

KIC 006124941

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006124941-01 | OBS | 1058.01 | 5.670160 | 136.200784 | 501.5 | 0.742 | 27.0 | 38.1 | 0.18 | 3337 | 0.44 | 3.21 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--------------|
| 006124941-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | CENT_KIC_POS |

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

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

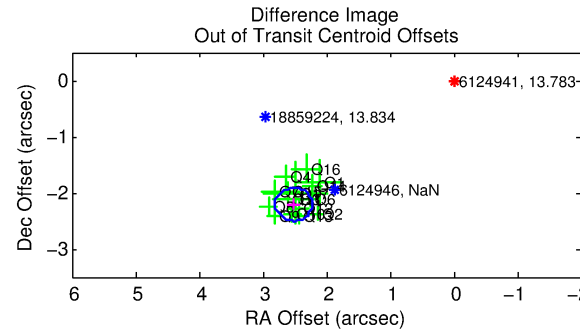
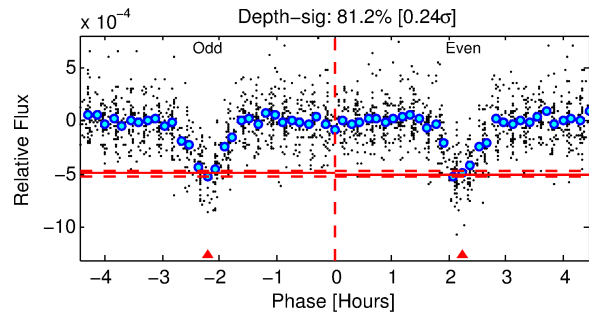
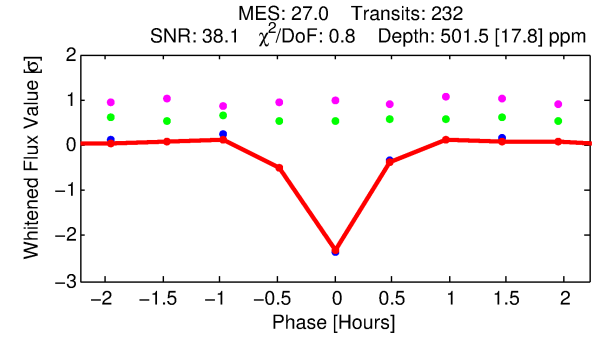
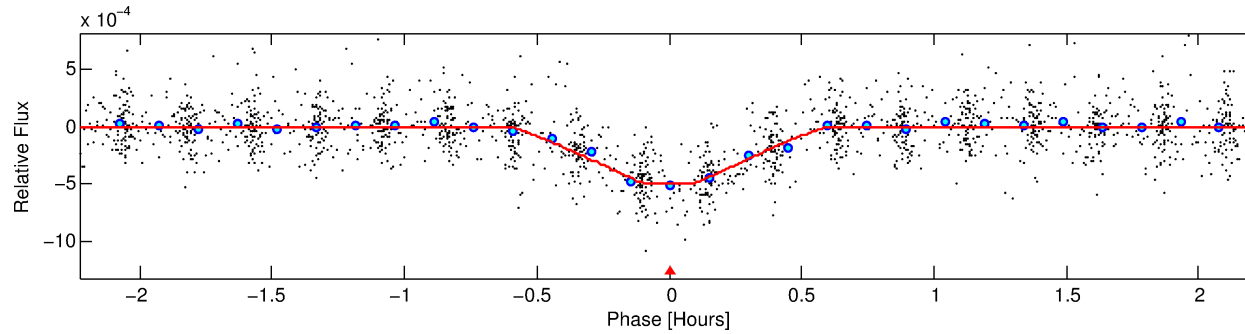
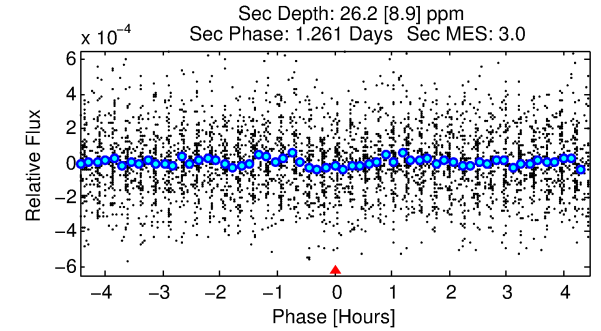
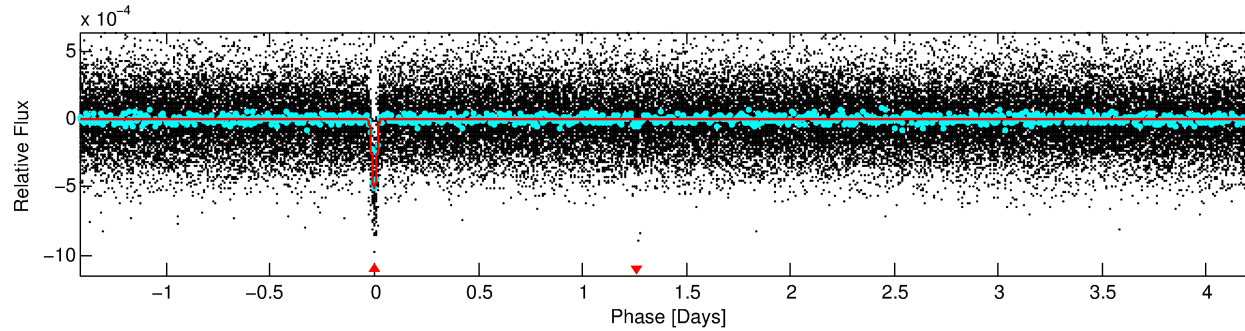
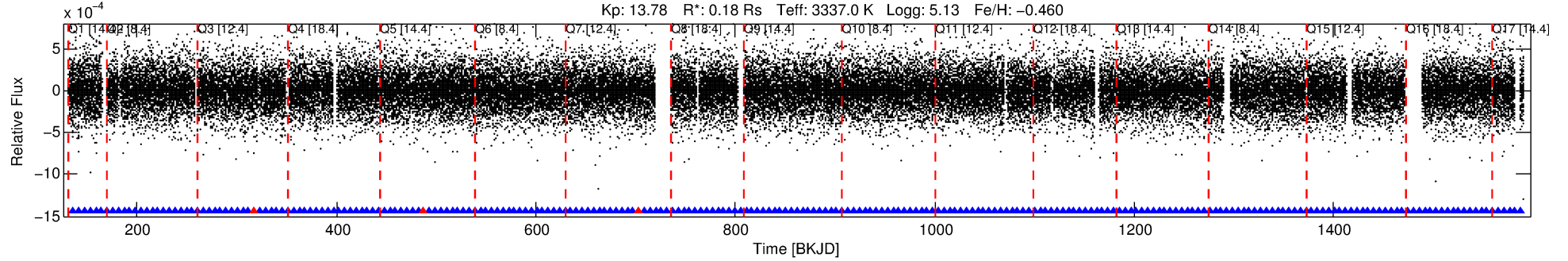
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006124941-01

No Significant Match Found

DV One-Page Summary

KIC: 6124941 Candidate: 1 of 1 Period: 5.670 d
KOI: K01058.01 Corr: 0.945



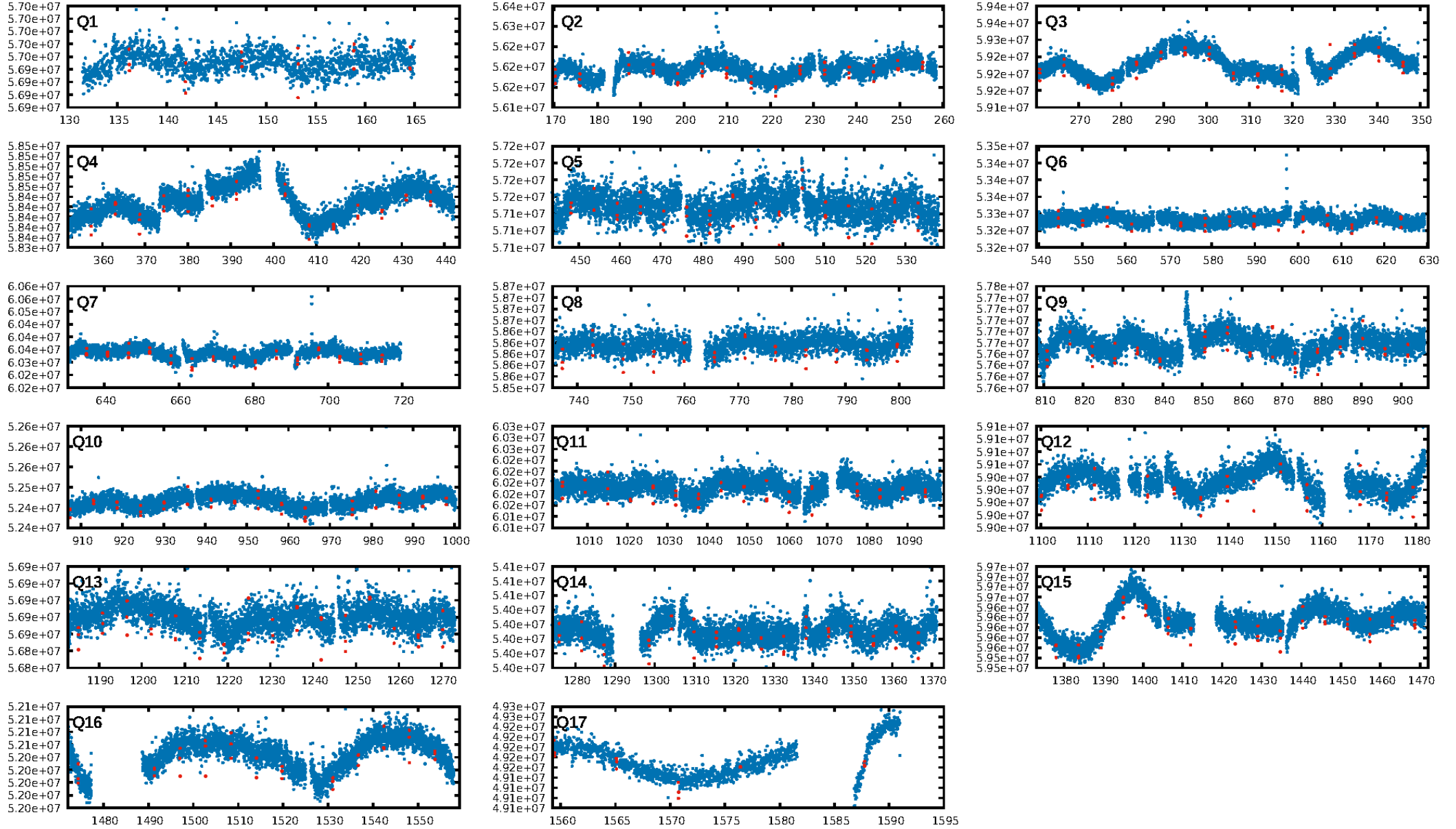
DV Fit Results:

Period = 5.67016 [0.00000] d
Epoch = 136.2008 [0.0005] BKJD
Rp/R* = 0.0221 [0.0033]
a/R* = 44.73 [32.68]
b = 0.68 [0.59]
Seff = 3.21 [1.29]
Teq = 341 [34] K
Rp = 0.44 [0.22] Re
a = 0.0340 [0.0114] AU
Ag = 85.50 [50.27] [1.68σ]
Teffp = 1605 [190] K [6.55σ]

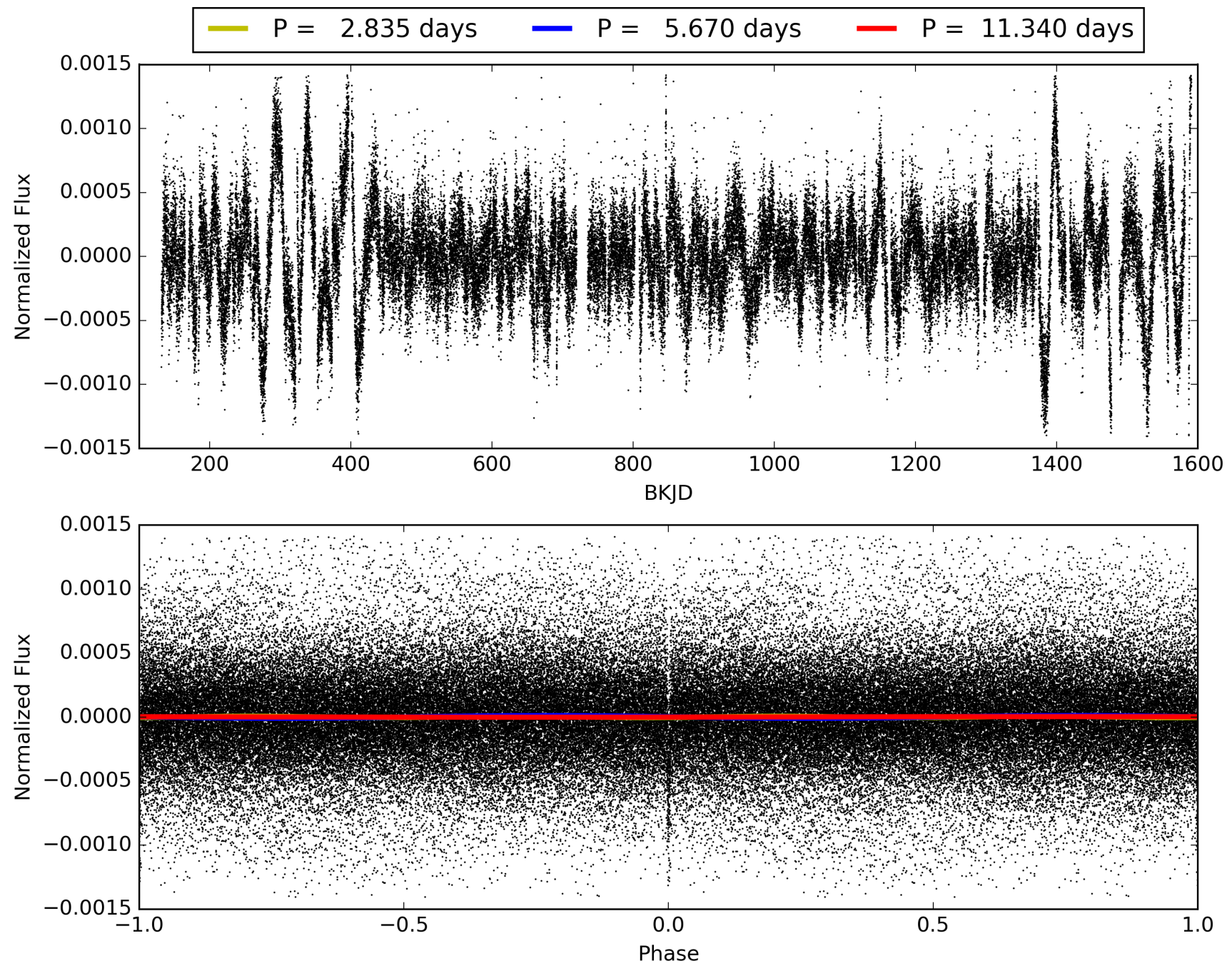
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.57e-156
RollingBand-fgt: 0.99 [218/221]
GhostDiagnostic-chr: 0.881
Centroid-sig: 0.0%
Centroid-so: 3.868 arcsec [12.26σ]
OotOffset-rm: 3.346 arcsec [34.42σ]
KicOffset-rm: 3.168 arcsec [31.79σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006124941-01, PDC Light Curves

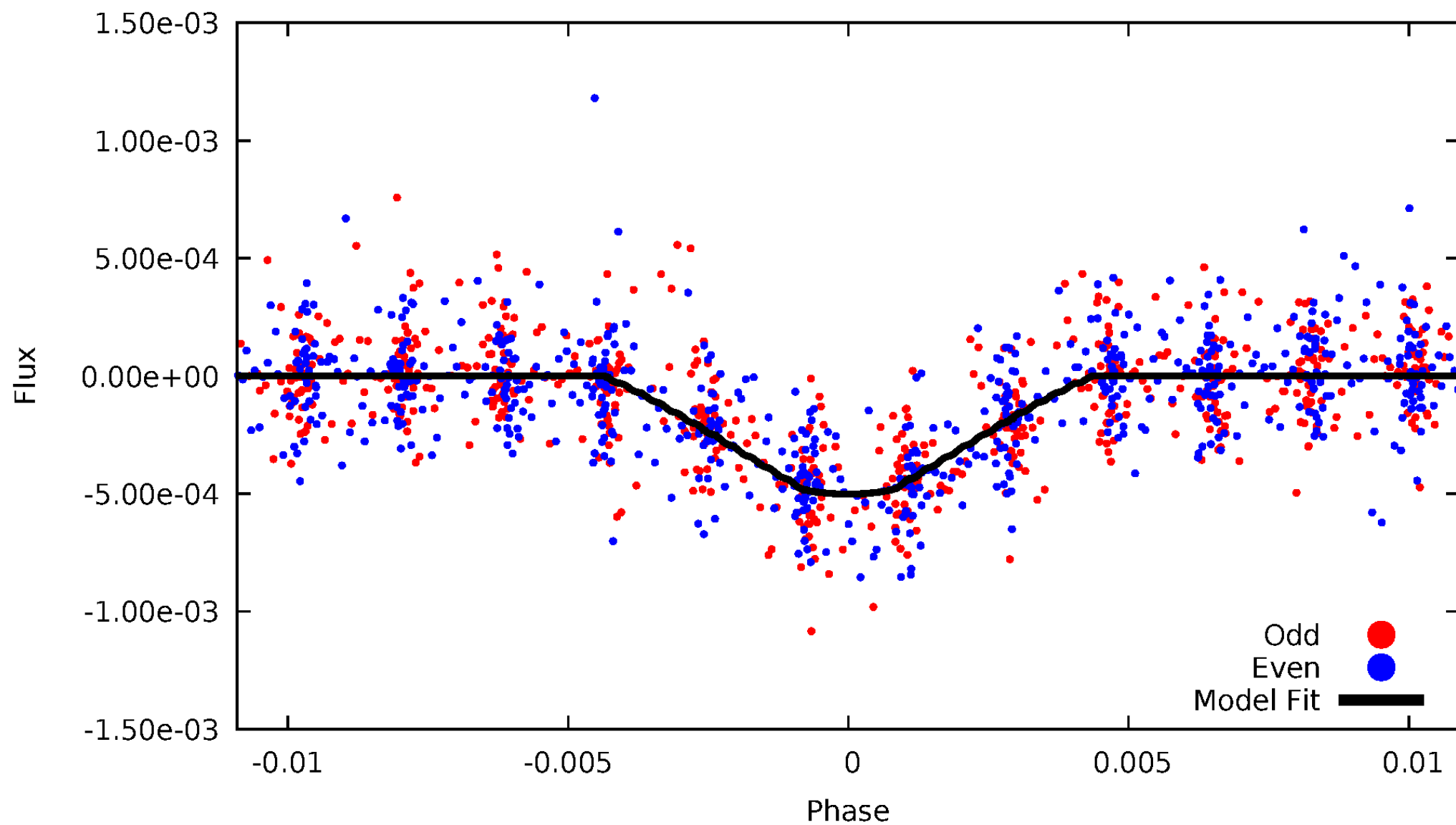


TCE 006124941-01



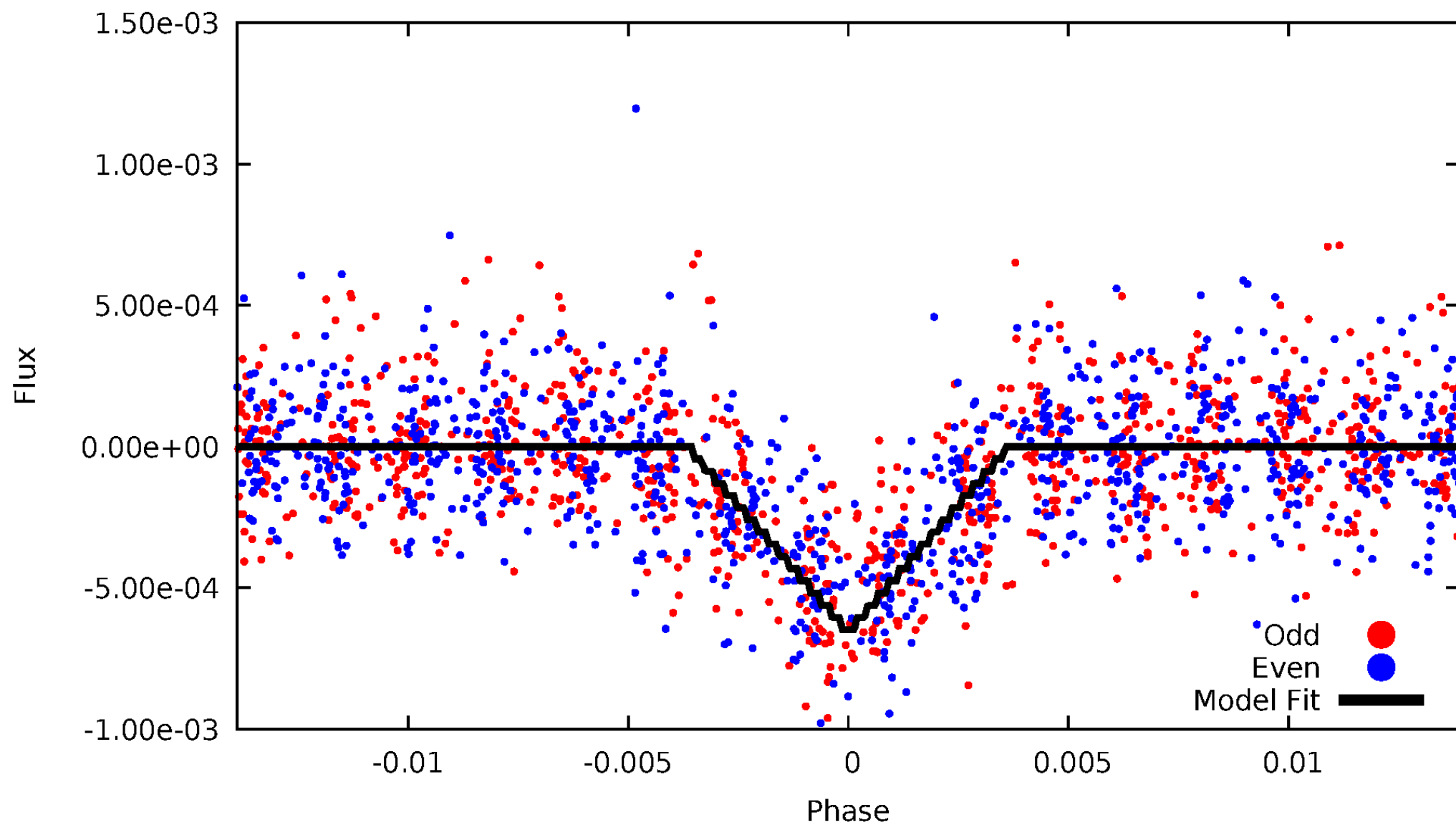
DV Odd/Even

TCE 006124941-01



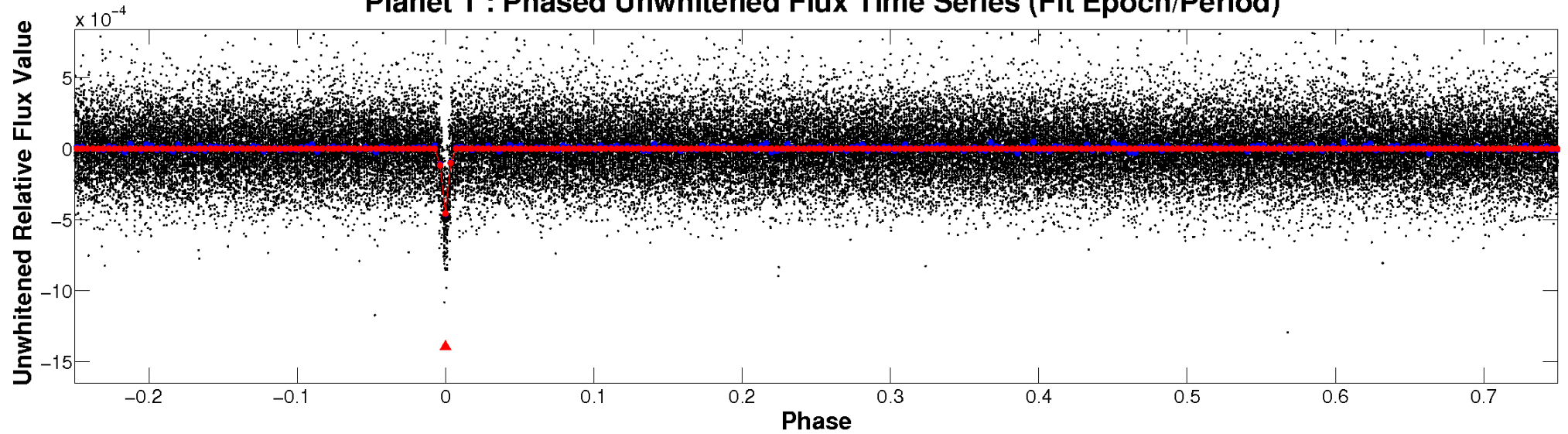
ALT Odd/Even

TCE 006124941-01

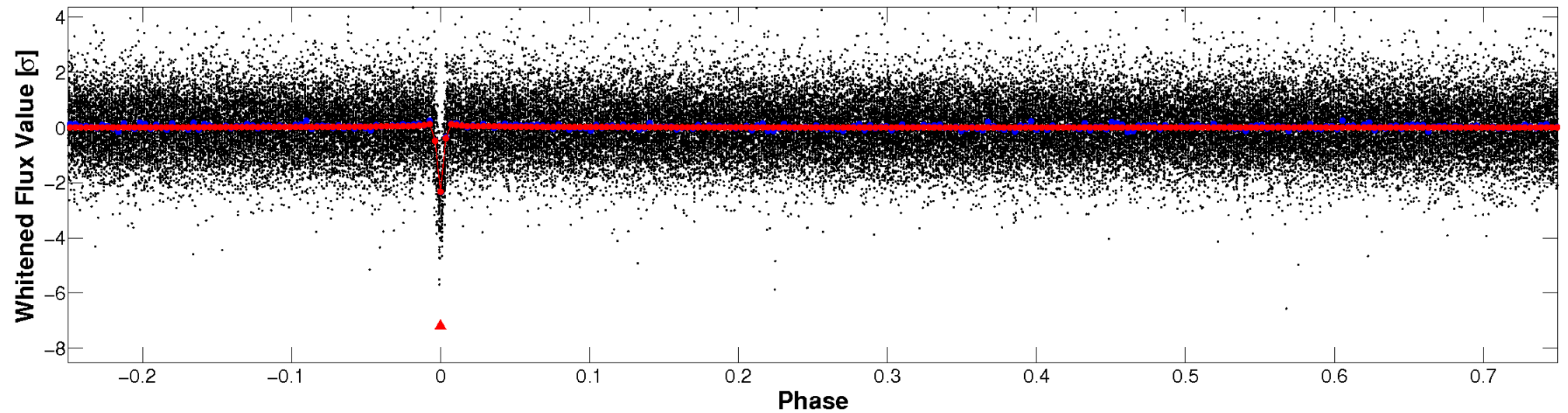


Non-Whitened Vs. Whitened Light Curve

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

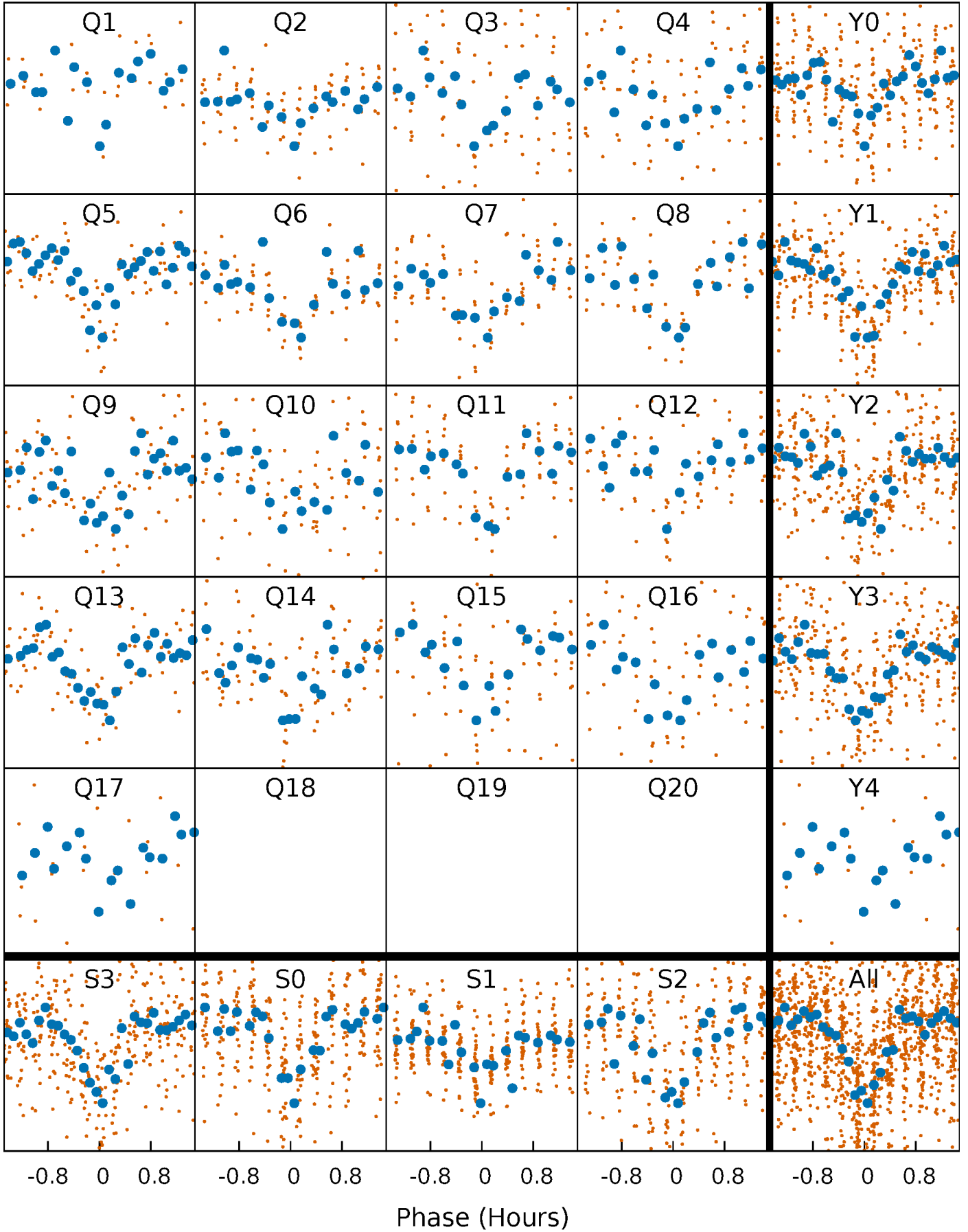


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



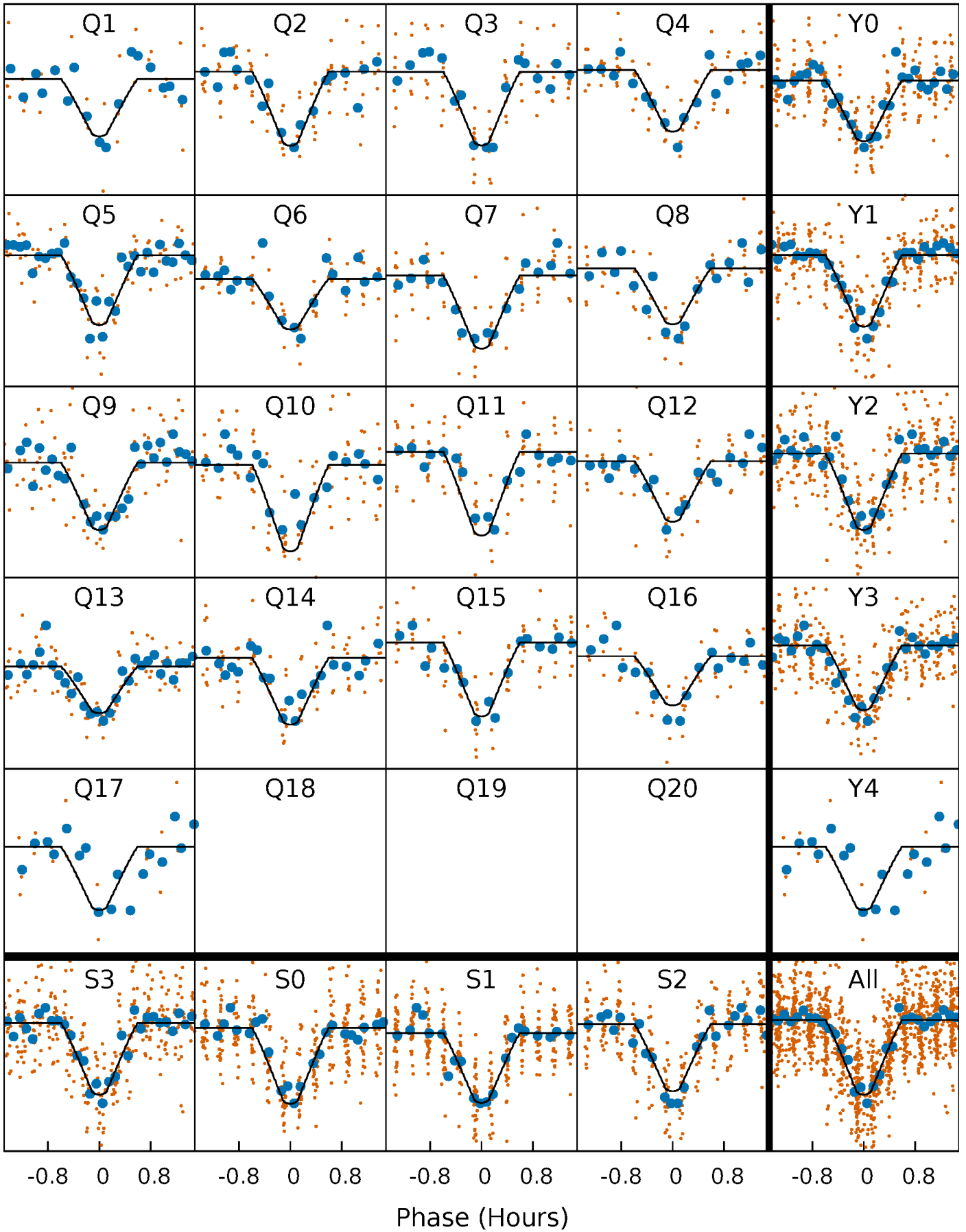
PDC Quarter-Phased Transit Curves

TCE 006124941-01 P= 5.670160 Days $T_0=136.200784$ (BKJD)



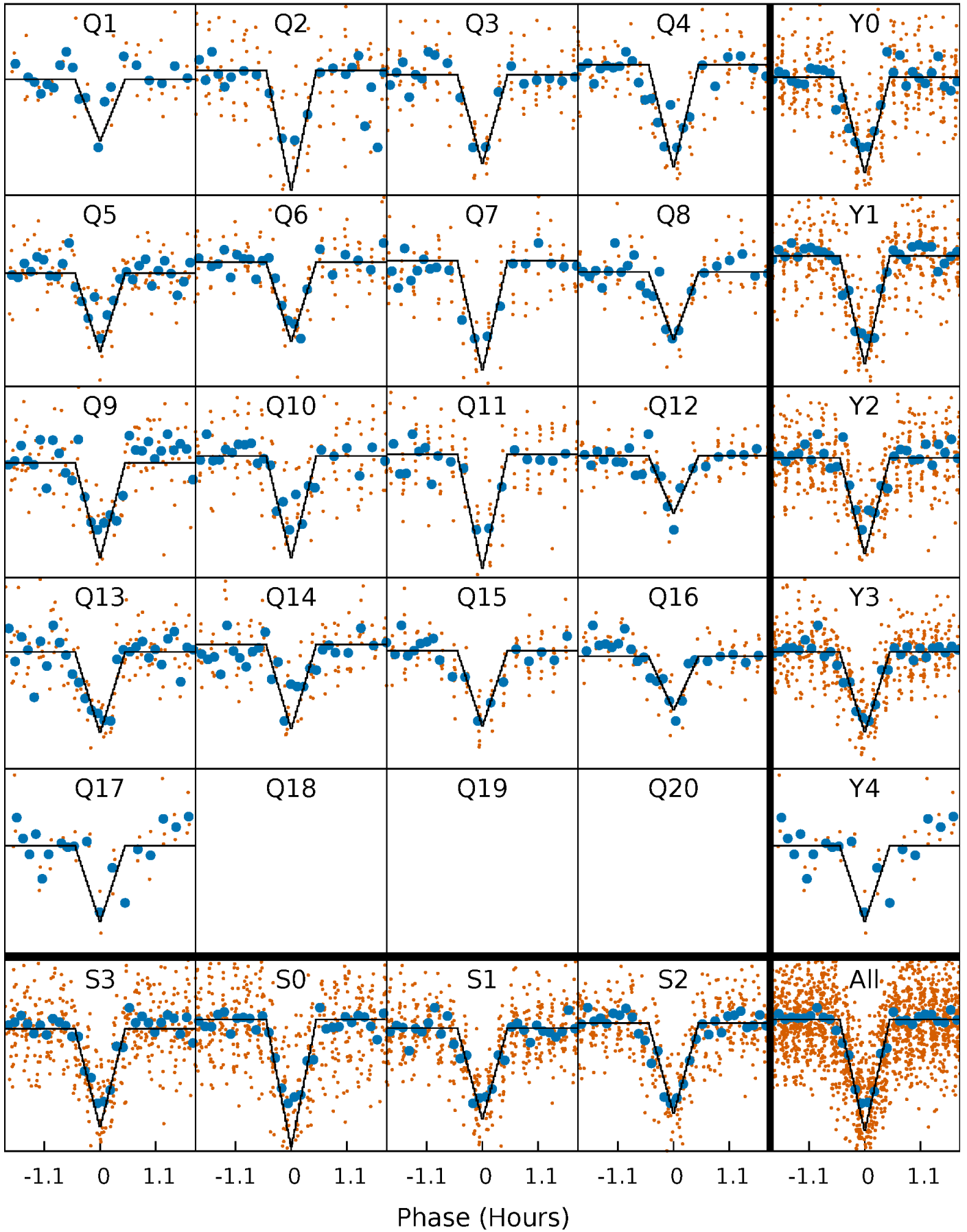
DV Quarter-Phased Transit Curves

TCE 006124941-01 P= 5.670160 Days $T_0=136.200784$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

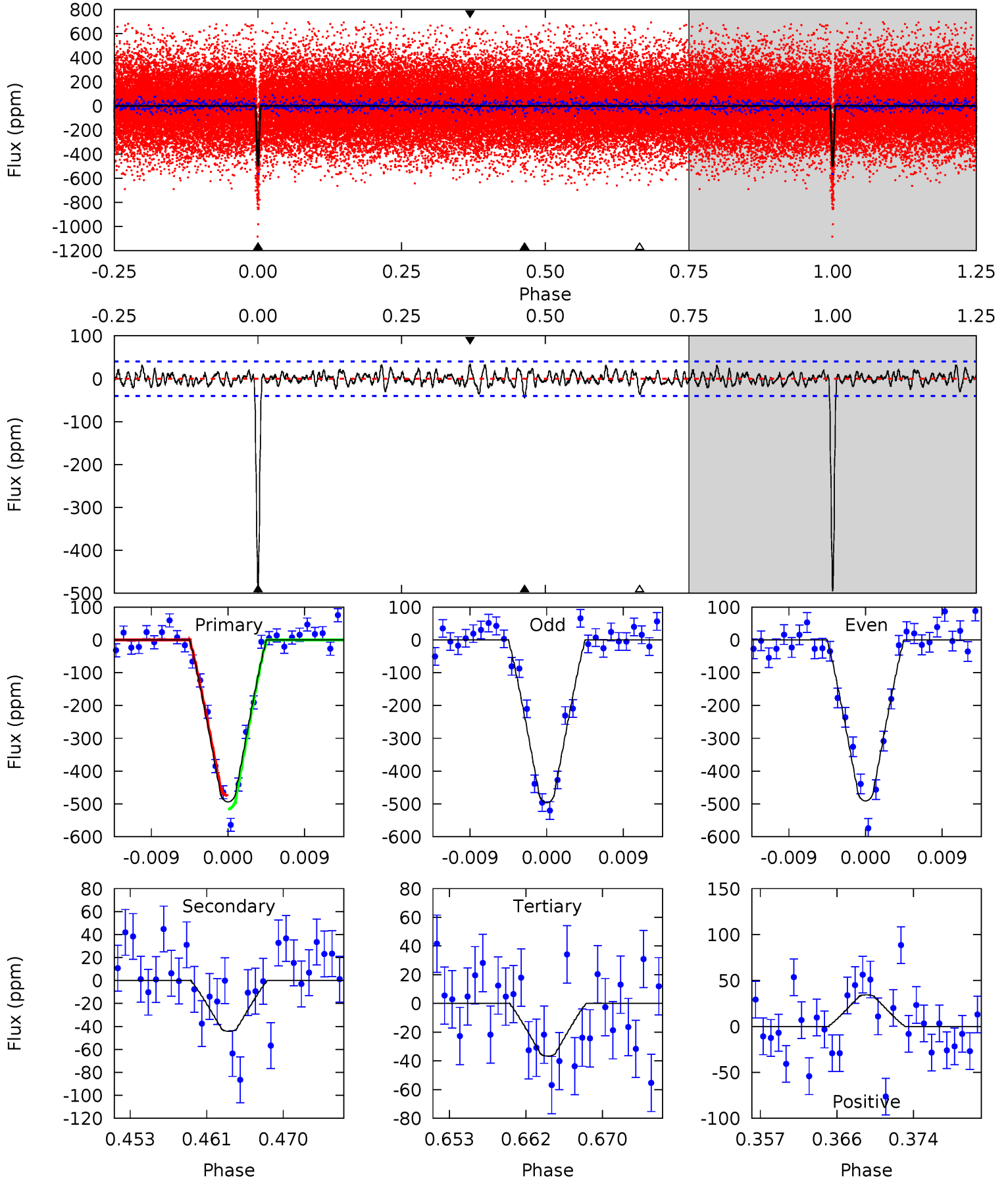
TCE 006124941-01 P= 5.670147 Days $T_0=136.202912$ (BKJD)



DV Model-Shift Uniqueness Test

006124941-01, P = 5.670160 Days, E = 130.530624 Days

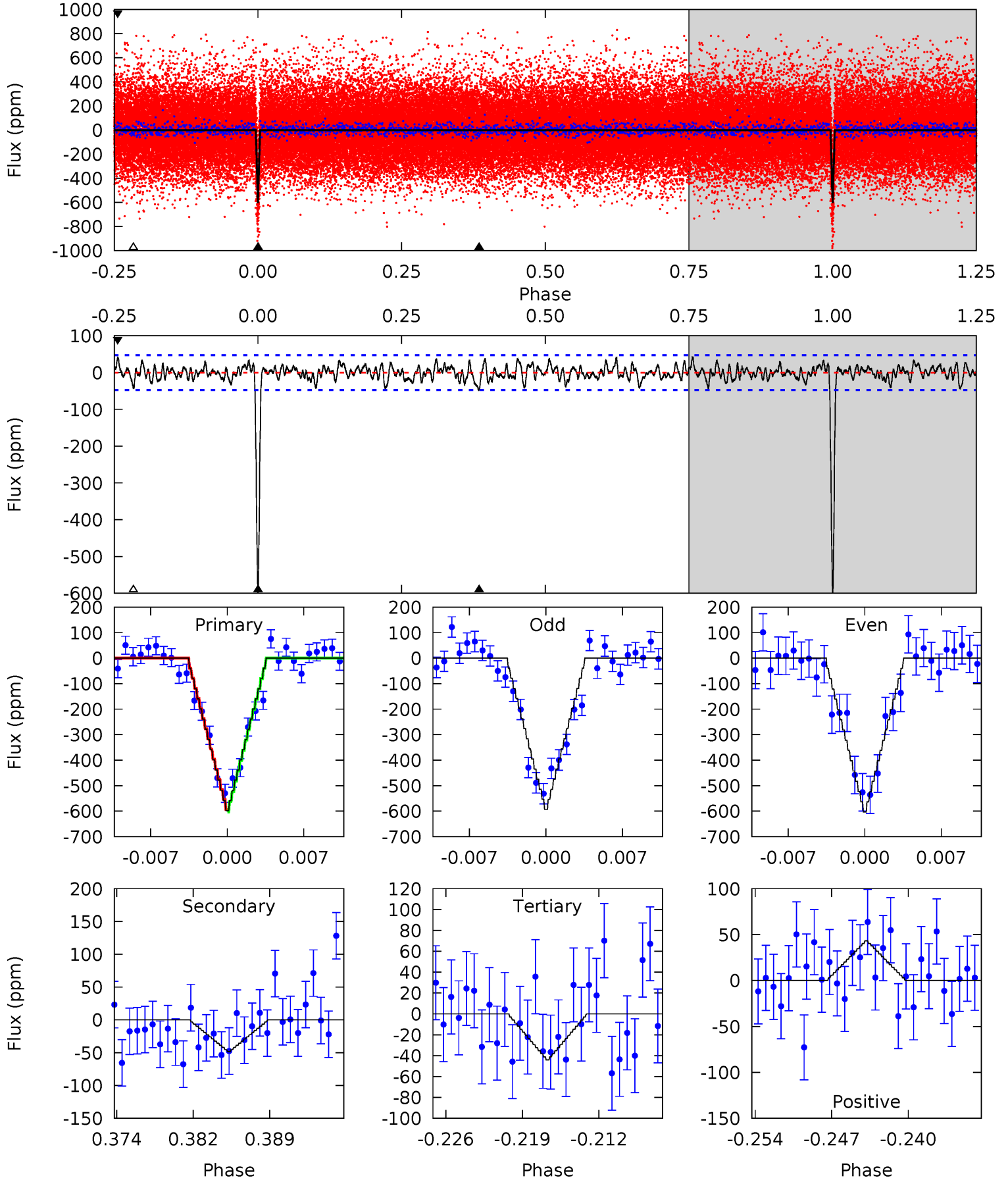
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 61.9 | 5.55 | 4.60 | 4.31 | 5.05 | 2.62 | 1.42 | 57.3 | 57.6 | 0.96 | 1.24 | 0.34 | 1.00 | 0.07 | 2.56 |



Alt Model-Shift Uniqueness Test

006124941-01, P = 5.670147 Days, E = 130.532765 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 64.4 | 5.22 | 4.74 | 4.65 | 5.09 | 2.69 | 1.65 | 59.6 | 59.7 | 0.48 | 0.57 | 0.56 | 0.99 | 0.07 | 0.49 |



Stellar Parameters For KIC 006124941

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 3337^{+115}_{-57} | $5.126^{+0.104}_{-0.127}$ | $-0.460^{+0.300}_{-0.250}$ | $0.183^{+0.088}_{-0.038}$ | $0.164^{+0.103}_{-0.034}$ | $37.470^{+22.030}_{-18.790}$ |
| | +3%/-2% | +2%/-2% | +65%/-54% | +48%/-21% | +63%/-21% | +59%/-50% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006124941-01 / KOI 1058.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|-------------------|
| DV | -44 ± 8 | $0.45^{+0.12}_{-0.08}$ | 483^{+31}_{-28} | 2427^{+122}_{-103} | 139^{+75}_{-47} |
| Alt. | -49 ± 9 | $0.52^{+0.14}_{-0.10}$ | 481^{+34}_{-23} | 2368^{+110}_{-100} | 115^{+56}_{-38} |

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

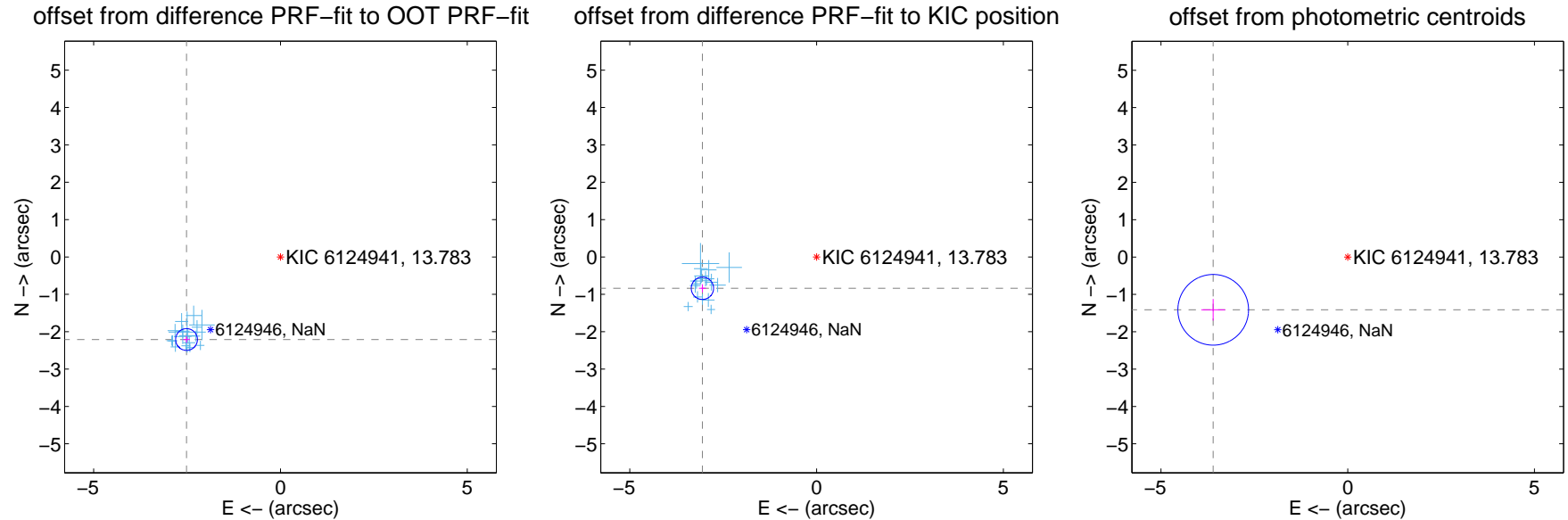
DV Centroid Data

Supplemental centroid analysis for 006124941-01. Kepler magnitude: 13.78. Transit SNR 38.14

There are 17 quarters with good PRF difference image offsets

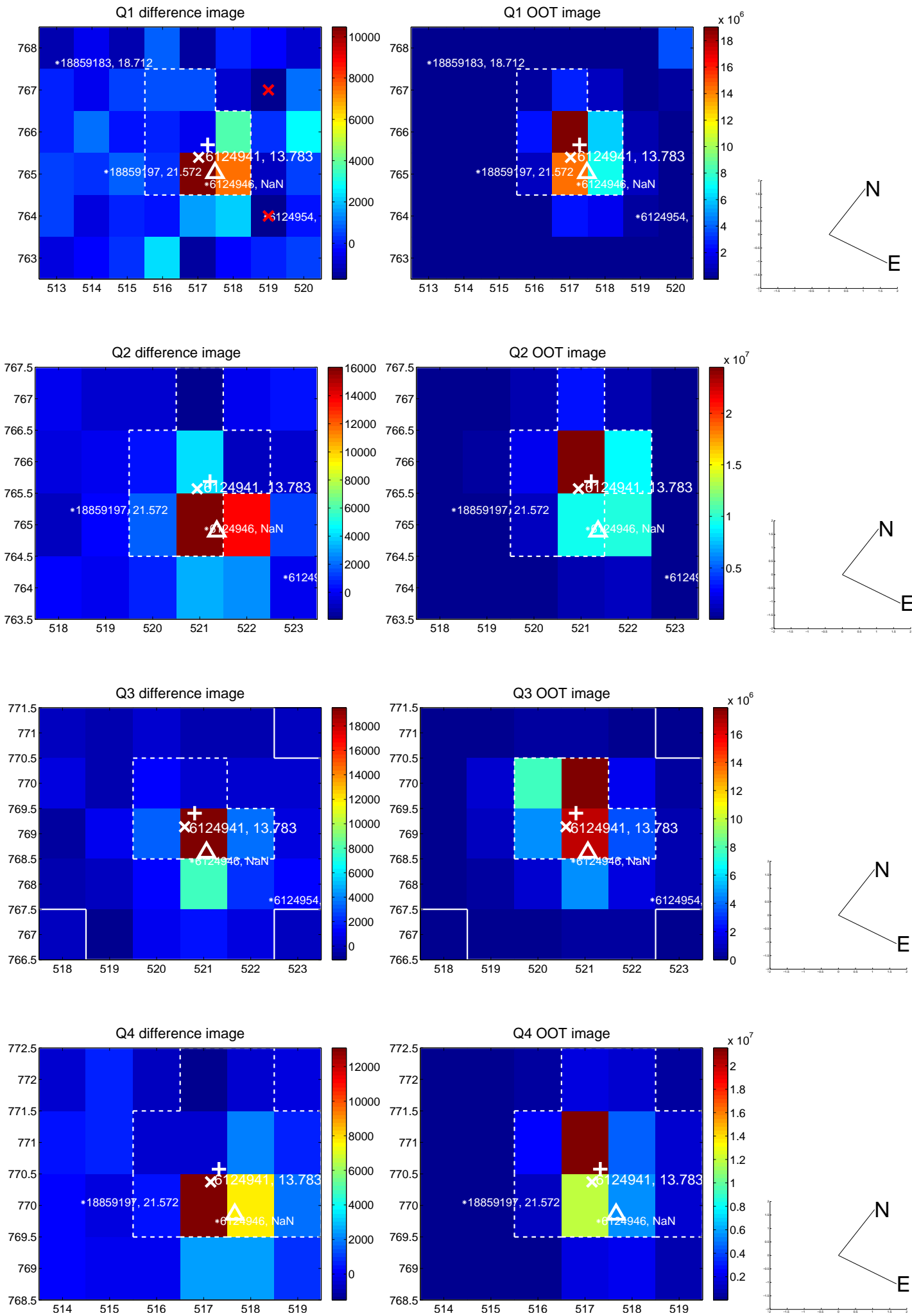
The direct PRF centroid is offset from the target star catalog position by about 1.93 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 3.346 ± 0.097 | 34.42 | 2.514 ± 0.091 | -2.209 ± 0.090 |
| PRF-fit source offset from KIC position | 3.168 ± 0.100 | 31.79 | 3.055 ± 0.094 | -0.838 ± 0.107 |
| photometric centroid source offset | 3.87 ± 0.32 | 12.26 | 3.60 ± 0.32 | -1.41 ± 0.29 |

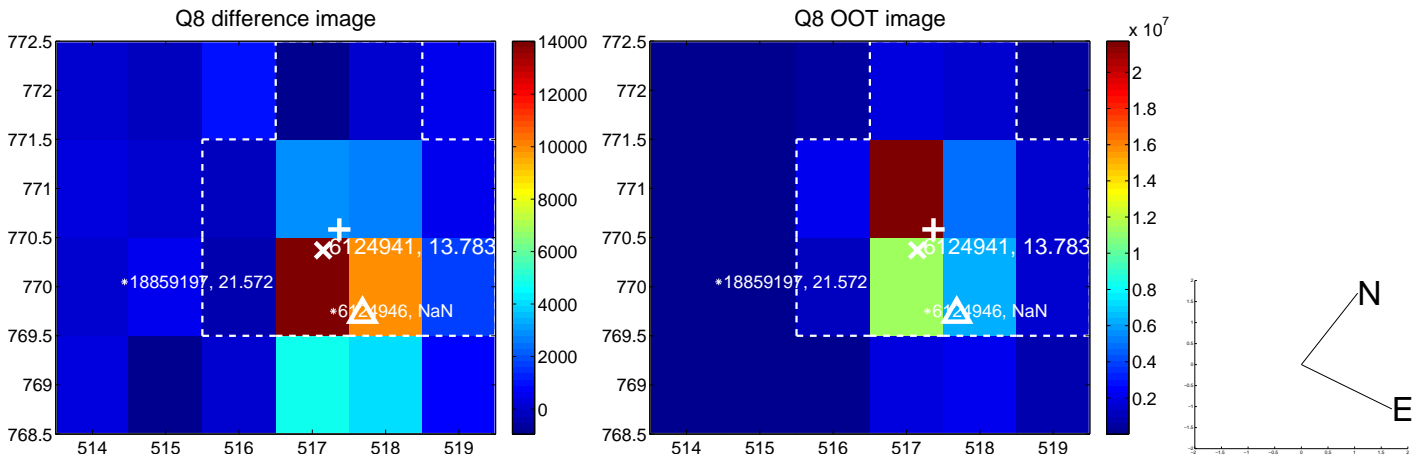
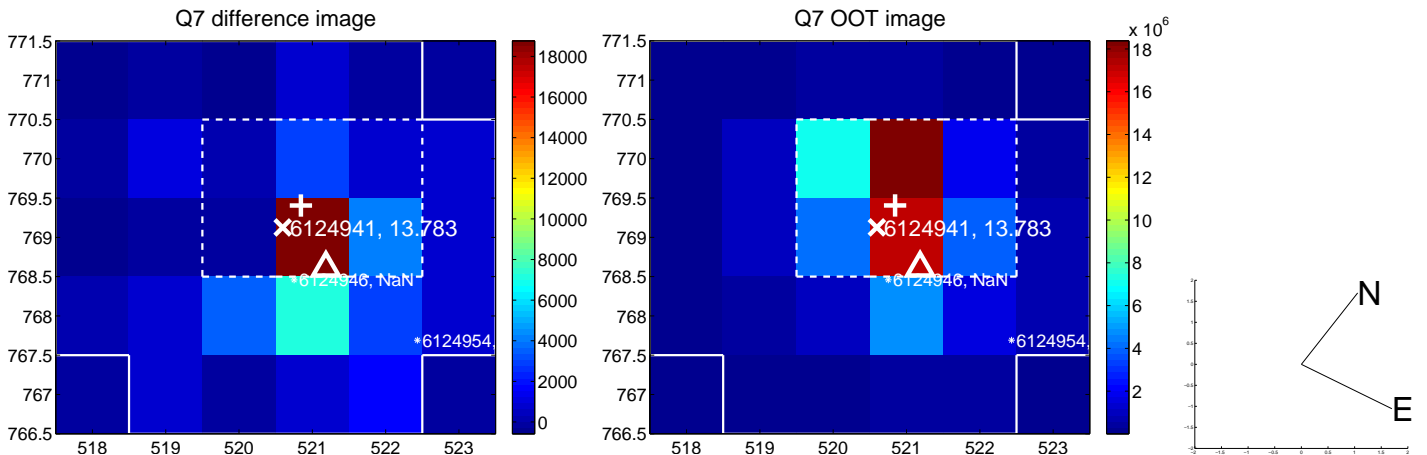
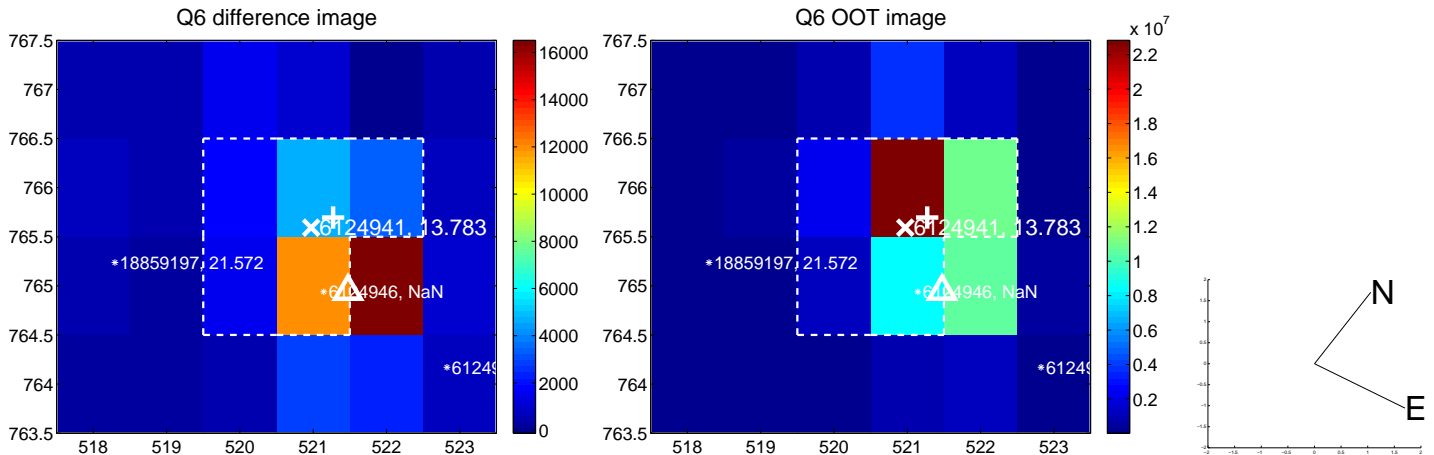
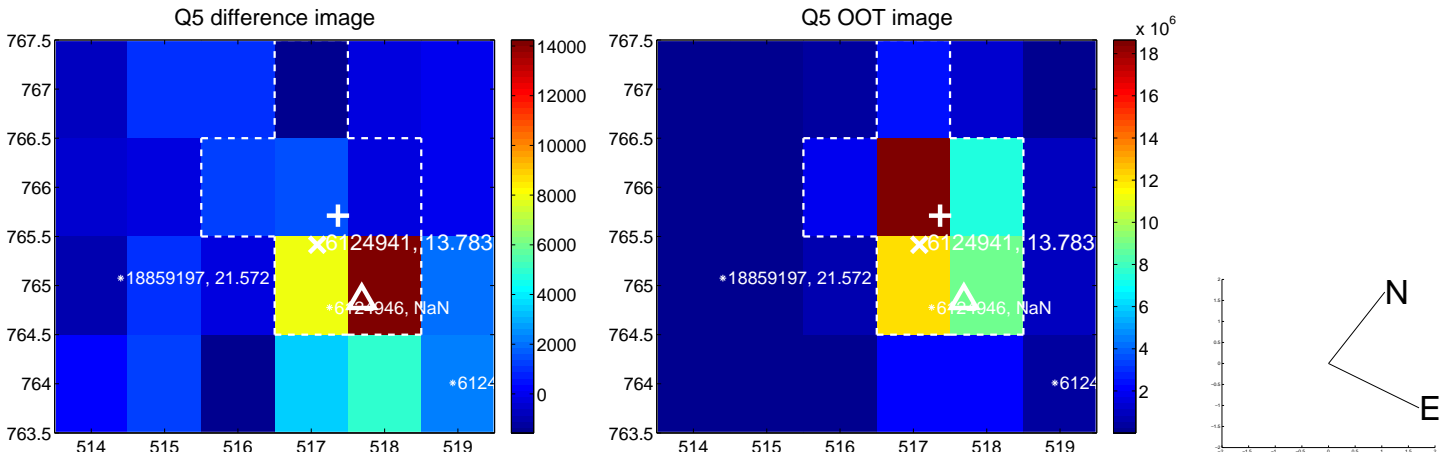


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

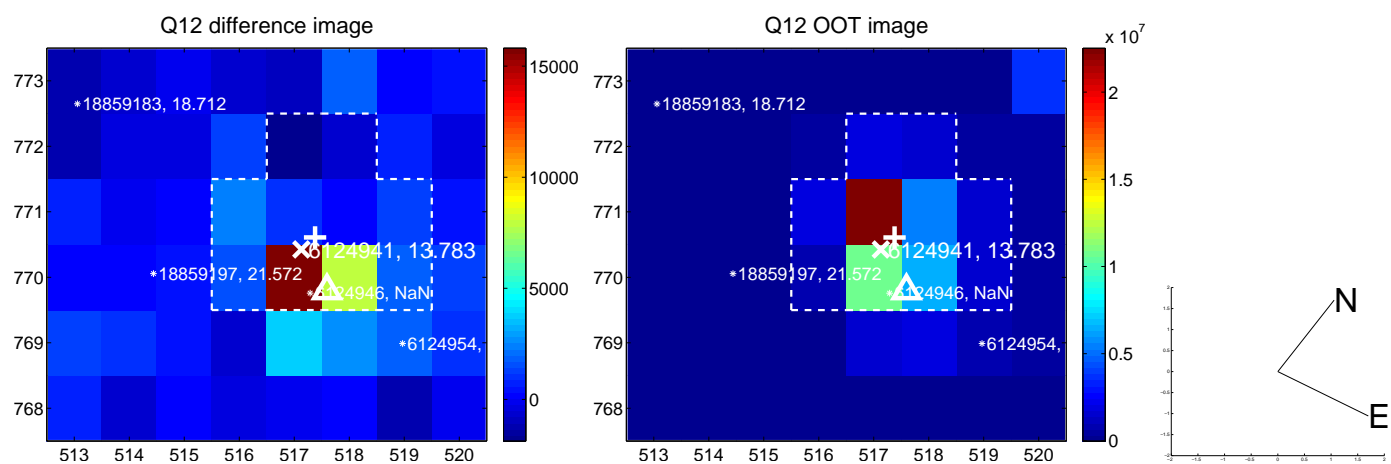
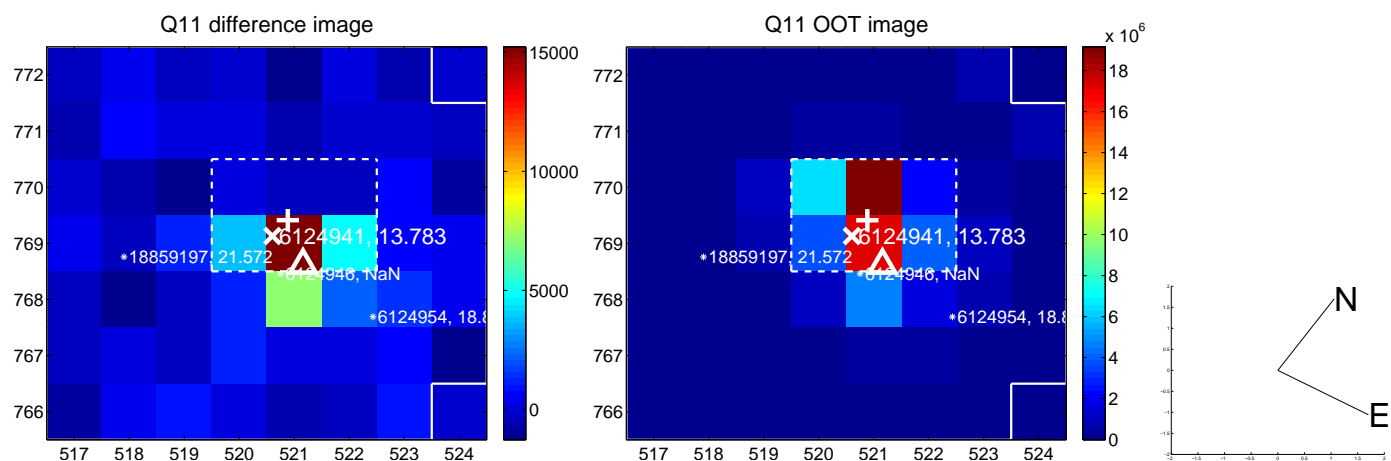
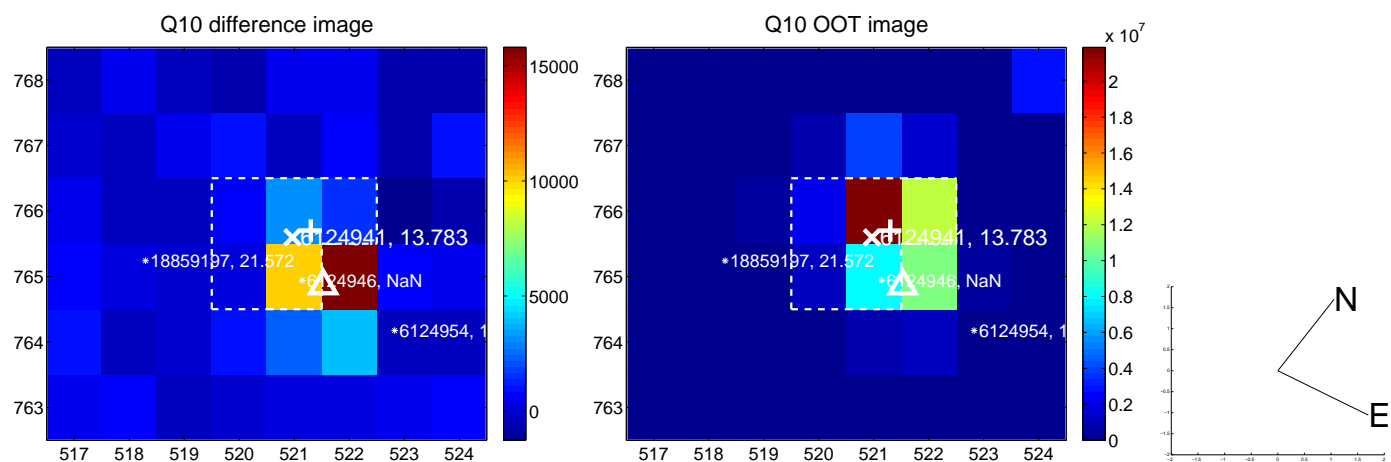
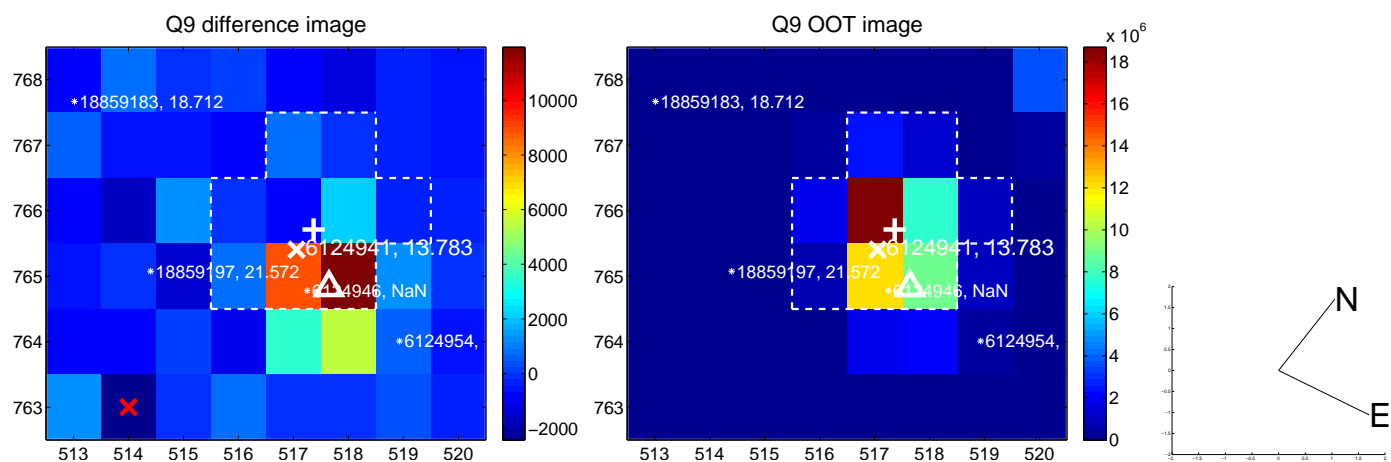
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



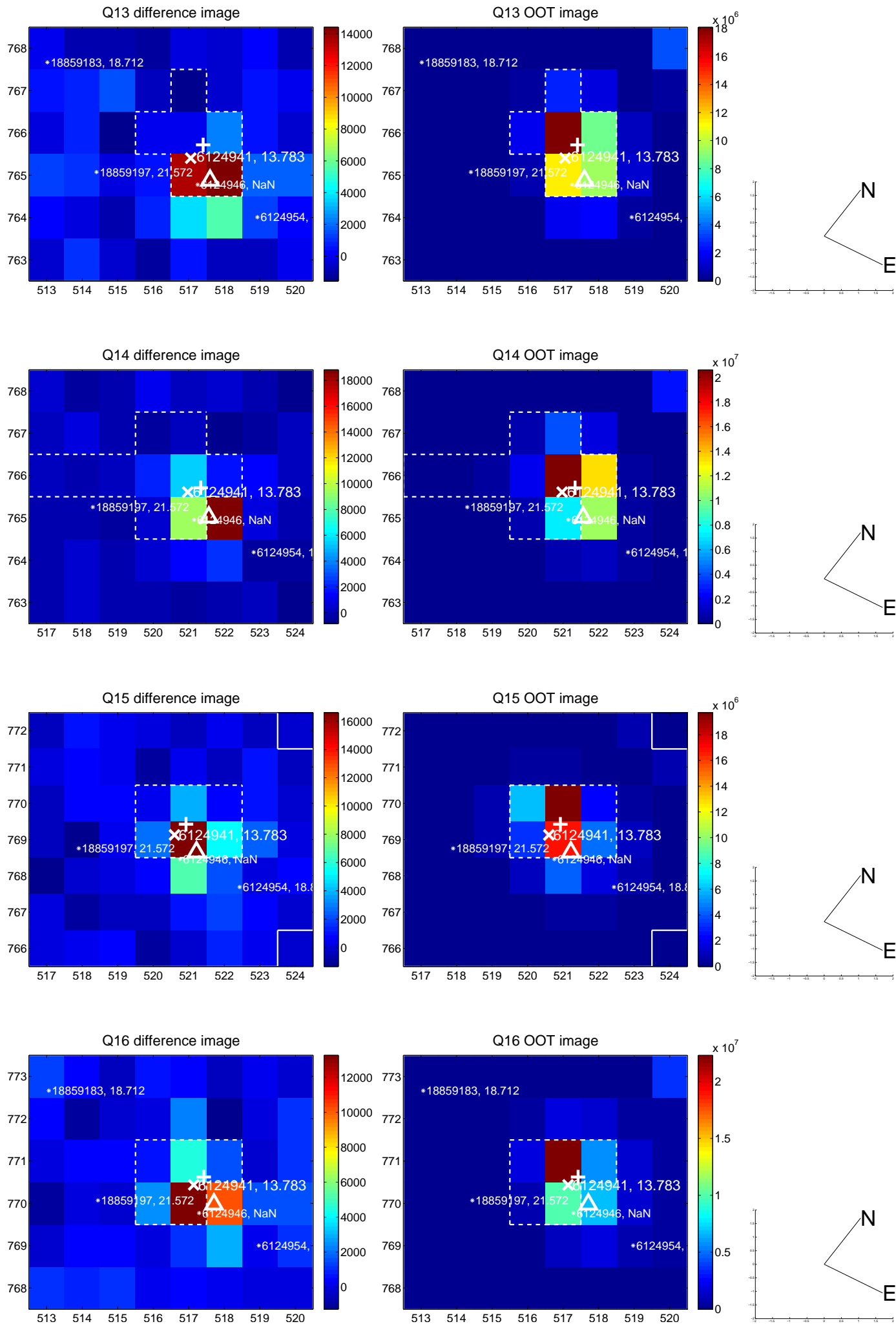
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



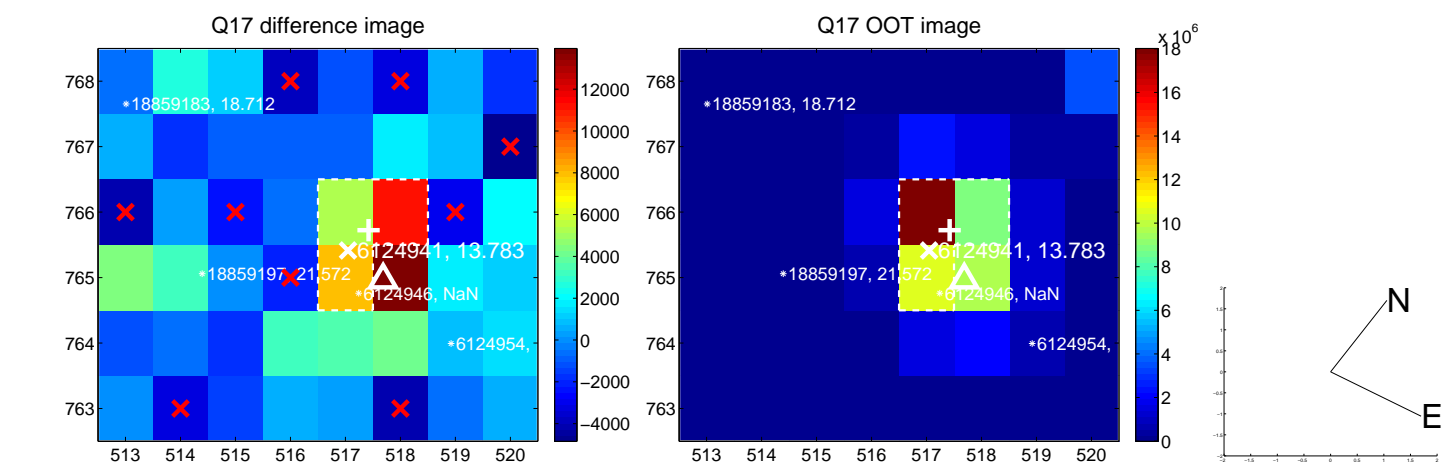
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



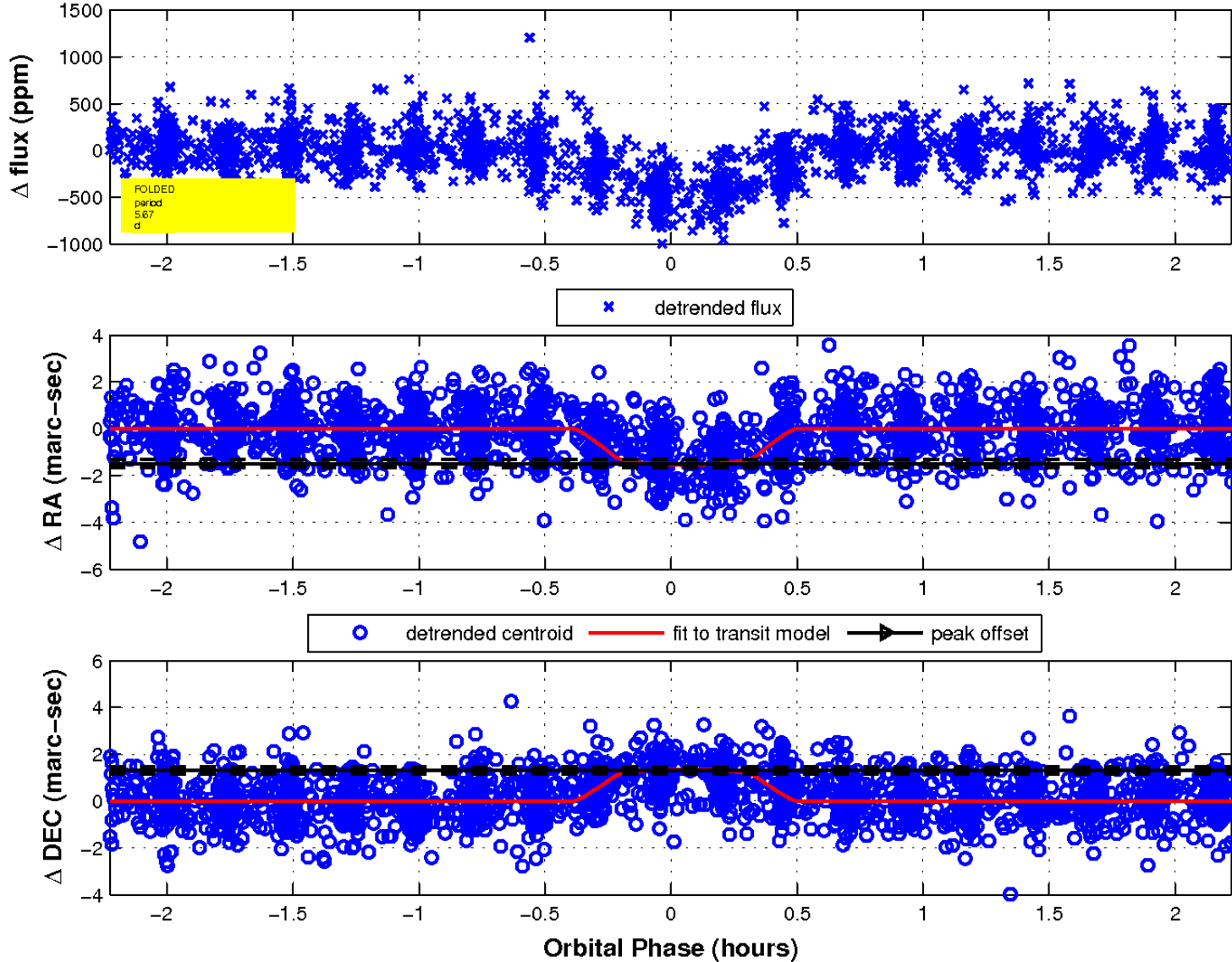
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

