

KIC 007429240

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007429240-01 | OBS | 4450.01 | 196.436950 | 173.689627 | 678.8 | 8.949 | 11.1 | 12.4 | 0.95 | 5462 | 2.73 | 1.72 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------|
| 007429240-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | CENT_FEW_DIFFS |

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

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

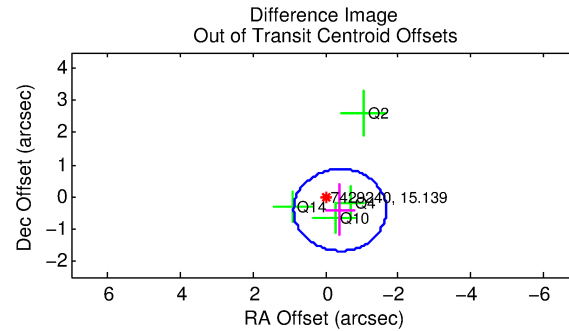
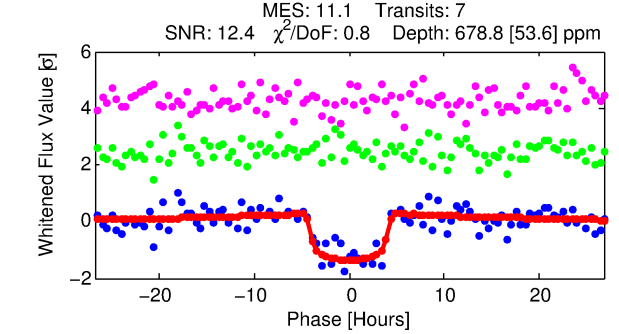
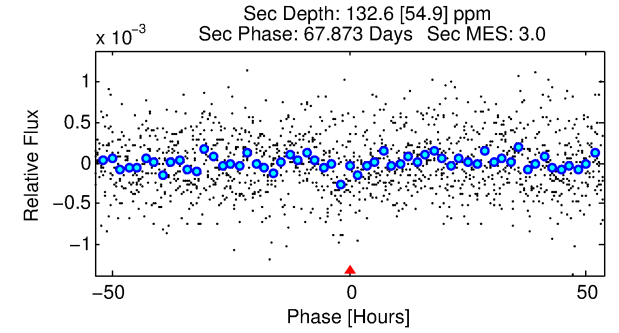
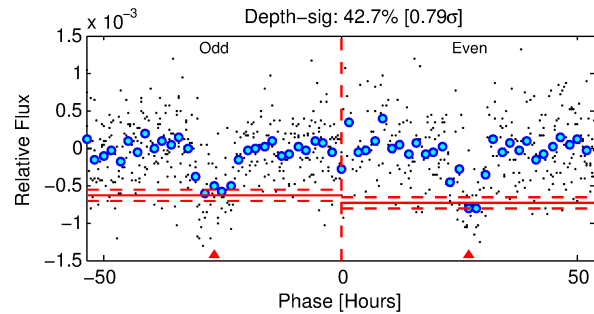
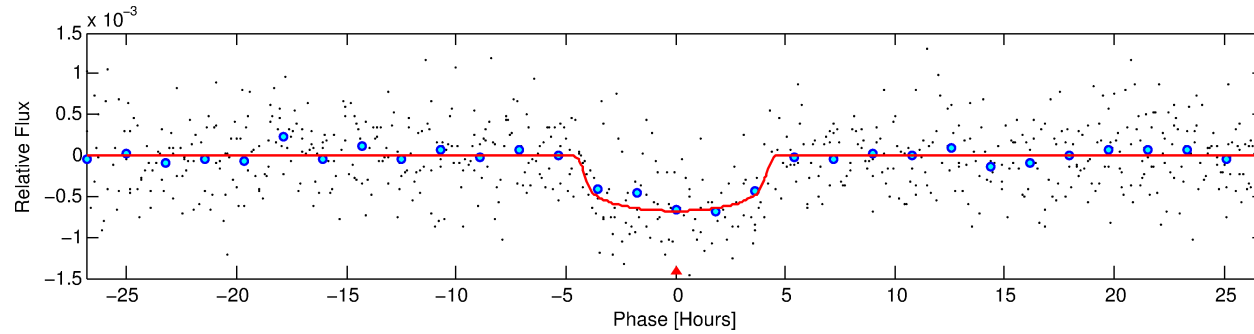
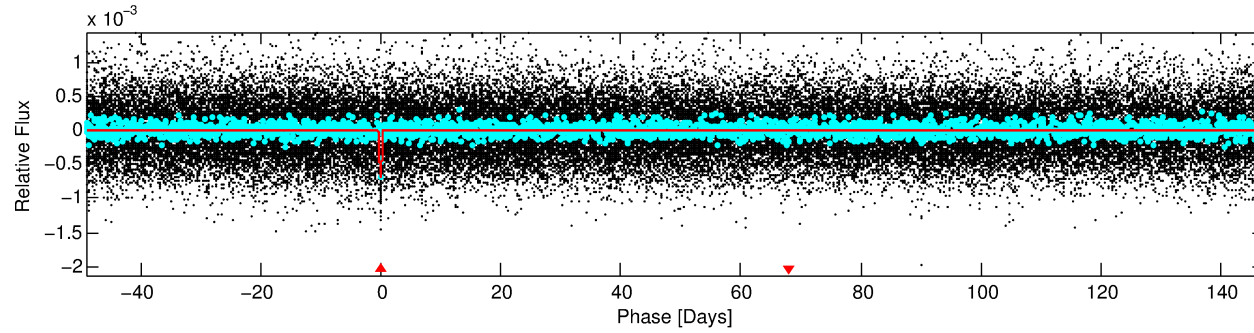
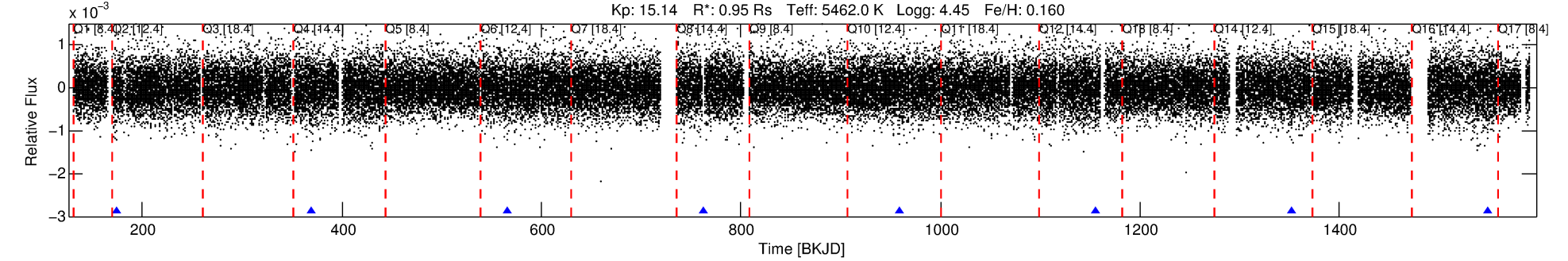
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007429240-01

No Significant Match Found

DV One-Page Summary

KIC: 7429240 Candidate: 1 of 1 Period: 196.437 d
KOI: K04450.01 Corr: 0.971



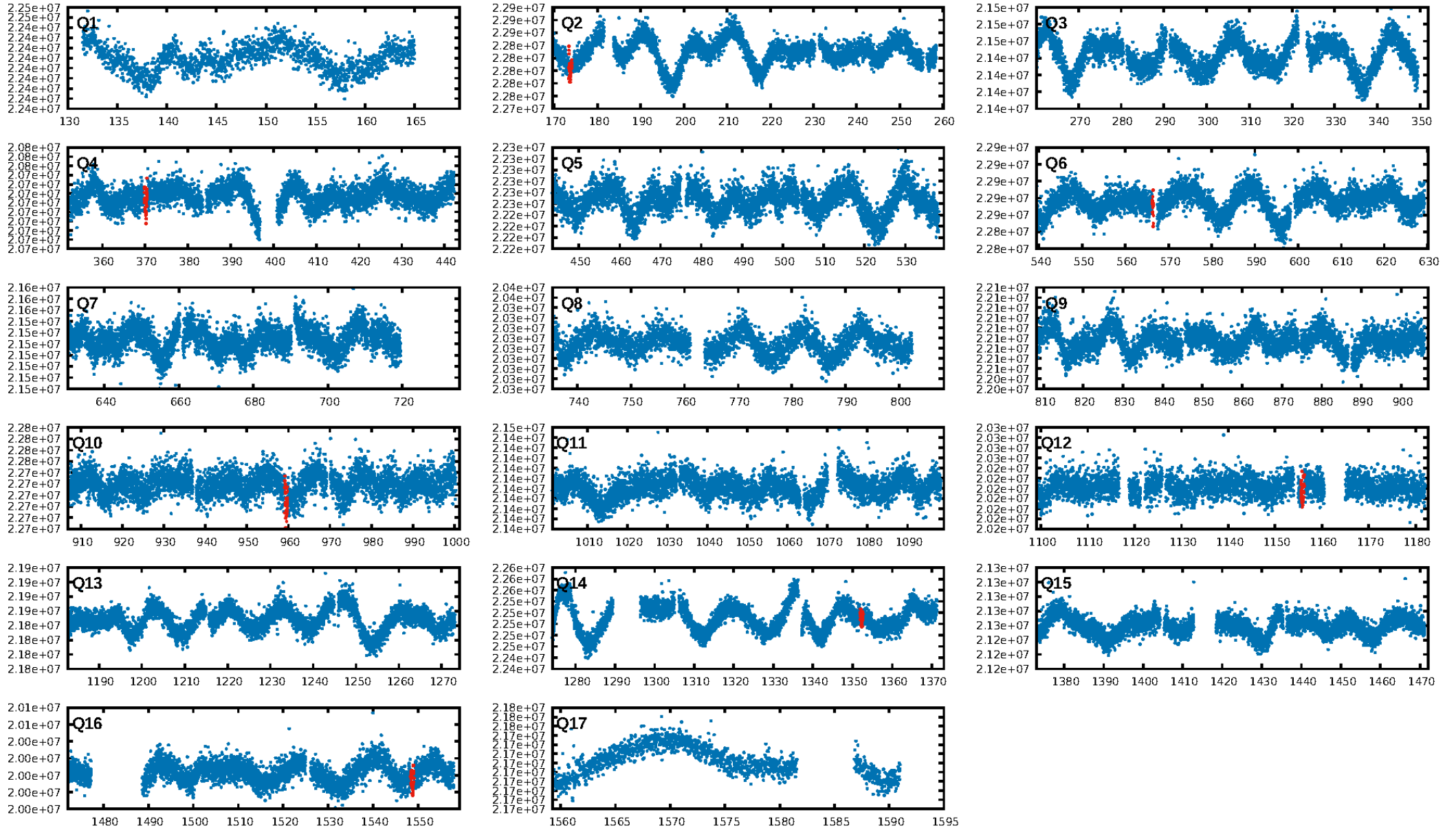
DV Fit Results:

Period = 196.43695 [0.00242] d
Epoch = 173.6896 [0.0109] BKJD
Rp/R* = 0.0264 [0.0067]
a/R* = 110.22 [110.25]
b = 0.79 [0.49]
Seff = 1.72 [0.31]
Teq = 292 [13] K
Rp = 2.73 [0.77] Re
a = 0.6443 [0.0706] AU
Ag = 4063.84 [2748.25] [1.48 σ]
Teffp = 3604 [593] K [5.59 σ]

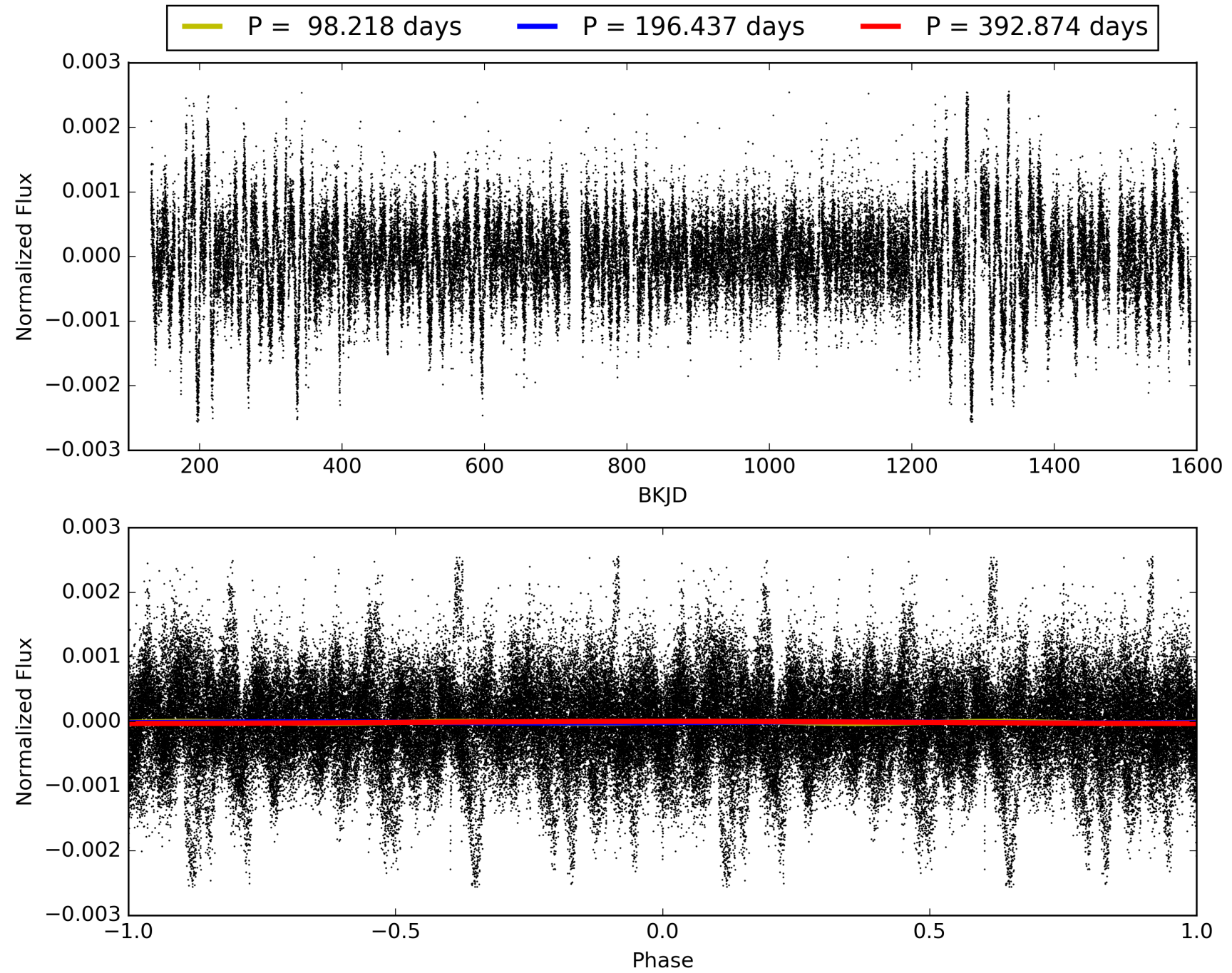
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.72e-25
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 3.743
Centroid-sig: 55.5%
Centroid-so: 0.856 arcsec [0.86 σ]
OotOffset-rm: 0.574 arcsec [1.35 σ]
KicOffset-rm: 0.524 arcsec [1.42 σ]
OotOffset-st: 3/0/1/0 [4]
KicOffset-st: 3/0/1/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 007429240-01, PDC Light Curves

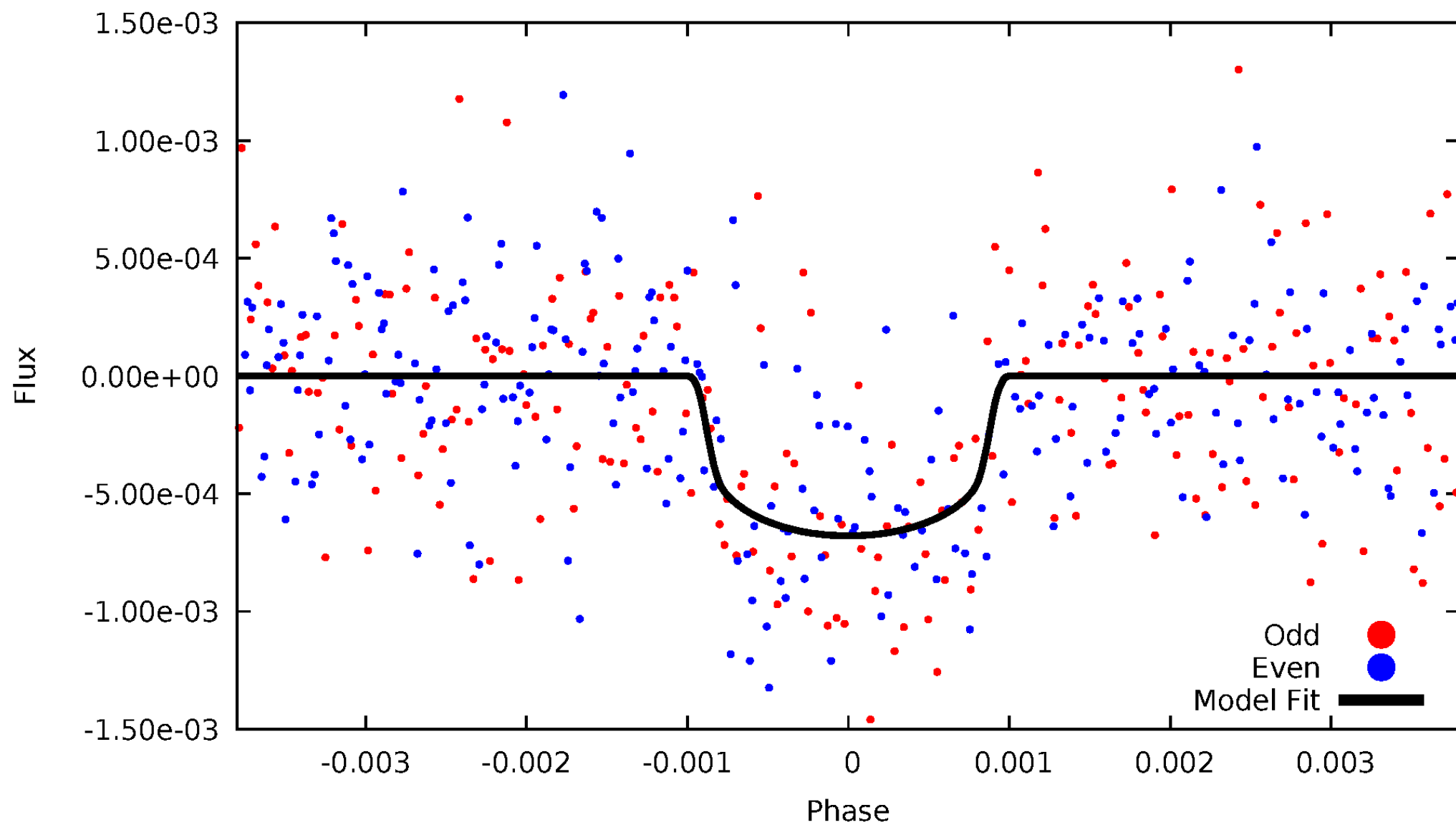


TCE 007429240-01



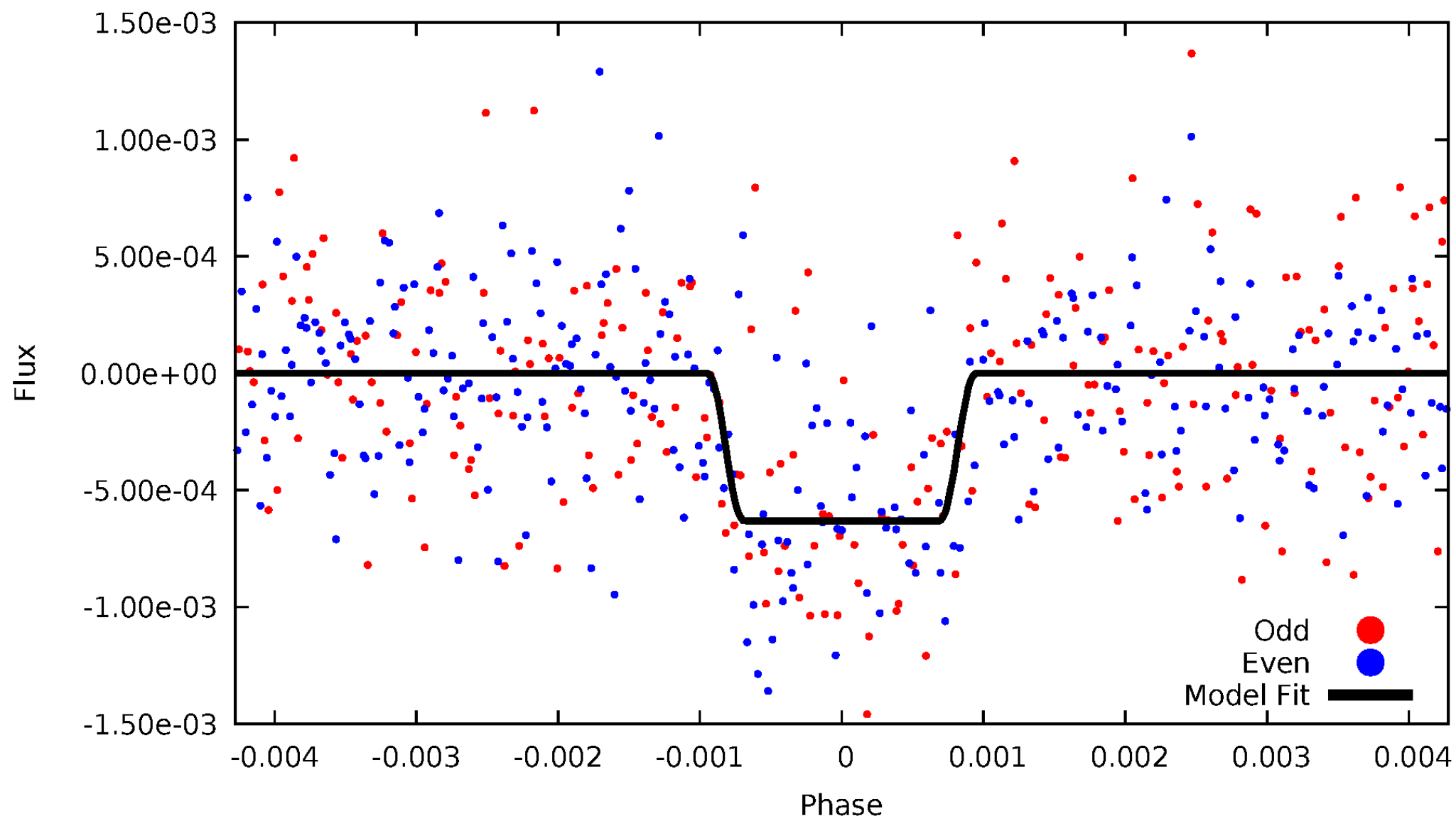
DV Odd/Even

TCE 007429240-01

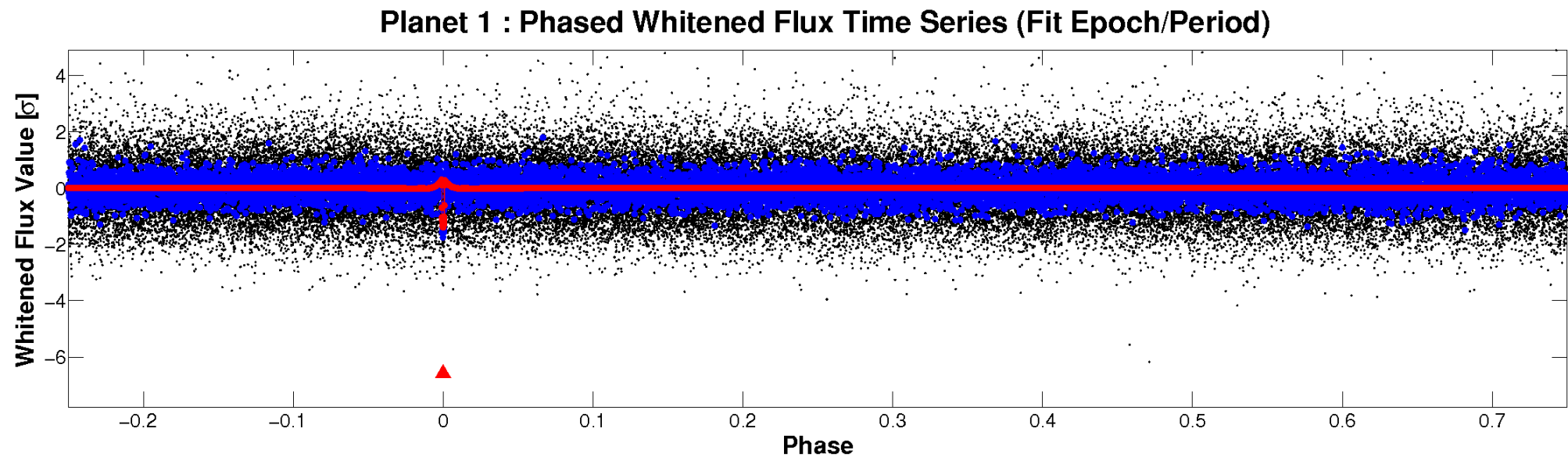
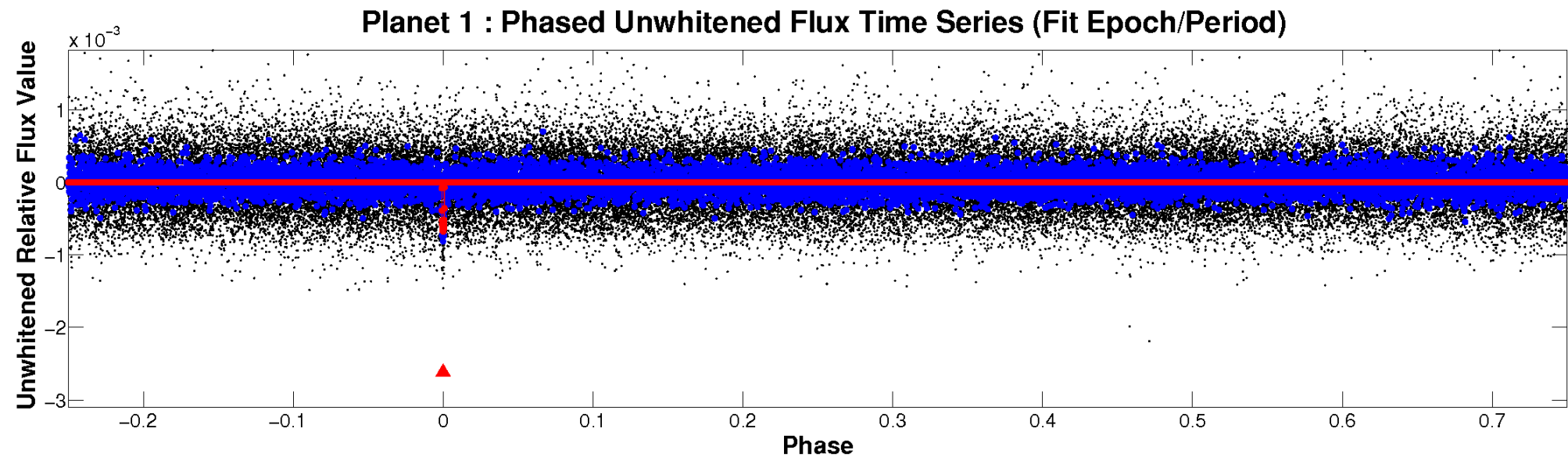


ALT Odd/Even

TCE 007429240-01

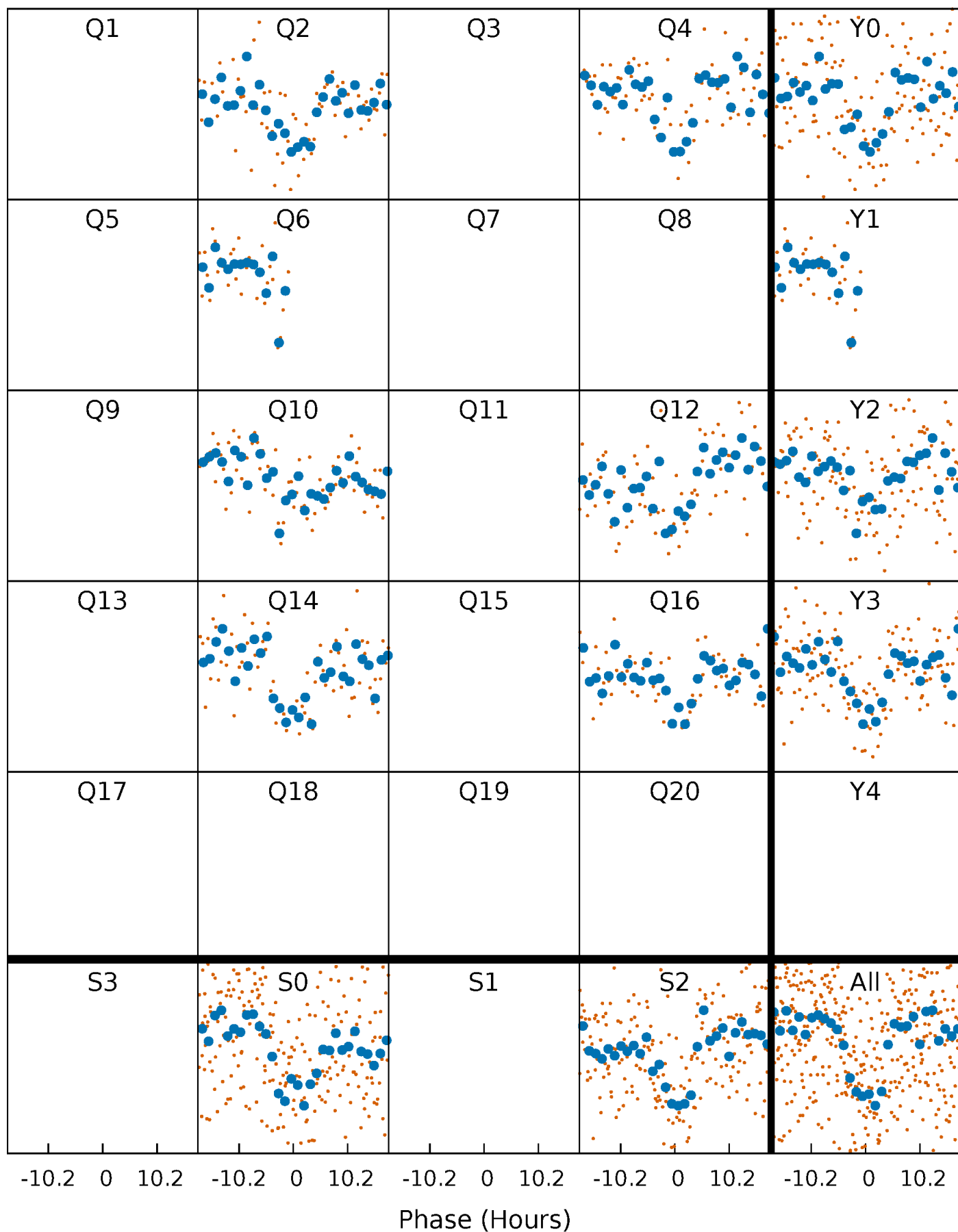


Non-Whitened Vs. Whitened Light Curve



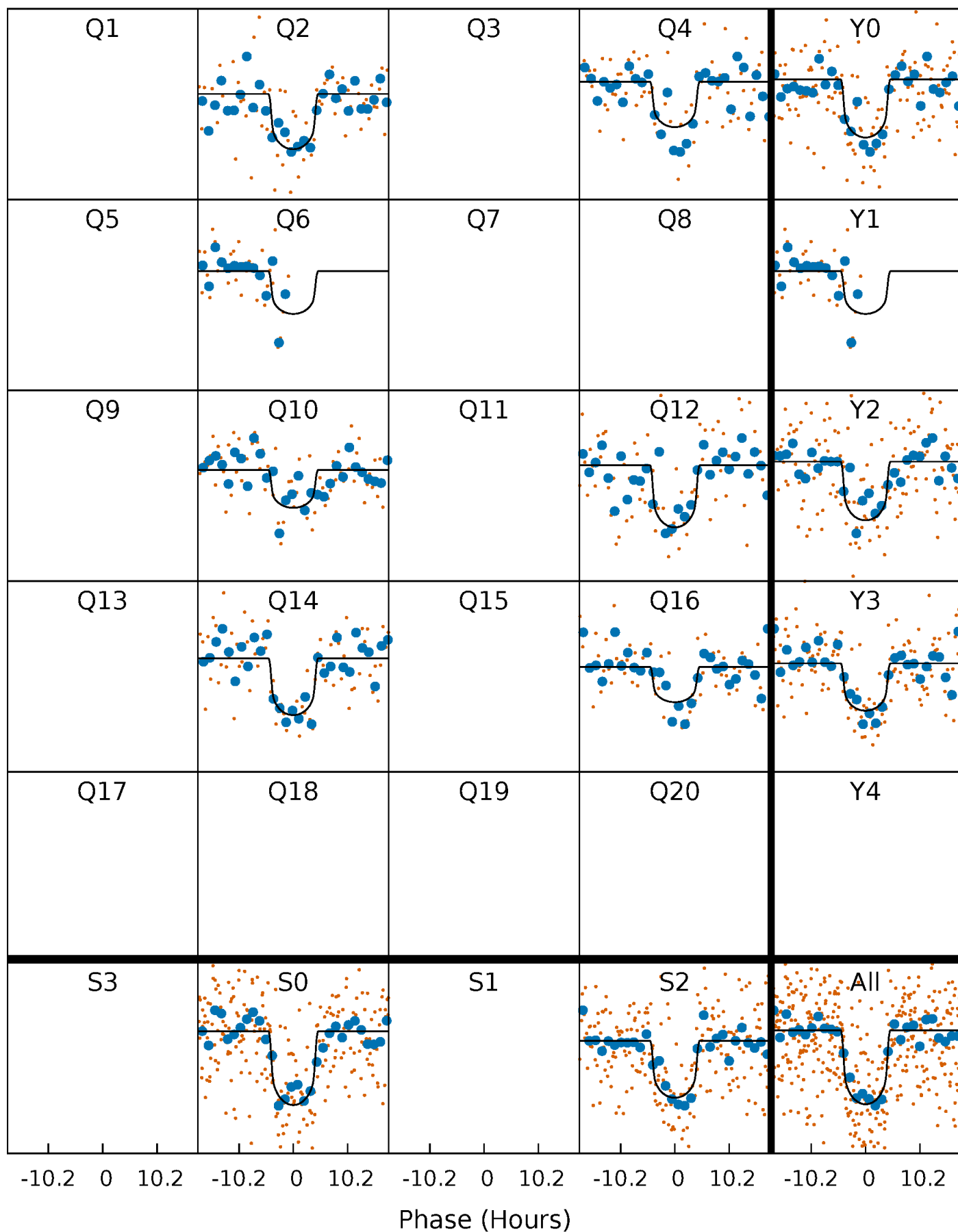
PDC Quarter-Phased Transit Curves

TCE 007429240-01 P=196.436950 Days $T_0=173.689627$ (BKJD)



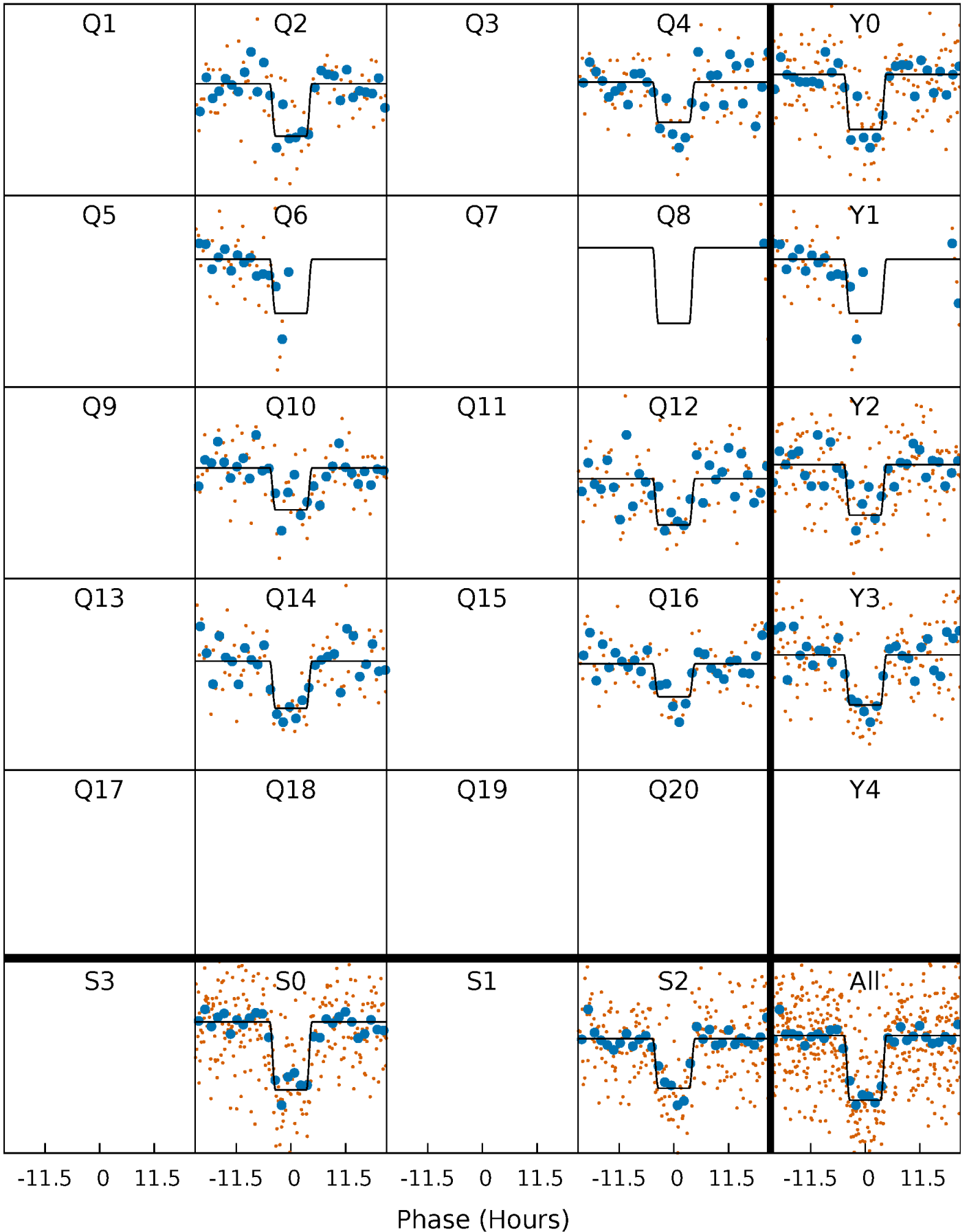
DV Quarter-Phased Transit Curves

TCE 007429240-01 P=196.436950 Days $T_0=173.689627$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

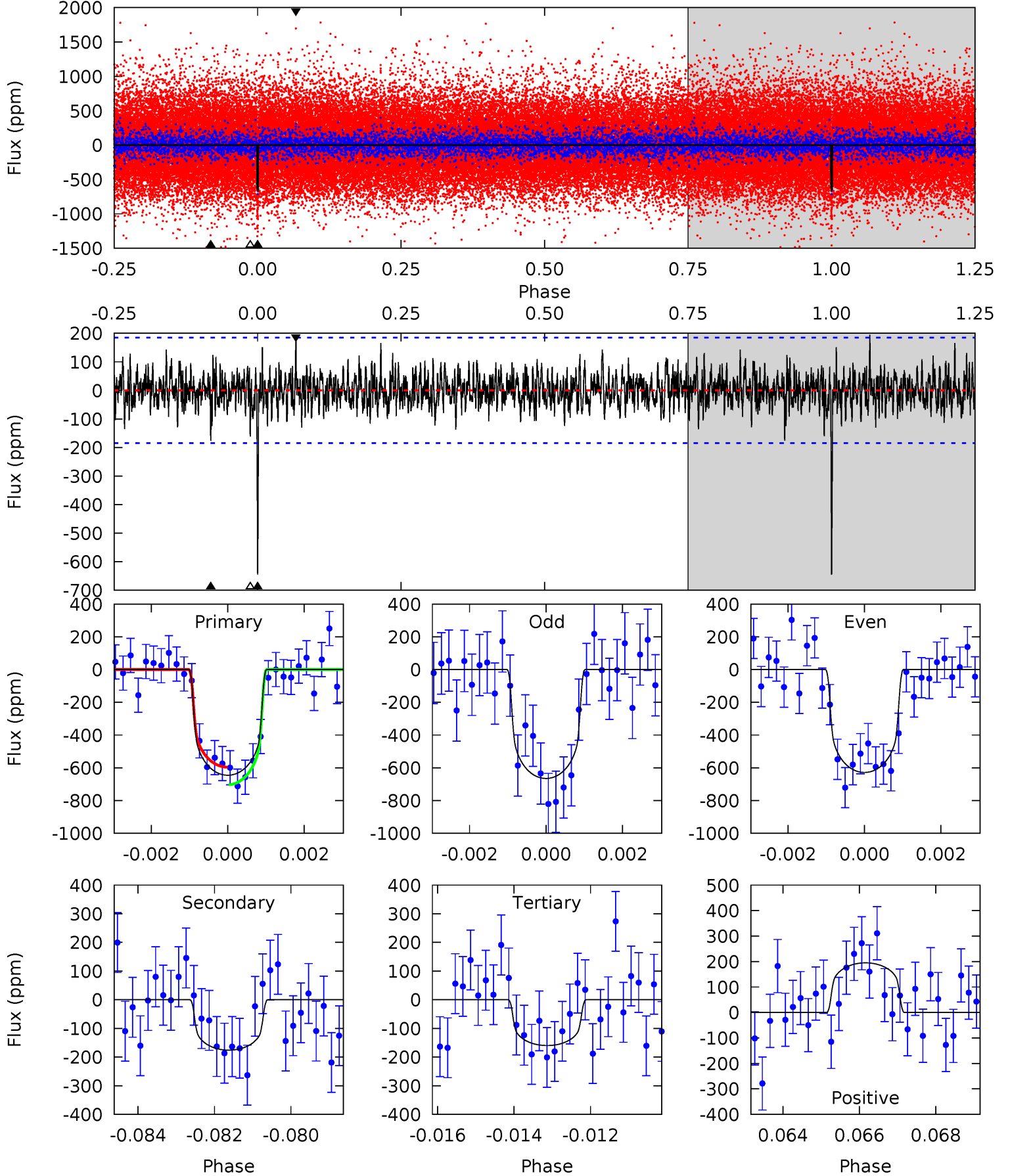
TCE 007429240-01 P=196.441435 Days $T_0=173.676835$ (BKJD)



DV Model-Shift Uniqueness Test

007429240-01, P = 196.436950 Days, E = 173.689627 Days

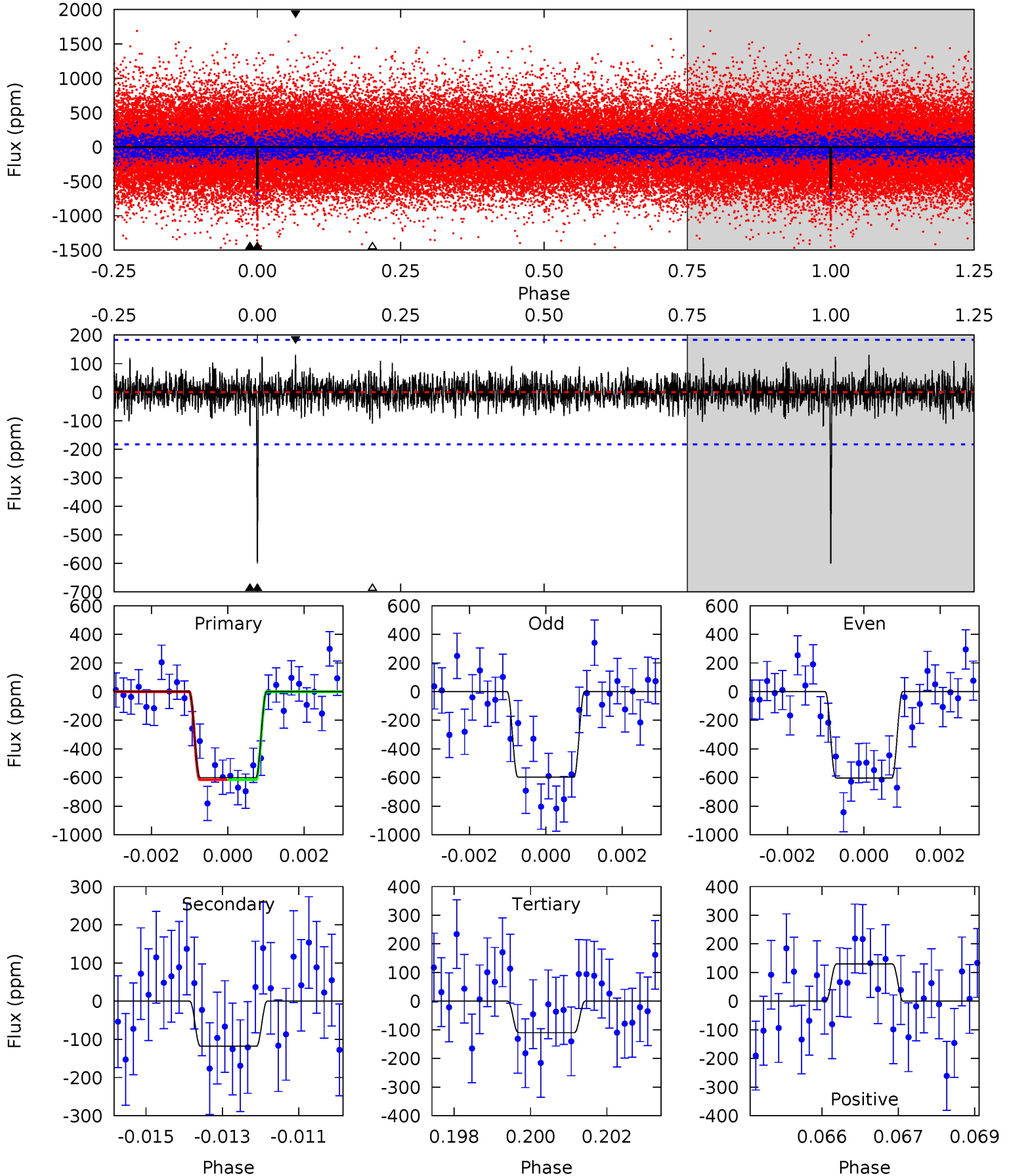
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.6 | 5.08 | 4.62 | 5.63 | 5.33 | 3.10 | 1.33 | 14.0 | 13.0 | 0.46 | -0.55 | 0.53 | 0.97 | 0.23 | 1.55 |



Alt Model-Shift Uniqueness Test

007429240-01, $P = 196.441435$ Days, $E = 173.676835$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.5 | 3.44 | 3.20 | 3.78 | 5.34 | 3.11 | 0.92 | 14.3 | 13.7 | 0.24 | -0.34 | 0.09 | 0.99 | 0.18 | 0.01 |



Stellar Parameters For KIC 007429240

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5462^{+82}_{-82} | $4.452^{+0.072}_{-0.096}$ | $0.160^{+0.150}_{-0.150}$ | $0.946^{+0.115}_{-0.077}$ | $0.924^{+0.053}_{-0.048}$ | $1.539^{+0.433}_{-0.433}$ |
| | +2%/-2% | +2%/-2% | +94%/-94% | +12%/-8% | +6%/-5% | +28%/-28% |
| 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 007429240-01 / KOI 4450.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|----------------------|------------------------|
| DV | -176 ± 35 | $2.74^{+0.75}_{-0.68}$ | 409^{+15}_{-13} | 4126^{+498}_{-355} | 5237^{+4548}_{-2122} |
| Alt. | -118 ± 34 | $2.58^{+0.74}_{-0.72}$ | 408^{+15}_{-12} | 3905^{+503}_{-358} | 3883^{+4044}_{-1711} |

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 $A_{obs} \gg 1.0$

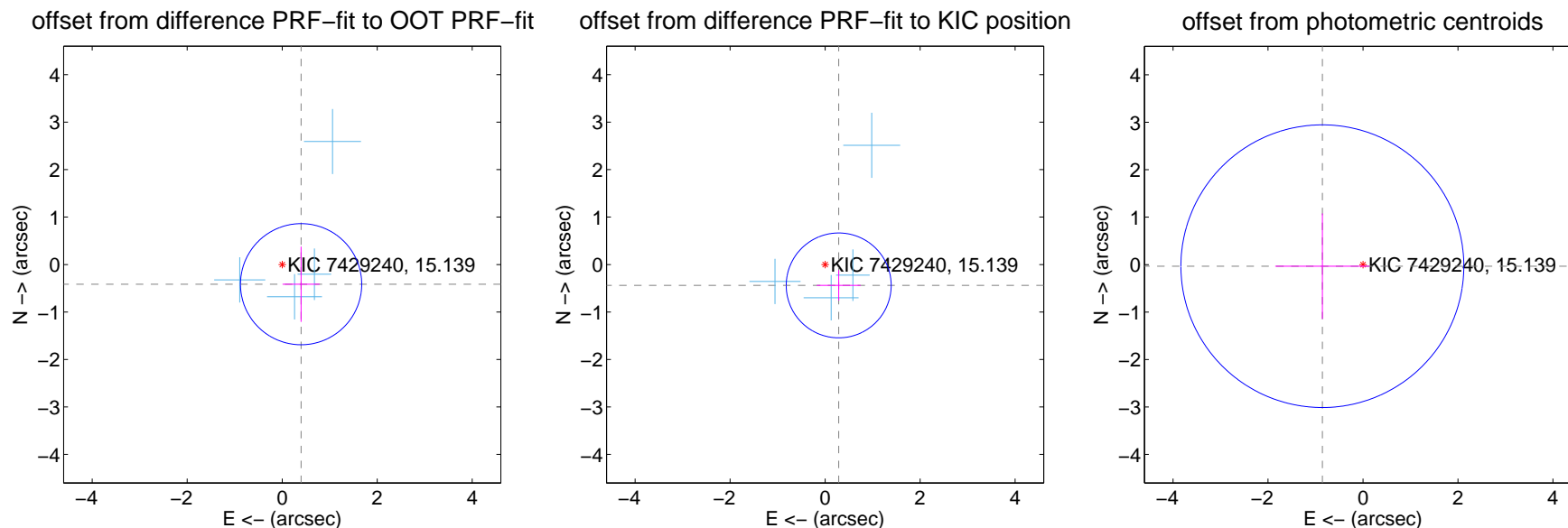
DV Centroid Data

Supplemental centroid analysis for 007429240-01. Kepler magnitude: 15.14. Transit SNR 12.37

There are 4 quarters with good PRF difference image offsets

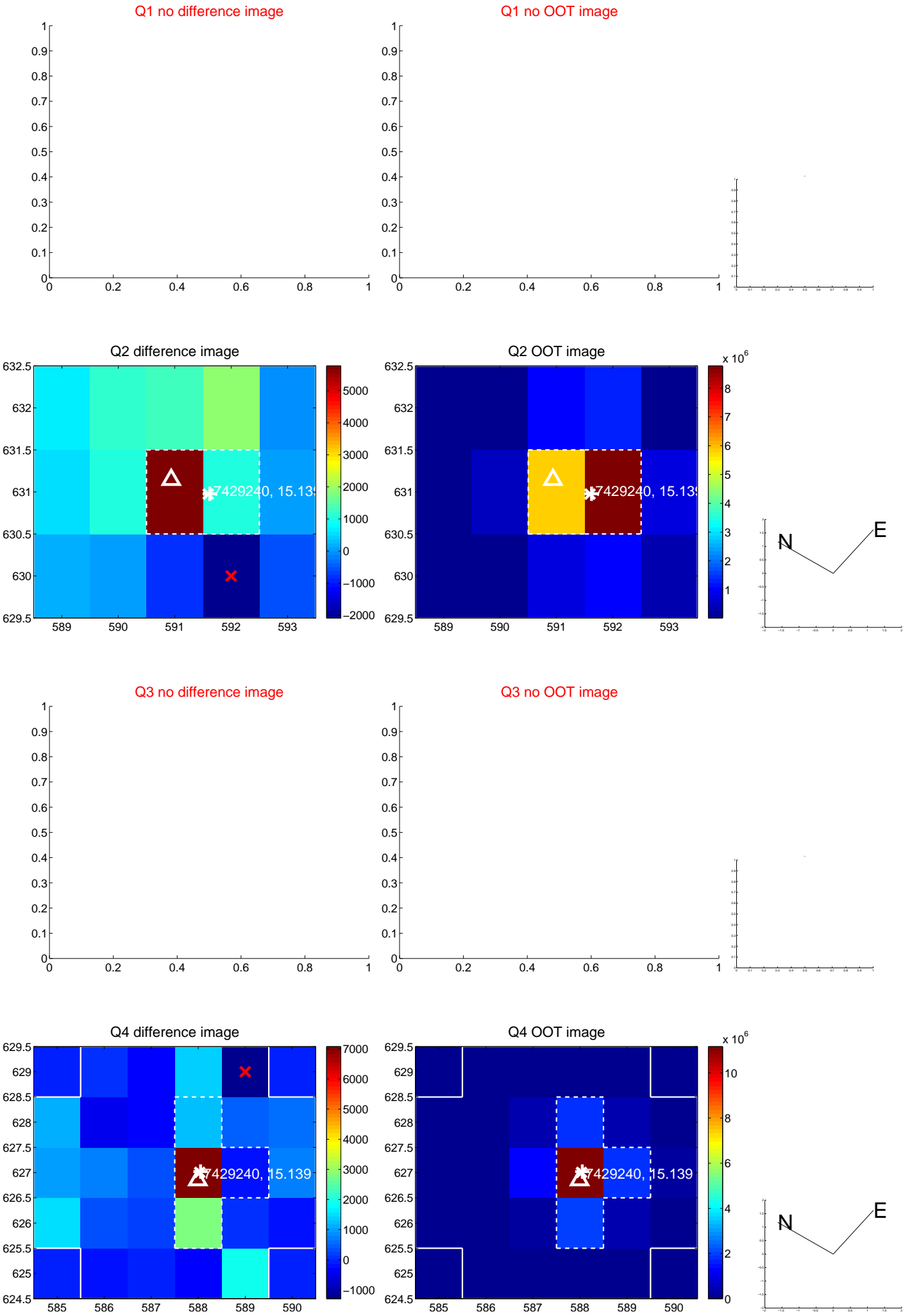
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.574 ± 0.425 | 1.35 | -0.398 ± 0.389 | -0.414 ± 0.793 |
| PRF-fit source offset from KIC position | 0.524 ± 0.368 | 1.42 | -0.286 ± 0.462 | -0.440 ± 0.320 |
| photometric centroid source offset | 0.86 ± 0.99 | 0.86 | 0.86 ± 0.99 | -0.03 ± 1.11 |



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.

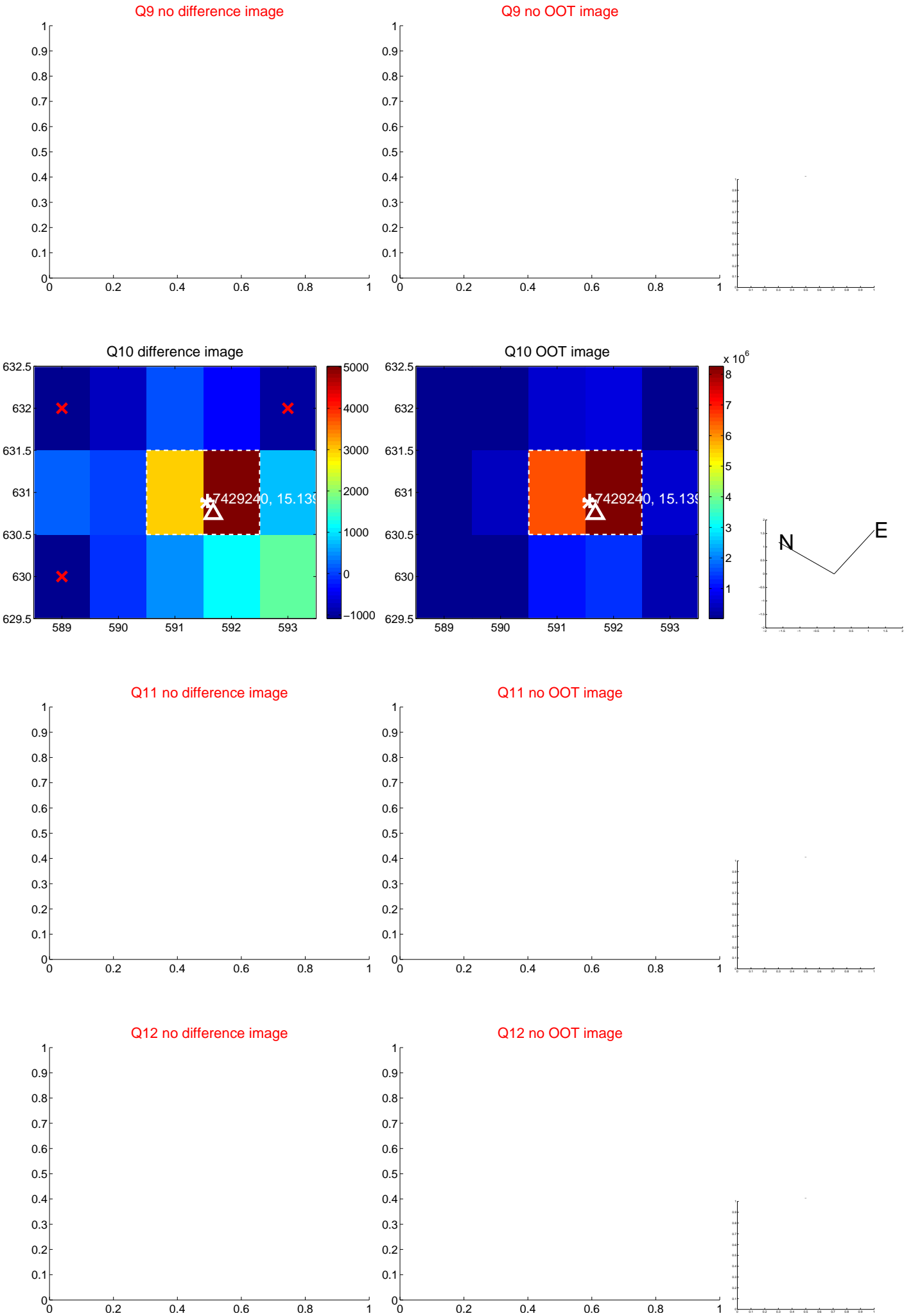
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



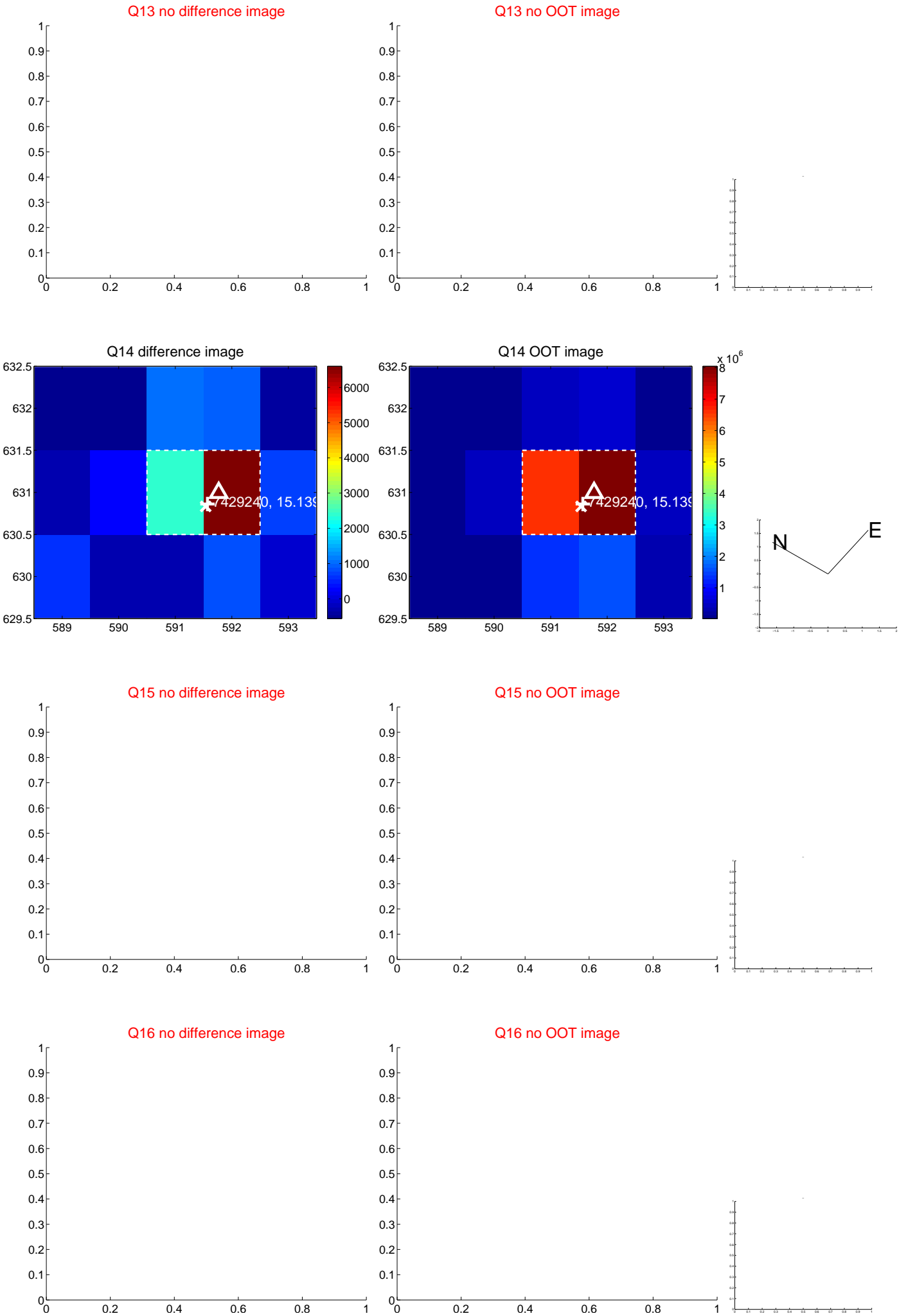
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



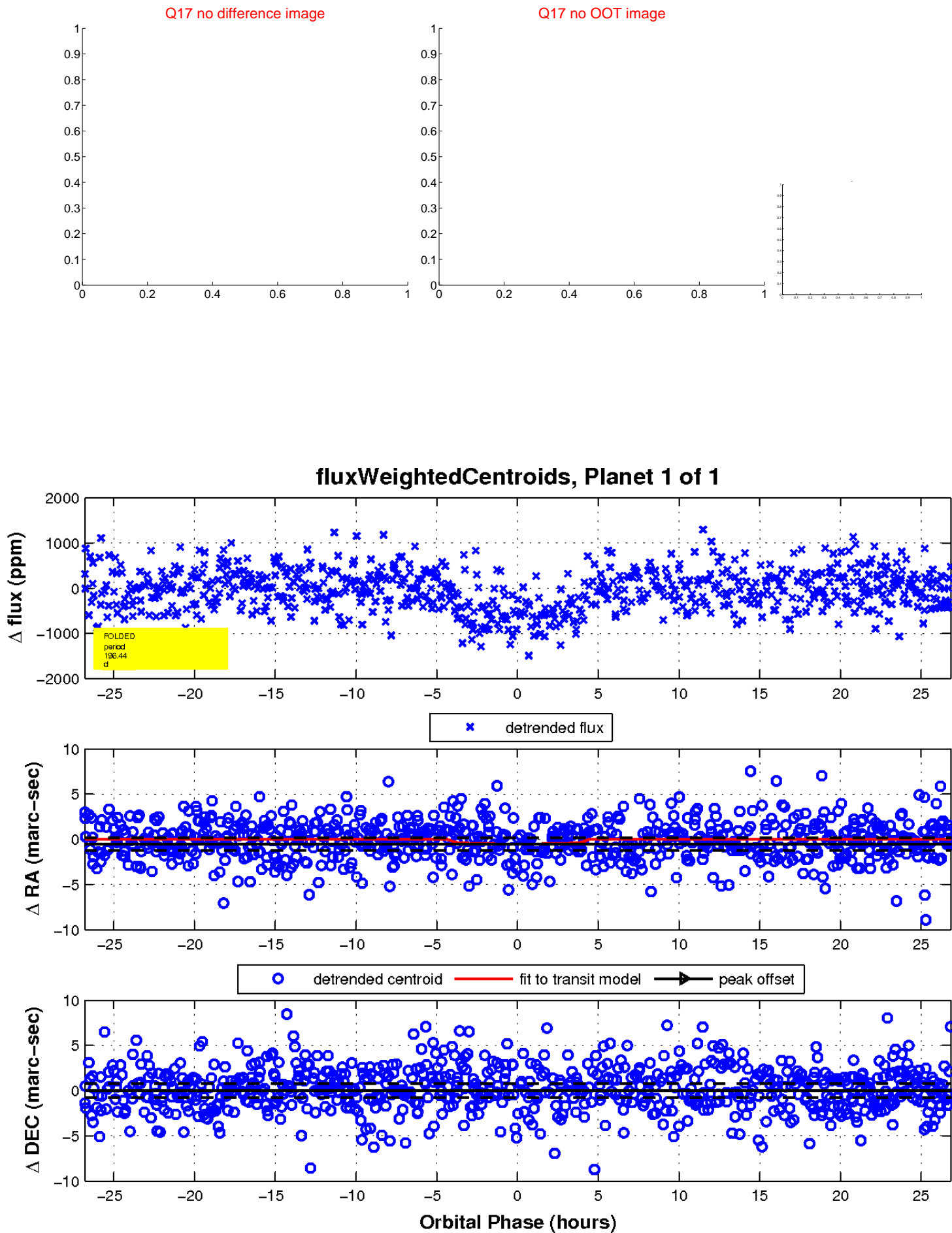
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

