

KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

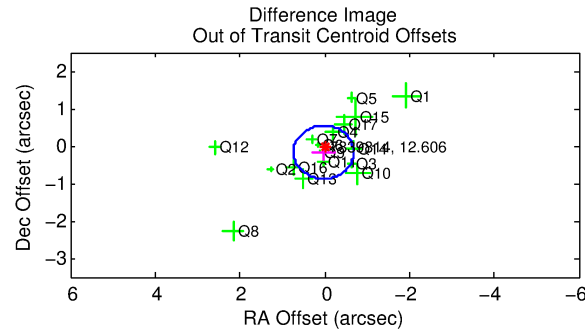
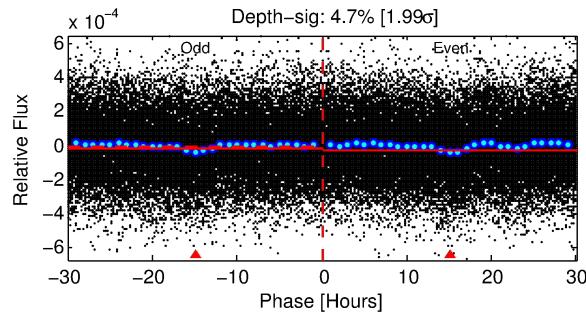
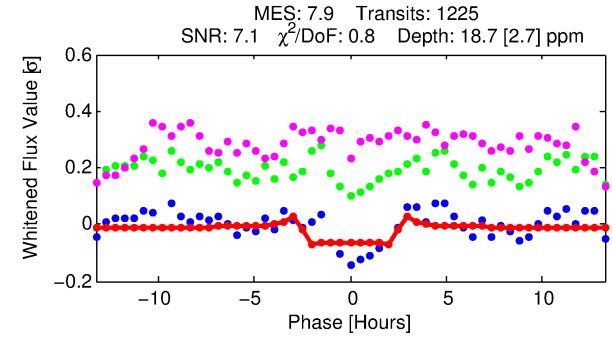
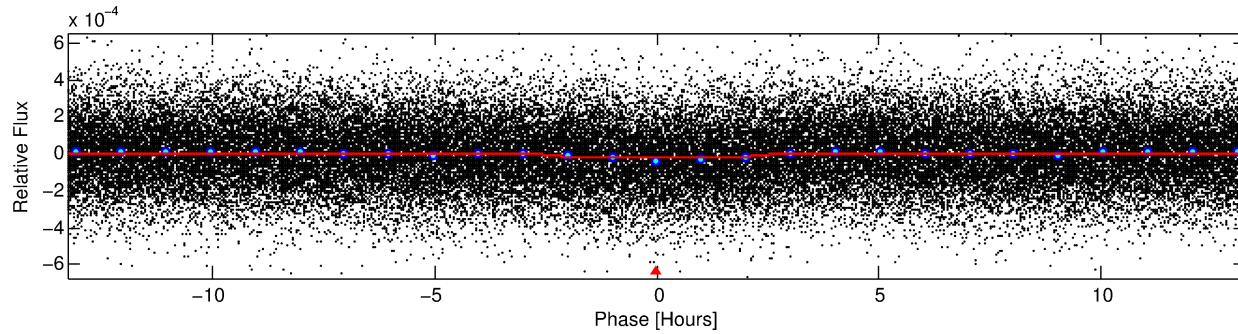
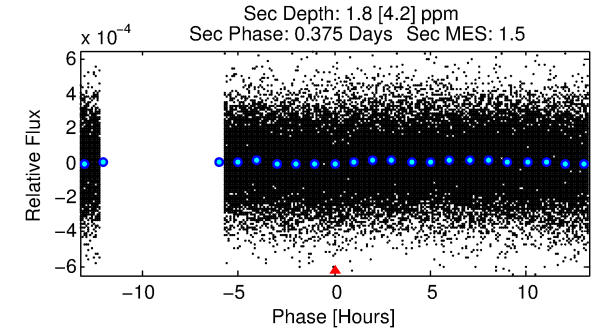
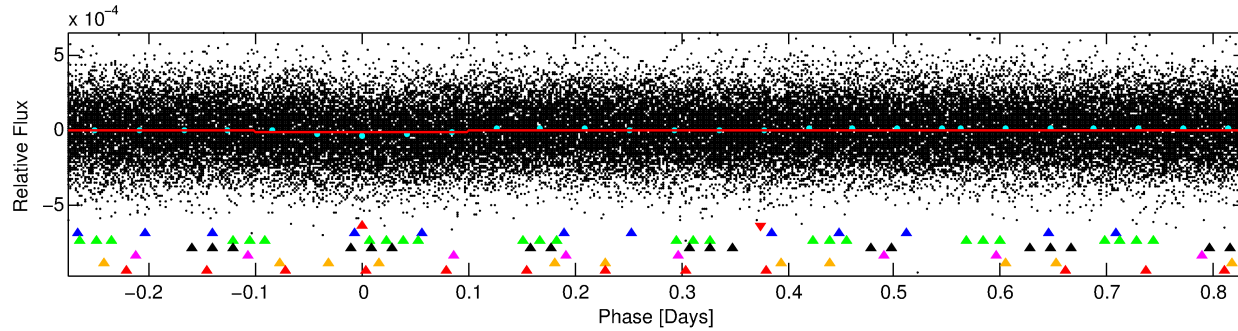
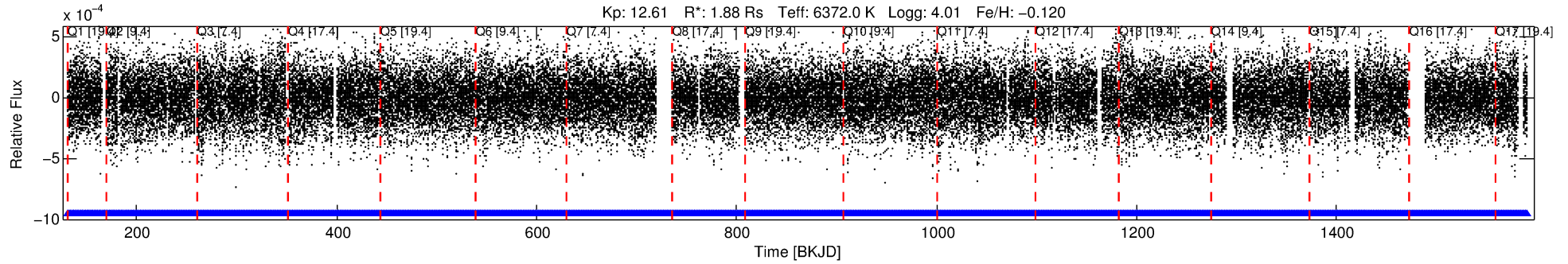
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-01

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 1 of 7 Period: 1.108 d



DV Fit Results:

Period = 1.10759 [0.00002] d
Epoch = 131.7636 [0.0040] BKJD
Rp/R* = 0.0042 [0.0009]
a/R* = 1.53 [1.01]
b = 0.63 [1.12]
Seff = 9845.51 [5842.20]
Teff = 2540 [377] K
Rp = 0.86 [0.38] Re
a = 0.0231 [0.0084] AU
Ag = 0.71 [1.74] [-0.17σ]
Teffp = 3605 [2156] K [0.49σ]

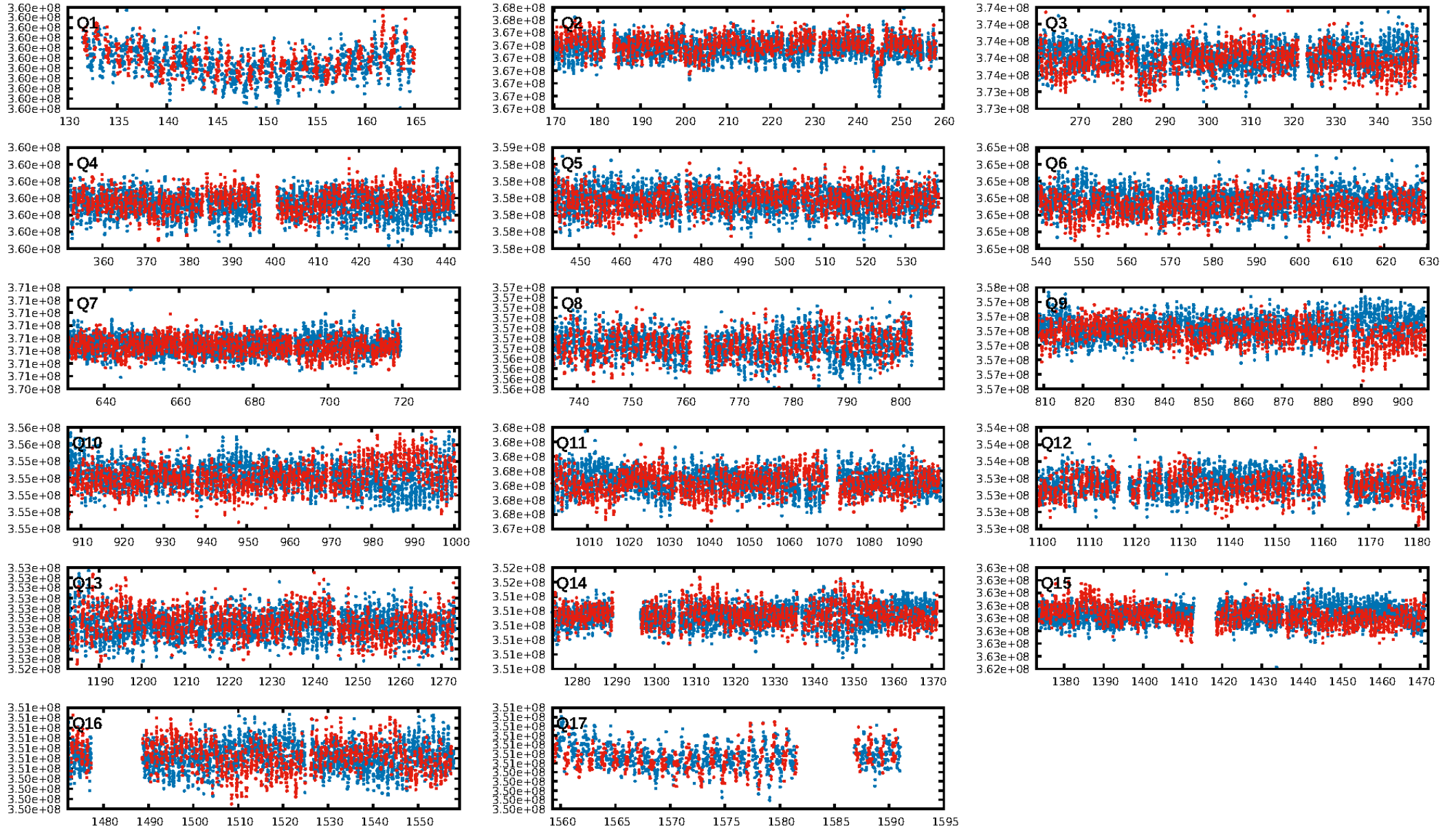
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [174.90σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.27e-10
RollingBand-fgt: 1.00 [1169/1169]
GhostDiagnostic-chr: 1.952
Centroid-sig: 36.5%
Centroid-so: 0.475 arcsec [1.08σ]
OotOffset-rm: 0.171 arcsec [0.72σ]
KicOffset-rm: 0.213 arcsec [0.75σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 1.00 [17/17]

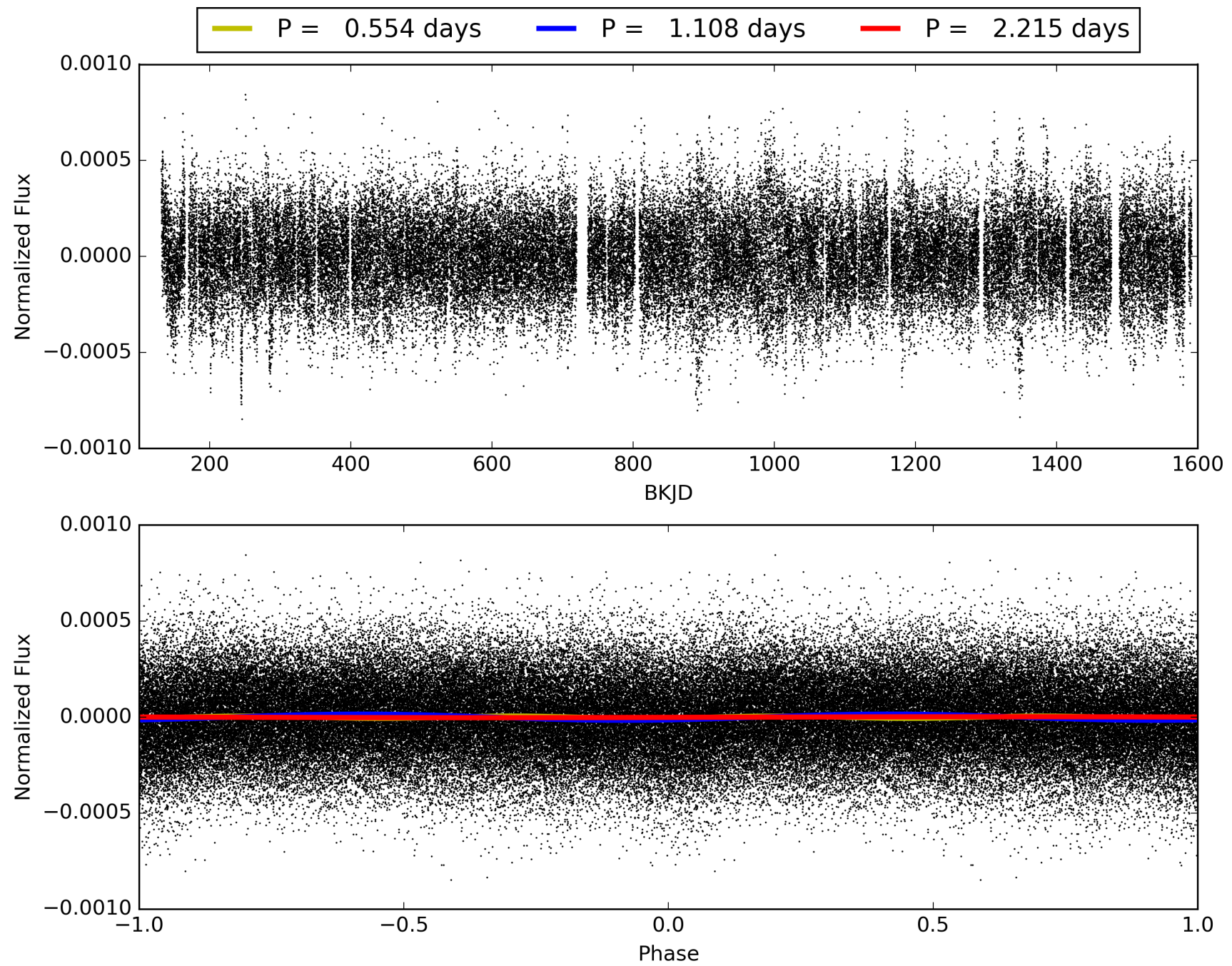
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:39:14 Z

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

TCE 007839814-01, PDC Light Curves

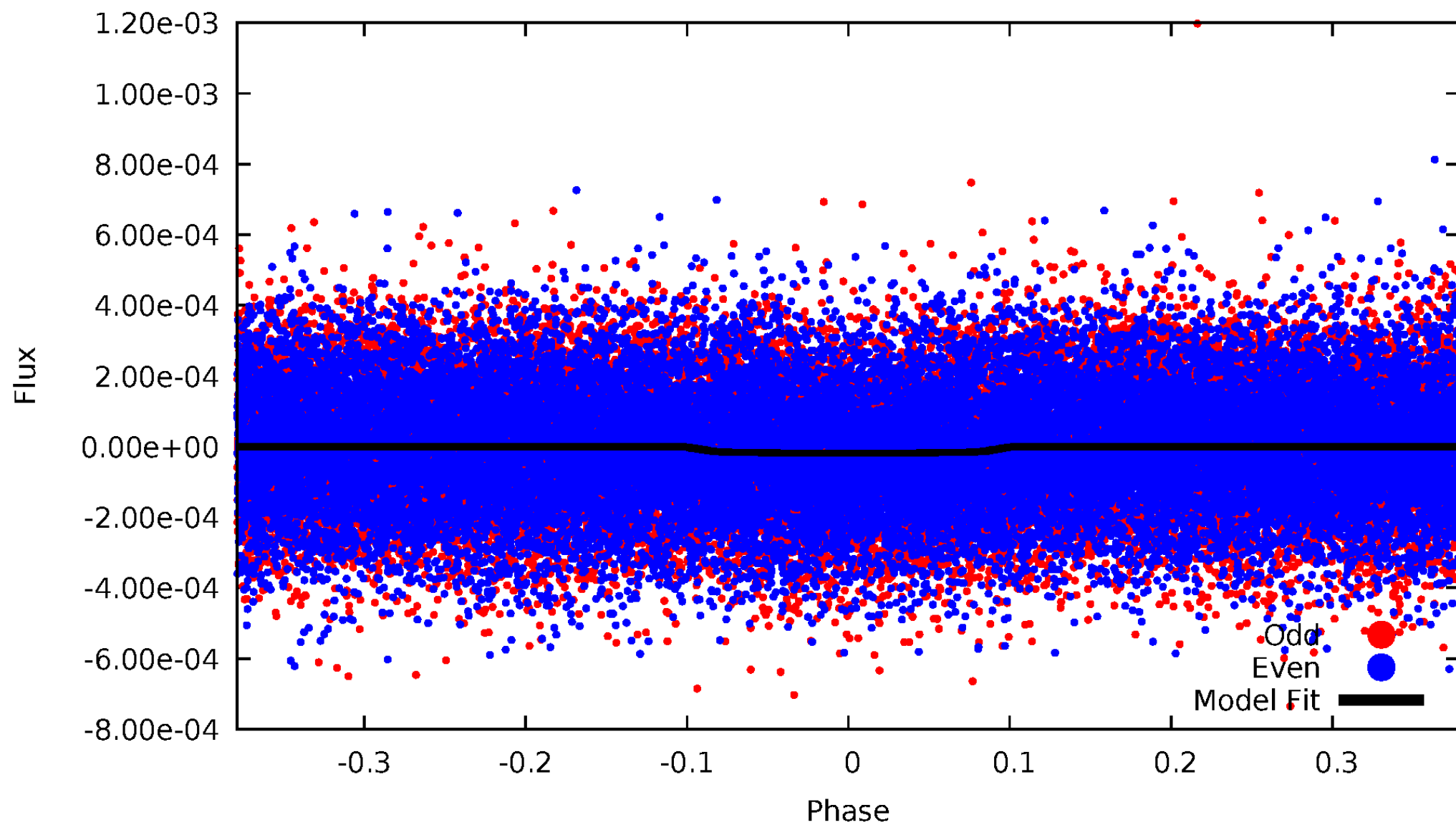


TCE 007839814-01



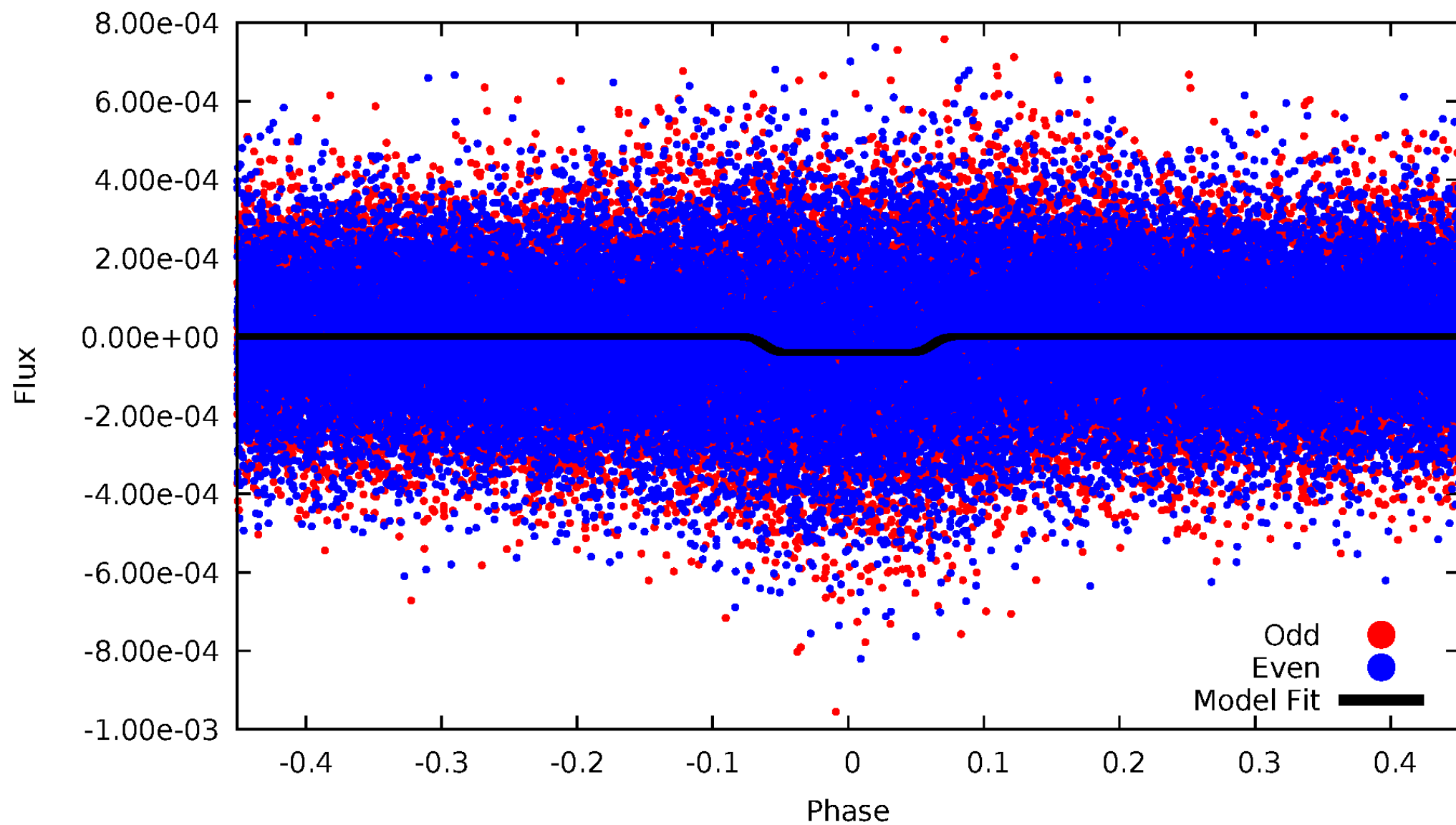
DV Odd/Even

TCE 007839814-01

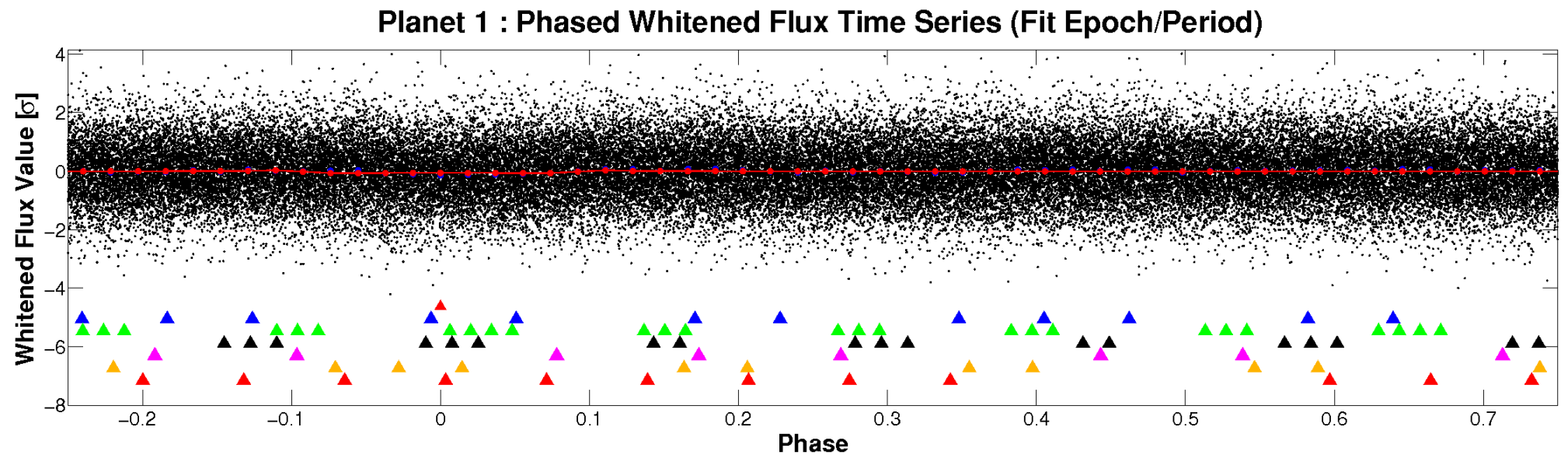
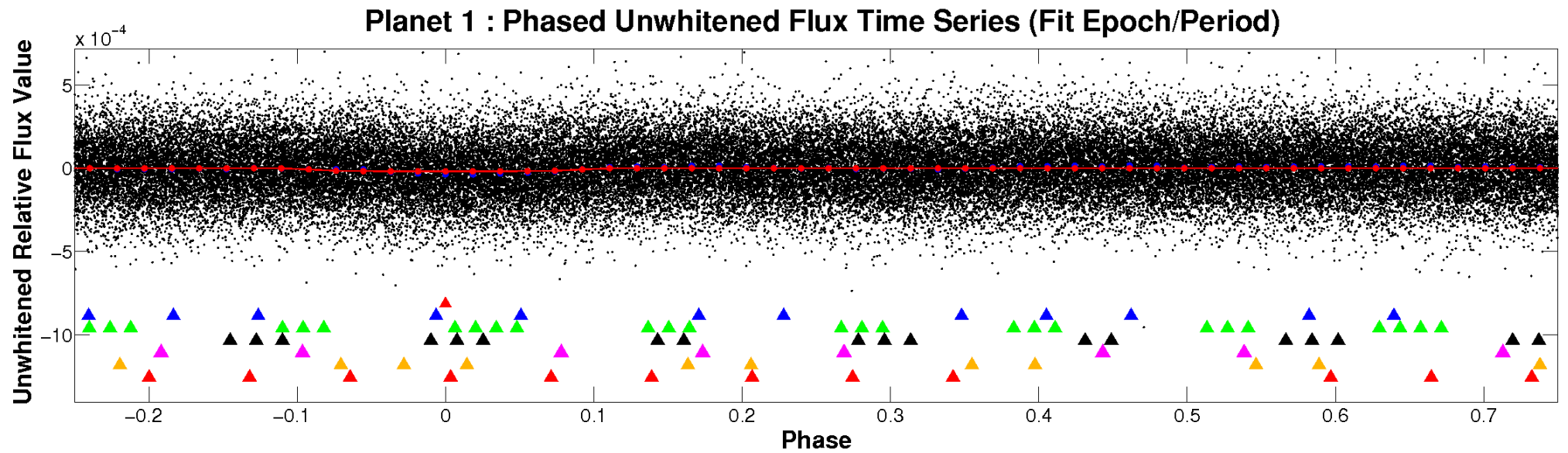


ALT Odd/Even

TCE 007839814-01

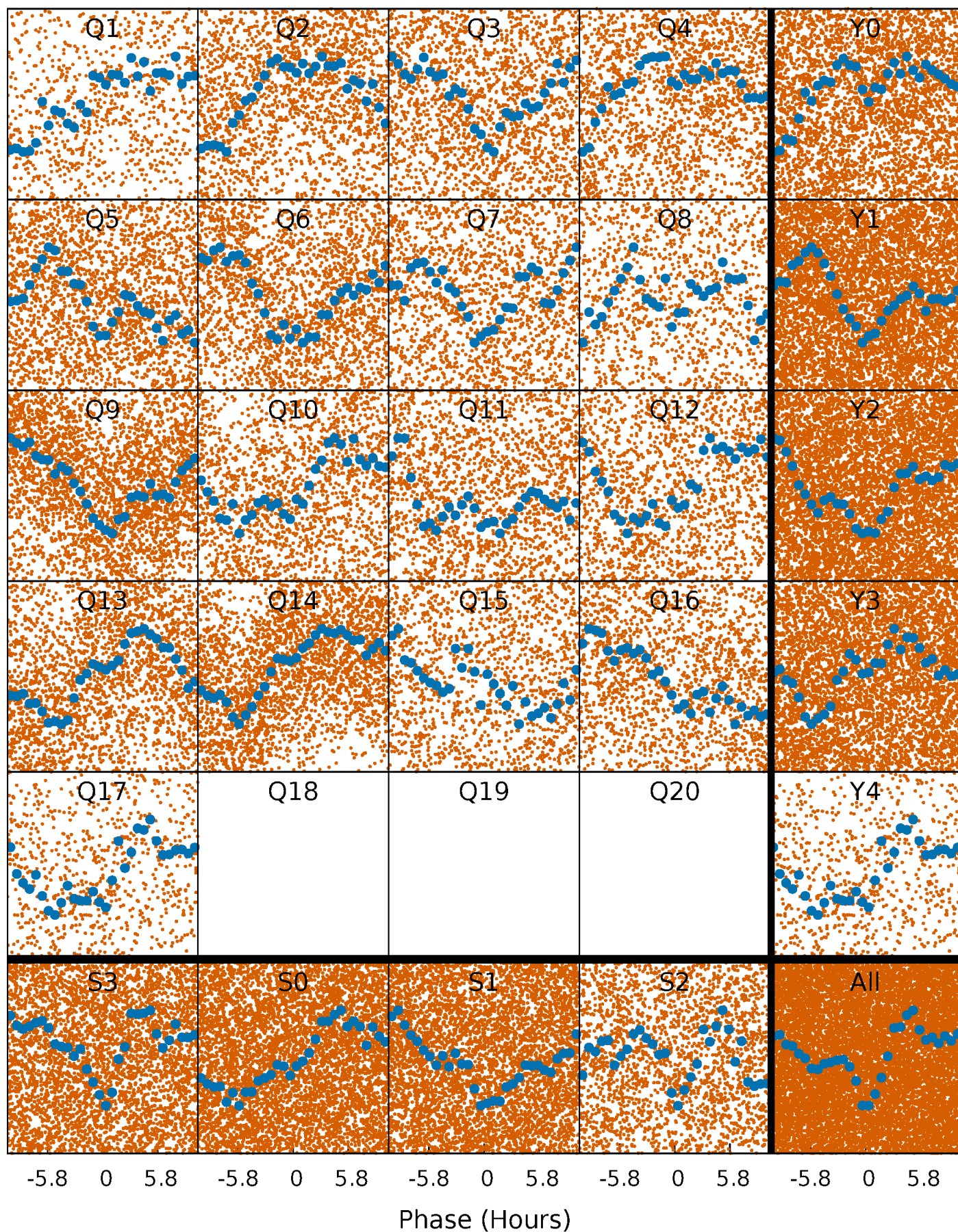


Non-Whitened Vs. Whitened Light Curve



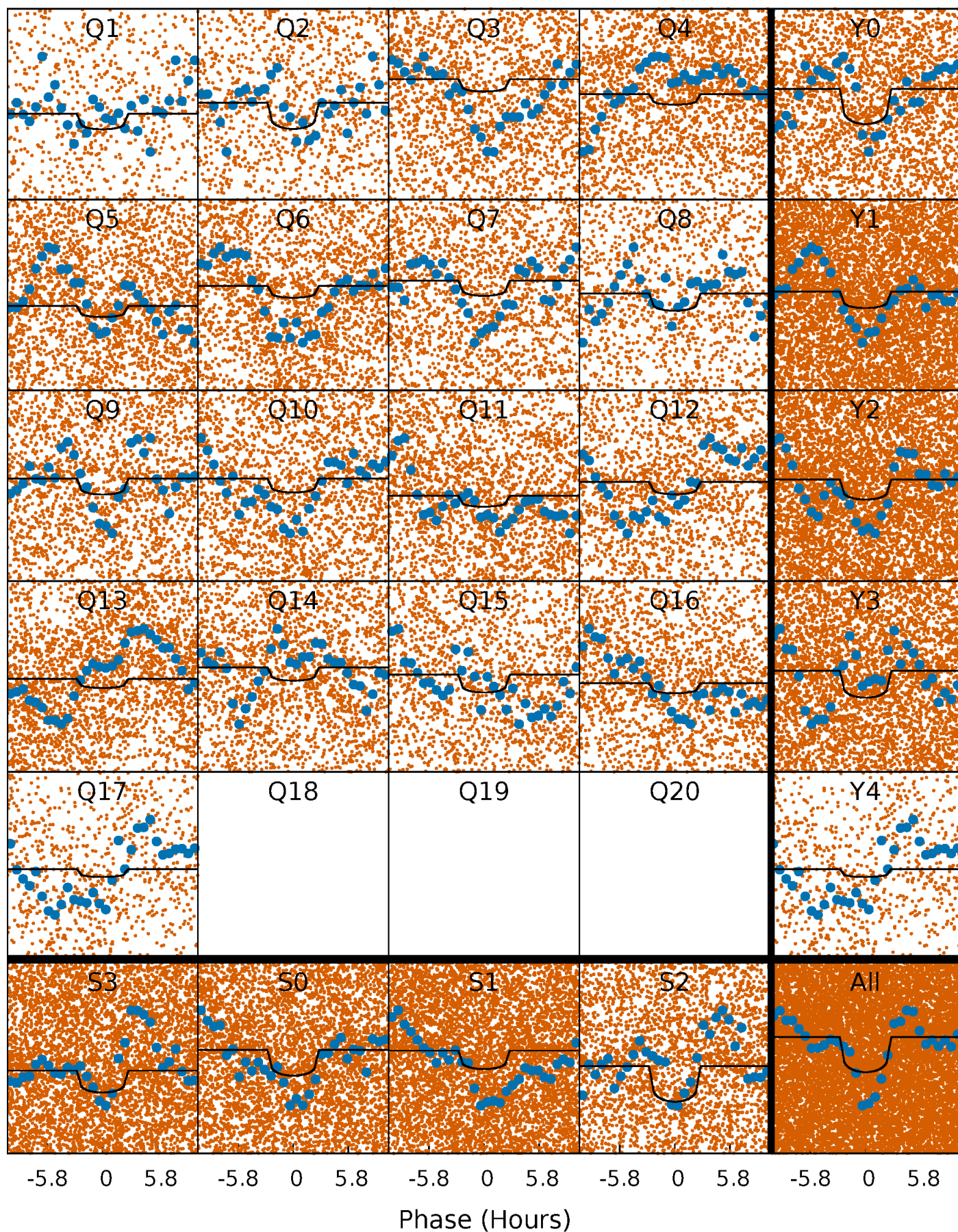
PDC Quarter-Phased Transit Curves

TCE 007839814-01 P= 1.107590 Days $T_0=131.763621$ (BKJD)



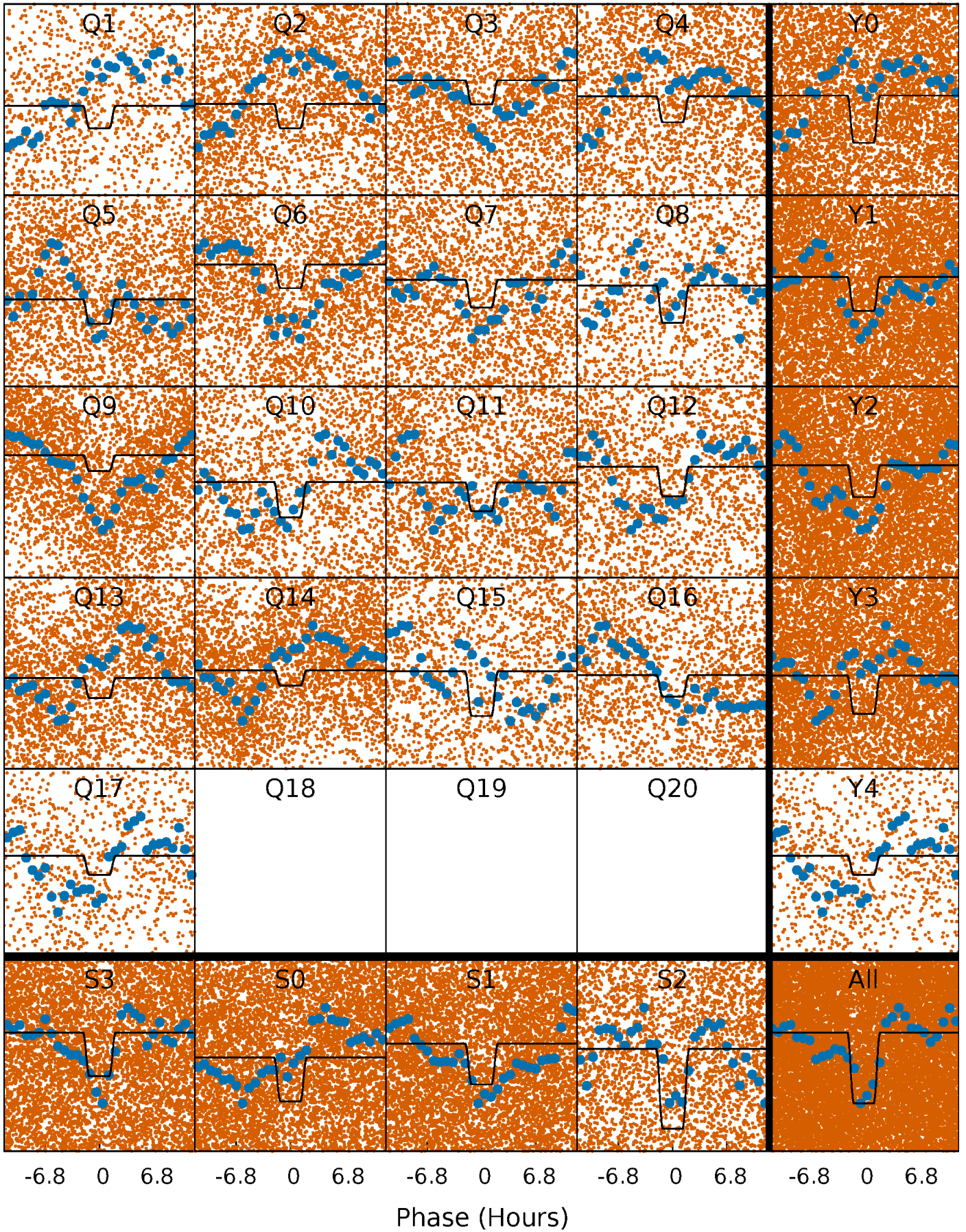
DV Quarter-Phased Transit Curves

TCE 007839814-01 P= 1.107590 Days $T_0=131.763621$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

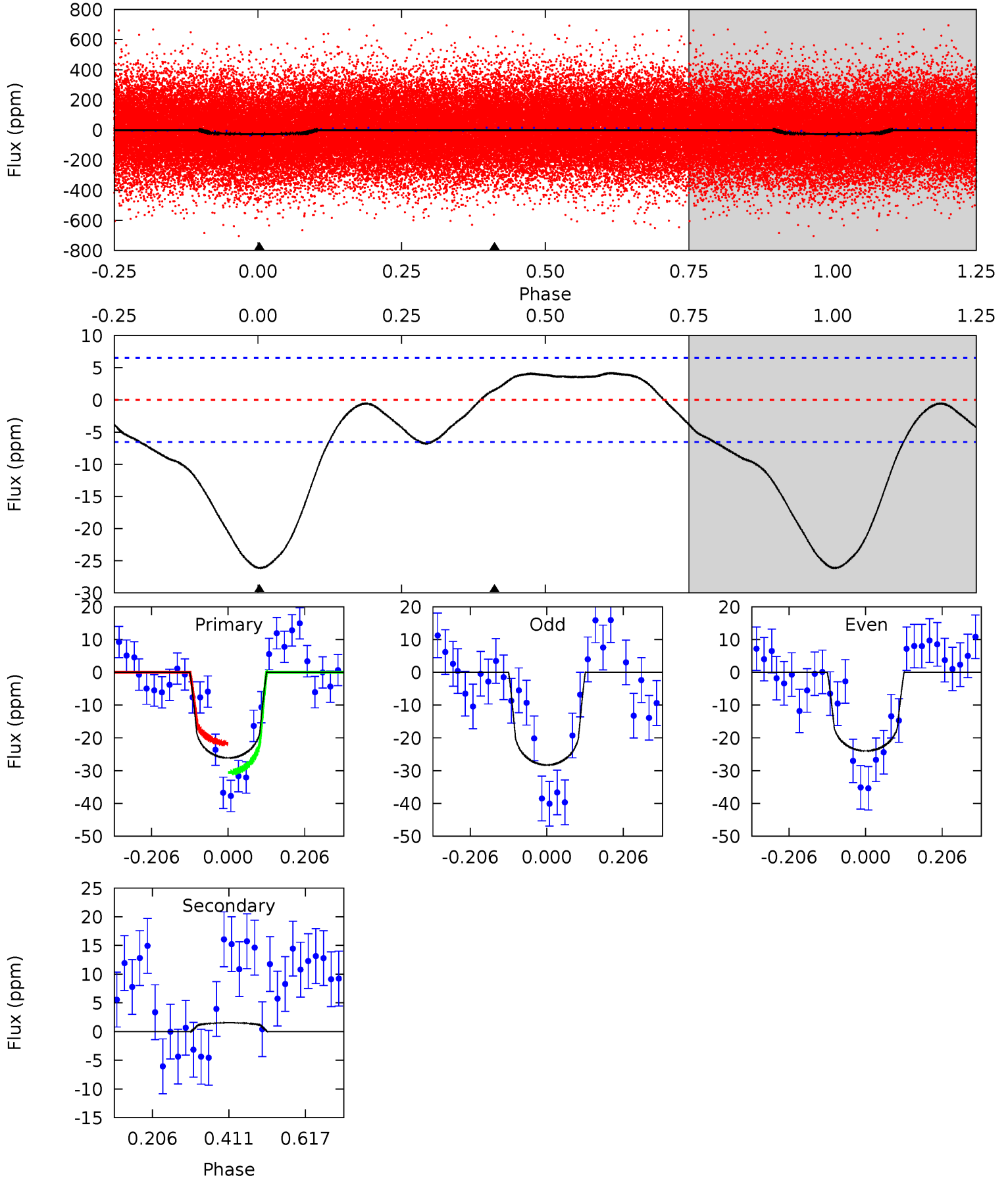
TCE 007839814-01 P= 1.107588 Days $T_0=131.769877$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-01, P = 1.107590 Days, E = 130.656031 Days

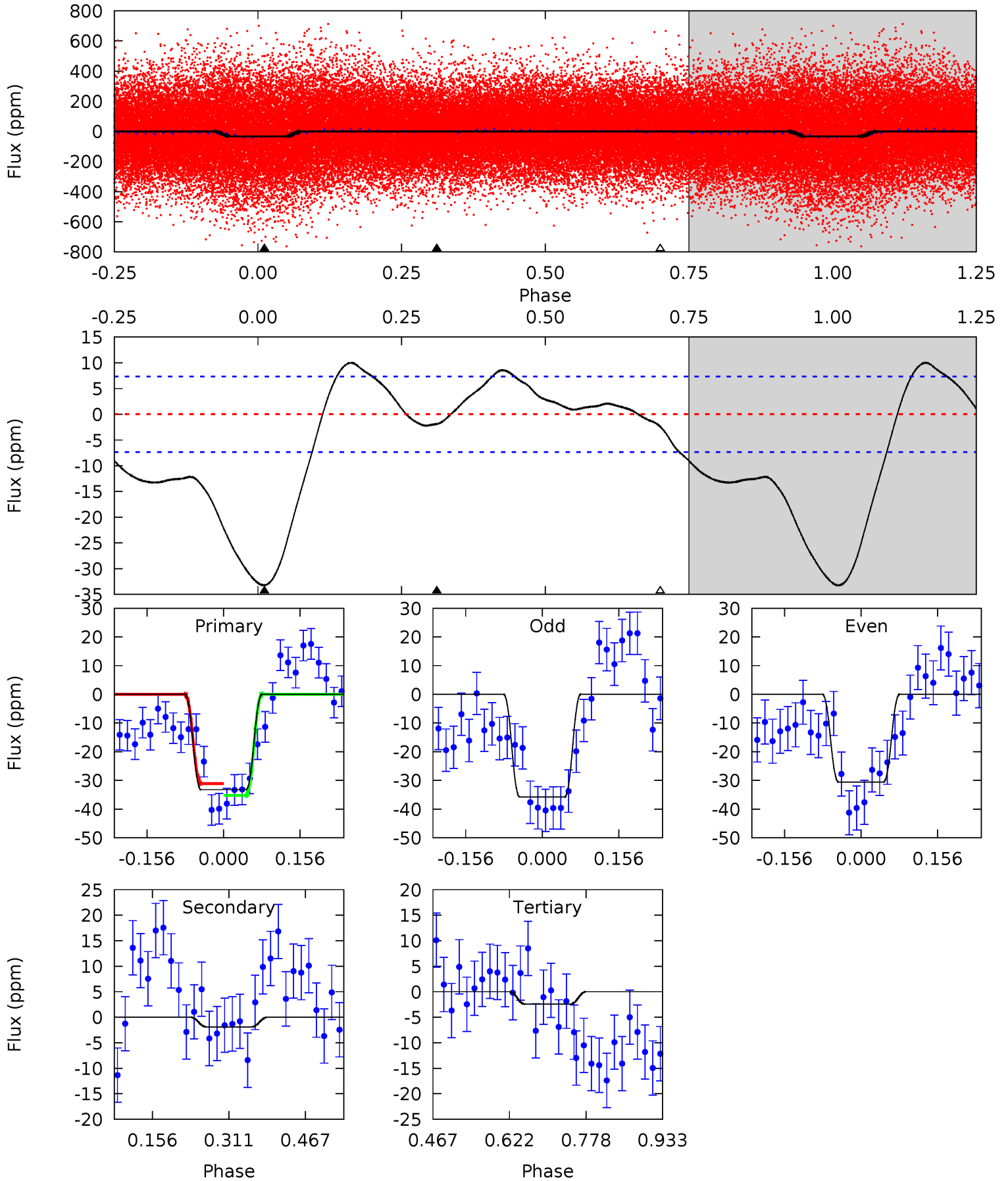
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.6 | -1.03 | 0 | 0 | 4.41 | 1.27 | 2.51 | 17.6 | 17.6 | -1.03 | -1.03 | 1.45 | 1.21 | 0.14 | 3.05 |



Alt Model-Shift Uniqueness Test

007839814-01, P = 1.107588 Days, E = 130.662289 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.2 | 1.15 | 1.48 | 0 | 4.47 | 1.42 | 3.79 | 18.8 | 20.2 | -0.33 | 1.15 | 1.58 | 0.97 | 0.23 | 1.24 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | 2 ± 1 | $0.81^{+0.28}_{-0.22}$ | 3473^{+296}_{-319} | -4069^{+723}_{-543} | $-0.646^{+0.645}_{-0.986}$ |
| Alt. | -2 ± 2 | $1.24^{+0.29}_{-0.28}$ | 3467^{+292}_{-320} | 2545^{+1030}_{-5860} | $0.337^{+0.473}_{-0.295}$ |

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

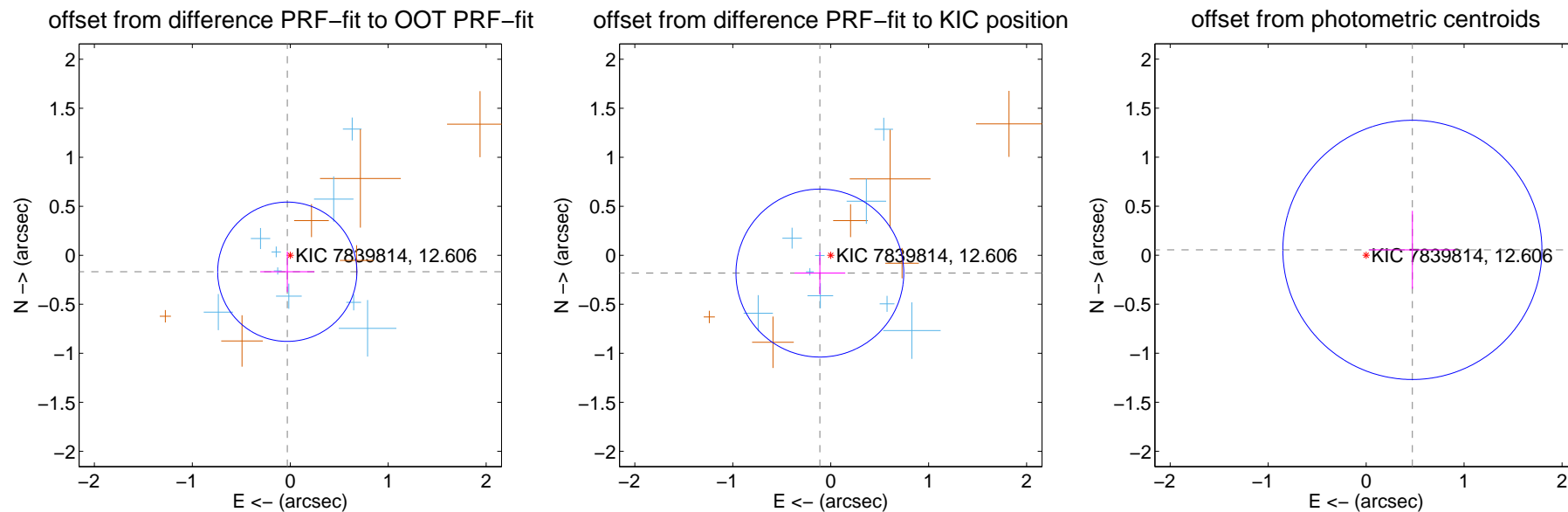
DV Centroid Data

Supplemental centroid analysis for 007839814-01. Kepler magnitude: 12.61. Transit SNR 7.13

There are 11 quarters with good PRF difference image offsets

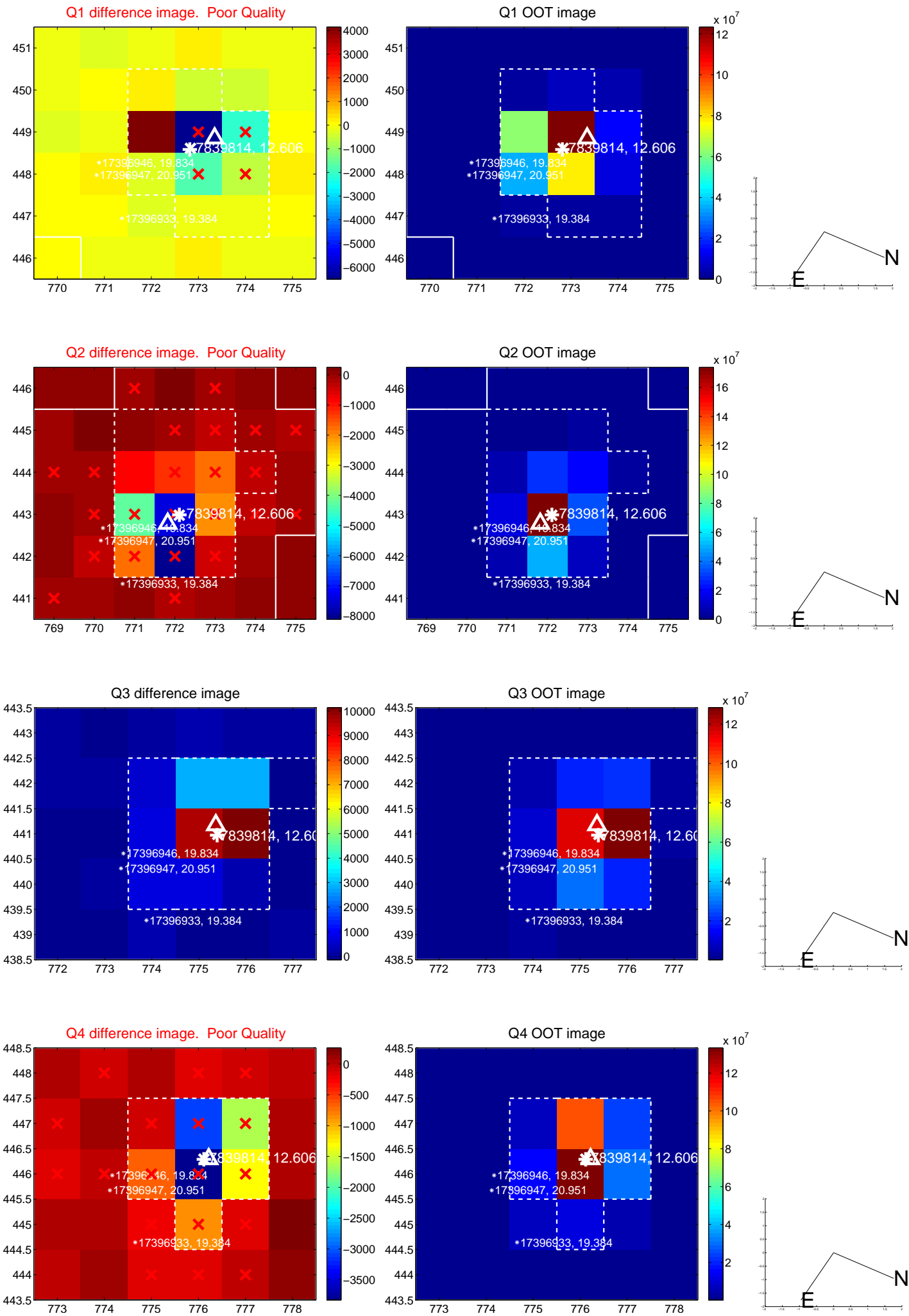
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.171 ± 0.237 | 0.72 | 0.030 ± 0.277 | -0.168 ± 0.207 |
| PRF-fit source offset from KIC position | 0.213 ± 0.286 | 0.75 | 0.111 ± 0.259 | -0.182 ± 0.218 |
| photometric centroid source offset | 0.48 ± 0.44 | 1.08 | -0.47 ± 0.44 | 0.05 ± 0.40 |

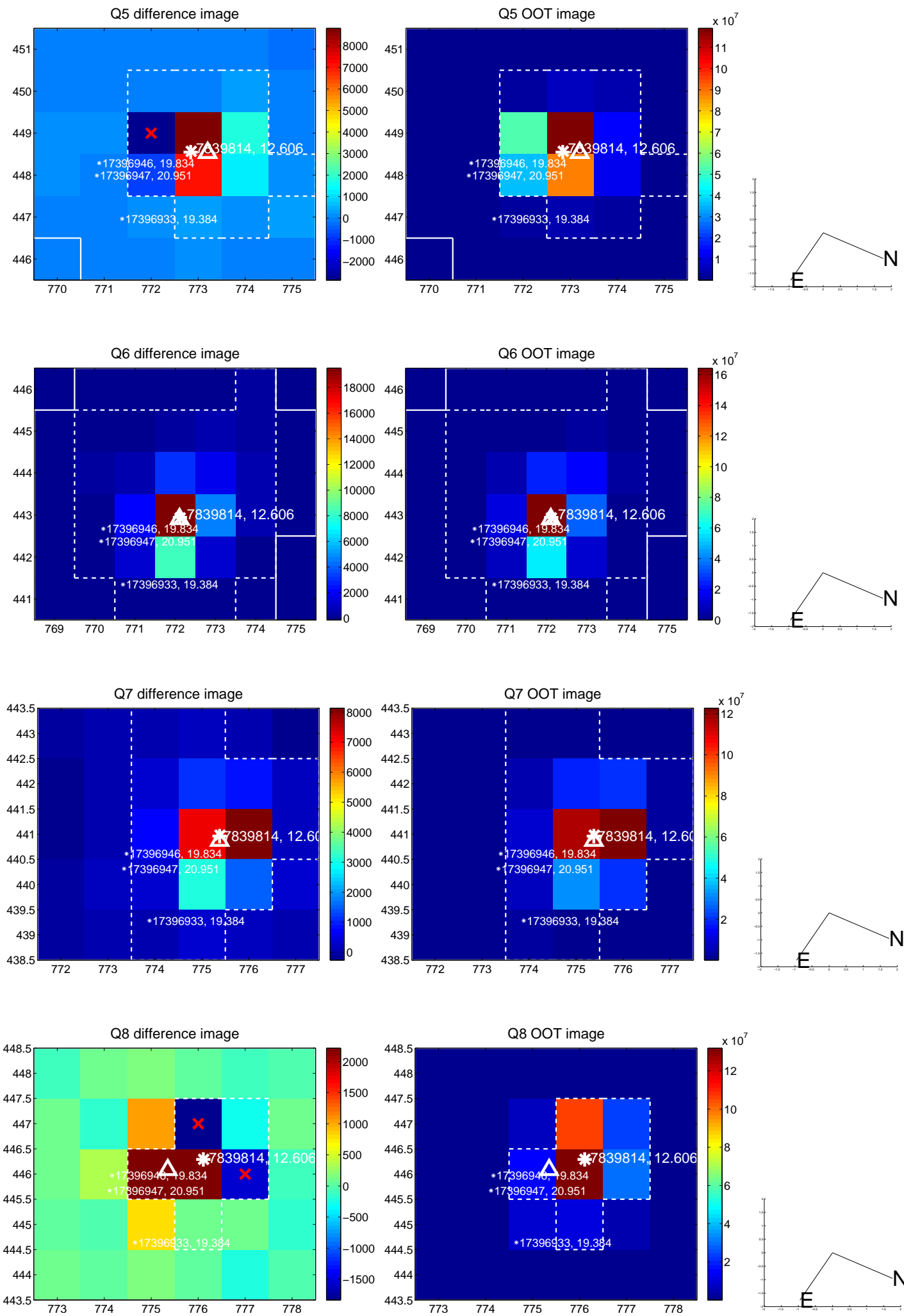


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

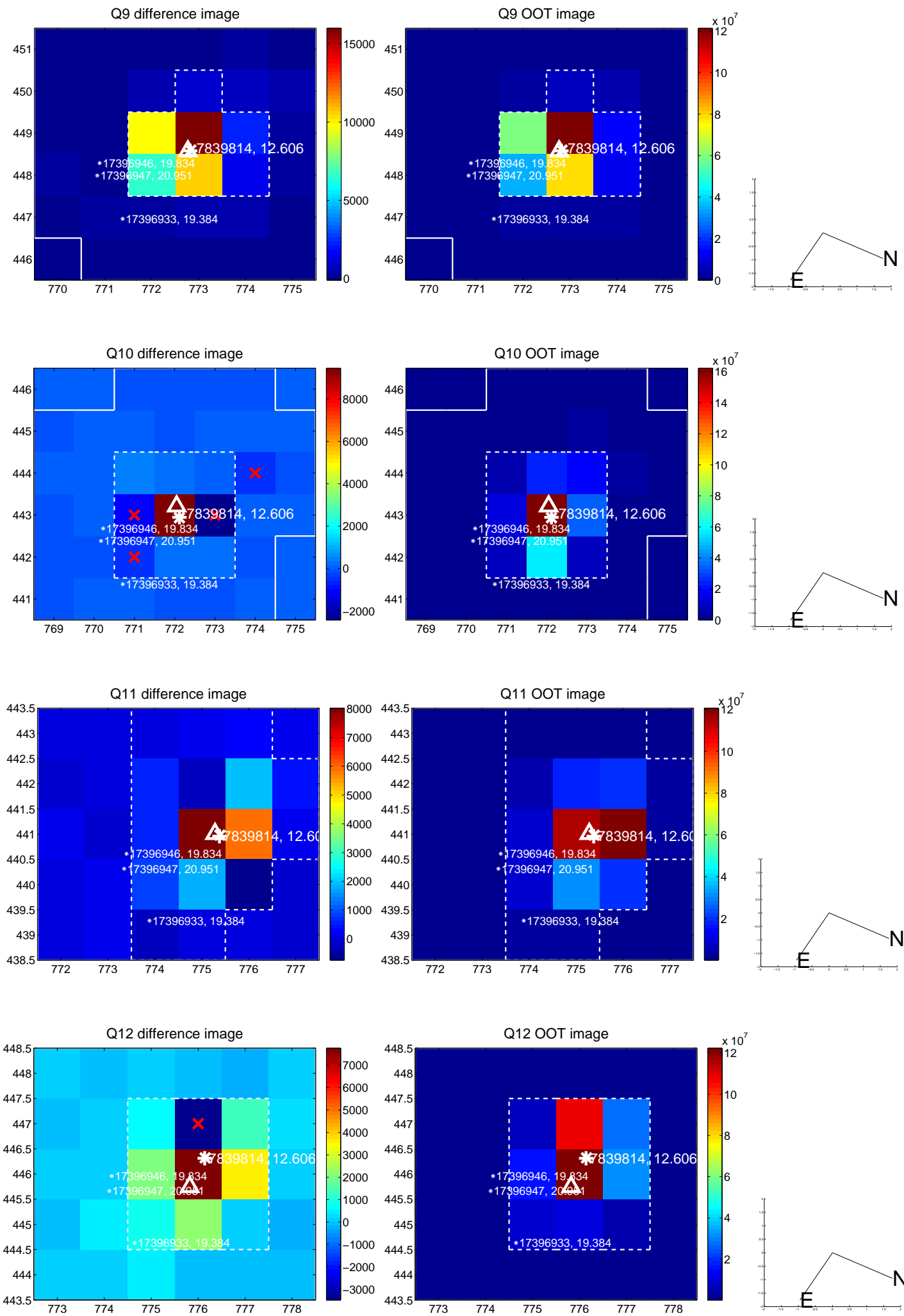
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



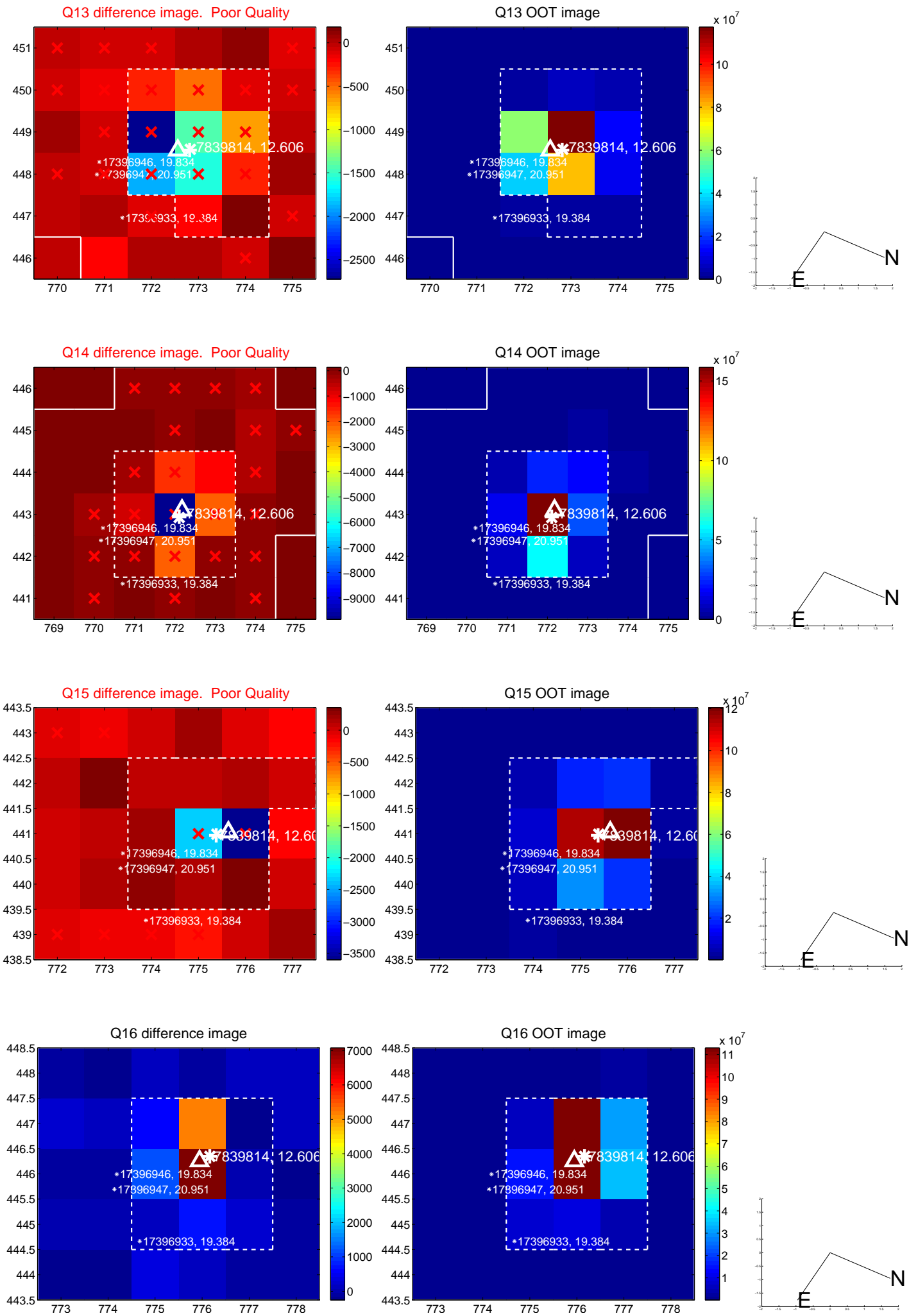
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



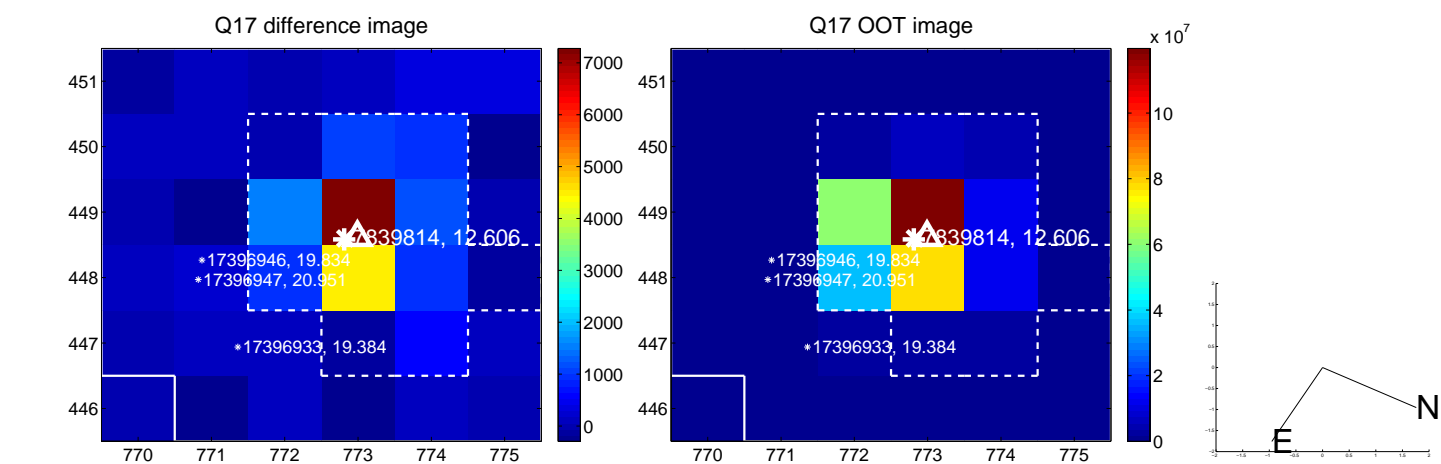
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



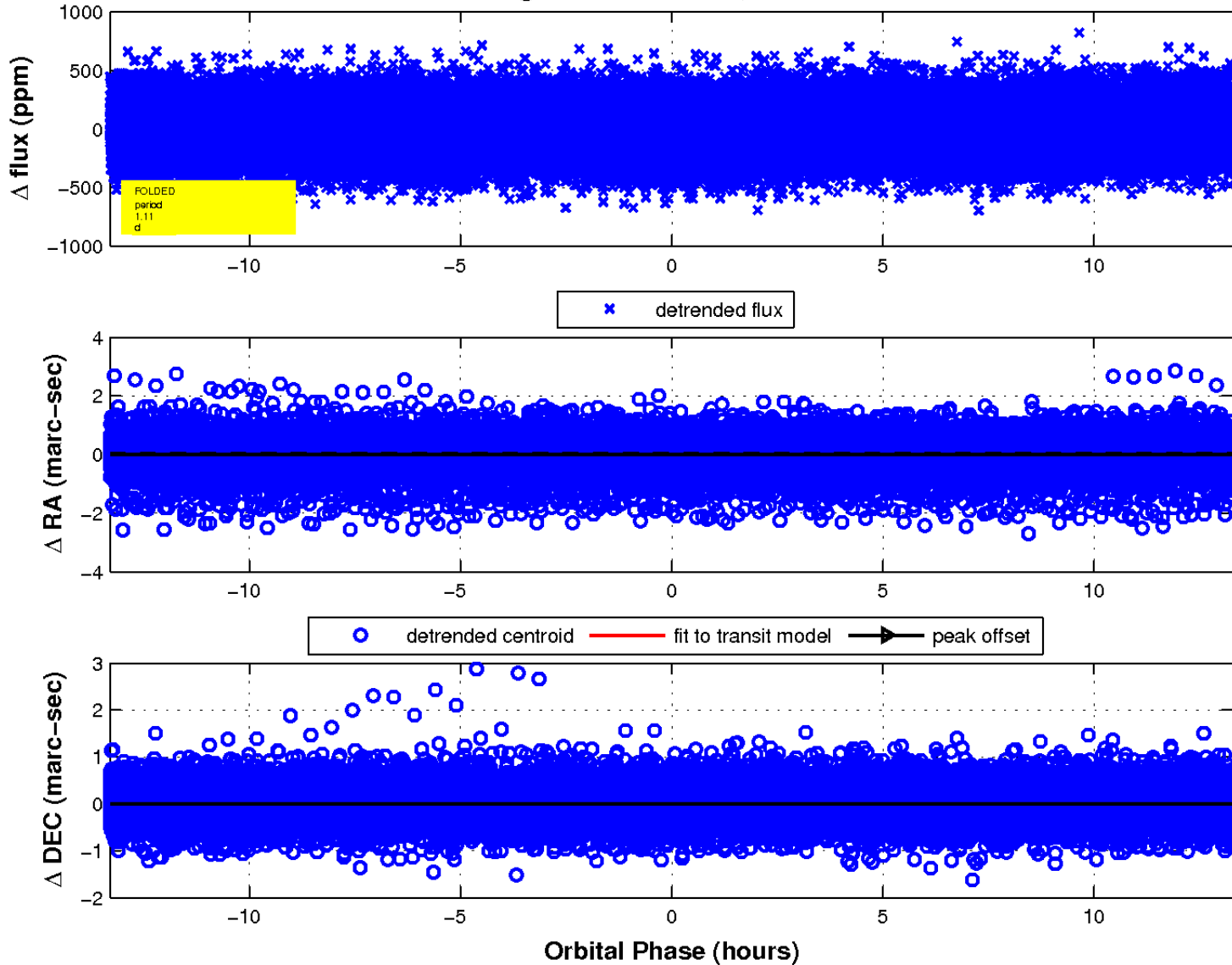
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

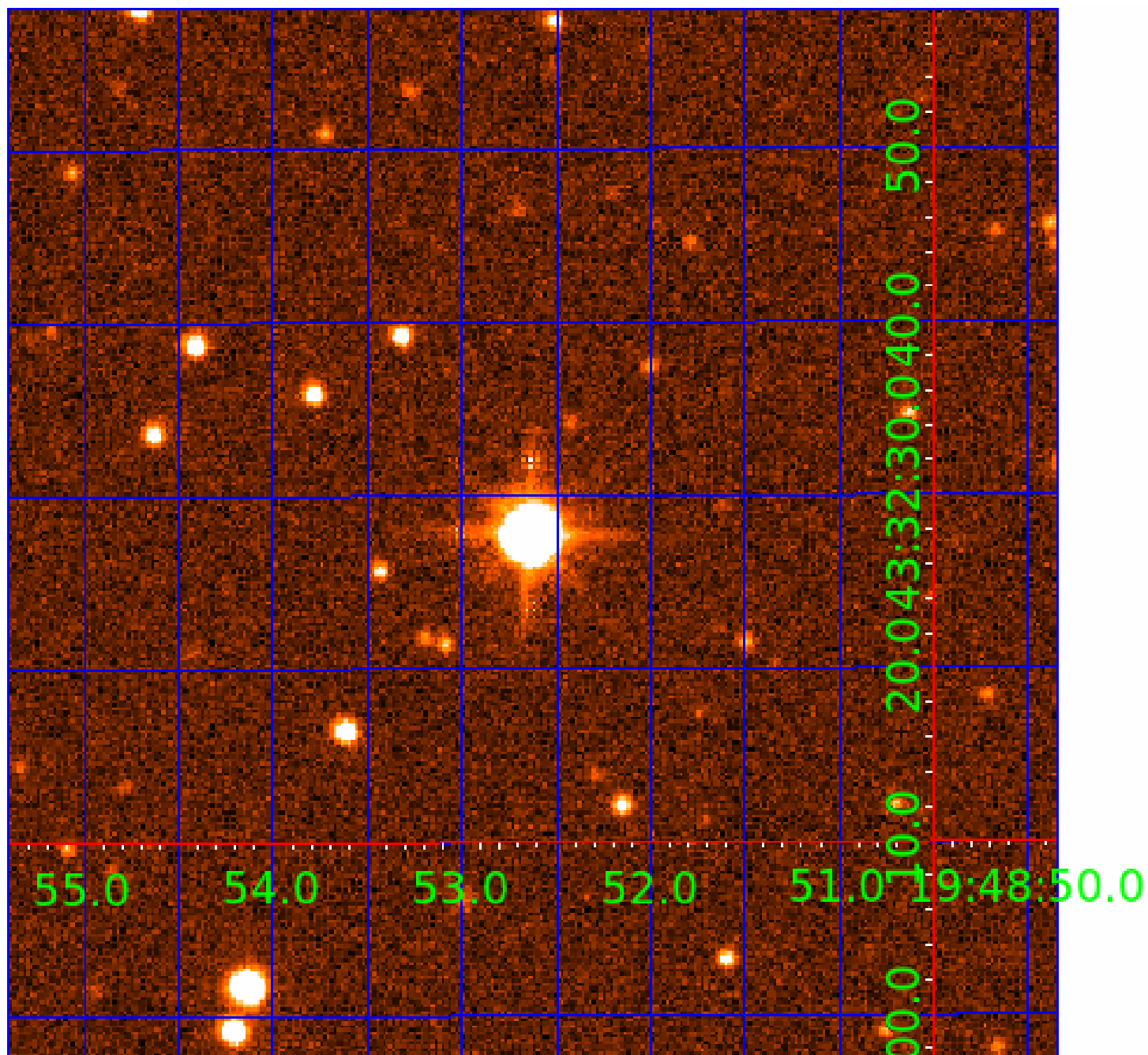


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

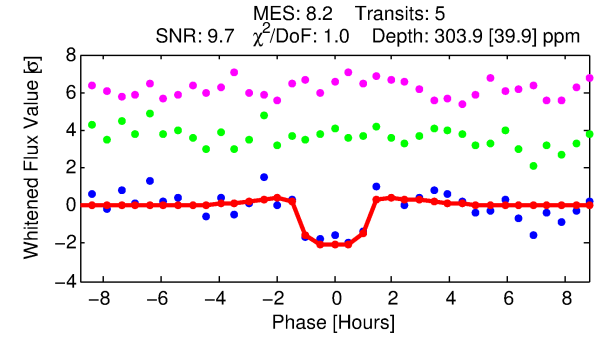
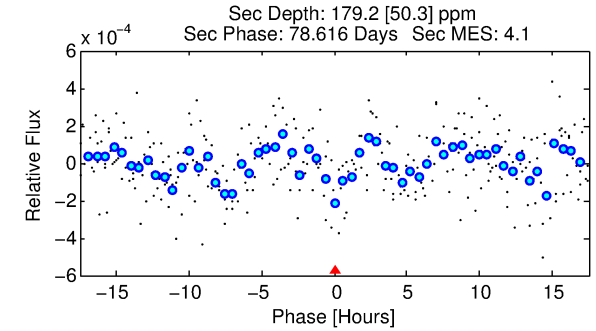
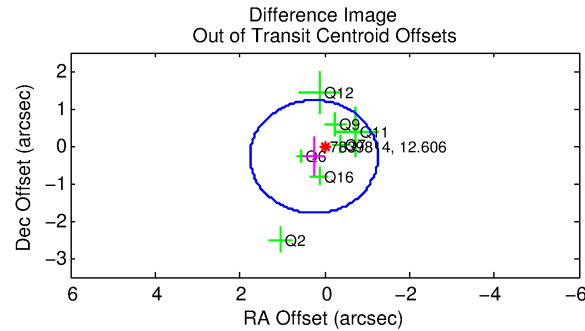
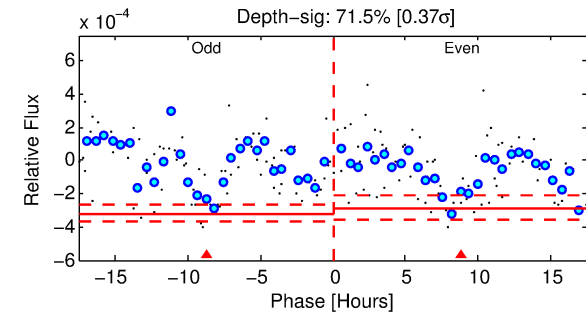
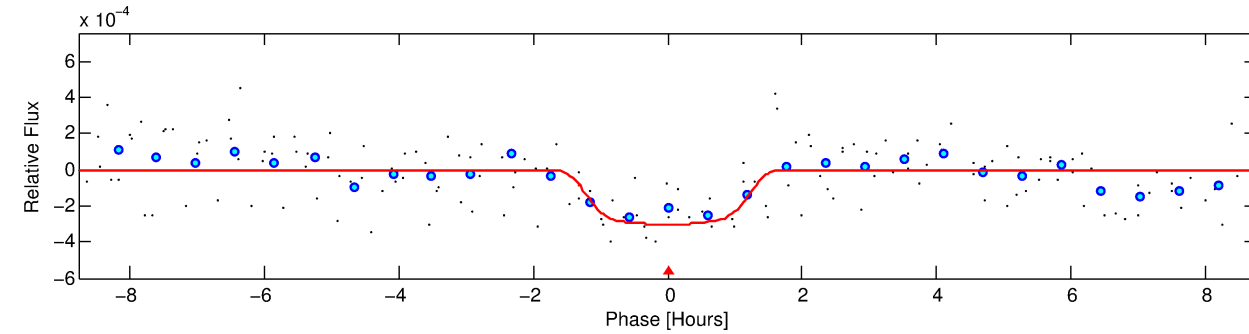
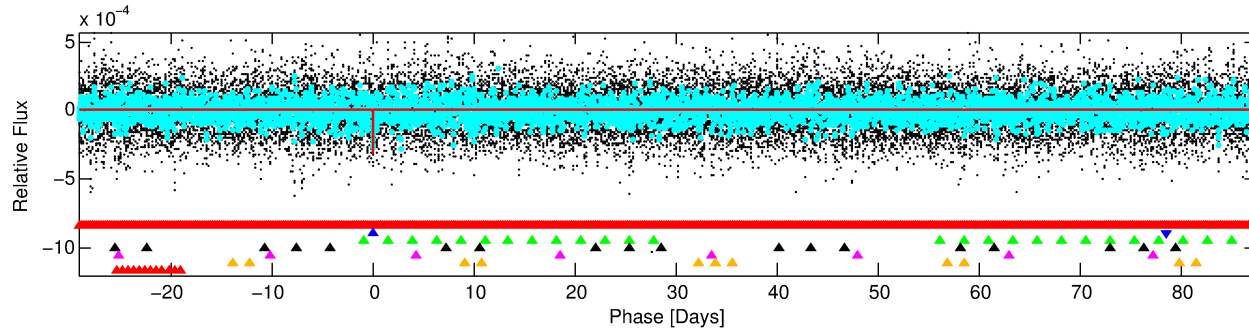
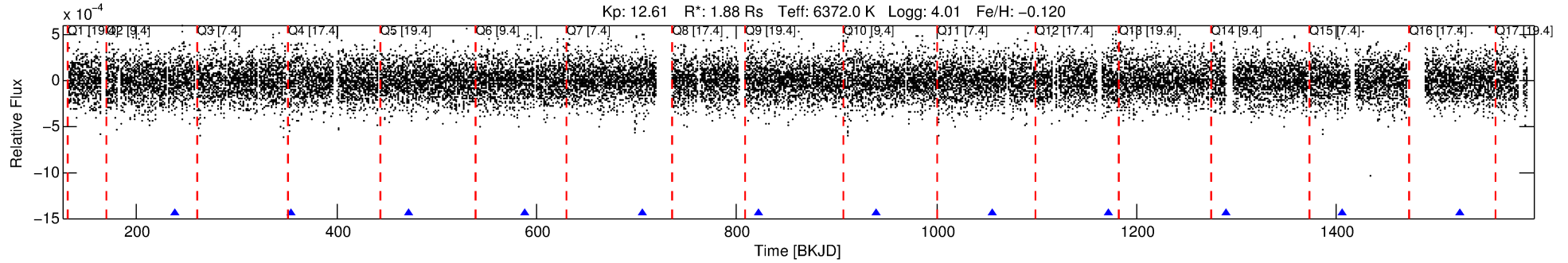
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-02

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 2 of 7 Period: 116.753 d



DV Fit Results:

Period = 116.75270 [0.00087] d
Epoch = 238.4777 [0.0061] BKJD
Rp/R* = 0.0196 [0.0034]
a/R* = 117.97 [96.30]
b = 0.94 [0.10]
Seff = 19.77 [11.73]
Teff = 538 [80] K
Rp = 4.03 [1.70] Re
a = 0.5144 [0.1871] AU
Ag = 1606.47 [1166.58] [1.38σ]
Teffp = 5263 [611] K [7.67σ]

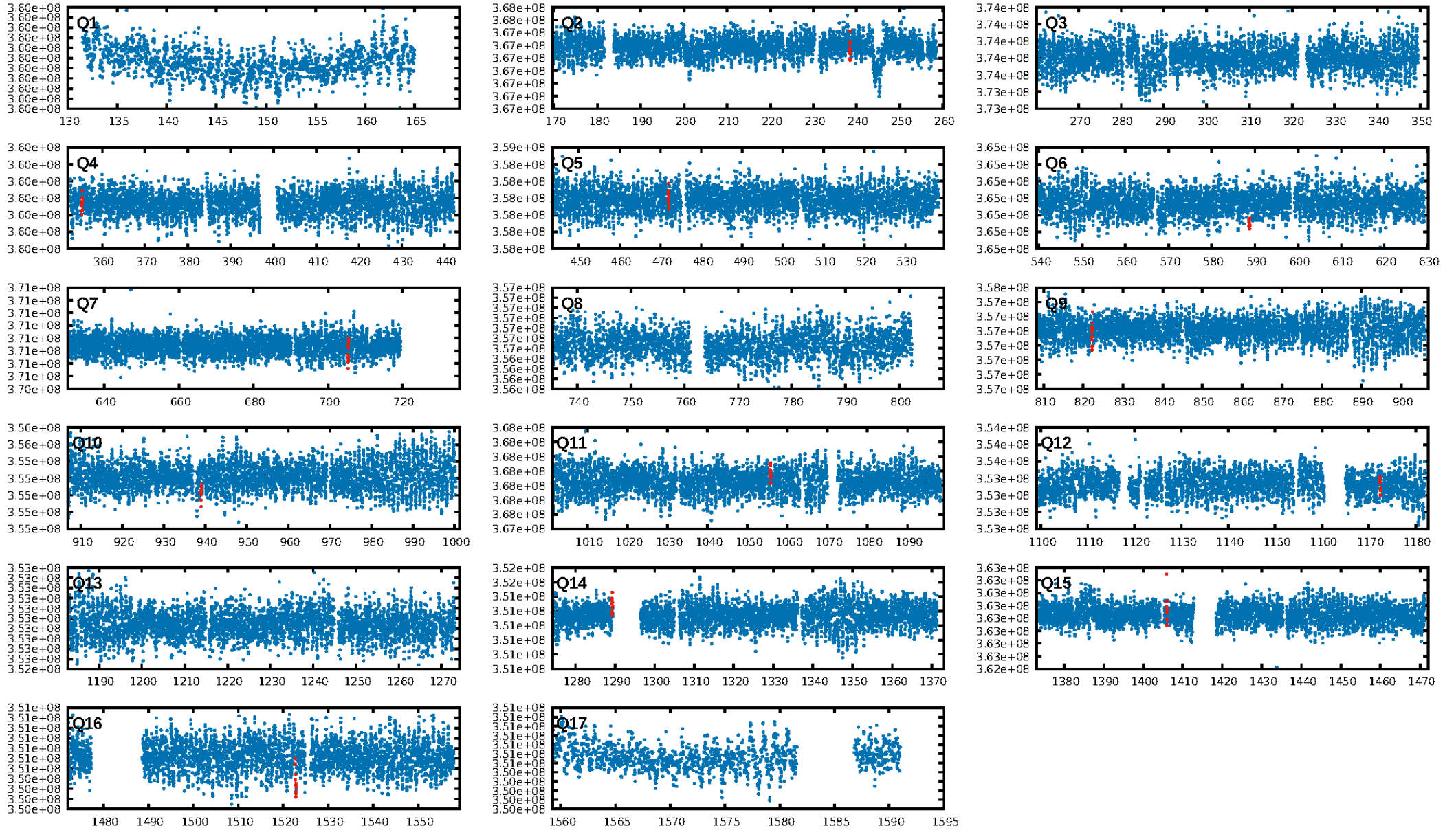
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [239.95σ]
LongPeriod-sig: 100.0% [3.95σ]
ModelChiSquare2-sig: 73.2%
ModelChiSquareGof-sig: 92.8%
Bootstrap-pfa: 3.55e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.5721
Centroid-sig: 10.2%
Centroid-so: 0.498 arcsec [1.30σ]
OotOffset-rm: 0.385 arcsec [0.77σ]
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KicOffset-rm: 0.394 arcsec [0.83σ]
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DiffImageOverlap-fno: 0.22 [2/9]

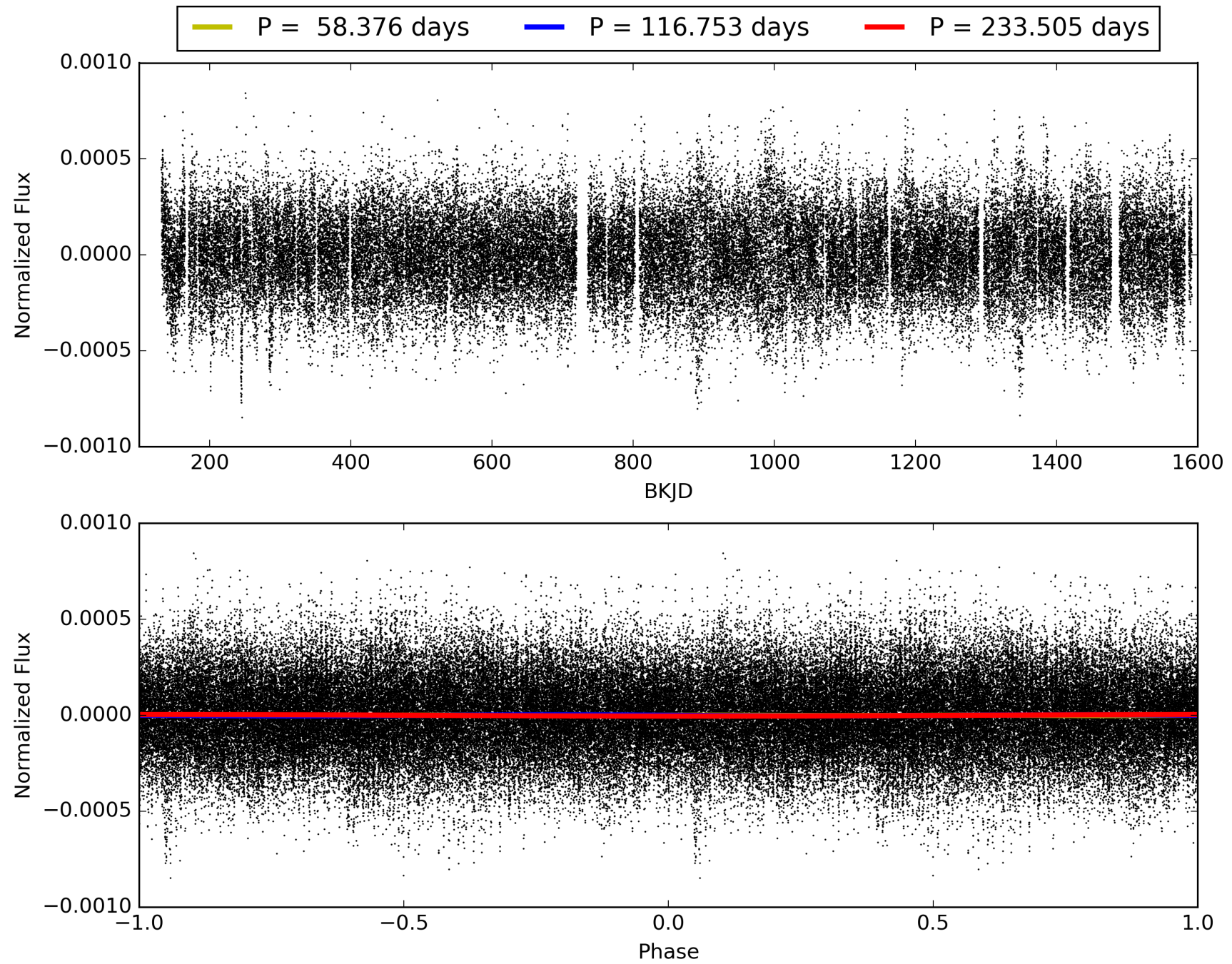
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007839814-02, PDC Light Curves

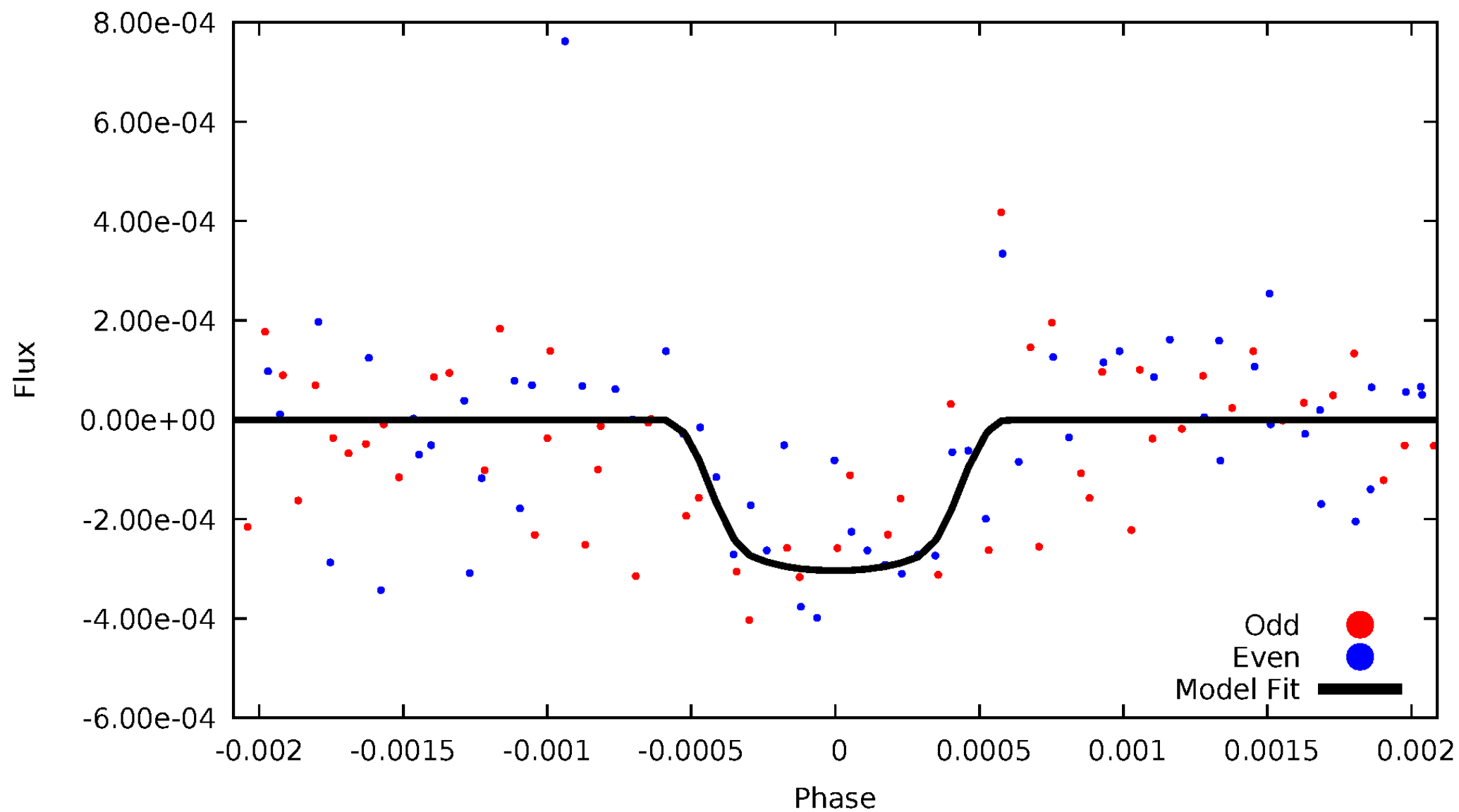


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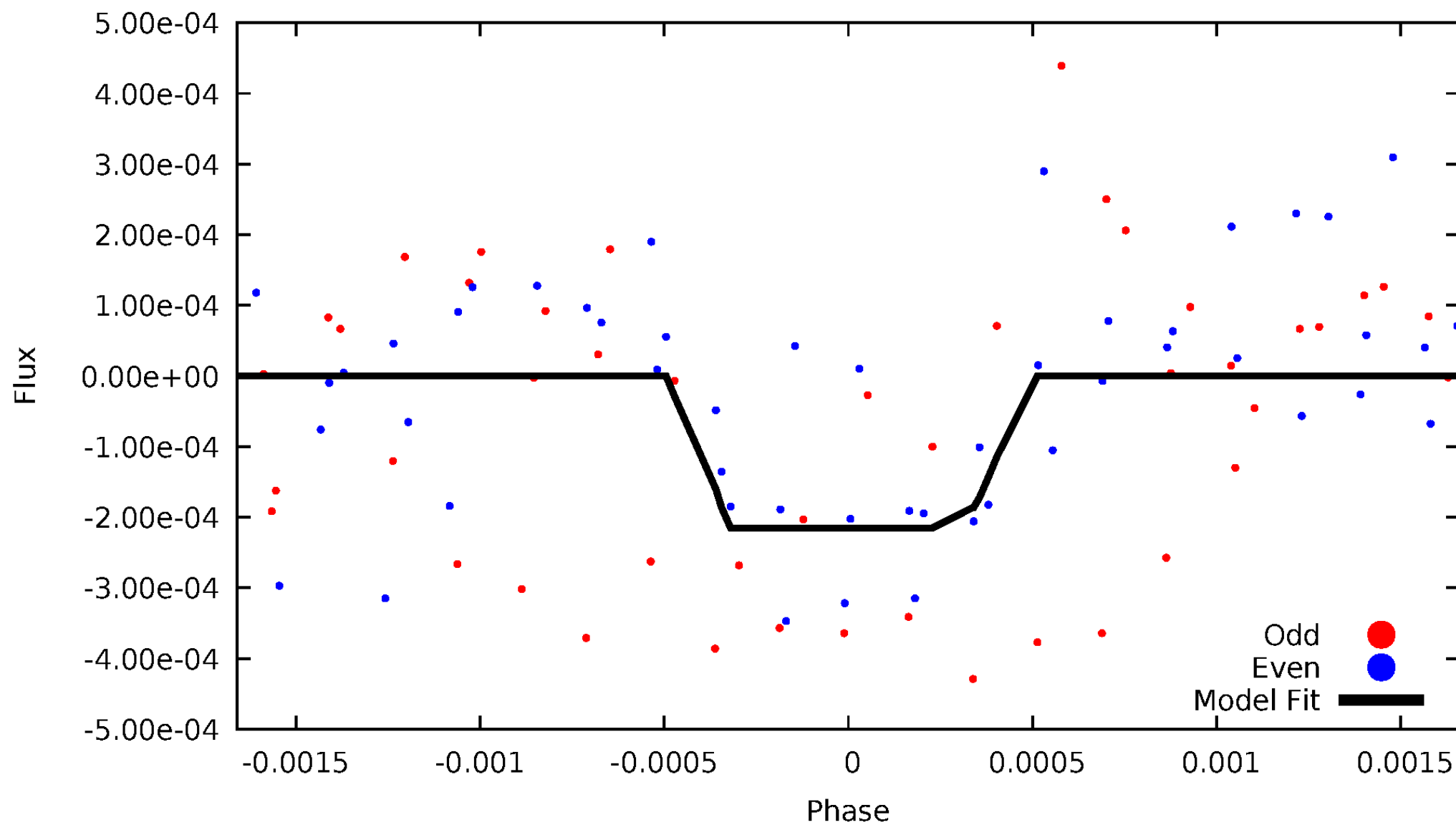
DV Odd/Even

TCE 007839814-02



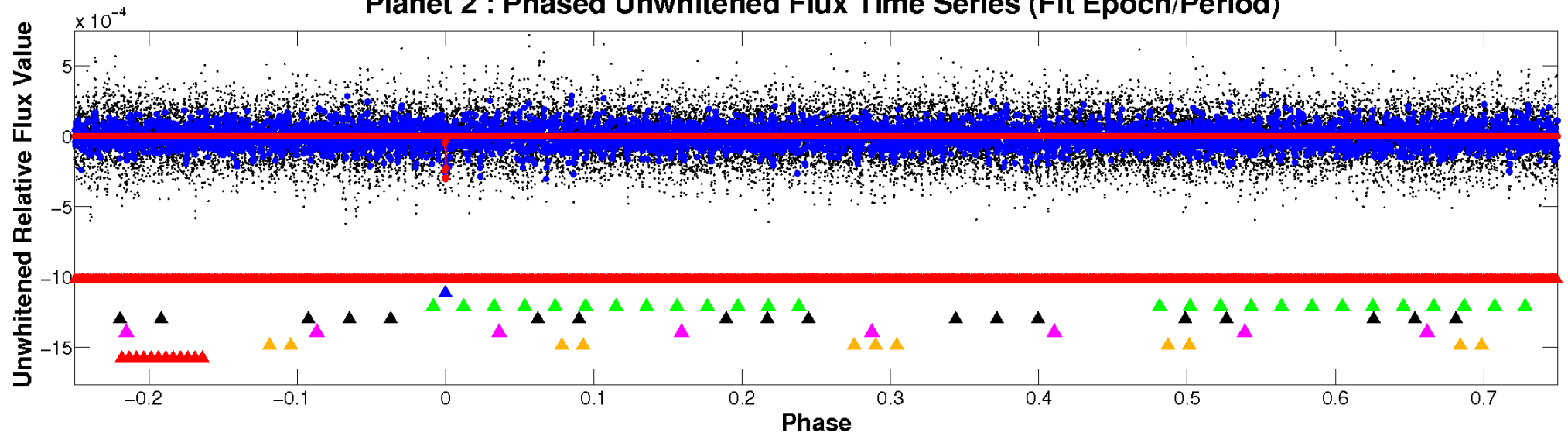
ALT Odd/Even

TCE 007839814-02

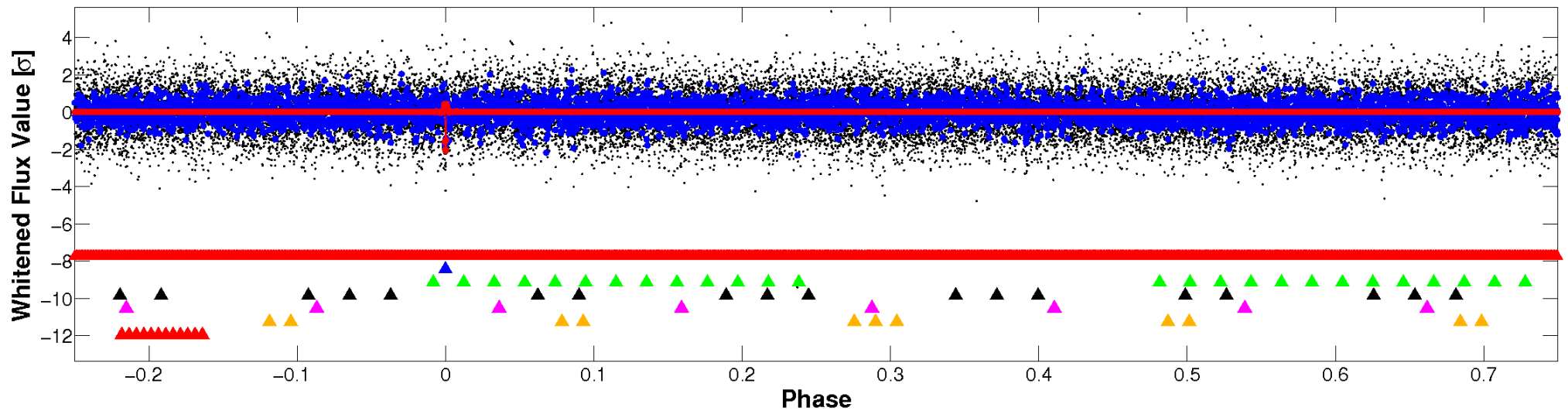


Non-Whitened Vs. Whitened Light Curve

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

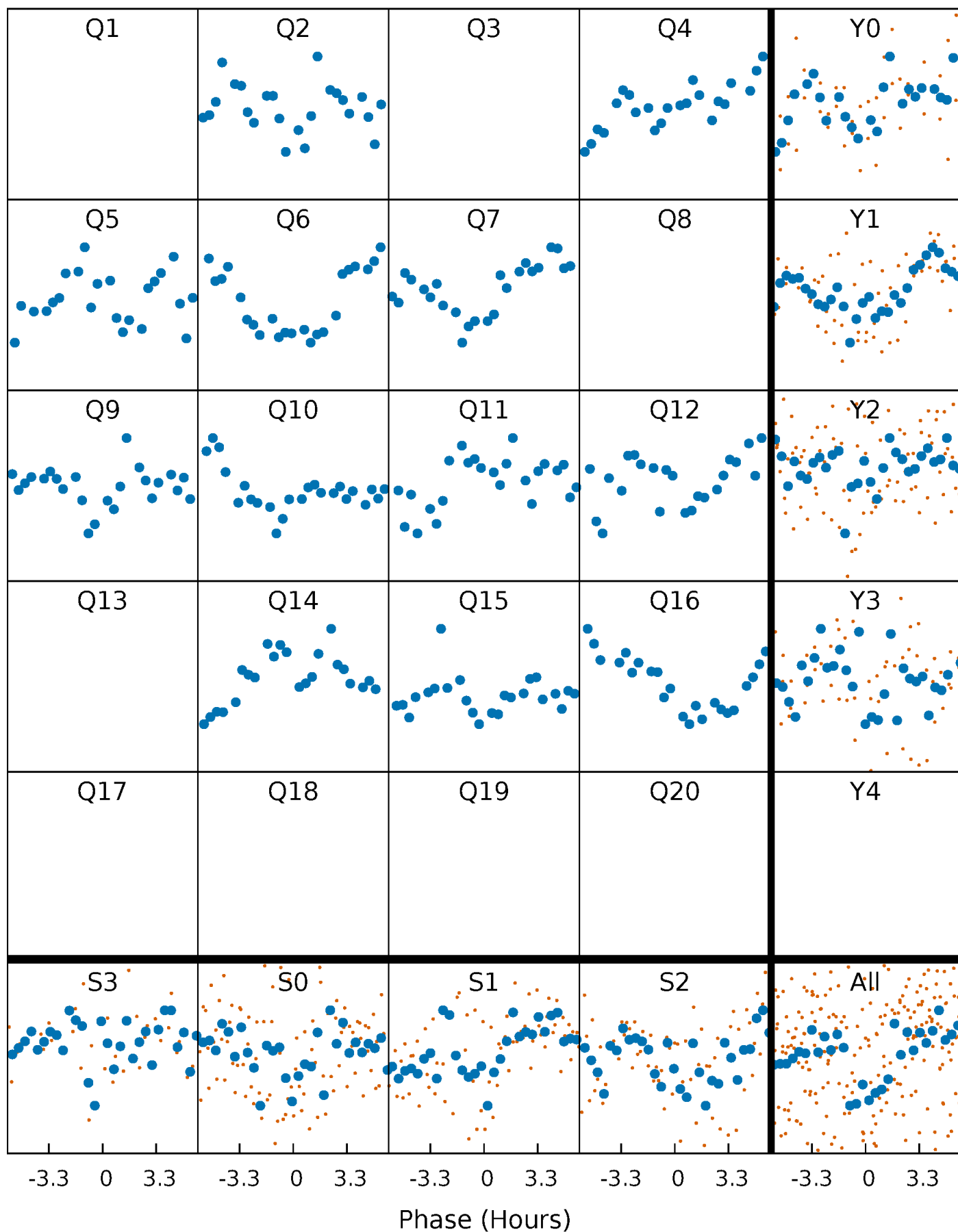


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



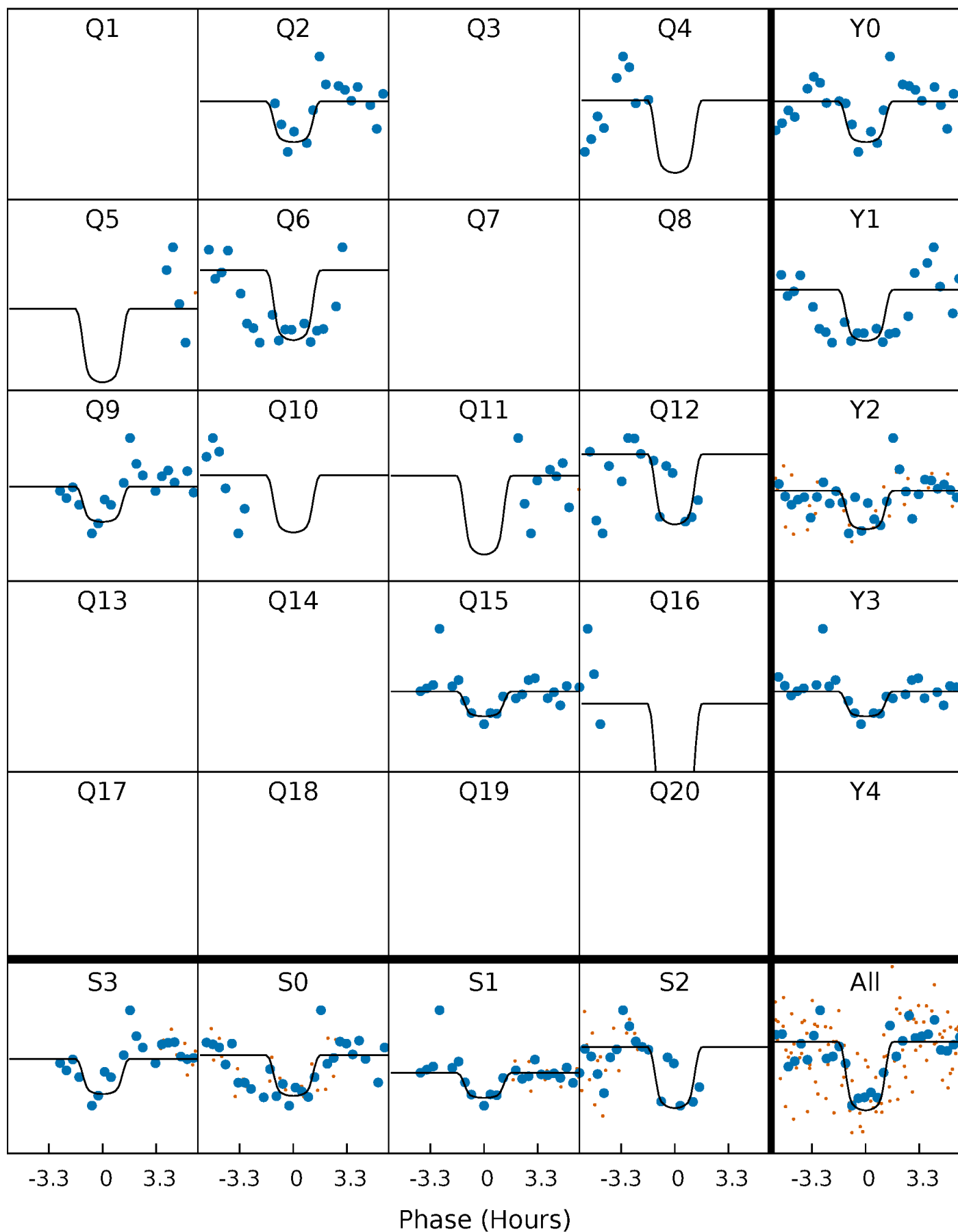
PDC Quarter-Phased Transit Curves

TCE 007839814-02 P=116.752700 Days $T_0=238.477724$ (BKJD)



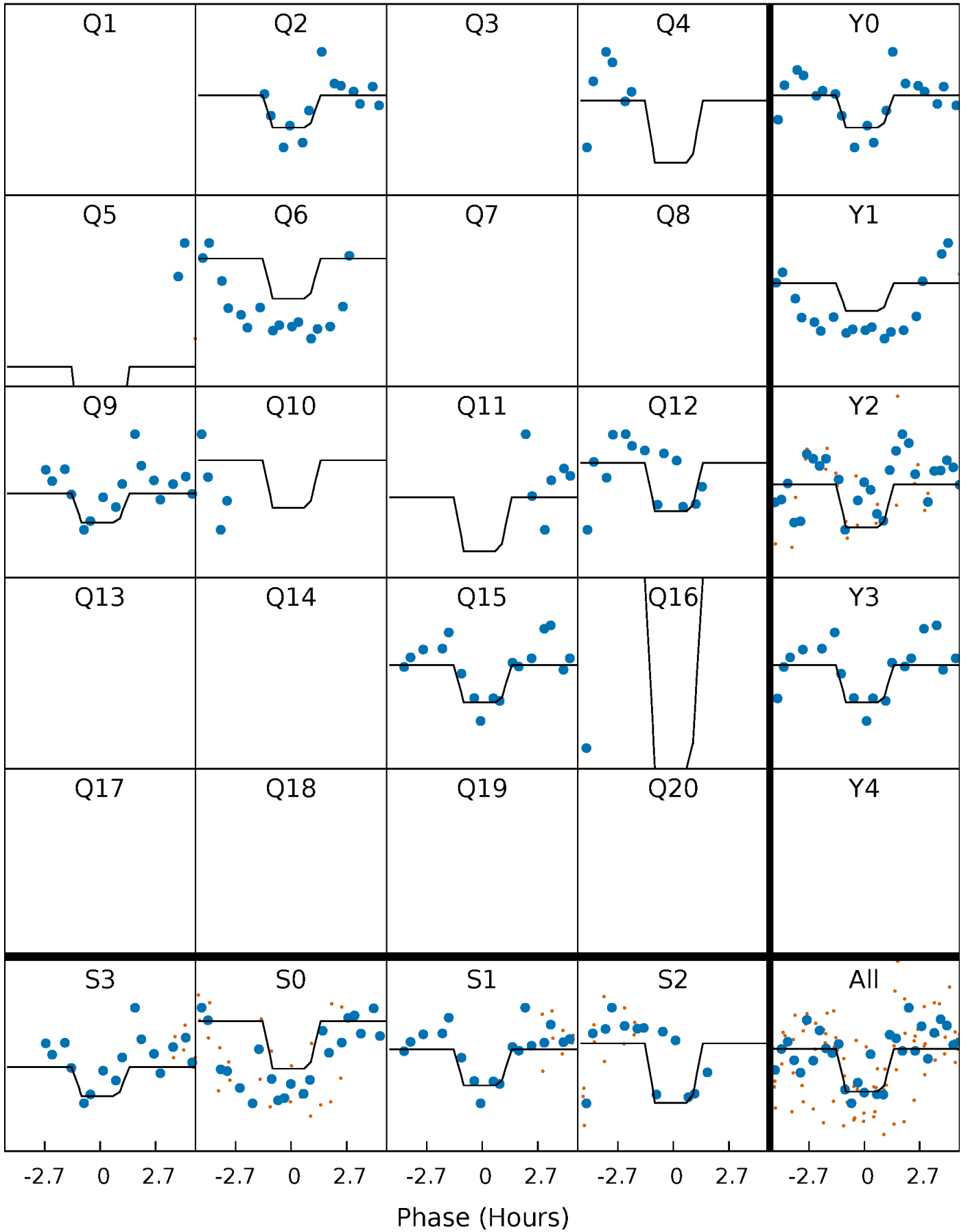
DV Quarter-Phased Transit Curves

TCE 007839814-02 P=116.752700 Days $T_0=238.477724$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

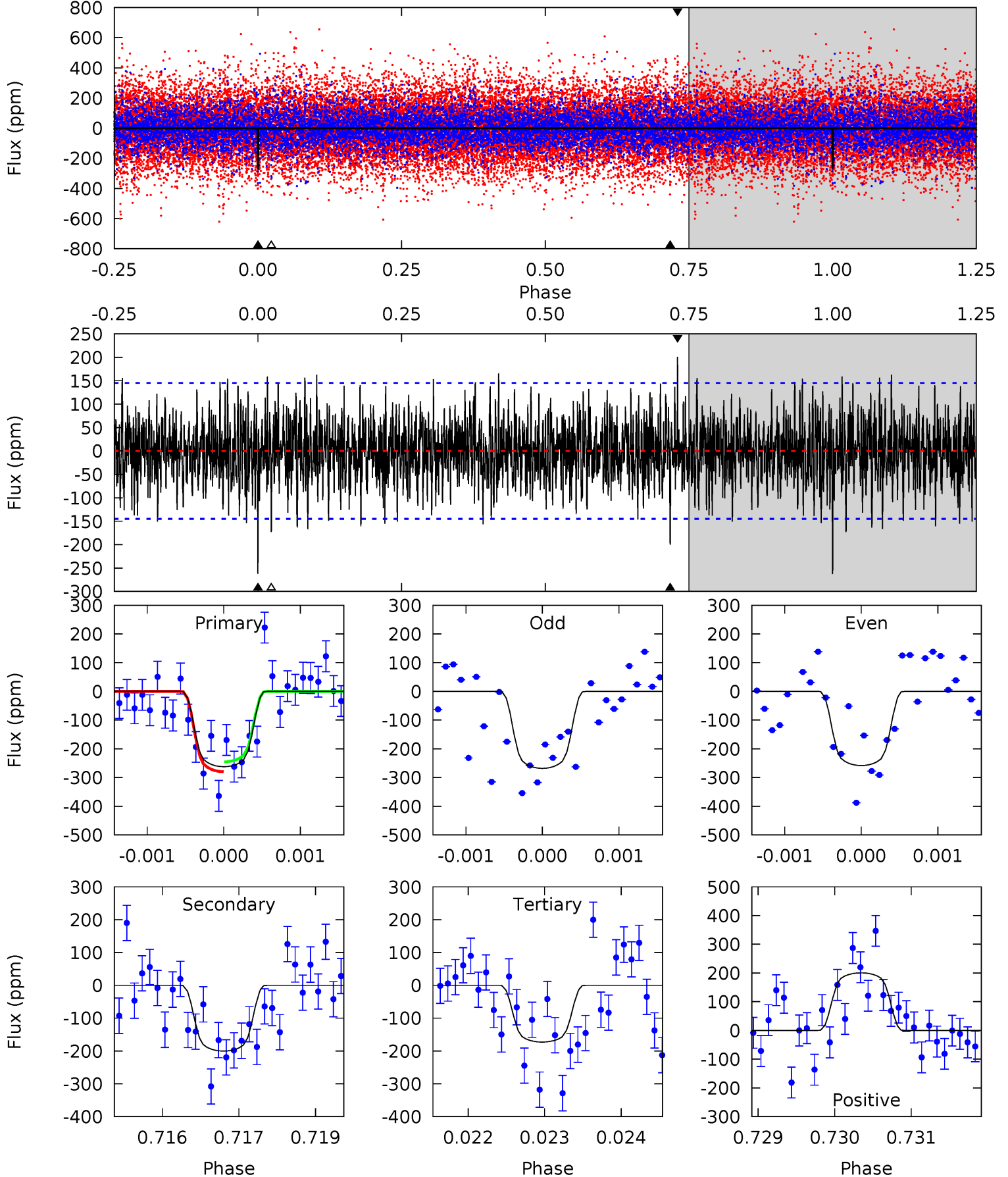
TCE 007839814-02 P=116.751489 Days $T_0=238.483574$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-02, P = 116.752700 Days, E = 121.725024 Days

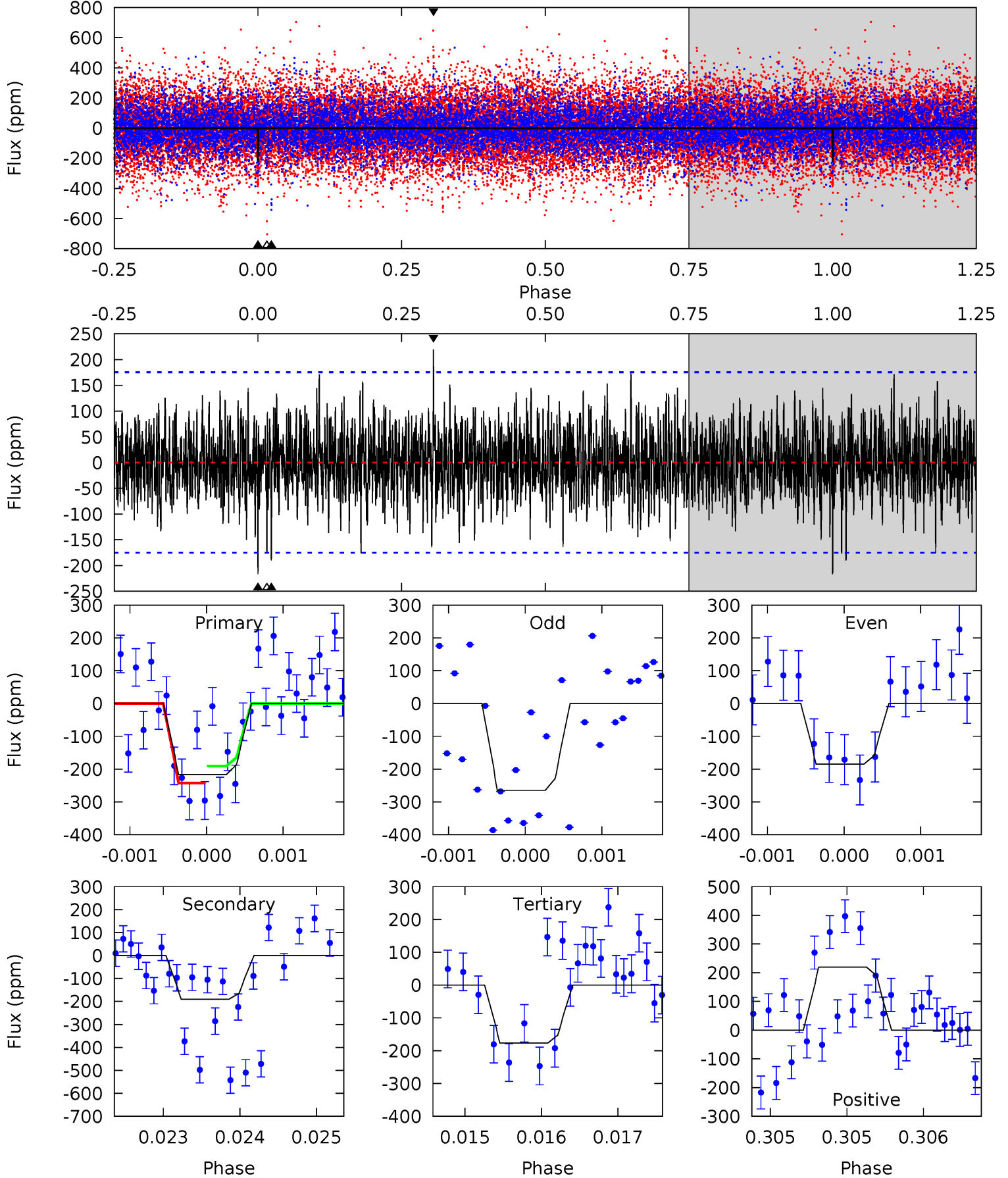
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.82 | 7.50 | 6.47 | 7.51 | 5.43 | 3.26 | 2.01 | 3.35 | 2.31 | 1.03 | -0.01 | 0.18 | 0.99 | 0.43 | 0.64 |



Alt Model-Shift Uniqueness Test

007839814-02, P = 116.751489 Days, E = 121.732085 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.76 | 5.93 | 5.52 | 6.85 | 5.47 | 3.33 | 1.65 | 1.24 | -0.09 | 0.41 | -0.92 | 1.22 | 1.02 | 0.50 | 0.80 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|-----------------------|------------------------|
| DV | -200 ± 27 | $3.78^{+1.01}_{-0.97}$ | 735^{+61}_{-74} | 5436^{+564}_{-412} | 1979^{+1609}_{-718} |
| Alt. | -190 ± 32 | $2.77^{+0.88}_{-0.76}$ | 737^{+61}_{-73} | 6204^{+1025}_{-663} | 3592^{+3406}_{-1574} |

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

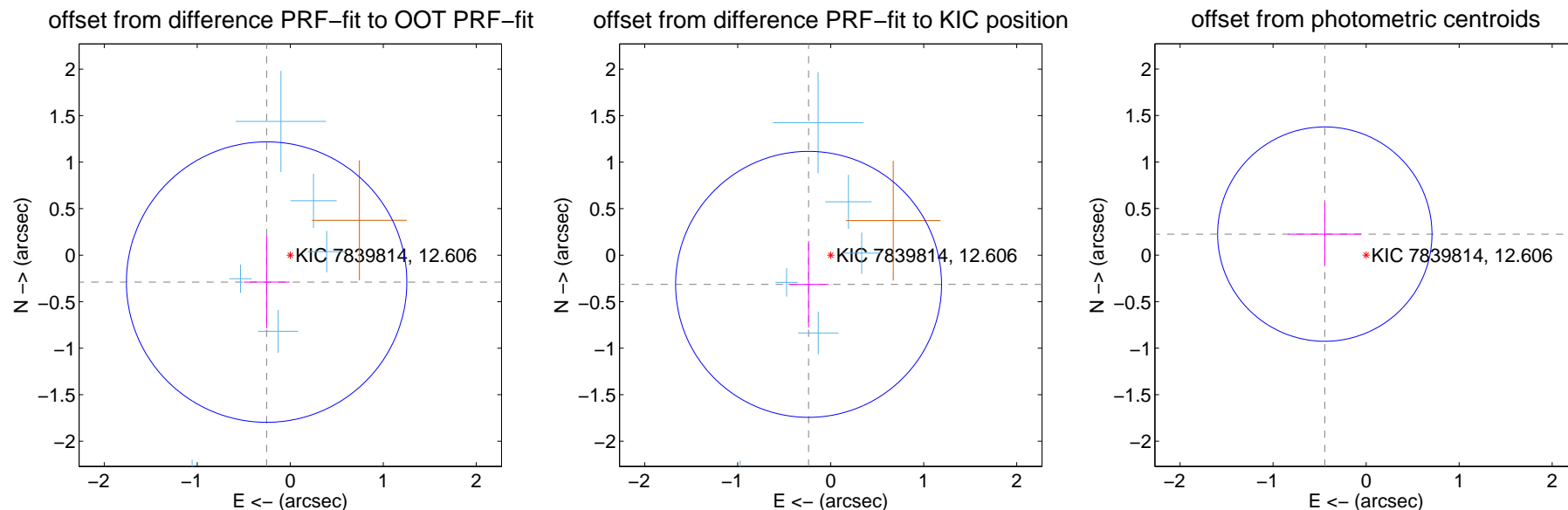
DV Centroid Data

Supplemental centroid analysis for 007839814-02. Kepler magnitude: 12.61. Transit SNR 9.72

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.385 ± 0.503 | 0.77 | 0.254 ± 0.247 | -0.290 ± 0.498 |
| PRF-fit source offset from KIC position | 0.394 ± 0.477 | 0.83 | 0.238 ± 0.216 | -0.314 ± 0.465 |
| photometric centroid source offset | 0.50 ± 0.38 | 1.30 | 0.44 ± 0.39 | 0.23 ± 0.34 |



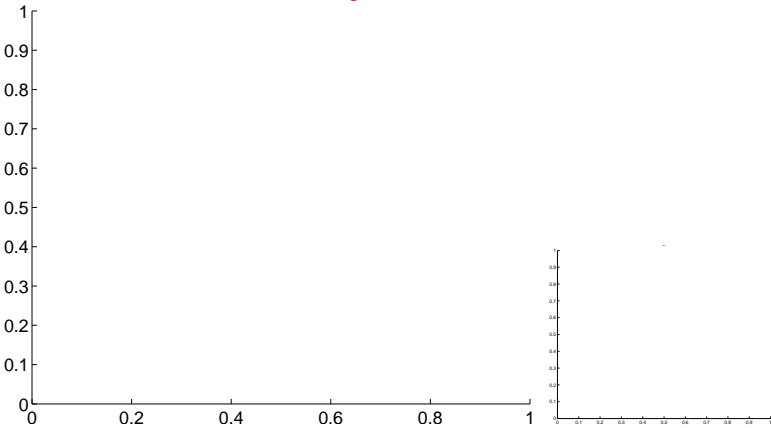
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

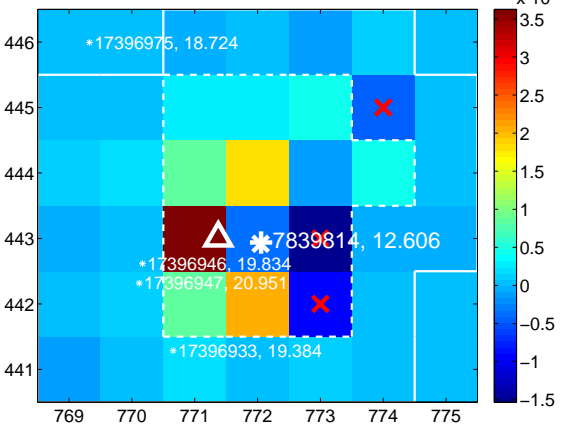
Q1 no difference image



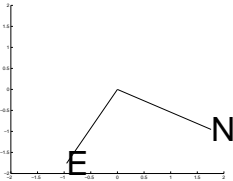
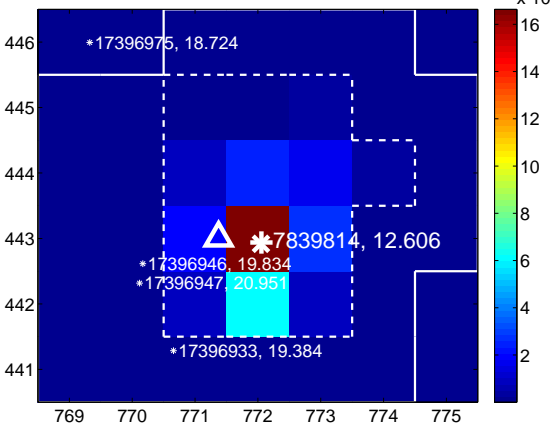
Q1 no OOT image



Q2 difference image



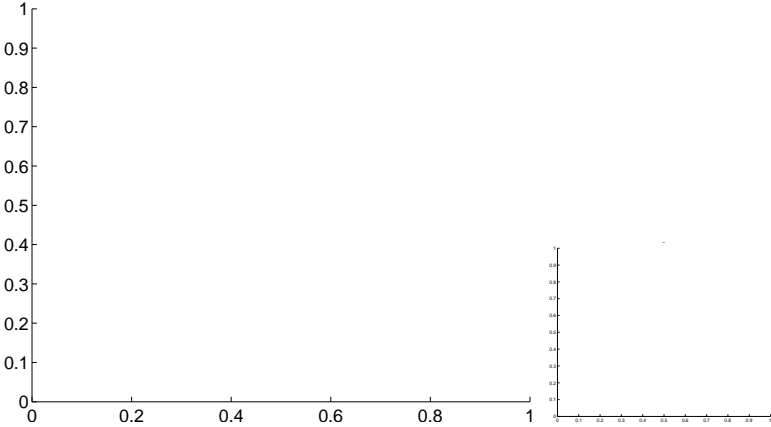
Q2 OOT image



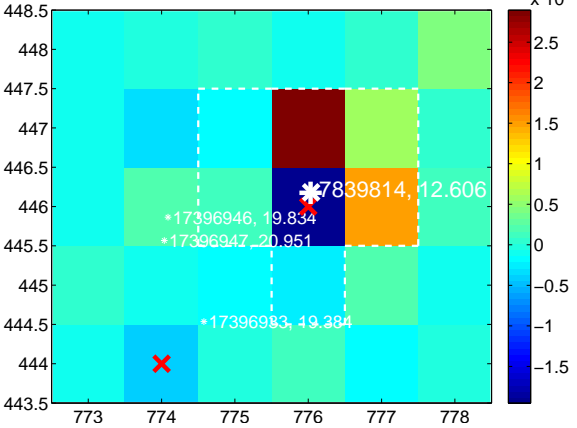
Q3 no difference image



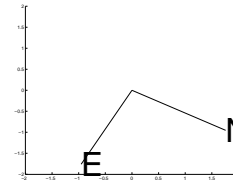
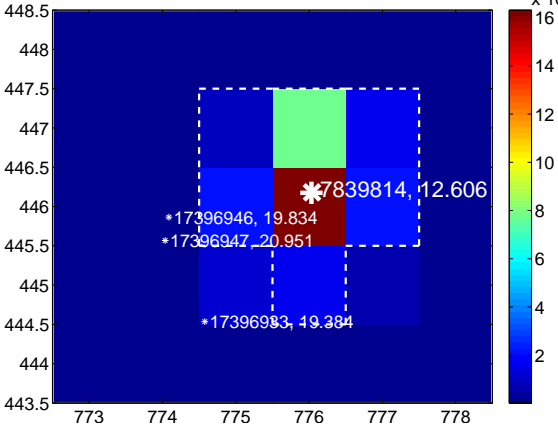
Q3 no OOT image



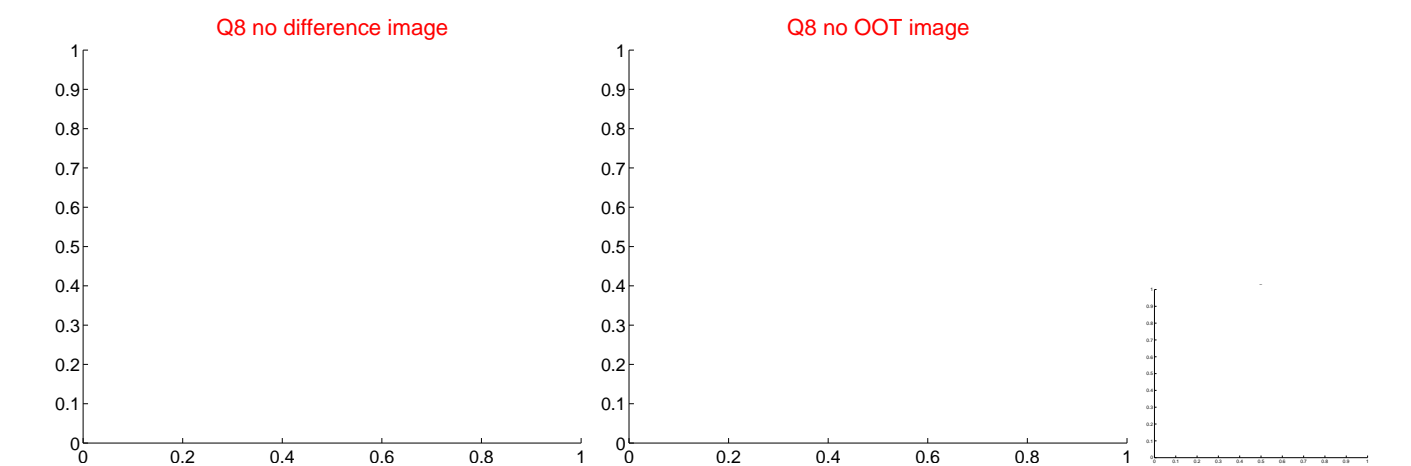
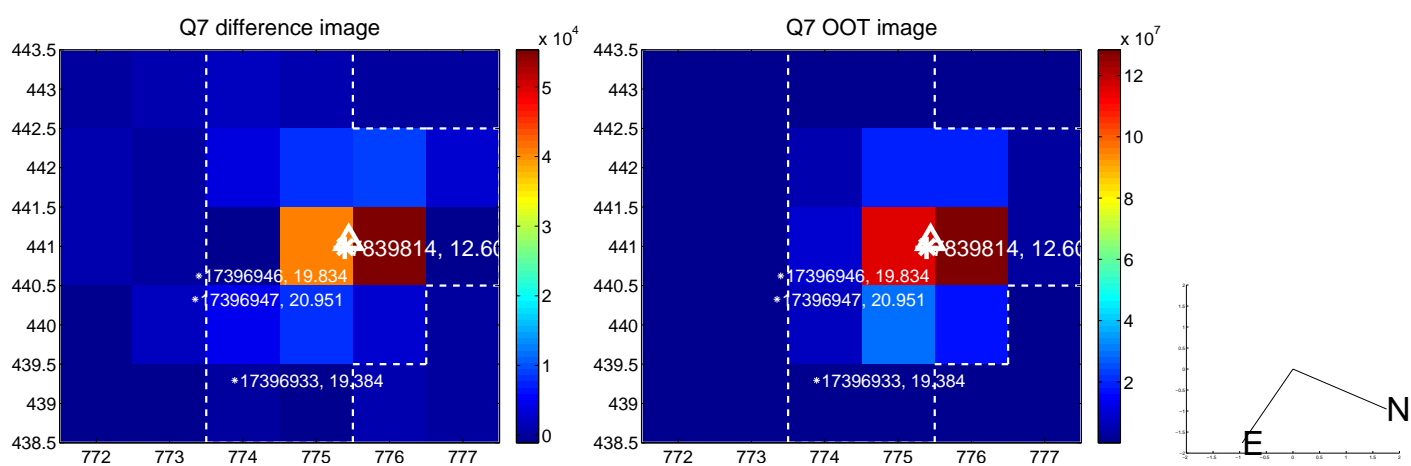
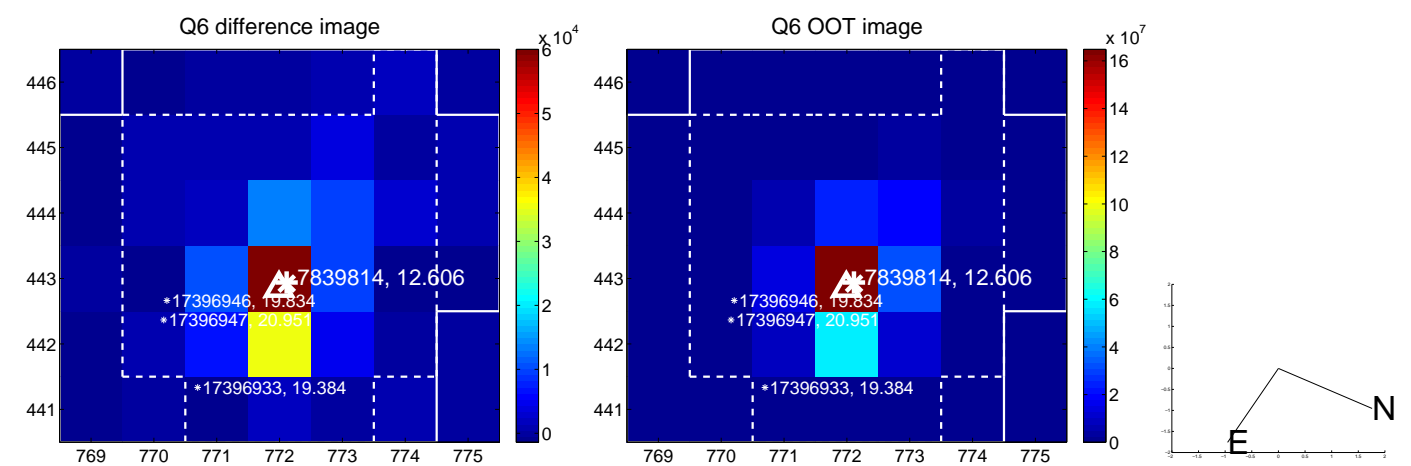
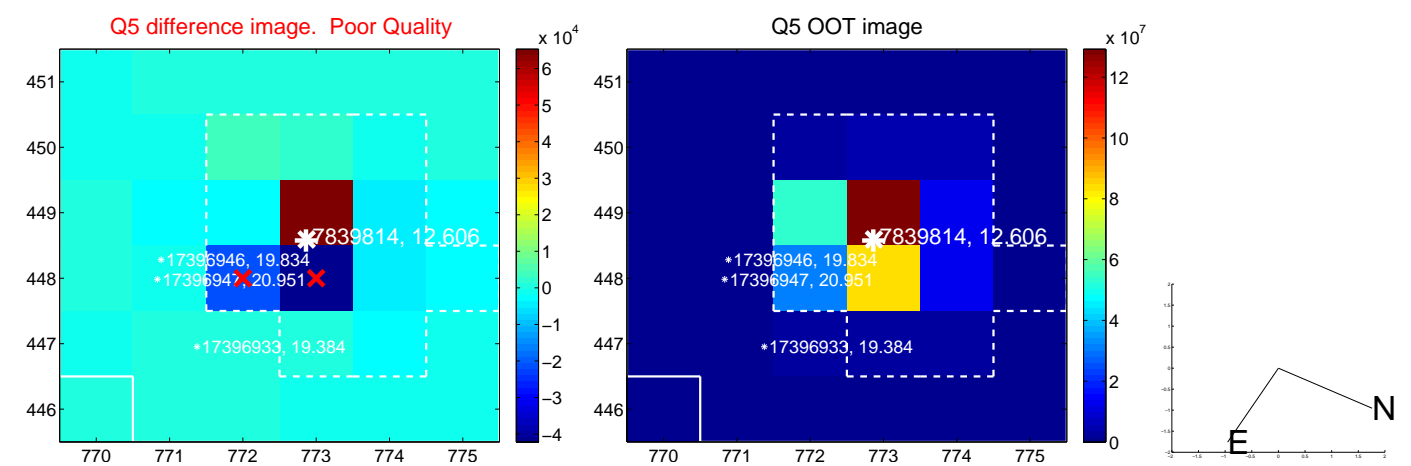
Q4 difference image. Poor Quality



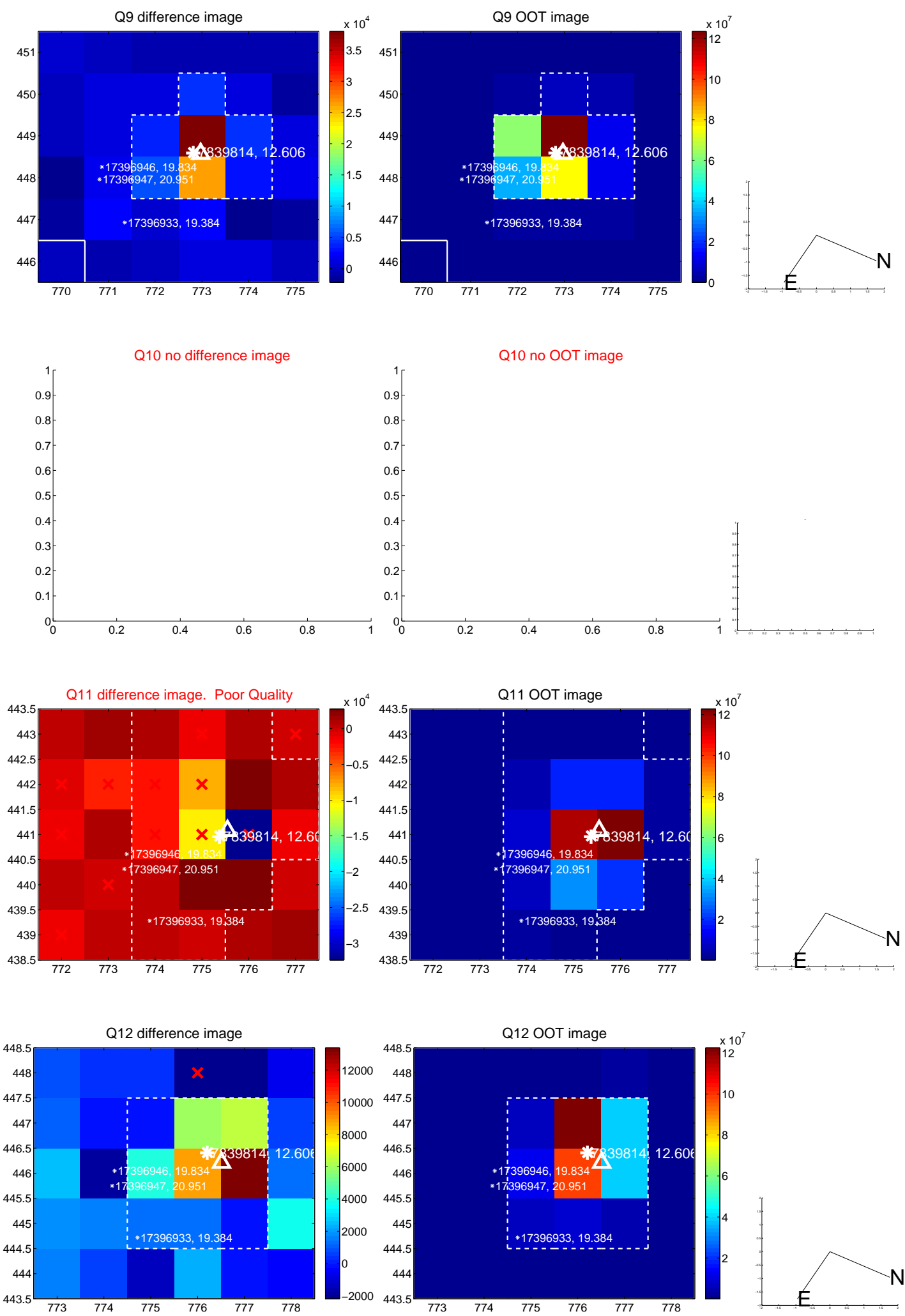
Q4 OOT image



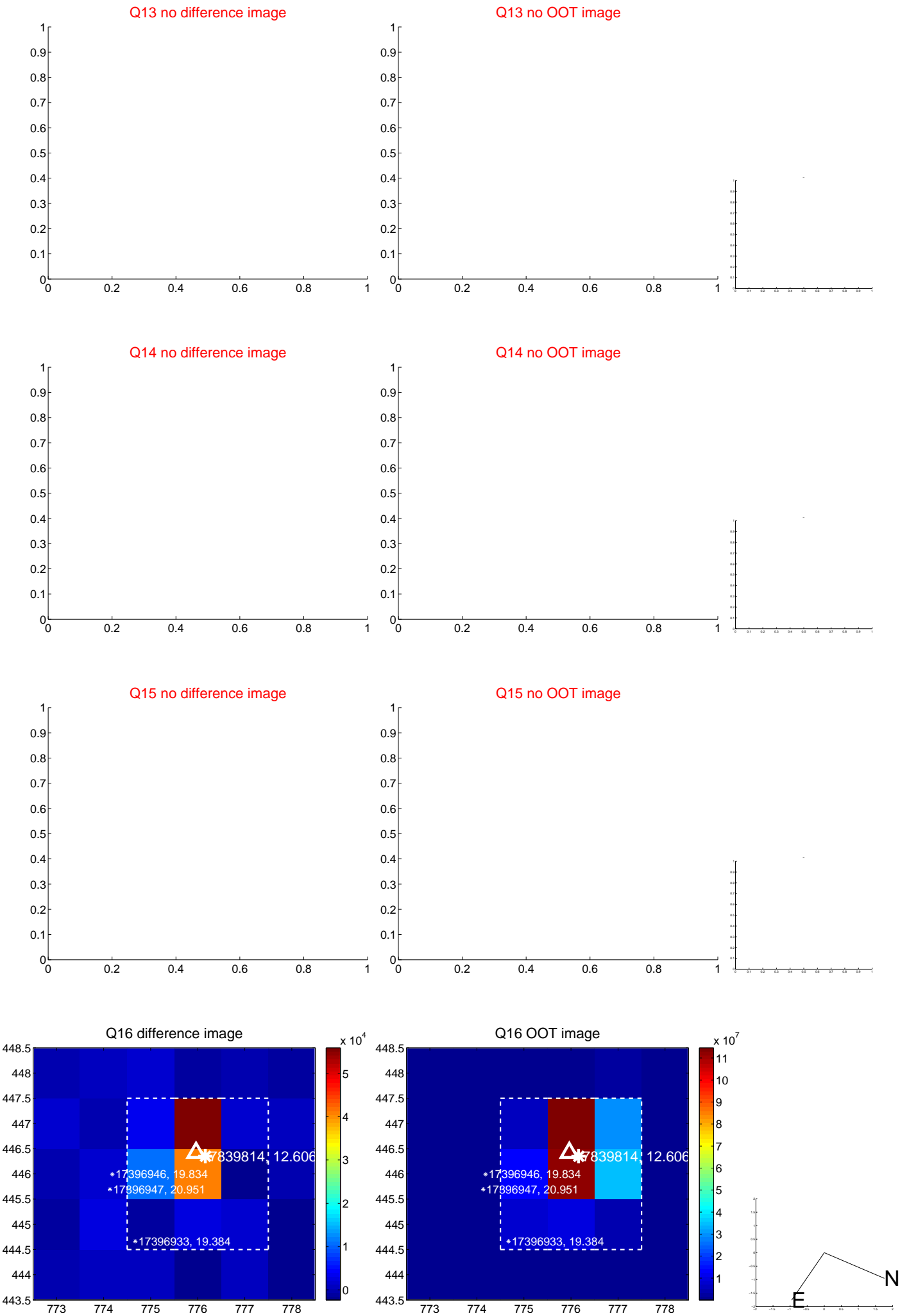
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



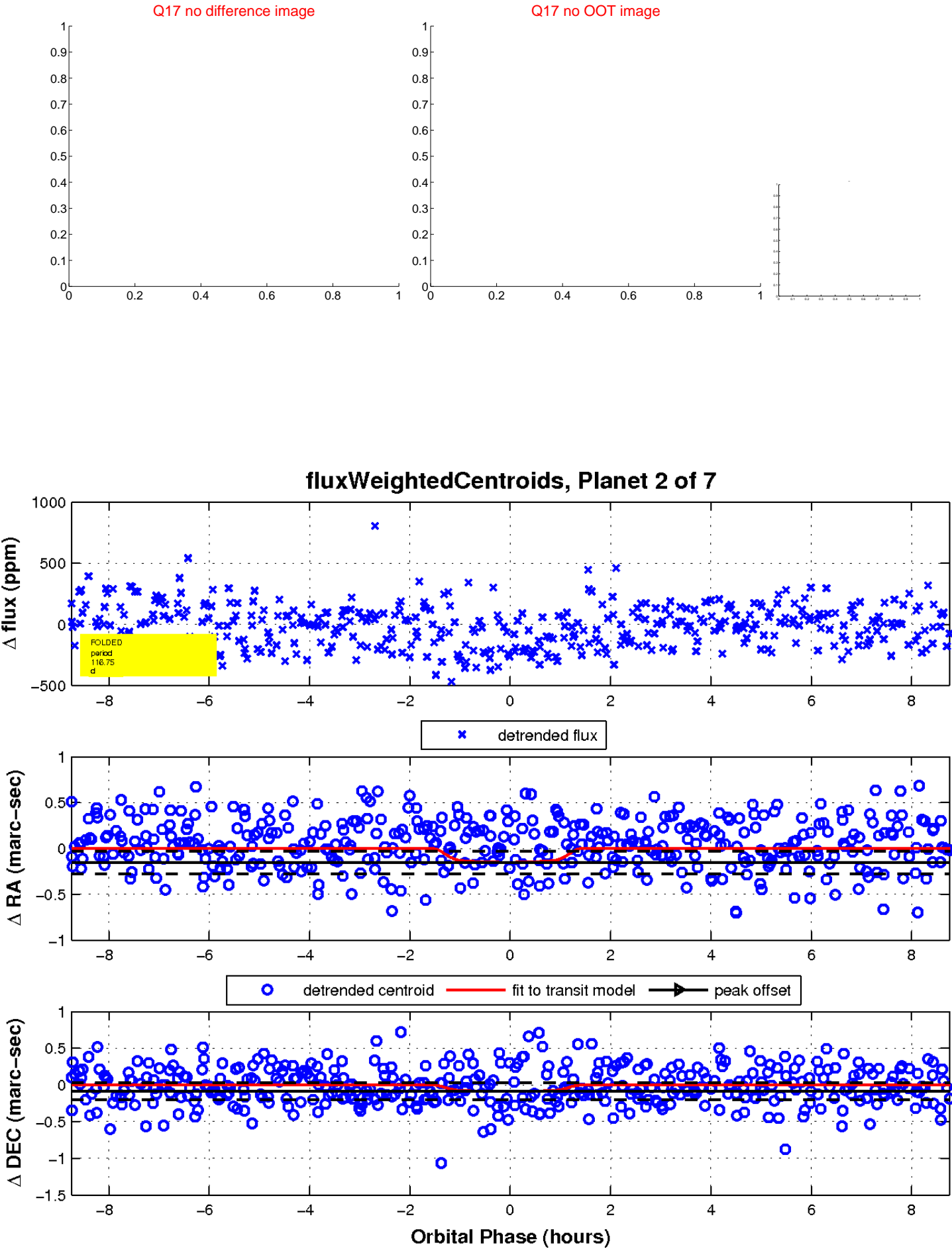
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

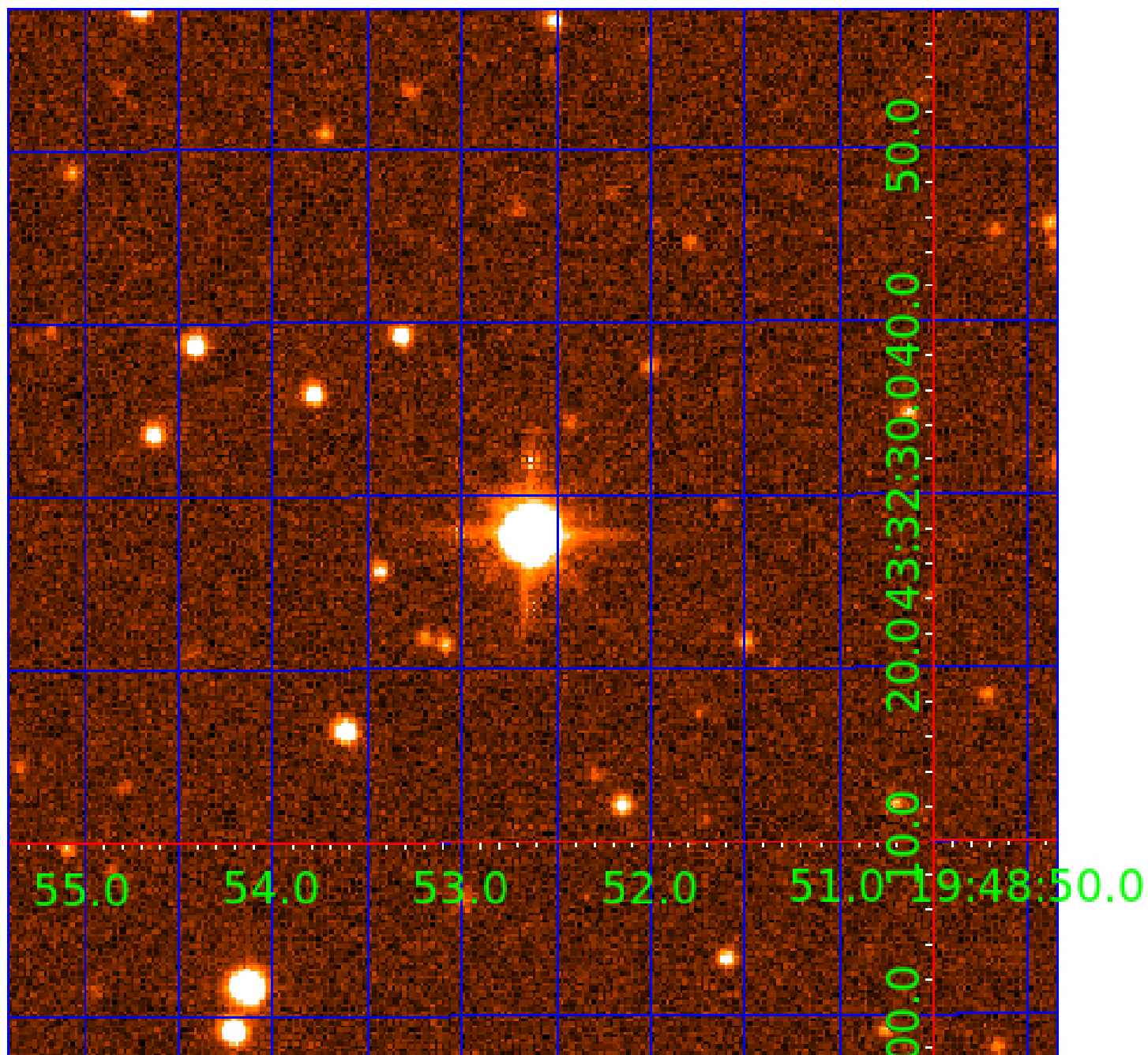


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

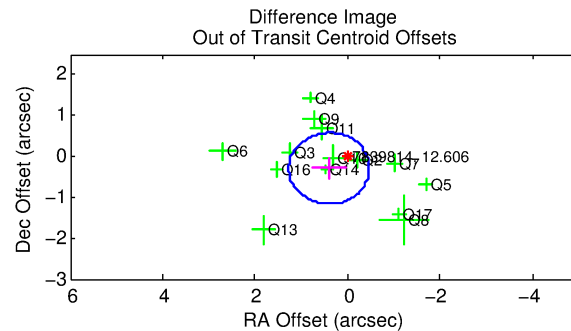
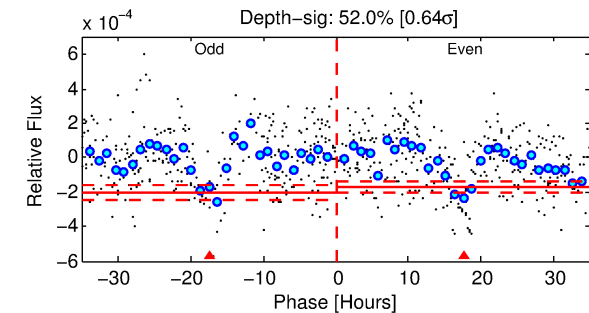
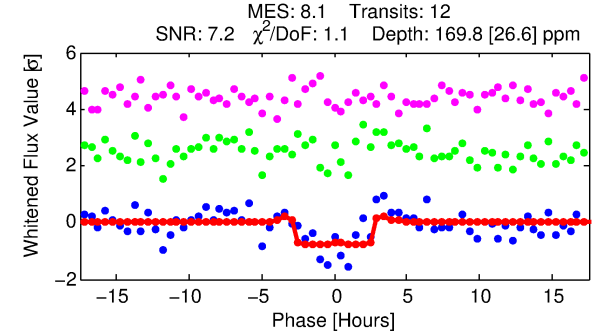
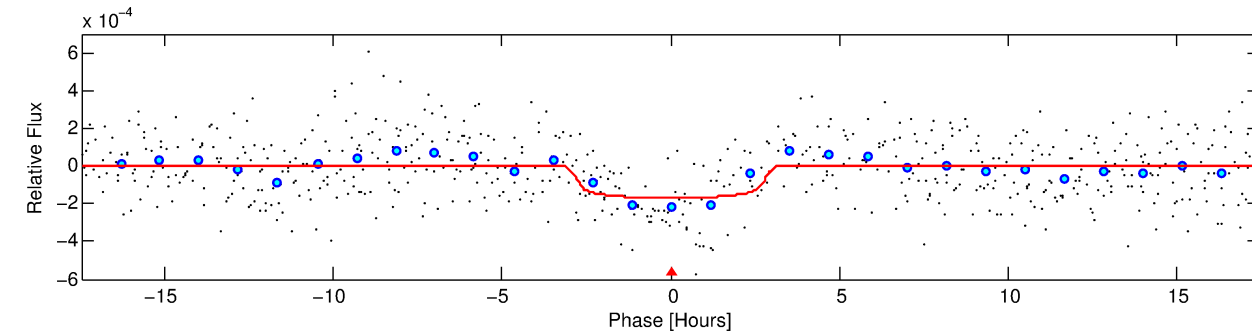
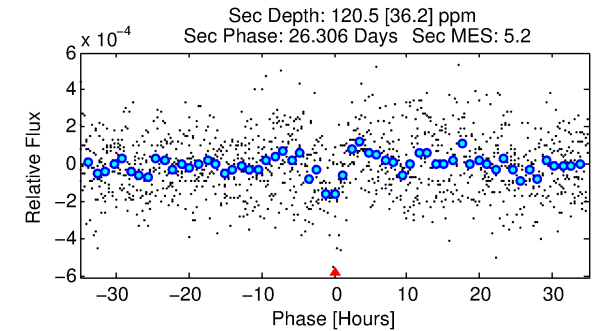
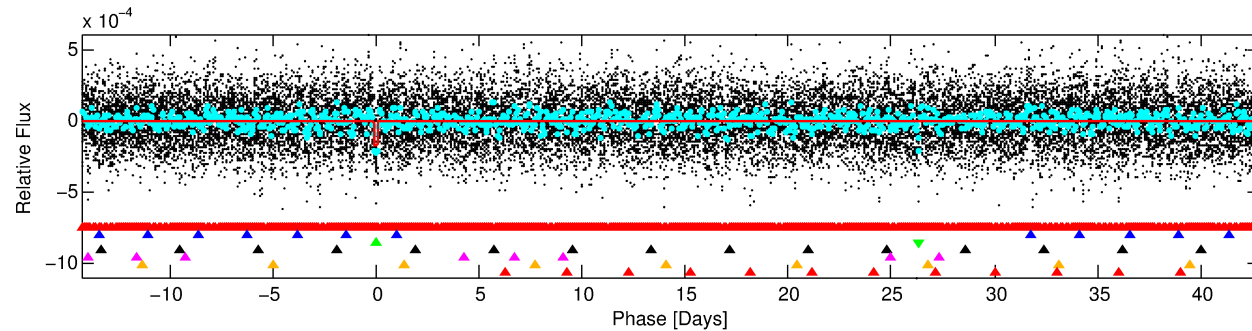
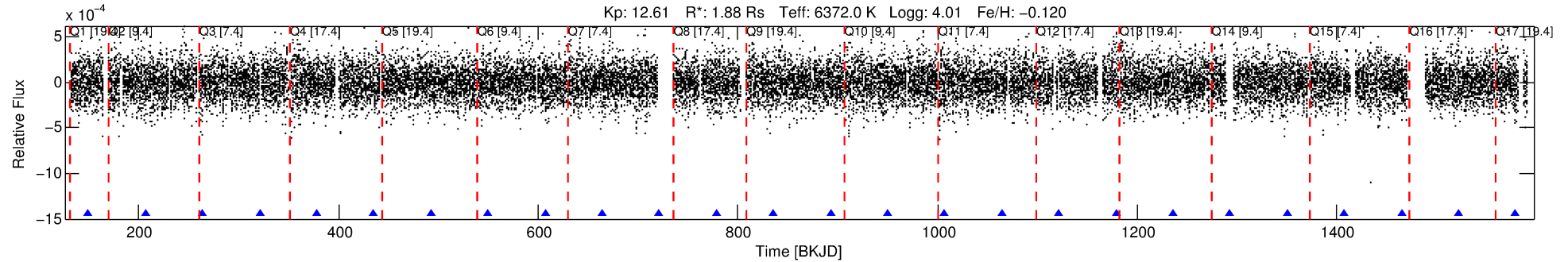
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-03

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 3 of 7 Period: 57.177 d



DV Fit Results:

Period = 57.17743 [0.00081] d
Epoch = 149.5384 [0.0111] BKJD
Rp/R* = 0.0128 [0.0087]
a/R* = 54.86 [198.36]
b = 0.70 [2.64]
Seff = 51.22 [30.39]
Teff = 682 [101] K
Rp = 2.62 [2.05] Re
a = 0.3196 [0.1162] AU
Ag = 983.44 [1483.26] [0.66σ]
Teffp = 5906 [2069] K [2.52σ]

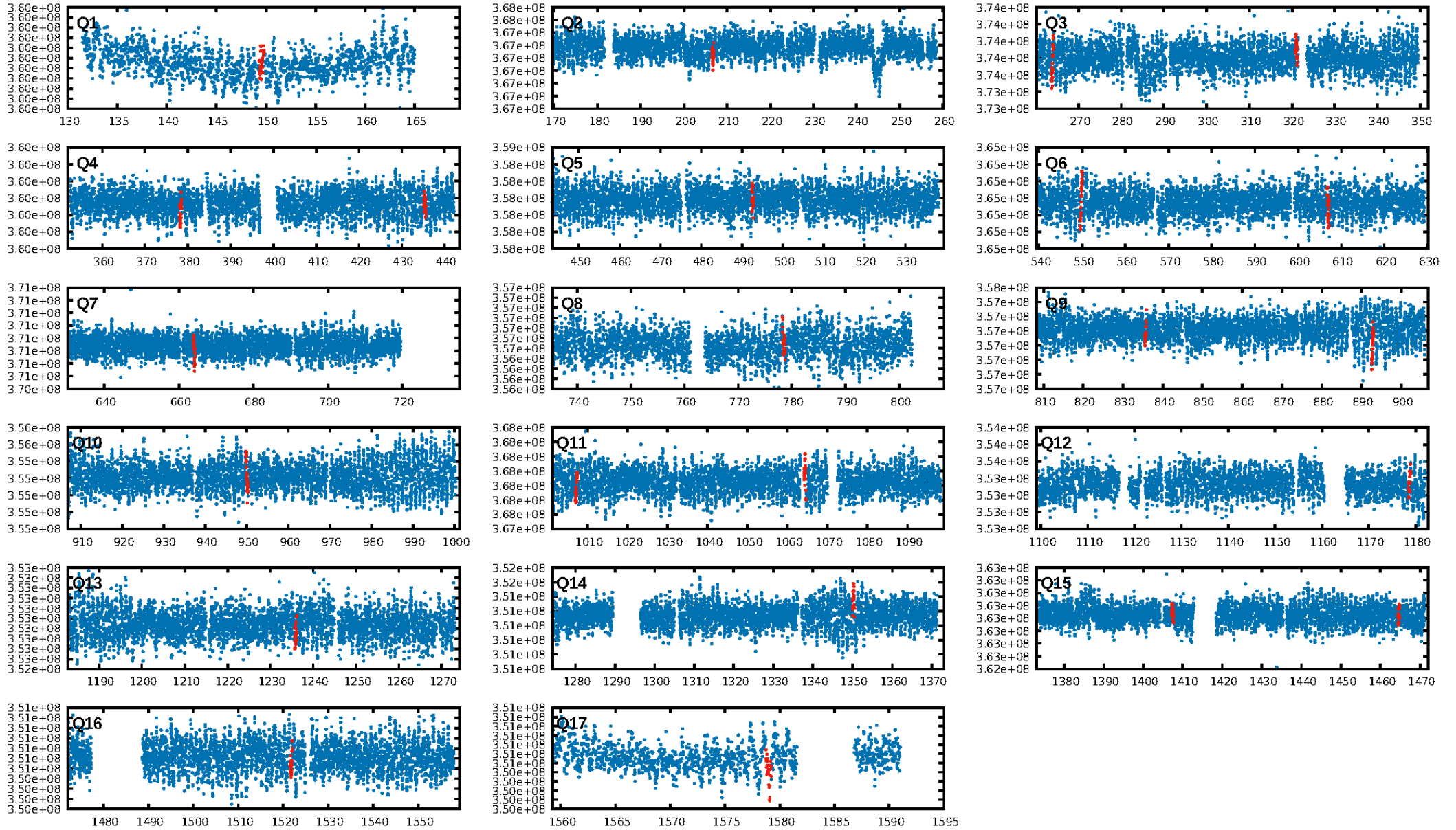
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [174.90σ]
LongPeriod-sig: 100.0% [106.53σ]
ModelChiSquare2-sig: 30.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.42e-10
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.3803
Centroid-sig: 12.0%
Centroid-so: 0.566 arcsec [1.63σ]
OotOffset-rm: 0.498 arcsec [1.71σ]
KicOffset-rm: 0.471 arcsec [1.80σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 0.00 [0/16]

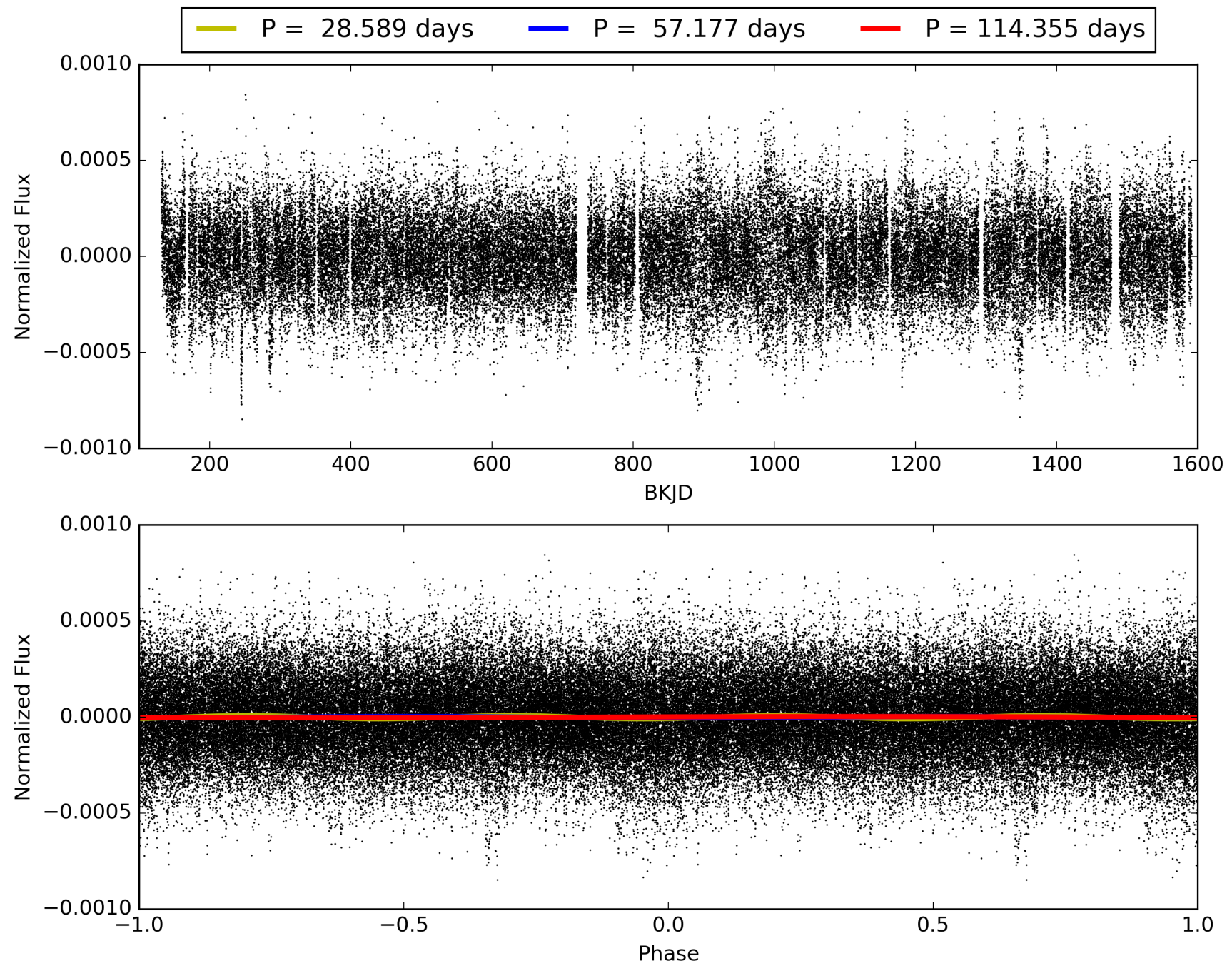
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:39:31 Z

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

TCE 007839814-03, PDC Light Curves

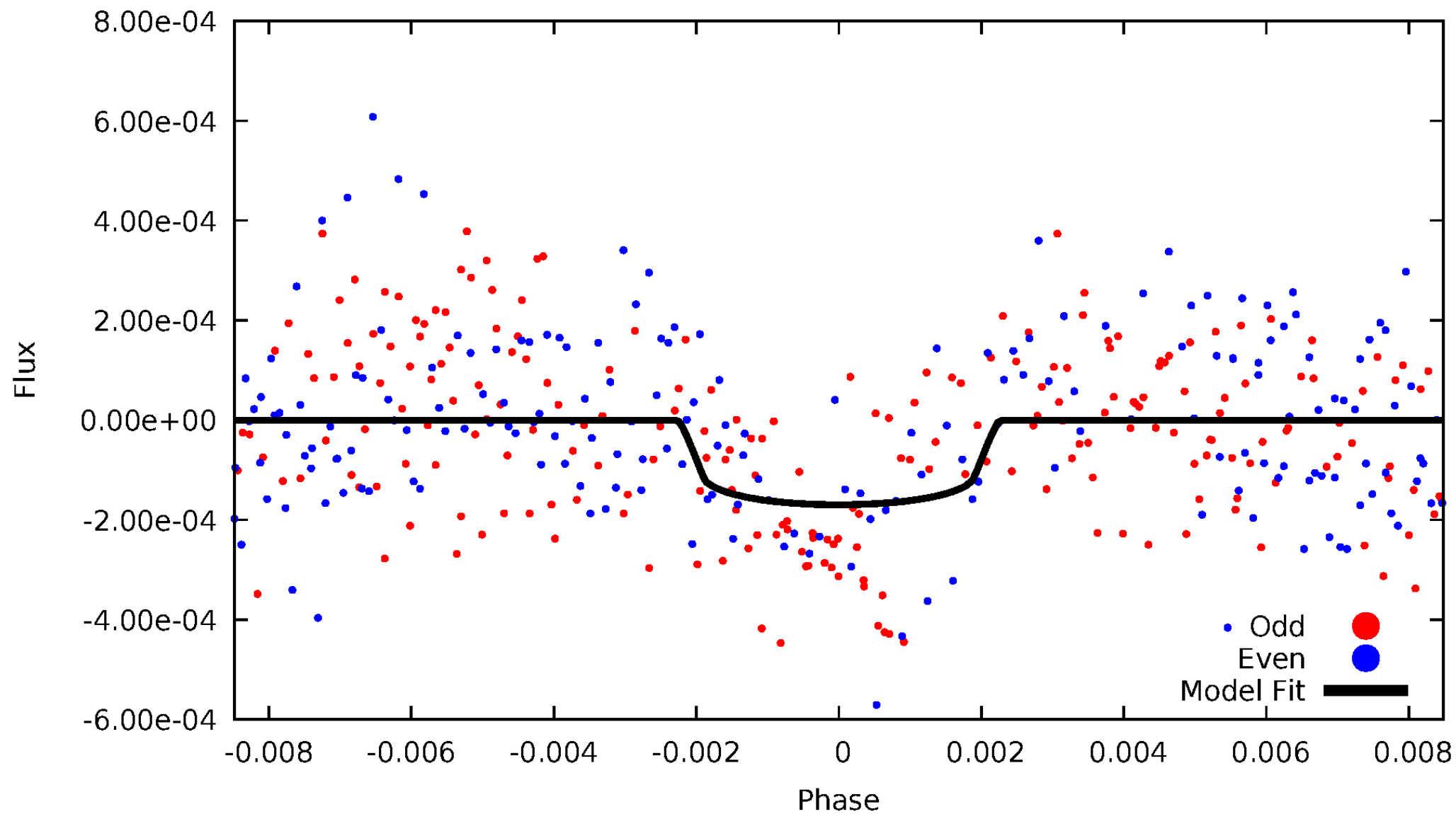


TCE 007839814-03



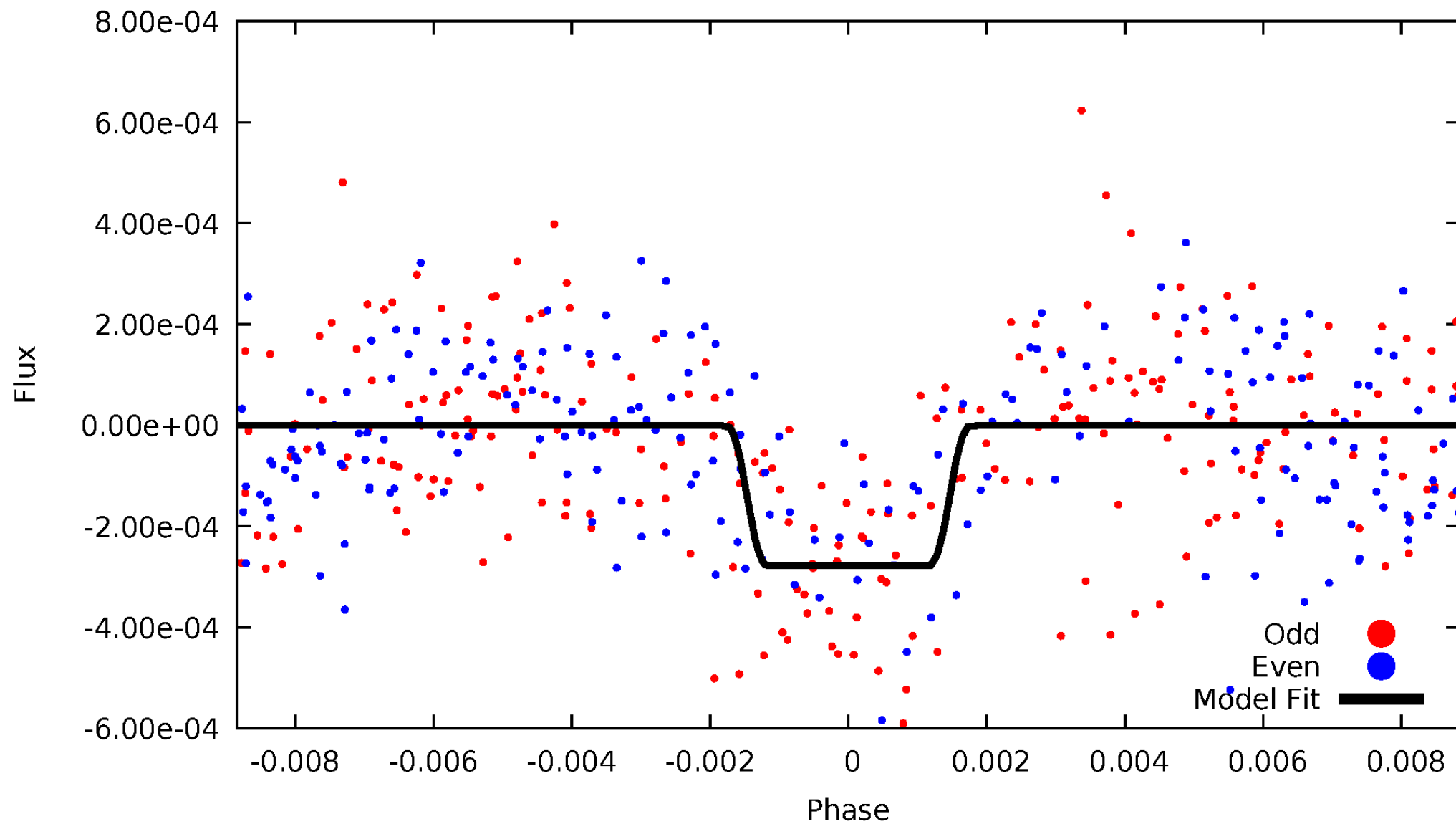
DV Odd/Even

TCE 007839814-03



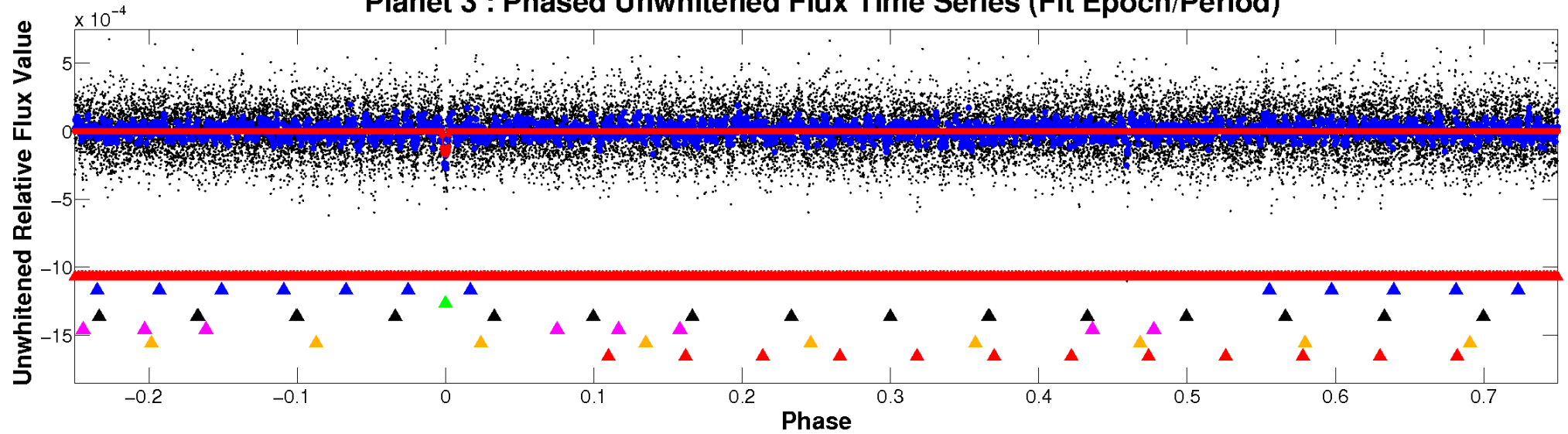
ALT Odd/Even

TCE 007839814-03

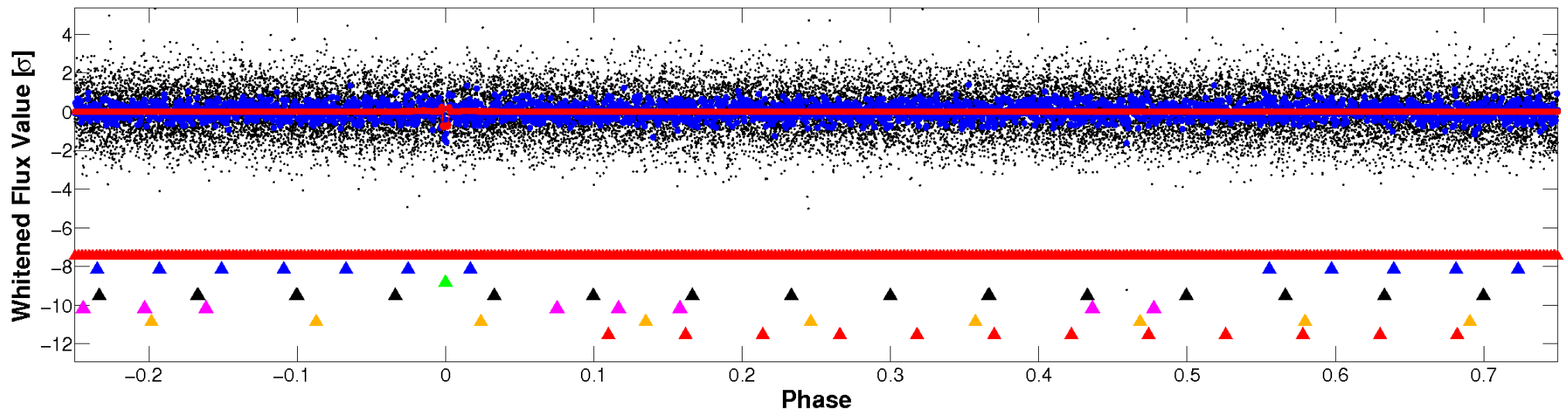


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

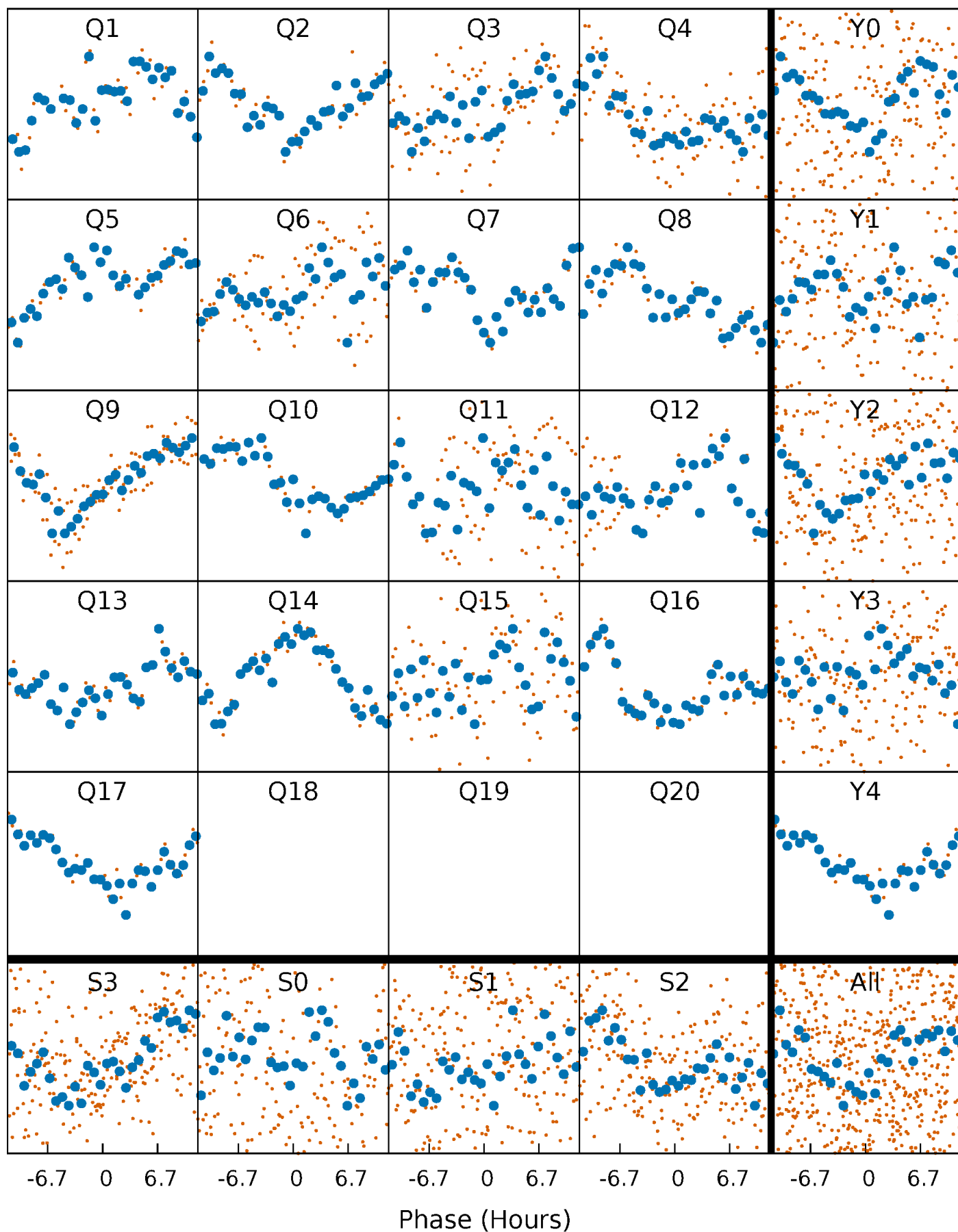


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



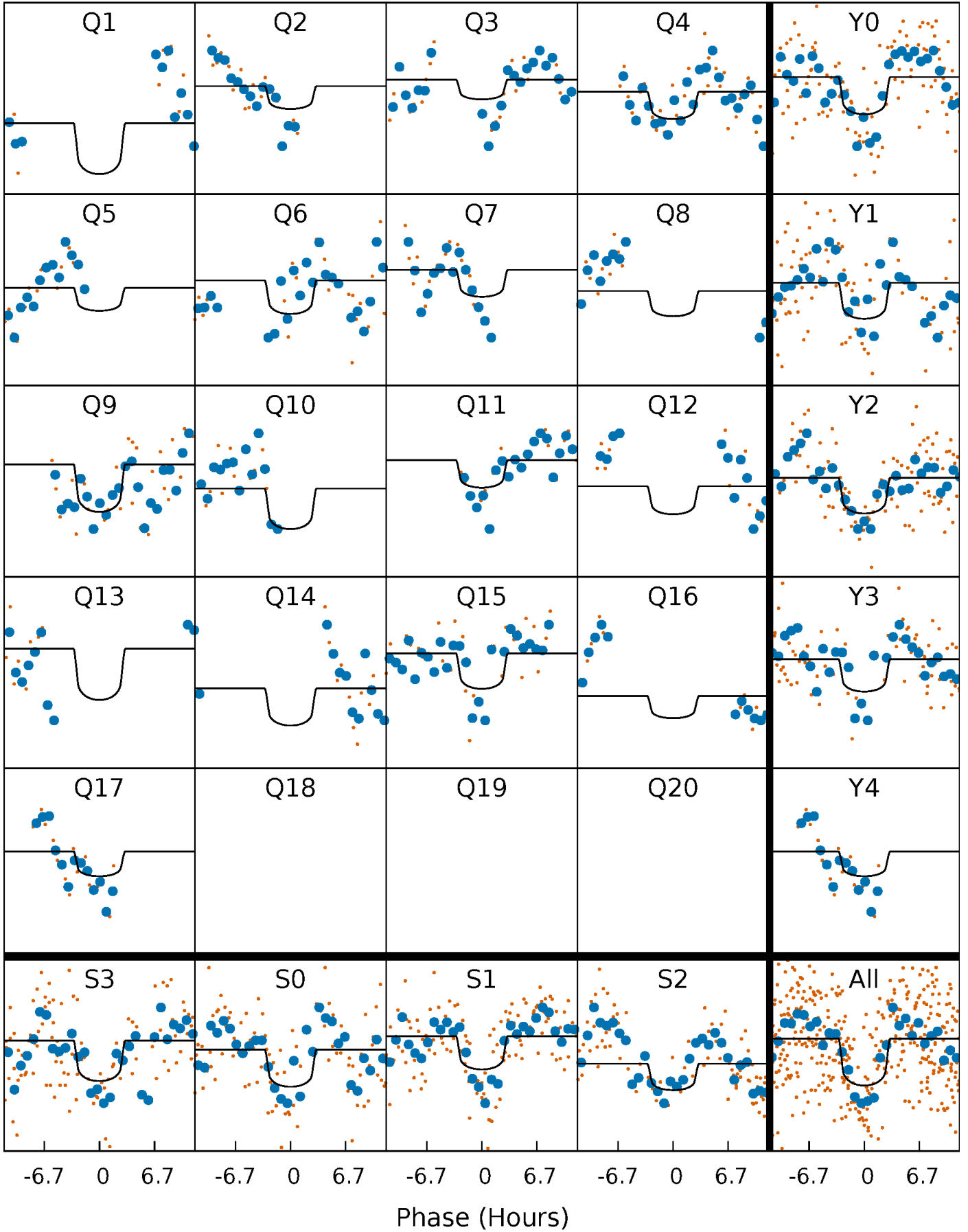
PDC Quarter-Phased Transit Curves

TCE 007839814-03 P= 57.177431 Days $T_0=149.538434$ (BKJD)



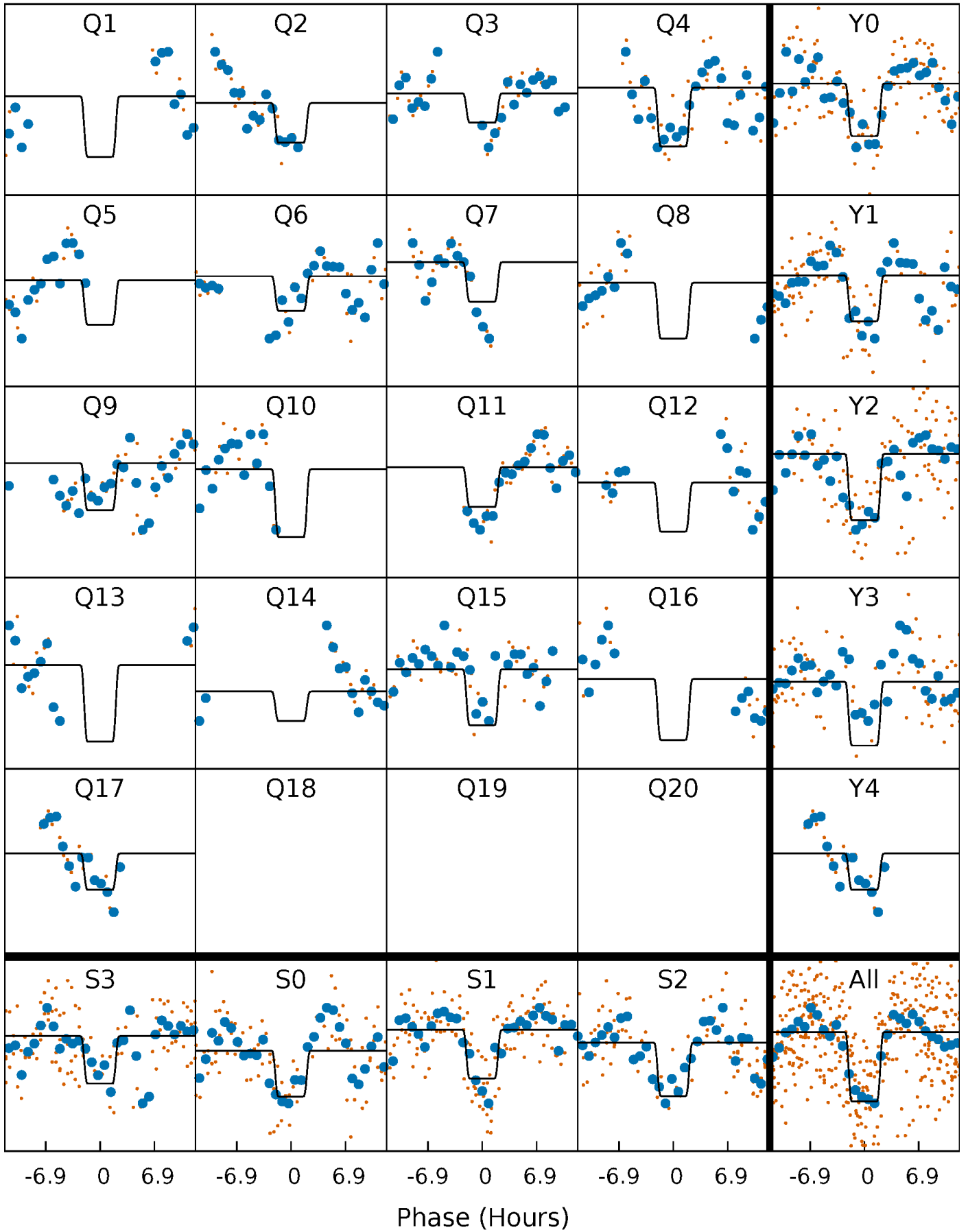
DV Quarter-Phased Transit Curves

TCE 007839814-03 P= 57.177431 Days $T_0=149.538434$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

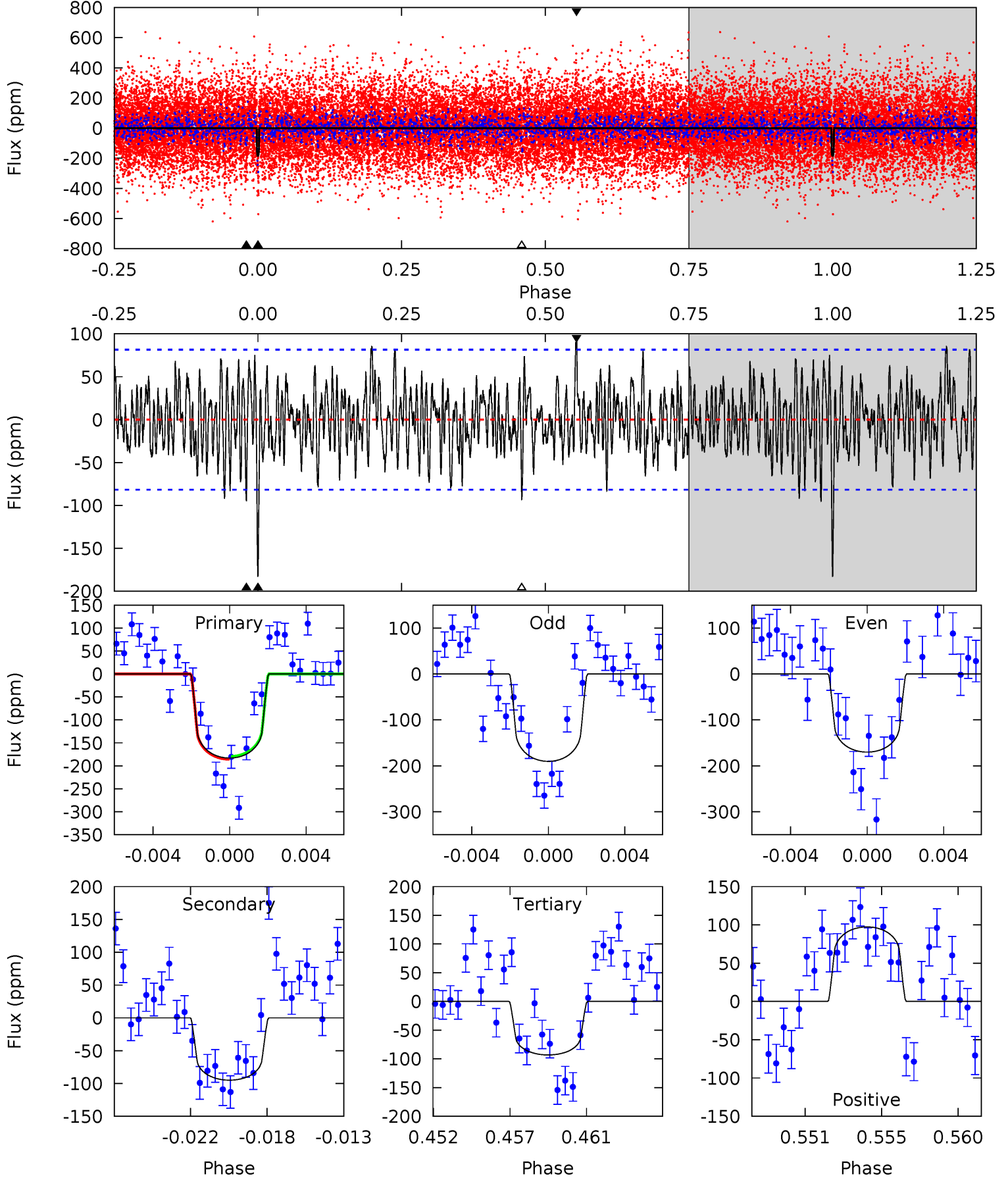
TCE 007839814-03 P= 57.176390 Days $T_0=149.542943$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-03, P = 57.177431 Days, E = 92.361003 Days

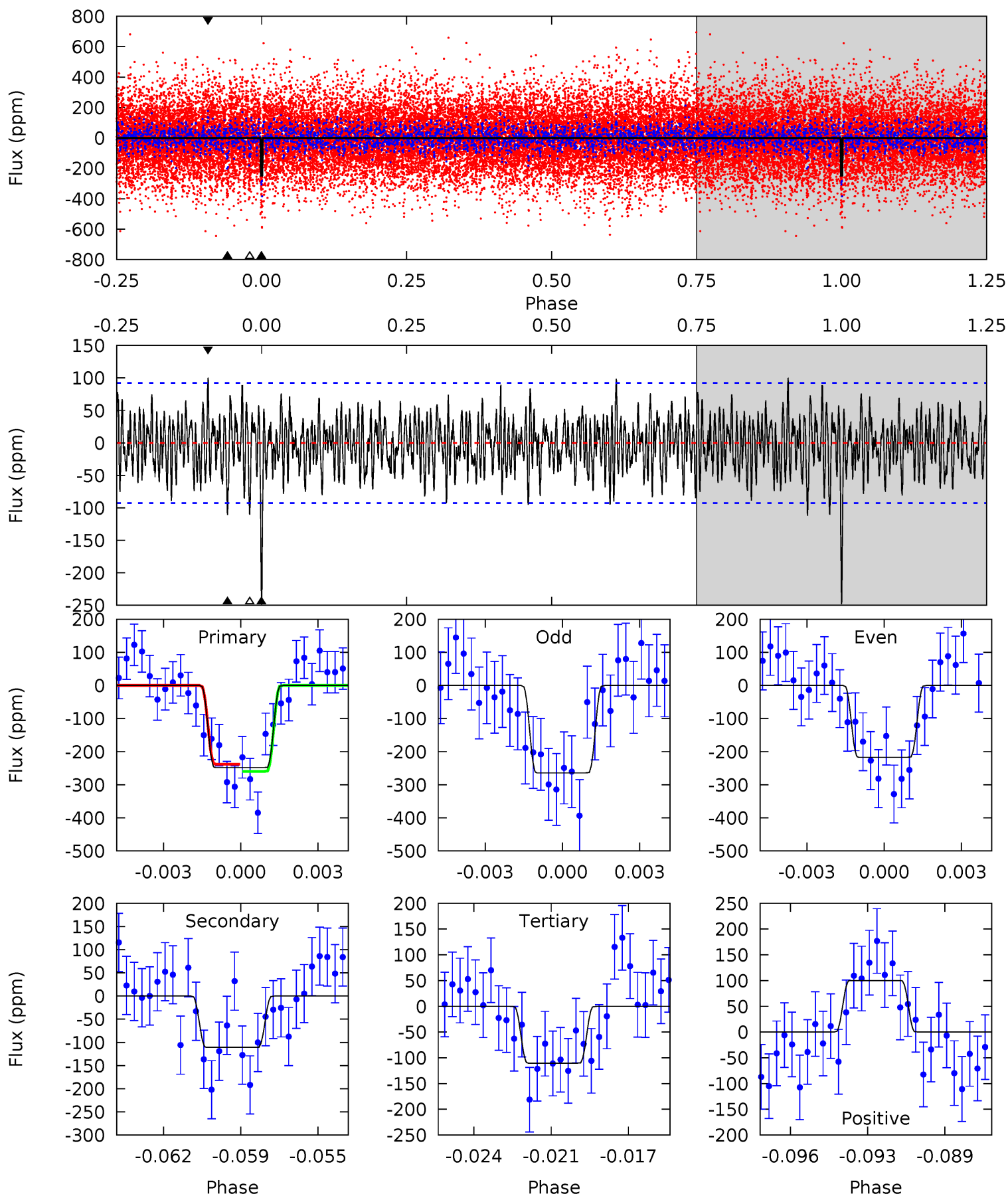
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.6 | 6.02 | 5.91 | 6.18 | 5.18 | 2.84 | 1.98 | 5.71 | 5.44 | 0.12 | -0.15 | 0.63 | 0.85 | 0.35 | 0.19 |



Alt Model-Shift Uniqueness Test

007839814-03, P = 57.176390 Days, E = 92.366553 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.0 | 6.27 | 6.24 | 5.65 | 5.23 | 2.93 | 1.96 | 7.80 | 8.38 | 0.03 | 0.62 | 1.29 | 1.05 | 0.29 | 0.62 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|-----------------------|----------------------|
| DV | -95 ± 16 | $2.65^{+1.73}_{-1.46}$ | 936^{+80}_{-97} | 5401^{+2824}_{-983} | 778^{+3056}_{-508} |
| Alt. | -111 ± 18 | $3.29^{+1.84}_{-1.71}$ | 930^{+76}_{-97} | 5013^{+1858}_{-749} | 569^{+1843}_{-339} |

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

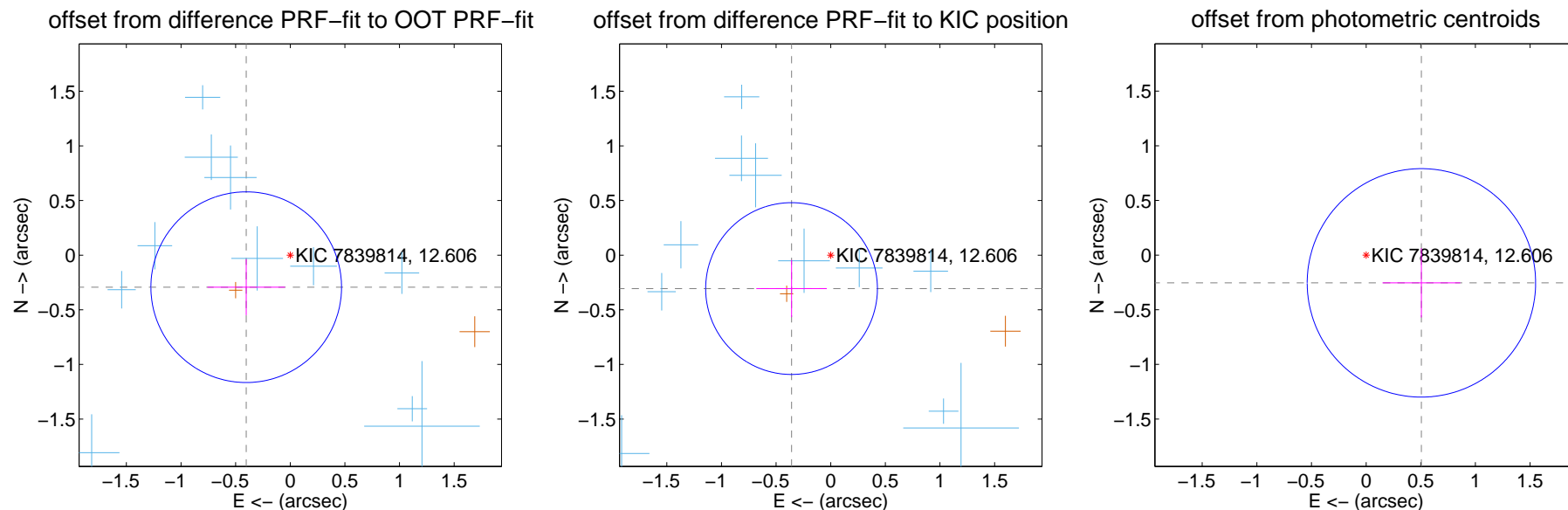
DV Centroid Data

Supplemental centroid analysis for 007839814-03. Kepler magnitude: 12.61. Transit SNR 7.19

There are 11 quarters with good PRF difference image offsets

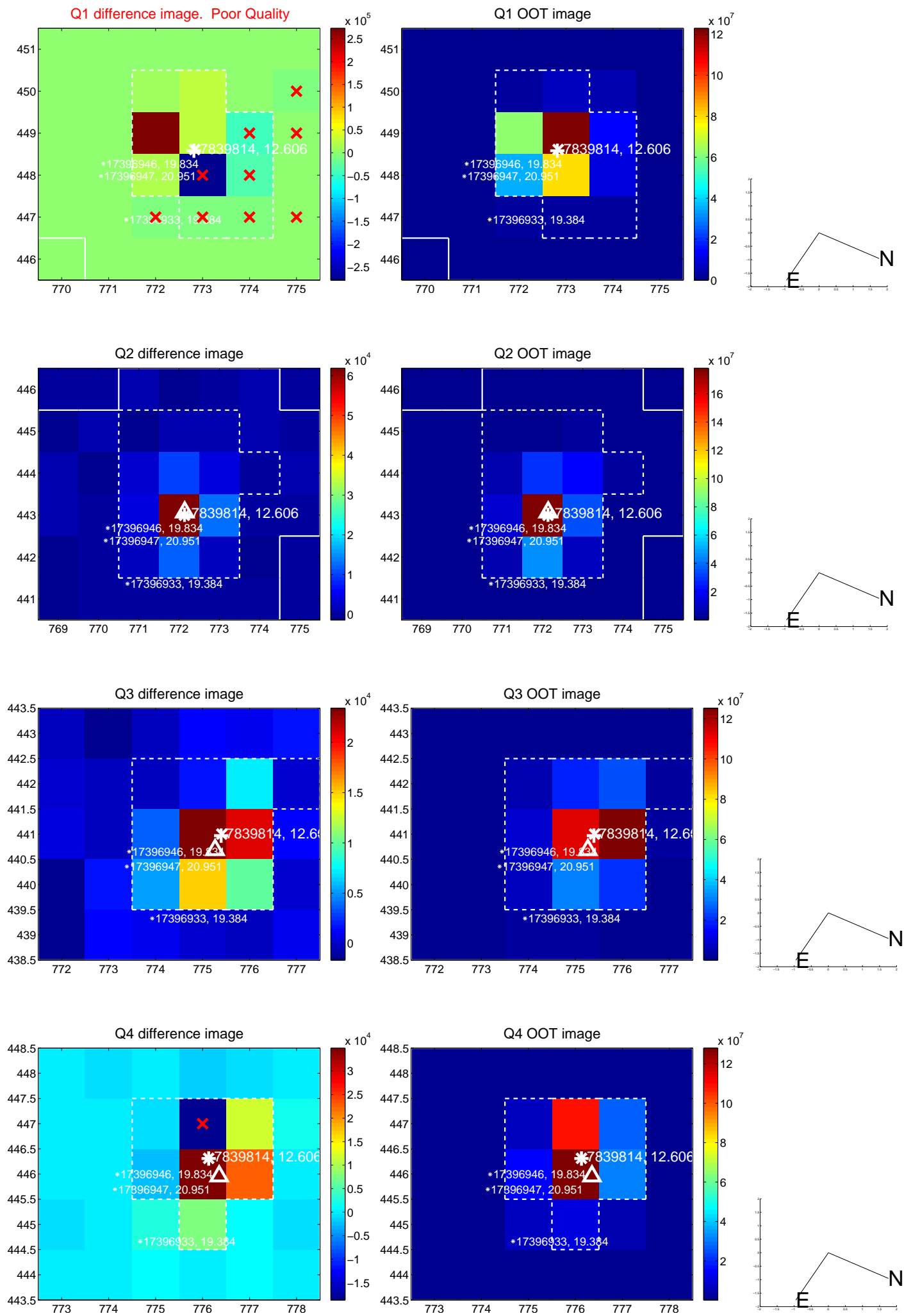
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.498 ± 0.291 | 1.71 | 0.403 ± 0.355 | -0.293 ± 0.257 |
| PRF-fit source offset from KIC position | 0.471 ± 0.262 | 1.80 | 0.359 ± 0.322 | -0.306 ± 0.261 |
| photometric centroid source offset | 0.57 ± 0.35 | 1.63 | -0.51 ± 0.36 | -0.25 ± 0.32 |

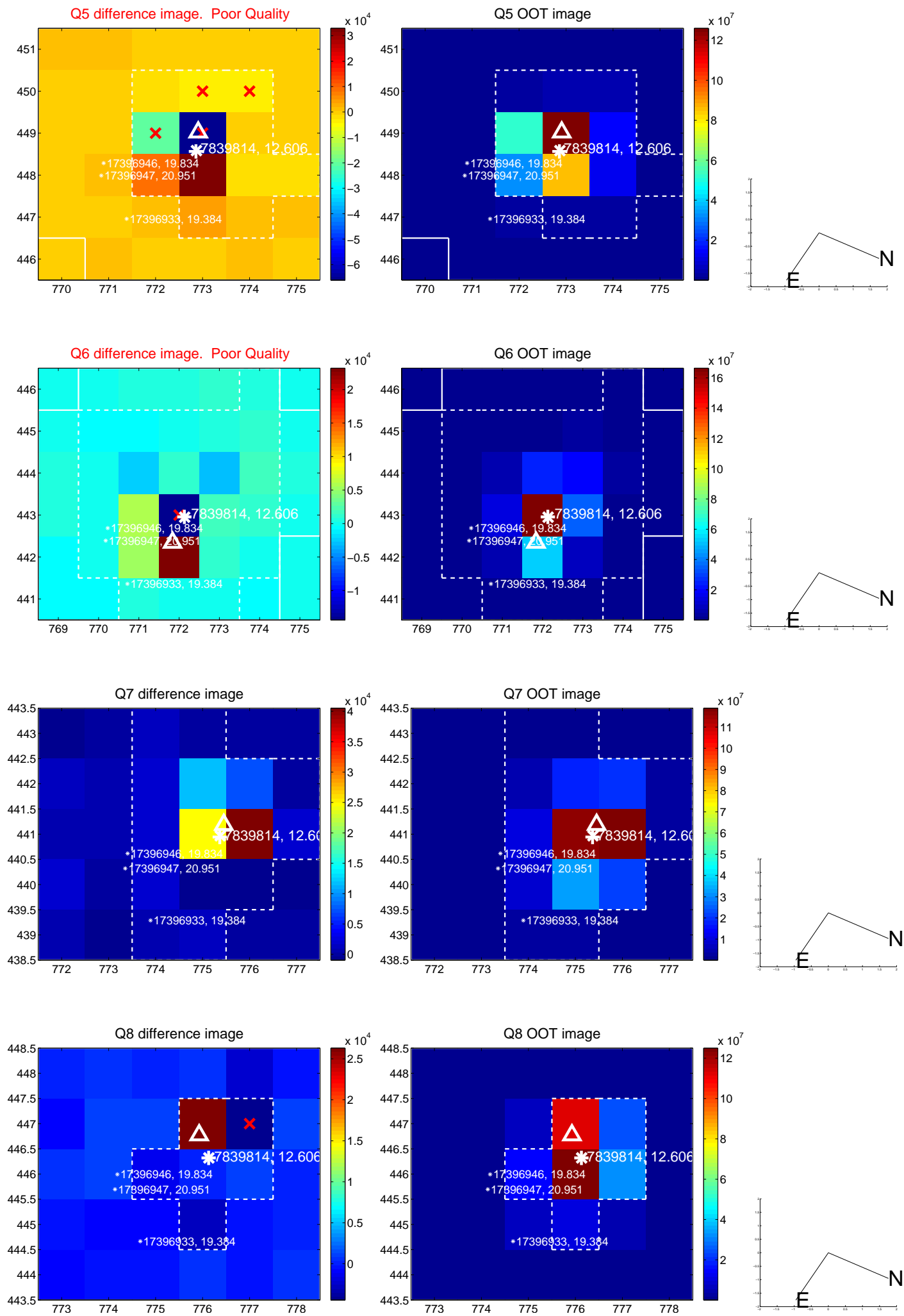


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

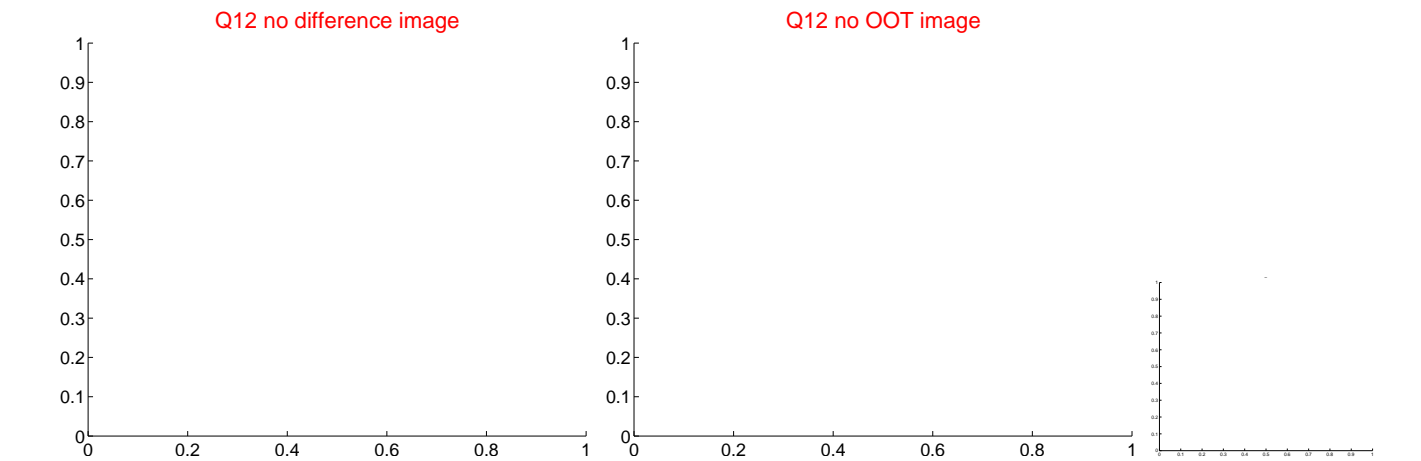
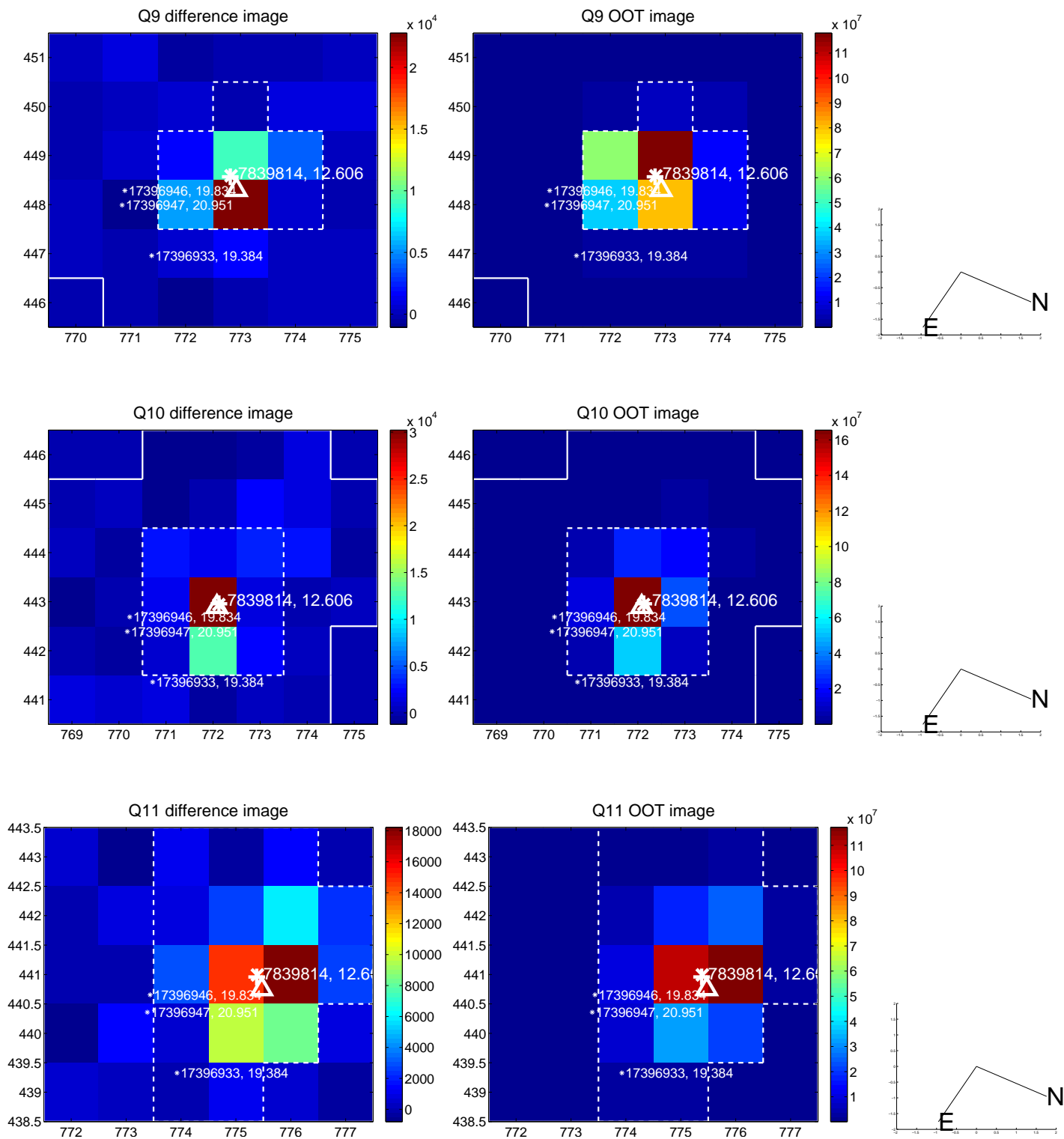
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



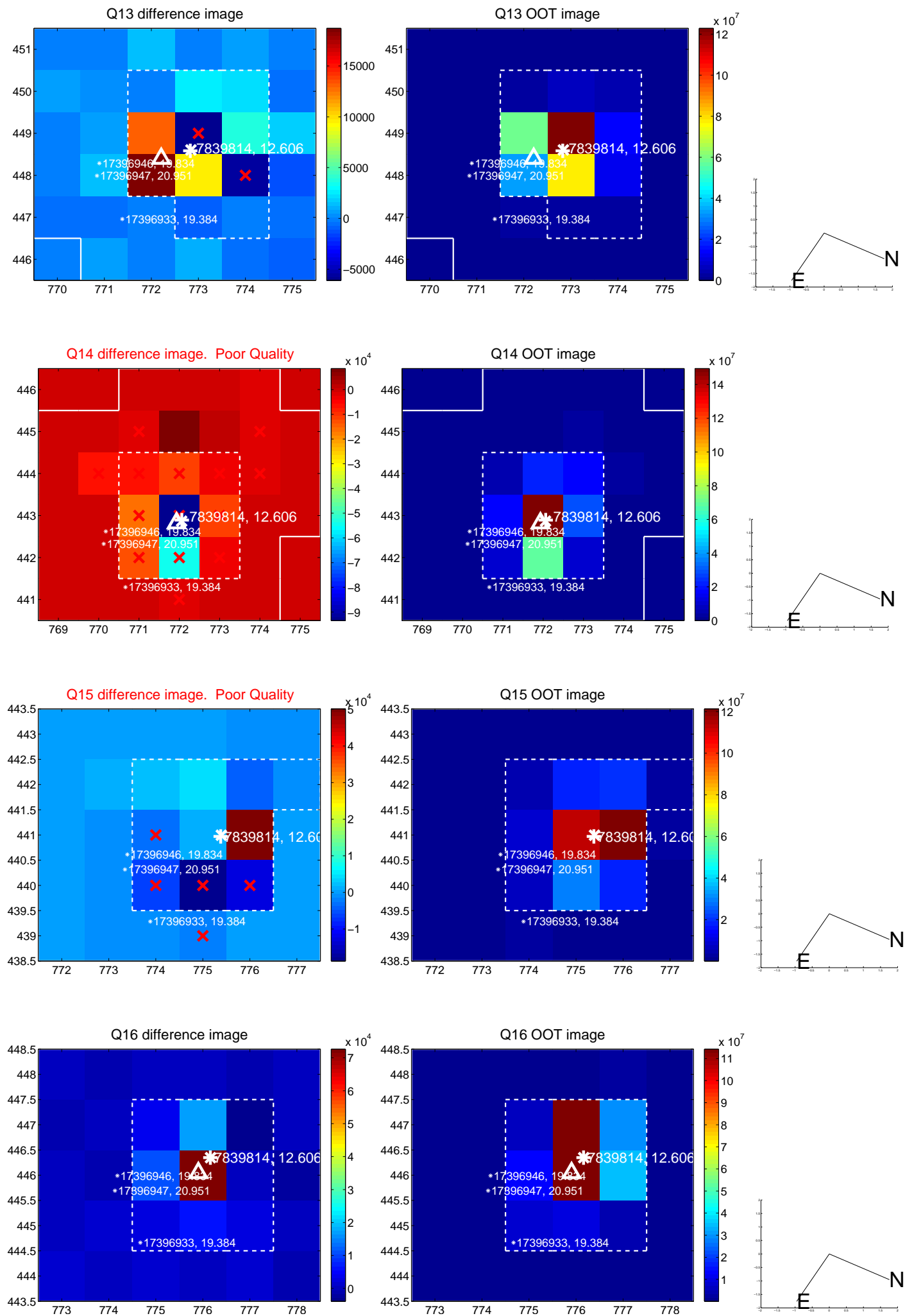
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



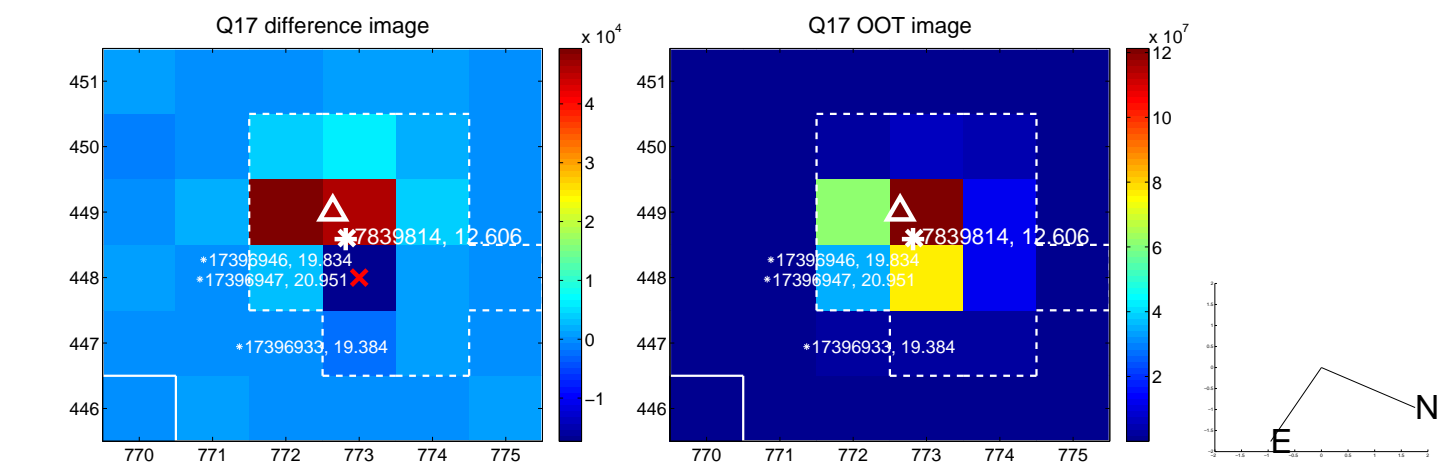
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



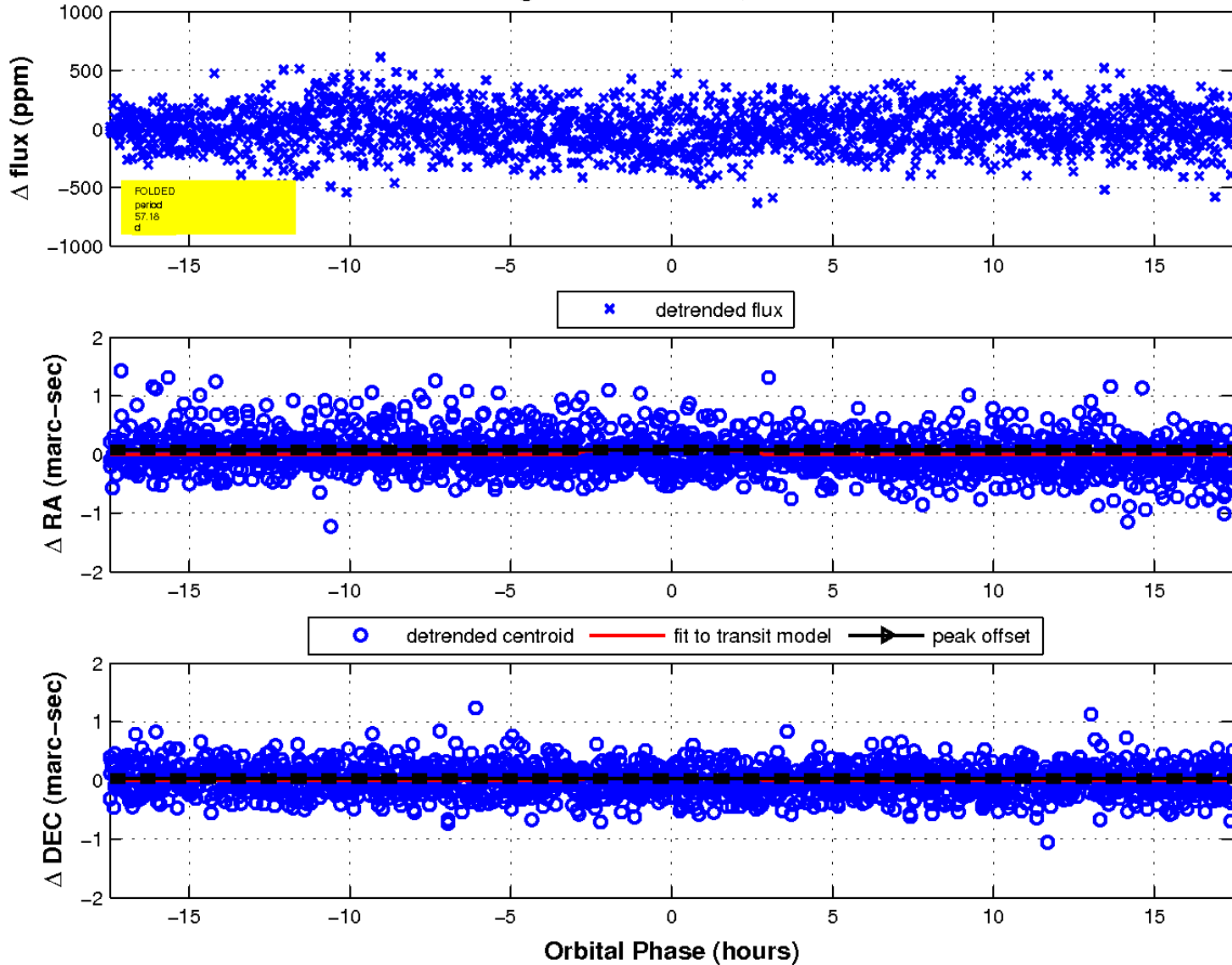
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

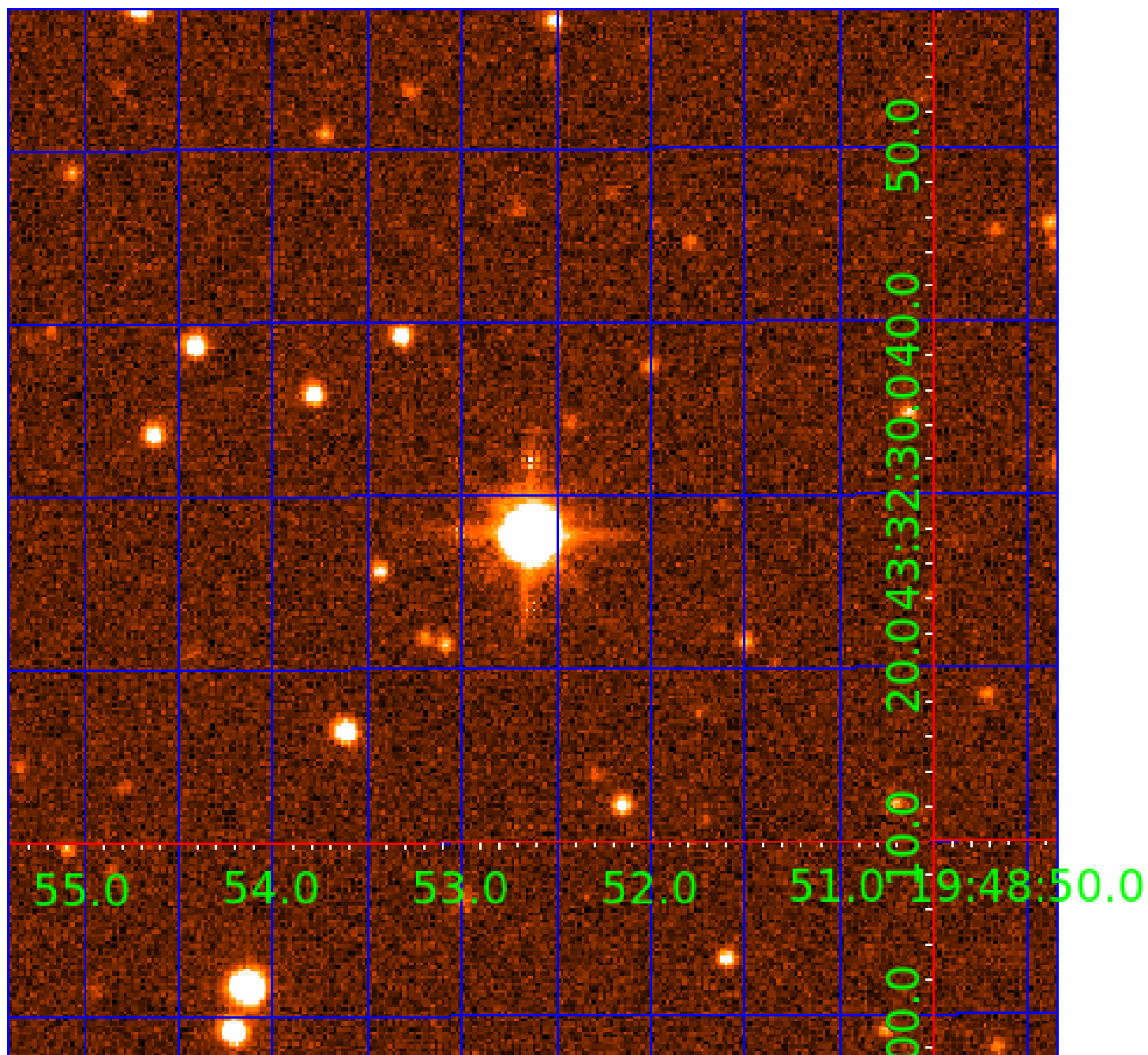


fluxWeightedCentroids, Planet 3 of 7



UKIRT Image

Declination



KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

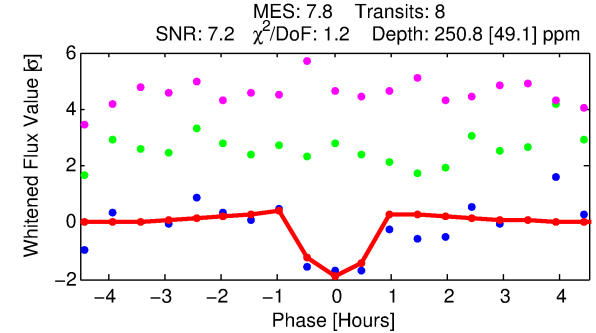
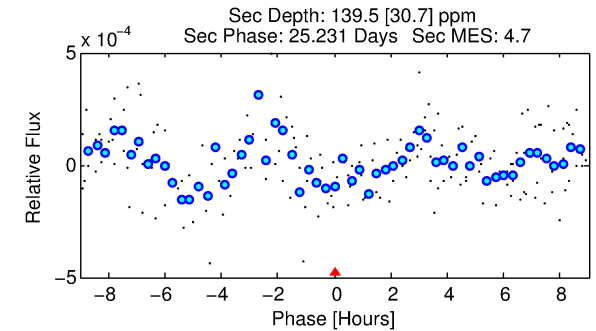
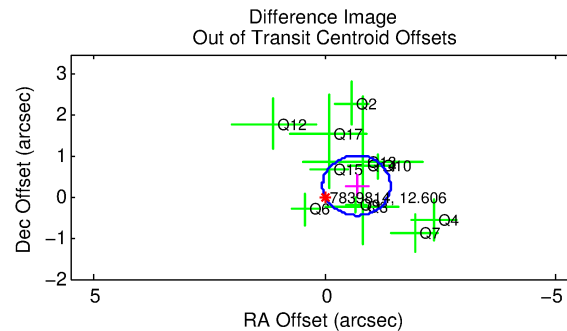
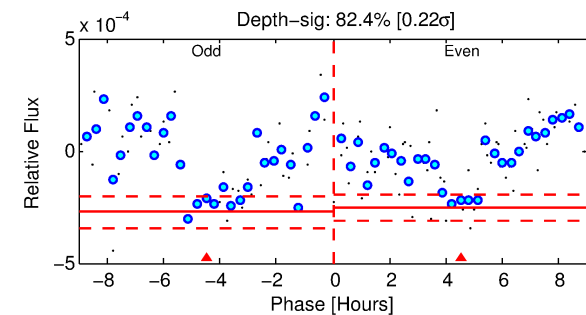
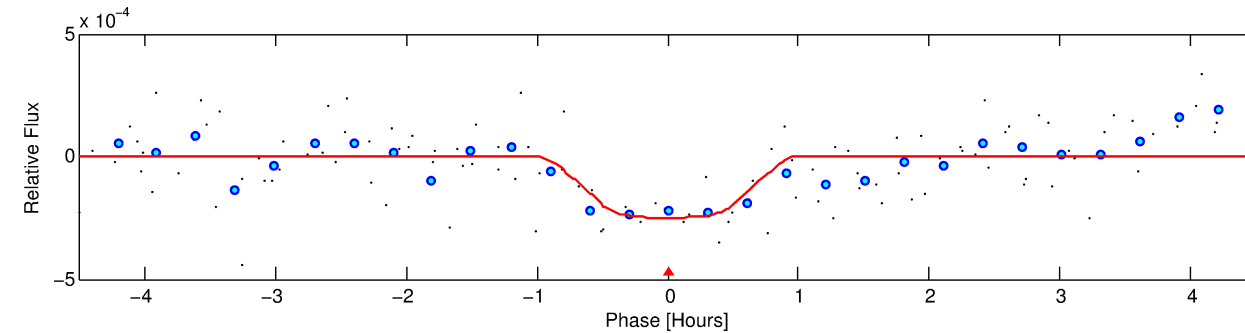
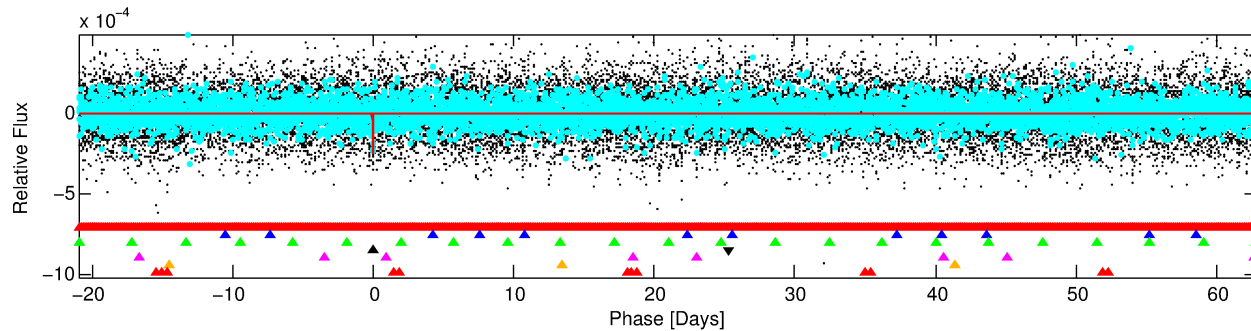
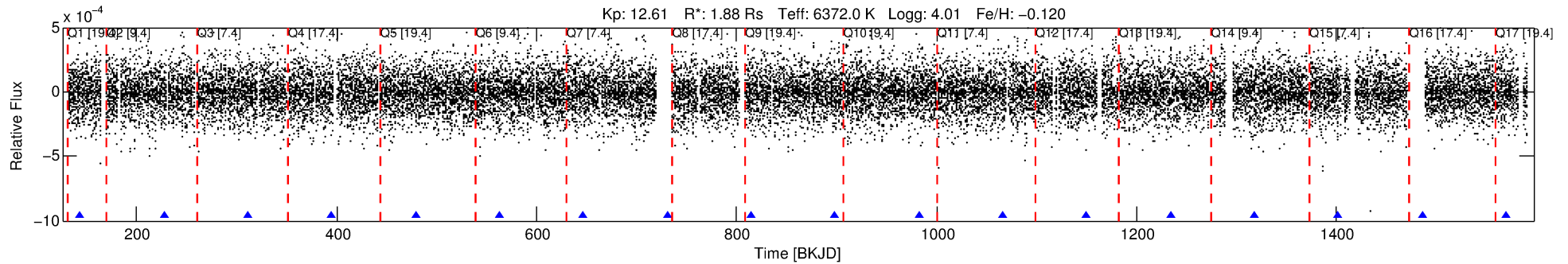
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-04

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 4 of 7 Period: 83.858 d



DV Fit Results:

Period = 83.85763 [0.00065] d
Epoch = 143.8254 [0.0071] BKJD
Rp/R* = 0.0169 [0.0242]
a/R* = 208.50 [1665.57]
b = 0.89 [1.86]
Seff = 30.74 [18.24]
Teq = 600 [89] K
Rp = 3.48 [5.14] Re
a = 0.4125 [0.1500] AU
Ag = 1080.76 [3155.81] [0.34 σ]
Teffp = 5323 [3814] K [1.24 σ]

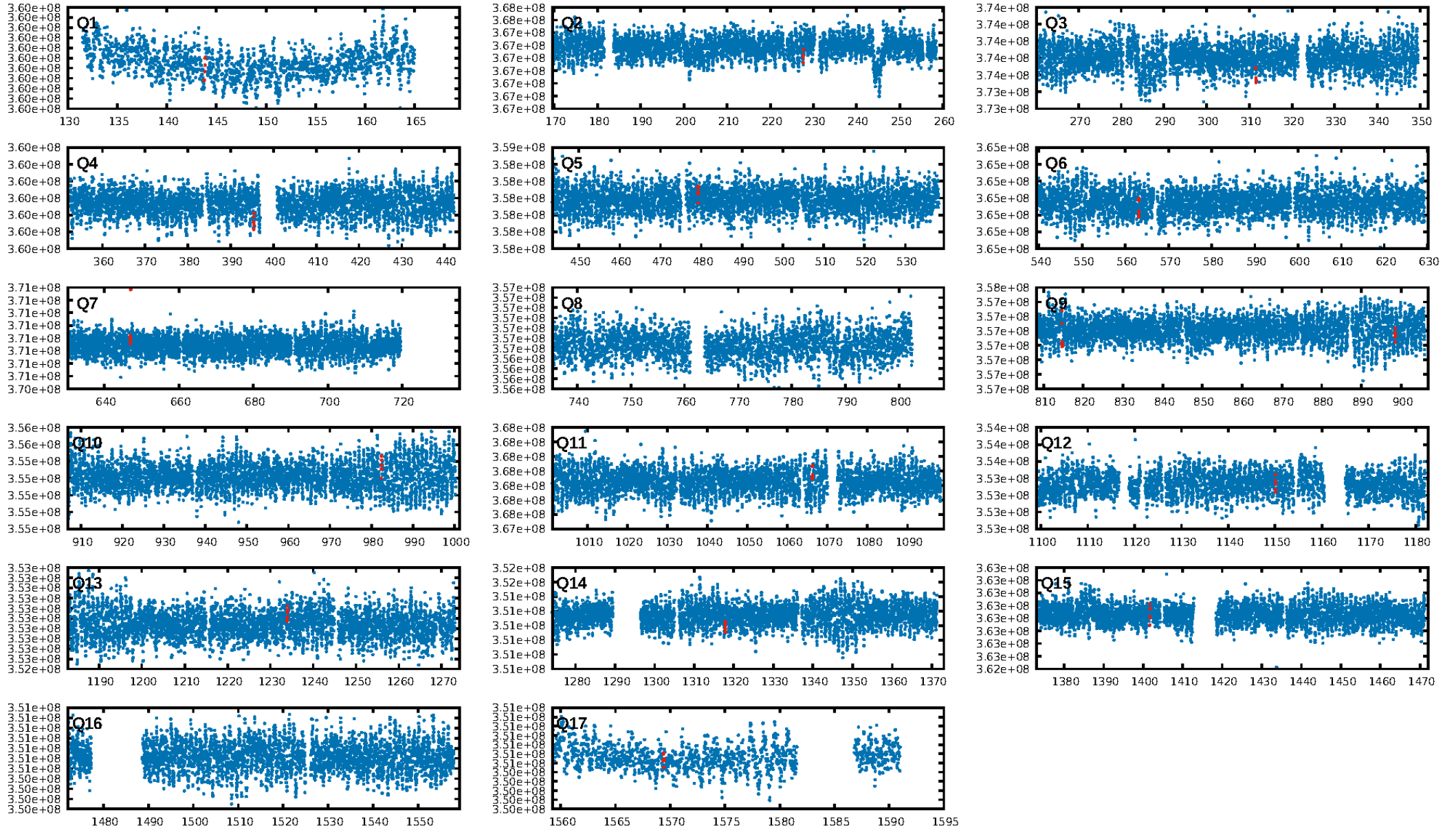
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.53 σ]
LongPeriod-sig: 100.0% [239.95 σ]
ModelChiSquare2-sig: 70.8%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 2.67e-09
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 9.572
Centroid-sig: 27.6%
Centroid-so: 0.580 arcsec [1.14 σ]
OotOffset-rm: 0.746 arcsec [3.05 σ]
KicOffset-st: 4/3/2/3 [12]
KicOffset-st: 4/3/2/3 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 0.40 [6/15]

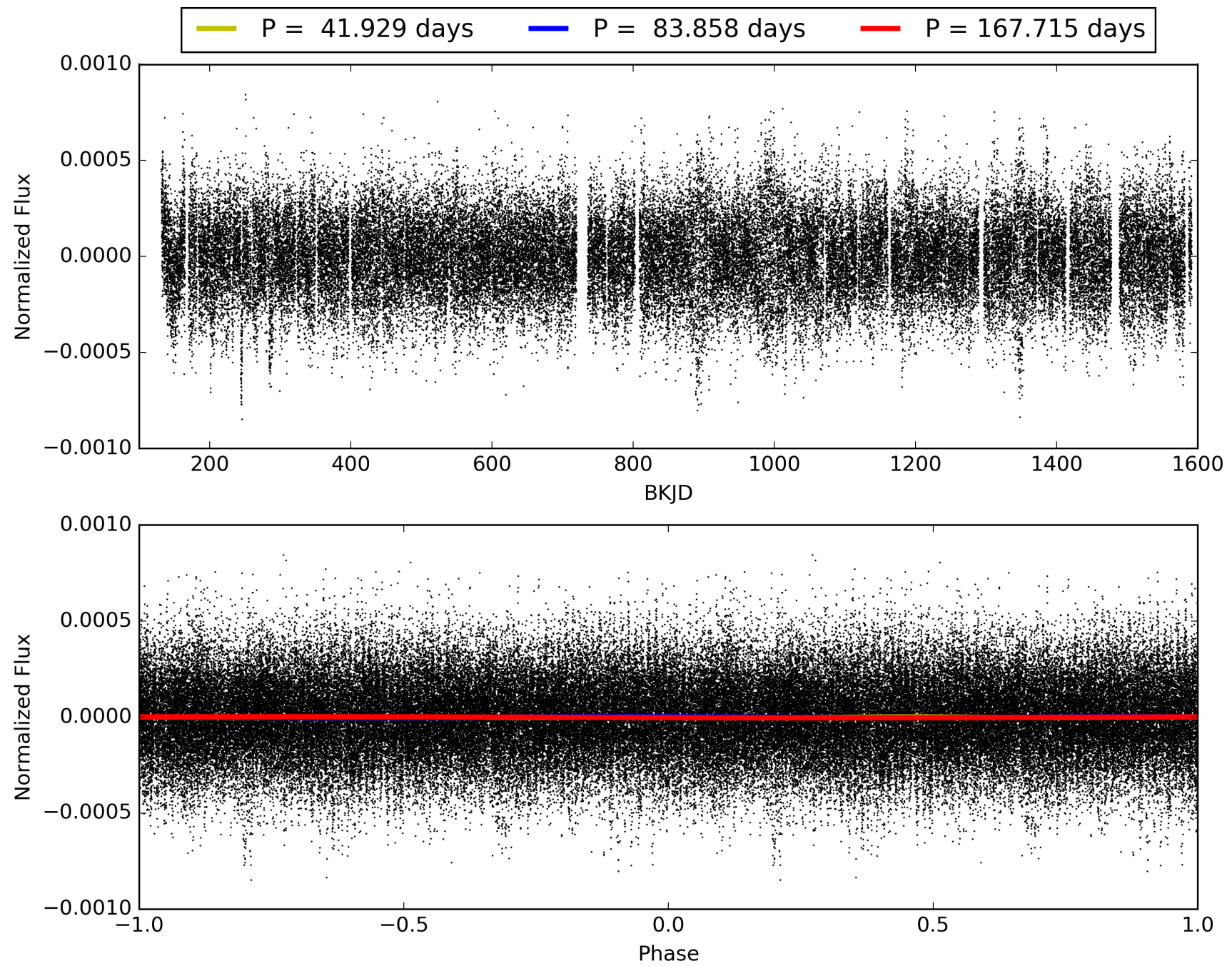
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:39:43 Z

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

TCE 007839814-04, PDC Light Curves

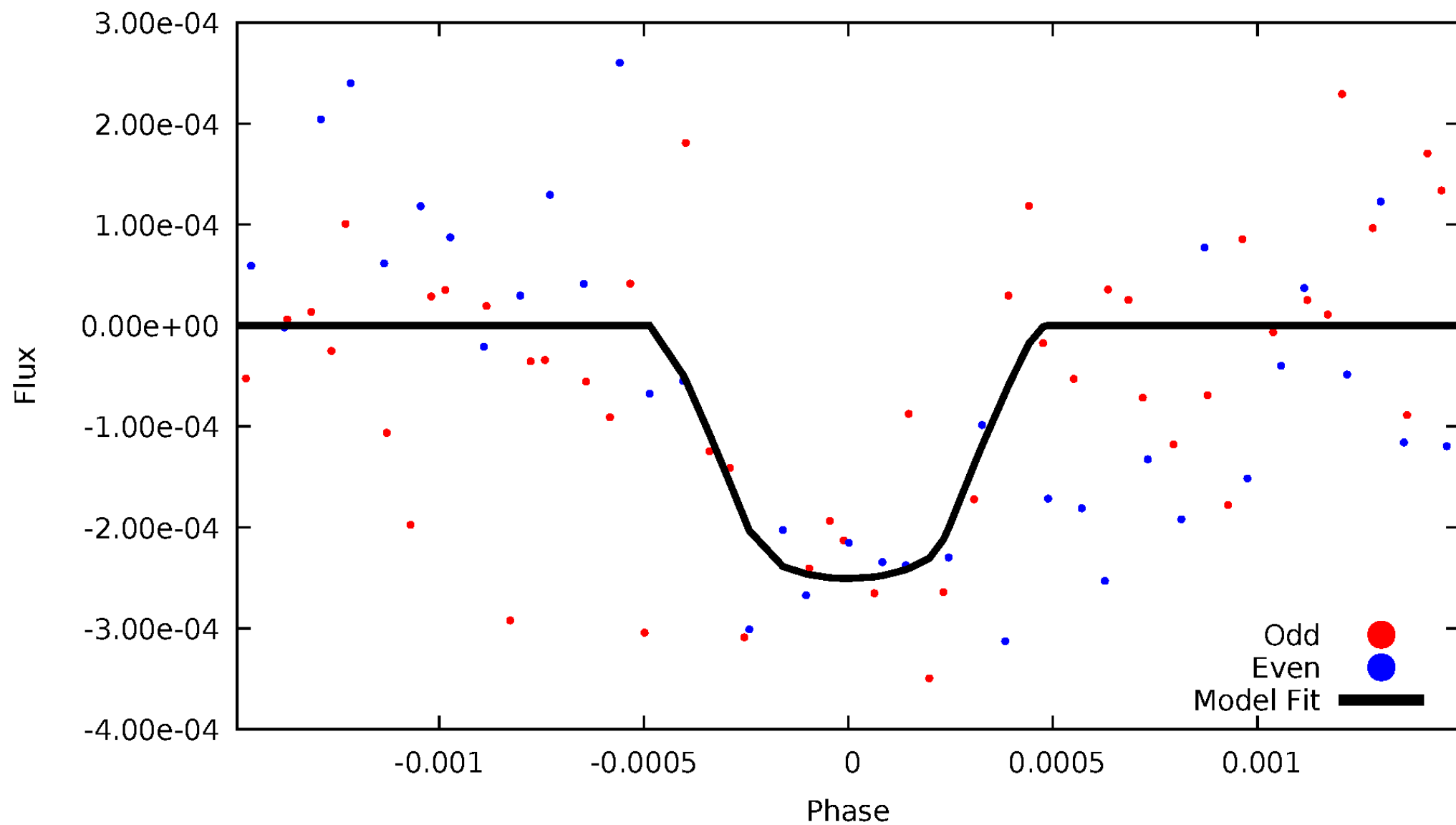


TCE 007839814-04



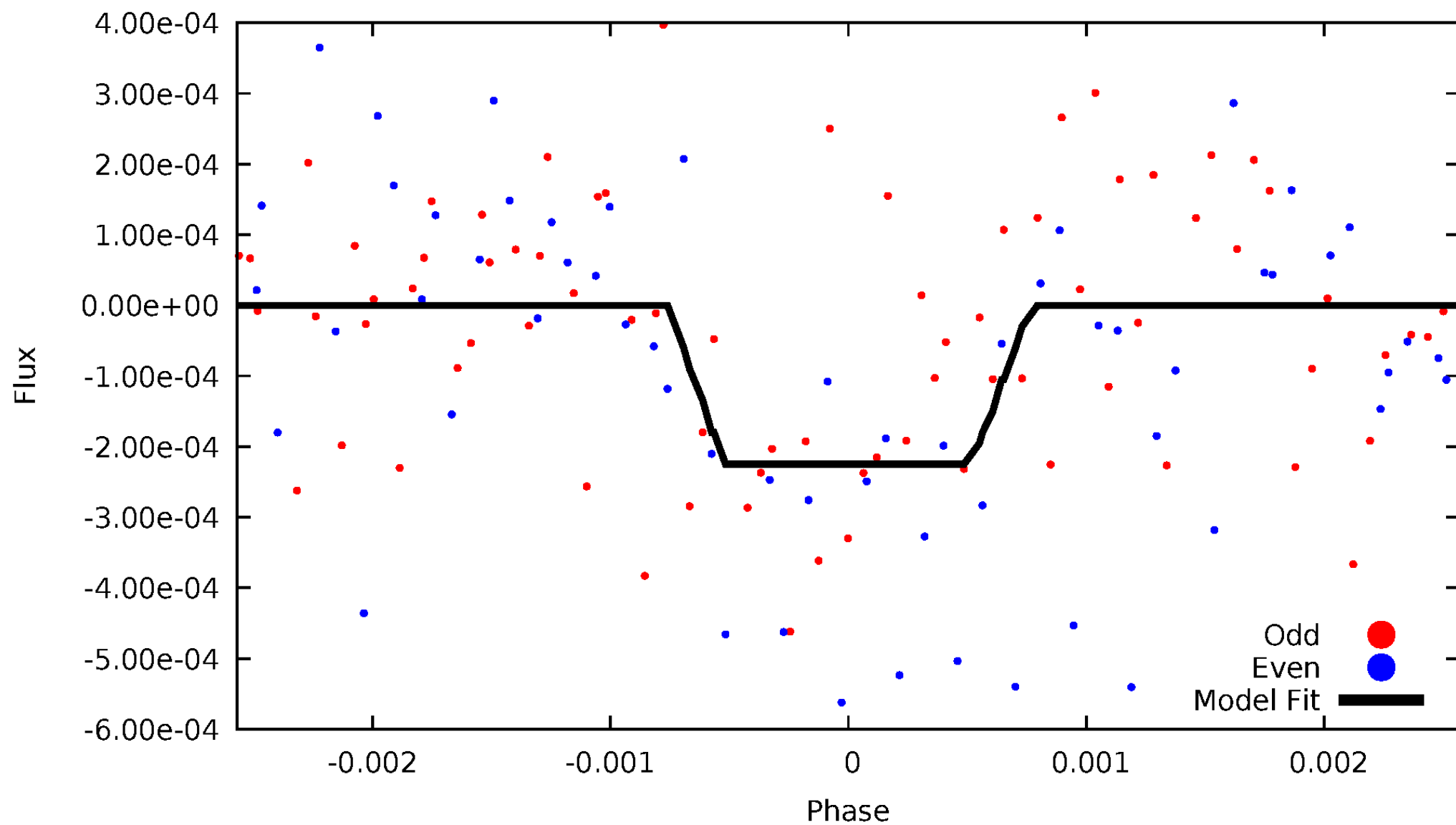
DV Odd/Even

TCE 007839814-04



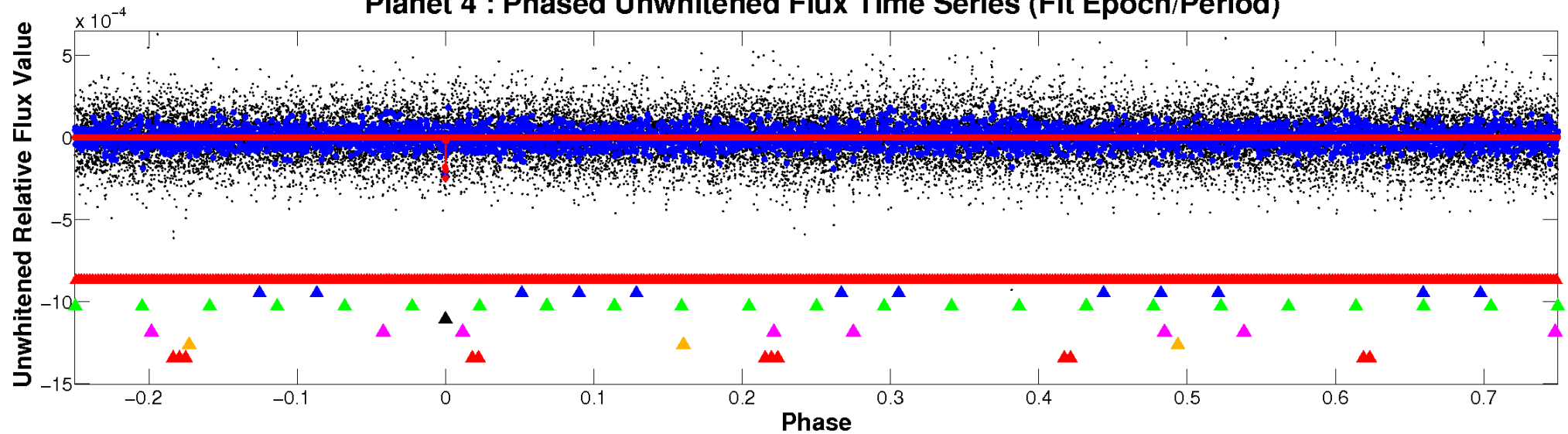
ALT Odd/Even

TCE 007839814-04

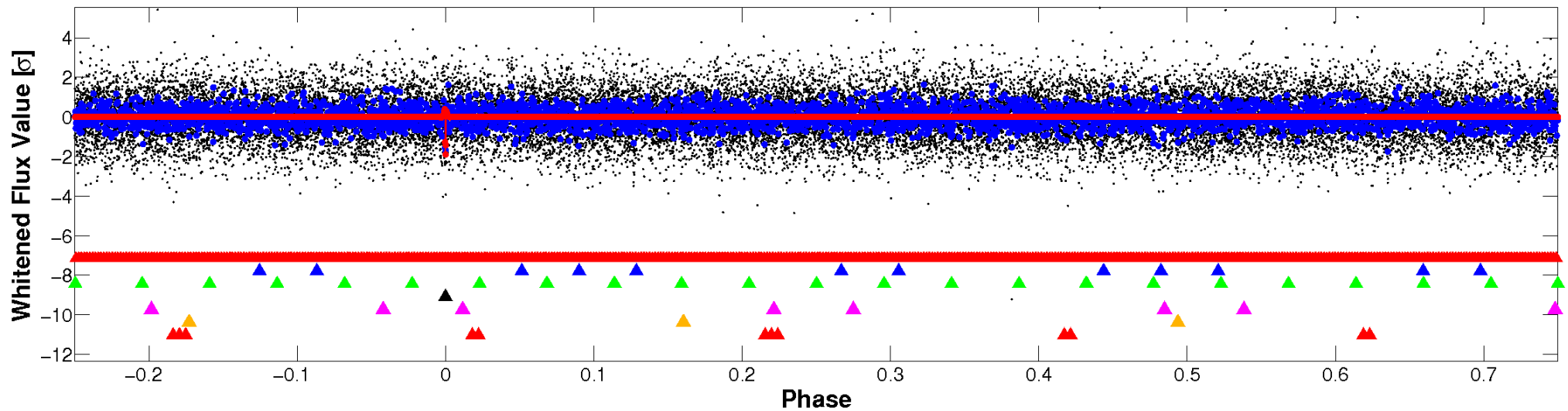


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

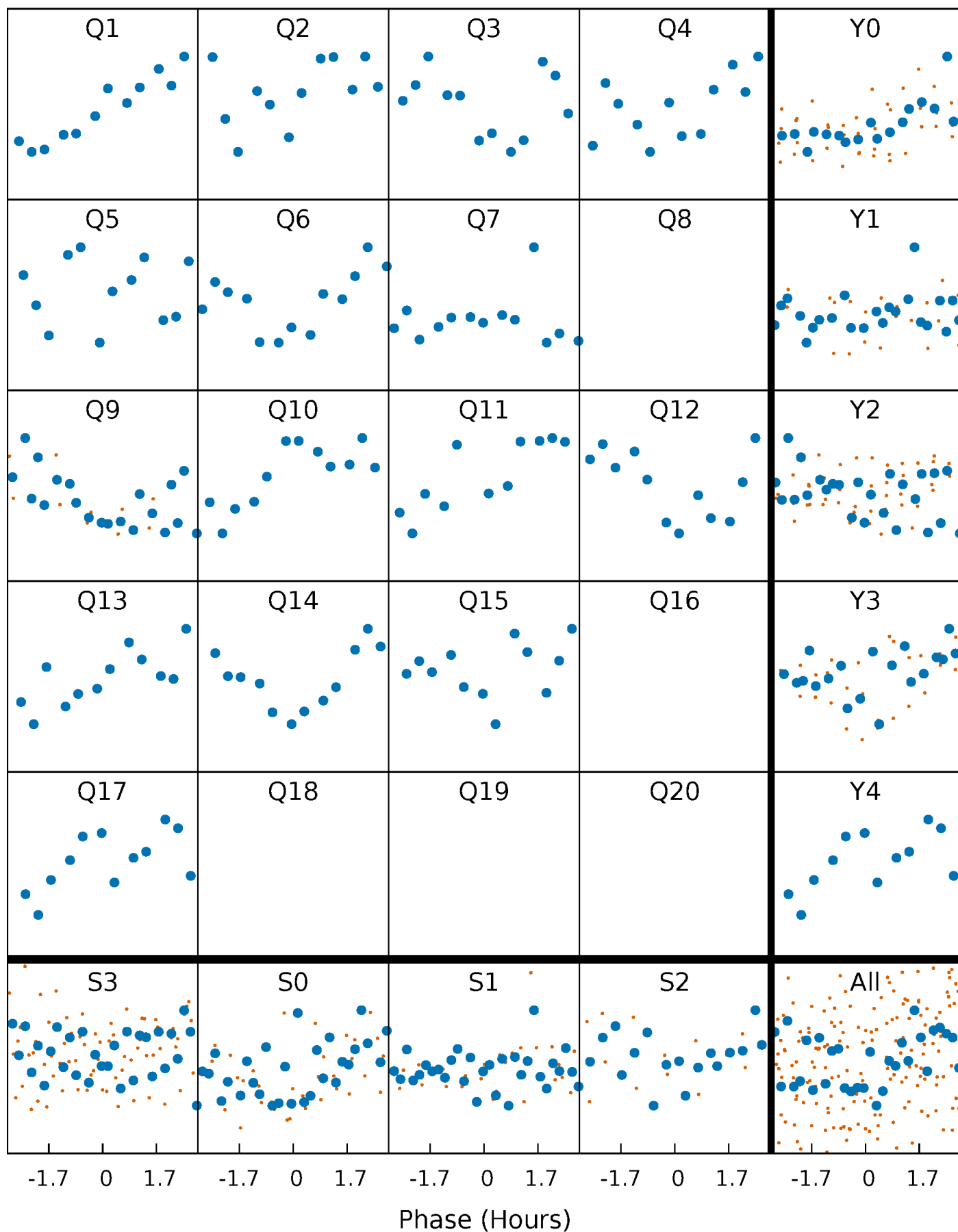


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



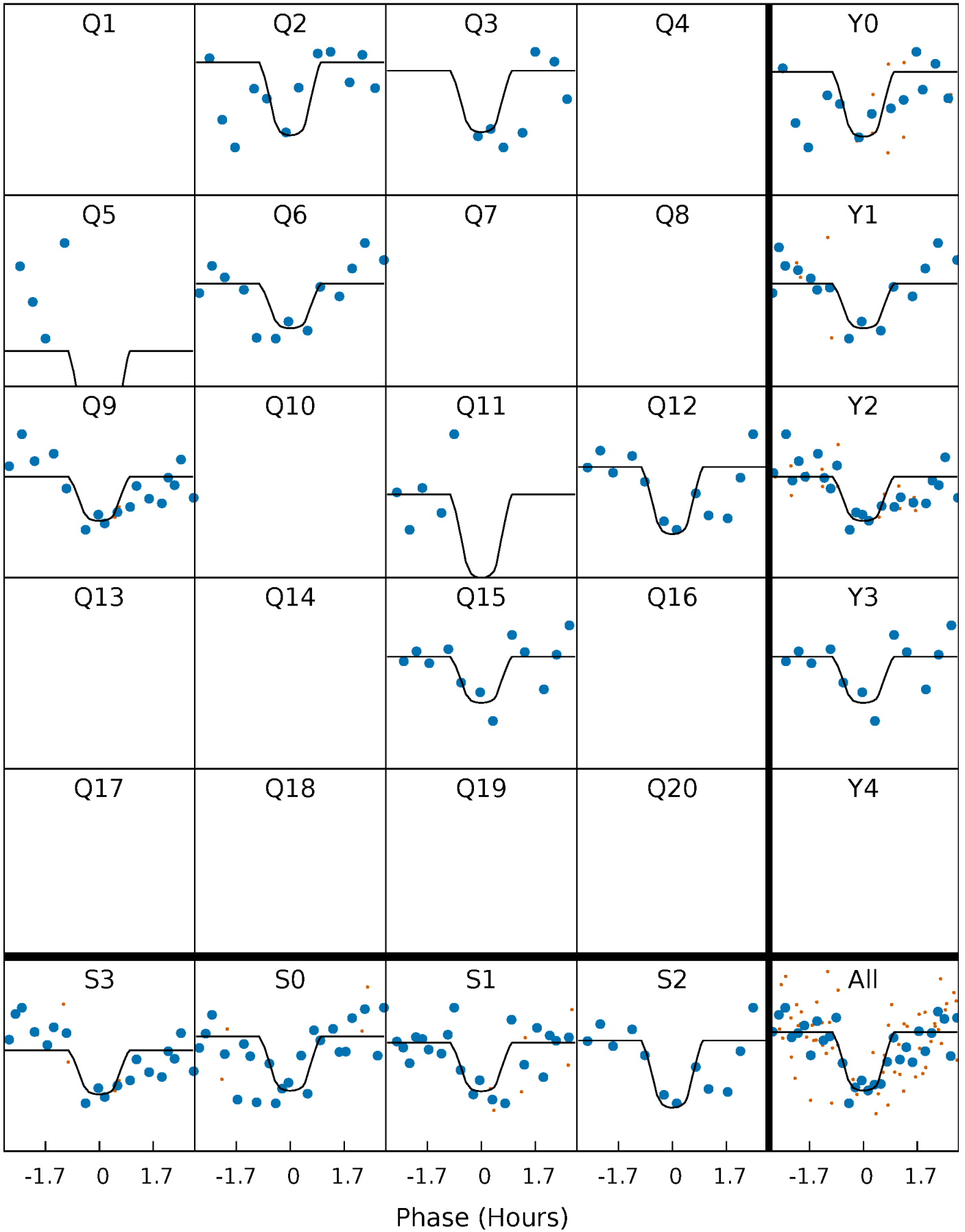
PDC Quarter-Phased Transit Curves

TCE 007839814-04 P= 83.857633 Days $T_0=143.825377$ (BKJD)



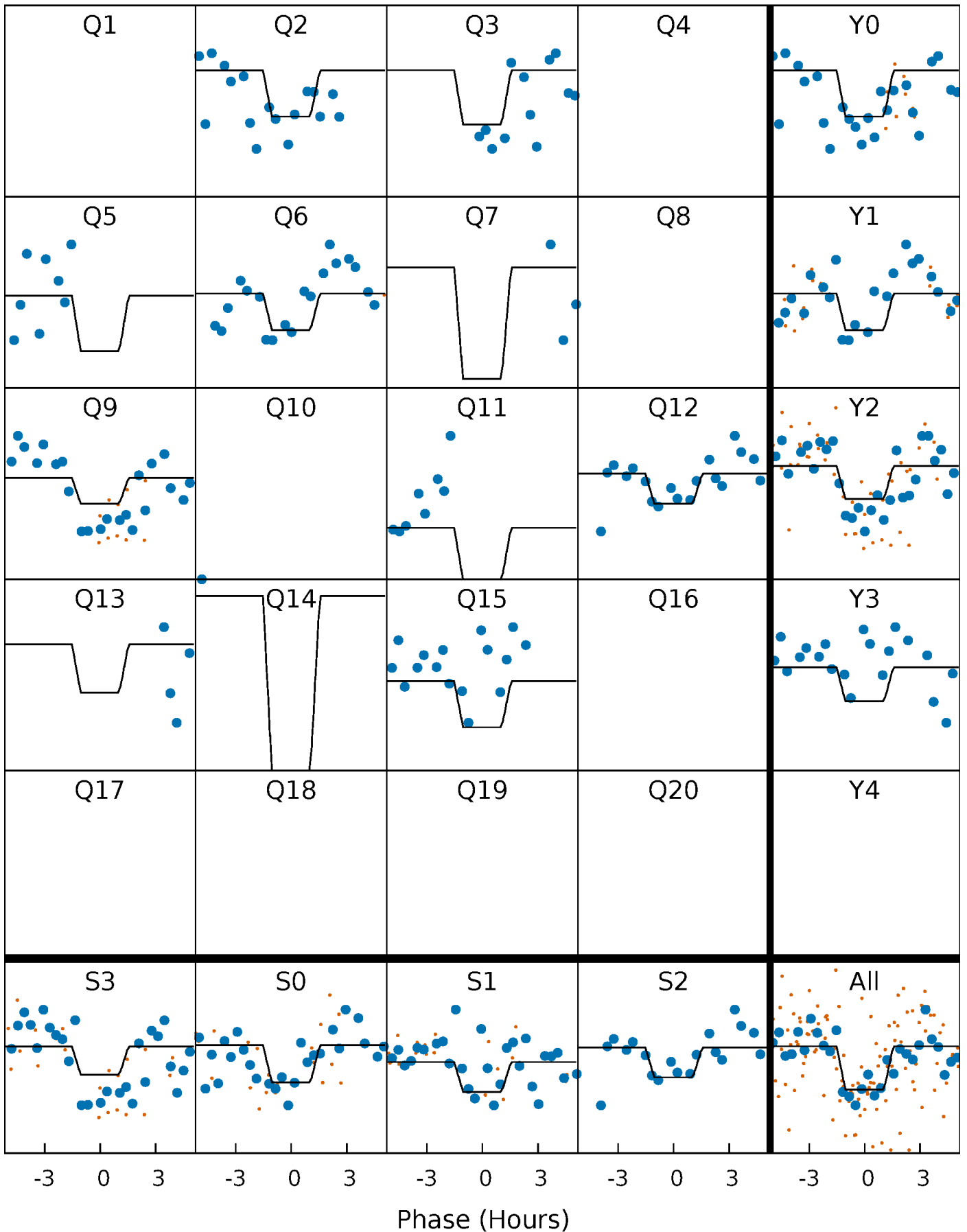
DV Quarter-Phased Transit Curves

TCE 007839814-04 P= 83.857633 Days $T_0=143.825377$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

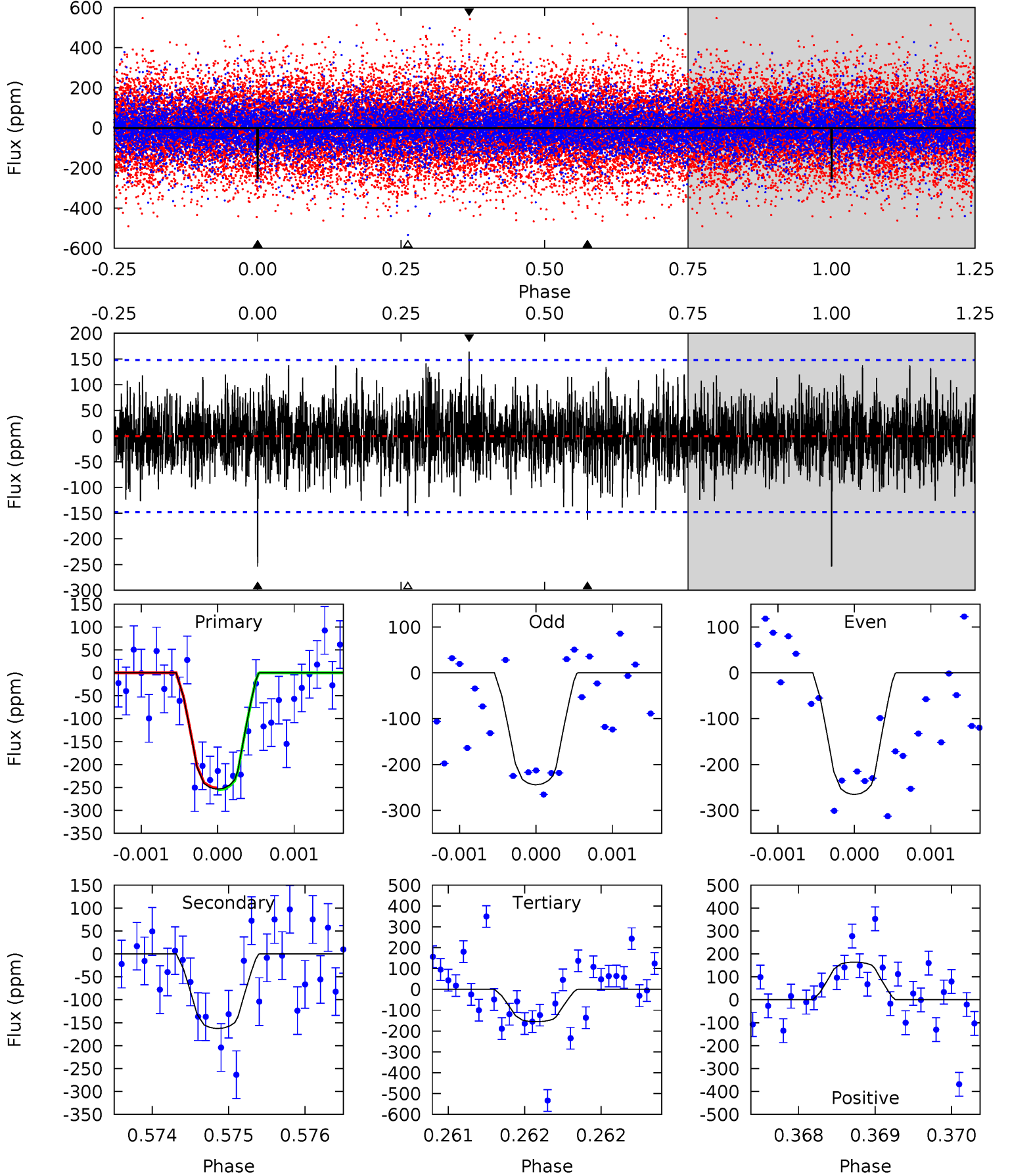
TCE 007839814-04 $P = 83.860572$ Days $T_0 = 143.824815$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-04, P = 83.857633 Days, E = 59.967744 Days

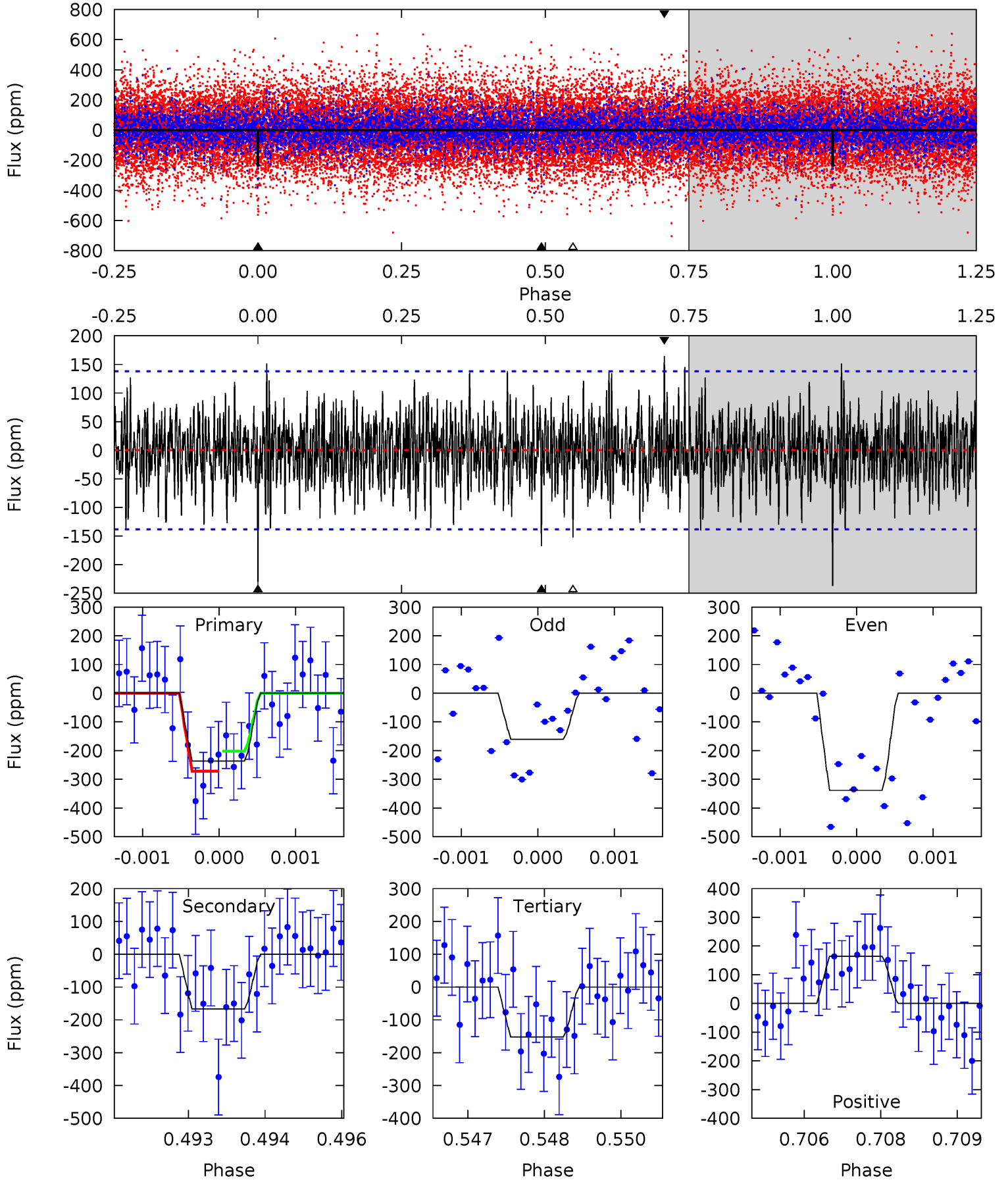
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.38 | 6.02 | 5.75 | 6.07 | 5.47 | 3.32 | 1.62 | 3.63 | 3.31 | 0.27 | -0.06 | 0.39 | 0.93 | 0.39 | 0.08 |



Alt Model-Shift Uniqueness Test

007839814-04, P = 83.860572 Days, E = 59.964243 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.20 | 6.51 | 5.93 | 6.41 | 5.38 | 3.18 | 1.82 | 3.27 | 2.79 | 0.58 | 0.11 | 3.42 | 1.06 | 0.41 | 1.37 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-04 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|----------------------|
| DV | -163 ± 27 | $4.64^{+4.65}_{-3.23}$ | 824^{+63}_{-88} | 4760^{+3720}_{-1007} | 715^{+6736}_{-530} |
| Alt. | -167 ± 26 | $4.54^{+3.94}_{-2.98}$ | 823^{+65}_{-83} | 4839^{+3313}_{-1027} | 715^{+5905}_{-513} |

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

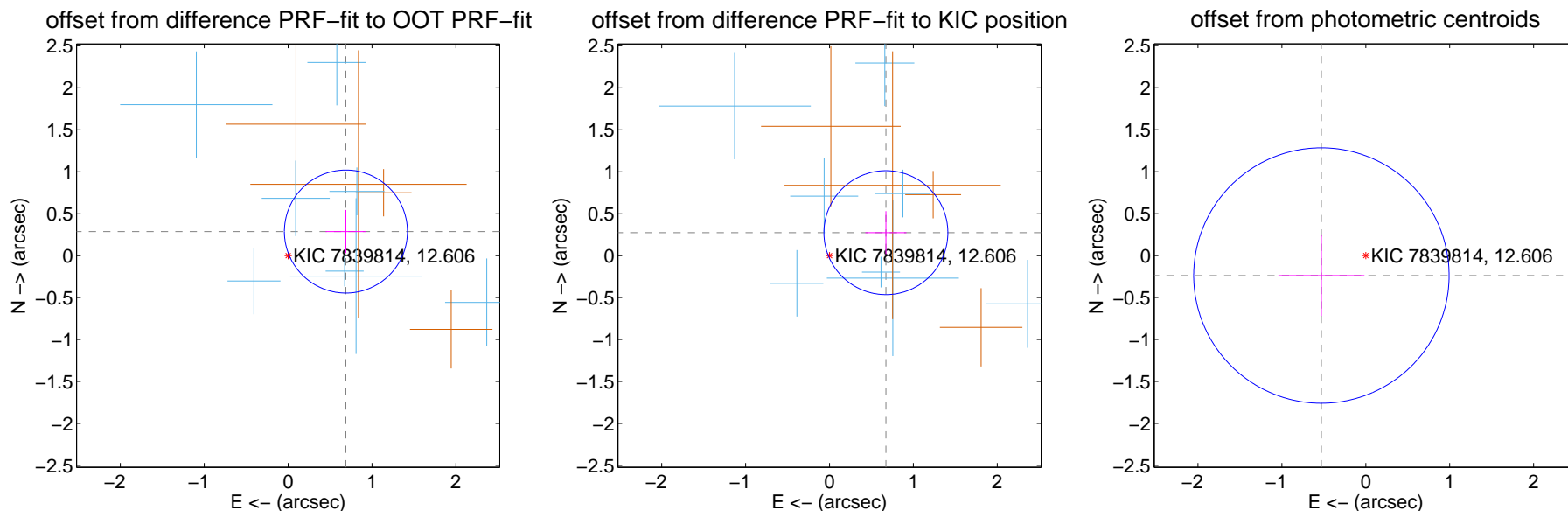
DV Centroid Data

Supplemental centroid analysis for 007839814-04. Kepler magnitude: 12.61. Transit SNR 7.20

There are 8 quarters with good PRF difference image offsets

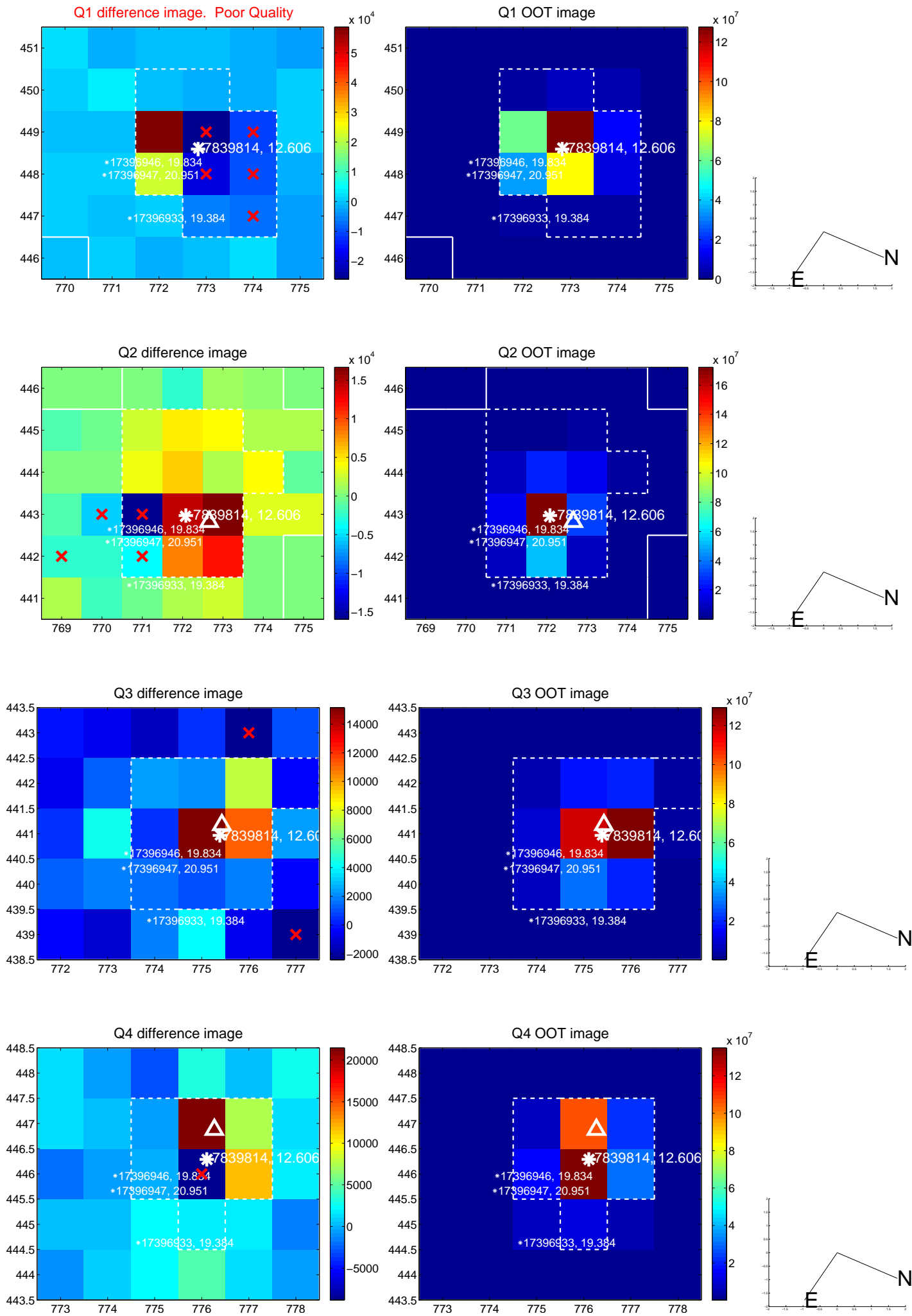
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|-------------------------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.746 ± 0.244 | 3.05 | -0.689 ± 0.242 | 0.287 ± 0.258 |
| PRF-fit source offset from KIC position | 0.726 ± 0.246 | 2.95 | -0.672 ± 0.244 | 0.274 ± 0.257 |
| photometric centroid source offset | 0.58 ± 0.51 | 1.14 | 0.53 ± 0.51 | -0.24 ± 0.48 |

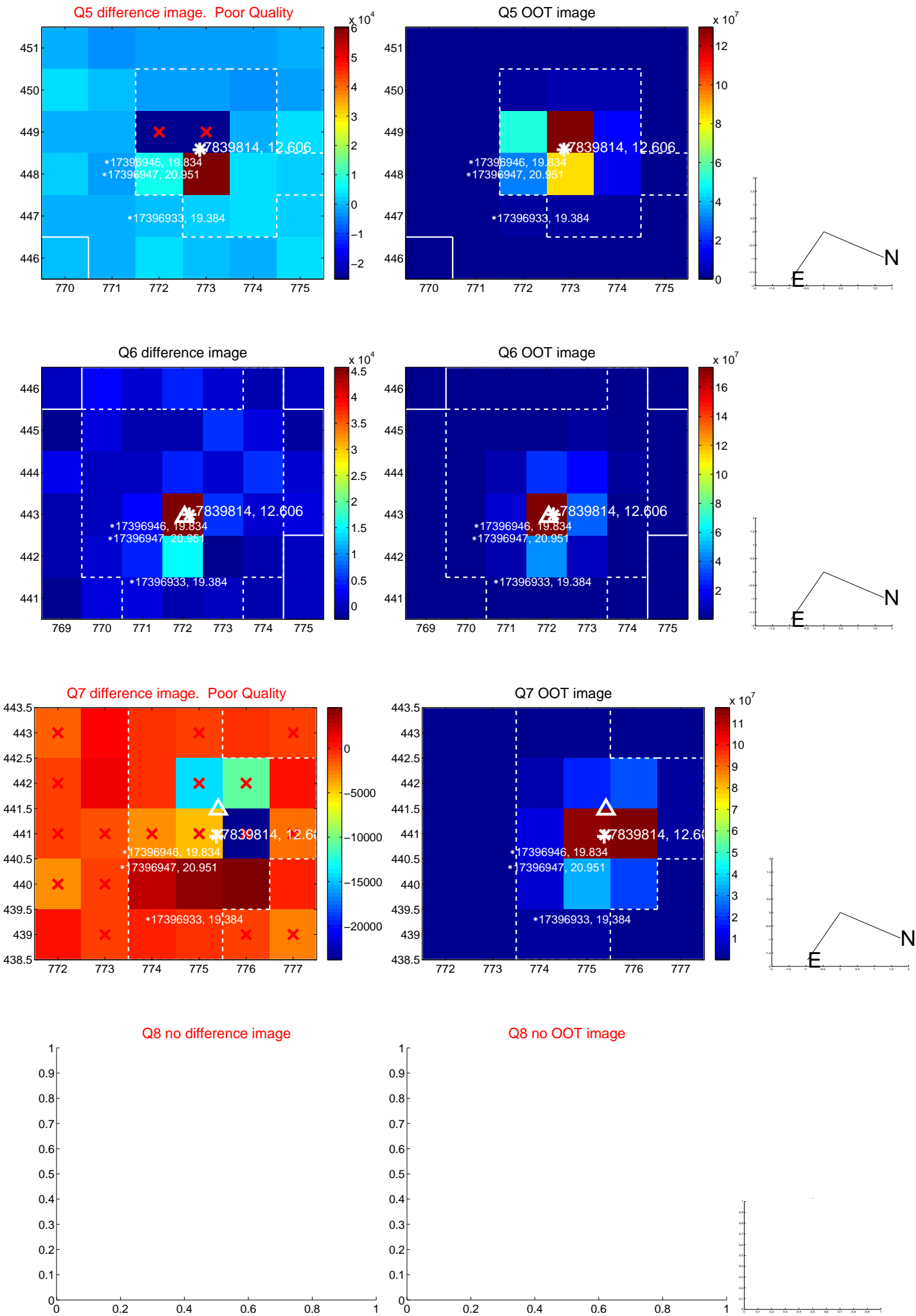


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

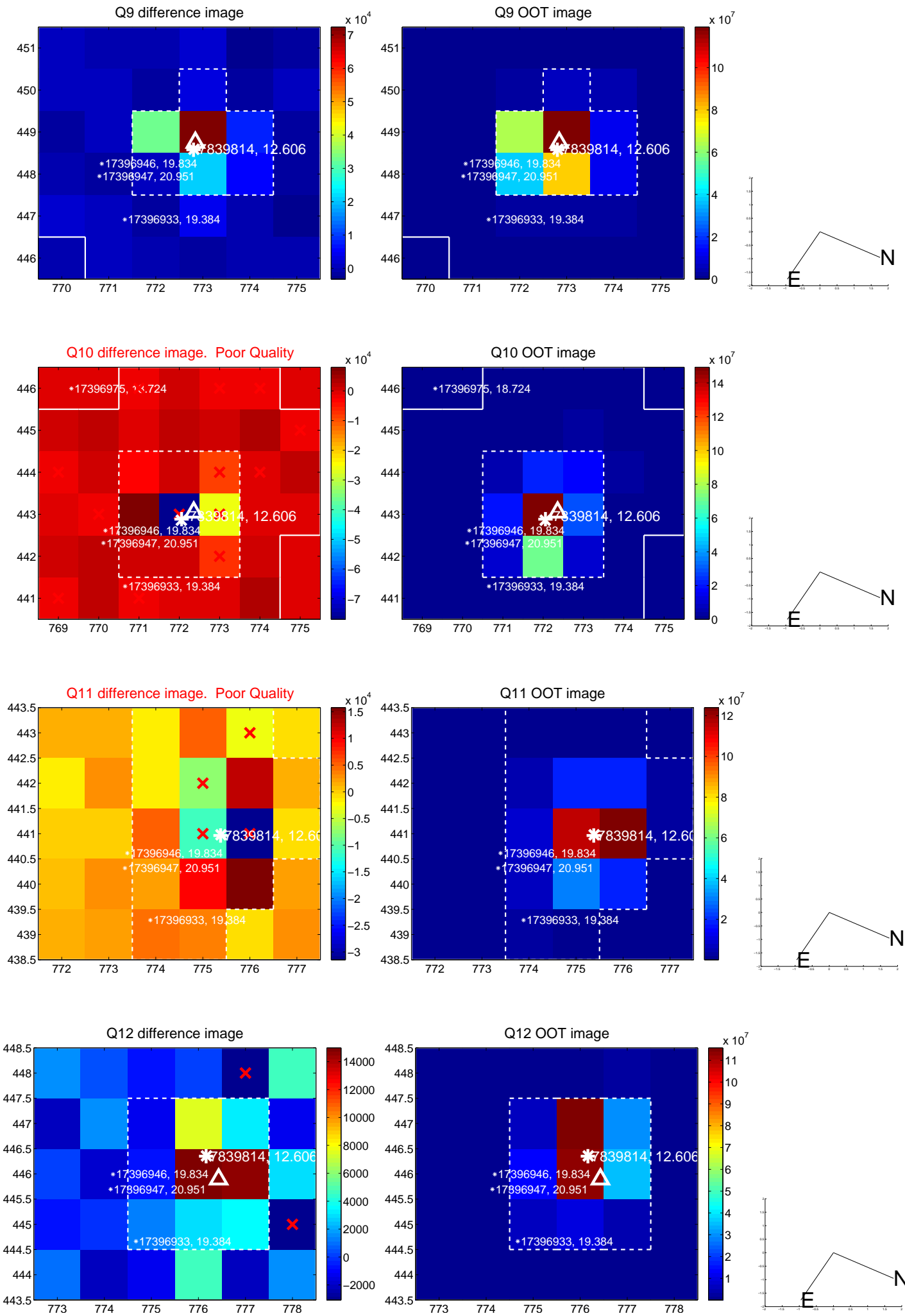
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



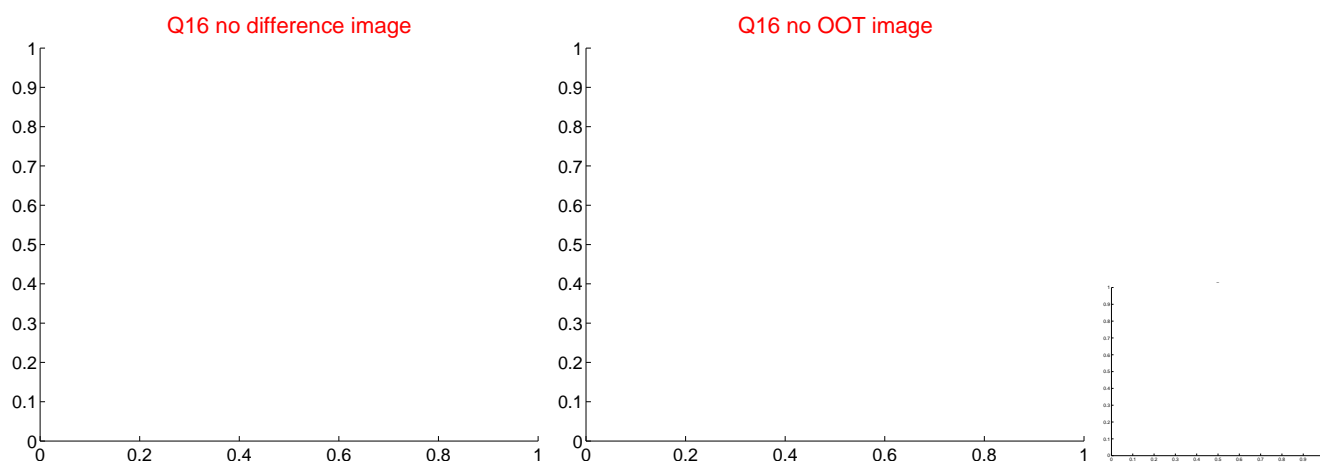
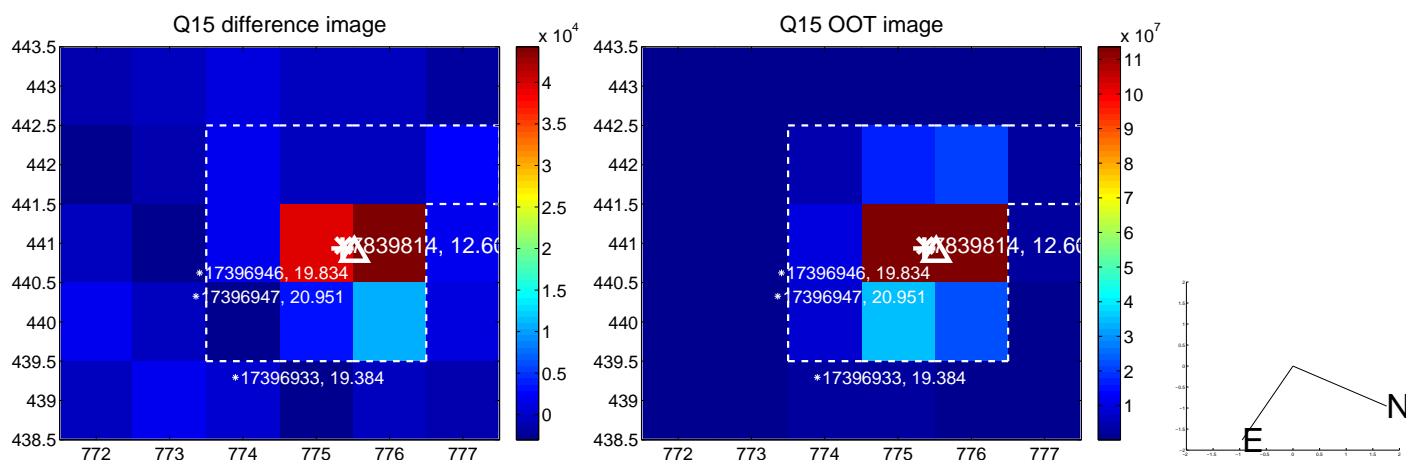
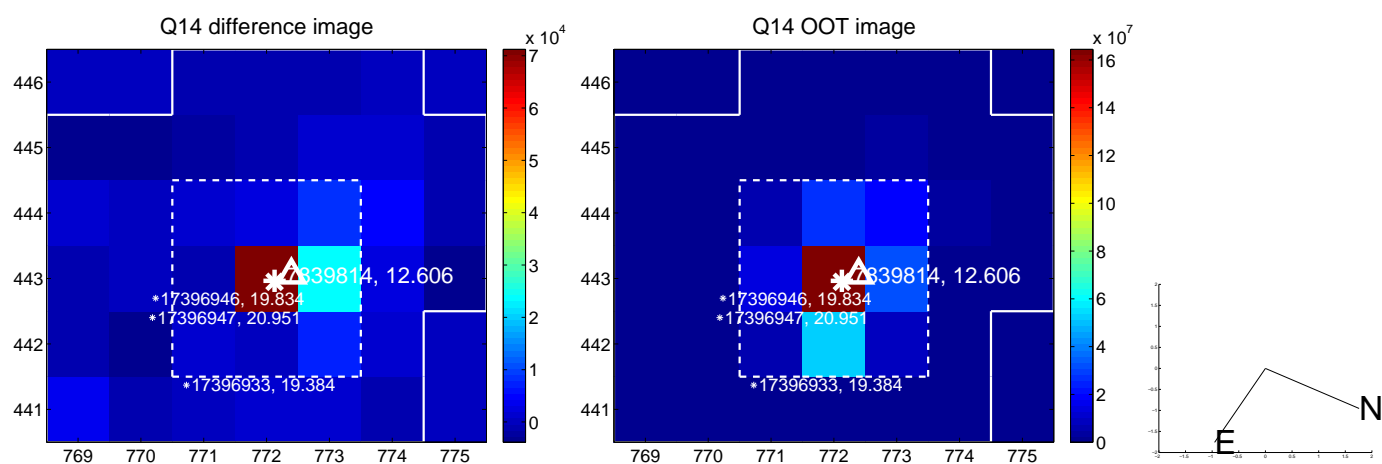
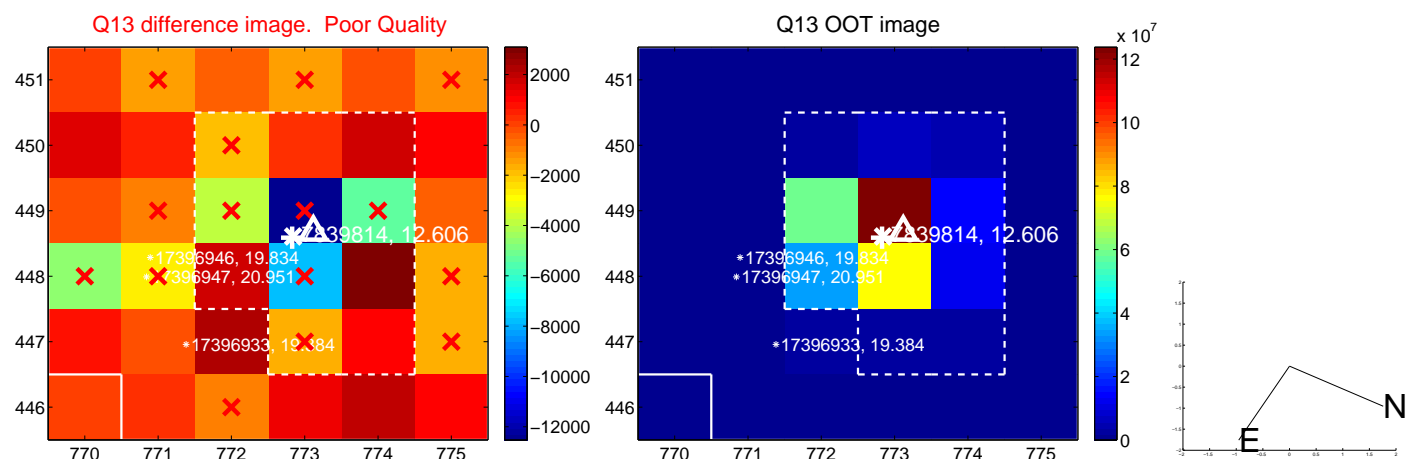
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



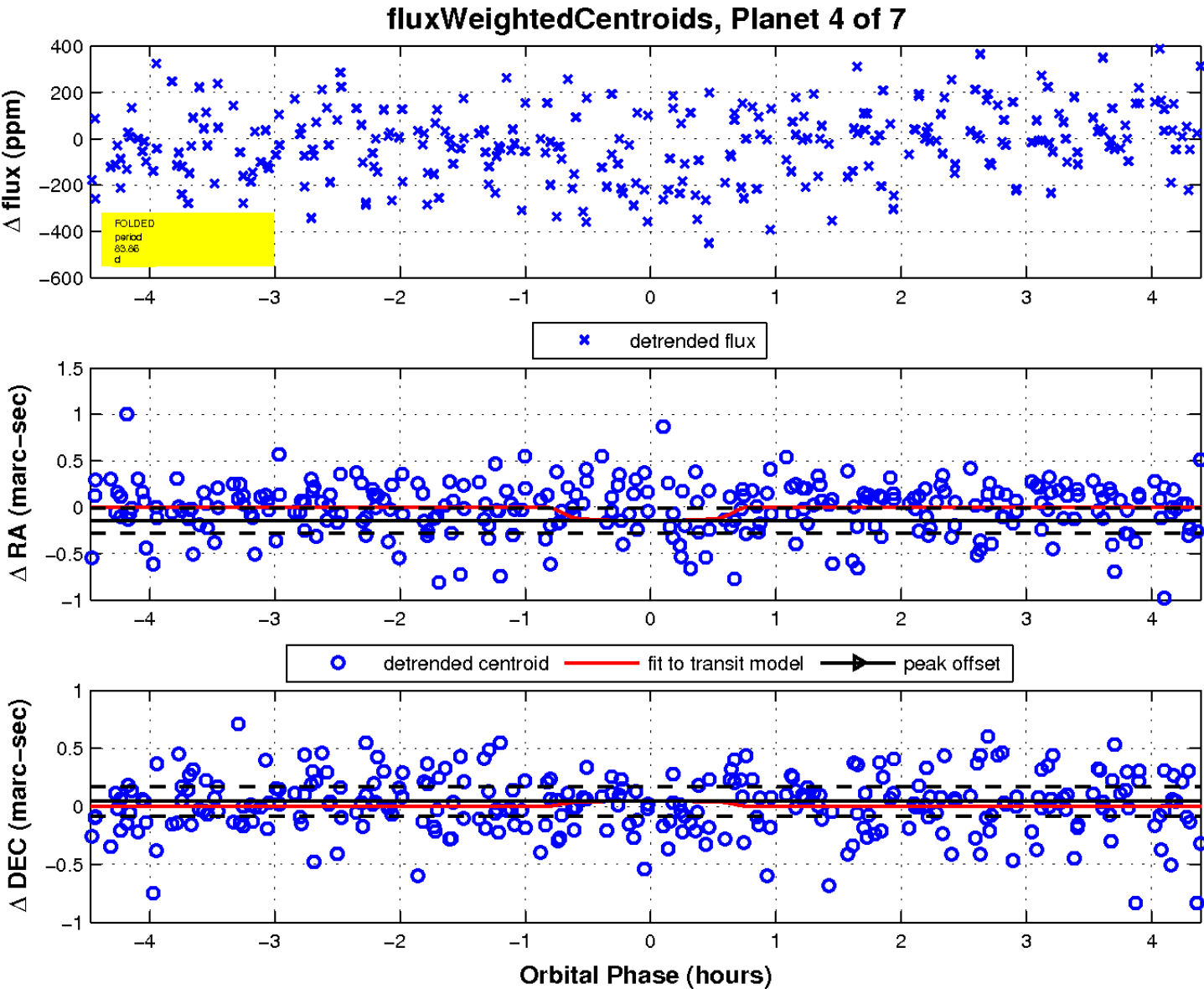
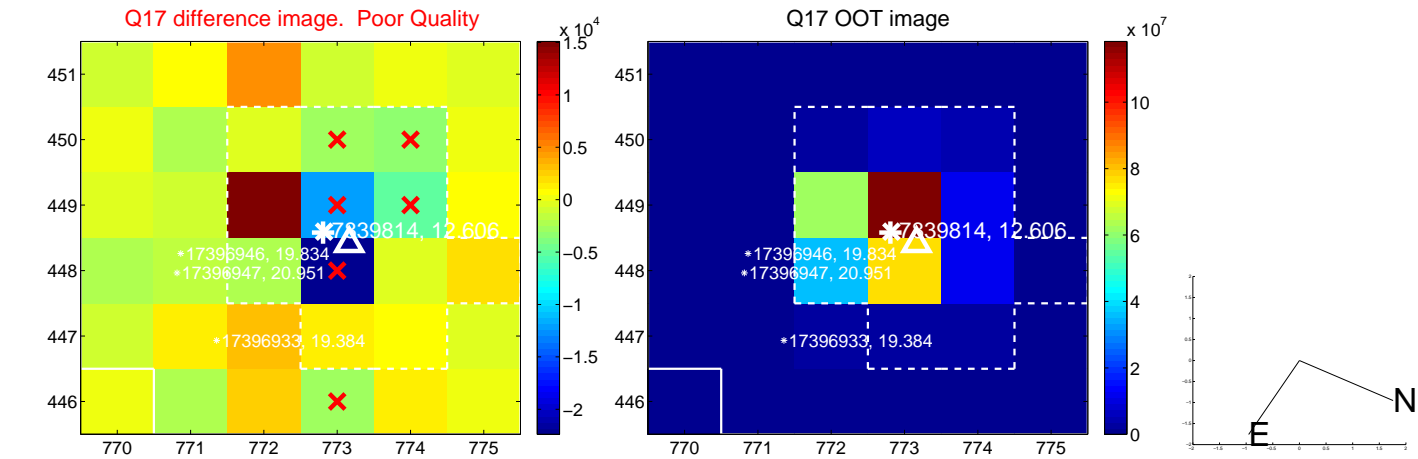
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

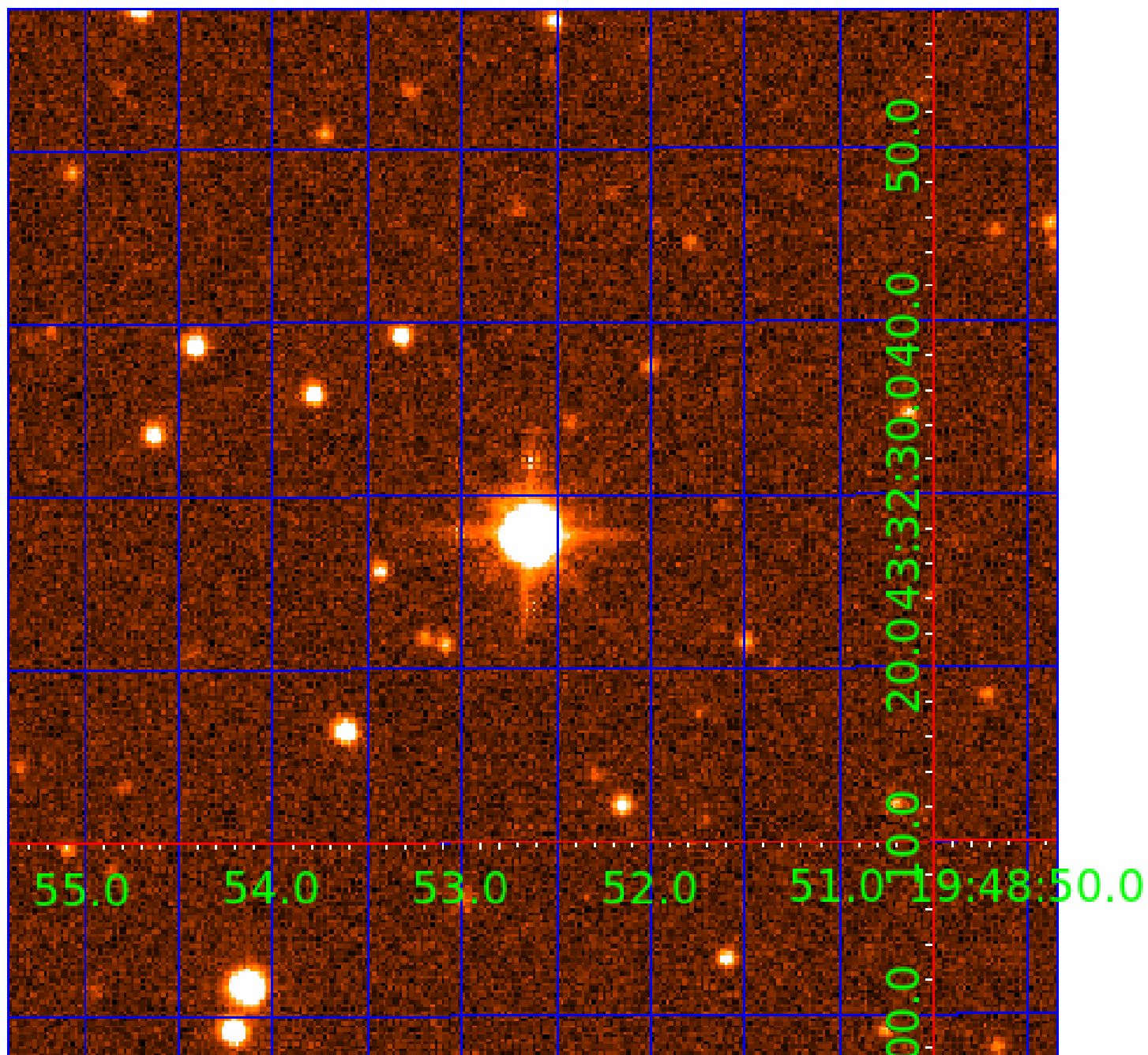


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

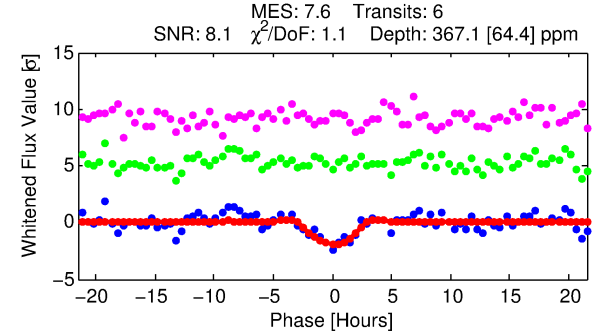
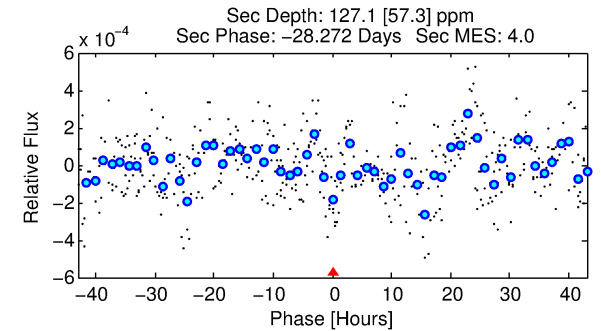
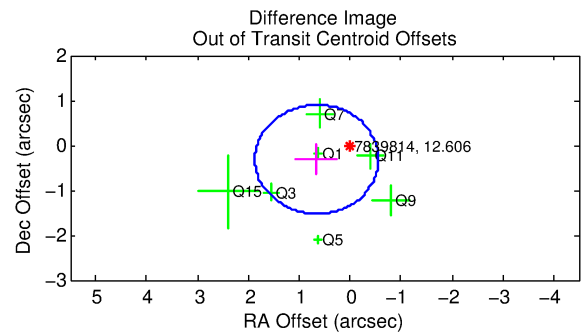
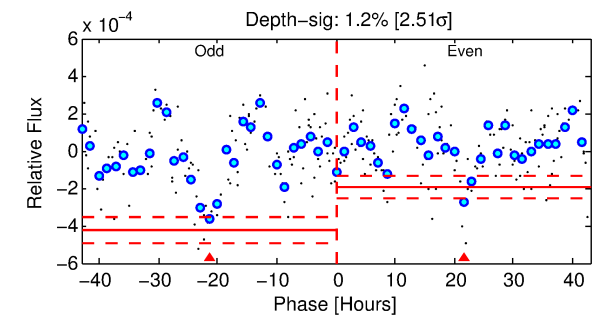
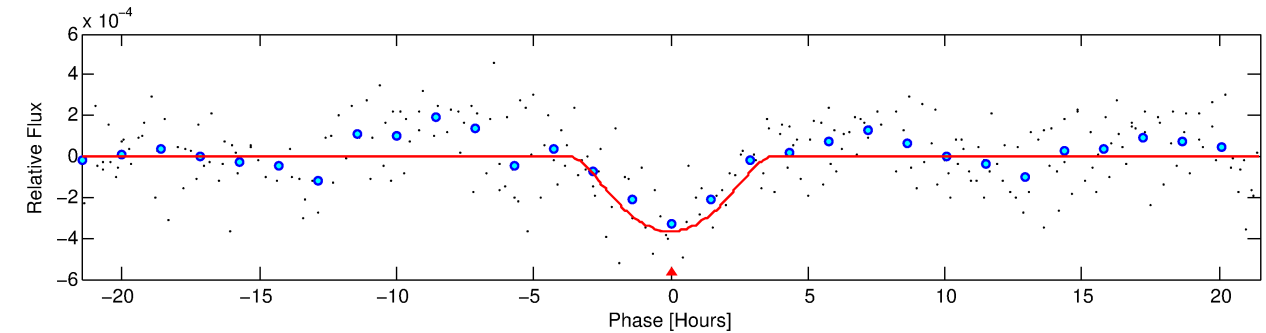
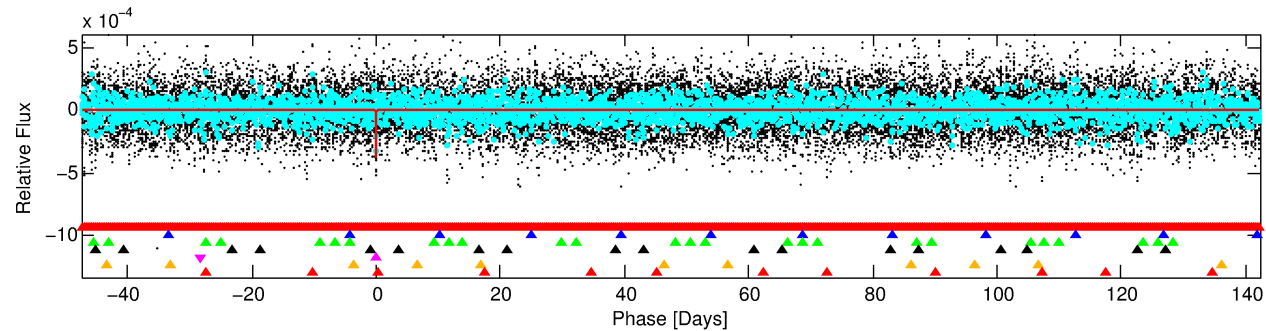
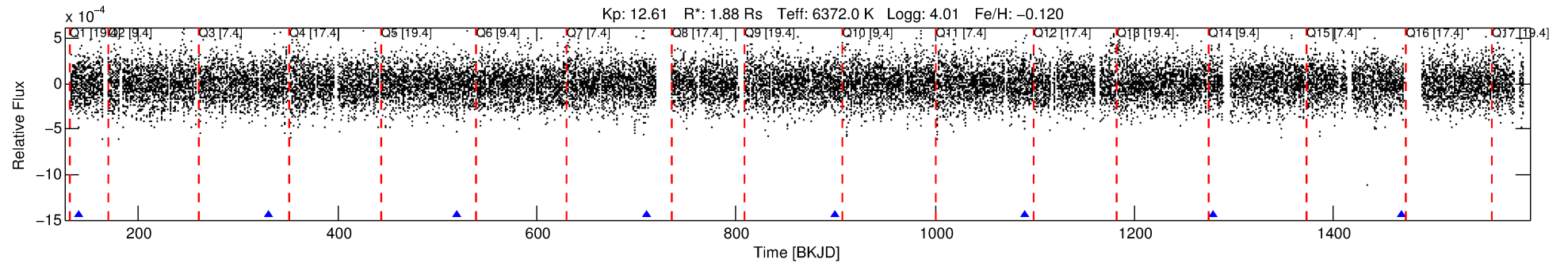
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-05

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 5 of 7 Period: 189.802 d



DV Fit Results:

Period = 189.80237 [0.00461] d
Epoch = 140.3064 [0.0186] BKJD
Rp/R* = 0.0303 [0.0622]
a/R* = 55.09 [34.93]
b = 0.99 [0.10]
Seff = 10.34 [6.14]
Teq = 457 [68] K
Rp = 6.23 [13.00] Re
a = 0.7112 [0.2587] AU
Ag = 910.81 [3793.14] [0.24 σ]
Teffp = 3884 [4007] K [0.85 σ]

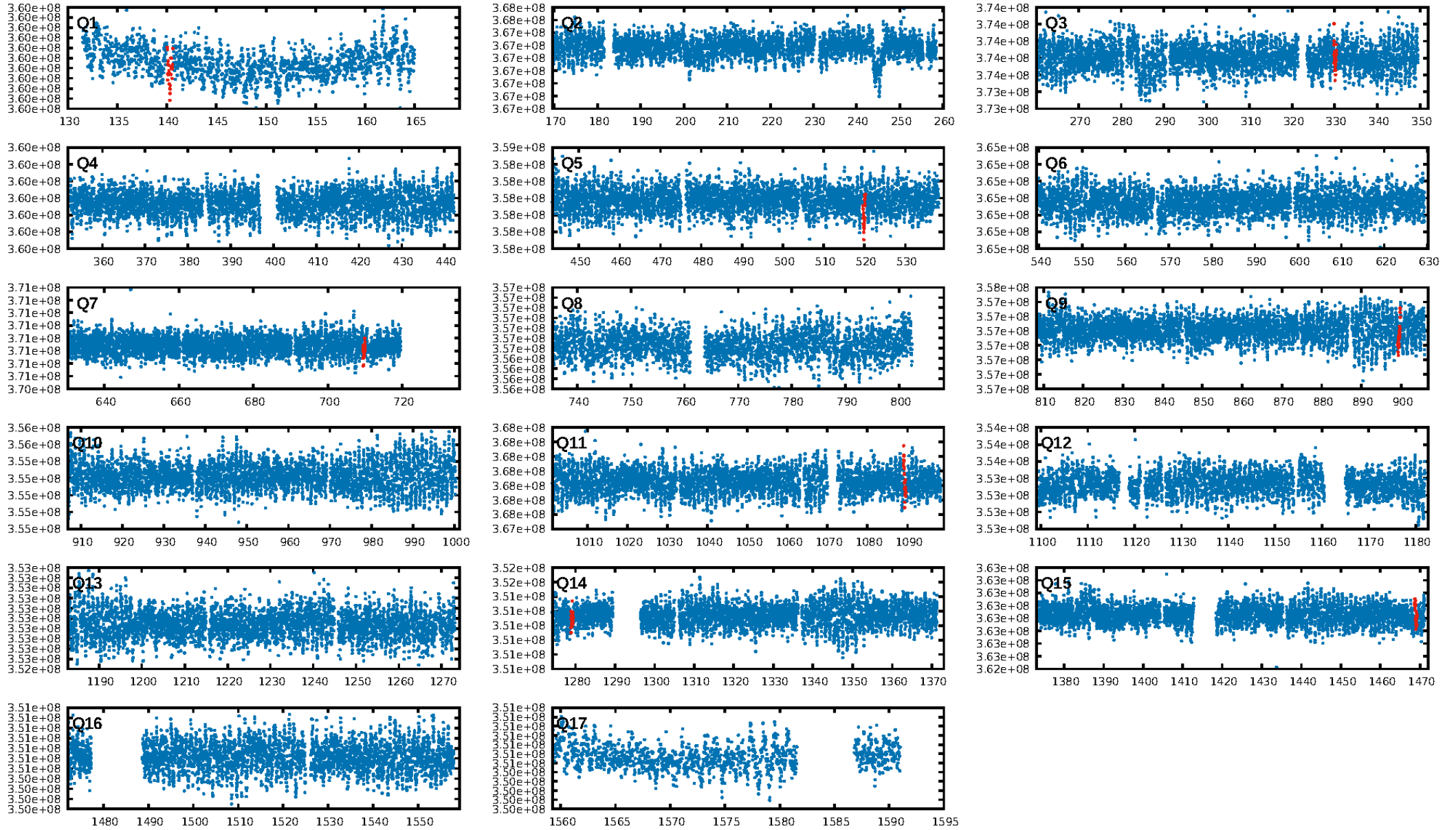
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [141.92 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 12.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.54e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.1016
Centroid-sig: 5.4%
Centroid-so: 0.314 arcsec [1.07 σ]
OotOffset-rm: 0.729 arcsec [1.80 σ]
KicOffset-rm: 0.833 arcsec [2.19 σ]
OotOffset-st: 0/4/0/3 [7]
KicOffset-st: 0/4/0/3 [7]
DiffImageQuality-fgm: 0.86 [6/7]
DiffImageOverlap-fno: 0.00 [0/7]

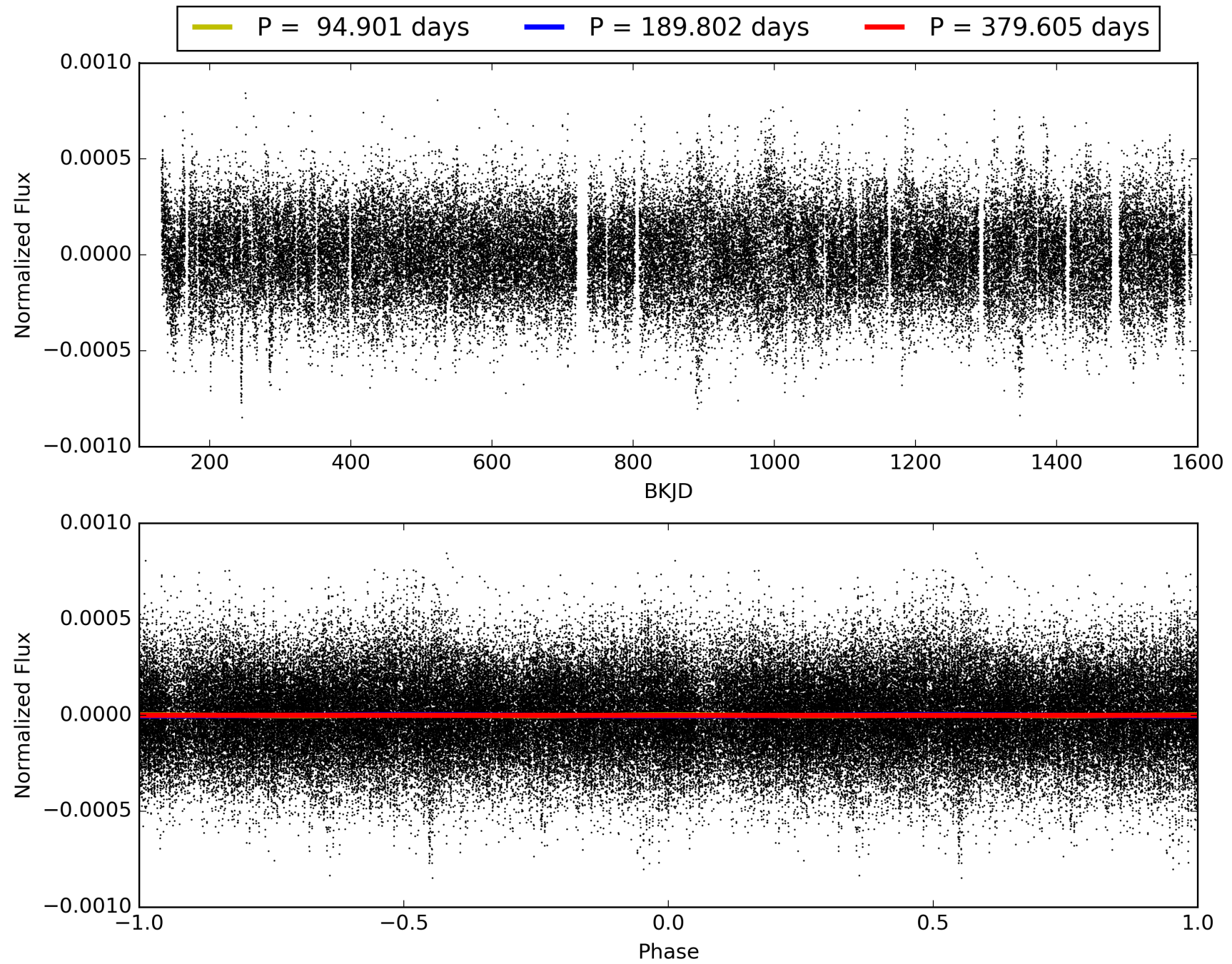
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:39:55 Z

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

TCE 007839814-05, PDC Light Curves

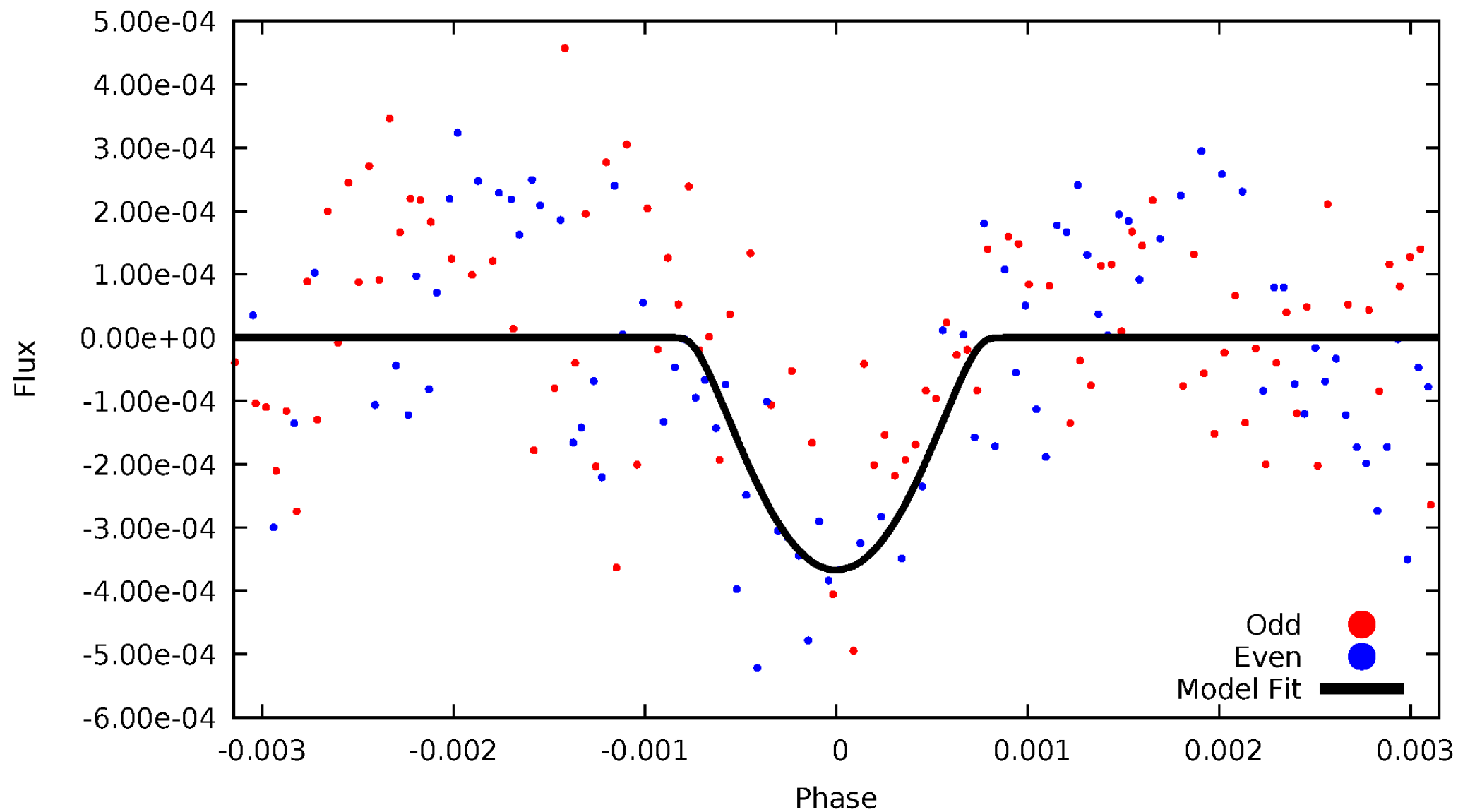


TCE 007839814-05



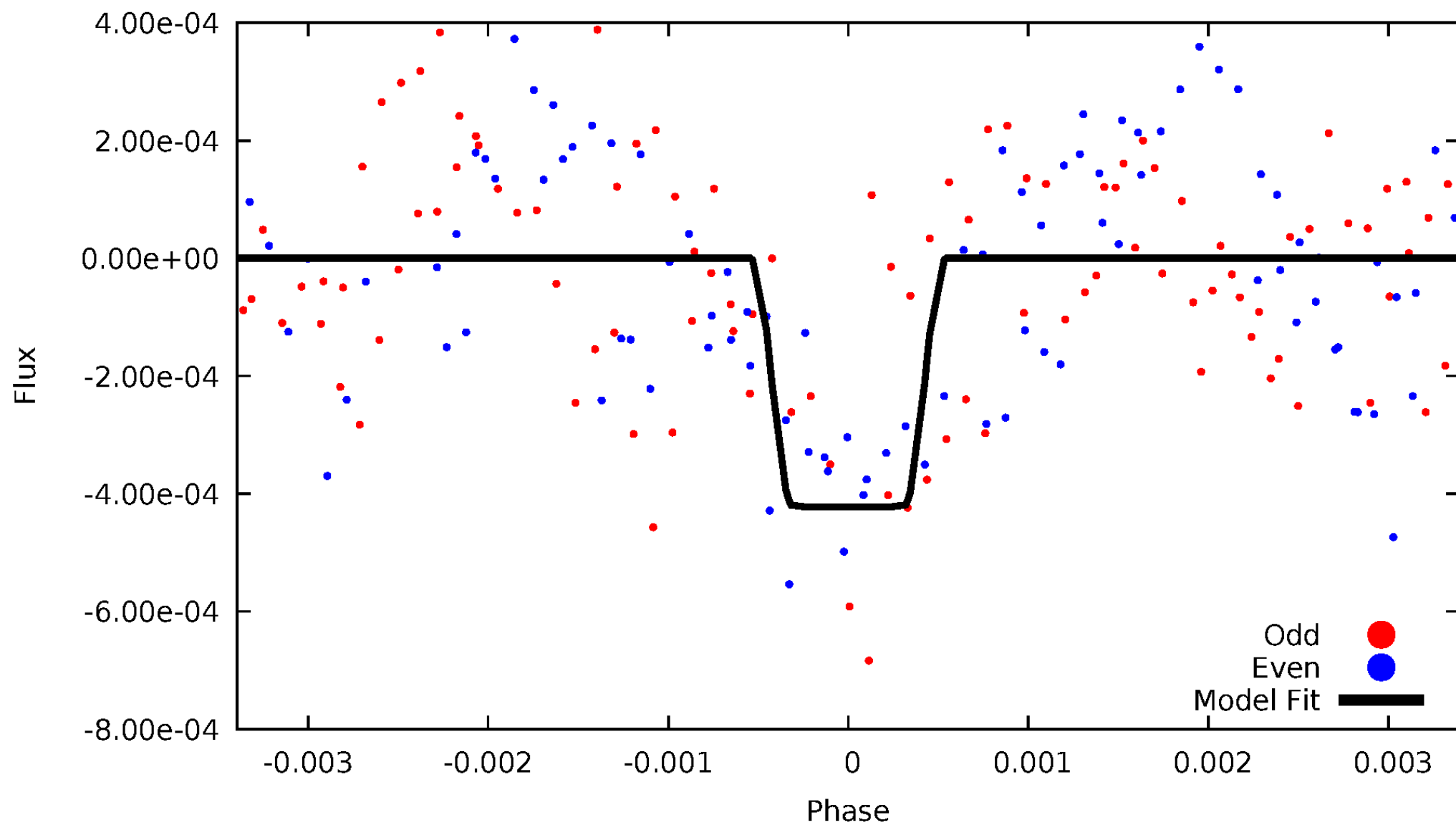
DV Odd/Even

TCE 007839814-05



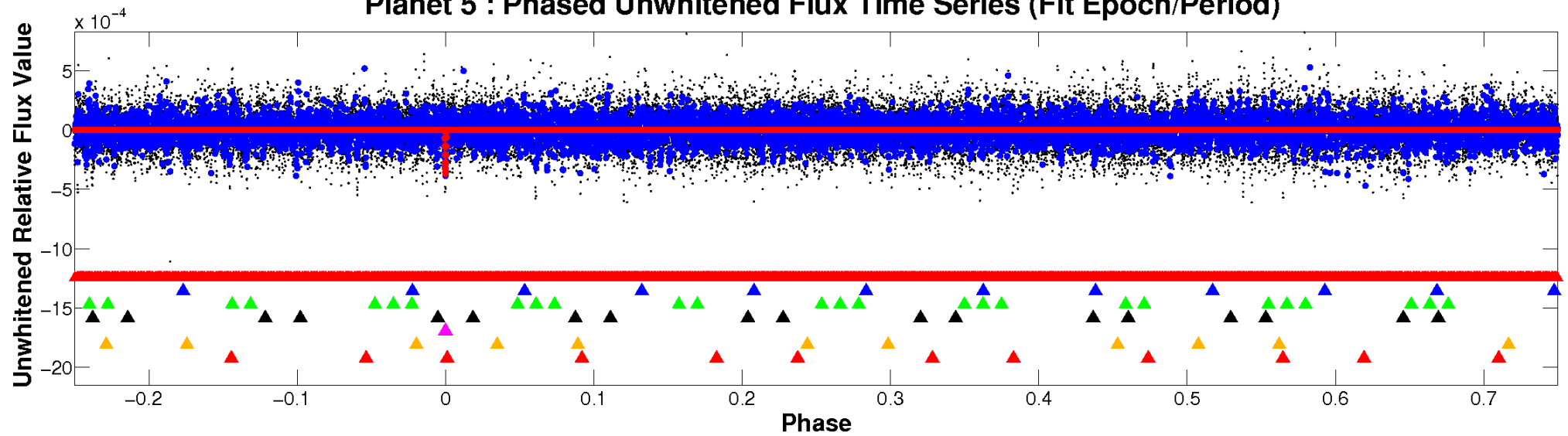
ALT Odd/Even

TCE 007839814-05

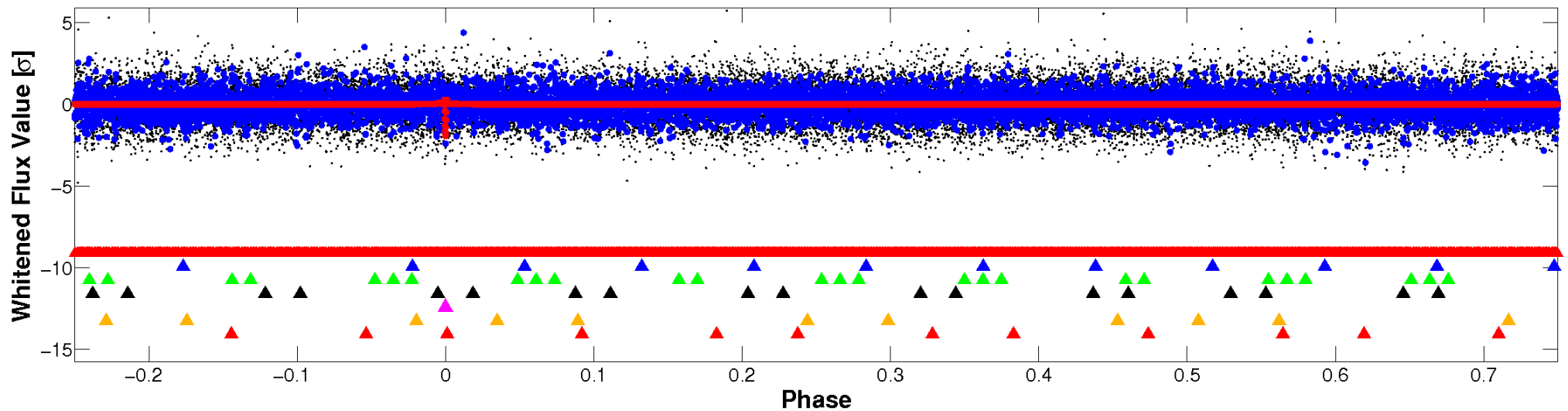


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

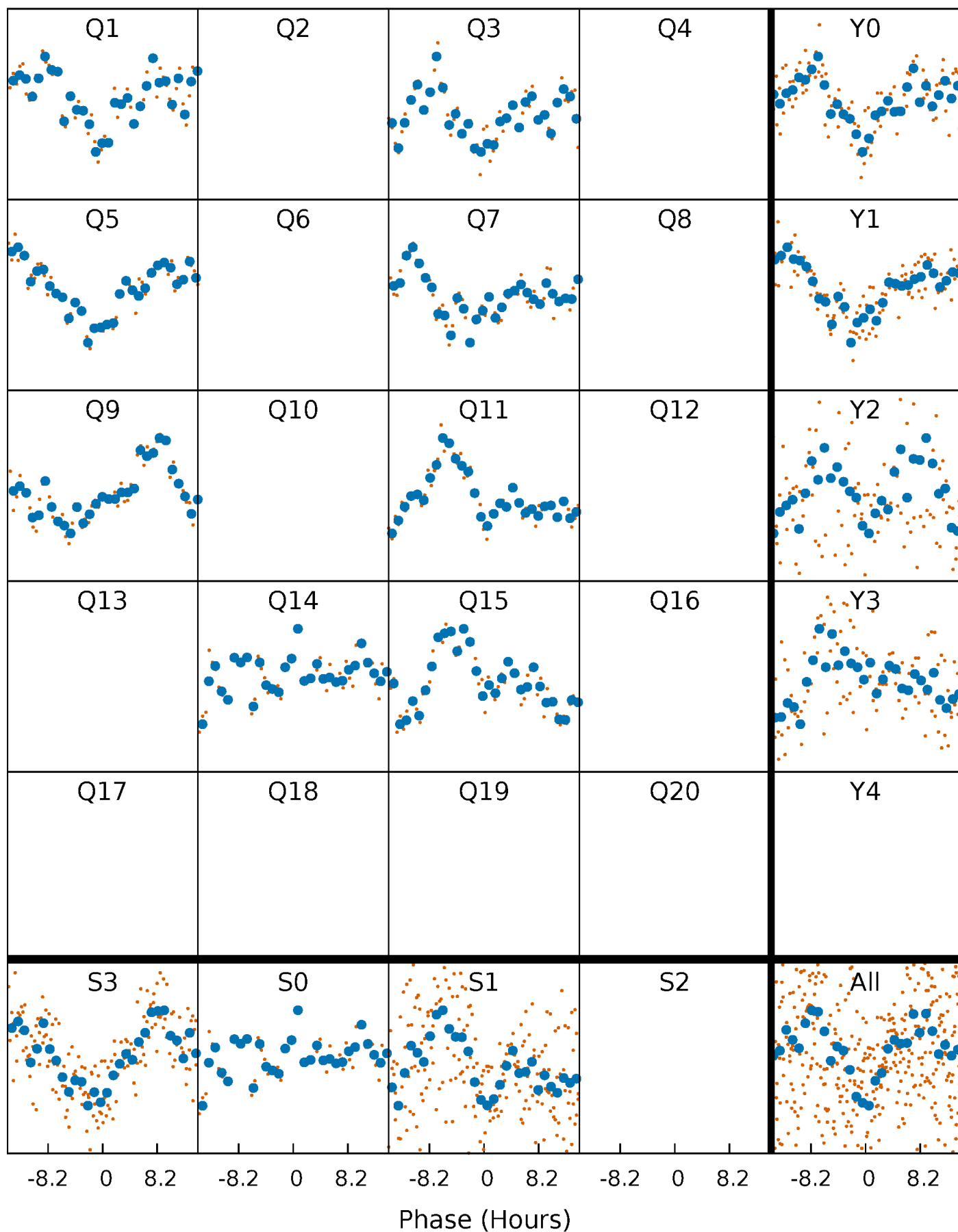


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



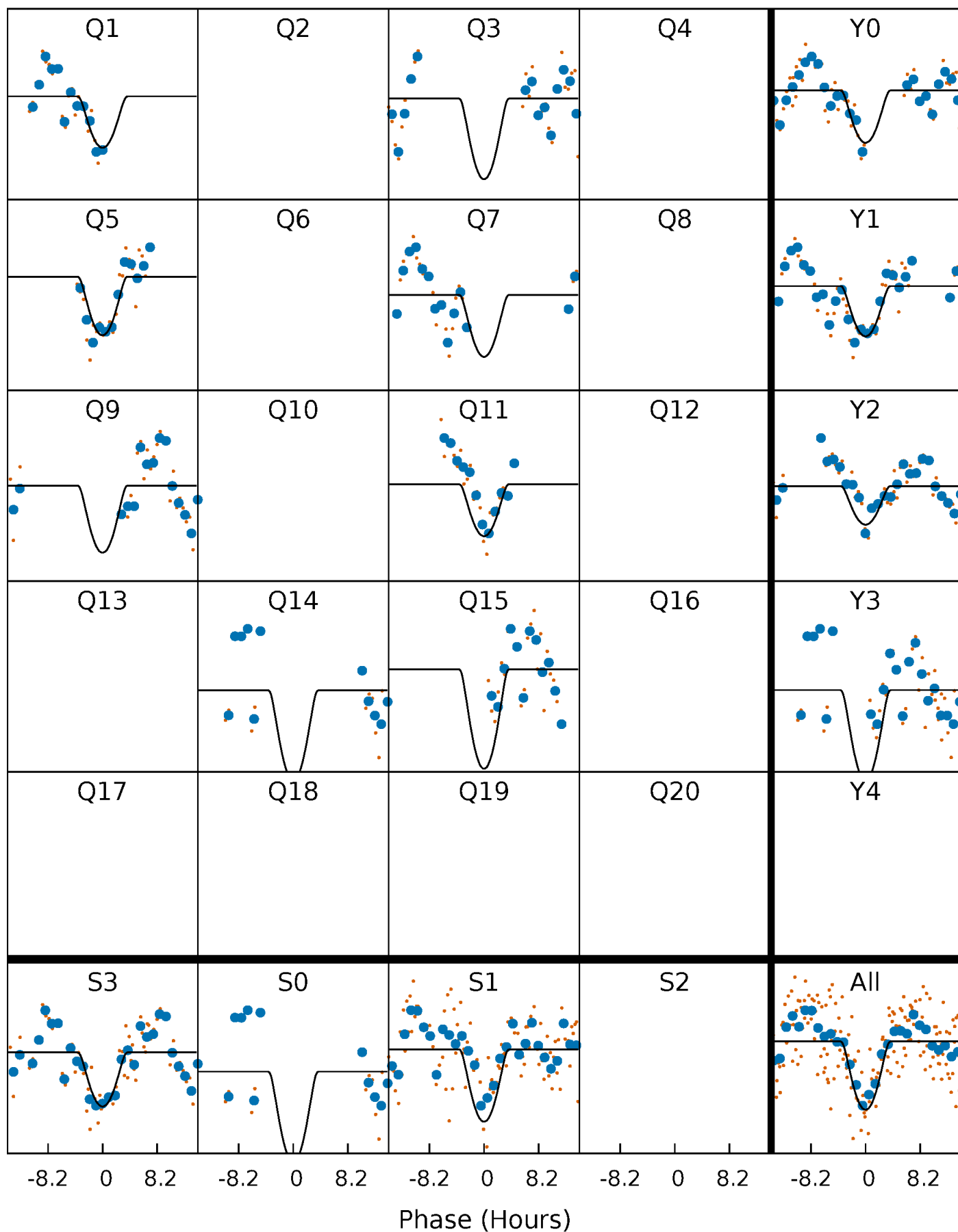
PDC Quarter-Phased Transit Curves

TCE 007839814-05 P=189.802375 Days $T_0=140.306372$ (BKJD)



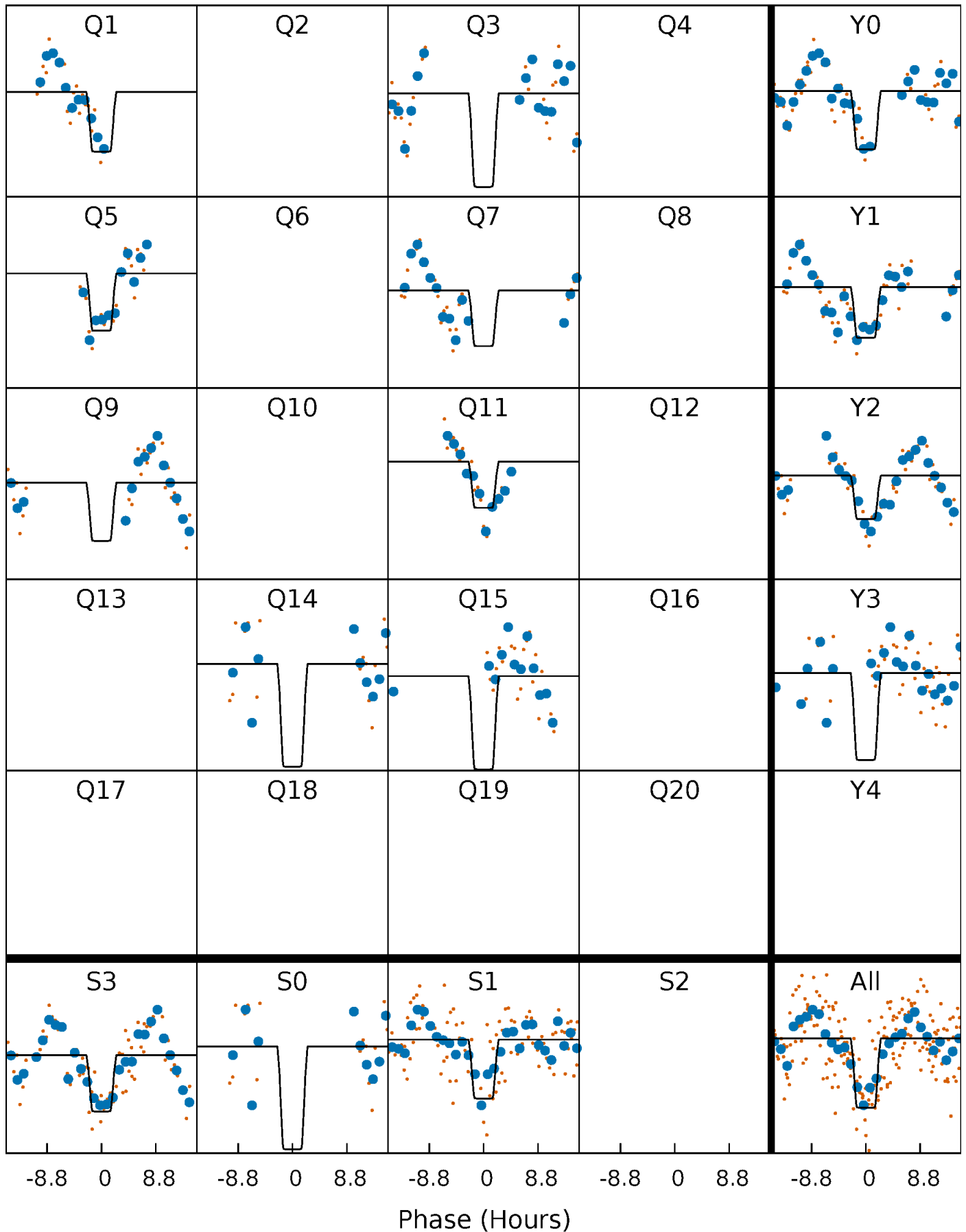
DV Quarter-Phased Transit Curves

TCE 007839814-05 $P=189.802375$ Days $T_0=140.306372$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

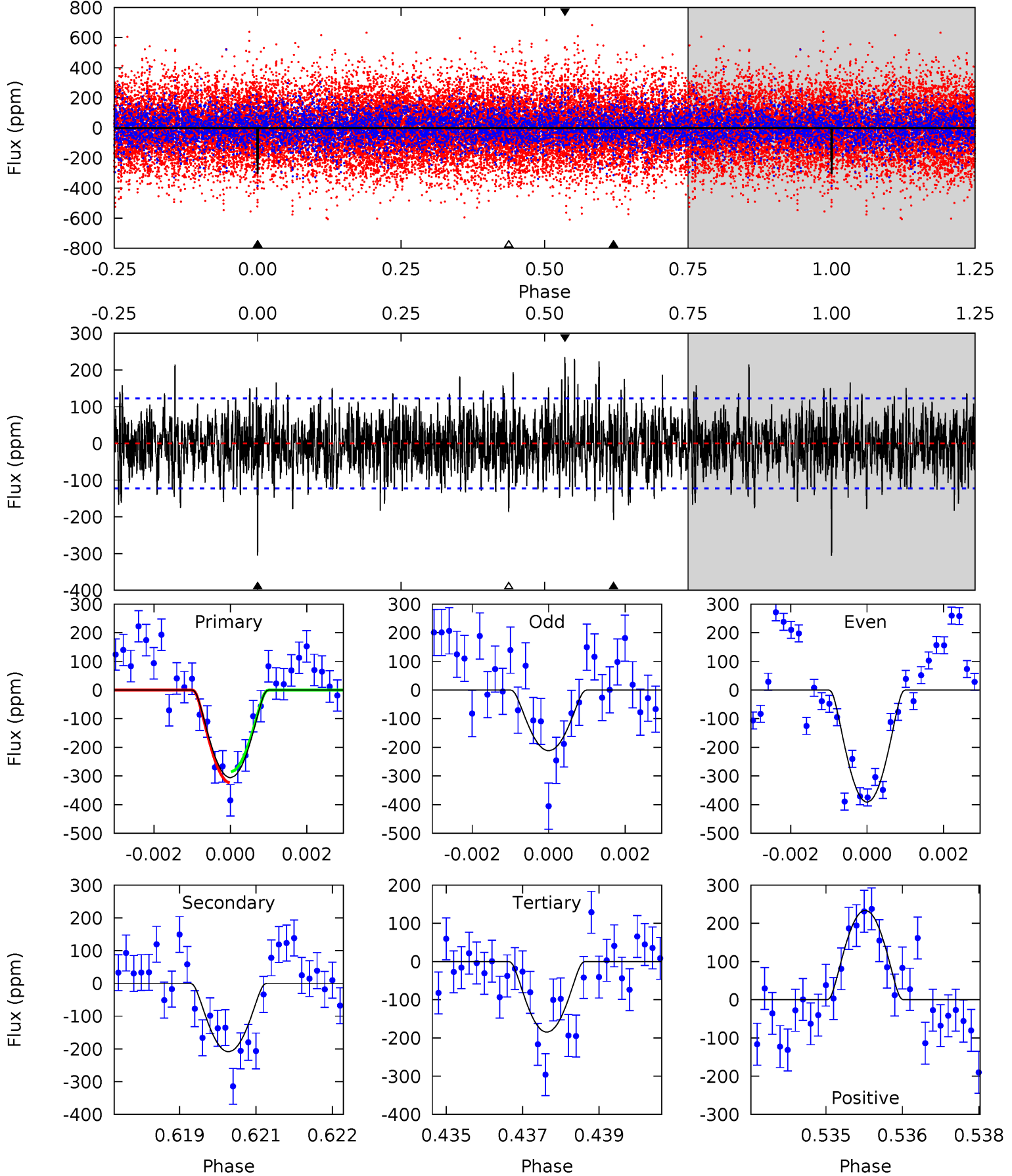
TCE 007839814-05 $P=189.806150$ Days $T_0=140.282897$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-05, P = 189.802375 Days, E = 140.306372 Days

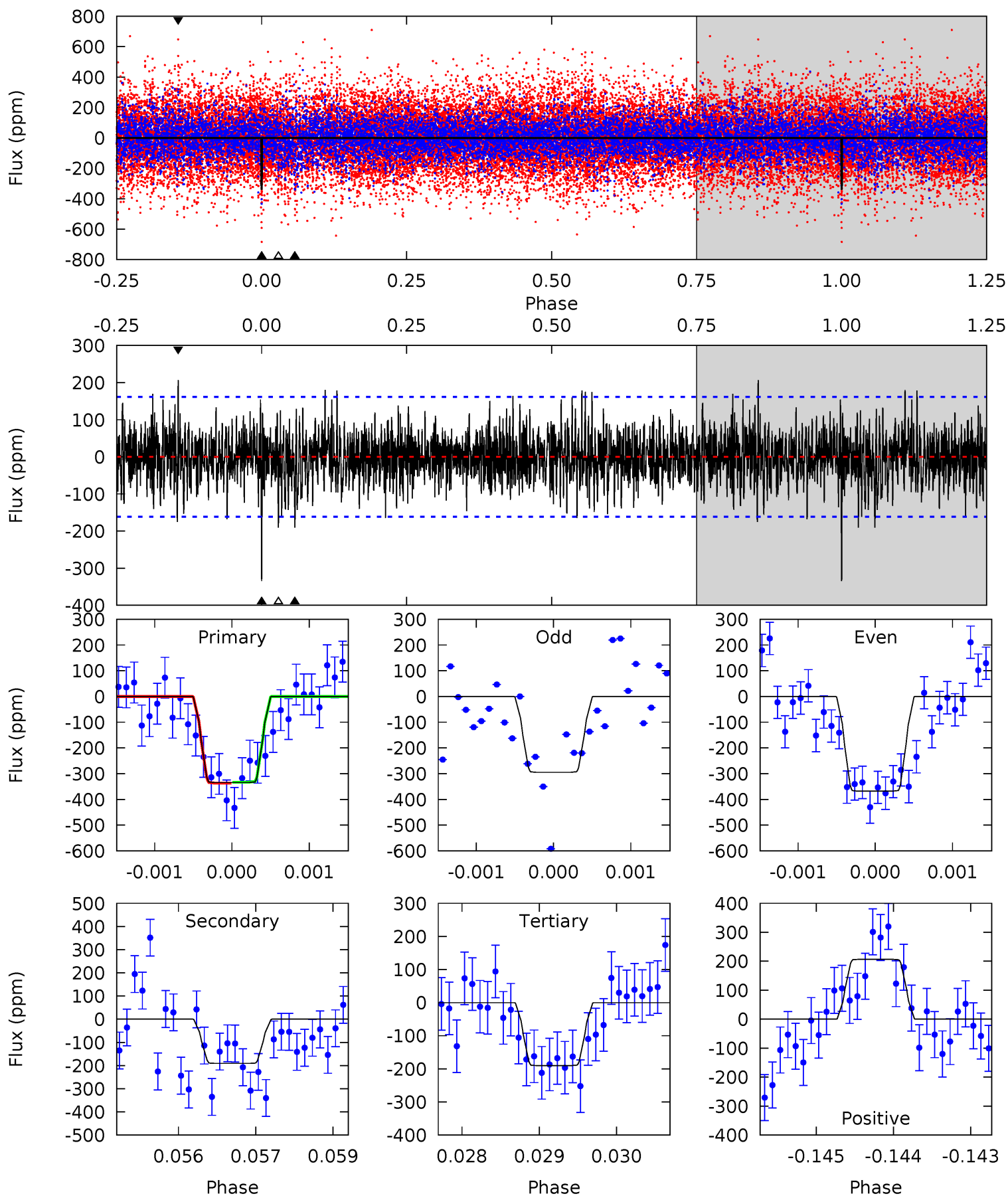
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.4 | 9.12 | 8.07 | 10.2 | 5.36 | 3.15 | 2.61 | 5.28 | 3.13 | 1.04 | -1.11 | 3.93 | 1.85 | 0.43 | 0.84 |



Alt Model-Shift Uniqueness Test

007839814-05, P = 189.806150 Days, E = 140.282897 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.3 | 6.42 | 6.41 | 6.96 | 5.44 | 3.27 | 1.75 | 4.86 | 4.31 | 0.02 | -0.53 | 1.25 | 0.78 | 0.38 | 0.06 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-05 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|--------------------------|-------------------|-----------------------|----------------------|
| DV | -208 ± 23 | $10.85^{+10.62}_{-7.68}$ | 625^{+46}_{-62} | 3621^{+2270}_{-635} | 489^{+5315}_{-363} |
| Alt. | -191 ± 30 | $9.97^{+10.22}_{-6.74}$ | 626^{+52}_{-64} | 3684^{+1995}_{-676} | 563^{+4559}_{-434} |

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 $A_{obs} \gg 1.0$

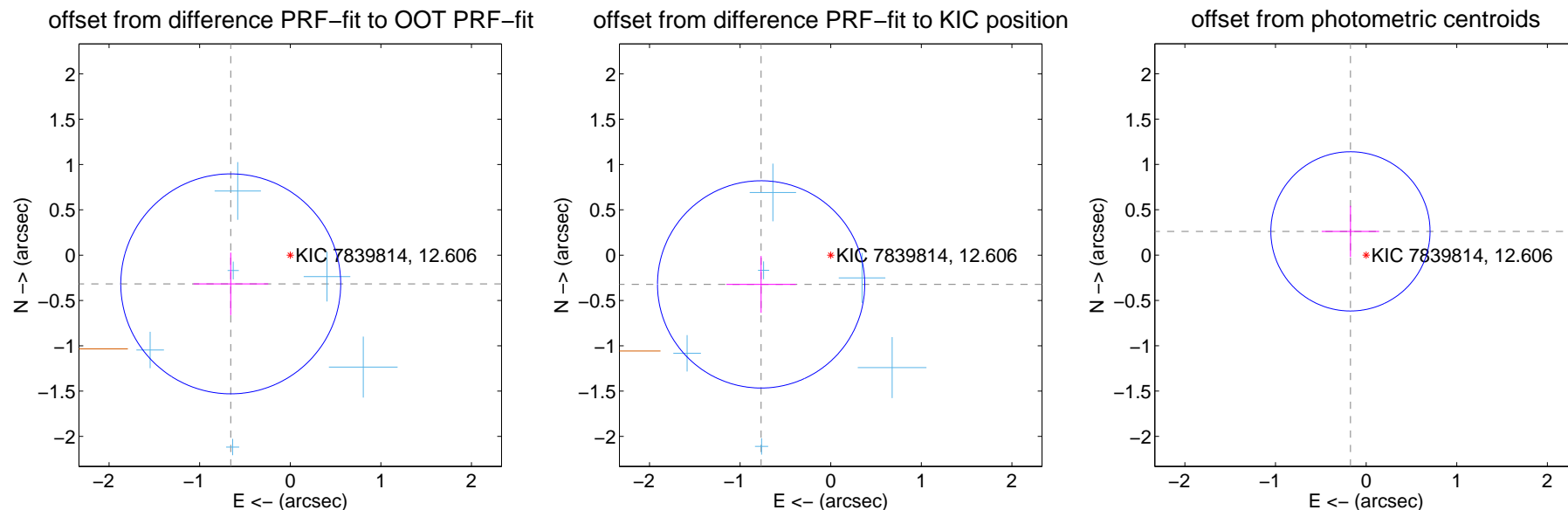
DV Centroid Data

Supplemental centroid analysis for 007839814-05. Kepler magnitude: 12.61. Transit SNR 8.12

There are 6 quarters with good PRF difference image offsets

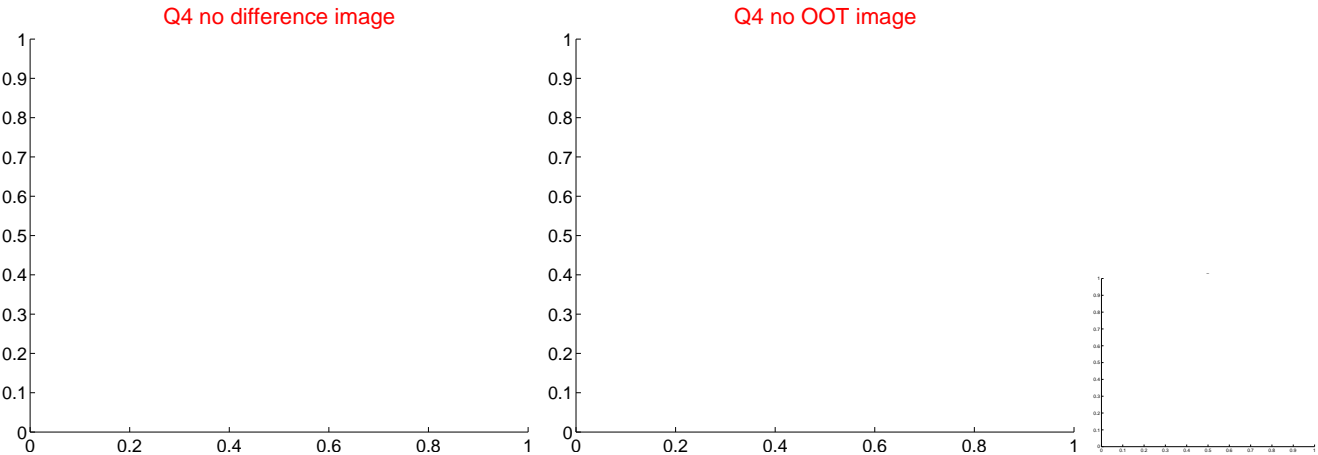
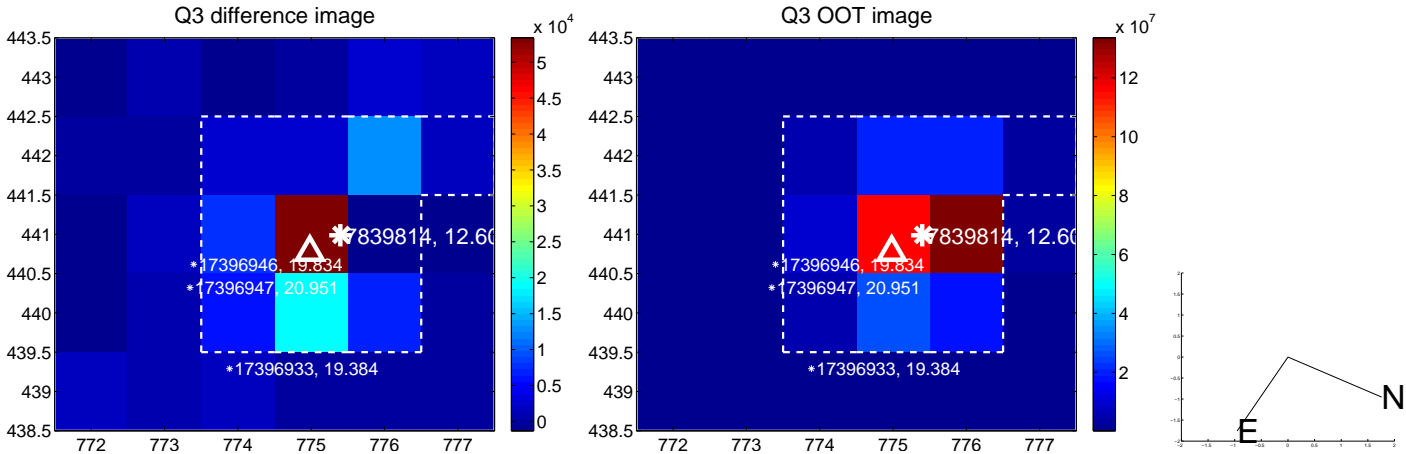
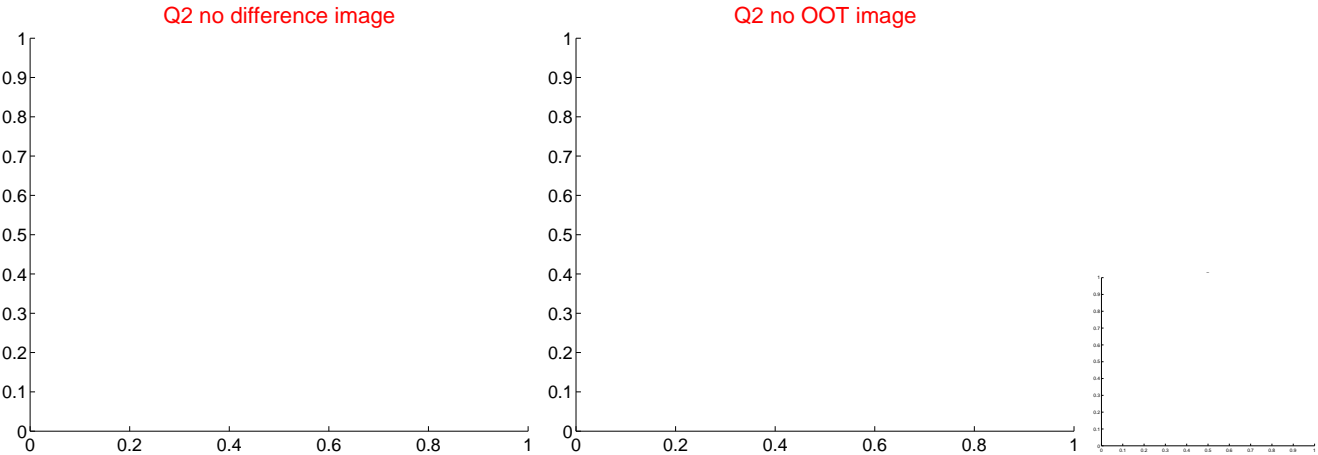
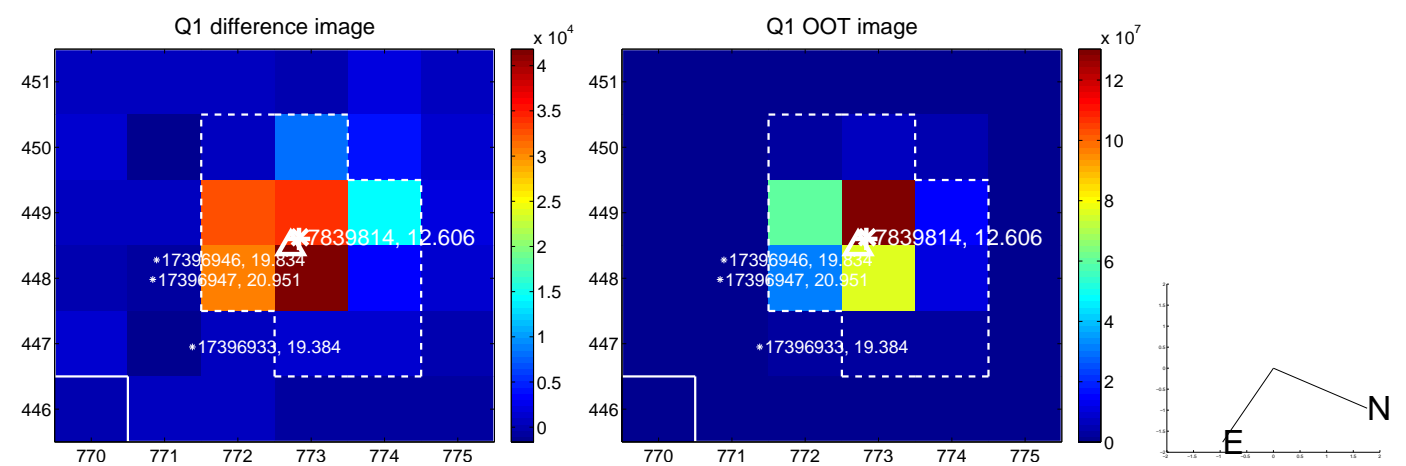
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.729 ± 0.404 | 1.80 | 0.657 ± 0.413 | -0.317 ± 0.345 |
| PRF-fit source offset from KIC position | 0.833 ± 0.381 | 2.19 | 0.768 ± 0.384 | -0.323 ± 0.313 |
| photometric centroid source offset | 0.31 ± 0.29 | 1.07 | 0.17 ± 0.32 | 0.26 ± 0.28 |

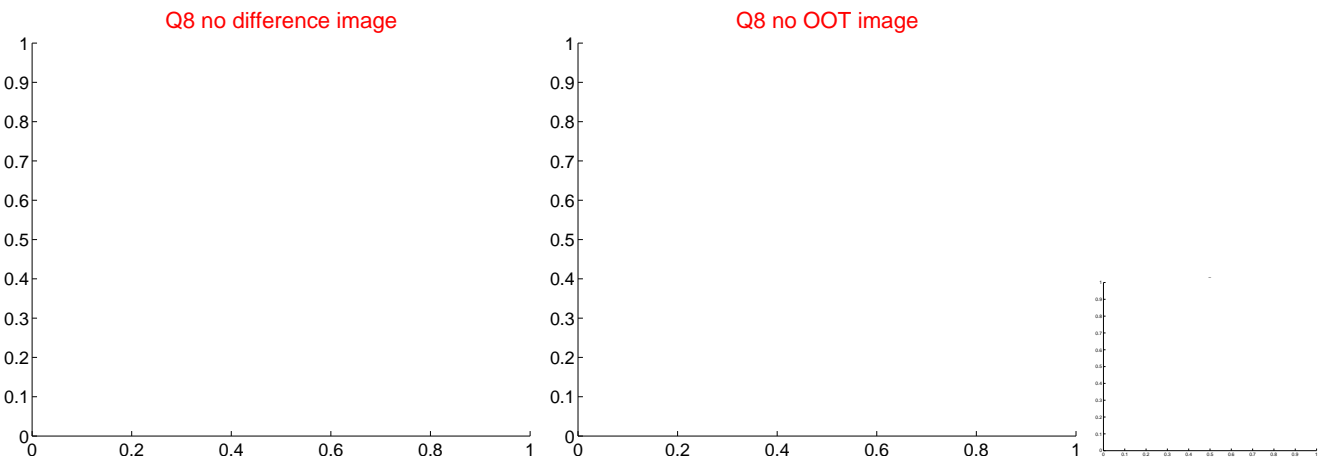
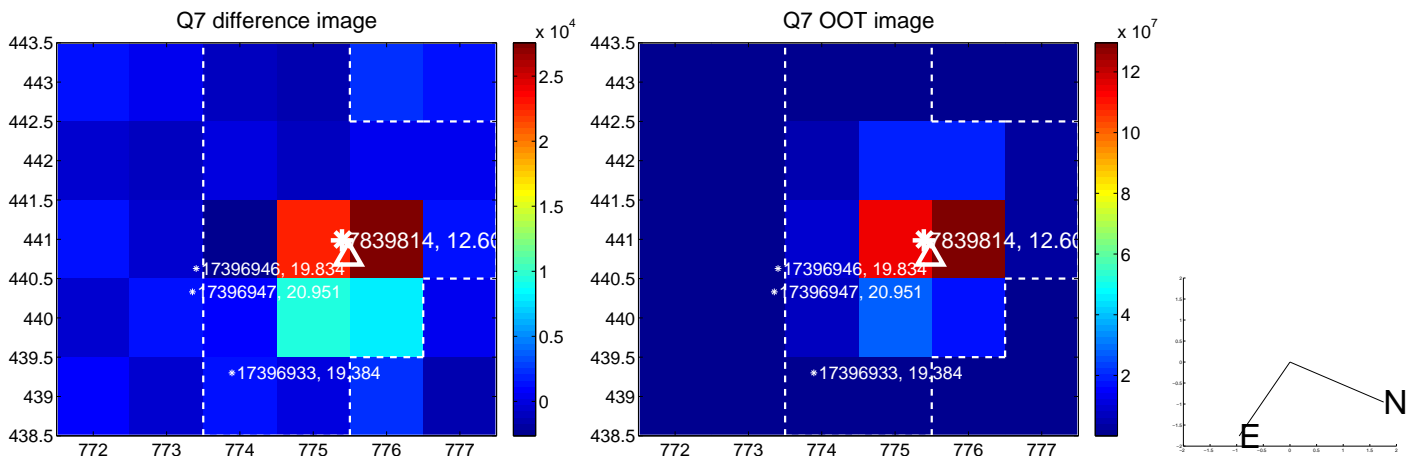
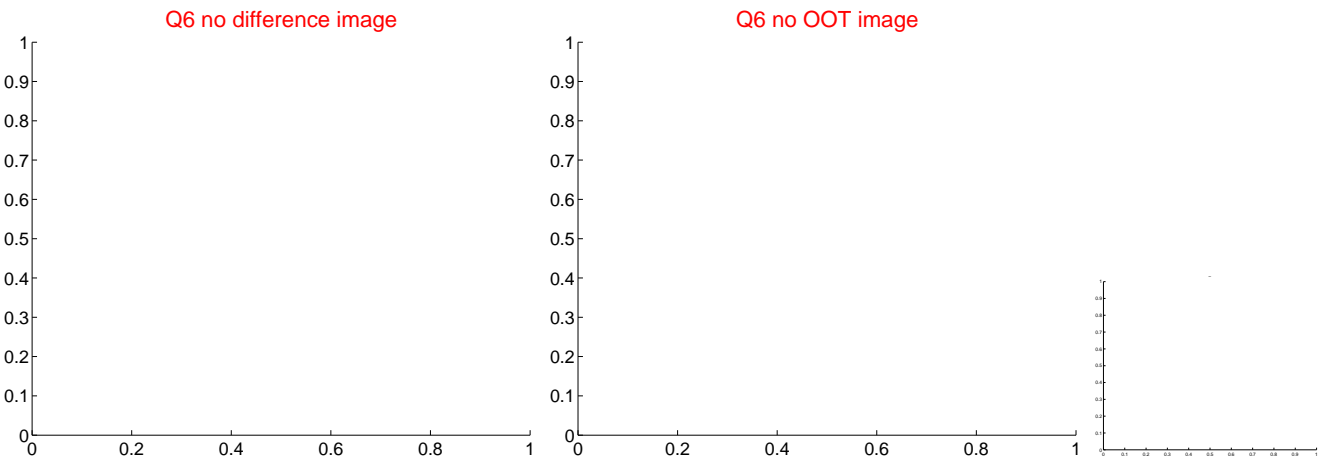
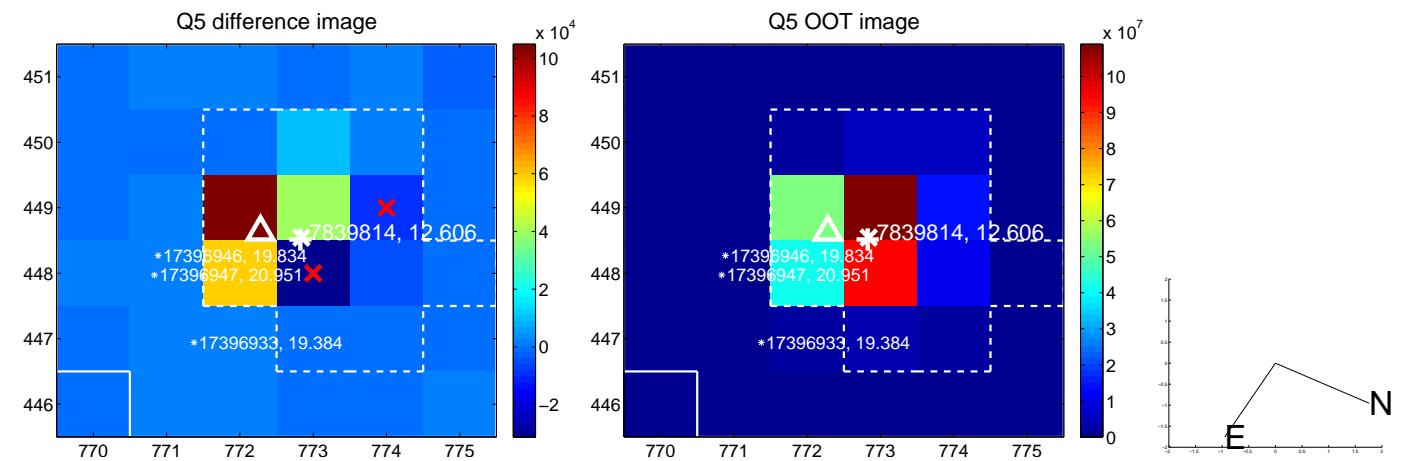


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

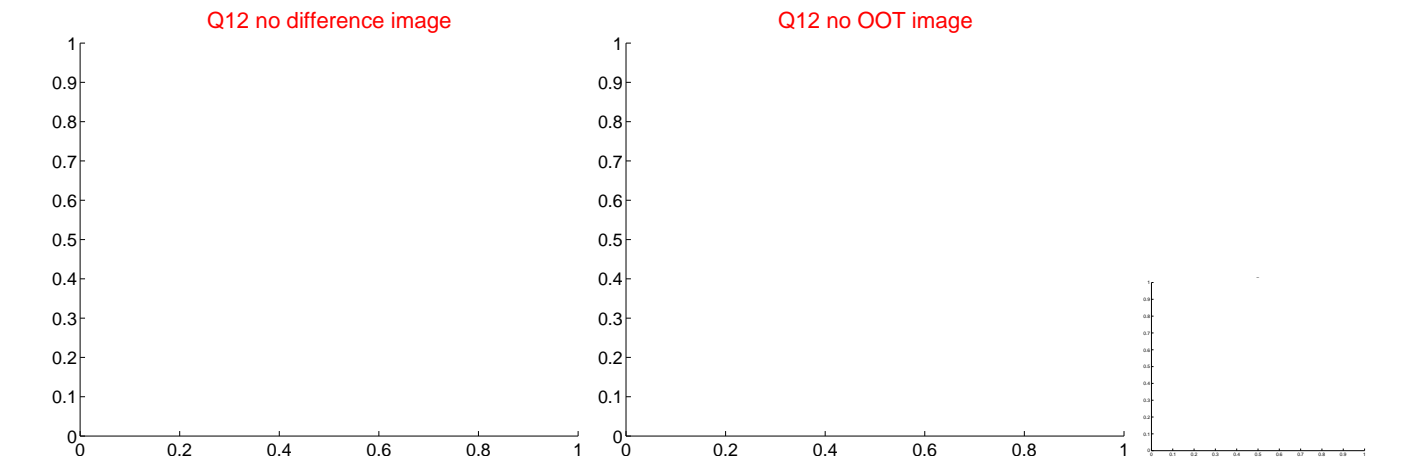
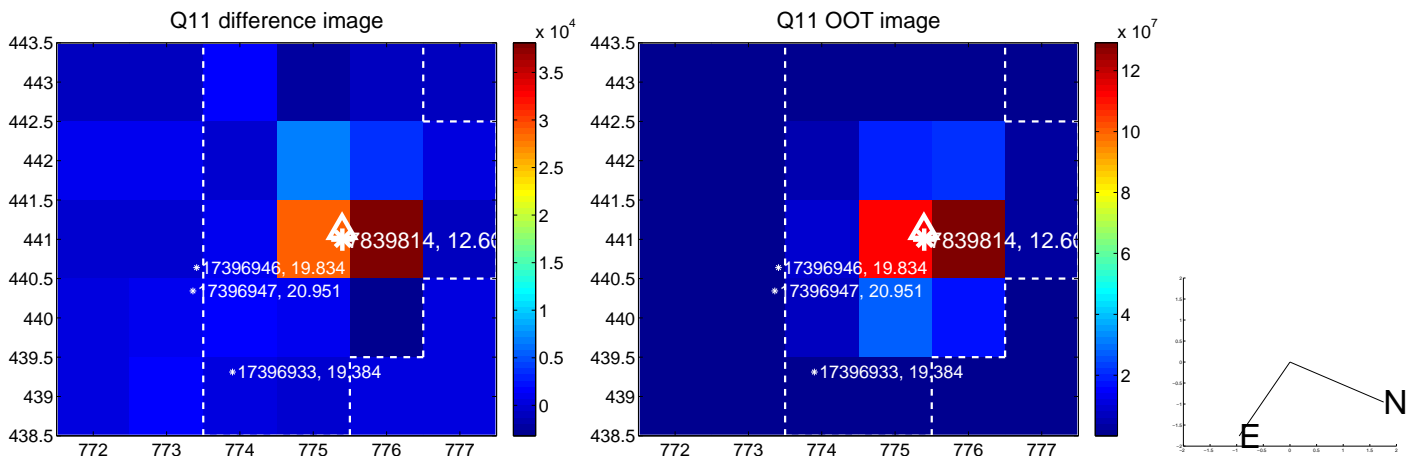
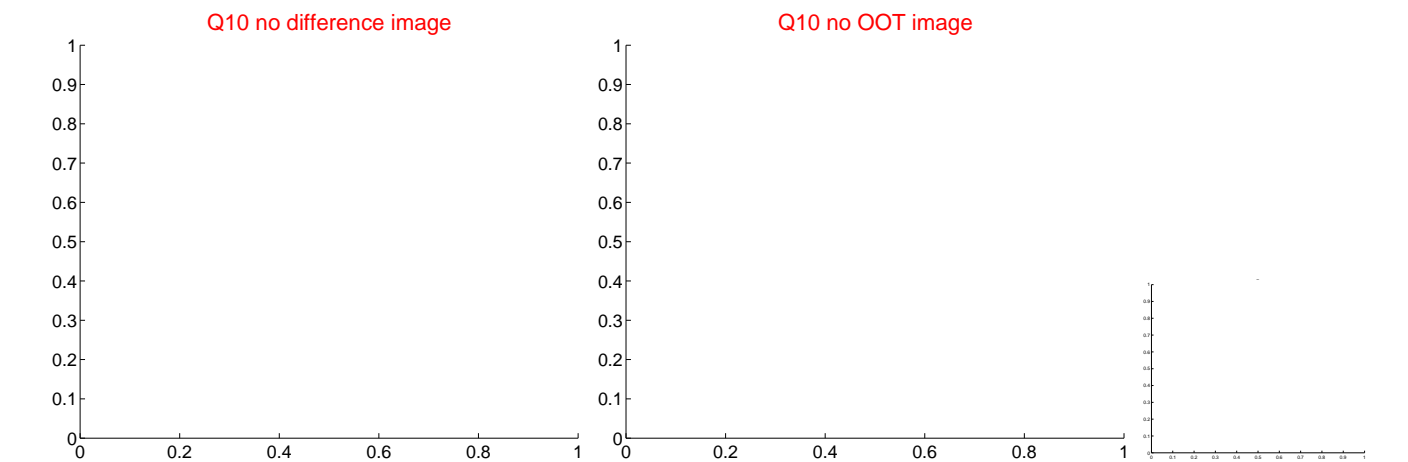
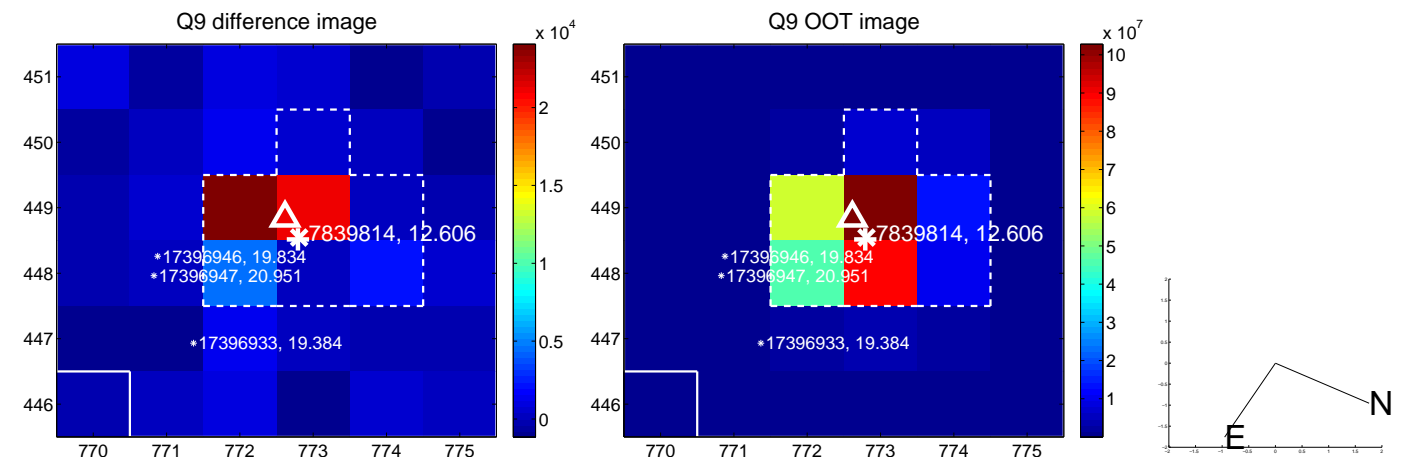
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

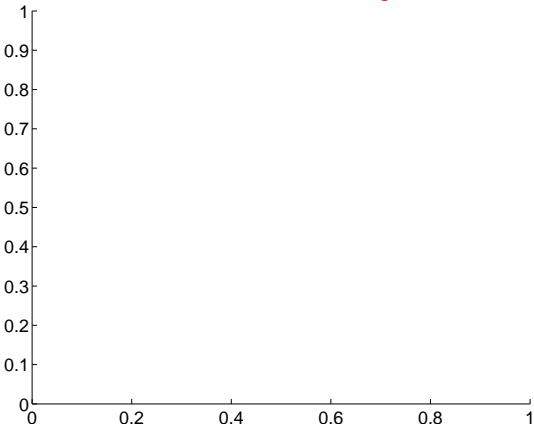


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

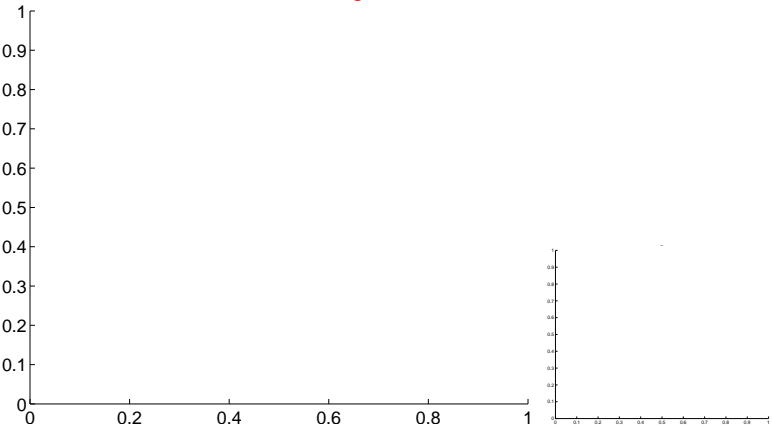


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q13 no difference image



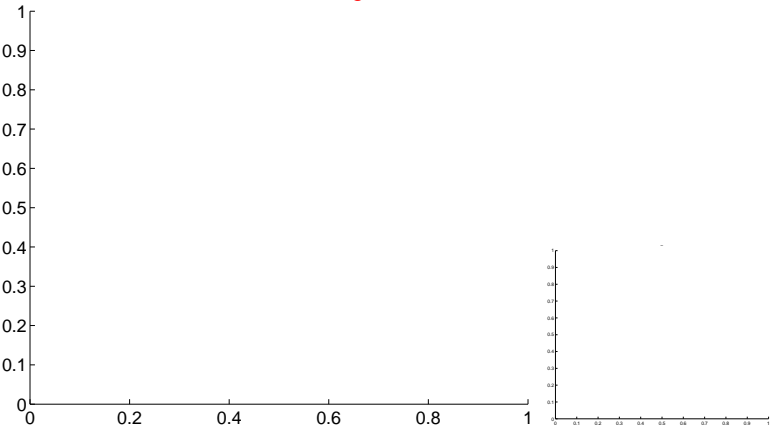
Q13 no OOT image



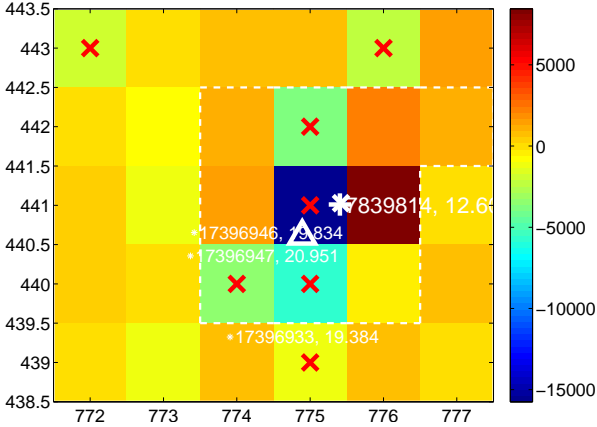
Q14 no difference image



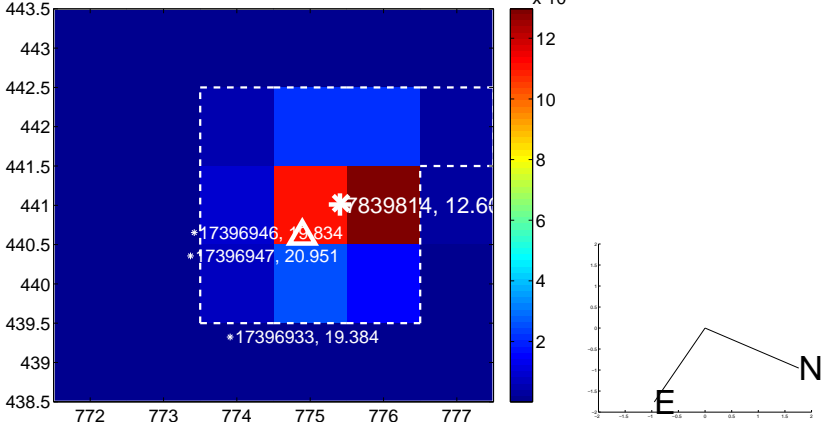
Q14 no OOT image



Q15 difference image. Poor Quality



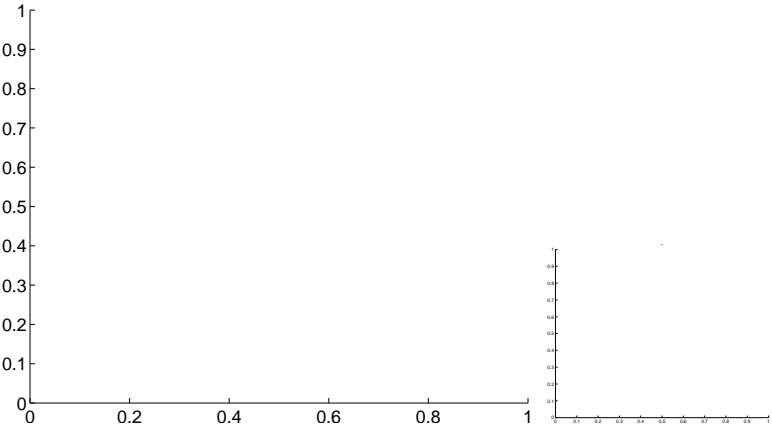
Q15 OOT image



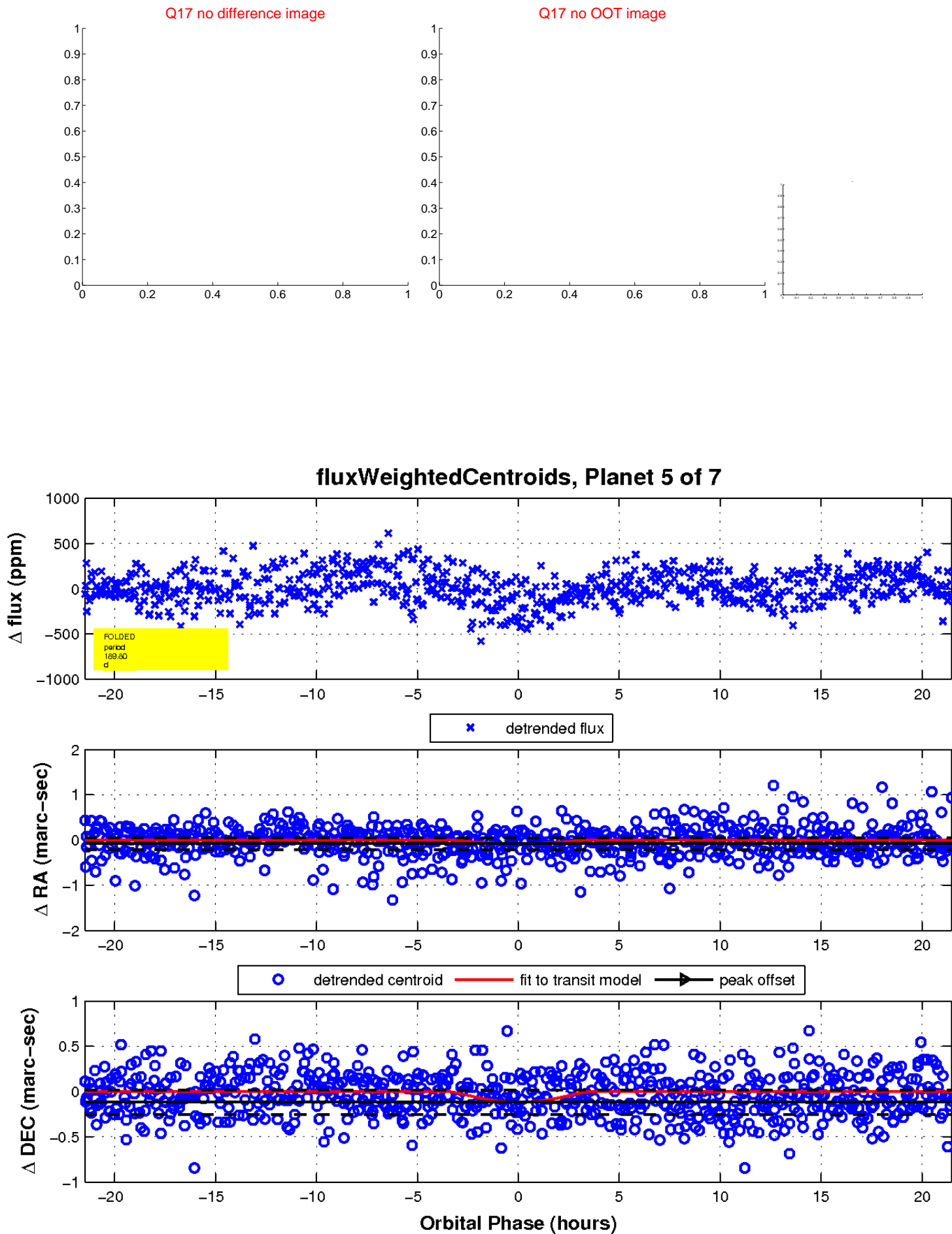
Q16 no difference image



Q16 no OOT image

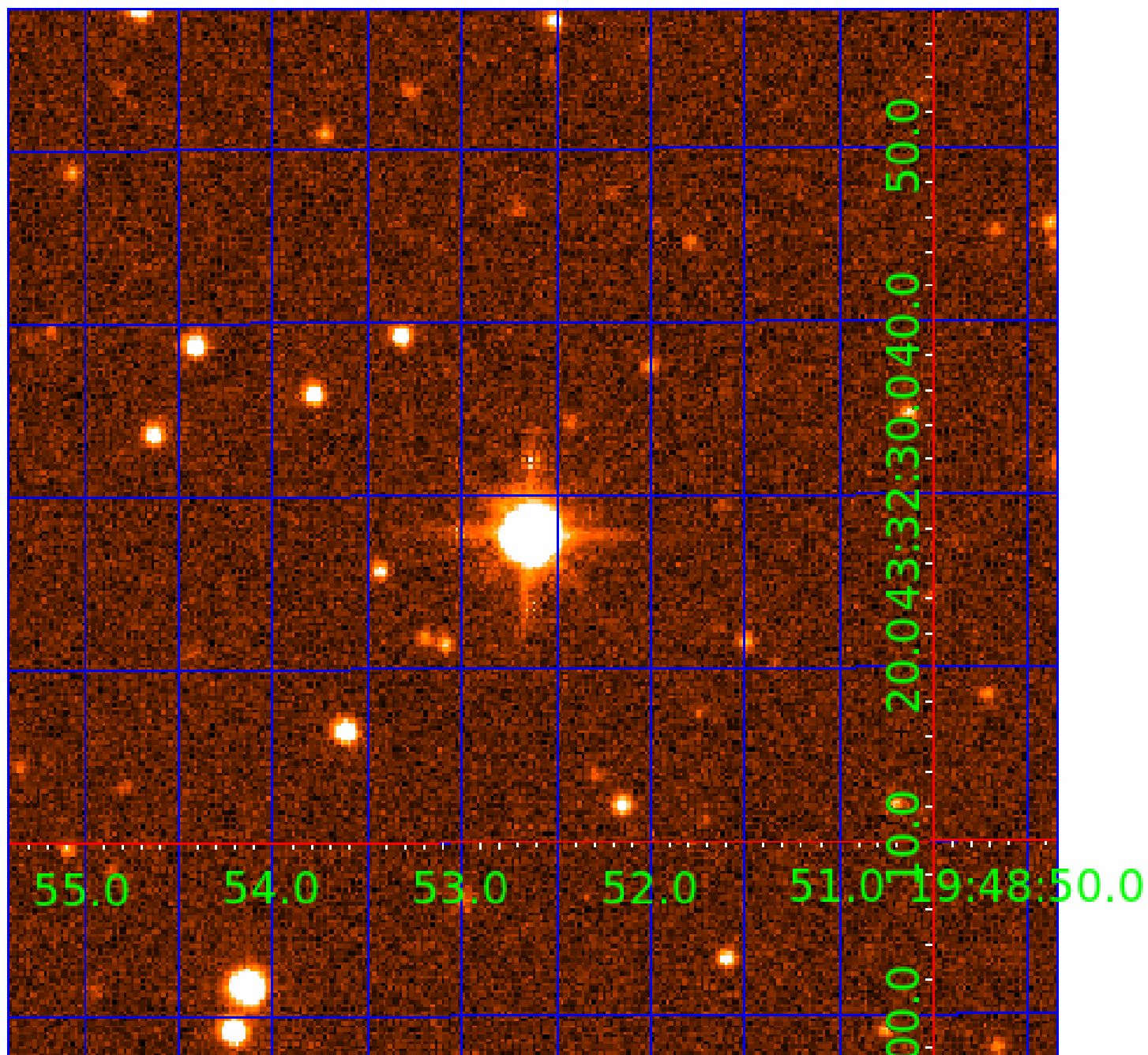


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

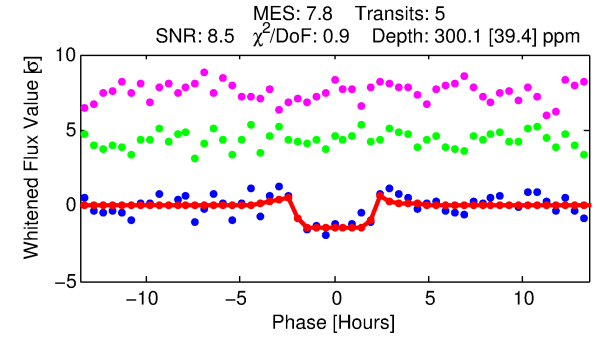
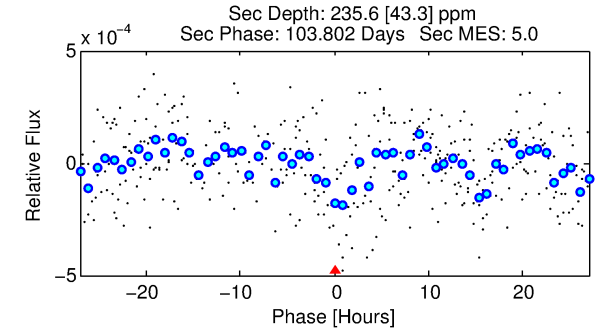
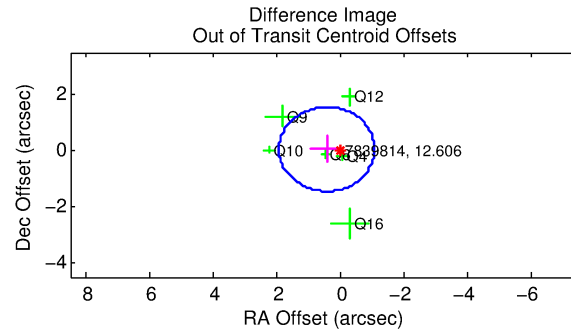
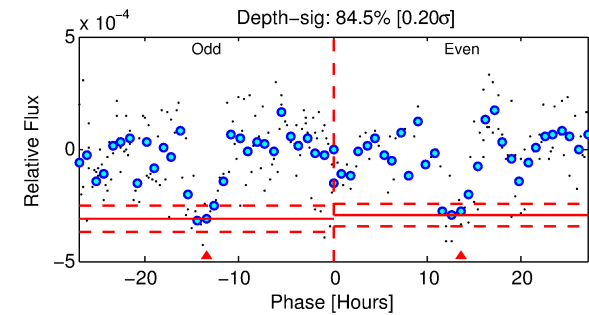
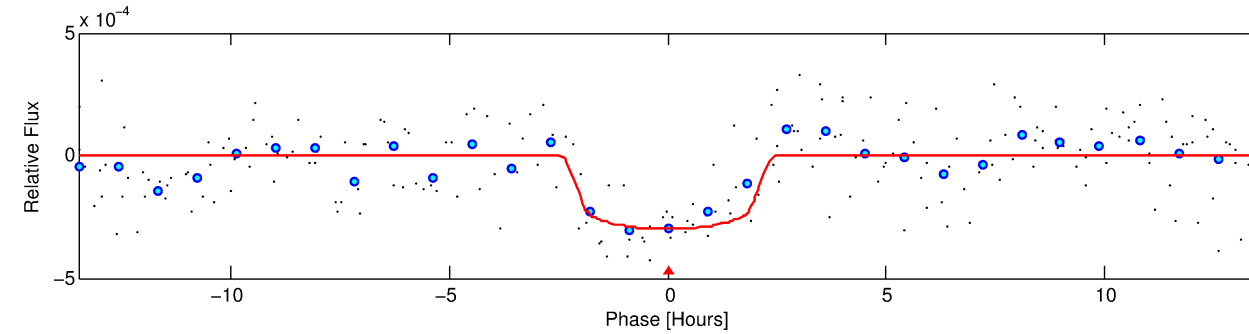
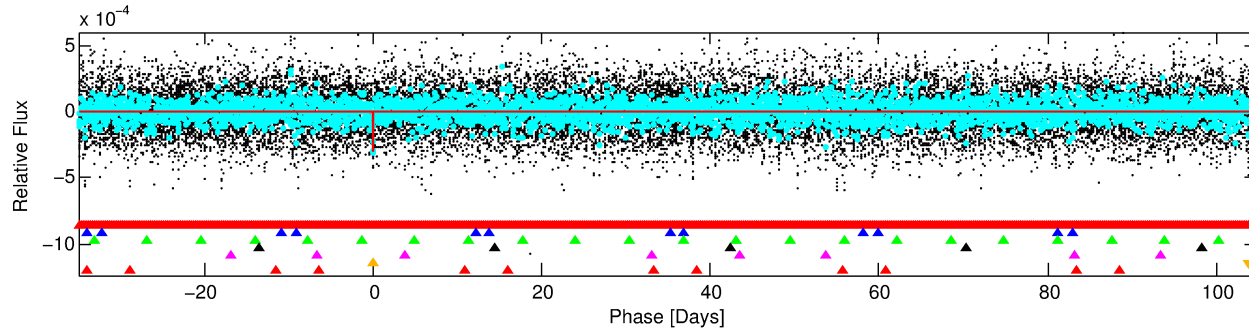
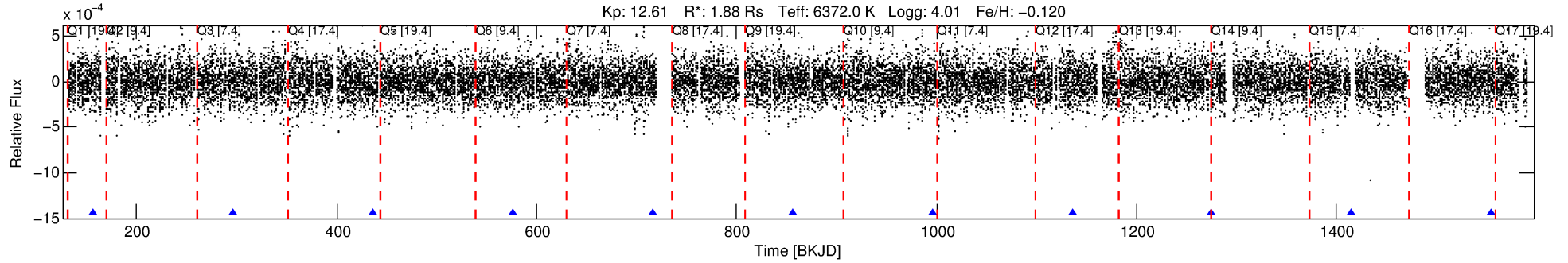
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-06

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 6 of 7 Period: 139.769 d



DV Fit Results:

Period = 139.76850 [0.00188] d
Epoch = 157.2542 [0.0099] BKJD
Rp/R* = 0.0176 [0.0064]
a/R* = 146.22 [274.96]
b = 0.81 [0.81]
Seff = 15.55 [9.23]
Teff = 506 [75] K
Rp = 3.62 [1.91] Re
a = 0.5799 [0.2109] AU
Ag = 3329.43 [3141.11] [1.06 σ]
Teffp = 5947 [1131] K [4.80 σ]

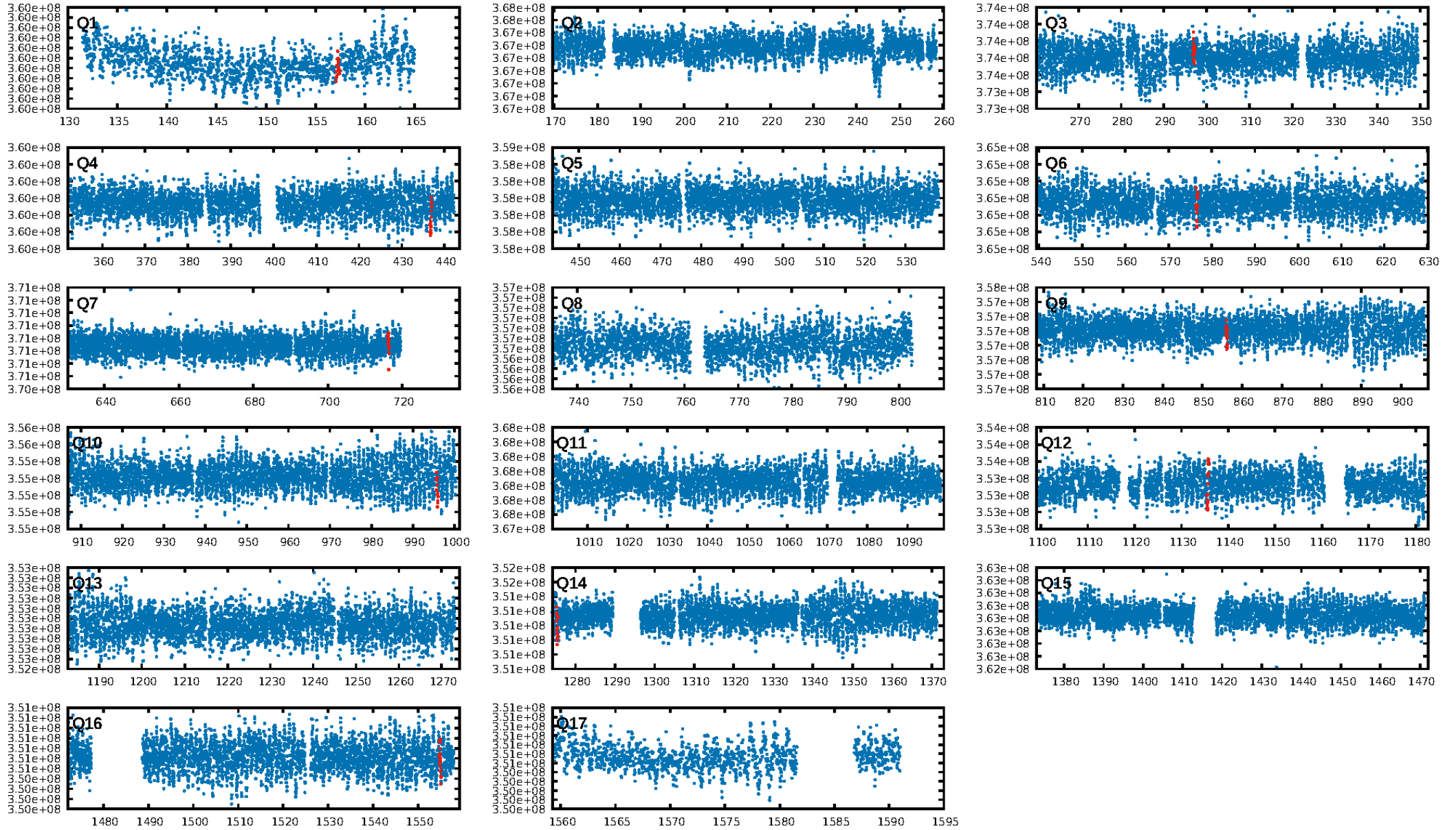
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.00 σ]
LongPeriod-sig: 100.0% [141.92 σ]
ModelChiSquare2-sig: 93.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.36e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.362
Centroid-sig: 38.8%
Centroid-so: 0.300 arcsec [0.89 σ]
OotOffset-rm: 0.440 arcsec [0.88 σ]
KicOffset-rm: 0.433 arcsec [1.14 σ]
OotOffset-st: 2/0/3/1 [6]
KicOffset-st: 2/0/3/1 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/9]

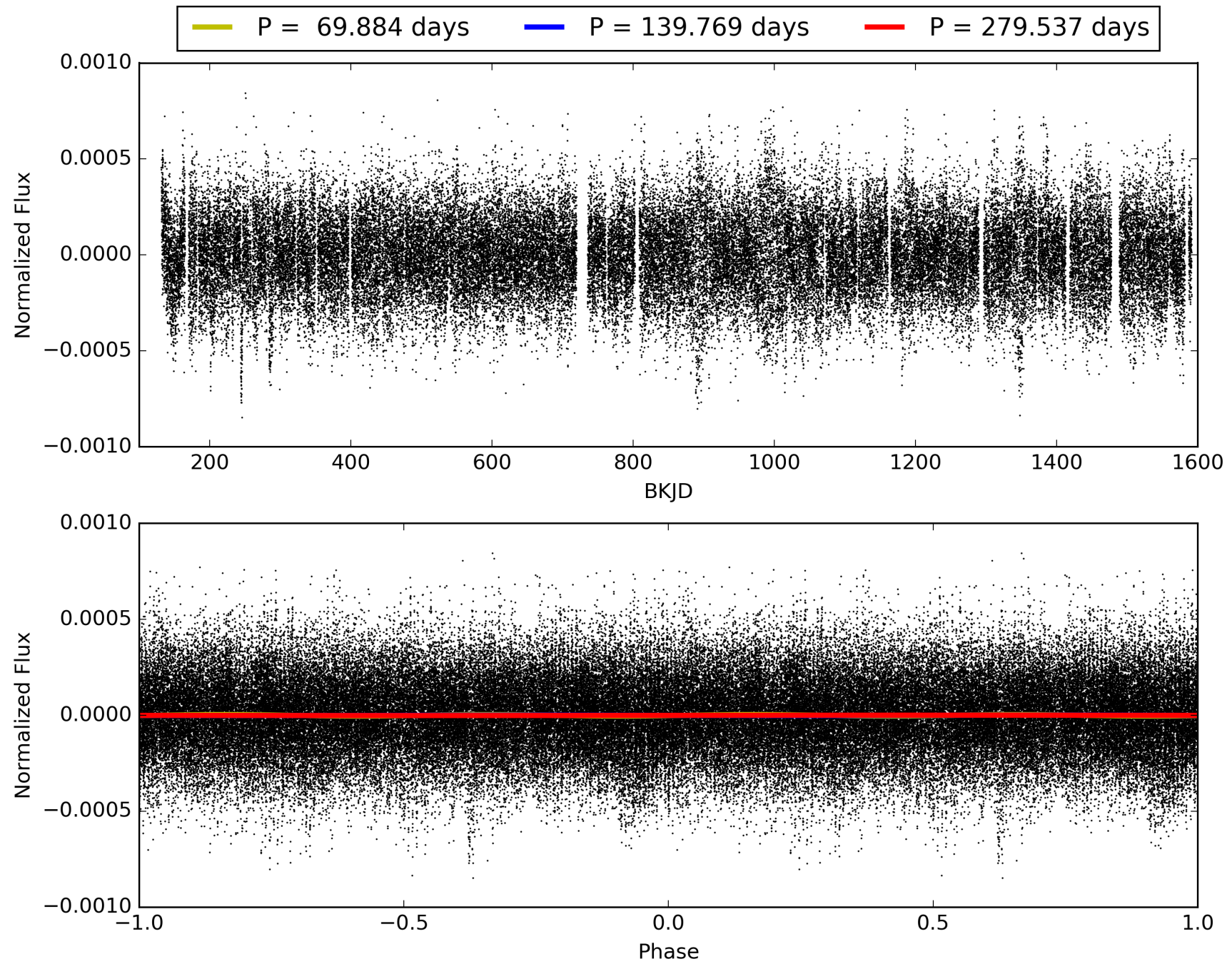
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:40:07 Z

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

TCE 007839814-06, PDC Light Curves

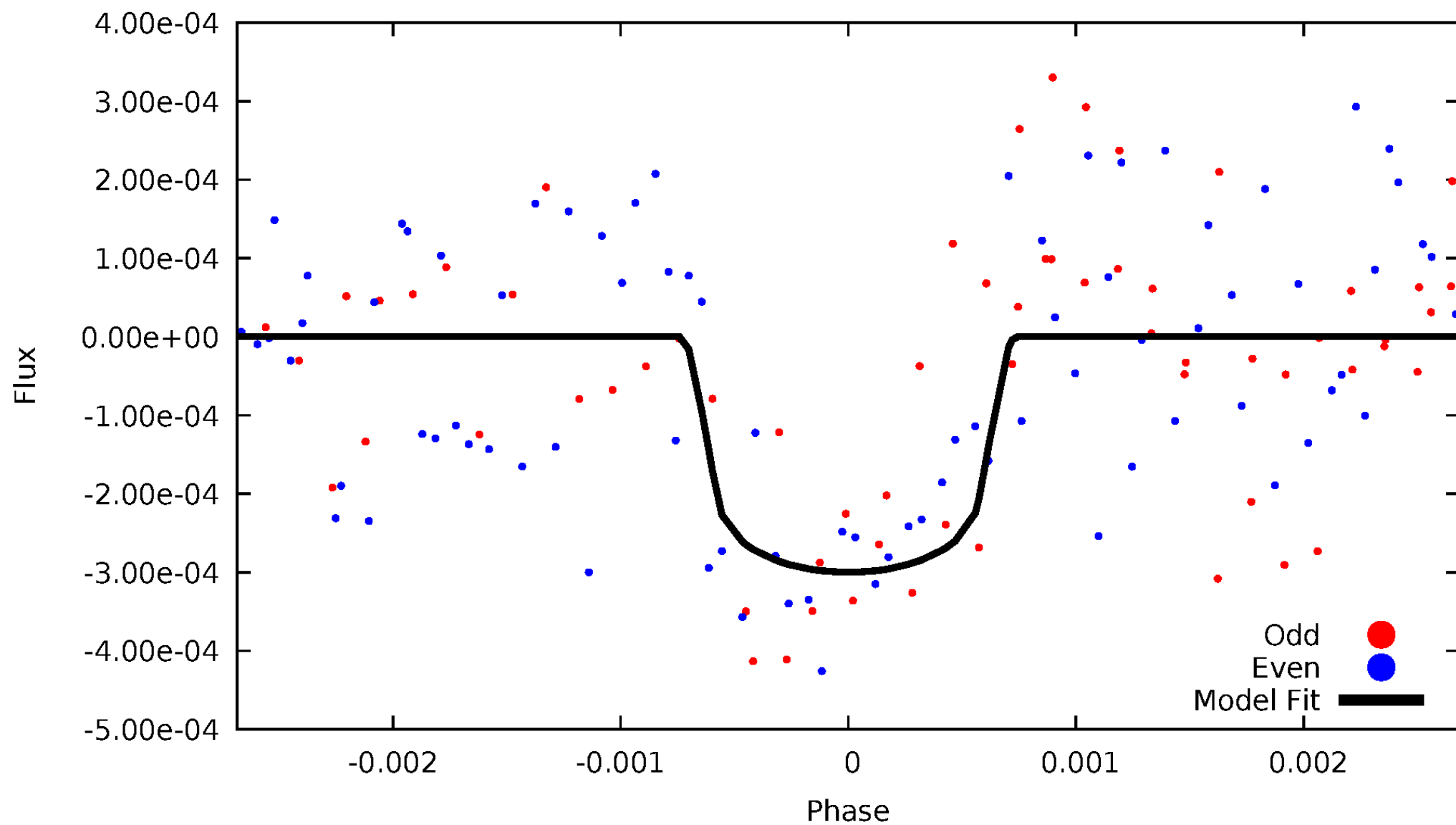


TCE 007839814-06



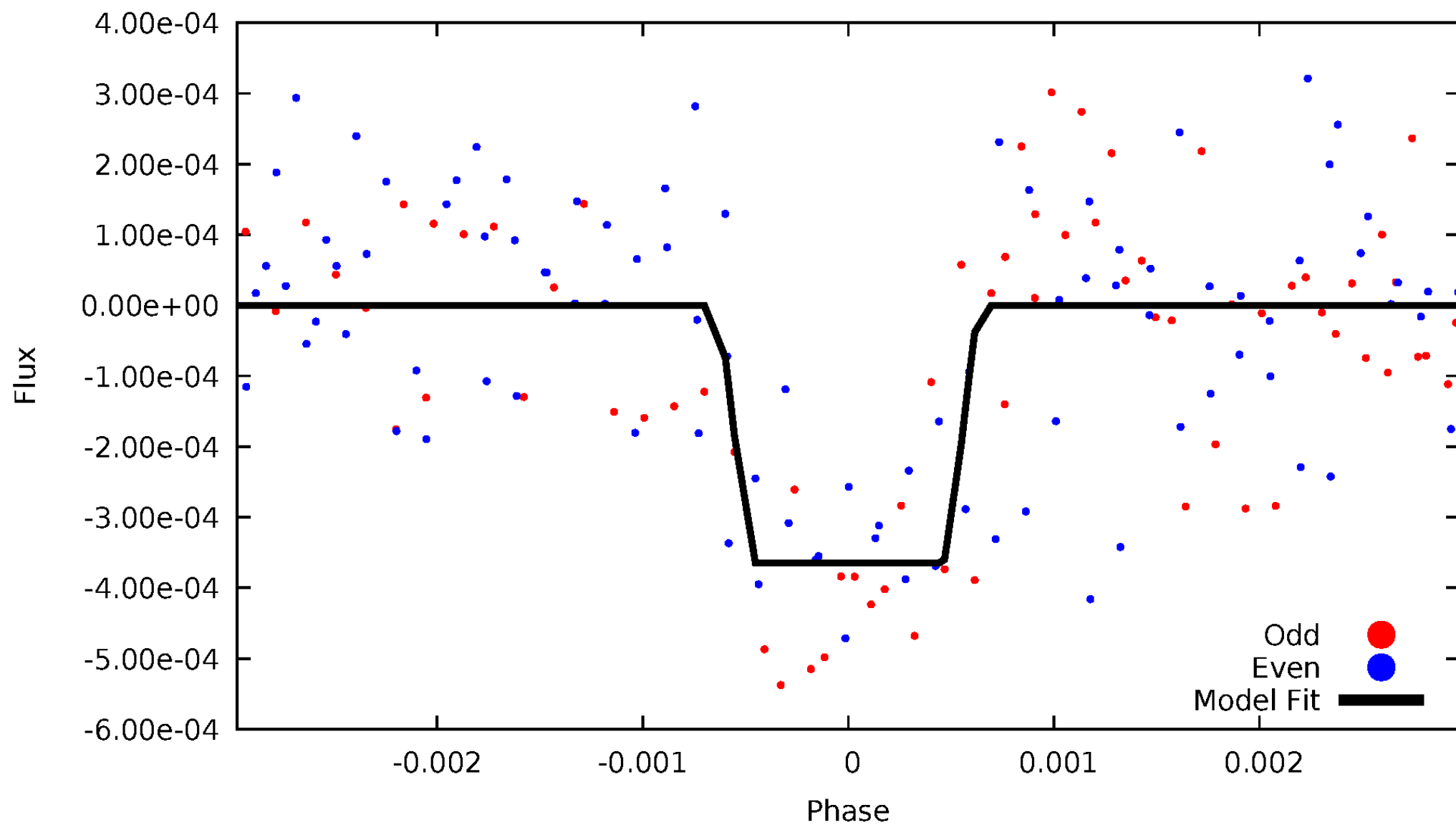
DV Odd/Even

TCE 007839814-06



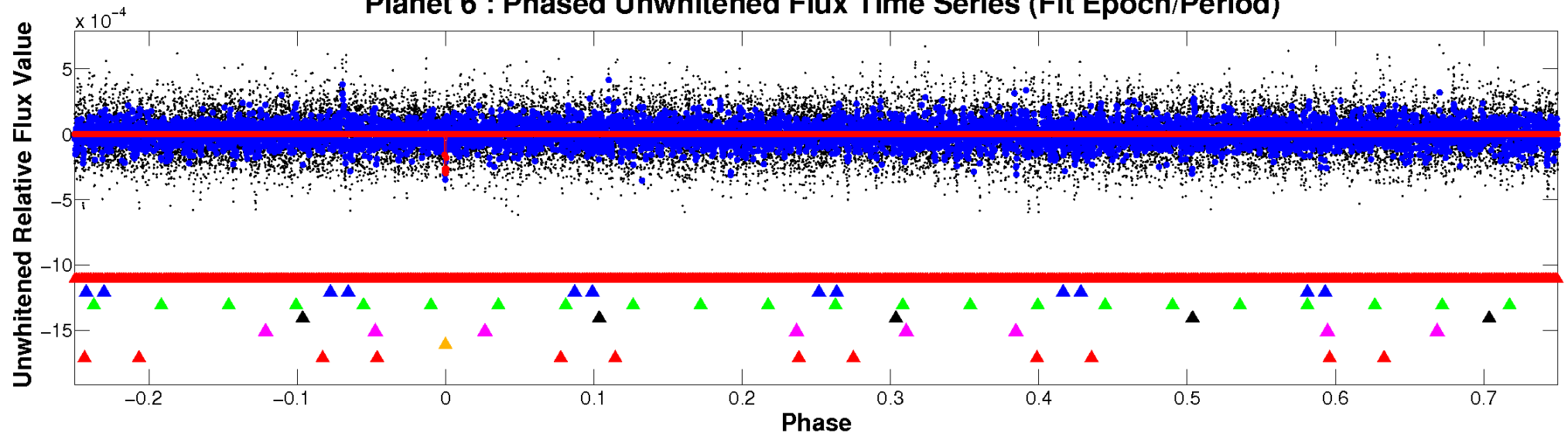
ALT Odd/Even

TCE 007839814-06

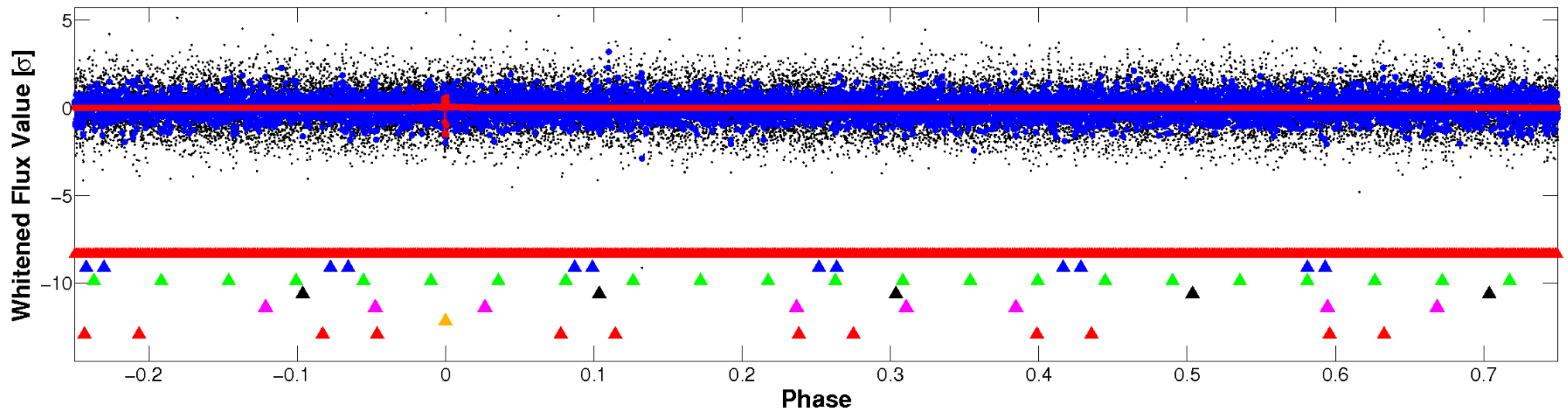


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

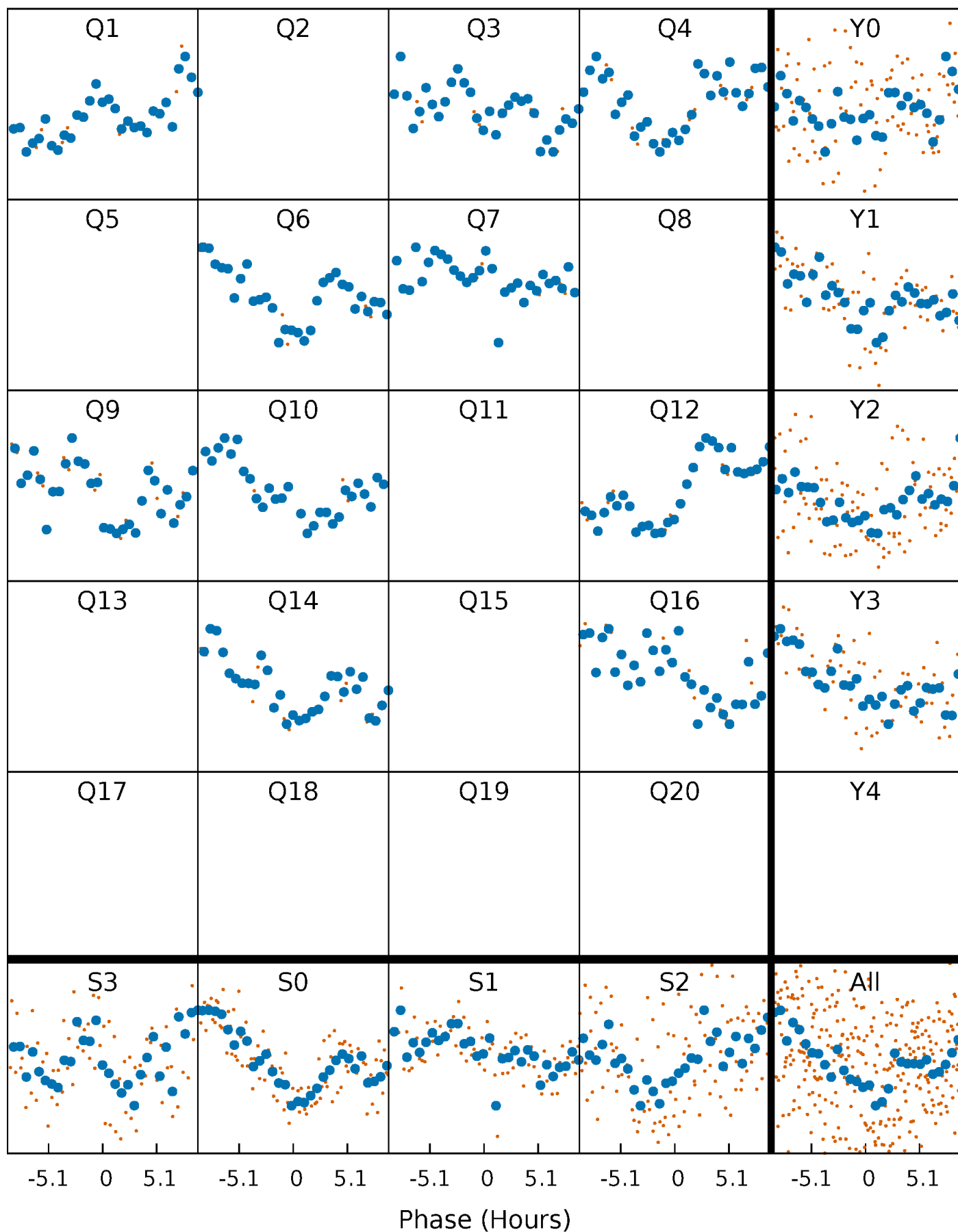


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



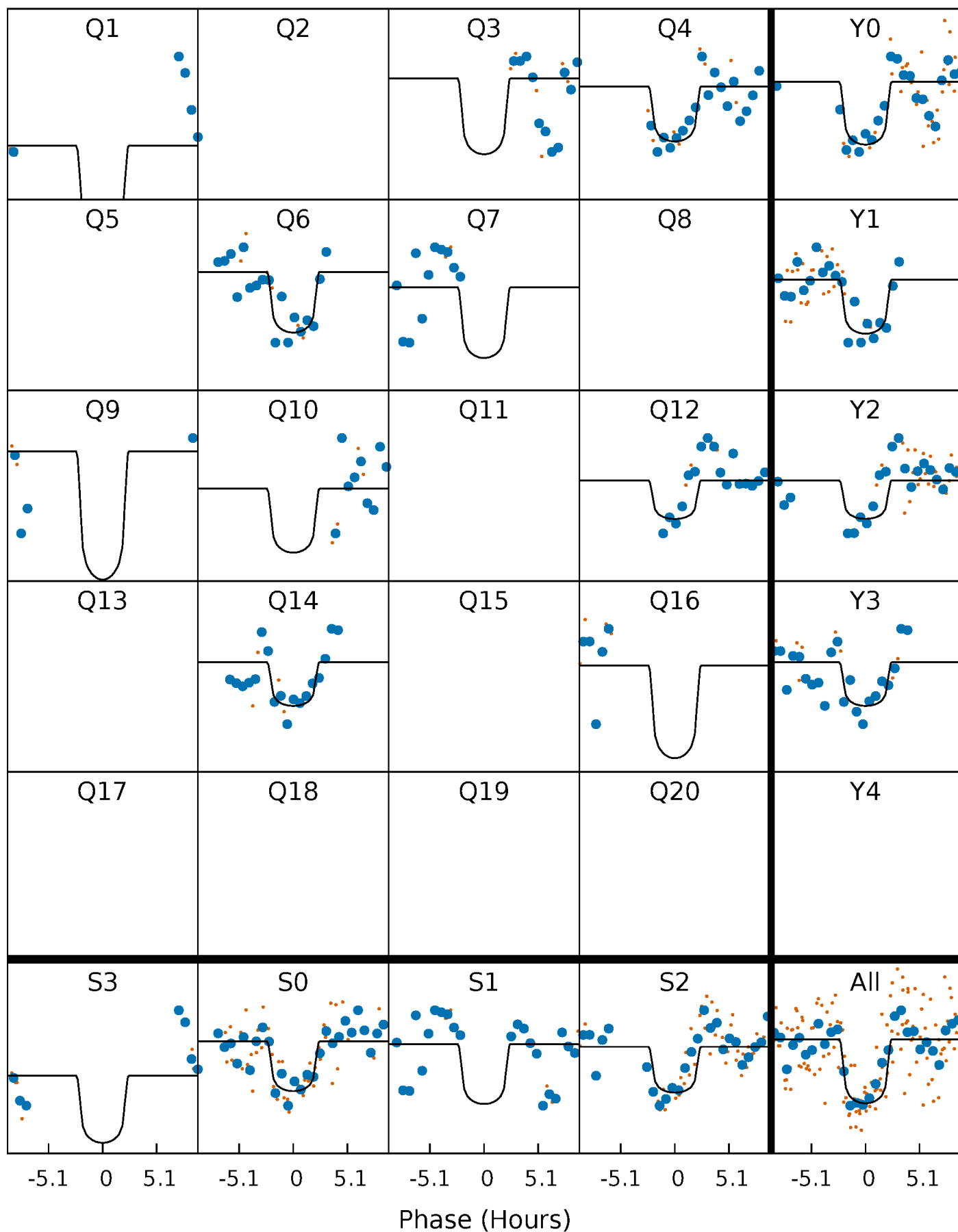
PDC Quarter-Phased Transit Curves

TCE 007839814-06 P=139.768504 Days $T_0=157.254228$ (BKJD)



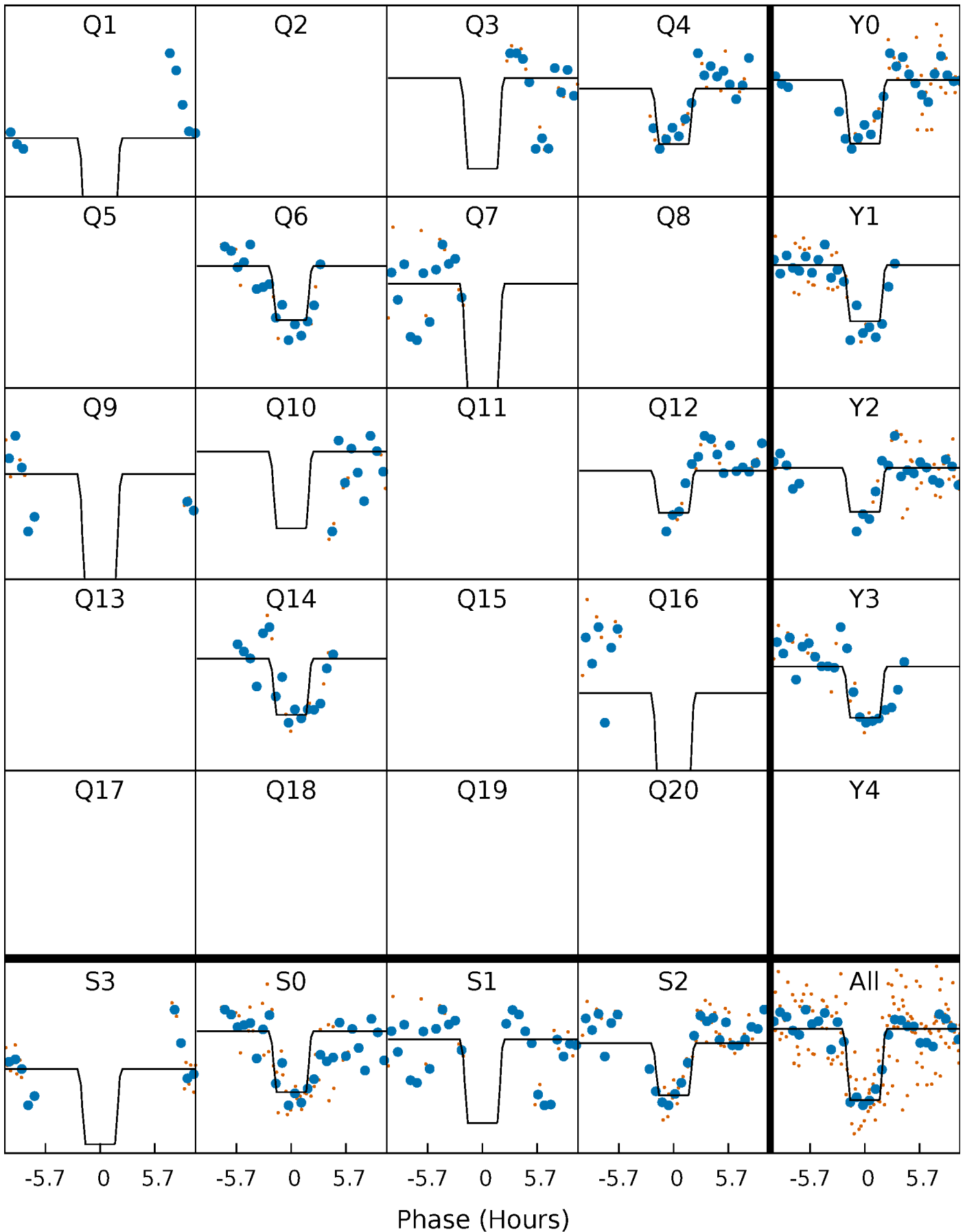
DV Quarter-Phased Transit Curves

TCE 007839814-06 P=139.768504 Days $T_0=157.254228$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

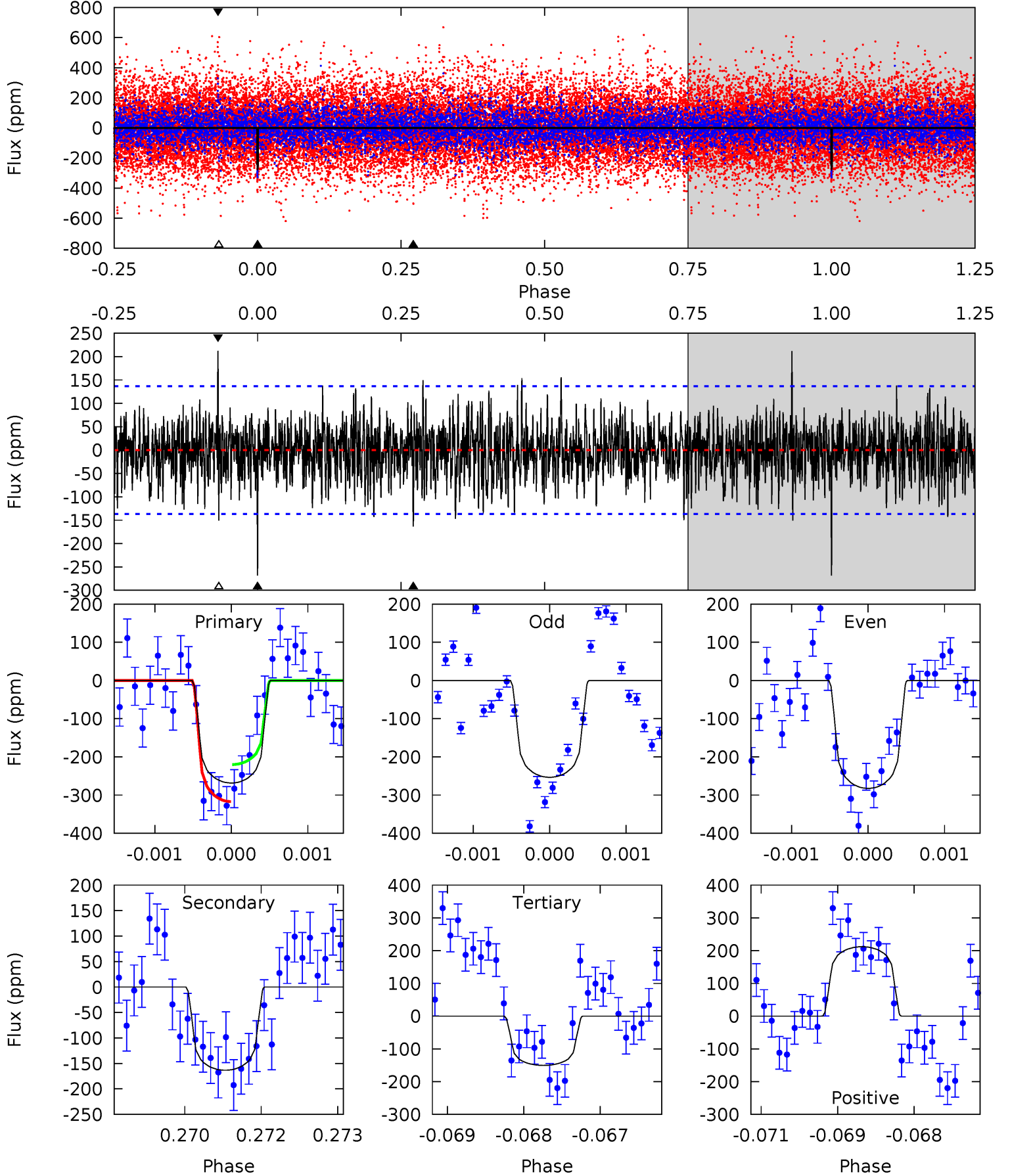
TCE 007839814-06 P=139.766809 Days $T_0=157.253486$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-06, P = 139.768504 Days, E = 17.485724 Days

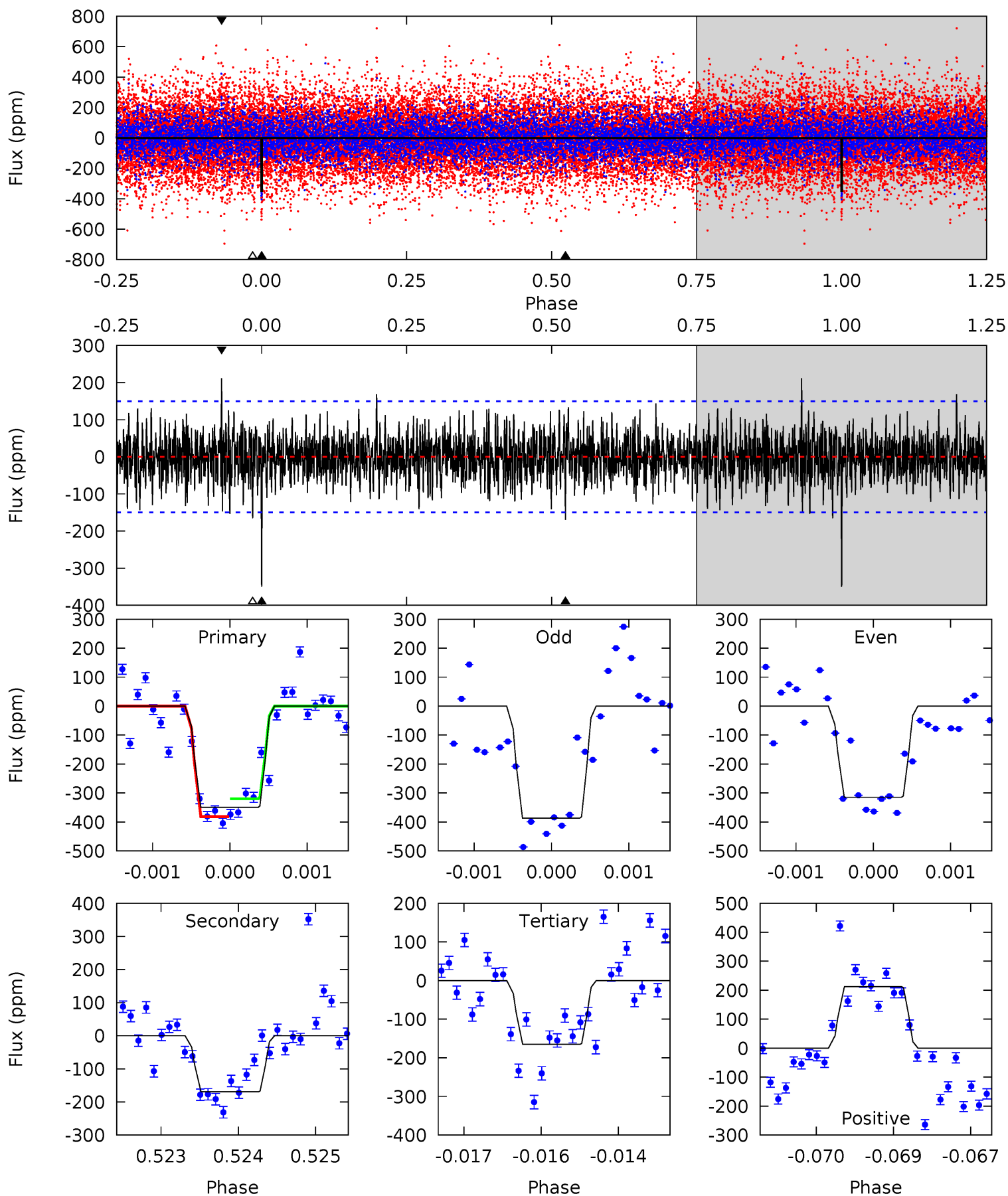
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.6 | 6.44 | 5.93 | 8.36 | 5.39 | 3.19 | 1.85 | 4.65 | 2.22 | 0.51 | -1.92 | 0.57 | 0.96 | 0.44 | 1.91 |



Alt Model-Shift Uniqueness Test

007839814-06, P = 139.766809 Days, E = 17.486677 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.7 | 6.14 | 5.98 | 7.67 | 5.42 | 3.24 | 1.76 | 6.68 | 4.99 | 0.16 | -1.53 | 1.30 | 1.03 | 0.38 | 1.12 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-06 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|----------------------|-----------------------|------------------------|
| DV | -163 ± 25 | $3.31^{+1.54}_{-1.27}$ | 692^{+55}_{-72} | 5477^{+1345}_{-742} | 2740^{+4261}_{-1475} |
| Alt. | -170 ± 28 | $3.67^{+1.63}_{-1.31}$ | 696^{+55}_{-72} | 5301^{+1138}_{-627} | 2308^{+3147}_{-1178} |

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

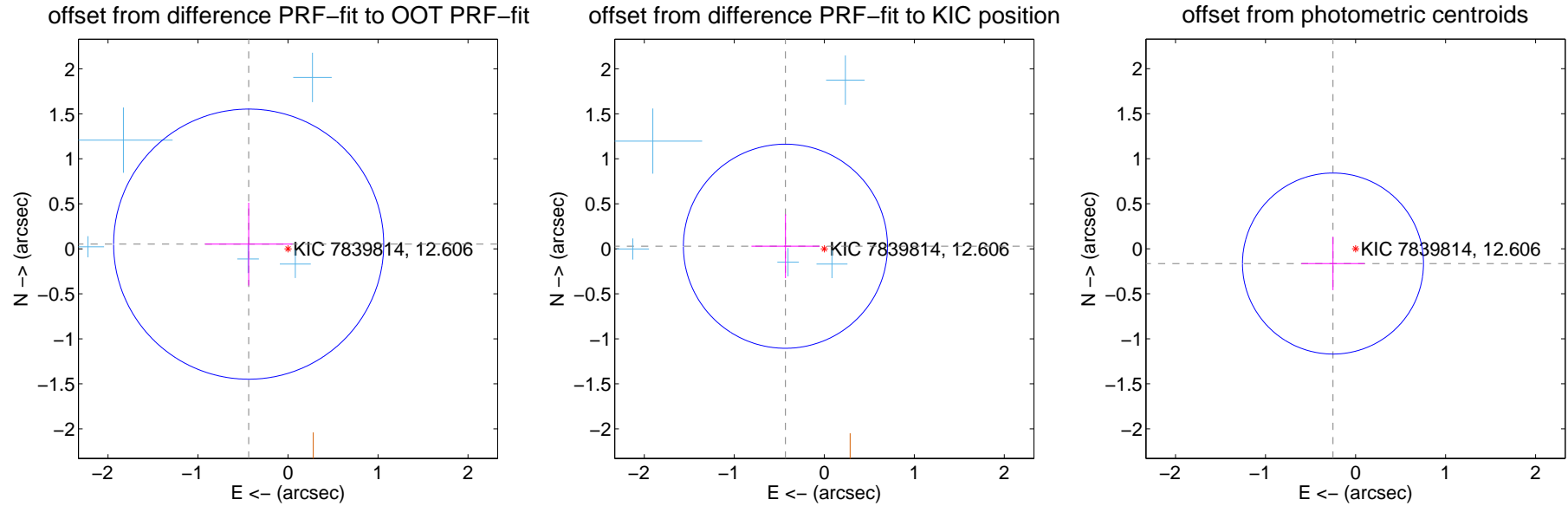
DV Centroid Data

Supplemental centroid analysis for 007839814-06. Kepler magnitude: 12.61. Transit SNR 8.46

There are 5 quarters with good PRF difference image offsets

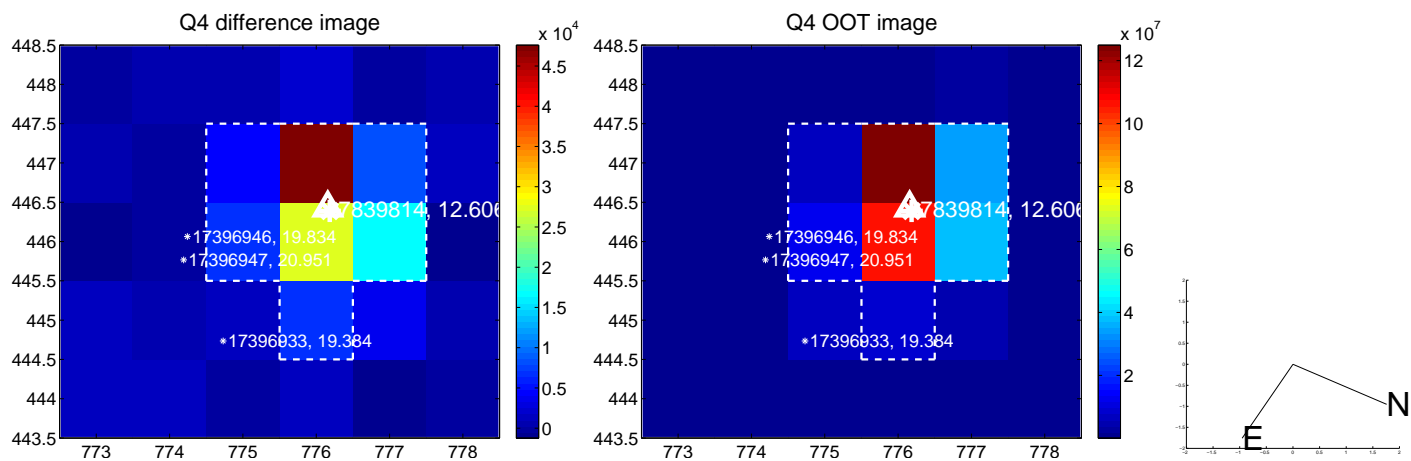
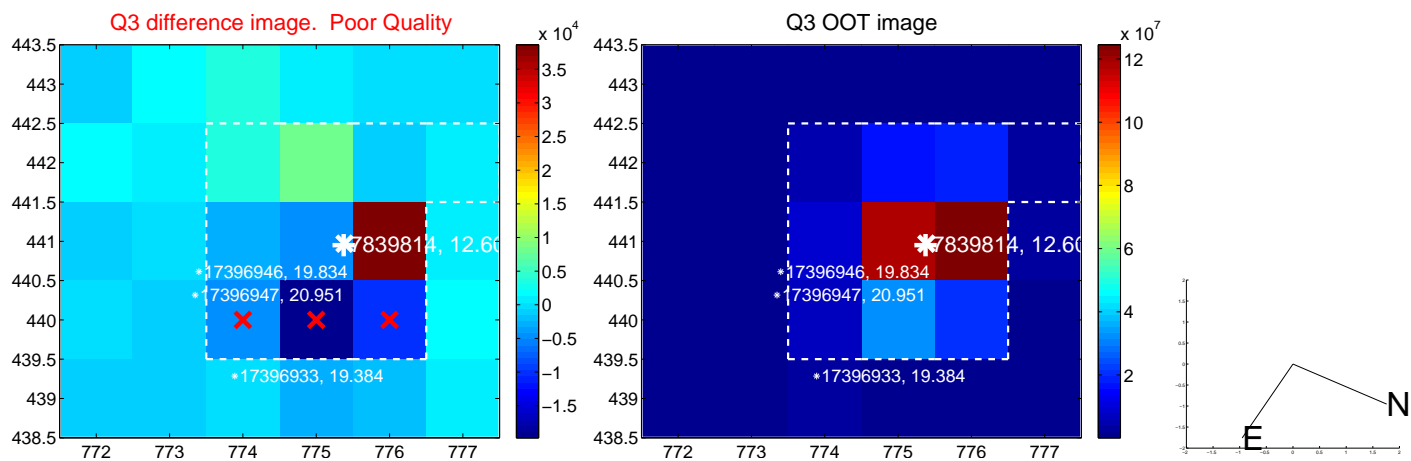
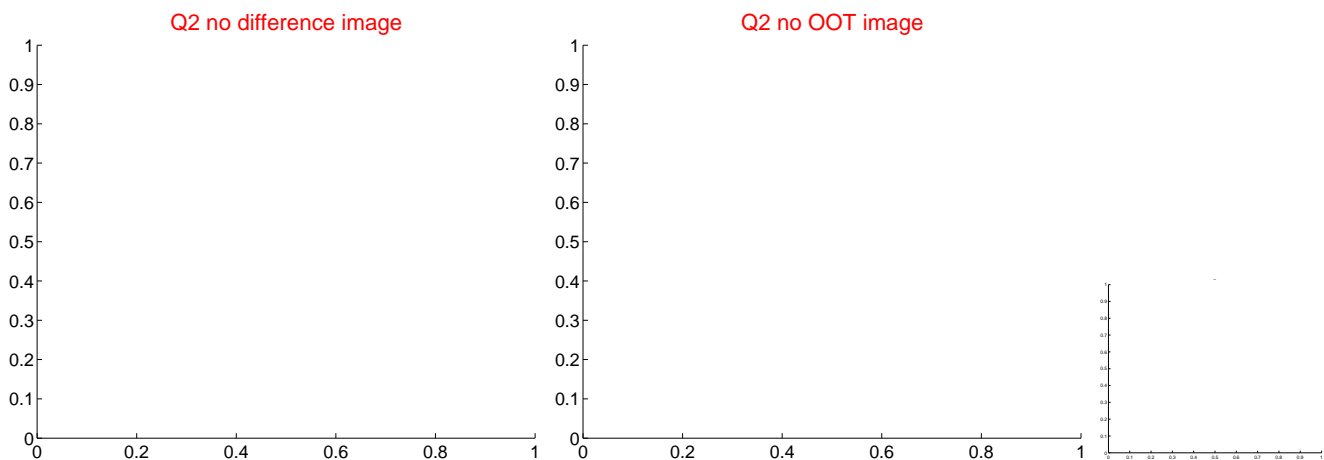
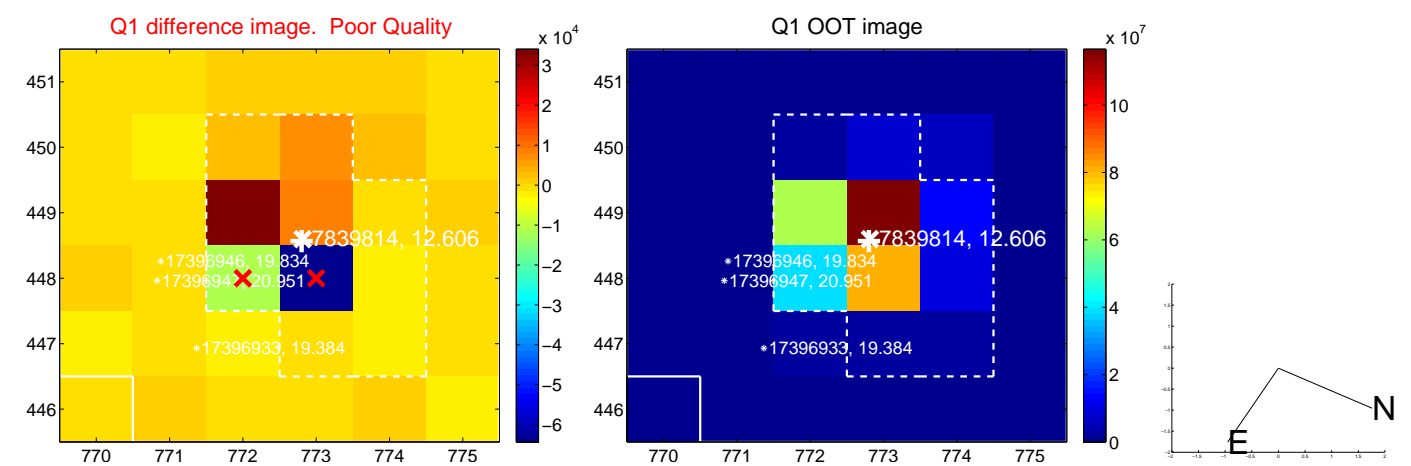
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.440 ± 0.500 | 0.88 | 0.437 ± 0.486 | 0.052 ± 0.460 |
| PRF-fit source offset from KIC position | 0.433 ± 0.378 | 1.14 | 0.432 ± 0.378 | 0.029 ± 0.354 |
| photometric centroid source offset | 0.30 ± 0.34 | 0.89 | 0.25 ± 0.35 | -0.16 ± 0.30 |



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.

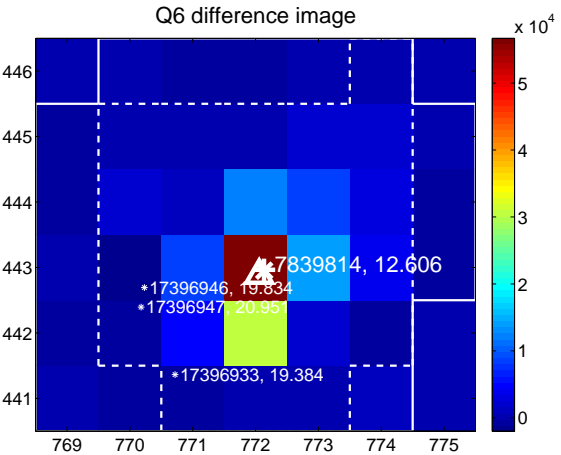
Q5 no difference image



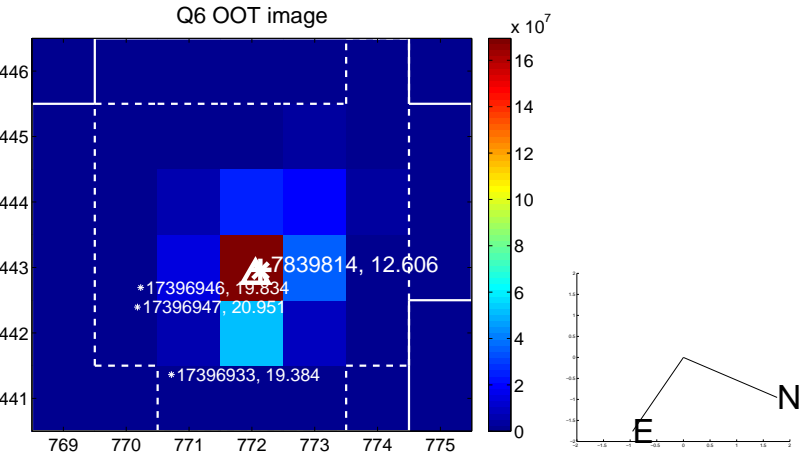
Q5 no OOT image



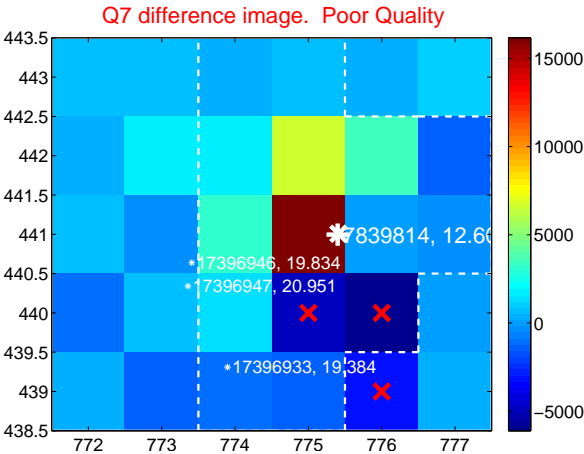
Q6 difference image



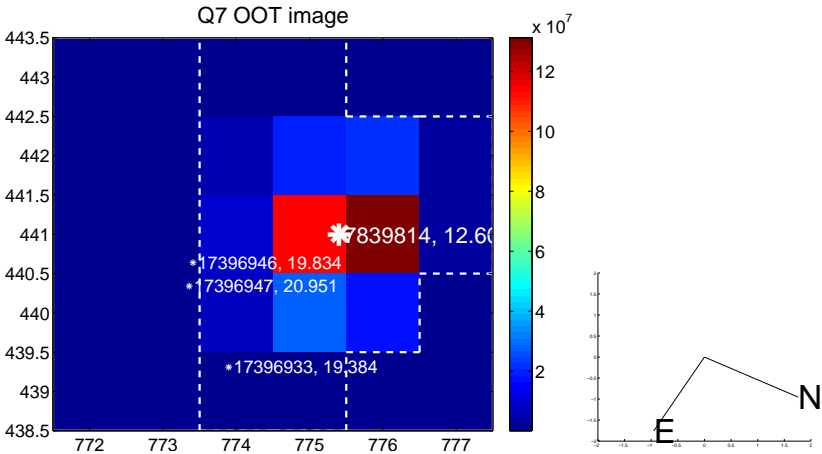
Q6 OOT image



Q7 difference image. Poor Quality



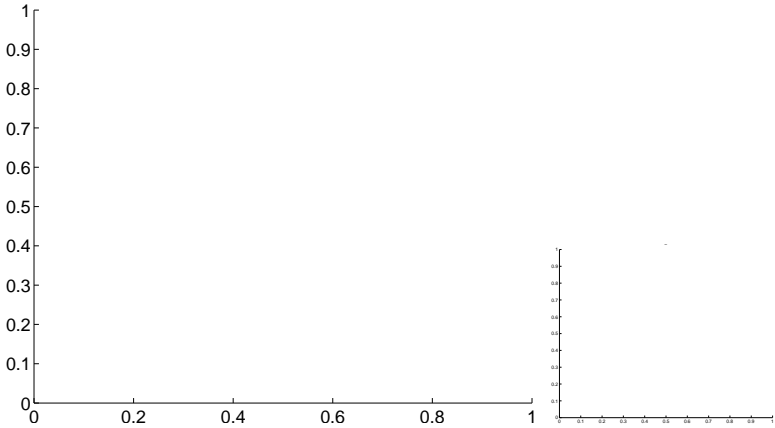
Q7 OOT image



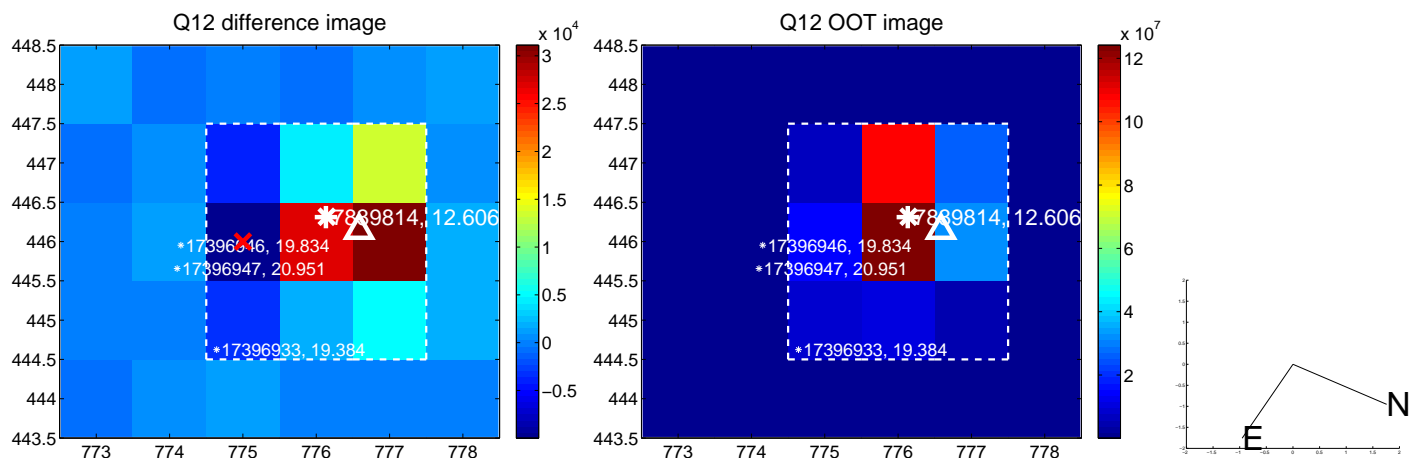
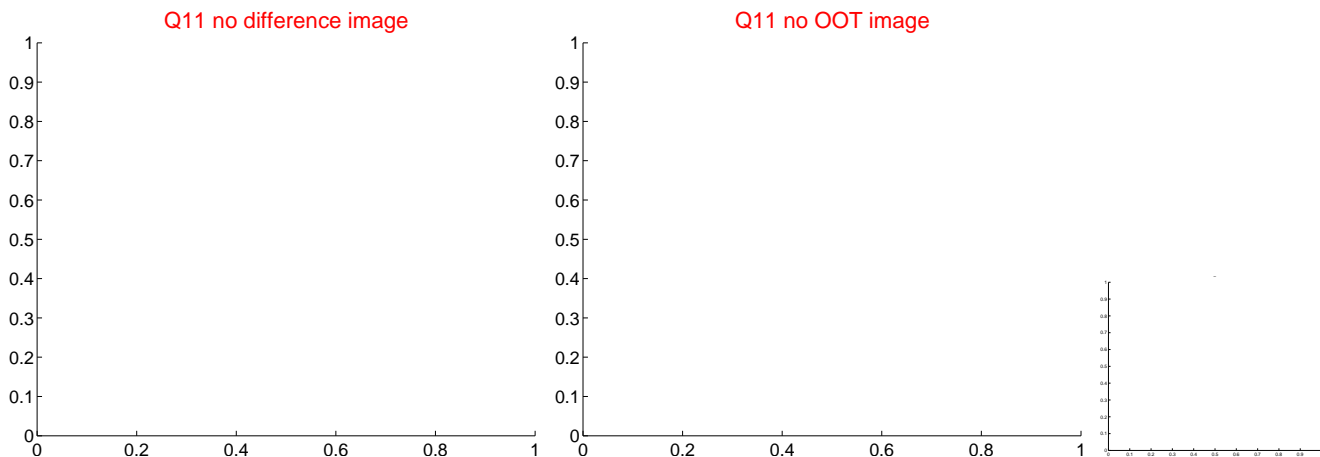
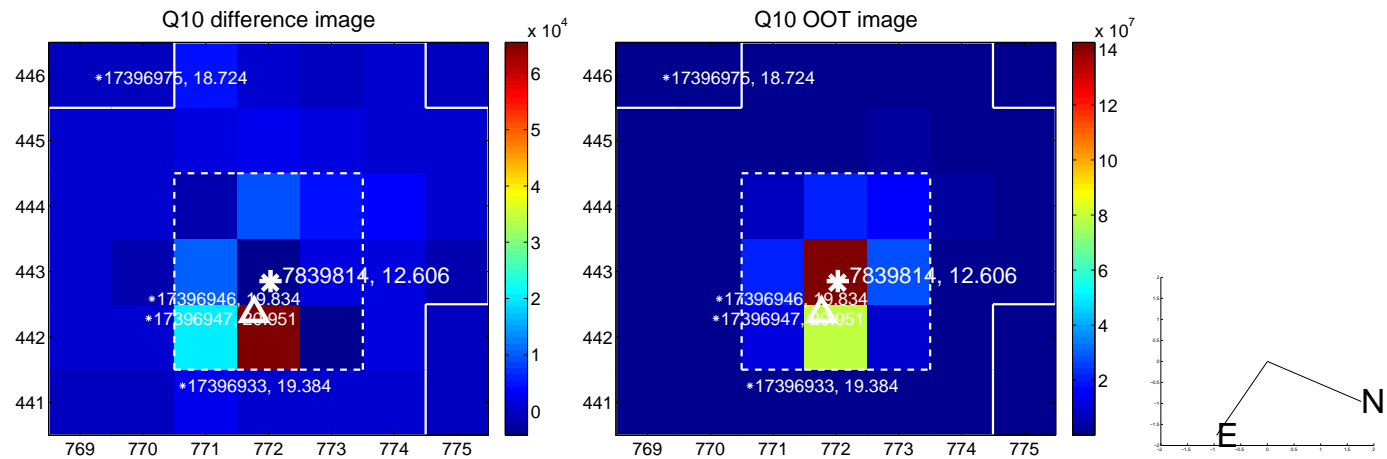
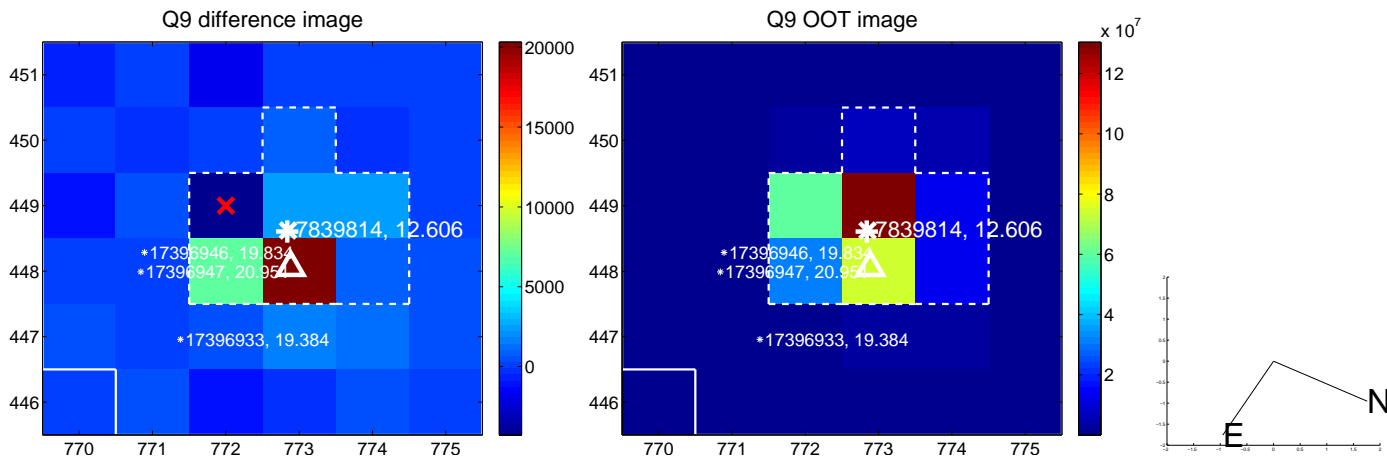
Q8 no difference image



Q8 no OOT image

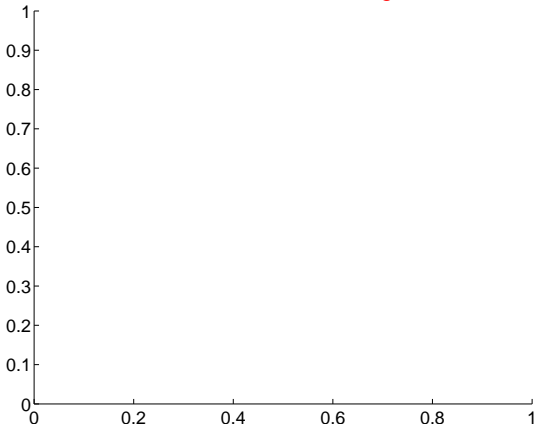


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

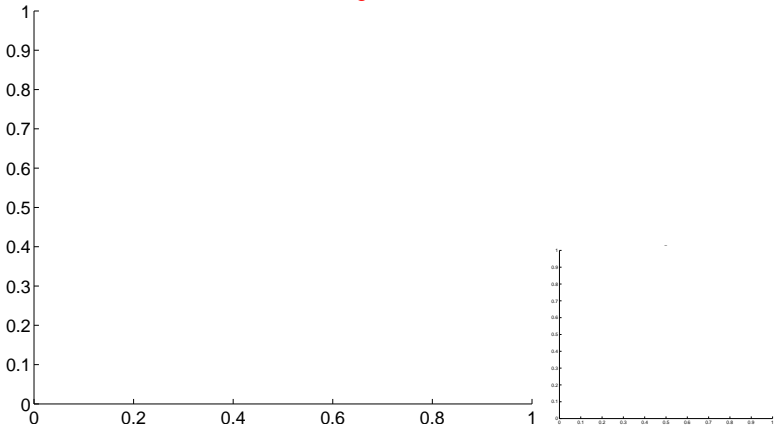


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

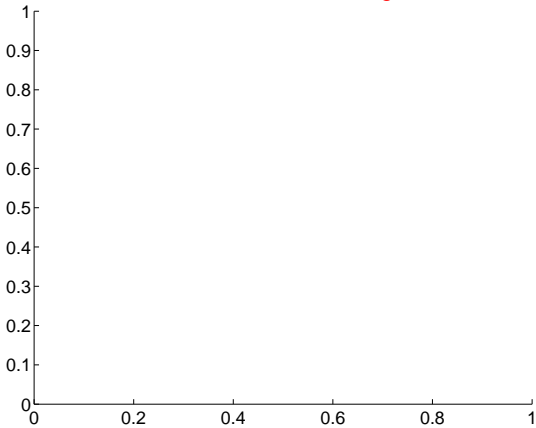
Q13 no difference image



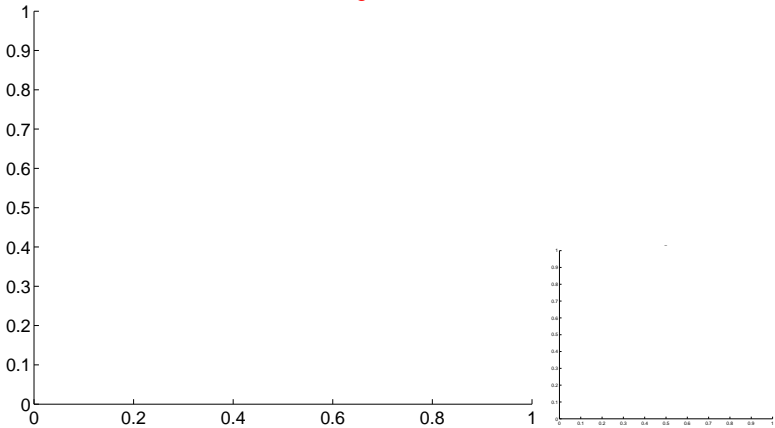
Q13 no OOT image



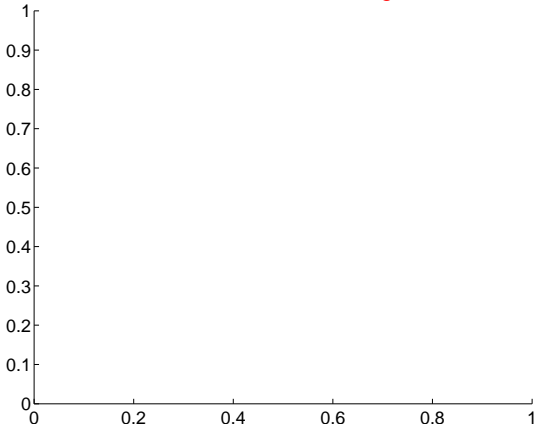
Q14 no difference image



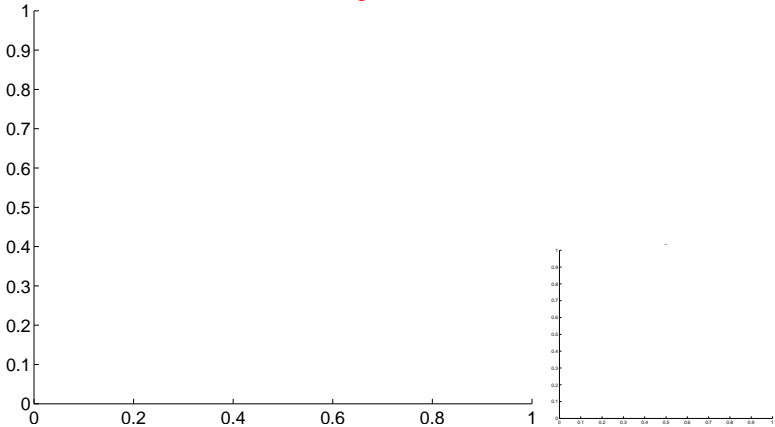
Q14 no OOT image



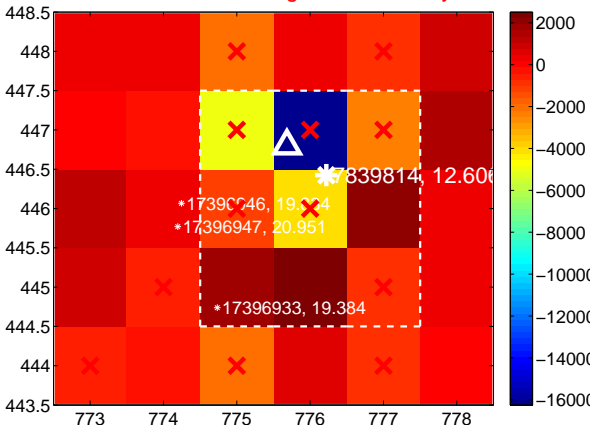
Q15 no difference image



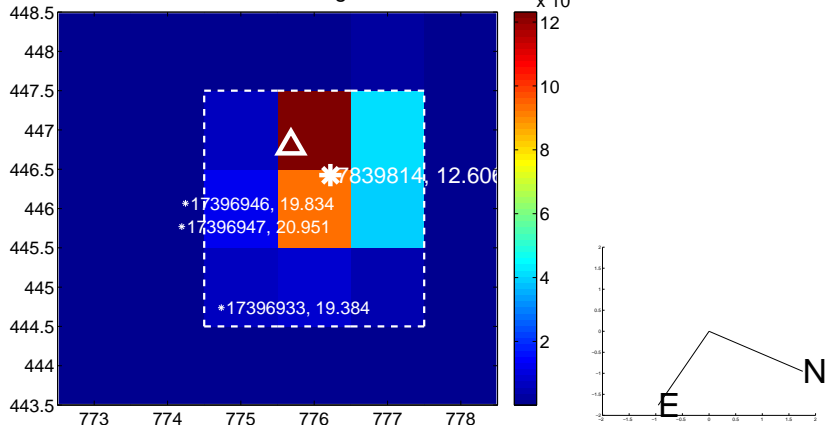
Q15 no OOT image



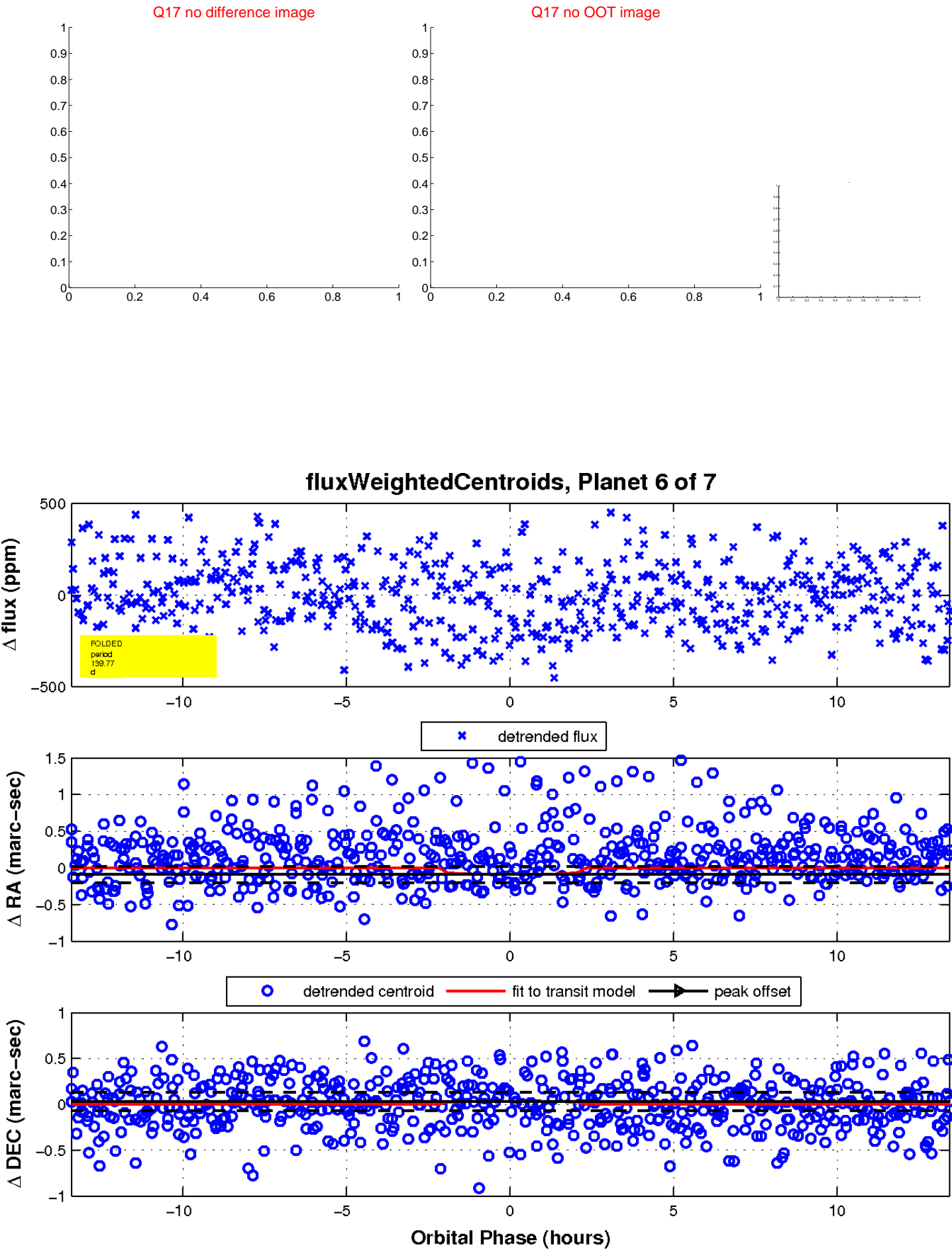
Q16 difference image. Poor Quality



Q16 OOT image

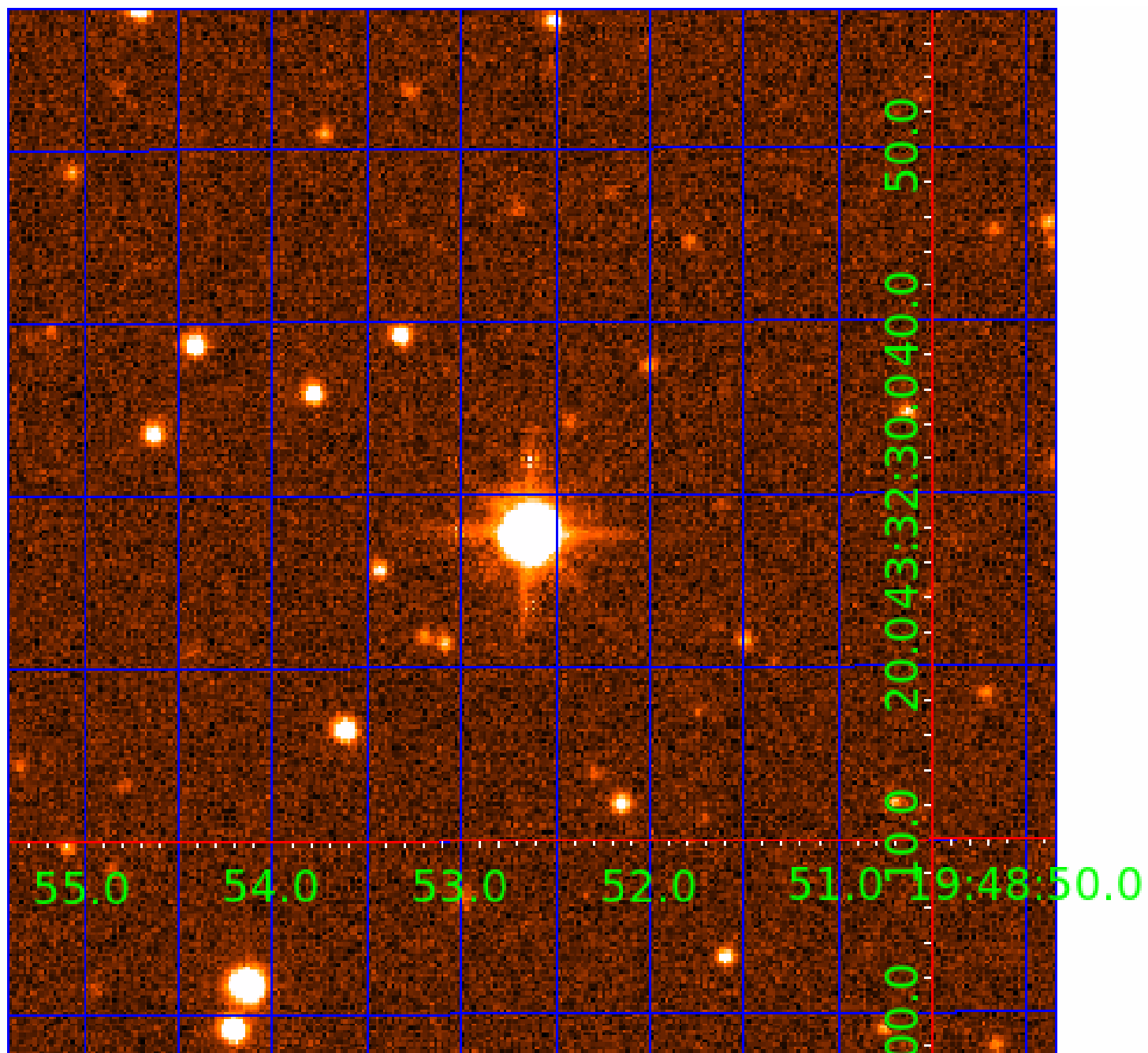


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007839814

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007839814-01 | OBS | No | 1.107590 | 131.763621 | 18.7 | 5.033 | 7.9 | 7.1 | 1.88 | 6372 | 0.86 | 9845.51 |
| 007839814-02 | OBS | No | 116.752700 | 238.477724 | 303.9 | 2.926 | 8.2 | 9.7 | 1.88 | 6372 | 4.03 | 19.77 |
| 007839814-03 | OBS | No | 57.177431 | 149.538434 | 169.8 | 5.819 | 8.1 | 7.2 | 1.88 | 6372 | 2.62 | 51.22 |
| 007839814-04 | OBS | No | 83.857633 | 143.825377 | 250.8 | 1.504 | 7.8 | 7.2 | 1.88 | 6372 | 3.48 | 30.74 |
| 007839814-05 | OBS | No | 189.802375 | 140.306372 | 367.1 | 7.165 | 7.6 | 8.1 | 1.88 | 6372 | 6.23 | 10.34 |
| 007839814-06 | OBS | No | 139.768504 | 157.254228 | 300.1 | 4.500 | 7.8 | 8.5 | 1.88 | 6372 | 3.62 | 15.55 |
| 007839814-07 | OBS | No | 117.329544 | 212.996804 | 374.4 | 1.927 | 7.8 | 6.8 | 1.88 | 6372 | 3.90 | 19.64 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007839814-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007839814-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007839814-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT |
| 007839814-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-05 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 007839814-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 007839814-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS |

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

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

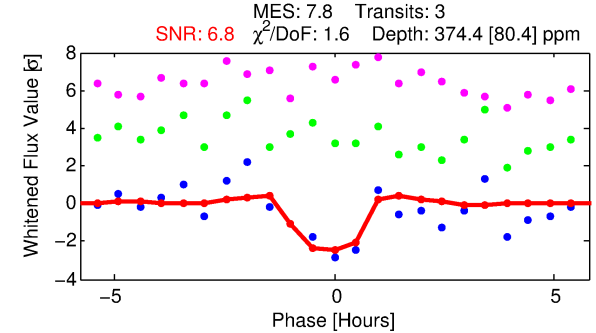
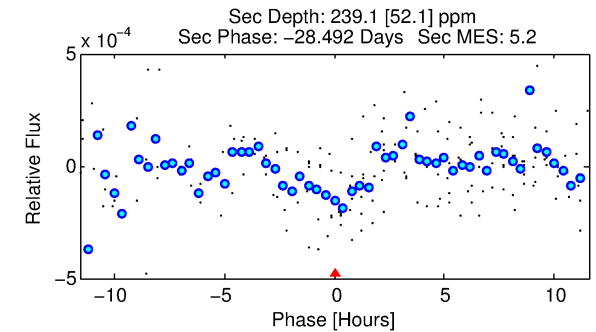
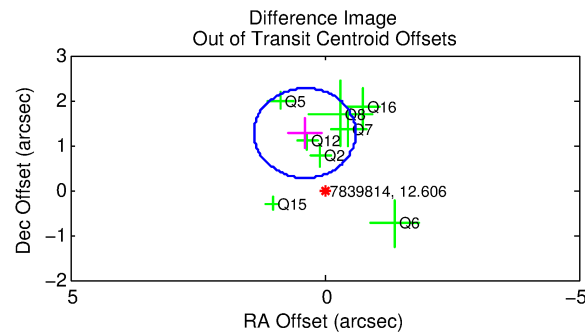
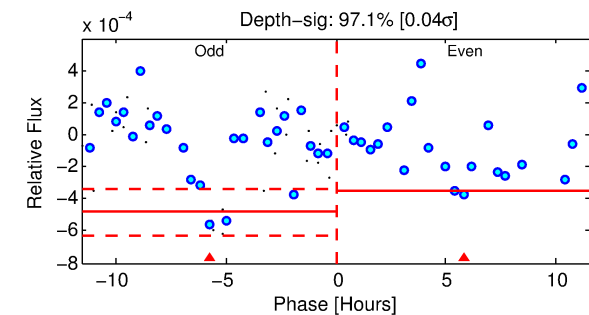
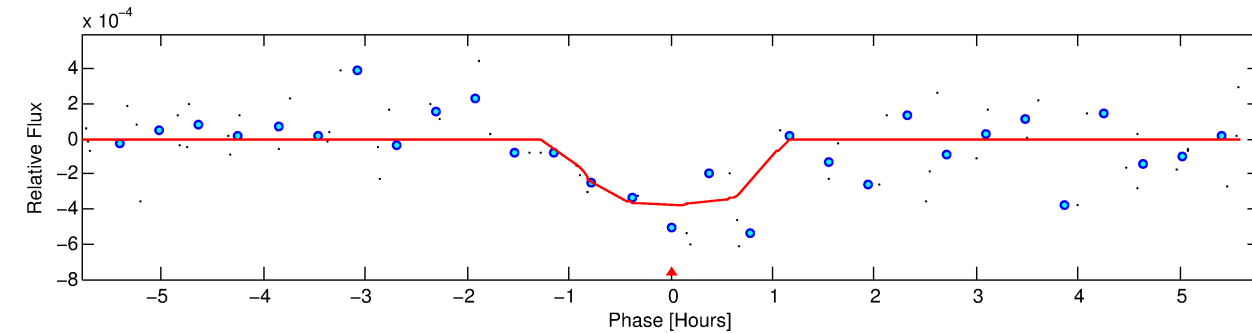
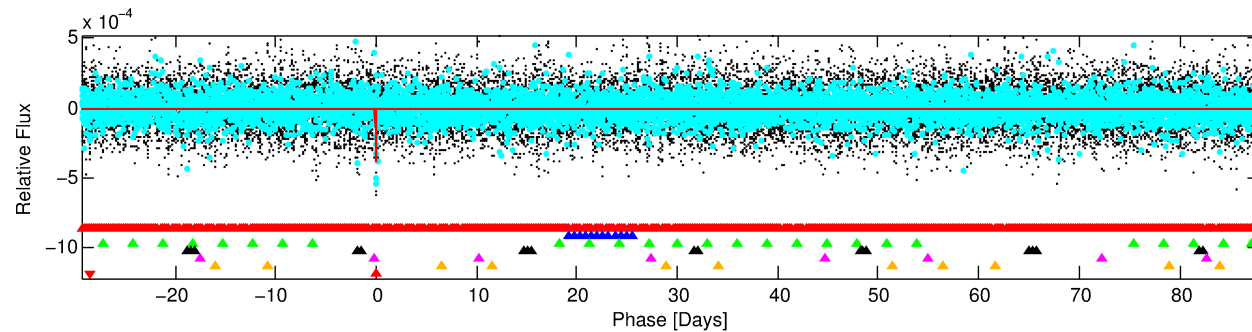
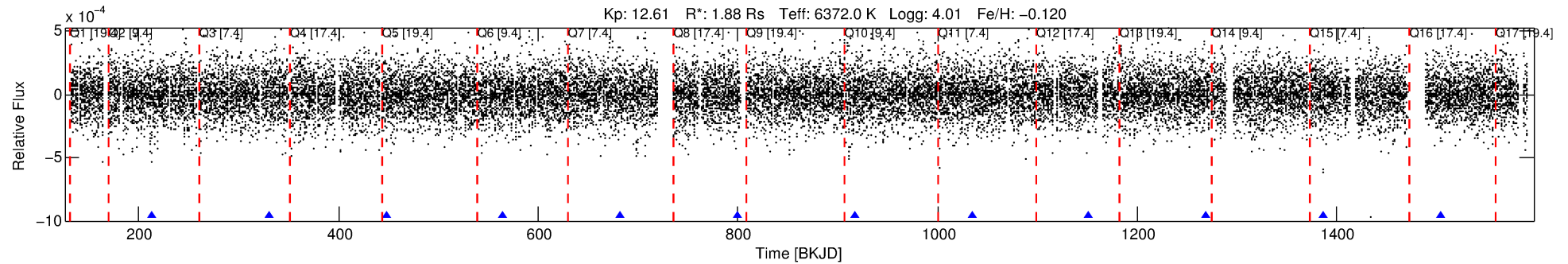
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007839814-07

No Significant Match Found

DV One-Page Summary

KIC: 7839814 Candidate: 7 of 7 Period: 117.330 d



DV Fit Results:

Period = 117.32954 [0.00101] d
Epoch = 212.9968 [0.0092] BKJD
Rp/R* = 0.0190 [0.0336]
a/R* = 348.47 [3265.82]
b = 0.69 [7.10]
Seff = 19.64 [11.66]
Teq = 537 [80] K
Rp = 3.90 [7.06] Re
a = 0.5161 [0.1877] AU
Ag = 2307.37 [8291.38] [0.28 σ]
Teffp = 5752 [5105] K [1.02 σ]

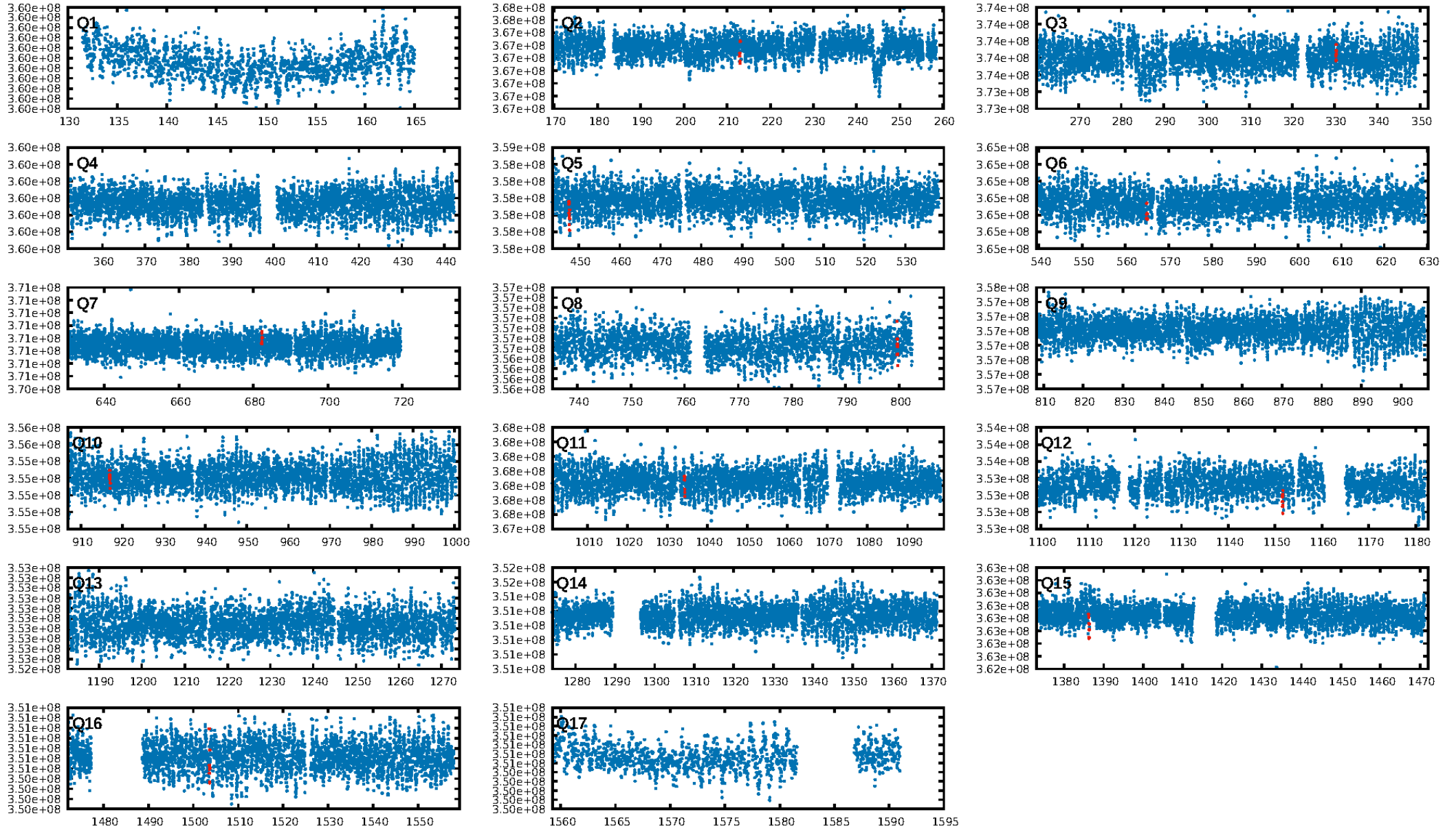
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.95 σ]
LongPeriod-sig: 100.0% [110.00 σ]
ModelChiSquare2-sig: 47.0%
ModelChiSquareGof-sig: 96.1%
Bootstrap-pfa: 1.76e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4126
Centroid-sig: 4.3%
Centroid-so: 0.579 arcsec [1.60 σ]
OotOffset-rm: 1.328 arcsec [3.99 σ]
KicOffset-rm: 1.321 arcsec [4.38 σ]
OotOffset-st: 2/2/3/1 [8]
KicOffset-st: 2/2/3/1 [8]
DiffImageQuality-fgm: 0.88 [7/8]
DiffImageOverlap-fno: 0.27 [3/11]

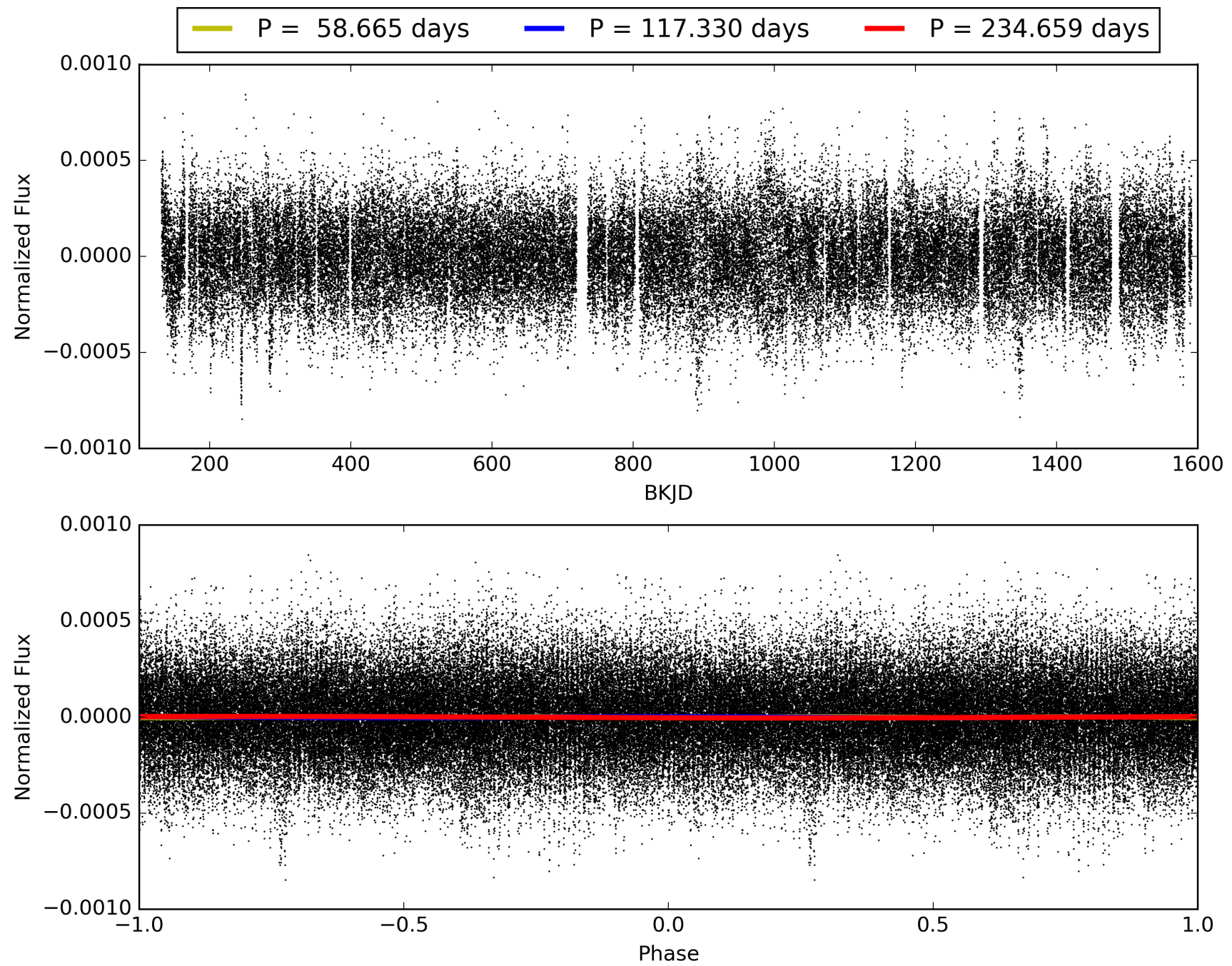
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:40:18 Z

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

TCE 007839814-07, PDC Light Curves

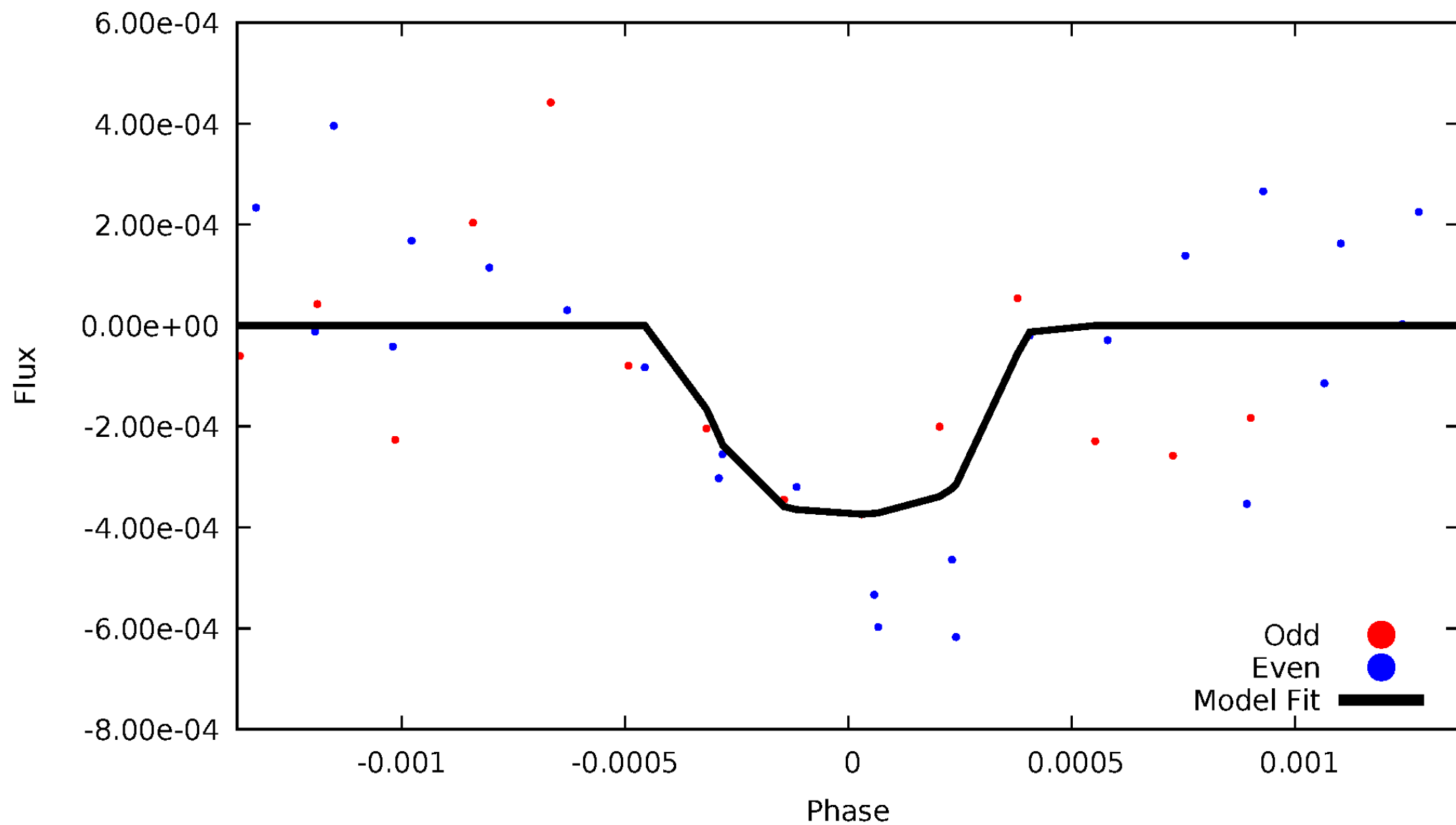


TCE 007839814-07



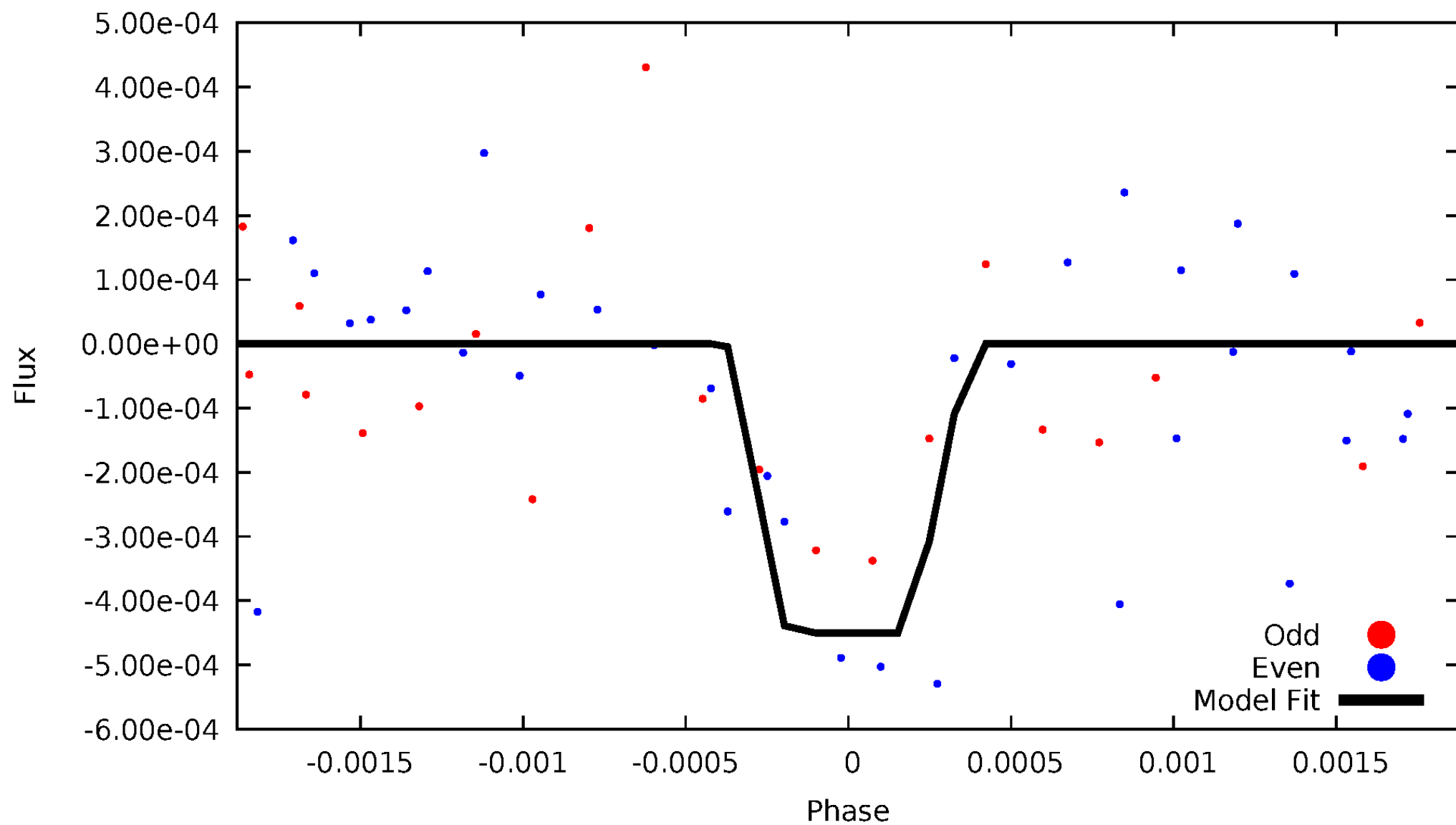
DV Odd/Even

TCE 007839814-07



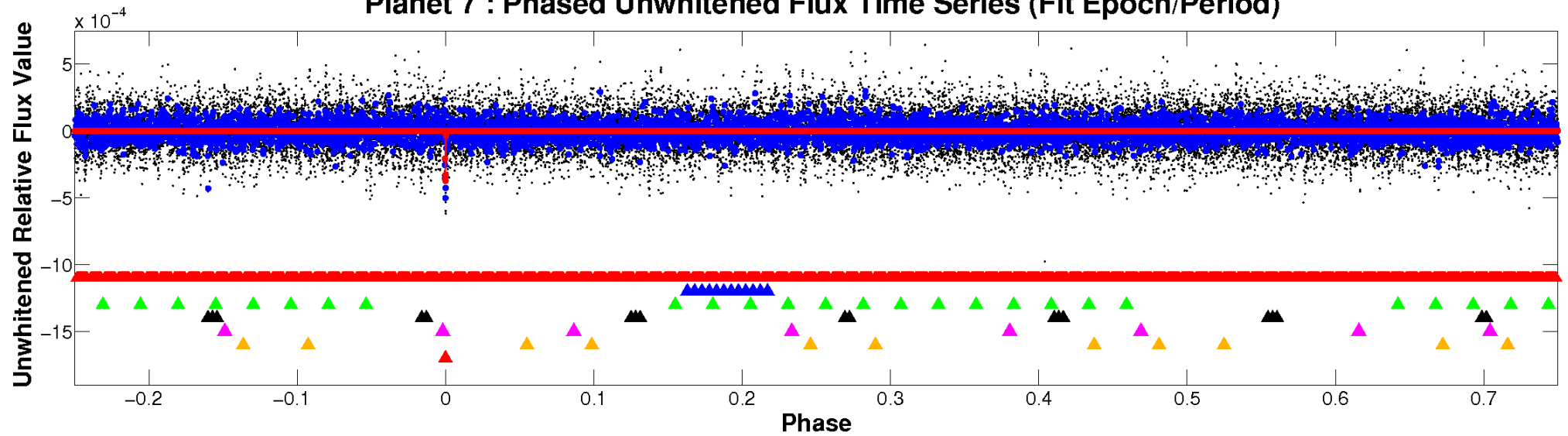
ALT Odd/Even

TCE 007839814-07

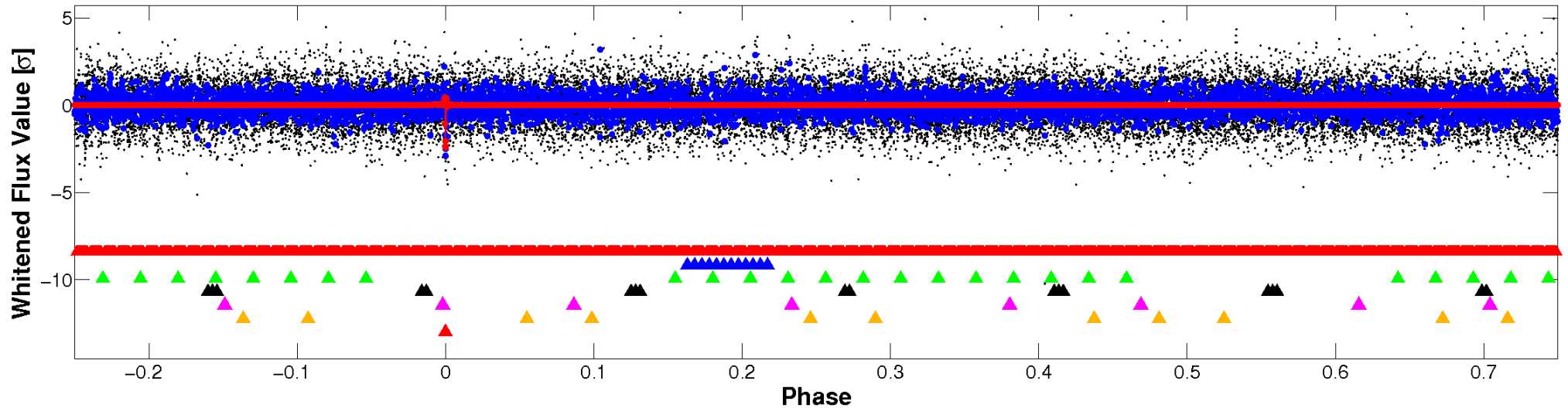


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

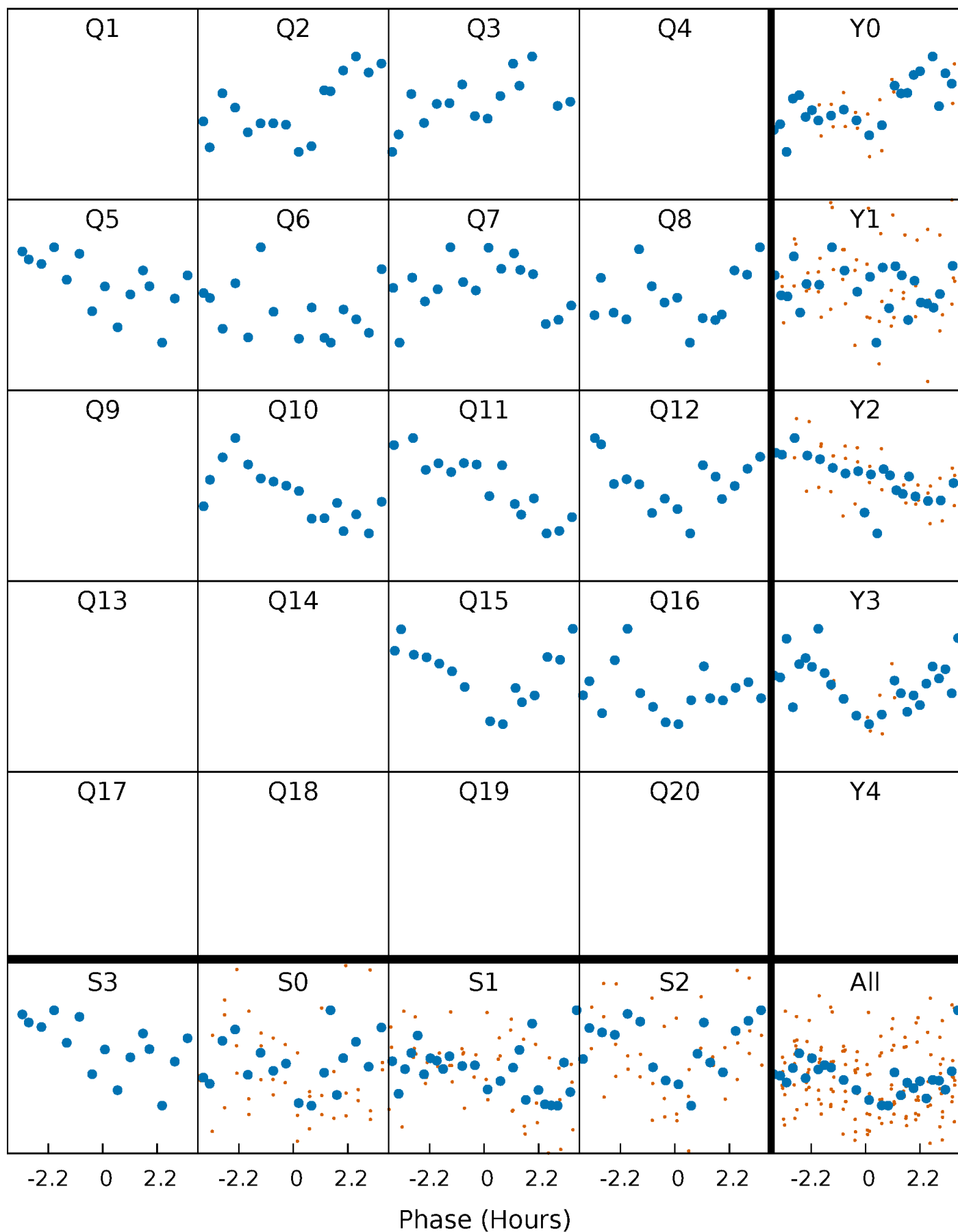


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



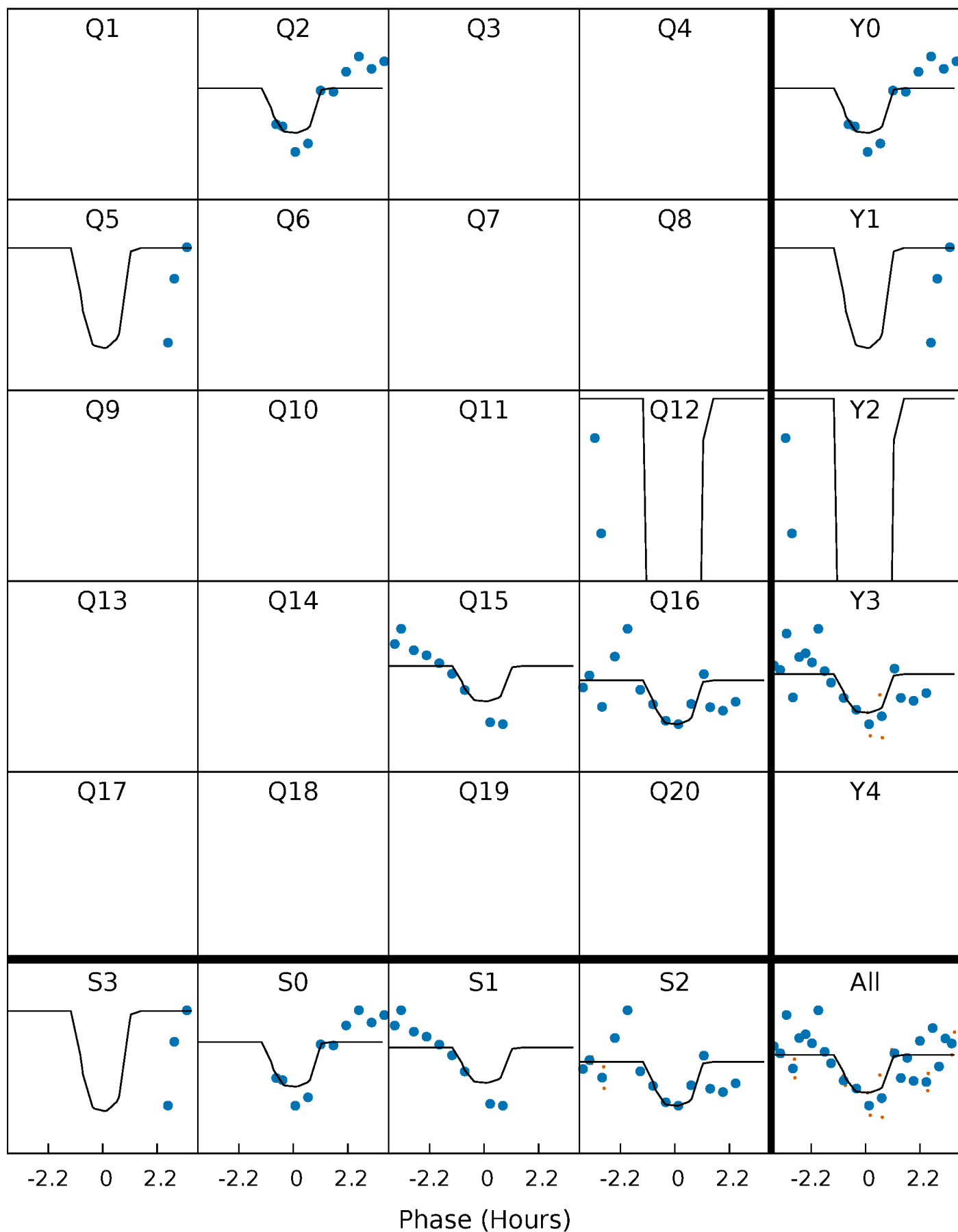
PDC Quarter-Phased Transit Curves

TCE 007839814-07 P=117.329544 Days $T_0=212.996804$ (BKJD)



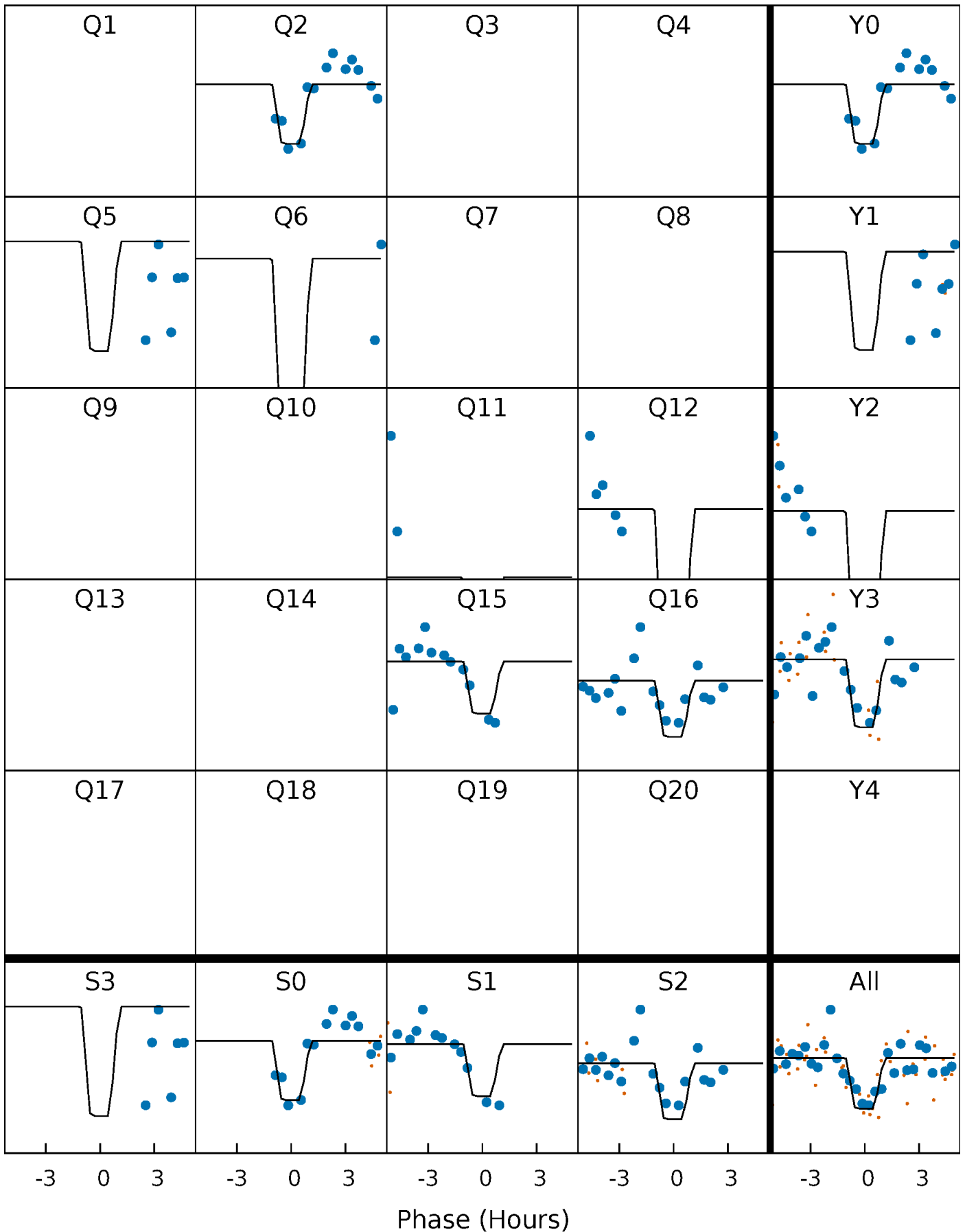
DV Quarter-Phased Transit Curves

TCE 007839814-07 P=117.329544 Days $T_0=212.996804$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

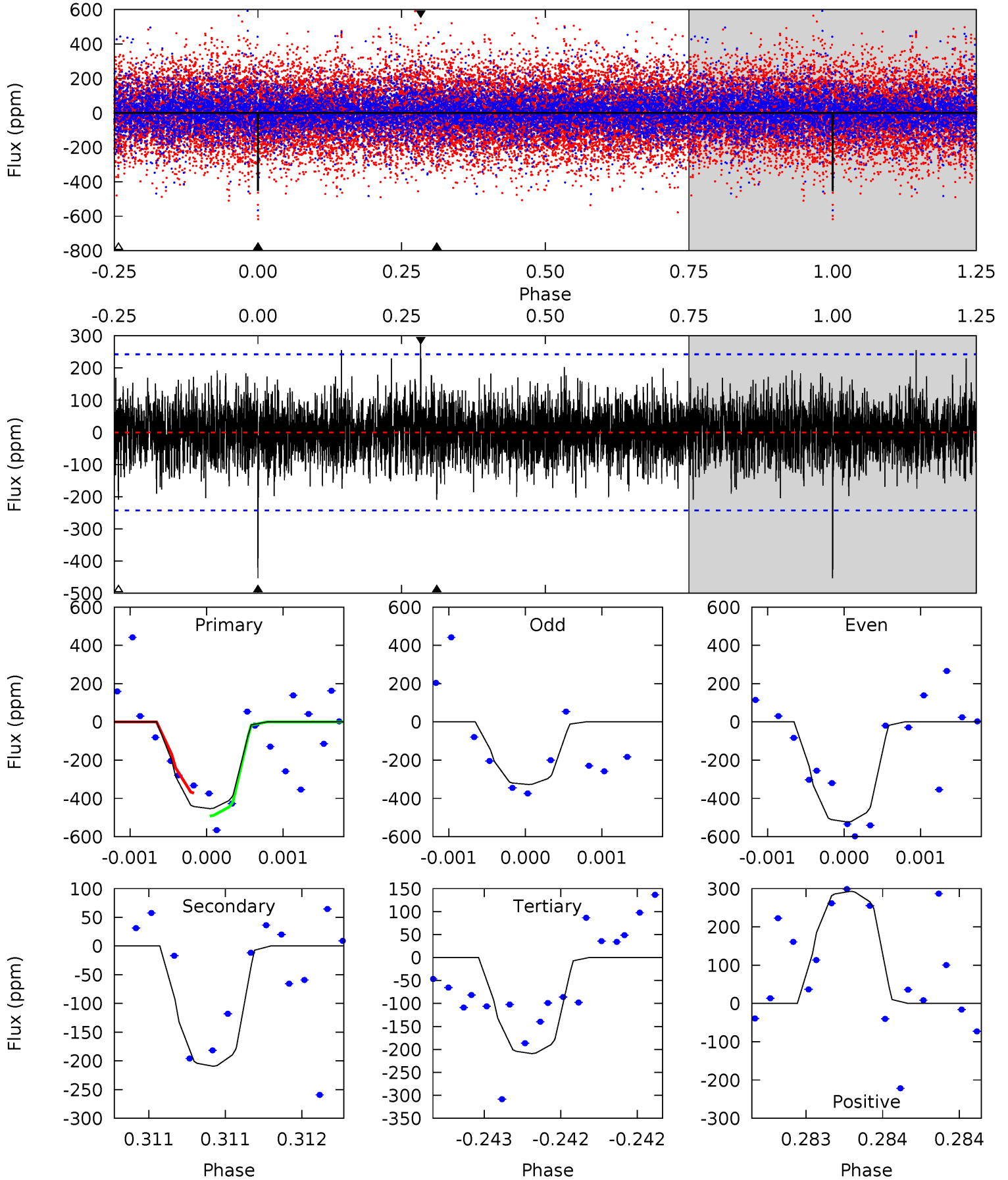
TCE 007839814-07 P=117.328215 Days $T_0=213.006244$ (BKJD)



DV Model-Shift Uniqueness Test

007839814-07, P = 117.329544 Days, E = 95.667260 Days

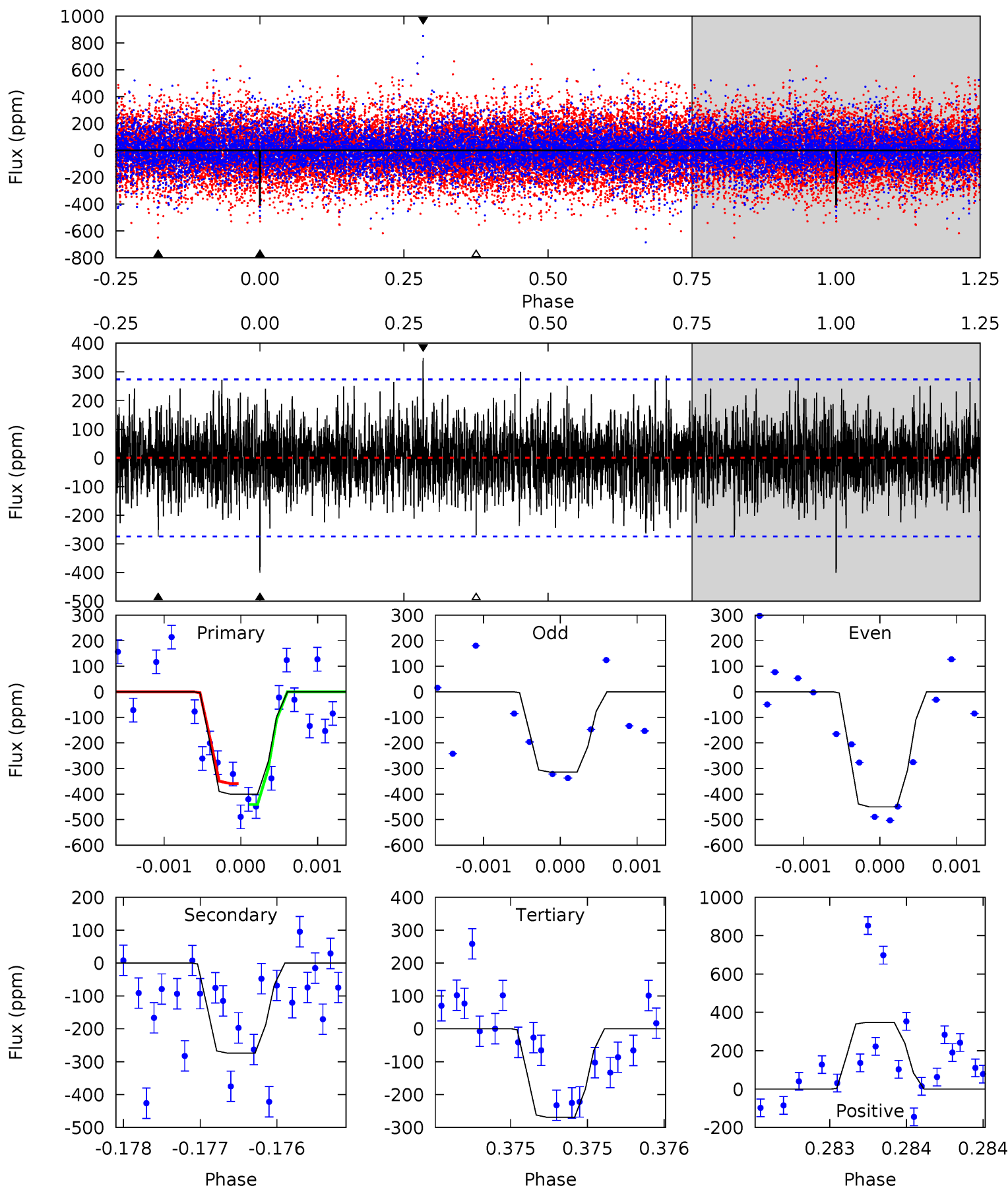
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.3 | 4.76 | 4.75 | 6.66 | 5.52 | 3.39 | 1.37 | 5.55 | 3.64 | 0.00 | -1.90 | 2.19 | 1.00 | 0.39 | 1.24 |



Alt Model-Shift Uniqueness Test

007839814-07, P = 117.328215 Days, E = 95.678029 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.06 | 5.53 | 5.42 | 7.02 | 5.52 | 3.39 | 1.58 | 2.64 | 1.05 | 0.10 | -1.49 | 1.35 | 1.03 | 0.47 | 0.83 |



Stellar Parameters For KIC 007839814

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6372^{+181}_{-227} | $4.013^{+0.336}_{-0.144}$ | $-0.120^{+0.250}_{-0.300}$ | $1.882^{+0.543}_{-0.724}$ | $1.337^{+0.193}_{-0.289}$ | $0.282^{+0.637}_{-0.134}$ |
| | +3%/-4% | +8%/-4% | +208%/-250% | +29%/-38% | +14%/-22% | +226%/-48% |
| Source | PHO54 | PHO54 | PHO54 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 007839814-07 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|-----------------------|----------------------|
| DV | -209 ± 44 | $6.21^{+5.18}_{-4.17}$ | 737^{+63}_{-80} | 4464^{+2946}_{-876} | 746^{+6051}_{-528} |
| Alt. | -274 ± 50 | $6.37^{+6.00}_{-4.15}$ | 740^{+55}_{-78} | 4635^{+2935}_{-971} | 987^{+6879}_{-733} |

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

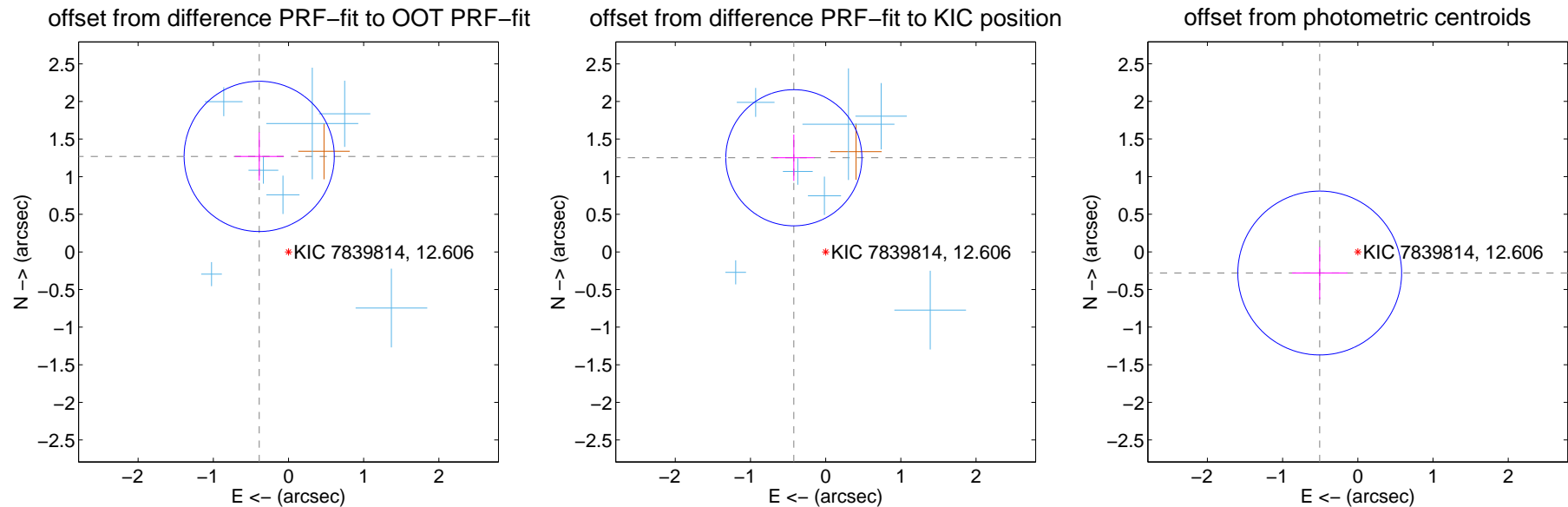
DV Centroid Data

Supplemental centroid analysis for 007839814-07. Kepler magnitude: 12.61. Transit SNR 6.79

There are 7 quarters with good PRF difference image offsets

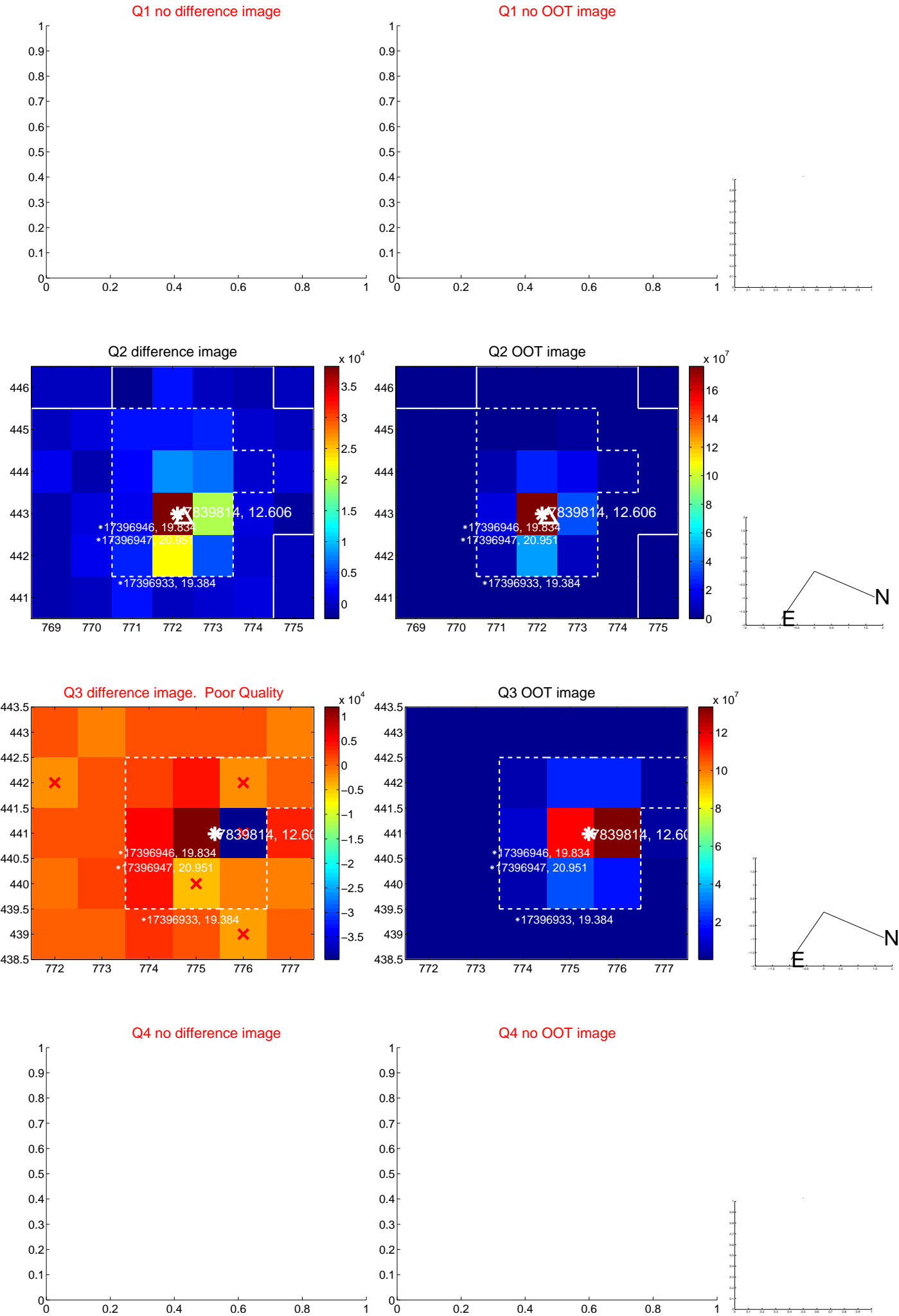
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|-------------------------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 1.328 \pm 0.333 | 3.99 | 0.390 \pm 0.325 | 1.270 \pm 0.320 |
| PRF-fit source offset from KIC position | 1.321 \pm 0.302 | 4.38 | 0.423 \pm 0.274 | 1.252 \pm 0.308 |
| photometric centroid source offset | 0.58 \pm 0.36 | 1.60 | 0.51 \pm 0.37 | -0.28 \pm 0.35 |

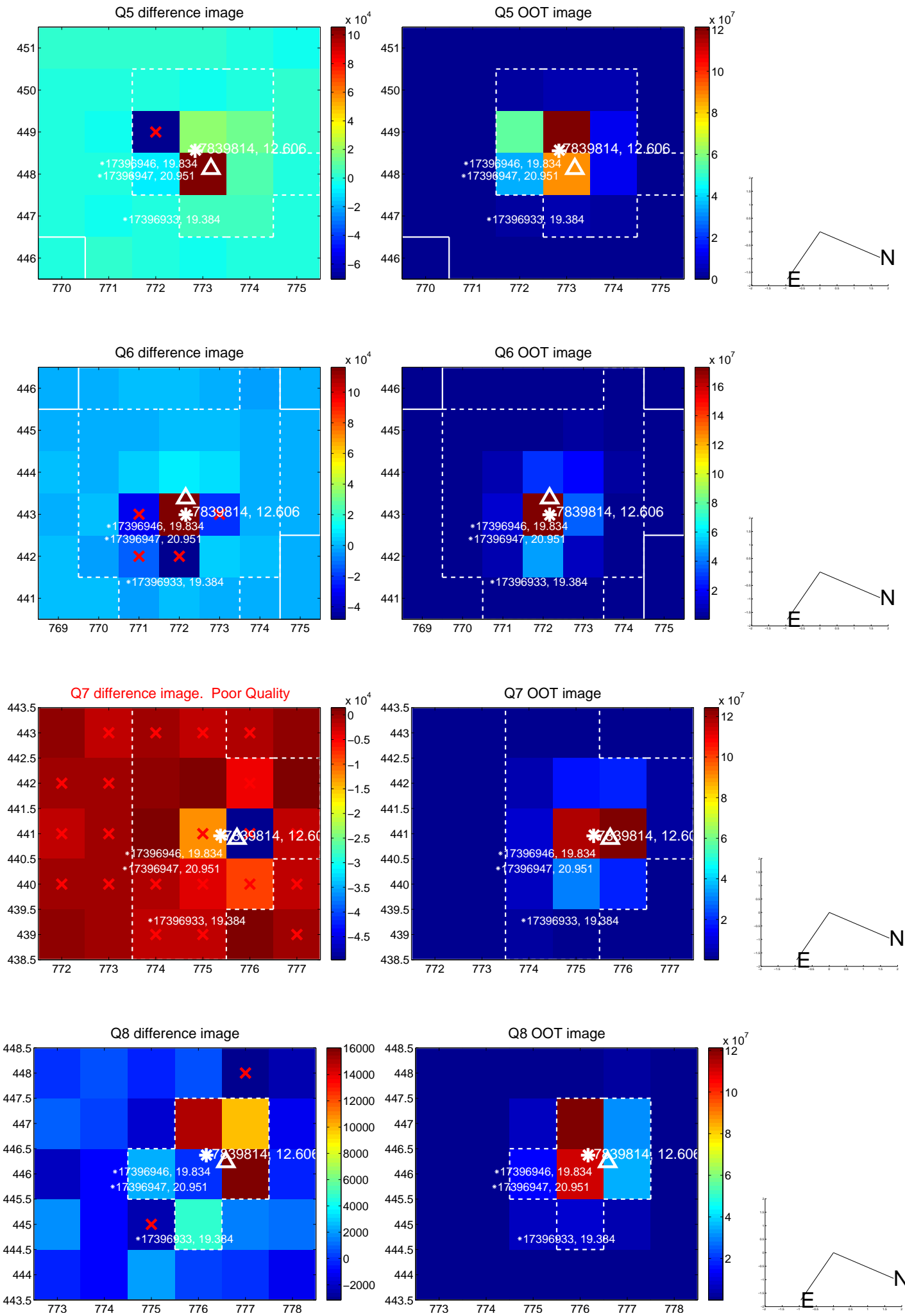


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

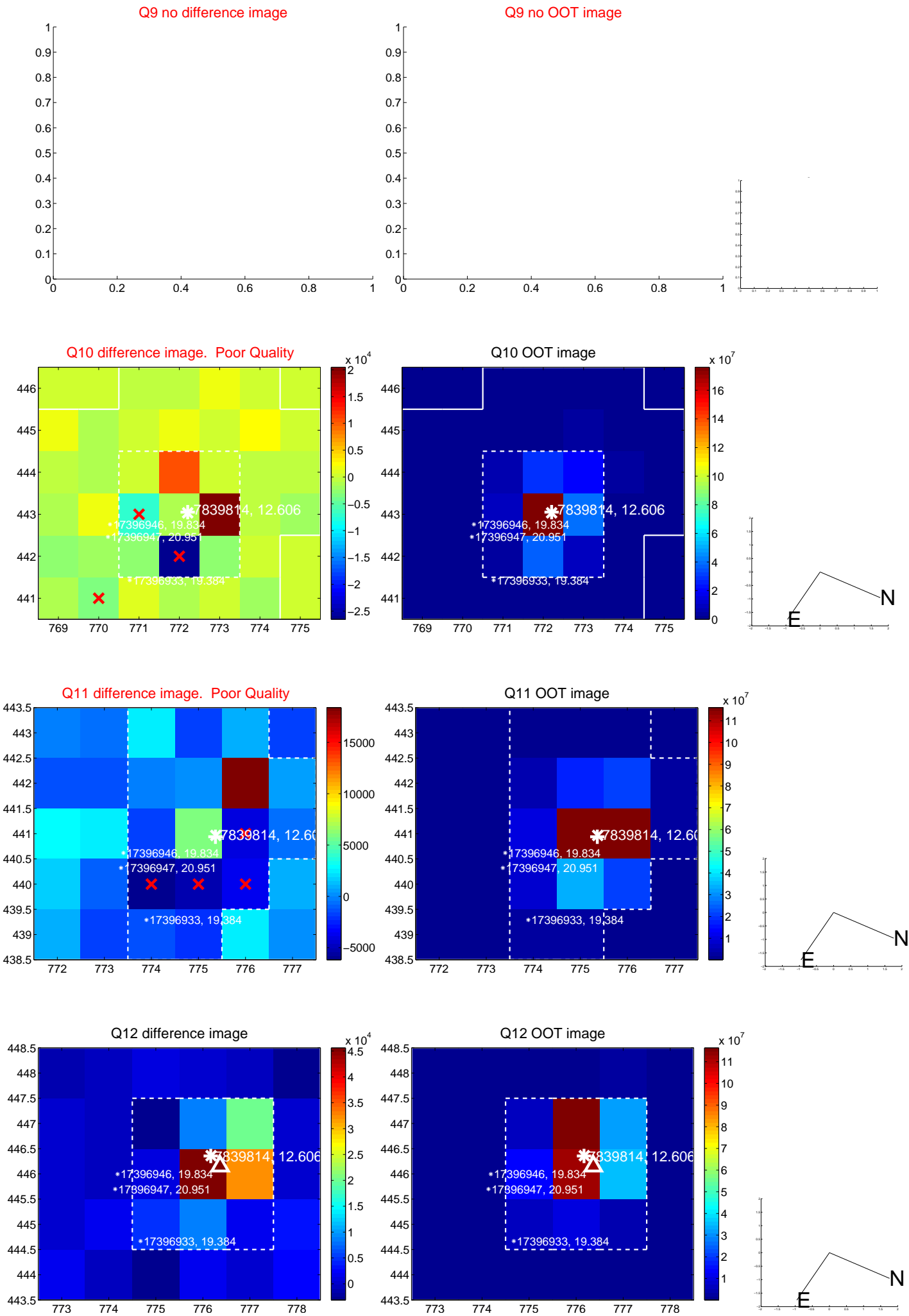
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



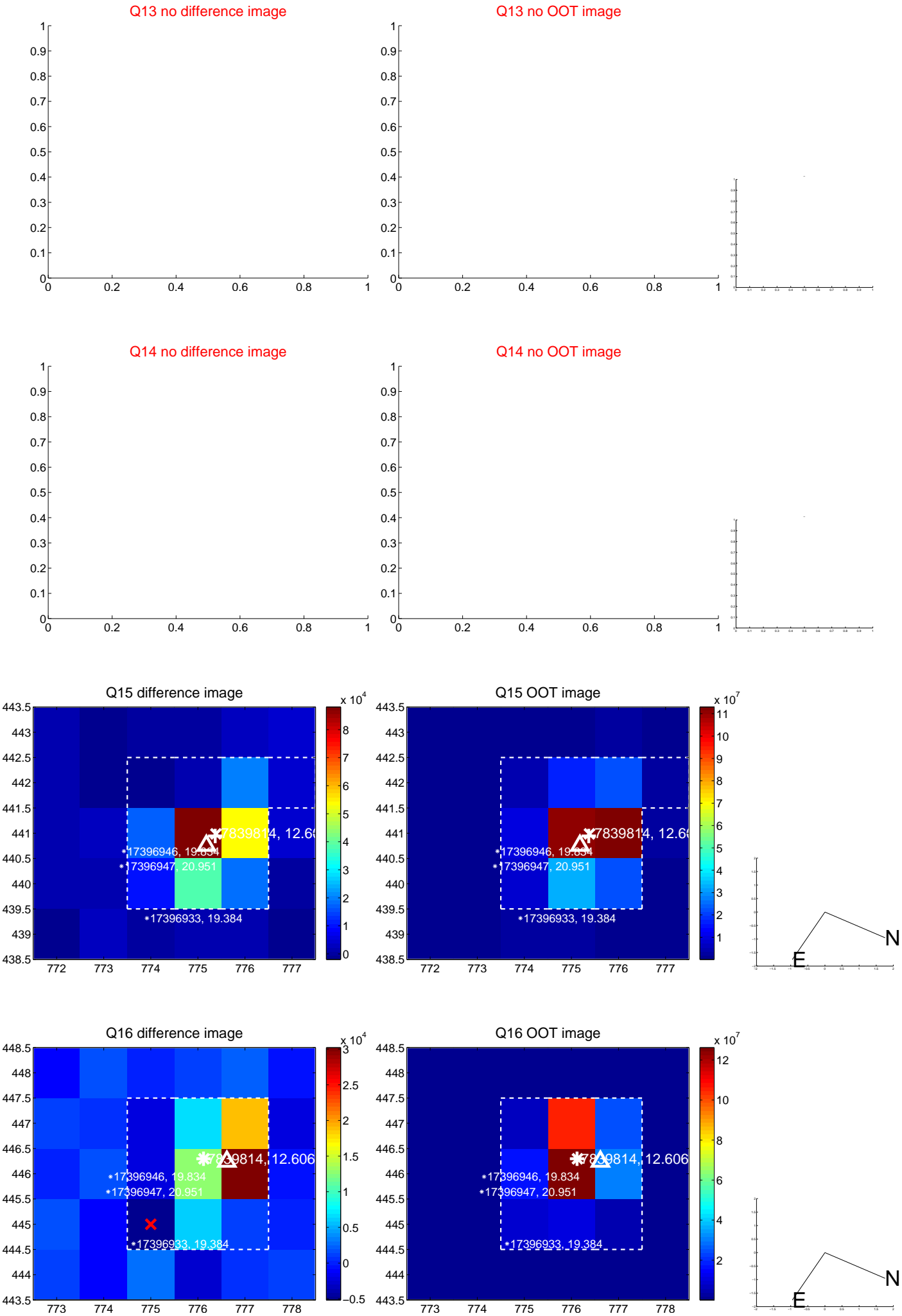
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



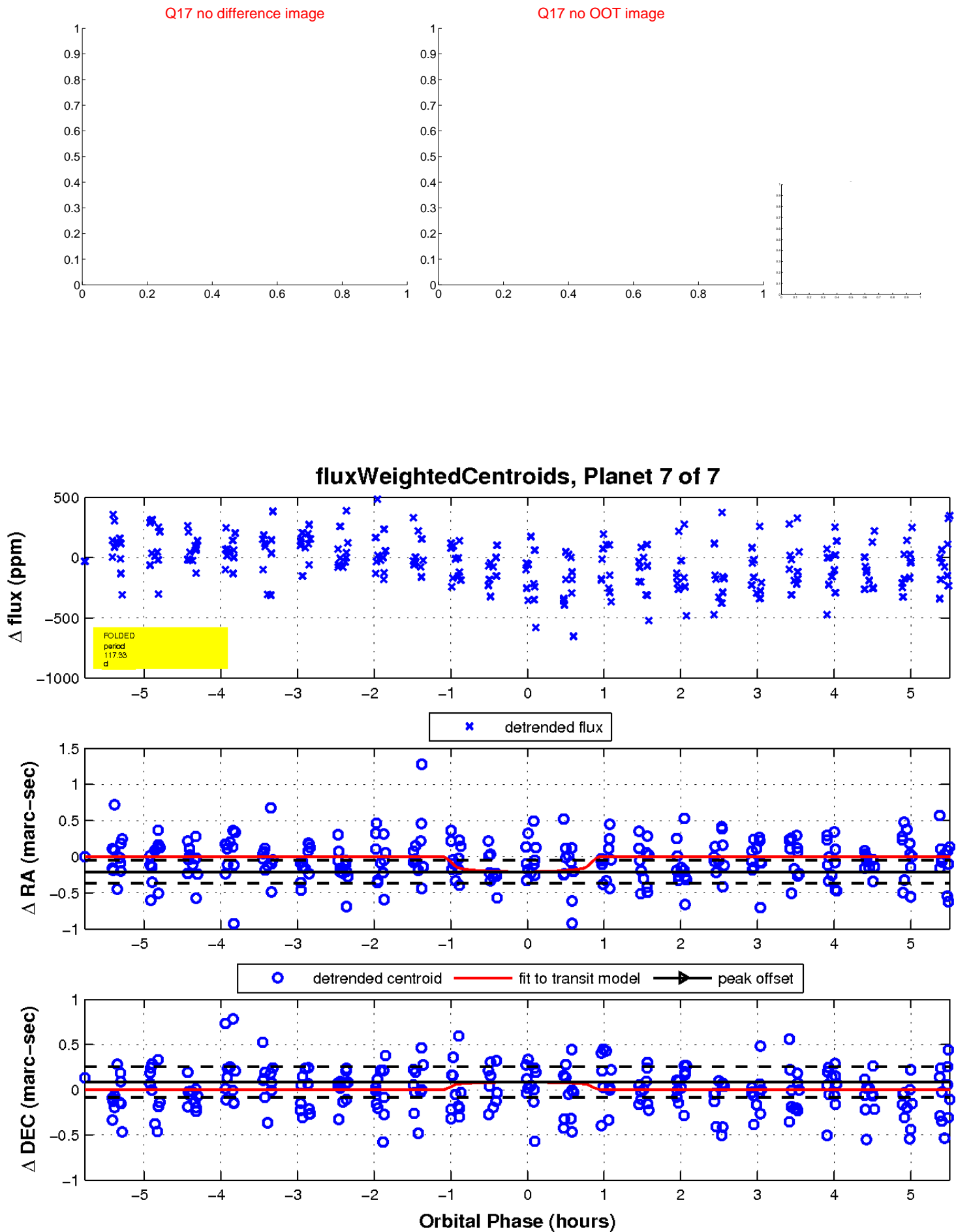
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

