

KIC 006307083

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006307083-01 | OBS | 2050.01 | 75.379309 | 167.102308 | 477.3 | 6.615 | 32.2 | 28.9 | 0.84 | 5061 | 3.82 | 3.98 |
| 006307083-02 | OBS | No | 75.378926 | 155.488797 | 123.1 | 6.287 | 11.2 | 11.0 | 0.84 | 5061 | 1.12 | 3.98 |
| 006307083-03 | OBS | 2050.02 | 3.177973 | 134.347865 | 53.2 | 0.615 | 7.9 | 12.1 | 0.84 | 5061 | 0.77 | 270.92 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006307083-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 1 | MOD_SEC_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 006307083-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 1 | IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 006307083-03 | OBS | PC | 0.94 | 0 | 0 | 0 | 0 | CENT_KIC_POS |

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 006307083-01

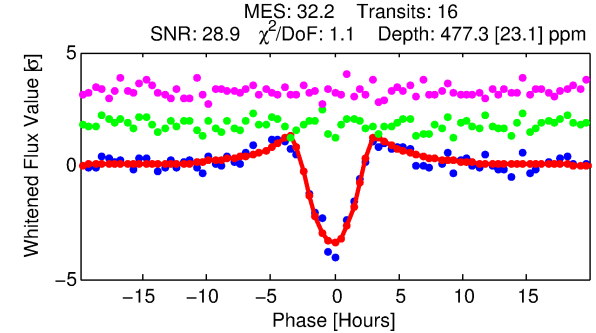
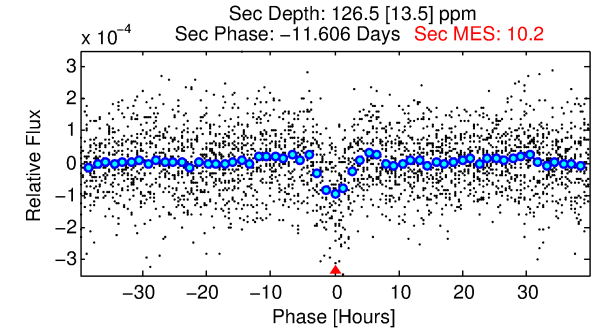
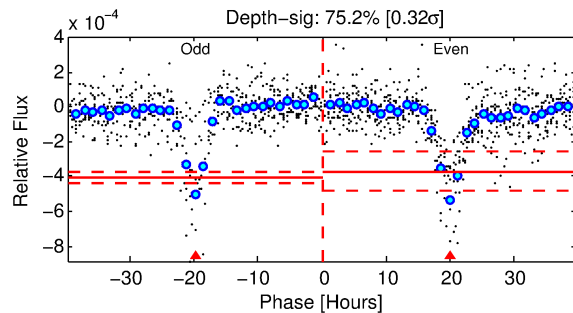
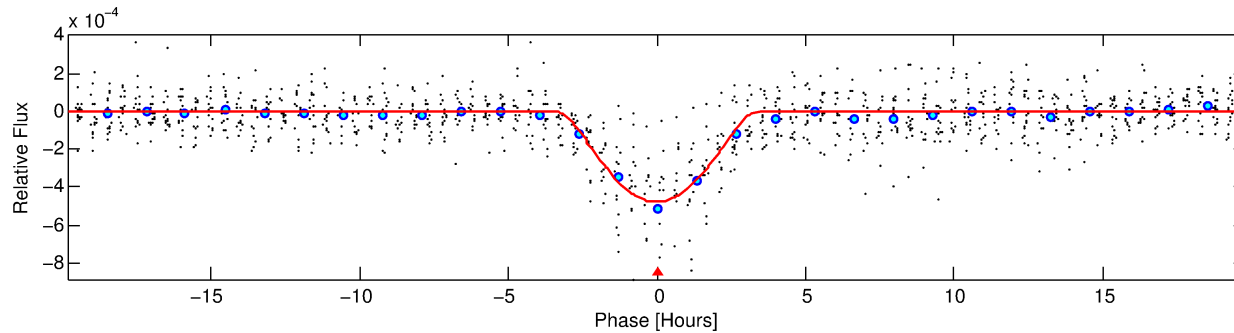
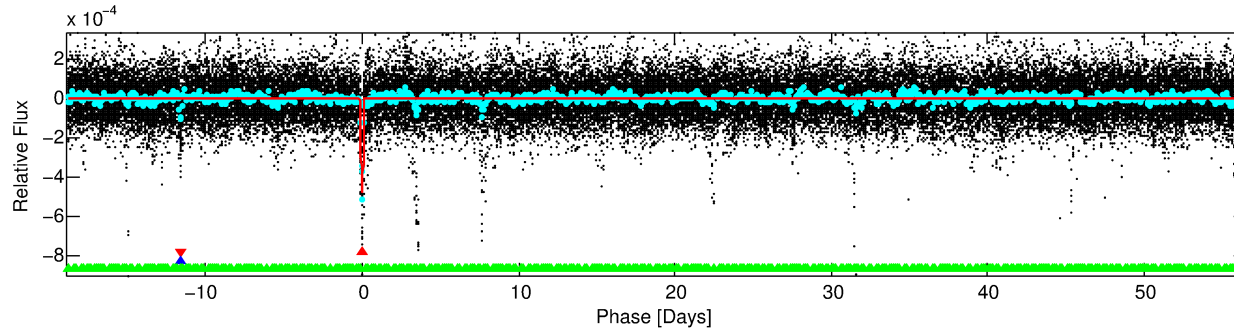
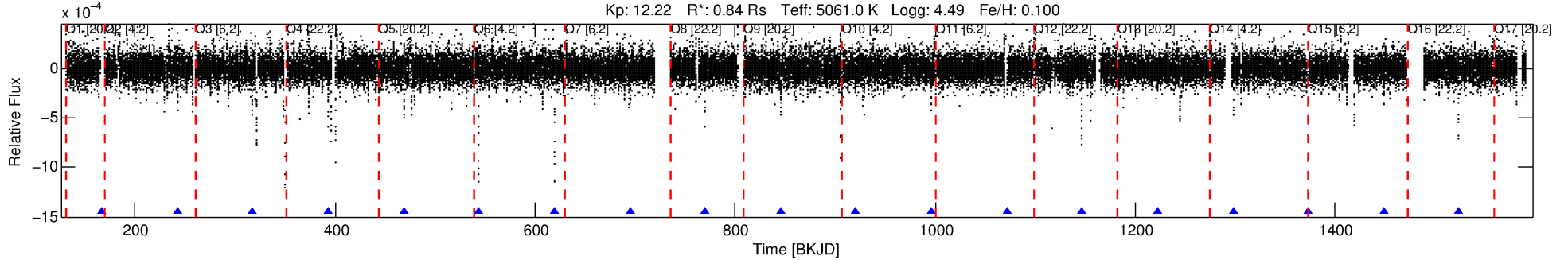
| TCE (1) | KIC | Parent (2) | Parent KIC | P ₁ :P ₂ | Dist ($''$) | Δ Row | Δ Col | m ₂ | m ₁ | D ₂ /D ₁ | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|------------|------------|--------------------------------|---------------|--------------|--------------|----------------|----------------|--------------------------------|------------|------|------------|------------|
| 006307083-01 | 6307083 | 3153.01 | 6307062 | 1:1 | 16.4 | 2 | -4 | 14.86 | 12.22 | 1156.30 | Direct-PRF | 0 | 0.08 | 0.07 |

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 6307083 Candidate: 1 of 3 Period: 75.379 d
KOI: K02050.01 Corr: 0.983

Kp: 12.22 R*: 0.84 Rs Teff: 5061.0 K Logg: 4.49 Fe/H: 0.100



DV Fit Results:

Period = 75.37931 [0.00041] d
Epoch = 167.1023 [0.0043] BKJD
Rp/R* = 0.0416 [0.0408]
a/R* = 25.48 [6.19]
b = 1.00 [0.06]
Seff = 3.98 [0.63]
Teq = 360 [14] K
Rp = 3.82 [3.76] Re
a = 0.3234 [0.0276] AU
Ag = 498.24 [980.67] [0.51σ]
Teffp = 2630 [1291] K [1.76σ]

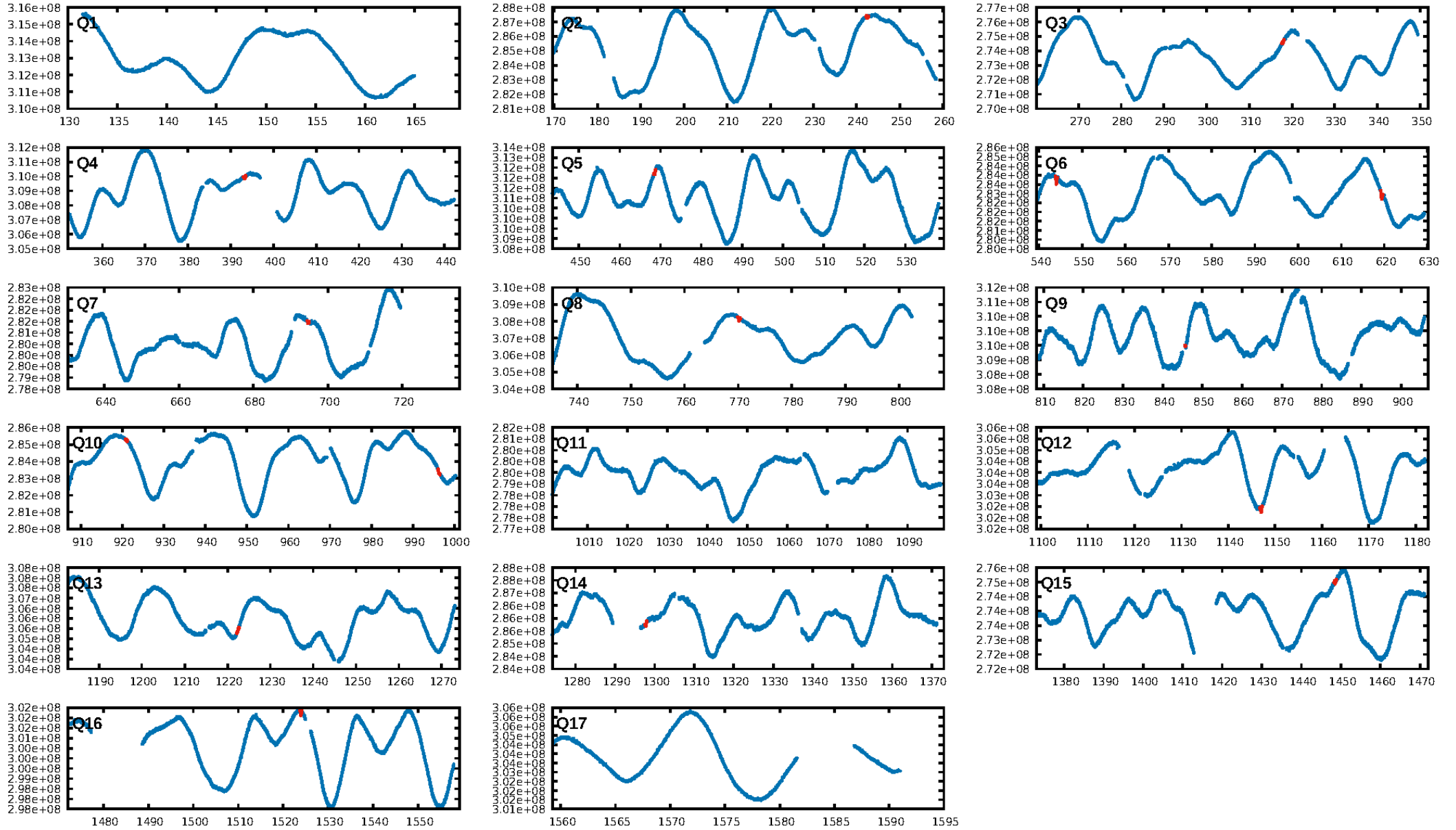
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 97.0%
Bootstrap-pfa: 1.29e-164
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: -0.09252
Centroid-sig: N/A
Centroid-so: 97.673 arcsec [316.95σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.77 [10/13]

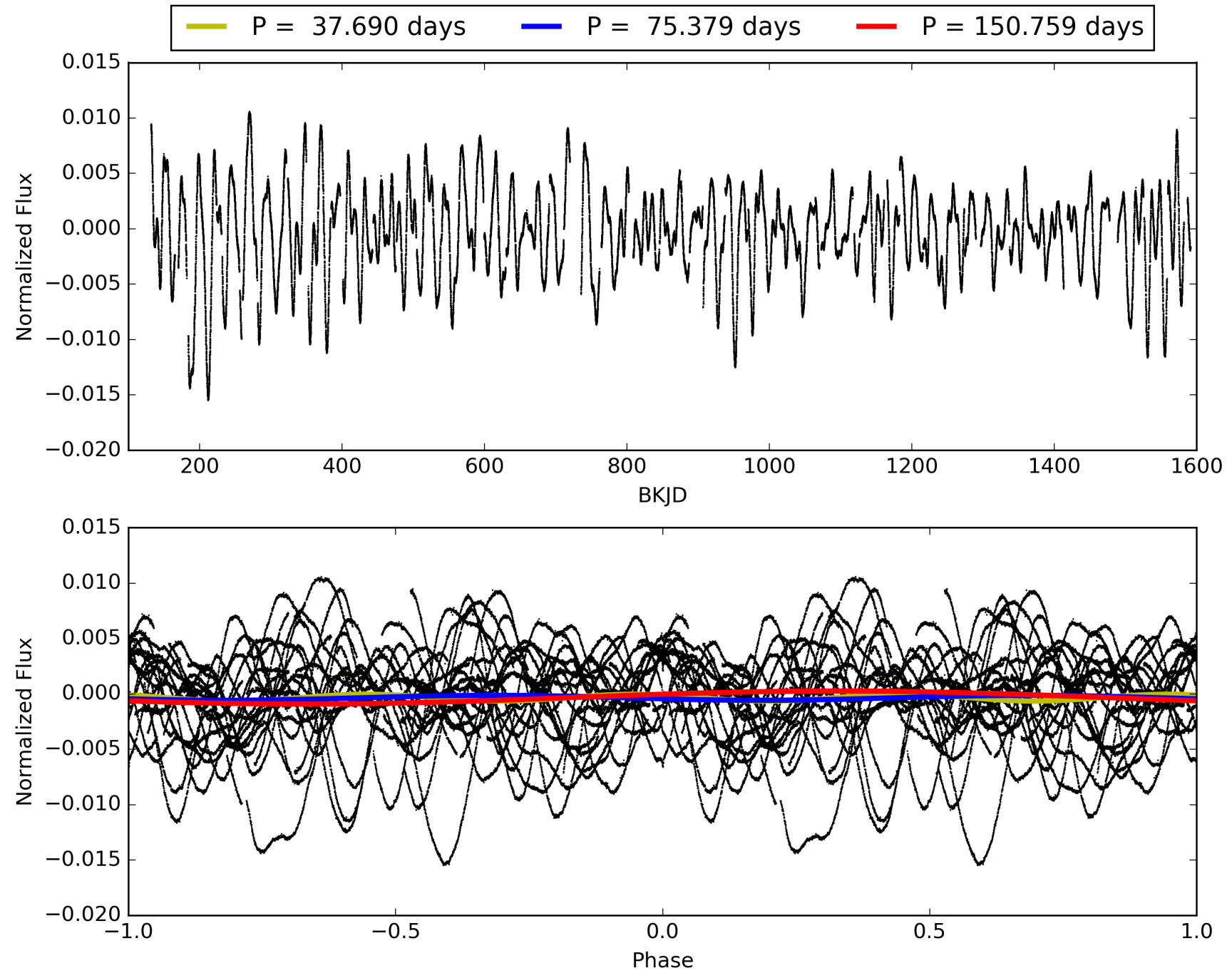
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:44:45 Z

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

TCE 006307083-01, PDC Light Curves

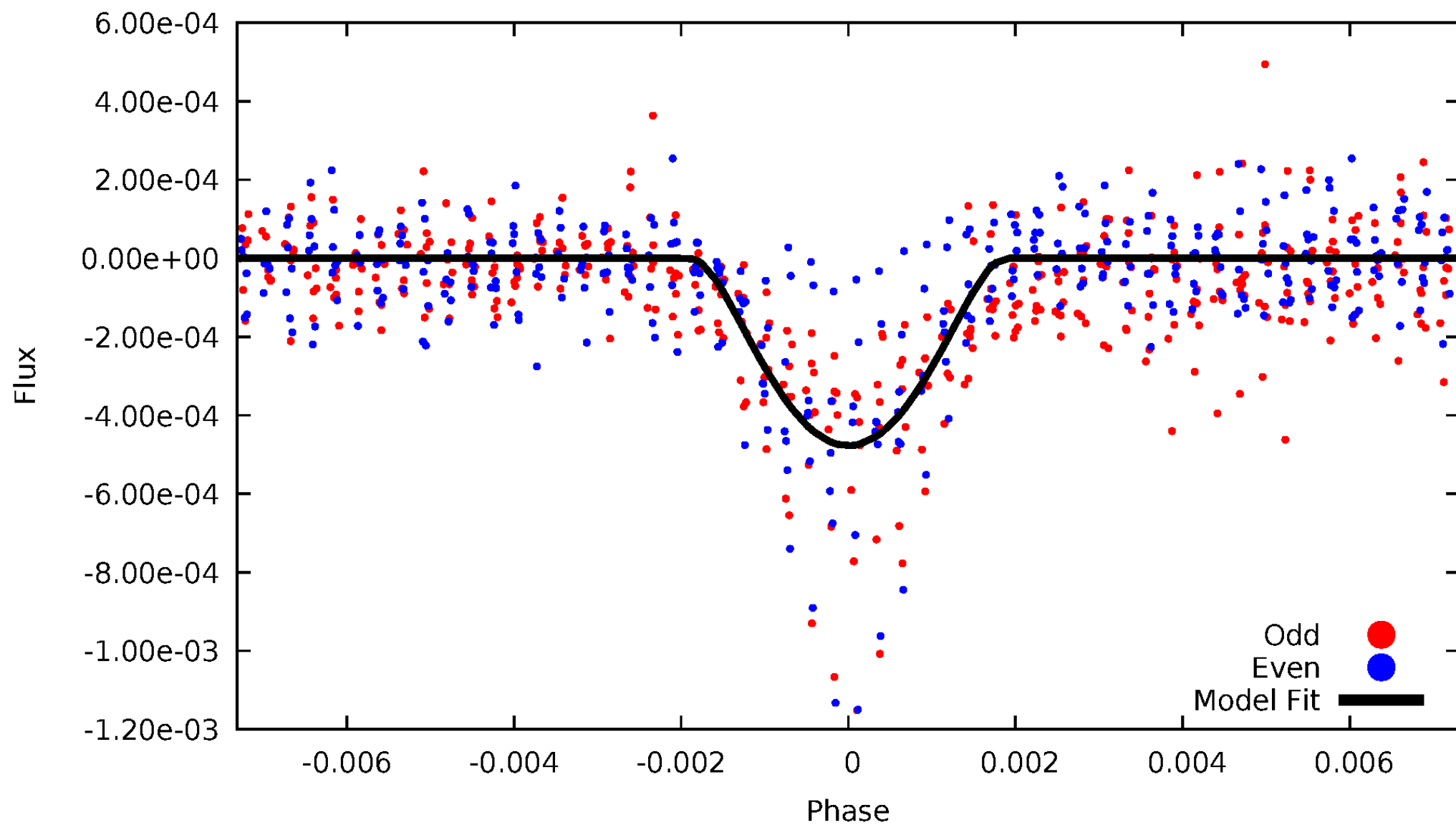


TCE 006307083-01



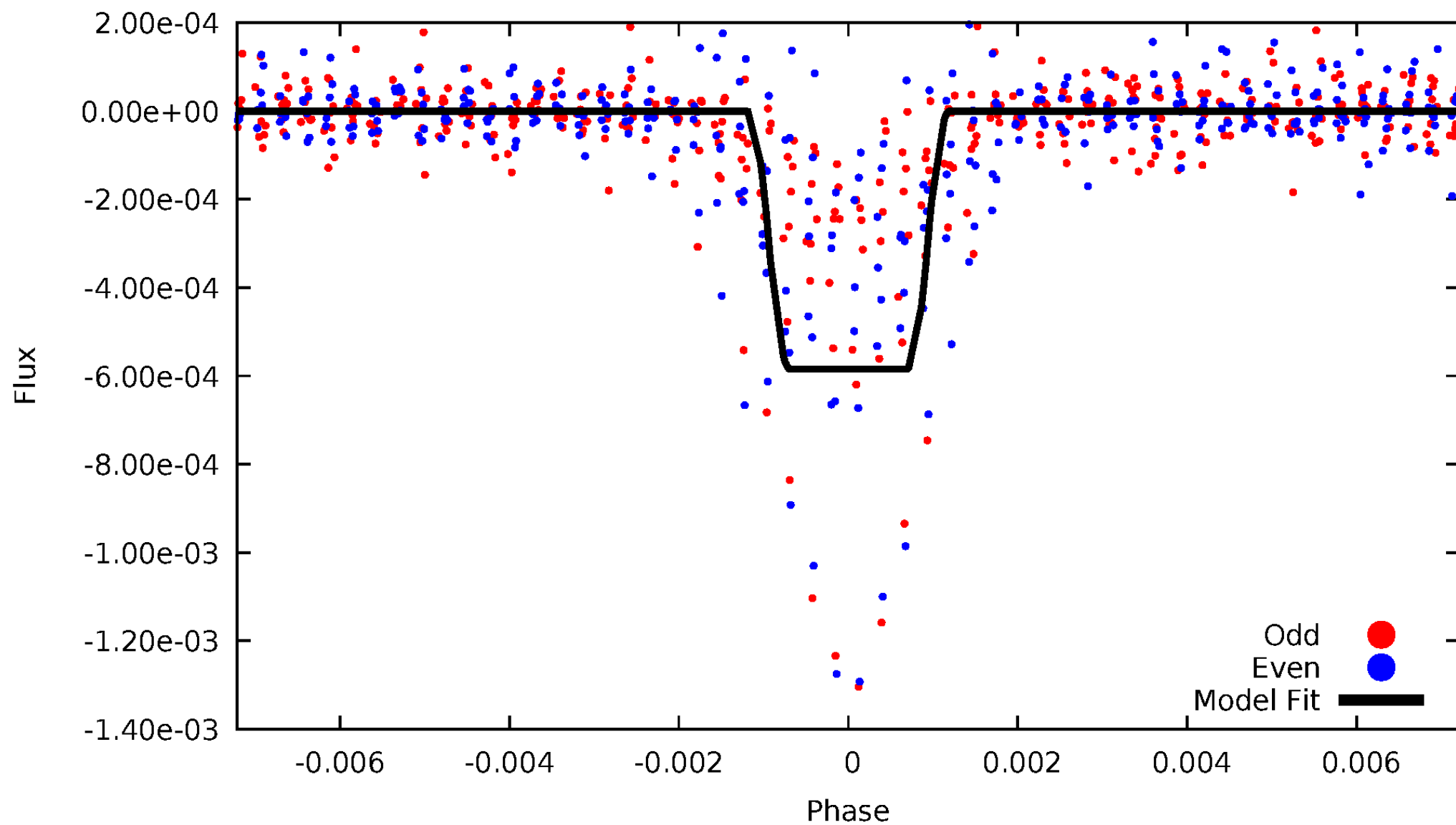
DV Odd/Even

TCE 006307083-01



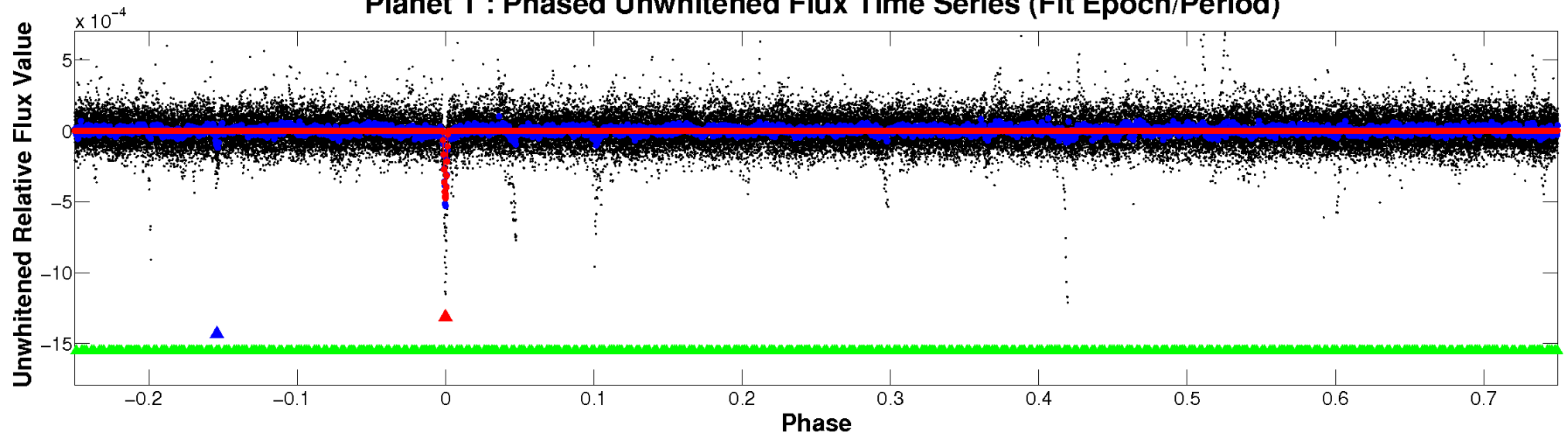
ALT Odd/Even

TCE 006307083-01

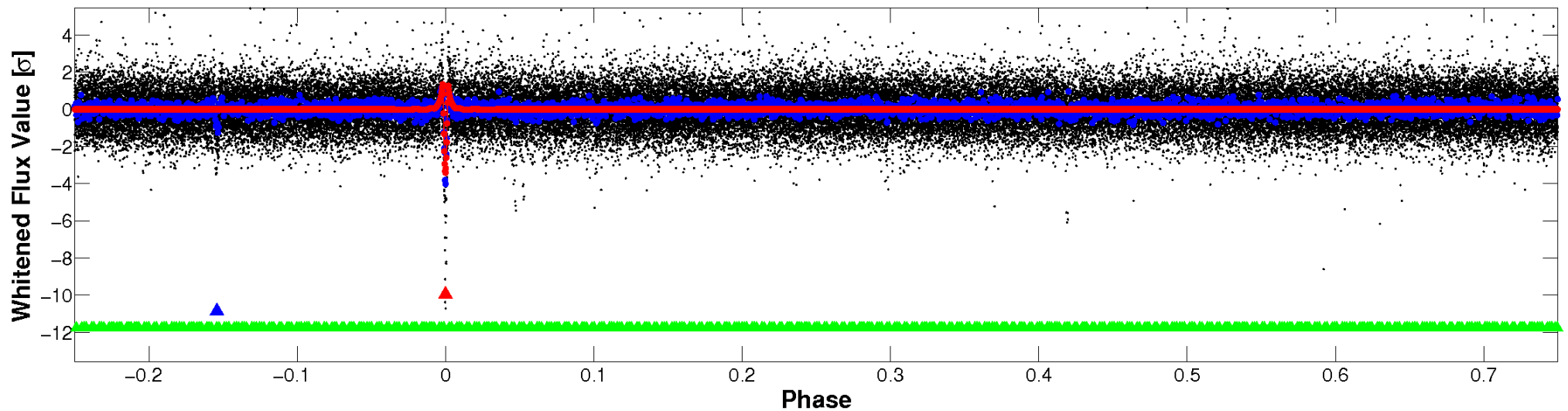


Non-Whitened Vs. Whitened Light Curve

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

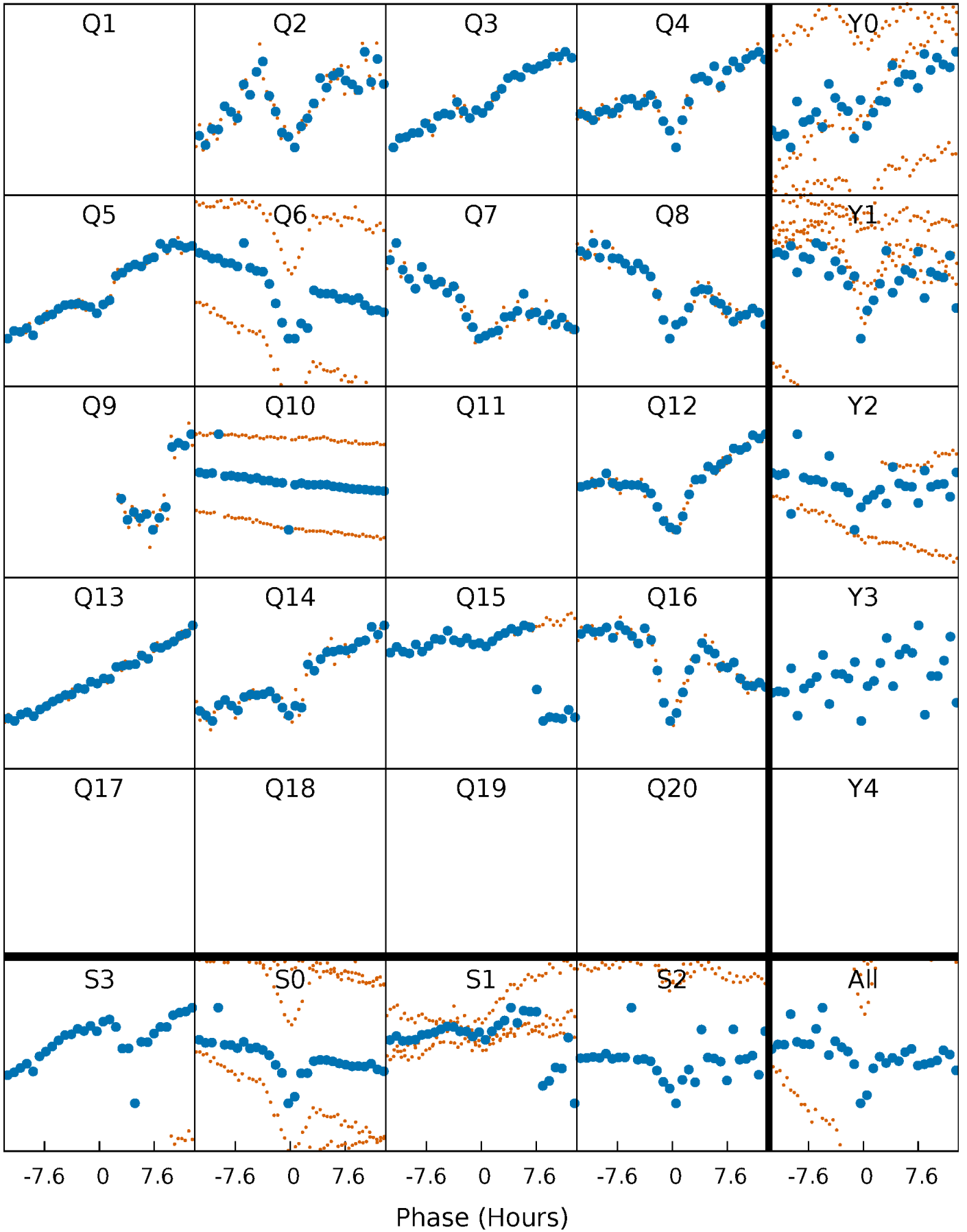


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



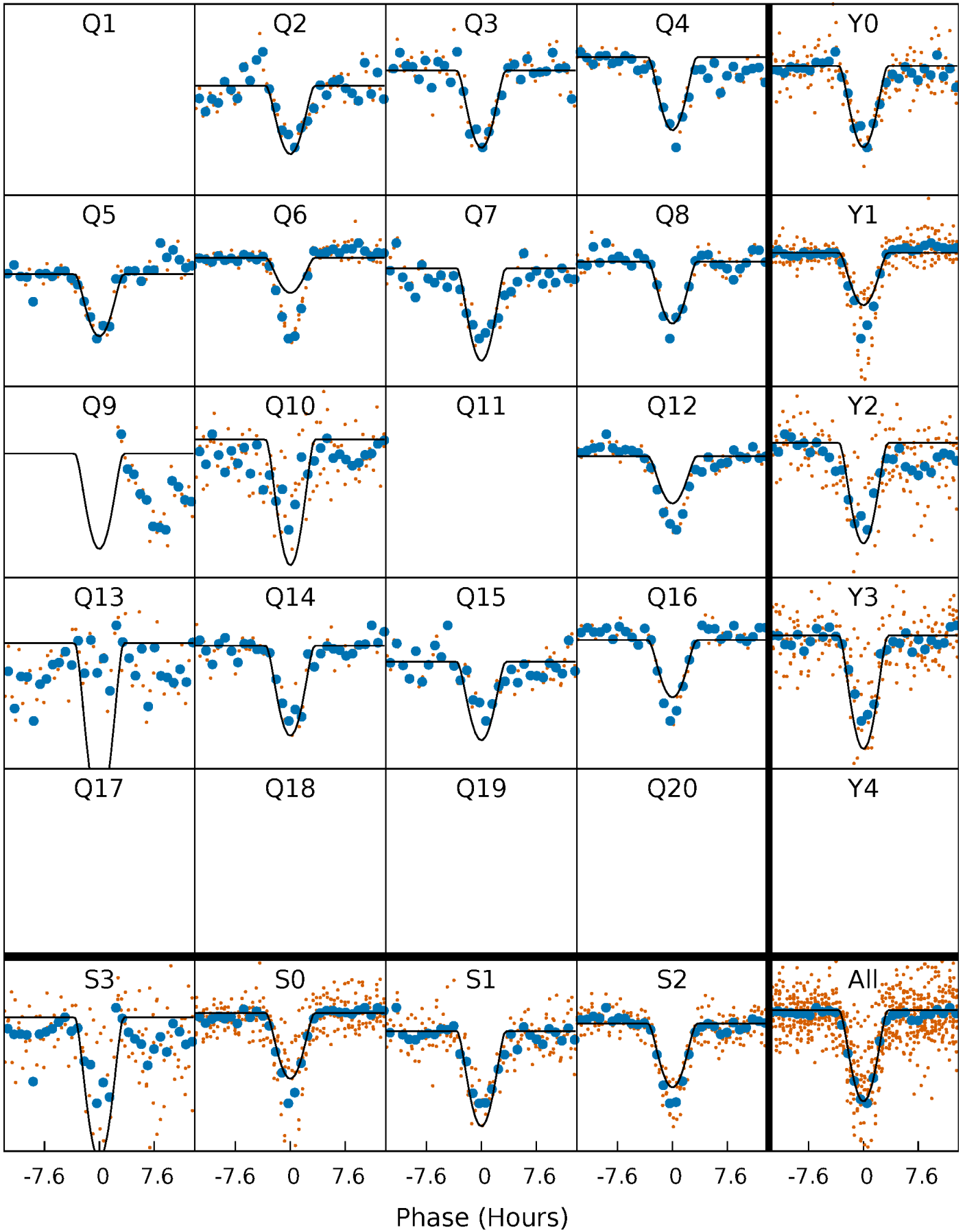
PDC Quarter-Phased Transit Curves

TCE 006307083-01 P= 75.379309 Days $T_0=167.102308$ (BKJD)



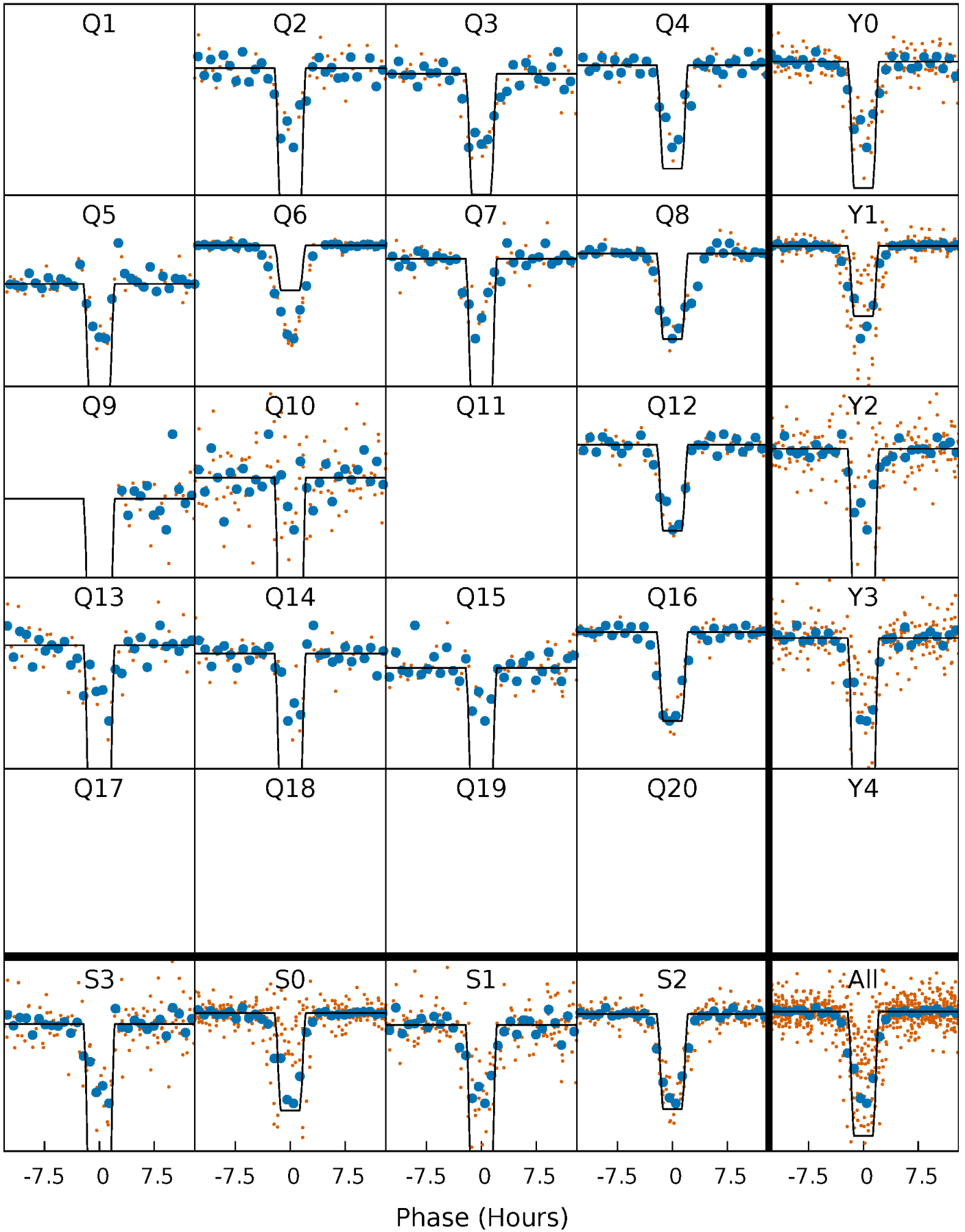
DV Quarter-Phased Transit Curves

TCE 006307083-01 P= 75.379309 Days $T_0=167.102308$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

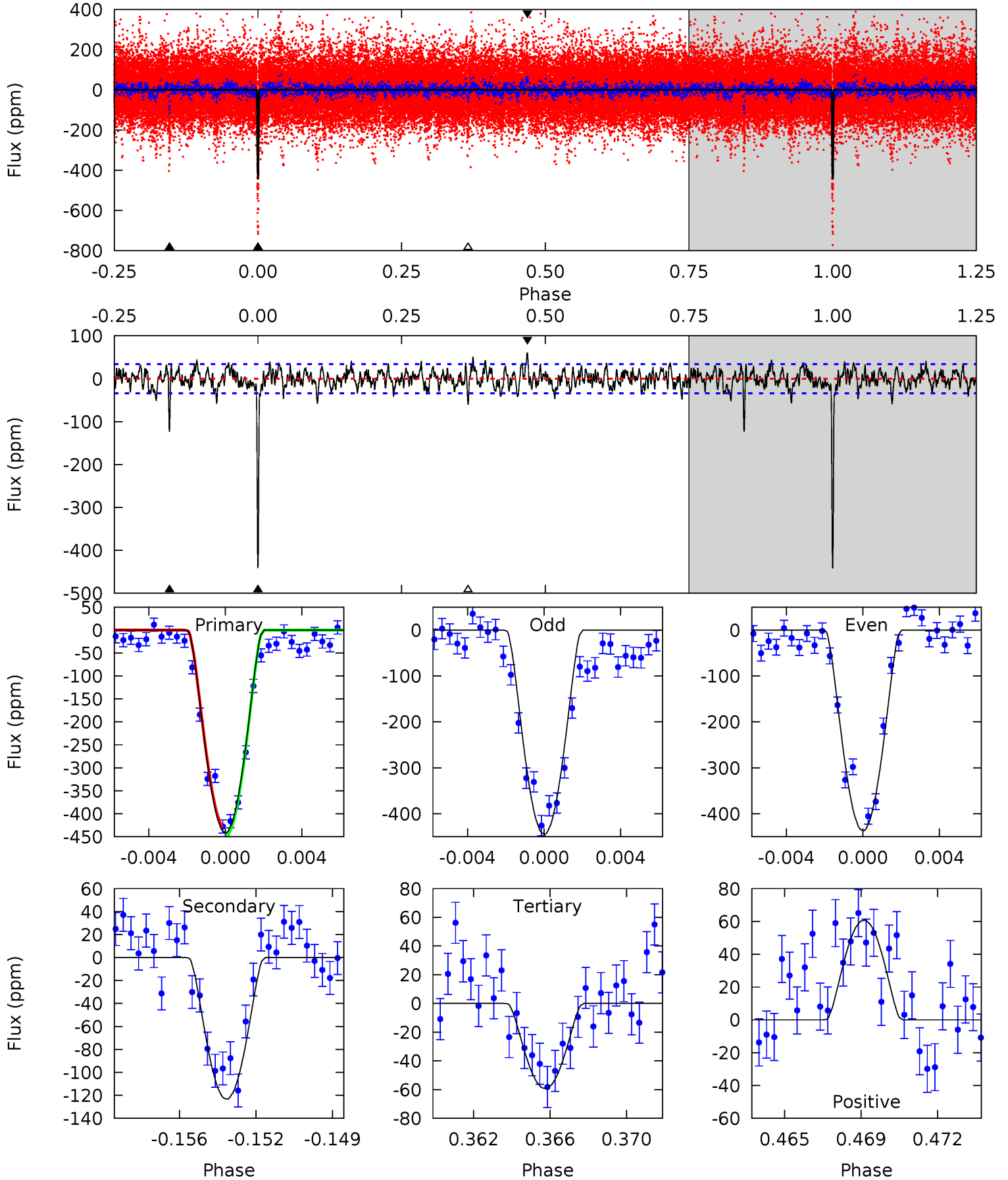
TCE 006307083-01 P= 75.379202 Days $T_0=167.101735$ (BKJD)



DV Model-Shift Uniqueness Test

006307083-01, P = 75.379309 Days, E = 91.722999 Days

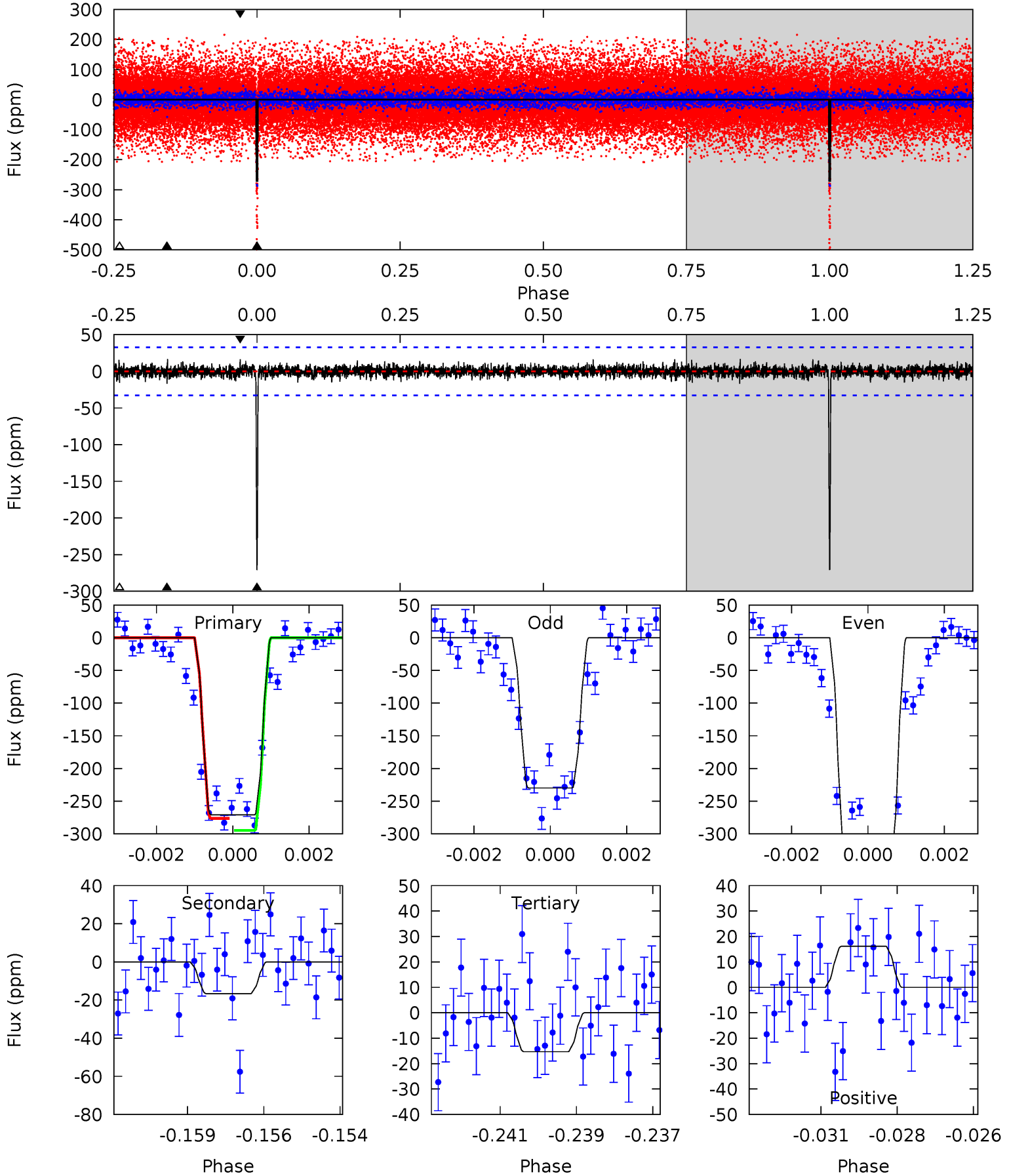
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 67.8 | 19.0 | 9.11 | 9.34 | 5.21 | 2.89 | 2.59 | 58.7 | 58.5 | 9.85 | 9.62 | 0.57 | 0.99 | 0.12 | 1.49 |



Alt Model-Shift Uniqueness Test

006307083-01, P = 75.379202 Days, E = 91.722533 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 43.8 | 2.70 | 2.48 | 2.61 | 5.30 | 3.04 | 0.68 | 41.3 | 41.2 | 0.22 | 0.09 | 10.4 | 1.72 | 0.06 | 1.45 |



Stellar Parameters For KIC 006307083

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5061^{+83}_{-76} | $4.488^{+0.088}_{-0.028}$ | $0.100^{+0.150}_{-0.150}$ | $0.841^{+0.038}_{-0.066}$ | $0.793^{+0.060}_{-0.030}$ | $1.878^{+0.592}_{-0.195}$ |
| | +2%/-2% | +2%/-1% | +150%/-150% | +5%/-8% | +8%/-4% | +32%/-10% |
| Source | SPE90 | SPE90 | SPE90 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006307083-01 / KOI 2050.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|-------------------|-----------------------|----------------------|
| DV | -123 ± 7 | $4.74^{+3.18}_{-2.93}$ | 499^{+12}_{-13} | 2974^{+1062}_{-384} | 320^{+1925}_{-207} |
| Alt. | -17 ± 6 | $3.41^{+3.08}_{-2.34}$ | 499^{+12}_{-13} | 2471^{+952}_{-357} | 75^{+707}_{-56} |

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 $A_{obs} \gg 1.0$

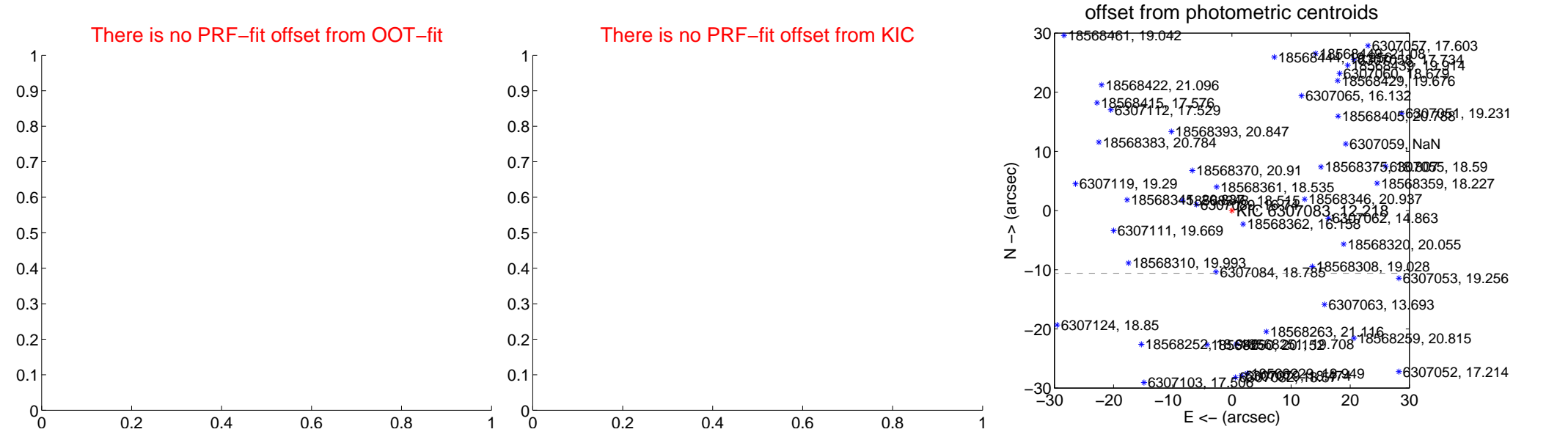
DV Centroid Data

Supplemental centroid analysis for 006307083-01. Kepler magnitude: 12.22. Transit SNR 28.91

There are 0 quarters with good PRF difference image offsets

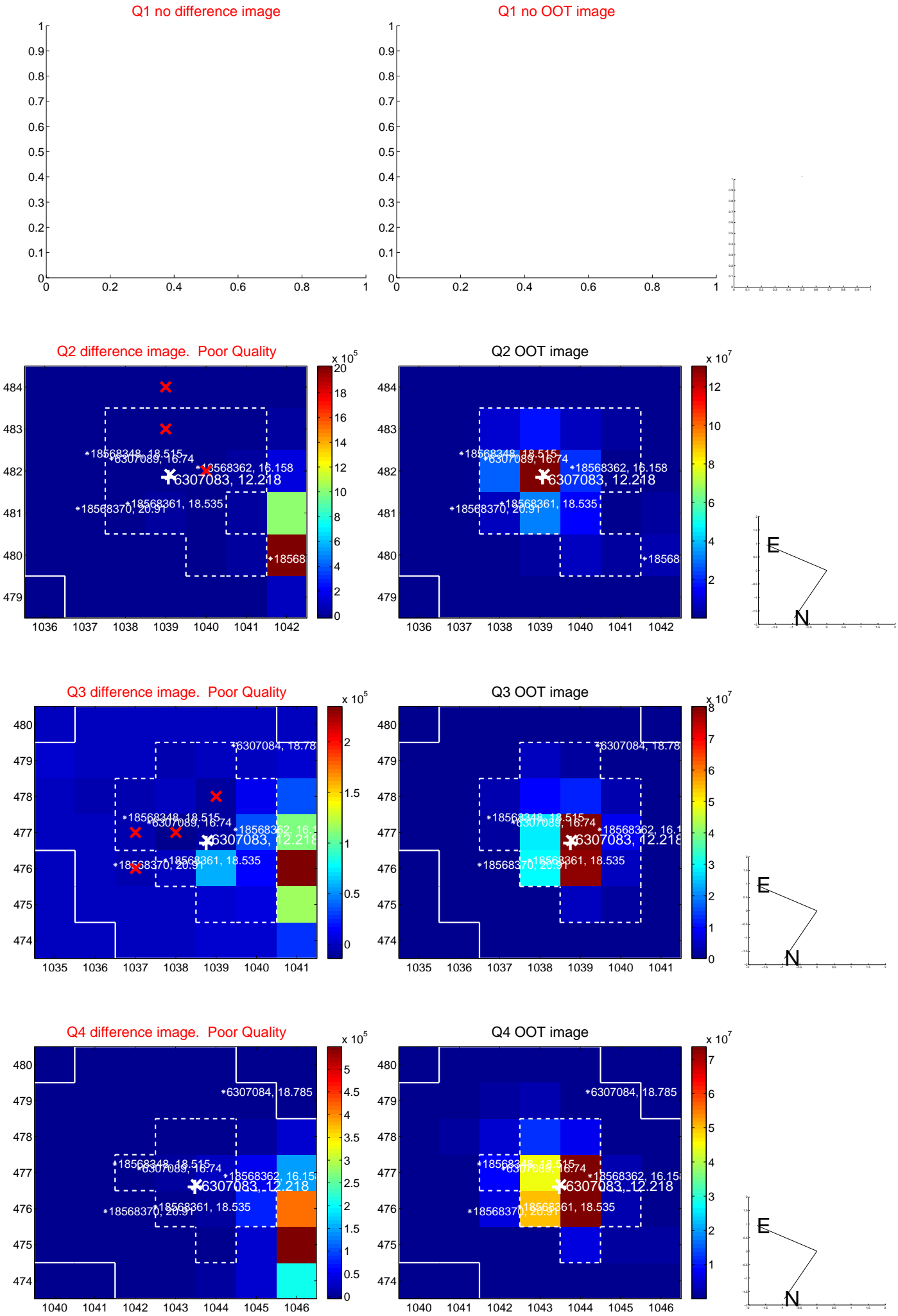
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | 97.68 ± 0.31 | 316.95 | -97.10 ± 0.31 | -10.60 ± 0.26 |

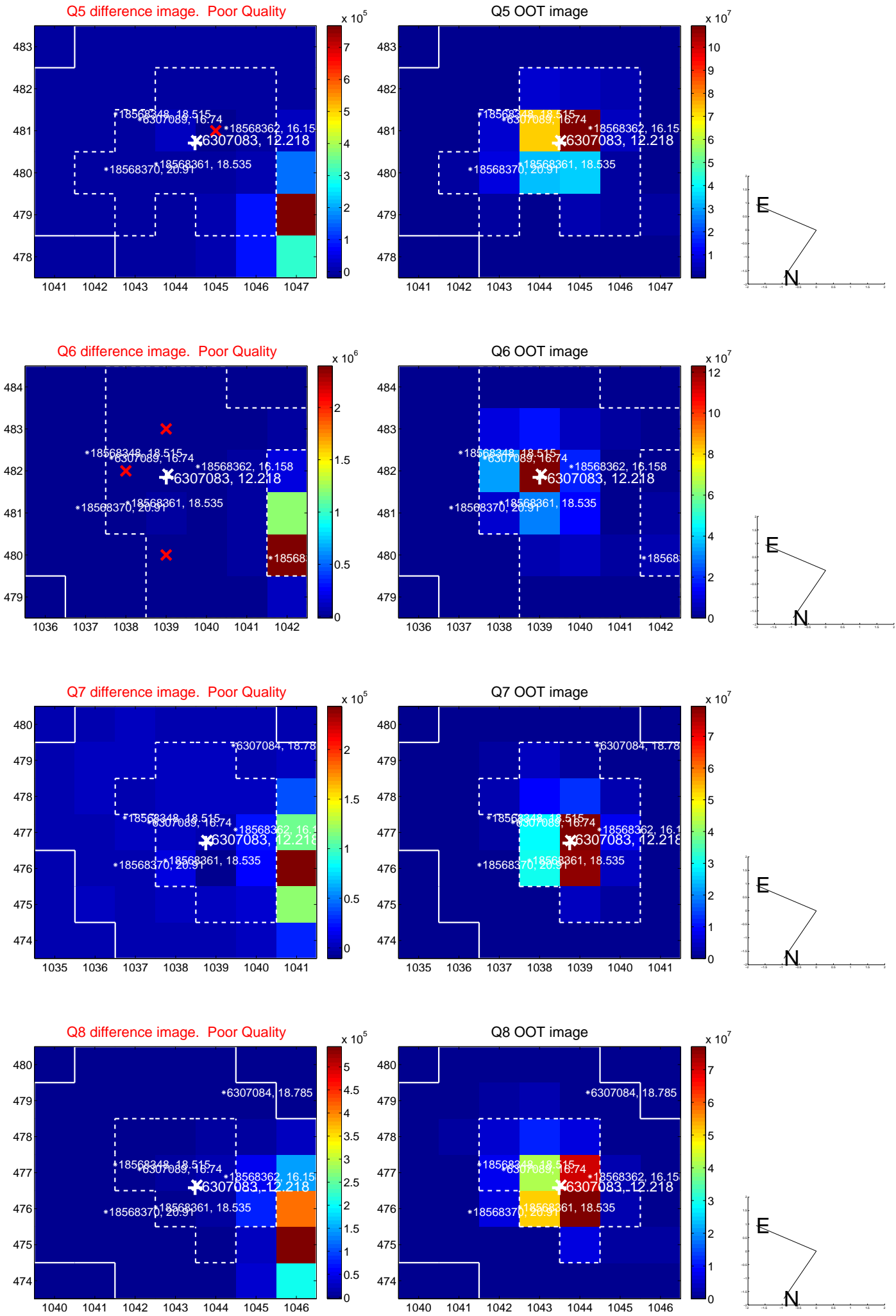


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

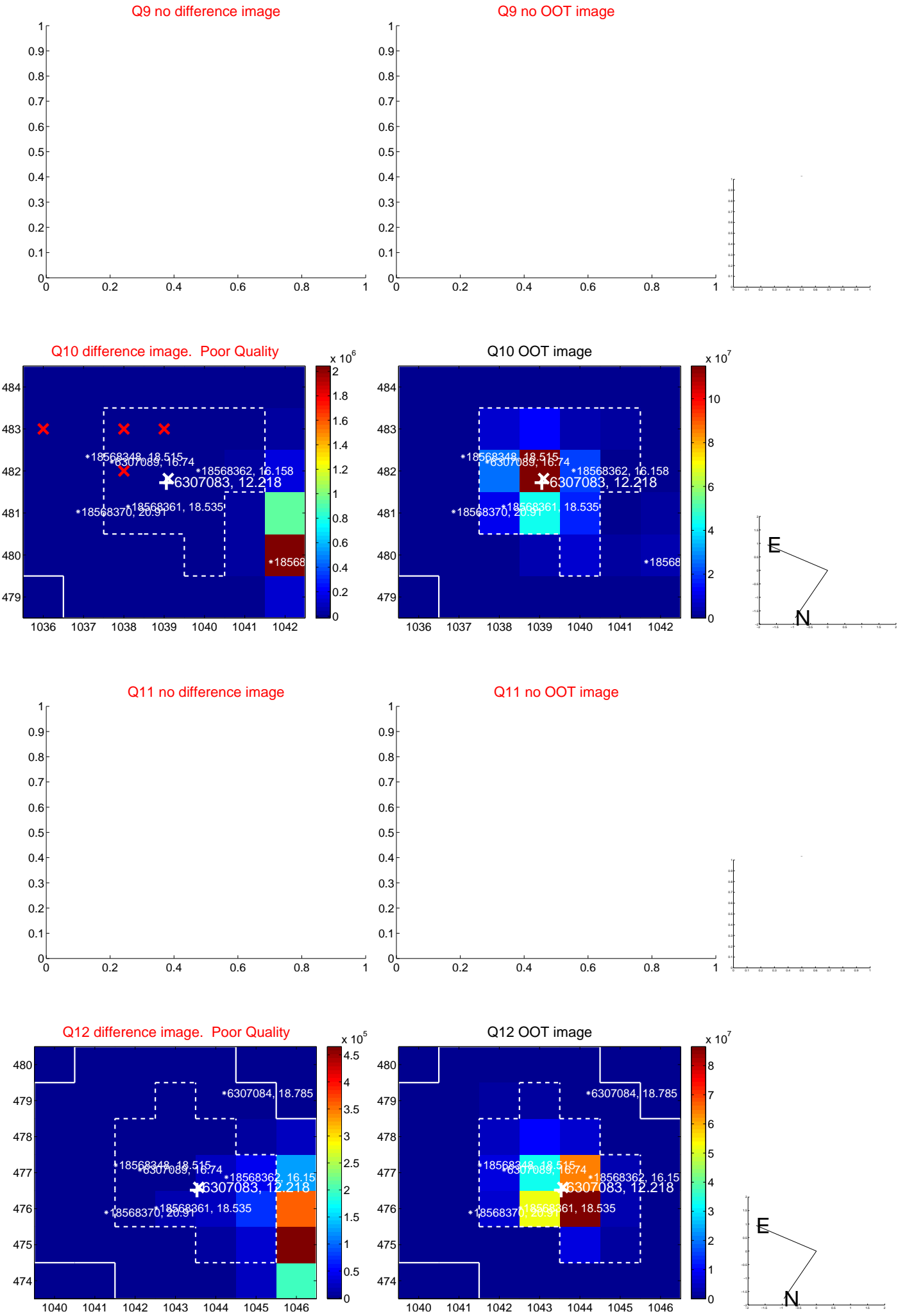
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



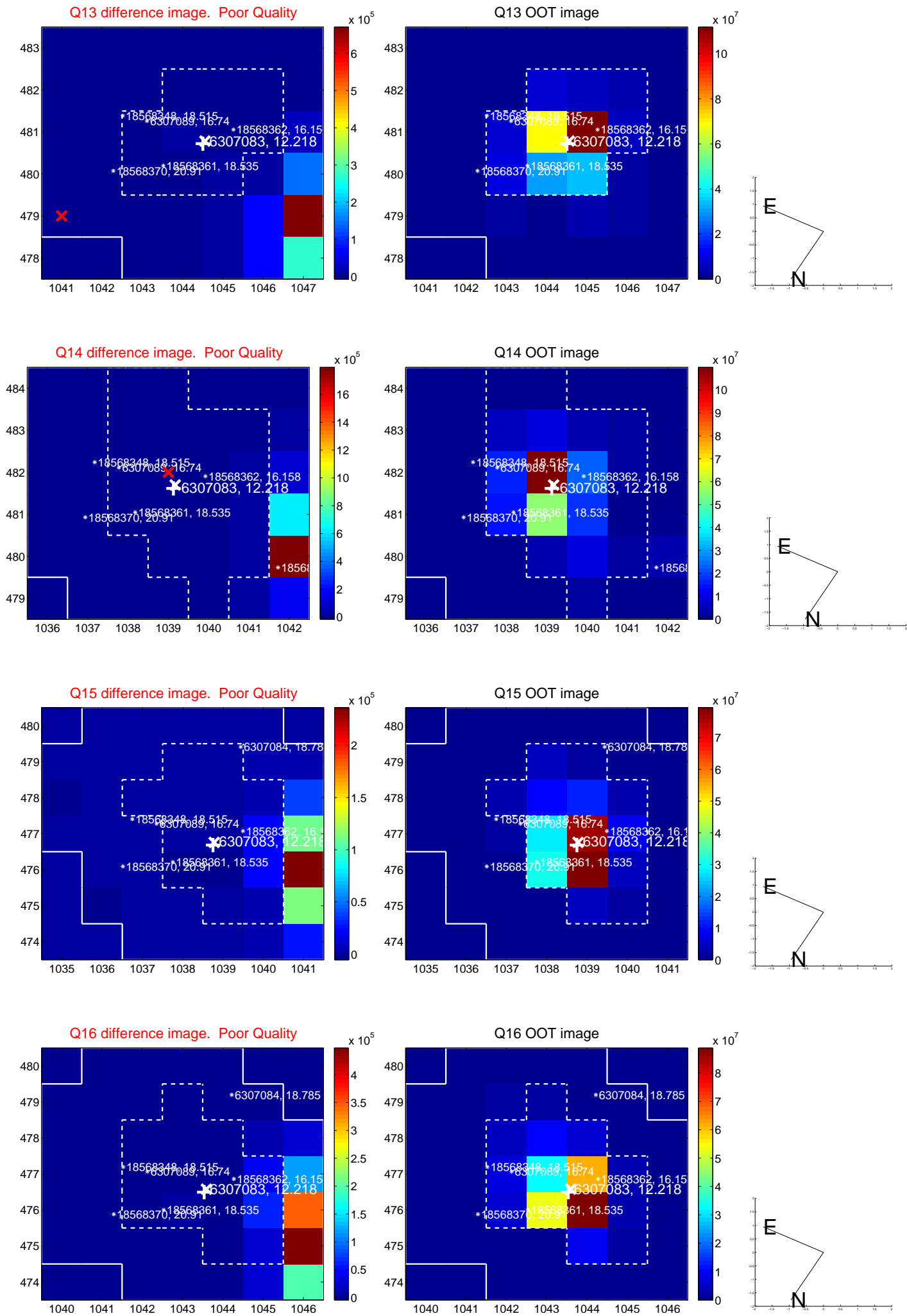
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



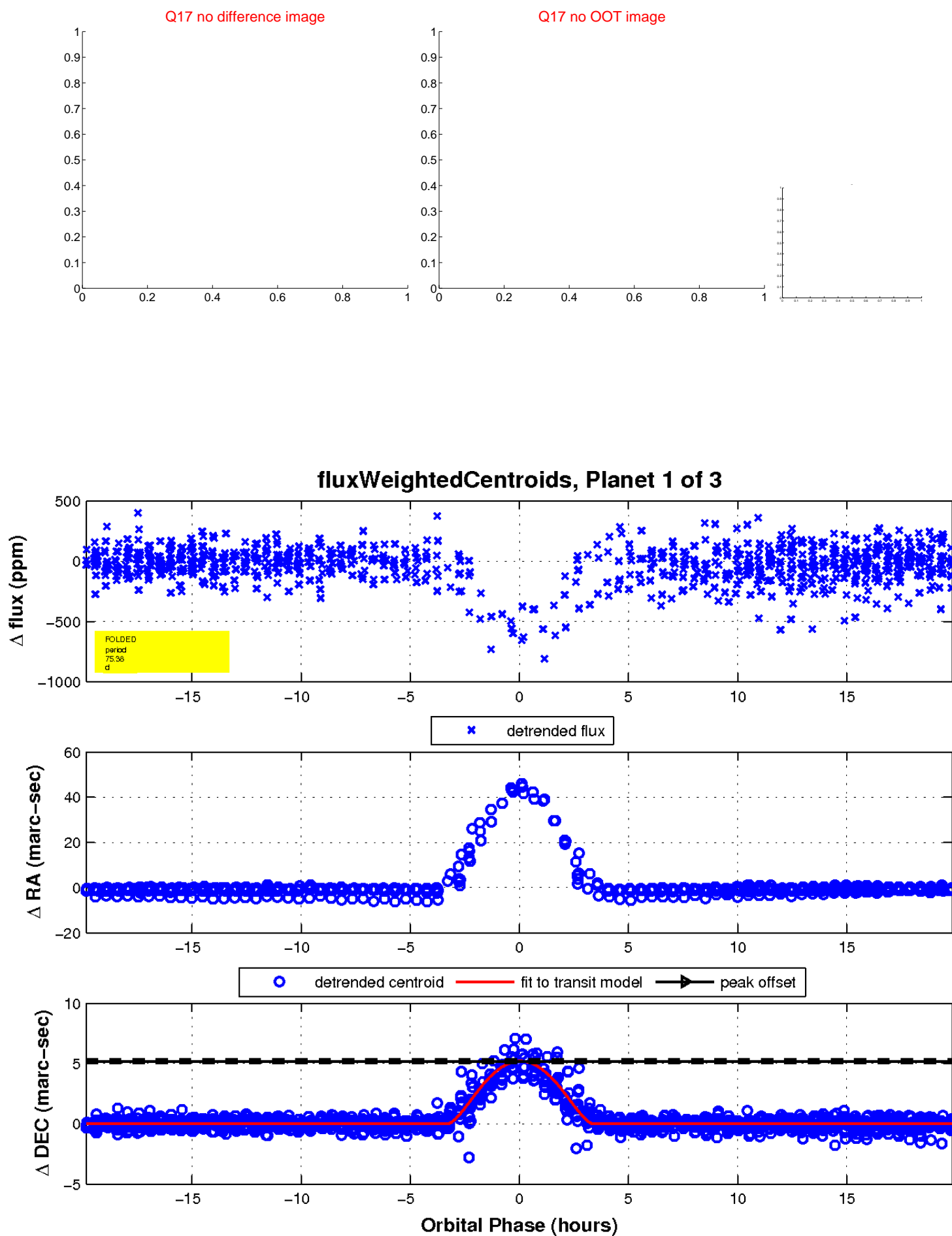
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

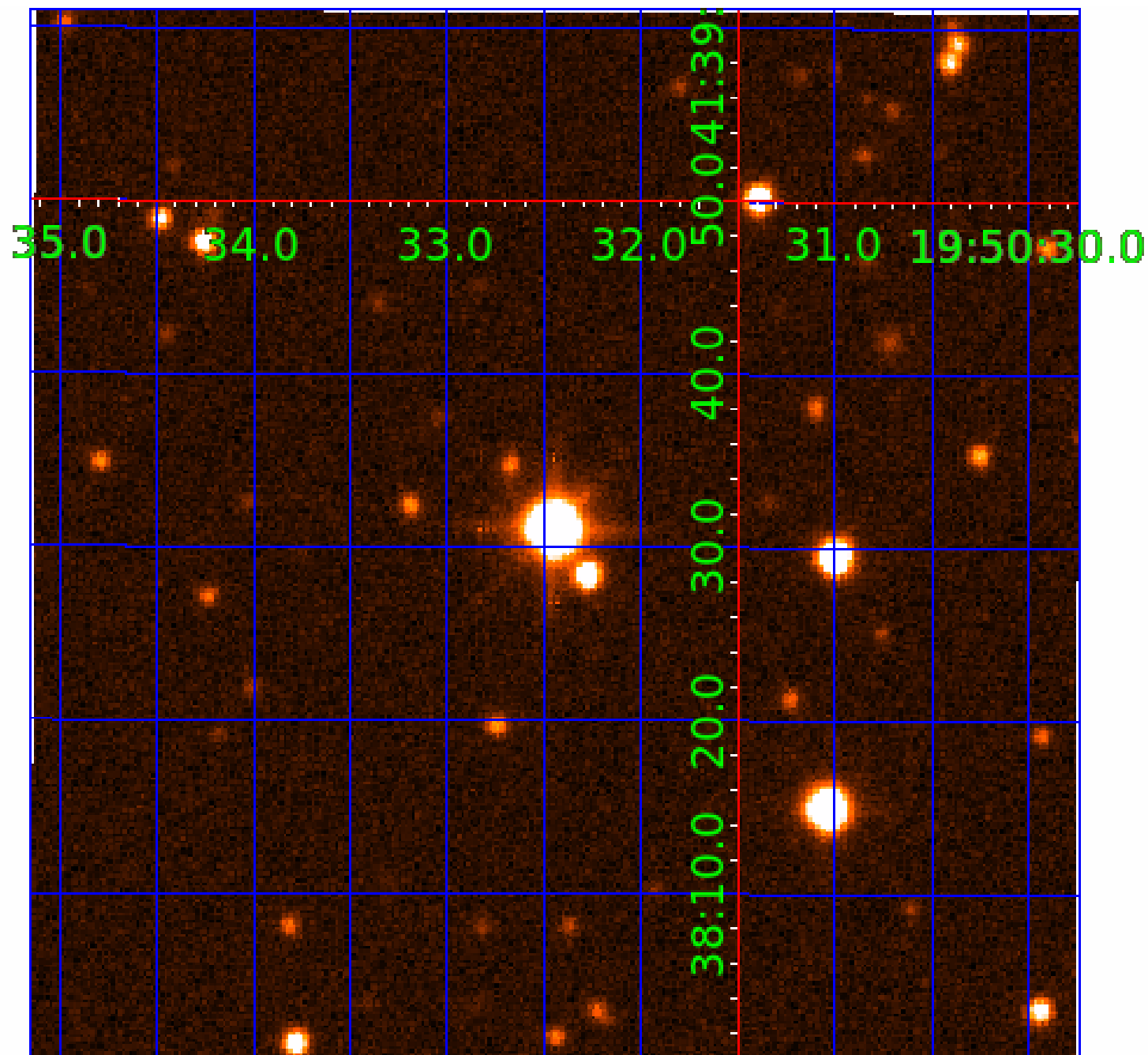


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006307083

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006307083-01 | OBS | 2050.01 | 75.379309 | 167.102308 | 477.3 | 6.615 | 32.2 | 28.9 | 0.84 | 5061 | 3.82 | 3.98 |
| 006307083-02 | OBS | No | 75.378926 | 155.488797 | 123.1 | 6.287 | 11.2 | 11.0 | 0.84 | 5061 | 1.12 | 3.98 |
| 006307083-03 | OBS | 2050.02 | 3.177973 | 134.347865 | 53.2 | 0.615 | 7.9 | 12.1 | 0.84 | 5061 | 0.77 | 270.92 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006307083-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 1 | MOD_SEC_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 006307083-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 1 | IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 006307083-03 | OBS | PC | 0.94 | 0 | 0 | 0 | 0 | CENT_KIC_POS |

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 006307083-02

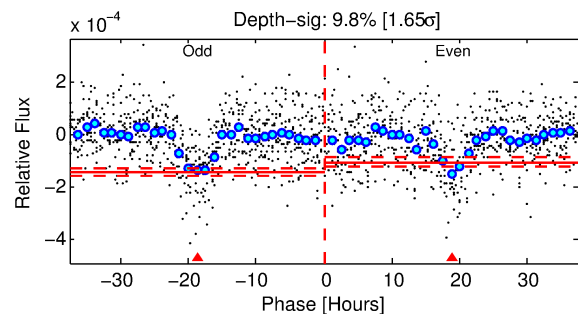
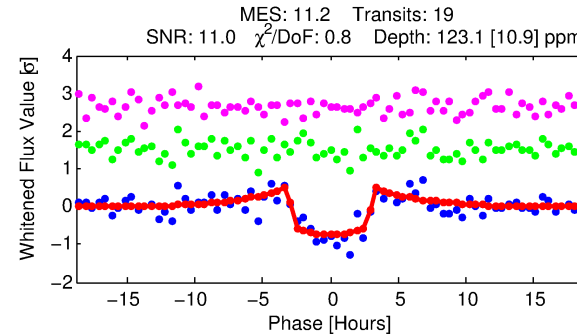
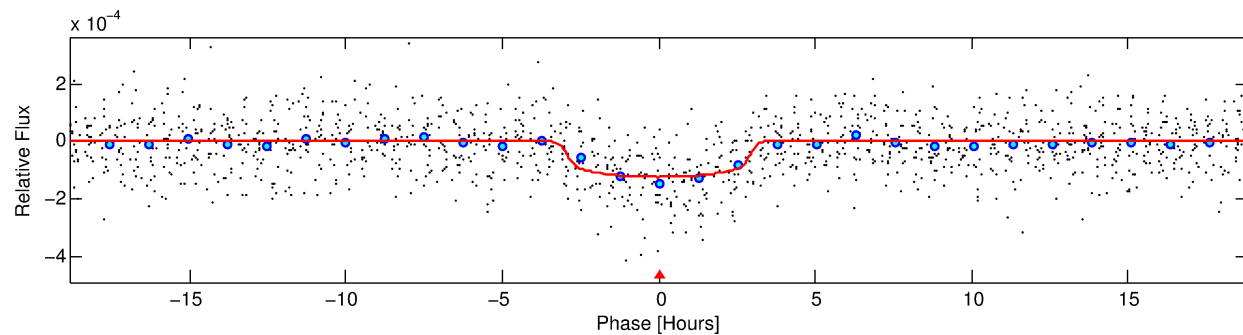
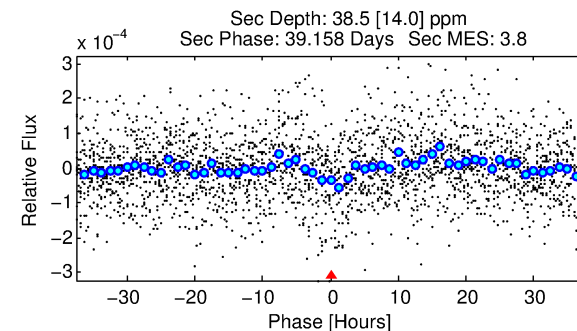
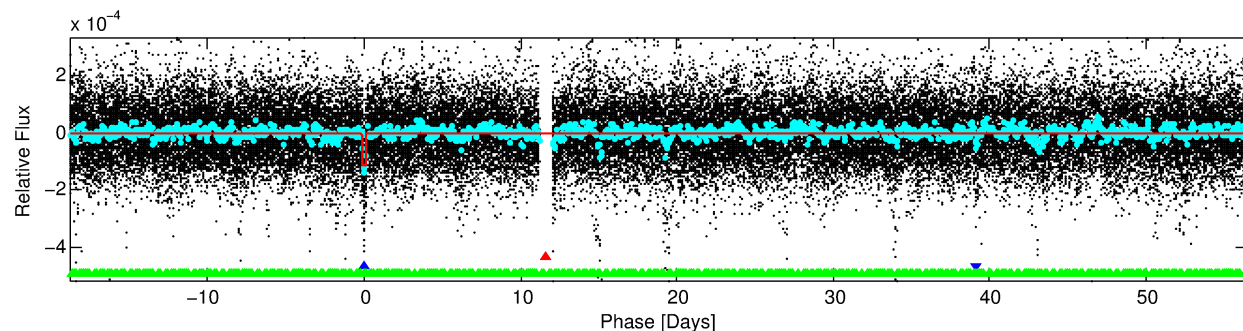
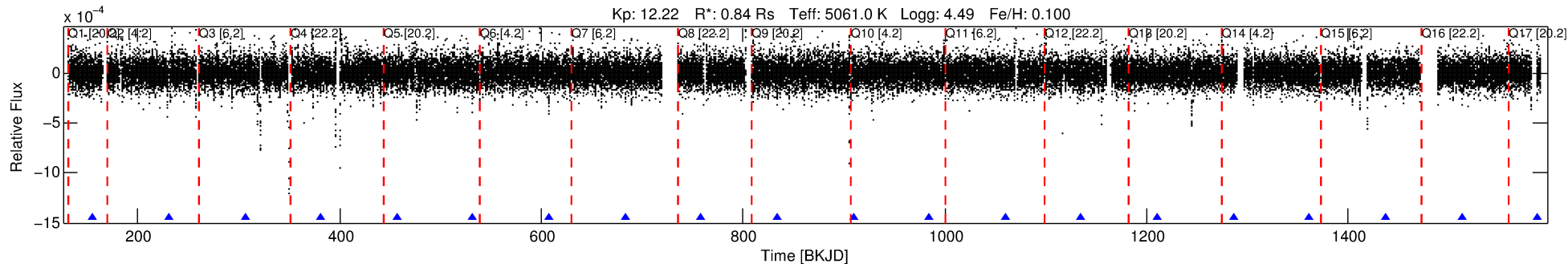
| TCE (1) | KIC | Parent (2) | Parent KIC | $P_1:P_2$ | Dist (μ) | Δ Row | Δ Col | m_2 | m_1 | D_2/D_1 | Mechanism | Flag | σ_P | σ_T |
|--------------|---------|--------------|------------|-----------|----------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 006307083-02 | 6307083 | 006307062-02 | 6307062 | 1:1 | 16.4 | 2 | -4 | 14.86 | 12.22 | 1376.50 | Direct-PRF | 0 | 0.01 | 0.15 |

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 6307083 Candidate: 2 of 3 Period: 75.379 d
KOI: K02050 Corr: No Ephemeris Match

Kp: 12.22 R*: 0.84 Rs Teff: 5061.0 K Logg: 4.49 Fe/H: 0.100



DV Fit Results:

Period = 75.37893 [0.00065] d
Epoch = 155.4888 [0.0082] BKJD
Rp/R* = 0.0122 [0.0037]
a/R* = 44.82 [54.09]
b = 0.89 [0.30]
Seff = 3.98 [0.63]
Teq = 360 [14] K
Rp = 1.12 [0.35] Re
a = 0.3234 [0.0276] AU
Ag = 1775.38 [1280.13] [1.39σ]
Teff = 3614 [641] K [5.08σ]

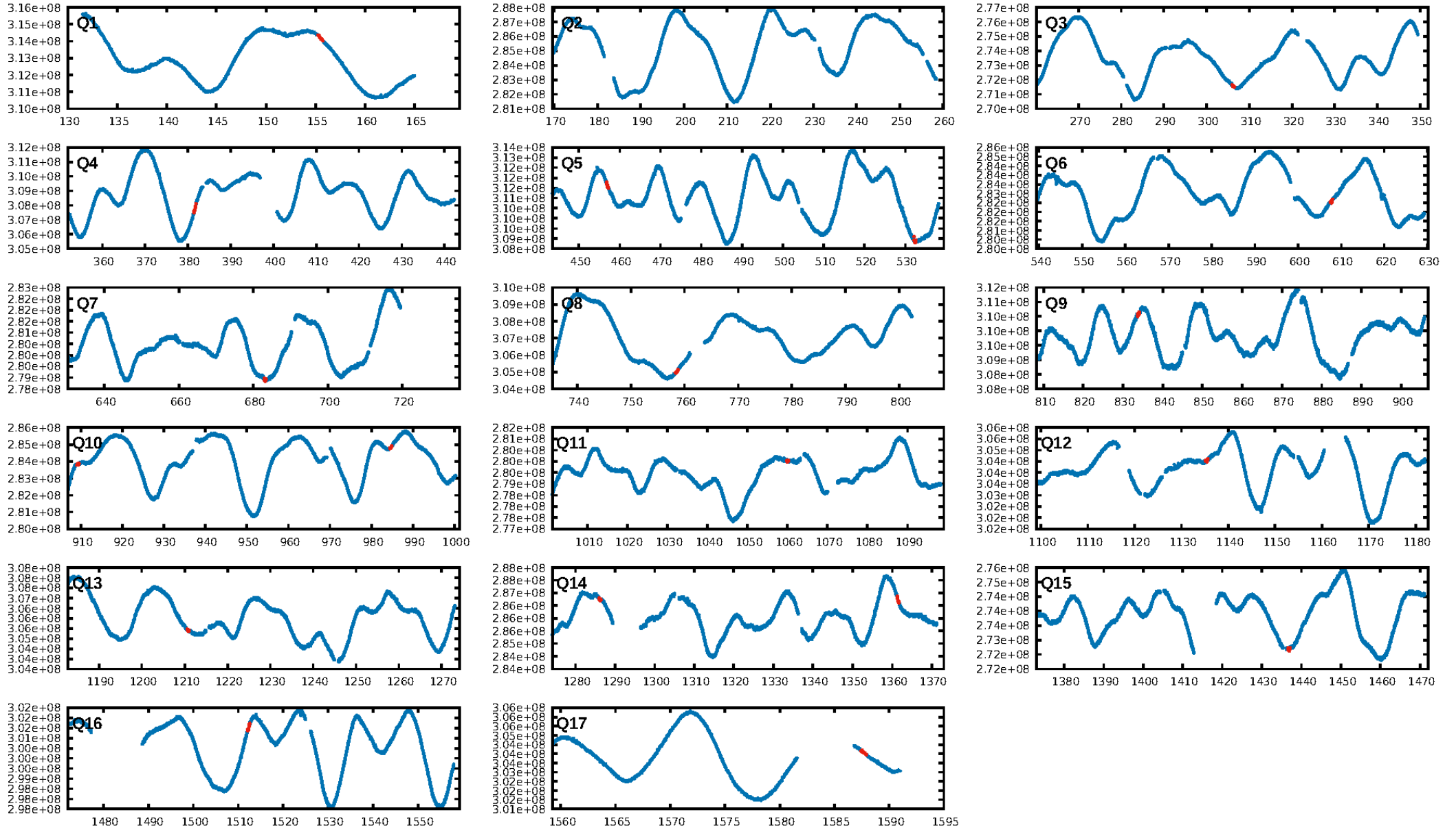
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [274.33σ]
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 9.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.80e-20
RollingBand-fgt: 1.00 [17/17]
GhostDiagnostic-chr: -0.2123
Centroid-sig: N/A
Centroid-so: 106.650 arcsec [128.60σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.71 [10/14]

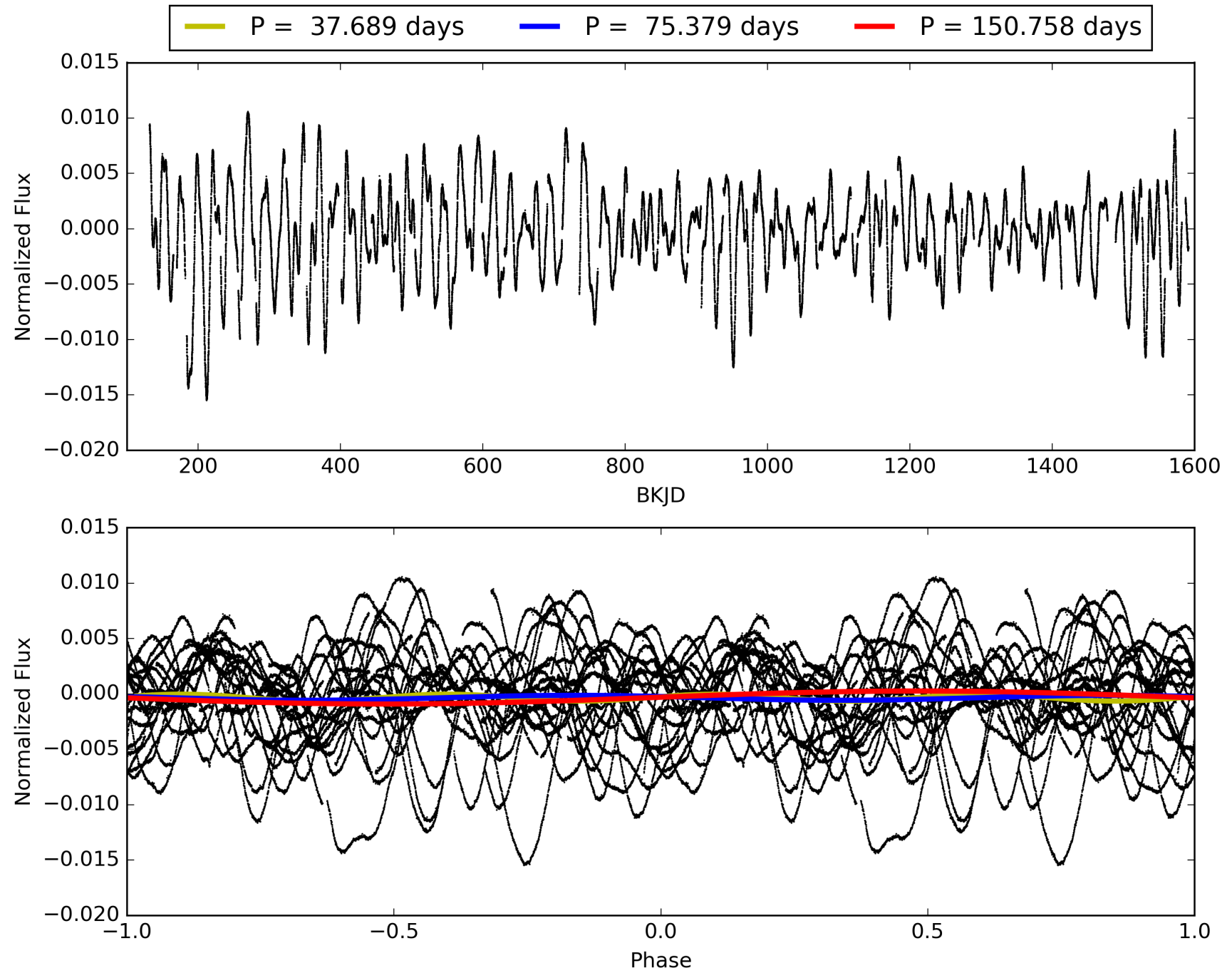
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:44:52 Z

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

TCE 006307083-02, PDC Light Curves

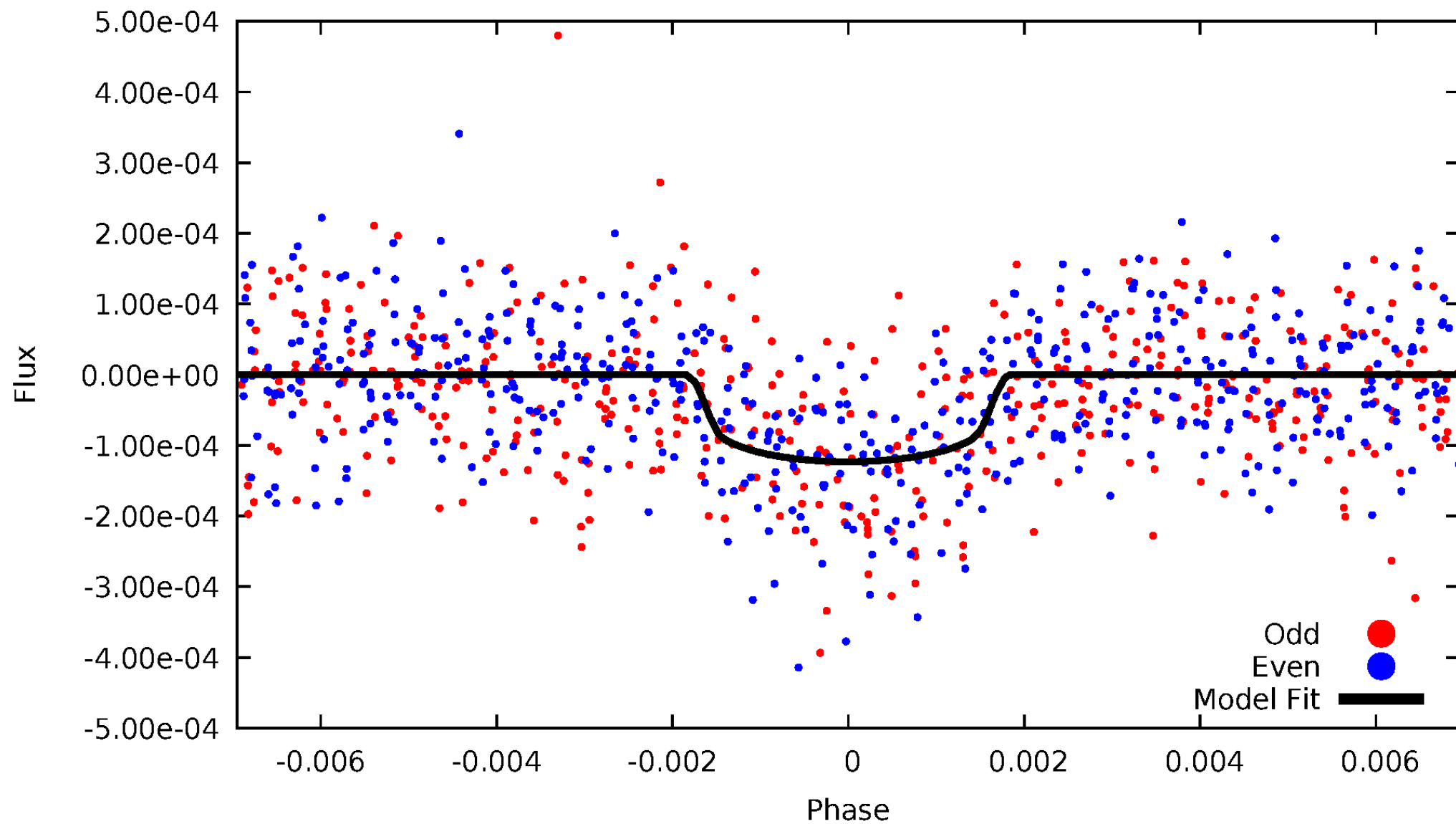


TCE 006307083-02



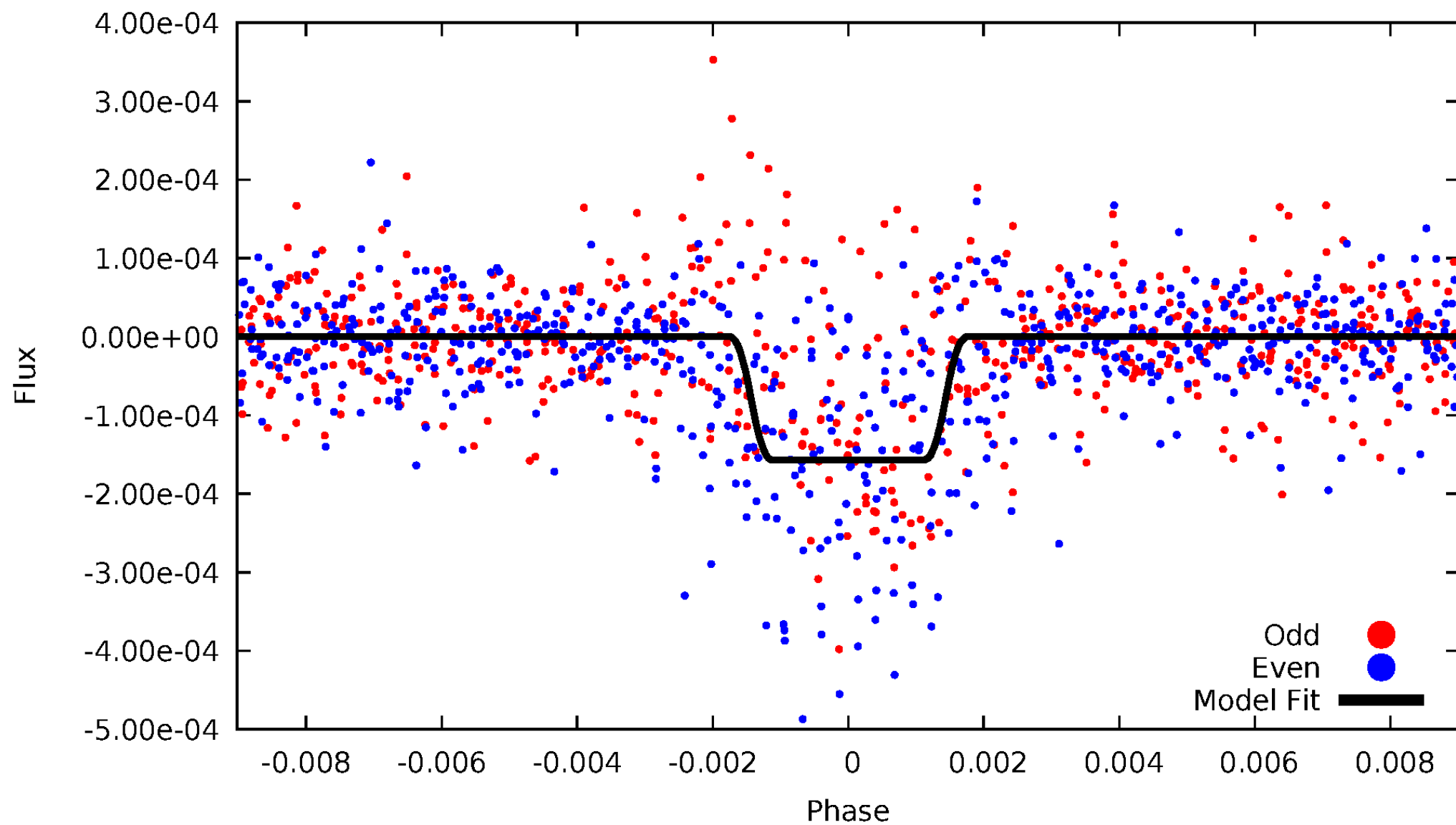
DV Odd/Even

TCE 006307083-02



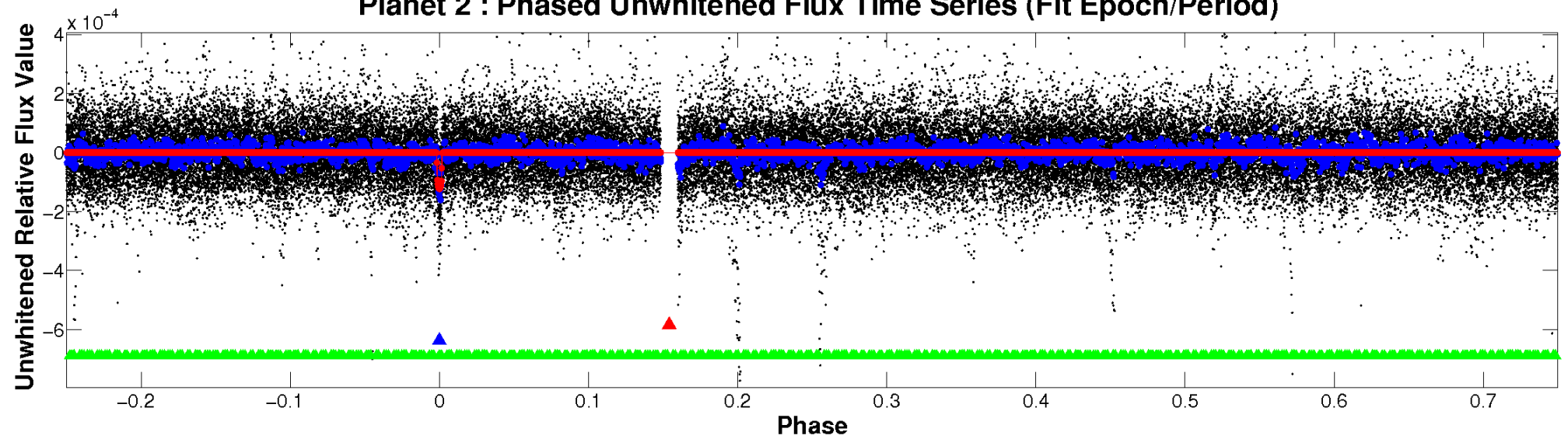
ALT Odd/Even

TCE 006307083-02

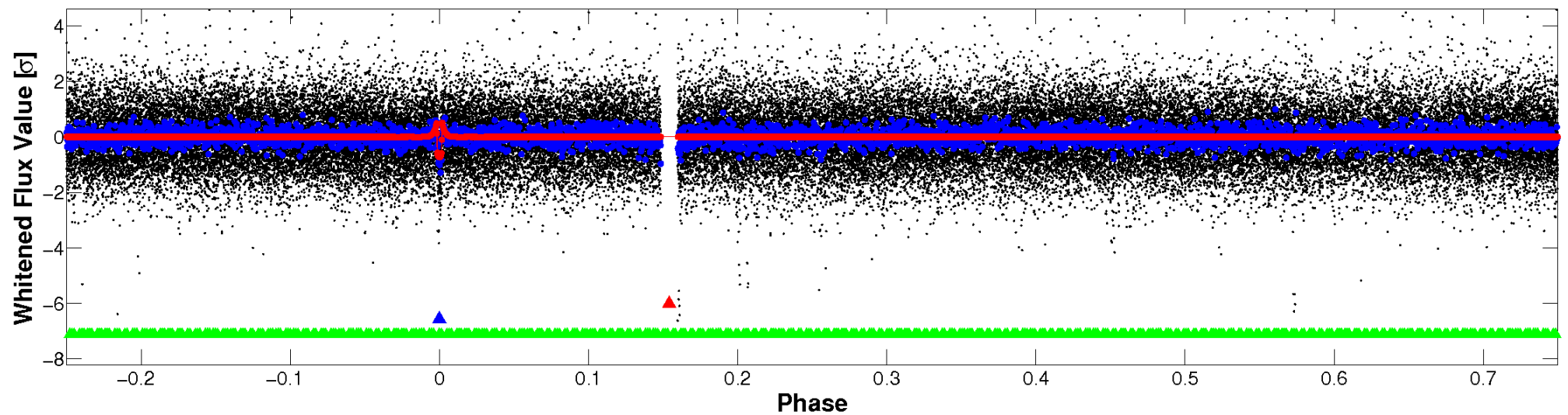


Non-Whitened Vs. Whitened Light Curve

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

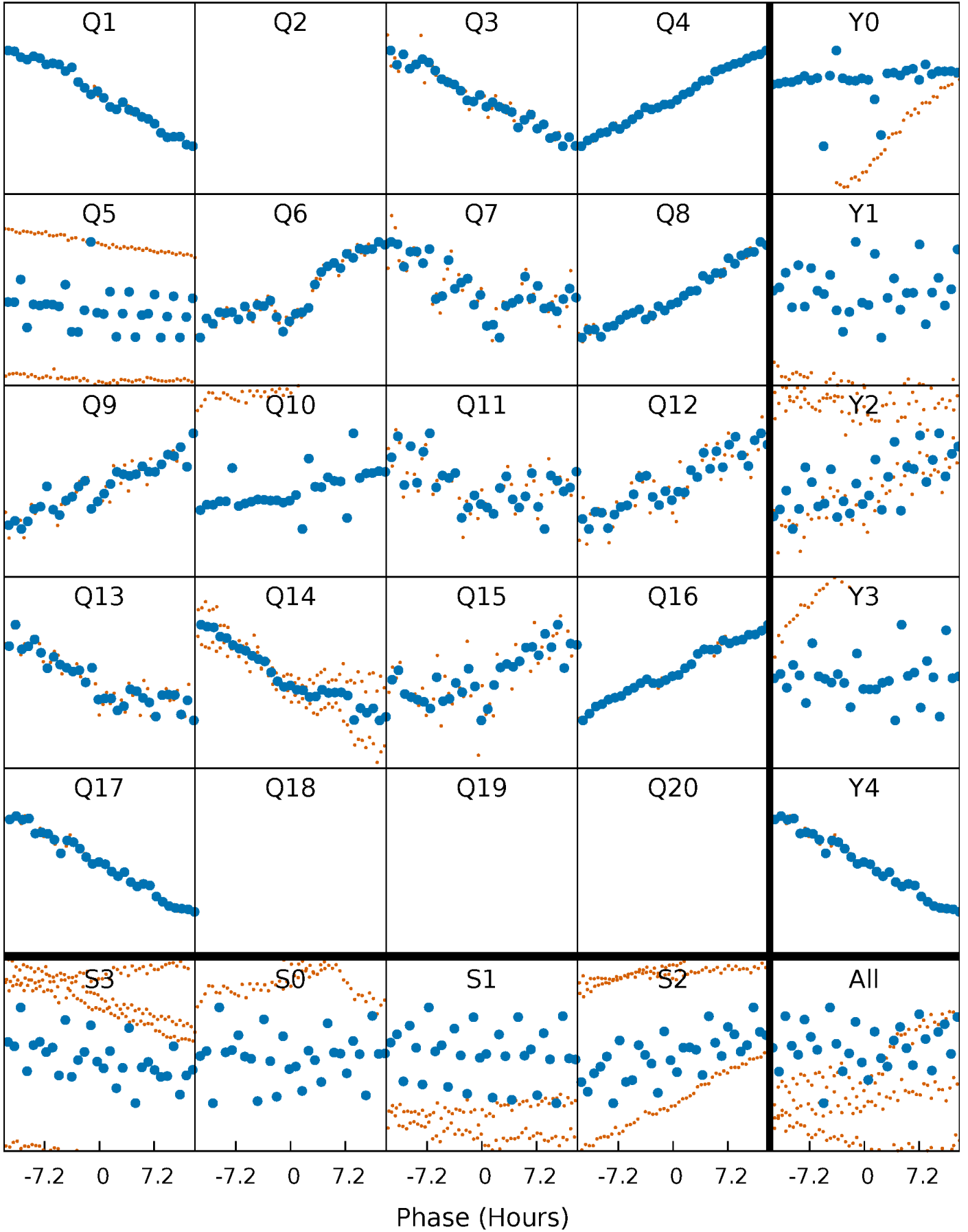


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



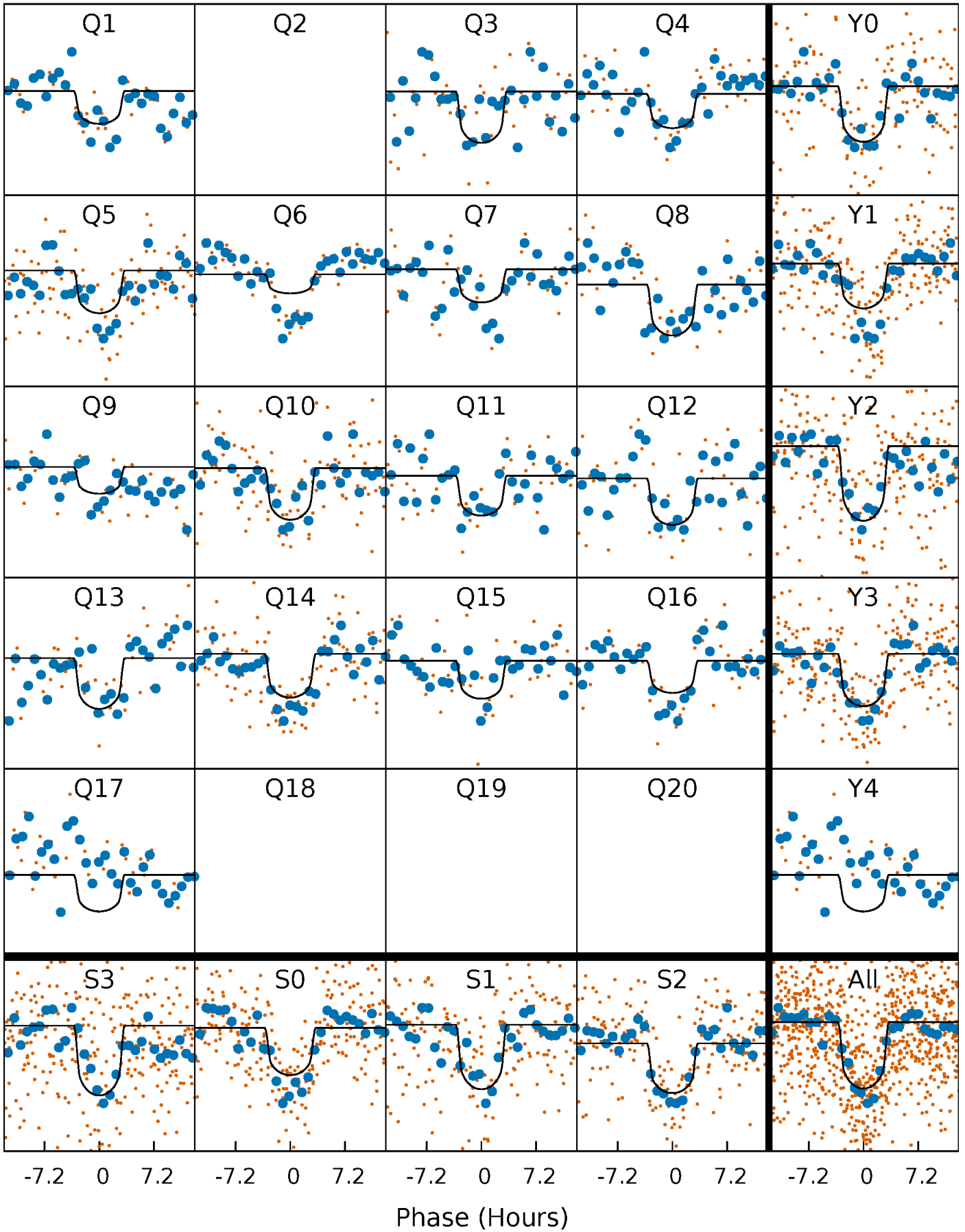
PDC Quarter-Phased Transit Curves

TCE 006307083-02 P= 75.378926 Days $T_0=155.488797$ (BKJD)



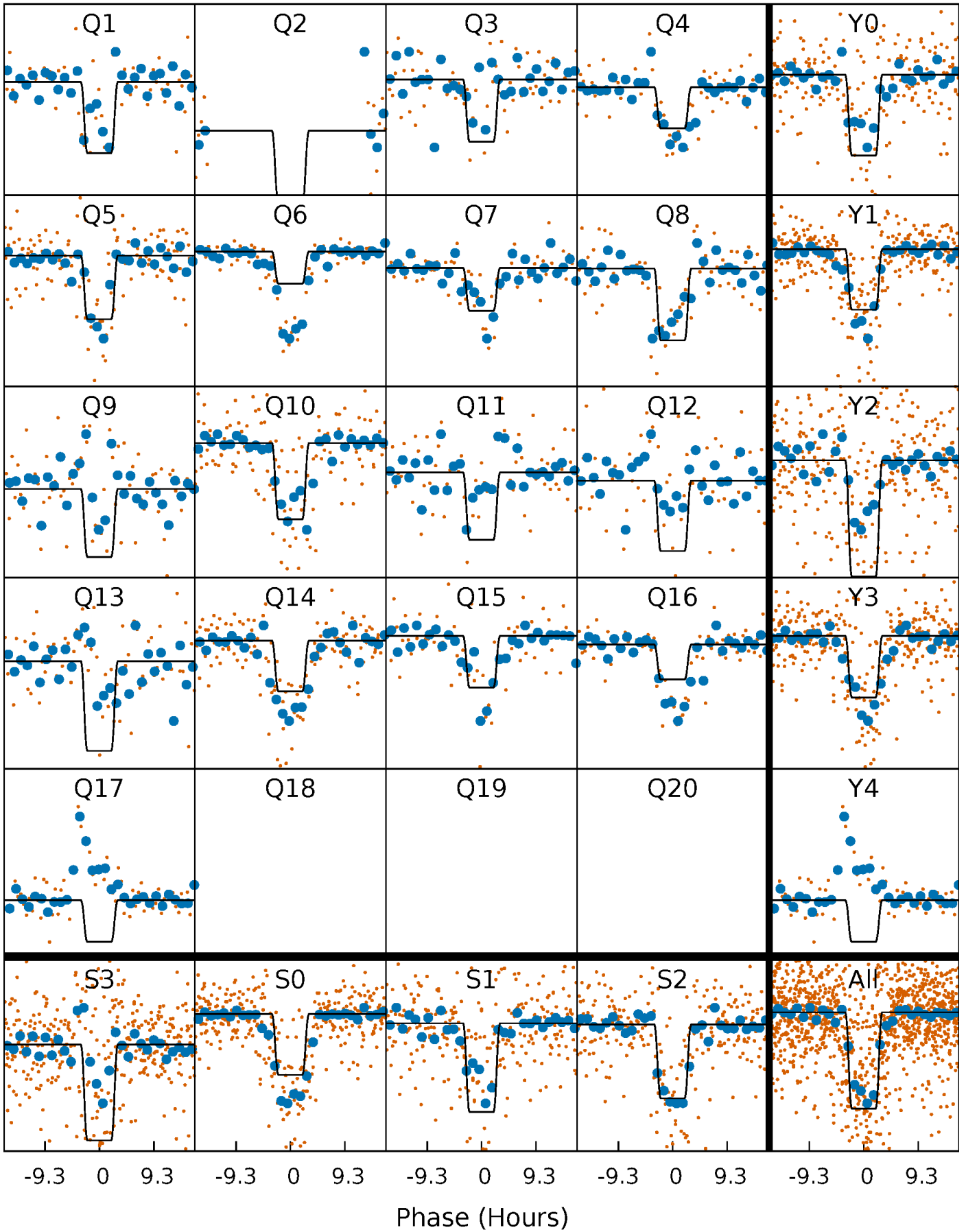
DV Quarter-Phased Transit Curves

TCE 006307083-02 P= 75.378926 Days $T_0=155.488797$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

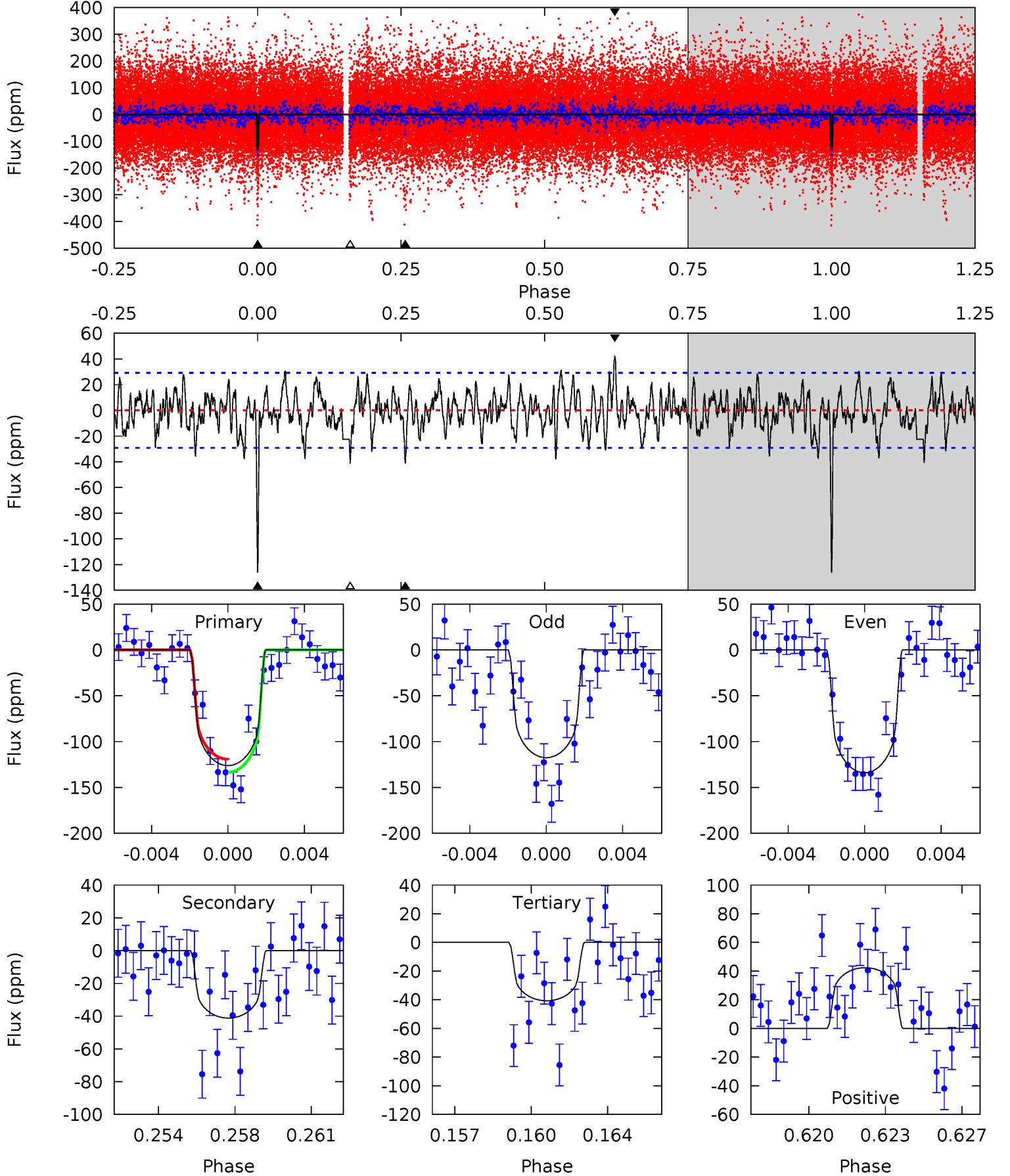
TCE 006307083-02 P= 75.377458 Days $T_0=155.505462$ (BKJD)



DV Model-Shift Uniqueness Test

006307083-02, P = 75.378926 Days, E = 80.109871 Days

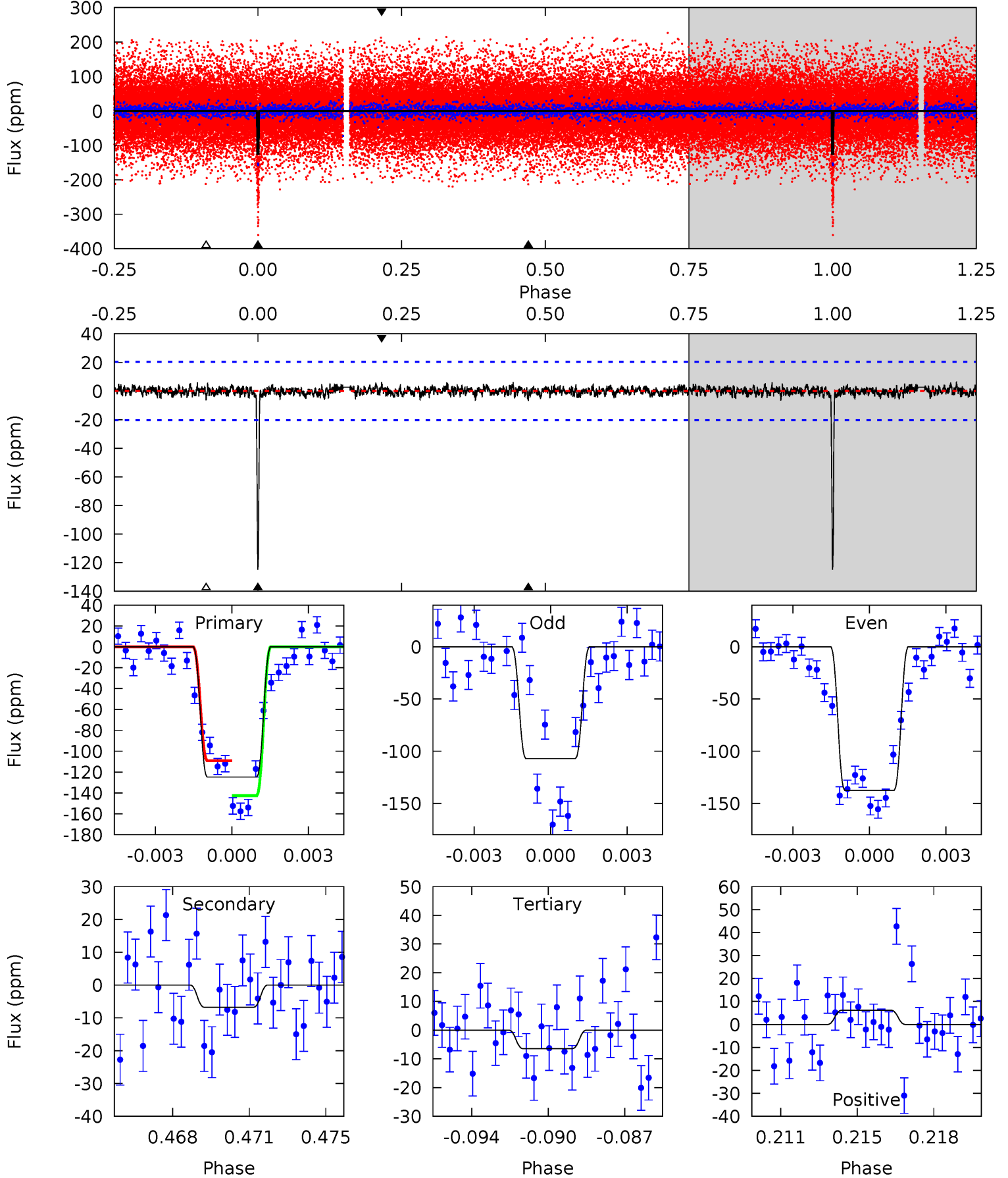
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 22.5 | 7.36 | 7.27 | 7.57 | 5.21 | 2.90 | 2.22 | 15.3 | 15.0 | 0.09 | -0.21 | 1.47 | 1.14 | 0.25 | 1.28 |



Alt Model-Shift Uniqueness Test

006307083-02, P = 75.377458 Days, E = 80.128004 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 32.0 | 1.74 | 1.65 | 1.59 | 5.23 | 2.92 | 0.48 | 30.3 | 30.4 | 0.09 | 0.15 | 3.92 | 0.97 | 0.05 | 4.32 |



Stellar Parameters For KIC 006307083

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5061^{+83}_{-76} | $4.488^{+0.088}_{-0.028}$ | $0.100^{+0.150}_{-0.150}$ | $0.841^{+0.038}_{-0.066}$ | $0.793^{+0.060}_{-0.030}$ | $1.878^{+0.592}_{-0.195}$ |
| | +2%/-2% | +2%/-1% | +150%/-150% | +5%/-8% | +8%/-4% | +32%/-10% |
| Source | SPE90 | SPE90 | SPE90 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006307083-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|-------------------|----------------------|-----------------------|
| DV | -41 ± 6 | $1.10^{+0.33}_{-0.33}$ | 500^{+11}_{-14} | 3943^{+591}_{-341} | 1972^{+2073}_{-840} |
| Alt. | -7 ± 4 | $1.11^{+0.35}_{-0.30}$ | 499^{+12}_{-14} | 2950^{+403}_{-364} | 305^{+418}_{-192} |

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 $A_{obs} \gg 1.0$

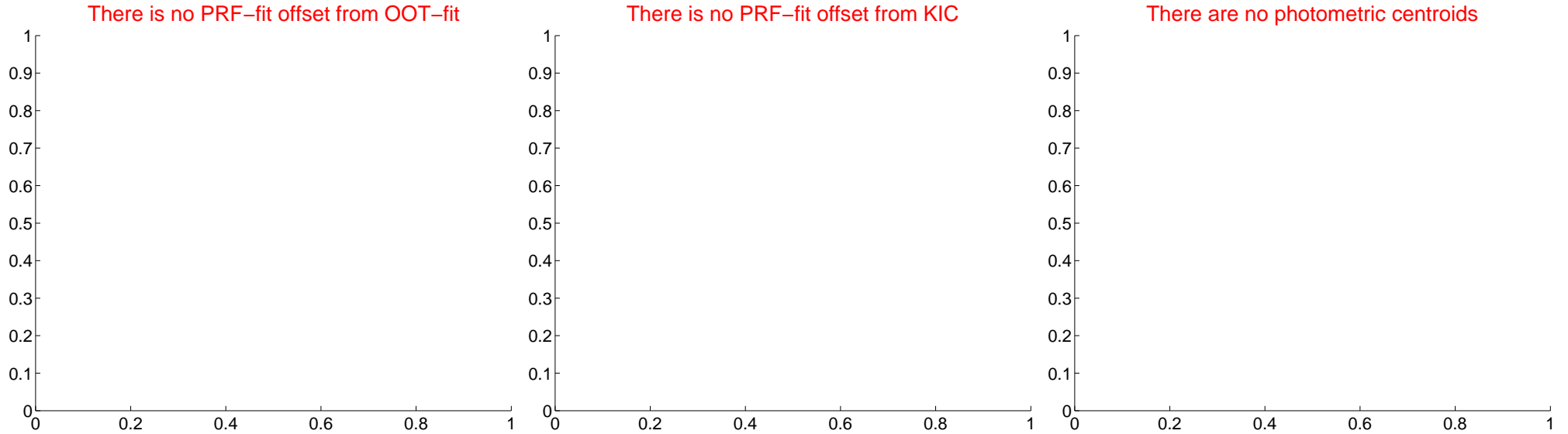
DV Centroid Data

Supplemental centroid analysis for 006307083-02. Kepler magnitude: 12.22. Transit SNR 11.03

There are 0 quarters with good PRF difference image offsets

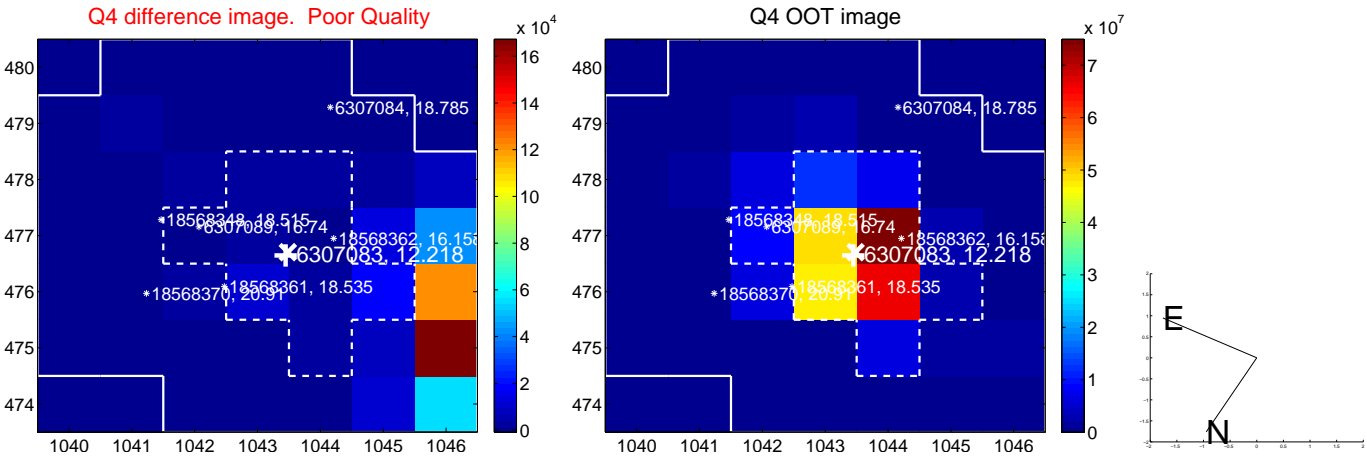
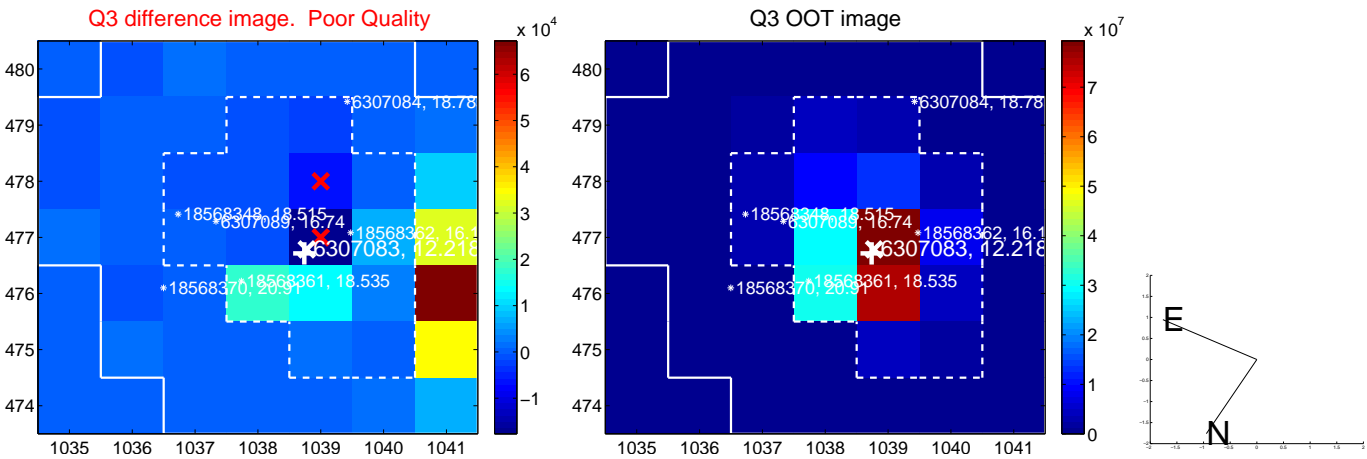
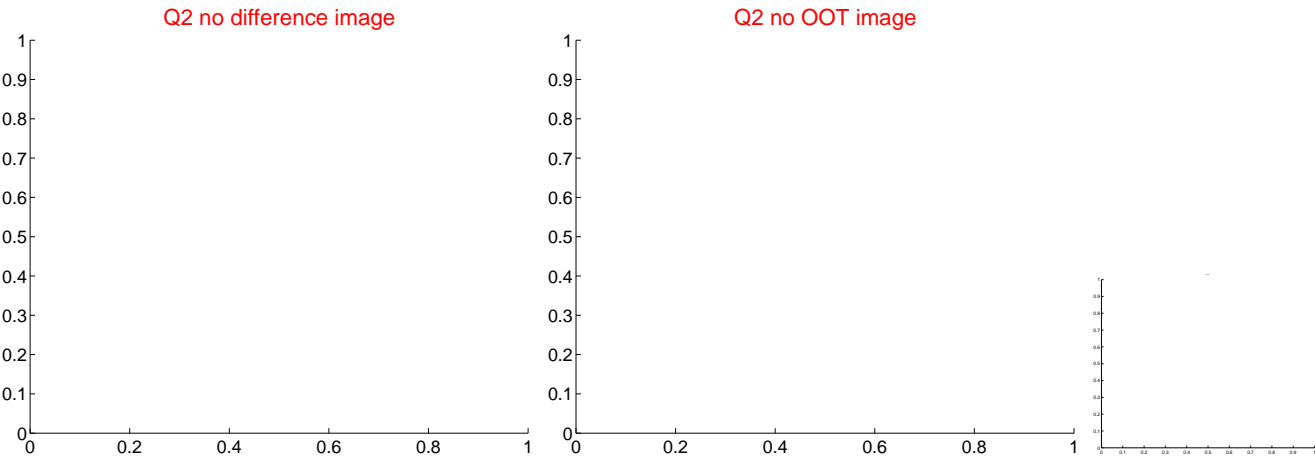
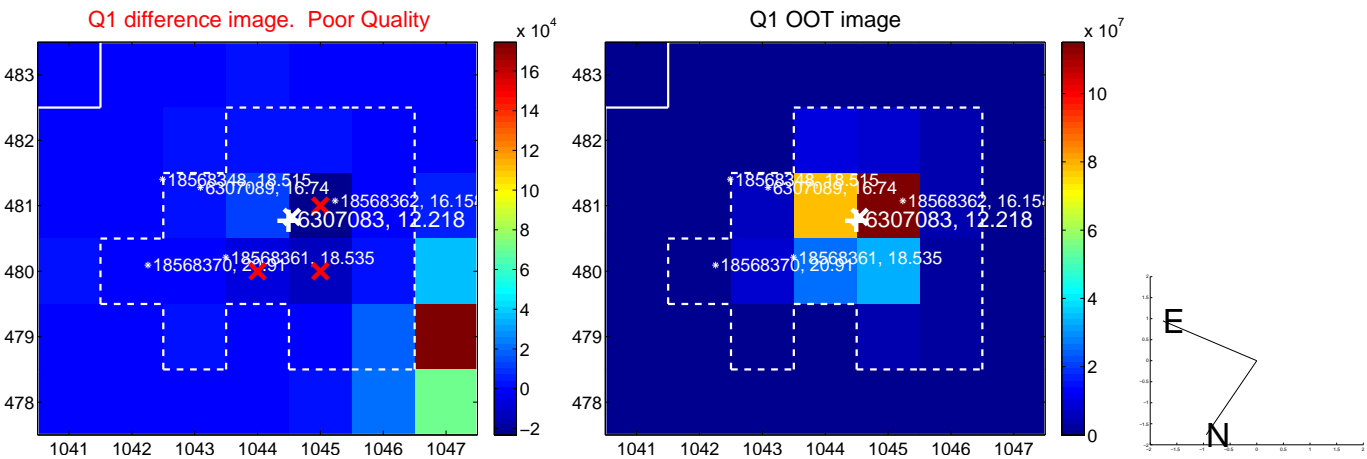
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------|--------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | — | — | — | — |

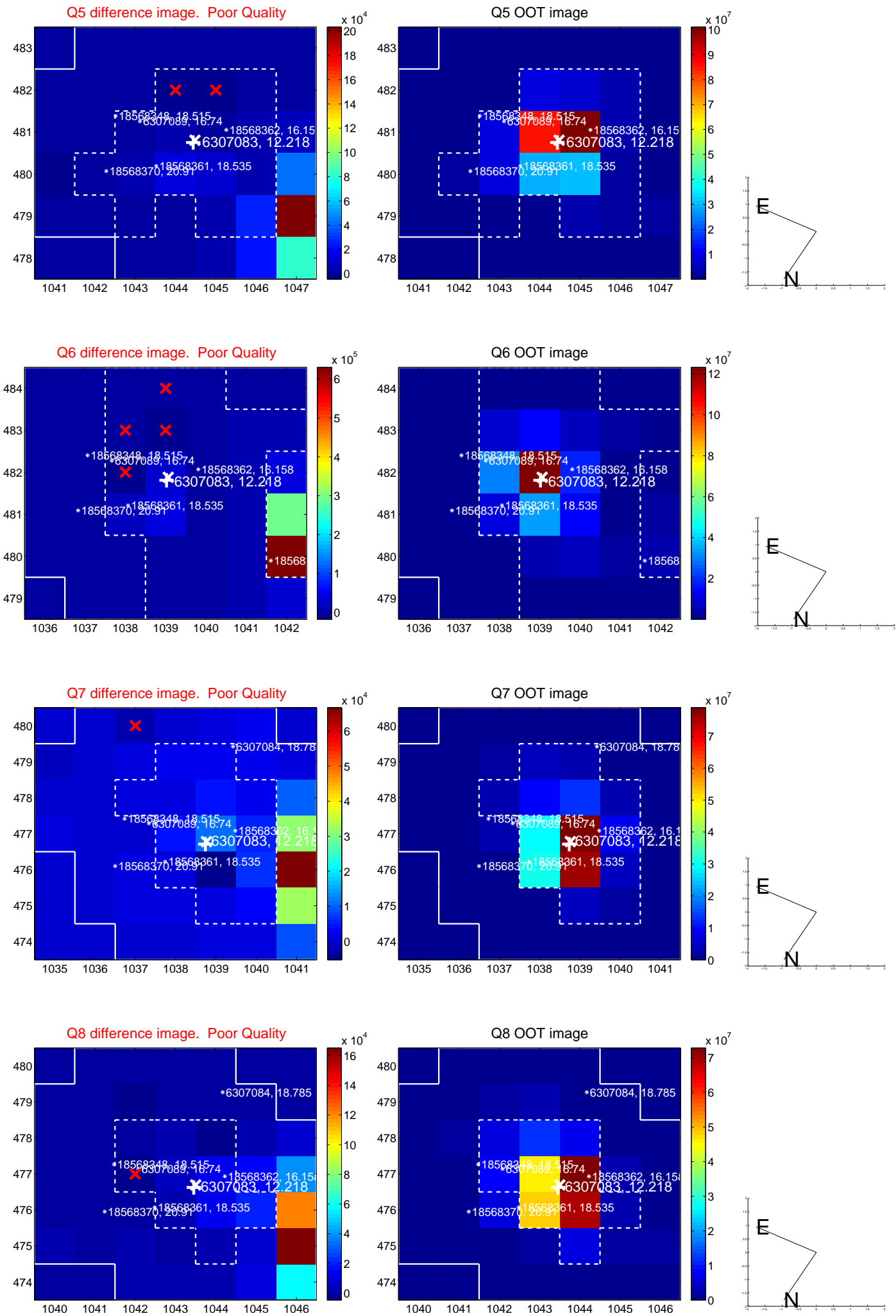


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

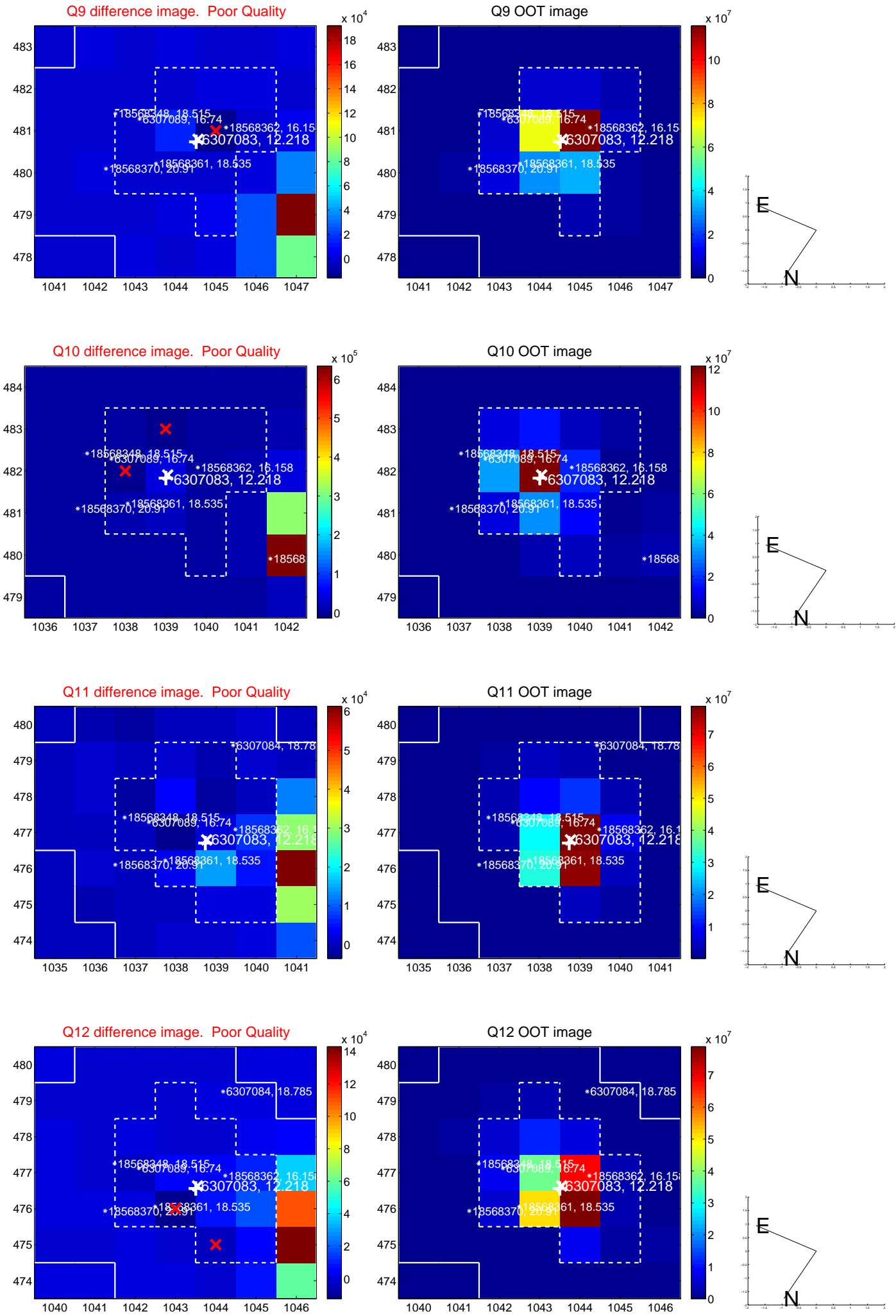
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



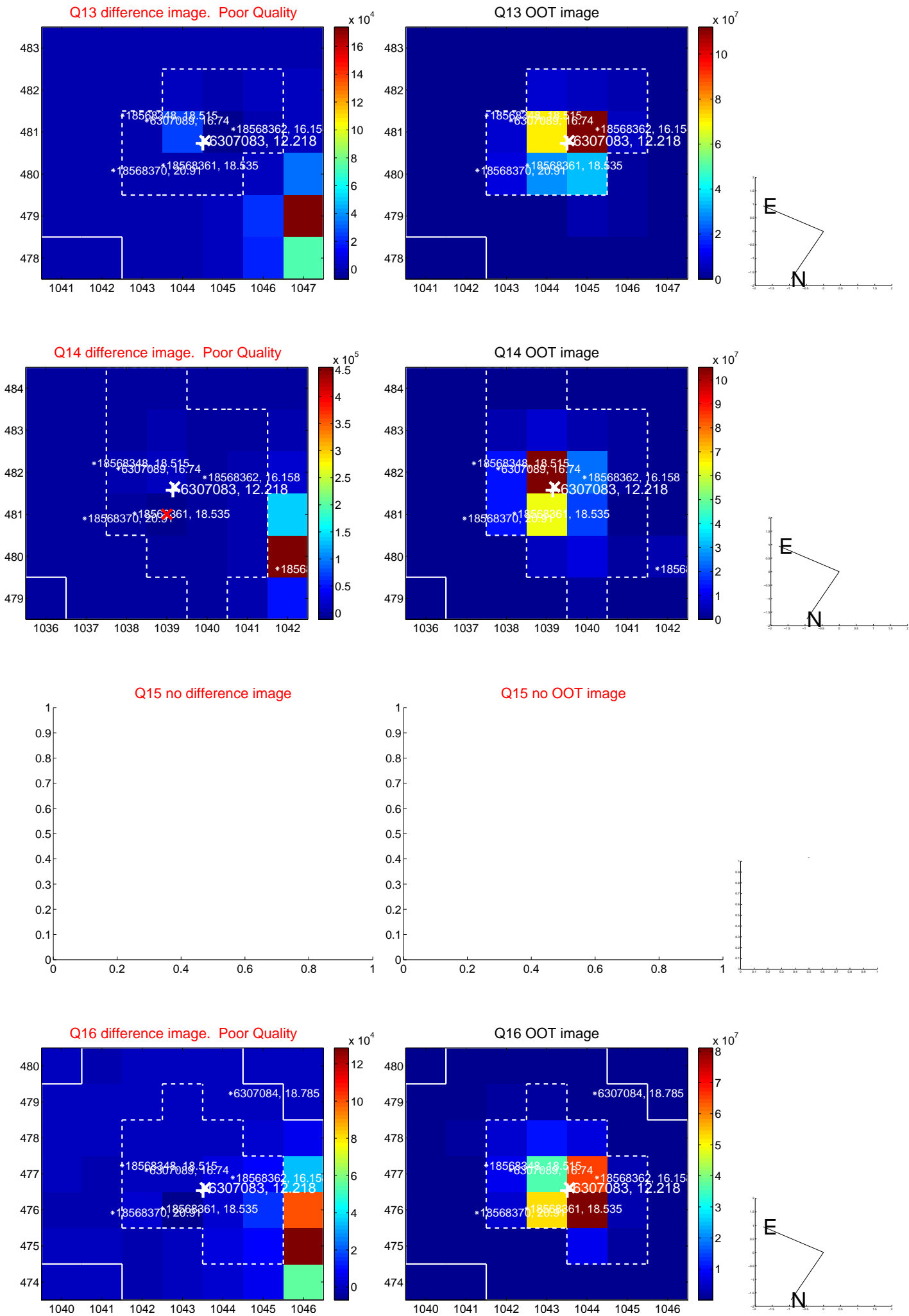
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



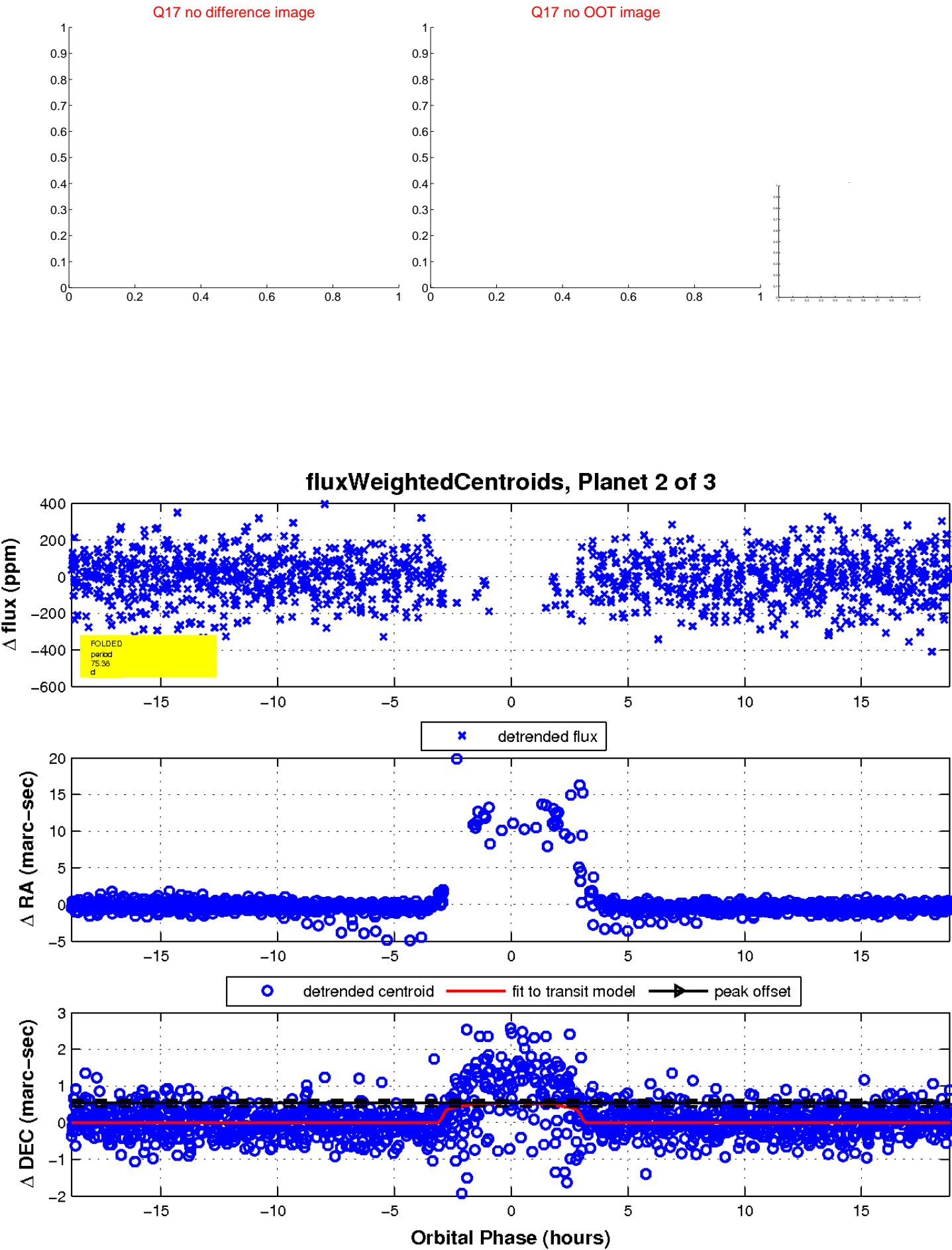
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

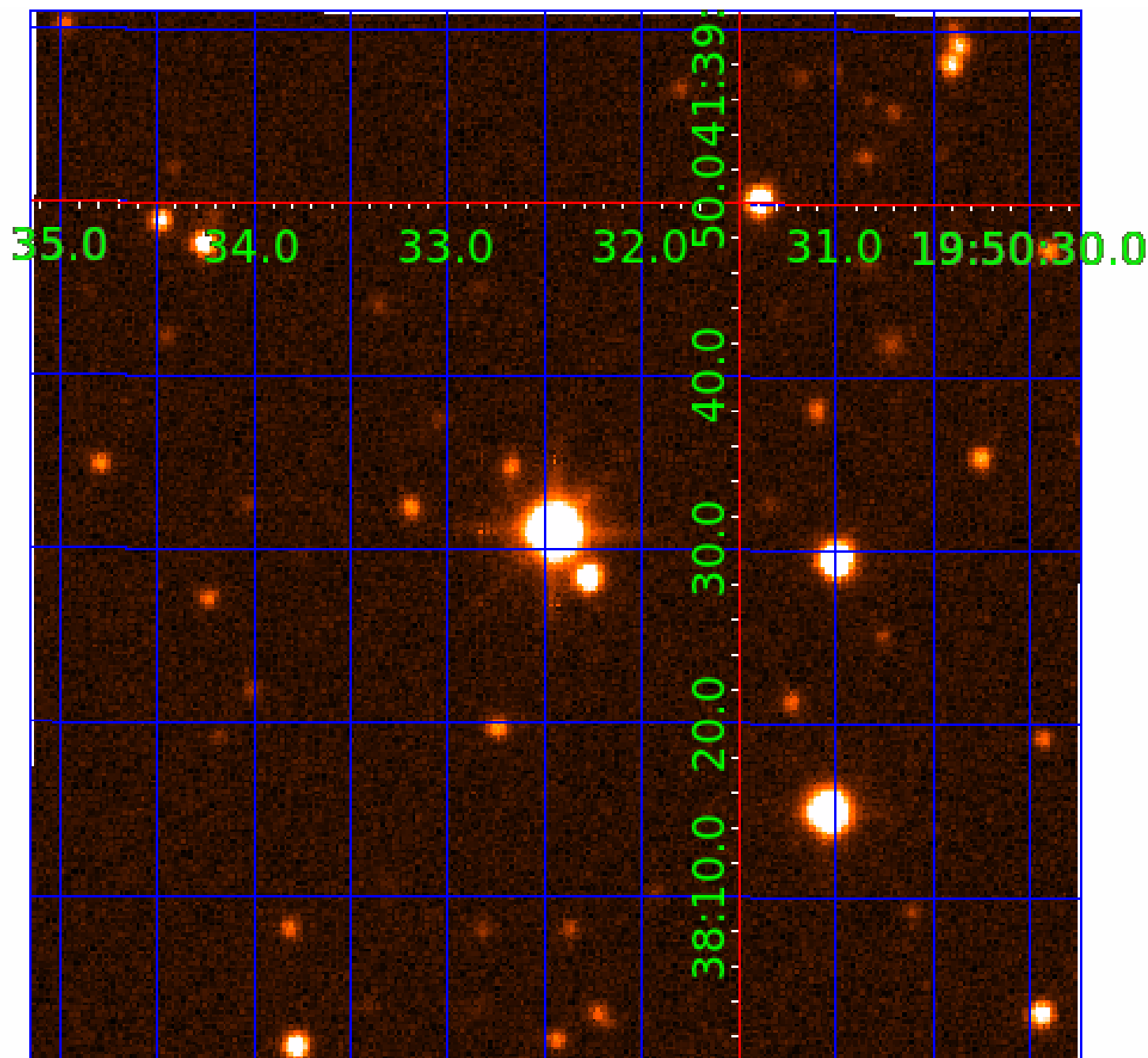


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006307083

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006307083-01 | OBS | 2050.01 | 75.379309 | 167.102308 | 477.3 | 6.615 | 32.2 | 28.9 | 0.84 | 5061 | 3.82 | 3.98 |
| 006307083-02 | OBS | No | 75.378926 | 155.488797 | 123.1 | 6.287 | 11.2 | 11.0 | 0.84 | 5061 | 1.12 | 3.98 |
| 006307083-03 | OBS | 2050.02 | 3.177973 | 134.347865 | 53.2 | 0.615 | 7.9 | 12.1 | 0.84 | 5061 | 0.77 | 270.92 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006307083-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 1 | MOD_SEC_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 006307083-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 1 | IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |
| 006307083-03 | OBS | PC | 0.94 | 0 | 0 | 0 | 0 | CENT_KIC_POS |

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

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

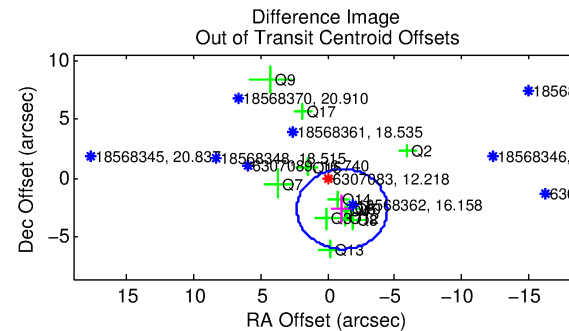
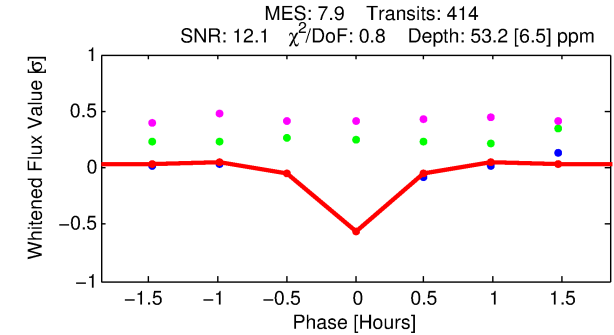
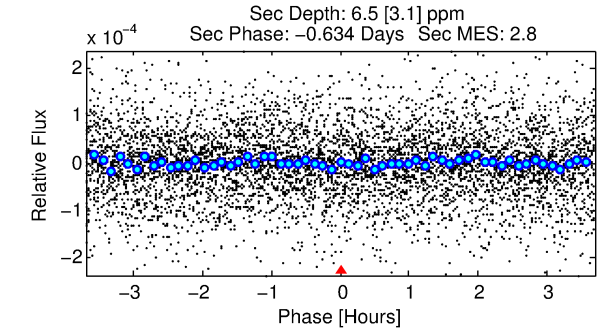
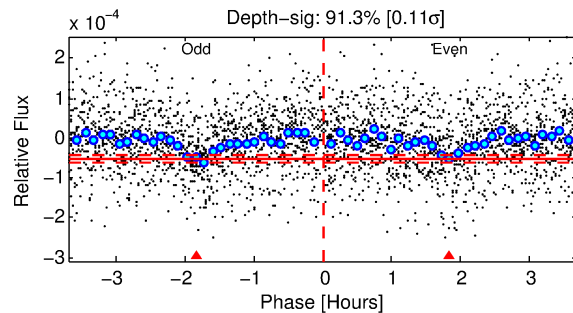
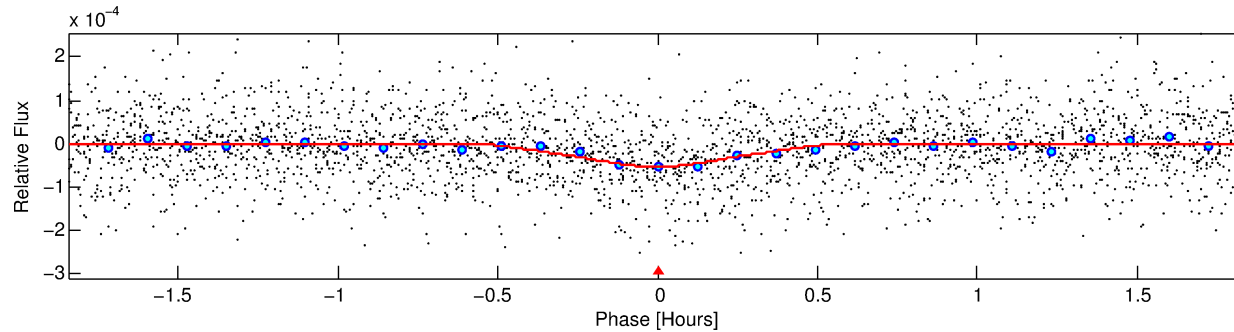
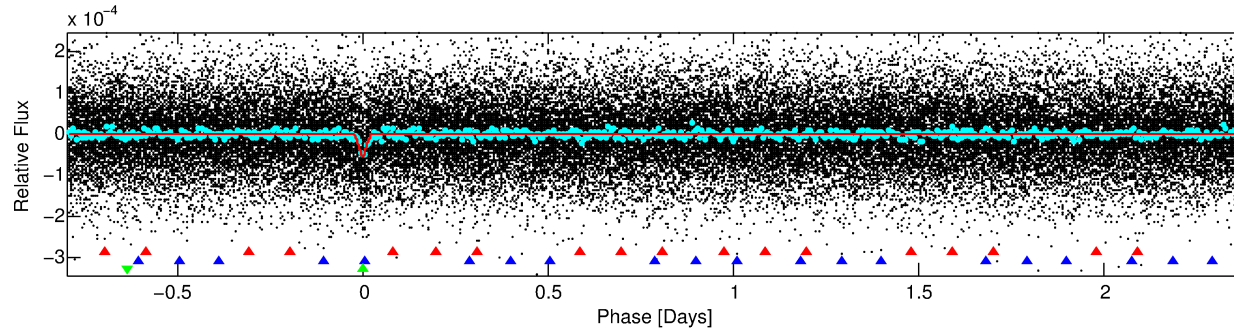
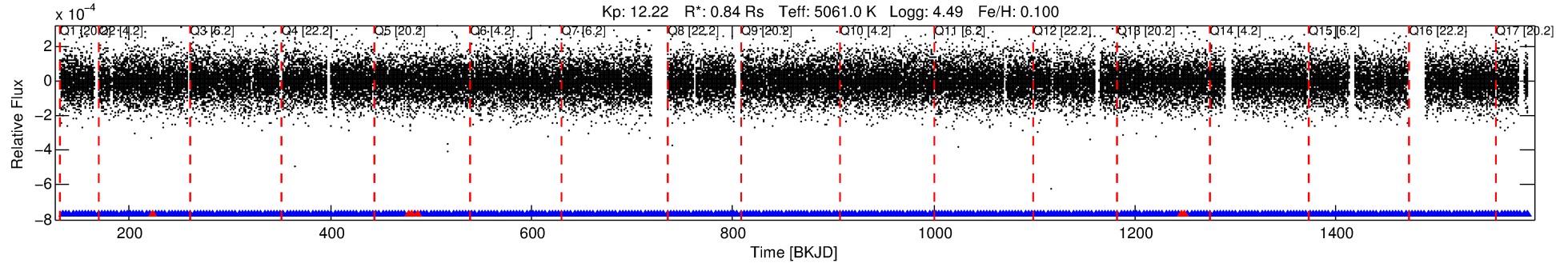
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006307083-03

No Significant Match Found

DV One-Page Summary

KIC: 6307083 Candidate: 3 of 3 Period: 3.178 d
KOI: K02050 Corr: No Ephemeris Match



DV Fit Results:

Period = 3.17797 [0.00001] d
Epoch = 134.3479 [0.0010] BKJD
Rp/R* = 0.0084 [0.0028]
a/R* = 18.28 [24.89]
b = 0.90 [0.31]
Seff = 270.92 [43.08]
Teq = 1035 [41] K
Rp = 0.77 [0.27] Re
a = 0.0392 [0.0033] AU
Ag = 9.32 [7.84] [1.06 σ]
Teffp = 2795 [581] K [3.02 σ]

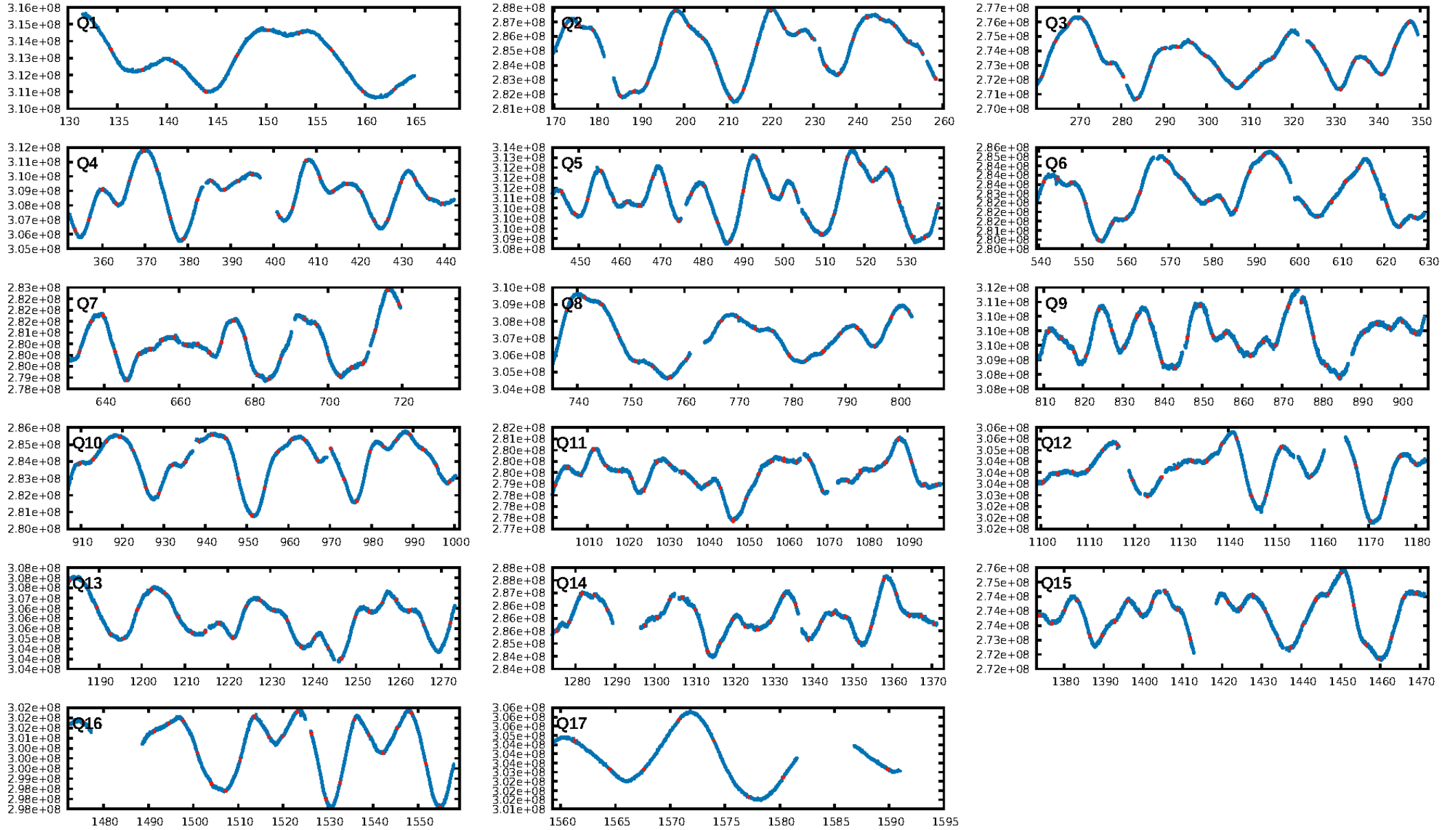
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [274.33 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.41e-15
RollingBand-fgt: 0.98 [390/396]
GhostDiagnostic-chr: 6.1
Centroid-sig: N/A
Centroid-so: 4.026 arcsec [3.81 σ]
OotOffset-rm: 2.810 arcsec [2.49 σ]
KicOffset-rm: 2.520 arcsec [2.33 σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 1.00 [17/17]

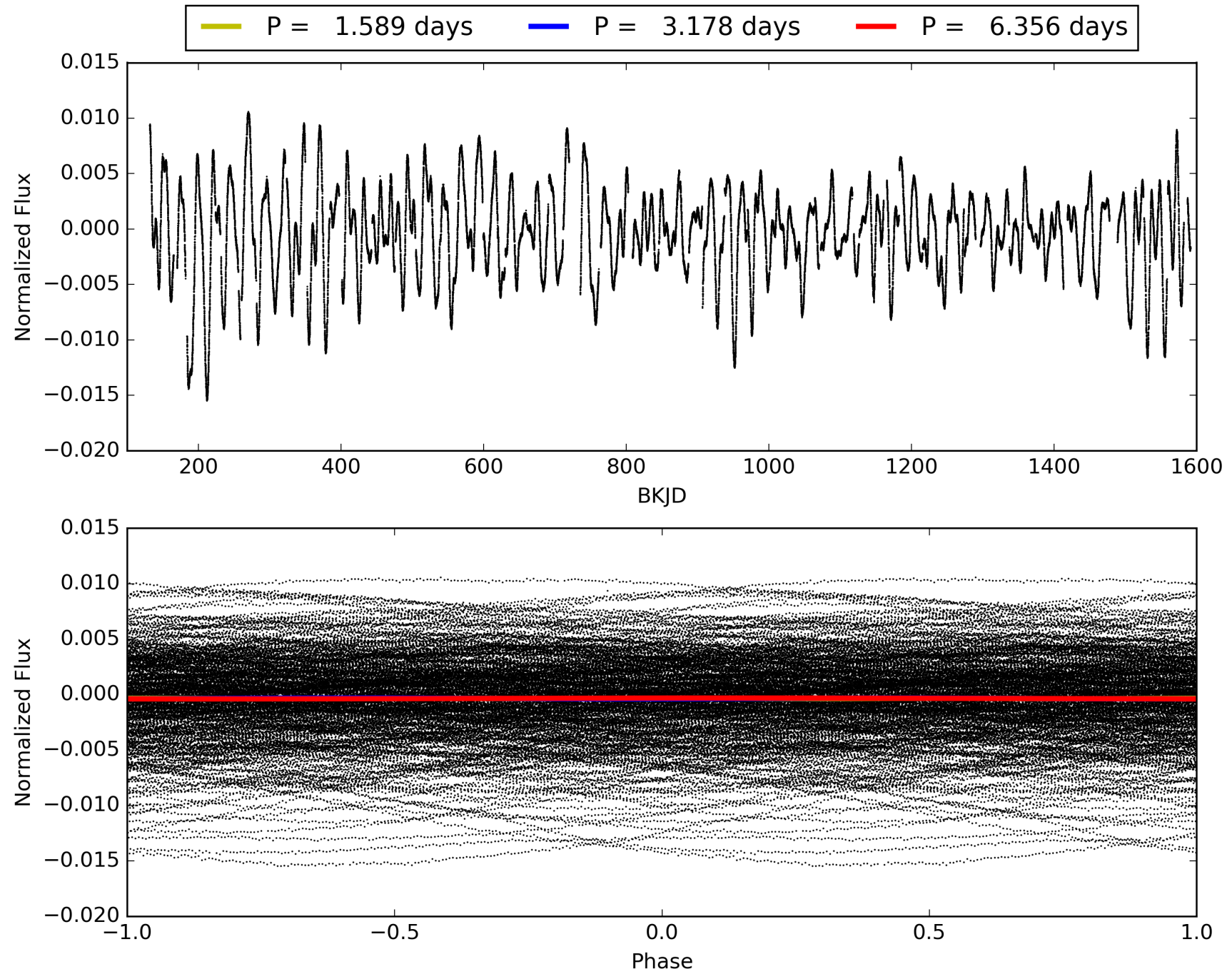
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:44:59 Z

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

TCE 006307083-03, PDC Light Curves

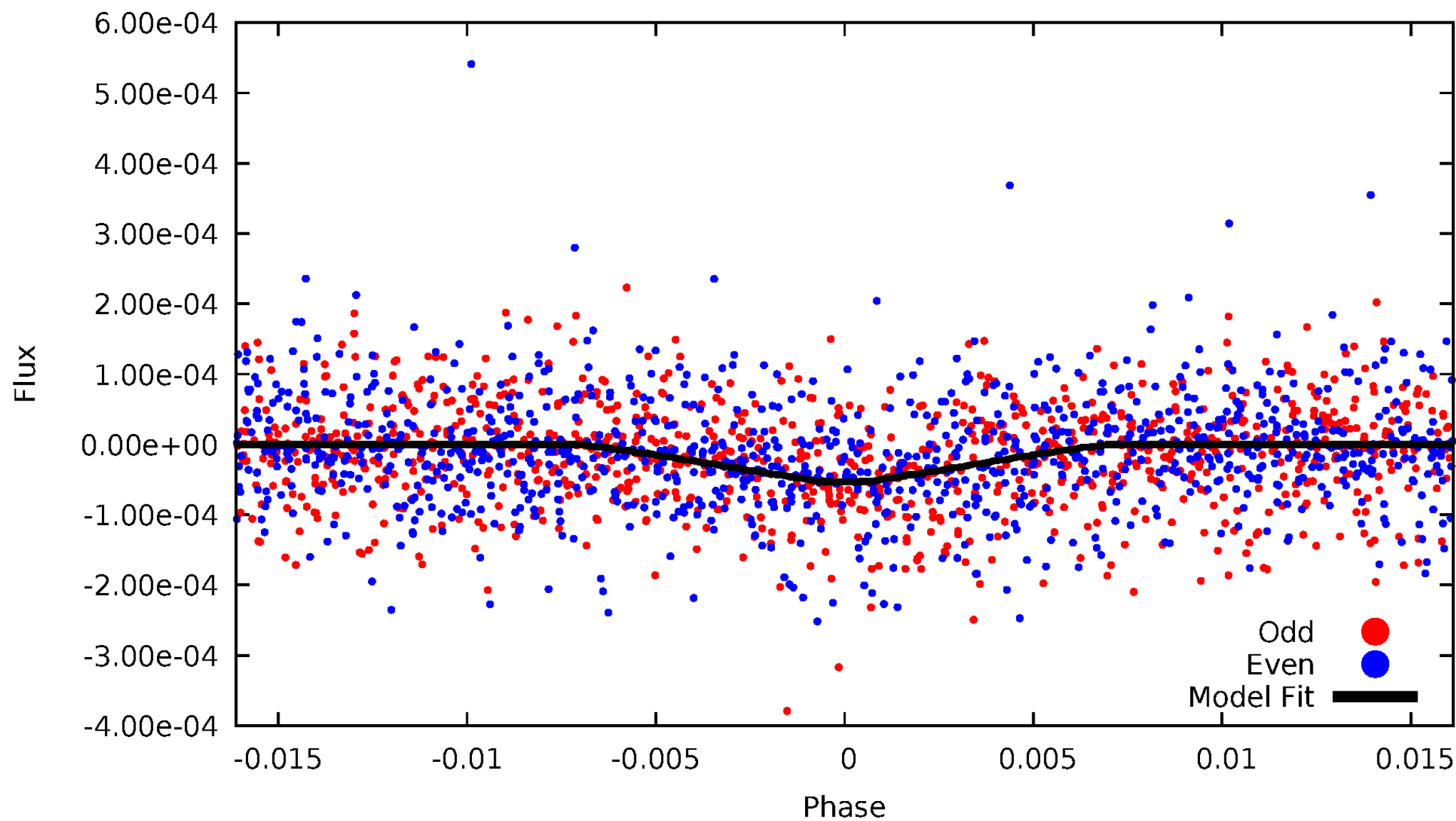


TCE 006307083-03



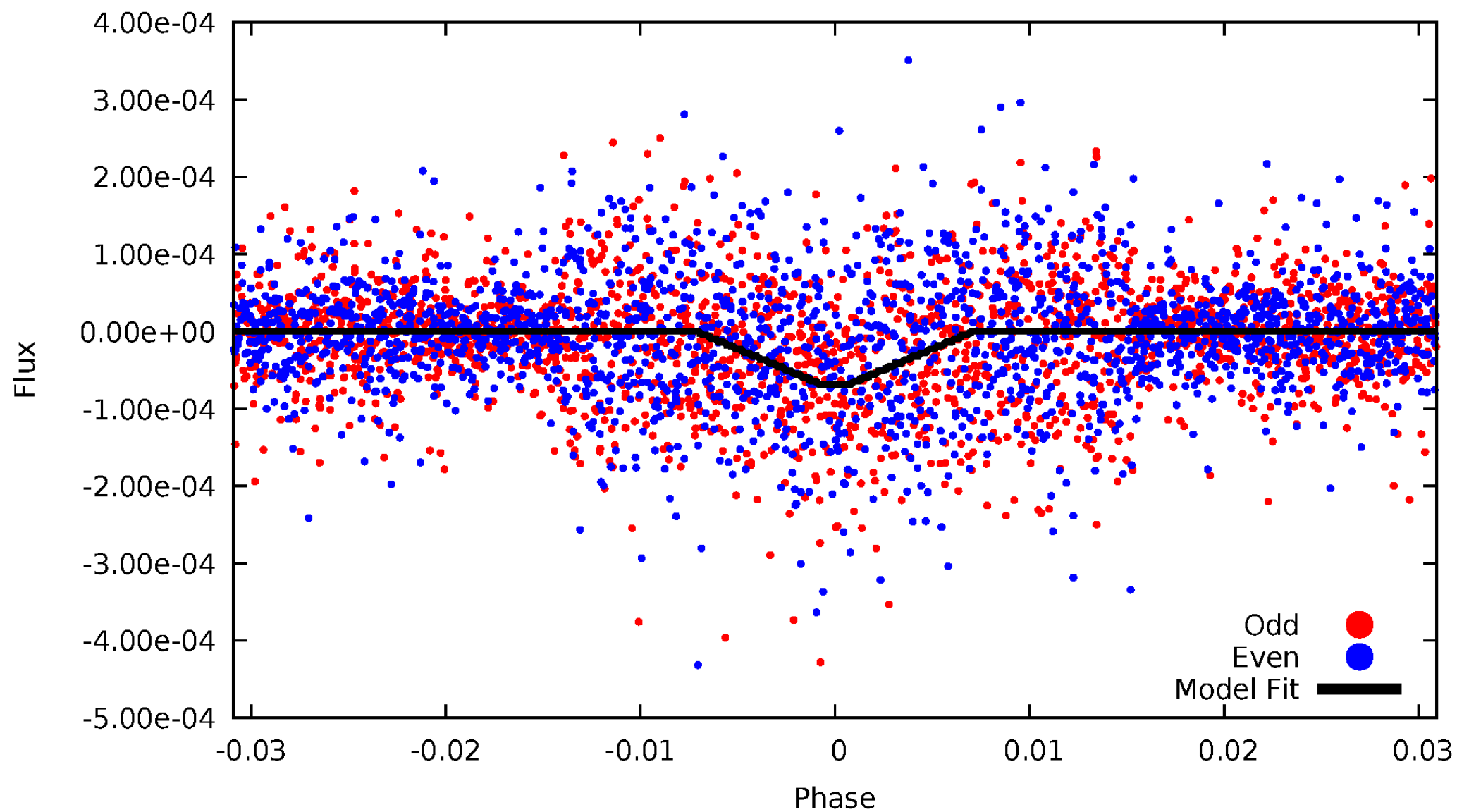
DV Odd/Even

TCE 006307083-03



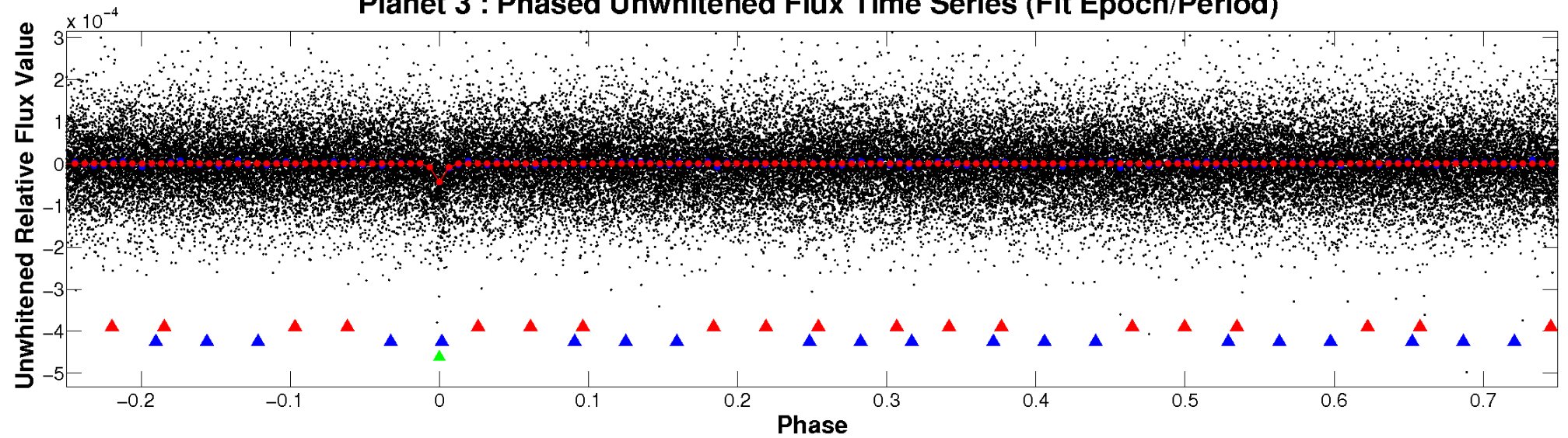
ALT Odd/Even

TCE 006307083-03

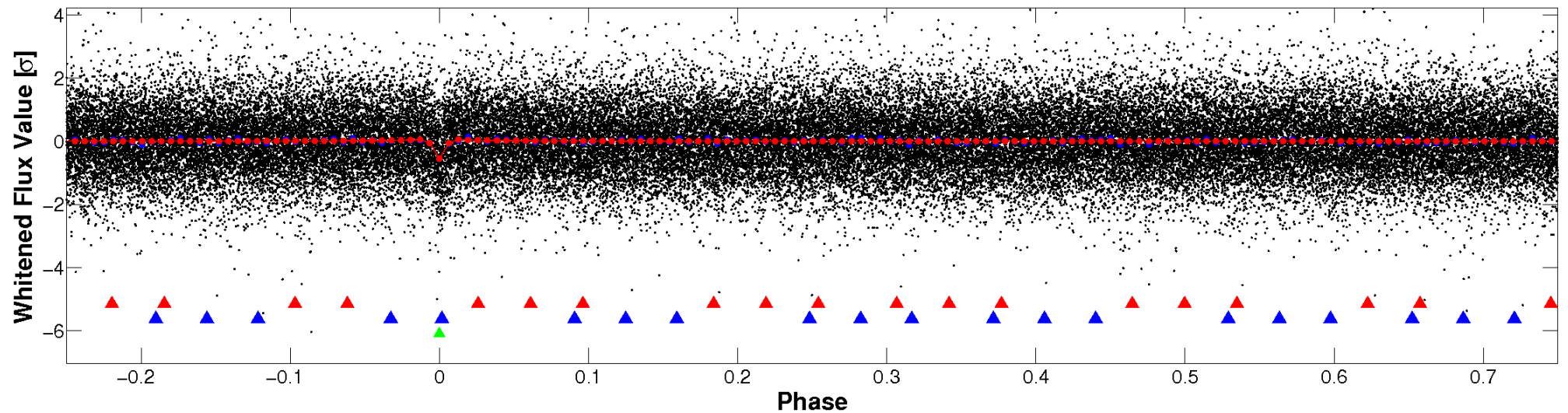


Non-Whitened Vs. Whitened Light Curve

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

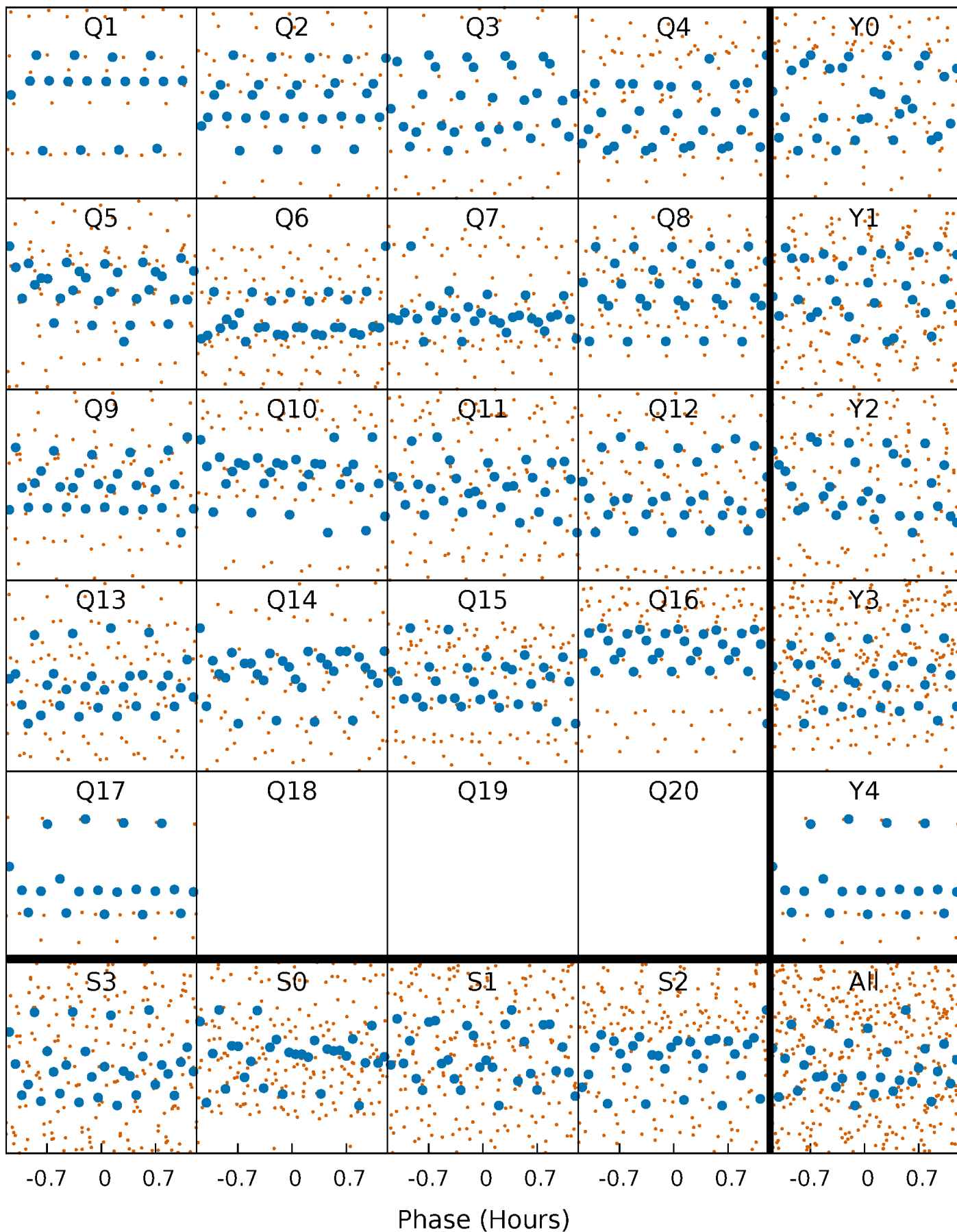


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



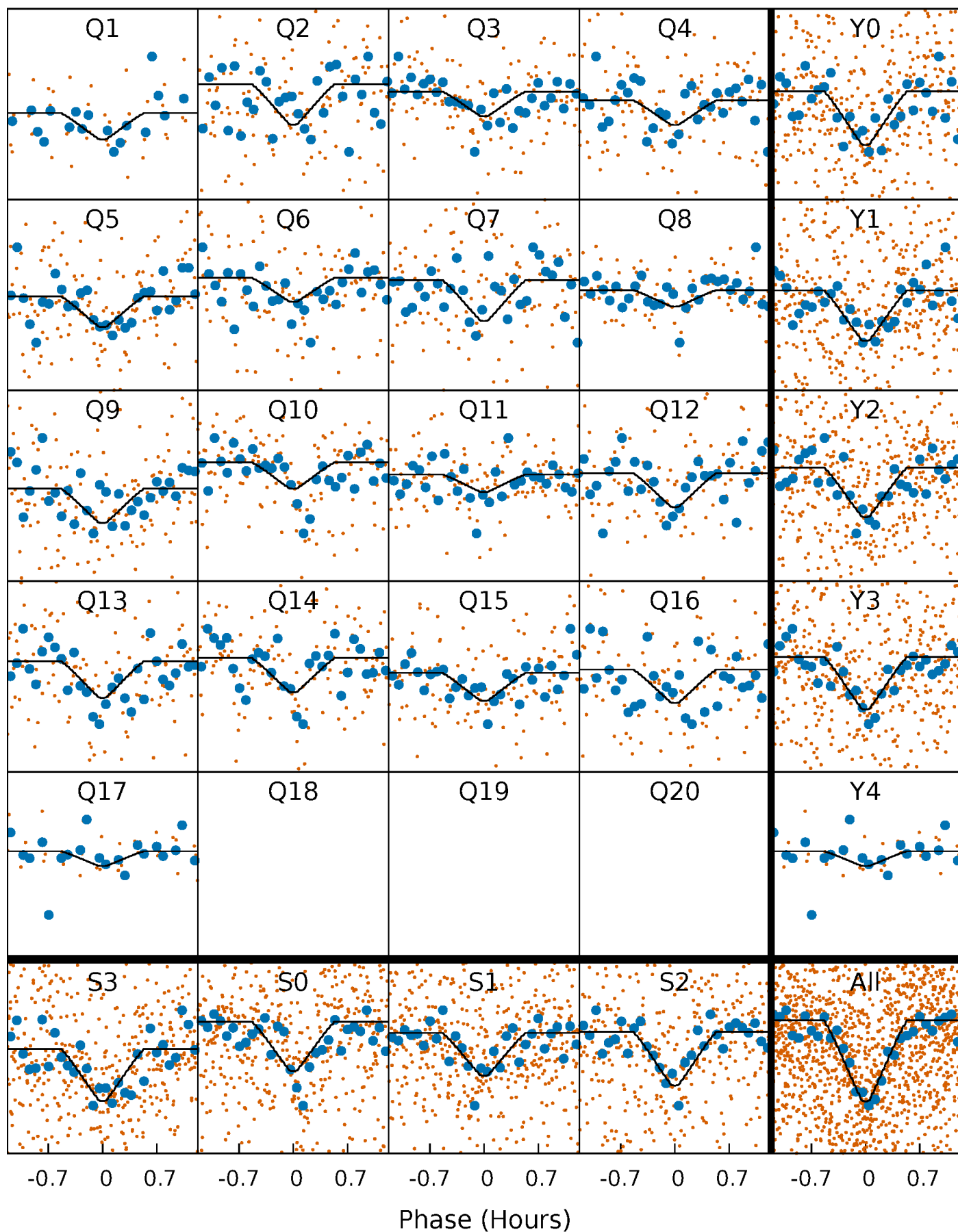
PDC Quarter-Phased Transit Curves

TCE 006307083-03 P= 3.177973 Days $T_0=134.347865$ (BKJD)



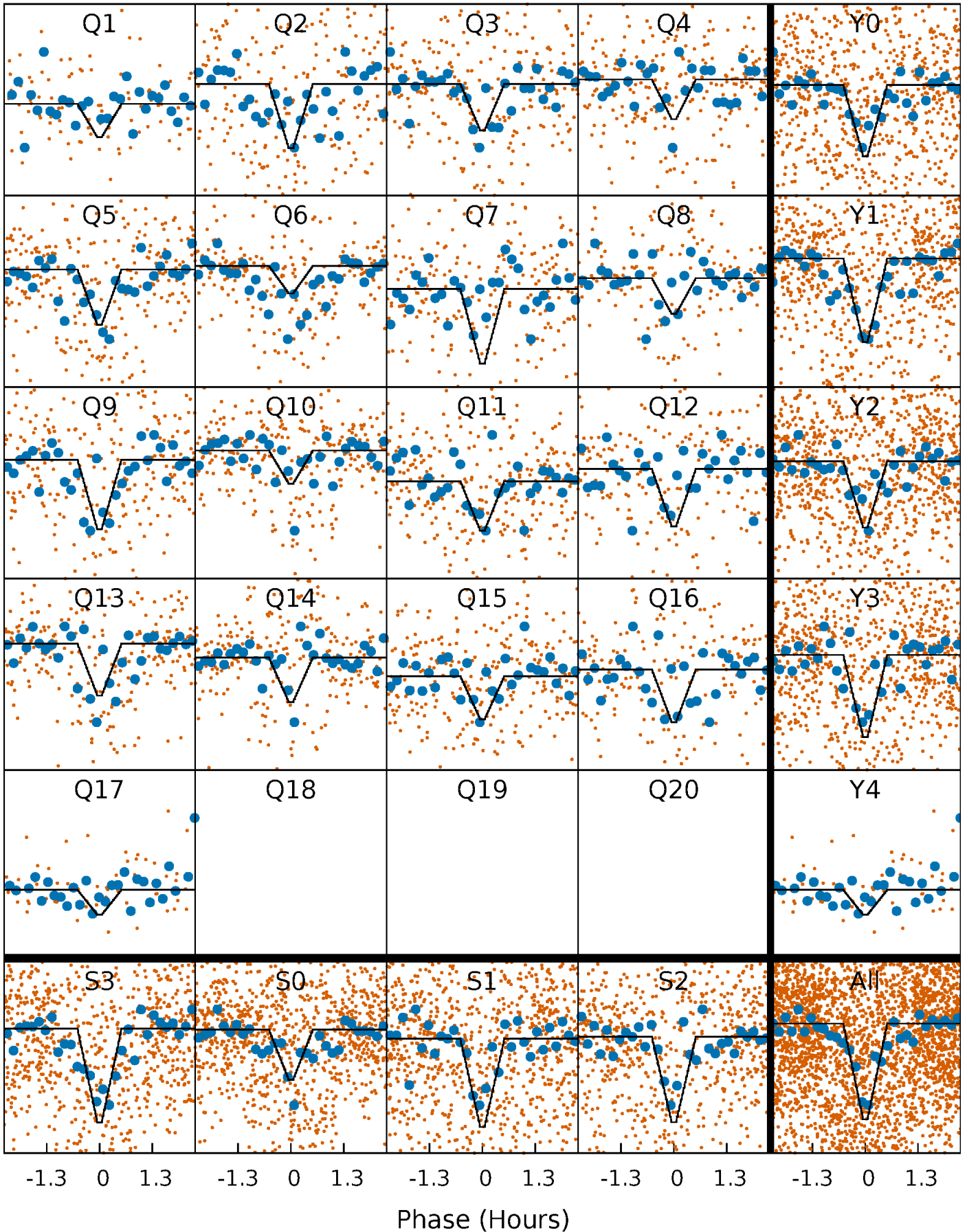
DV Quarter-Phased Transit Curves

TCE 006307083-03 P= 3.177973 Days $T_0=134.347865$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

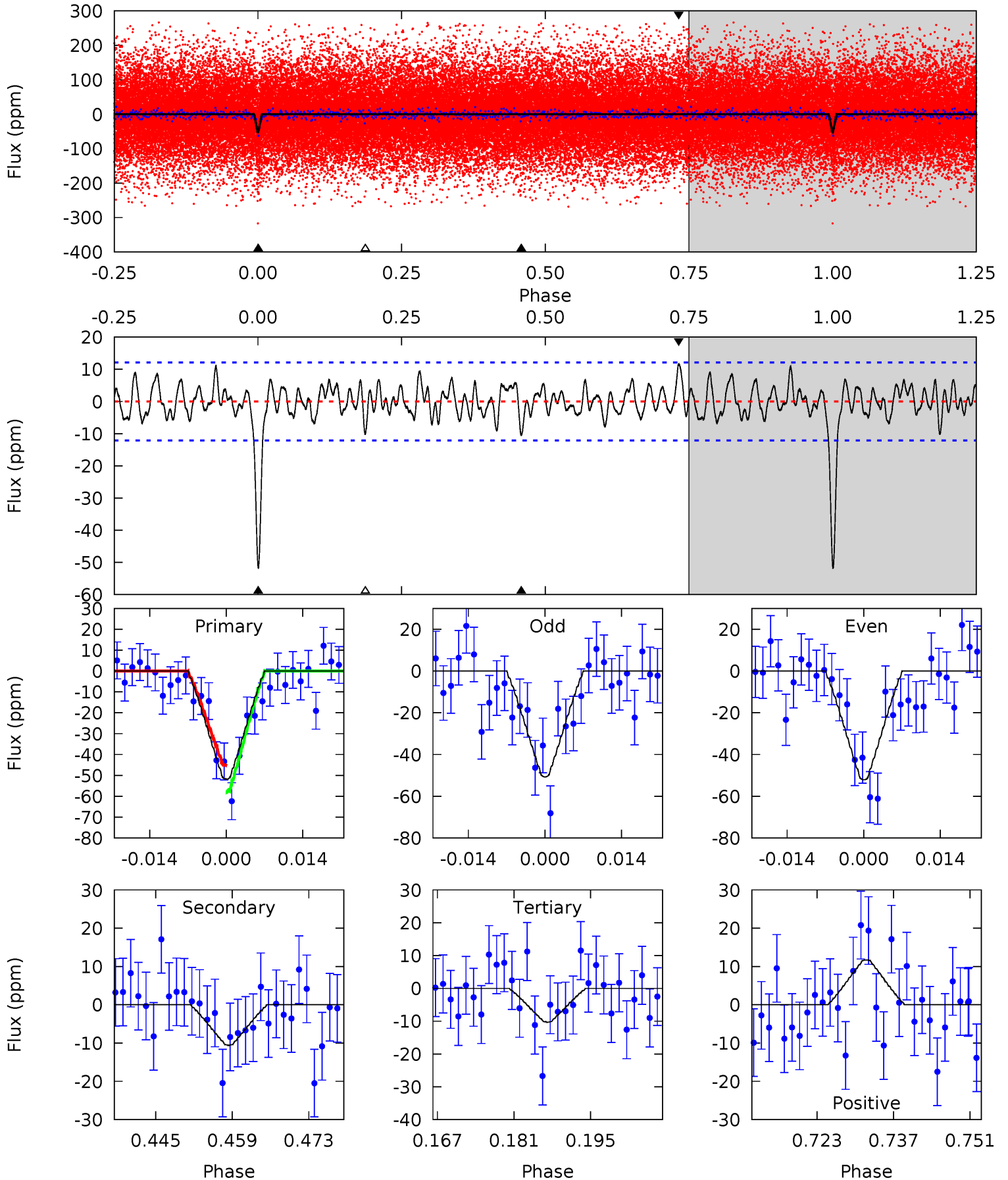
TCE 006307083-03 $P = 3.177972$ Days $T_0 = 134.350014$ (BKJD)



DV Model-Shift Uniqueness Test

006307083-03, P = 3.177973 Days, E = 131.169892 Days

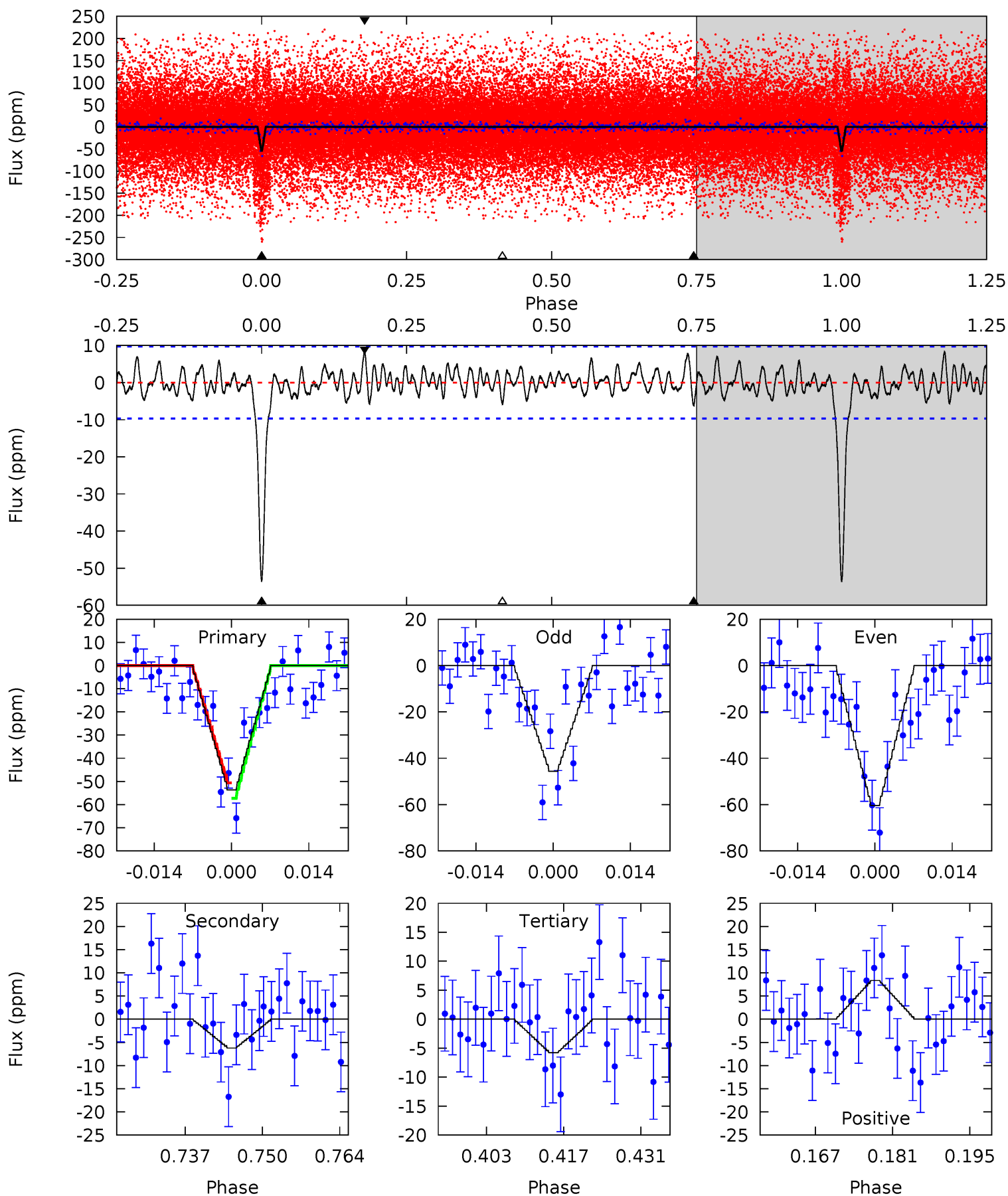
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.2 | 4.31 | 4.21 | 4.79 | 4.96 | 2.46 | 1.56 | 17.0 | 16.4 | 0.10 | -0.48 | 0.28 | 1.01 | 0.18 | 2.56 |



Alt Model-Shift Uniqueness Test

006307083-03, P = 3.177972 Days, E = 131.172042 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 27.5 | 3.19 | 2.97 | 4.27 | 4.96 | 2.46 | 1.30 | 24.5 | 23.2 | 0.21 | -1.08 | 3.78 | 1.14 | 0.13 | 1.70 |



Stellar Parameters For KIC 006307083

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5061^{+83}_{-76} | $4.488^{+0.088}_{-0.028}$ | $0.100^{+0.150}_{-0.150}$ | $0.841^{+0.038}_{-0.066}$ | $0.793^{+0.060}_{-0.030}$ | $1.878^{+0.592}_{-0.195}$ |
| | +2%/-2% | +2%/-1% | +150%/-150% | +5%/-8% | +8%/-4% | +32%/-10% |
| Source | SPE90 | SPE90 | SPE90 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 006307083-03 / KOI 2050.02

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|----------------------------|
| DV | -11 ± 2 | $0.76^{+0.25}_{-0.26}$ | 1435^{+34}_{-41} | 3563^{+532}_{-370} | 16^{+20}_{-8} |
| Alt. | -6 ± 2 | $0.75^{+0.27}_{-0.26}$ | 1434^{+31}_{-37} | 3272^{+480}_{-358} | $9.266^{+11.920}_{-4.868}$ |

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

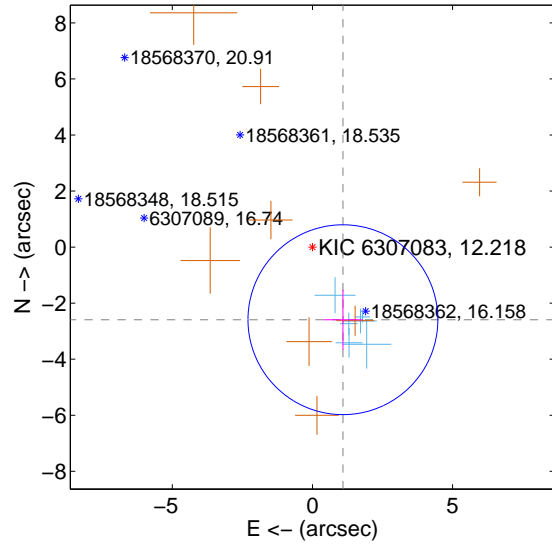
Supplemental centroid analysis for 006307083-03. Kepler magnitude: 12.22. Transit SNR 12.05

There are 6 quarters with good PRF difference image offsets

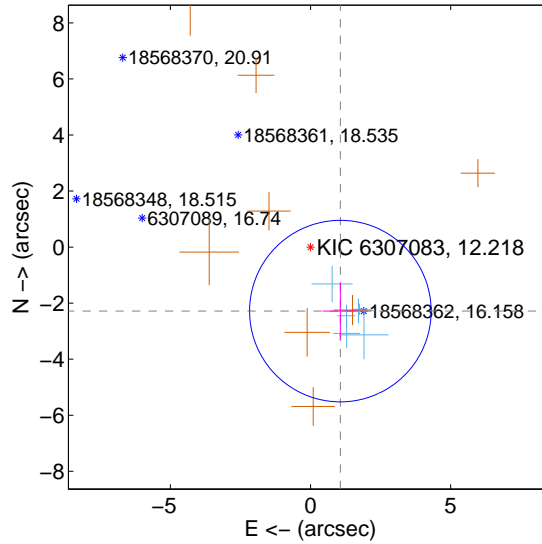
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 2.810 ± 1.129 | 2.49 | -1.088 ± 0.694 | -2.591 ± 1.066 |
| PRF-fit source offset from KIC position | 2.520 ± 1.080 | 2.33 | -1.065 ± 0.636 | -2.284 ± 1.034 |
| photometric centroid source offset | 4.03 ± 1.06 | 3.81 | -2.85 ± 1.13 | -2.84 ± 0.98 |

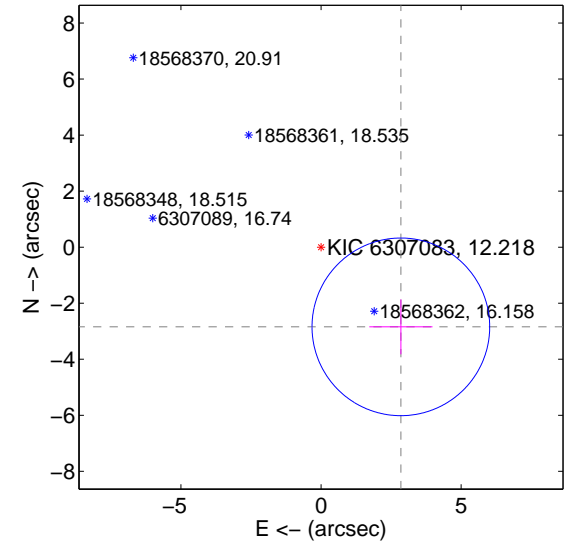
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

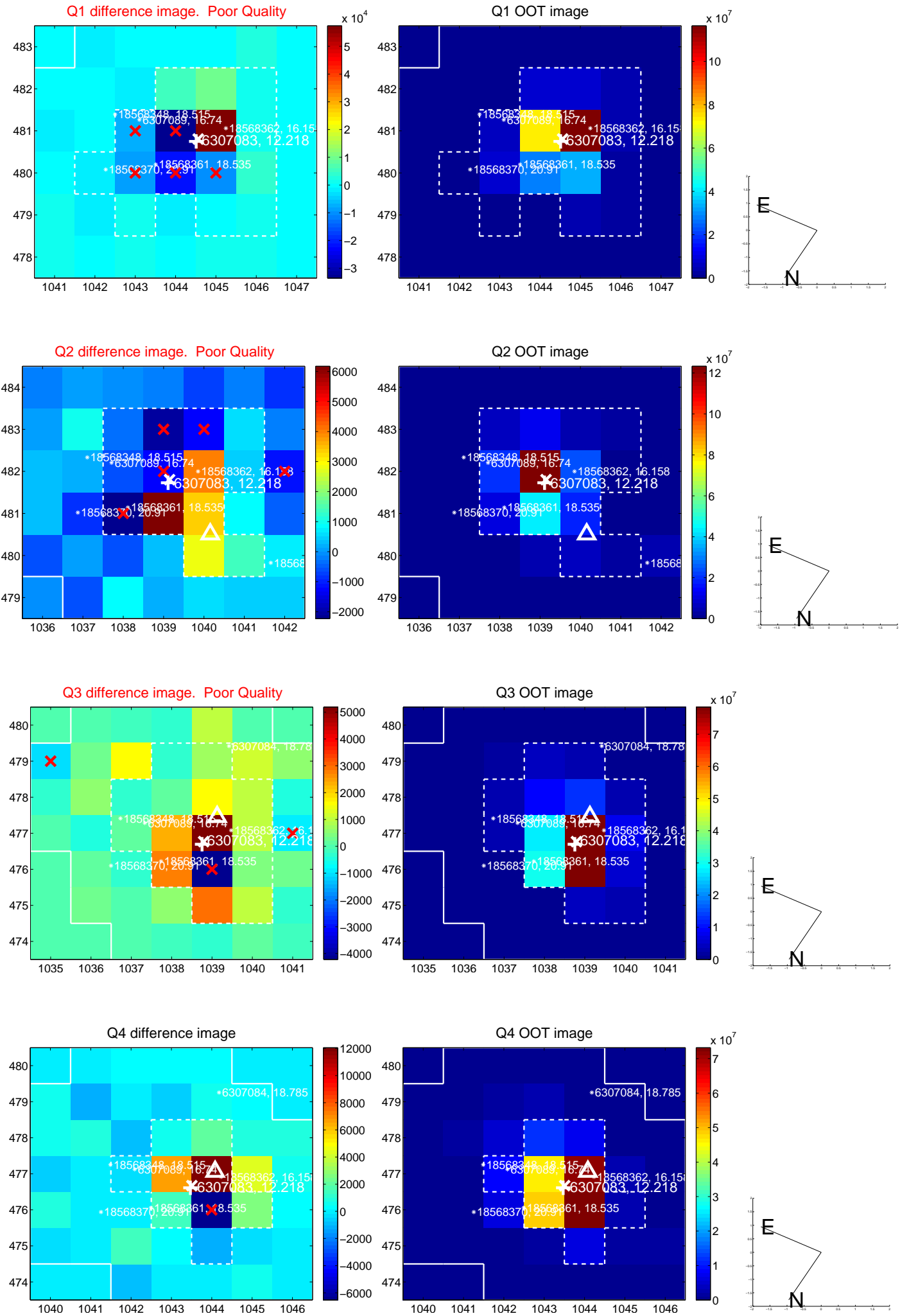


offset from photometric centroids

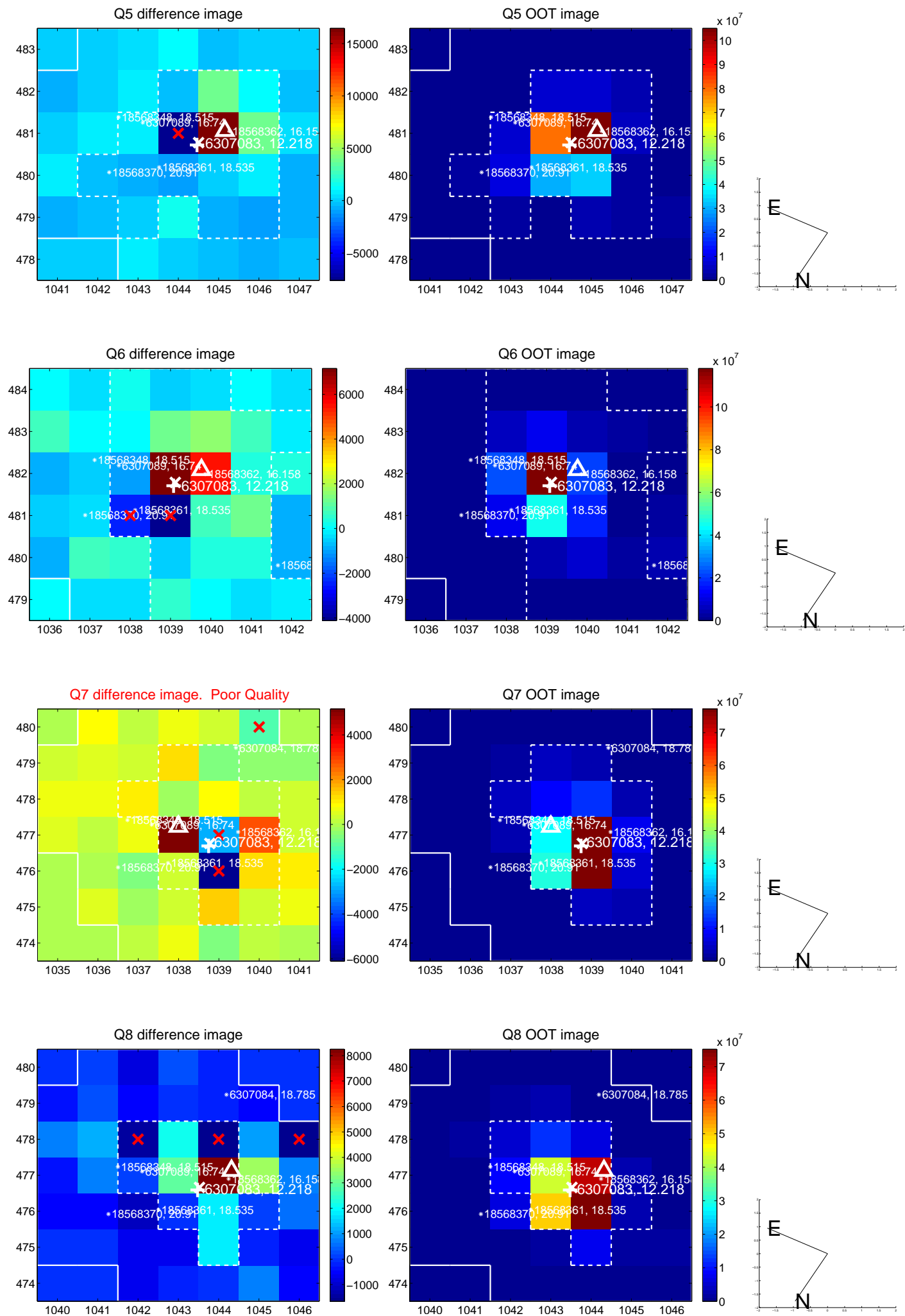


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

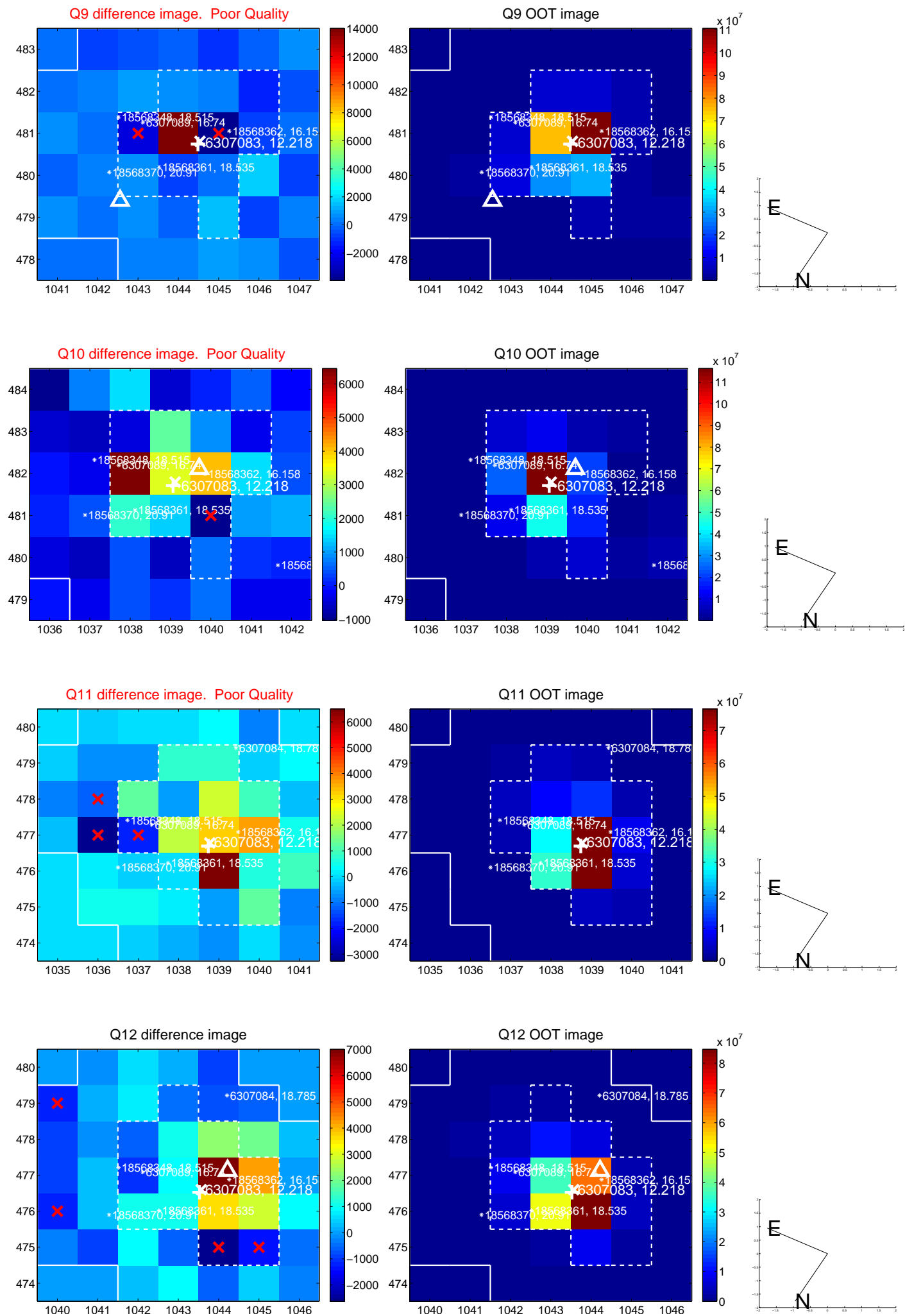
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



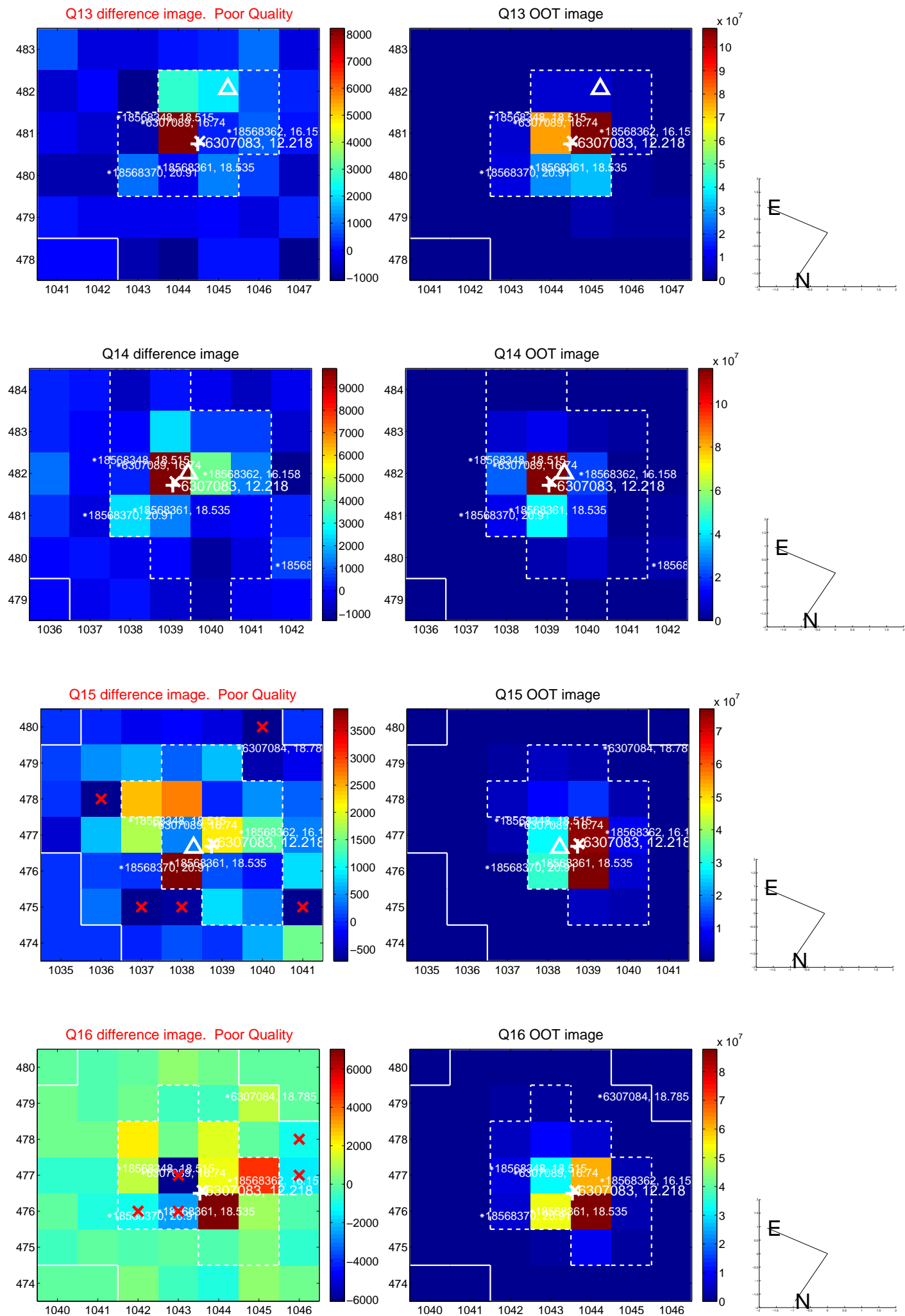
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



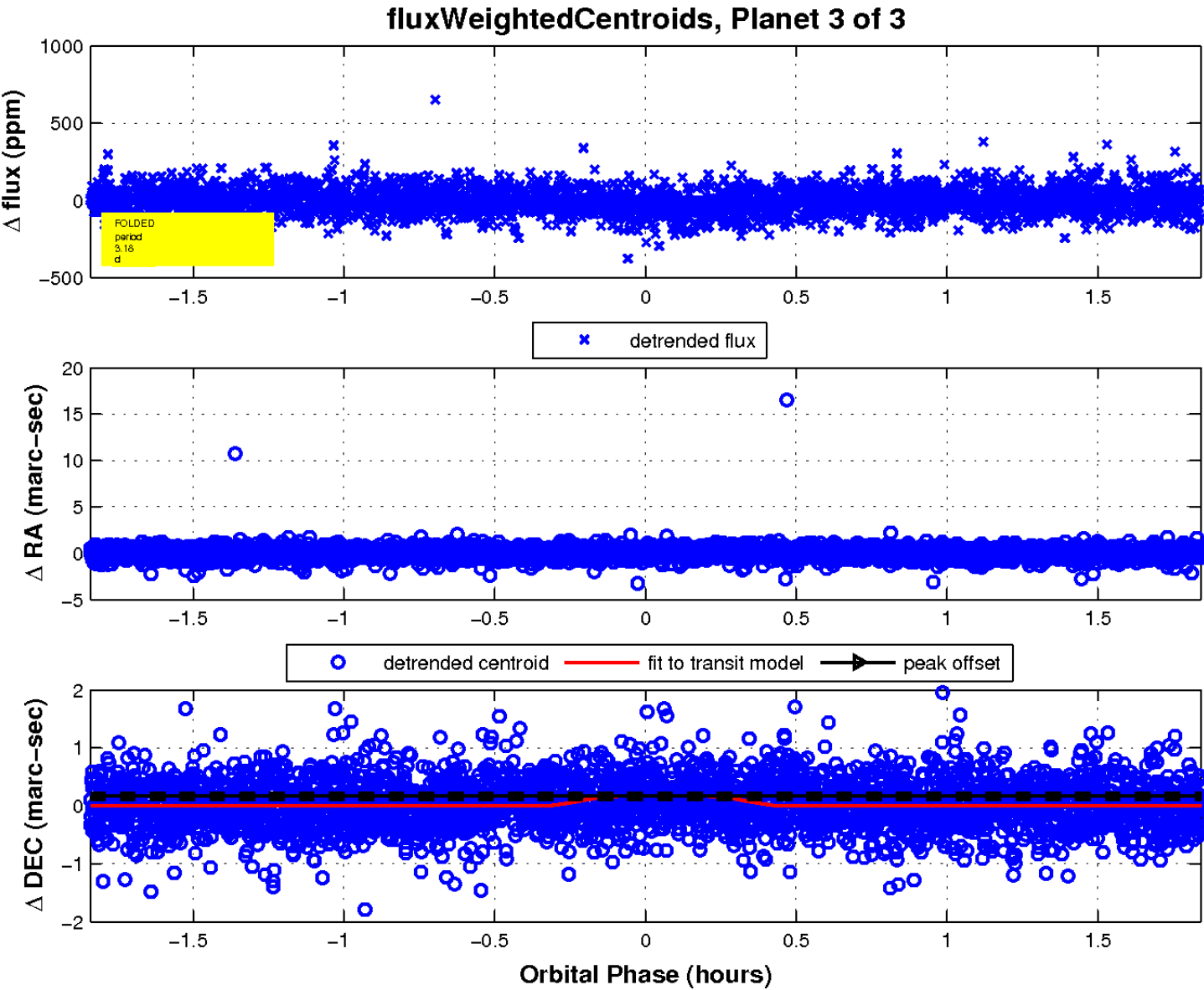
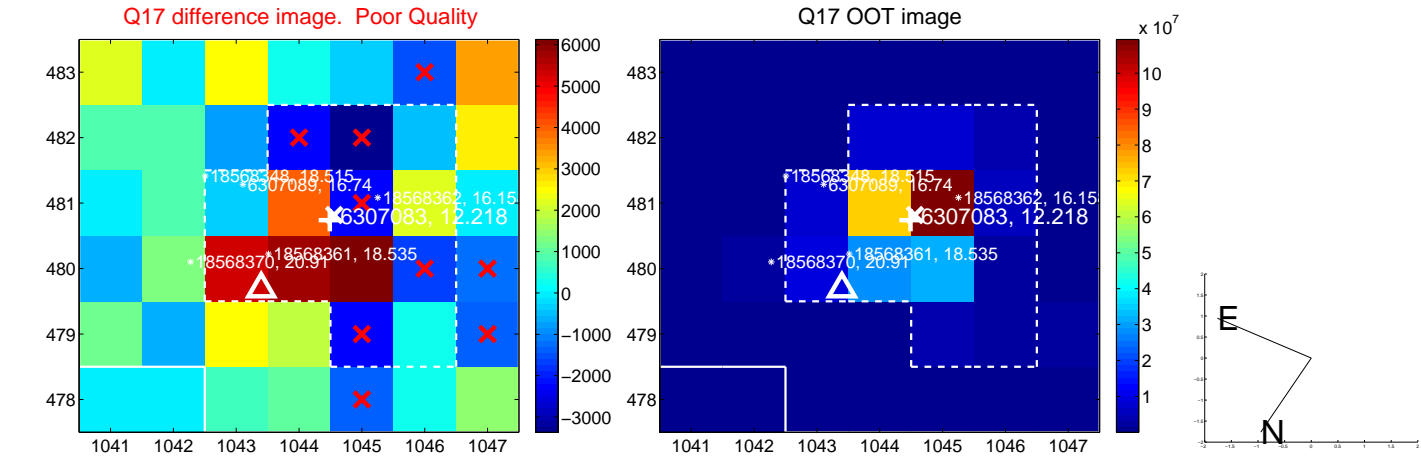
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

