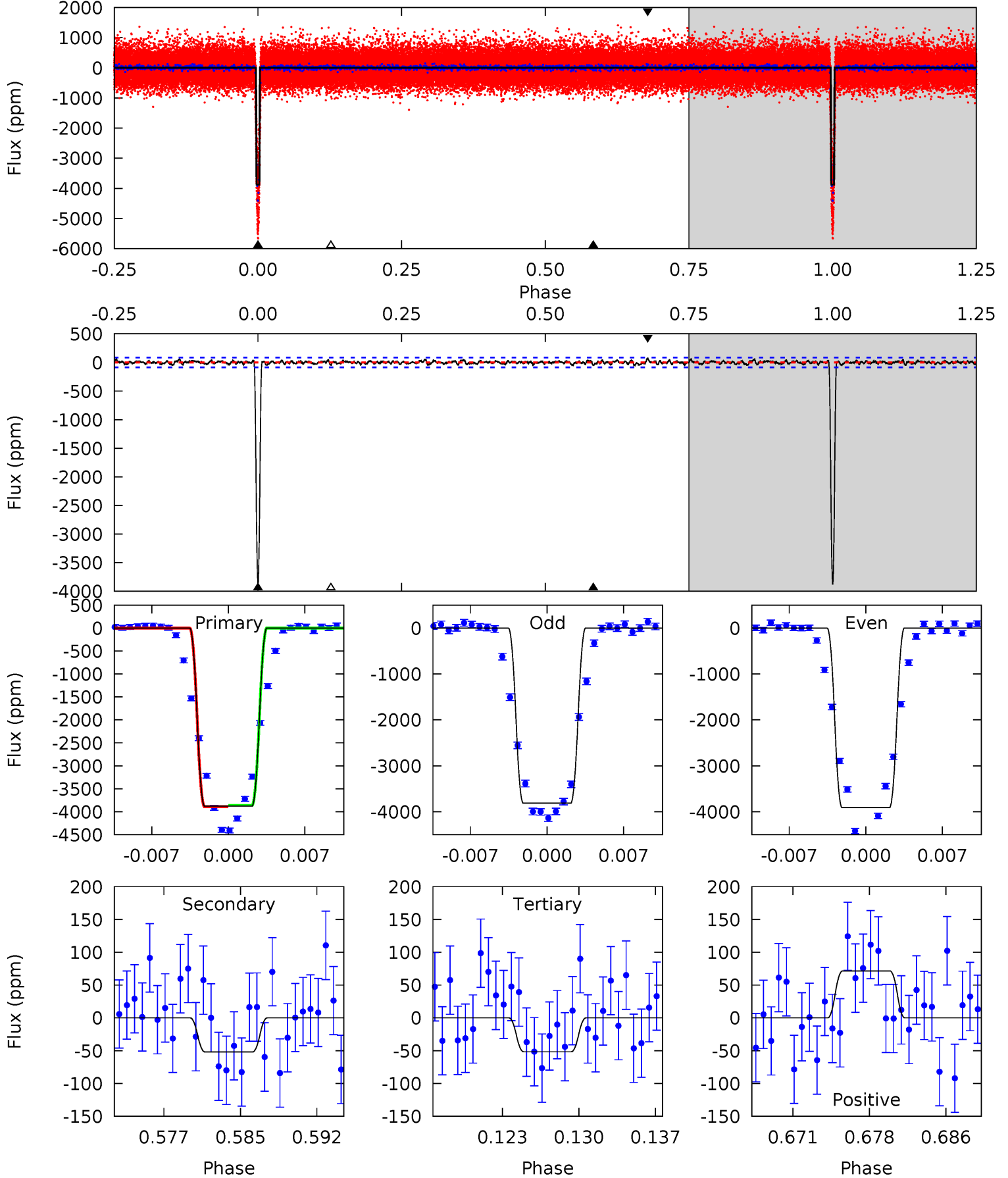
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 333.8 | 4.80 | 4.59 | 4.76 | 5.01 | 2.55 | 1.65 | 329.2 | 329.1 | 0.21 | 0.03 | 2.07 | 0.98 | 0.02 | 2.42 |



Alt Model-Shift Uniqueness Test

004949751-01, $P = 31.804838$ Days, $E = 122.786251$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 226.4 | 3.04 | 3.02 | 4.17 | 5.09 | 2.69 | 1.12 | 223.4 | 222.2 | 0.01 | -1.14 | 2.77 | 0.99 | 0.02 | 0.86 |



Stellar Parameters For KIC 004949751

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5931^{+161}_{-161} | $4.545^{+0.044}_{-0.176}$ | $-0.280^{+0.300}_{-0.300}$ | $0.863^{+0.217}_{-0.072}$ | $0.953^{+0.109}_{-0.119}$ | $2.087^{+0.377}_{-0.969}$ |
| | +3%/-3% | +1%/-4% | +107%/-107% | +25%/-8% | +11%/-12% | +18%/-46% |
| 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 004949751-01 / KOI 0404.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|--------------|-------------------------|----------------------|----------------------|------------------|
| DV | -64 ± 13 | $10.65^{+2.67}_{-2.47}$ | 789^{+48}_{-36} | 2467^{+166}_{-139} | 11^{+8}_{-5} |
| Alt. | -52 ± 17 | $6.22^{+2.70}_{-2.21}$ | 787^{+44}_{-34} | 2750^{+361}_{-277} | 26^{+42}_{-14} |

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

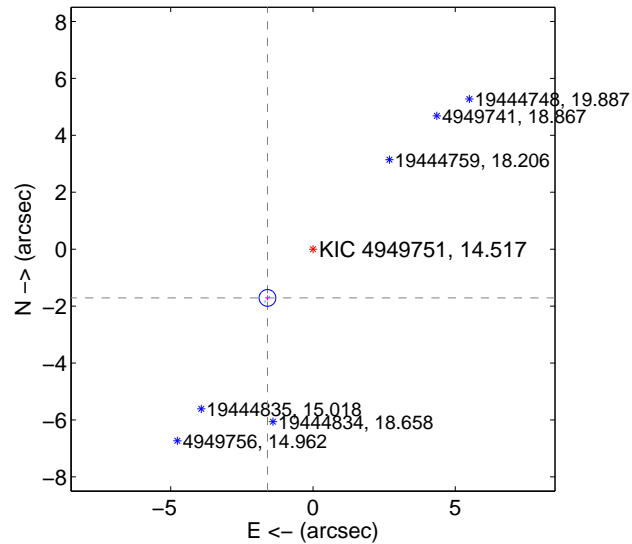
Supplemental centroid analysis for 004949751-01. Kepler magnitude: 14.52. Transit SNR 160.18

There are 3 quarters with good PRF difference image offsets

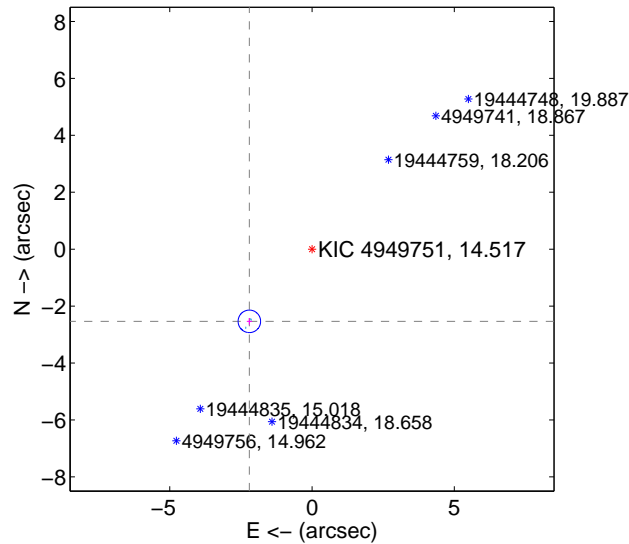
The direct PRF centroid is offset from the target star catalog position by about 1.00 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 2.344 ± 0.098 | 23.94 | 1.599 ± 0.080 | -1.713 ± 0.088 |
| PRF-fit source offset from KIC position | 3.358 ± 0.132 | 25.48 | 2.202 ± 0.091 | -2.536 ± 0.118 |
| photometric centroid source offset | 6.94 ± 0.05 | 148.32 | 4.04 ± 0.05 | -5.64 ± 0.05 |

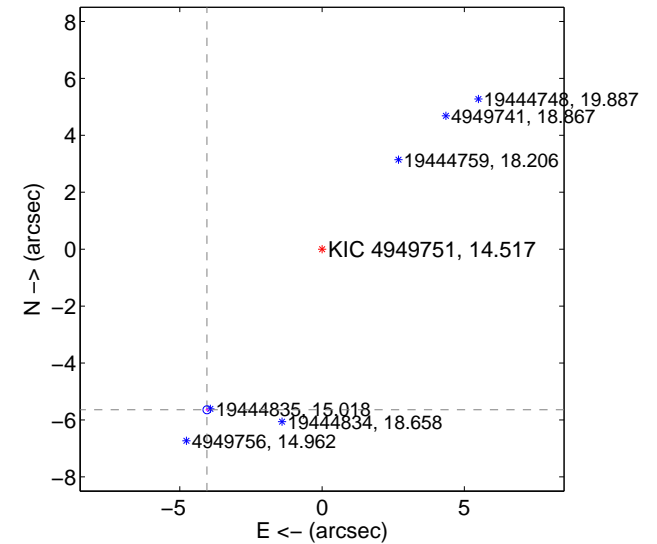
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

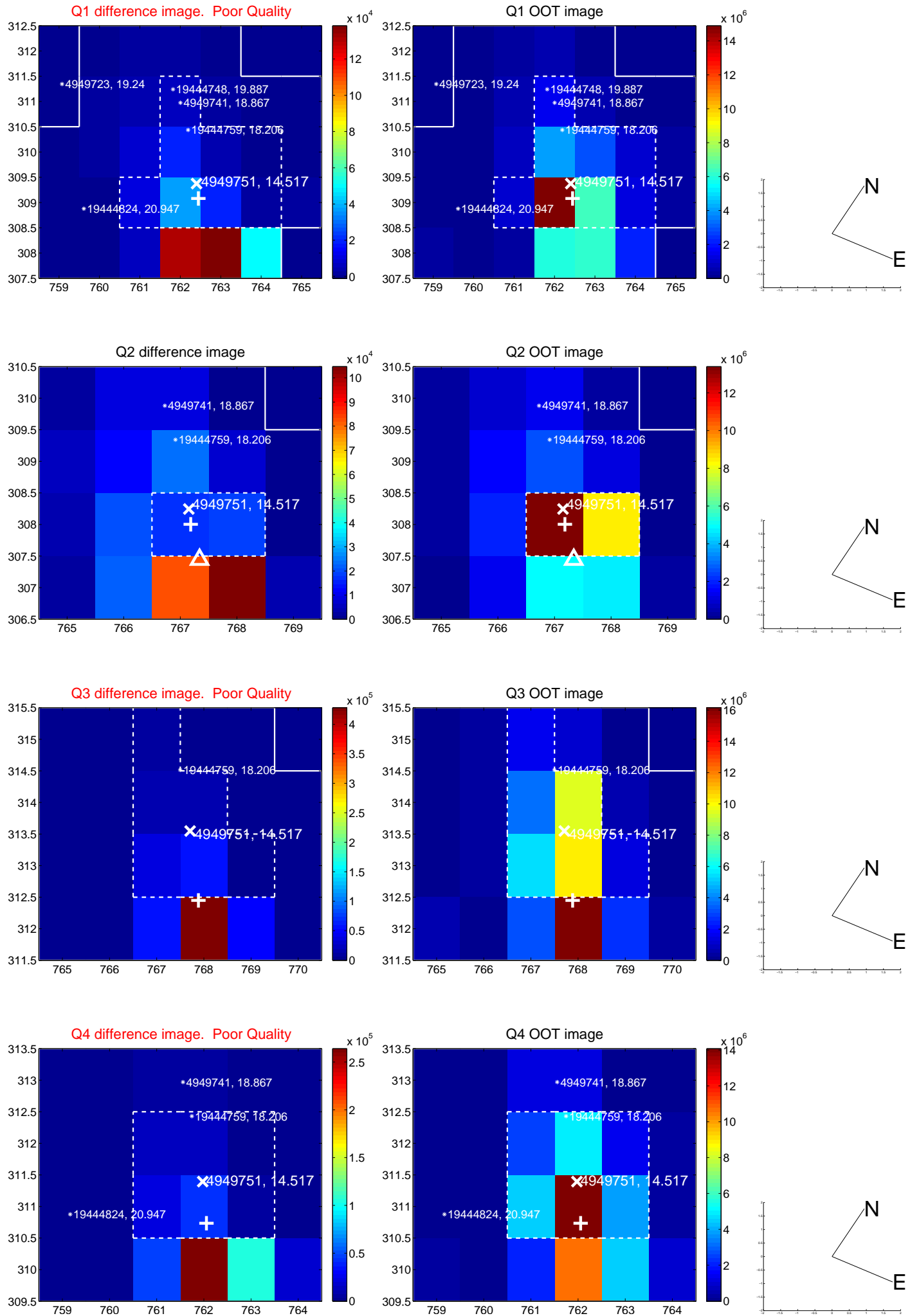


offset from photometric centroids

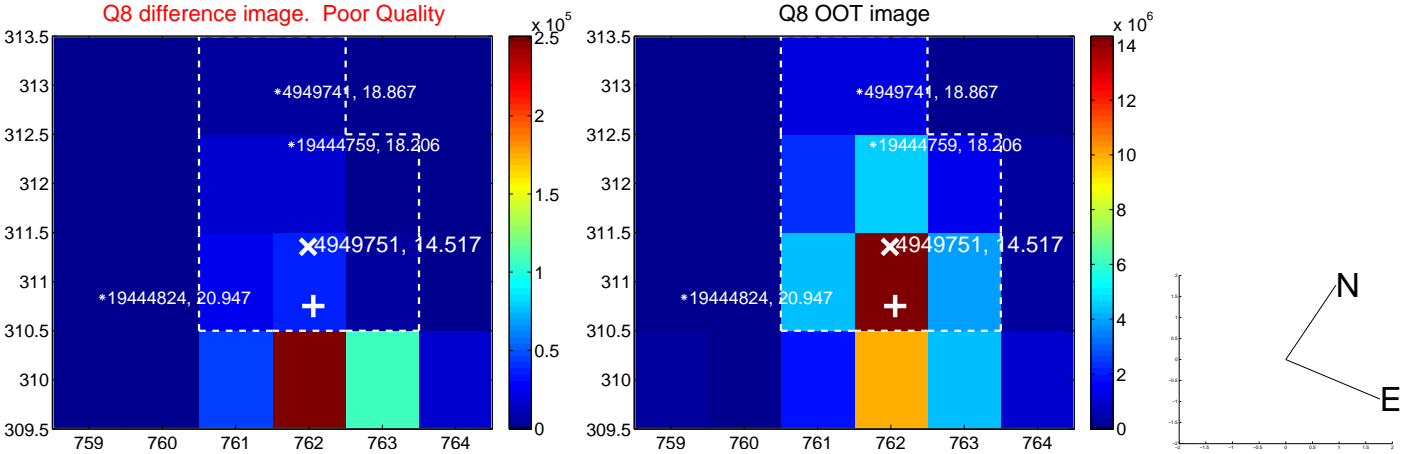
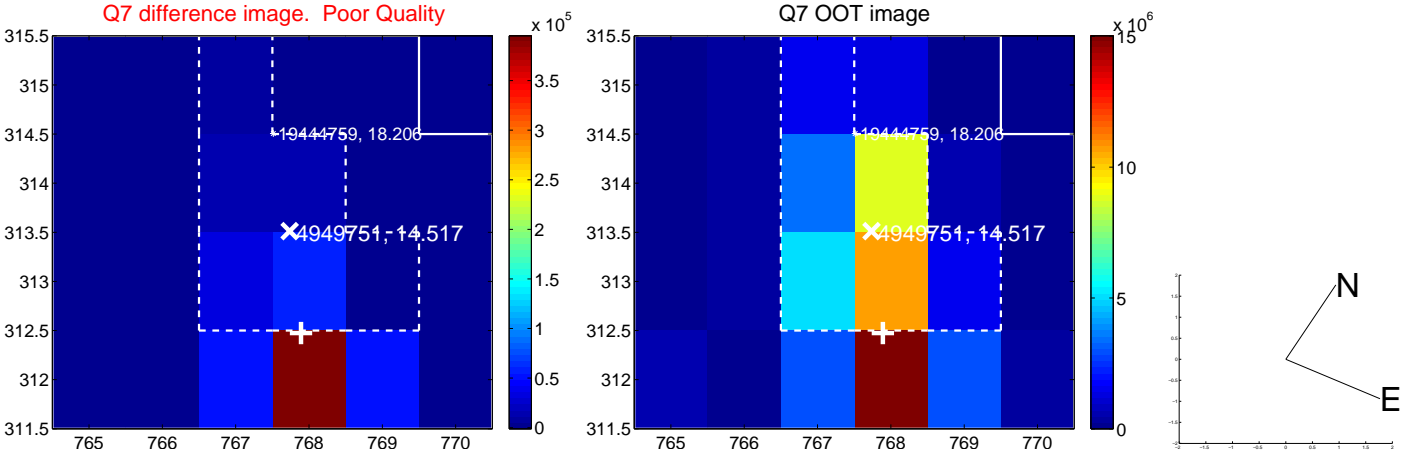
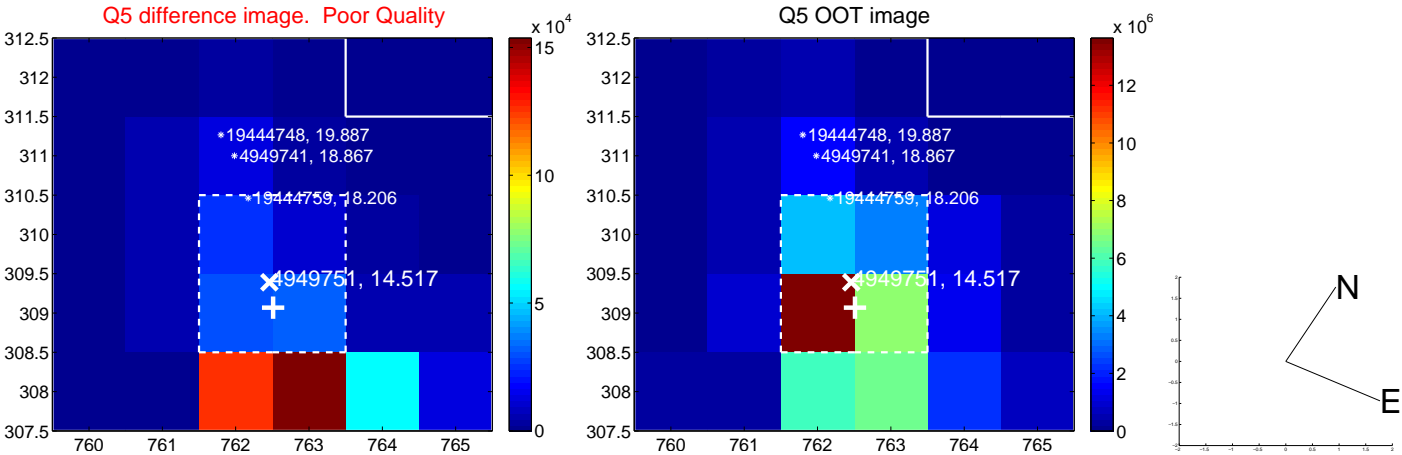


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

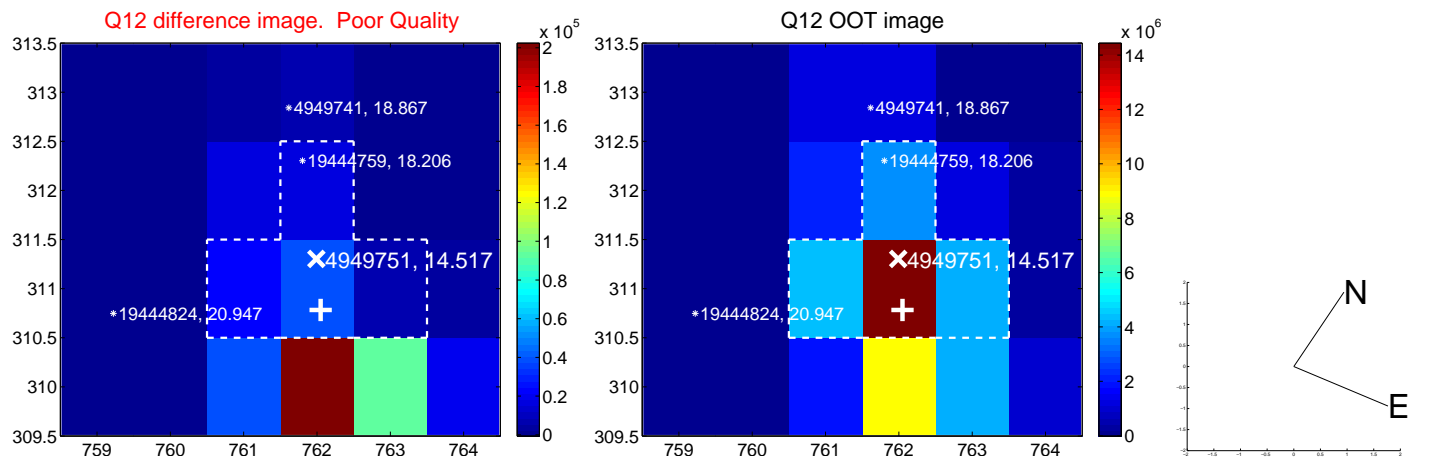
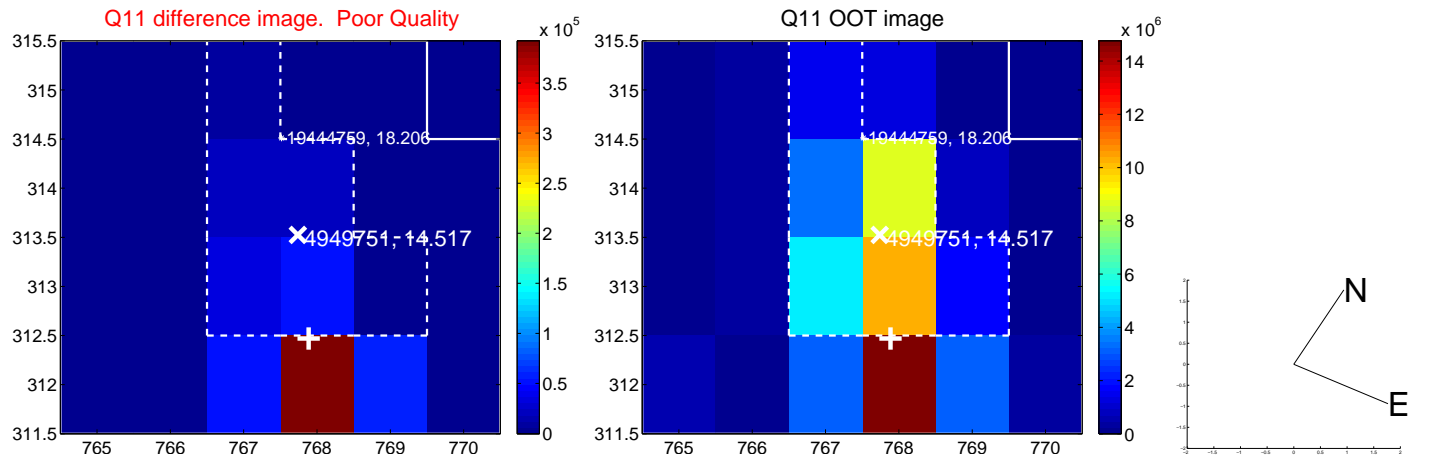
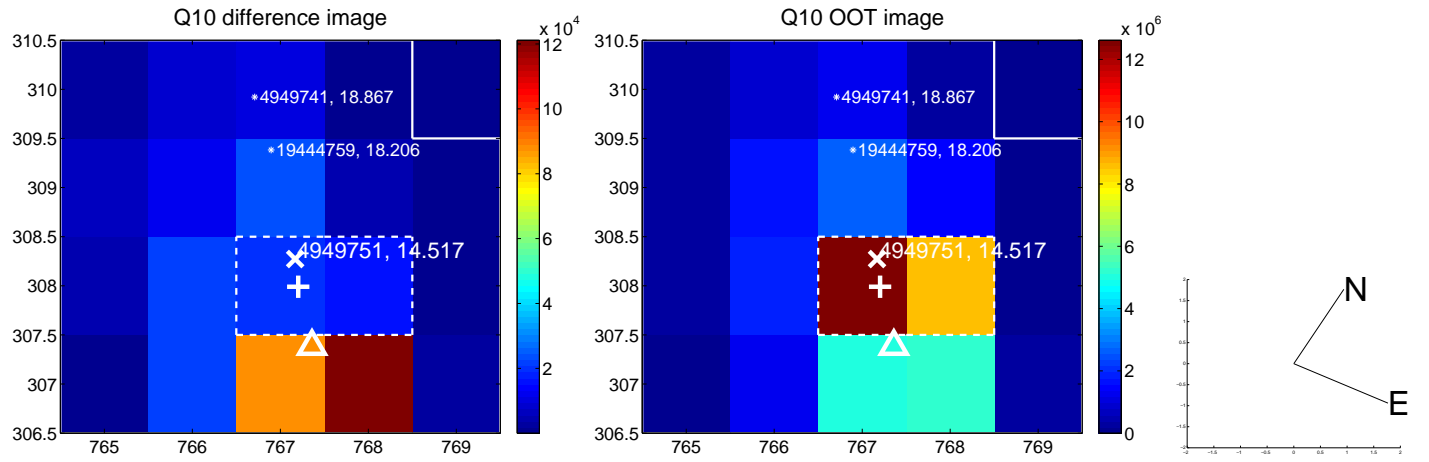
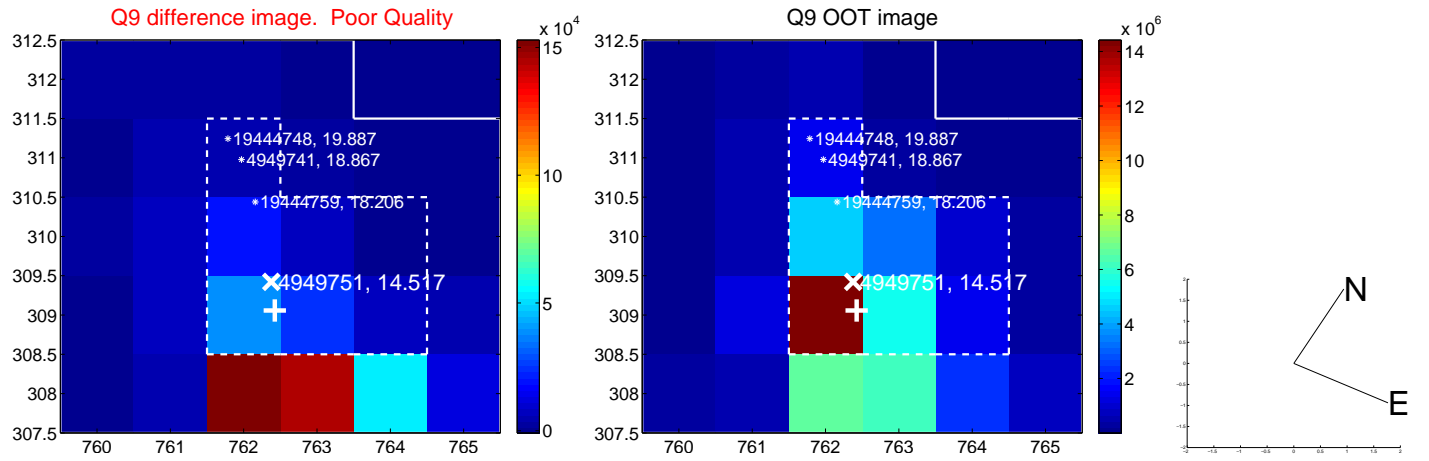
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



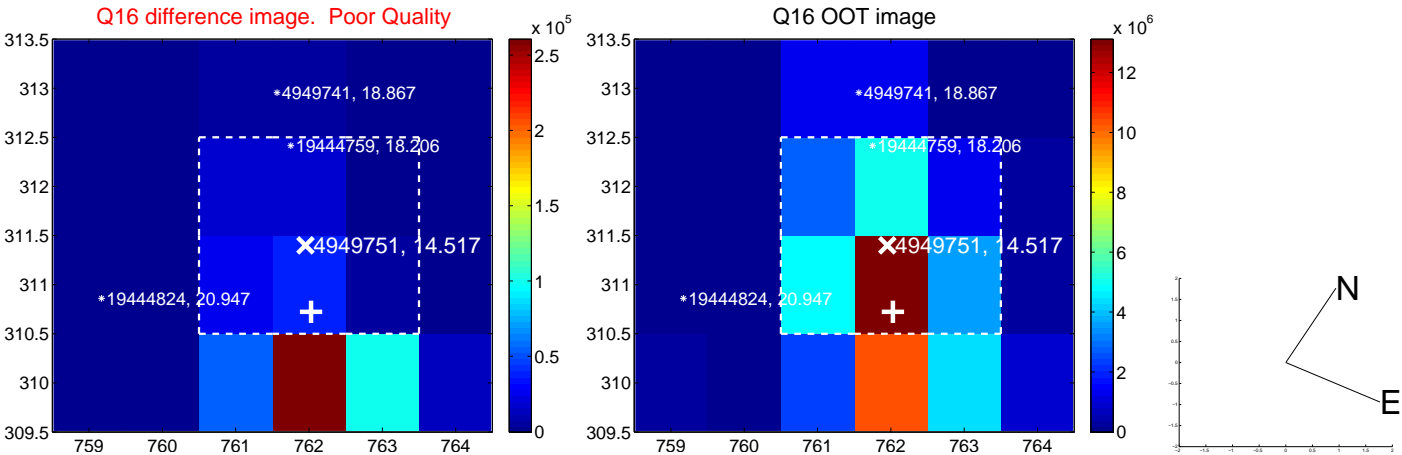
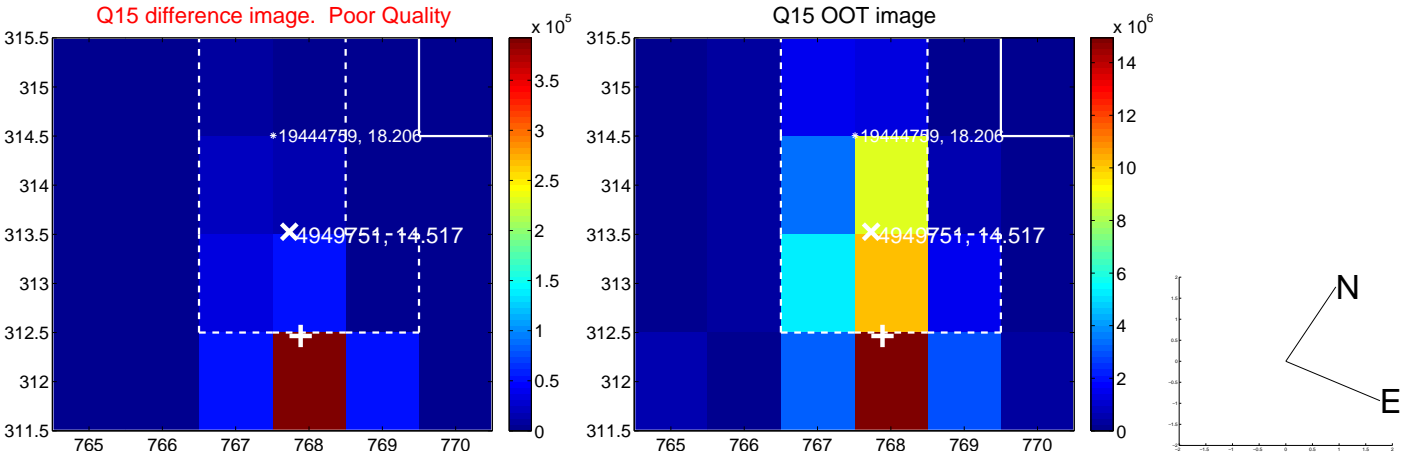
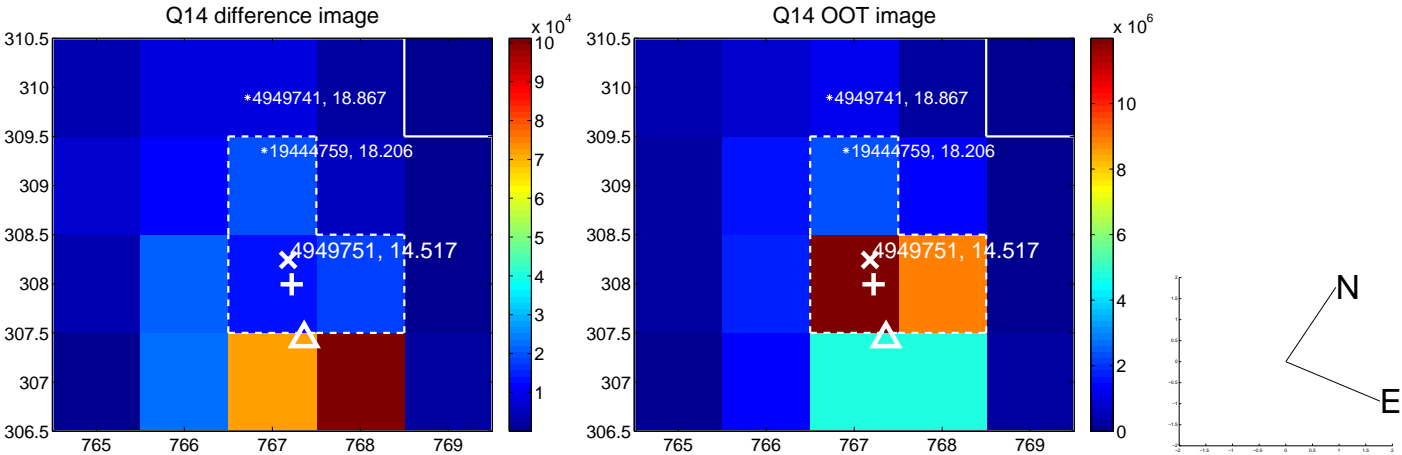
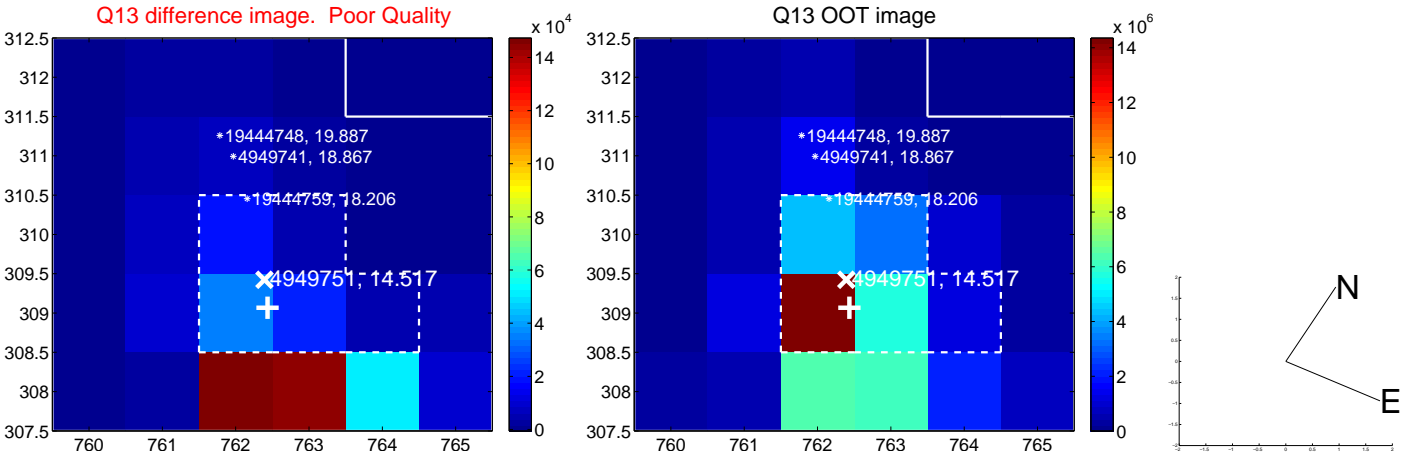
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



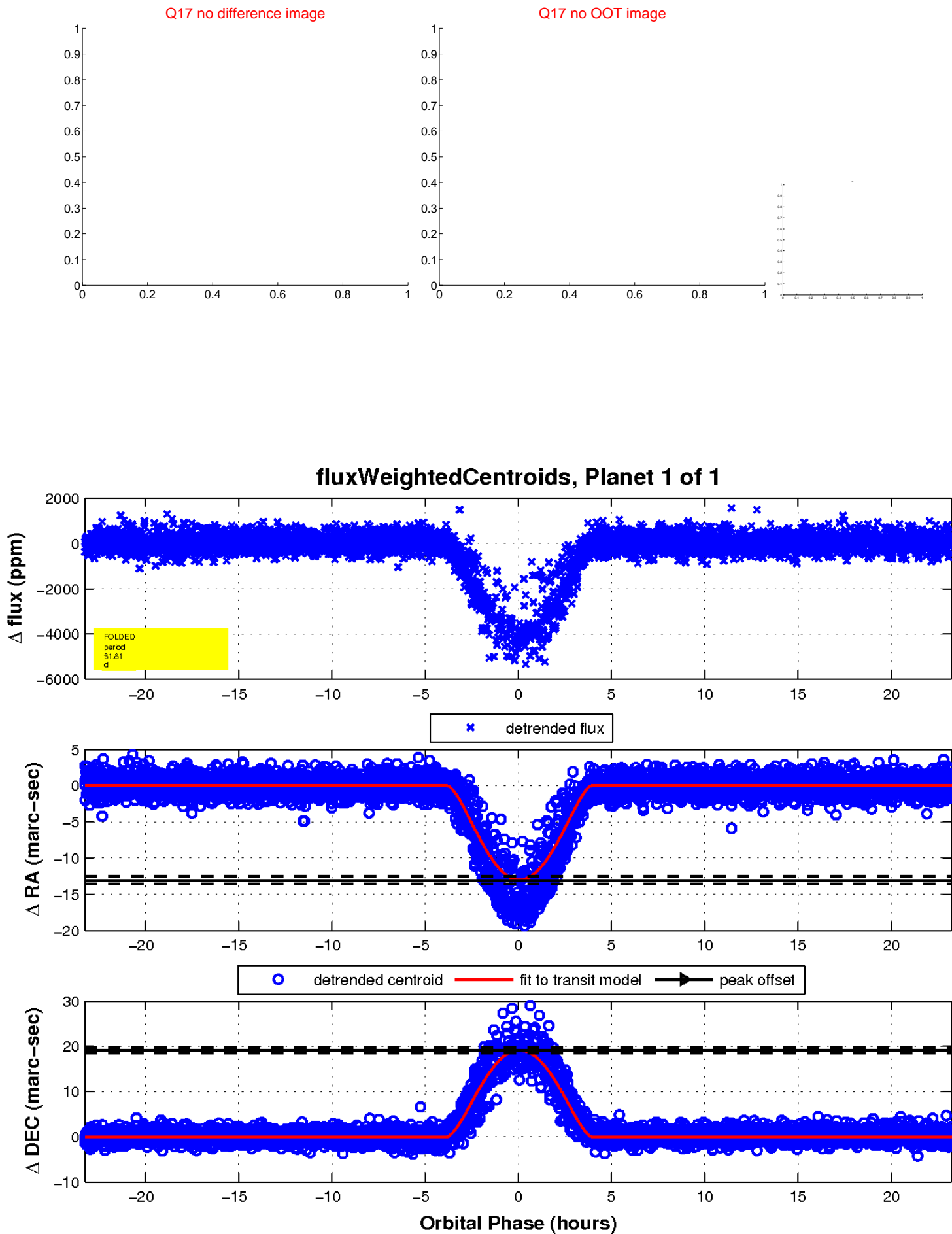
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

