

KIC 009641144

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R _★ (R _☉) | T _★ (K) | R _p (R _⊕) | S _p (S _⊕) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|----------------------------------|--------------------|----------------------------------|----------------------------------|
| 009641144-01 | OBS | 4262.01 | 1.089027 | 132.060172 | 38.4 | 2.643 | 13.4 | 13.8 | 1.08 | 6444 | 0.81 | 3915.73 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 009641144-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 1 | HALO_GHOST—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.

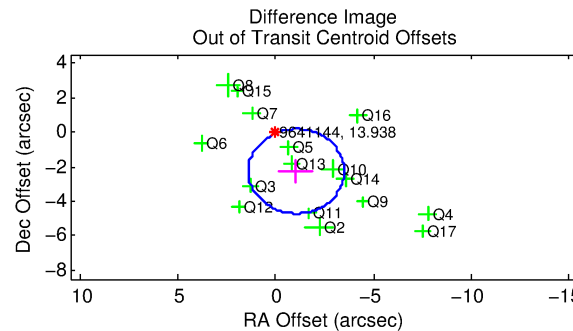
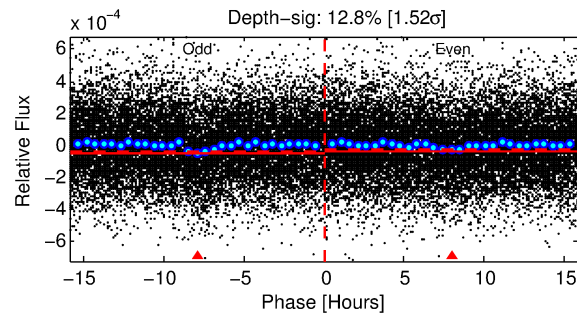
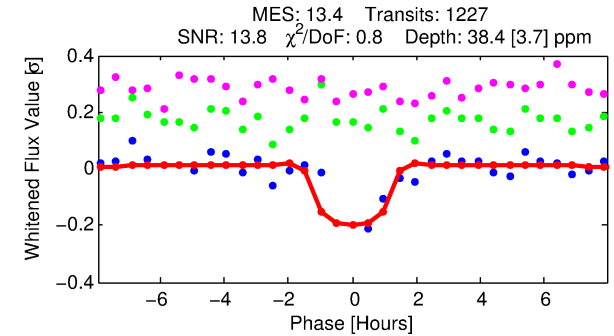
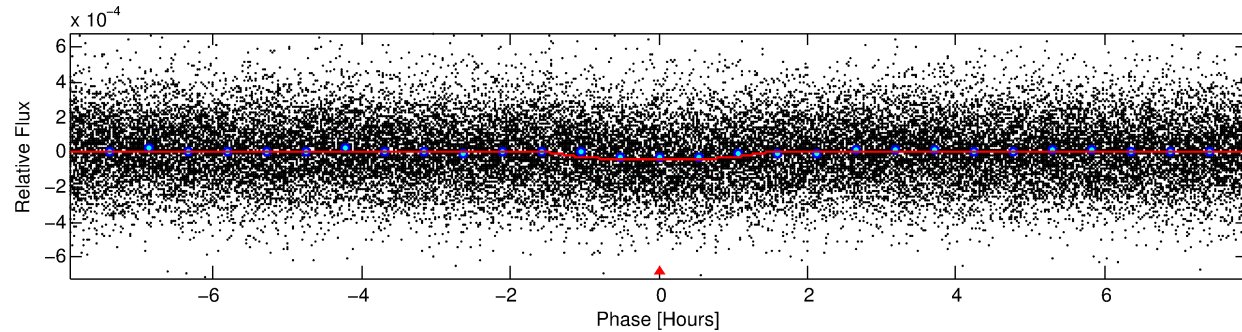
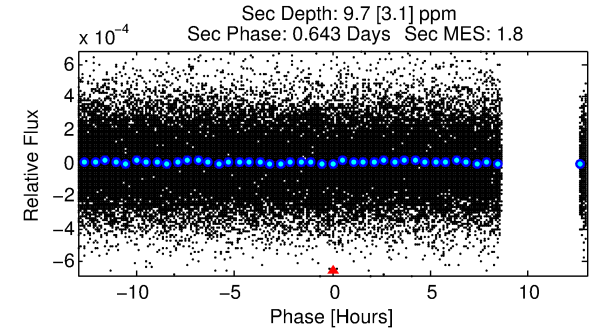
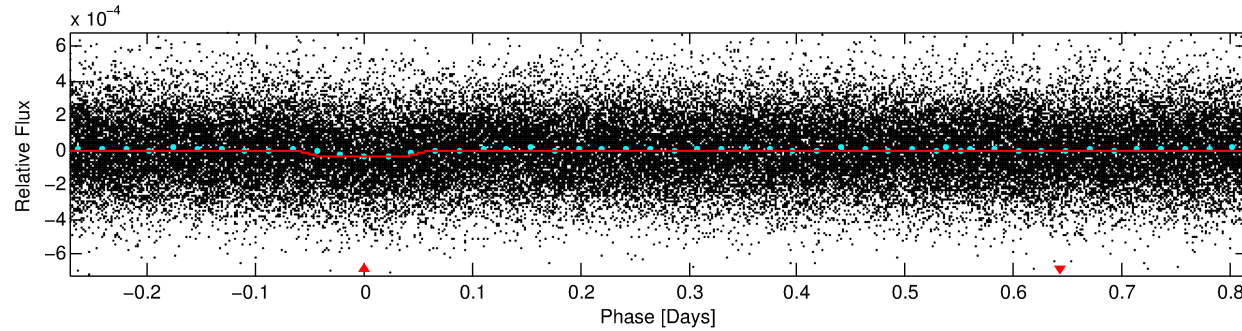
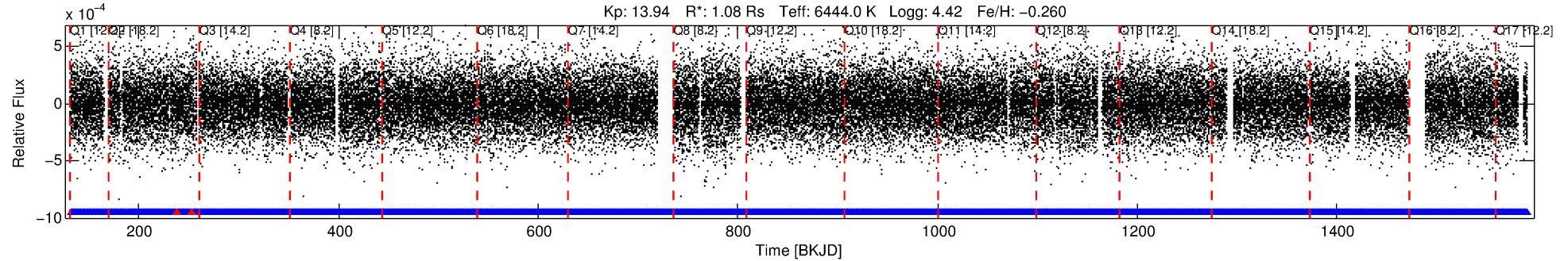
Ephemeris Match Information For 009641144-01

| TCE (1) | KIC | Parent (2) | Parent KIC | P ₁ :P ₂ | Dist (″) | ΔRow | ΔCol | m ₂ | m ₁ | D ₂ /D ₁ | Mechanism | Flag | σ _P | σ _T |
|--------------|---------|------------|------------|--------------------------------|----------|------|------|----------------|----------------|--------------------------------|------------|------|----------------|----------------|
| 009641144-01 | 9641144 | 7211.01 | 9641031 | 1:1 | 173.5 | -26 | 35 | 9.18 | 13.94 | 7972.10 | Direct-PRF | 0 | 4.11 | 2.72 |

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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 σ_P < 5.0 and σ_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: 9641144 Candidate: 1 of 1 Period: 1.089 d
KOI: K04262.01 Corr: 0.812



DV Fit Results:

Period = 1.08903 [0.00001] d
Epoch = 132.0602 [0.0024] BKJD
Rp/R* = 0.0069 [0.0024]
a/R* = 1.52 [1.79]
b = 0.94 [0.28]
Seff = 3915.73 [1537.22]
Teq = 2017 [198] K
Rp = 0.81 [0.38] Re
a = 0.0214 [0.0056] AU
Ag = 3.73 [3.20] [0.85σ]
Teffp = 4335 [846] K [2.67σ]

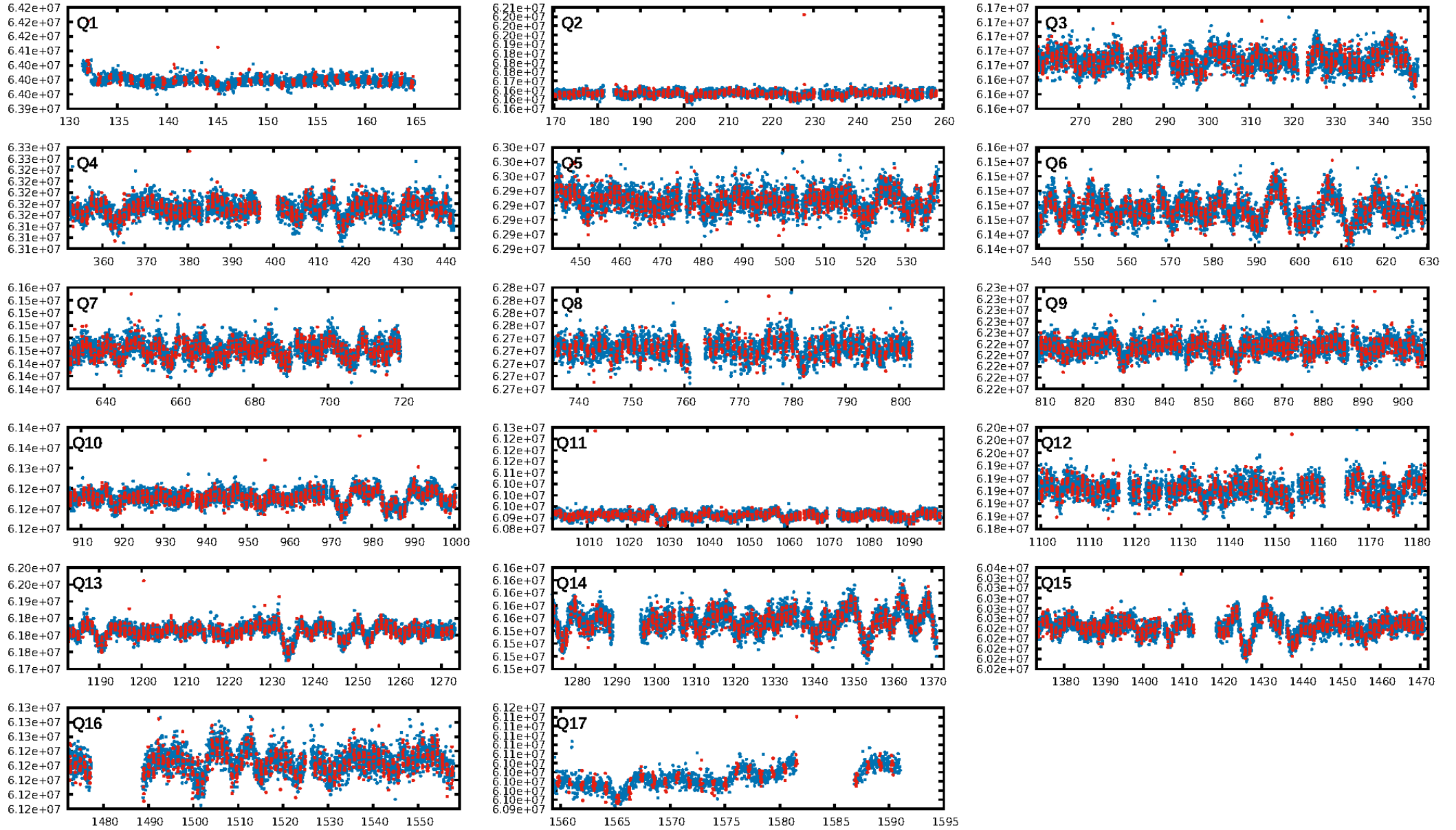
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.78e-39
RollingBand-fgt: 1.00 [1169/1171]
GhostDiagnostic-chr: 0.0144
Centroid-sig: 10.8%
Centroid-so: 1.460 arcsec [1.52σ]
OotOffset-rm: 2.501 arcsec [3.07σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 2.531 arcsec [2.64σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.12 [2/16]
DiffImageOverlap-fno: 1.00 [17/17]

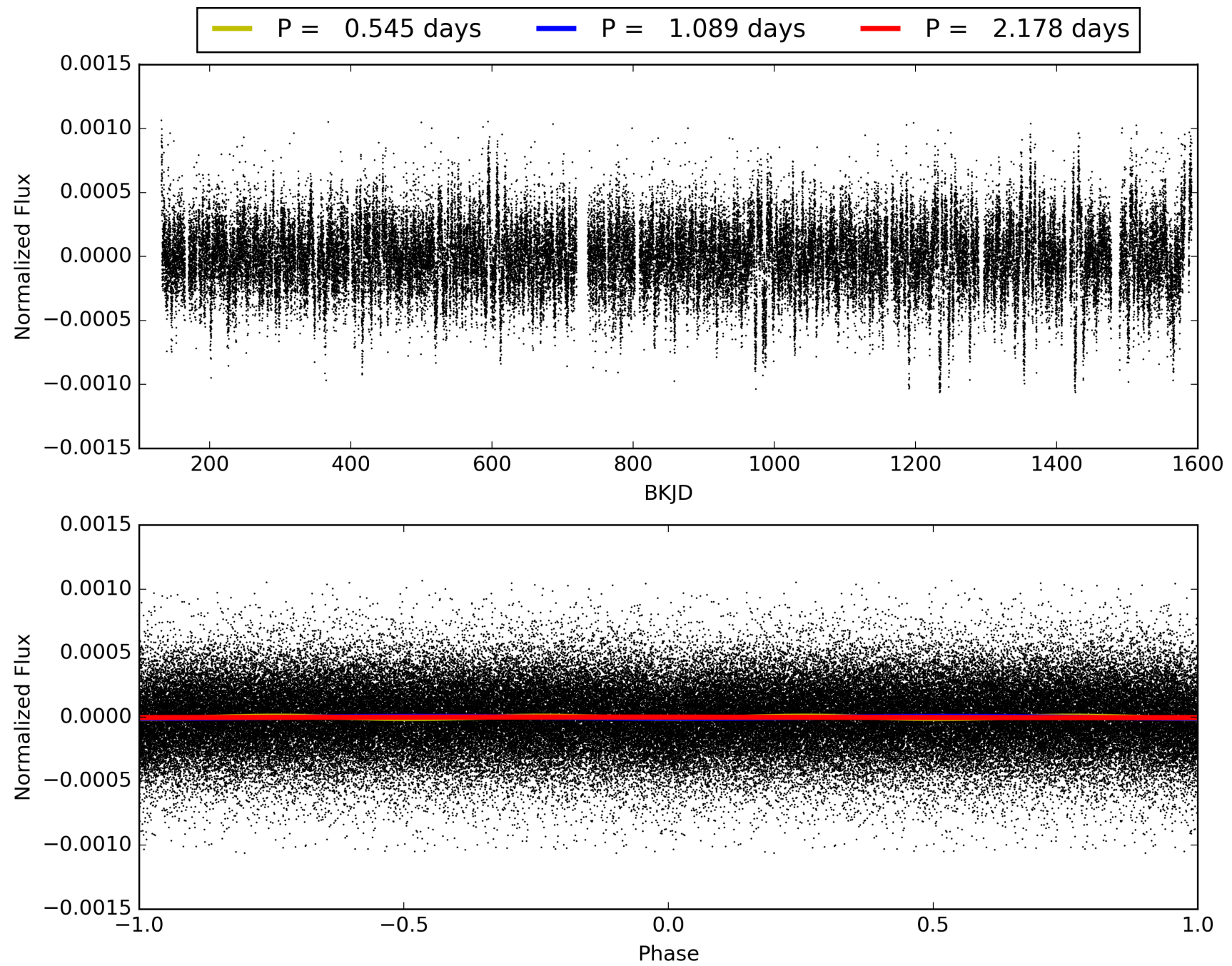
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:16:37 Z

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

TCE 009641144-01, PDC Light Curves

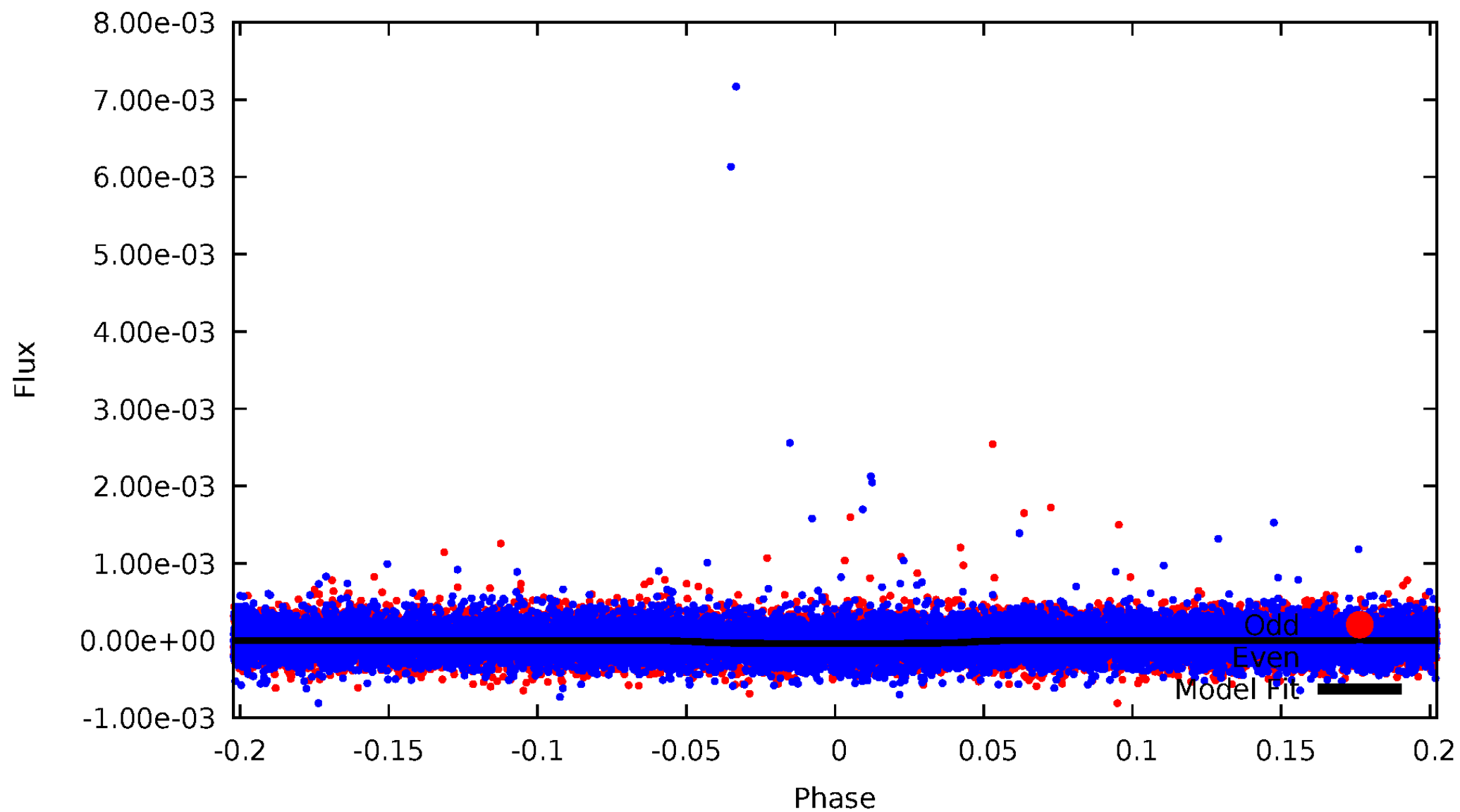


TCE 009641144-01



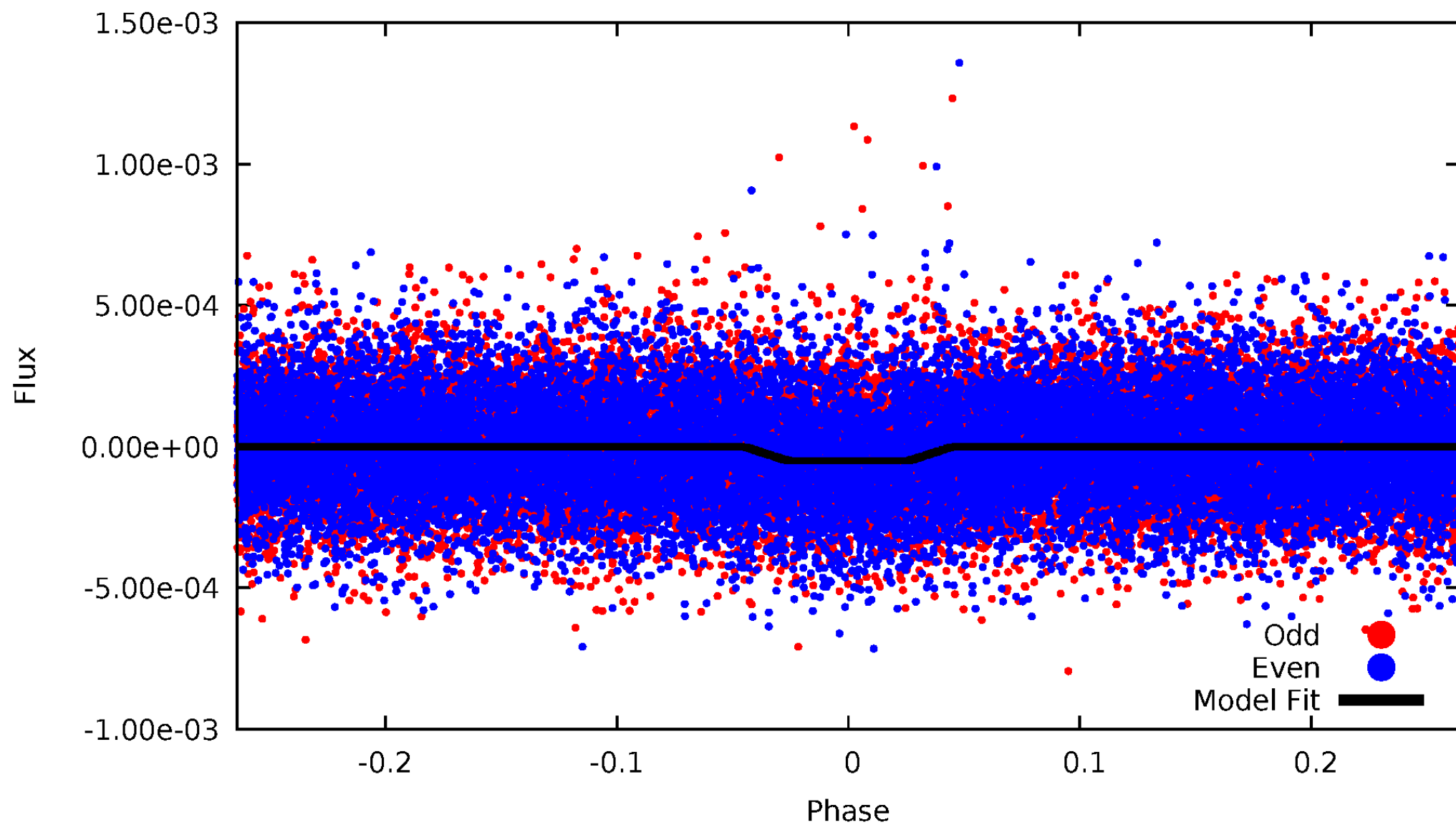
DV Odd/Even

TCE 009641144-01

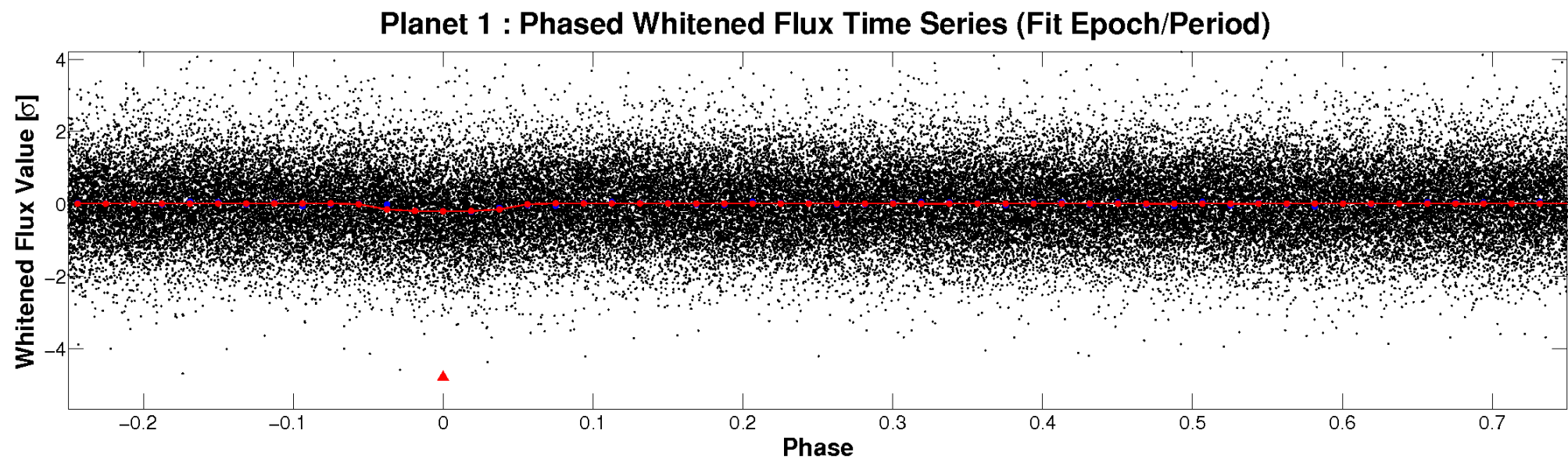
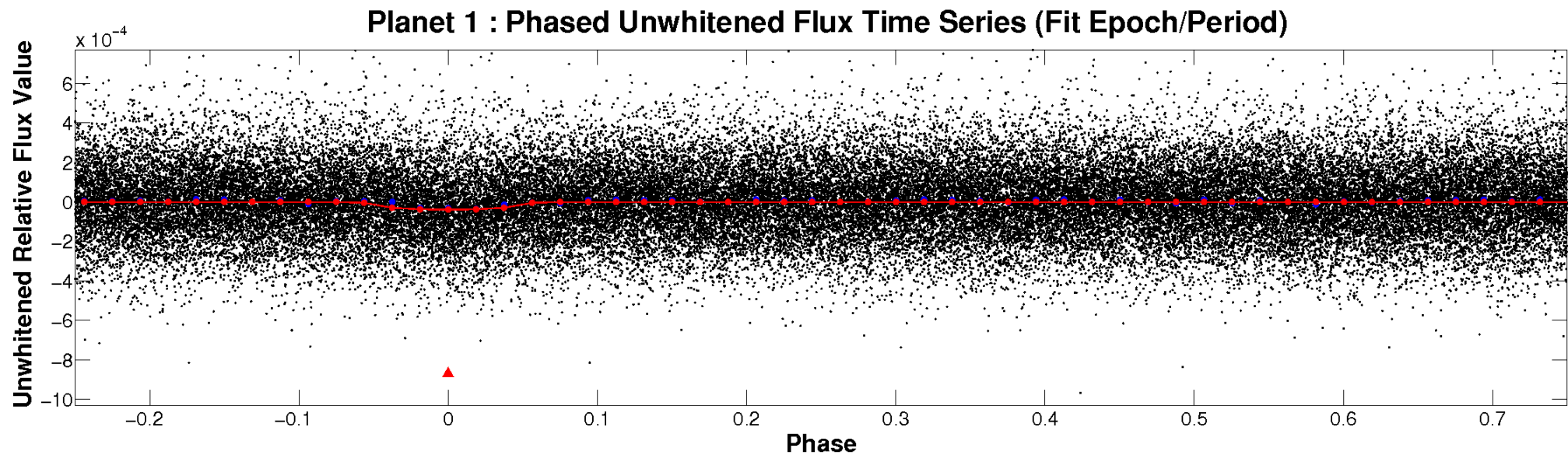


ALT Odd/Even

TCE 009641144-01

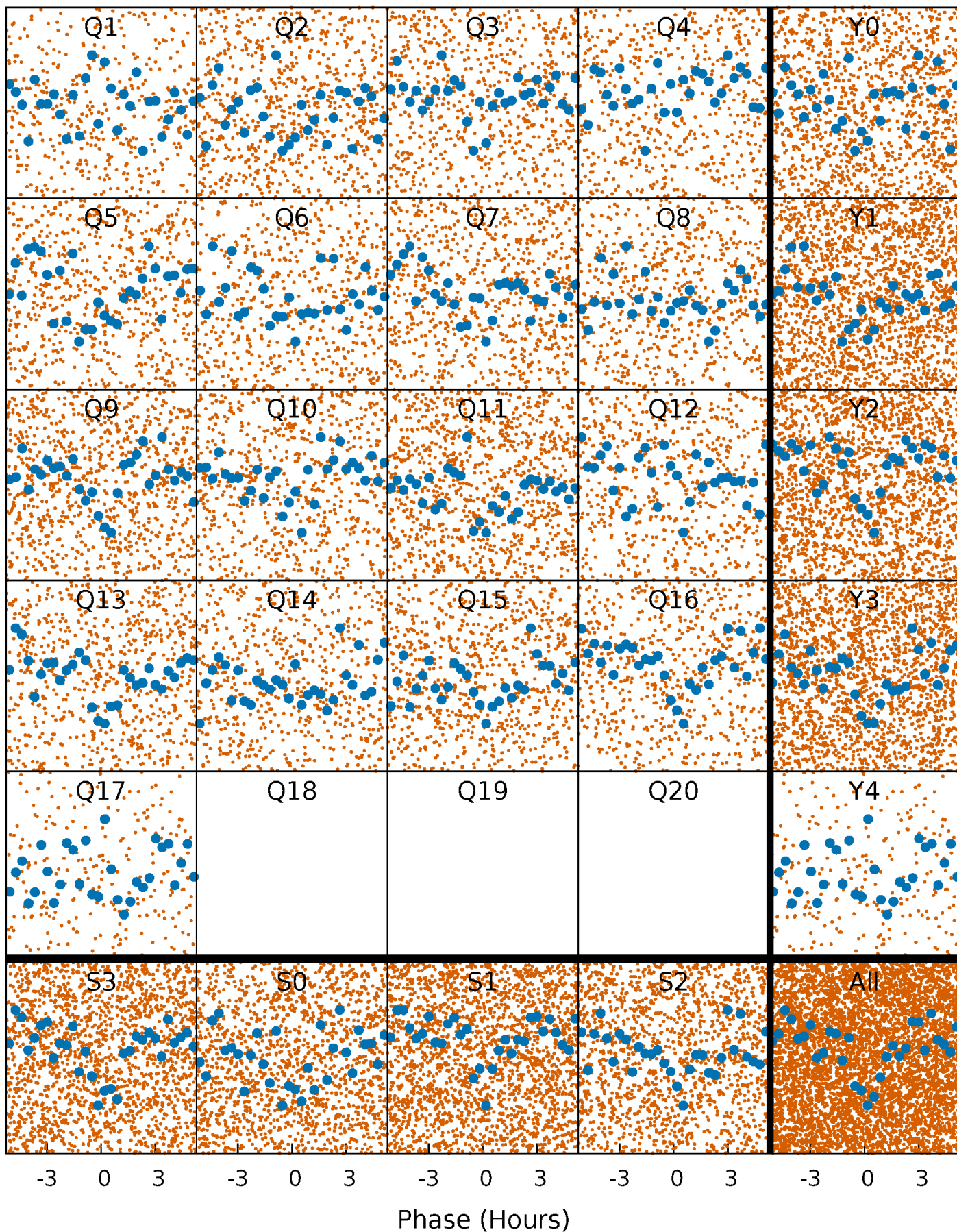


Non-Whitened Vs. Whitened Light Curve



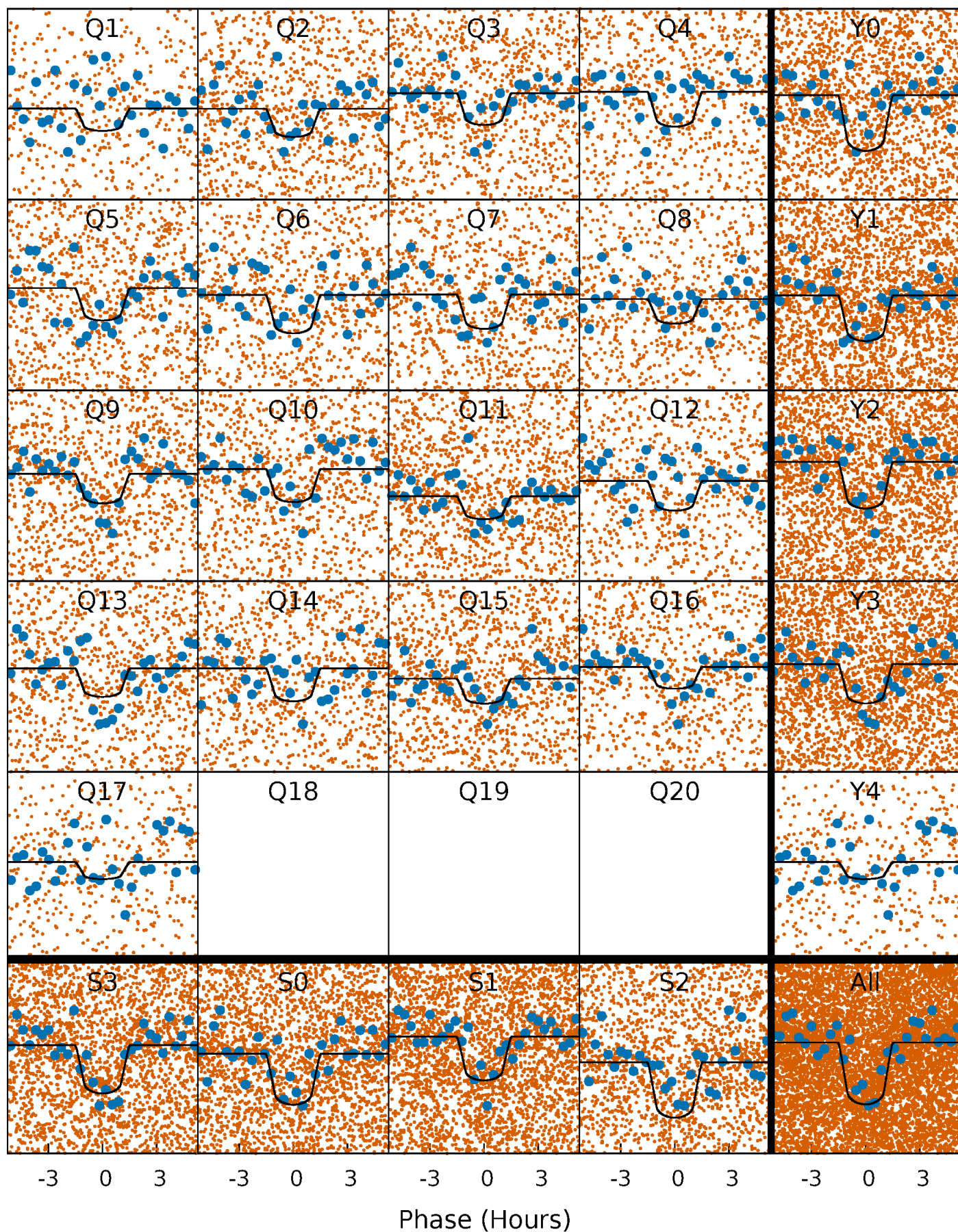
PDC Quarter-Phased Transit Curves

TCE 009641144-01 P= 1.089027 Days $T_0=132.060172$ (BKJD)



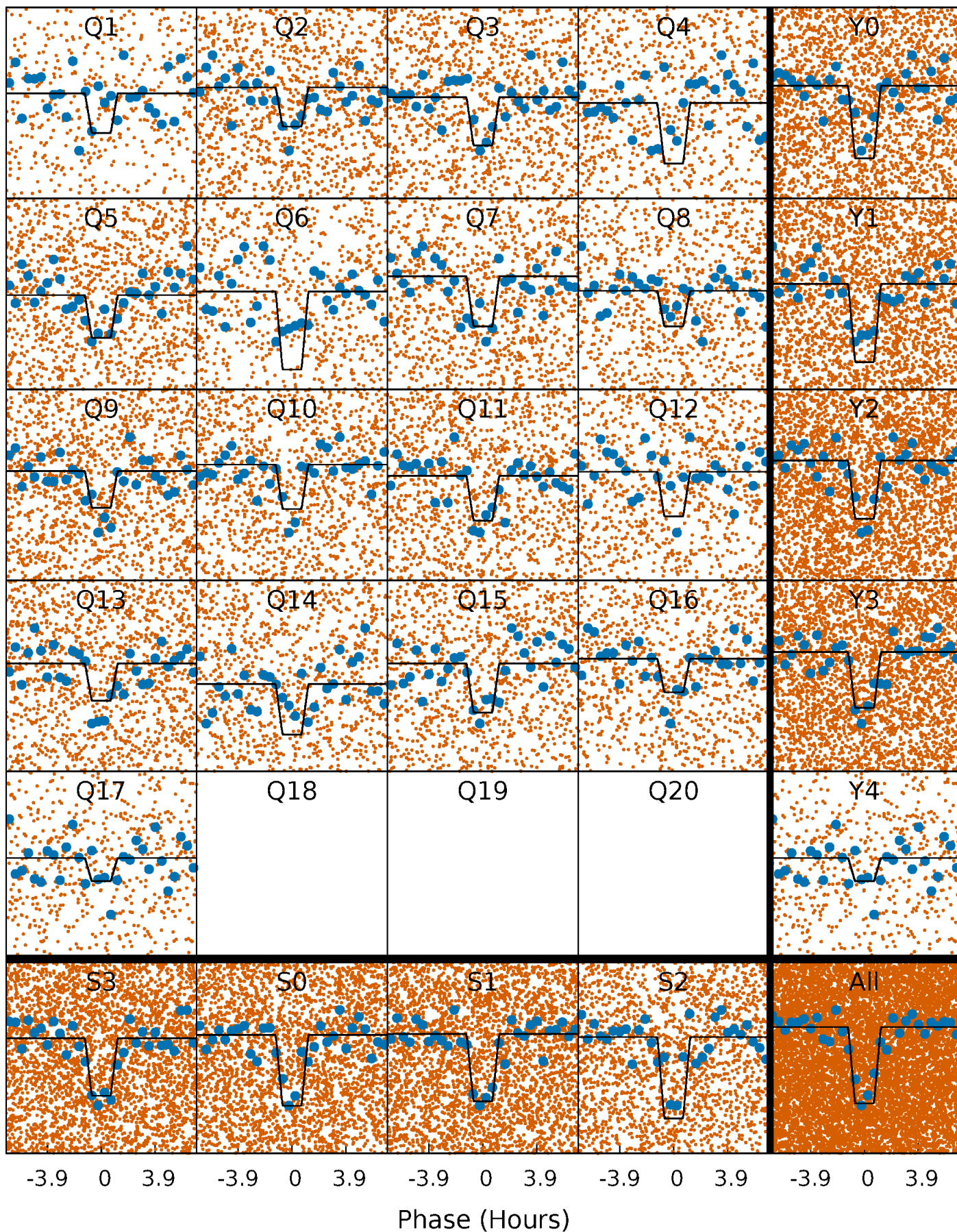
DV Quarter-Phased Transit Curves

TCE 009641144-01 P= 1.089027 Days $T_0=132.060172$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

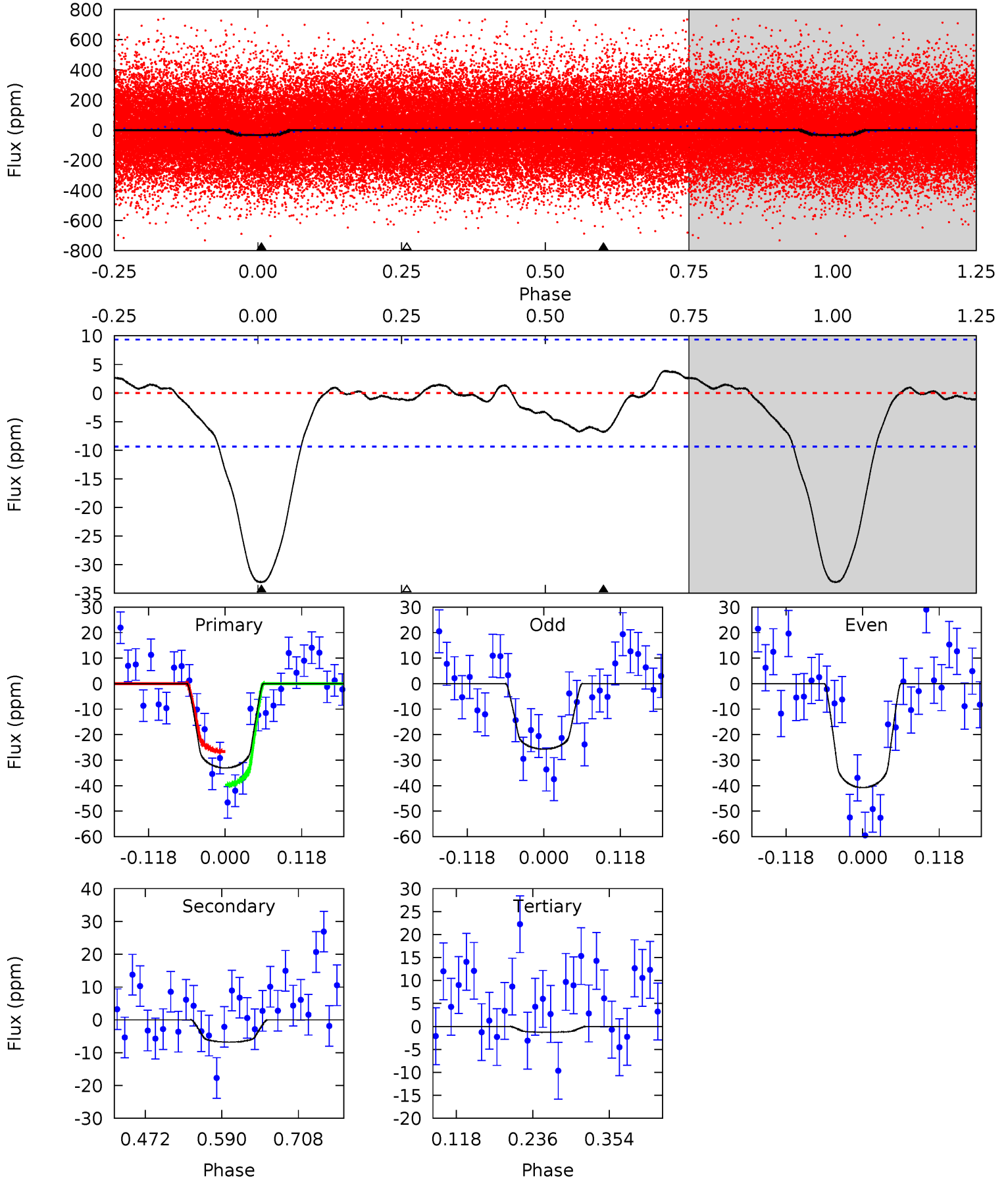
TCE 009641144-01 P= 1.089061 Days $T_0=132.040852$ (BKJD)



DV Model-Shift Uniqueness Test

009641144-01, P = 1.089027 Days, E = 130.971145 Days

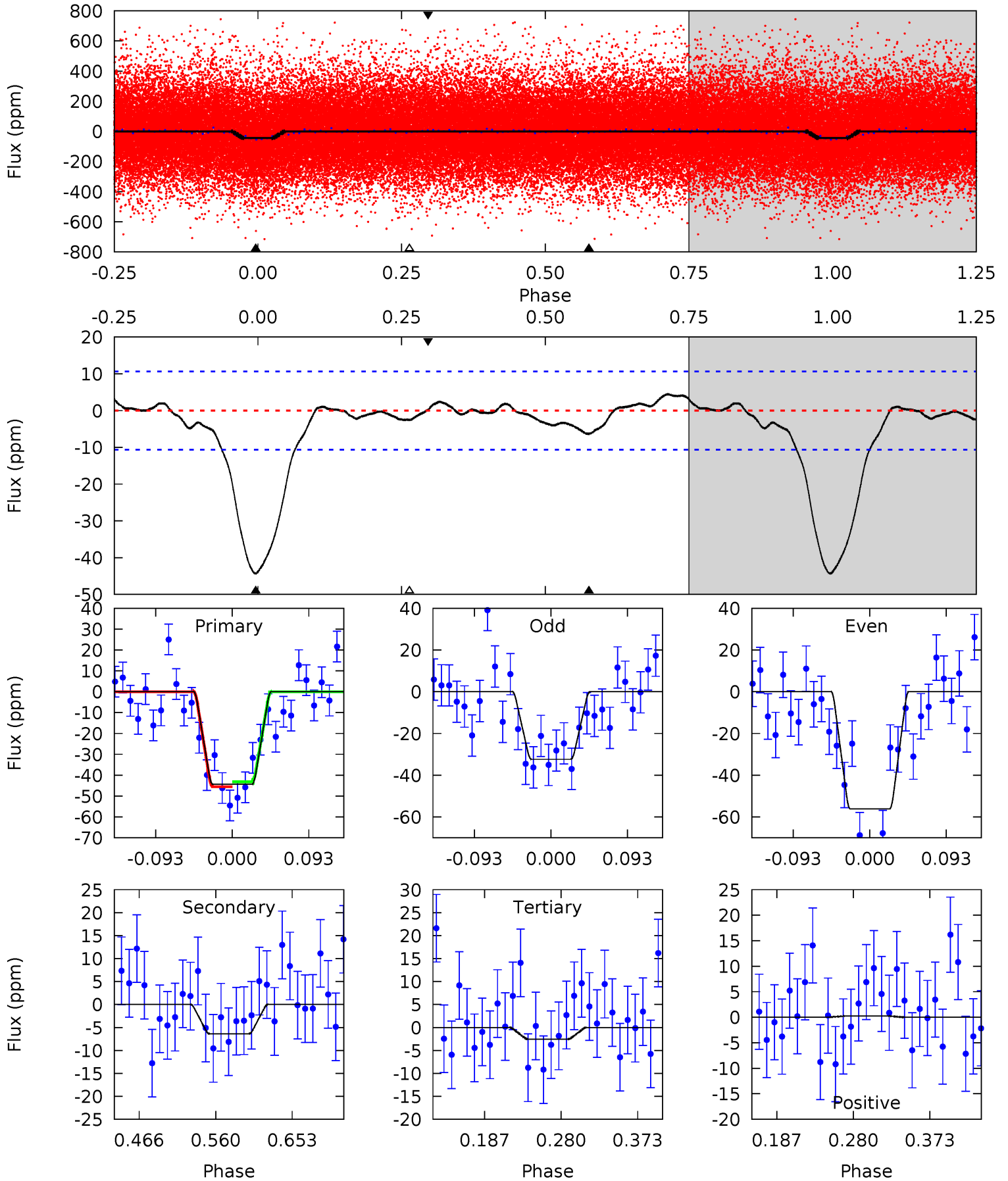
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.0 | 3.29 | 0.61 | 0 | 4.53 | 1.56 | 0.72 | 15.4 | 16.0 | 2.67 | 3.29 | 3.66 | 0.72 | 0.10 | 3.18 |



Alt Model-Shift Uniqueness Test

009641144-01, P = 1.089061 Days, E = 130.951791 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 19.1 | 2.74 | 1.10 | 0.11 | 4.58 | 1.68 | 0.82 | 18.0 | 19.0 | 1.64 | 2.63 | 5.12 | 0.98 | 0.09 | 0.50 |



Stellar Parameters For KIC 009641144

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6444^{+145}_{-193} | $4.416^{+0.067}_{-0.202}$ | $-0.260^{+0.250}_{-0.300}$ | $1.079^{+0.338}_{-0.121}$ | $1.107^{+0.152}_{-0.137}$ | $1.240^{+0.359}_{-0.627}$ |
| | +2%/-3% | +2%/-5% | +96%/-115% | +31%/-11% | +14%/-12% | +29%/-51% |
| 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 009641144-01 / KOI 4262.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -7 ± 2 | $0.85^{+0.31}_{-0.30}$ | 2857^{+196}_{-125} | 4059^{+879}_{-550} | $2.263^{+3.533}_{-1.128}$ |
| Alt. | -6 ± 2 | $0.86^{+0.34}_{-0.31}$ | 2858^{+198}_{-137} | 3979^{+915}_{-598} | $2.056^{+3.543}_{-1.127}$ |

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

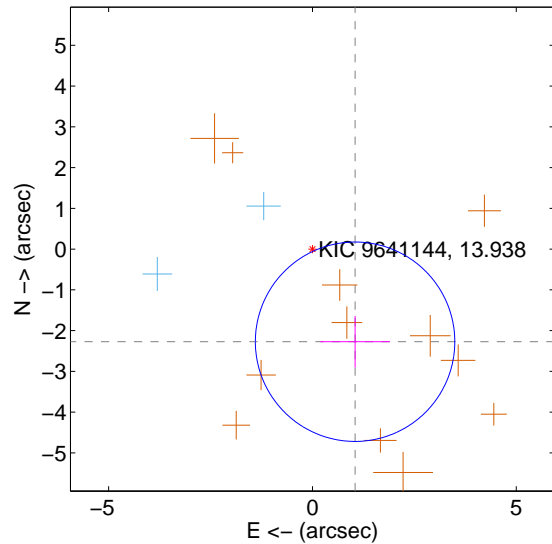
Supplemental centroid analysis for 009641144-01. Kepler magnitude: 13.94. Transit SNR 13.77

There are 2 quarters with good PRF difference image offsets

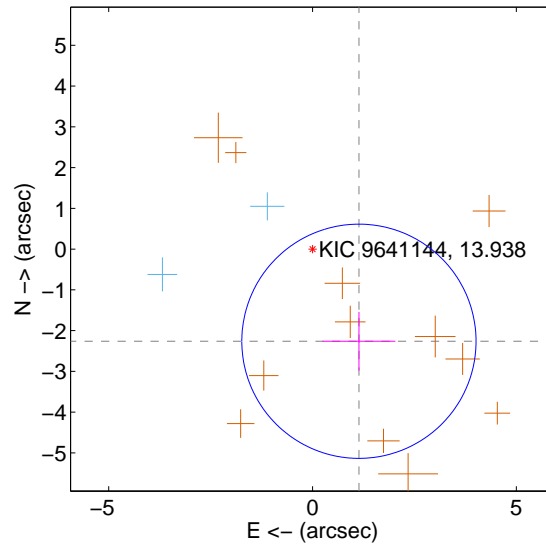
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 2.501 ± 0.815 | 3.07 | -1.045 ± 0.854 | -2.272 ± 0.631 |
| PRF-fit source offset from KIC position | 2.531 ± 0.957 | 2.64 | -1.138 ± 0.894 | -2.260 ± 0.720 |
| photometric centroid source offset | 1.46 ± 0.96 | 1.52 | -1.44 ± 0.97 | 0.25 ± 0.88 |

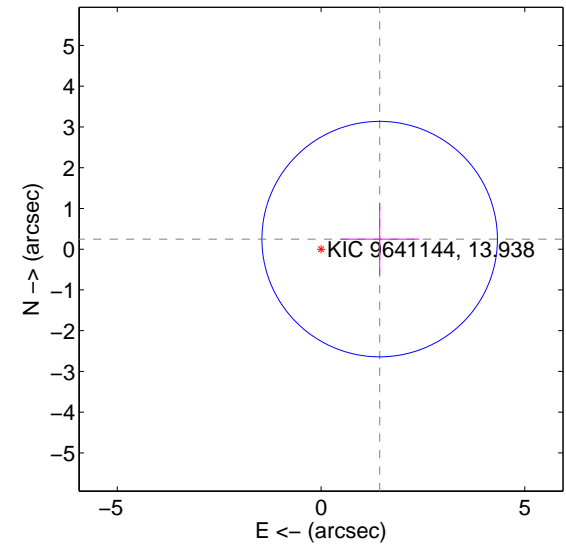
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

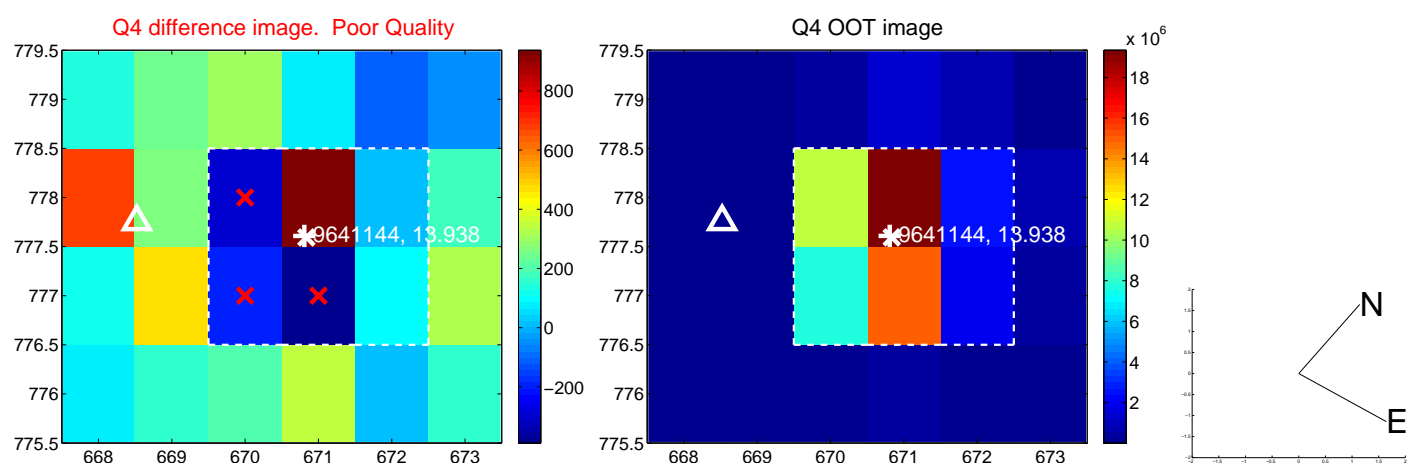
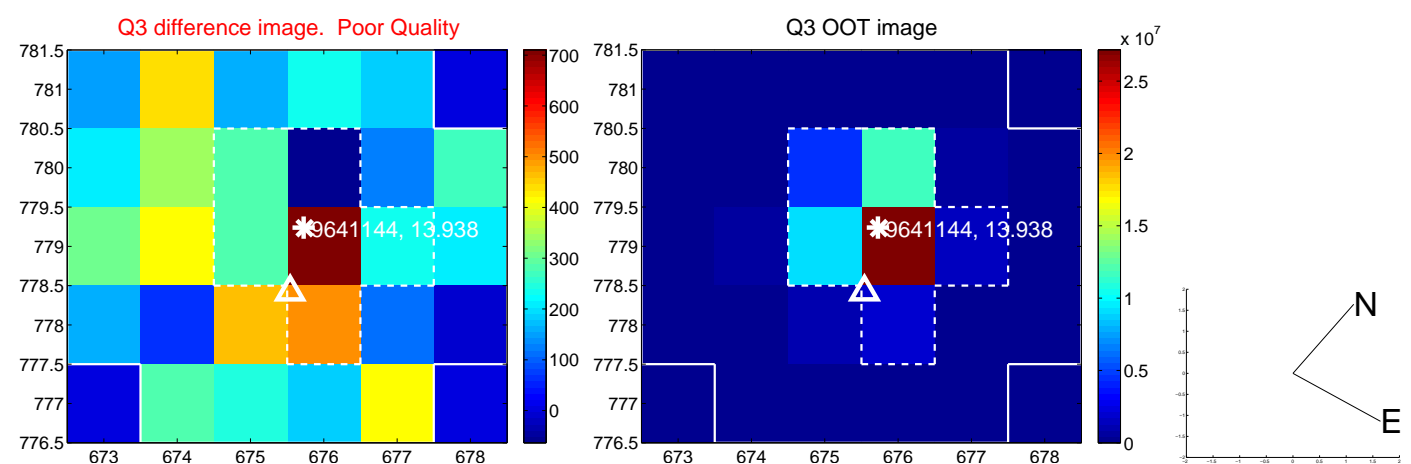
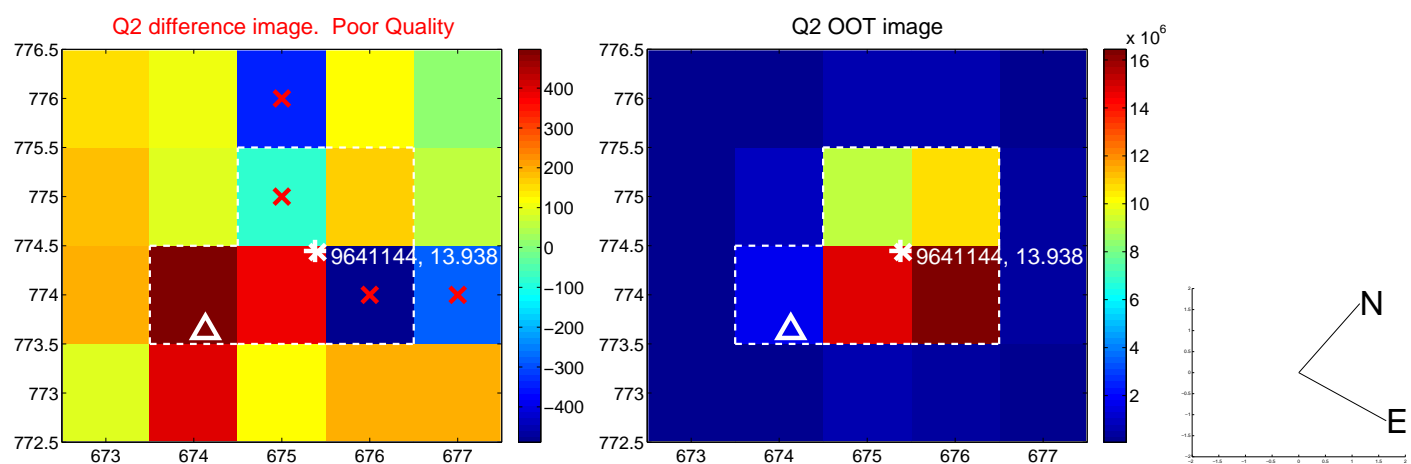
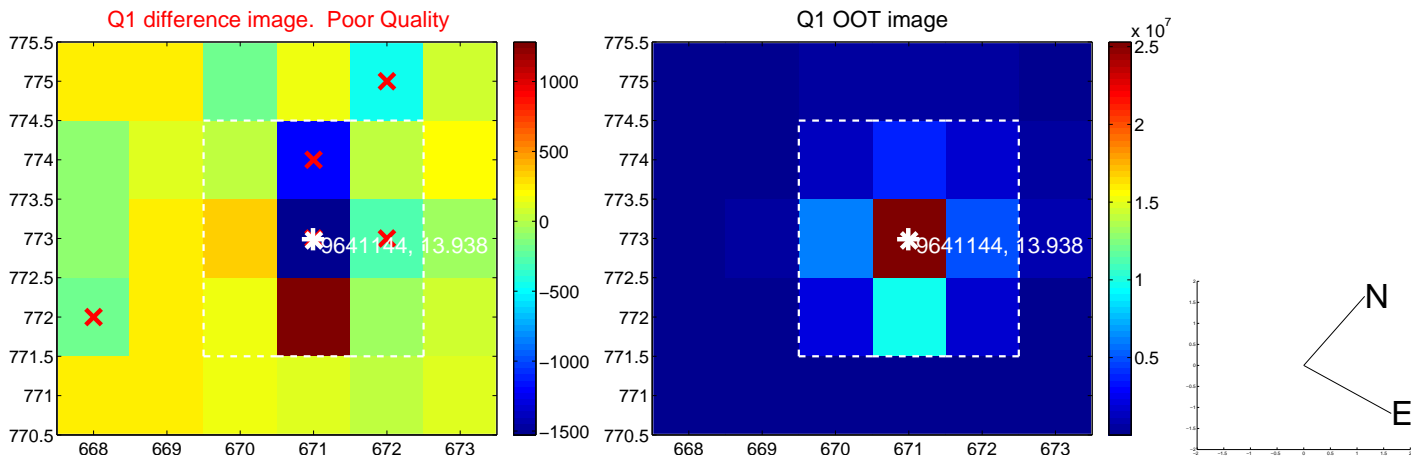


offset from photometric centroids

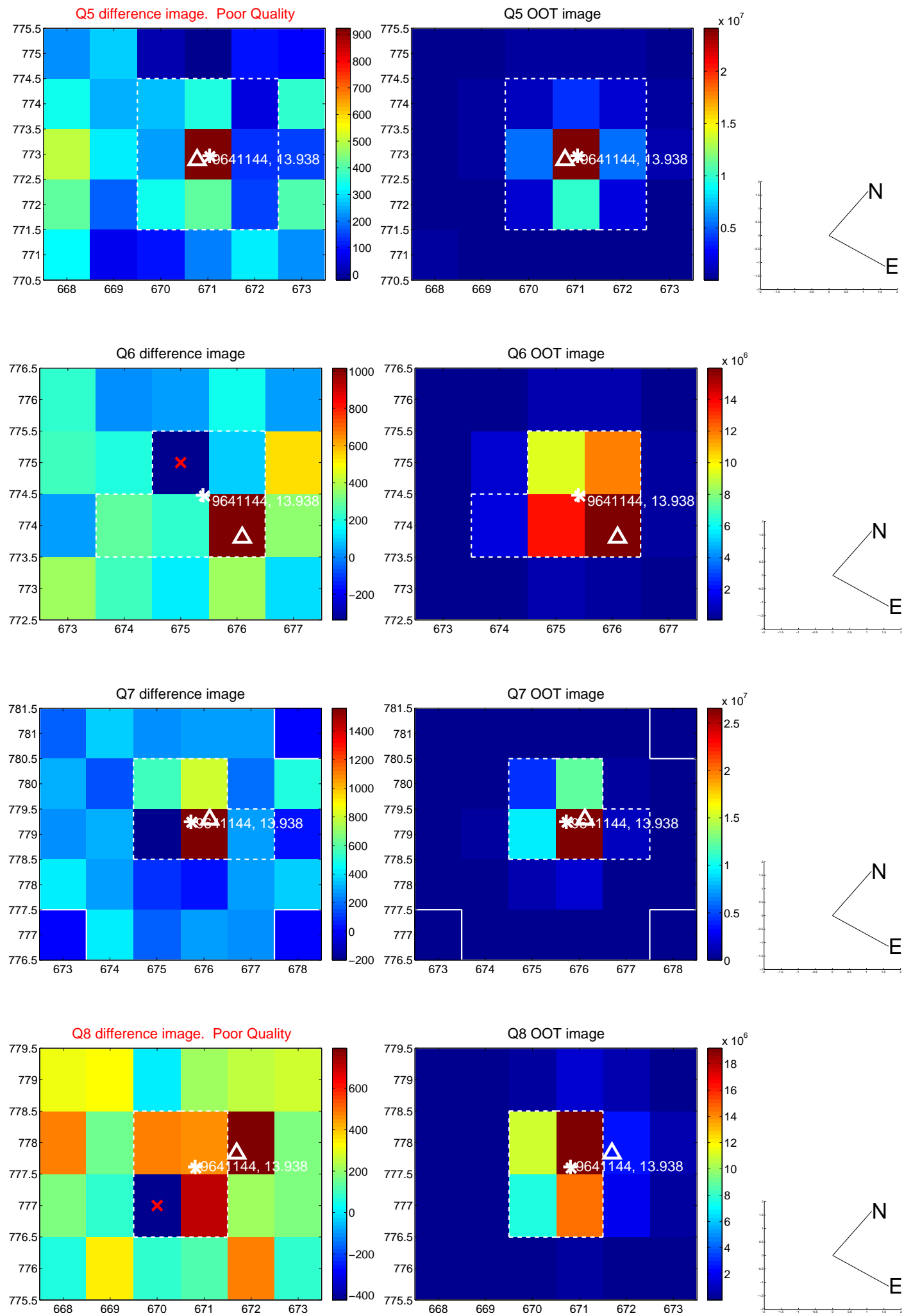


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

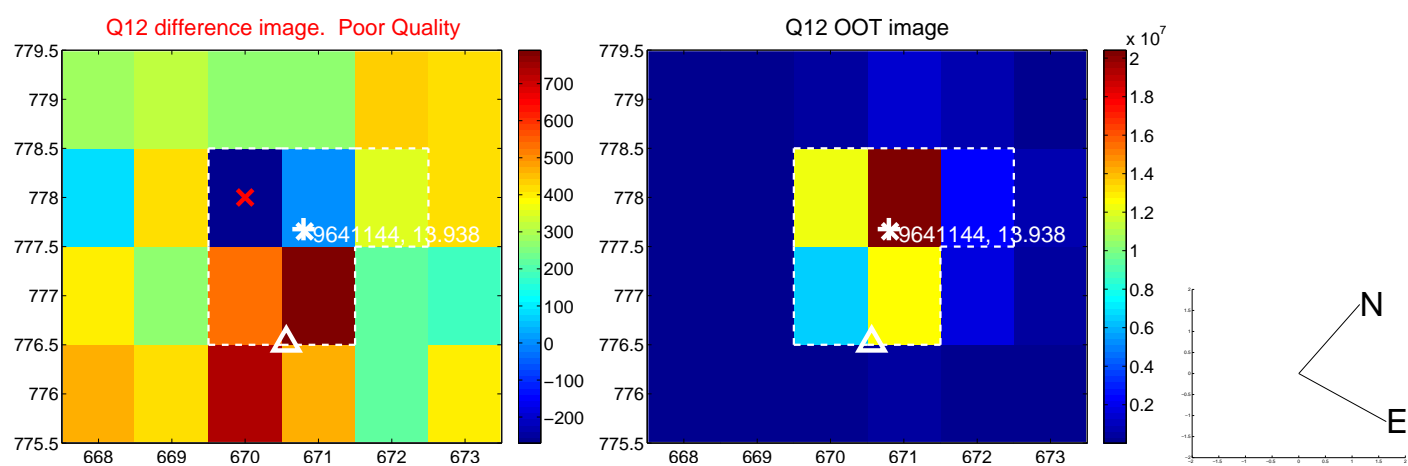
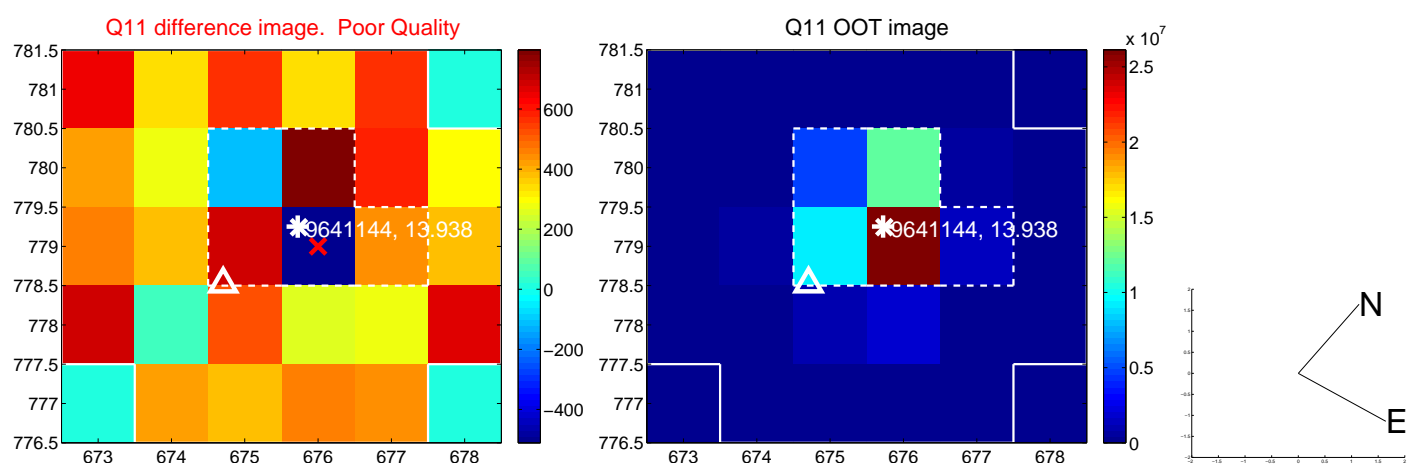
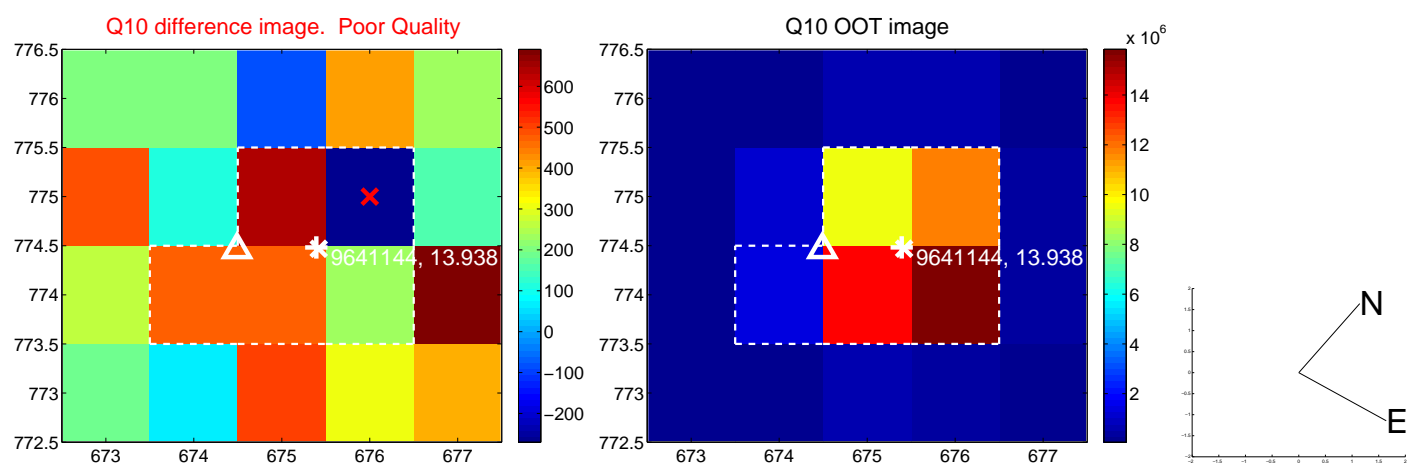
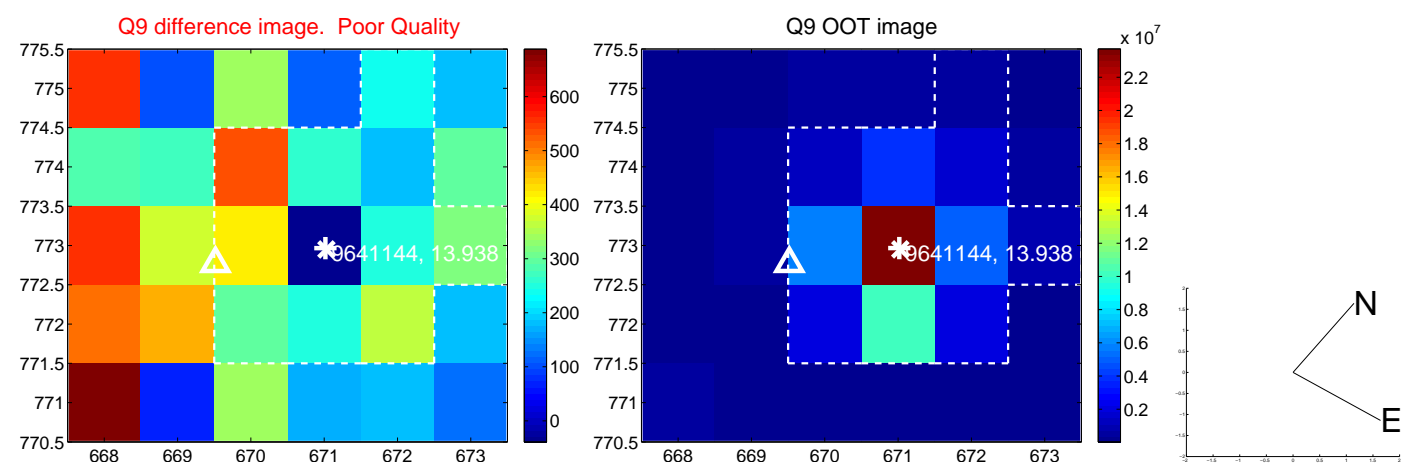
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



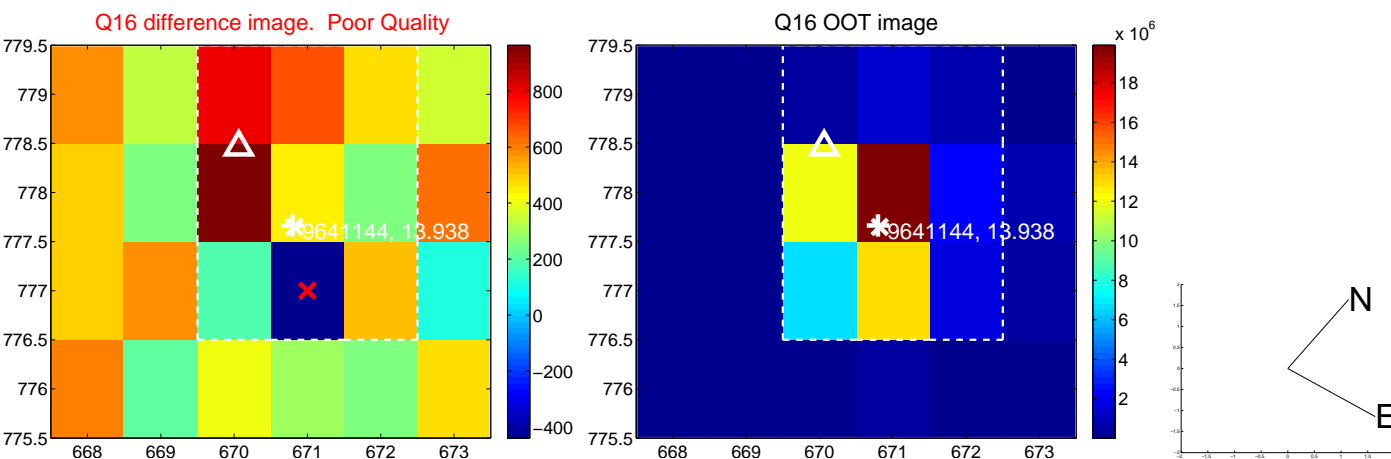
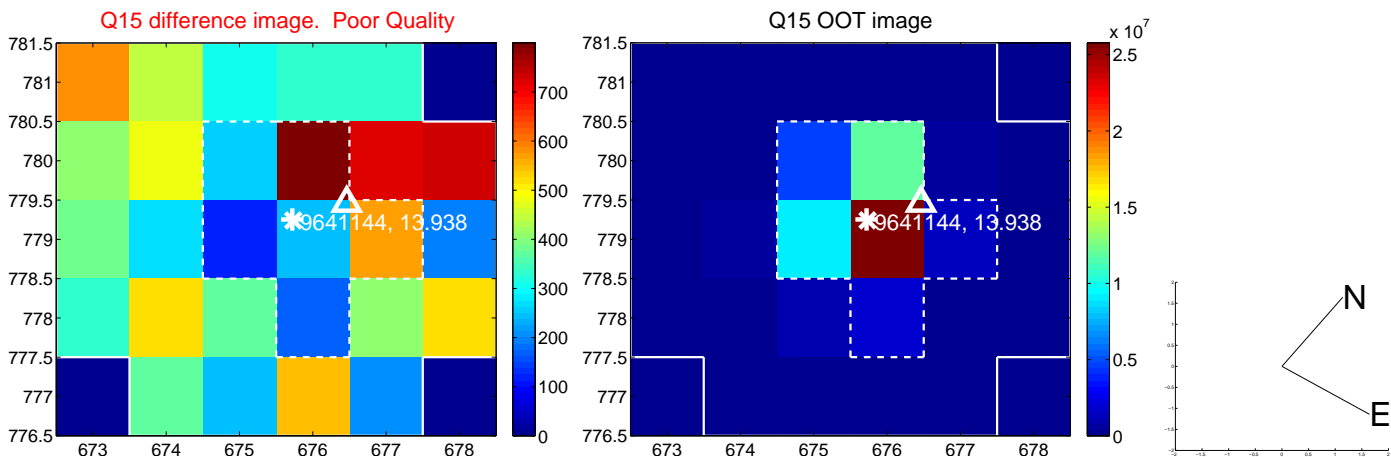
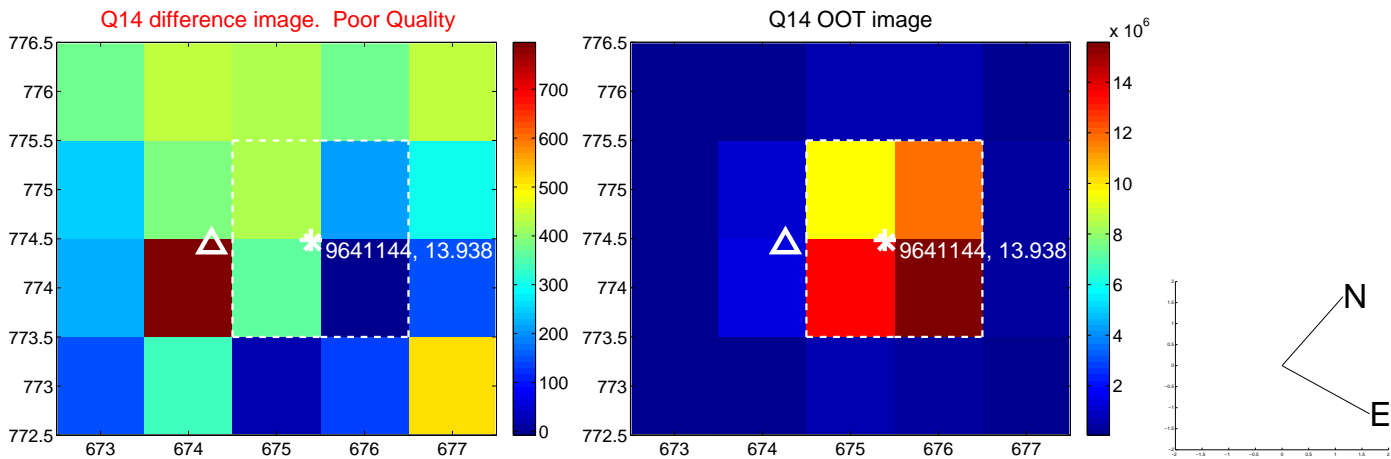
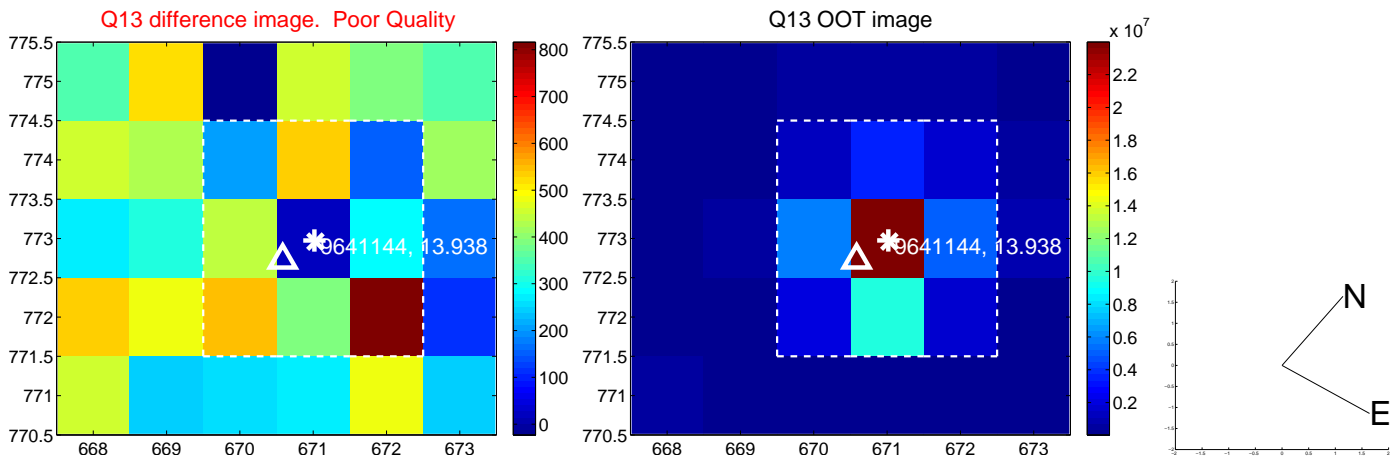
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



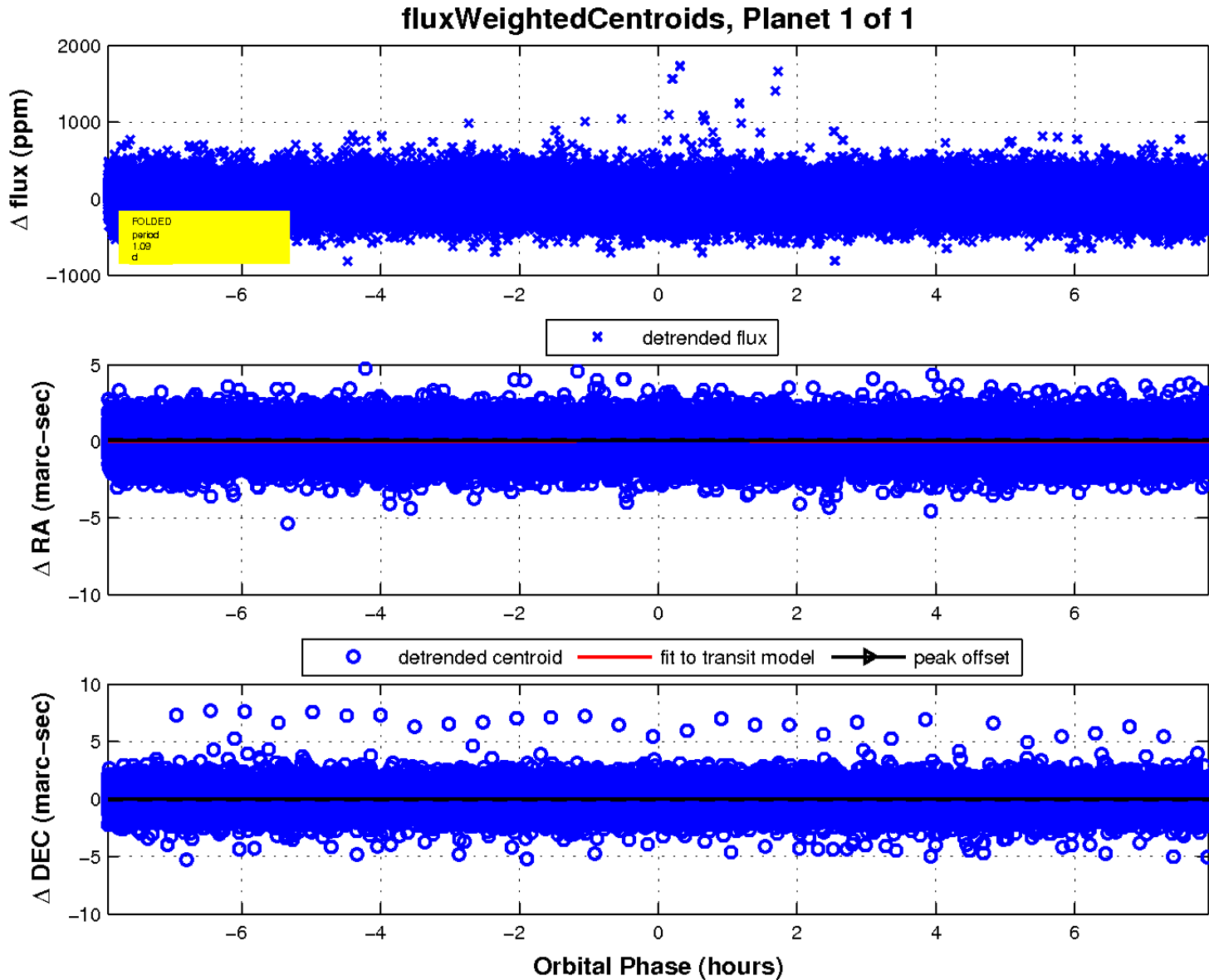
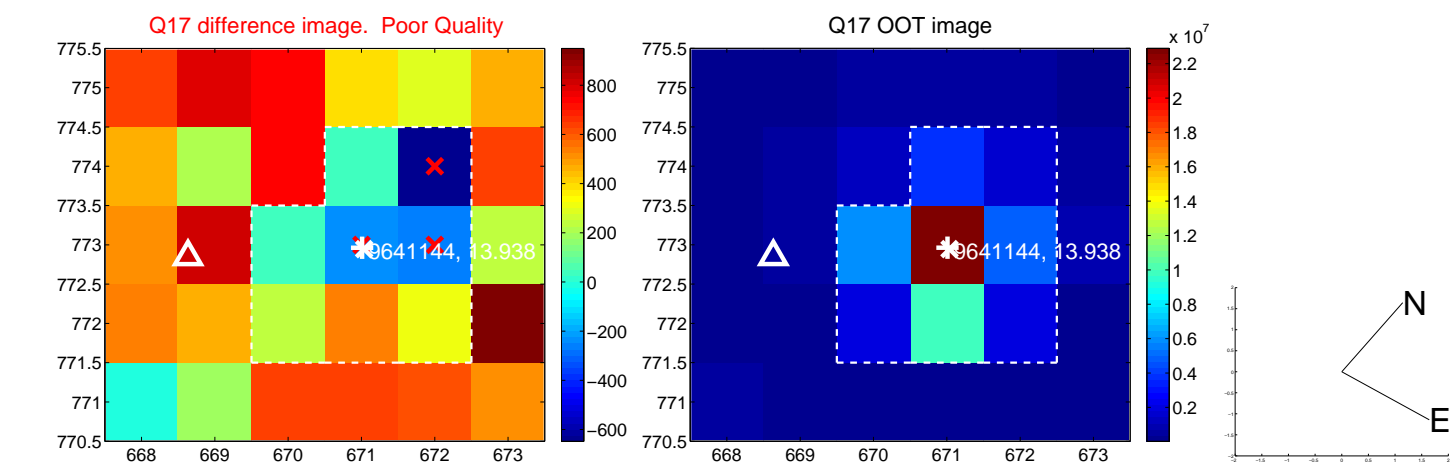
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

