

KIC 005095082

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005095082-01 | OBS | 4320.01 | 20.657767 | 145.652251 | 99.1 | 8.349 | 11.4 | 12.0 | 1.31 | 5468 | 1.53 | 66.38 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 005095082-01 | OBS | PC | 0.55 | 0 | 0 | 0 | 0 | NO_COMMENT |

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

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

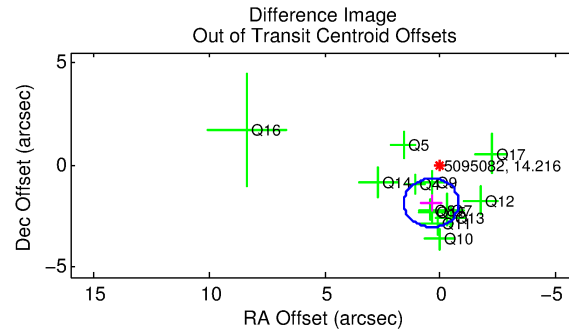
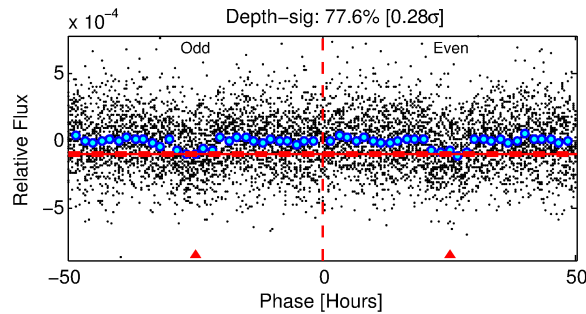
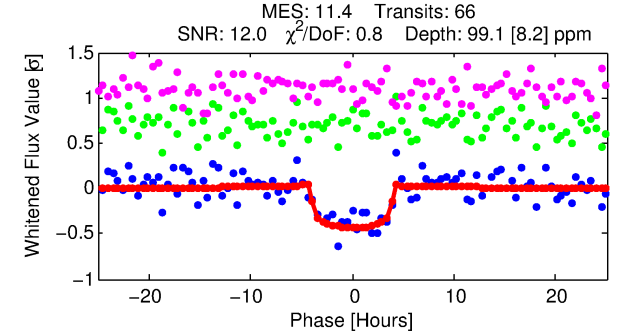
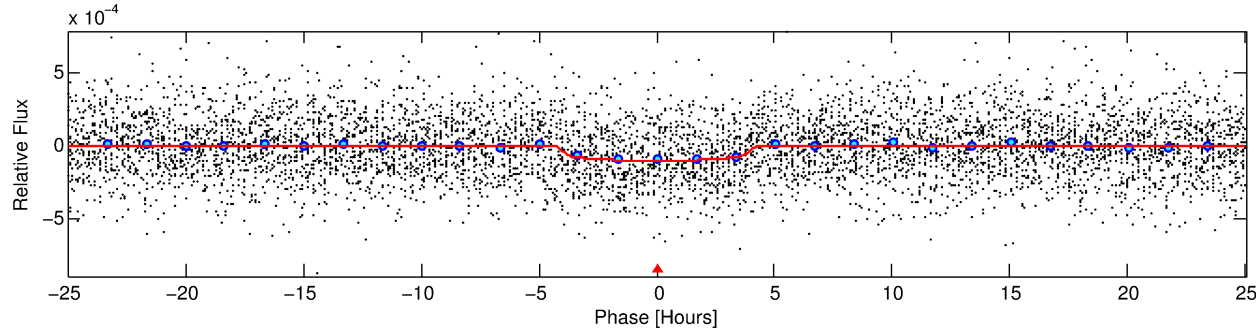
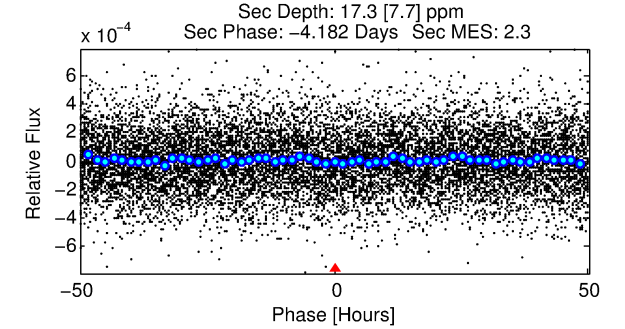
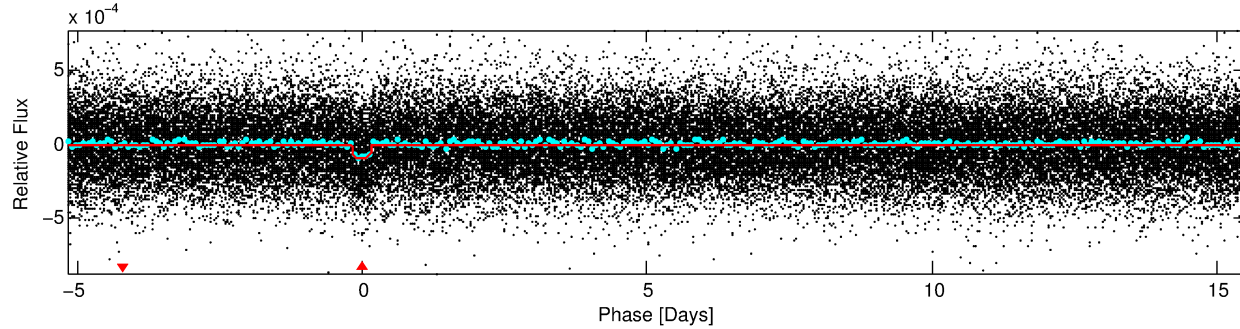
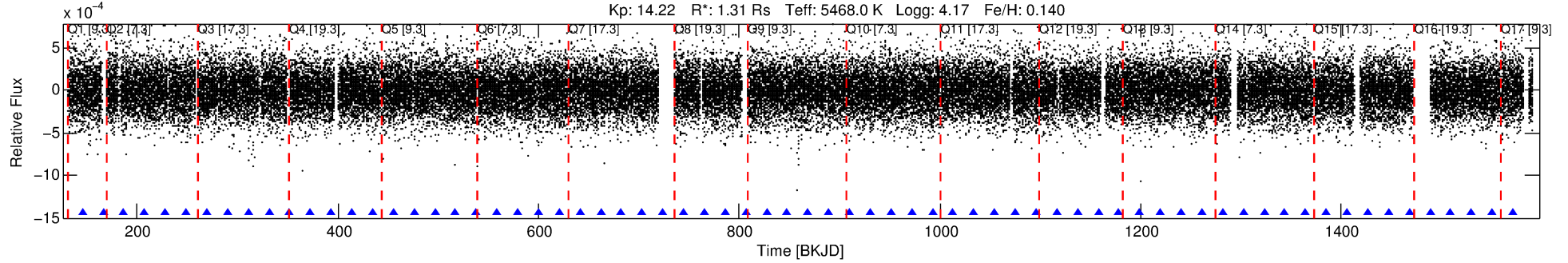
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005095082-01

No Significant Match Found

DV One-Page Summary

KIC: 5095082 Candidate: 1 of 1 Period: 20.658 d
KOI: K04320.01 Corr: 0.966



DV Fit Results:

Period = 20.65777 [0.00030] d
Epoch = 145.6523 [0.0119] BKJD
Rp/R* = 0.0107 [0.0034]
a/R* = 9.57 [13.04]
b = 0.88 [0.37]
Seff = 66.38 [26.02]
Teq = 728 [71] K
Rp = 1.53 [0.60] Re
a = 0.1435 [0.0339] AU
Ag = 84.24 [72.74] [1.14σ]
Teffp = 3409 [660] K [4.04σ]

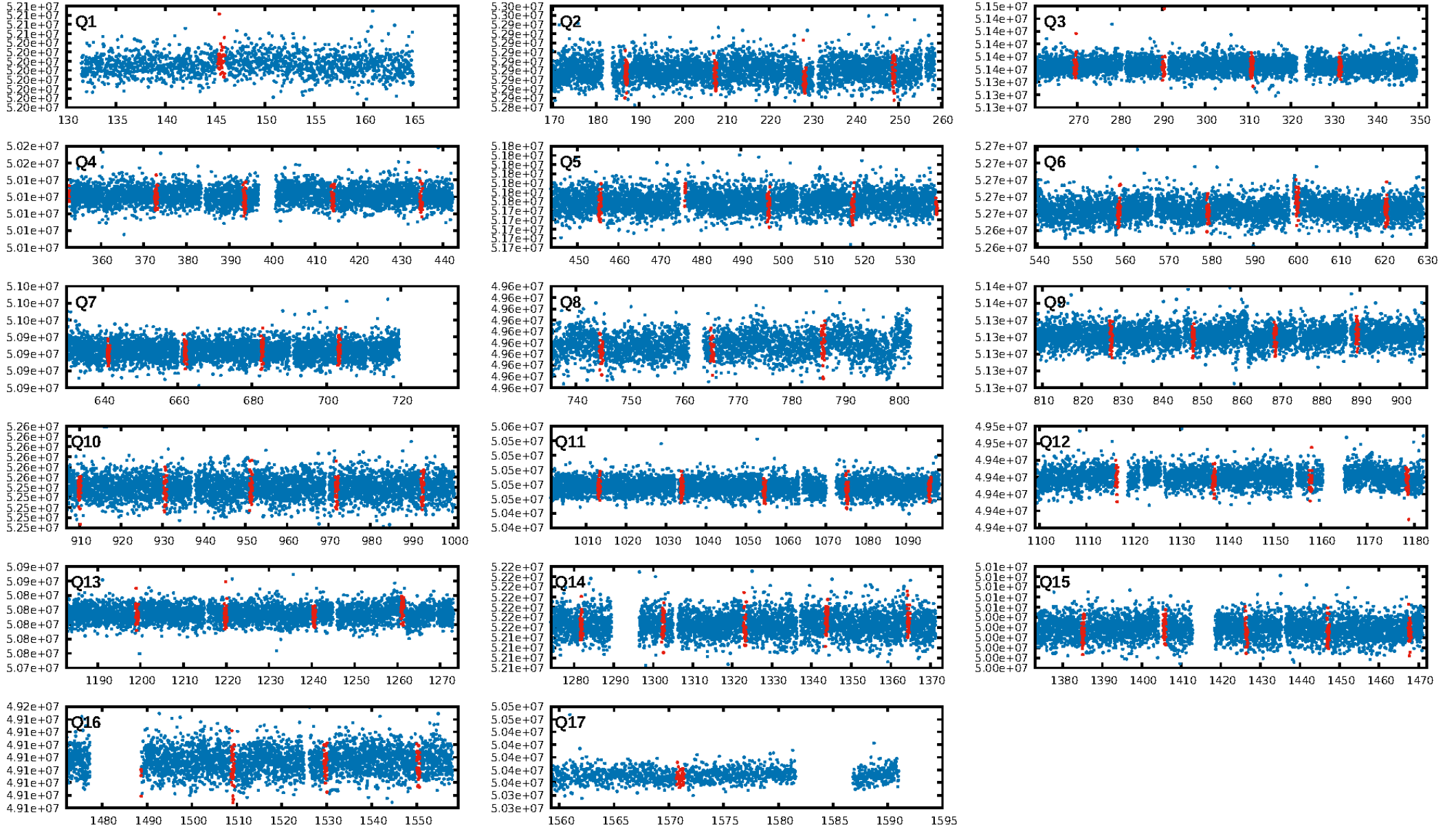
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 63.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.15e-30
RollingBand-fgt: 1.00 [64/64]
GhostDiagnostic-chr: 5.404
Centroid-sig: 91.7%
Centroid-so: 0.202 arcsec [0.21σ]
OotOffset-rm: 1.916 arcsec [4.82σ]
KicOffset-rm: 1.770 arcsec [4.44σ]
OotOffset-st: 2/3/4/4 [13]
KicOffset-st: 2/3/4/4 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 1.00 [17/17]

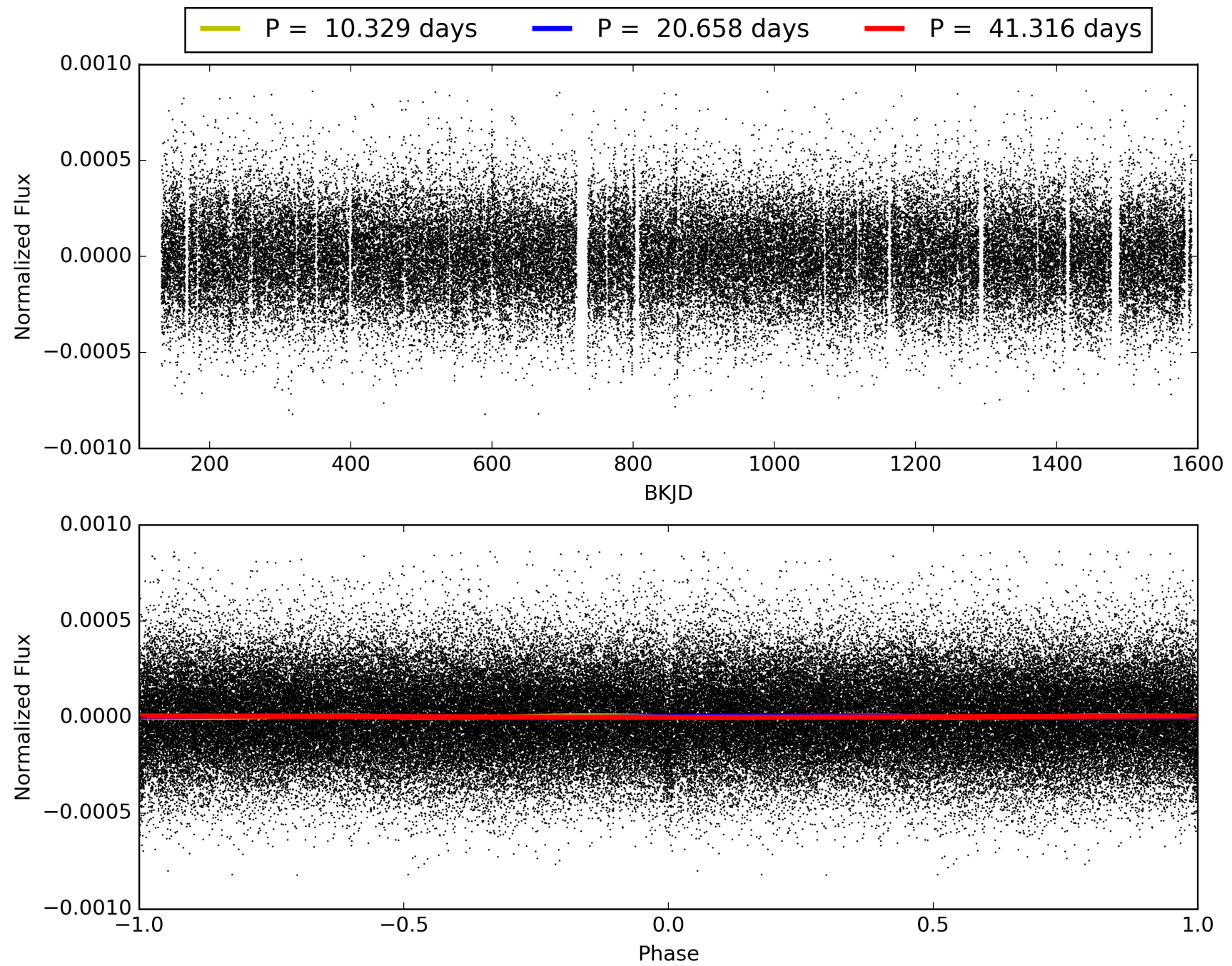
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:14:38 Z

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

TCE 005095082-01, PDC Light Curves

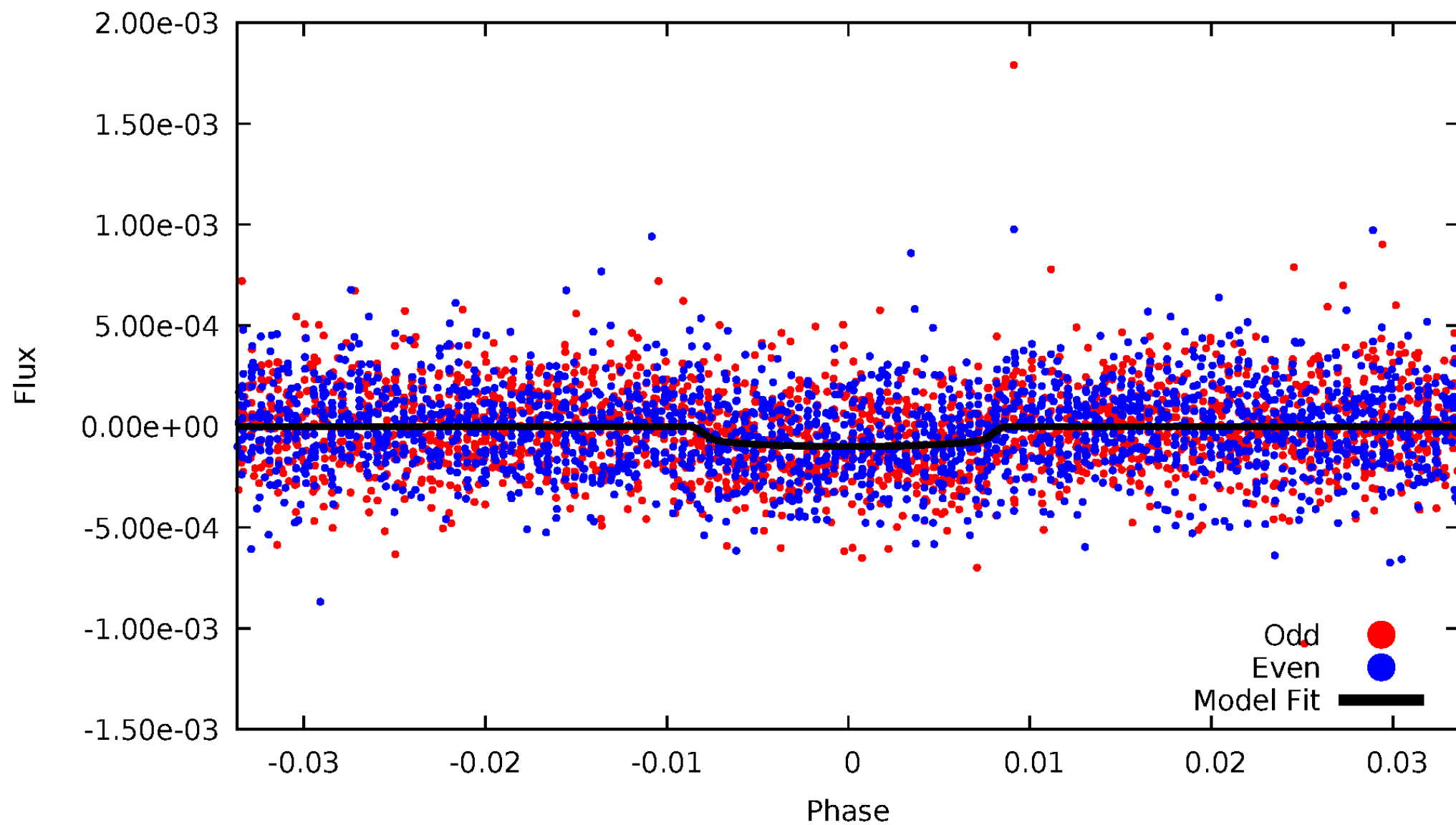


TCE 005095082-01



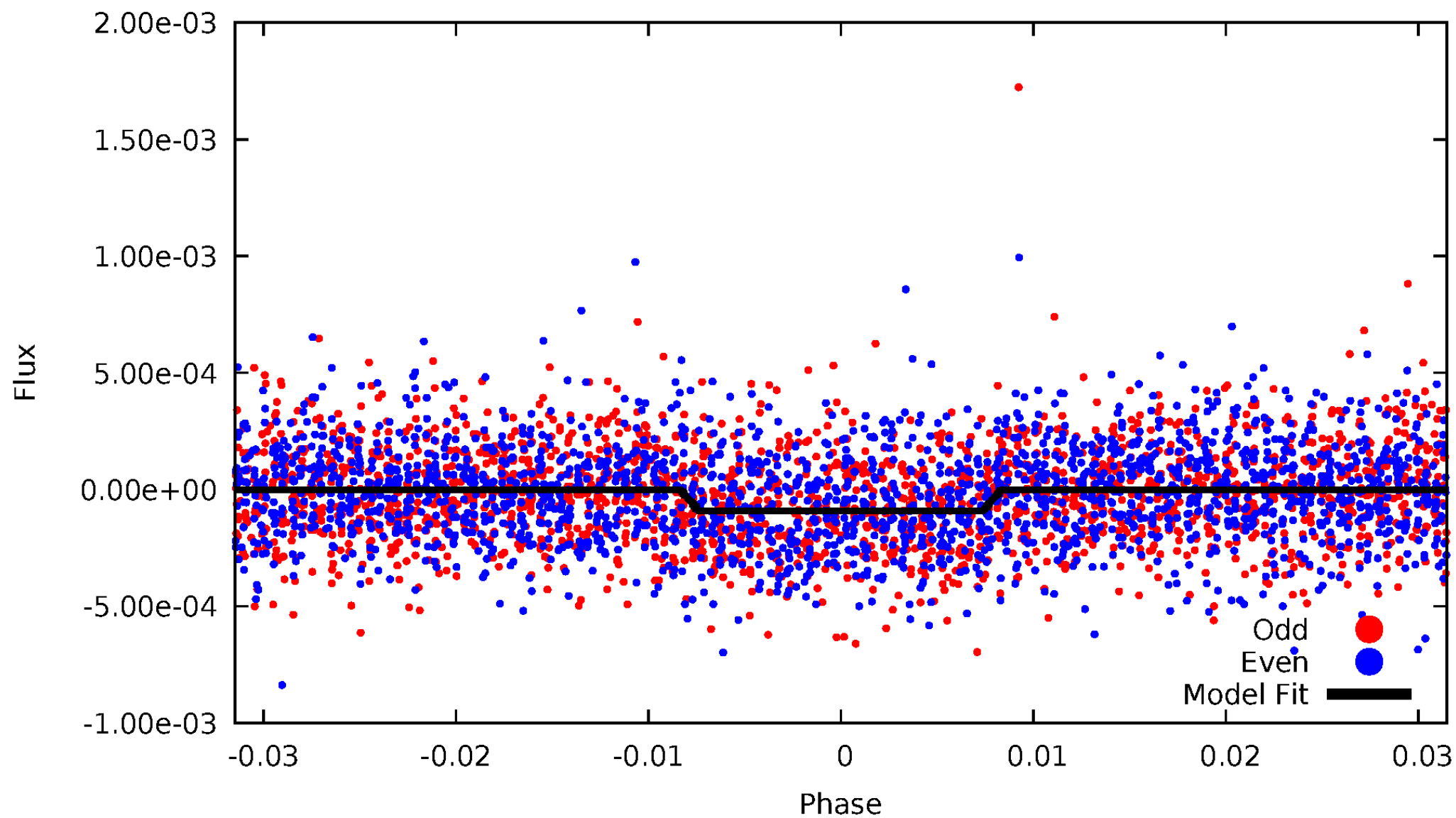
DV Odd/Even

TCE 005095082-01



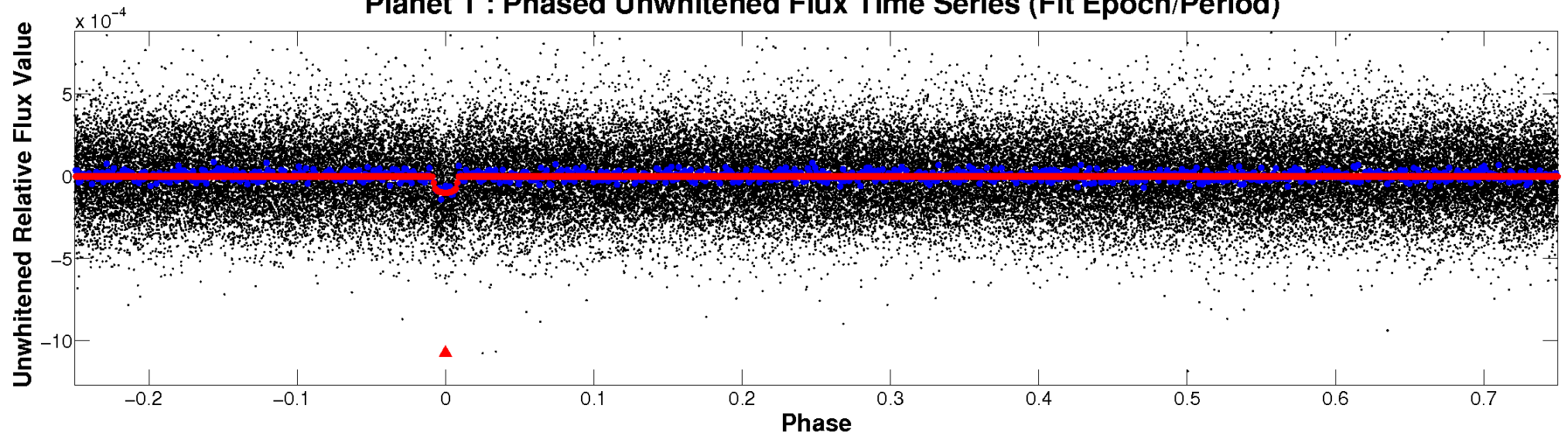
ALT Odd/Even

TCE 005095082-01

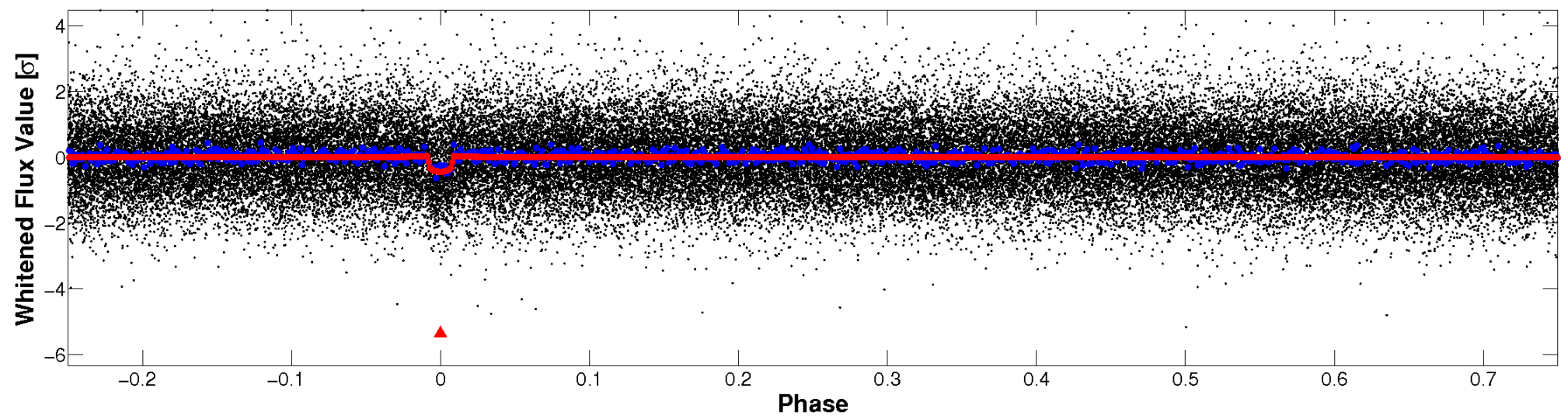


Non-Whitened Vs. Whitened Light Curve

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

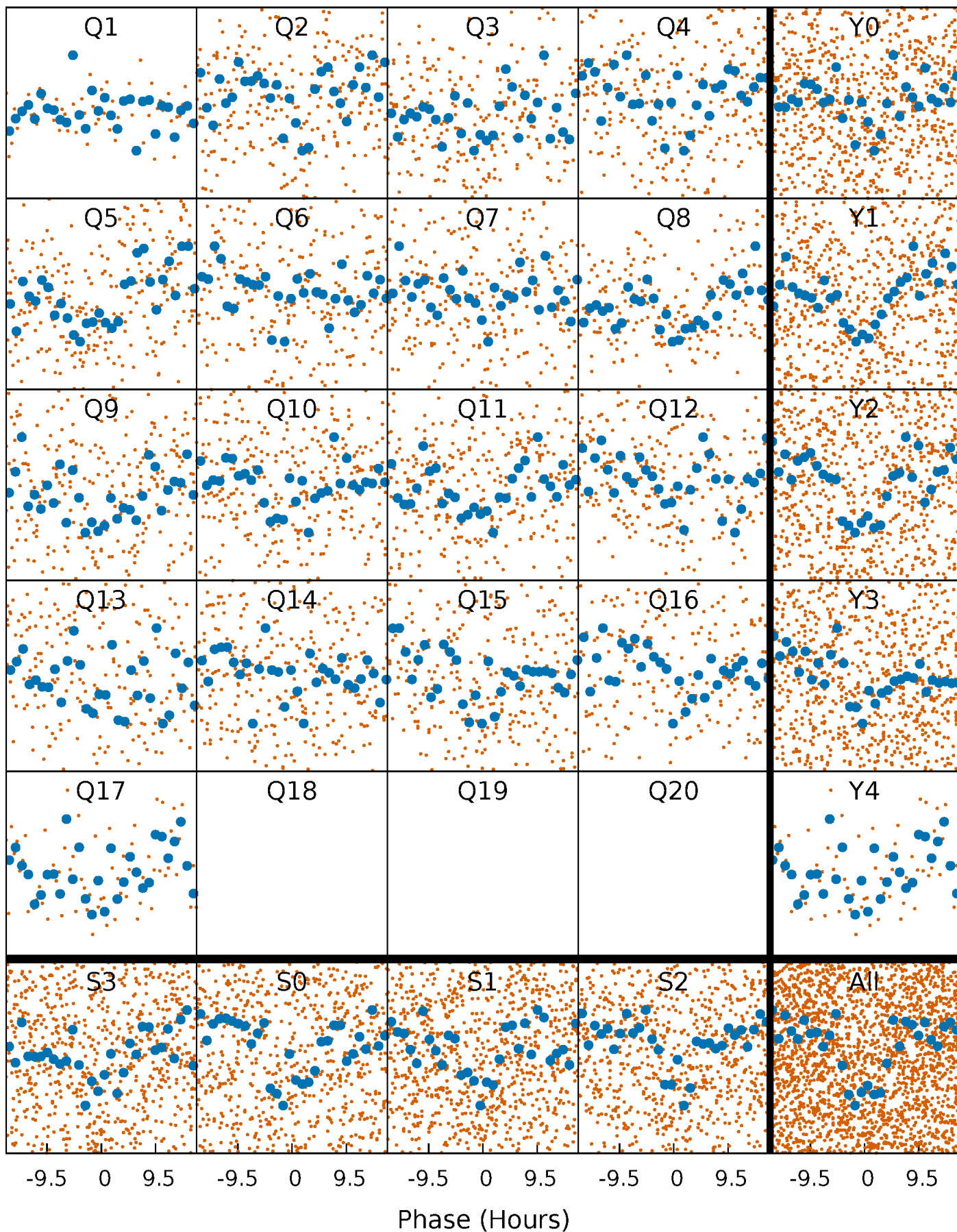


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



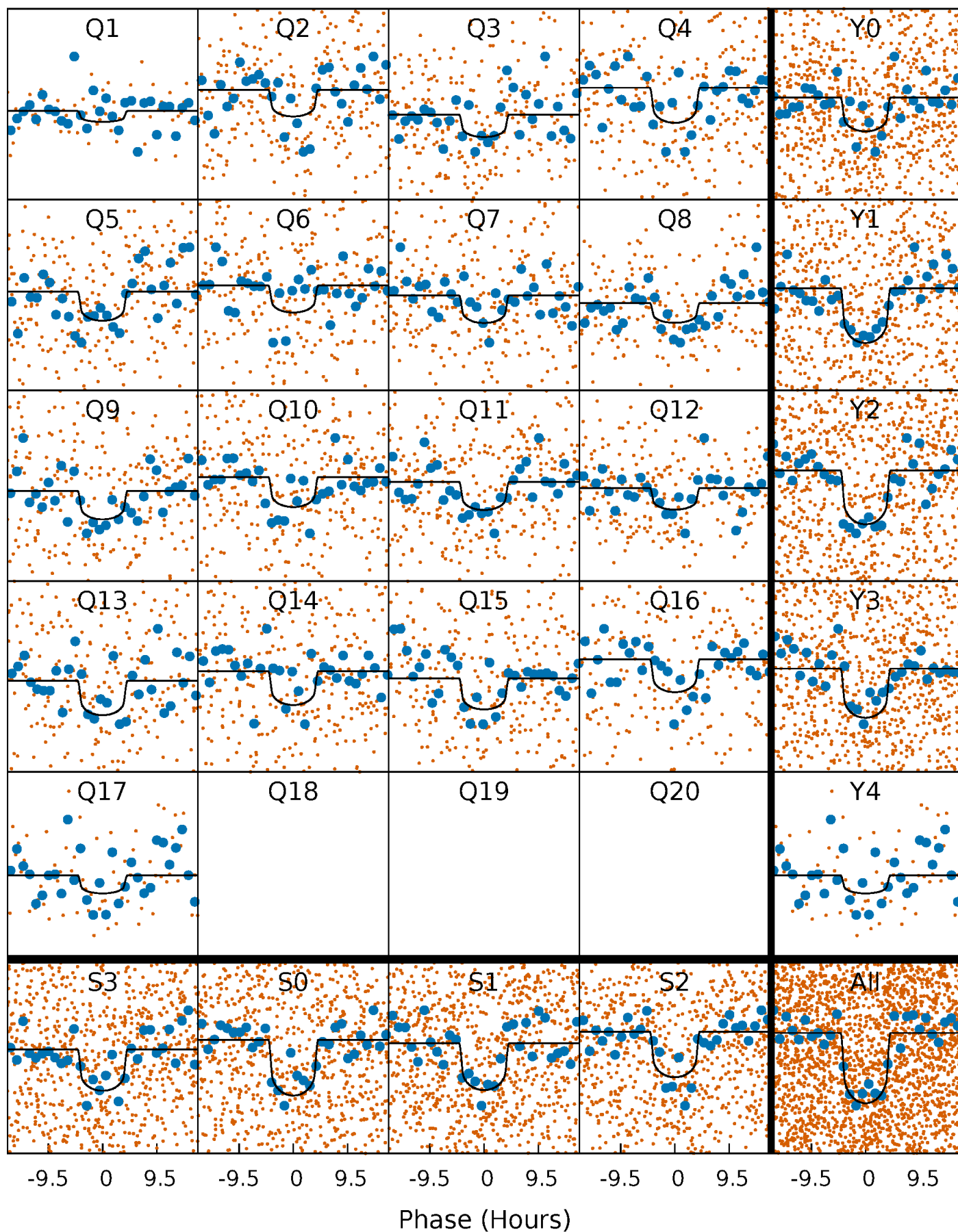
PDC Quarter-Phased Transit Curves

TCE 005095082-01 P= 20.657767 Days $T_0=145.652251$ (BKJD)



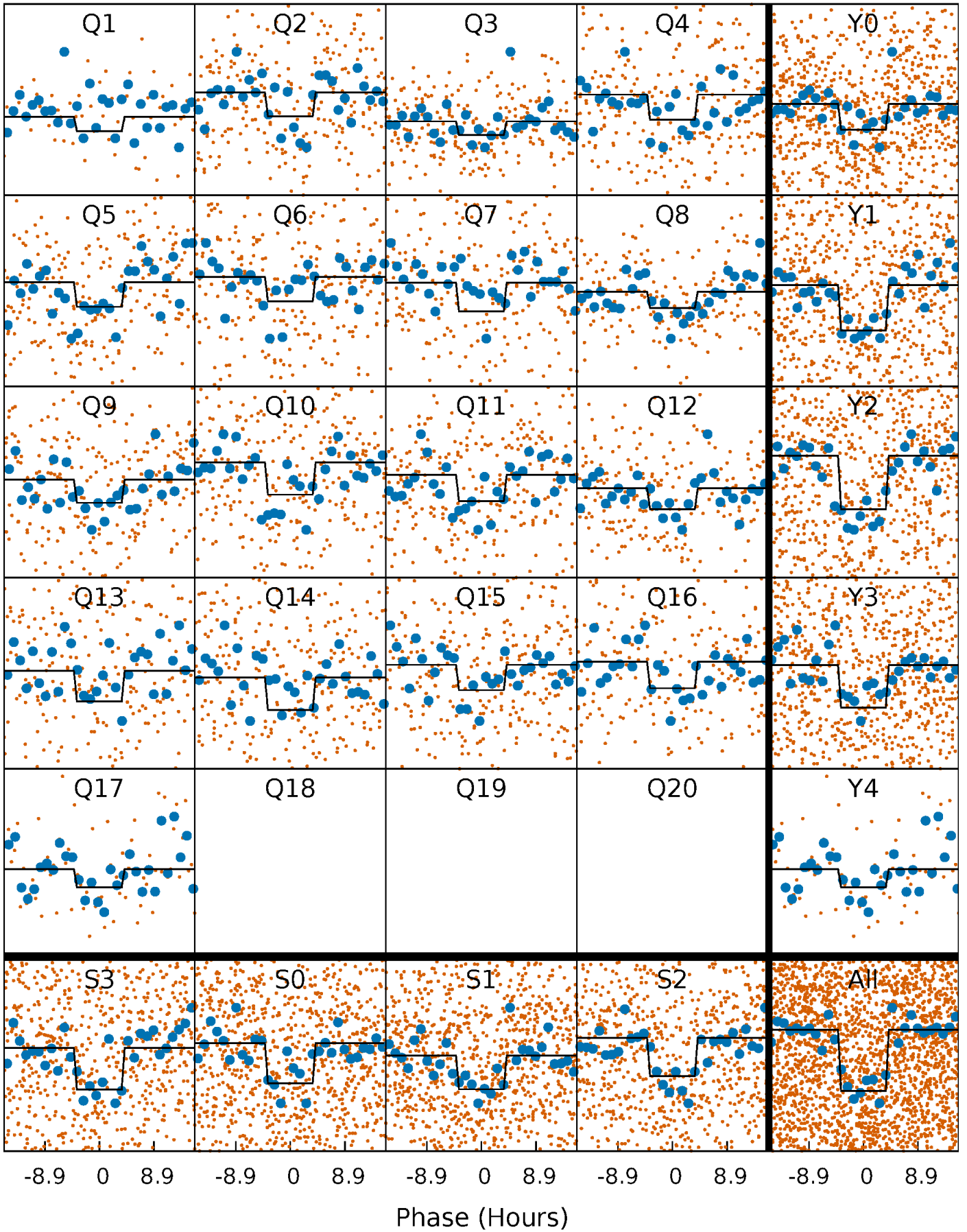
DV Quarter-Phased Transit Curves

TCE 005095082-01 P= 20.657767 Days $T_0=145.652251$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

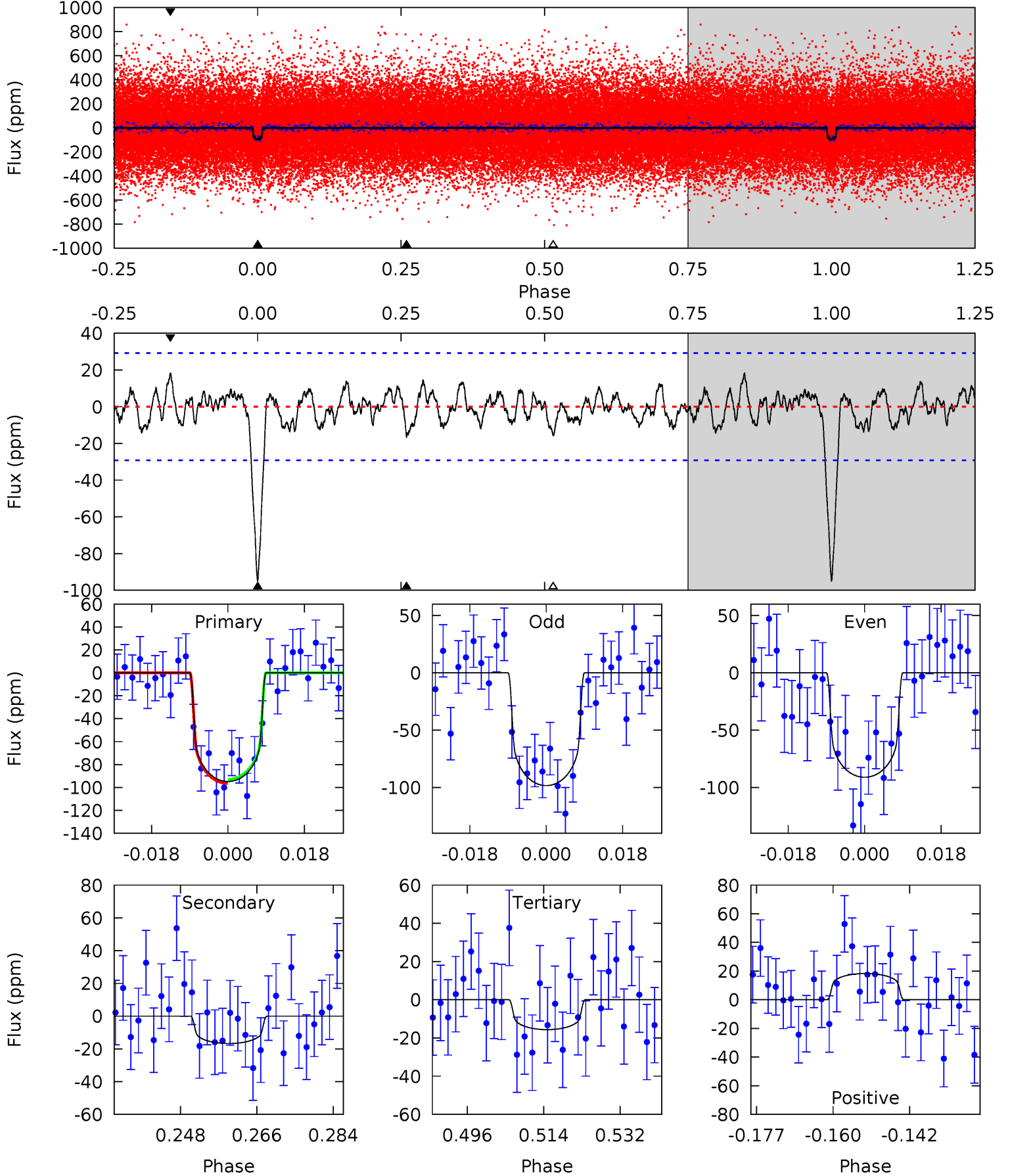
TCE 005095082-01 P= 20.657866 Days $T_0=145.648940$ (BKJD)



DV Model-Shift Uniqueness Test

005095082-01, P = 20.657767 Days, E = 124.994484 Days

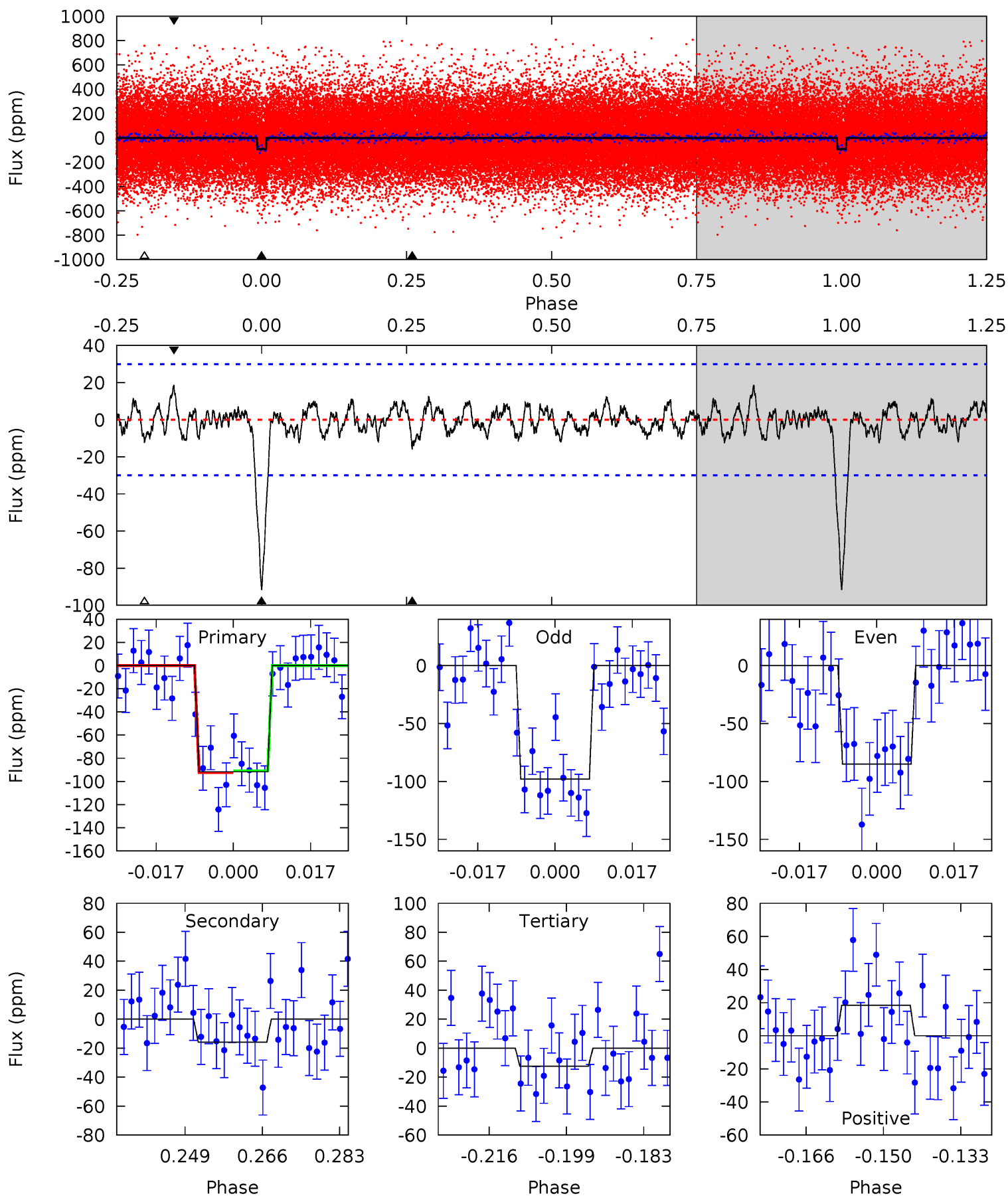
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.0 | 2.81 | 2.63 | 3.08 | 4.92 | 2.37 | 1.07 | 13.3 | 12.9 | 0.18 | -0.27 | 0.61 | 0.98 | 0.16 | 0.29 |



Alt Model-Shift Uniqueness Test

005095082-01, P = 20.657866 Days, E = 124.991074 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.1 | 2.62 | 2.06 | 3.03 | 4.93 | 2.40 | 0.89 | 13.0 | 12.1 | 0.55 | -0.41 | 1.08 | 0.92 | 0.17 | 0.13 |



Stellar Parameters For KIC 005095082

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------------------------------------------|
| | 5468^{+81}_{-65} | $4.171^{+0.231}_{-0.116}$ | $0.140^{+0.150}_{-0.100}$ | $1.306^{+0.230}_{-0.306}$ | $0.923^{+0.065}_{-0.038}$ | $0.583^{+0.657}_{-0.193}$ |
| | +1%/-1% | +6%/-3% | +107%/-71% | +18%/-23% | +7%/-4% | +113%/-33% |
| Source | SPE90 | SPE90 | SPE90 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005095082-01 / KOI 4320.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|-------------------|
| DV | -17 ± 6 | $1.46^{+0.56}_{-0.50}$ | 1014^{+50}_{-73} | 3742^{+660}_{-416} | 88^{+129}_{-51} |
| Alt. | -16 ± 6 | $1.31^{+0.53}_{-0.48}$ | 1010^{+51}_{-72} | 3826^{+728}_{-441} | 95^{+166}_{-51} |

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

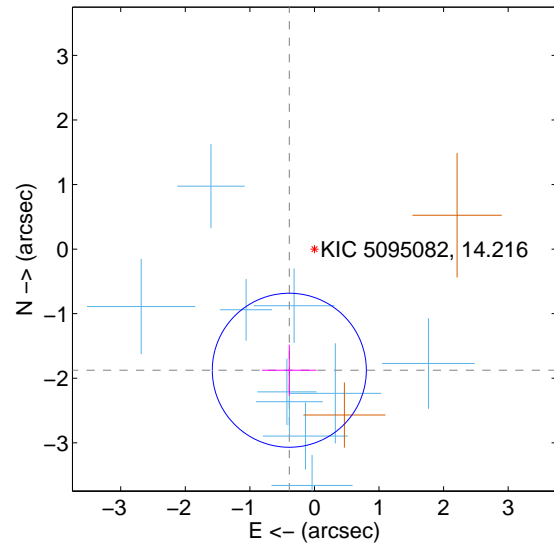
Supplemental centroid analysis for 005095082-01. Kepler magnitude: 14.22. Transit SNR 12.00

There are 10 quarters with good PRF difference image offsets

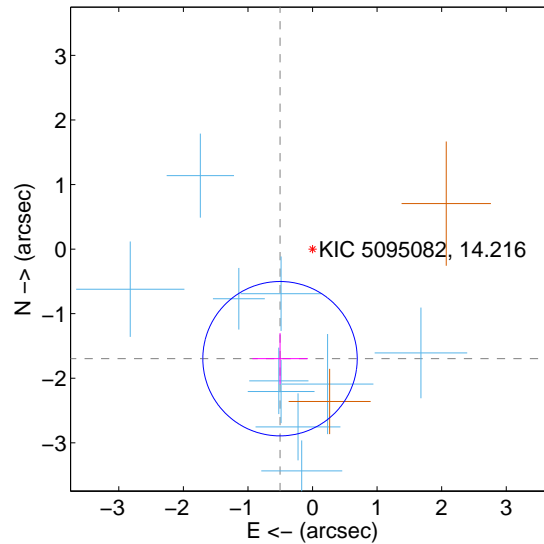
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 1.916 ± 0.398 | 4.82 | 0.389 ± 0.422 | -1.876 ± 0.396 |
| PRF-fit source offset from KIC position | 1.770 ± 0.398 | 4.44 | 0.503 ± 0.429 | -1.697 ± 0.396 |
| photometric centroid source offset | 0.20 ± 0.97 | 0.21 | -0.18 ± 0.98 | 0.09 ± 0.94 |

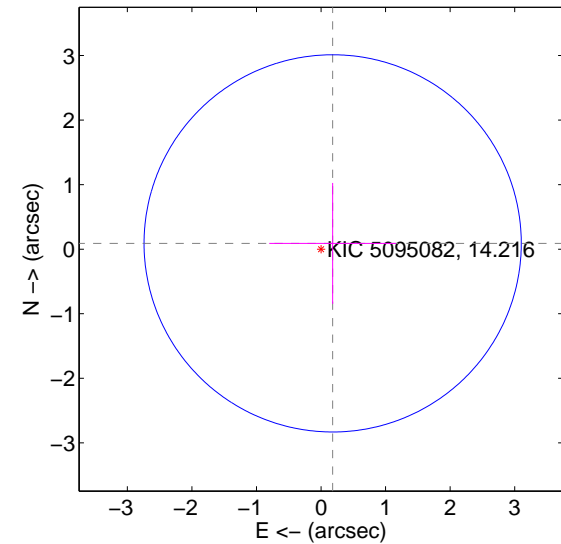
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

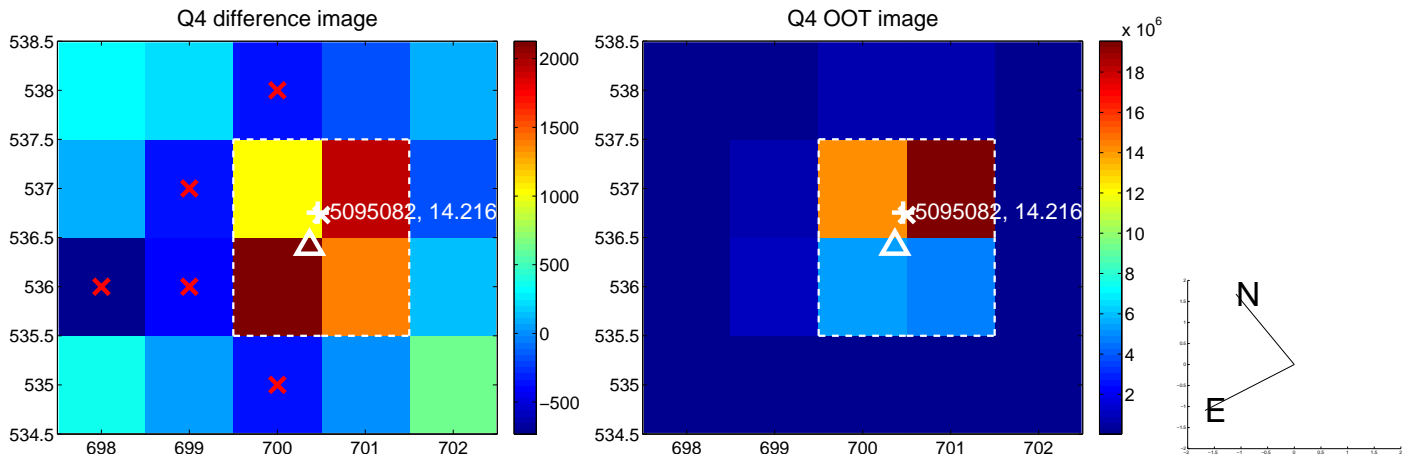
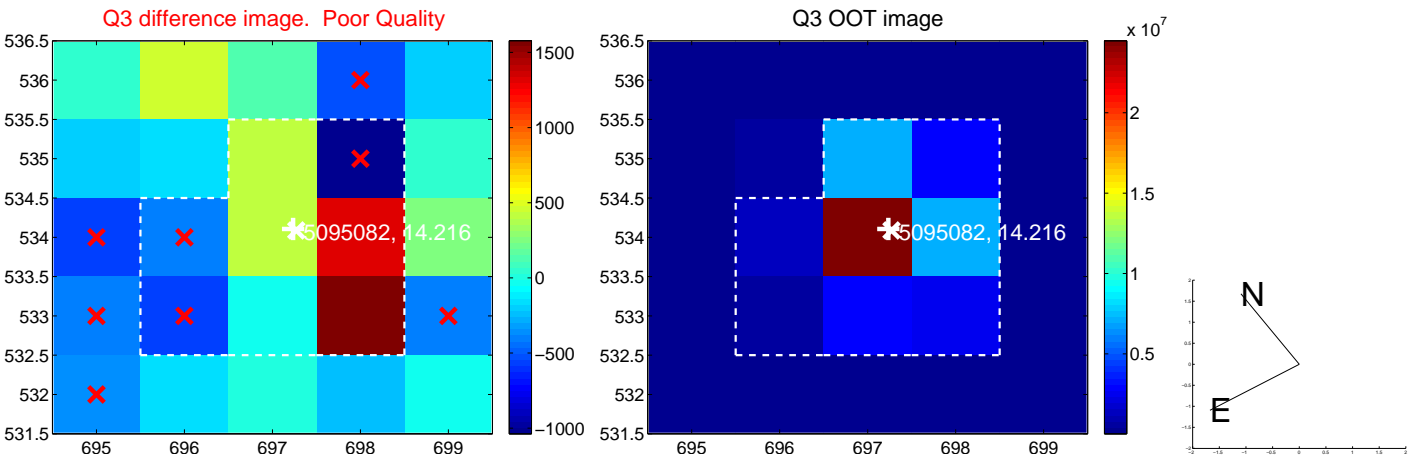
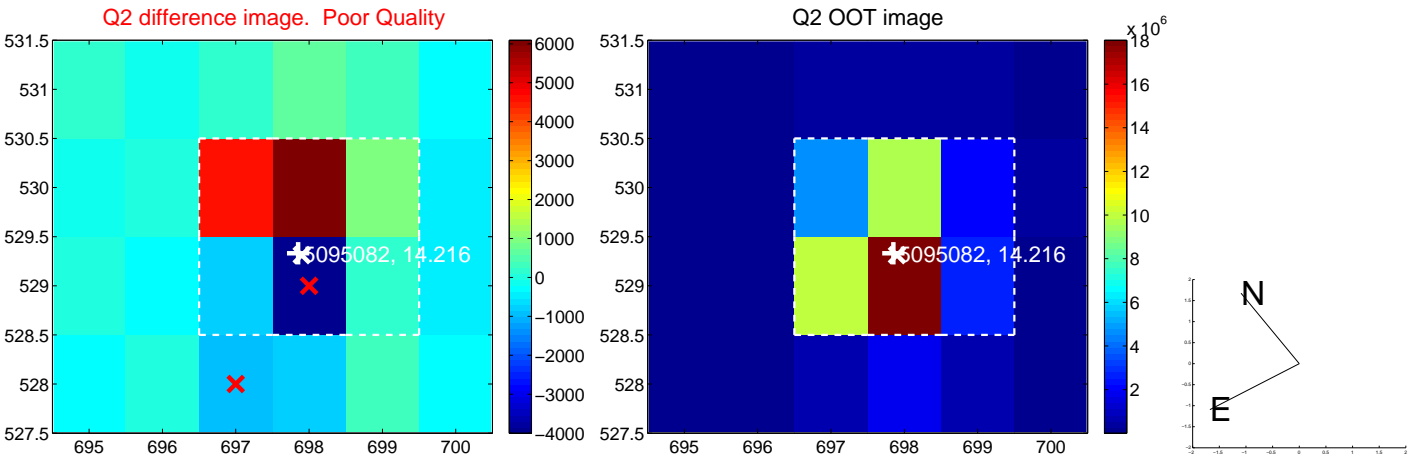
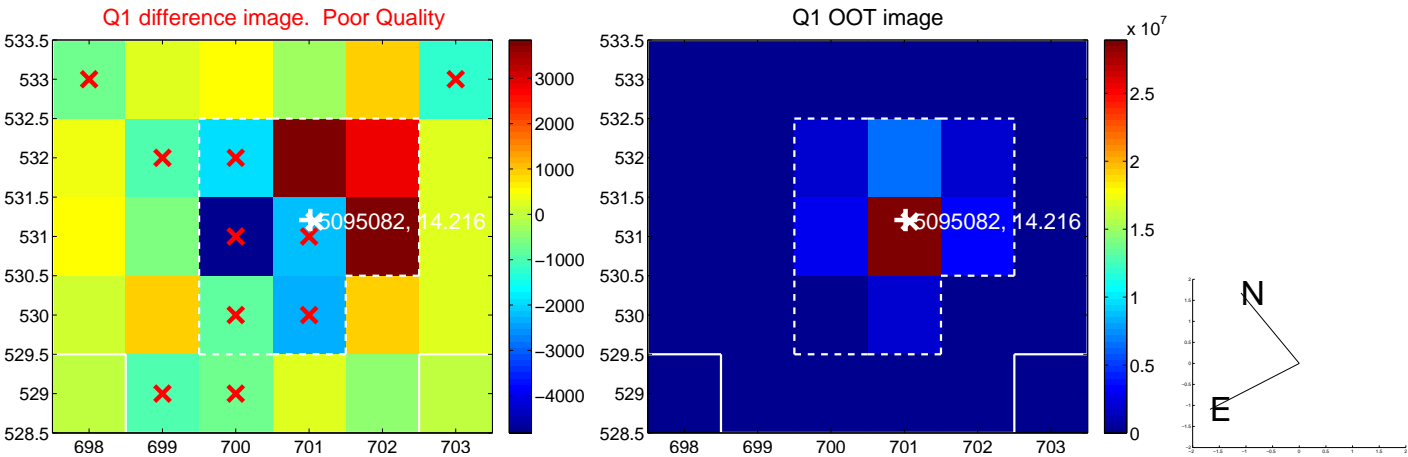


offset from photometric centroids

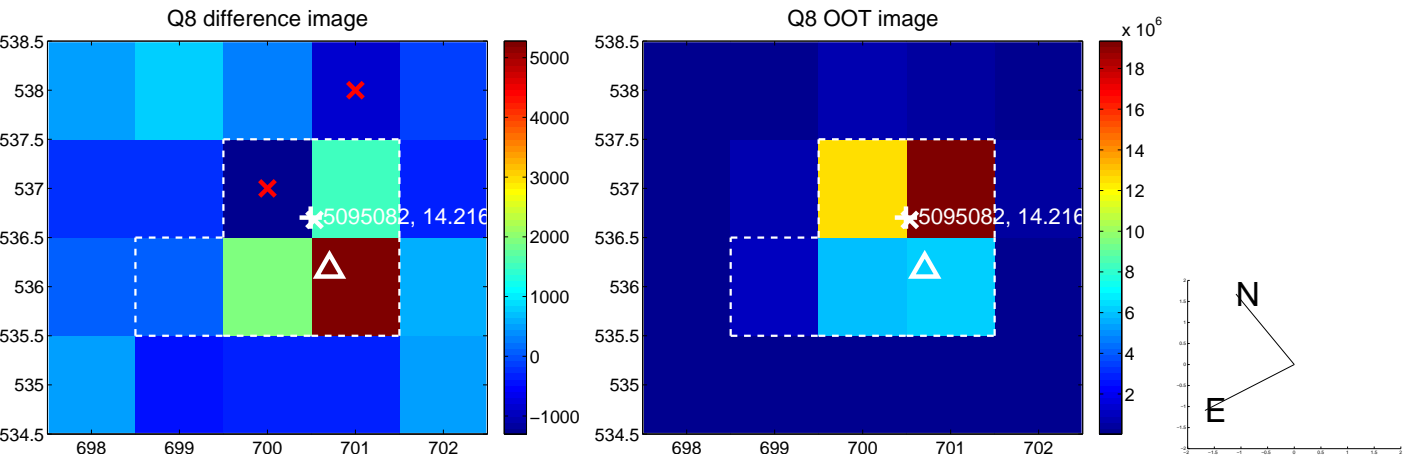
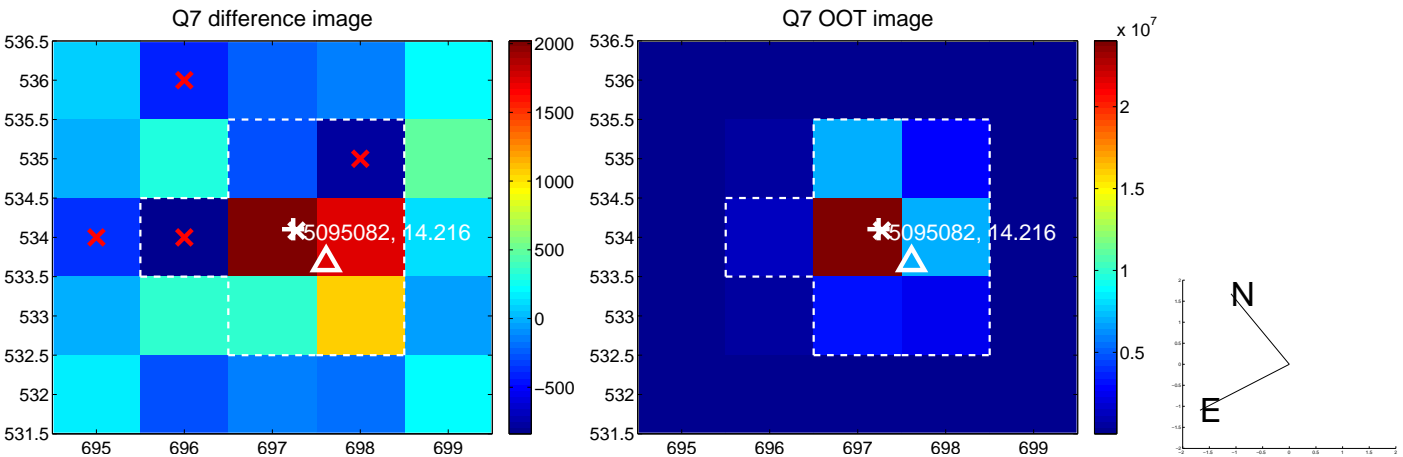
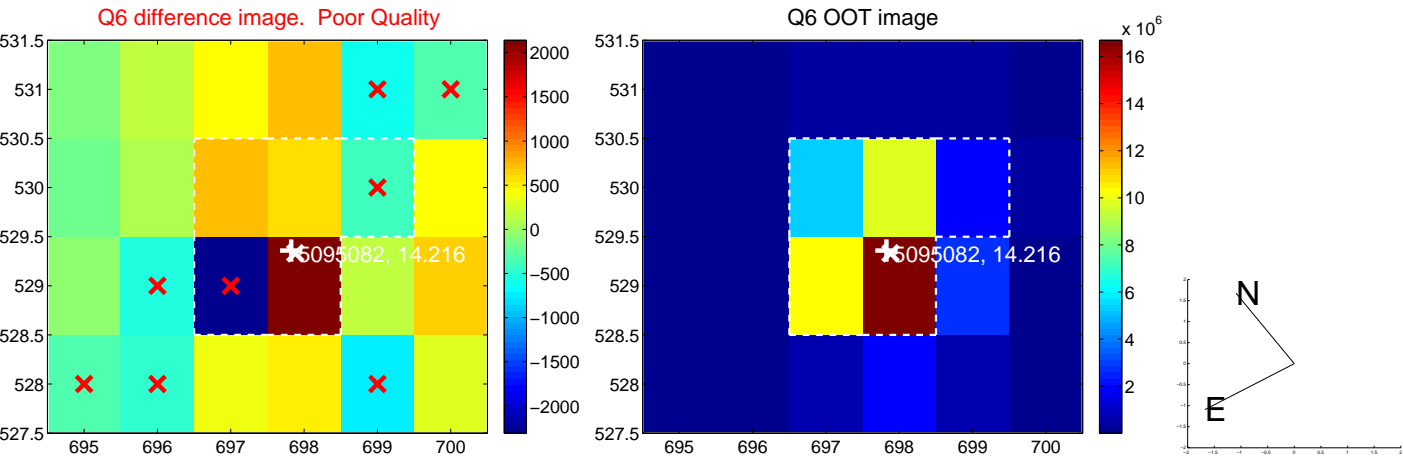
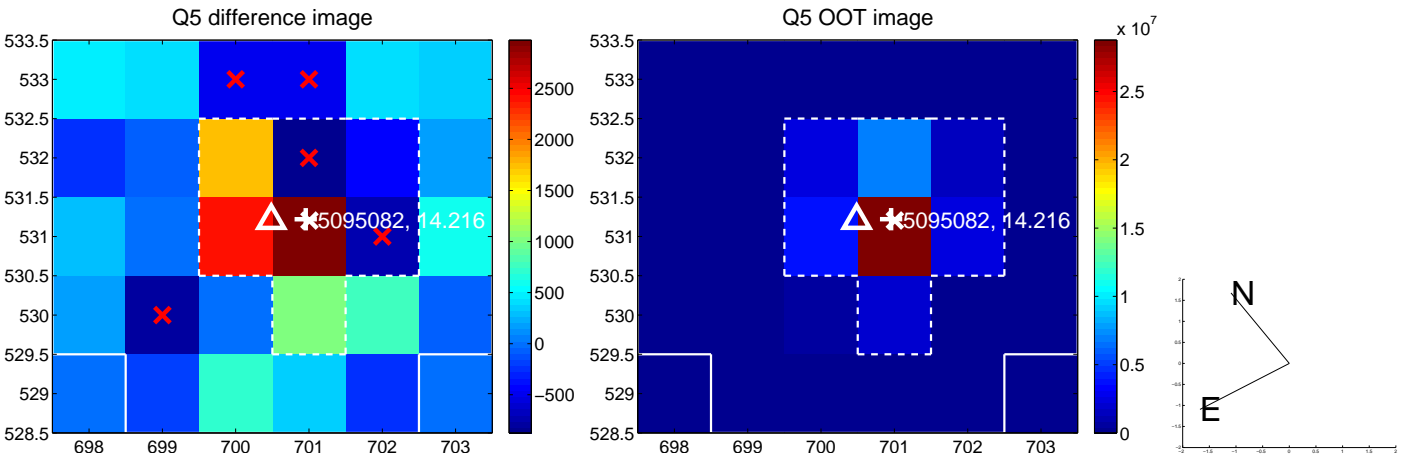


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

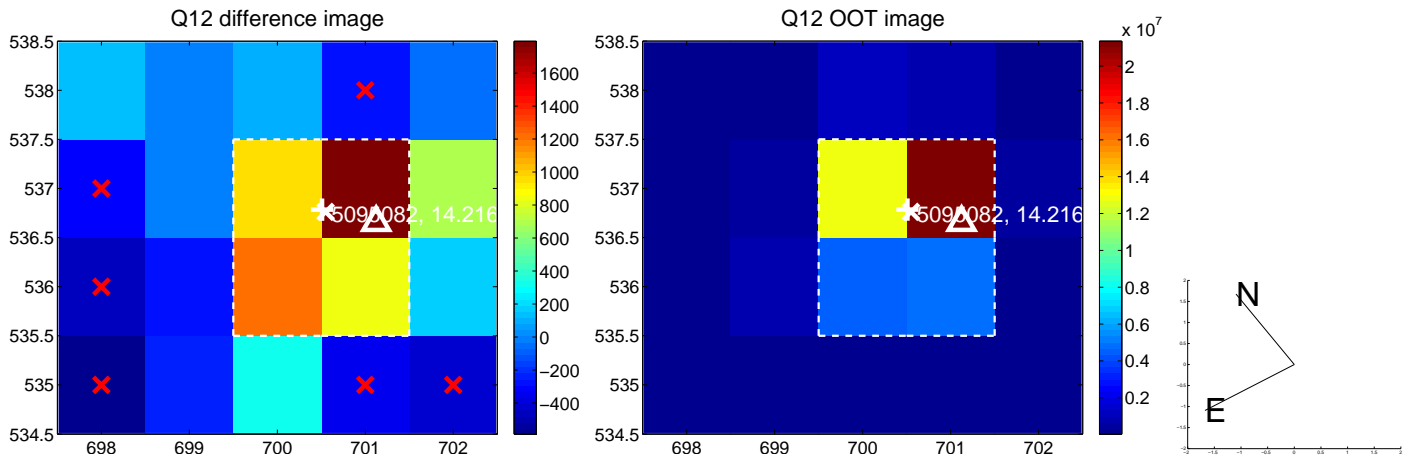
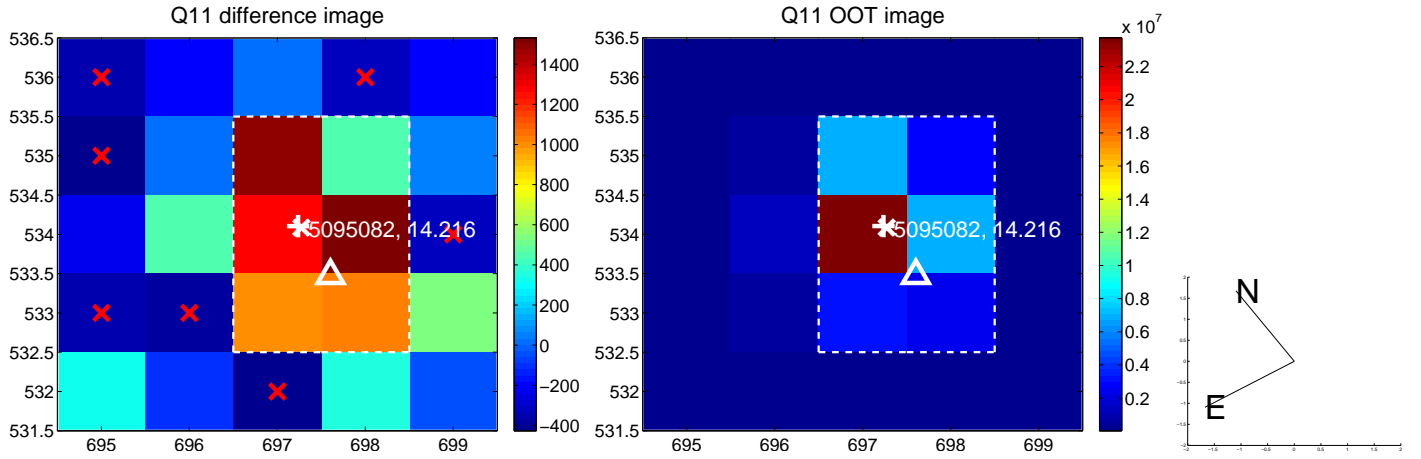
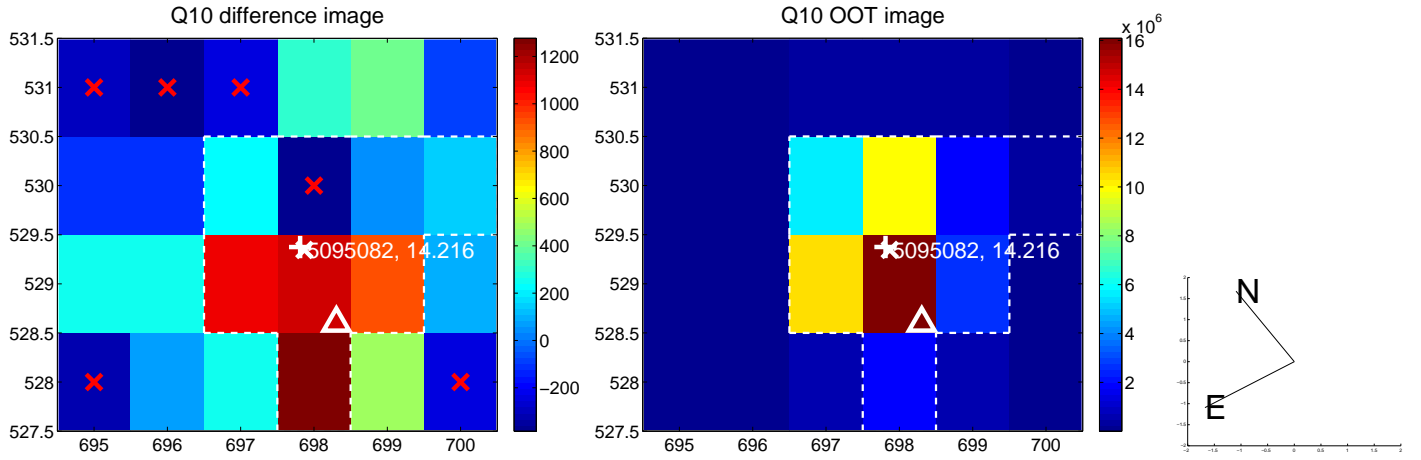
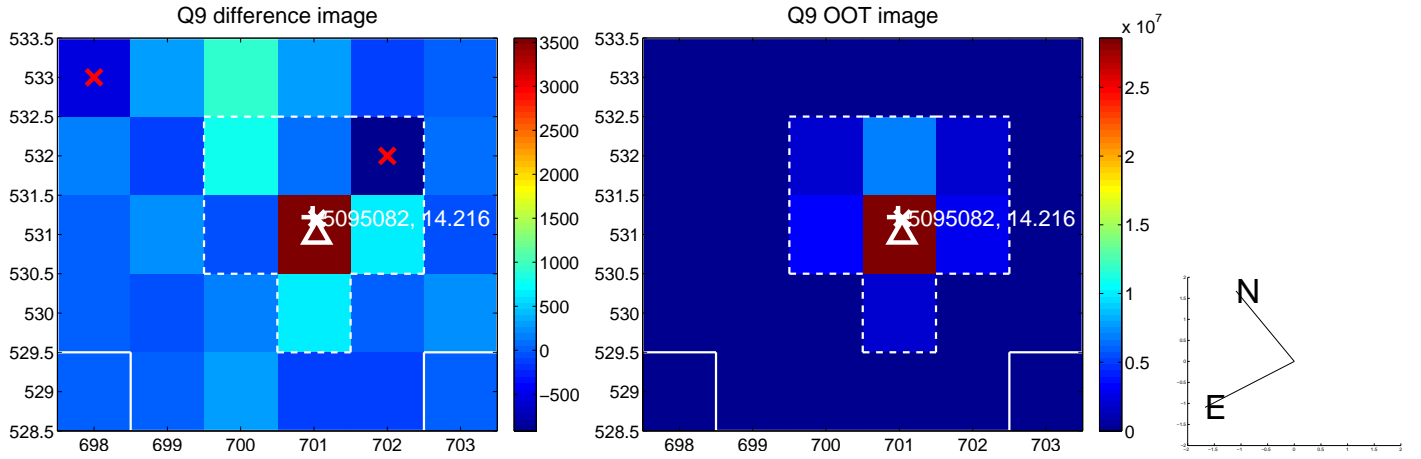
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



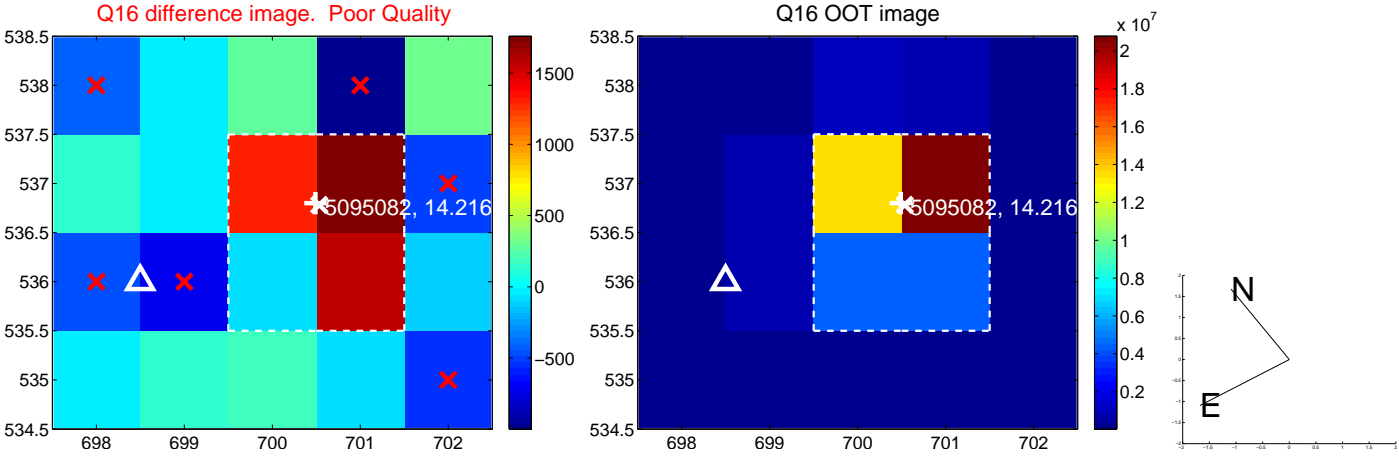
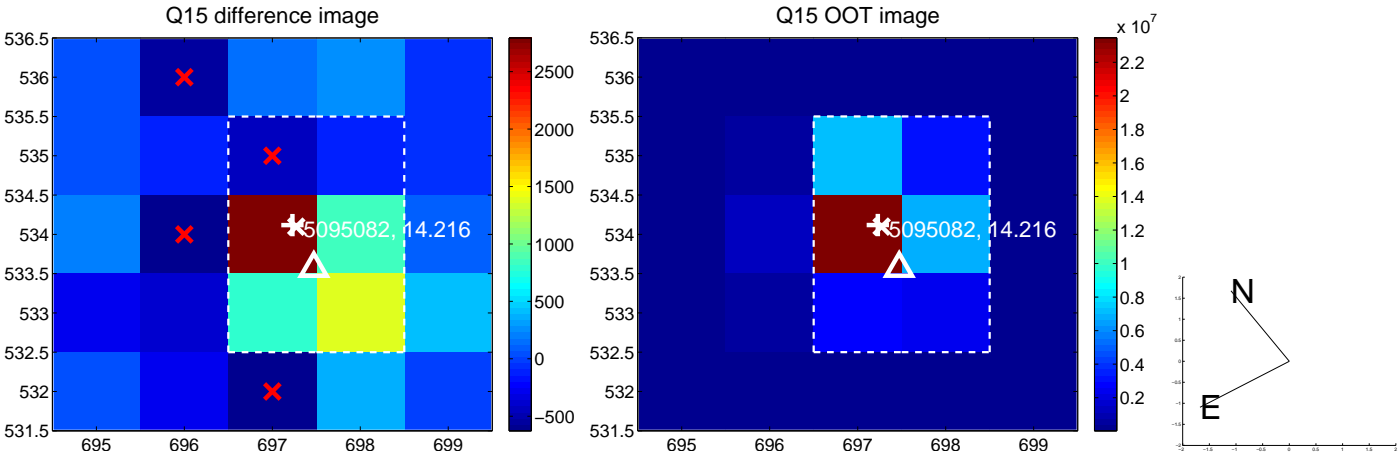
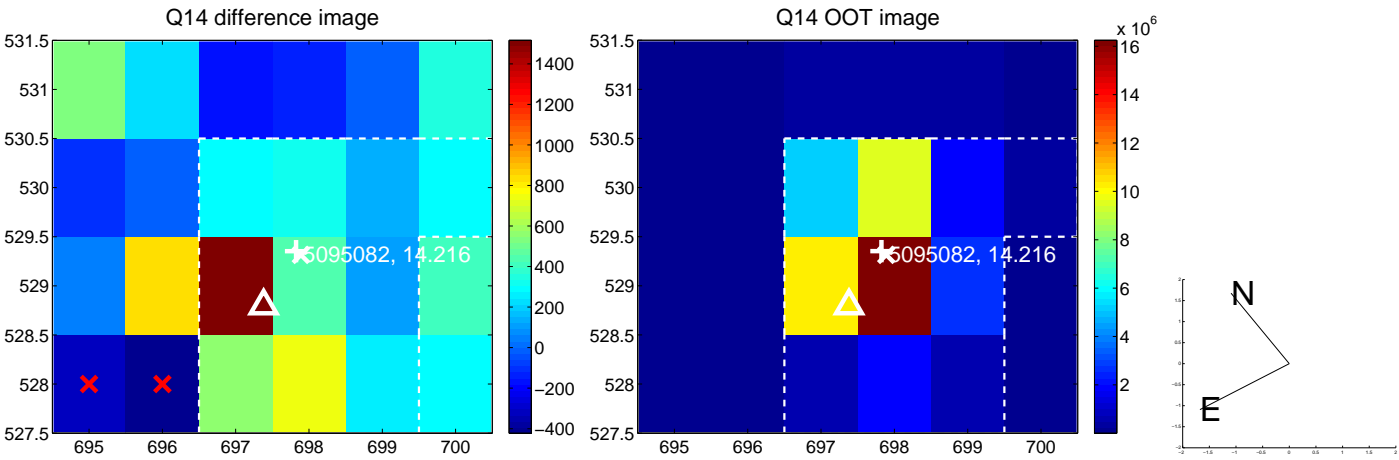
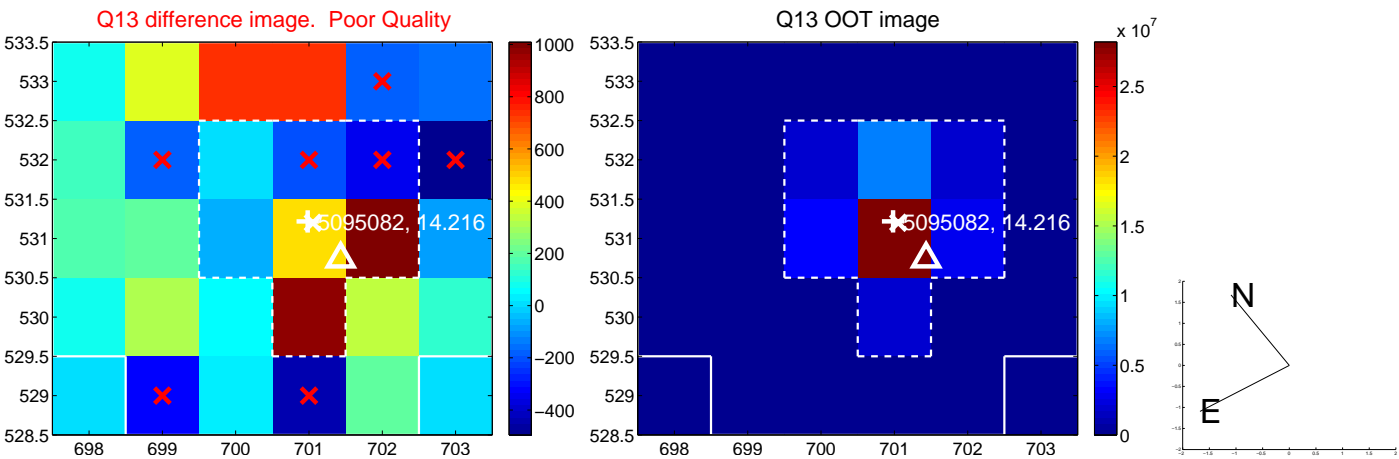
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



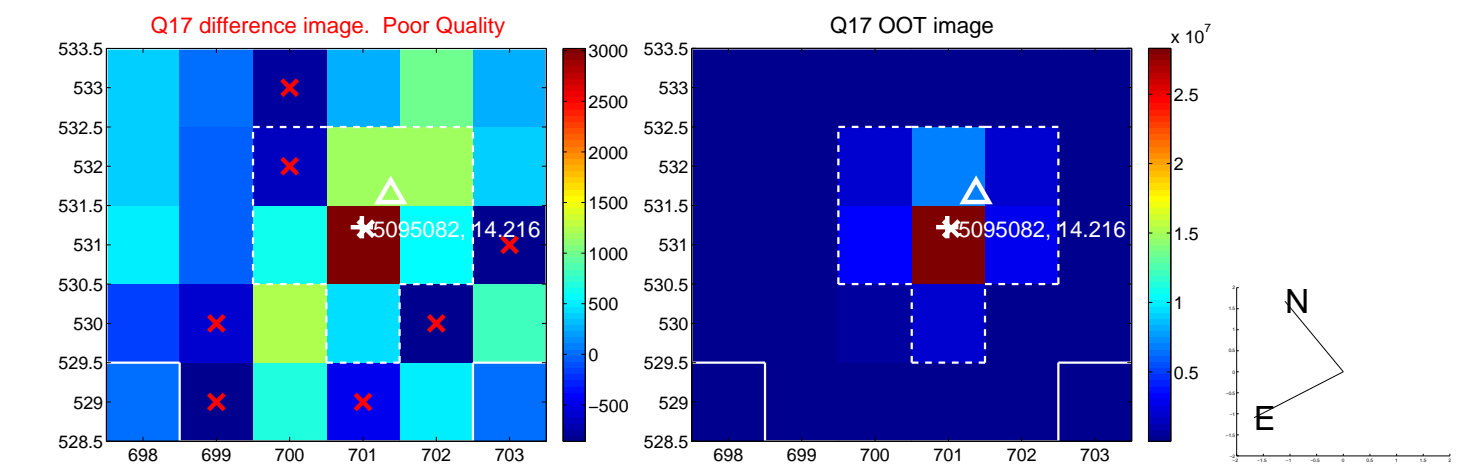
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



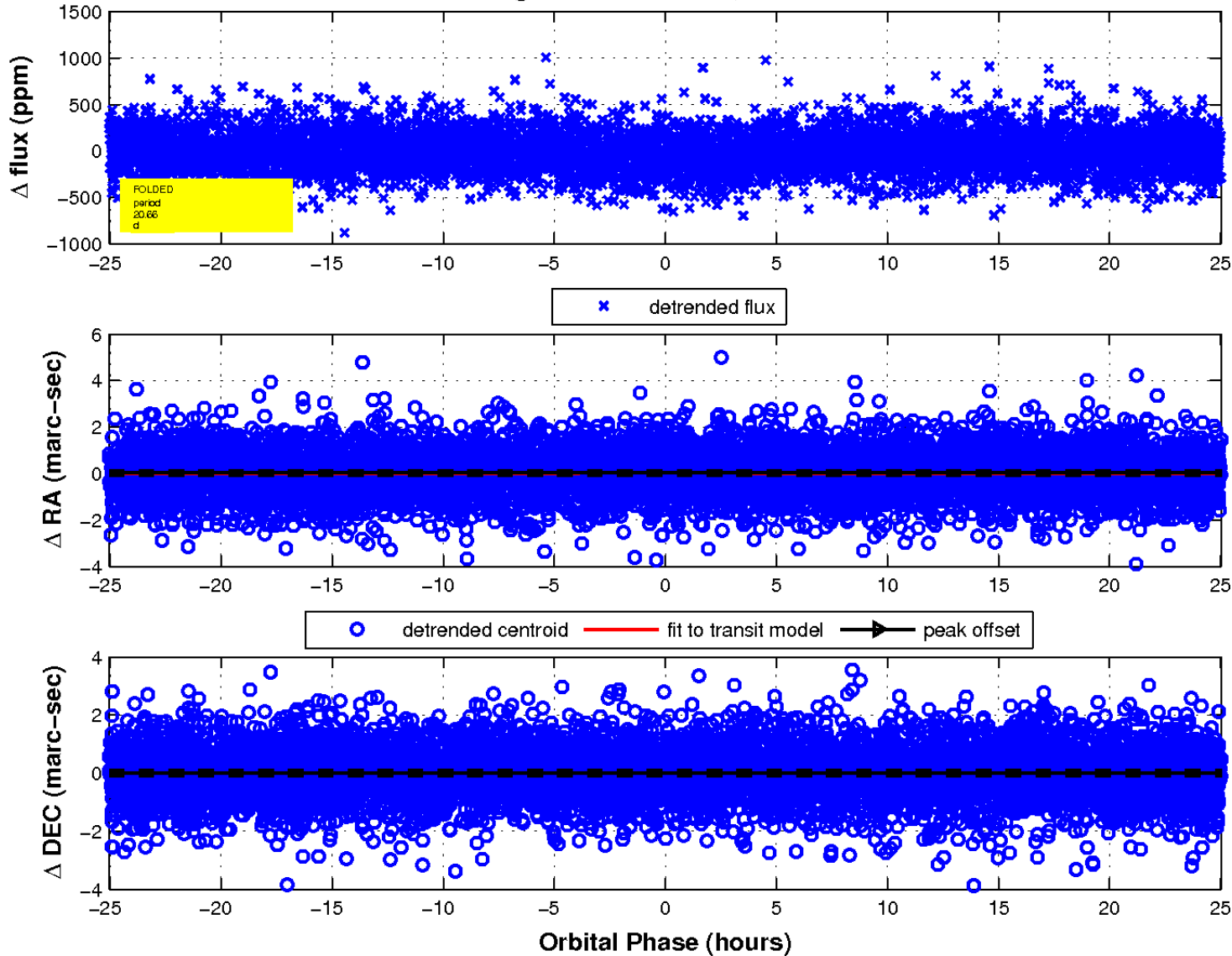
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

