

KIC 005891708

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005891708-01 | OBS | No | 1.082448 | 131.558561 | 22.9 | 7.787 | 9.0 | 6.7 | 7.41 | 6897 | 3.80 | 0.00 |
| 005891708-02 | OBS | No | 57.558914 | 160.066898 | 384.0 | 1.875 | 9.4 | 8.0 | 7.41 | 6897 | 16.44 | 673.90 |
| 005891708-03 | OBS | No | 16.043993 | 145.419334 | 302.7 | 1.050 | 9.0 | 8.1 | 7.41 | 6897 | 21.34 | 3701.10 |
| 005891708-04 | OBS | No | 7.412292 | 136.547469 | 210.8 | 1.407 | 8.9 | 9.7 | 7.41 | 6897 | 13.08 | 10362.81 |
| 005891708-05 | OBS | No | 47.612556 | 145.109080 | 374.0 | 1.404 | 8.0 | 8.3 | 7.41 | 6897 | 15.14 | 867.87 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005891708-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT |
| 005891708-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 005891708-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 005891708-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 005891708-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

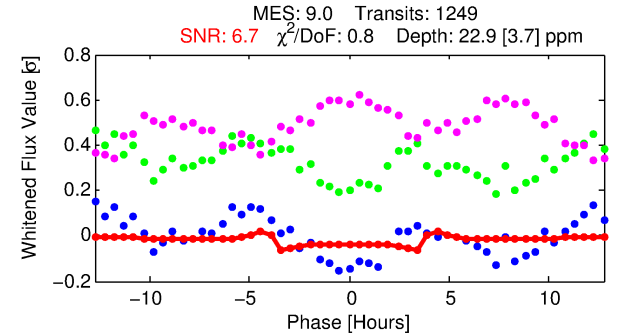
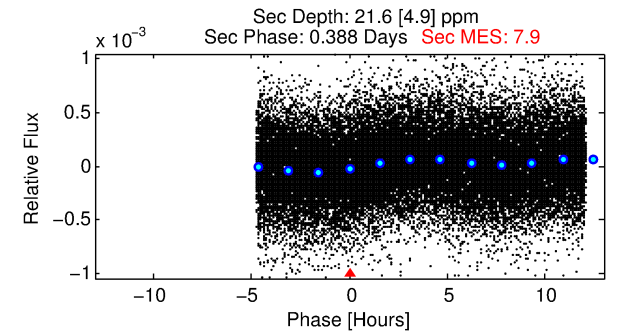
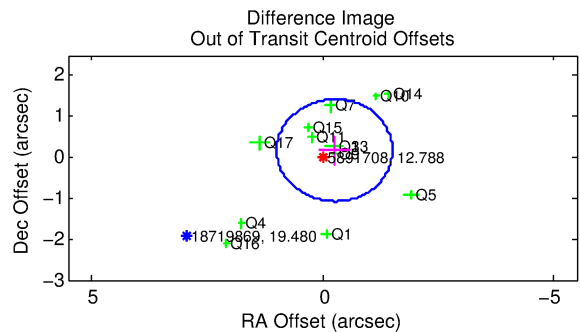
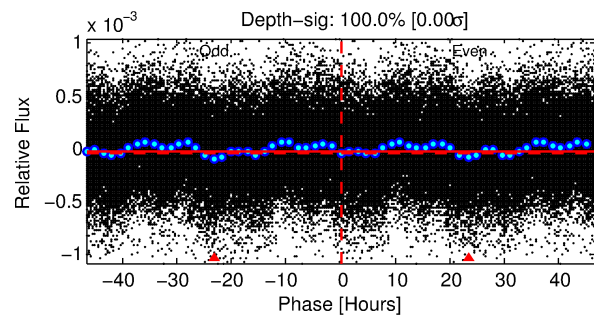
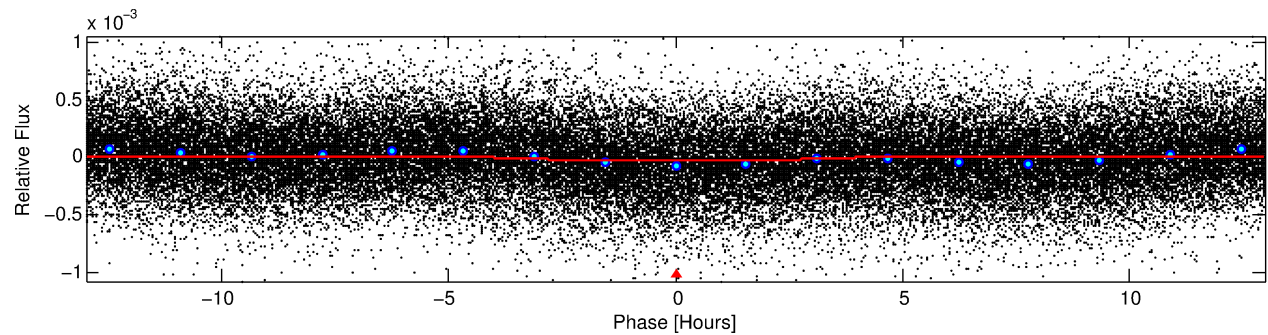
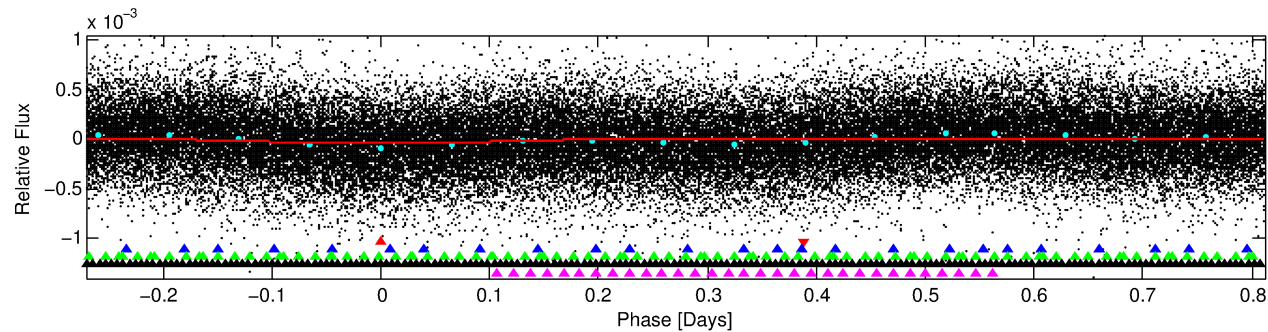
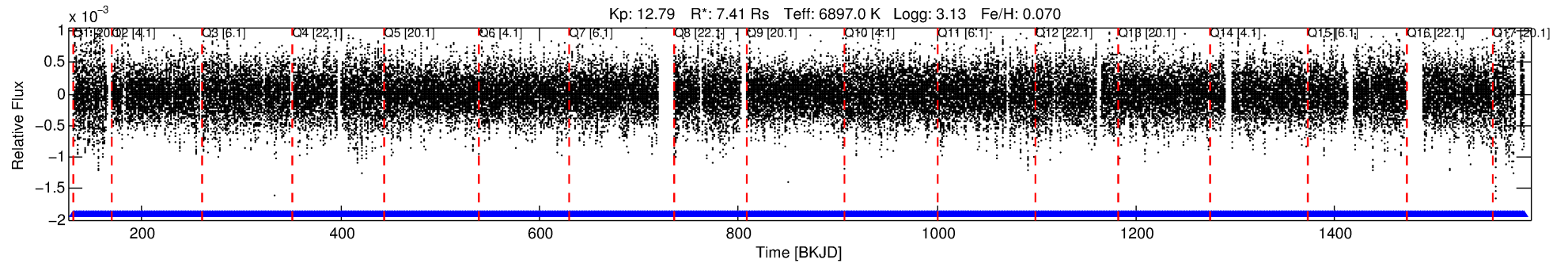
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005891708-01

No Significant Match Found

DV One-Page Summary

KIC: 5891708 Candidate: 1 of 5 Period: 1.082 d



DV Fit Results:

Period = 1.08245 [0.00002] d
Epoch = 131.5586 [0.0041] BKJD
Rp/R* = 0.0047 [0.0025]
a/R* = 1.13 [0.79]
b = 0.70 [2.30]
Seff = N/A
Teq = N/A
Rp = 3.80 [2.89] Re
a = N/A
Ag = N/A
Teffp = N/A

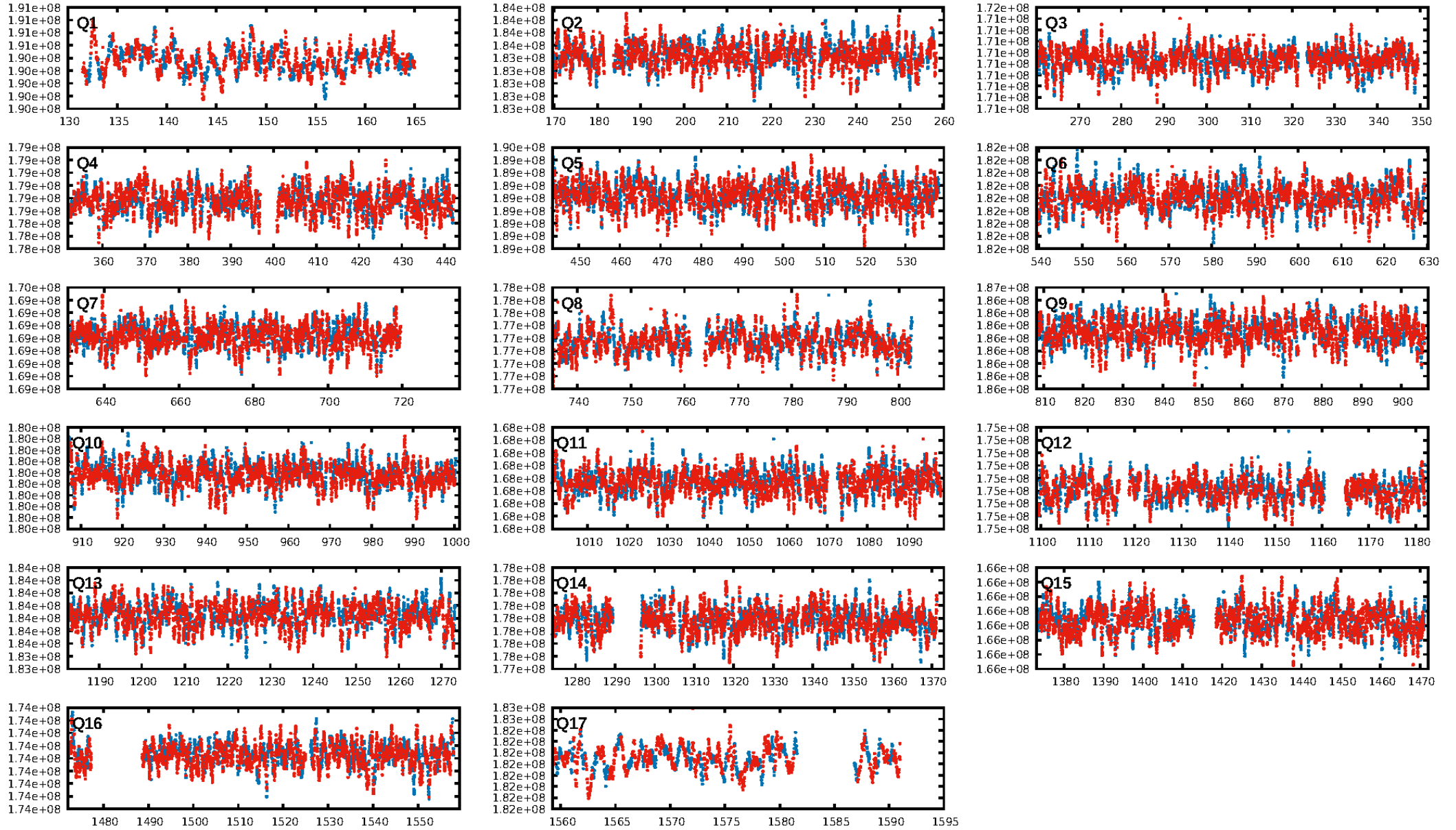
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [19.20 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.73e-20
RollingBand-fgt: 1.00 [1192/1192]
GhostDiagnostic-chr: 0.963
Centroid-sig: 0.2%
Centroid-so: 1.180 arcsec [2.00 σ]
OotOffset-rm: 0.314 arcsec [0.75 σ]
KicOffset-rm: 0.253 arcsec [0.65 σ]
OotOffset-st: 2/4/2/5 [13]
KicOffset-st: 2/4/2/5 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [17/17]

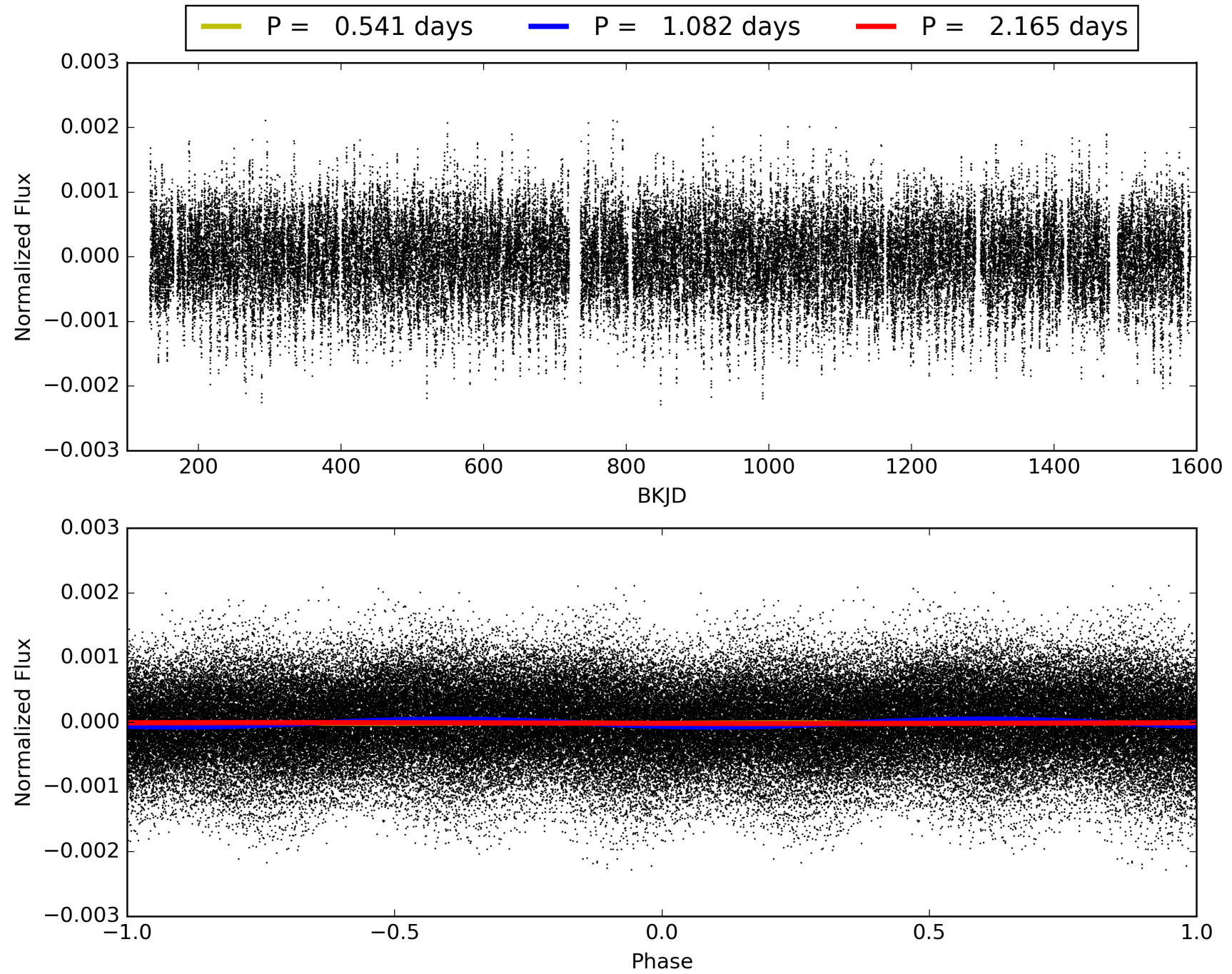
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:00:45 Z

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

TCE 005891708-01, PDC Light Curves

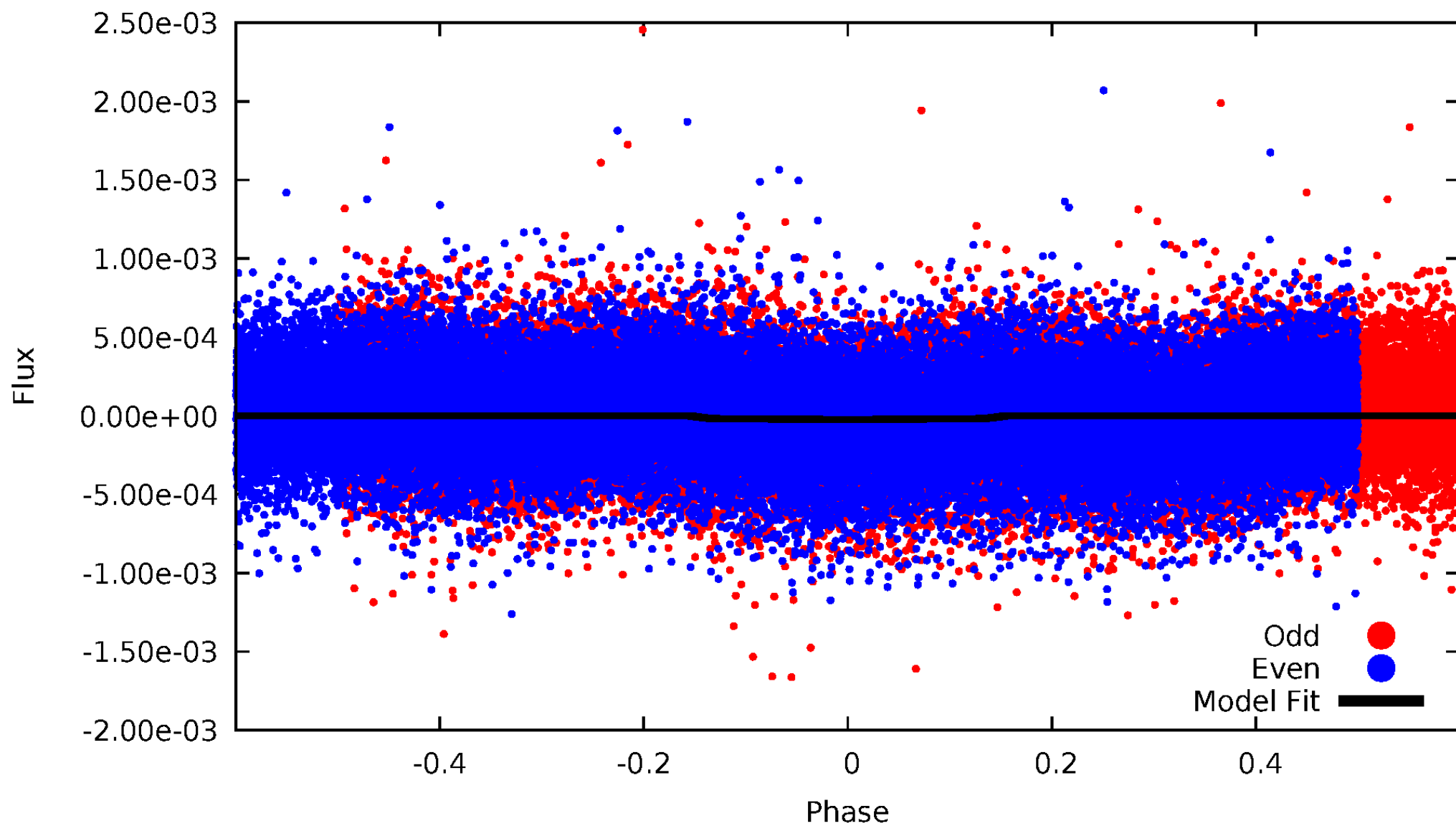


TCE 005891708-01



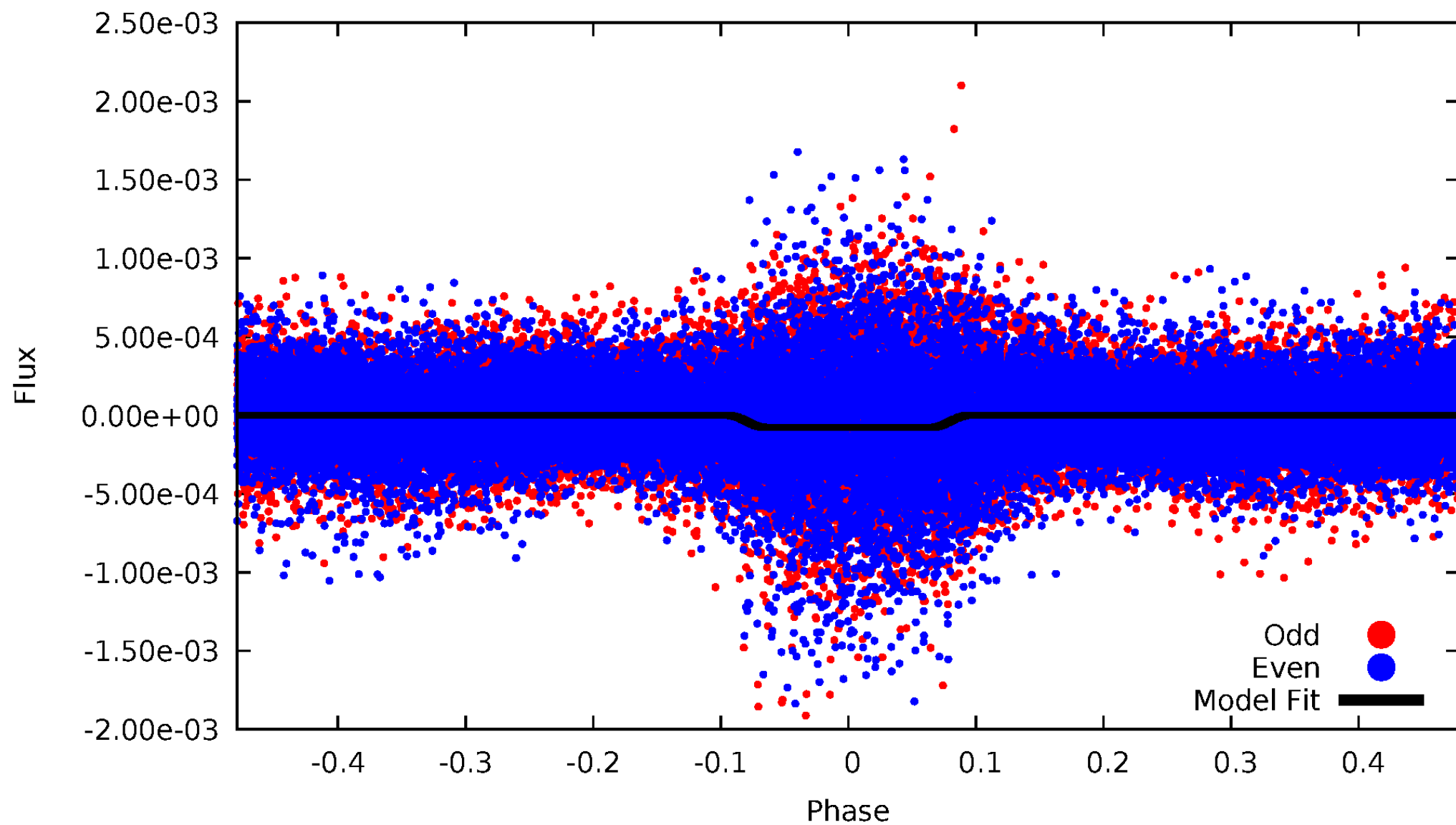
DV Odd/Even

TCE 005891708-01

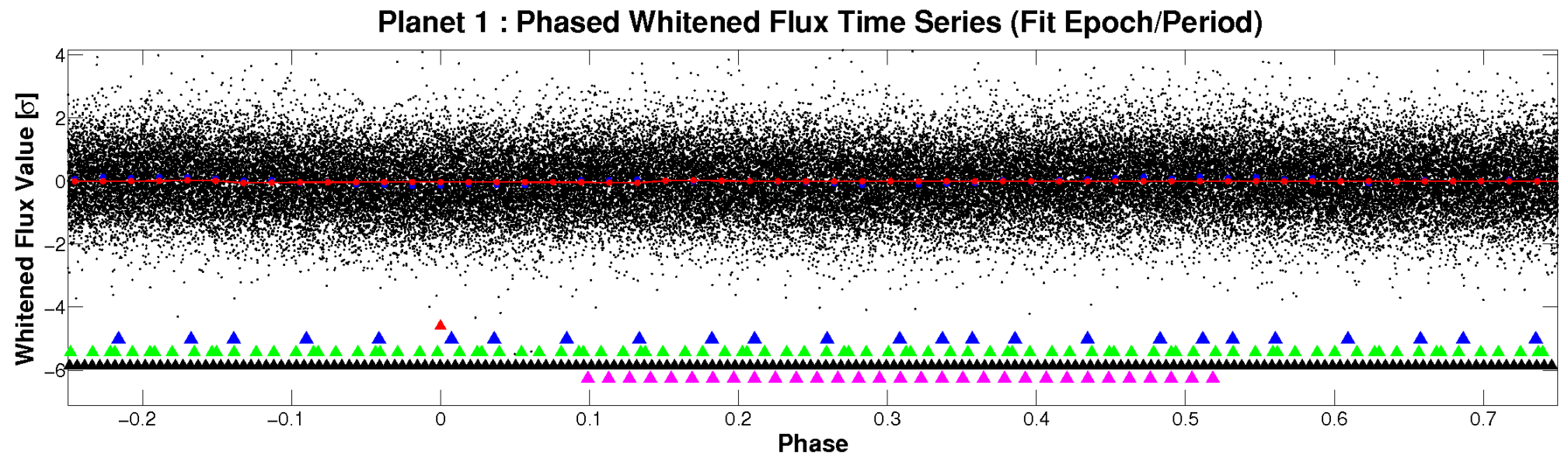
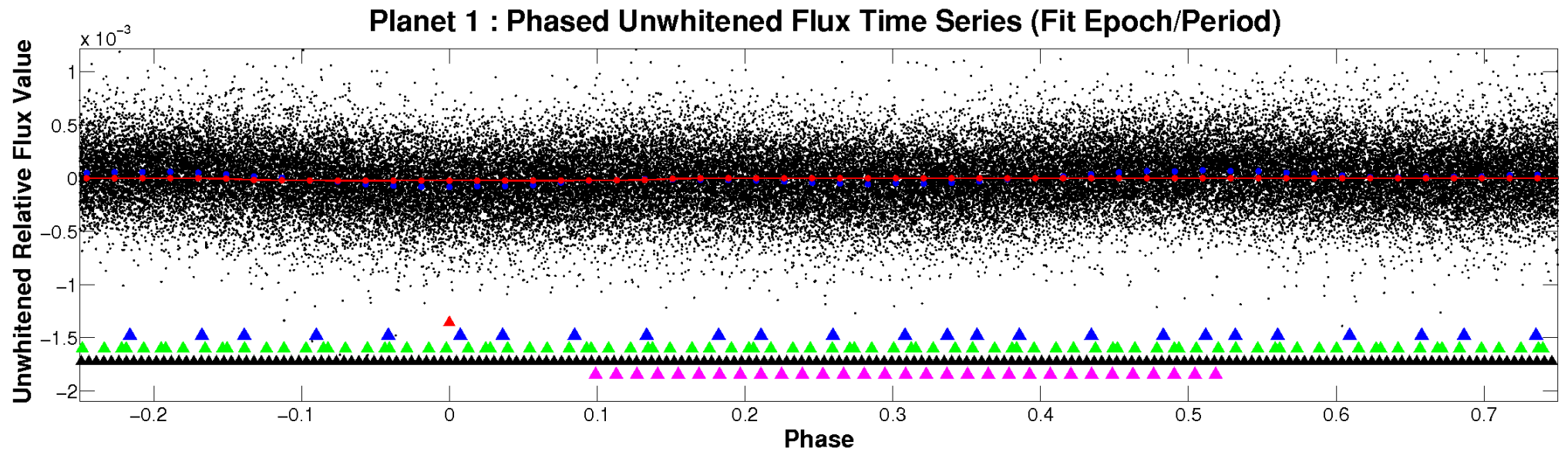


ALT Odd/Even

TCE 005891708-01

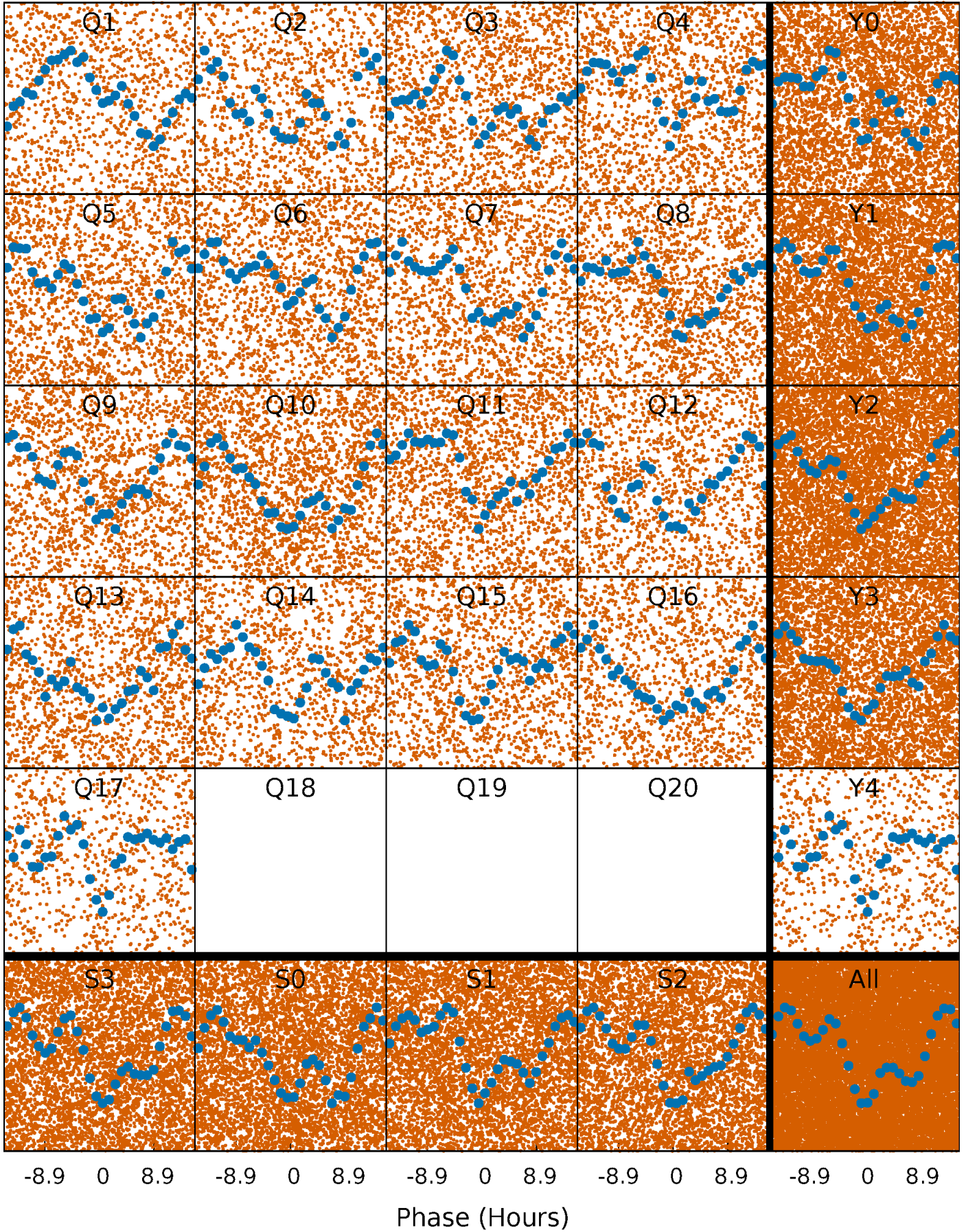


Non-Whitened Vs. Whitened Light Curve



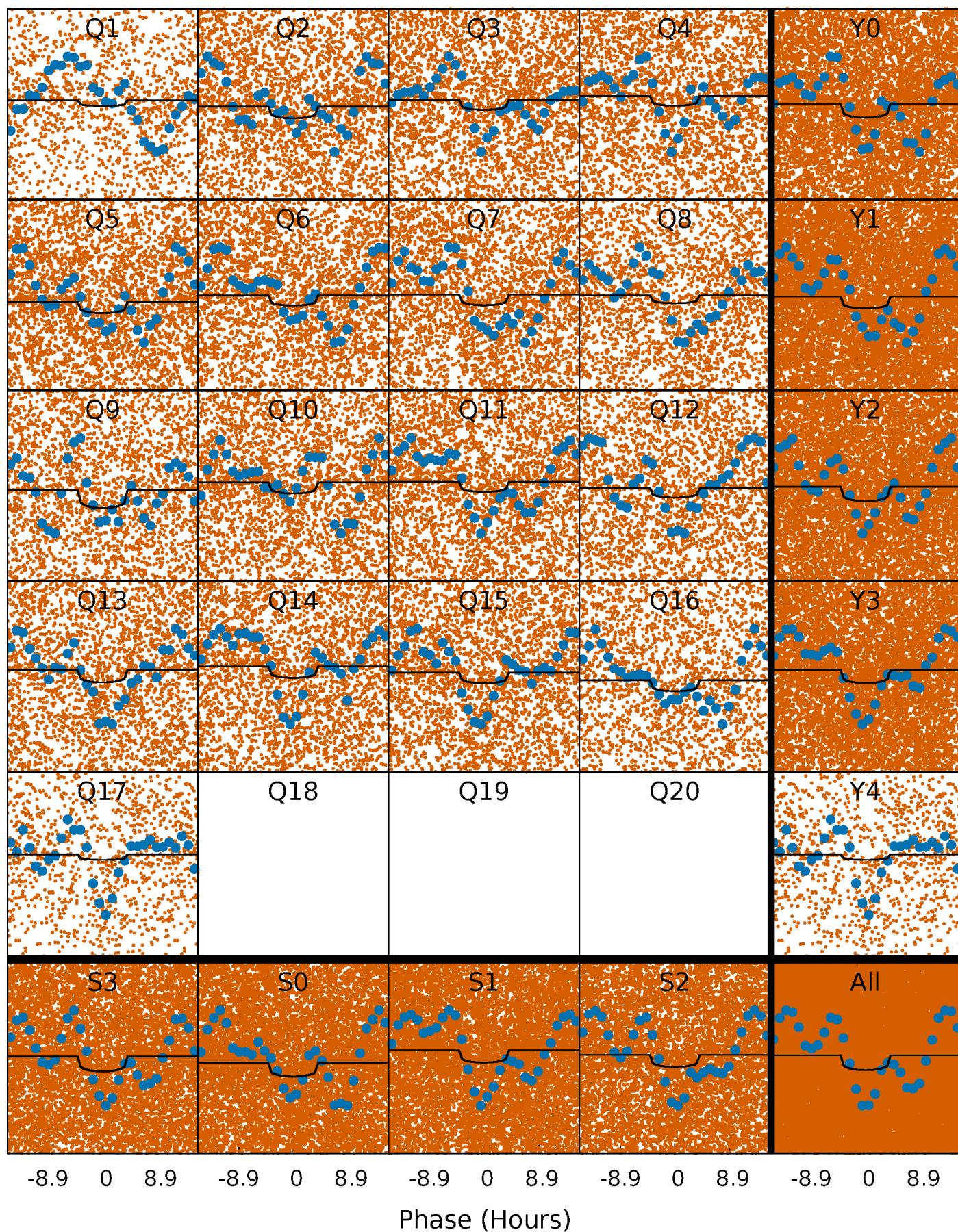
PDC Quarter-Phased Transit Curves

TCE 005891708-01 P= 1.082448 Days $T_0=131.558560$ (BKJD)



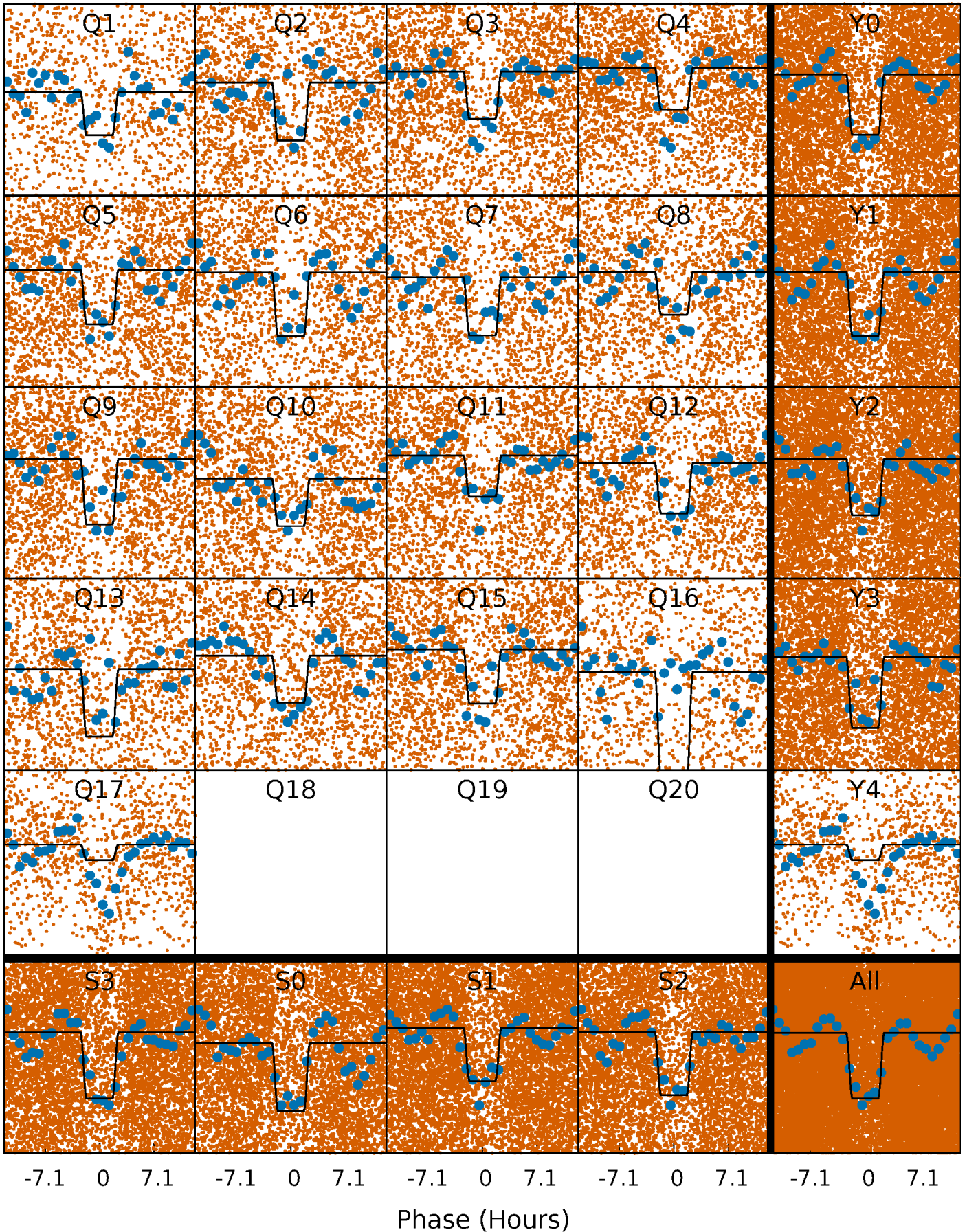
DV Quarter-Phased Transit Curves

TCE 005891708-01 P= 1.082448 Days $T_0=131.558560$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

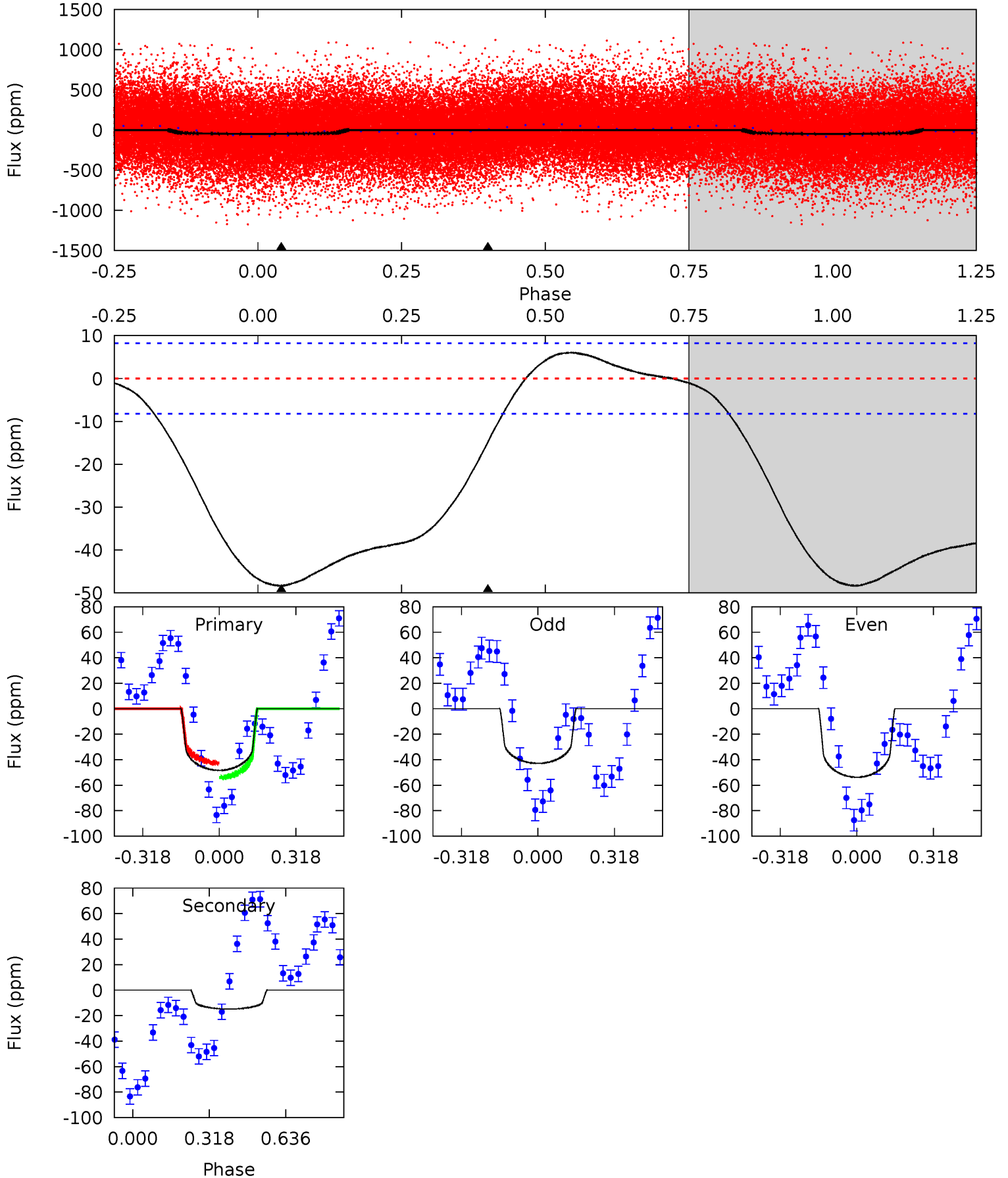
TCE 005891708-01 P= 1.082434 Days $T_0=131.553207$ (BKJD)



DV Model-Shift Uniqueness Test

005891708-01, P = 1.082448 Days, E = 130.476112 Days

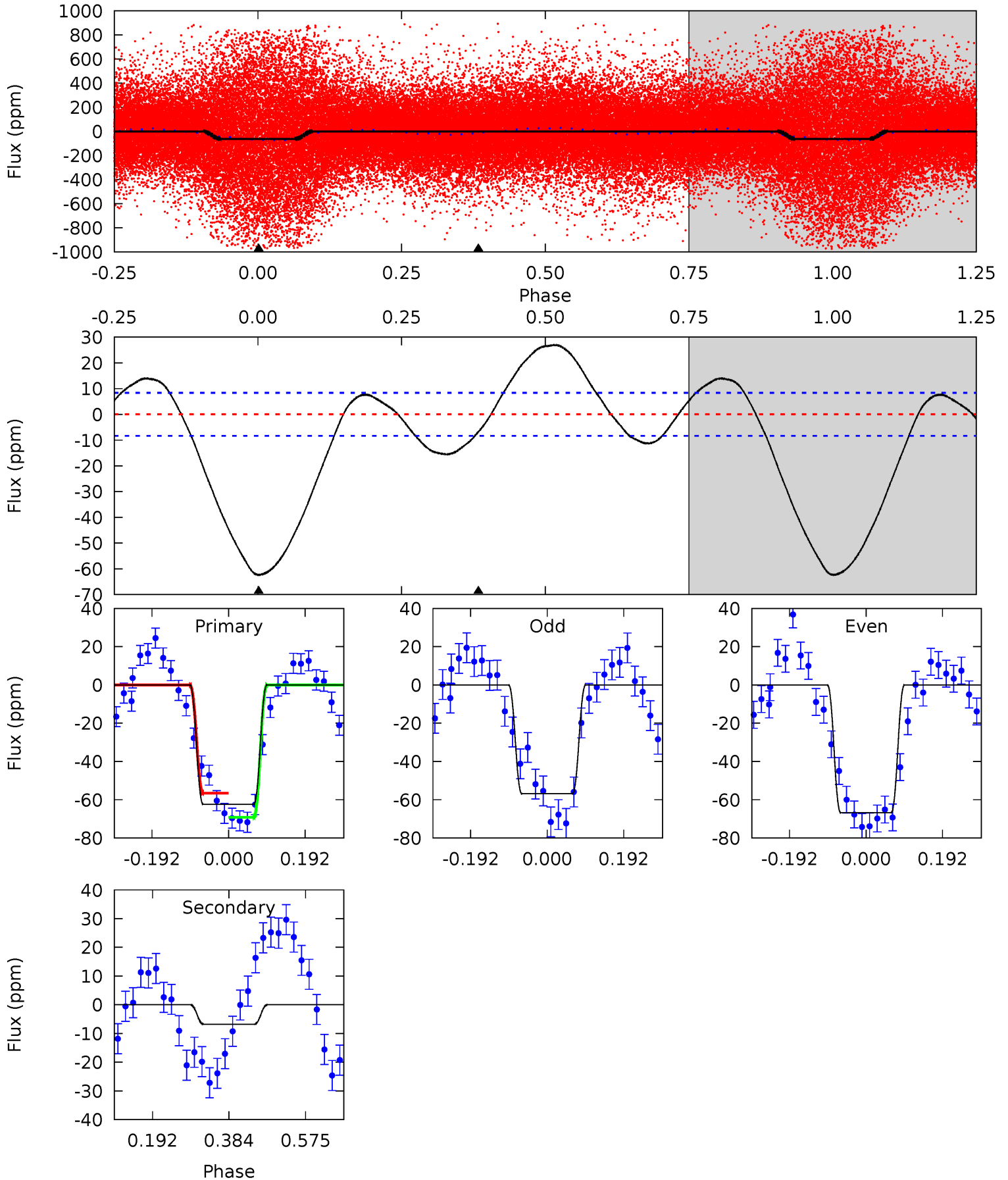
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.4 | 7.80 | 0 | 0 | 4.32 | 1.00 | 0.47 | 25.4 | 25.4 | 7.80 | 7.80 | 2.87 | 1.17 | 0.11 | 2.89 |



Alt Model-Shift Uniqueness Test

005891708-01, P = 1.082434 Days, E = 130.470773 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 33.1 | 3.59 | 0 | 0 | 4.43 | 1.31 | 4.54 | 33.1 | 33.1 | 3.59 | 3.59 | 2.63 | 1.24 | 0.30 | 3.53 |



Stellar Parameters For KIC 005891708

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6897^{+144}_{-246} | $3.130^{+0.528}_{-0.132}$ | $0.070^{+0.200}_{-0.300}$ | $7.410^{+1.730}_{-4.037}$ | $2.703^{+0.353}_{-0.823}$ | $0.009^{+0.061}_{-0.004}$ |
| | +2%/-4% | +17%/-4% | +286%/-429% | +23%/-54% | +13%/-30% | +650%/-39% |
| 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 005891708-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -15 ± 2 | $3.36^{+2.18}_{-1.71}$ | 6585^{+535}_{-833} | 5098^{+3639}_{-9204} | $0.571^{+1.902}_{-0.343}$ |
| Alt. | -7 ± 2 | $6.51^{+2.40}_{-2.28}$ | 6622^{+549}_{-930} | -5057^{+984}_{-526} | $0.070^{+0.107}_{-0.034}$ |

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 $A_{obs} \gg 1.0$

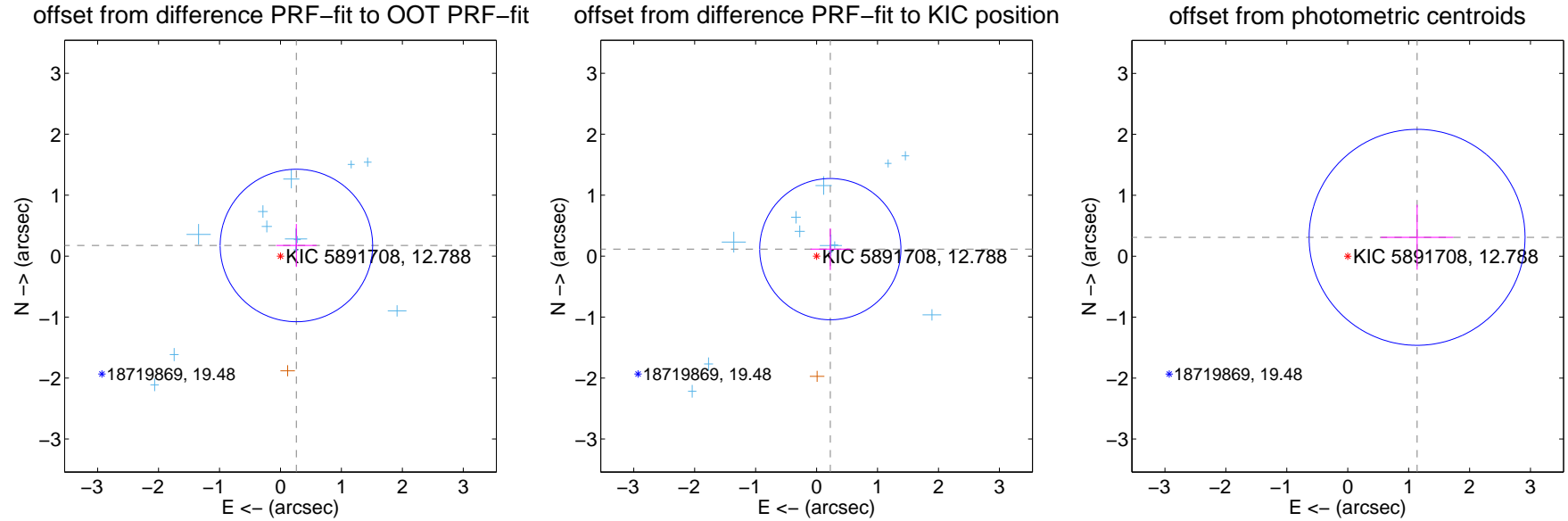
DV Centroid Data

Supplemental centroid analysis for 005891708-01. Kepler magnitude: 12.79. Transit SNR 6.66

There are 12 quarters with good PRF difference image offsets

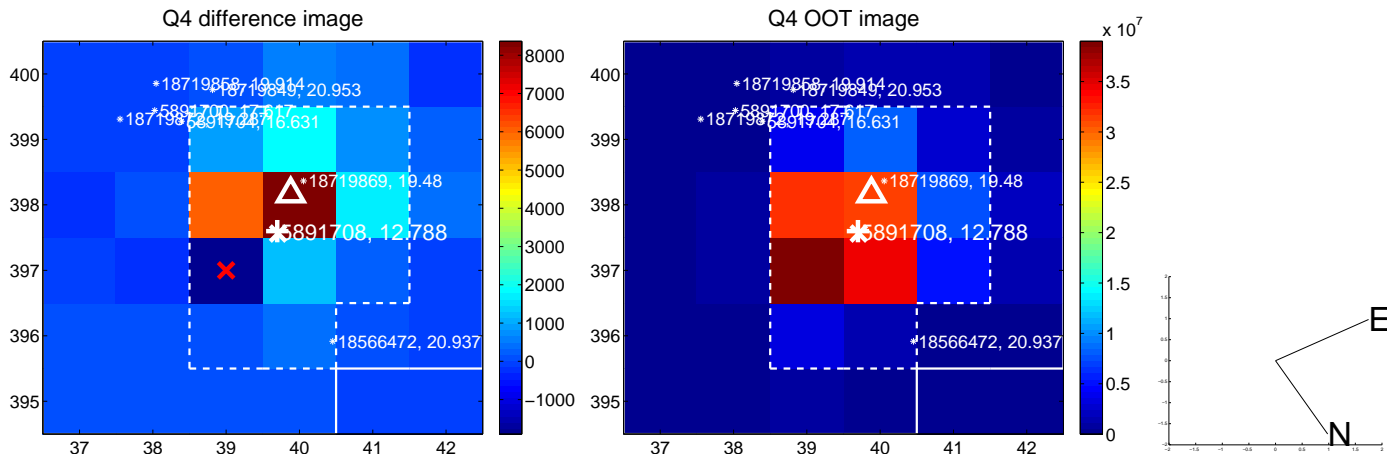
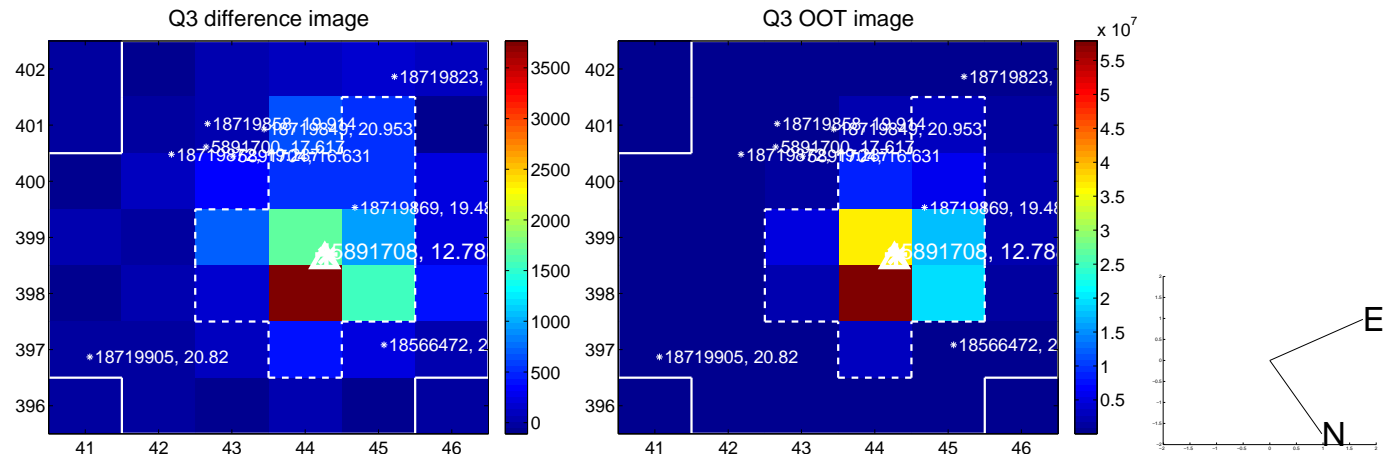
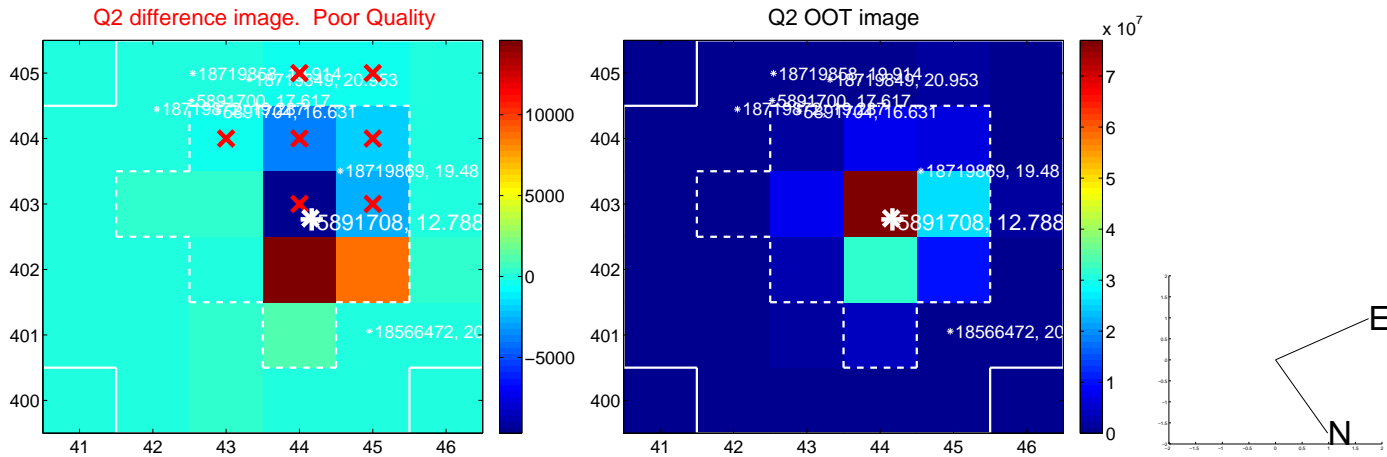
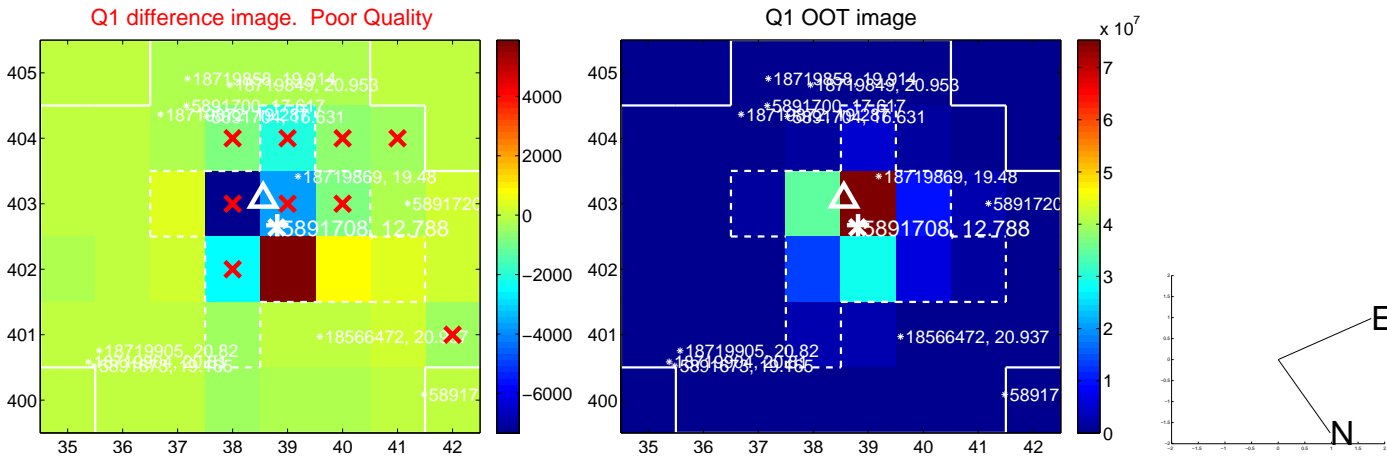
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.314 ± 0.417 | 0.75 | -0.261 ± 0.331 | 0.175 ± 0.352 |
| PRF-fit source offset from KIC position | 0.253 ± 0.386 | 0.65 | -0.225 ± 0.325 | 0.115 ± 0.342 |
| photometric centroid source offset | 1.18 ± 0.59 | 2.00 | -1.14 ± 0.59 | 0.31 ± 0.53 |

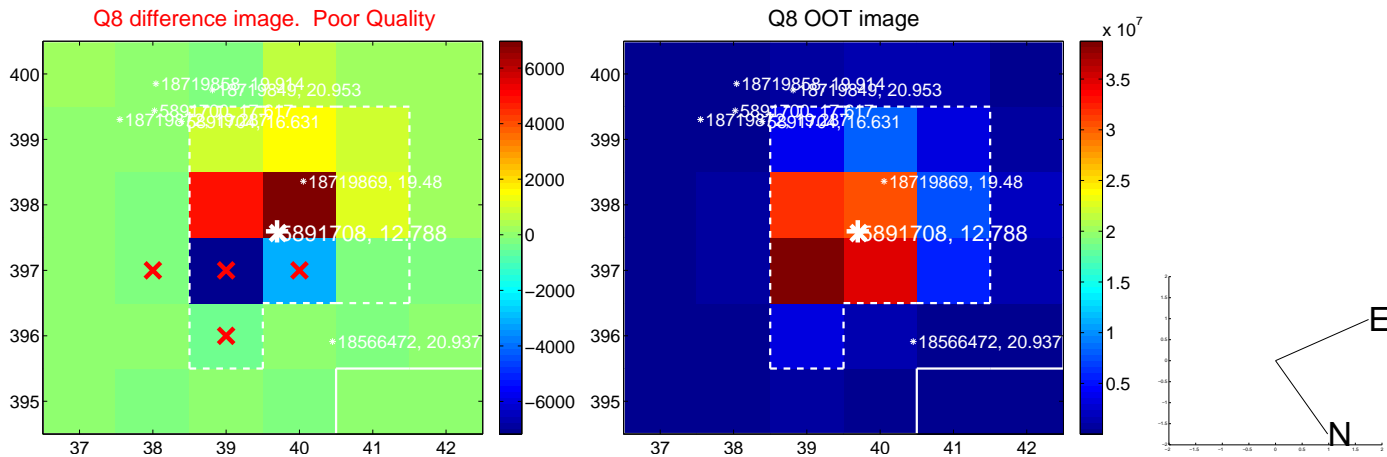
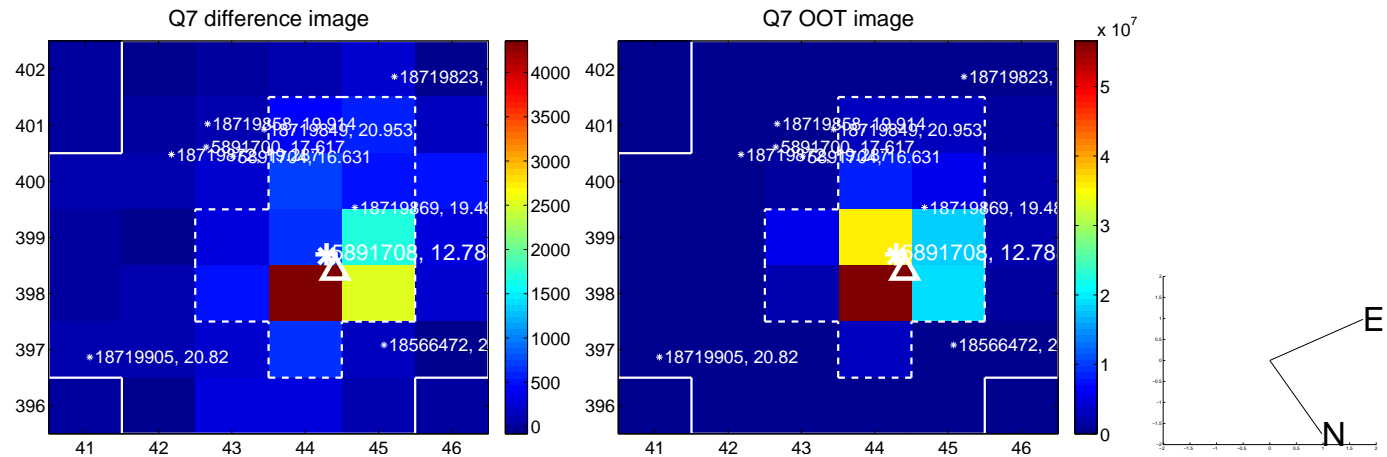
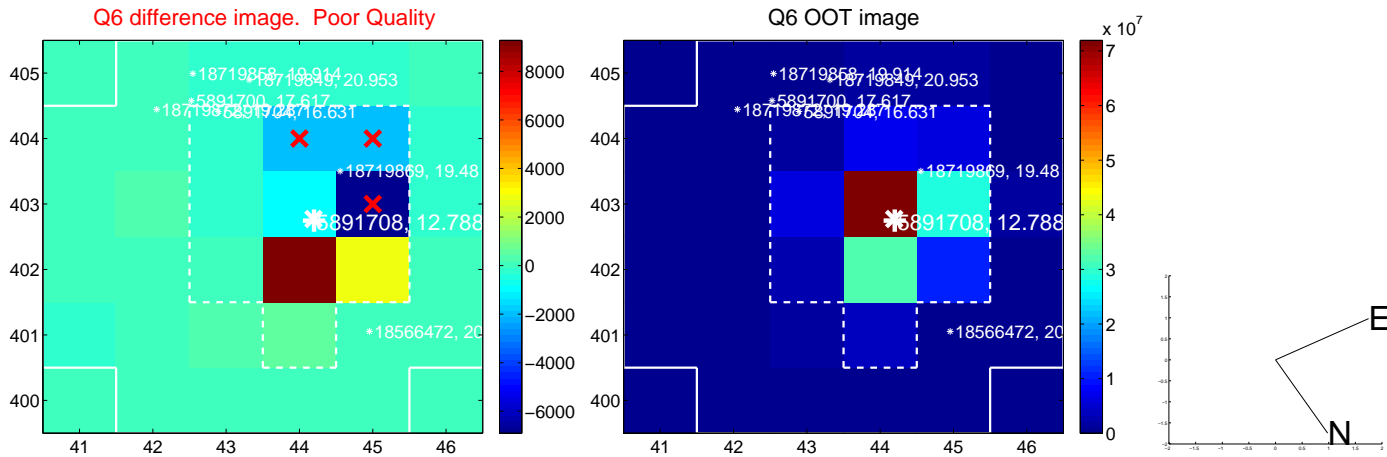
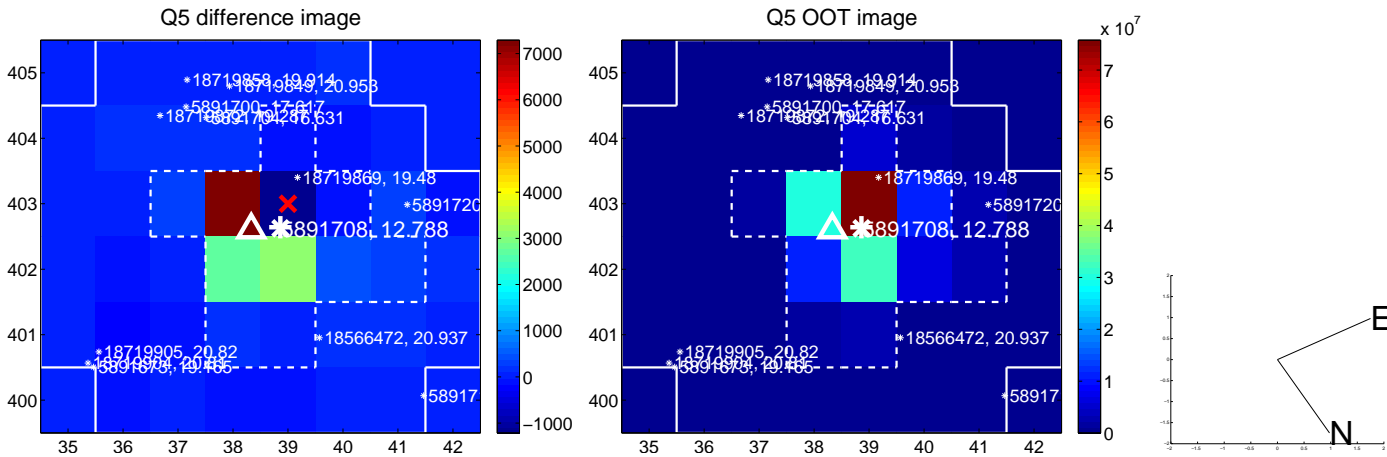


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

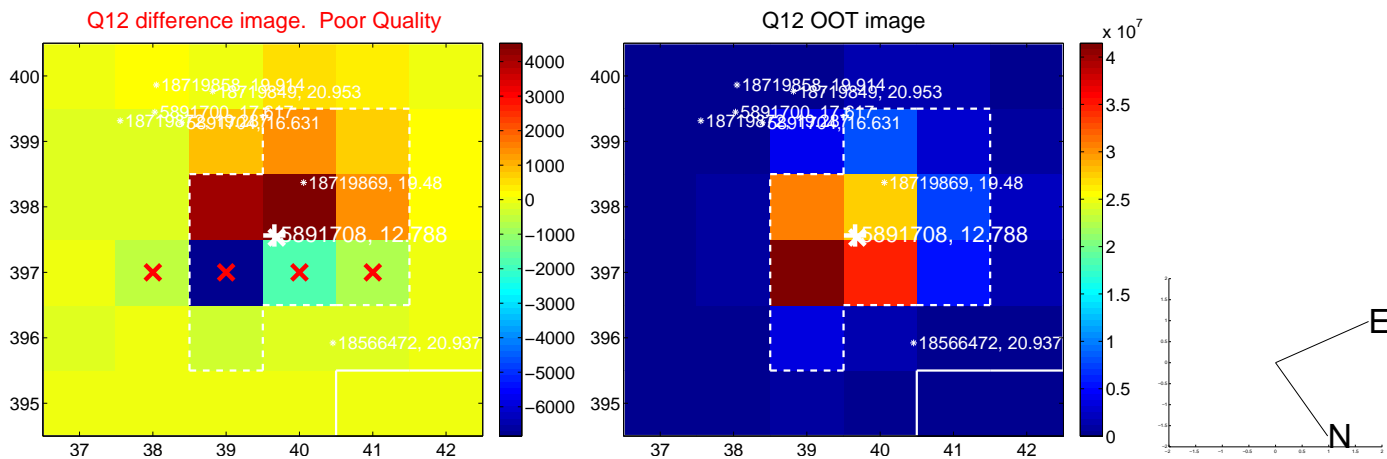
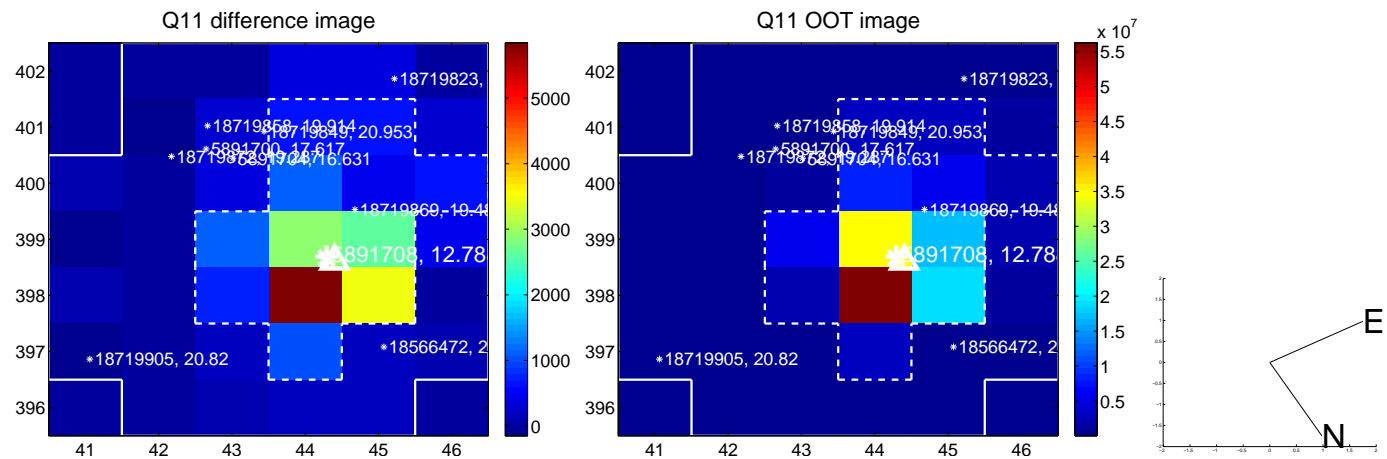
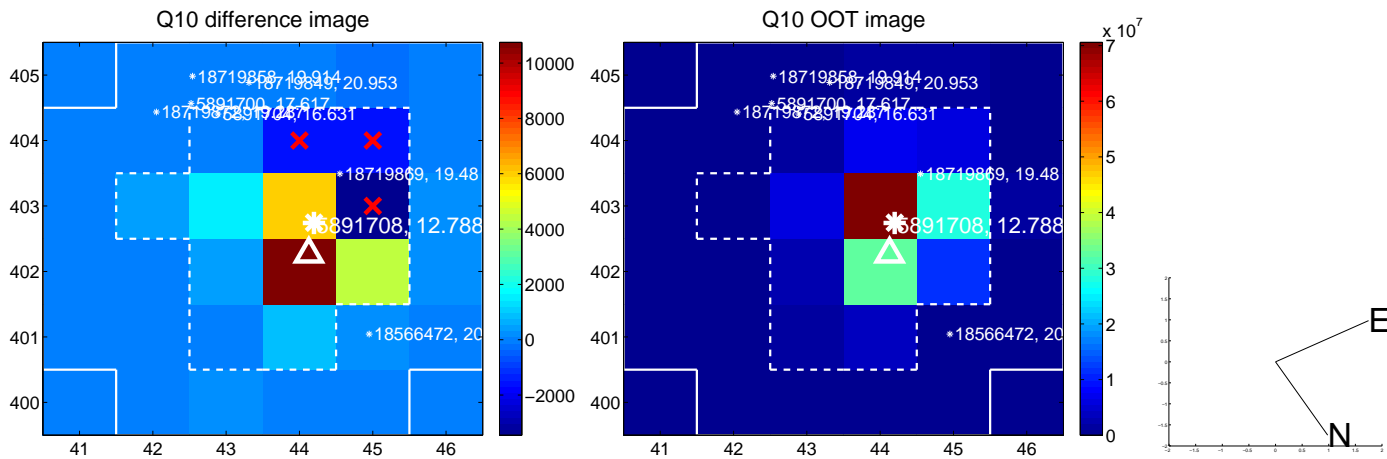
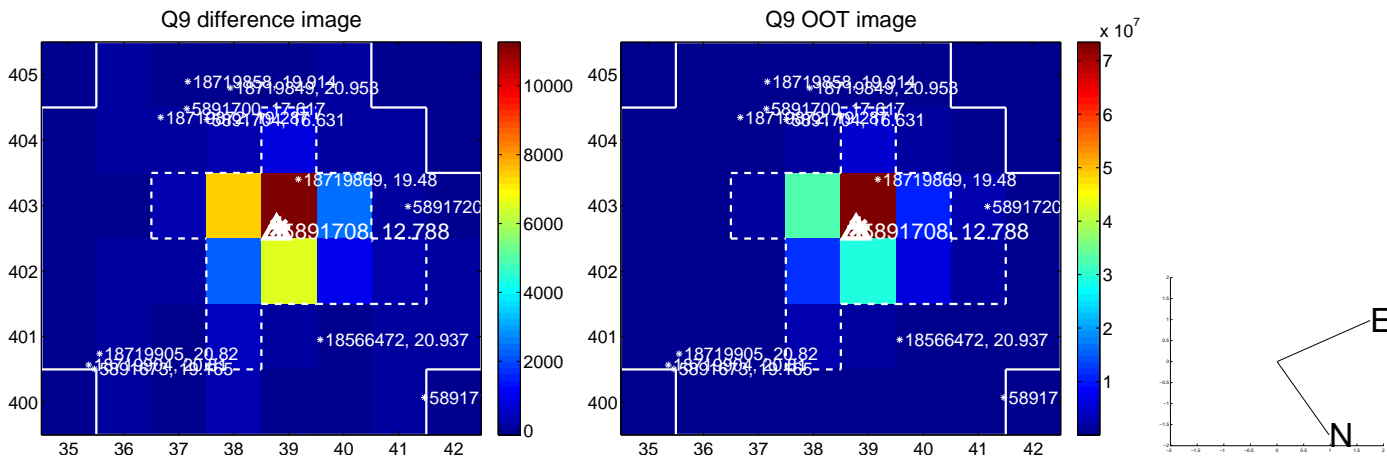
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



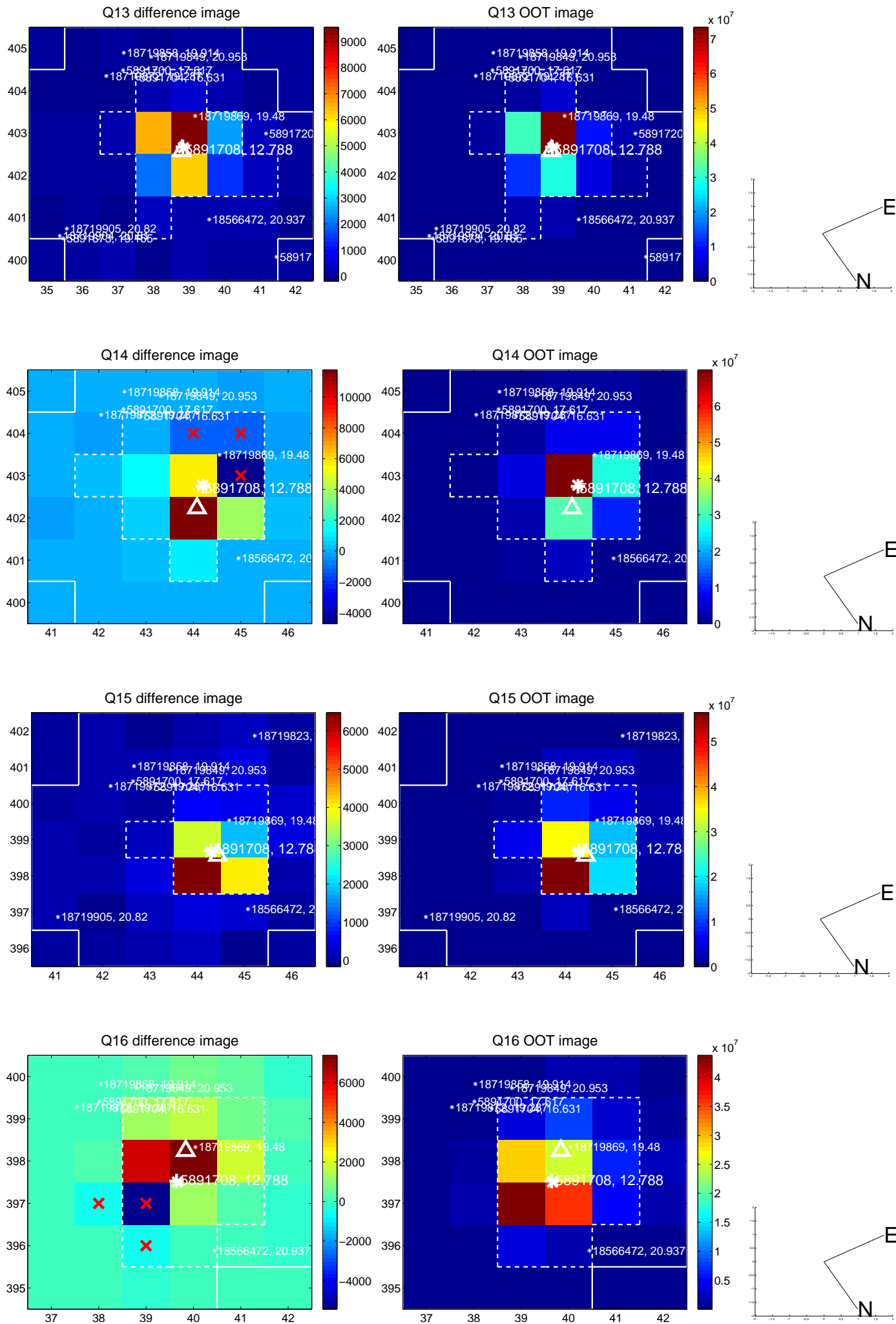
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



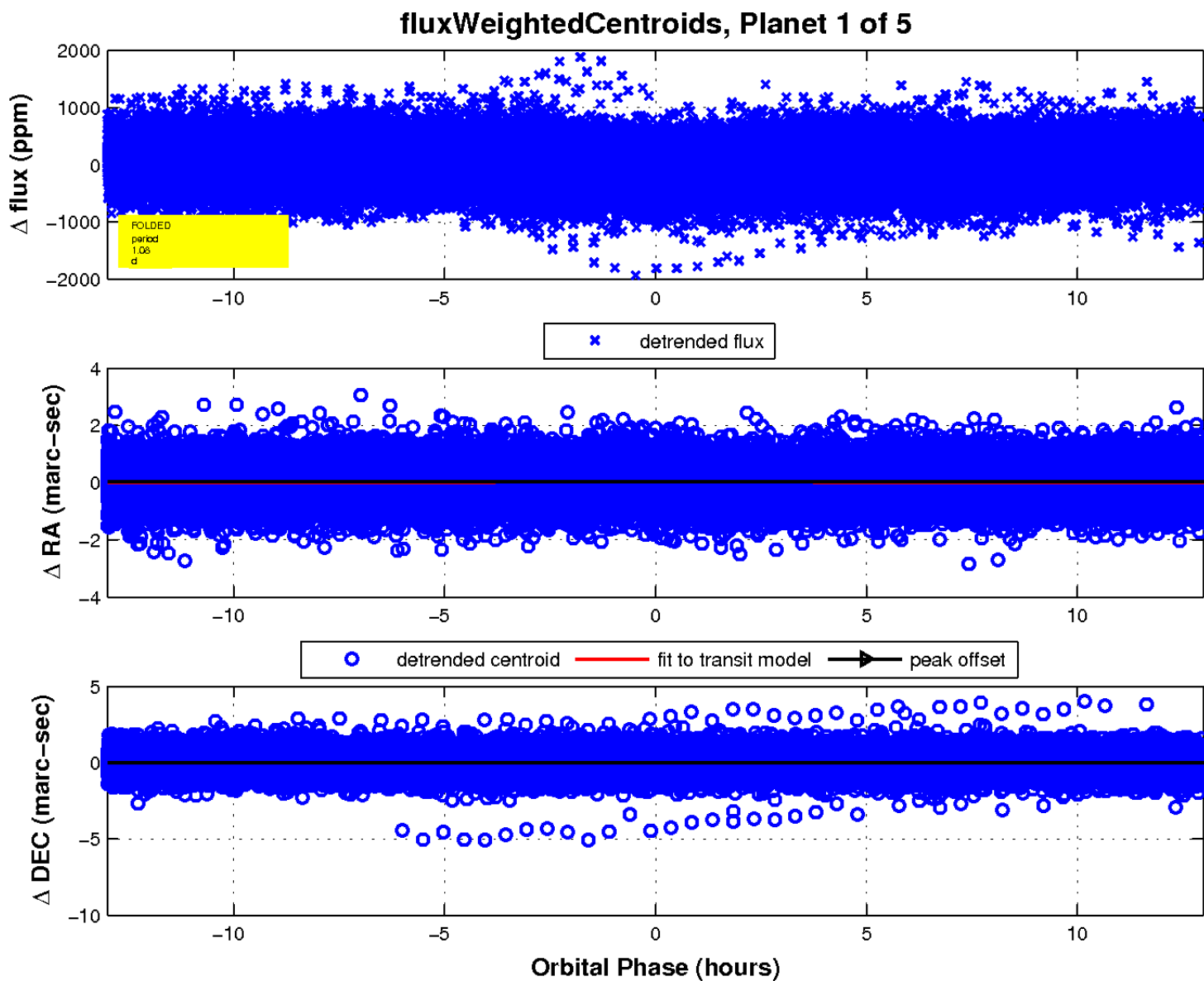
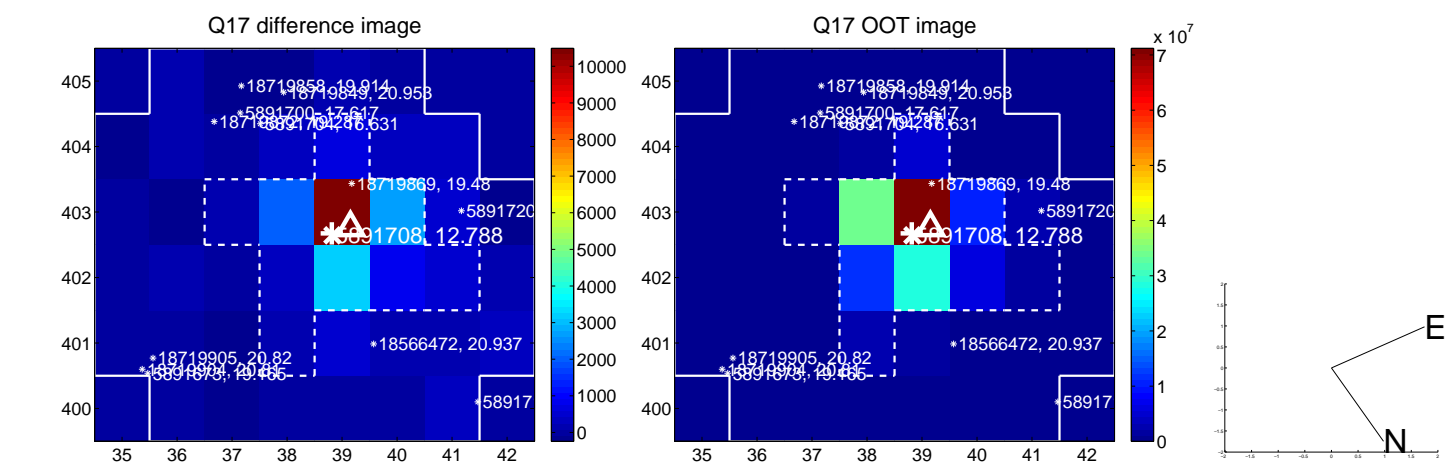
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

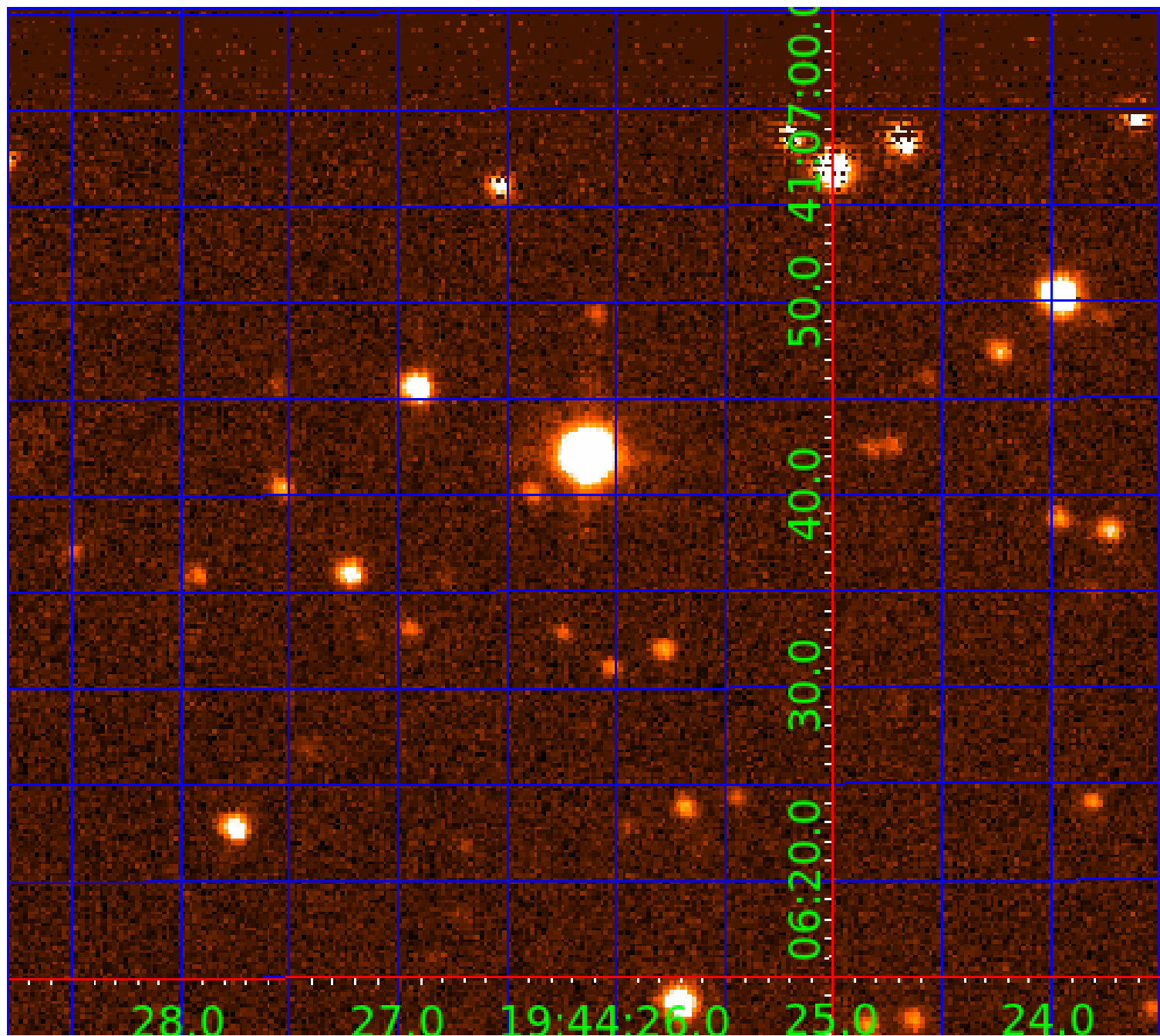


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005891708

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005891708-01 | OBS | No | 1.082448 | 131.558561 | 22.9 | 7.787 | 9.0 | 6.7 | 7.41 | 6897 | 3.80 | 0.00 |
| 005891708-02 | OBS | No | 57.558914 | 160.066898 | 384.0 | 1.875 | 9.4 | 8.0 | 7.41 | 6897 | 16.44 | 673.90 |
| 005891708-03 | OBS | No | 16.043993 | 145.419334 | 302.7 | 1.050 | 9.0 | 8.1 | 7.41 | 6897 | 21.34 | 3701.10 |
| 005891708-04 | OBS | No | 7.412292 | 136.547469 | 210.8 | 1.407 | 8.9 | 9.7 | 7.41 | 6897 | 13.08 | 10362.81 |
| 005891708-05 | OBS | No | 47.612556 | 145.109080 | 374.0 | 1.404 | 8.0 | 8.3 | 7.41 | 6897 | 15.14 | 867.87 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005891708-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT |
| 005891708-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 005891708-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 005891708-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 005891708-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

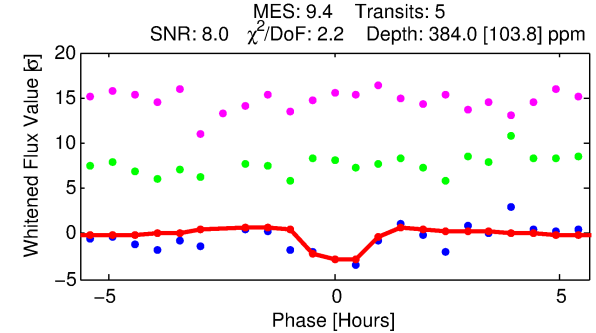
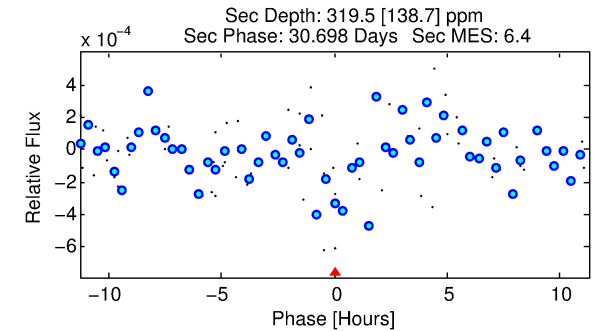
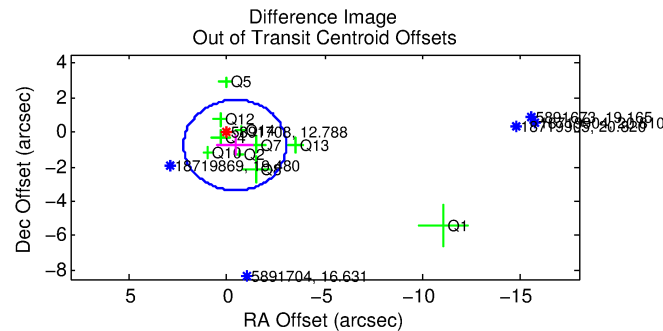
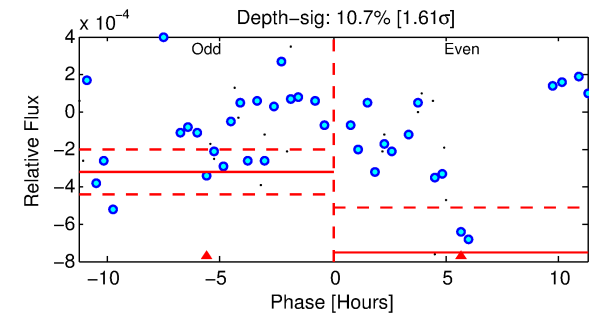
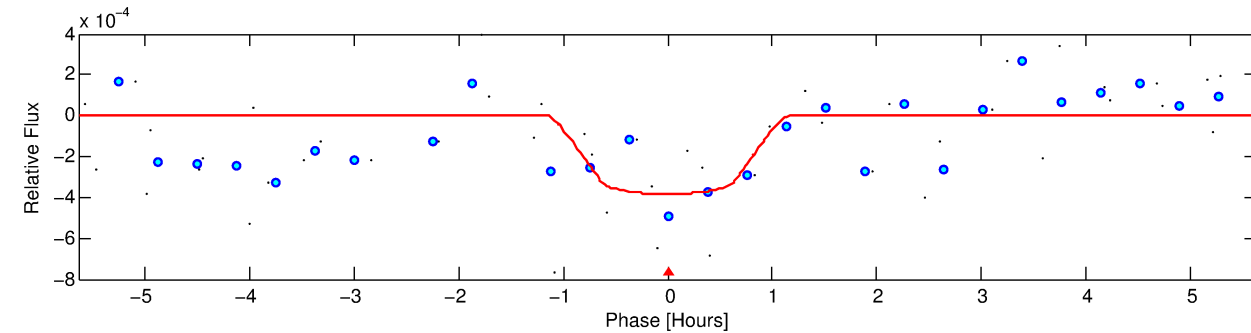
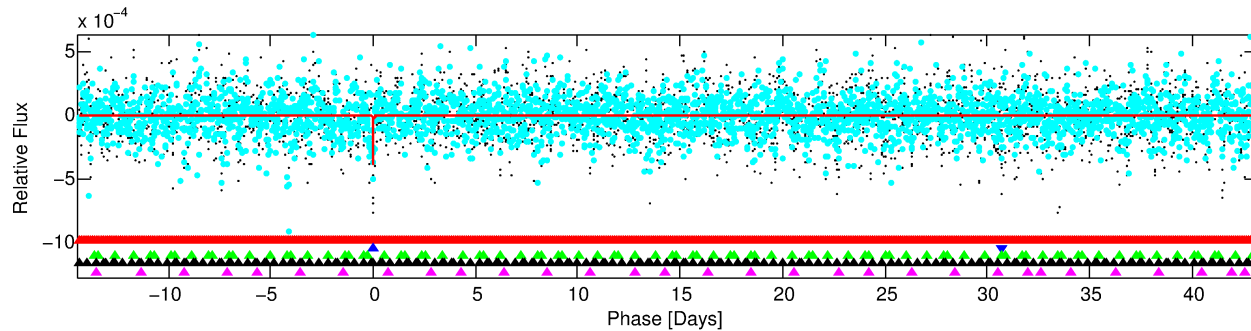
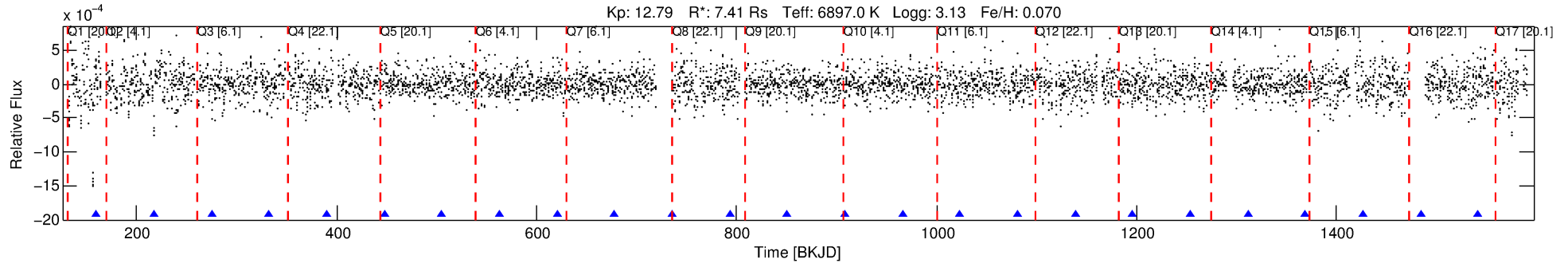
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005891708-02

No Significant Match Found

DV One-Page Summary

KIC: 5891708 Candidate: 2 of 5 Period: 57.559 d



DV Fit Results:

Period = 57.55891 [0.00111] d
Epoch = 160.0669 [0.0196] BKJD
Rp/R* = 0.0203 [0.0558]
a/R* = 131.36 [2135.61]
b = 0.85 [5.27]
Seff = 673.90 [606.21]
Teff = 1299 [292] K
Rp = 16.44 [46.02] Re
a = 0.4064 [0.2212] AU
Ag = 107.47 [599.76] [0.18 σ]
Teffp = 6468 [8911] K [0.58 σ]

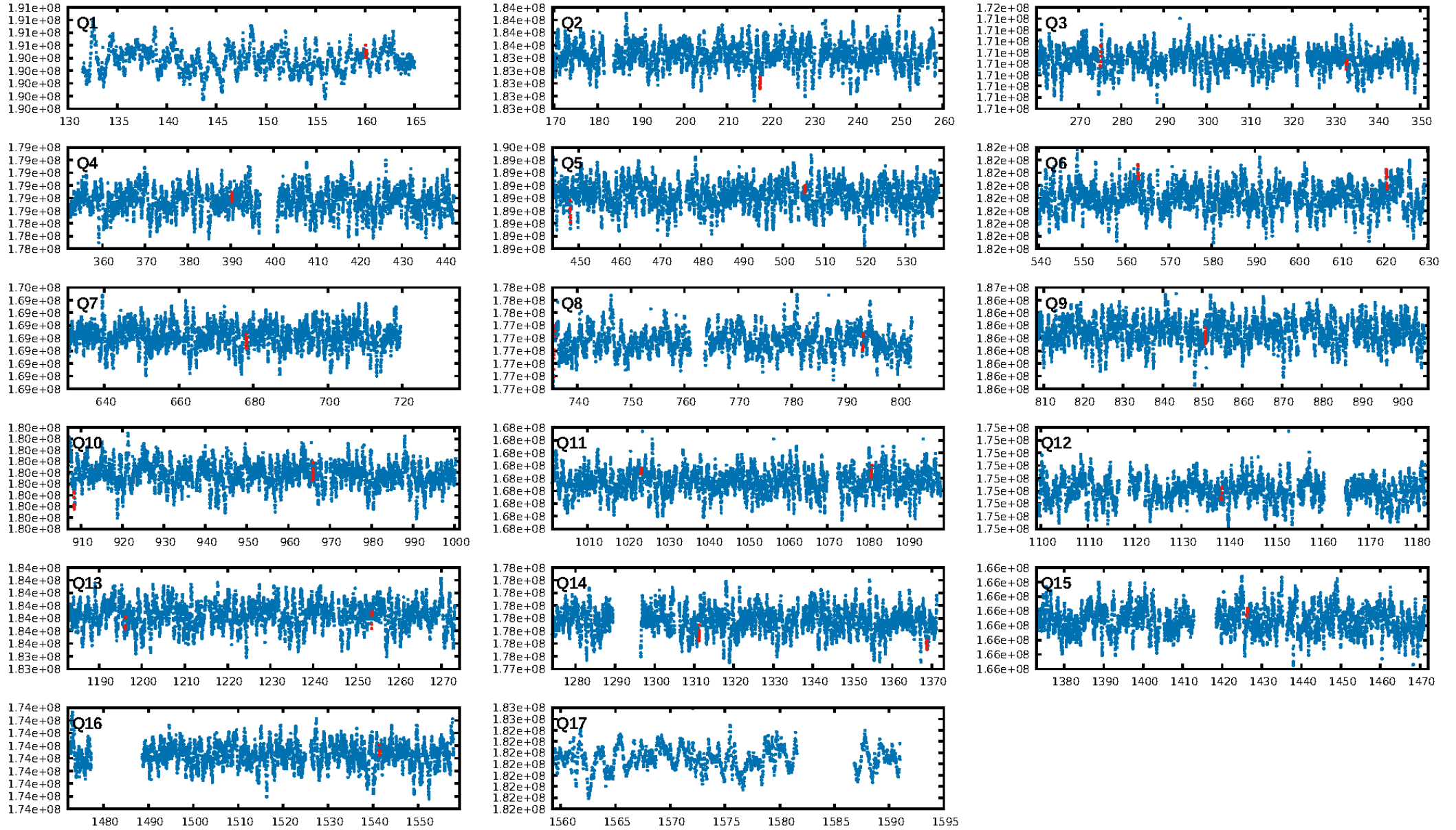
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [101.90 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.2%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 2.57e-14
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.8573
Centroid-sig: 2.7%
Centroid-so: 0.545 arcsec [1.18 σ]
OotOffset-rm: 0.868 arcsec [0.99 σ]
KicOffset-rm: 0.883 arcsec [0.85 σ]
OotOffset-st: 3/1/3/3 [10]
KicOffset-st: 3/1/3/3 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 0.31 [5/16]

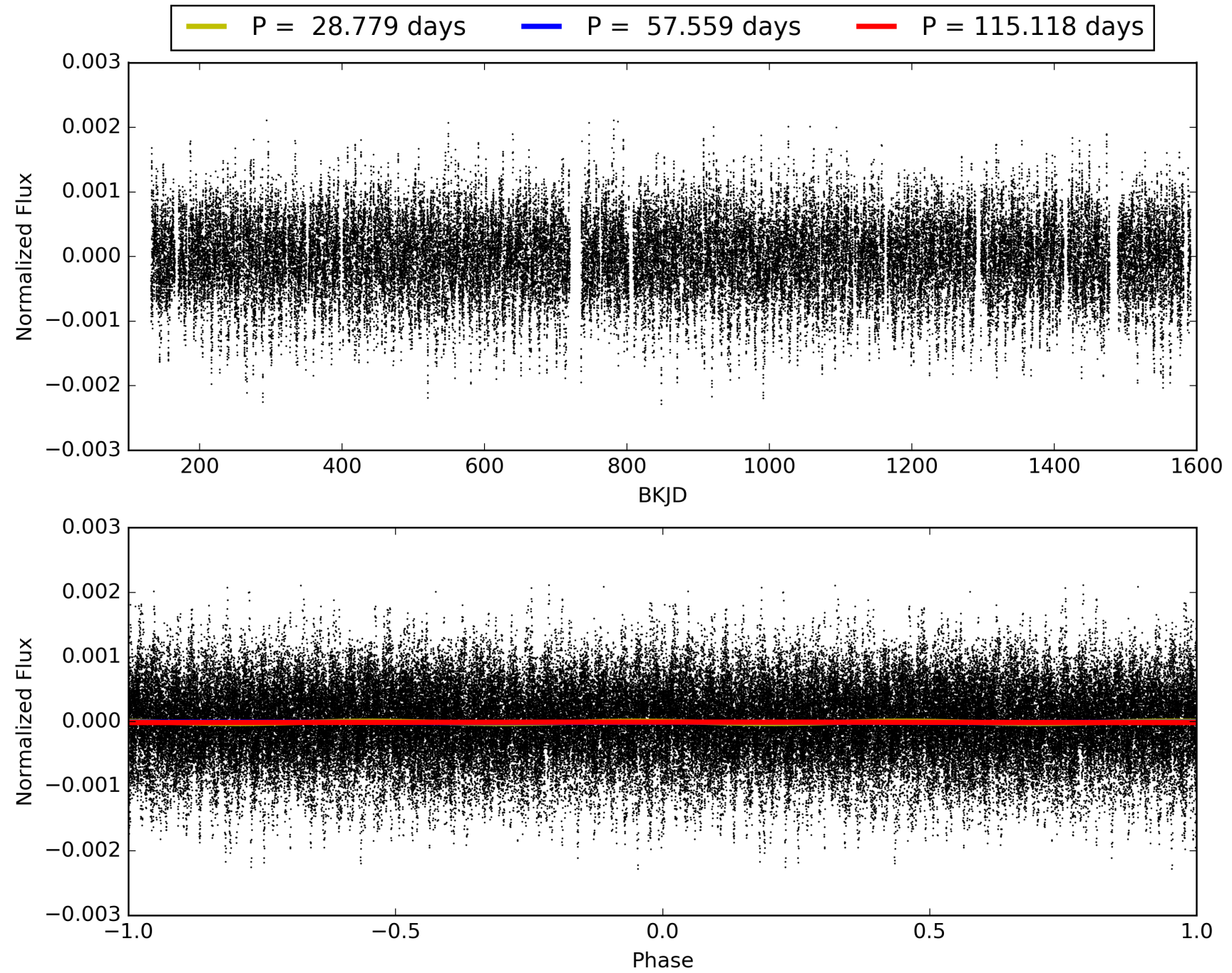
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:00:57 Z

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

TCE 005891708-02, PDC Light Curves

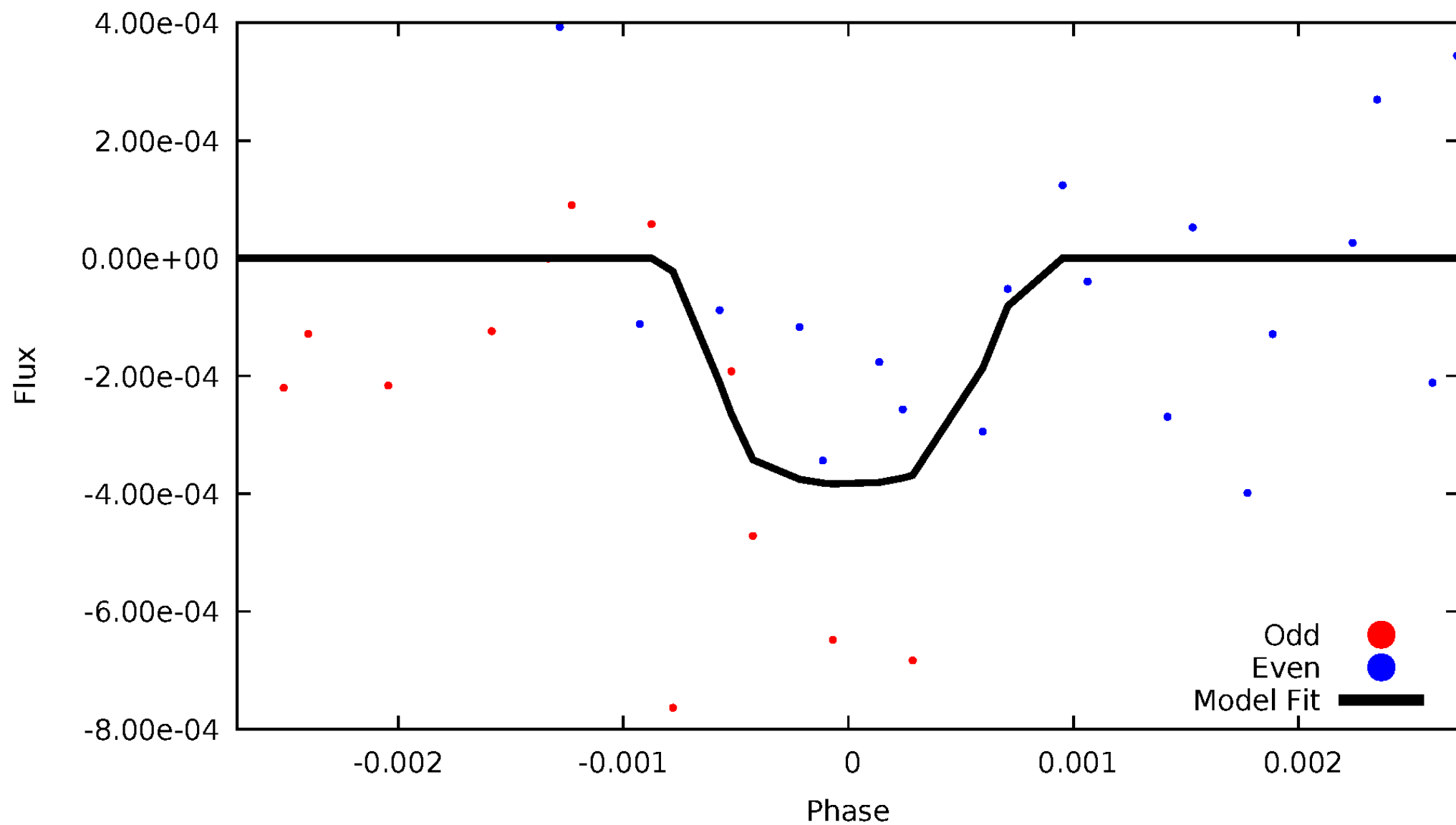


TCE 005891708-02



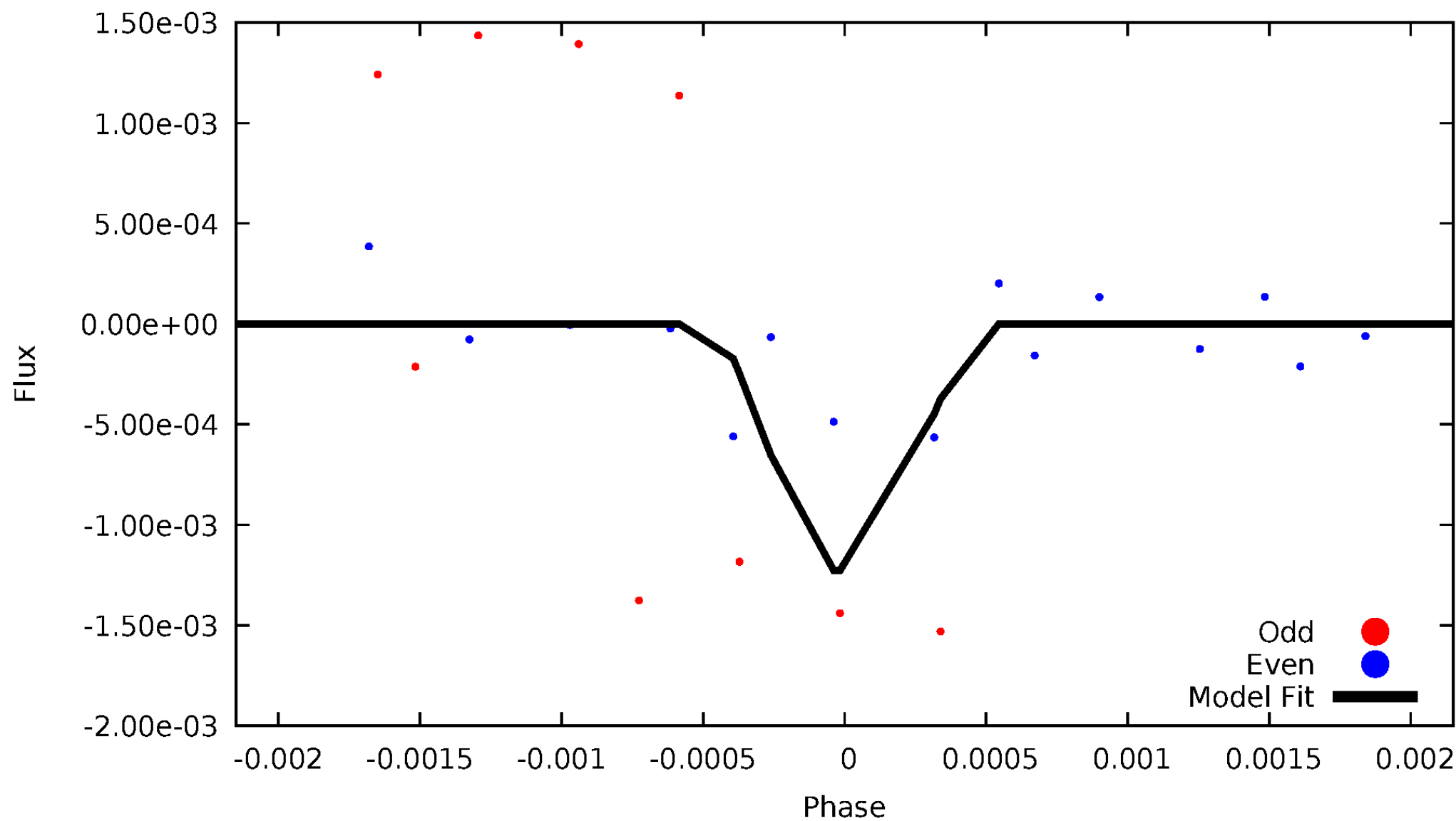
DV Odd/Even

TCE 005891708-02



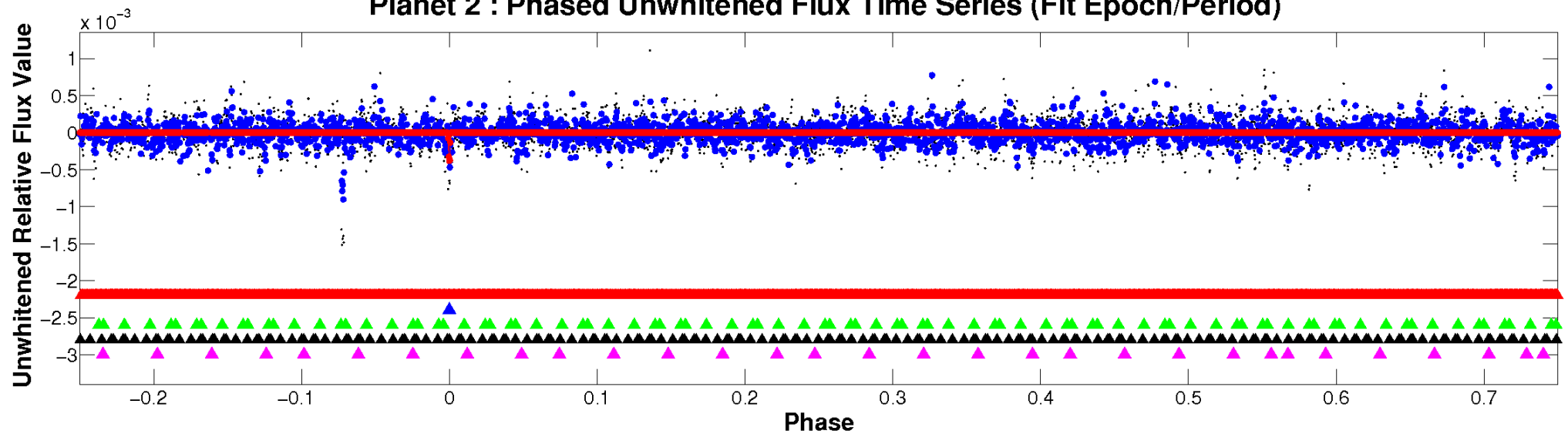
ALT Odd/Even

TCE 005891708-02

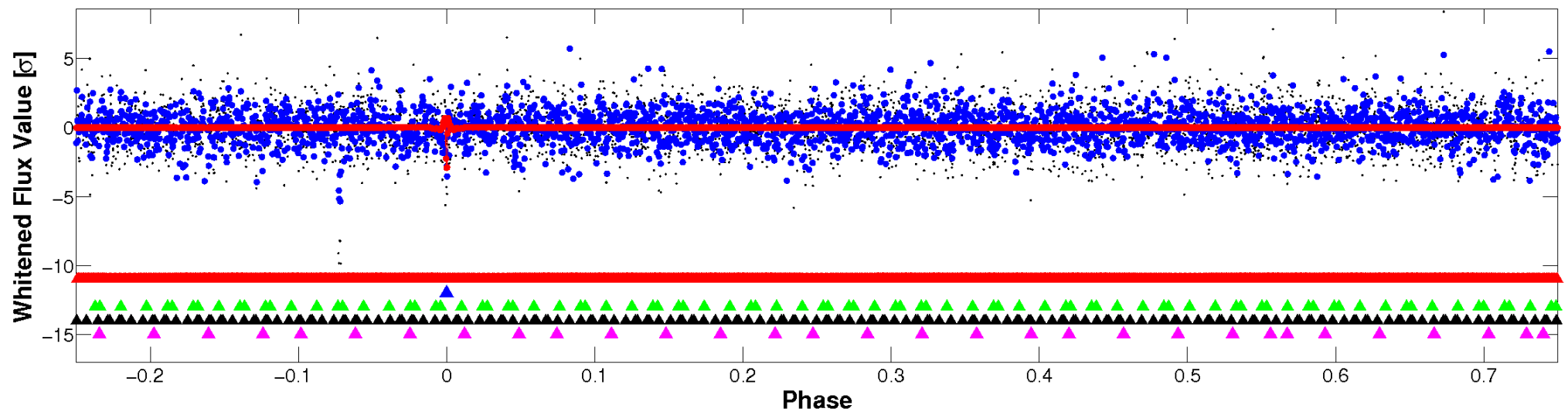


Non-Whitened Vs. Whitened Light Curve

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

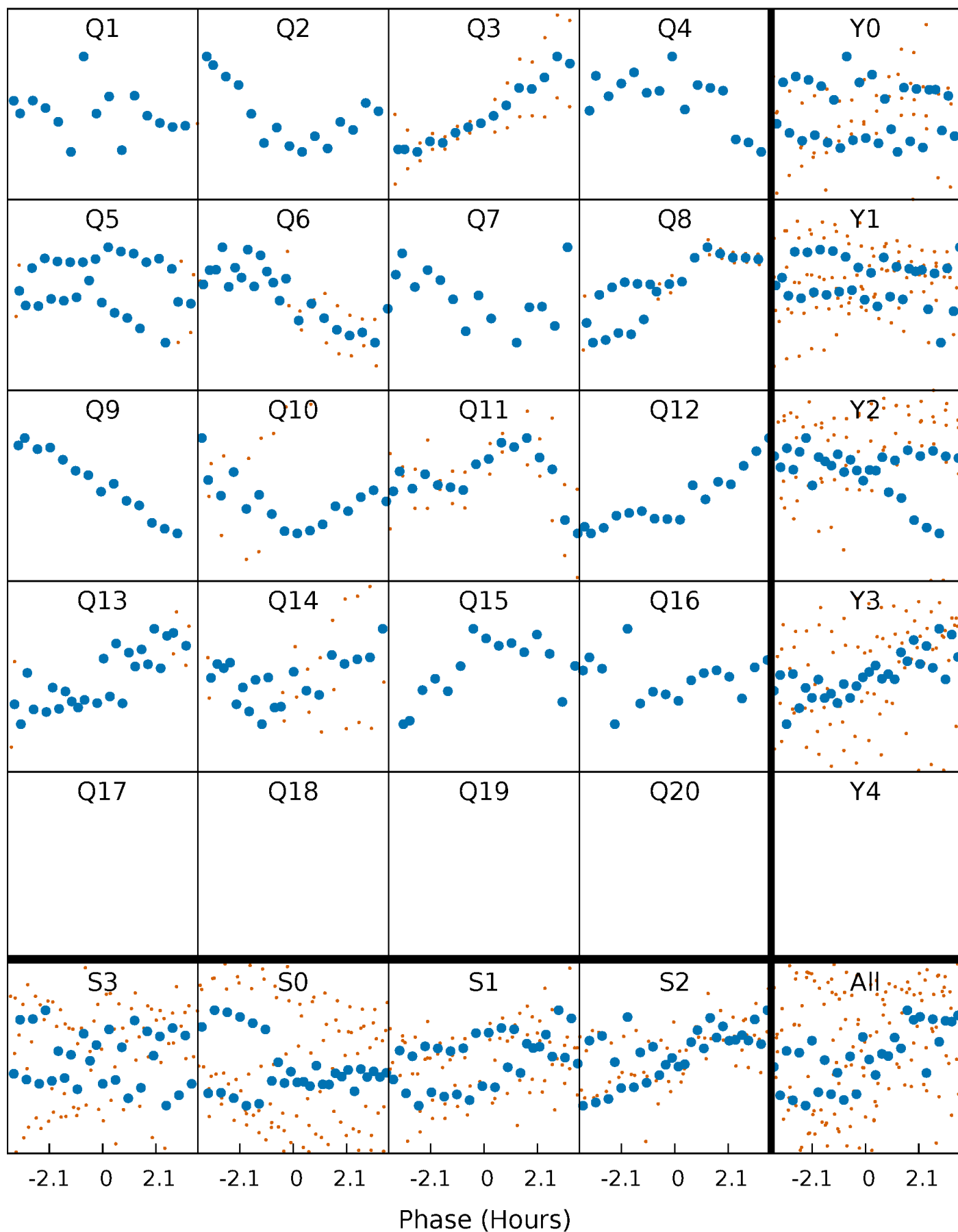


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



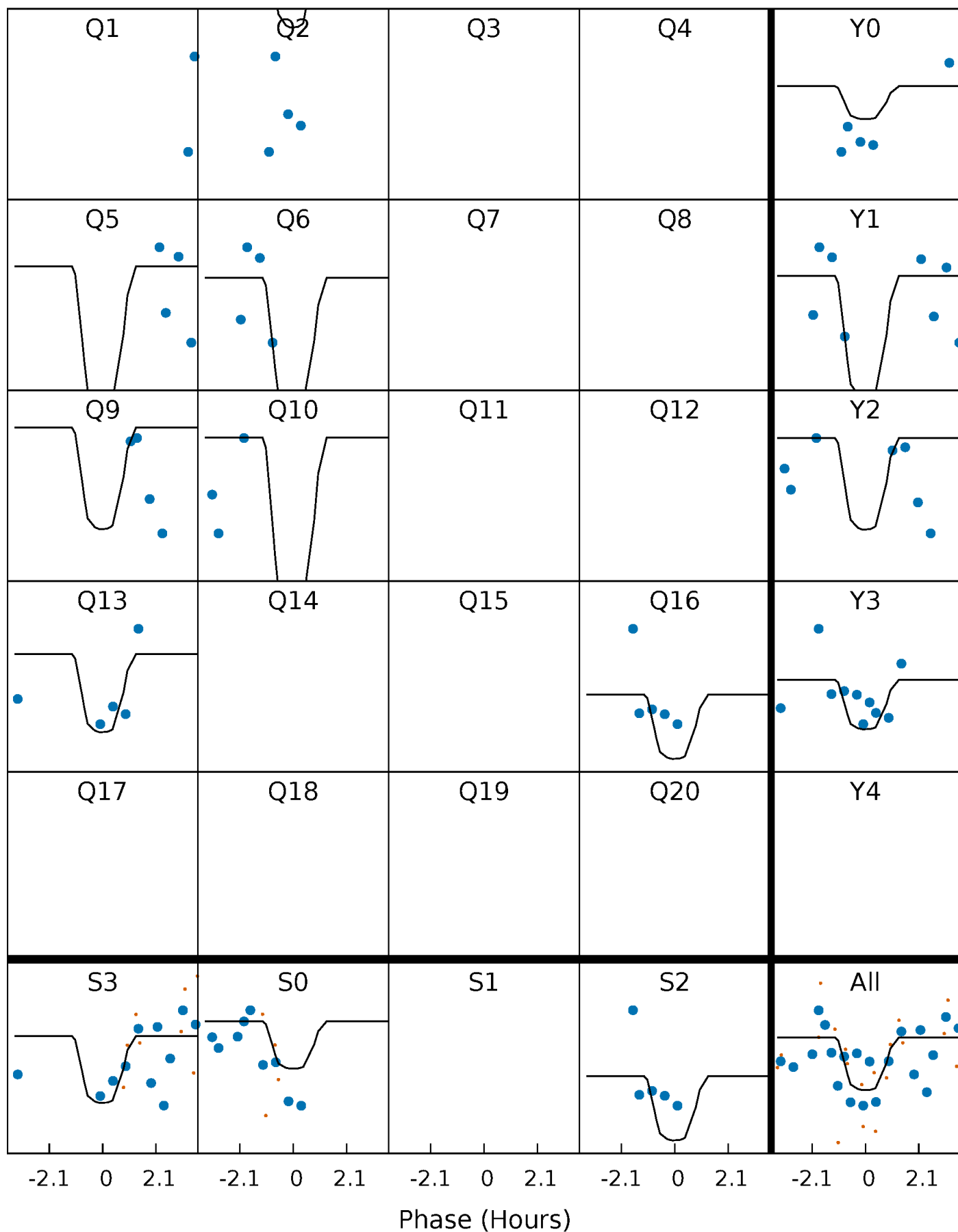
PDC Quarter-Phased Transit Curves

TCE 005891708-02 P= 57.558914 Days $T_0=160.066898$ (BKJD)



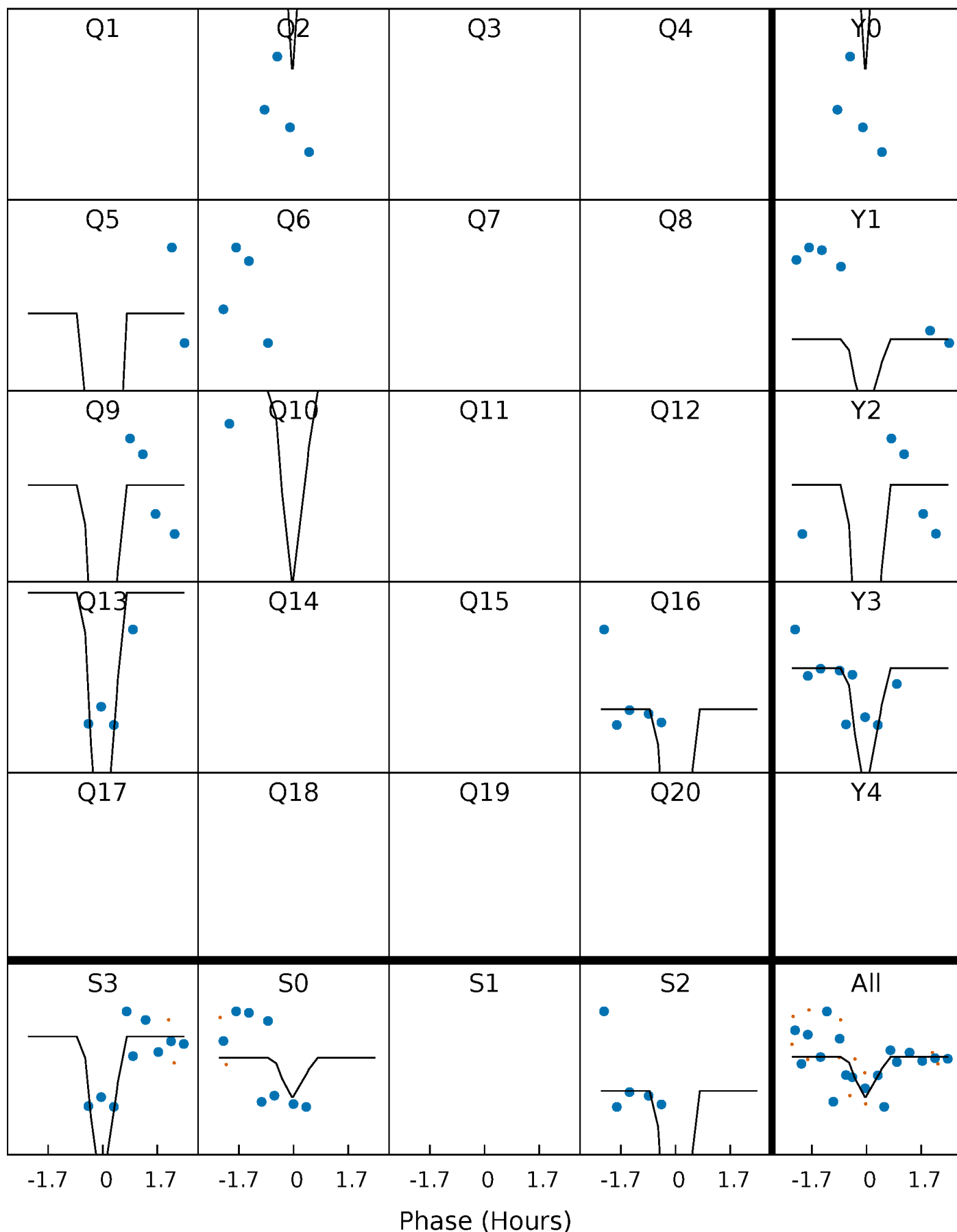
DV Quarter-Phased Transit Curves

TCE 005891708-02 P= 57.558914 Days $T_0=160.066898$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

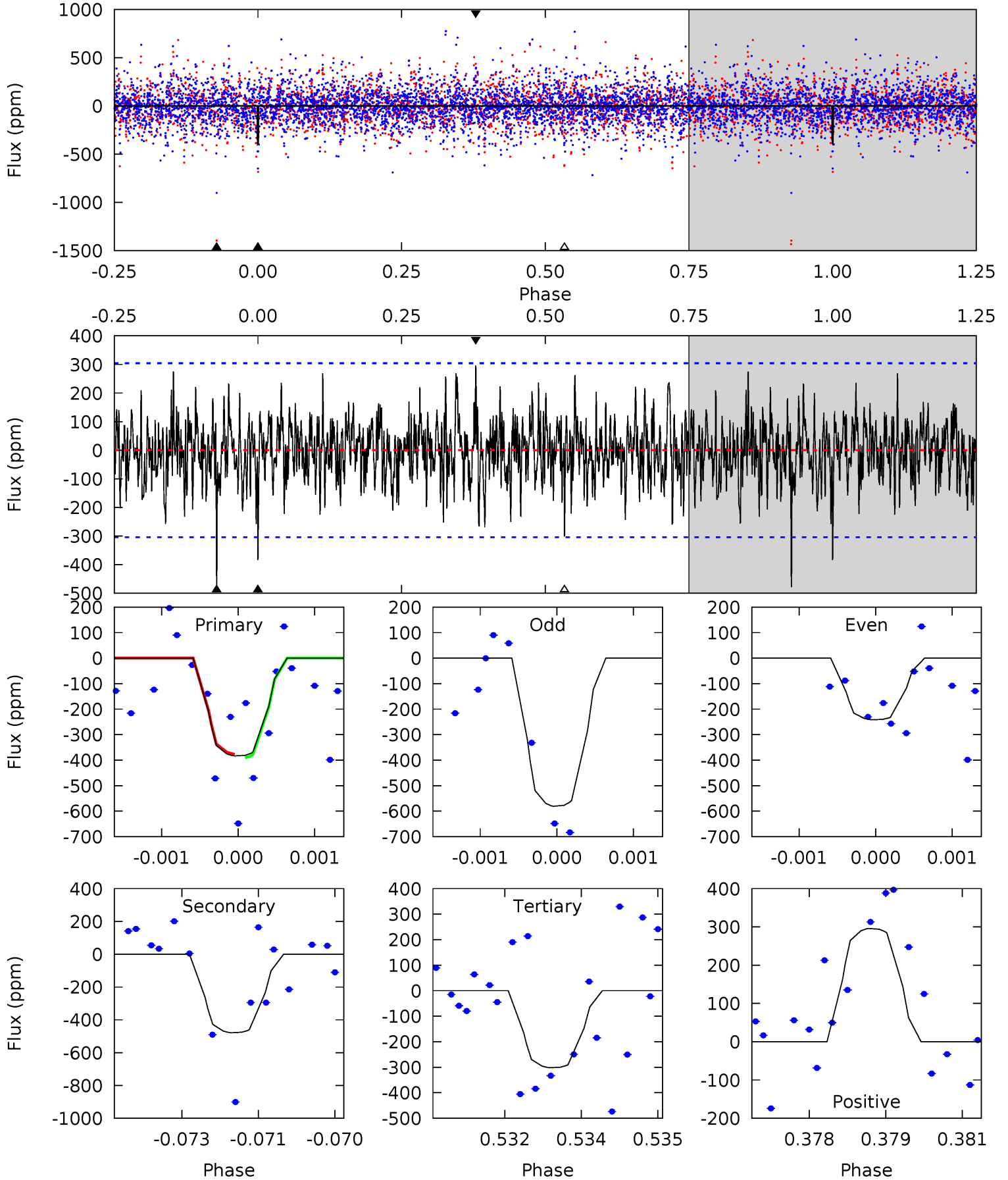
TCE 005891708-02 P= 57.560044 Days $T_0=160.062712$ (BKJD)



DV Model-Shift Uniqueness Test

005891708-02, P = 57.558914 Days, E = 102.507984 Days

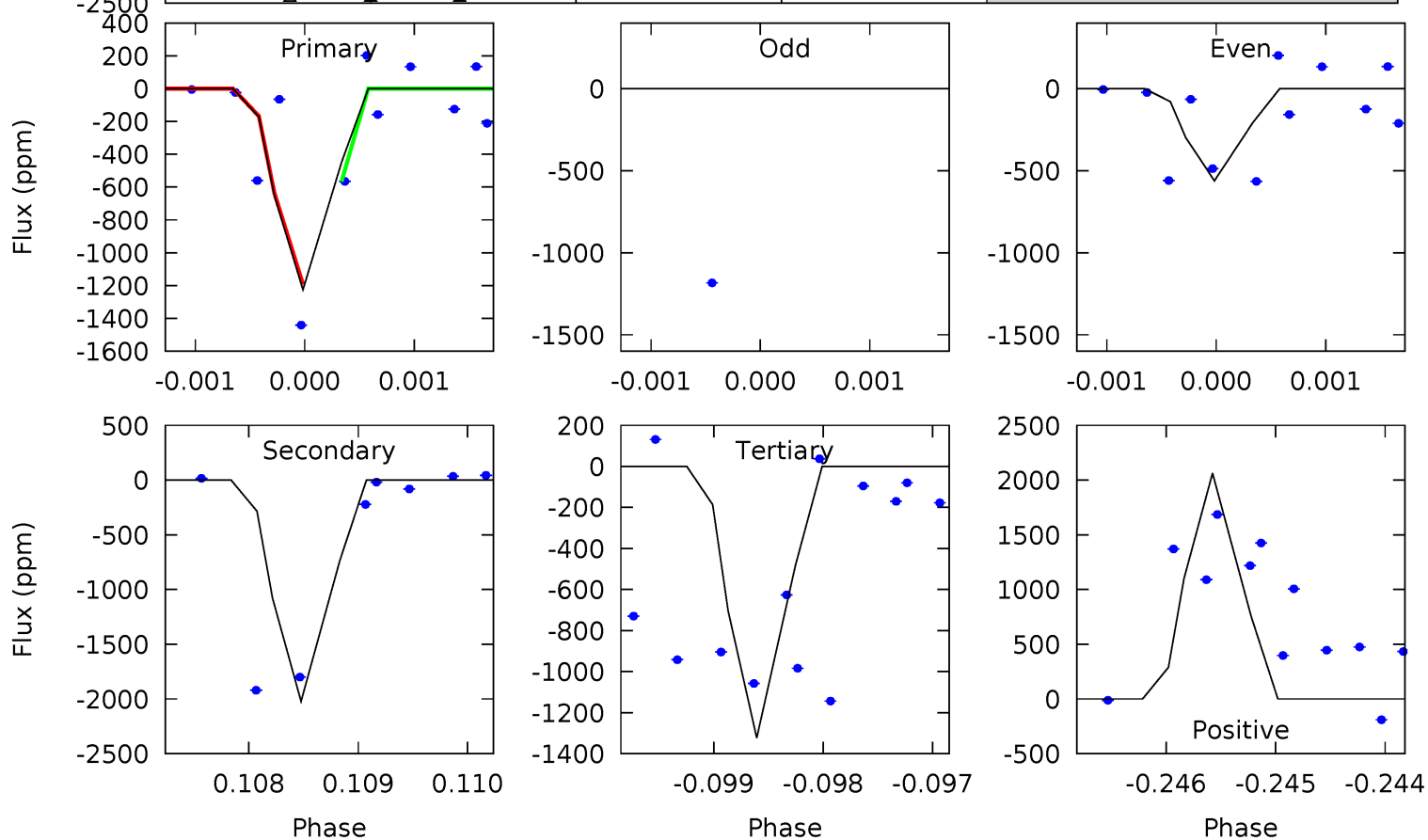
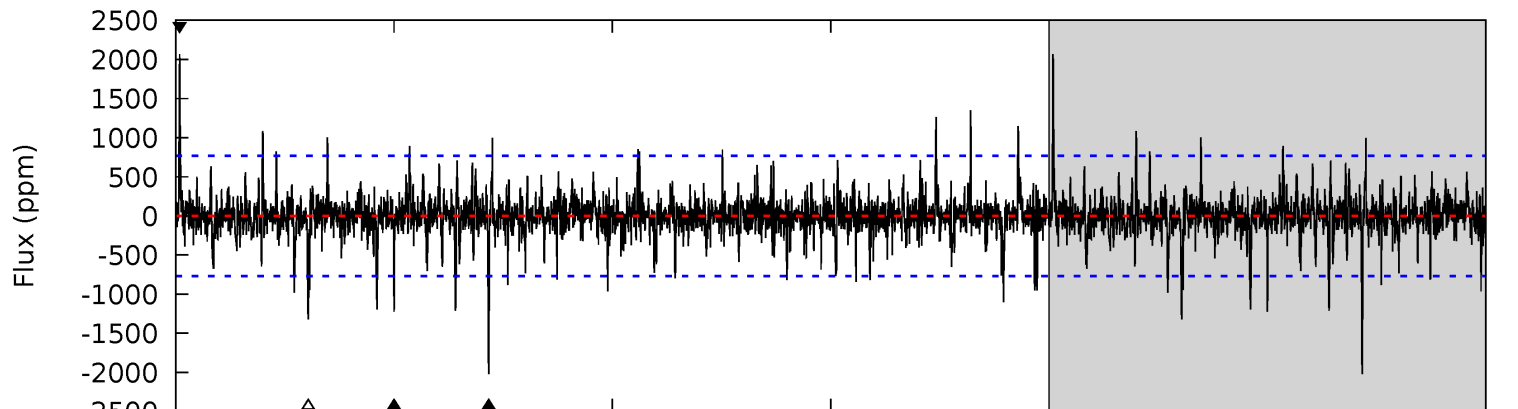
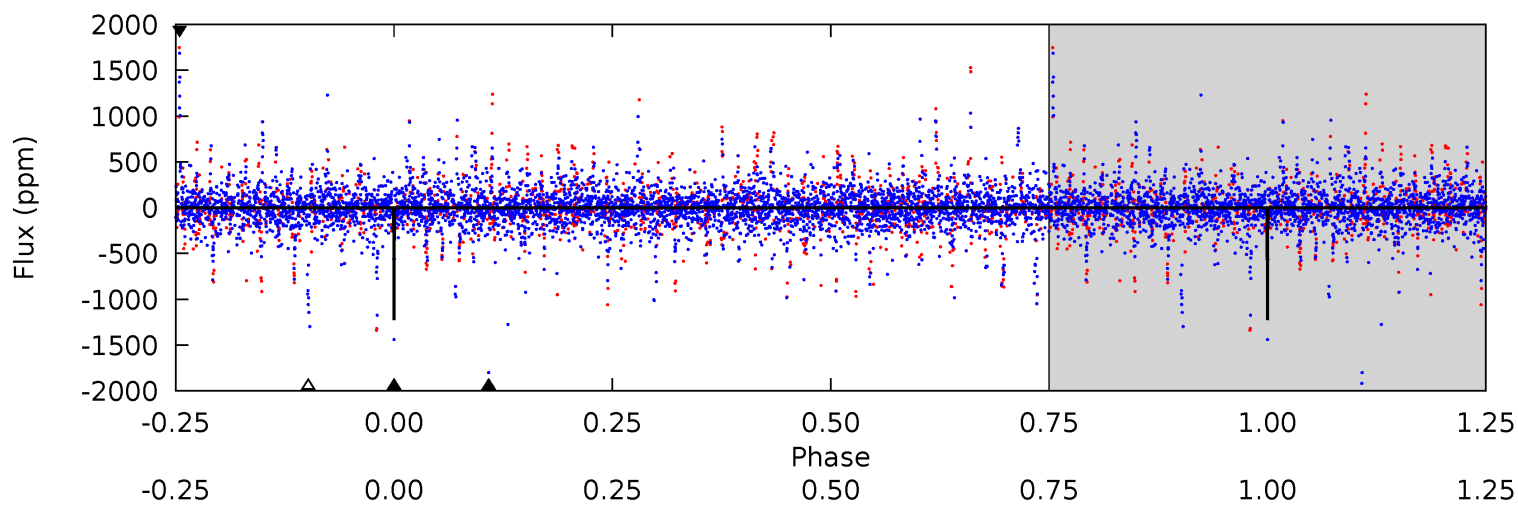
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.79 | 8.47 | 5.34 | 5.24 | 5.38 | 3.18 | 1.60 | 1.45 | 1.55 | 3.13 | 3.23 | 2.96 | 1.12 | 0.38 | 0.12 |



Alt Model-Shift Uniqueness Test

005891708-02, P = 57.560044 Days, E = 102.502668 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.70 | 14.4 | 9.40 | 14.7 | 5.46 | 3.31 | 1.69 | -0.69 | -5.95 | 4.96 | -0.30 | 0 | 1.00 | 0.51 | 2.16 |



Stellar Parameters For KIC 005891708

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6897^{+144}_{-246} | $3.130^{+0.528}_{-0.132}$ | $0.070^{+0.200}_{-0.300}$ | $7.410^{+1.730}_{-4.037}$ | $2.703^{+0.353}_{-0.823}$ | $0.009^{+0.061}_{-0.004}$ |
| | +2%/-4% | +17%/-4% | +286%/-429% | +23%/-54% | +13%/-30% | +650%/-39% |
| 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 005891708-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|---------------------------|----------------------|------------------------|---------------------|
| DV | -478 ± 56 | $33.68^{+33.75}_{-24.45}$ | 1765^{+135}_{-253} | 4857^{+4515}_{-1123} | 40^{+420}_{-31} |
| Alt. | -2022 ± 141 | $38.89^{+36.73}_{-26.85}$ | 1768^{+135}_{-238} | 6266^{+7177}_{-1593} | 121^{+1175}_{-89} |

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

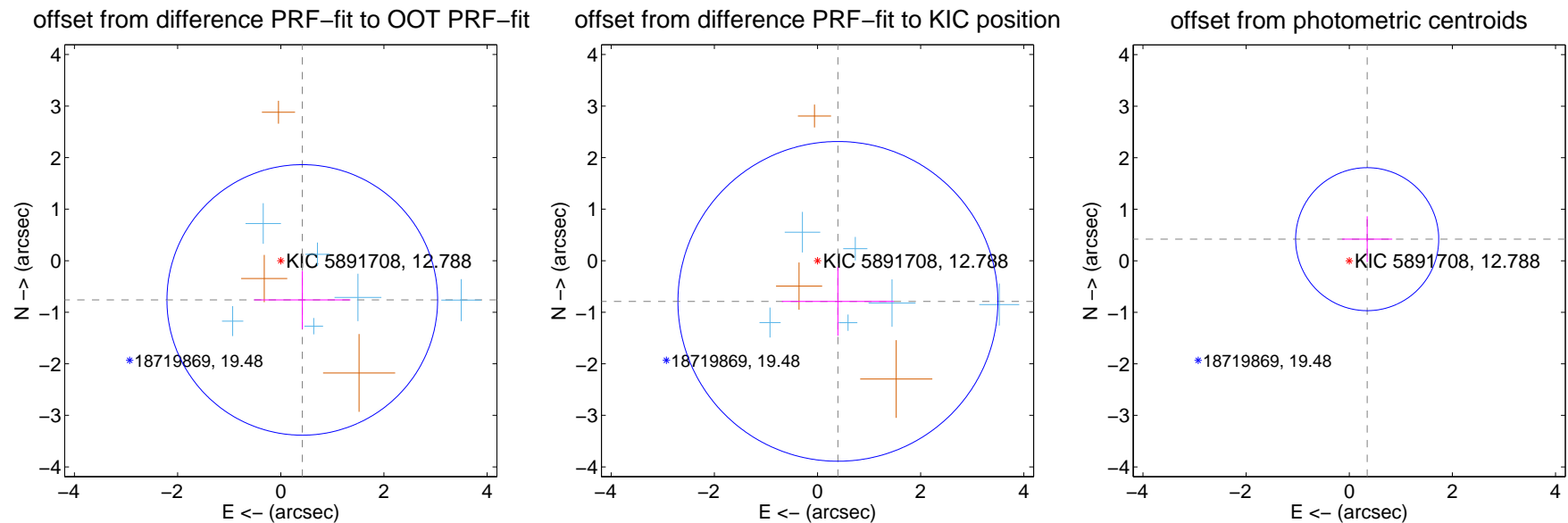
DV Centroid Data

Supplemental centroid analysis for 005891708-02. Kepler magnitude: 12.79. Transit SNR 7.98

There are 6 quarters with good PRF difference image offsets

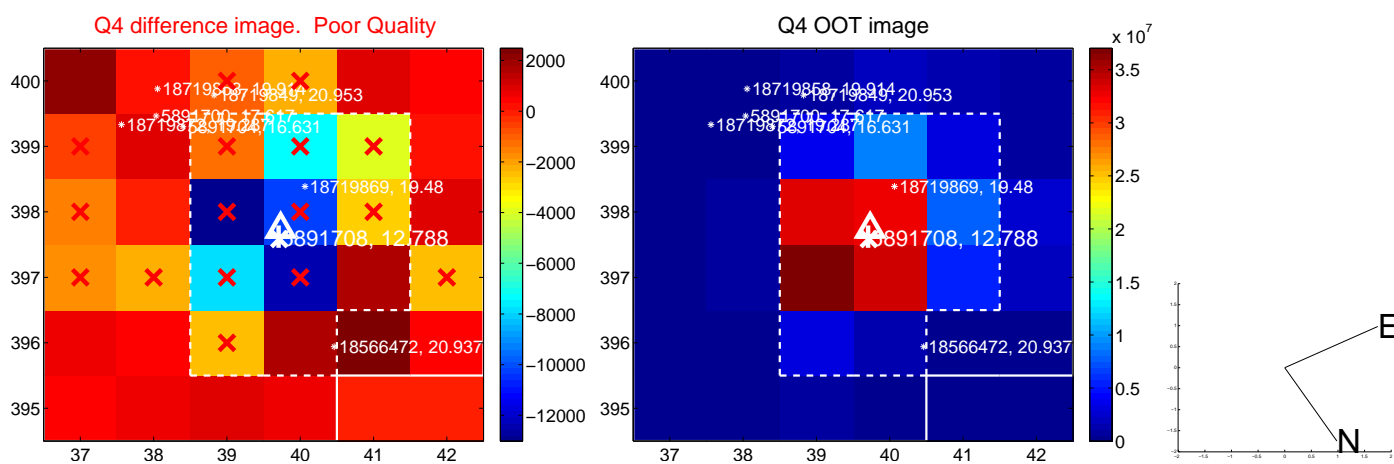
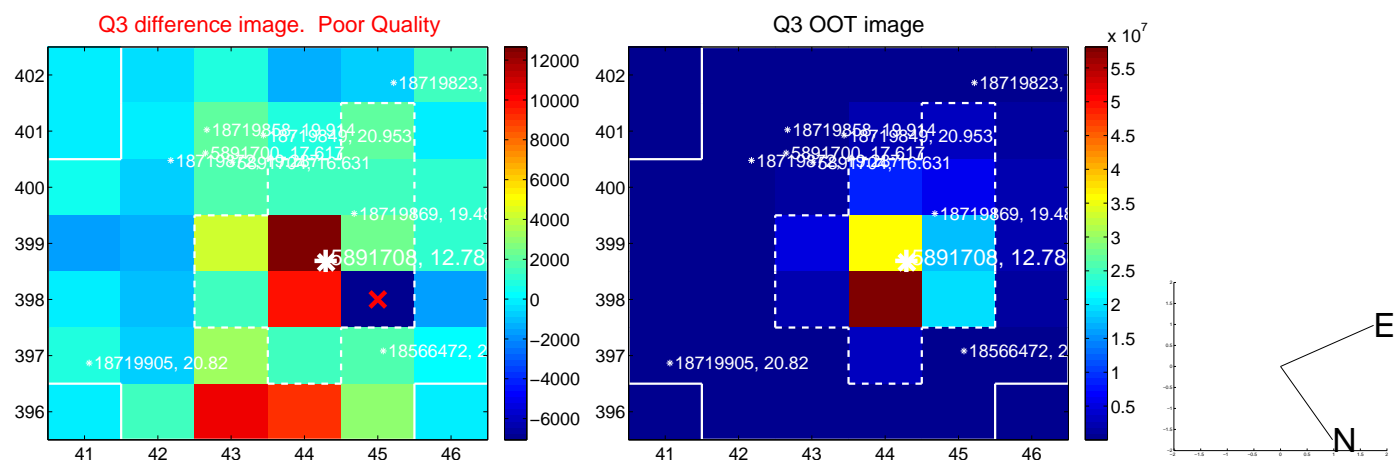
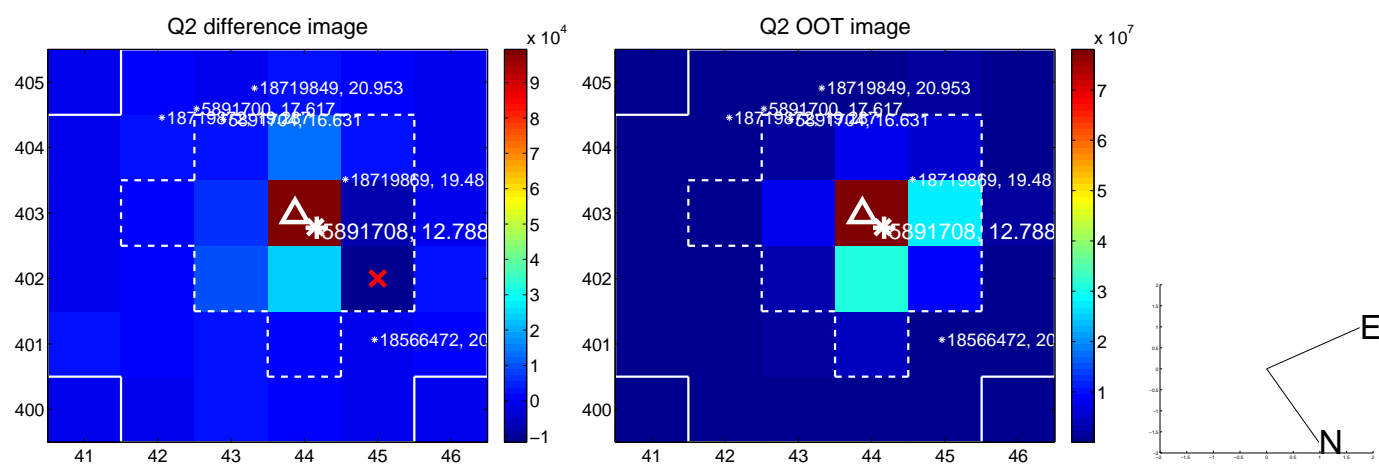
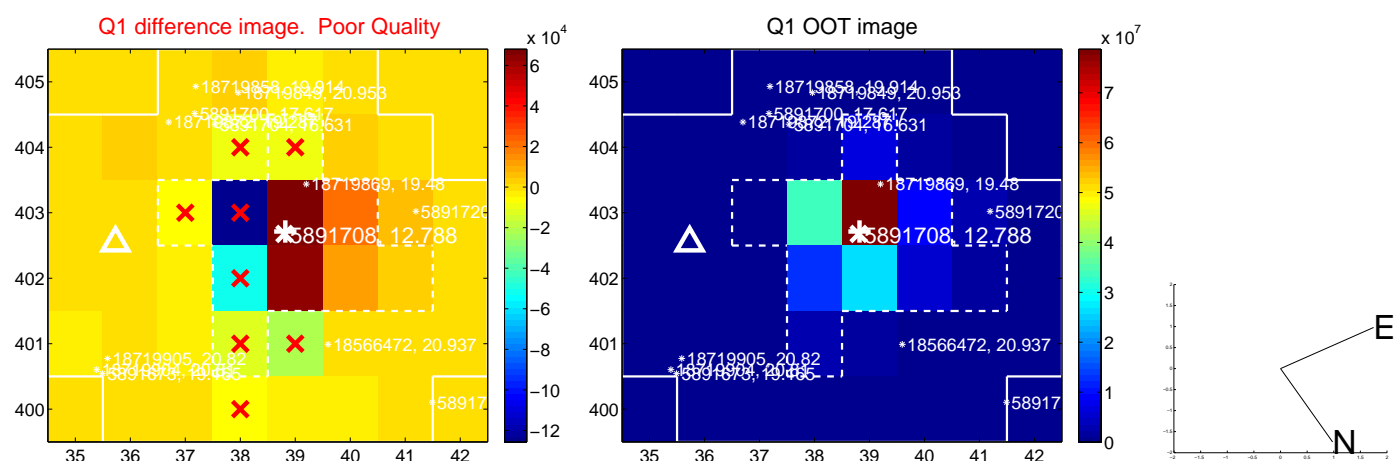
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.868 ± 0.875 | 0.99 | -0.417 ± 0.933 | -0.761 ± 0.563 |
| PRF-fit source offset from KIC position | 0.883 ± 1.034 | 0.85 | -0.396 ± 1.086 | -0.789 ± 0.668 |
| photometric centroid source offset | 0.54 ± 0.46 | 1.18 | -0.35 ± 0.49 | 0.42 ± 0.44 |

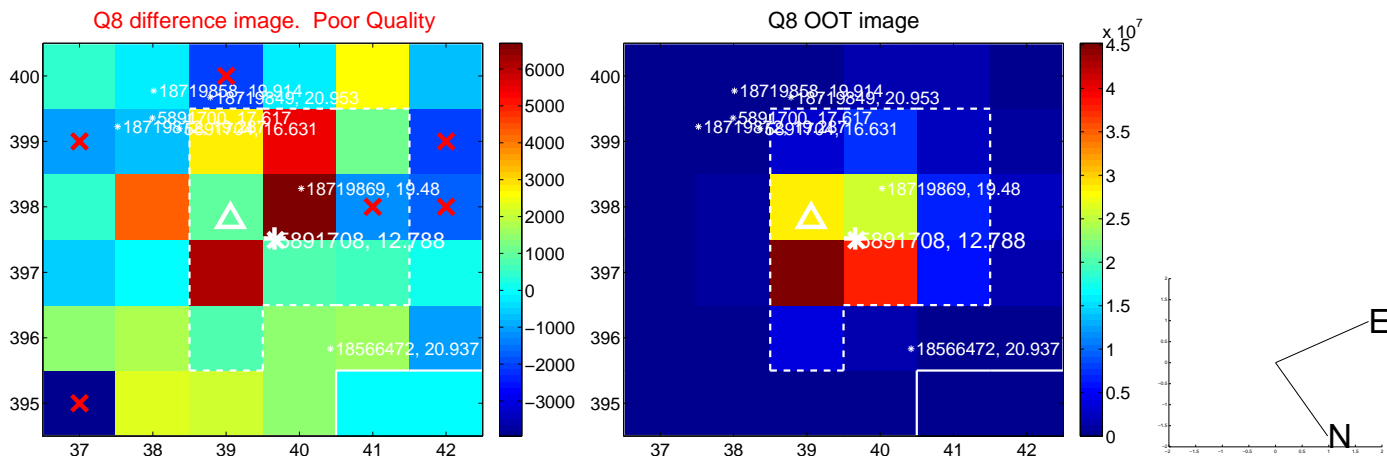
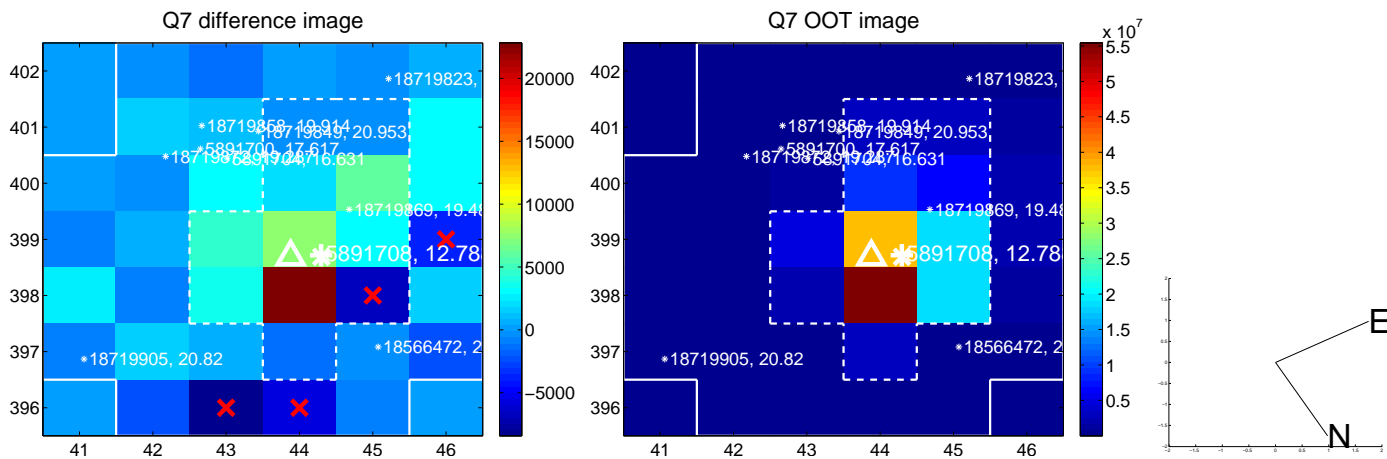
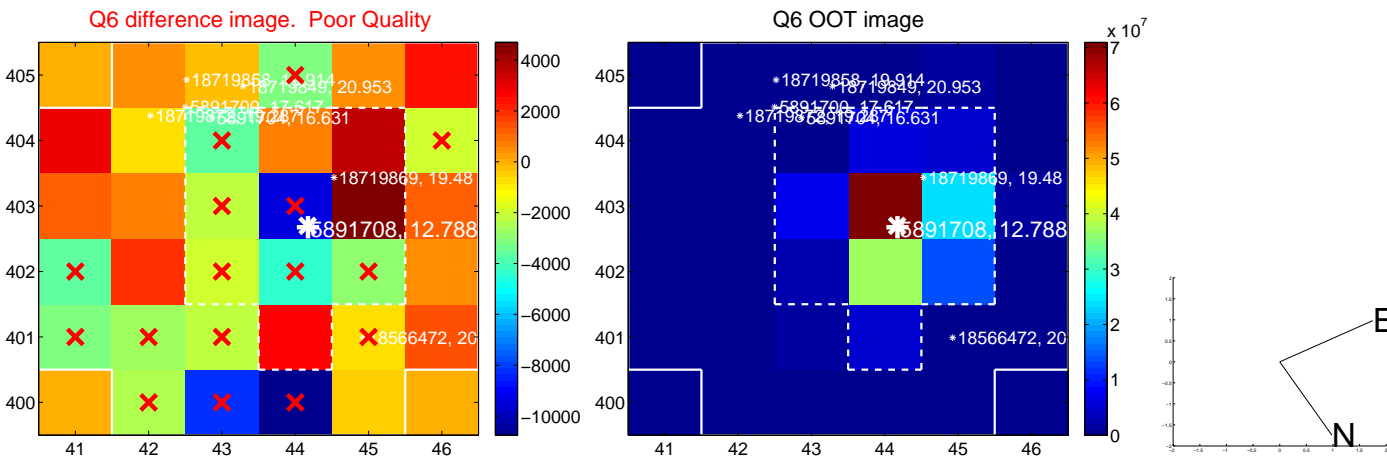
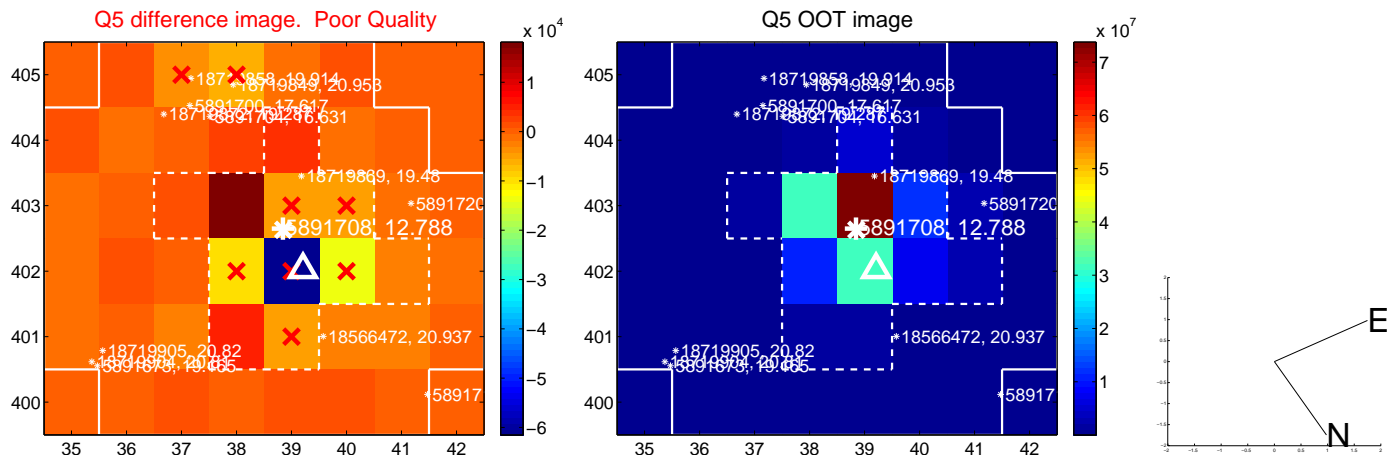


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

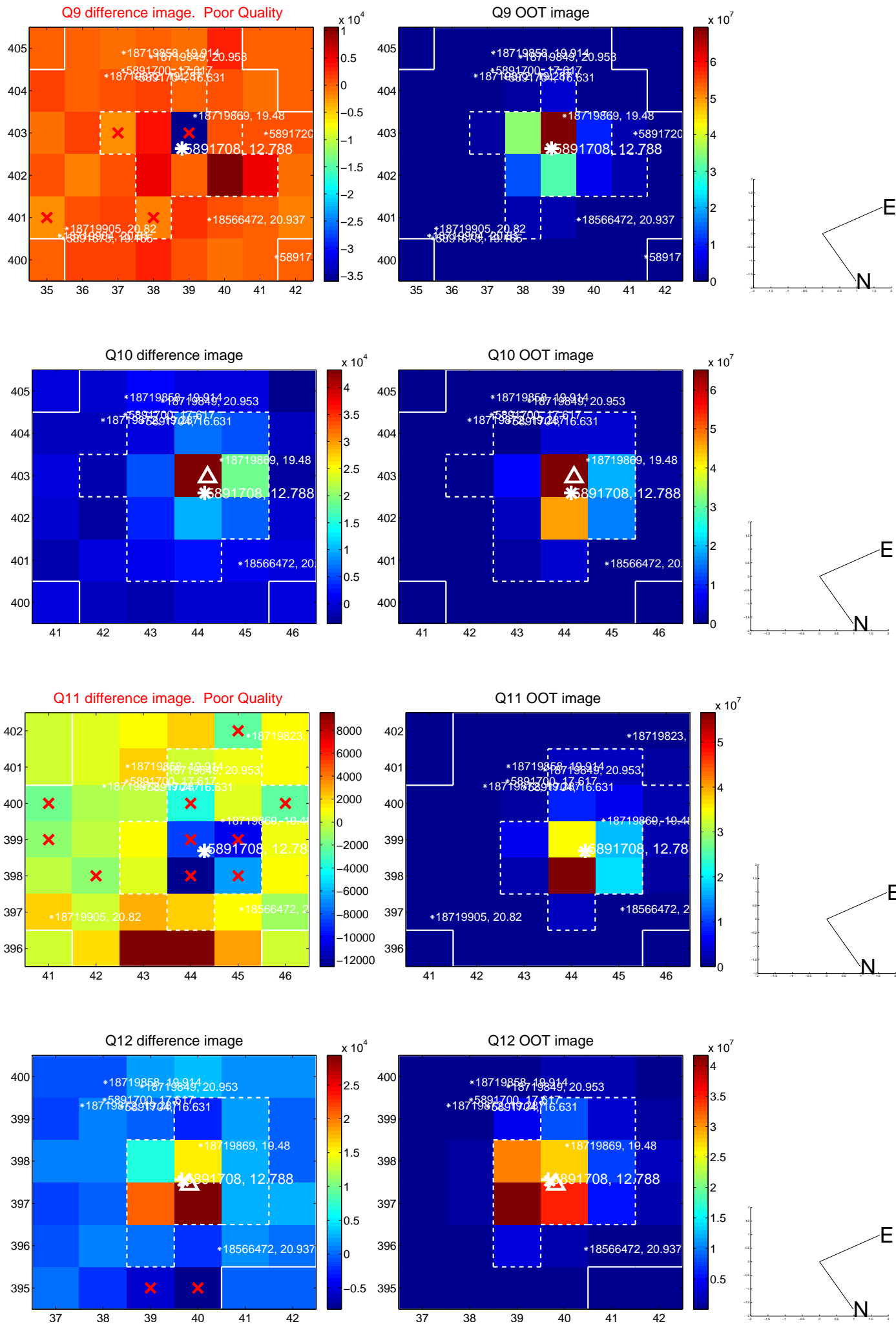
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



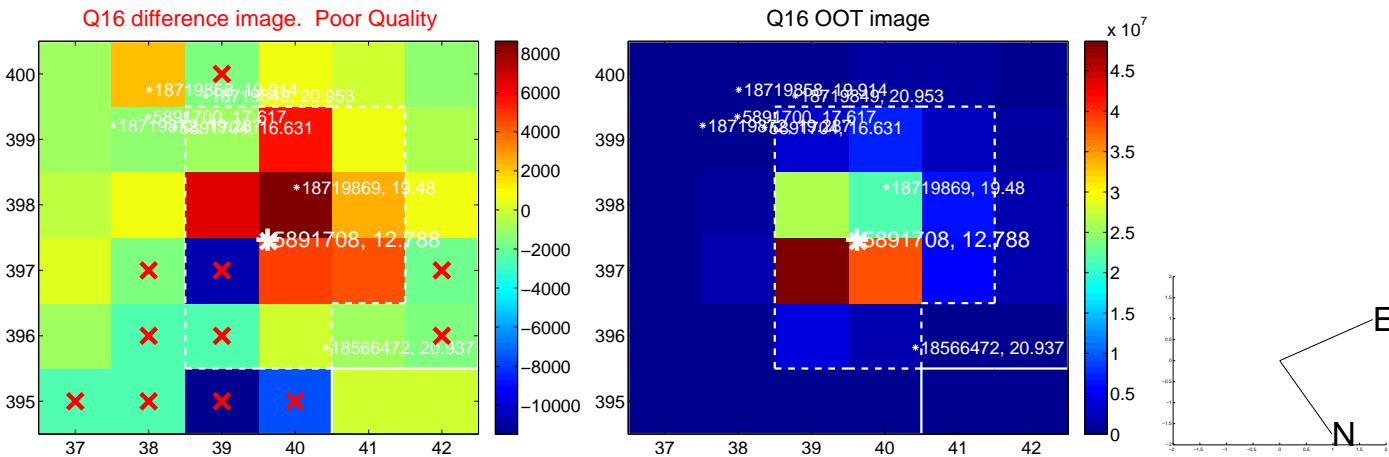
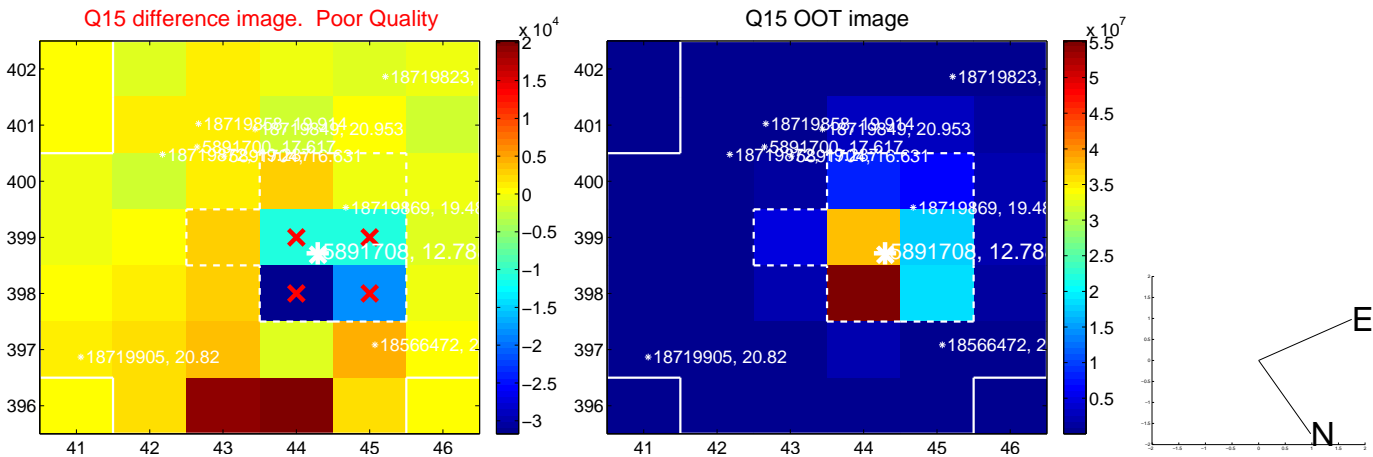
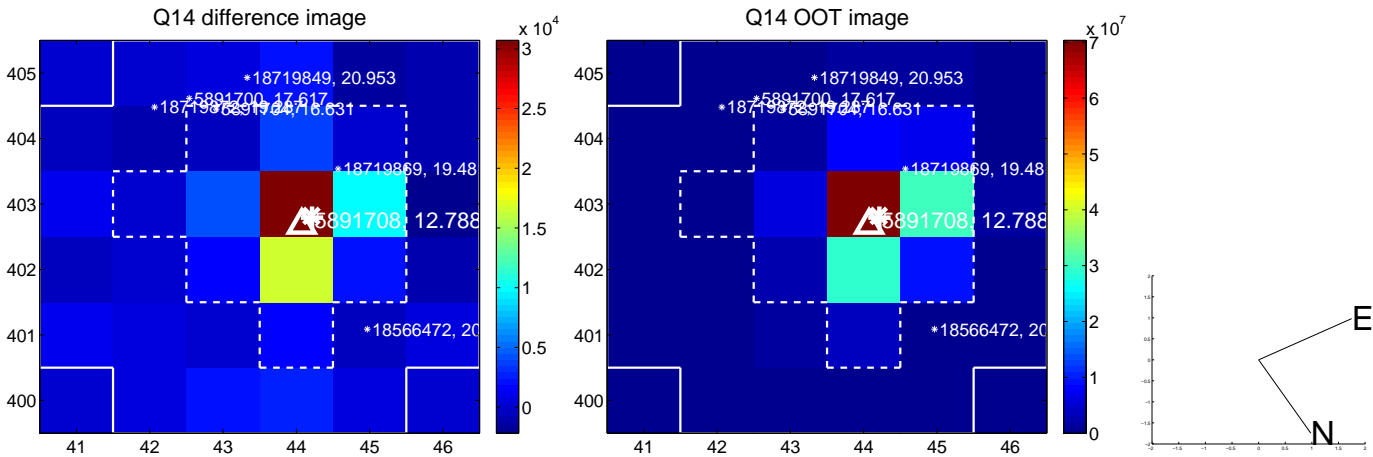
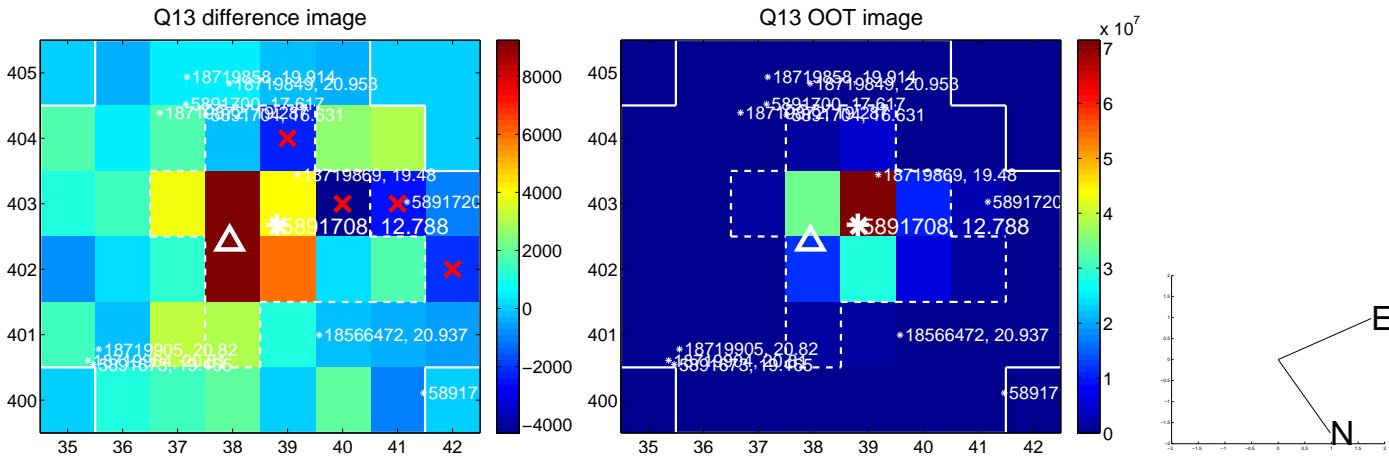
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



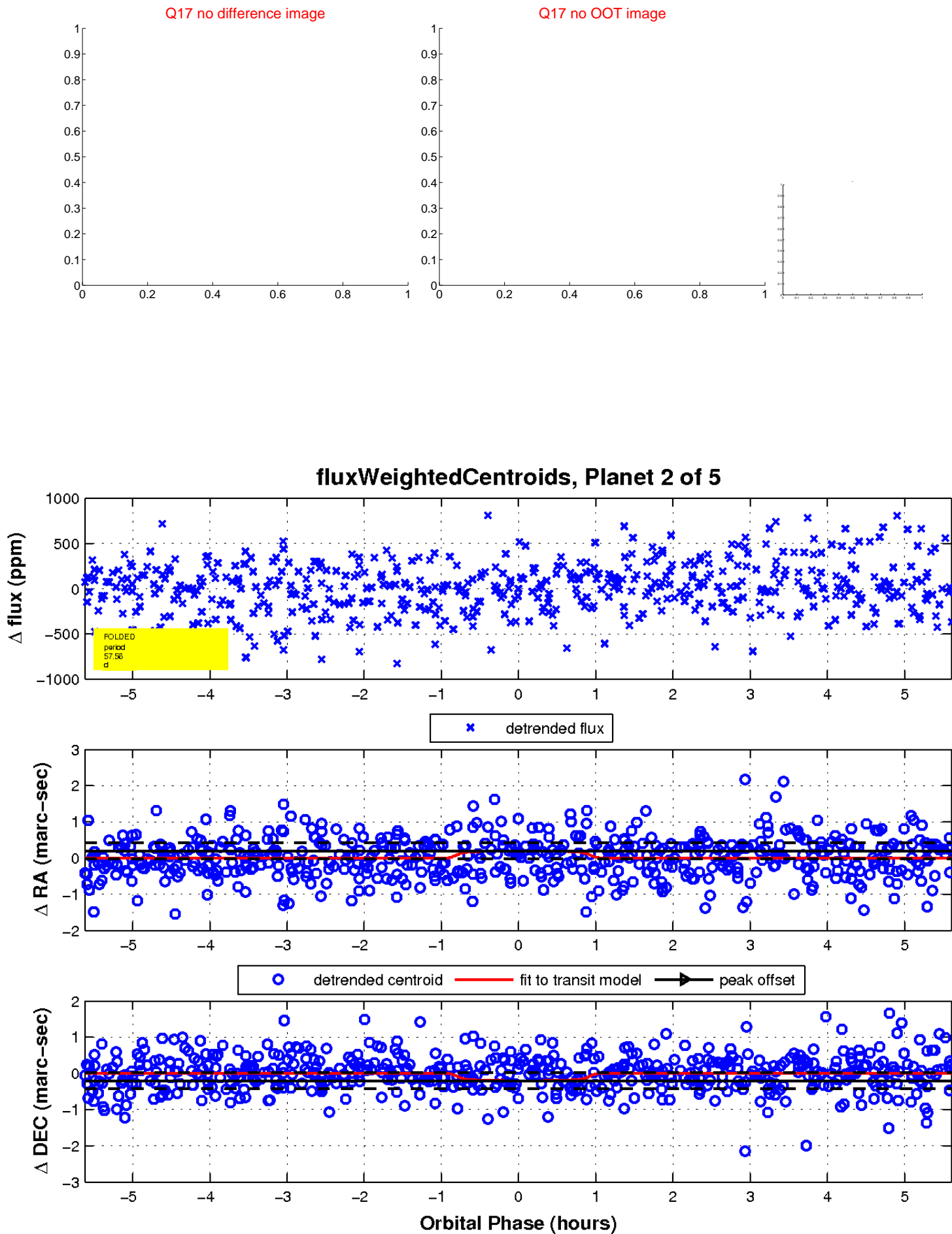
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

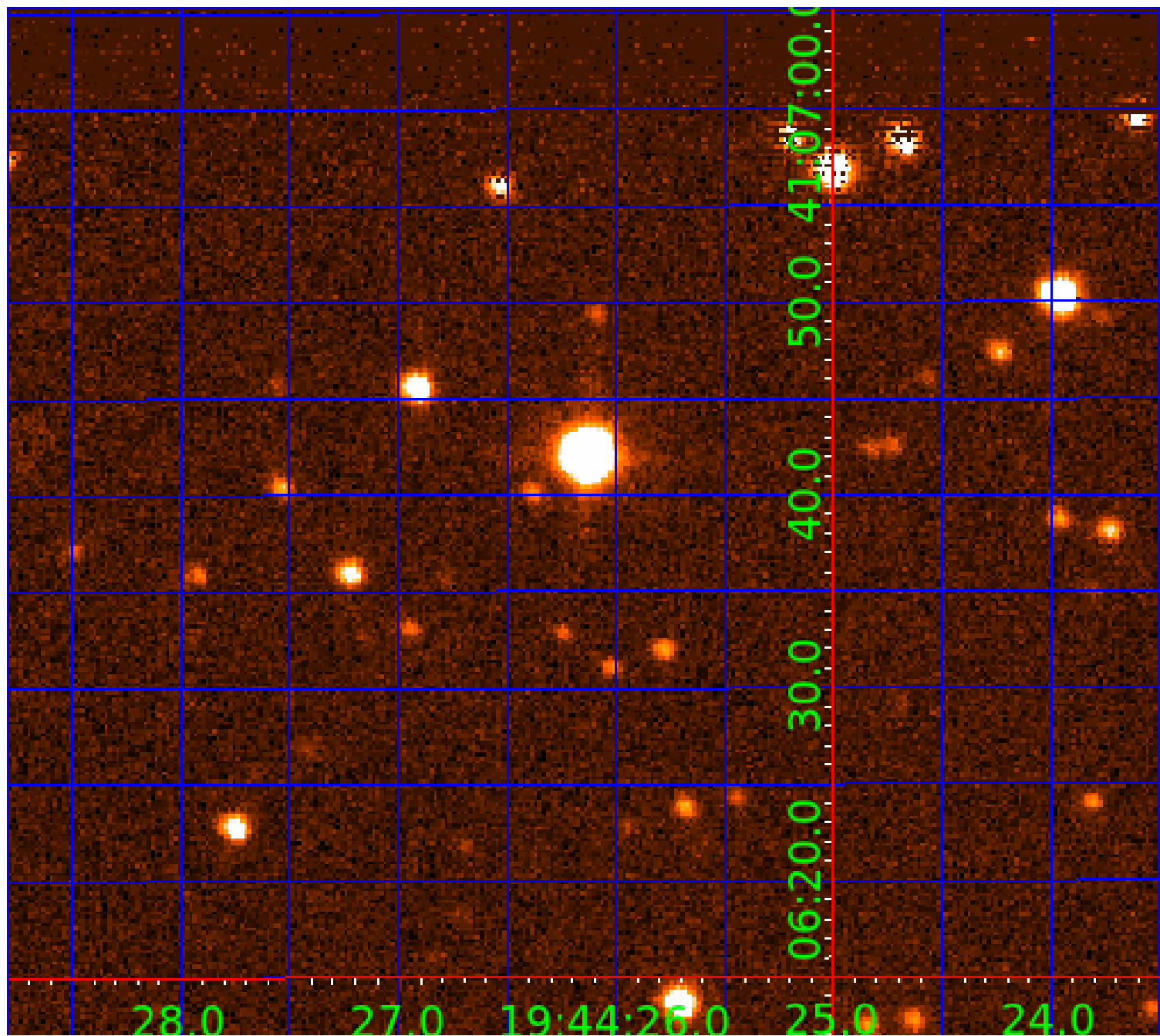


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005891708

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005891708-01 | OBS | No | 1.082448 | 131.558561 | 22.9 | 7.787 | 9.0 | 6.7 | 7.41 | 6897 | 3.80 | 0.00 |
| 005891708-02 | OBS | No | 57.558914 | 160.066898 | 384.0 | 1.875 | 9.4 | 8.0 | 7.41 | 6897 | 16.44 | 673.90 |
| 005891708-03 | OBS | No | 16.043993 | 145.419334 | 302.7 | 1.050 | 9.0 | 8.1 | 7.41 | 6897 | 21.34 | 3701.10 |
| 005891708-04 | OBS | No | 7.412292 | 136.547469 | 210.8 | 1.407 | 8.9 | 9.7 | 7.41 | 6897 | 13.08 | 10362.81 |
| 005891708-05 | OBS | No | 47.612556 | 145.109080 | 374.0 | 1.404 | 8.0 | 8.3 | 7.41 | 6897 | 15.14 | 867.87 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005891708-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT |
| 005891708-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 005891708-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 005891708-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 005891708-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

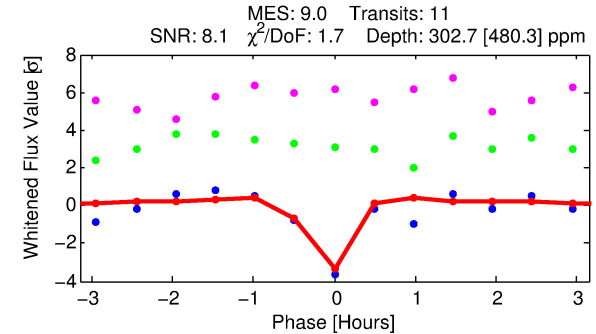
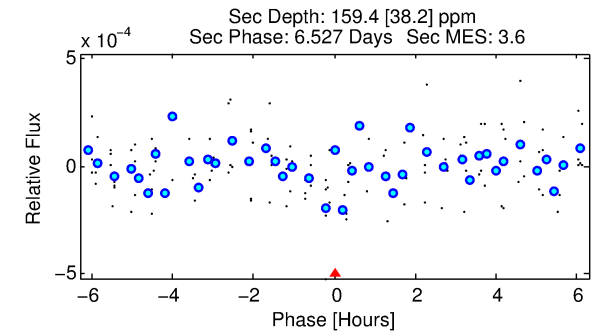
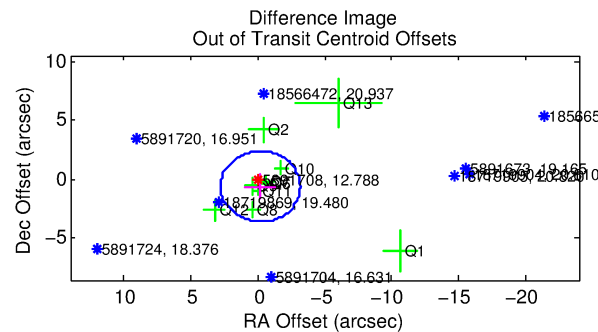
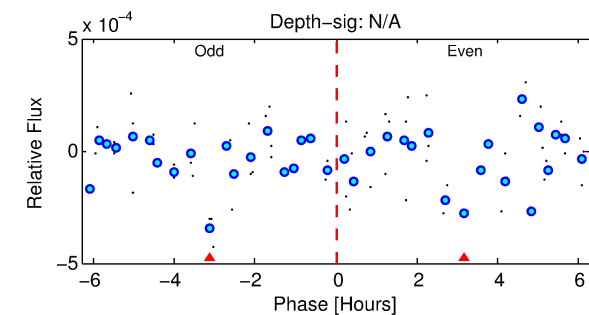
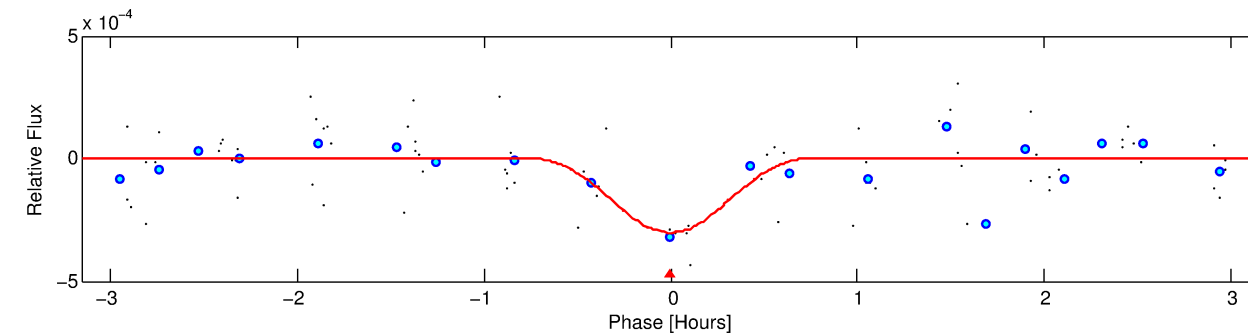
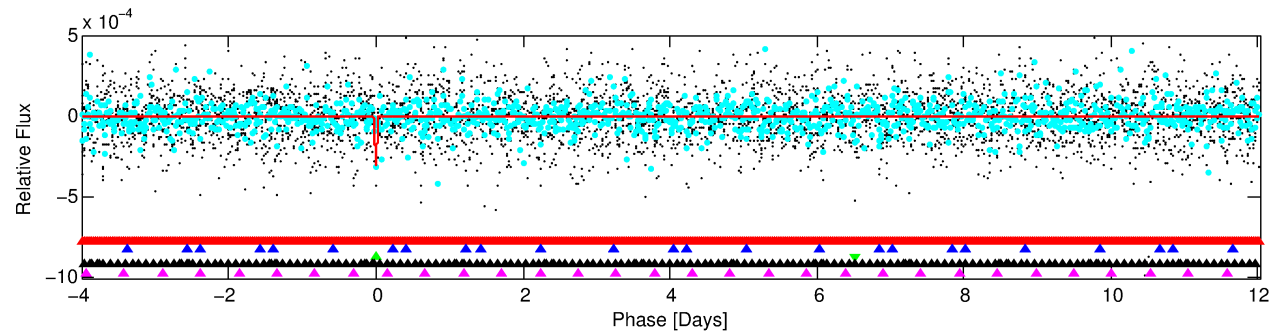
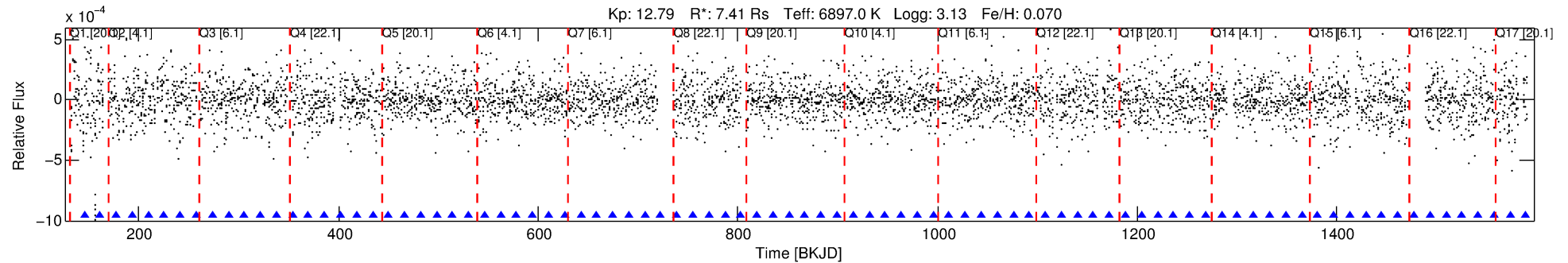
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005891708-03

No Significant Match Found

DV One-Page Summary

KIC: 5891708 Candidate: 3 of 5 Period: 16.044 d



DV Fit Results:

Period = 16.04399 [0.00014] d
Epoch = 145.4193 [0.0062] BKJD
Rp/R* = 0.0264 [0.6331]
a/R* = 31.54 [286.77]
b = 0.99 [1.18]
Seff = 3701.10 [3329.34]
Teq = 1989 [447] K
Rp = 21.35 [512.09] Re
a = 0.1734 [0.0944] AU
Ag = 5.79 [277.67] [0.02]
Teffp = 4769 [57198] K [0.05]

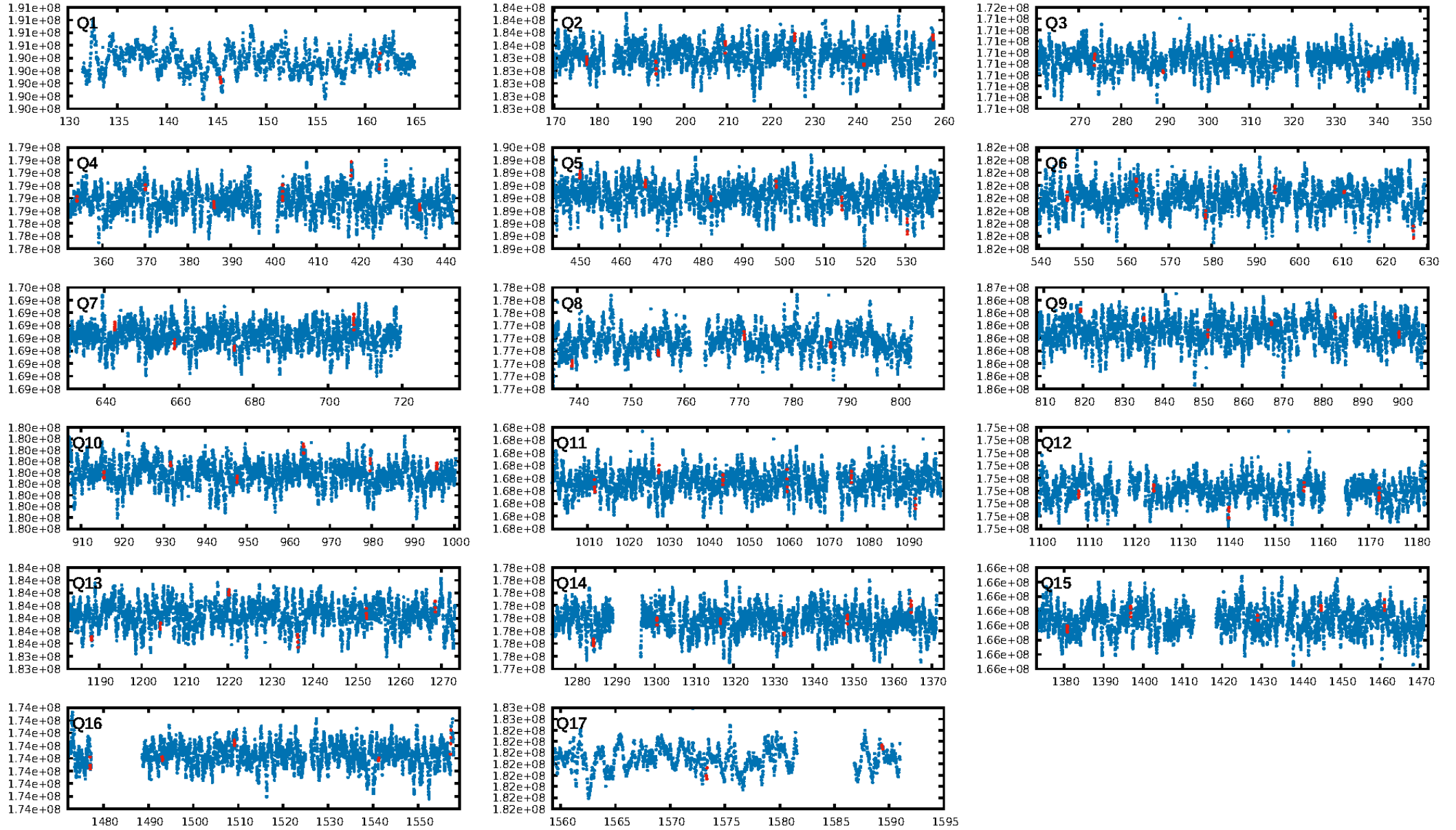
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [118.01]
LongPeriod-sig: 100.0% [432.14]
ModelChiSquare2-sig: 43.3%
ModelChiSquareGof-sig: 95.5%
Bootstrap-pfa: 3.15e-11
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.2205
Centroid-sig: 0.1%
Centroid-so: 0.844 arcsec [1.75]
OotOffset-rm: 0.625 arcsec [0.63]
KicOffset-rm: 0.675 arcsec [0.59]
OotOffset-st: 3/2/2/3 [10]
KicOffset-st: 3/2/2/3 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.82 [14/17]

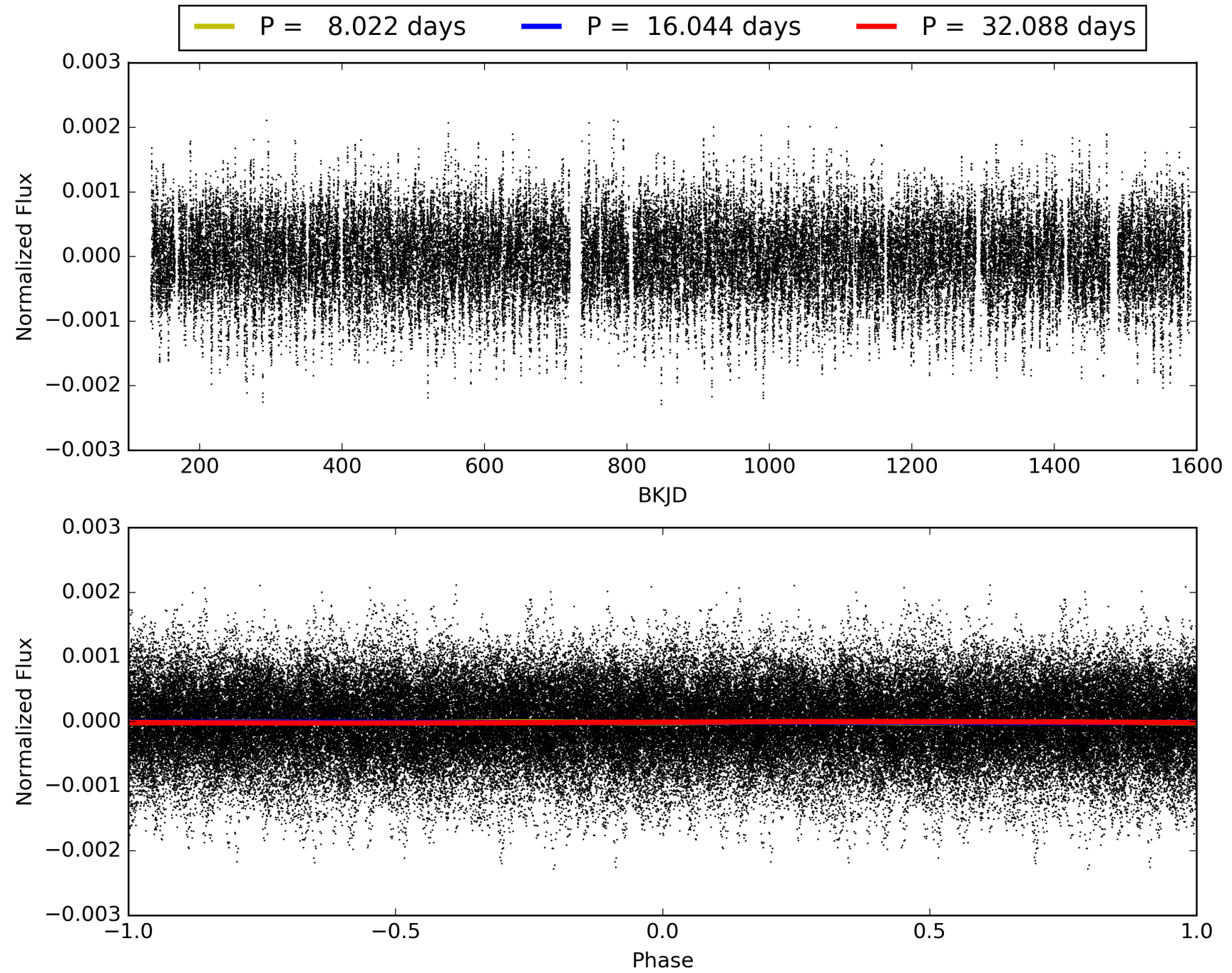
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:01:00 Z

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

TCE 005891708-03, PDC Light Curves

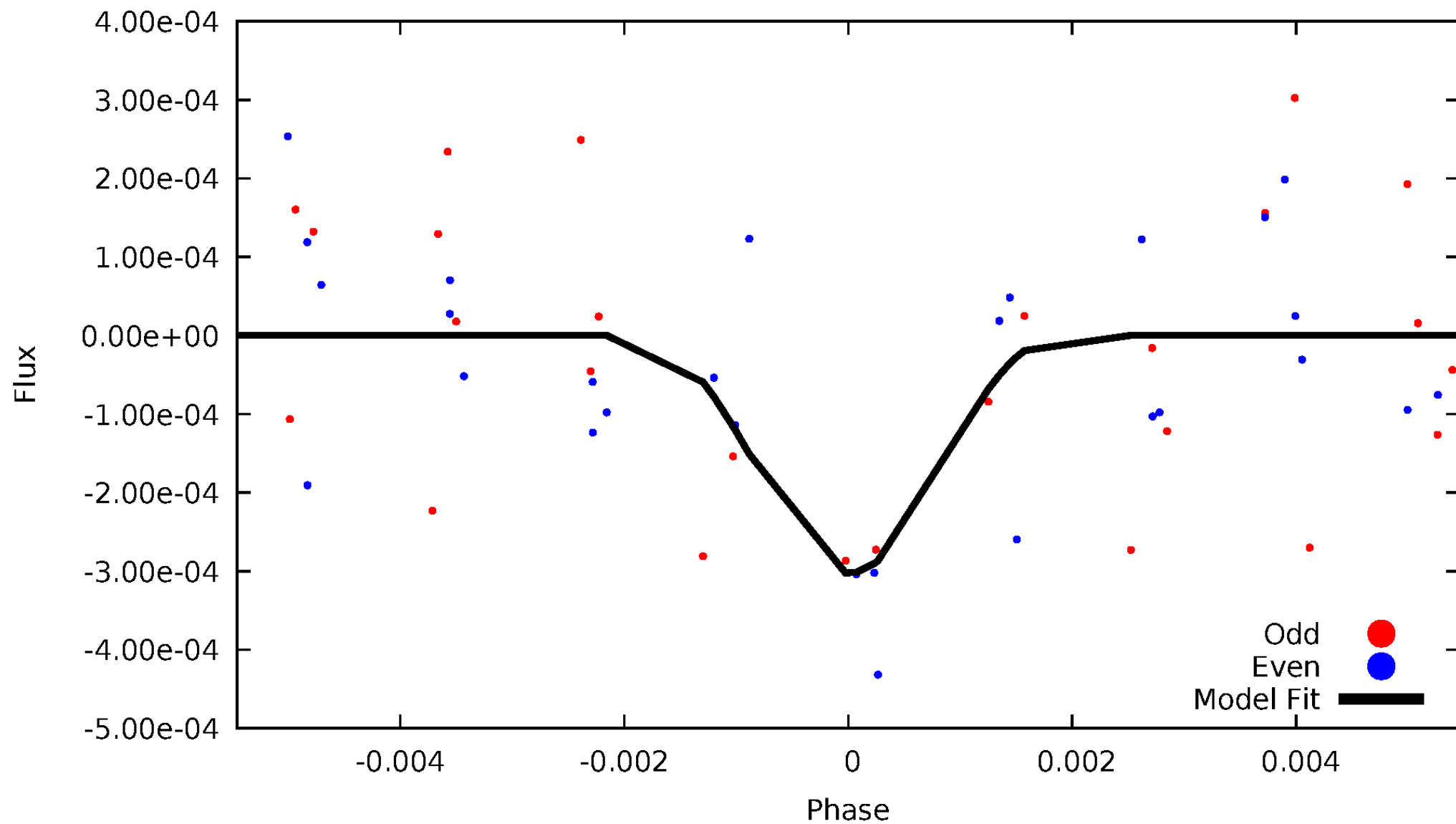


TCE 005891708-03



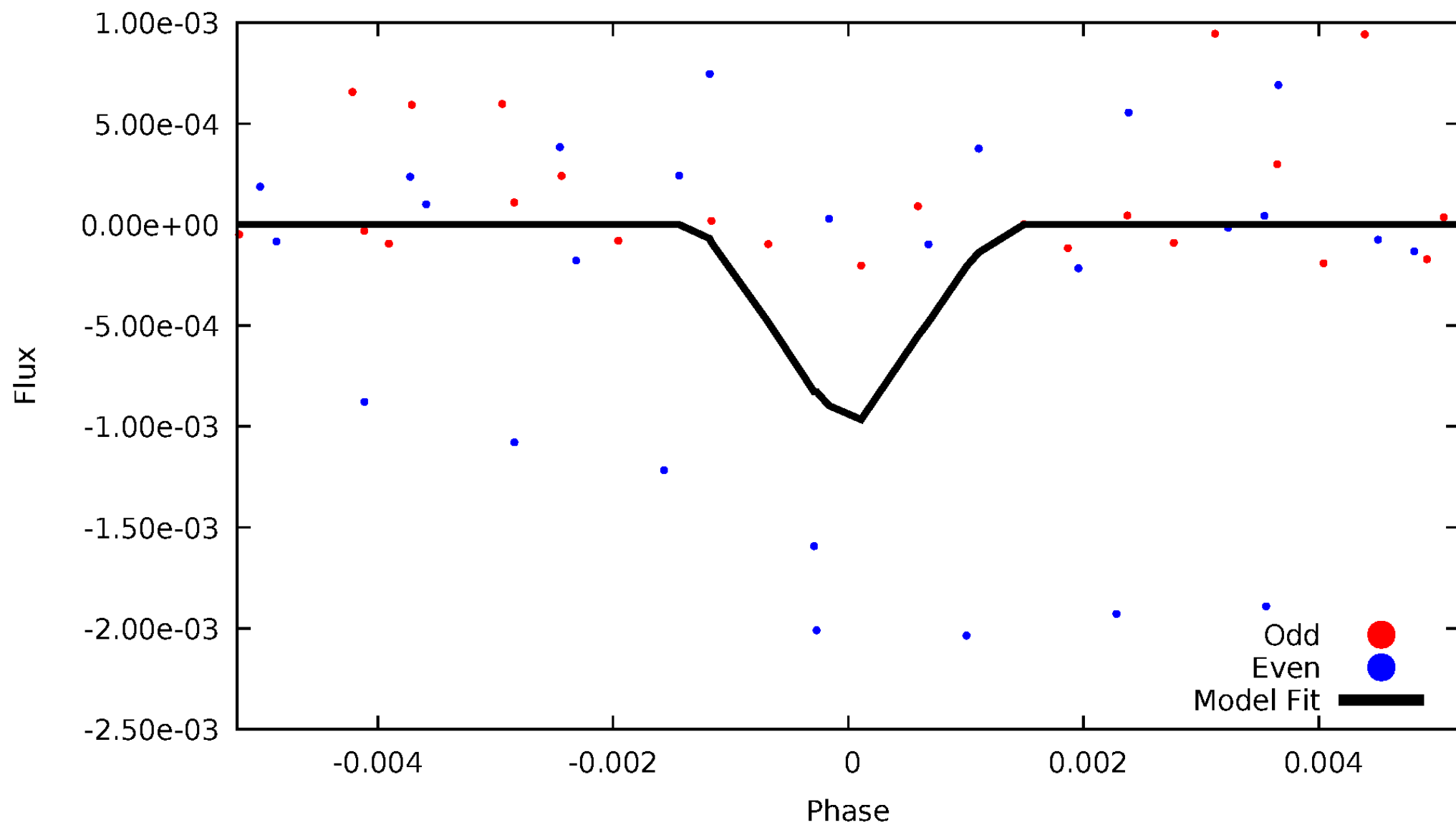
DV Odd/Even

TCE 005891708-03



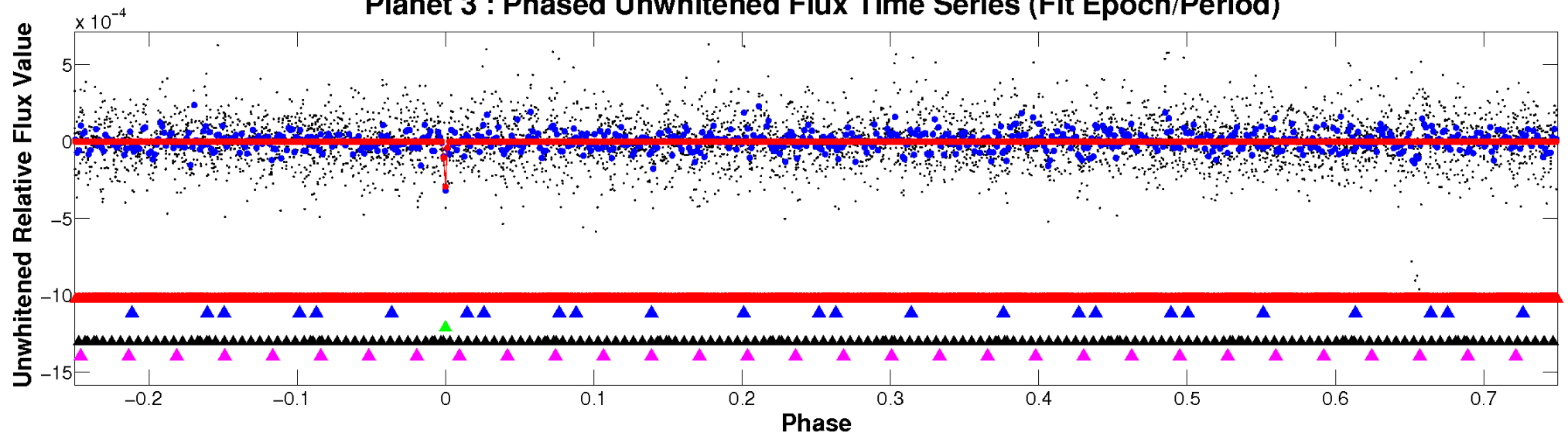
ALT Odd/Even

TCE 005891708-03

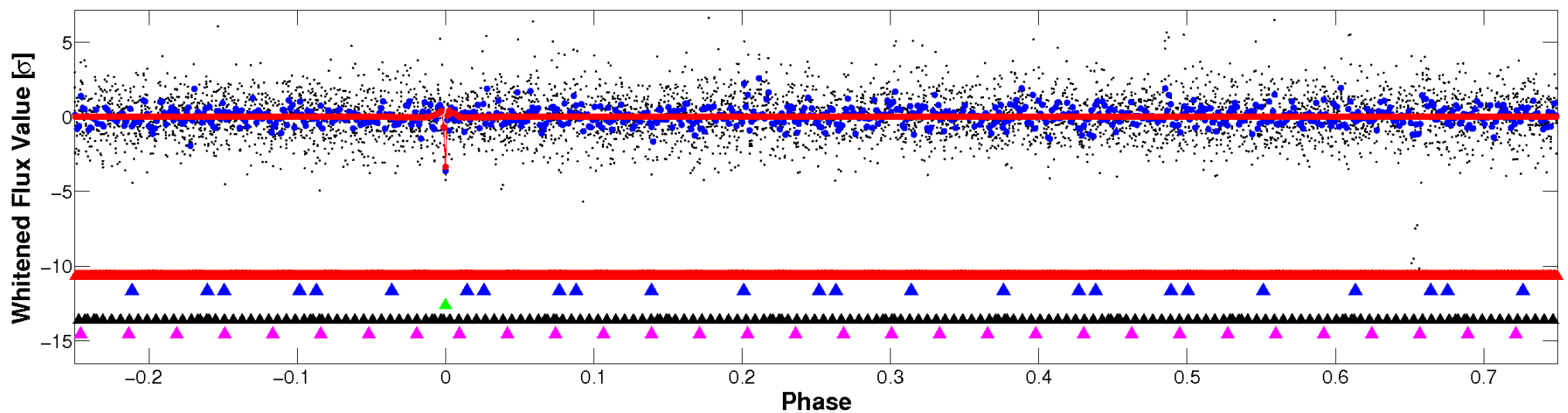


Non-Whitened Vs. Whitened Light Curve

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

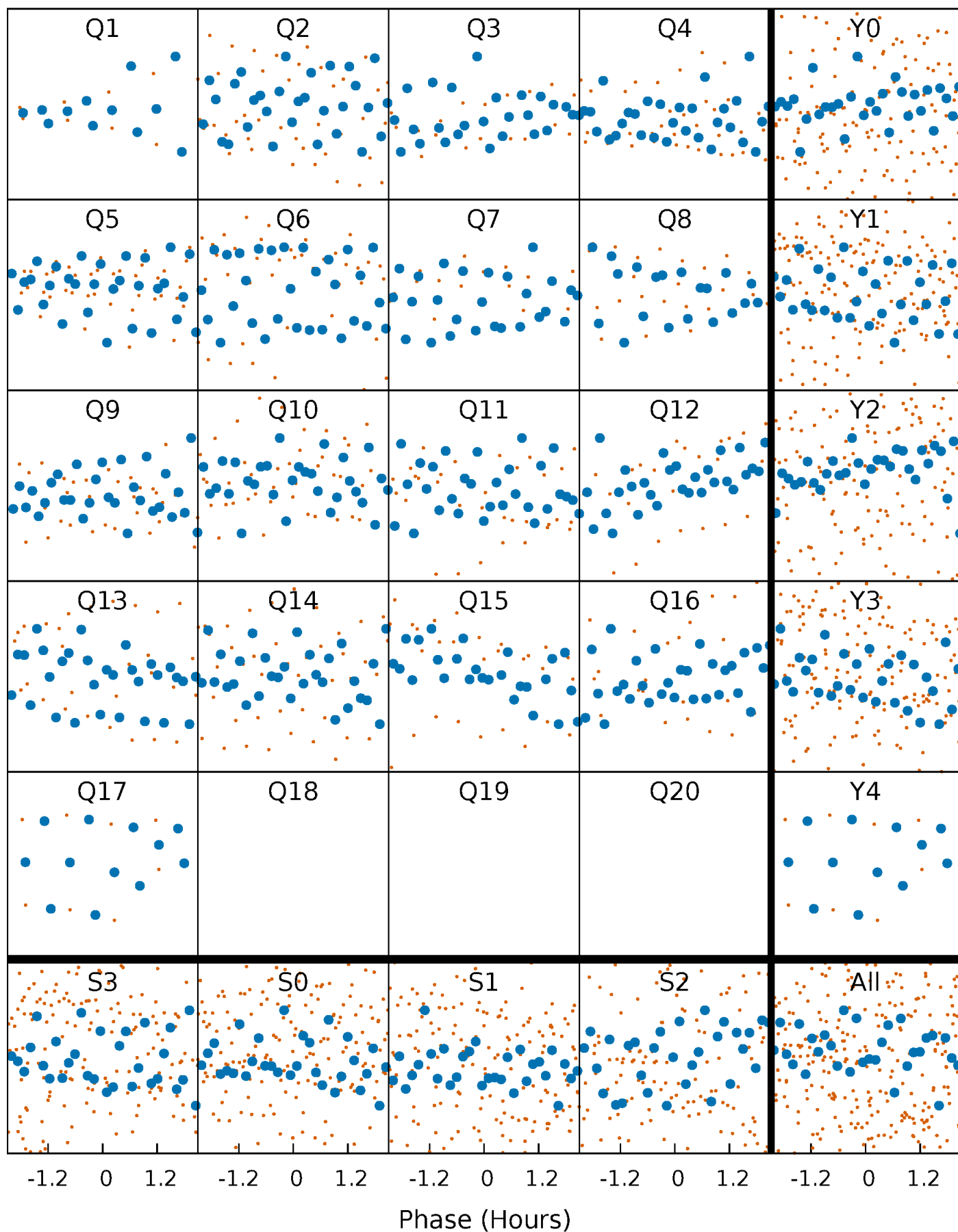


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



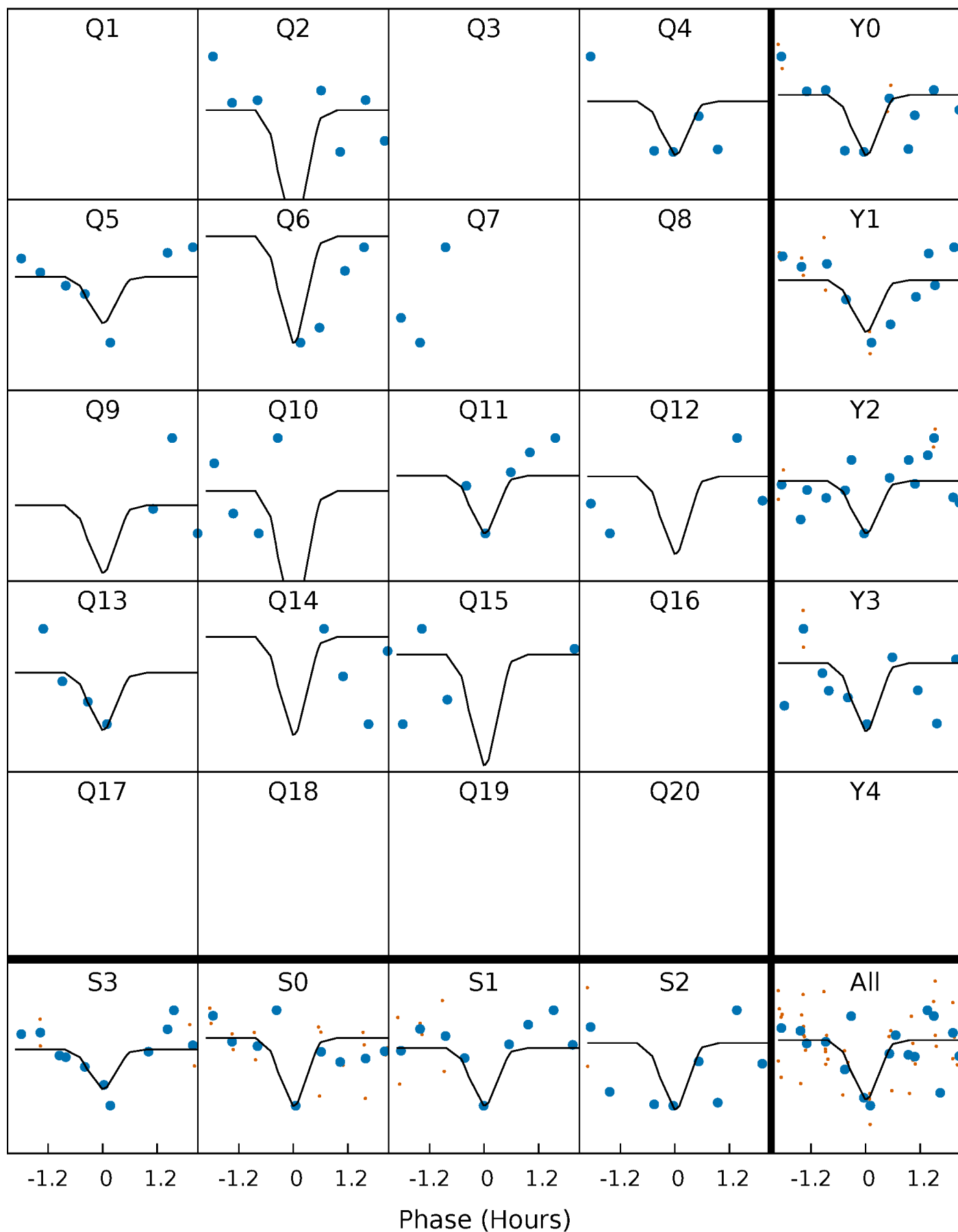
PDC Quarter-Phased Transit Curves

TCE 005891708-03 P= 16.043993 Days $T_0=145.419334$ (BKJD)



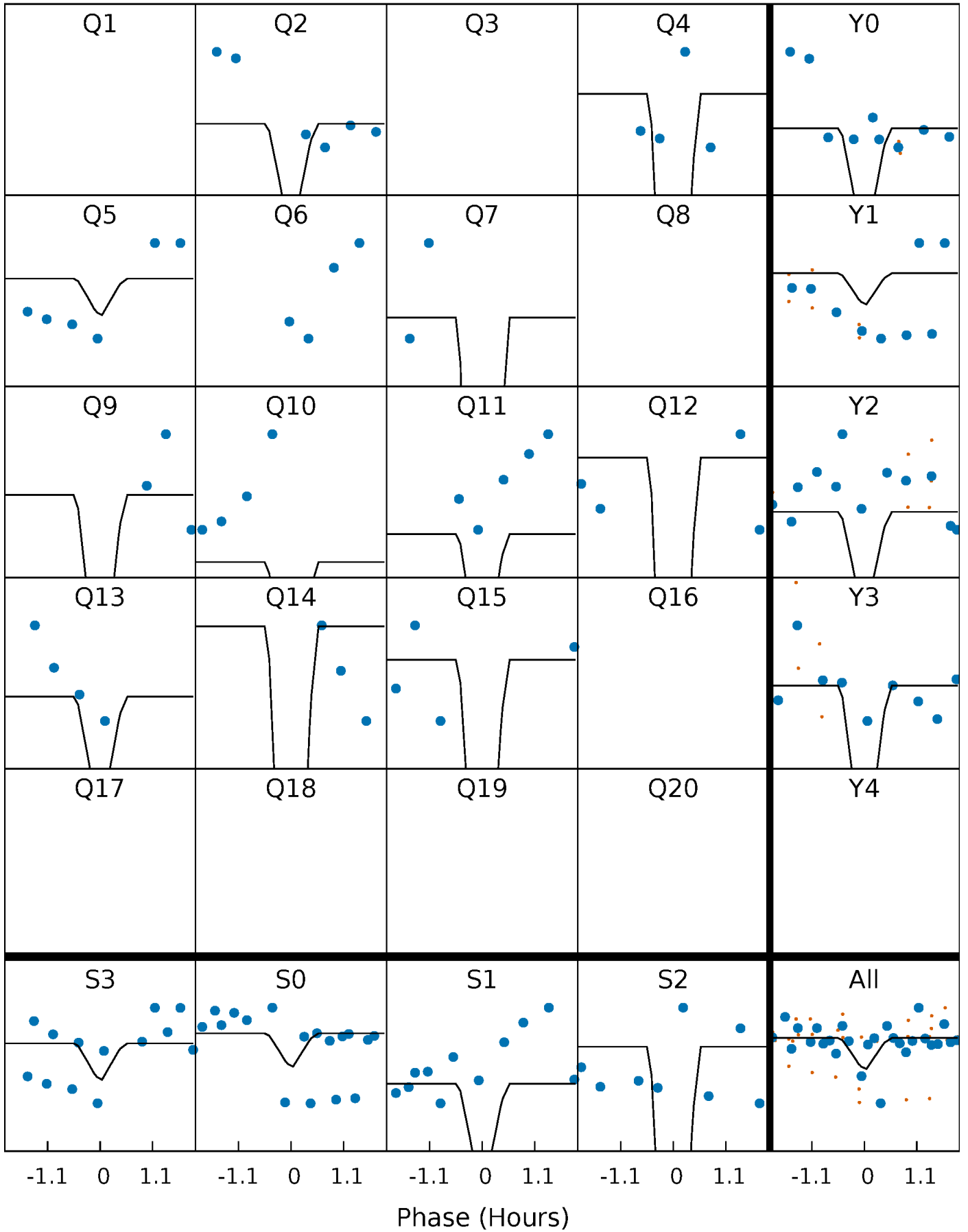
DV Quarter-Phased Transit Curves

TCE 005891708-03 P= 16.043993 Days $T_0=145.419334$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

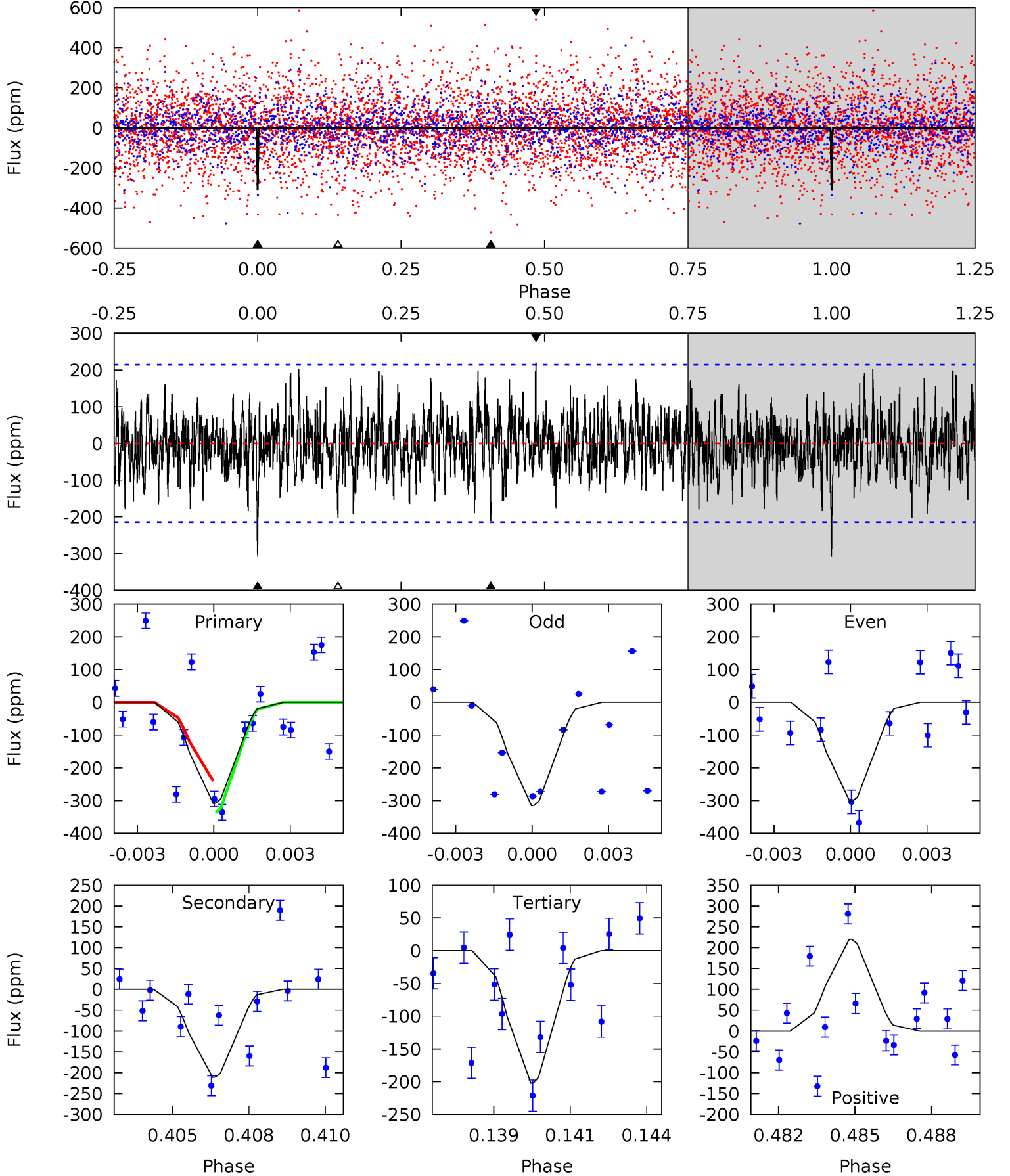
TCE 005891708-03 P= 16.043844 Days $T_0=145.431833$ (BKJD)



DV Model-Shift Uniqueness Test

005891708-03, P = 16.043993 Days, E = 129.375341 Days

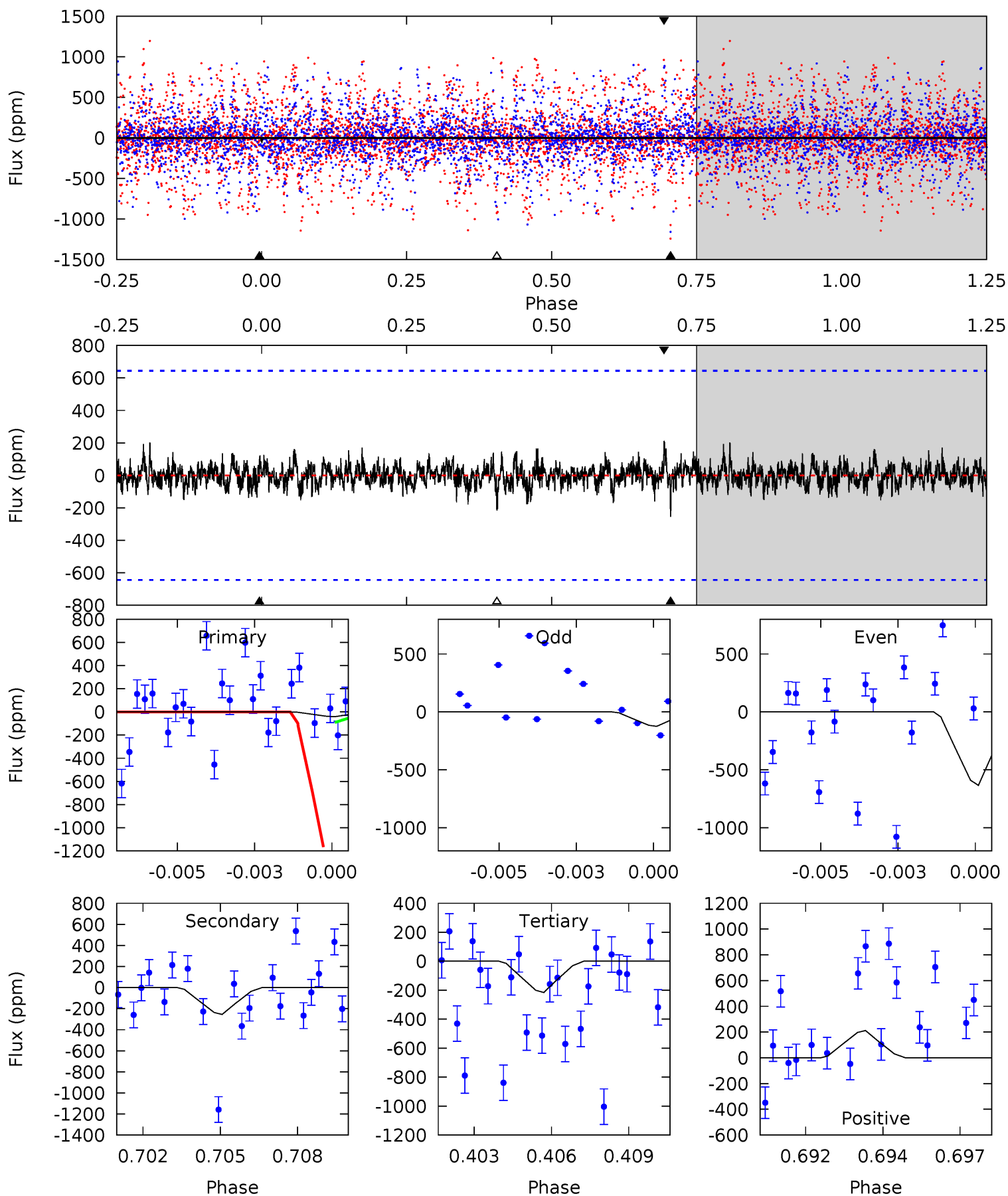
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.58 | 5.18 | 4.97 | 5.41 | 5.27 | 2.99 | 1.55 | 2.61 | 2.17 | 0.21 | -0.23 | 0.15 | 1.02 | 0.42 | 1.13 |



Alt Model-Shift Uniqueness Test

005891708-03, P = 16.043844 Days, E = 129.387989 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 0.33 | 2.08 | 1.77 | 1.73 | 5.27 | 3.00 | 0.44 | -1.43 | -1.40 | 0.32 | 0.35 | 2.16 | 7.44 | 0.45 | 0 |



Stellar Parameters For KIC 005891708

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6897^{+144}_{-246} | $3.130^{+0.528}_{-0.132}$ | $0.070^{+0.200}_{-0.300}$ | $7.410^{+1.730}_{-4.037}$ | $2.703^{+0.353}_{-0.823}$ | $0.009^{+0.061}_{-0.004}$ |
| | +2%/-4% | +17%/-4% | +286%/-429% | +23%/-54% | +13%/-30% | +650%/-39% |
| 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 005891708-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------------|----------------------|------------------------|---------------------------|
| DV | -211±41 | $322.00^{+356.16}_{-239.08}$ | 2685^{+218}_{-376} | -2773^{+5248}_{-198} | $0.033^{+0.433}_{-0.026}$ |
| Alt. | -255±122 | $321.24^{+391.37}_{-238.00}$ | 2672^{+229}_{-379} | -2760^{+5518}_{-216} | $0.035^{+0.537}_{-0.029}$ |

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

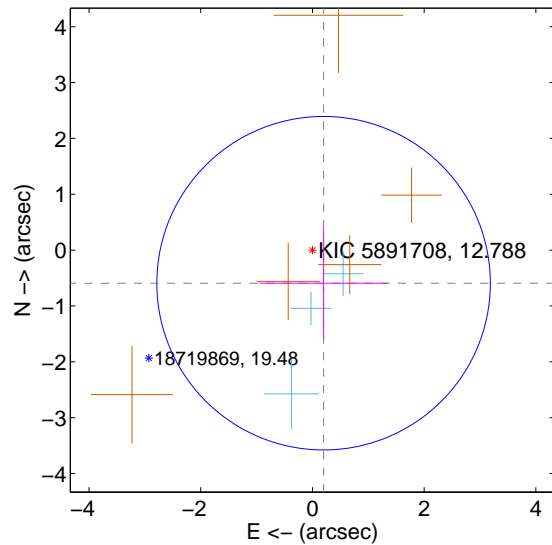
Supplemental centroid analysis for 005891708-03. Kepler magnitude: 12.79. Transit SNR 8.11

There are 3 quarters with good PRF difference image offsets

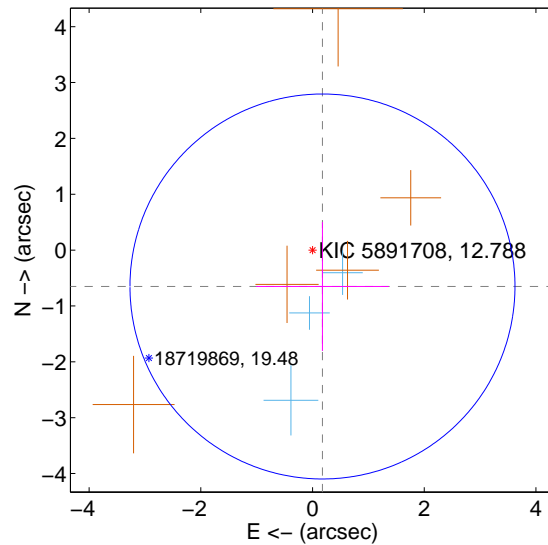
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.625 ± 0.995 | 0.63 | -0.200 ± 1.149 | -0.593 ± 0.994 |
| PRF-fit source offset from KIC position | 0.675 ± 1.149 | 0.59 | -0.178 ± 1.187 | -0.652 ± 1.153 |
| photometric centroid source offset | 0.84 ± 0.48 | 1.75 | -0.01 ± 0.52 | 0.84 ± 0.48 |

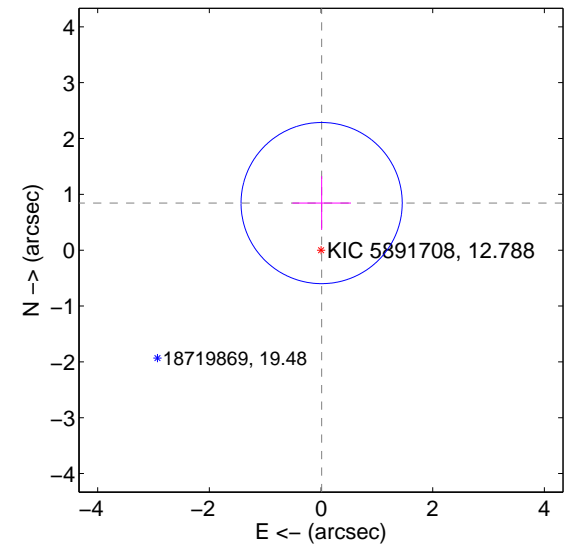
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

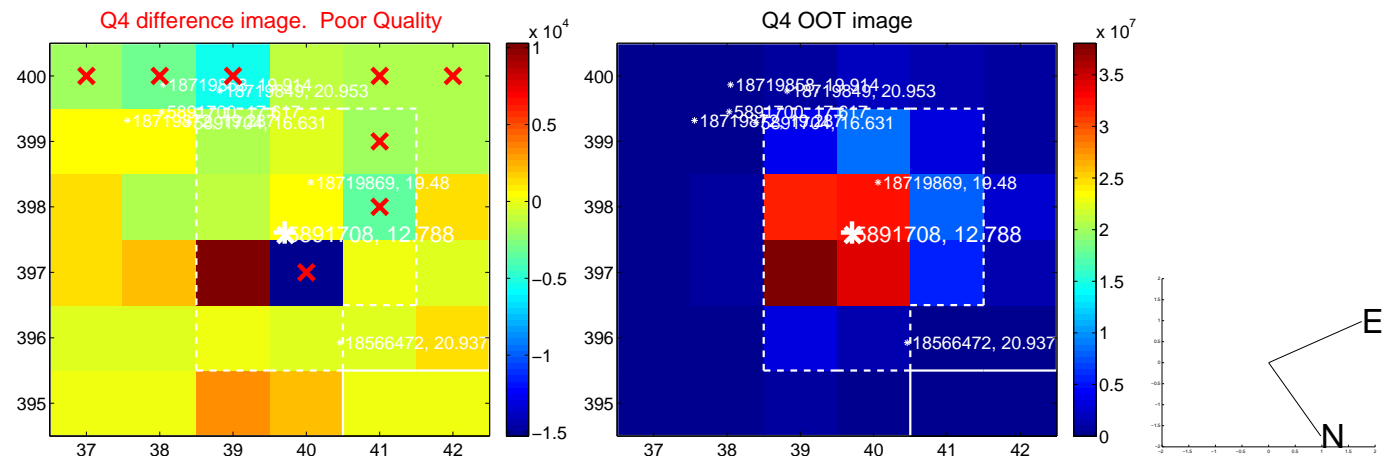
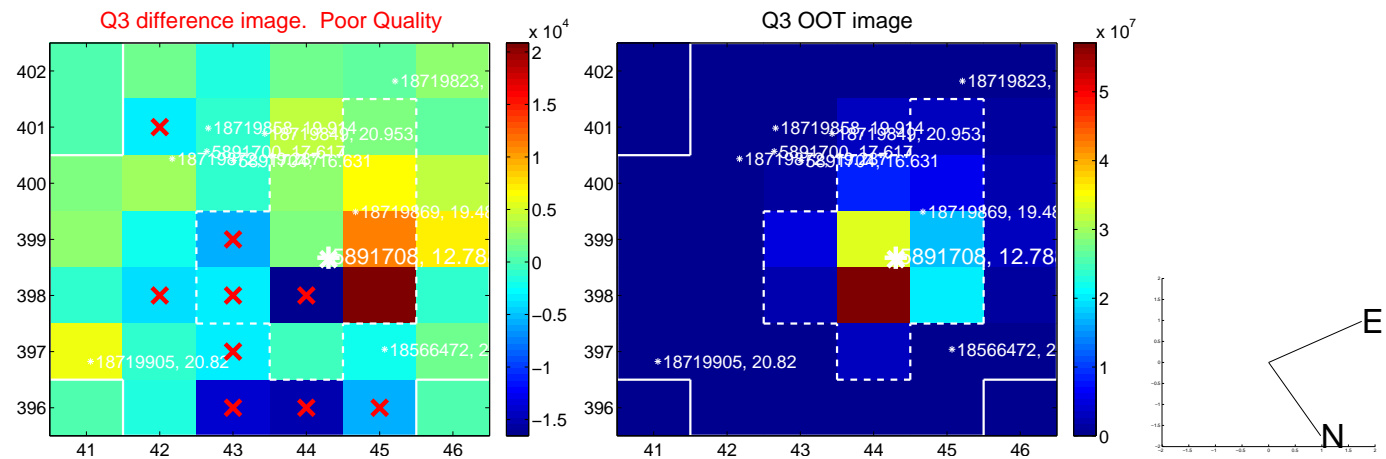
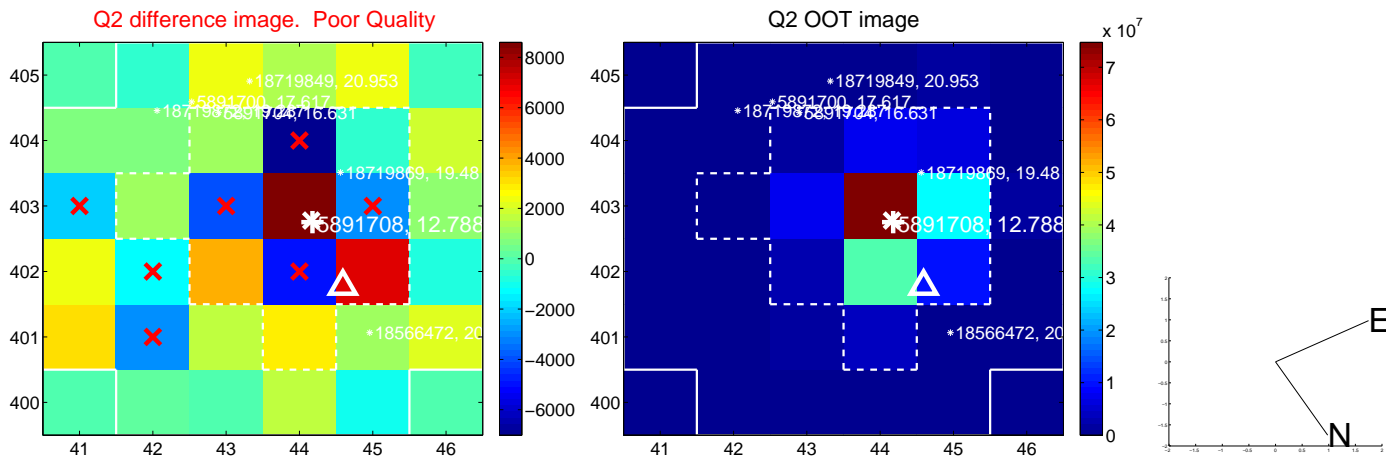
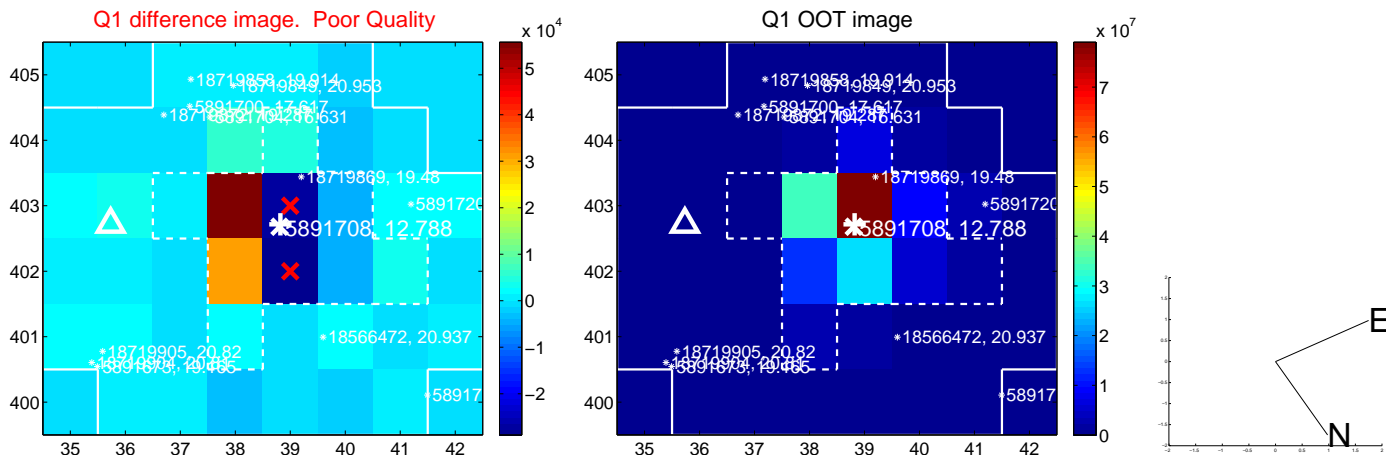


offset from photometric centroids

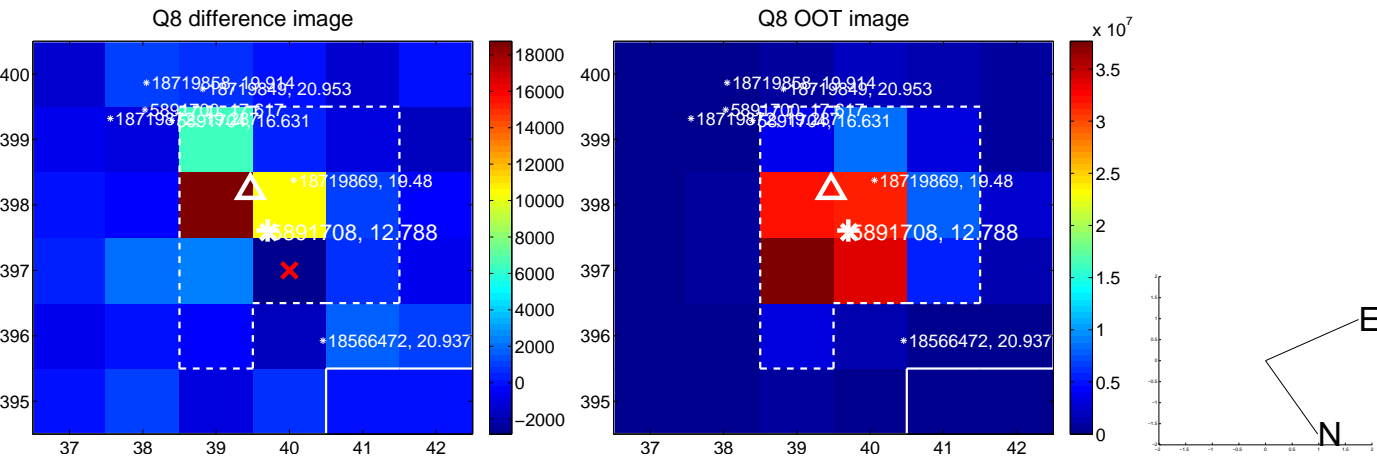
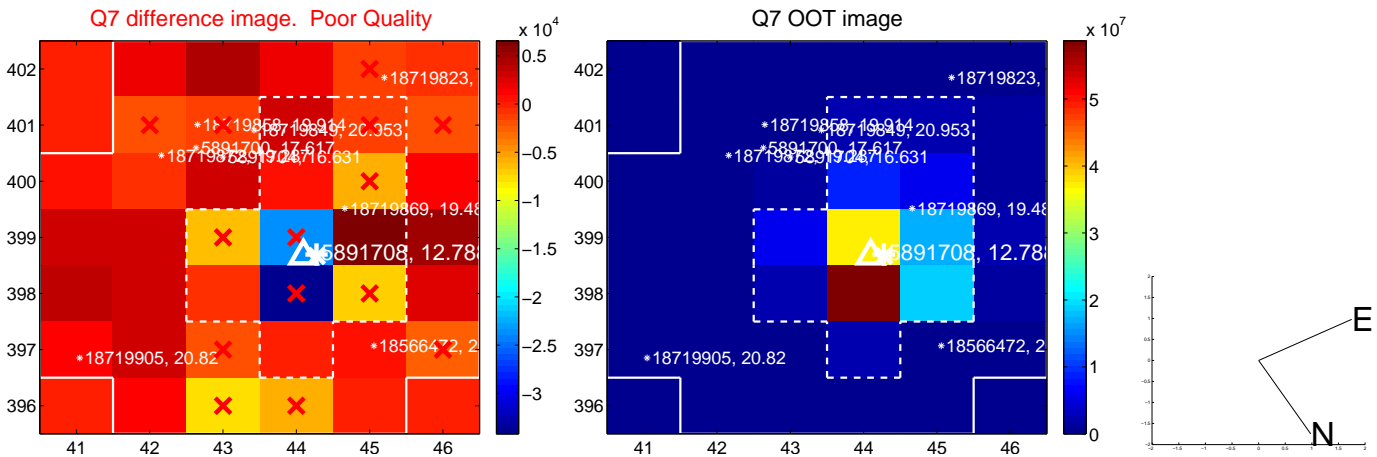
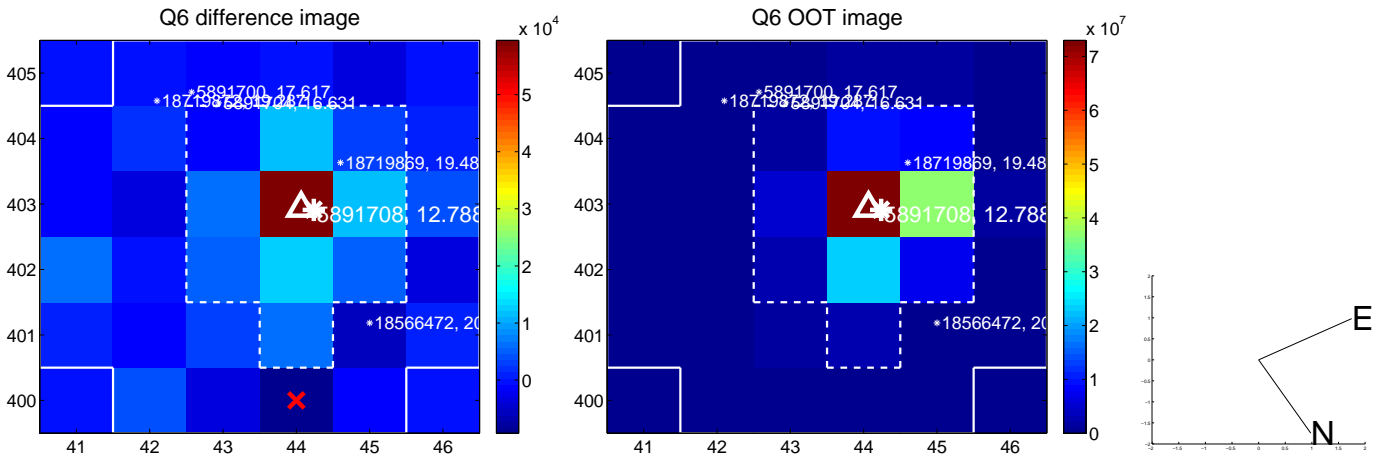
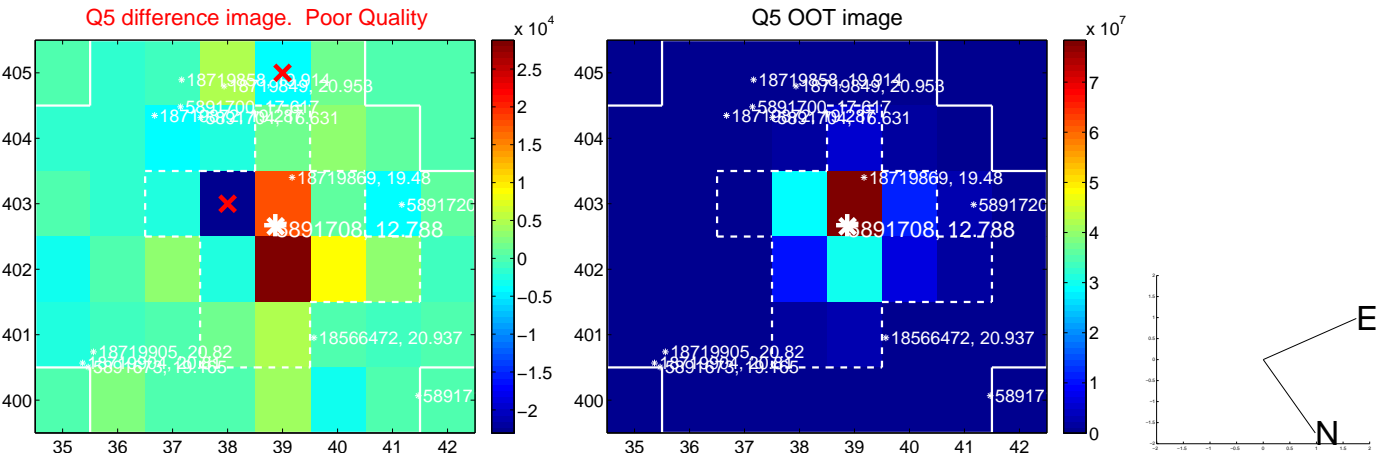


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

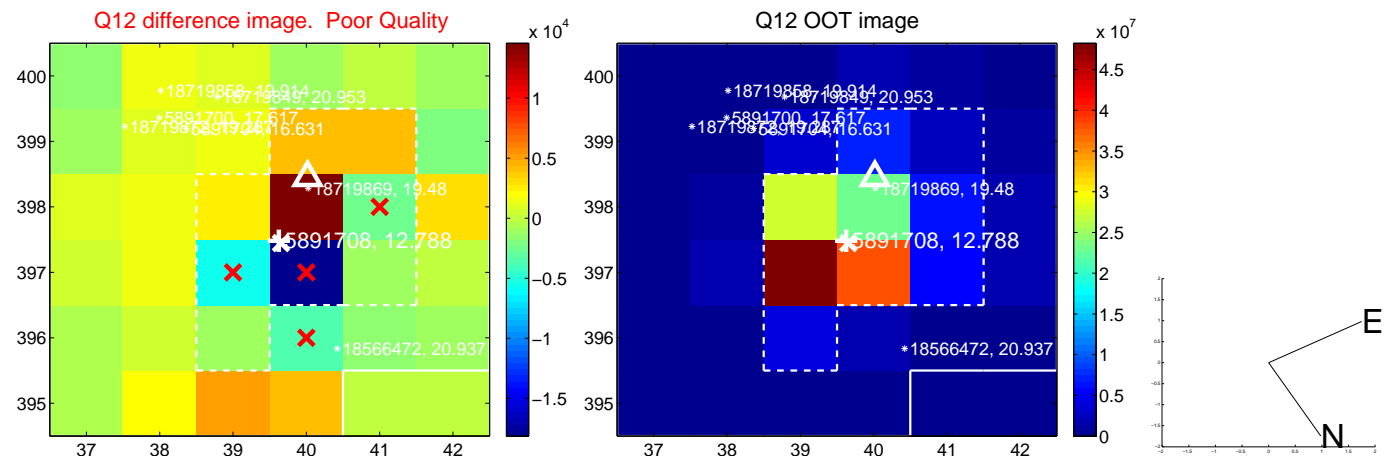
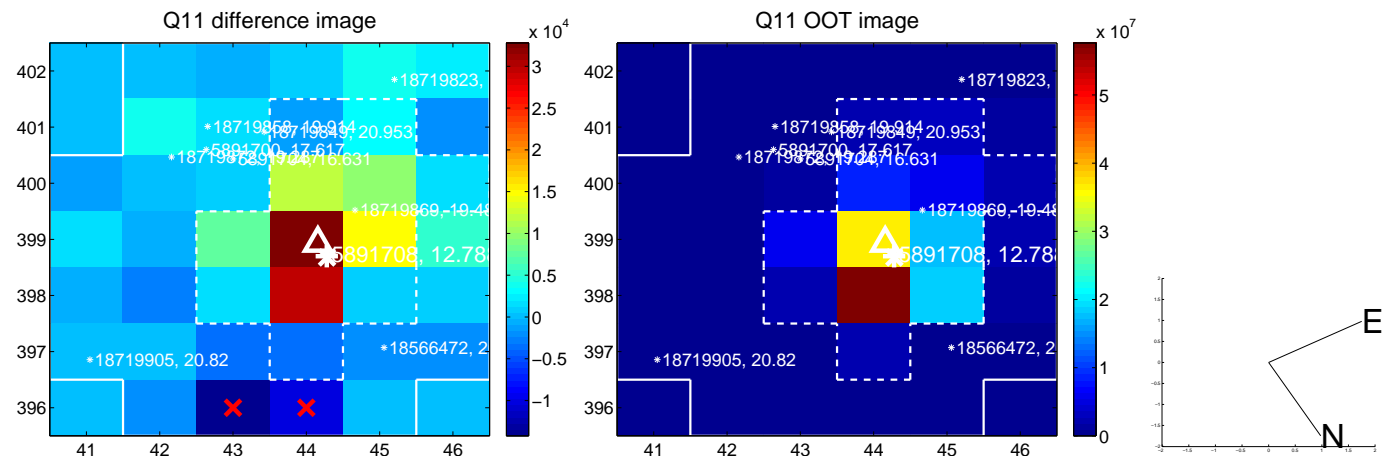
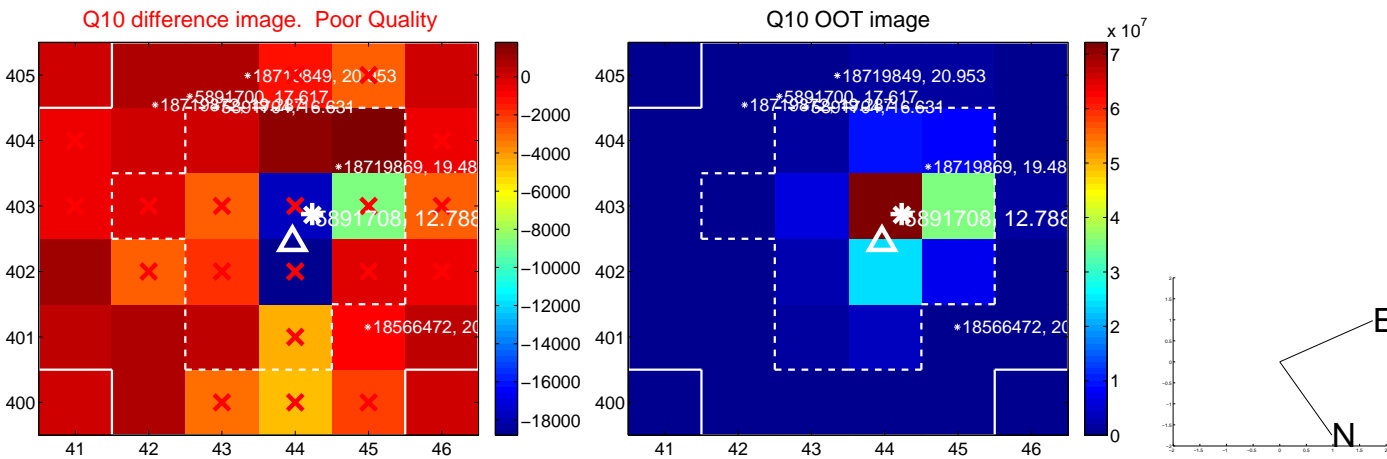
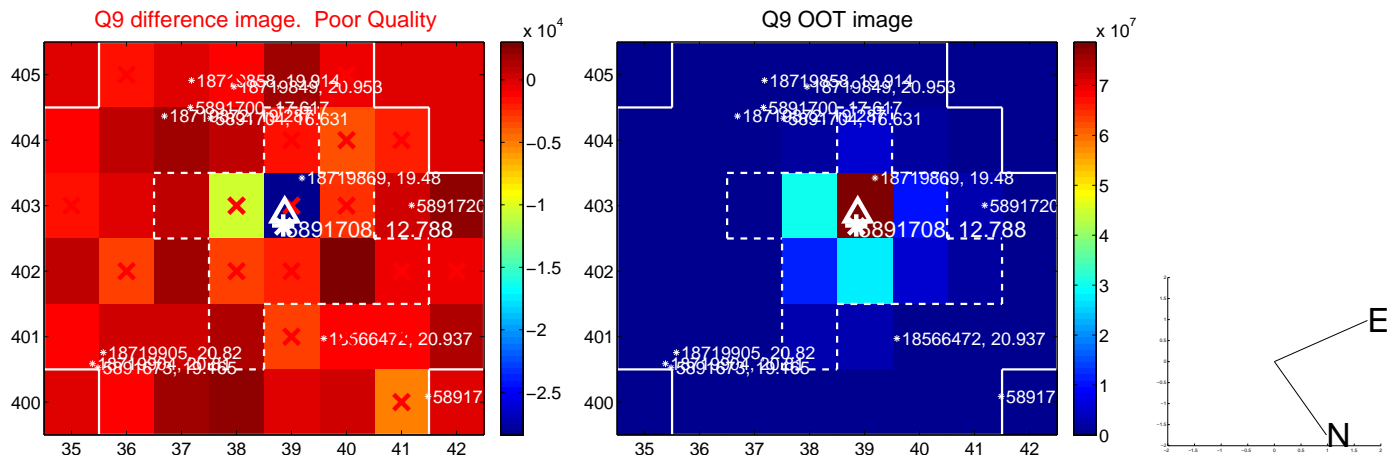
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



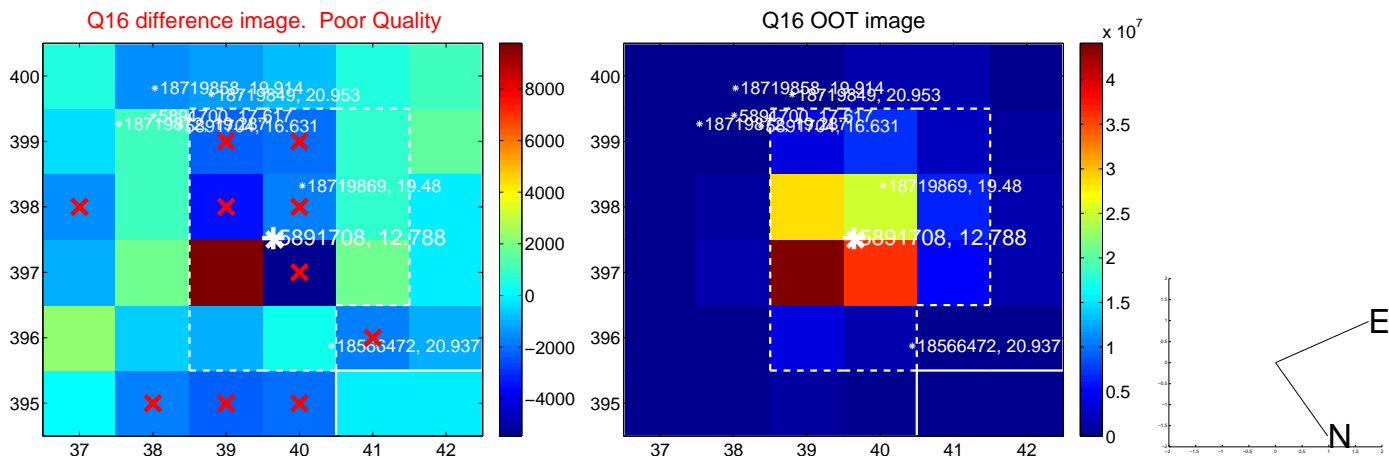
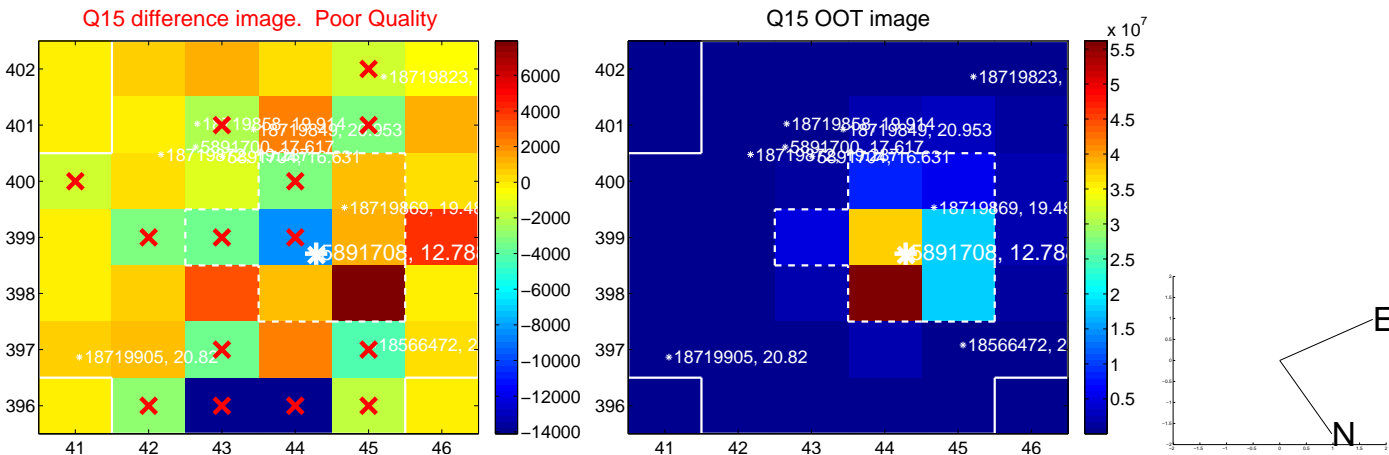
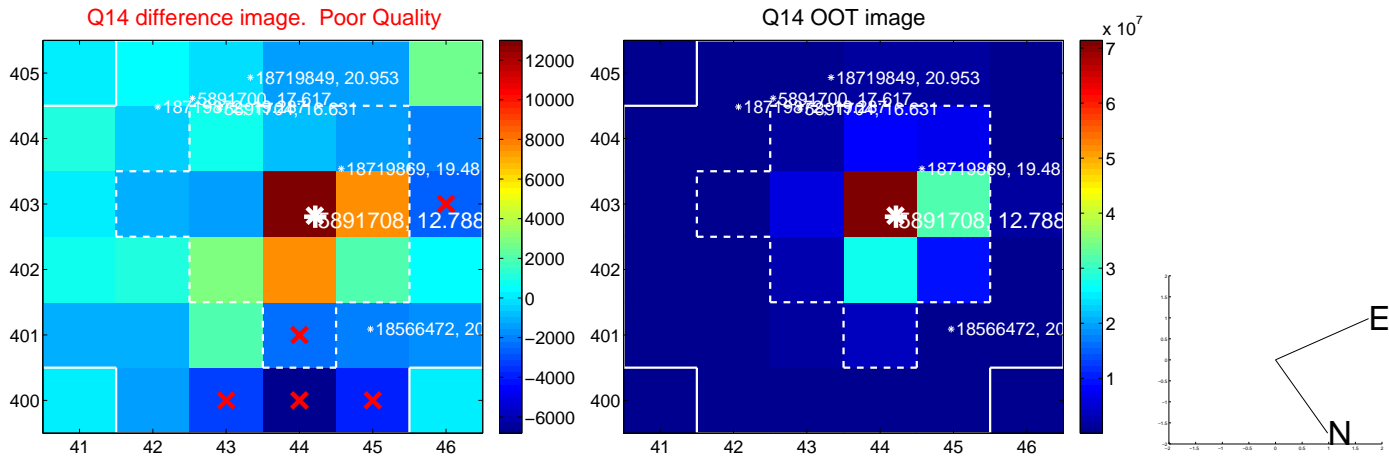
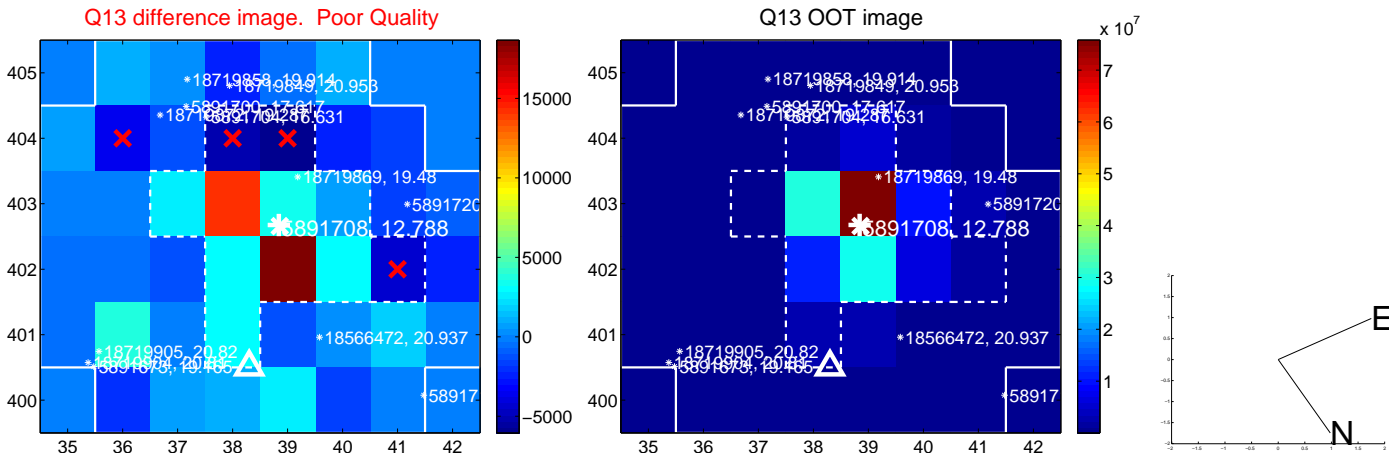
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



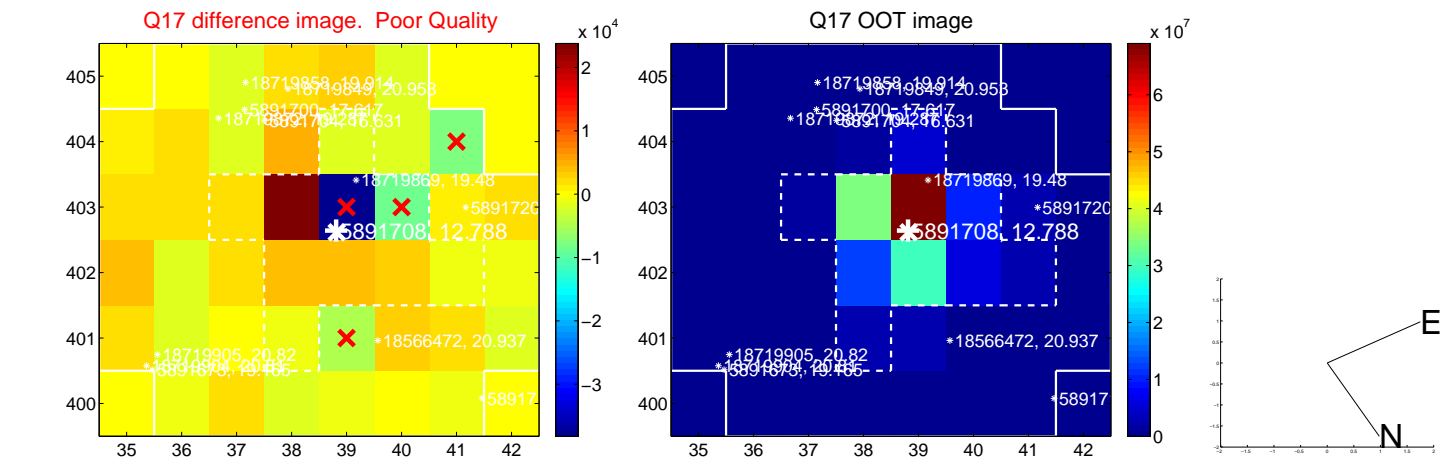
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



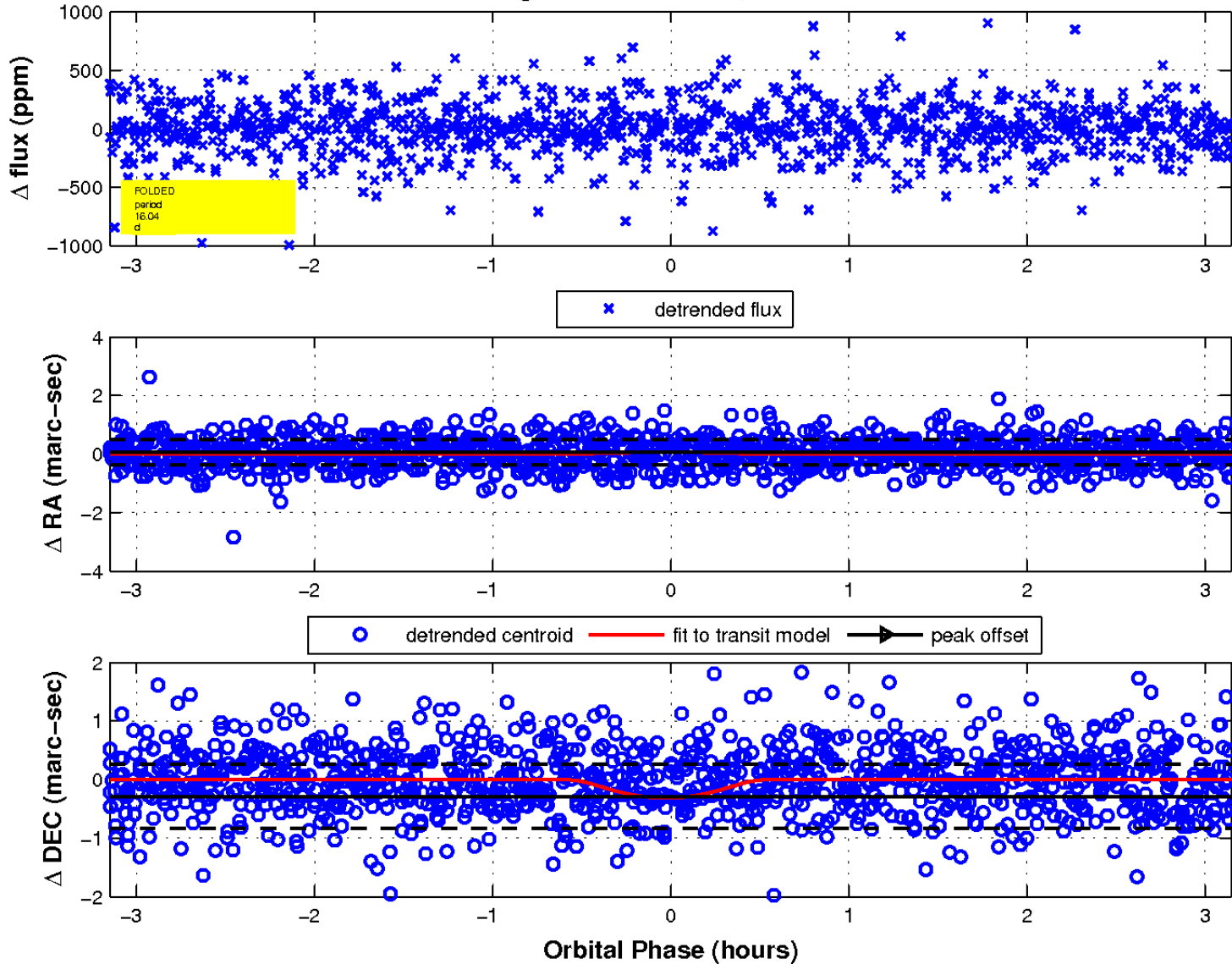
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

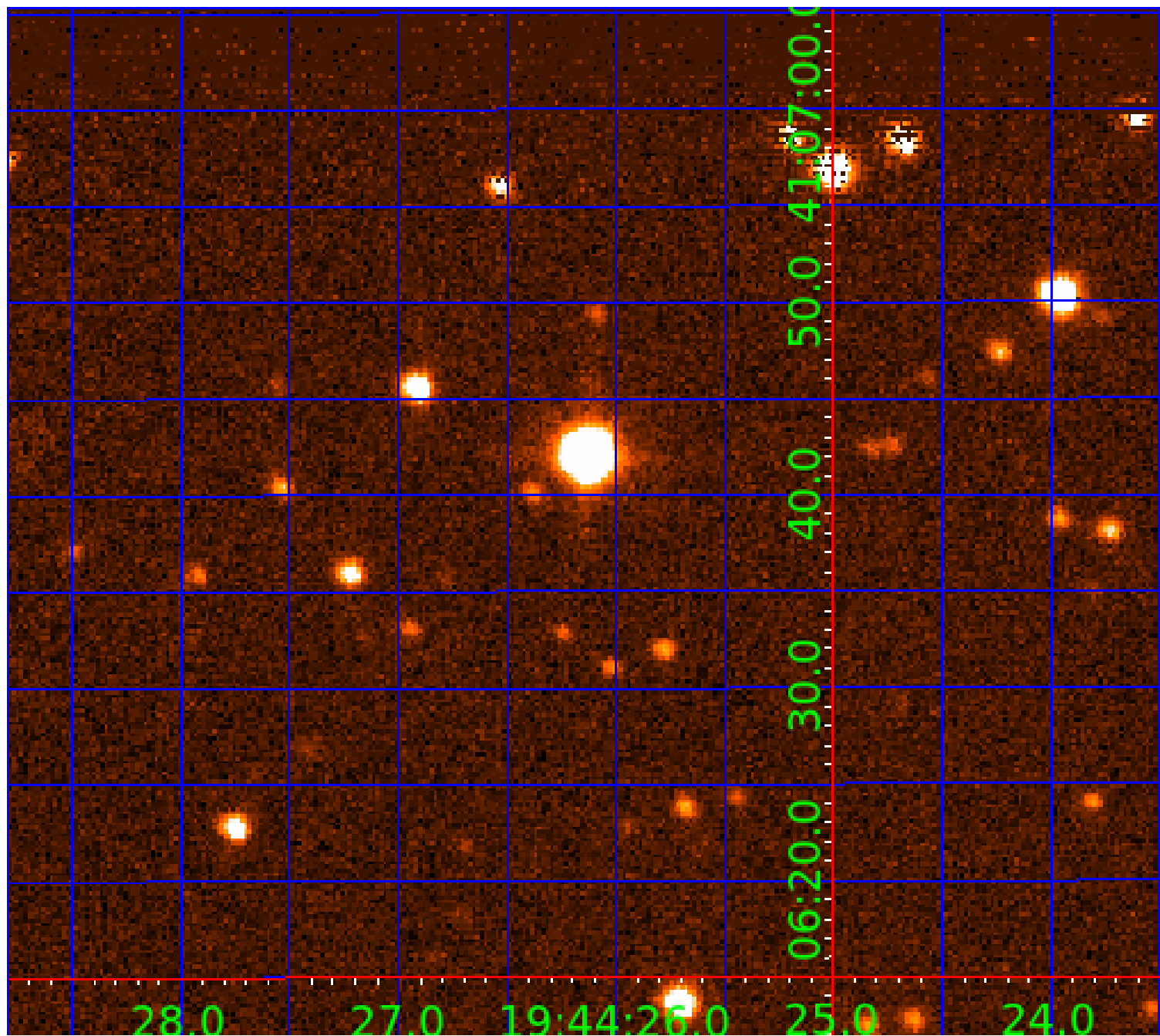


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 005891708

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005891708-01 | OBS | No | 1.082448 | 131.558561 | 22.9 | 7.787 | 9.0 | 6.7 | 7.41 | 6897 | 3.80 | 0.00 |
| 005891708-02 | OBS | No | 57.558914 | 160.066898 | 384.0 | 1.875 | 9.4 | 8.0 | 7.41 | 6897 | 16.44 | 673.90 |
| 005891708-03 | OBS | No | 16.043993 | 145.419334 | 302.7 | 1.050 | 9.0 | 8.1 | 7.41 | 6897 | 21.34 | 3701.10 |
| 005891708-04 | OBS | No | 7.412292 | 136.547469 | 210.8 | 1.407 | 8.9 | 9.7 | 7.41 | 6897 | 13.08 | 10362.81 |
| 005891708-05 | OBS | No | 47.612556 | 145.109080 | 374.0 | 1.404 | 8.0 | 8.3 | 7.41 | 6897 | 15.14 | 867.87 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005891708-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT |
| 005891708-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 005891708-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 005891708-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 005891708-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

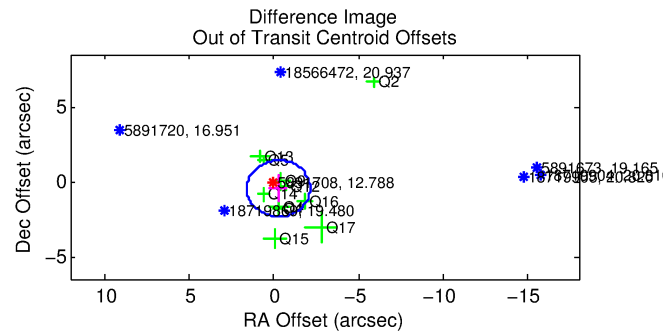
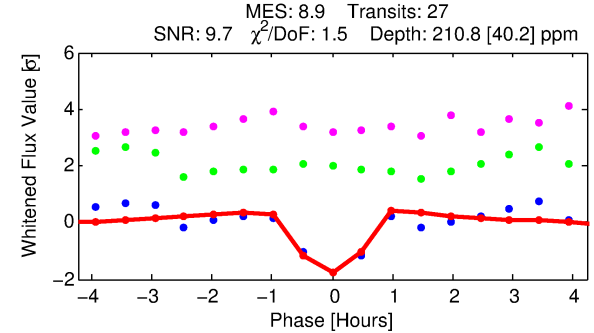
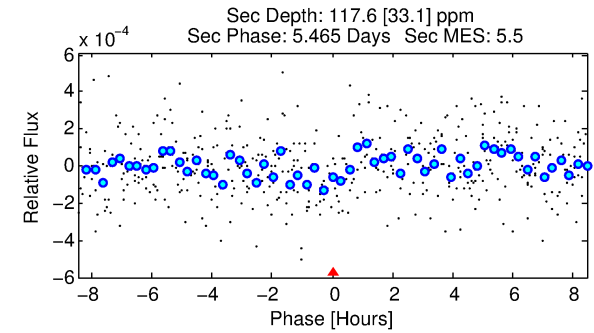
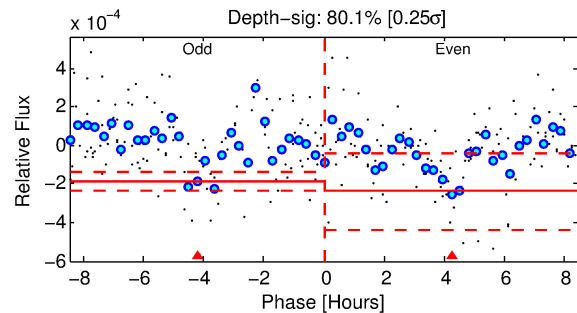
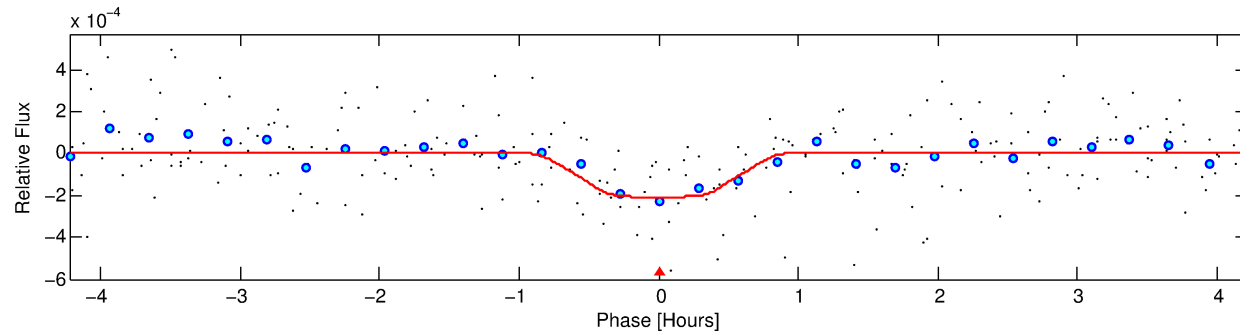
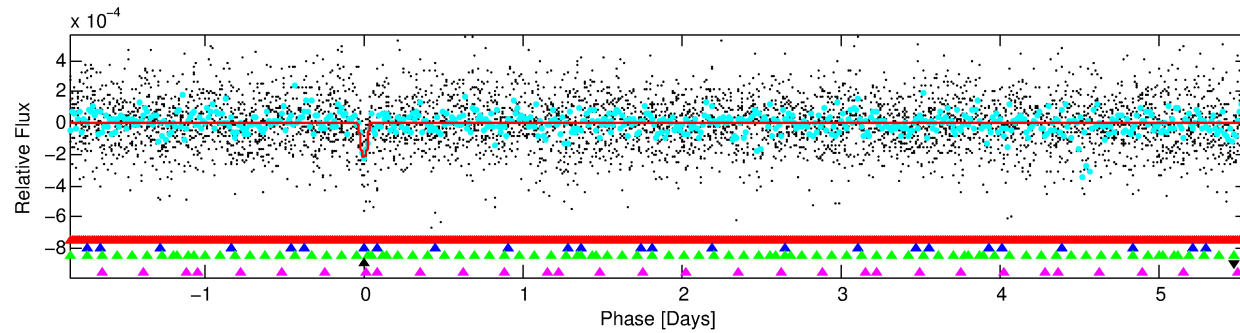
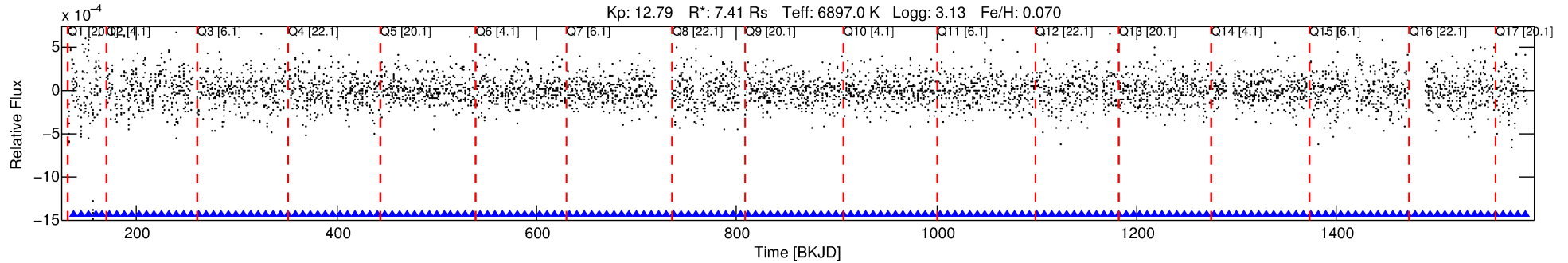
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005891708-04

No Significant Match Found

DV One-Page Summary

KIC: 5891708 Candidate: 4 of 5 Period: 7.412 d



DV Fit Results:

Period = 7.41229 [0.00005] d
Epoch = 136.5475 [0.0044] BKJD
Rp/R* = 0.0162 [0.0074]
a/R* = 15.48 [41.34]
b = 0.94 [0.33]
Seff = 10362.81 [9321.90]
Teff = 2573 [579] K
Rp = 13.08 [9.31] Re
a = 0.1036 [0.0564] AU
Ag = 4.06 [5.31] [0.58 σ]
Teffp = 5648 [1370] K [2.07 σ]

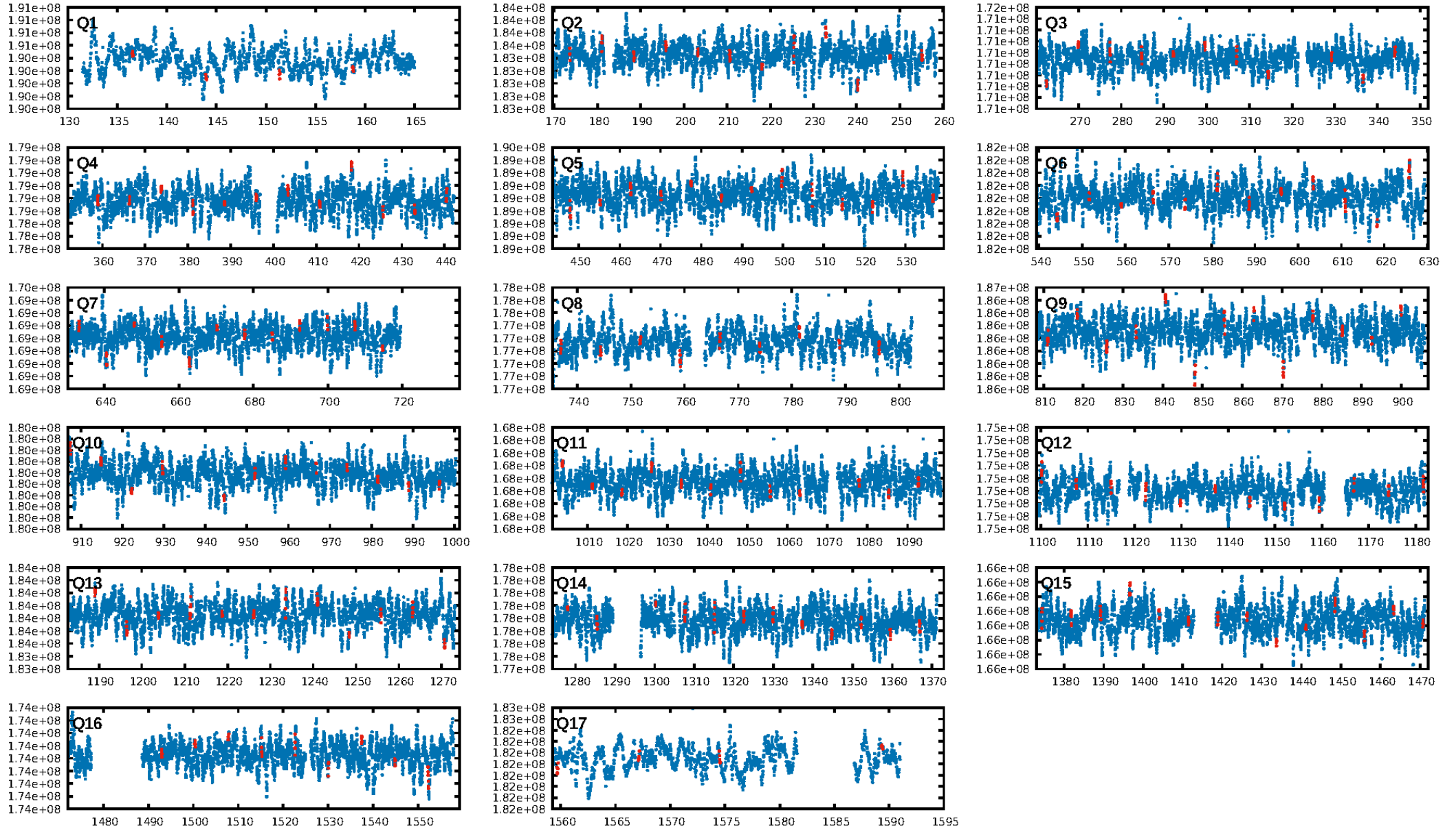
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.20 σ]
LongPeriod-sig: 100.0% [118.01 σ]
ModelChiSquare2-sig: 14.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 3.38e-10
RollingBand-fgt: 1.00 [26/26]
GhostDiagnostic-chr: 0.5276
Centroid-sig: 74.0%
Centroid-so: 0.226 arcsec [0.60 σ]
OotOffset-rm: 0.529 arcsec [0.85 σ]
KicOffset-rm: 0.621 arcsec [0.96 σ]
OotOffset-st: 2/1/3/5 [11]
KicOffset-st: 2/1/3/5 [11]
DiffImageQuality-fgm: 0.45 [5/11]
DiffImageOverlap-fno: 0.94 [16/17]

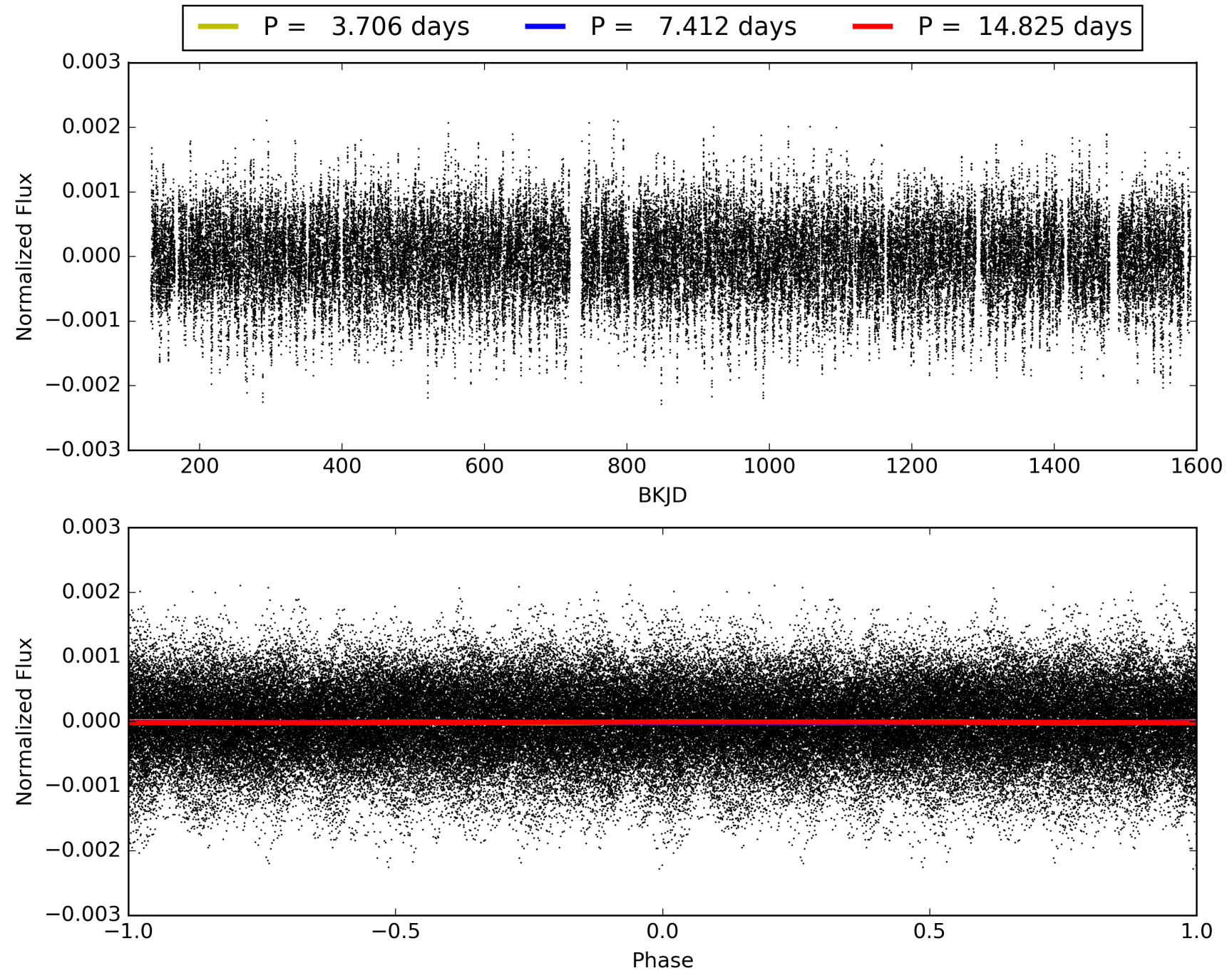
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:01:03 Z

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

TCE 005891708-04, PDC Light Curves

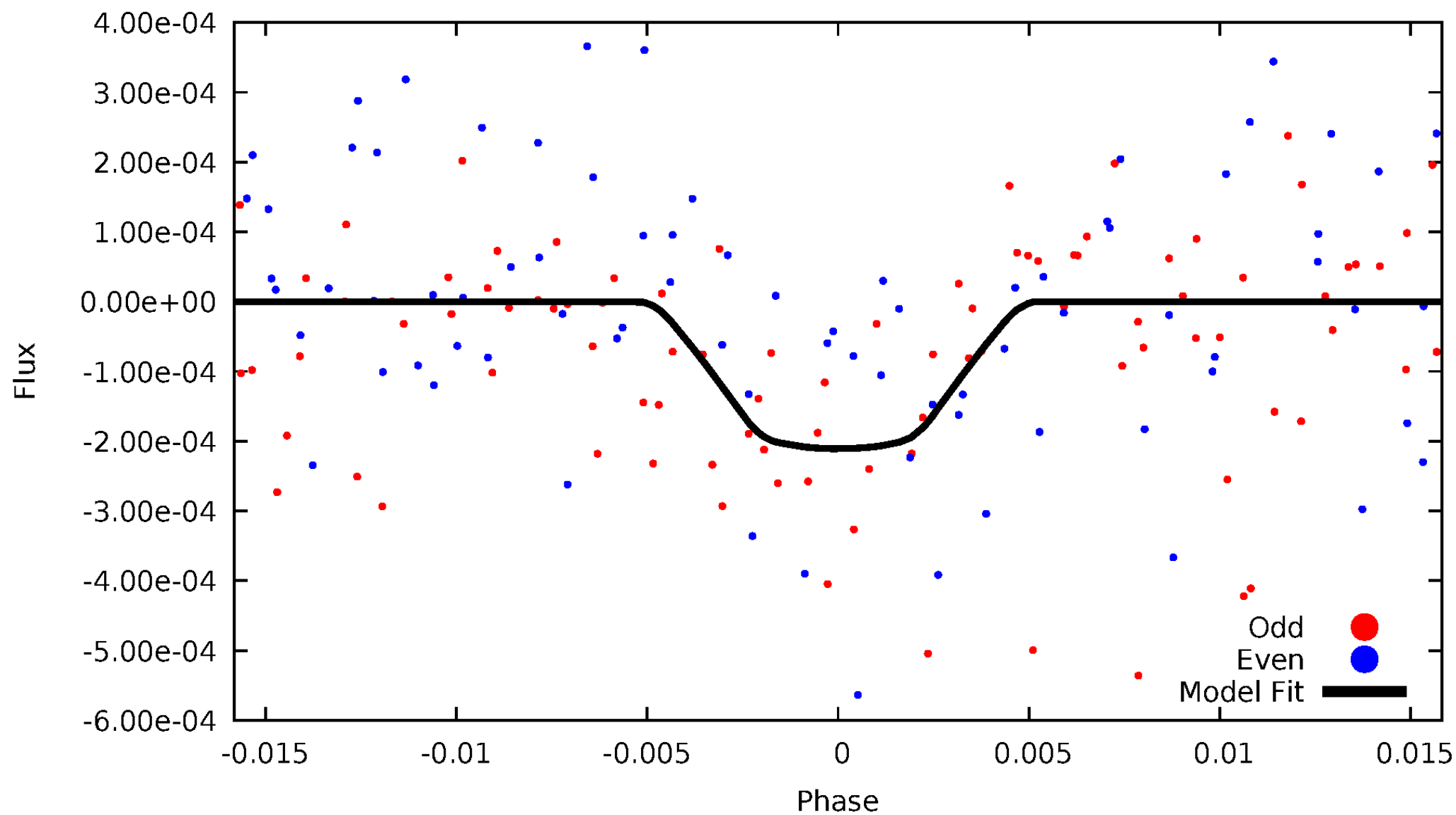


TCE 005891708-04



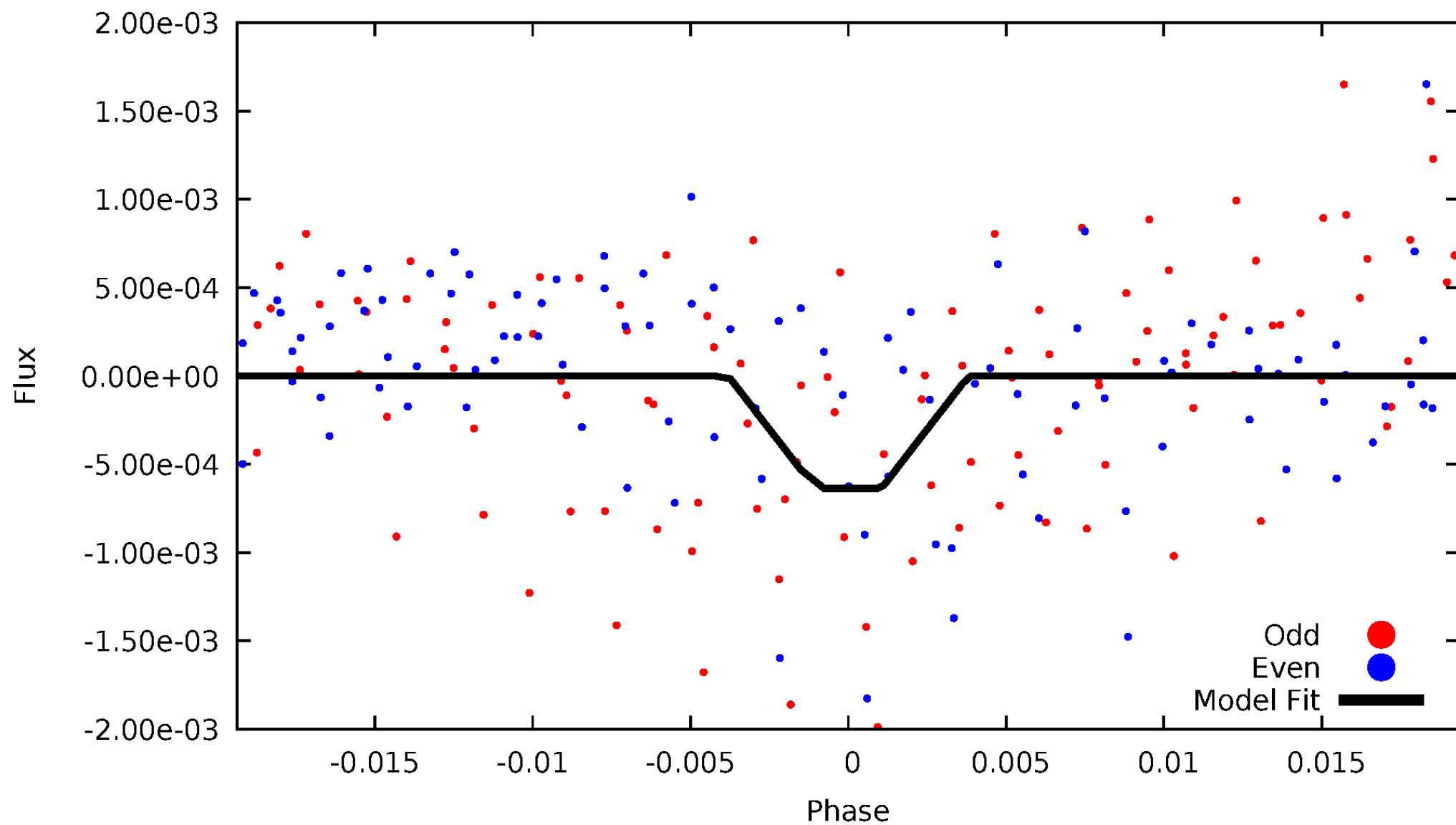
DV Odd/Even

TCE 005891708-04



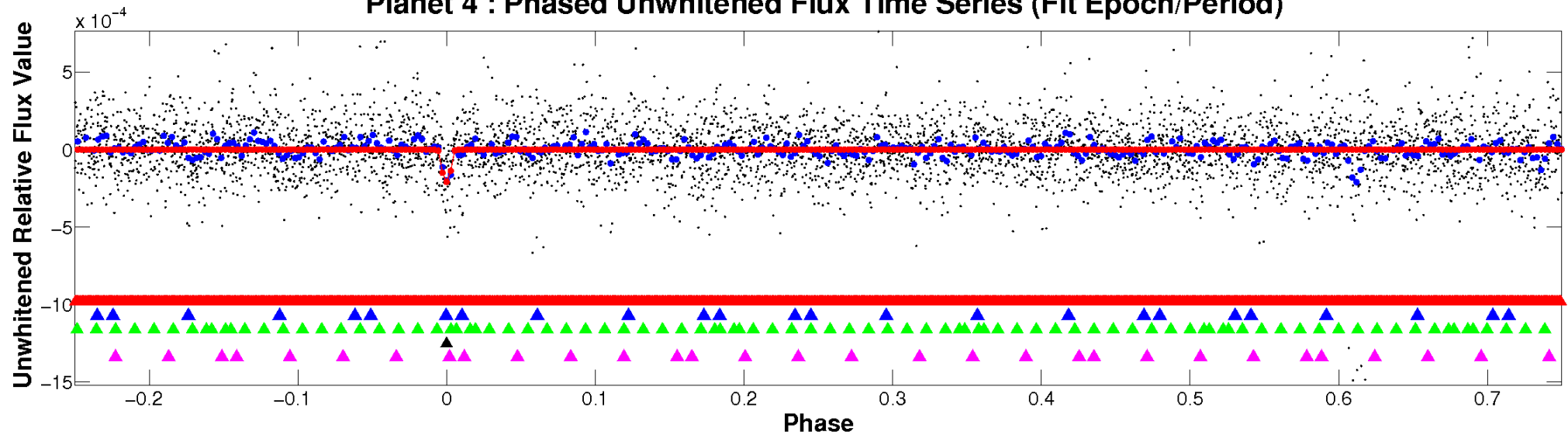
ALT Odd/Even

TCE 005891708-04

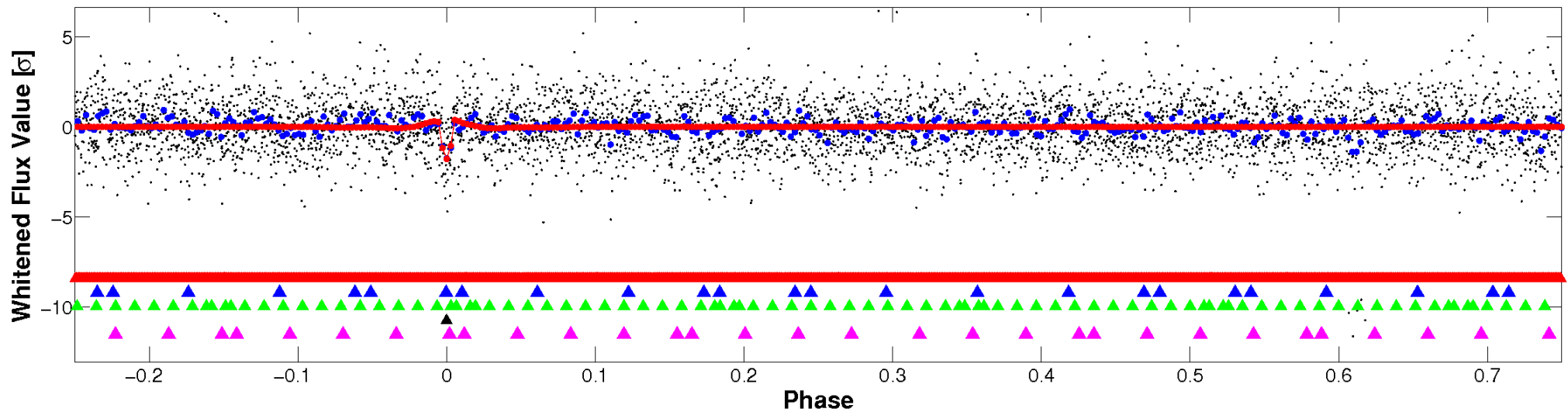


Non-Whitened Vs. Whitened Light Curve

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

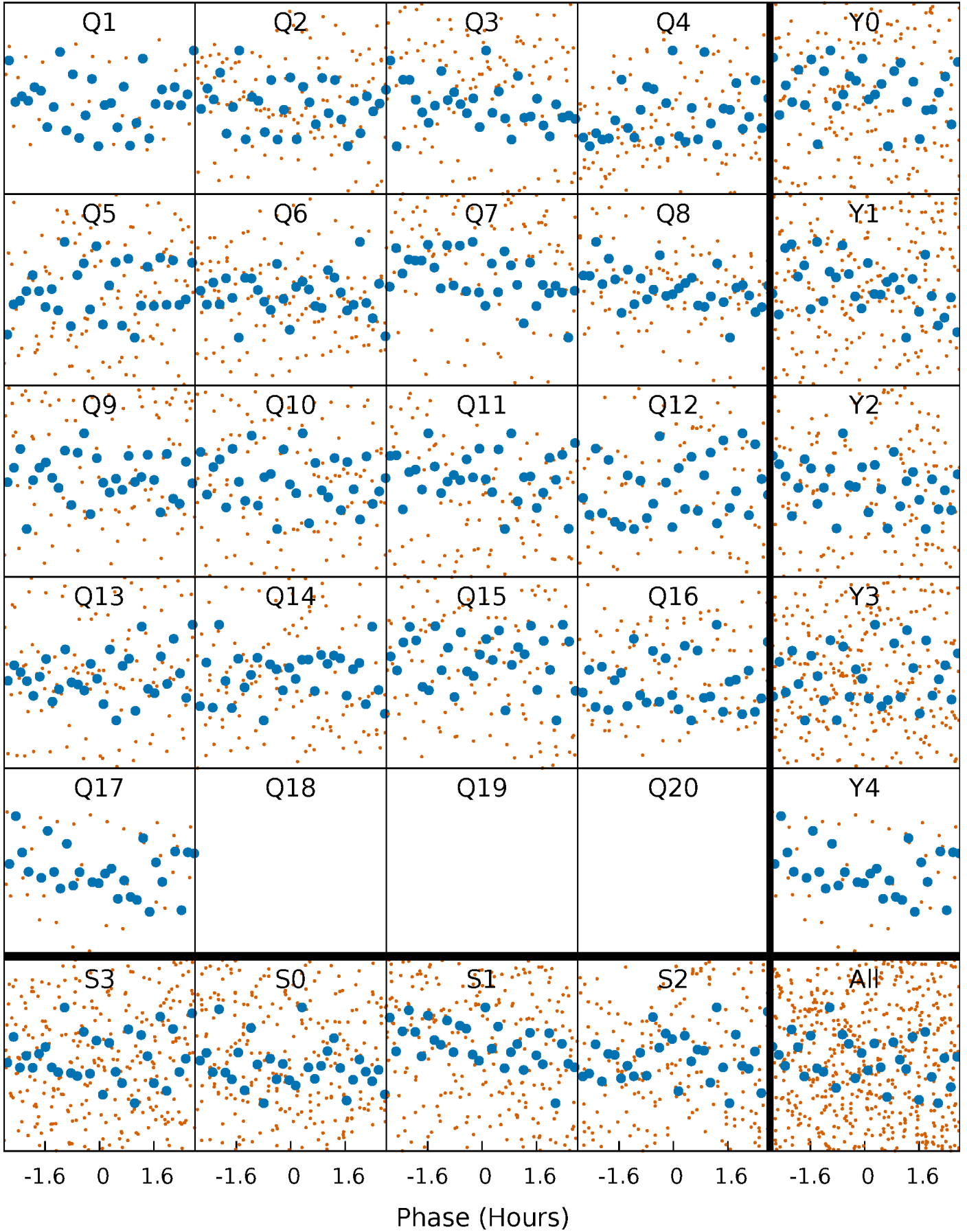


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



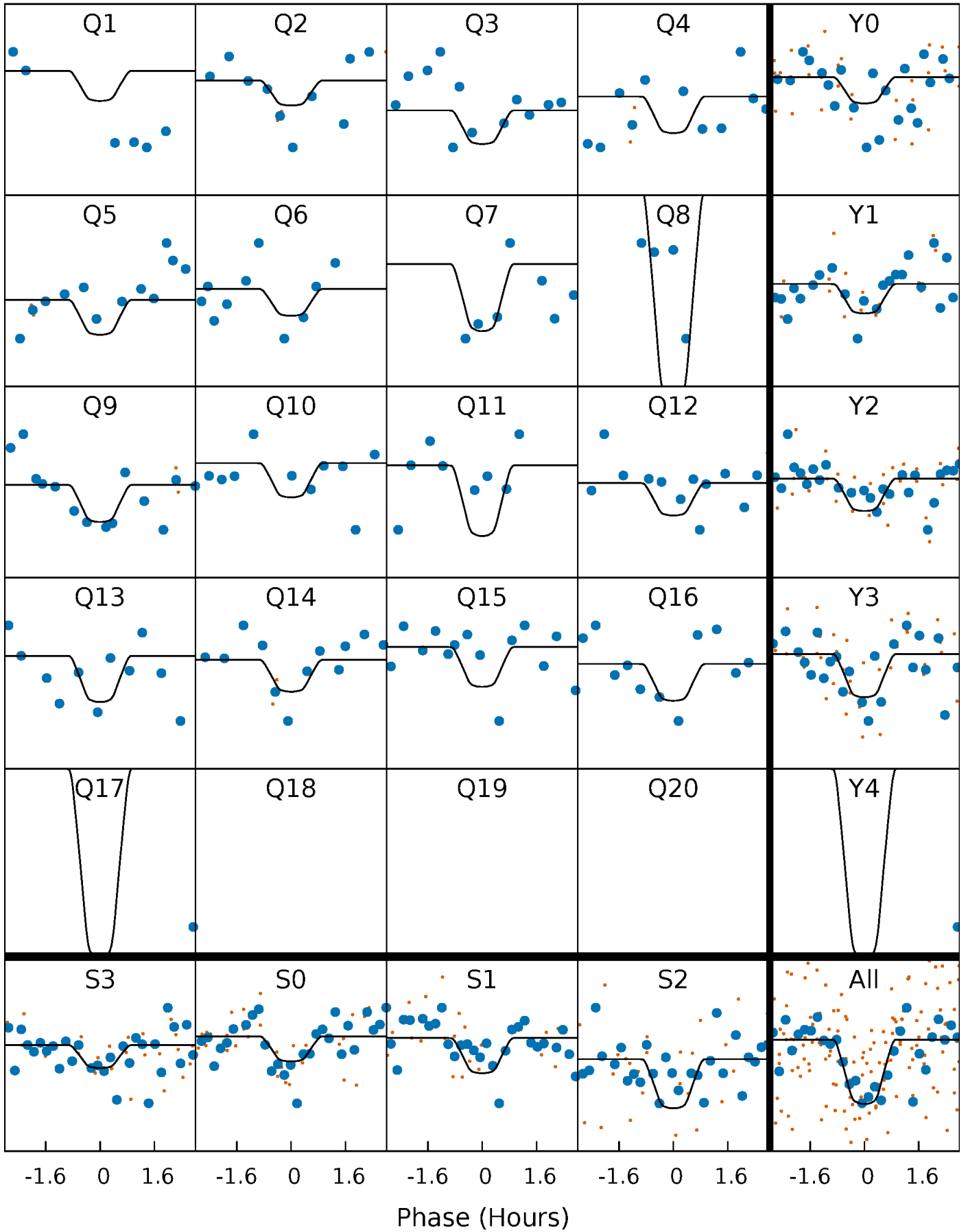
PDC Quarter-Phased Transit Curves

TCE 005891708-04 P= 7.412292 Days $T_0=136.547469$ (BKJD)



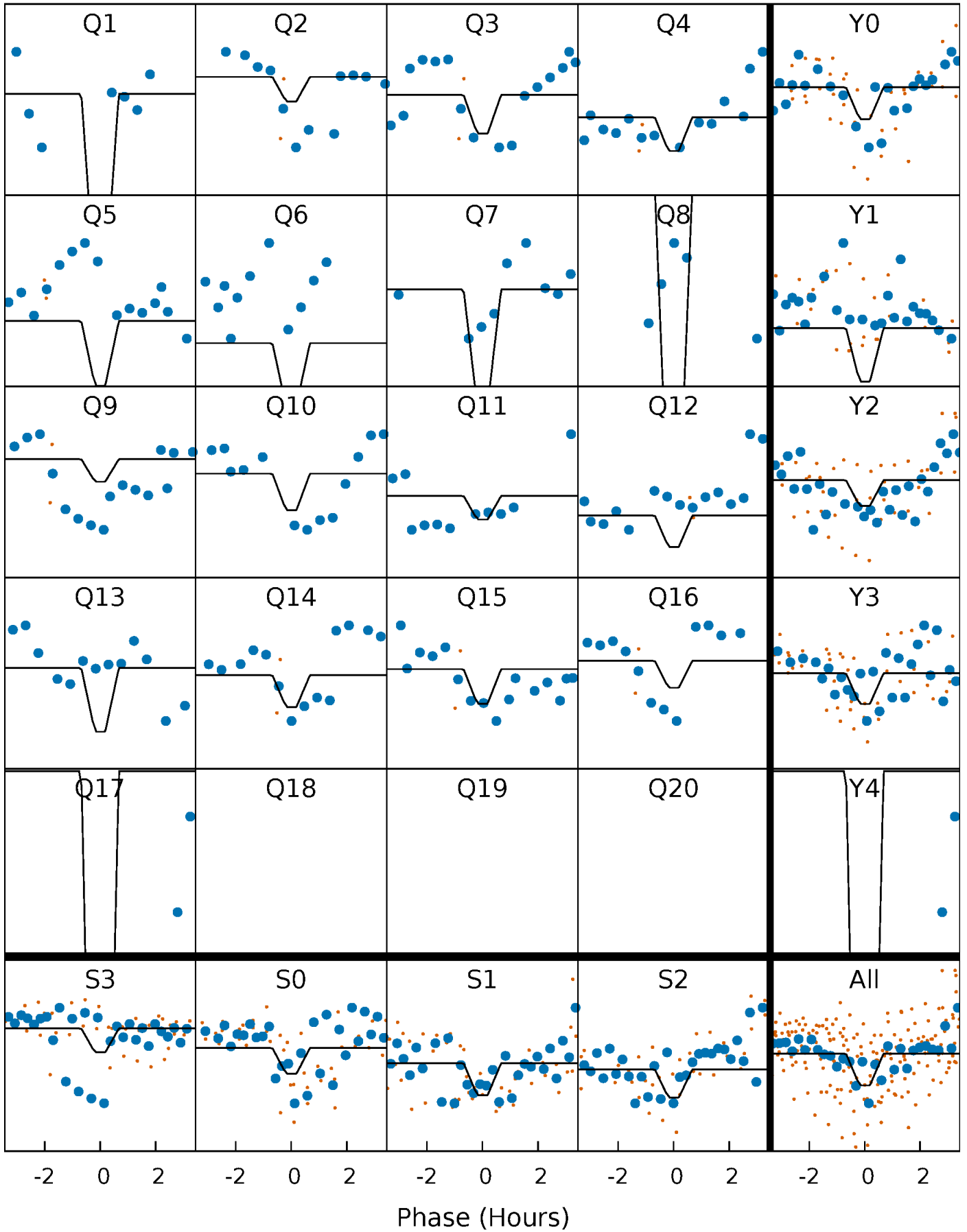
DV Quarter-Phased Transit Curves

TCE 005891708-04 P= 7.412292 Days $T_0=136.547469$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

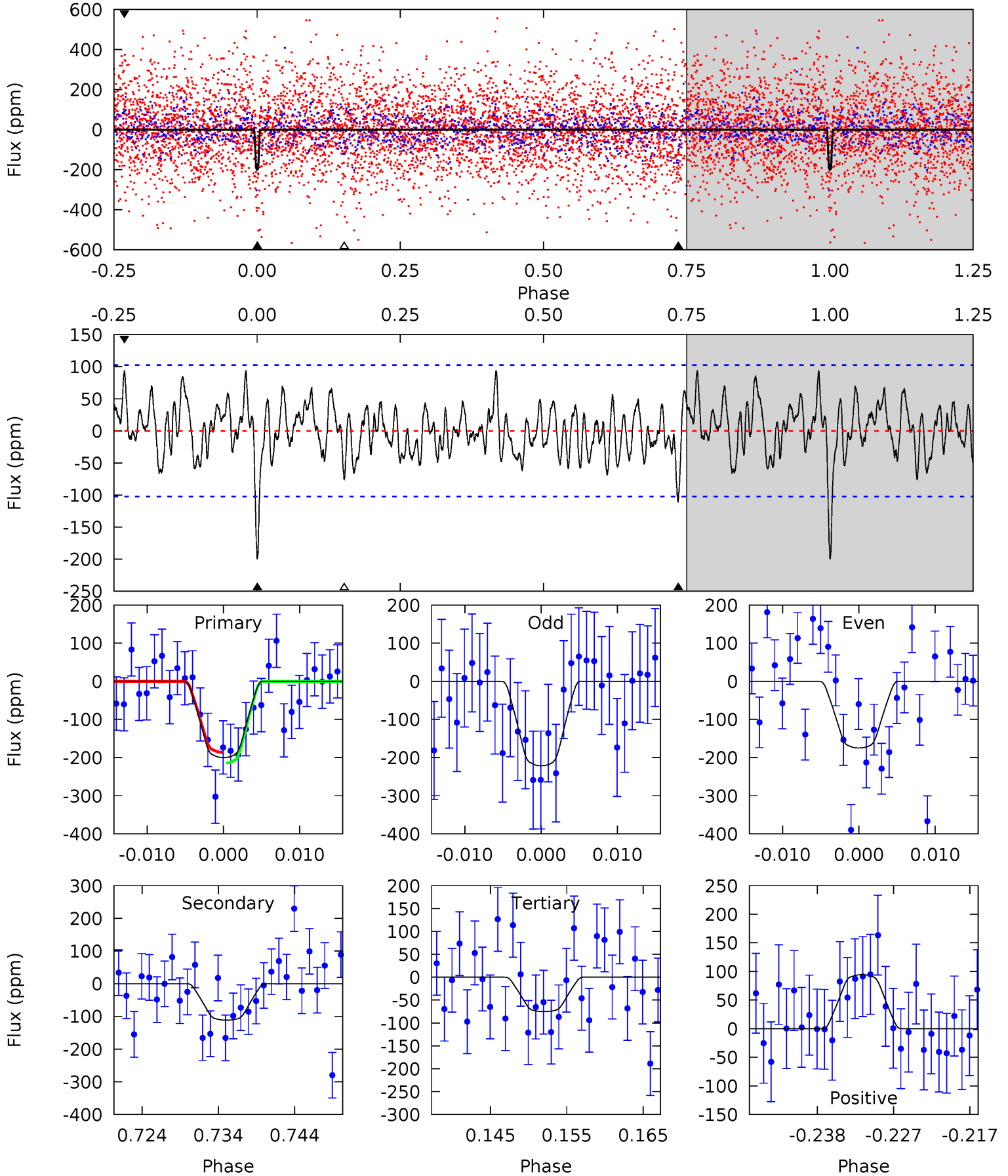
TCE 005891708-04 $P = 7.412289$ Days $T_0 = 136.546960$ (BKJD)



DV Model-Shift Uniqueness Test

005891708-04, P = 7.412292 Days, E = 129.135177 Days

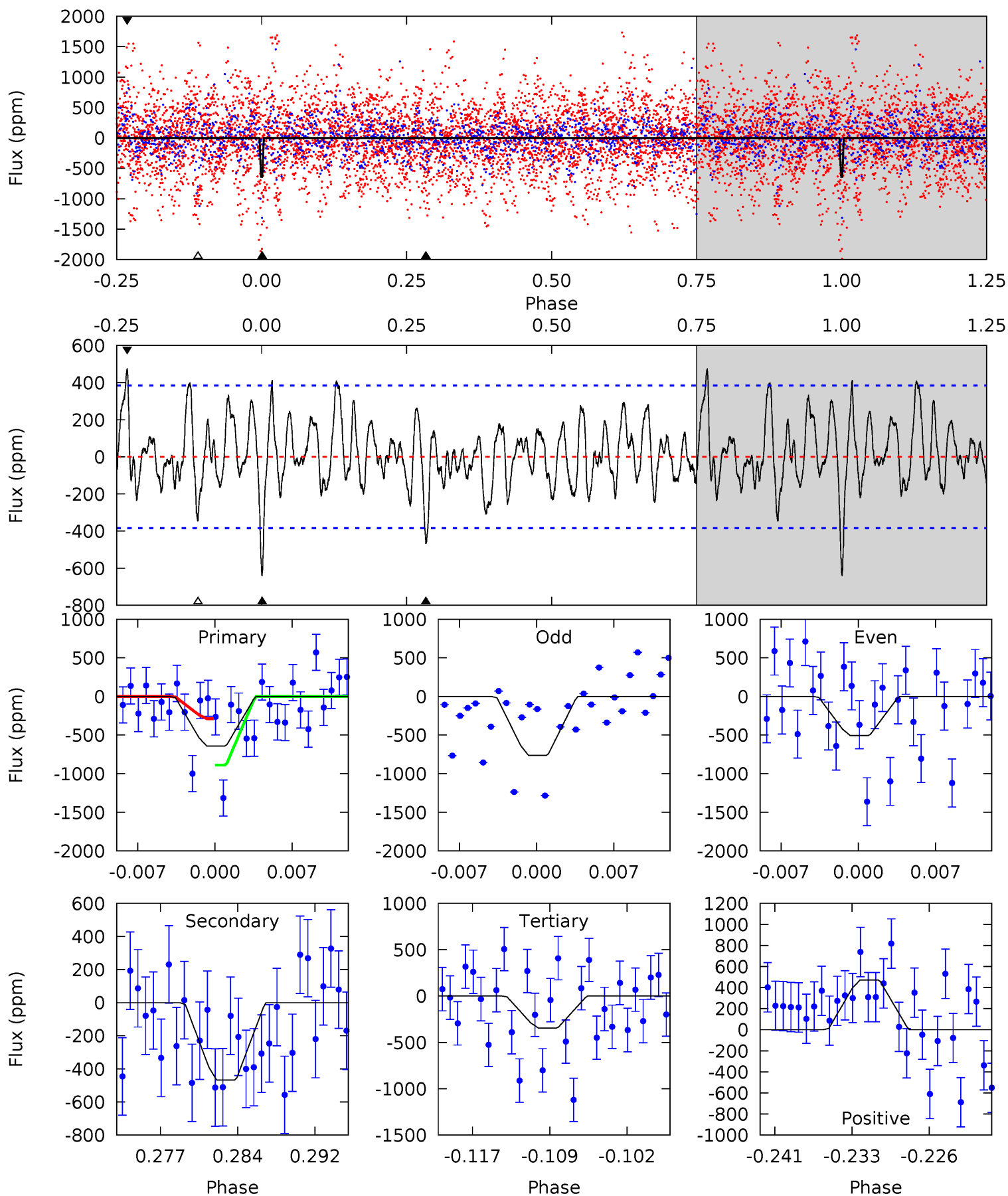
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.80 | 5.46 | 3.69 | 4.62 | 5.02 | 2.56 | 1.61 | 6.12 | 5.19 | 1.77 | 0.84 | 1.14 | 1.05 | 0.32 | 0.69 |



Alt Model-Shift Uniqueness Test

005891708-04, P = 7.412289 Days, E = 129.134671 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.50 | 6.19 | 4.57 | 6.25 | 5.09 | 2.68 | 1.93 | 3.93 | 2.25 | 1.62 | -0.06 | 1.71 | 0.97 | 0.42 | 3.99 |



Stellar Parameters For KIC 005891708

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6897^{+144}_{-246} | $3.130^{+0.528}_{-0.132}$ | $0.070^{+0.200}_{-0.300}$ | $7.410^{+1.730}_{-4.037}$ | $2.703^{+0.353}_{-0.823}$ | $0.009^{+0.061}_{-0.004}$ |
| | +2%/-4% | +17%/-4% | +286%/-429% | +23%/-54% | +13%/-30% | +650%/-39% |
| 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 005891708-04 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|-------------------------|----------------------|-----------------------|----------------------------|
| DV | -111 ± 20 | $11.80^{+6.58}_{-5.71}$ | 3484^{+287}_{-460} | 5362^{+2051}_{-896} | $4.473^{+12.472}_{-2.640}$ |
| Alt. | -468 ± 76 | $18.64^{+7.96}_{-7.06}$ | 3503^{+280}_{-496} | 6130^{+1440}_{-794} | $7.565^{+12.027}_{-3.868}$ |

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

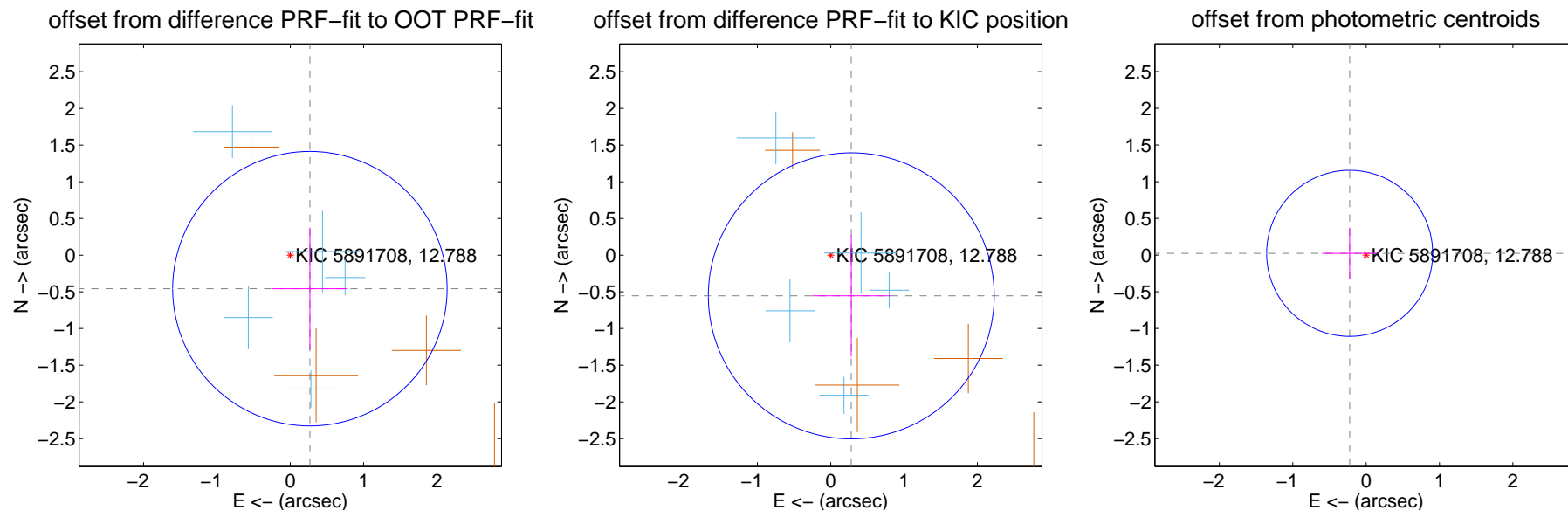
DV Centroid Data

Supplemental centroid analysis for 005891708-04. Kepler magnitude: 12.79. Transit SNR 9.68

There are 5 quarters with good PRF difference image offsets

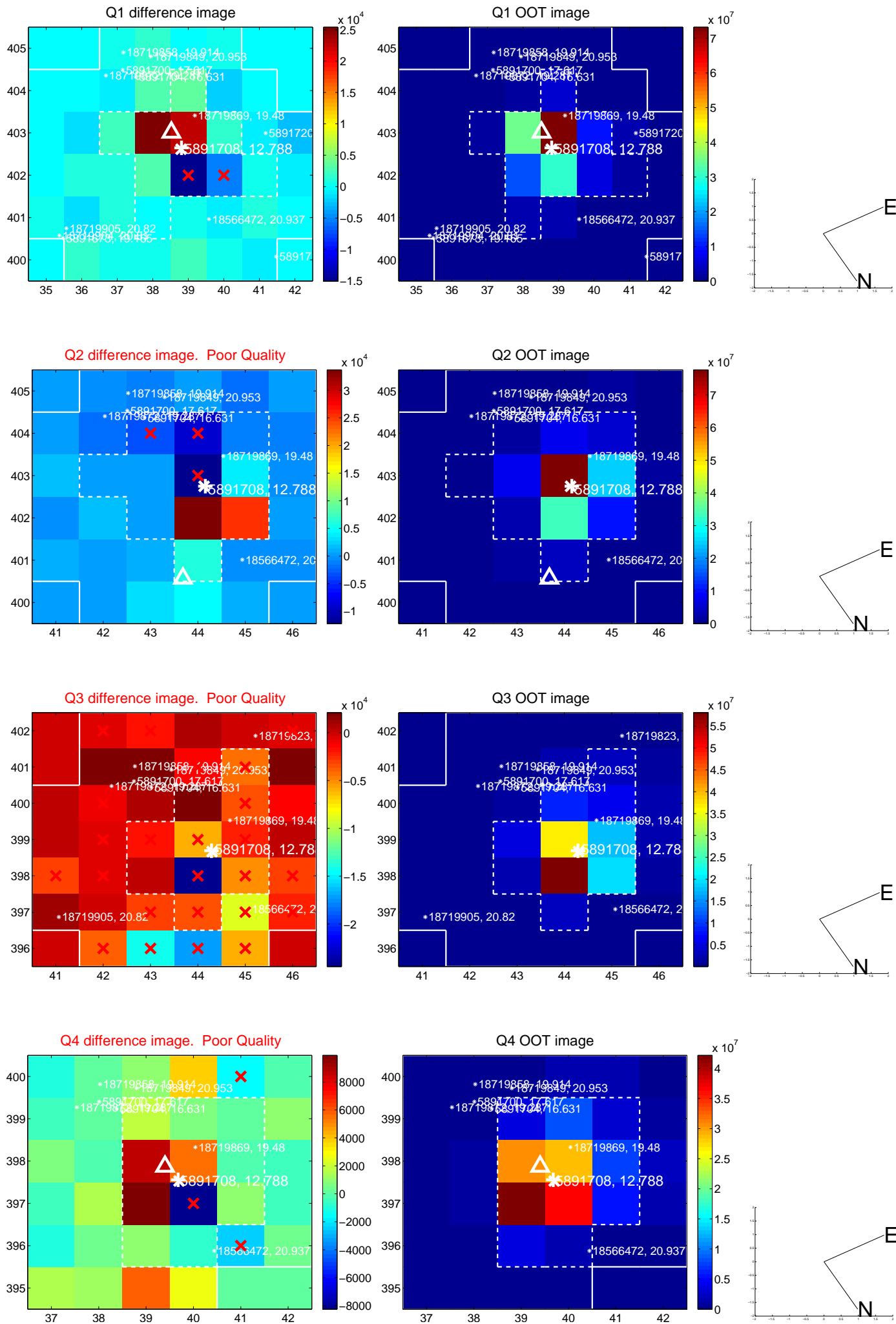
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.529 ± 0.624 | 0.85 | -0.268 ± 0.517 | -0.457 ± 0.833 |
| PRF-fit source offset from KIC position | 0.621 ± 0.650 | 0.96 | -0.280 ± 0.535 | -0.554 ± 0.829 |
| photometric centroid source offset | 0.23 ± 0.38 | 0.60 | 0.22 ± 0.38 | 0.02 ± 0.35 |

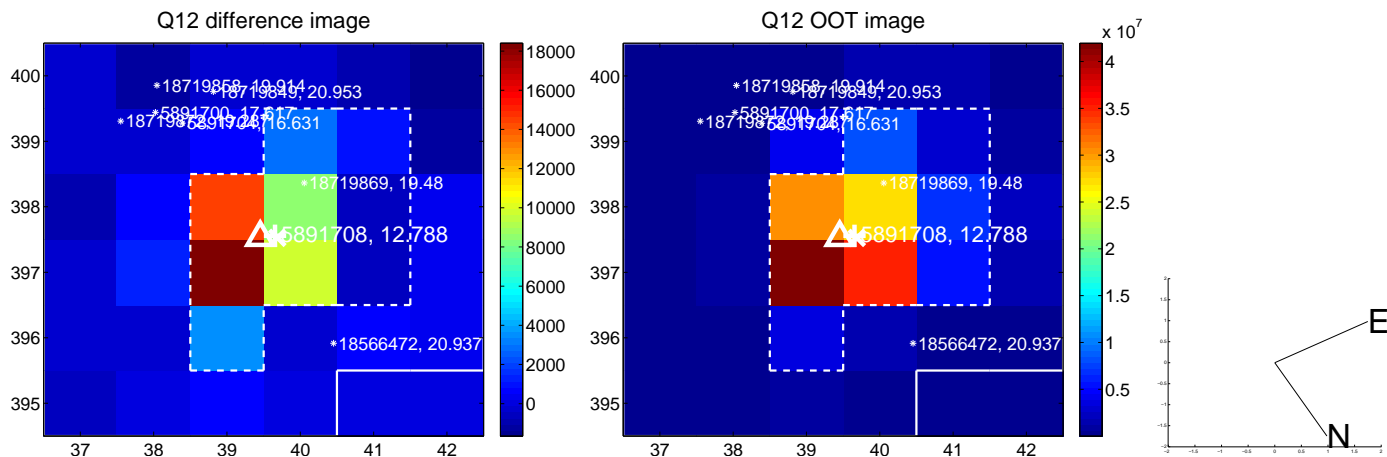
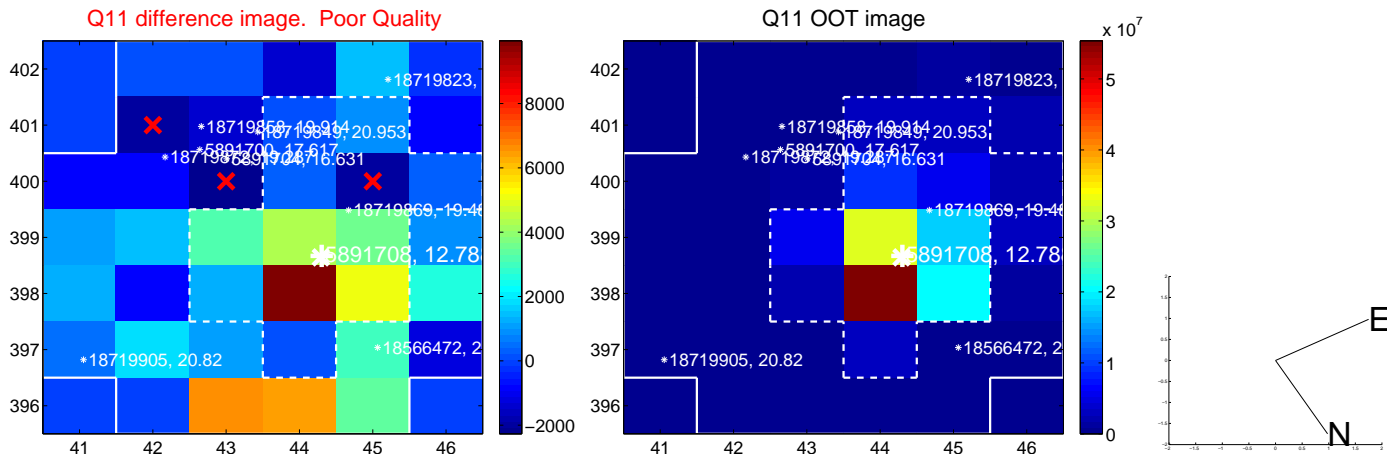
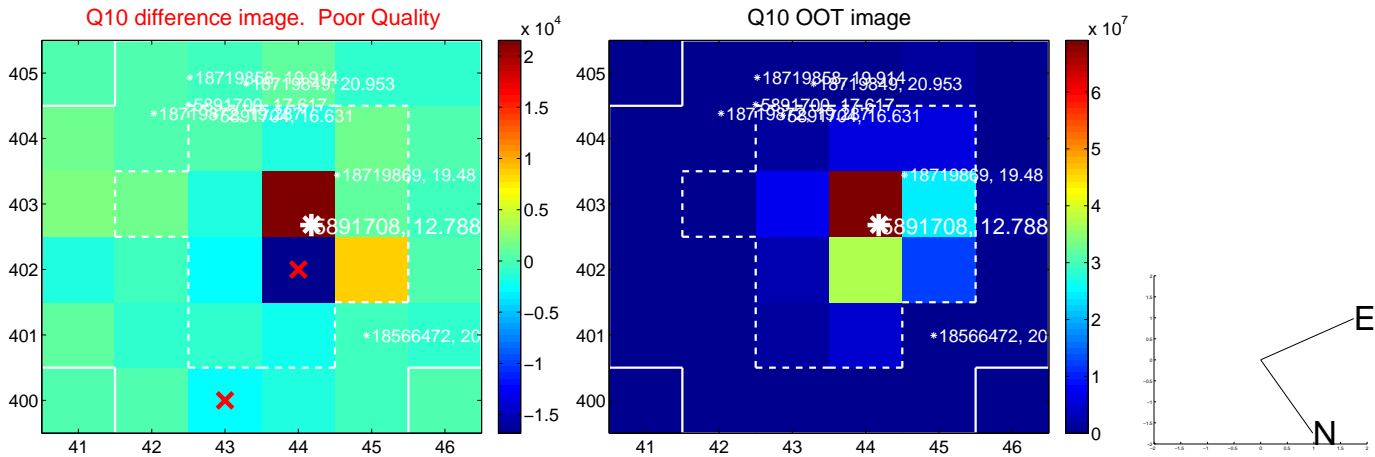
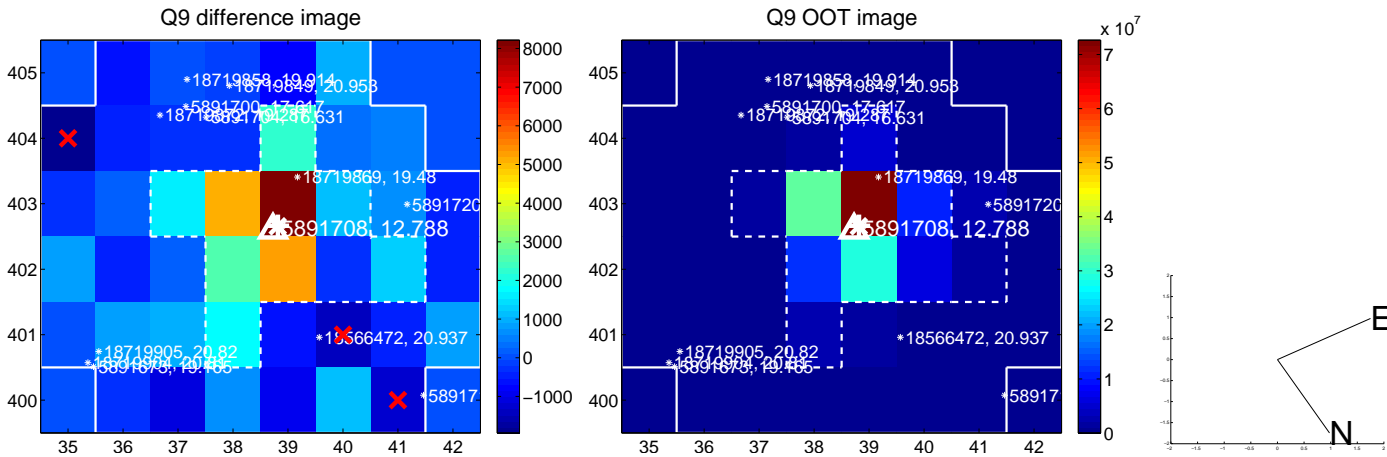


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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 \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

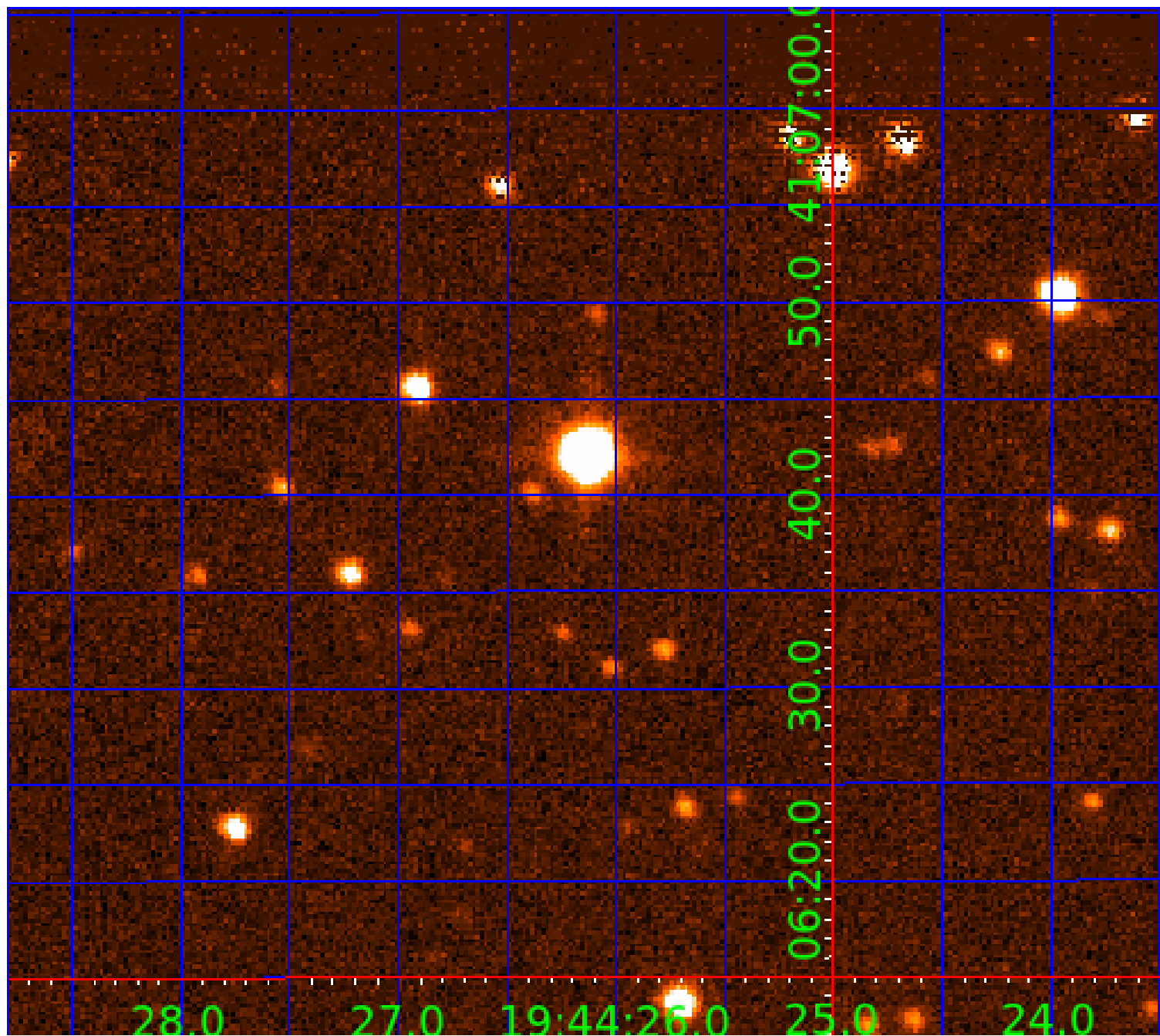


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005891708

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005891708-01 | OBS | No | 1.082448 | 131.558561 | 22.9 | 7.787 | 9.0 | 6.7 | 7.41 | 6897 | 3.80 | 0.00 |
| 005891708-02 | OBS | No | 57.558914 | 160.066898 | 384.0 | 1.875 | 9.4 | 8.0 | 7.41 | 6897 | 16.44 | 673.90 |
| 005891708-03 | OBS | No | 16.043993 | 145.419334 | 302.7 | 1.050 | 9.0 | 8.1 | 7.41 | 6897 | 21.34 | 3701.10 |
| 005891708-04 | OBS | No | 7.412292 | 136.547469 | 210.8 | 1.407 | 8.9 | 9.7 | 7.41 | 6897 | 13.08 | 10362.81 |
| 005891708-05 | OBS | No | 47.612556 | 145.109080 | 374.0 | 1.404 | 8.0 | 8.3 | 7.41 | 6897 | 15.14 | 867.87 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005891708-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_ALT |
| 005891708-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 005891708-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 005891708-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 005891708-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

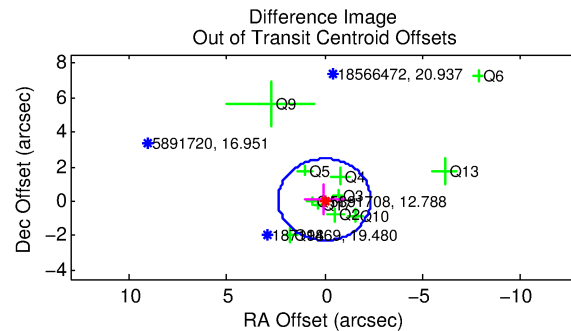
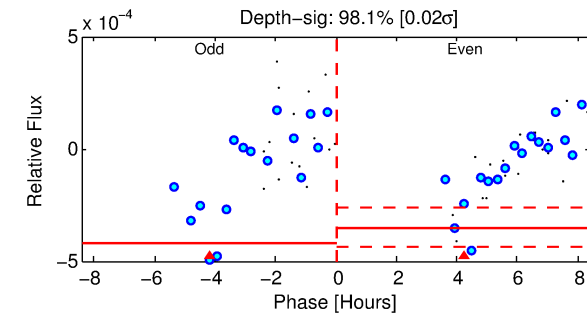
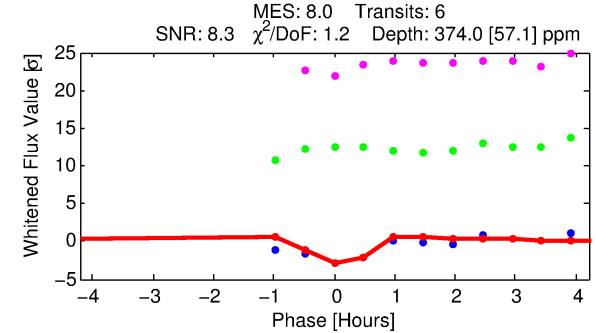
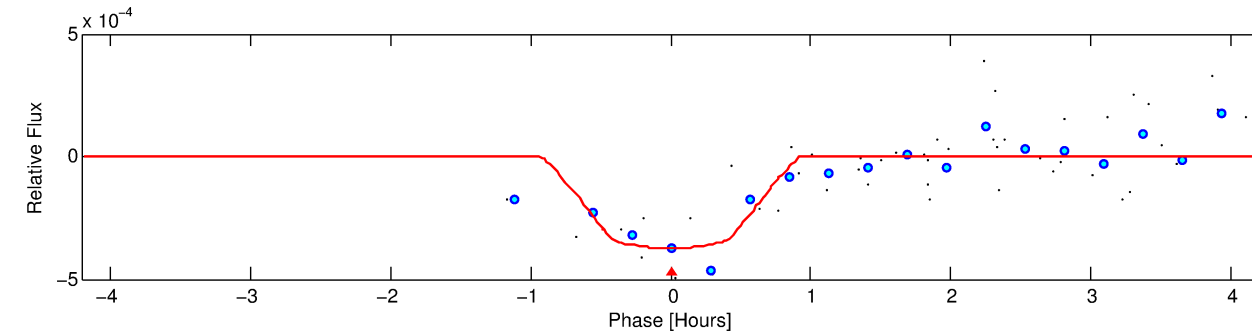
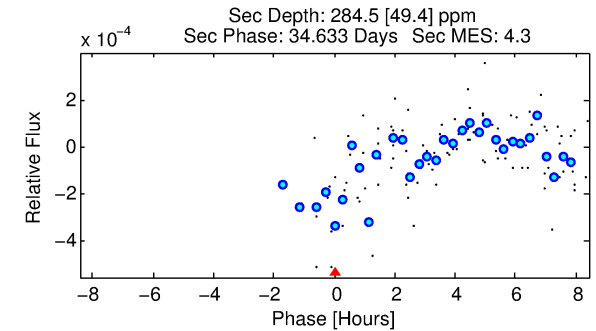
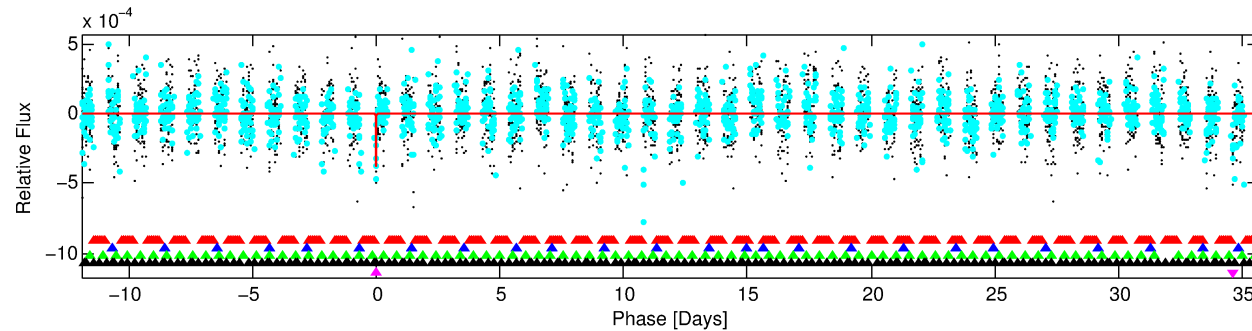
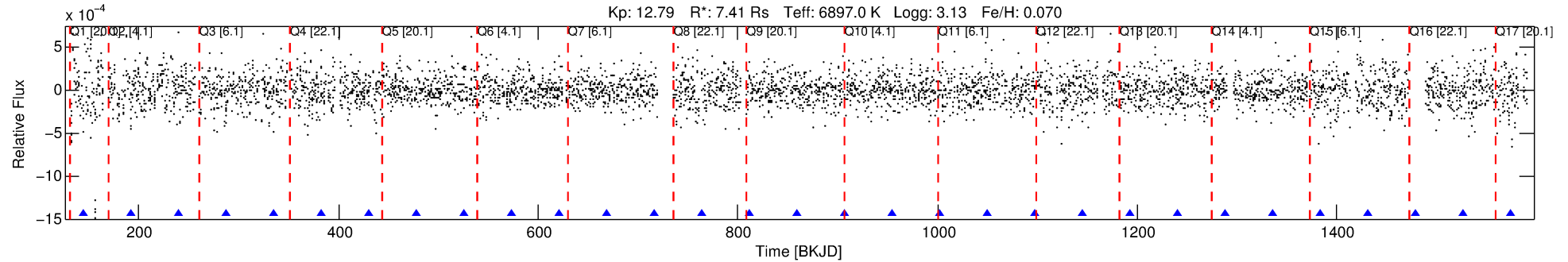
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005891708-05

No Significant Match Found

DV One-Page Summary

KIC: 5891708 Candidate: 5 of 5 Period: 47.613 d



DV Fit Results:

Period = 47.61256 [0.00168] d
Epoch = 145.1091 [0.0048] BKJD
Rp/R* = 0.0187 [0.0176]
a/R* = 211.02 [1085.62]
b = 0.61 [5.38]
Seff = 867.86 [780.69]
Teq = 1384 [311] K
Rp = 15.14 [16.43] Re
a = 0.3581 [0.1949] AU
Ag = 87.63 [182.60] [0.47 σ]
Teffp = 6547 [3094] K [1.66 σ]

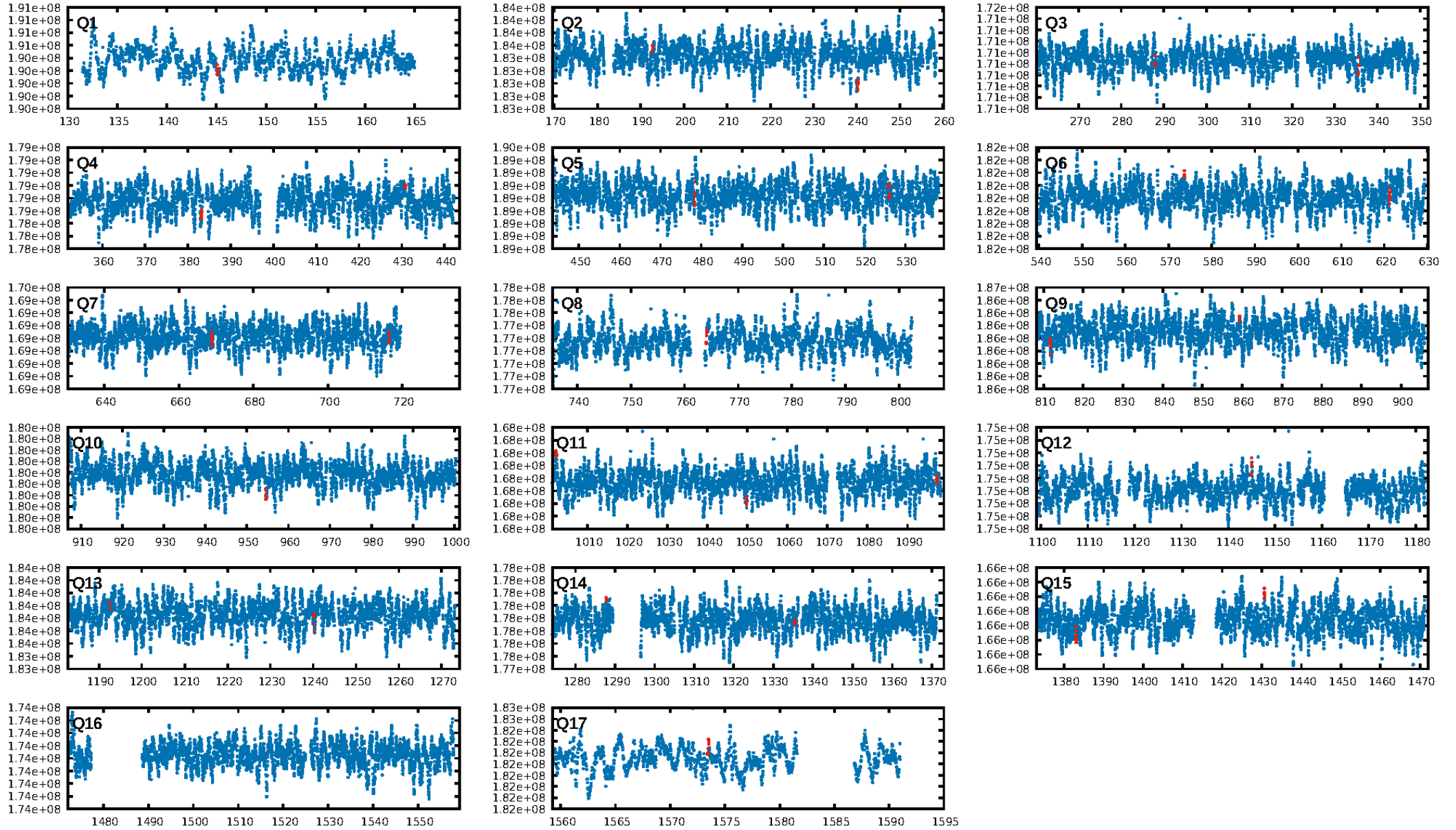
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [432.14 σ]
LongPeriod-sig: 100.0% [101.90 σ]
ModelChiSquare2-sig: 43.4%
ModelChiSquareGof-sig: 97.7%
Bootstrap-pfa: 1.90e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -4.179
Centroid-sig: 0.2%
Centroid-so: 1.216 arcsec [2.42 σ]
OotOffset-rm: 0.096 arcsec [0.12 σ]
KicOffset-rm: 0.034 arcsec [0.04 σ]
OotOffset-st: 4/2/1/4 [11]
KicOffset-st: 4/2/1/4 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 0.47 [7/15]

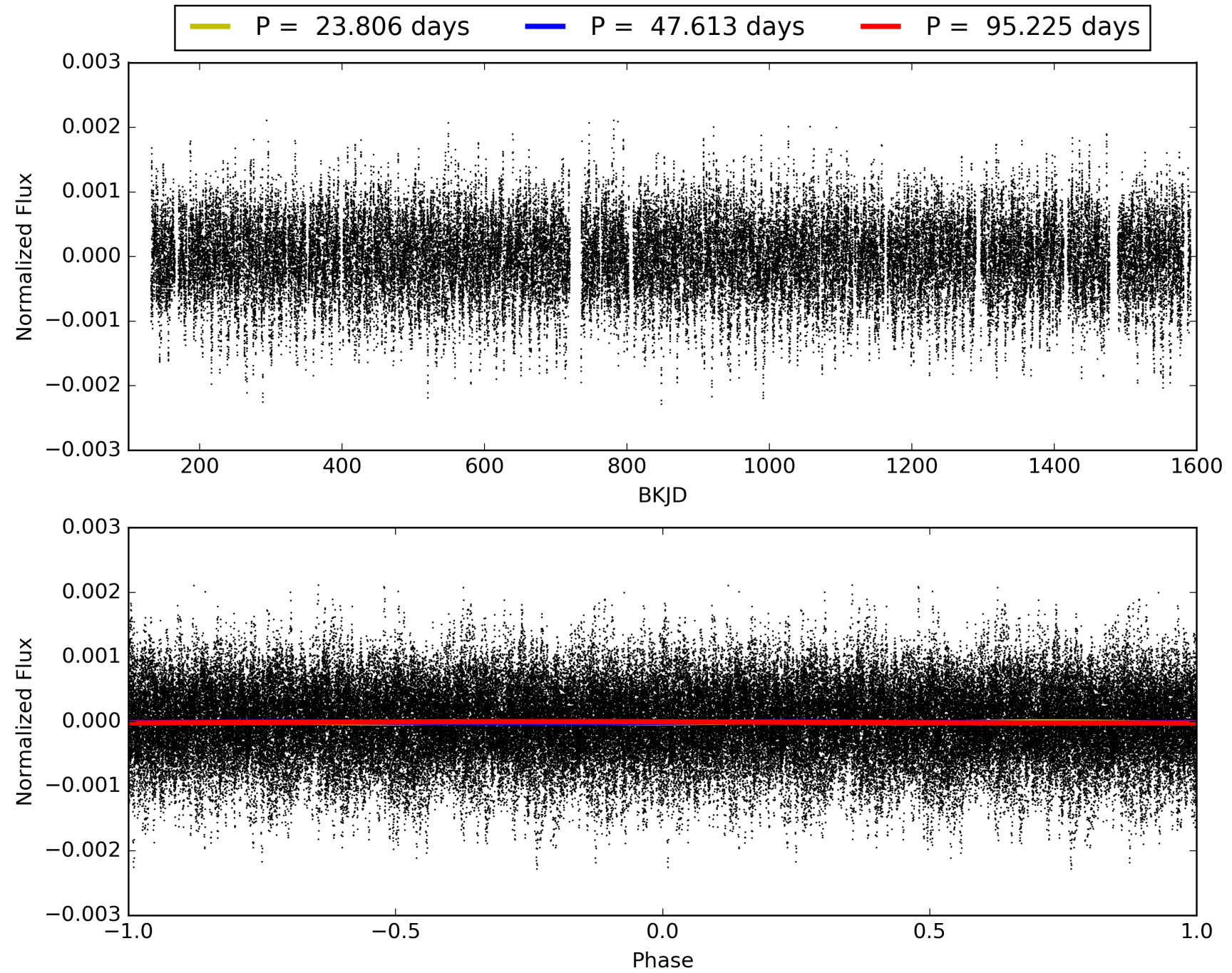
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:01:06 Z

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

TCE 005891708-05, PDC Light Curves

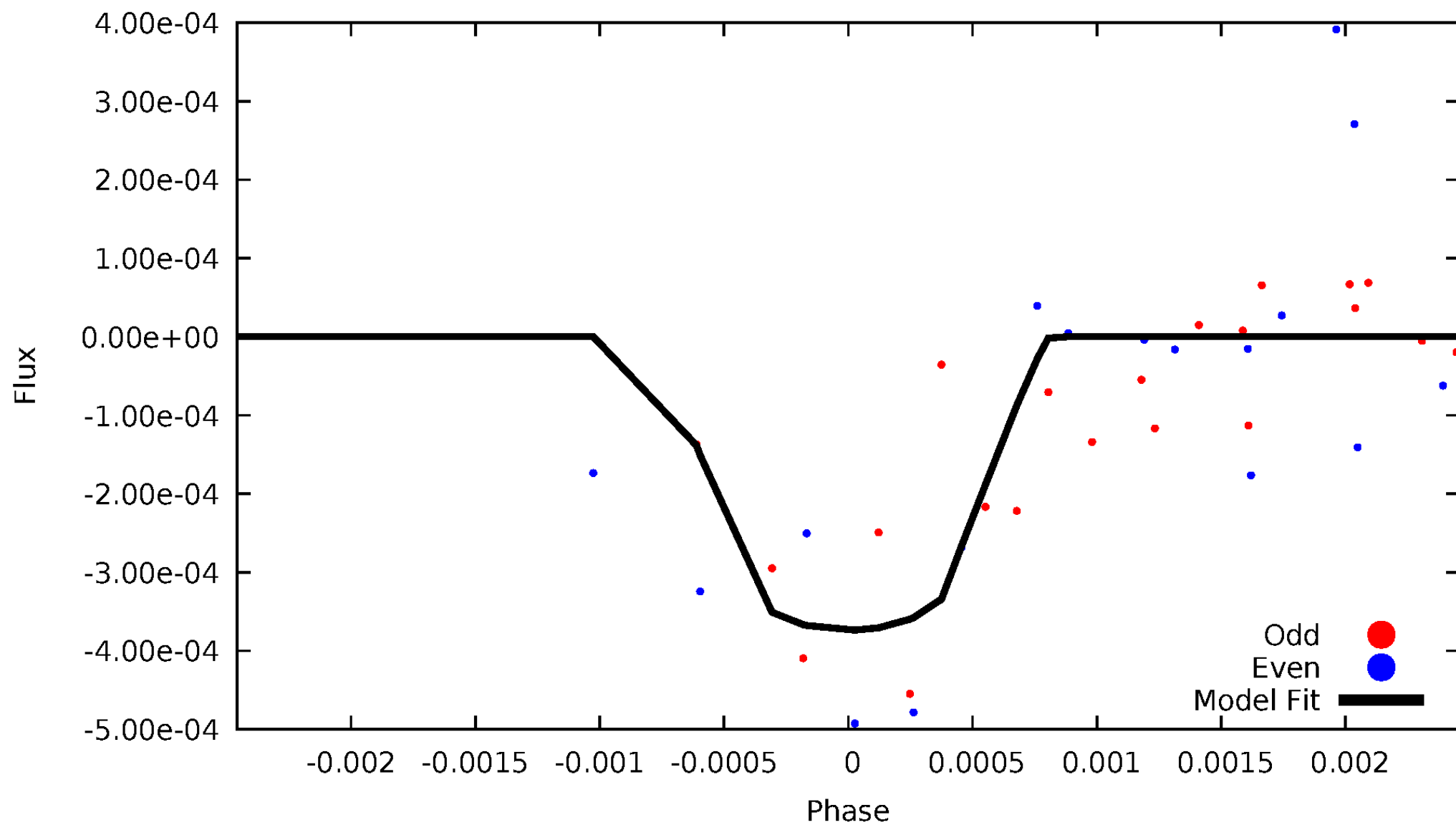


TCE 005891708-05



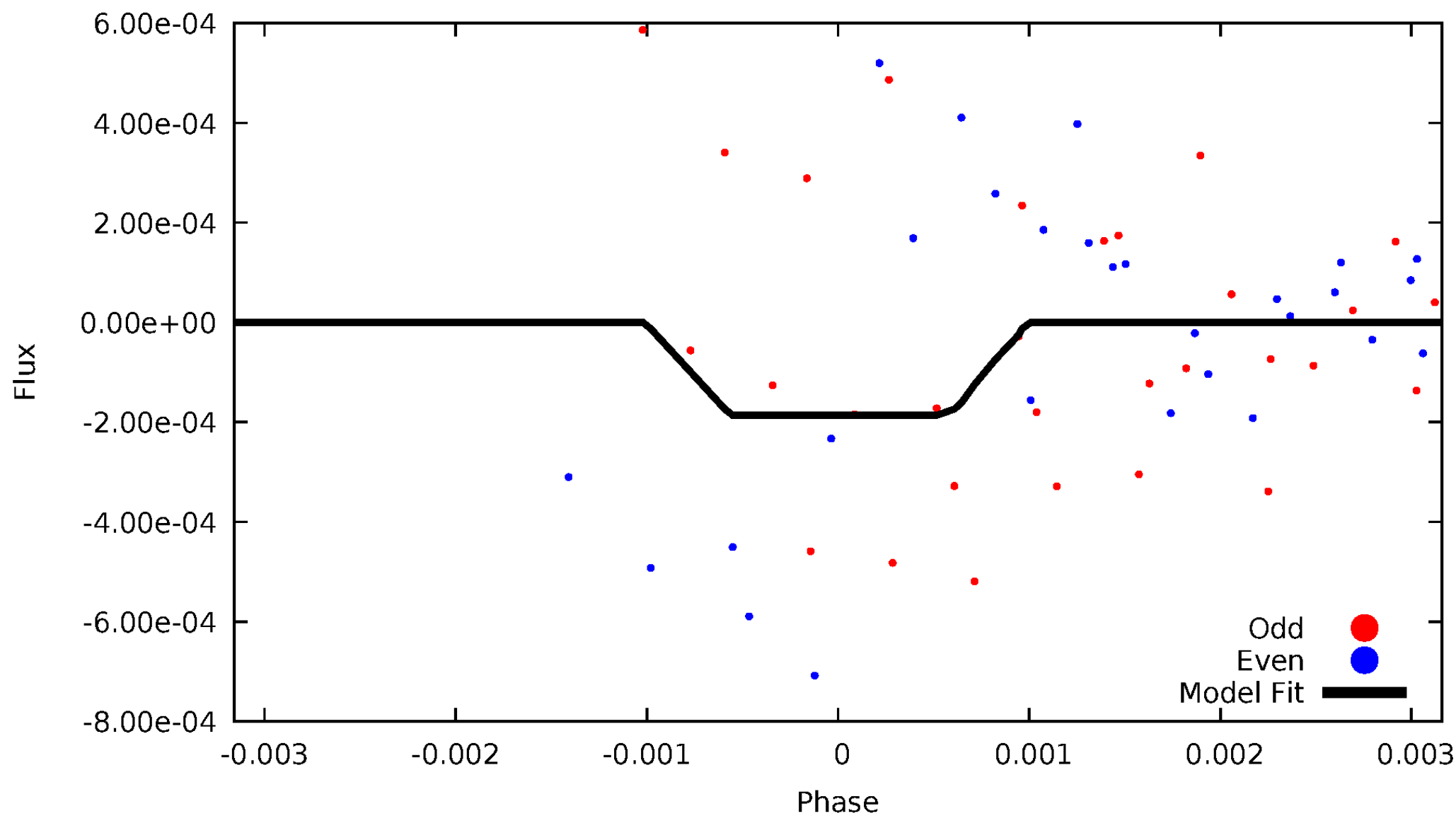
DV Odd/Even

TCE 005891708-05



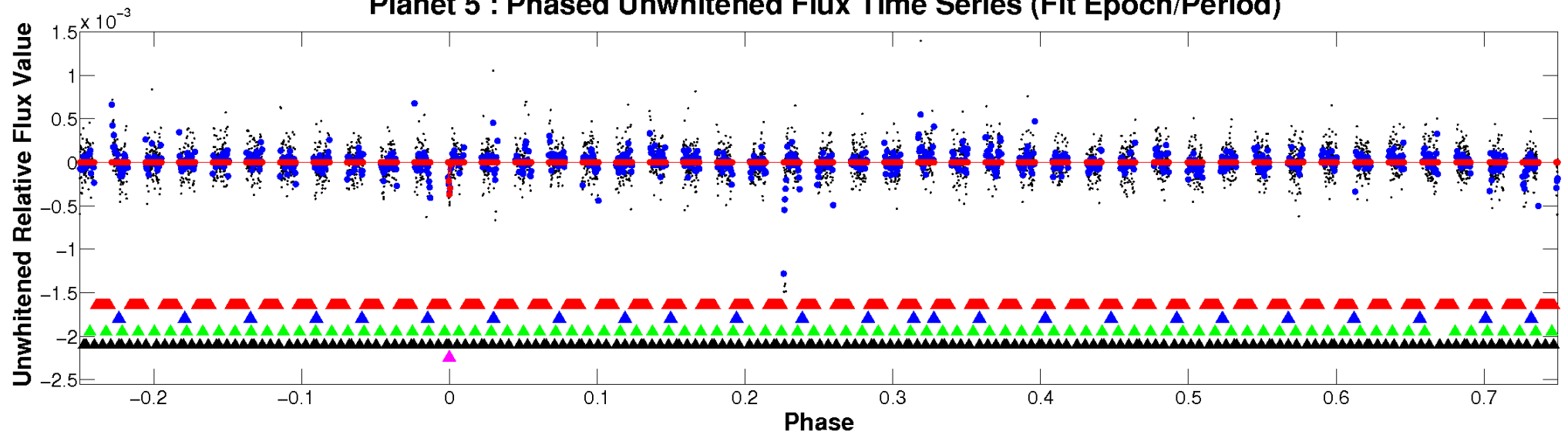
ALT Odd/Even

TCE 005891708-05

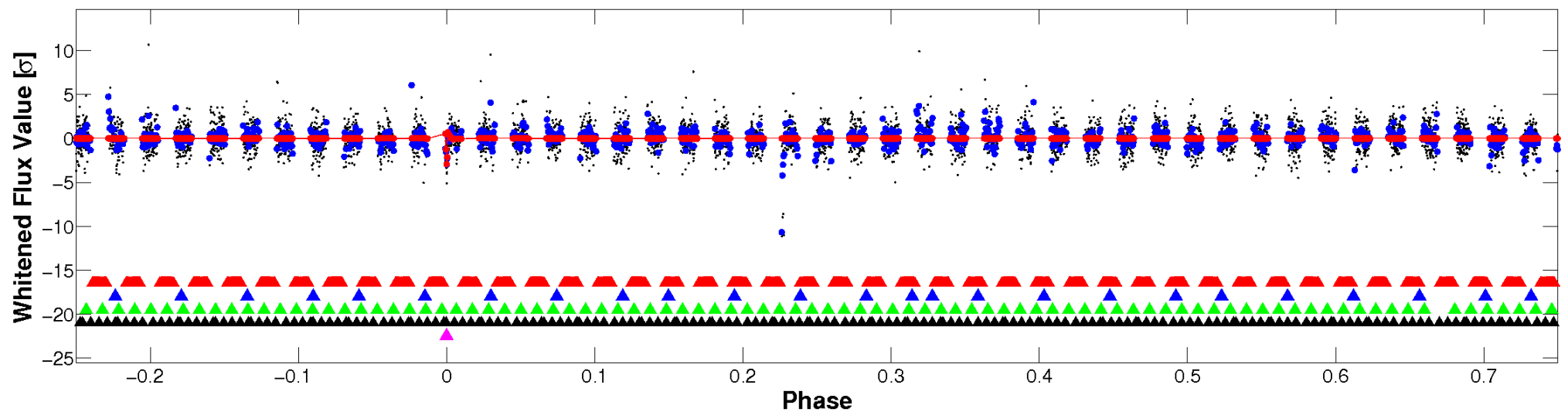


Non-Whitened Vs. Whitened Light Curve

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

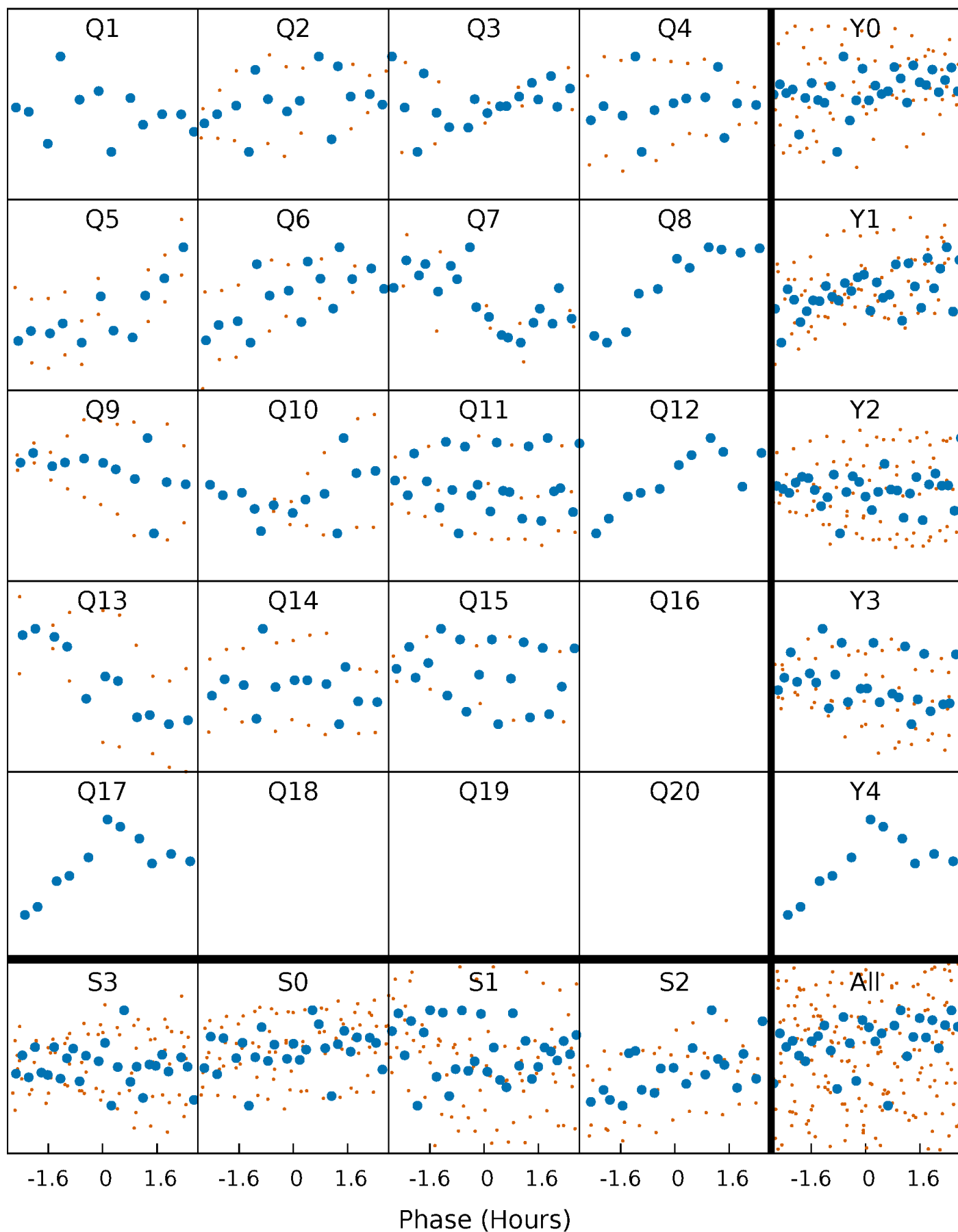


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



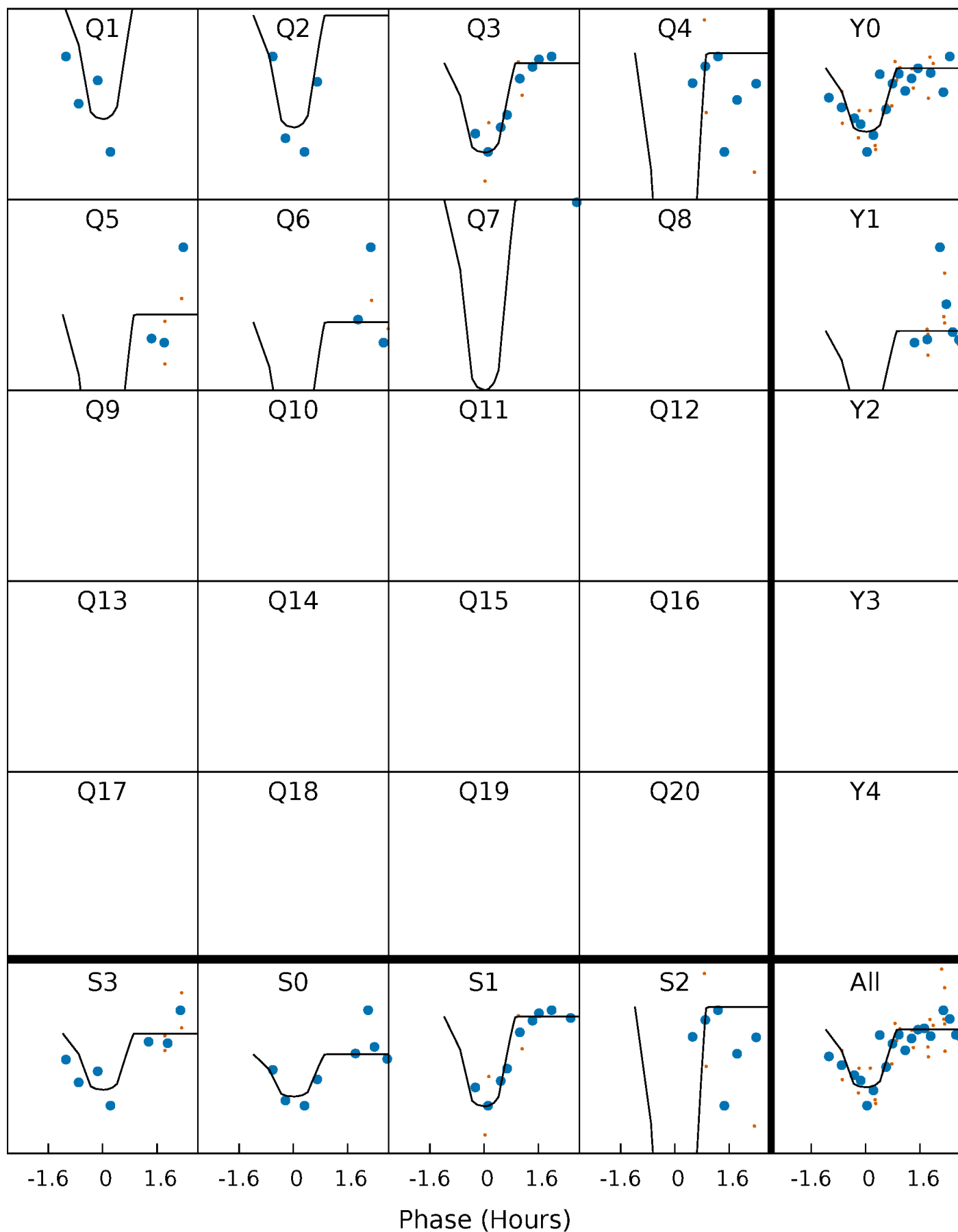
PDC Quarter-Phased Transit Curves

TCE 005891708-05 $P = 47.612556$ Days $T_0 = 145.109080$ (BKJD)



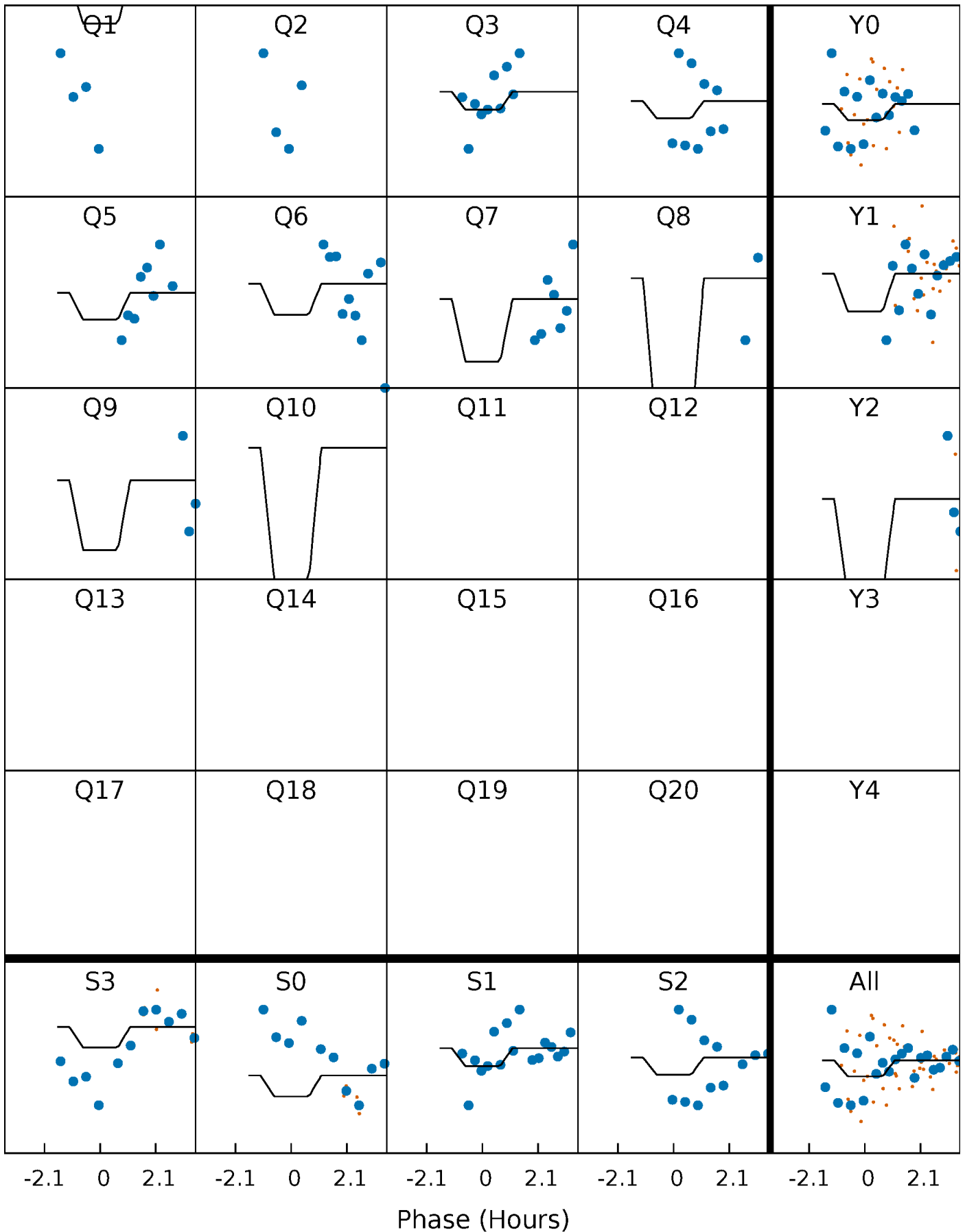
DV Quarter-Phased Transit Curves

TCE 005891708-05 $P = 47.612556$ Days $T_0 = 145.109080$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

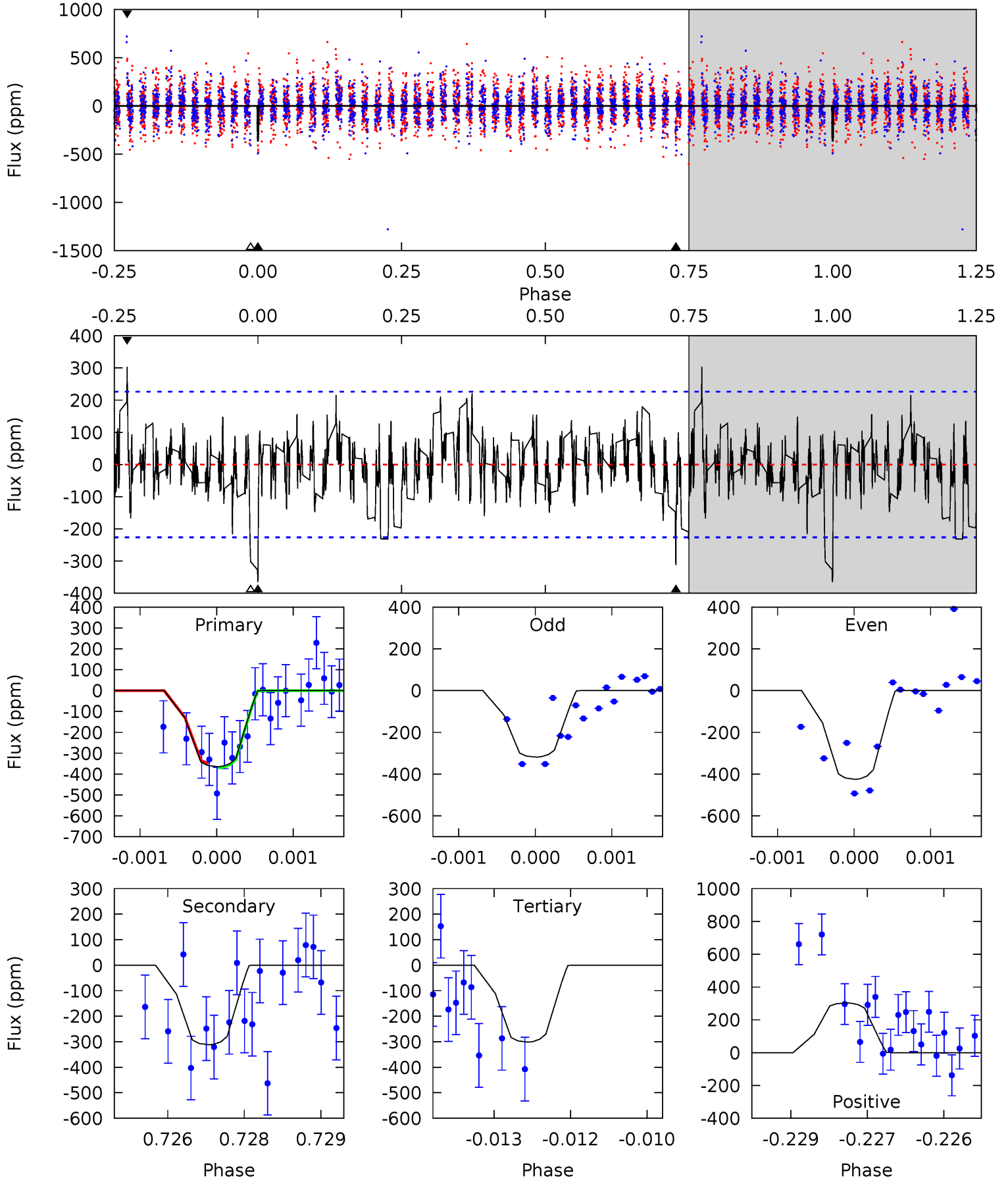
TCE 005891708-05 $P = 47.613828$ Days $T_0 = 145.127361$ (BKJD)



DV Model-Shift Uniqueness Test

005891708-05, P = 47.612556 Days, E = 97.496524 Days

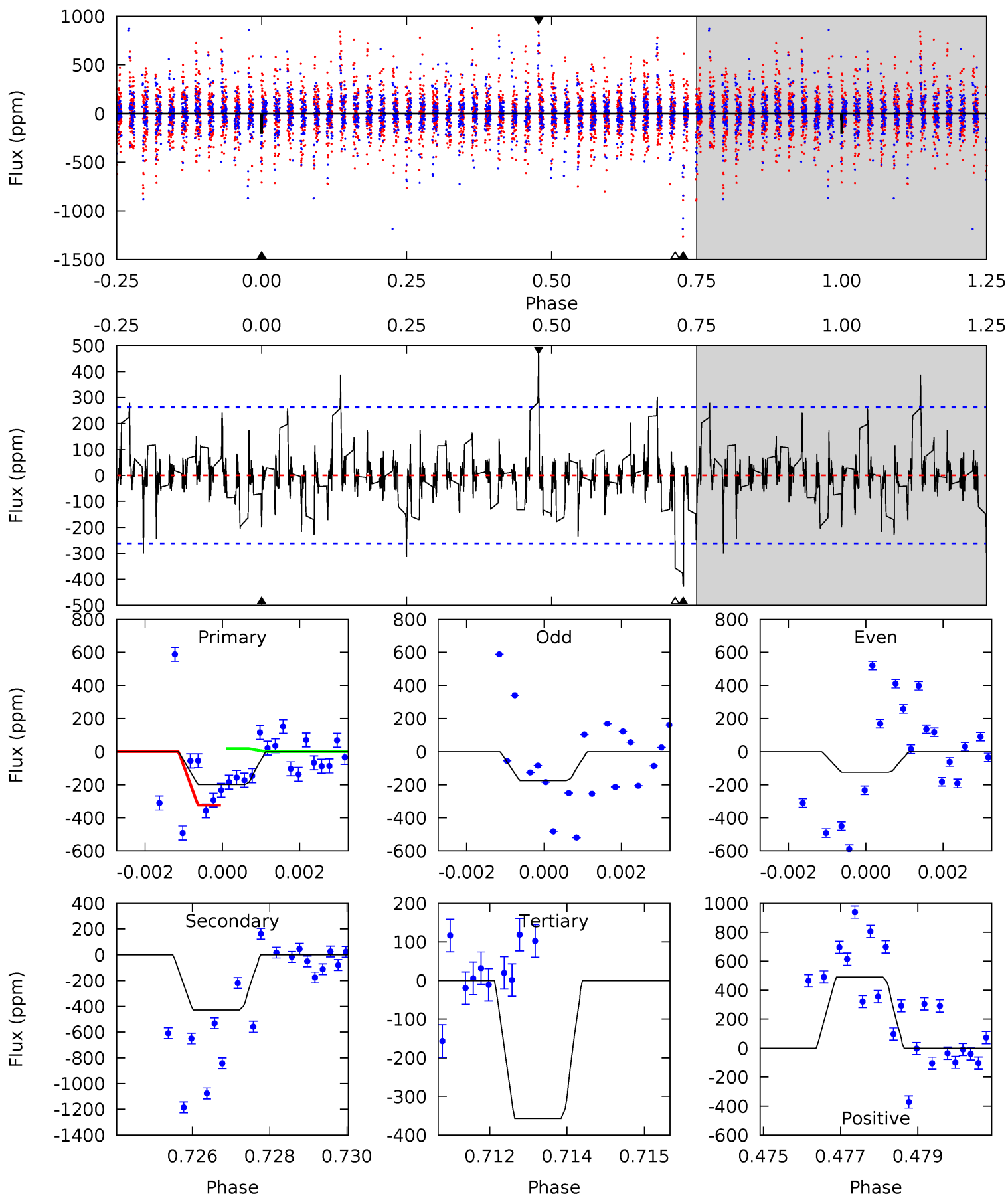
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.67 | 7.41 | 7.17 | 7.21 | 5.38 | 3.18 | 1.56 | 1.50 | 1.46 | 0.24 | 0.20 | 1.23 | 0.81 | 0.45 | 0.22 |



Alt Model-Shift Uniqueness Test

005891708-05, P = 47.613828 Days, E = 97.513533 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.08 | 8.77 | 7.30 | 10.1 | 5.35 | 3.12 | 1.49 | -3.22 | -5.98 | 1.47 | -1.29 | 0.47 | 0.58 | 0.53 | 3.14 |



Stellar Parameters For KIC 005891708

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6897^{+144}_{-246} | $3.130^{+0.528}_{-0.132}$ | $0.070^{+0.200}_{-0.300}$ | $7.410^{+1.730}_{-4.037}$ | $2.703^{+0.353}_{-0.823}$ | $0.009^{+0.061}_{-0.004}$ |
| | +2%/-4% | +17%/-4% | +286%/-429% | +23%/-54% | +13%/-30% | +650%/-39% |
| 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 005891708-05 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|--------------------------|----------------------|------------------------|----------------------|
| DV | -312 ± 42 | $14.49^{+14.77}_{-9.41}$ | 1863^{+158}_{-240} | 6234^{+5880}_{-1449} | 97^{+675}_{-71} |
| Alt. | -428 ± 49 | $13.58^{+12.74}_{-9.09}$ | 1870^{+167}_{-259} | 7092^{+8556}_{-1782} | 166^{+1199}_{-122} |

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

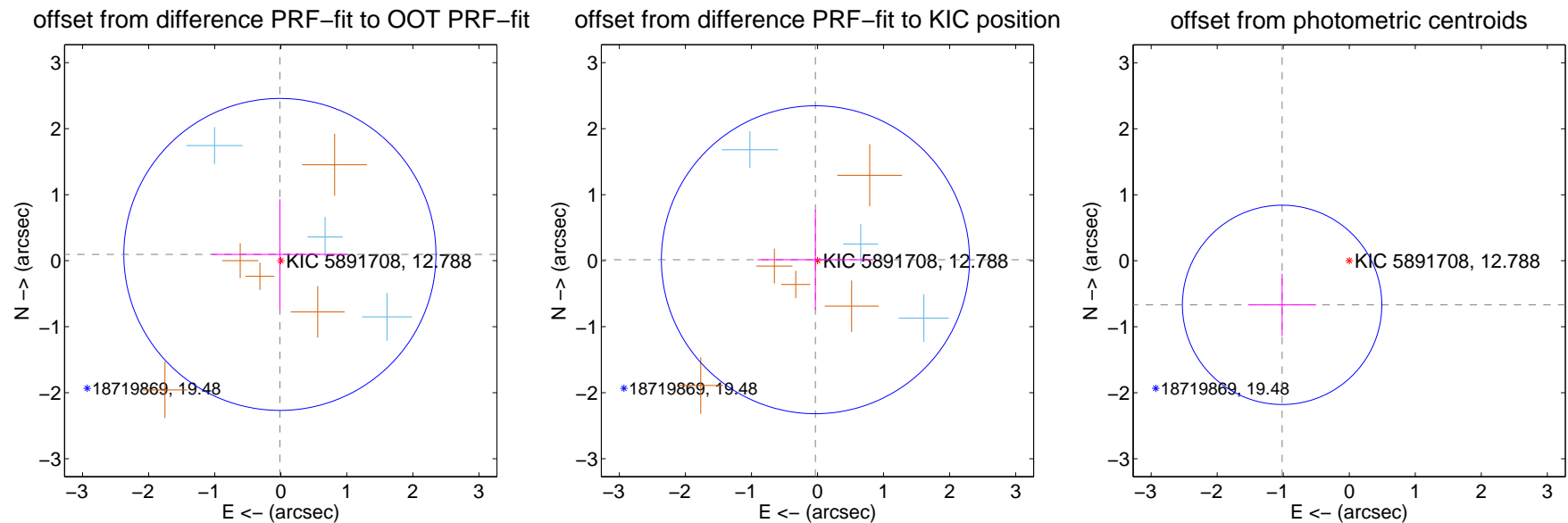
DV Centroid Data

Supplemental centroid analysis for 005891708-05. Kepler magnitude: 12.79. Transit SNR 8.26

There are 3 quarters with good PRF difference image offsets

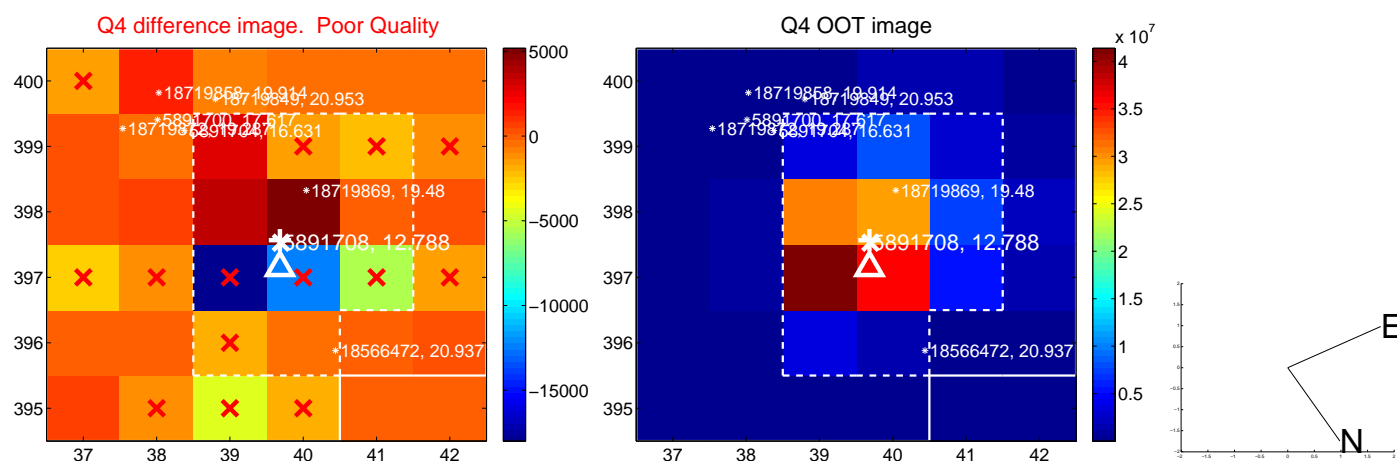
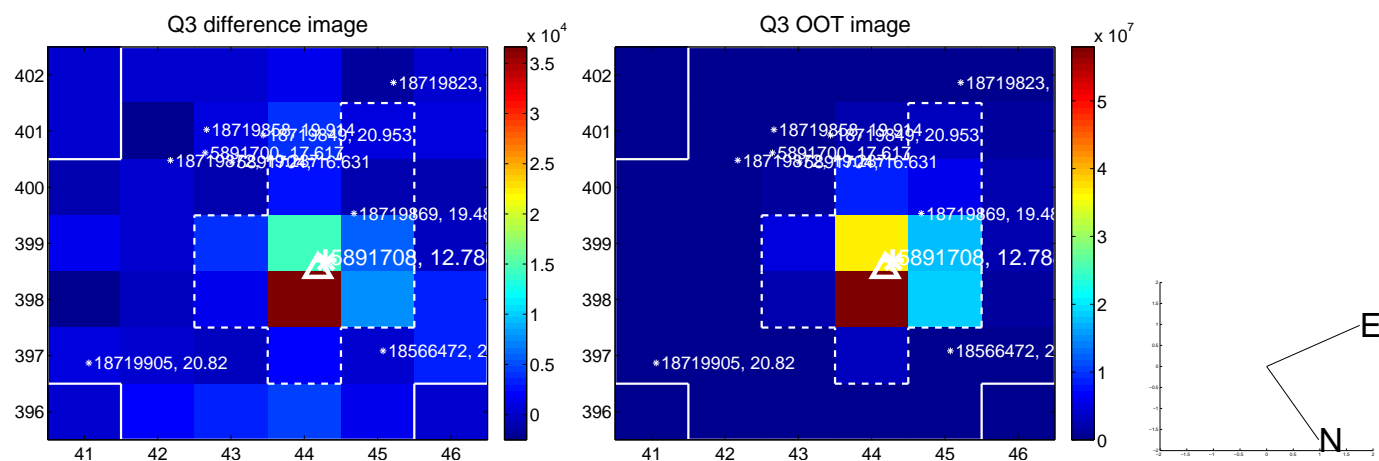
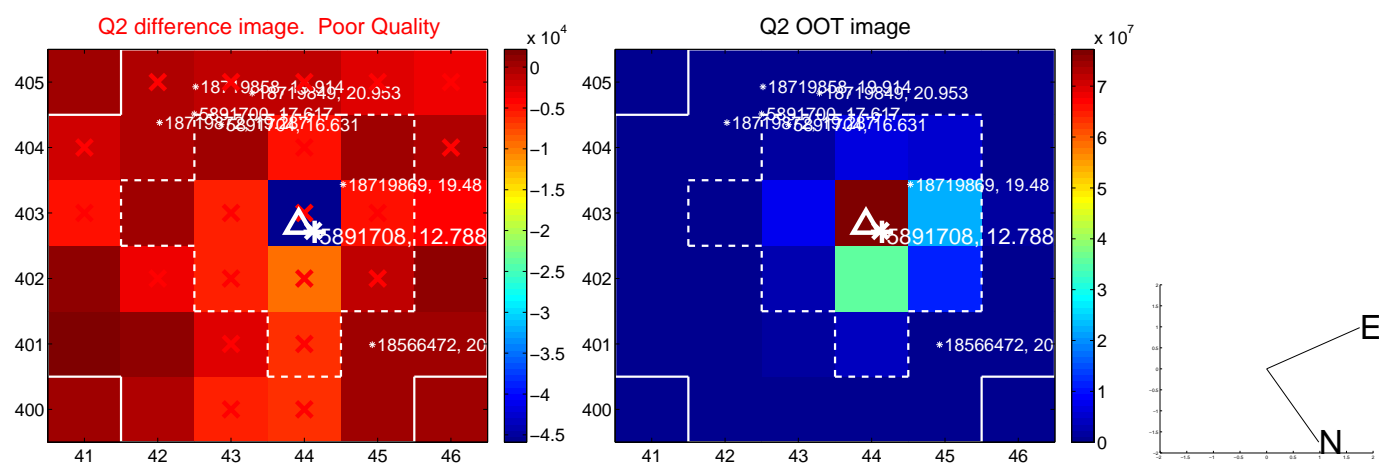
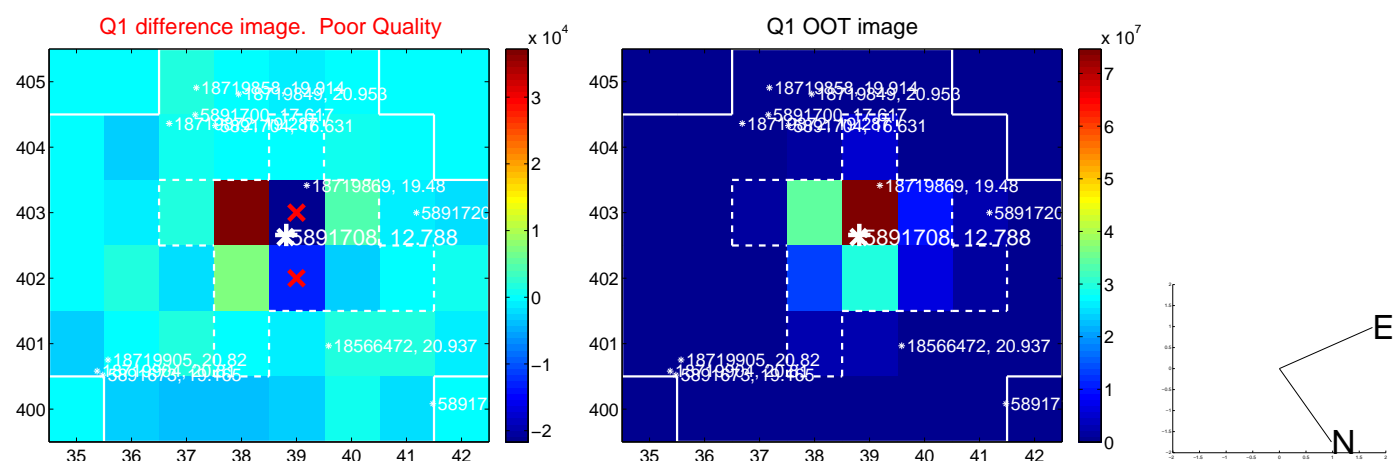
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.096 ± 0.787 | 0.12 | 0.013 ± 1.030 | 0.095 ± 0.835 |
| PRF-fit source offset from KIC position | 0.034 ± 0.777 | 0.04 | 0.031 ± 0.878 | 0.015 ± 0.756 |
| photometric centroid source offset | 1.22 ± 0.50 | 2.42 | 1.02 ± 0.52 | -0.67 ± 0.47 |

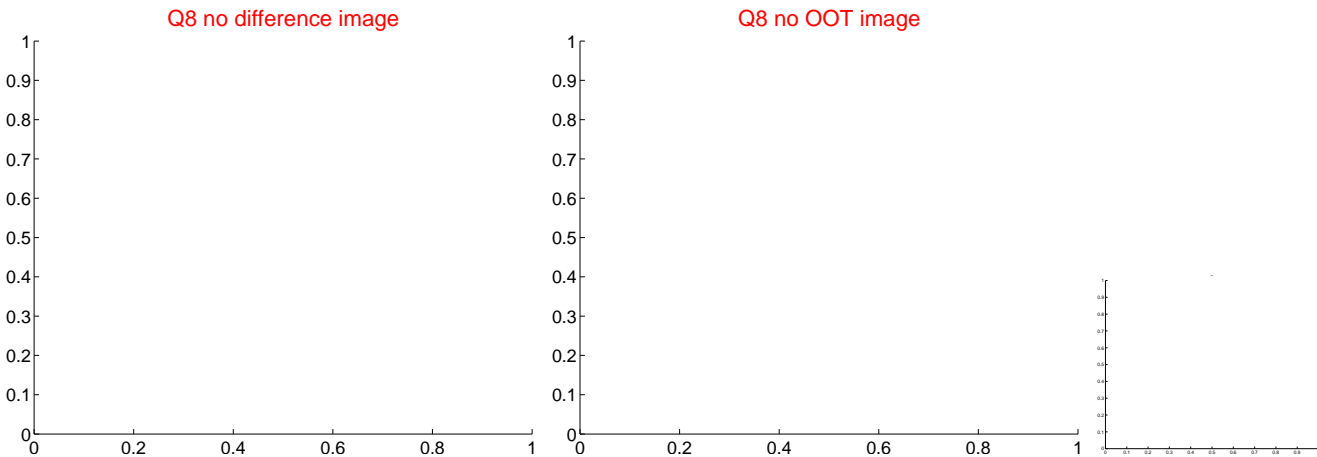
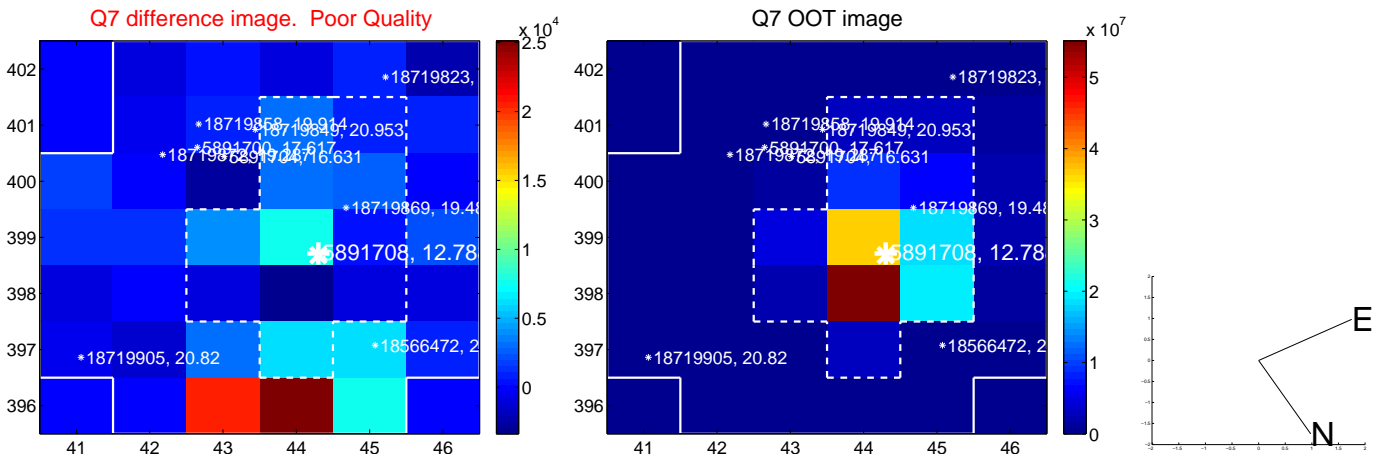
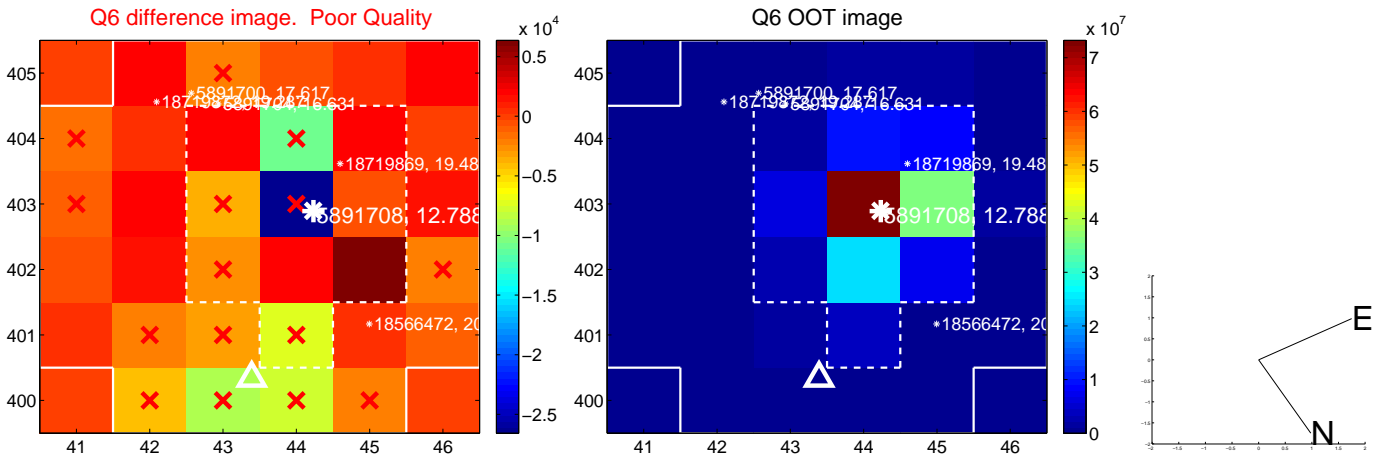
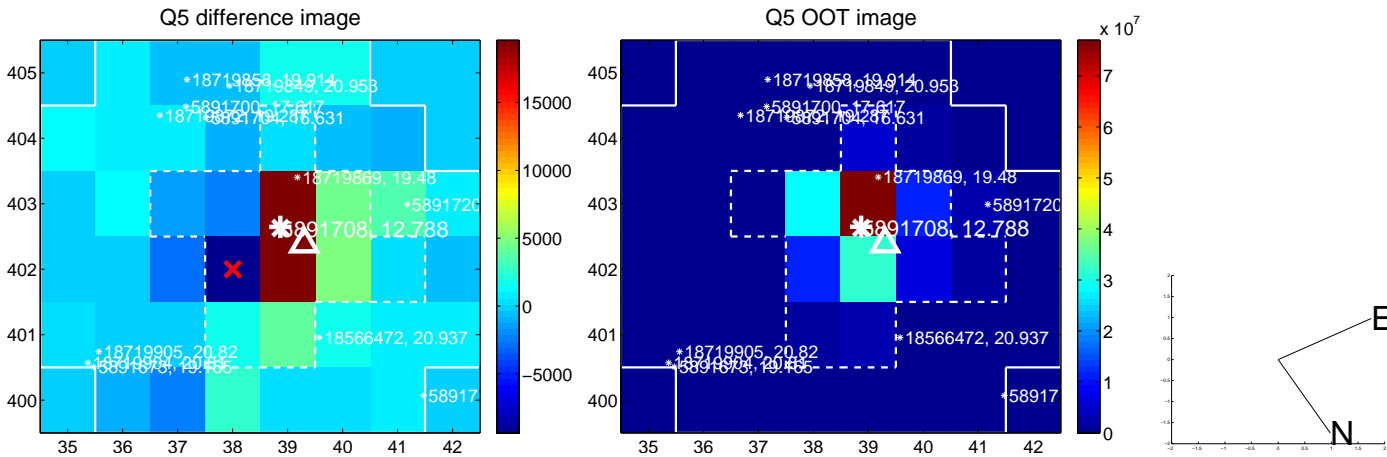


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

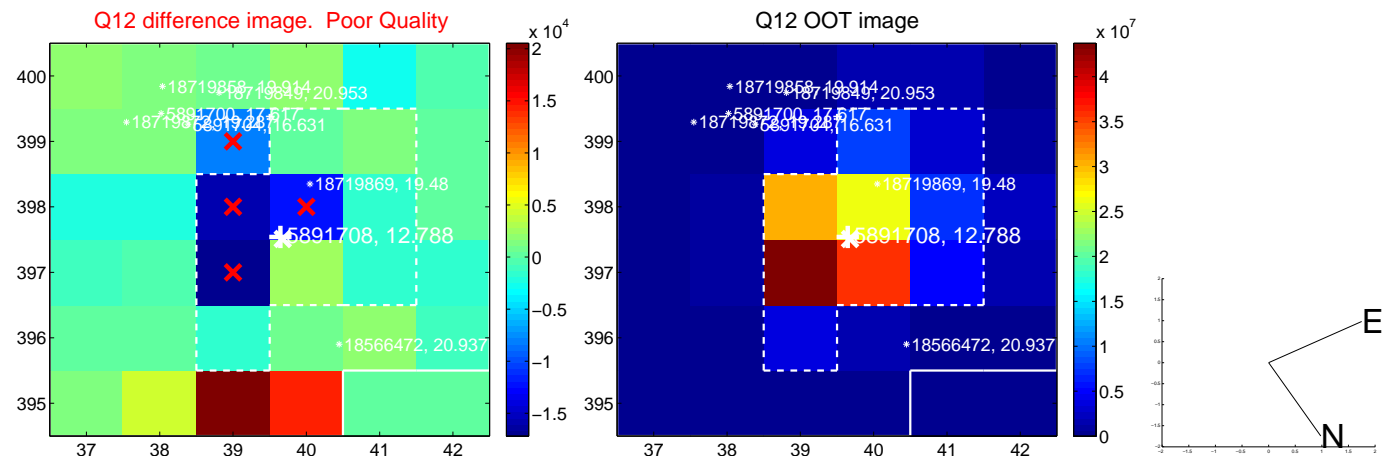
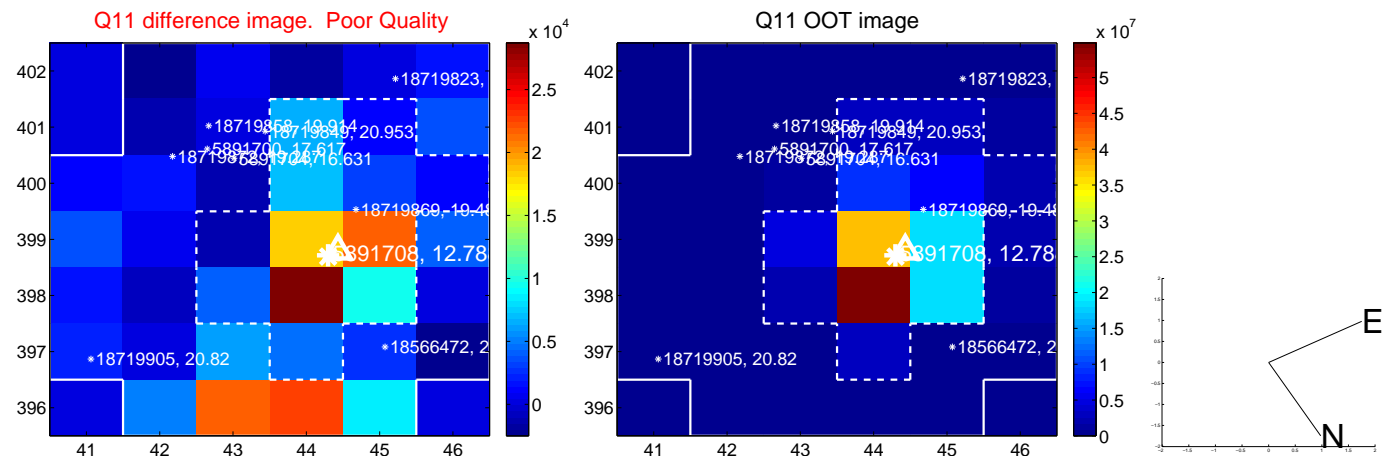
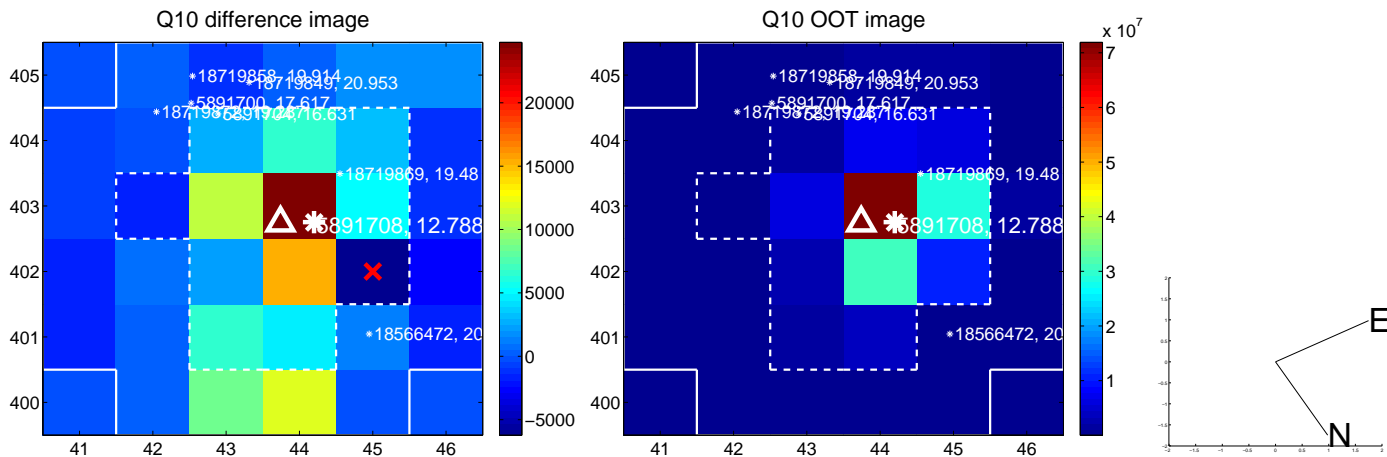
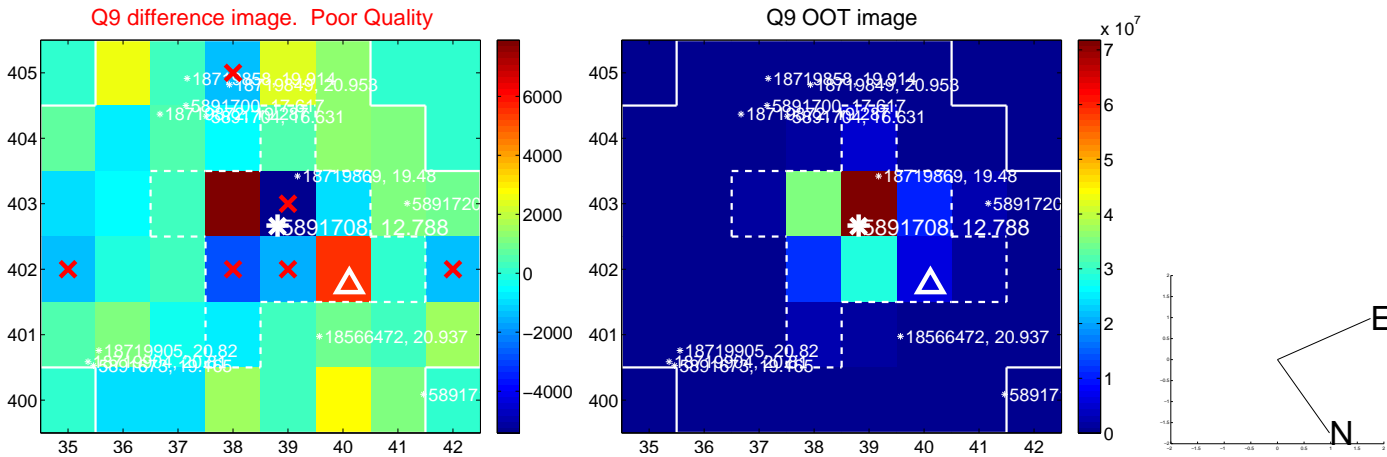
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



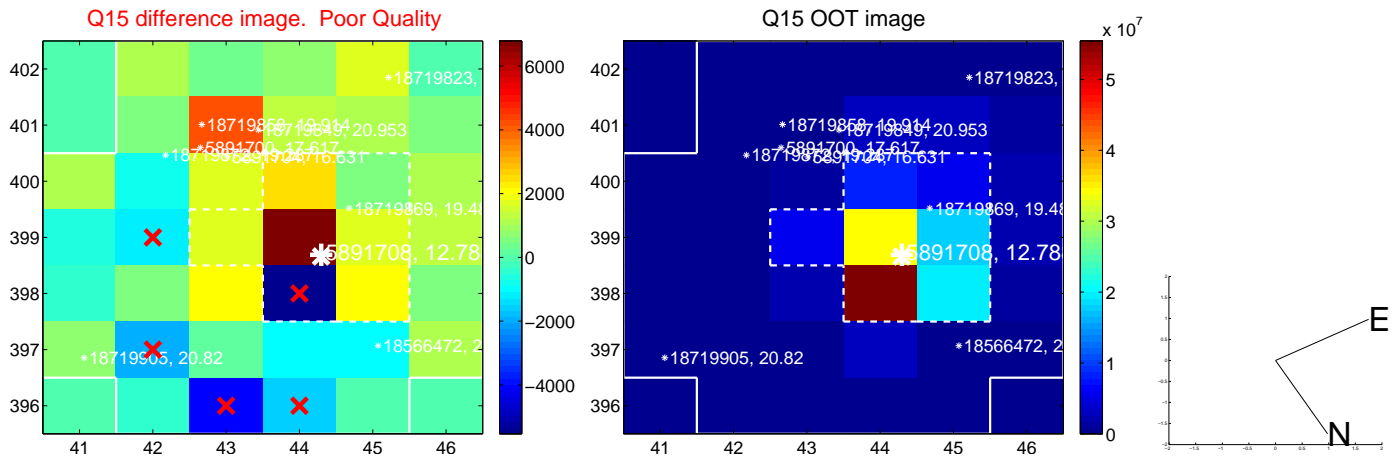
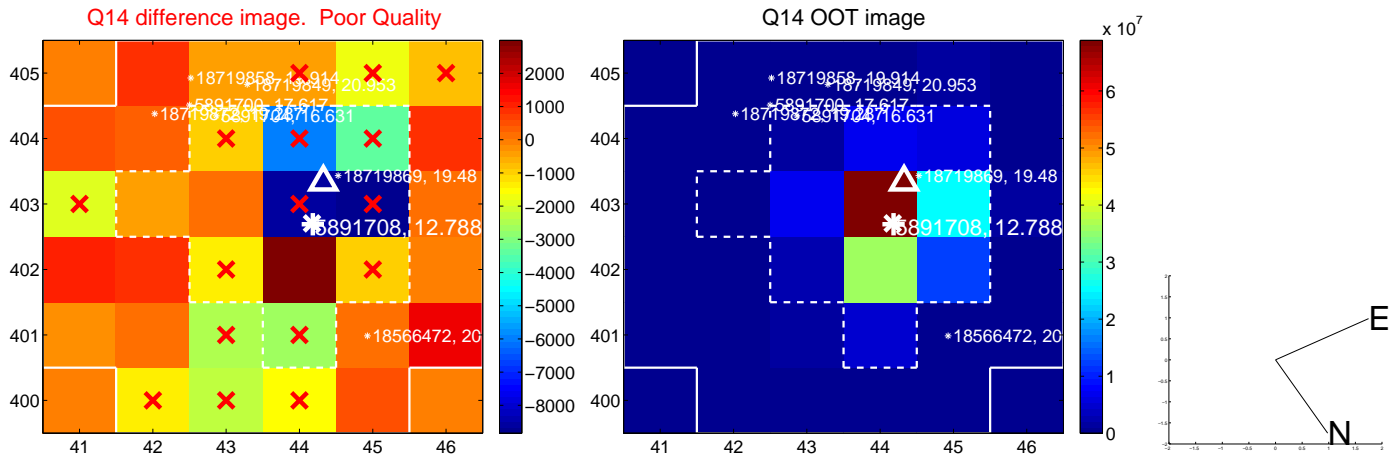
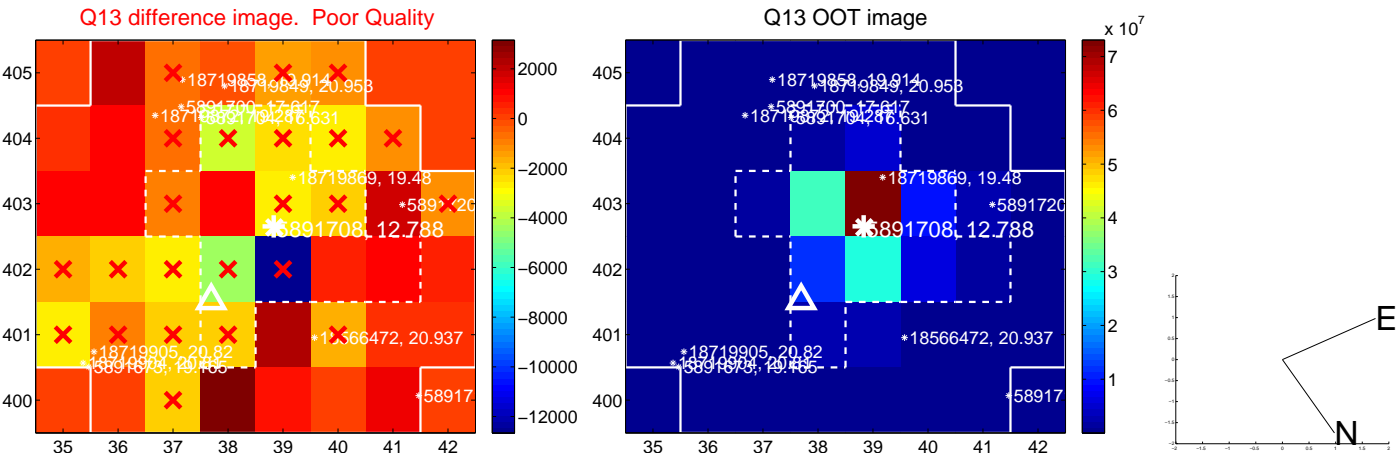
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



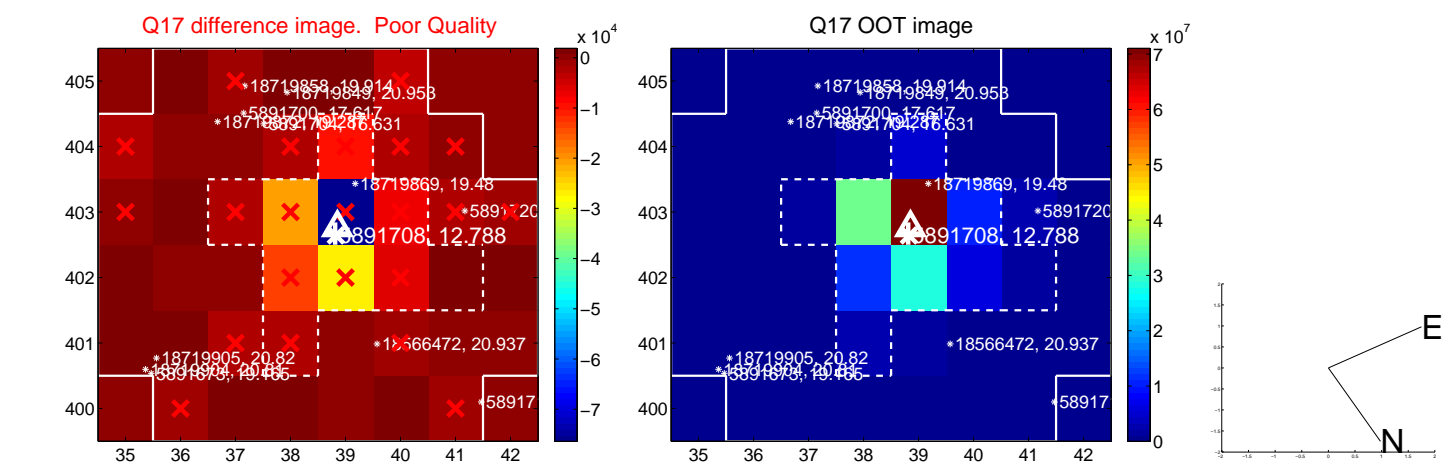
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



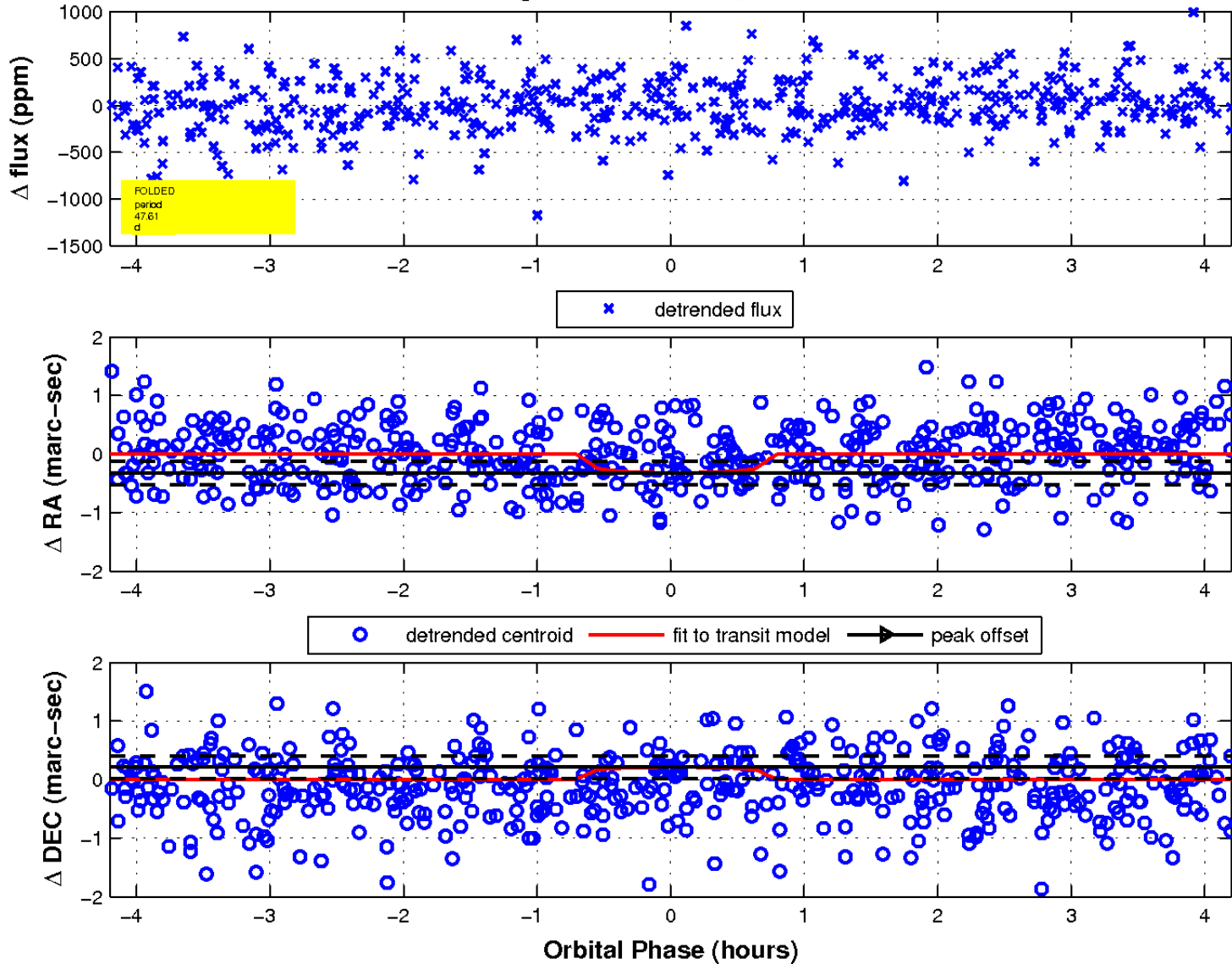
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

