

KIC 011870315

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 011870315-01 | OBS | No | 0.947332 | 132.074554 | 8.2 | 1.139 | 7.3 | 3.4 | 2.98 | 8513 | 0.99 | 75715.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|-----------------------------------------------|
| 011870315-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |

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

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

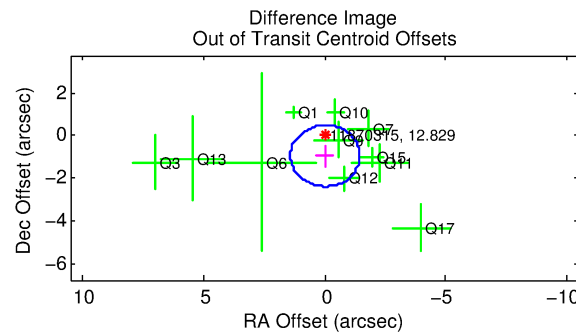
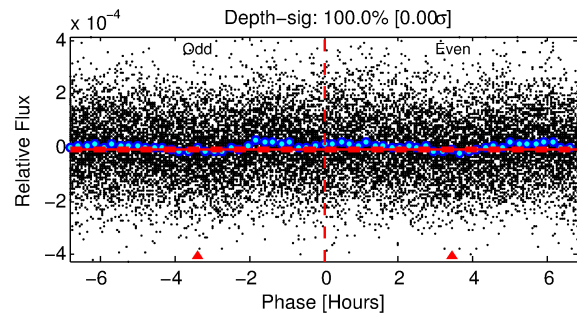
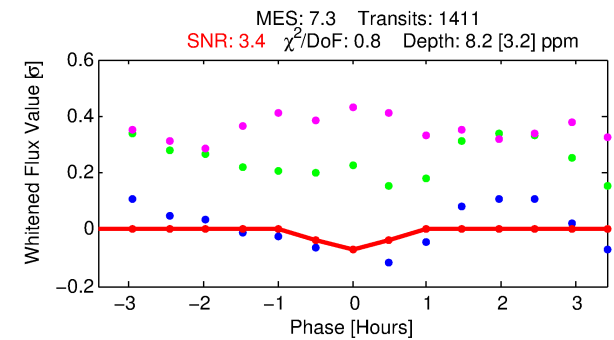
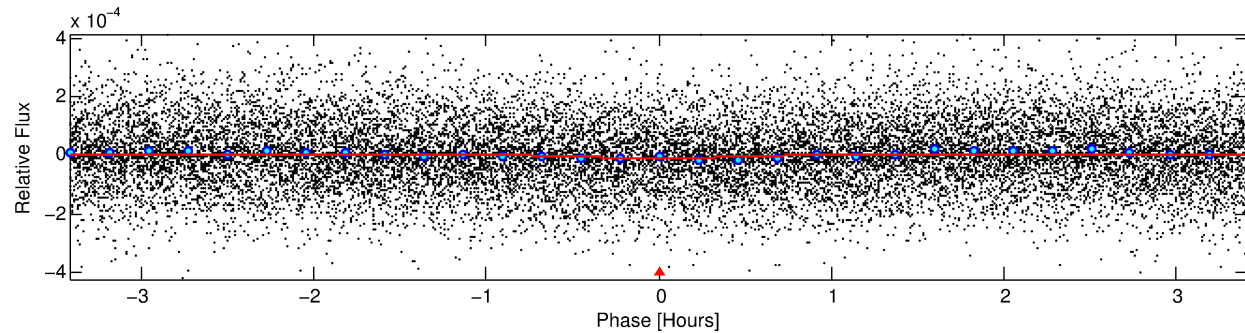
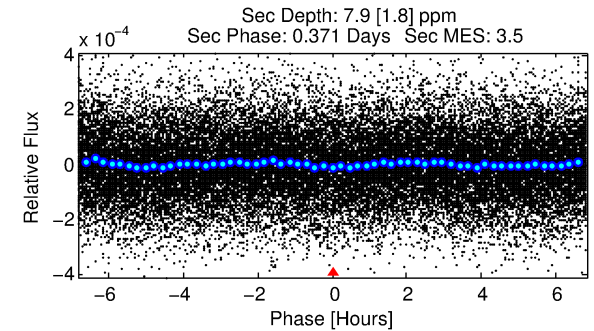
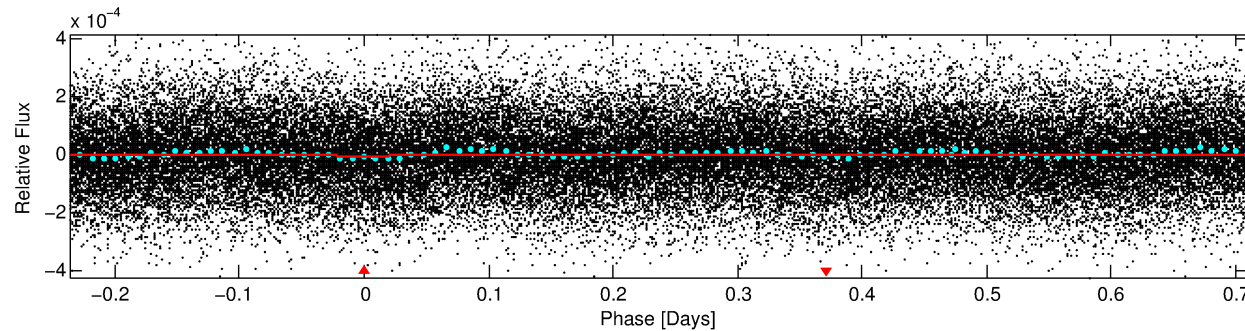
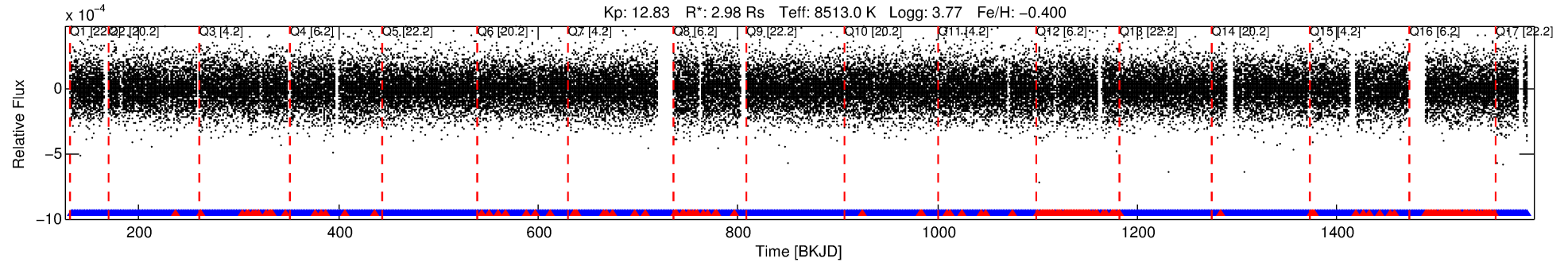
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011870315-01

No Significant Match Found

DV One-Page Summary

KIC: 11870315 Candidate: 1 of 1 Period: 0.947 d



DV Fit Results:

Period = 0.94733 [0.00003] d
Epoch = 132.0746 [0.0058] BKJD
Rp/R* = 0.0030 [0.0010]
a/R* = 2.96 [4.88]
b = 0.90 [0.40]
Seff = 75715.51 [27031.11]
Teff = 4230 [378] K
Rp = 0.99 [0.42] Re
a = 0.0235 [0.0054] AU
Ag = 2.43 [1.94] [0.74σ]
Teffp = 8166 [1458] K [2.61σ]

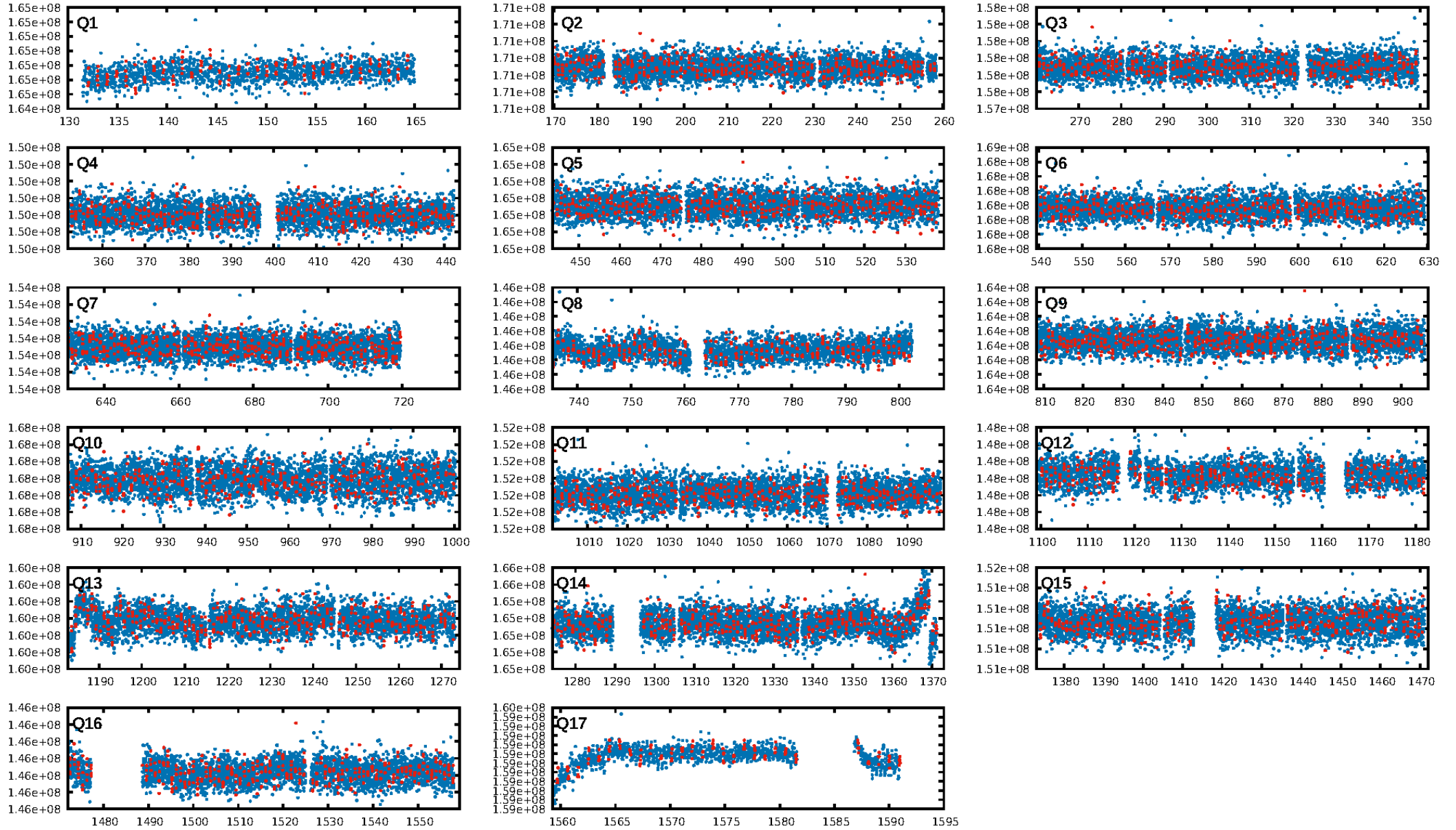
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.02e-13
RollingBand-fgt: 0.87 [1166/1347]
GhostDiagnostic-chr: 25.66
Centroid-sig: 2.7%
Centroid-so: 7.221 arcsec [1.92σ]
OotOffset-rm: 0.949 arcsec [1.99σ]
KicOffset-rm: 1.083 arcsec [2.01σ]
OotOffset-st: 2/4/1/4 [11]
KicOffset-st: 2/4/1/4 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 1.00 [17/17]

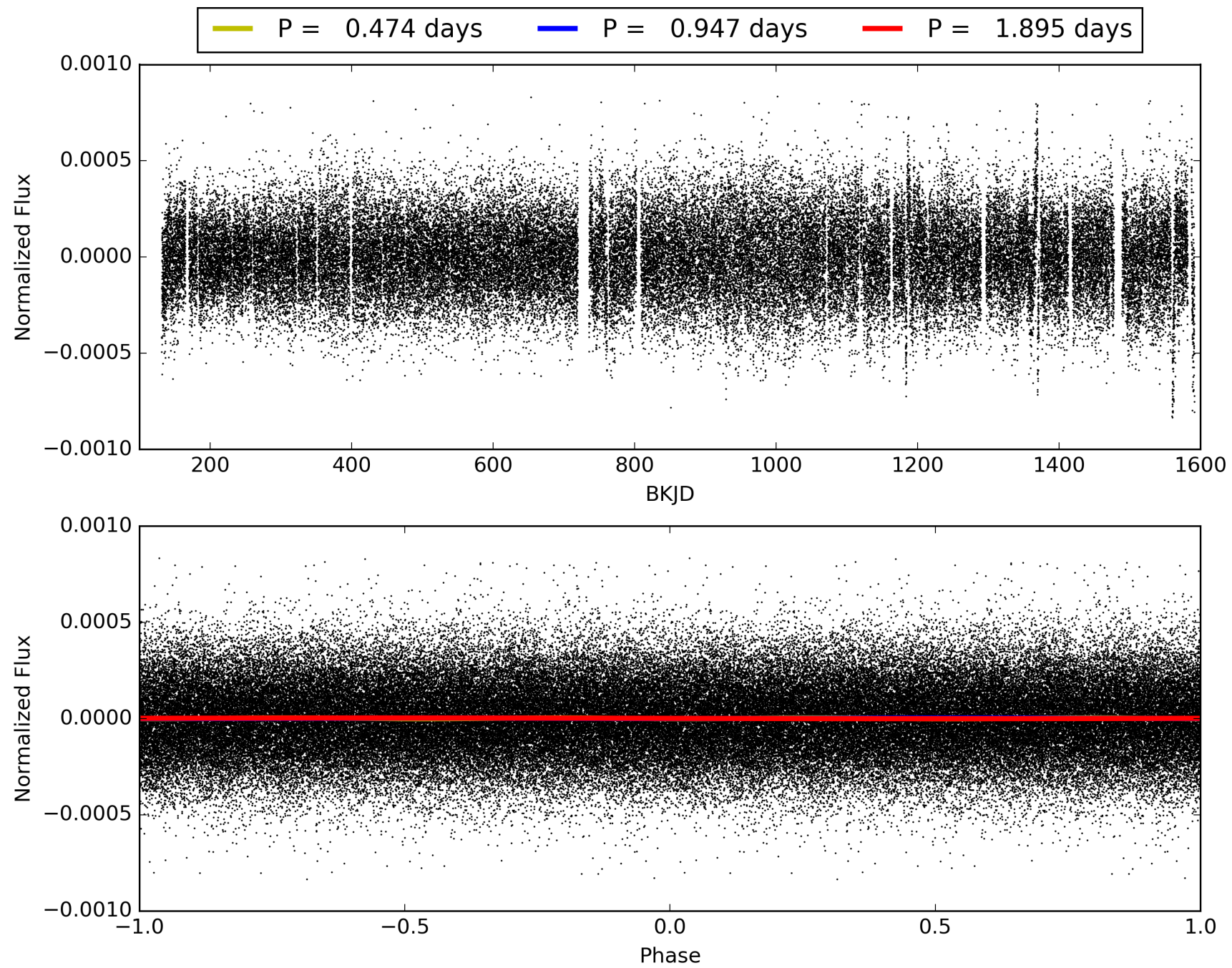
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:39:25 Z

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

TCE 011870315-01, PDC Light Curves

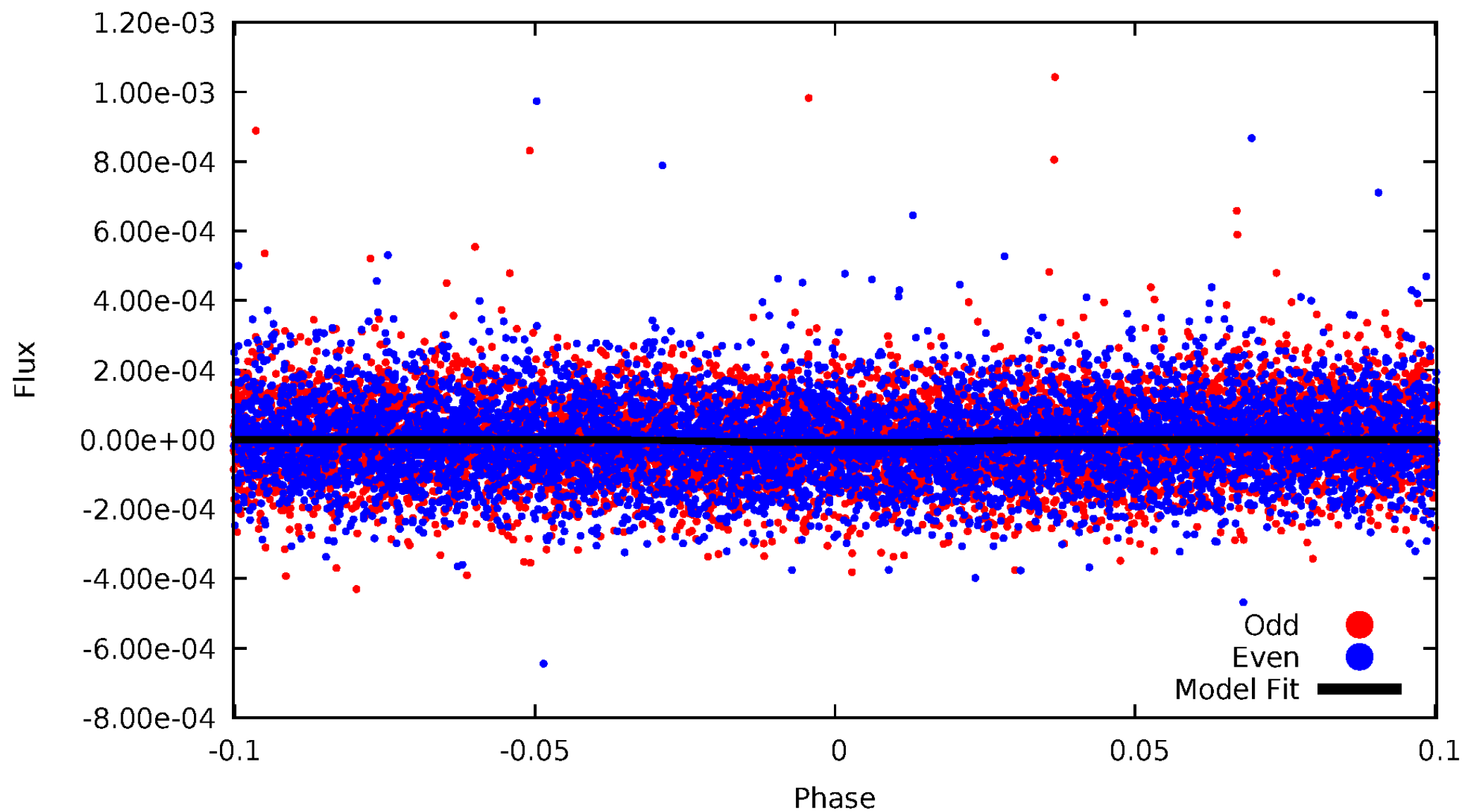


TCE 011870315-01



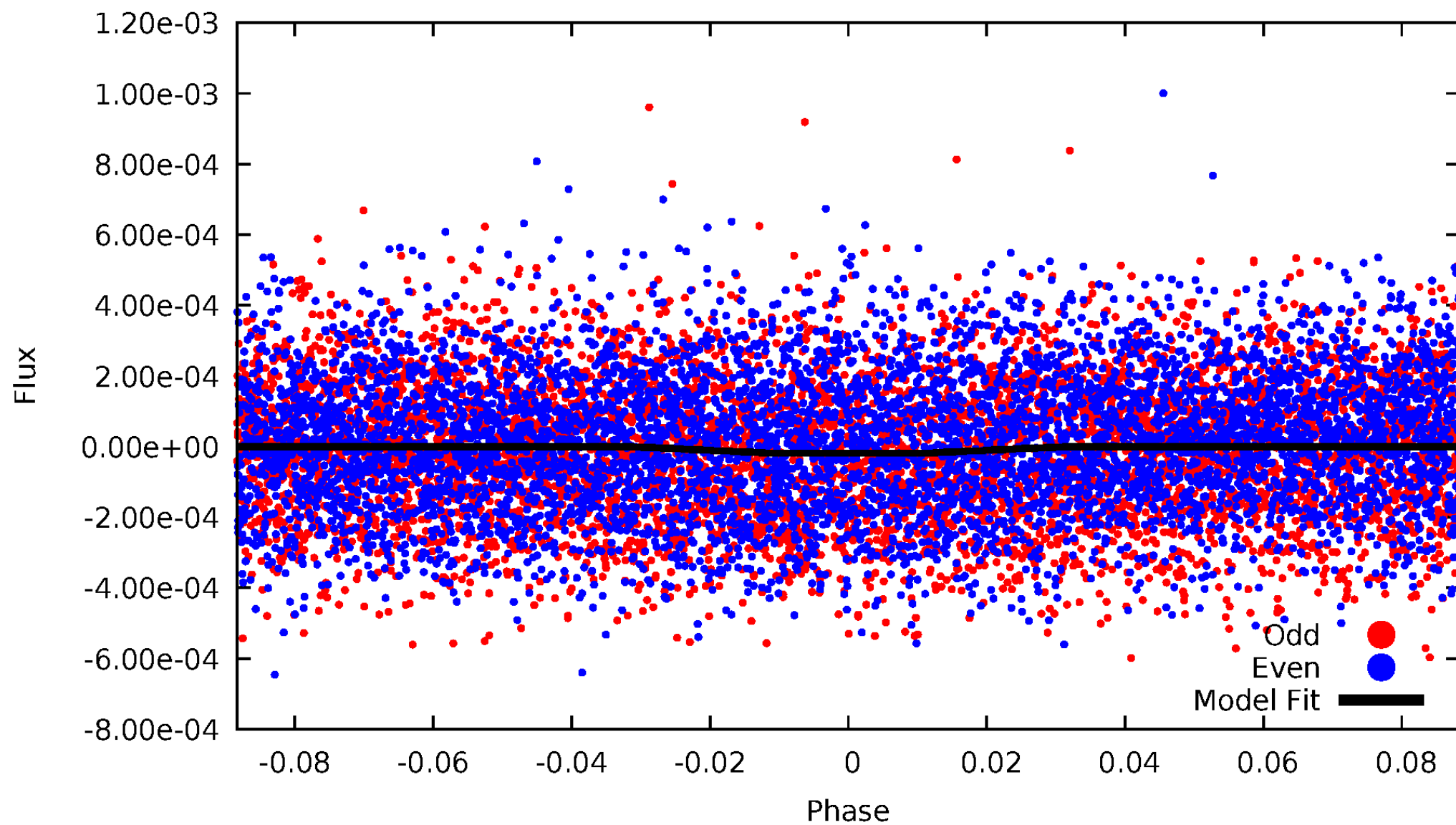
DV Odd/Even

TCE 011870315-01



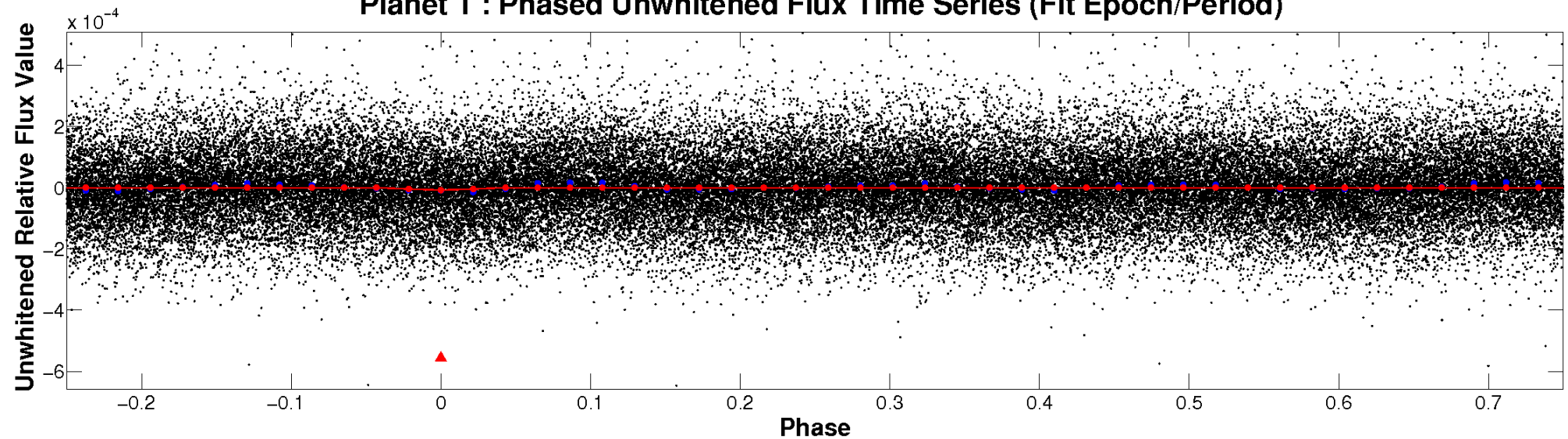
ALT Odd/Even

TCE 011870315-01

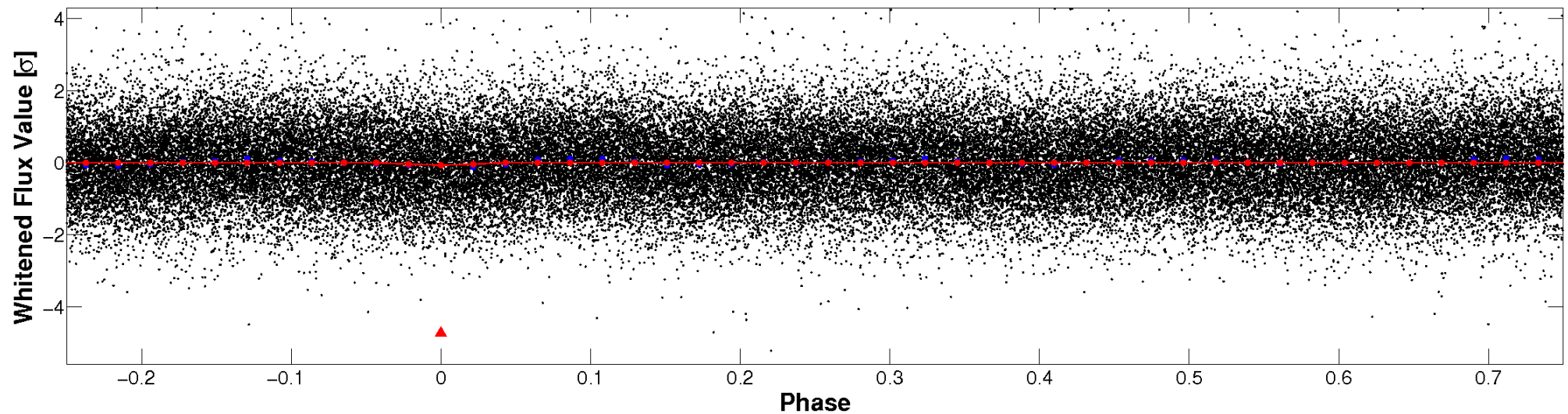


Non-Whitened Vs. Whitened Light Curve

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

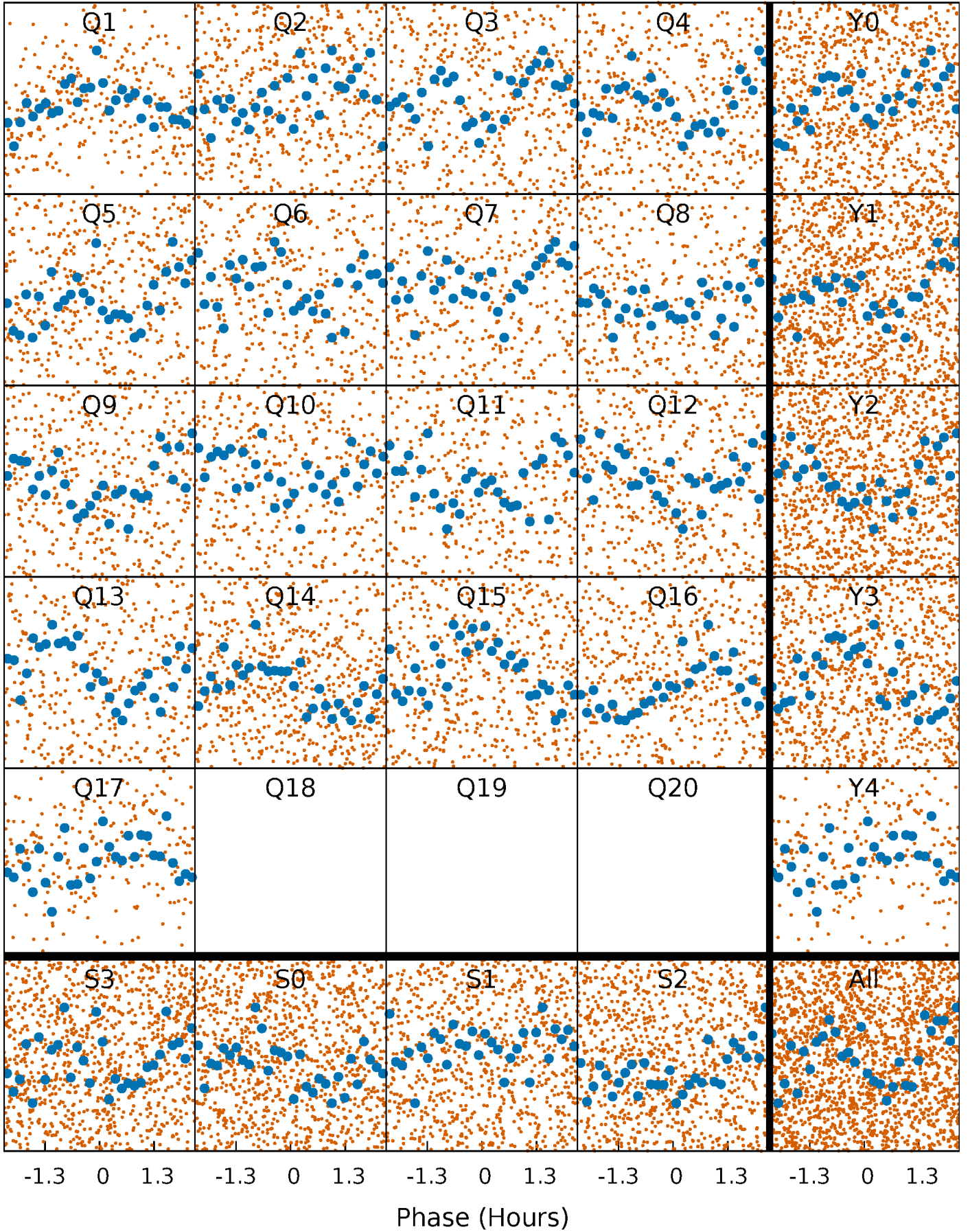


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



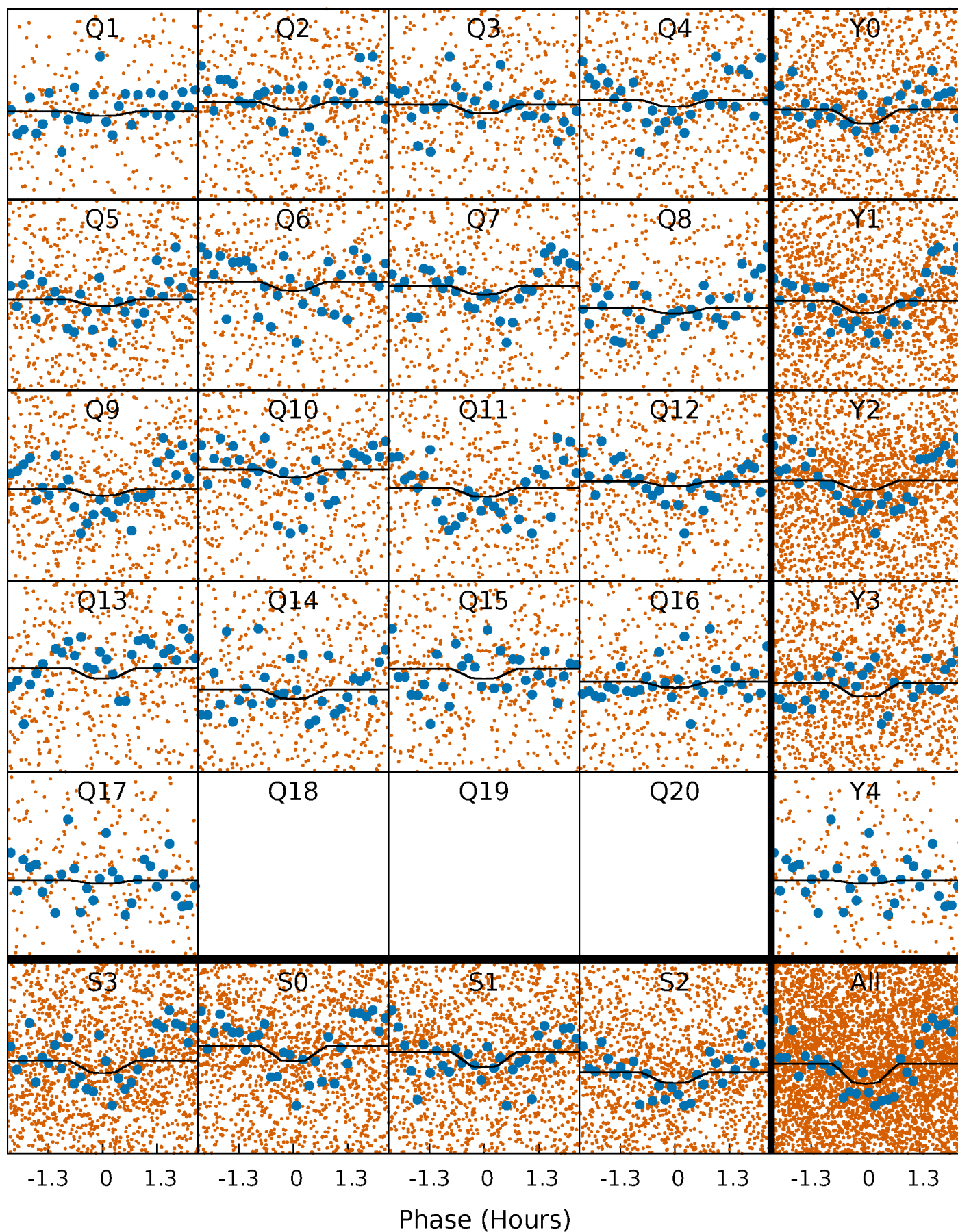
PDC Quarter-Phased Transit Curves

TCE 011870315-01 P= 0.947332 Days $T_0=132.074554$ (BKJD)



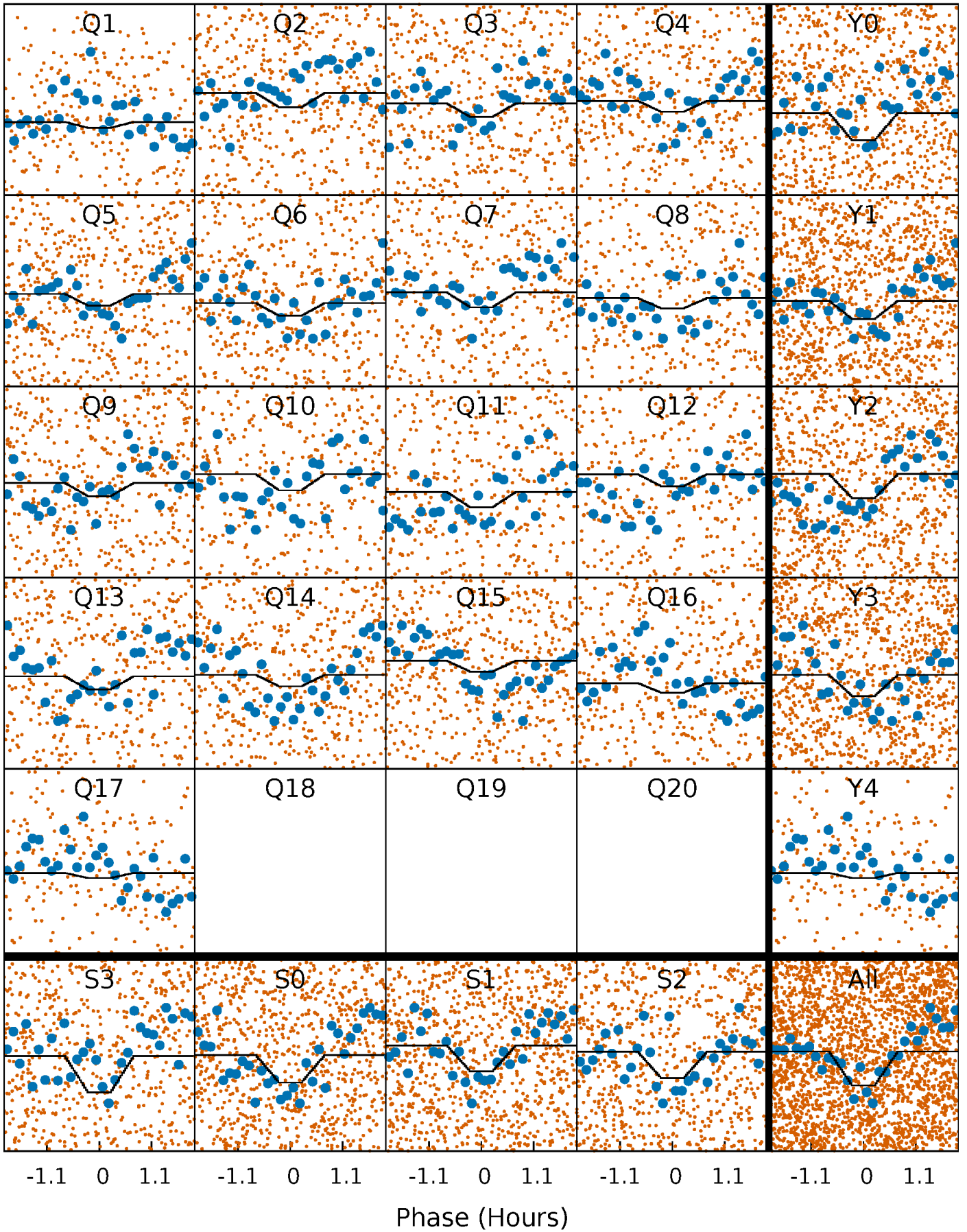
DV Quarter-Phased Transit Curves

TCE 011870315-01 P= 0.947332 Days $T_0=132.074554$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

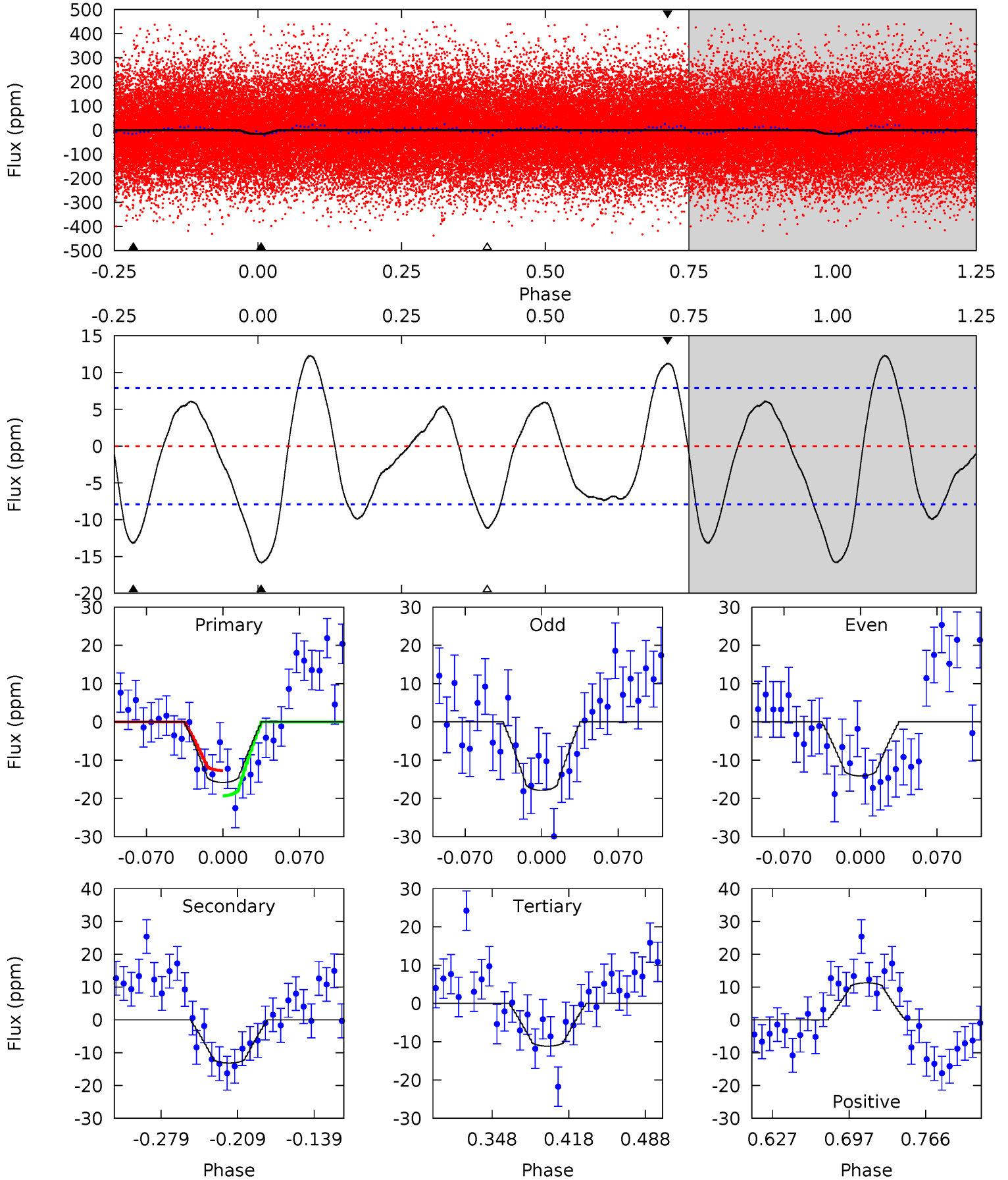
TCE 011870315-01 P= 0.947370 Days $T_0=132.079913$ (BKJD)



DV Model-Shift Uniqueness Test

011870315-01, P = 0.947332 Days, E = 131.127222 Days

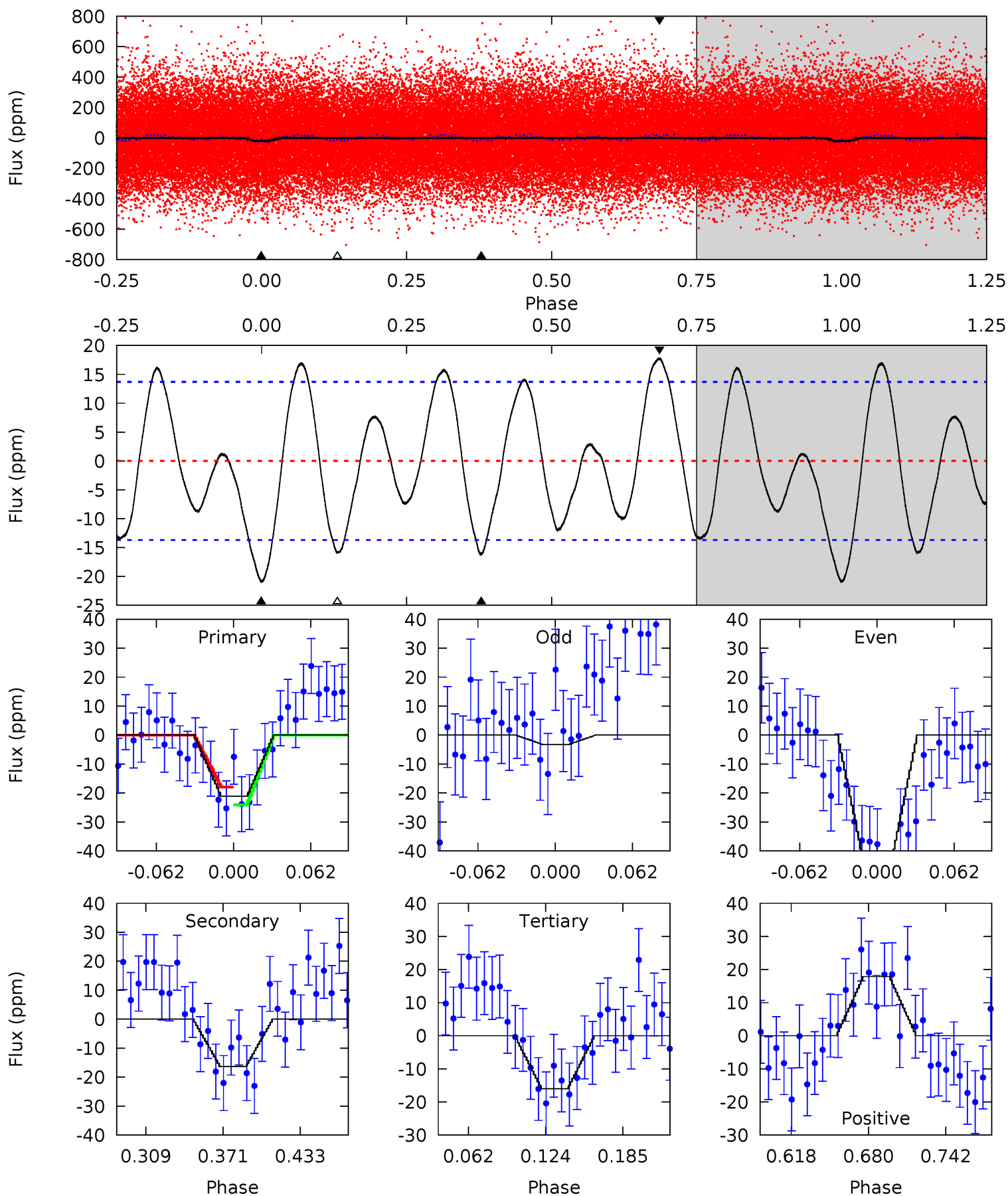
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.30 | 7.74 | 6.55 | 6.62 | 4.64 | 1.81 | 3.66 | 2.74 | 2.68 | 1.19 | 1.12 | 1.11 | 0.93 | 0.44 | 1.94 |



Alt Model-Shift Uniqueness Test

011870315-01, P = 0.947370 Days, E = 131.132543 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.19 | 5.56 | 5.46 | 6.09 | 4.66 | 1.87 | 3.14 | 1.72 | 1.09 | 0.10 | -0.53 | 7.17 | 0.81 | 0.46 | 1.05 |



Stellar Parameters For KIC 011870315

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
| | 8513^{+67}_{-84} | $3.775^{+0.204}_{-0.024}$ | $-0.400^{+0.050}_{-0.150}$ | $2.985^{+0.132}_{-0.747}$ | $1.934^{+0.077}_{-0.132}$ | $0.102^{+0.115}_{-0.013}$ |
| | +1%/-1% | +5%/-1% | +12%/-37% | +4%/-25% | +4%/-7% | +112%/-13% |
| Source | SPE68 | SPE68 | SPE68 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011870315-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -13 ± 2 | $0.93^{+0.35}_{-0.31}$ | 5833^{+138}_{-359} | 9378^{+3755}_{-1824} | $4.602^{+6.120}_{-2.211}$ |
| Alt. | -16 ± 3 | $1.35^{+0.36}_{-0.35}$ | 5843^{+122}_{-328} | 7823^{+1759}_{-1166} | $2.768^{+2.361}_{-1.146}$ |

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

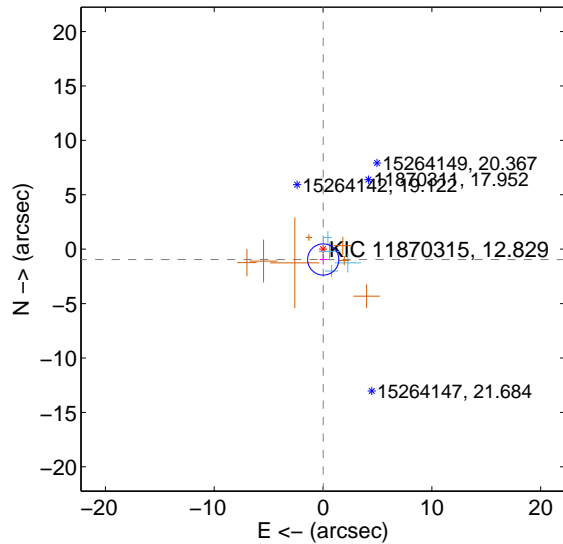
Supplemental centroid analysis for 011870315-01. Kepler magnitude: 12.83. Transit SNR 3.36

There are 4 quarters with good PRF difference image offsets

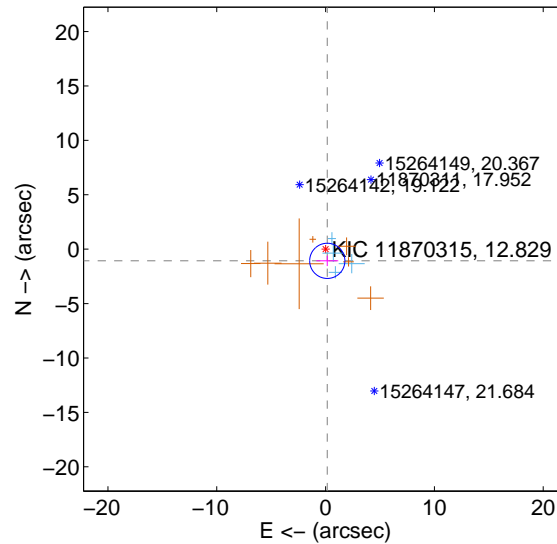
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.949 ± 0.478 | 1.99 | -0.017 ± 0.334 | -0.949 ± 0.478 |
| PRF-fit source offset from KIC position | 1.083 ± 0.539 | 2.01 | -0.156 ± 1.003 | -1.072 ± 0.477 |
| photometric centroid source offset | 7.22 ± 3.77 | 1.92 | 6.33 ± 3.64 | 3.48 ± 4.15 |

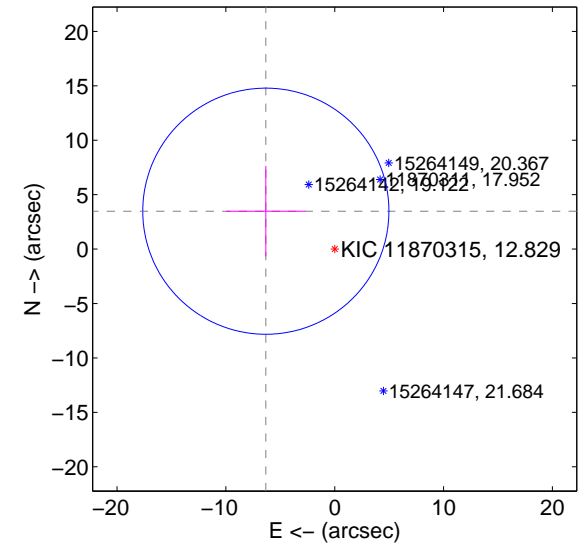
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

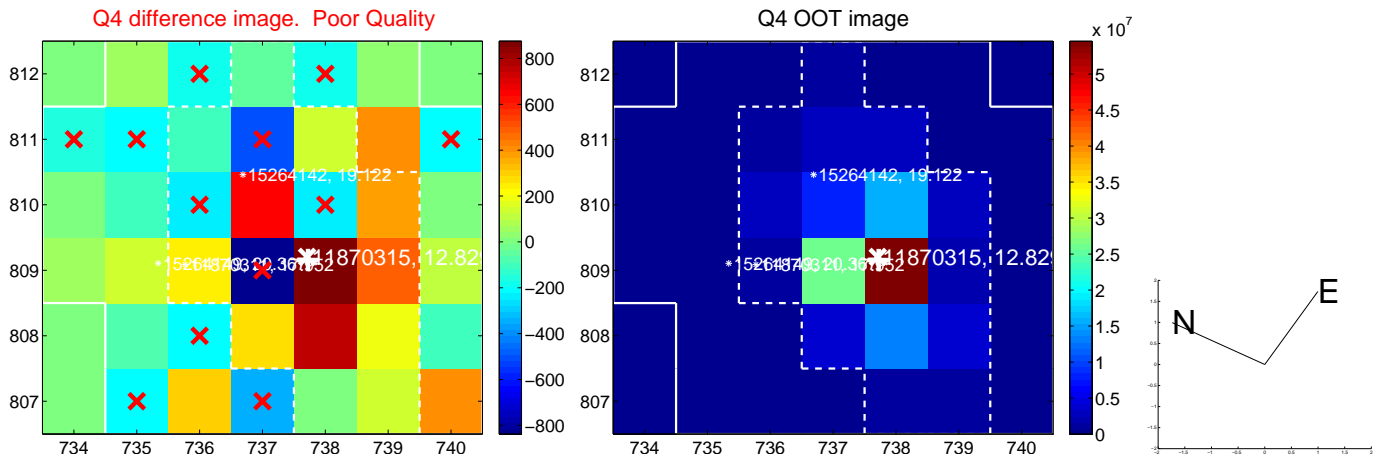
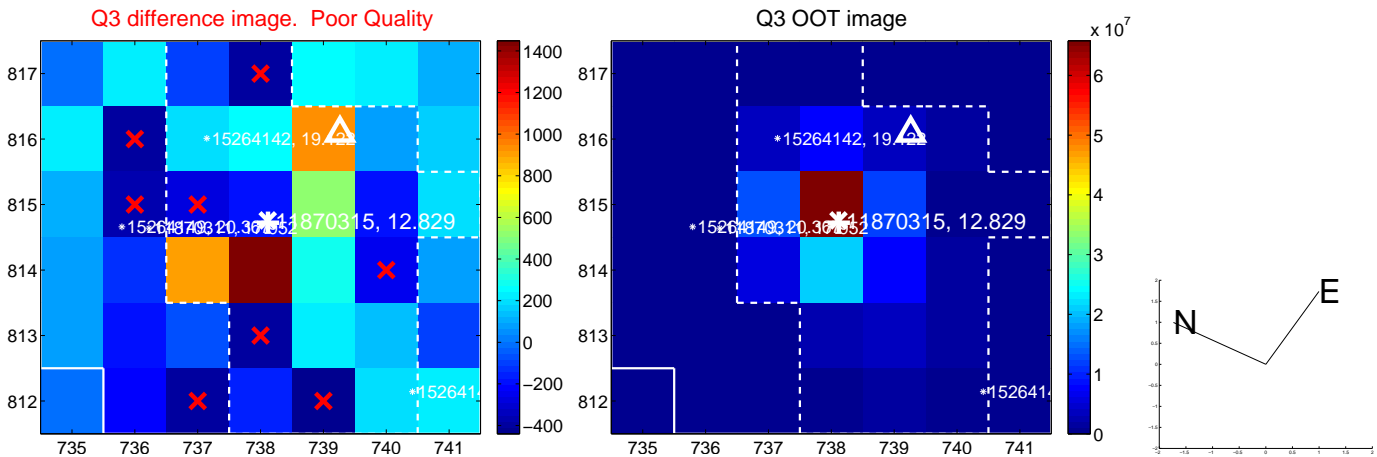
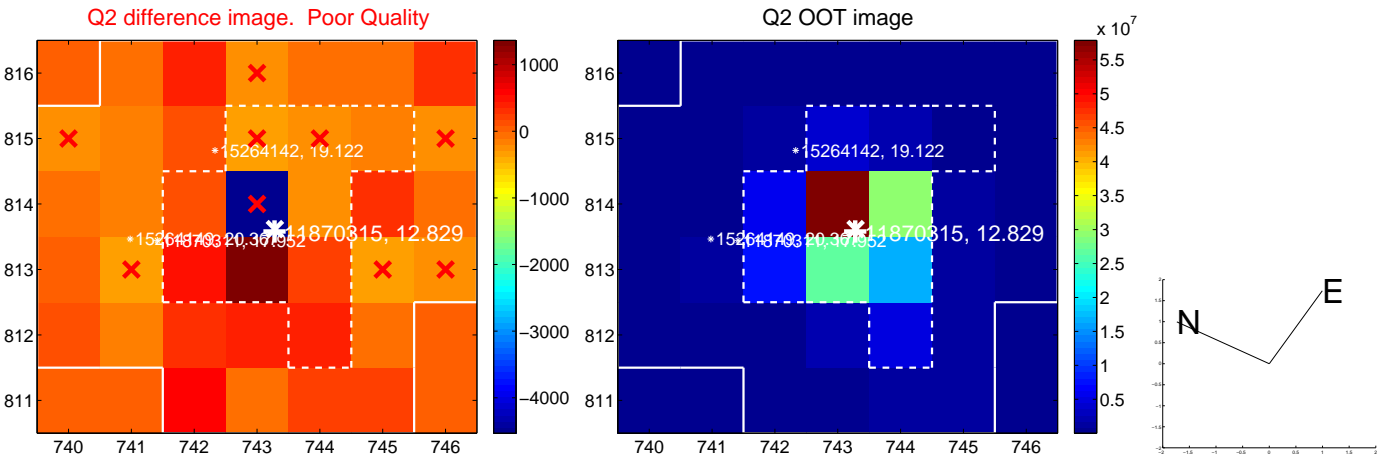
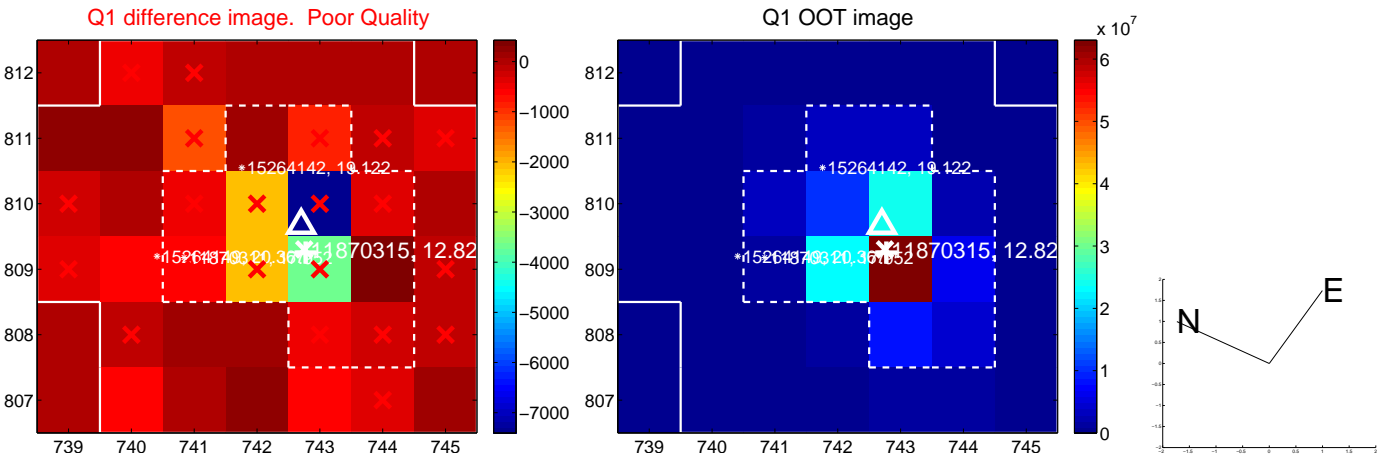


offset from photometric centroids

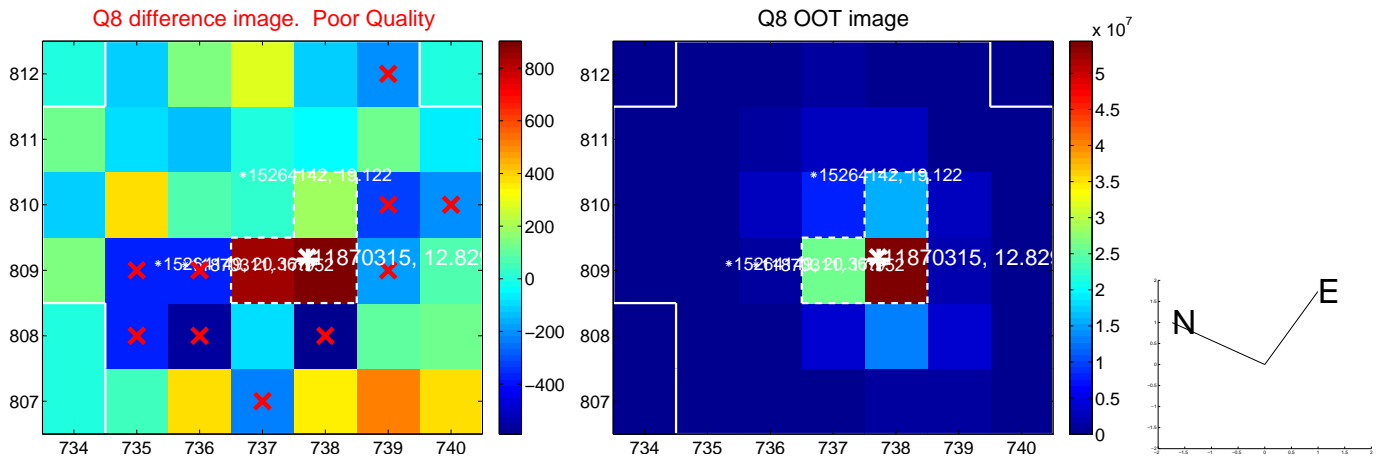
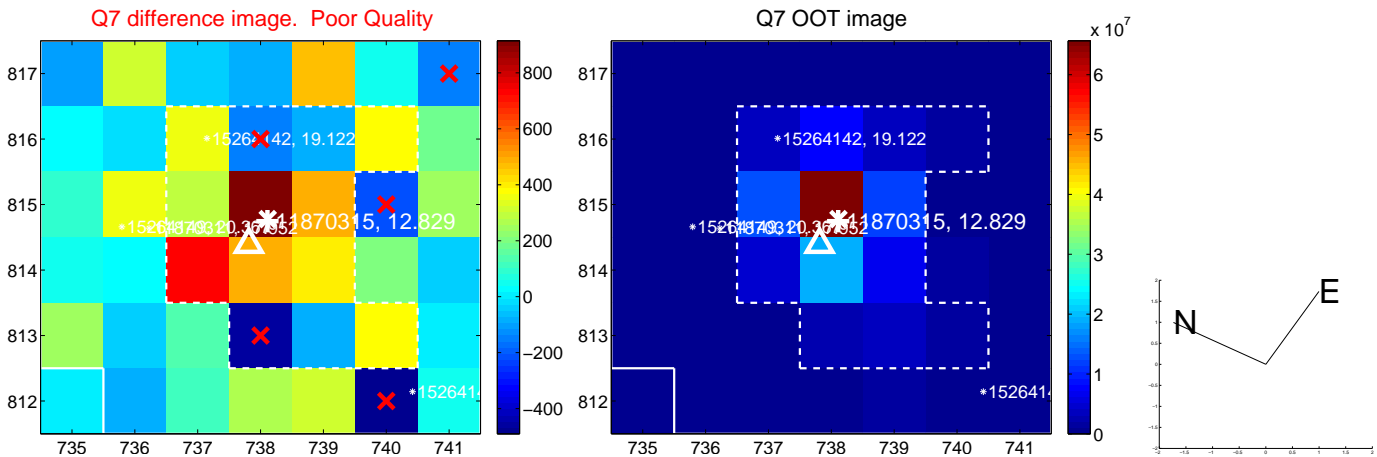
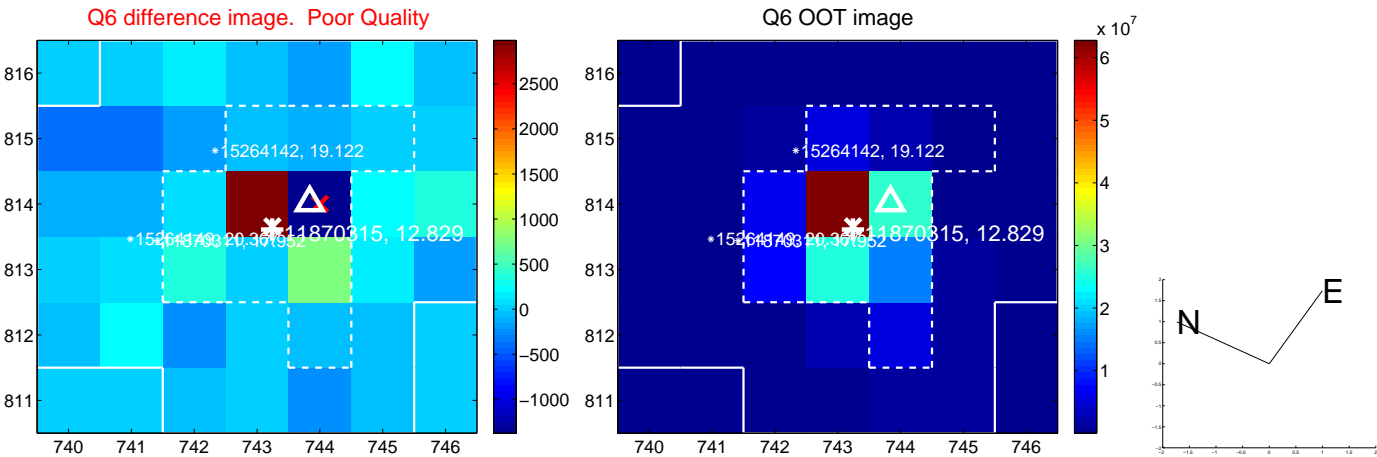
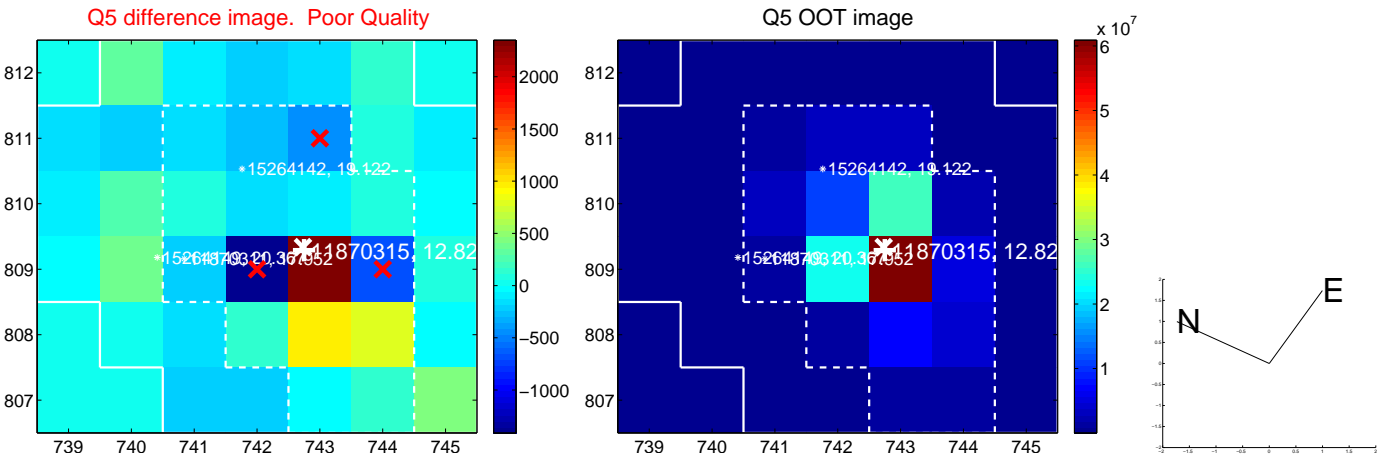


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

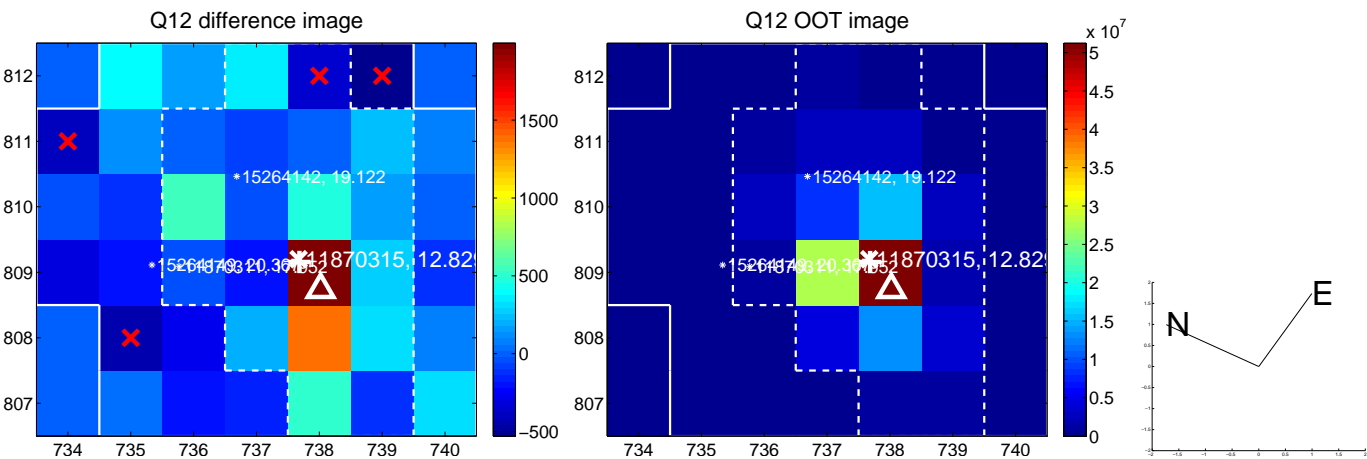
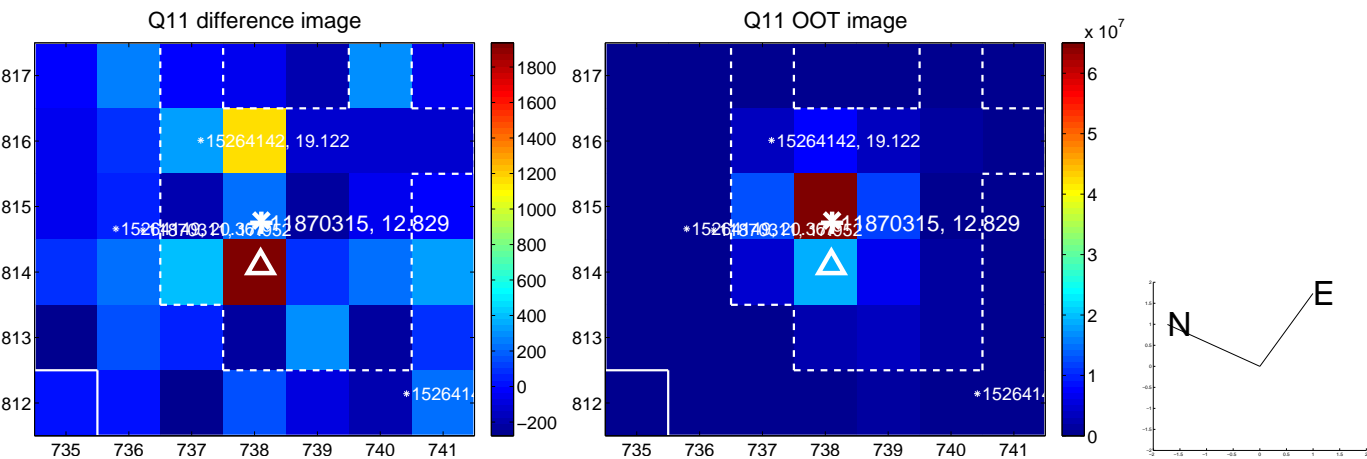
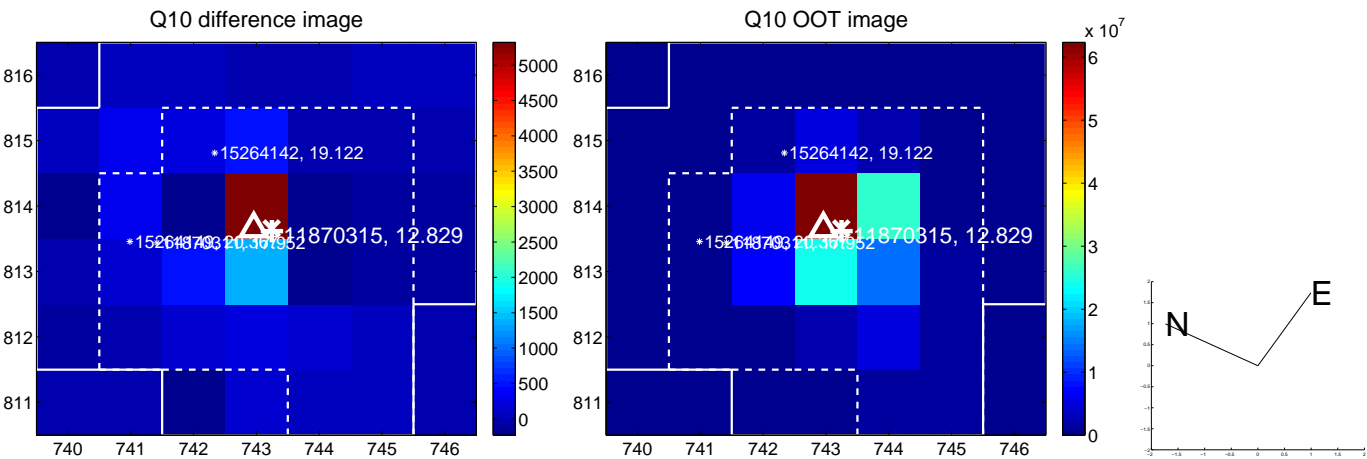
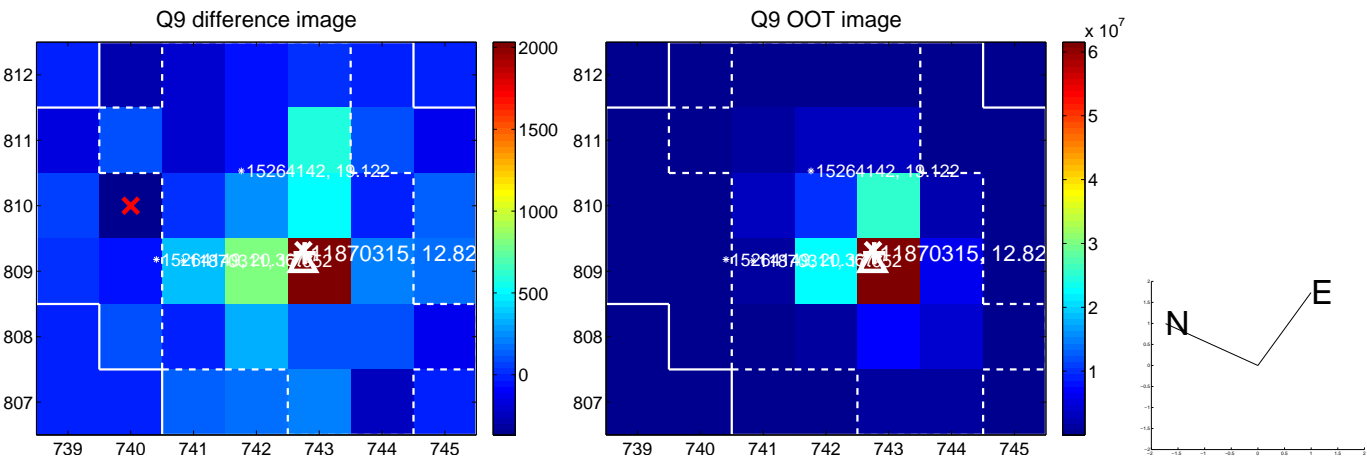
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



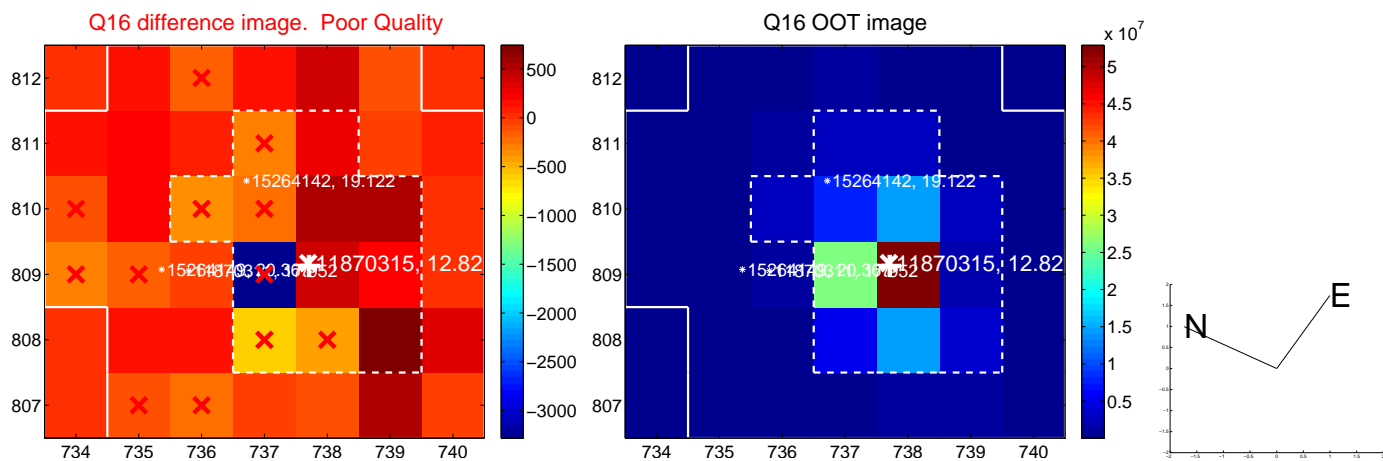
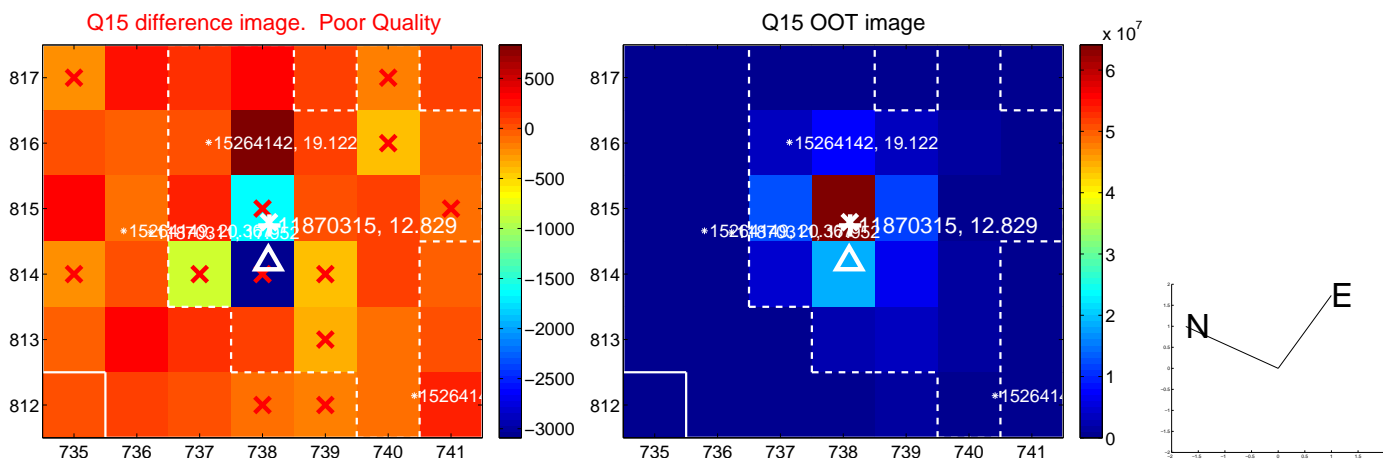
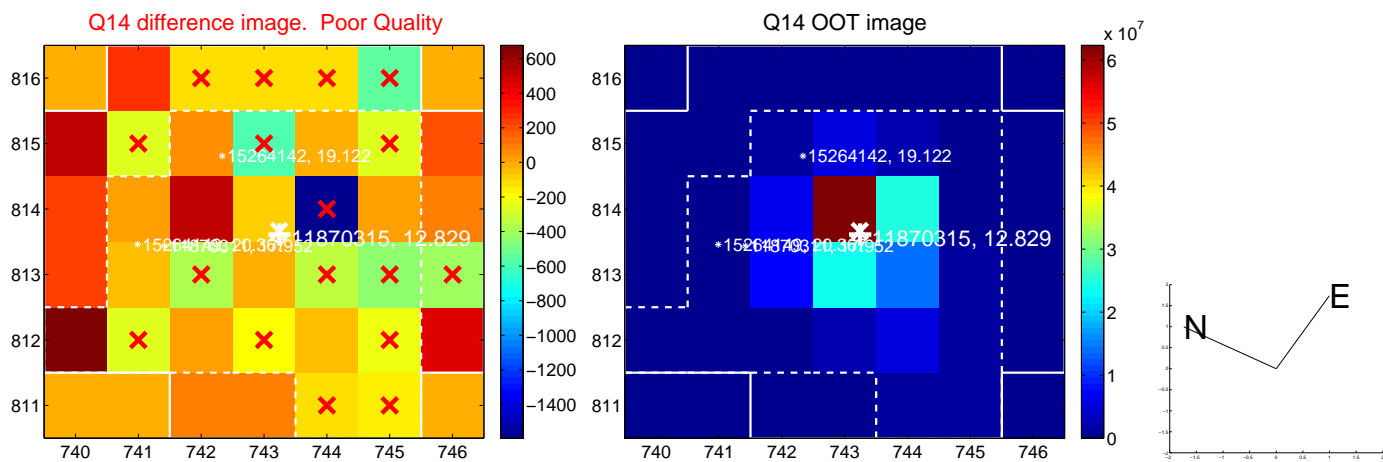
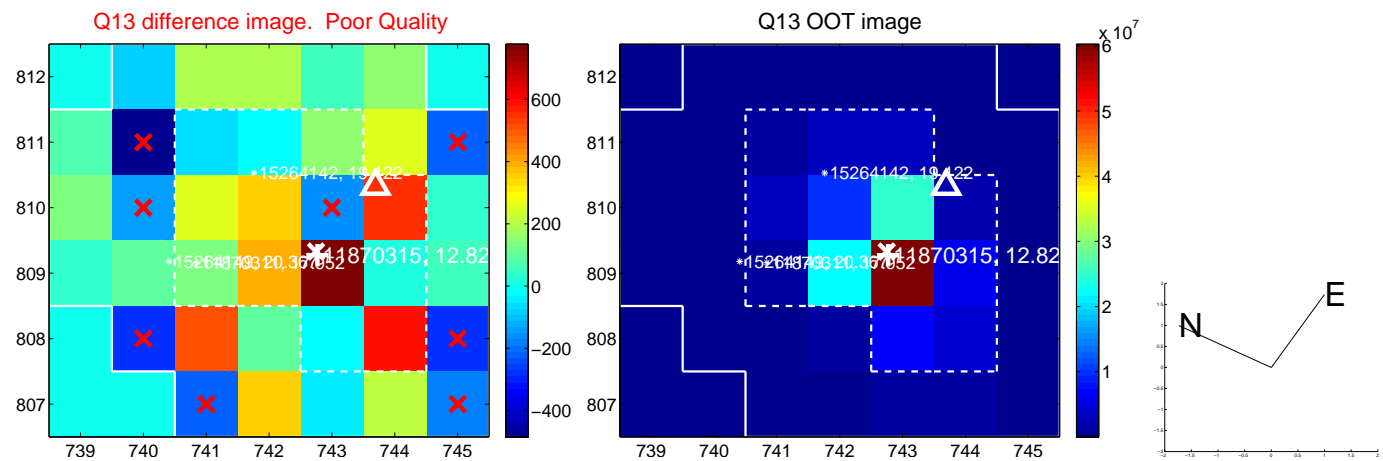
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



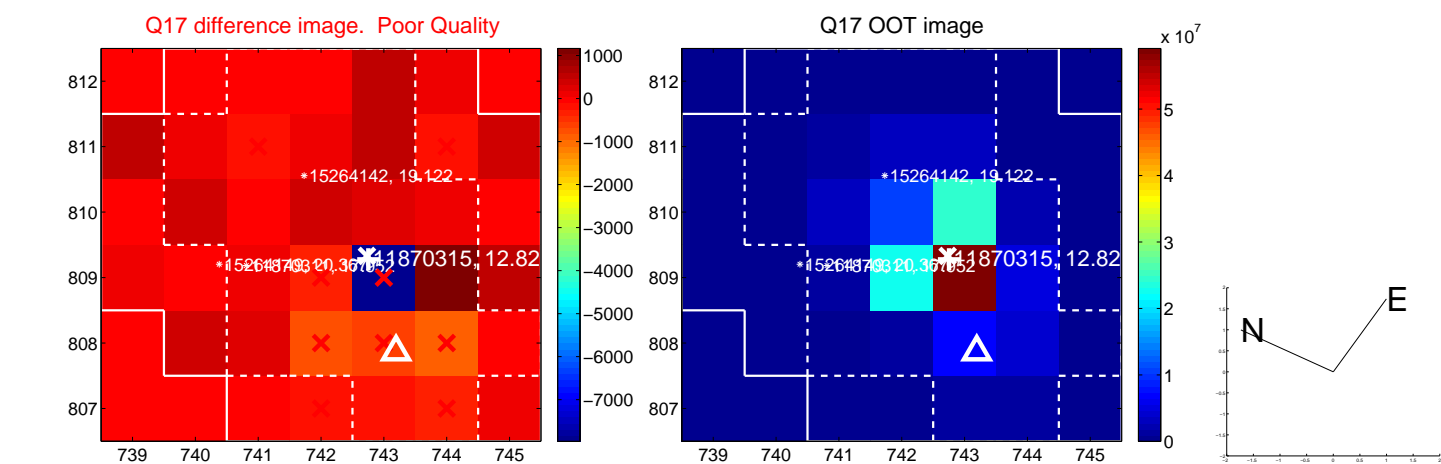
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



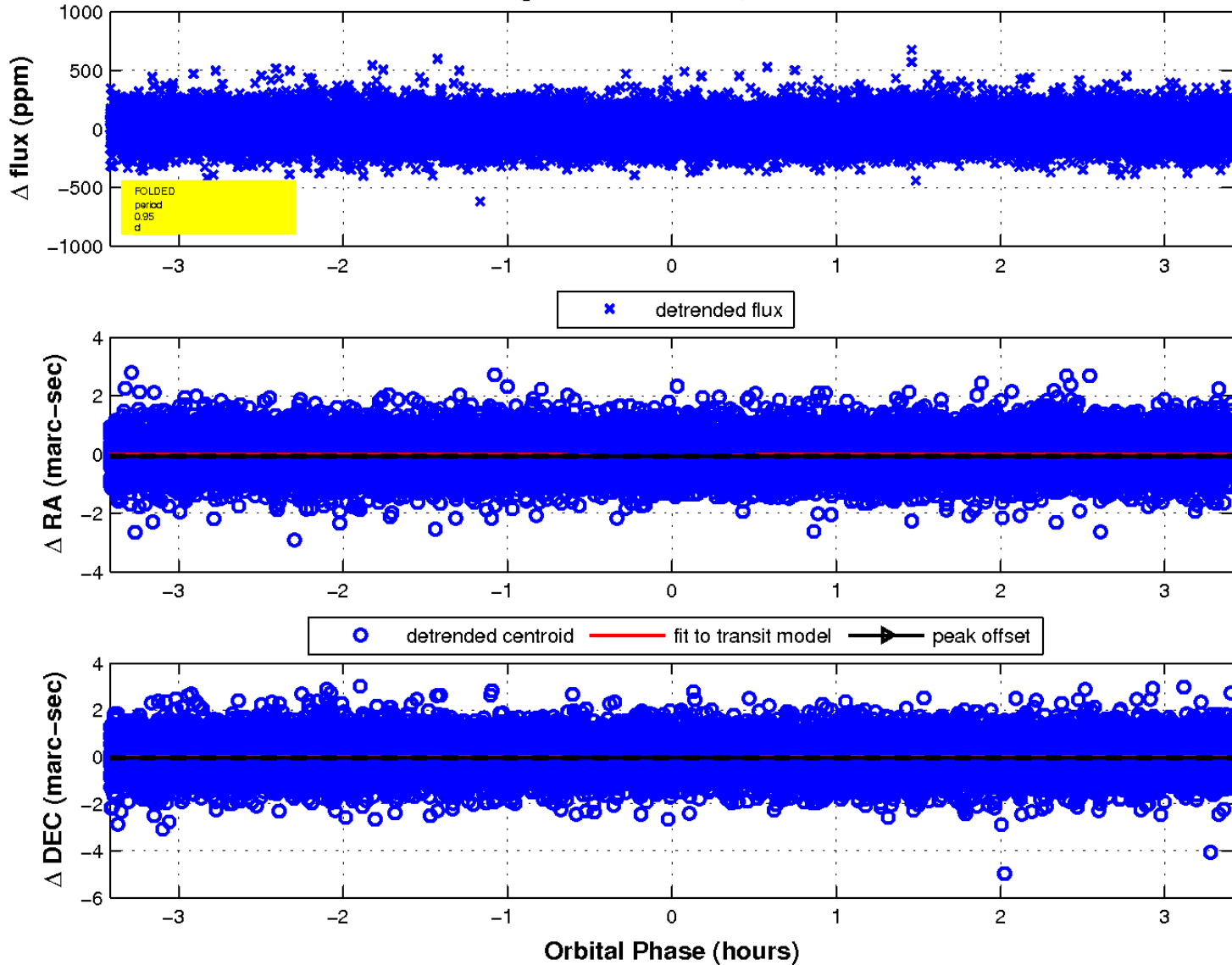
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

