

KIC 006441836

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006441836-01 | OBS | No | 0.594450 | 131.708743 | 1.2 | 2.031 | 10.6 | 4.5 | 3.09 | 8452 | 0.41 | 143462.29 |
| 006441836-02 | OBS | No | 0.594565 | 131.957294 | 0.0 | 3.514 | 8.8 | 0.0 | 3.09 | 8452 | 0.02 | 143425.31 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 006441836-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_SATURATED |
| 006441836-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED |

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

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

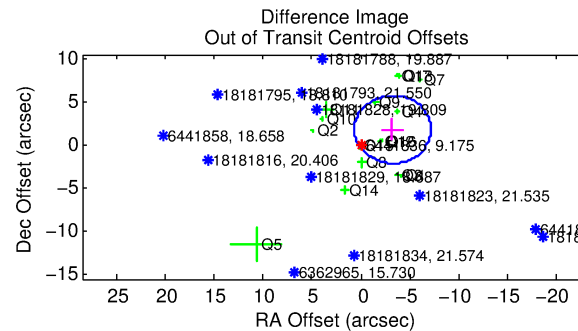
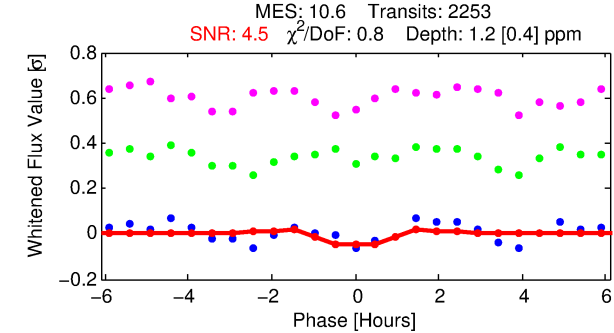
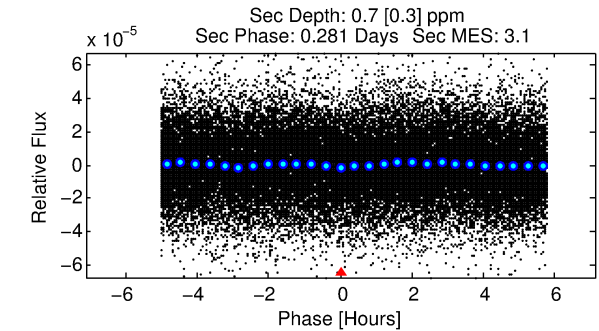
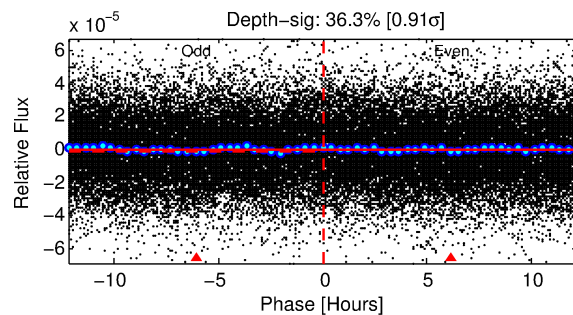
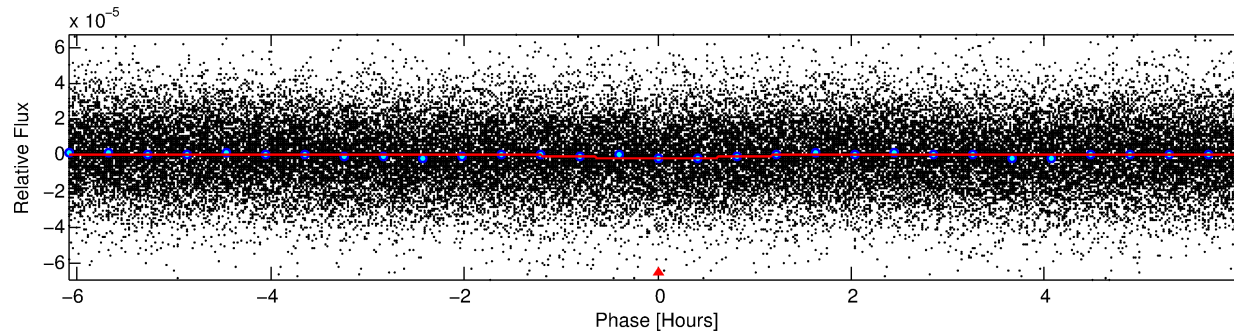
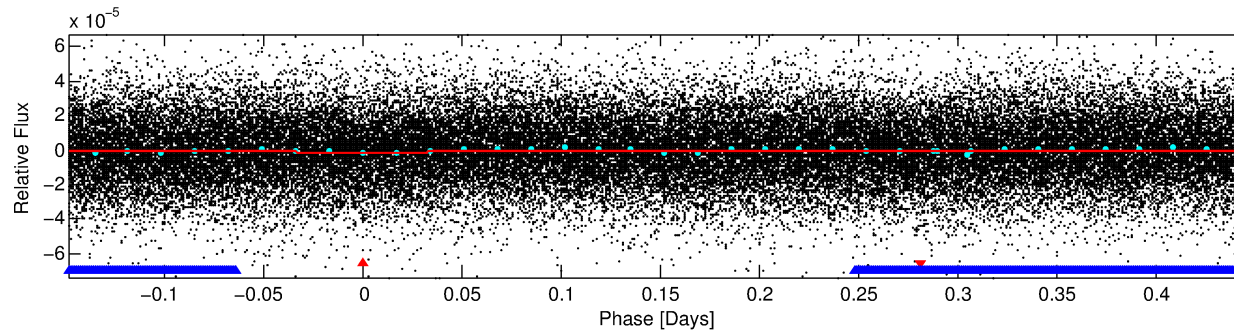
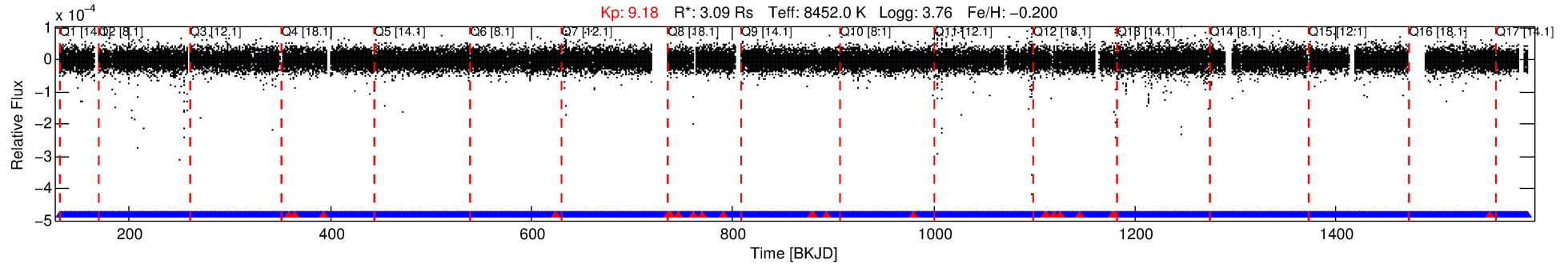
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006441836-01

No Significant Match Found

DV One-Page Summary

KIC: 6441836 Candidate: 1 of 2 Period: 0.594 d



DV Fit Results:

Period = 0.59445 [0.00002] d
Epoch = 131.7087 [0.0046] BKJD
 $R_p/R^* = 0.0012$ [0.0002]
 $a/R^* = 1.26$ [0.26]
 $b = 0.93$ [0.08]
 $\text{Seff} = 143462.29$ [100534.09]
 $\text{Teq} = 4963$ [869] K
 $R_p = 0.41$ [0.19] R_e
 $a = 0.0175$ [0.0074] AU
 $\text{Ag} = 0.73$ [0.63] $[-0.43\sigma]$
 $\text{Teffp} = 7089$ [1017] K [1.59 σ]

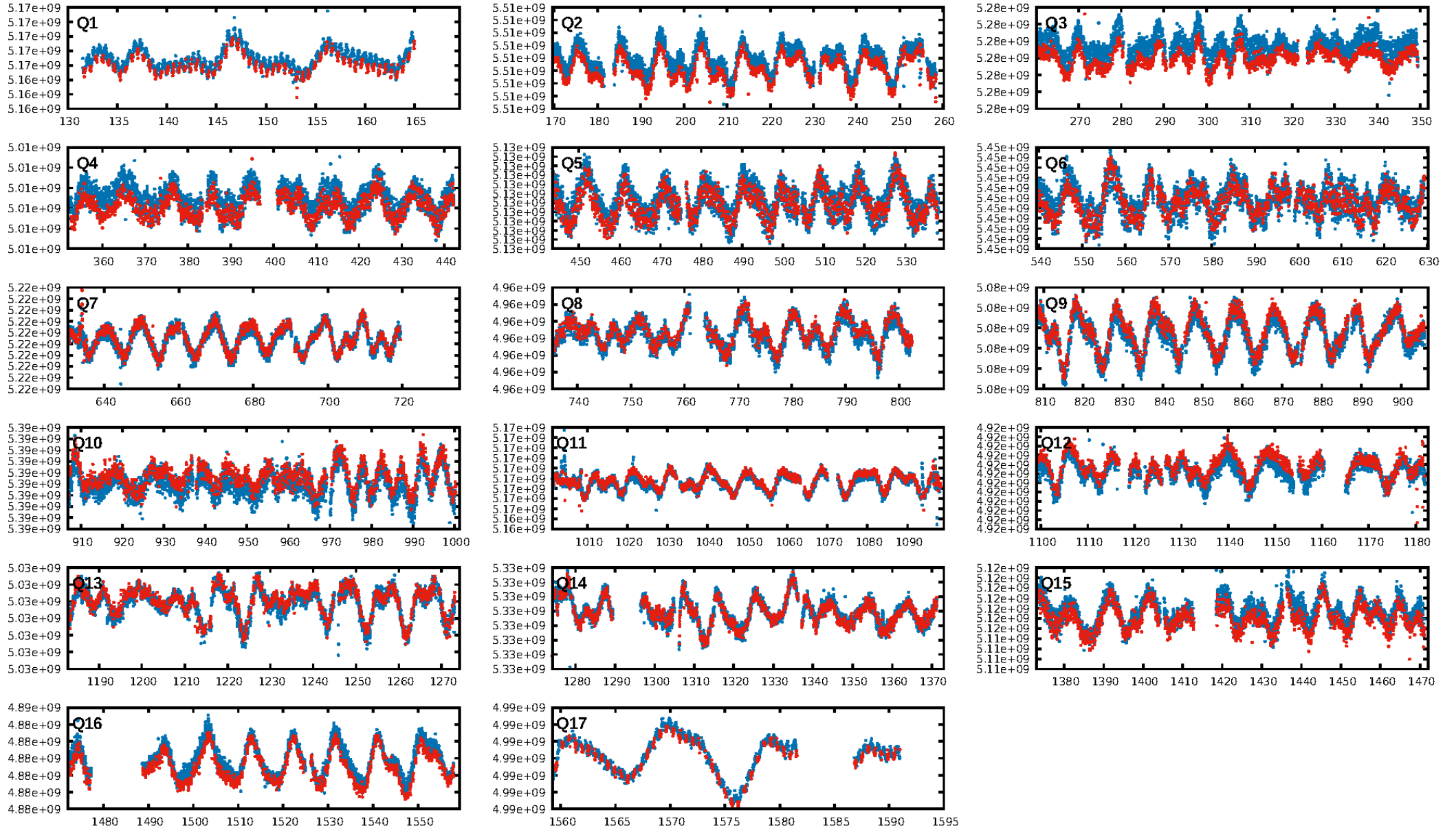
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.07e-15
RollingBand-fgt: 0.99 [2128/2151]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 3.699 arcsec [2.83 σ]
KicOffset-rm: 3.197 arcsec [2.40 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.00 [0/16]
DiffImageOverlap-fno: 0.00 [0/17]

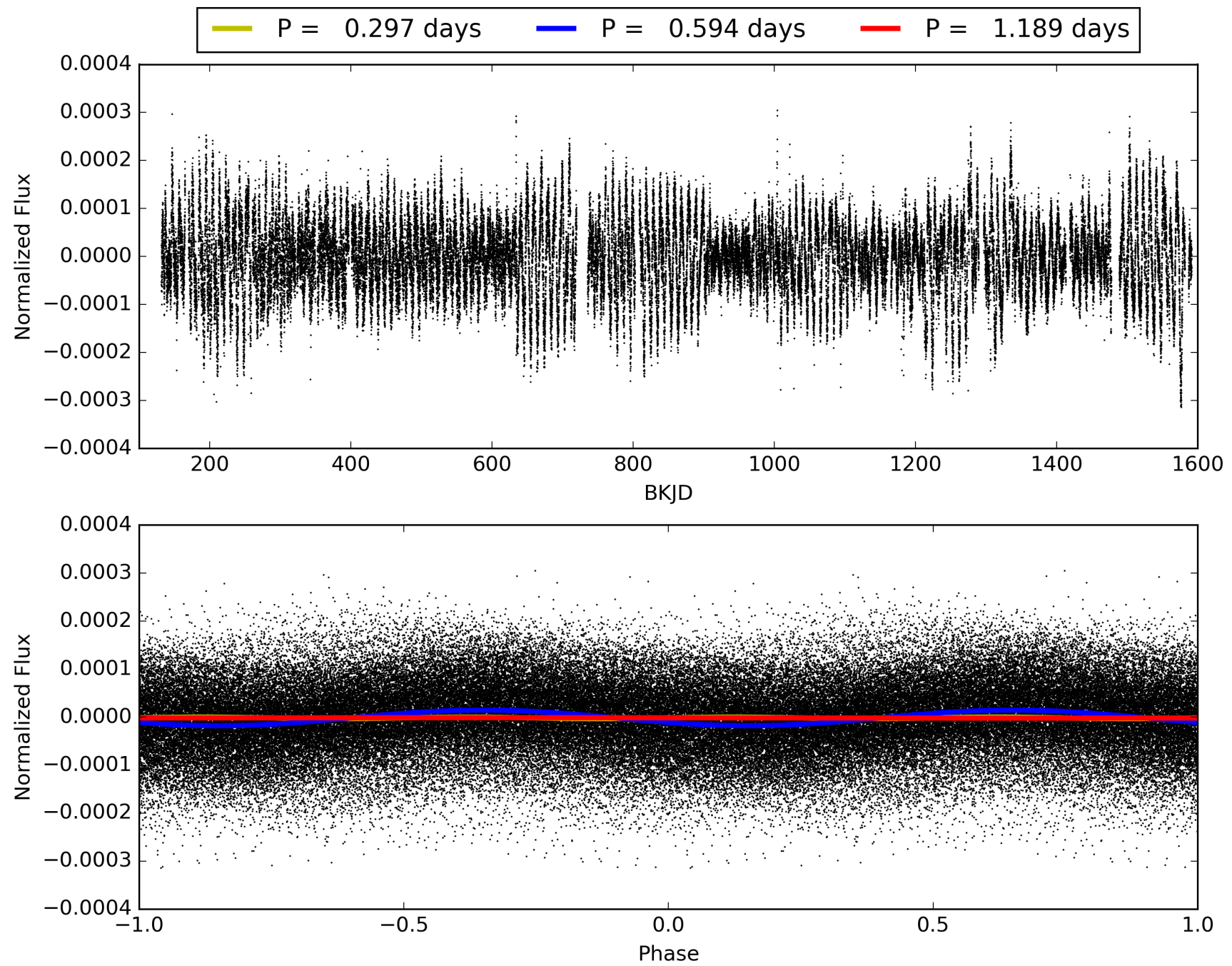
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:53:55 Z

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

TCE 006441836-01, PDC Light Curves

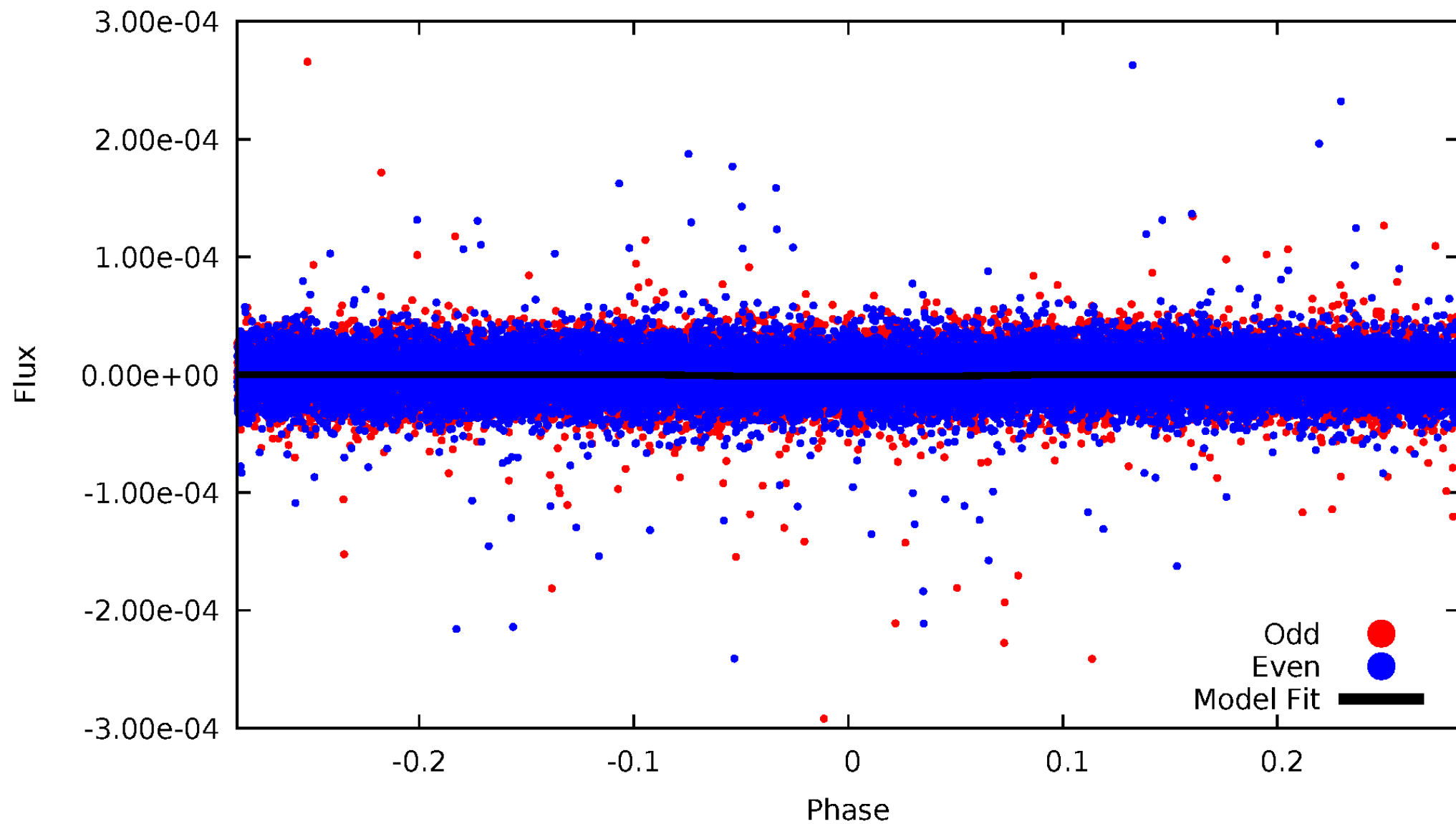


TCE 006441836-01



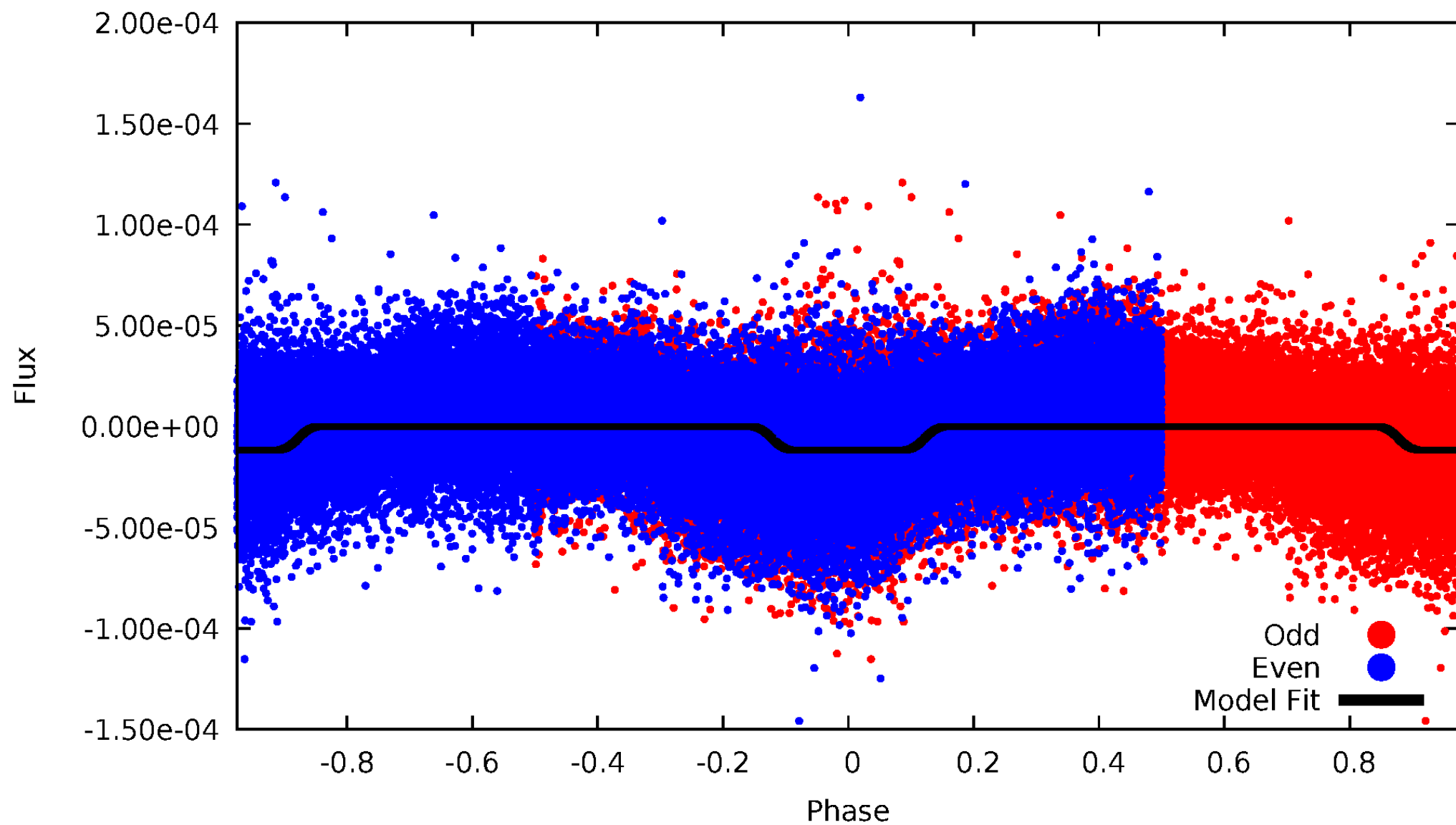
DV Odd/Even

TCE 006441836-01



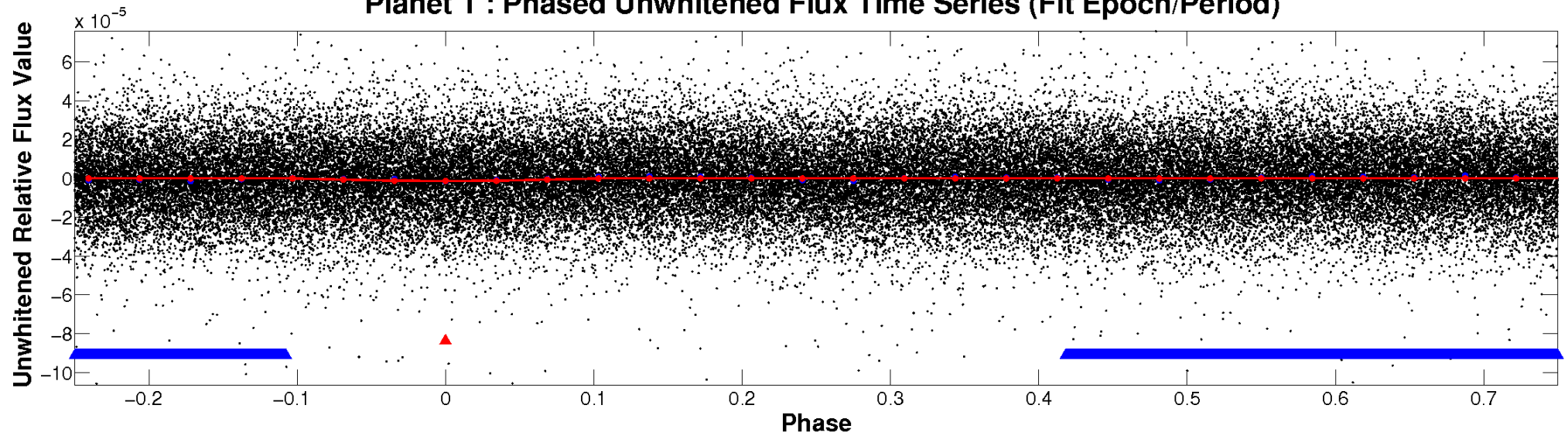
ALT Odd/Even

TCE 006441836-01

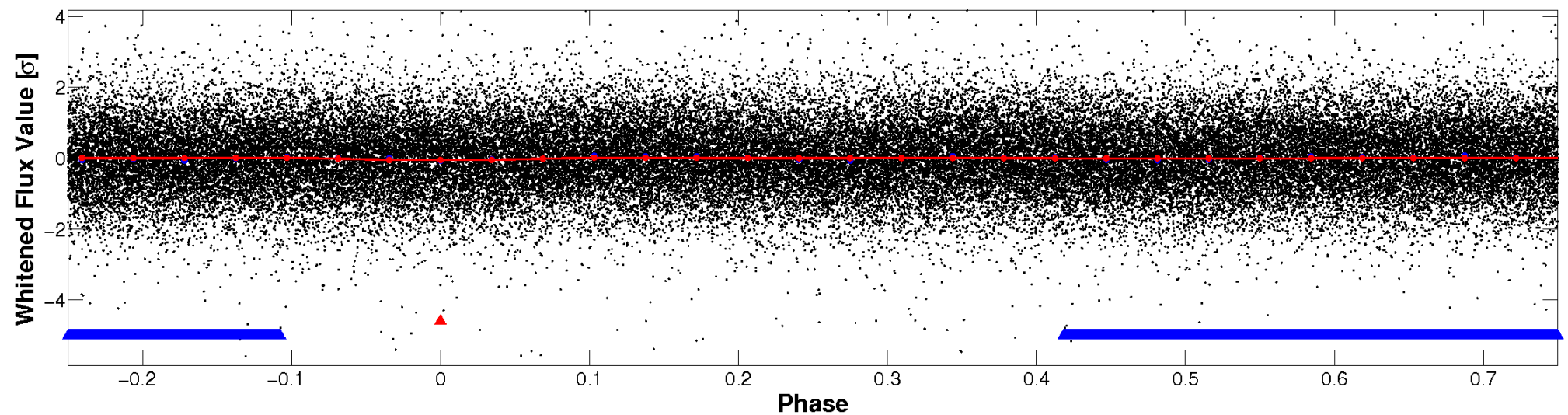


Non-Whitened Vs. Whitened Light Curve

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

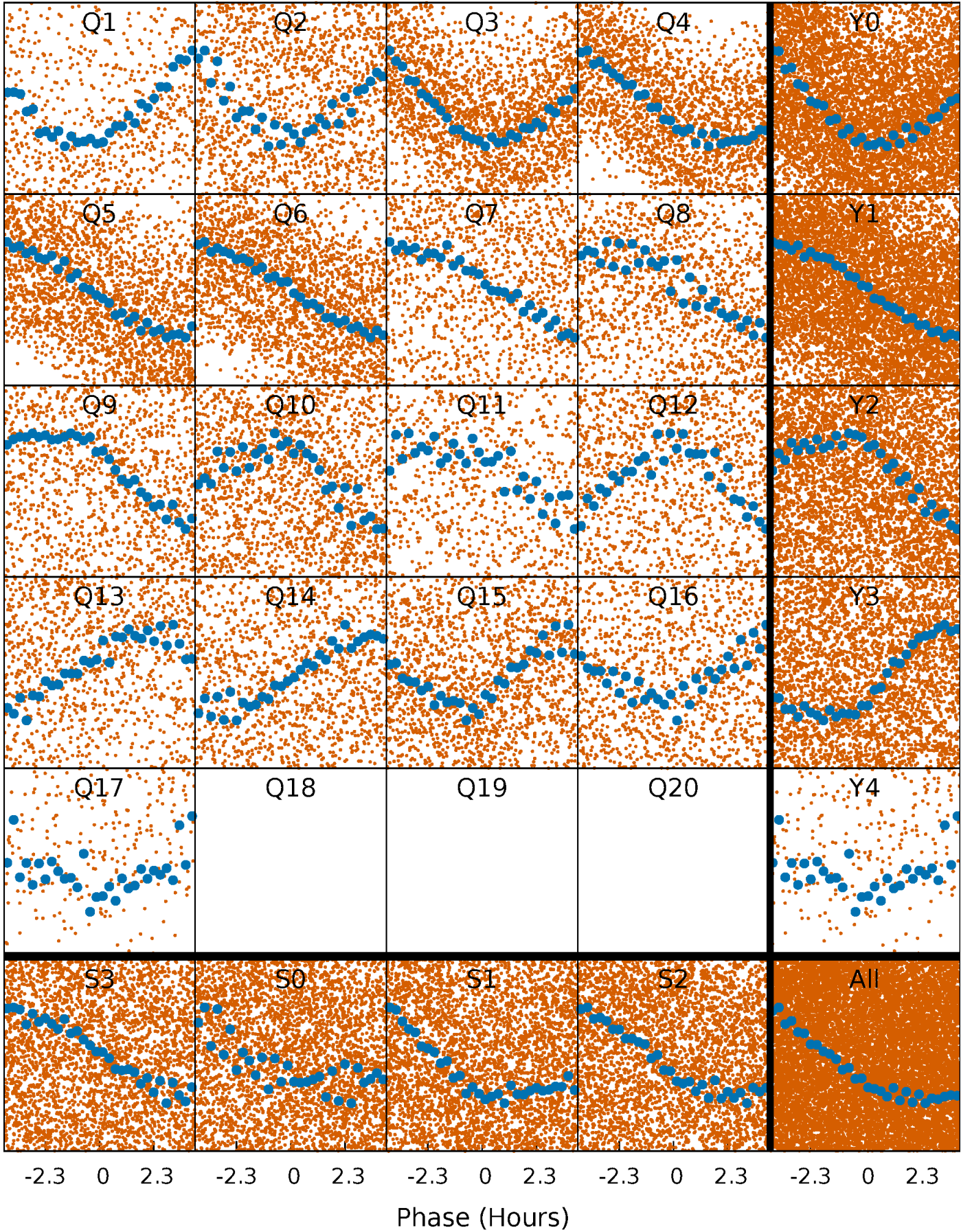


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



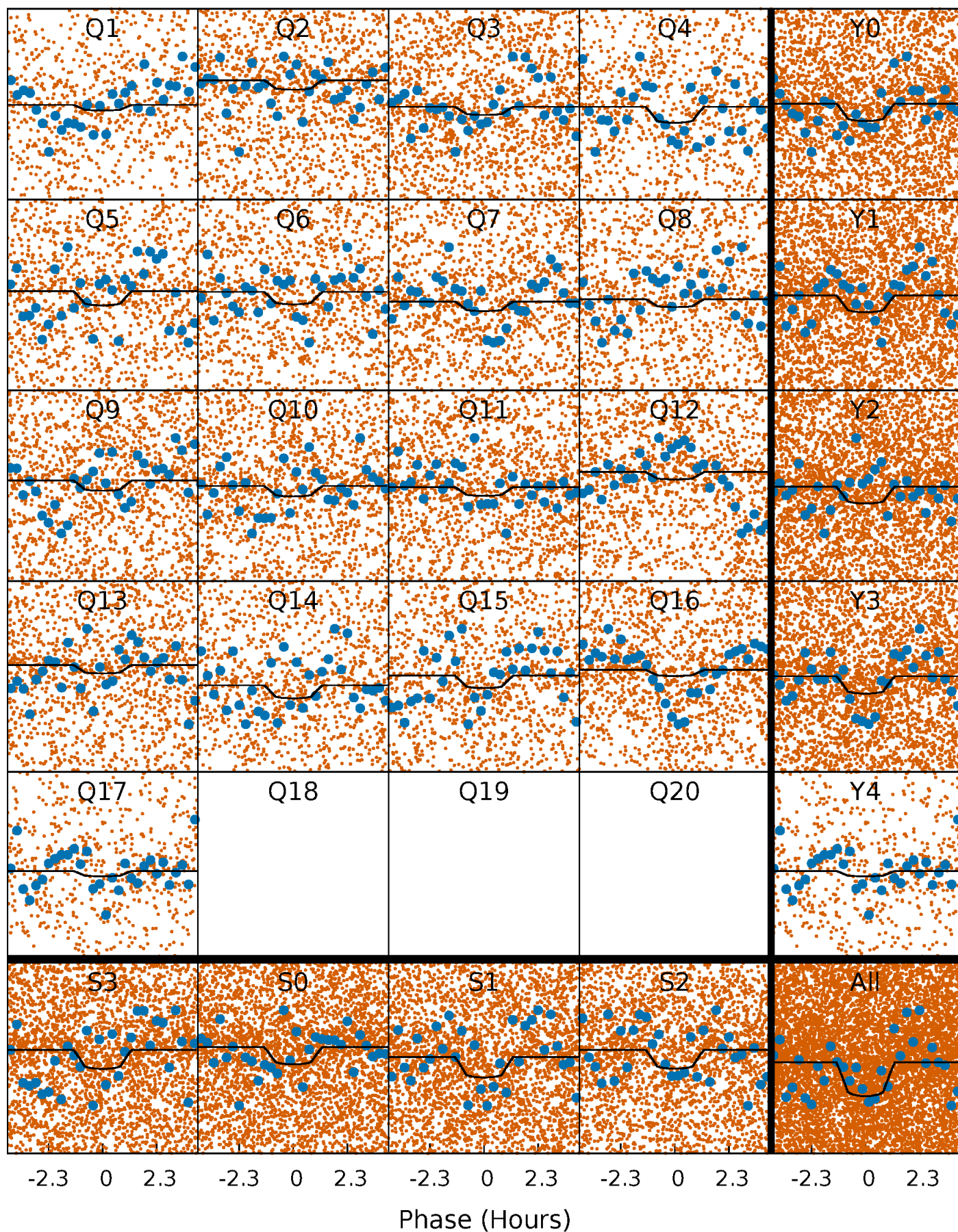
PDC Quarter-Phased Transit Curves

TCE 006441836-01 P= 0.594450 Days $T_0=131.708743$ (BKJD)



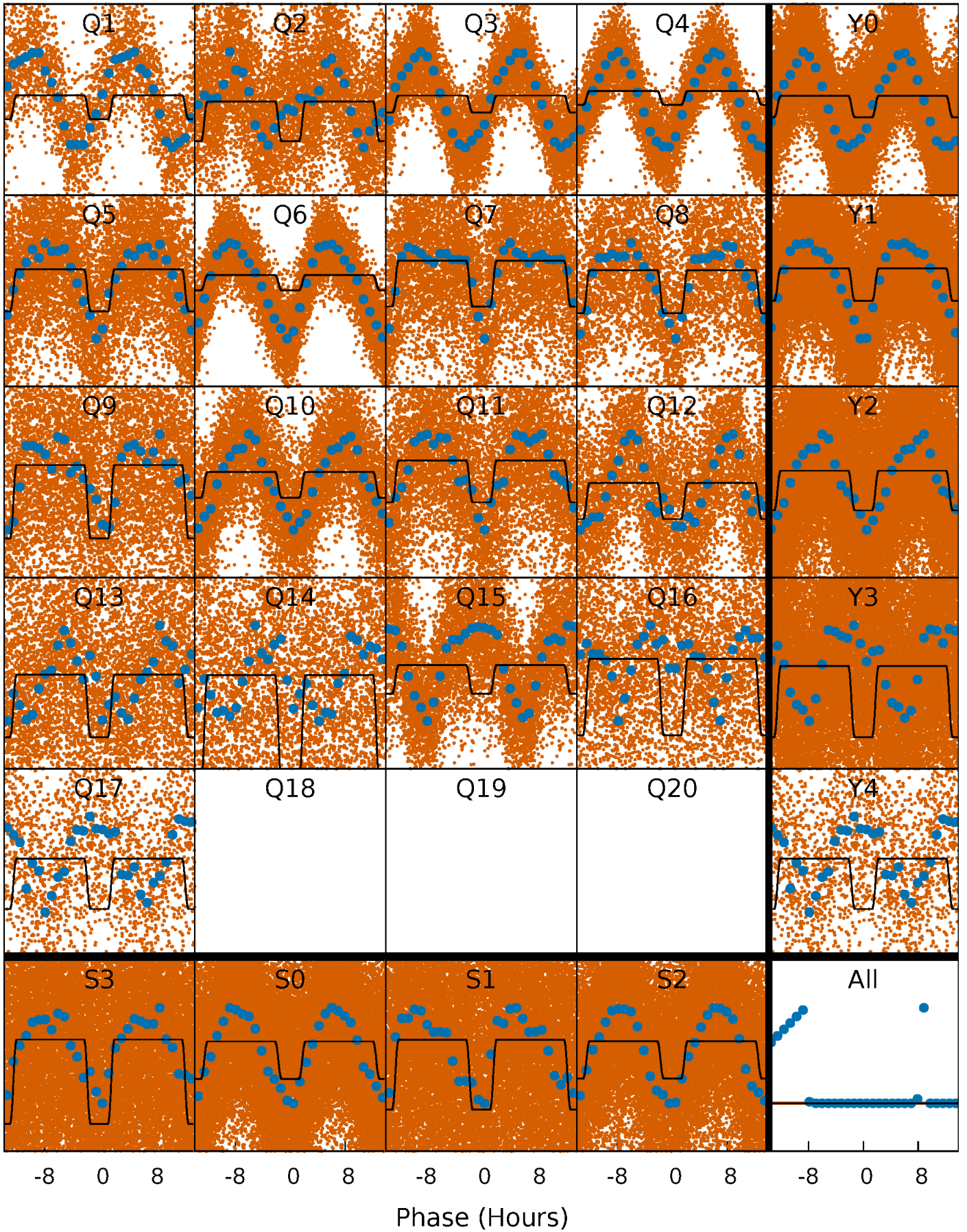
DV Quarter-Phased Transit Curves

TCE 006441836-01 P= 0.594450 Days $T_0=131.708743$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

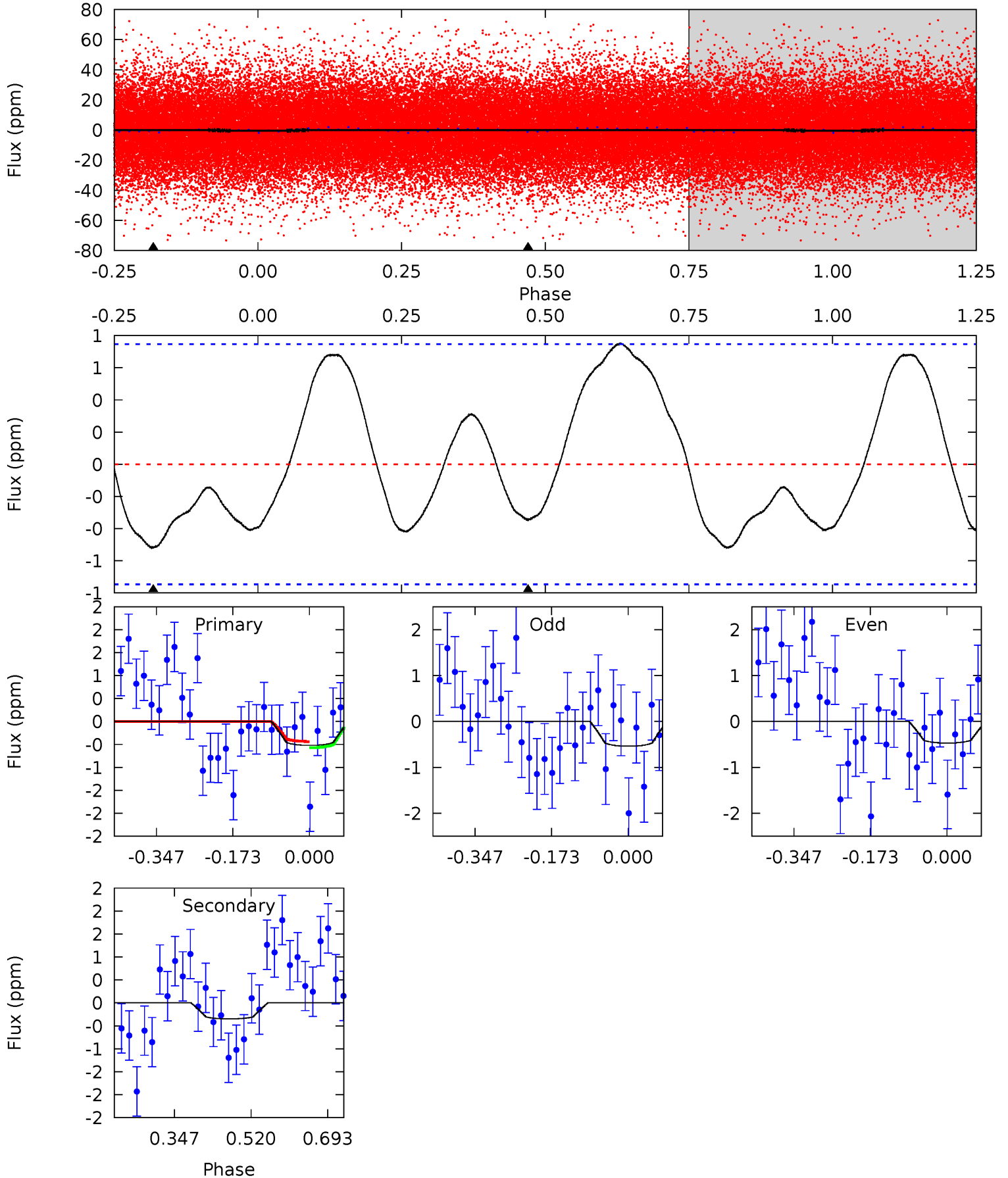
TCE 006441836-01 P= 0.594548 Days $T_0=131.802308$ (BKJD)



DV Model-Shift Uniqueness Test

006441836-01, P = 0.594450 Days, E = 131.114293 Days

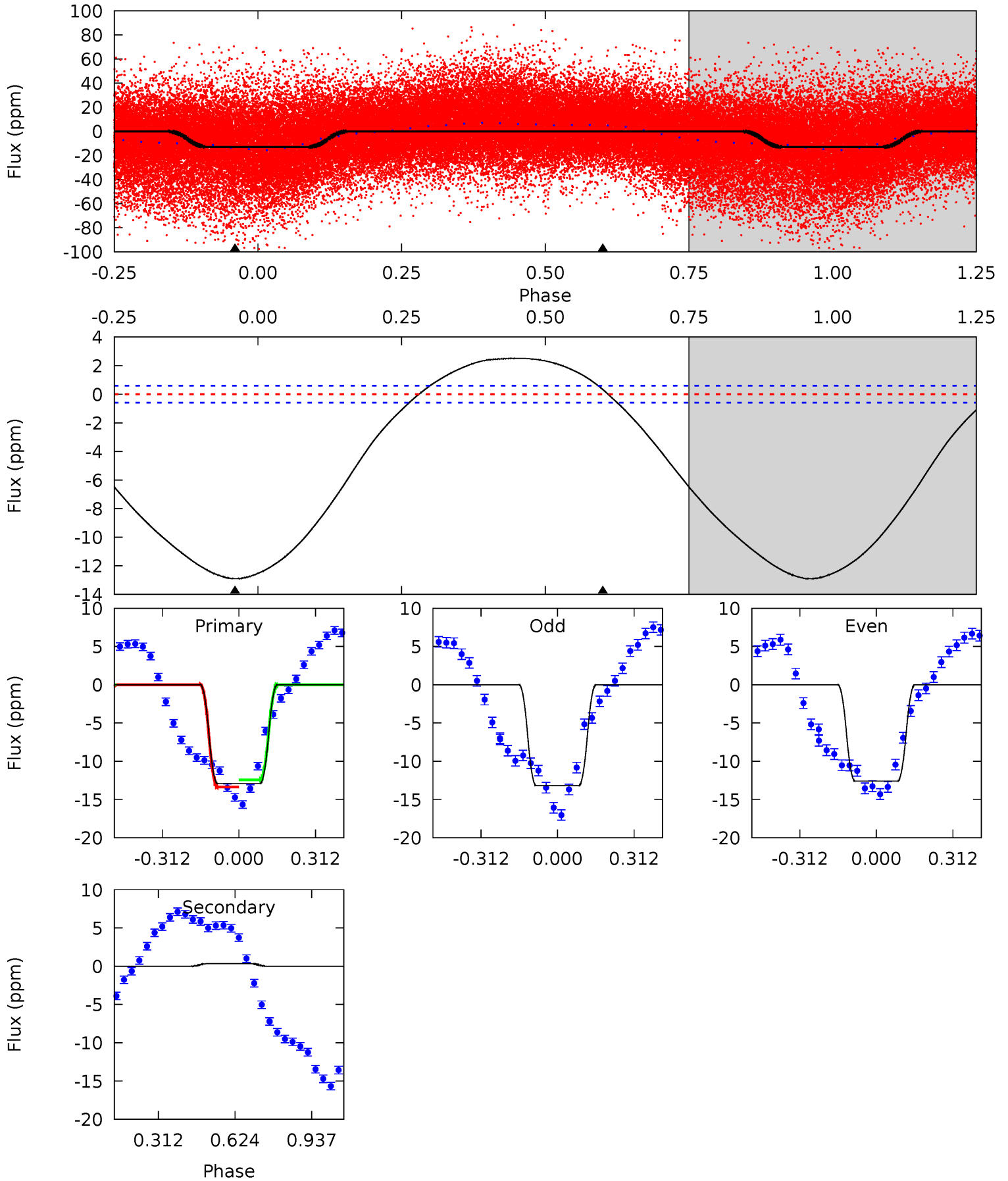
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.11 | 2.09 | 0 | 0 | 4.45 | 1.36 | 2.39 | 3.11 | 3.11 | 2.09 | 2.09 | 0.21 | 0.94 | 0.59 | 0.41 |



Alt Model-Shift Uniqueness Test

006441836-01, P = 0.594548 Days, E = 131.207760 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 95.0 | -2.45 | 0 | 0 | 4.32 | 1.01 | 6.95 | 95.0 | 95.0 | -2.45 | -2.45 | 2.22 | 1.12 | 0.16 | 3.02 |



Stellar Parameters For KIC 006441836

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 8452^{+207}_{-385} | $3.760^{+0.397}_{-0.132}$ | $-0.200^{+0.300}_{-0.350}$ | $3.092^{+0.909}_{-1.364}$ | $2.009^{+0.440}_{-0.440}$ | $0.096^{+0.310}_{-0.039}$ |
| | +2%/-5% | +11%/-4% | +150%/-175% | +29%/-44% | +22%/-22% | +324%/-41% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006441836-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -0 ± 0 | $0.38^{+0.10}_{-0.10}$ | 6687^{+580}_{-730} | 4253^{+1321}_{-8807} | $0.396^{+0.368}_{-0.215}$ |
| Alt. | 0 ± 0 | $1.11^{+0.21}_{-0.24}$ | 6717^{+547}_{-795} | -5529^{+482}_{-367} | $-0.047^{+0.022}_{-0.035}$ |

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

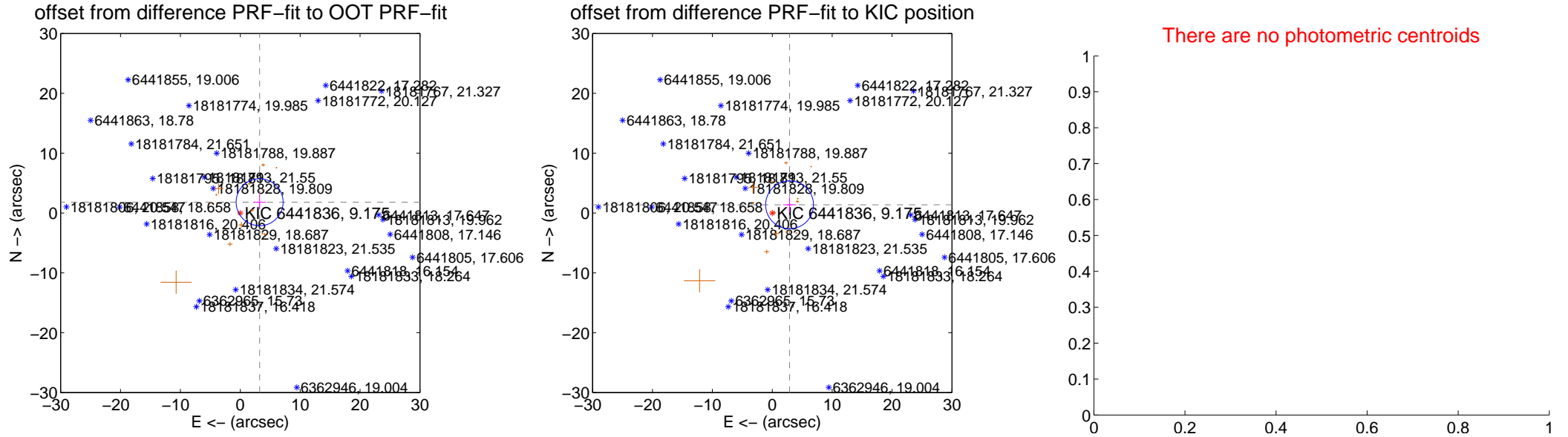
DV Centroid Data

Supplemental centroid analysis for 006441836-01. **Kepler magnitude: 9.18.** Transit SNR 4.46

There are 0 quarters with good PRF difference image offsets

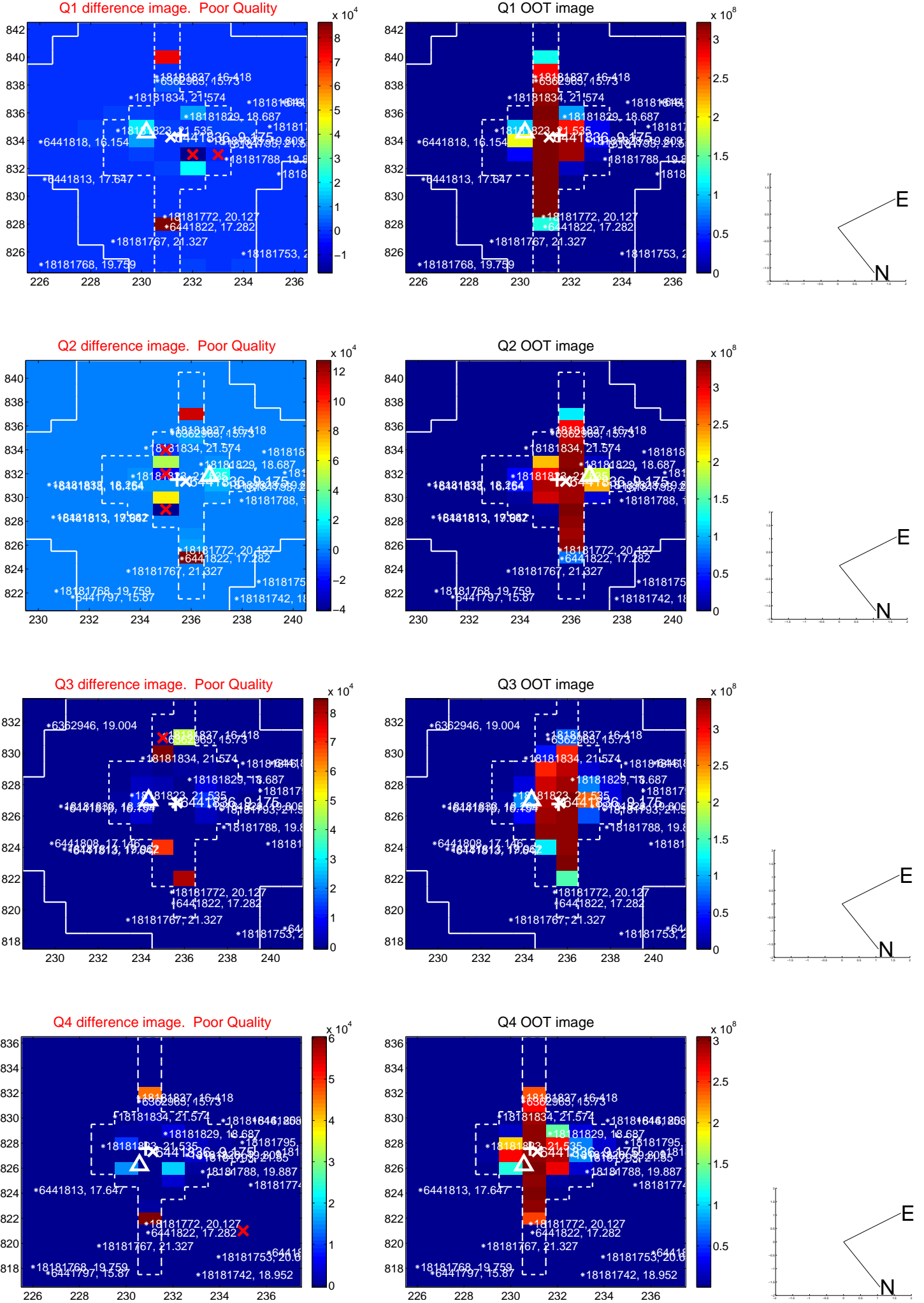
The direct PRF centroid is offset from the target star catalog position by about 1.57 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 3.699 ± 1.307 | 2.83 | -3.229 ± 1.076 | 1.804 ± 1.142 |
| PRF-fit source offset from KIC position | 3.197 ± 1.332 | 2.40 | -2.890 ± 1.070 | 1.367 ± 1.258 |
| photometric centroid source offset | — | — | — | — |

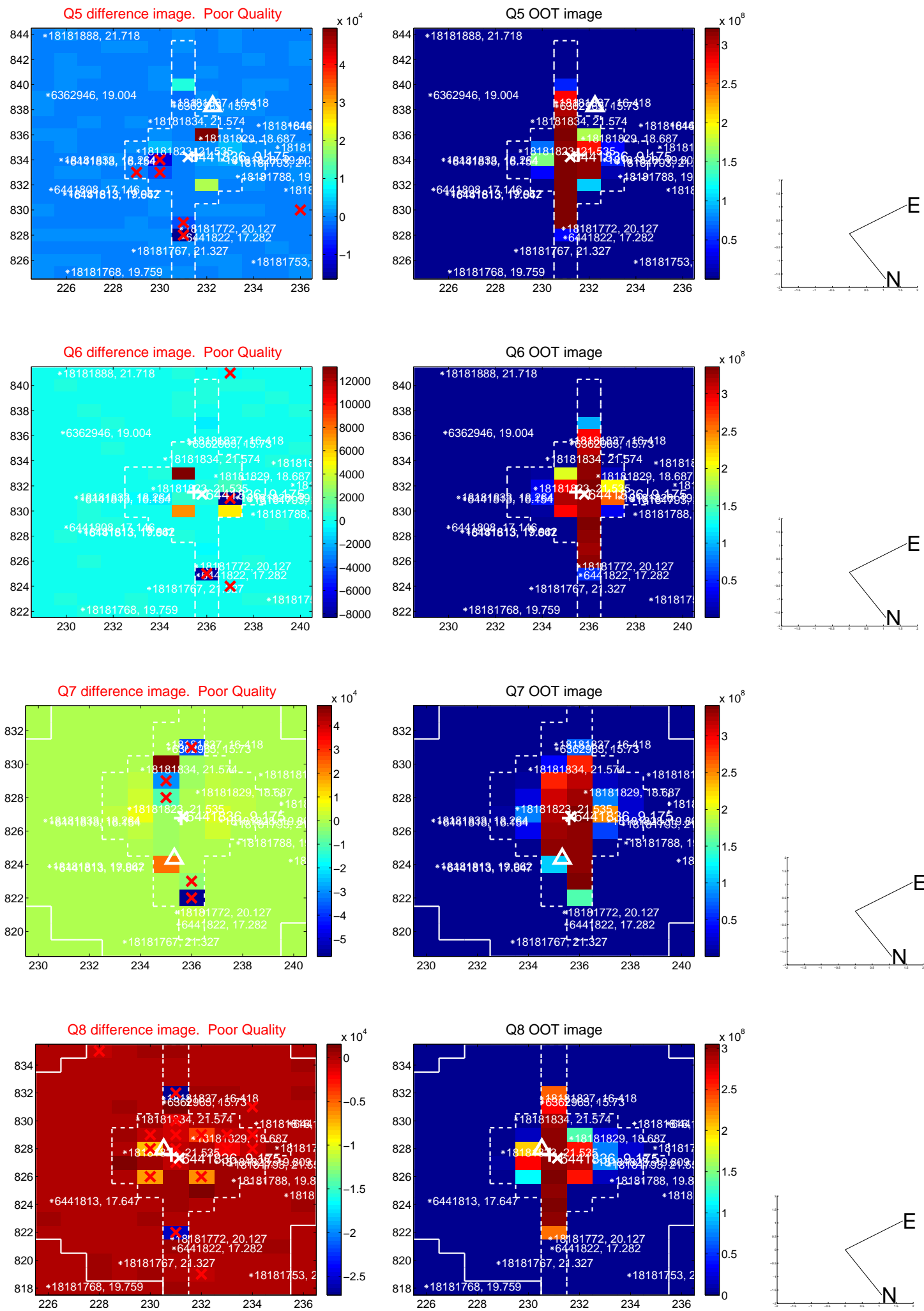


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

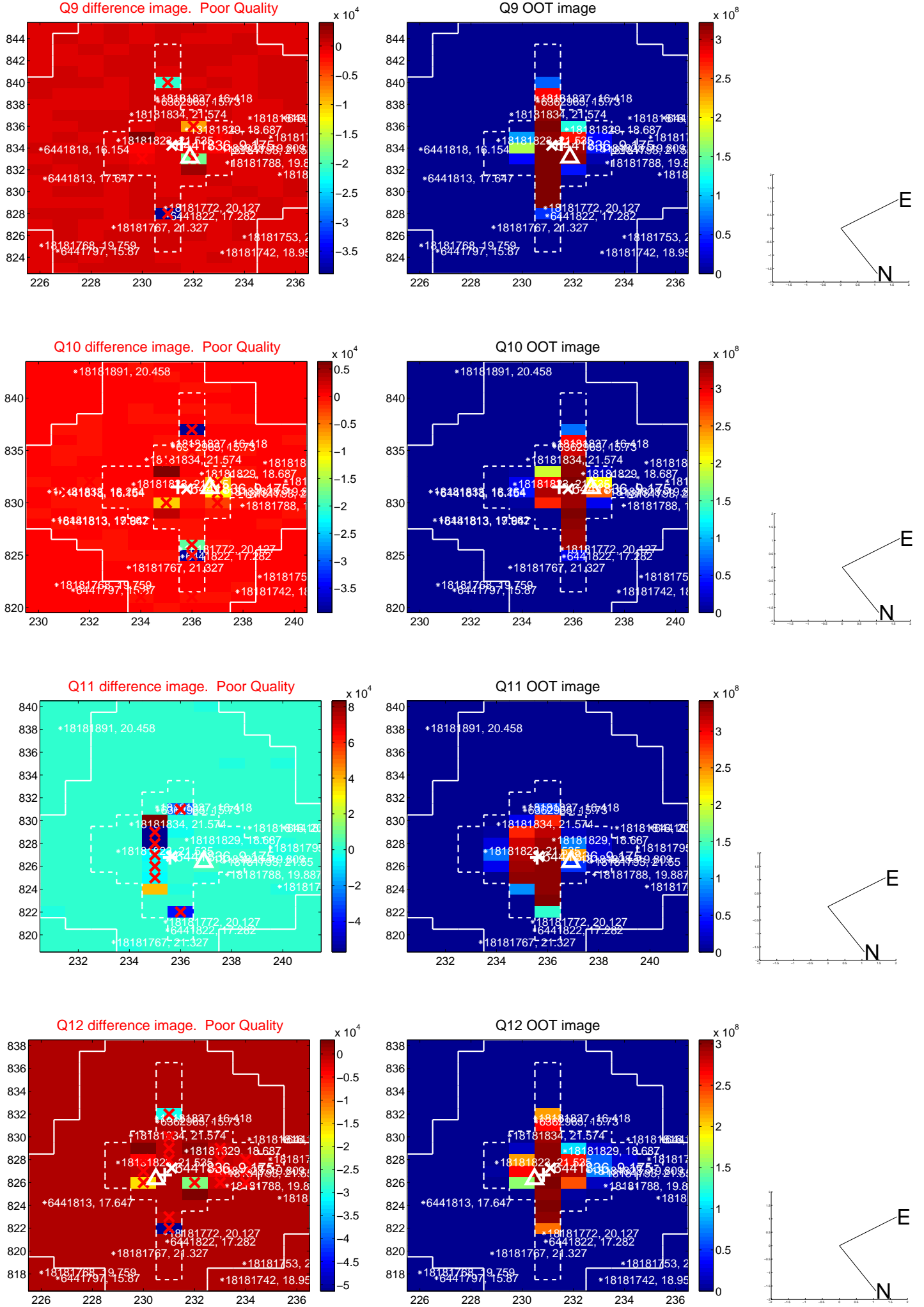
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



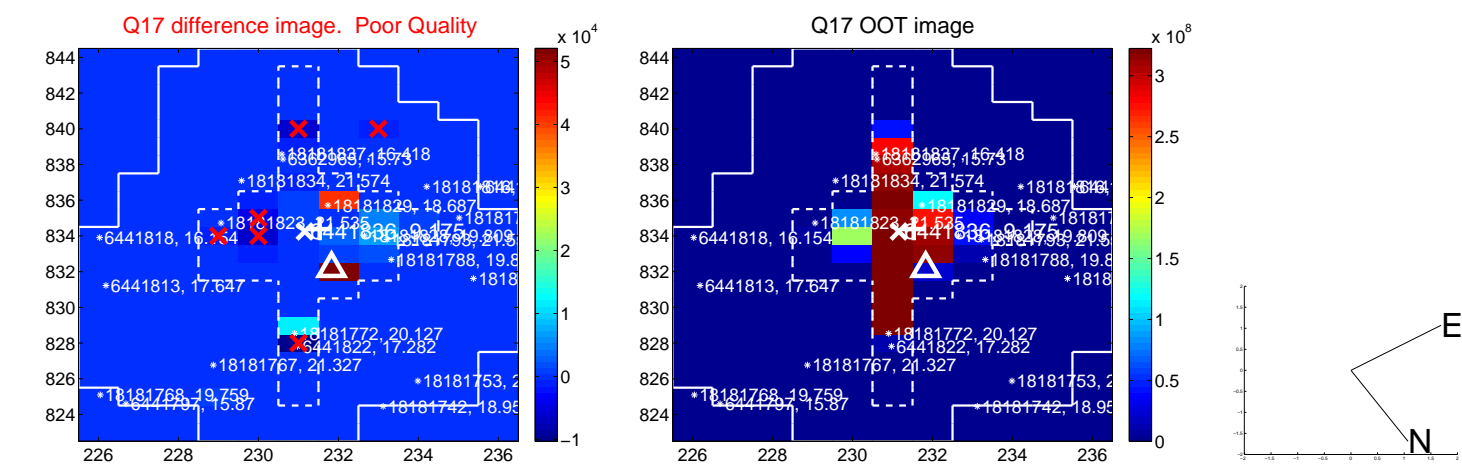
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

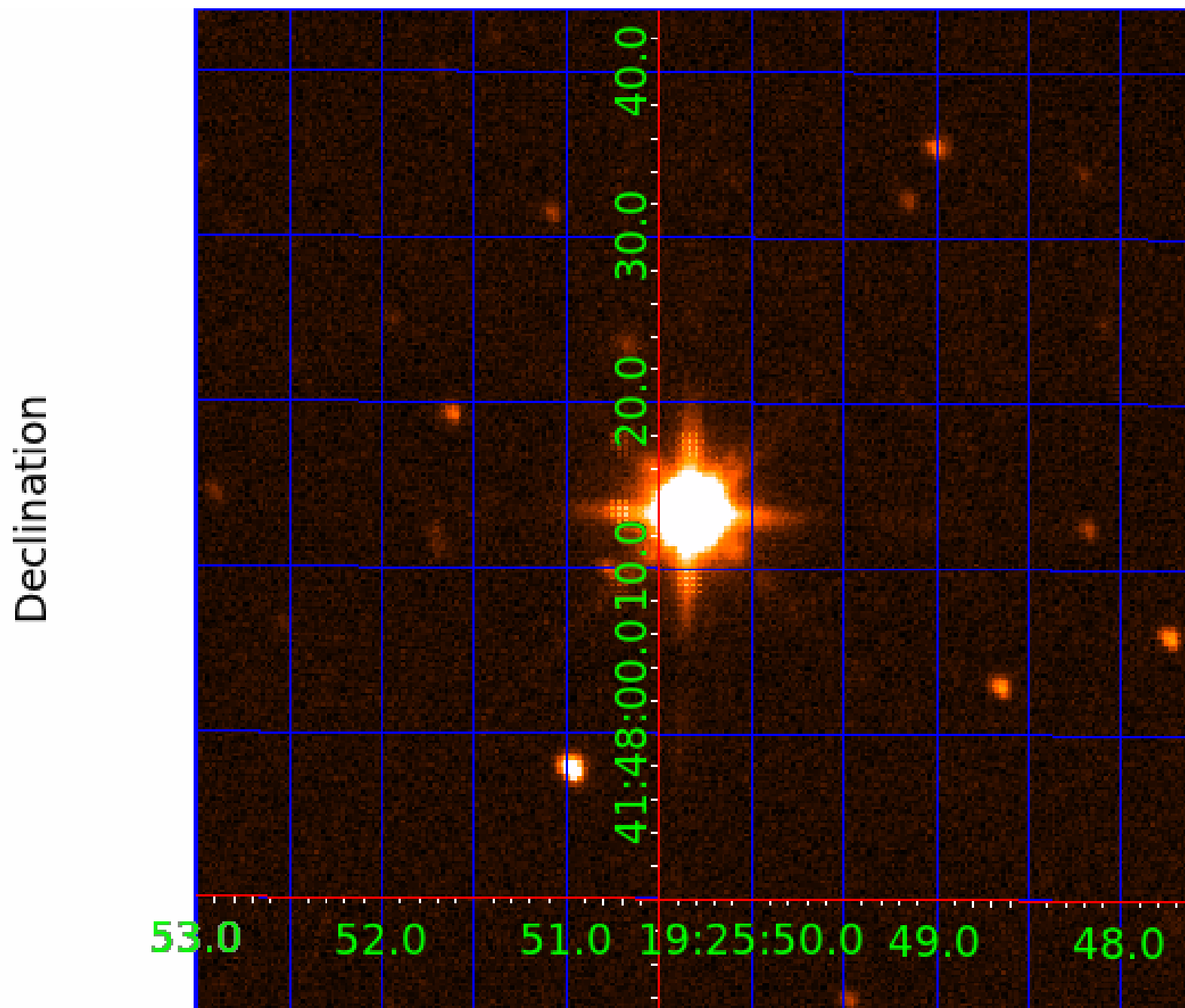


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 006441836

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006441836-01 | OBS | No | 0.594450 | 131.708743 | 1.2 | 2.031 | 10.6 | 4.5 | 3.09 | 8452 | 0.41 | 143462.29 |
| 006441836-02 | OBS | No | 0.594565 | 131.957294 | 0.0 | 3.514 | 8.8 | 0.0 | 3.09 | 8452 | 0.02 | 143425.31 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 006441836-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_SATURATED |
| 006441836-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED |

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

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

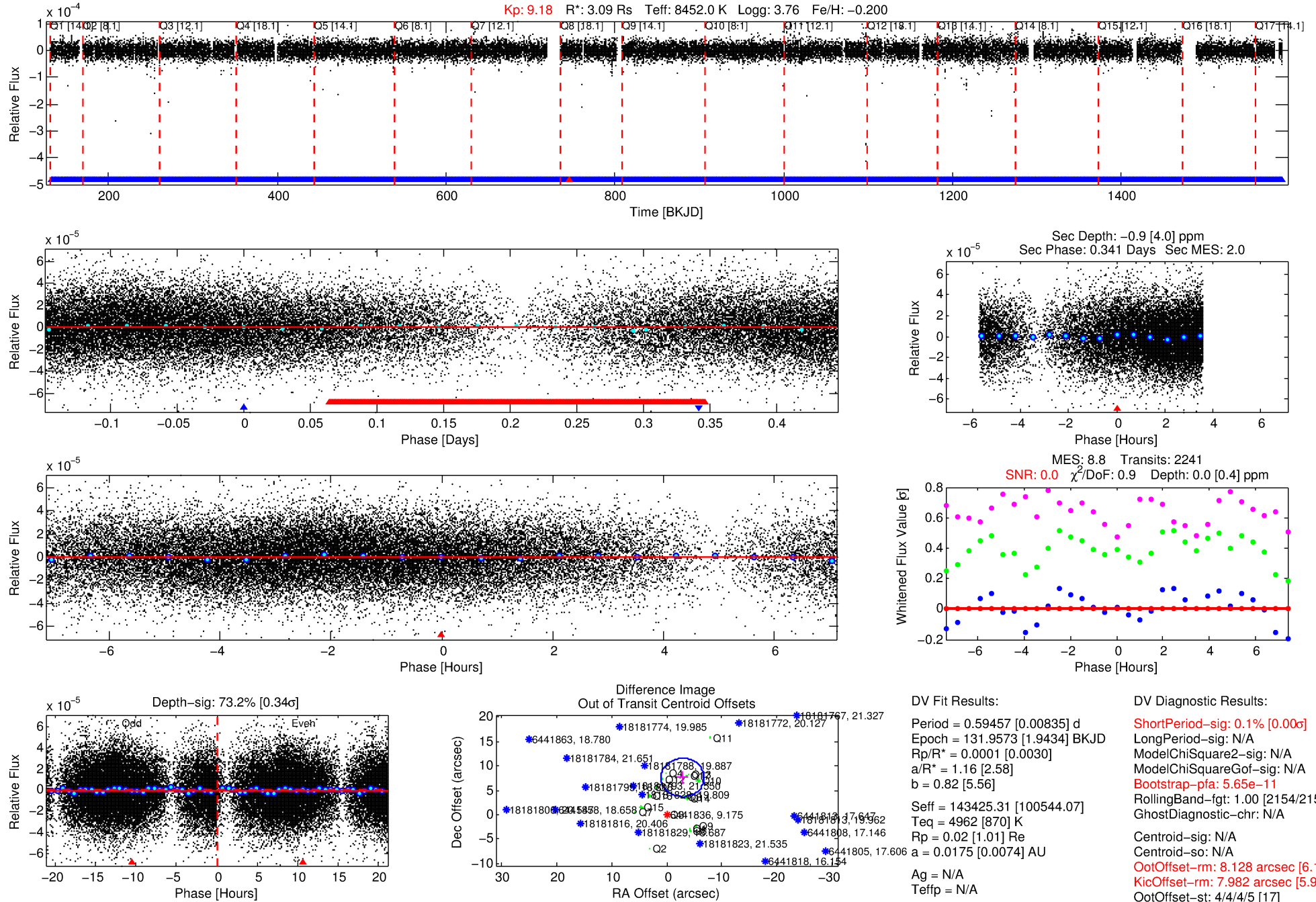
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006441836-02

No Significant Match Found

DV One-Page Summary

KIC: 6441836 Candidate: 2 of 2 Period: 0.595 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:54:08 Z

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

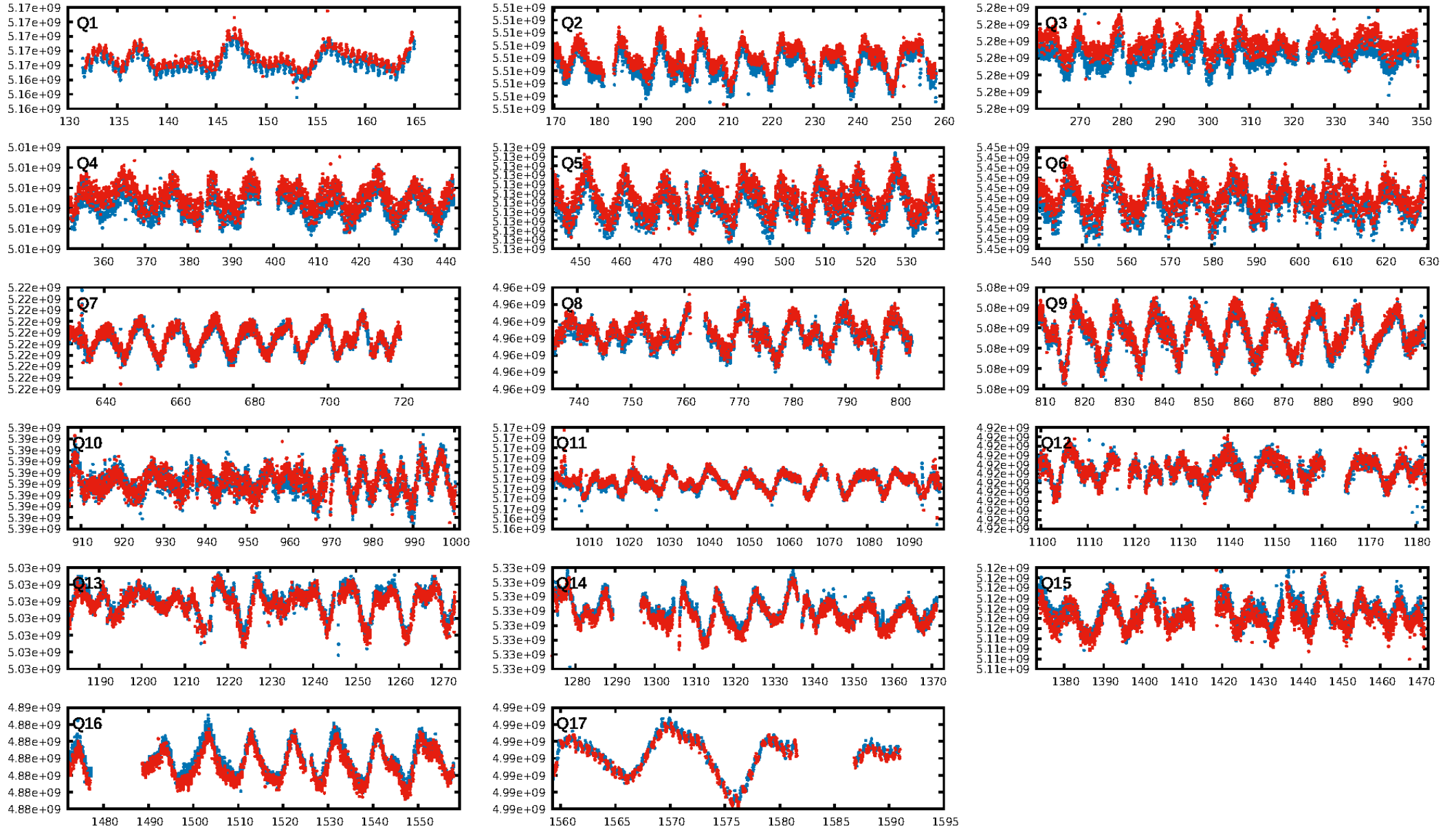
DV Fit Results:

Period = 0.59457 [0.00835] d
Epoch = 131.9573 [1.9434] BKJD
Rp/R* = 0.0001 [0.0030]
a/R* = 1.16 [2.58]
b = 0.82 [5.56]
Seff = 143425.31 [100544.07]
Teq = 4962 [870] K
Rp = 0.02 [1.01] Re
a = 0.0175 [0.0074] AU
Ag = N/A
Teffp = N/A

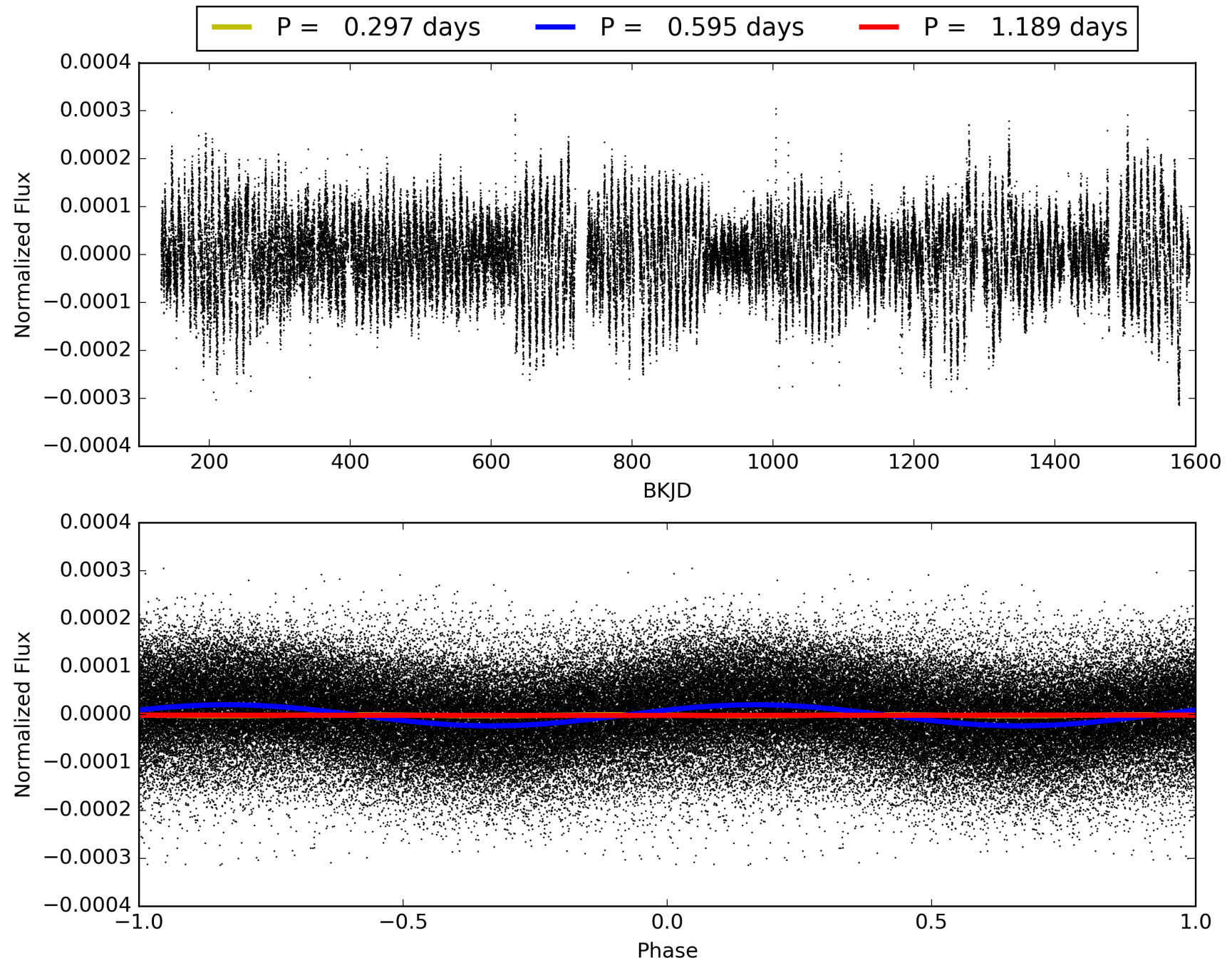
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.65e-11
RollingBand-fgt: 1.00 [2154/2155]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 8.128 arcsec [6.19 σ]
KicOffset-rm: 7.982 arcsec [5.91 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 006441836-02, PDC Light Curves

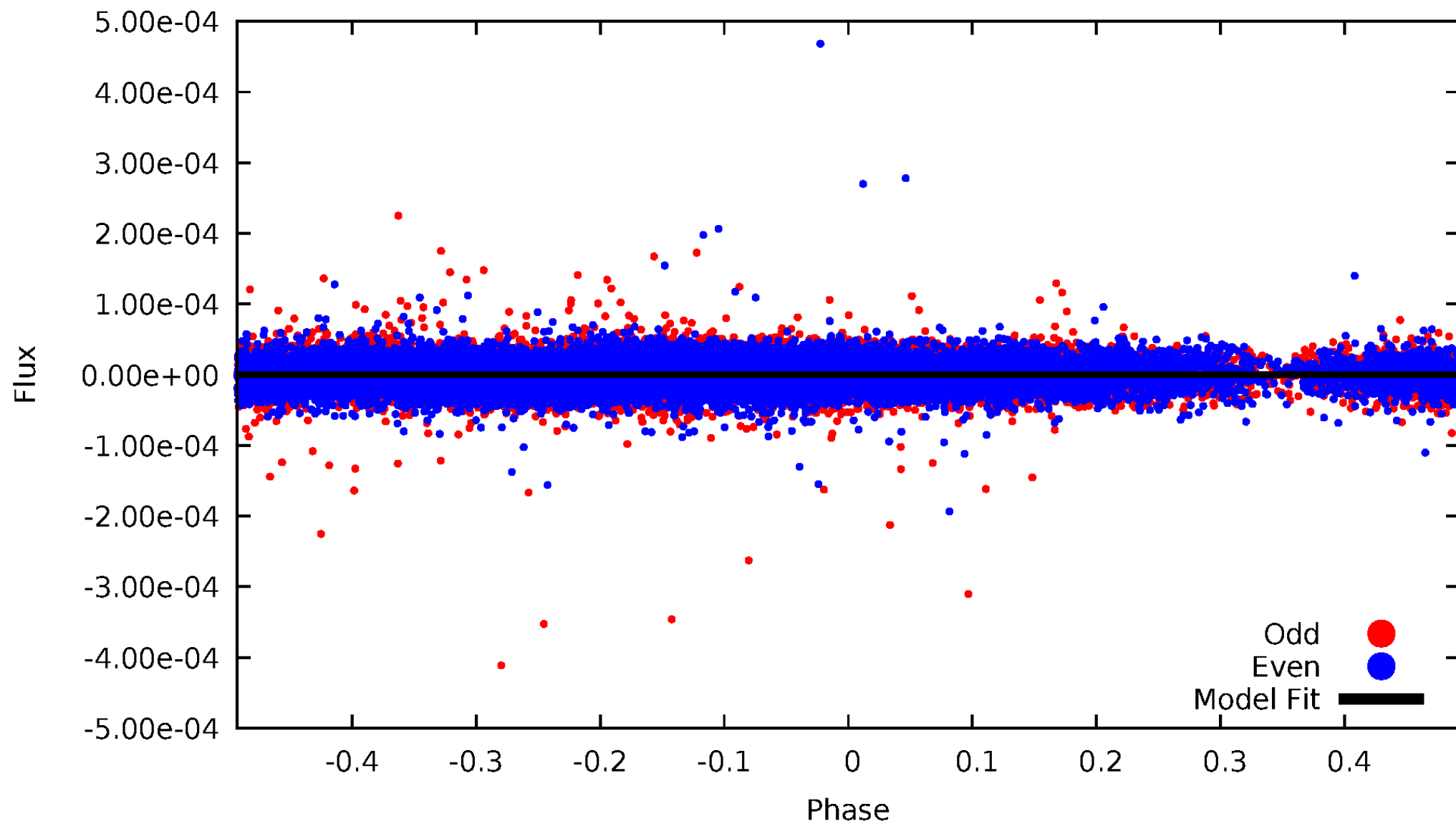


TCE 006441836-02



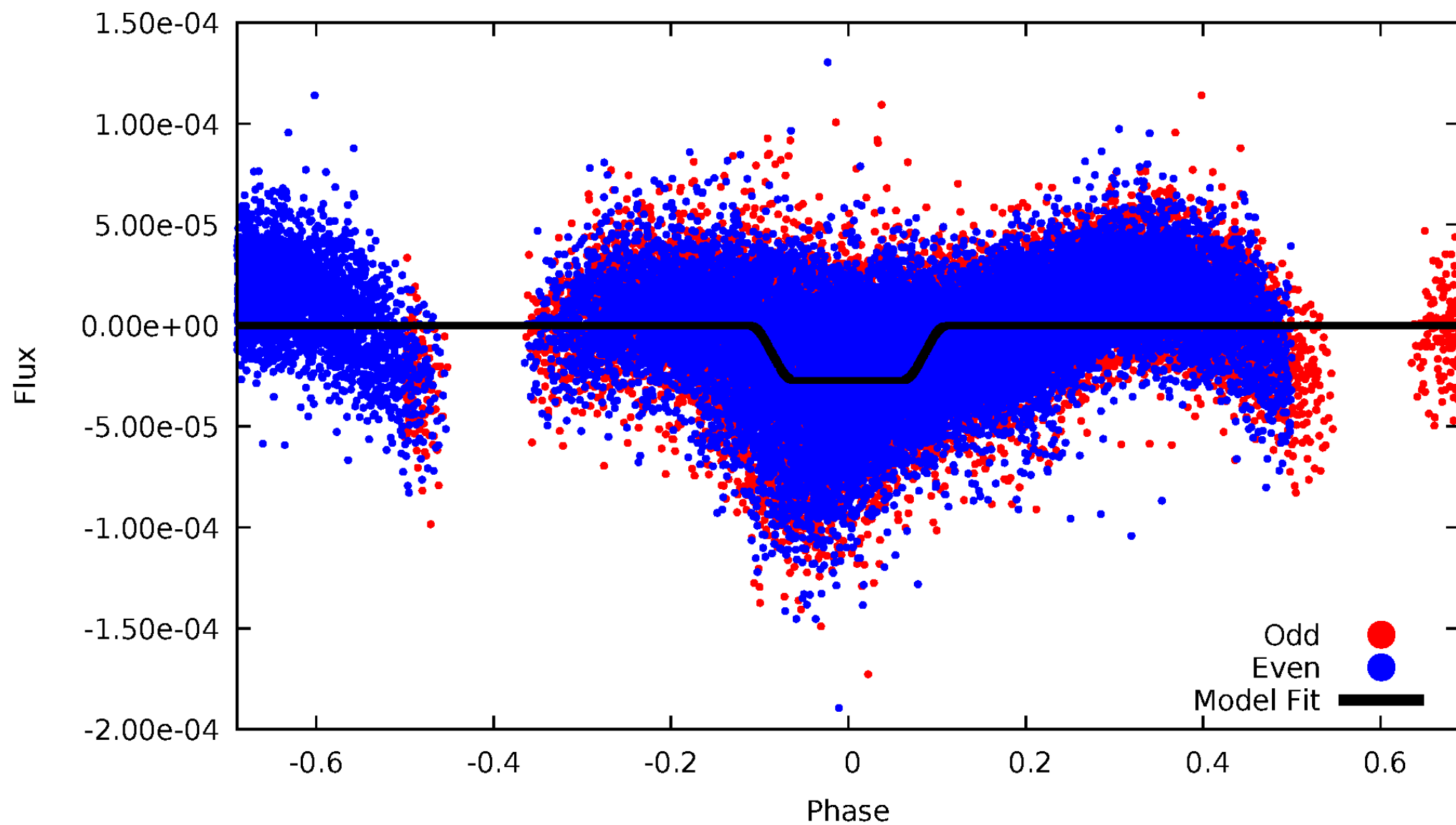
DV Odd/Even

TCE 006441836-02



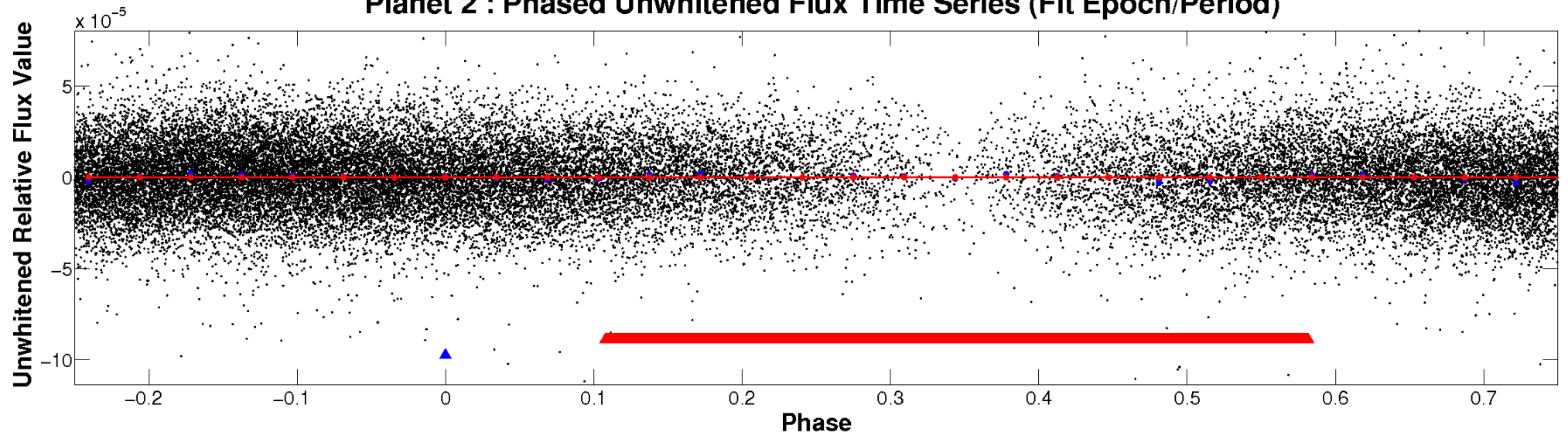
ALT Odd/Even

TCE 006441836-02

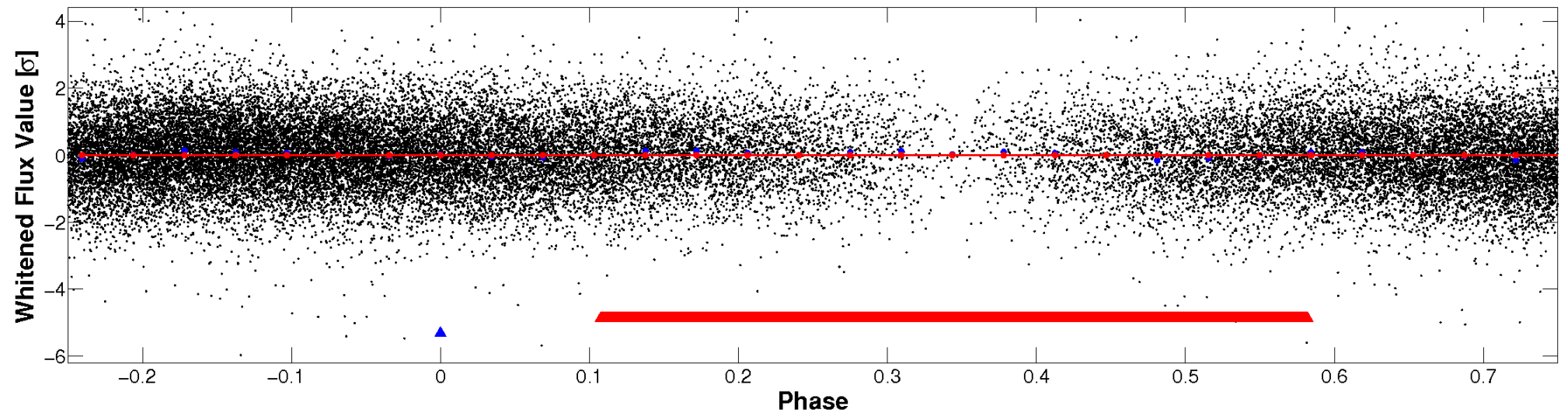


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

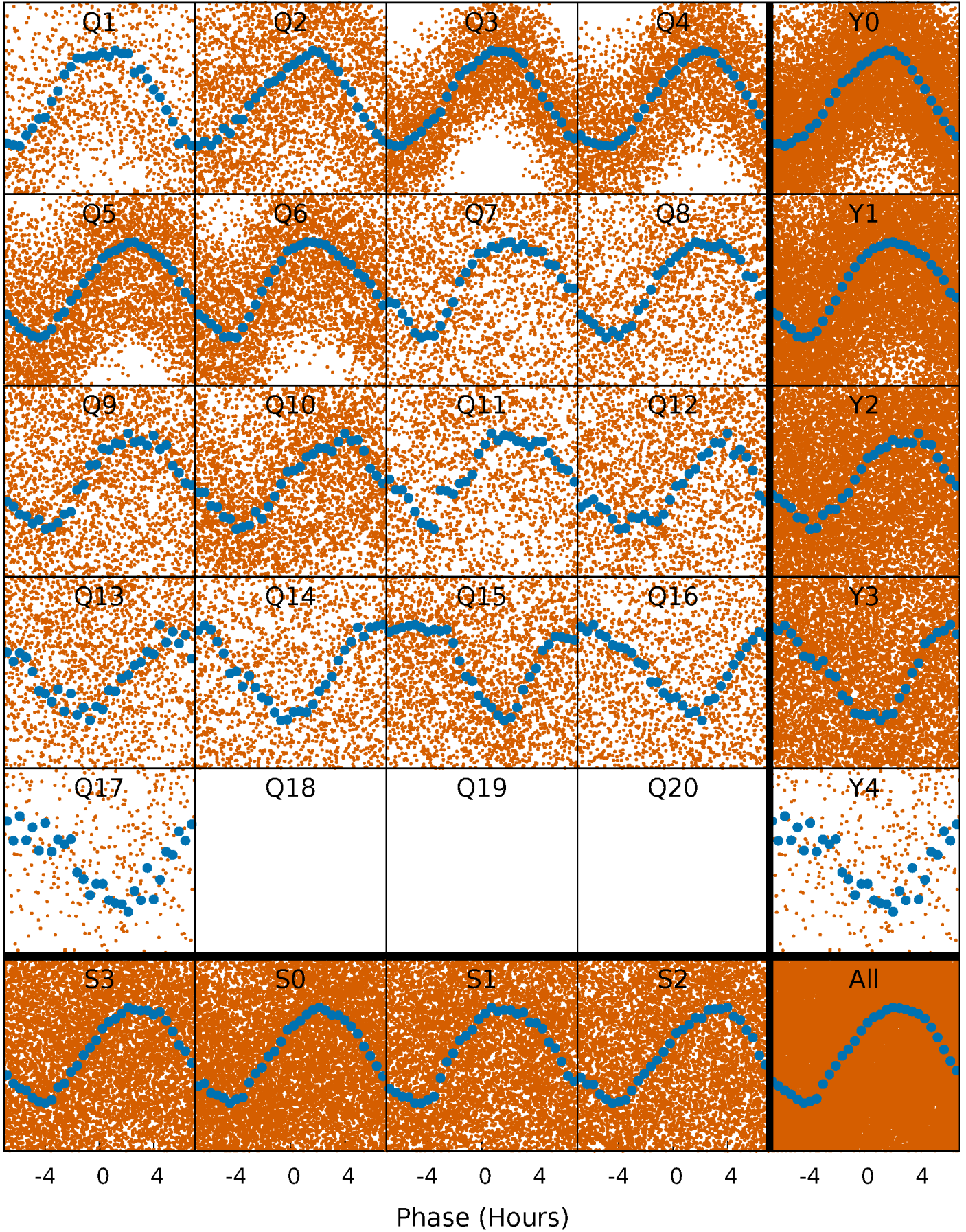


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



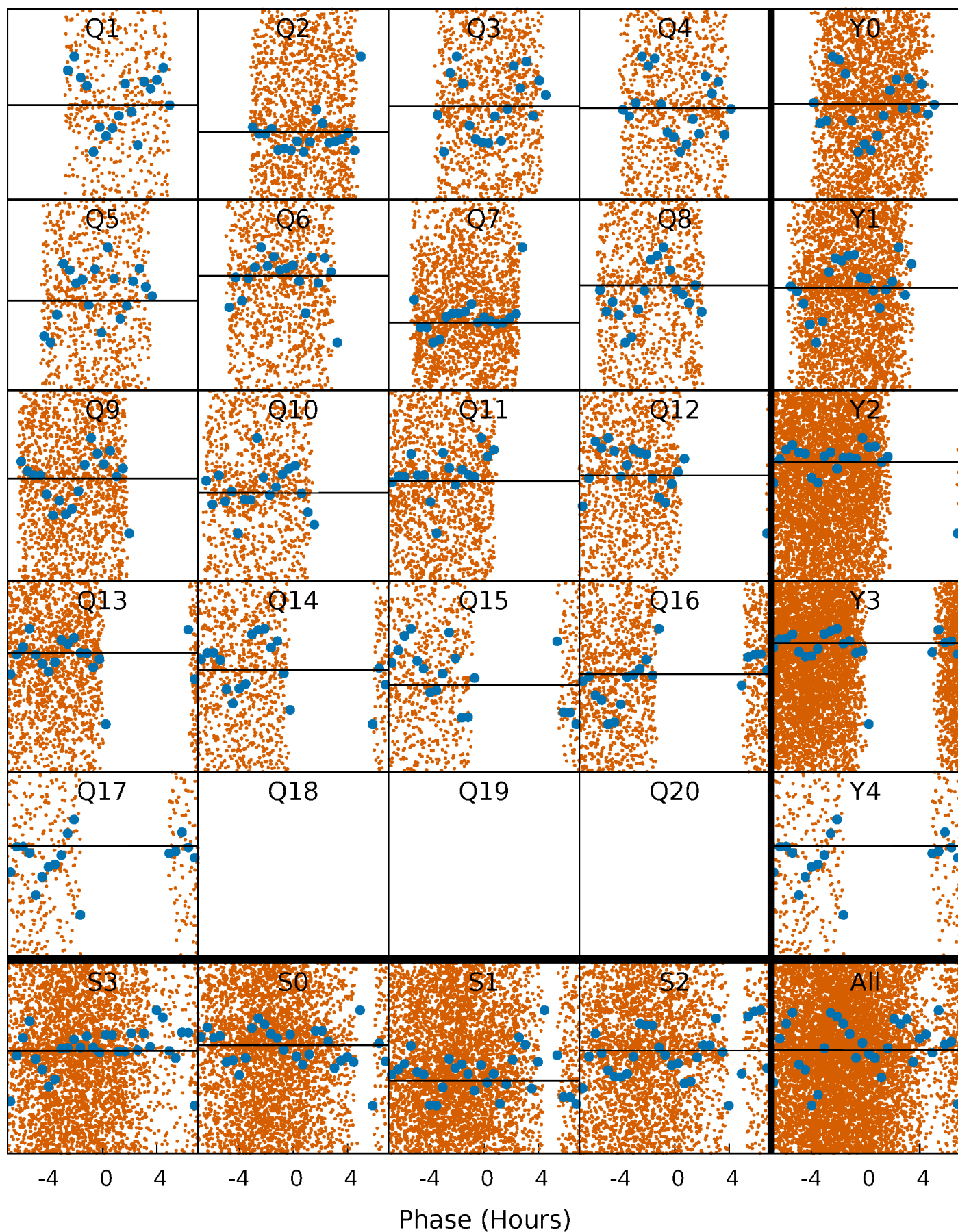
PDC Quarter-Phased Transit Curves

TCE 006441836-02 P= 0.594565 Days $T_0=131.957294$ (BKJD)



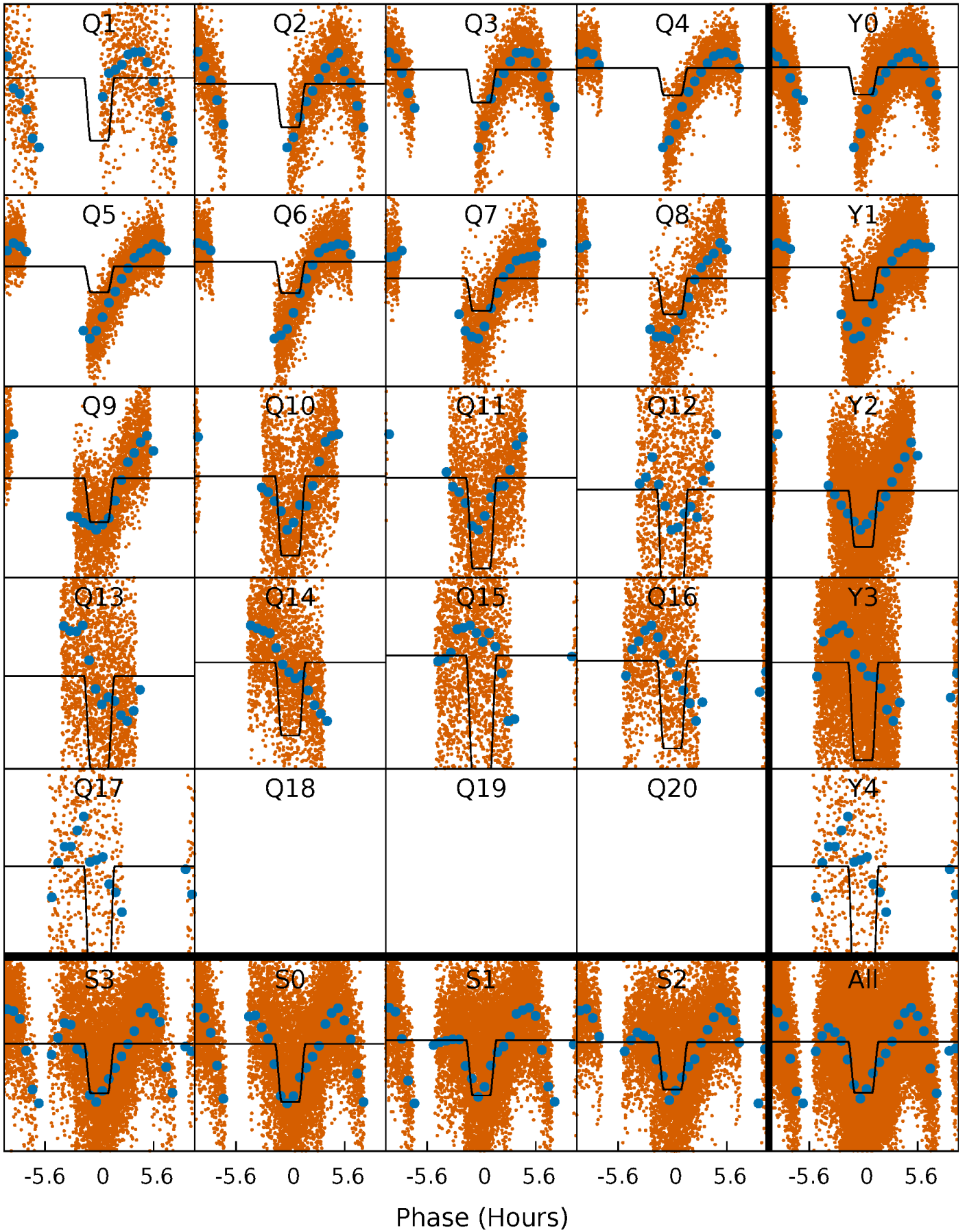
DV Quarter-Phased Transit Curves

TCE 006441836-02 P= 0.594565 Days $T_0=131.957294$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

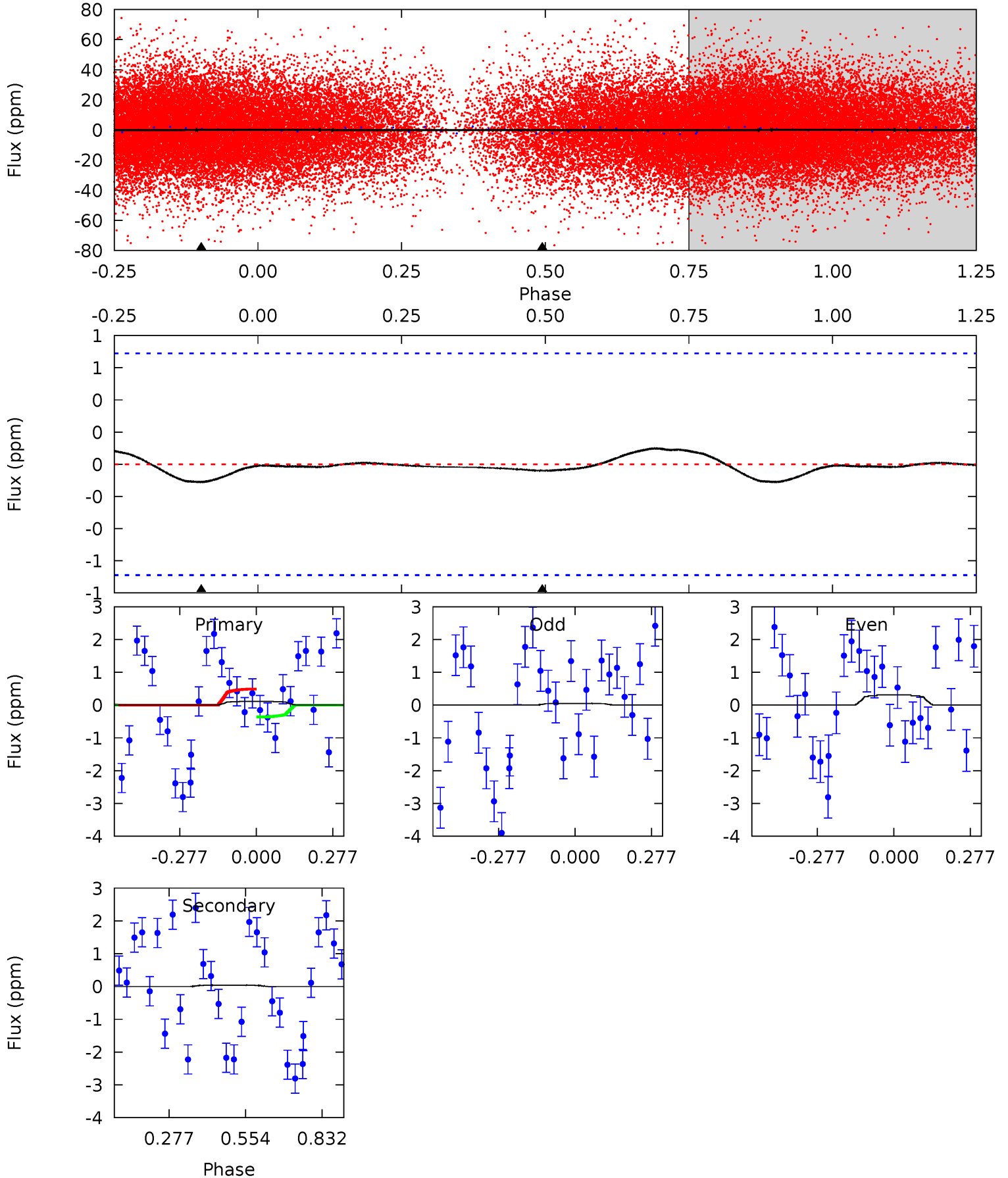
TCE 006441836-02 P= 0.594543 Days $T_0=131.838669$ (BKJD)



DV Model-Shift Uniqueness Test

006441836-02, P = 0.594565 Days, E = 131.362729 Days

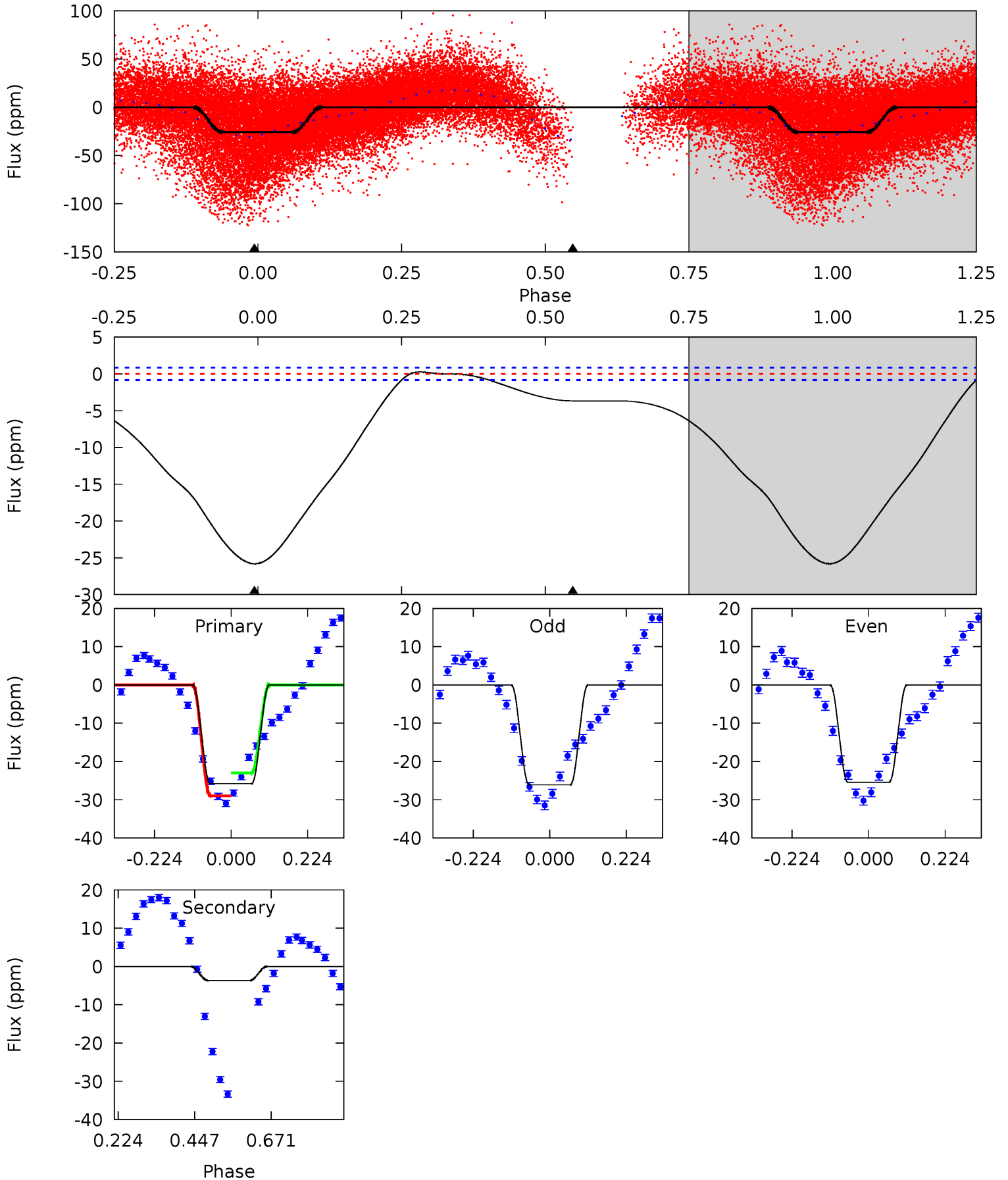
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 0.70 | 0.26 | 0 | 0 | 4.35 | 1.09 | 0.04 | 0.70 | 0.70 | 0.26 | 0.26 | 0.83 | -0.26 | 0.47 | 0.40 |



Alt Model-Shift Uniqueness Test

006441836-02, P = 0.594543 Days, E = 131.244126 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 134.7 | 19.2 | 0 | 0 | 4.39 | 1.22 | 6.45 | 134.7 | 134.7 | 19.2 | 19.2 | 1.71 | 1.17 | 0.01 | 11.9 |



Stellar Parameters For KIC 006441836

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 8452^{+207}_{-385} | $3.760^{+0.397}_{-0.132}$ | $-0.200^{+0.300}_{-0.350}$ | $3.092^{+0.909}_{-1.364}$ | $2.009^{+0.440}_{-0.440}$ | $0.096^{+0.310}_{-0.039}$ |
| | +2%/-5% | +11%/-4% | +150%/-175% | +29%/-44% | +22%/-22% | +324%/-41% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006441836-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|--------------------------|---------------------------|
| DV | -0 ± 0 | $0.61^{+0.73}_{-0.44}$ | 6660^{+593}_{-720} | -5230^{+1377}_{-626} | $0.007^{+0.204}_{-0.080}$ |
| Alt. | -4 ± 0 | $1.67^{+1.11}_{-0.89}$ | 6752^{+556}_{-782} | -3947^{+10186}_{-1217} | $0.225^{+0.751}_{-0.144}$ |

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 $A_{obs} \gg 1.0$

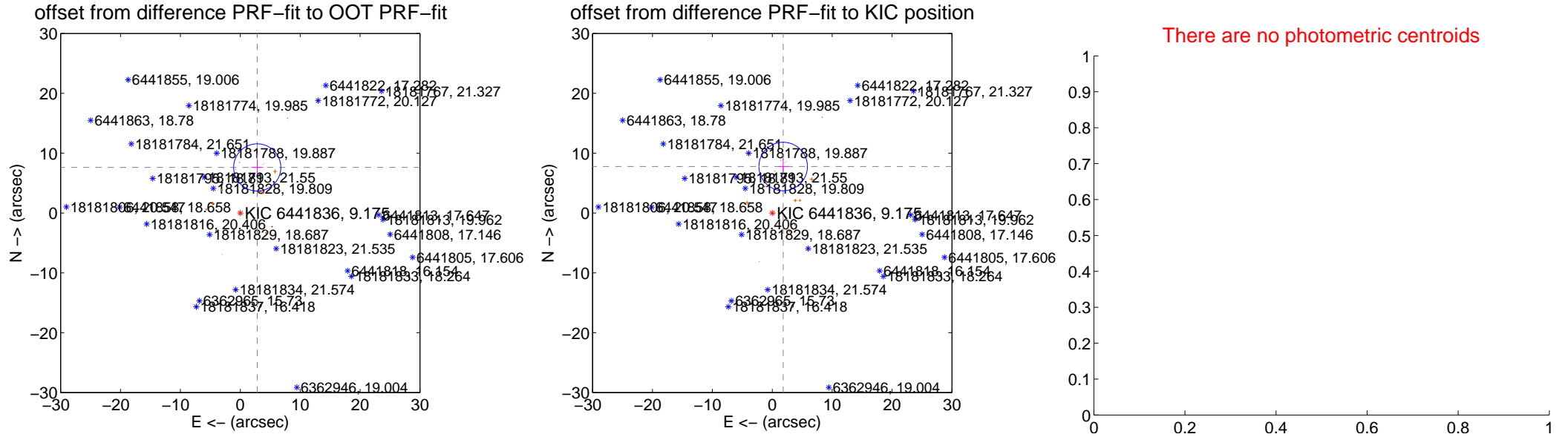
DV Centroid Data

Supplemental centroid analysis for 006441836-02. **Kepler magnitude: 9.18.** Transit SNR 0.02

There are 1 quarters with good PRF difference image offsets

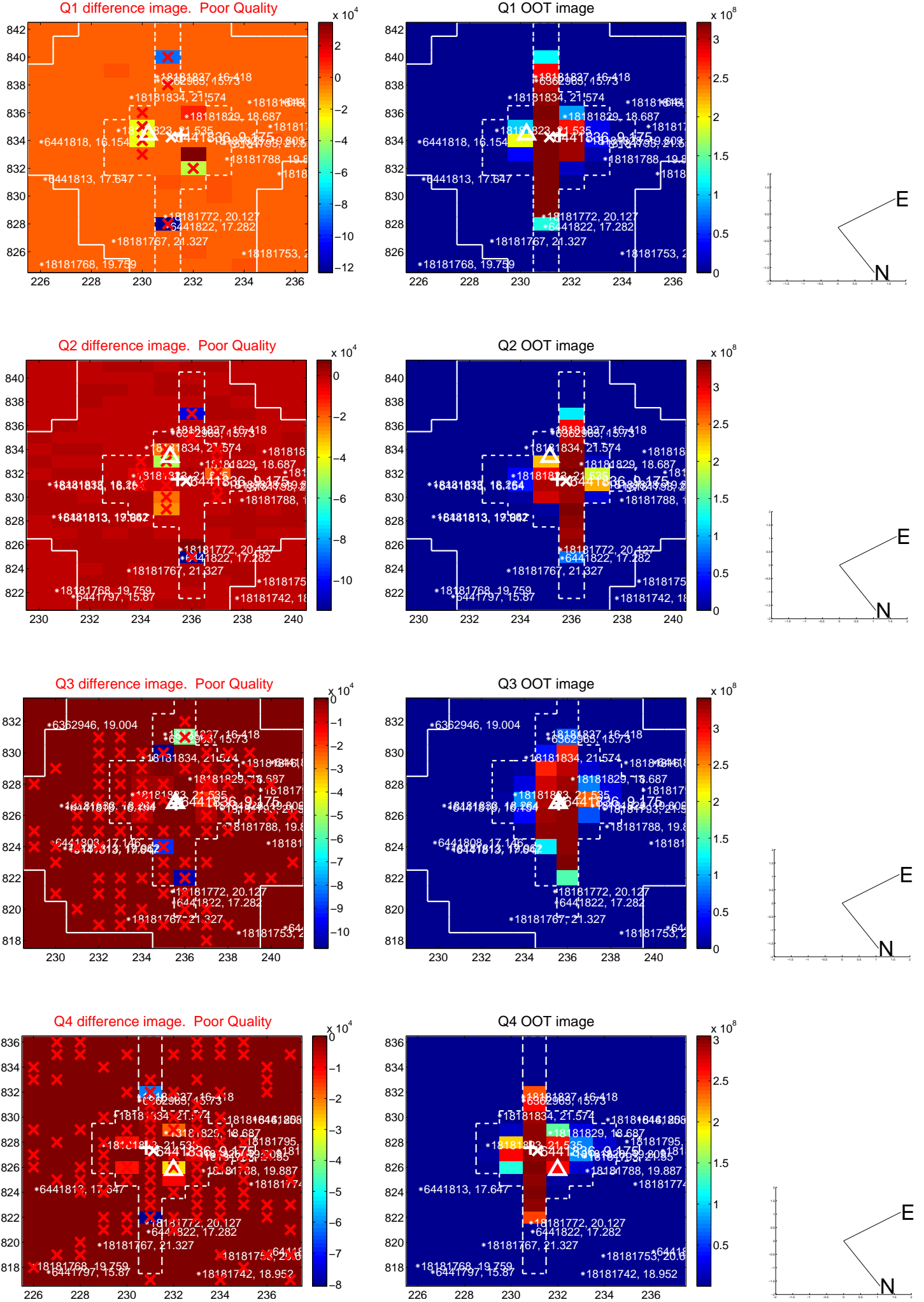
The direct PRF centroid is offset from the target star catalog position by about 1.57 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|-------------------------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 8.128 \pm 1.313 | 6.19 | -2.831 \pm 1.002 | 7.619 \pm 1.225 |
| PRF-fit source offset from KIC position | 7.982 \pm 1.350 | 5.91 | -1.820 \pm 0.824 | 7.772 \pm 1.309 |
| photometric centroid source offset | — | — | — | — |

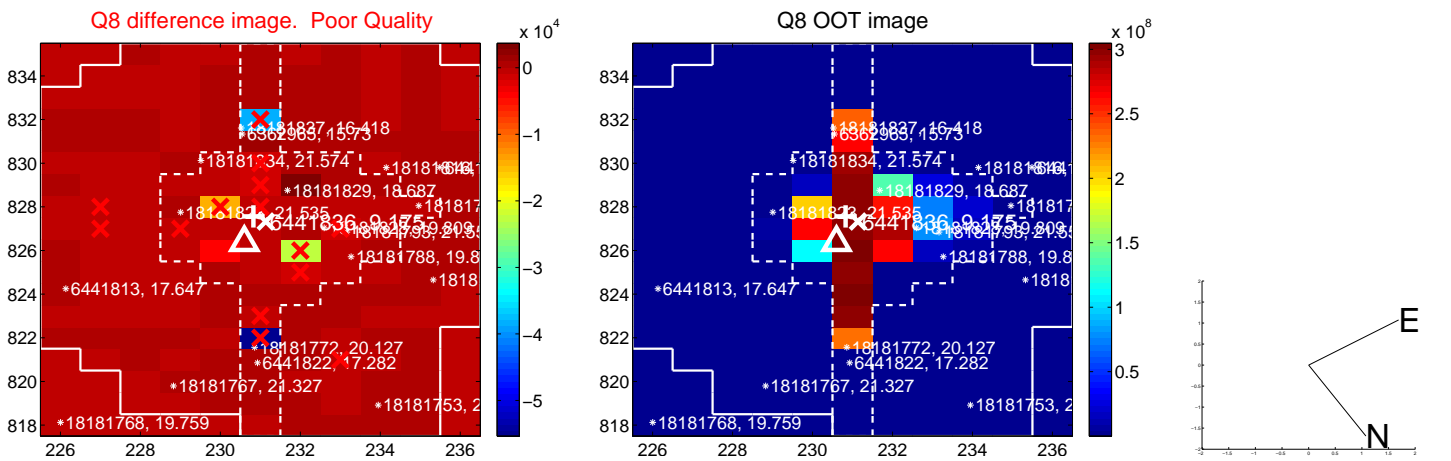
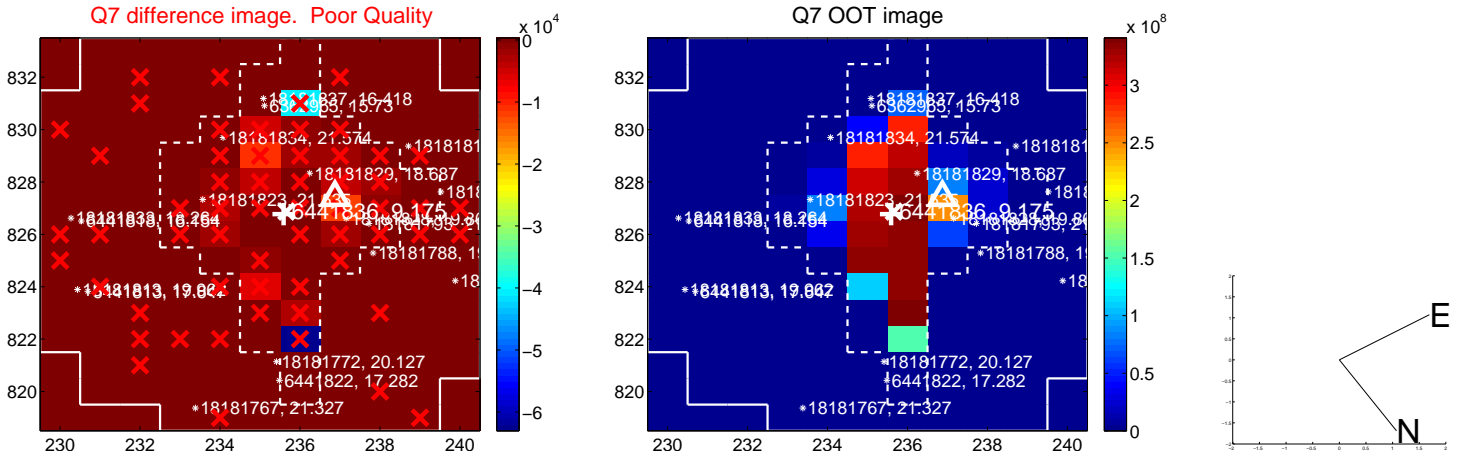
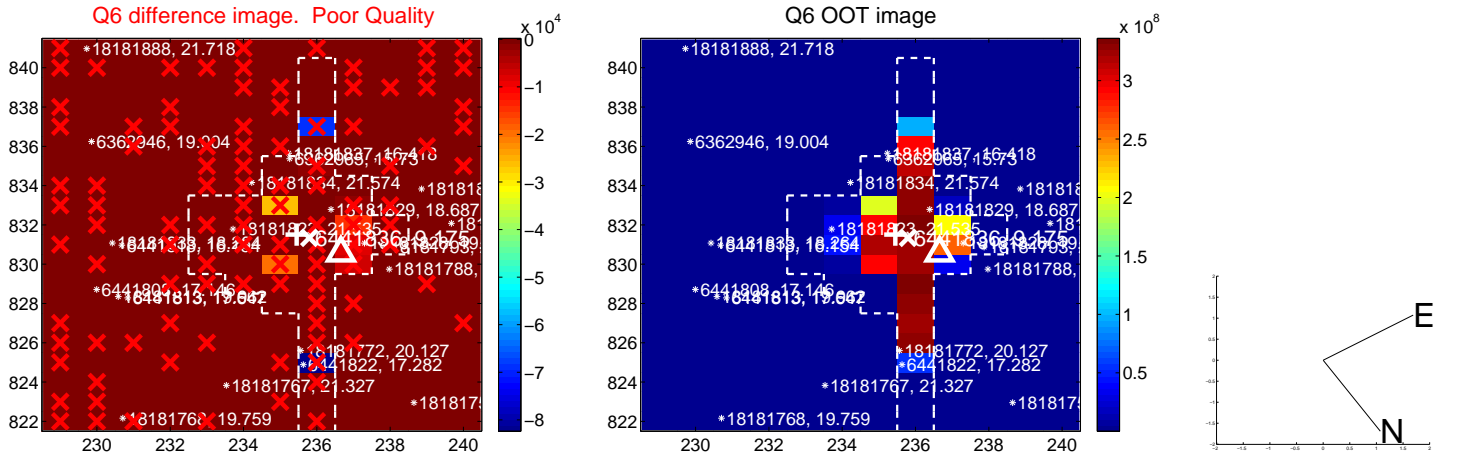
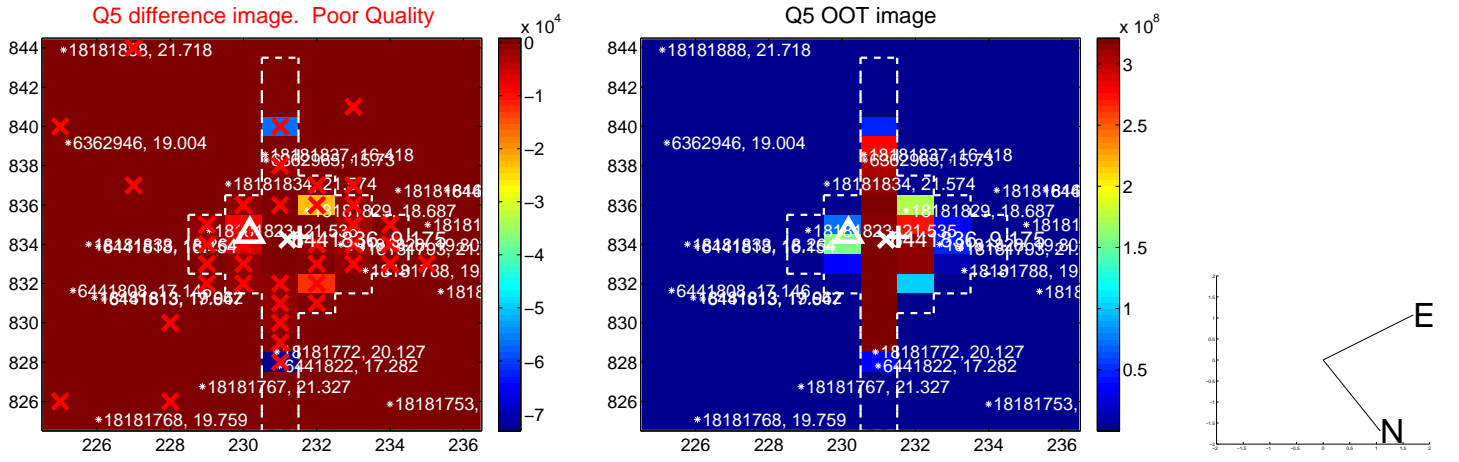


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

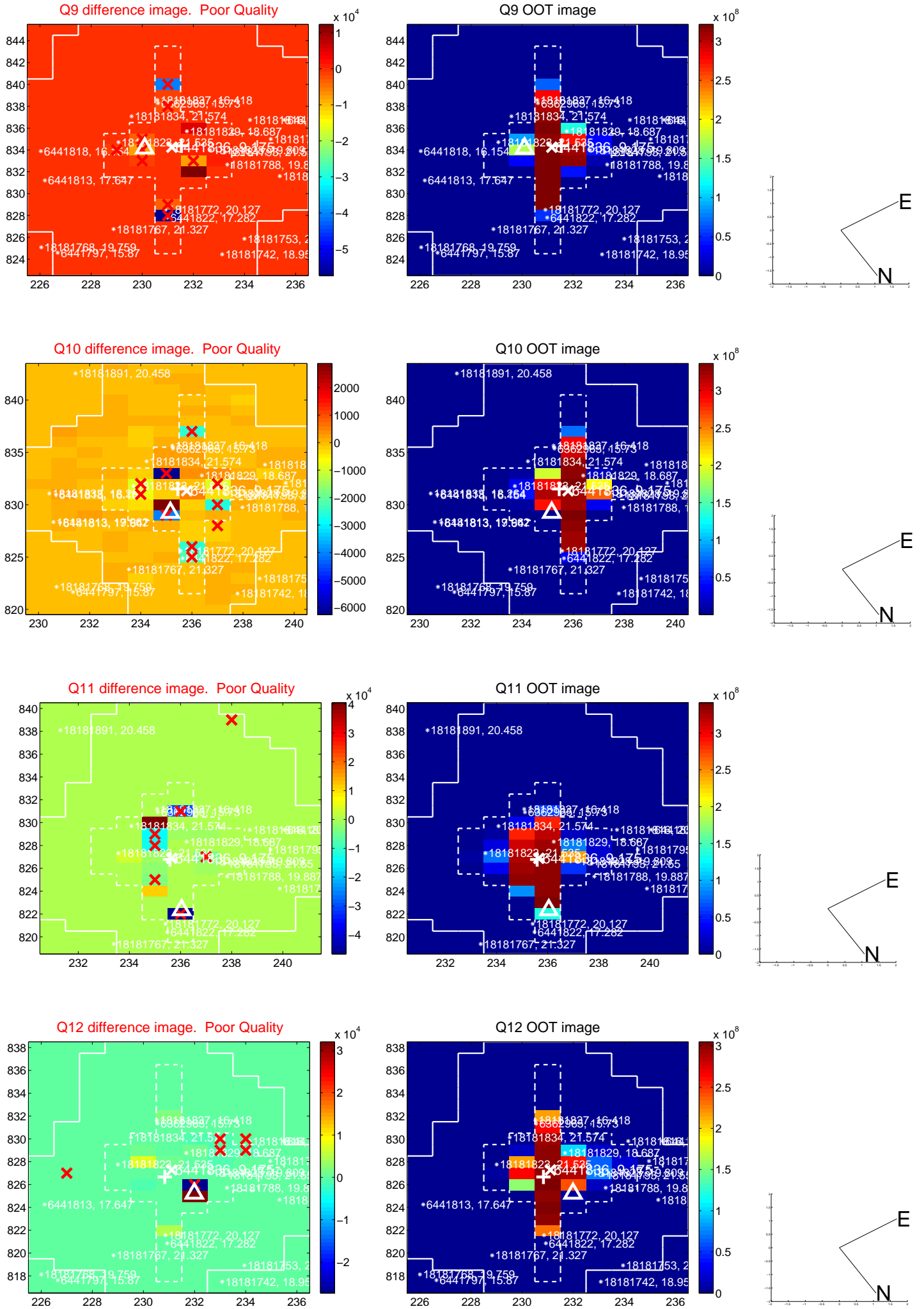
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



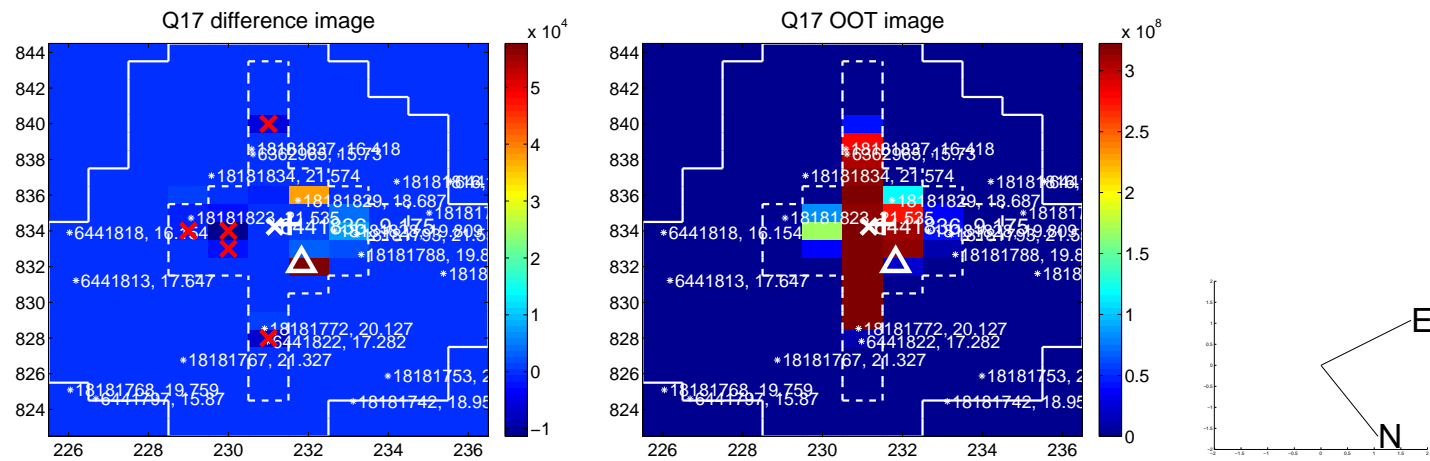
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

