

KIC 008748251

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008748251-01 | OBS | No | 0.996961 | 132.209459 | 6.7 | 7.301 | 9.1 | 1.9 | 9.21 | 7022 | 2.46 | 0.00 |
| 008748251-02 | OBS | No | 75.682127 | 150.935846 | 118.2 | 18.130 | 16.5 | 2.1 | 9.21 | 7022 | 10.70 | 711.78 |
| 008748251-03 | OBS | No | 20.985556 | 140.589908 | 185.2 | 18.111 | 13.3 | 5.8 | 9.21 | 7022 | 13.21 | 3936.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008748251-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—CENT_SATURATED |
| 008748251-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 008748251-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST |

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

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

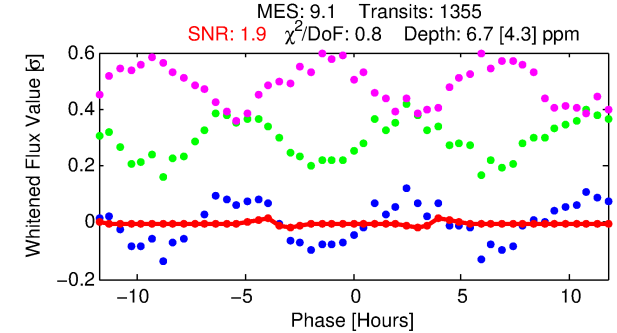
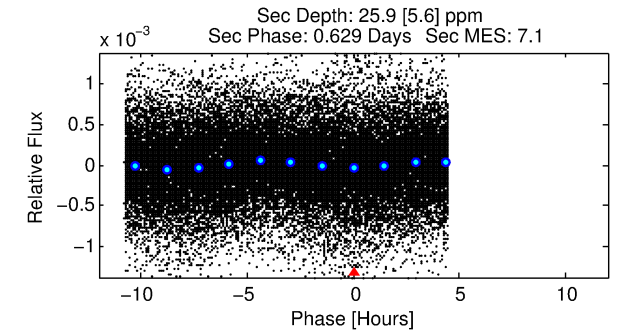
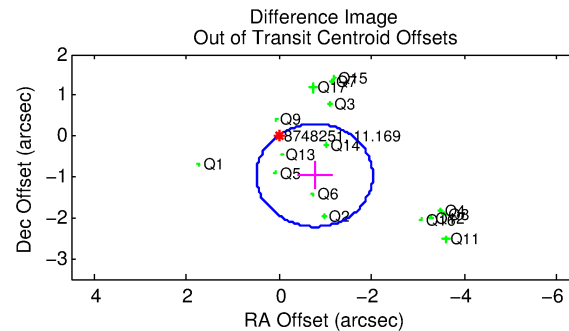
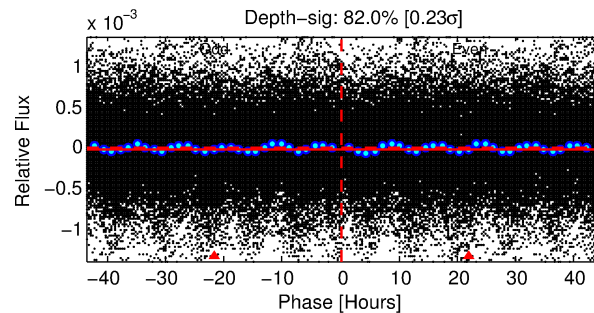
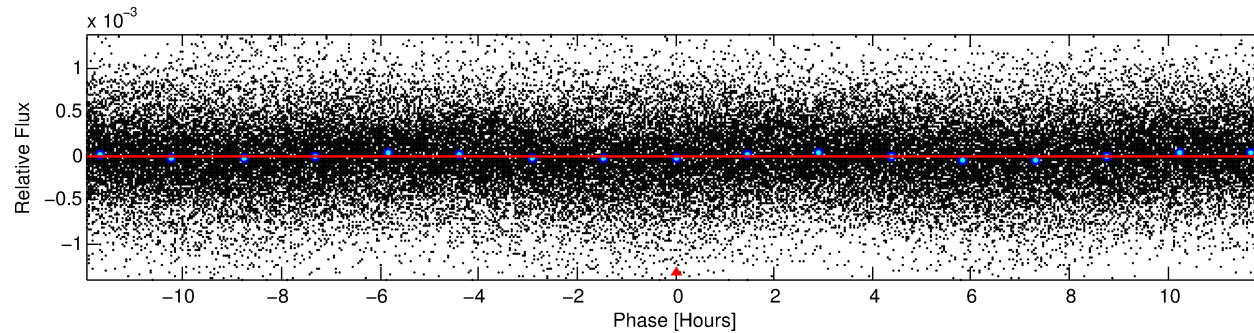
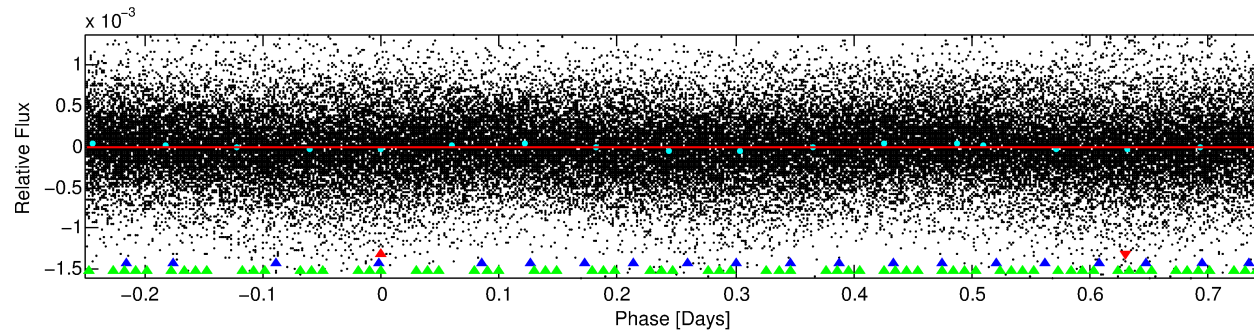
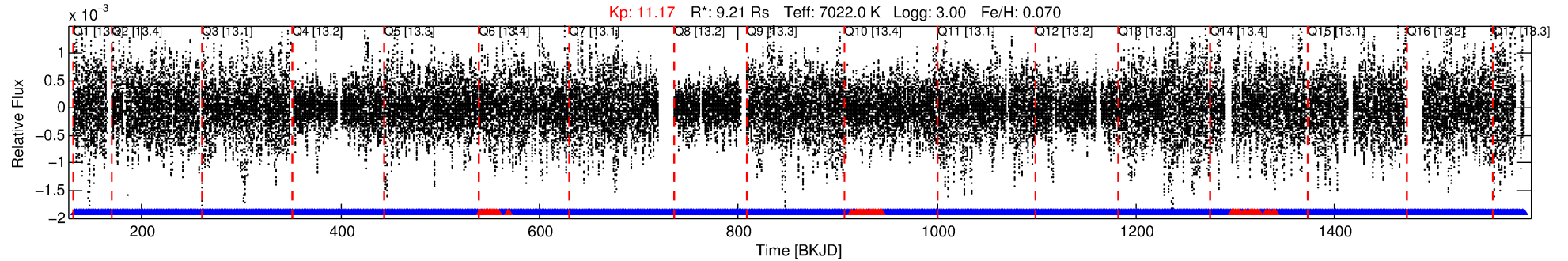
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748251-01

No Significant Match Found

DV One-Page Summary

KIC: 8748251 Candidate: 1 of 3 Period: 0.997 d



DV Fit Results:

Period = 0.99696 [0.00005] d
Epoch = 132.2095 [0.0075] BKJD
 R_p/R^* = 0.0024 [0.0016]
 a/R^* = 1.17 [1.14]
 b = 0.50 [5.33]
 Seff = N/A
 Teq = N/A
 R_p = 2.46 [2.16] R_e
 a = N/A
 Ag = N/A
 Teffp = N/A

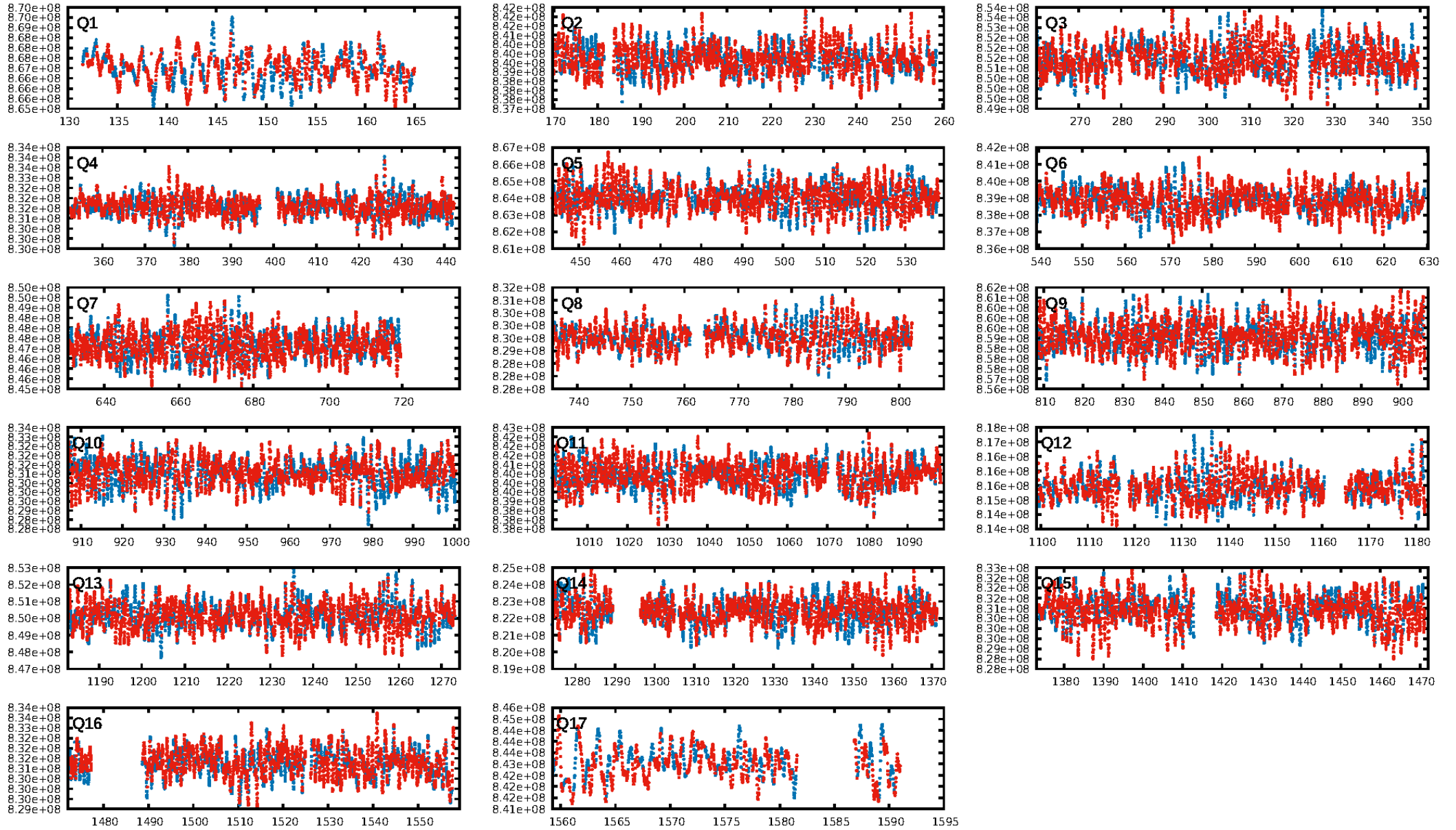
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [24.57 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.79e-17
RollingBand-fgt: 0.95 [1226/1294]
GhostDiagnostic-chr: -0.3207
Centroid-sig: 45.0%
Centroid-so: 1.213 arcsec [0.75 σ]
OotOffset-rm: 1.231 arcsec [2.94 σ]
KicOffset-rm: 1.113 arcsec [2.52 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [17/17]

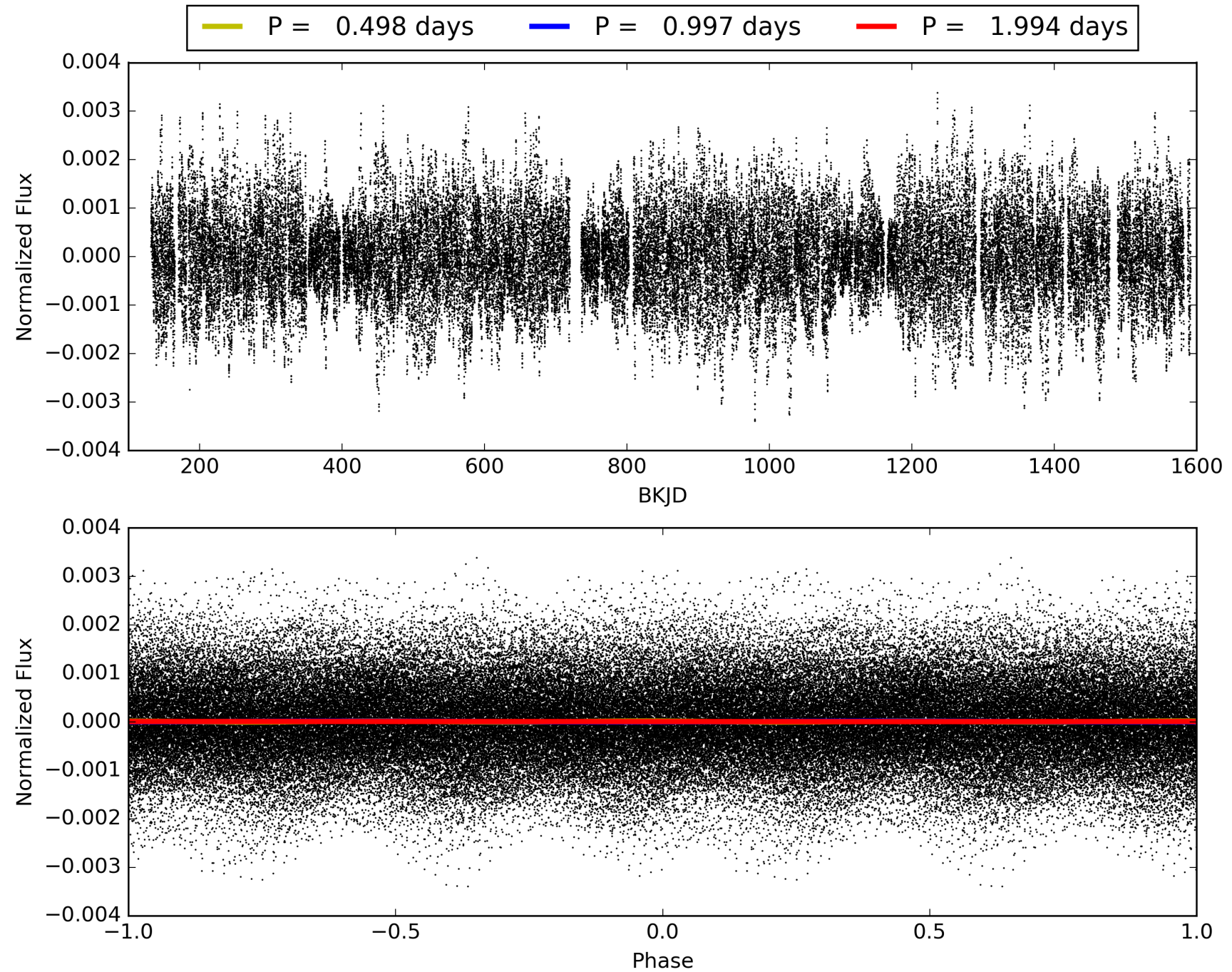
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:25:14 Z

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

TCE 008748251-01, PDC Light Curves

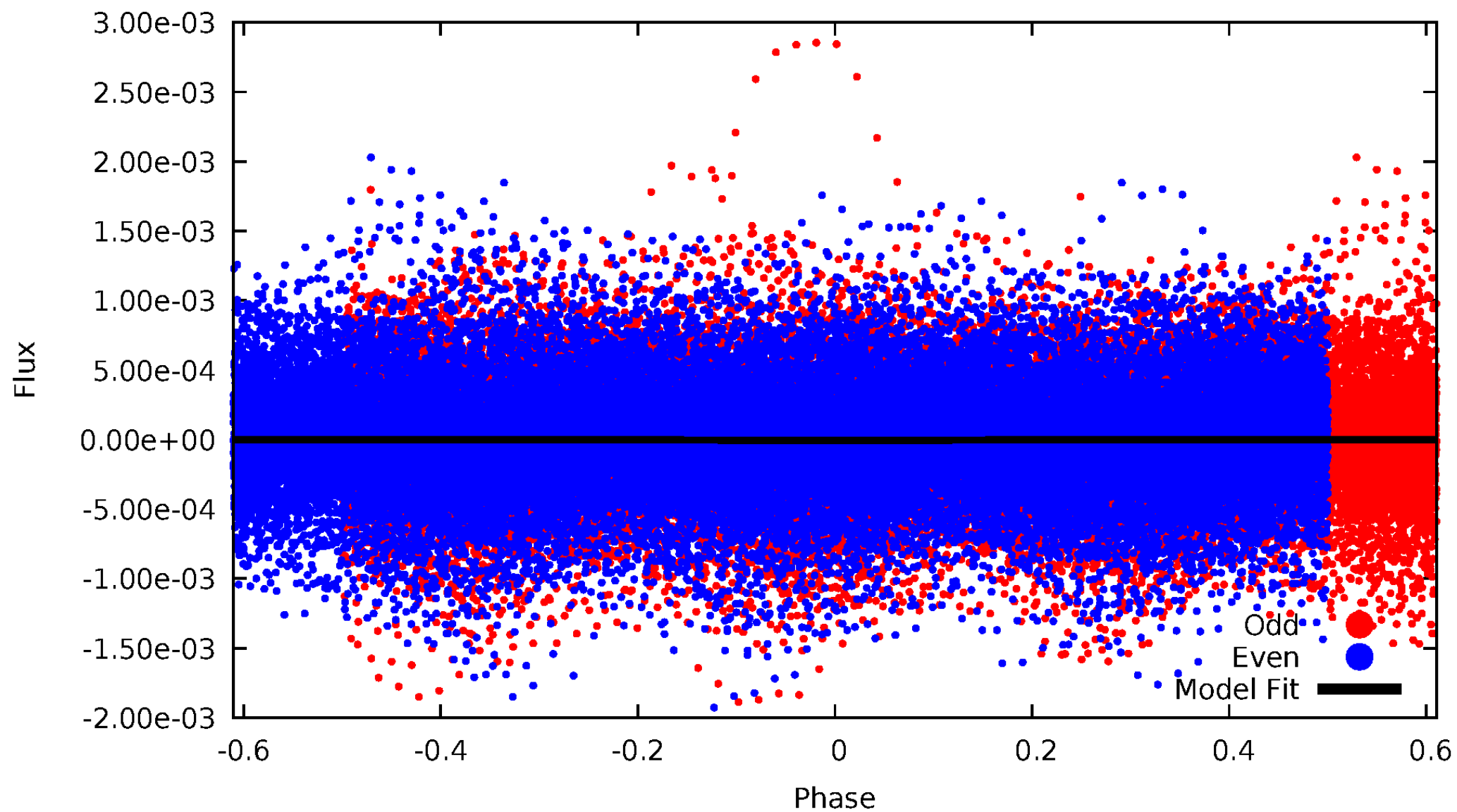


TCE 008748251-01



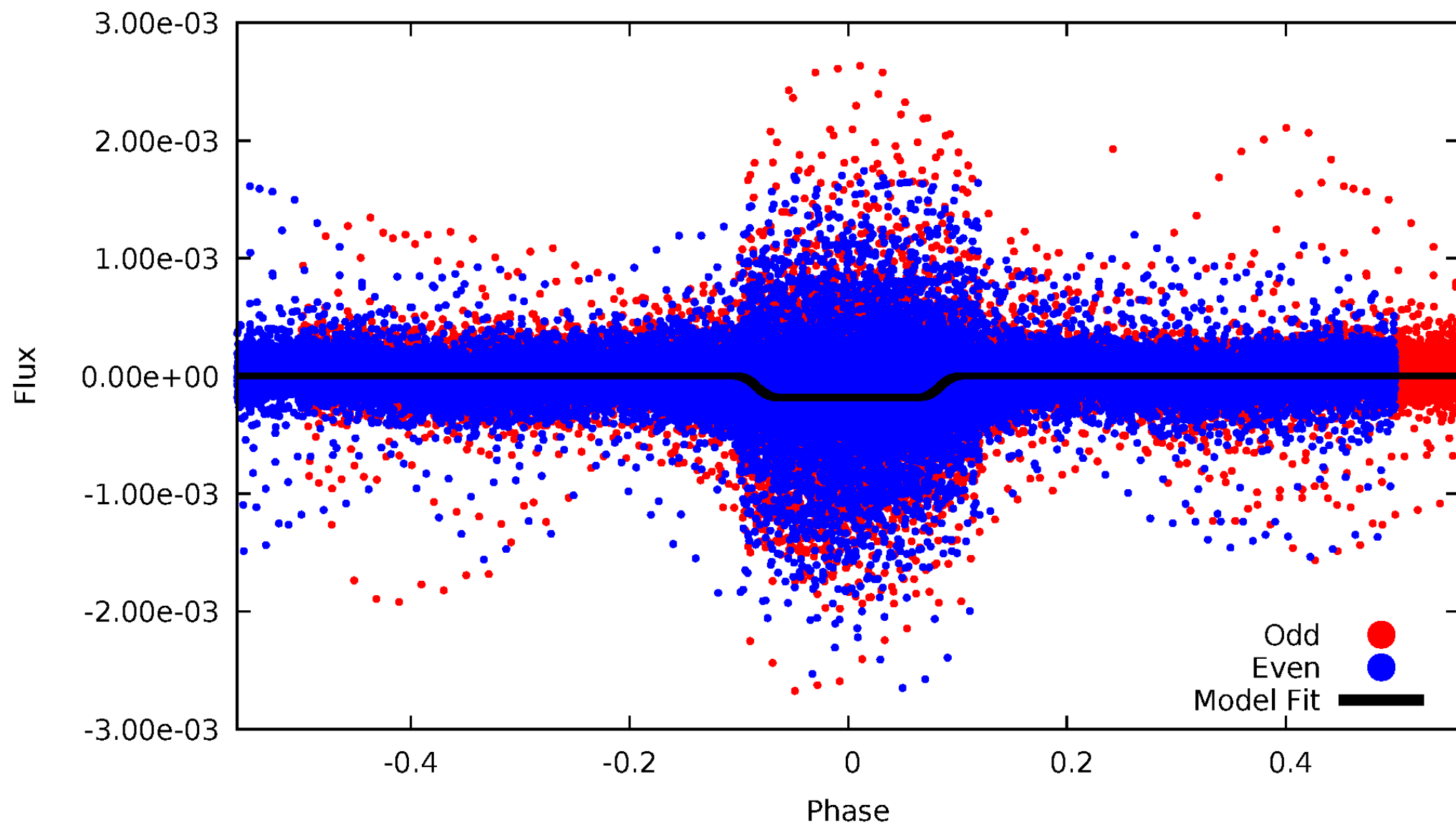
DV Odd/Even

TCE 008748251-01

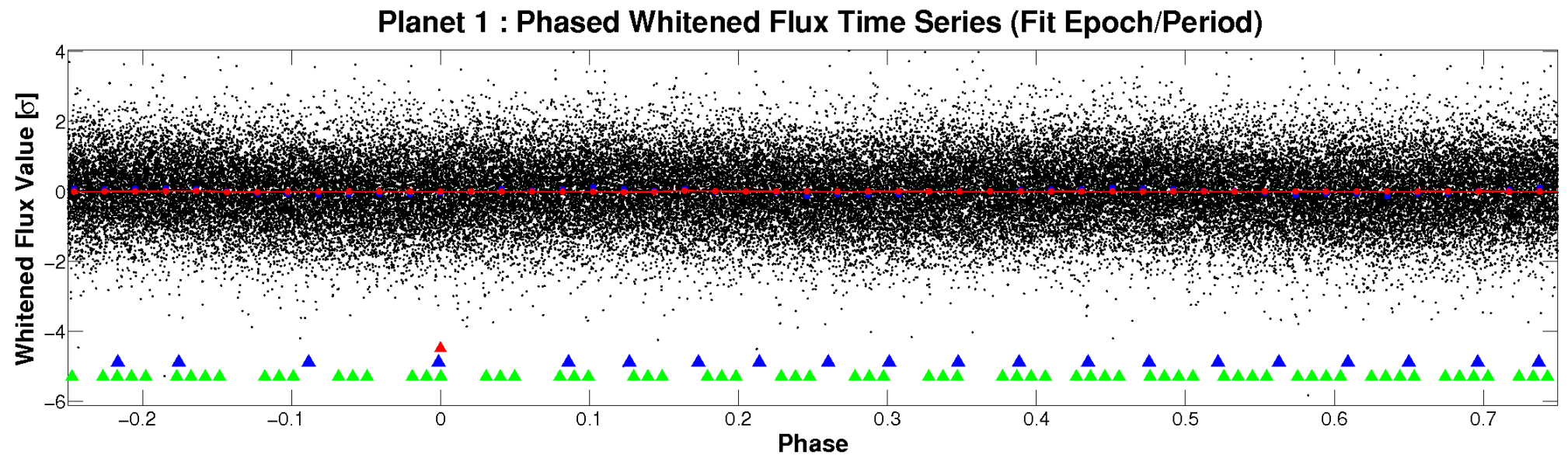
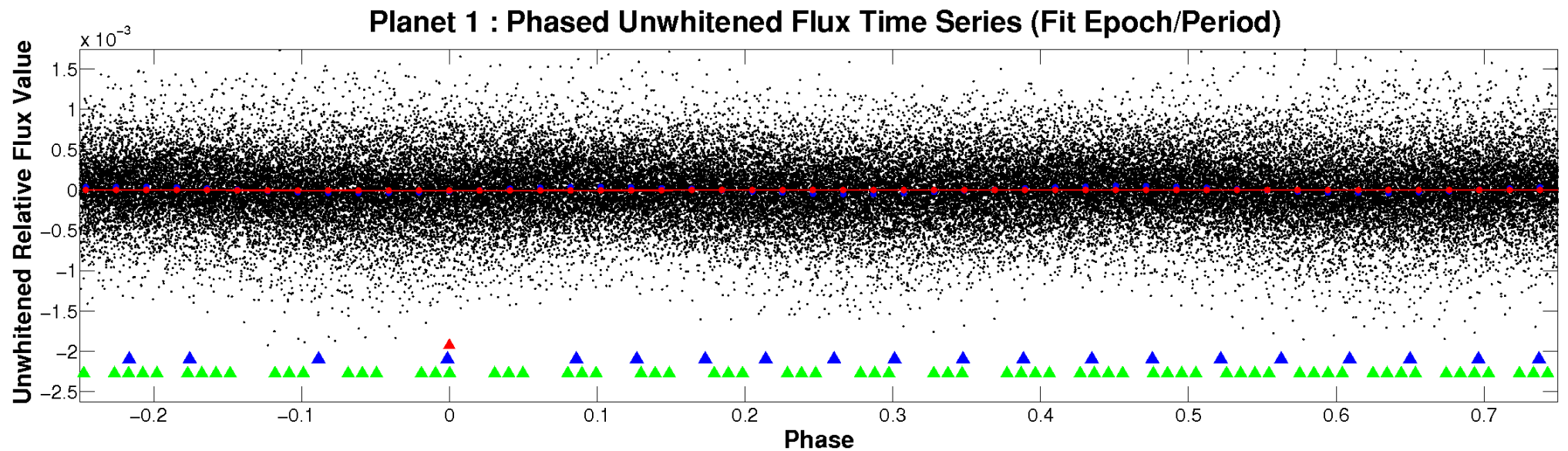


ALT Odd/Even

TCE 008748251-01

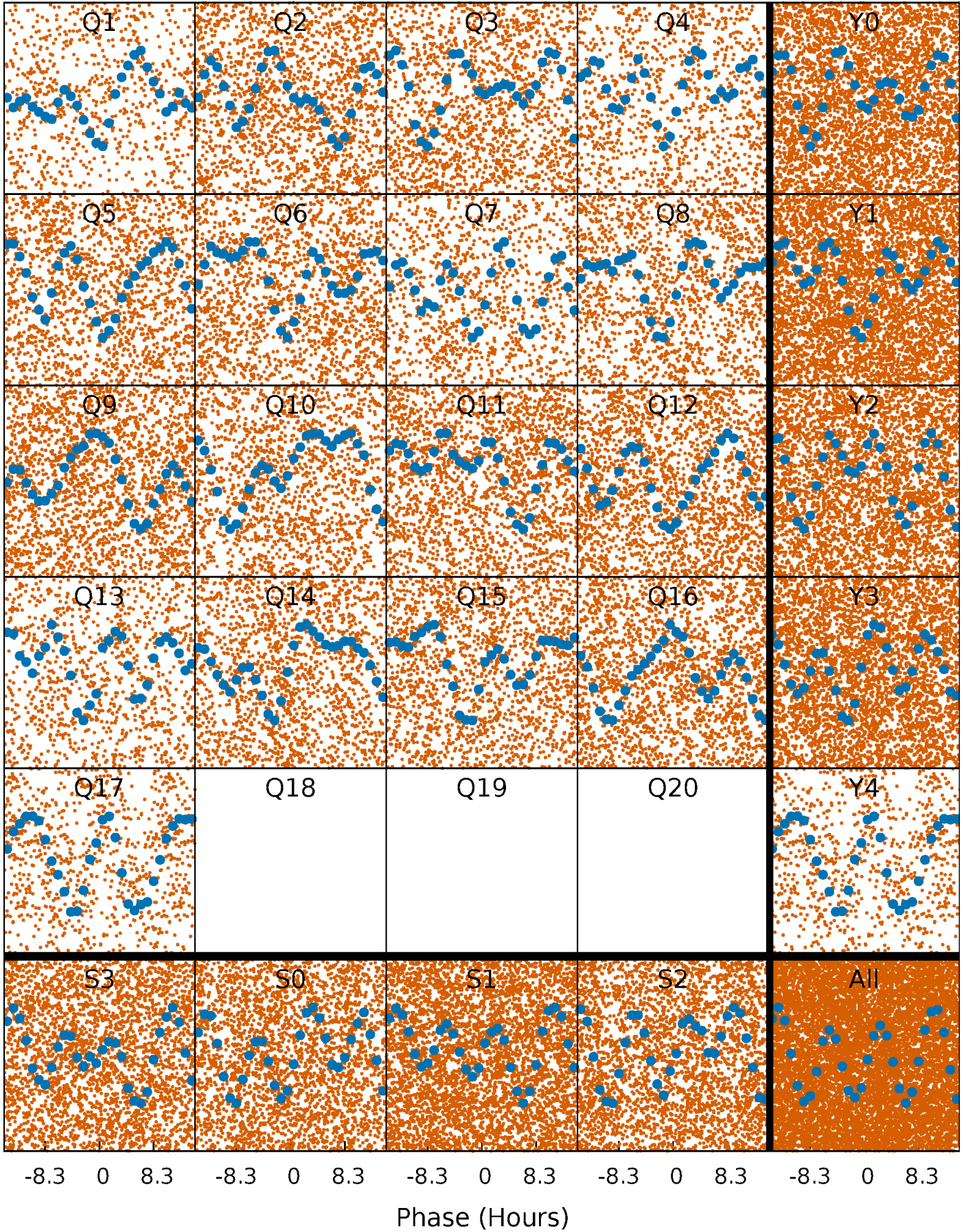


Non-Whitened Vs. Whitened Light Curve



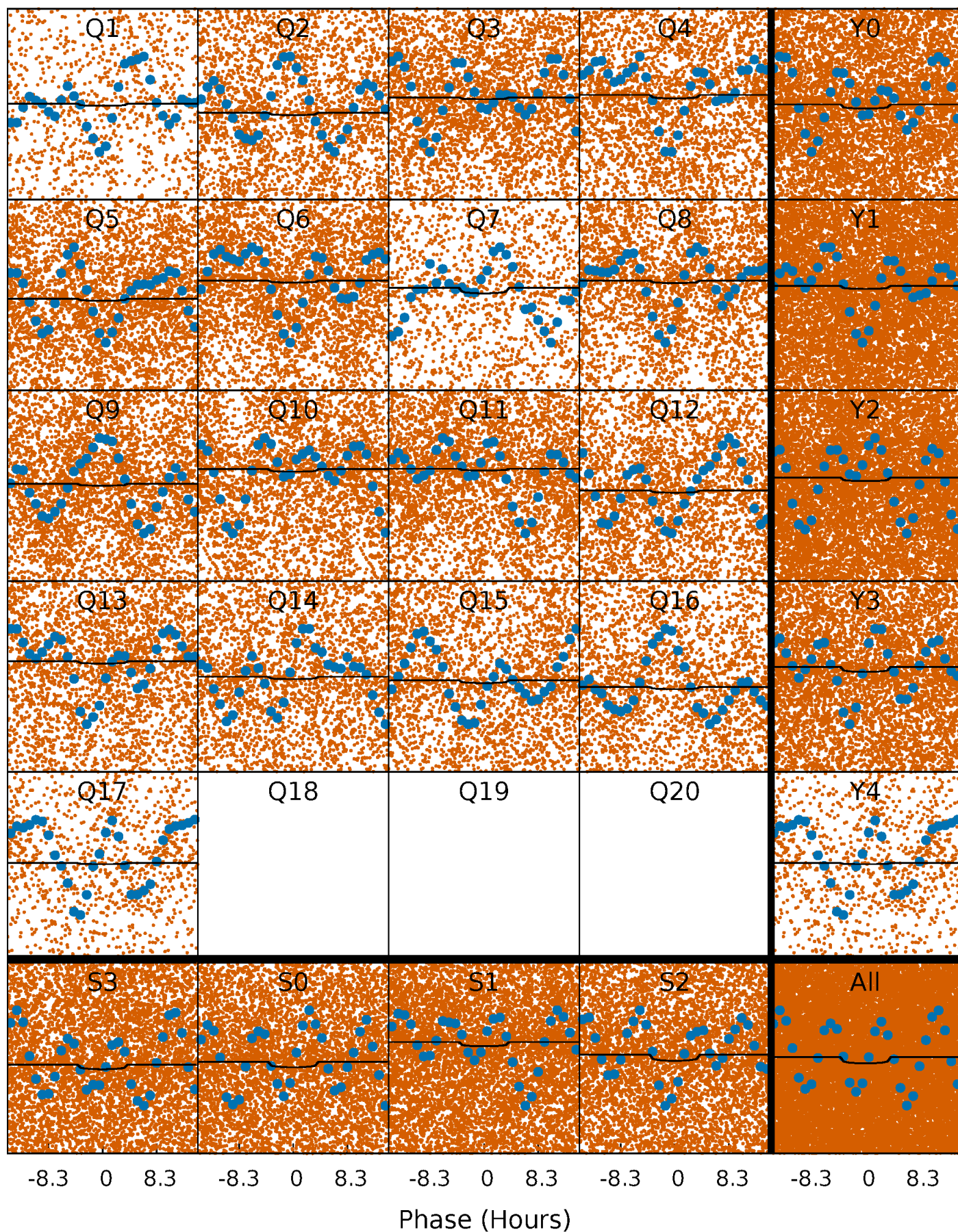
PDC Quarter-Phased Transit Curves

TCE 008748251-01 P= 0.996961 Days $T_0=132.209460$ (BKJD)



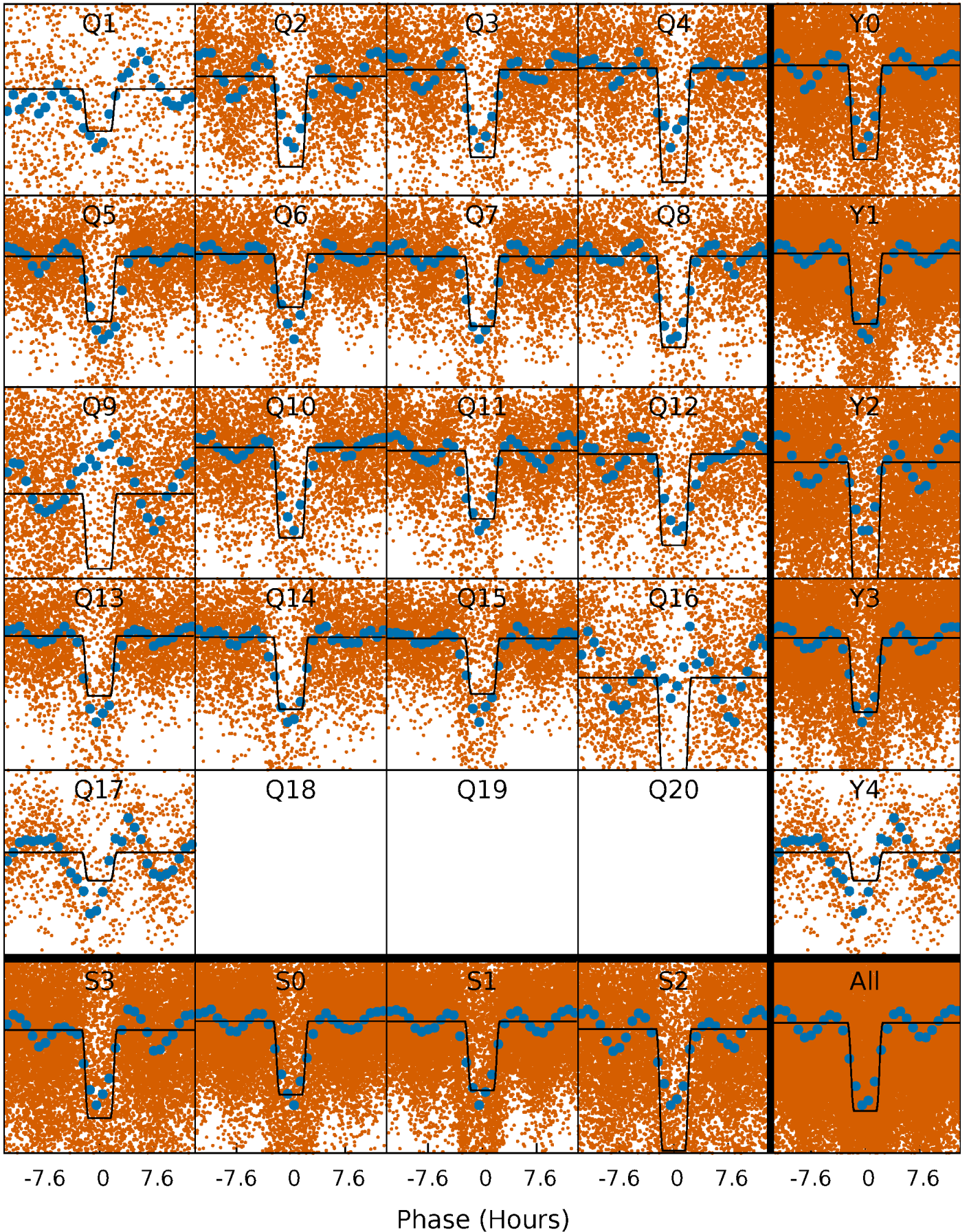
DV Quarter-Phased Transit Curves

TCE 008748251-01 P= 0.996961 Days $T_0=132.209460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

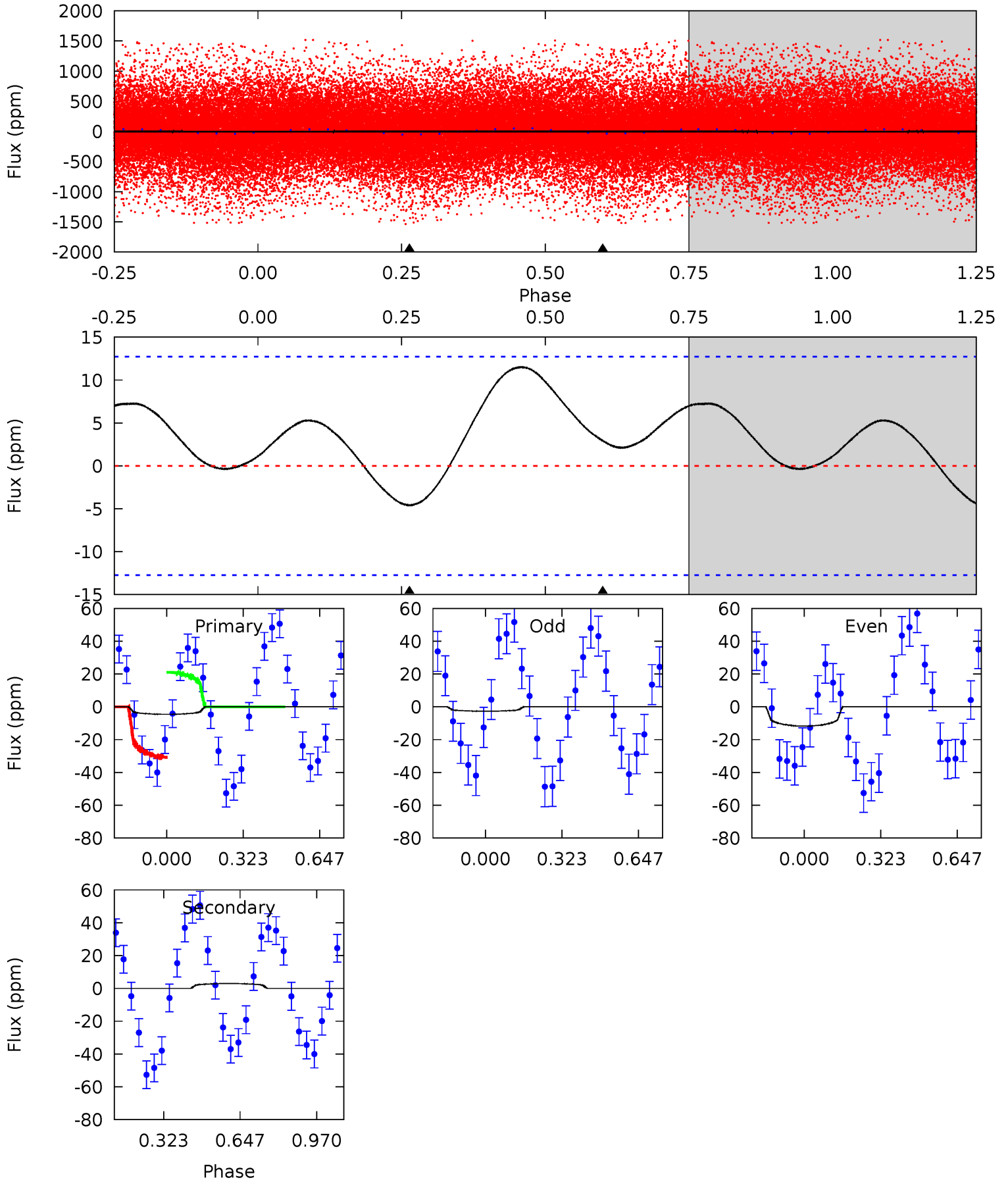
TCE 008748251-01 P= 0.996873 Days $T_0=132.217216$ (BKJD)



DV Model-Shift Uniqueness Test

008748251-01, P = 0.996961 Days, E = 131.212499 Days

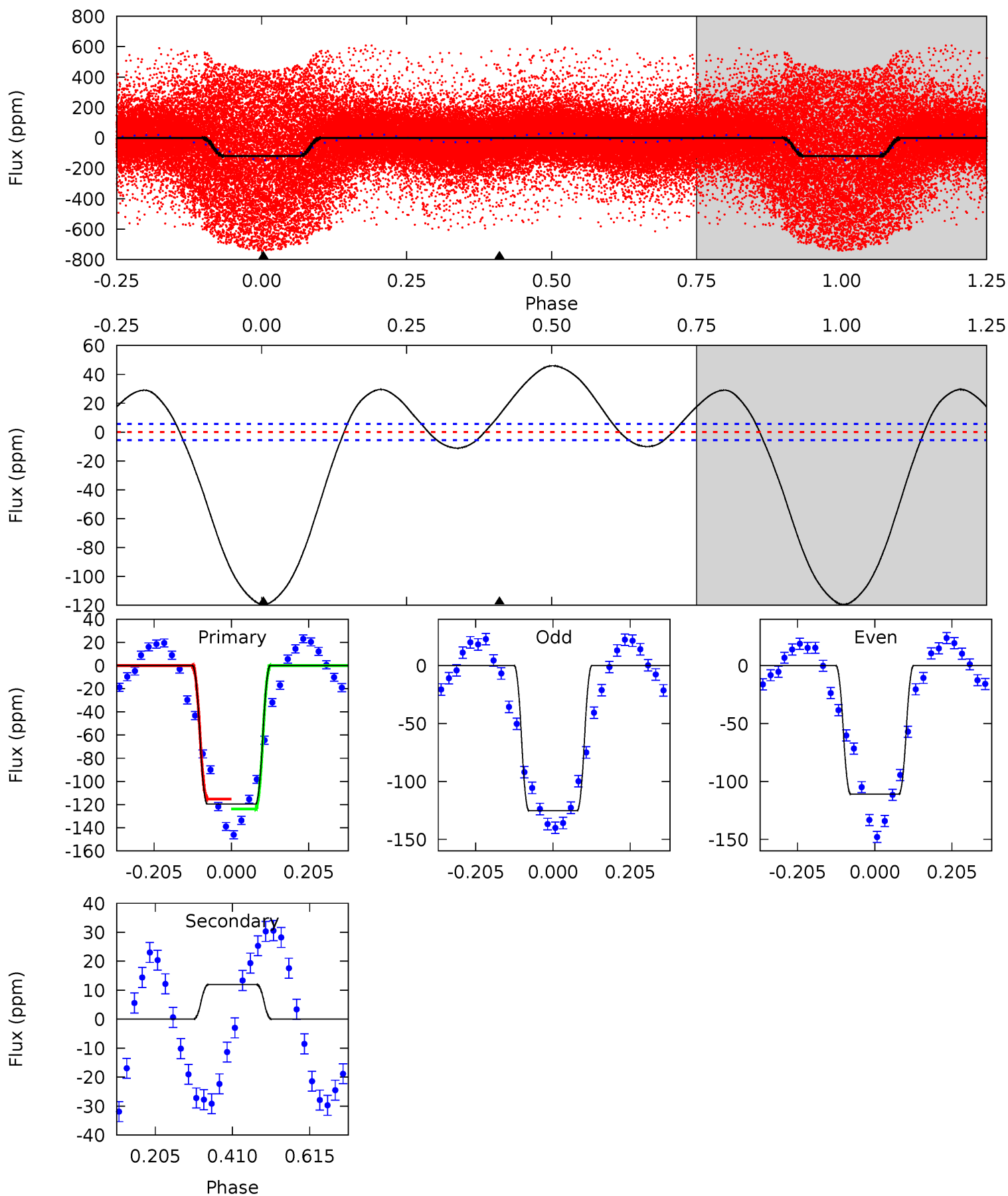
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 1.56 | -0.99 | 0 | 0 | 4.31 | 0.99 | 0.19 | 1.56 | 1.56 | -0.99 | -0.99 | 1.62 | -1.14 | 0.71 | 1.68 |



Alt Model-Shift Uniqueness Test

008748251-01, P = 0.996873 Days, E = 131.220343 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 94.0 | -9.41 | 0 | 0 | 4.41 | 1.27 | 10.8 | 94.0 | 94.0 | -9.41 | -9.41 | 5.55 | 1.18 | 0.28 | 3.45 |



Stellar Parameters For KIC 008748251

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7022^{+157}_{-226} | $2.998^{+0.612}_{-0.072}$ | $0.070^{+0.200}_{-0.250}$ | $9.213^{+1.025}_{-5.467}$ | $3.080^{+0.205}_{-1.163}$ | $0.006^{+0.058}_{-0.001}$ |
| | +2%/-3% | +20%/-2% | +286%/-357% | +11%/-59% | +7%/-38% | +1048%/-24% |
| Source | PHO1 | FLK73 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 008748251-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|-------------------------|-----------------------|-------------------------|----------------------------|
| DV | 3 ± 3 | $2.14^{+1.57}_{-1.21}$ | 7465^{+517}_{-1114} | -7009^{+1307}_{-2485} | $-0.227^{+0.225}_{-1.145}$ |
| Alt. | 12 ± 1 | $12.33^{+2.80}_{-4.08}$ | 7527^{+472}_{-1207} | -6278^{+836}_{-400} | $-0.035^{+0.011}_{-0.035}$ |

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

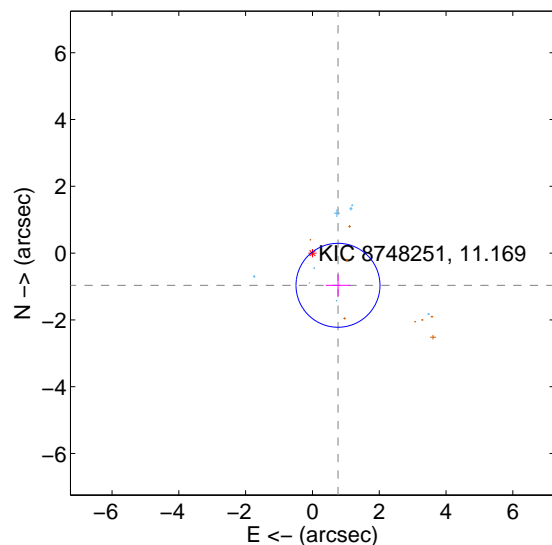
Supplemental centroid analysis for 008748251-01. **Kepler magnitude: 11.17.** Transit SNR 1.90

There are 8 quarters with good PRF difference image offsets

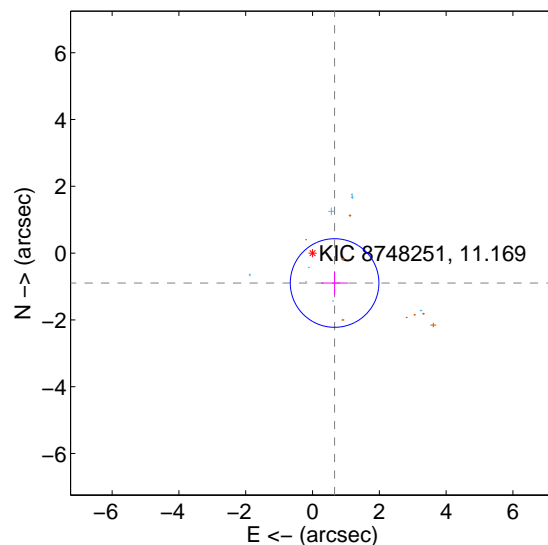
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 1.231 ± 0.419 | 2.94 | -0.765 ± 0.365 | -0.964 ± 0.329 |
| PRF-fit source offset from KIC position | 1.113 ± 0.442 | 2.52 | -0.661 ± 0.401 | -0.896 ± 0.351 |
| photometric centroid source offset | 1.21 ± 1.61 | 0.75 | -1.16 ± 1.59 | -0.35 ± 1.81 |

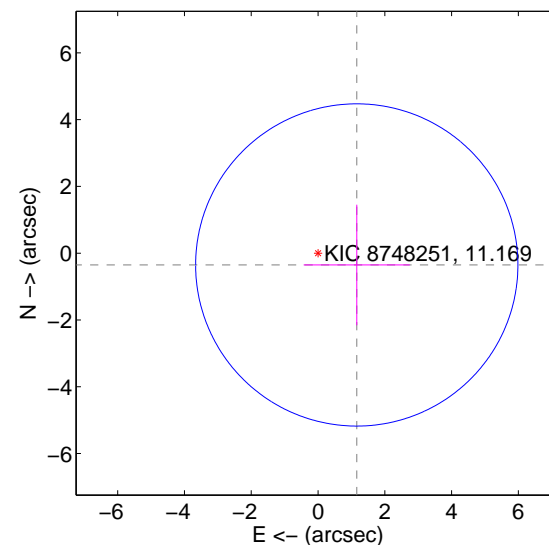
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

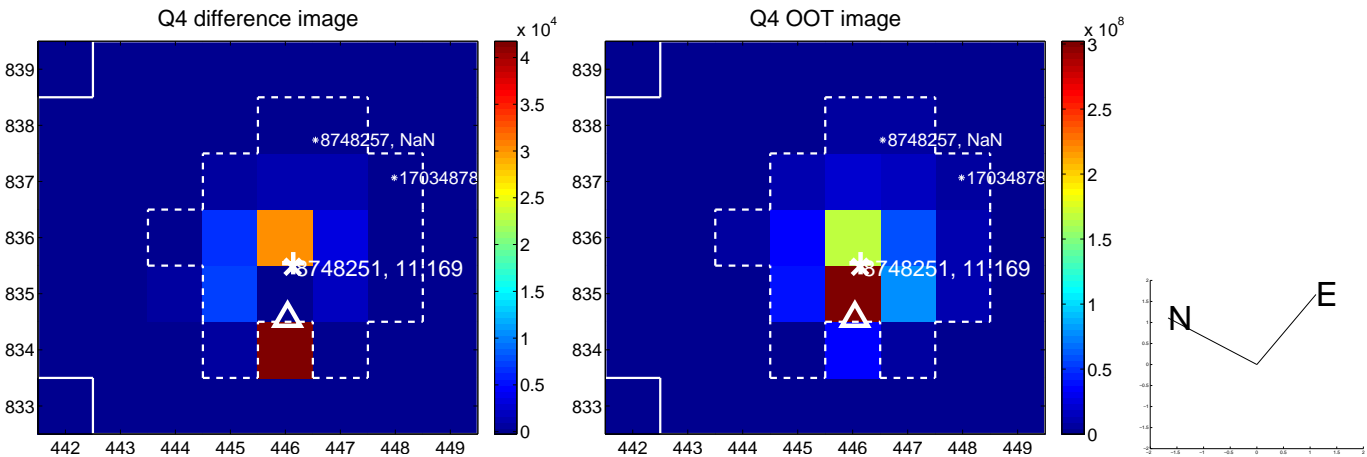
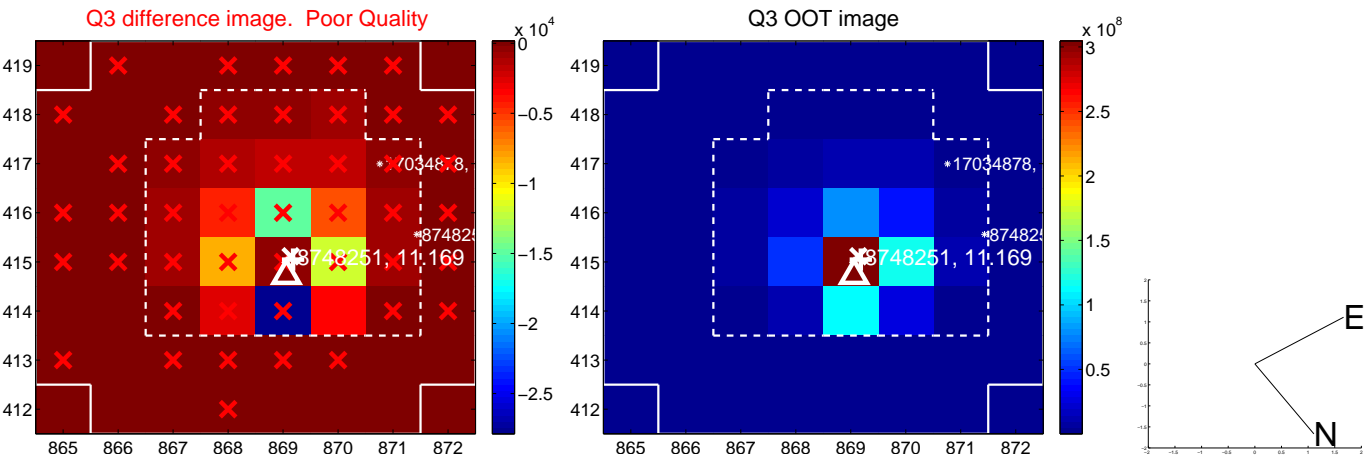
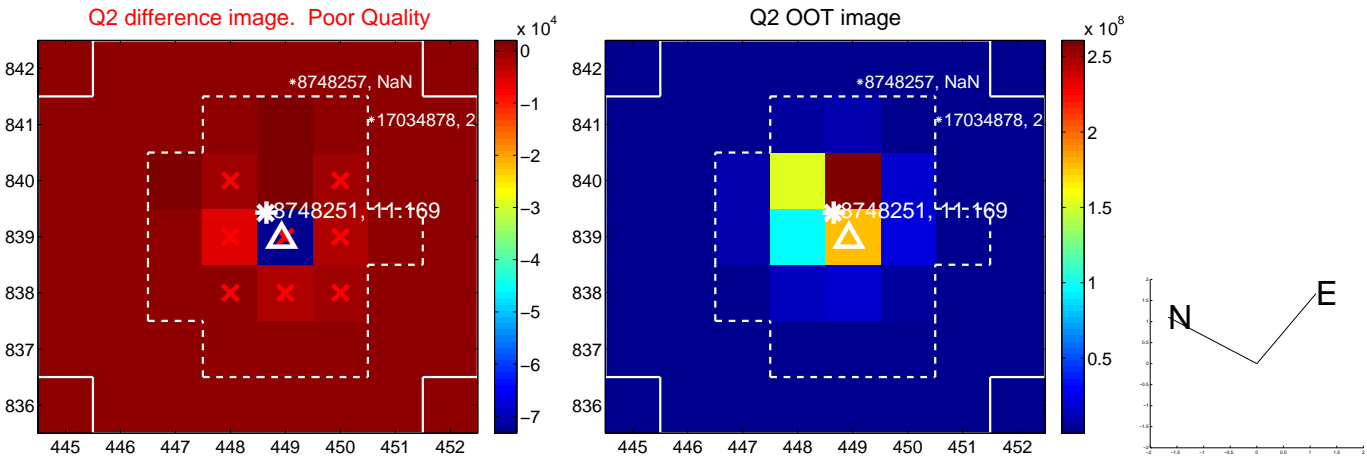
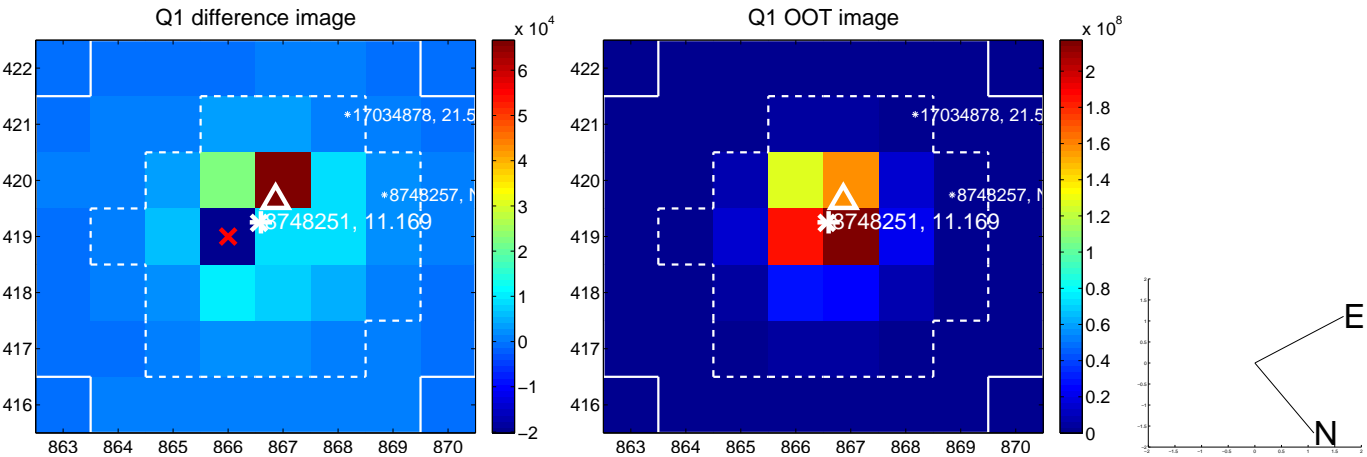


offset from photometric centroids

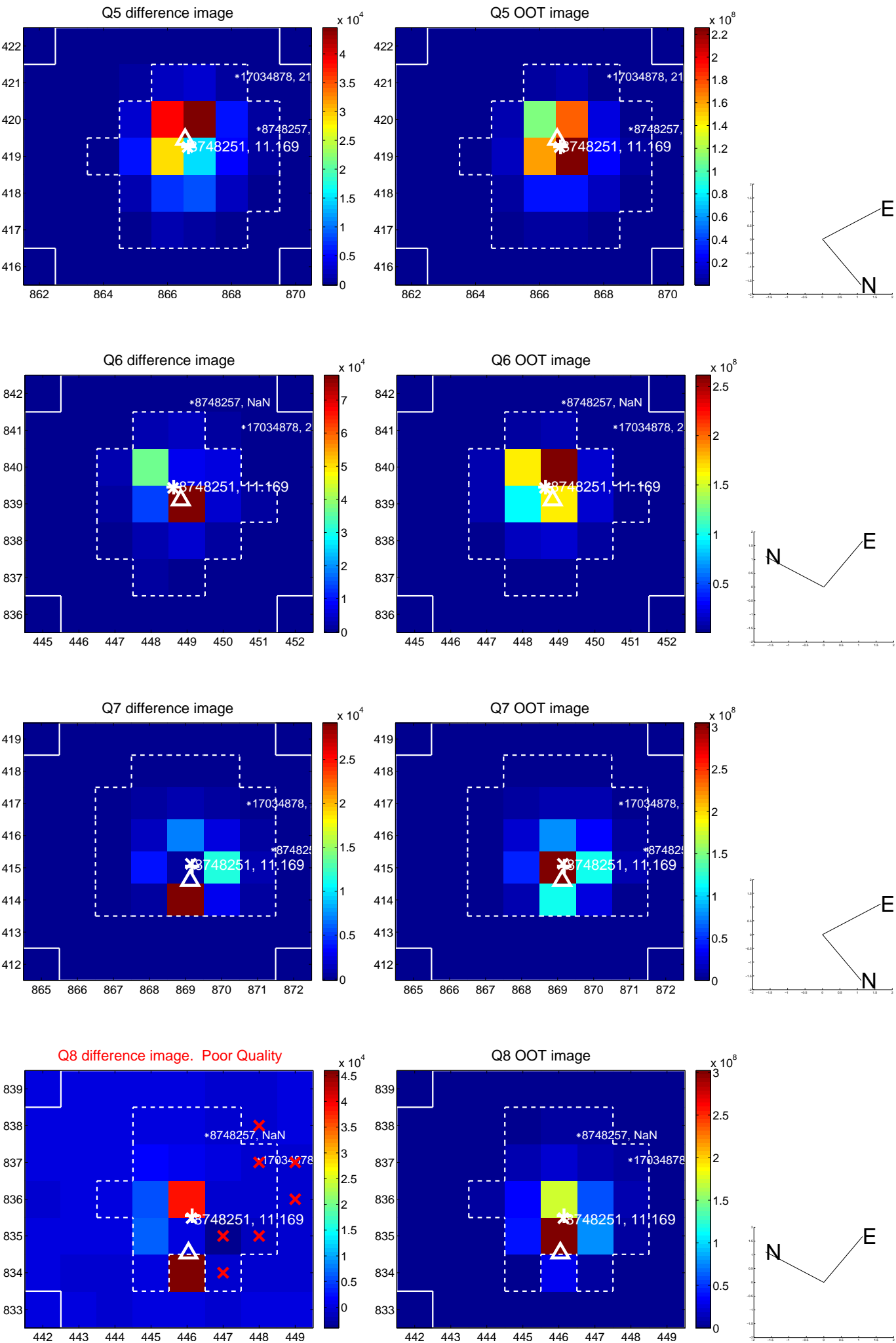


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

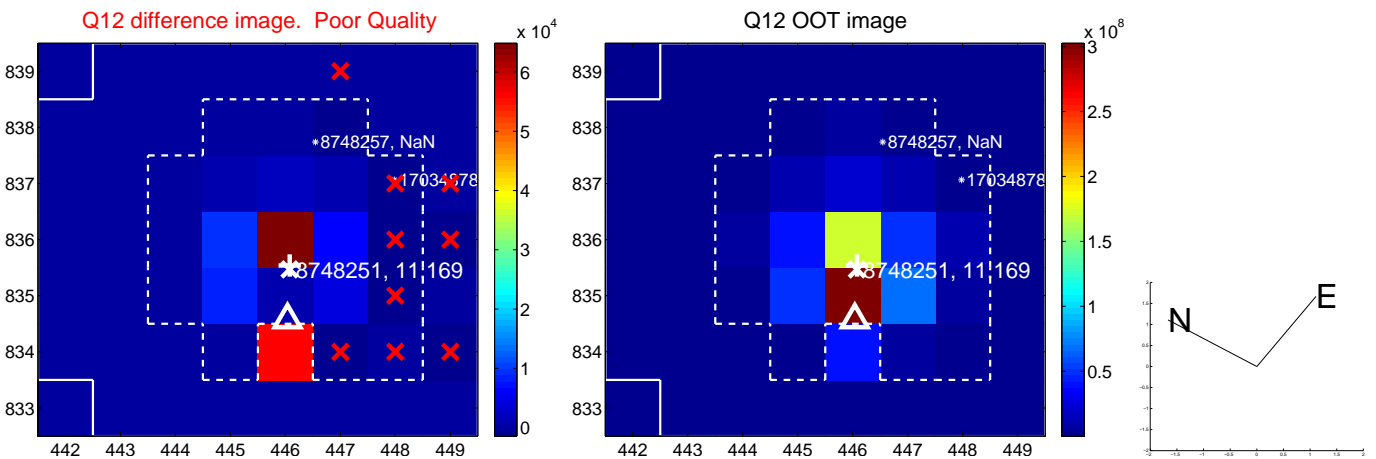
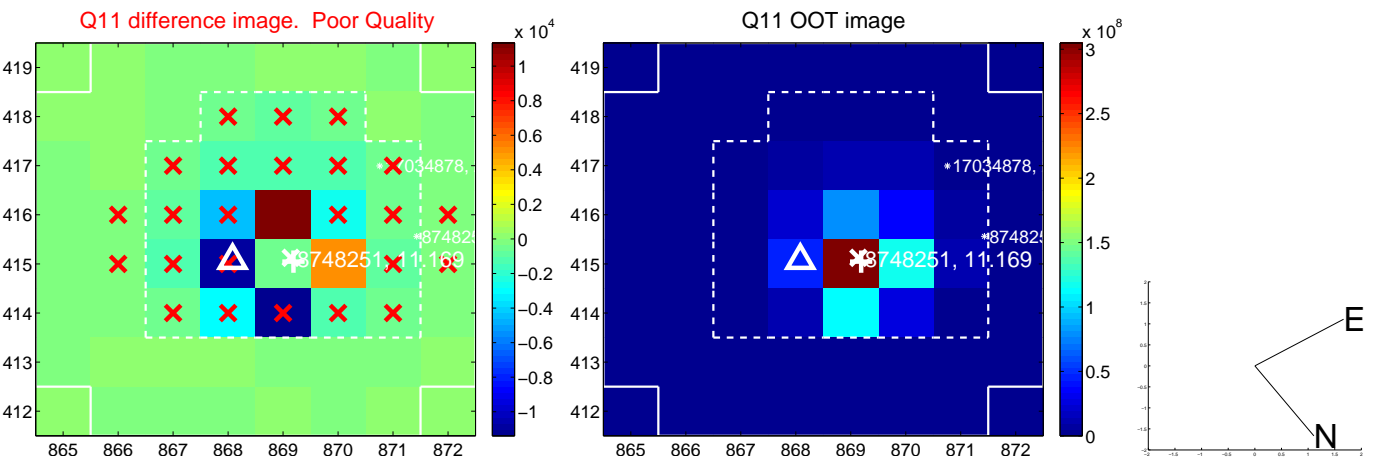
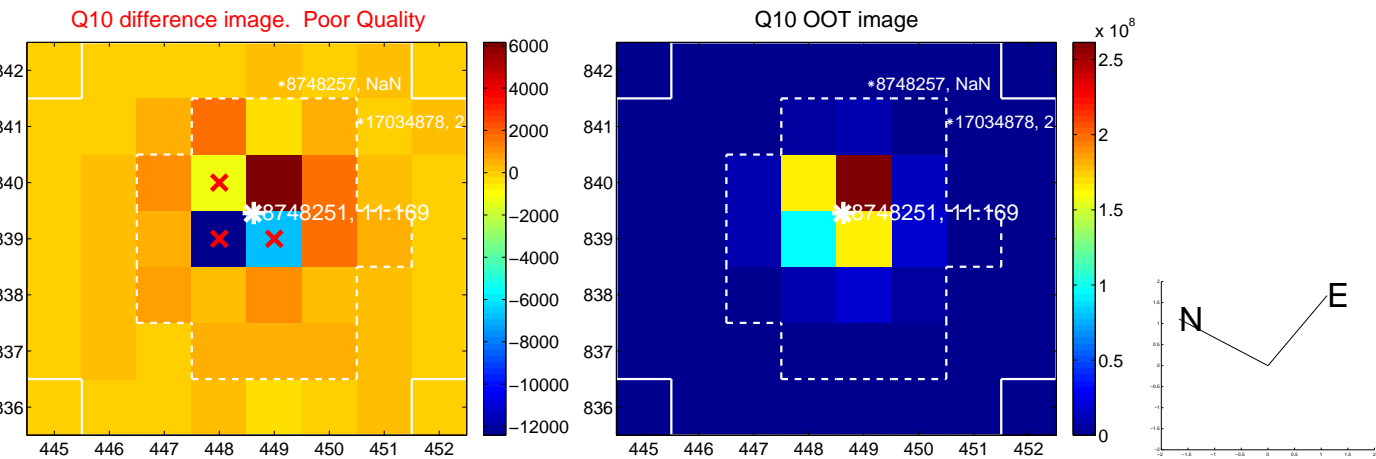
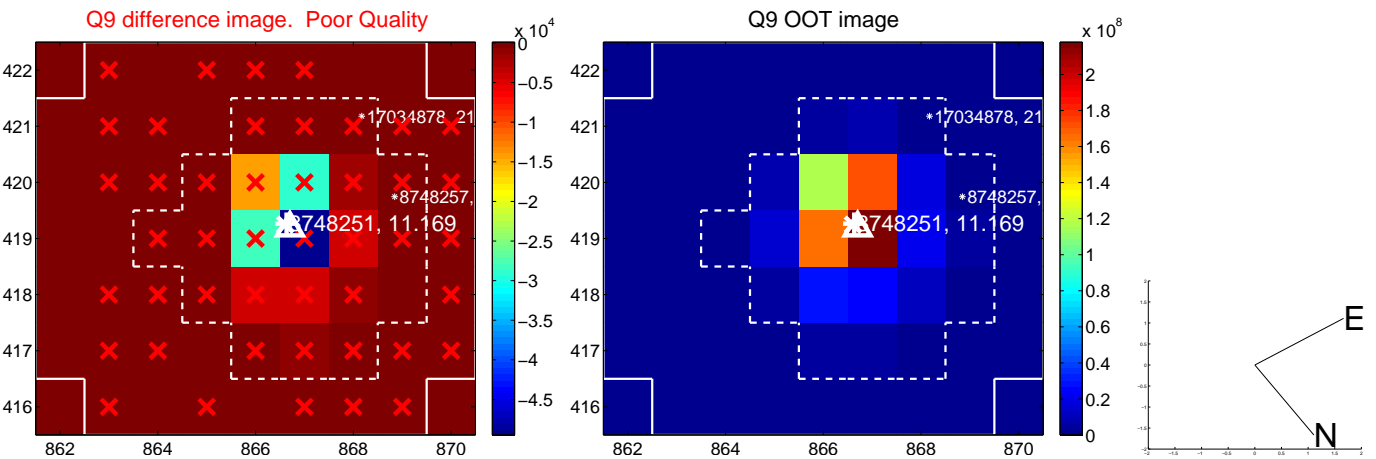
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



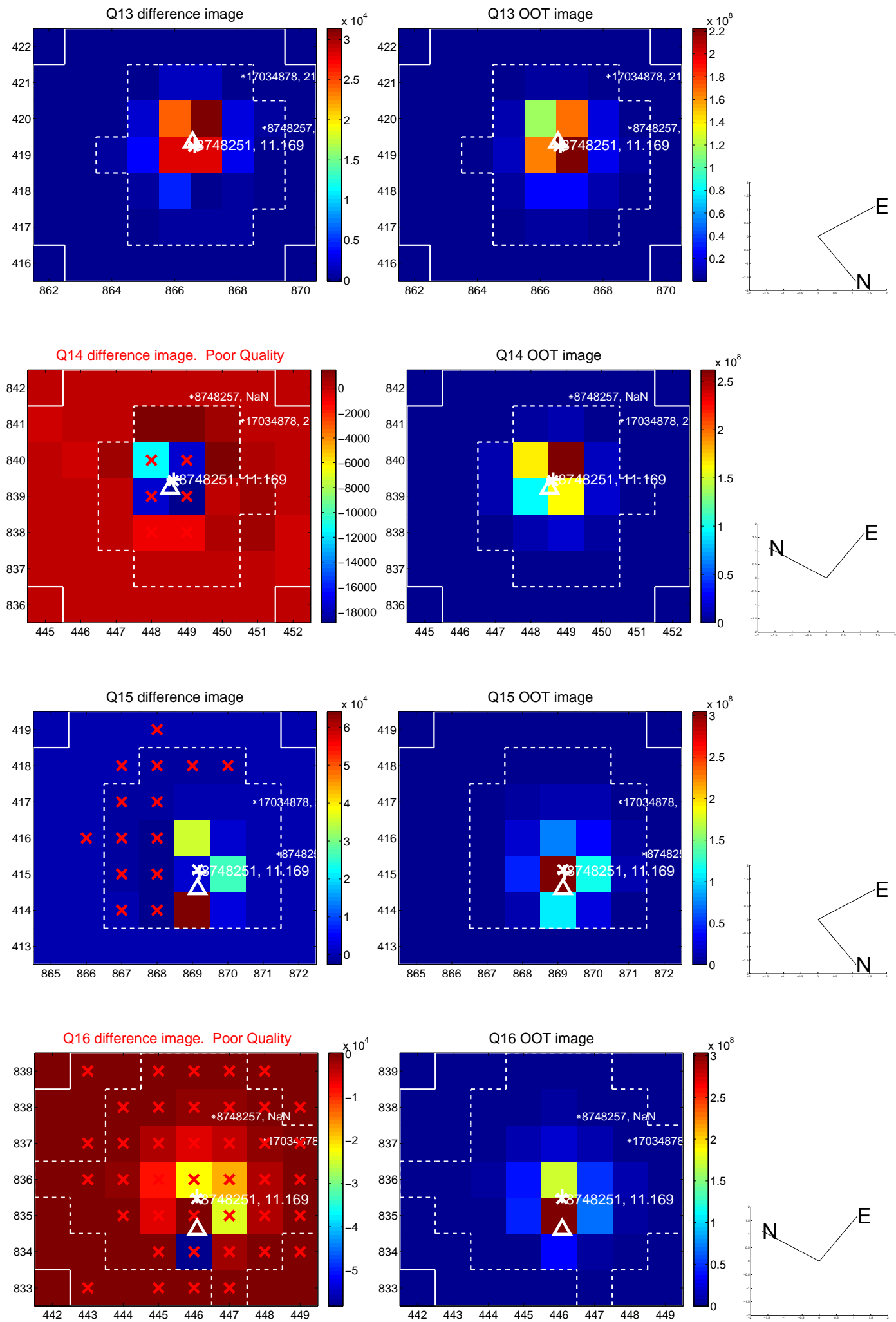
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



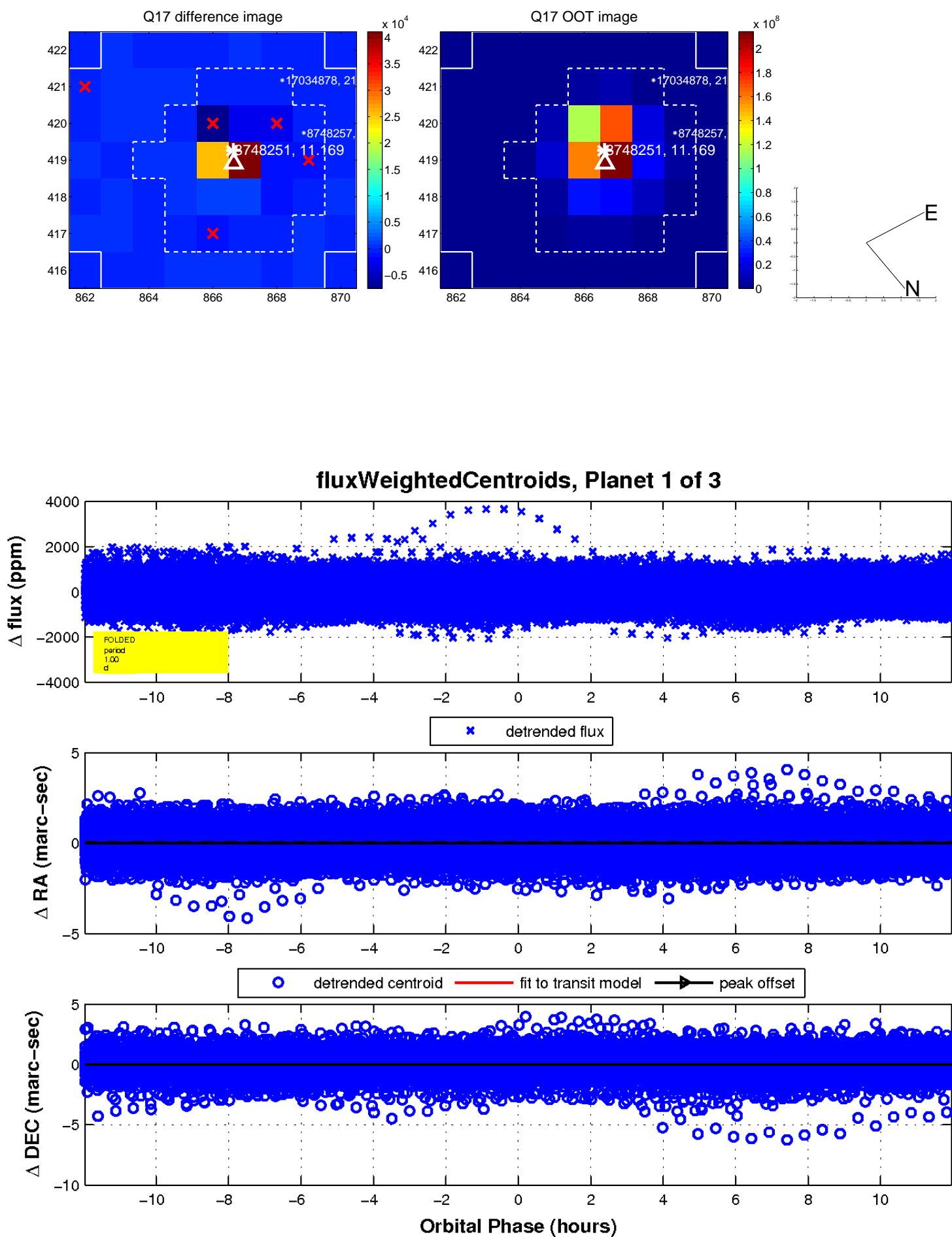
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

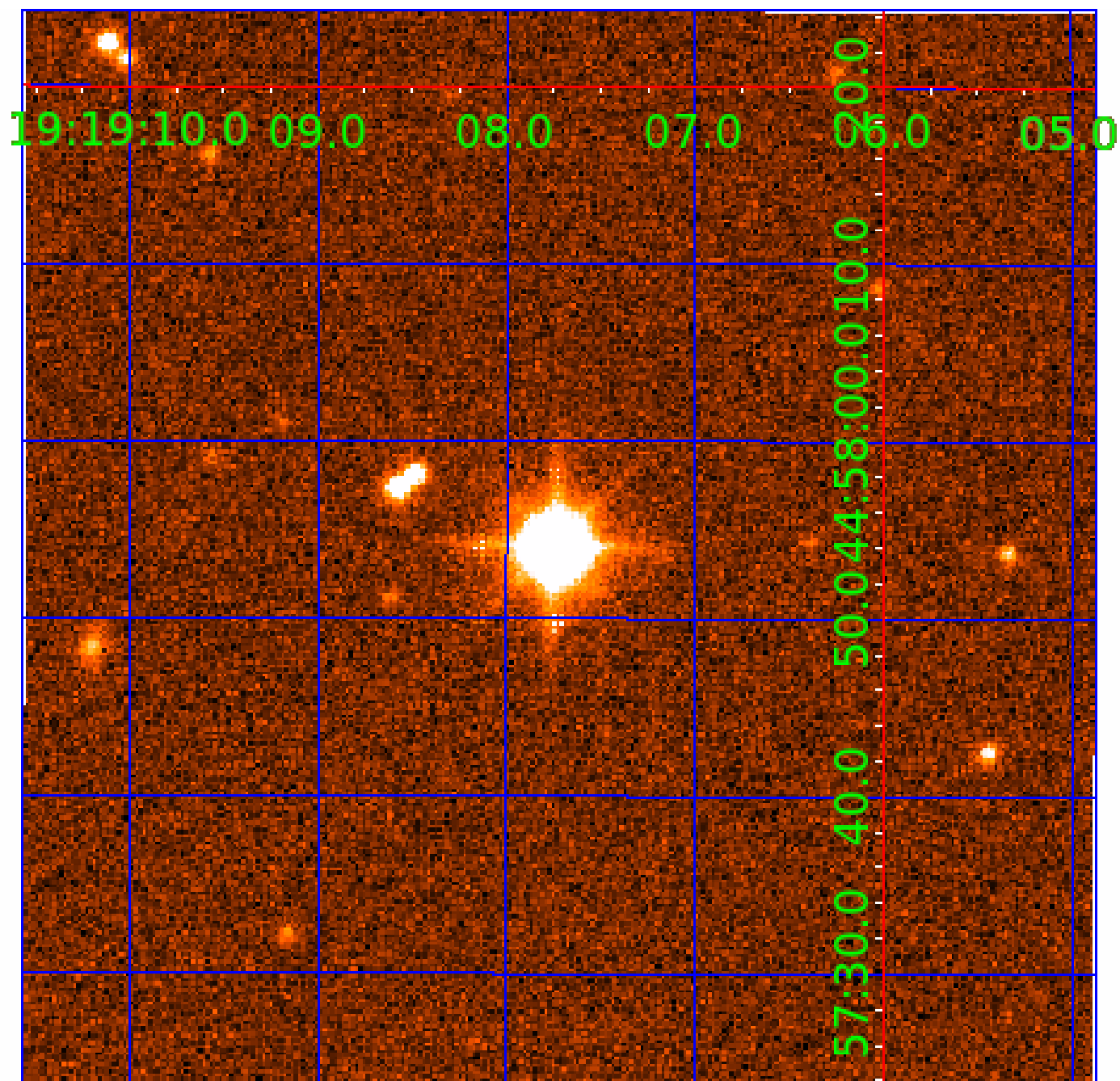


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008748251

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008748251-01 | OBS | No | 0.996961 | 132.209459 | 6.7 | 7.301 | 9.1 | 1.9 | 9.21 | 7022 | 2.46 | 0.00 |
| 008748251-02 | OBS | No | 75.682127 | 150.935846 | 118.2 | 18.130 | 16.5 | 2.1 | 9.21 | 7022 | 10.70 | 711.78 |
| 008748251-03 | OBS | No | 20.985556 | 140.589908 | 185.2 | 18.111 | 13.3 | 5.8 | 9.21 | 7022 | 13.21 | 3936.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008748251-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—CENT_SATURATED |
| 008748251-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 008748251-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST |

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

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

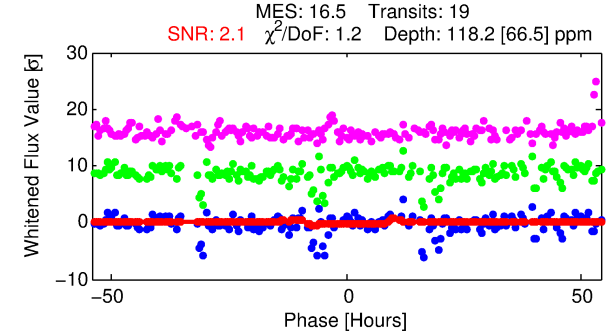
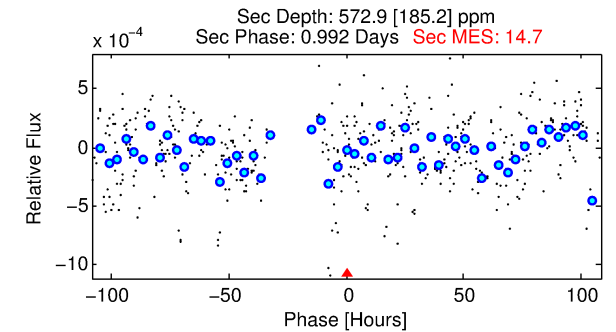
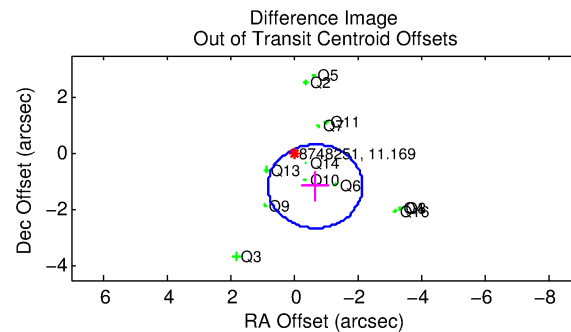
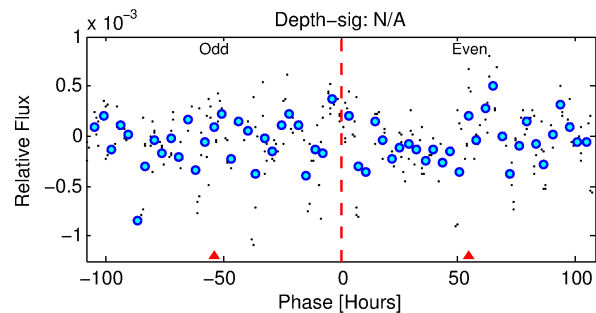
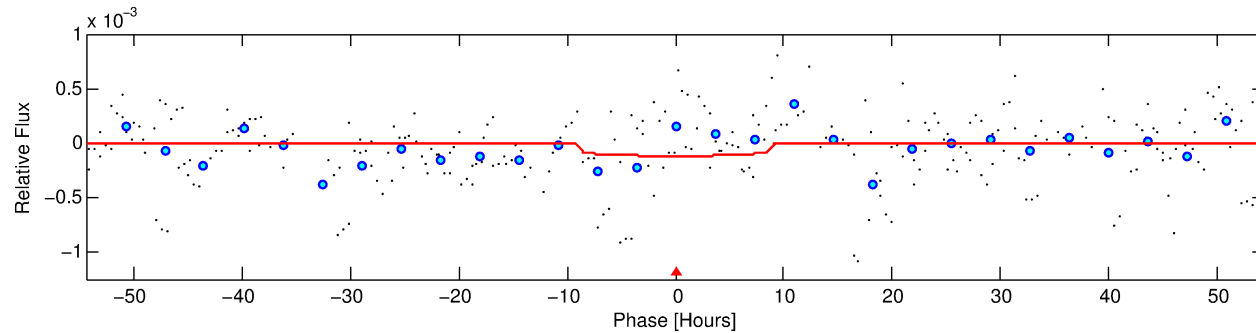
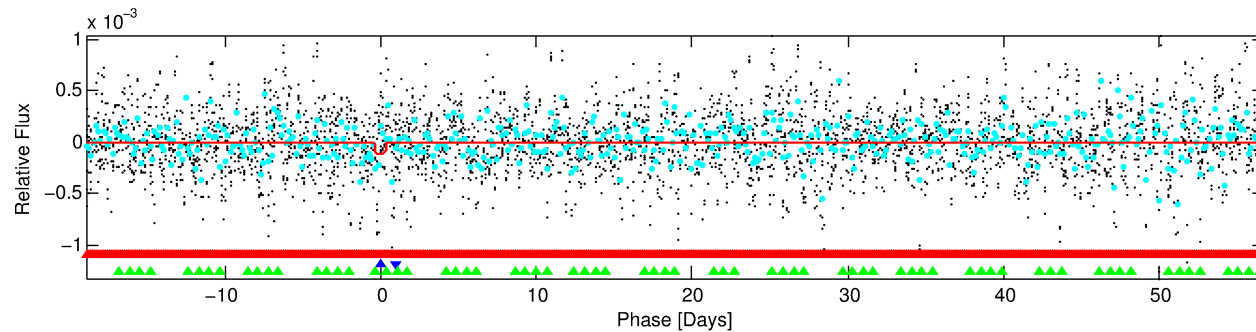
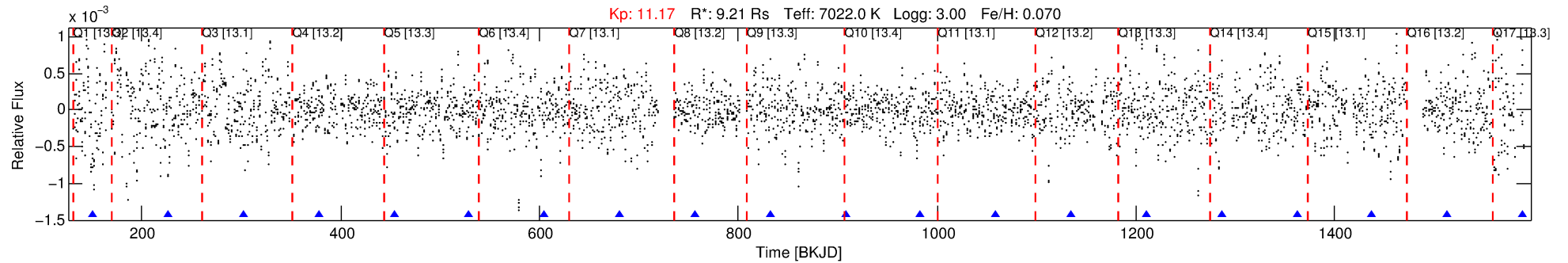
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748251-02

No Significant Match Found

DV One-Page Summary

KIC: 8748251 Candidate: 2 of 3 Period: 75.682 d



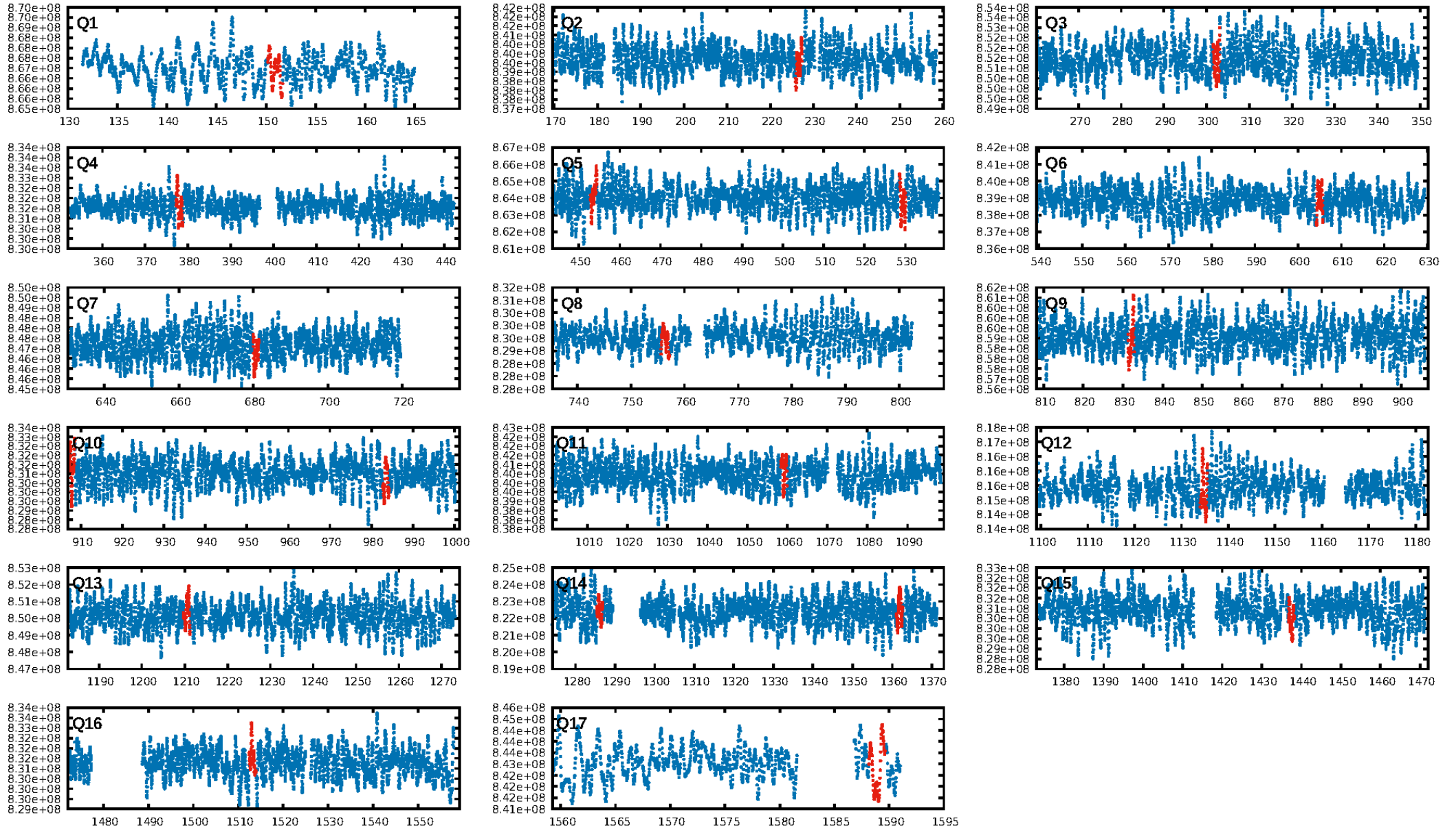
DV Fit Results:

Period = 75.68213 [0.01638] d
Epoch = 150.9358 [0.2250] BKJD
 R_p/R^* = 0.0106 [0.0162]
 a/R^* = 23.62 [199.20]
 b = 0.69 [6.65]
 T_{eff} = 711.78 [731.32]
 T_{eq} = 1317 [338] K
 R_p = 10.70 [17.49] R_{e}
 a = 0.5097 [0.3130] AU
 A_g = 714.88 [2307.26] [0.31] σ
 T_{eff} = 10530 [8069] K [1.14] σ

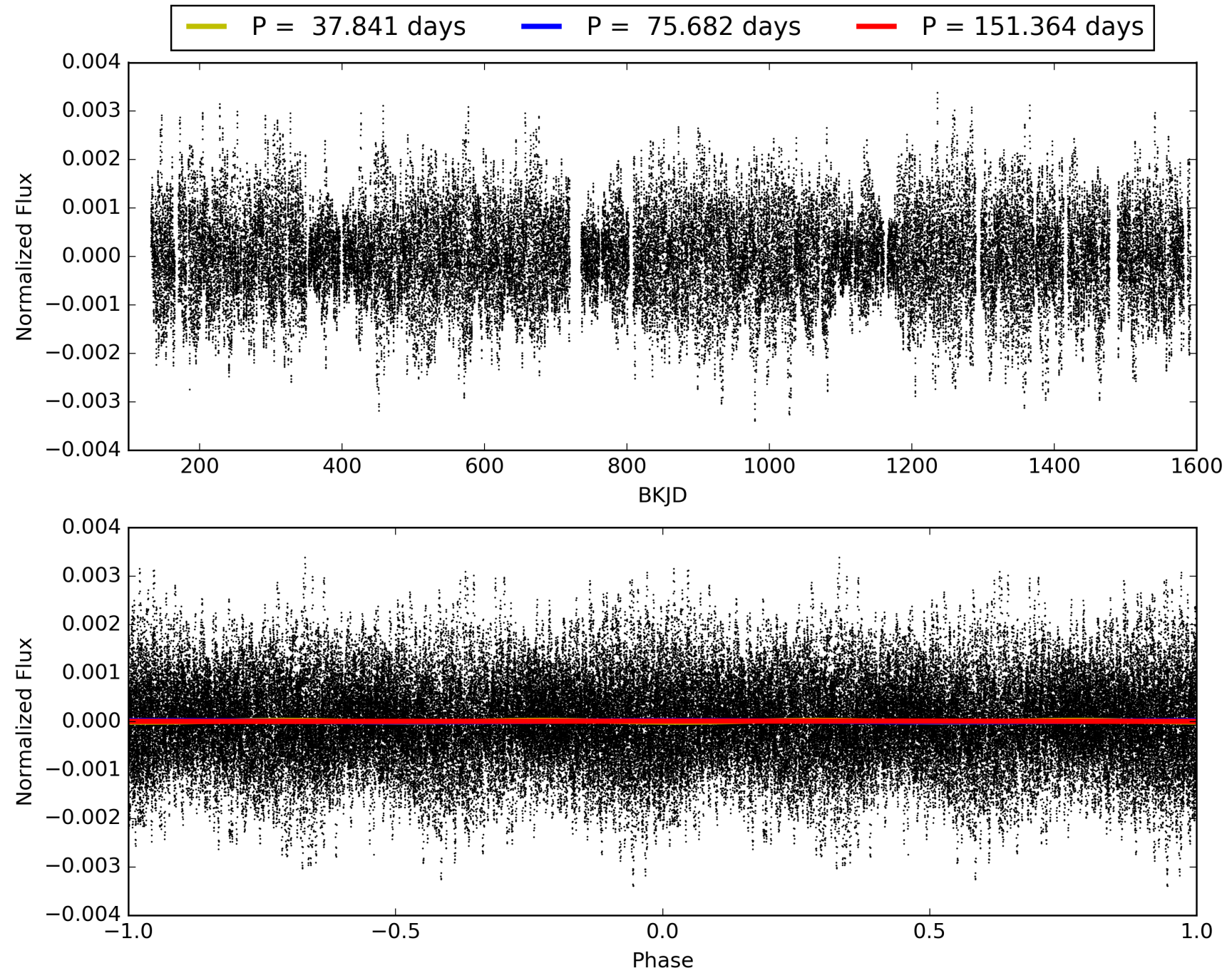
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [51.22] σ
LongPeriod-sig: N/A
ModelChiSquare2-sig: 53.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.29e-23
RollingBand-fgt: 1.00 [17/17]
GhostDiagnostic-chr: -14.07
Centroid-sig: 6.0%
Centroid-so: 0.900 arcsec [1.34] σ
OotOffset-rm: 1.346 arcsec [2.71] σ
KicOffset-rm: 1.249 arcsec [2.51] σ
OotOffset-st: 4/3/3/3 [13]
KicOffset-st: 4/3/3/3 [13]
DiffImageQuality-fgm: 0.23 [3/13]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 008748251-02, PDC Light Curves

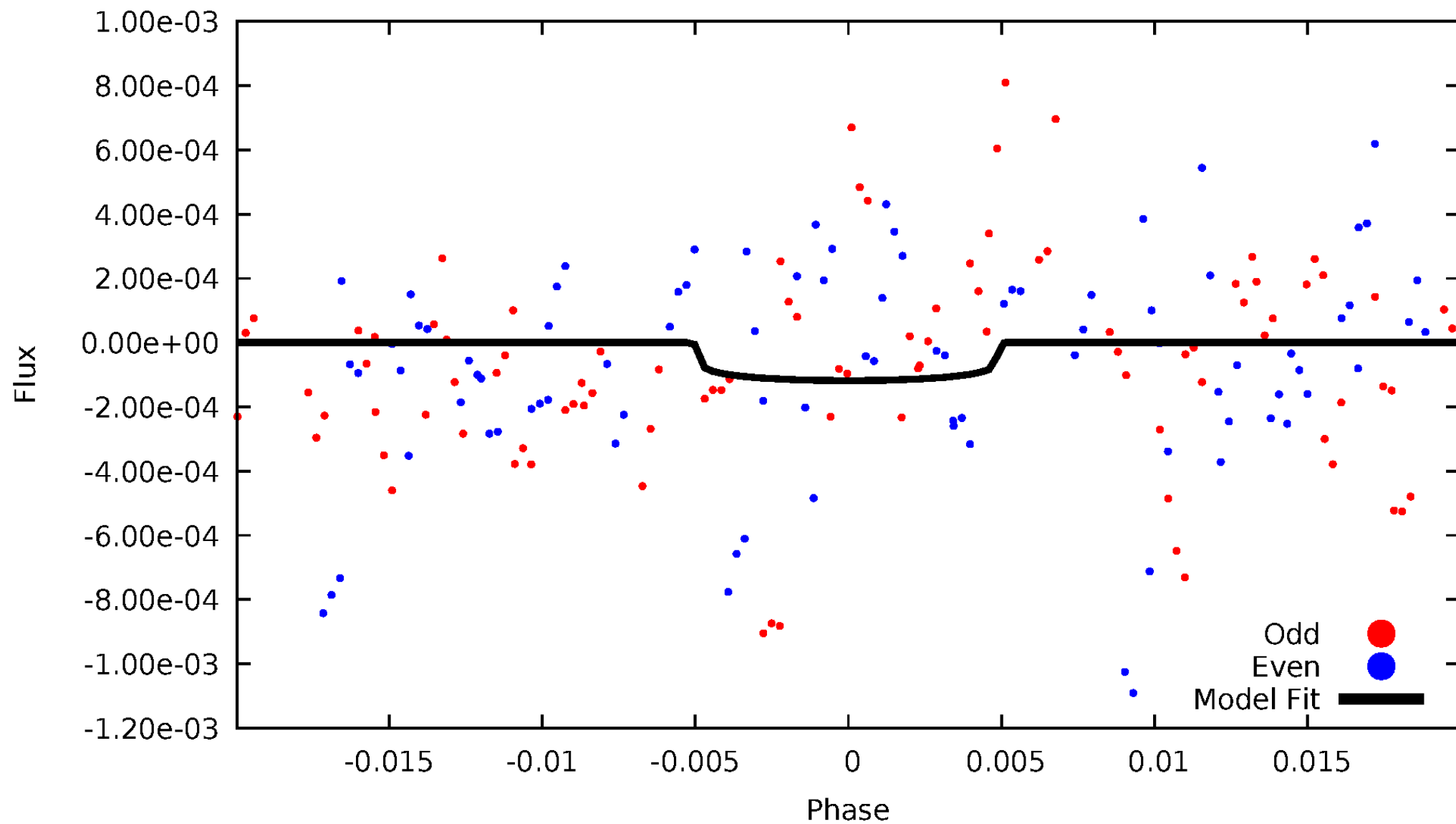


TCE 008748251-02



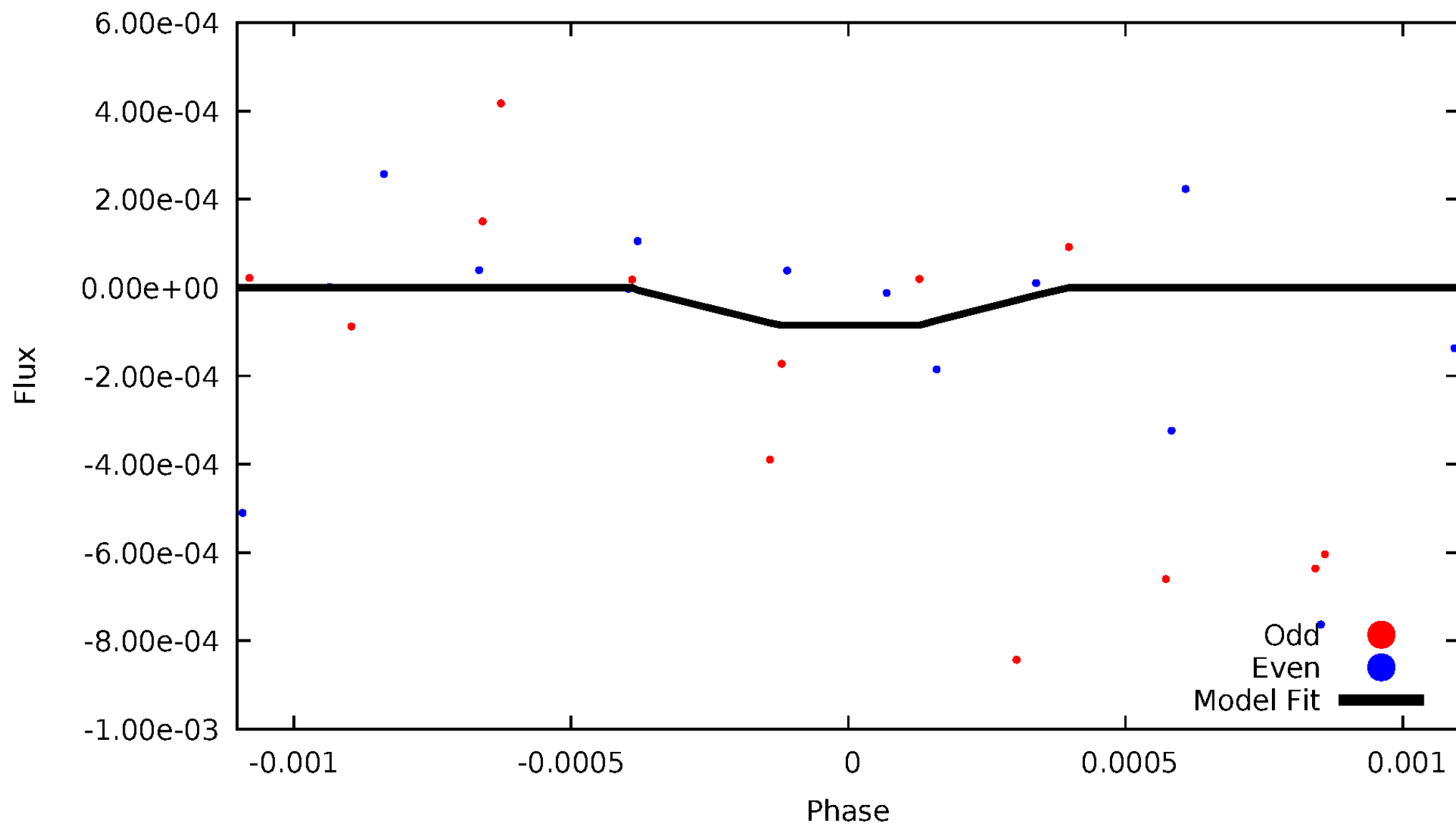
DV Odd/Even

TCE 008748251-02



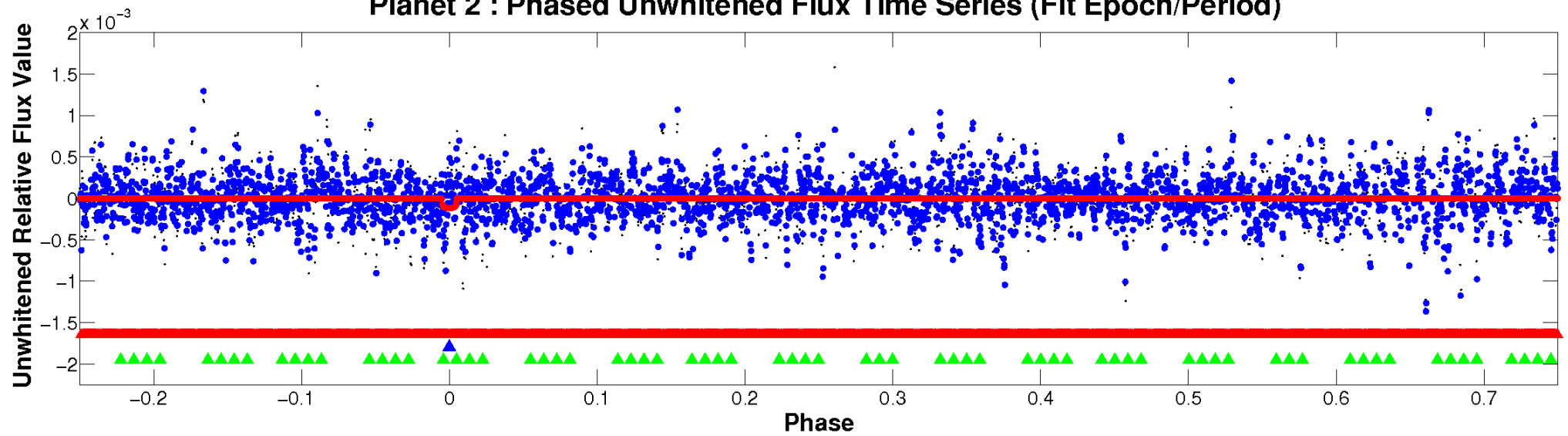
ALT Odd/Even

TCE 008748251-02

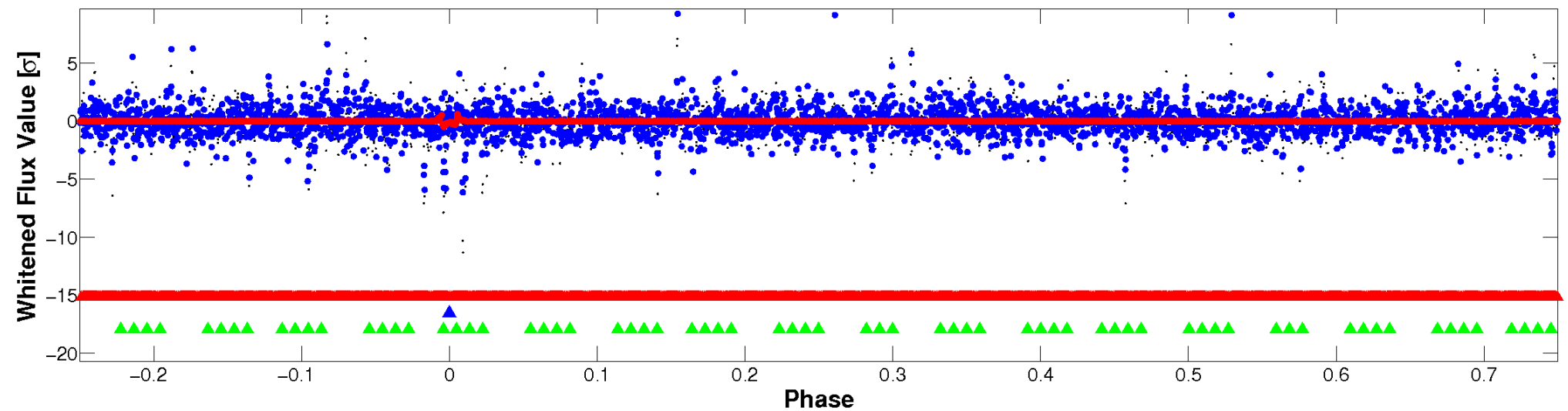


Non-Whitened Vs. Whitened Light Curve

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

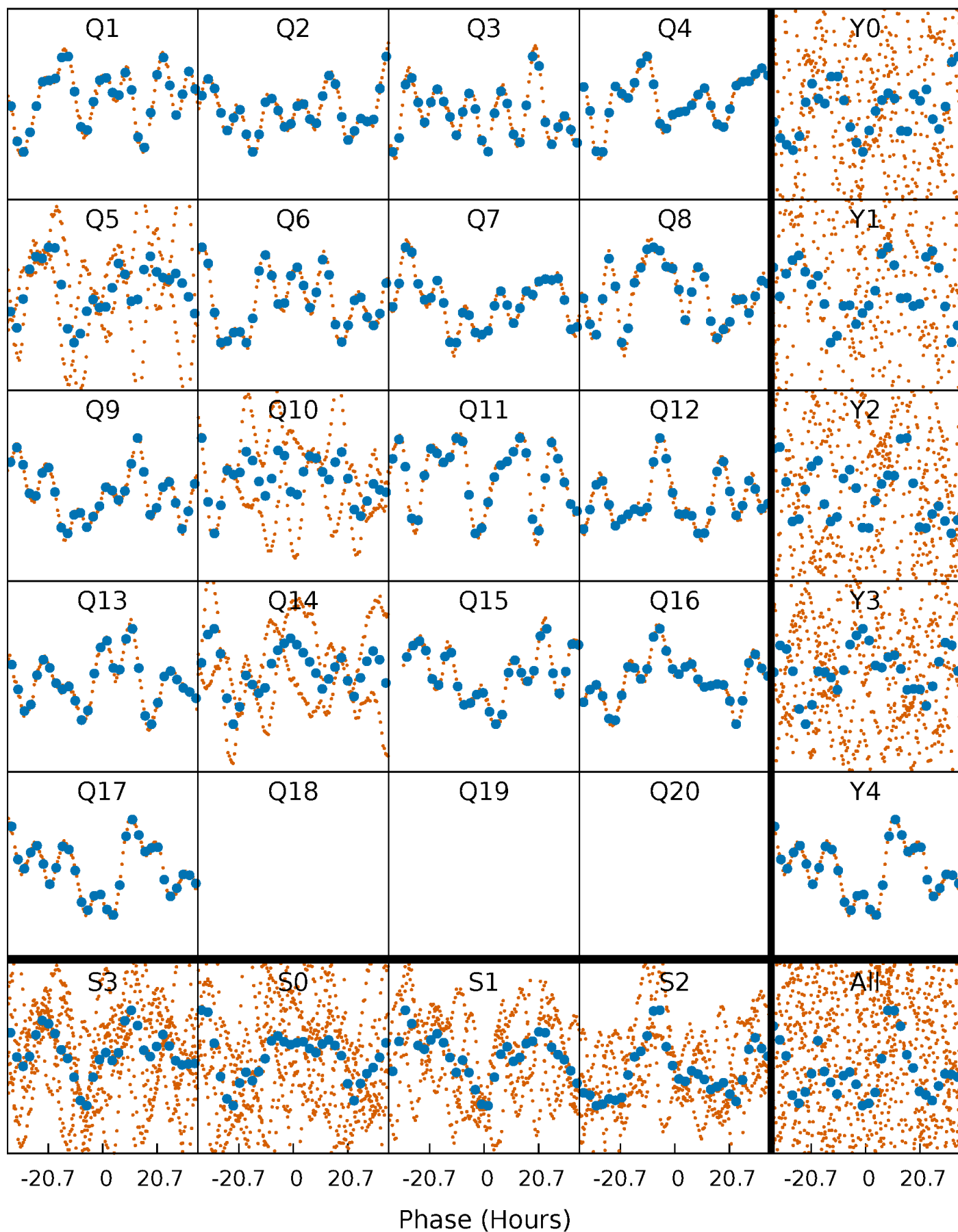


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



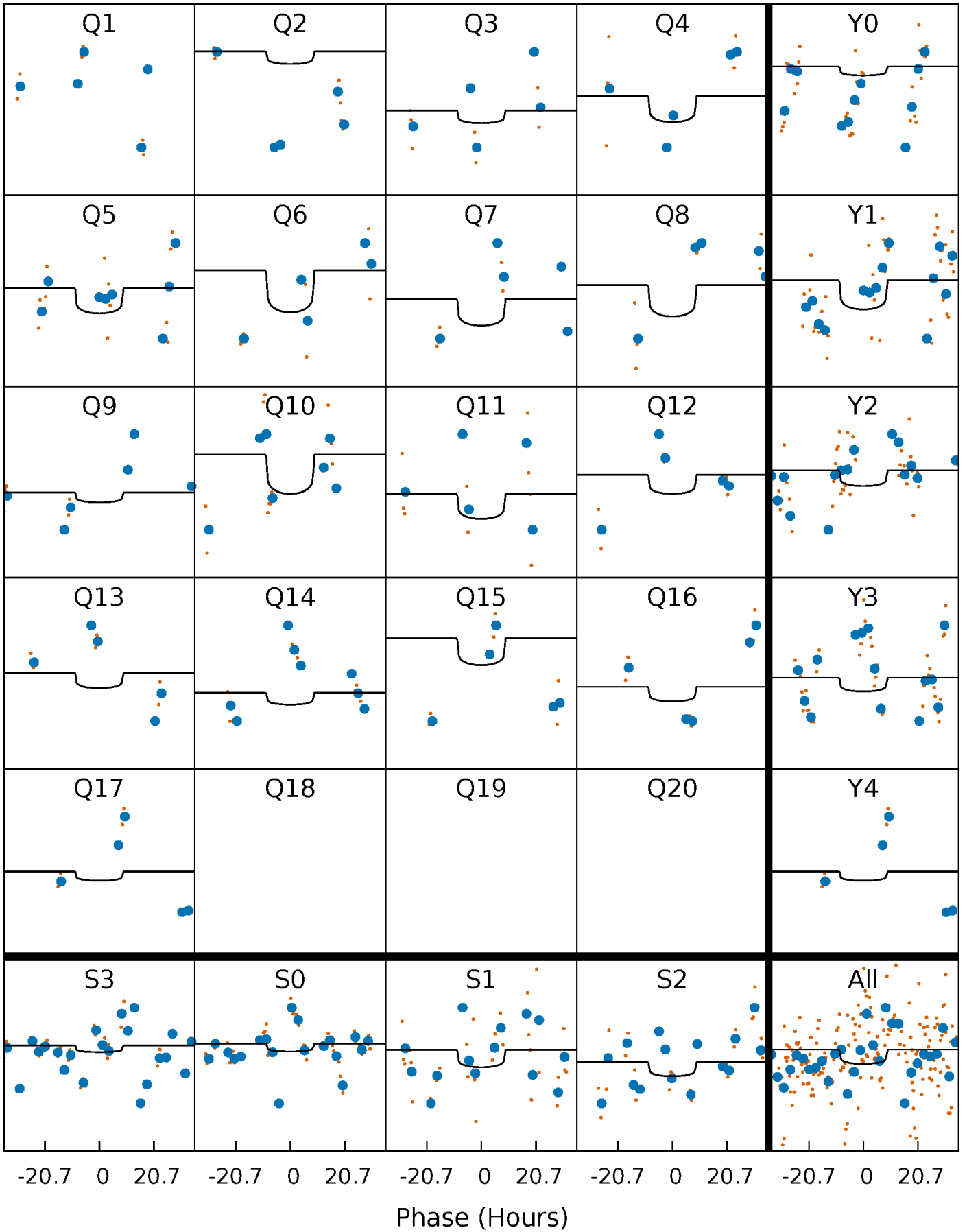
PDC Quarter-Phased Transit Curves

TCE 008748251-02 P= 75.682127 Days $T_0=150.935846$ (BKJD)



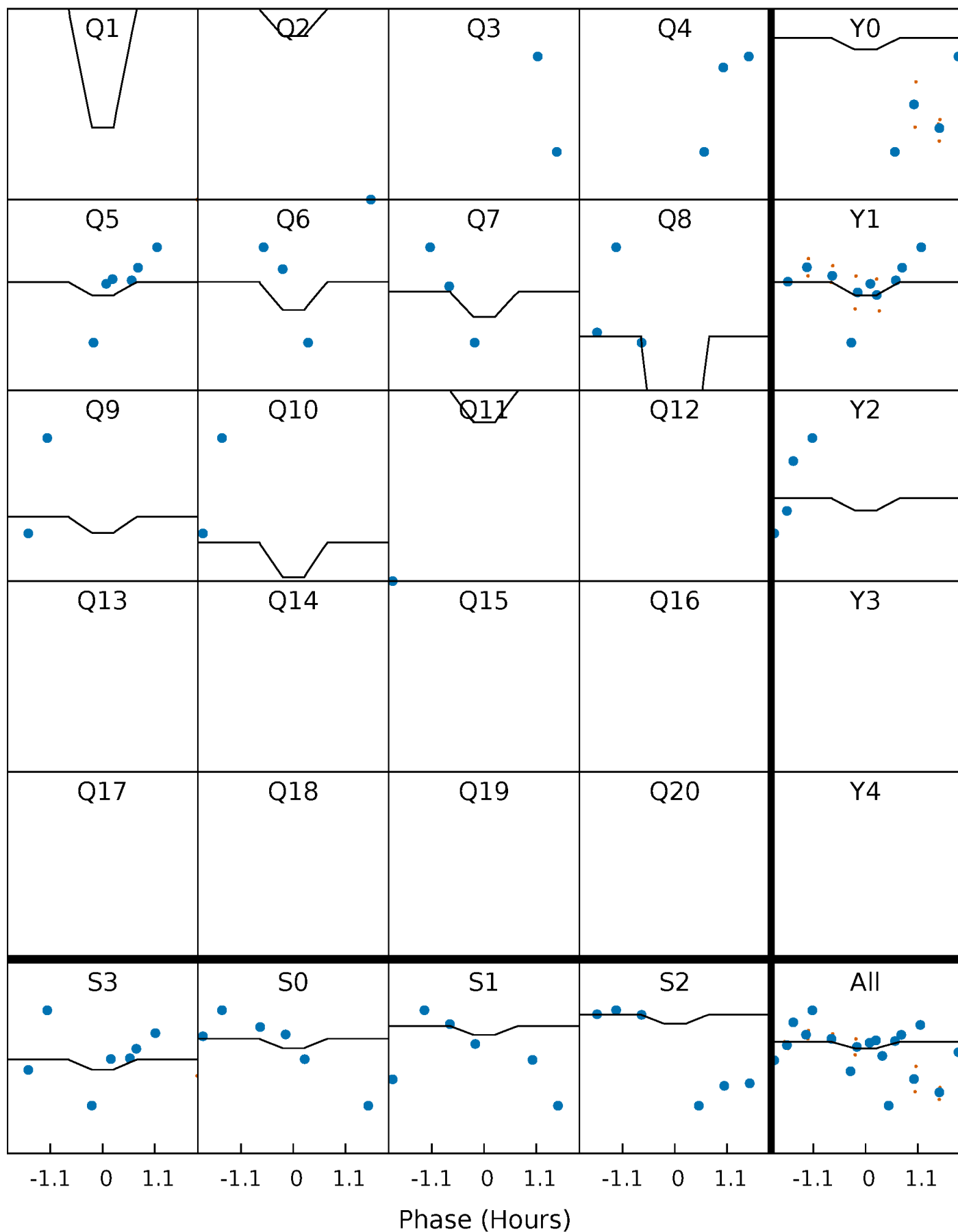
DV Quarter-Phased Transit Curves

TCE 008748251-02 P= 75.682127 Days $T_0=150.935846$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

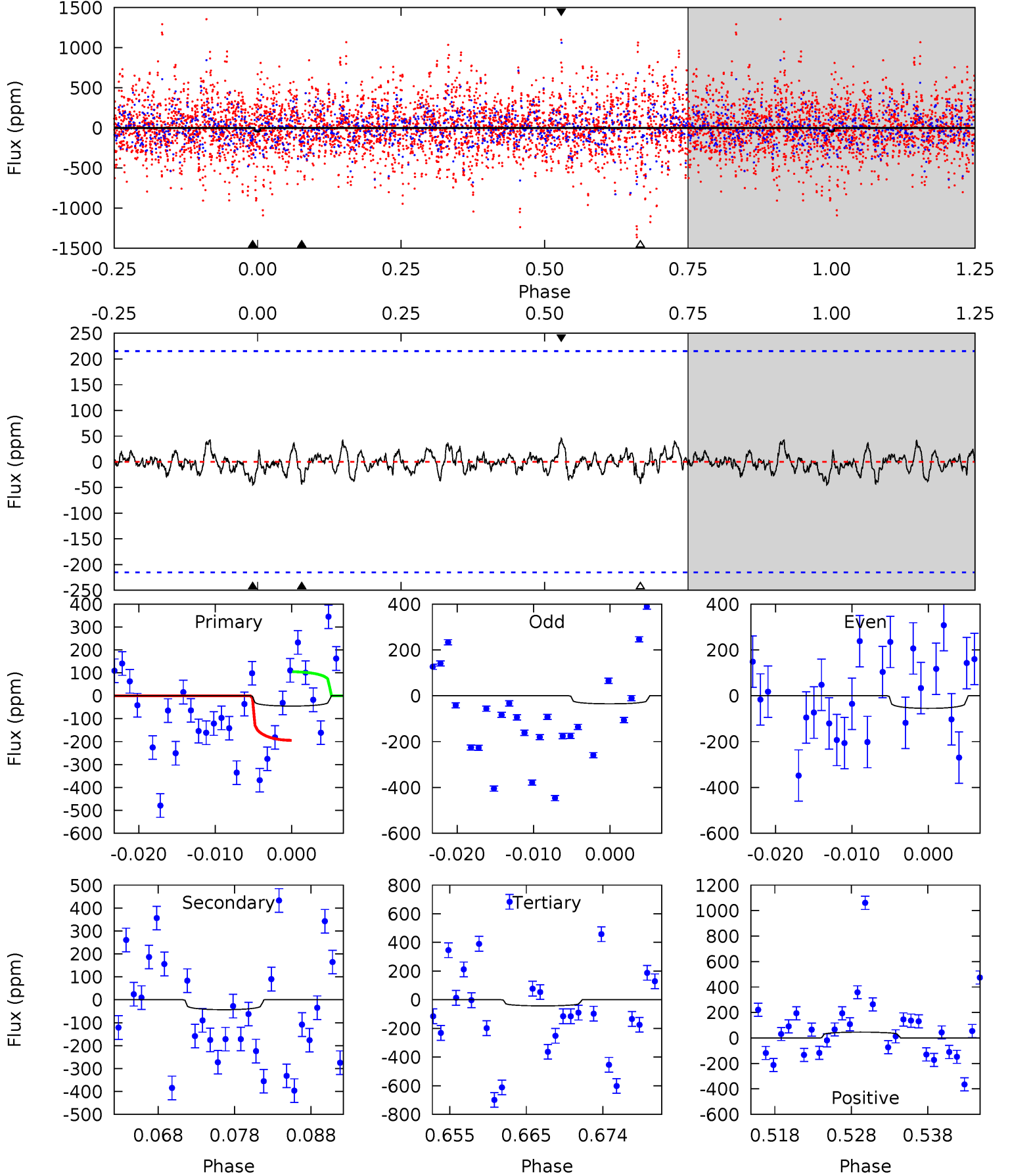
TCE 008748251-02 P= 75.786560 Days $T_0=150.556001$ (BKJD)



DV Model-Shift Uniqueness Test

008748251-02, P = 75.682127 Days, E = 75.253719 Days

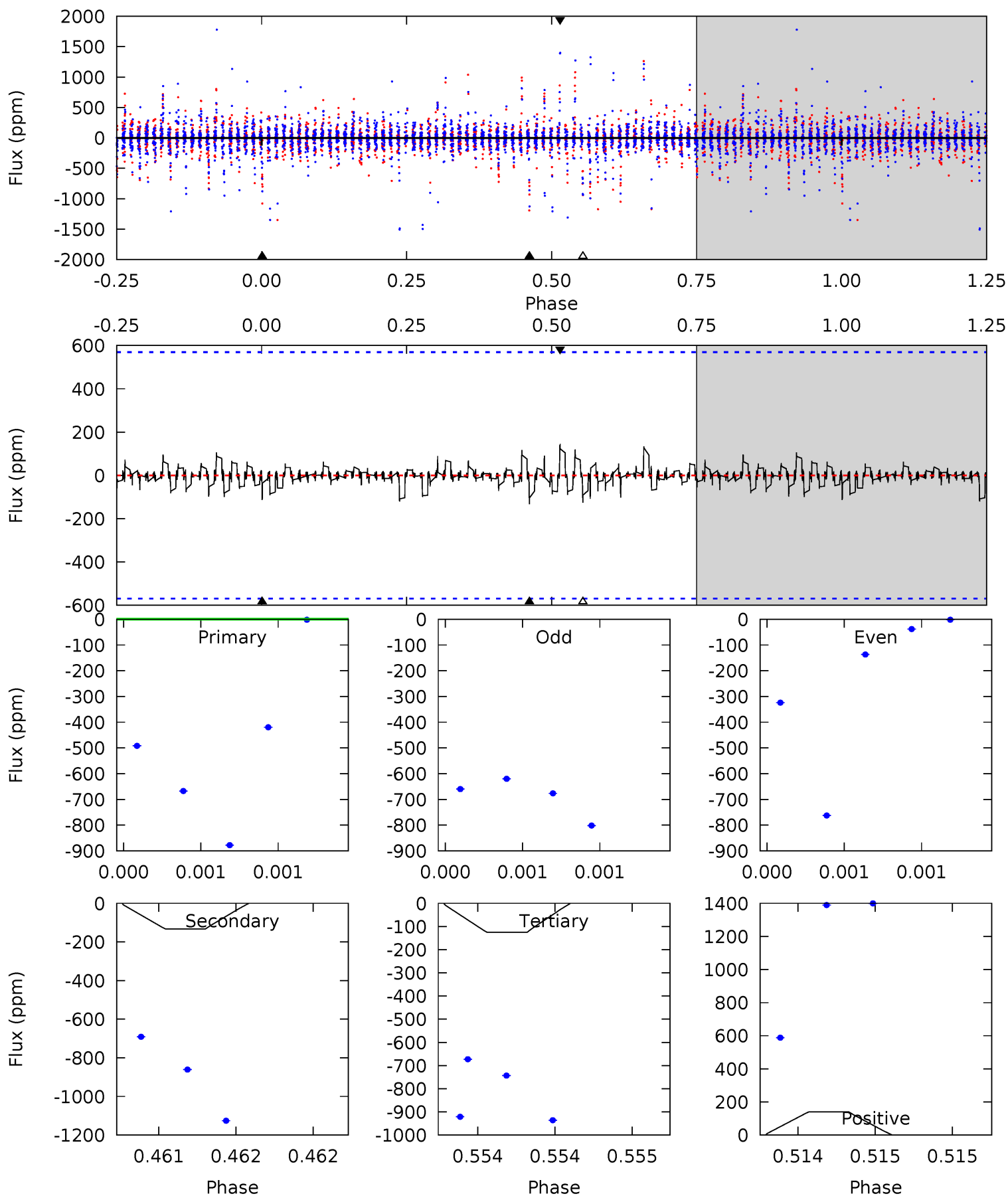
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 1.05 | 1.01 | 1.00 | 1.07 | 5.03 | 2.58 | 0.35 | 0.06 | -0.01 | 0.02 | -0.05 | 0.23 | -1.85 | 0.50 | 1.06 |



Alt Model-Shift Uniqueness Test

008748251-02, P = 75.786560 Days, E = 74.769441 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.11 | 1.30 | 1.23 | 1.37 | 5.58 | 3.49 | 0.22 | -0.12 | -0.26 | 0.07 | -0.07 | 0.53 | 1.32 | 0.51 | 0.56 |



Stellar Parameters For KIC 008748251

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7022^{+157}_{-226} | $2.998^{+0.612}_{-0.072}$ | $0.070^{+0.200}_{-0.250}$ | $9.213^{+1.025}_{-5.467}$ | $3.080^{+0.205}_{-1.163}$ | $0.006^{+0.058}_{-0.001}$ |
| | +2%/-3% | +20%/-2% | +286%/-357% | +11%/-59% | +7%/-38% | +1048%/-24% |
| Source | PHO1 | FLK73 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 008748251-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|--------------------------|----------------------|------------------------|-------------------|
| DV | -43 ± 43 | $14.04^{+13.64}_{-9.73}$ | 1769^{+119}_{-256} | 4257^{+3009}_{-6521} | 22^{+247}_{-22} |
| Alt. | -133 ± 102 | $12.70^{+13.62}_{-9.08}$ | 1758^{+122}_{-276} | 5546^{+5801}_{-1717} | 81^{+875}_{-70} |

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 $A_{obs} \gg 1.0$

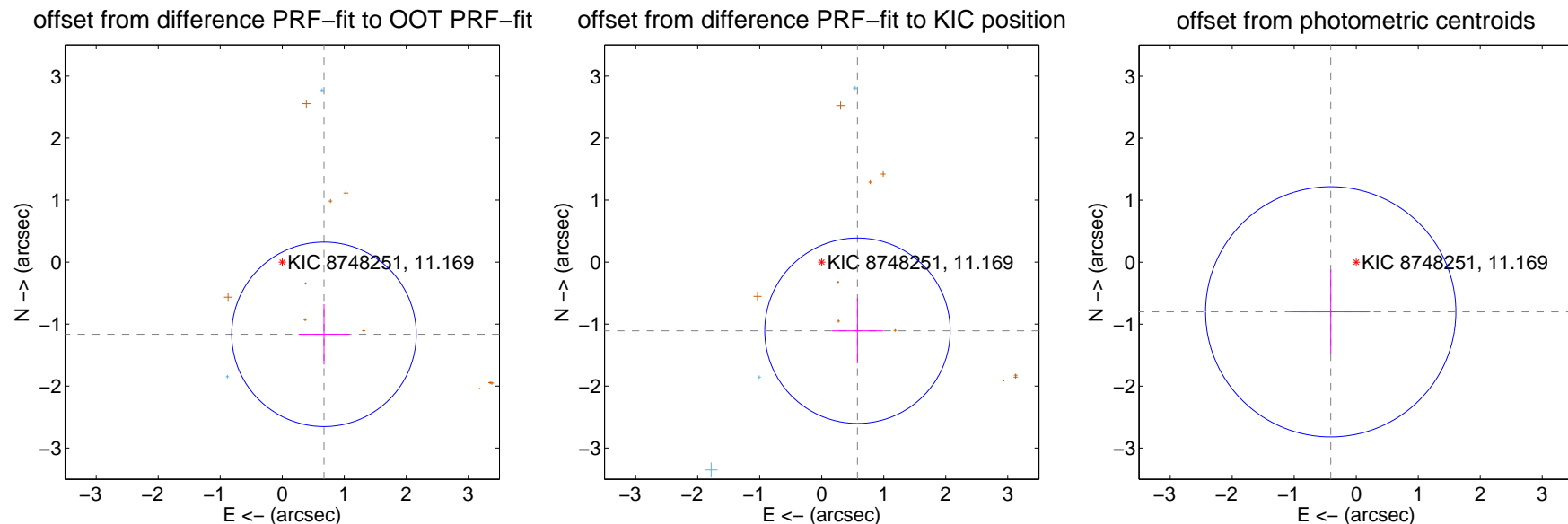
DV Centroid Data

Supplemental centroid analysis for 008748251-02. **Kepler magnitude: 11.17.** Transit SNR 2.12

There are 3 quarters with good PRF difference image offsets

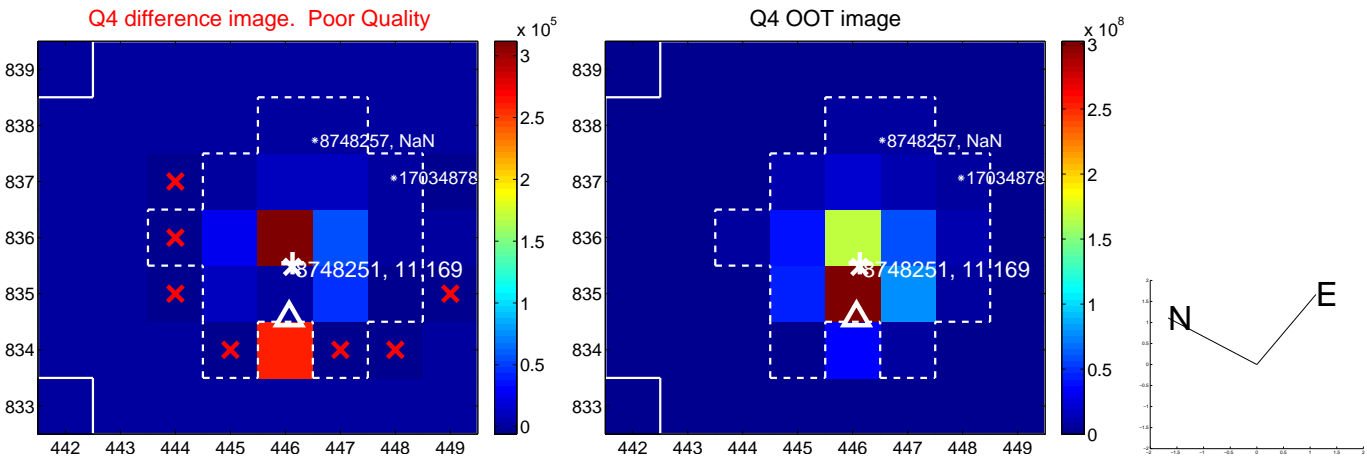
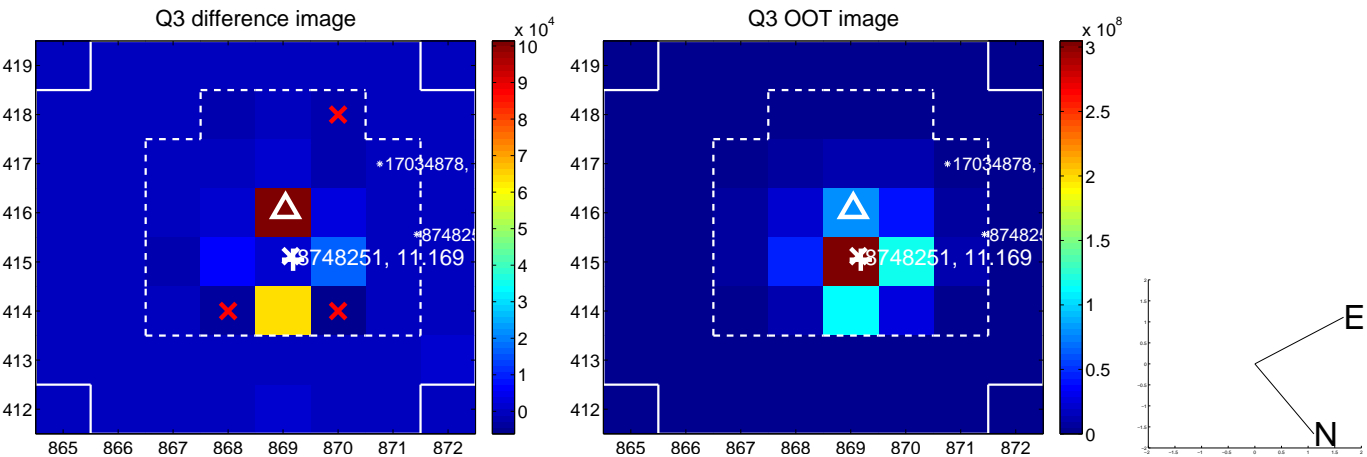
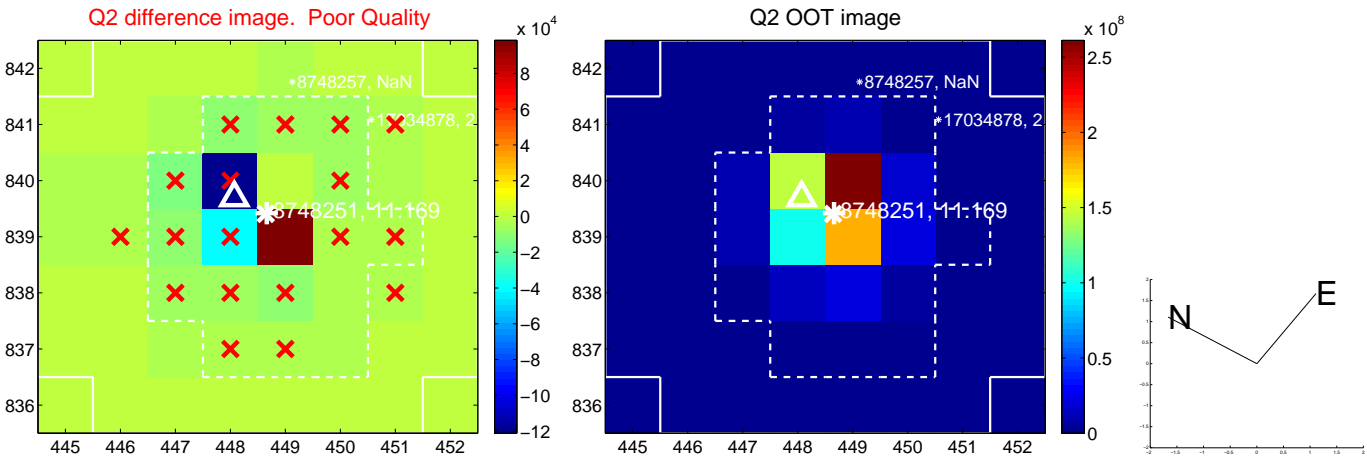
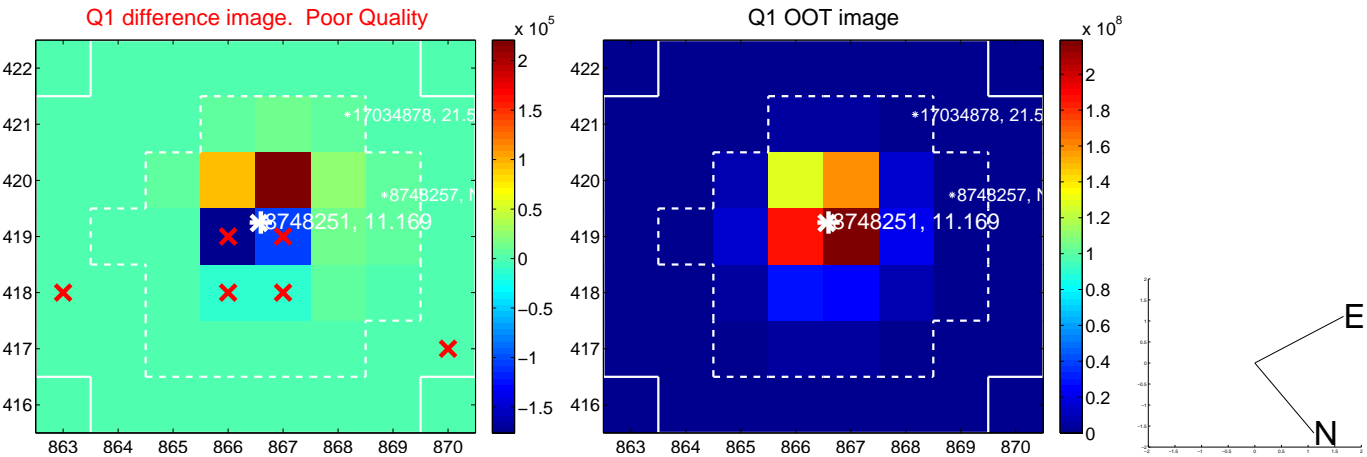
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 1.346 ± 0.496 | 2.71 | -0.673 ± 0.408 | -1.165 ± 0.488 |
| PRF-fit source offset from KIC position | 1.249 ± 0.498 | 2.51 | -0.577 ± 0.411 | -1.107 ± 0.527 |
| photometric centroid source offset | 0.90 ± 0.67 | 1.34 | 0.41 ± 0.63 | -0.80 ± 0.68 |

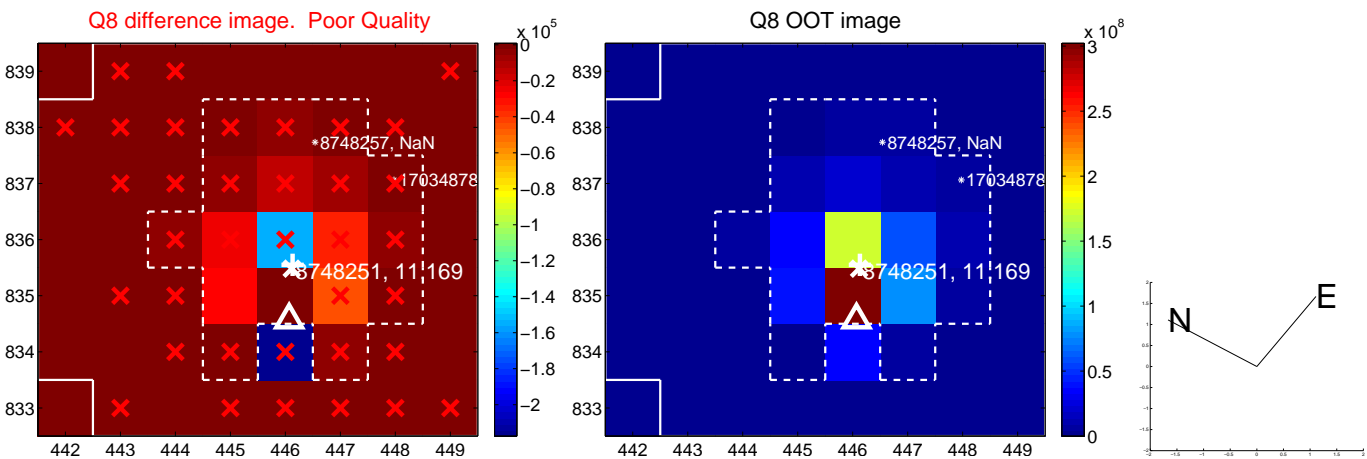
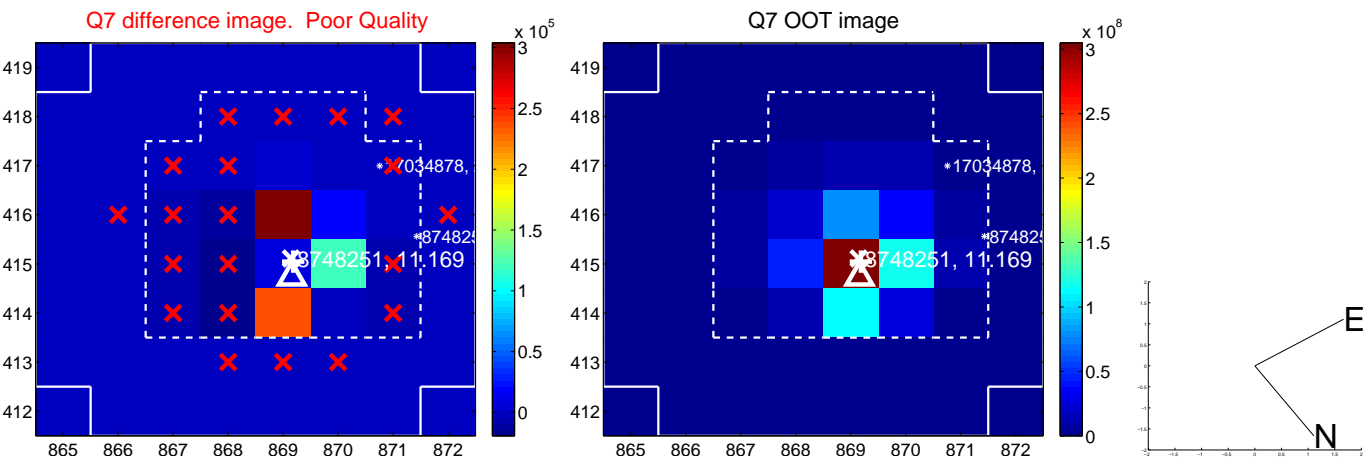
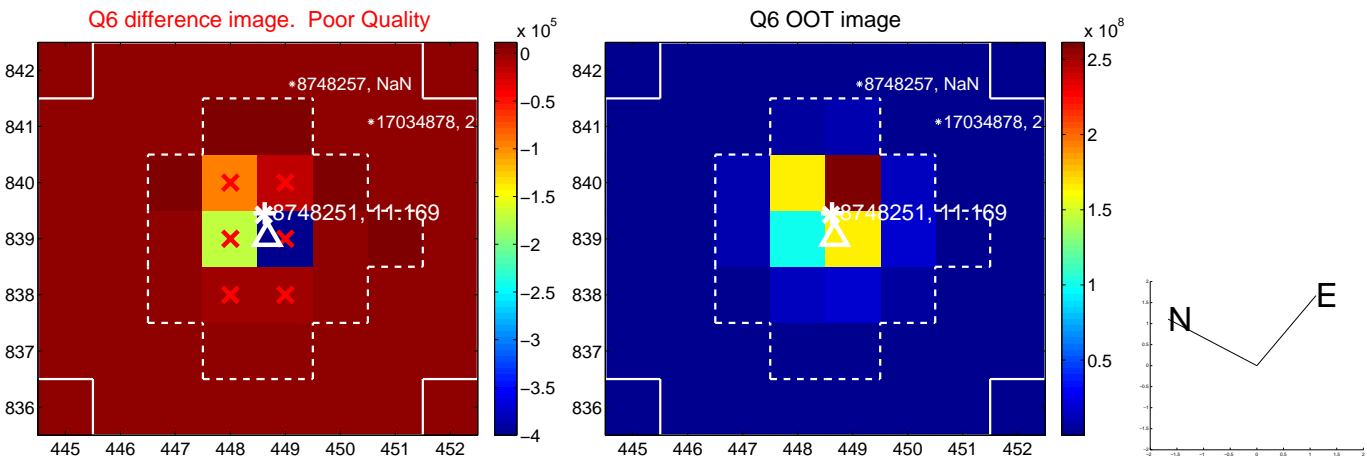
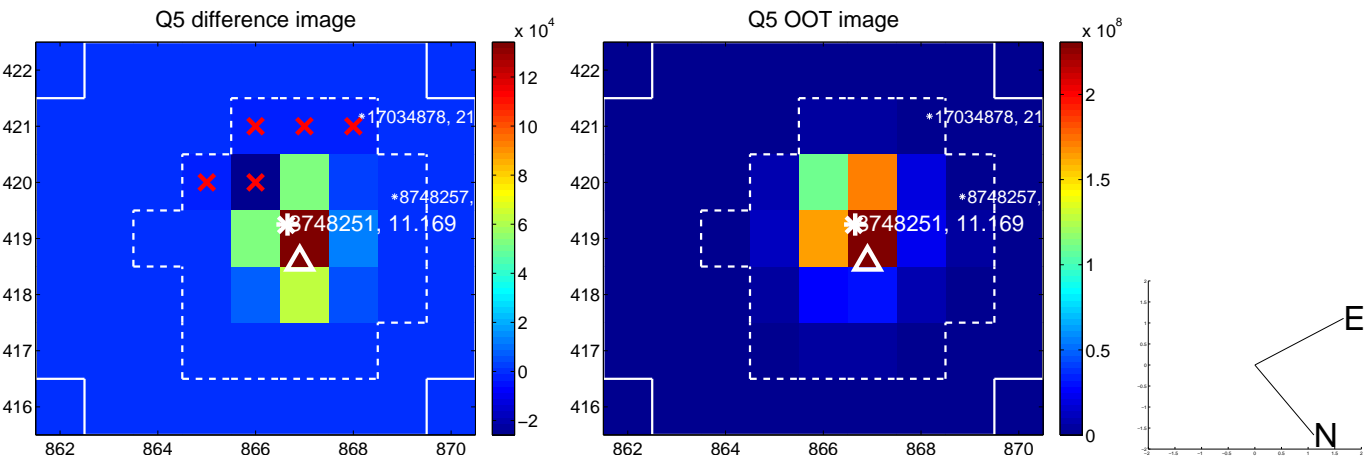


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

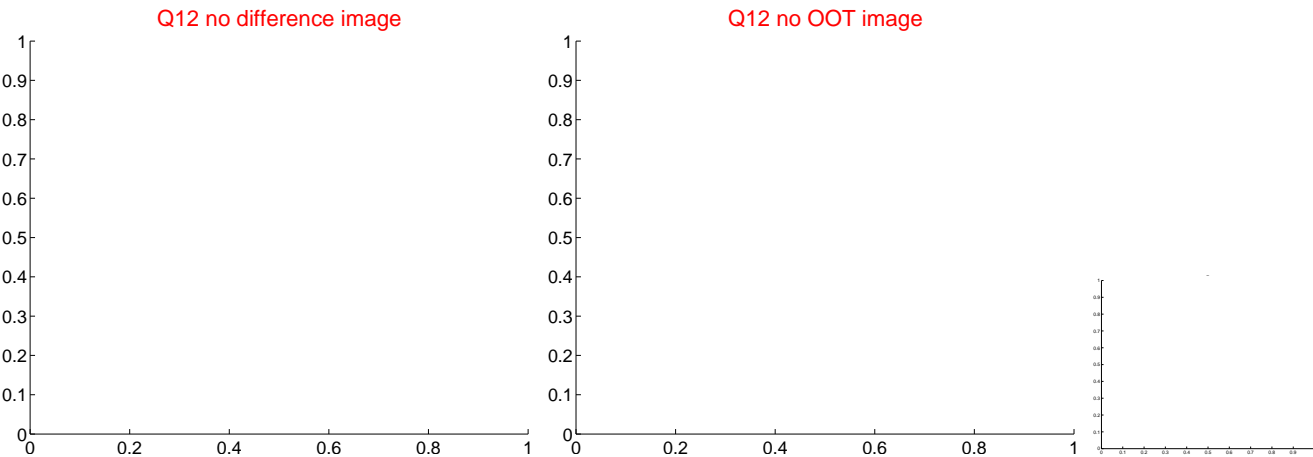
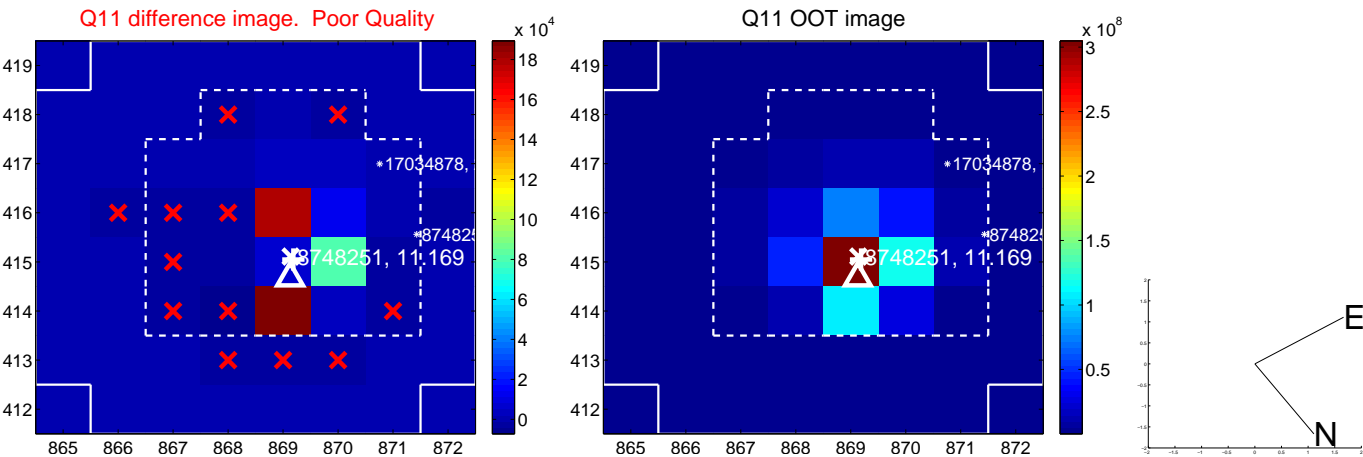
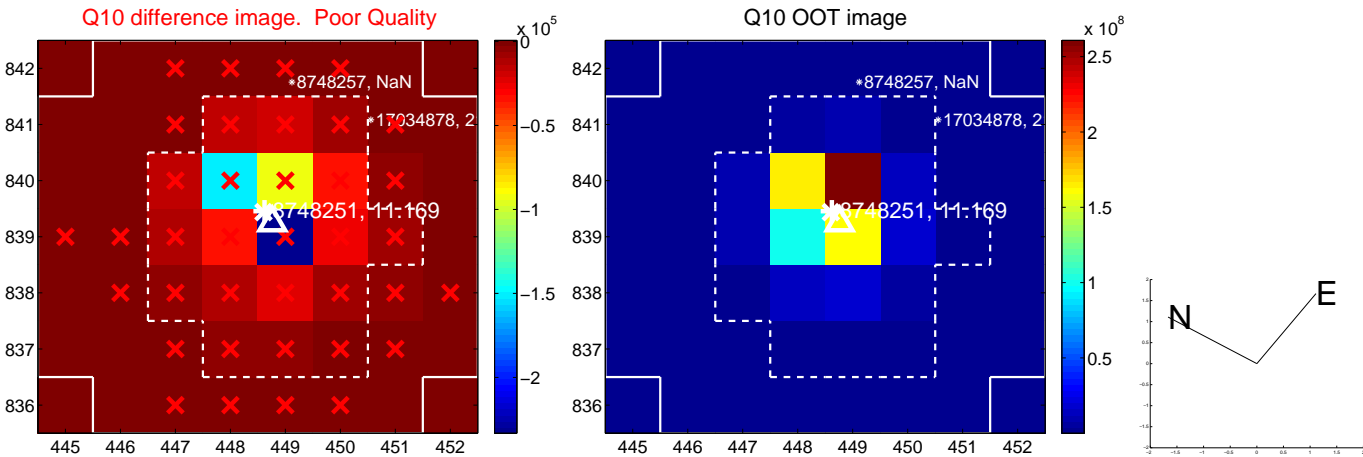
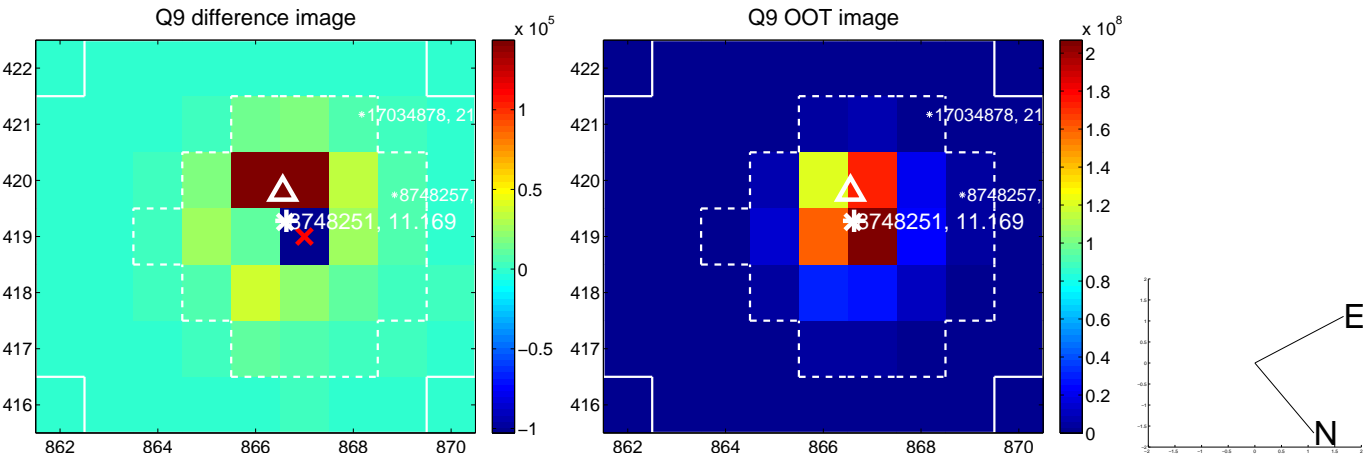
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



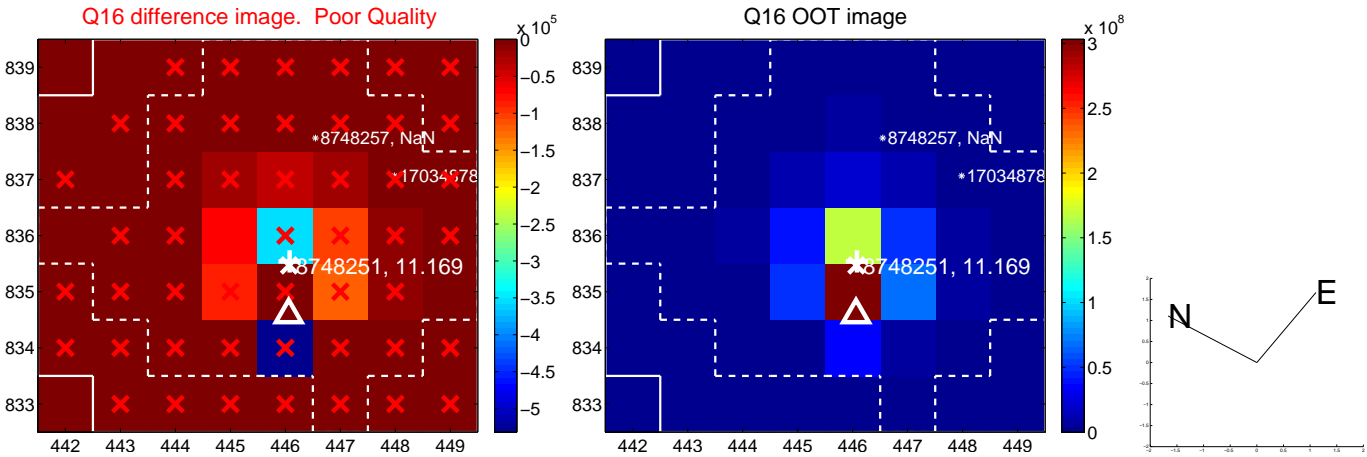
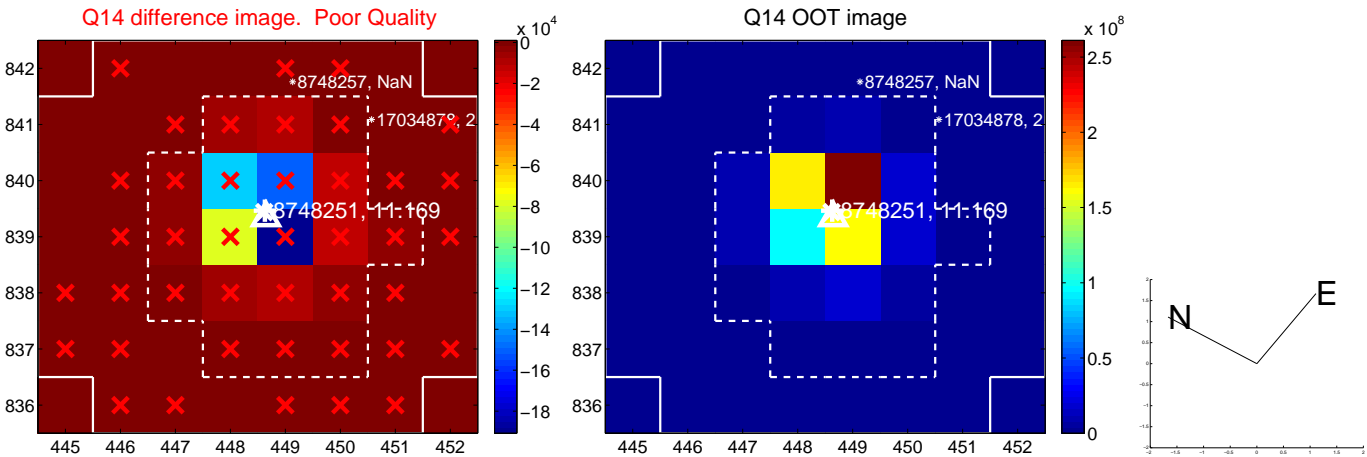
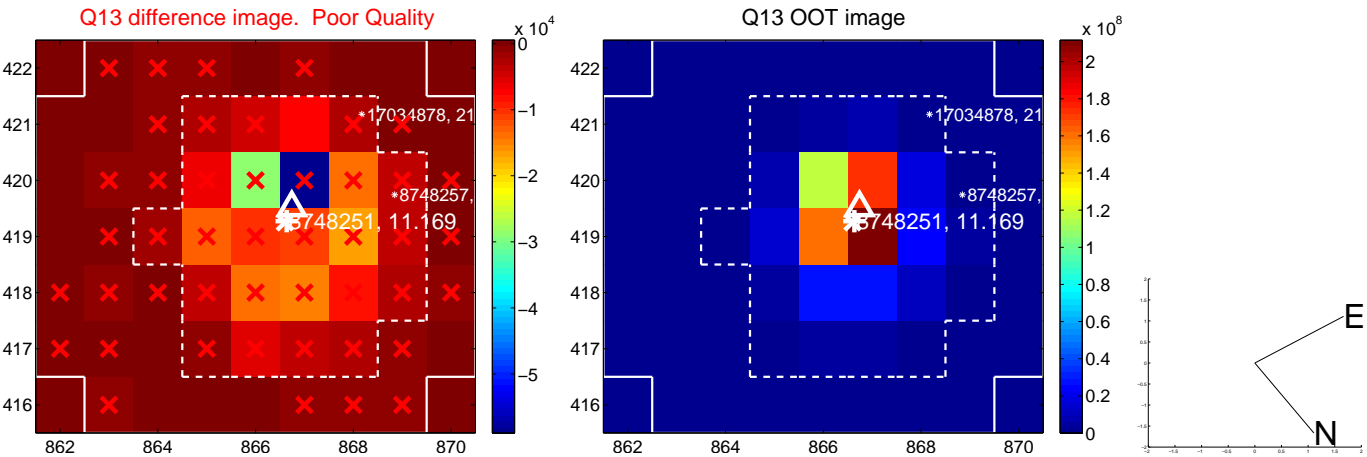
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



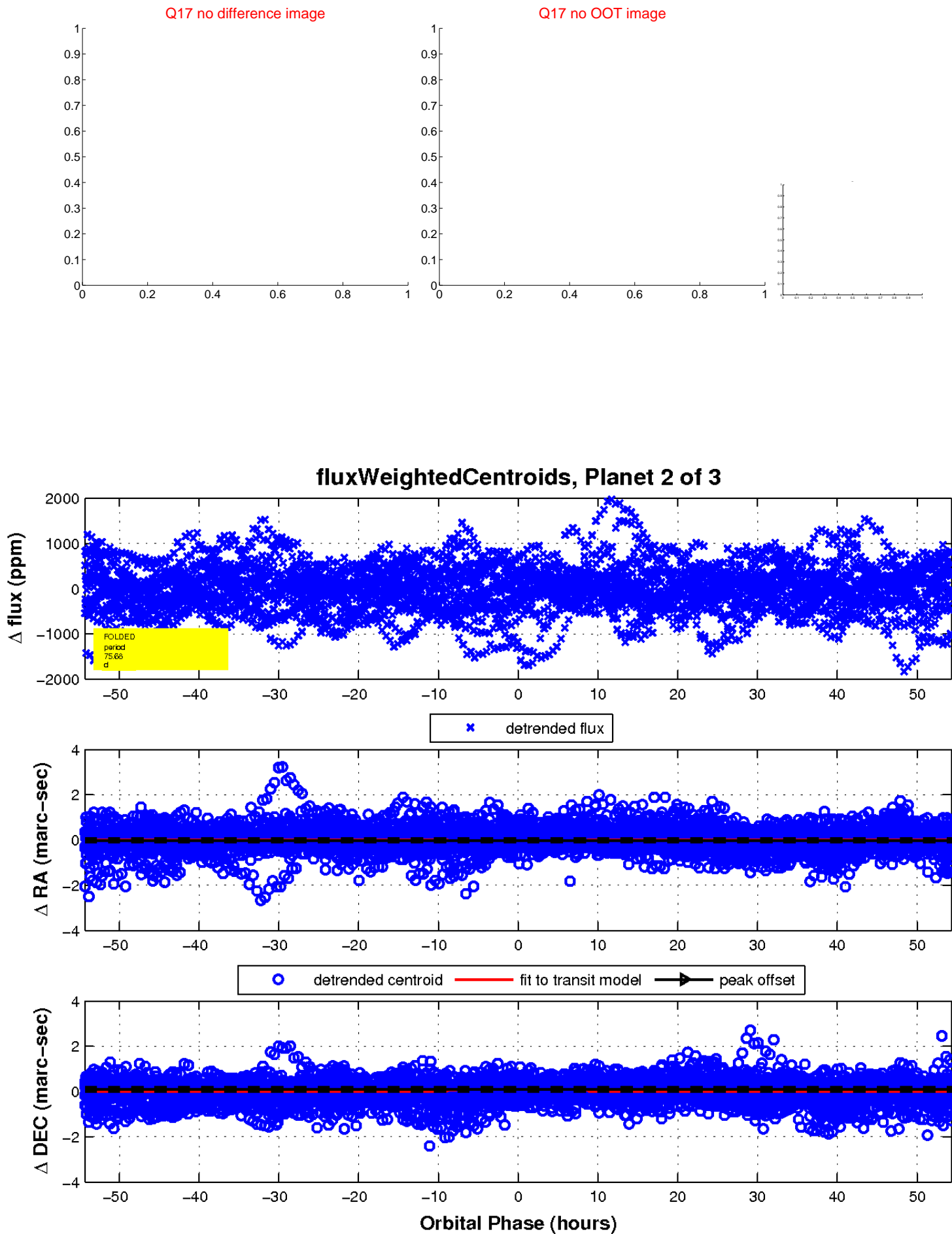
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

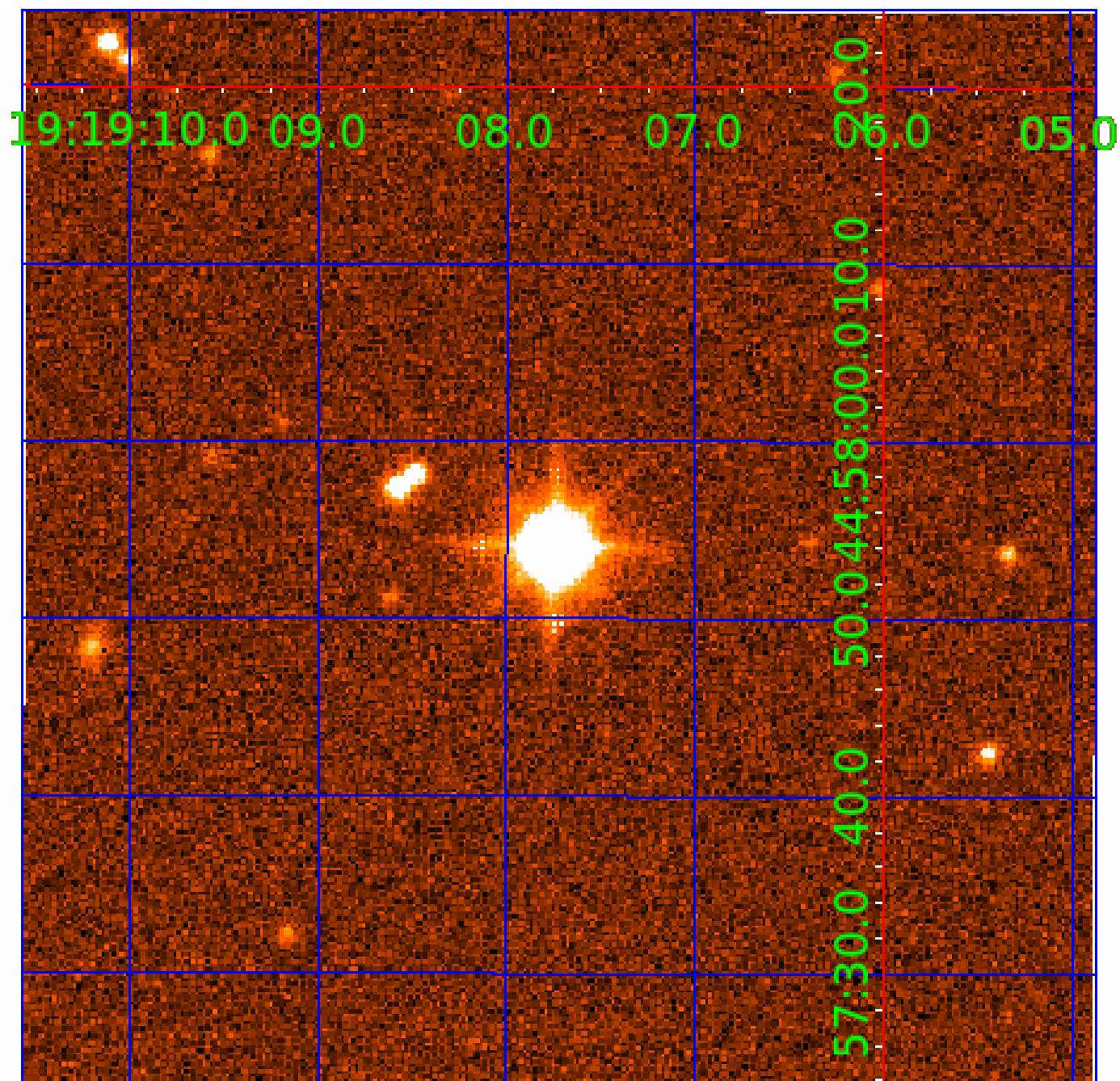


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008748251

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008748251-01 | OBS | No | 0.996961 | 132.209459 | 6.7 | 7.301 | 9.1 | 1.9 | 9.21 | 7022 | 2.46 | 0.00 |
| 008748251-02 | OBS | No | 75.682127 | 150.935846 | 118.2 | 18.130 | 16.5 | 2.1 | 9.21 | 7022 | 10.70 | 711.78 |
| 008748251-03 | OBS | No | 20.985556 | 140.589908 | 185.2 | 18.111 | 13.3 | 5.8 | 9.21 | 7022 | 13.21 | 3936.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008748251-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—CENT_SATURATED |
| 008748251-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 008748251-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST |

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

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

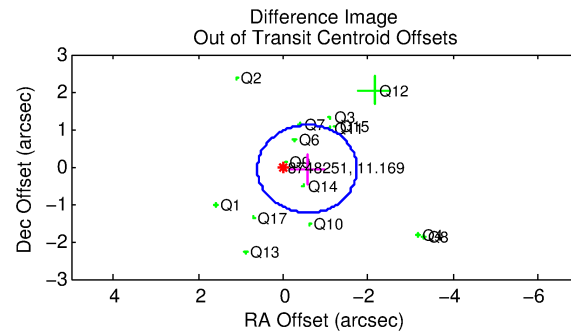
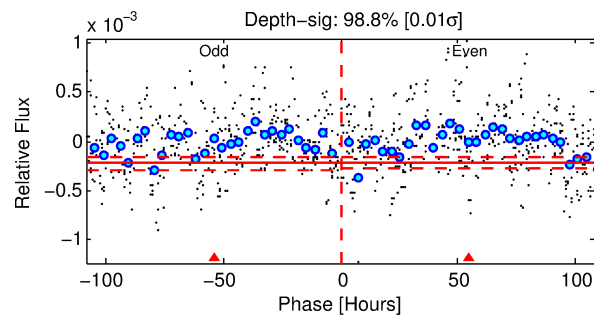
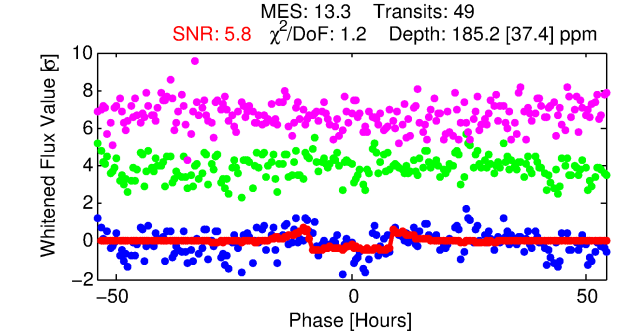
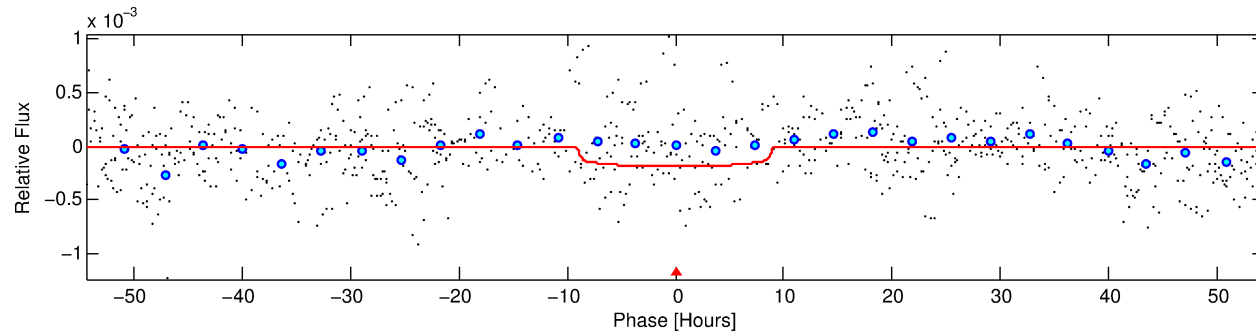
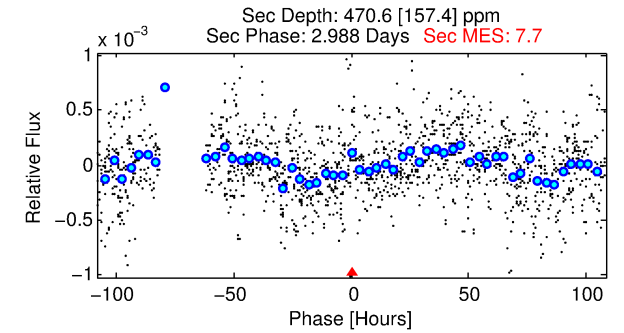
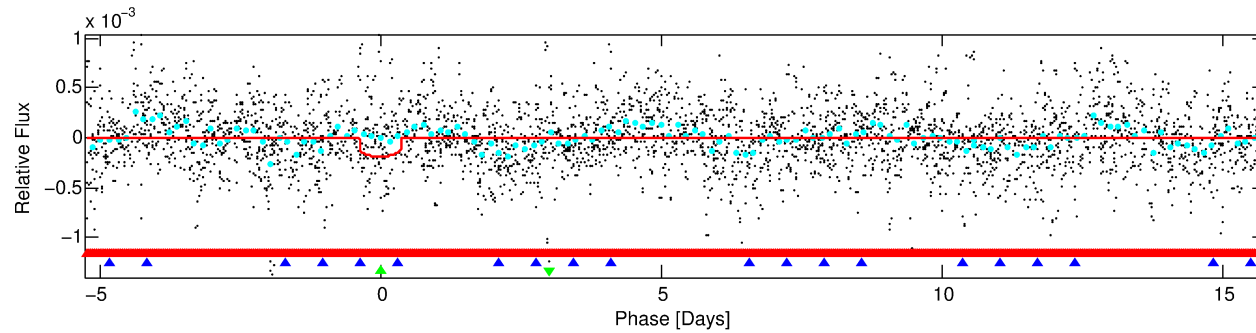
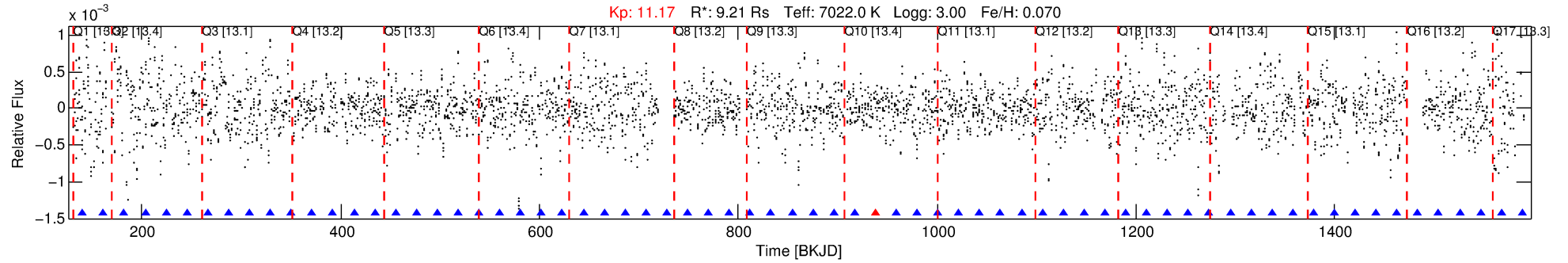
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748251-03

No Significant Match Found

DV One-Page Summary

KIC: 8748251 Candidate: 3 of 3 Period: 20.986 d



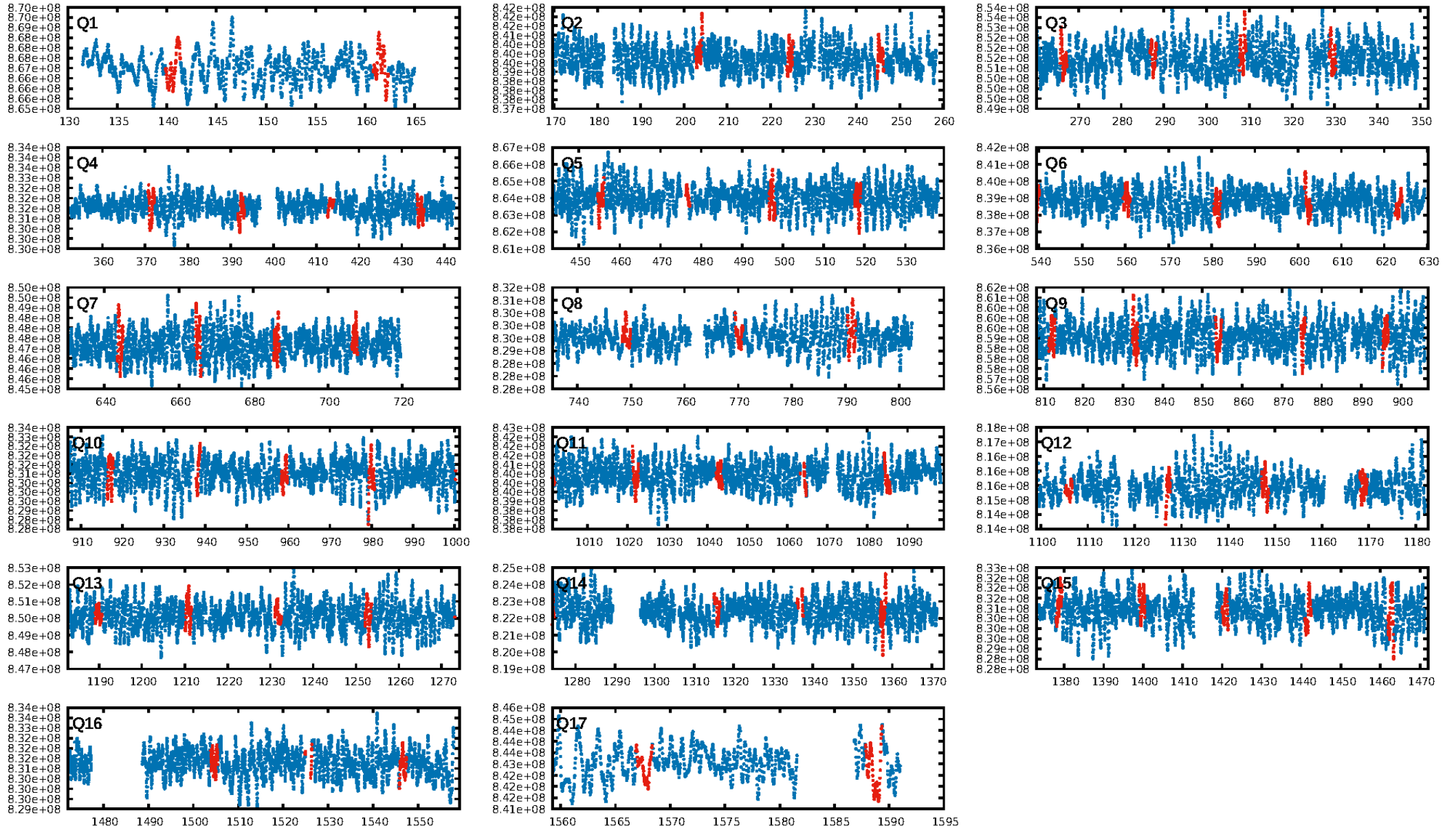
DV Fit Results:

Period = 20.98556 [0.00081] d
Epoch = 140.5899 [0.0262] BKJD
Rp/R* = 0.0131 [0.0041]
a/R* = 7.15 [11.23]
b = 0.62 [1.61]
Seff = 3936.51 [4044.55]
Teq = 2020 [519] K
Rp = 13.21 [8.84] Re
a = 0.2167 [0.1331] AU
Ag = 69.73 [86.41] [0.80 σ]
Teffp = 9024 [1616] K [4.13 σ]

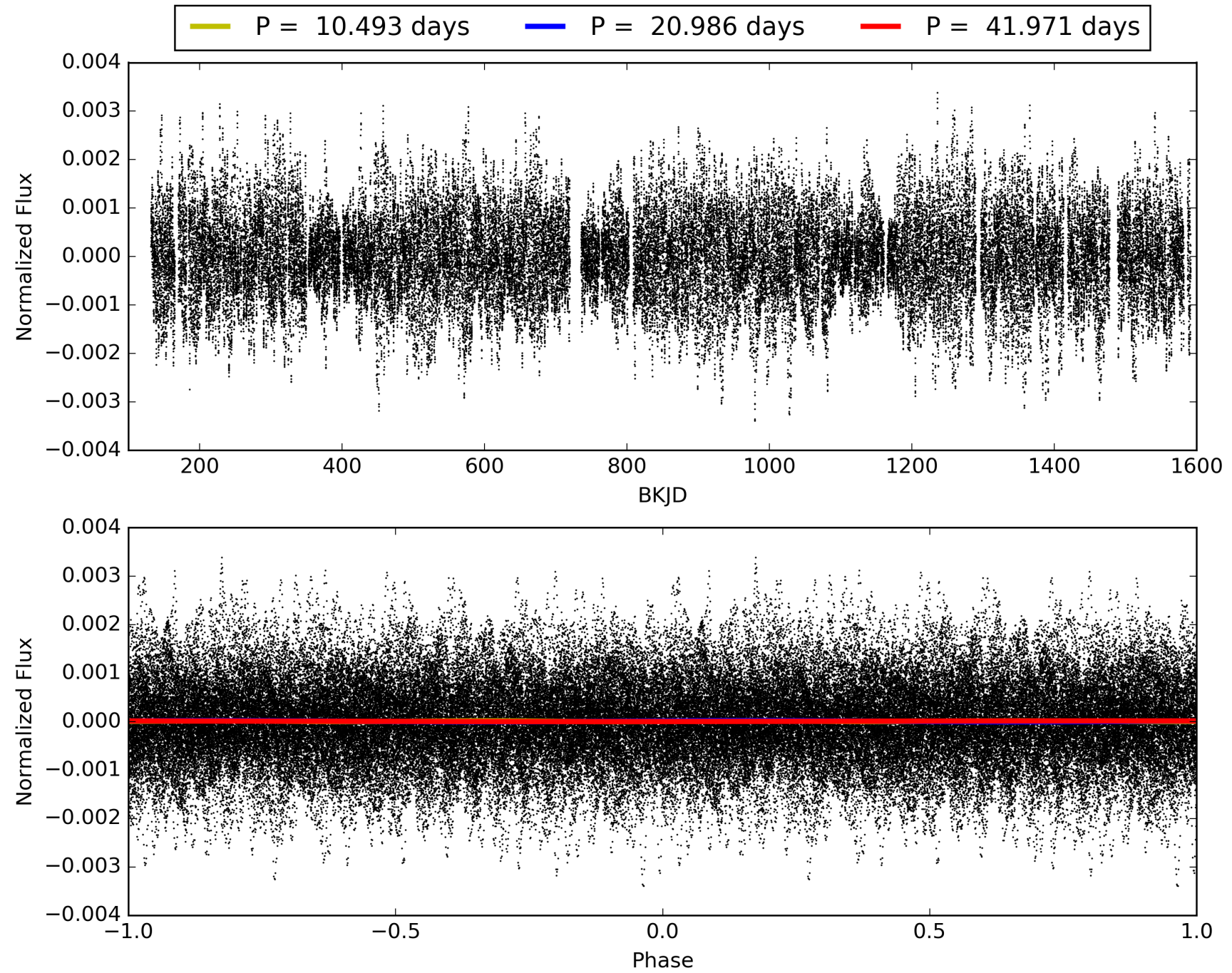
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [24.57 σ]
LongPeriod-sig: 100.0% [51.22 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.96e-22
RollingBand-fgt: 0.98 [45/46]
GhostDiagnostic-chr: -0.02515
Centroid-sig: 0.0%
Centroid-so: 0.575 arcsec [2.22 σ]
OotOffset-rm: 0.573 arcsec [1.47 σ]
KicOffset-rm: 0.502 arcsec [1.36 σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.47 [7/15]
DiffImageOverlap-fno: 0.00 [0/16]

TCE 008748251-03, PDC Light Curves

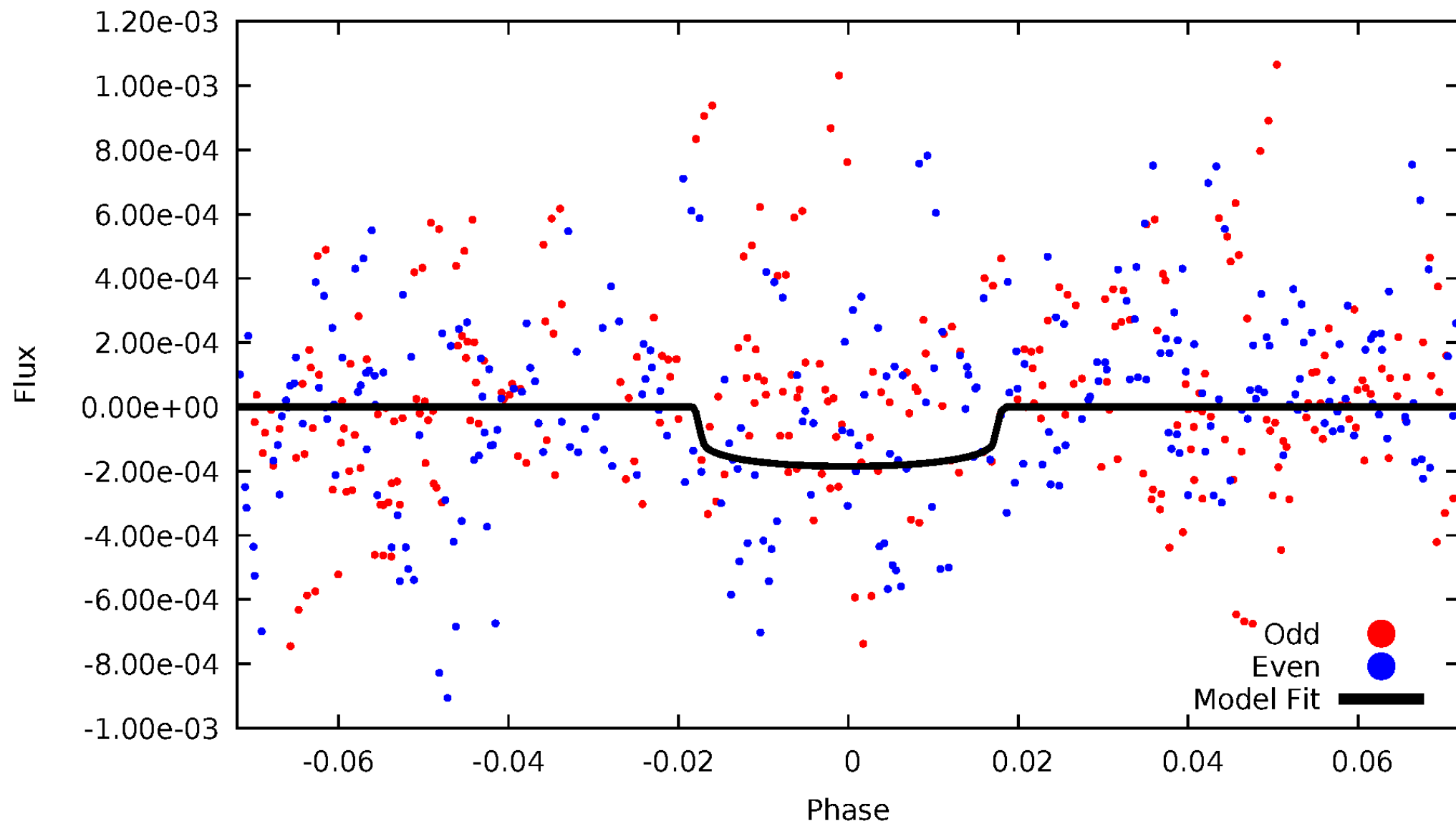


TCE 008748251-03



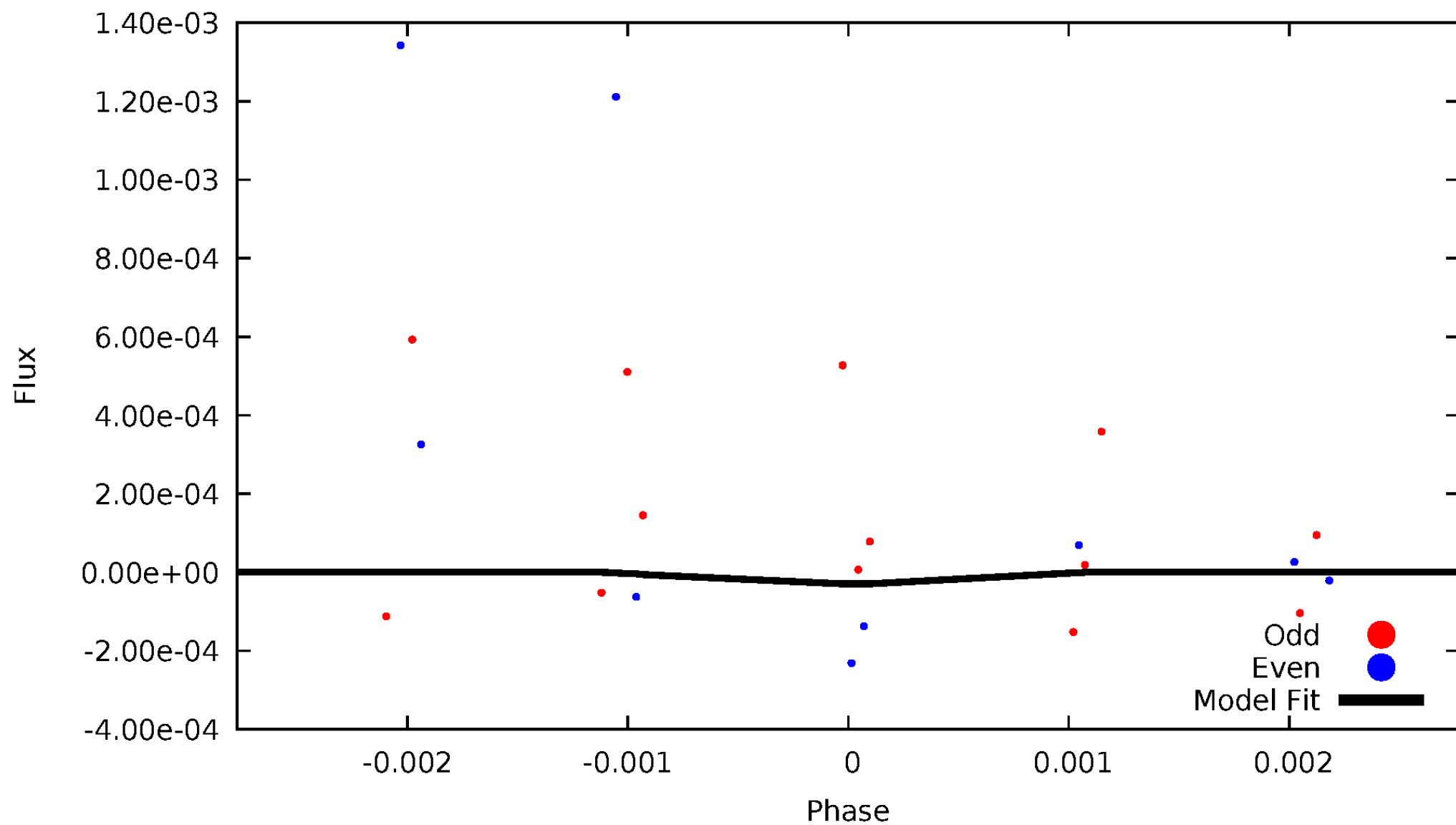
DV Odd/Even

TCE 008748251-03



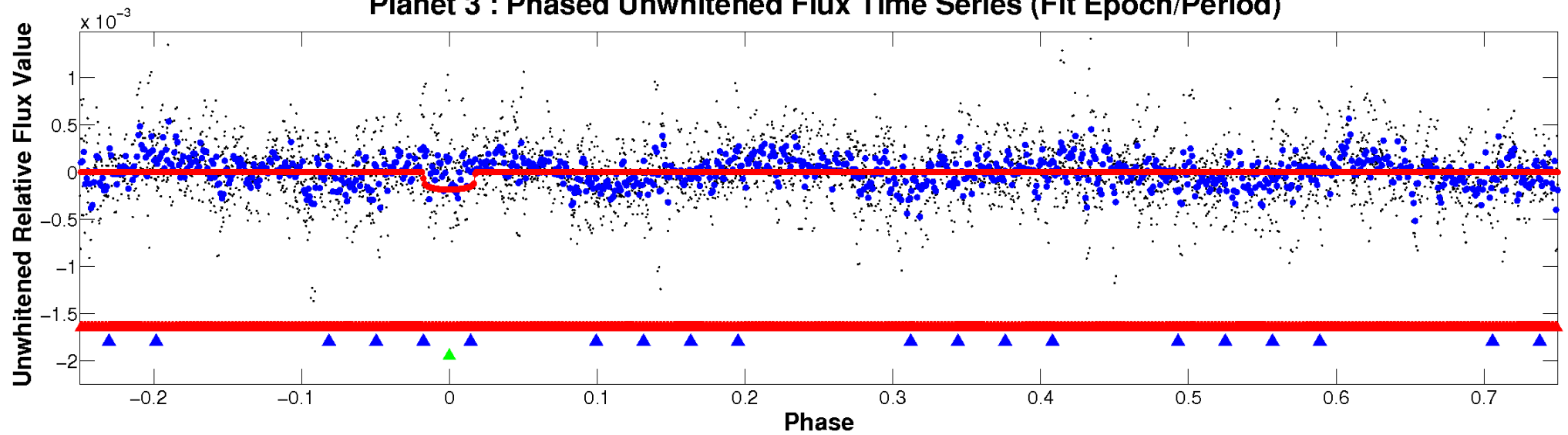
ALT Odd/Even

TCE 008748251-03

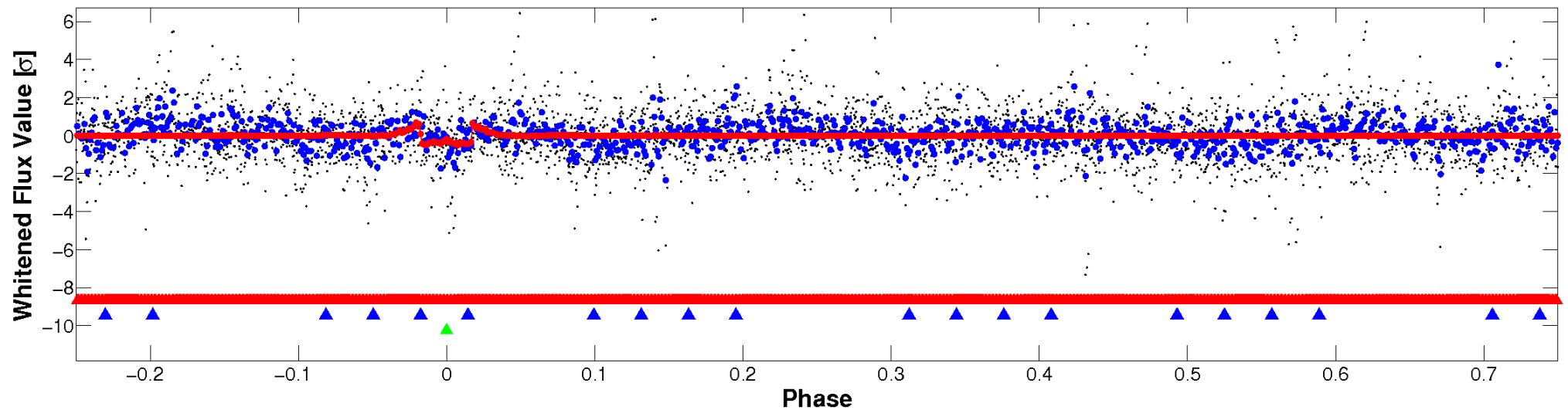


Non-Whitened Vs. Whitened Light Curve

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

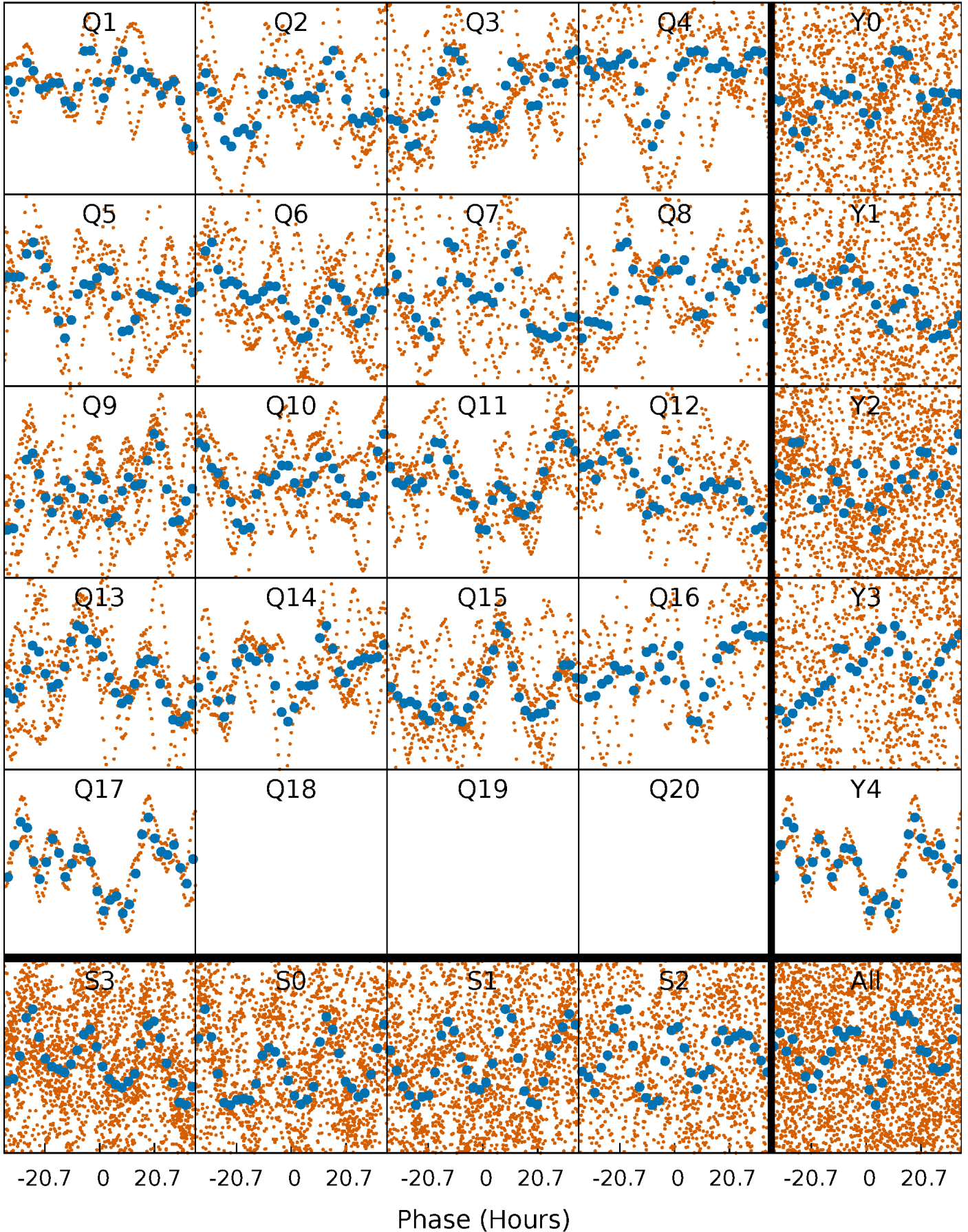


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



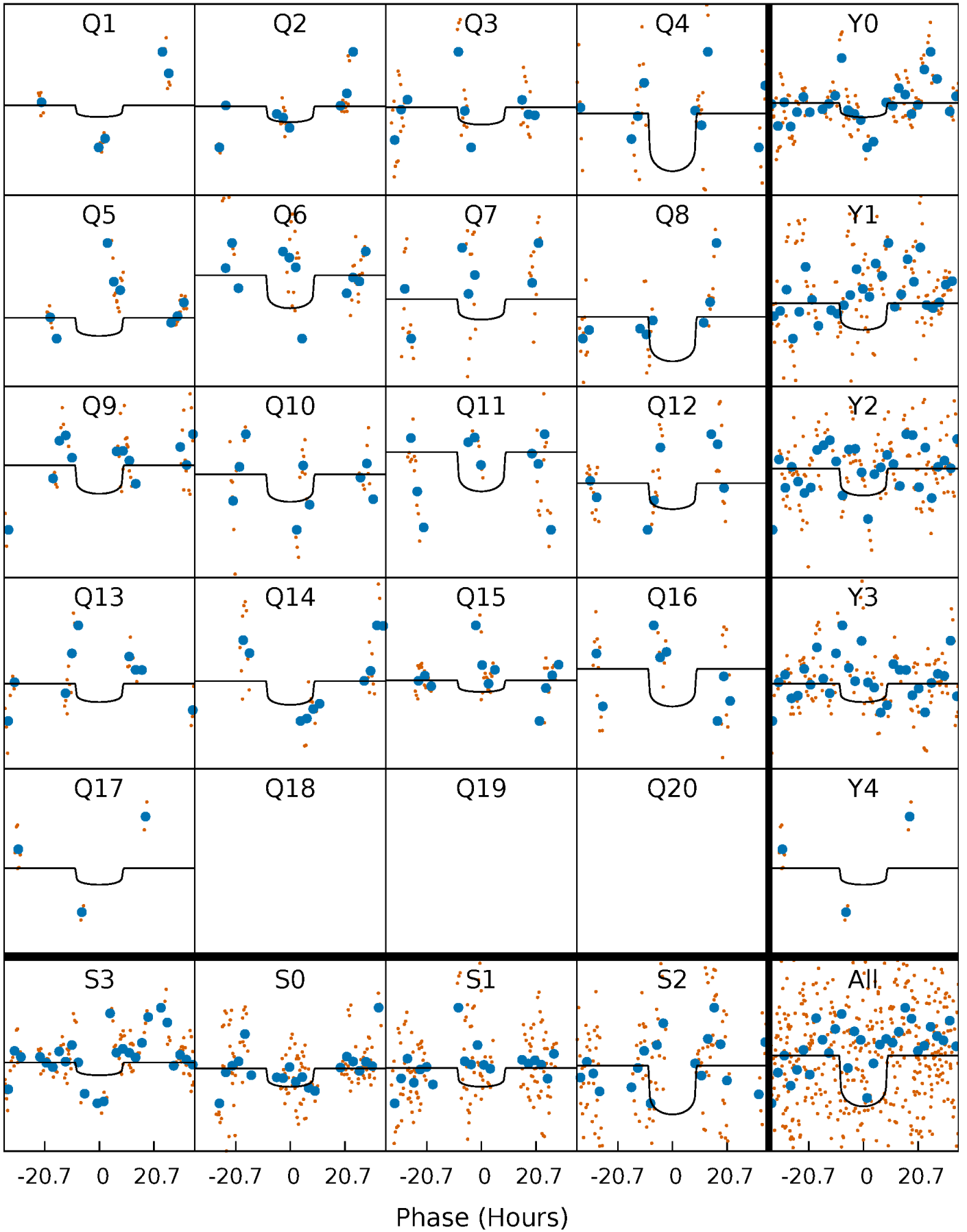
PDC Quarter-Phased Transit Curves

TCE 008748251-03 P= 20.985556 Days $T_0=140.589908$ (BKJD)



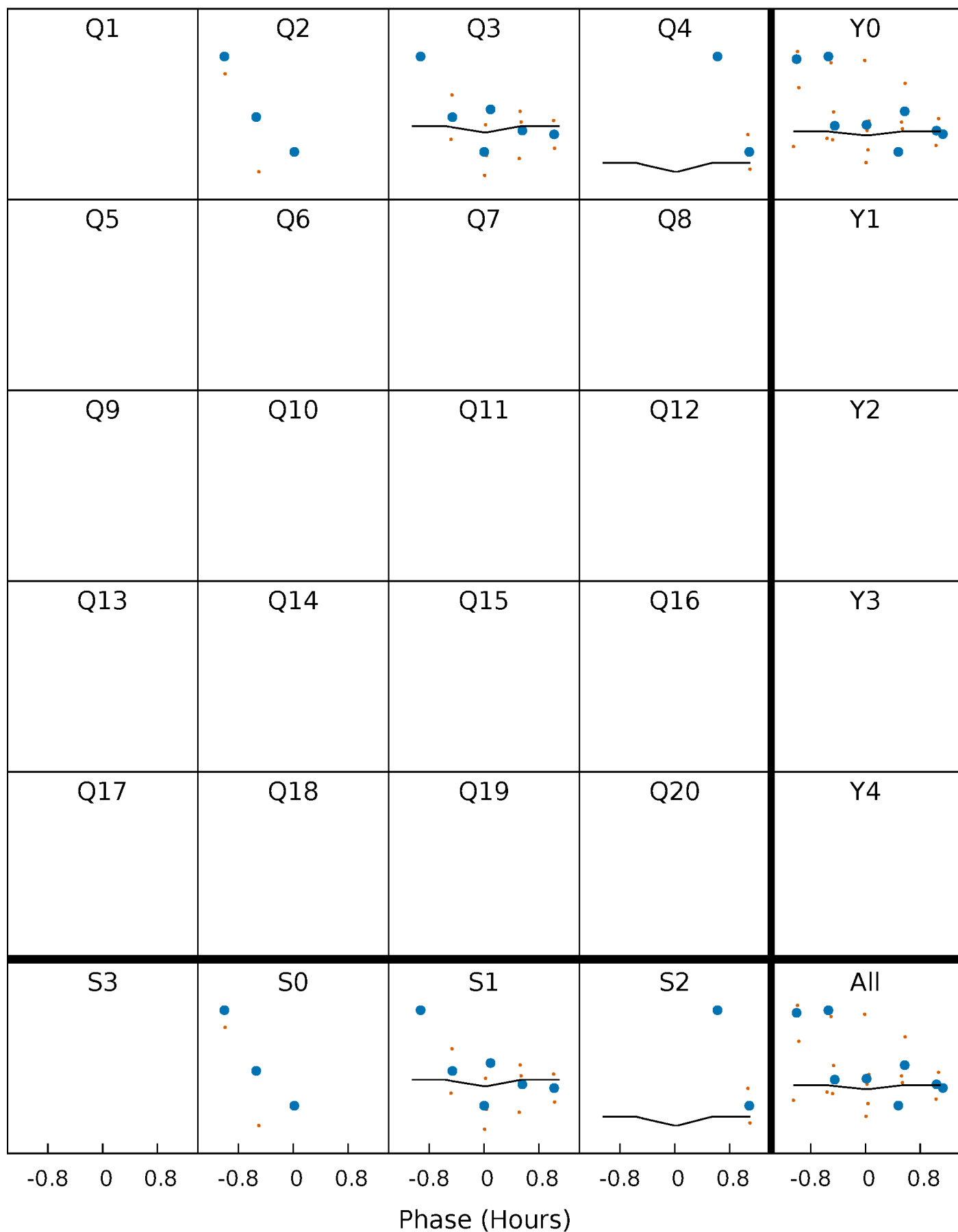
DV Quarter-Phased Transit Curves

TCE 008748251-03 P= 20.985556 Days $T_0=140.589908$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

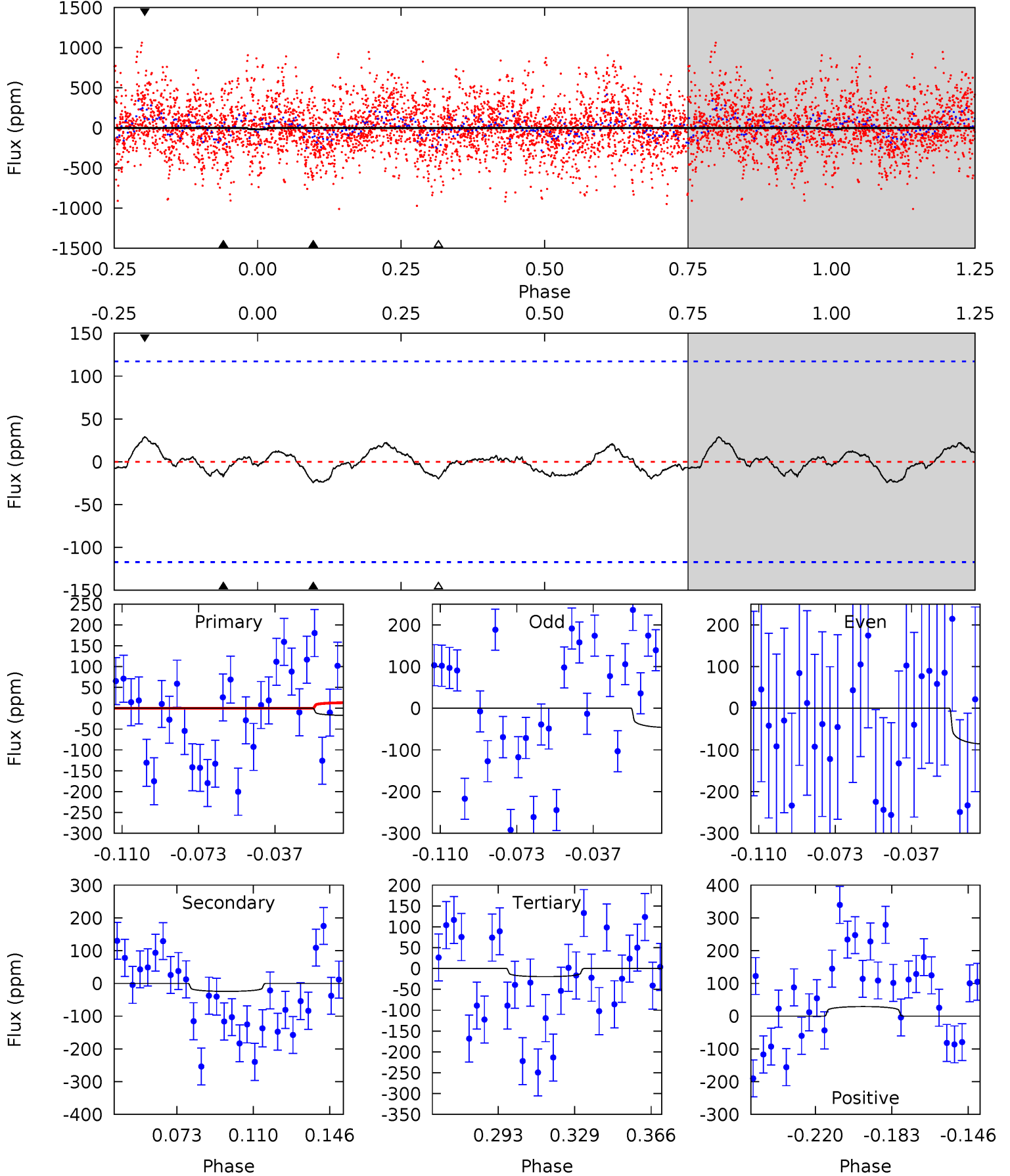
TCE 008748251-03 P= 20.922607 Days $T_0=140.777765$ (BKJD)



DV Model-Shift Uniqueness Test

008748251-03, P = 20.985556 Days, E = 119.604352 Days

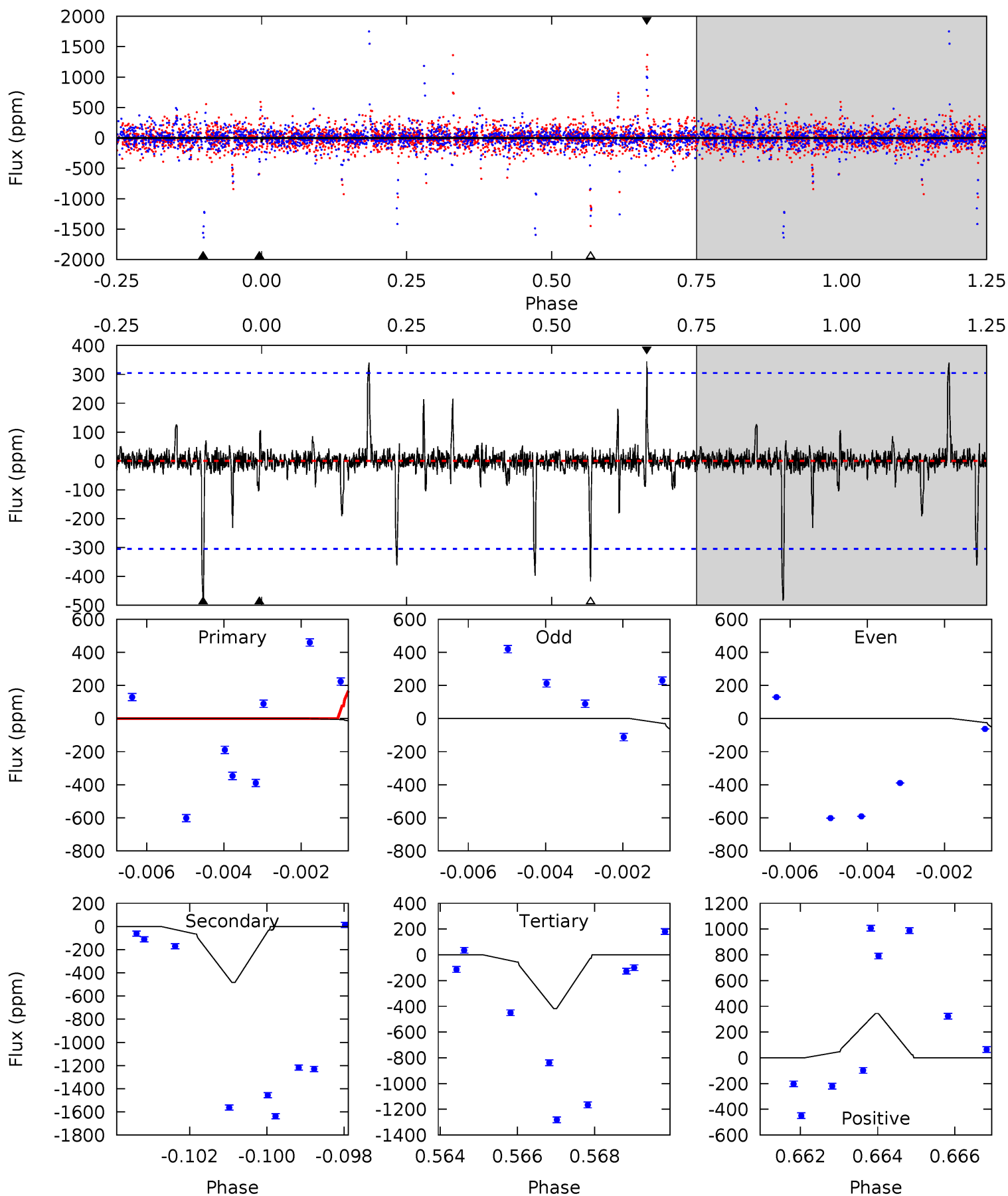
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 0.70 | 0.99 | 0.80 | 1.19 | 4.77 | 2.09 | 0.43 | -0.10 | -0.49 | 0.19 | -0.20 | 0.82 | 0.43 | 0.54 | 0.76 |



Alt Model-Shift Uniqueness Test

008748251-03, P = 20.922607 Days, E = 119.855158 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 0.86 | 8.42 | 7.28 | 6.01 | 5.32 | 3.07 | 0.66 | -6.41 | -5.14 | 1.15 | 2.42 | 0.34 | -1.10 | 0.42 | 4.56 |



Stellar Parameters For KIC 008748251

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7022^{+157}_{-226} | $2.998^{+0.612}_{-0.072}$ | $0.070^{+0.200}_{-0.250}$ | $9.213^{+1.025}_{-5.467}$ | $3.080^{+0.205}_{-1.163}$ | $0.006^{+0.058}_{-0.001}$ |
| | +2%/-3% | +20%/-2% | +286%/-357% | +11%/-59% | +7%/-38% | +1048%/-24% |
| Source | PHO1 | FLK73 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 008748251-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|-------------------------|----------------------|--------------------------|----------------------------|
| DV | -24 ± 25 | $11.01^{+5.32}_{-4.47}$ | 2727^{+173}_{-446} | 4393^{+1139}_{-2116} | $4.793^{+10.997}_{-4.449}$ |
| Alt. | -483 ± 57 | $5.17^{+3.88}_{-3.16}$ | 2724^{+185}_{-390} | 19256^{+44644}_{-7392} | 447^{+2534}_{-298} |

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

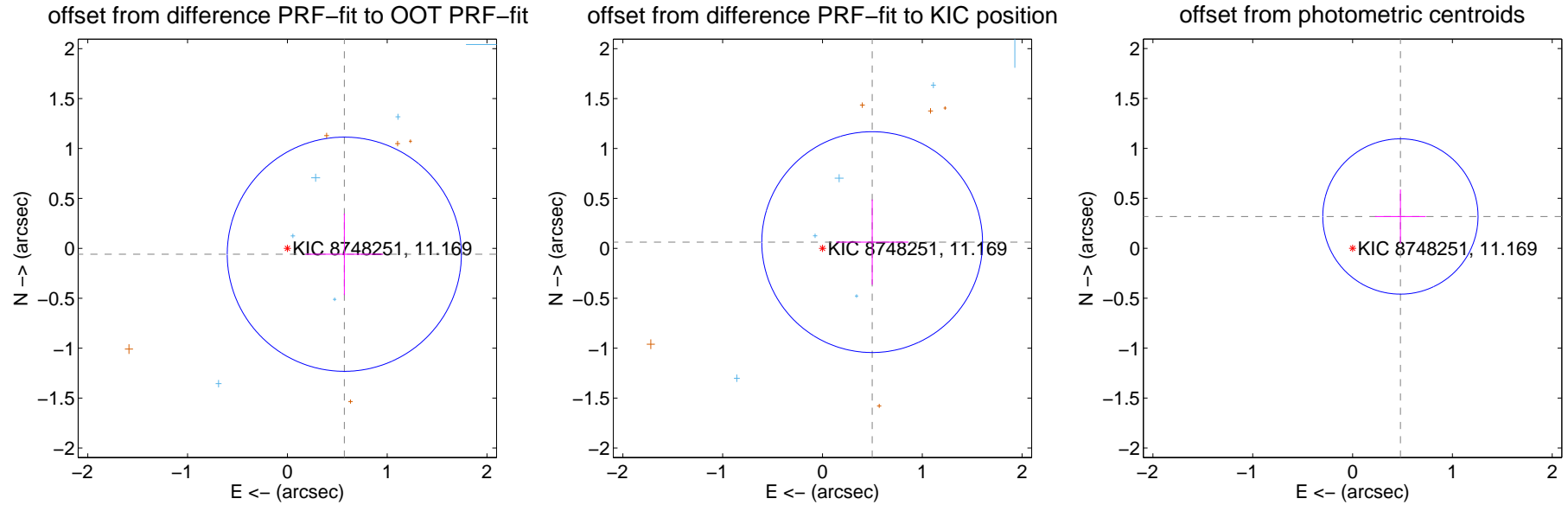
DV Centroid Data

Supplemental centroid analysis for 008748251-03. **Kepler magnitude: 11.17.** Transit SNR 5.77

There are 7 quarters with good PRF difference image offsets

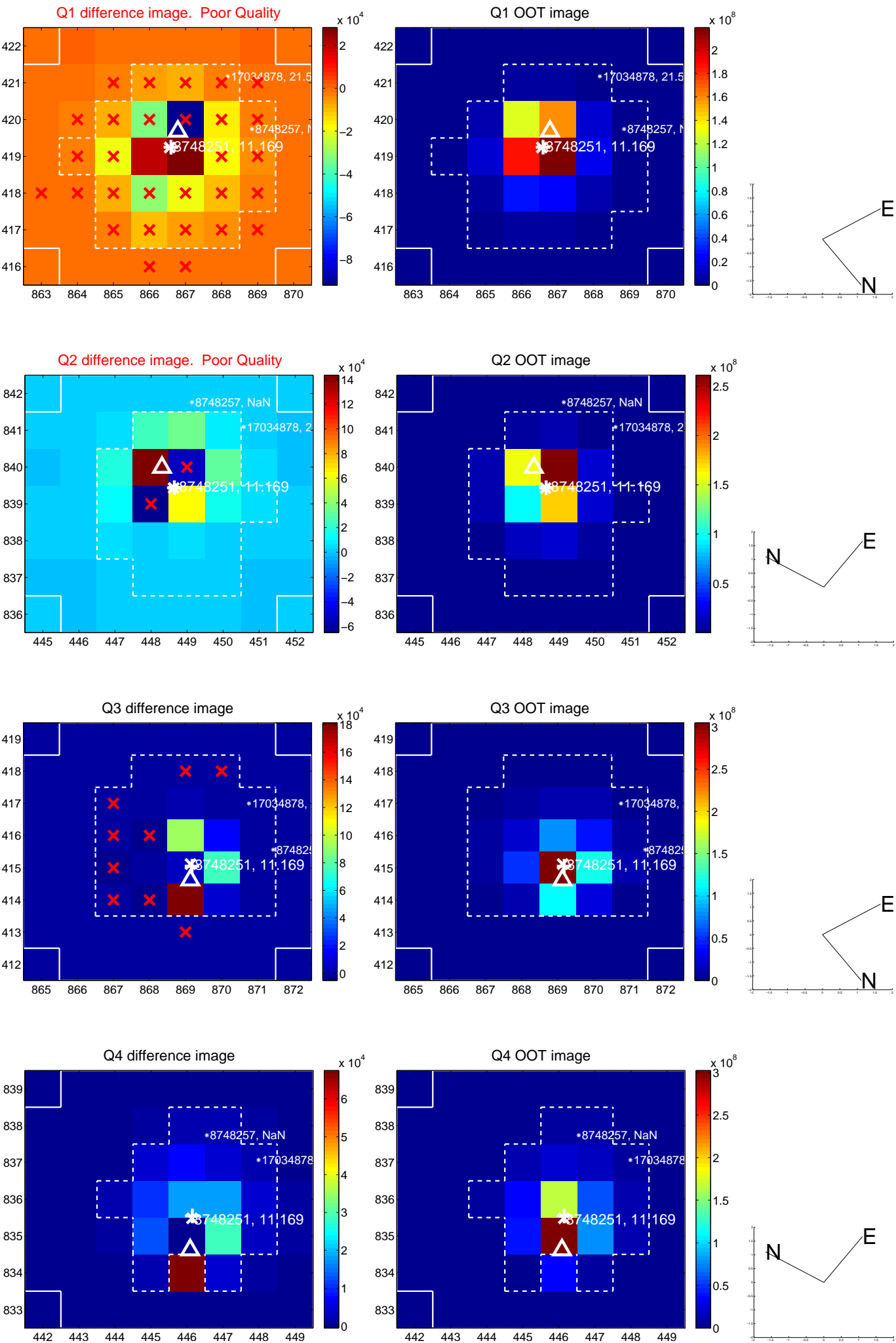
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.573 ± 0.391 | 1.47 | -0.570 ± 0.389 | -0.059 ± 0.408 |
| PRF-fit source offset from KIC position | 0.502 ± 0.369 | 1.36 | -0.498 ± 0.363 | 0.062 ± 0.427 |
| photometric centroid source offset | 0.58 ± 0.26 | 2.22 | -0.48 ± 0.25 | 0.32 ± 0.27 |

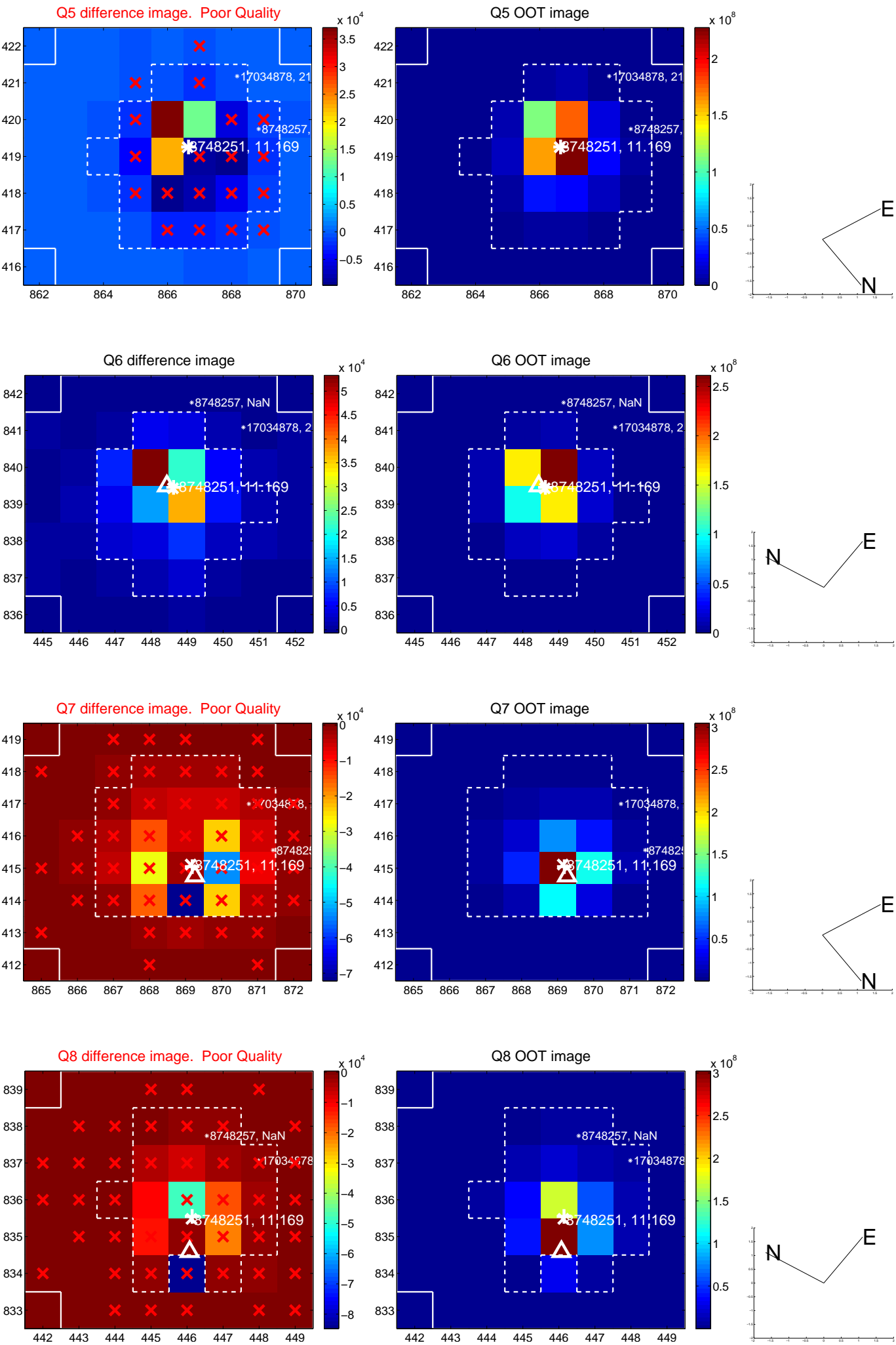


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

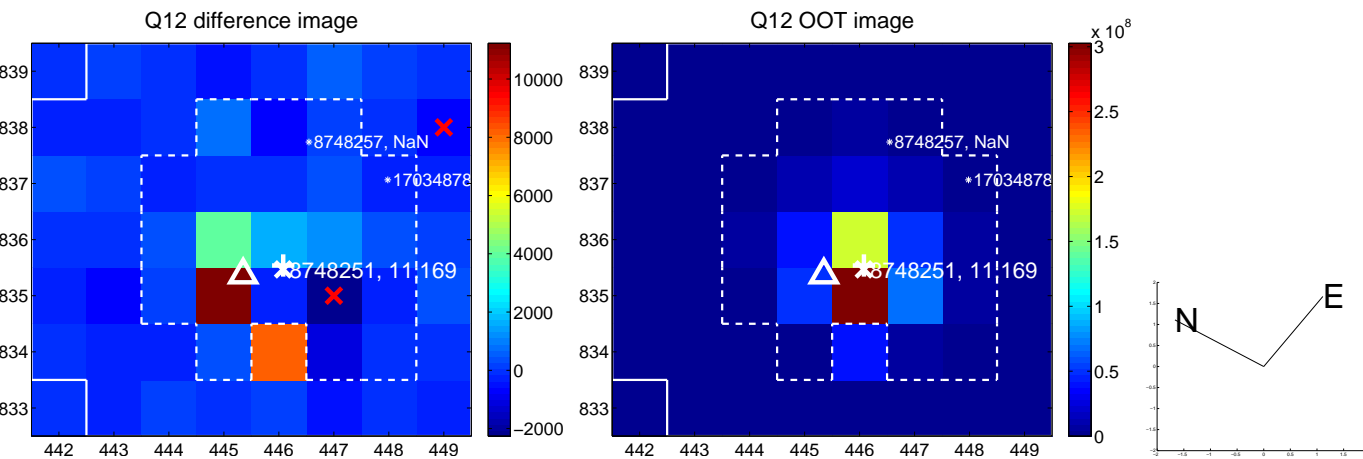
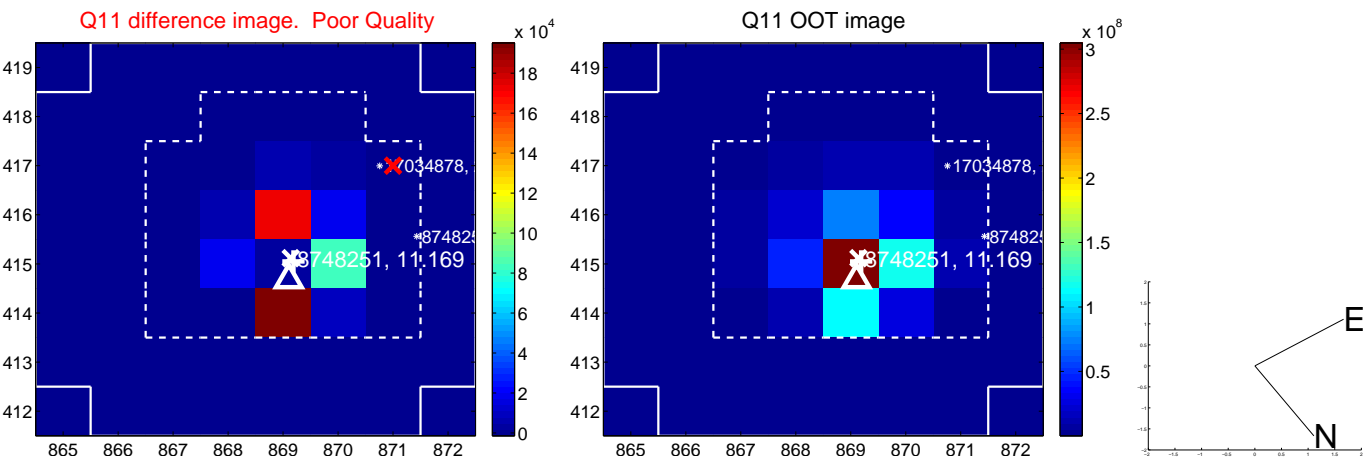
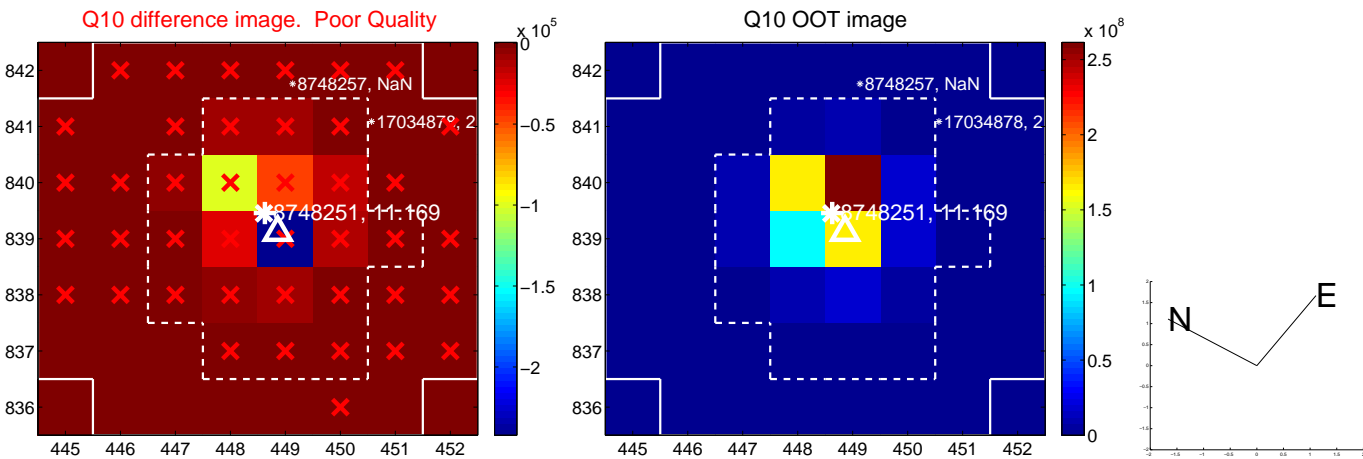
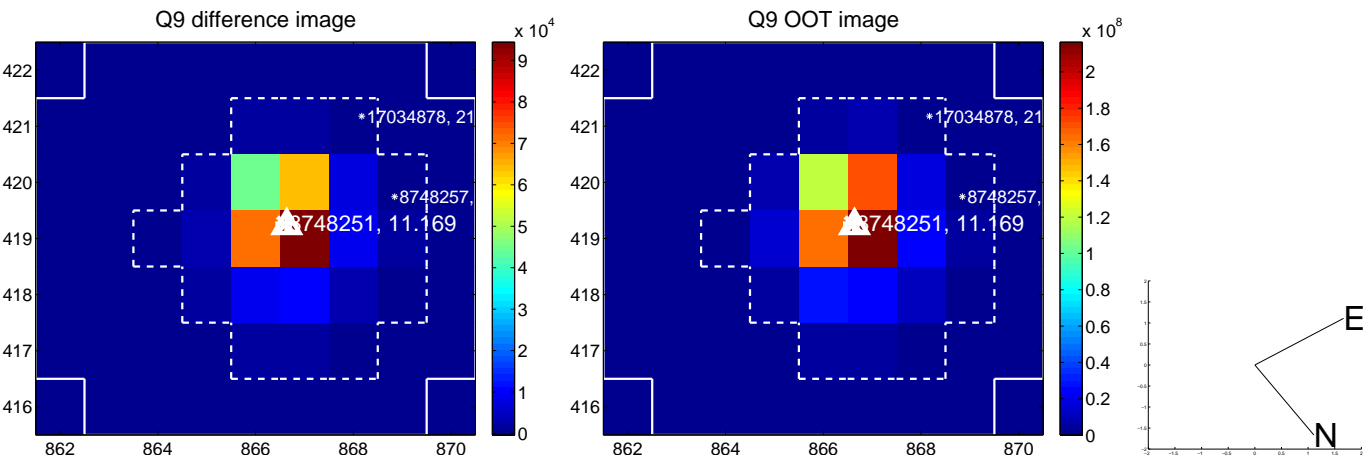
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



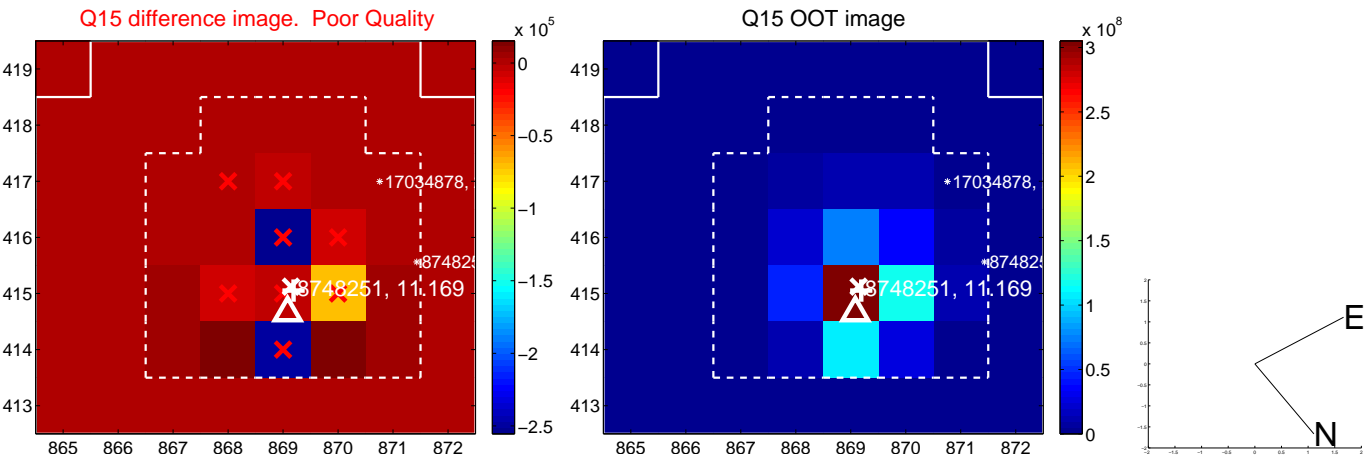
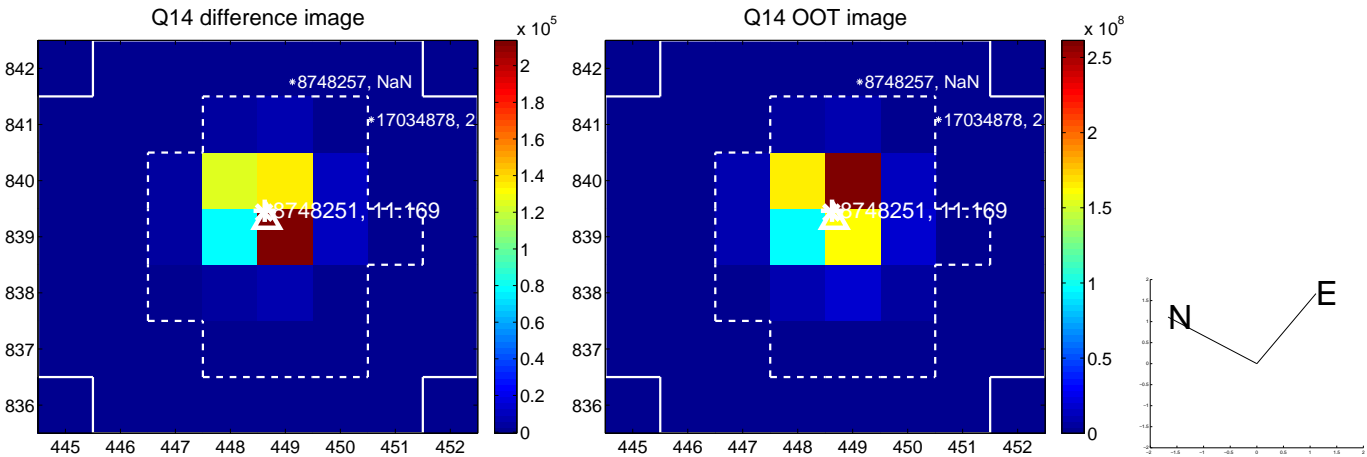
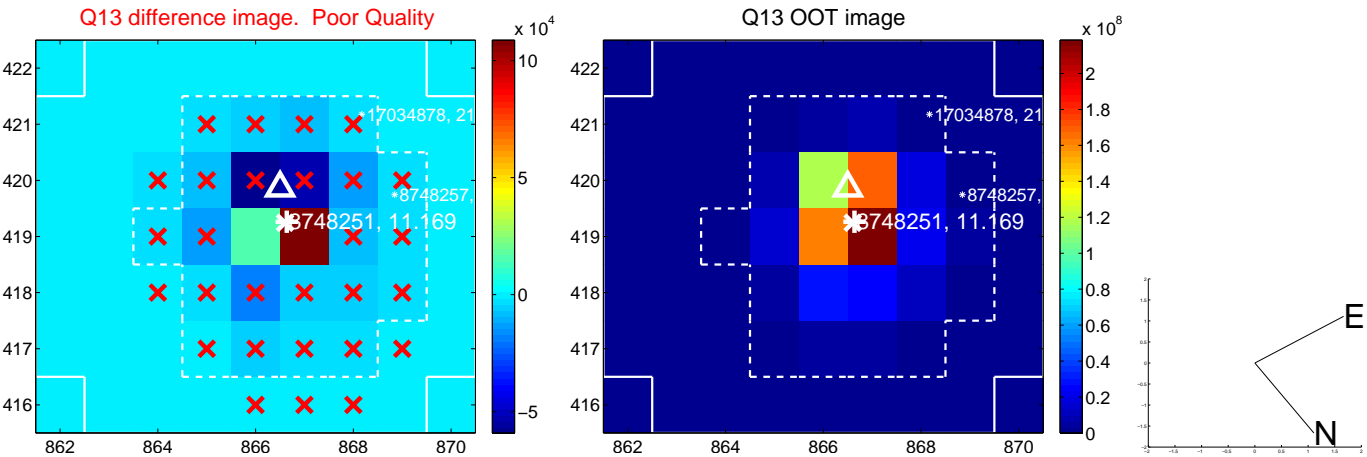
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



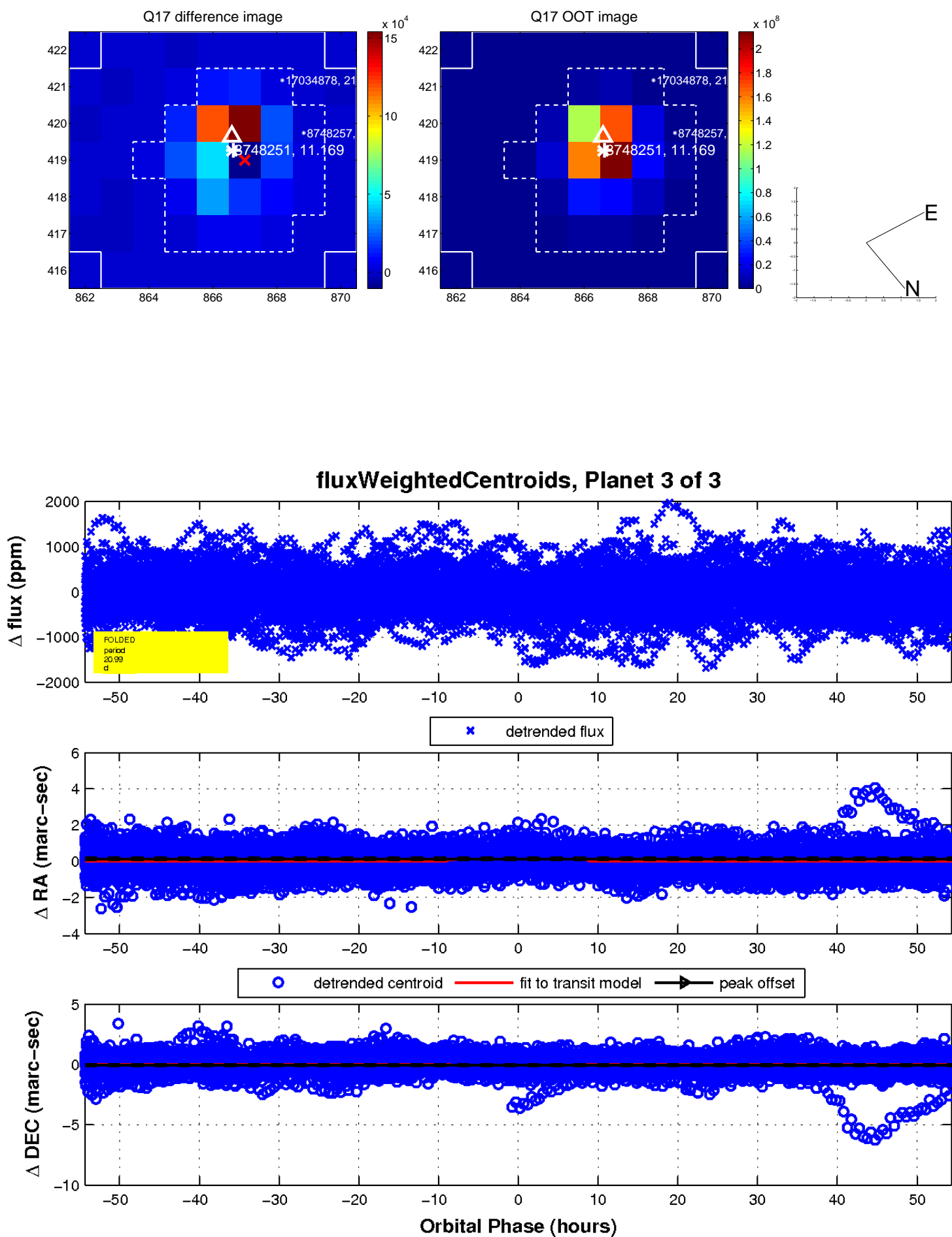
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

