

KIC 007818447

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007818447-01 | OBS | No | 0.928410 | 131.598363 | 2058.6 | 1.759 | 67.8 | 65.8 | 0.12 | 2661 | 0.65 | 8.41 |
| 007818447-02 | OBS | 4028.01 | 0.618953 | 131.585994 | 11424.9 | 1.500 | 142.4 | -1.0 | 0.12 | 2661 | 1.23 | 14.45 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007818447-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET |
| 007818447-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 1 | LPP_DV—CENT_NOFITS—EPHEM_MATCH |

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.

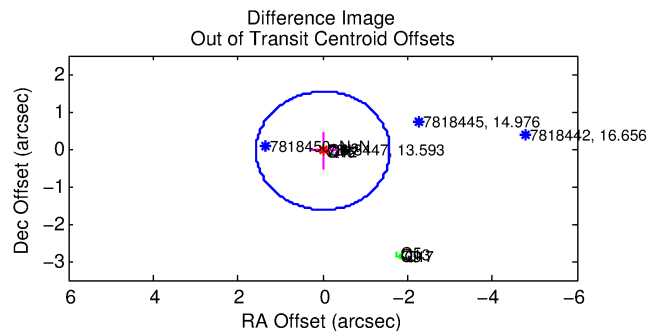
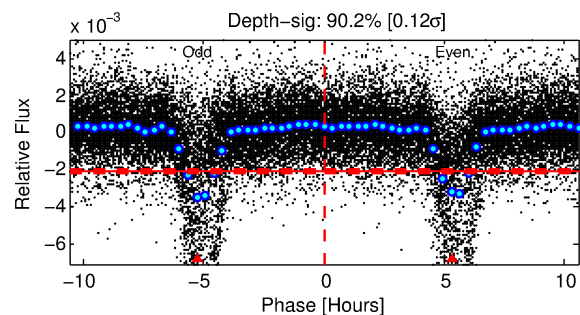
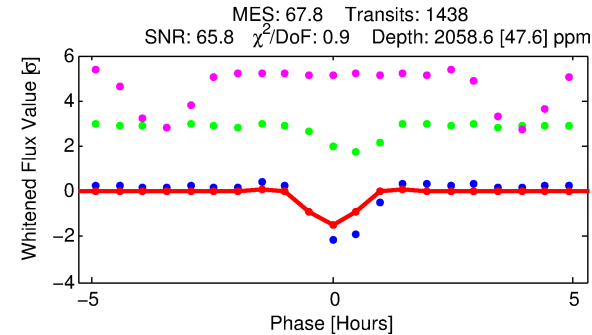
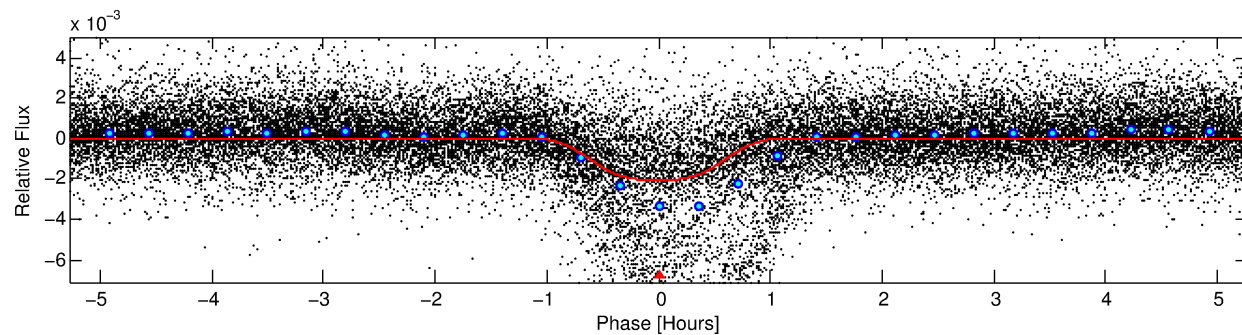
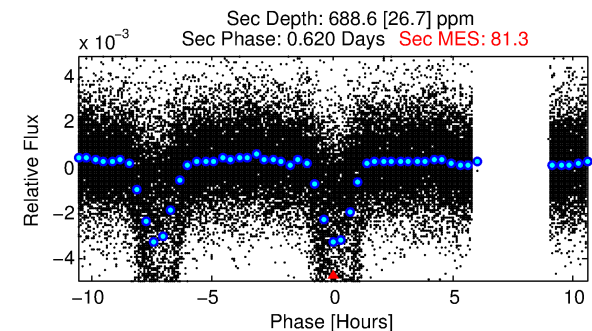
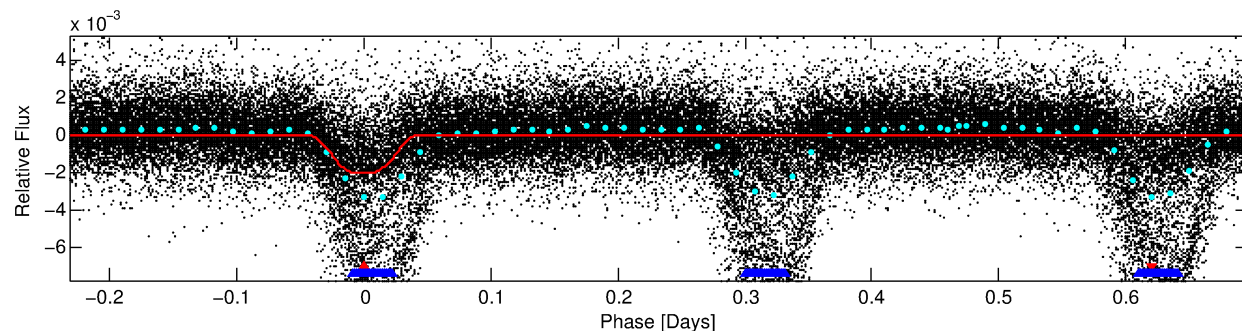
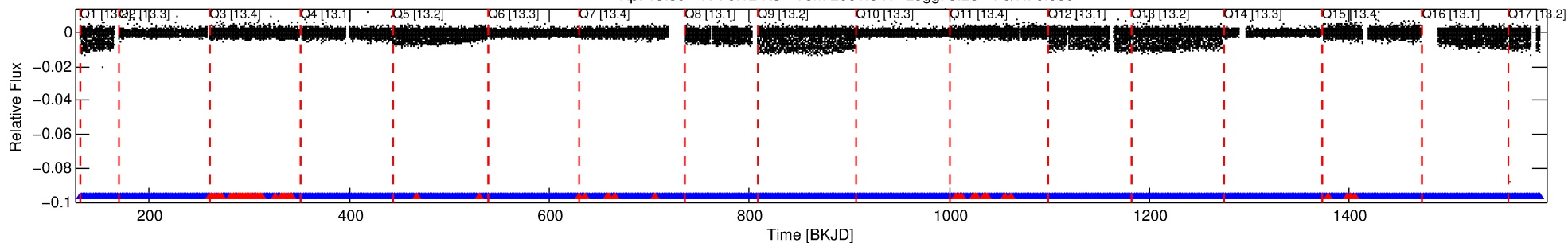
Ephemeris Match Information For 007818447-01

No Significant Match Found

DV One-Page Summary

KIC: 7818447 Candidate: 1 of 2 Period: 0.928 d
KOI: K04028 Corr: No Ephemeris Match

Kp: 13.59 R*: 0.12 Rs Teff: 2661.0 K Logg: 5.28 Fe/H: 0.000



DV Fit Results:

Period = 0.92841 [0.00000] d
Epoch = 131.5984 [0.0003] BKJD
Rp/R* = 0.0516 [0.0014]
a/R* = 2.24 [0.13]
b = 0.92 [0.01]
Seff = 8.42 [0.00]
Teq = 434 [0] K
Rp = 0.65 [0.02] Re
a = 0.0085 [0.0000] AU
Ag = 63.90 [4.22] [14.91σ]
Teffp = 1899 [31] K [46.72σ]

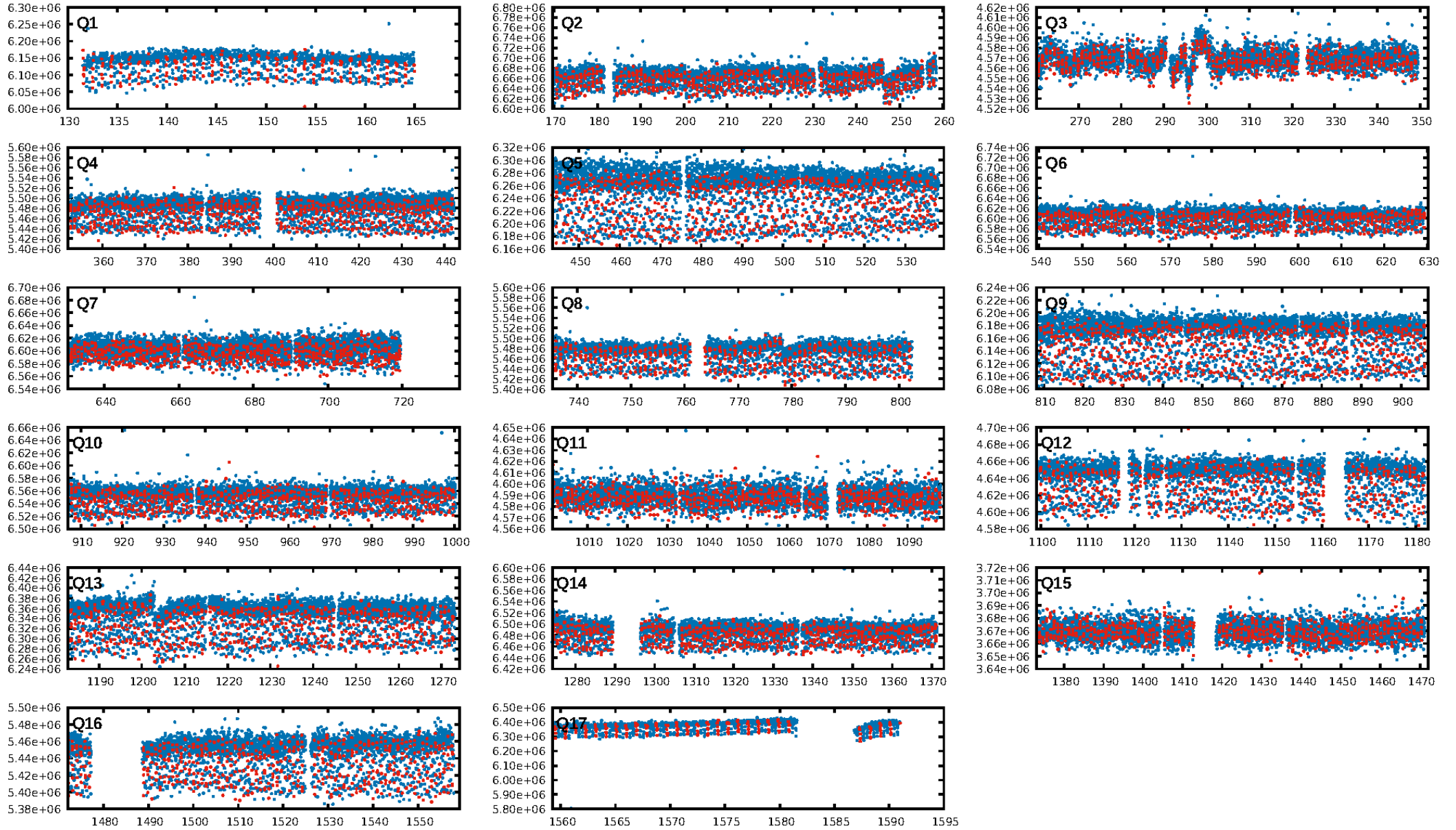
DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.21σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [1304/1373]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.049 arcsec [0.09σ]
KicOffset-rm: 12.443 arcsec [18.90σ]
OotOffset-st: 0/0/4/4 [8]
KicOffset-st: 0/0/4/4 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [17/17]

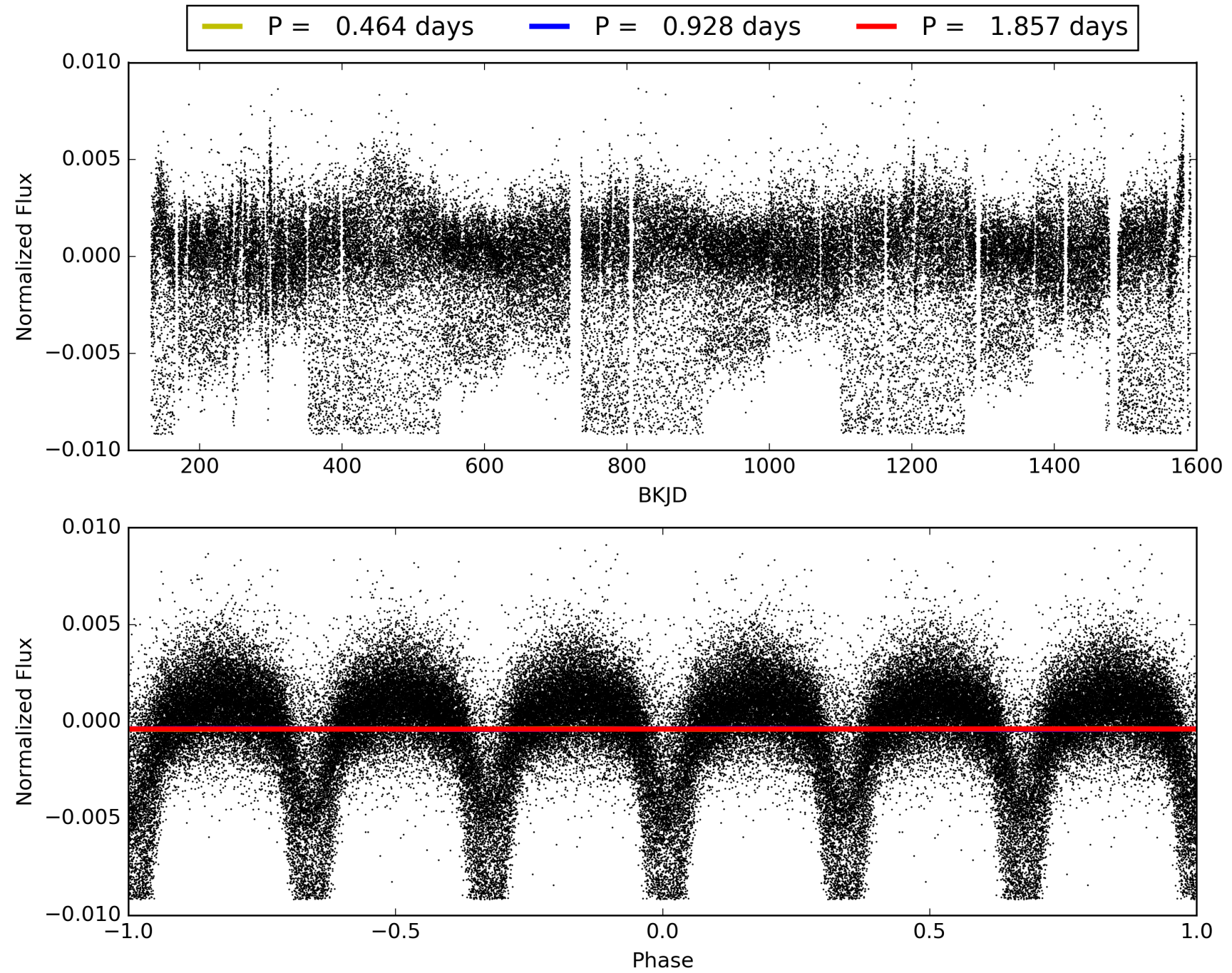
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:04:30 Z

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

TCE 007818447-01, PDC Light Curves

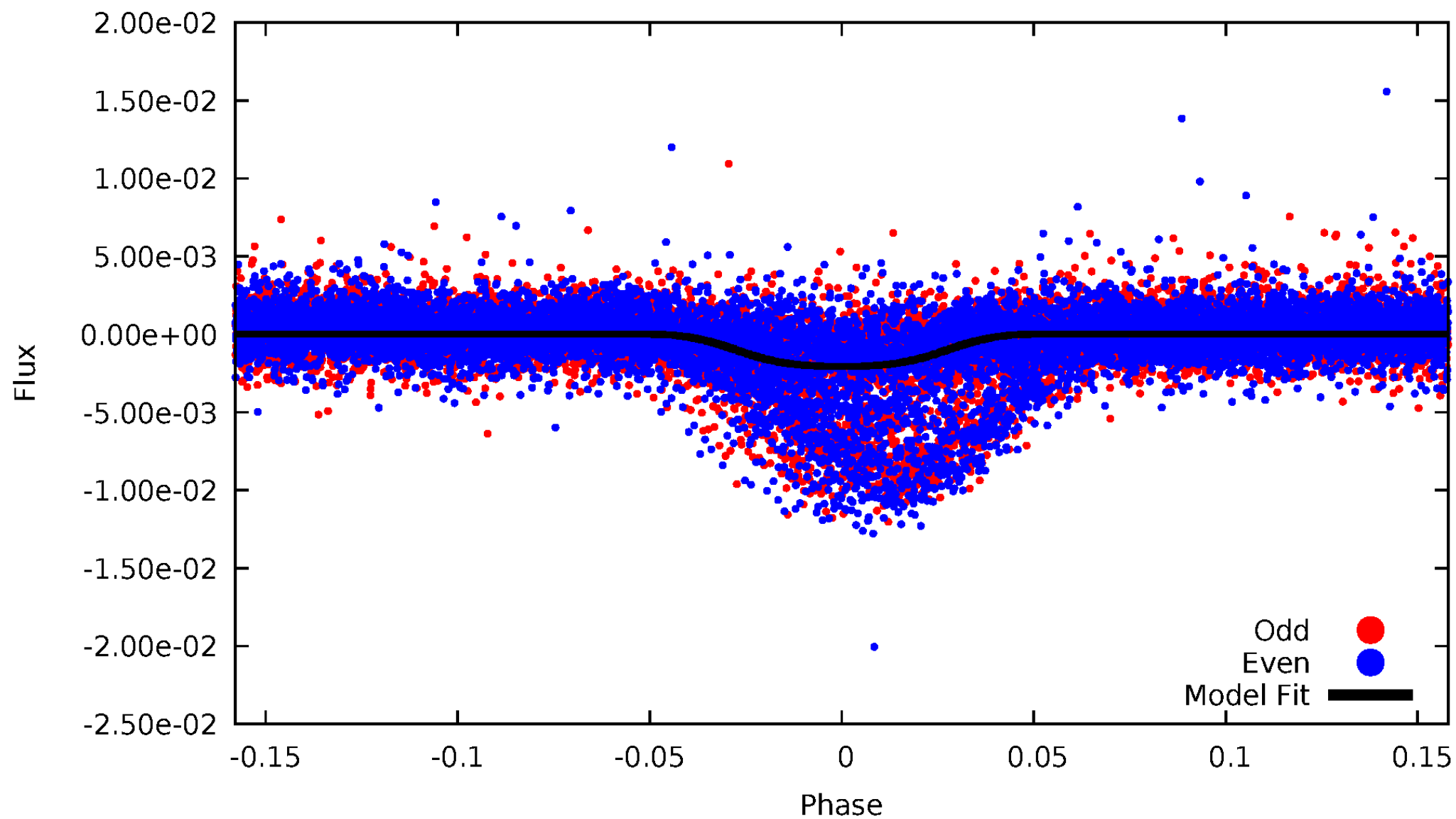


TCE 007818447-01



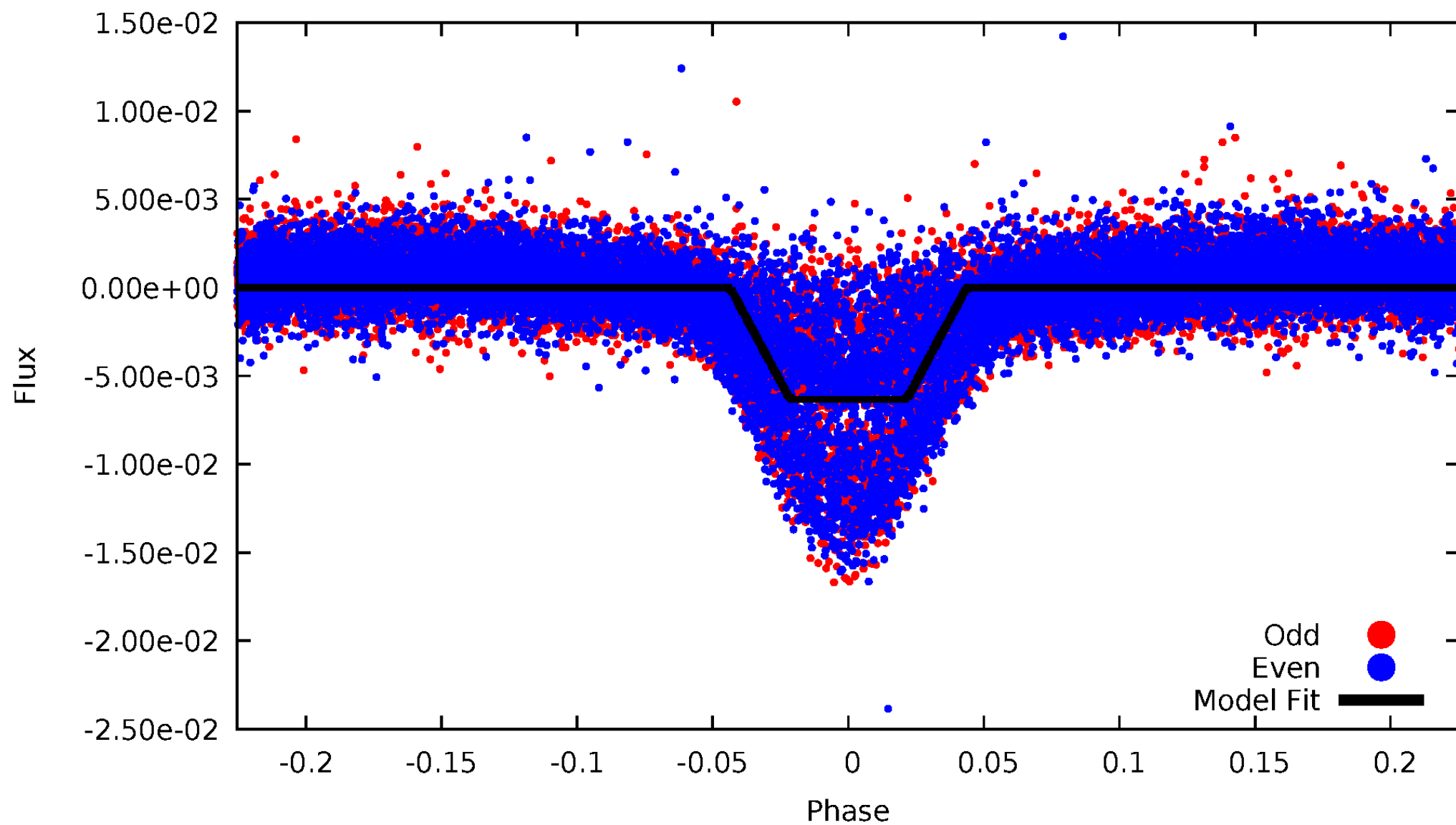
DV Odd/Even

TCE 007818447-01

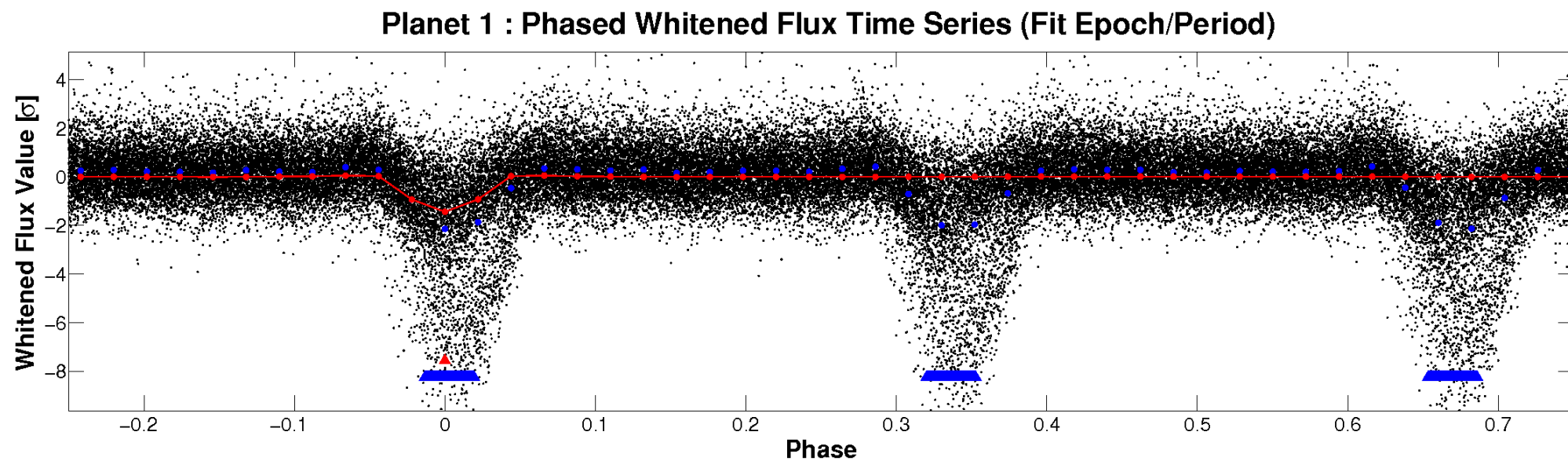
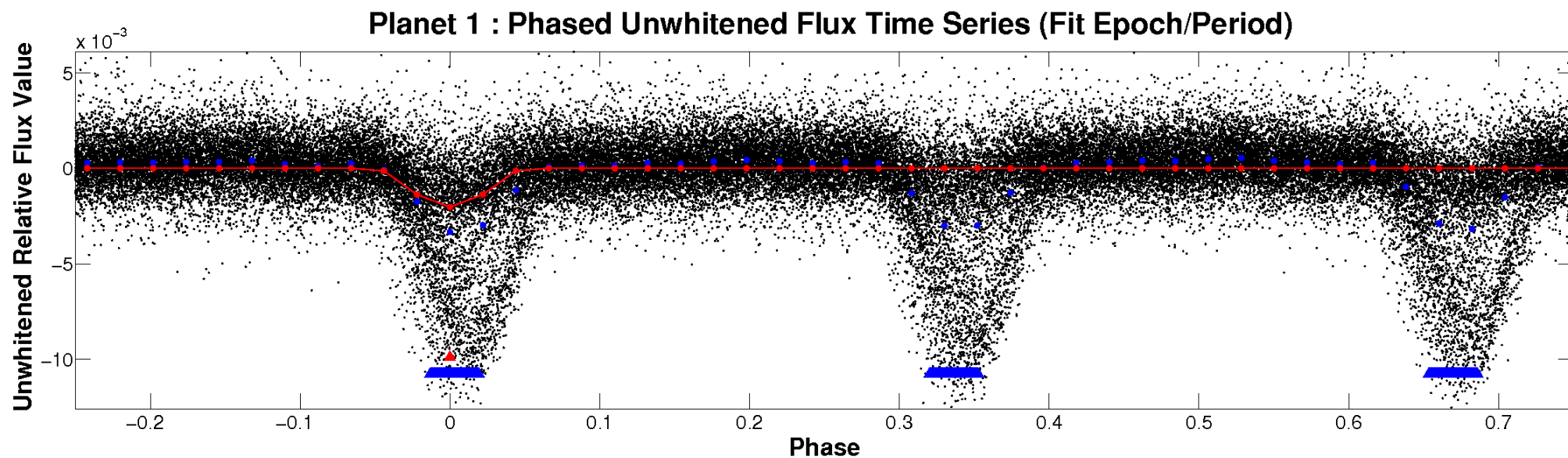


ALT Odd/Even

TCE 007818447-01

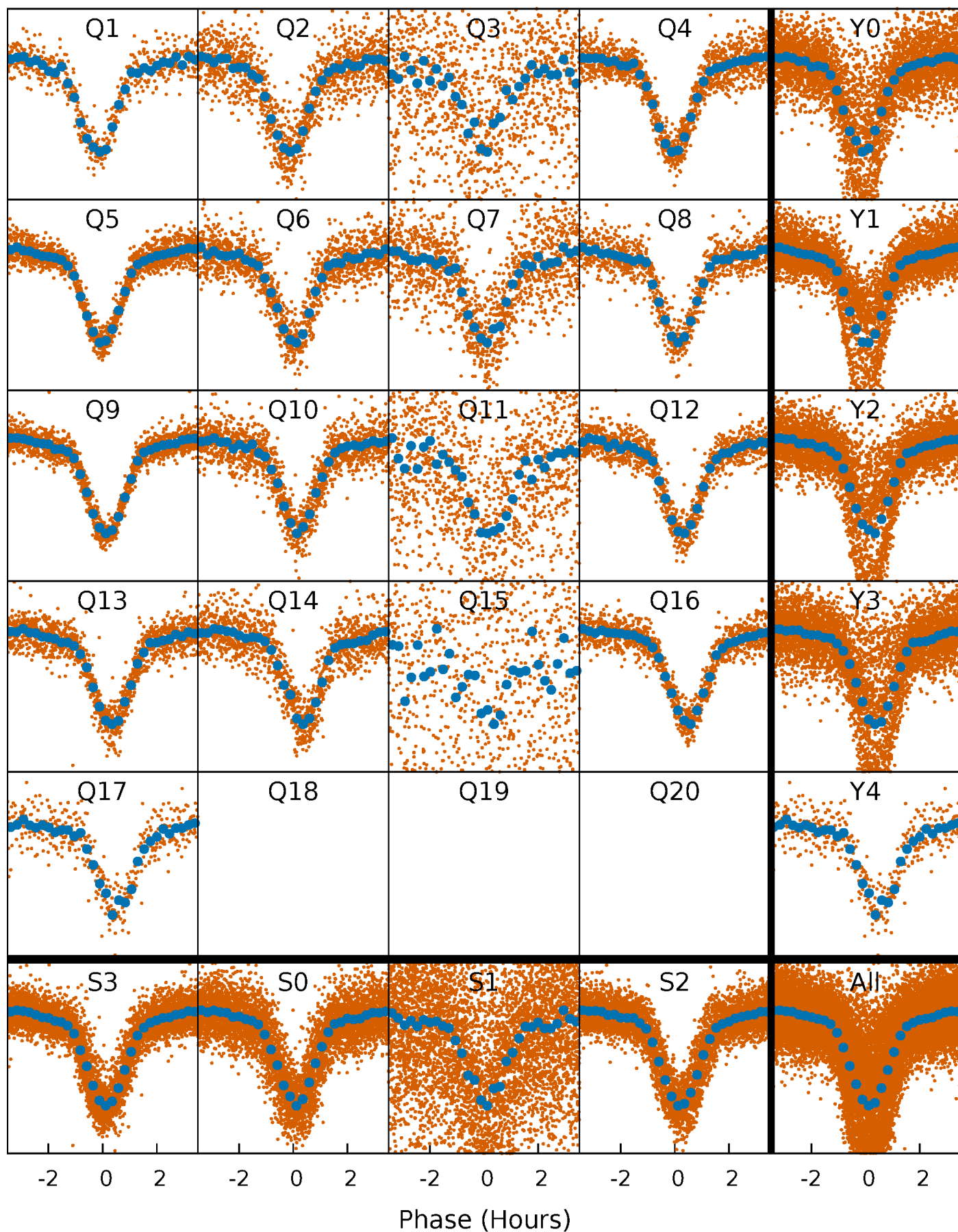


Non-Whitened Vs. Whitened Light Curve



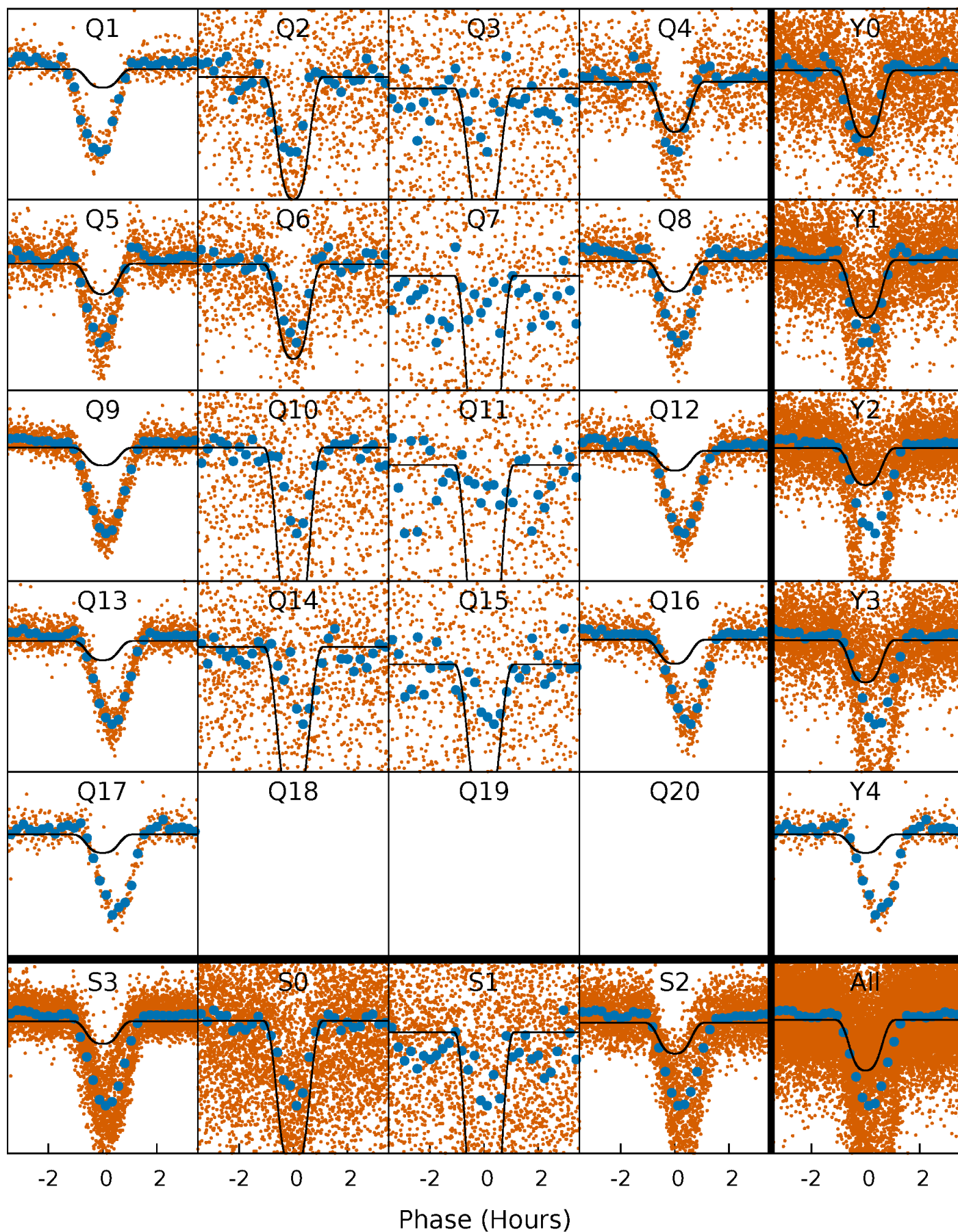
PDC Quarter-Phased Transit Curves

TCE 007818447-01 P= 0.928410 Days $T_0=131.598363$ (BKJD)



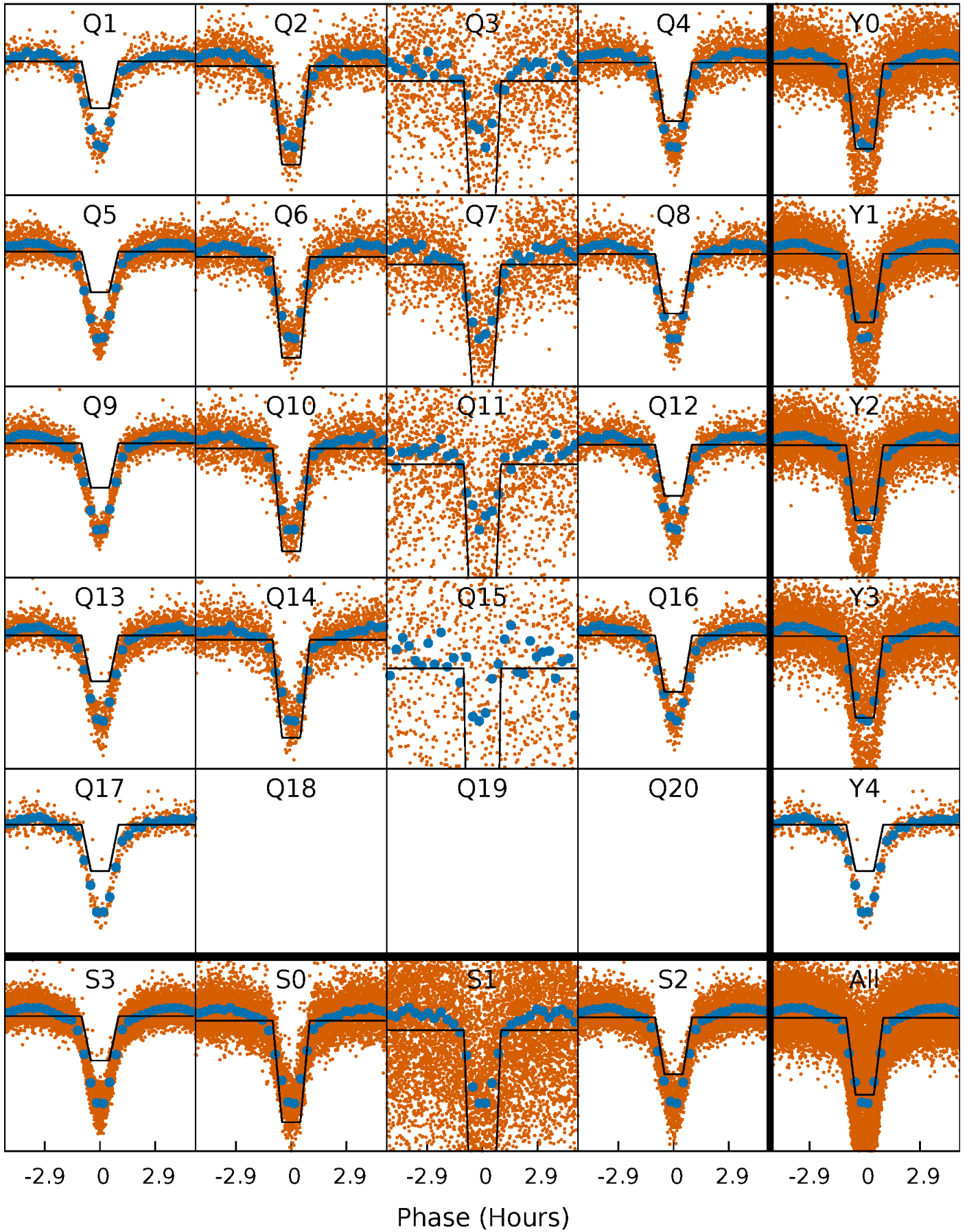
DV Quarter-Phased Transit Curves

TCE 007818447-01 P= 0.928410 Days $T_0=131.598363$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

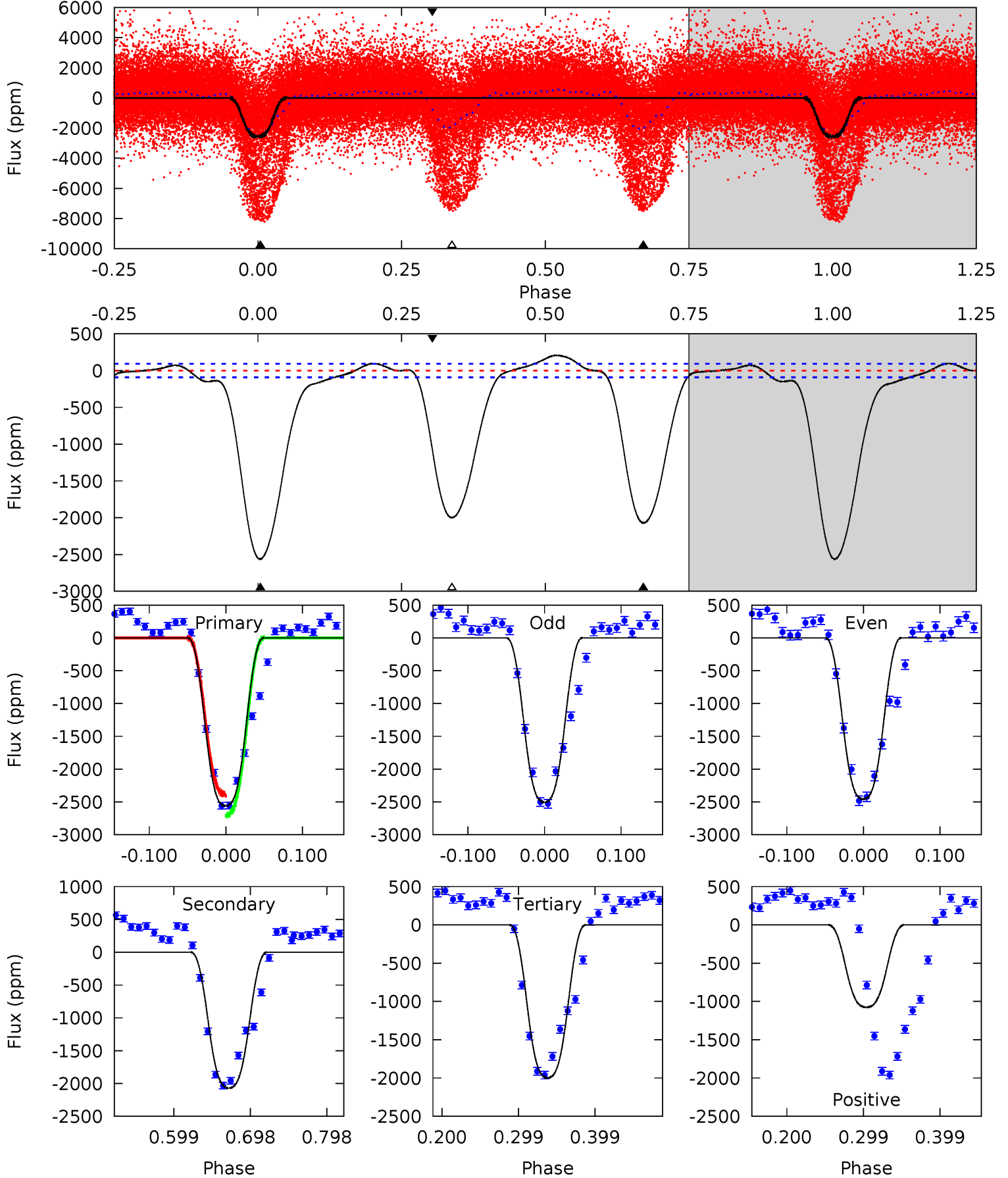
TCE 007818447-01 P= 0.928426 Days $T_0=131.592189$ (BKJD)



DV Model-Shift Uniqueness Test

007818447-01, P = 0.928410 Days, E = 130.669953 Days

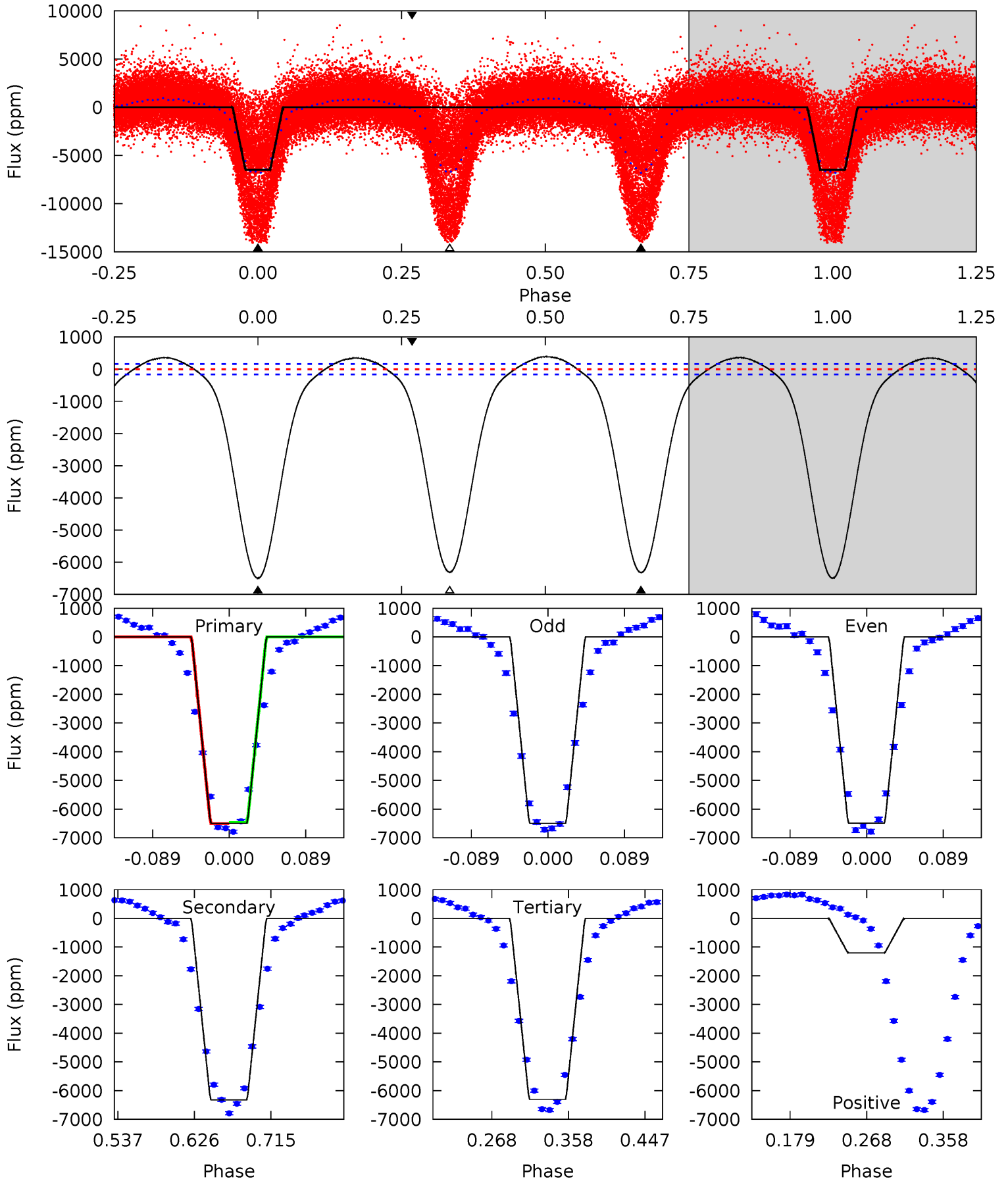
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|-------|------|-------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 127.9 | 103.3 | 99.7 | -53.7 | 4.57 | 1.65 | 27.8 | 28.1 | 181.6 | 3.59 | 157.0 | 1.21 | 1.75 | 0.07 | 7.04 |



Alt Model-Shift Uniqueness Test

007818447-01, P = 0.928426 Days, E = 130.663763 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|-------|-------|-------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 184.2 | 179.3 | 179.0 | -34.2 | 4.59 | 1.70 | 51.7 | 5.28 | 218.4 | 0.35 | 213.5 | 0.08 | 1.16 | 0.06 | 0 |



Stellar Parameters For KIC 007818447

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 2661^{+1}_{-1} | $5.283^{+1.000}_{-1.000}$ | $0.000^{+1.000}_{-1.000}$ | $0.116^{+1.000}_{-1.000}$ | $0.094^{+1.000}_{-1.000}$ | $85.200^{+1.000}_{-1.000}$ |
| | +0%/-0% | +19%/-19% | +inf%/-inf% | +862%/-862% | +1064%/-1064% | +1%/-1% |
| Source | PHO54 | PHO54 | PHO54 | BTSL | | |

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

Secondary Eclipse Parameters for KIC 007818447-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|----------------|------------------------|----------------------|----------------------|-------------------|
| DV | -2071 ± 20 | $0.79^{+0.22}_{-0.24}$ | 627^{+62}_{-62} | 2594^{+197}_{-187} | 170^{+59}_{-38} |
| Alt. | -6323 ± 35 | $1.21^{+0.34}_{-0.38}$ | 618^{+65}_{-60} | 2650^{+203}_{-185} | 223^{+76}_{-48} |

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

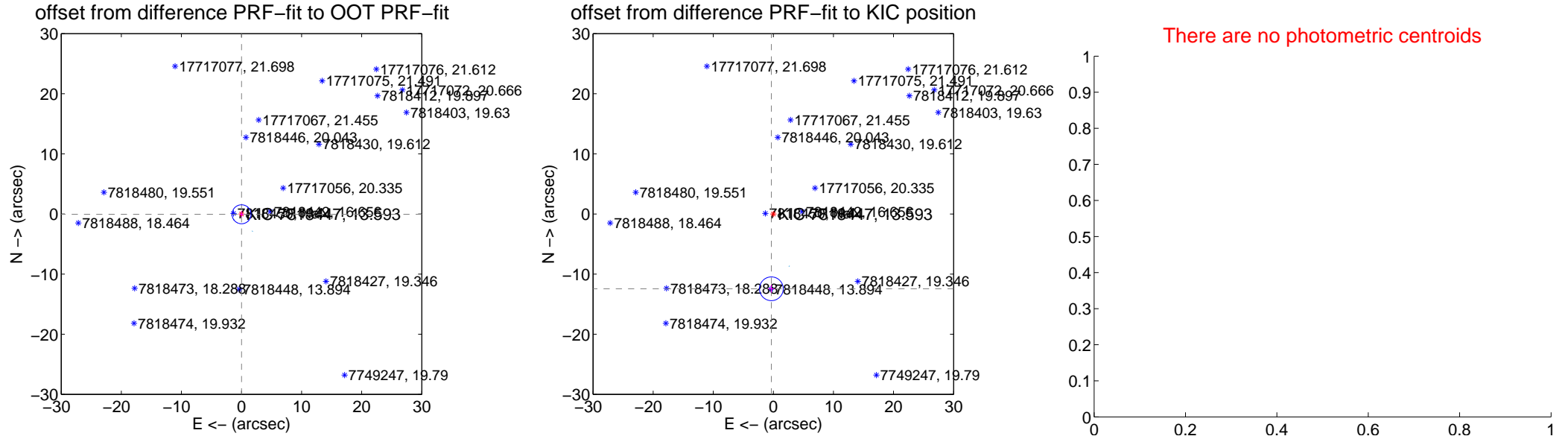
DV Centroid Data

Supplemental centroid analysis for 007818447-01. Kepler magnitude: 13.59. Transit SNR 65.83

There are 8 quarters with good PRF difference image offsets

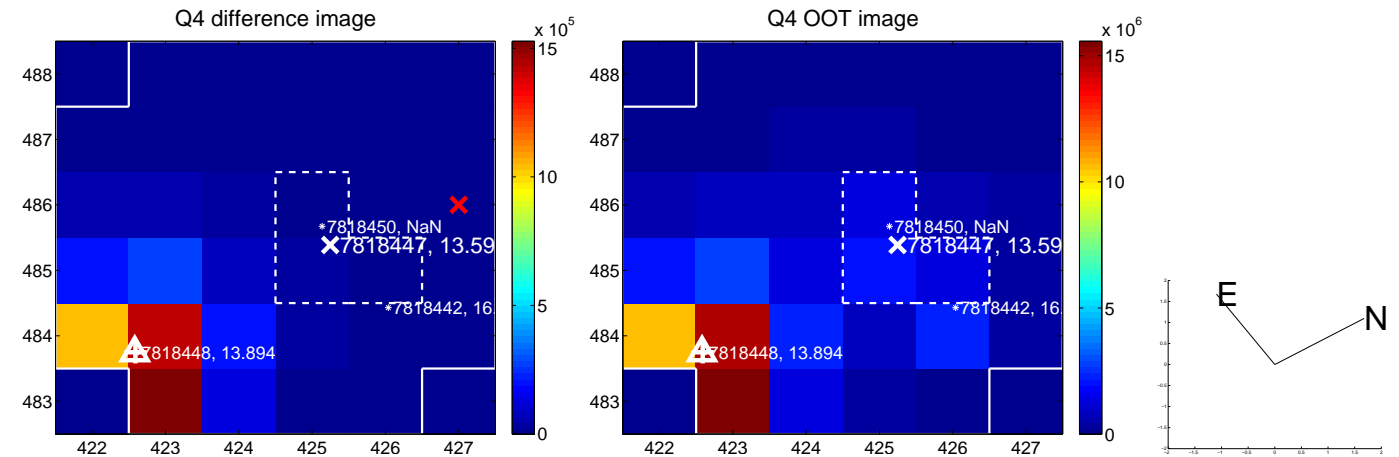
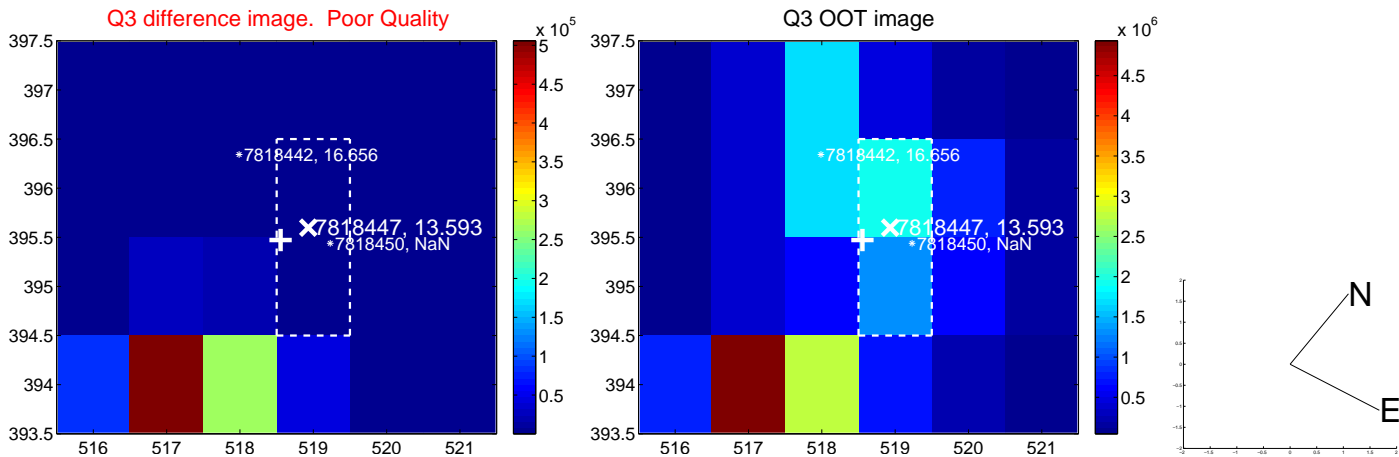
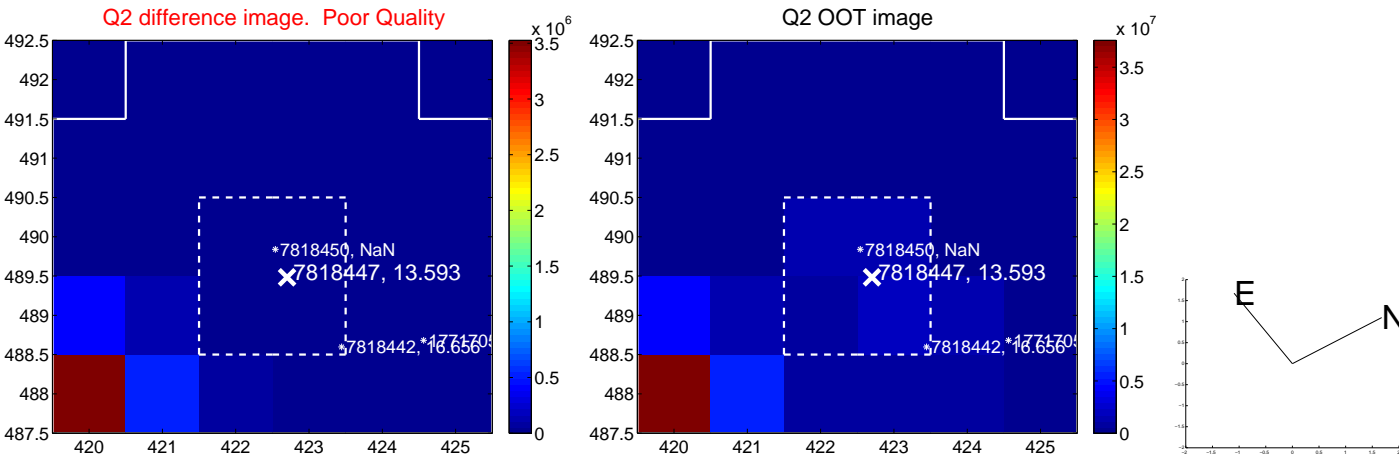
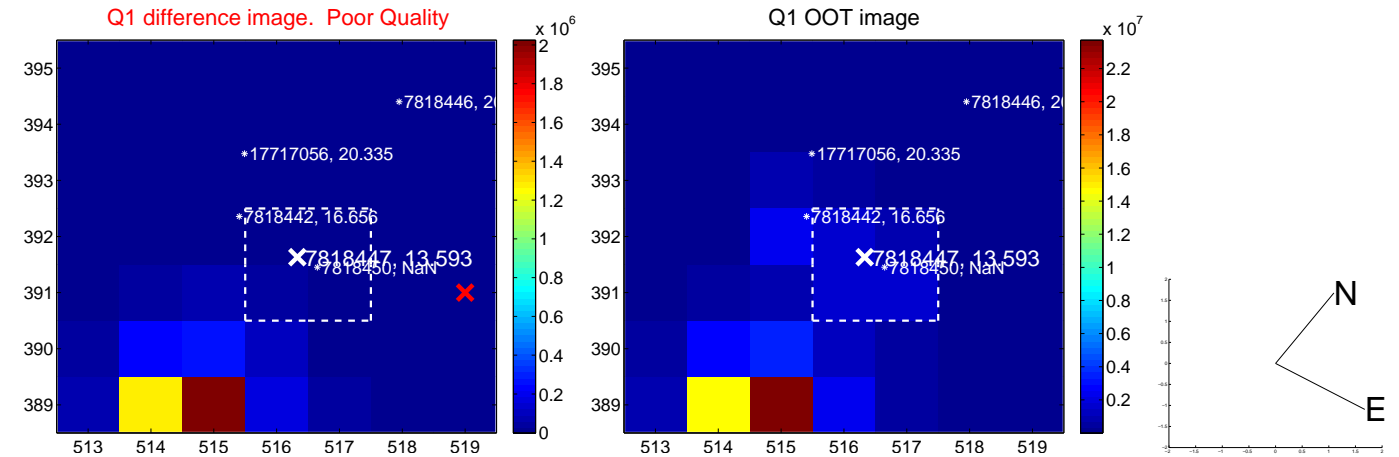
The OOT PRF centroid is offset from the target star catalog position by about 5.84 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|---------------------|
| PRF-fit source offset from OOT | 0.049 ± 0.526 | 0.09 | -0.007 ± 0.314 | -0.048 ± 0.489 |
| PRF-fit source offset from KIC position | 12.443 ± 0.658 | 18.90 | 0.328 ± 0.513 | -12.438 ± 0.645 |
| photometric centroid source offset | — | — | — | — |

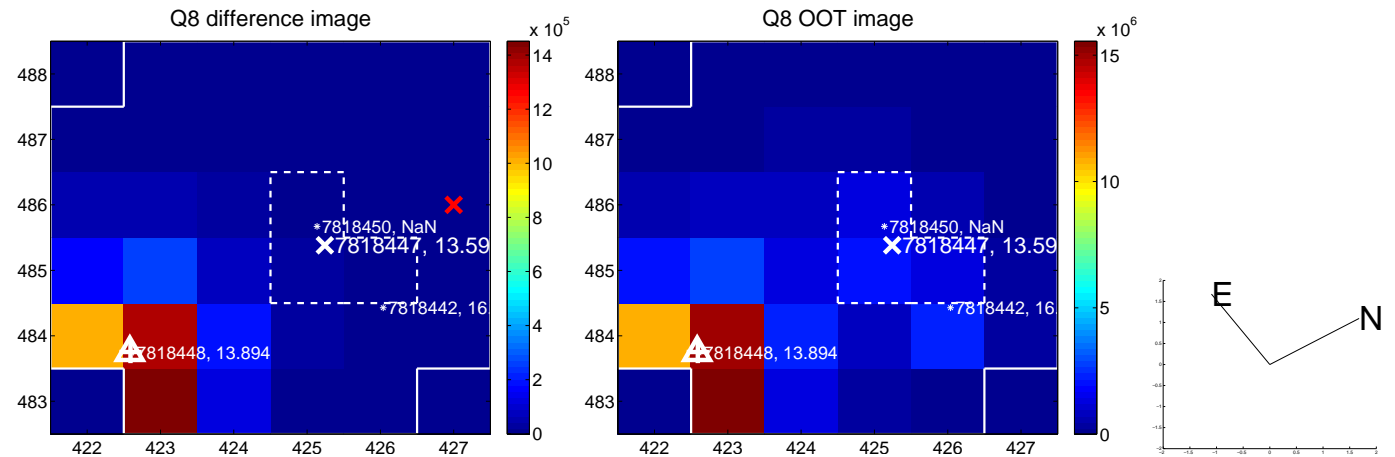
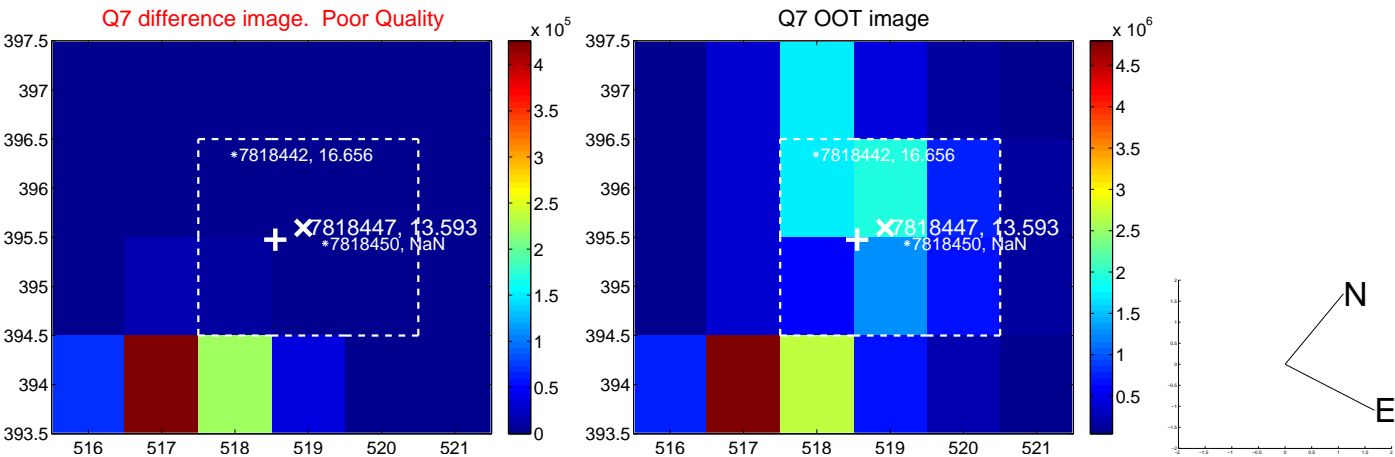
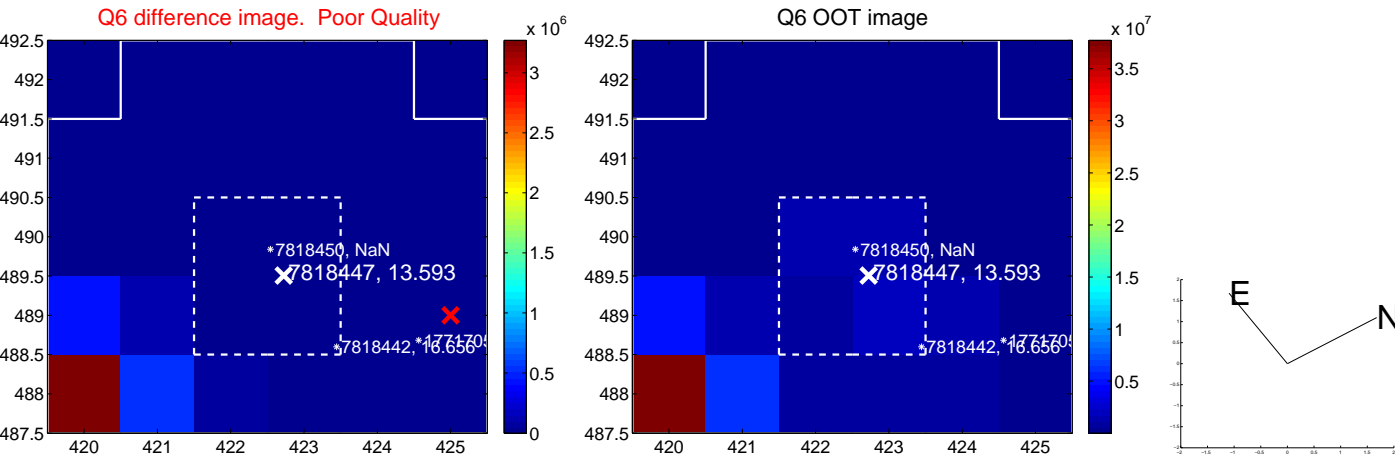
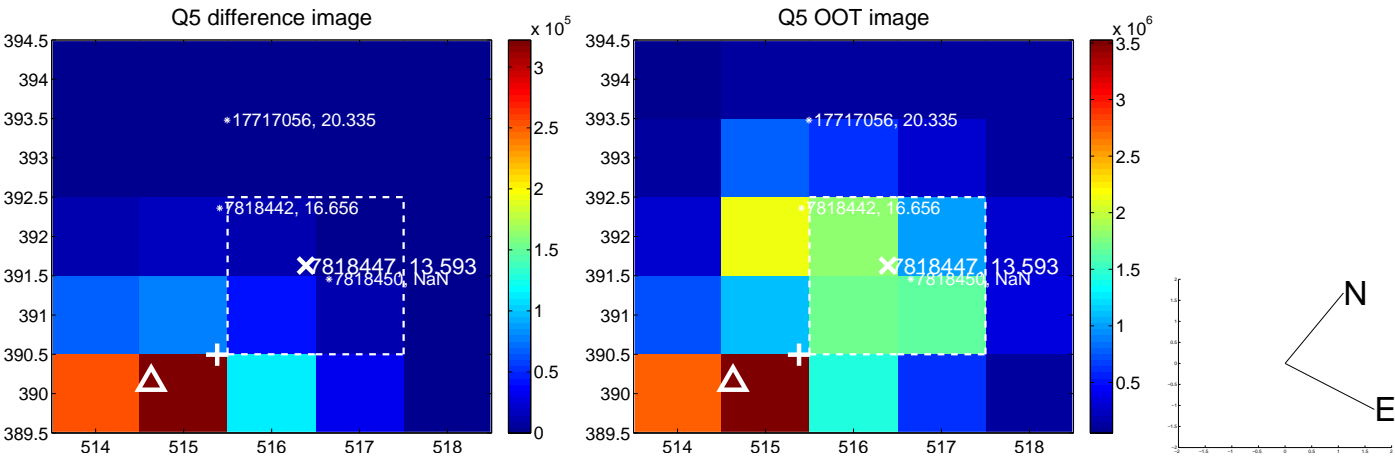


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

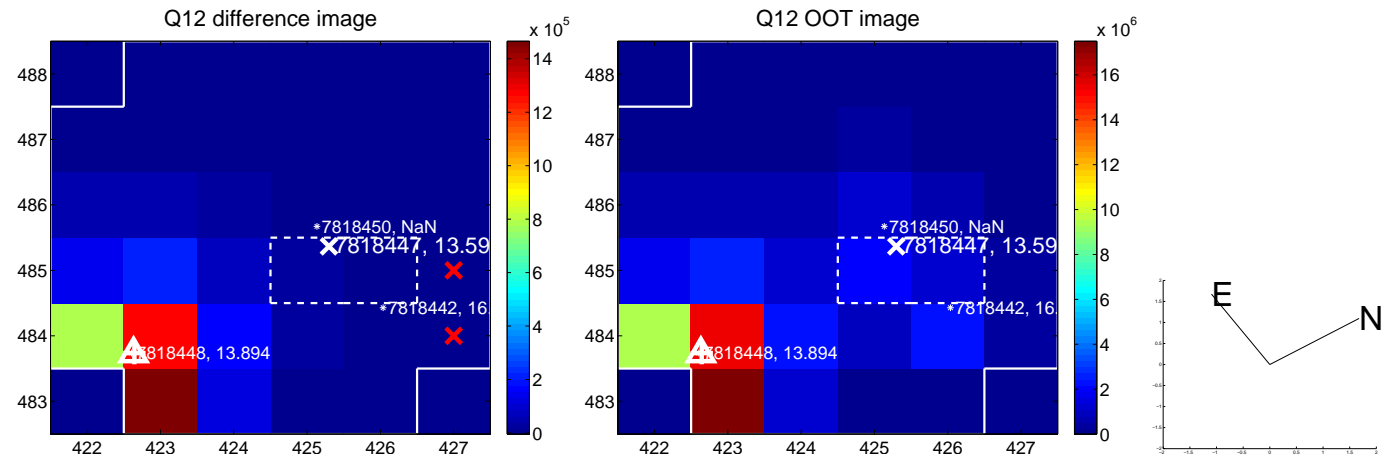
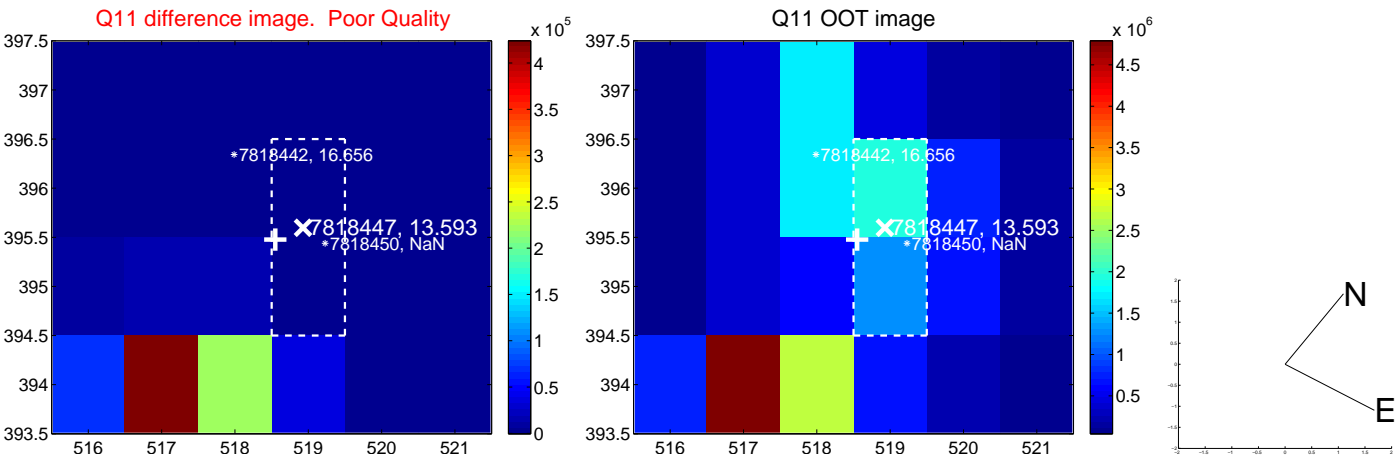
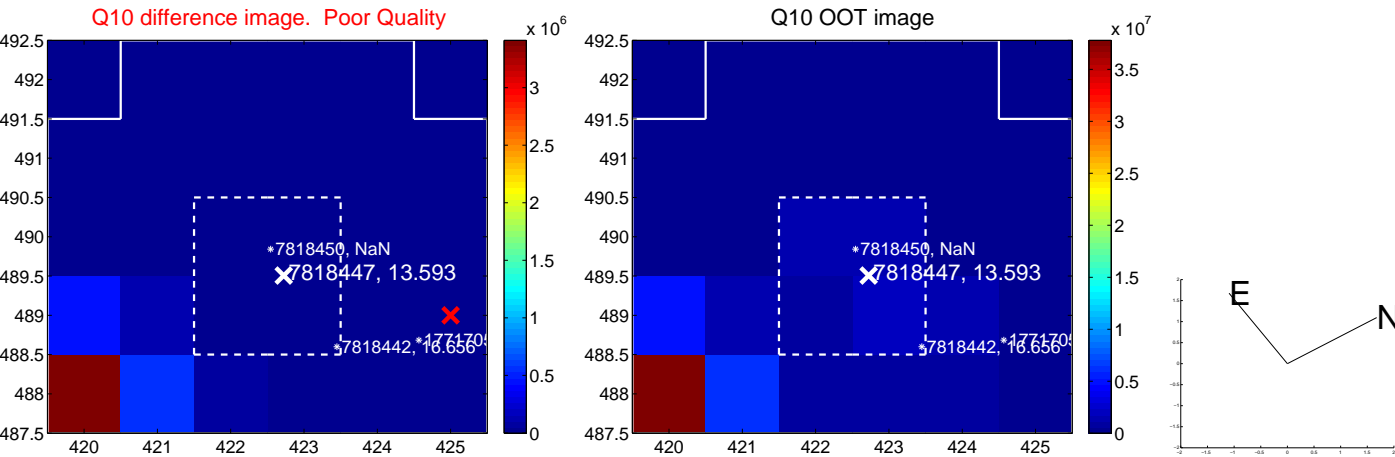
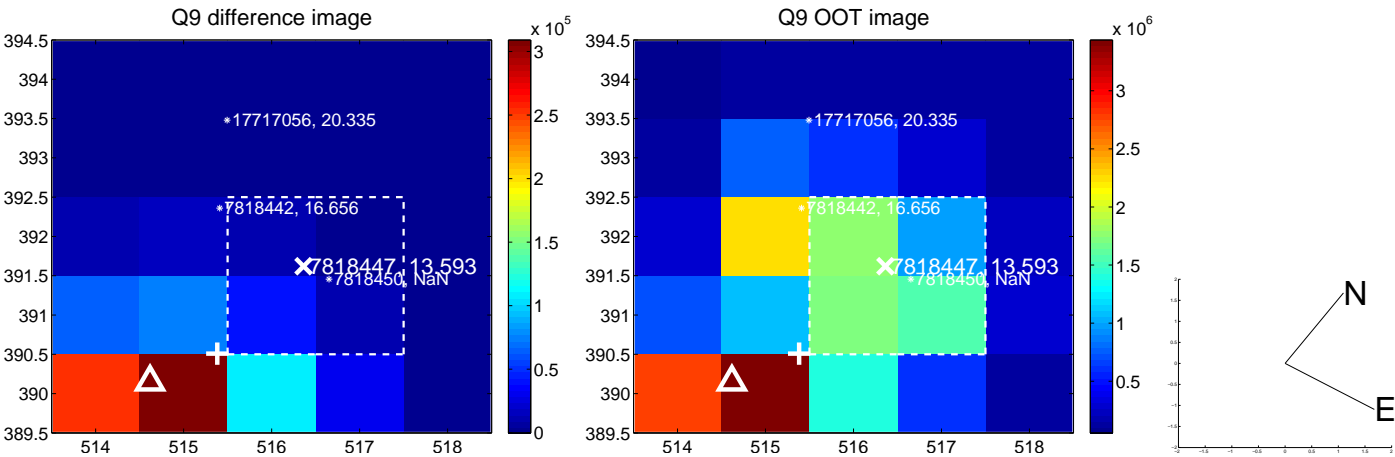
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



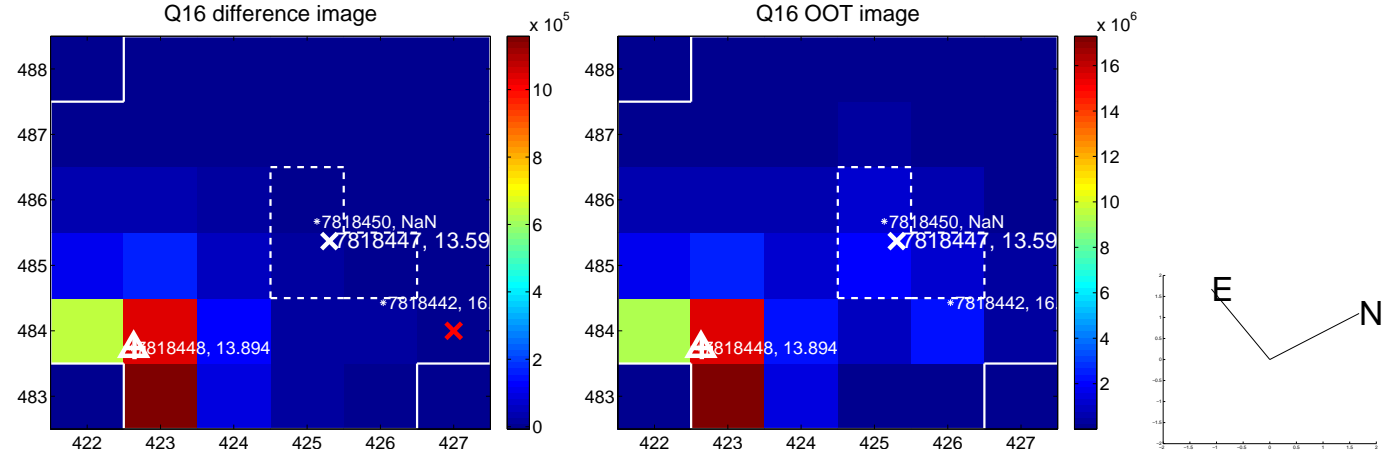
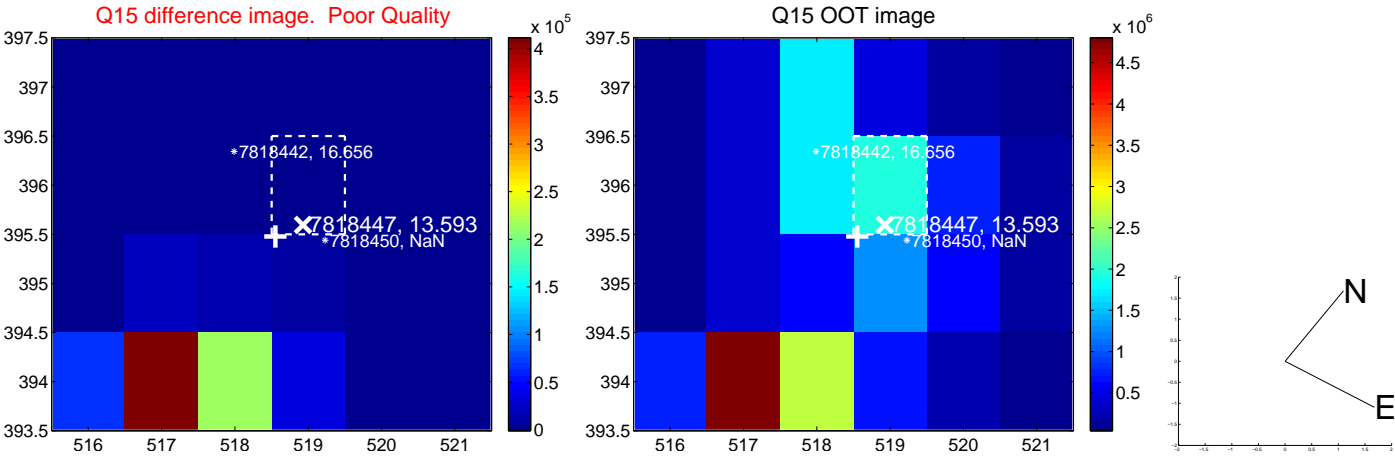
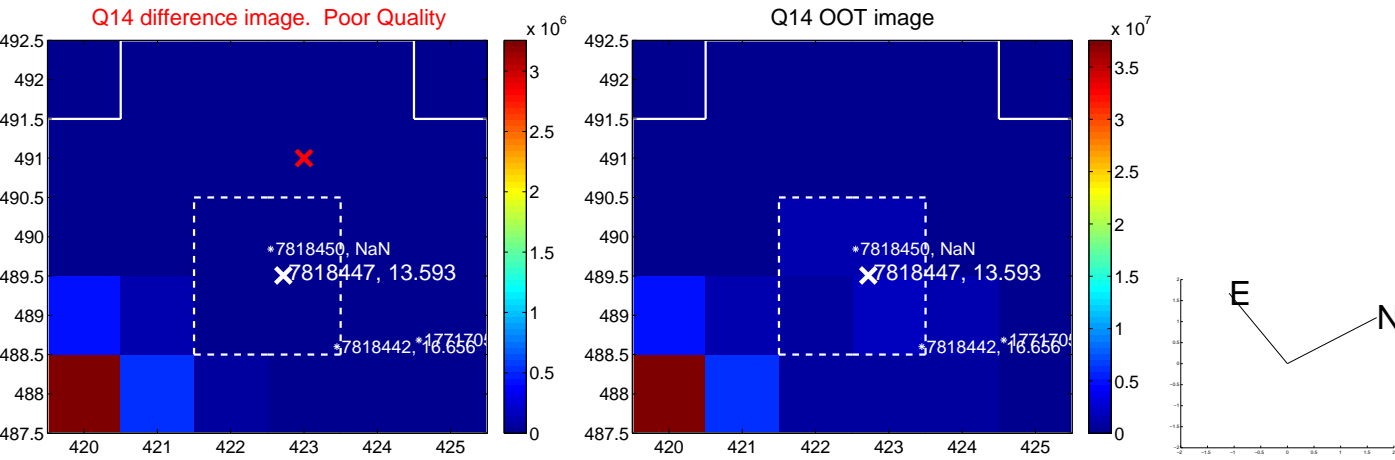
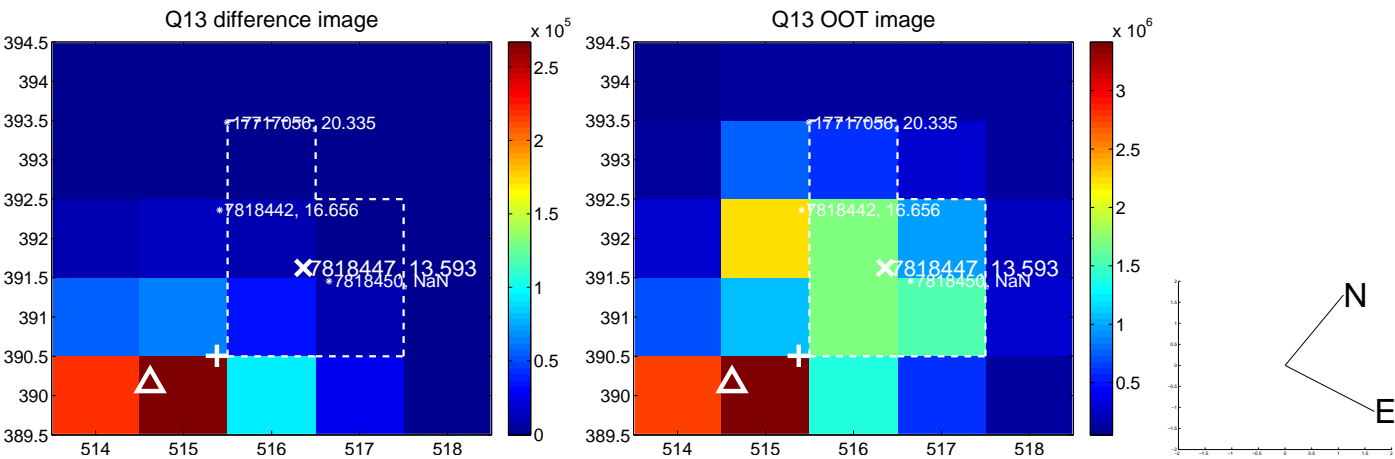
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



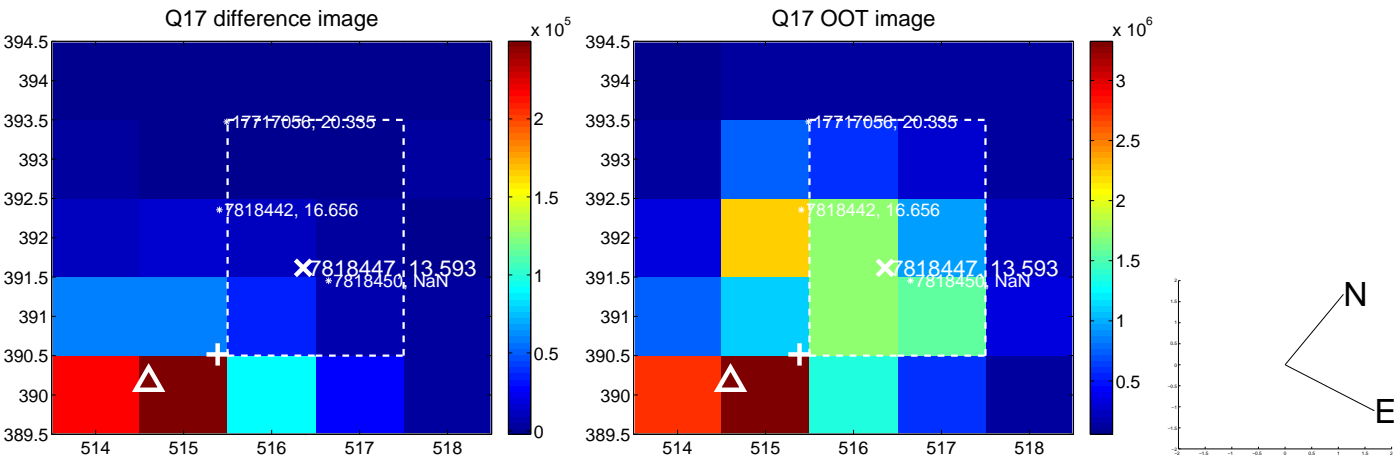
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



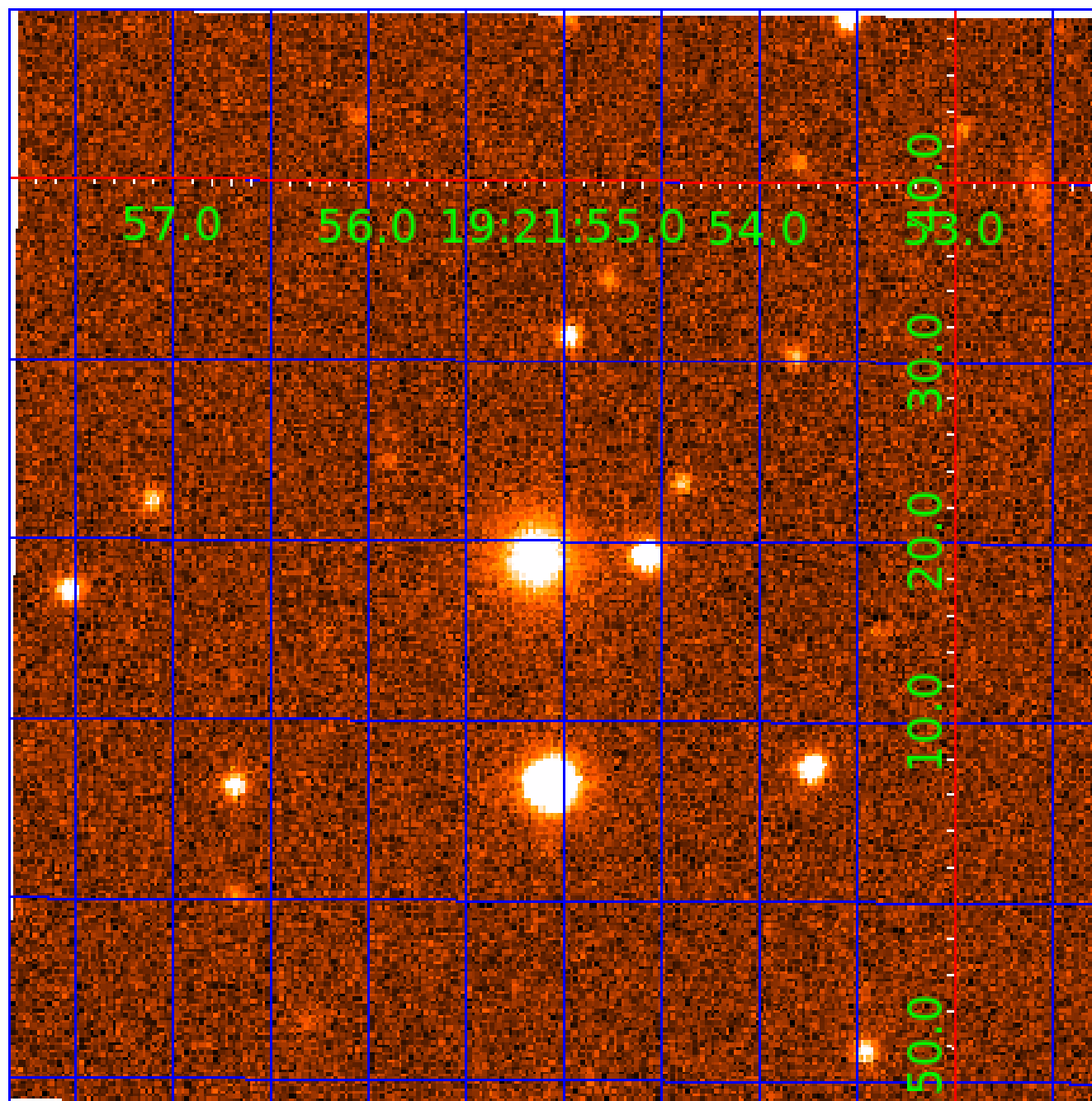
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 007818447

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007818447-01 | OBS | No | 0.928410 | 131.598363 | 2058.6 | 1.759 | 67.8 | 65.8 | 0.12 | 2661 | 0.65 | 8.41 |
| 007818447-02 | OBS | 4028.01 | 0.618953 | 131.585994 | 11424.9 | 1.500 | 142.4 | -1.0 | 0.12 | 2661 | 1.23 | 14.45 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007818447-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET |
| 007818447-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 1 | LPP_DV—CENT_NOFITS—EPHEM_MATCH |

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 007818447-02

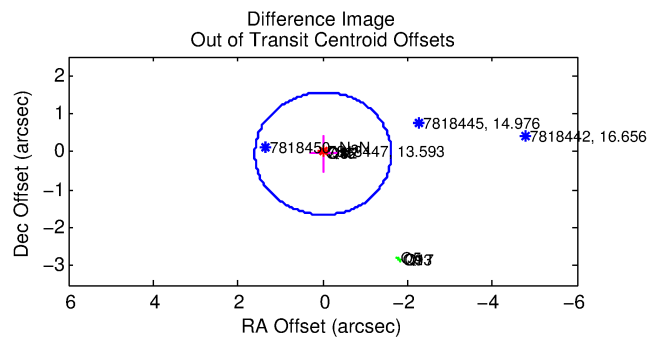
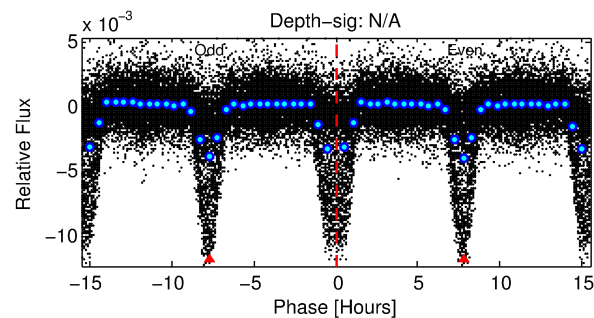
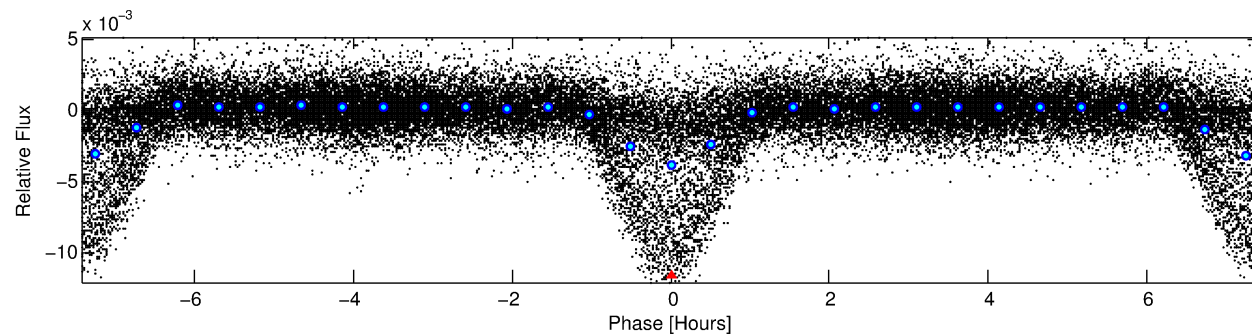
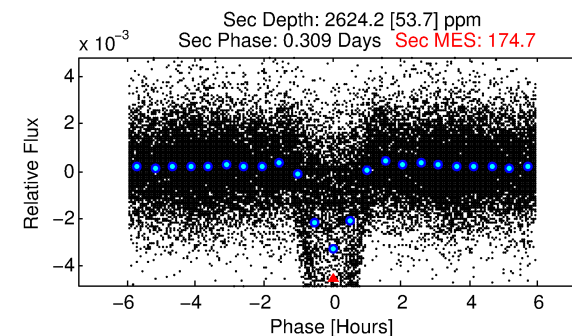
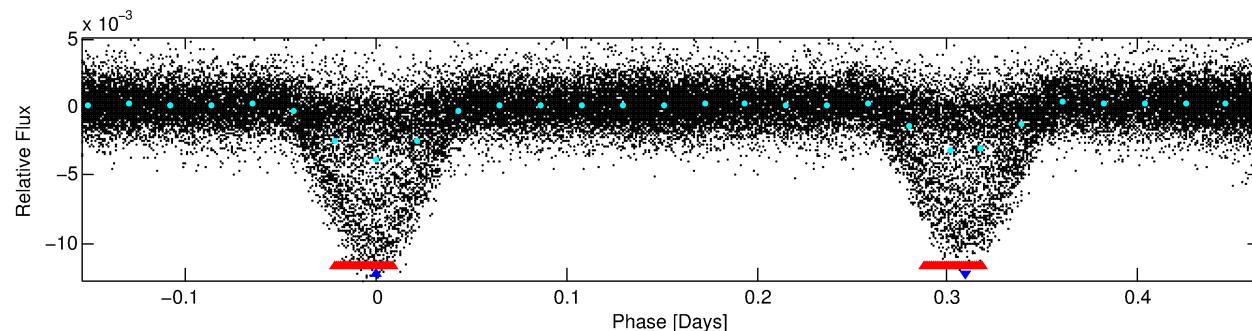
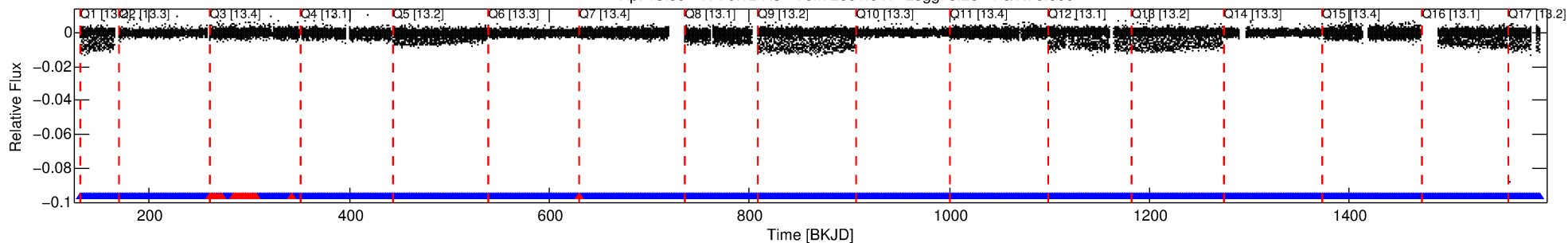
| TCE (1) | KIC | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ($''$) | Δ Row | Δ Col | m_2 | m_1 | D_2/D_1 | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|---------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 007818447-02 | 7818447 | 007818448-pri | 7818448 | 1:1 | 12.5 | 2 | 3 | 13.89 | 13.59 | 8.60 | Direct-PRF | 0 | 0.18 | 0.47 |

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: 7818447 Candidate: 2 of 2 Period: 0.619 d
KOI: K04028 Corr: No Ephemeris Match

Kp: 13.59 R*: 0.12 Rs Teff: 2661.0 K Logg: 5.28 Fe/H: 0.000



TPS TCE Results:

Period = 0.61895 d
Epoch = 131.5860 BKJD

DV fit results are unavailable

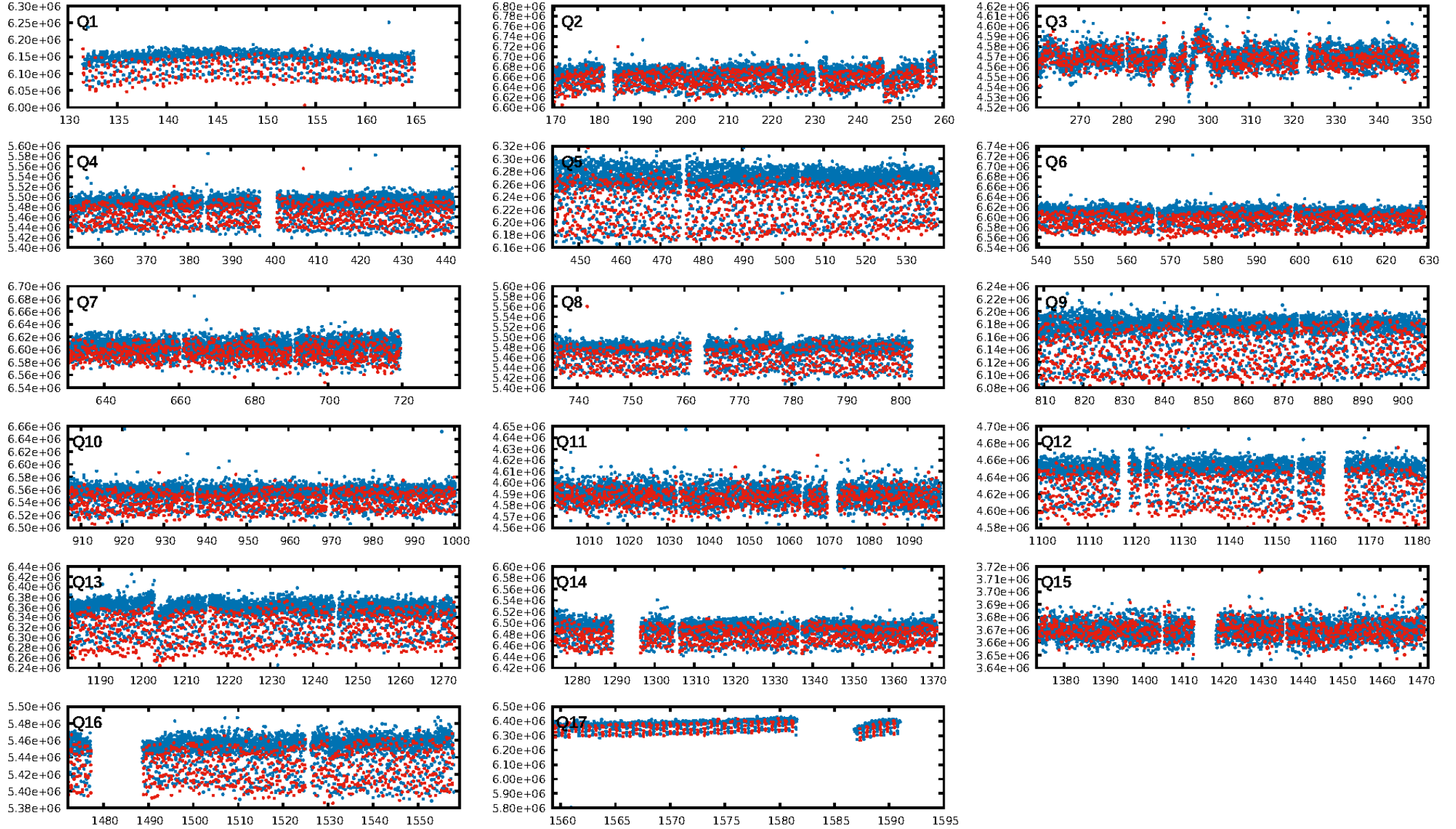
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.9% [3.21σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1355/1383]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.050 arcsec [0.09σ]
KicOffset-rm: 12.442 arcsec [17.67σ]
OotOffset-st: 0/0/4/4 [8]
KicOffset-st: 0/0/4/4 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 0.35 [6/17]

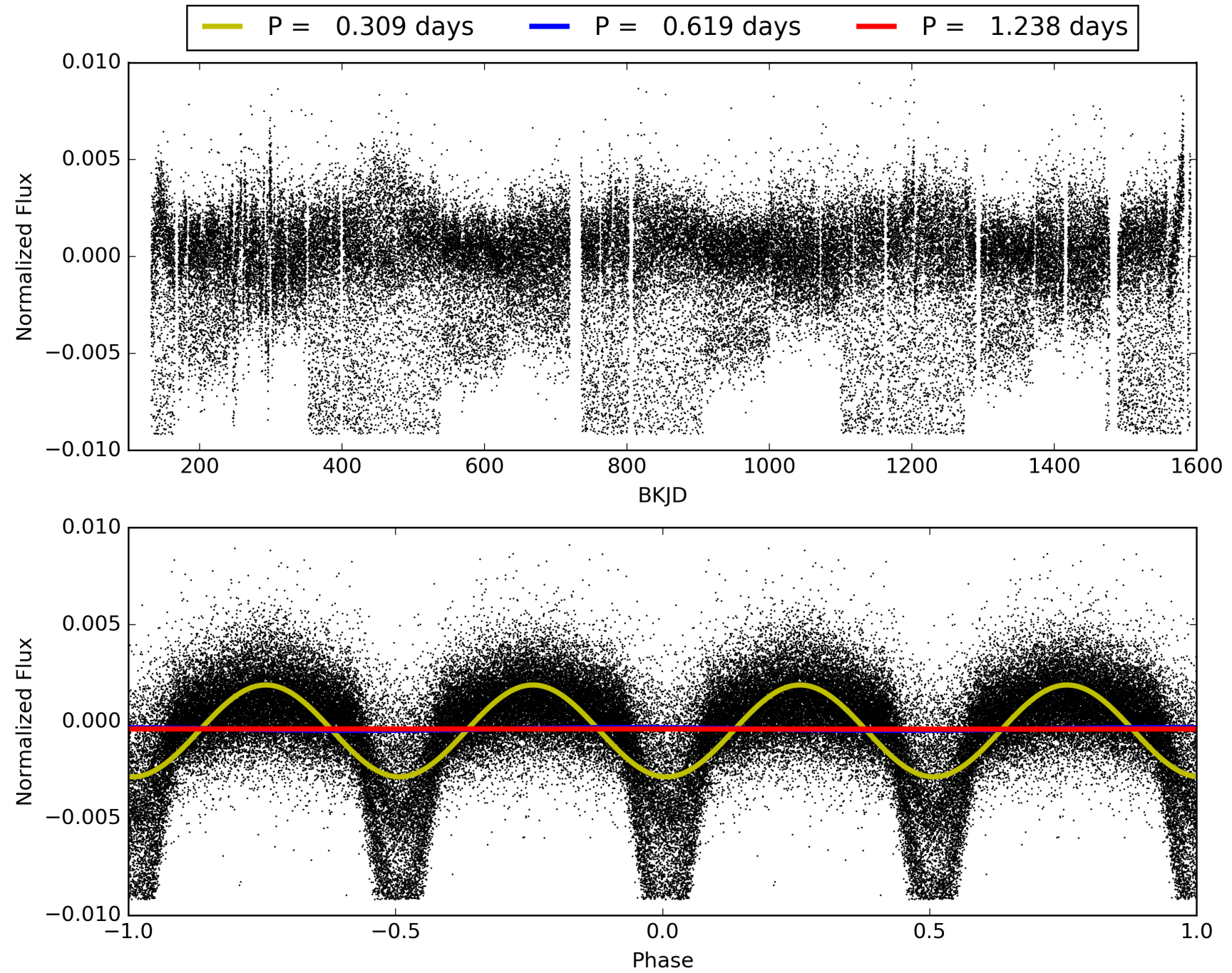
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:04:39 Z

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

TCE 007818447-02, PDC Light Curves

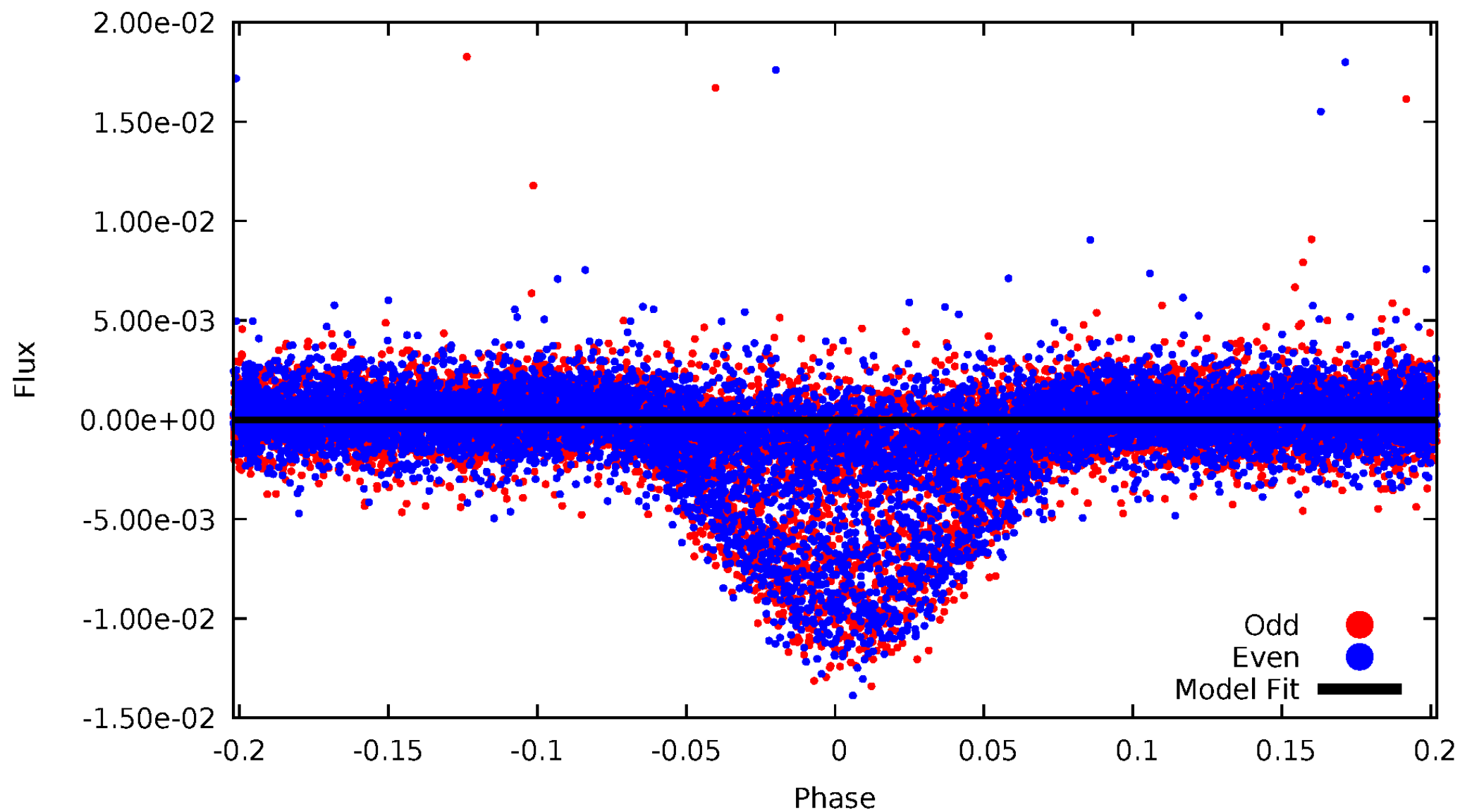


TCE 007818447-02



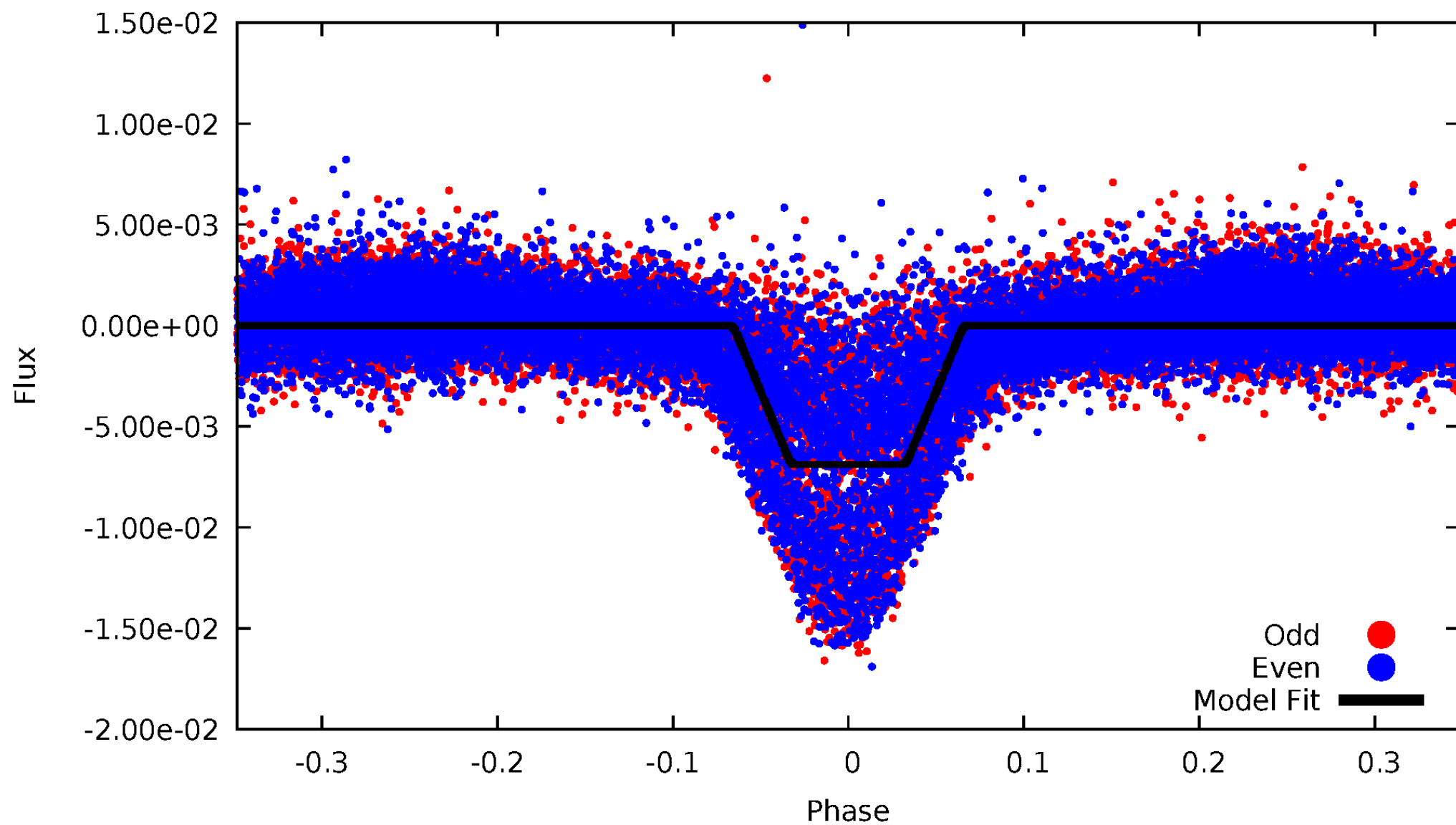
DV Odd/Even

TCE 007818447-02



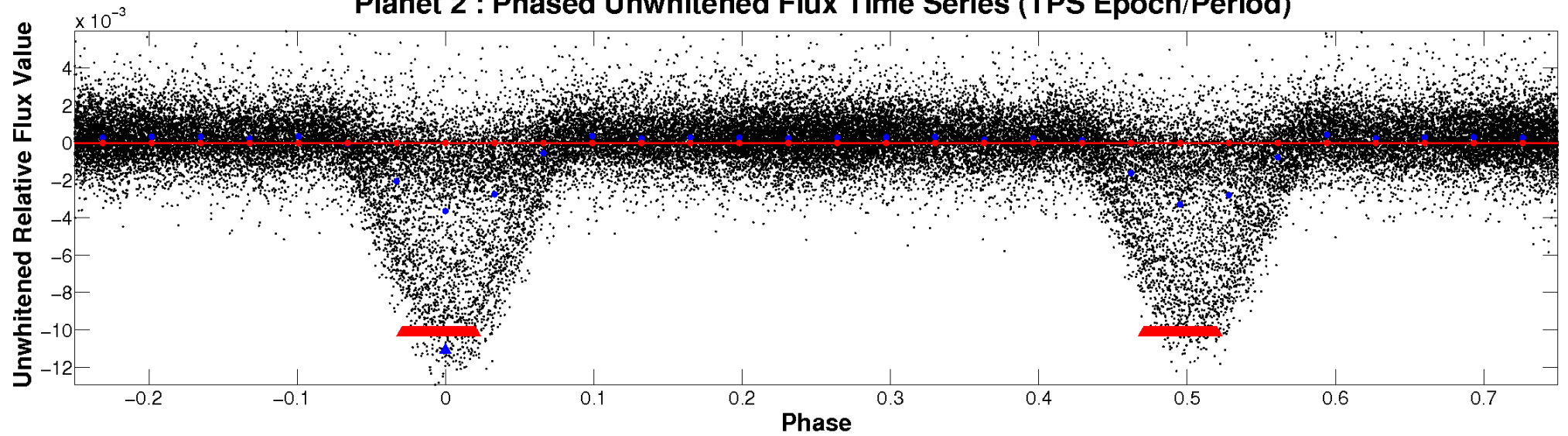
ALT Odd/Even

TCE 007818447-02



Non-Whitened Vs. Whitened Light Curve

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

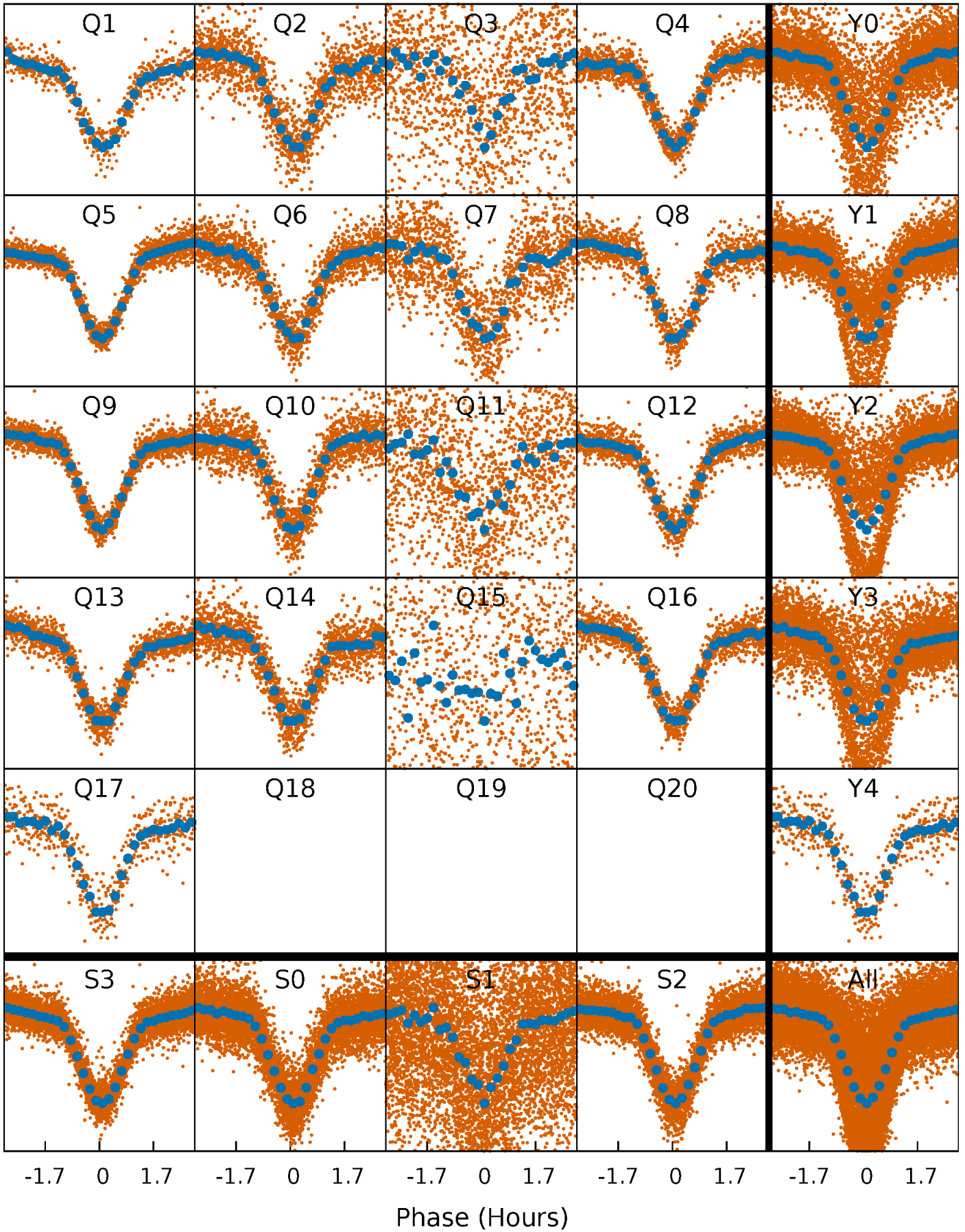


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



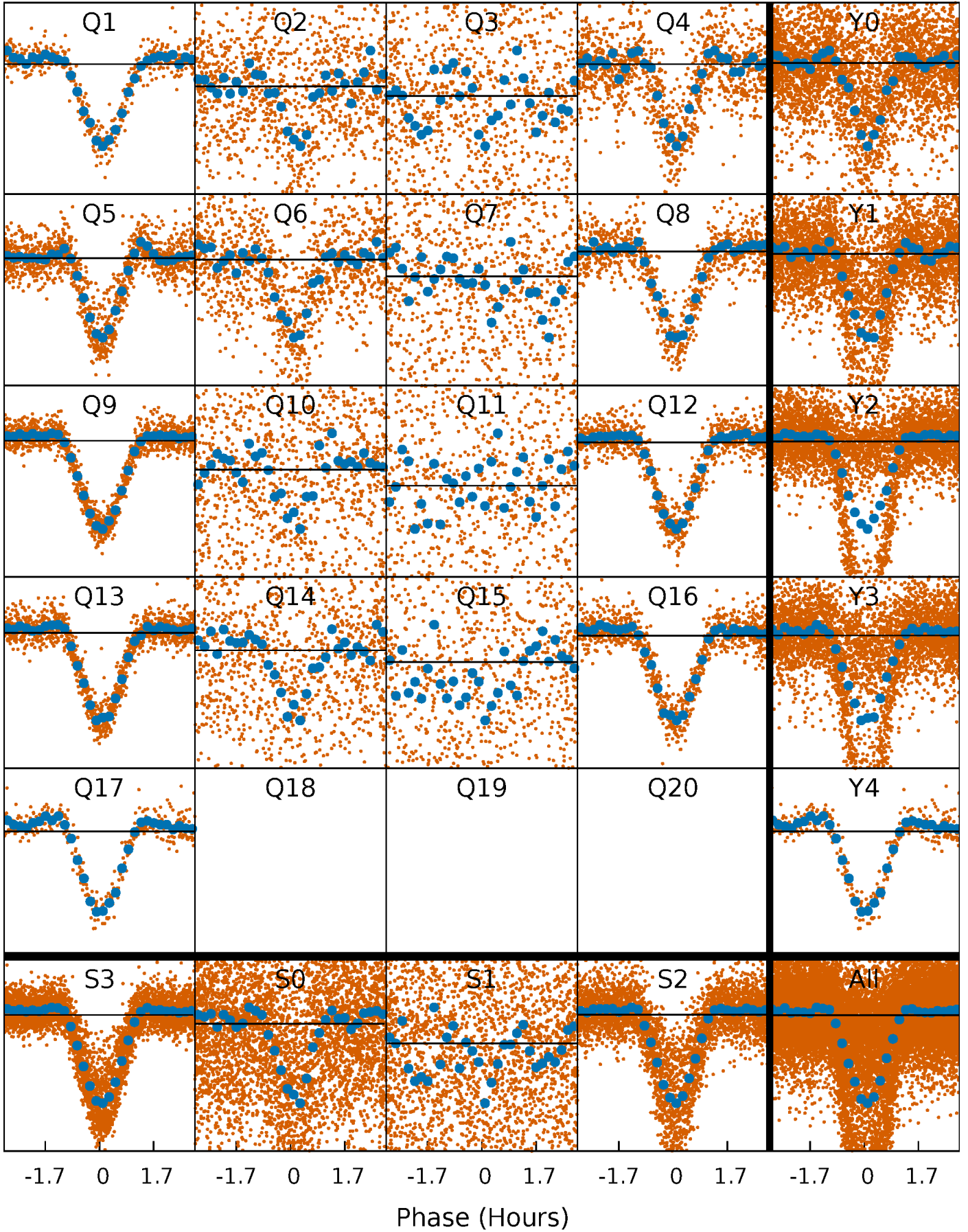
PDC Quarter-Phased Transit Curves

TCE 007818447-02 P= 0.618953 Days $T_0=131.585994$ (BKJD)



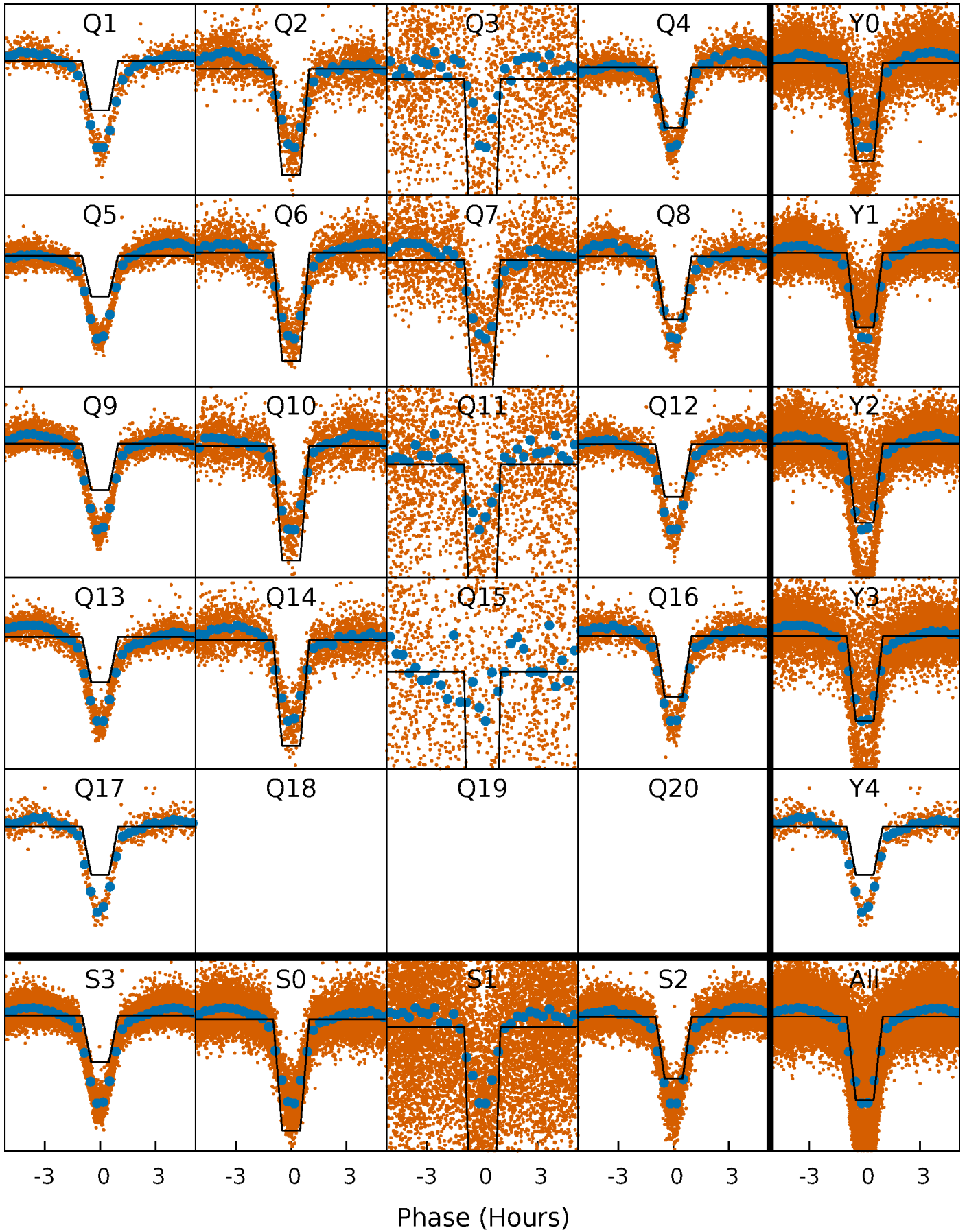
DV Quarter-Phased Transit Curves

TCE 007818447-02 P= 0.618953 Days $T_0=131.585994$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

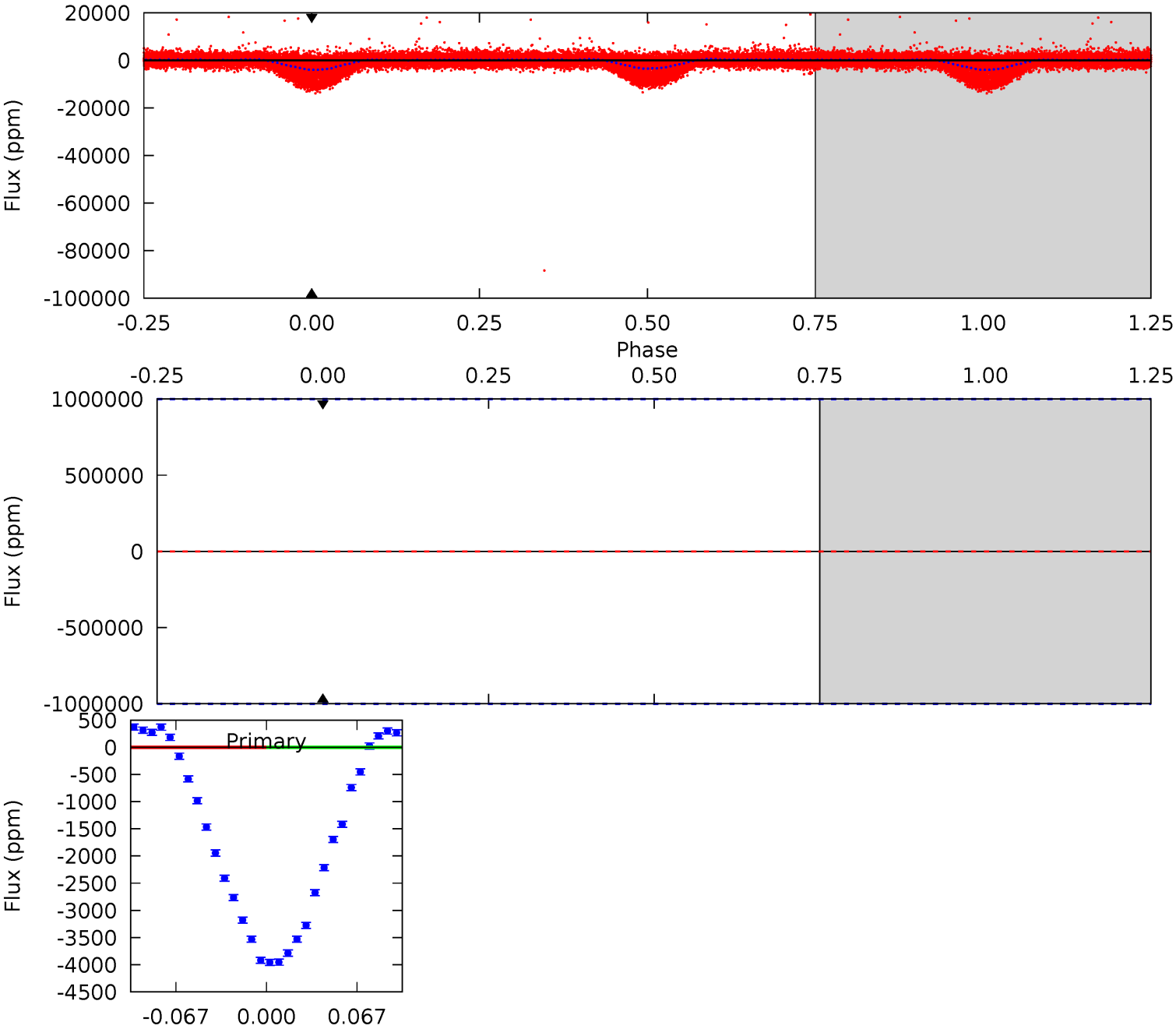
TCE 007818447-02 P= 0.618953 Days $T_0=131.589866$ (BKJD)



DV Model-Shift Uniqueness Test

007818447-02, P = 0.618953 Days, E = 131.585994 Days

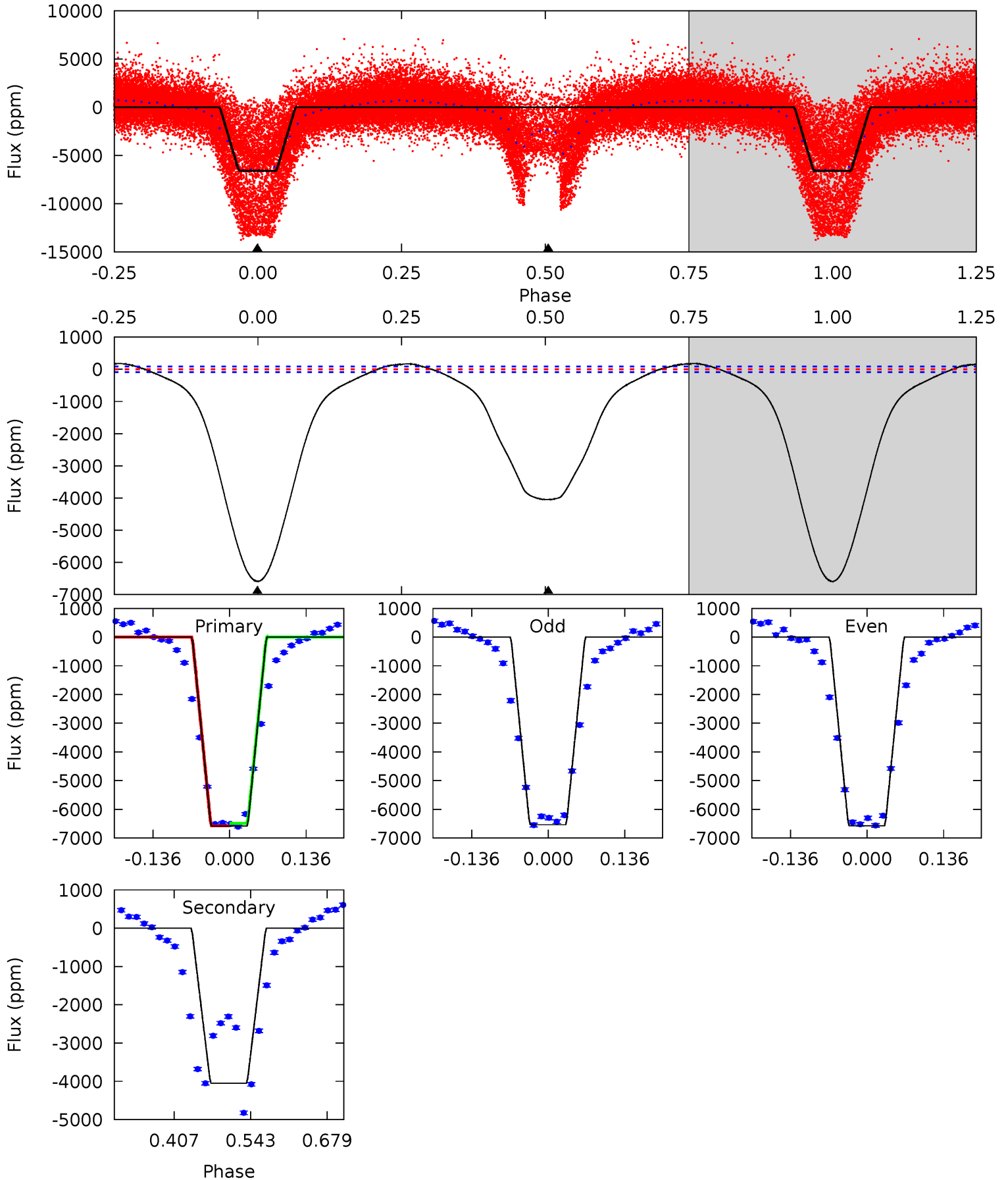
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Alt Model-Shift Uniqueness Test

007818447-02, P = 0.618953 Days, E = 131.589866 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 340.2 | 208.9 | 0 | 0 | 4.50 | 1.49 | 11.1 | 340.2 | 340.2 | 208.9 | 208.9 | 0.95 | 1.17 | 0.03 | 0 |



Stellar Parameters For KIC 007818447

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 2661^{+1}_{-1} | $5.283^{+1.000}_{-1.000}$ | $0.000^{+1.000}_{-1.000}$ | $0.116^{+1.000}_{-1.000}$ | $0.094^{+1.000}_{-1.000}$ | $85.200^{+1.000}_{-1.000}$ |
| | +0%/-0% | +19%/-19% | +inf%/-inf% | +862%/-862% | +1064%/-1064% | +1%/-1% |
| Source | PHO54 | PHO54 | PHO54 | BTSL | | |

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

Secondary Eclipse Parameters for KIC 007818447-02 / KOI 4028.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-----------------|------------------------|-------------------|------------------------|----------------------|
| DV | 0 ± 1000000 | $1.61^{+1.53}_{-1.02}$ | 712^{+76}_{-74} | 2100^{+1827}_{-5811} | 22^{+1788}_{-1237} |
| Alt. | -4047 ± 19 | $1.56^{+1.52}_{-1.07}$ | 719^{+69}_{-72} | 2344^{+829}_{-314} | 46^{+410}_{-33} |

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 $A_{obs} \gg 1.0$

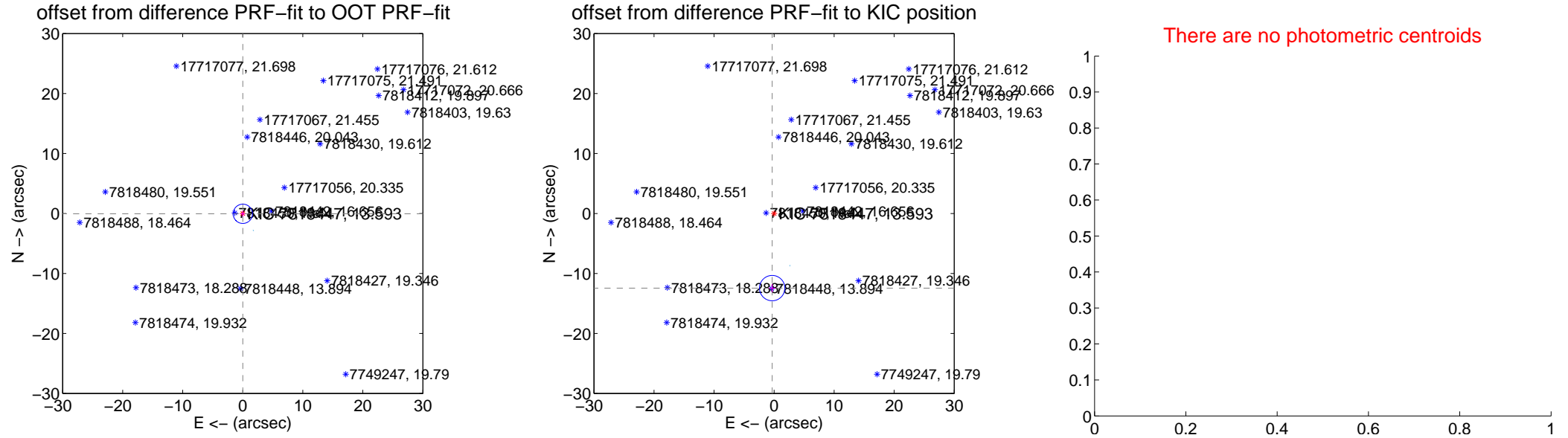
DV Centroid Data

Supplemental centroid analysis for 007818447-02. Kepler magnitude: 13.59. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

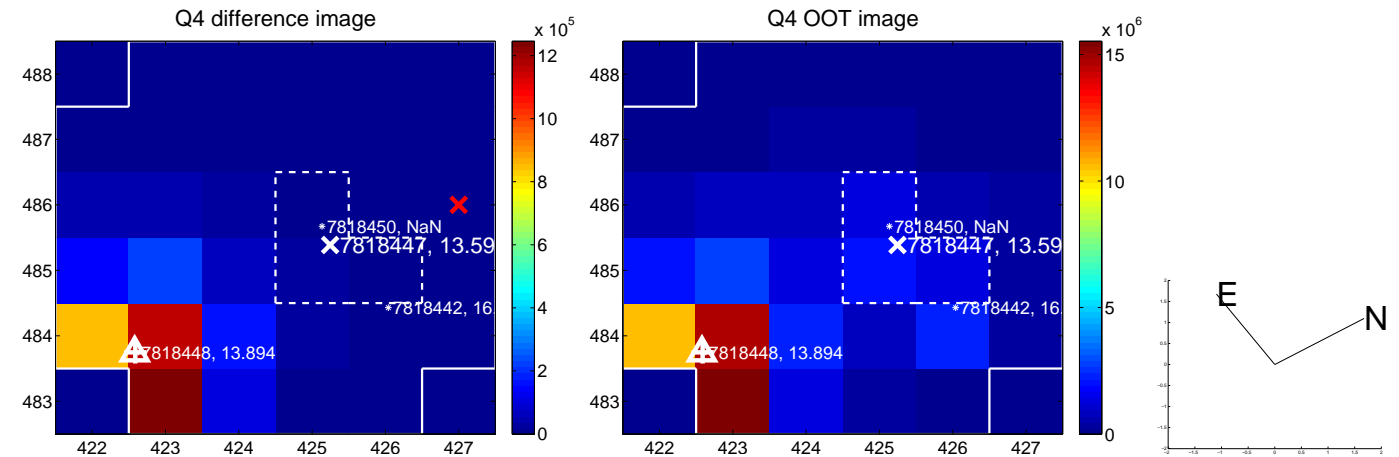
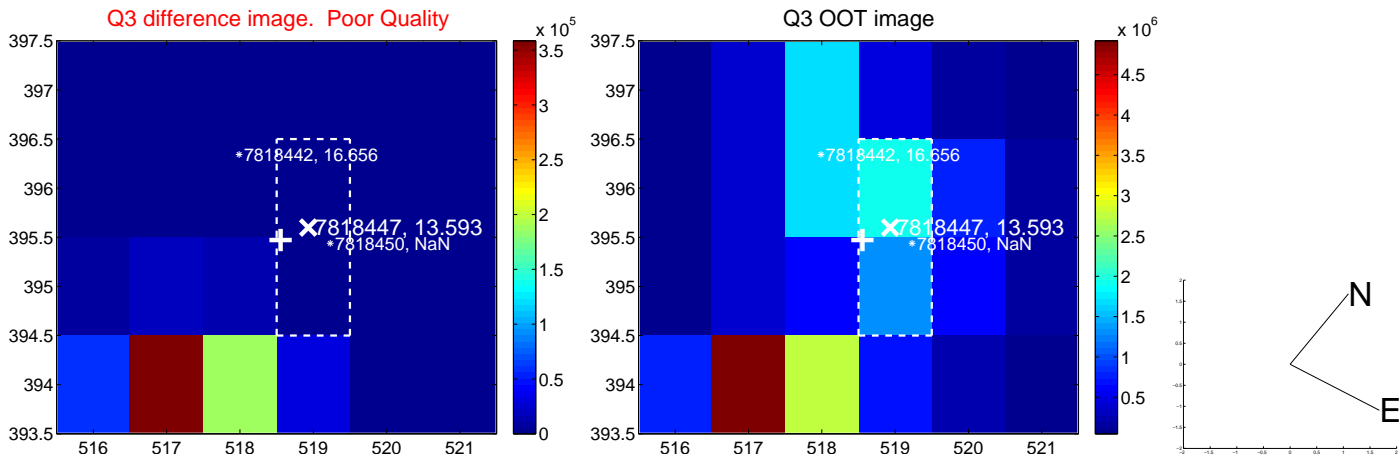
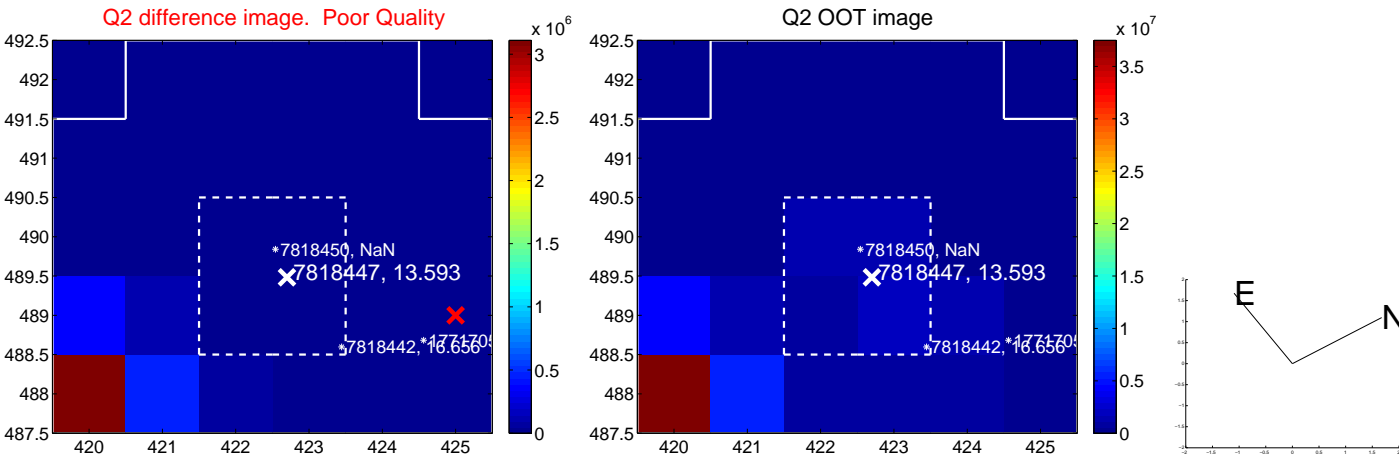
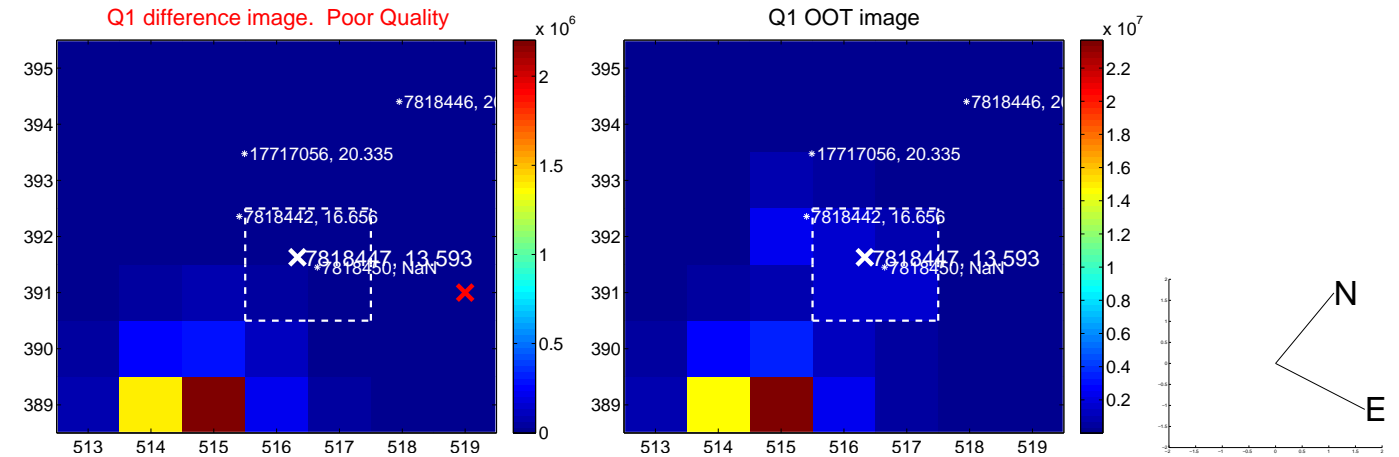
The OOT PRF centroid is offset from the target star catalog position by about 5.85 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|---------------------|
| PRF-fit source offset from OOT | 0.050 ± 0.536 | 0.09 | -0.011 ± 0.311 | -0.049 ± 0.480 |
| PRF-fit source offset from KIC position | 12.442 ± 0.704 | 17.67 | 0.320 ± 0.548 | -12.438 ± 0.690 |
| photometric centroid source offset | — | — | — | — |

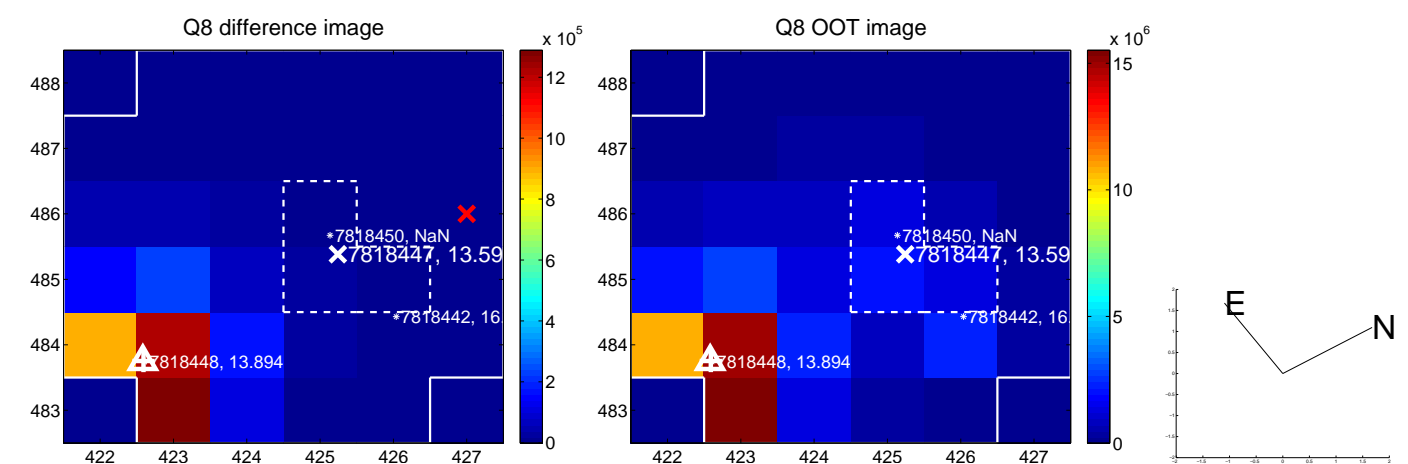
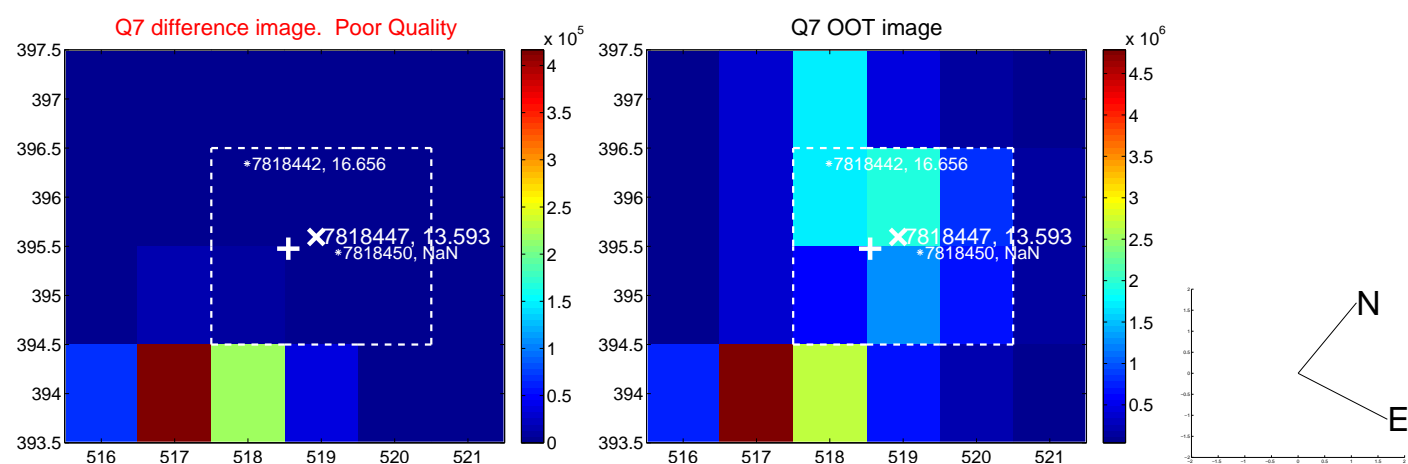
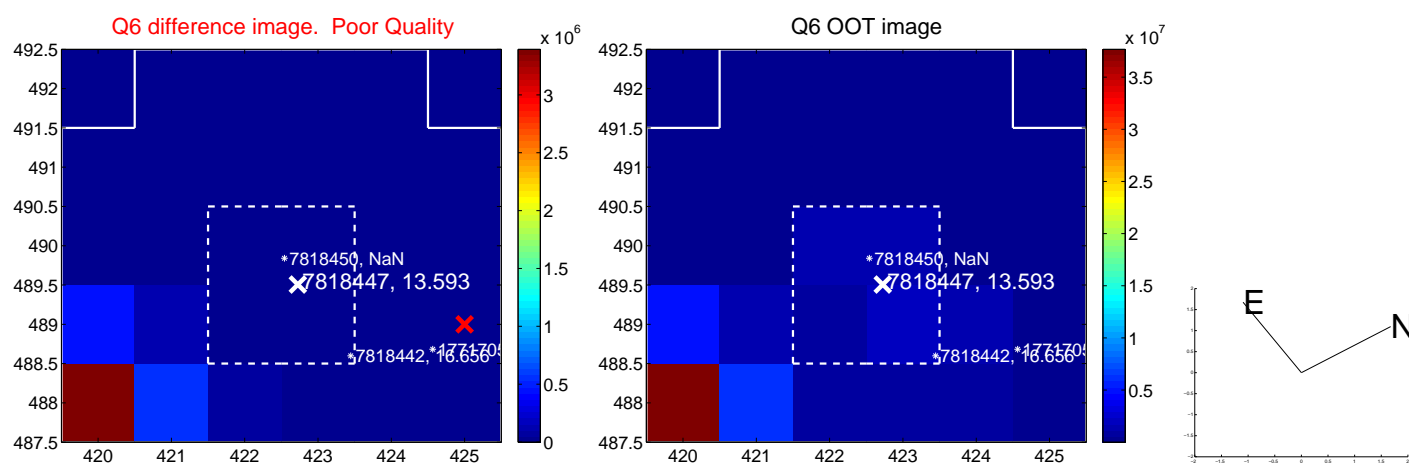
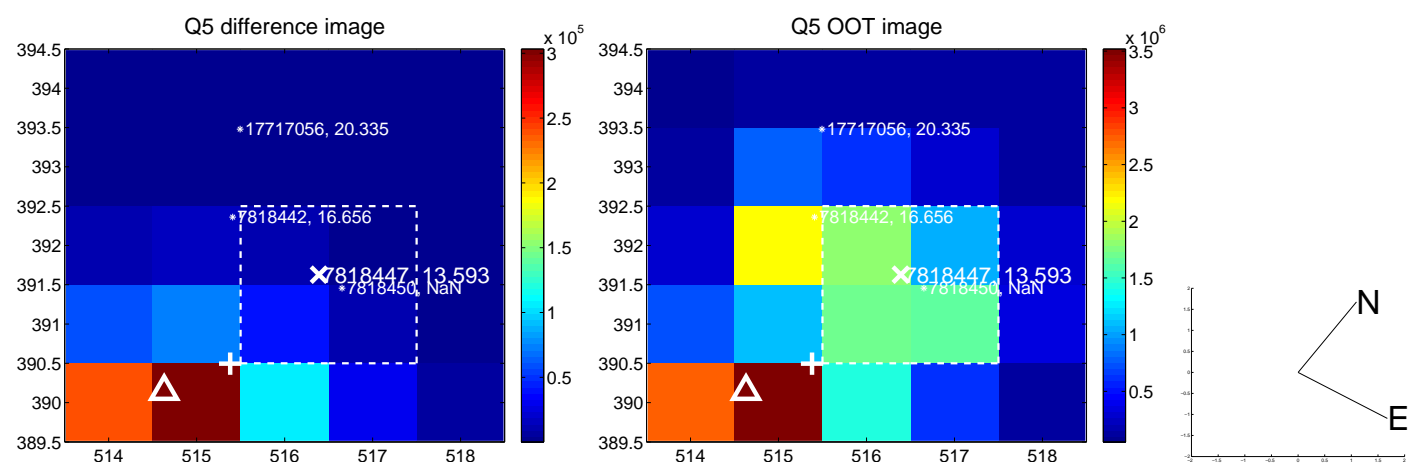


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

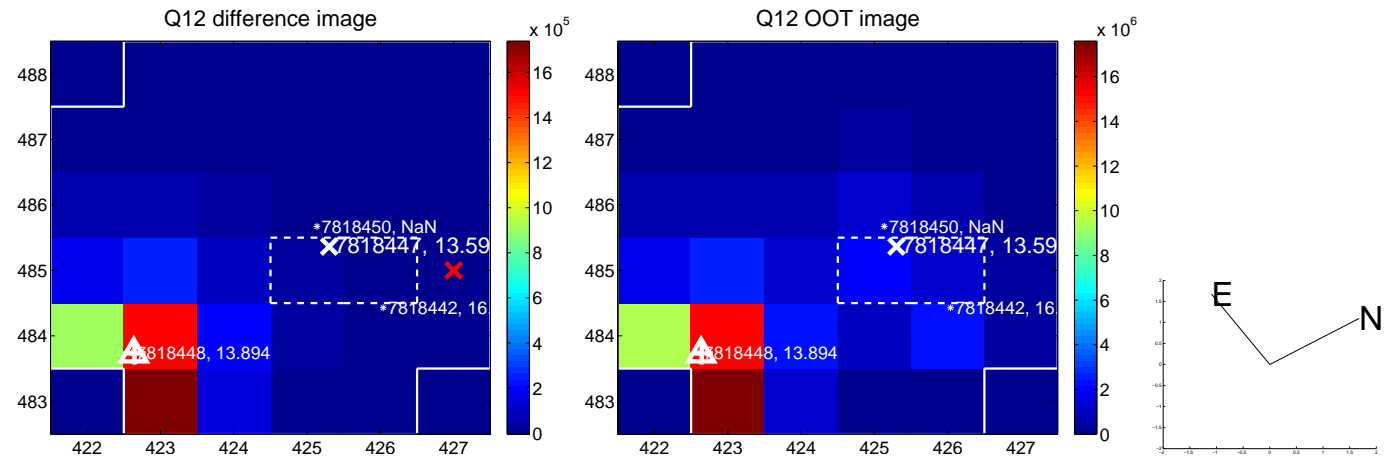
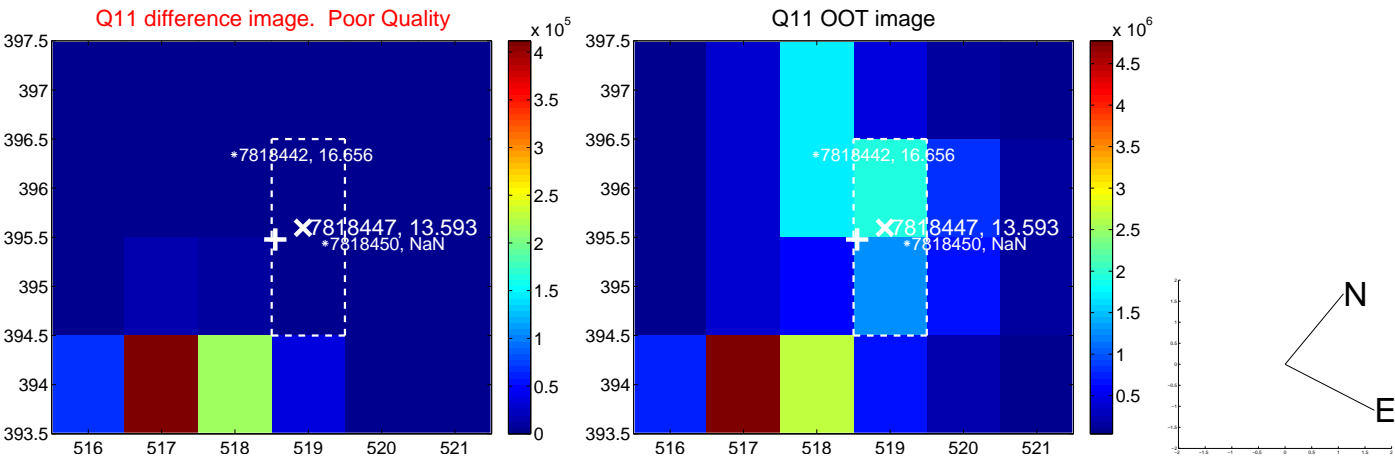
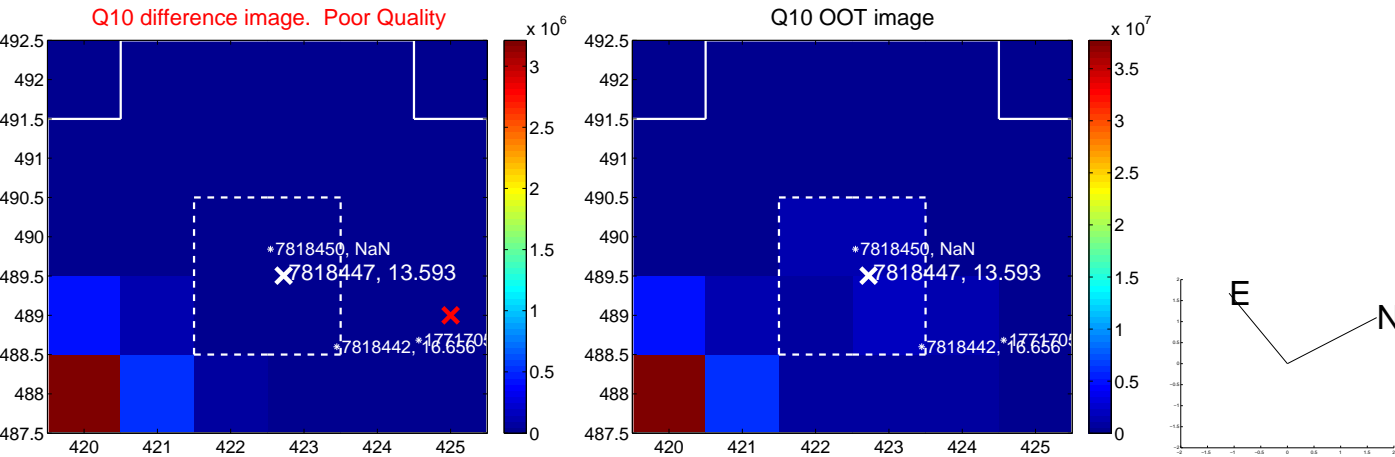
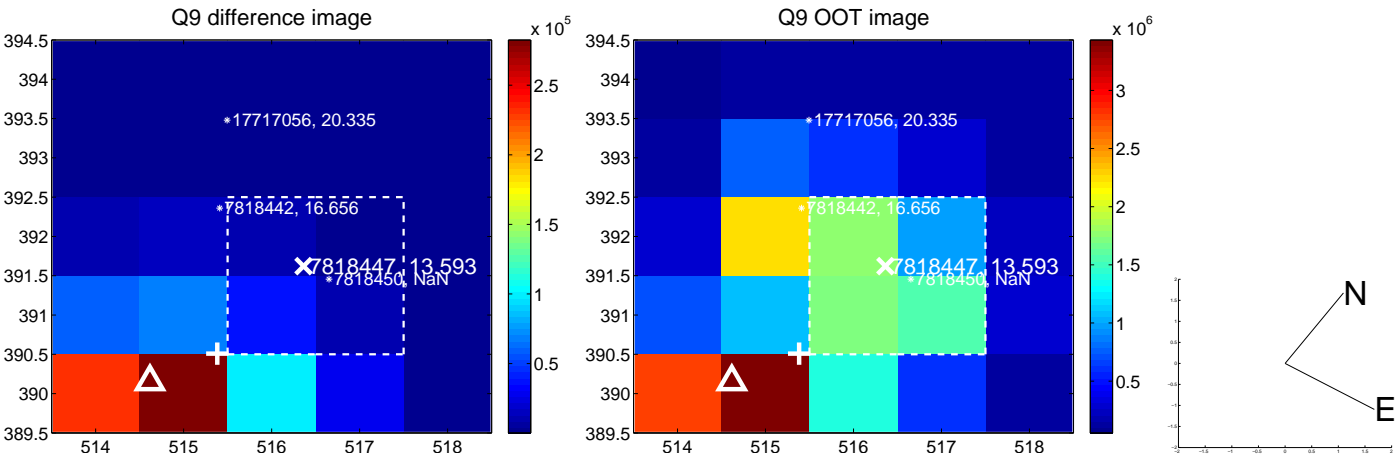
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



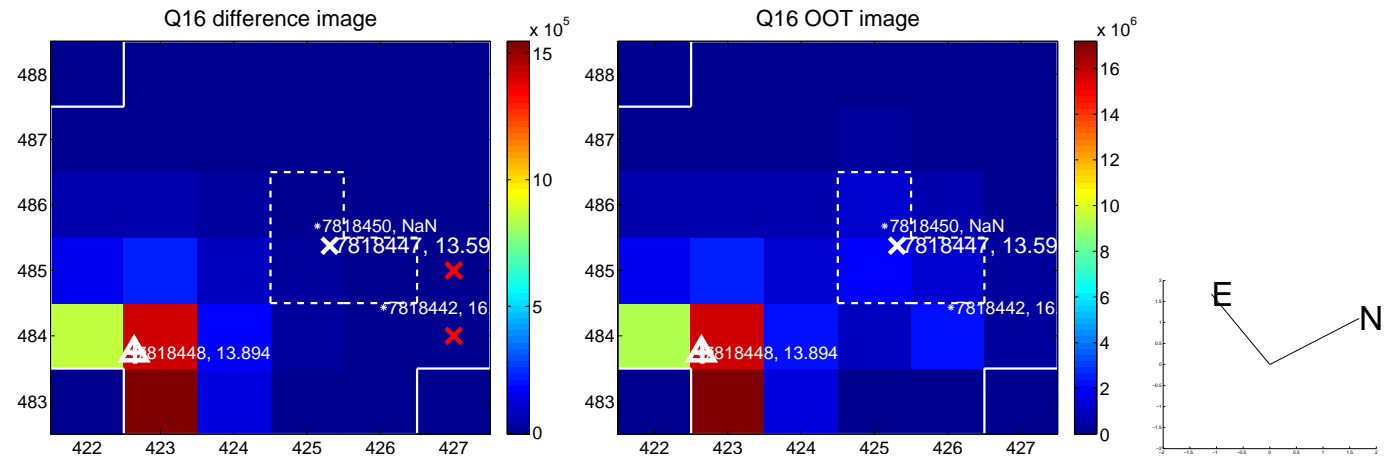
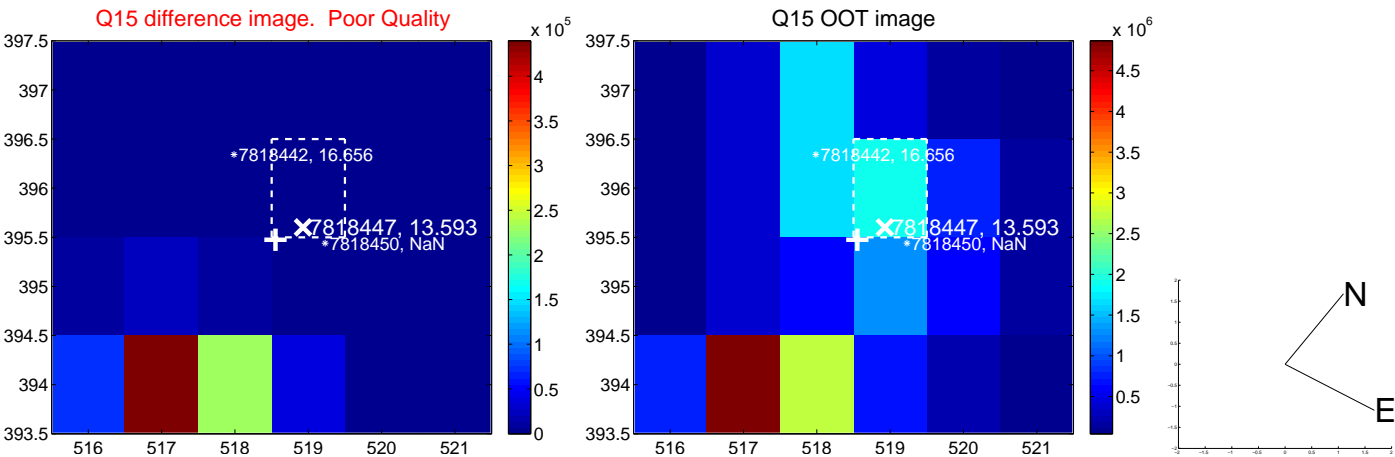
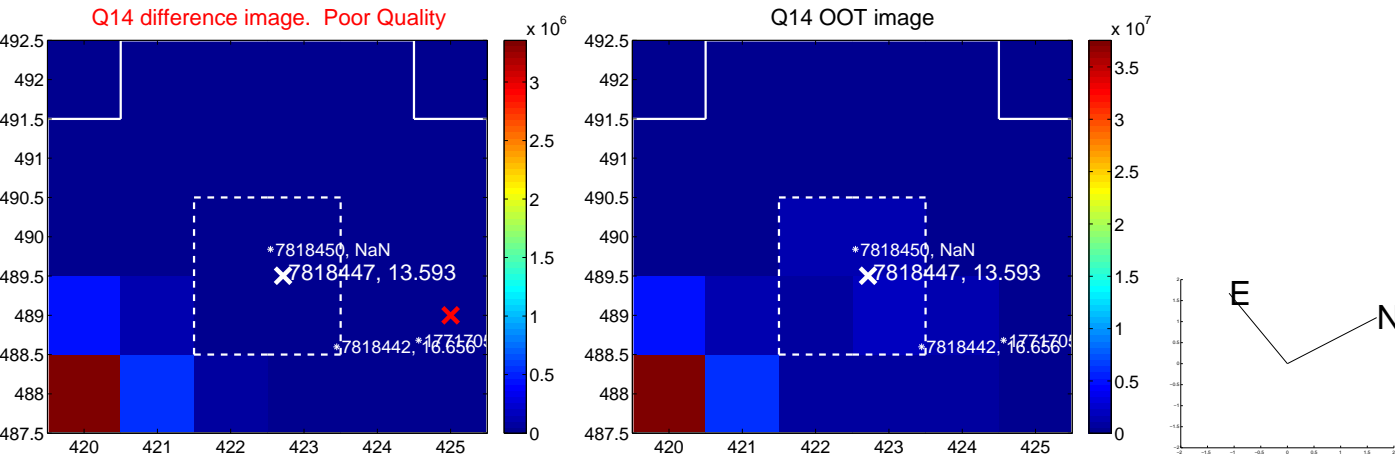
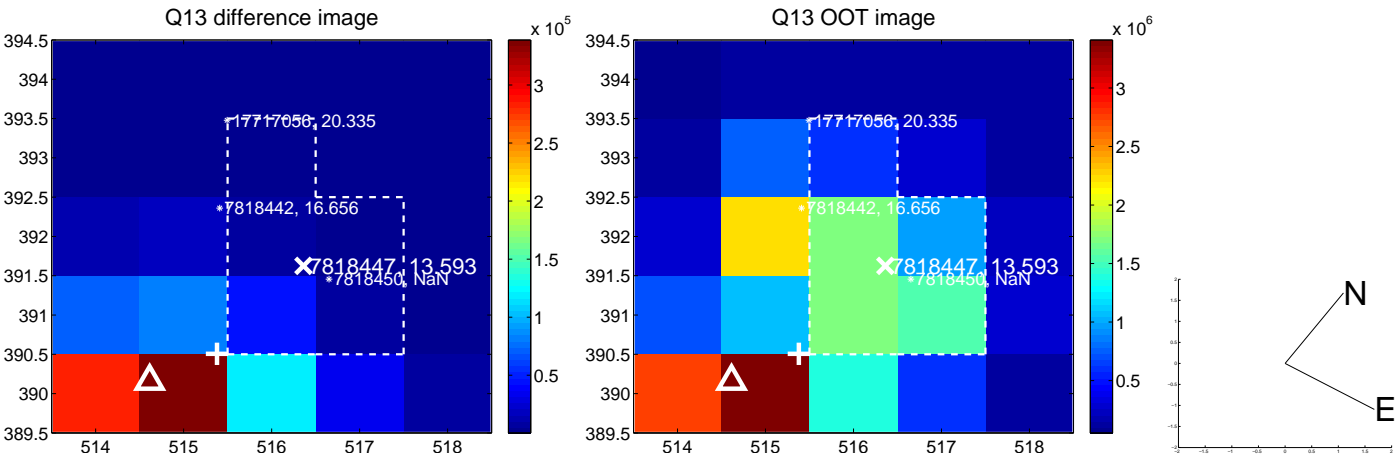
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



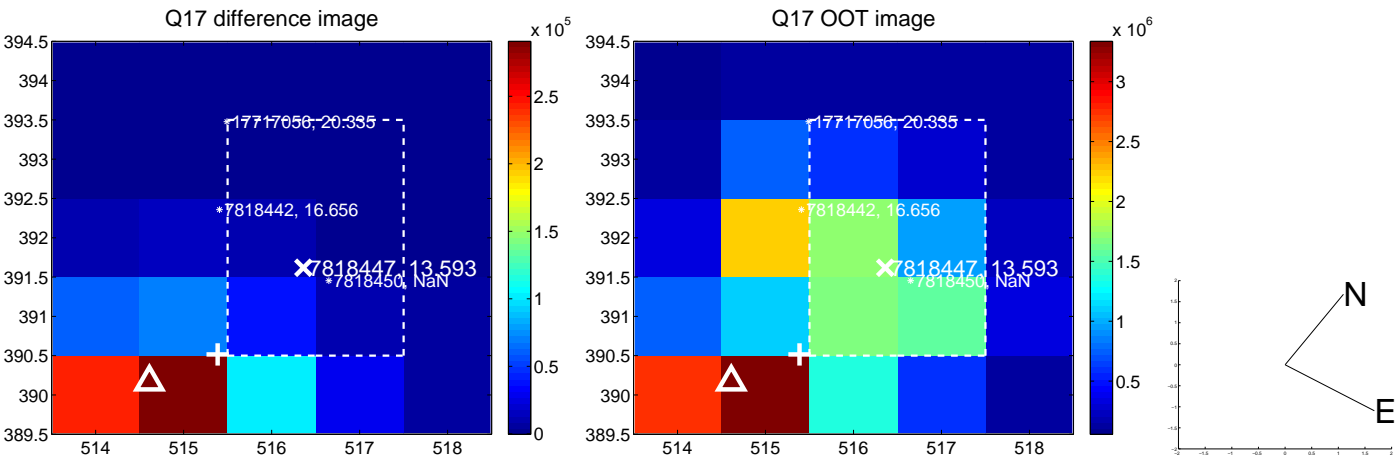
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

