

KIC 005308777

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005308777-01 | OBS | 5152.01 | 0.944585 | 132.230335 | 88.7 | 3.582 | 16.7 | 14.1 | 9.21 | 4877 | 10.61 | 0.00 |
| 005308777-03 | OBS | No | 259.963541 | 312.333706 | 865.3 | 7.178 | 8.0 | 7.7 | 9.21 | 4877 | 29.21 | 40.79 |
| 005308777-04 | OBS | No | 168.670369 | 149.542807 | 610.3 | 8.111 | 7.4 | 7.2 | 9.21 | 4877 | 22.72 | 72.62 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005308777-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 0 | PLANET_IN_STAR—CENT_RESOLVED_OFFSET—HALO_GHOST |
| 005308777-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT |
| 005308777-04 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—HALO_GHOST |

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

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

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

Ephemeris Match Information For 005308777-01

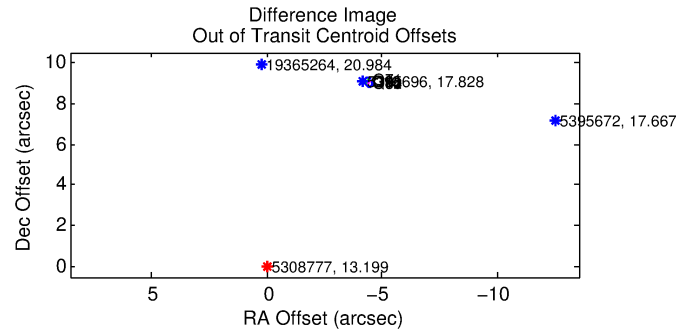
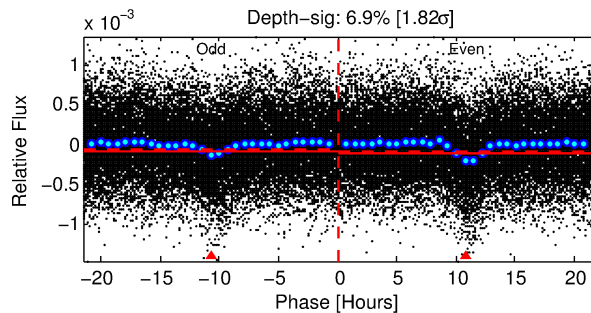
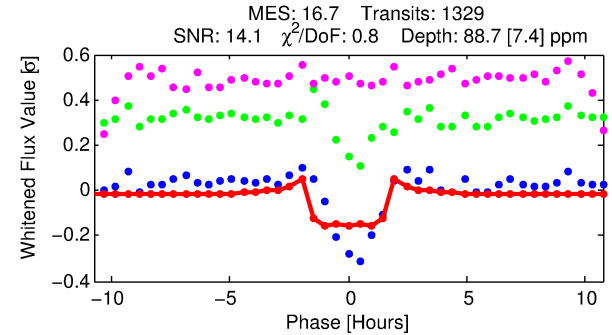
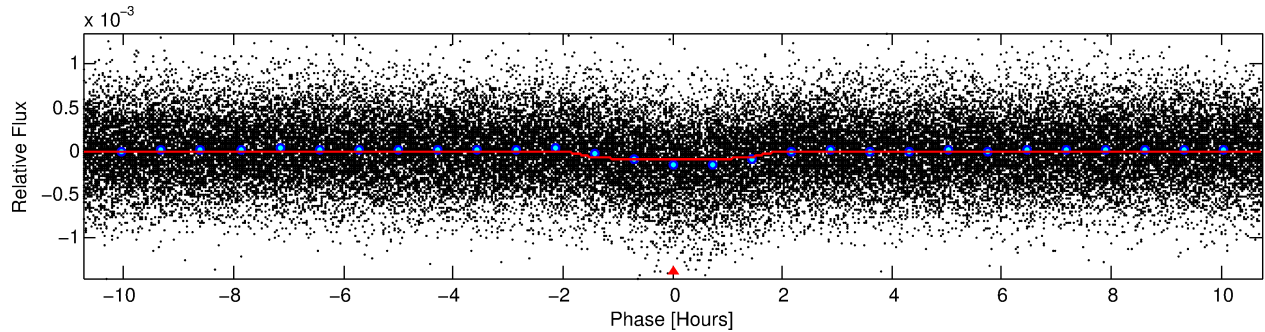
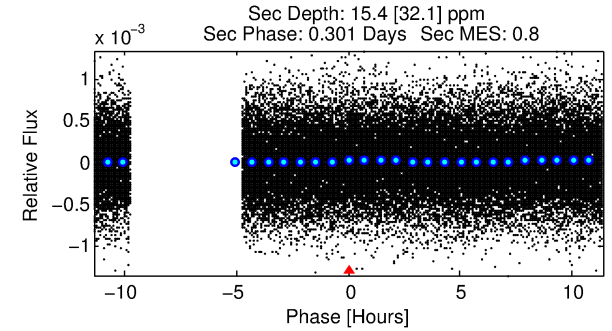
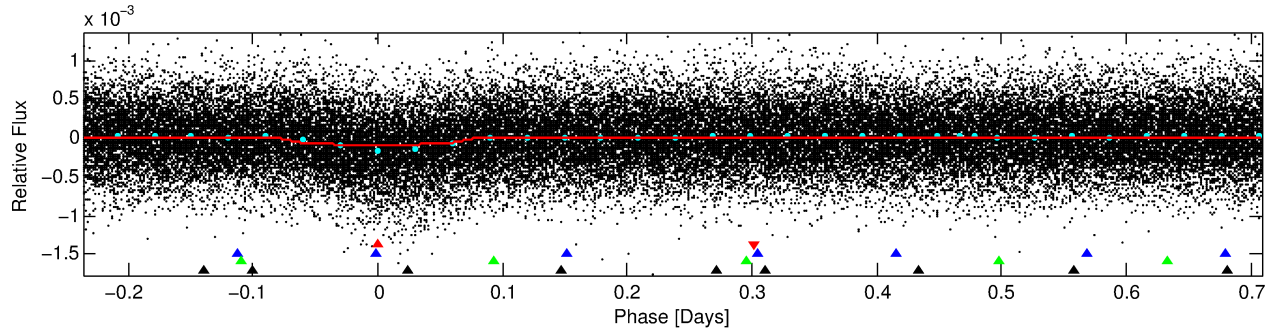
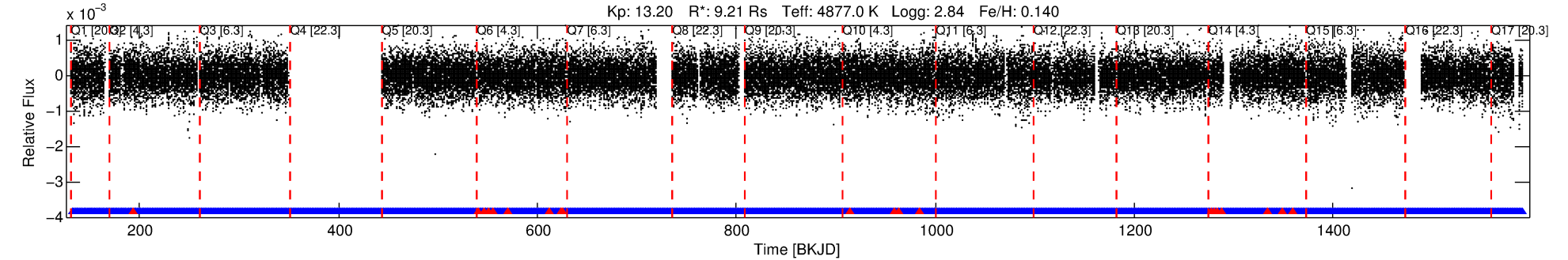
No Significant Match Found

DV One-Page Summary

KIC: 5308777 Candidate: 1 of 4 Period: 0.945 d

KOI: K05152.01 Corr: 0.912

Kp: 13.20 R*: 9.21 Rs Teff: 4877.0 K Logg: 2.84 Fe/H: 0.140



DV Fit Results:

Period = 0.94459 [0.00001] d
Epoch = 132.2303 [0.0016] BKJD
Rp/R* = 0.0106 [0.0026]
a/R* = 1.32 [0.55]
b = 0.90 [0.21]
Seff = N/A
Teq = N/A
Rp = 10.61 [3.54] Re
a = N/A
Ag = N/A
Teff = N/A

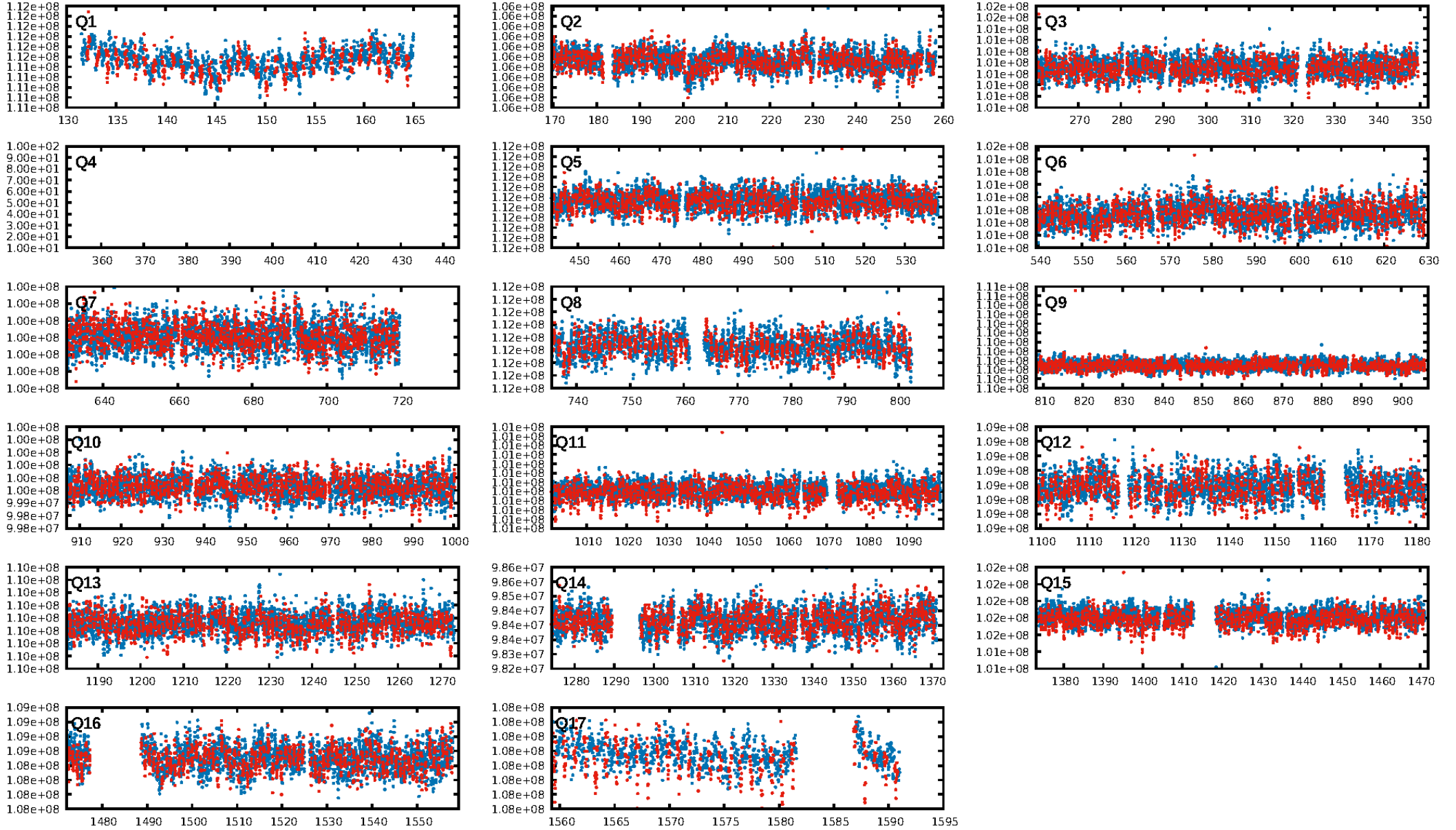
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [453.99σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.09e-42
RollingBand-fgt: 0.98 [1244/1265]
GhostDiagnostic-chr: -0.1096
Centroid-sig: N/A
Centroid-so: 10.268 arcsec [30.94σ]
OotOffset-rm: 10.056 arcsec [145.09σ]
KicOffset-rm: 10.170 arcsec [148.39σ]
OotOffset-st: 4/4/3/0 [11]
KicOffset-st: 4/4/3/0 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [16/16]

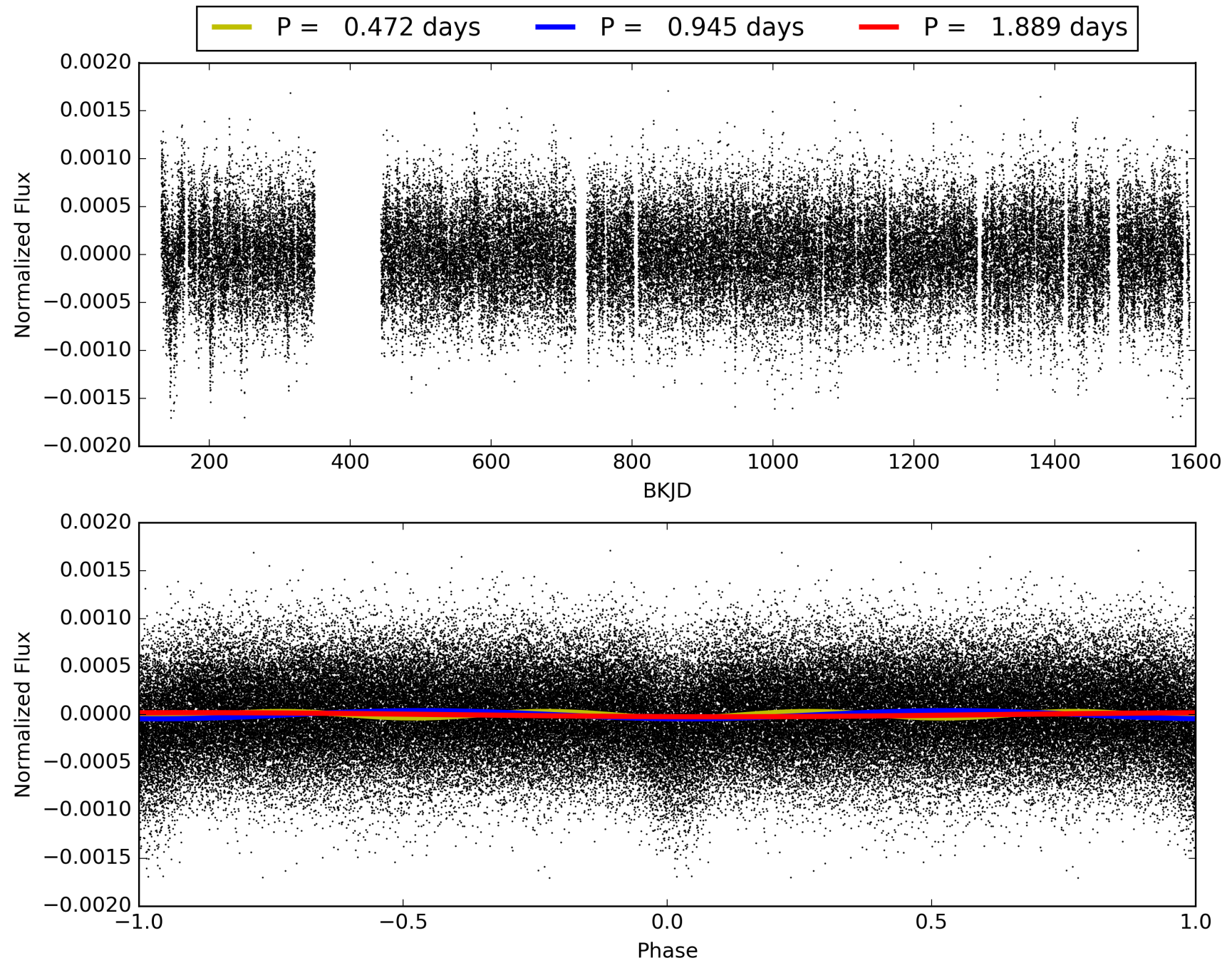
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:27:31 Z

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

TCE 005308777-01, PDC Light Curves

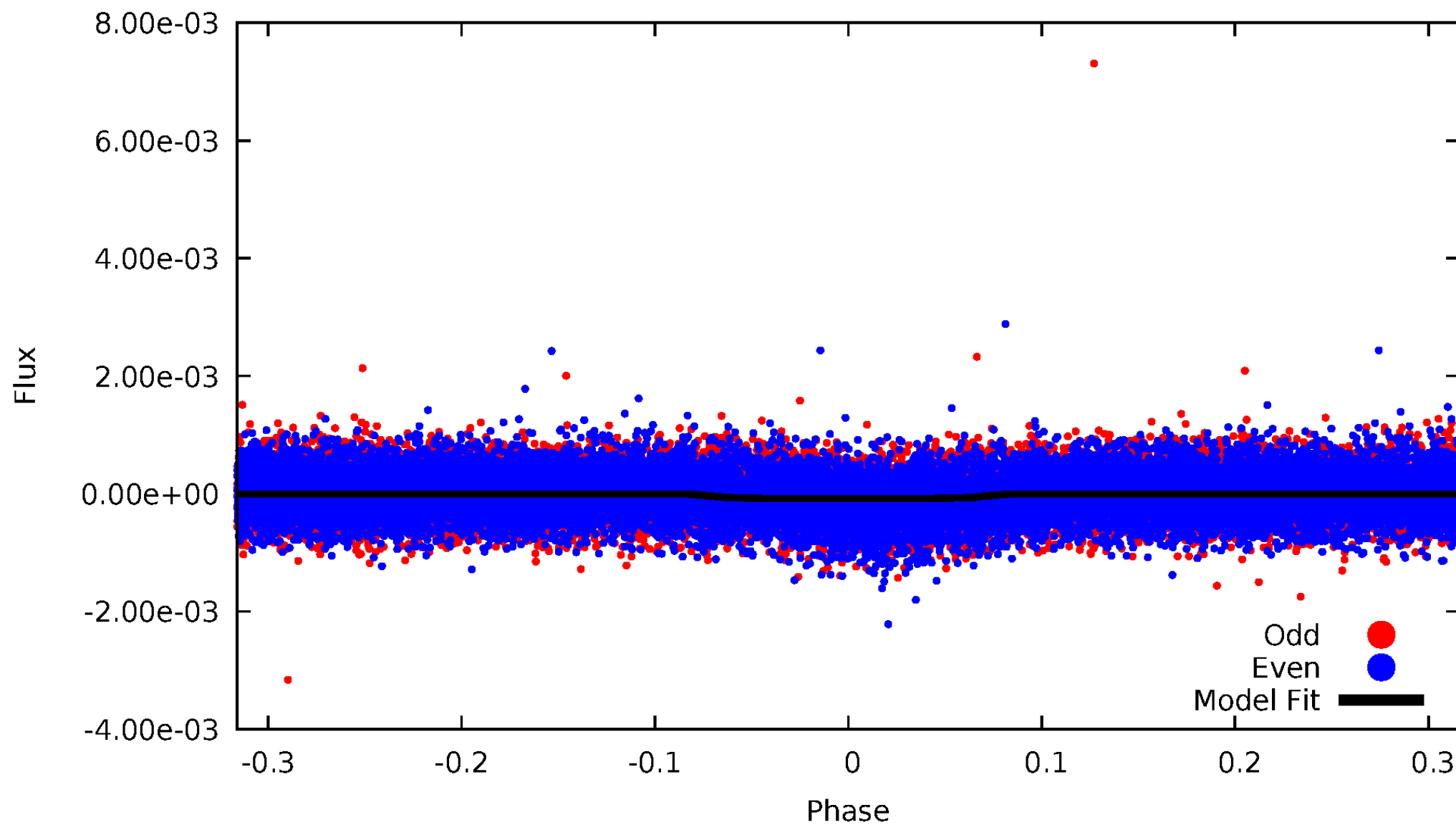


TCE 005308777-01



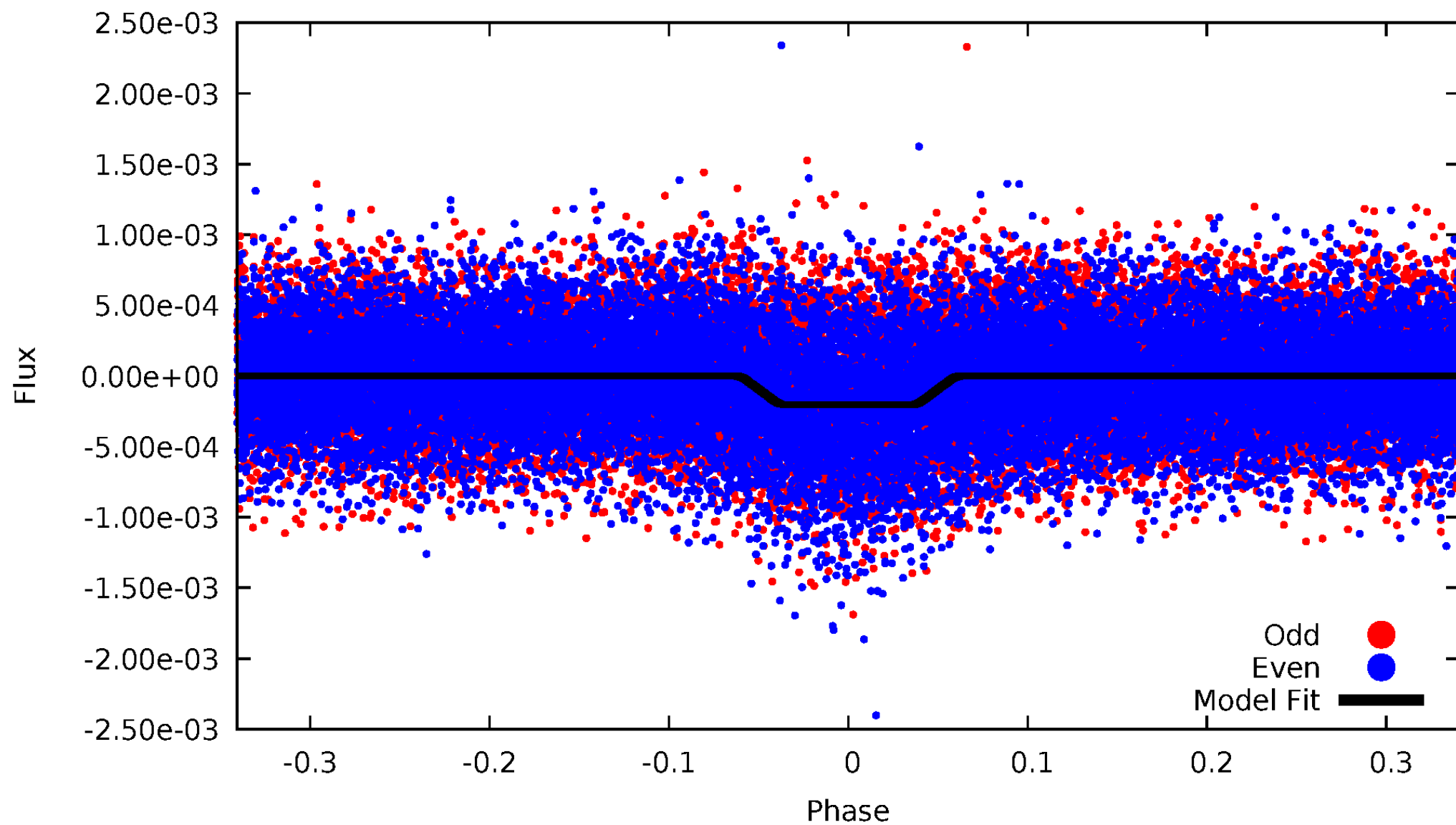
DV Odd/Even

TCE 005308777-01

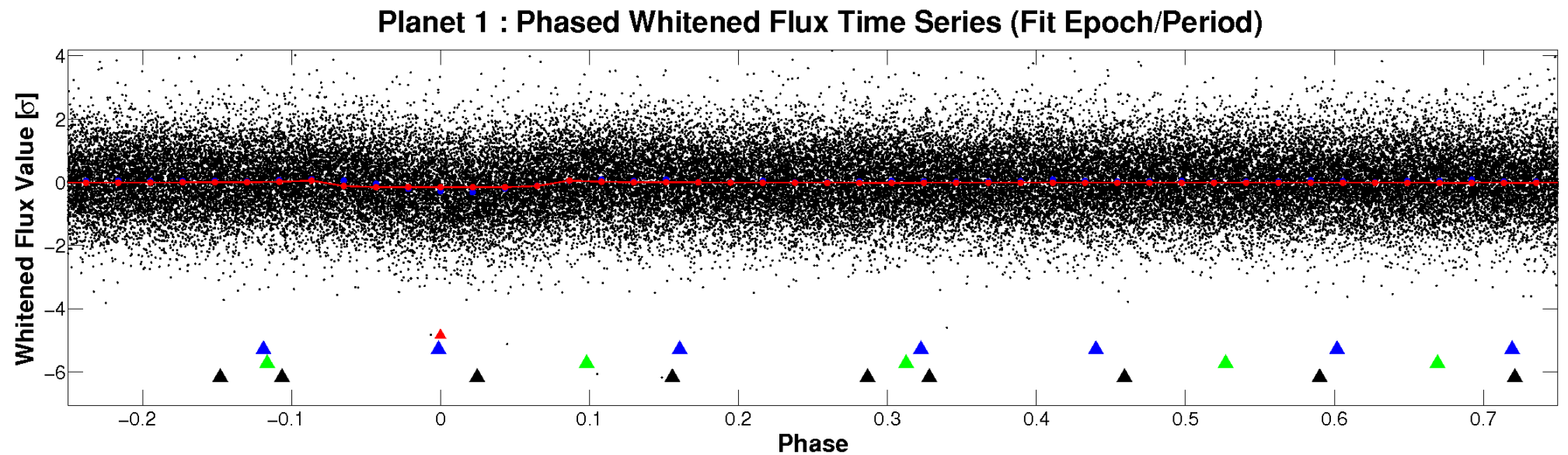
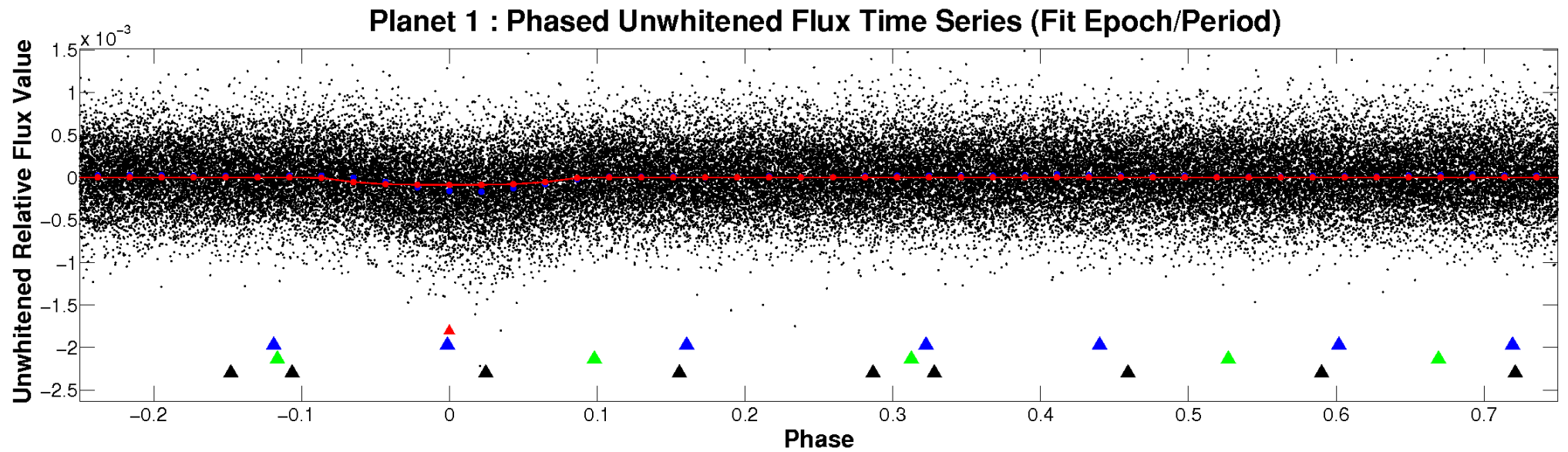


ALT Odd/Even

TCE 005308777-01

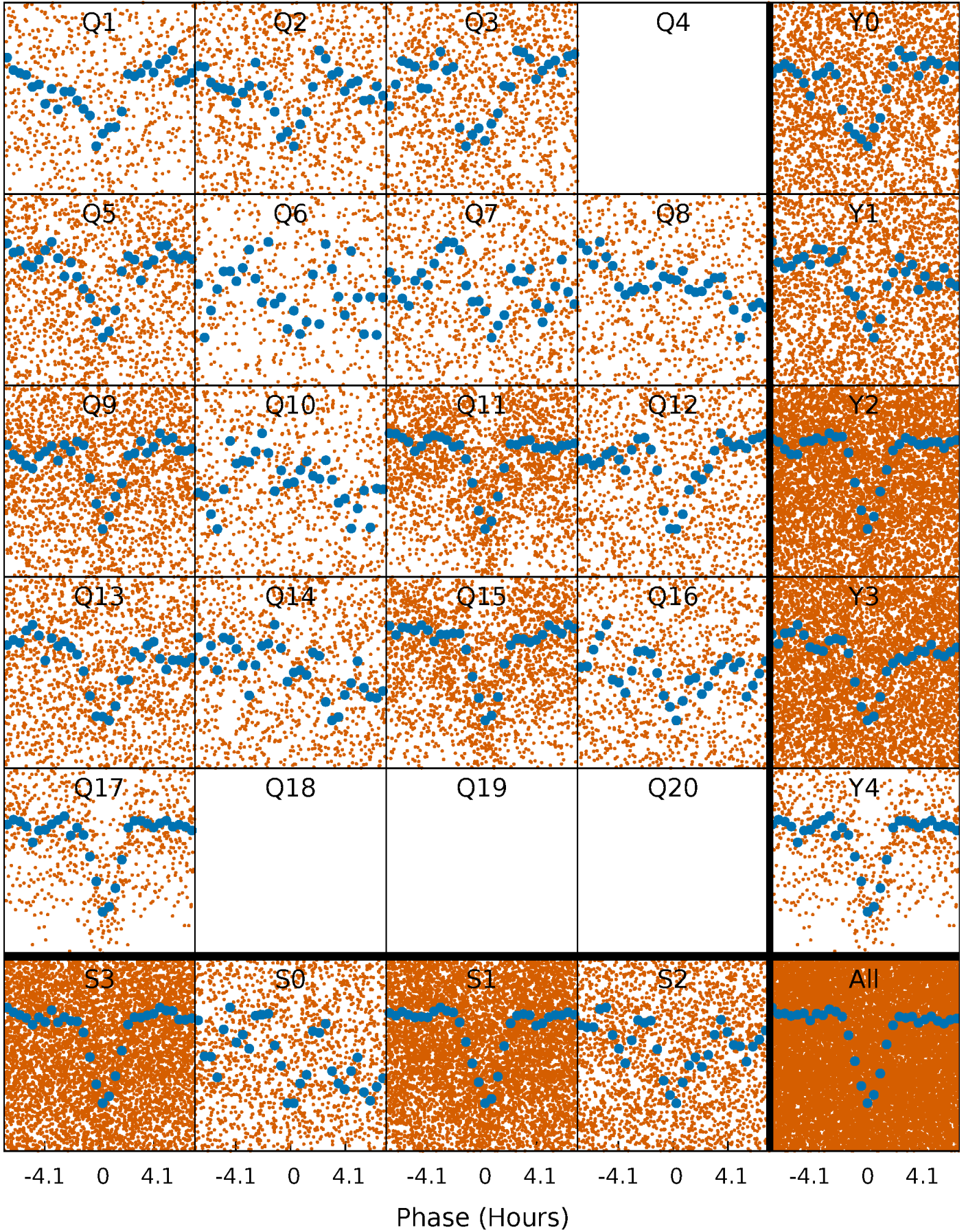


Non-Whitened Vs. Whitened Light Curve



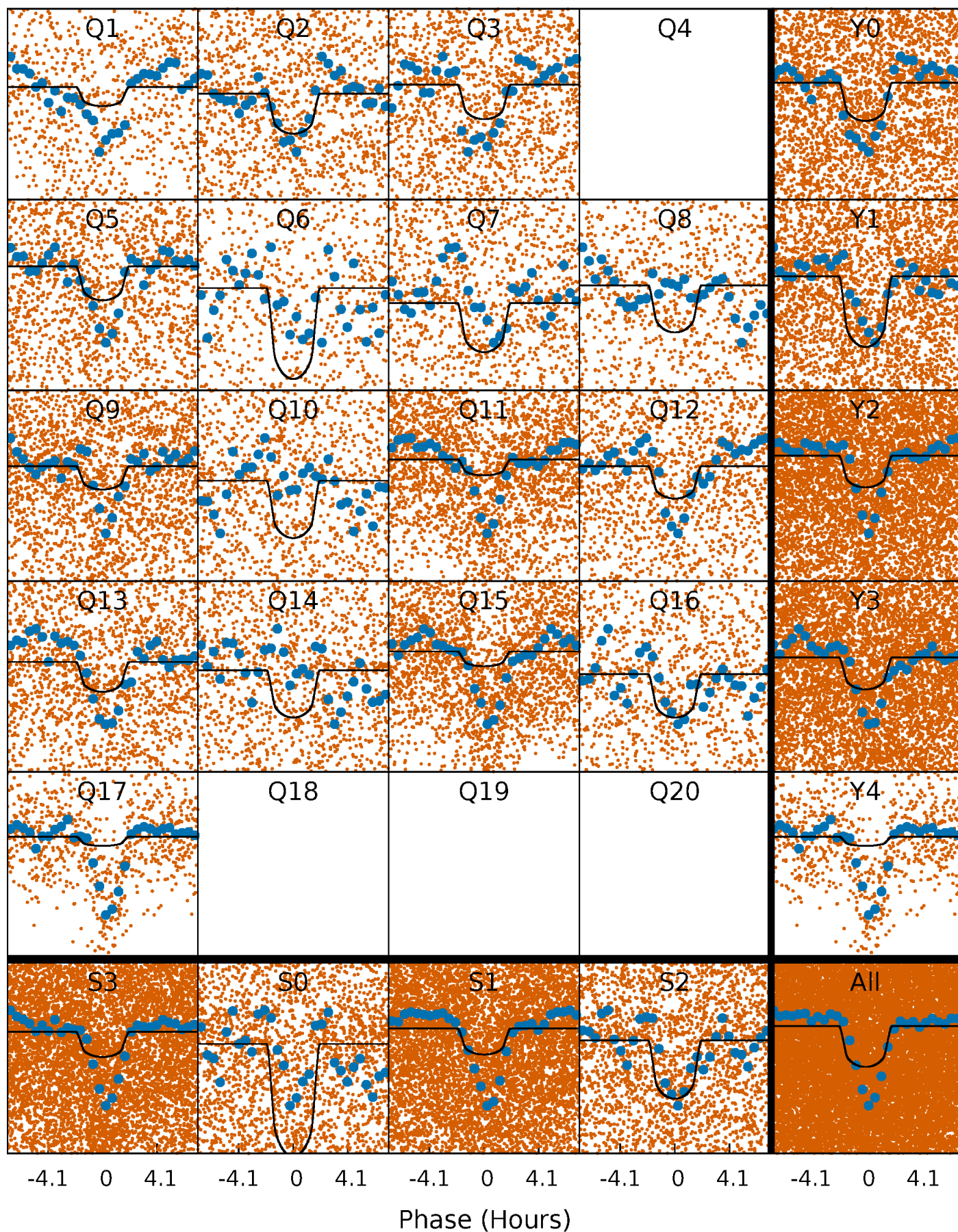
PDC Quarter-Phased Transit Curves

TCE 005308777-01 P= 0.944585 Days $T_0=132.230334$ (BKJD)



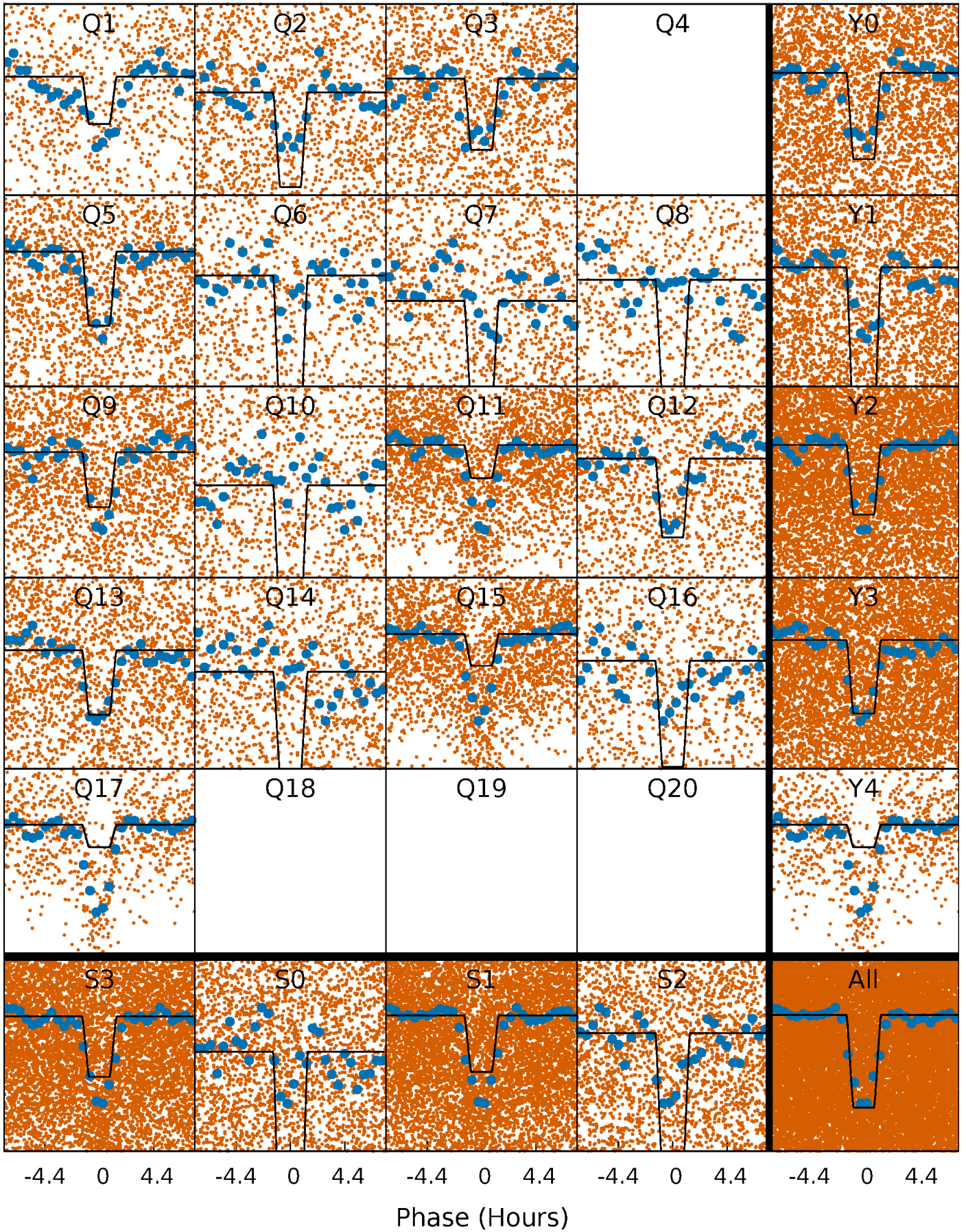
DV Quarter-Phased Transit Curves

TCE 005308777-01 P= 0.944585 Days $T_0=132.230334$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

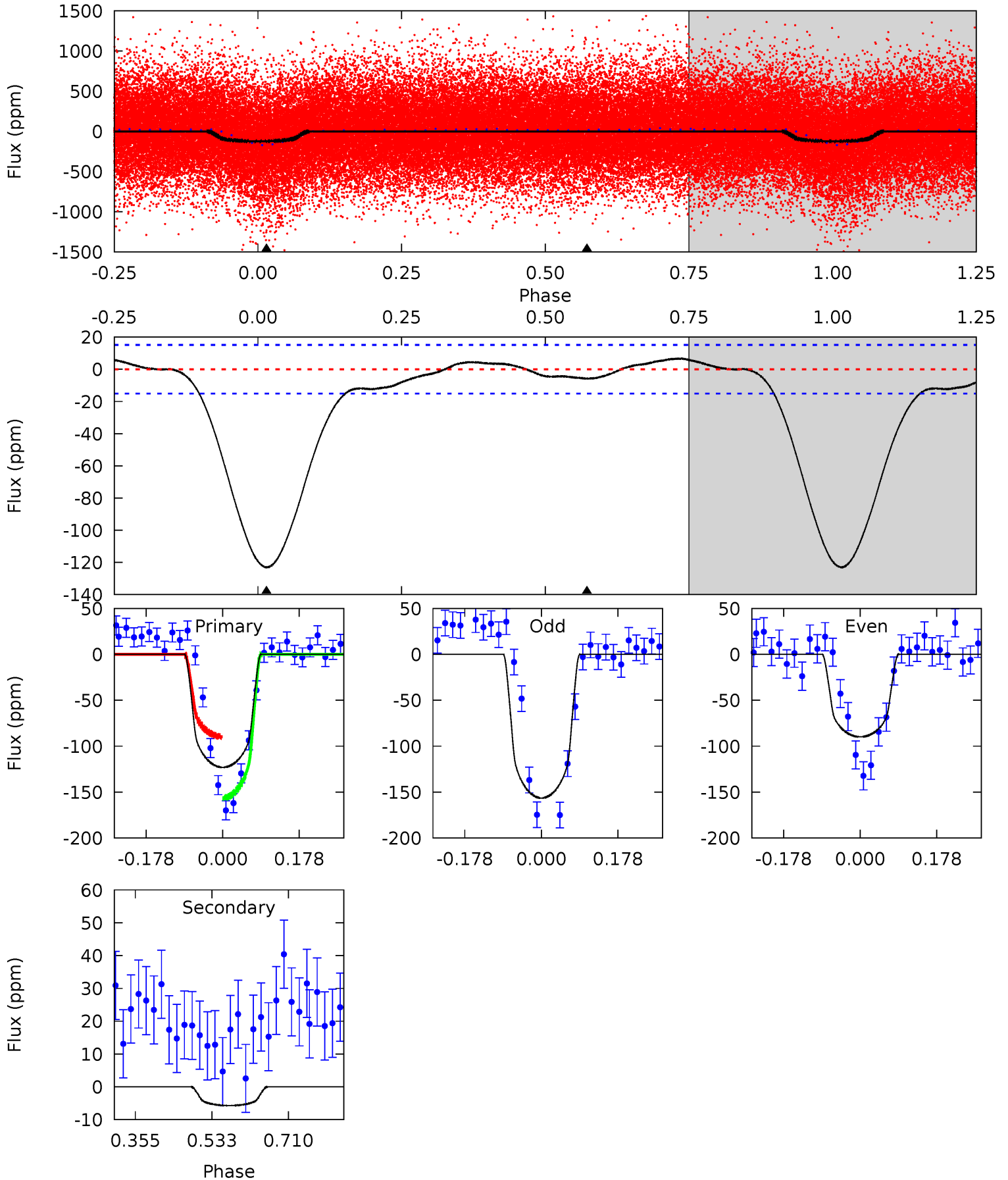
TCE 005308777-01 P= 0.944603 Days $T_0=132.228378$ (BKJD)



DV Model-Shift Uniqueness Test

005308777-01, P = 0.944585 Days, E = 131.285749 Days

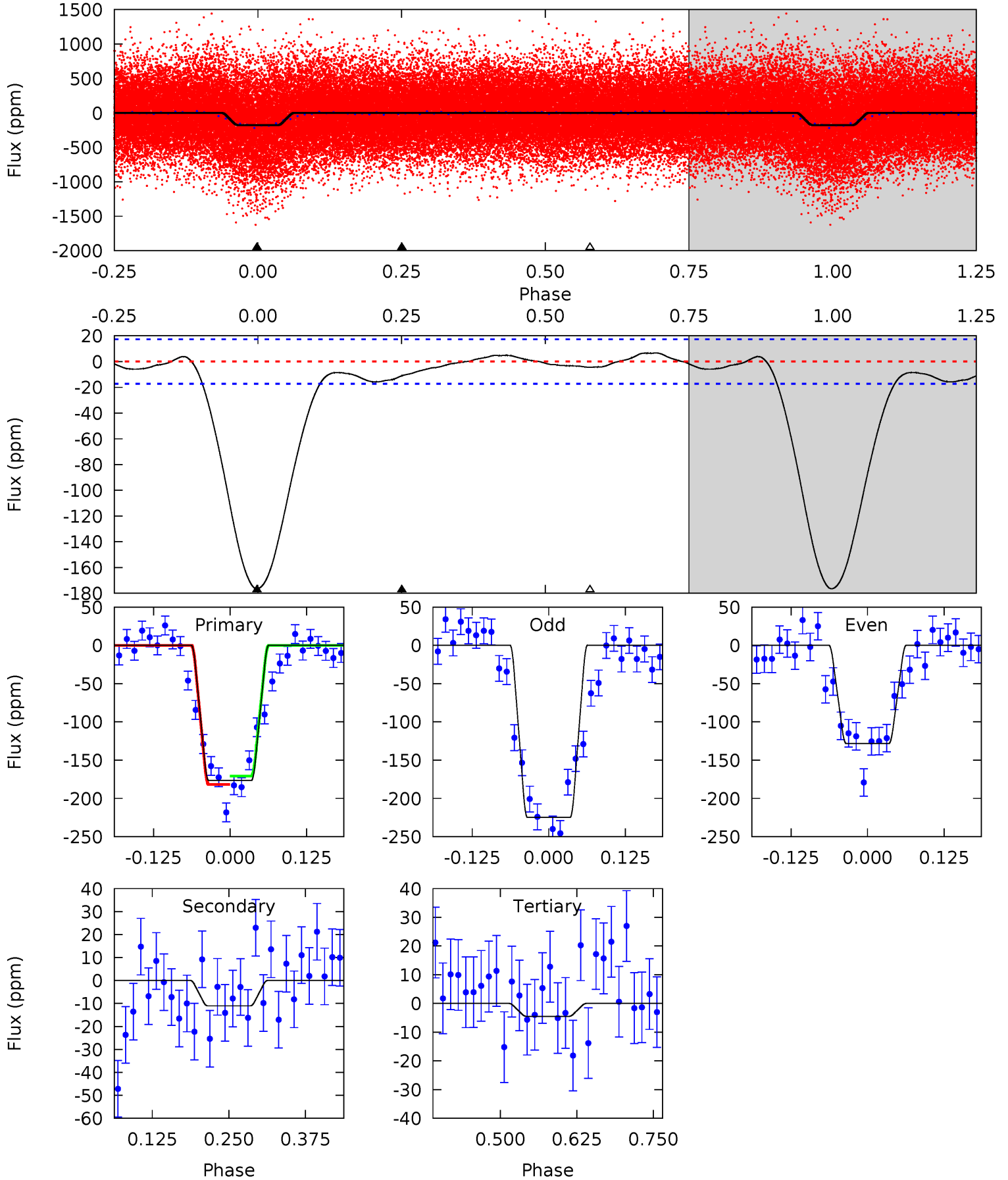
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 36.2 | 1.69 | 0 | 0 | 4.44 | 1.35 | 1.66 | 36.2 | 36.2 | 1.69 | 1.69 | 9.80 | 1.18 | 0.05 | 9.76 |



Alt Model-Shift Uniqueness Test

005308777-01, P = 0.944603 Days, E = 131.283775 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 46.0 | 2.88 | 1.17 | 0 | 4.52 | 1.53 | 0.99 | 44.9 | 46.0 | 1.71 | 2.88 | 12.6 | 1.05 | 0.04 | 1.42 |



Stellar Parameters For KIC 005308777

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 4877^{+66}_{-124} | $2.839^{+0.030}_{-0.030}$ | $0.140^{+0.100}_{-0.200}$ | $9.214^{+1.280}_{-2.080}$ | $2.138^{+0.453}_{-0.842}$ | $0.004^{+0.001}_{-0.001}$ |
| | +1%/-3% | +1%/-1% | +71%/-143% | +14%/-23% | +21%/-39% | +33%/-14% |
| Source | SPE74 | AST9 | SPE74 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005308777-01 / KOI 5152.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|-------------------------|----------------------|-----------------------|---------------------------|
| DV | -6 ± 3 | $10.61^{+3.02}_{-2.91}$ | 5848^{+149}_{-193} | -4731^{+155}_{-129} | $0.016^{+0.017}_{-0.011}$ |
| Alt. | -11 ± 4 | $14.42^{+3.15}_{-3.06}$ | 5854^{+150}_{-180} | -4742^{+143}_{-114} | $0.017^{+0.011}_{-0.007}$ |

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 $A_{obs} \gg 1.0$

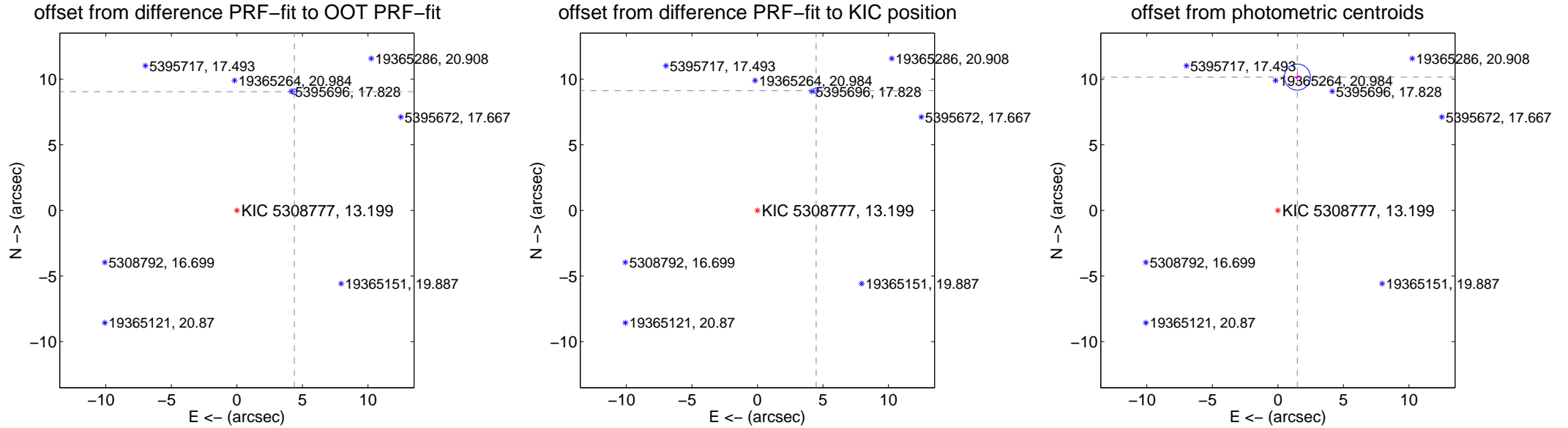
DV Centroid Data

Supplemental centroid analysis for 005308777-01. Kepler magnitude: 13.20. Transit SNR 14.08

There are 11 quarters with good PRF difference image offsets

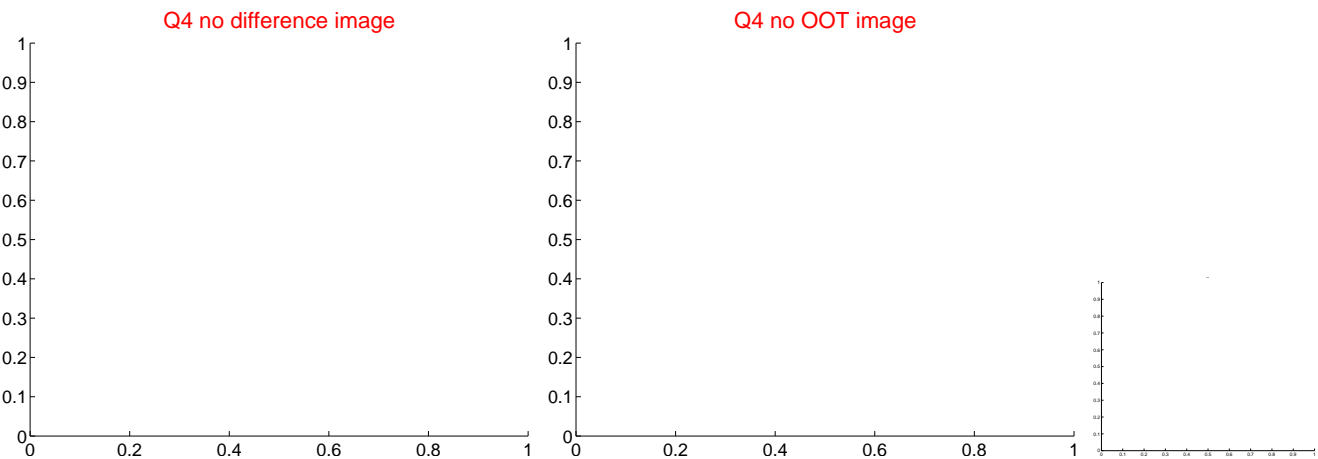
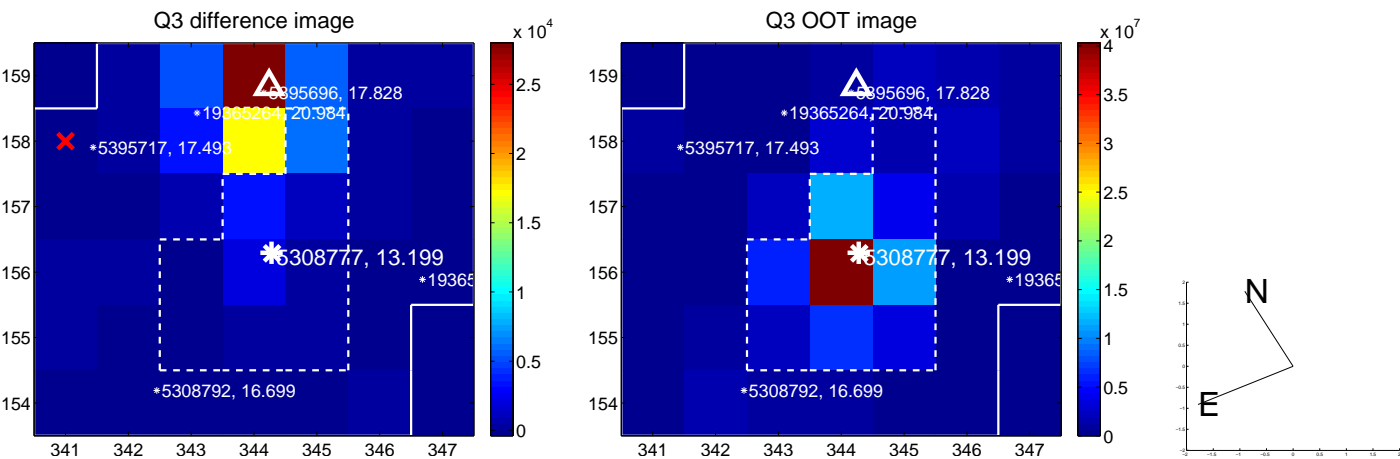
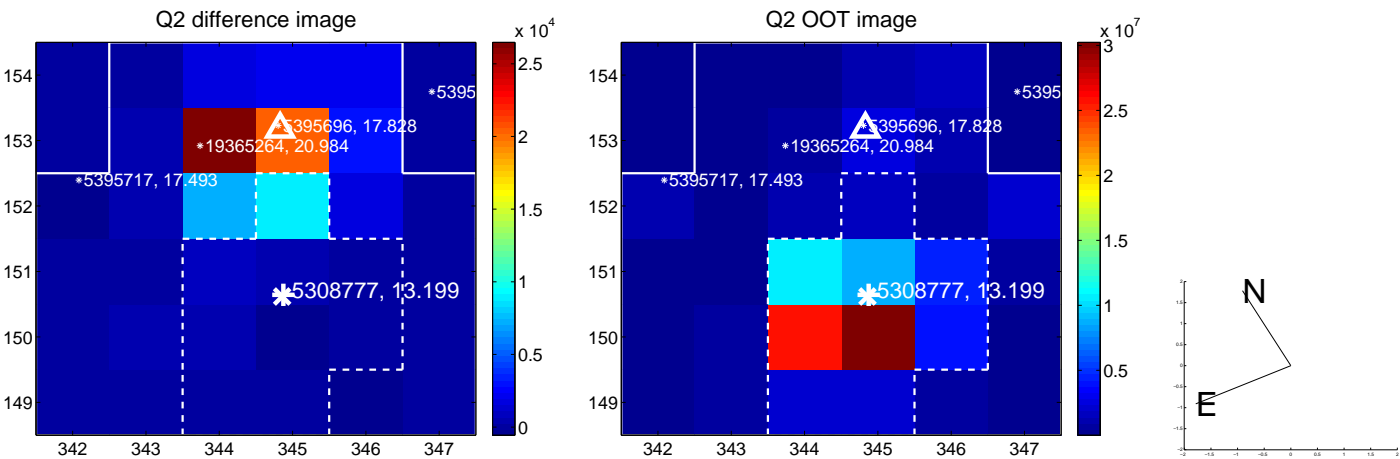
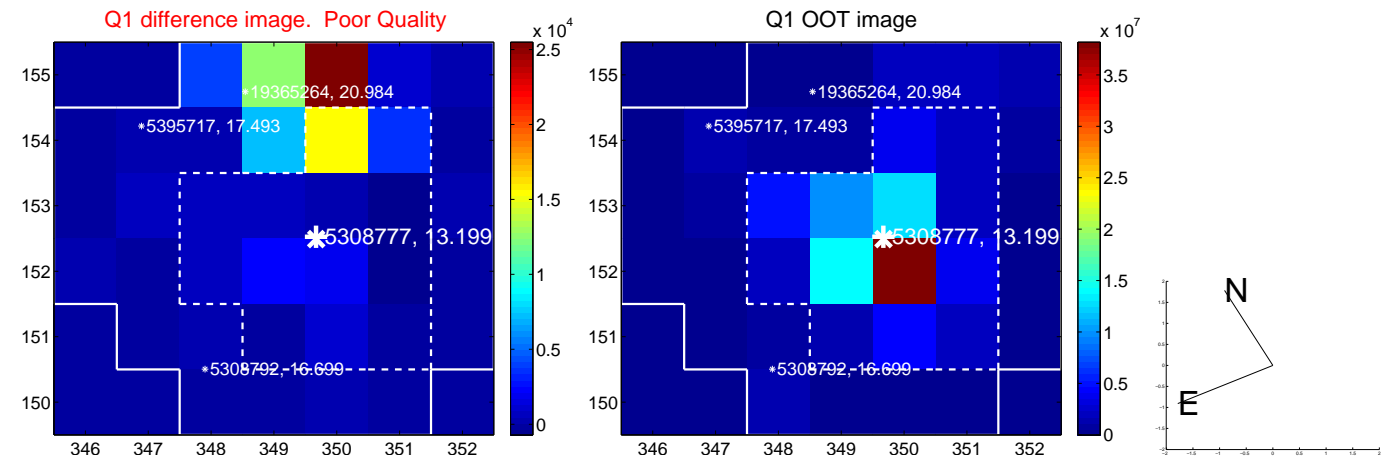
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 10.056 \pm 0.069 | 145.09 | -4.388 \pm 0.067 | 9.048 \pm 0.070 |
| PRF-fit source offset from KIC position | 10.170 \pm 0.069 | 148.39 | -4.483 \pm 0.069 | 9.128 \pm 0.068 |
| photometric centroid source offset | 10.27 \pm 0.33 | 30.94 | -1.48 \pm 0.31 | 10.16 \pm 0.33 |

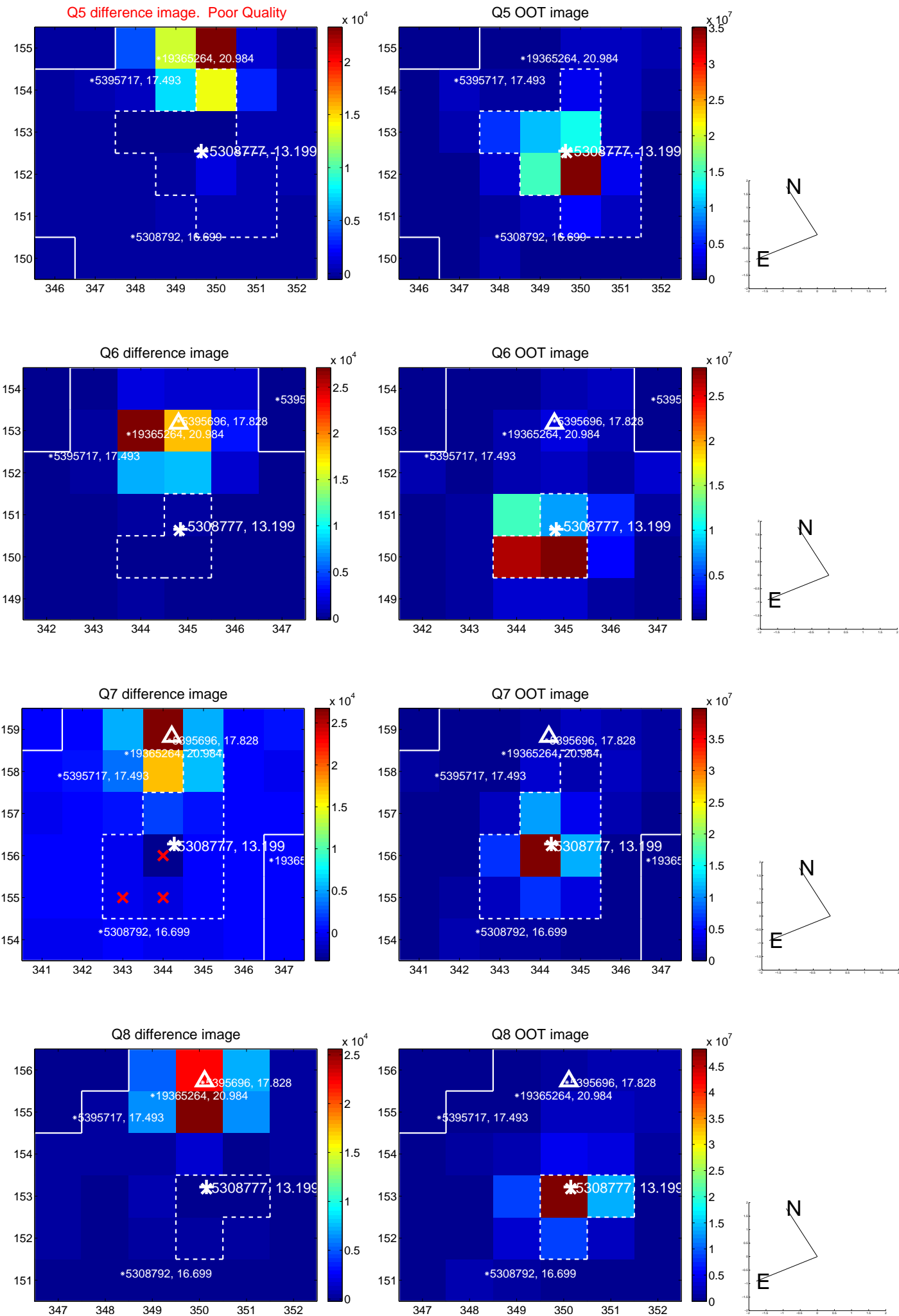


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

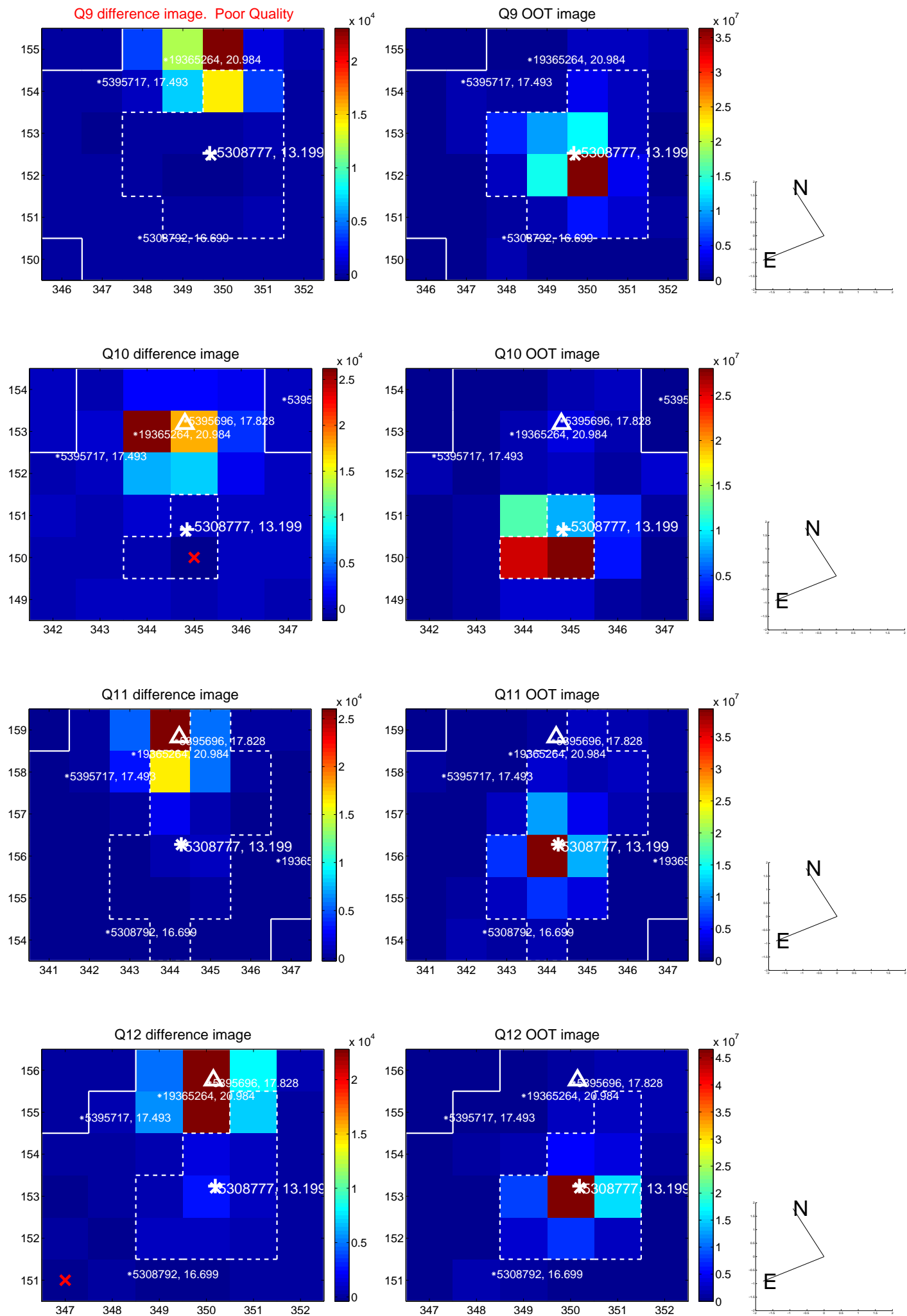
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



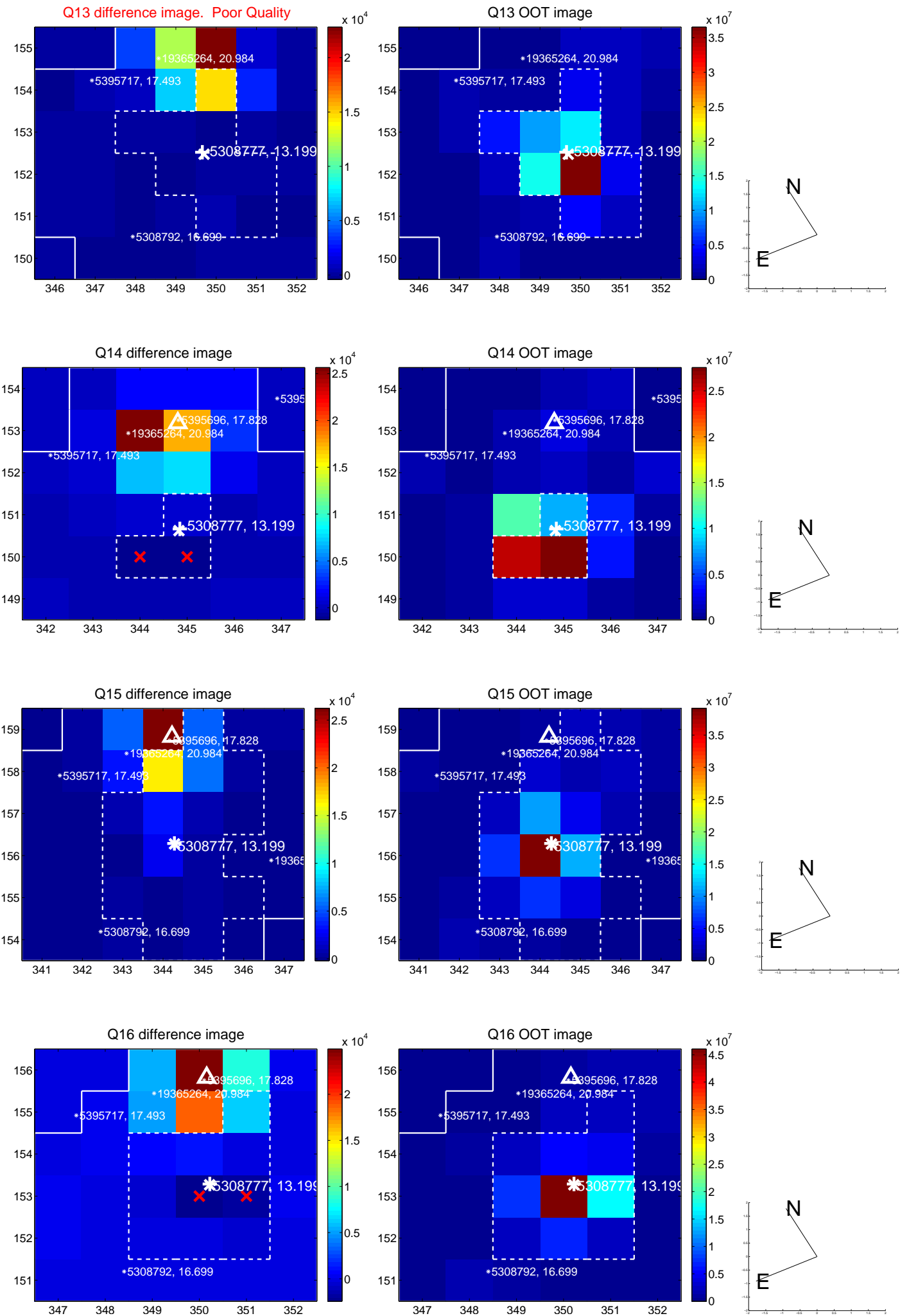
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



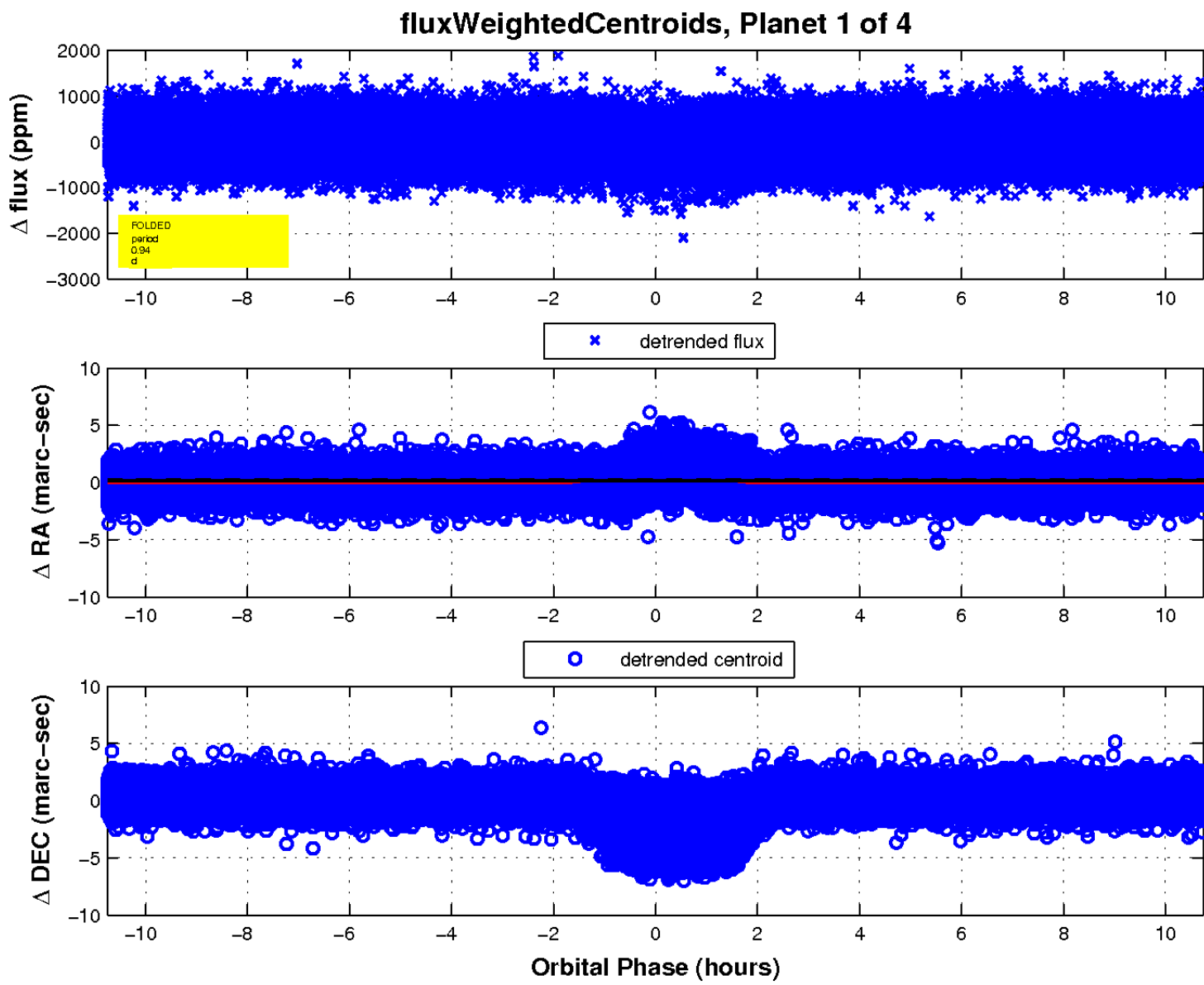
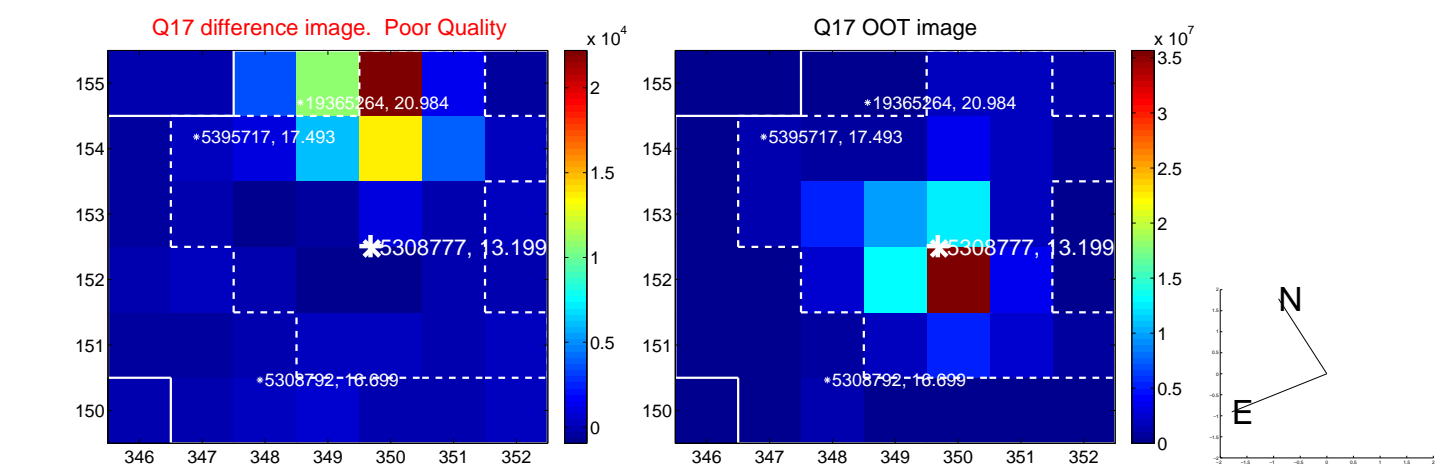
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



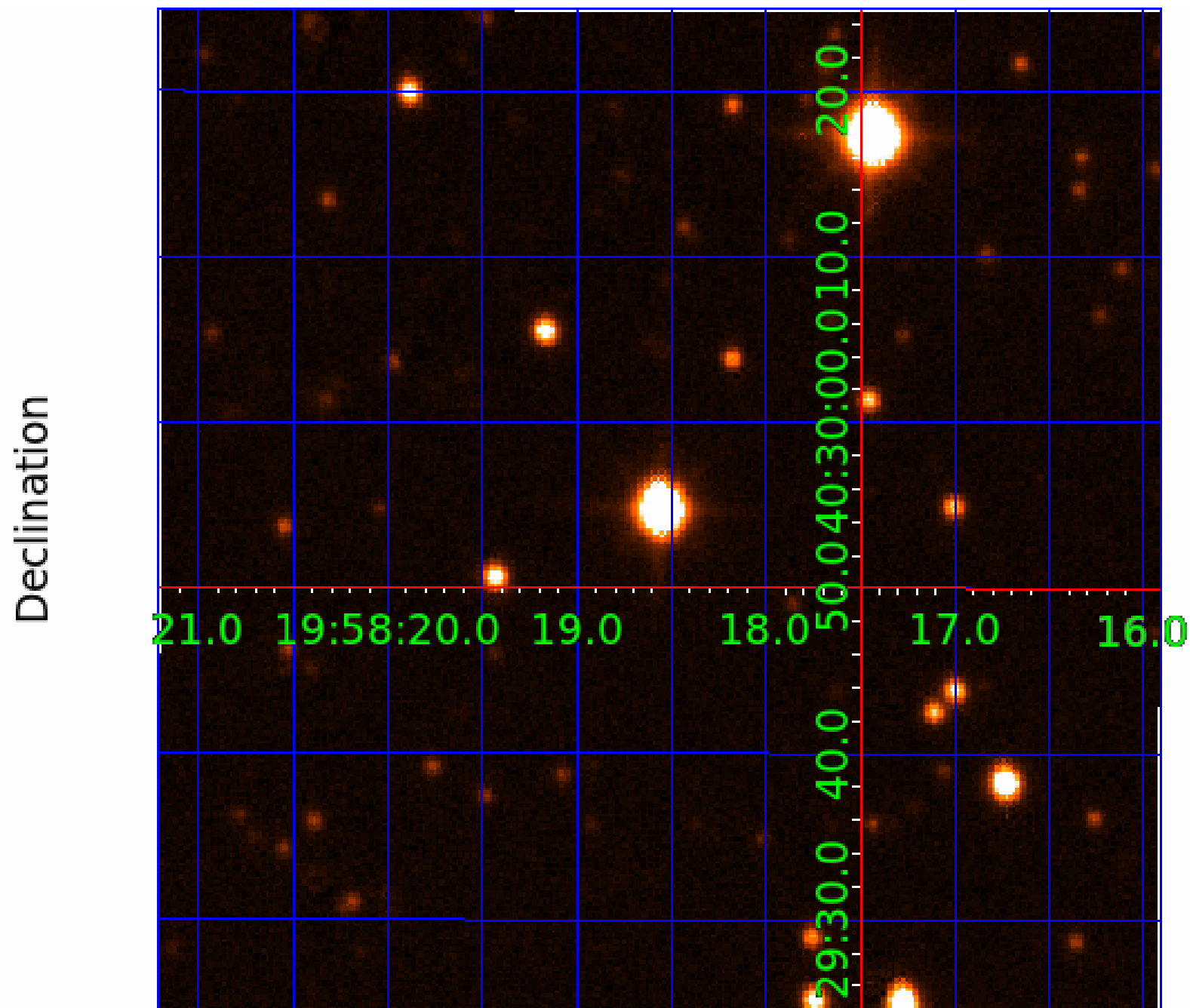
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005308777

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005308777-01 | OBS | 5152.01 | 0.944585 | 132.230335 | 88.7 | 3.582 | 16.7 | 14.1 | 9.21 | 4877 | 10.61 | 0.00 |
| 005308777-03 | OBS | No | 259.963541 | 312.333706 | 865.3 | 7.178 | 8.0 | 7.7 | 9.21 | 4877 | 29.21 | 40.79 |
| 005308777-04 | OBS | No | 168.670369 | 149.542807 | 610.3 | 8.111 | 7.4 | 7.2 | 9.21 | 4877 | 22.72 | 72.62 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005308777-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 0 | PLANET_IN_STAR—CENT_RESOLVED_OFFSET—HALO_GHOST |
| 005308777-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT |
| 005308777-04 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—HALO_GHOST |

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

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

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

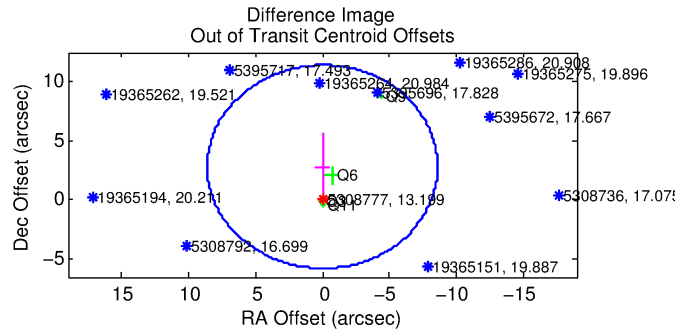
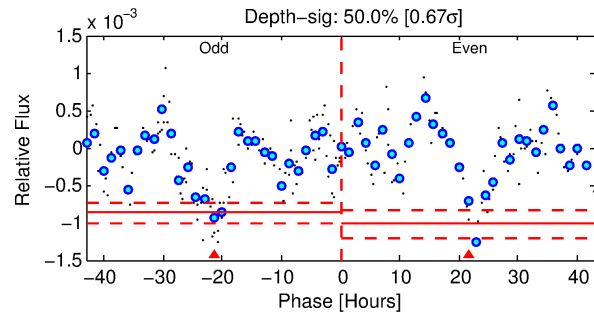
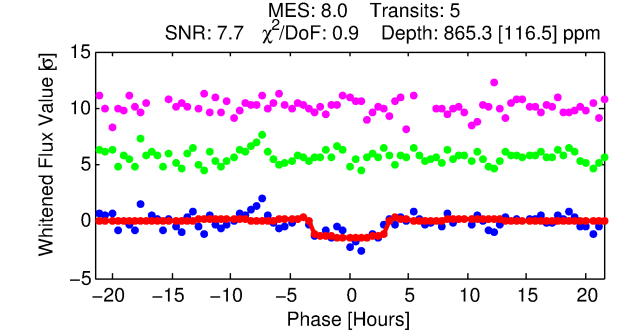
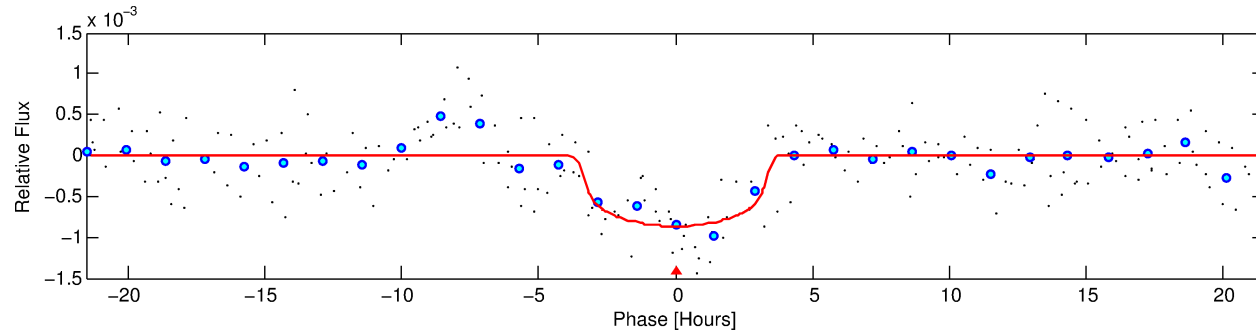
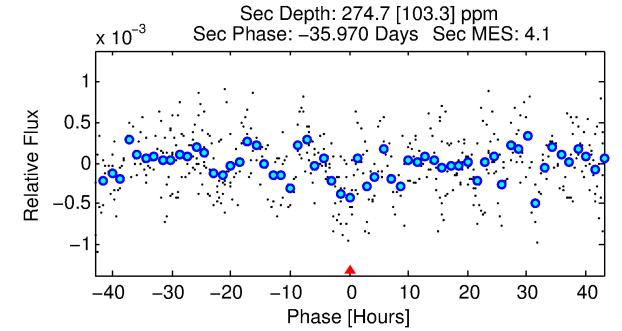
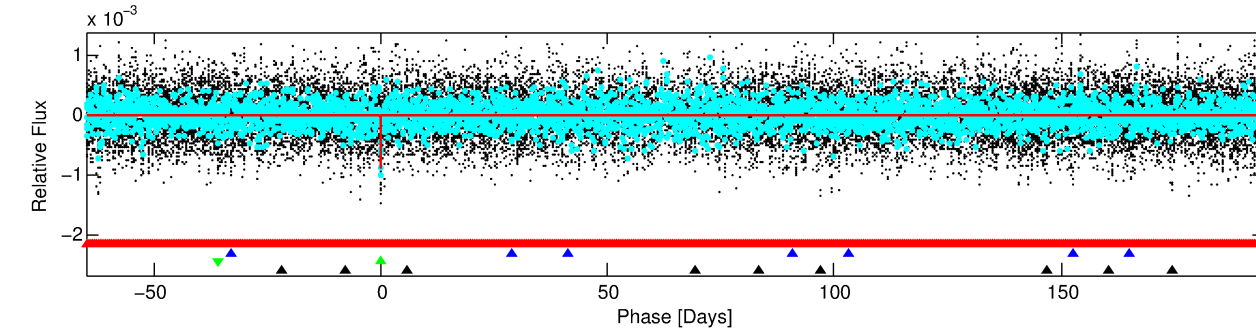
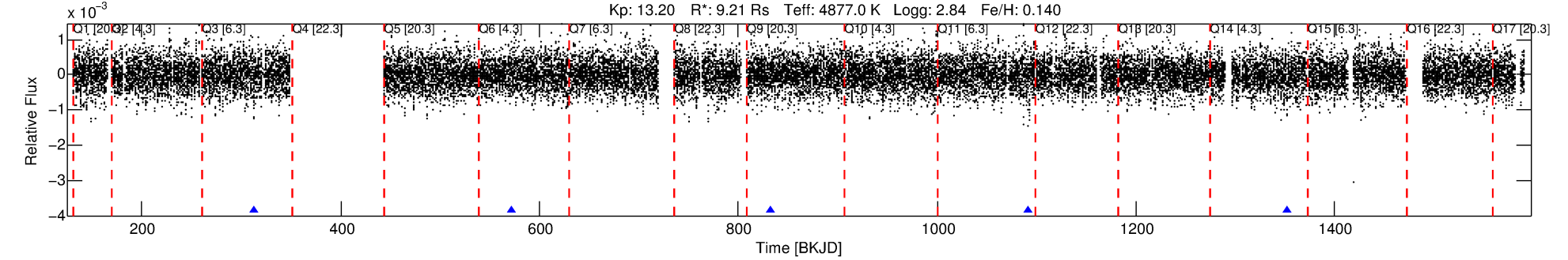
Ephemeris Match Information For 005308777-03

No Significant Match Found

DV One-Page Summary

KIC: 5308777 Candidate: 3 of 4 Period: 259.964 d
KOI: K05152 Corr: No Ephemeris Match

Kp: 13.20 R*: 9.21 Rs Teff: 4877.0 K Logg: 2.84 Fe/H: 0.140



DV Fit Results:

Period = 259.96354 [0.00432] d
Epoch = 312.3337 [0.0116] BKJD
Rp/R* = 0.0290 [0.0107]
a/R* = 202.08 [246.86]
b = 0.72 [0.81]
Seff = 40.79 [7.64]
Teq = 644 [30] K
Rp = 29.21 [12.62] Re
a = 1.0271 [0.1564] AU
Ag = 186.89 [157.41] [1.18σ]
Teffp = 3684 [768] K [3.96σ]

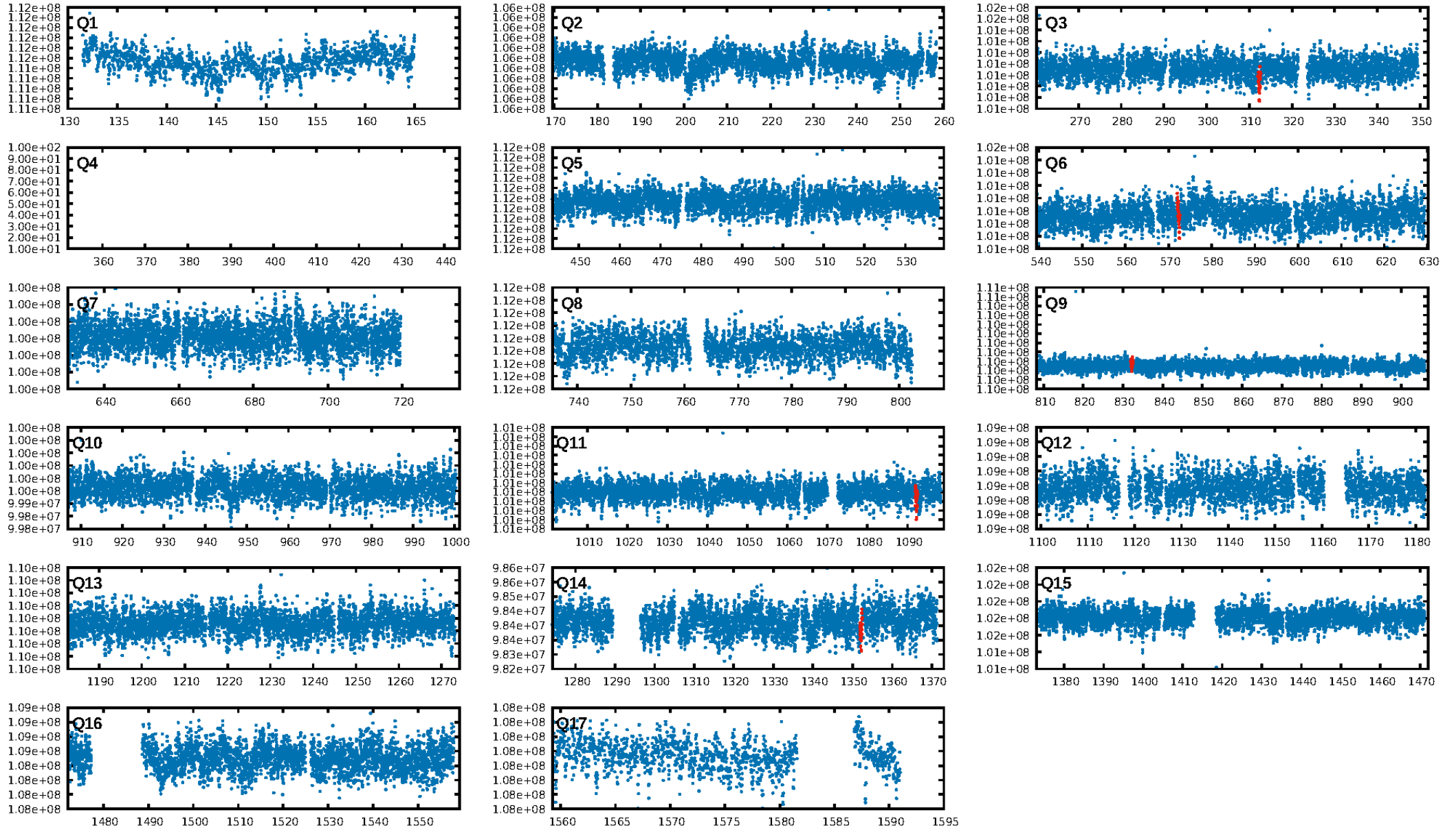
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [196.42σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 63.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.76e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.058
Centroid-sig: N/A
Centroid-so: 0.718 arcsec [1.60σ]
OotOffset-rm: 2.819 arcsec [0.98σ]
KicOffset-rm: 2.935 arcsec [1.01σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-st: 1/2/0/1 [4]
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DiffImageOverlap-fno: 0.00 [0/5]

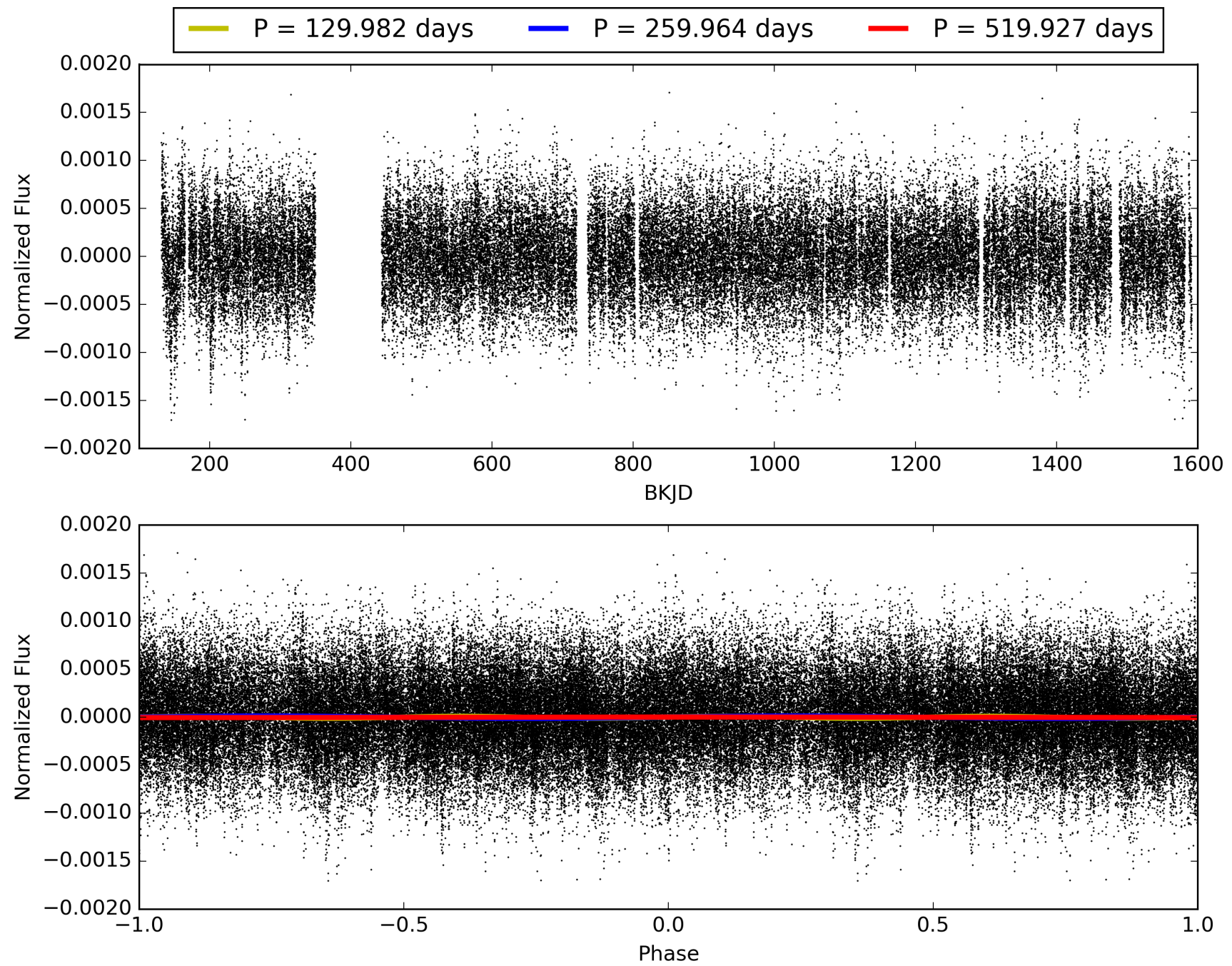
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:27:51 Z

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

TCE 005308777-03, PDC Light Curves

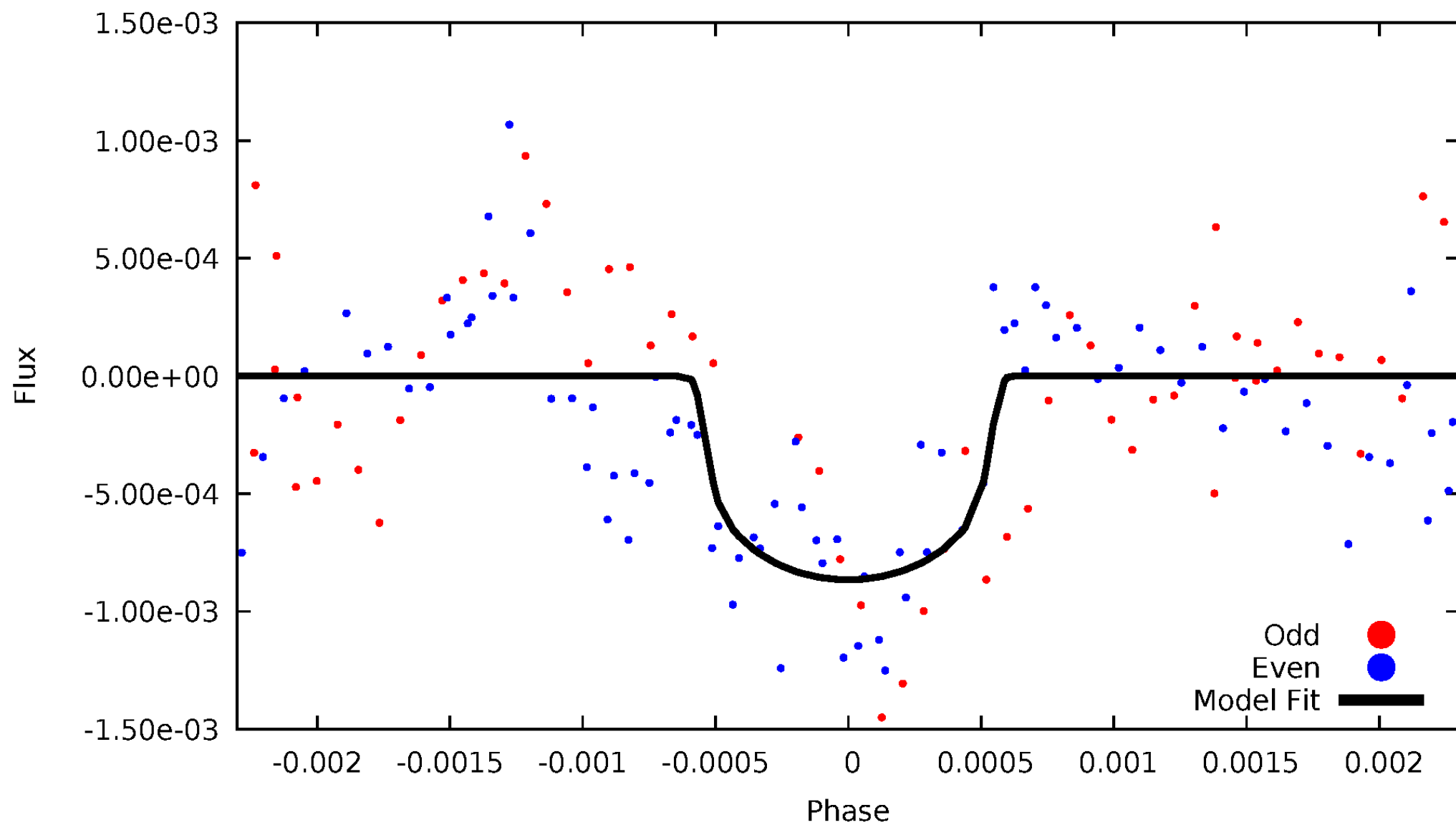


TCE 005308777-03



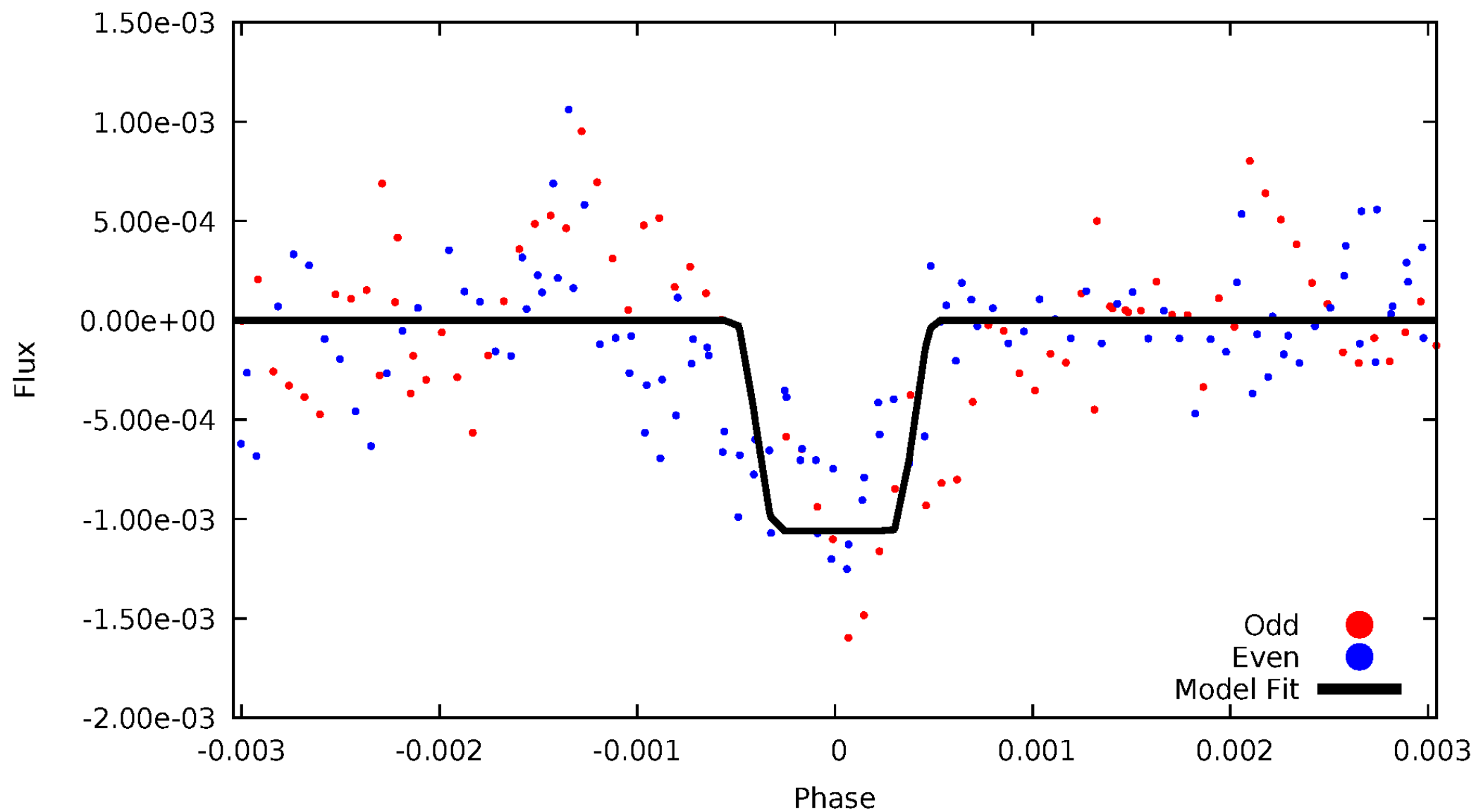
DV Odd/Even

TCE 005308777-03



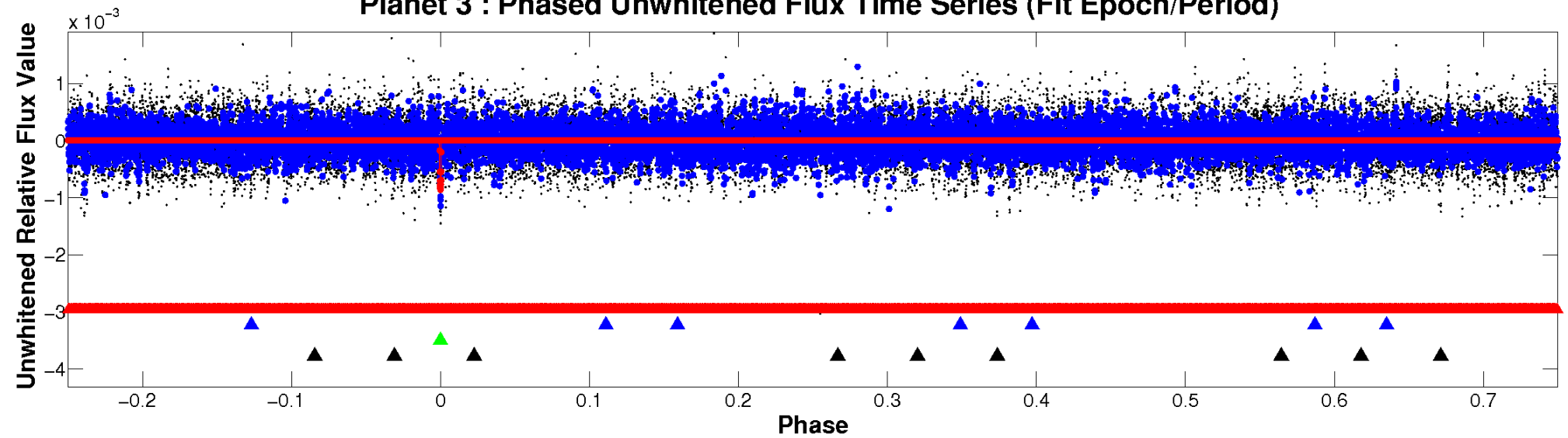
ALT Odd/Even

TCE 005308777-03

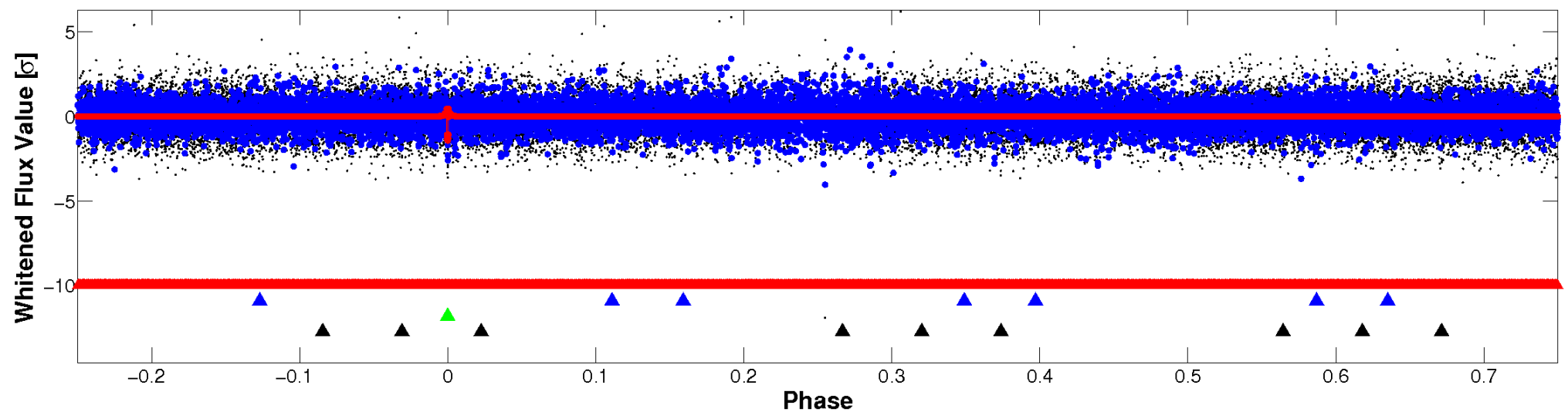


Non-Whitened Vs. Whitened Light Curve

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

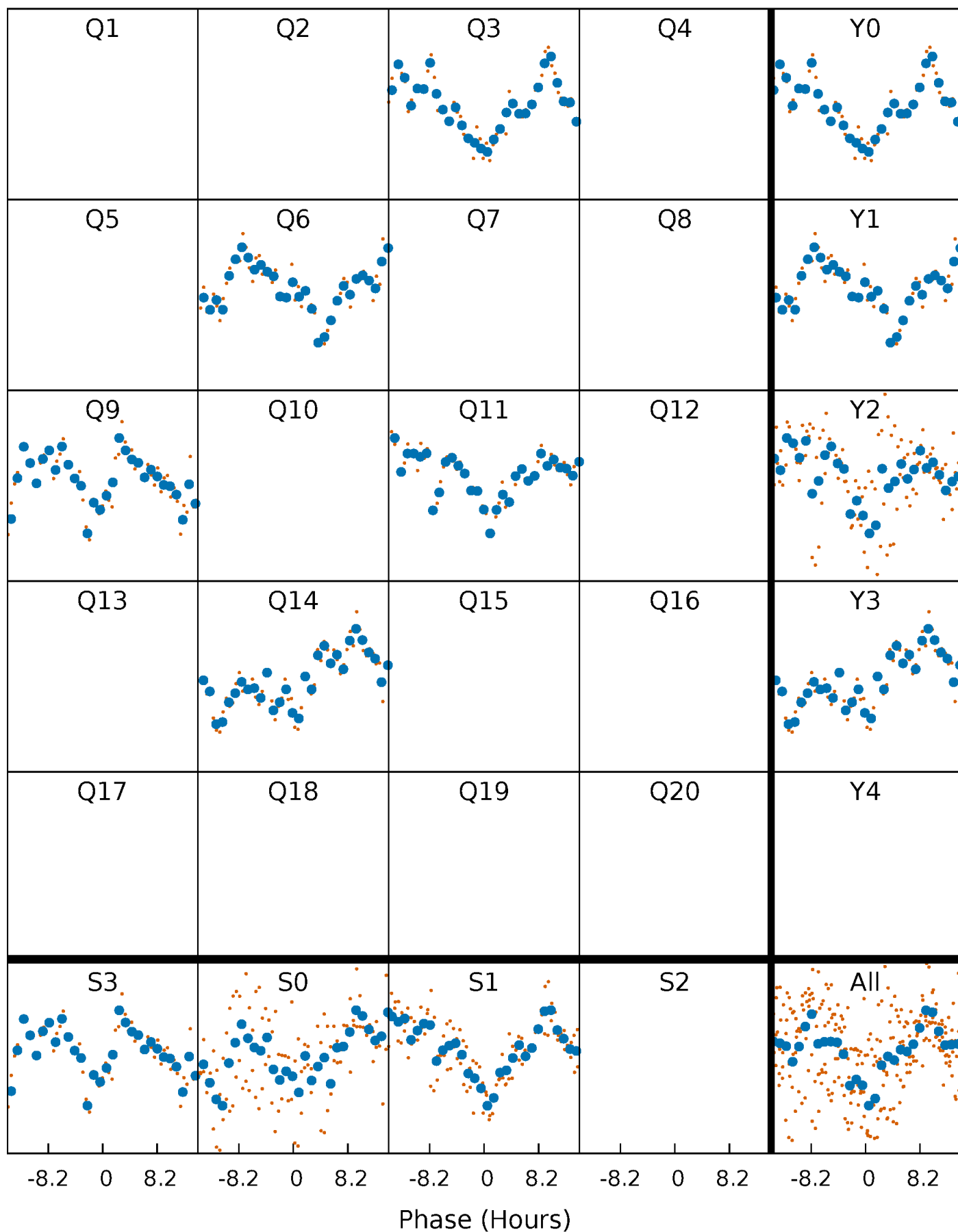


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



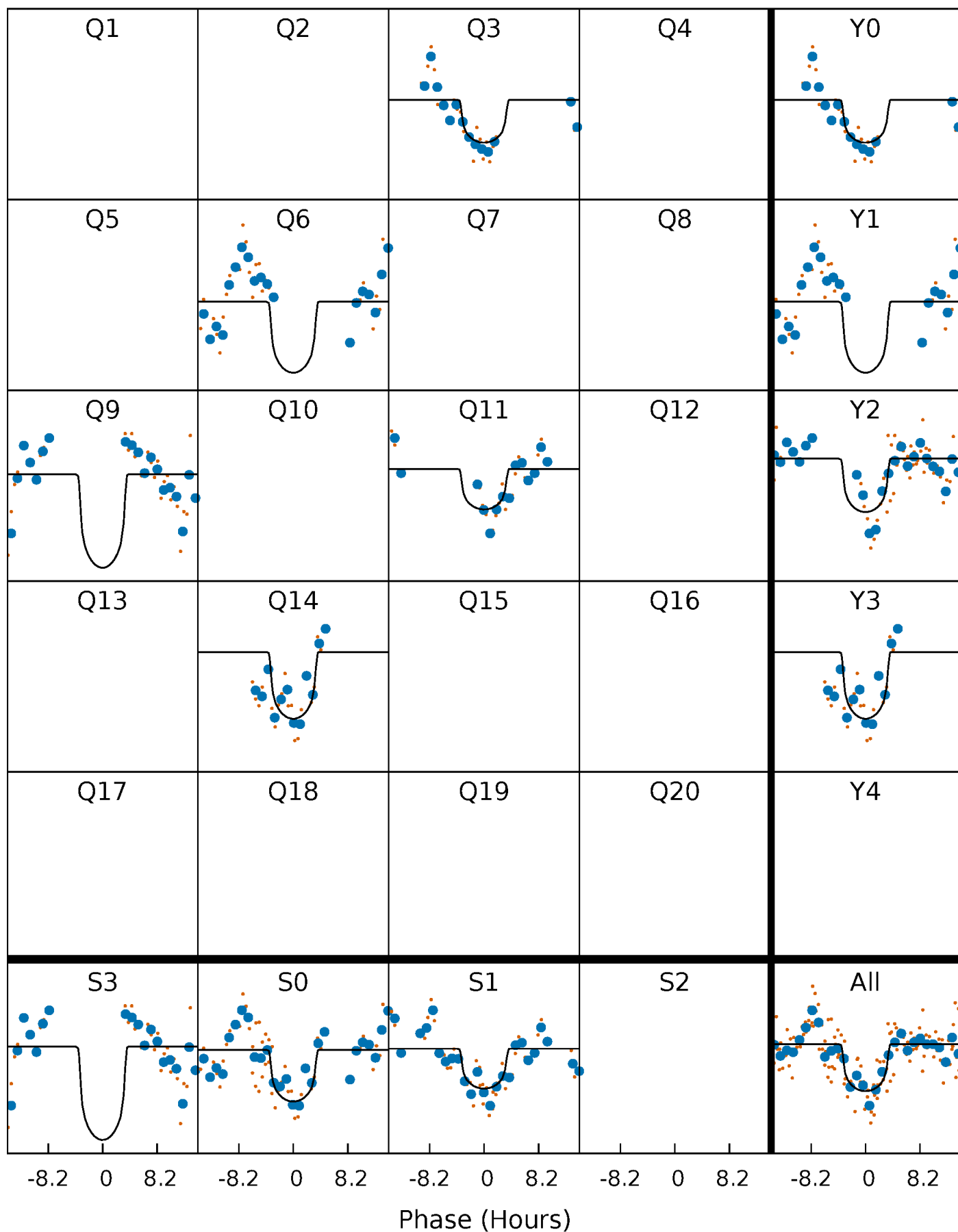
PDC Quarter-Phased Transit Curves

TCE 005308777-03 P=259.963541 Days $T_0=312.333706$ (BKJD)



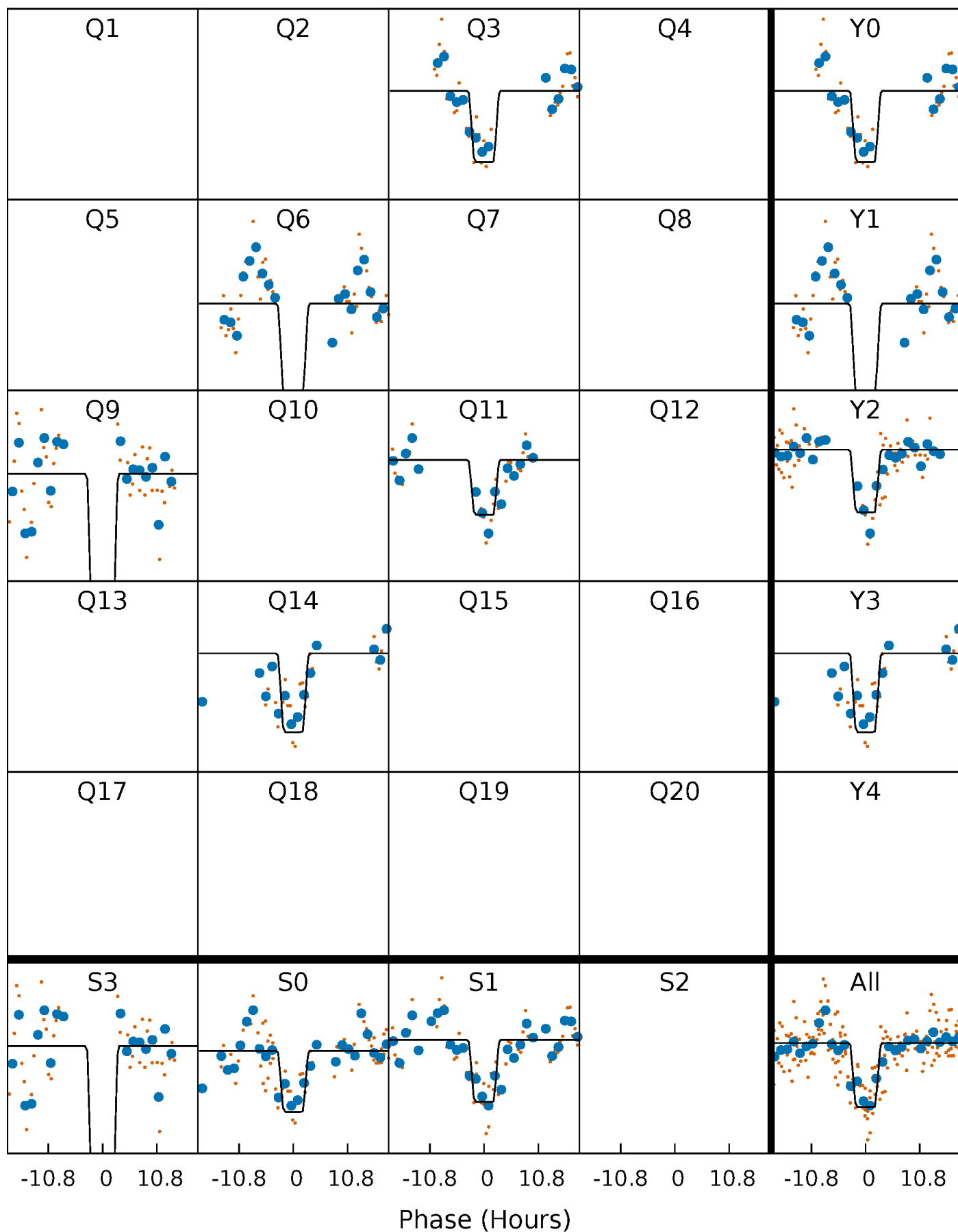
DV Quarter-Phased Transit Curves

TCE 005308777-03 P=259.963541 Days $T_0=312.333706$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

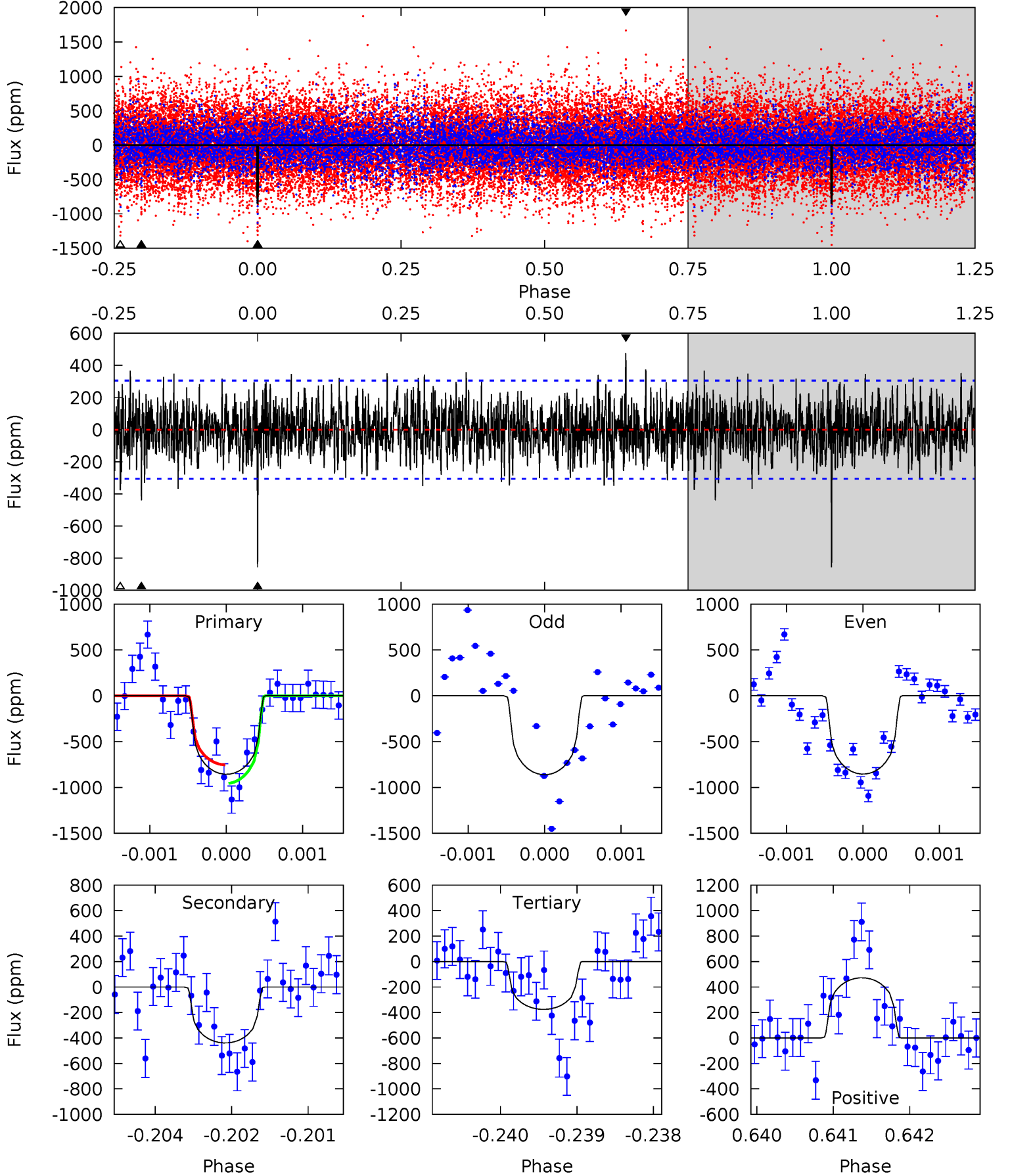
TCE 005308777-03 $P=259.962561$ Days $T_0=312.351790$ (BKJD)



DV Model-Shift Uniqueness Test

005308777-03, P = 259.963541 Days, E = 52.370165 Days

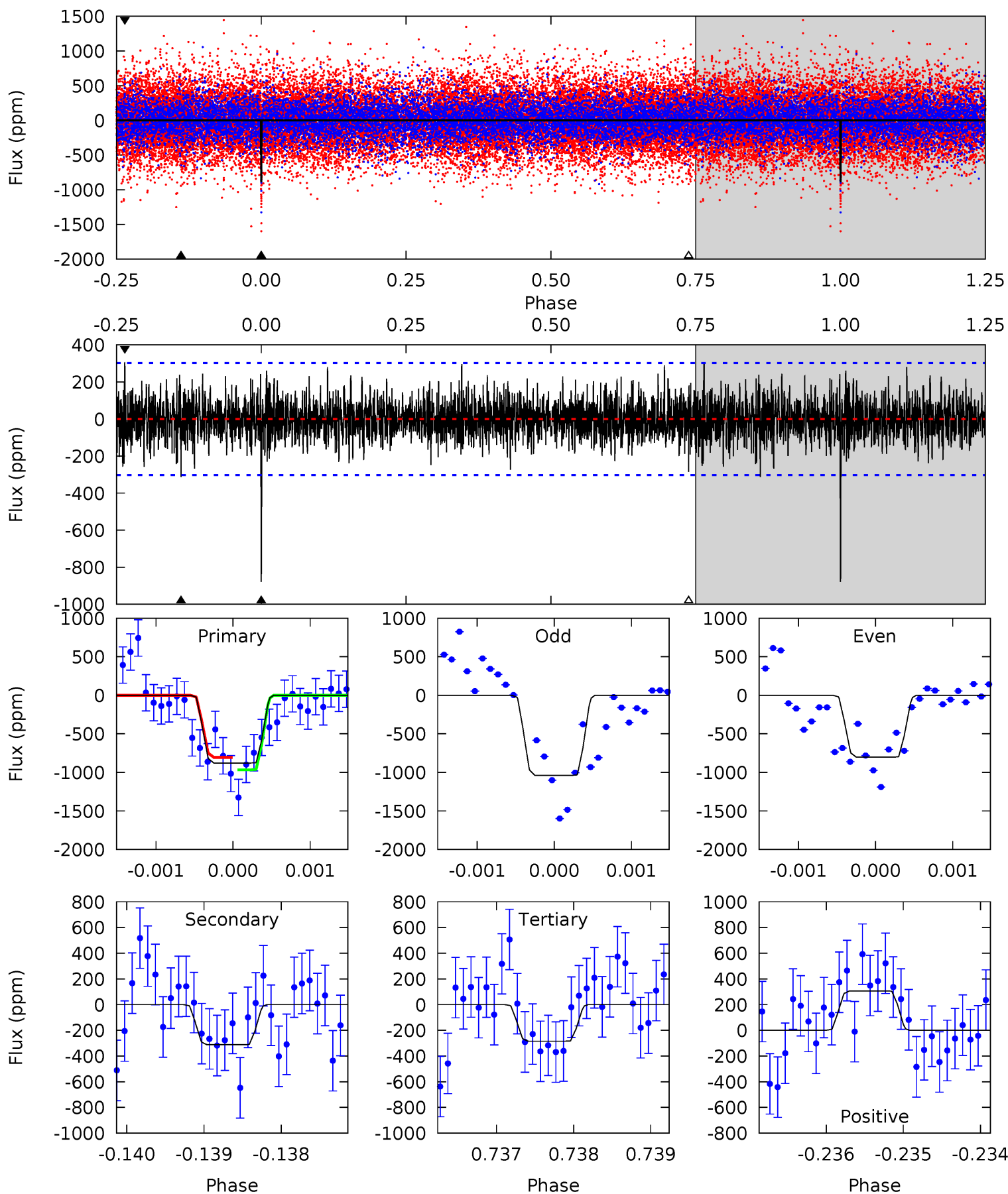
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.2 | 7.78 | 6.65 | 8.37 | 5.42 | 3.24 | 2.08 | 8.52 | 6.80 | 1.13 | -0.59 | 0.06 | 0.76 | 0.36 | 1.78 |



Alt Model-Shift Uniqueness Test

005308777-03, P = 259.962561 Days, E = 52.389229 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.8 | 5.61 | 5.13 | 5.53 | 5.45 | 3.29 | 1.47 | 10.7 | 10.3 | 0.49 | 0.09 | 1.99 | 1.07 | 0.26 | 1.47 |



Stellar Parameters For KIC 005308777

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 4877^{+66}_{-124} | $2.839^{+0.030}_{-0.030}$ | $0.140^{+0.100}_{-0.200}$ | $9.214^{+1.280}_{-2.080}$ | $2.138^{+0.453}_{-0.842}$ | $0.004^{+0.001}_{-0.001}$ |
| | +1%/-3% | +1%/-1% | +71%/-143% | +14%/-23% | +21%/-39% | +33%/-14% |
| Source | SPE74 | AST9 | SPE74 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005308777-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|---------------------------|-------------------|----------------------|---------------------|
| DV | -439 ± 56 | $28.83^{+11.66}_{-11.08}$ | 900^{+23}_{-30} | 4270^{+917}_{-441} | 298^{+456}_{-136} |
| Alt. | -312 ± 55 | $32.44^{+12.33}_{-11.28}$ | 898^{+23}_{-29} | 3860^{+661}_{-386} | 172^{+232}_{-78} |

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 $A_{obs} \gg 1.0$

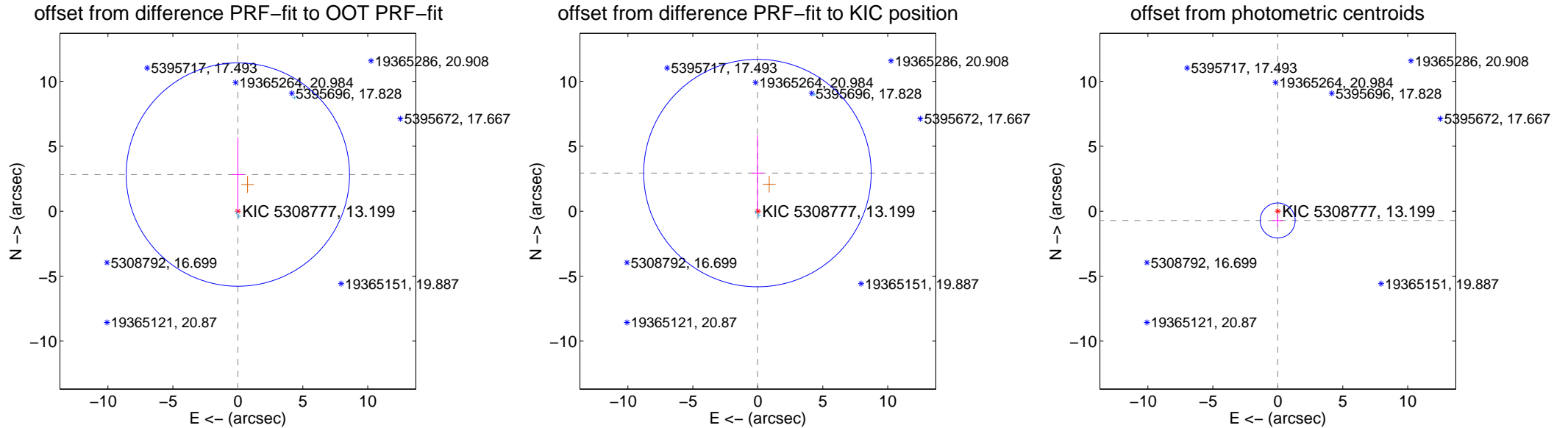
DV Centroid Data

Supplemental centroid analysis for 005308777-03. Kepler magnitude: 13.20. Transit SNR 7.74

There are 3 quarters with good PRF difference image offsets

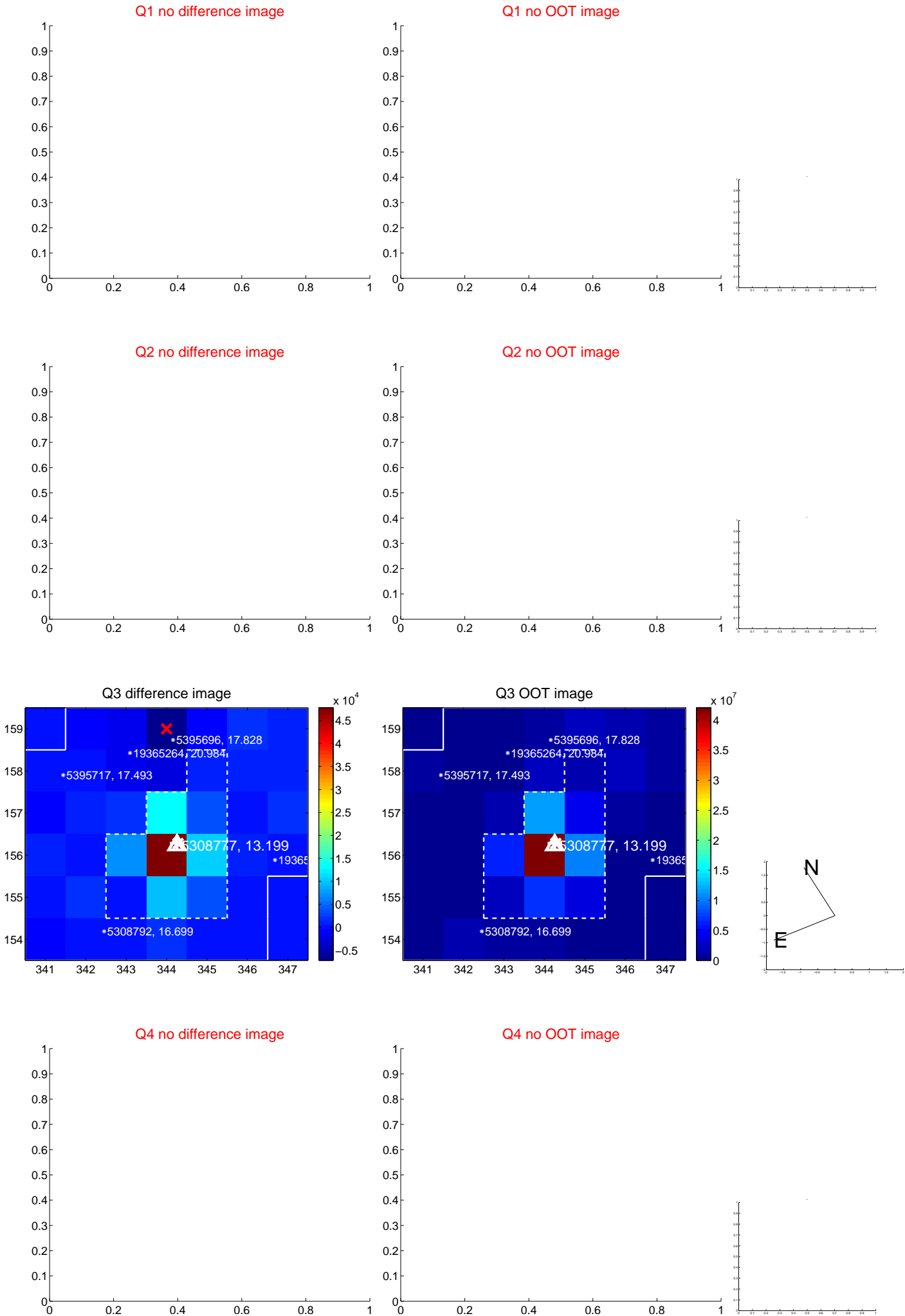
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 2.819 ± 2.866 | 0.98 | -0.001 ± 0.462 | 2.819 ± 2.866 |
| PRF-fit source offset from KIC position | 2.935 ± 2.919 | 1.01 | 0.031 ± 0.473 | 2.934 ± 2.919 |
| photometric centroid source offset | 0.72 ± 0.45 | 1.60 | 0.01 ± 0.40 | -0.72 ± 0.45 |

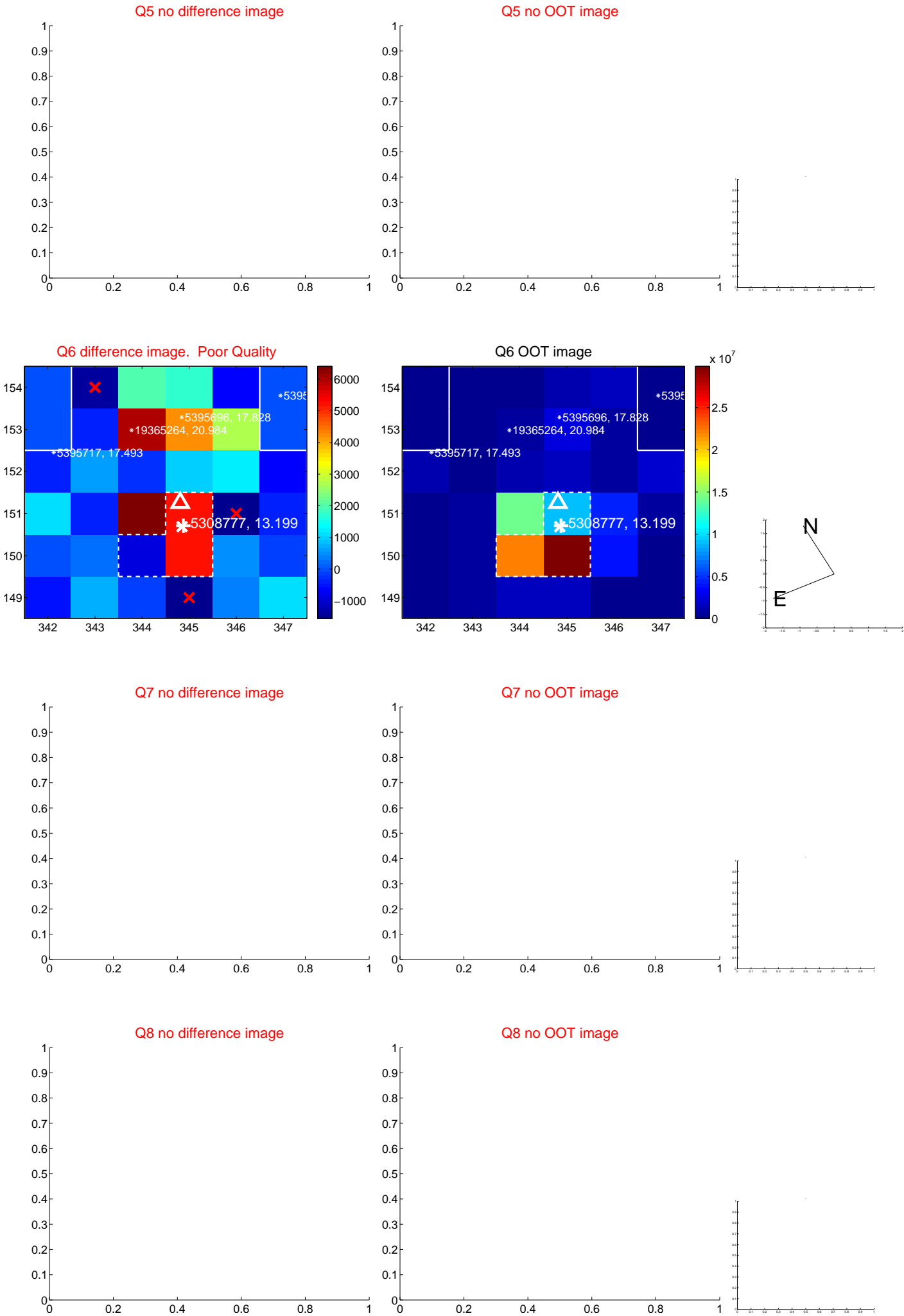


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

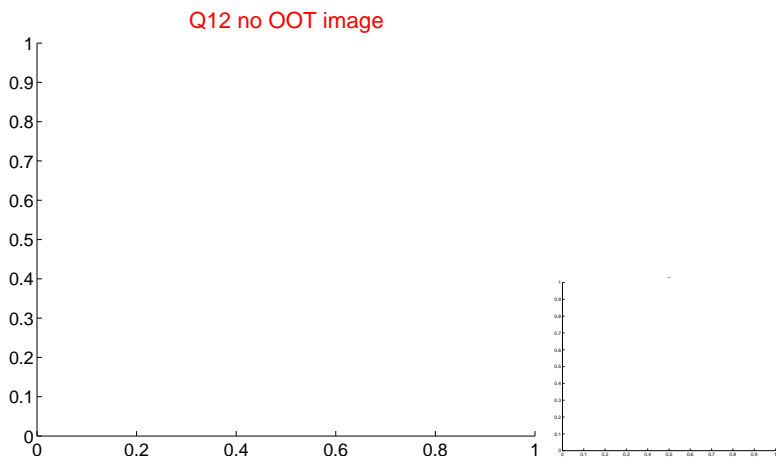
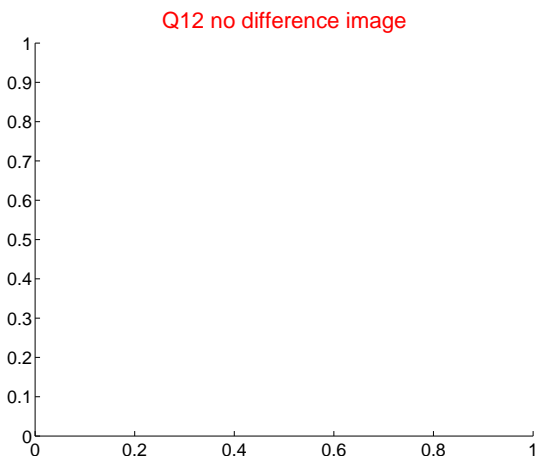
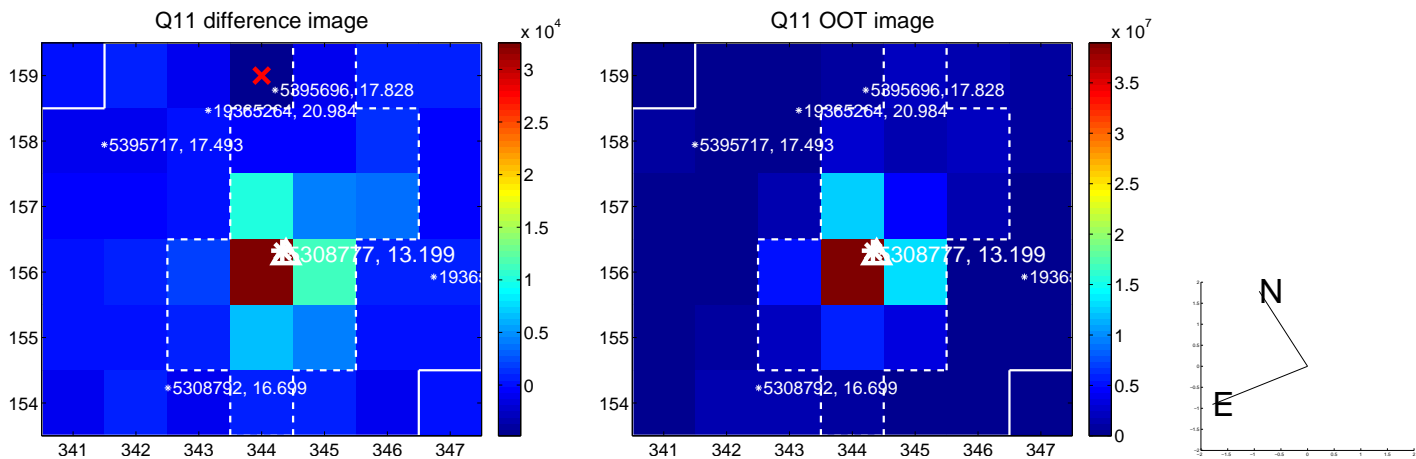
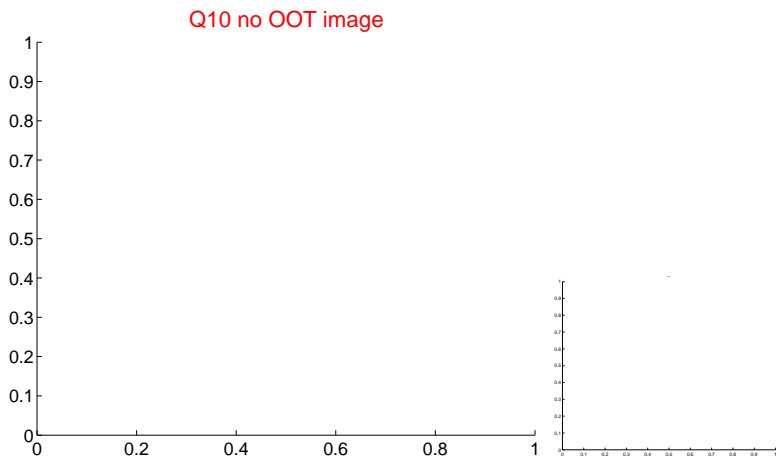
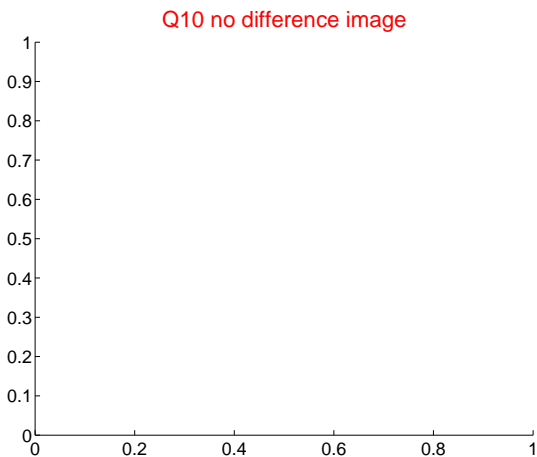
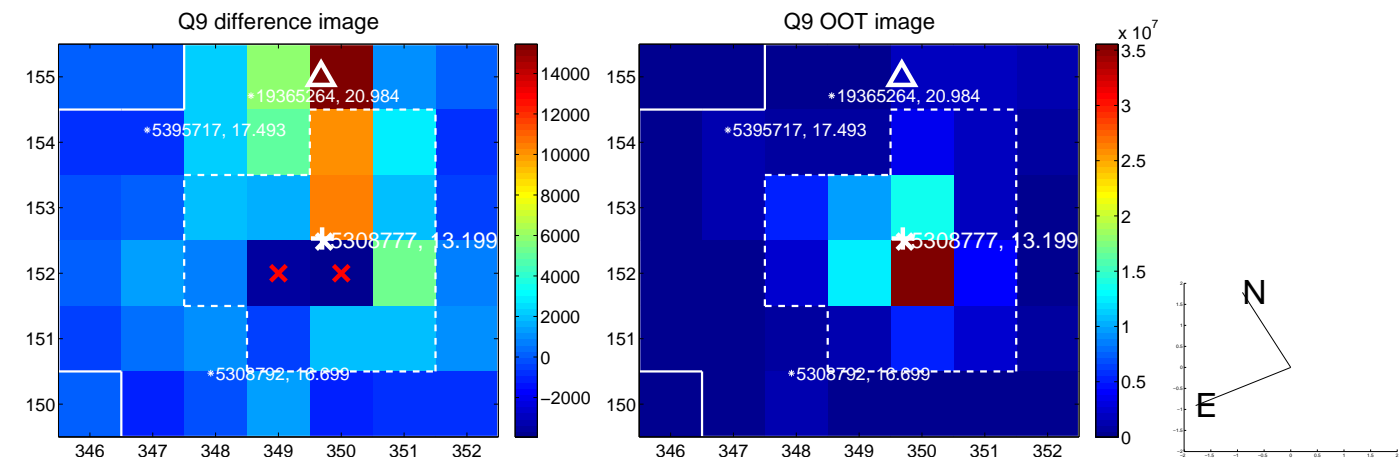
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



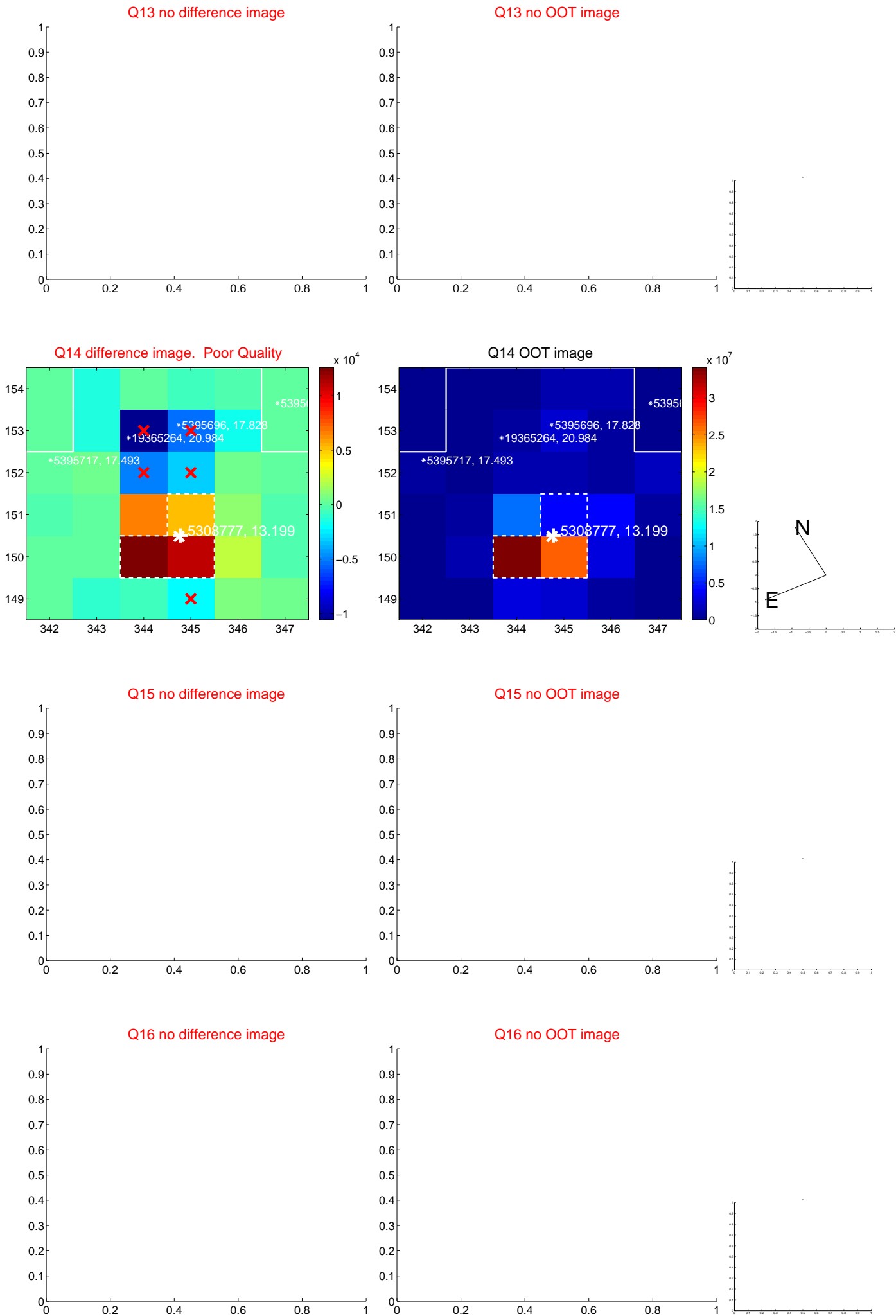
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



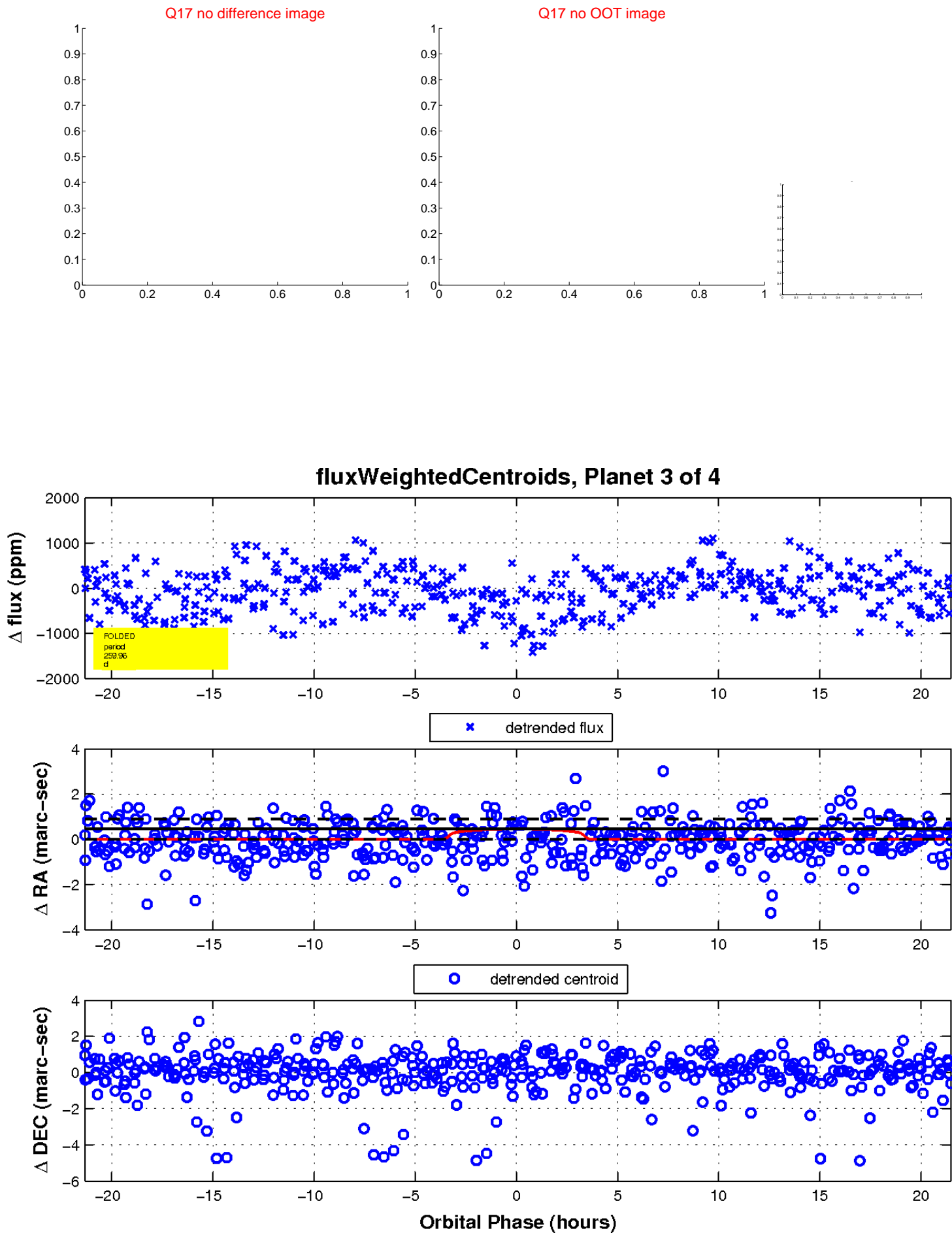
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



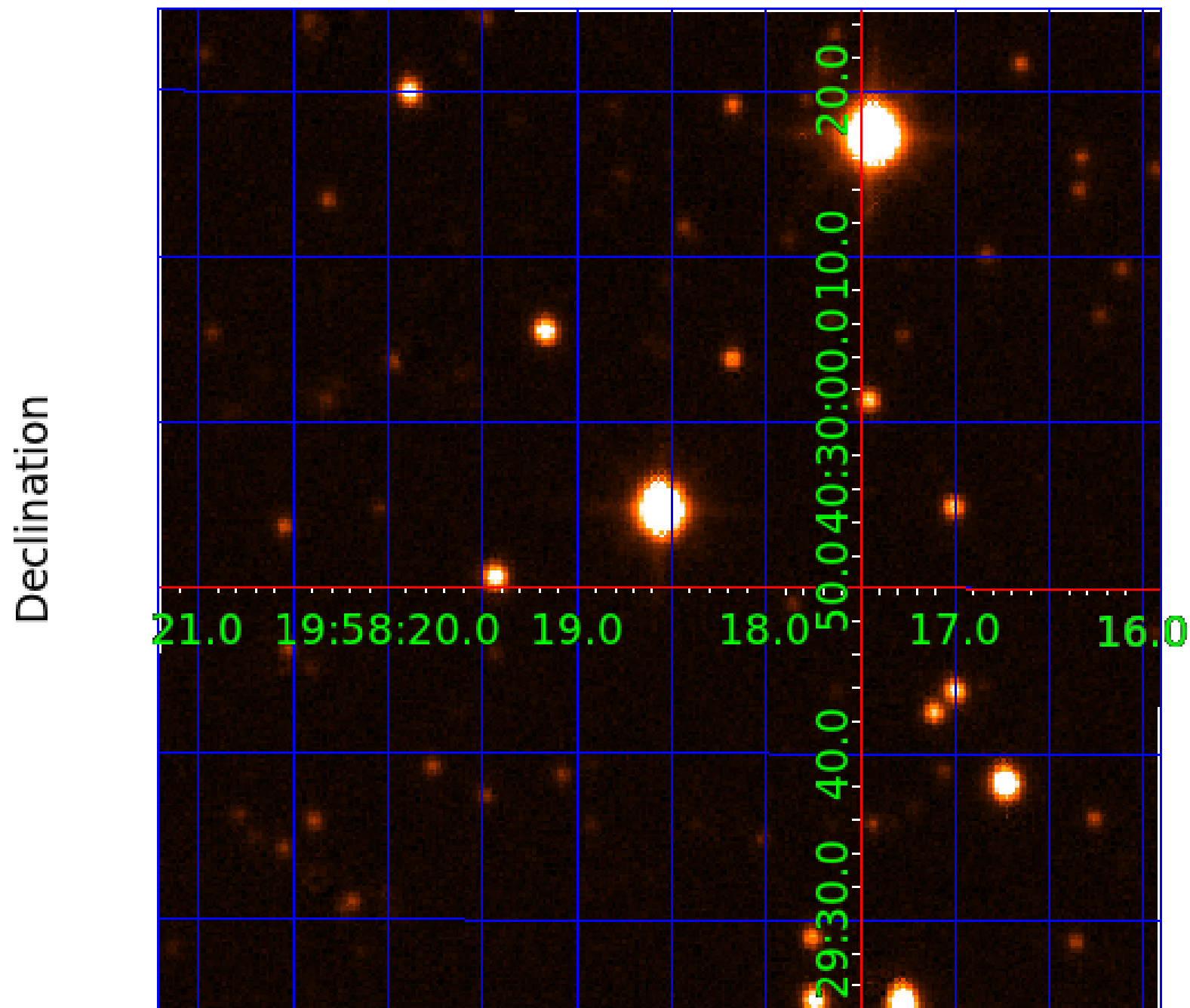
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005308777

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005308777-01 | OBS | 5152.01 | 0.944585 | 132.230335 | 88.7 | 3.582 | 16.7 | 14.1 | 9.21 | 4877 | 10.61 | 0.00 |
| 005308777-03 | OBS | No | 259.963541 | 312.333706 | 865.3 | 7.178 | 8.0 | 7.7 | 9.21 | 4877 | 29.21 | 40.79 |
| 005308777-04 | OBS | No | 168.670369 | 149.542807 | 610.3 | 8.111 | 7.4 | 7.2 | 9.21 | 4877 | 22.72 | 72.62 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005308777-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 0 | PLANET_IN_STAR—CENT_RESOLVED_OFFSET—HALO_GHOST |
| 005308777-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT |
| 005308777-04 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—HALO_GHOST |

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

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

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

Ephemeris Match Information For 005308777-04

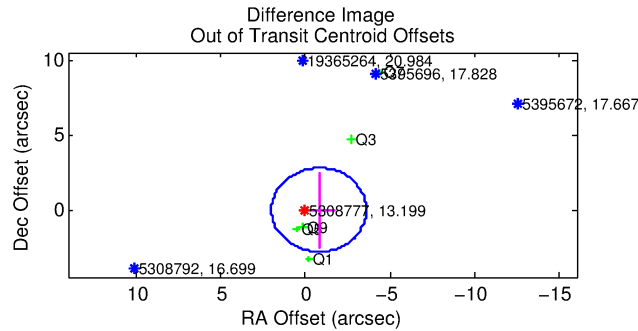
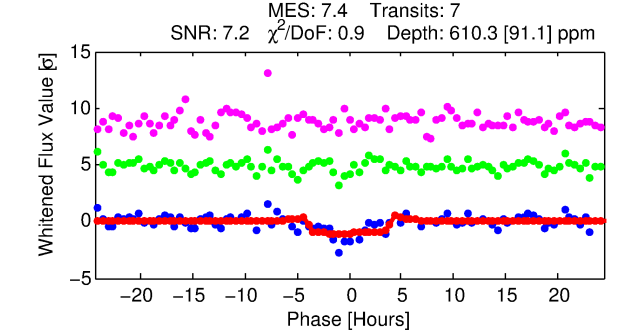
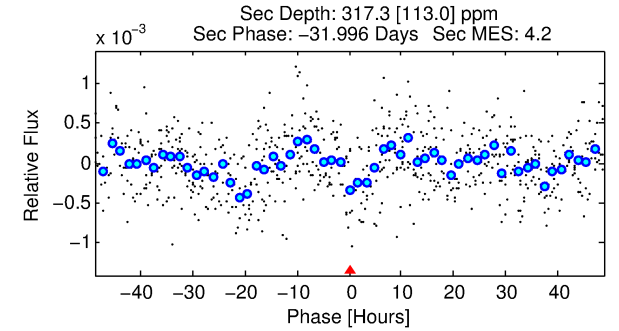
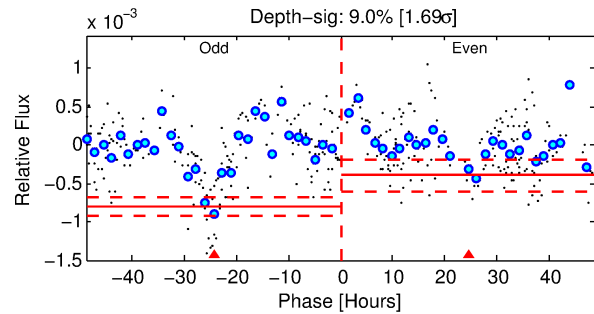
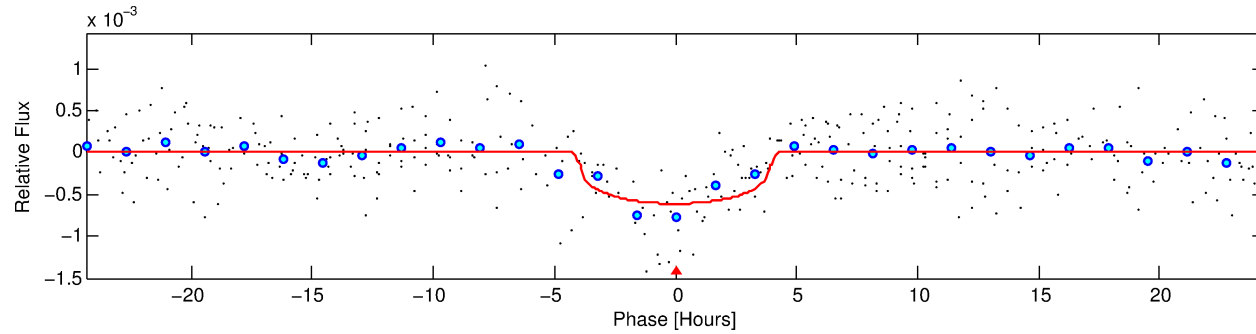
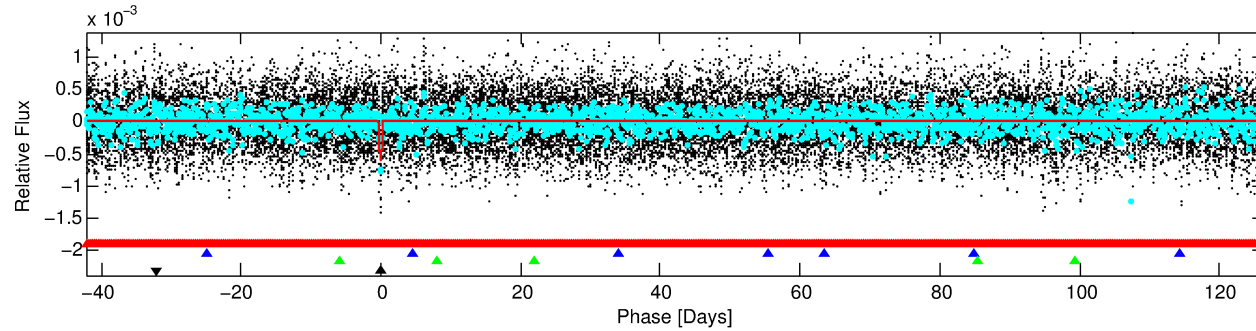
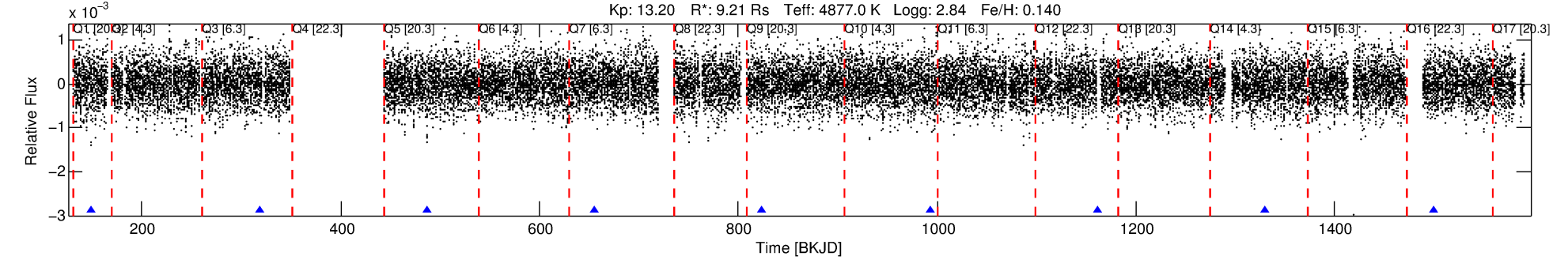
No Significant Match Found

DV One-Page Summary

KIC: 5308777 Candidate: 4 of 4 Period: 168.670 d

KOI: K05152 Corr: No Ephemeris Match

Kp: 13.20 R*: 9.21 Rs Teff: 4877.0 K Logg: 2.84 Fe/H: 0.140



DV Fit Results:

Period = 168.67037 [0.00223] d
Epoch = 149.5428 [0.0116] BKJD
Rp/R* = 0.0226 [0.0223]
a/R* = 145.24 [474.01]
b = 0.46 [5.70]
Seff = 72.62 [13.61]
Teq = 744 [35] K
Rp = 22.72 [23.01] Re
a = 0.7698 [0.1172] AU
Ag = 200.45 [403.53] [0.49σ]
Teffp = 4330 [2176] K [1.65σ]

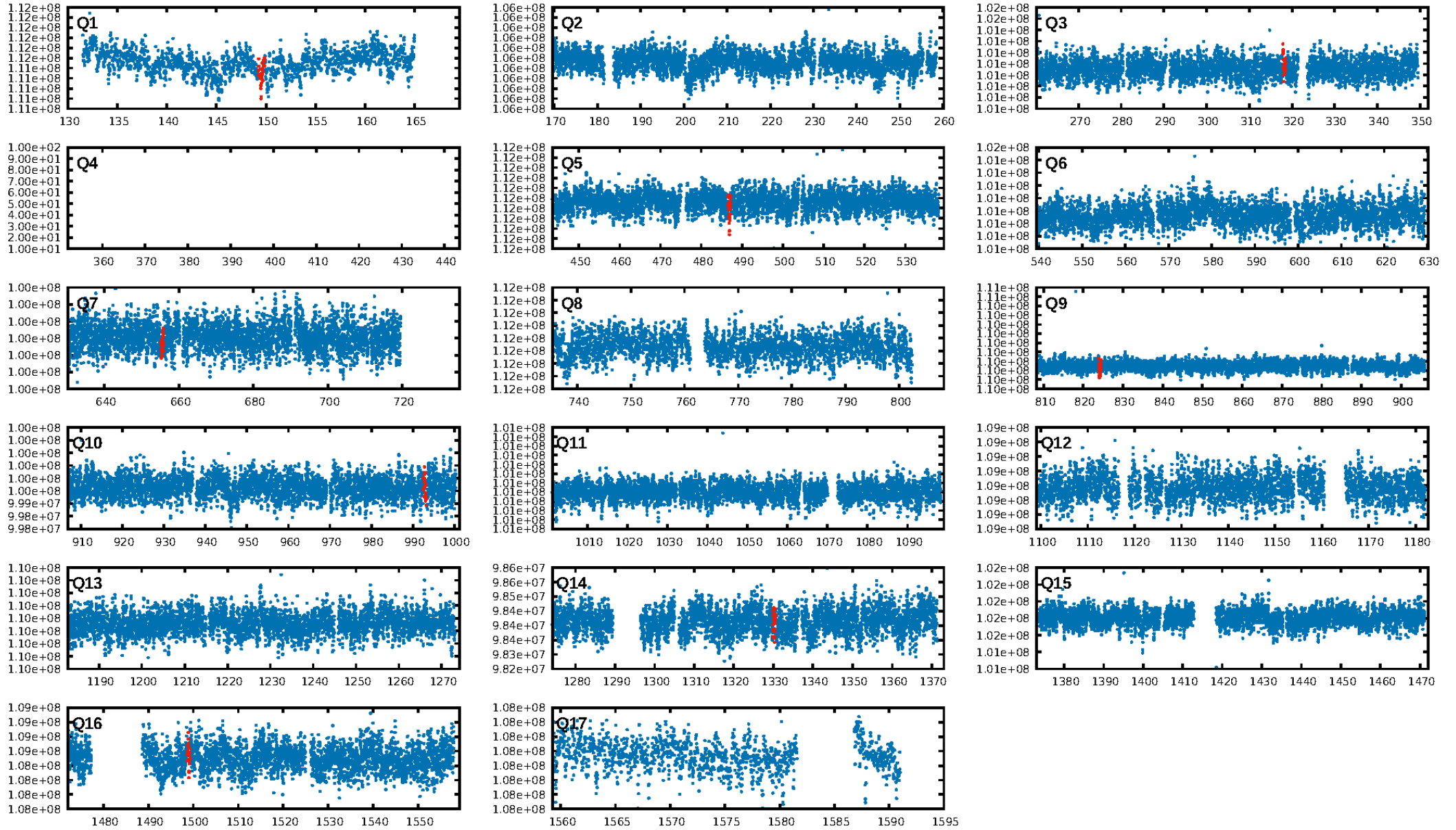
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [453.99σ]
LongPeriod-sig: 100.0% [83.58σ]
ModelChiSquare2-sig: 63.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.28e-10
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.1554
Centroid-sig: N/A
Centroid-so: 1.092 arcsec [2.46σ]
OotOffset-rm: 0.790 arcsec [0.85σ]
KicOffset-rm: 0.799 arcsec [0.79σ]
OotOffset-st: 0/2/0/3 [5]
KicOffset-st: 0/2/0/3 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.00 [0/7]

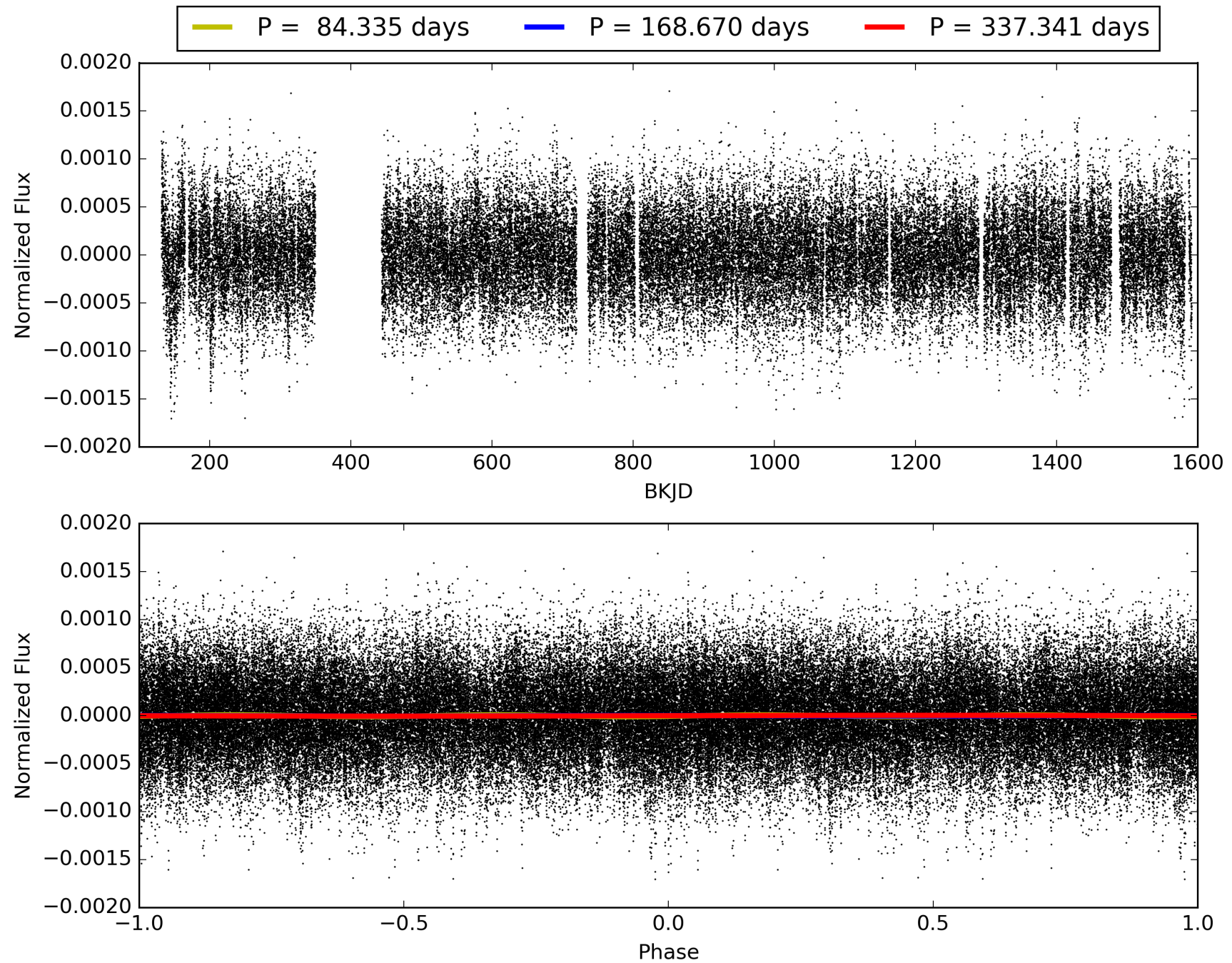
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:27:56 Z

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

TCE 005308777-04, PDC Light Curves

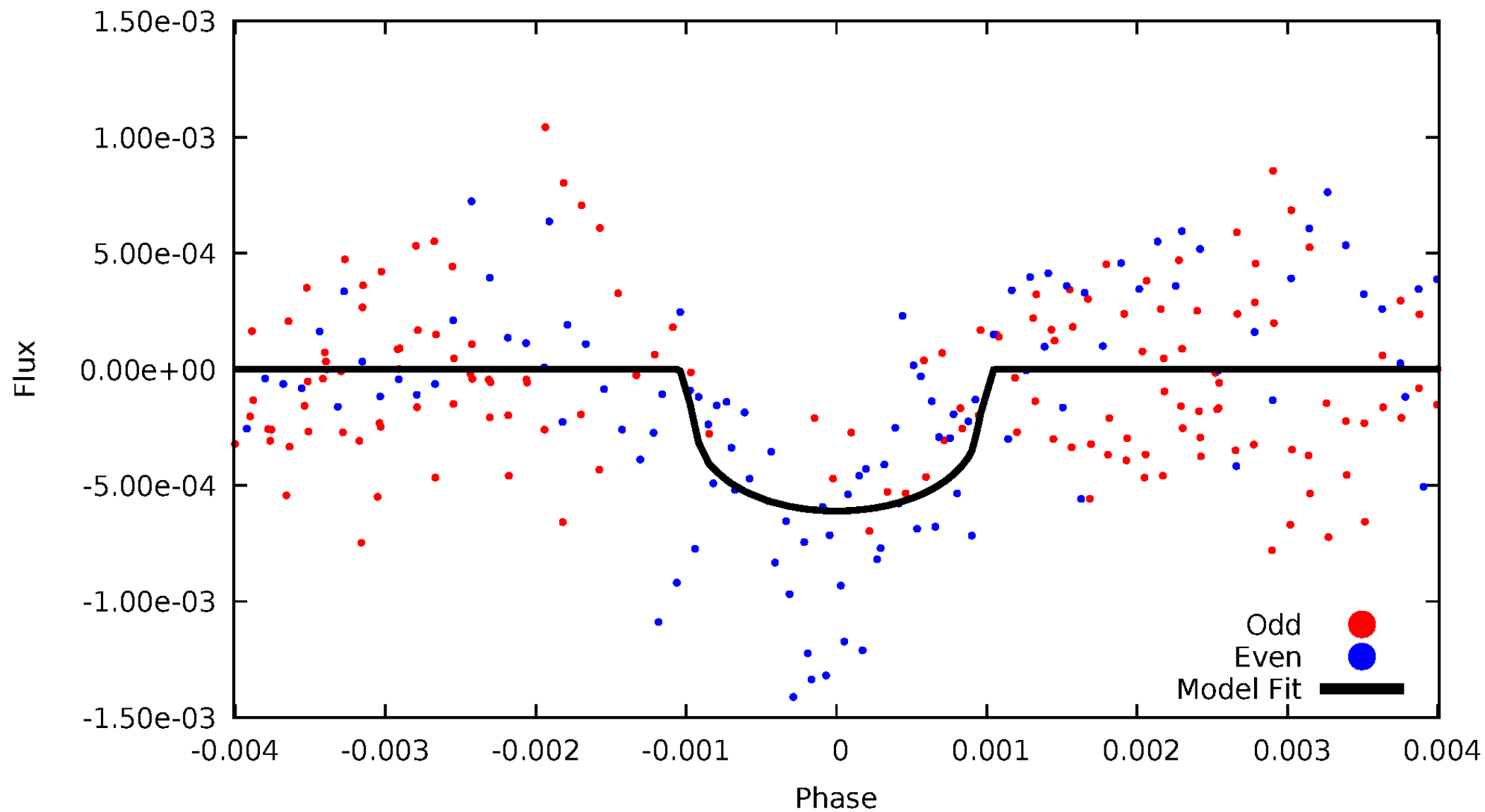


TCE 005308777-04



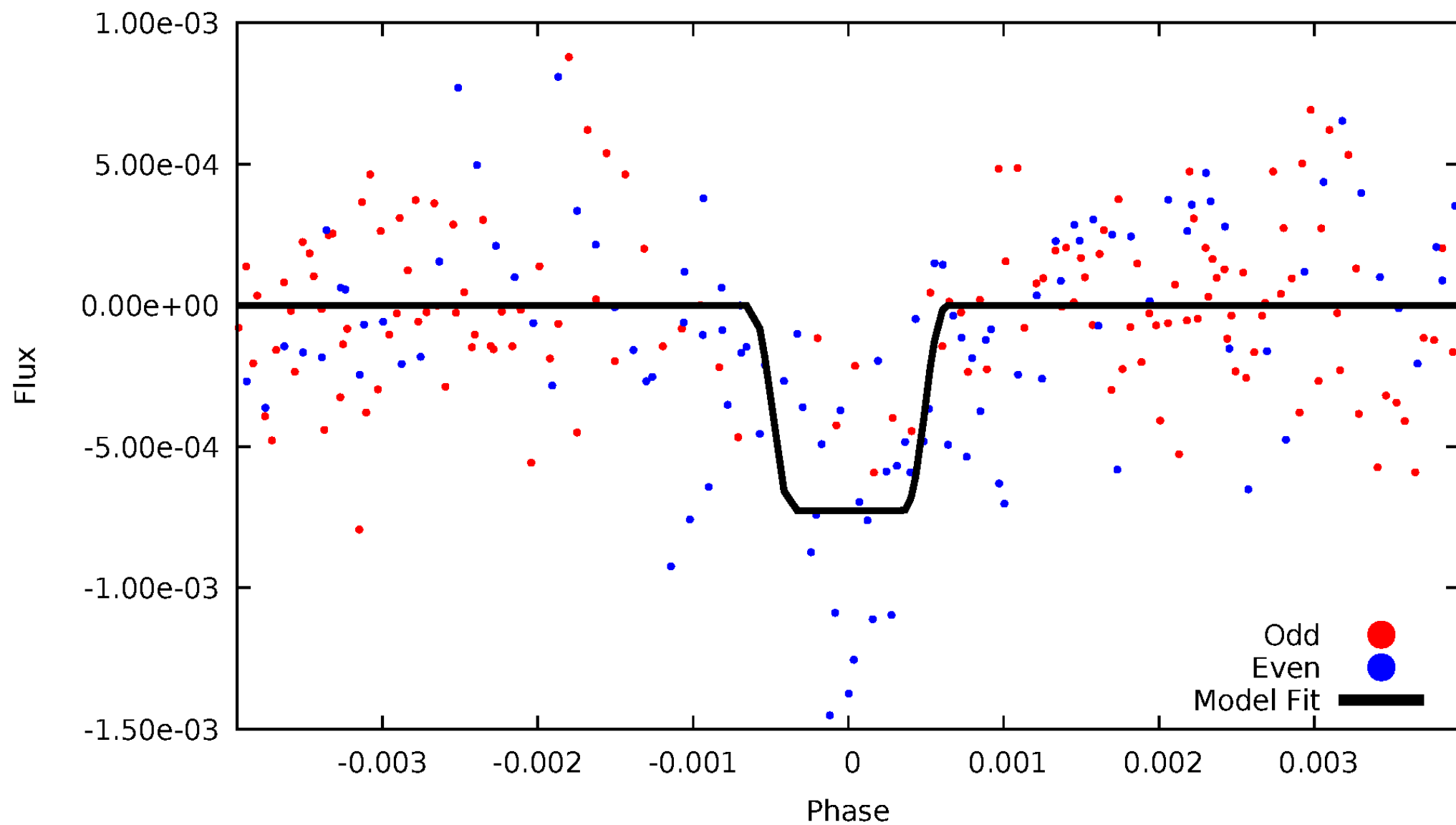
DV Odd/Even

TCE 005308777-04



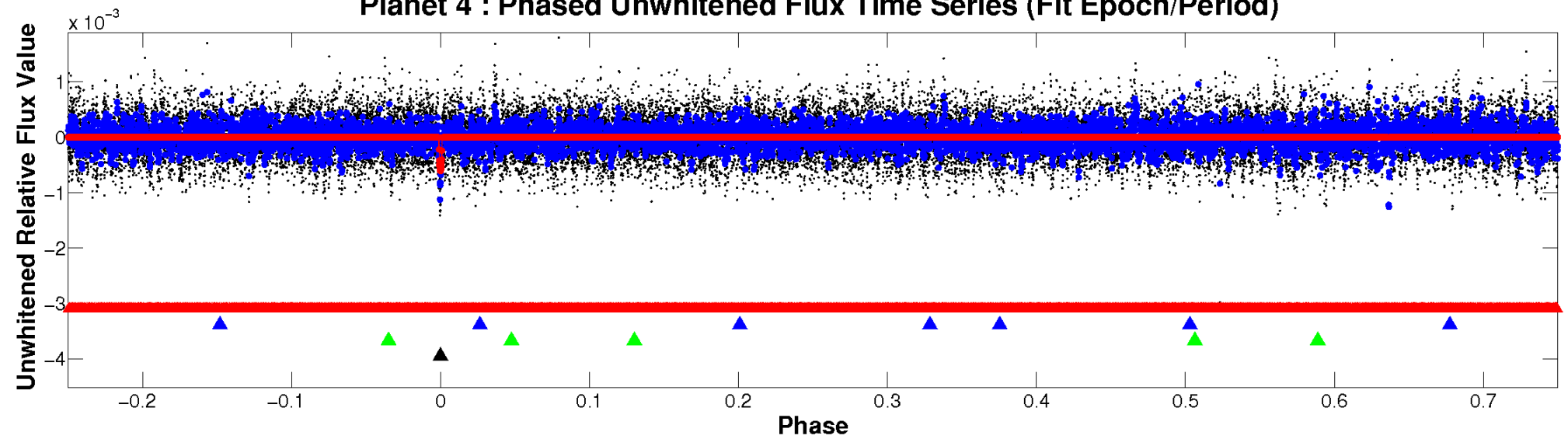
ALT Odd/Even

TCE 005308777-04

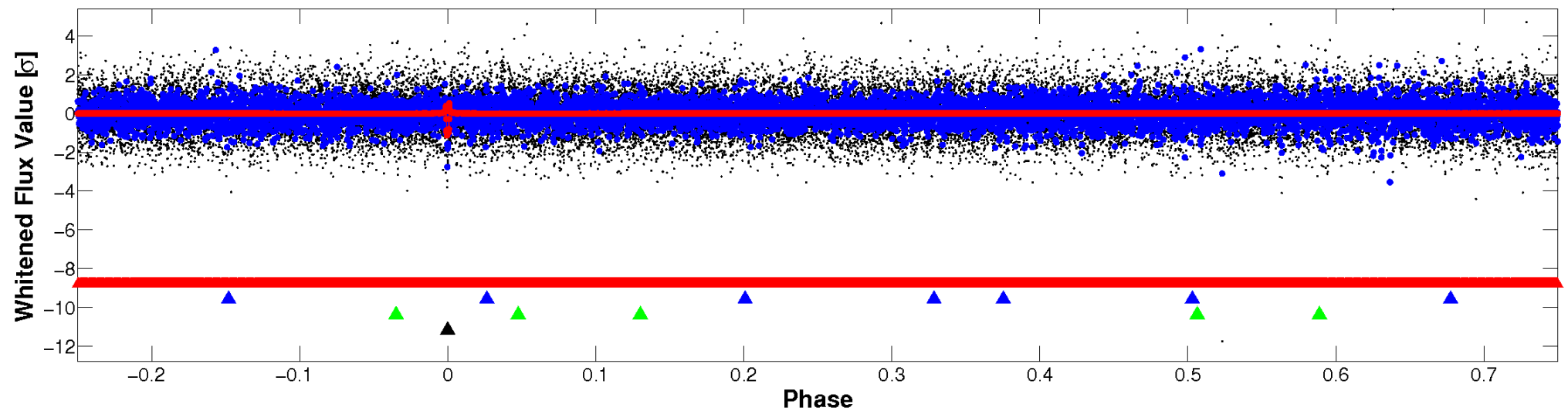


Non-Whitened Vs. Whitened Light Curve

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

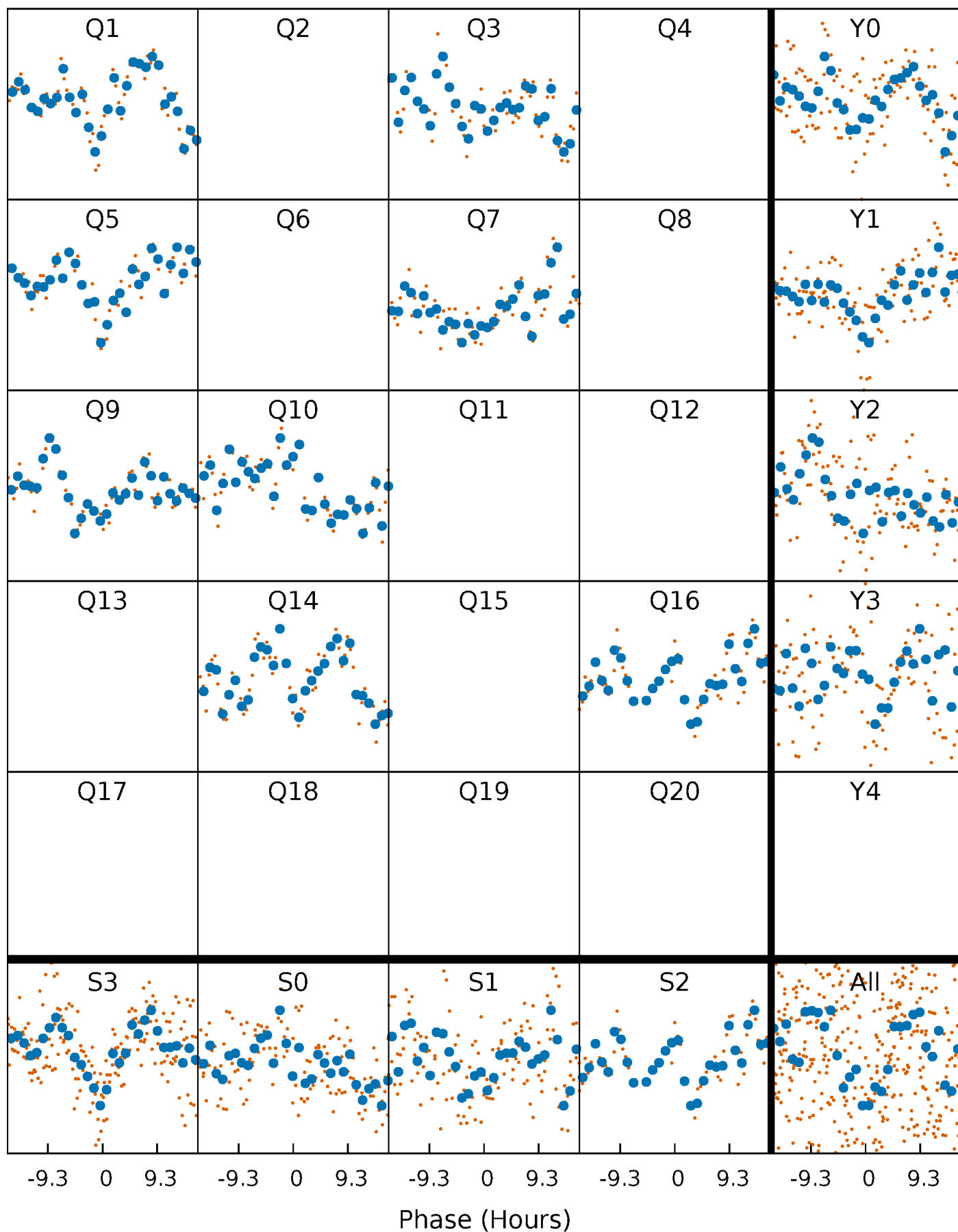


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



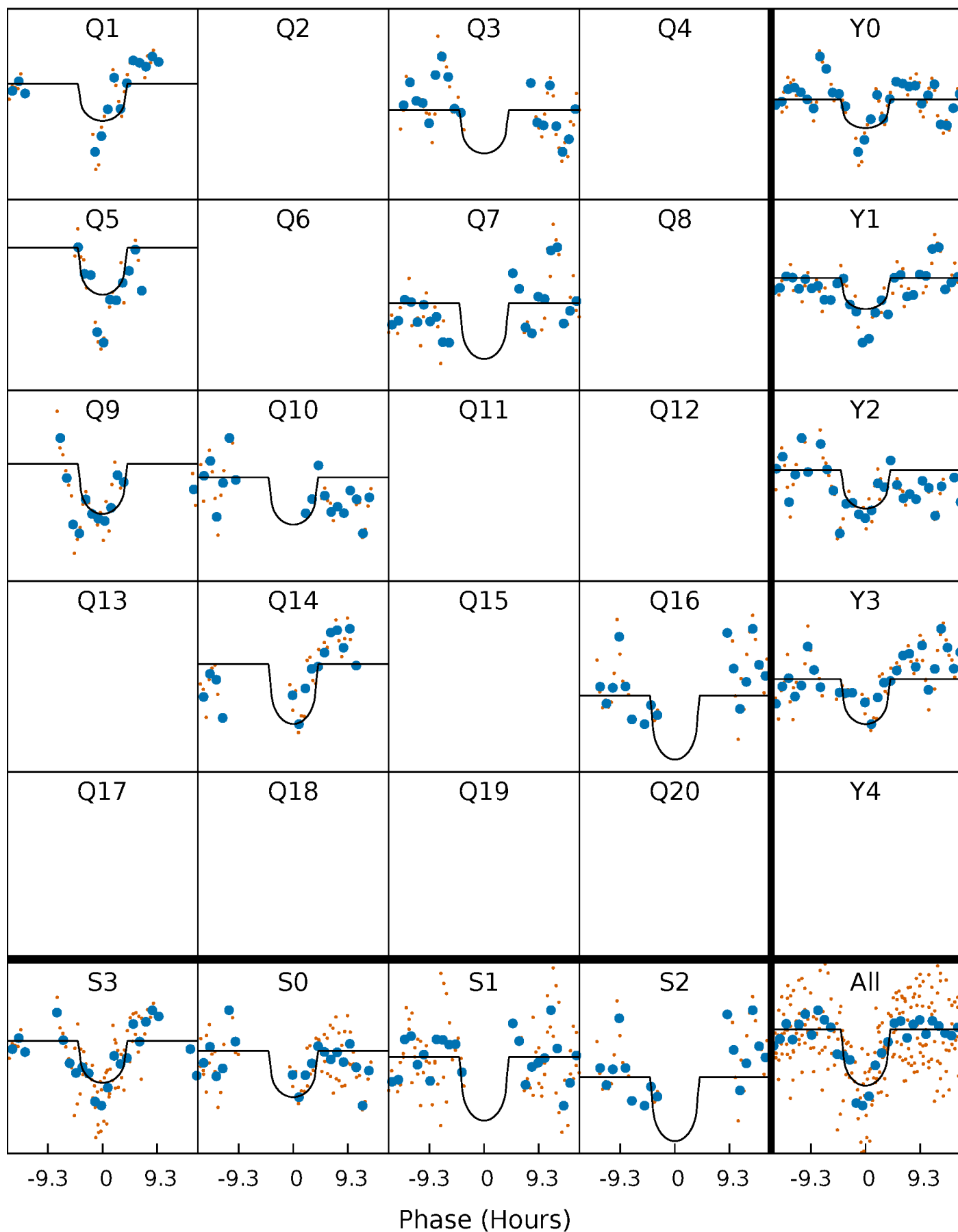
PDC Quarter-Phased Transit Curves

TCE 005308777-04 P=168.670369 Days $T_0=149.542807$ (BKJD)



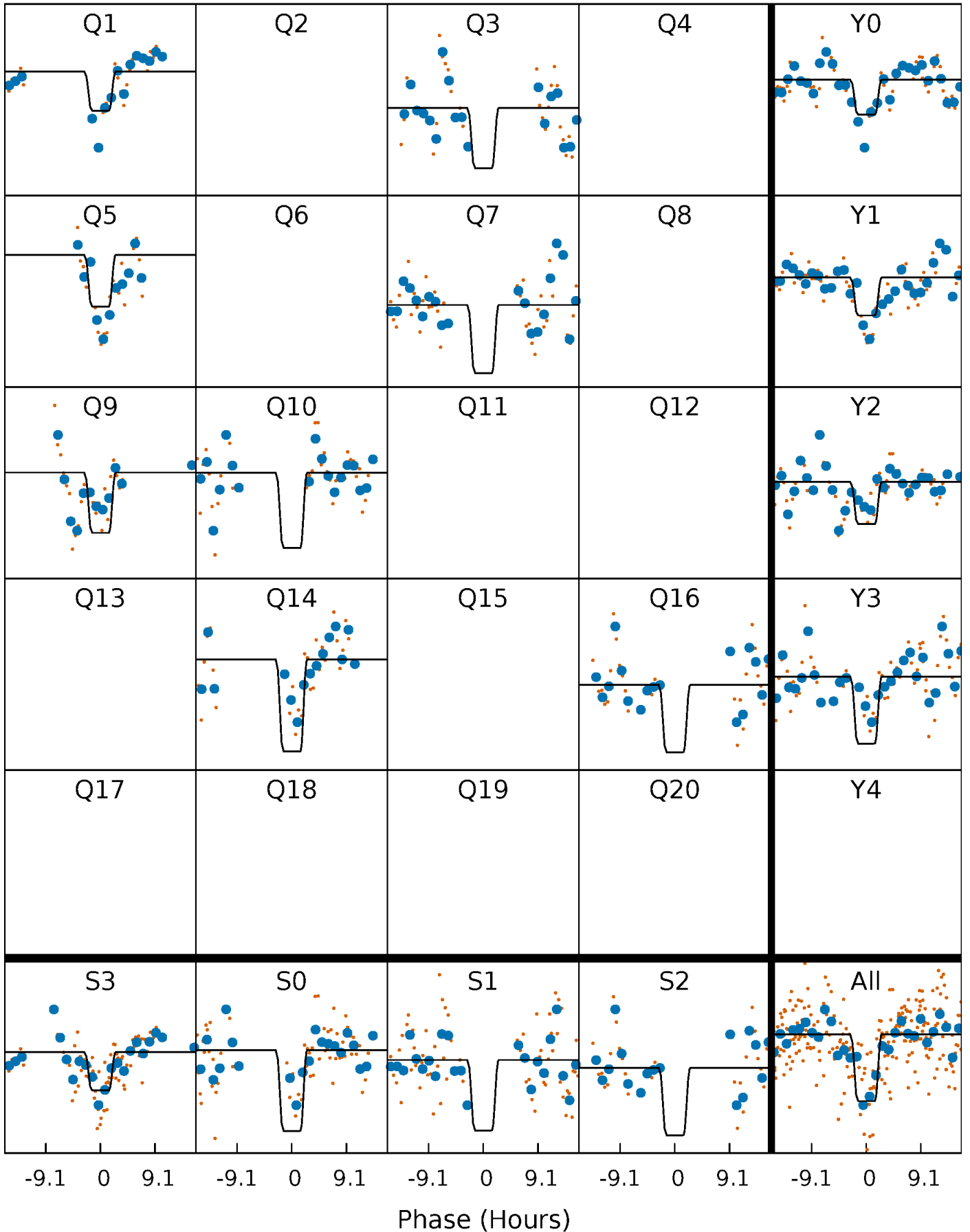
DV Quarter-Phased Transit Curves

TCE 005308777-04 $P=168.670369$ Days $T_0=149.542807$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

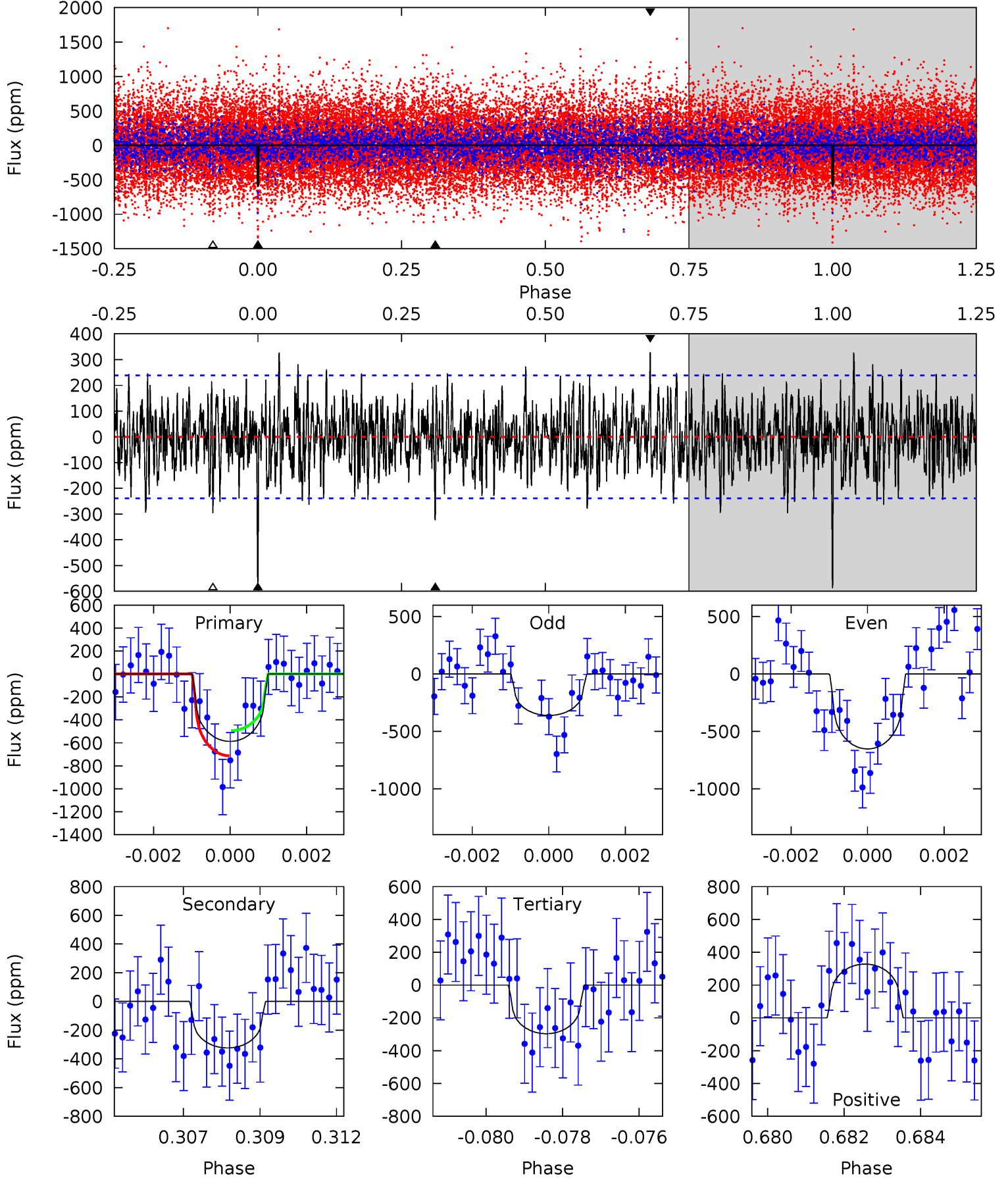
TCE 005308777-04 P=168.675712 Days $T_0=149.514437$ (BKJD)



DV Model-Shift Uniqueness Test

005308777-04, P = 168.670369 Days, E = 149.542807 Days

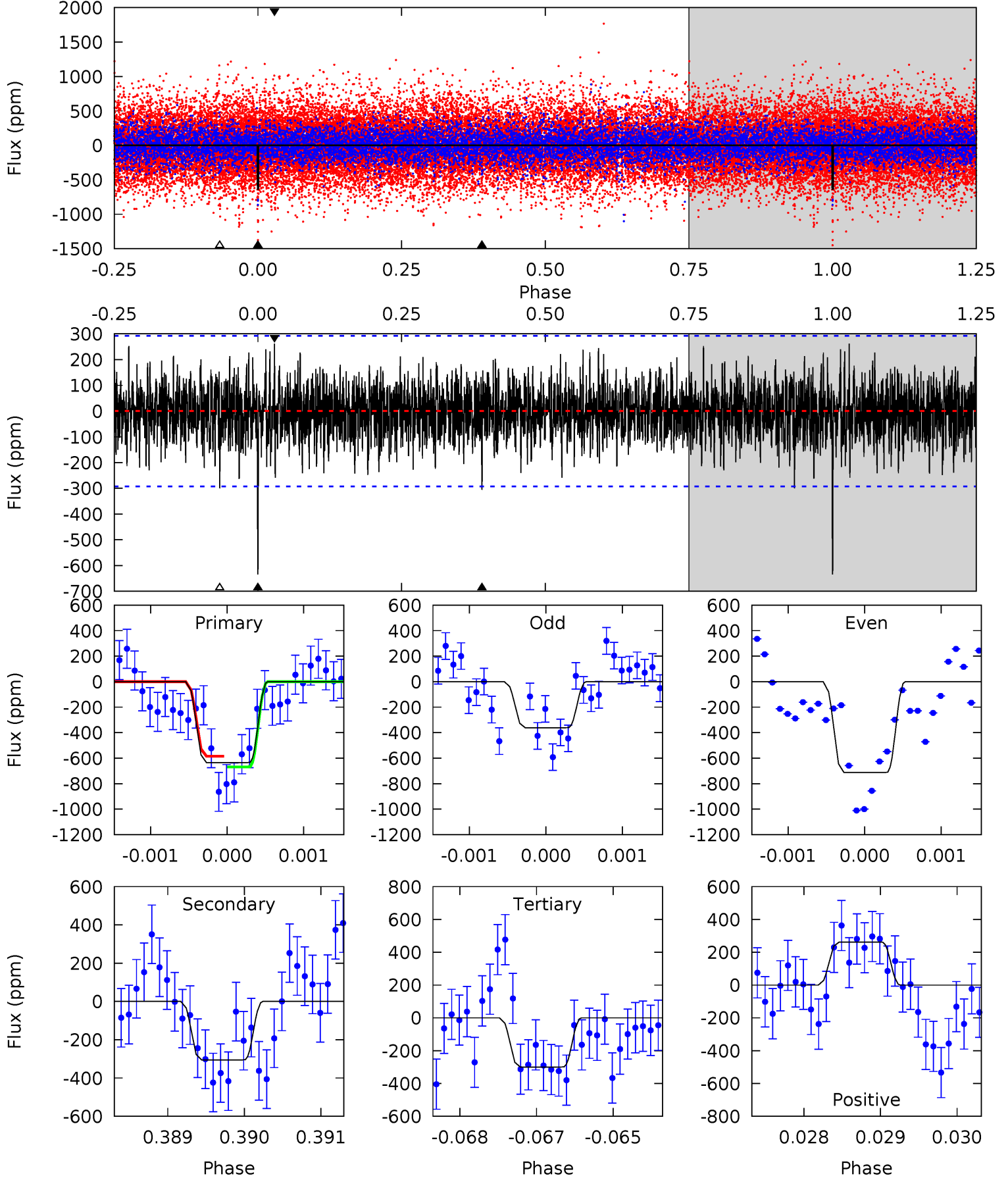
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.1 | 7.21 | 6.60 | 7.29 | 5.32 | 3.08 | 2.16 | 6.47 | 5.78 | 0.61 | -0.09 | 2.80 | 1.23 | 0.36 | 2.40 |



Alt Model-Shift Uniqueness Test

005308777-04, P = 168.675712 Days, E = 149.514437 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.8 | 5.66 | 5.55 | 4.85 | 5.42 | 3.24 | 1.50 | 6.21 | 6.91 | 0.11 | 0.81 | 2.78 | 1.01 | 0.29 | 0.75 |



Stellar Parameters For KIC 005308777

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 4877^{+66}_{-124} | $2.839^{+0.030}_{-0.030}$ | $0.140^{+0.100}_{-0.200}$ | $9.214^{+1.280}_{-2.080}$ | $2.138^{+0.453}_{-0.842}$ | $0.004^{+0.001}_{-0.001}$ |
| | +1%/-3% | +1%/-1% | +71%/-143% | +14%/-23% | +21%/-39% | +33%/-14% |
| Source | SPE74 | AST9 | SPE74 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005308777-04 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|---------------------------|----------------------|-----------------------|--------------------|
| DV | -324 ± 45 | $27.52^{+21.41}_{-16.30}$ | 1039^{+29}_{-34} | 4098^{+1954}_{-702} | 137^{+655}_{-92} |
| Alt. | -305 ± 54 | $30.39^{+23.32}_{-17.09}$ | 1039^{+28}_{-32} | 3942^{+1531}_{-655} | 108^{+465}_{-74} |

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

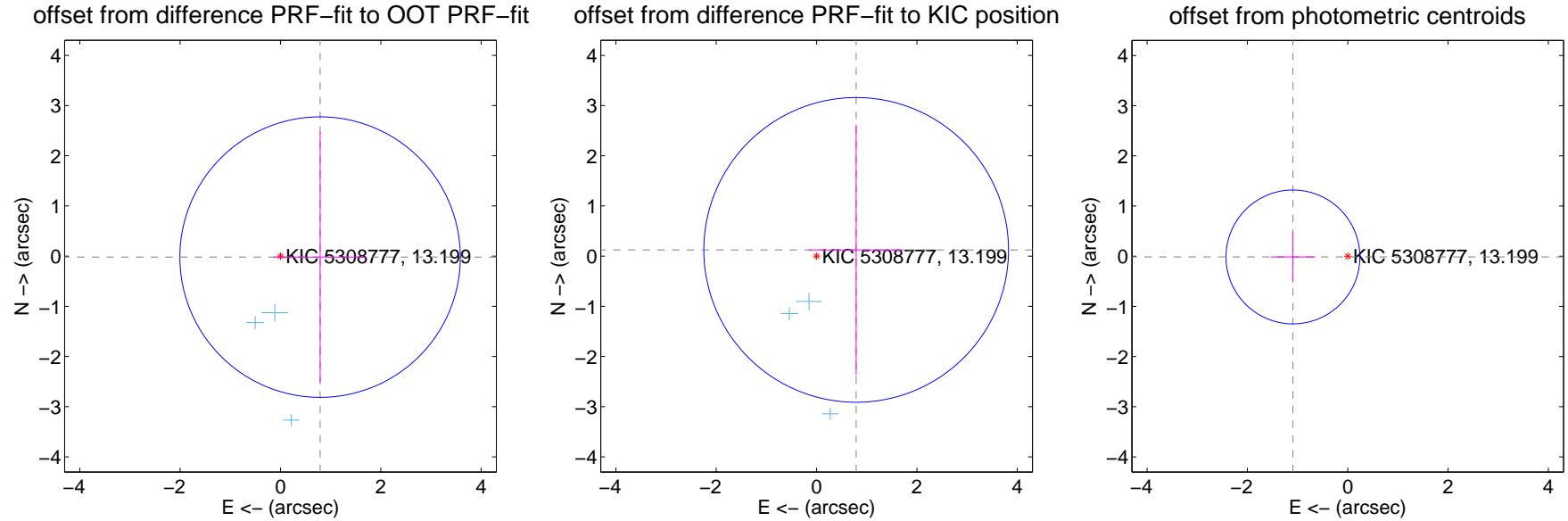
DV Centroid Data

Supplemental centroid analysis for 005308777-04. Kepler magnitude: 13.20. Transit SNR 7.24

There are 4 quarters with good PRF difference image offsets

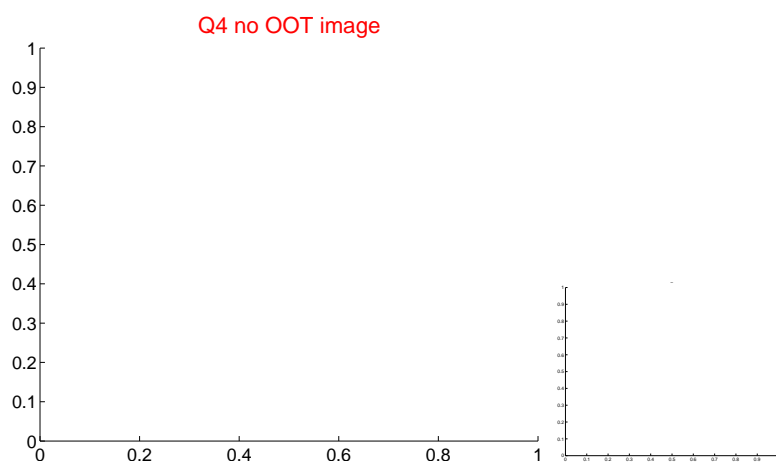
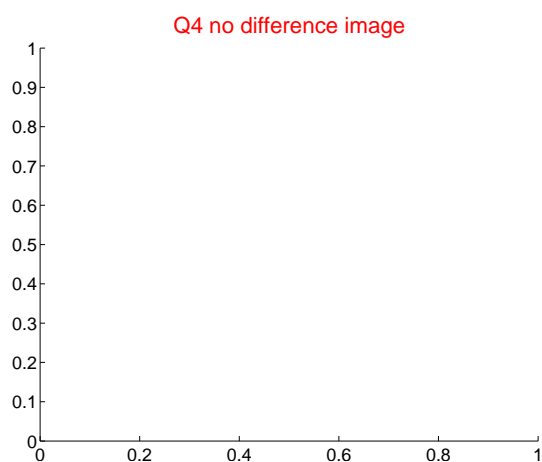
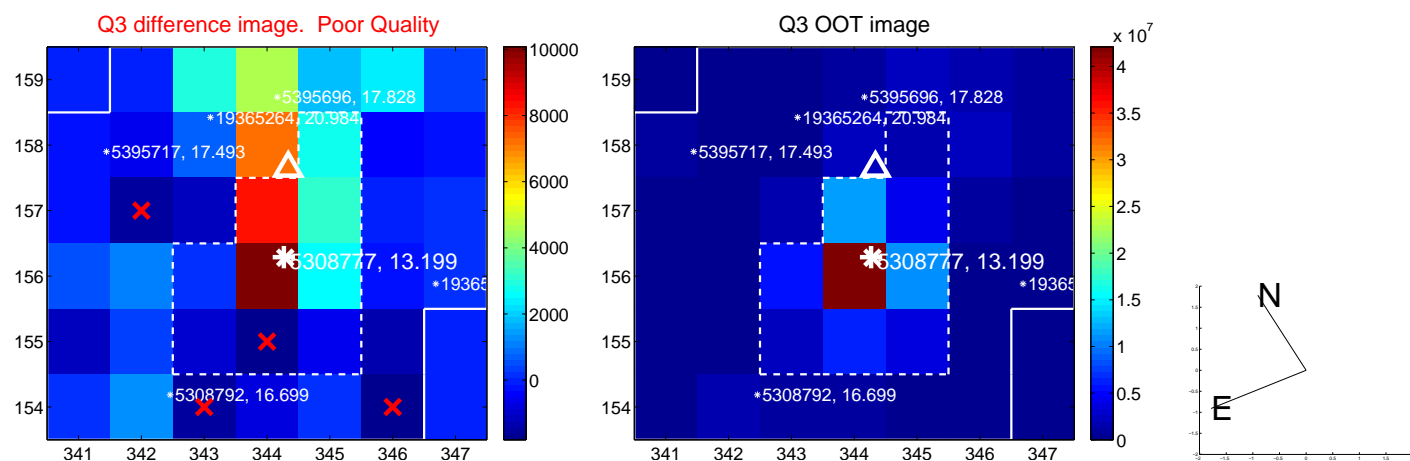
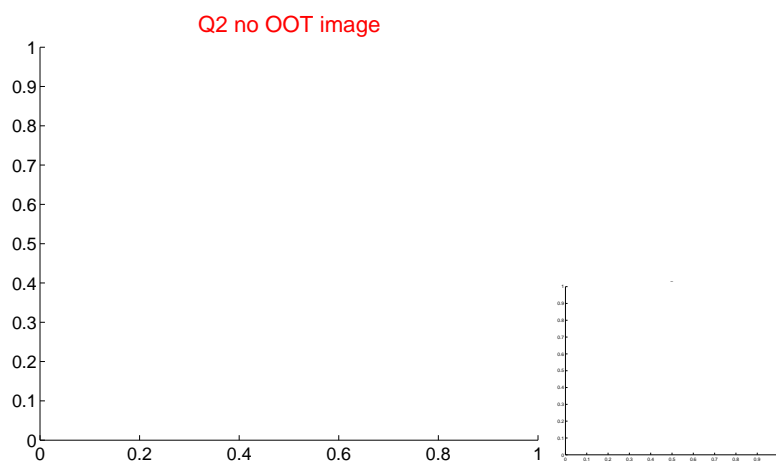
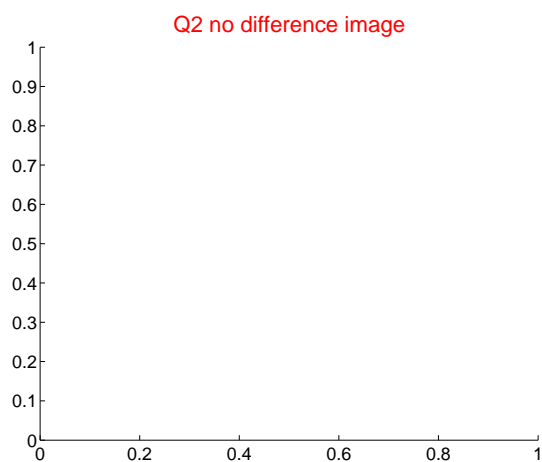
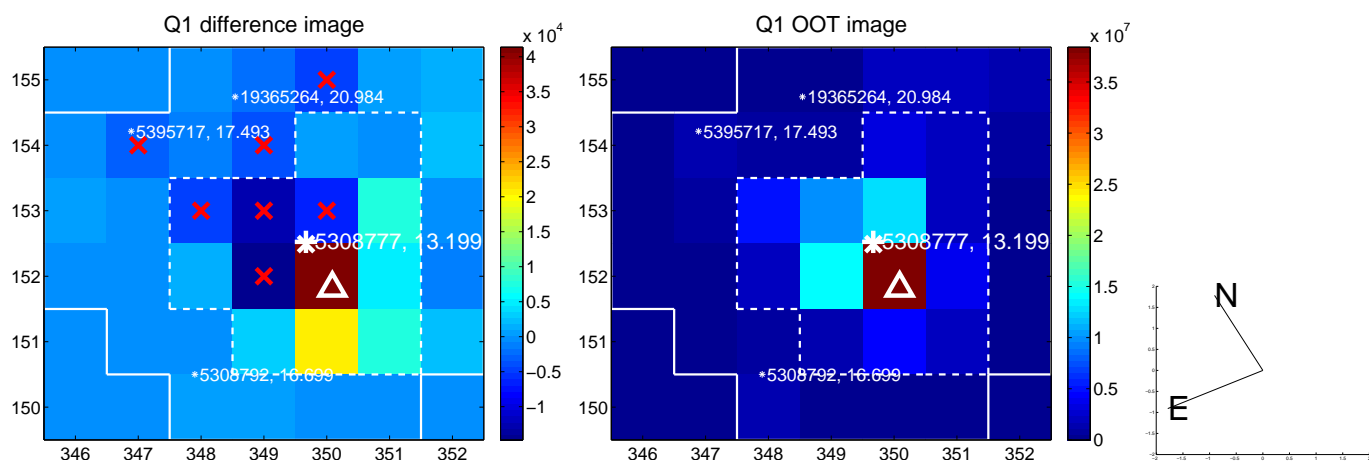
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.790 ± 0.931 | 0.85 | -0.790 ± 0.930 | -0.019 ± 2.500 |
| PRF-fit source offset from KIC position | 0.799 ± 1.012 | 0.79 | -0.789 ± 0.946 | 0.124 ± 2.495 |
| photometric centroid source offset | 1.09 ± 0.44 | 2.46 | 1.09 ± 0.44 | -0.01 ± 0.50 |

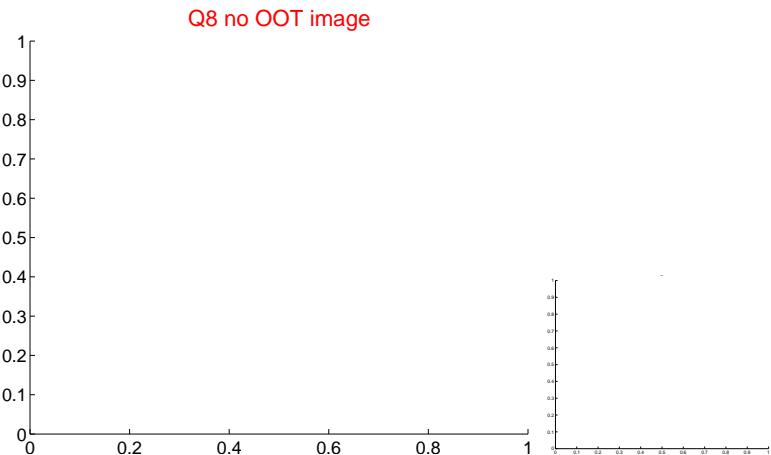
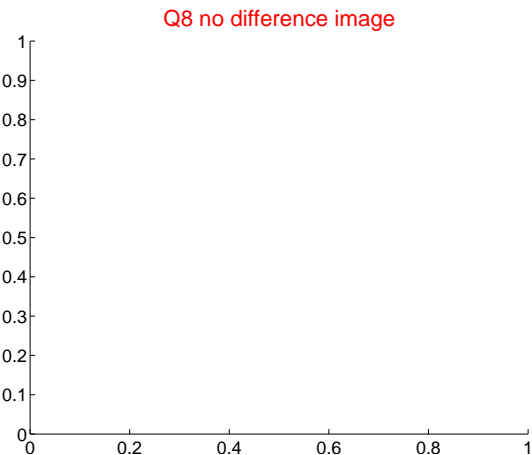
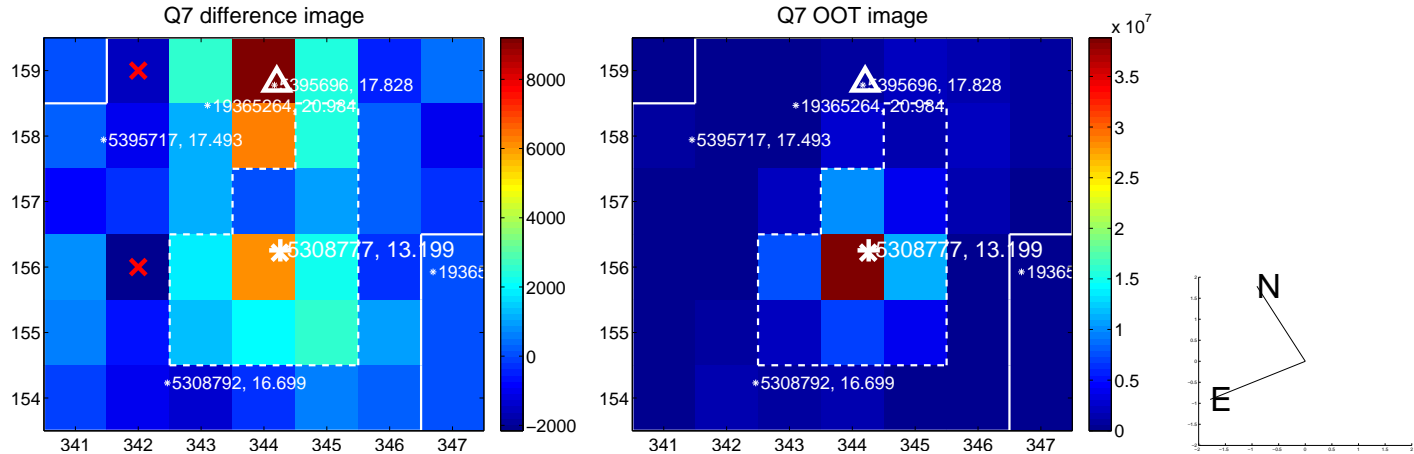
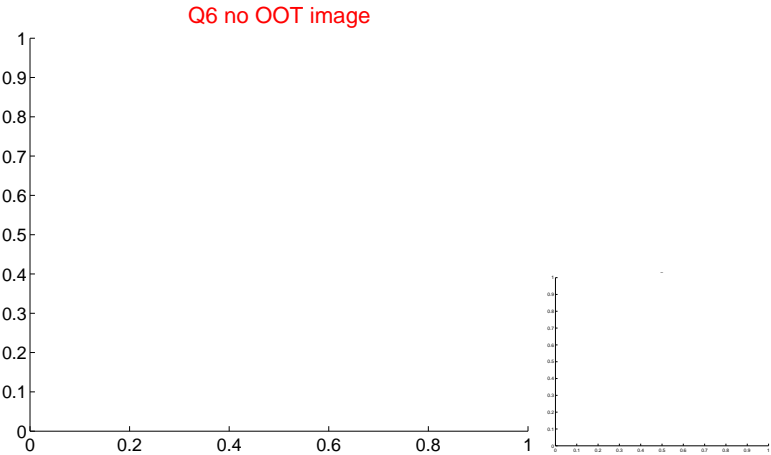
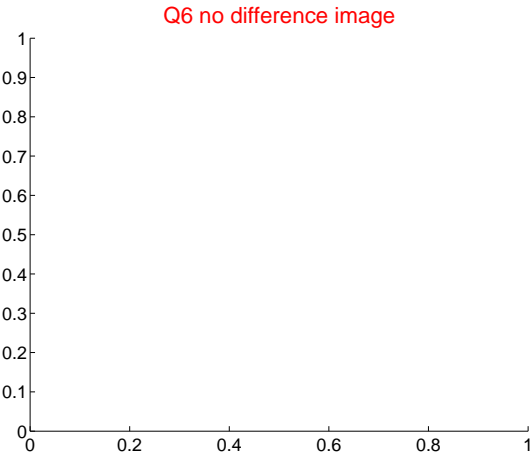
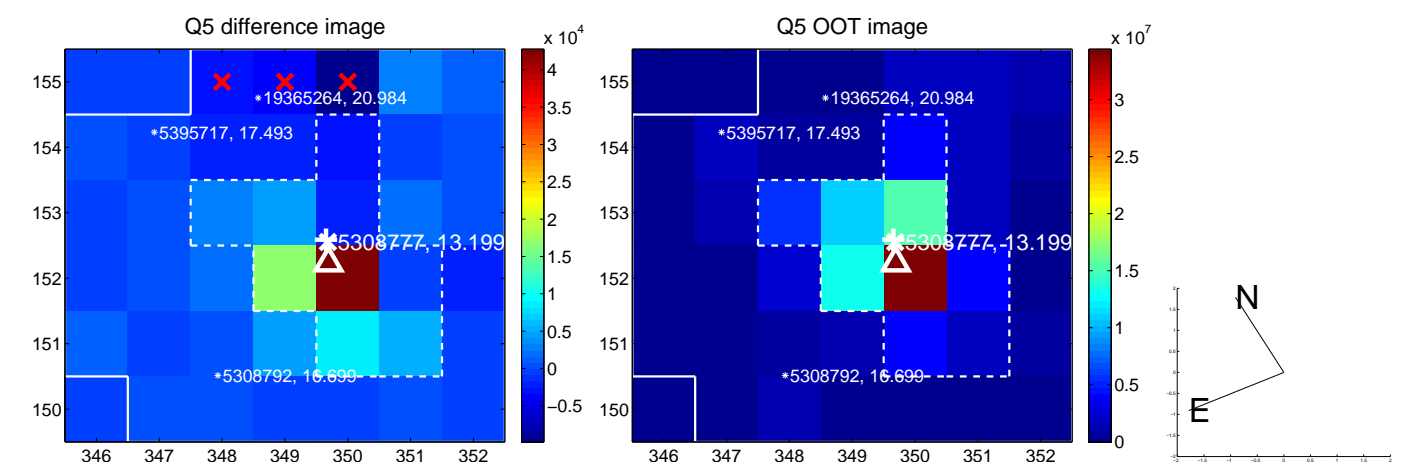


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

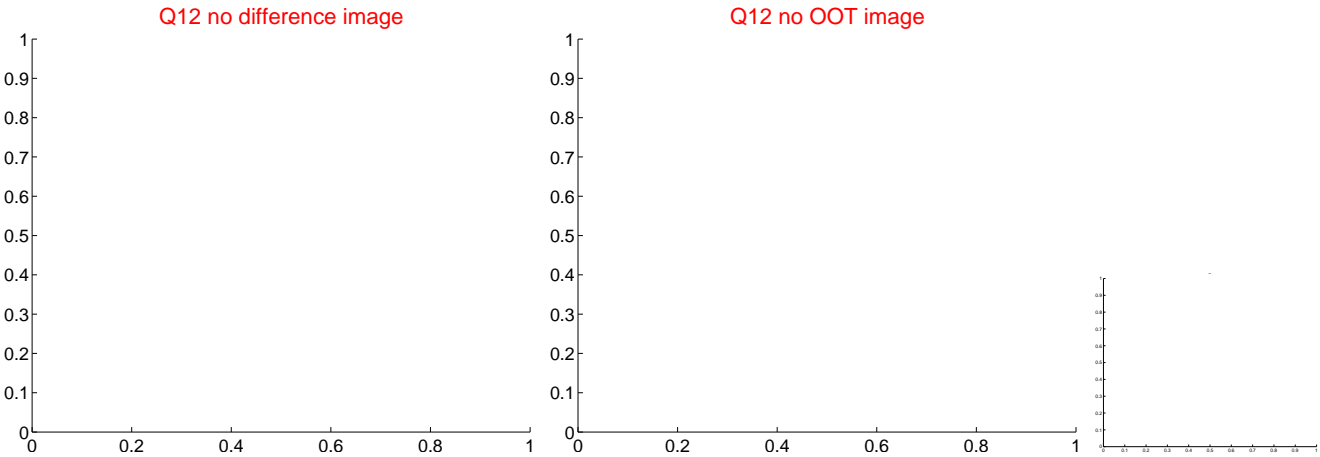
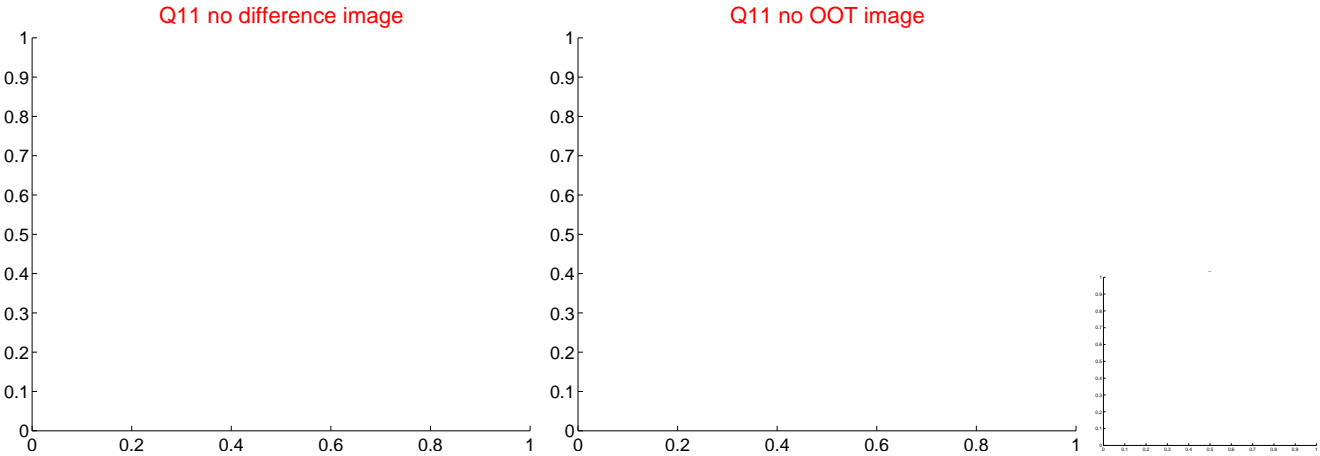
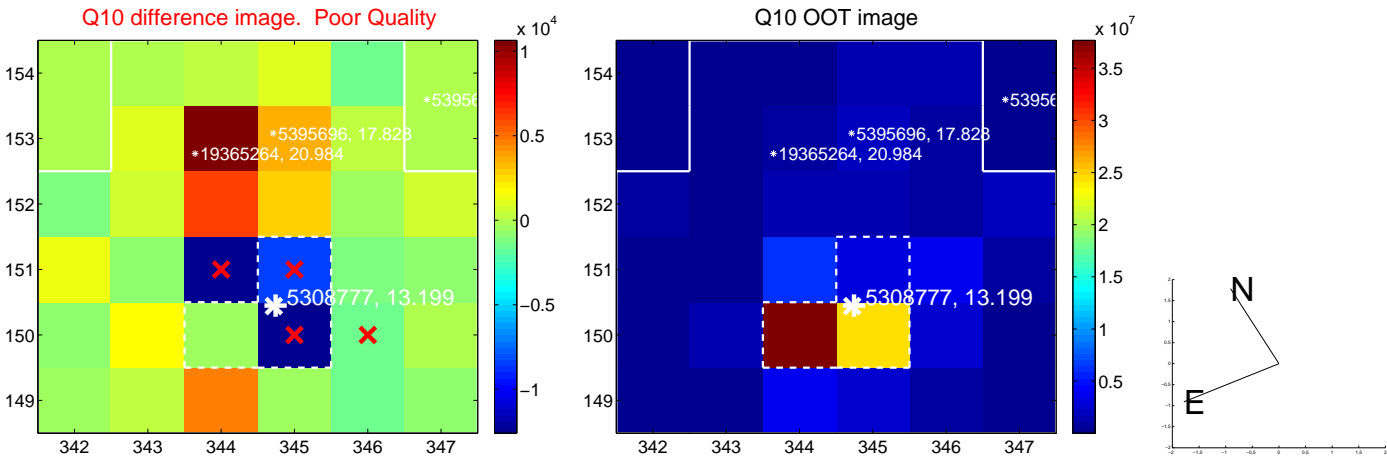
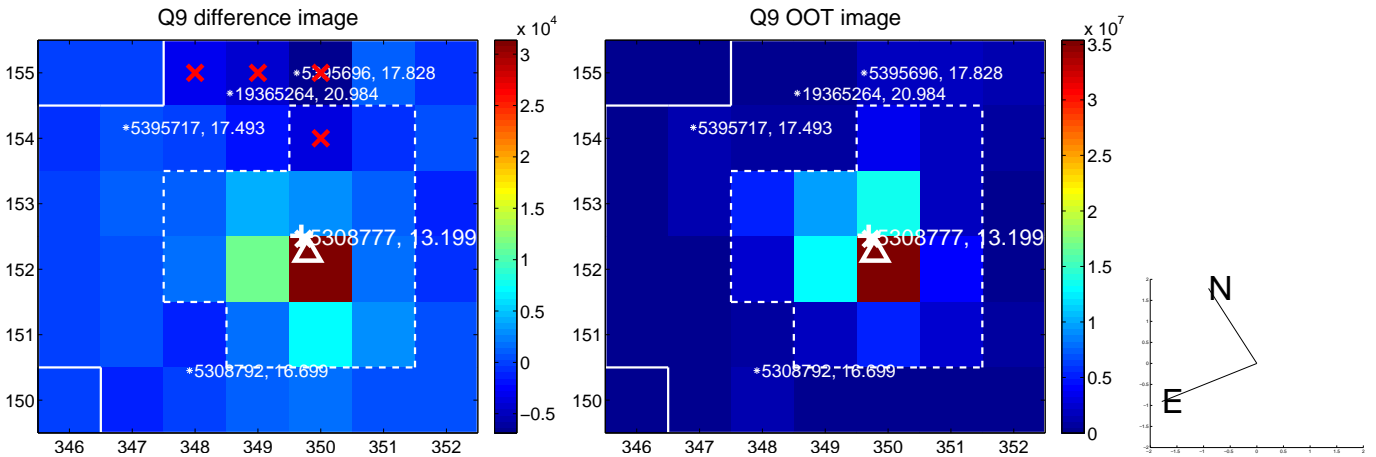
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



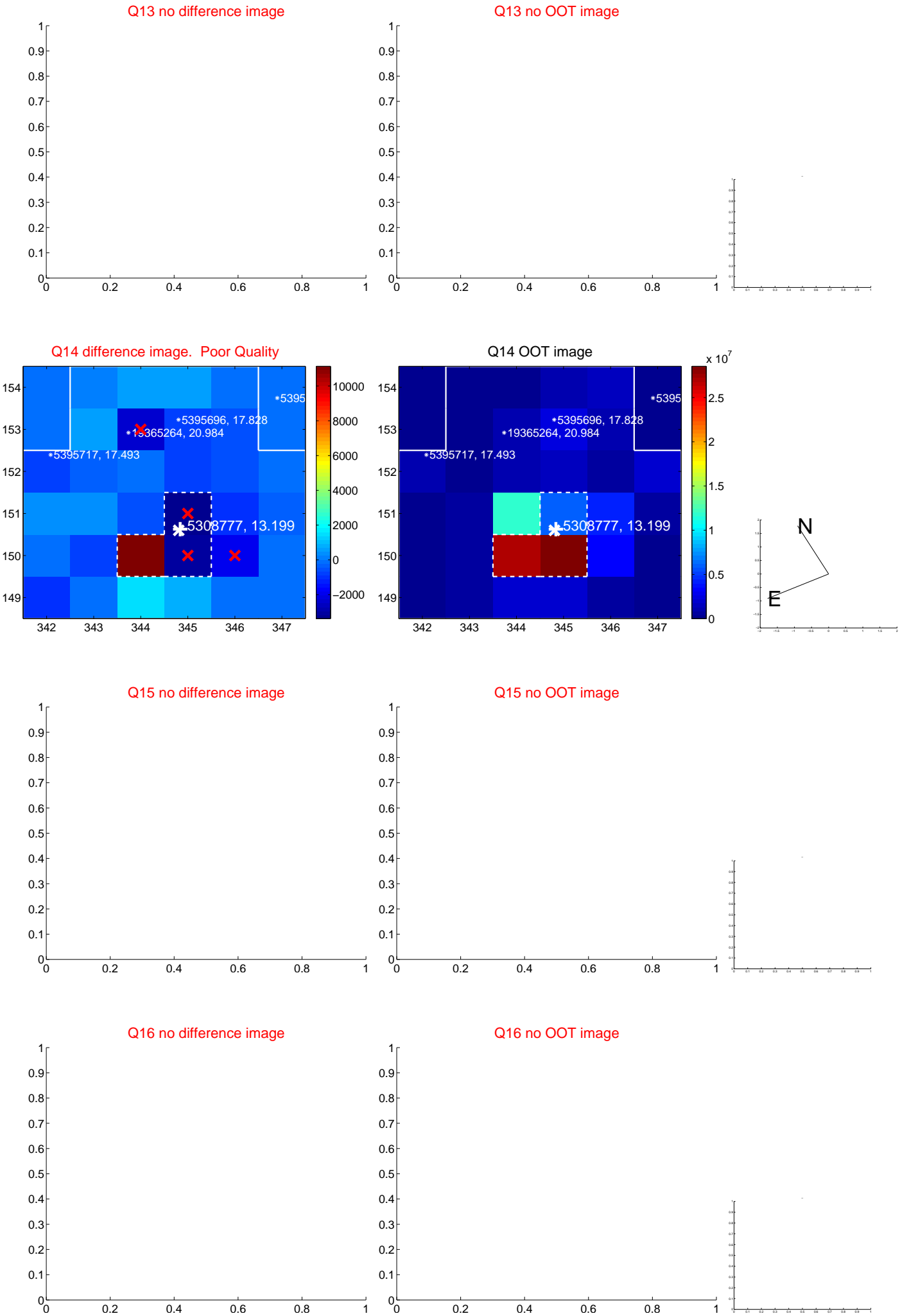
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



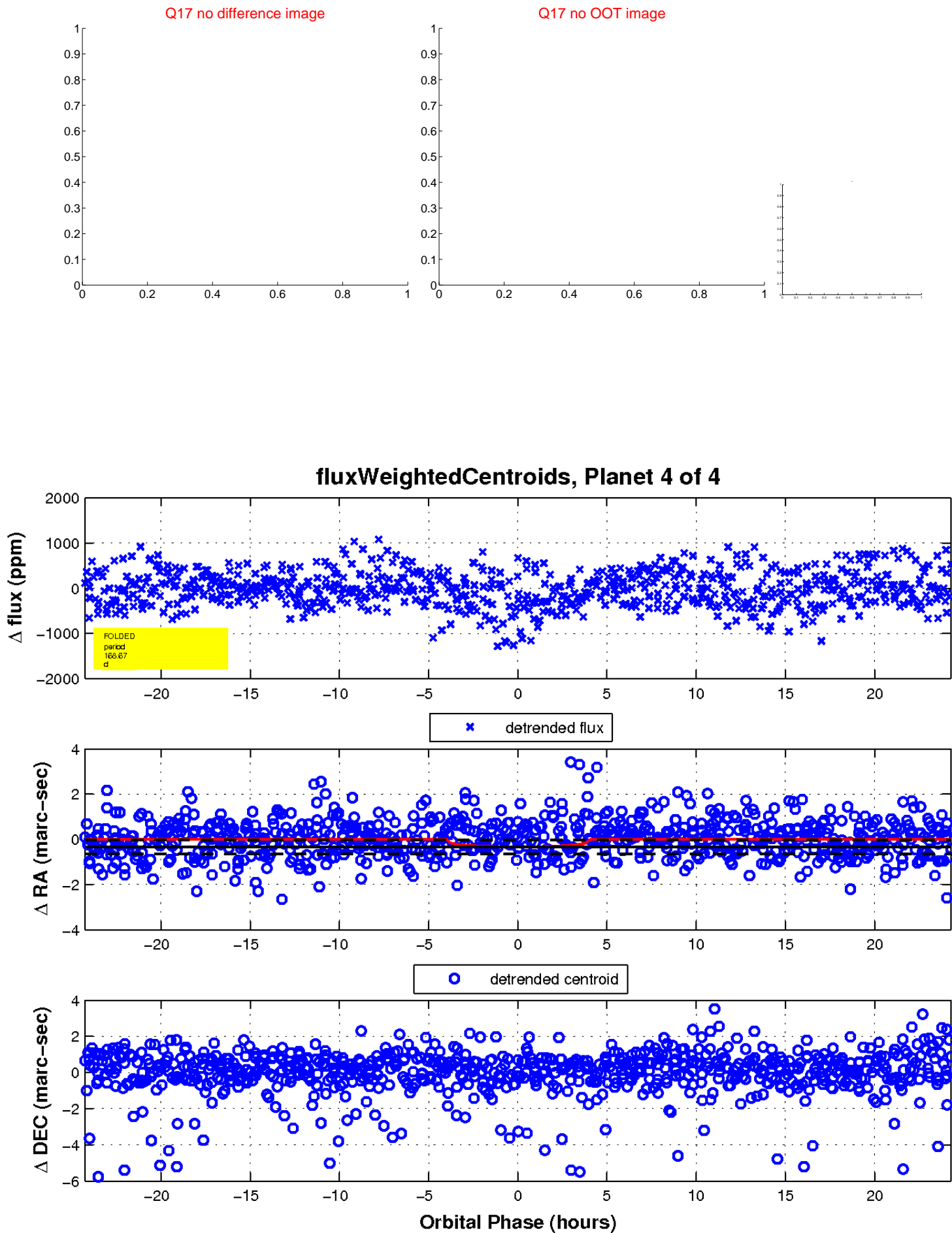
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

