

KIC 009145861

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009145861-01 | OBS | 6194.01 | 42.290453 | 133.994631 | 177.1 | 22.118 | 8.8 | 8.6 | 7.85 | 4926 | 10.46 | 325.41 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 009145861-01 | OBS | PC | 0.95 | 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.

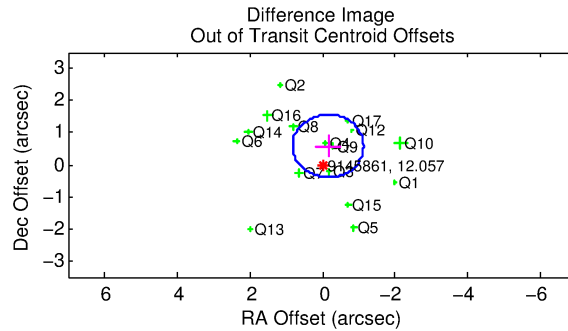
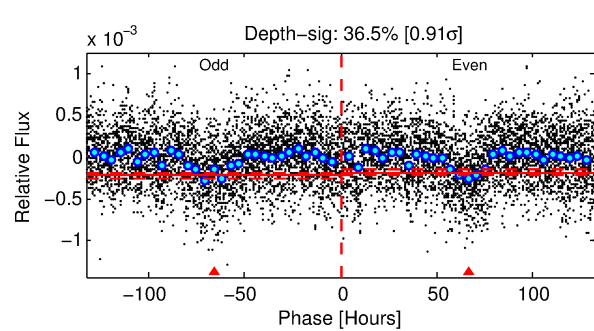
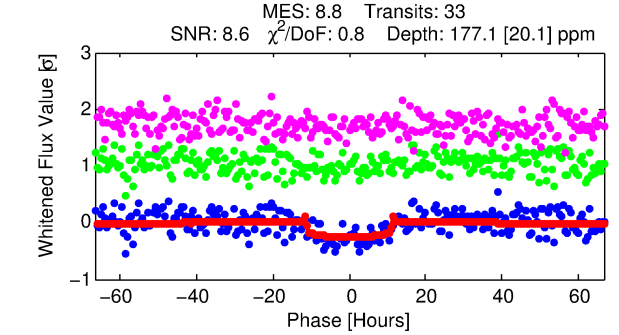
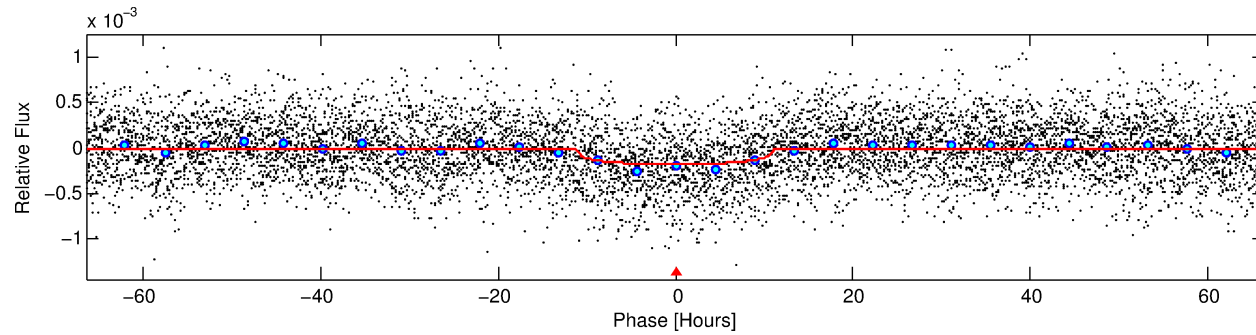
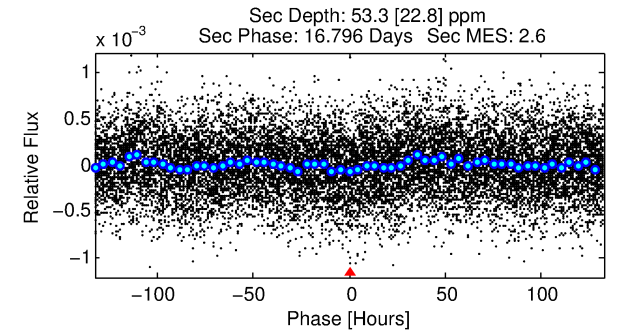
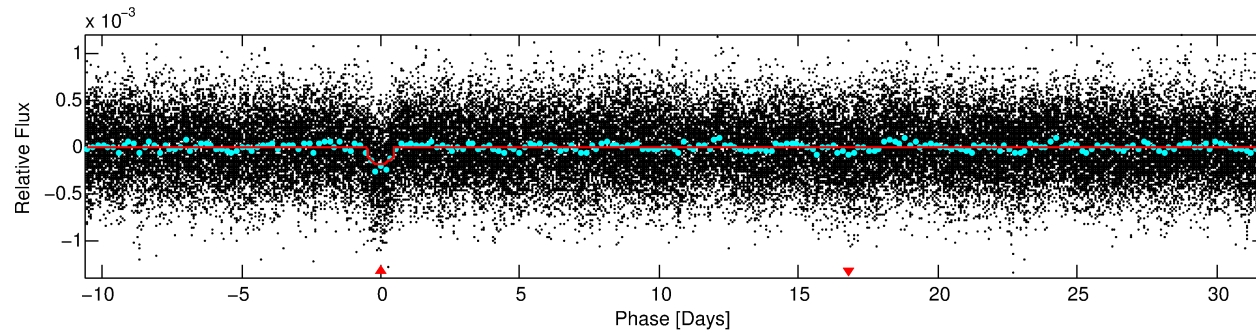
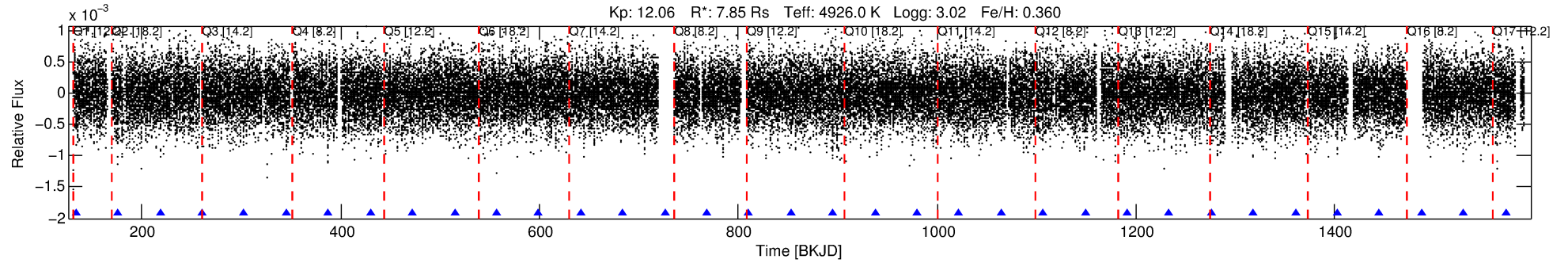
Ephemeris Match Information For 009145861-01

No Significant Match Found

DV One-Page Summary

KIC: 9145861 Candidate: 1 of 1 Period: 42.290 d

KOI: K06194.01 Corr: 0.908



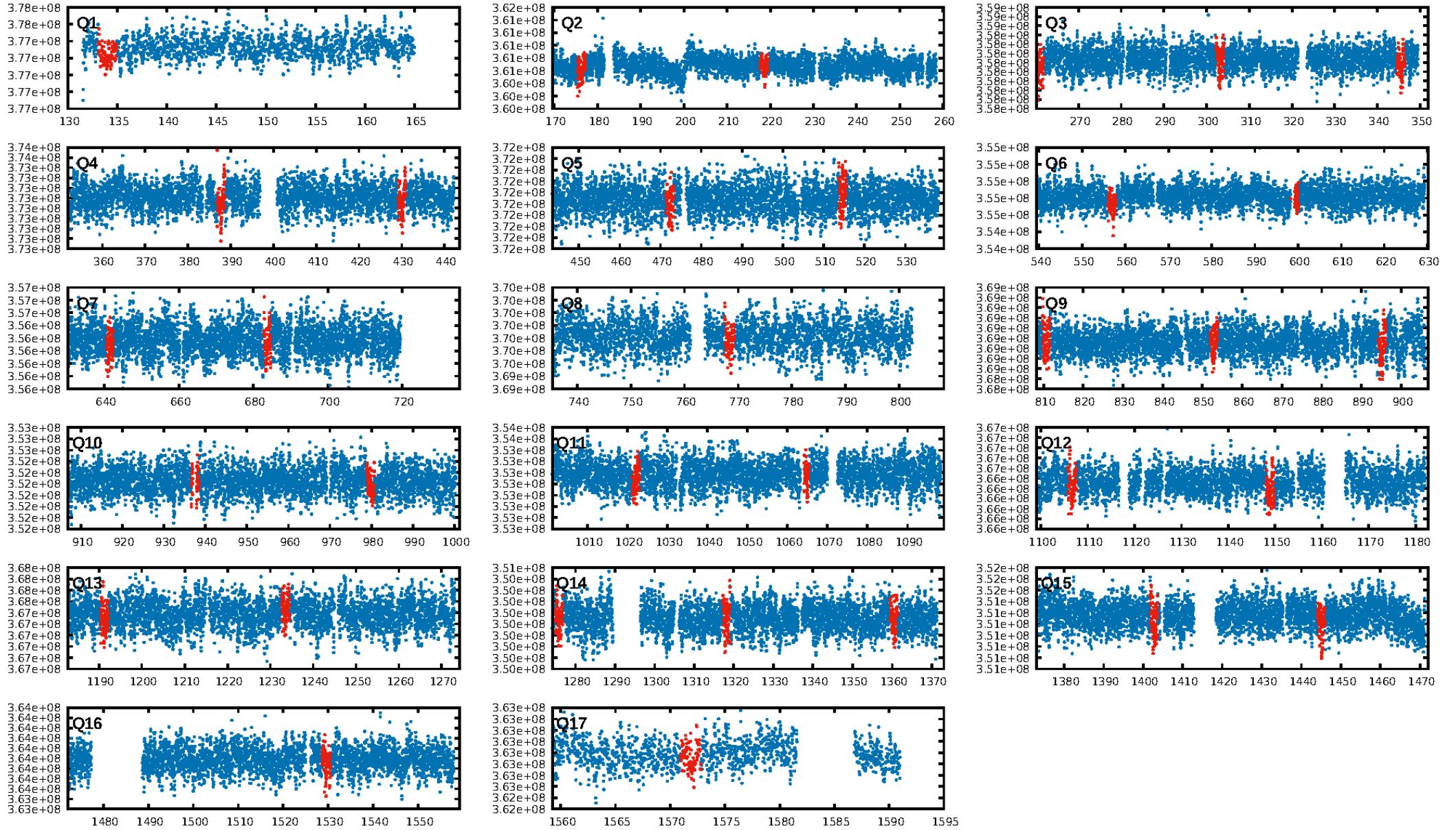
DV Fit Results:

Period = 42.29045 [0.00078] d
Epoch = 133.9946 [0.0157] BKJD
Rp/R* = 0.0122 [0.0052]
a/R* = 13.00 [18.10]
b = 0.48 [2.22]
Seff = 325.41 [70.76]
Teff = 1083 [59] K
Rp = 10.46 [5.03] Re
a = 0.3160 [0.0485] AU
Ag = 26.75 [25.75] [1.00σ]
Teffp = 3808 [915] K [2.97σ]

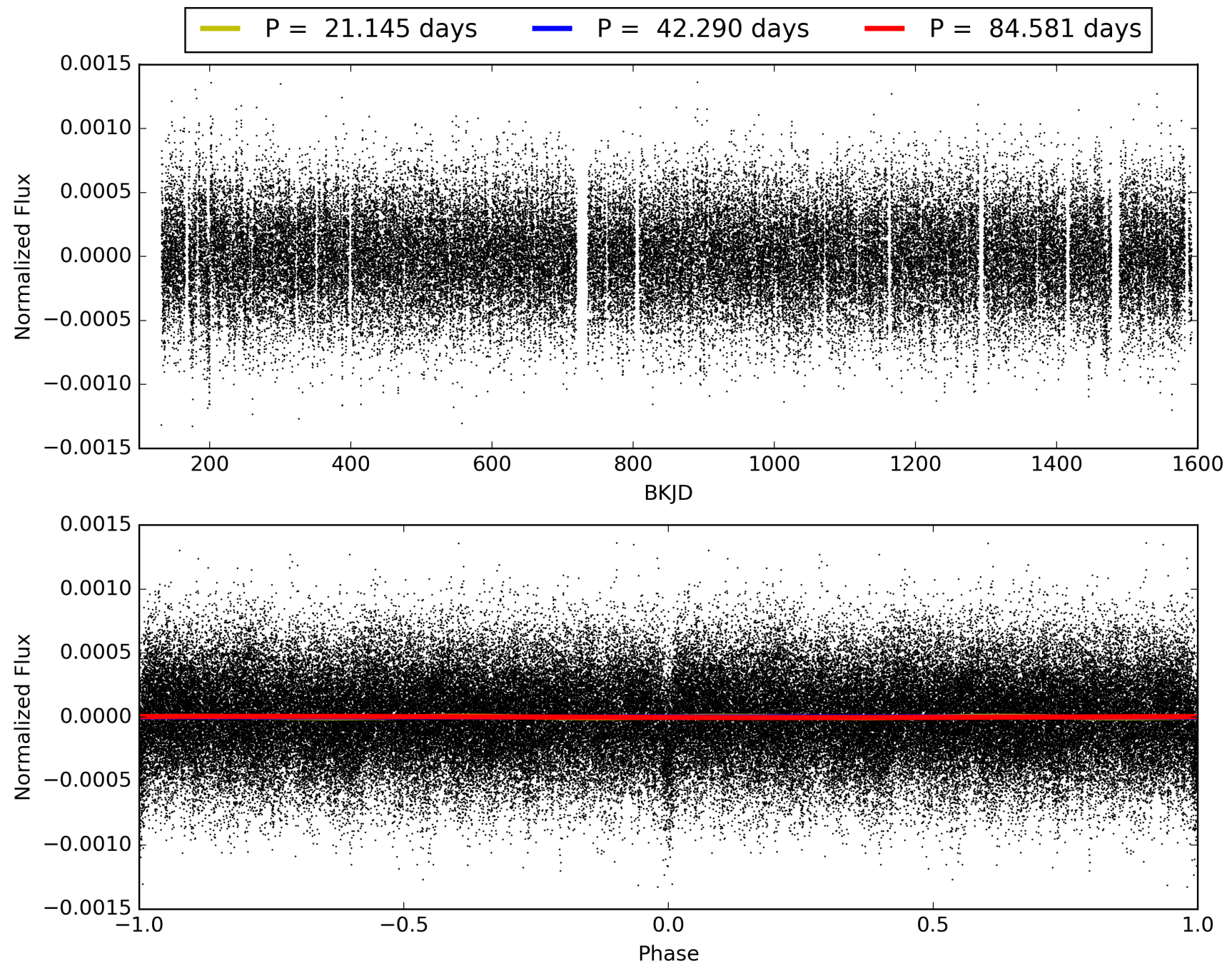
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 67.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.12e-18
RollingBand-fgt: 1.00 [31/31]
GhostDiagnostic-chr: -18
Centroid-sig: 0.2%
Centroid-so: 0.618 arcsec [2.93σ]
OotOffset-rm: 0.599 arcsec [1.84σ]
KicOffset-rm: 0.516 arcsec [1.55σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 009145861-01, PDC Light Curves

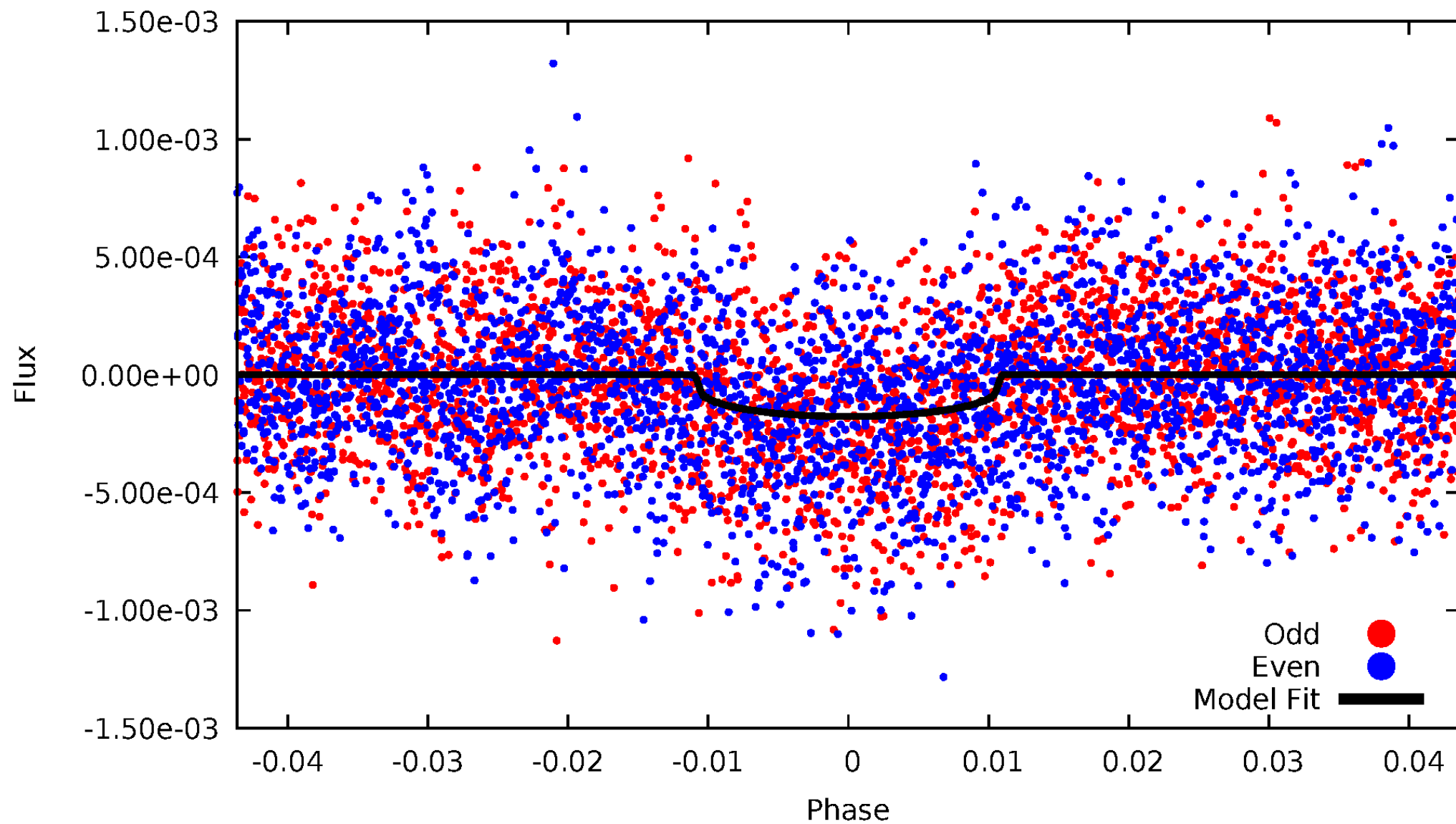


TCE 009145861-01



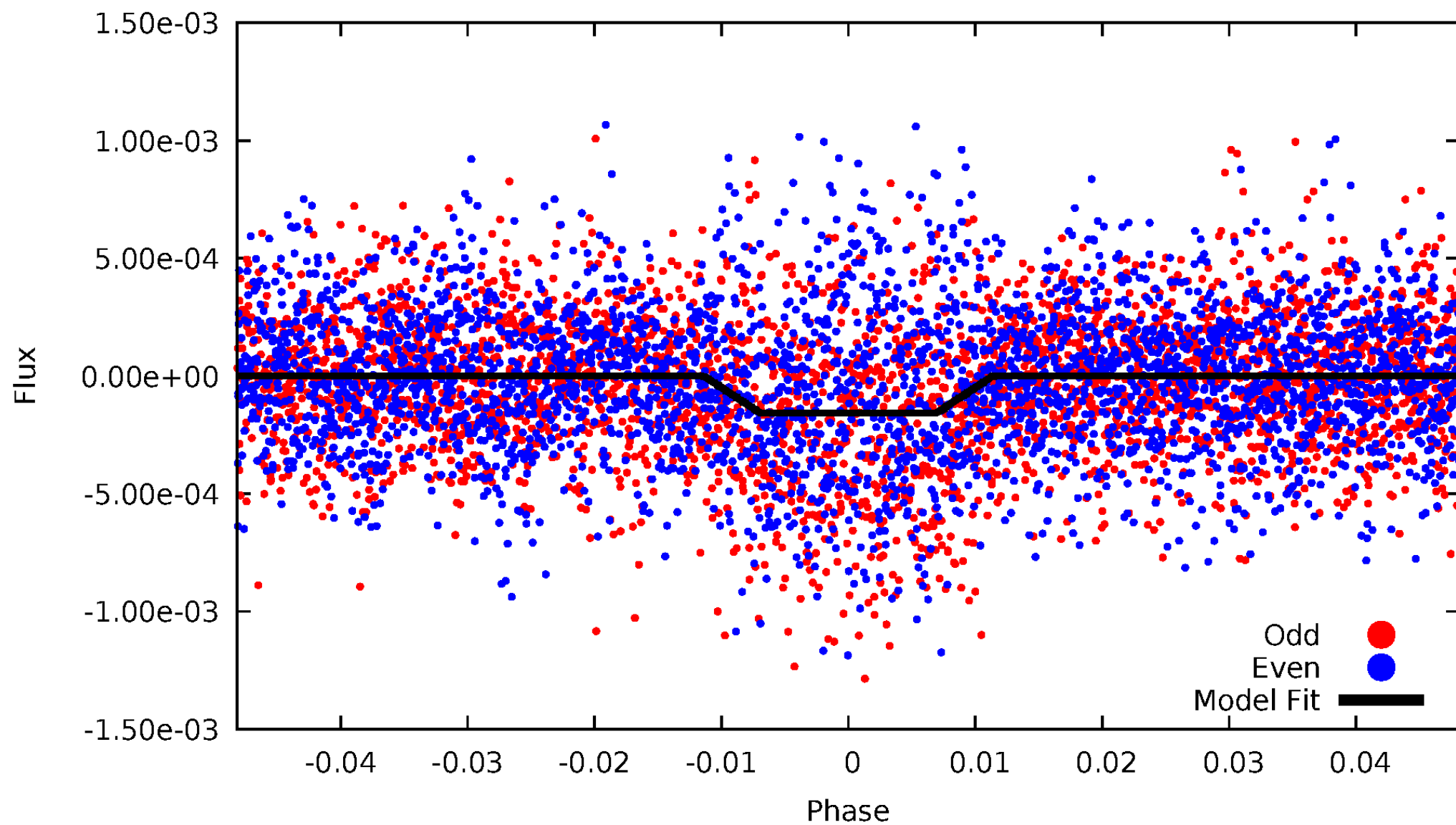
DV Odd/Even

TCE 009145861-01

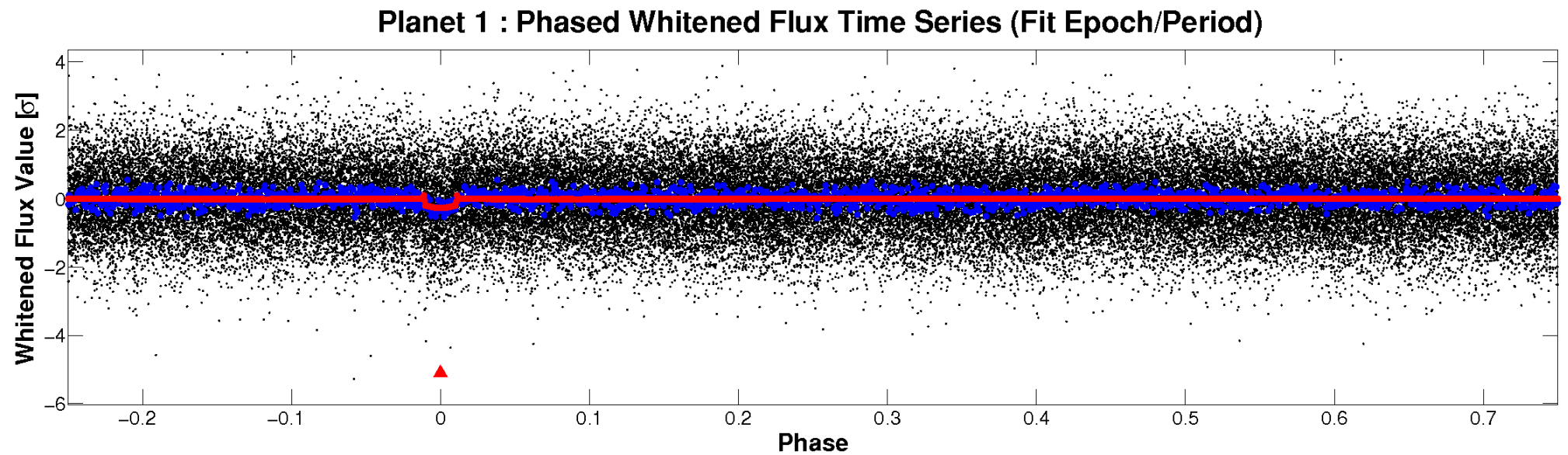
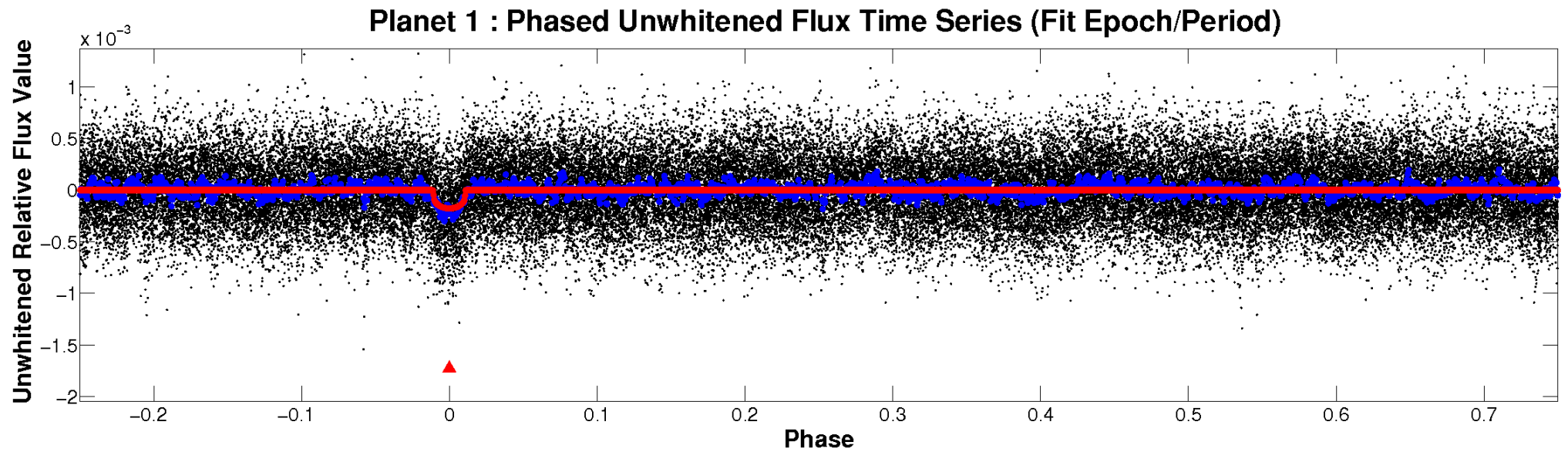


ALT Odd/Even

TCE 009145861-01

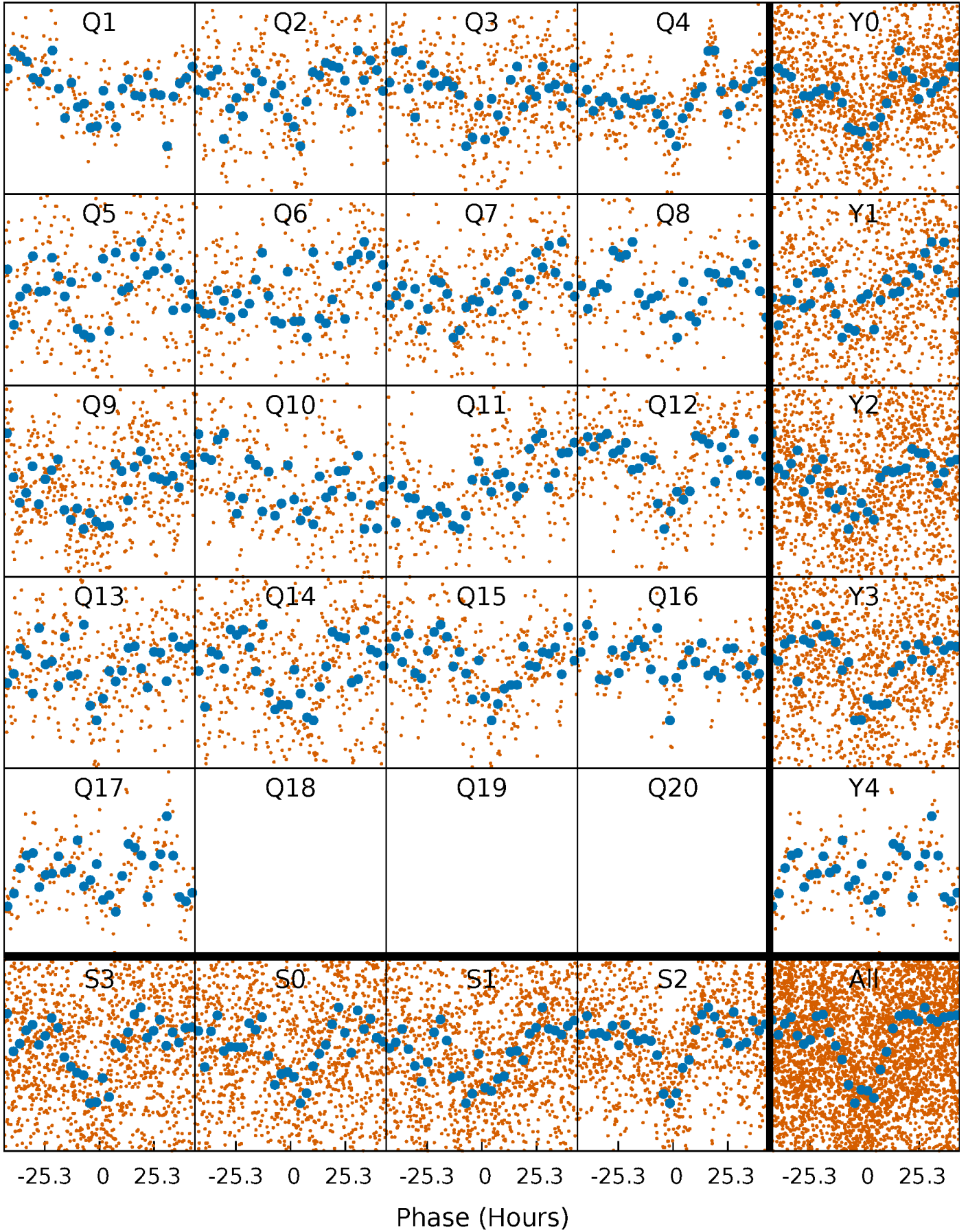


Non-Whitened Vs. Whitened Light Curve



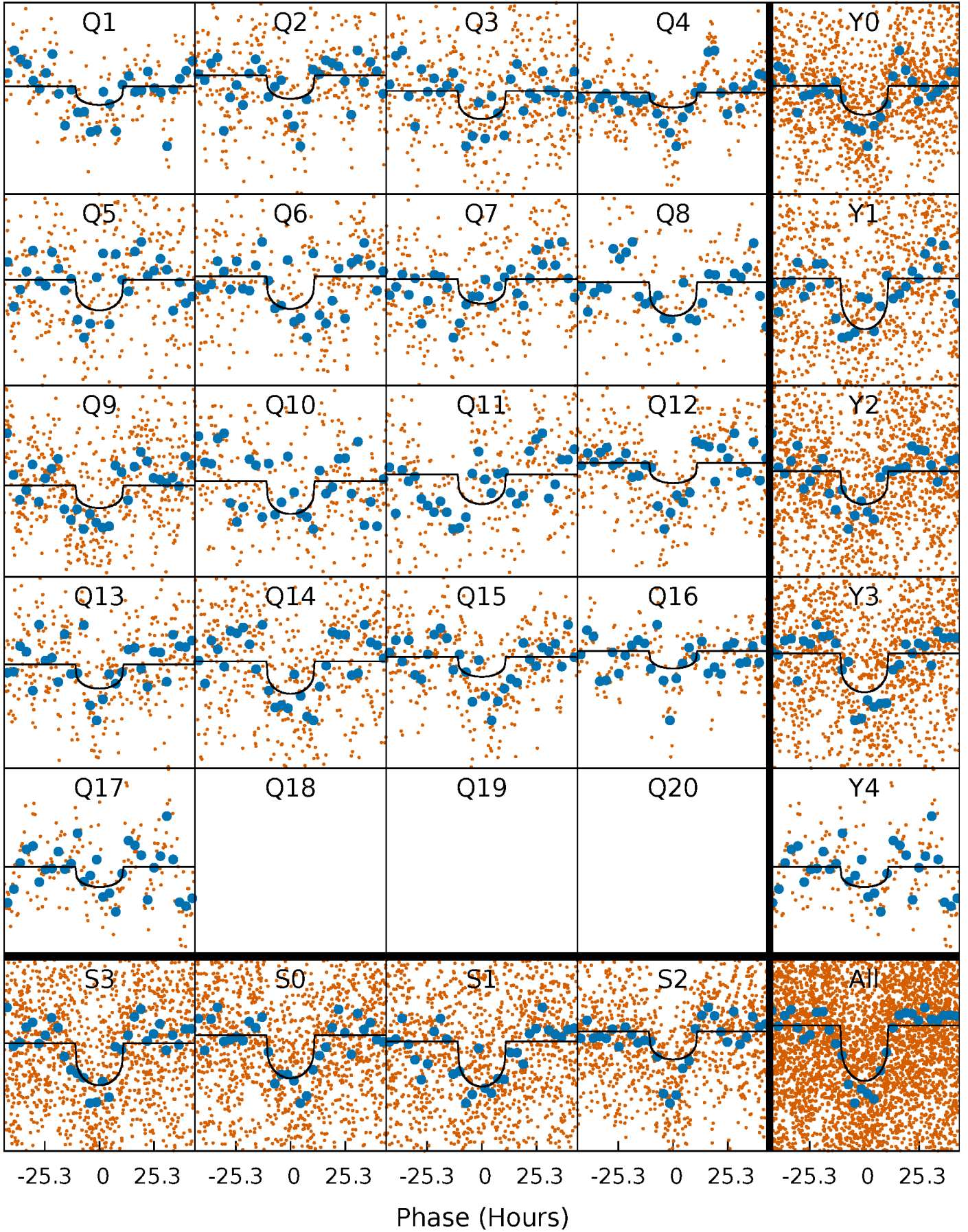
PDC Quarter-Phased Transit Curves

TCE 009145861-01 $P = 42.290453$ Days $T_0 = 133.994631$ (BKJD)



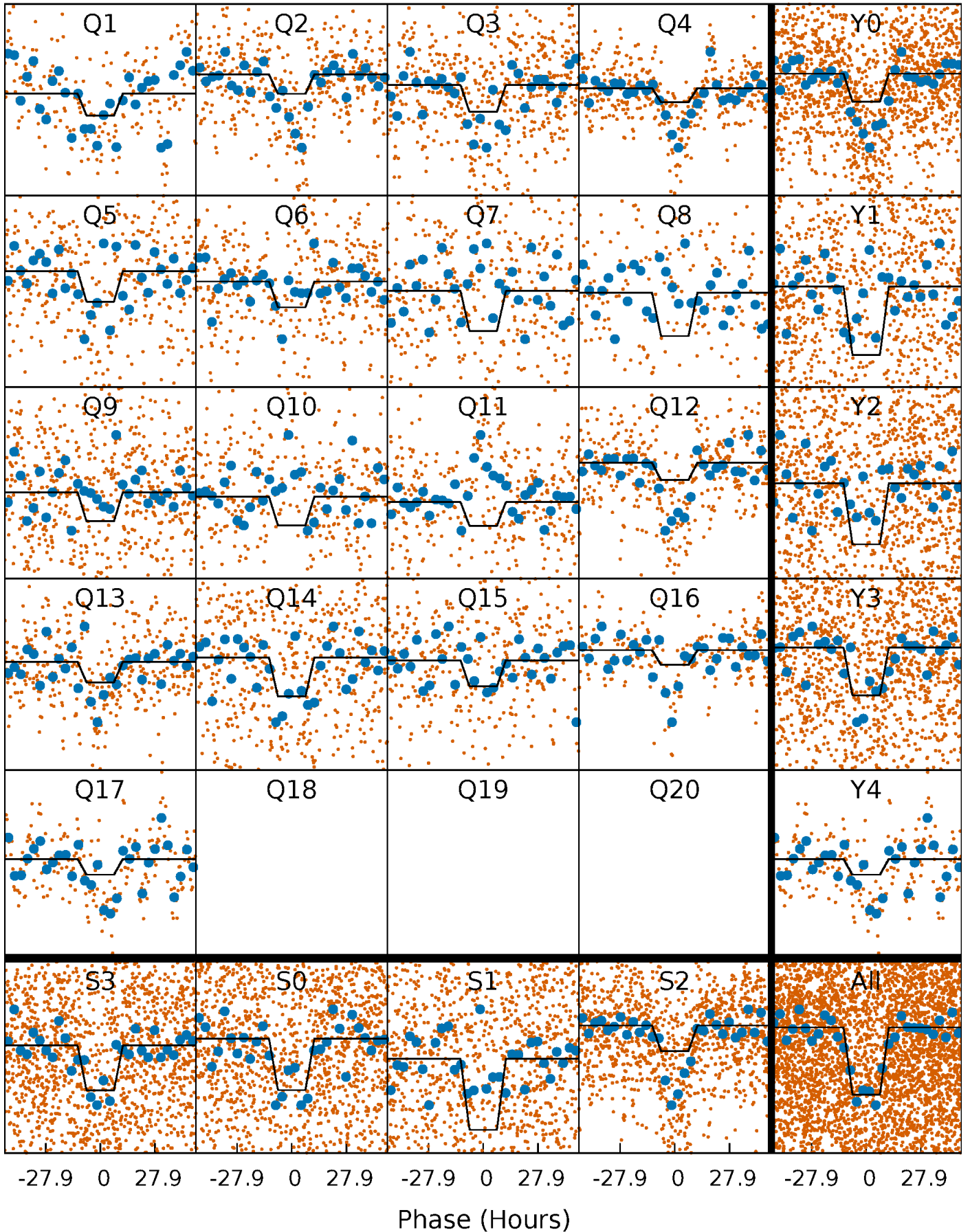
DV Quarter-Phased Transit Curves

TCE 009145861-01 P= 42.290453 Days $T_0=133.994631$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

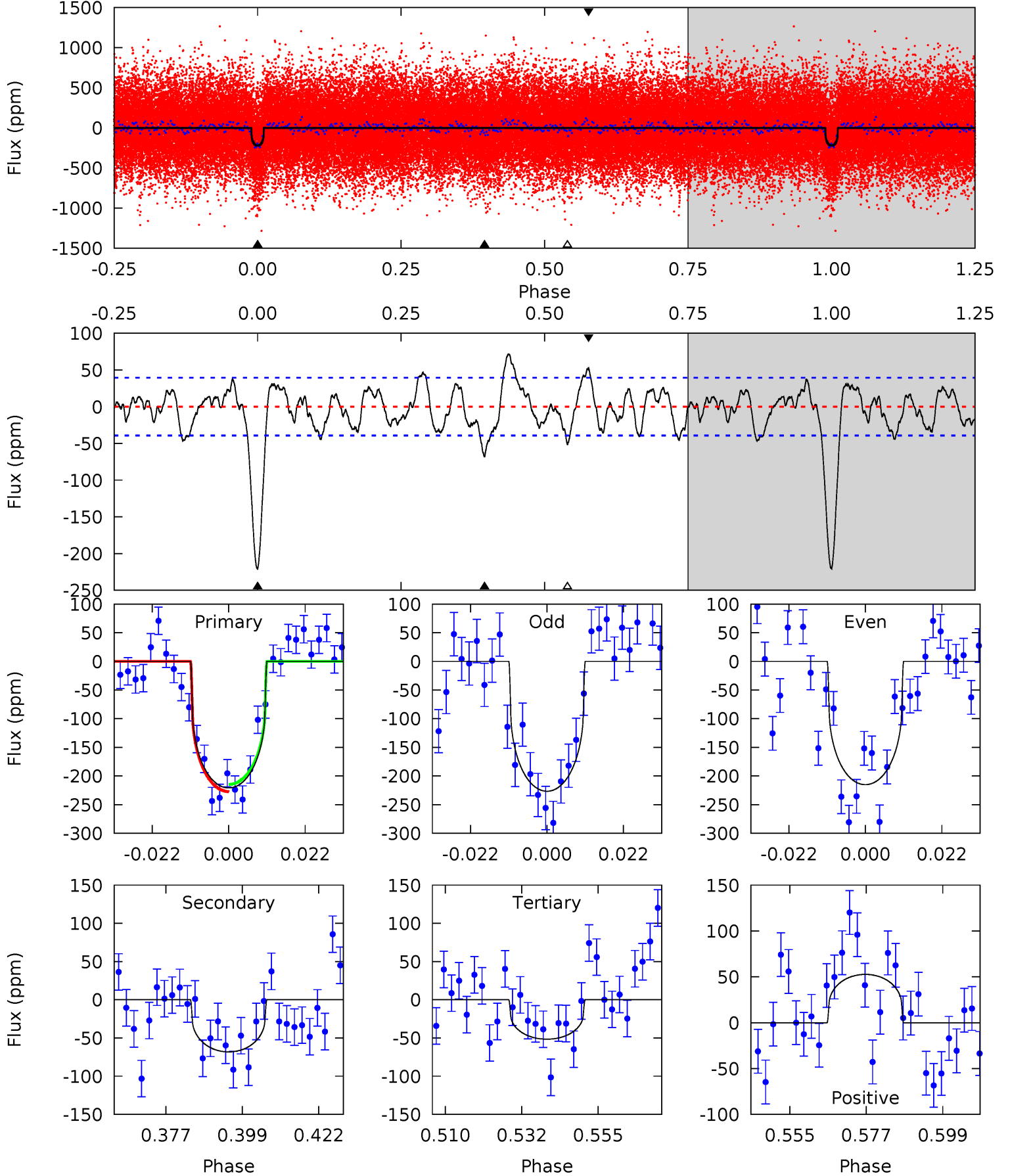
TCE 009145861-01 P= 42.292422 Days $T_0=133.952906$ (BKJD)



DV Model-Shift Uniqueness Test

009145861-01, P = 42.290453 Days, E = 91.704178 Days

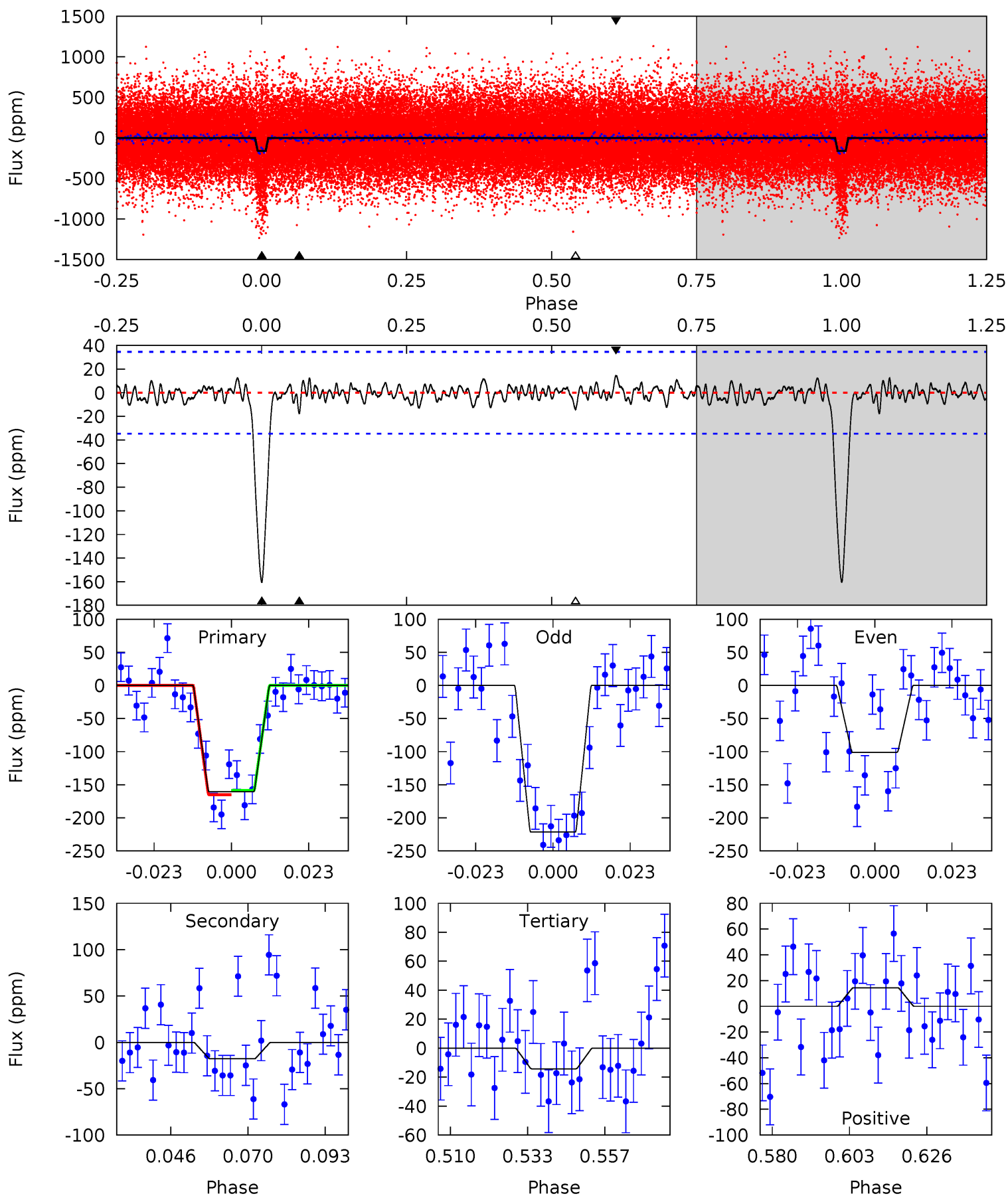
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 27.3 | 8.43 | 6.38 | 6.50 | 4.87 | 2.29 | 2.89 | 20.9 | 20.8 | 2.05 | 1.93 | 0.71 | 1.01 | 0.24 | 0.77 |



Alt Model-Shift Uniqueness Test

009145861-01, P = 42.292422 Days, E = 91.660484 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 22.5 | 2.48 | 2.00 | 2.02 | 4.86 | 2.27 | 0.71 | 20.5 | 20.5 | 0.48 | 0.46 | 8.45 | 0.82 | 0.08 | 0.45 |



Stellar Parameters For KIC 009145861

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 4926^{+47}_{-182} | $3.020^{+0.033}_{-0.027}$ | $0.360^{+0.100}_{-0.200}$ | $7.849^{+0.314}_{-1.781}$ | $2.351^{+0.221}_{-0.886}$ | $0.007^{+0.002}_{-0.000}$ |
| | +1%/-4% | +1%/-1% | +28%/-56% | +4%/-23% | +9%/-38% | +35%/-7% |
| Source | PHO55 | AST55 | SPE55 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 009145861-01 / KOI 6194.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|-------------------------|----------------------|----------------------|----------------------------|
| DV | -68 ± 8 | $10.82^{+4.58}_{-4.46}$ | 1508^{+27}_{-56} | 4119^{+944}_{-491} | 32^{+58}_{-16} |
| Alt. | -18 ± 7 | $10.55^{+4.93}_{-4.07}$ | 1505^{+31}_{-58} | 3293^{+629}_{-408} | $8.334^{+15.726}_{-4.768}$ |

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 $A_{\text{obs}} \gg 1.0$

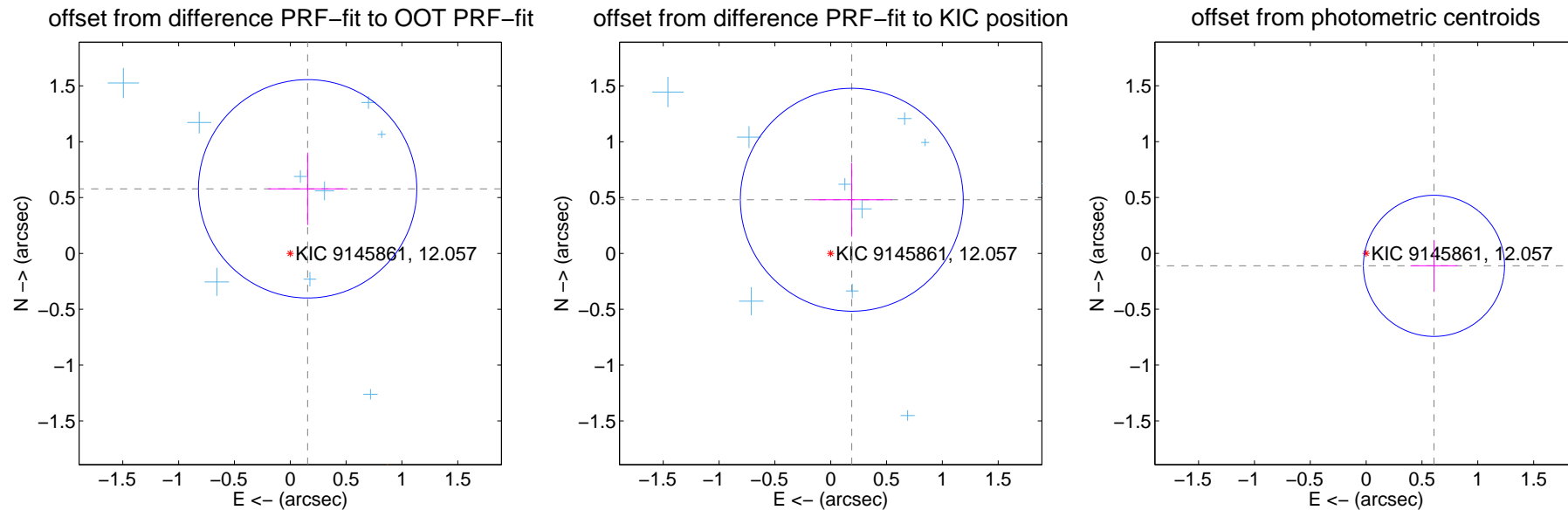
DV Centroid Data

Supplemental centroid analysis for 009145861-01. Kepler magnitude: 12.06. Transit SNR 8.64

There are 14 quarters with good PRF difference image offsets

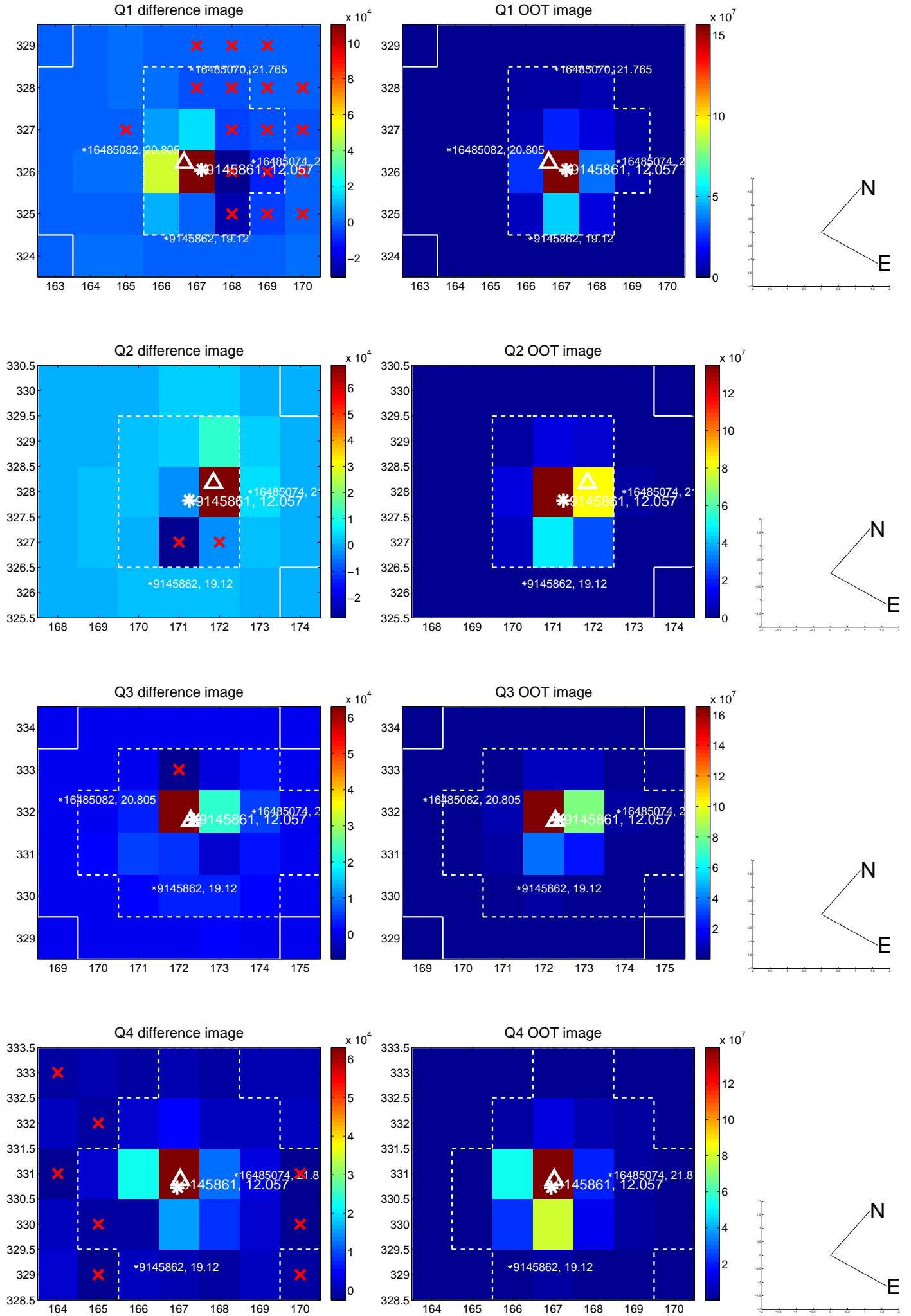
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.599 ± 0.326 | 1.84 | -0.156 ± 0.356 | 0.578 ± 0.324 |
| PRF-fit source offset from KIC position | 0.516 ± 0.333 | 1.55 | -0.189 ± 0.360 | 0.480 ± 0.328 |
| photometric centroid source offset | 0.62 ± 0.21 | 2.93 | -0.61 ± 0.21 | -0.11 ± 0.23 |

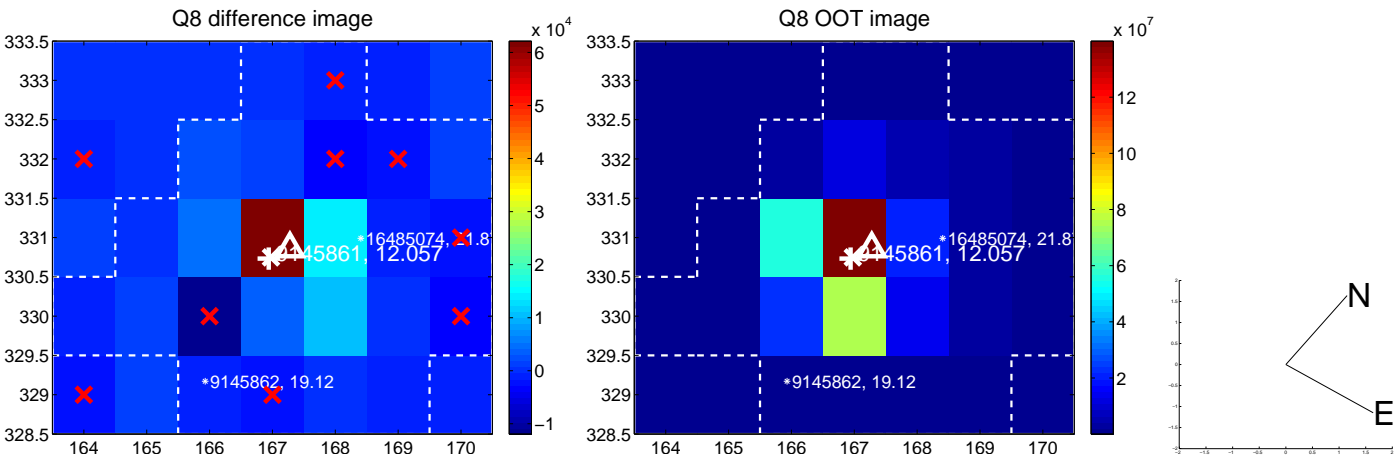
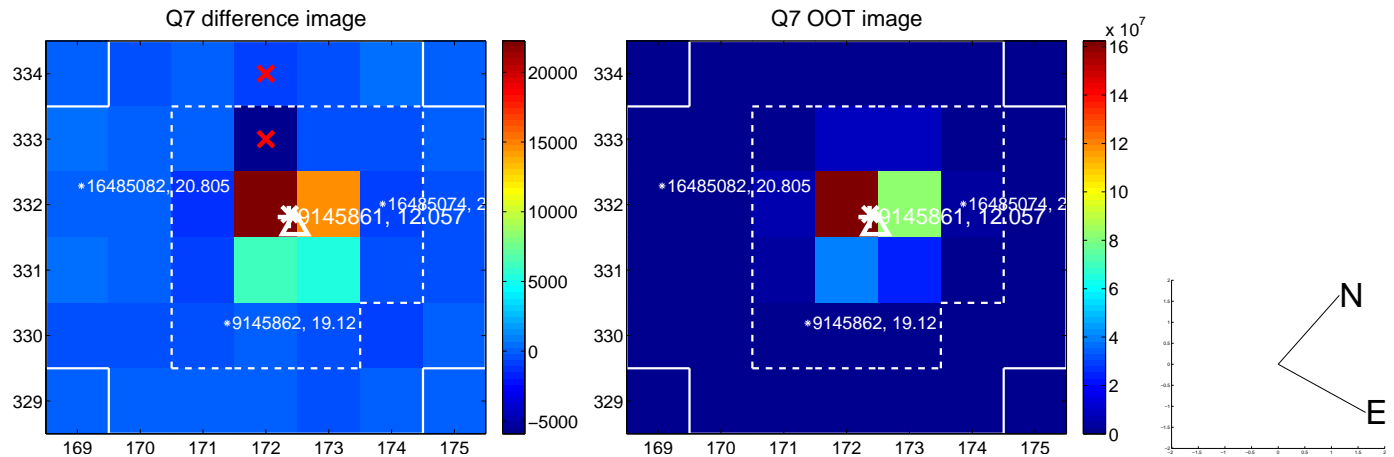
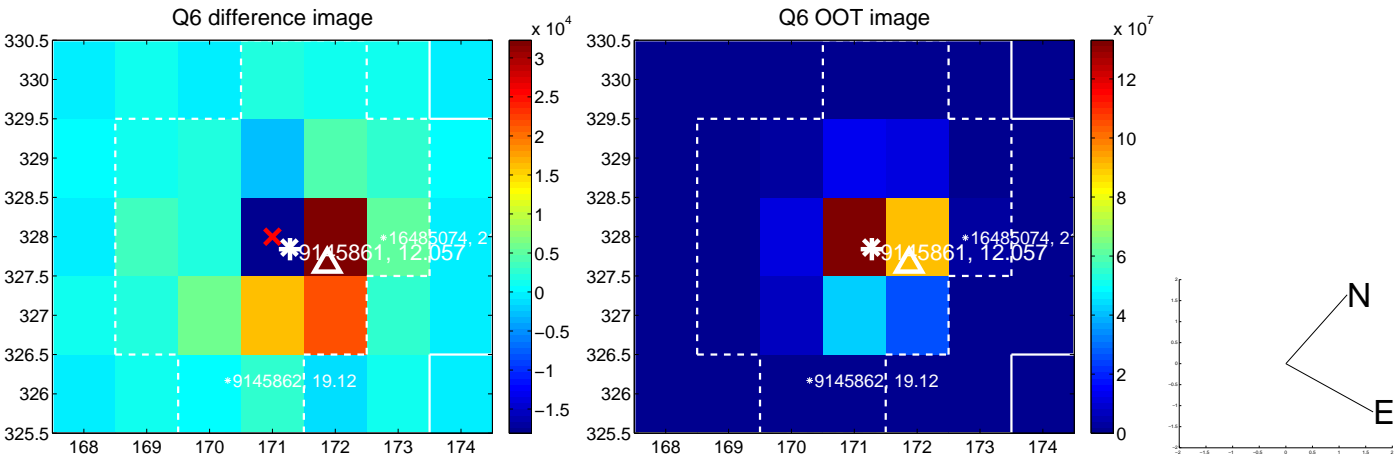
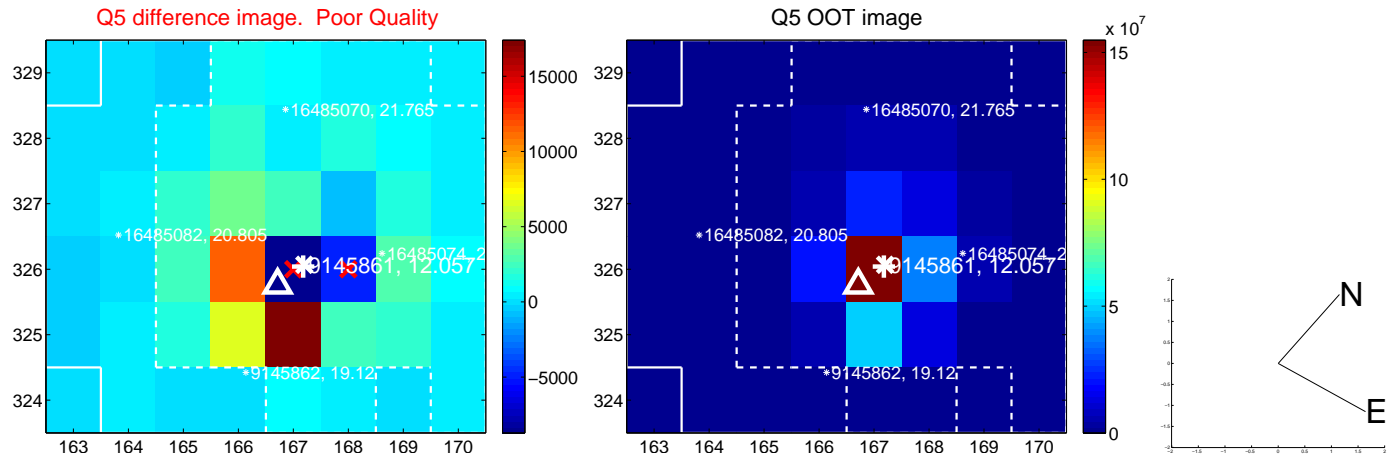


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

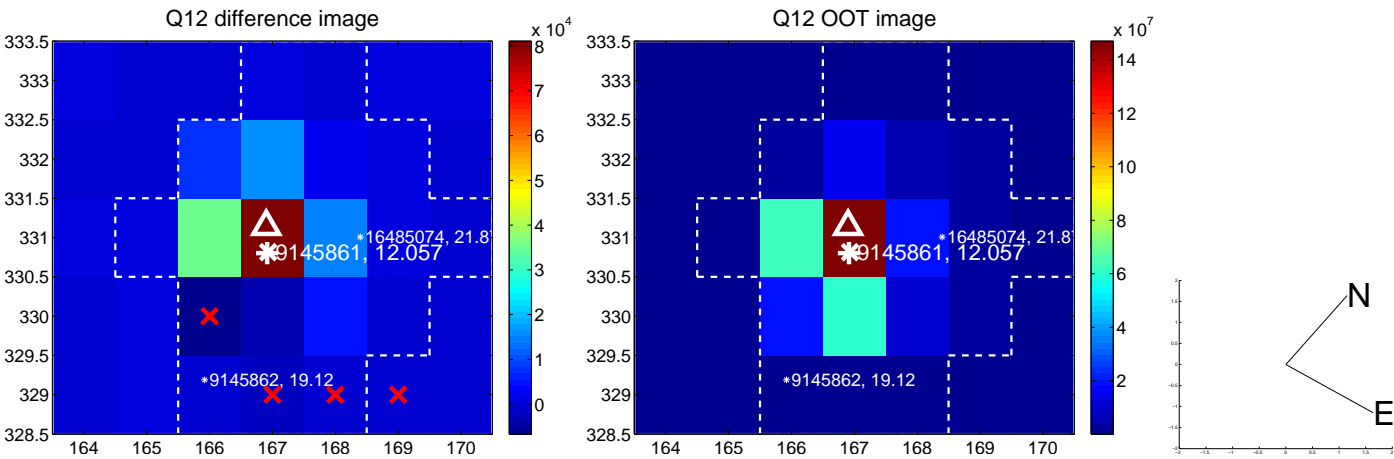
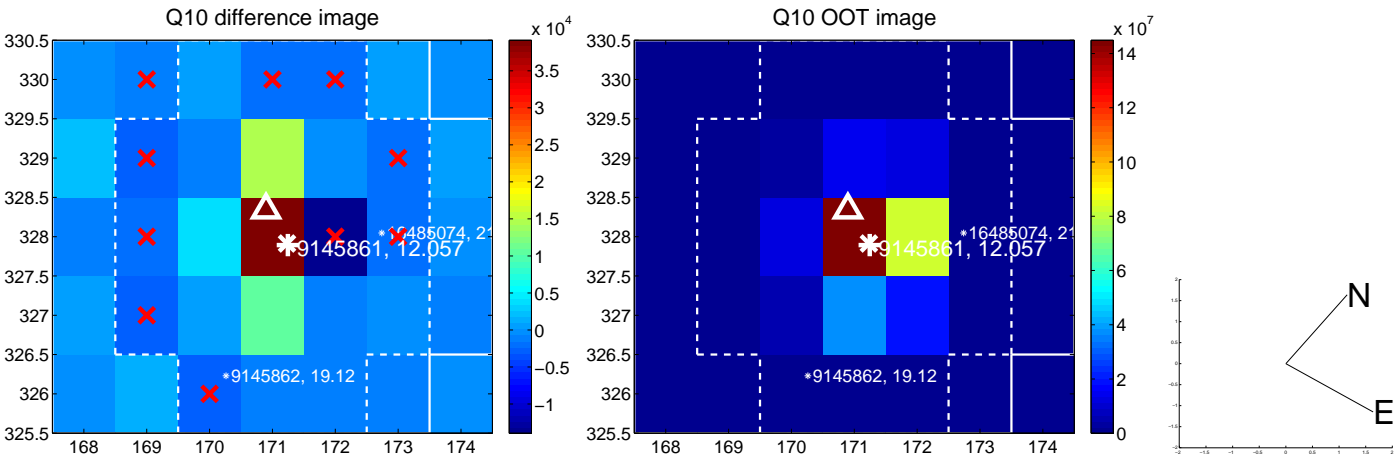
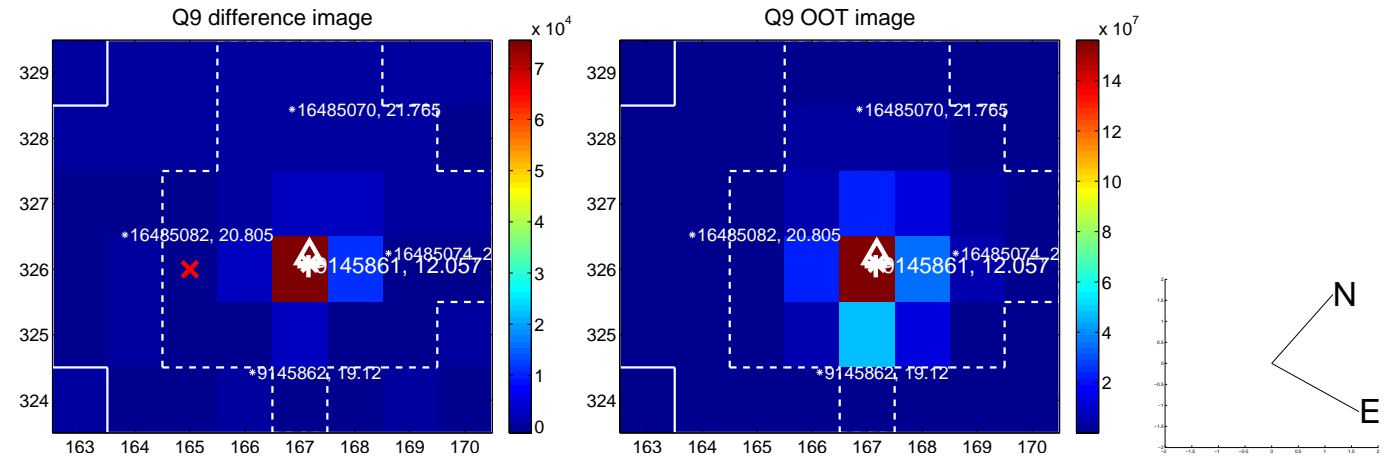
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



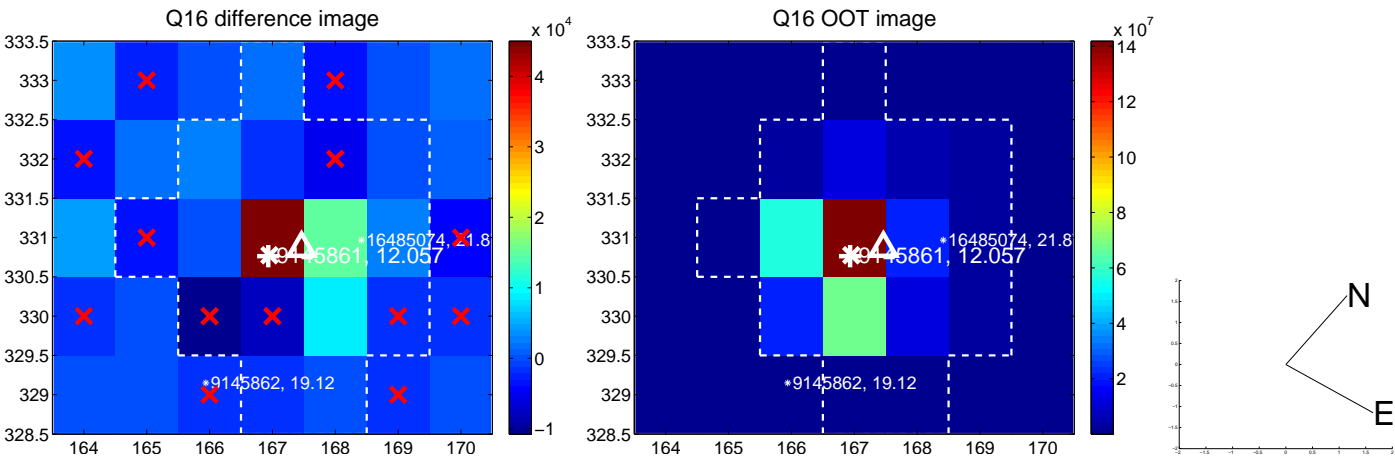
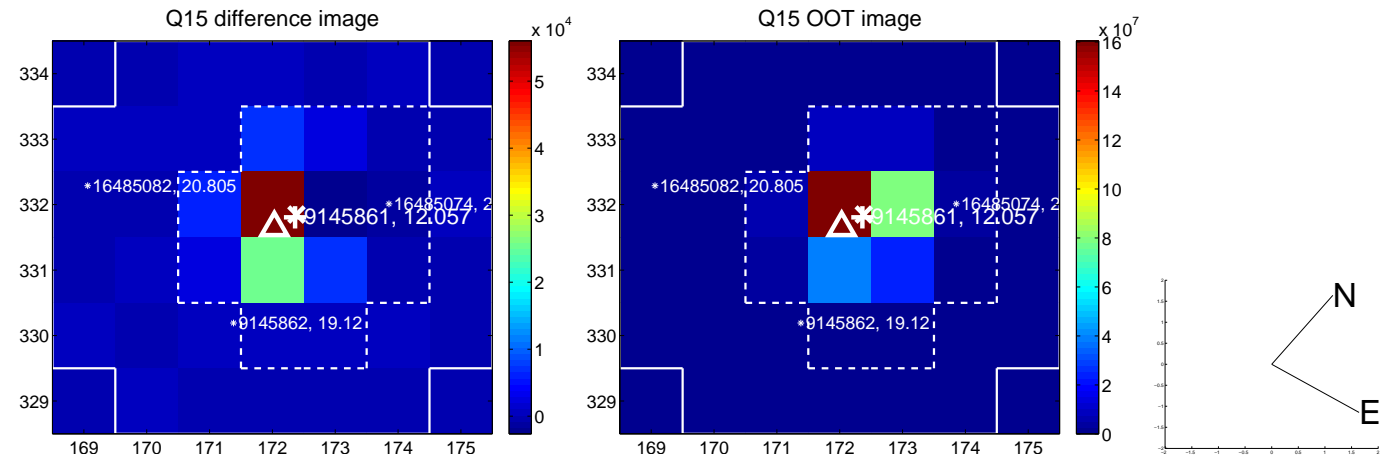
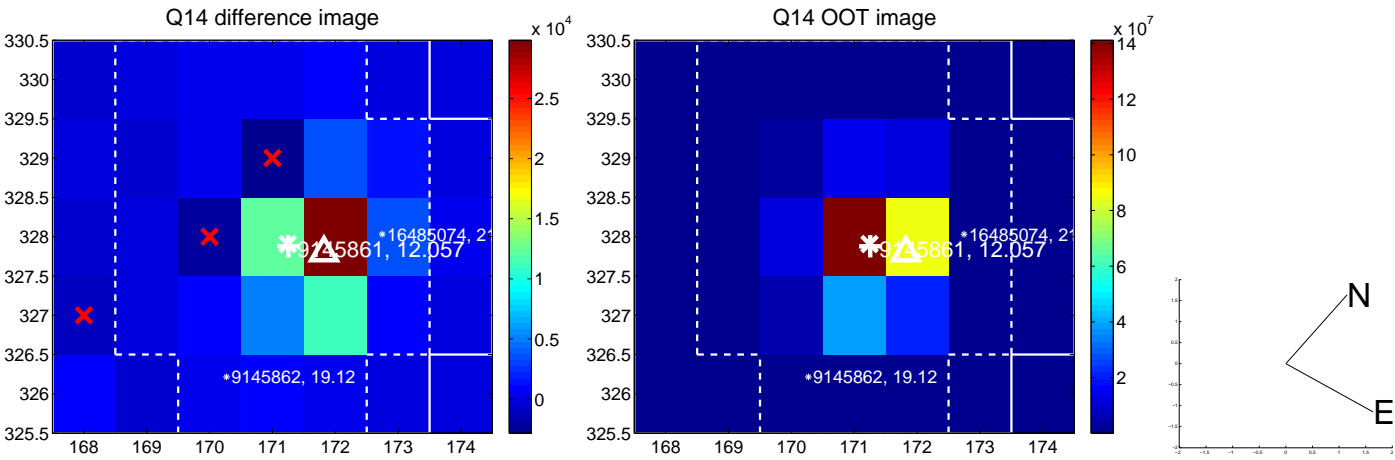
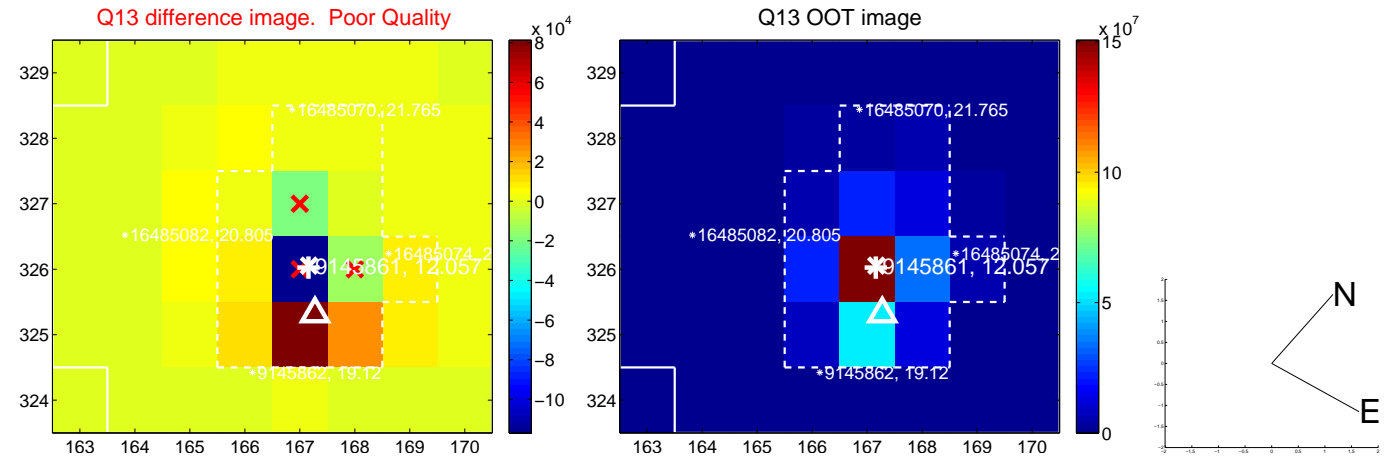
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



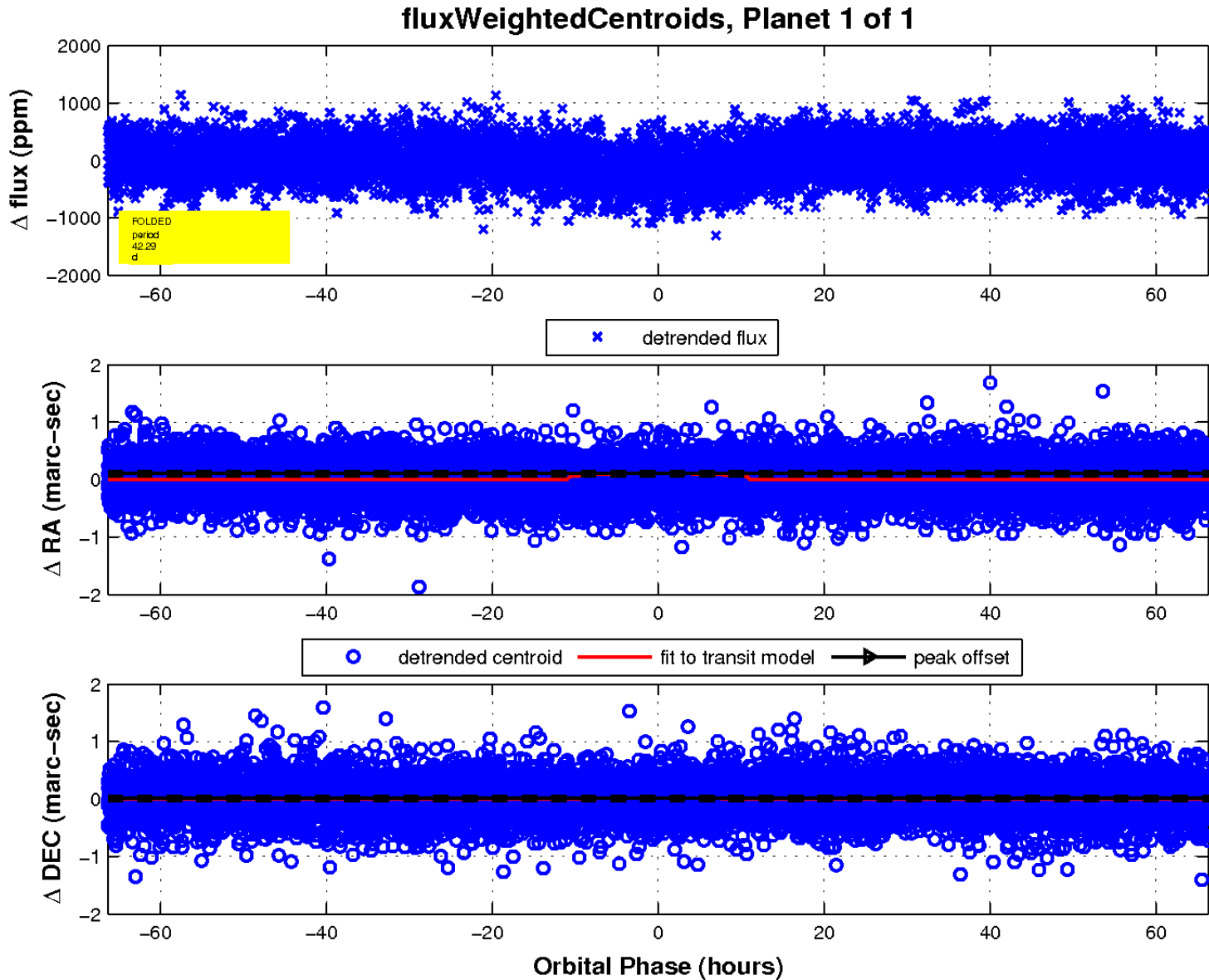
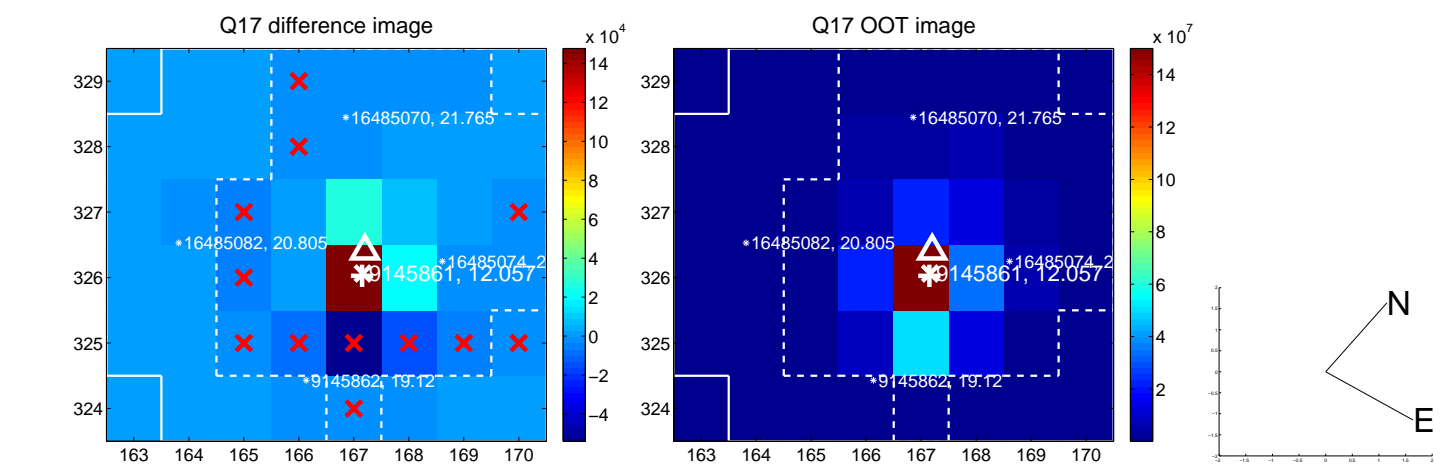
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

