

KIC 006041680

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006041680-01 | OBS | No | 2.051634 | 132.096585 | 33.9 | 4.830 | 12.5 | 8.8 | 1.07 | 7761 | 1.25 | 3326.88 |
| 006041680-02 | OBS | No | 2.051574 | 131.830981 | 46.9 | 10.191 | 11.2 | 13.1 | 1.07 | 7761 | 0.95 | 3327.01 |
| 006041680-03 | OBS | No | 40.289743 | 155.839286 | 98.0 | 14.014 | 8.5 | 6.6 | 1.07 | 7761 | 1.20 | 62.79 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006041680-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV |
| 006041680-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 006041680-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_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.

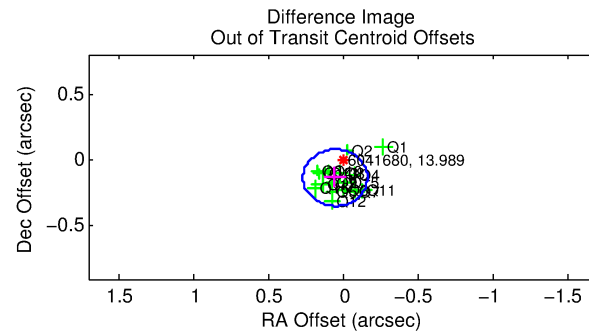
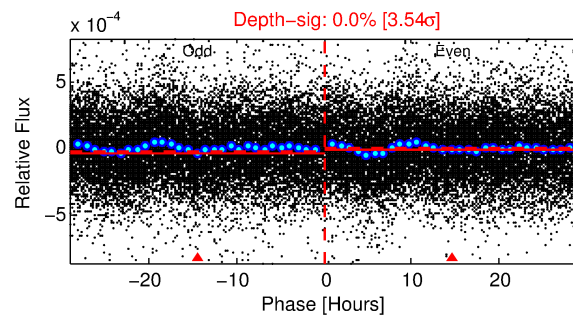
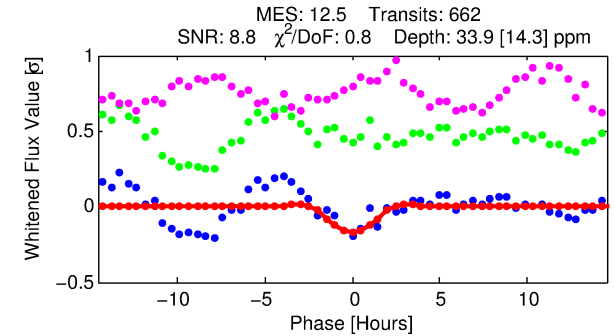
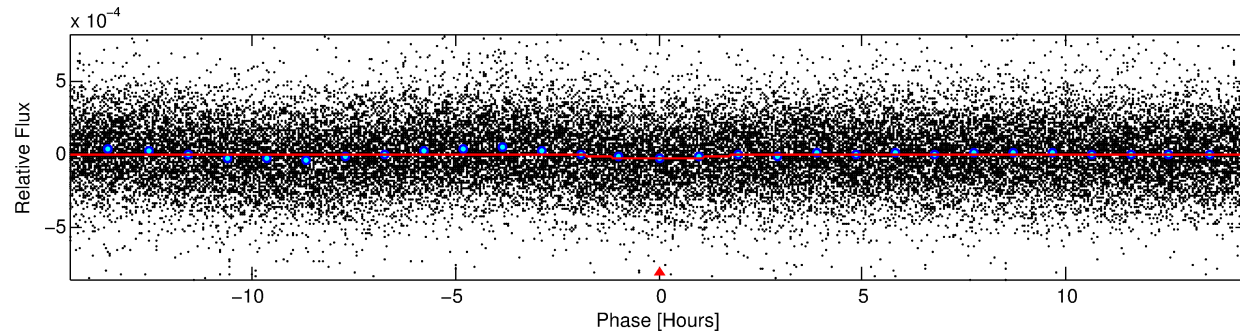
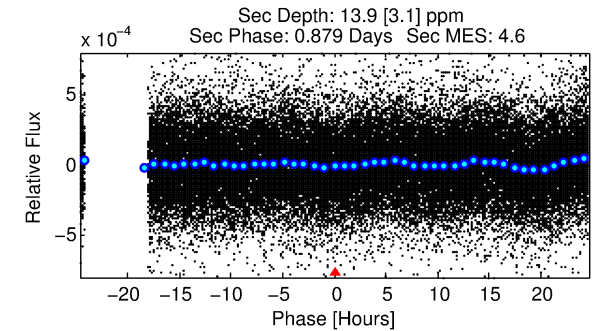
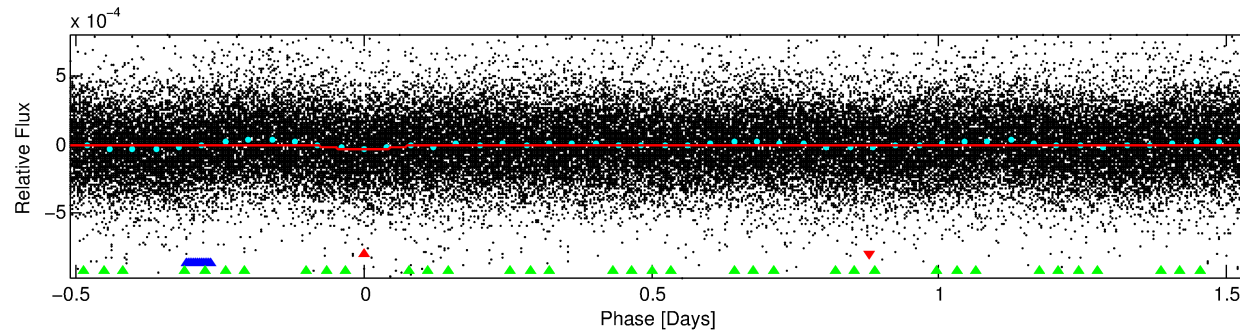
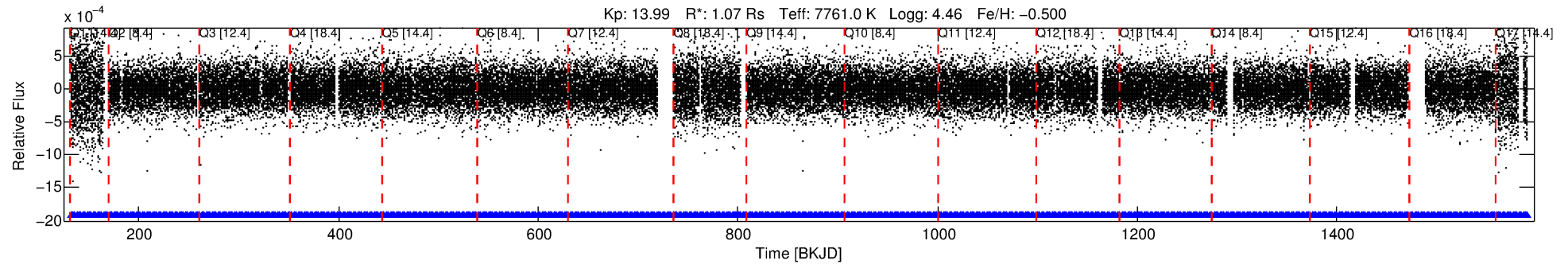
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006041680-01

No Significant Match Found

DV One-Page Summary

KIC: 6041680 Candidate: 1 of 3 Period: 2.052 d



DV Fit Results:

Period = 2.05163 [0.00003] d
Epoch = 132.0966 [0.0105] BKJD
Rp/R* = 0.0106 [0.0464]
a/R* = 1.11 [0.21]
b = 1.00 [0.07]
Seff = 3326.88 [911.17]
Teq = 1937 [133] K
Rp = 1.25 [5.45] Re
a = 0.0336 [0.0064] AU
Ag = 5.56 [48.47] [0.09σ]
Teffp = 4597 [10022] K [0.27σ]

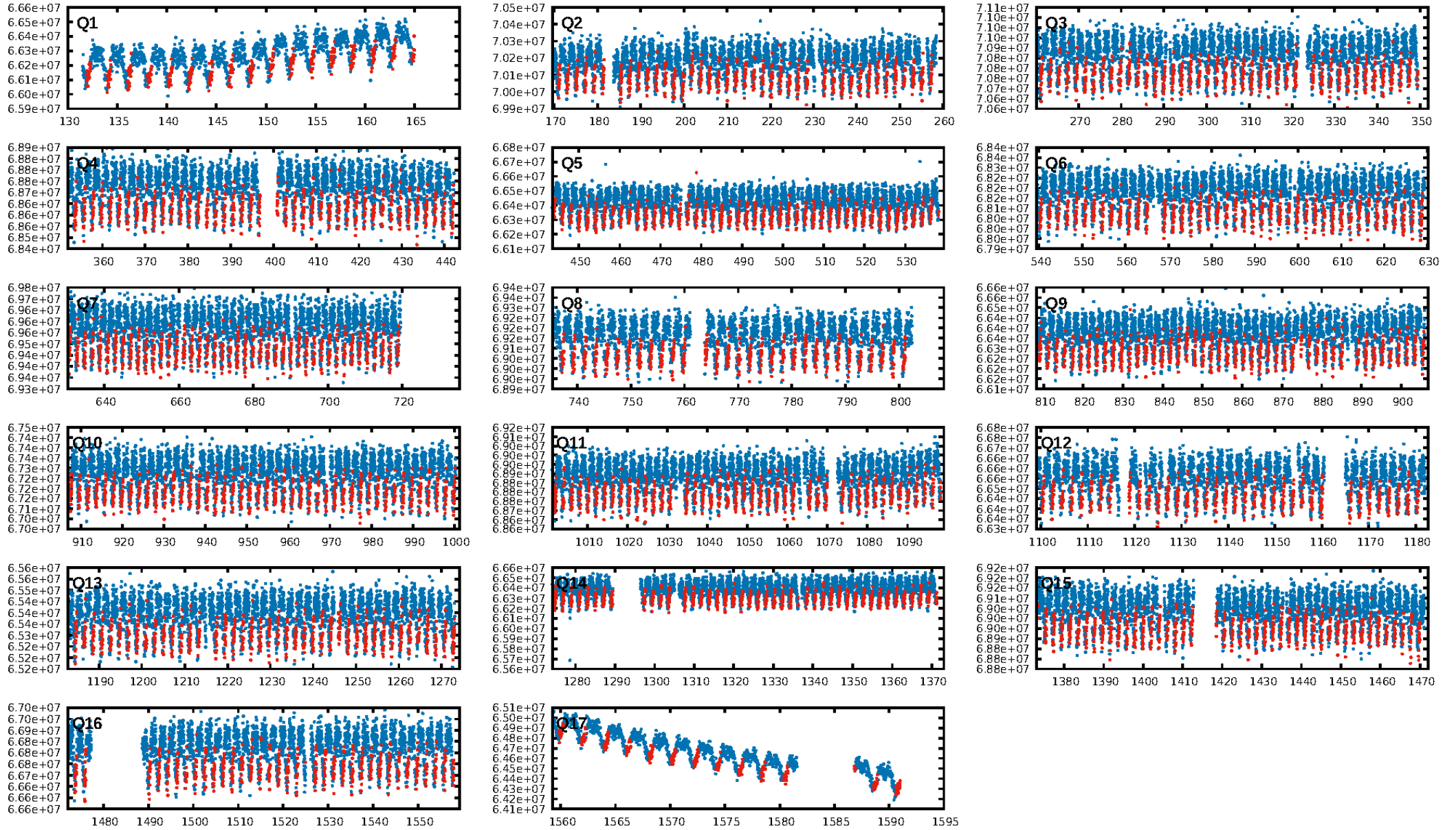
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [61.91σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.45e-27
RollingBand-fgt: 1.00 [632/632]
GhostDiagnostic-chr: 2.005
Centroid-sig: 0.2%
Centroid-so: 1.997 arcsec [1.72σ]
OotOffset-rm: 0.143 arcsec [2.00σ]
KicOffset-rm: 0.060 arcsec [0.83σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

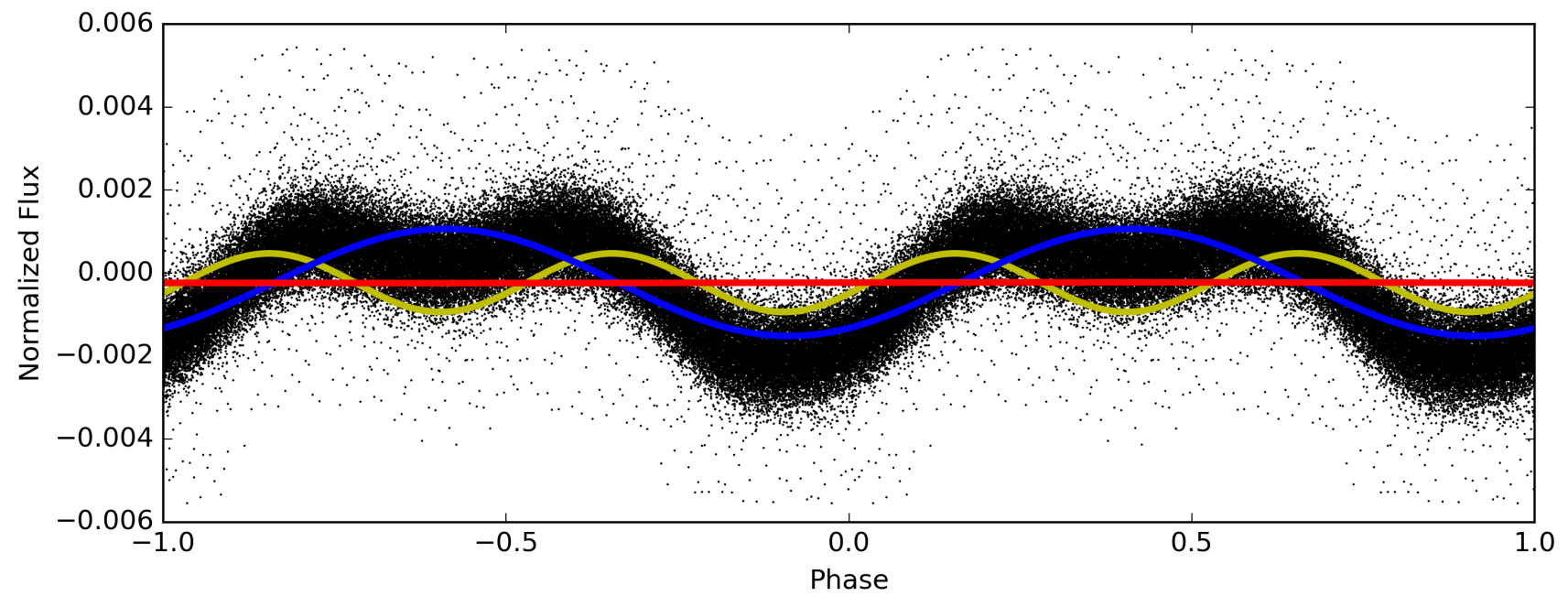
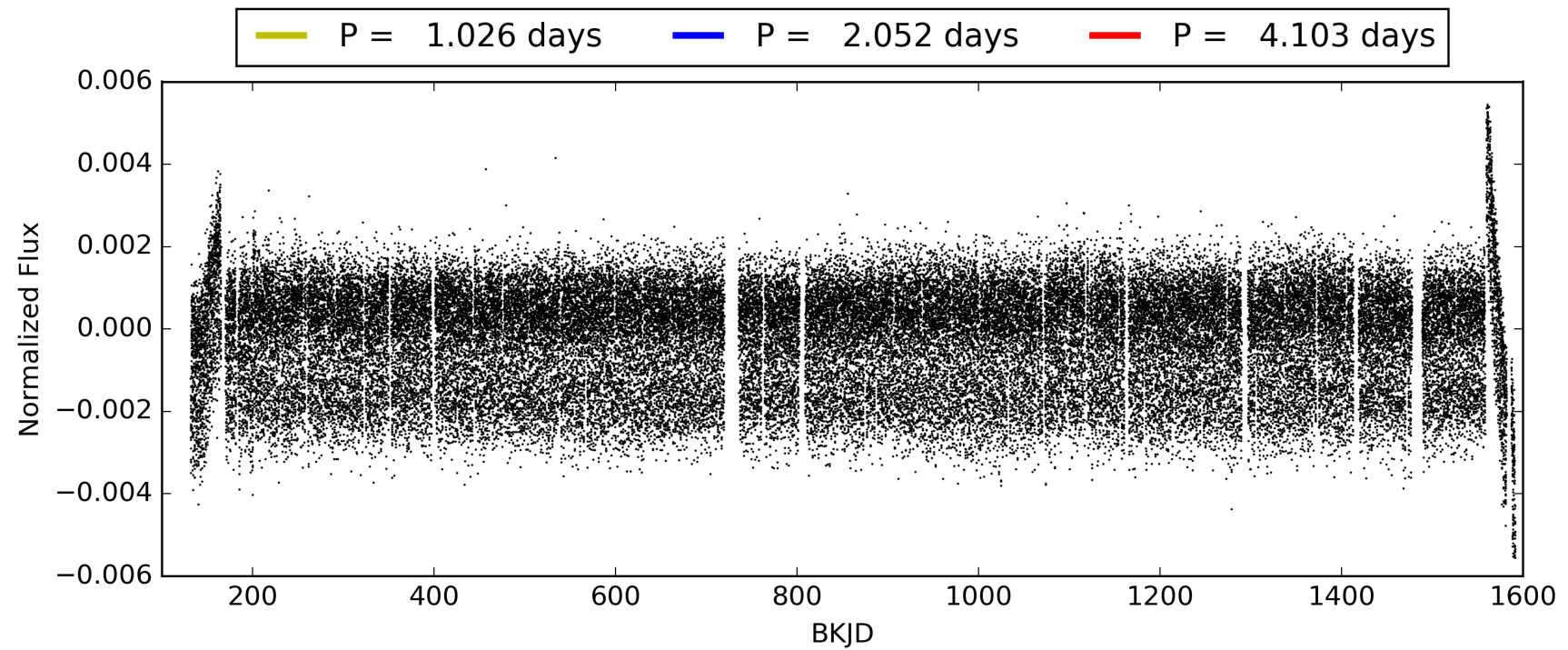
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:43:51 Z

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

TCE 006041680-01, PDC Light Curves

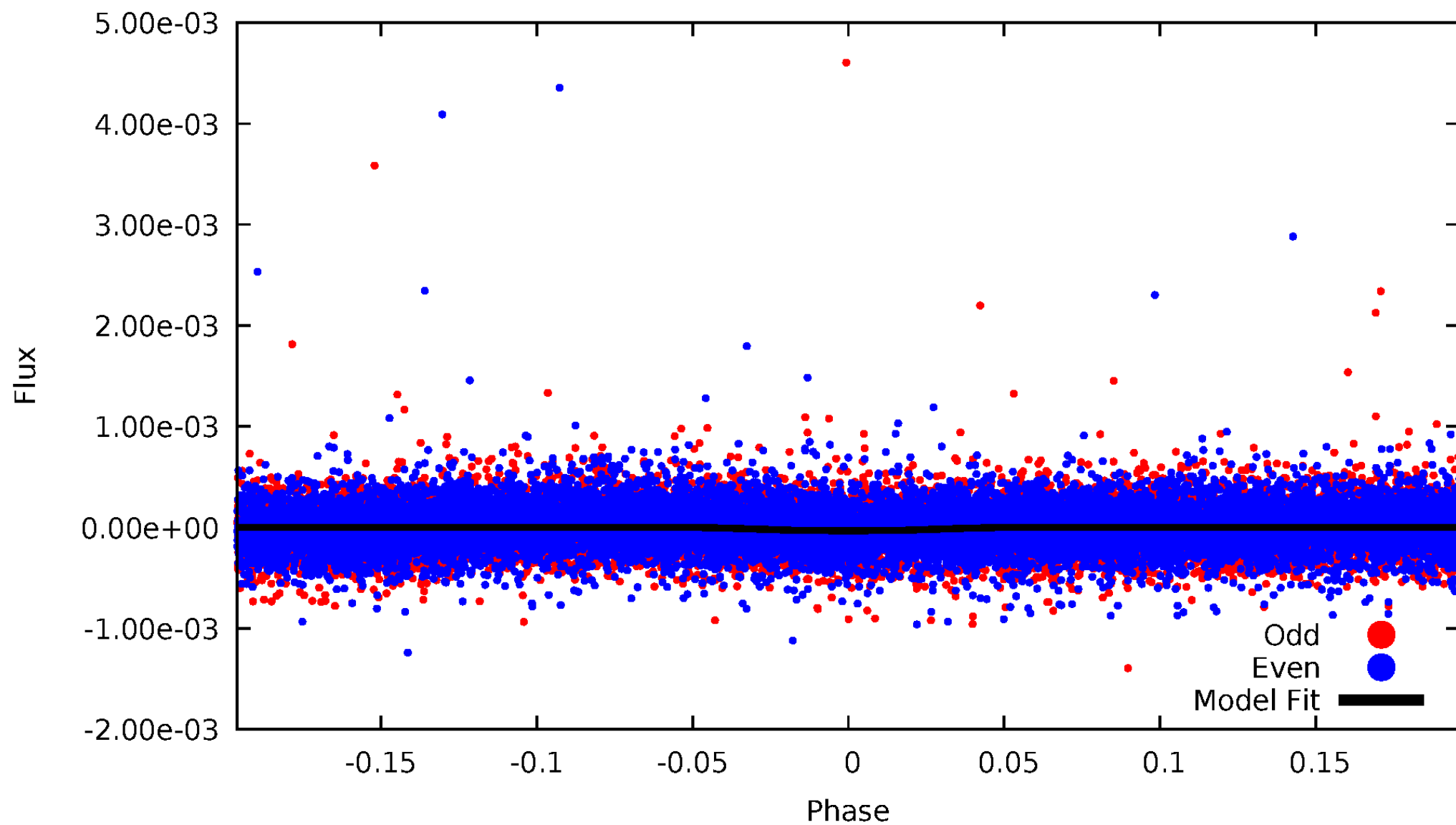


TCE 006041680-01



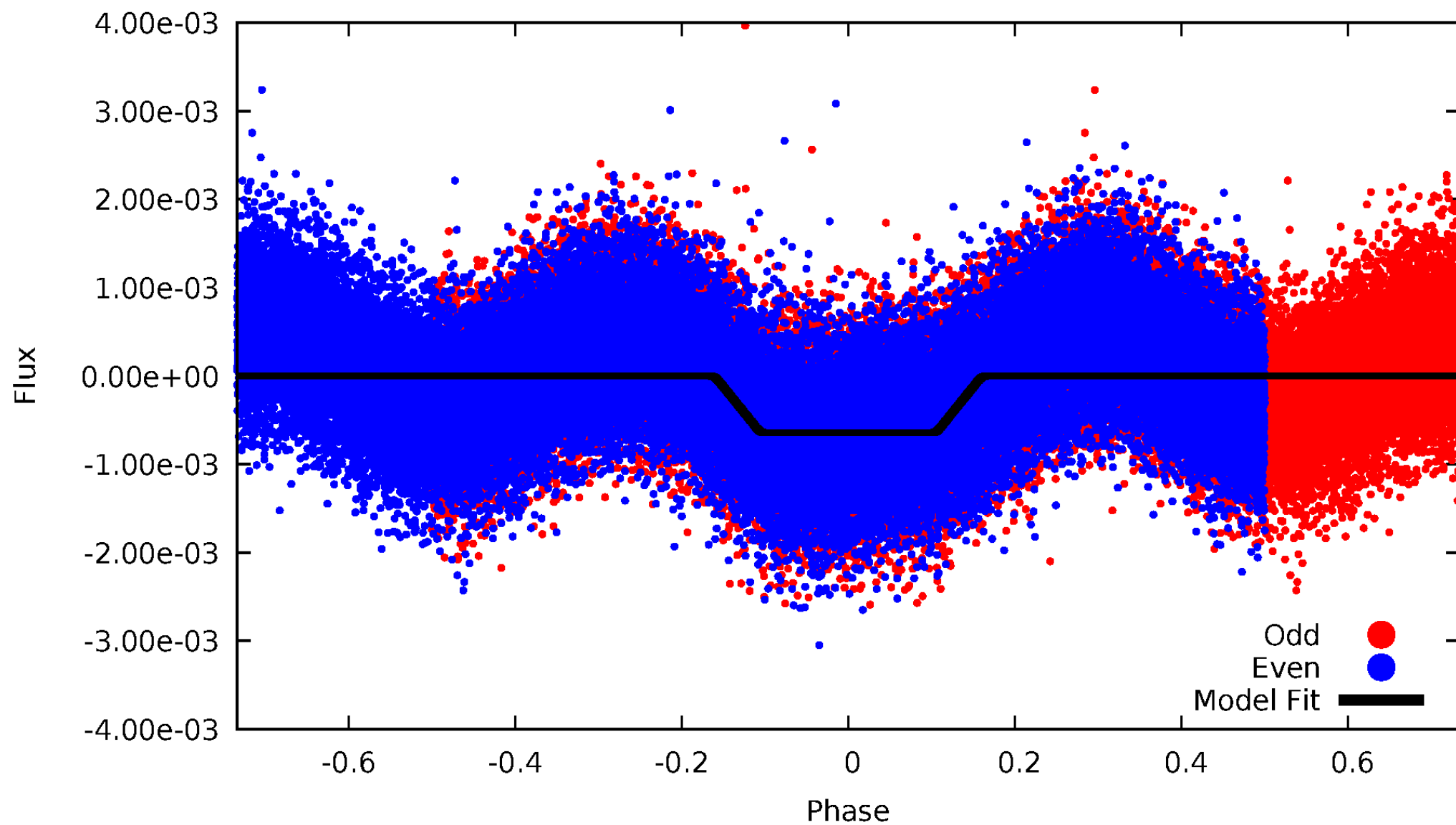
DV Odd/Even

TCE 006041680-01

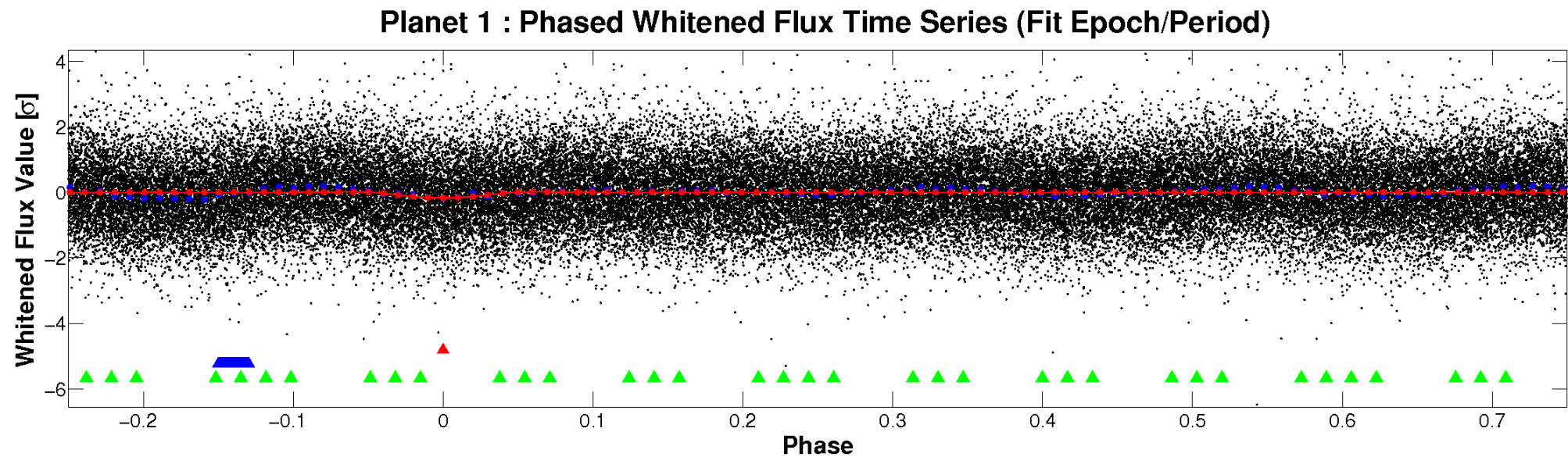
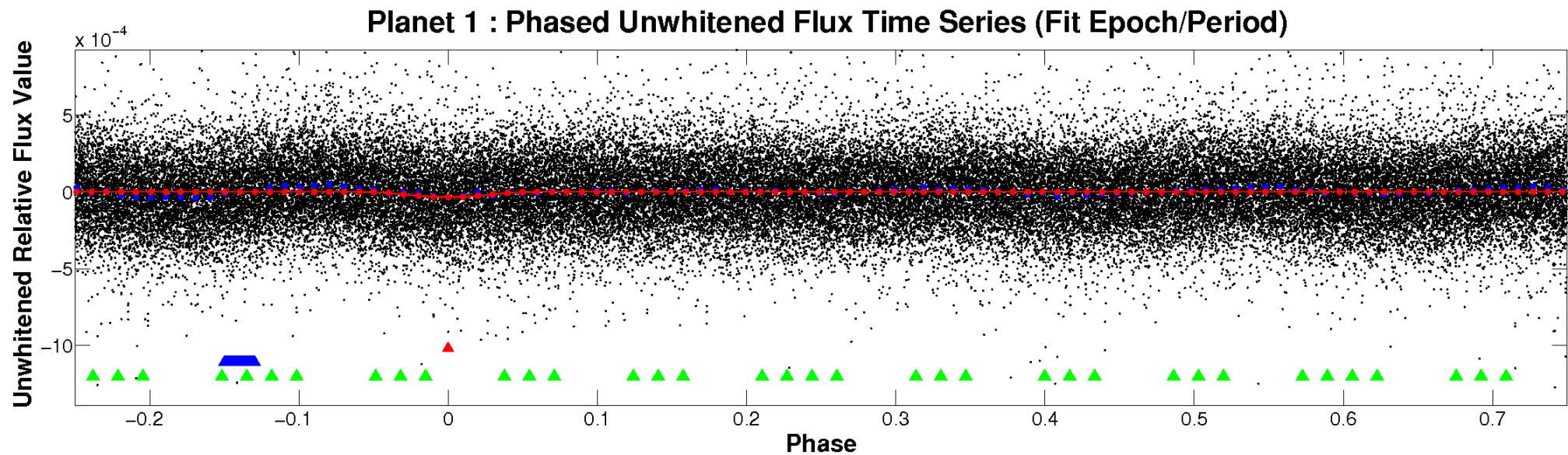


ALT Odd/Even

TCE 006041680-01

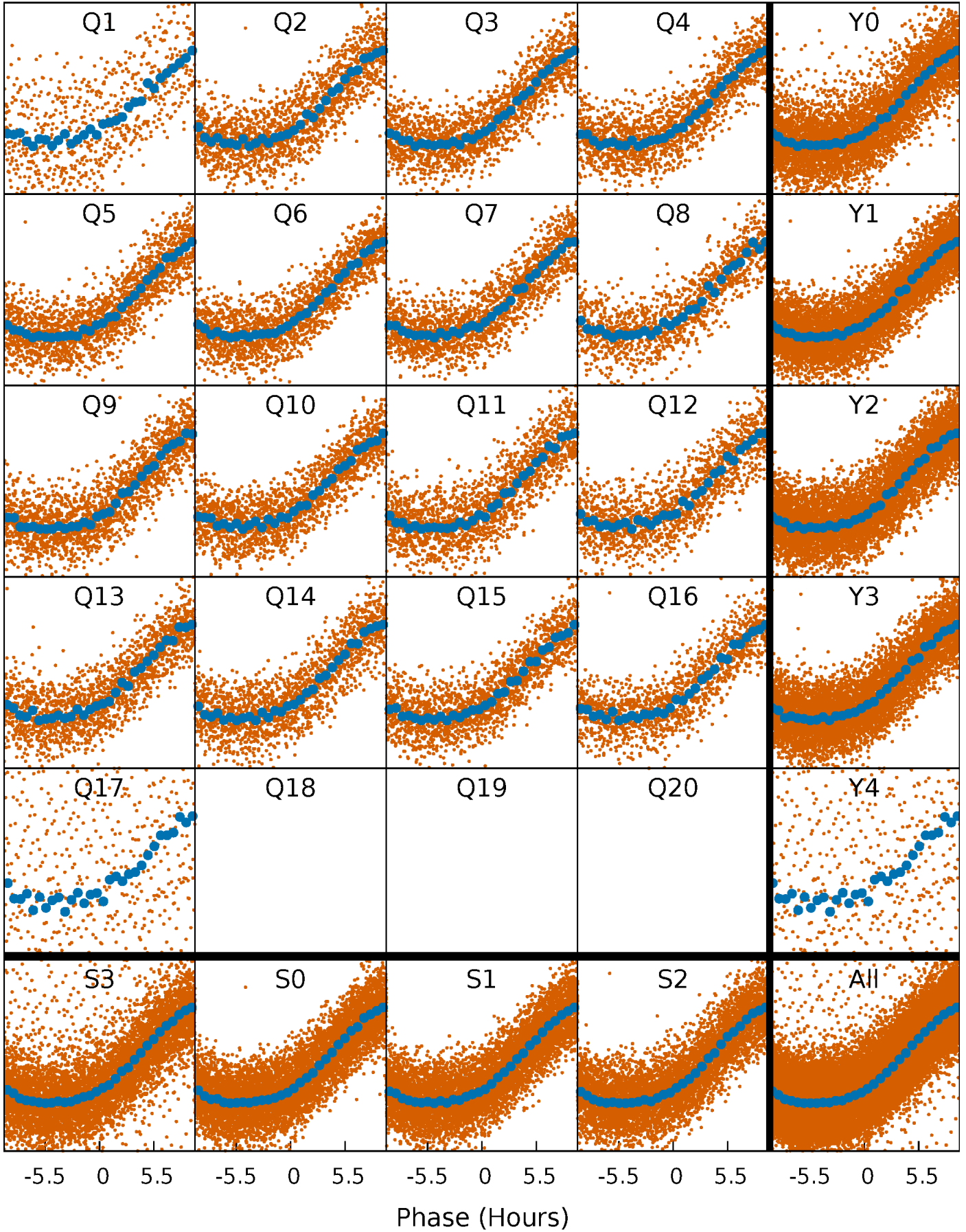


Non-Whitened Vs. Whitened Light Curve



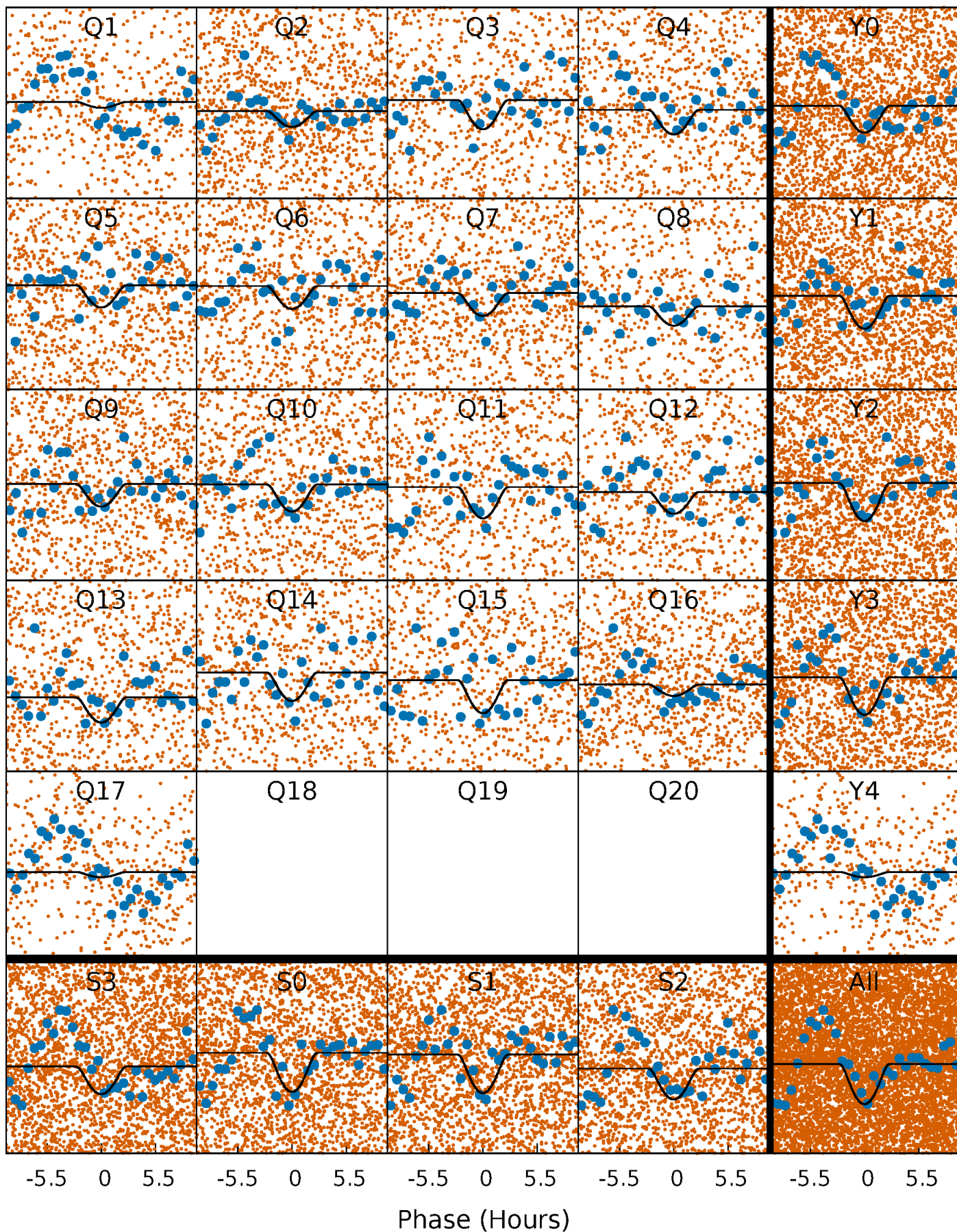
PDC Quarter-Phased Transit Curves

TCE 006041680-01 P= 2.051634 Days $T_0=132.096585$ (BKJD)



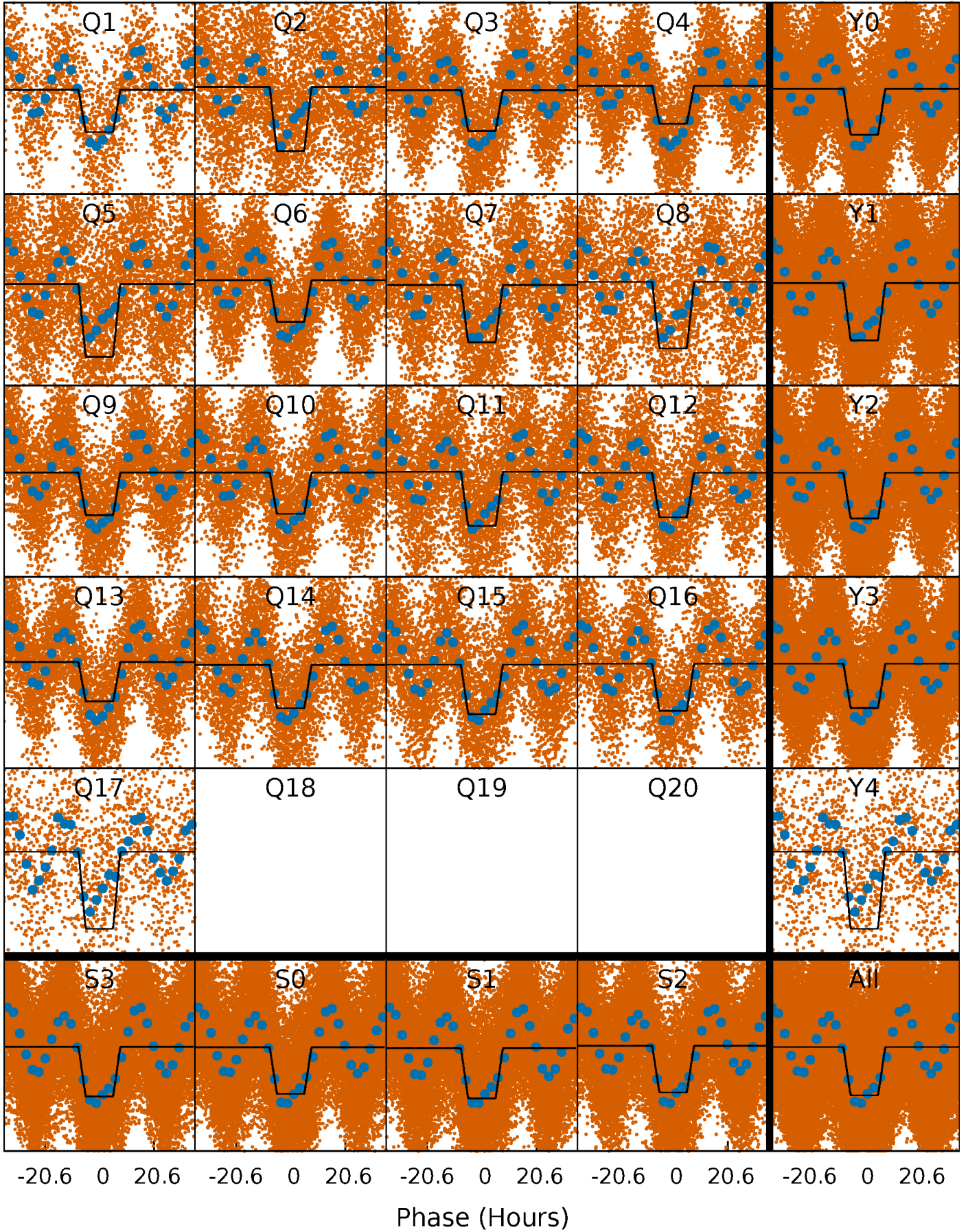
DV Quarter-Phased Transit Curves

TCE 006041680-01 P= 2.051634 Days $T_0=132.096585$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

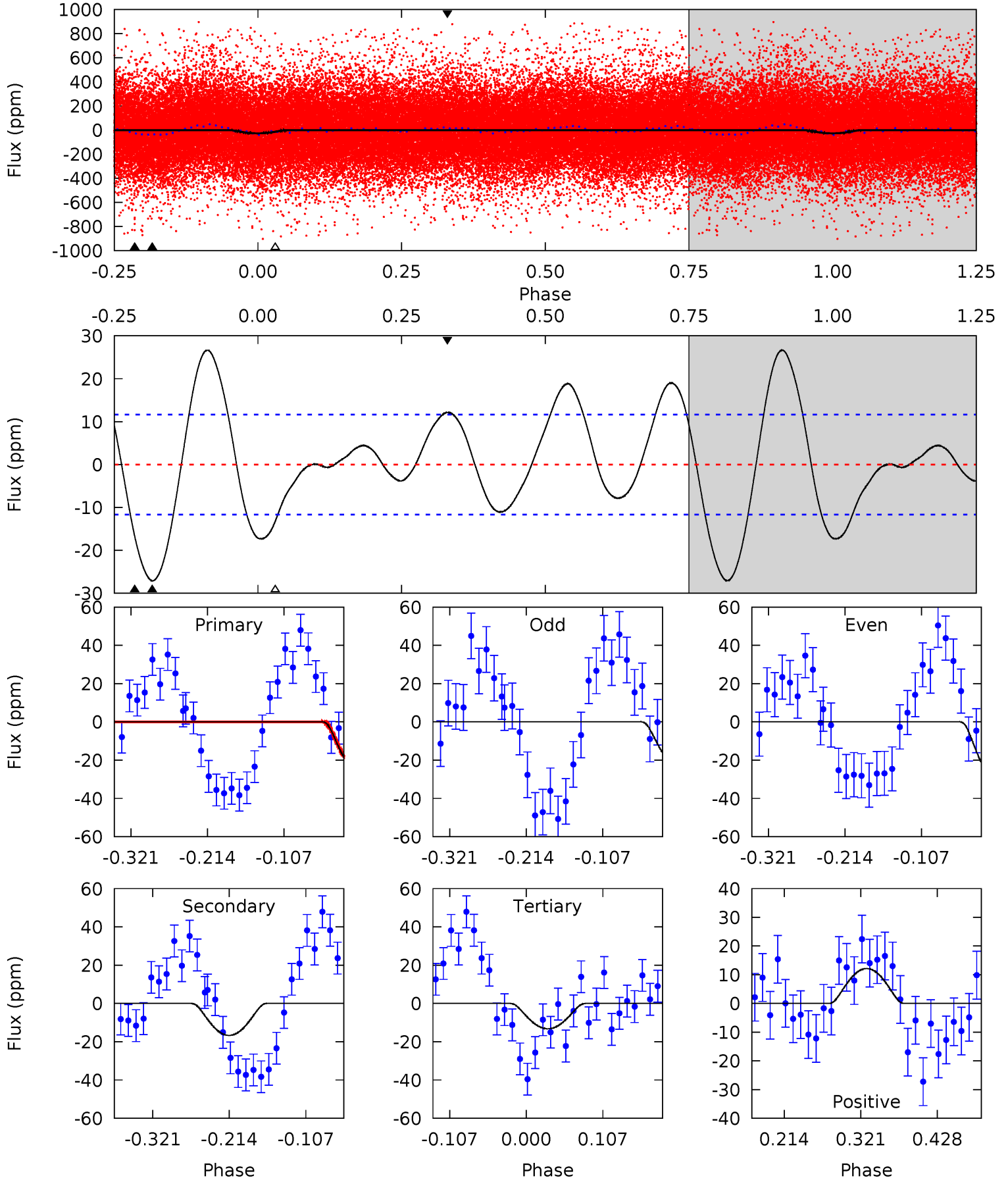
TCE 006041680-01 P= 2.051606 Days $T_0=131.878939$ (BKJD)



DV Model-Shift Uniqueness Test

006041680-01, P = 2.051634 Days, E = 130.044951 Days

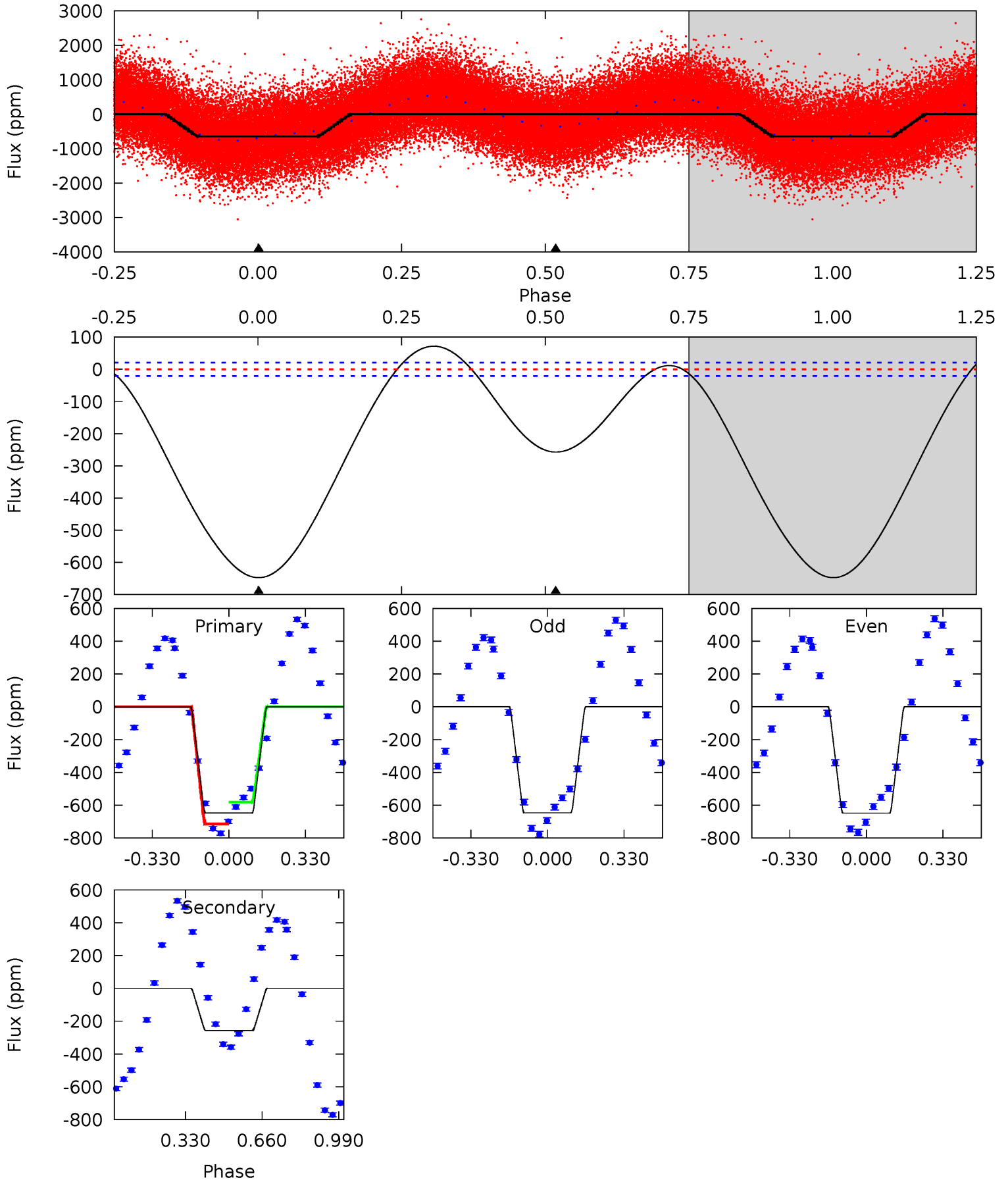
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.6 | 6.52 | 5.16 | 4.74 | 4.55 | 1.61 | 3.56 | 5.42 | 5.83 | 1.37 | 1.78 | 1.51 | 0.72 | 0.50 | 0.36 |



Alt Model-Shift Uniqueness Test

006041680-01, P = 2.051606 Days, E = 129.827333 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 134.7 | 53.5 | 0 | 0 | 4.31 | 0.97 | 8.24 | 134.7 | 134.7 | 53.5 | 53.5 | 0.20 | 0.98 | 0.10 | 16.4 |



Stellar Parameters For KIC 006041680

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 7761^{+69}_{-85} | $4.455^{+0.008}_{-0.144}$ | $-0.500^{+0.100}_{-0.150}$ | $1.075^{+0.251}_{-0.014}$ | $1.320^{+0.047}_{-0.053}$ | $1.495^{+0.050}_{-0.719}$ |
| | +1%/-1% | +0%/-3% | +20%/-30% | +23%/-1% | +4%/-4% | +3%/-48% |
| Source | SPE68 | SPE68 | SPE68 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006041680-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|--------------|------------------------|---------------------|------------------------|----------------------------|
| DV | -17 ± 3 | $4.67^{+5.23}_{-3.20}$ | 2806^{+121}_{-73} | 2795^{+1866}_{-5573} | $0.496^{+4.515}_{-0.388}$ |
| Alt. | -257 ± 5 | $5.72^{+5.21}_{-4.03}$ | 2803^{+127}_{-75} | 4700^{+4259}_{-1100} | $5.164^{+53.366}_{-3.753}$ |

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 $A_{obs} \gg 1.0$

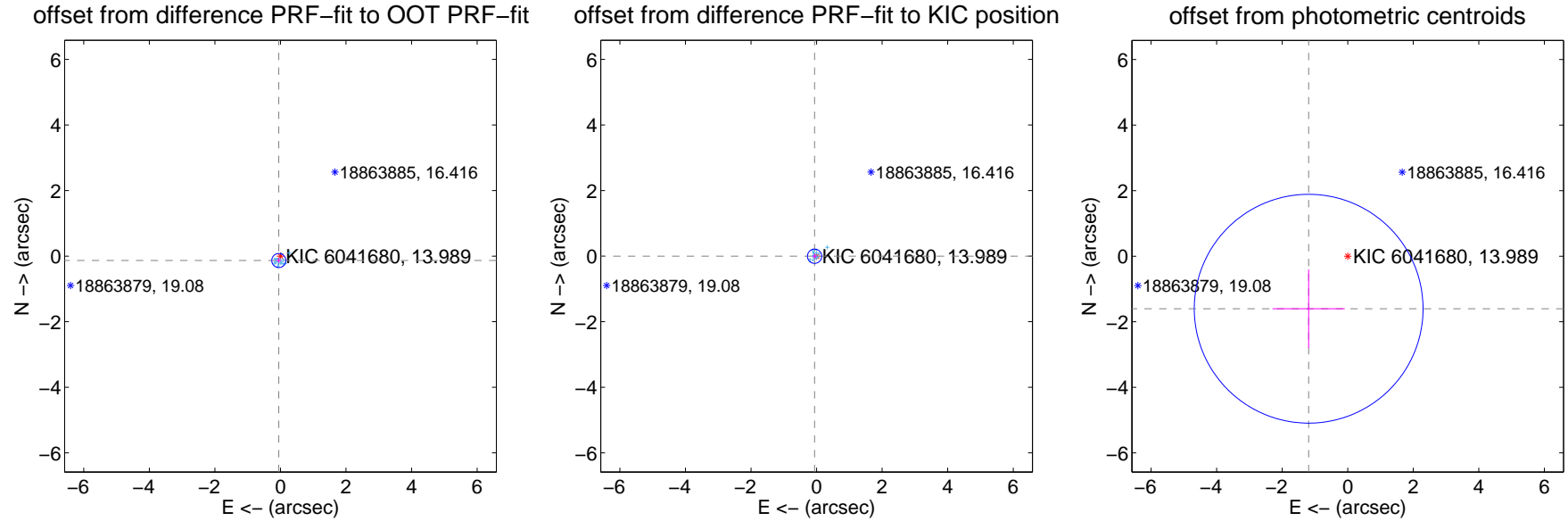
DV Centroid Data

Supplemental centroid analysis for 006041680-01. Kepler magnitude: 13.99. Transit SNR 8.81

There are 17 quarters with good PRF difference image offsets

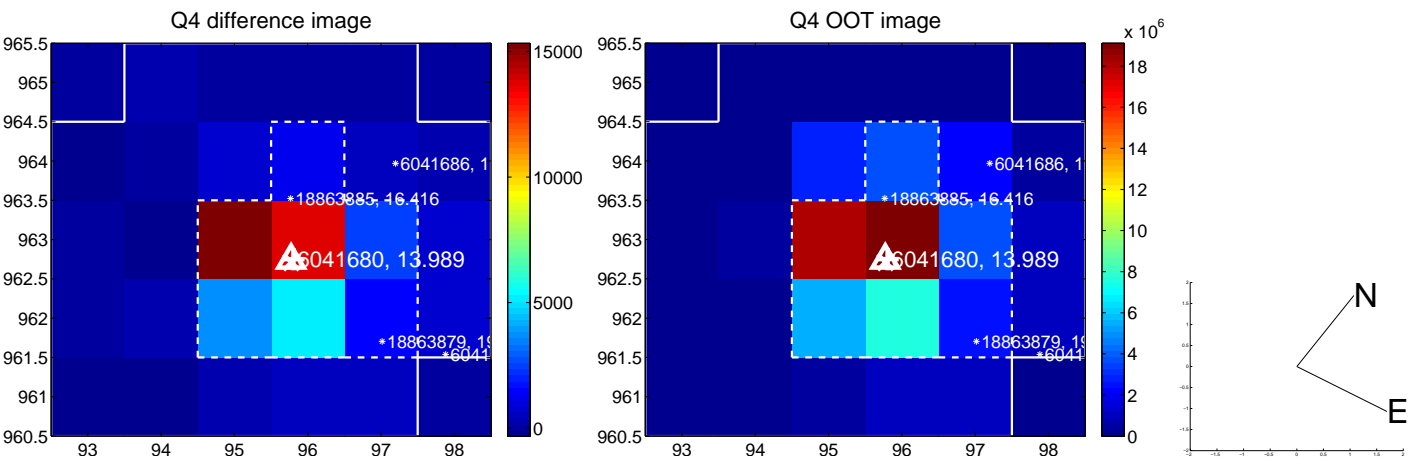
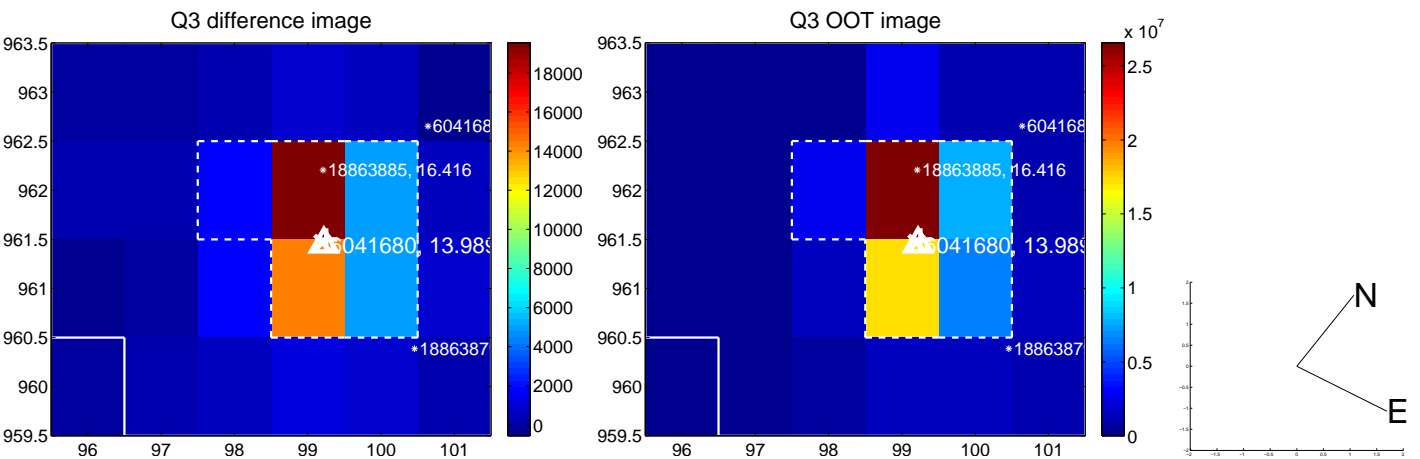
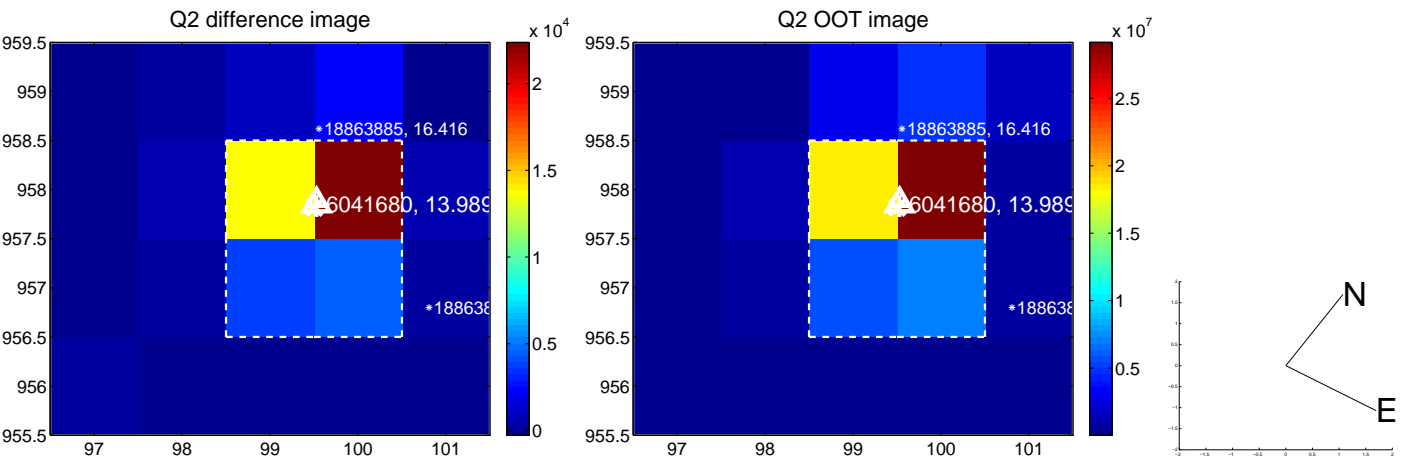
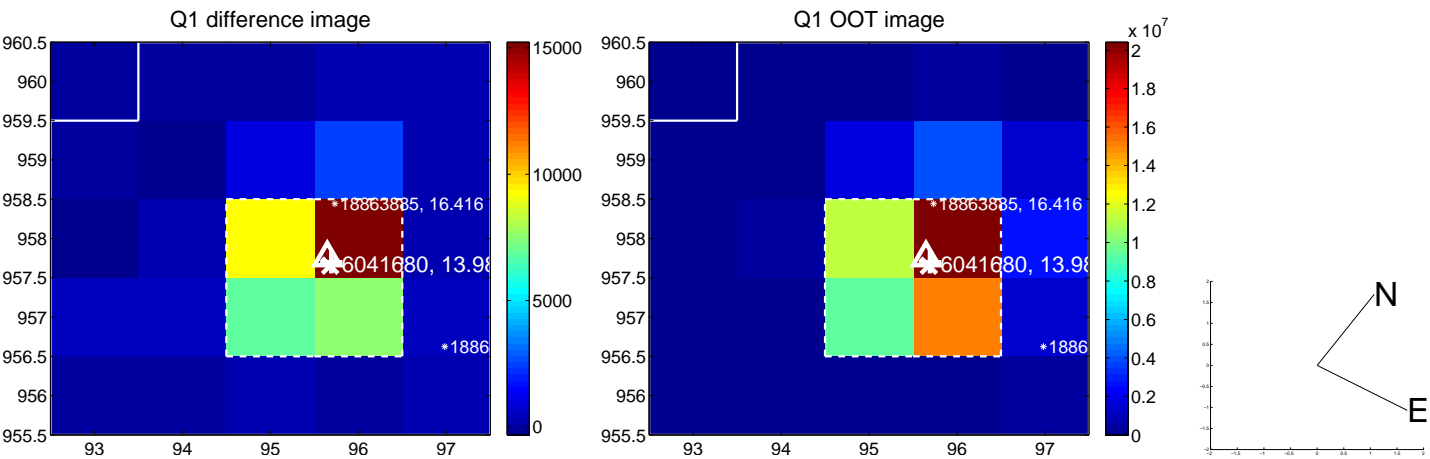
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.143 ± 0.072 | 2.00 | 0.050 ± 0.071 | -0.134 ± 0.071 |
| PRF-fit source offset from KIC position | 0.060 ± 0.073 | 0.83 | 0.060 ± 0.072 | -0.003 ± 0.072 |
| photometric centroid source offset | 2.00 ± 1.16 | 1.72 | 1.19 ± 1.10 | -1.60 ± 1.20 |

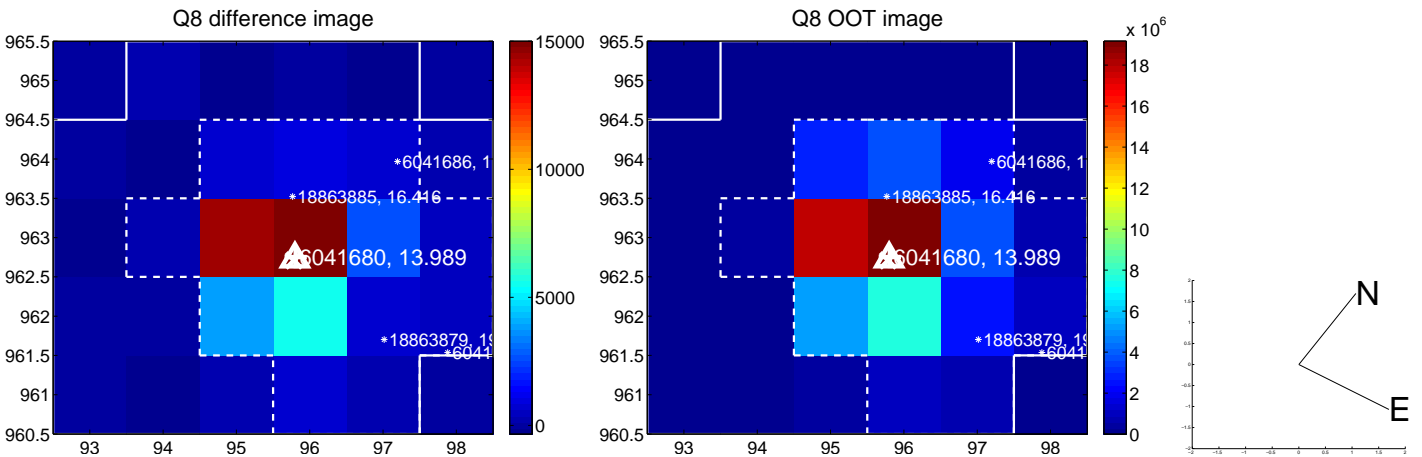
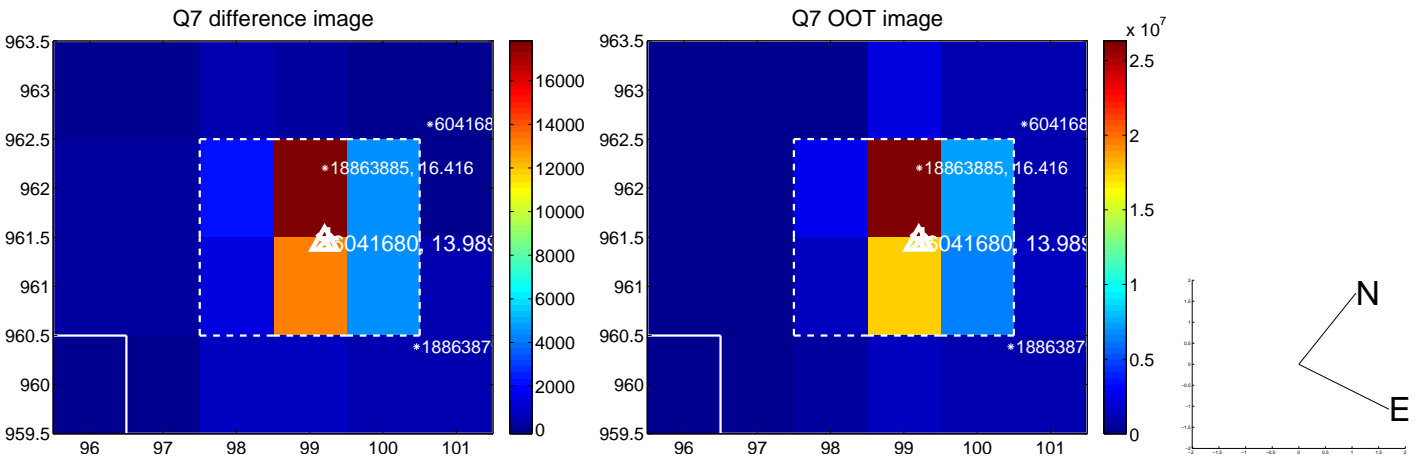
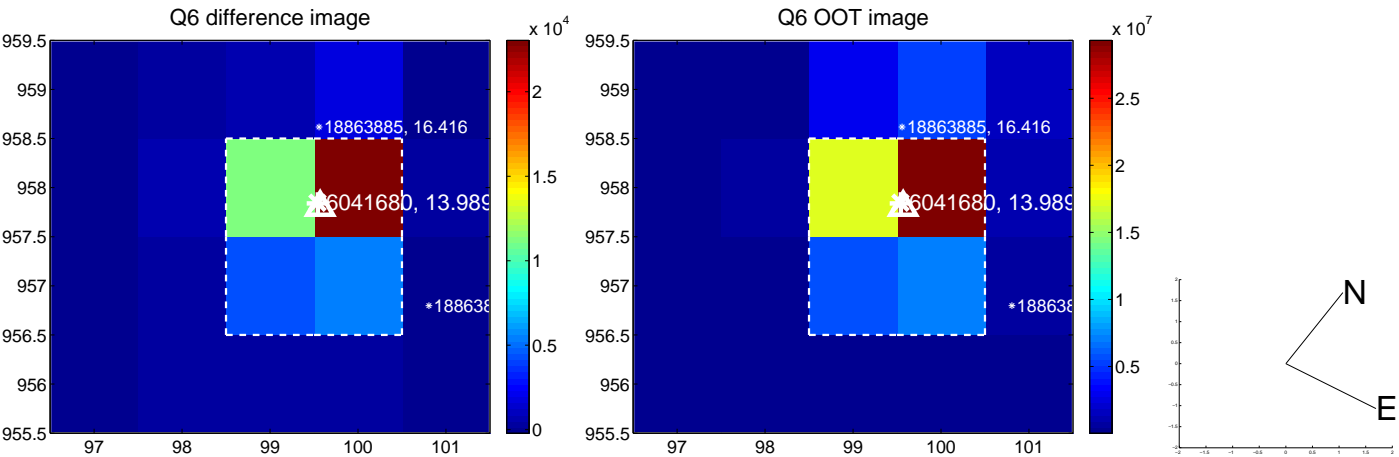
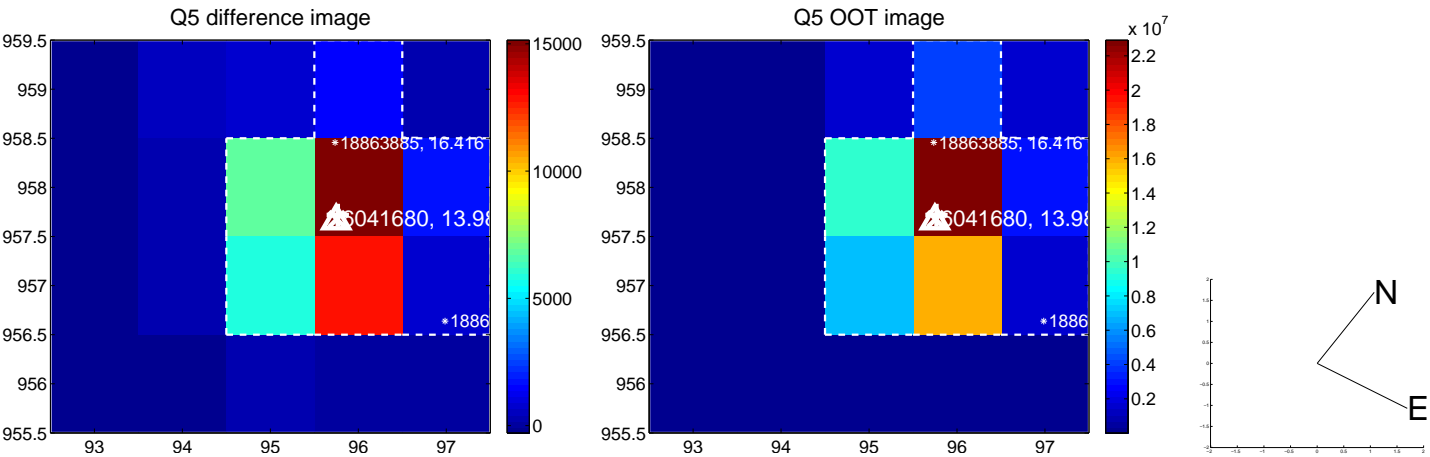


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

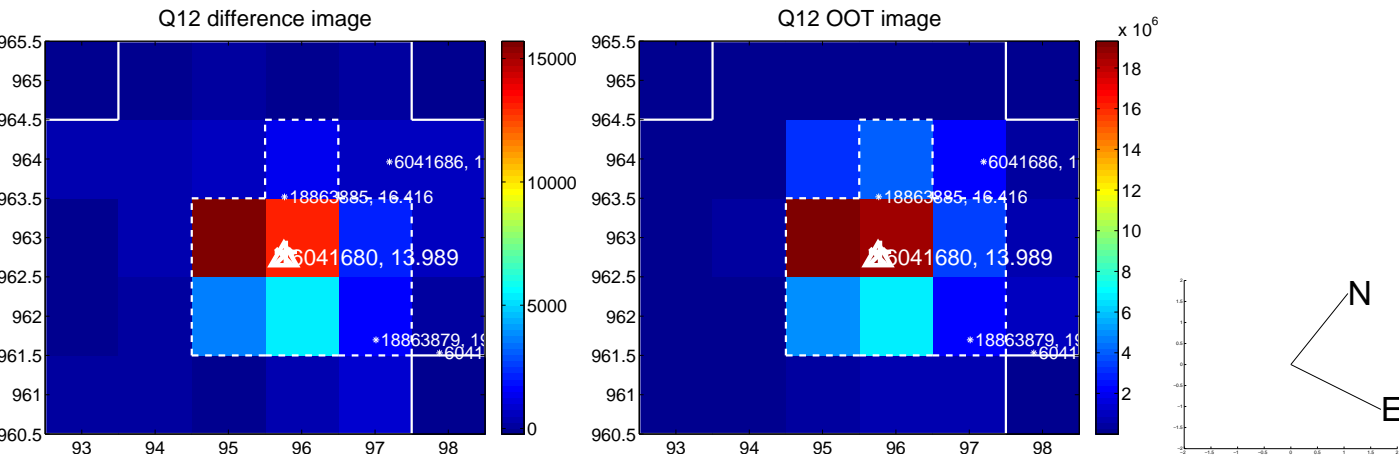
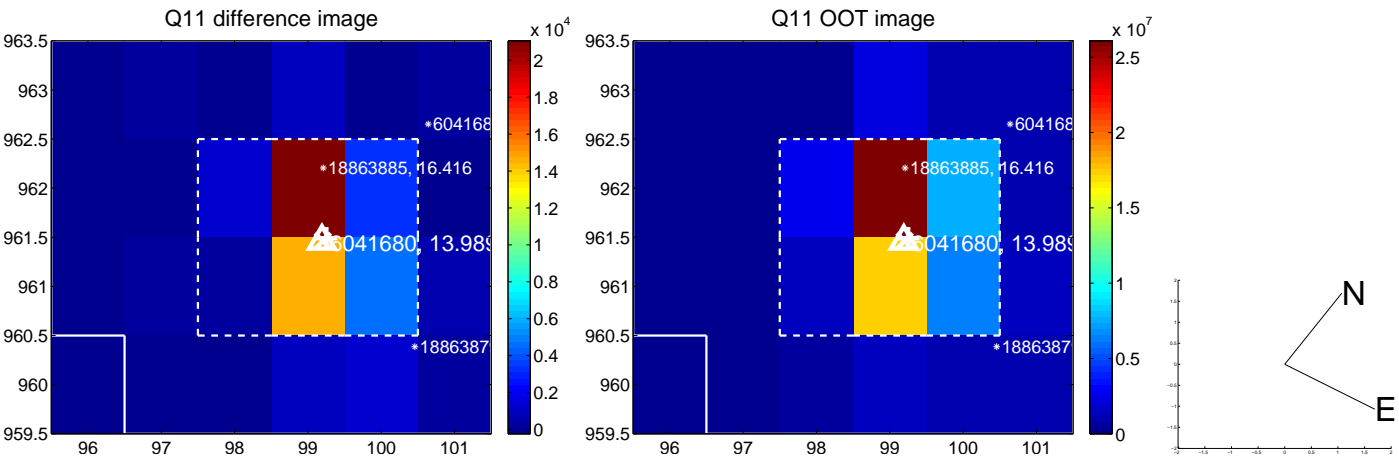
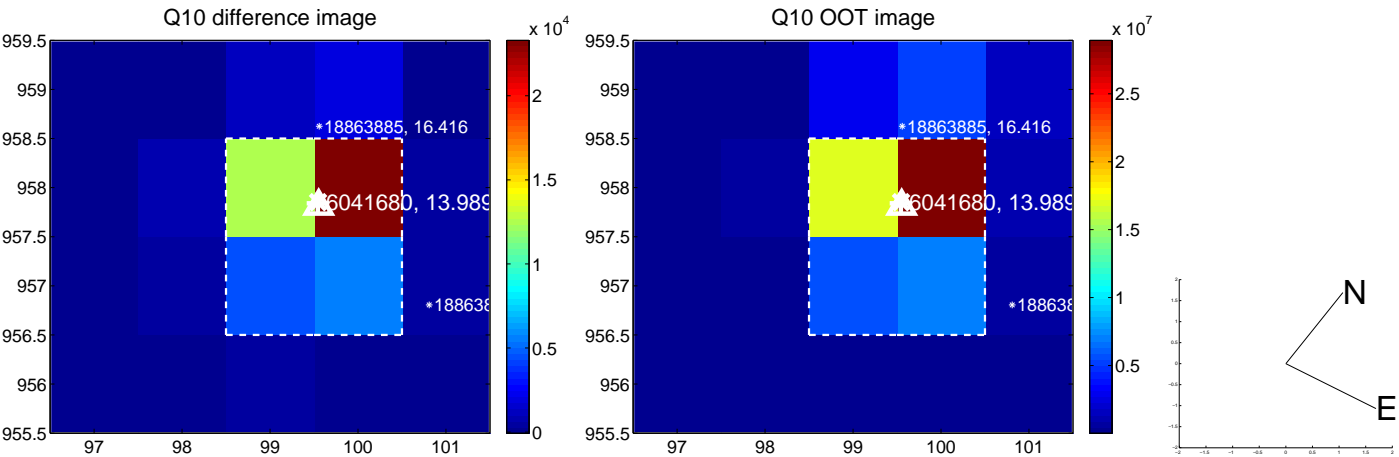
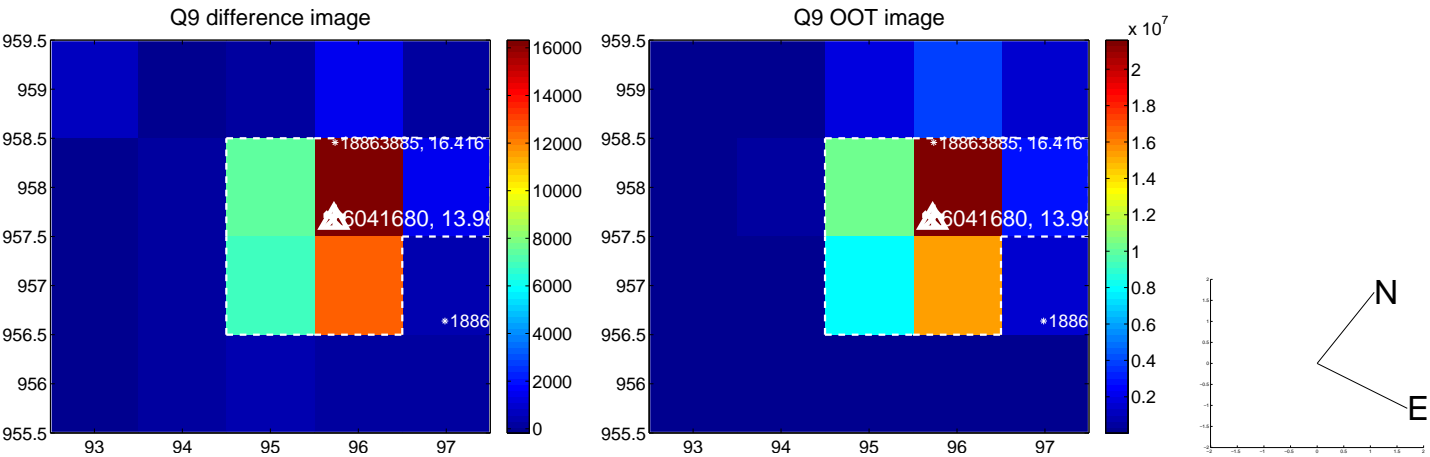
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



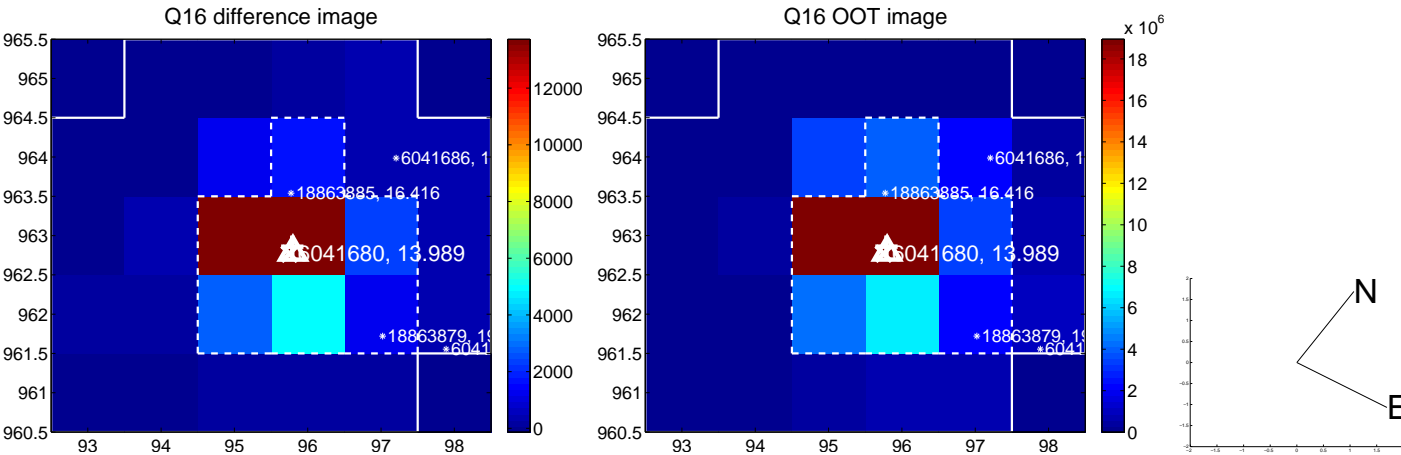
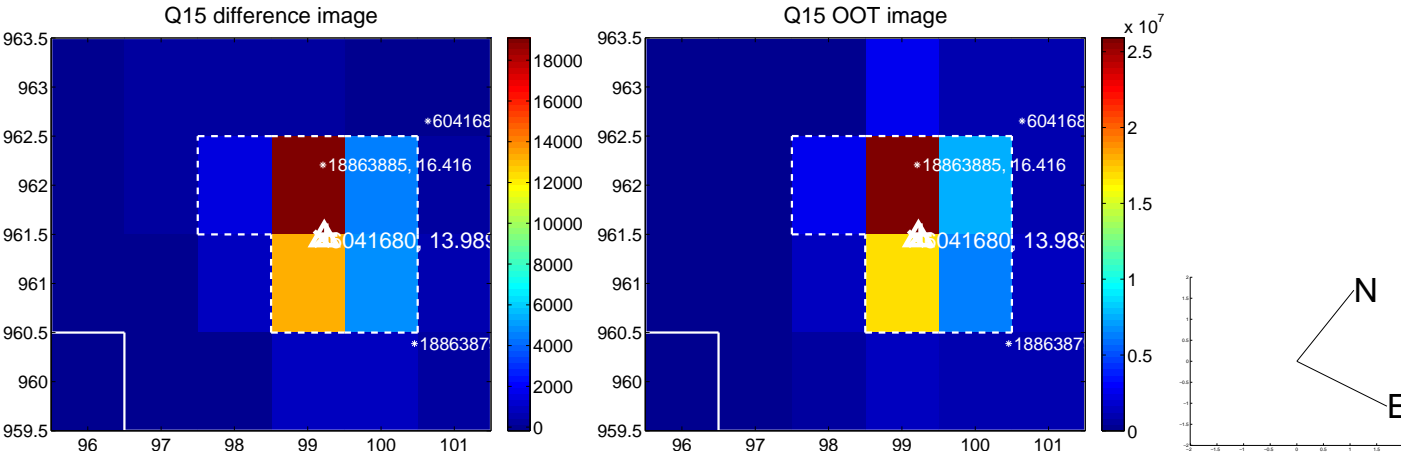
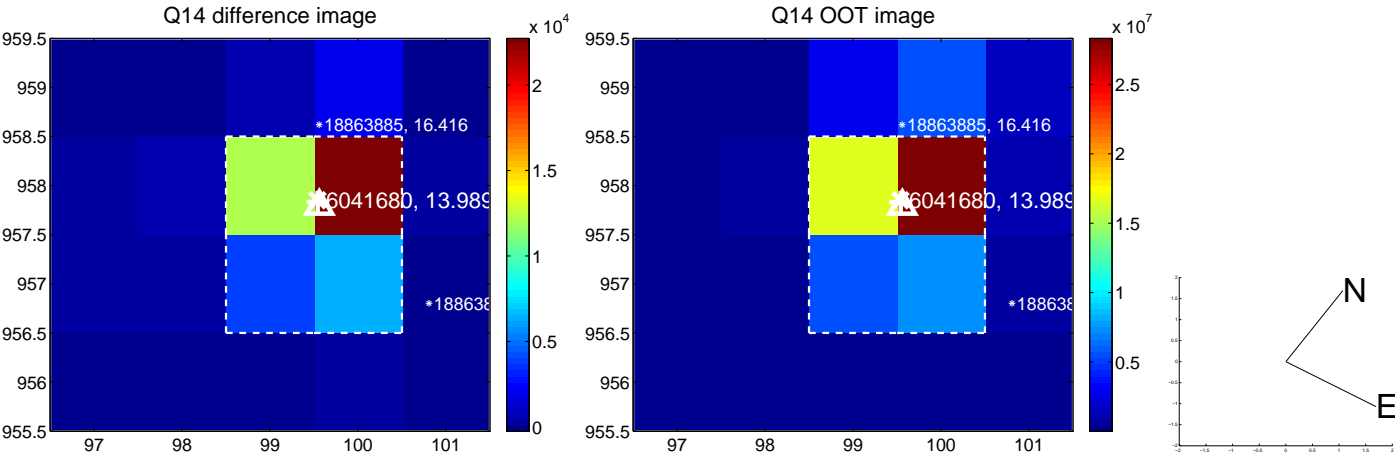
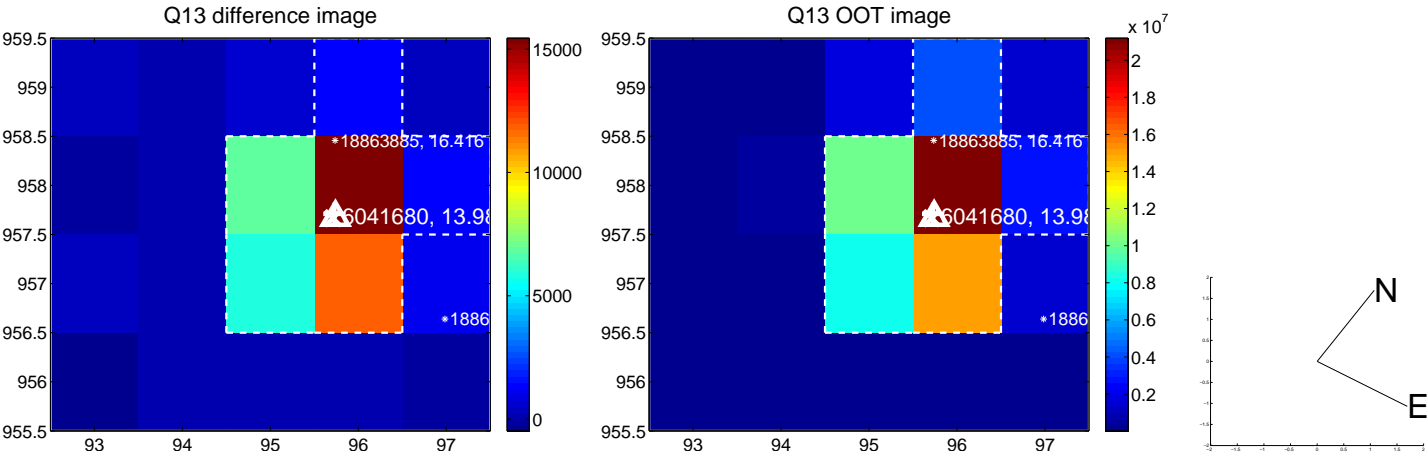
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



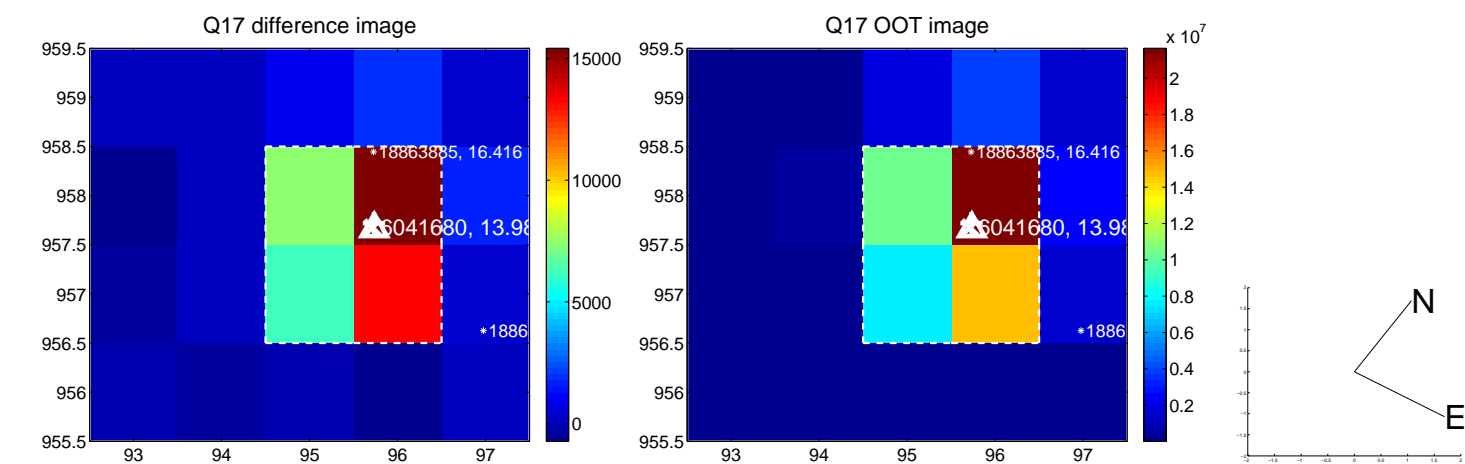
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



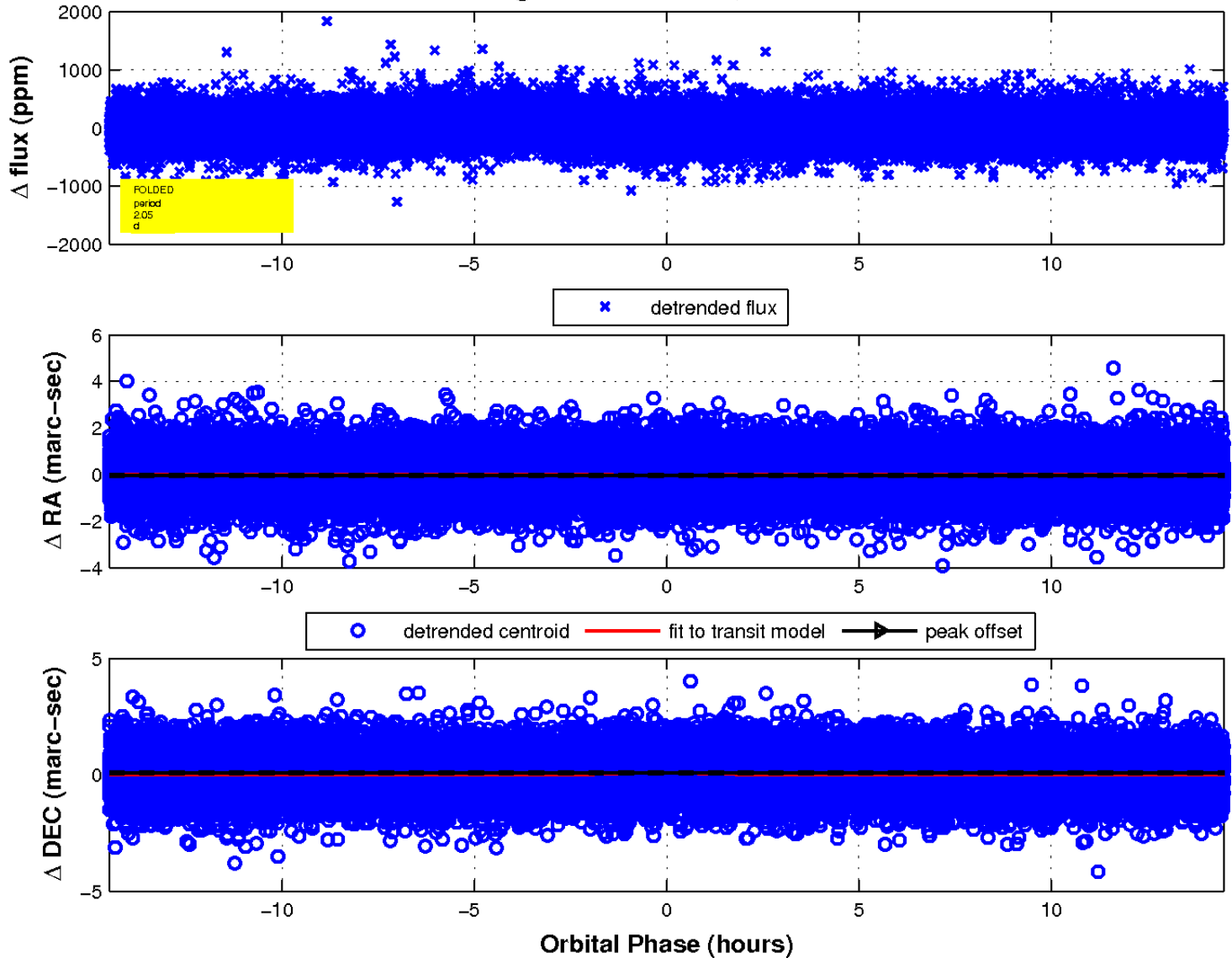
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

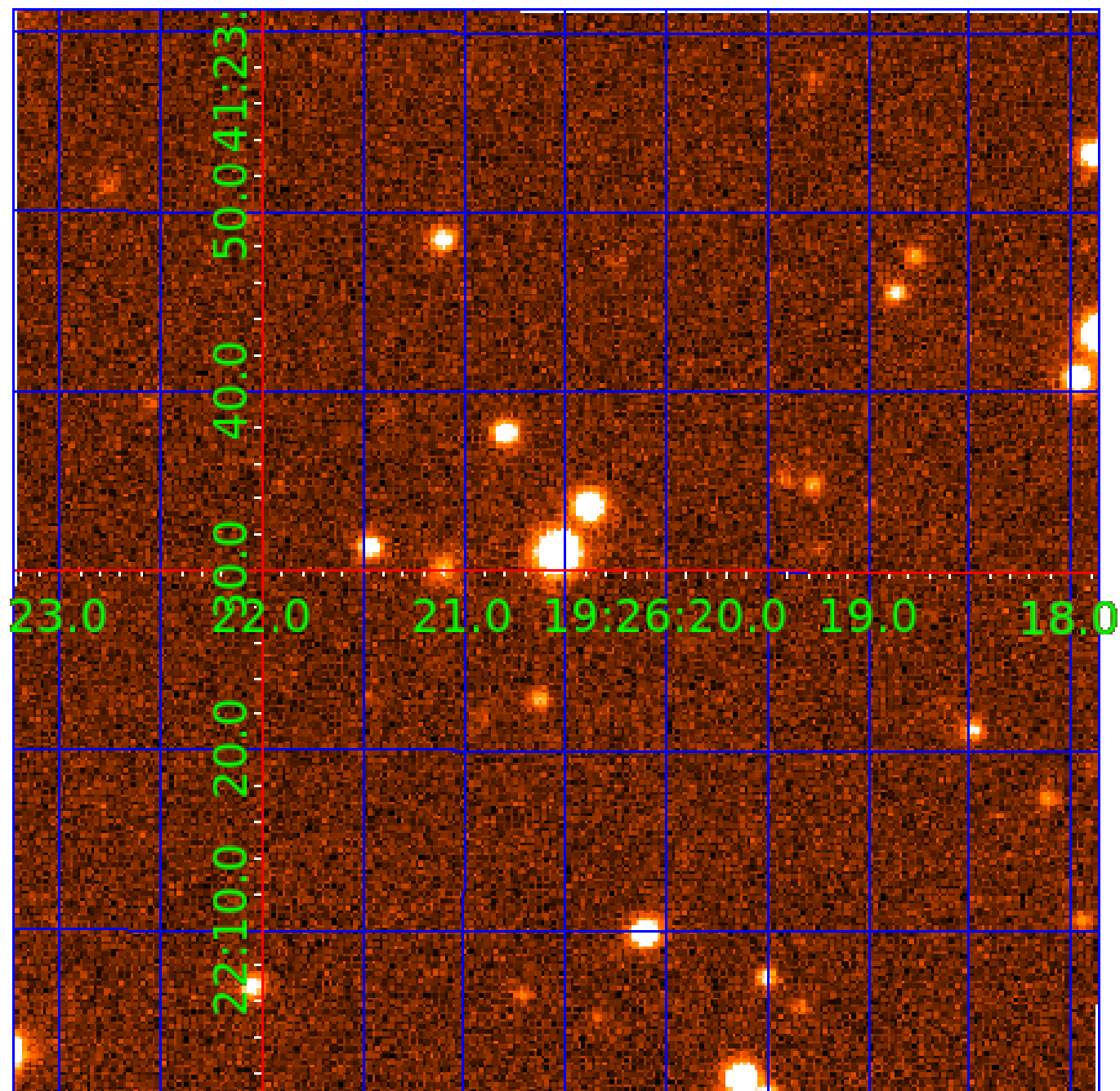


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 006041680

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}) |
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| 006041680-02 | OBS | No | 2.051574 | 131.830981 | 46.9 | 10.191 | 11.2 | 13.1 | 1.07 | 7761 | 0.95 | 3327.01 |
| 006041680-03 | OBS | No | 40.289743 | 155.839286 | 98.0 | 14.014 | 8.5 | 6.6 | 1.07 | 7761 | 1.20 | 62.79 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006041680-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV |
| 006041680-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 006041680-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_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.

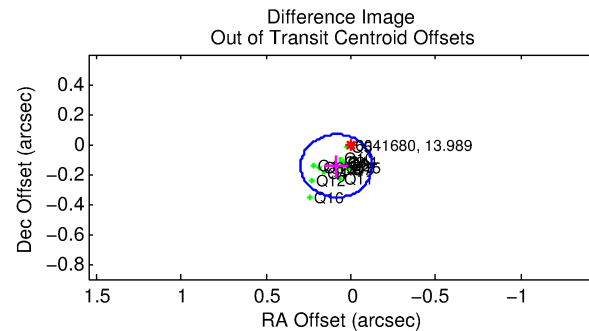
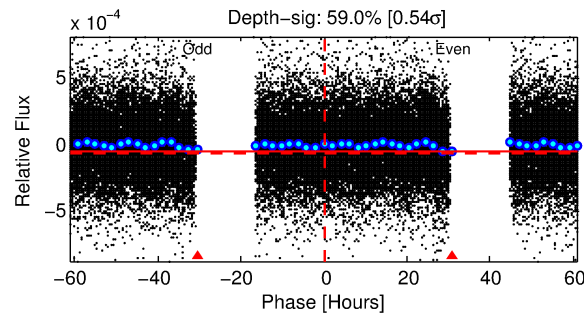
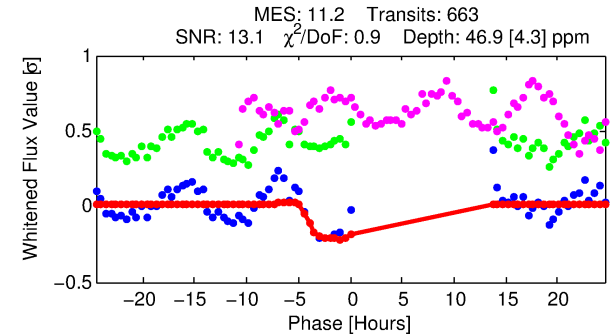
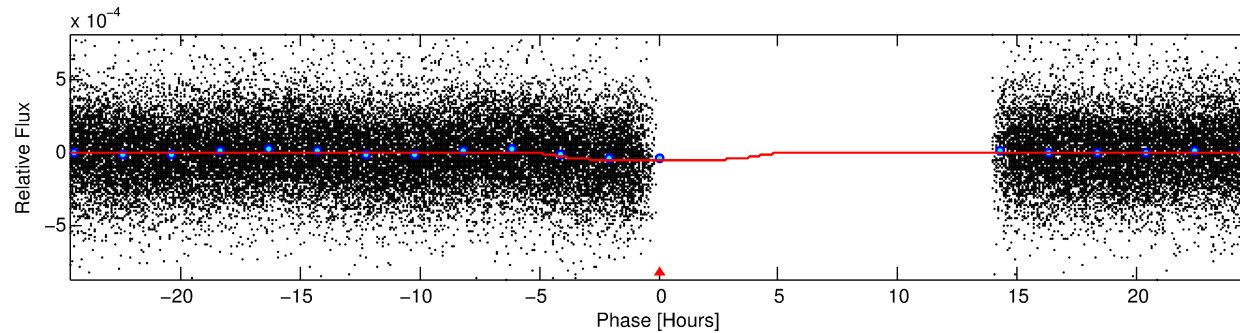
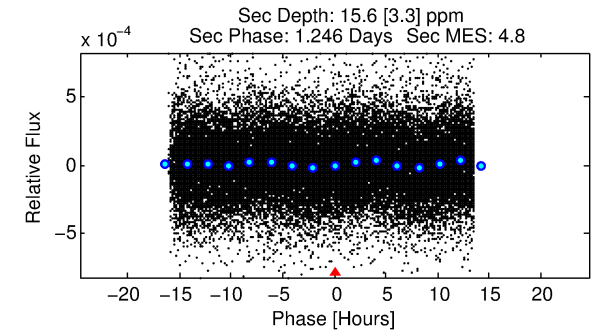
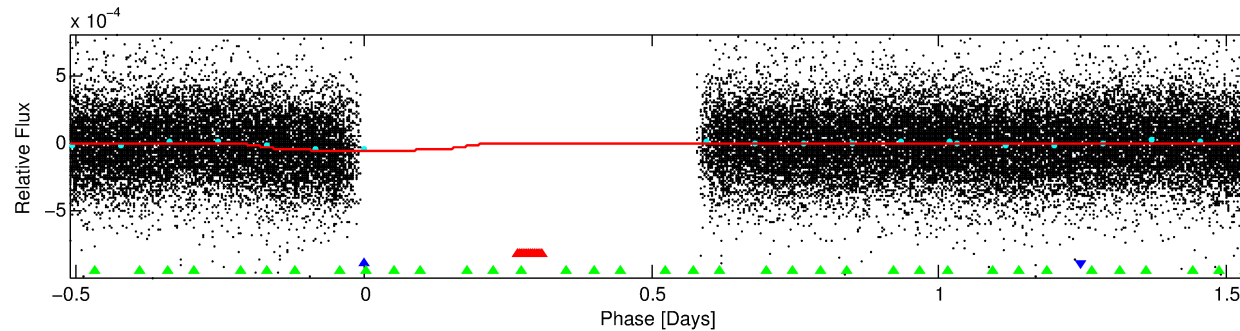
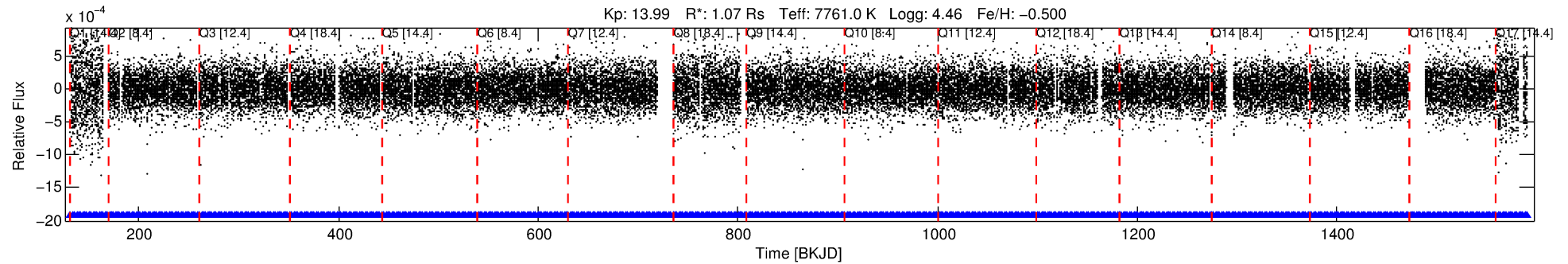
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006041680-02

No Significant Match Found

DV One-Page Summary

KIC: 6041680 Candidate: 2 of 3 Period: 2.052 d



DV Fit Results:

Period = 2.05157 [0.00004] d
Epoch = 131.8310 [0.0394] BKJD
Rp/R* = 0.0081 [0.0005]
a/R* = 1.05 [0.03]
b = 0.98 [0.01]
Seff = 3327.01 [911.21]
Teff = 1937 [133] K
Rp = 0.95 [0.23] Re
a = 0.0336 [0.0064] AU
Ag = 10.72 [3.89] [2.50σ]
Teffp = 5418 [334] K [9.70σ]

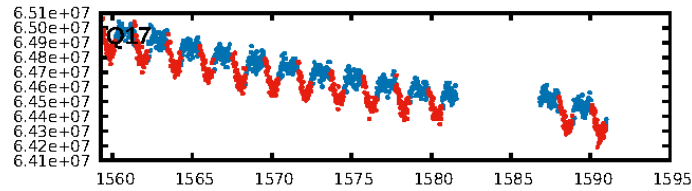
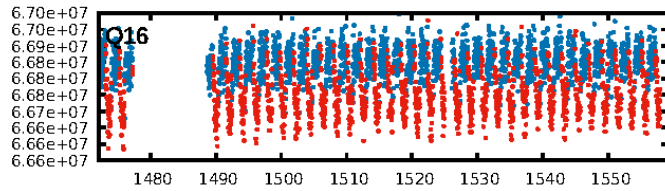
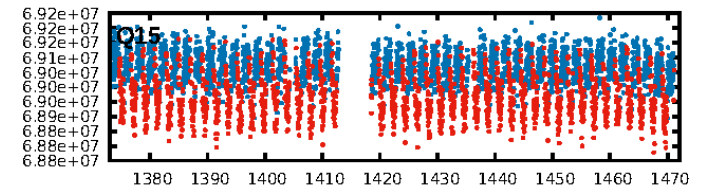
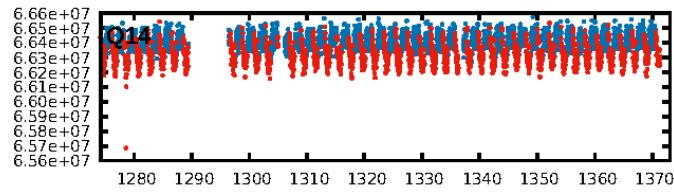
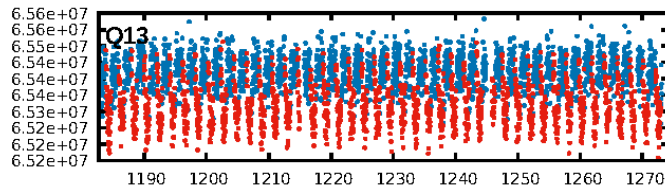
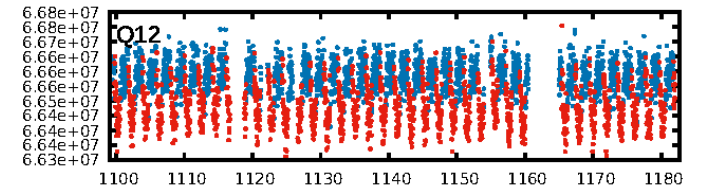
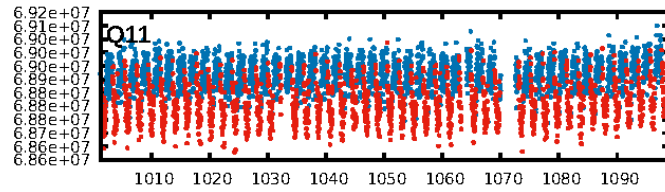
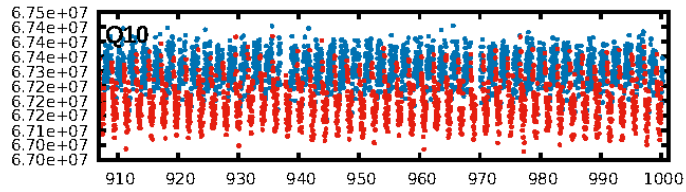
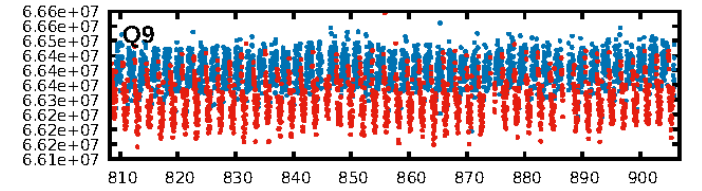
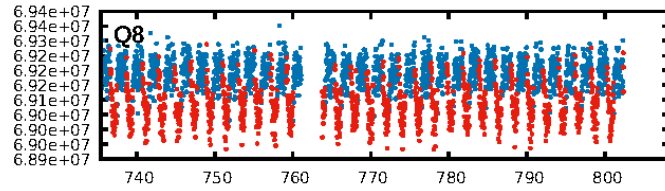
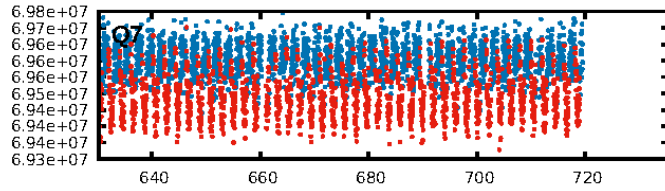
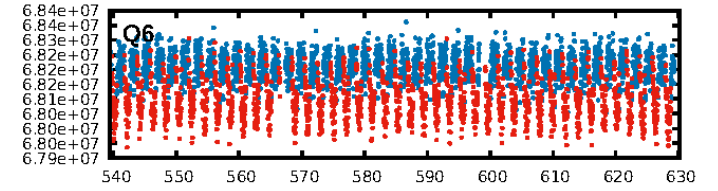
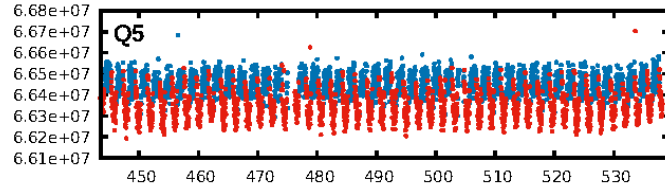
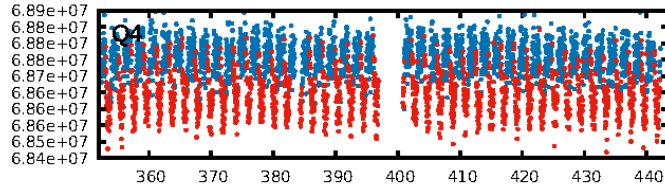
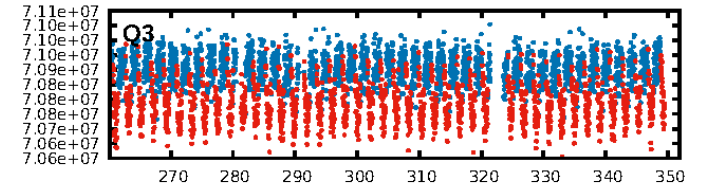
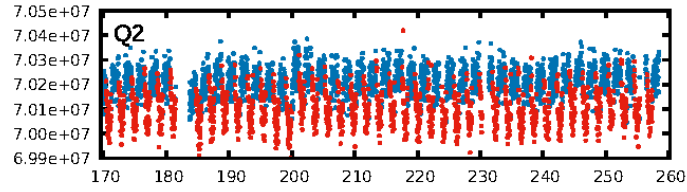
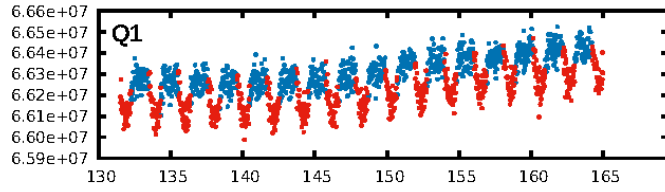
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.98e-22
RollingBand-fgt: 1.00 [633/633]
GhostDiagnostic-chr: 1.816
Centroid-sig: 3.8%
Centroid-so: 0.973 arcsec [2.07σ]
OotOffset-rm: 0.169 arcsec [2.41σ]
KicOffset-rm: 0.109 arcsec [1.58σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

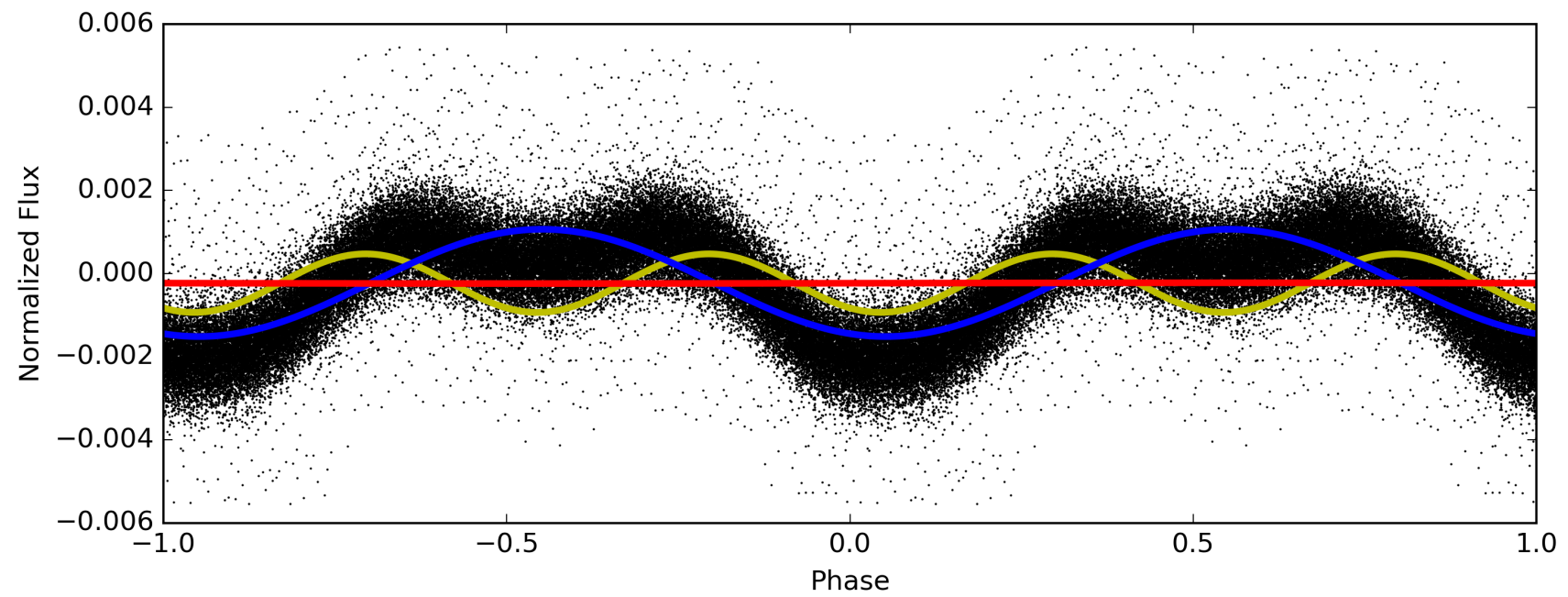
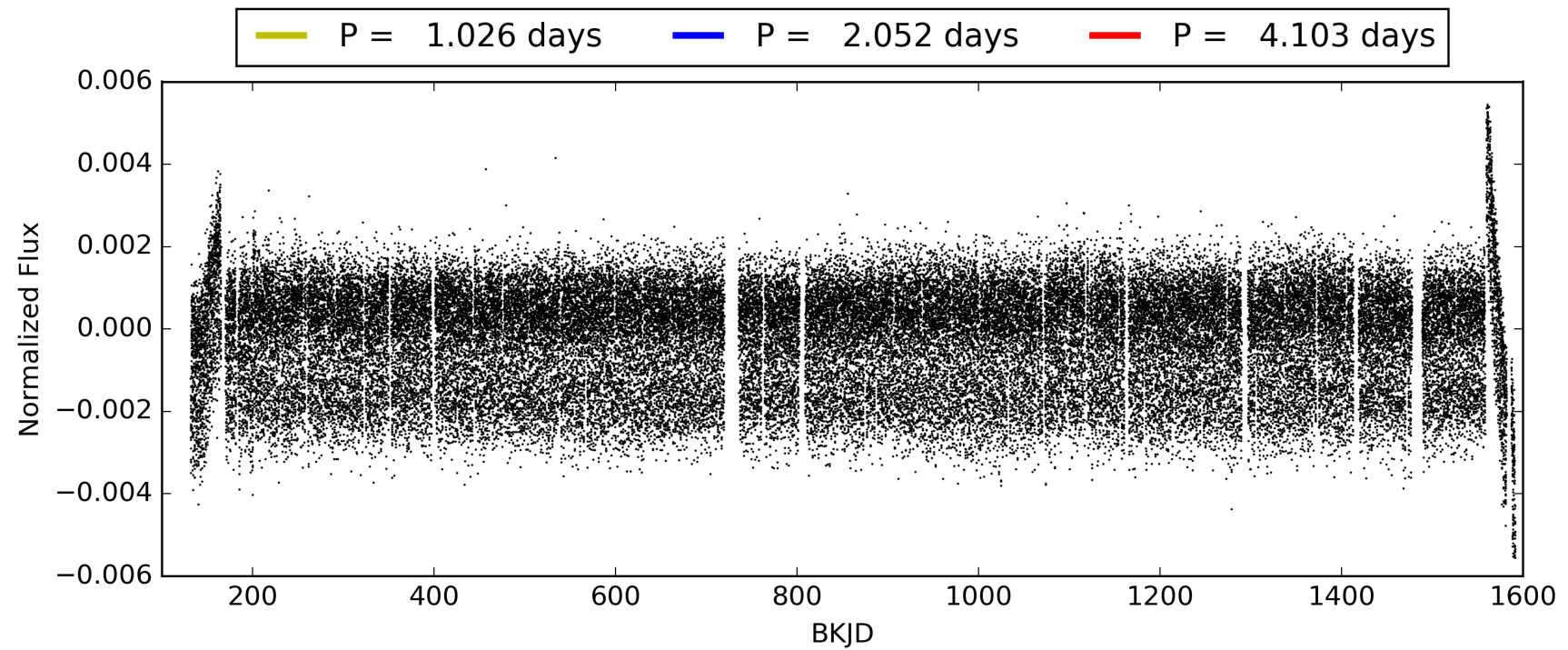
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:44:03 Z

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

TCE 006041680-02, PDC Light Curves

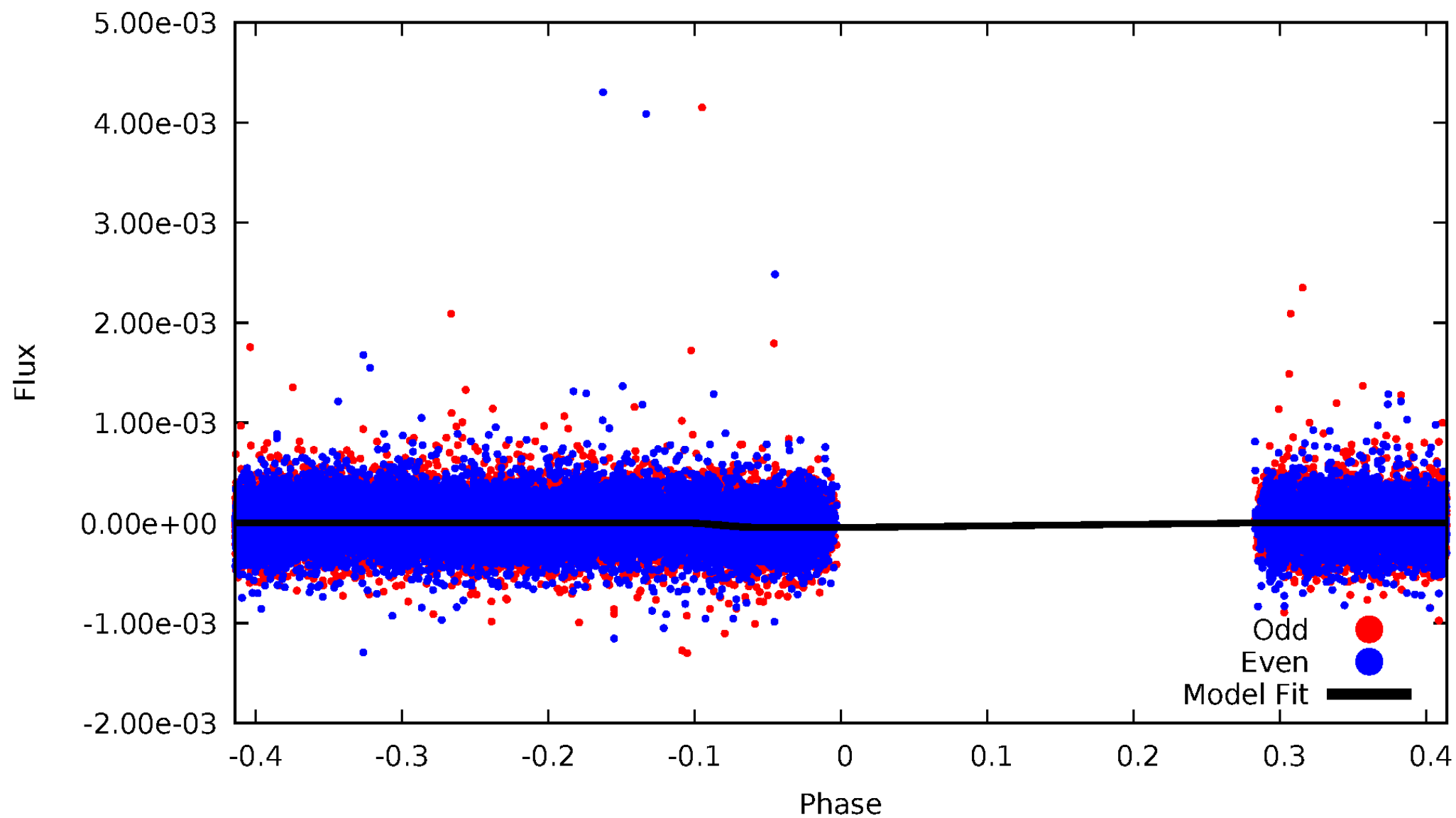


TCE 006041680-02



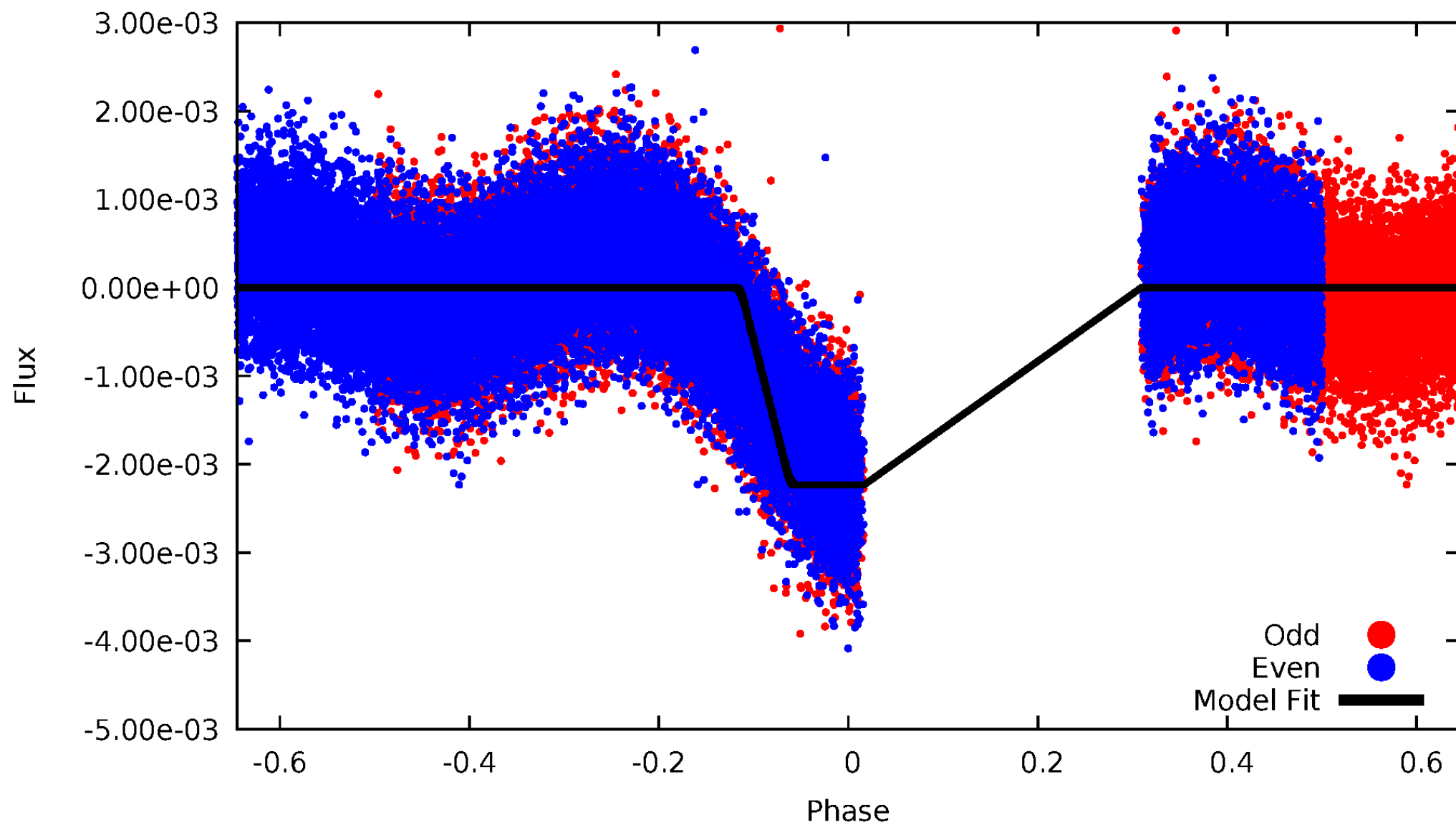
DV Odd/Even

TCE 006041680-02



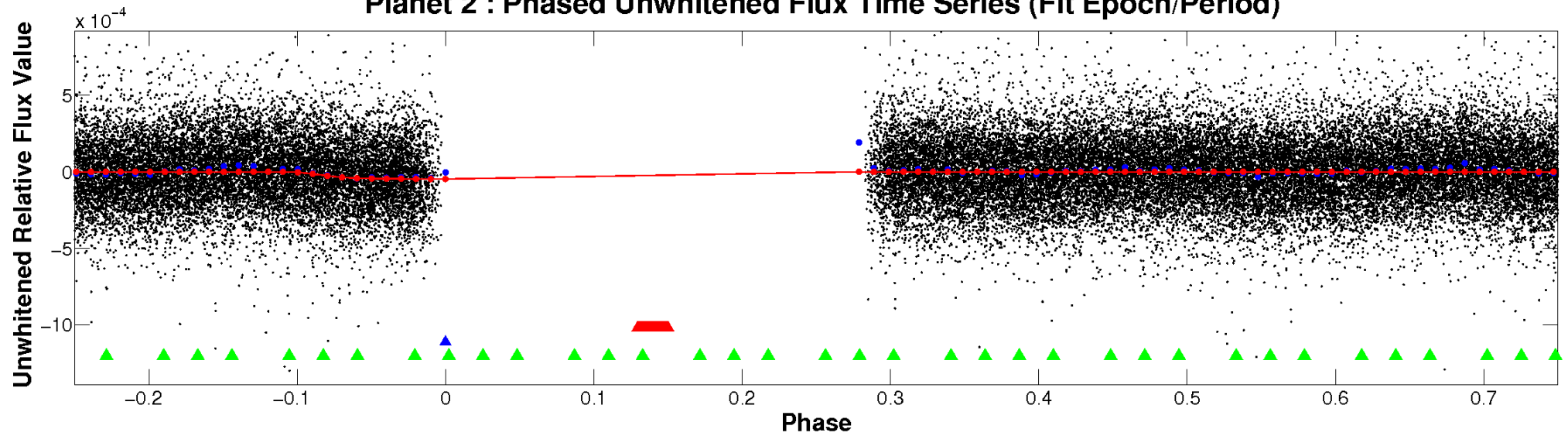
ALT Odd/Even

TCE 006041680-02

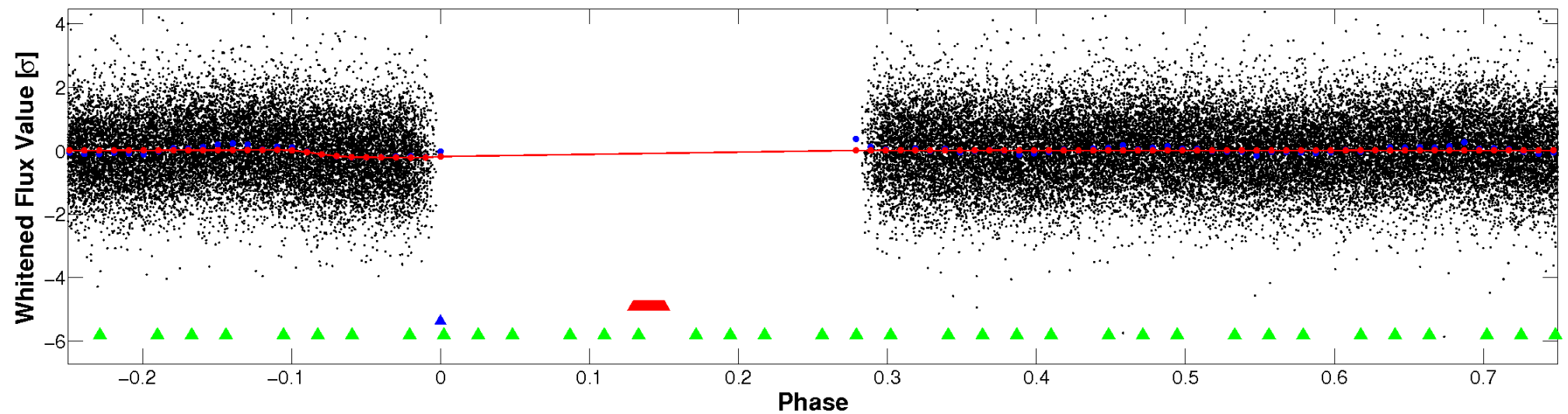


Non-Whitened Vs. Whitened Light Curve

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

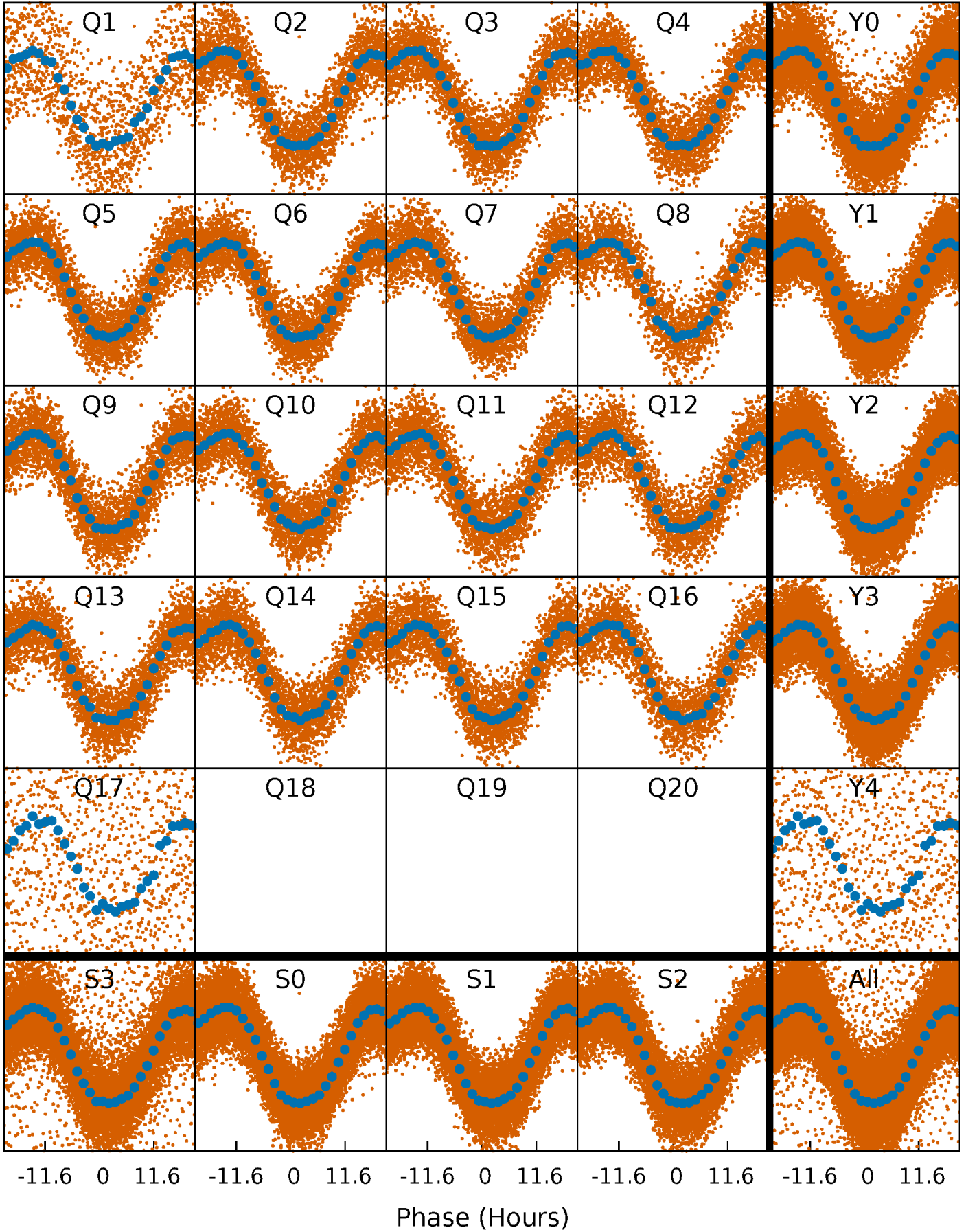


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



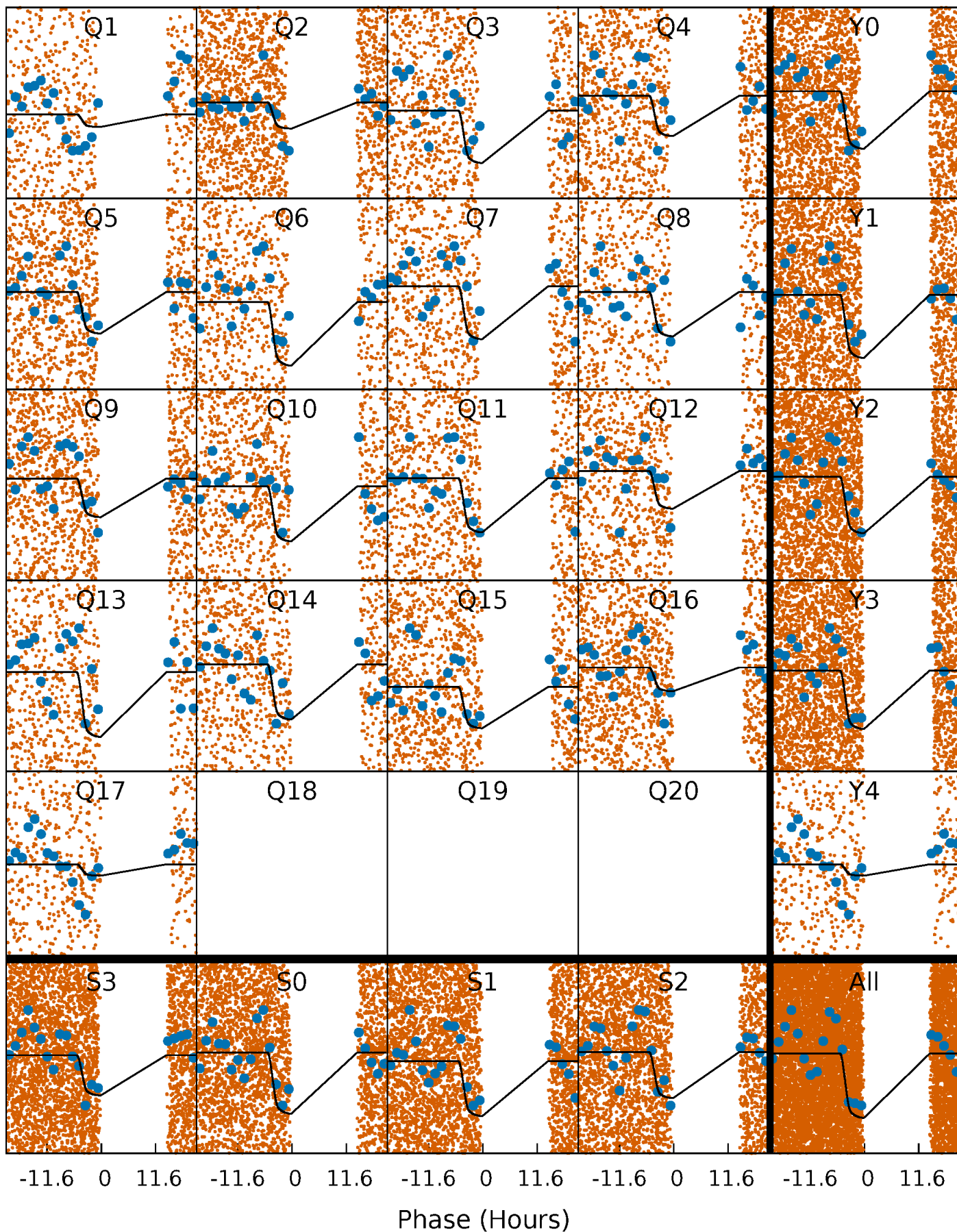
PDC Quarter-Phased Transit Curves

TCE 006041680-02 P= 2.051574 Days $T_0=131.830981$ (BKJD)



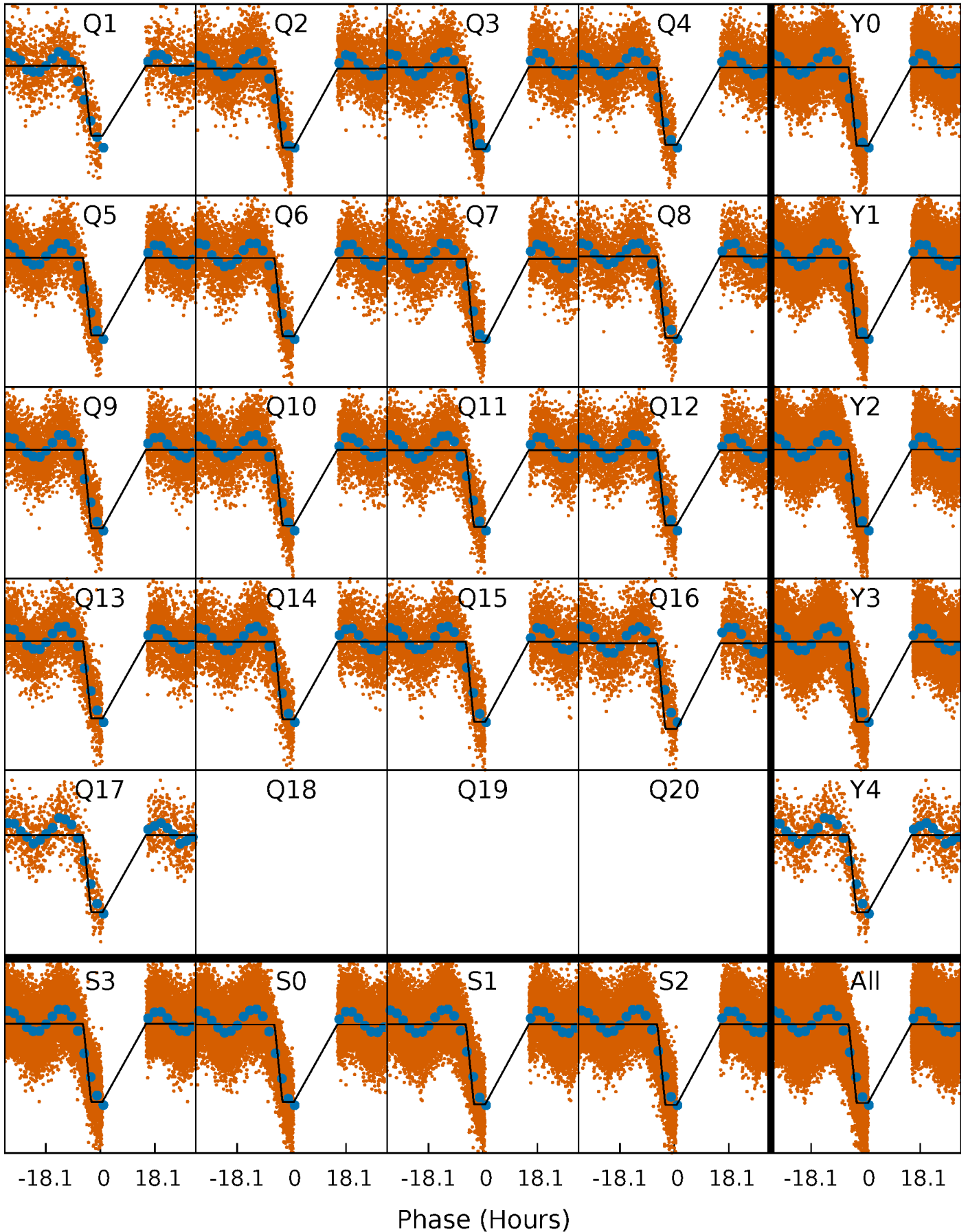
DV Quarter-Phased Transit Curves

TCE 006041680-02 P= 2.051574 Days $T_0=131.830981$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

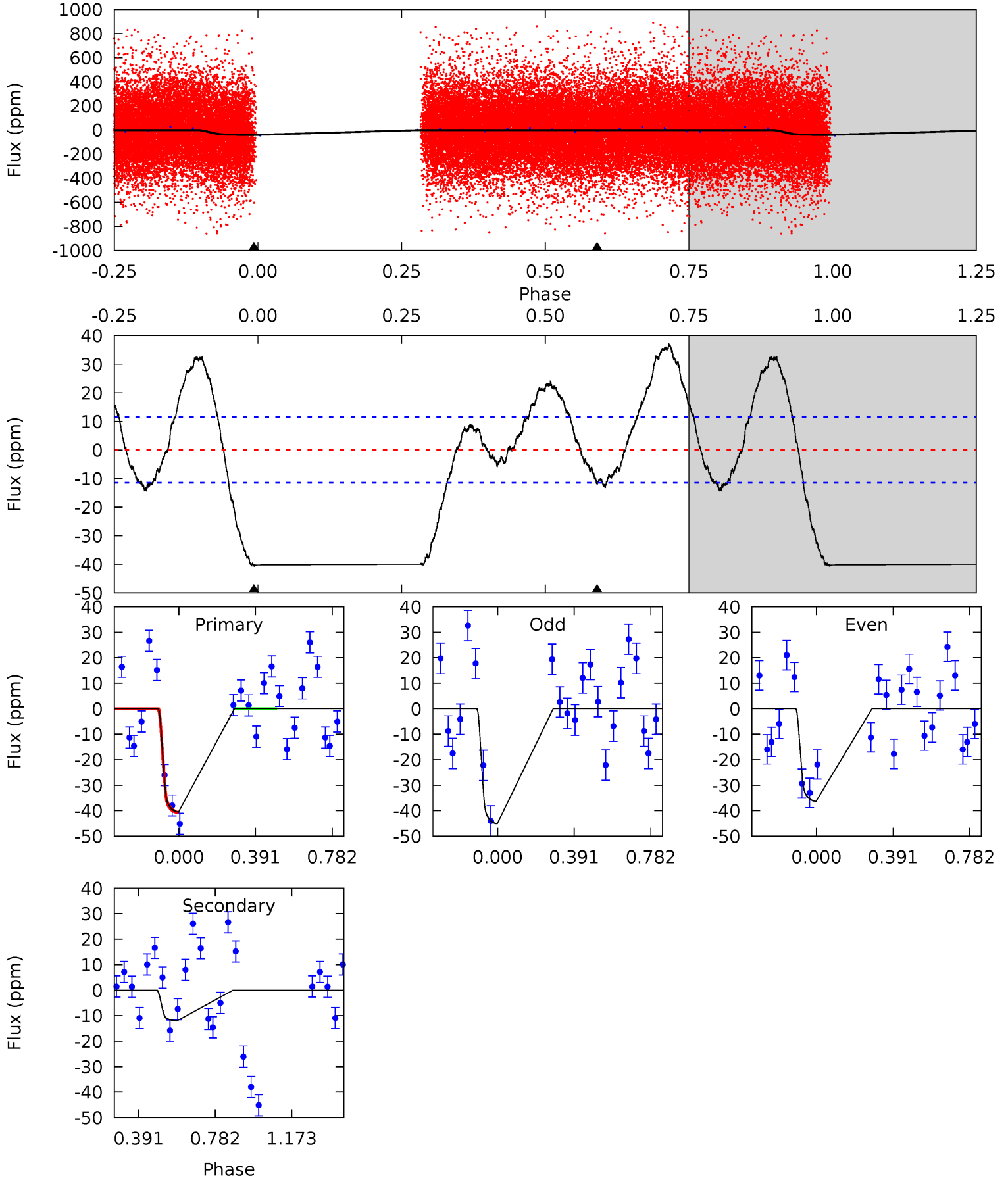
TCE 006041680-02 $P = 2.051596$ Days $T_0 = 131.776507$ (BKJD)



DV Model-Shift Uniqueness Test

006041680-02, P = 2.051574 Days, E = 129.779407 Days

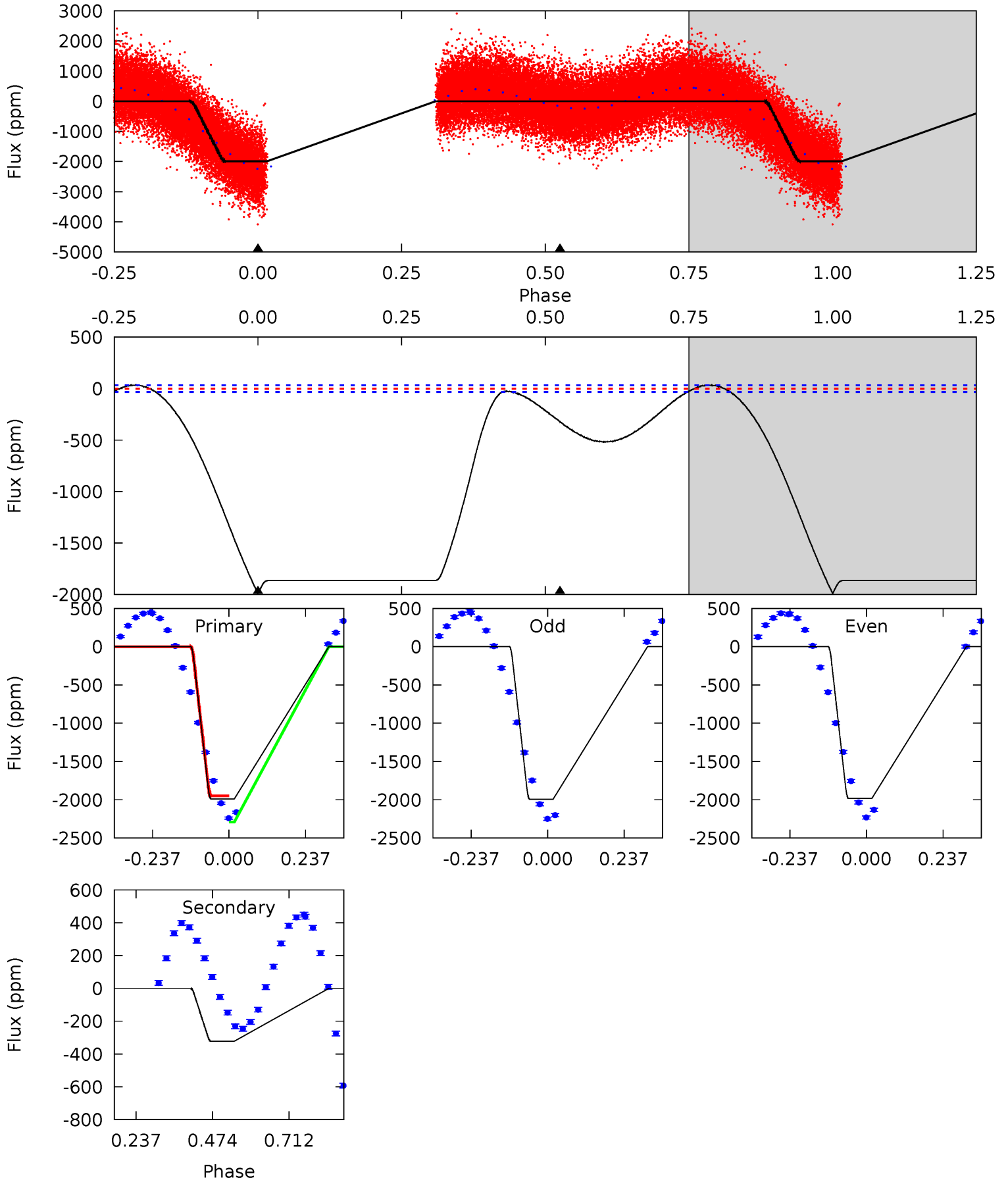
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 15.1 | 4.48 | 0 | 0 | 4.27 | 0.86 | 1.51 | 15.1 | 15.1 | 4.48 | 4.48 | 1.61 | 0 | 0.48 | 0 |



Alt Model-Shift Uniqueness Test

006041680-02, P = 2.051596 Days, E = 129.724911 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 265.0 | 43.0 | 0 | 0 | 4.38 | 1.18 | 67.2 | 265.0 | 265.0 | 43.0 | 43.0 | 0.68 | 0.99 | 0.02 | 14.4 |



Stellar Parameters For KIC 006041680

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 7761^{+69}_{-85} | $4.455^{+0.008}_{-0.144}$ | $-0.500^{+0.100}_{-0.150}$ | $1.075^{+0.251}_{-0.014}$ | $1.320^{+0.047}_{-0.053}$ | $1.495^{+0.050}_{-0.719}$ |
| | +1%/-1% | +0%/-3% | +20%/-30% | +23%/-1% | +4%/-4% | +3%/-48% |
| Source | SPE68 | SPE68 | SPE68 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006041680-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -12 ± 3 | $1.07^{+0.11}_{-0.08}$ | 2816^{+119}_{-80} | 5009^{+258}_{-306} | $6.956^{+2.000}_{-1.928}$ |
| Alt. | -322 ± 8 | $6.15^{+0.54}_{-0.32}$ | 2804^{+128}_{-78} | 4752^{+48}_{-46} | $5.617^{+0.649}_{-0.893}$ |

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

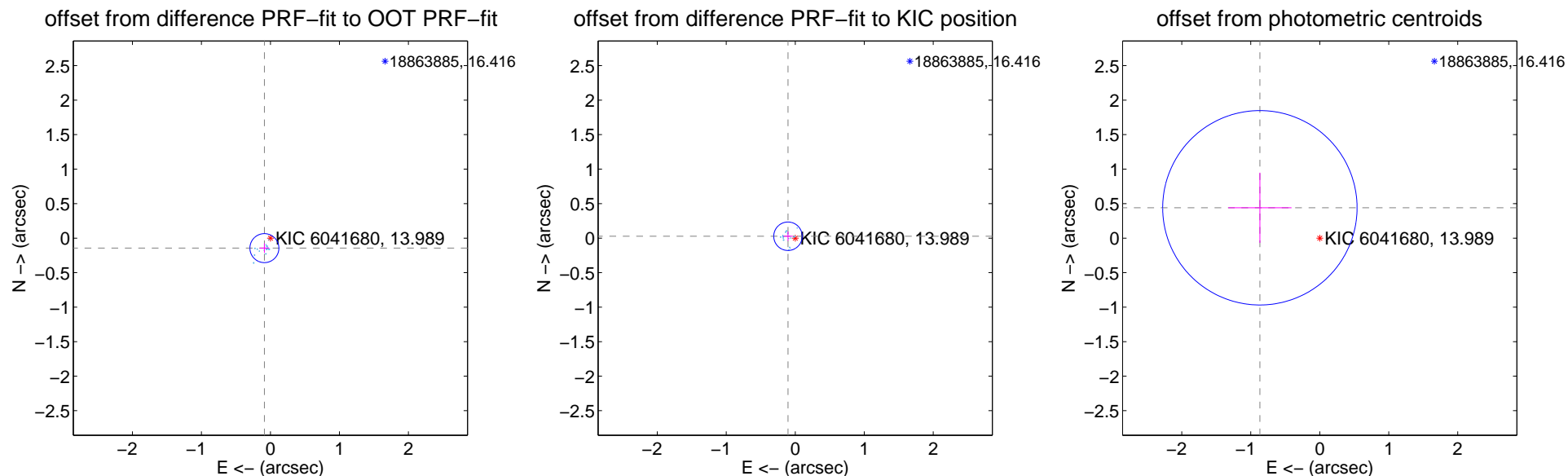
DV Centroid Data

Supplemental centroid analysis for 006041680-02. Kepler magnitude: 13.99. Transit SNR 13.09

There are 17 quarters with good PRF difference image offsets

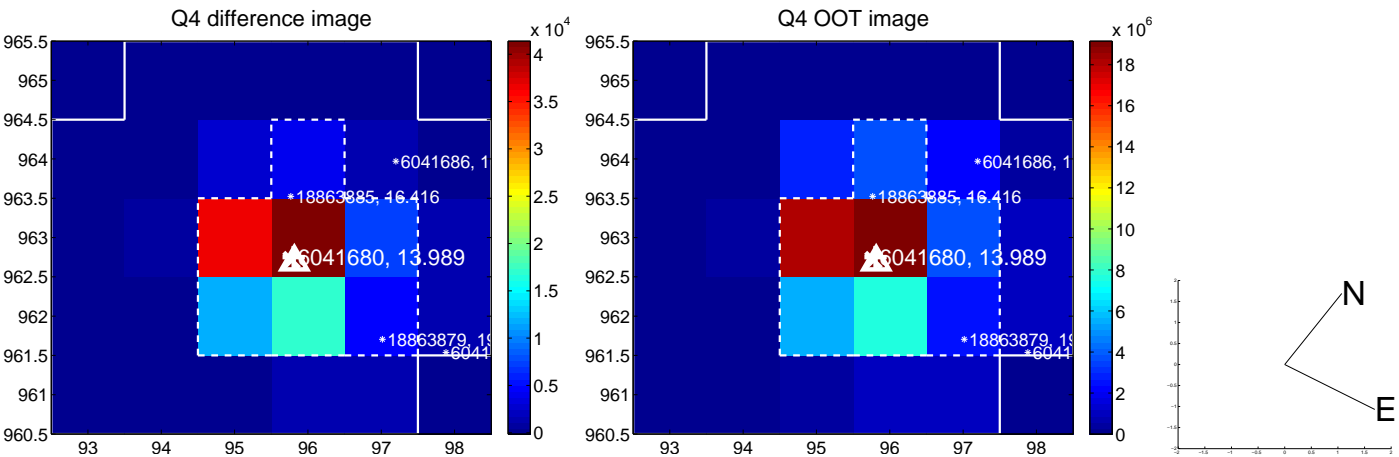
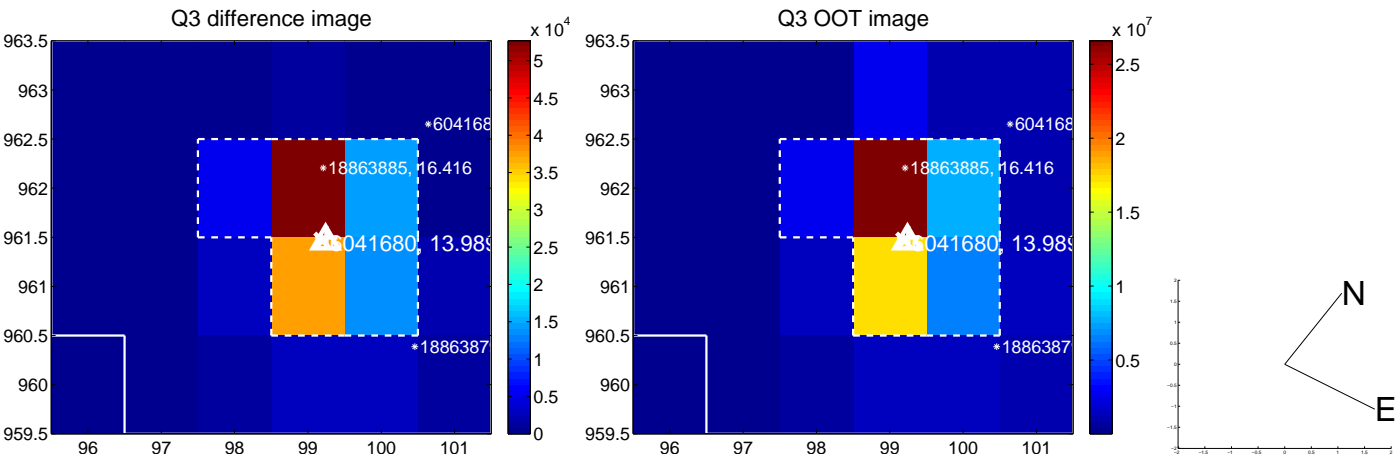
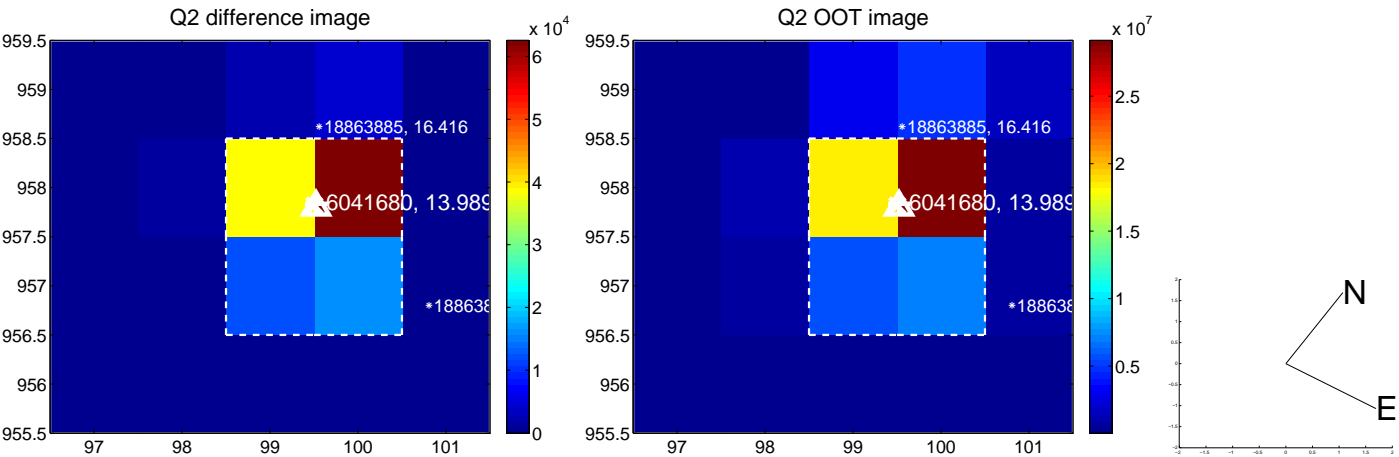
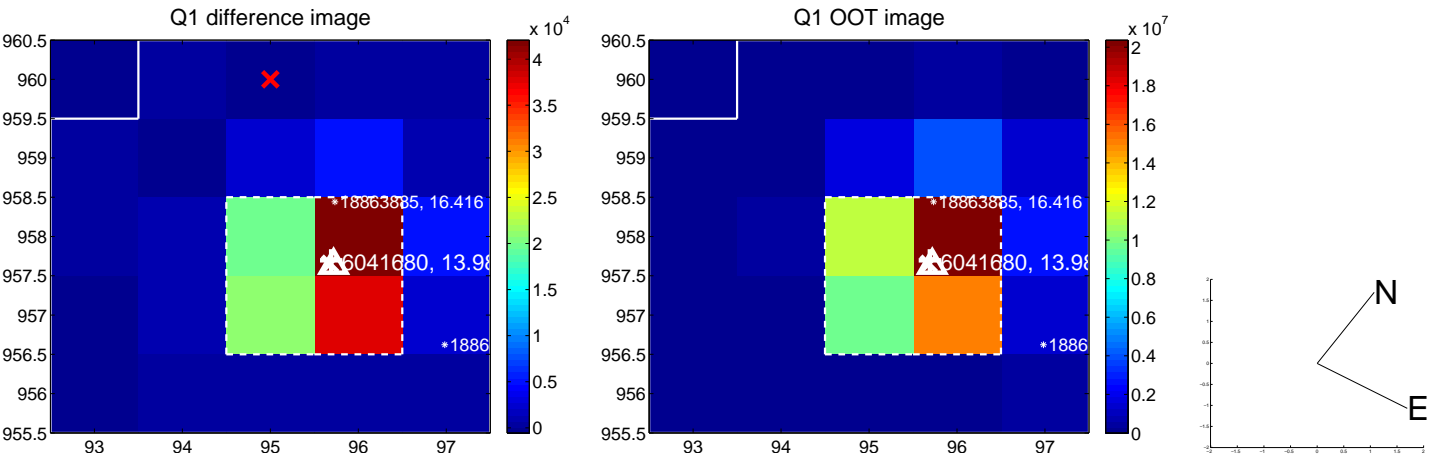
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.169 ± 0.070 | 2.41 | 0.087 ± 0.069 | -0.145 ± 0.069 |
| PRF-fit source offset from KIC position | 0.109 ± 0.069 | 1.58 | 0.105 ± 0.069 | 0.028 ± 0.068 |
| photometric centroid source offset | 0.97 ± 0.47 | 2.07 | 0.87 ± 0.46 | 0.44 ± 0.51 |

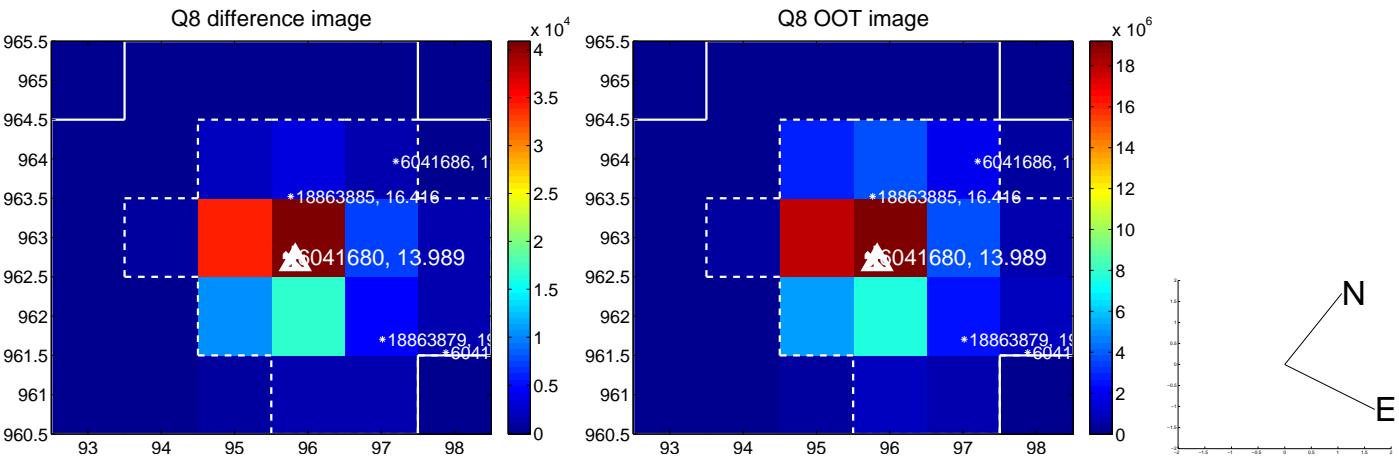
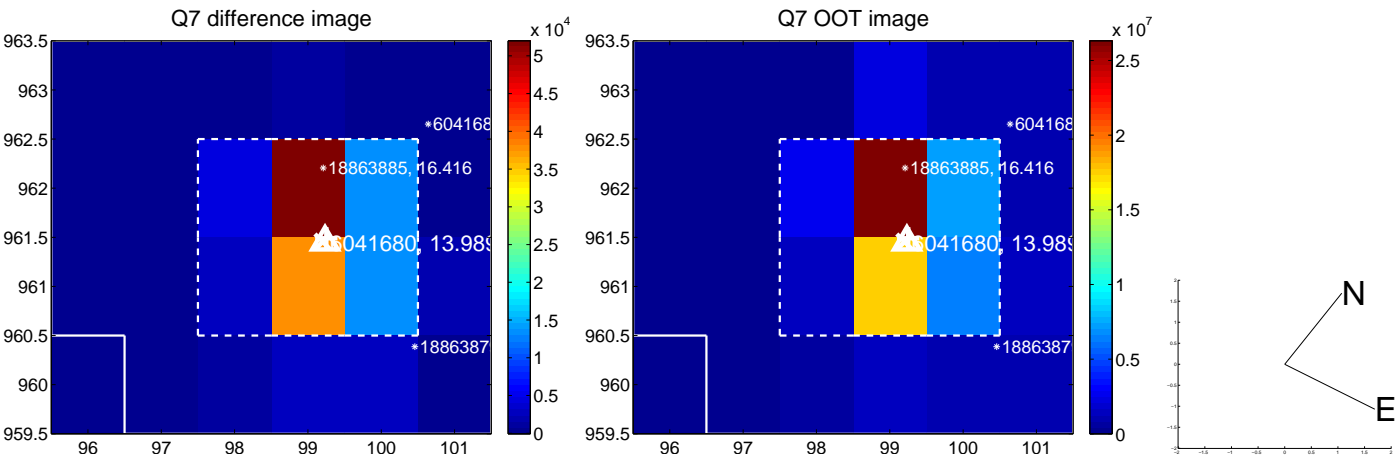
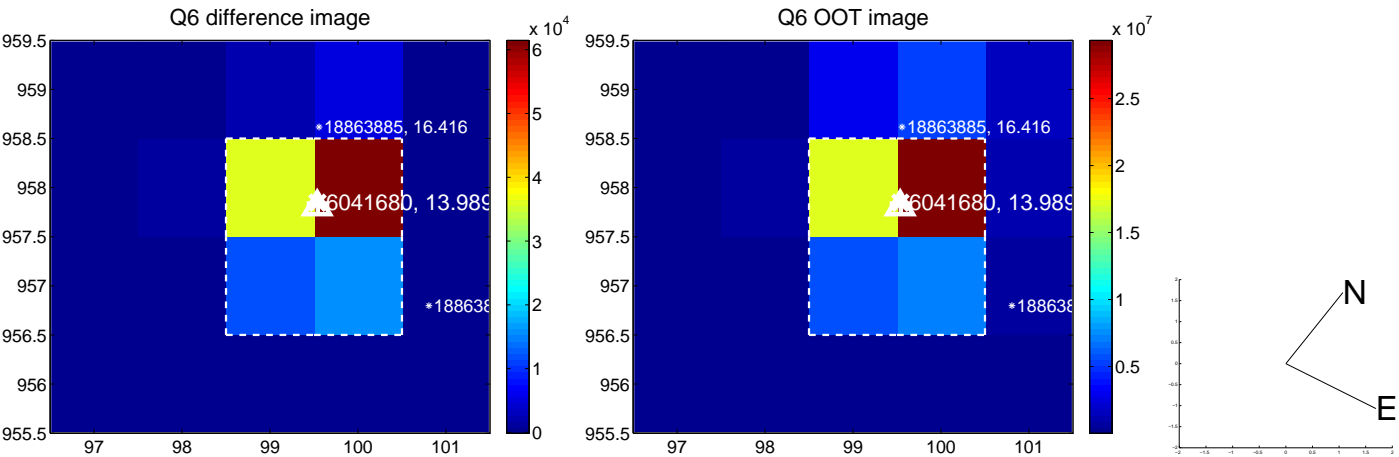
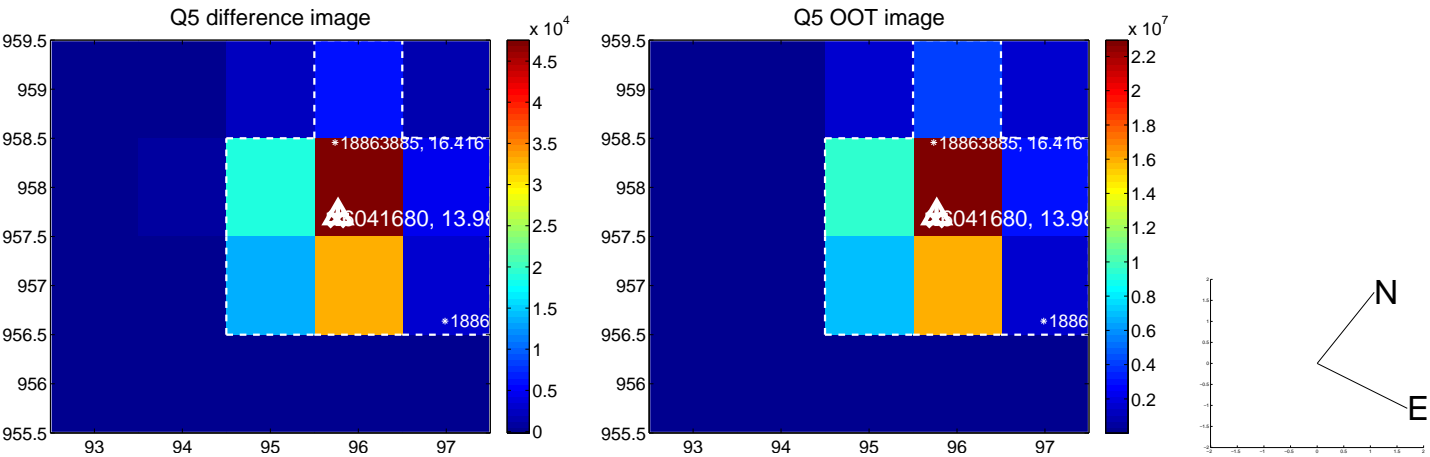


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

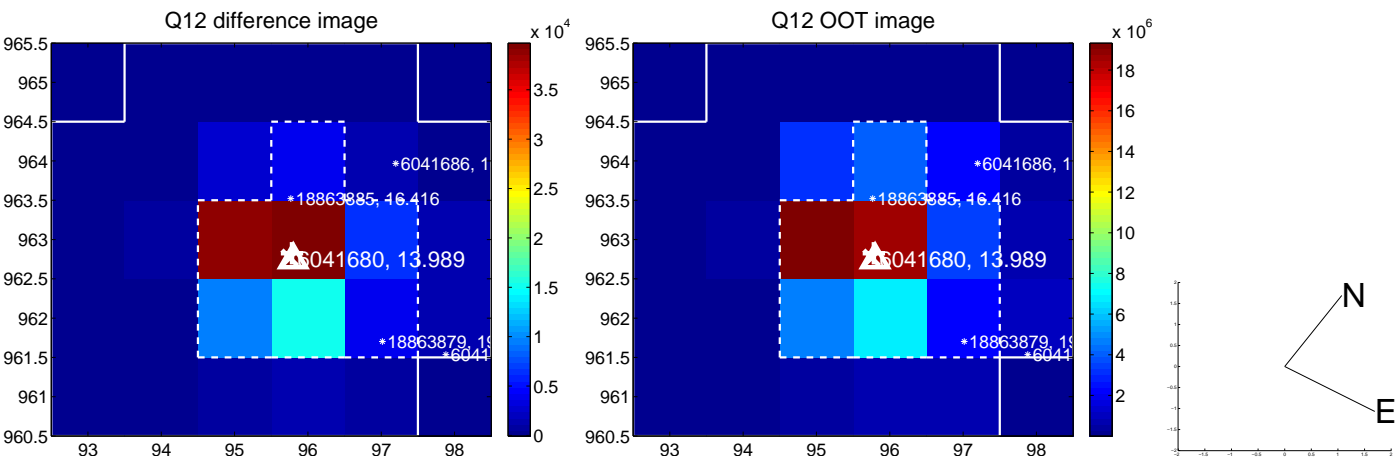
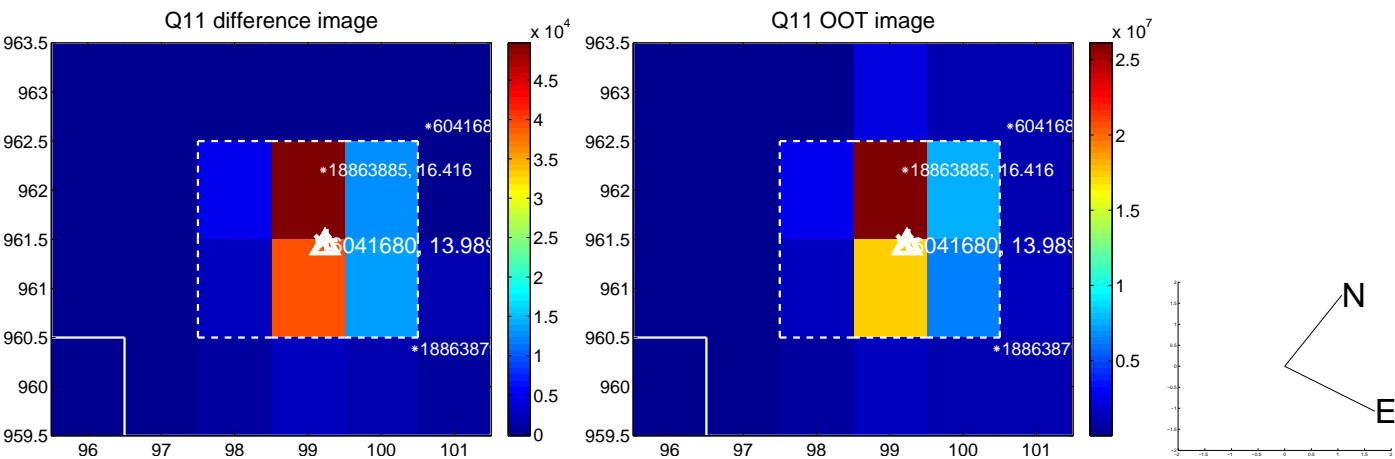
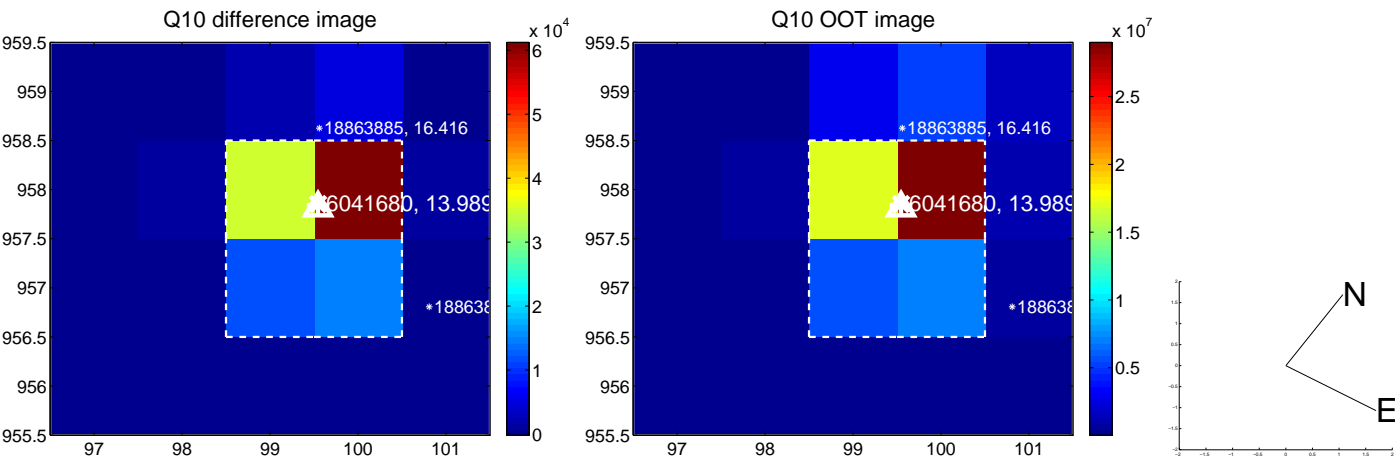
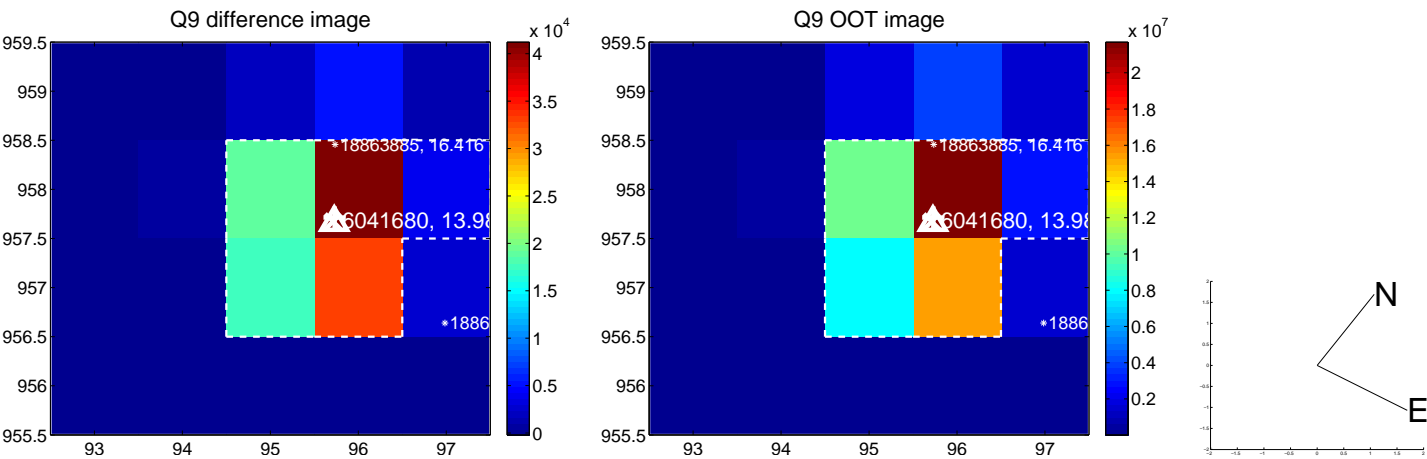
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



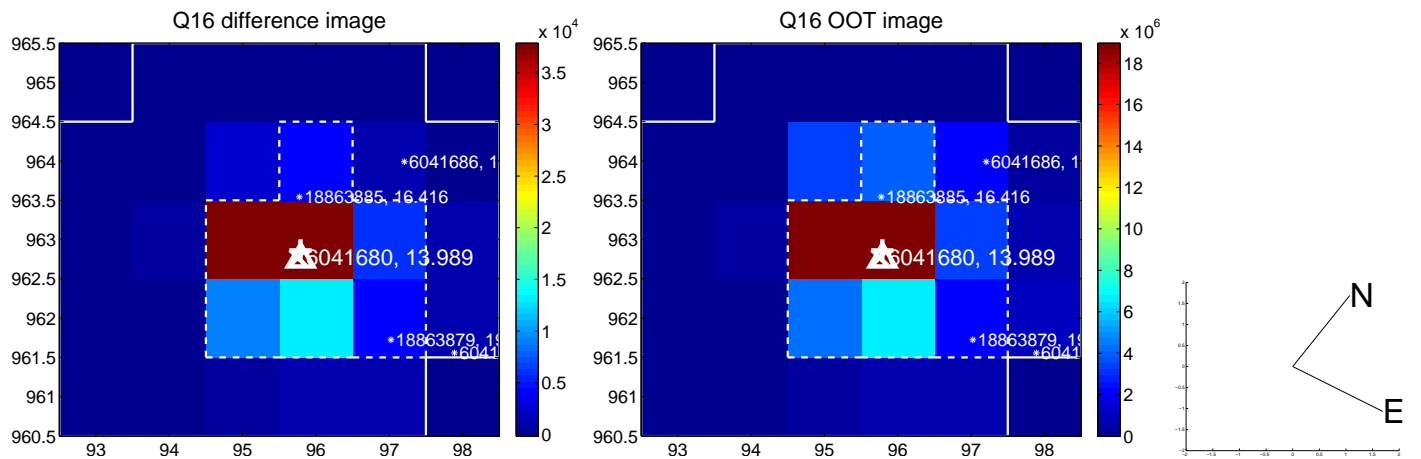
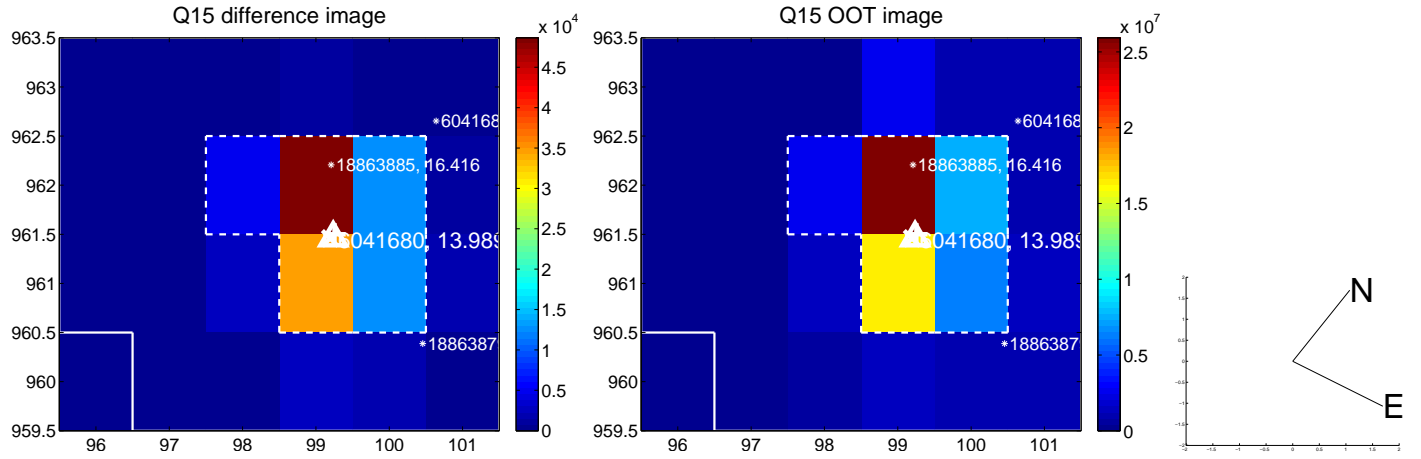
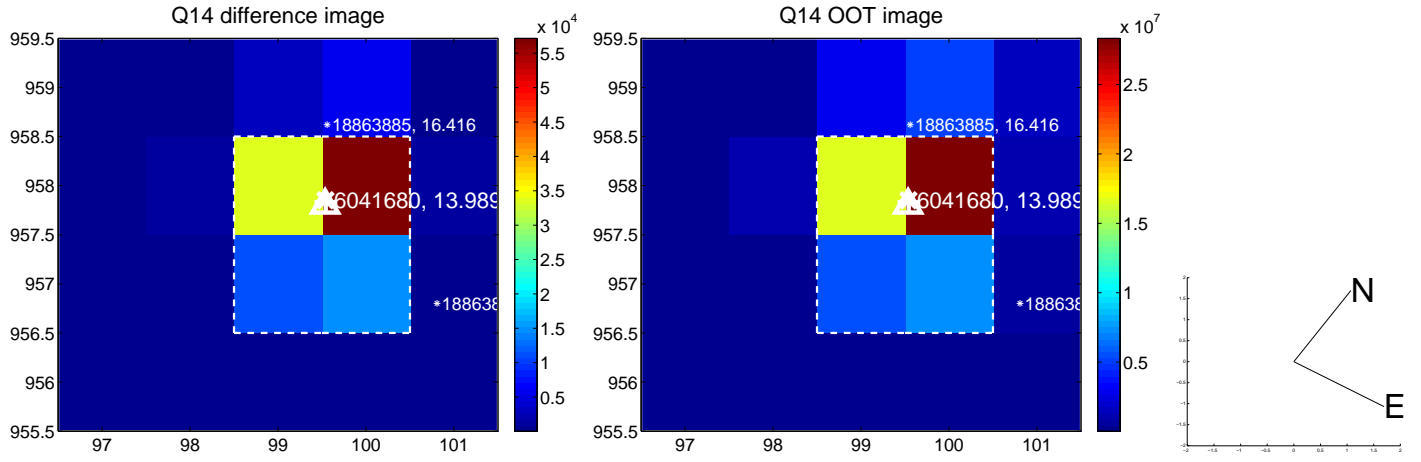
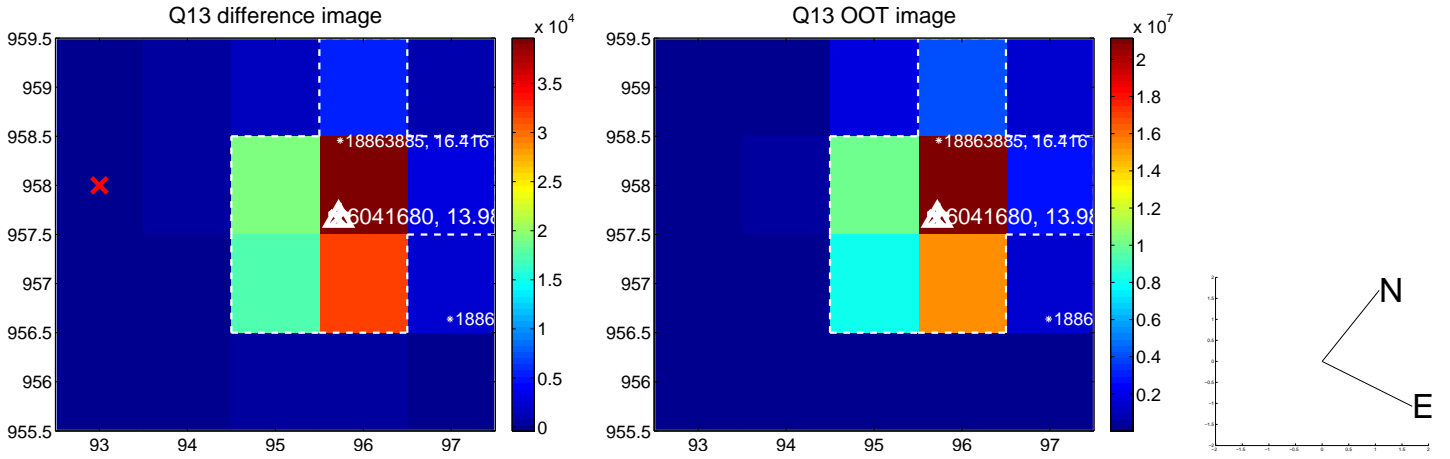
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



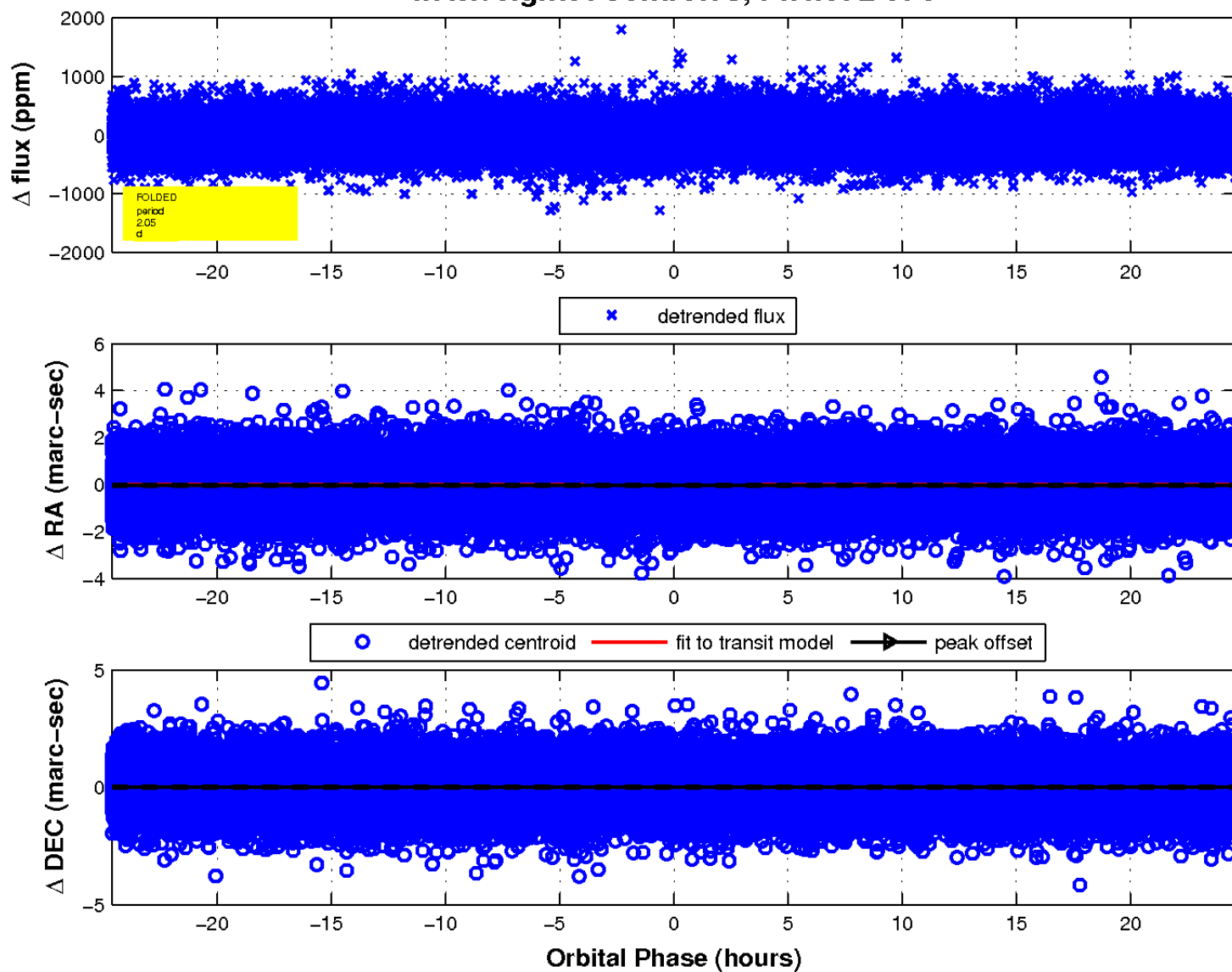
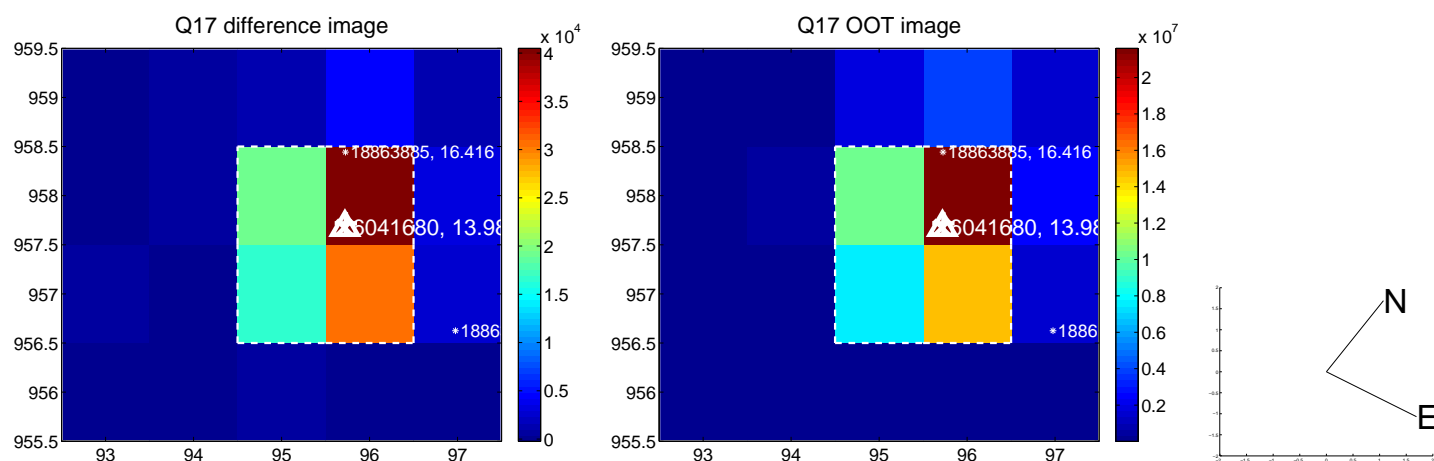
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

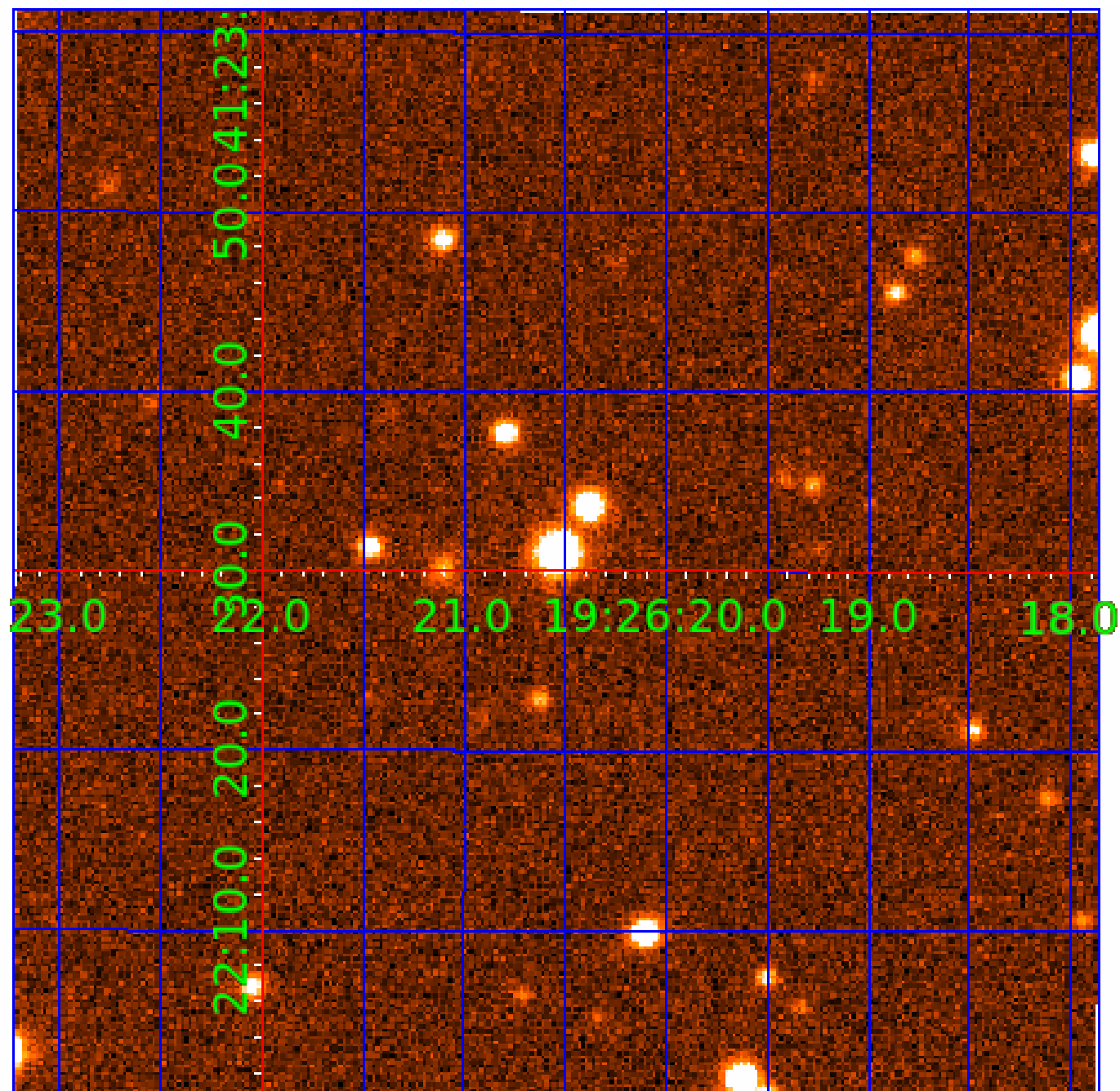


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006041680

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006041680-01 | OBS | No | 2.051634 | 132.096585 | 33.9 | 4.830 | 12.5 | 8.8 | 1.07 | 7761 | 1.25 | 3326.88 |
| 006041680-02 | OBS | No | 2.051574 | 131.830981 | 46.9 | 10.191 | 11.2 | 13.1 | 1.07 | 7761 | 0.95 | 3327.01 |
| 006041680-03 | OBS | No | 40.289743 | 155.839286 | 98.0 | 14.014 | 8.5 | 6.6 | 1.07 | 7761 | 1.20 | 62.79 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006041680-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV |
| 006041680-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 006041680-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_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.

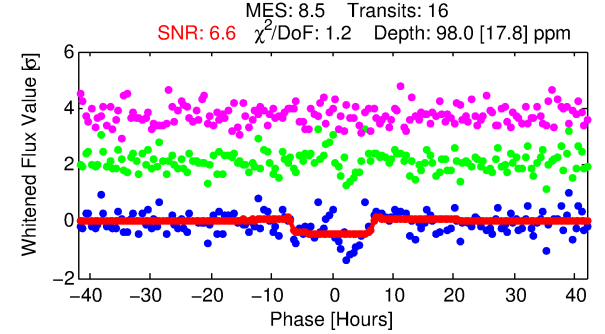
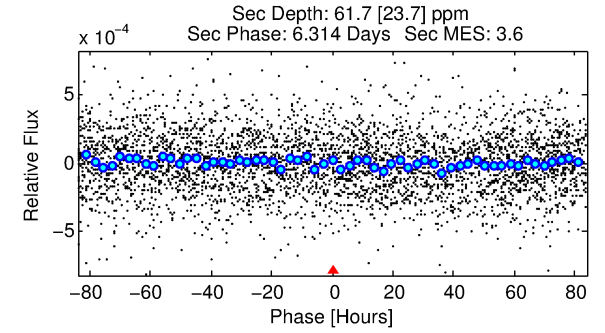
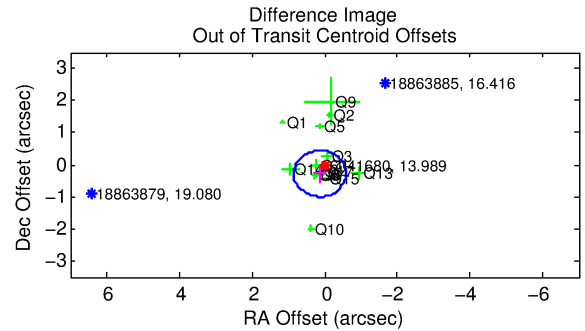
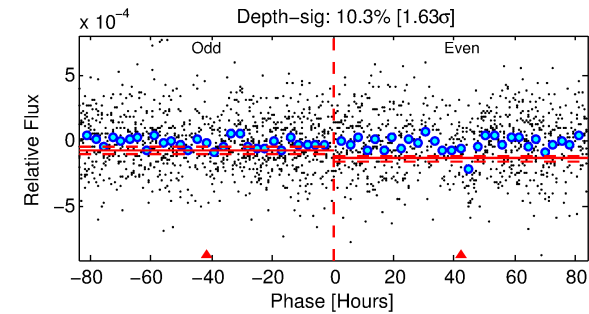
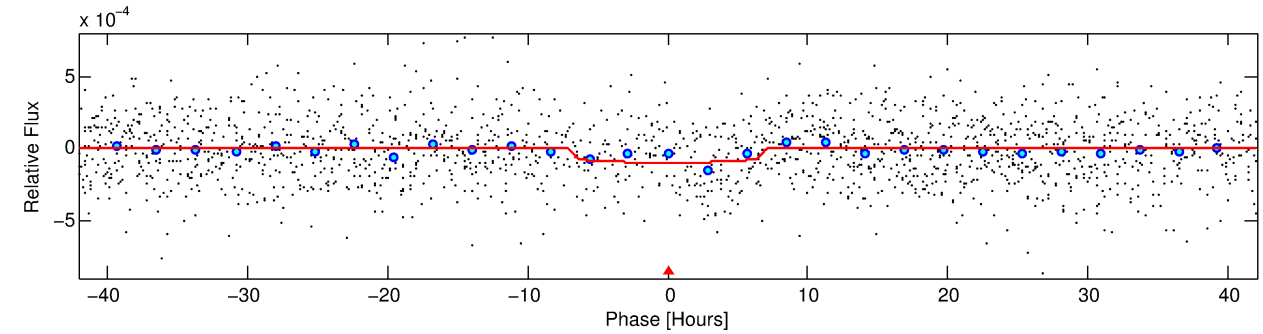
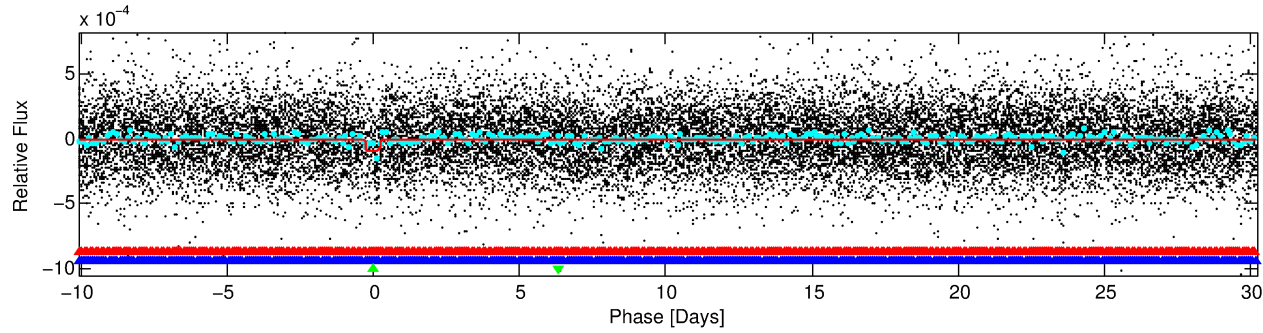
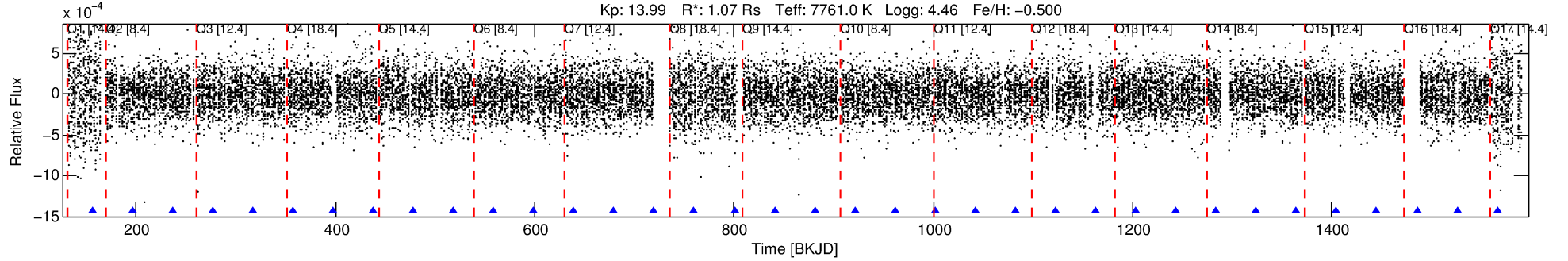
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006041680-03

No Significant Match Found

DV One-Page Summary

KIC: 6041680 Candidate: 3 of 3 Period: 40.290 d



DV Fit Results:

Period = 40.28974 [0.00187] d
Epoch = 155.8393 [0.0324] BKJD
Rp/R* = 0.0102 [0.0032]
a/R* = 11.76 [22.52]
b = 0.86 [0.60]
Seff = 62.79 [17.20]
Teq = 718 [49] K
Rp = 1.20 [0.47] Re
a = 0.2446 [0.0467] AU
Ag = 1412.88 [1099.43] [1.28 σ]
Teffp = 6804 [1243] K [4.89 σ]

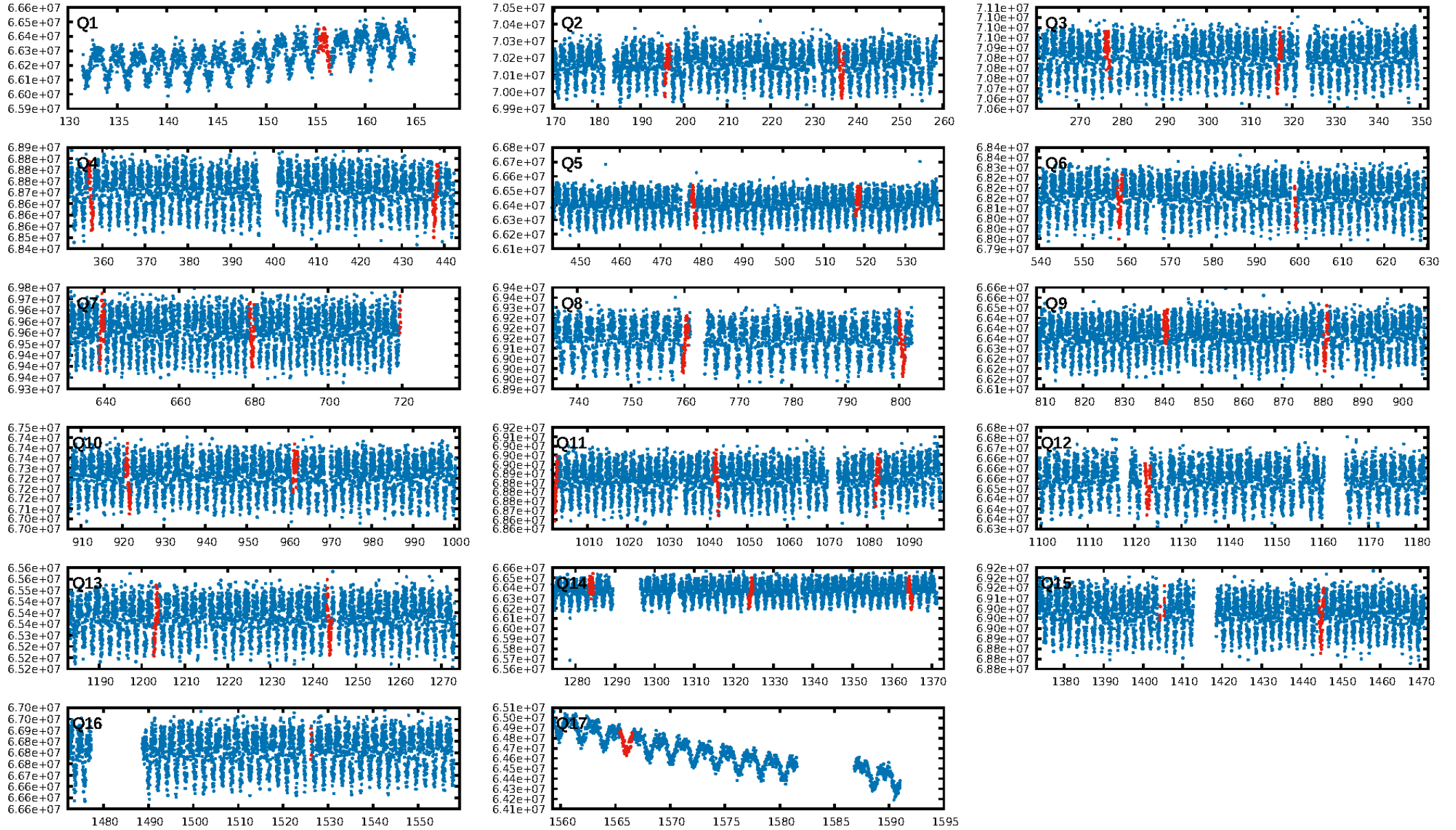
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [61.91 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 47.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.93e-13
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 1.519
Centroid-sig: 1.8%
Centroid-so: 1.913 arcsec [2.07 σ]
OotOffset-rm: 0.313 arcsec [1.31 σ]
KicOffset-rm: 0.173 arcsec [0.78 σ]
OotOffset-st: 4/3/2/5 [14]
KicOffset-st: 4/3/2/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 0.00 [0/14]

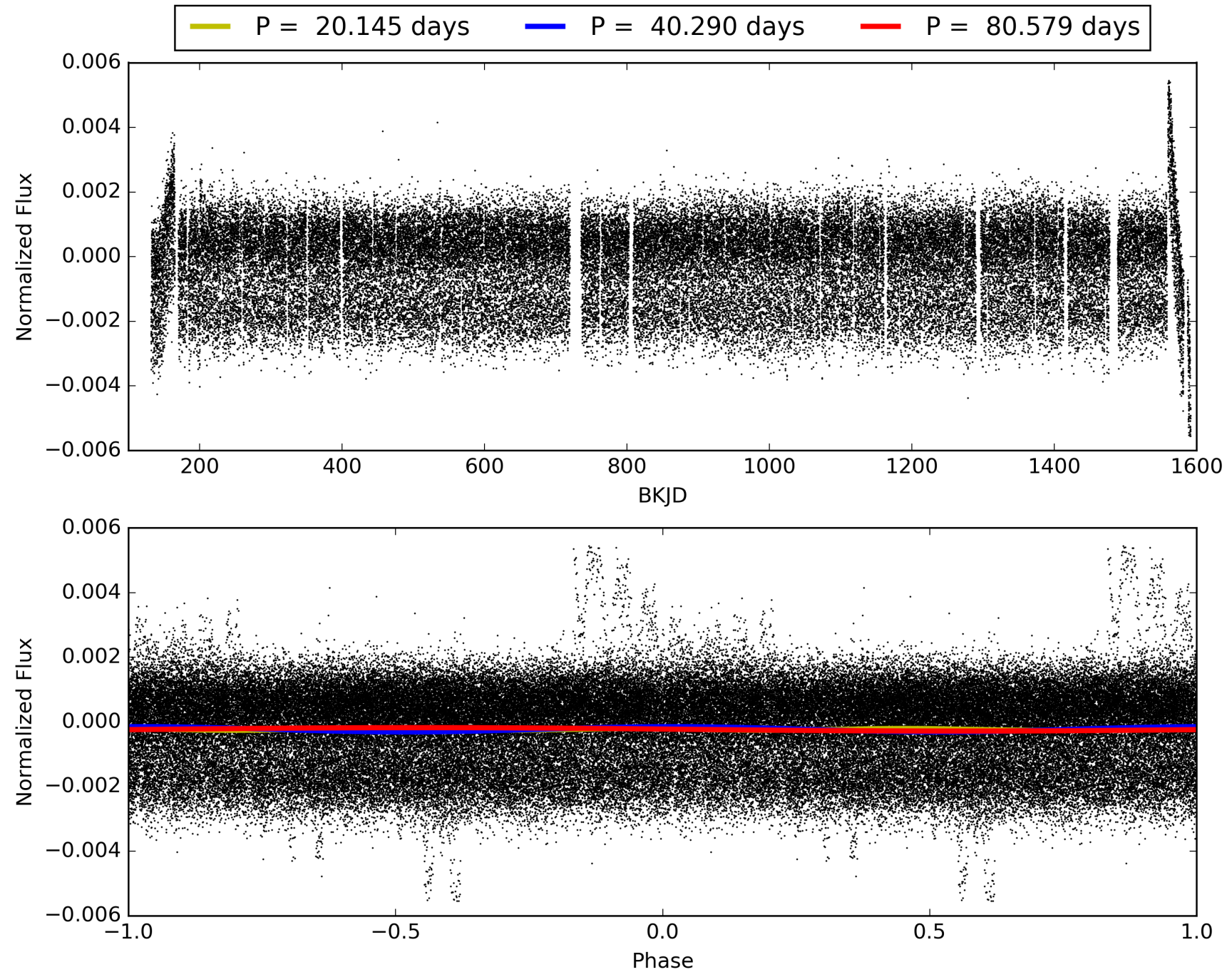
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:44:13 Z

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

TCE 006041680-03, PDC Light Curves

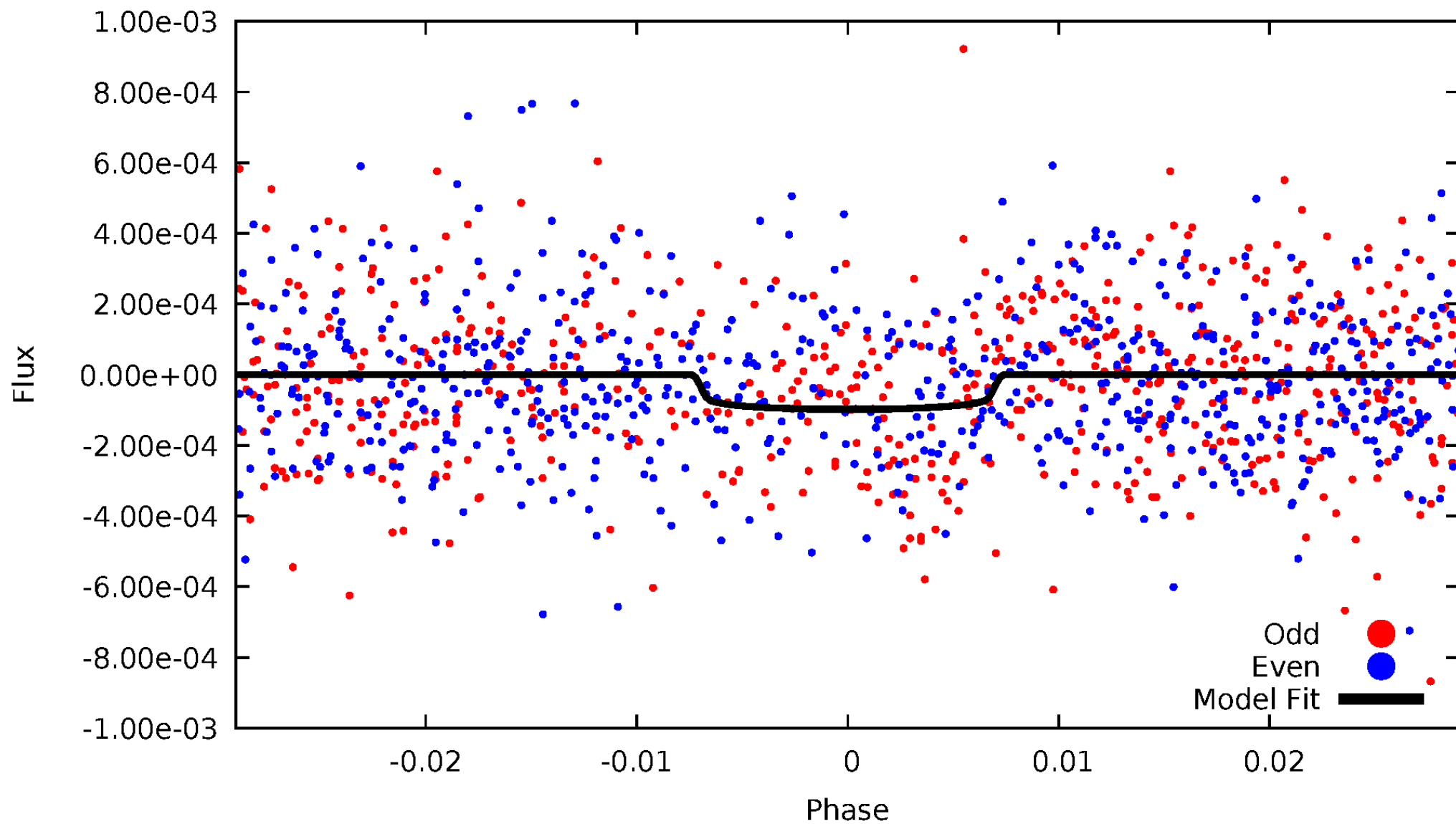


TCE 006041680-03



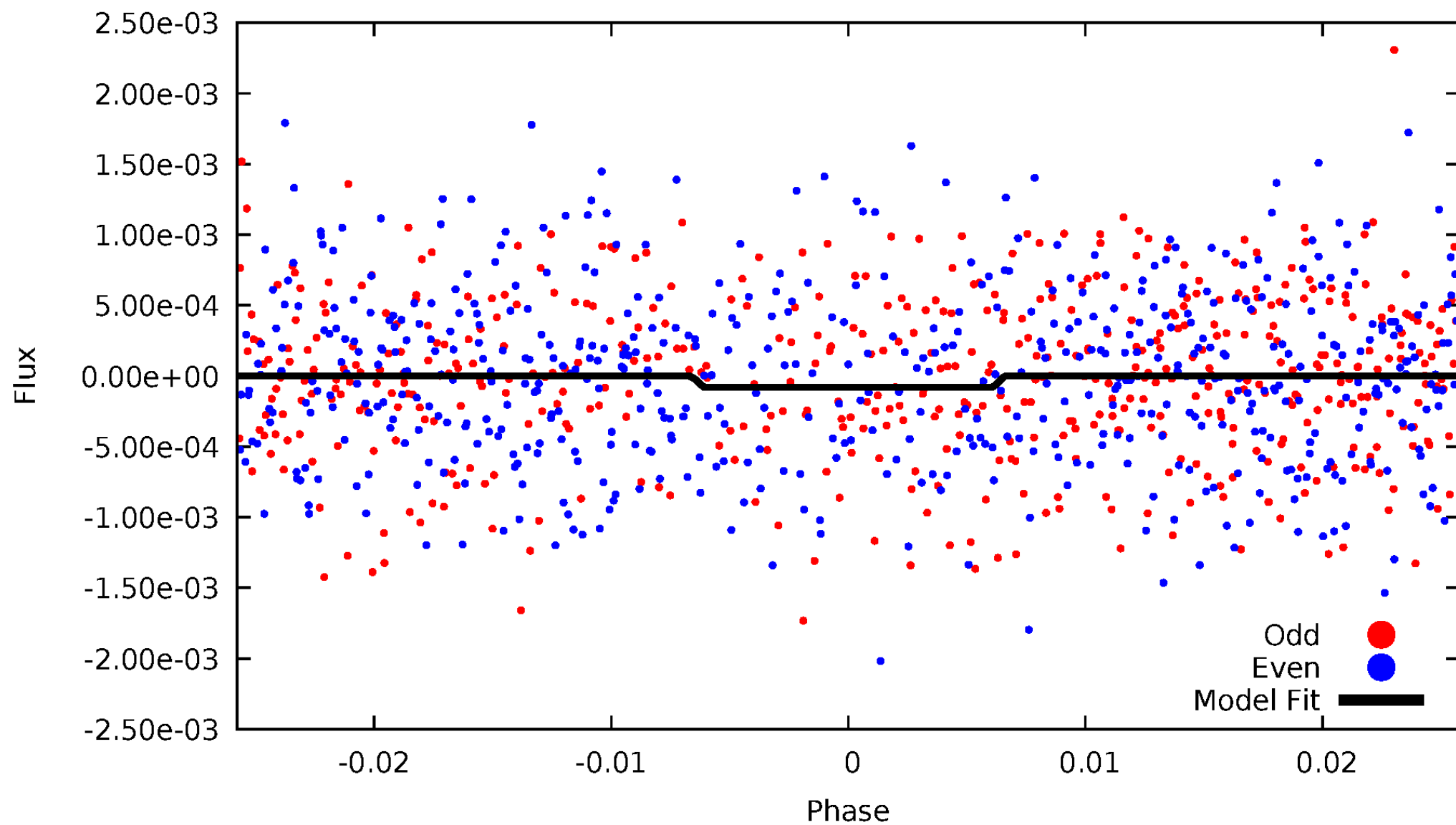
DV Odd/Even

TCE 006041680-03



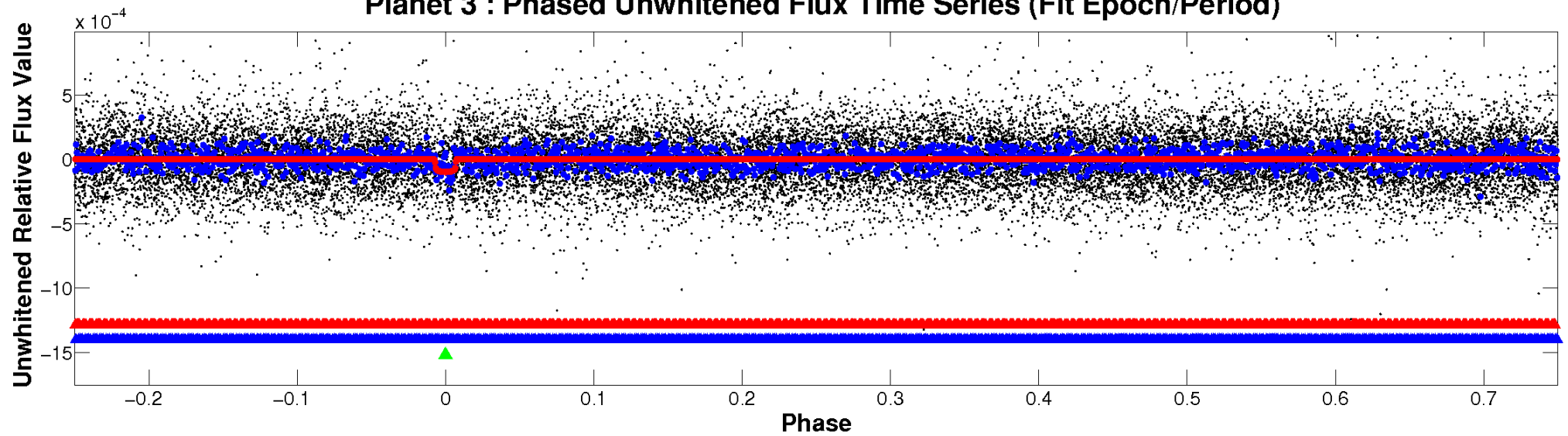
ALT Odd/Even

TCE 006041680-03

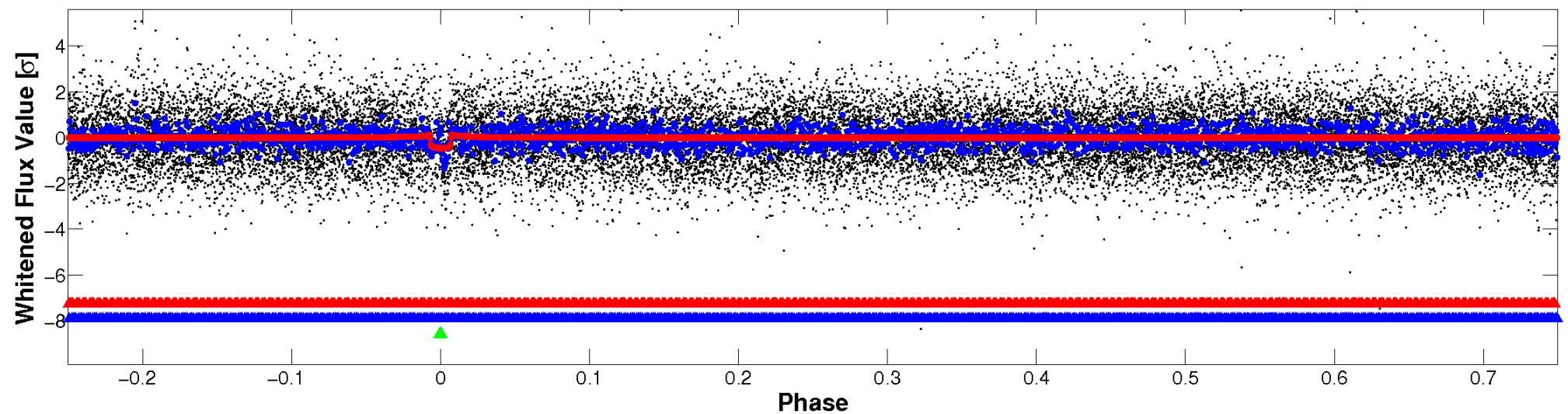


Non-Whitened Vs. Whitened Light Curve

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

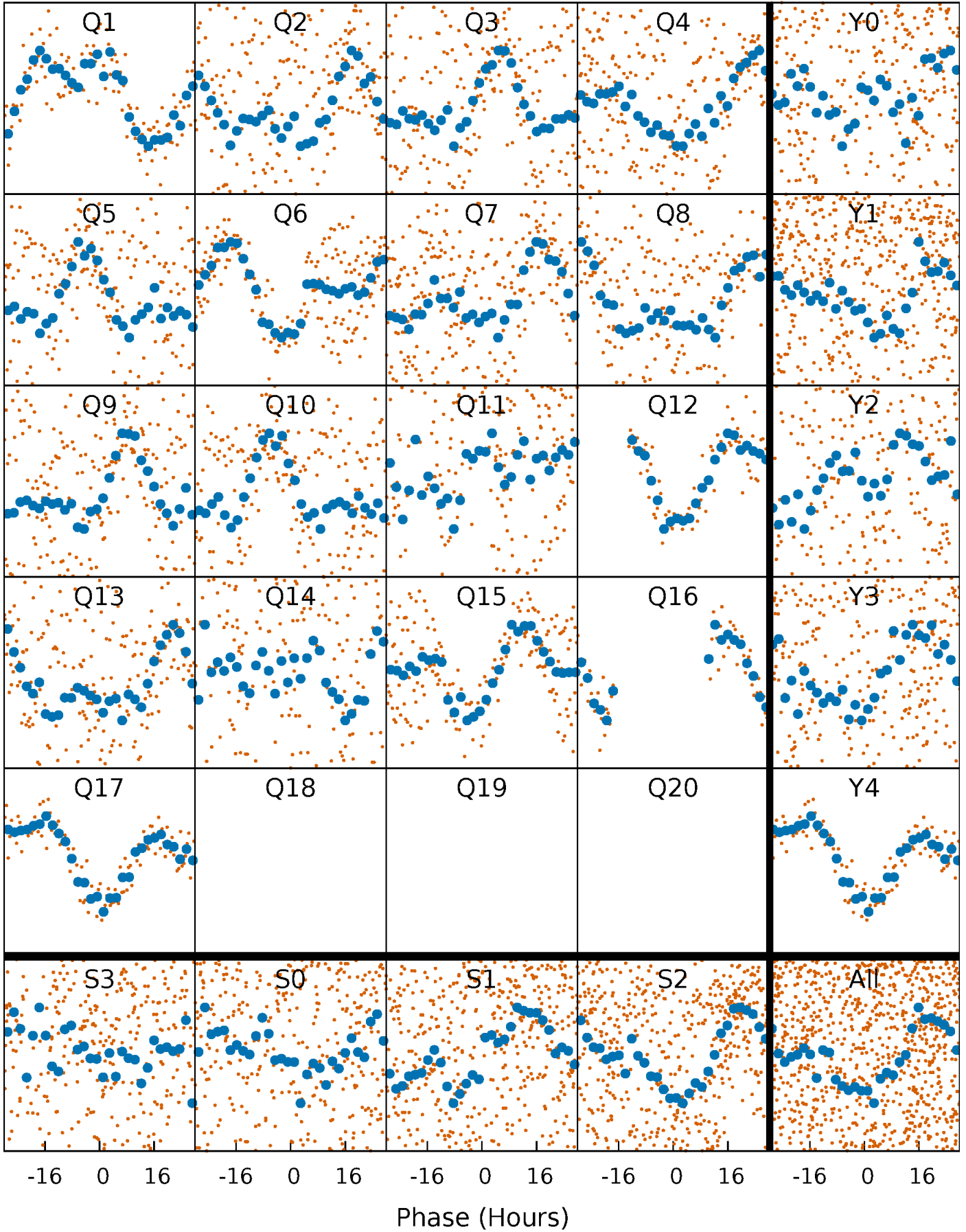


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



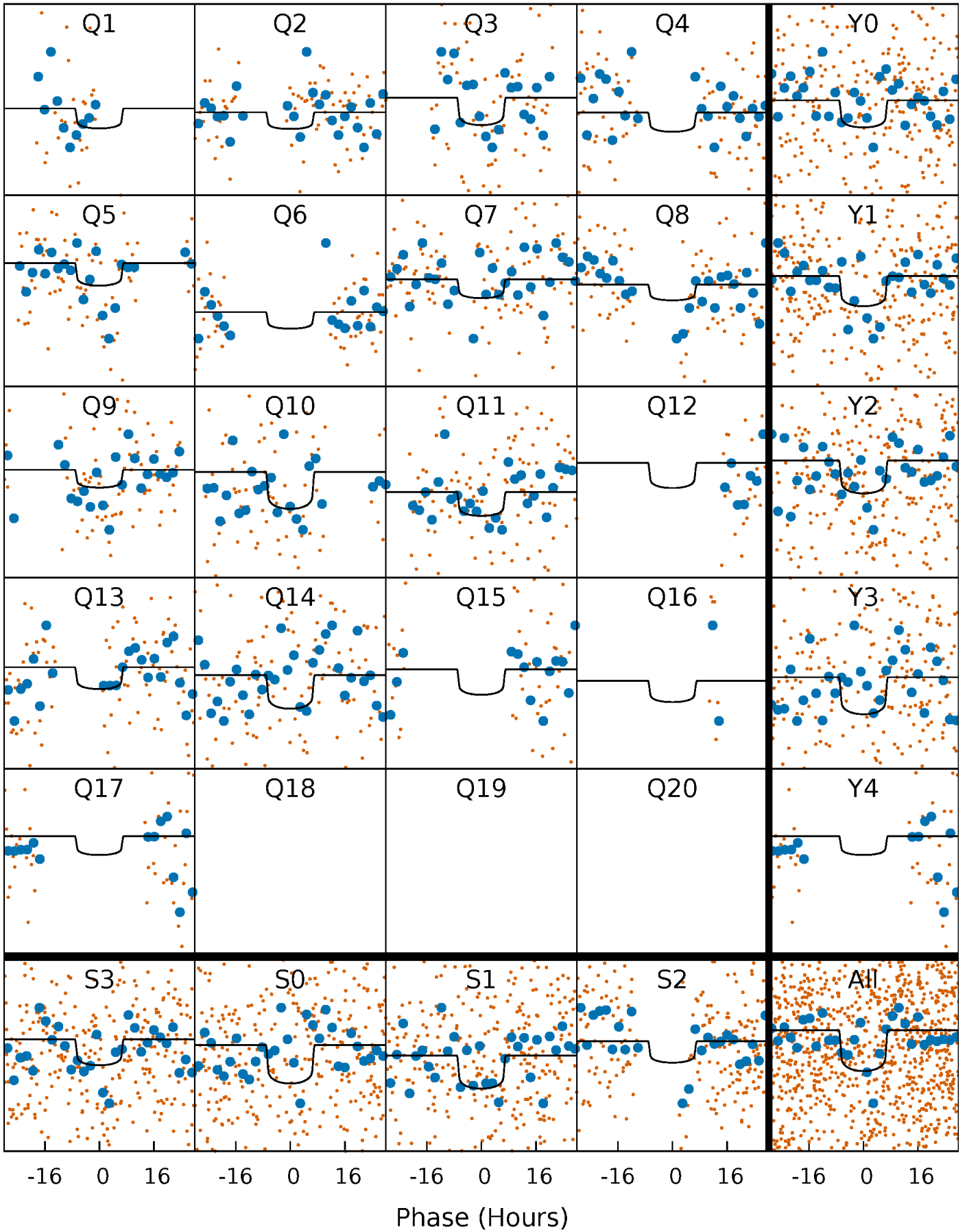
PDC Quarter-Phased Transit Curves

TCE 006041680-03 P= 40.289743 Days $T_0=155.839286$ (BKJD)



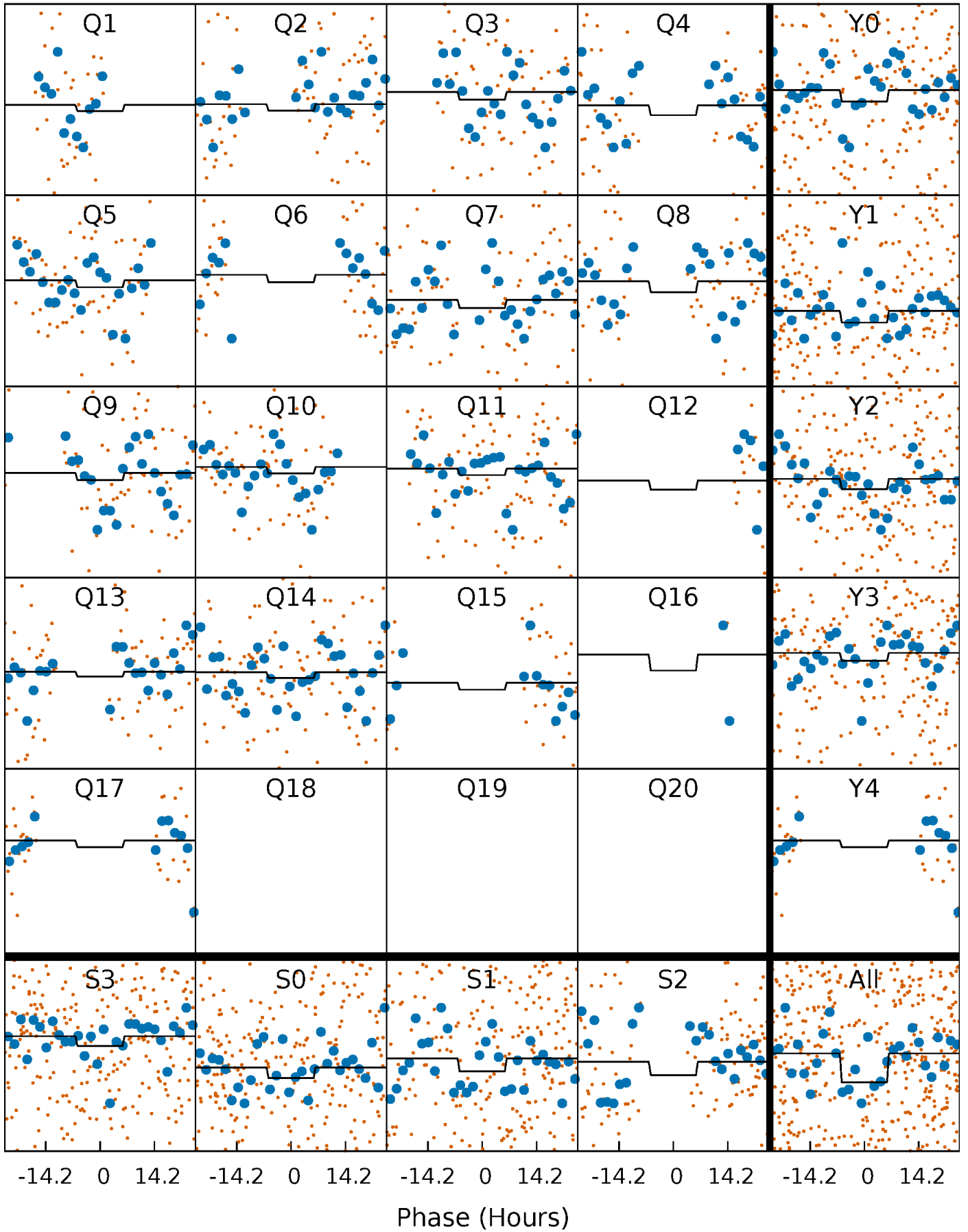
DV Quarter-Phased Transit Curves

TCE 006041680-03 P= 40.289743 Days $T_0=155.839286$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

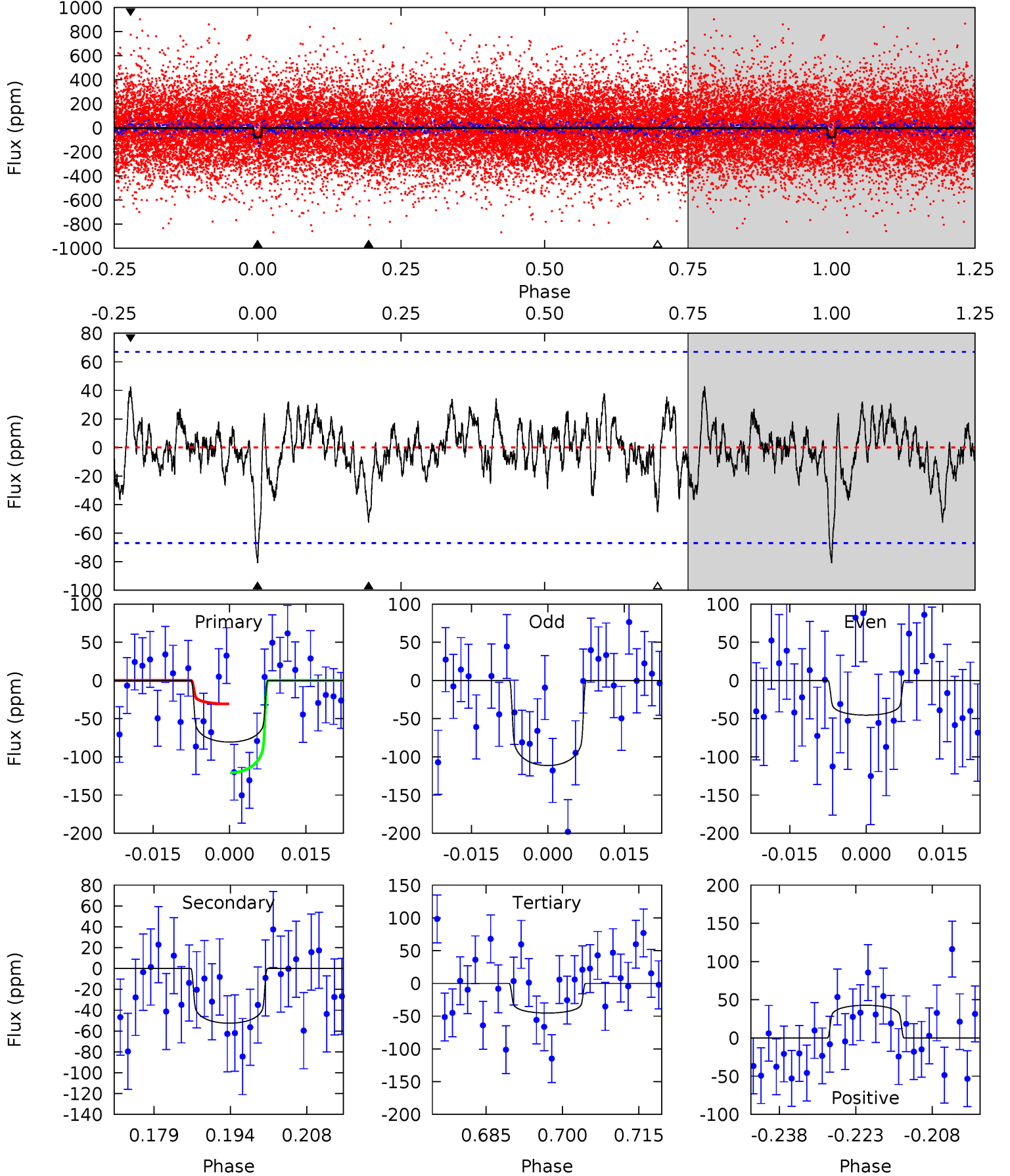
TCE 006041680-03 $P = 40.290644$ Days $T_0 = 155.755174$ (BKJD)



DV Model-Shift Uniqueness Test

006041680-03, P = 40.289743 Days, E = 115.549543 Days

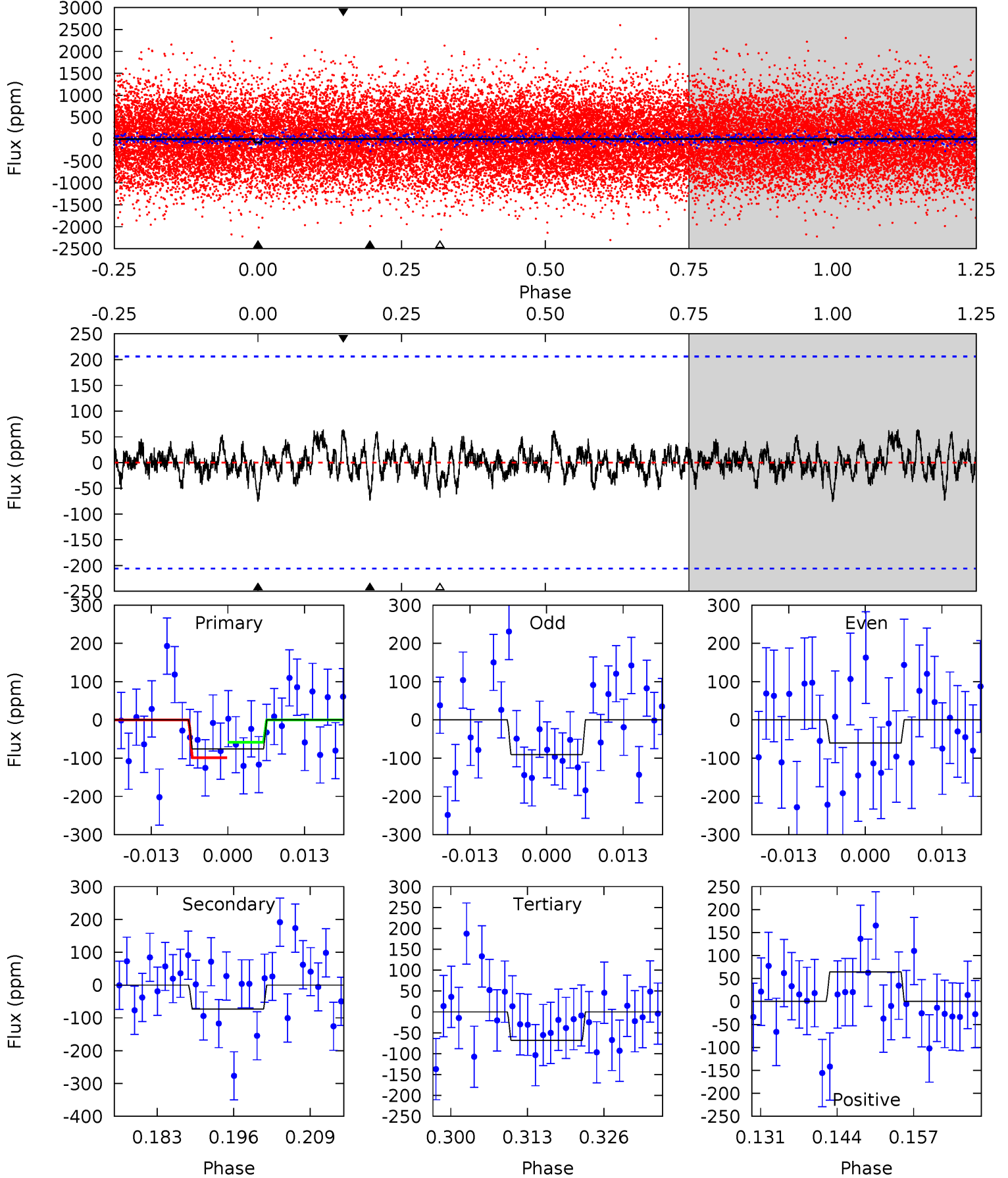
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.96 | 3.88 | 3.35 | 3.16 | 4.95 | 2.44 | 1.07 | 2.61 | 2.79 | 0.53 | 0.72 | 2.44 | 0.91 | 0.35 | 3.30 |



Alt Model-Shift Uniqueness Test

006041680-03, P = 40.290644 Days, E = 115.464530 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.83 | 1.77 | 1.64 | 1.55 | 4.97 | 2.48 | 0.52 | 0.19 | 0.28 | 0.13 | 0.22 | 0.36 | 0.81 | 0.46 | 0.48 |



Stellar Parameters For KIC 006041680

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 7761^{+69}_{-85} | $4.455^{+0.008}_{-0.144}$ | $-0.500^{+0.100}_{-0.150}$ | $1.075^{+0.251}_{-0.014}$ | $1.320^{+0.047}_{-0.053}$ | $1.495^{+0.050}_{-0.719}$ |
| | +1%/-1% | +0%/-3% | +20%/-30% | +23%/-1% | +4%/-4% | +3%/-48% |
| Source | SPE68 | SPE68 | SPE68 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006041680-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|--------------|------------------------|--------------------|------------------------|------------------------|
| DV | -53 ± 14 | $1.36^{+0.39}_{-0.42}$ | 1040^{+45}_{-26} | 6408^{+1366}_{-917} | 1003^{+1062}_{-466} |
| Alt. | -73 ± 41 | $1.16^{+0.41}_{-0.42}$ | 1041^{+46}_{-27} | 7557^{+2784}_{-1755} | 1821^{+2927}_{-1149} |

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 $A_{obs} \gg 1.0$

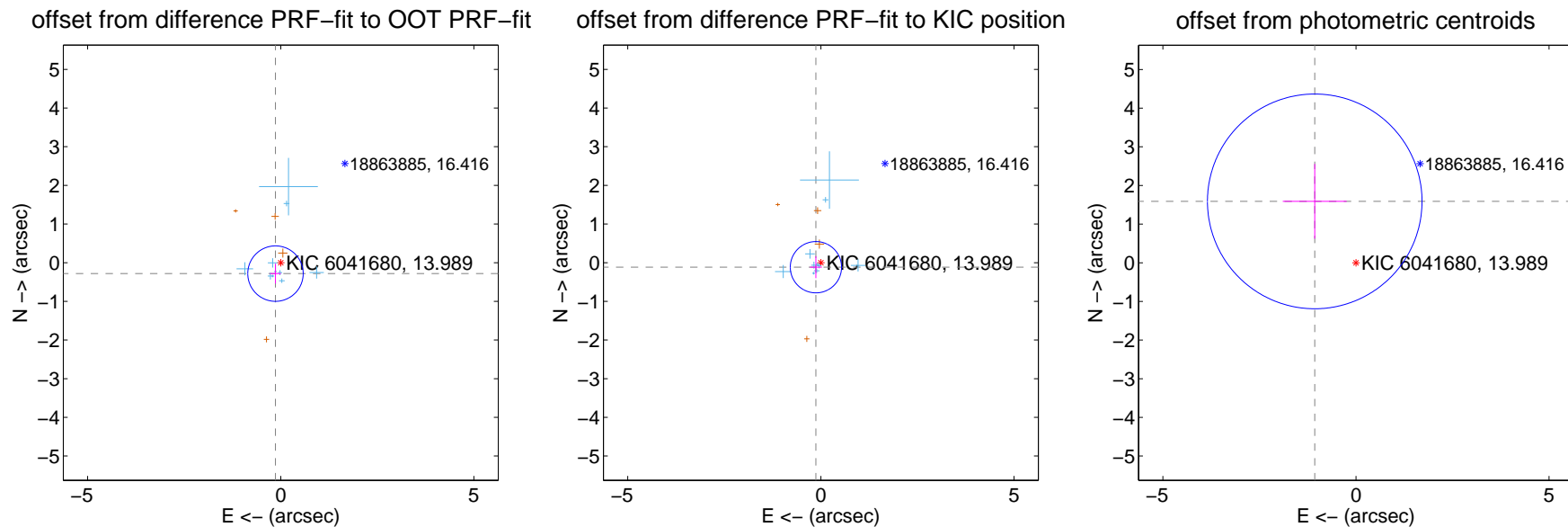
DV Centroid Data

Supplemental centroid analysis for 006041680-03. Kepler magnitude: 13.99. Transit SNR 6.63

There are 10 quarters with good PRF difference image offsets

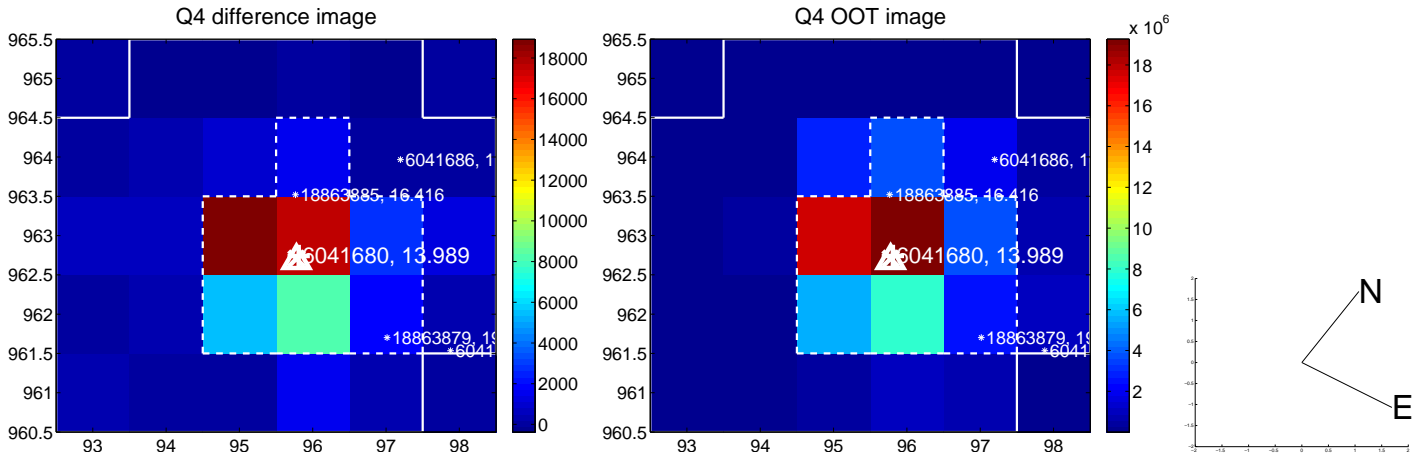
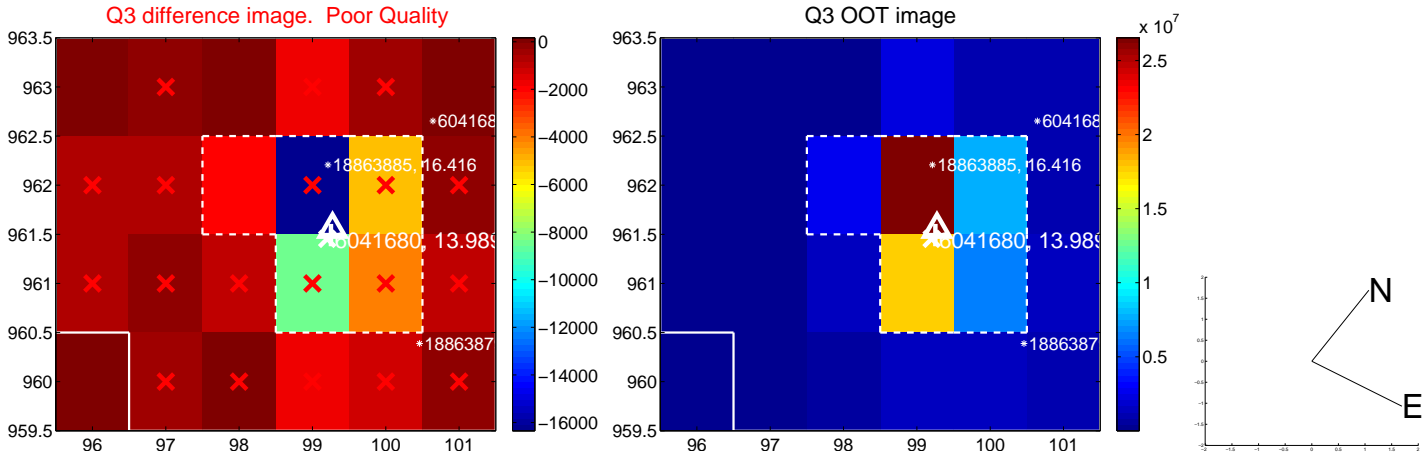
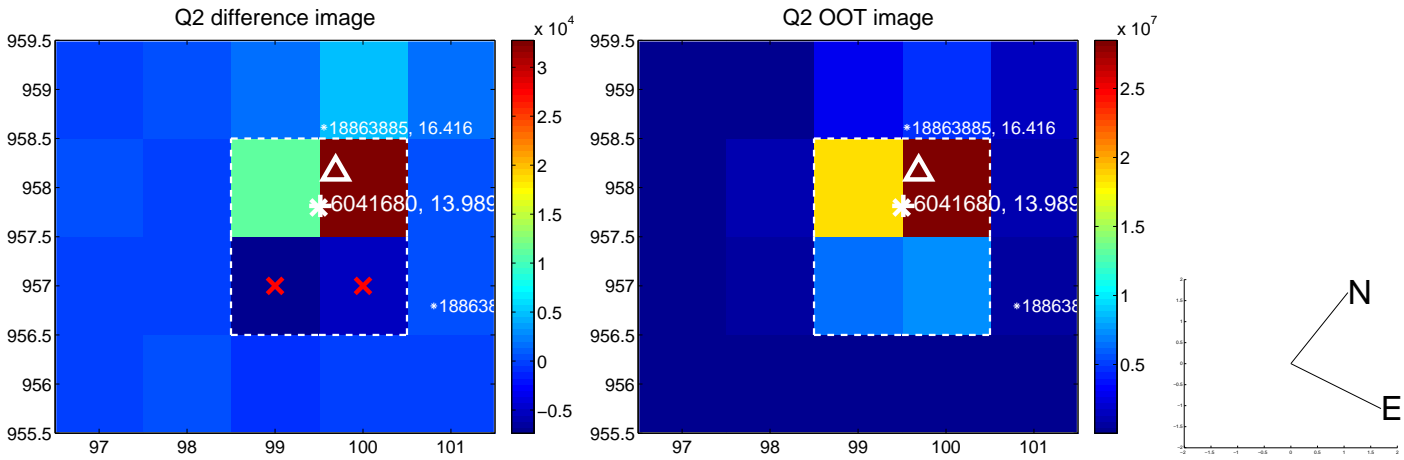
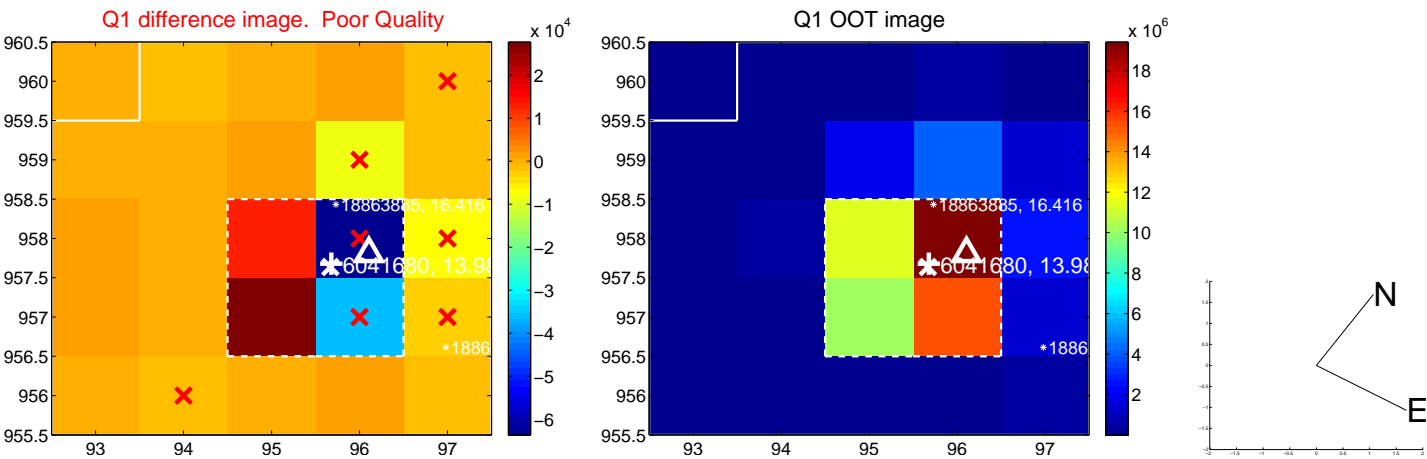
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.313 ± 0.239 | 1.31 | 0.136 ± 0.141 | -0.282 ± 0.257 |
| PRF-fit source offset from KIC position | 0.173 ± 0.221 | 0.78 | 0.128 ± 0.152 | -0.117 ± 0.283 |
| photometric centroid source offset | 1.91 ± 0.93 | 2.07 | 1.07 ± 0.83 | 1.59 ± 0.97 |

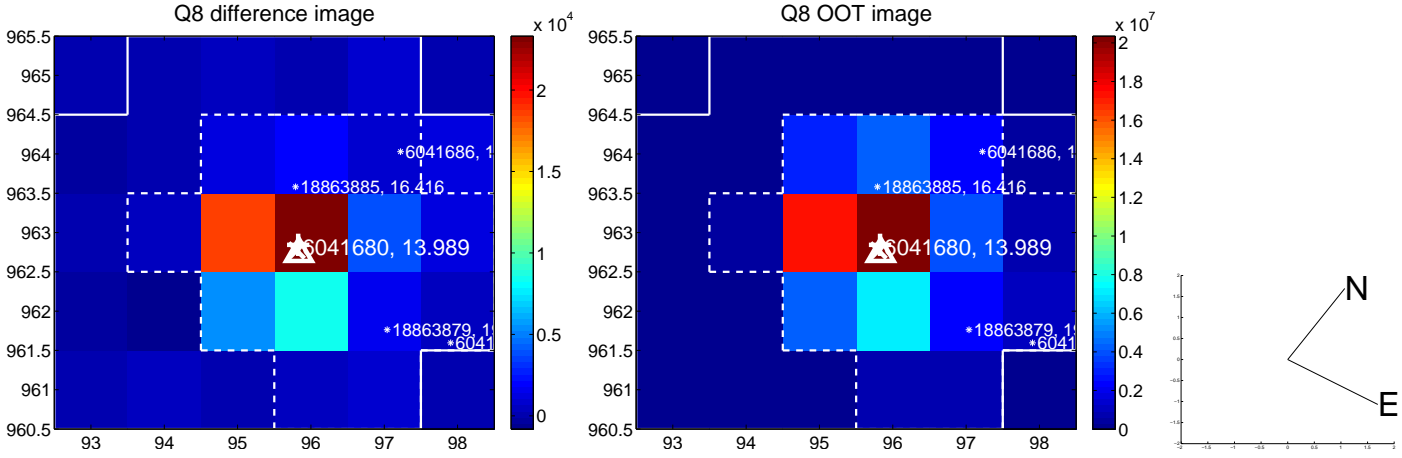
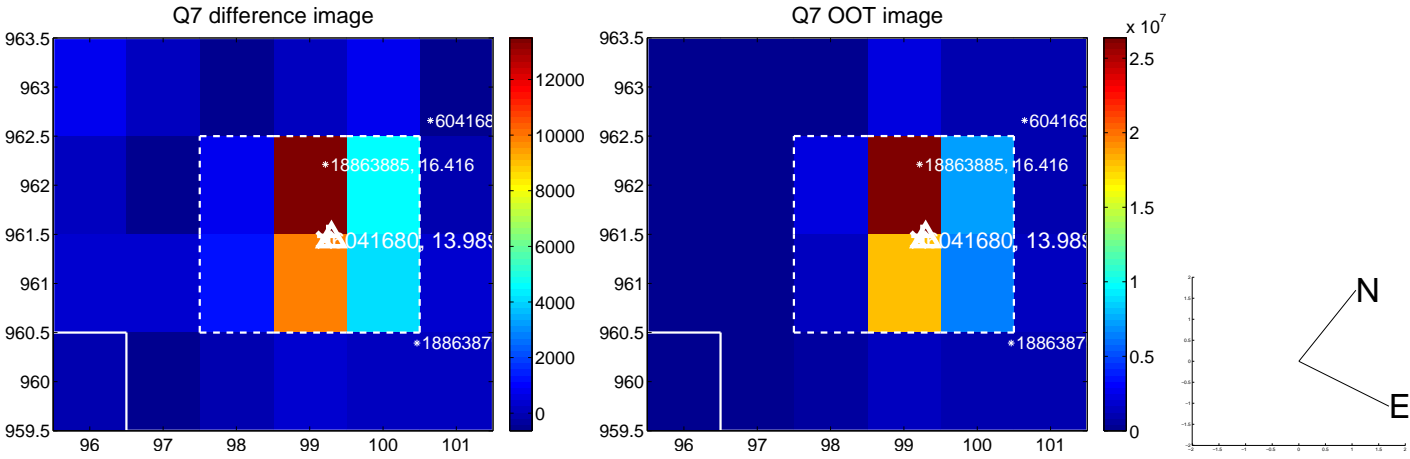
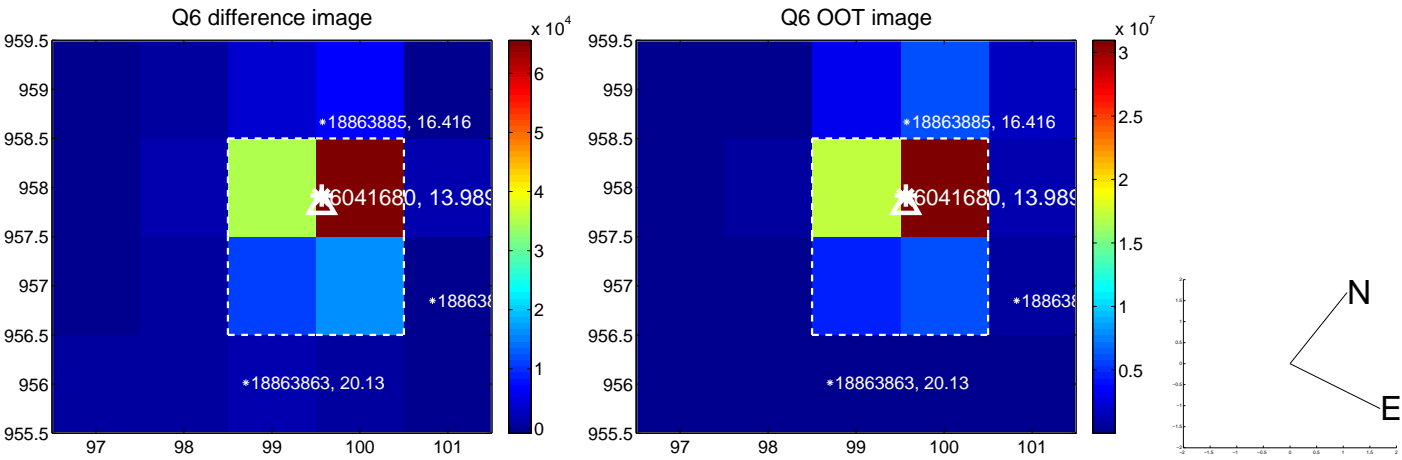
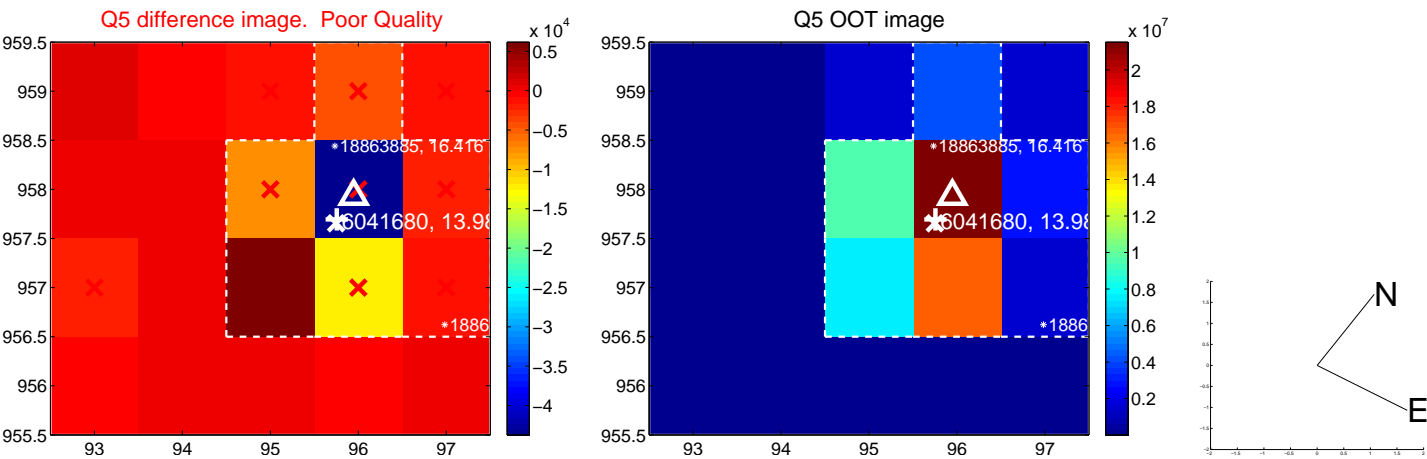


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

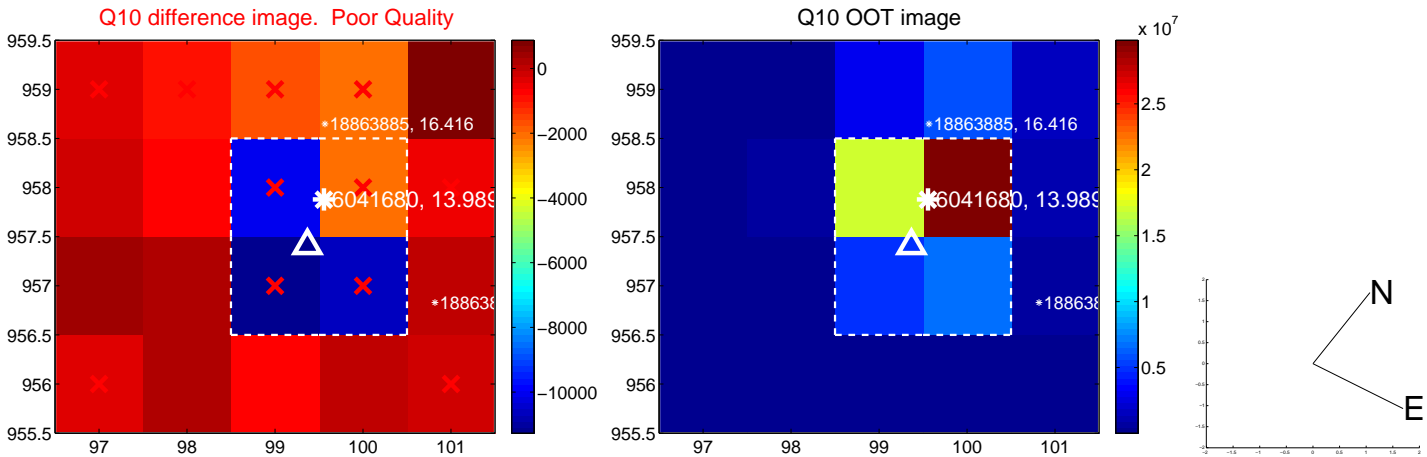
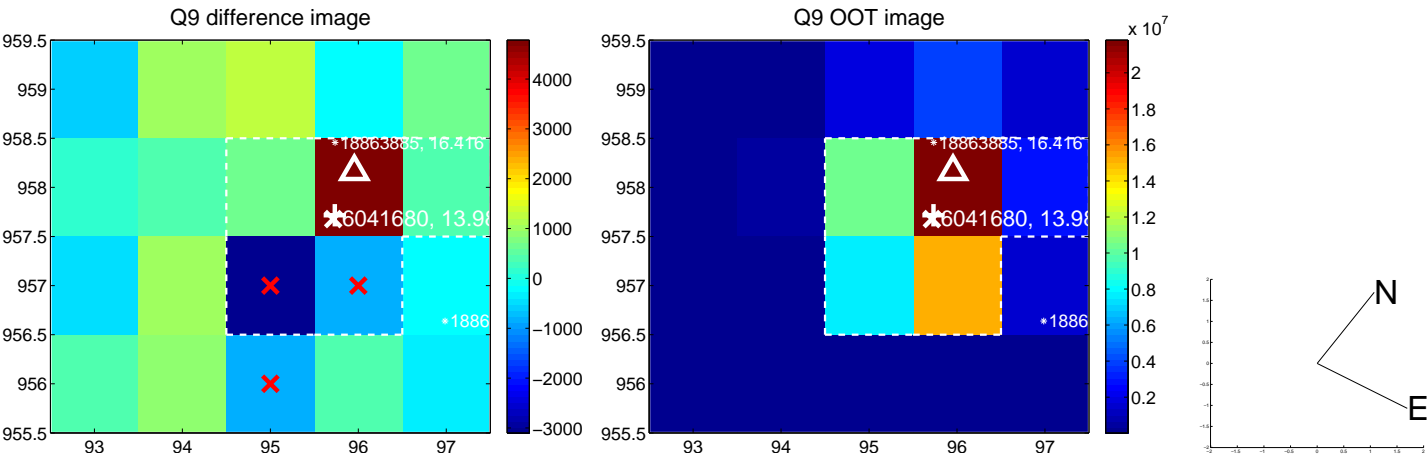
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



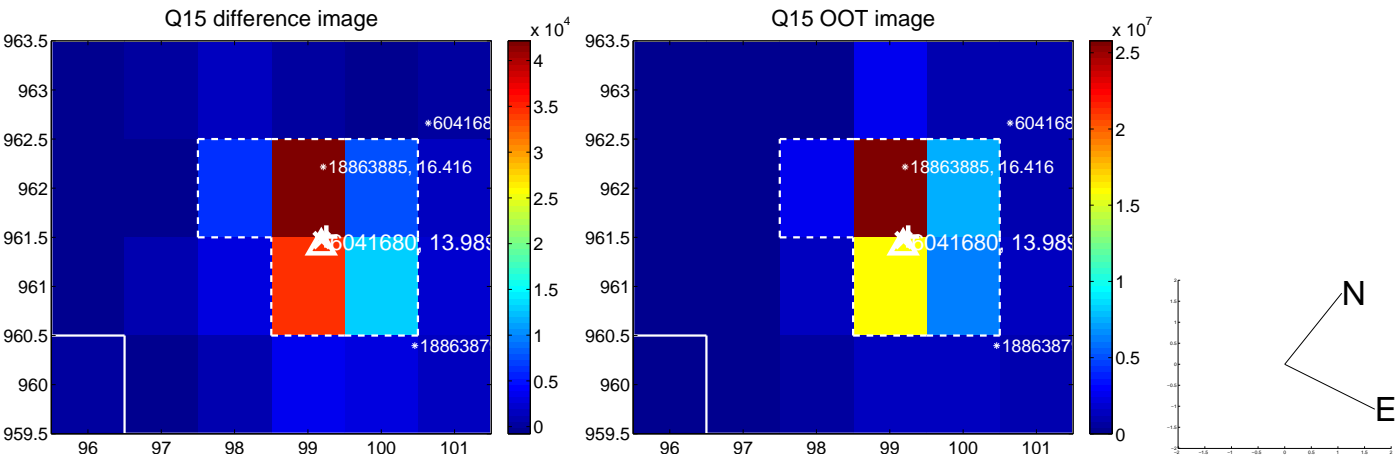
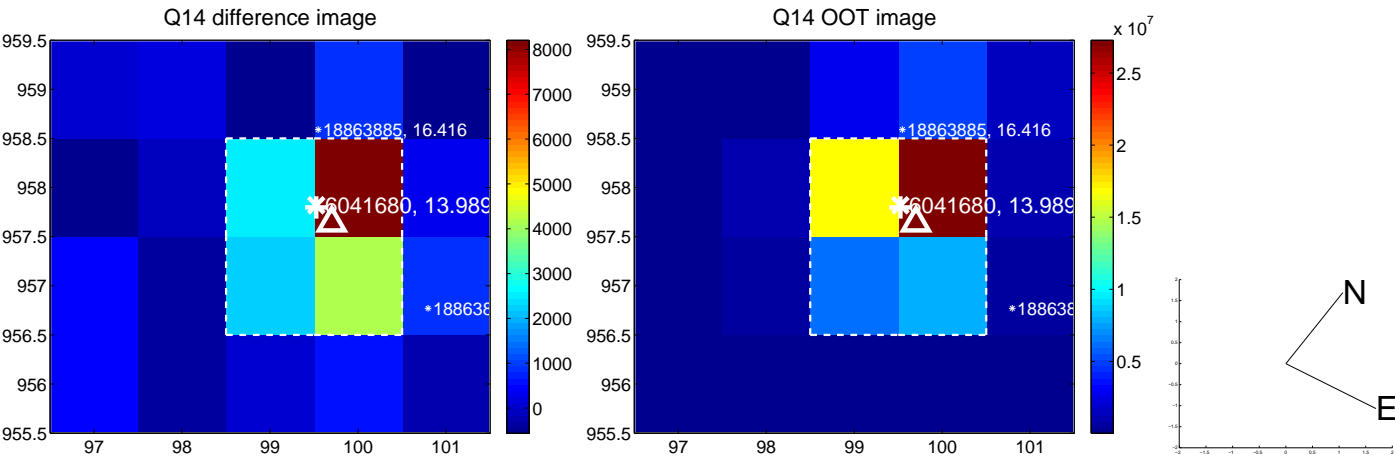
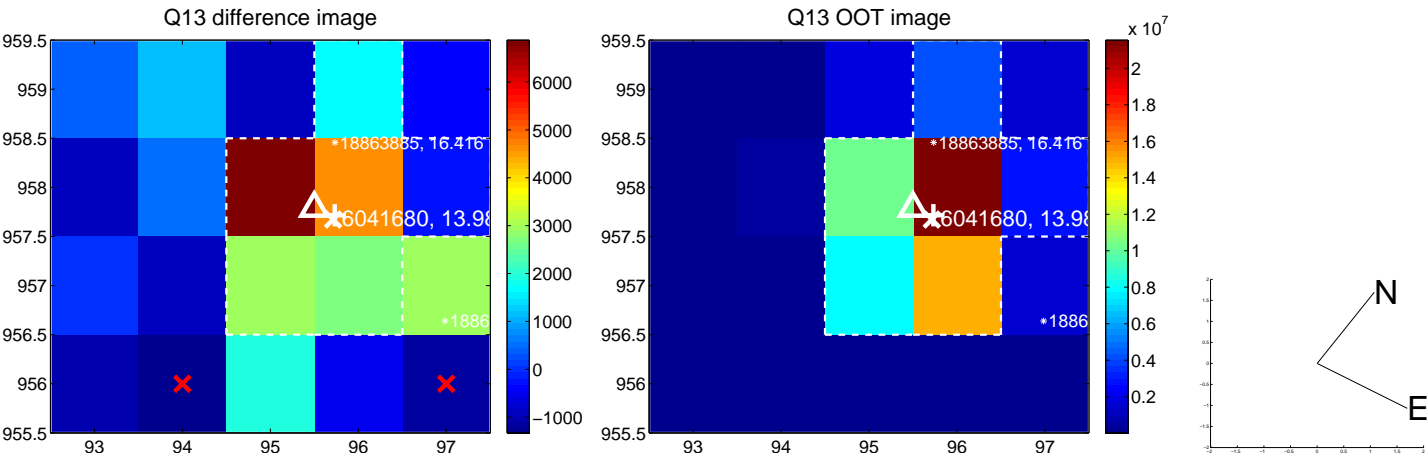
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



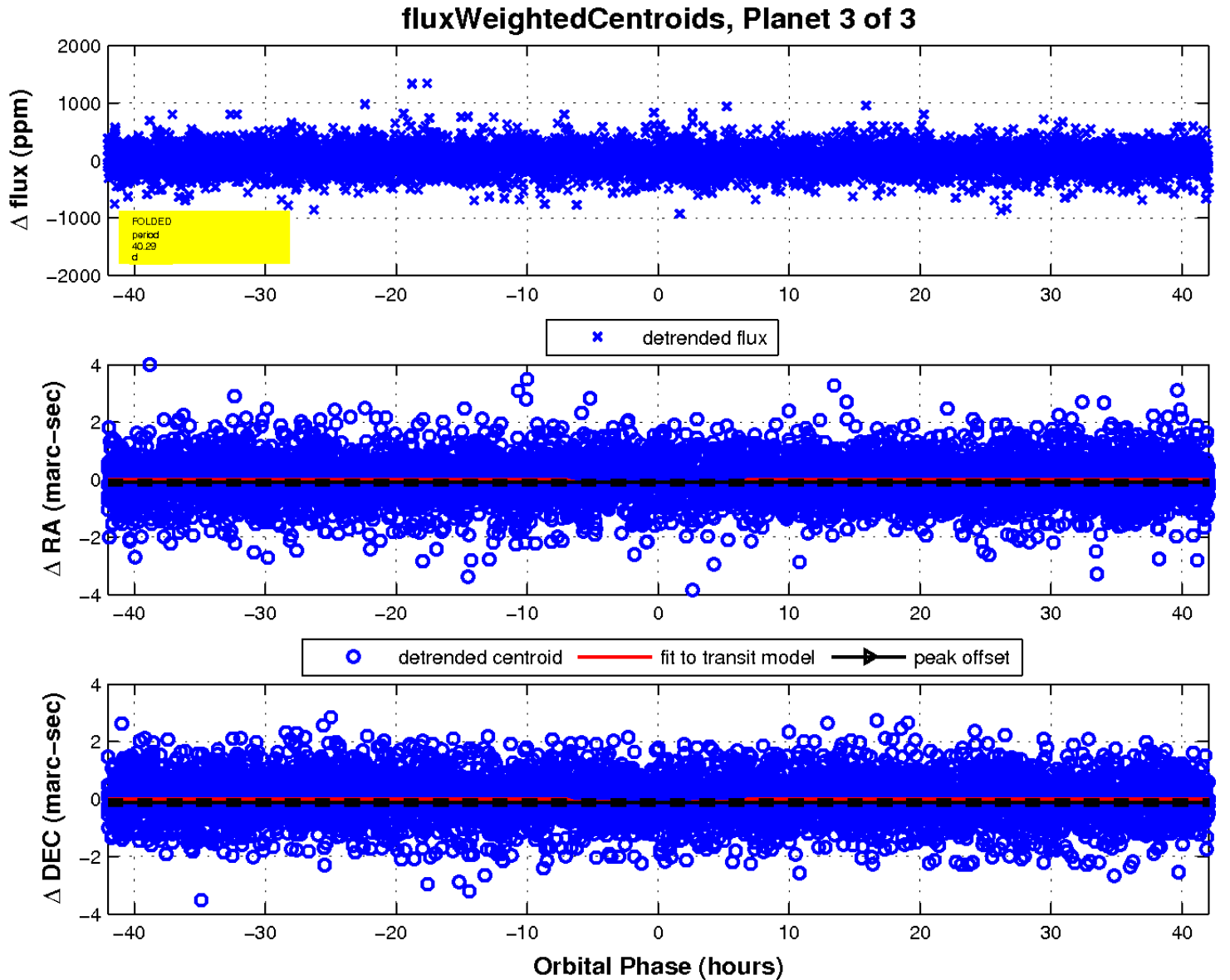
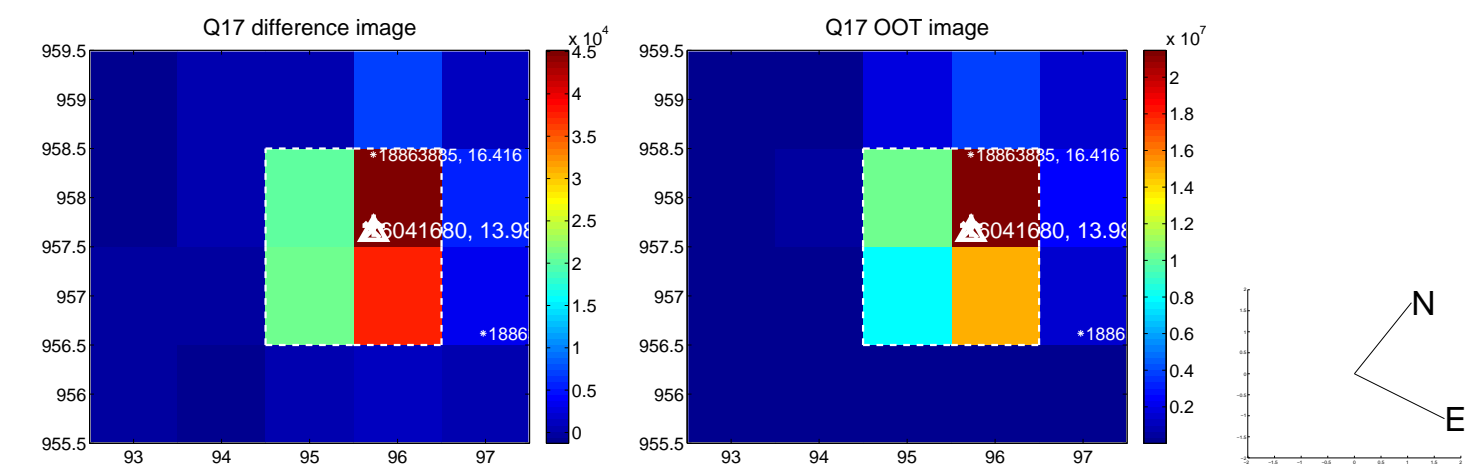
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

