

KIC 005384802

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 005384802-01 | OBS | 0646.01 | 3.041560 | 133.987370 | 20581.9 | 3.184 | 2997.7 | 1904.3 | 1.29 | 6431 | 28.15 | 1347.08 |
| 005384802-02 | OBS | No | 1.815521 | 131.723697 | 32.5 | 6.295 | 7.9 | 8.5 | 1.29 | 6431 | 0.85 | 2680.32 |
| 005384802-03 | OBS | No | 160.157069 | 140.791610 | 197.2 | 7.759 | 8.4 | 5.1 | 1.29 | 6431 | 1.94 | 6.83 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005384802-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED |
| 005384802-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 005384802-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

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

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

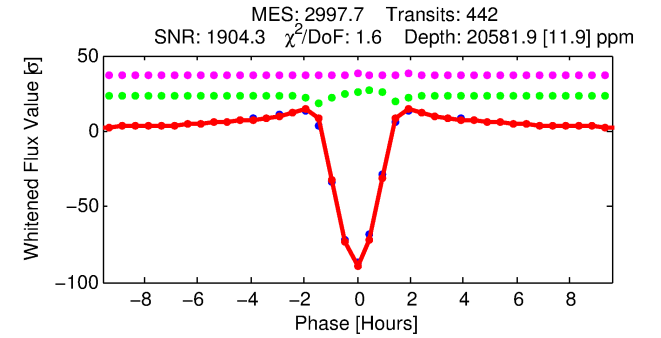
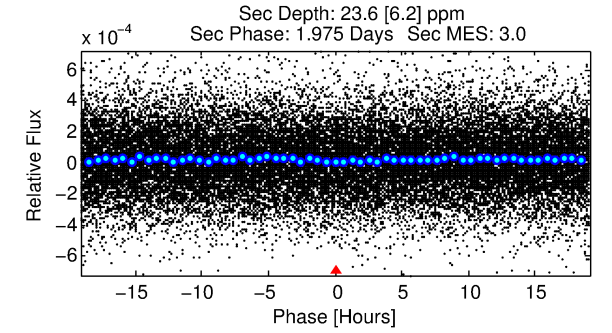
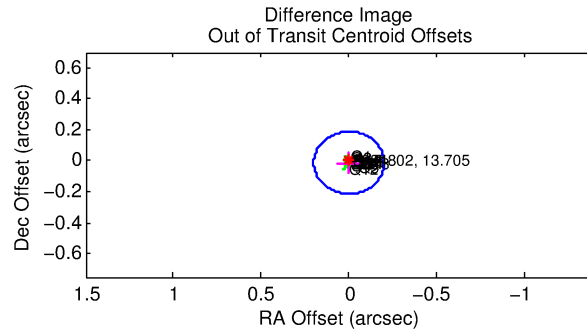
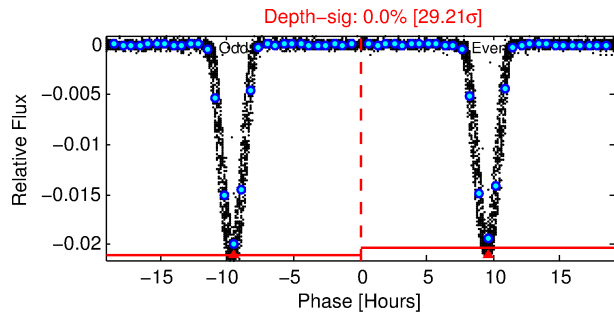
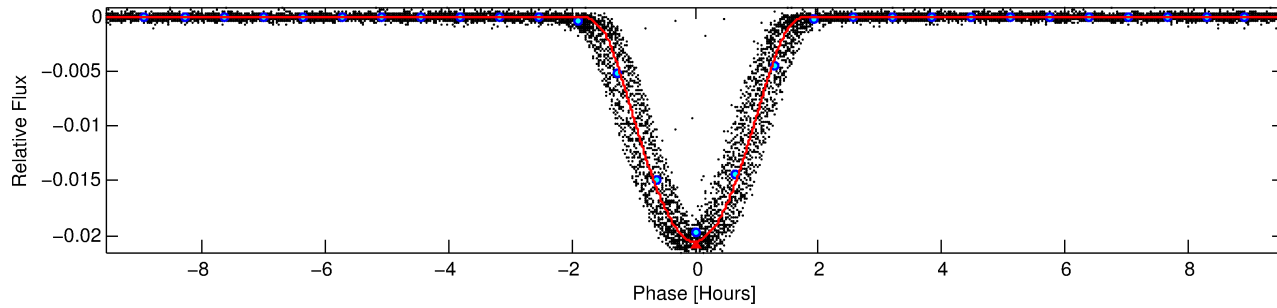
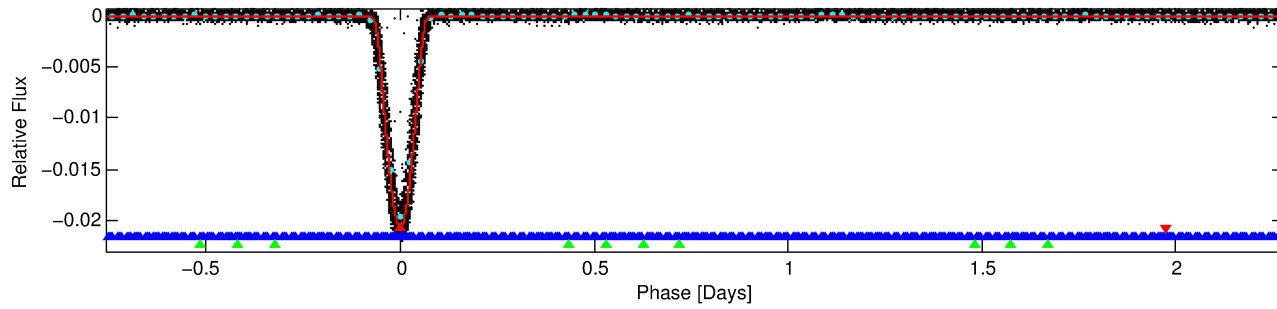
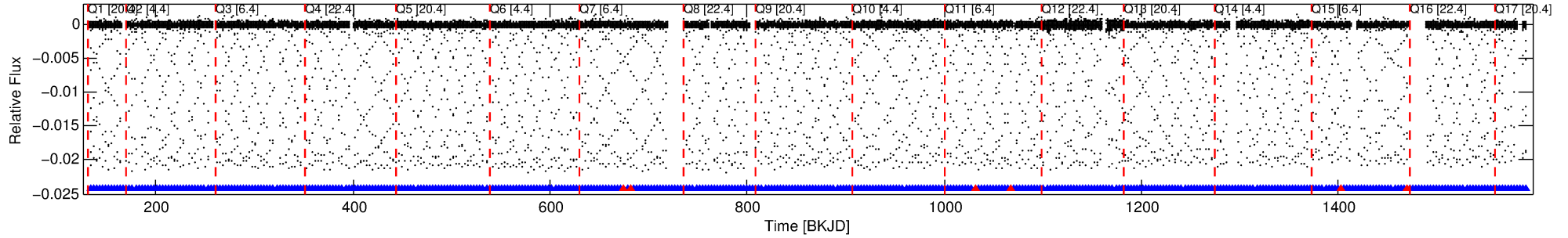
Ephemeris Match Information For 005384802-01

No Significant Match Found

DV One-Page Summary

KIC: 5384802 Candidate: 1 of 3 Period: 3.042 d
KOI: K00646.01 Corr: 0.987

Kp: 13.70 R*: 1.29 Rs Teff: 6431.0 K Logg: 4.29 Fe/H: -0.020



DV Fit Results:

Period = 3.04156 [0.00000] d
Epoch = 133.9874 [0.0000] BKJD
Rp/R* = 0.1992 [0.0031]
a/R* = 5.40 [0.01]
b = 0.95 [0.00]
Seff = 1347.08 [304.29]
Teff = 1545 [87] K
Rp = 28.15 [4.78] Re
a = 0.0437 [0.0062] AU
Ag = 0.03 [0.01] [-91.86σ]
Teffp = 1004 [70] K [-4.83σ]

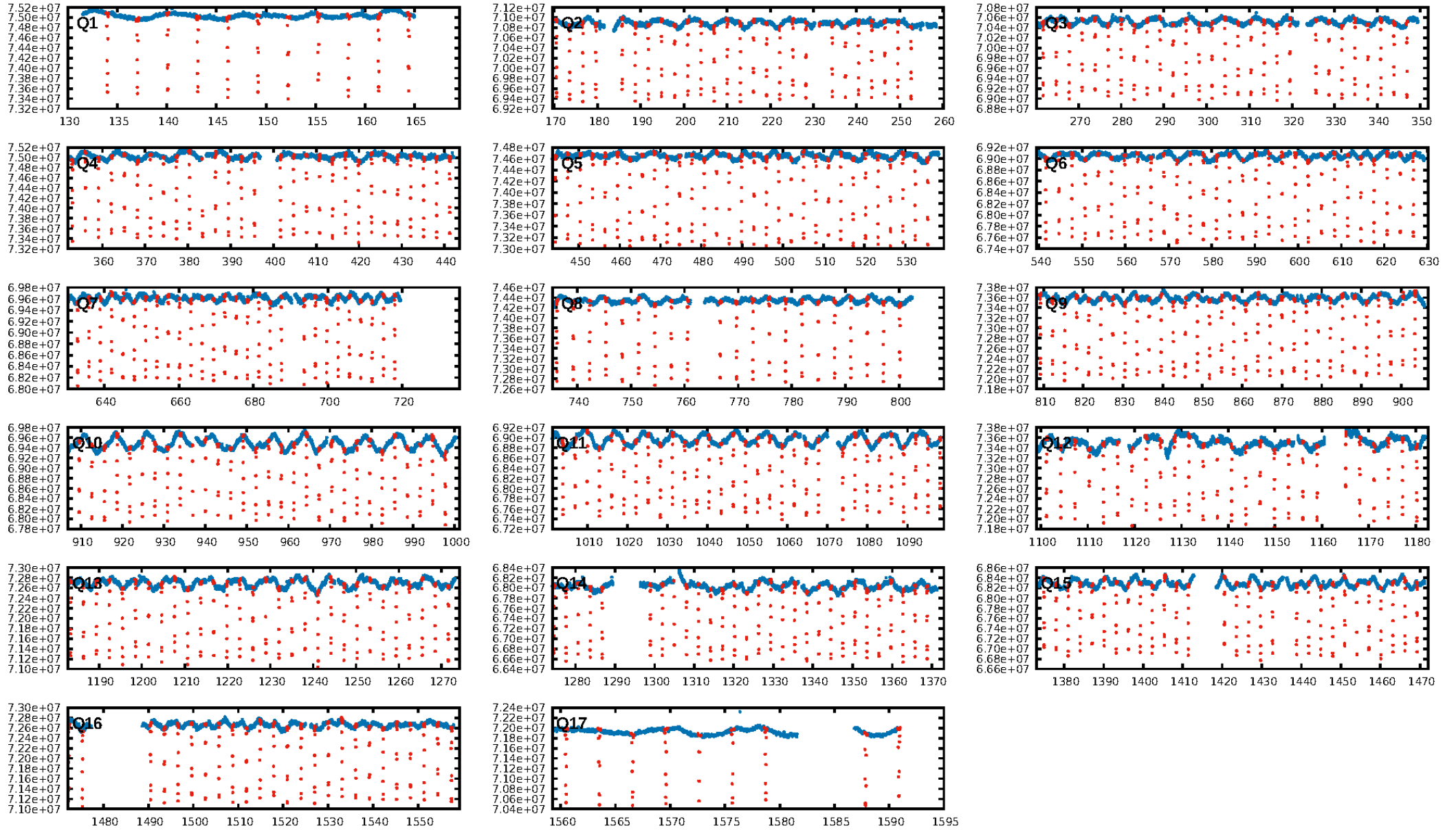
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.17σ]
LongPeriod-sig: 100.0% [449.60σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [416/422]
GhostDiagnostic-chr: 3.655
Centroid-sig: 0.0%
Centroid-so: 0.211 arcsec [49.94σ]
OotOffset-rm: 0.013 arcsec [0.20σ]
KicOffset-rm: 0.025 arcsec [0.37σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

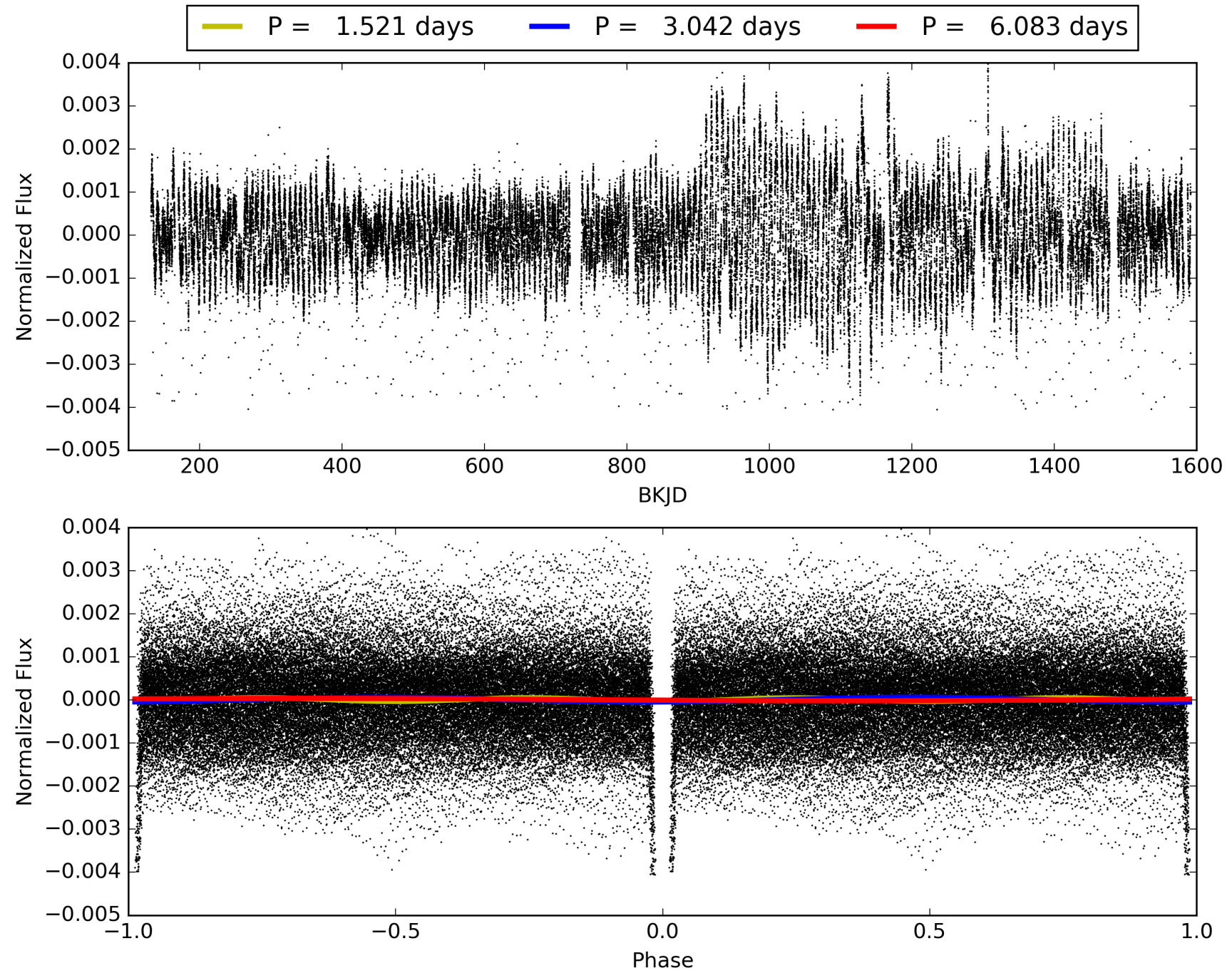
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:35:03 Z

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

TCE 005384802-01, PDC Light Curves

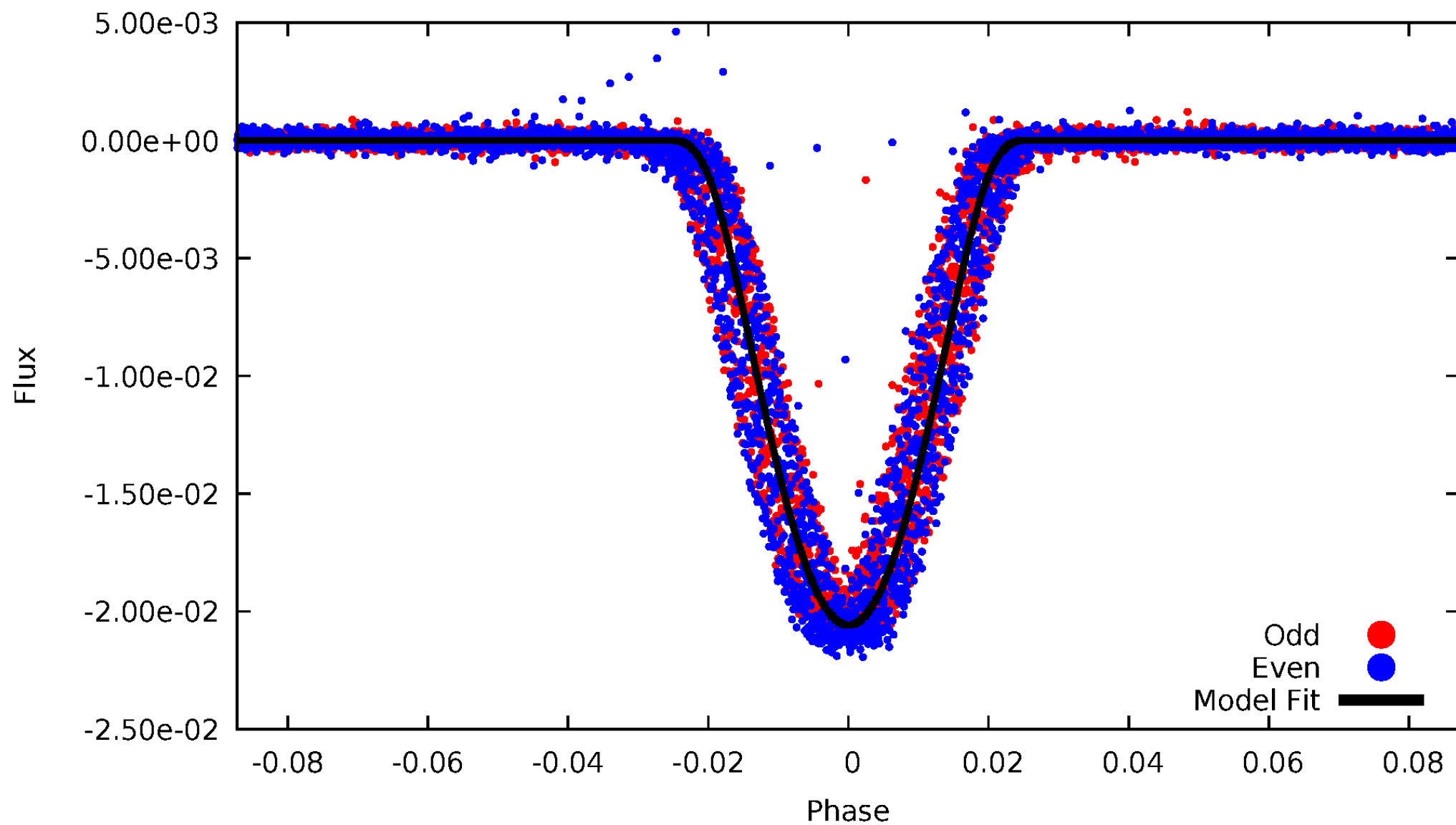


TCE 005384802-01



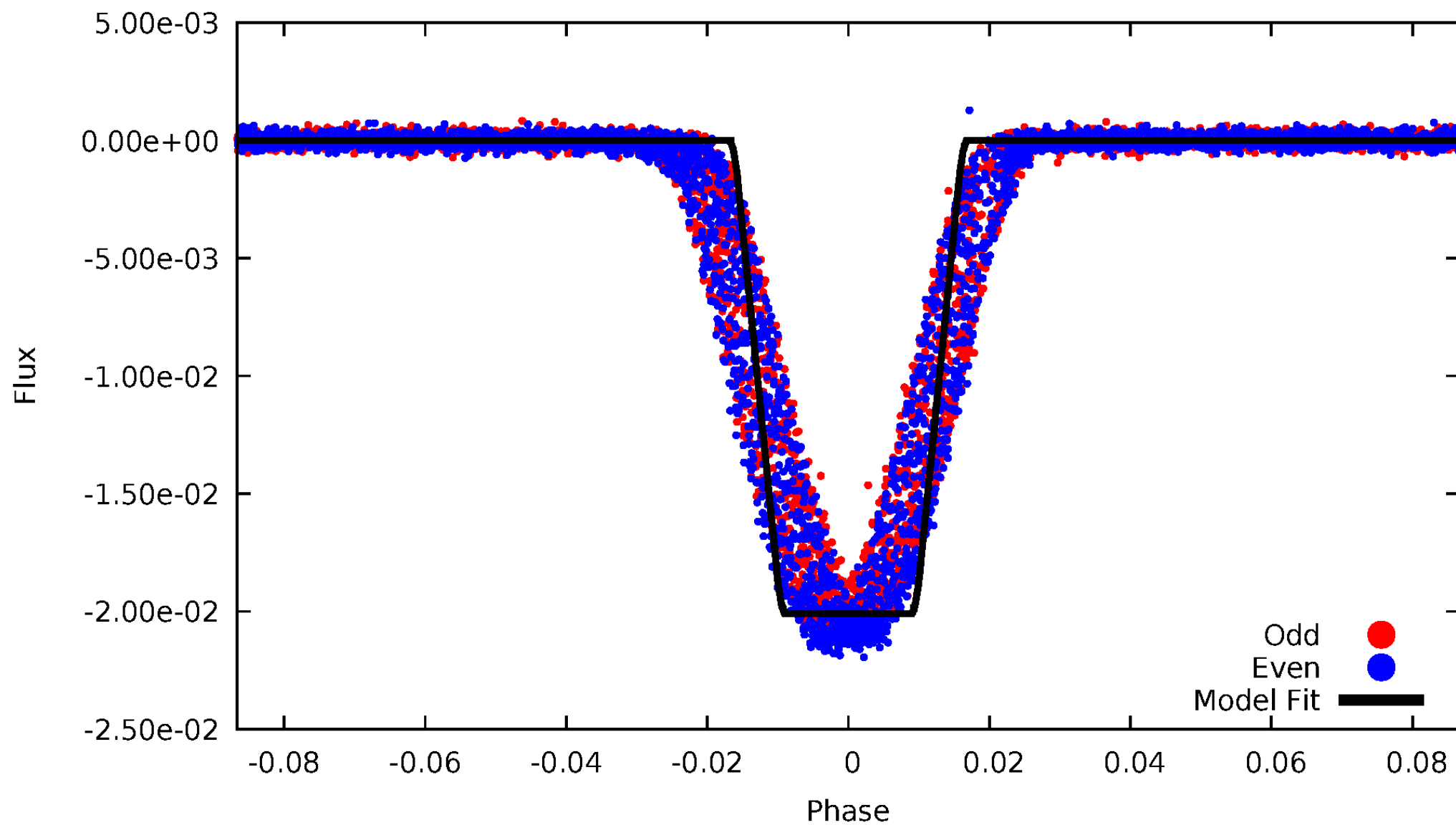
DV Odd/Even

TCE 005384802-01



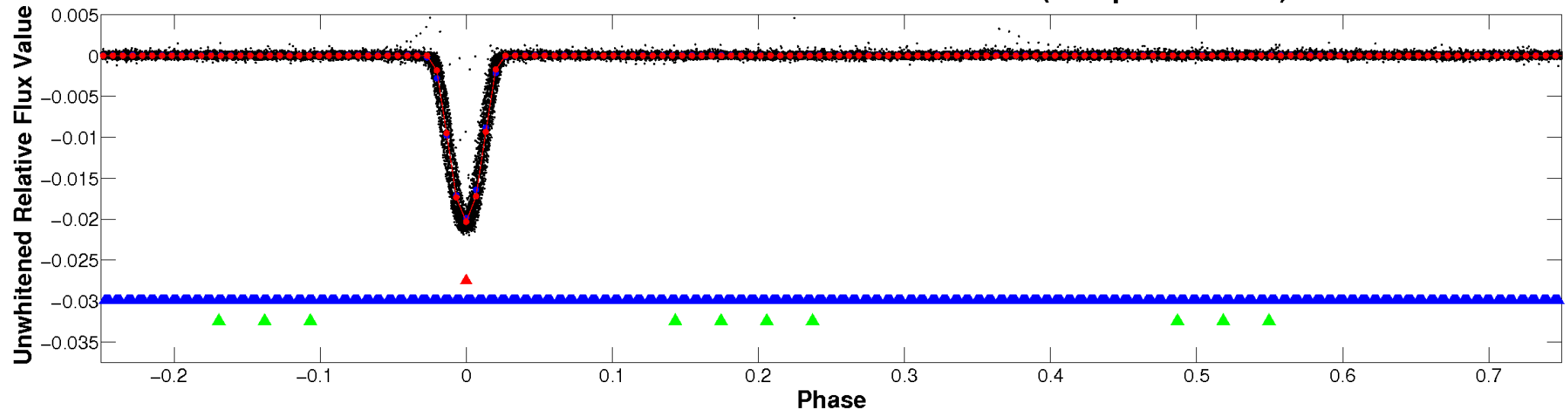
ALT Odd/Even

TCE 005384802-01

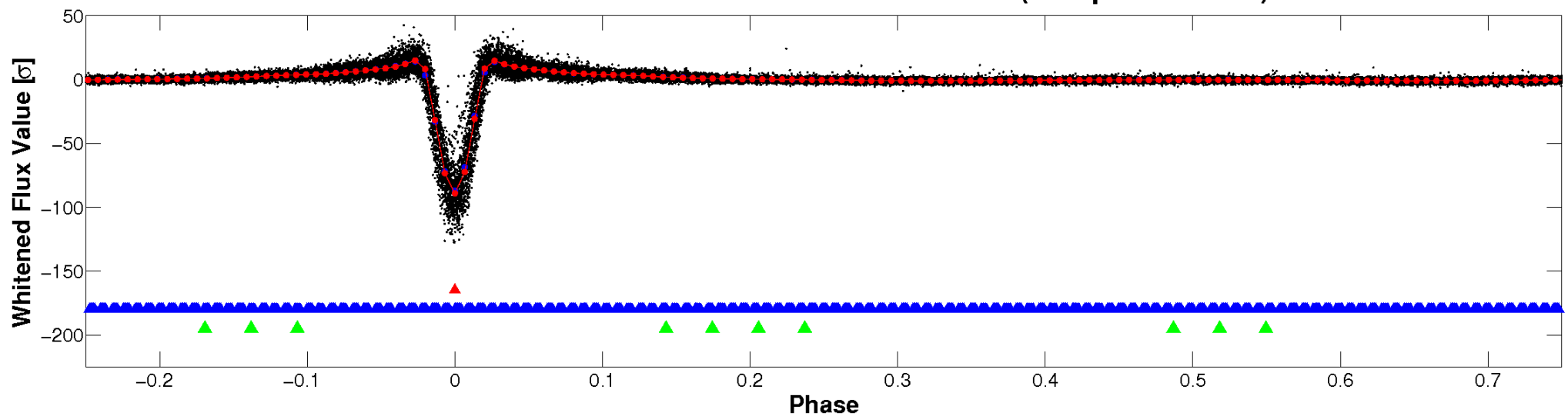


Non-Whitened Vs. Whitened Light Curve

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

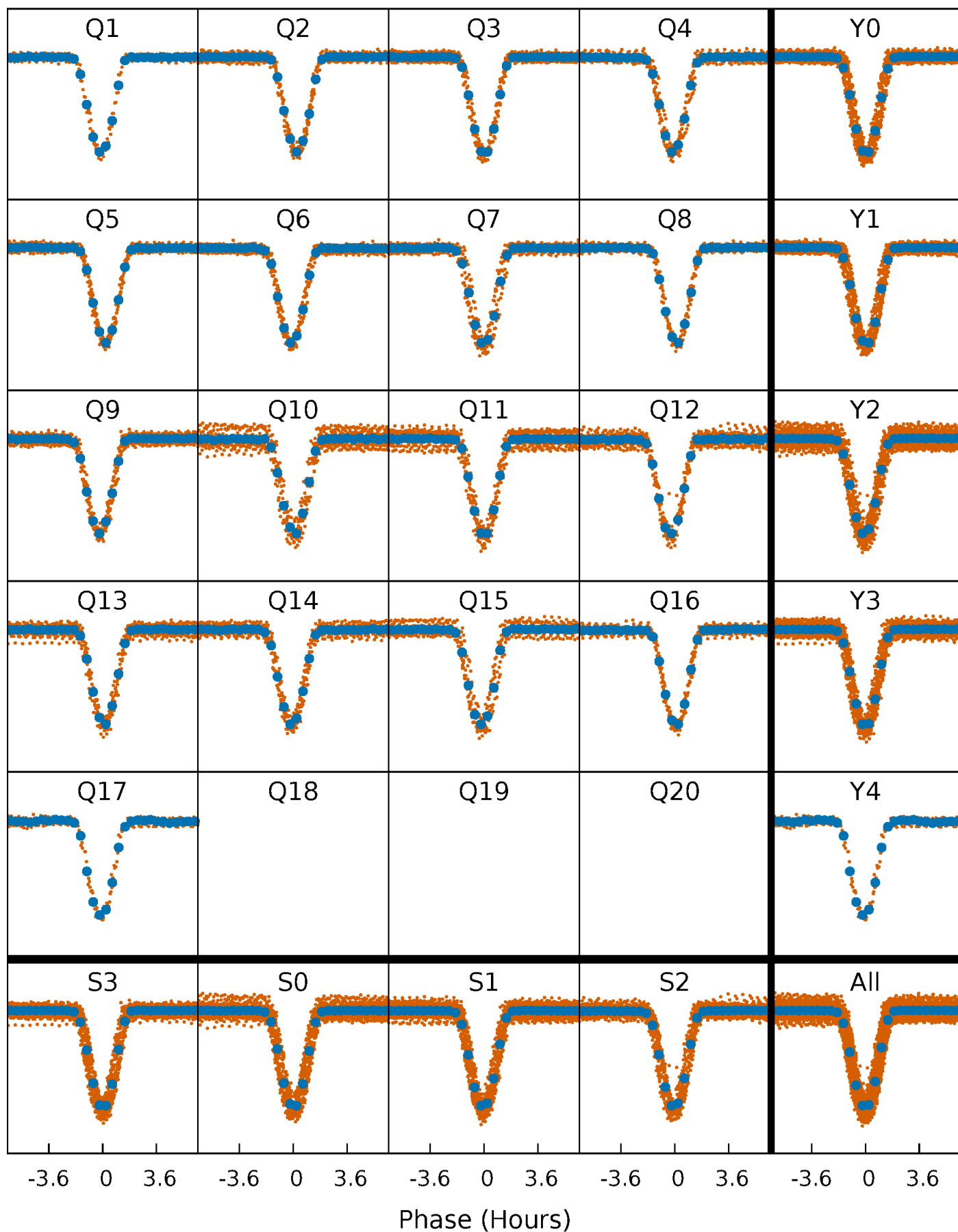


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



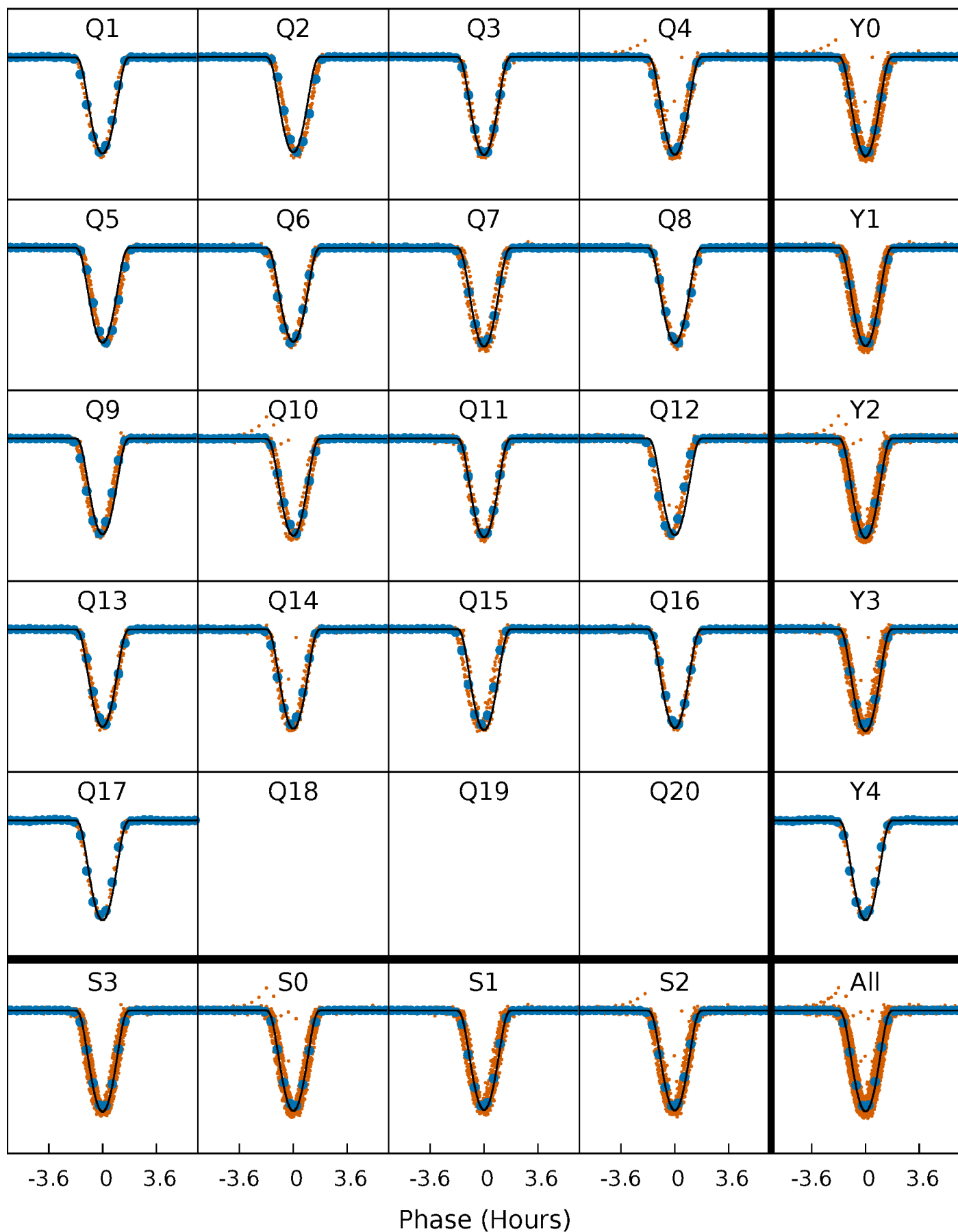
PDC Quarter-Phased Transit Curves

TCE 005384802-01 P= 3.041560 Days $T_0=133.987370$ (BKJD)



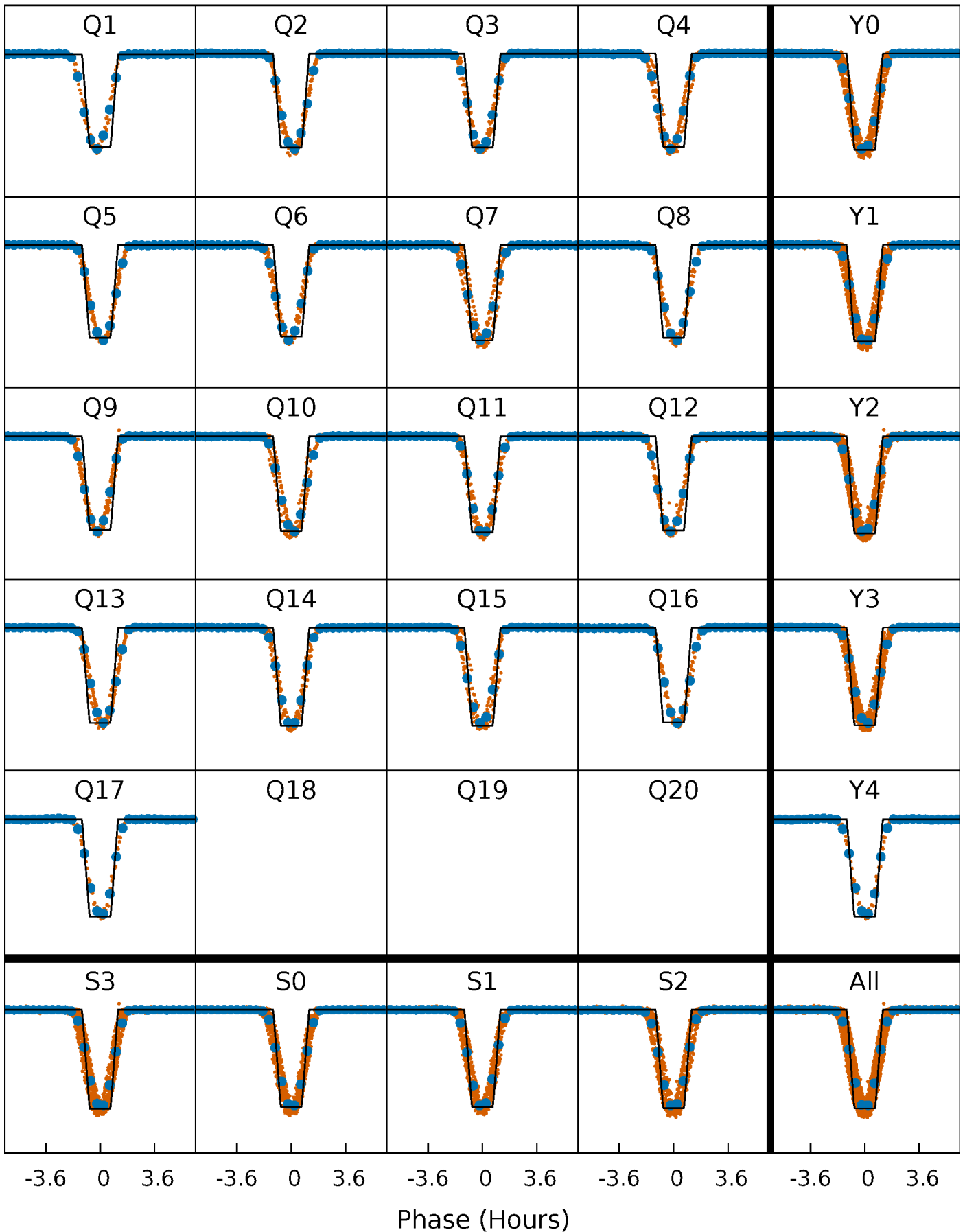
DV Quarter-Phased Transit Curves

TCE 005384802-01 P= 3.041560 Days $T_0=133.987370$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

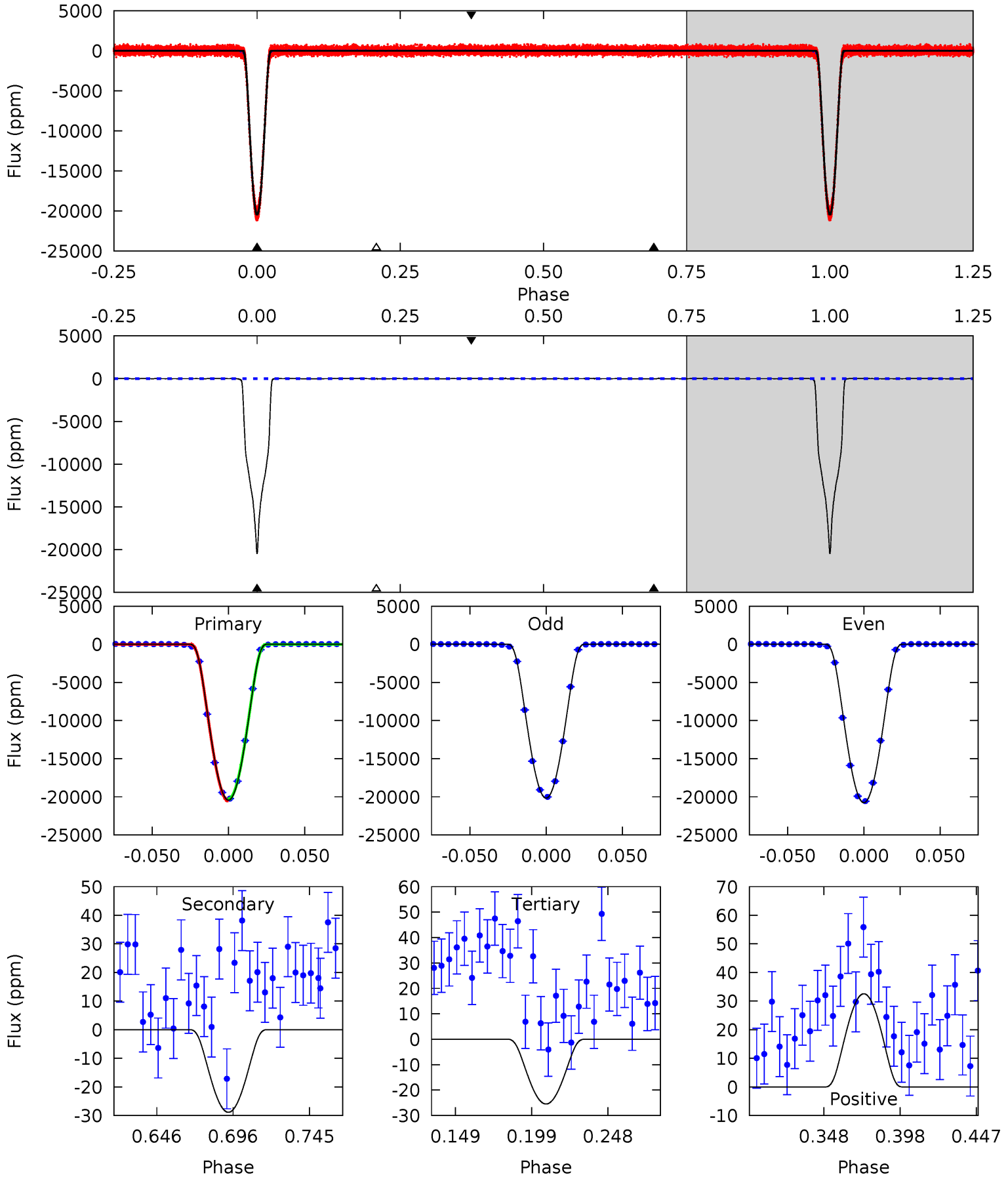
TCE 005384802-01 P= 3.041536 Days $T_0=133.992156$ (BKJD)



DV Model-Shift Uniqueness Test

005384802-01, P = 3.041560 Days, E = 130.945810 Days

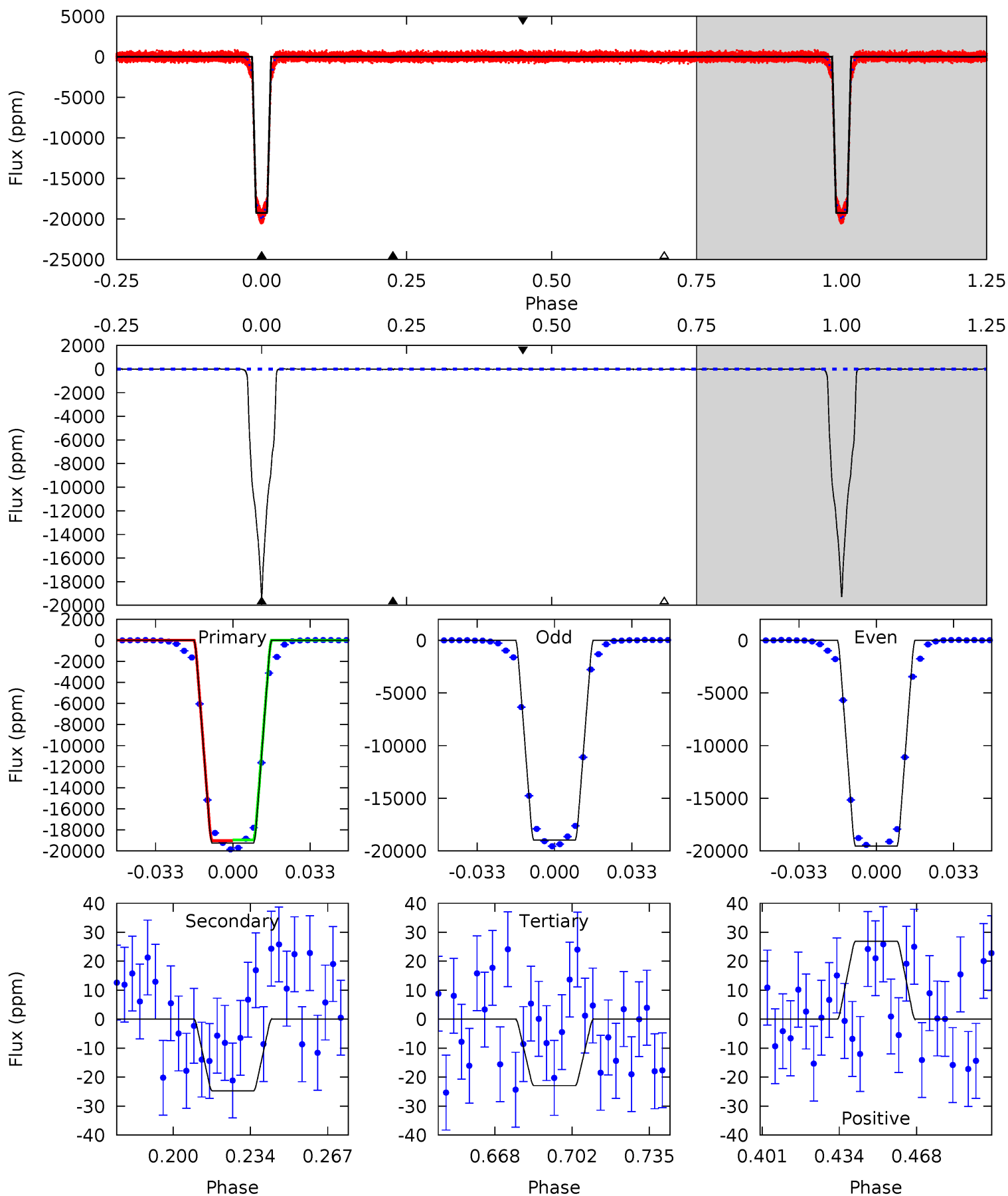
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3401 | 4.81 | 4.24 | 5.42 | 4.71 | 1.96 | 1.82 | 3397 | 3396 | 0.57 | -0.61 | 49.8 | 0.99 | 0.00 | 19.5 |



Alt Model-Shift Uniqueness Test

005384802-01, P = 3.041536 Days, E = 130.950620 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 2398 | 3.08 | 2.86 | 3.35 | 4.79 | 2.13 | 1.20 | 2395 | 2394 | 0.22 | -0.27 | 36.1 | 1.00 | 0.00 | 0 |



Stellar Parameters For KIC 005384802

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6431^{+102}_{-141} | $4.293^{+0.076}_{-0.114}$ | $-0.020^{+0.150}_{-0.150}$ | $1.295^{+0.219}_{-0.152}$ | $1.199^{+0.096}_{-0.096}$ | $0.778^{+0.245}_{-0.261}$ |
| | +2%/-2% | +2%/-3% | +750%/-750% | +17%/-12% | +8%/-8% | +31%/-34% |
| Source | SPE18 | SPE18 | SPE18 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005384802-01 / KOI 0646.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|-------------------------|--------------------|---------------------|---------------------------|
| DV | -29 ± 6 | $28.24^{+2.70}_{-1.81}$ | 2164^{+92}_{-81} | -2552^{+55}_{-57} | $0.037^{+0.010}_{-0.009}$ |
| Alt. | -25 ± 8 | $20.22^{+1.86}_{-1.48}$ | 2167^{+96}_{-81} | -2520^{+61}_{-66} | $0.064^{+0.023}_{-0.022}$ |

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 $A_{obs} \gg 1.0$

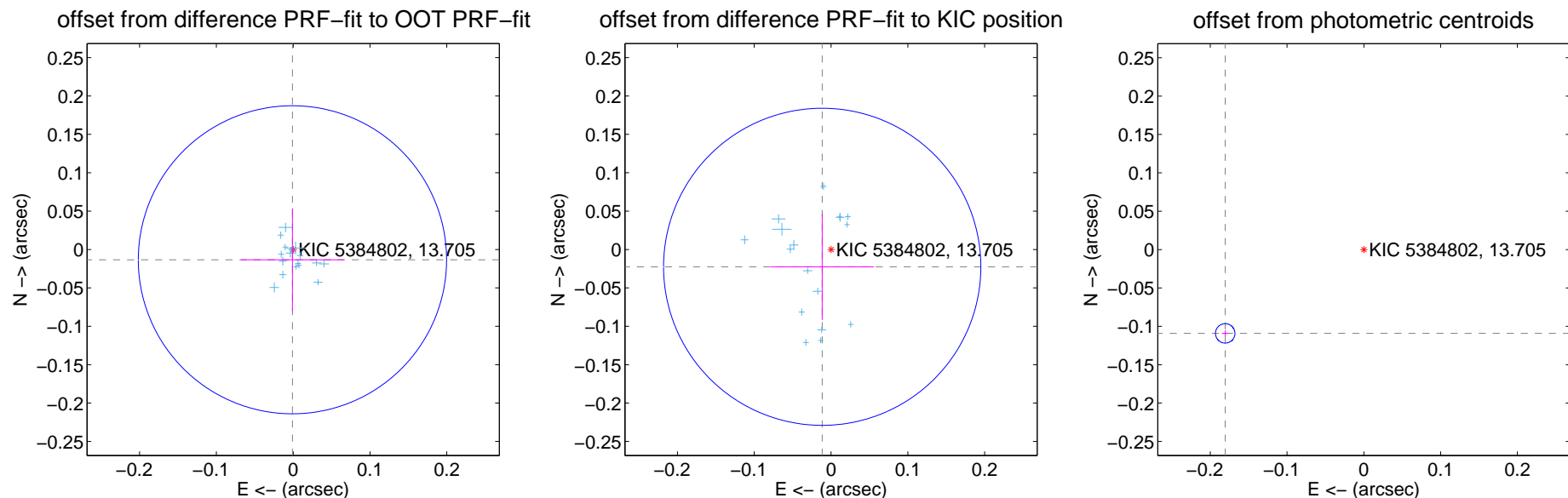
DV Centroid Data

Supplemental centroid analysis for 005384802-01. Kepler magnitude: 13.71. Transit SNR 1904.26

There are 17 quarters with good PRF difference image offsets

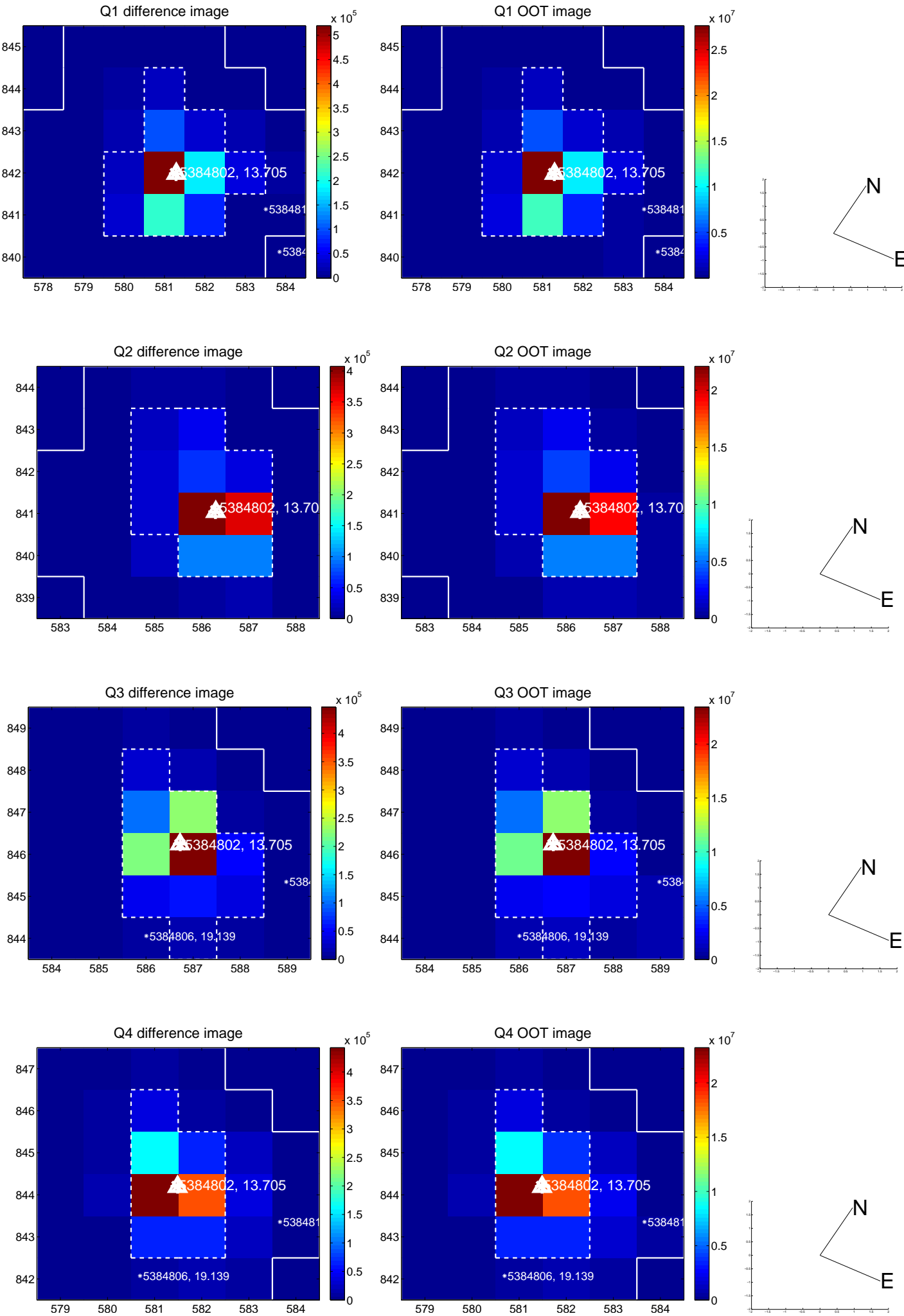
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.013 ± 0.067 | 0.20 | 0.001 ± 0.067 | -0.013 ± 0.067 |
| PRF-fit source offset from KIC position | 0.025 ± 0.069 | 0.37 | 0.012 ± 0.067 | -0.023 ± 0.069 |
| photometric centroid source offset | 0.21 ± 0.00 | 49.94 | 0.18 ± 0.00 | -0.11 ± 0.00 |

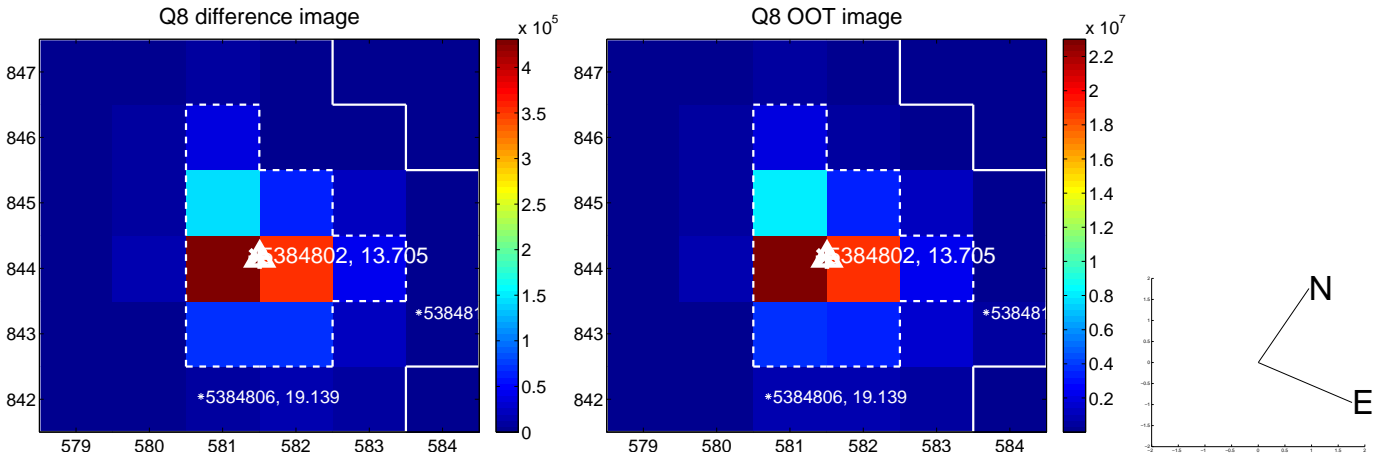
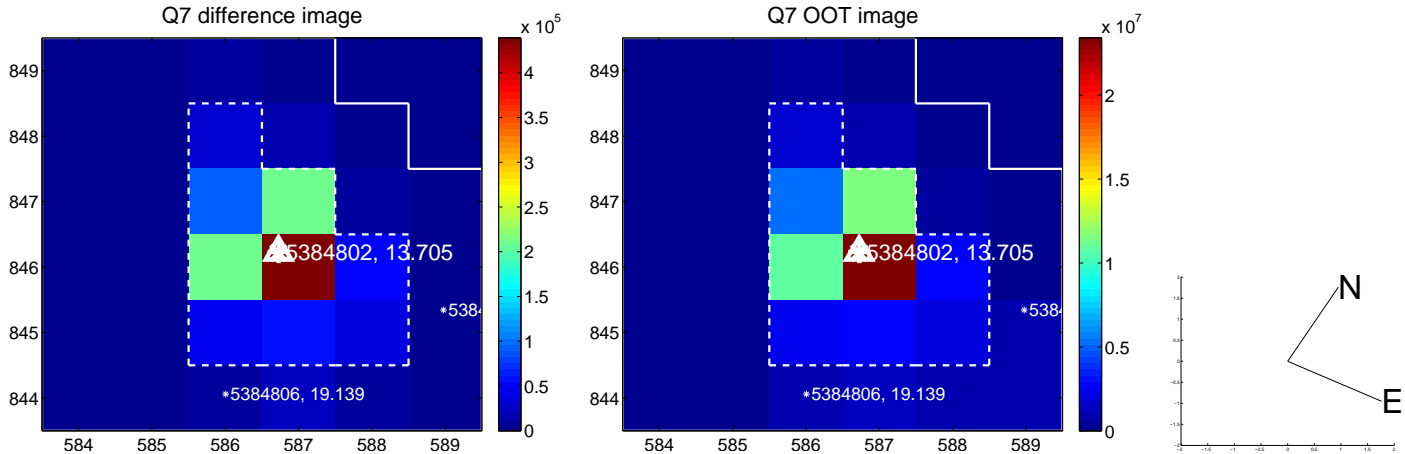
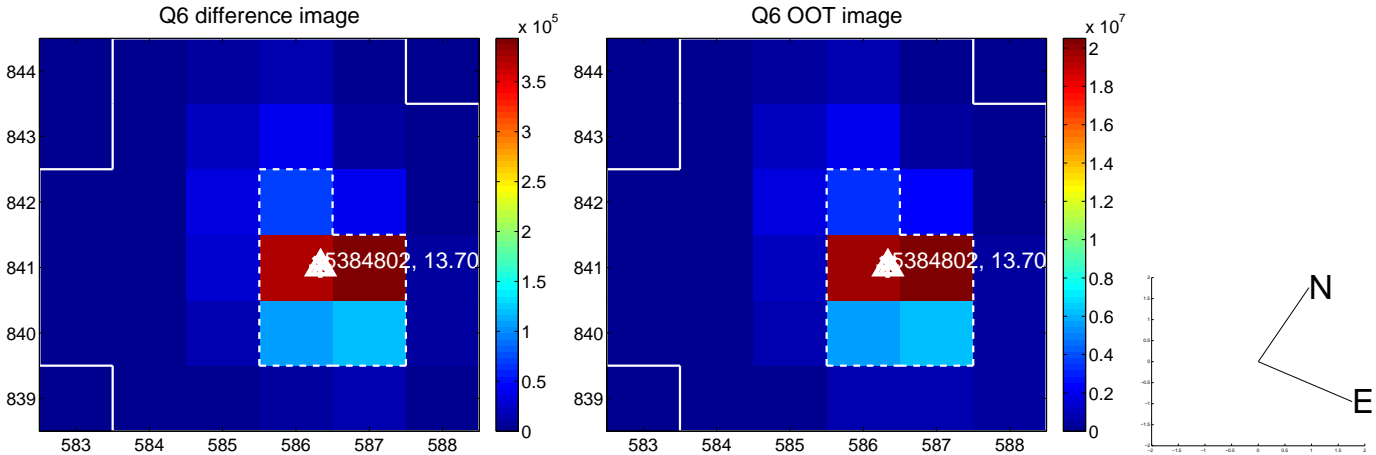
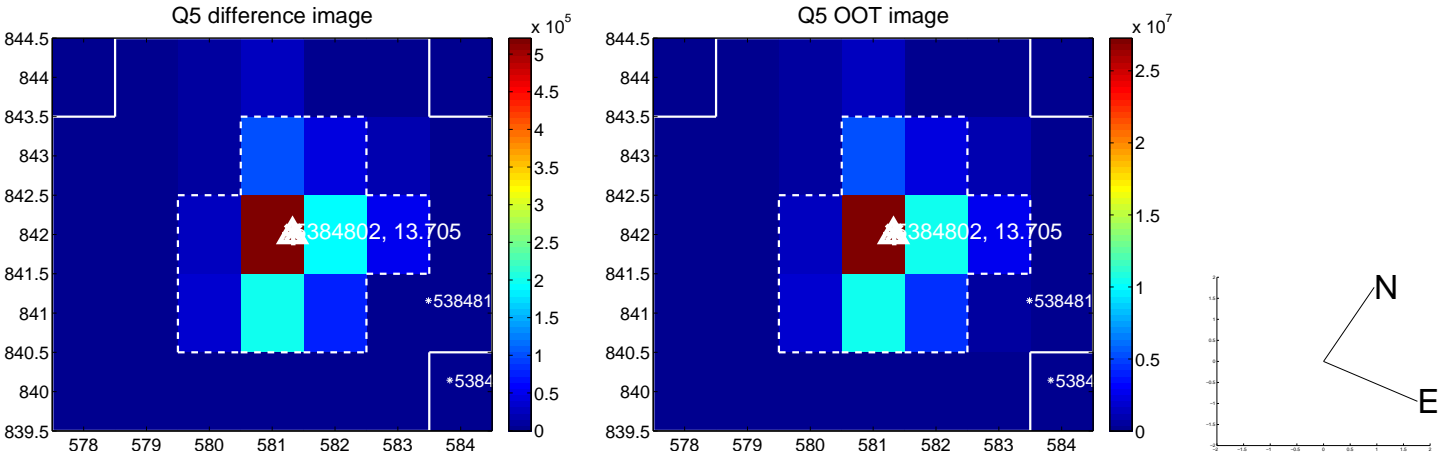


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

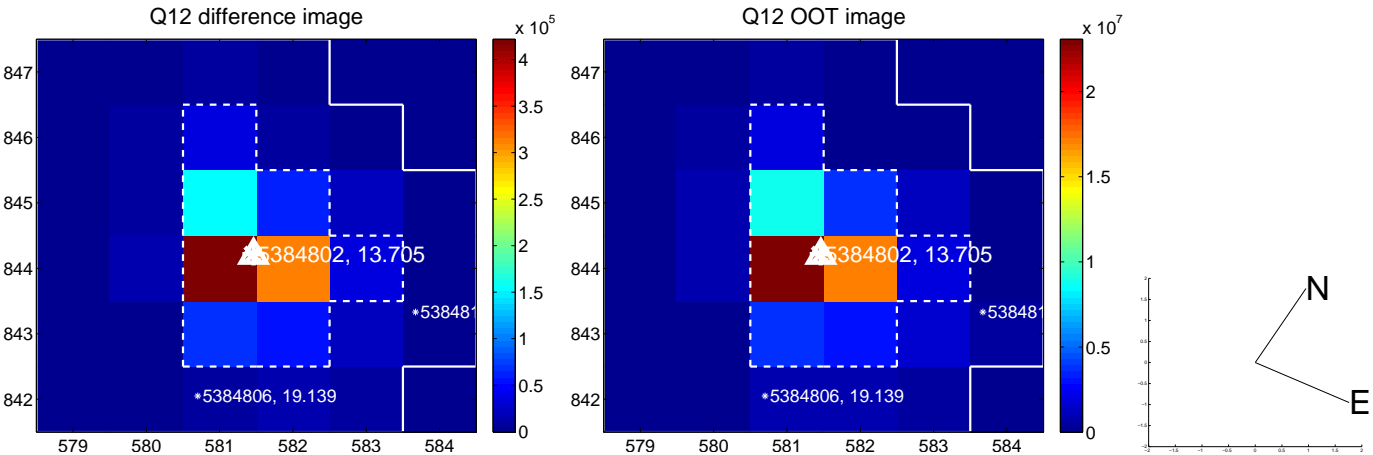
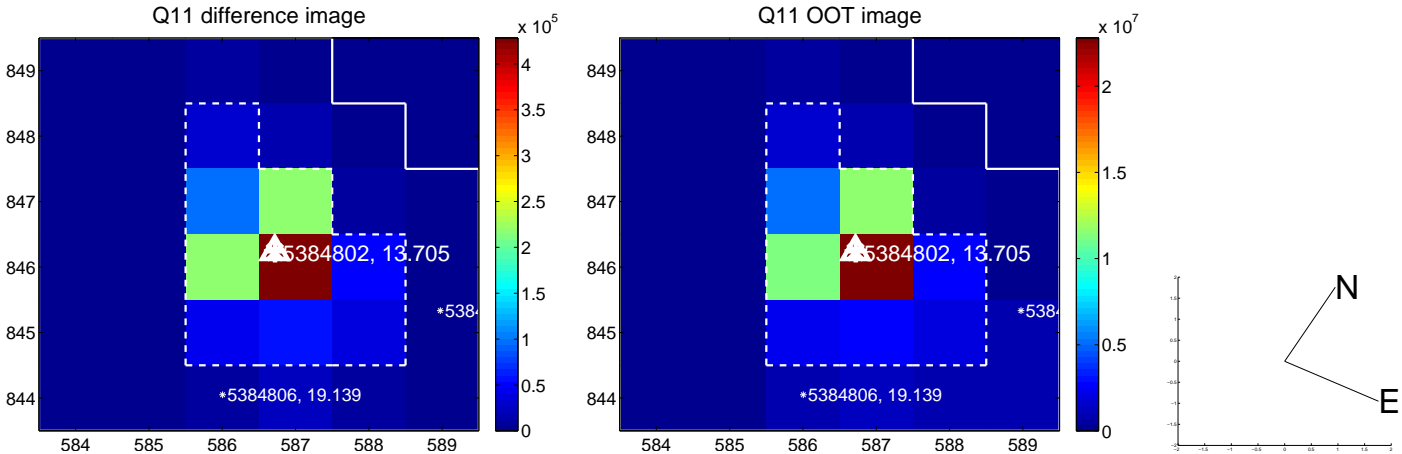
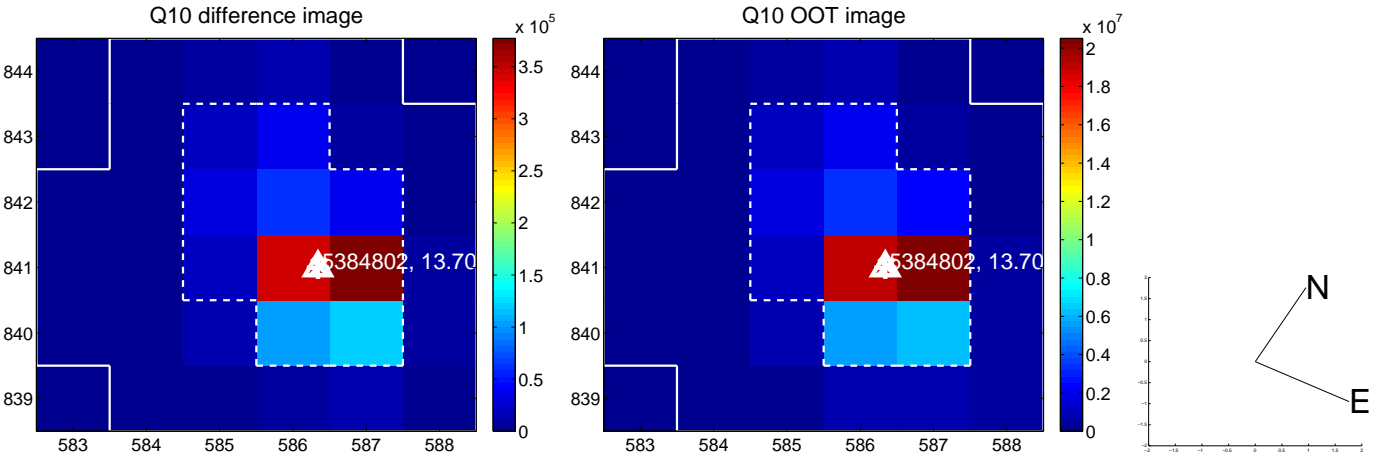
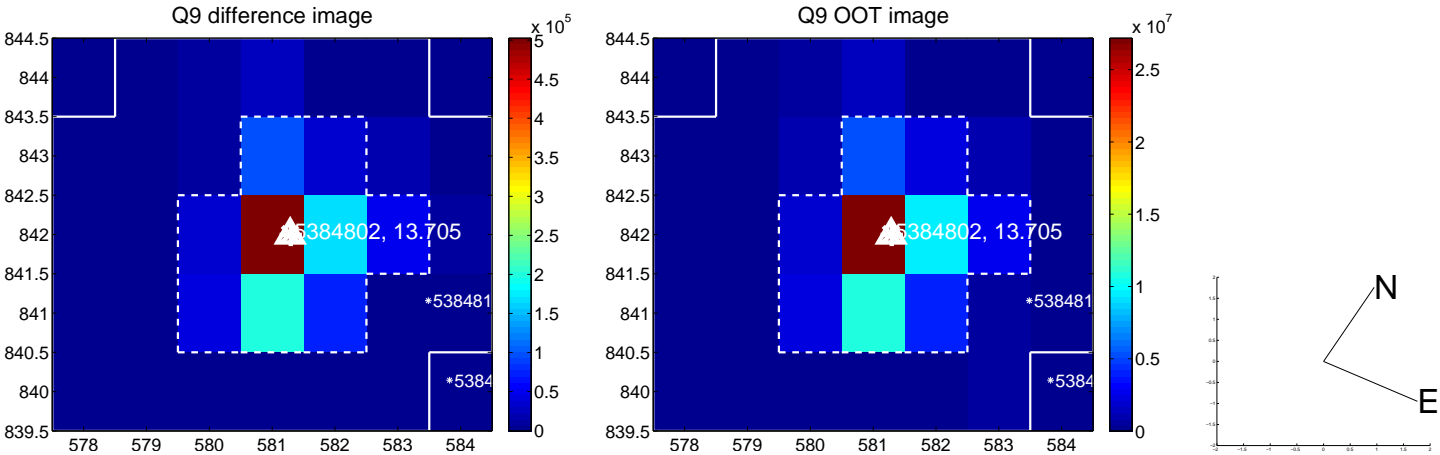
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



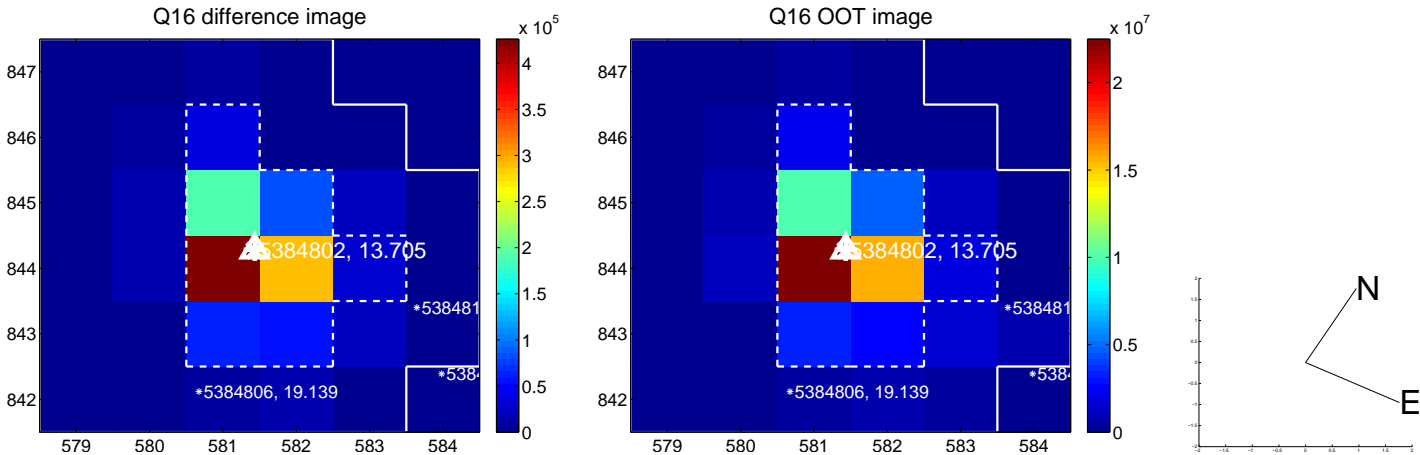
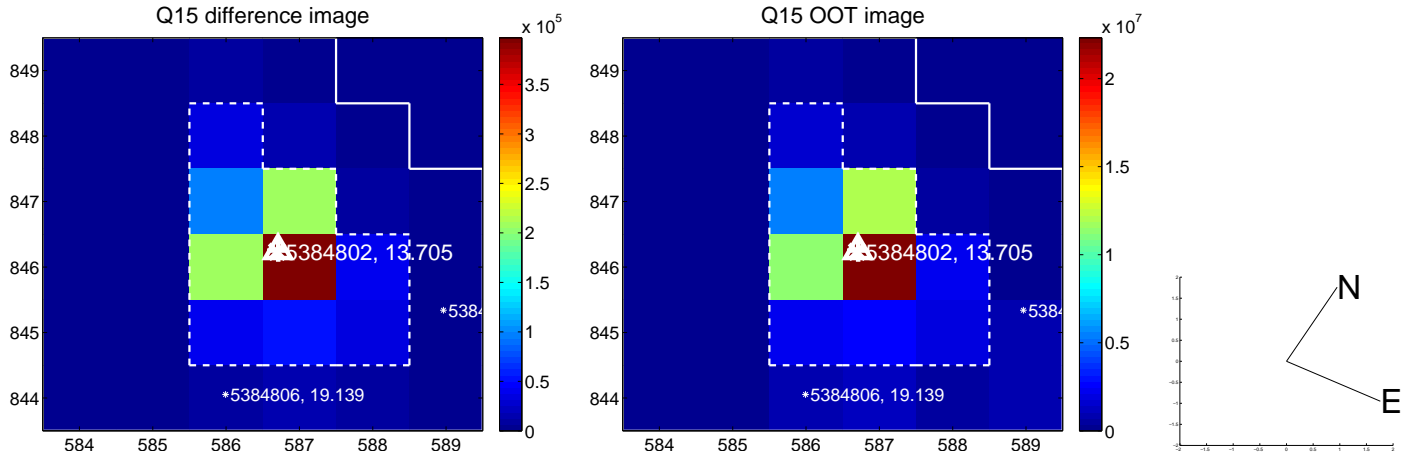
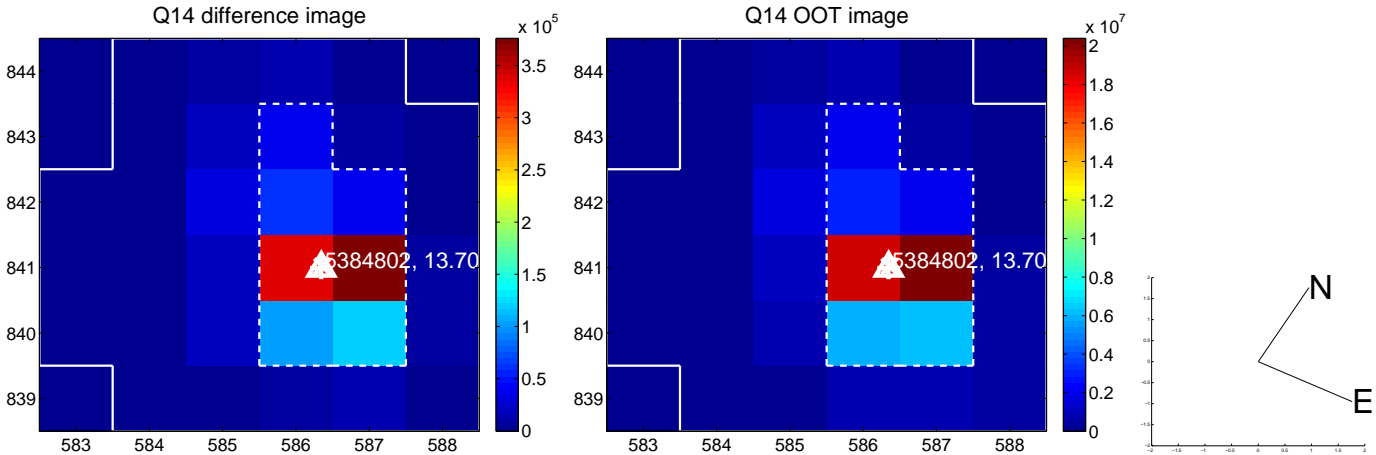
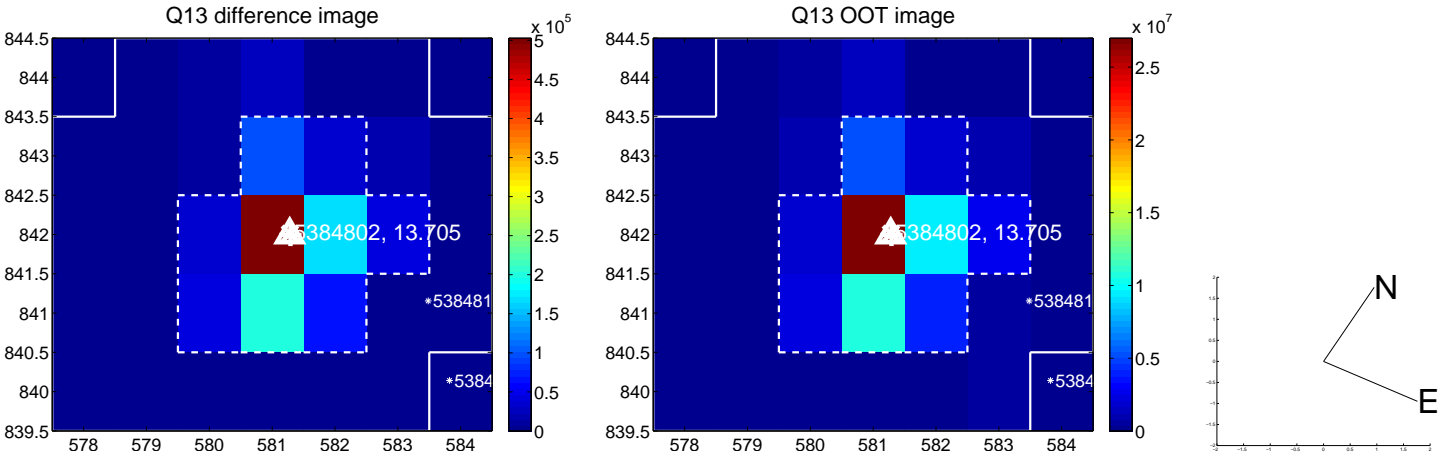
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



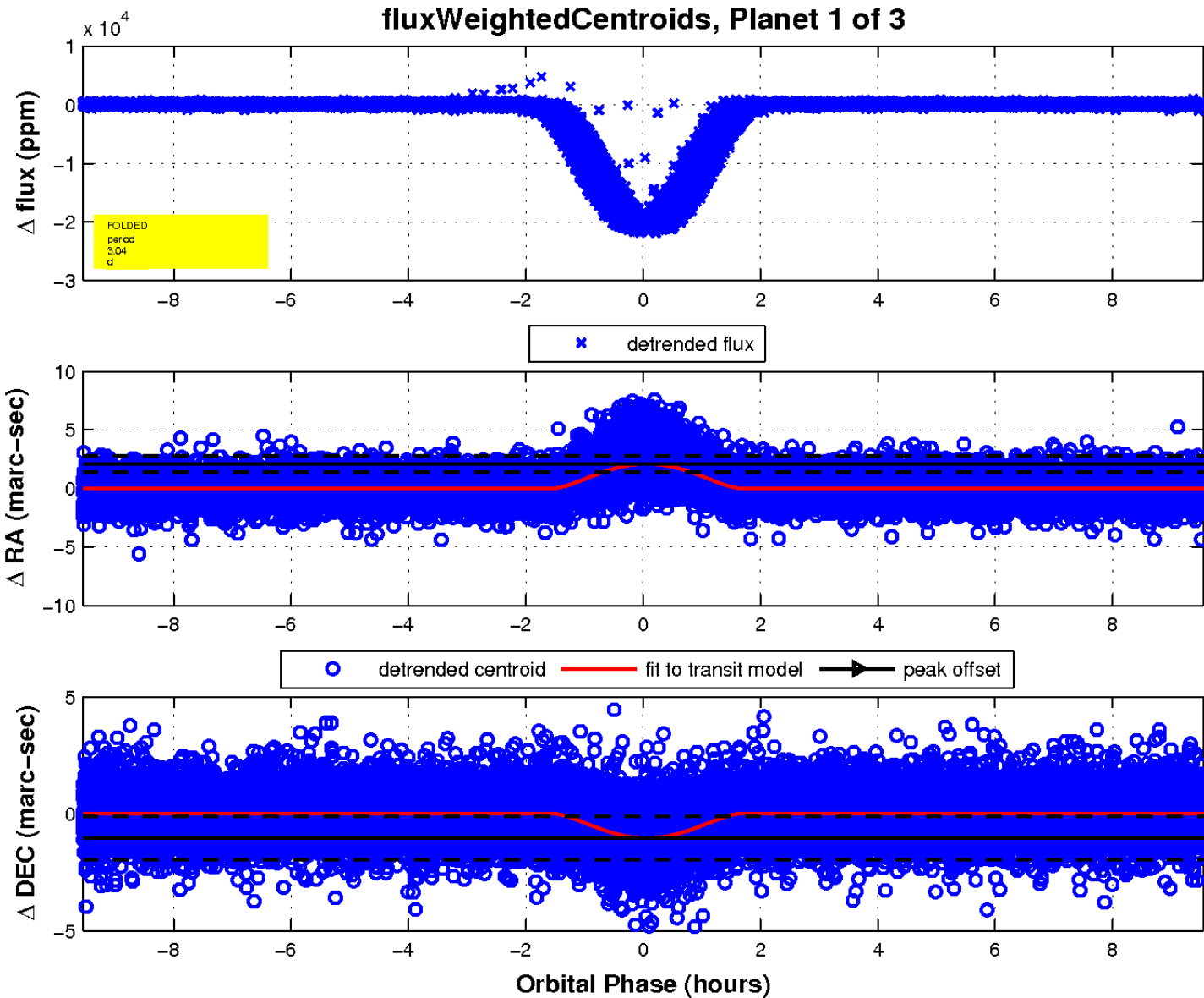
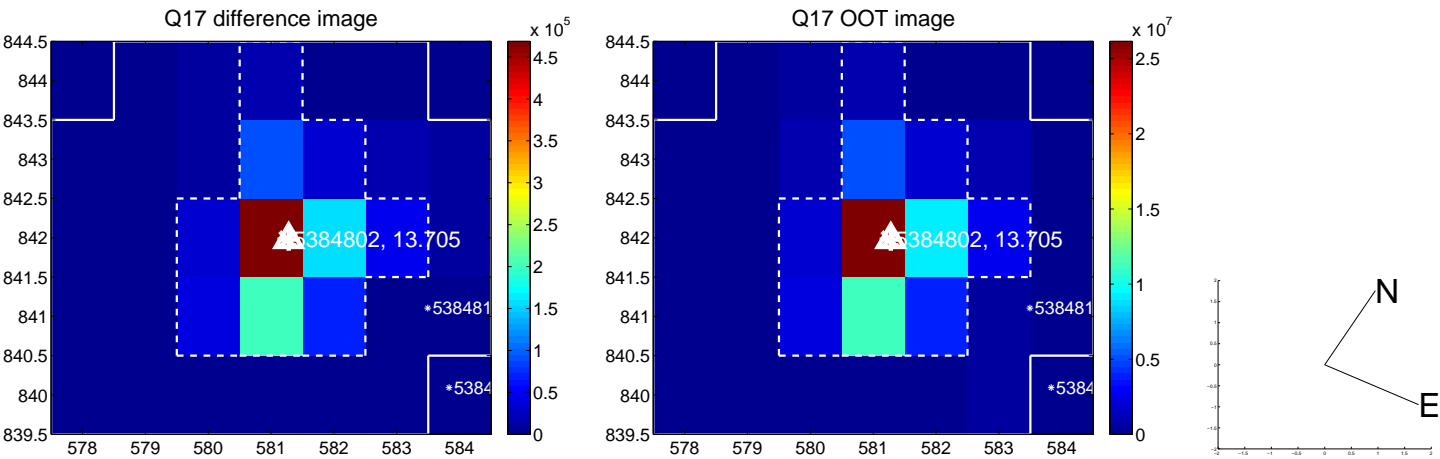
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



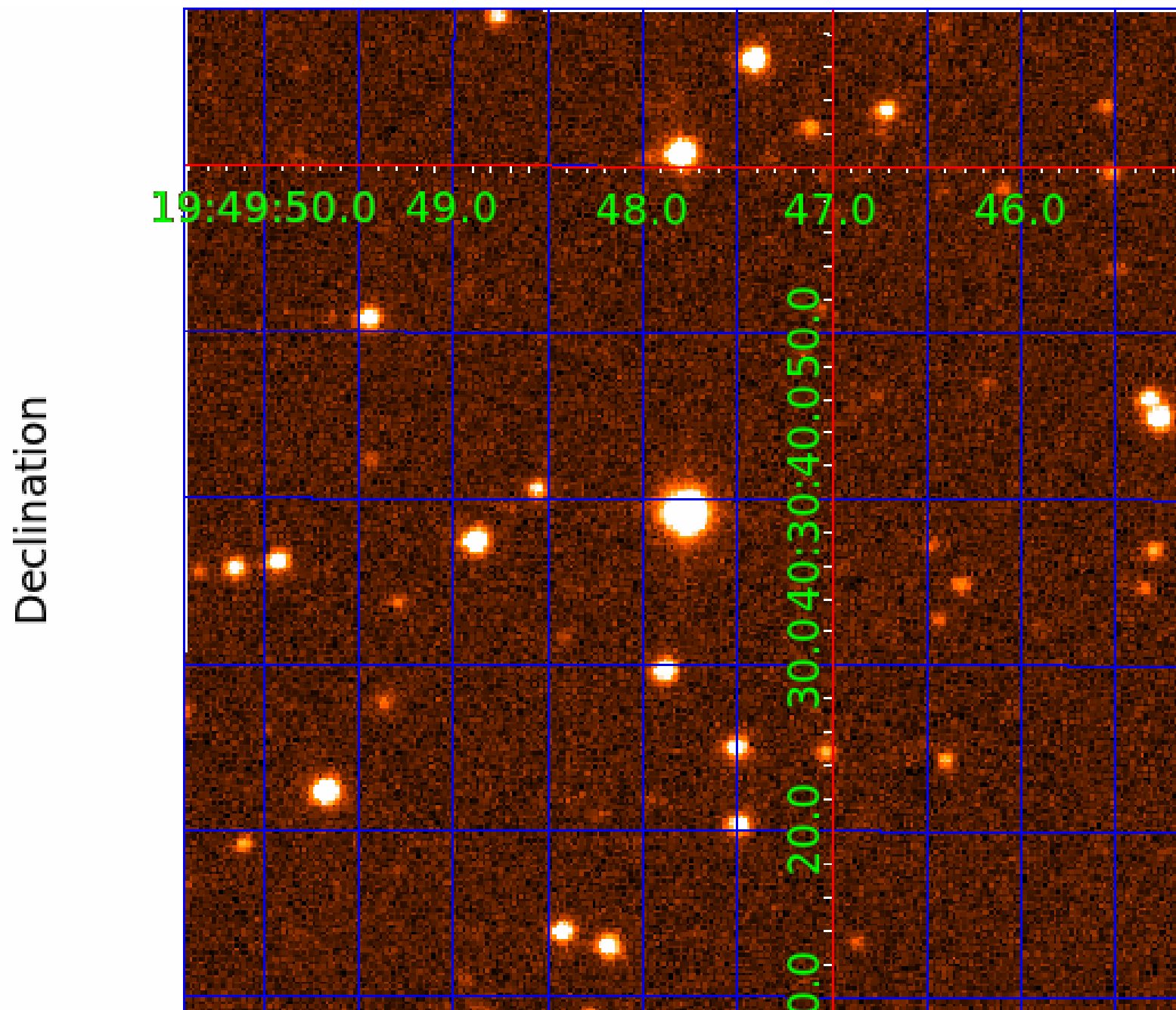
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005384802

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 005384802-01 | OBS | 0646.01 | 3.041560 | 133.987370 | 20581.9 | 3.184 | 2997.7 | 1904.3 | 1.29 | 6431 | 28.15 | 1347.08 |
| 005384802-02 | OBS | No | 1.815521 | 131.723697 | 32.5 | 6.295 | 7.9 | 8.5 | 1.29 | 6431 | 0.85 | 2680.32 |
| 005384802-03 | OBS | No | 160.157069 | 140.791610 | 197.2 | 7.759 | 8.4 | 5.1 | 1.29 | 6431 | 1.94 | 6.83 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005384802-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED |
| 005384802-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 005384802-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

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

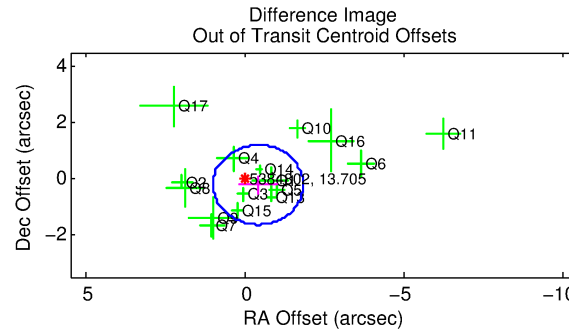
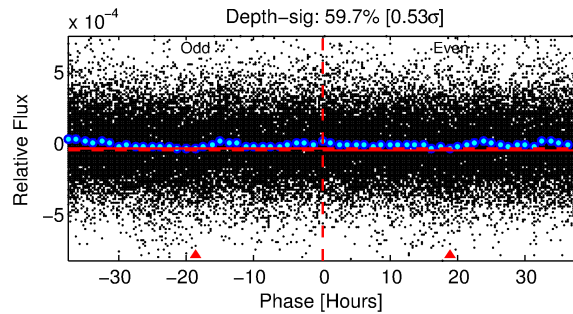
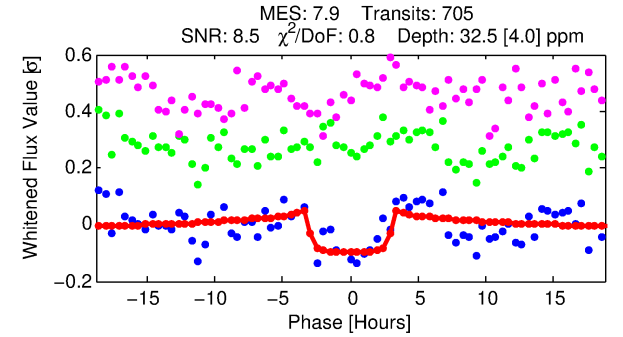
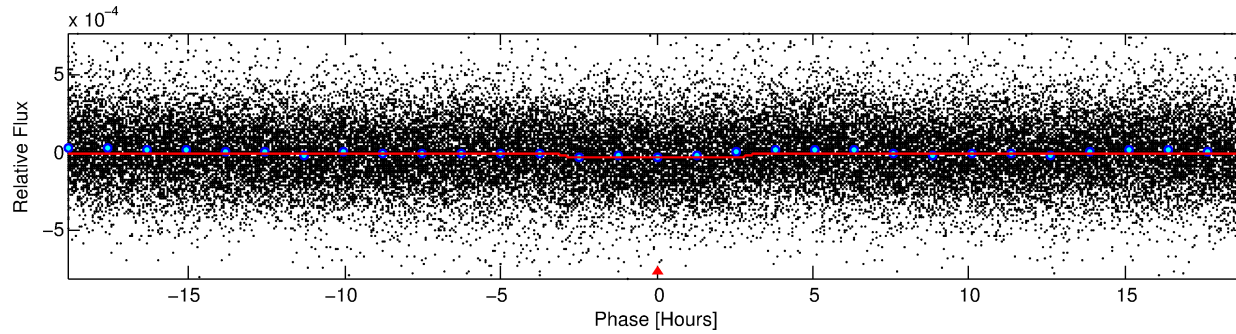
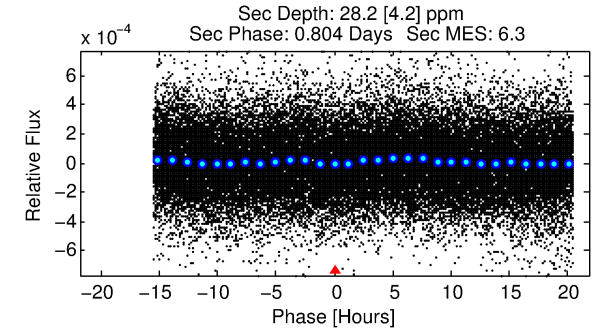
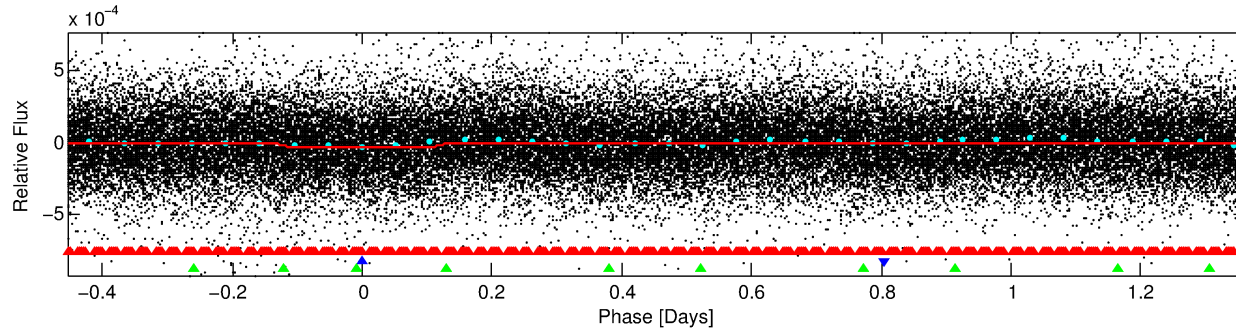
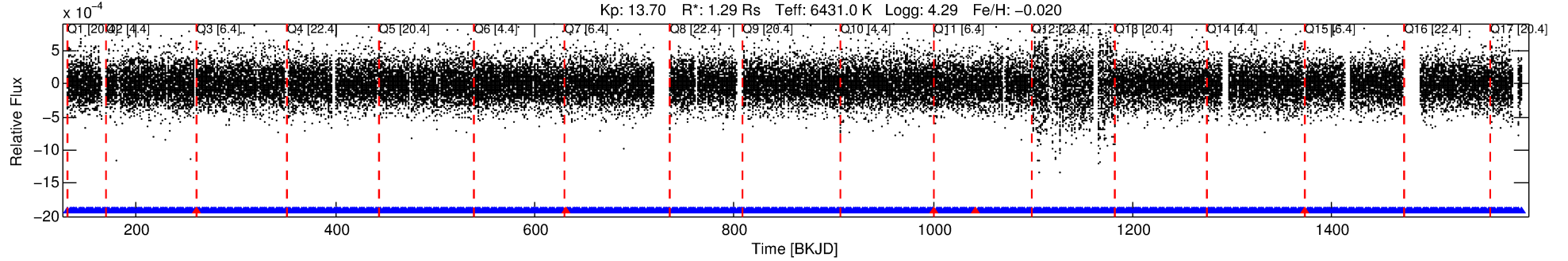
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005384802-02

No Significant Match Found

DV One-Page Summary

KIC: 5384802 Candidate: 2 of 3 Period: 1.816 d
KOI: K00646 Corr: No Ephemeris Match



DV Fit Results:

Period = 1.81552 [0.00002] d
Epoch = 131.7237 [0.0054] BKJD
Rp/R* = 0.0060 [0.0019]
a/R* = 1.41 [1.23]
b = 0.88 [0.45]
Seff = 2680.32 [605.45]
Teq = 1835 [104] K
Rp = 0.85 [0.31] Re
a = 0.0310 [0.0044] AU
Ag = 20.45 [14.04] [1.39σ]
Teffp = 6032 [996] K [4.19σ]

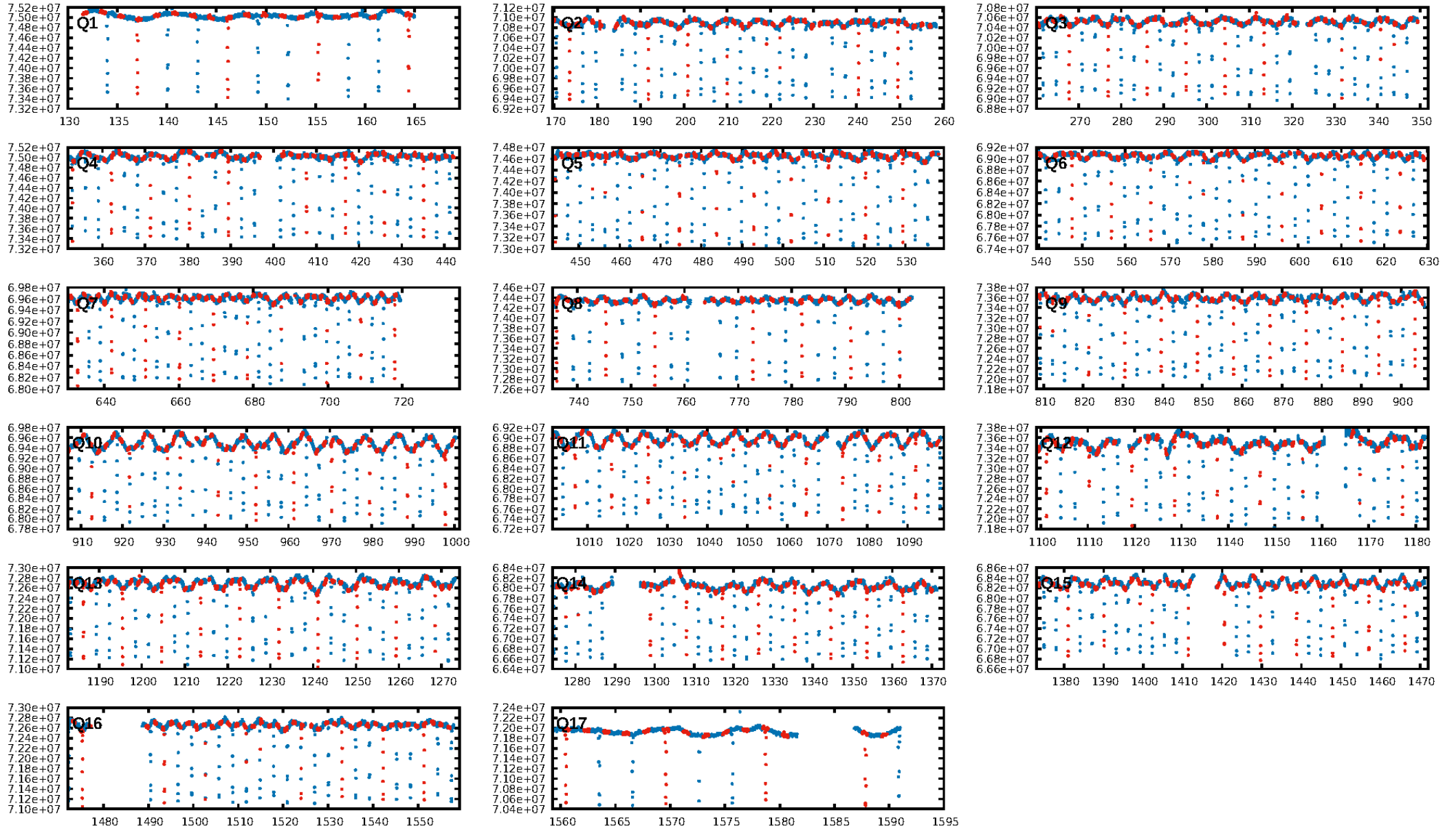
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.17σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.39e-12
RollingBand-fgt: 0.99 [673/678]
GhostDiagnostic-chr: -0.06332
Centroid-sig: 0.2%
Centroid-so: 2.107 arcsec [2.03σ]
OotOffset-rm: 0.462 arcsec [0.98σ]
KicOffset-rm: 0.471 arcsec [1.03σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [17/17]

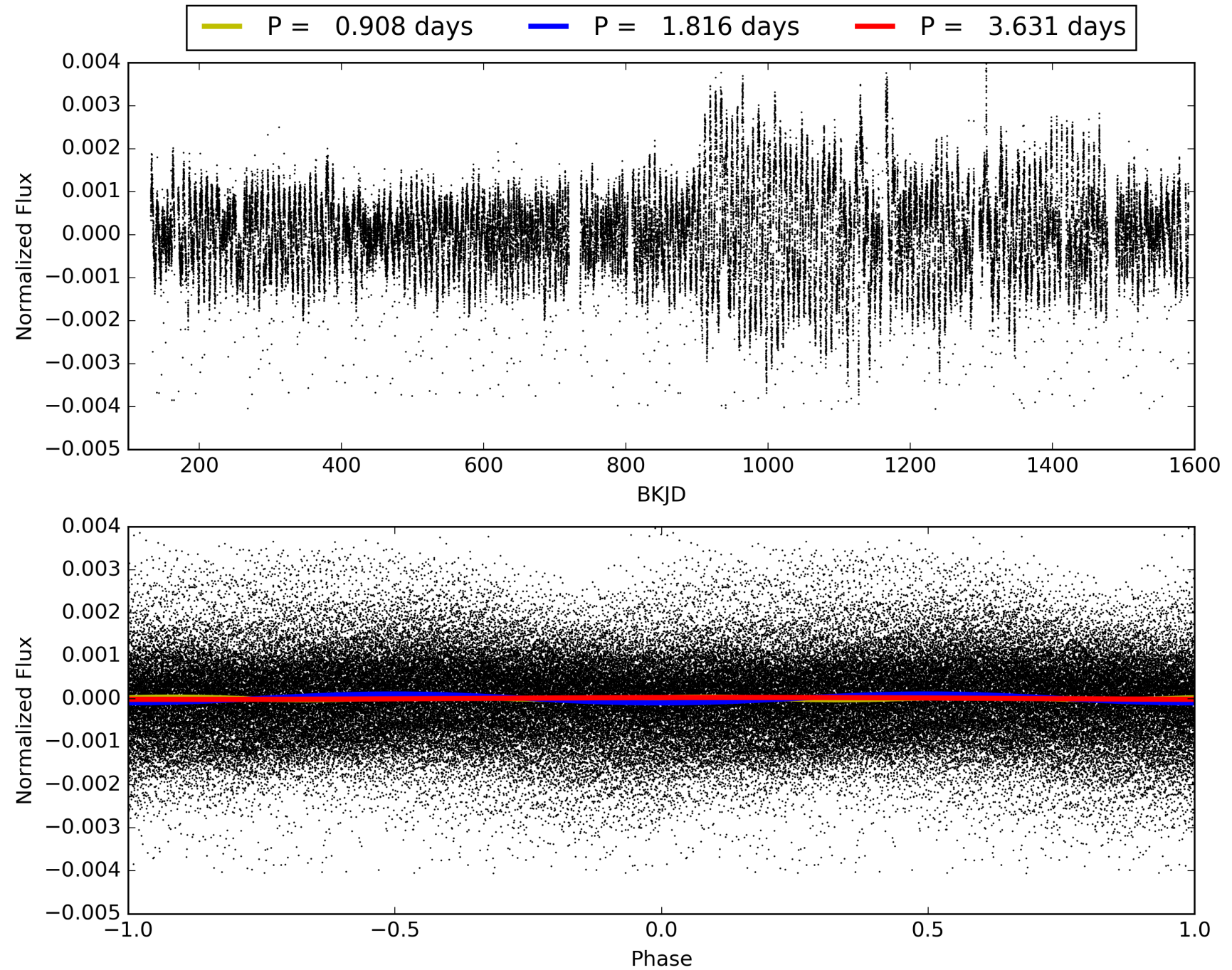
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:35:12 Z

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

TCE 005384802-02, PDC Light Curves

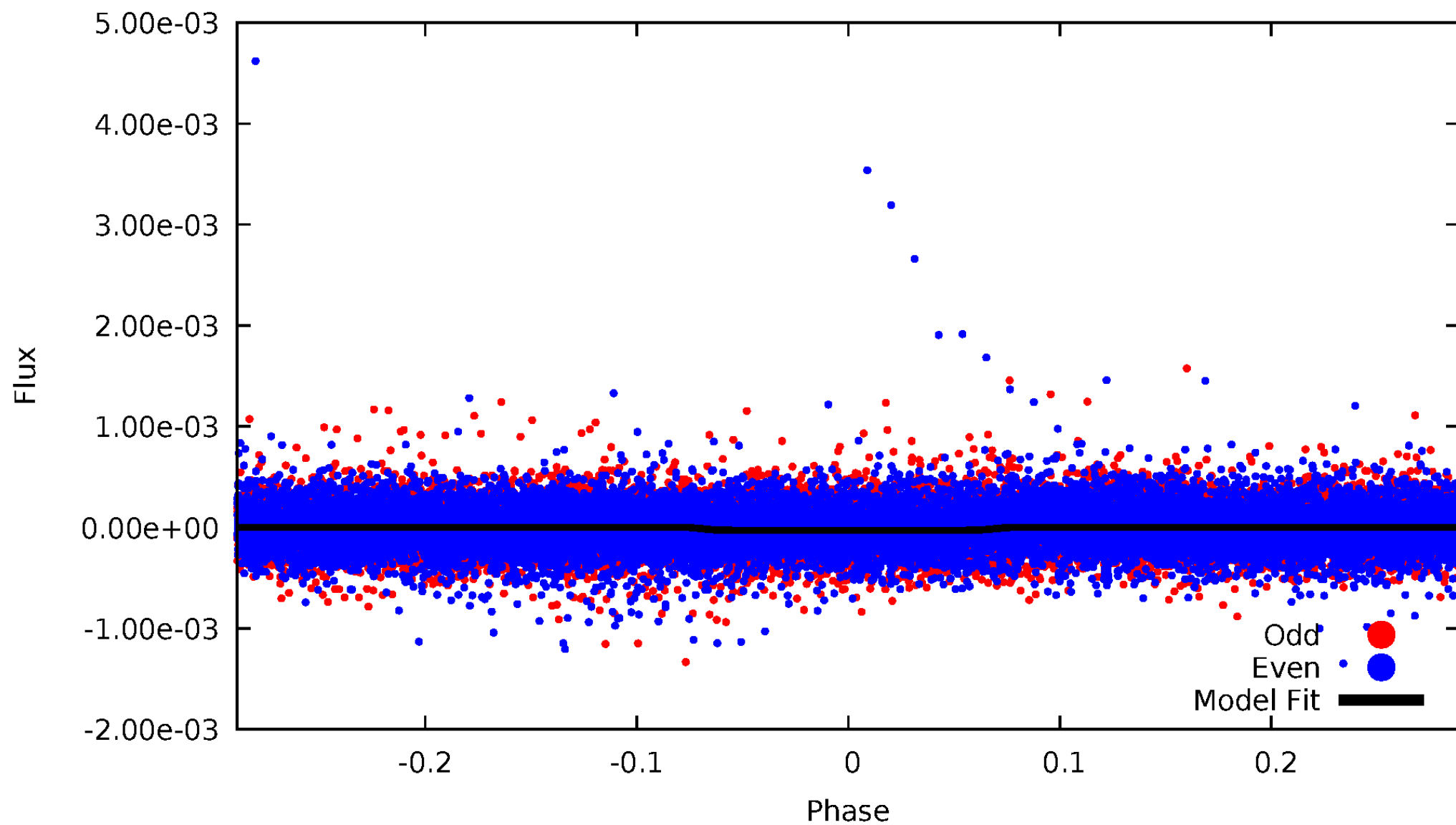


TCE 005384802-02



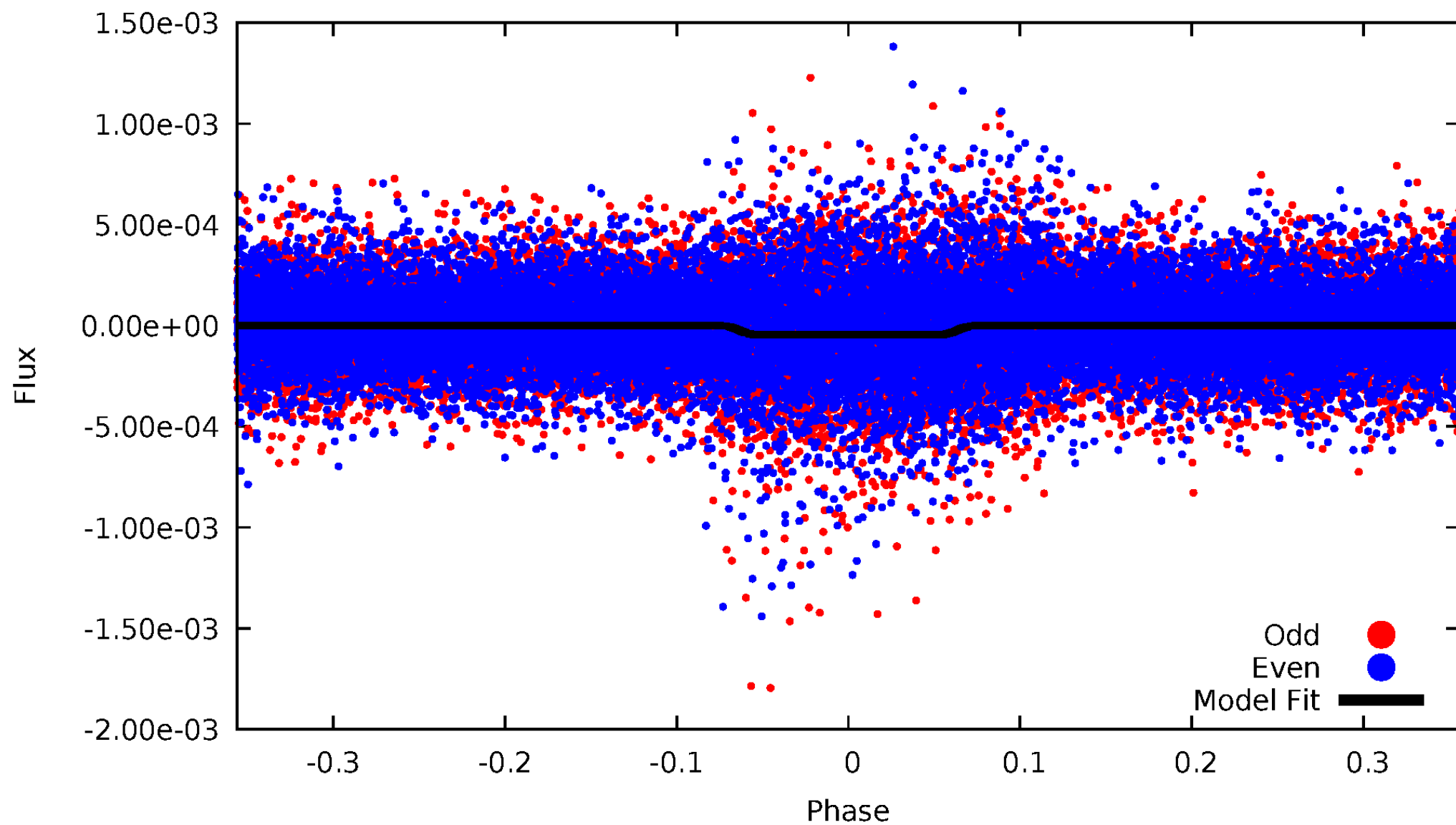
DV Odd/Even

TCE 005384802-02



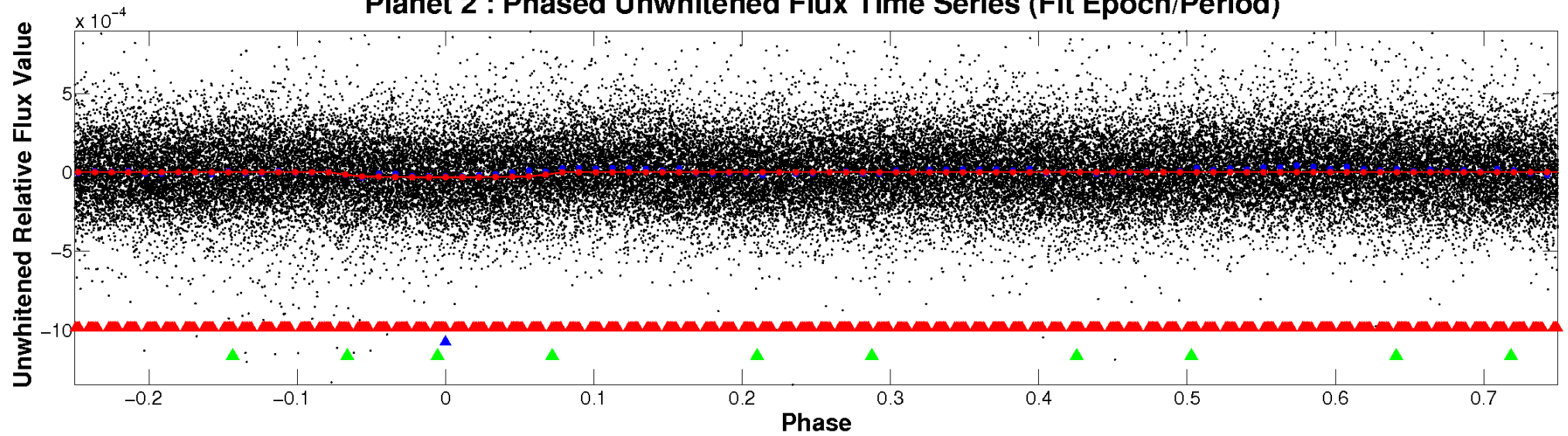
ALT Odd/Even

TCE 005384802-02

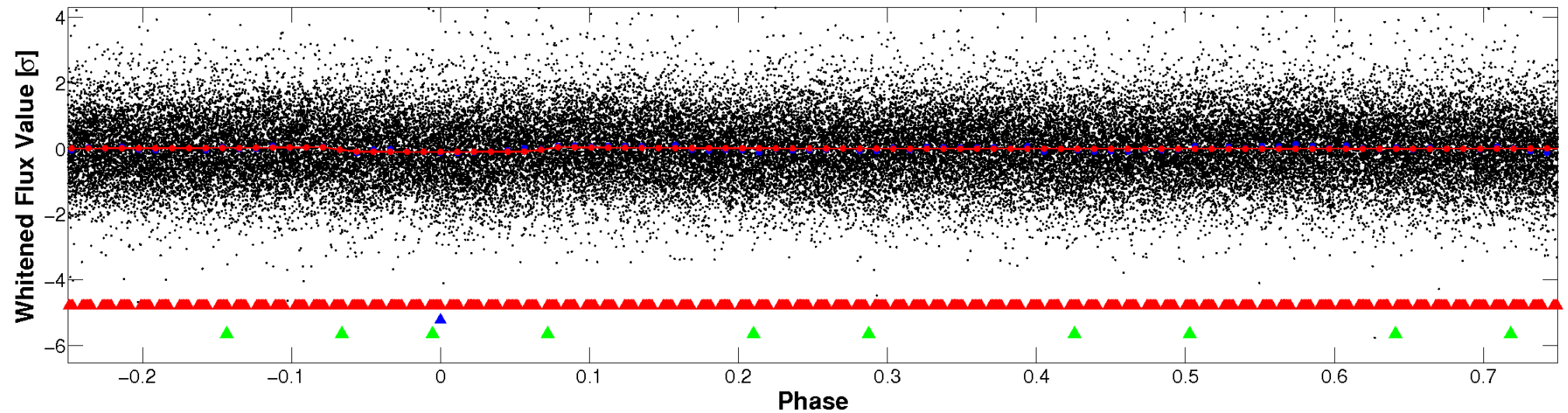


Non-Whitened Vs. Whitened Light Curve

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

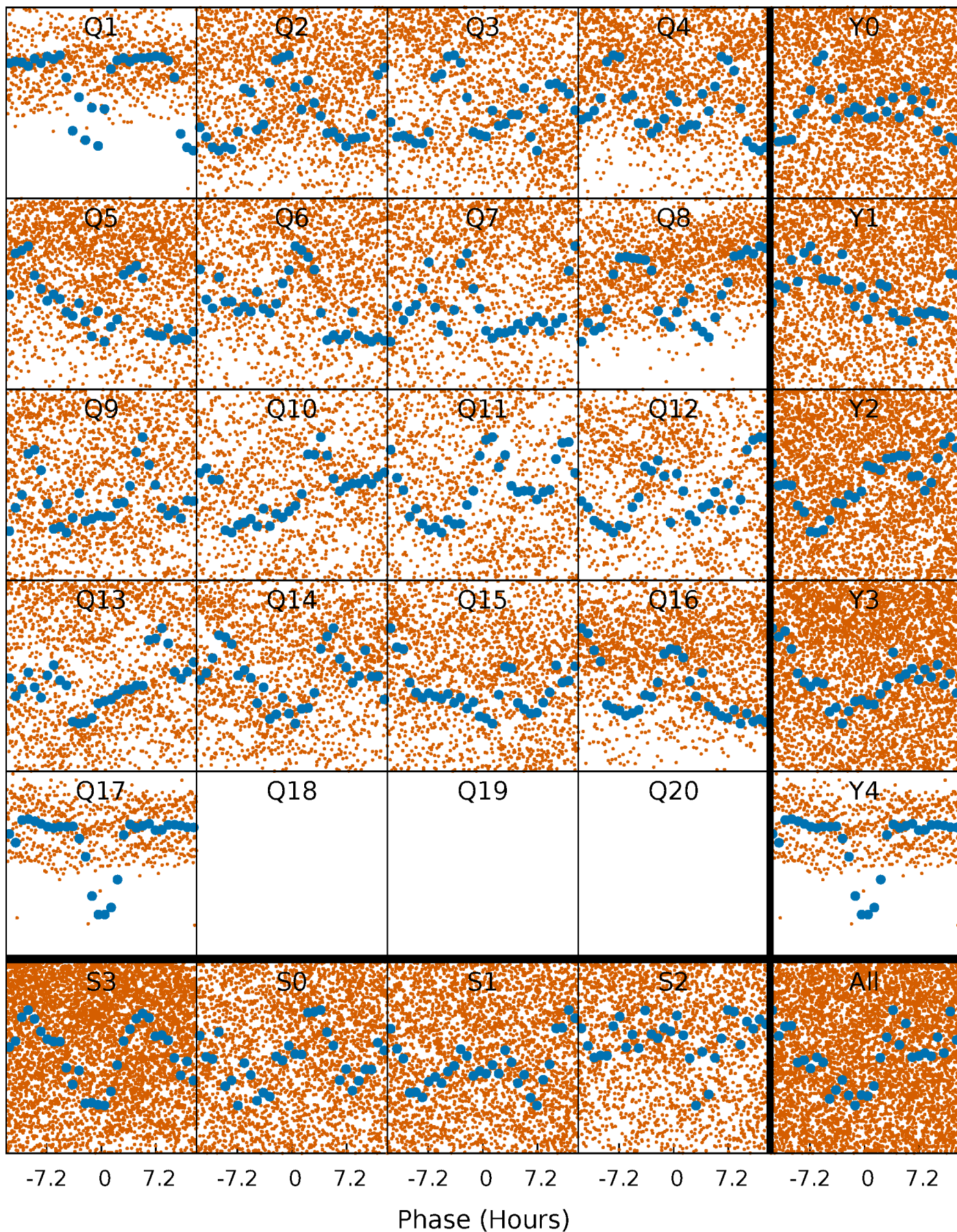


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



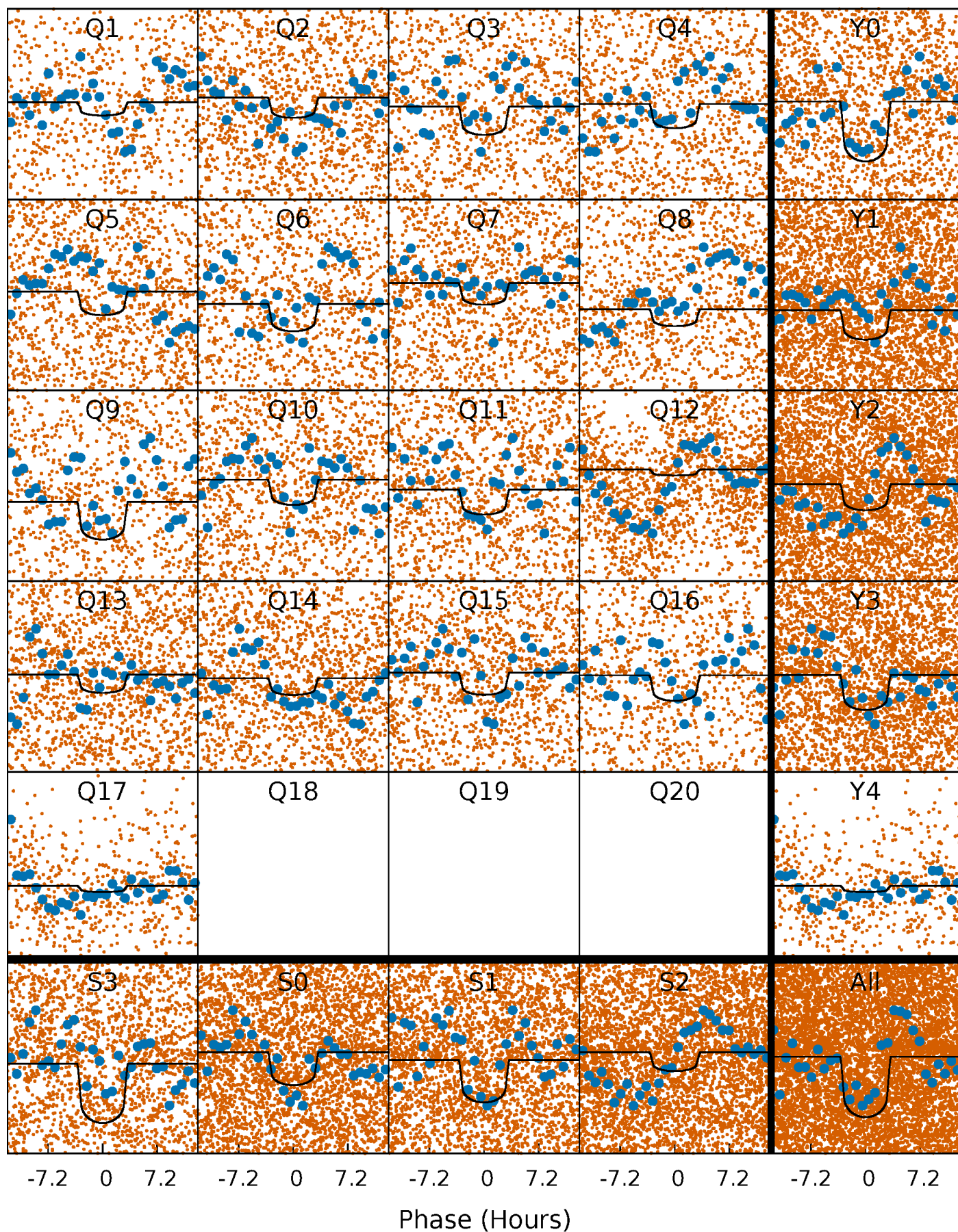
PDC Quarter-Phased Transit Curves

TCE 005384802-02 P= 1.815521 Days $T_0=131.723697$ (BKJD)



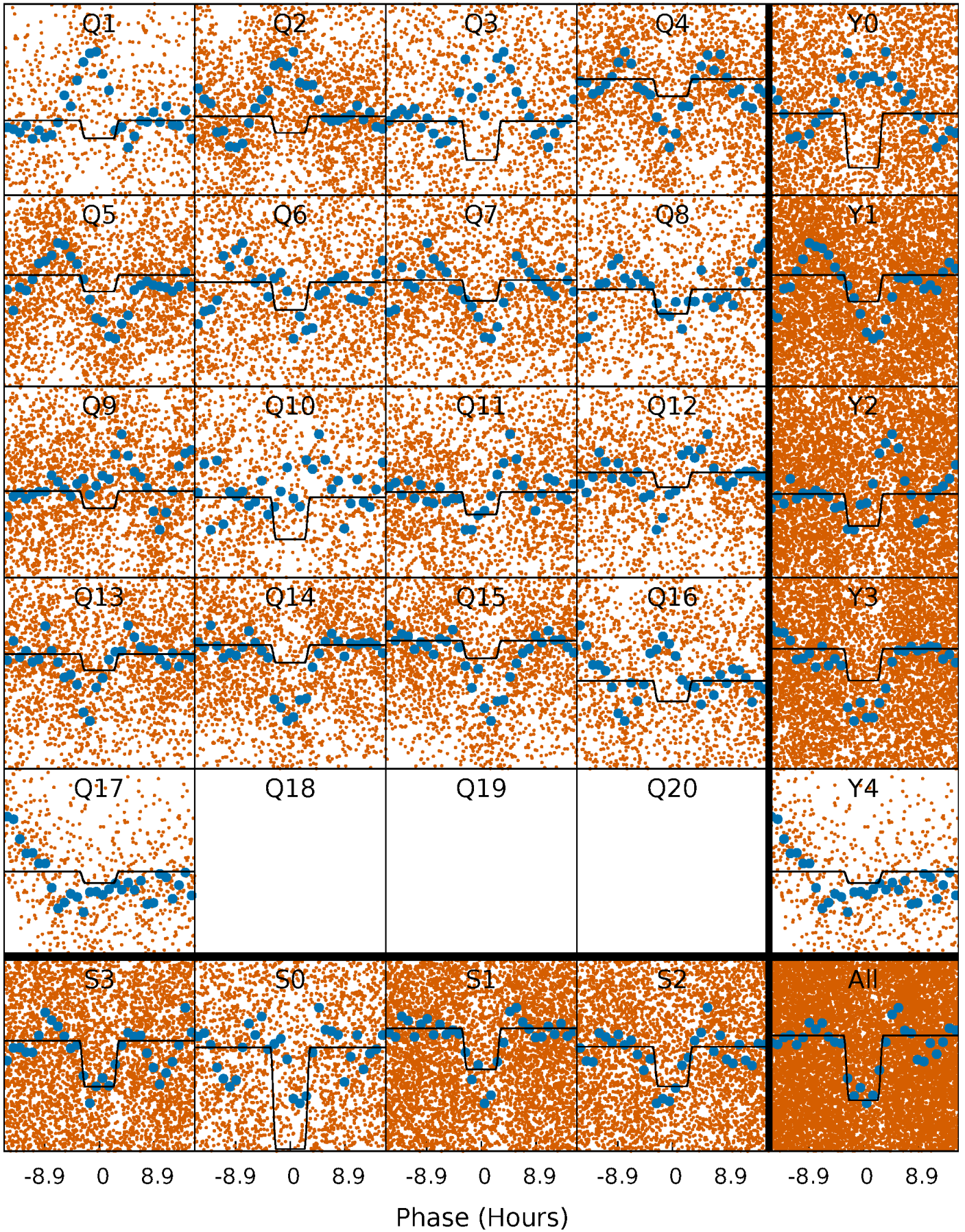
DV Quarter-Phased Transit Curves

TCE 005384802-02 $P = 1.815521$ Days $T_0 = 131.723697$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

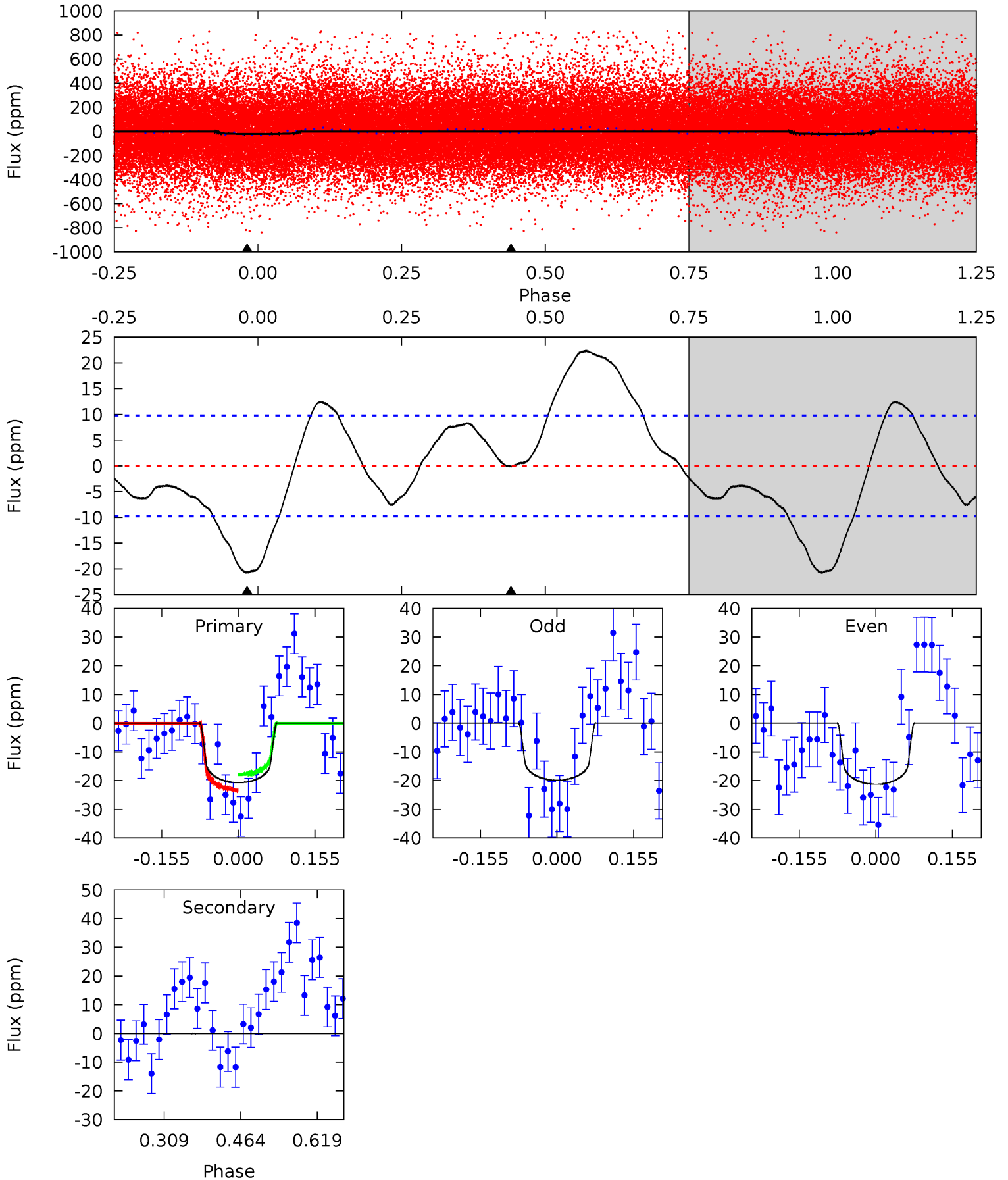
TCE 005384802-02 P= 1.815544 Days $T_0=131.679708$ (BKJD)



DV Model-Shift Uniqueness Test

005384802-02, P = 1.815521 Days, E = 129.908176 Days

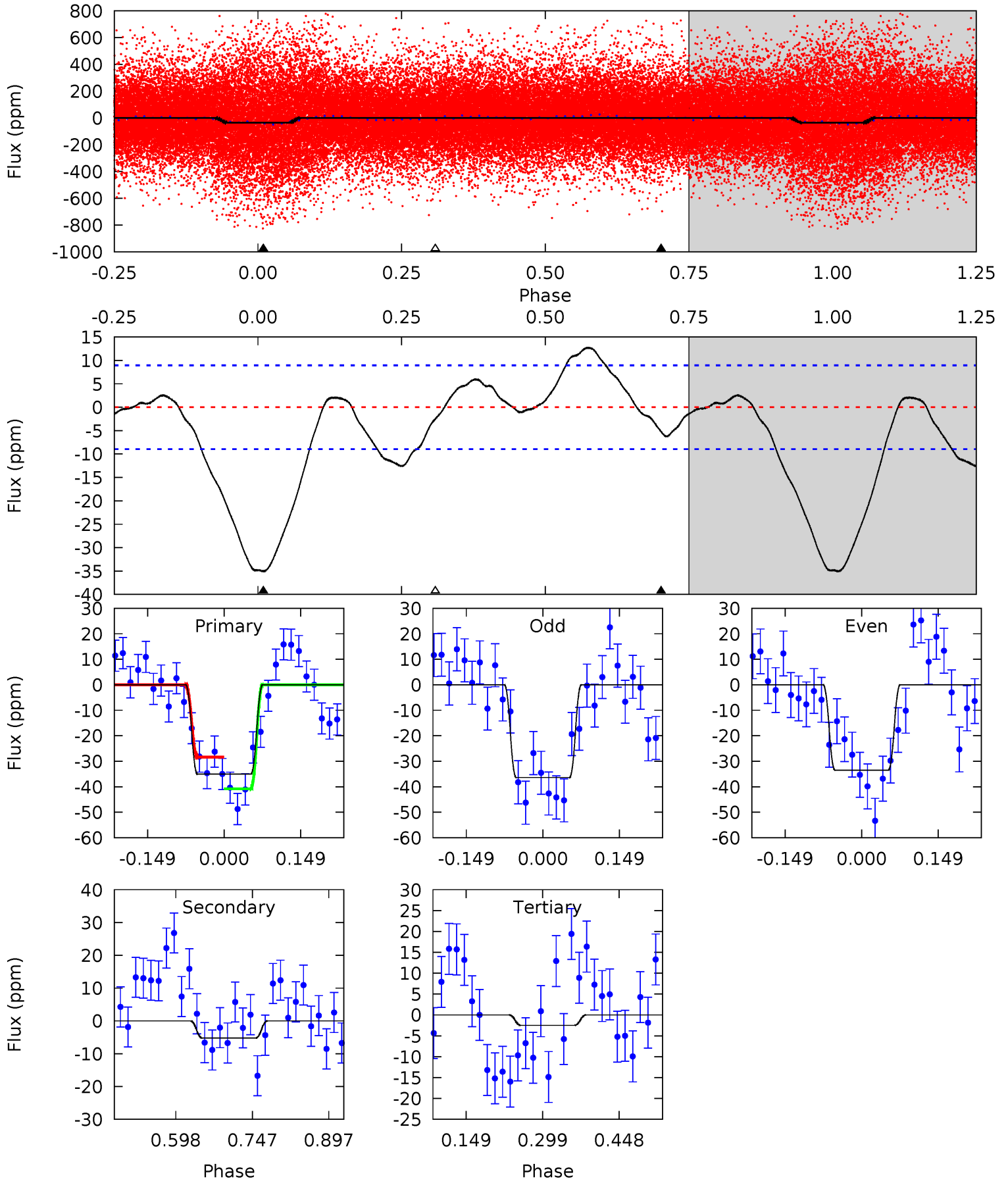
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.46 | 0.04 | 0 | 0 | 4.47 | 1.42 | 3.85 | 9.46 | 9.46 | 0.04 | 0.04 | 0.32 | 1.29 | 0.52 | 1.24 |



Alt Model-Shift Uniqueness Test

005384802-02, P = 1.815544 Days, E = 129.864164 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.5 | 2.61 | 1.25 | 0 | 4.48 | 1.44 | 3.09 | 16.3 | 17.5 | 1.36 | 2.61 | 0.72 | 1.69 | 0.27 | 3.12 |



Stellar Parameters For KIC 005384802

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6431^{+102}_{-141} | $4.293^{+0.076}_{-0.114}$ | $-0.020^{+0.150}_{-0.150}$ | $1.295^{+0.219}_{-0.152}$ | $1.199^{+0.096}_{-0.096}$ | $0.778^{+0.245}_{-0.261}$ |
| | +2%/-2% | +2%/-3% | +750%/-750% | +17%/-12% | +8%/-8% | +31%/-34% |
| Source | SPE18 | SPE18 | SPE18 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005384802-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -0 ± 2 | $0.86^{+0.31}_{-0.29}$ | 2574^{+118}_{-96} | -2806^{+6348}_{-960} | $0.041^{+1.600}_{-1.720}$ |
| Alt. | -5 ± 2 | $0.98^{+0.27}_{-0.29}$ | 2566^{+115}_{-94} | 3951^{+599}_{-506} | $2.889^{+3.019}_{-1.441}$ |

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

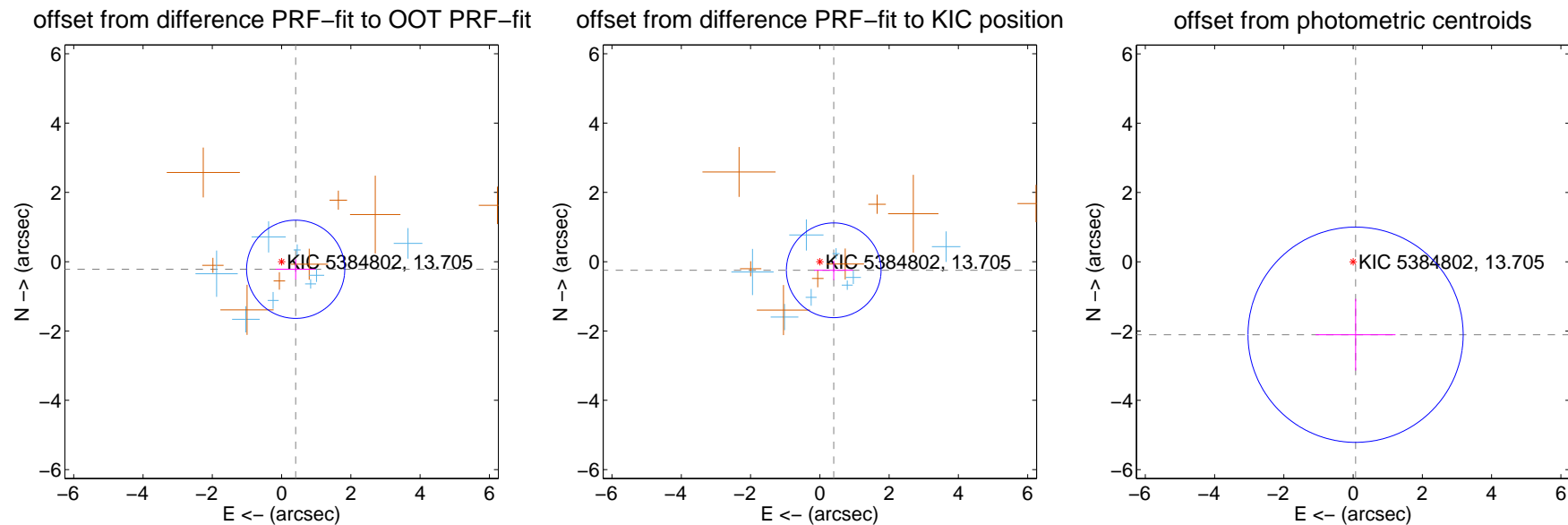
DV Centroid Data

Supplemental centroid analysis for 005384802-02. Kepler magnitude: 13.71. Transit SNR 8.50

There are 8 quarters with good PRF difference image offsets

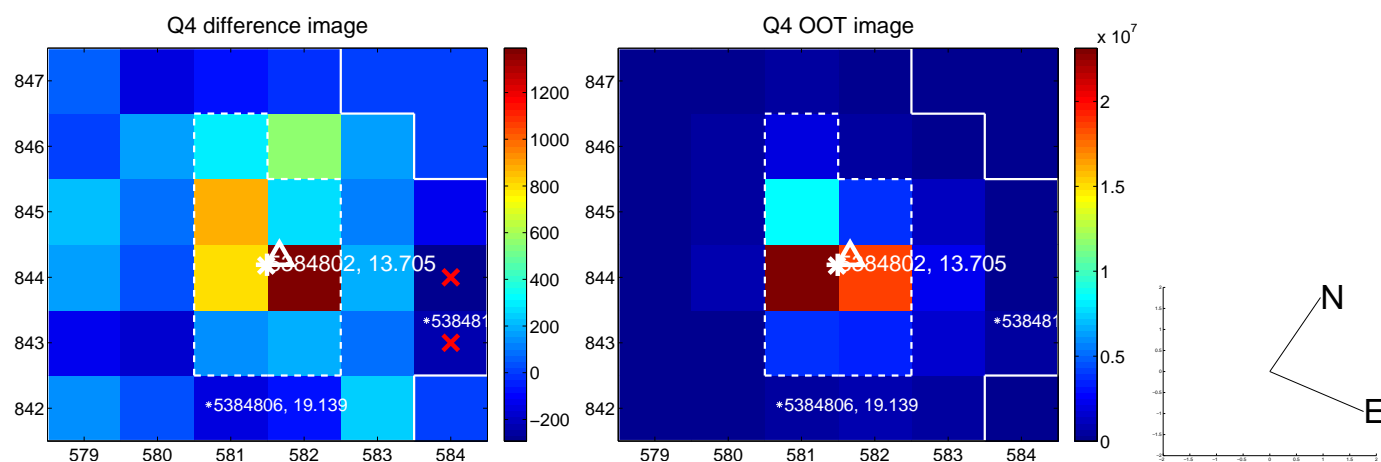
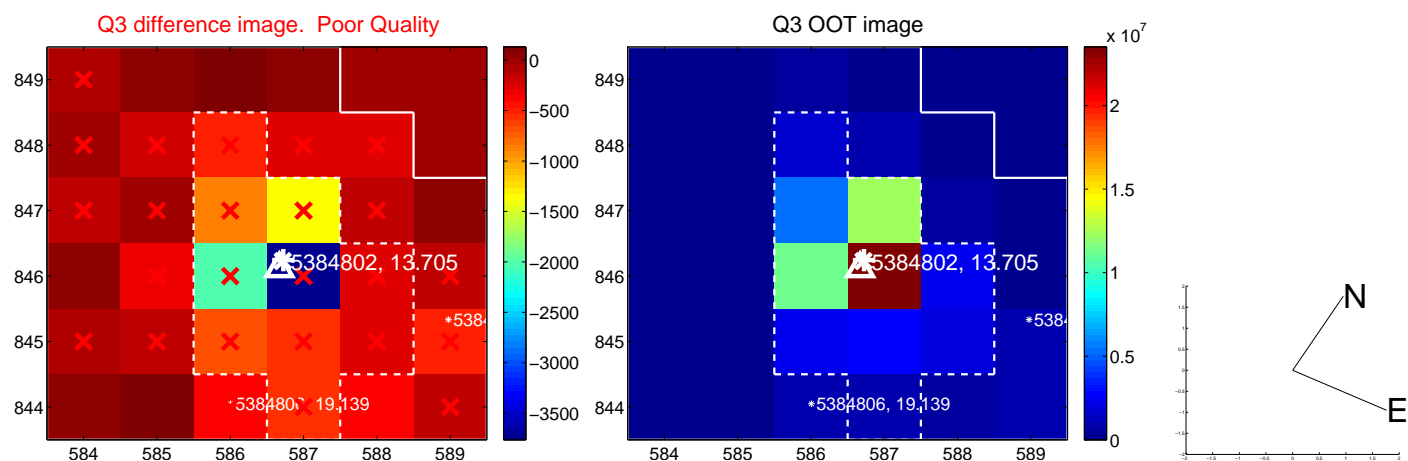
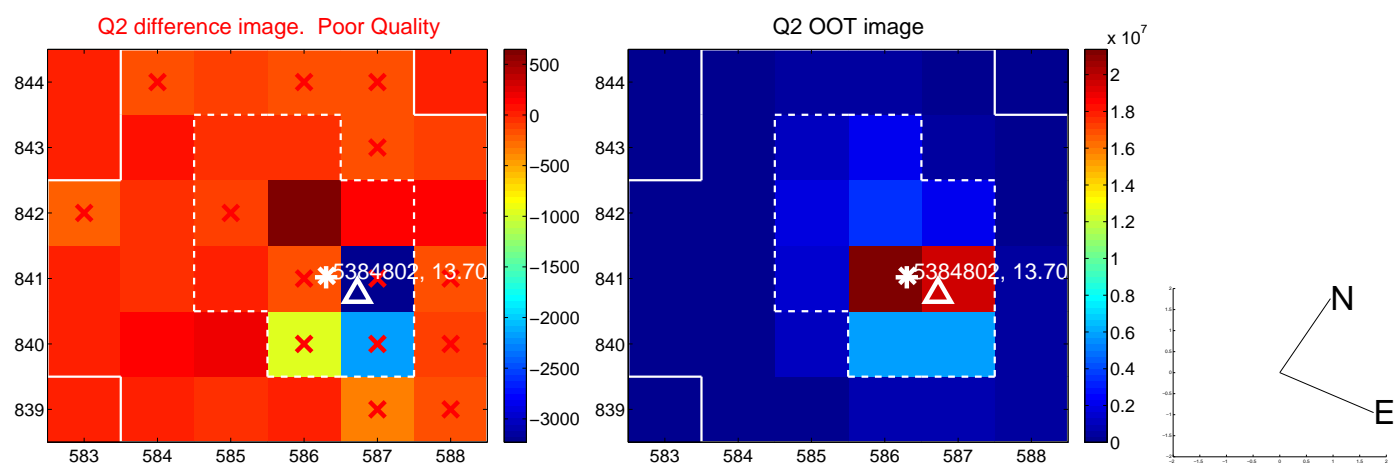
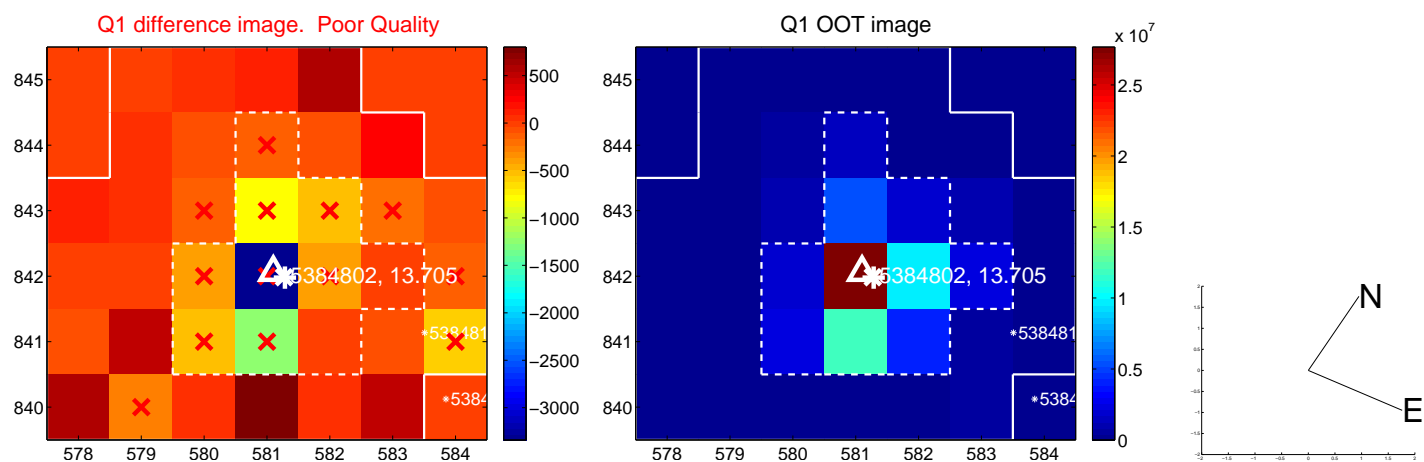
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.462 ± 0.472 | 0.98 | -0.407 ± 0.575 | -0.219 ± 0.293 |
| PRF-fit source offset from KIC position | 0.471 ± 0.456 | 1.03 | -0.401 ± 0.561 | -0.248 ± 0.281 |
| photometric centroid source offset | 2.11 ± 1.04 | 2.03 | -0.07 ± 1.15 | -2.11 ± 1.04 |

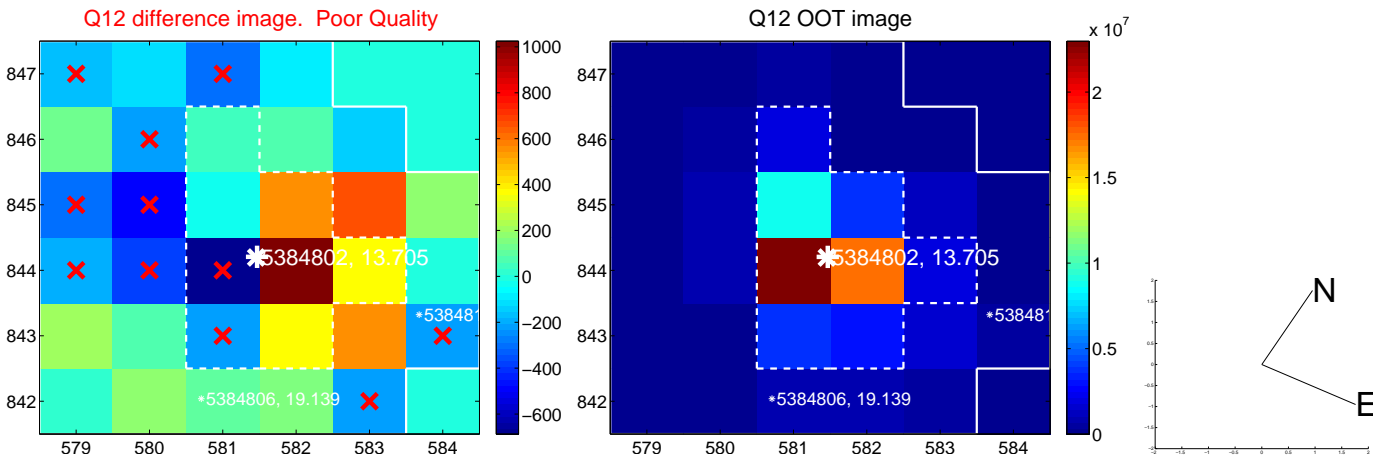
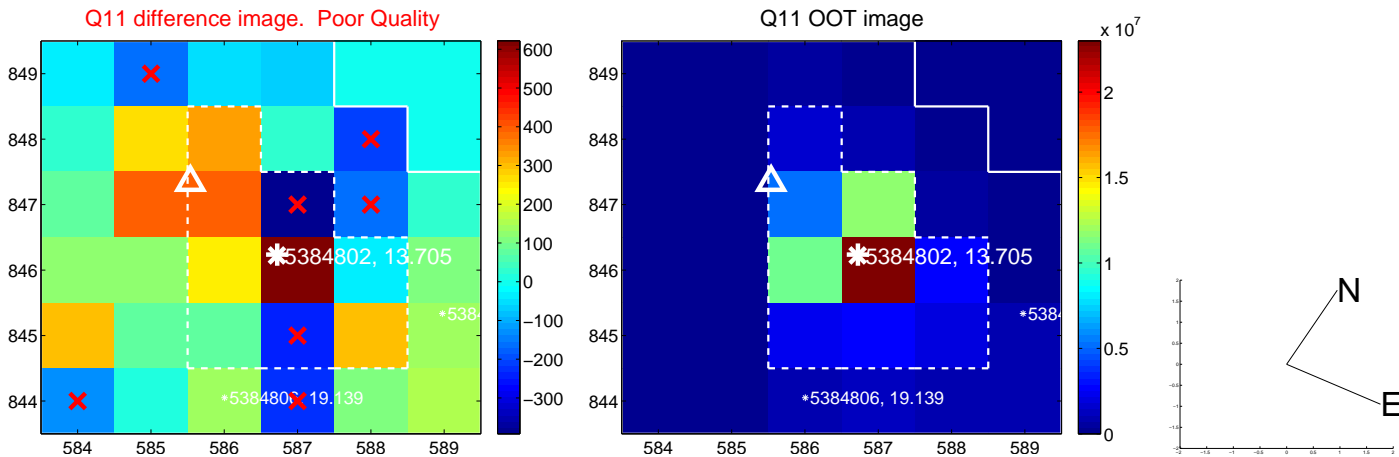
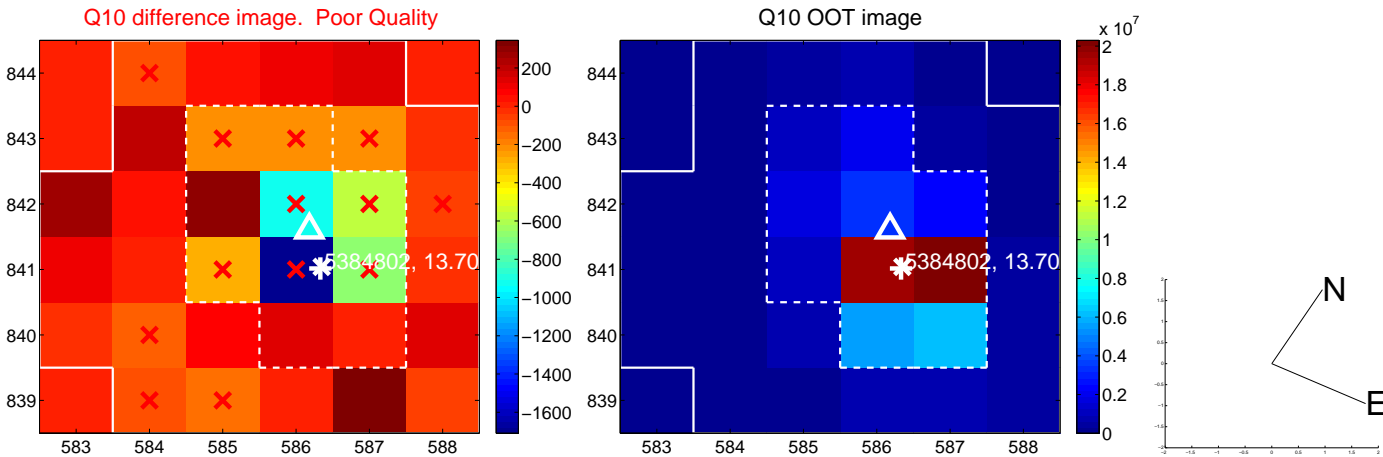
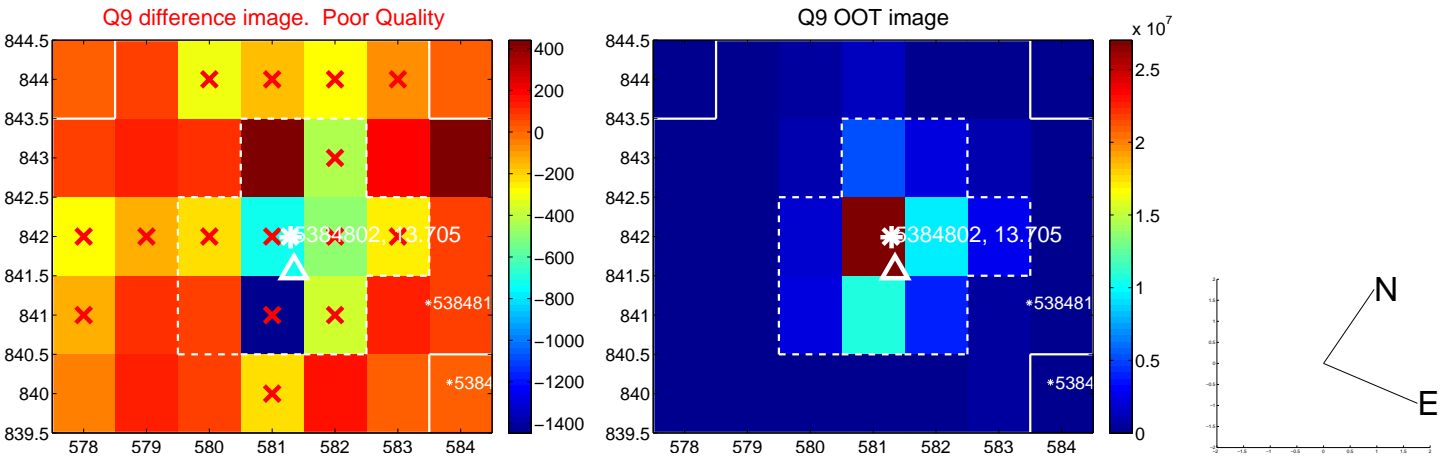


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

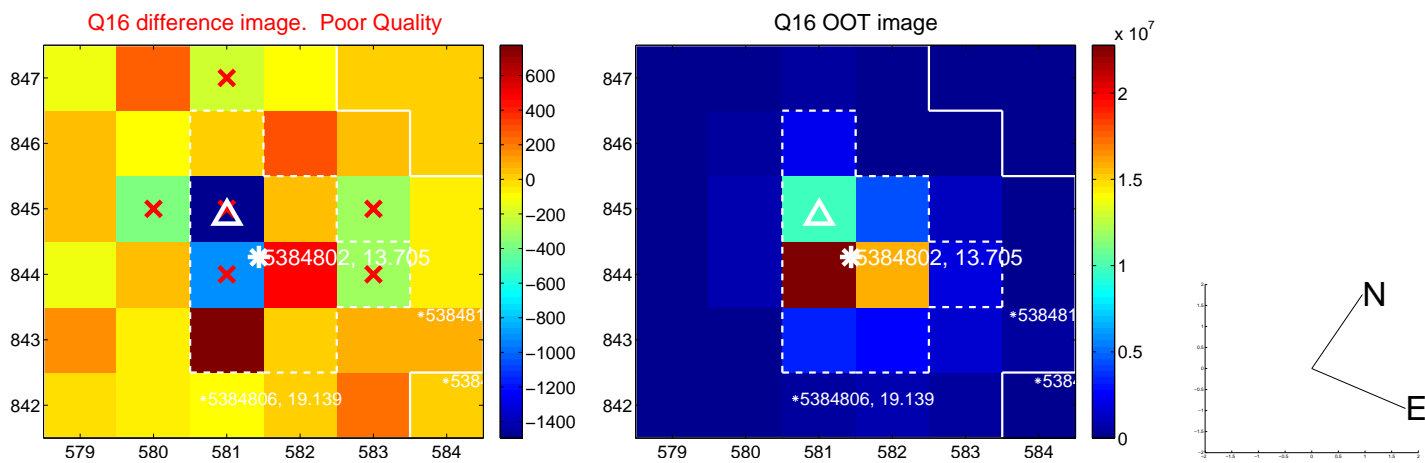
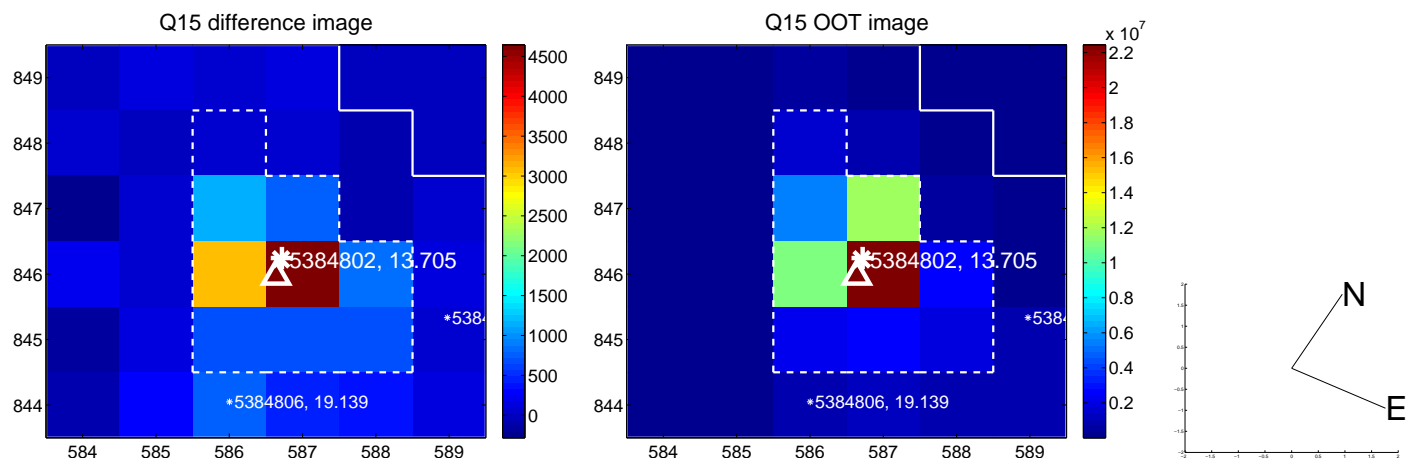
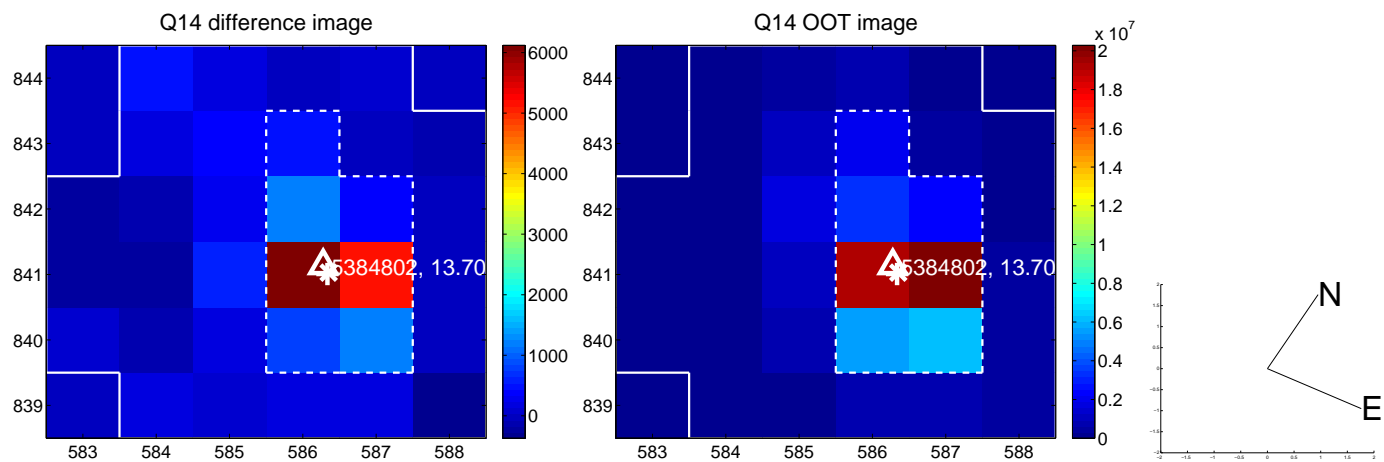
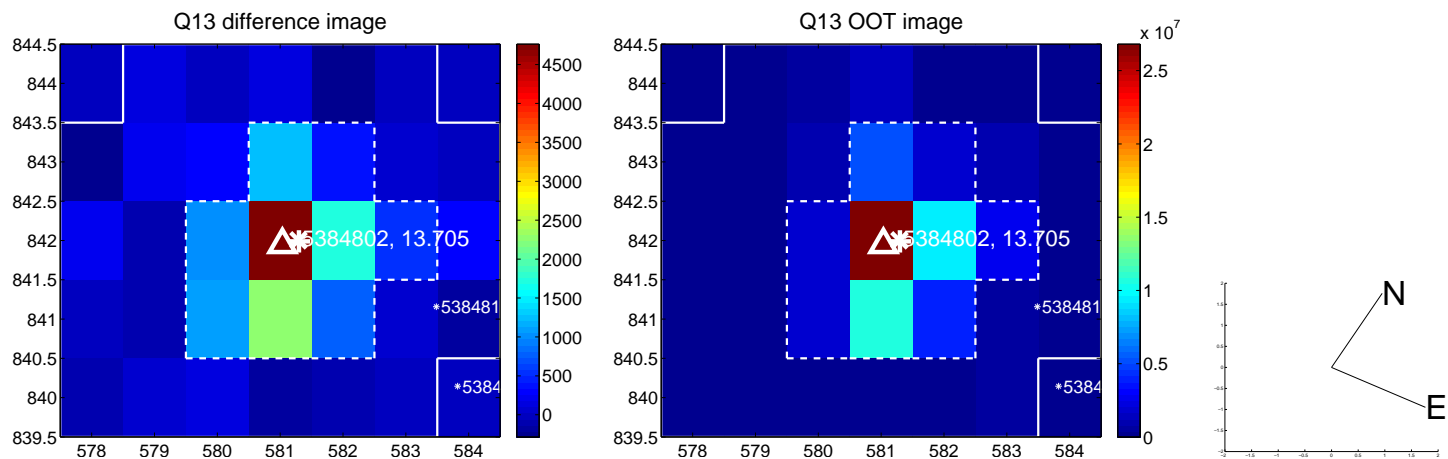
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



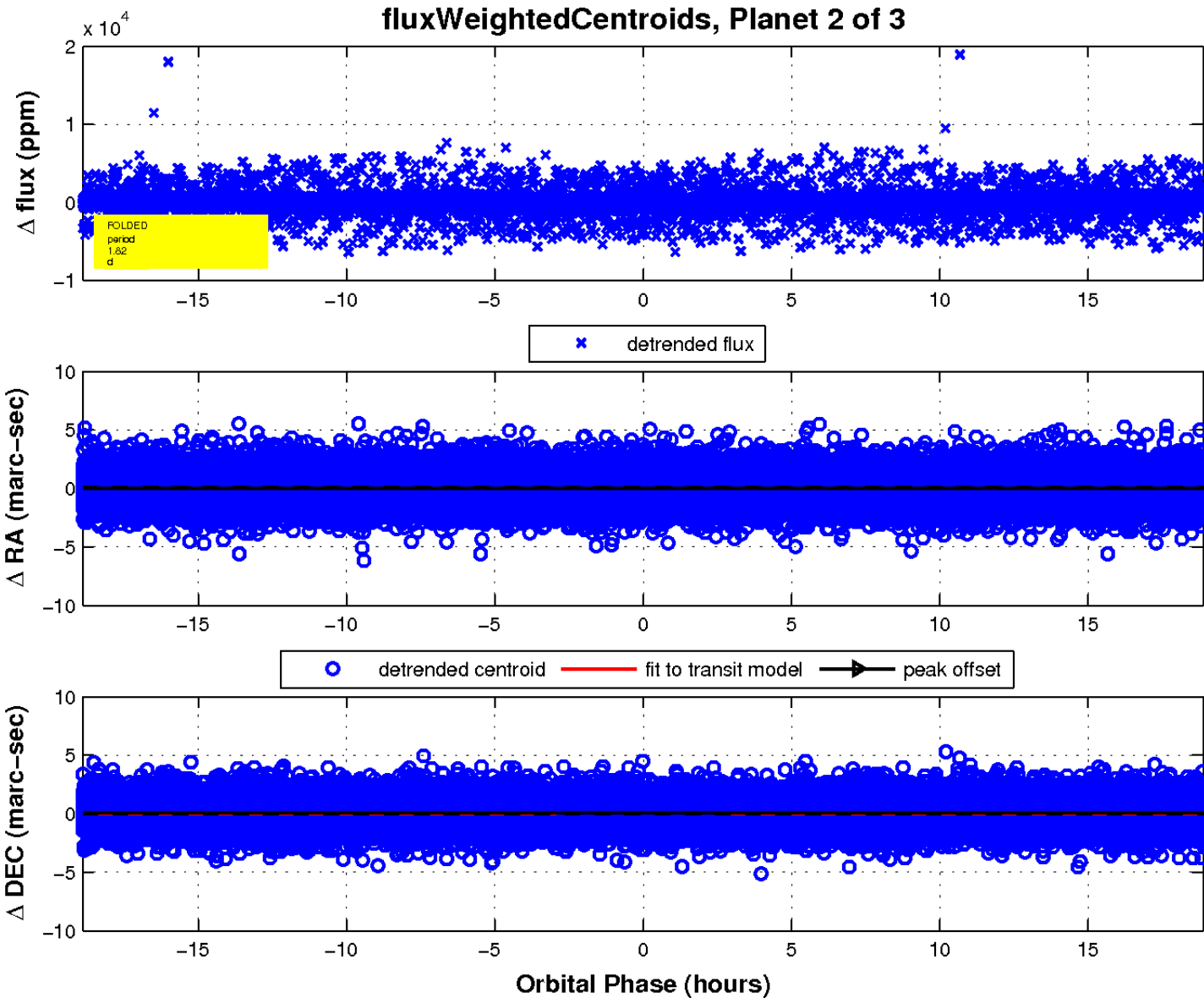
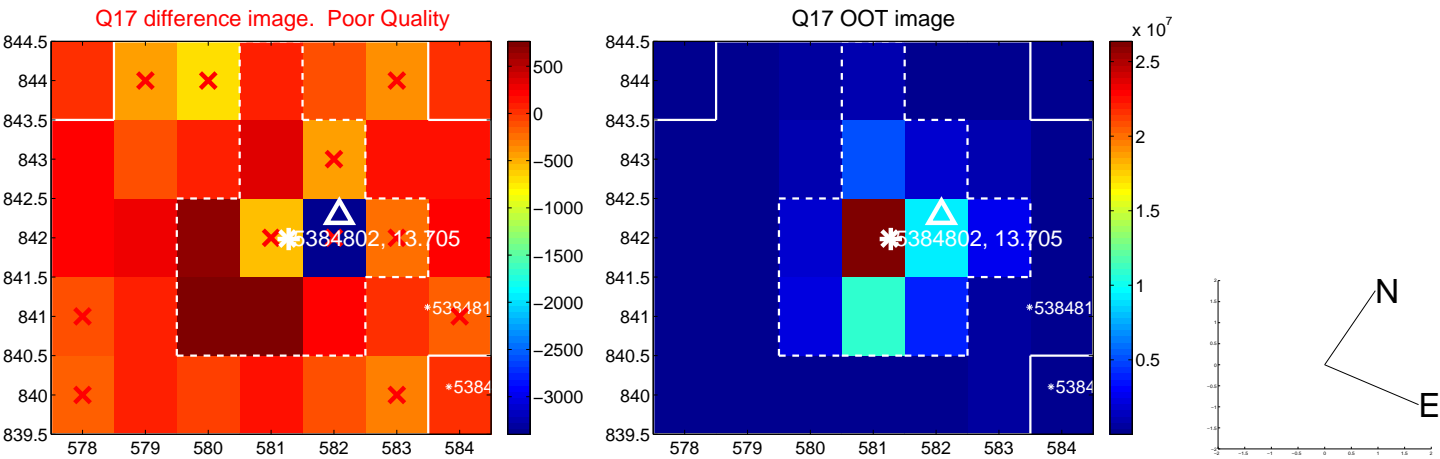
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



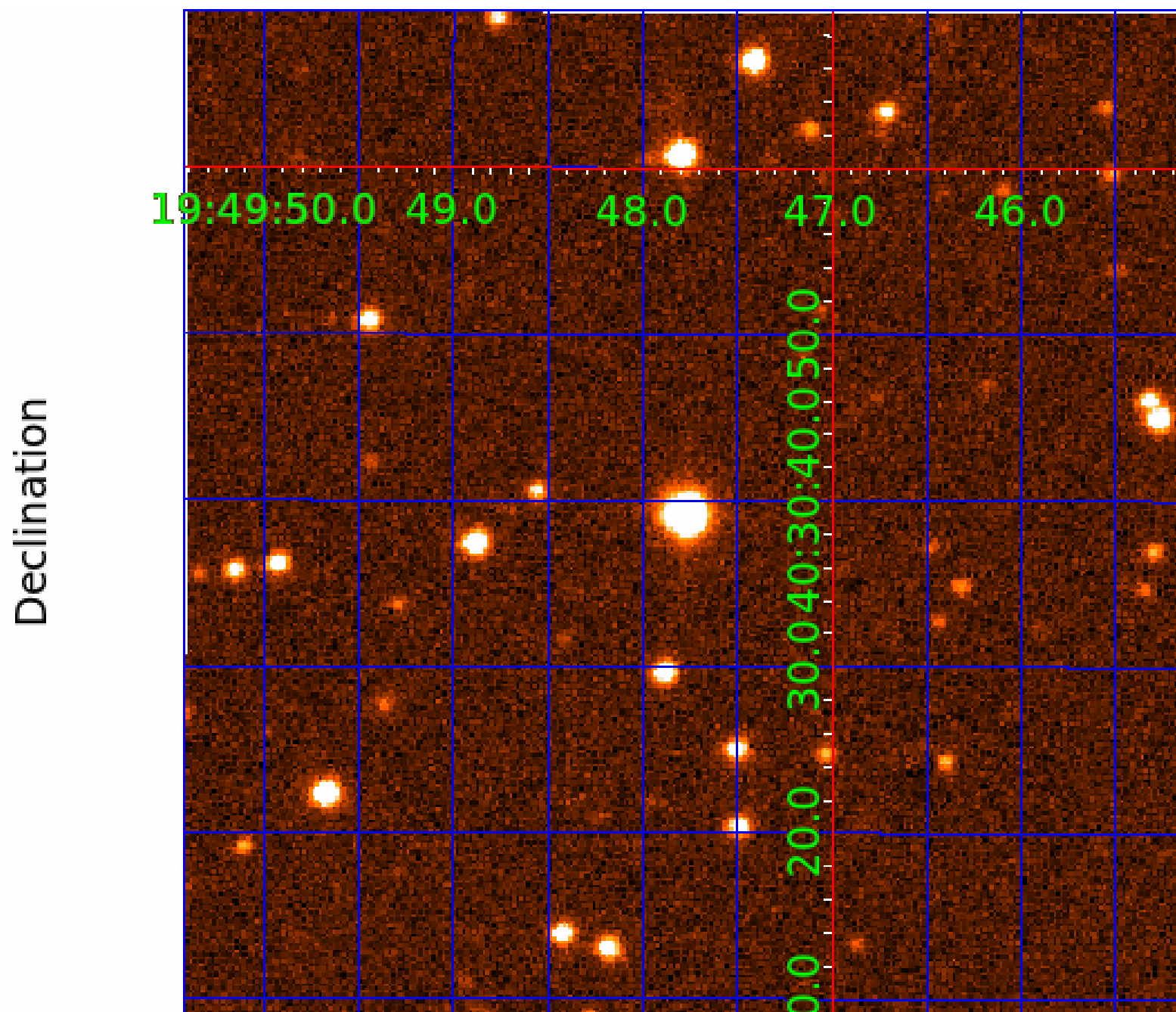
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005384802

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 005384802-01 | OBS | 0646.01 | 3.041560 | 133.987370 | 20581.9 | 3.184 | 2997.7 | 1904.3 | 1.29 | 6431 | 28.15 | 1347.08 |
| 005384802-02 | OBS | No | 1.815521 | 131.723697 | 32.5 | 6.295 | 7.9 | 8.5 | 1.29 | 6431 | 0.85 | 2680.32 |
| 005384802-03 | OBS | No | 160.157069 | 140.791610 | 197.2 | 7.759 | 8.4 | 5.1 | 1.29 | 6431 | 1.94 | 6.83 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005384802-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED |
| 005384802-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST |
| 005384802-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

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

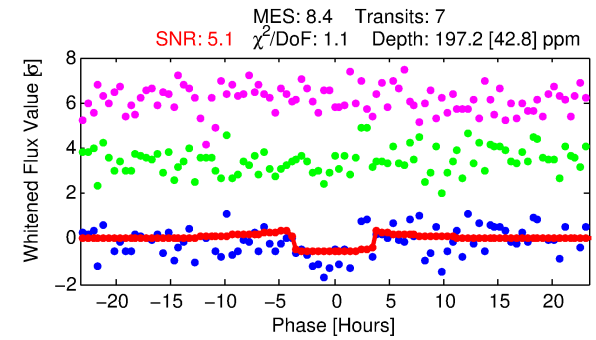
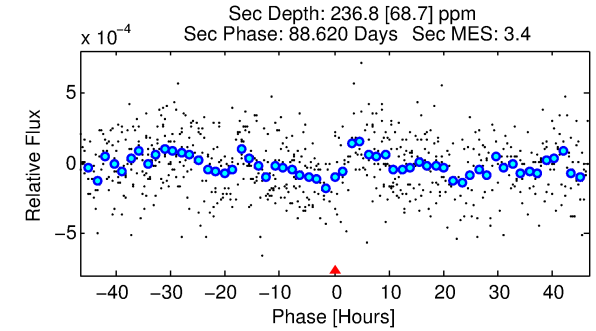
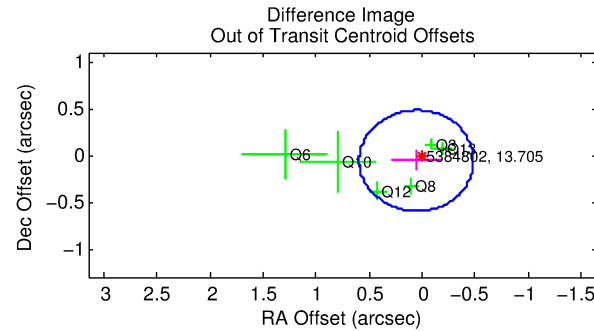
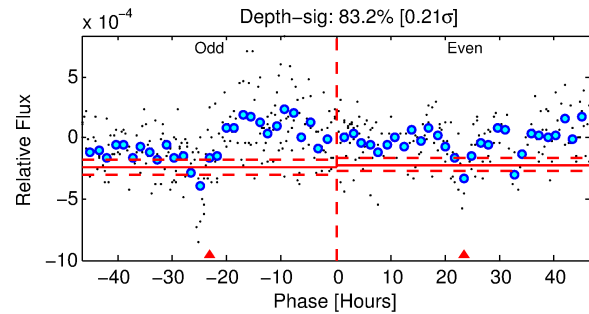
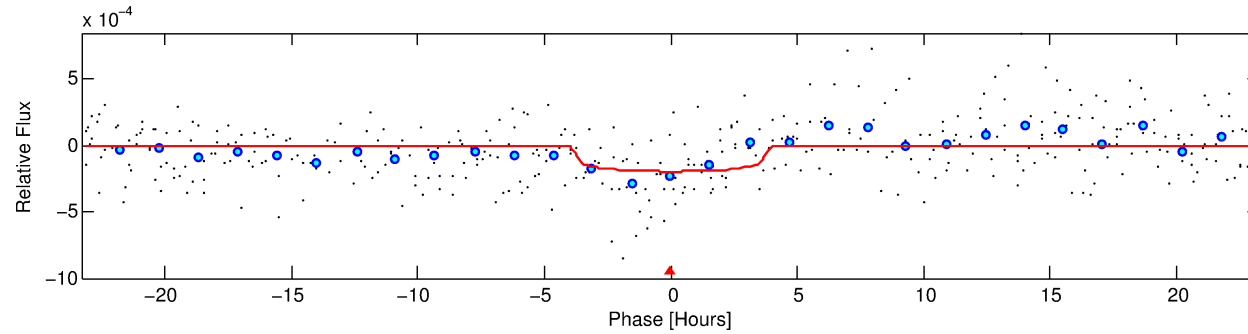
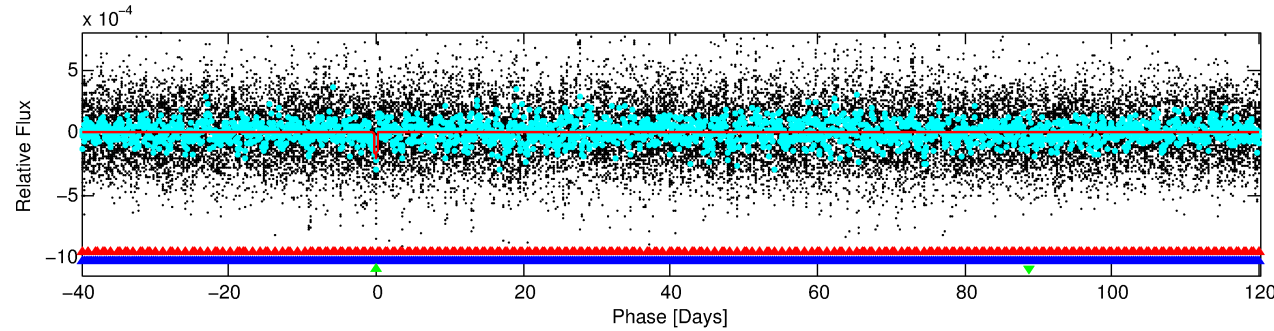
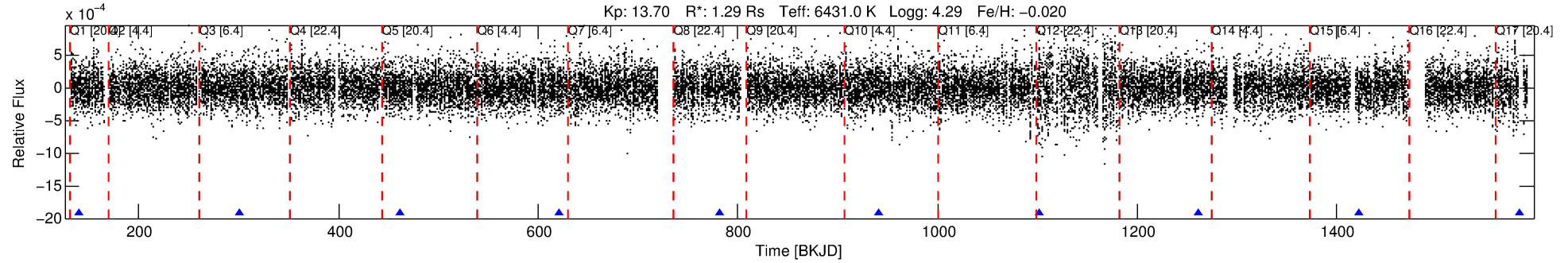
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005384802-03

No Significant Match Found

DV One-Page Summary

KIC: 5384802 Candidate: 3 of 3 Period: 160.157 d
KOI: K00646 Corr: No Ephemeris Match



DV Fit Results:

Period = 160.15707 [0.00405] d
Epoch = 140.7916 [0.0216] BKJD
Rp/R* = 0.0137 [0.0122]
a/R* = 117.35 [544.53]
b = 0.69 [3.58]
Seff = 6.83 [1.54]
Teq = 412 [23] K
Rp = 1.94 [1.76] Re
a = 0.6136 [0.0876] AU
Ag = 13038.59 [23683.56] [0.55 σ]
Teffp = 6809 [3075] K [2.08 σ]

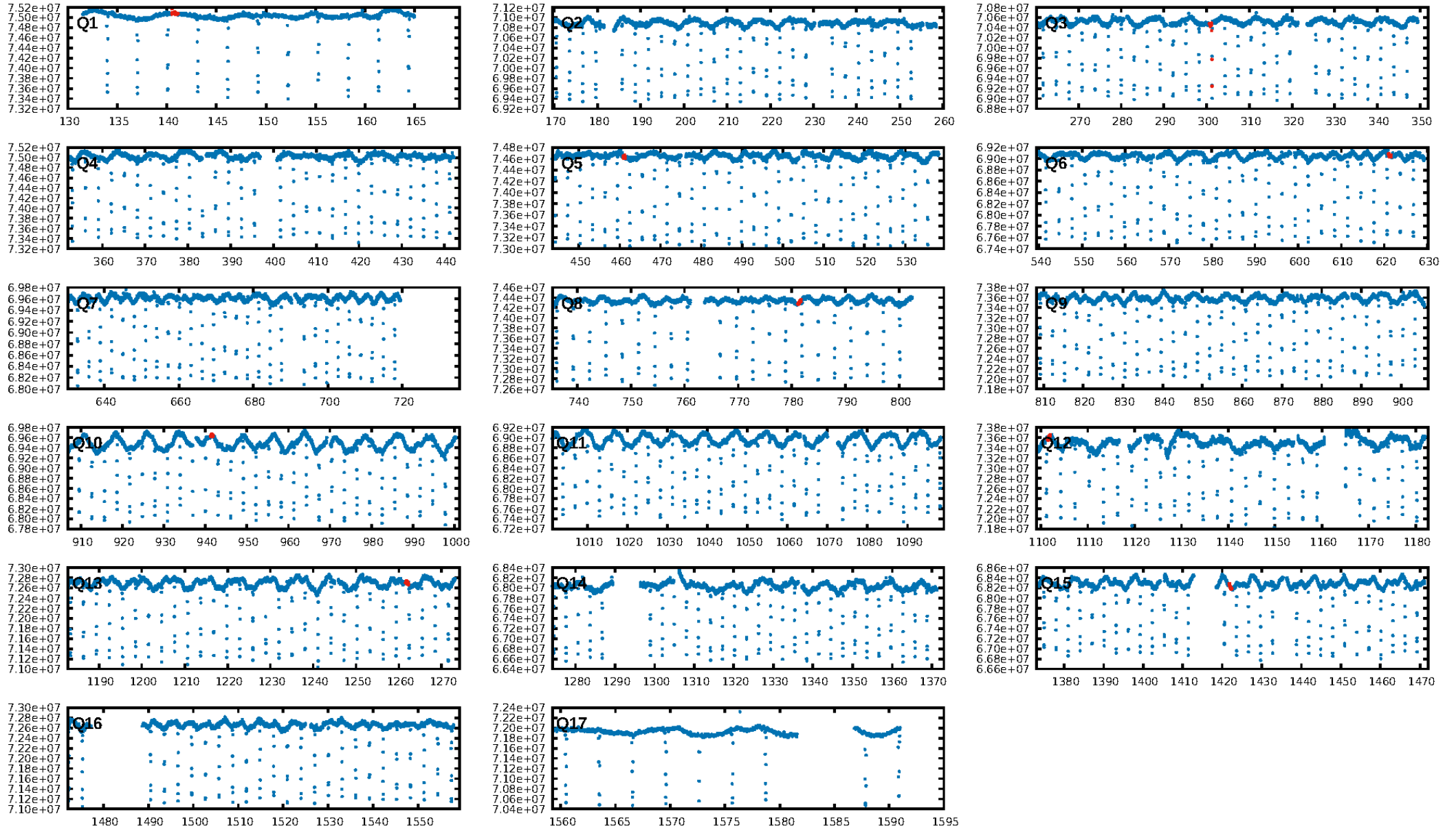
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [449.60 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.18e-12
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.6762
Centroid-sig: 0.2%
Centroid-so: 3.531 arcsec [2.26 σ]
OotOffset-rm: 0.079 arcsec [0.44 σ]
KicOffset-rm: 0.100 arcsec [0.52 σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.11 [1/9]

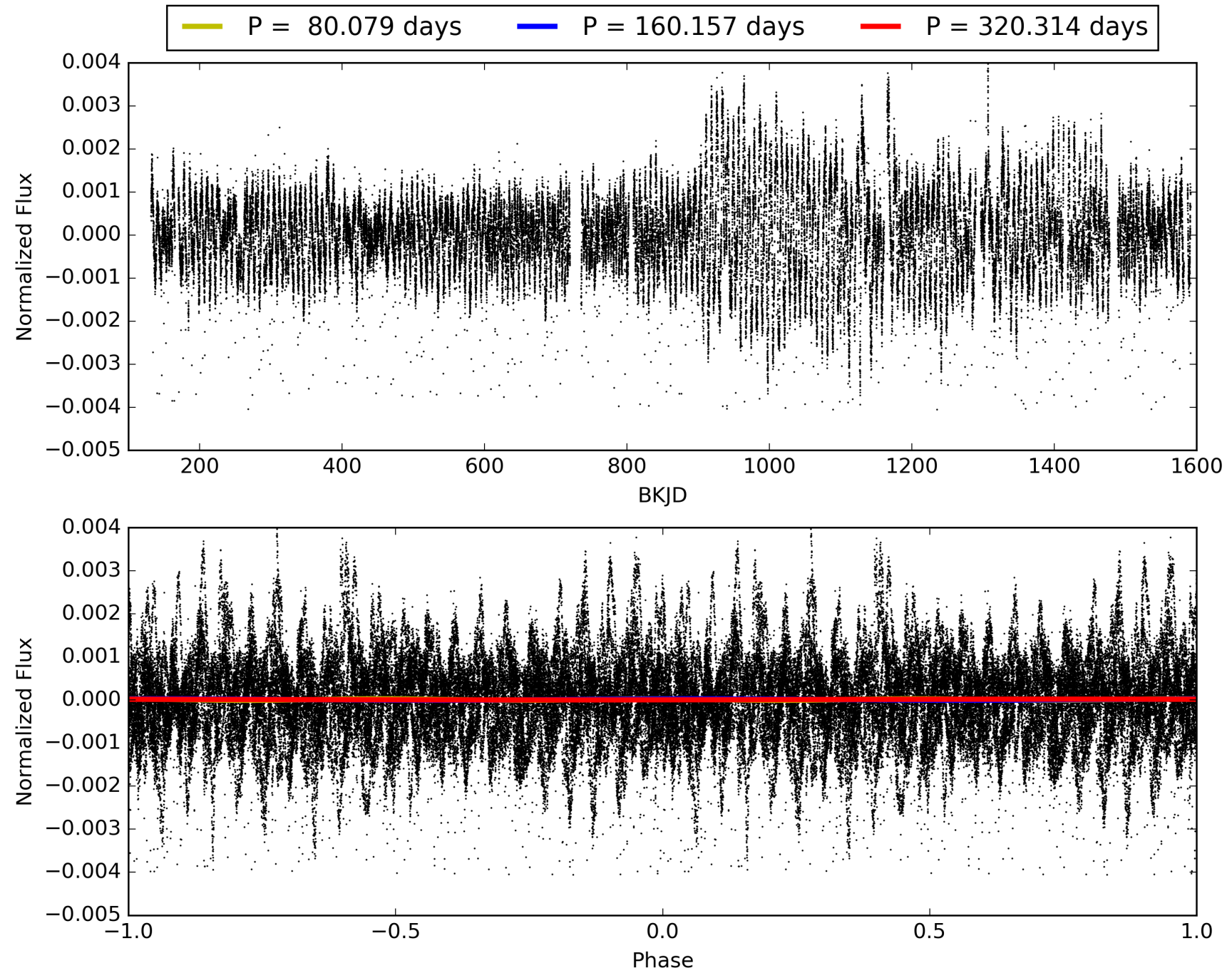
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:35:22 Z

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

TCE 005384802-03, PDC Light Curves

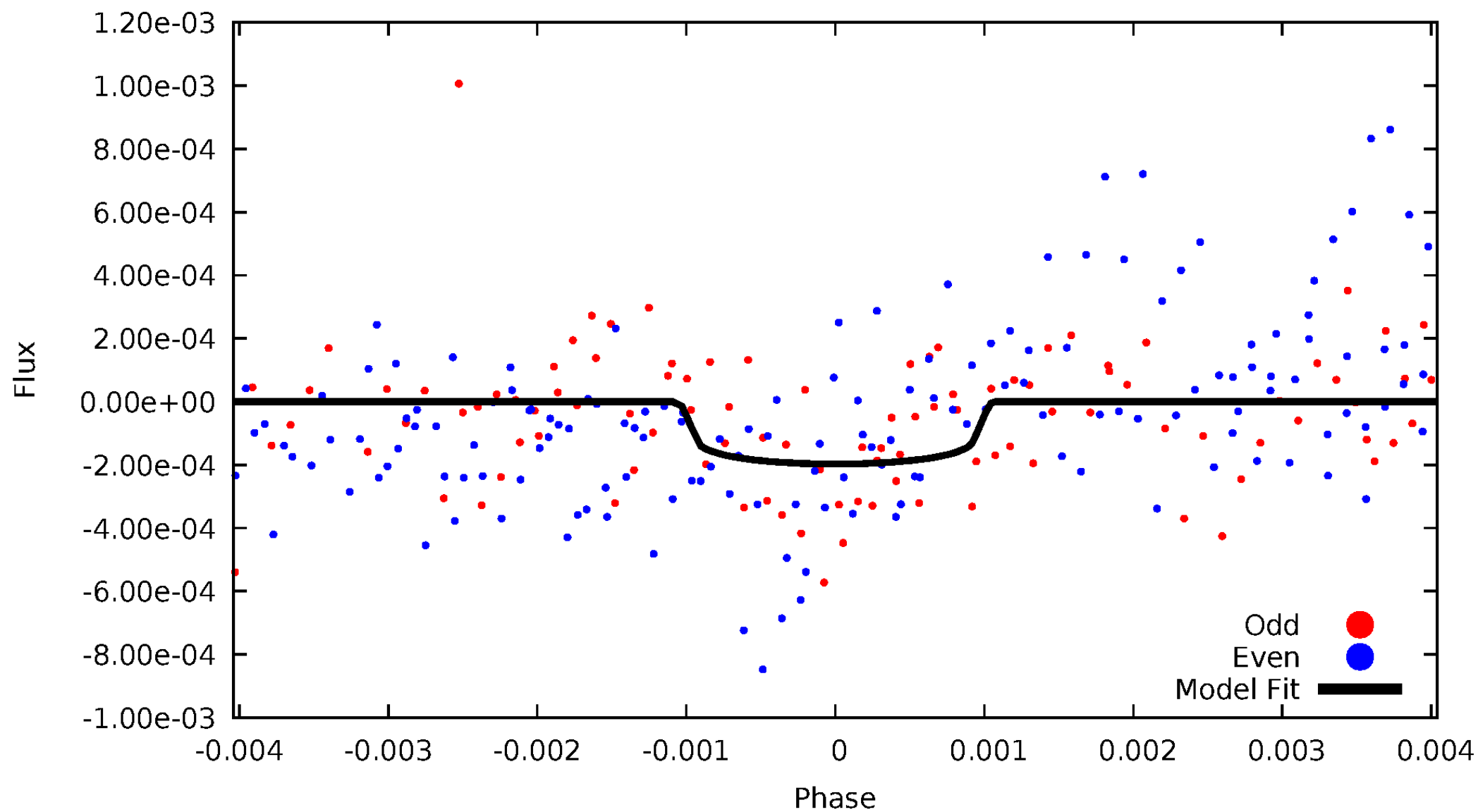


TCE 005384802-03



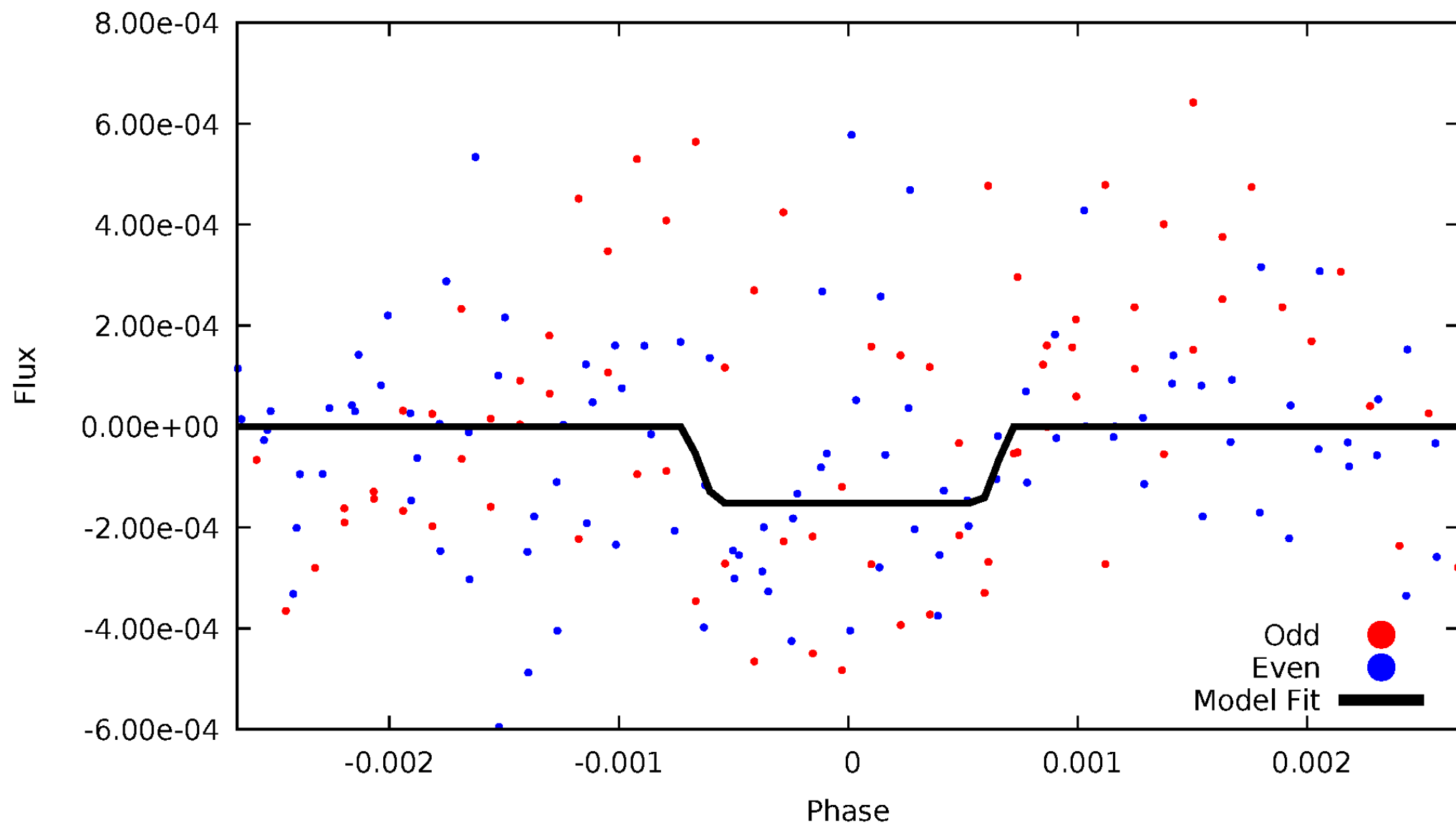
DV Odd/Even

TCE 005384802-03



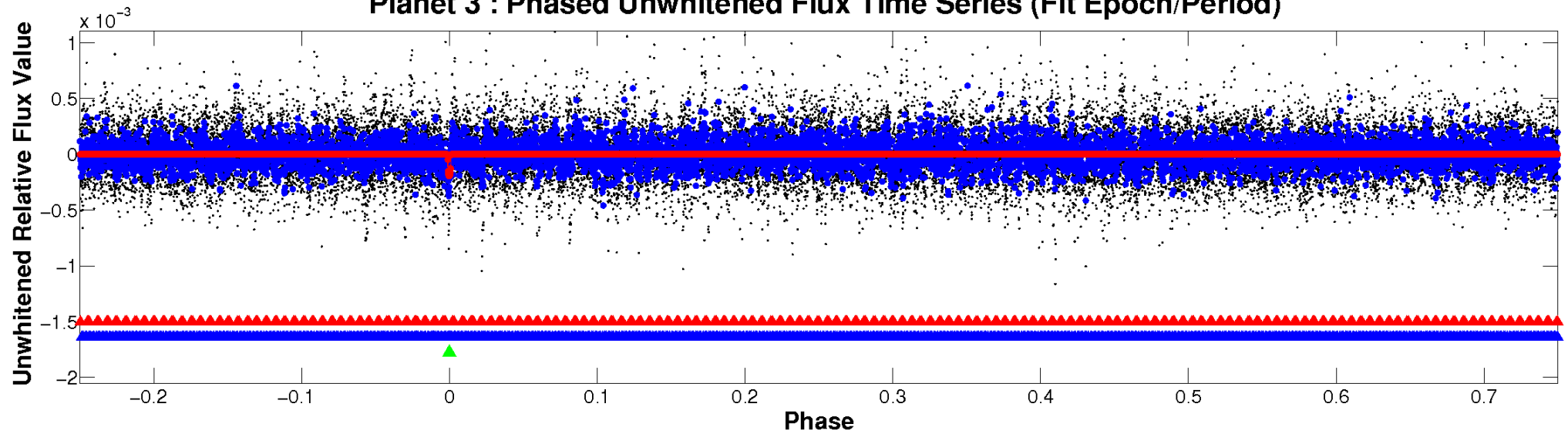
ALT Odd/Even

TCE 005384802-03

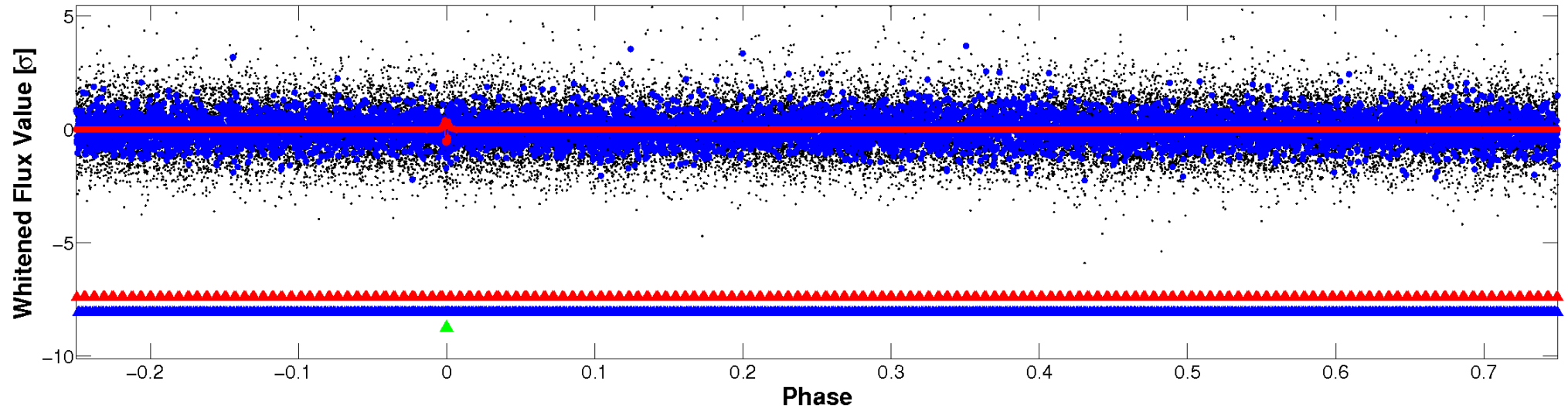


Non-Whitened Vs. Whitened Light Curve

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

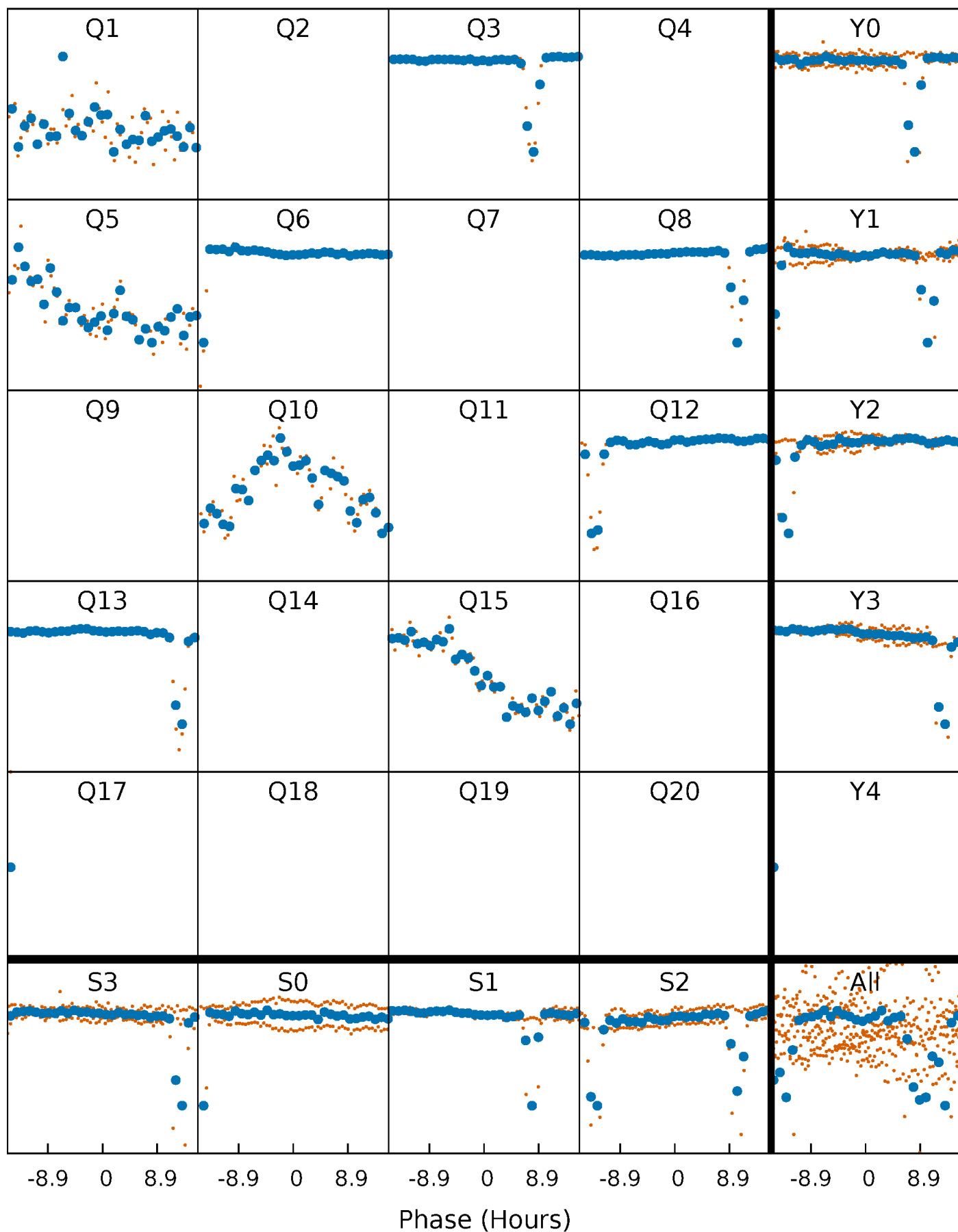


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



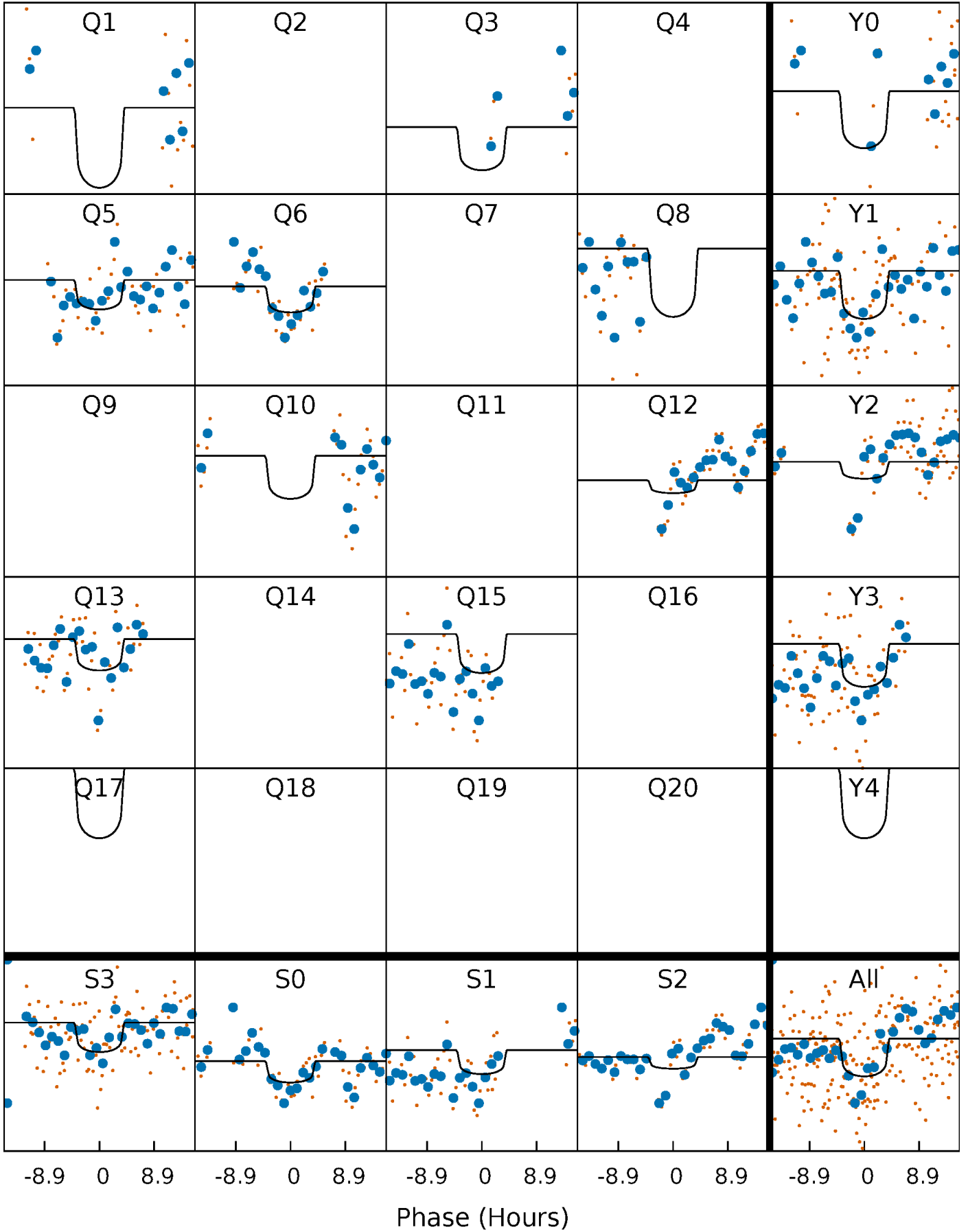
PDC Quarter-Phased Transit Curves

TCE 005384802-03 P=160.157069 Days $T_0=140.791610$ (BKJD)



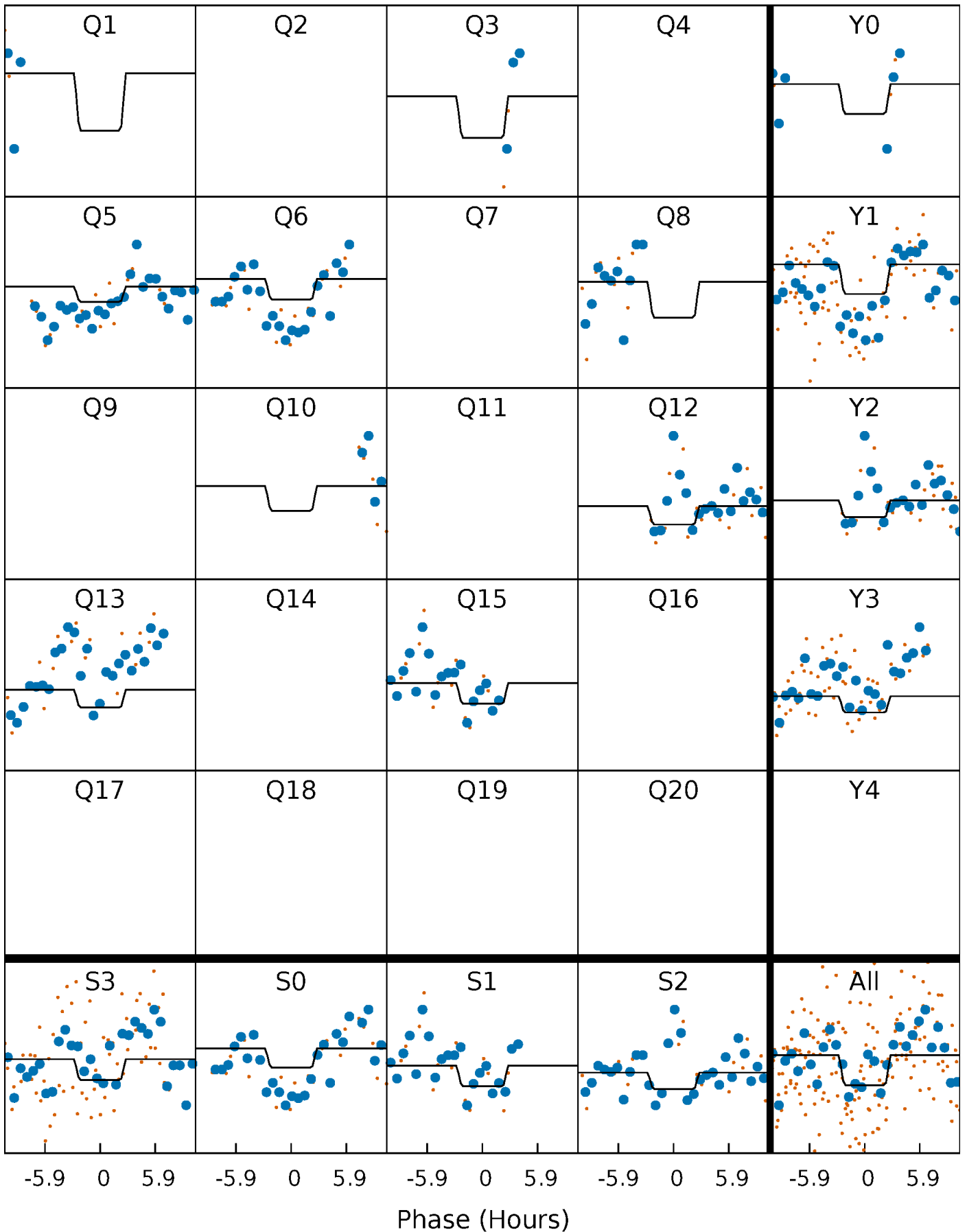
DV Quarter-Phased Transit Curves

TCE 005384802-03 P=160.157069 Days $T_0=140.791610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

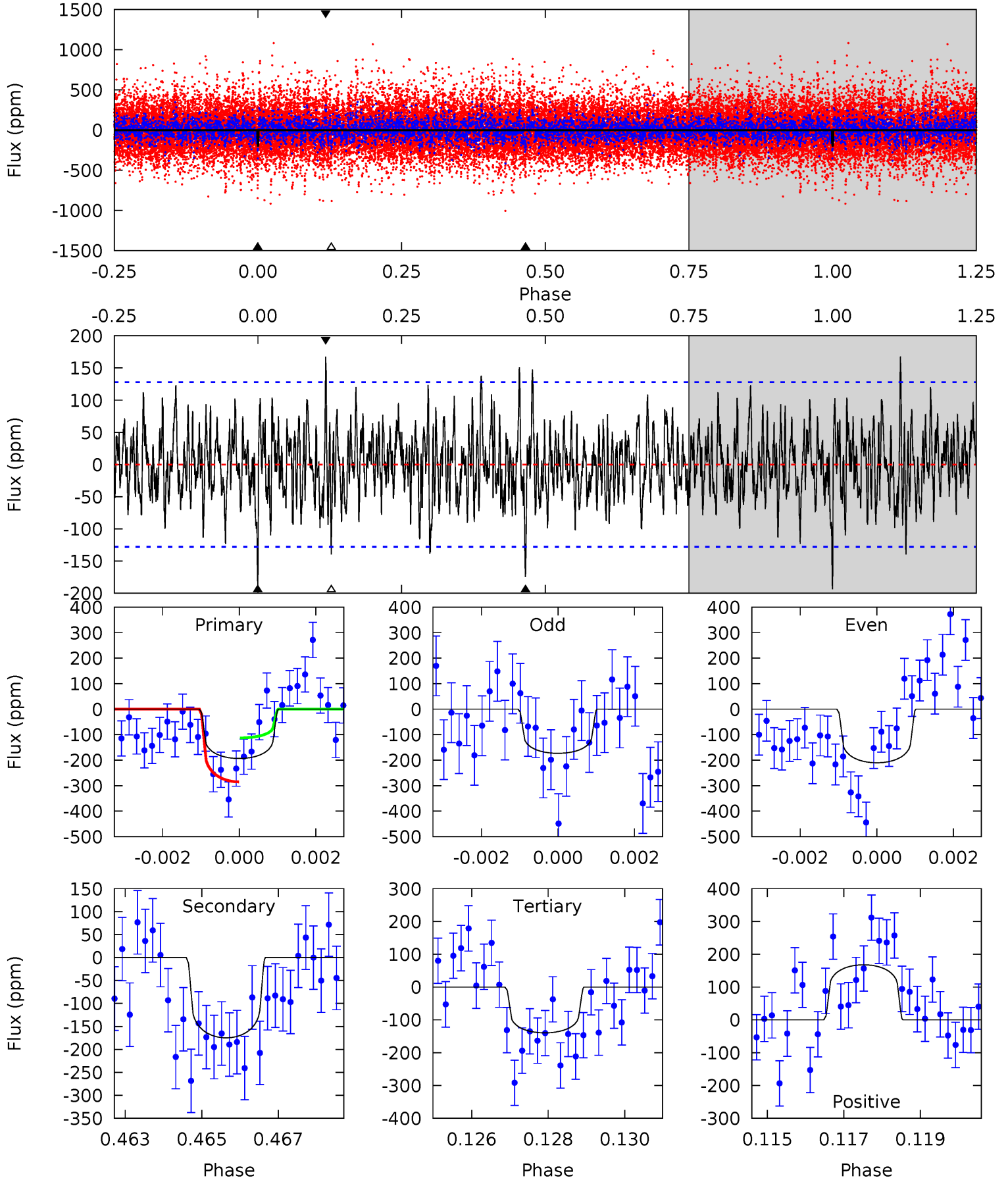
TCE 005384802-03 P=160.168412 Days $T_0=140.725131$ (BKJD)



DV Model-Shift Uniqueness Test

005384802-03, P = 160.157069 Days, E = 140.791610 Days

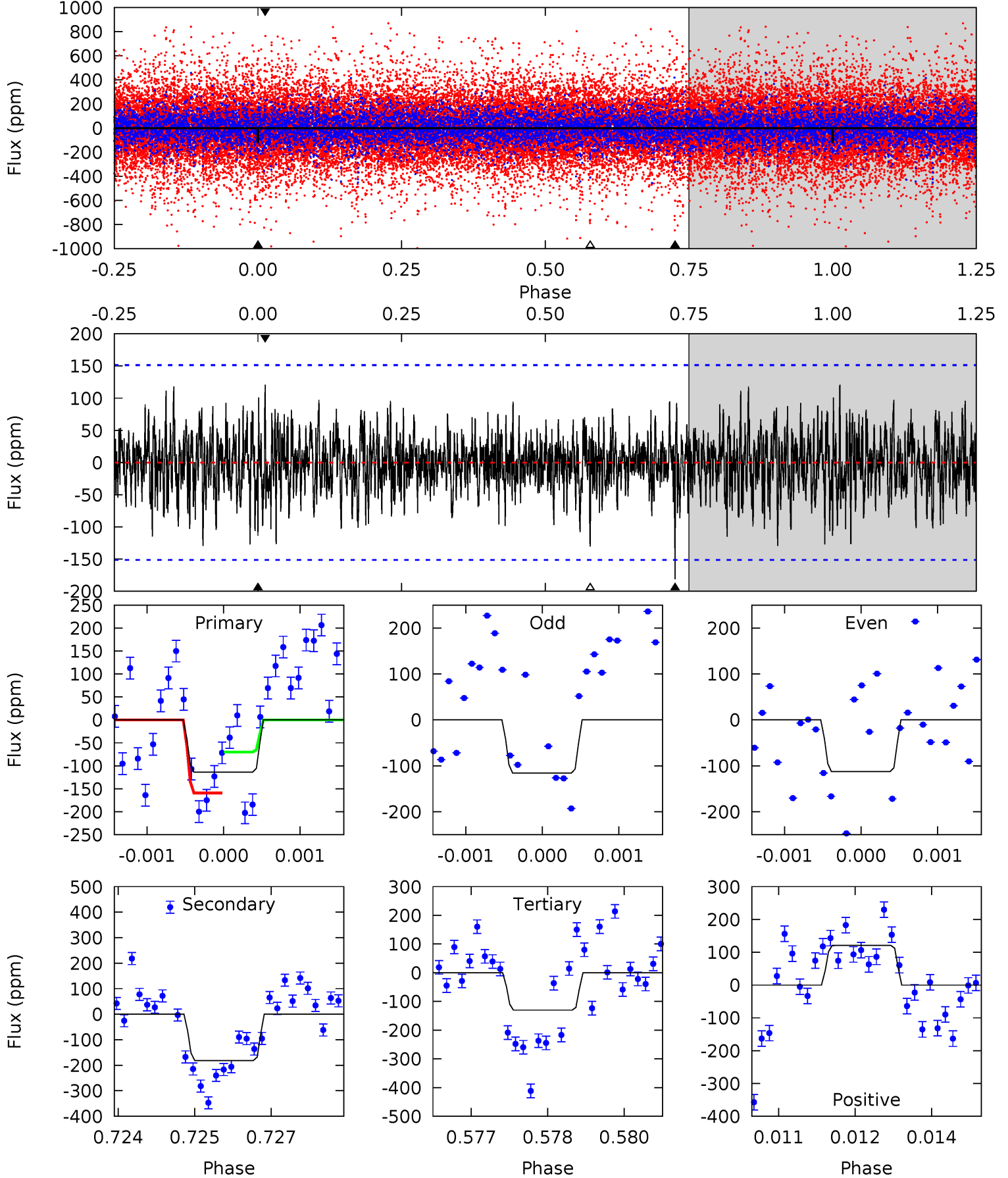
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.04 | 7.27 | 5.80 | 6.97 | 5.32 | 3.08 | 1.88 | 2.24 | 1.07 | 1.47 | 0.29 | 0.77 | 0.92 | 0.46 | 3.59 |



Alt Model-Shift Uniqueness Test

005384802-03, P = 160.168412 Days, E = 140.725131 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.06 | 6.46 | 4.64 | 4.31 | 5.39 | 3.20 | 1.27 | -0.58 | -0.25 | 1.82 | 2.15 | 0.05 | 0.97 | 0.40 | 1.59 |



Stellar Parameters For KIC 005384802

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6431^{+102}_{-141} | $4.293^{+0.076}_{-0.114}$ | $-0.020^{+0.150}_{-0.150}$ | $1.295^{+0.219}_{-0.152}$ | $1.199^{+0.096}_{-0.096}$ | $0.778^{+0.245}_{-0.261}$ |
| | +2%/-2% | +2%/-3% | +750%/-750% | +17%/-12% | +8%/-8% | +31%/-34% |
| Source | SPE18 | SPE18 | SPE18 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005384802-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|------------------------|-------------------------|
| DV | -175 ± 24 | $2.17^{+1.68}_{-1.26}$ | 578^{+25}_{-21} | 6011^{+4082}_{-1368} | 7678^{+35086}_{-5240} |
| Alt. | -181 ± 28 | $2.01^{+1.72}_{-1.14}$ | 577^{+26}_{-21} | 6239^{+4409}_{-1552} | 9309^{+42891}_{-6748} |

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 $A_{obs} \gg 1.0$

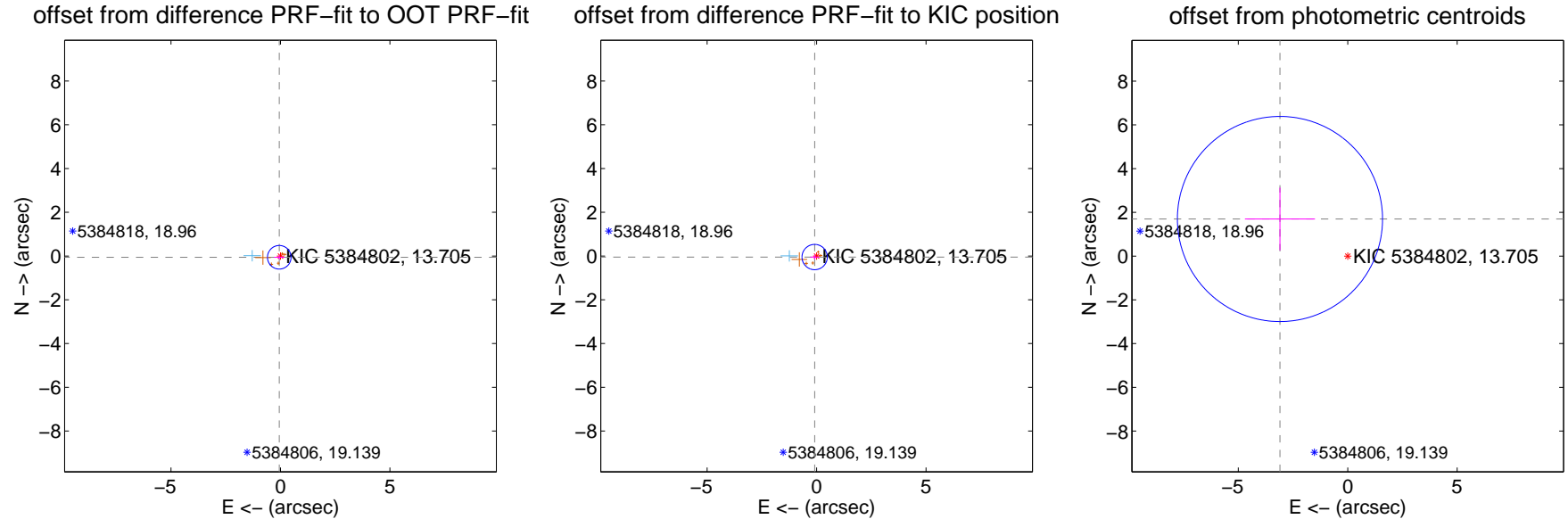
DV Centroid Data

Supplemental centroid analysis for 005384802-03. Kepler magnitude: 13.71. Transit SNR 5.10

There are 1 quarters with good PRF difference image offsets

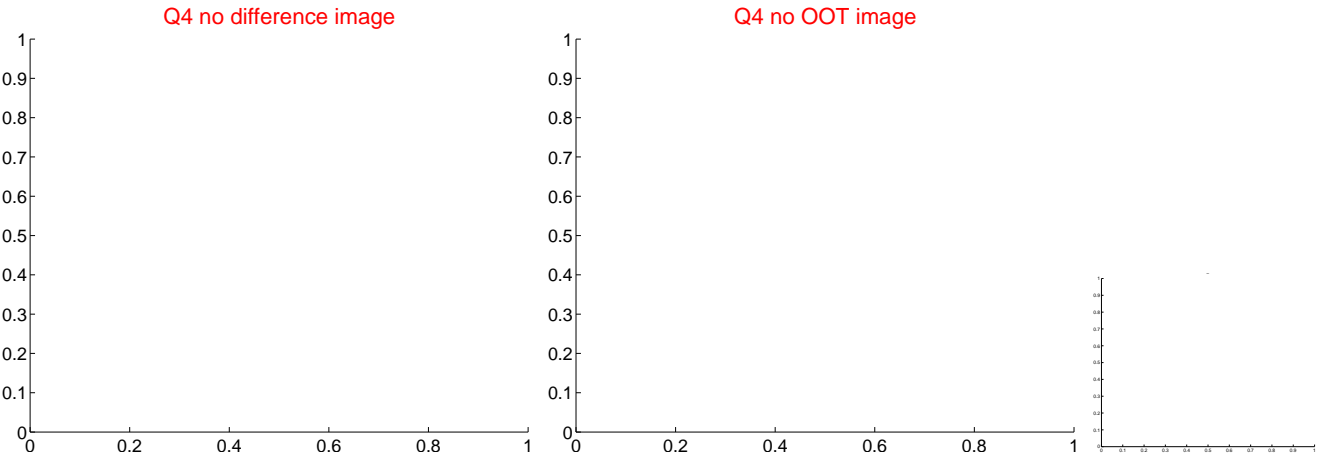
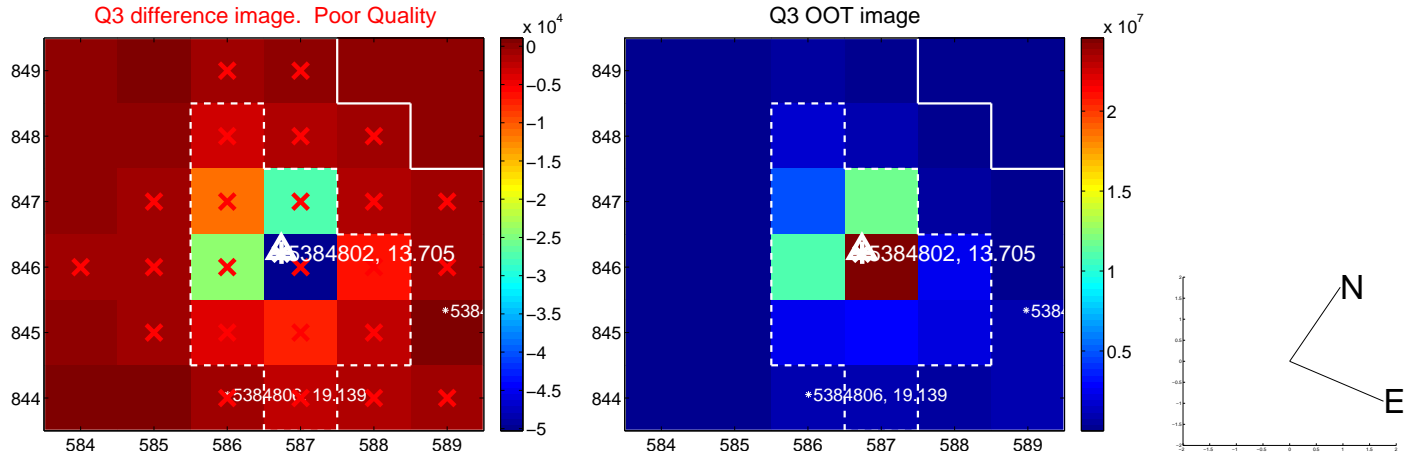
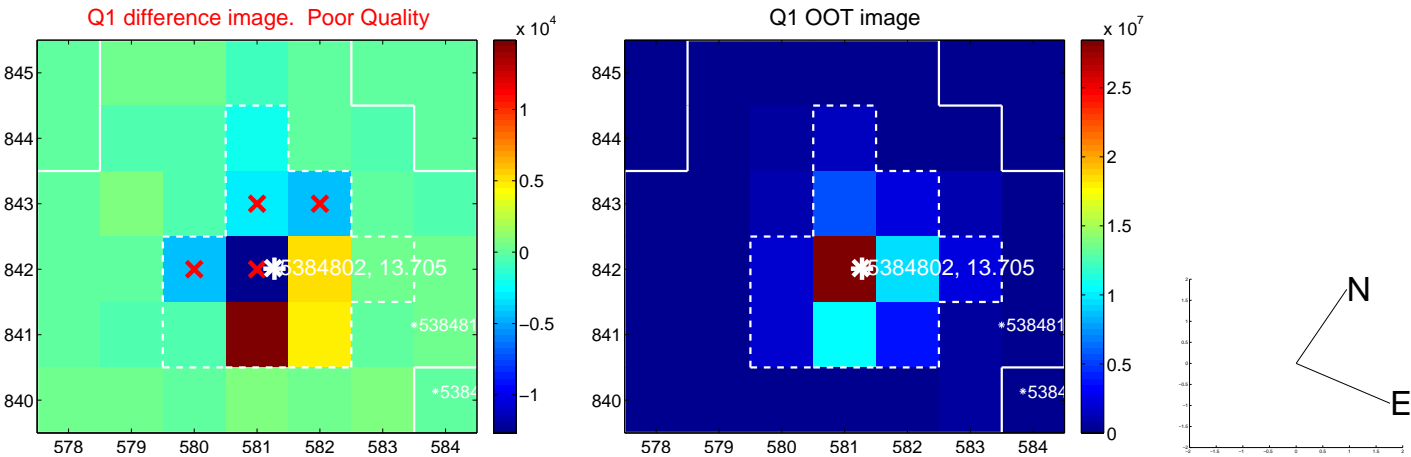
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.079 ± 0.180 | 0.44 | 0.054 ± 0.234 | -0.058 ± 0.102 |
| PRF-fit source offset from KIC position | 0.100 ± 0.193 | 0.52 | 0.088 ± 0.204 | -0.047 ± 0.107 |
| photometric centroid source offset | 3.53 ± 1.56 | 2.26 | 3.10 ± 1.60 | 1.70 ± 1.43 |

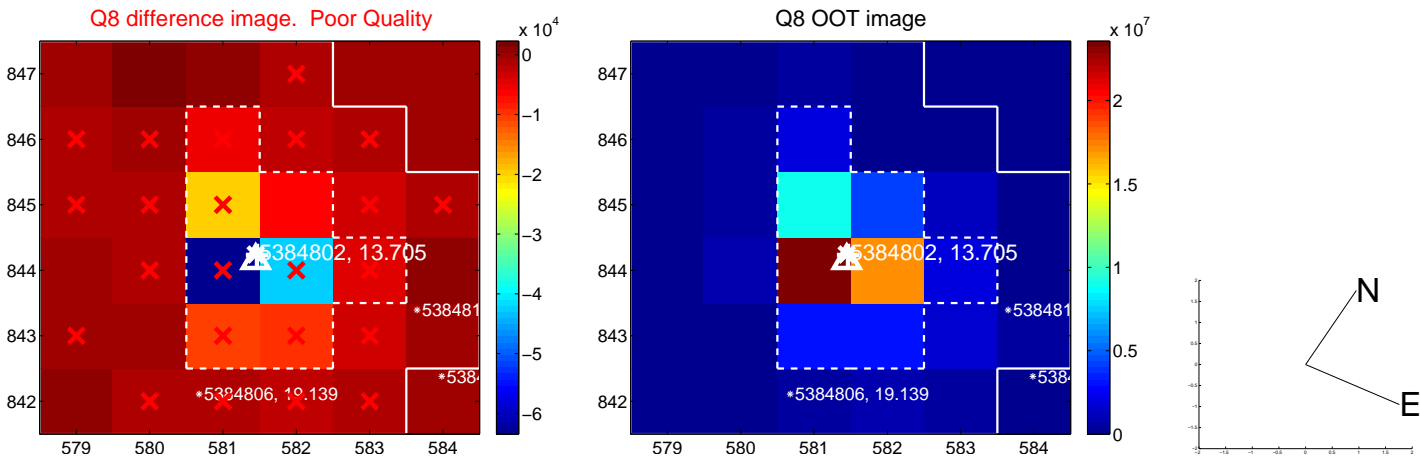
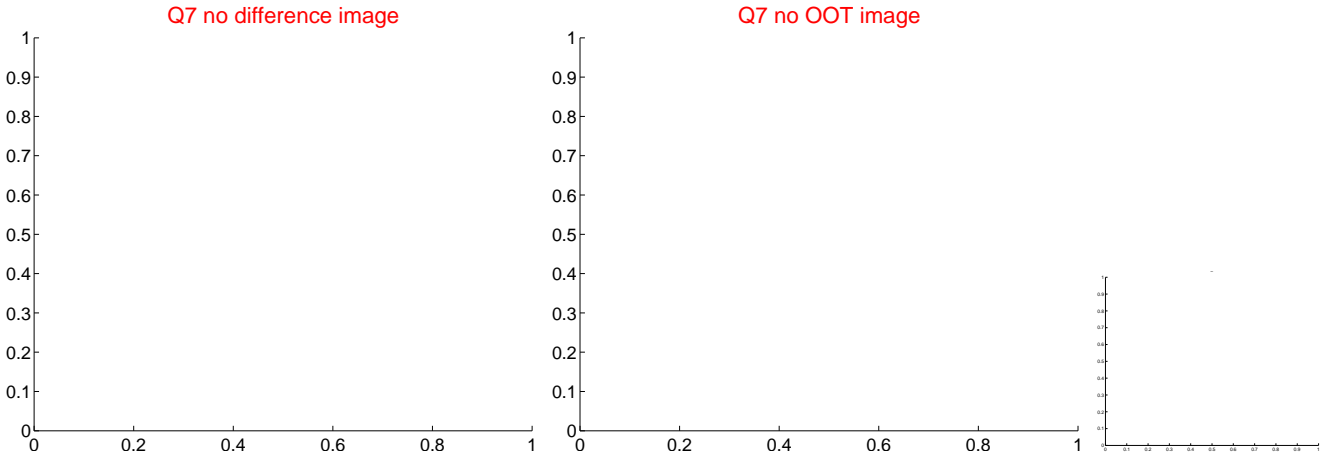
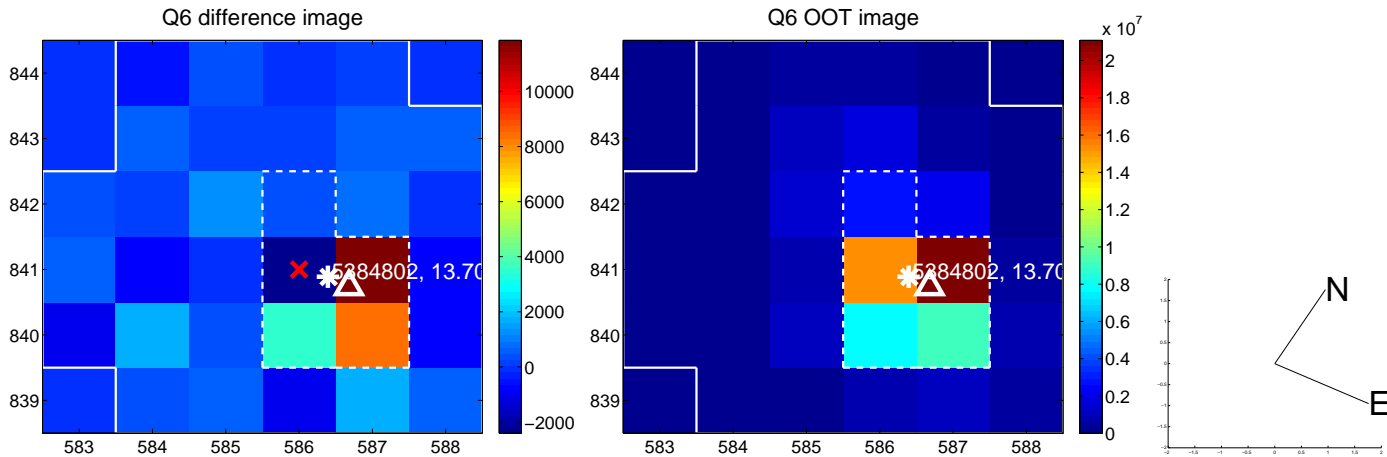
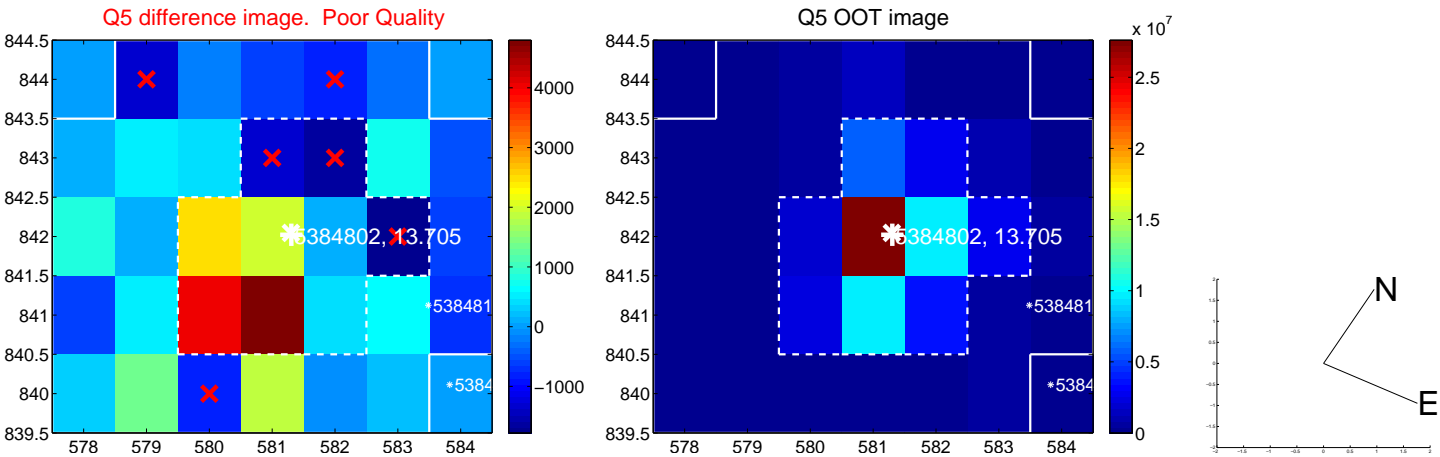


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

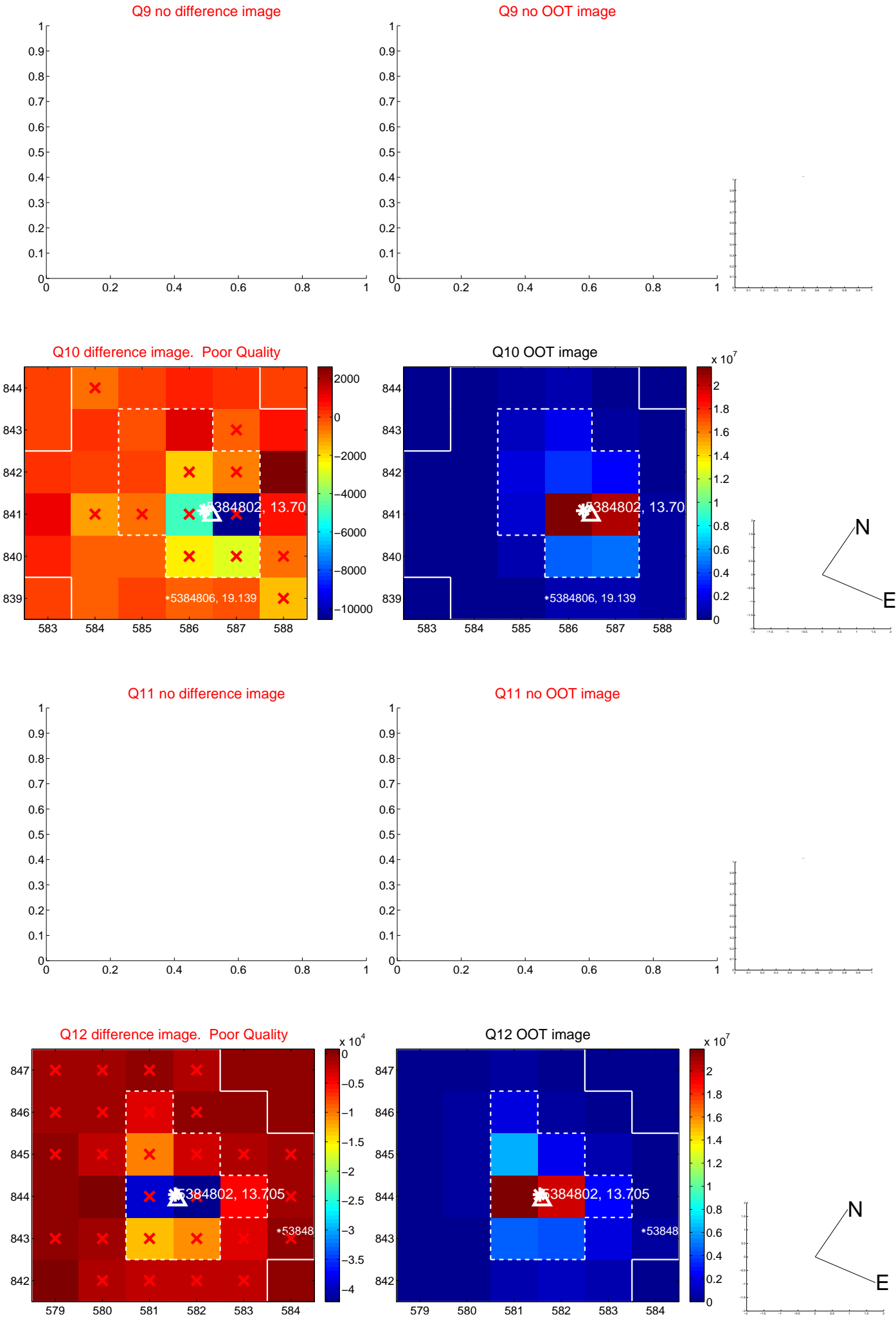
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



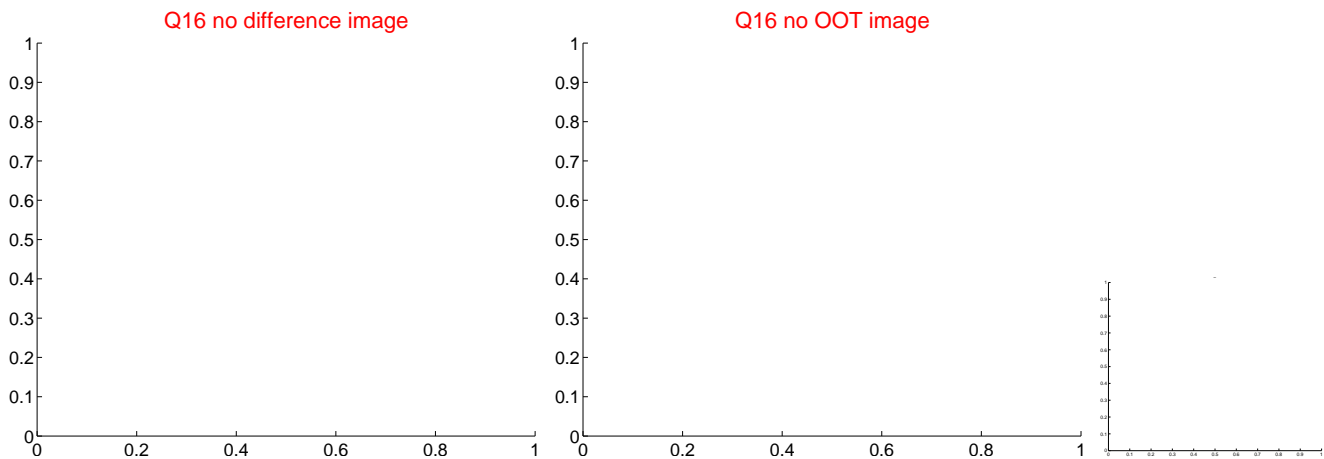
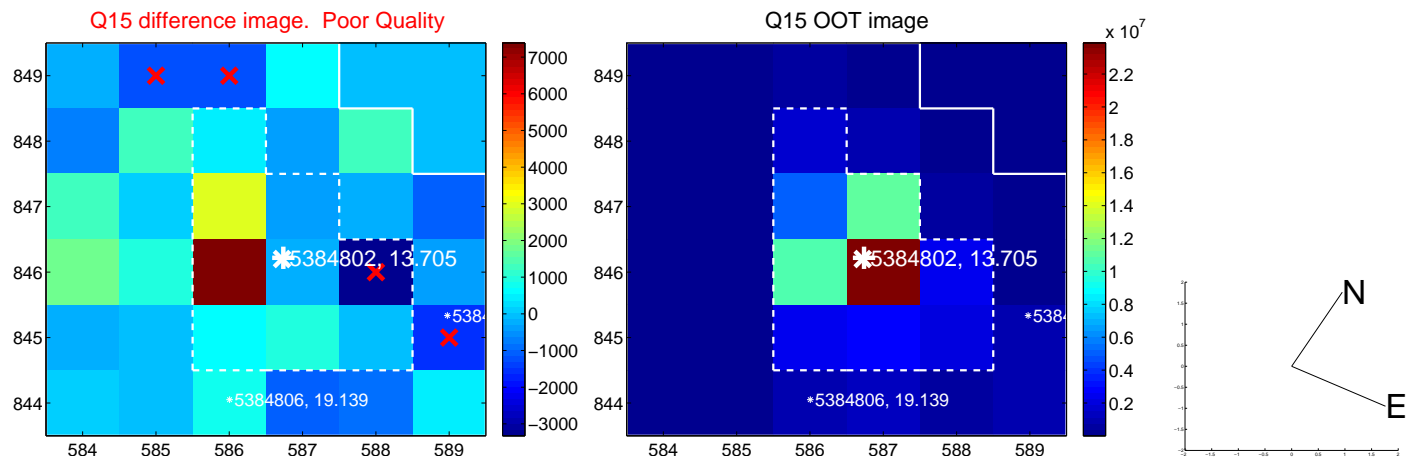
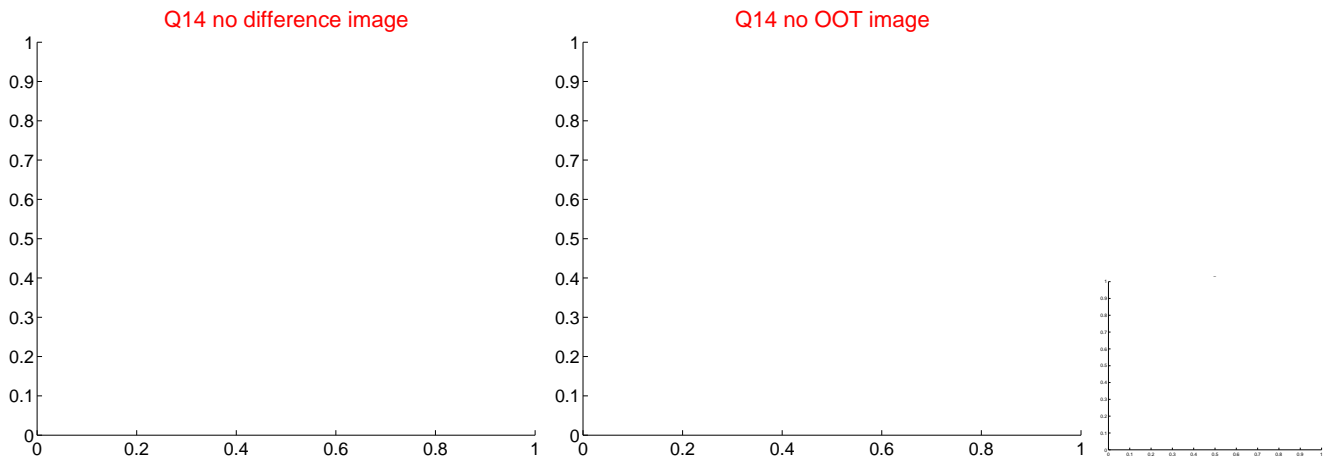
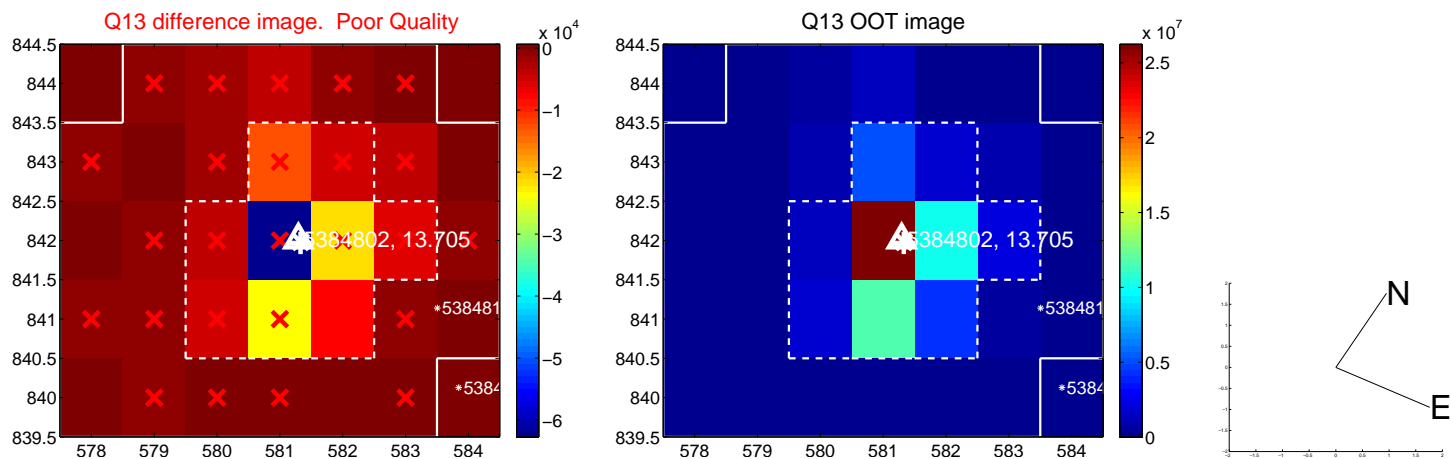
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



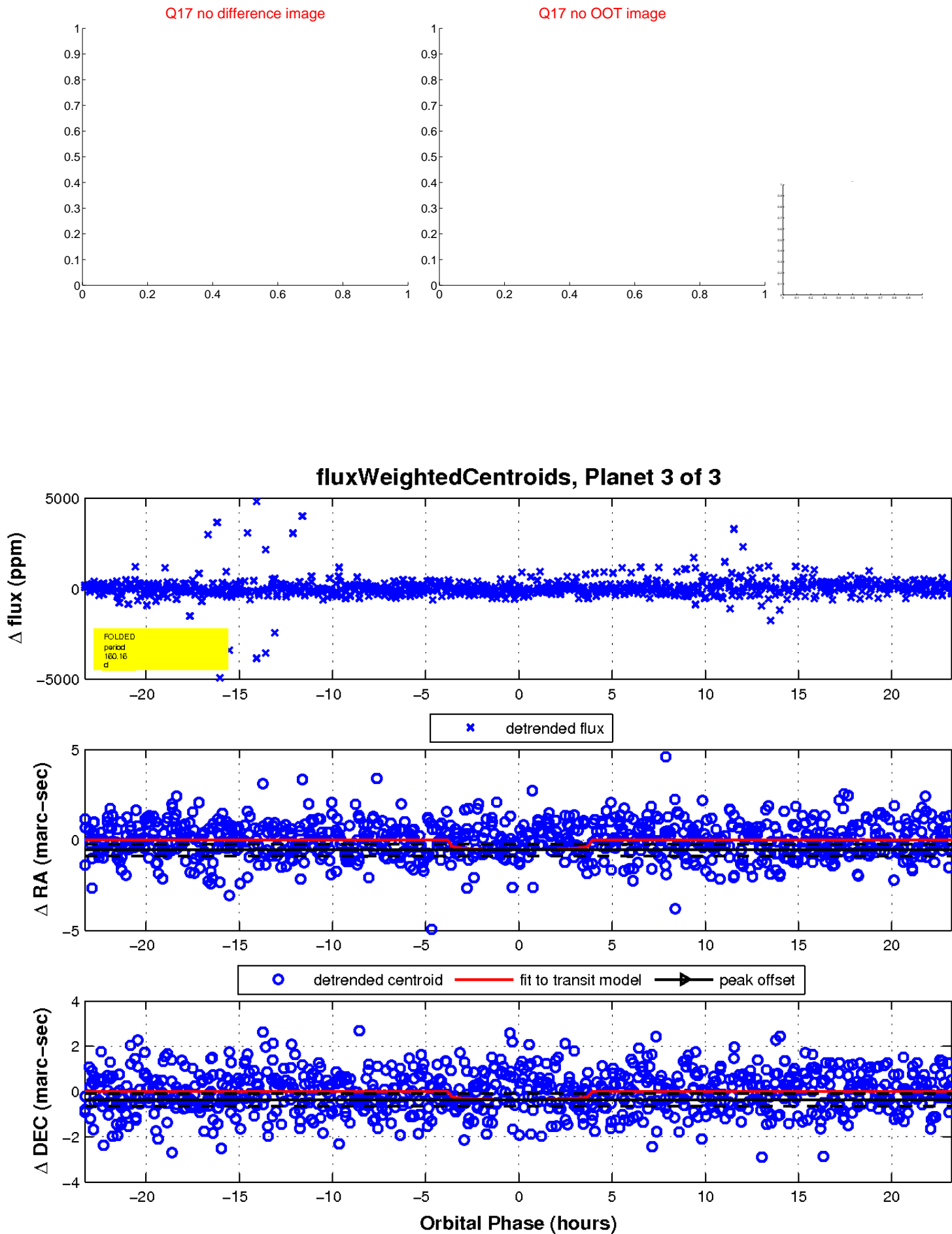
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

