

KIC 004242147

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 004242147-01 | OBS | 1934.01 | 28.782651 | 132.319313 | 909.7 | 4.097 | 32.7 | 34.7 | 0.74 | 4774 | 2.93 | 9.10 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 004242147-01 | OBS | PC | 1.00 | 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.

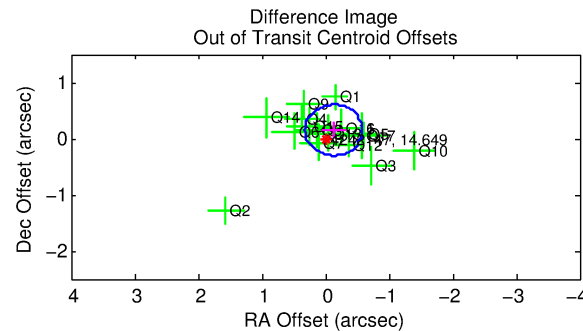
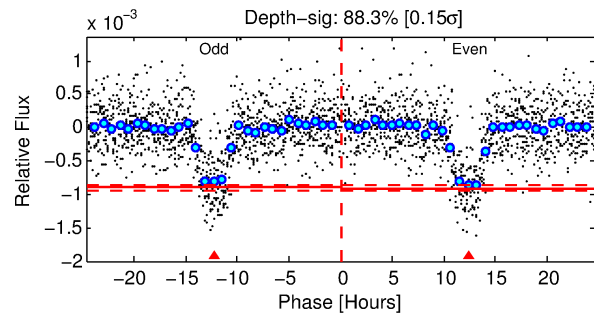
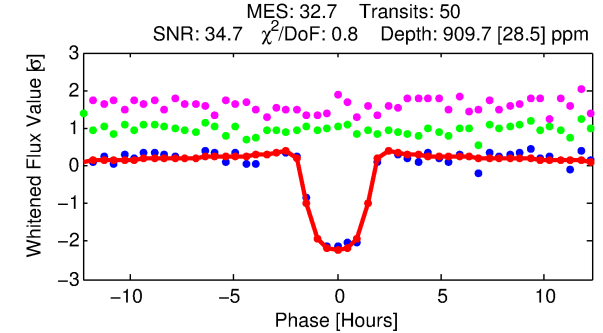
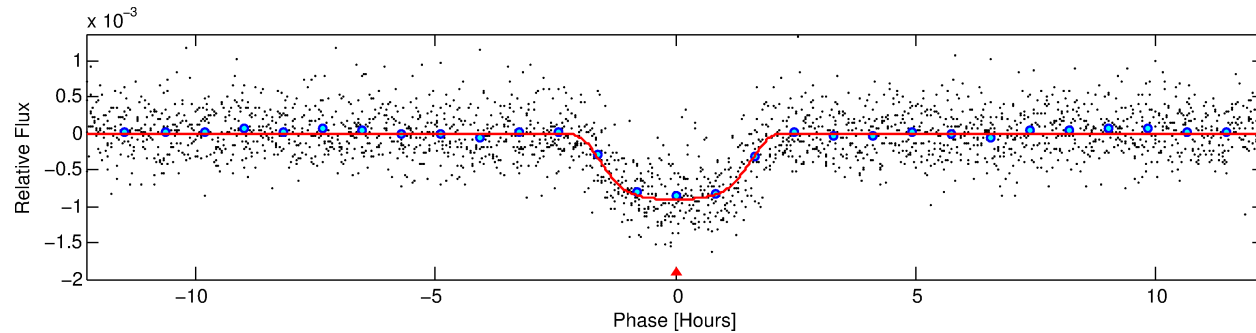
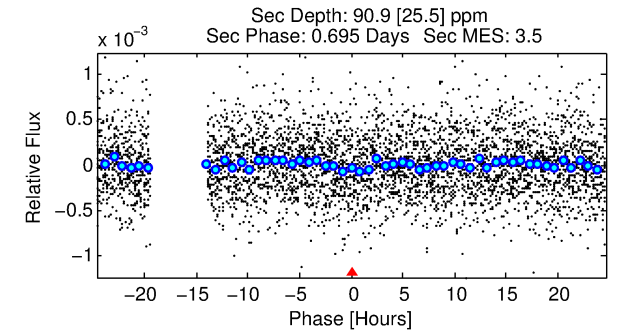
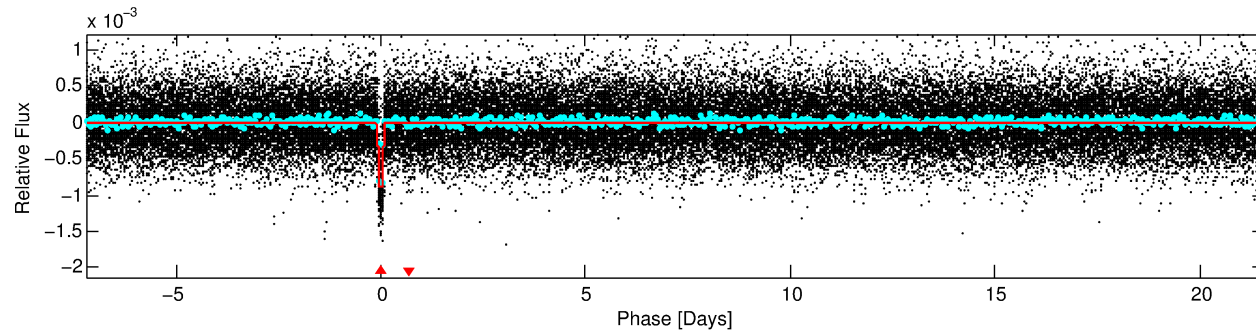
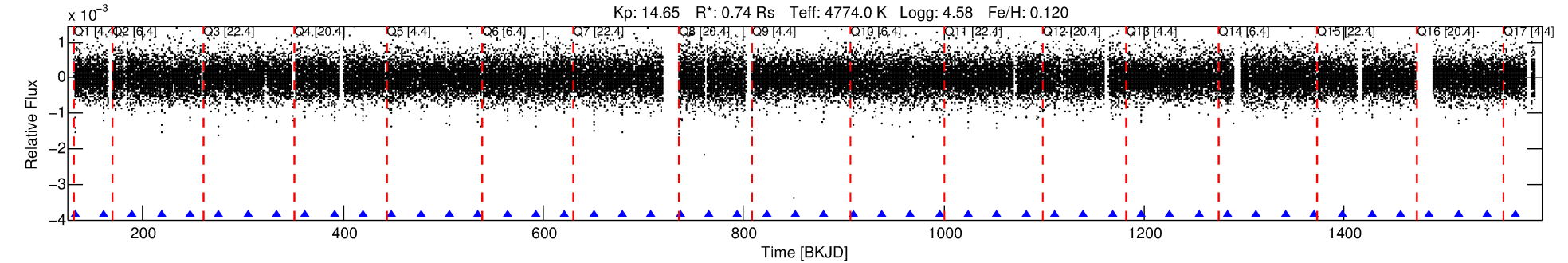
Ephemeris Match Information For 004242147-01

No Significant Match Found

DV One-Page Summary

KIC: 4242147 Candidate: 1 of 1 Period: 28.783 d

KOI: K01934.01 Corr: 0.956



DV Fit Results:

Period = 28.78265 [0.00008] d
Epoch = 132.3193 [0.0024] BKJD
Rp/R* = 0.0360 [0.0011]
a/R* = 23.66 [2.09]
b = 0.94 [0.01]
Seff = 9.10 [0.83]
Teff = 443 [10] K
Rp = 2.93 [0.17] Re
a = 0.1685 [0.0067] AU
Ag = 165.81 [48.68] [3.39σ]
Teffp = 2457 [182] K [11.02σ]

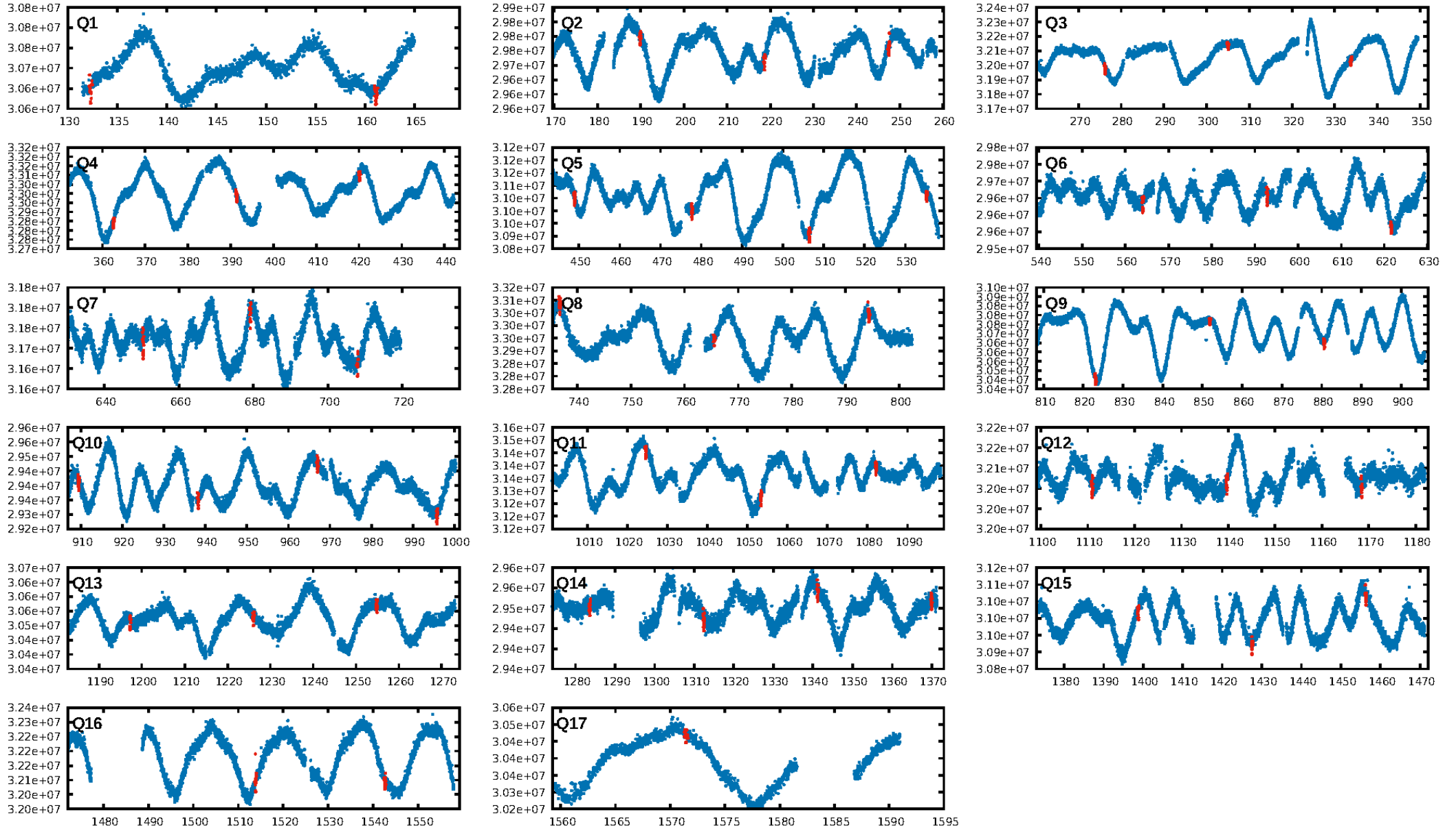
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.34e-211
RollingBand-fgt: 1.00 [47/47]
GhostDiagnostic-chr: 3.899
Centroid-sig: 2.5%
Centroid-so: 0.576 arcsec [1.98σ]
OotOffset-rm: 0.198 arcsec [1.31σ]
KicOffset-rm: 0.364 arcsec [2.70σ]
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]

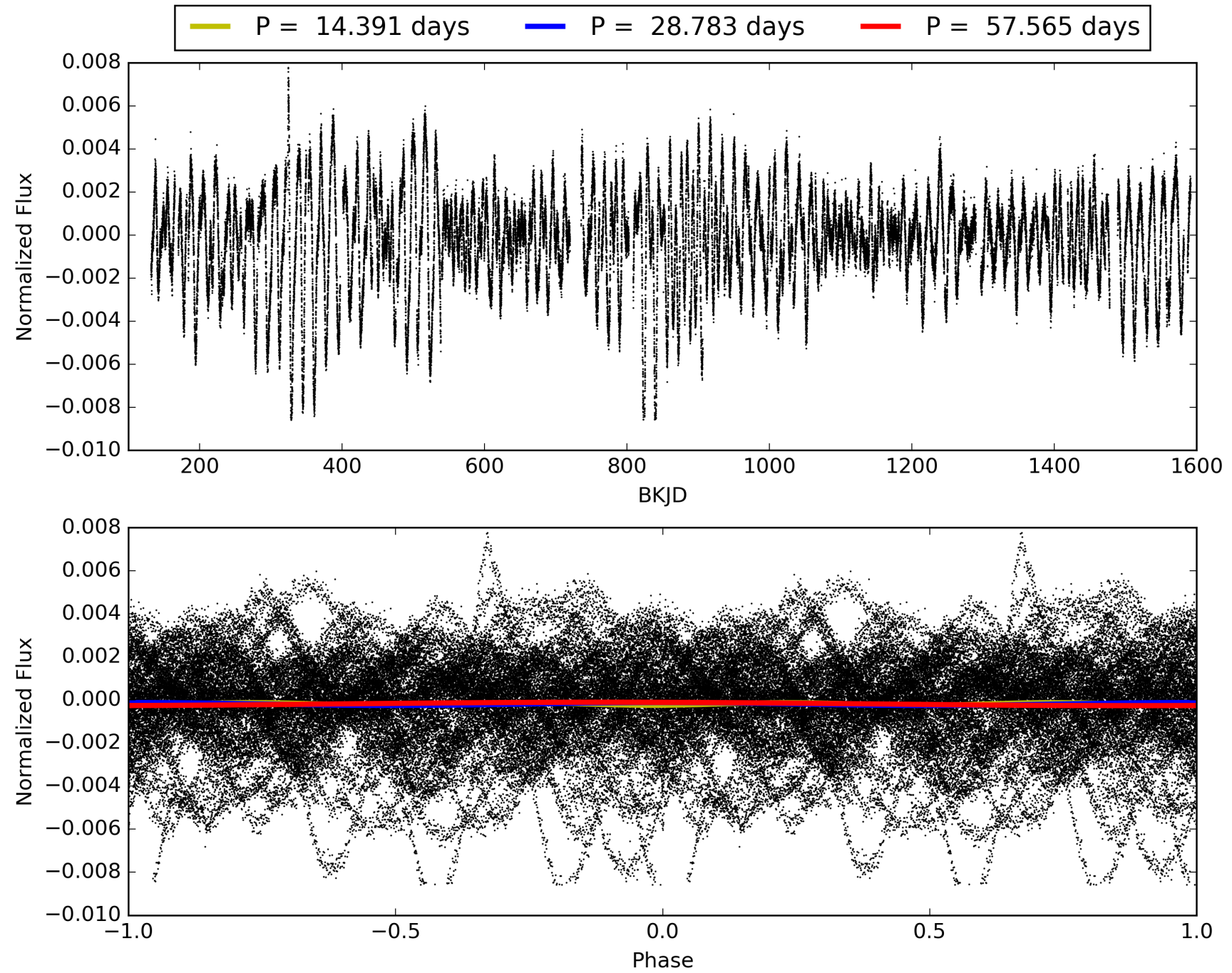
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:17:59 Z

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

TCE 004242147-01, PDC Light Curves

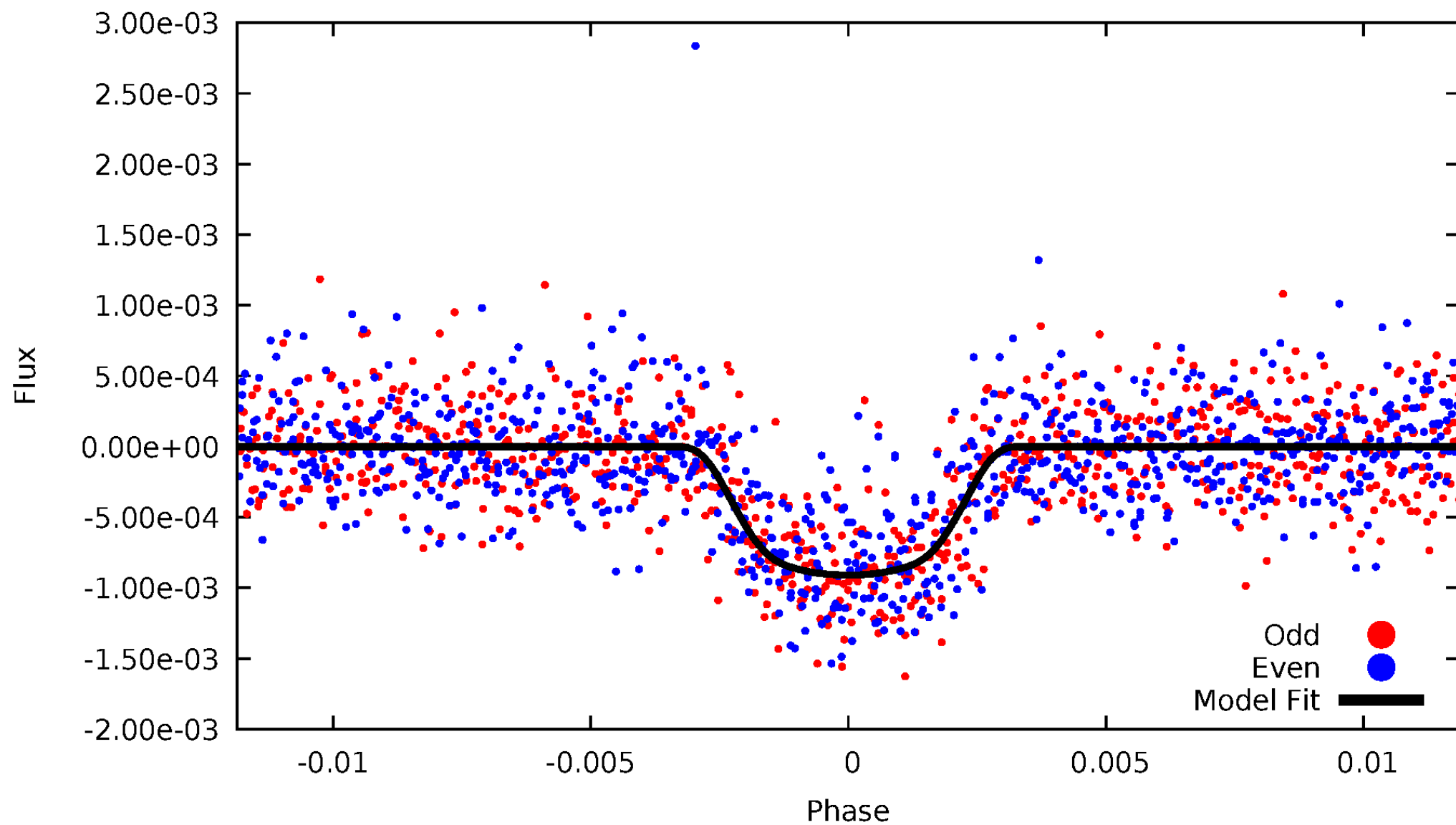


TCE 004242147-01



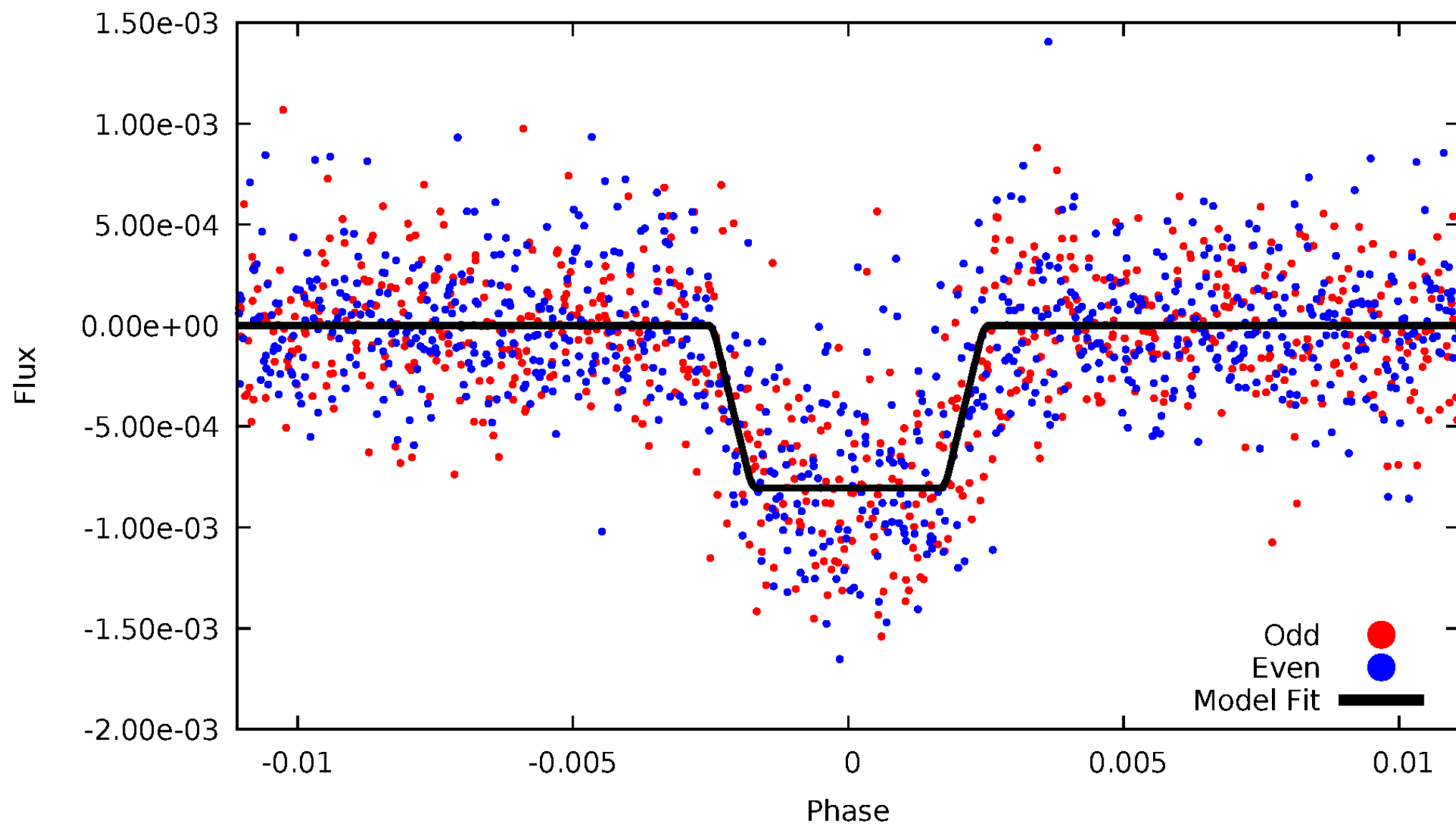
DV Odd/Even

TCE 004242147-01



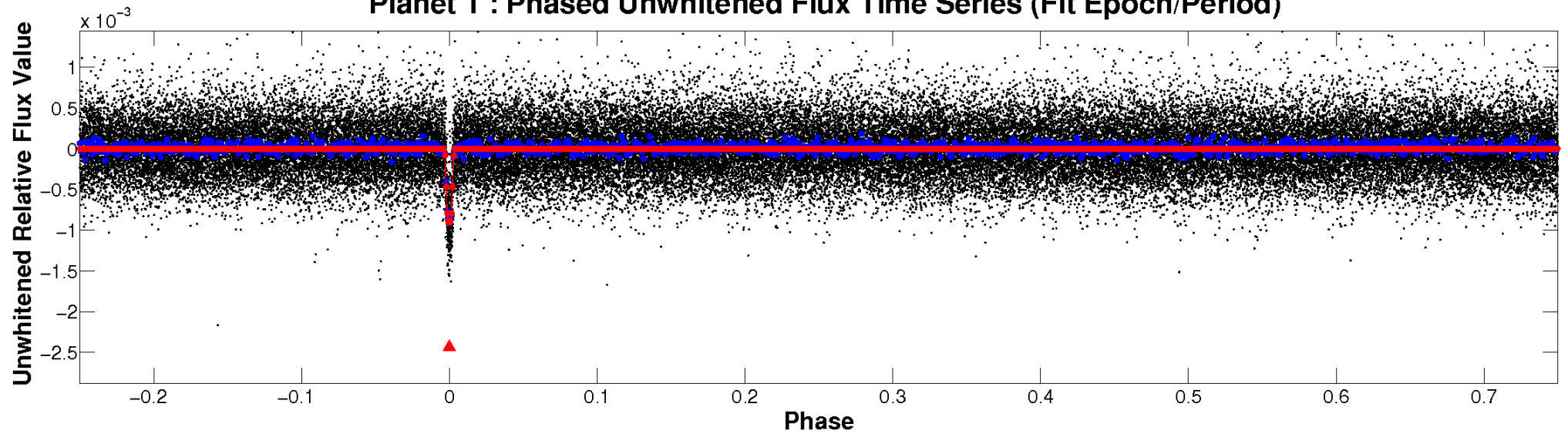
ALT Odd/Even

TCE 004242147-01

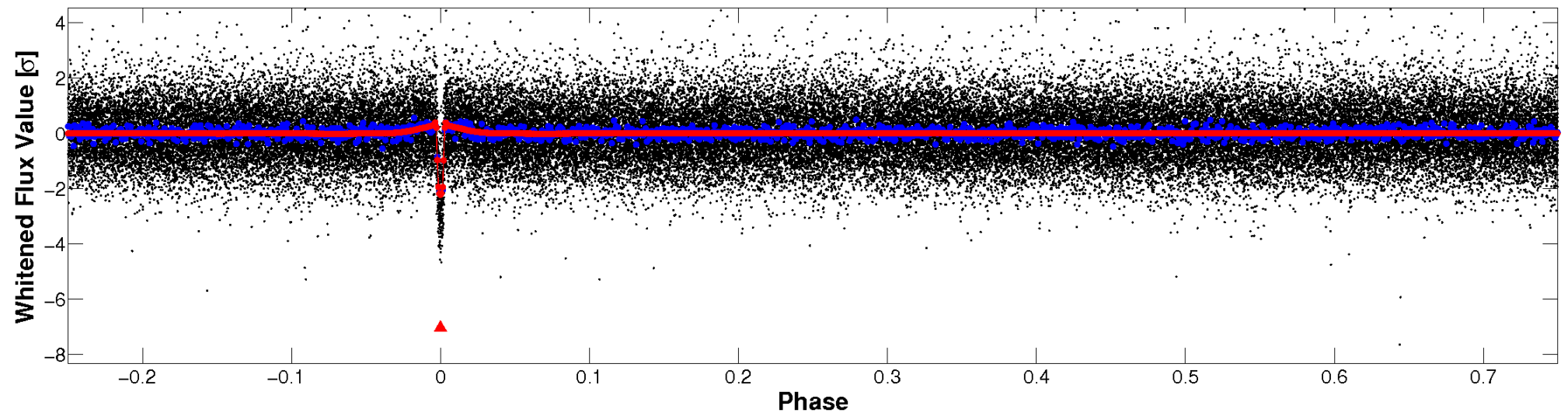


Non-Whitened Vs. Whitened Light Curve

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

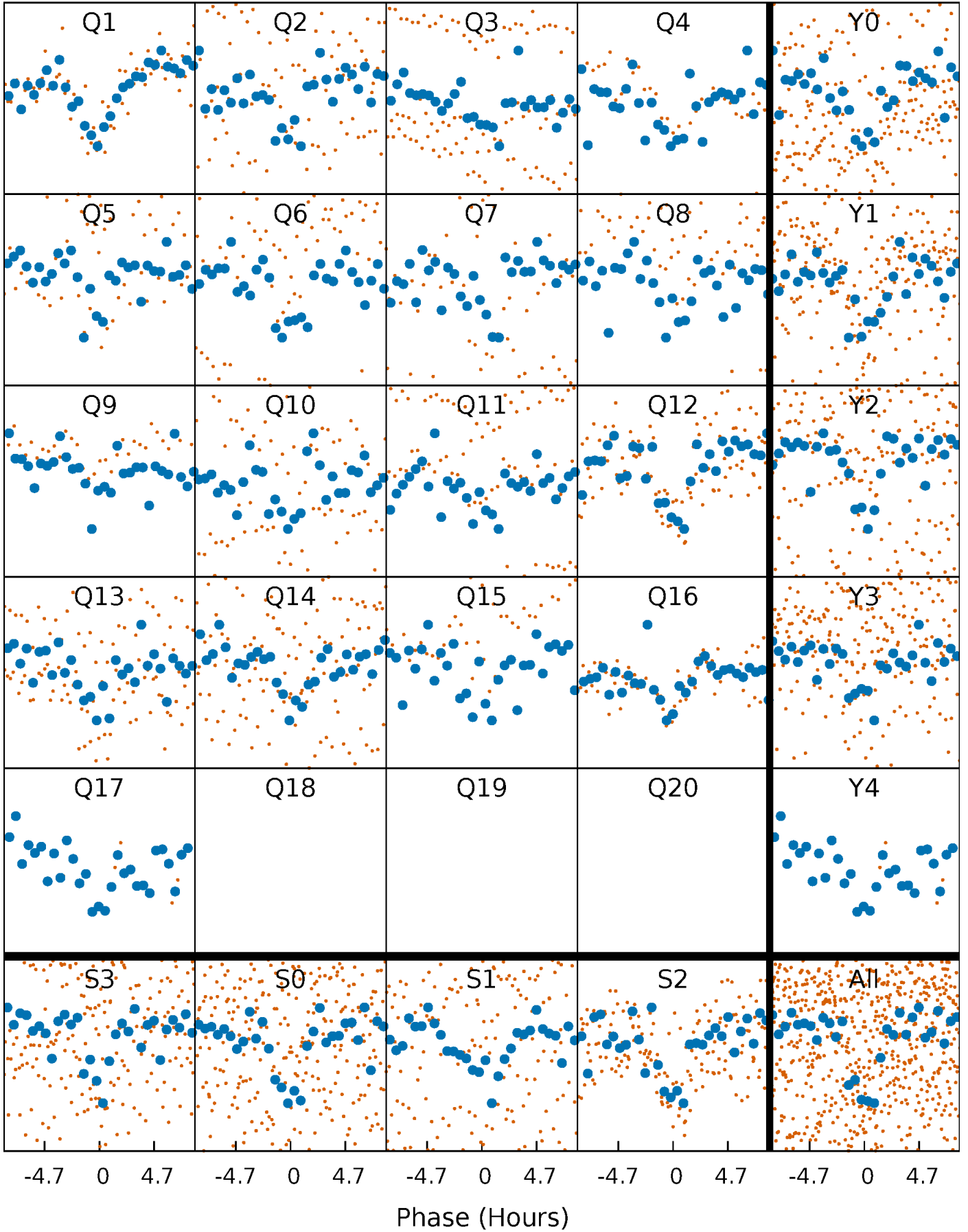


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



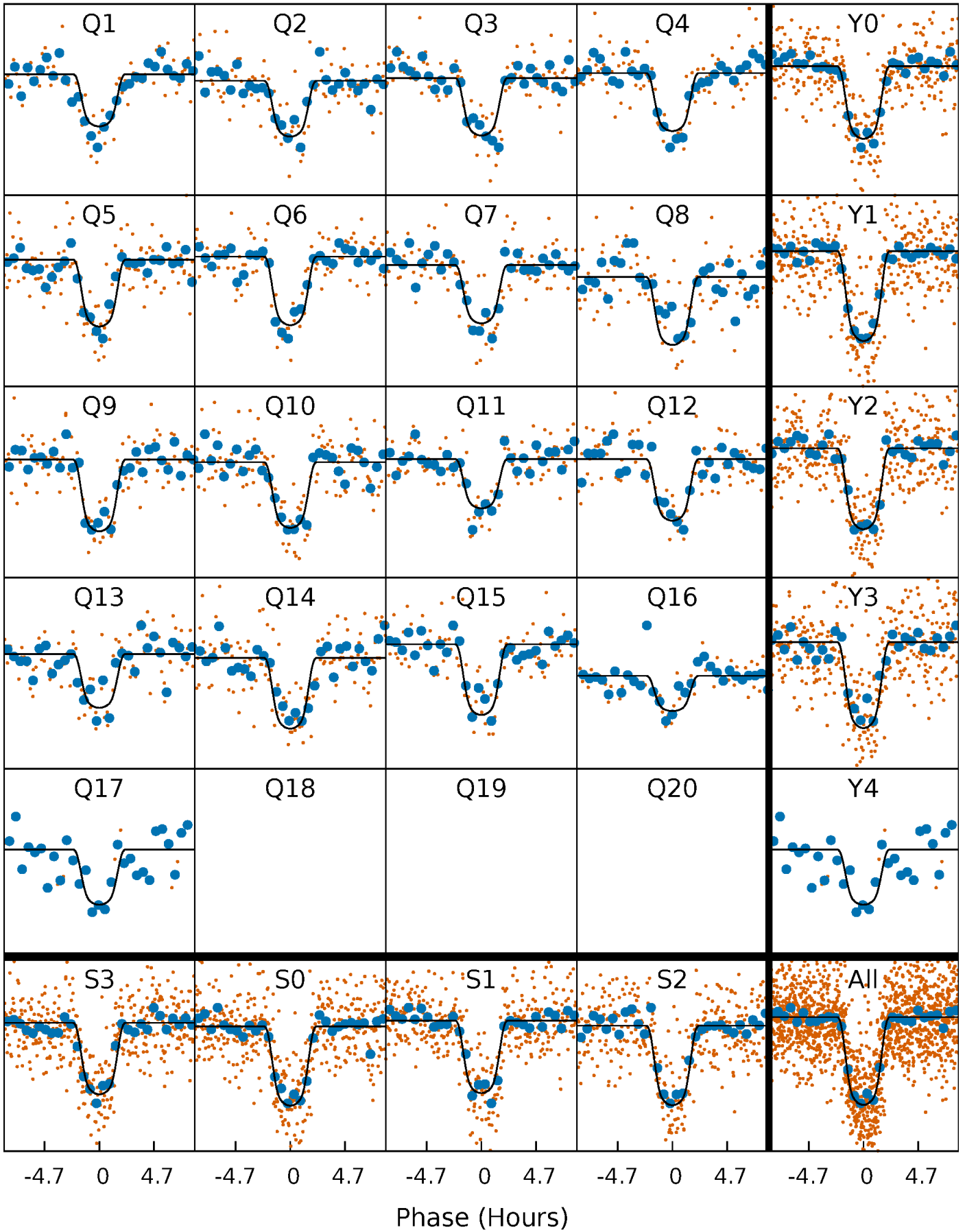
PDC Quarter-Phased Transit Curves

TCE 004242147-01 P= 28.782651 Days $T_0=132.319313$ (BKJD)



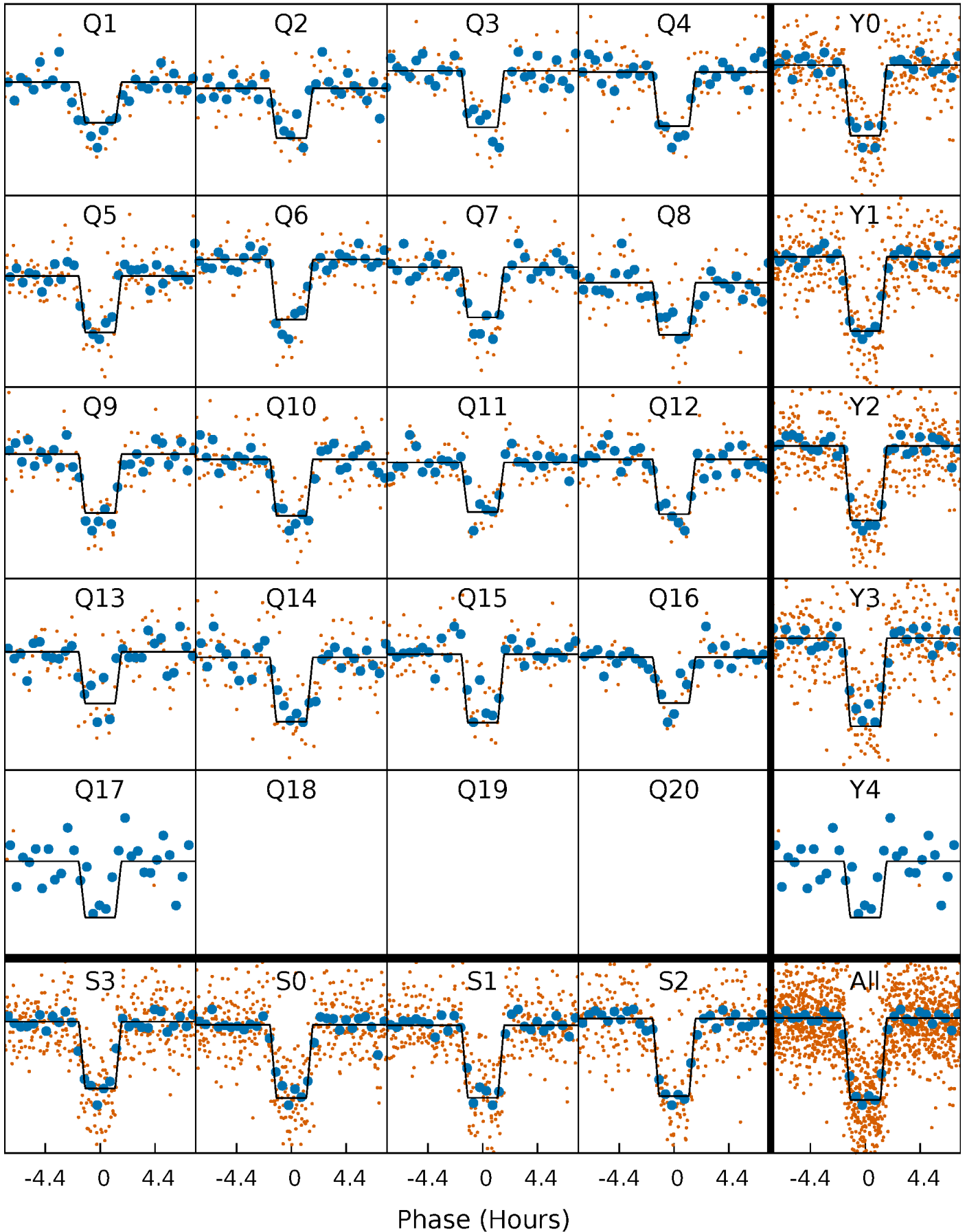
DV Quarter-Phased Transit Curves

TCE 004242147-01 P= 28.782651 Days $T_0=132.319313$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

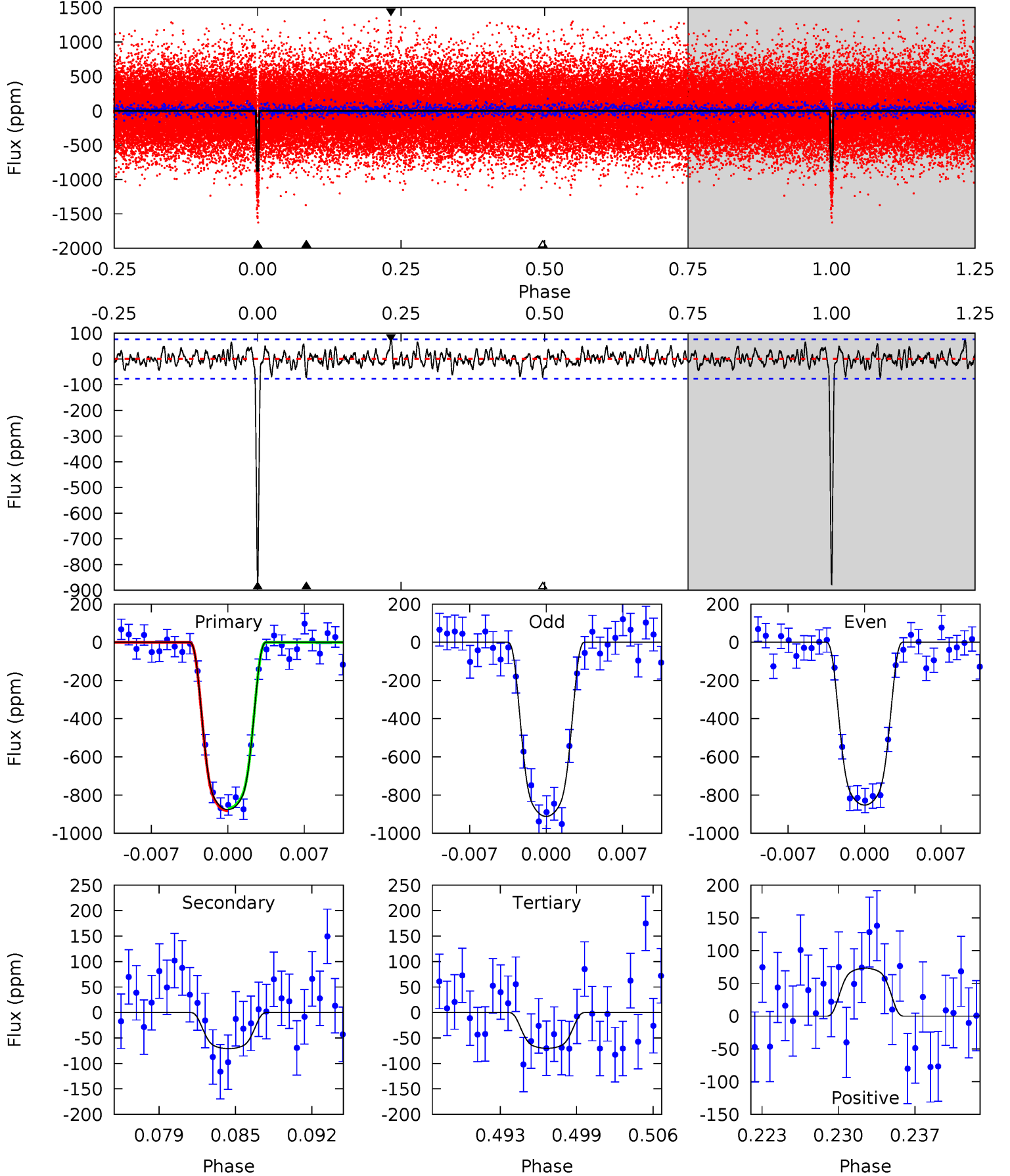
TCE 004242147-01 P= 28.782577 Days $T_0=132.321419$ (BKJD)



DV Model-Shift Uniqueness Test

004242147-01, P = 28.782651 Days, E = 103.536662 Days

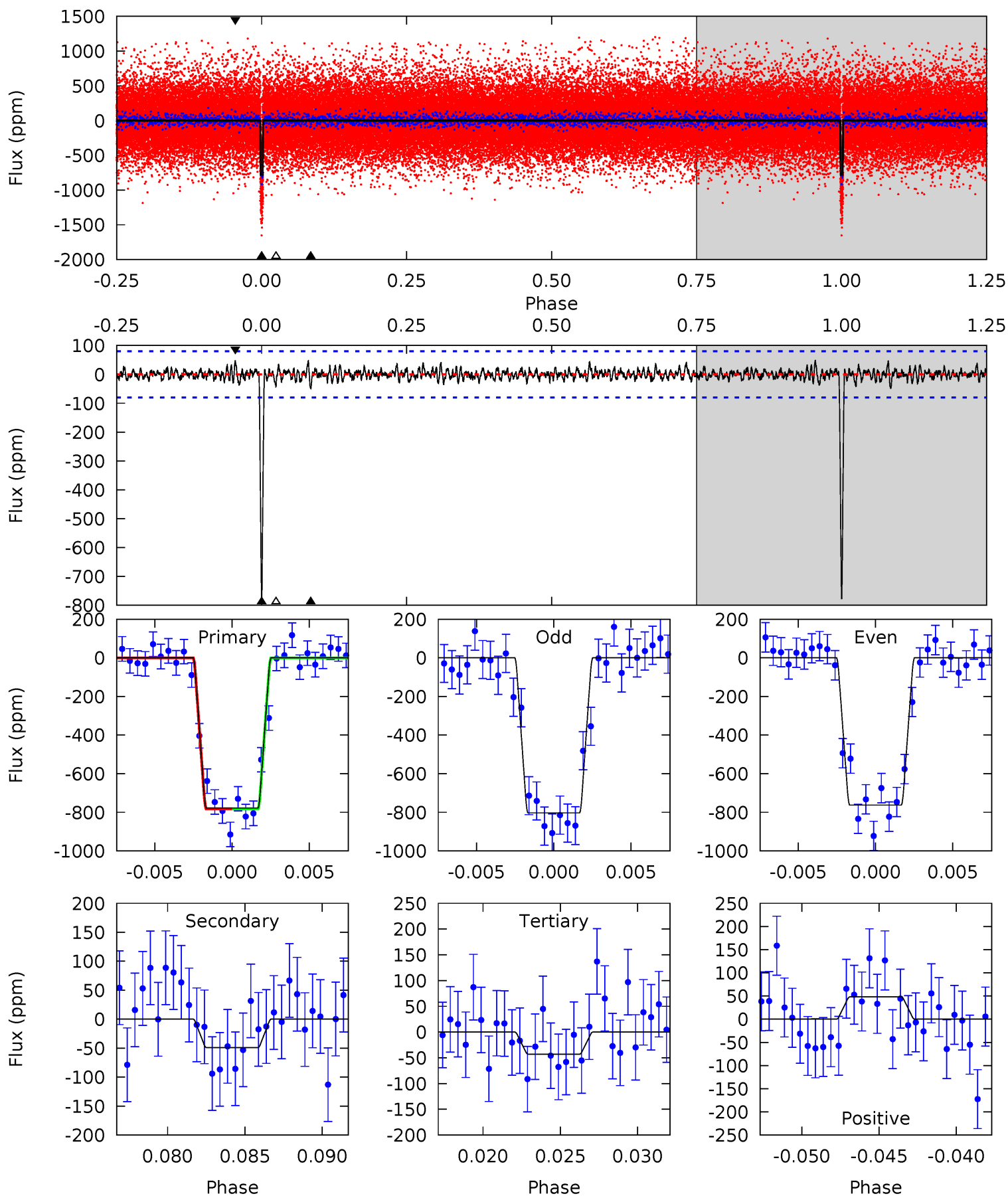
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 58.6 | 4.75 | 4.71 | 4.90 | 5.11 | 2.72 | 1.44 | 53.9 | 53.7 | 0.04 | -0.15 | 1.98 | 0.99 | 0.08 | 0.39 |



Alt Model-Shift Uniqueness Test

004242147-01, $P = 28.782577$ Days, $E = 103.538842$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 50.1 | 3.15 | 2.76 | 3.09 | 5.16 | 2.81 | 0.86 | 47.3 | 47.0 | 0.39 | 0.06 | 1.31 | 0.98 | 0.06 | 0.01 |



Stellar Parameters For KIC 004242147

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 4774^{+86}_{-76} | $4.580^{+0.030}_{-0.030}$ | $0.120^{+0.150}_{-0.150}$ | $0.745^{+0.032}_{-0.036}$ | $0.770^{+0.036}_{-0.036}$ | $2.620^{+0.320}_{-0.258}$ |
| | +2%/-2% | +1%/-1% | +125%/-125% | +4%/-5% | +5%/-5% | +12%/-10% |
| 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 004242147-01 / KOI 1934.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|-------------------|
| DV | -71 ± 15 | $2.93^{+0.11}_{-0.12}$ | 619^{+13}_{-13} | 2941^{+85}_{-104} | 130^{+26}_{-31} |
| Alt. | -49 ± 16 | $2.31^{+0.10}_{-0.12}$ | 618^{+12}_{-12} | 2980^{+128}_{-151} | 144^{+47}_{-45} |

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

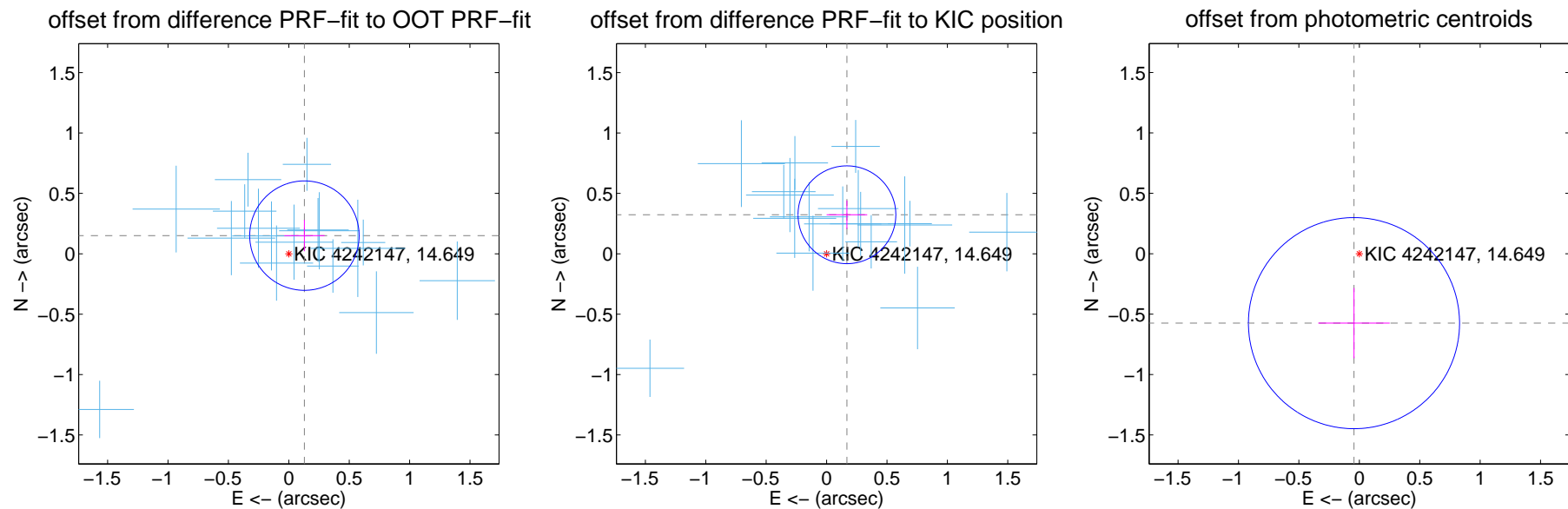
DV Centroid Data

Supplemental centroid analysis for 004242147-01. Kepler magnitude: 14.65. Transit SNR 34.70

There are 17 quarters with good PRF difference image offsets

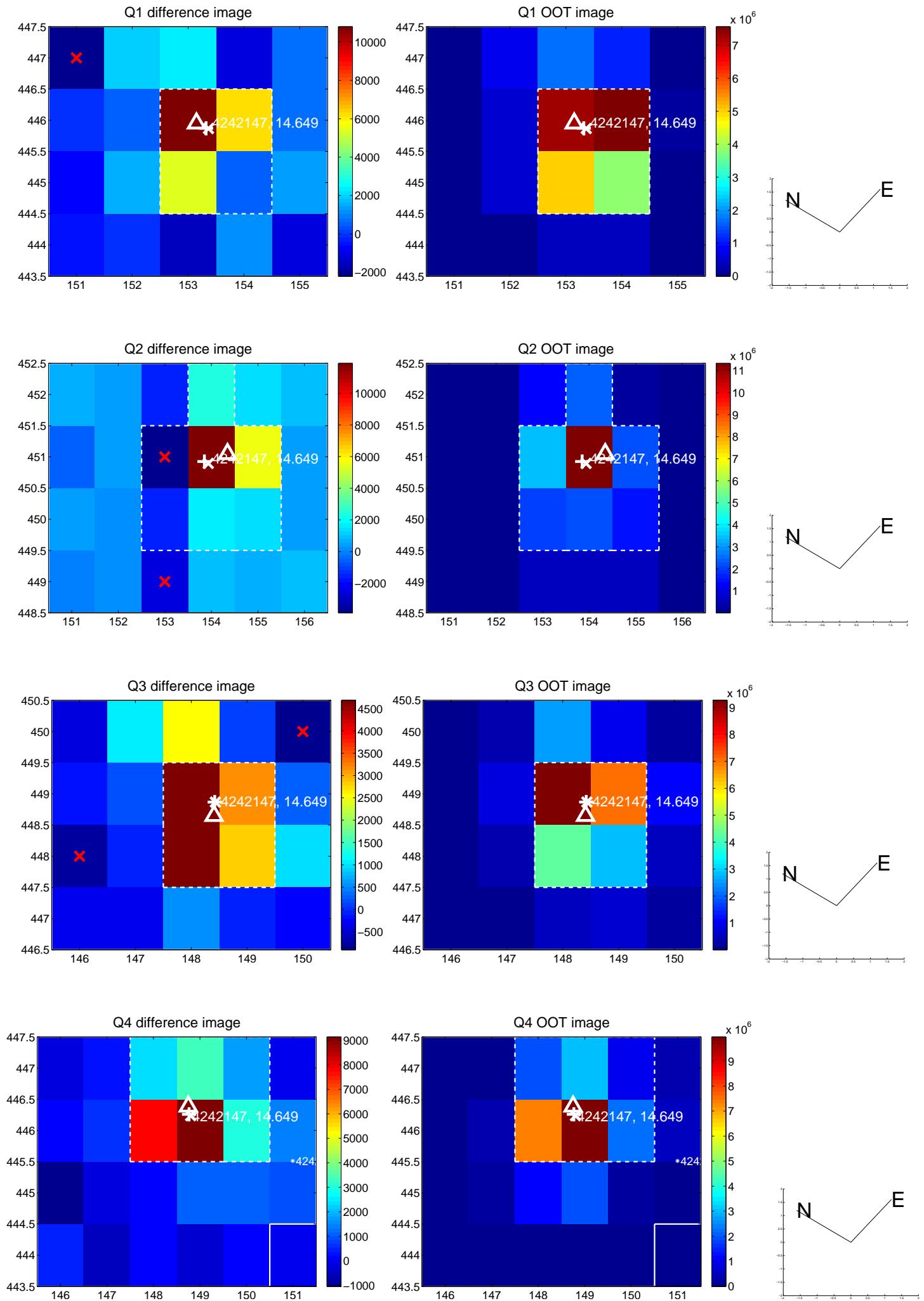
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.198 ± 0.151 | 1.31 | -0.129 ± 0.166 | 0.150 ± 0.130 |
| PRF-fit source offset from KIC position | 0.364 ± 0.135 | 2.70 | -0.168 ± 0.168 | 0.323 ± 0.118 |
| photometric centroid source offset | 0.58 ± 0.29 | 1.98 | 0.04 ± 0.30 | -0.57 ± 0.29 |

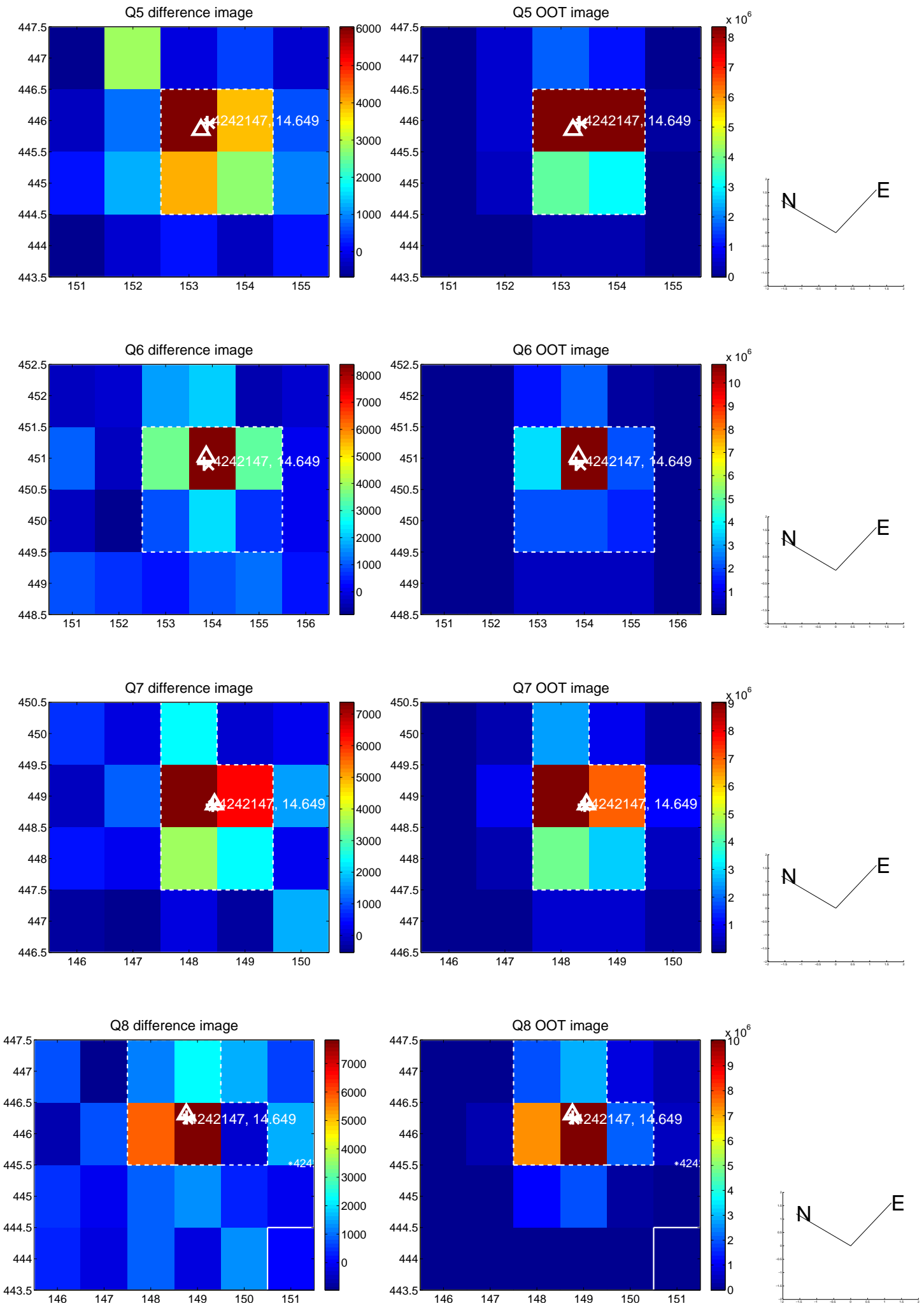


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

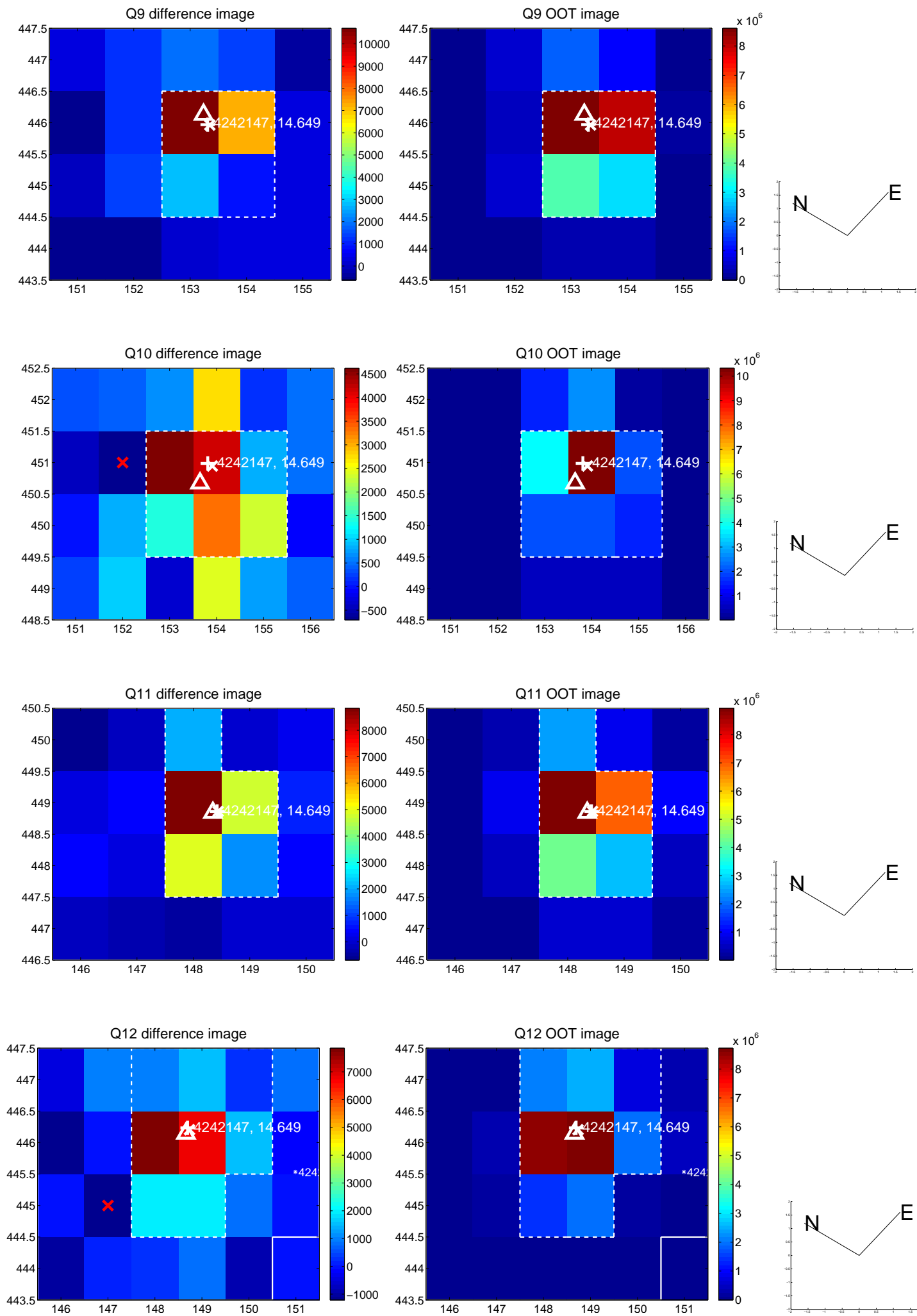
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



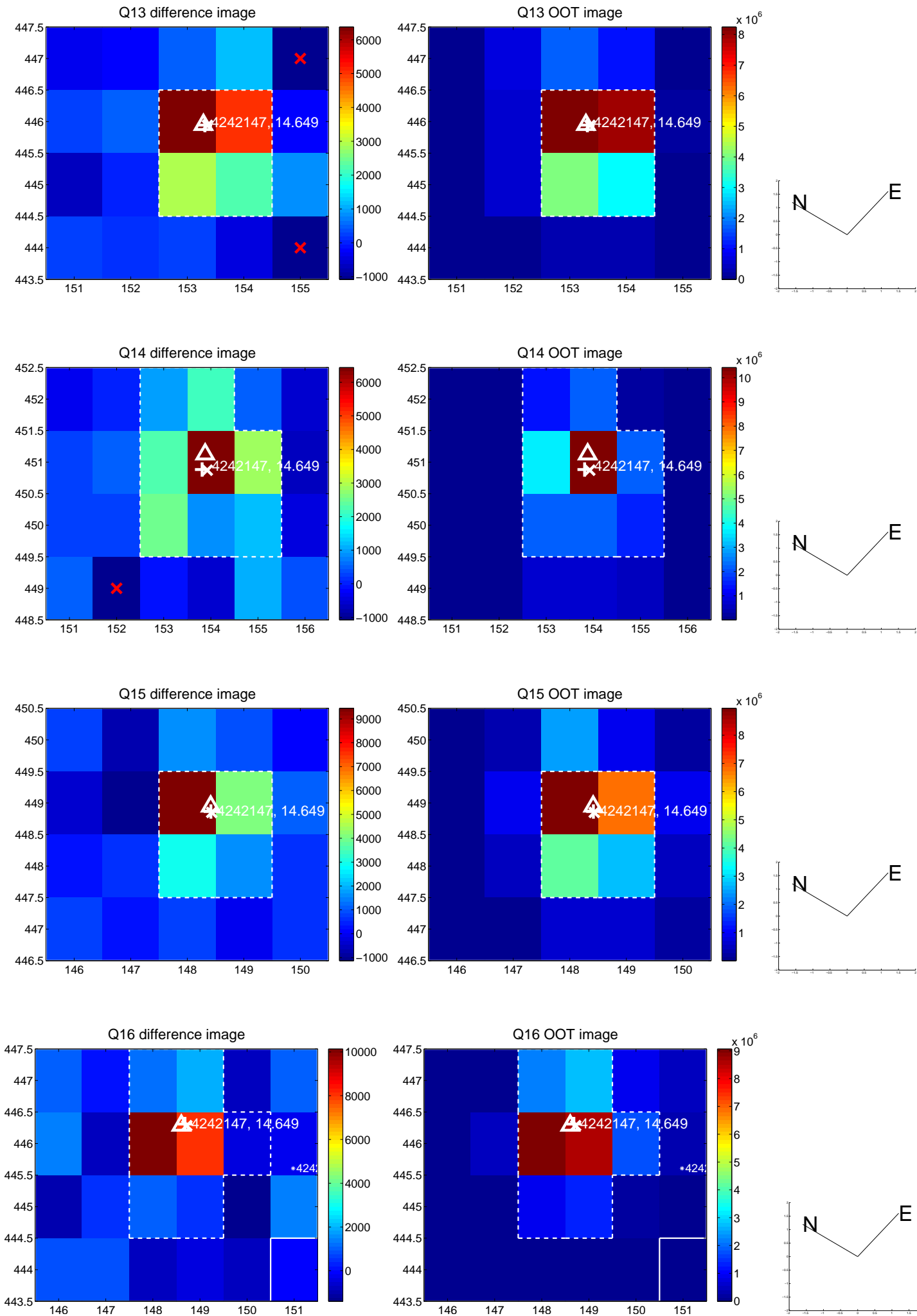
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



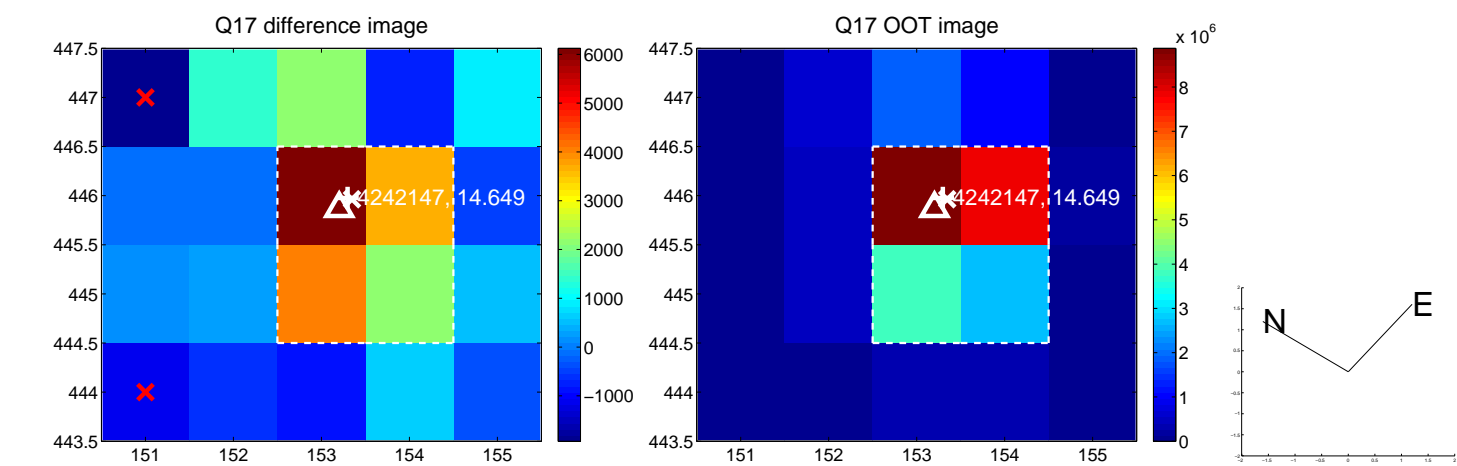
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



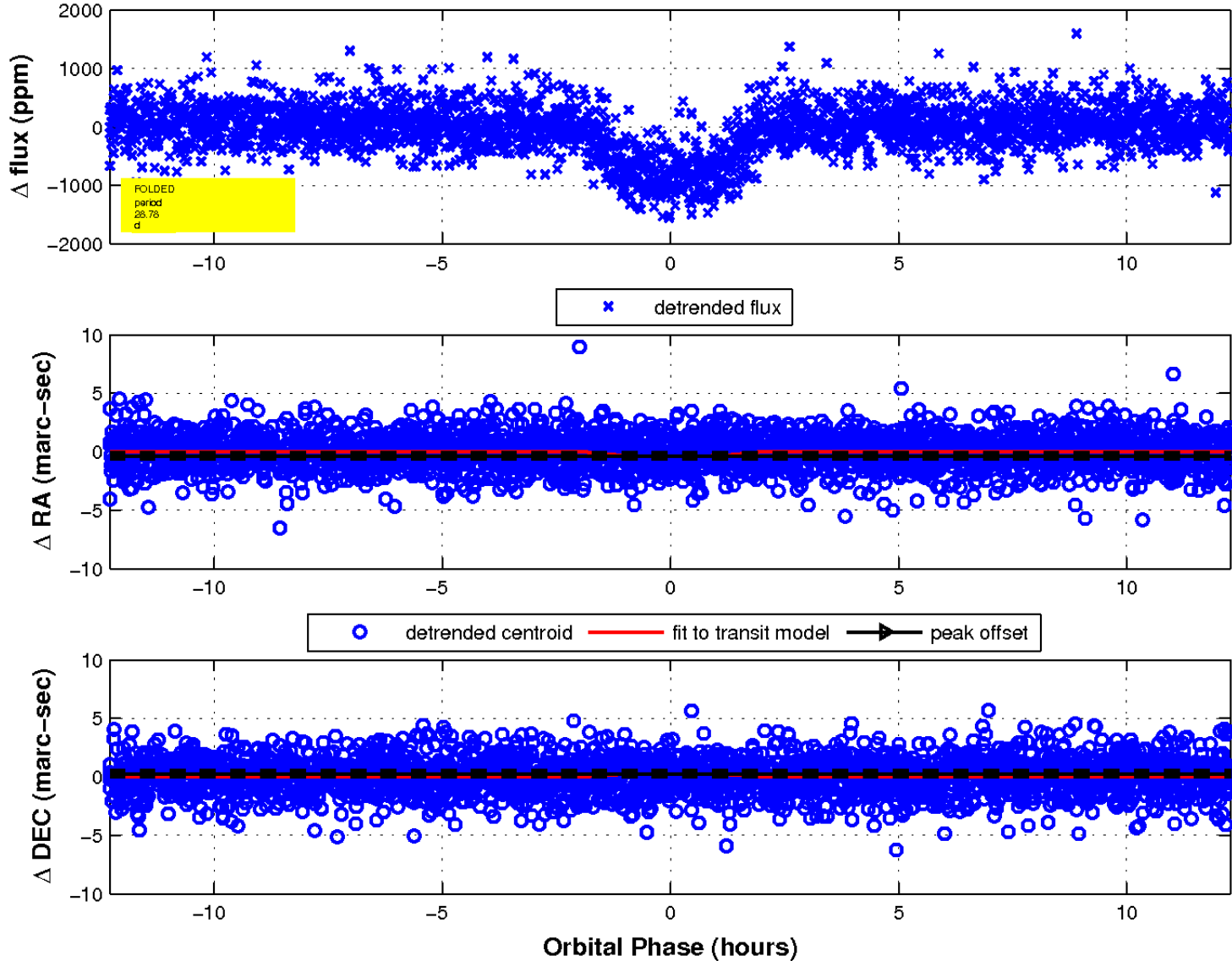
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

