

KIC 008378634

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008378634-01 | OBS | 1139.01 | 3.629424 | 134.703772 | 313.7 | 5.405 | 87.3 | 80.6 | 1.22 | 6506 | 2.79 | 1001.29 |
| 008378634-02 | OBS | No | 3.629420 | 132.929599 | 40.3 | 4.619 | 11.2 | 12.4 | 1.22 | 6506 | 0.90 | 1001.29 |
| 008378634-03 | OBS | No | 217.844169 | 304.560715 | 37.1 | 5.609 | 10.6 | 1.4 | 1.22 | 6506 | 0.86 | 4.26 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 008378634-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 1 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH |
| 008378634-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 1 | IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 008378634-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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 008378634-01

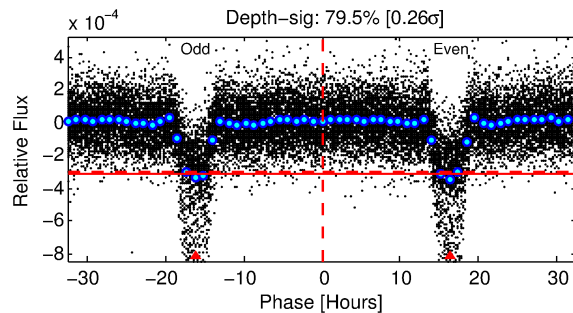
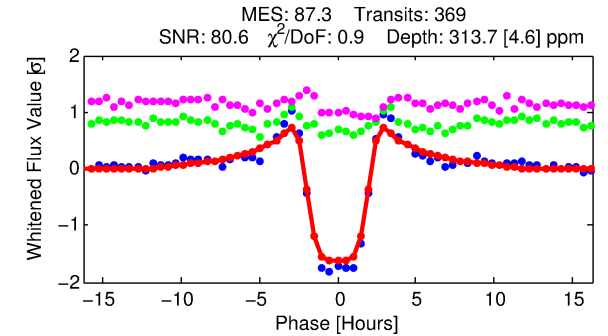
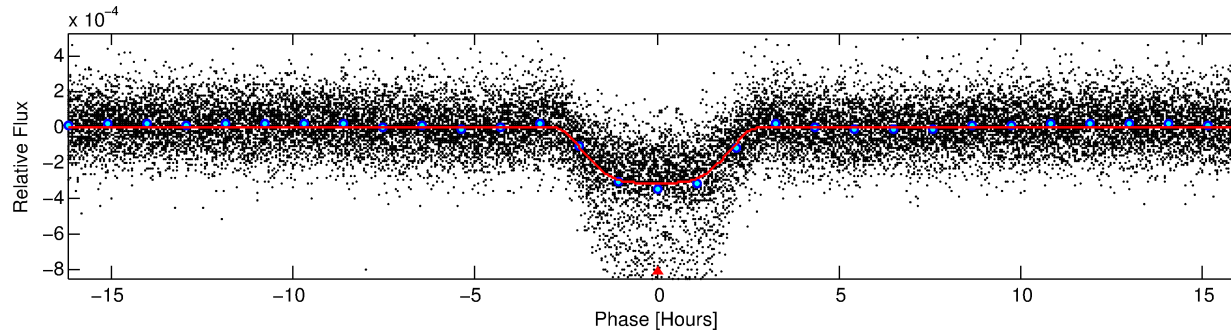
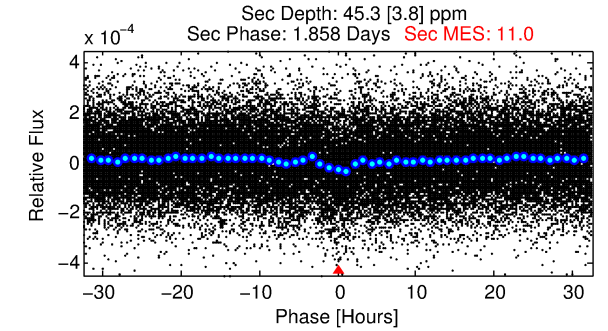
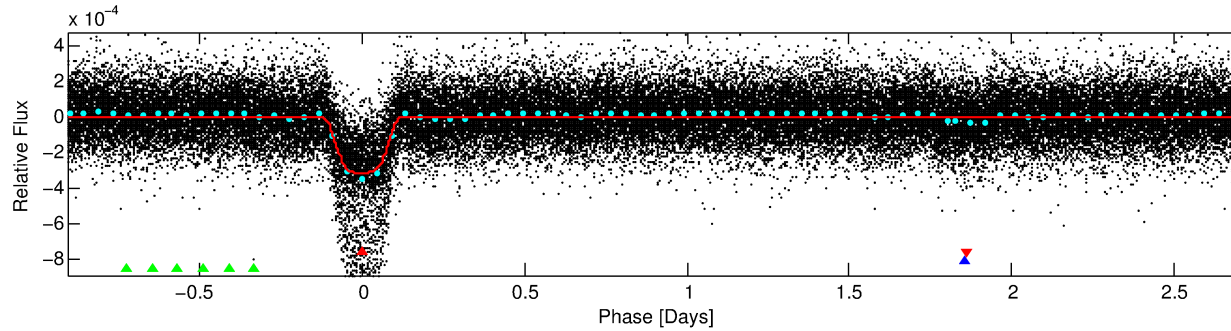
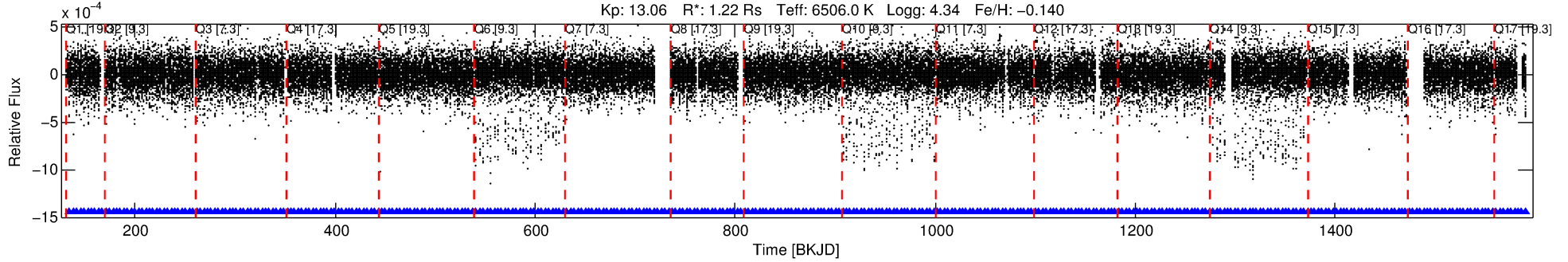
| TCE (1) | KIC | Parent (2) | Parent KIC | P ₁ :P ₂ | Dist (μ) | Δ Row | Δ Col | m ₂ | m ₁ | D ₂ /D ₁ | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|---------------|------------|--------------------------------|----------------|--------------|--------------|----------------|----------------|--------------------------------|------------|------|------------|------------|
| 008378634-01 | 8378634 | 008378656-pri | 8378656 | 1:1 | 14.2 | 3 | -1 | 12.79 | 13.06 | 451.27 | Direct-PRF | 0 | 0.26 | 0.15 |

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8378634 Candidate: 1 of 3 Period: 3.629 d
KOI: K01139.01 Corr: 0.985

Kp: 13.06 R*: 1.22 Rs Teff: 6506.0 K Logg: 4.34 Fe/H: -0.140



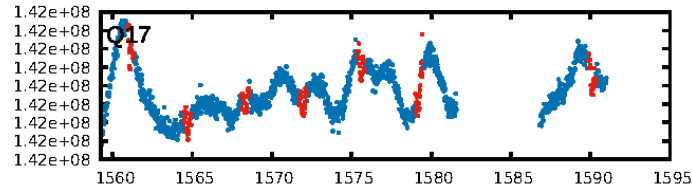
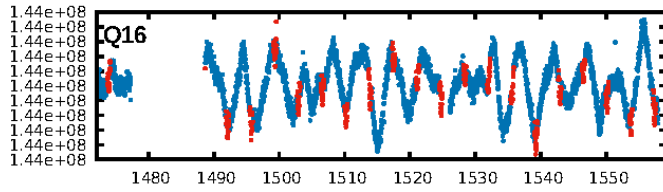
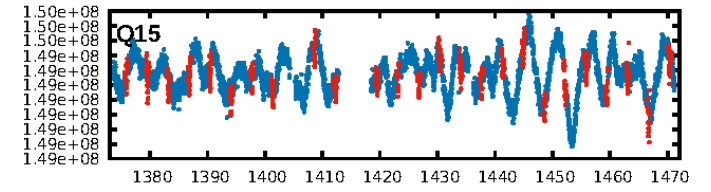
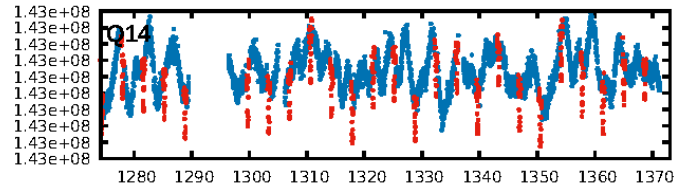
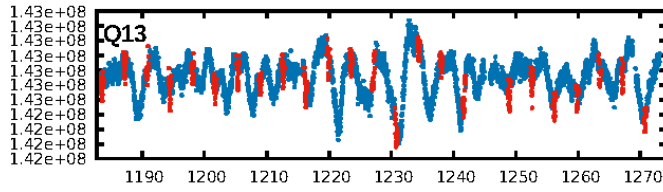
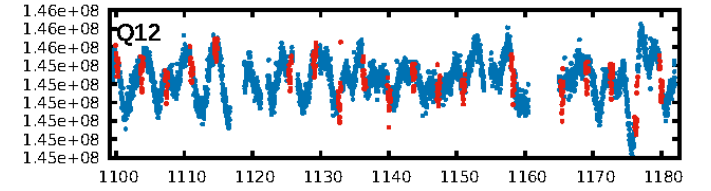
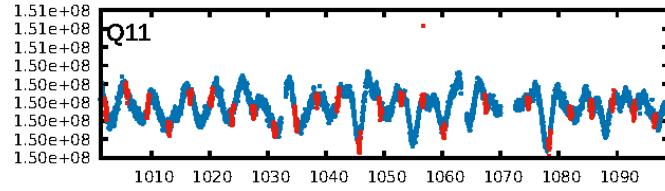
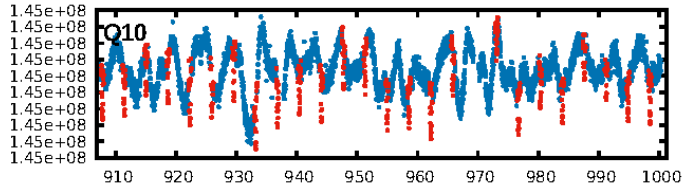
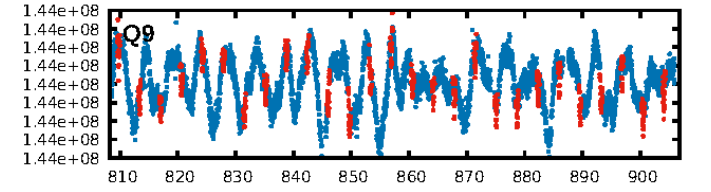
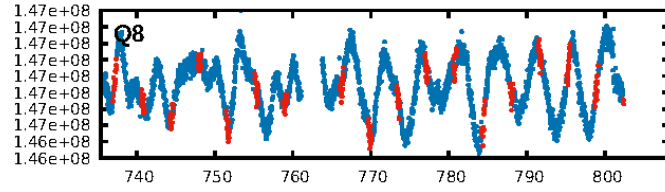
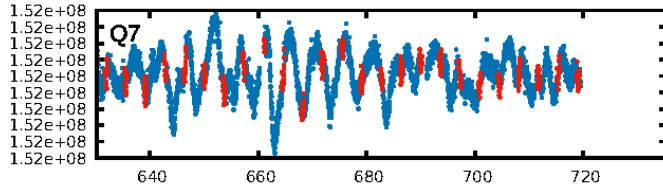
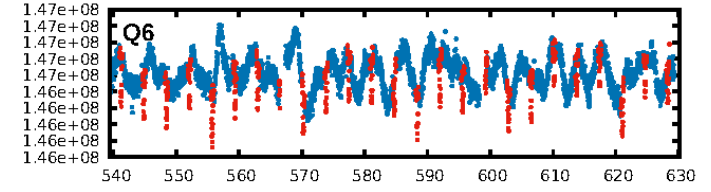
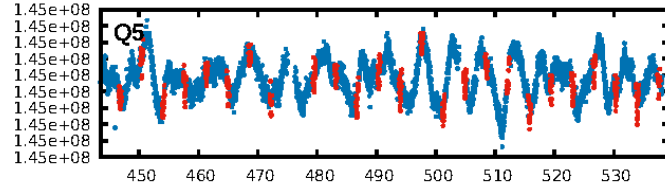
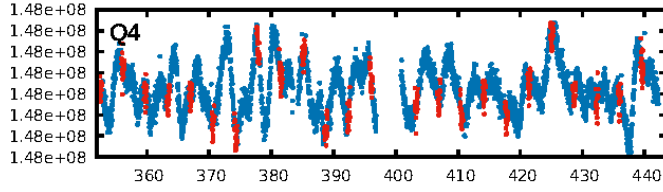
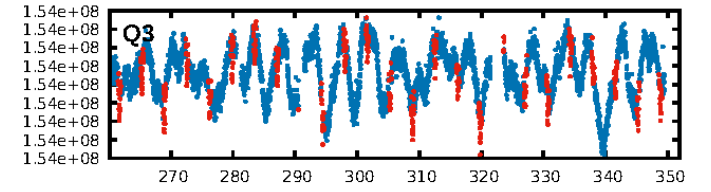
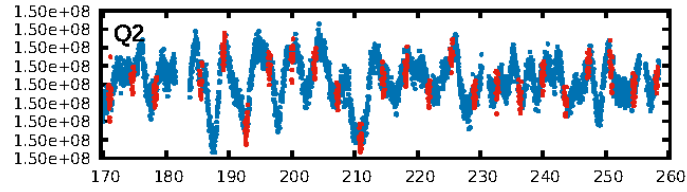
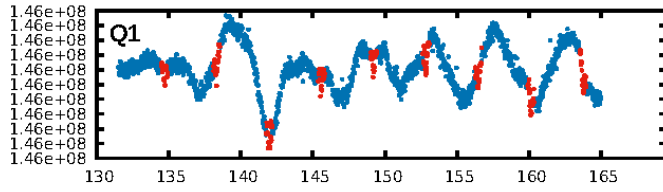
DV Fit Results:

Period = 3.62942 [0.00001] d
Epoch = 134.7038 [0.0010] BKJD
Rp/R* = 0.0210 [0.0002]
a/R* = 1.88 [0.03]
b = 0.97 [0.00]
Seff = 1001.29 [289.31]
Teq = 1434 [104] K
Rp = 2.79 [0.61] Re
a = 0.0487 [0.0089] AU
Ag = 7.58 [2.10] [3.14σ]
Teffp = 3679 [135] K [13.20σ]

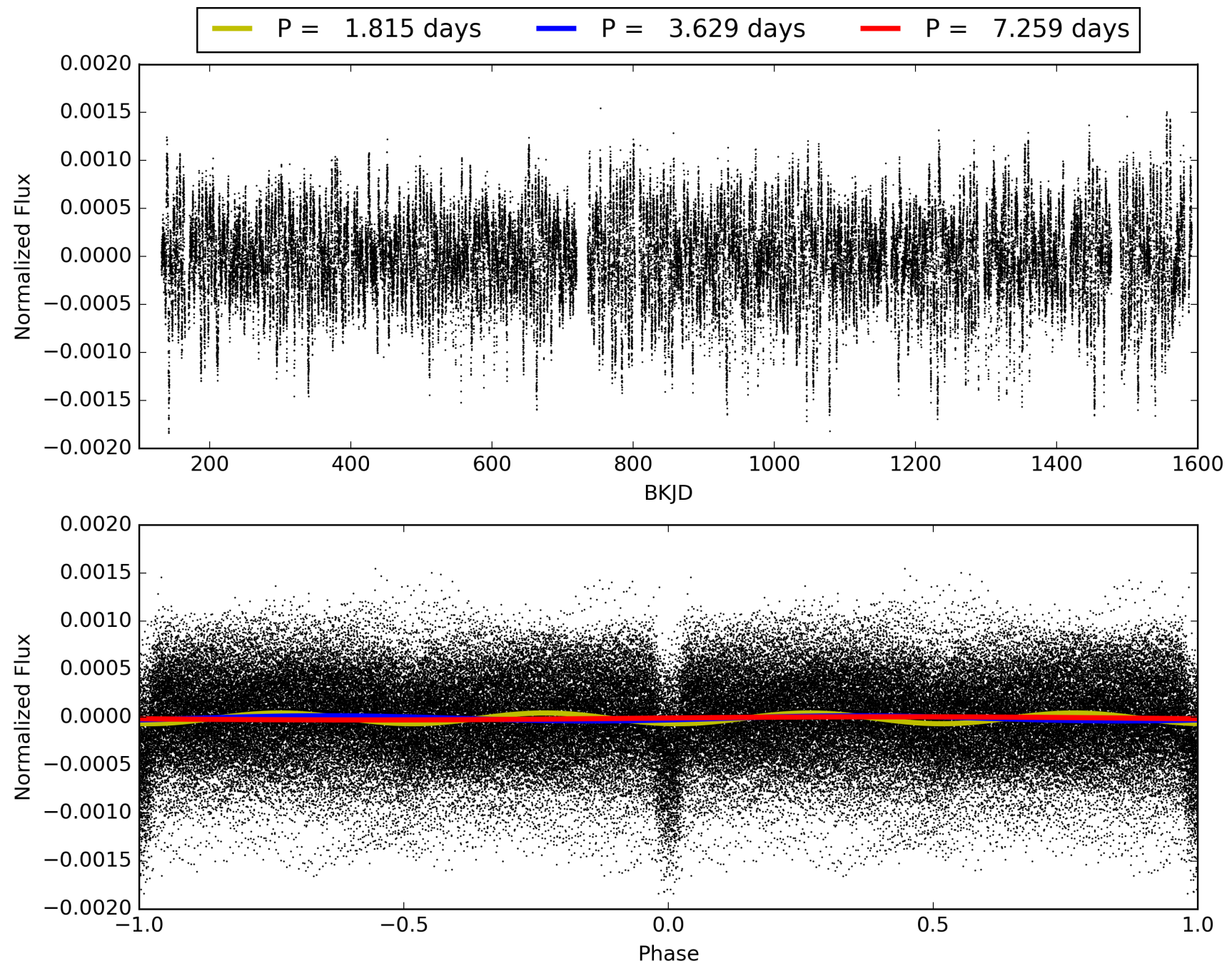
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [660.03σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [353/353]
GhostDiagnostic-chr: -0.2762
Centroid-sig: N/A
Centroid-so: 84.102 arcsec [571.90σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008378634-01, PDC Light Curves

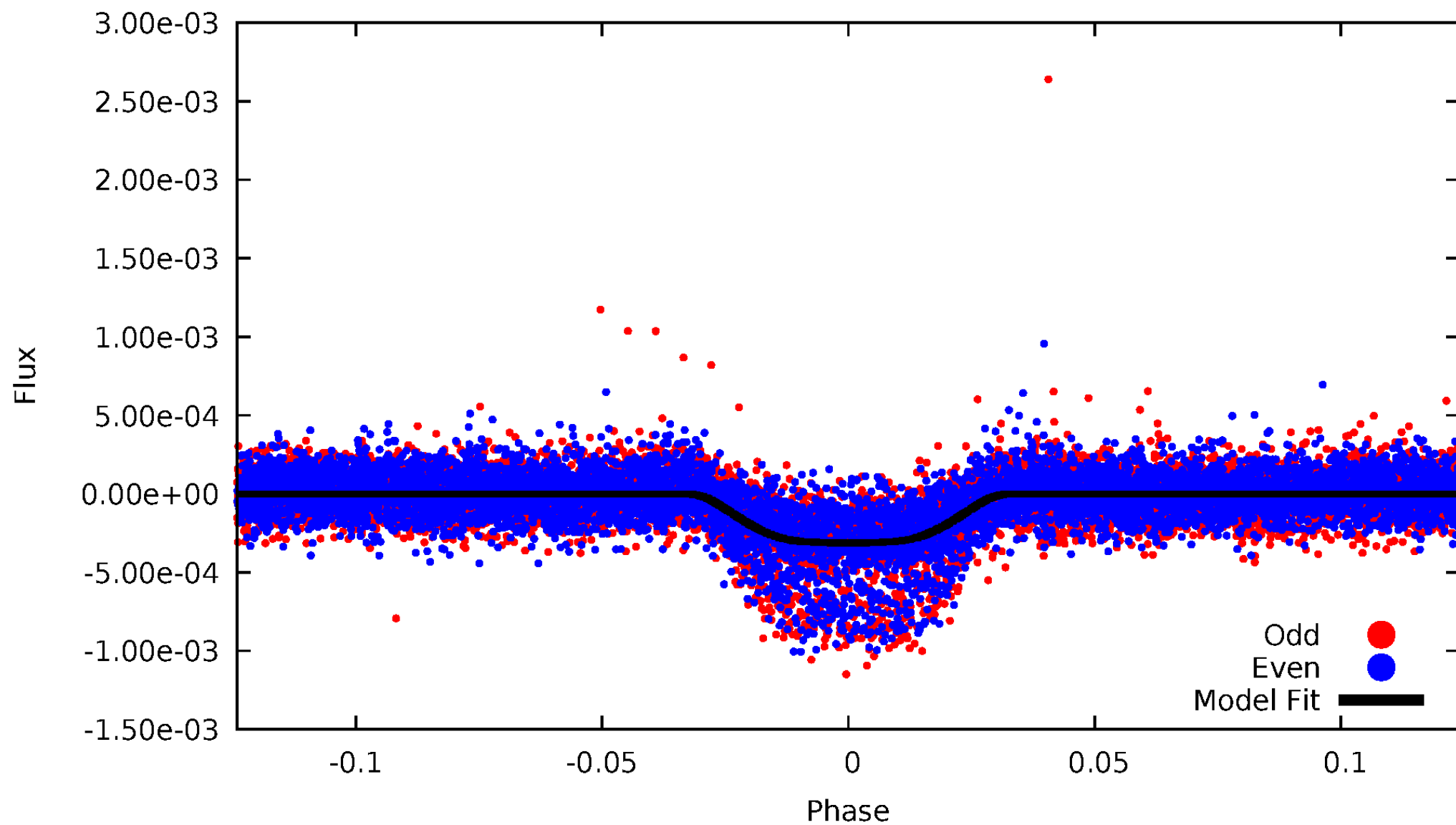


TCE 008378634-01



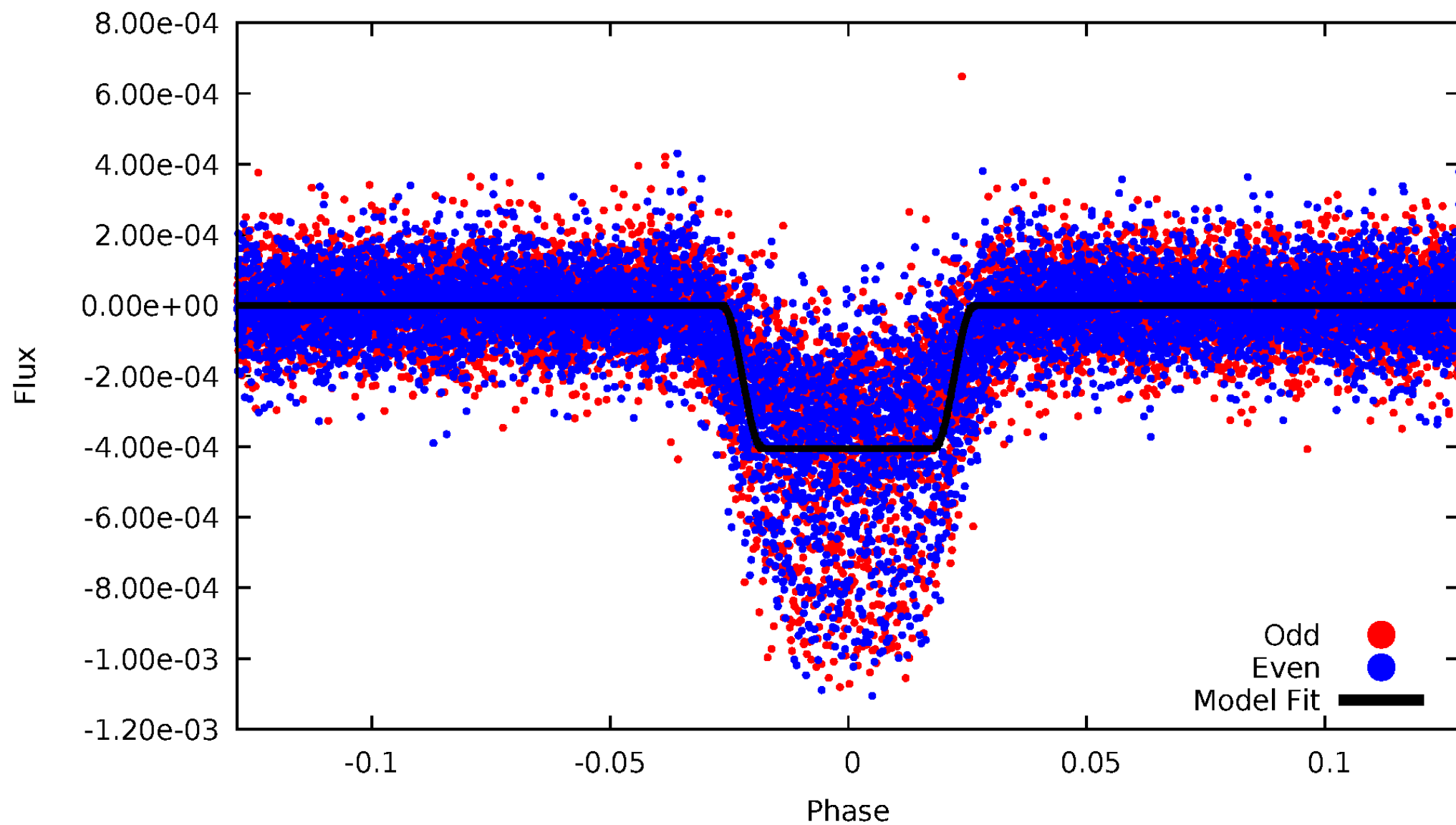
DV Odd/Even

TCE 008378634-01



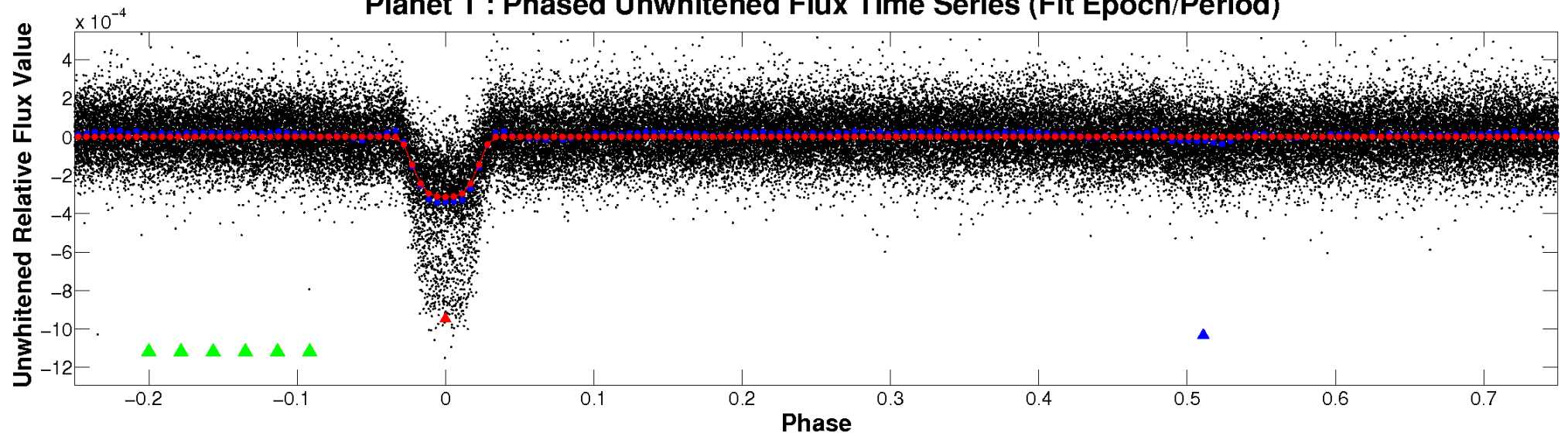
ALT Odd/Even

TCE 008378634-01

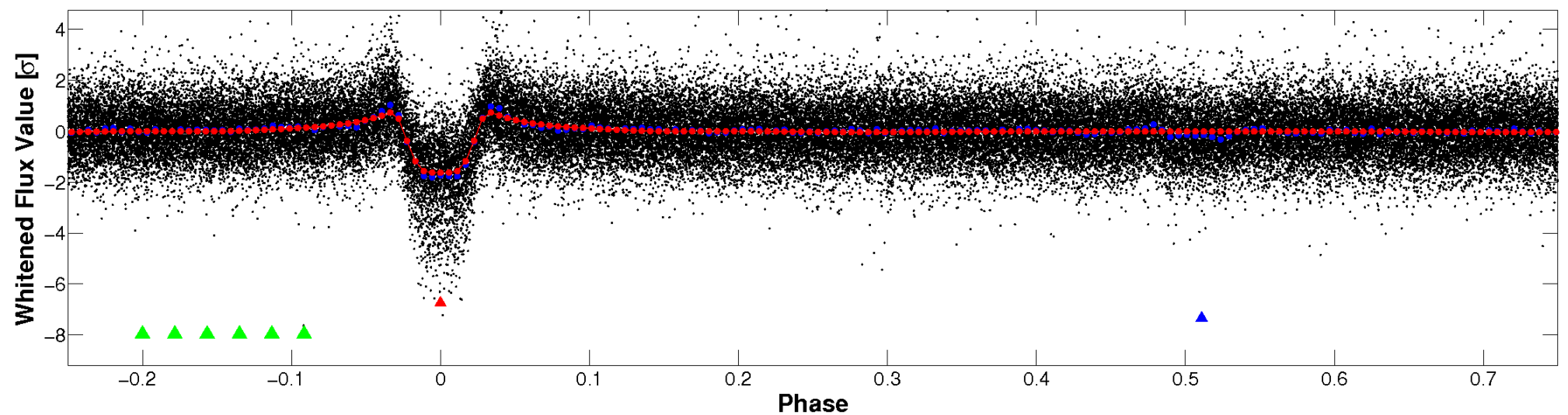


Non-Whitened Vs. Whitened Light Curve

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

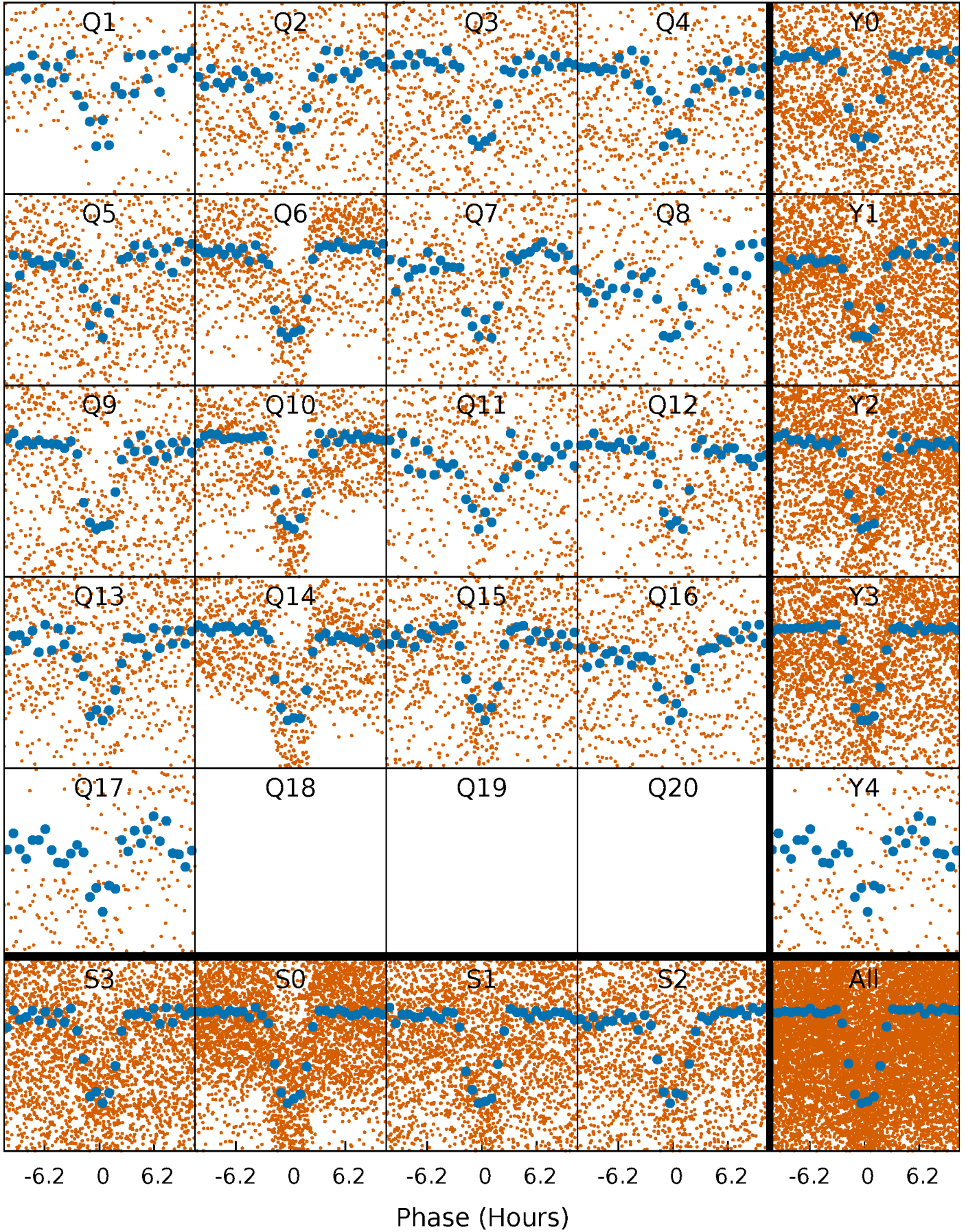


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



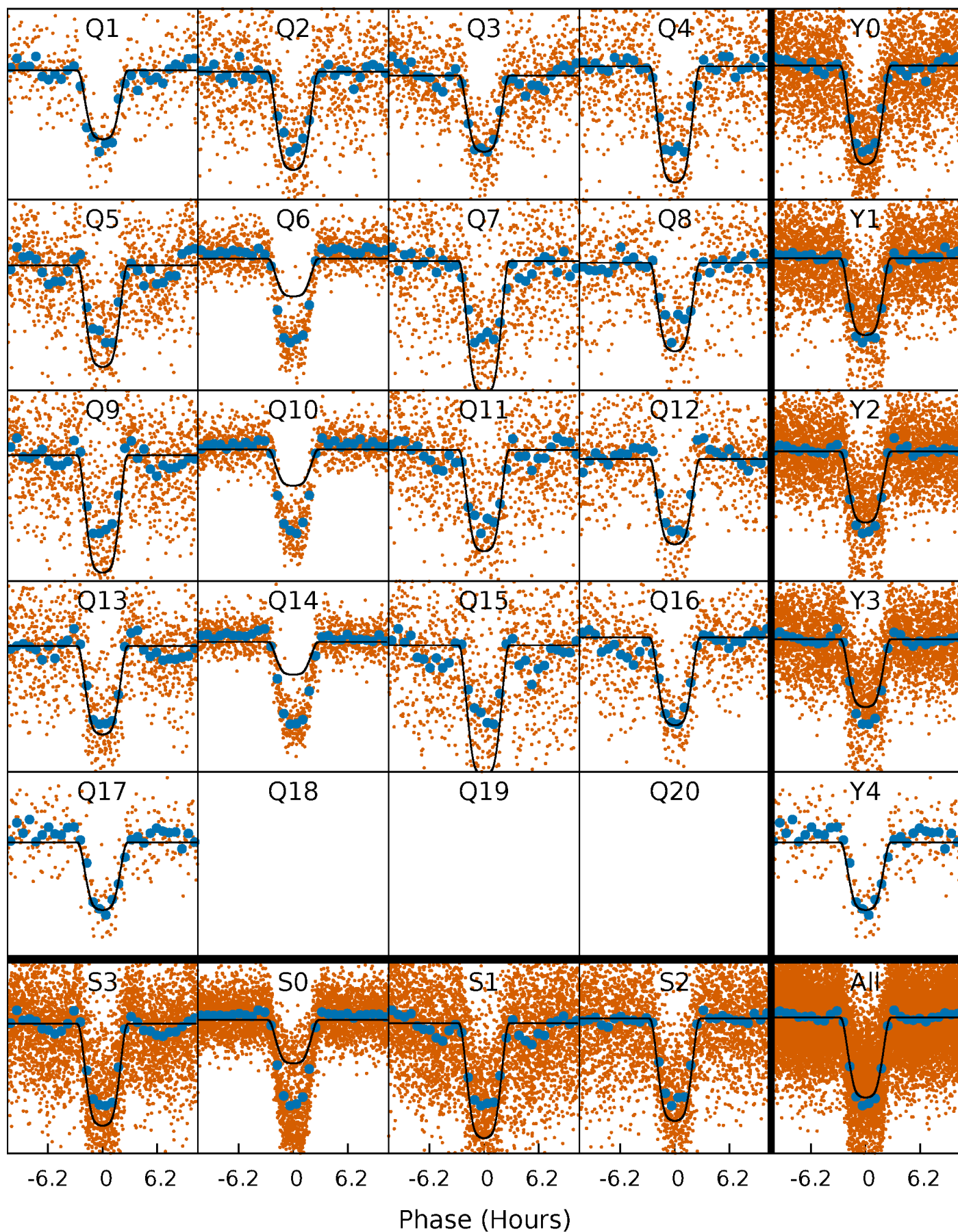
PDC Quarter-Phased Transit Curves

TCE 008378634-01 P= 3.629423 Days $T_0=134.703772$ (BKJD)



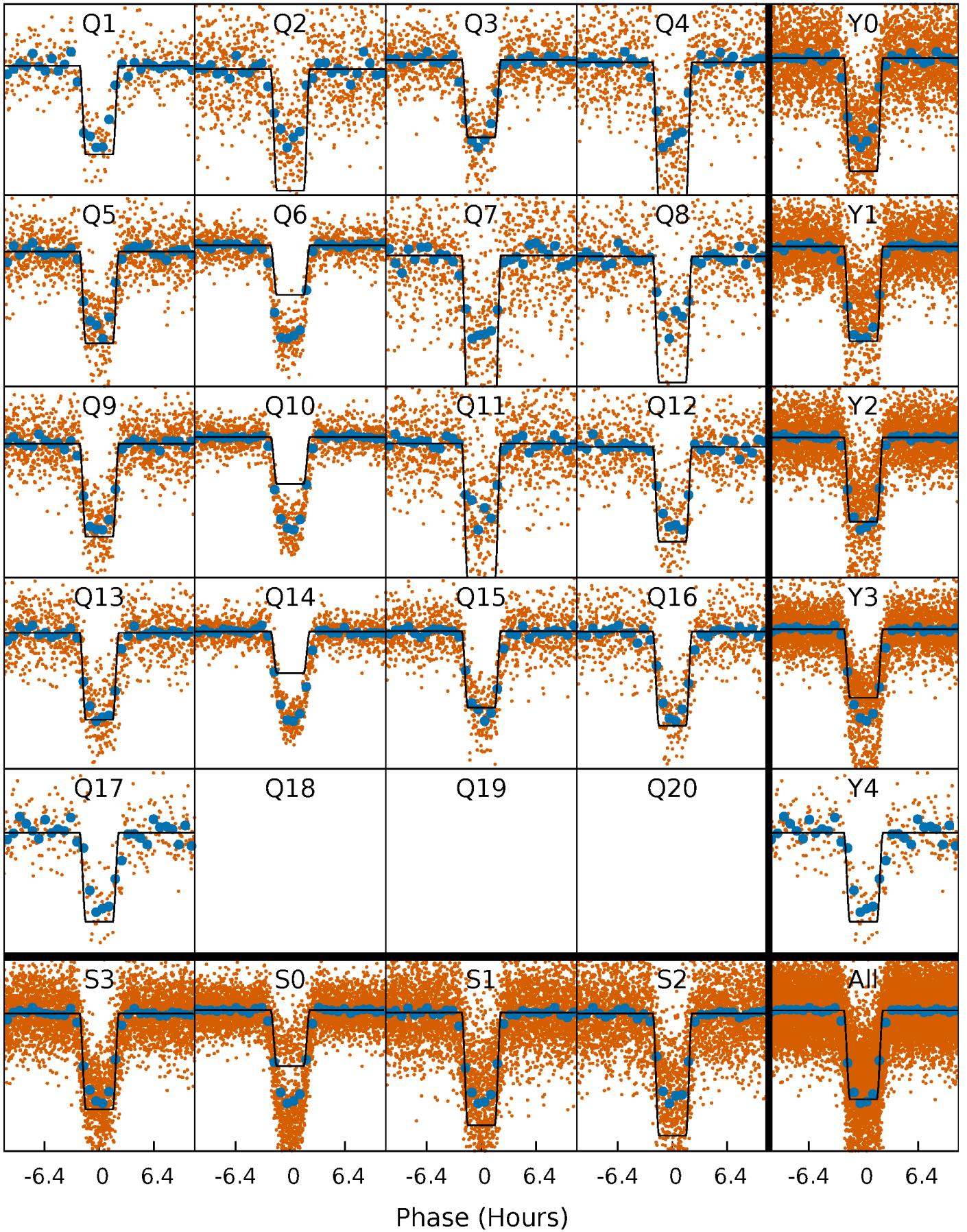
DV Quarter-Phased Transit Curves

TCE 008378634-01 P= 3.629423 Days $T_0=134.703772$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

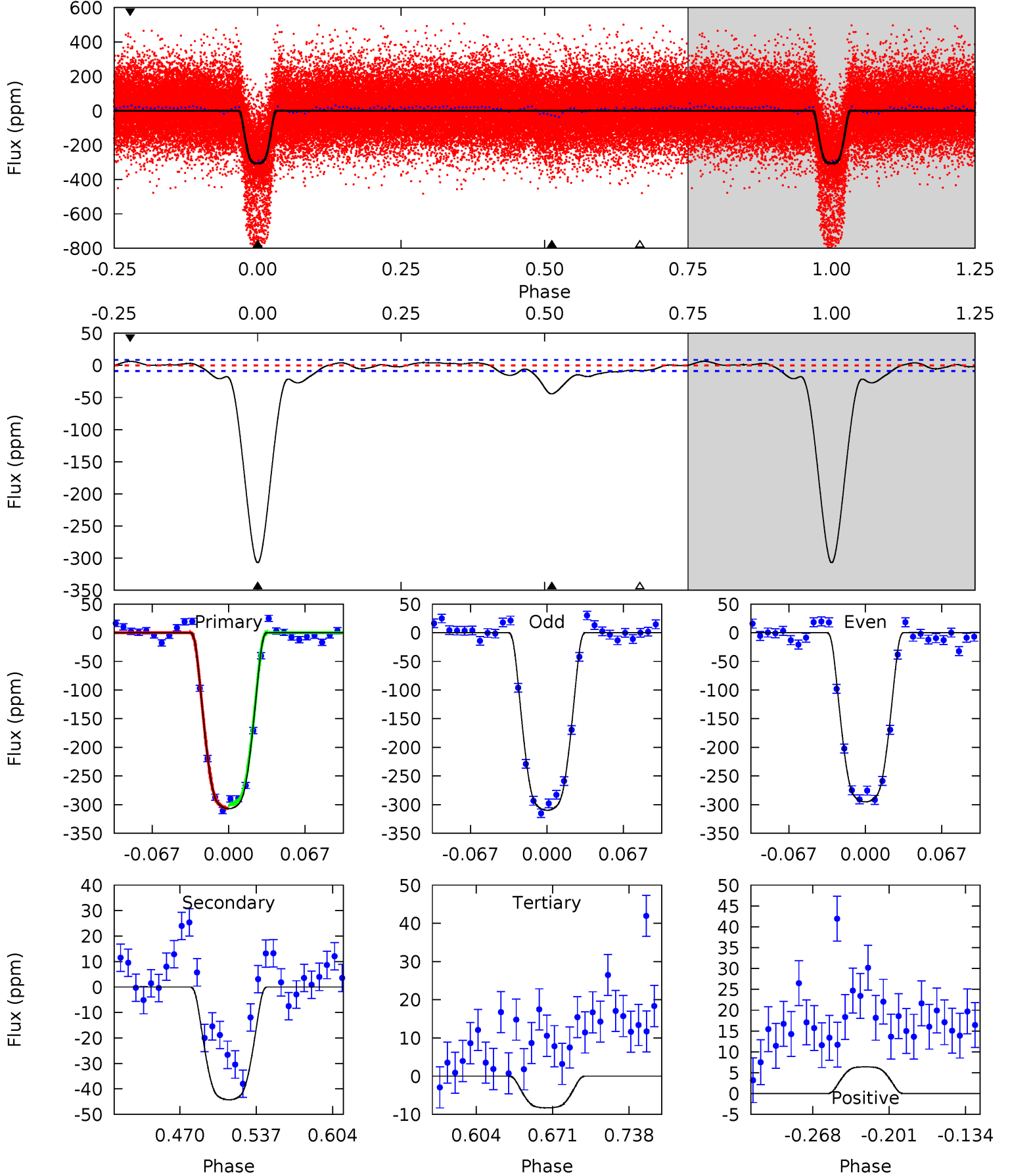
TCE 008378634-01 P= 3.629386 Days $T_0=134.713021$ (BKJD)



DV Model-Shift Uniqueness Test

008378634-01, P = 3.629423 Days, E = 131.074349 Days

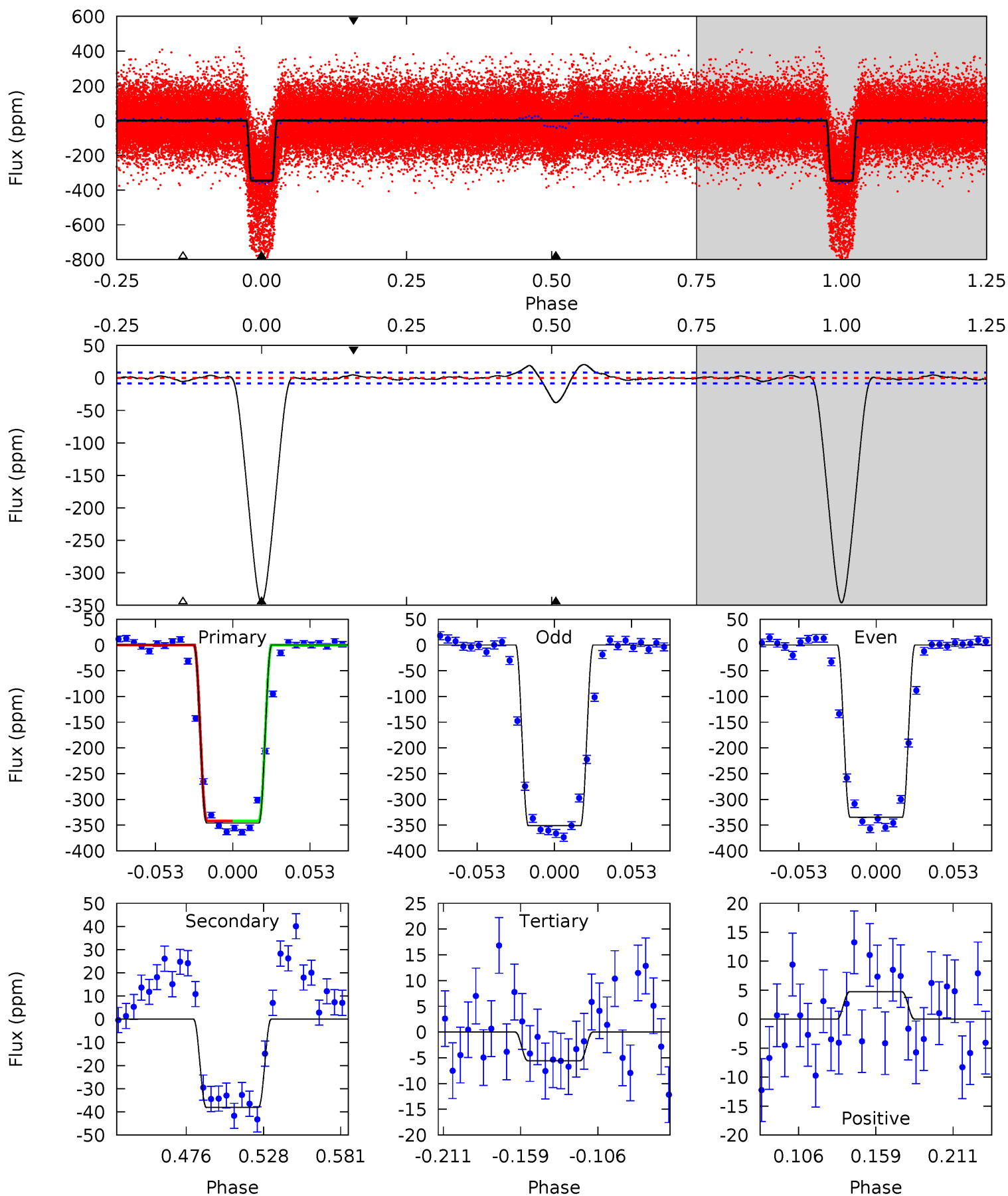
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 165.0 | 23.8 | 4.45 | 3.45 | 4.65 | 1.83 | 3.83 | 160.6 | 161.6 | 19.3 | 20.3 | 3.94 | 1.22 | 0.02 | 1.71 |



Alt Model-Shift Uniqueness Test

008378634-01, P = 3.629386 Days, E = 131.083635 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 195.7 | 21.5 | 3.15 | 2.68 | 4.70 | 1.94 | 1.93 | 192.5 | 193.0 | 18.4 | 18.8 | 4.64 | 1.15 | 0.06 | 0.00 |



Stellar Parameters For KIC 008378634

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6506^{+145}_{-194} | $4.336^{+0.077}_{-0.143}$ | $-0.140^{+0.250}_{-0.300}$ | $1.217^{+0.265}_{-0.155}$ | $1.171^{+0.150}_{-0.150}$ | $0.916^{+0.312}_{-0.386}$ |
| | +2%/-3% | +2%/-3% | +179%/-214% | +22%/-13% | +13%/-13% | +34%/-42% |
| Source | PHO1 | FLK73 | 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 008378634-01 / KOI 1139.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -44 ± 2 | $2.82^{+0.33}_{-0.22}$ | 2022^{+102}_{-92} | 3945^{+75}_{-82} | $7.127^{+1.140}_{-1.280}$ |
| Alt. | -38 ± 2 | $2.71^{+0.36}_{-0.21}$ | 2019^{+111}_{-91} | 3898^{+72}_{-81} | $6.669^{+1.103}_{-1.294}$ |

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

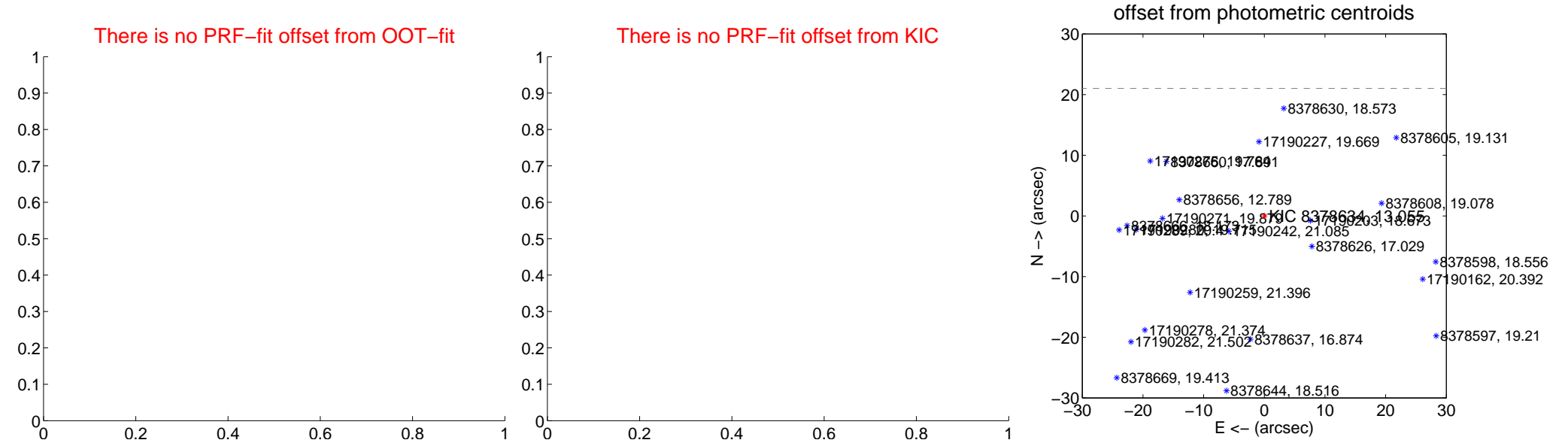
DV Centroid Data

Supplemental centroid analysis for 008378634-01. Kepler magnitude: 13.05. Transit SNR 80.55

There are 0 quarters with good PRF difference image offsets

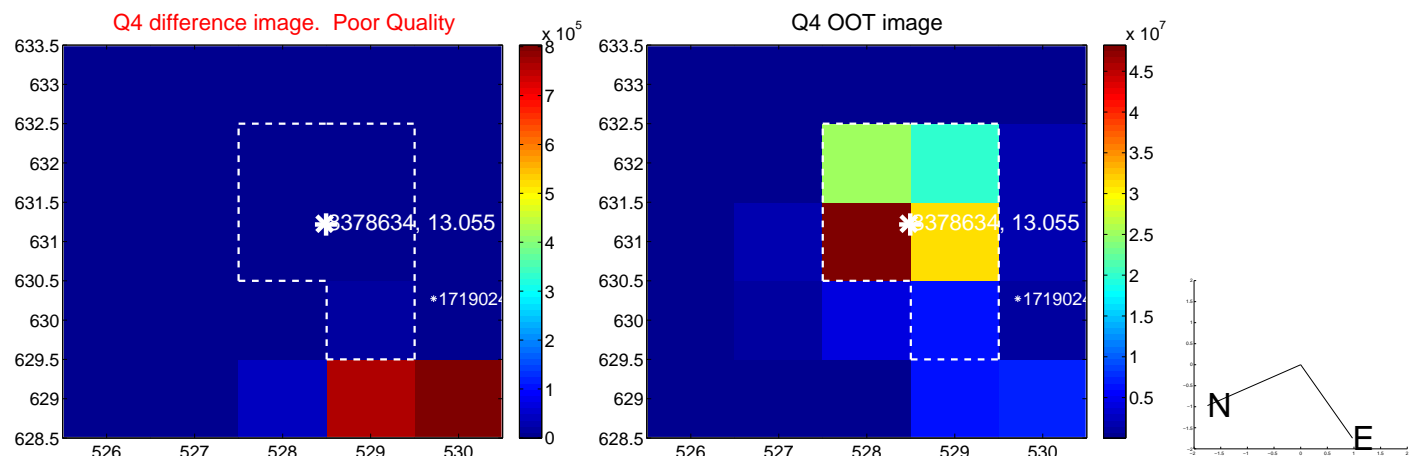
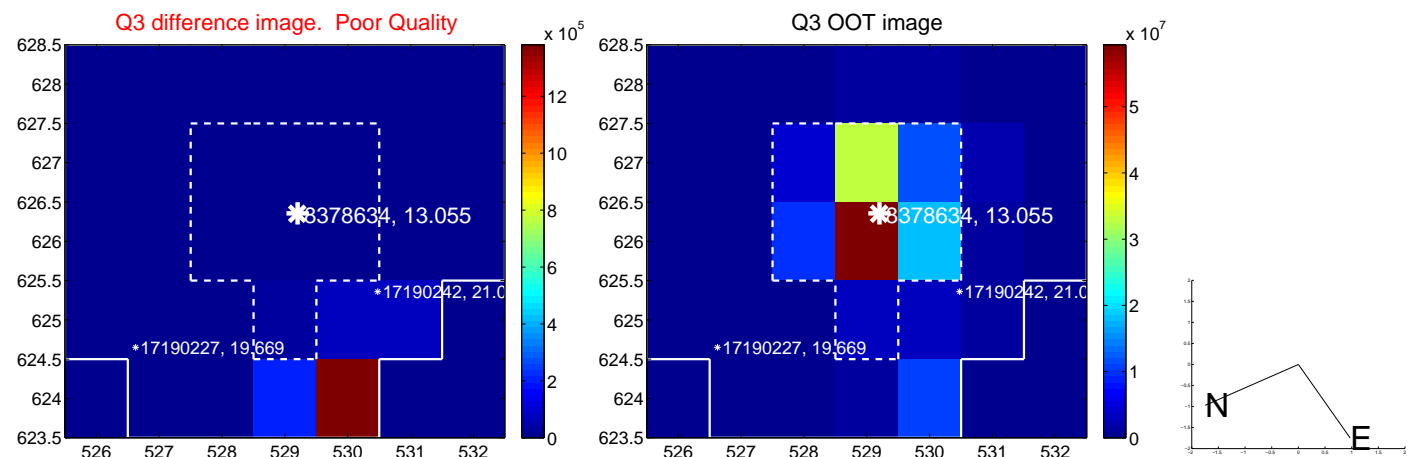
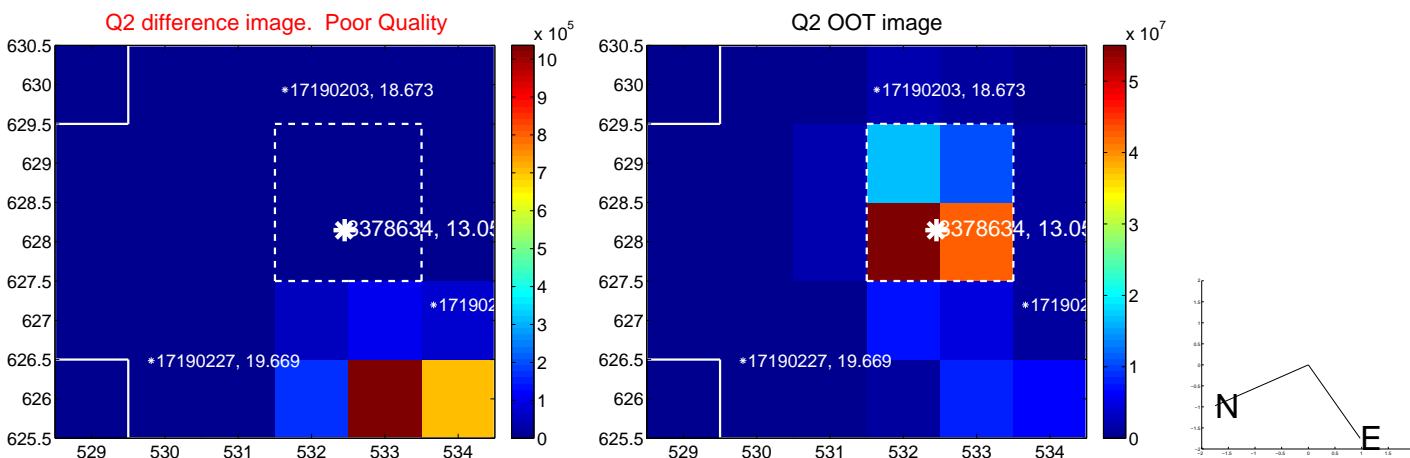
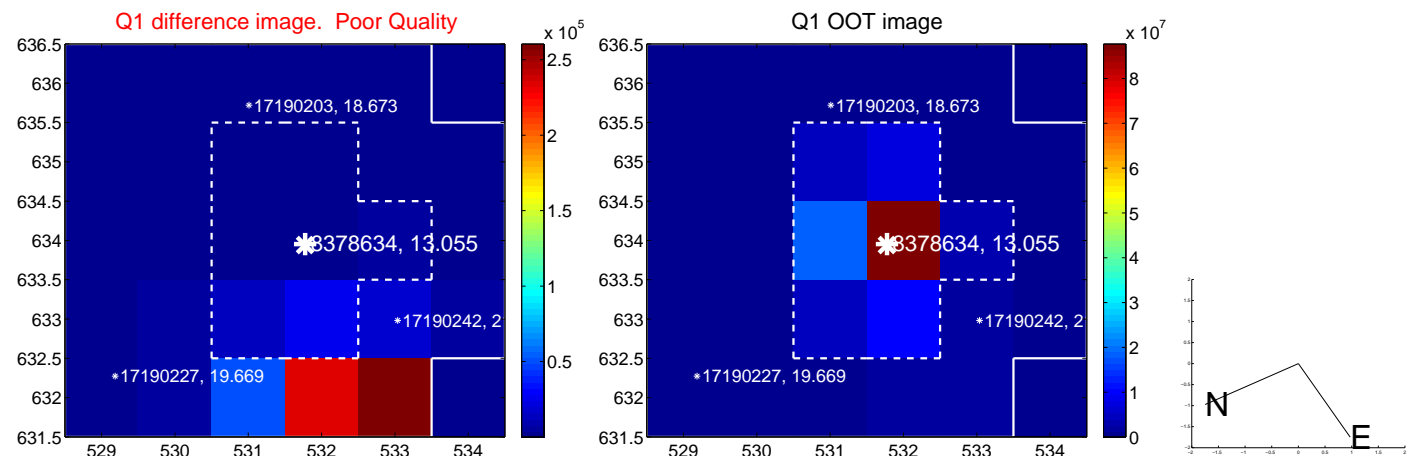
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|------------------|------------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | 84.09 \pm 0.15 | 571.90 | 81.42 \pm 0.15 | 21.02 \pm 0.09 |

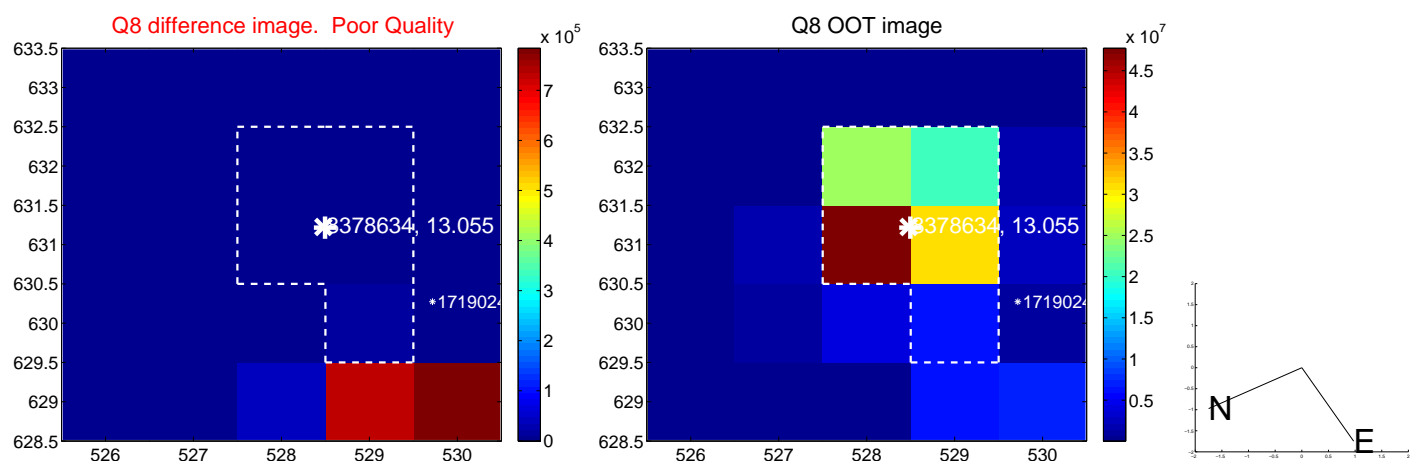
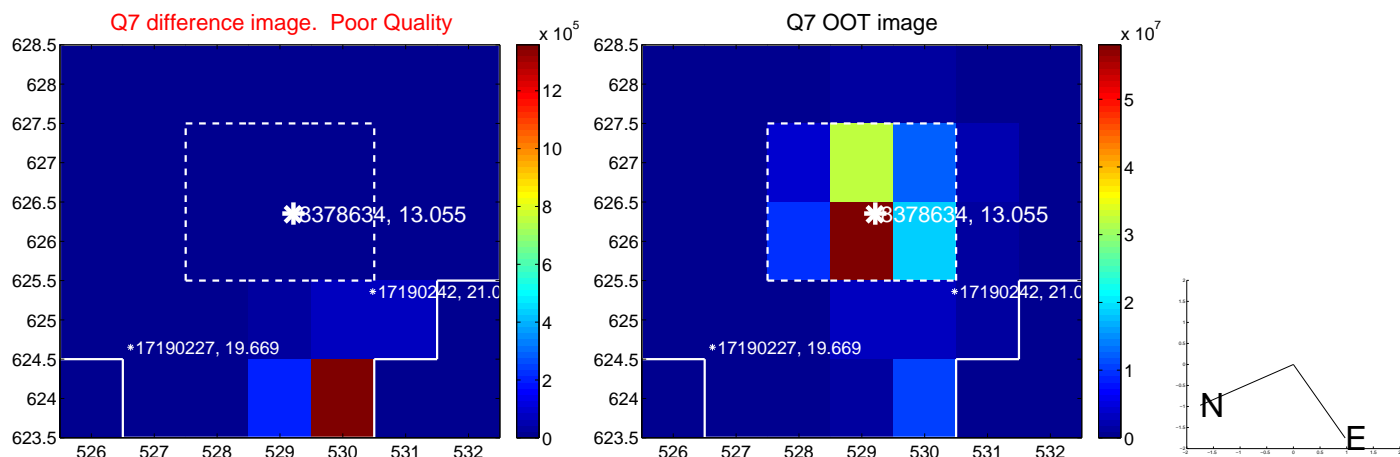
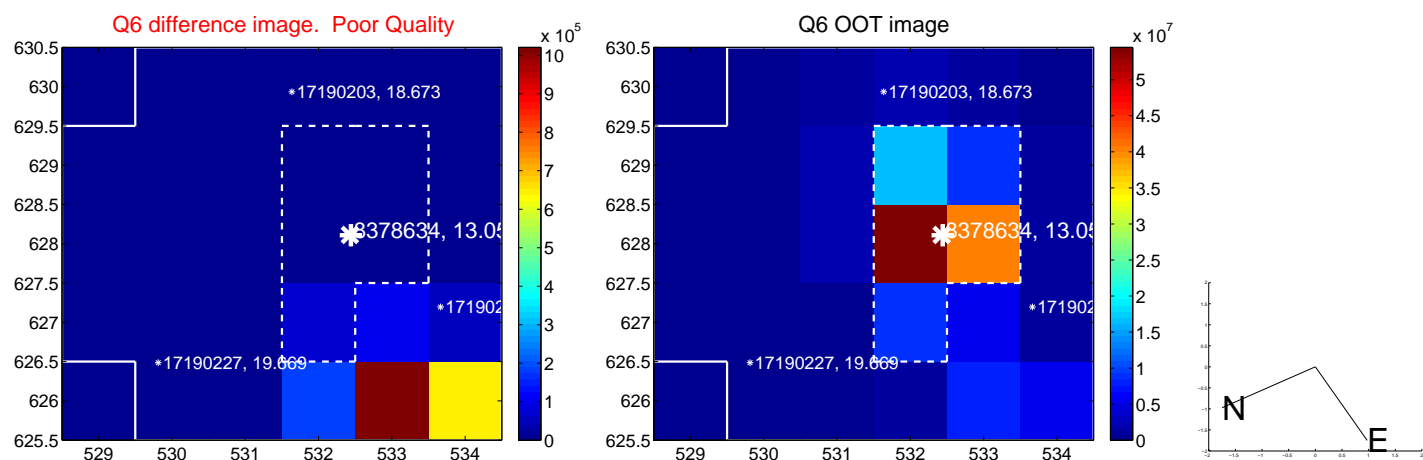
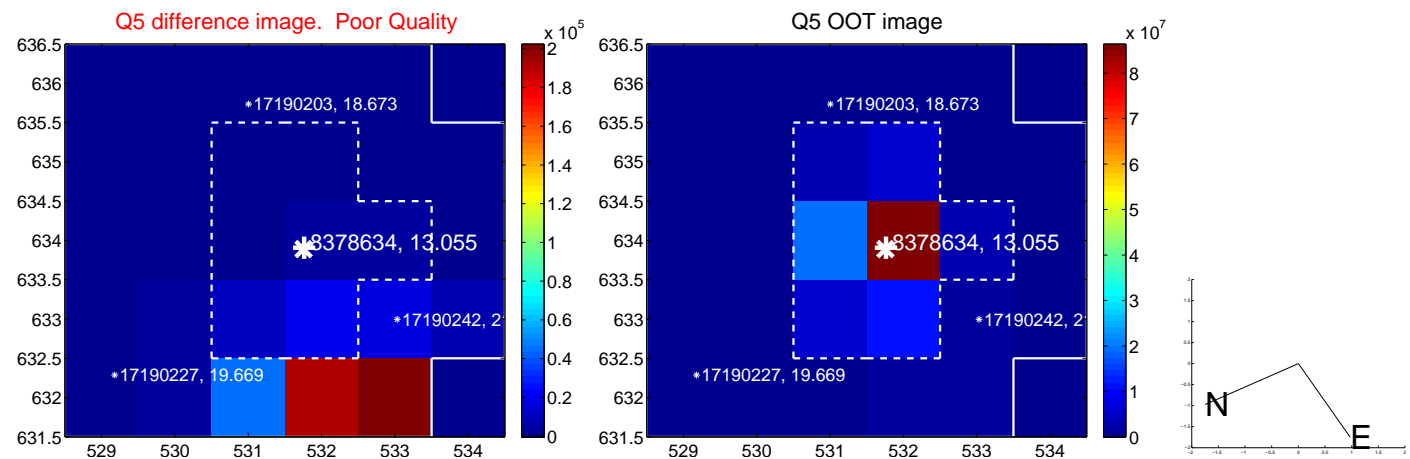


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

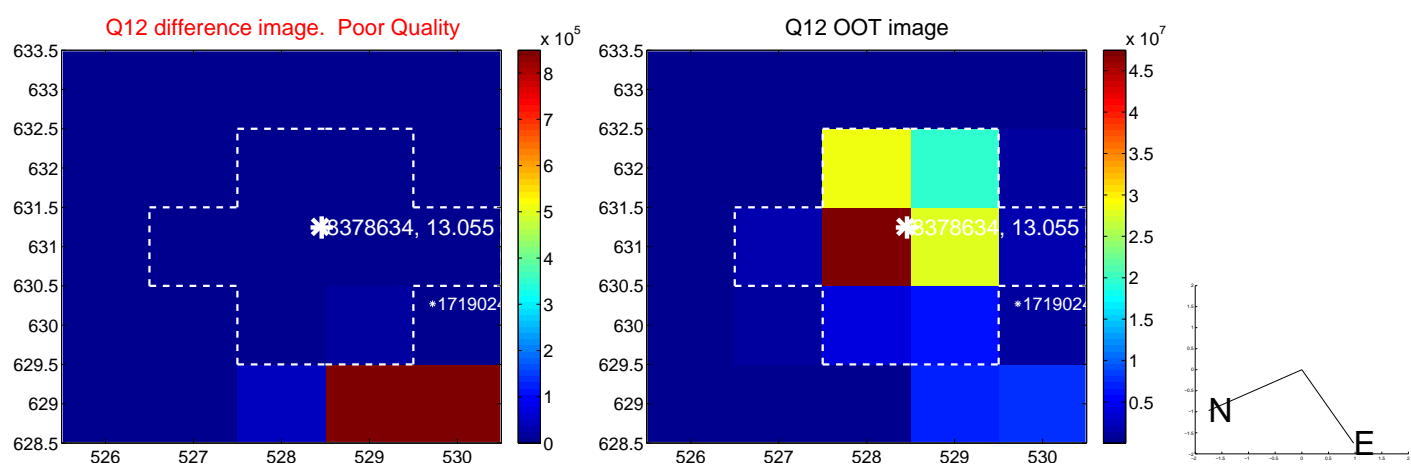
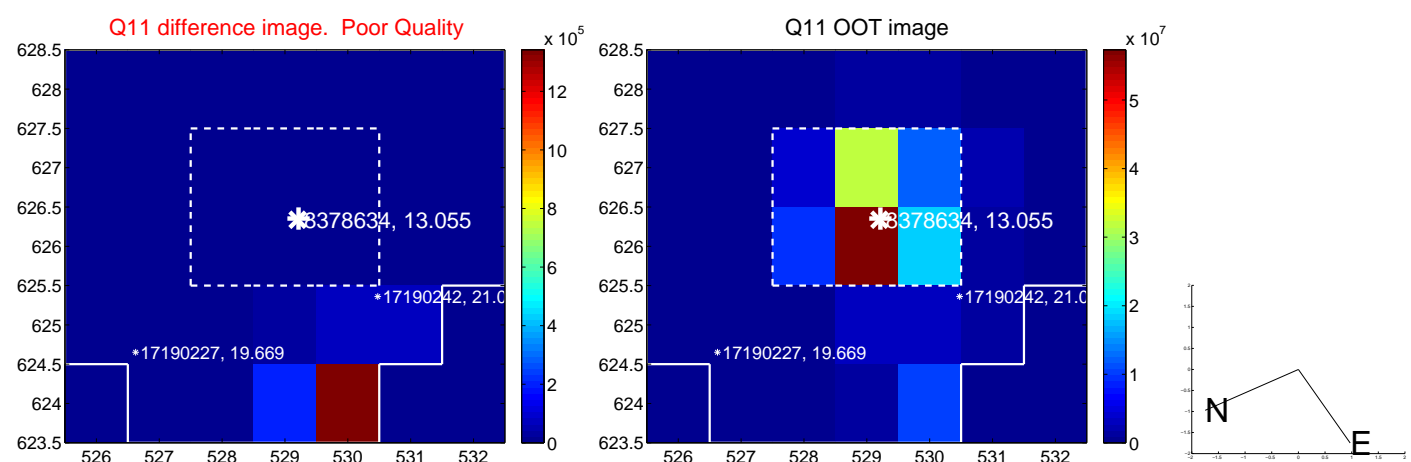
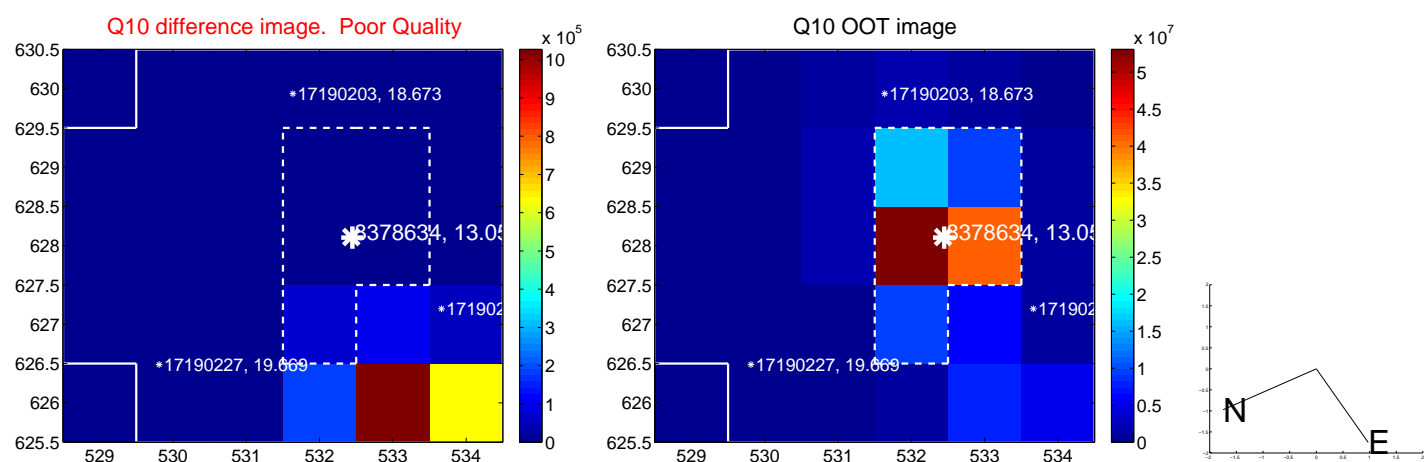
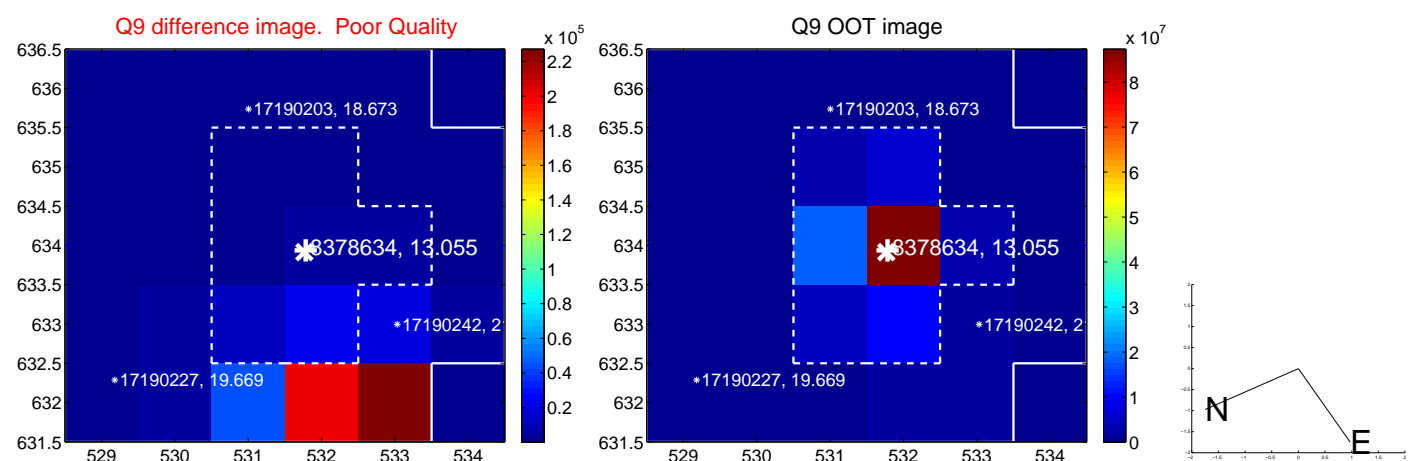
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



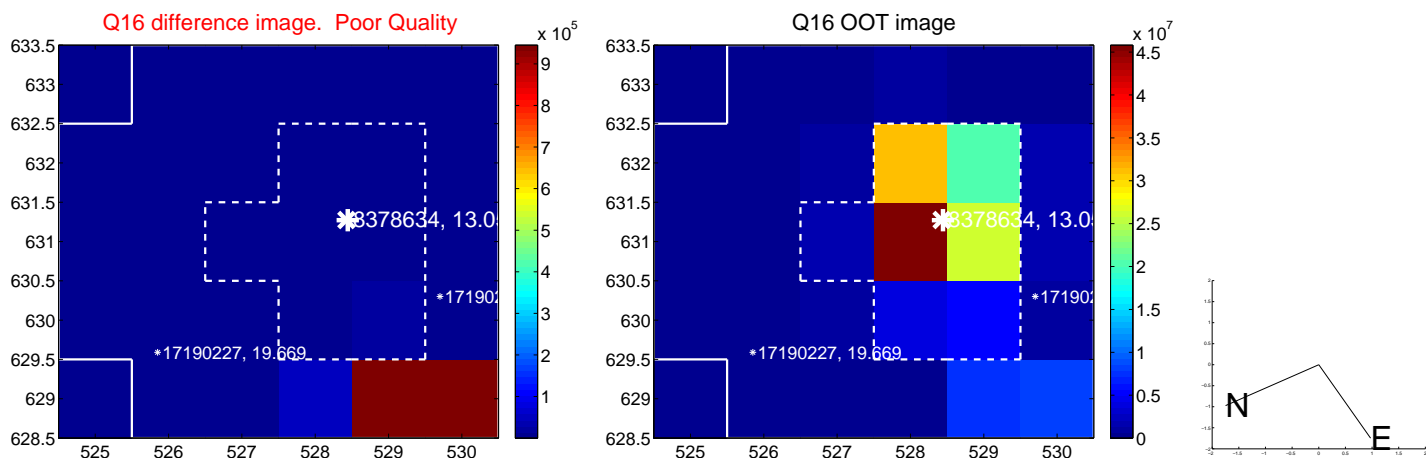
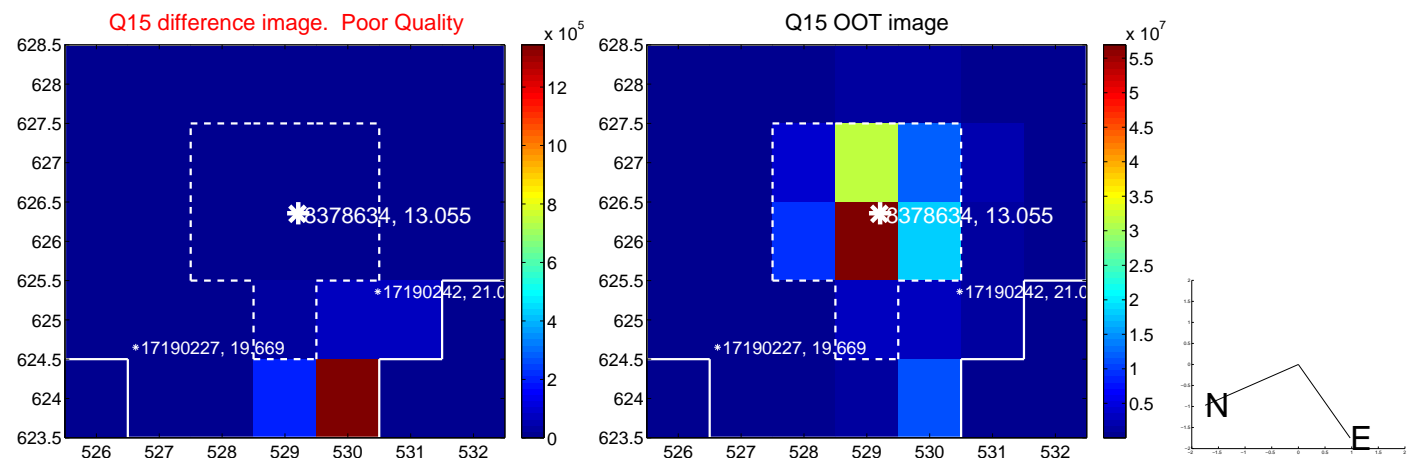
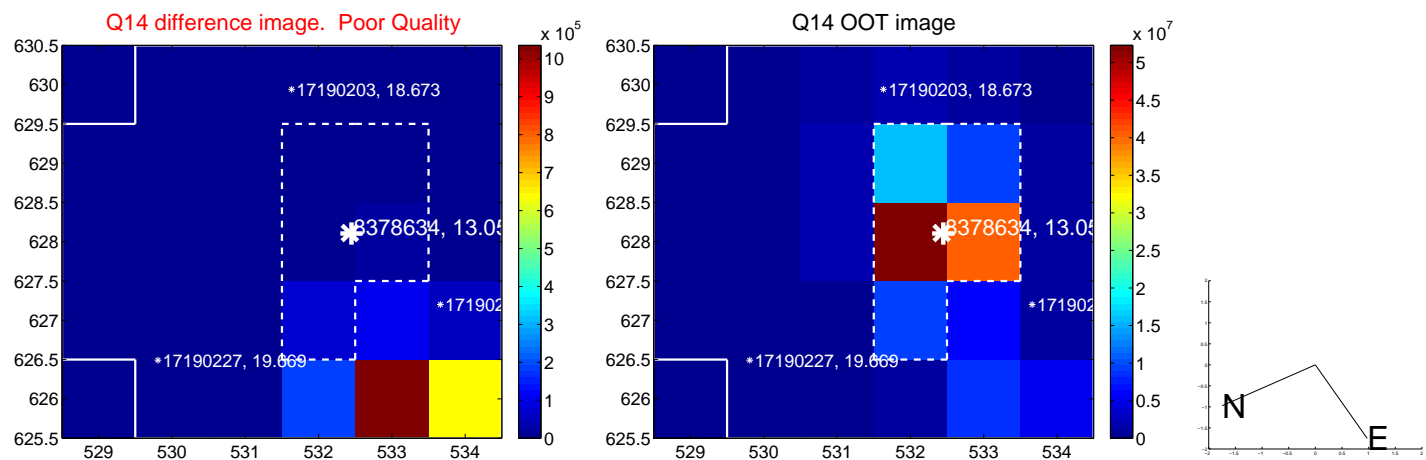
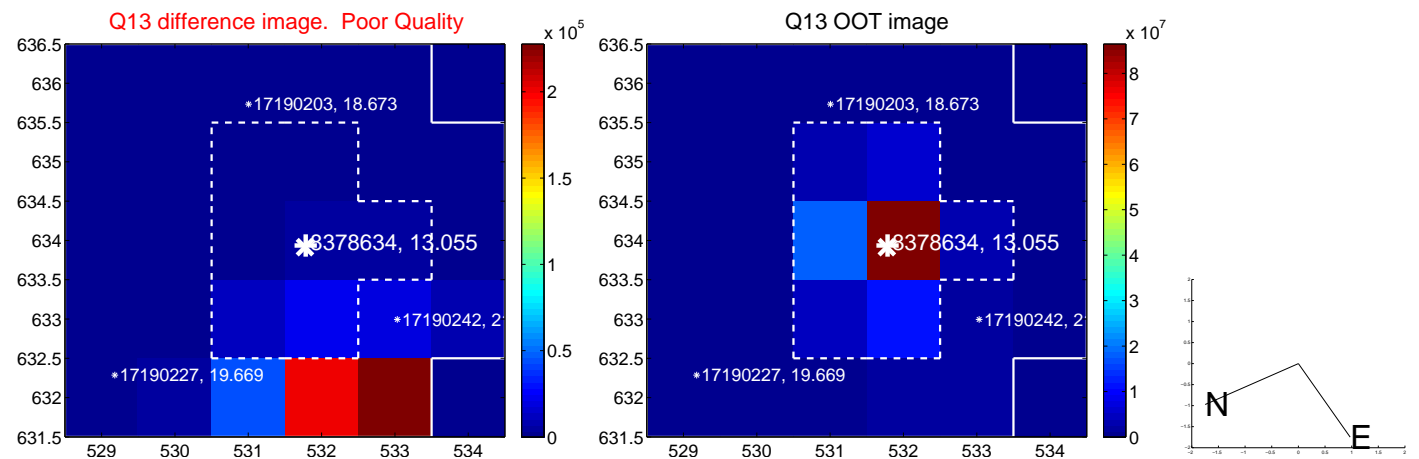
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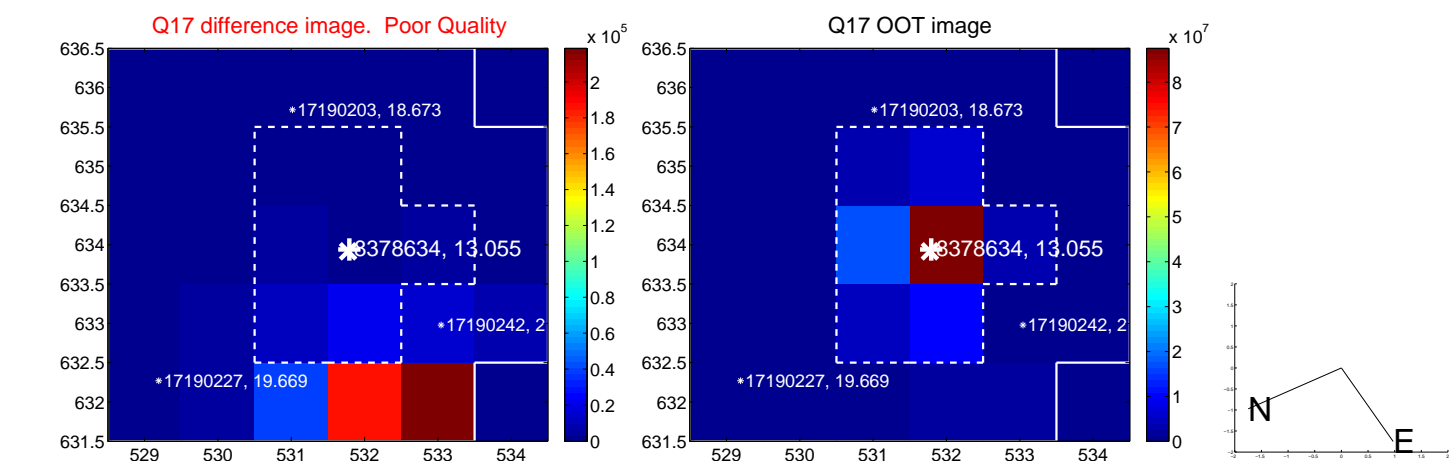
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



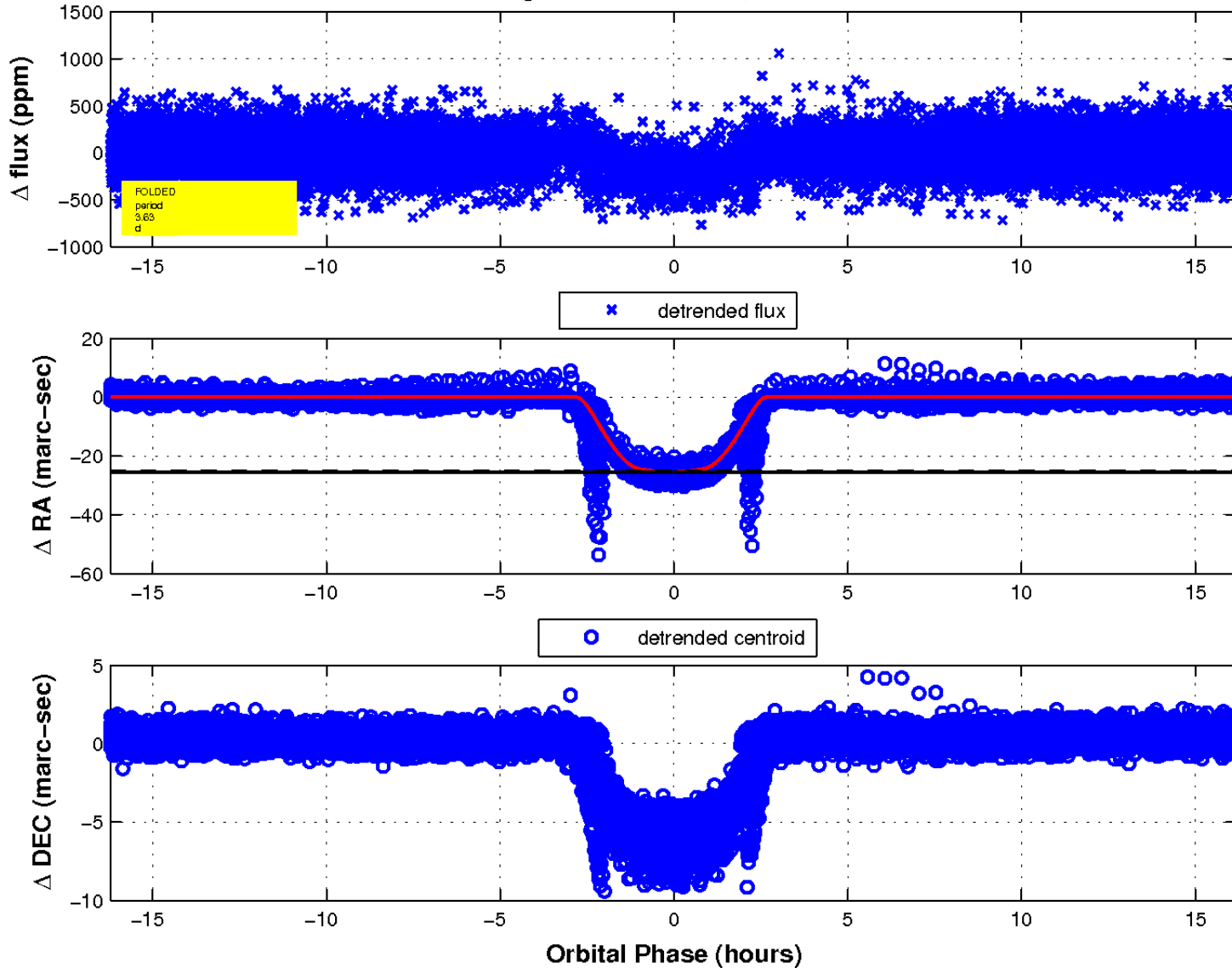
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

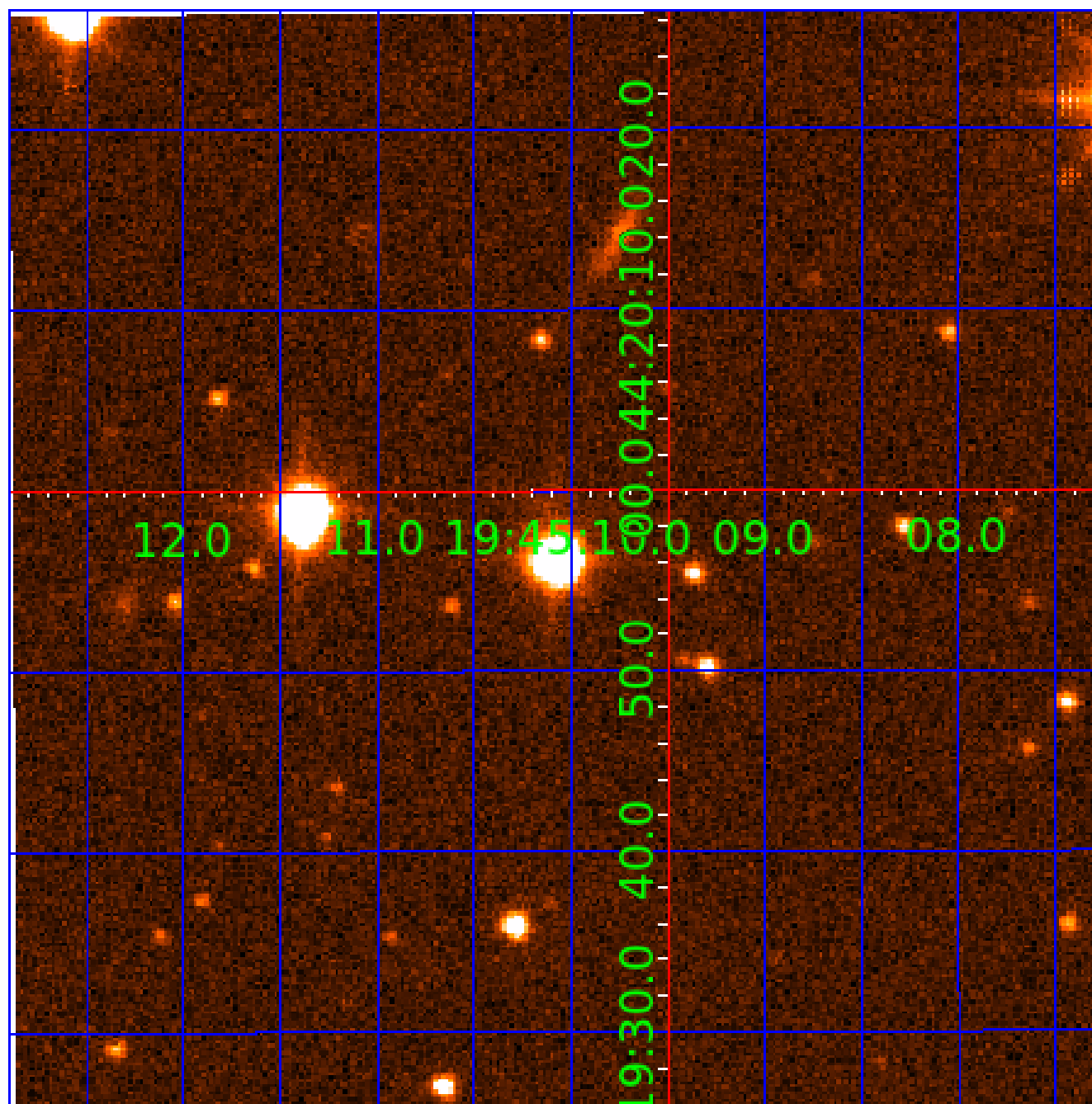


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 008378634

Q1-17 DR25 TCE Parameters

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|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
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Robovetter Results

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| 008378634-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 1 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH |
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See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008378634-02

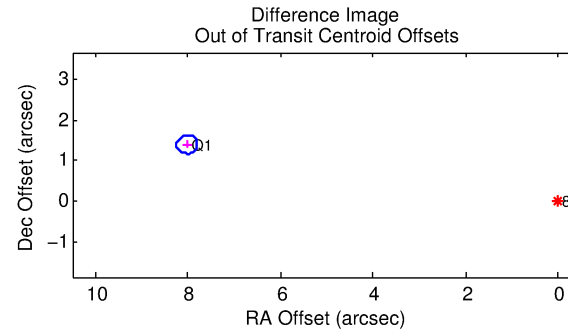
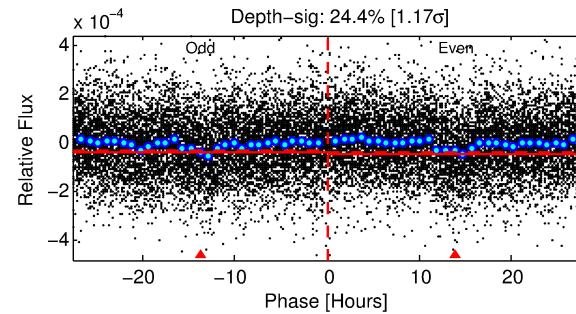
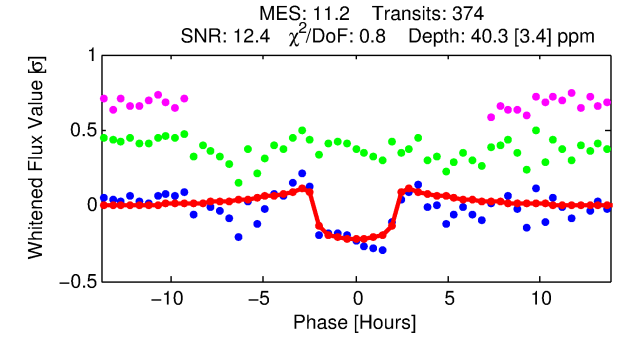
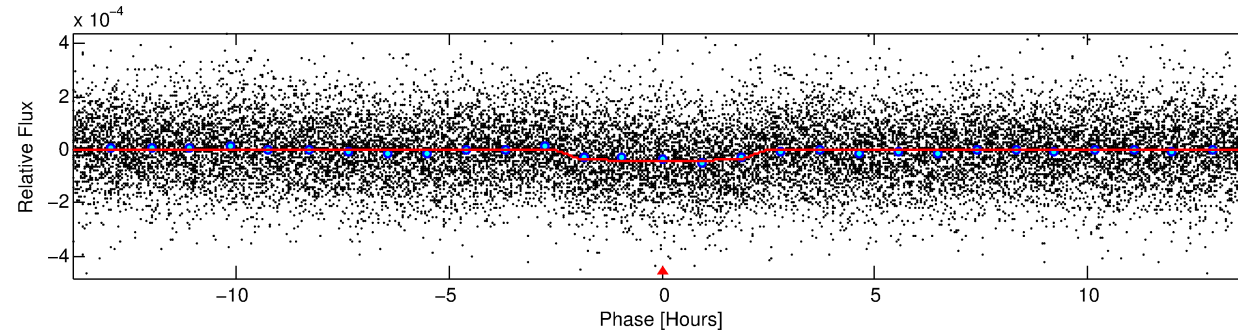
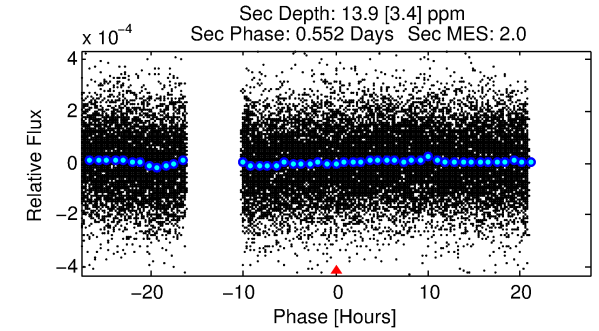
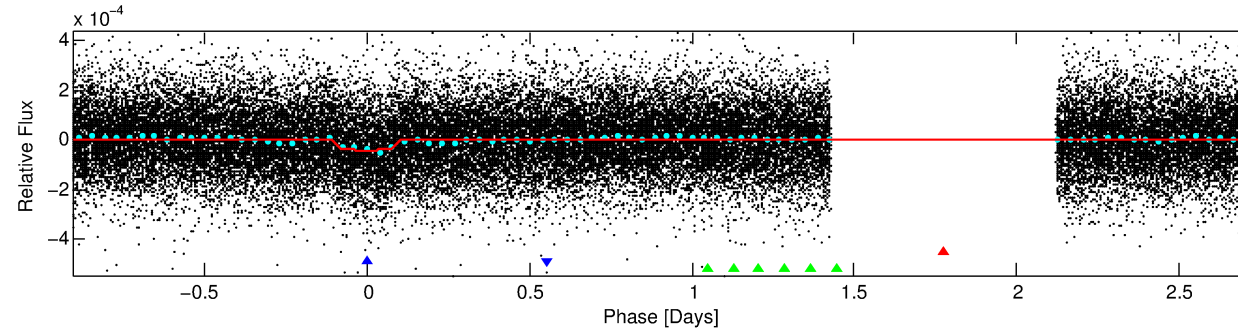
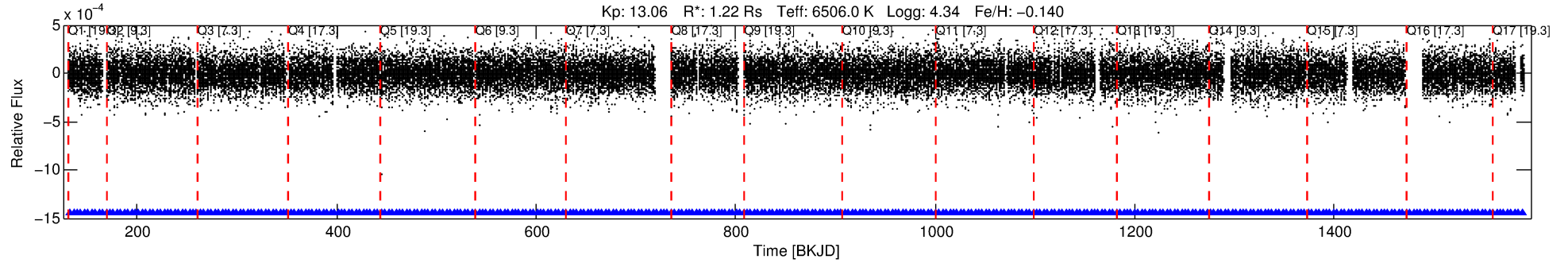
| TCE (1) | KIC | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ($''$) | Δ Row | Δ Col | m_2 | m_1 | D_2/D_1 | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|---------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 008378634-02 | 8378634 | 008378656-sec | 8378656 | 1:1 | 14.2 | 3 | -1 | 12.79 | 13.06 | 905.00 | Direct-PRF | 0 | 0.32 | 0.78 |

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8378634 Candidate: 2 of 3 Period: 3.629 d
KOI: K01139 Corr: No Ephemeris Match

Kp: 13.06 R*: 1.22 Rs Teff: 6506.0 K Logg: 4.34 Fe/H: -0.140



DV Fit Results:

Period = 3.62942 [0.00002] d
Epoch = 132.9296 [0.0036] BKJD
Rp/R* = 0.0068 [0.0016]
a/R* = 2.86 [3.29]
b = 0.90 [0.28]
Seff = 1001.29 [289.31]
Teq = 1434 [104] K
Rp = 0.90 [0.29] Re
a = 0.0487 [0.0089] AU
Ag = 22.28 [13.02] [1.64σ]
Teff = 4818 [644] K [5.18σ]

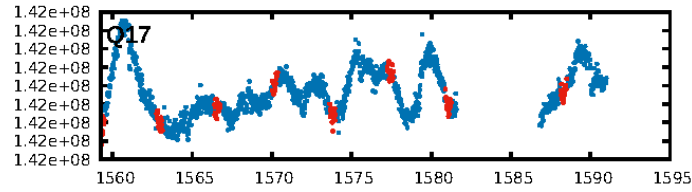
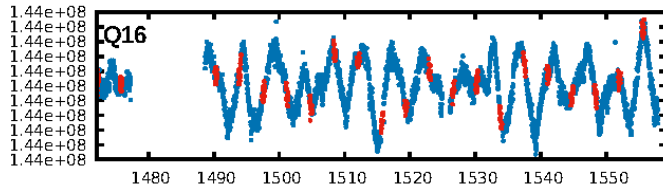
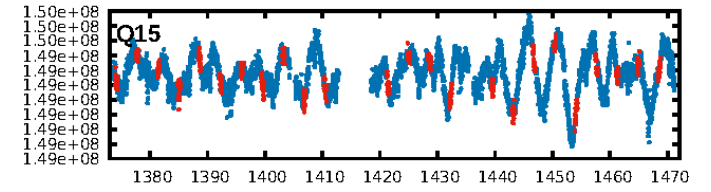
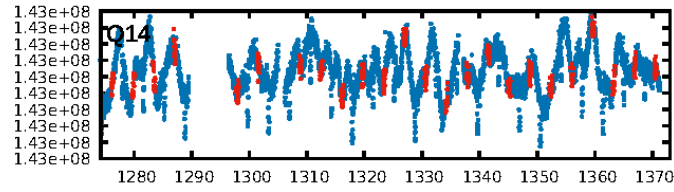
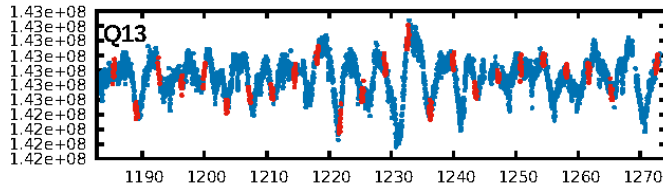
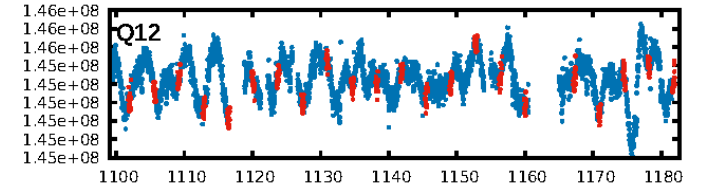
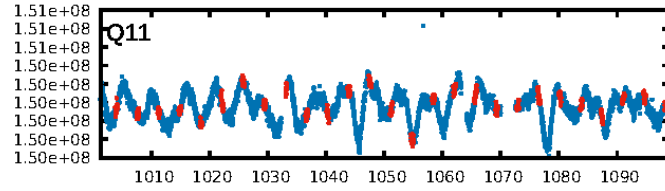
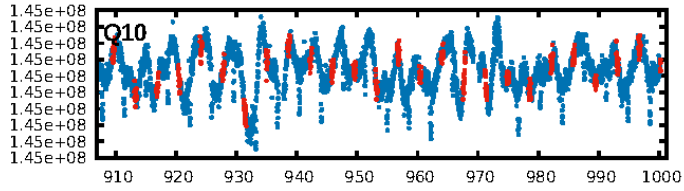
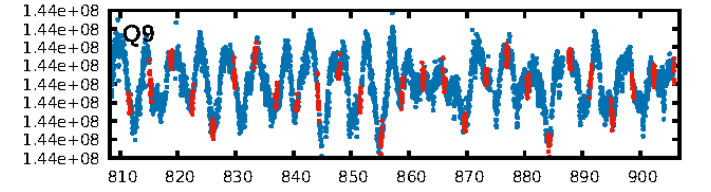
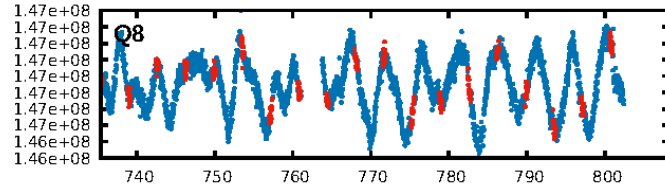
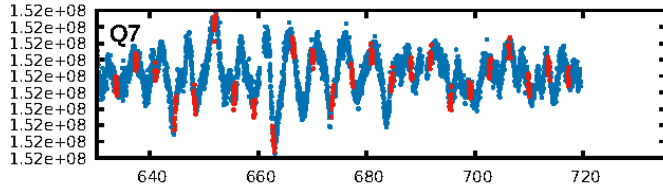
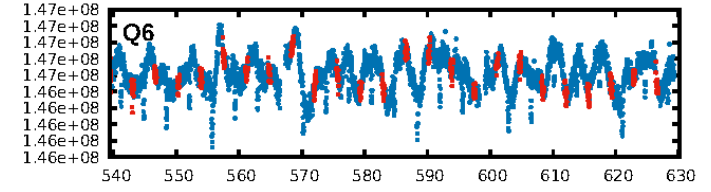
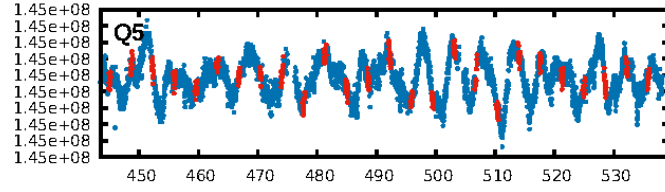
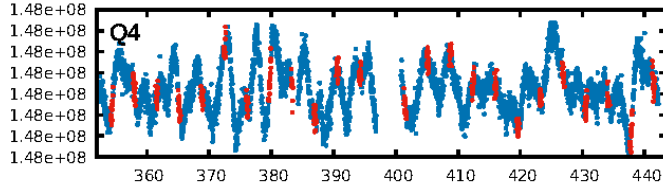
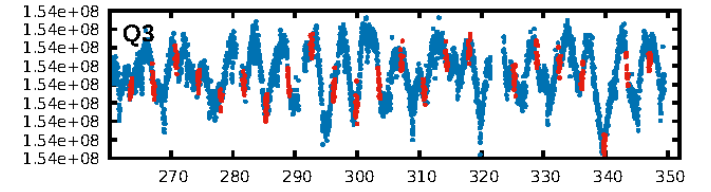
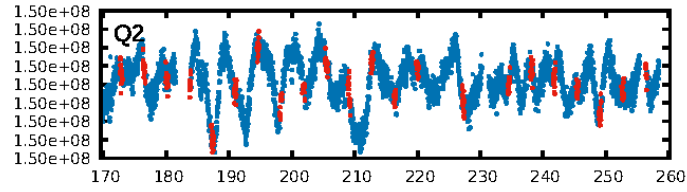
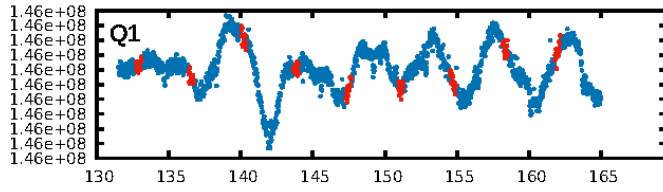
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.53e-27
RollingBand-fgt: 1.00 [357/357]
GhostDiagnostic-chr: -0.1577
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 8.143 arcsec [108.56σ]
KicOffset-rm: 8.102 arcsec [108.00σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [17/17]

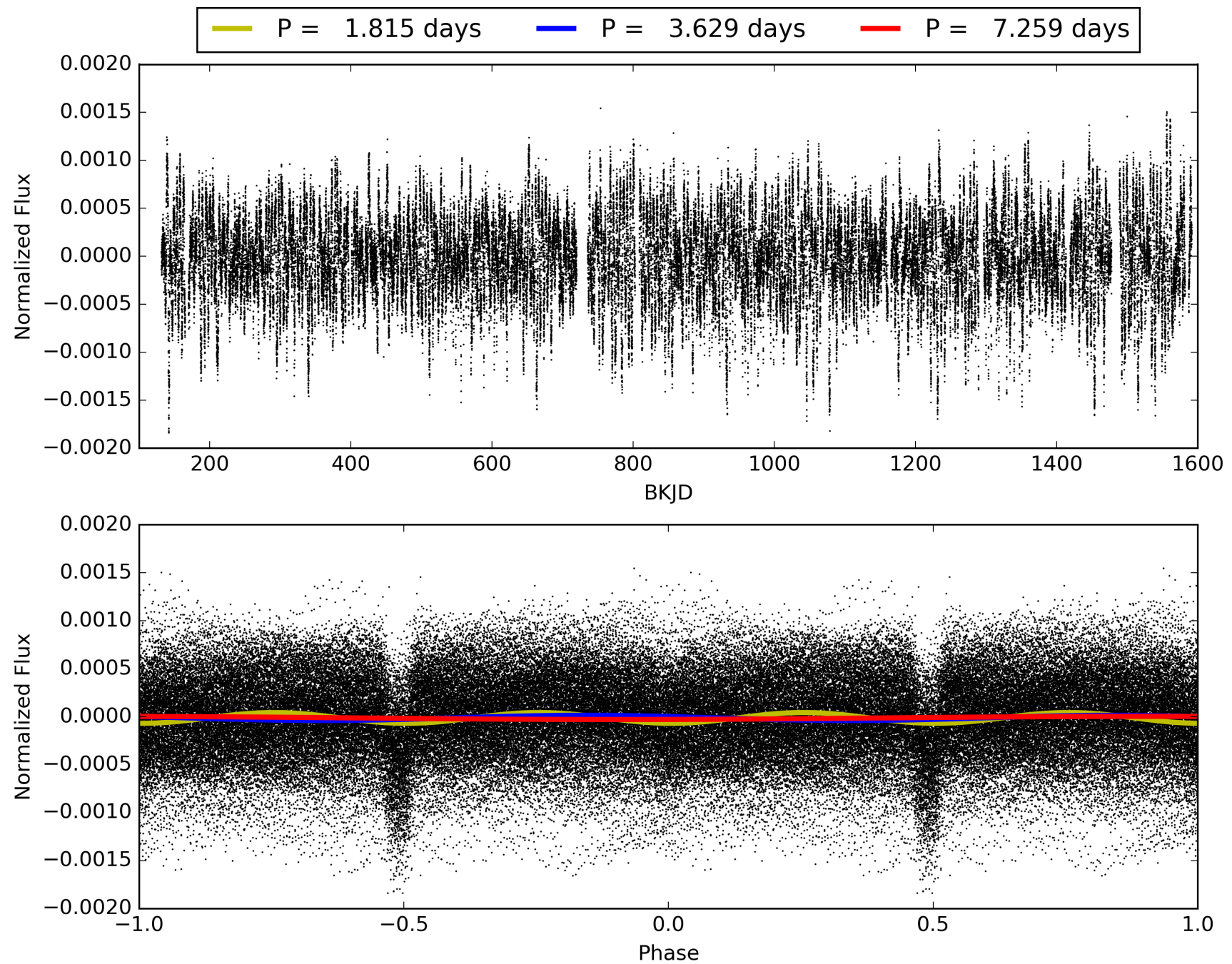
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:35:18 Z

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

TCE 008378634-02, PDC Light Curves

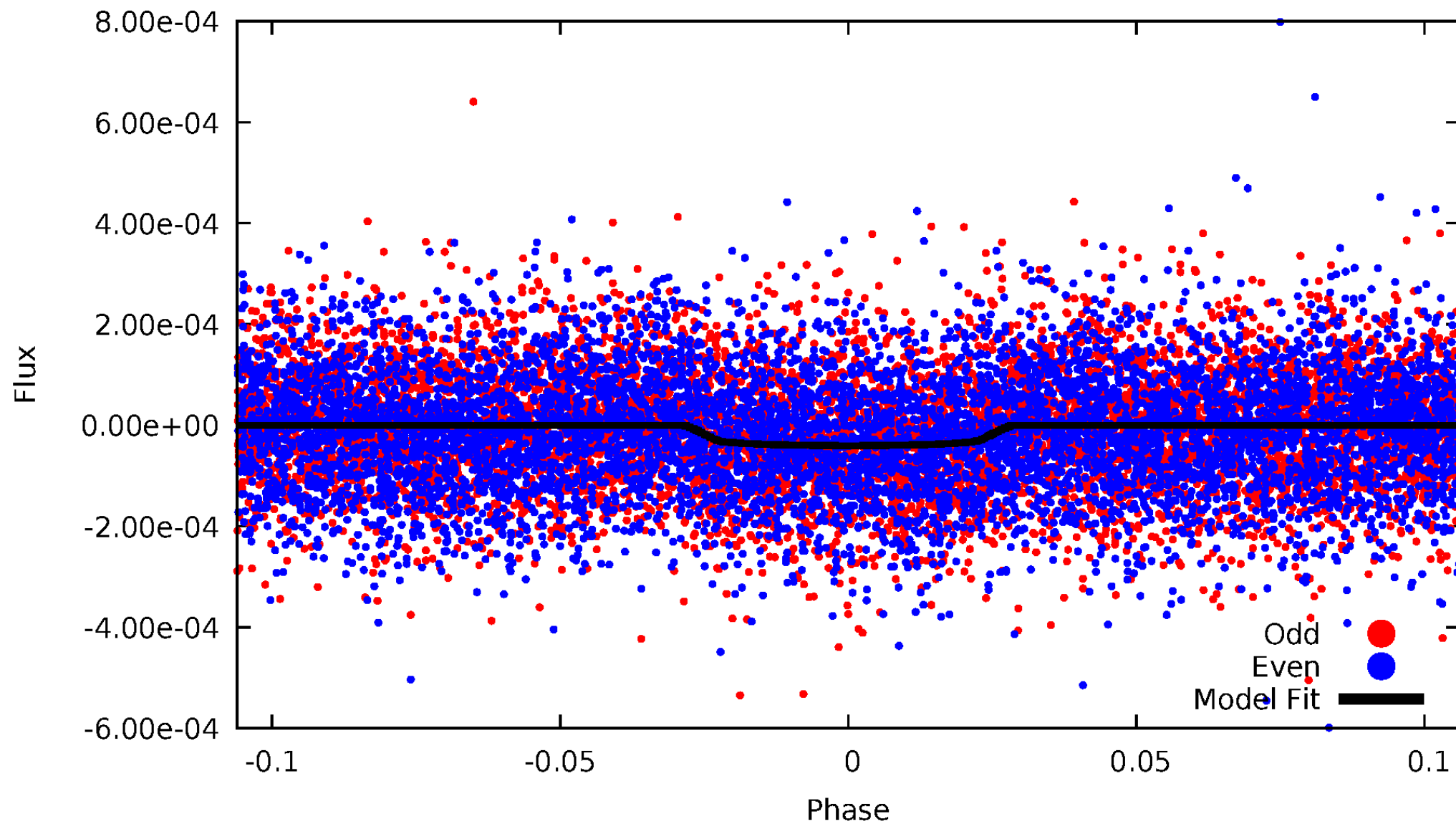


TCE 008378634-02



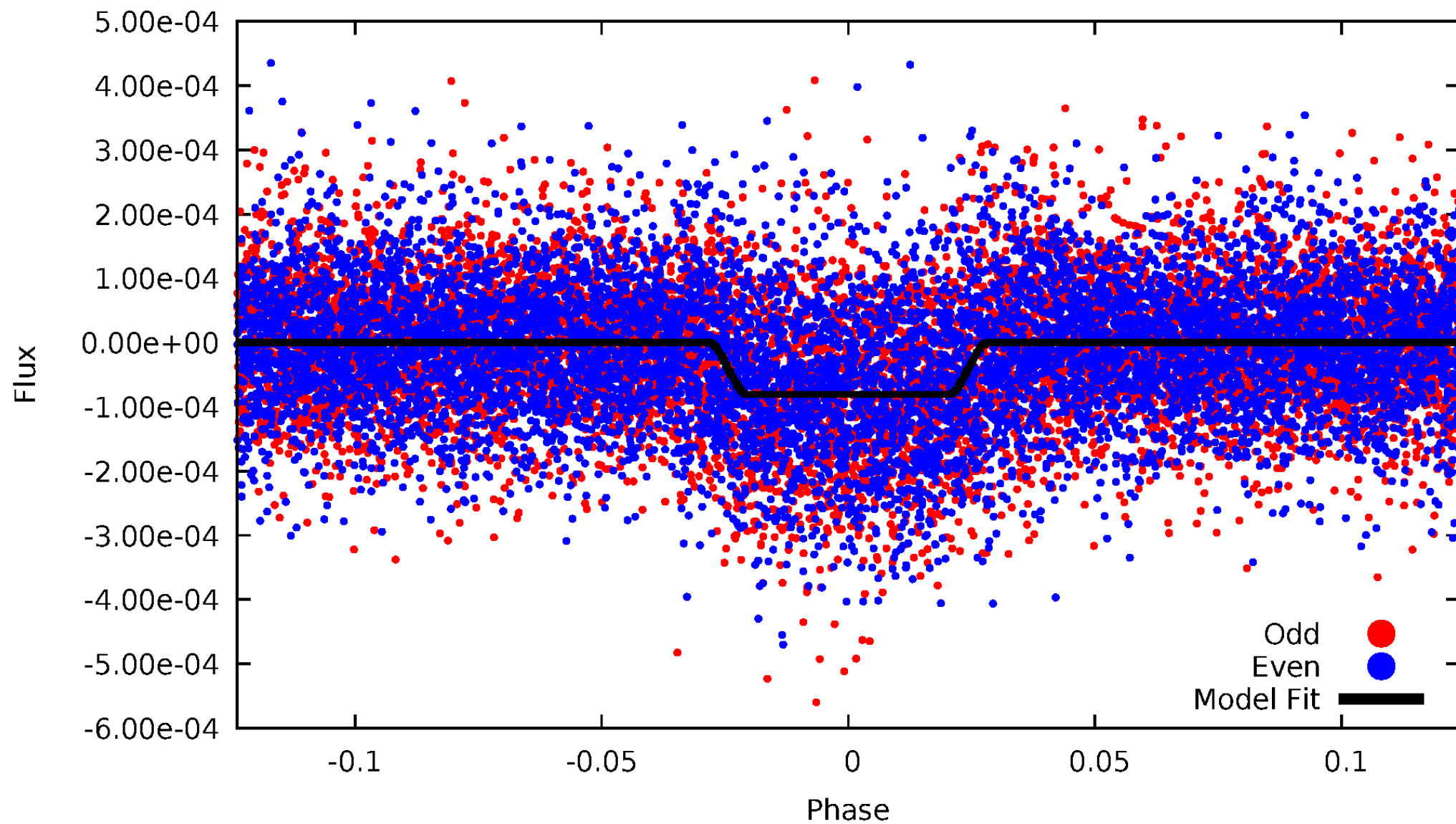
DV Odd/Even

TCE 008378634-02



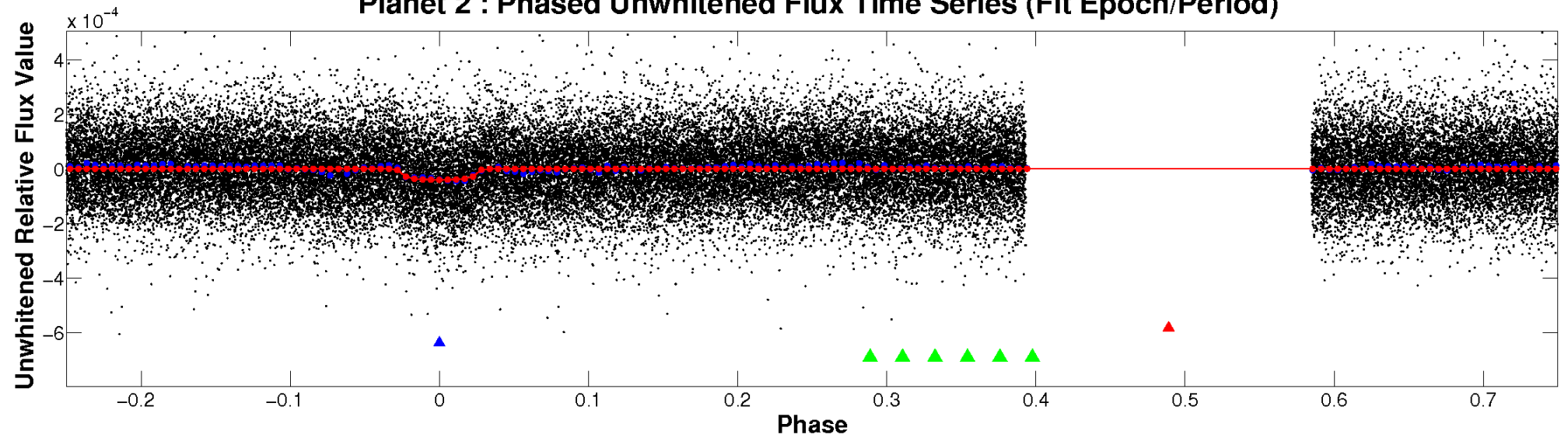
ALT Odd/Even

TCE 008378634-02

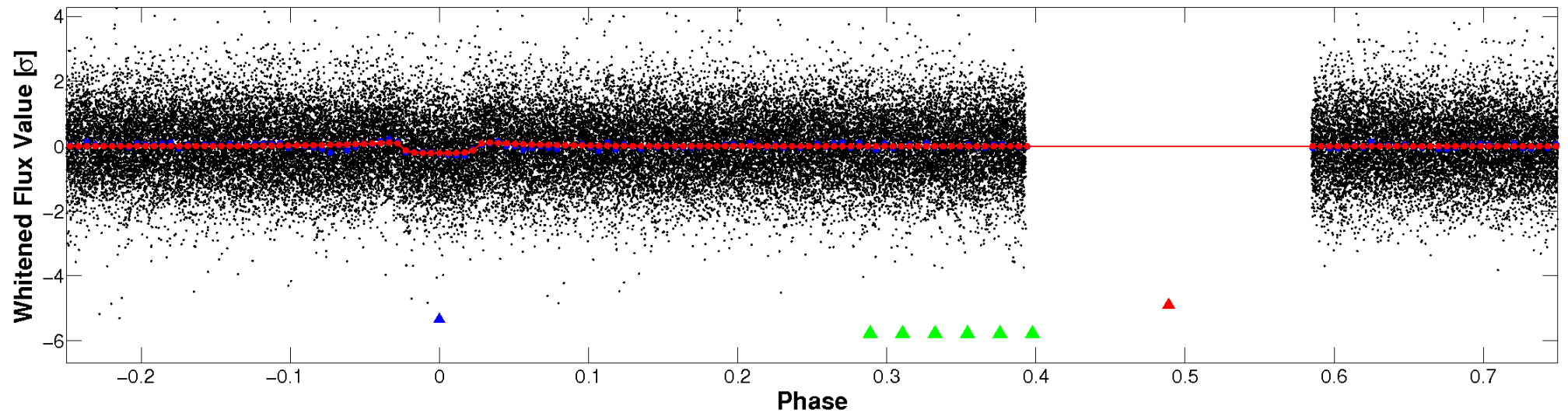


Non-Whitened Vs. Whitened Light Curve

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

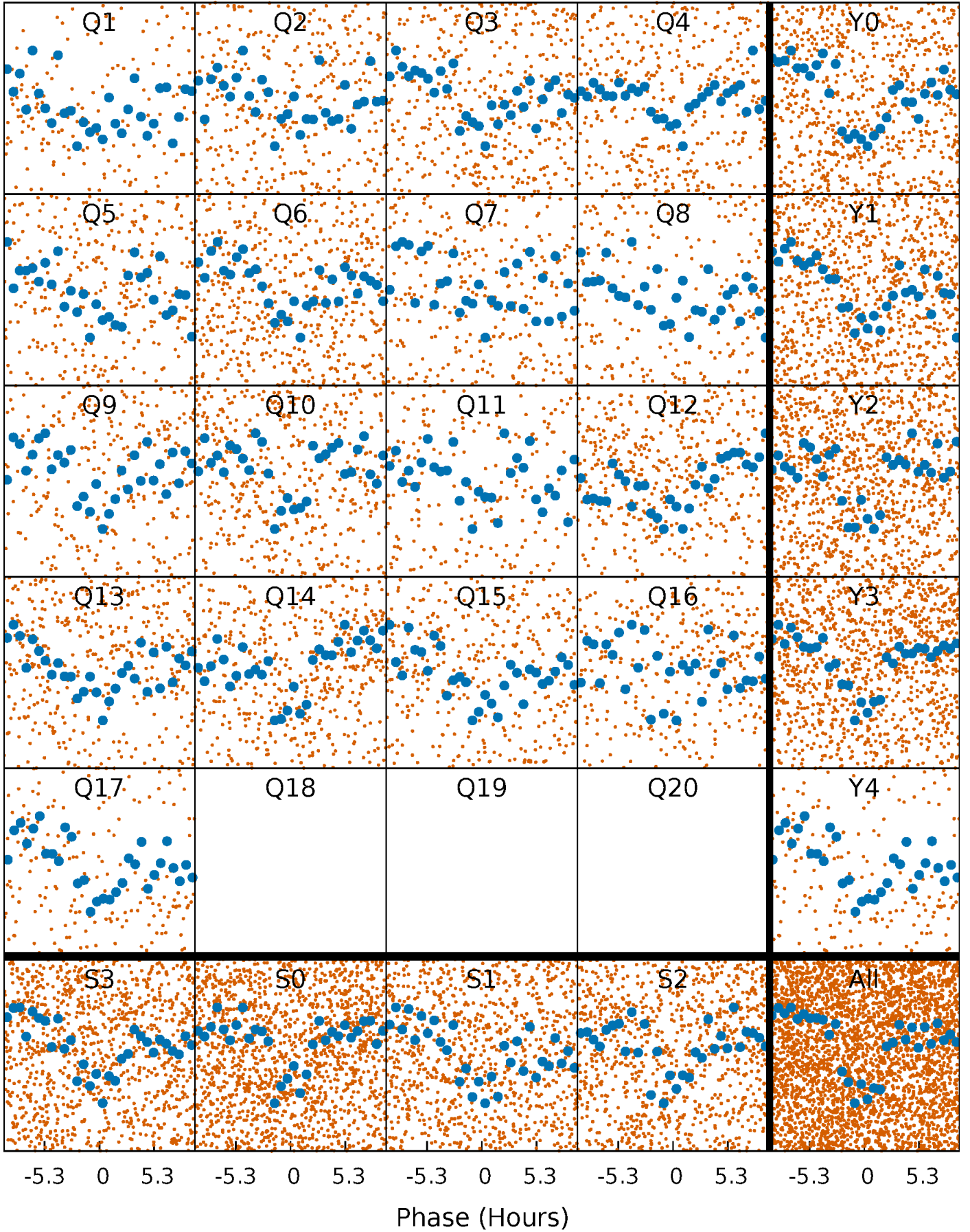


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



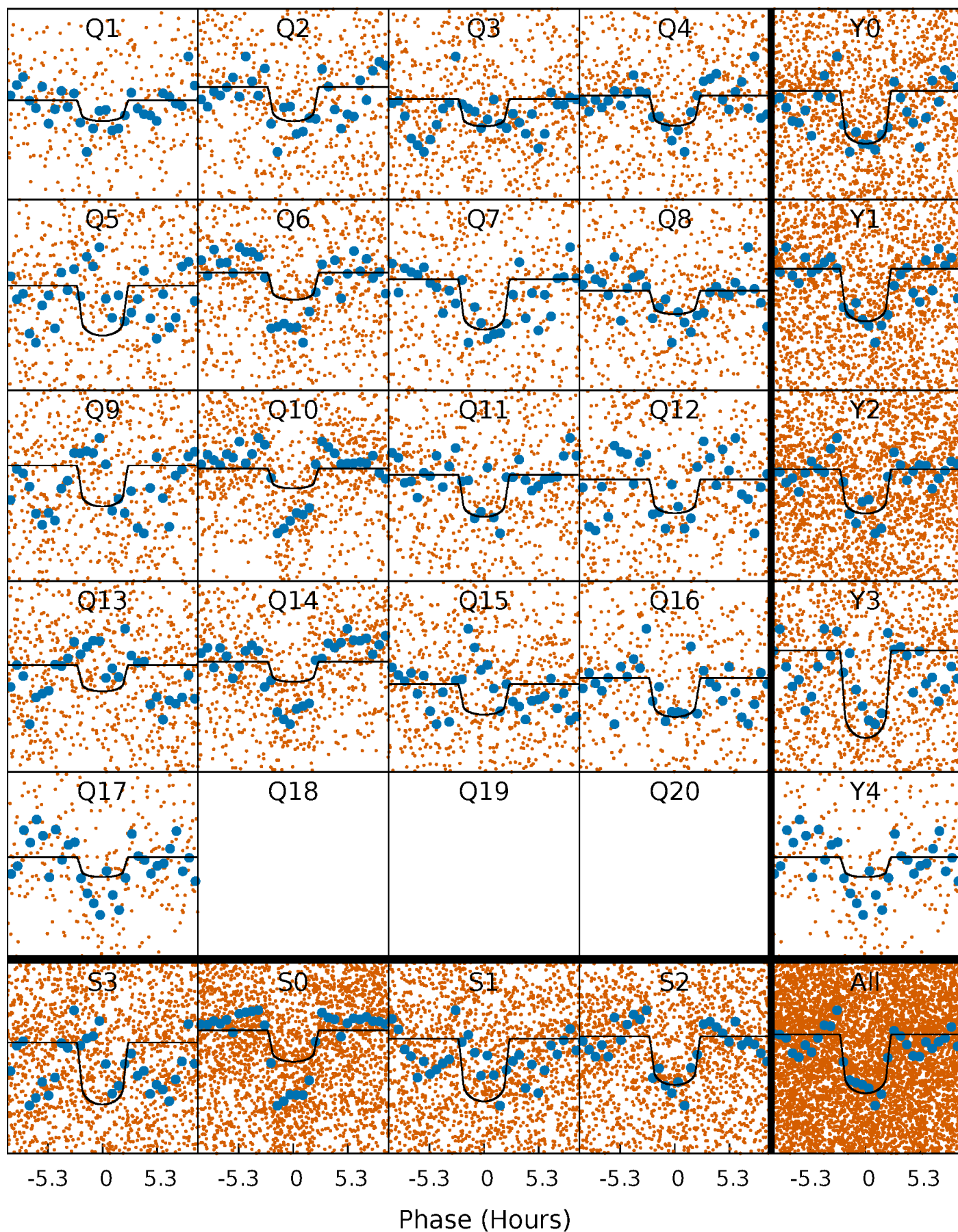
PDC Quarter-Phased Transit Curves

TCE 008378634-02 P= 3.629420 Days $T_0=132.929598$ (BKJD)



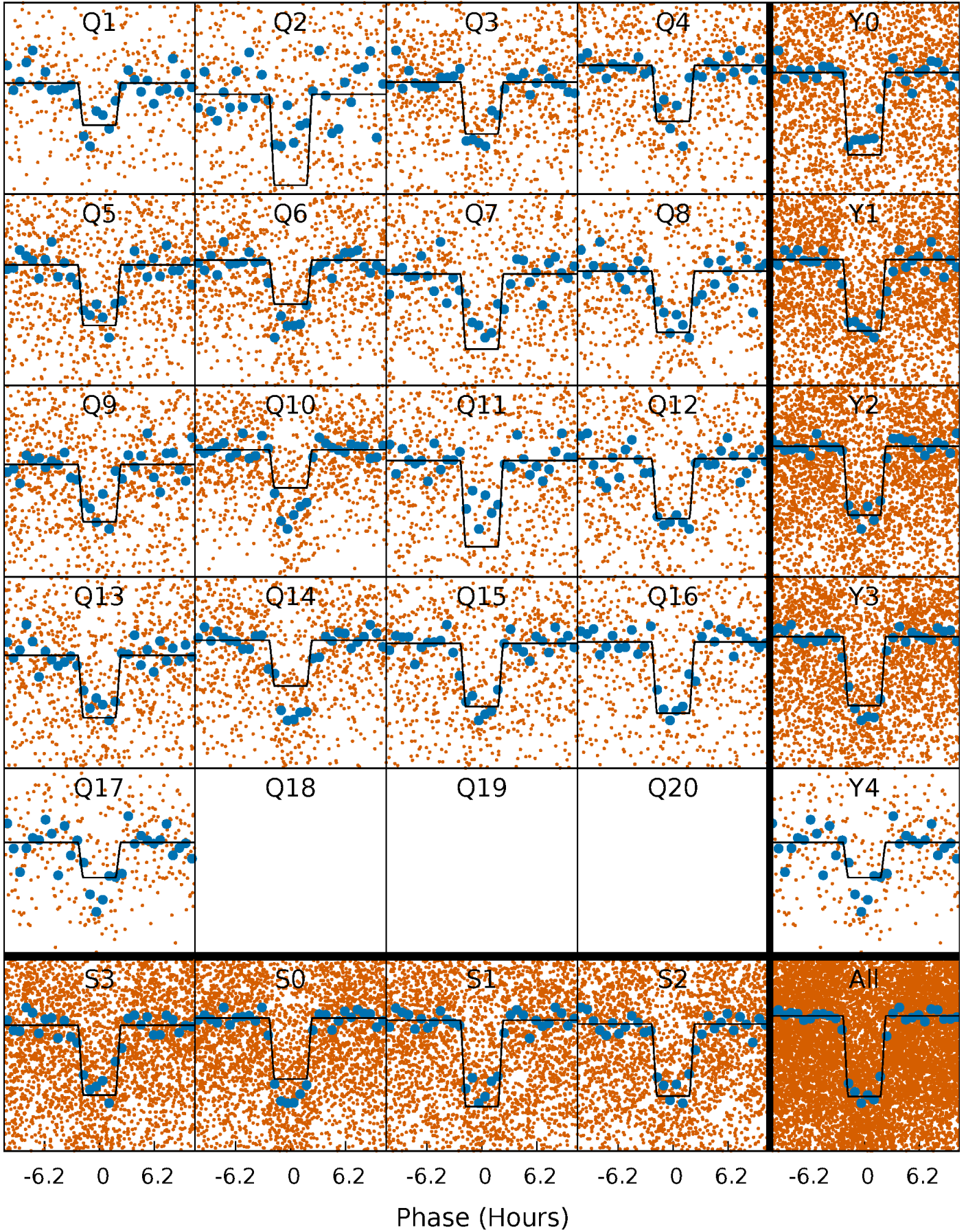
DV Quarter-Phased Transit Curves

TCE 008378634-02 P= 3.629420 Days $T_0=132.929598$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

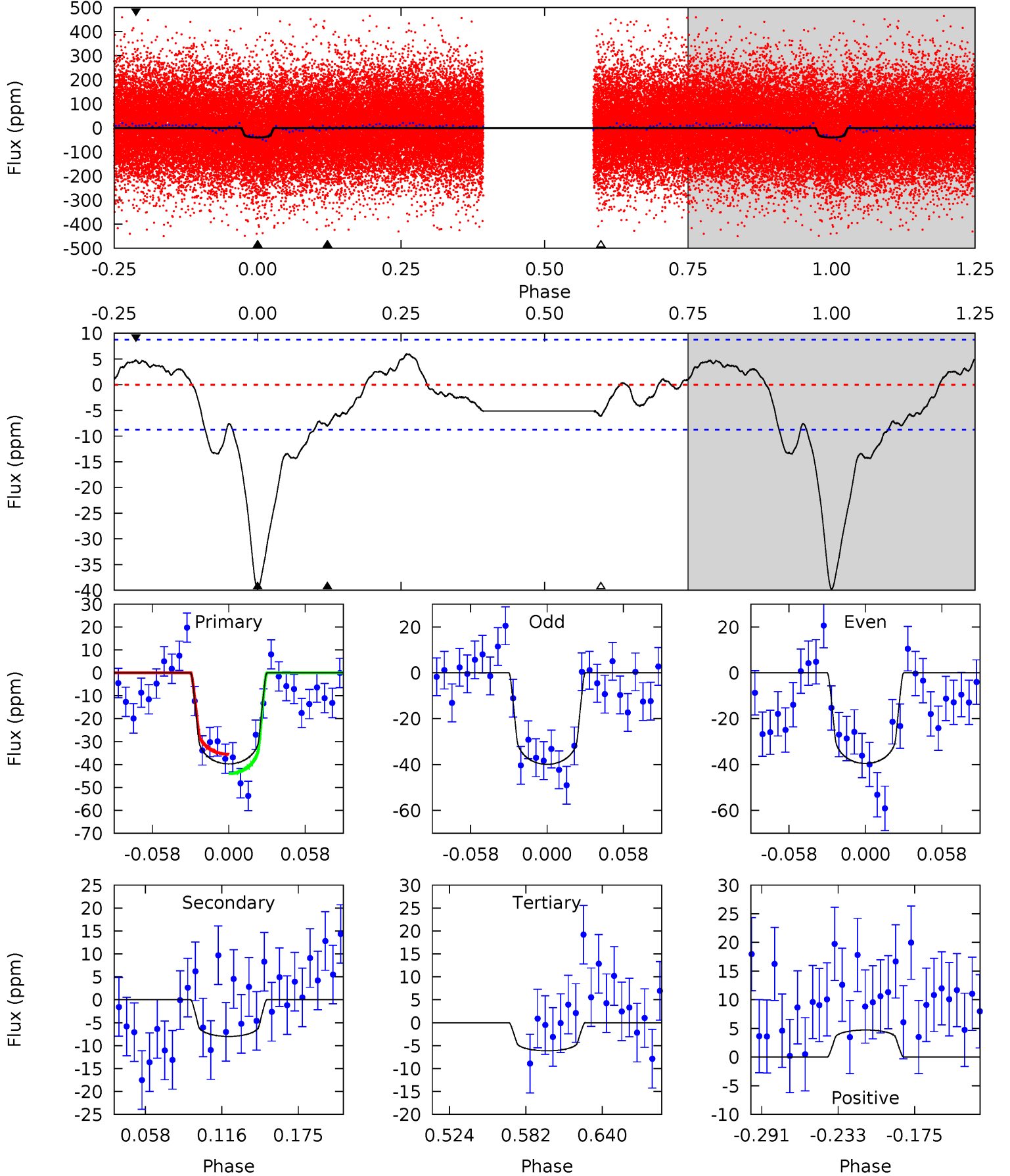
TCE 008378634-02 P= 3.629383 Days $T_0=132.929031$ (BKJD)



DV Model-Shift Uniqueness Test

008378634-02, P = 3.629420 Days, E = 129.300178 Days

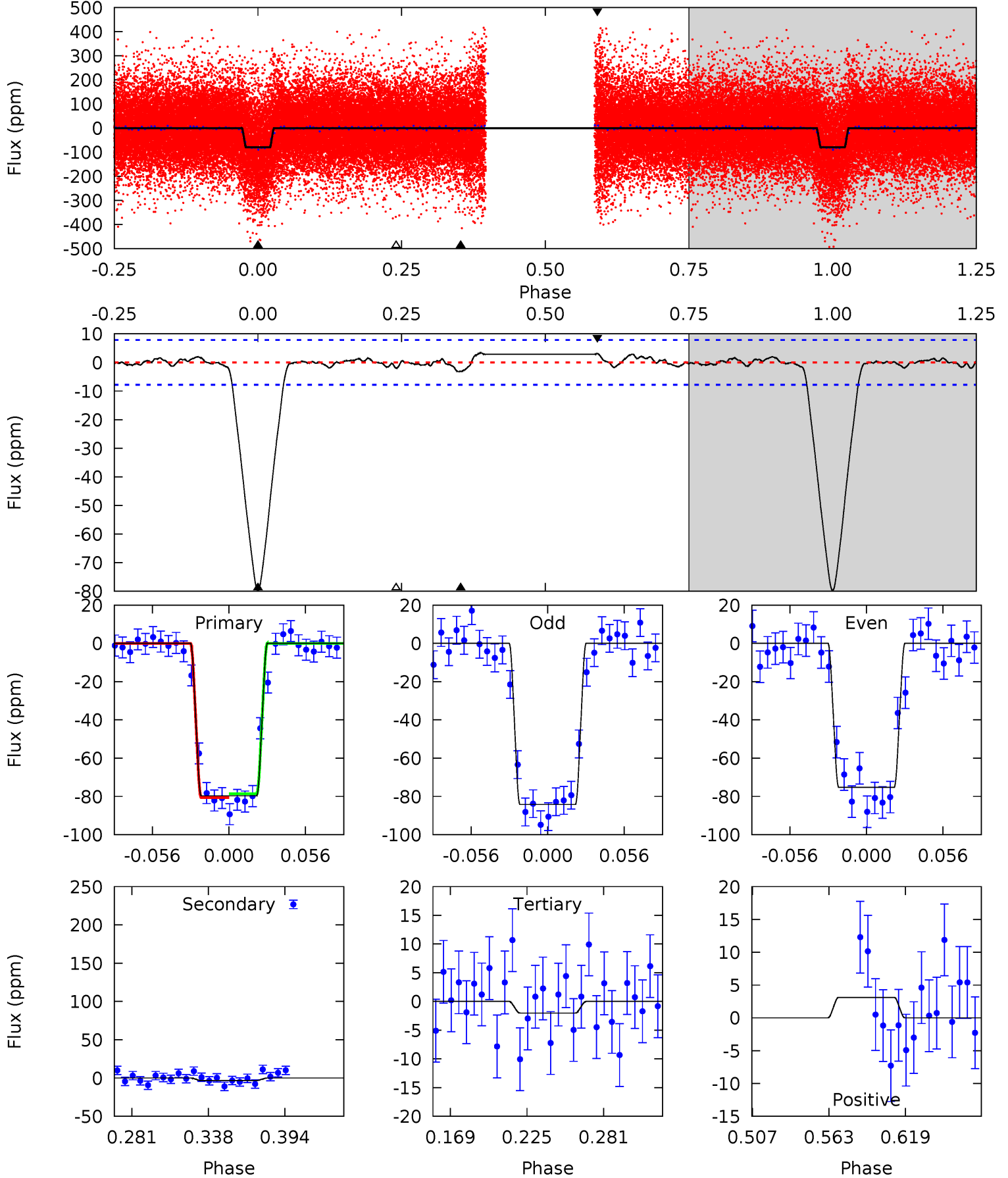
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.2 | 4.28 | 3.28 | 2.53 | 4.68 | 1.89 | 2.37 | 18.0 | 18.7 | 1.00 | 1.75 | 0.10 | 1.12 | 0.13 | 2.28 |



Alt Model-Shift Uniqueness Test

008378634-02, P = 3.629383 Days, E = 129.299648 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 47.6 | 1.91 | 1.21 | 1.87 | 4.68 | 1.91 | 0.61 | 46.4 | 45.8 | 0.70 | 0.05 | 2.64 | 1.05 | 0.04 | 0.58 |



Stellar Parameters For KIC 008378634

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6506^{+145}_{-194} | $4.336^{+0.077}_{-0.143}$ | $-0.140^{+0.250}_{-0.300}$ | $1.217^{+0.265}_{-0.155}$ | $1.171^{+0.150}_{-0.150}$ | $0.916^{+0.312}_{-0.386}$ |
| | +2%/-3% | +2%/-3% | +179%/-214% | +22%/-13% | +13%/-13% | +34%/-42% |
| Source | PHO1 | FLK73 | 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 008378634-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -8 ± 2 | $0.94^{+0.24}_{-0.25}$ | 2021^{+117}_{-89} | 4347^{+571}_{-387} | 12^{+10}_{-5} |
| Alt. | -3 ± 2 | $1.22^{+0.26}_{-0.24}$ | 2018^{+115}_{-94} | 3347^{+384}_{-436} | $2.759^{+2.339}_{-1.527}$ |

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

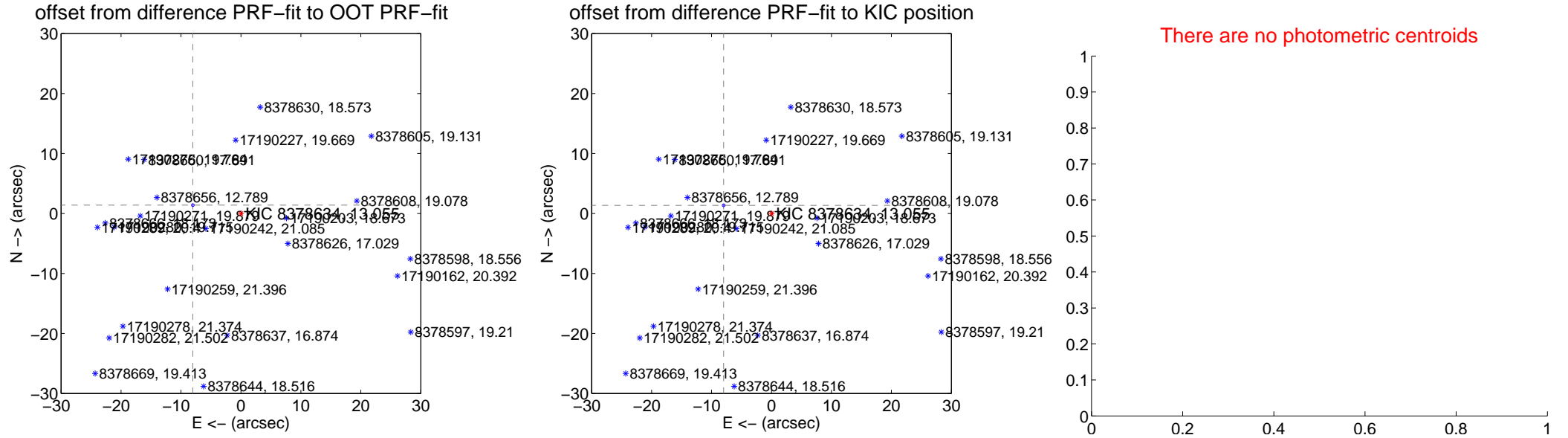
DV Centroid Data

Supplemental centroid analysis for 008378634-02. Kepler magnitude: 13.05. Transit SNR 12.38

There are 1 quarters with good PRF difference image offsets

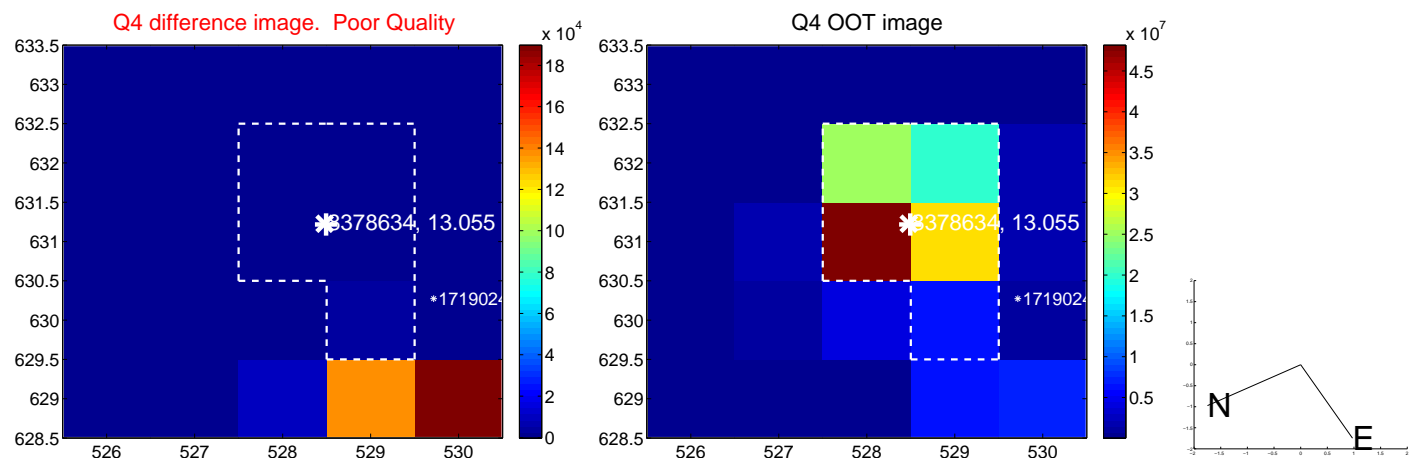
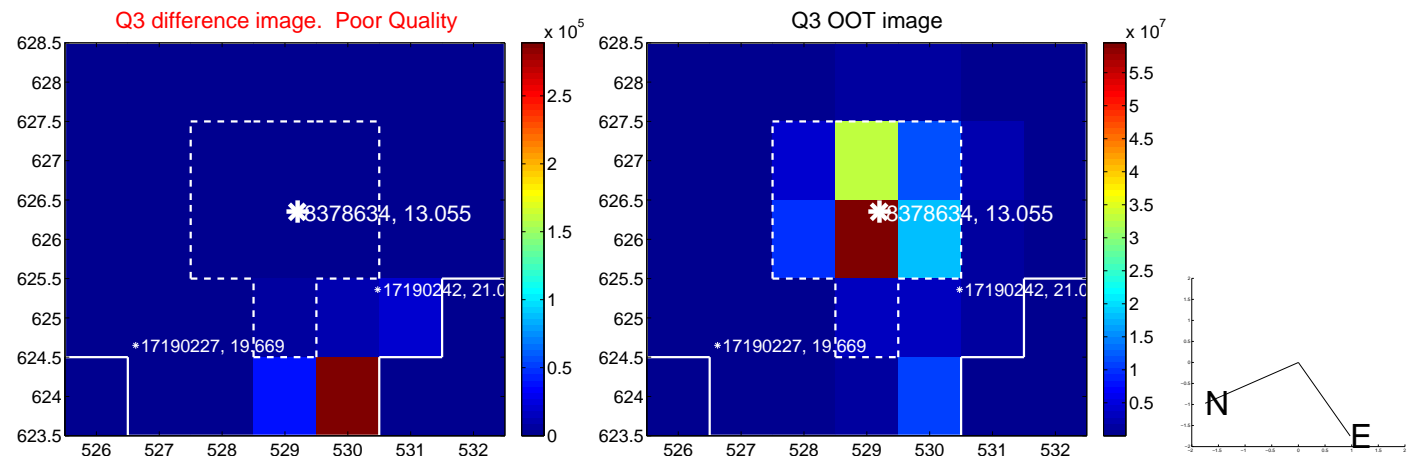
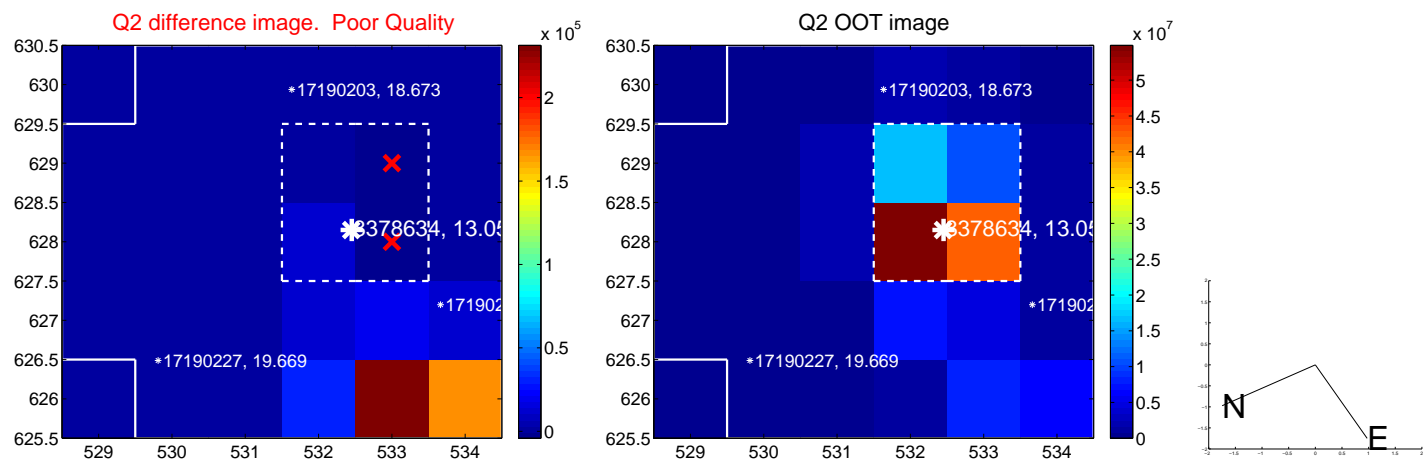
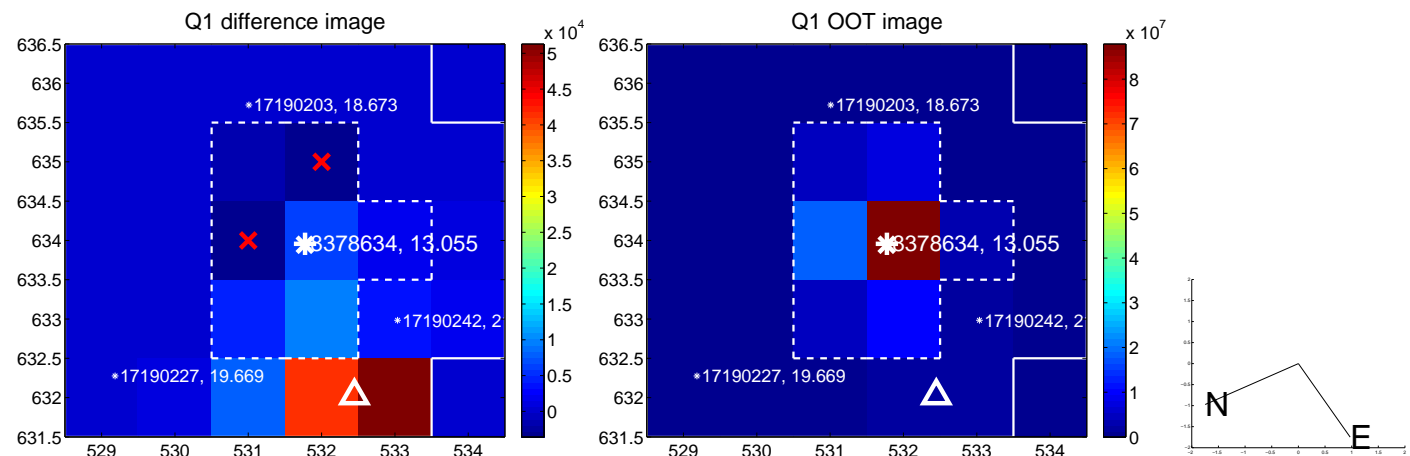
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 8.143 \pm 0.075 | 108.56 | 8.022 \pm 0.075 | 1.396 \pm 0.068 |
| PRF-fit source offset from KIC position | 8.102 \pm 0.075 | 108.00 | 7.986 \pm 0.075 | 1.362 \pm 0.068 |
| photometric centroid source offset | — | — | — | — |

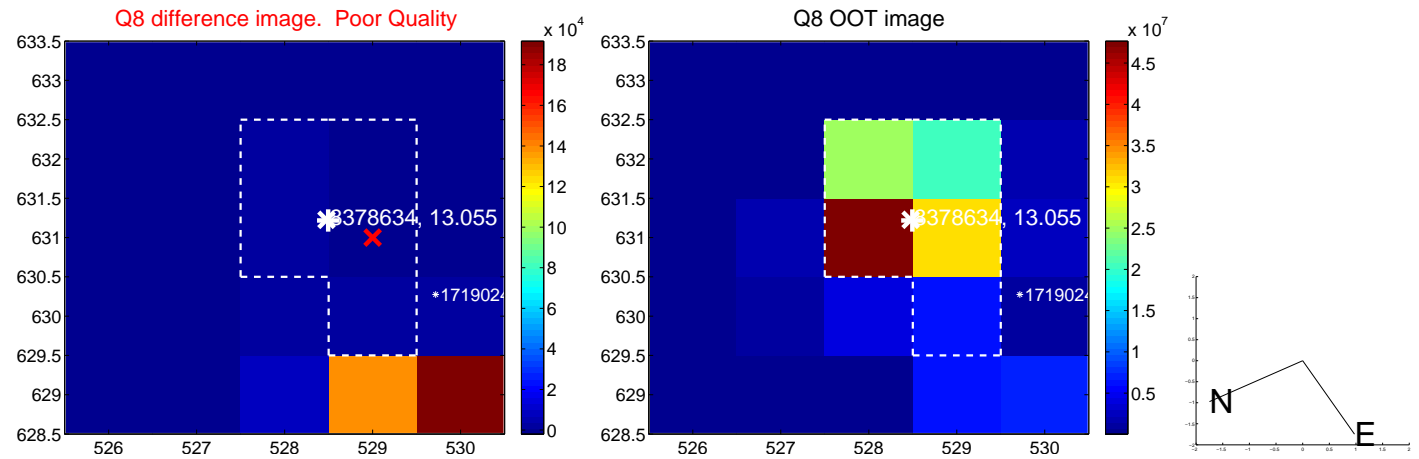
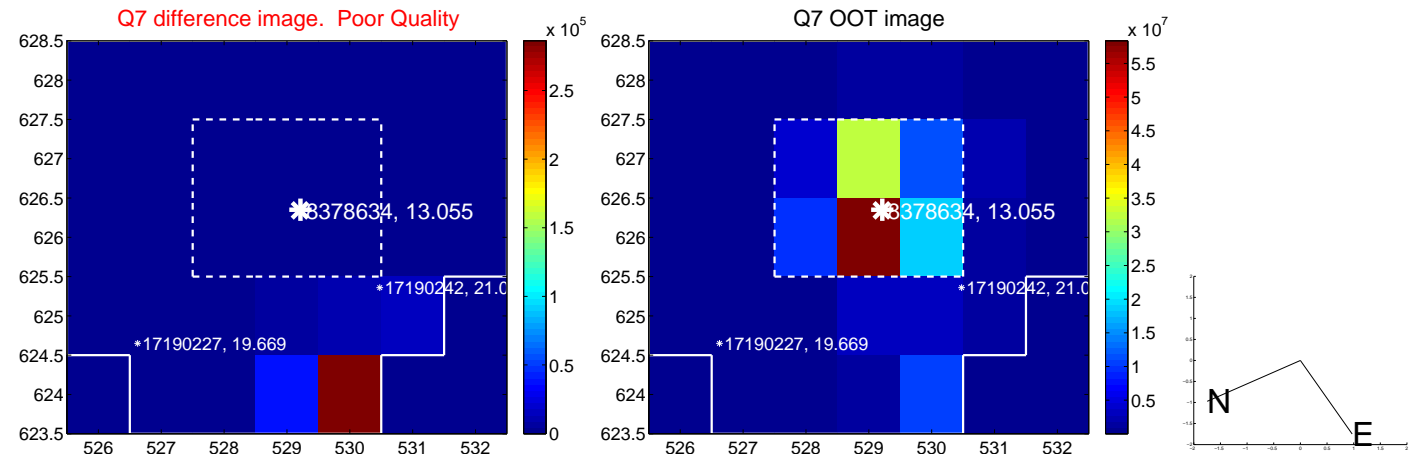
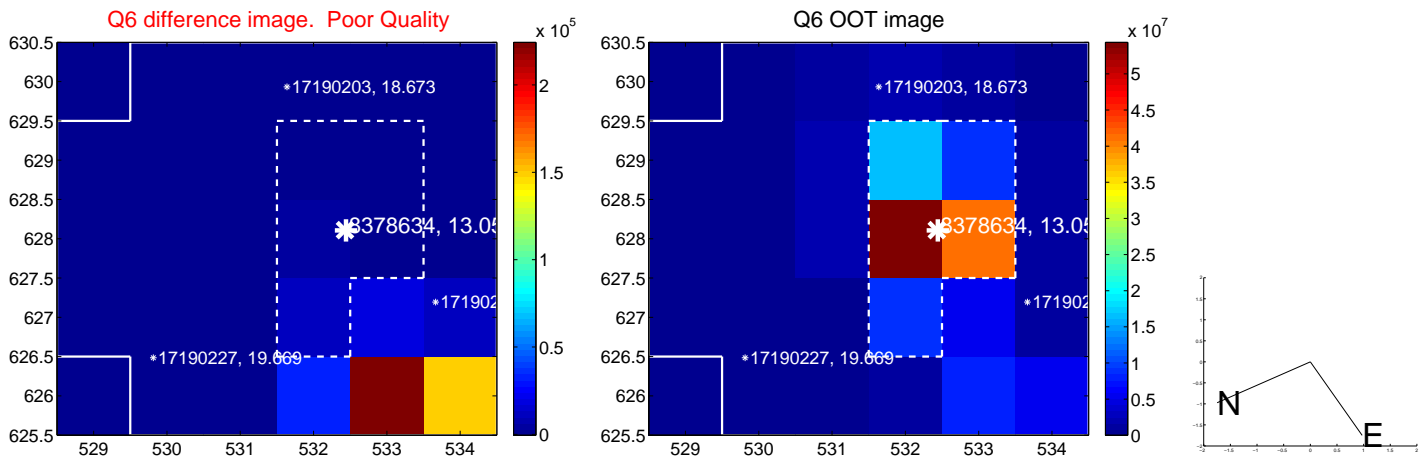
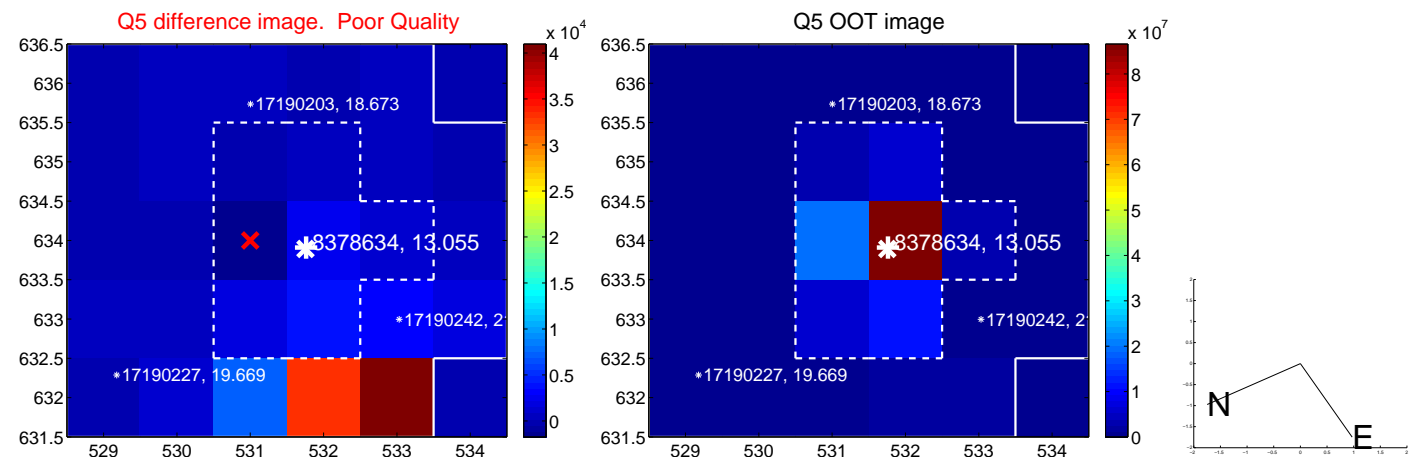


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

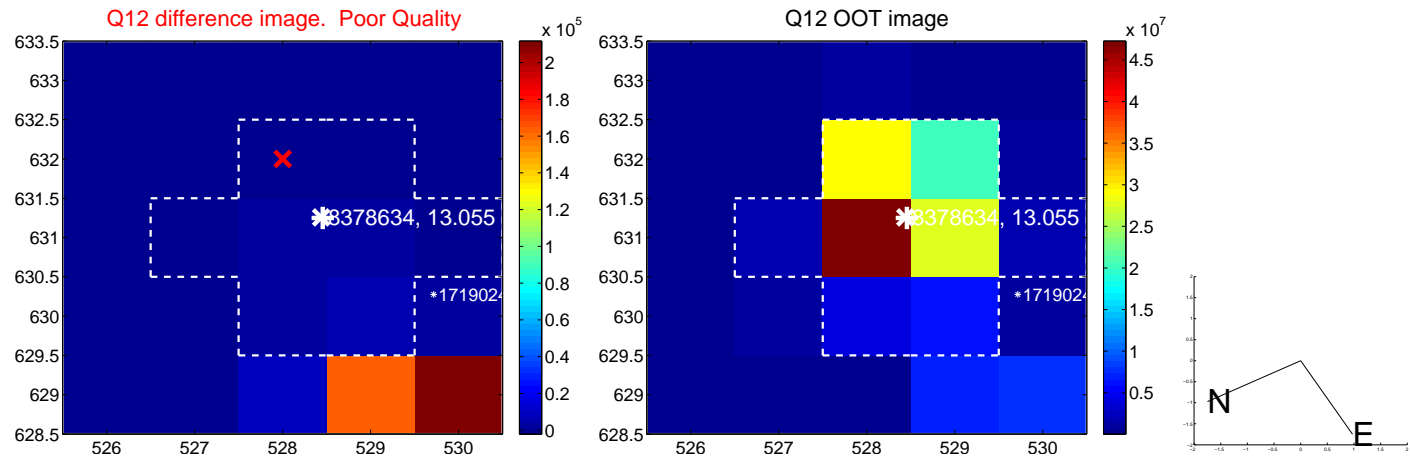
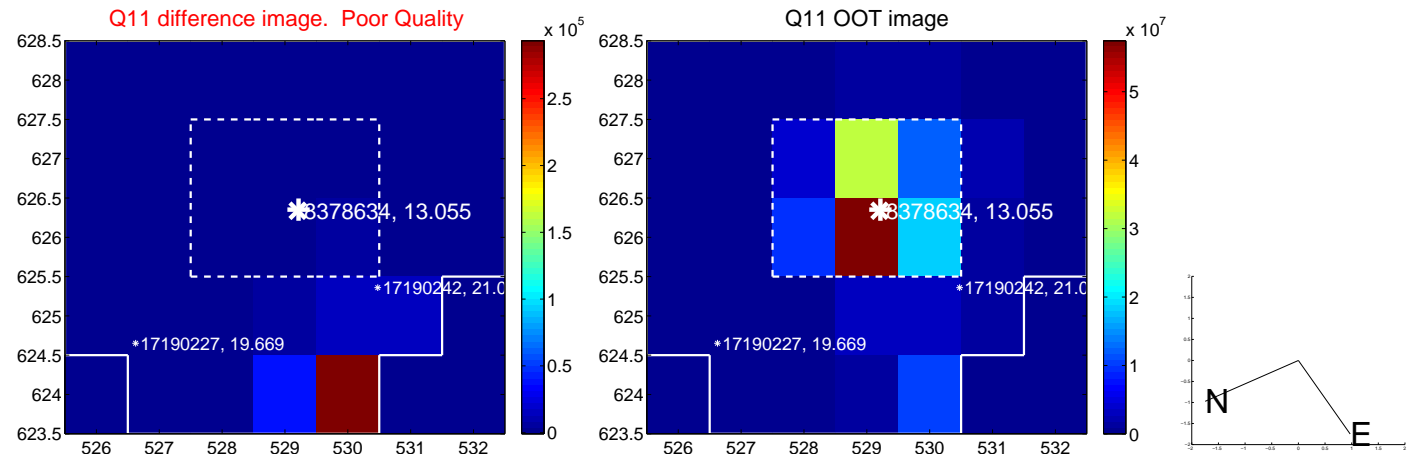
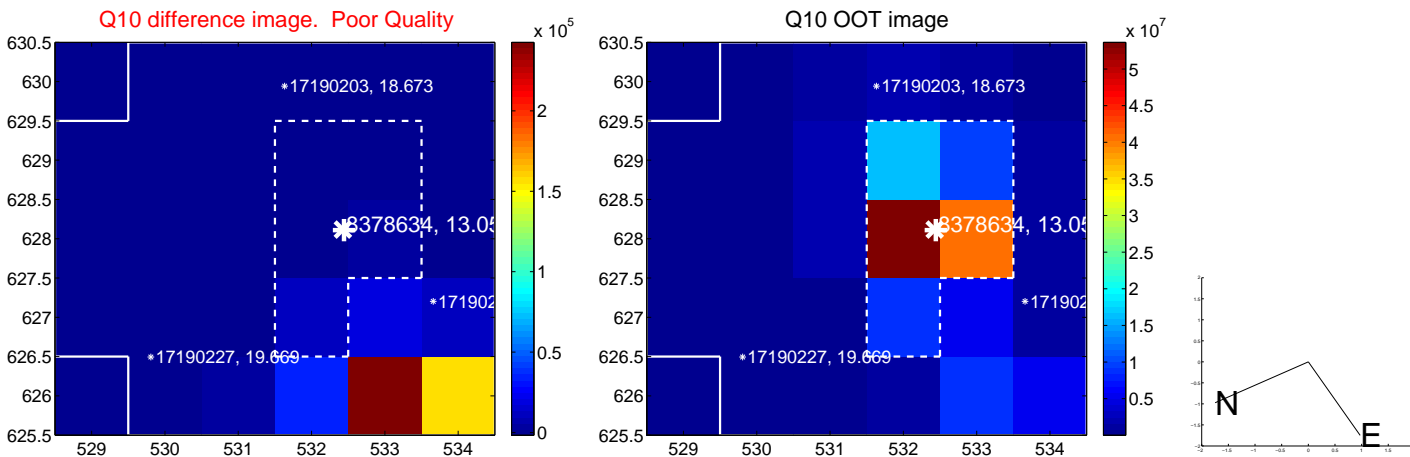
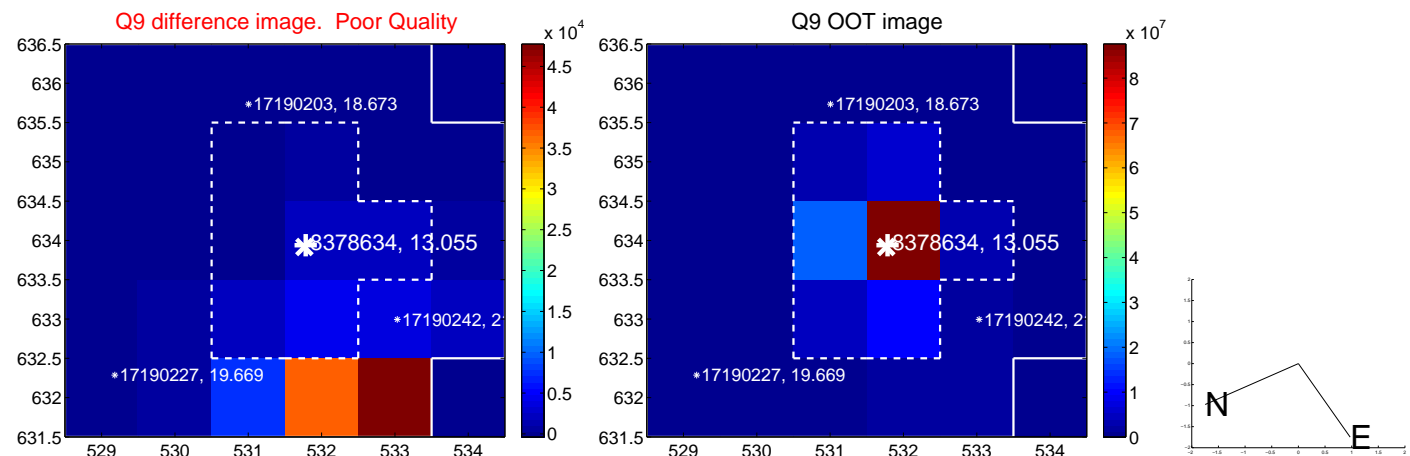
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



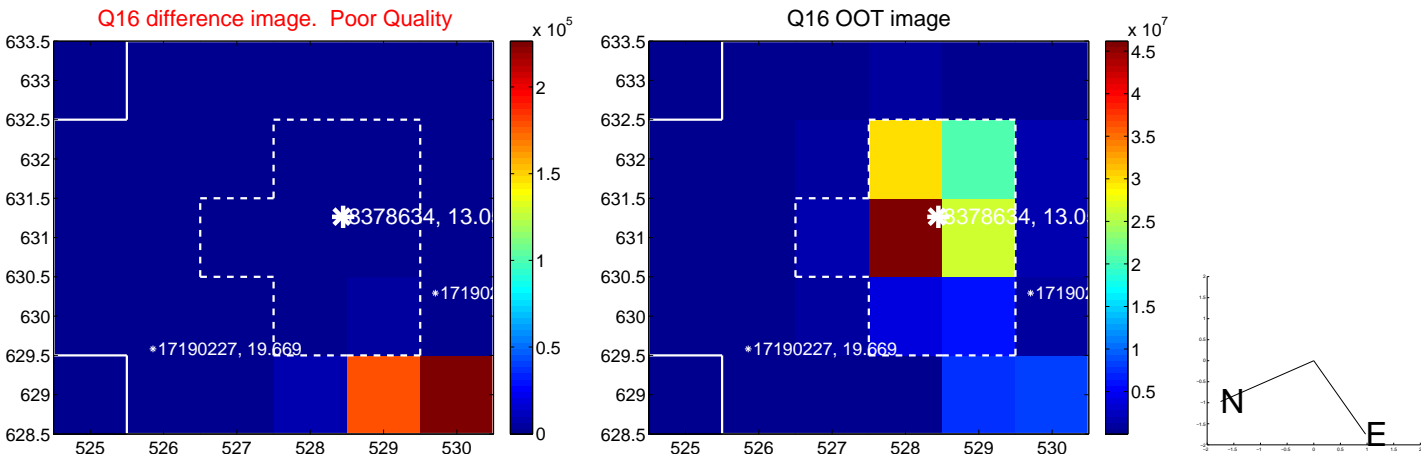
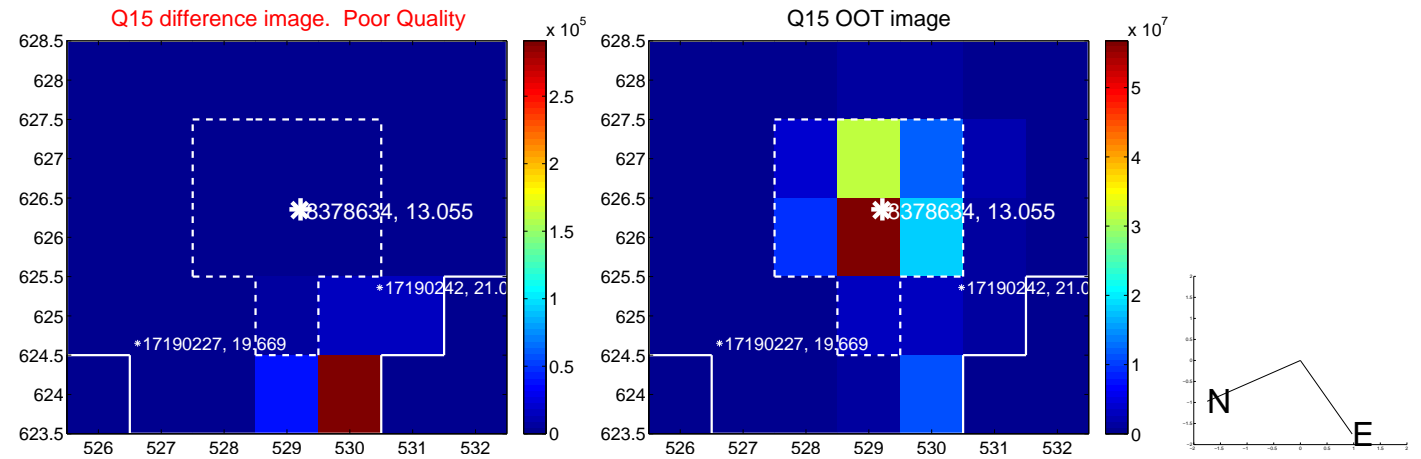
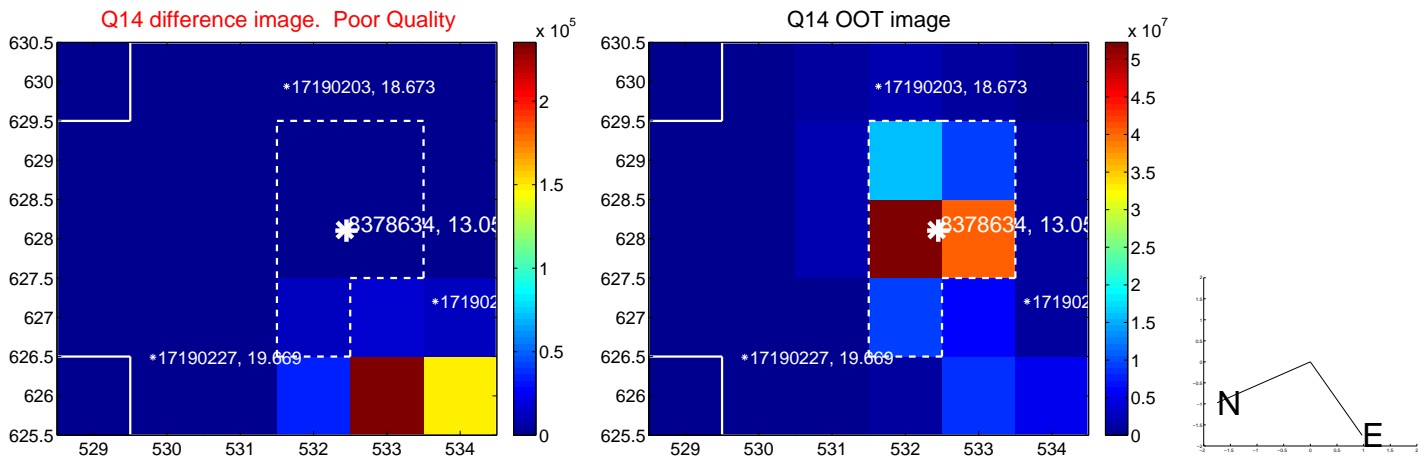
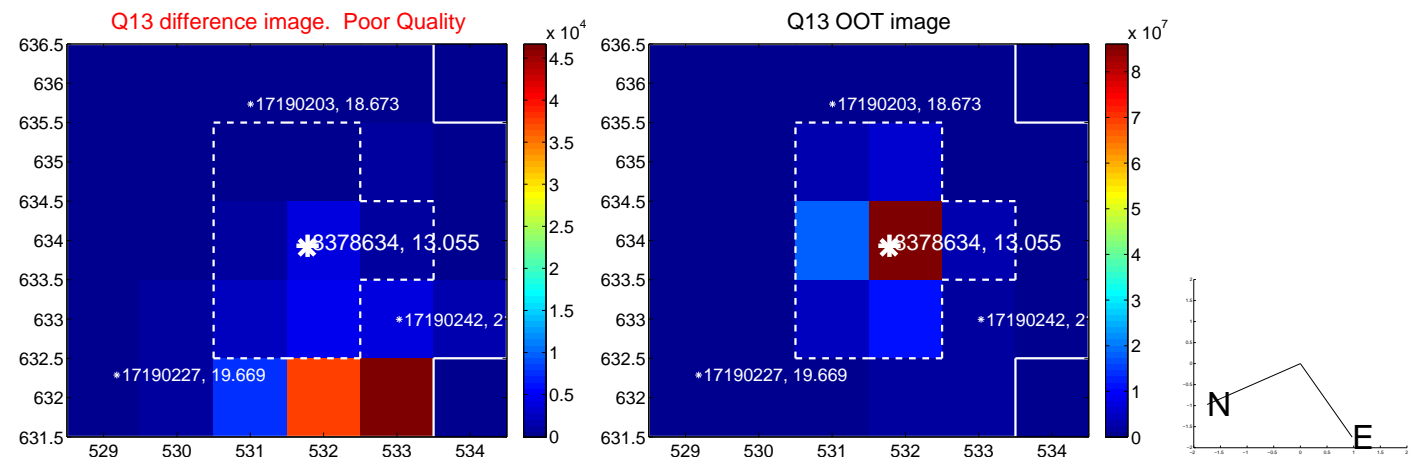
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



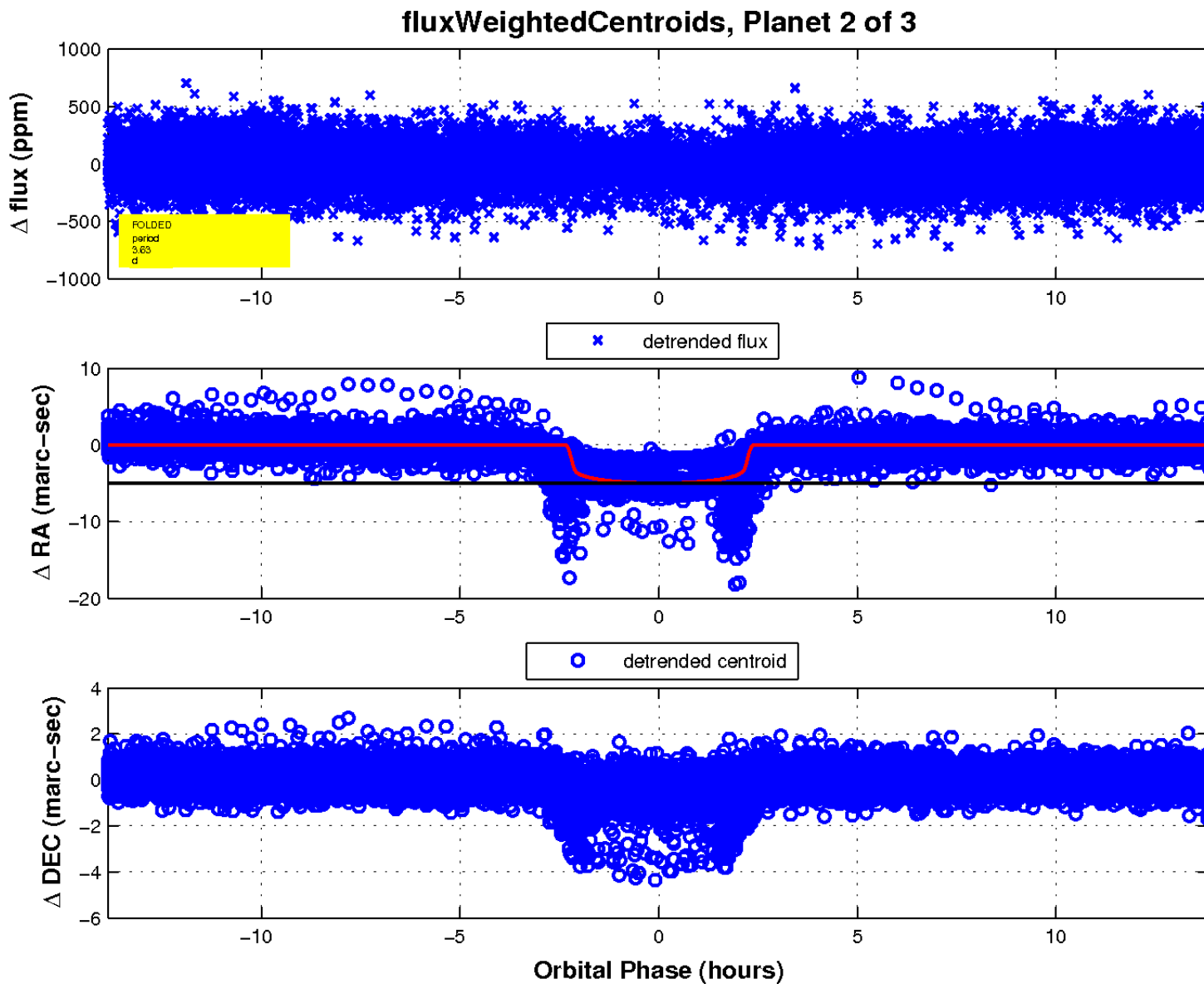
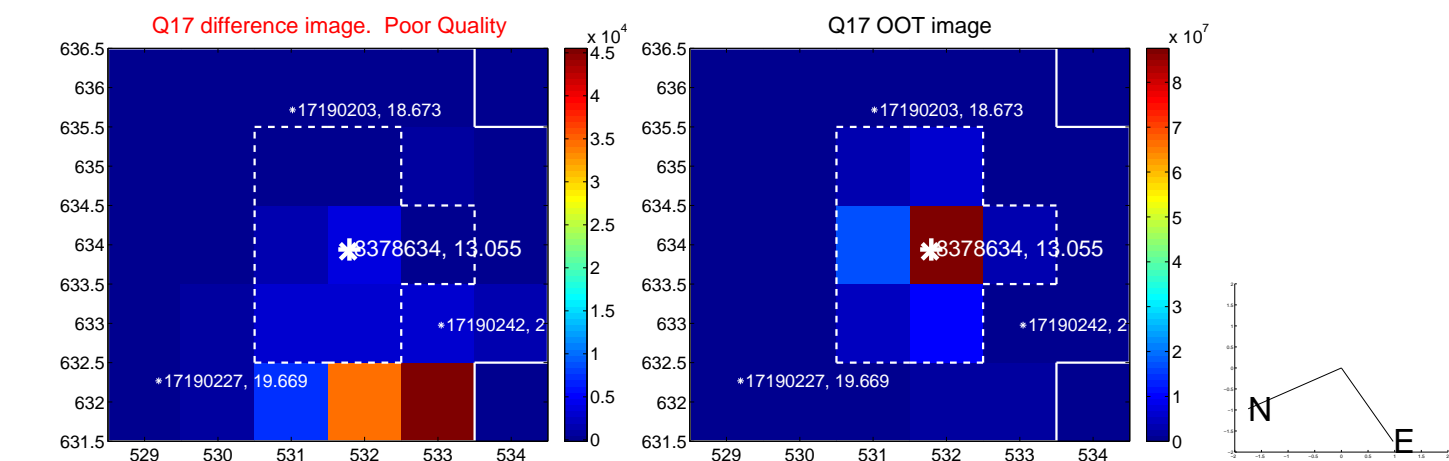
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

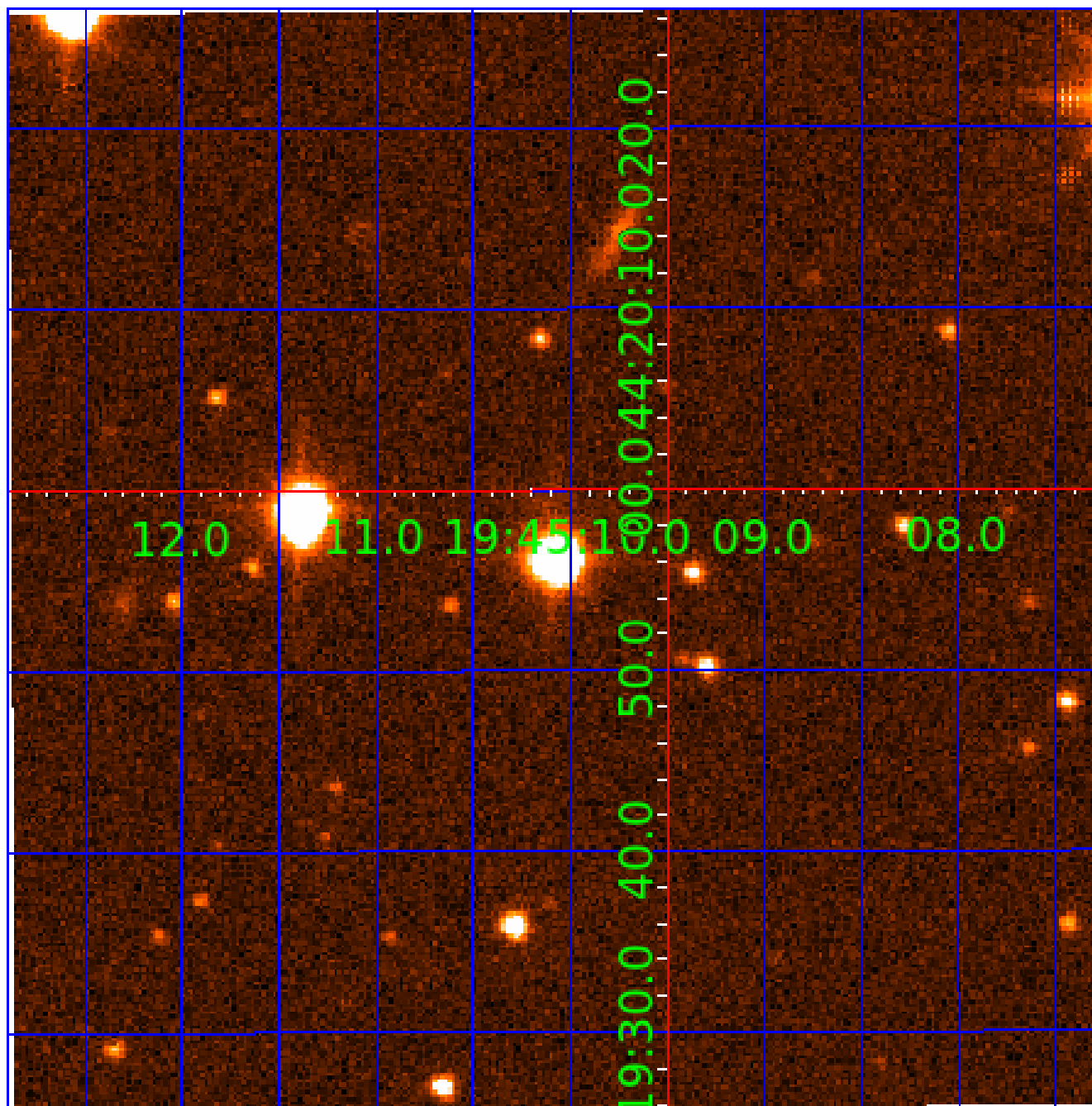


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008378634

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 008378634-01 | OBS | 1139.01 | 3.629424 | 134.703772 | 313.7 | 5.405 | 87.3 | 80.6 | 1.22 | 6506 | 2.79 | 1001.29 |
| 008378634-02 | OBS | No | 3.629420 | 132.929599 | 40.3 | 4.619 | 11.2 | 12.4 | 1.22 | 6506 | 0.90 | 1001.29 |
| 008378634-03 | OBS | No | 217.844169 | 304.560715 | 37.1 | 5.609 | 10.6 | 1.4 | 1.22 | 6506 | 0.86 | 4.26 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 008378634-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 1 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH |
| 008378634-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 1 | IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 008378634-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

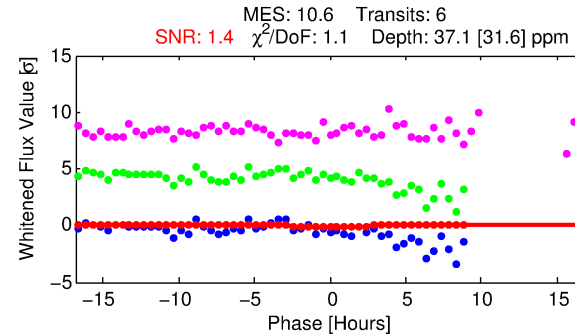
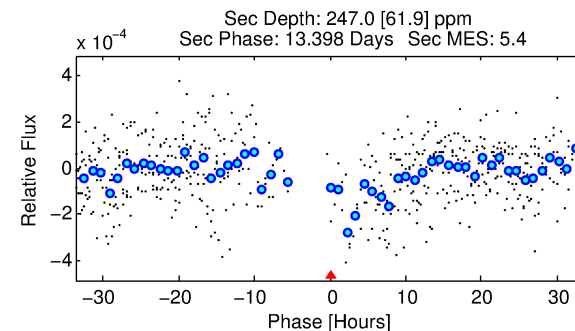
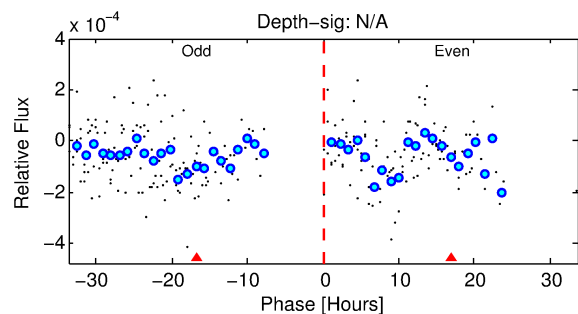
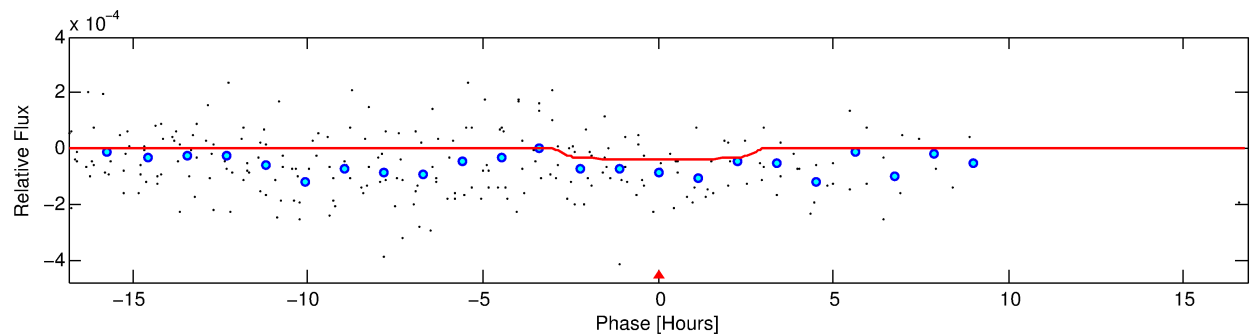
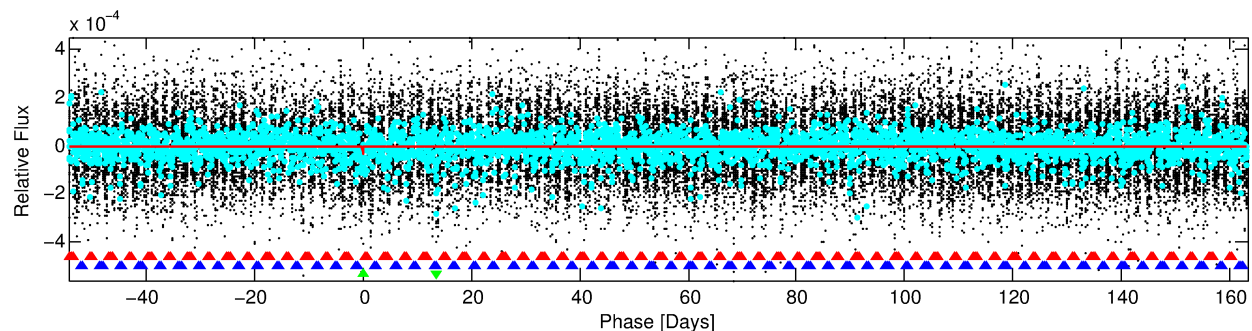
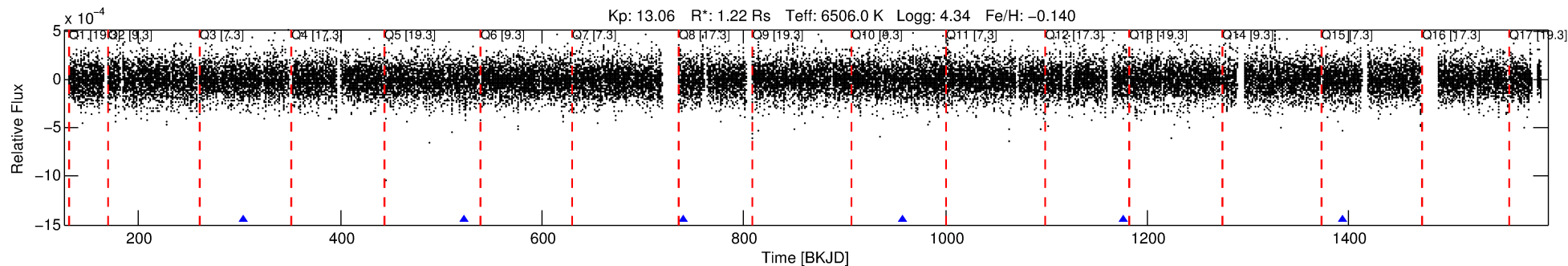
Ephemeris Match Information For 008378634-03

No Significant Match Found

DV One-Page Summary

KIC: 8378634 Candidate: 3 of 3 Period: 217.844 d
KOI: K01139 Corr: No Ephemeris Match

Kp: 13.06 R*: 1.22 Rs Teff: 6506.0 K Logg: 4.34 Fe/H: -0.140



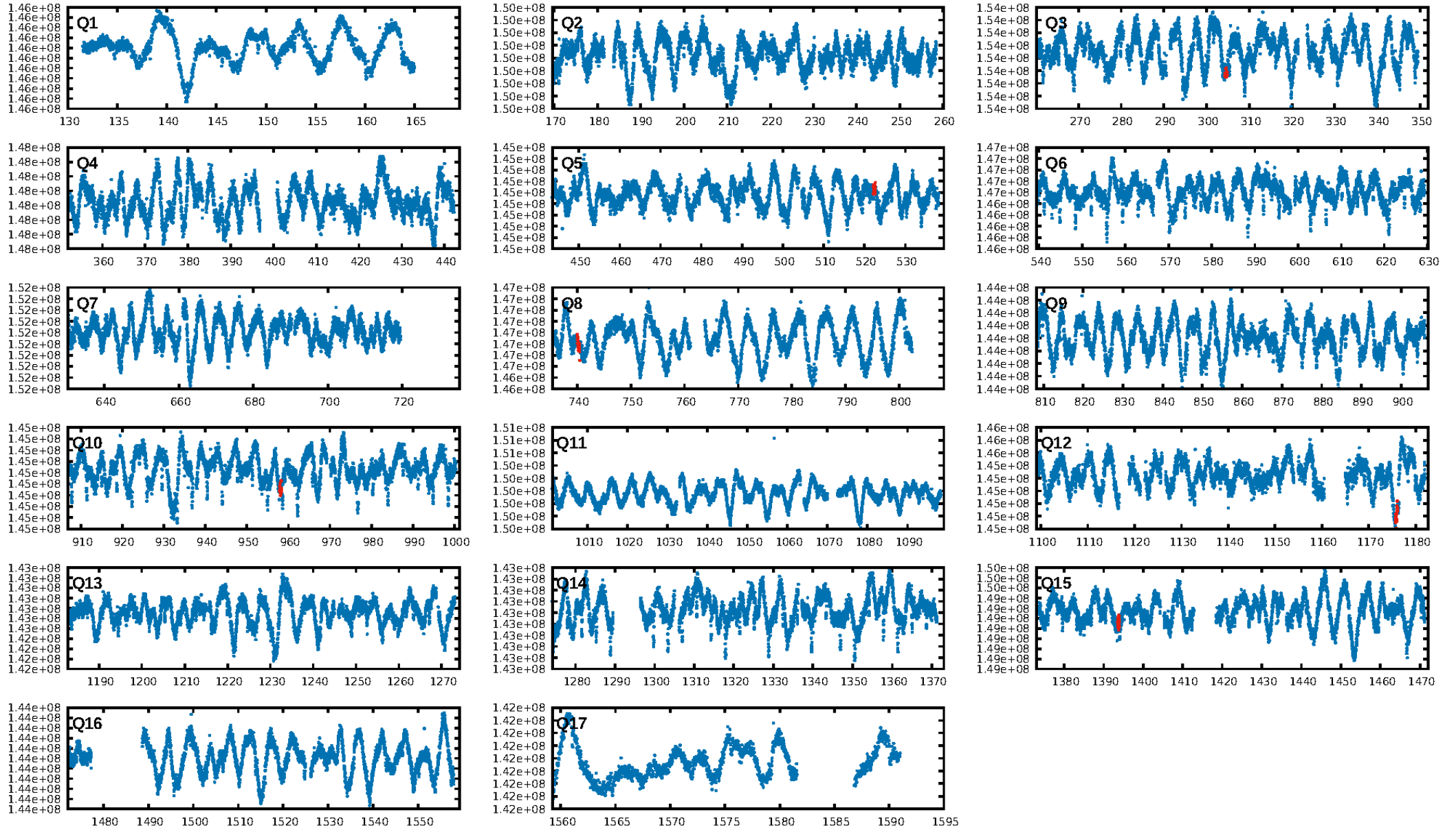
DV Fit Results:

Period = 217.84417 [0.02049] d
Epoch = 304.5607 [0.0578] BKJD
Rp/R* = 0.0065 [0.0126]
a/R* = 139.26 [1493.11]
b = 0.89 [2.51]
Seff = 4.26 [1.23]
Teq = 366 [26] K
Rp = 0.86 [1.69] Re
a = 0.7470 [0.1359] AU
Ag = 102619.68 [402546.04] [0.25σ]
Teffp = 10138 [9924] K [0.9σ]

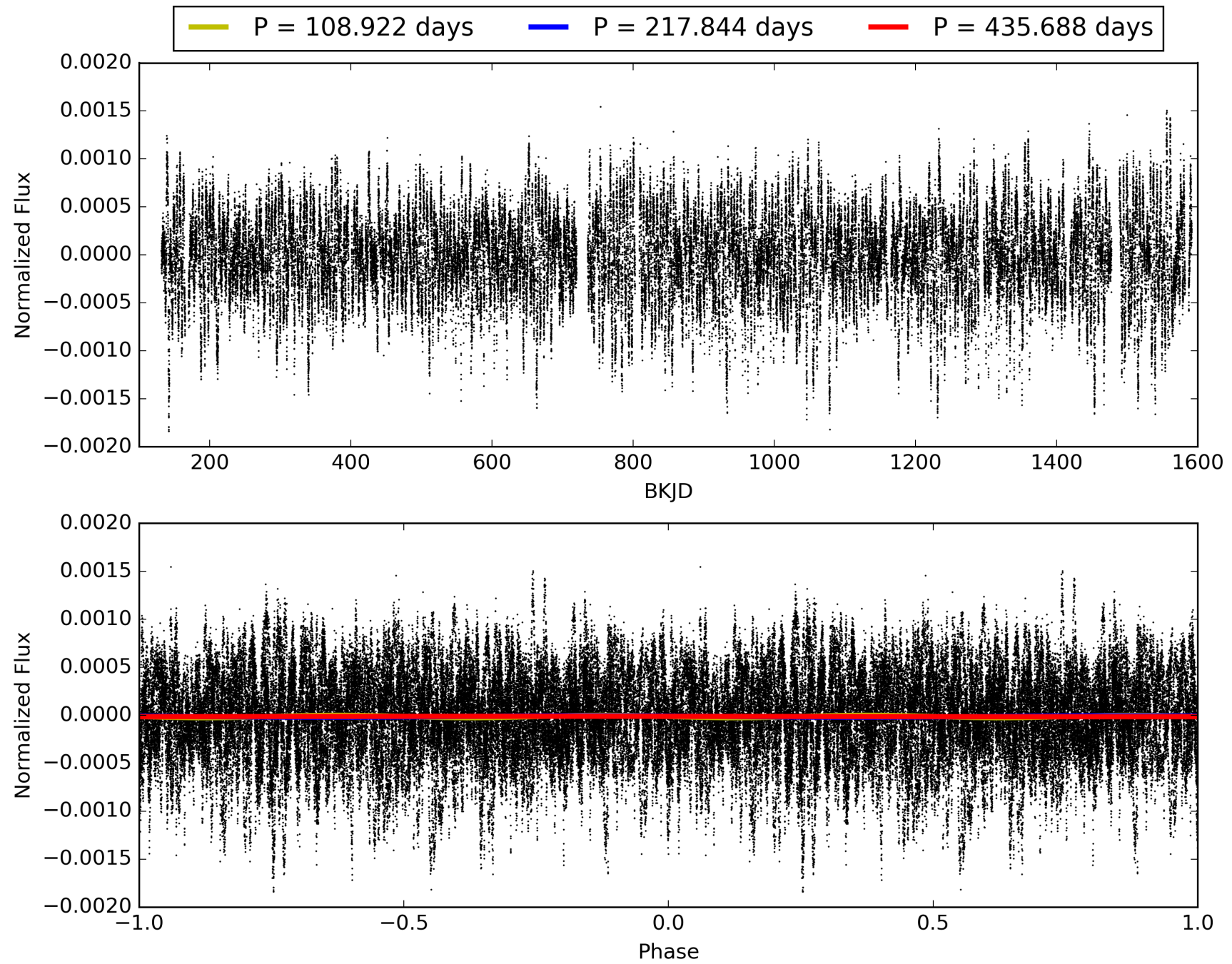
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [660.03σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 42.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.12e-19
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.9529
Centroid-sig: N/A
Centroid-so: 4.431 arcsec [0.52σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.40 [2/5]

TCE 008378634-03, PDC Light Curves

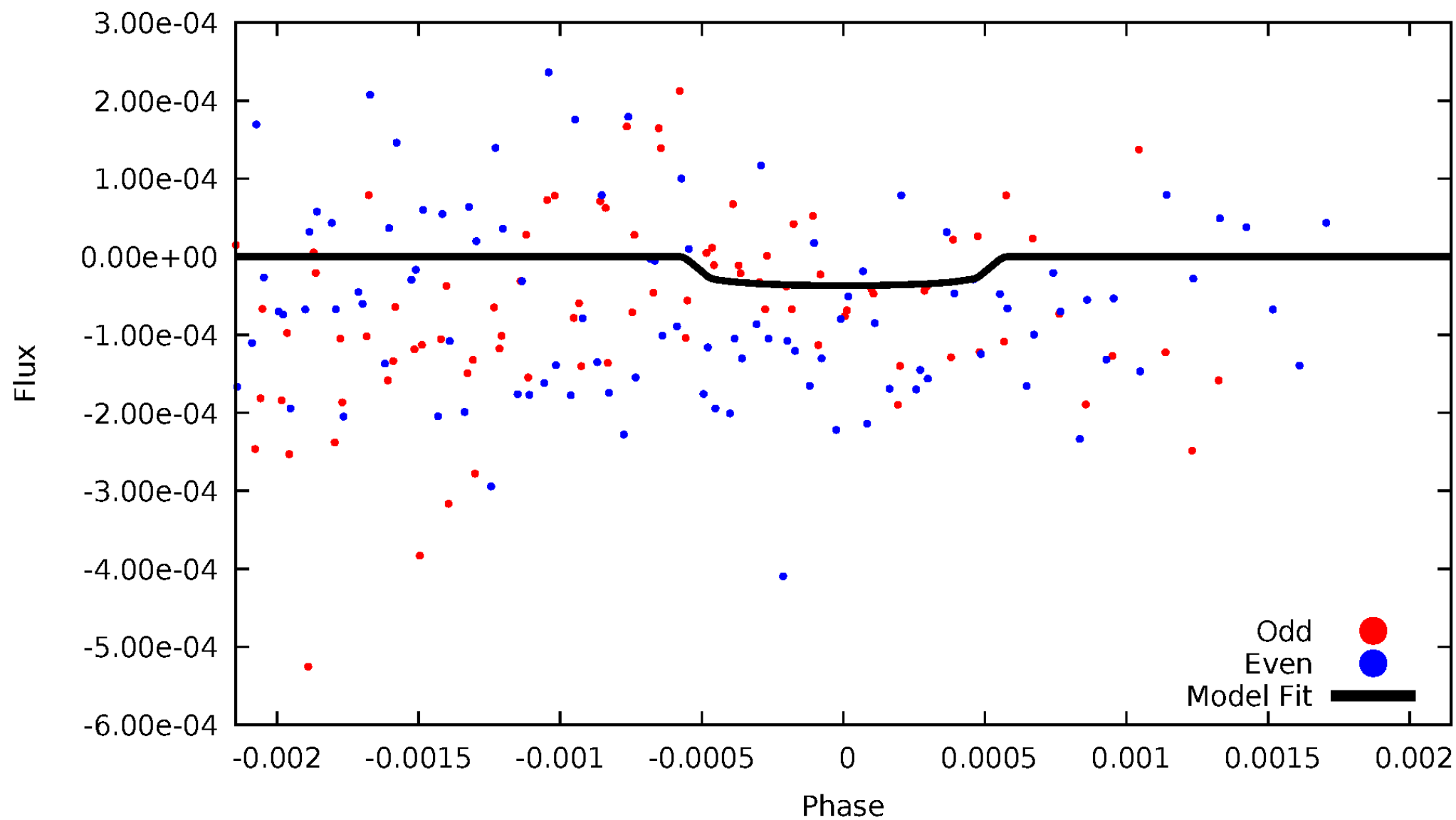


TCE 008378634-03



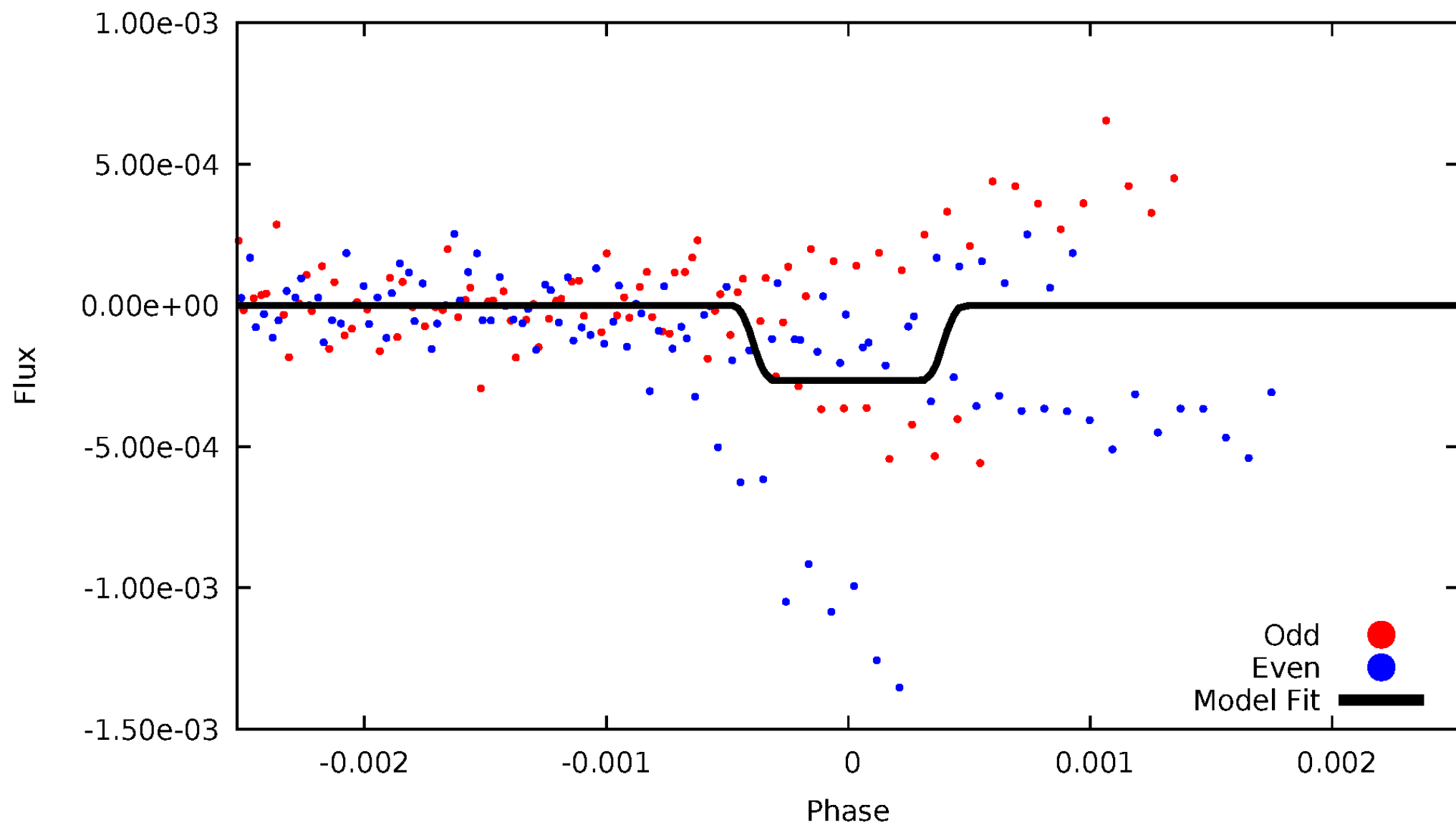
DV Odd/Even

TCE 008378634-03

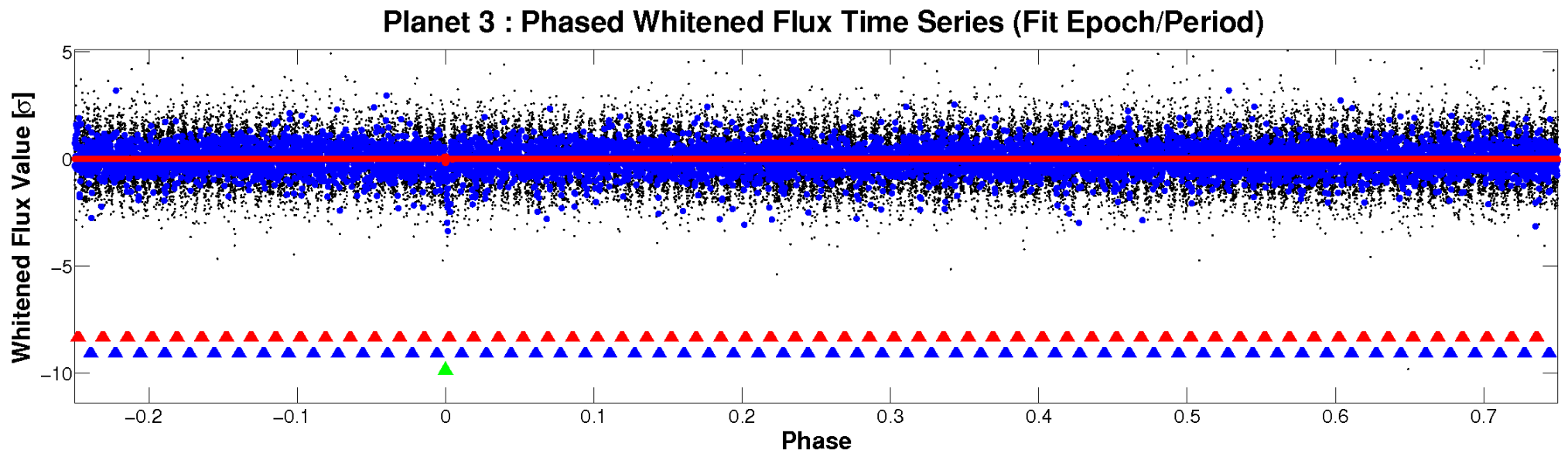
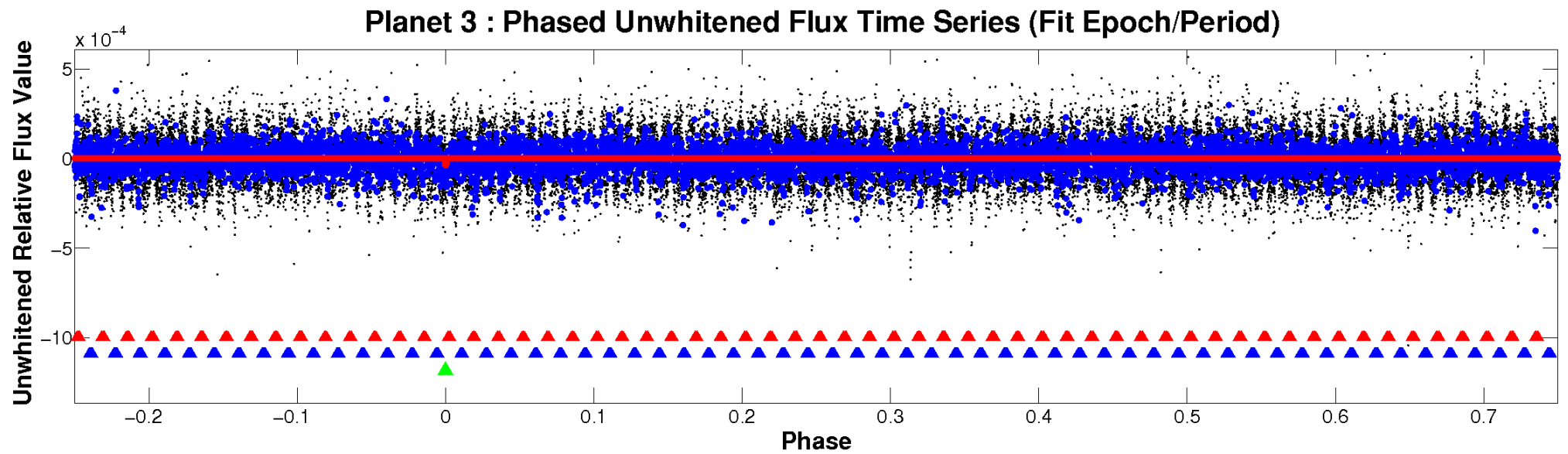


ALT Odd/Even

TCE 008378634-03

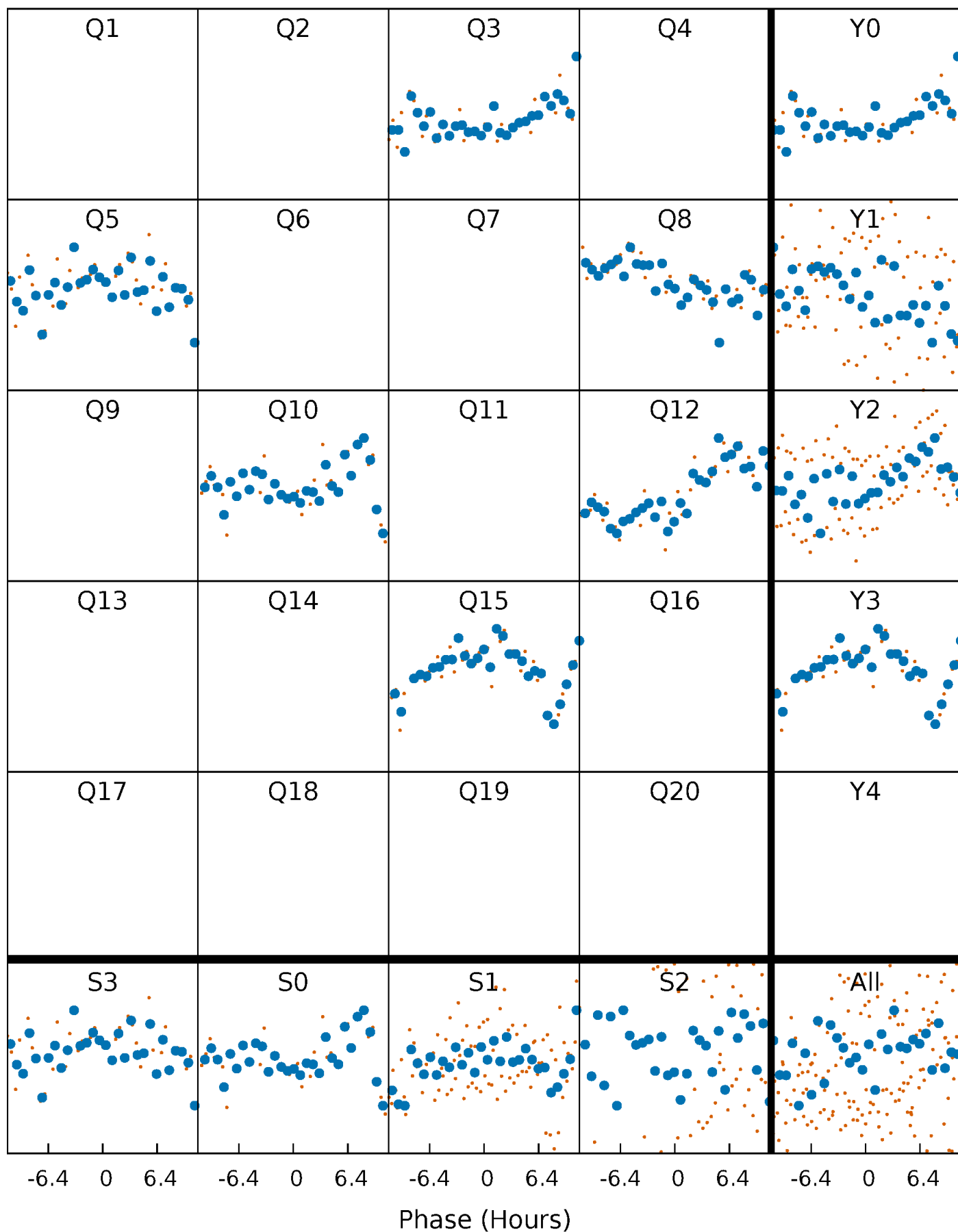


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 008378634-03 P=217.844169 Days $T_0=304.560715$ (BKJD)



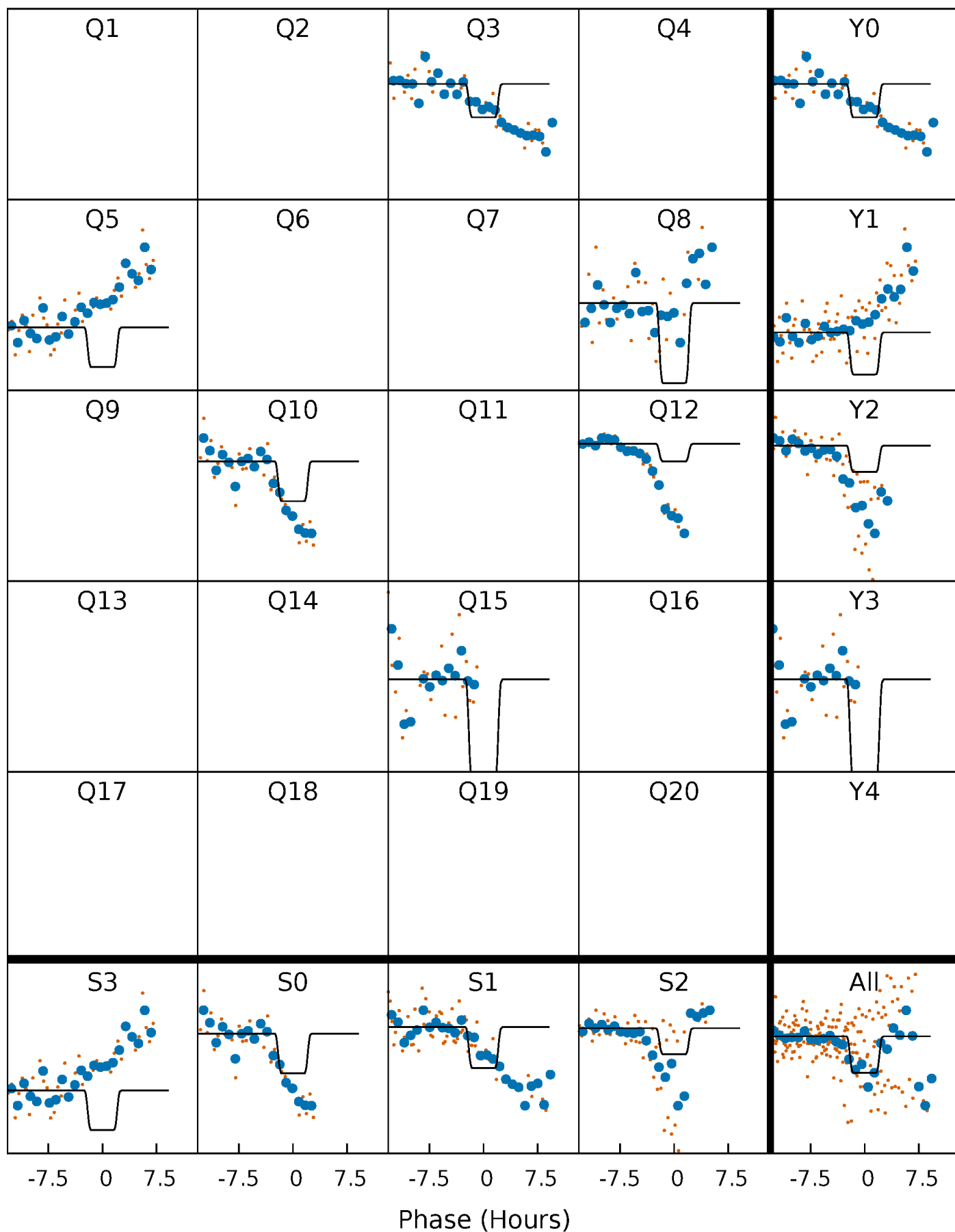
DV Quarter-Phased Transit Curves

TCE 008378634-03 $P=217.844169$ Days $T_0=304.560715$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

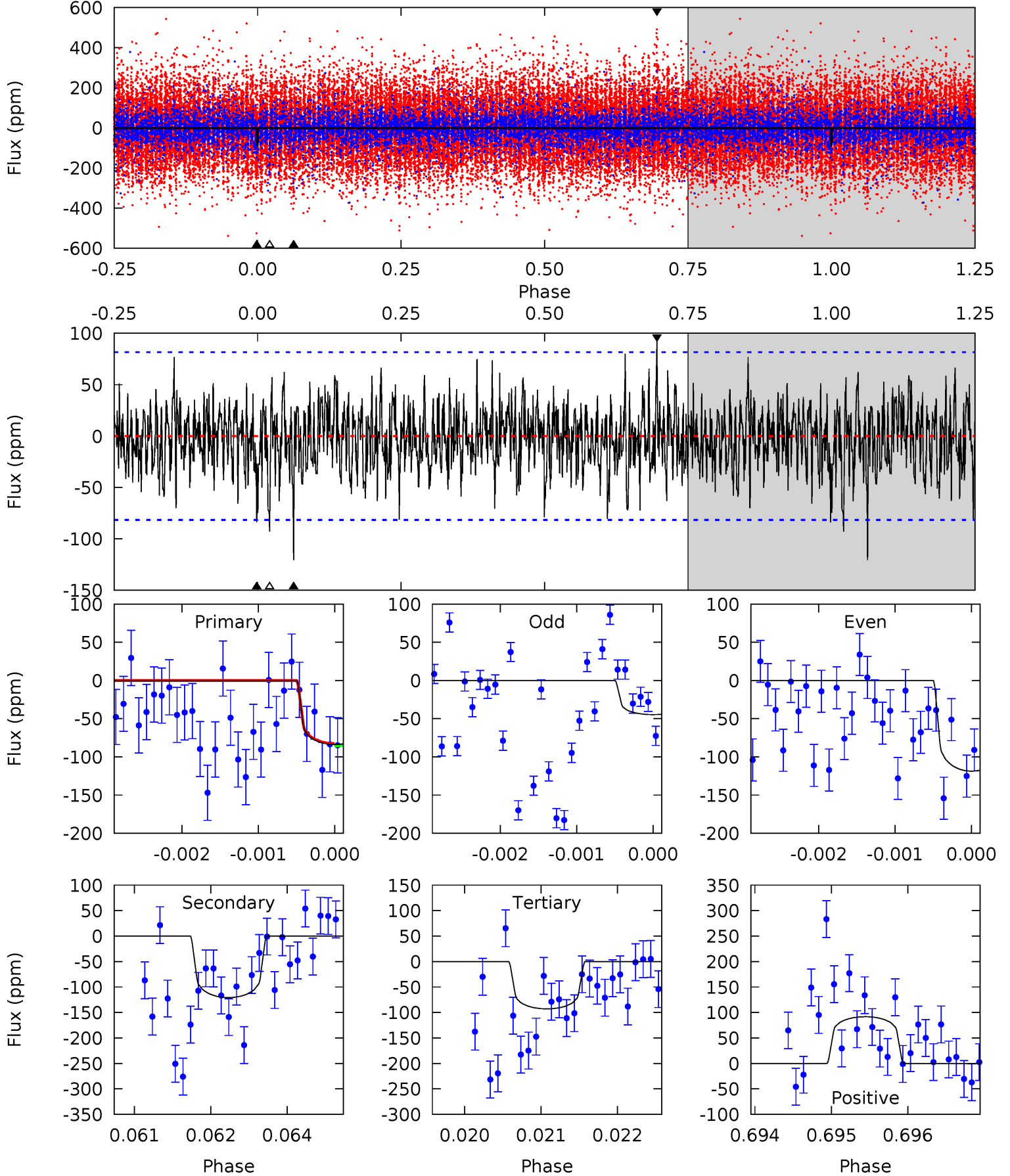
TCE 008378634-03 P=217.848994 Days $T_0=304.551319$ (BKJD)



DV Model-Shift Uniqueness Test

008378634-03, P = 217.844169 Days, E = 86.716546 Days

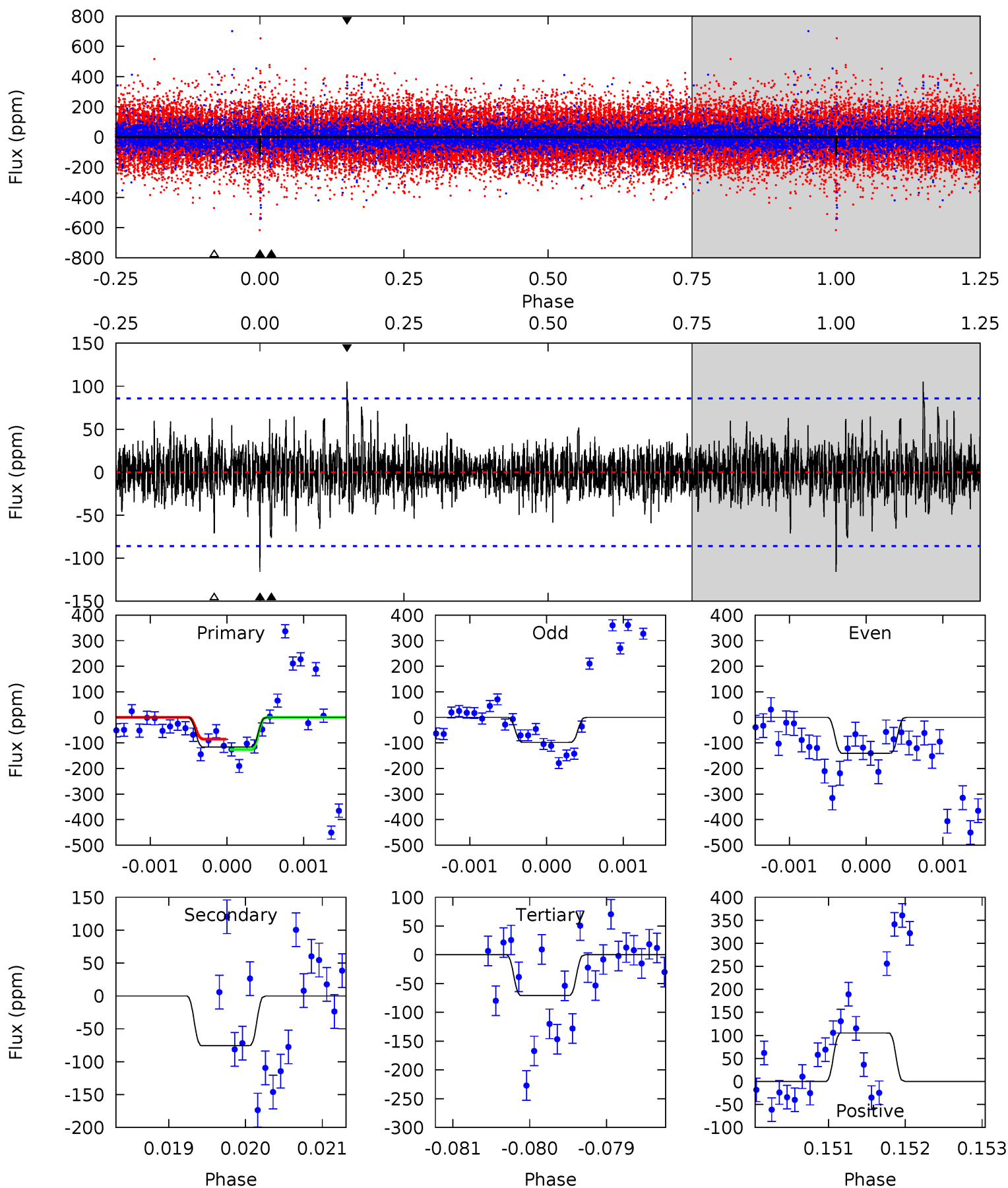
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.57 | 8.03 | 6.18 | 6.10 | 5.43 | 3.25 | 1.62 | -0.60 | -0.53 | 1.85 | 1.93 | 2.46 | 1.08 | 0.43 | 0.09 |



Alt Model-Shift Uniqueness Test

008378634-03, P = 217.848994 Days, E = 86.702325 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.37 | 4.81 | 4.50 | 6.69 | 5.46 | 3.30 | 1.02 | 2.86 | 0.68 | 0.30 | -1.88 | 1.37 | 2.44 | 0.48 | 1.30 |



Stellar Parameters For KIC 008378634

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6506^{+145}_{-194} | $4.336^{+0.077}_{-0.143}$ | $-0.140^{+0.250}_{-0.300}$ | $1.217^{+0.265}_{-0.155}$ | $1.171^{+0.150}_{-0.150}$ | $0.916^{+0.312}_{-0.386}$ |
| | +2%/-3% | +2%/-3% | +179%/-214% | +22%/-13% | +13%/-13% | +34%/-42% |
| Source | PHO1 | FLK73 | 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 008378634-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -121 ± 15 | $1.47^{+1.43}_{-0.97}$ | 514^{+27}_{-23} | 6428^{+7335}_{-1686} | $16226^{+129424}_{-11912}$ |
| Alt. | -76 ± 16 | $2.53^{+1.54}_{-1.47}$ | 515^{+29}_{-24} | 4562^{+2253}_{-778} | 3499^{+16106}_{-2190} |

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

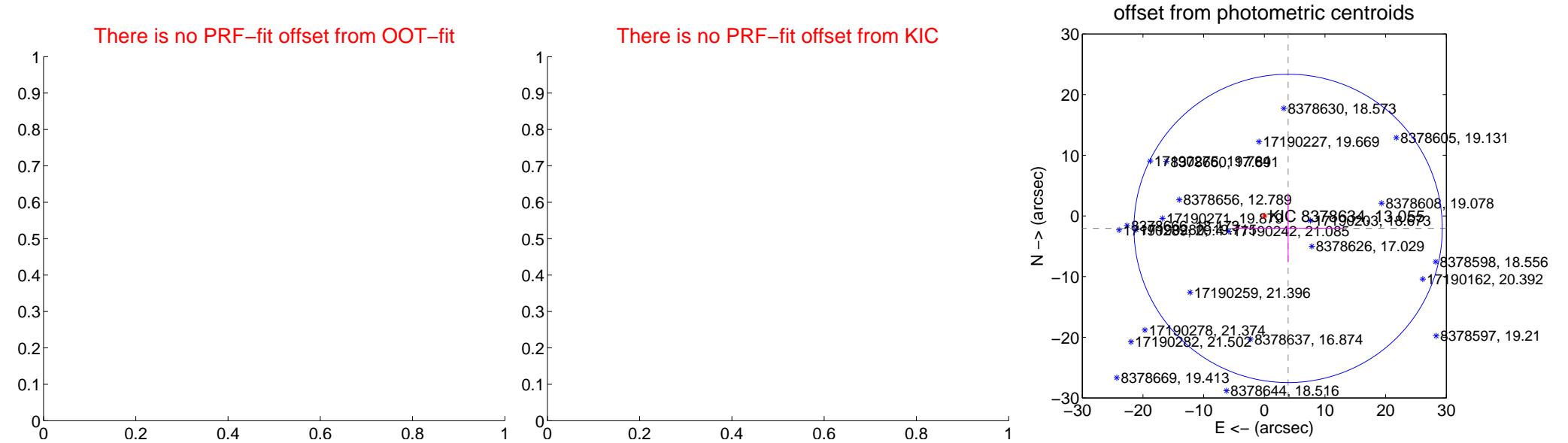
DV Centroid Data

Supplemental centroid analysis for 008378634-03. Kepler magnitude: 13.05. Transit SNR 1.39

There are 0 quarters with good PRF difference image offsets

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

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|------------------|------------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | 4.43 ± 8.47 | 0.52 | -3.92 ± 9.10 | -2.06 ± 5.58 |



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q1 no difference image



Q1 no OOT image



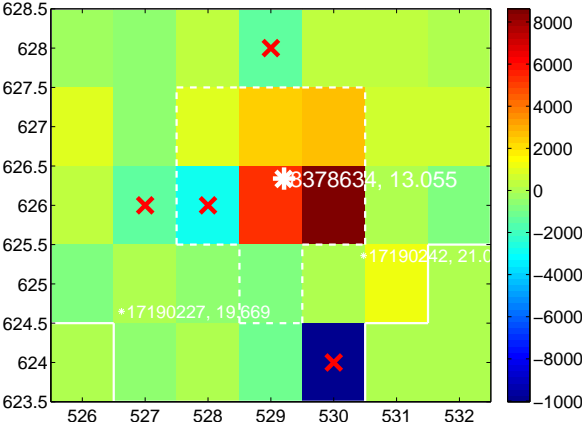
Q2 no difference image



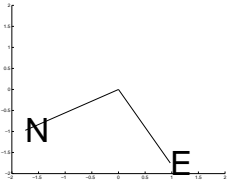
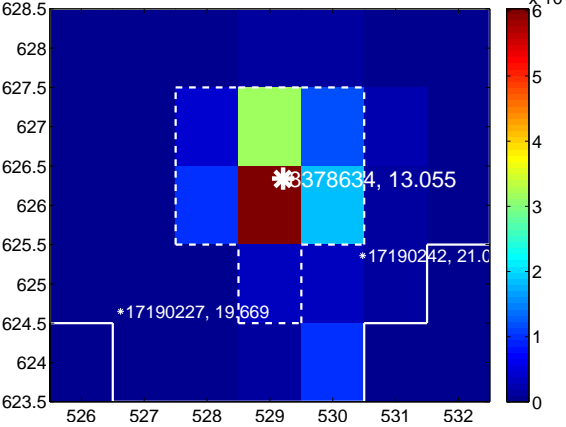
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



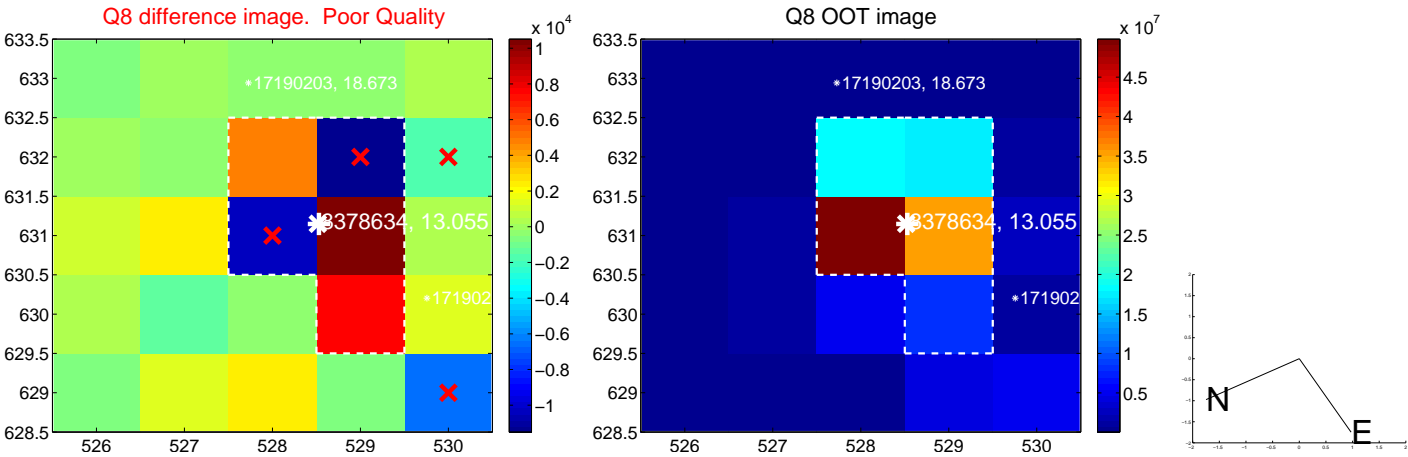
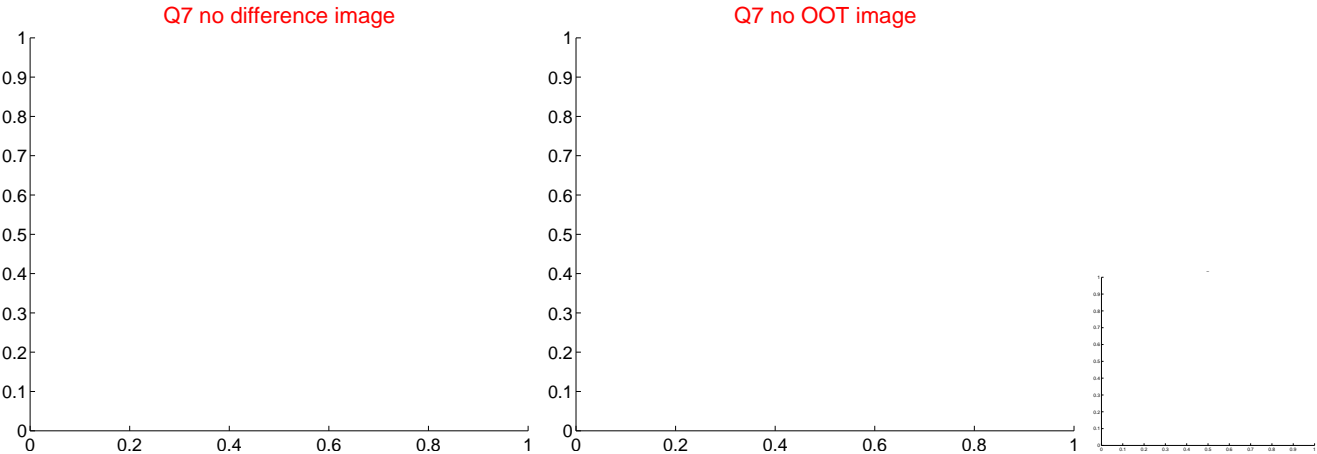
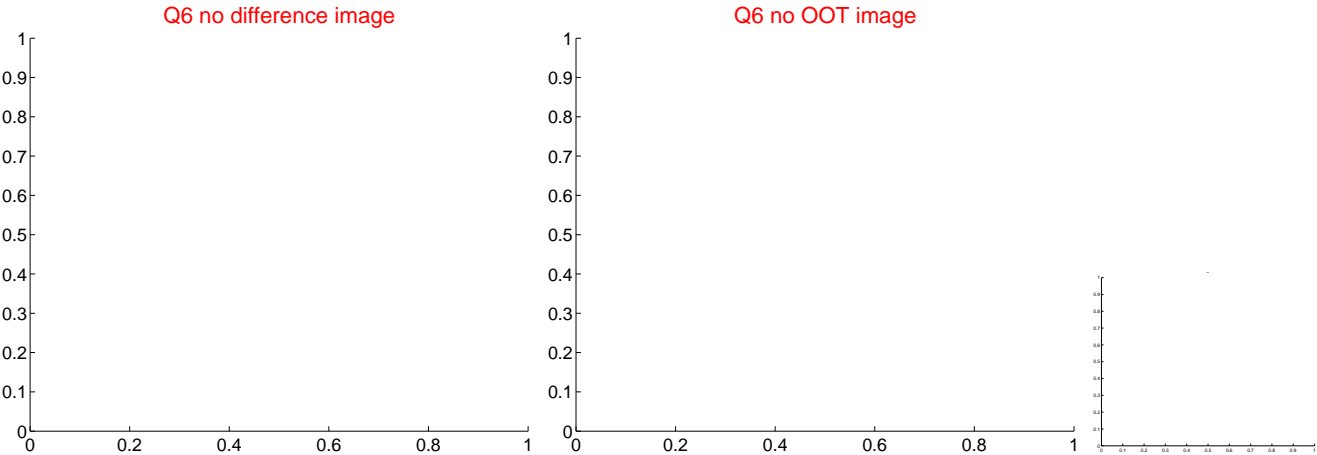
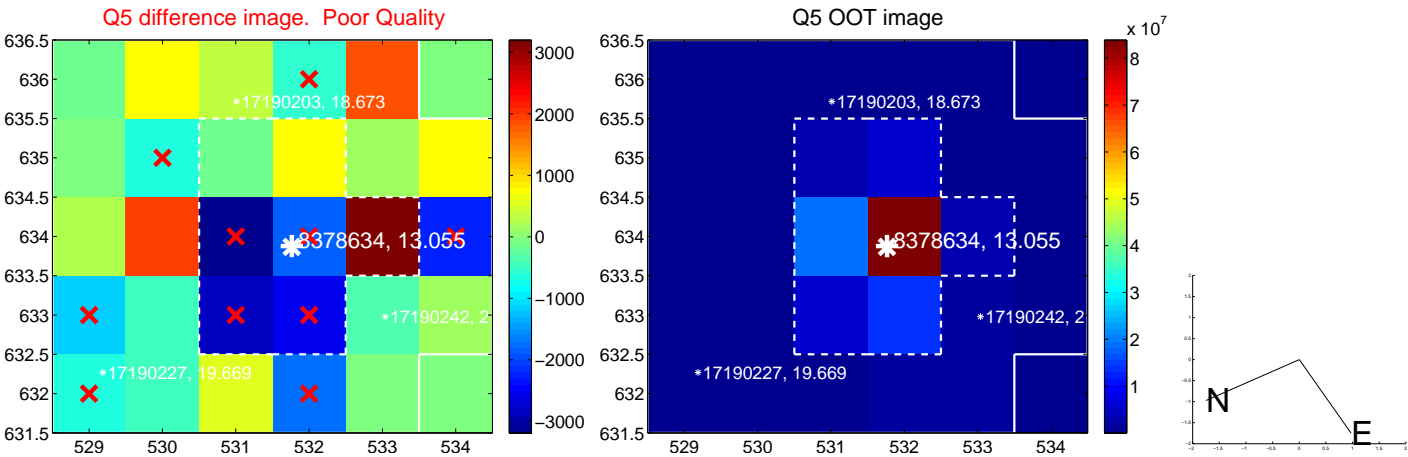
Q4 no difference image



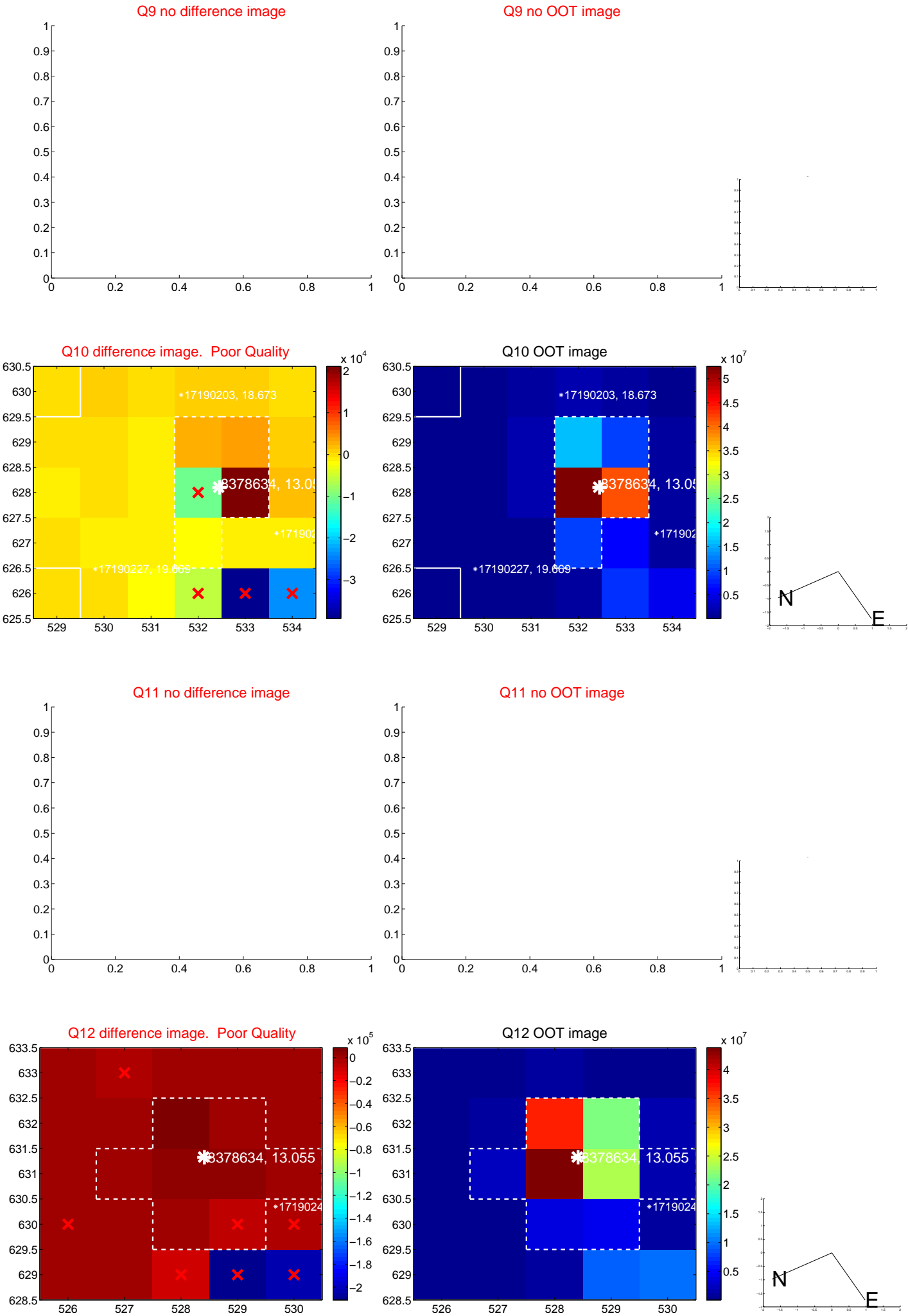
Q4 no OOT image



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



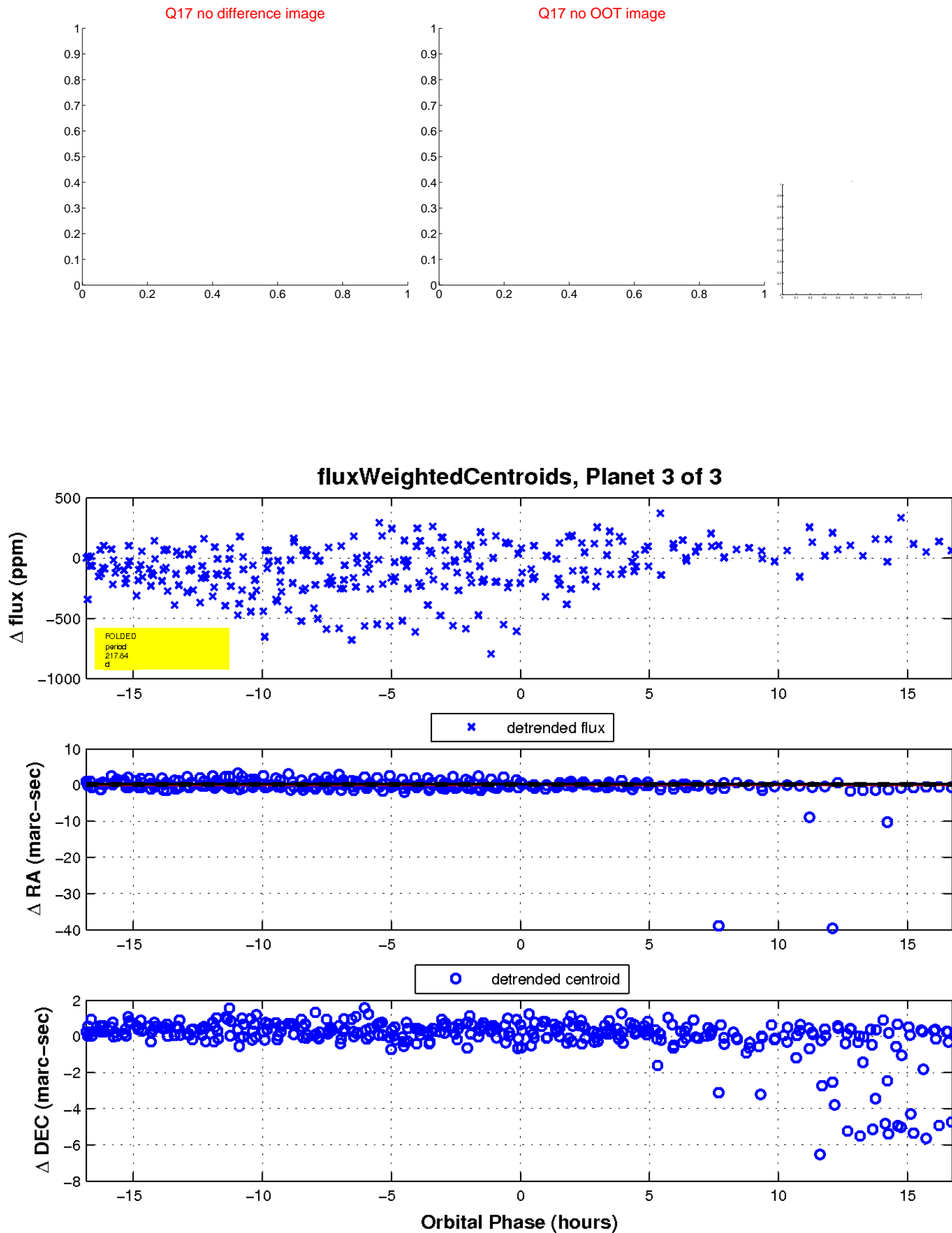
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

