

KIC 011757334

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 011757334-01 | OBS | No | 0.607699 | 131.698610 | 14.6 | 3.630 | 8.2 | 8.5 | 1.83 | 7318 | 0.75 | 33549.69 |
| 011757334-02 | OBS | No | 51.374631 | 133.330909 | 213.5 | 2.669 | 8.2 | 7.7 | 1.83 | 7318 | 3.16 | 90.42 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011757334-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 011757334-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

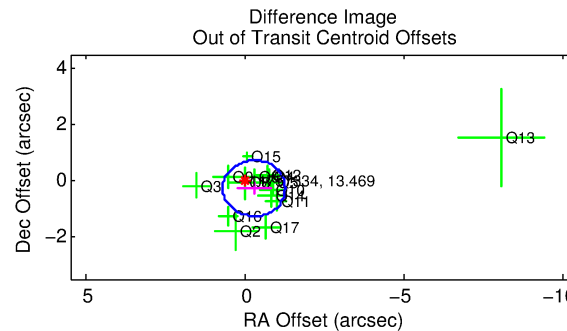
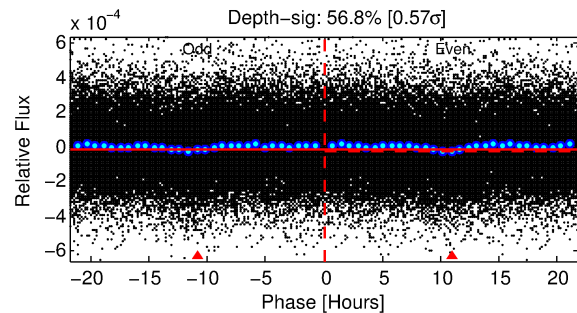
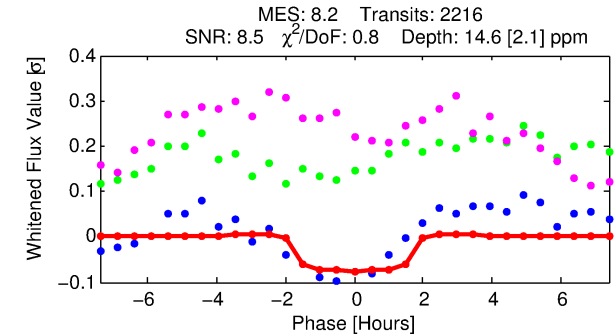
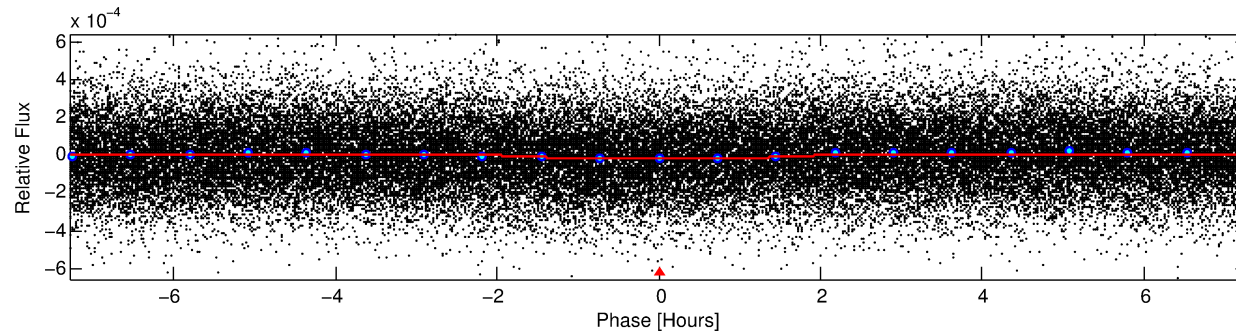
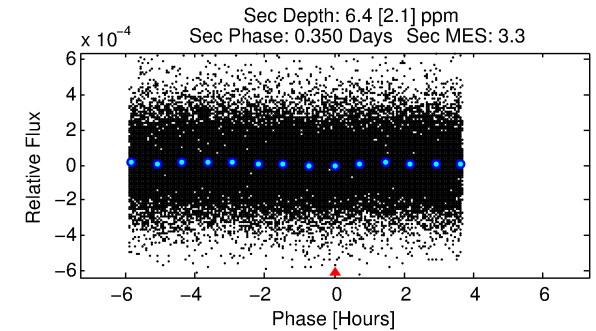
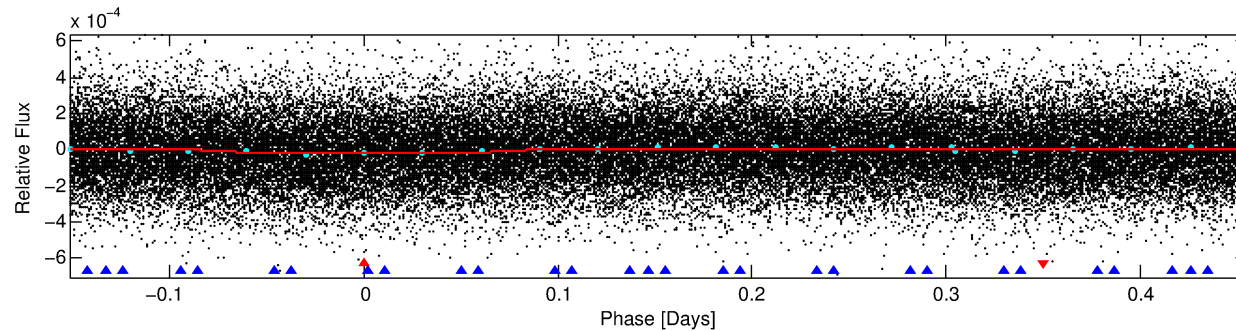
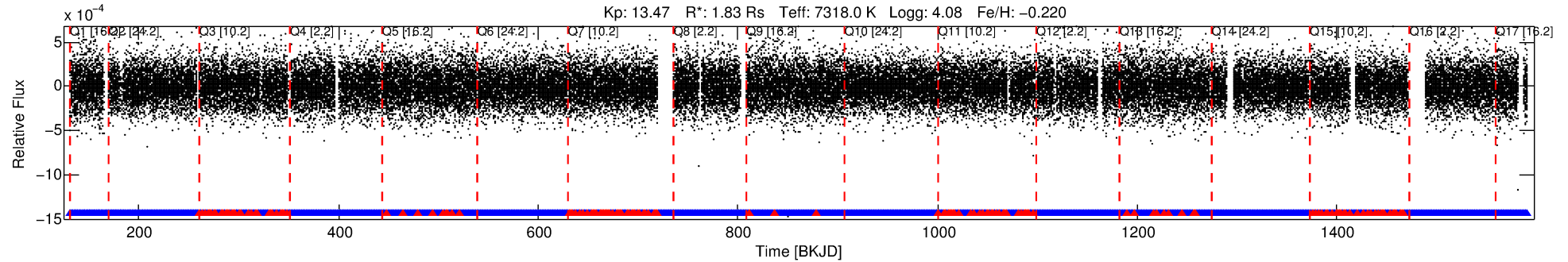
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011757334-01

No Significant Match Found

DV One-Page Summary

KIC: 11757334 Candidate: 1 of 2 Period: 0.608 d



DV Fit Results:

Period = 0.60770 [0.00001] d
Epoch = 131.6986 [0.0045] BKJD
Rp/R* = 0.0037 [0.0013]
a/R* = 1.24 [0.92]
b = 0.70 [1.58]
Seff = 33549.69 [12504.70]
Teff = 3451 [322] K
Rp = 0.75 [0.35] Re
a = 0.0160 [0.0038] AU
Ag = 1.63 [1.39] [0.45σ]
Teffp = 6024 [1210] K [2.06σ]

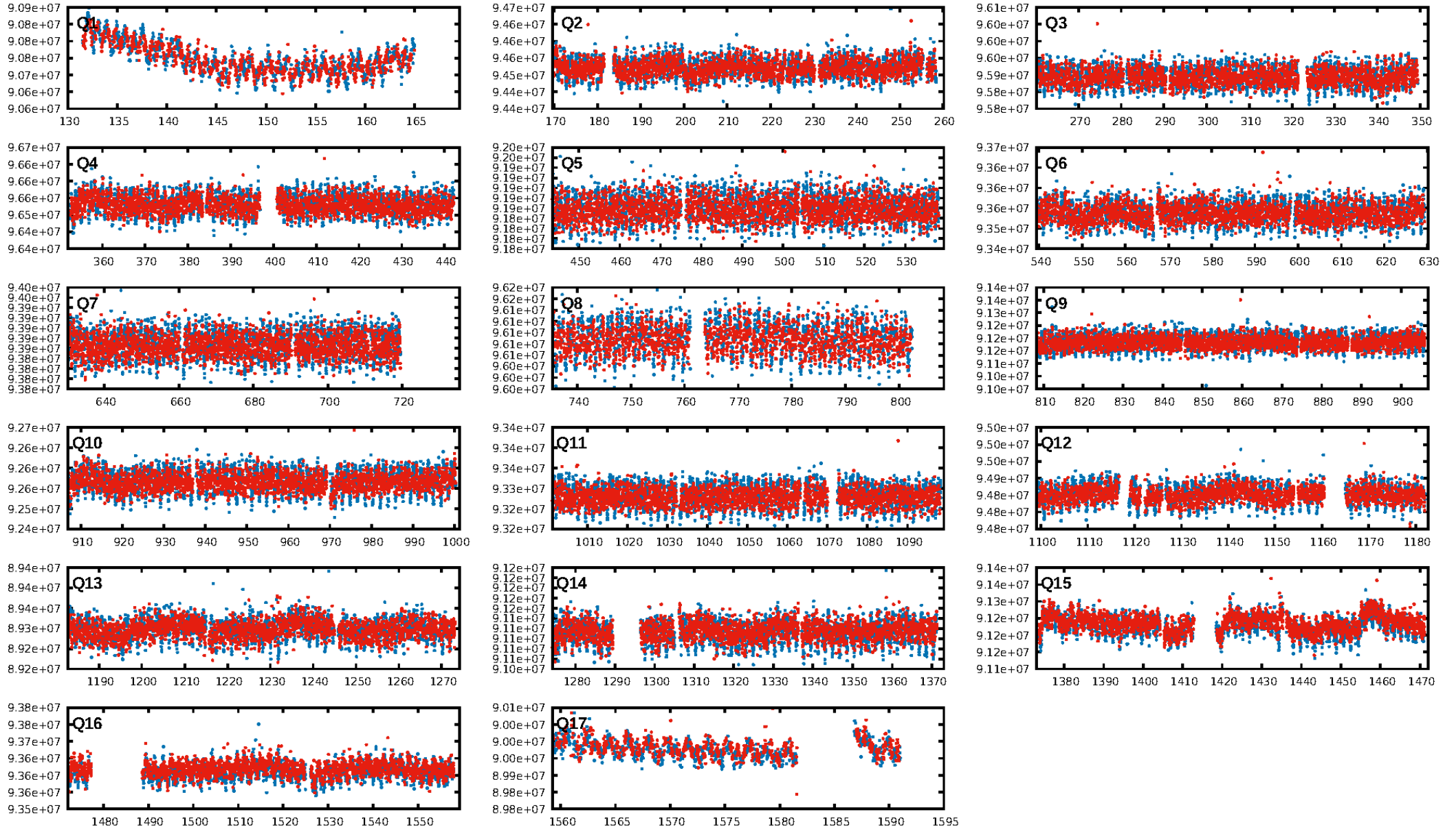
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [270.40σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.50e-11
RollingBand-fgt: 0.92 [1946/2117]
GhostDiagnostic-chr: 4.743
Centroid-sig: 53.9%
Centroid-so: 1.253 arcsec [0.85σ]
OotOffset-rm: 0.384 arcsec [1.16σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.445 arcsec [1.48σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 1.00 [17/17]

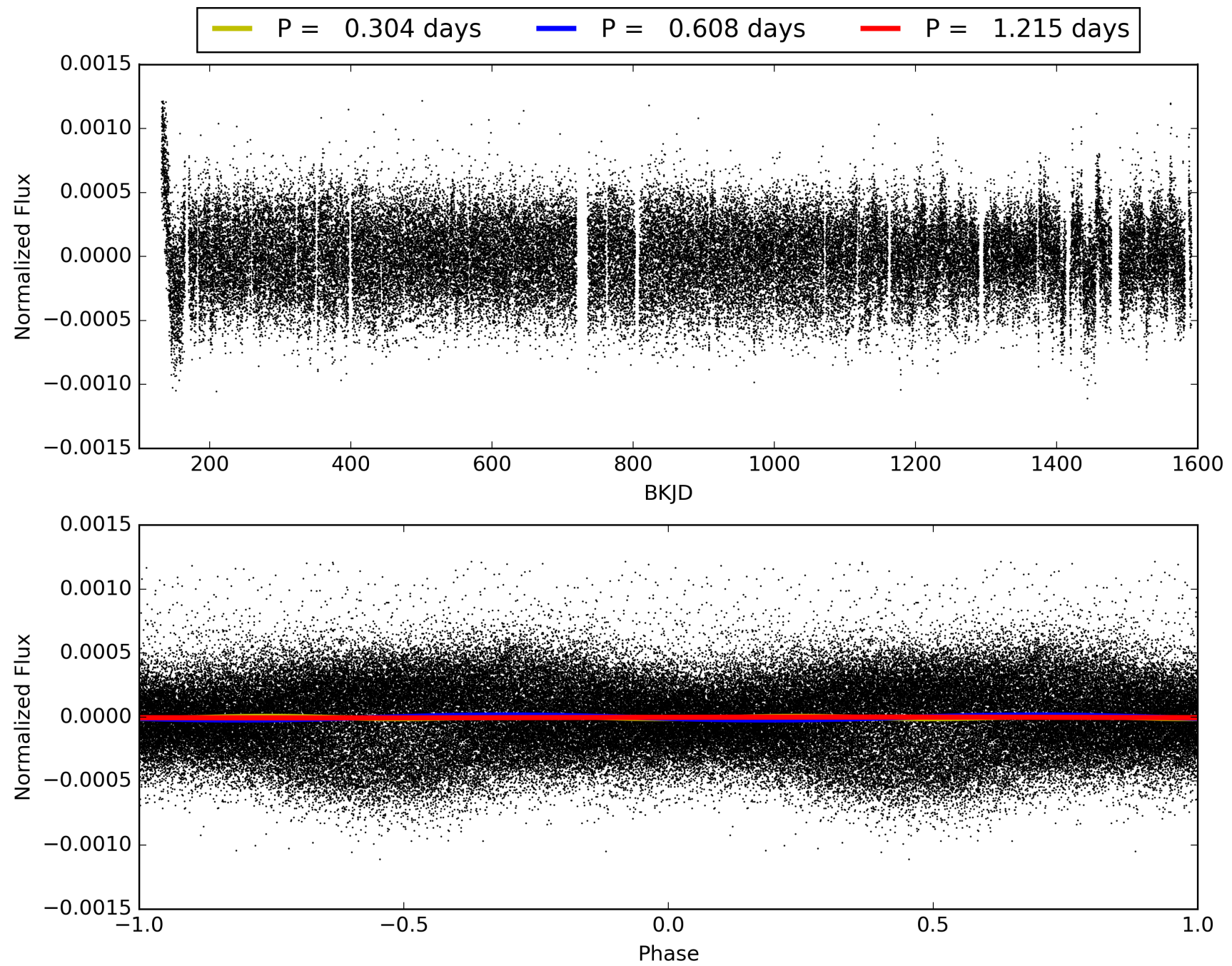
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:05:45 Z

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

TCE 011757334-01, PDC Light Curves

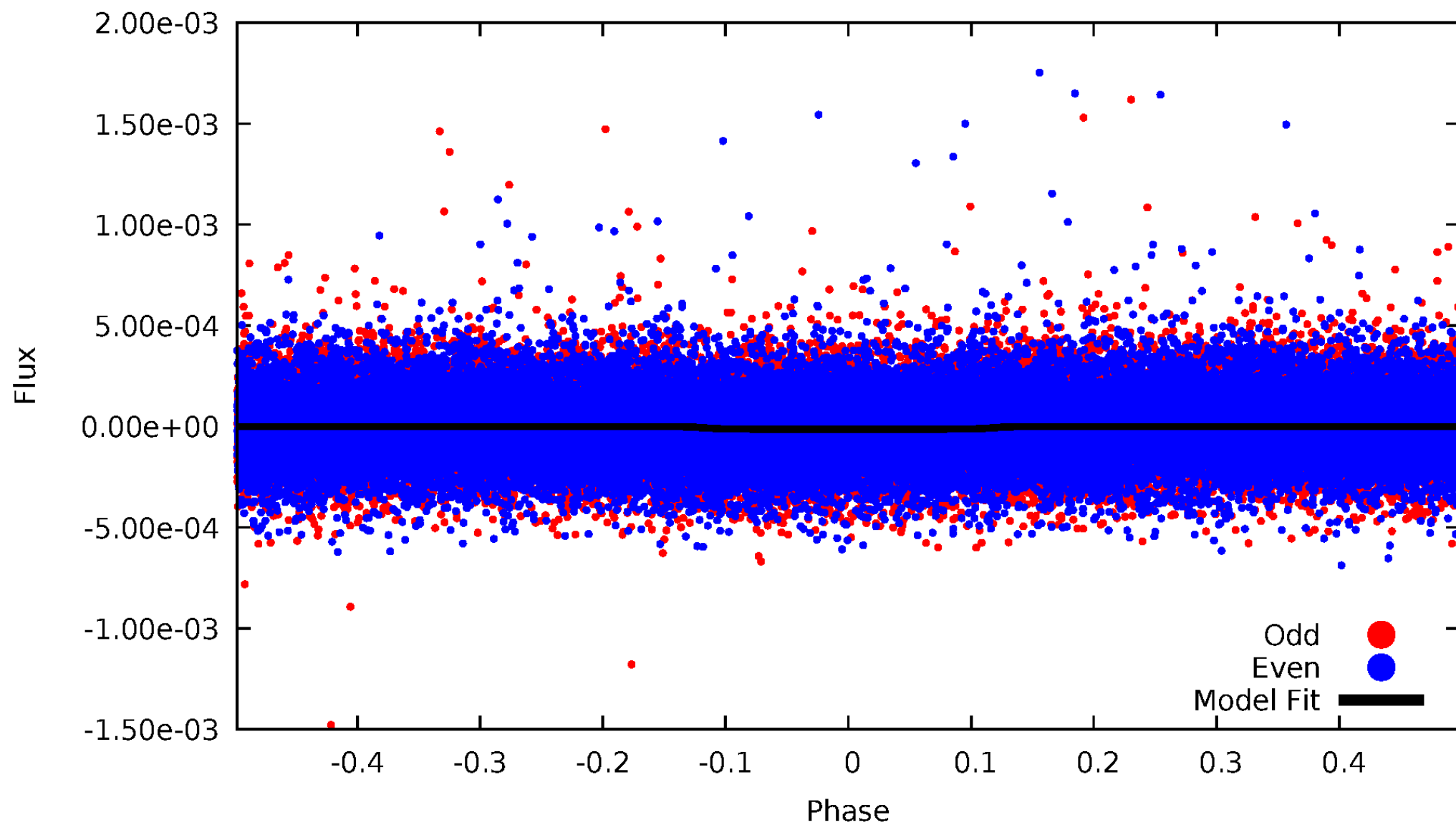


TCE 011757334-01



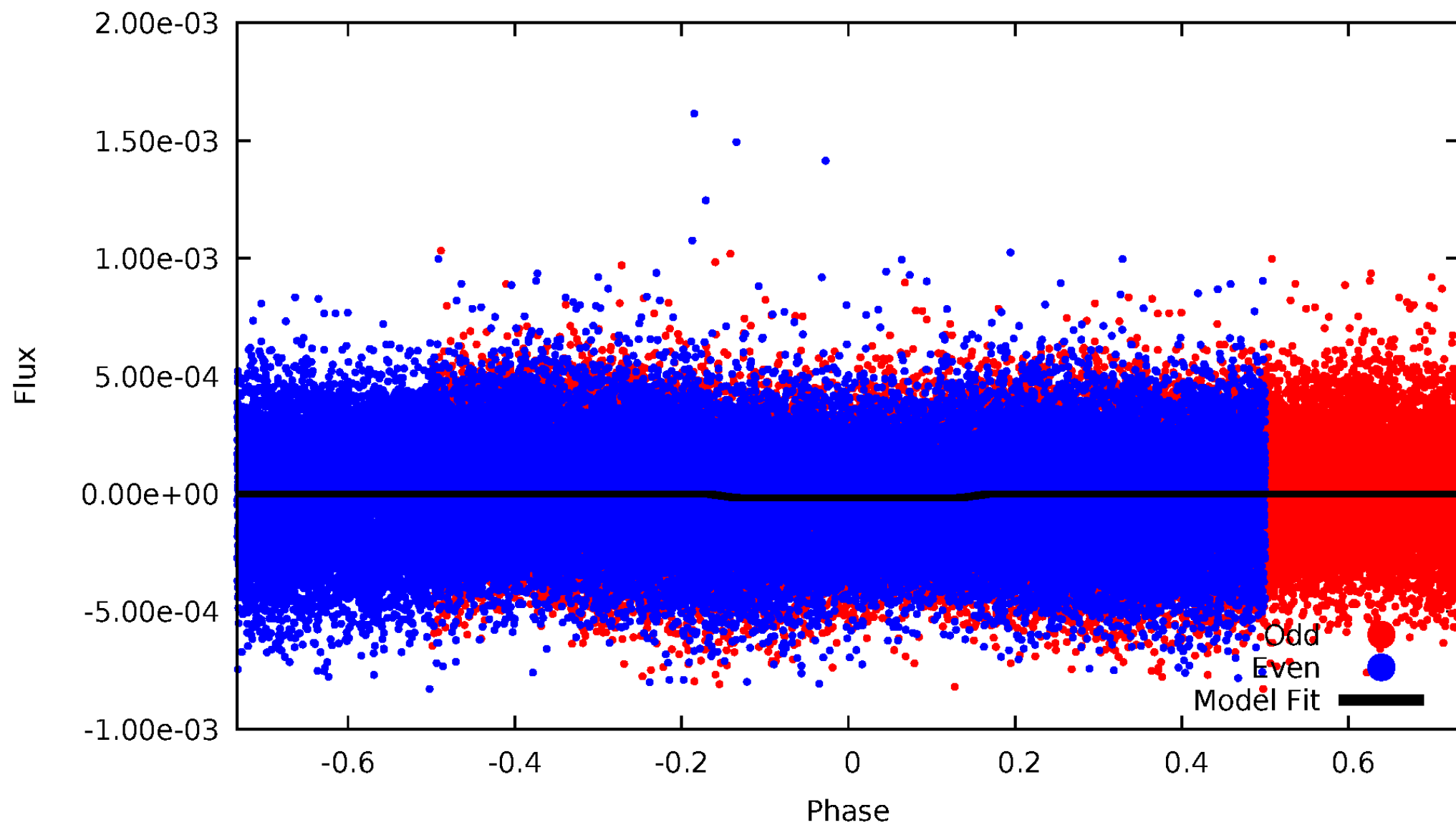
DV Odd/Even

TCE 011757334-01



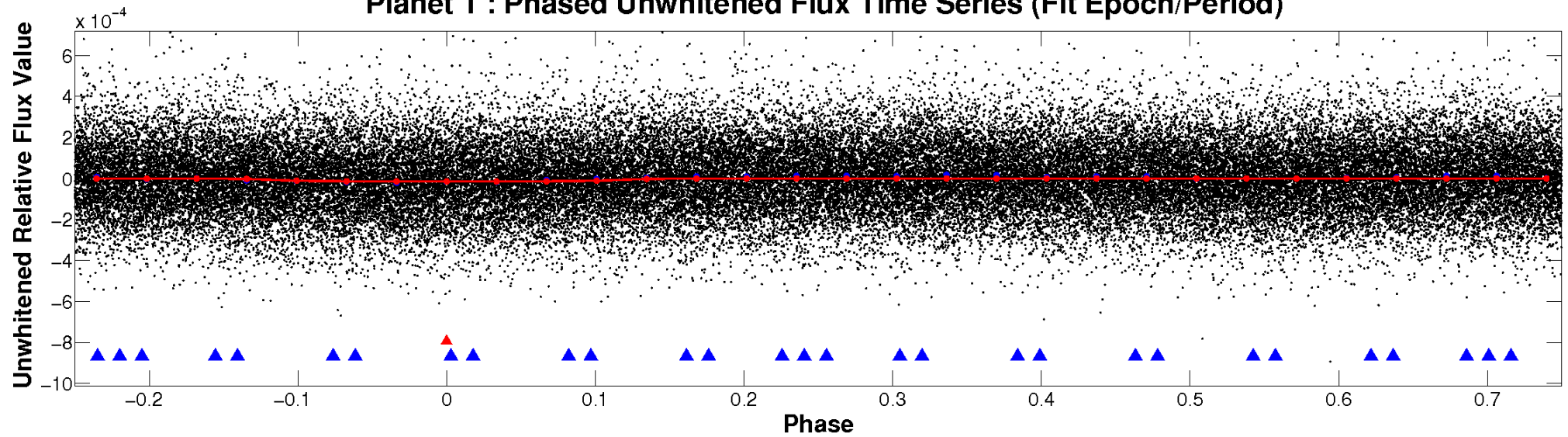
ALT Odd/Even

TCE 011757334-01

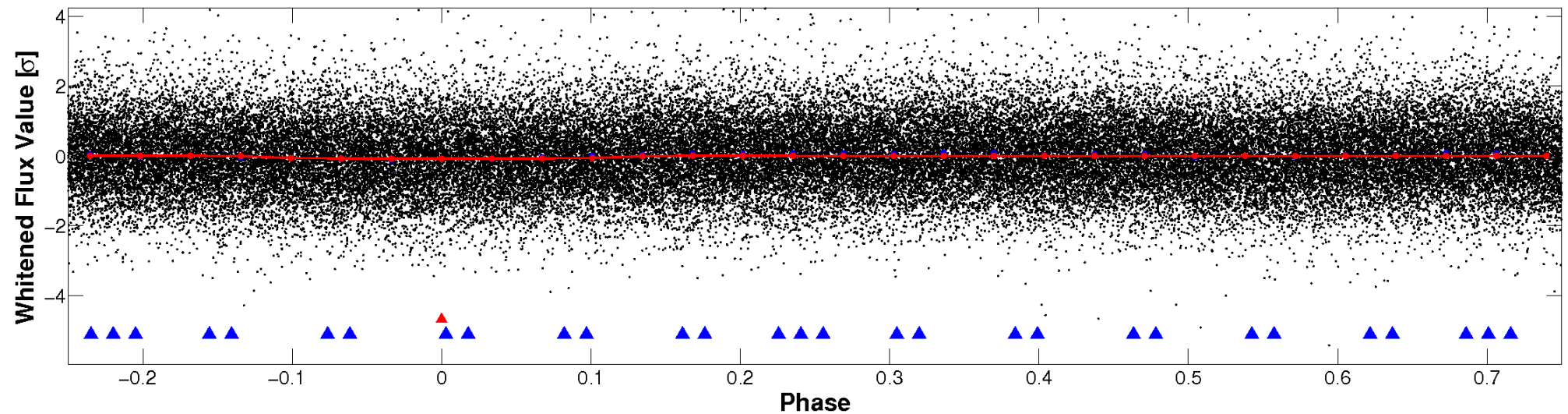


Non-Whitened Vs. Whitened Light Curve

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

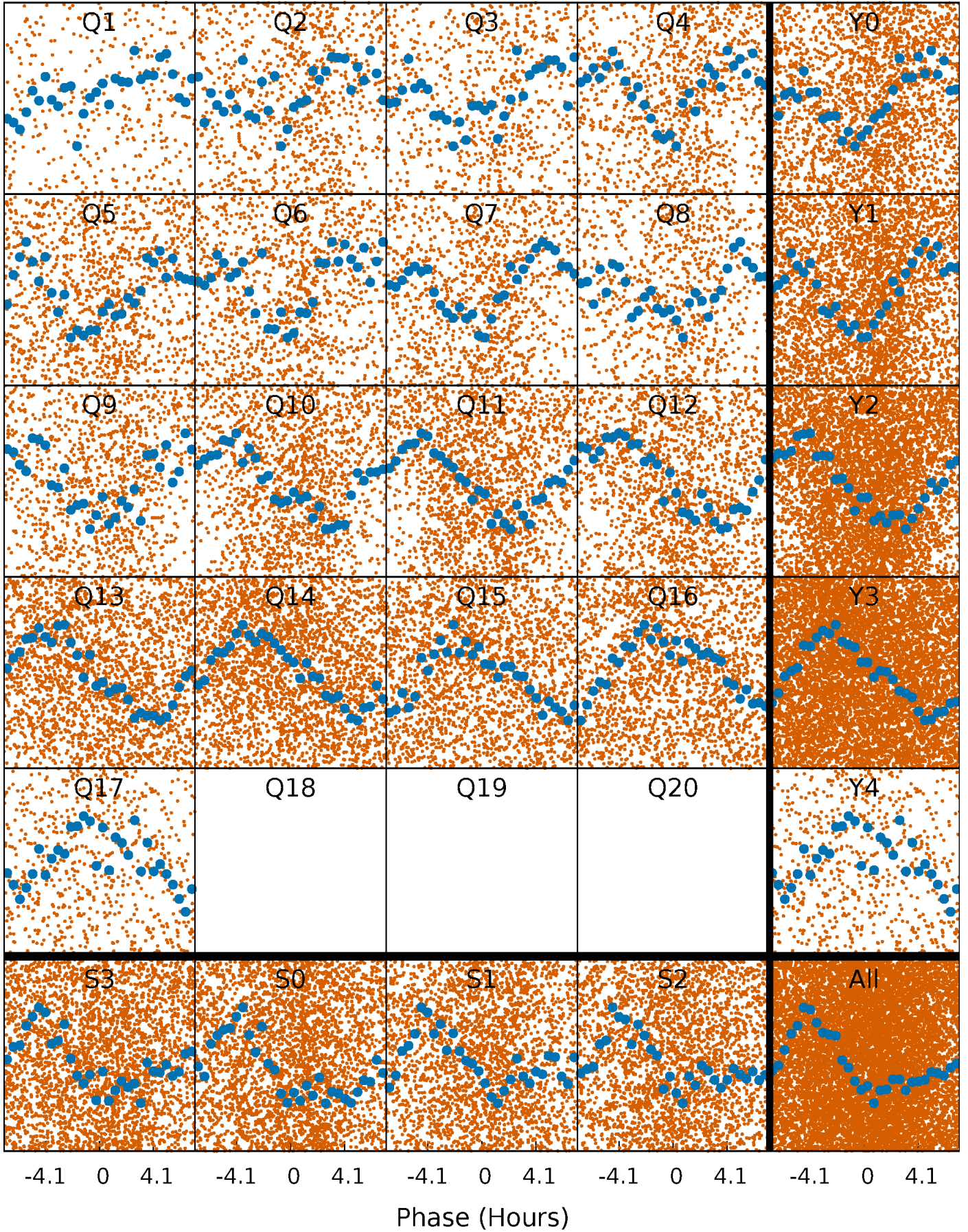


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



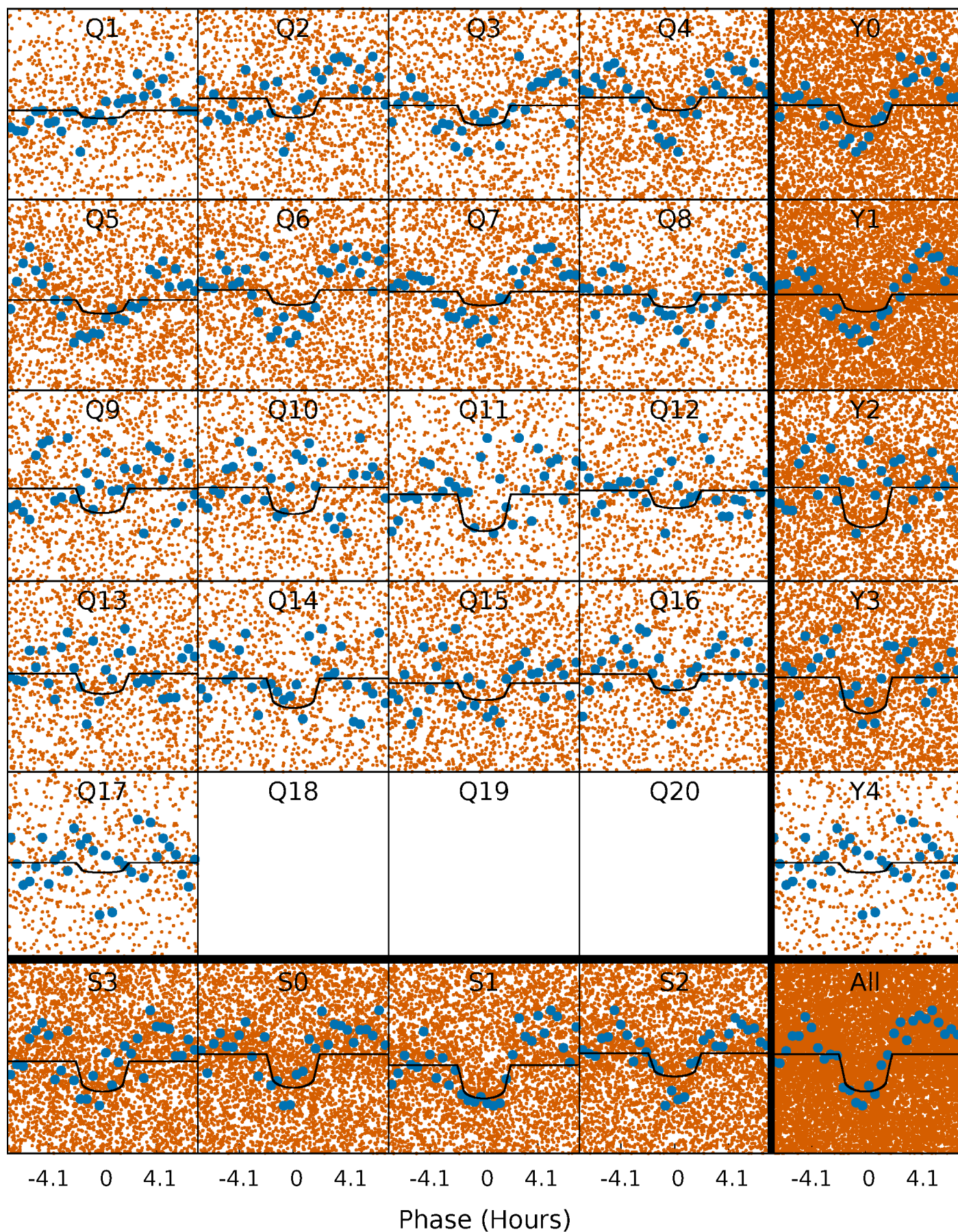
PDC Quarter-Phased Transit Curves

TCE 011757334-01 P= 0.607699 Days $T_0=131.698610$ (BKJD)



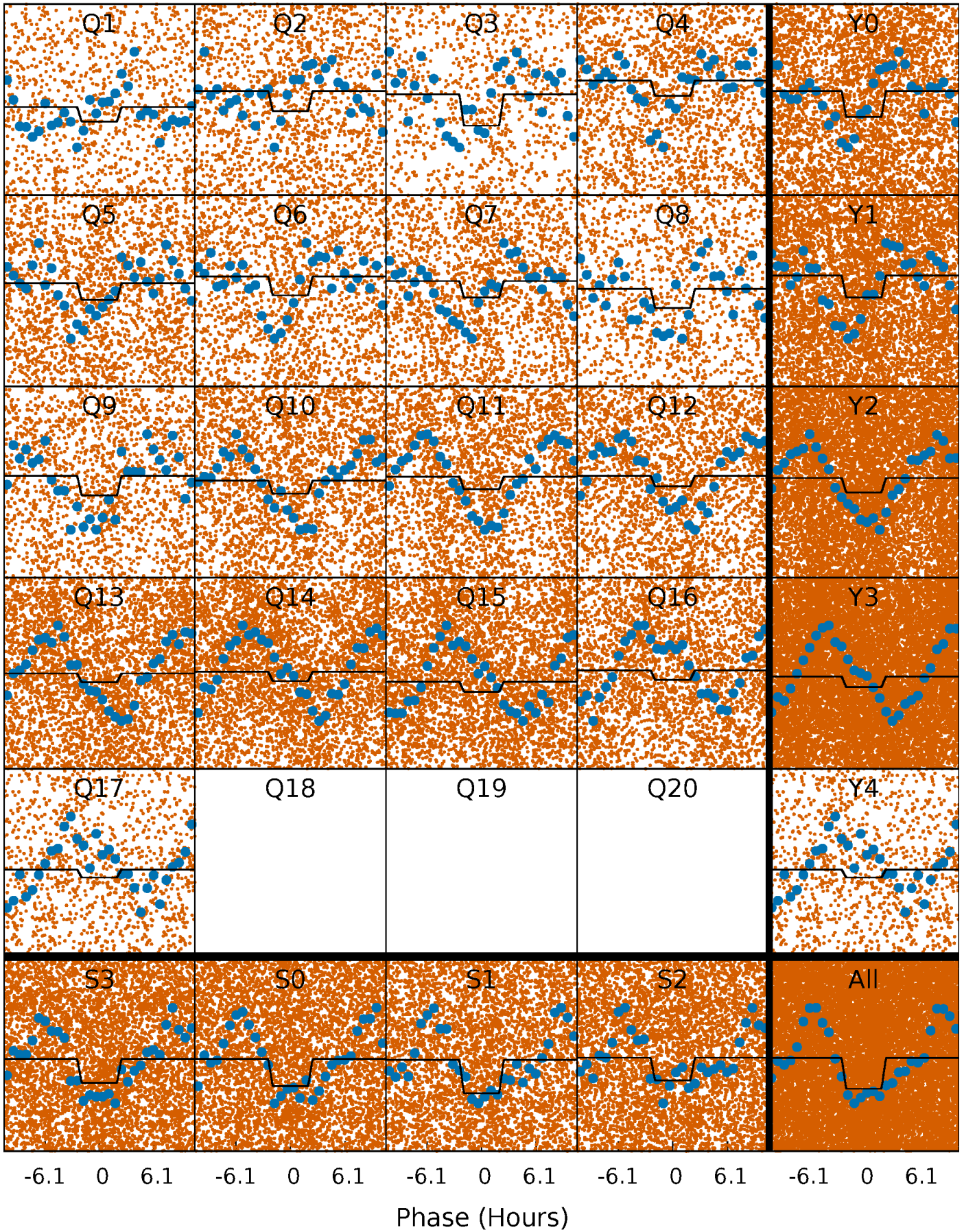
DV Quarter-Phased Transit Curves

TCE 011757334-01 P= 0.607699 Days $T_0=131.698610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

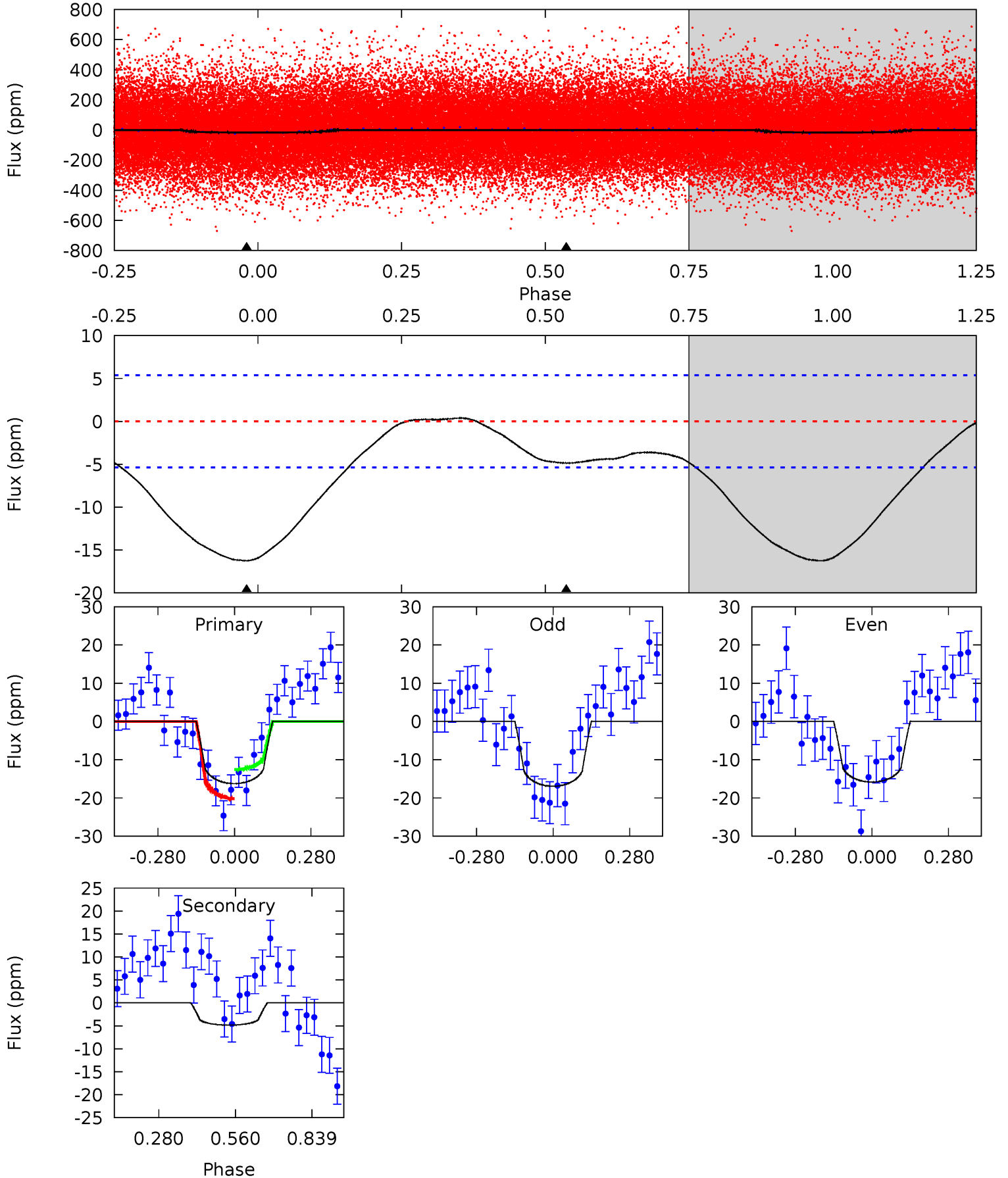
TCE 011757334-01 P= 0.607710 Days $T_0=131.746310$ (BKJD)



DV Model-Shift Uniqueness Test

011757334-01, P = 0.607699 Days, E = 131.090911 Days

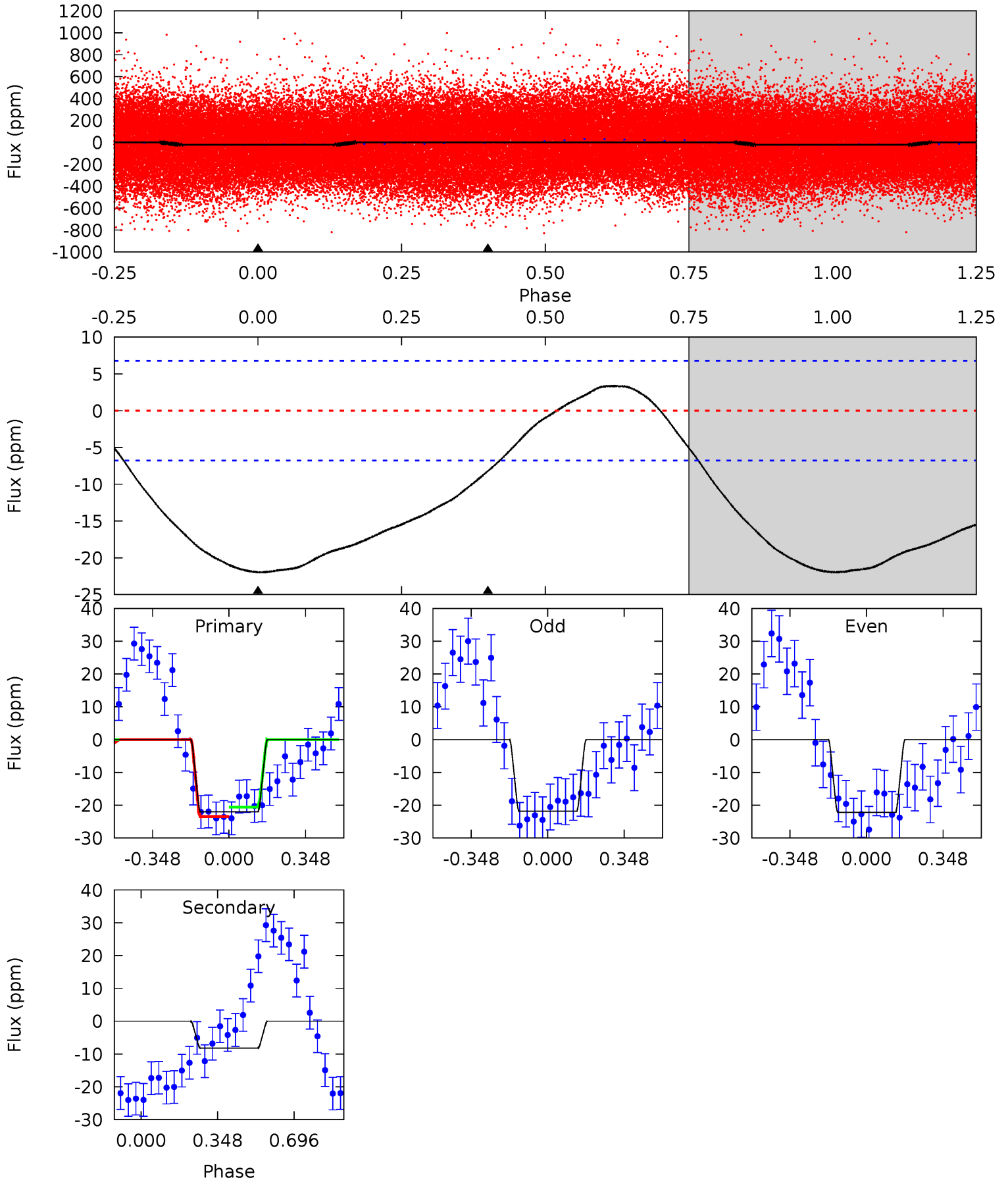
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.1 | 3.92 | 0 | 0 | 4.34 | 1.08 | 0.61 | 13.1 | 13.1 | 3.92 | 3.92 | 0.45 | 1.00 | 0.02 | 3.12 |



Alt Model-Shift Uniqueness Test

011757334-01, P = 0.607710 Days, E = 131.138600 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.9 | 5.20 | 0 | 0 | 4.30 | 0.94 | 1.59 | 13.9 | 13.9 | 5.20 | 5.20 | 0.12 | 2.25 | 0.13 | 0.89 |



Stellar Parameters For KIC 011757334

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 7318^{+230}_{-307} | $4.084^{+0.175}_{-0.175}$ | $-0.220^{+0.250}_{-0.350}$ | $1.829^{+0.539}_{-0.441}$ | $1.478^{+0.209}_{-0.255}$ | $0.340^{+0.333}_{-0.171}$ |
| | +3%/-4% | +4%/-4% | +114%/-159% | +29%/-24% | +14%/-17% | +98%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 011757334-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -5 ± 1 | $0.74^{+0.32}_{-0.27}$ | 4827^{+377}_{-352} | 5227^{+1553}_{-1071} | $1.241^{+1.878}_{-0.667}$ |
| Alt. | -8 ± 2 | $0.81^{+0.30}_{-0.26}$ | 4803^{+364}_{-331} | 5753^{+1529}_{-897} | $1.729^{+2.279}_{-0.785}$ |

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

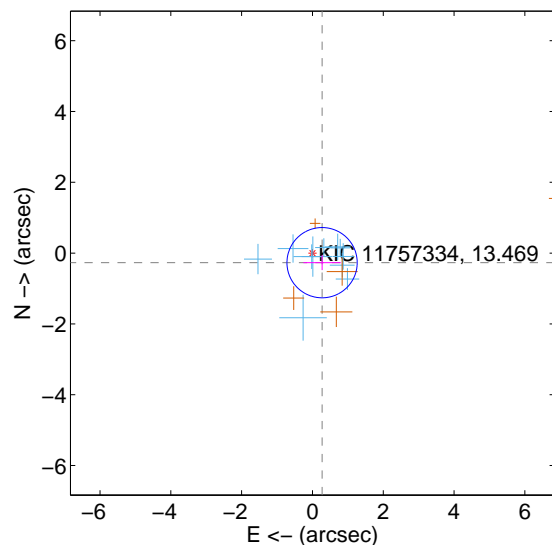
Supplemental centroid analysis for 011757334-01. Kepler magnitude: 13.47. Transit SNR 8.51

There are 11 quarters with good PRF difference image offsets

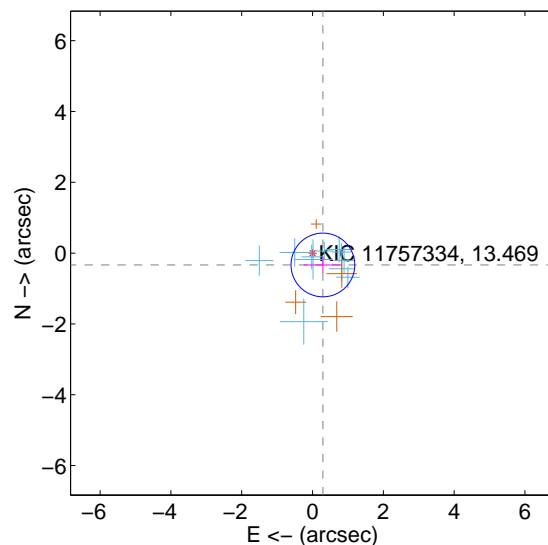
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.384 ± 0.331 | 1.16 | -0.272 ± 0.528 | -0.271 ± 0.210 |
| PRF-fit source offset from KIC position | 0.445 ± 0.300 | 1.48 | -0.293 ± 0.541 | -0.335 ± 0.224 |
| photometric centroid source offset | 1.25 ± 1.48 | 0.85 | -1.20 ± 1.47 | 0.35 ± 1.58 |

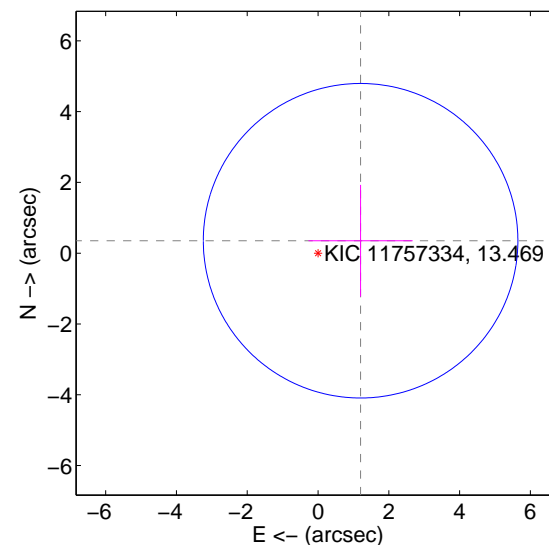
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

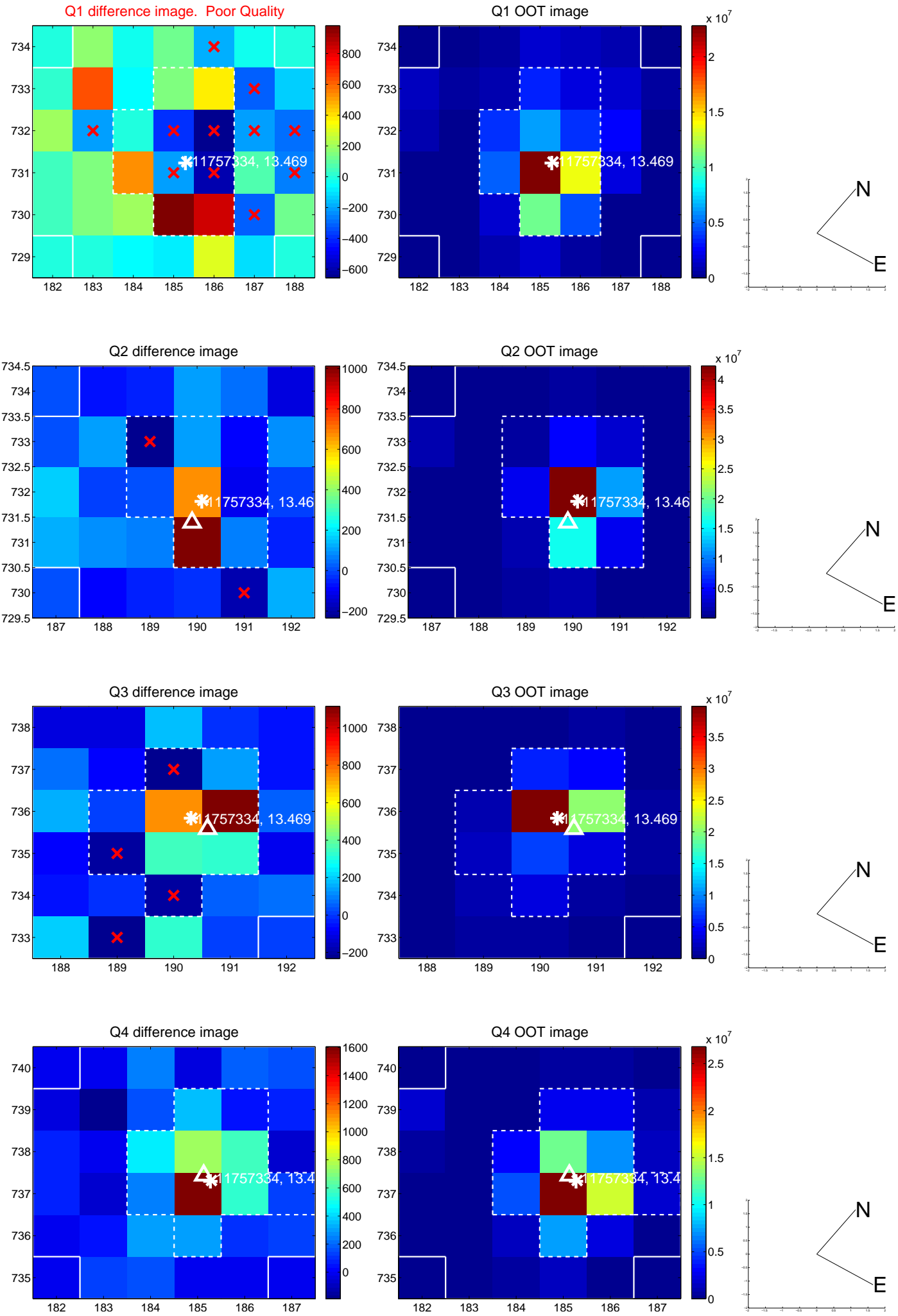


offset from photometric centroids

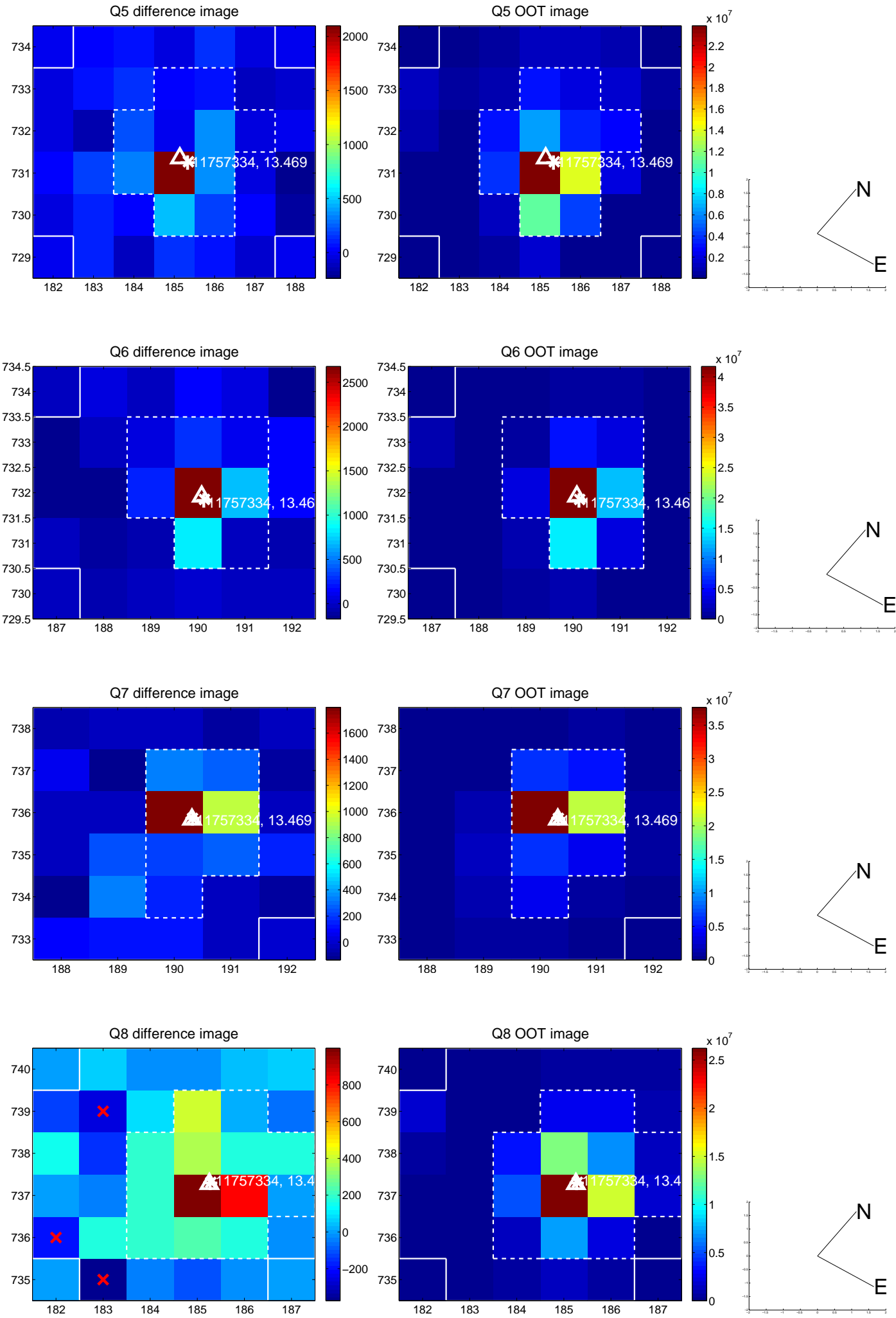


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

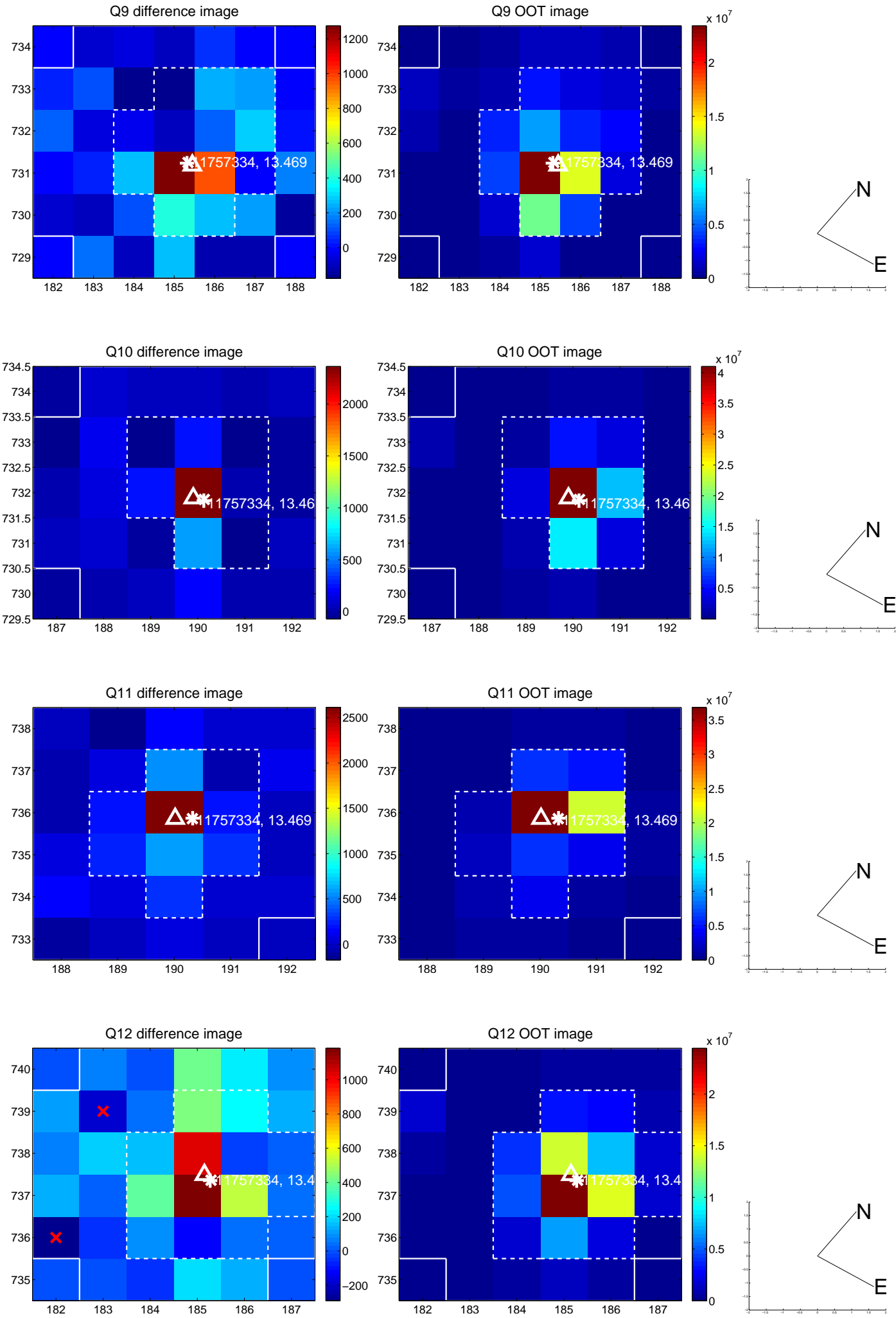
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



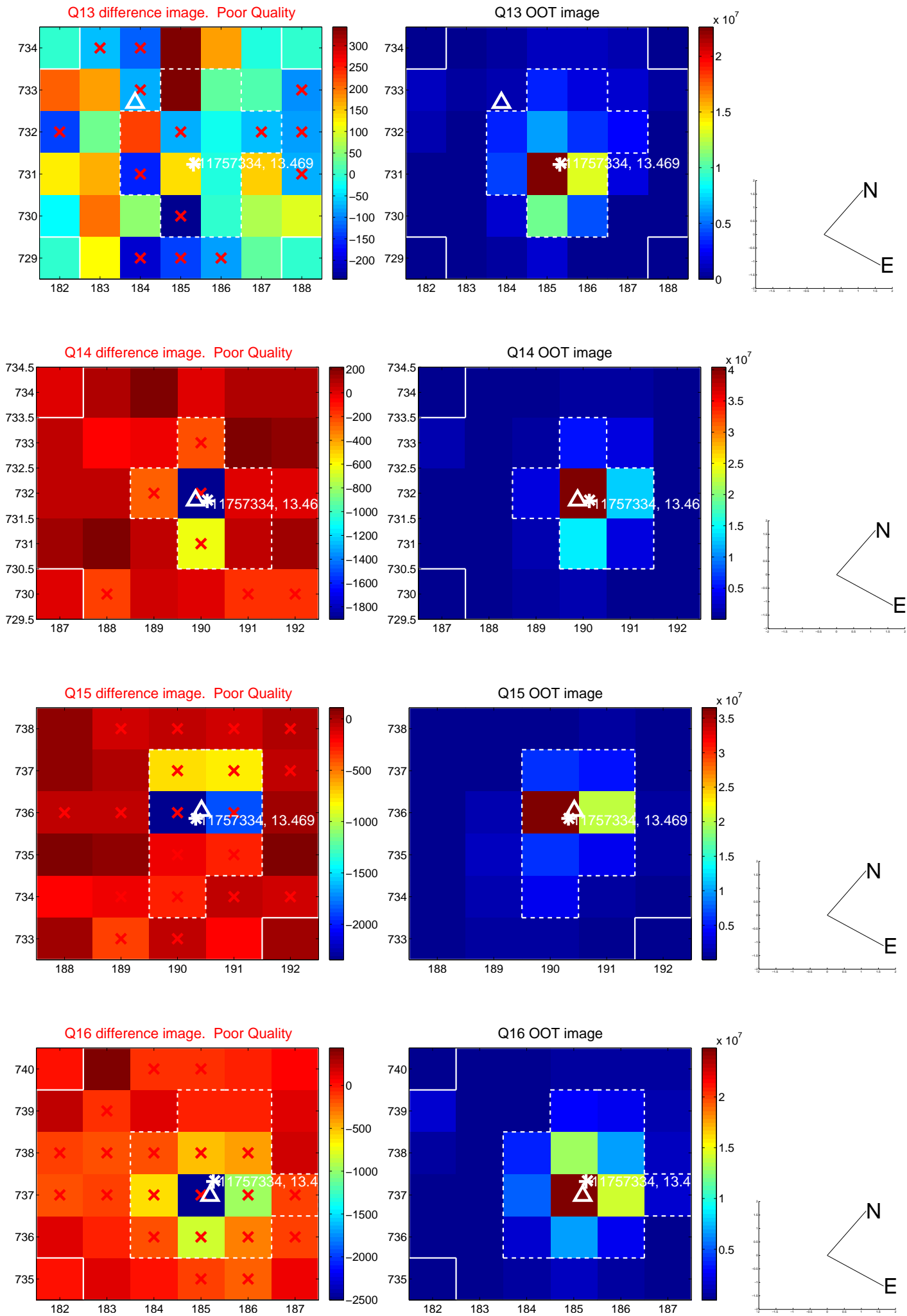
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



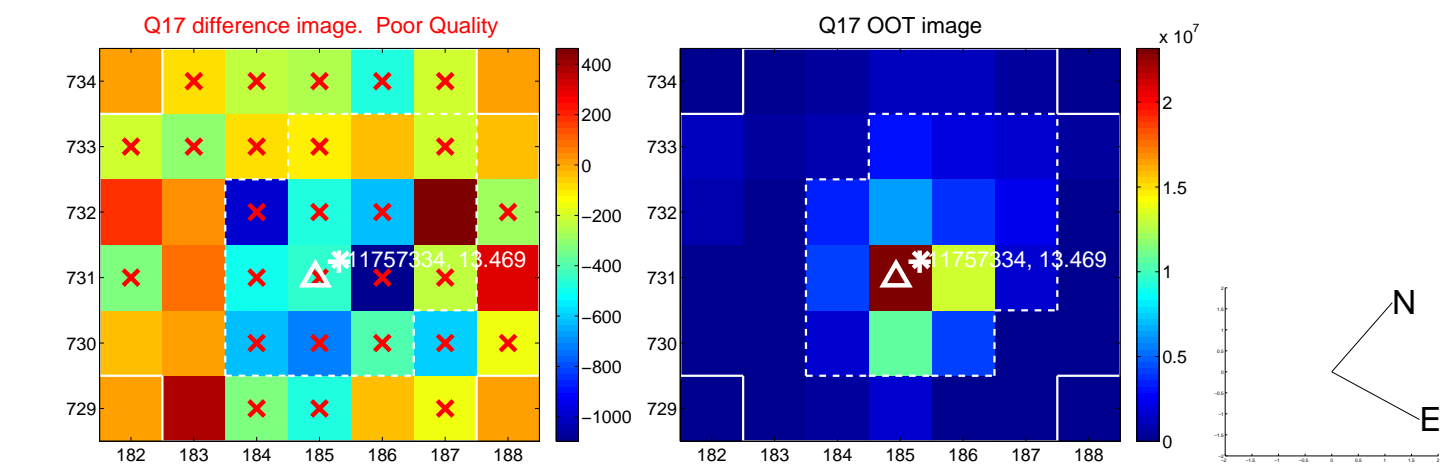
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



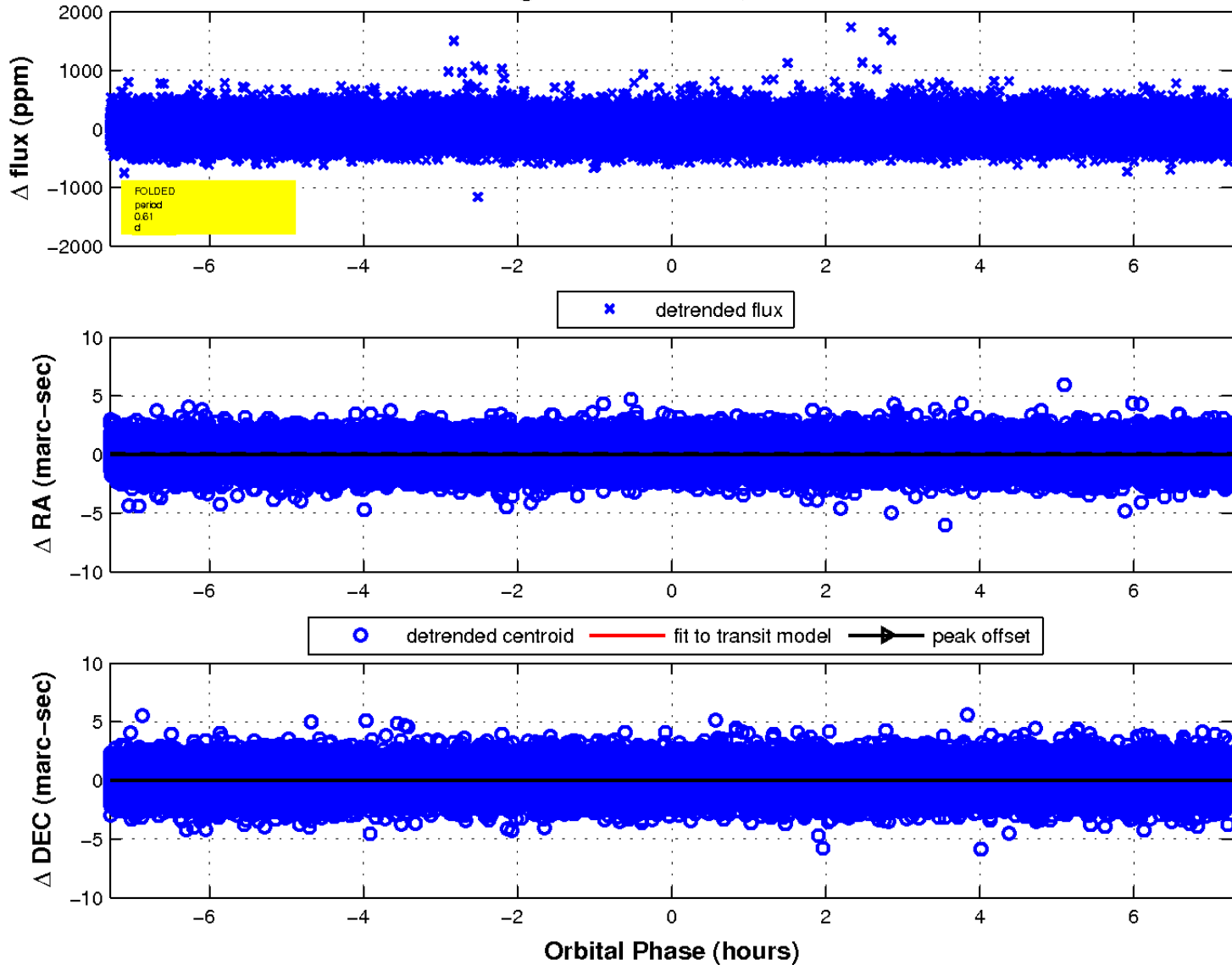
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

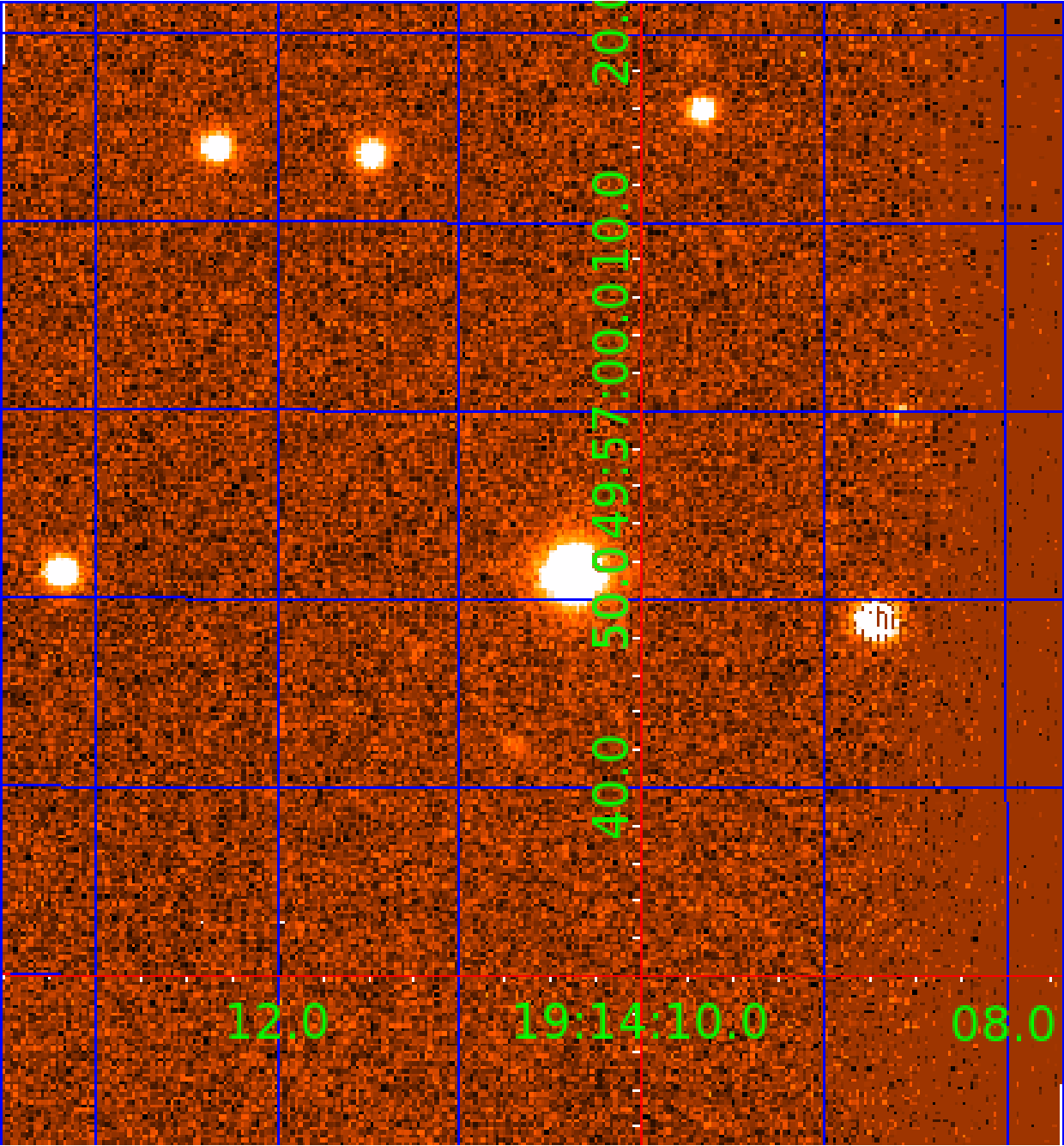


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011757334

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 011757334-01 | OBS | No | 0.607699 | 131.698610 | 14.6 | 3.630 | 8.2 | 8.5 | 1.83 | 7318 | 0.75 | 33549.69 |
| 011757334-02 | OBS | No | 51.374631 | 133.330909 | 213.5 | 2.669 | 8.2 | 7.7 | 1.83 | 7318 | 3.16 | 90.42 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011757334-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 011757334-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

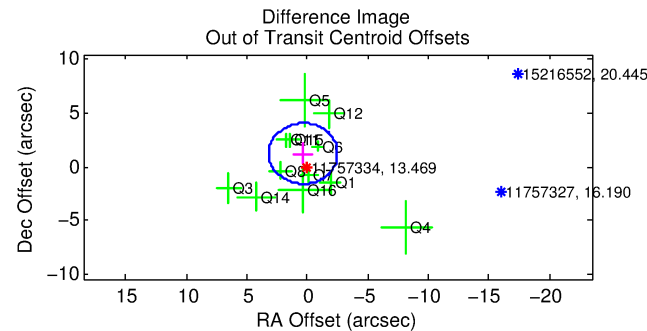
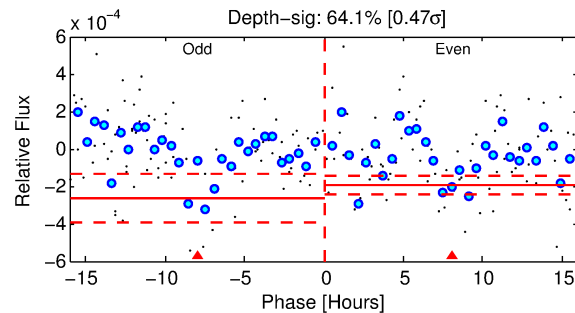
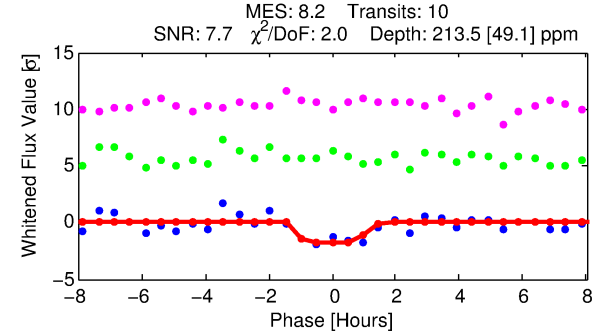
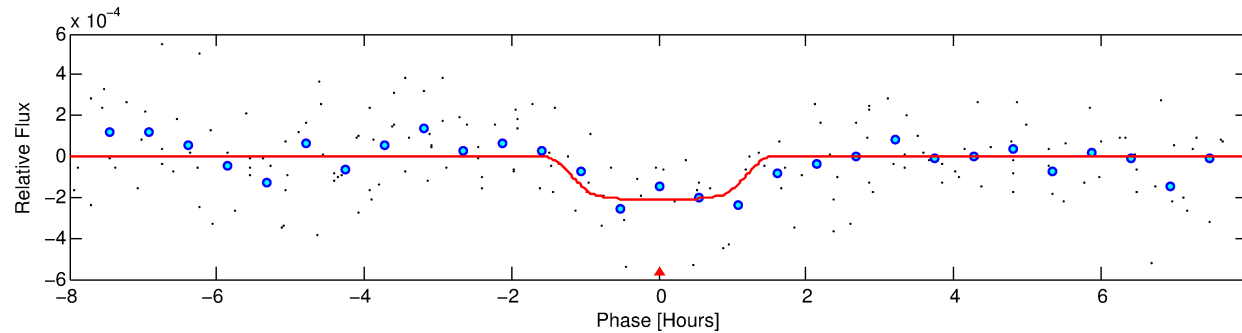
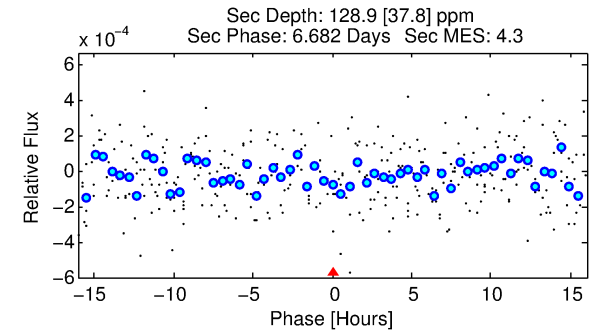
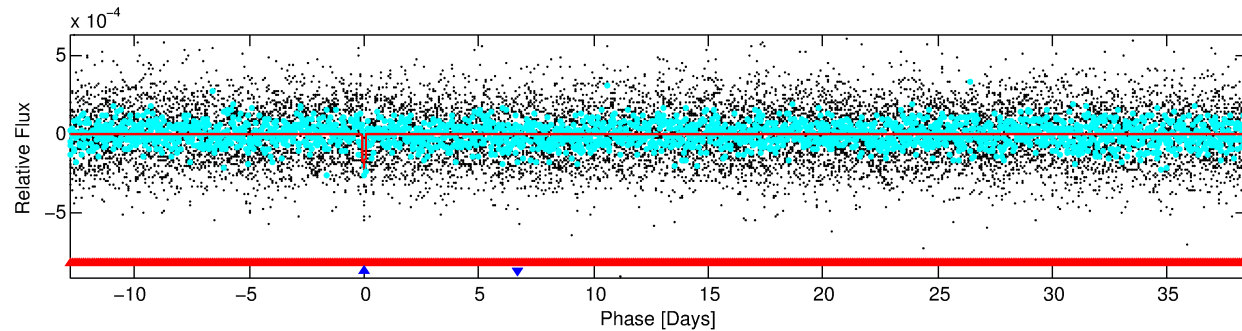
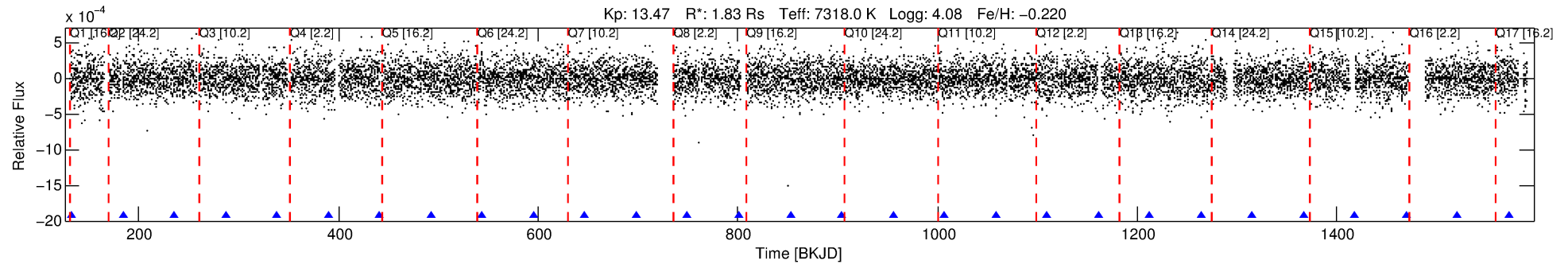
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011757334-02

No Significant Match Found

DV One-Page Summary

KIC: 11757334 Candidate: 2 of 2 Period: 51.375 d



DV Fit Results:

Period = 51.37463 [0.00119] d
Epoch = 133.3309 [0.0173] BKJD
Rp/R* = 0.0158 [0.0091]
a/R* = 62.95 [217.03]
b = 0.92 [0.57]
Seff = 90.42 [33.70]
Teq = 786 [73] K
Rp = 3.16 [2.04] Re
a = 0.3083 [0.0734] AU
Ag = 675.96 [831.60] [0.81 σ]
Teffp = 6199 [1854] K [2.92 σ]

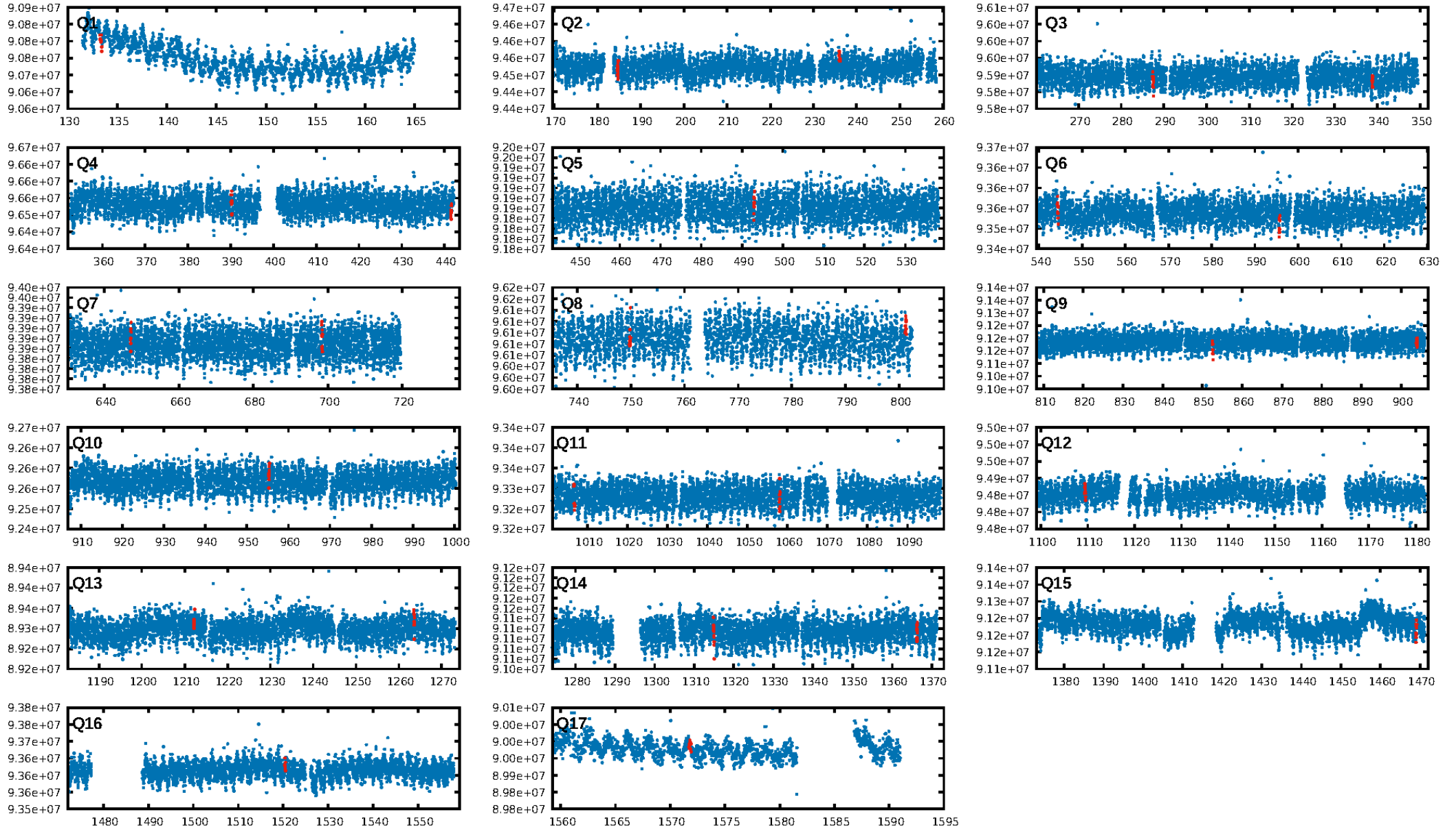
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [270.40 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 87.1%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.18e-09
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.2662
Centroid-sig: 49.7%
Centroid-so: 1.015 arcsec [0.93 σ]
OotOffset-rm: 1.273 arcsec [1.34 σ]
OotOffset-st: 2/4/4/2 [12]
KicOffset-rm: 1.221 arcsec [1.09 σ]
KicOffset-st: 2/4/4/2 [12]
DiffImageQuality-fgm: 0.17 [2/12]
DiffImageOverlap-fno: 0.00 [0/17]

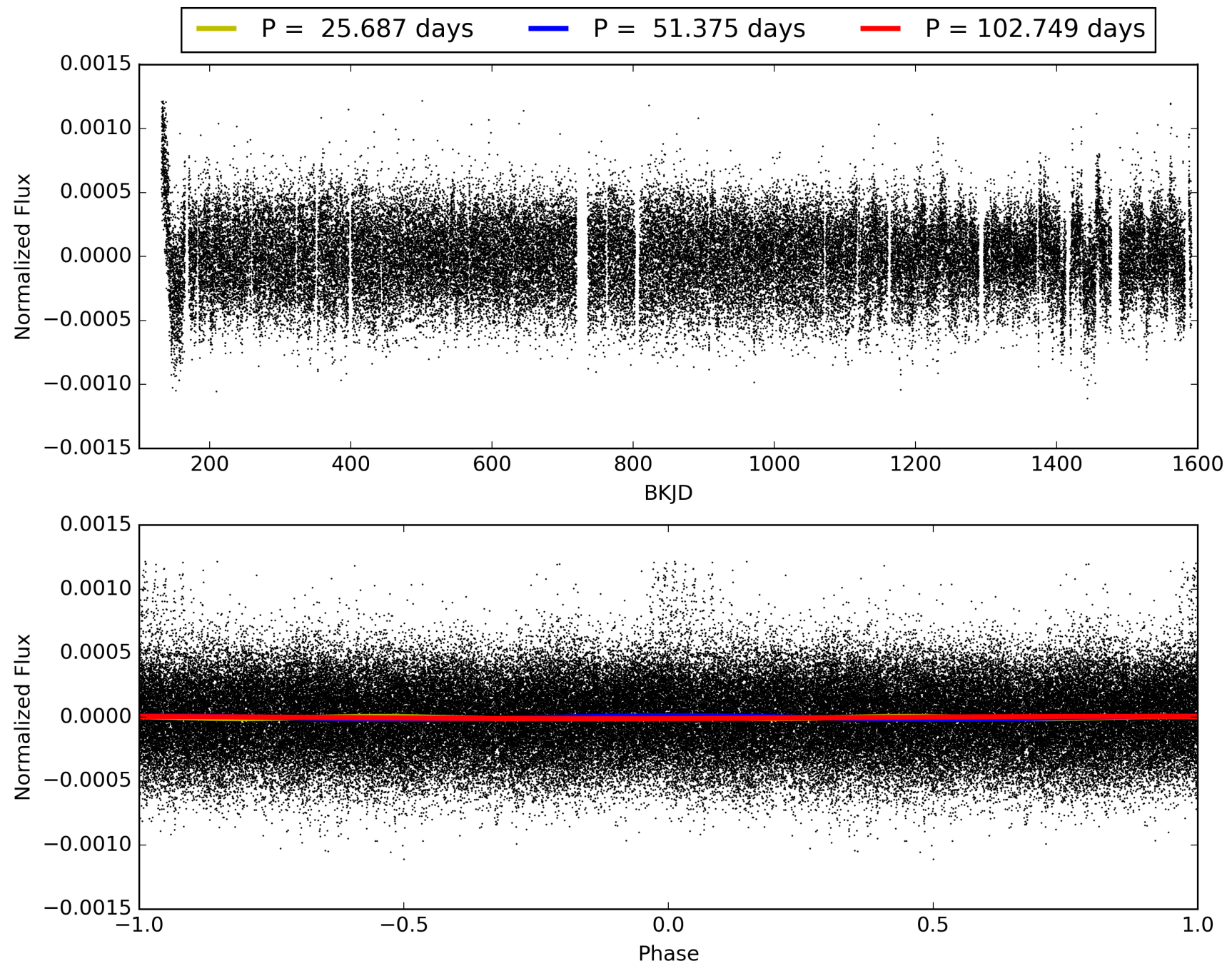
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:05:56 Z

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

TCE 011757334-02, PDC Light Curves

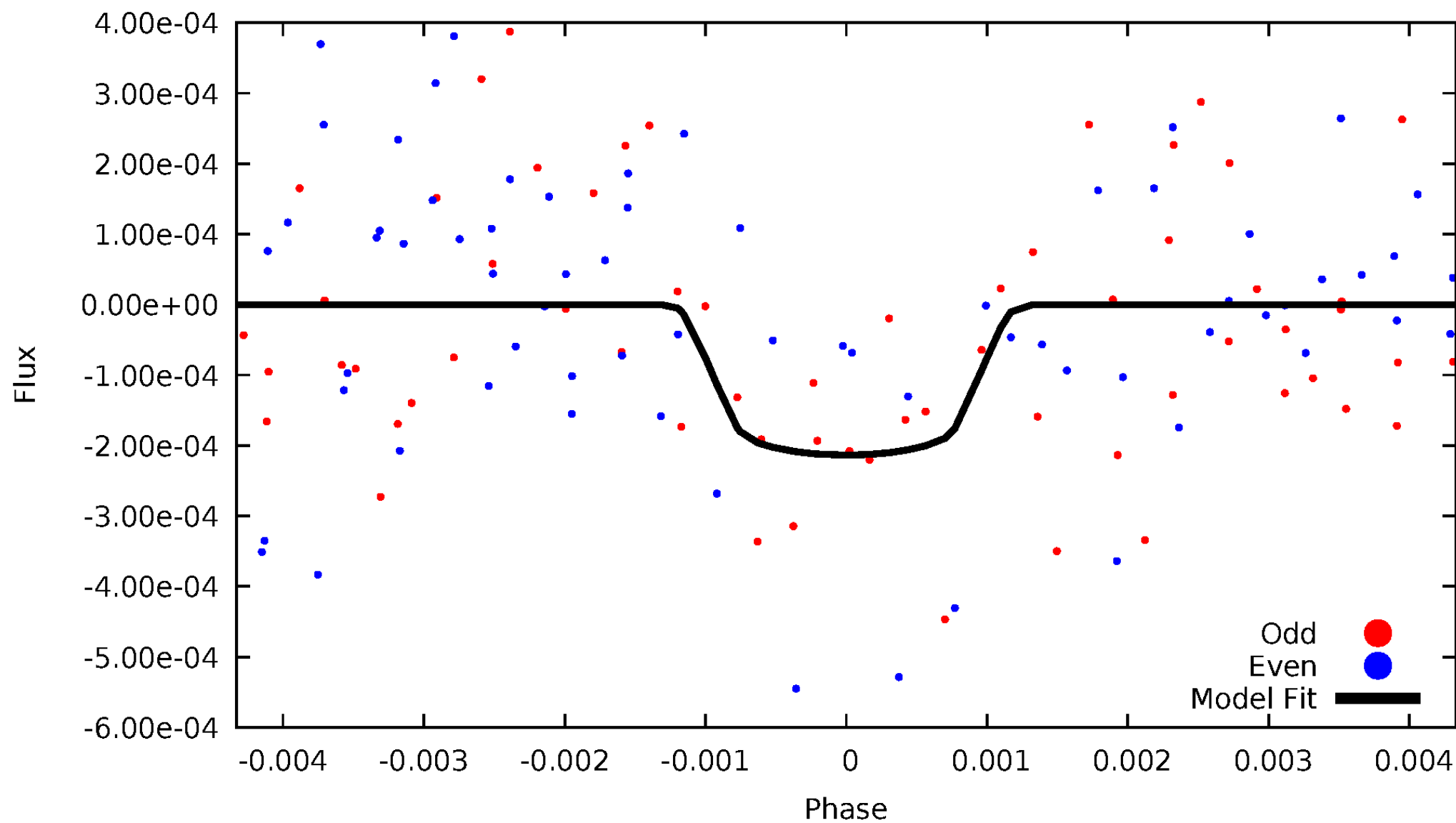


TCE 011757334-02



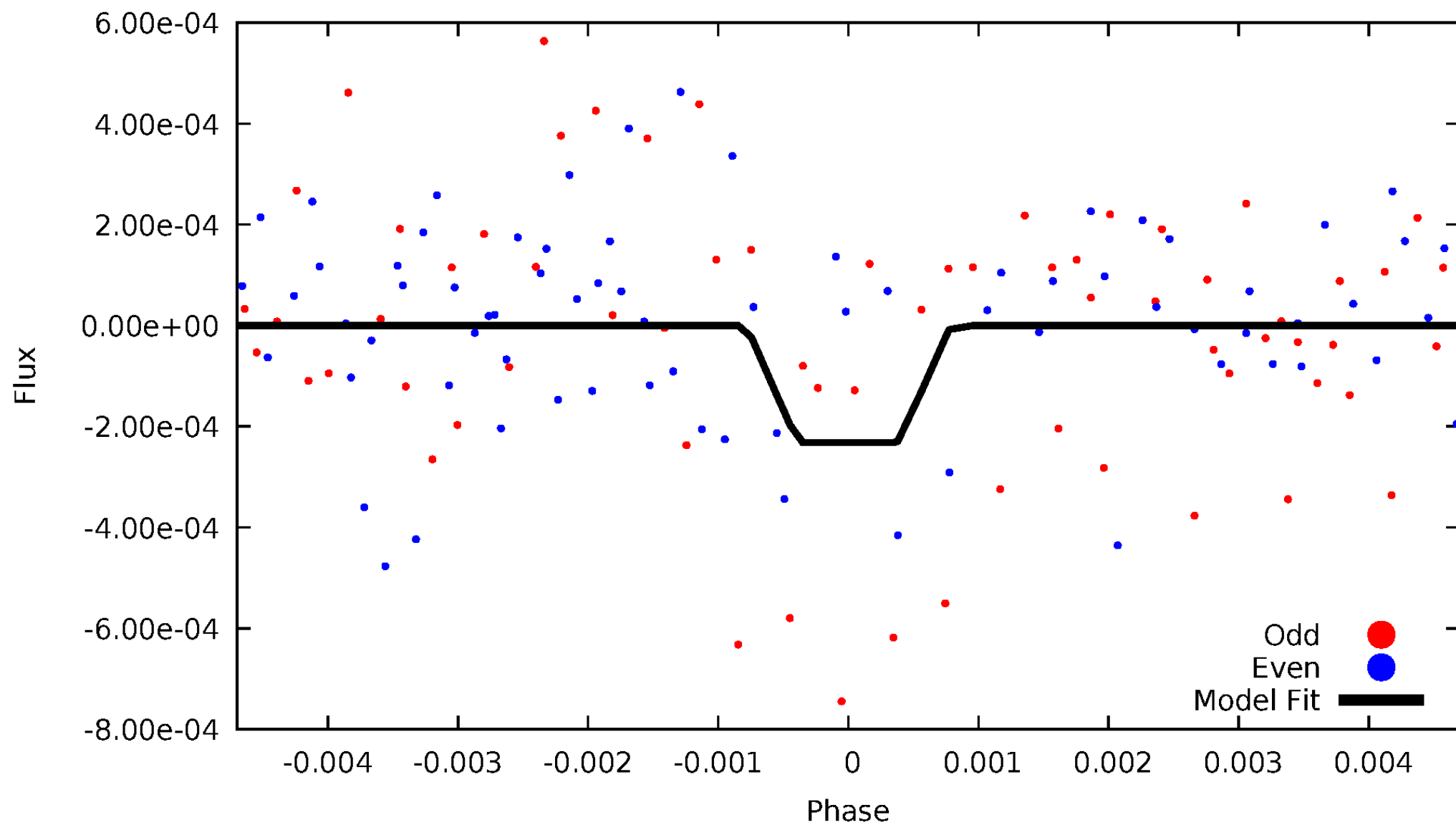
DV Odd/Even

TCE 011757334-02



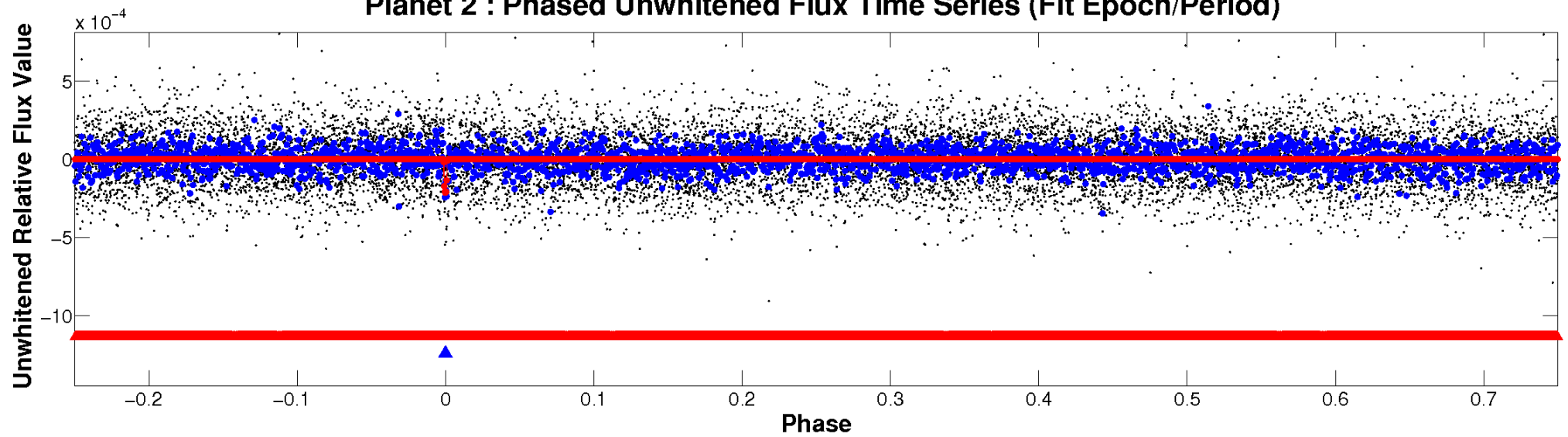
ALT Odd/Even

TCE 011757334-02

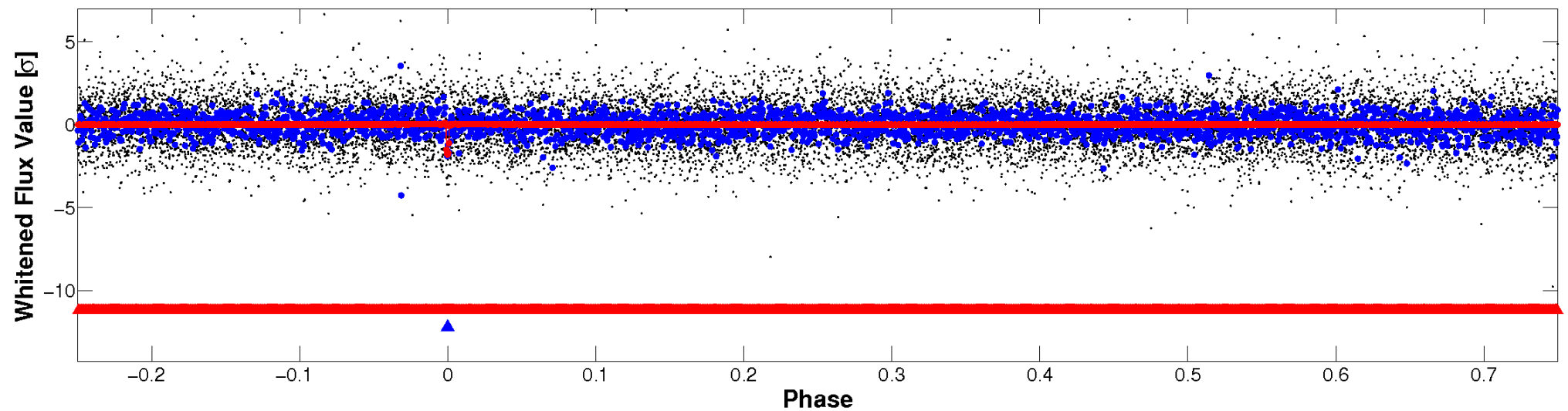


Non-Whitened Vs. Whitened Light Curve

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

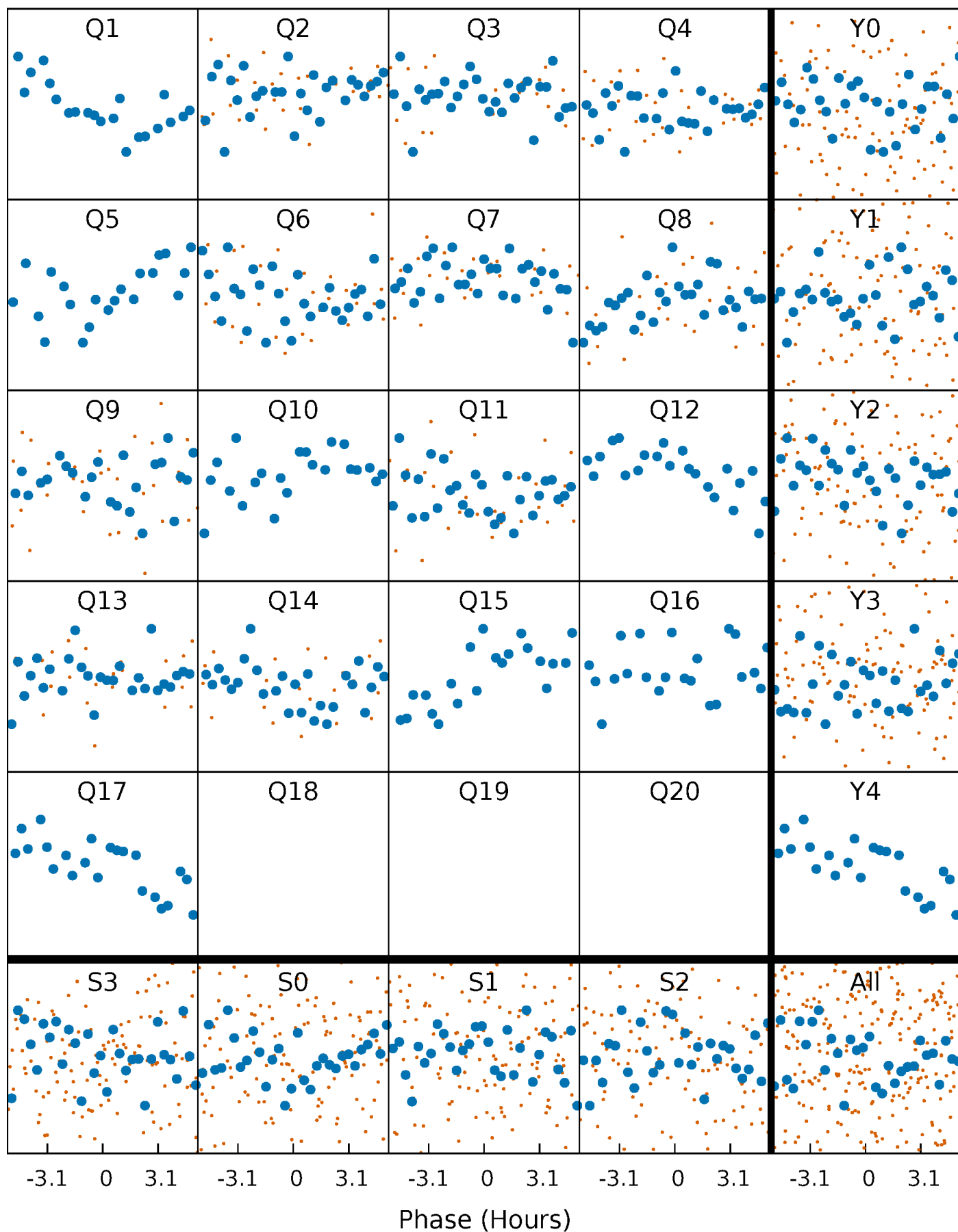


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



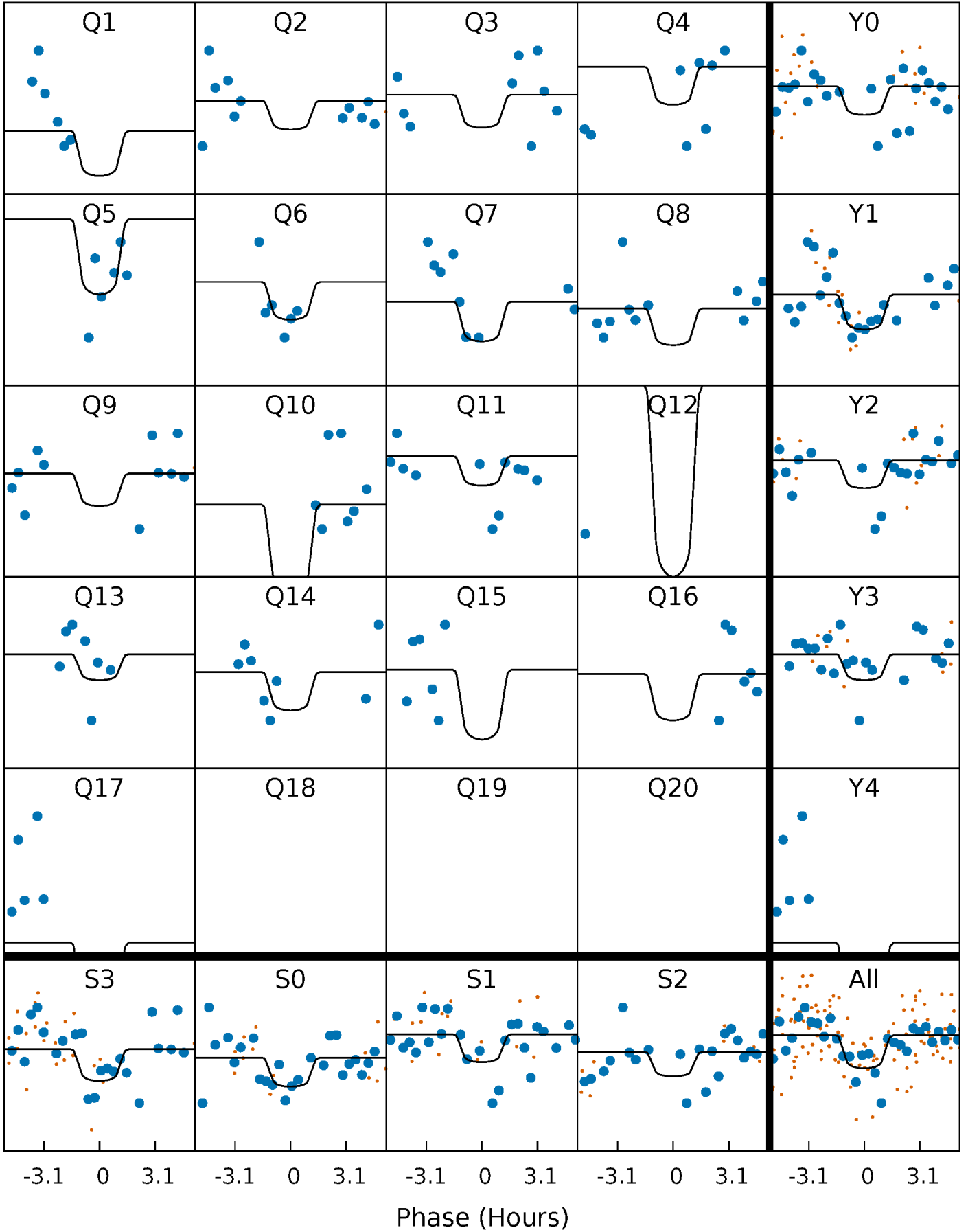
PDC Quarter-Phased Transit Curves

TCE 011757334-02 P= 51.374631 Days $T_0=133.330909$ (BKJD)



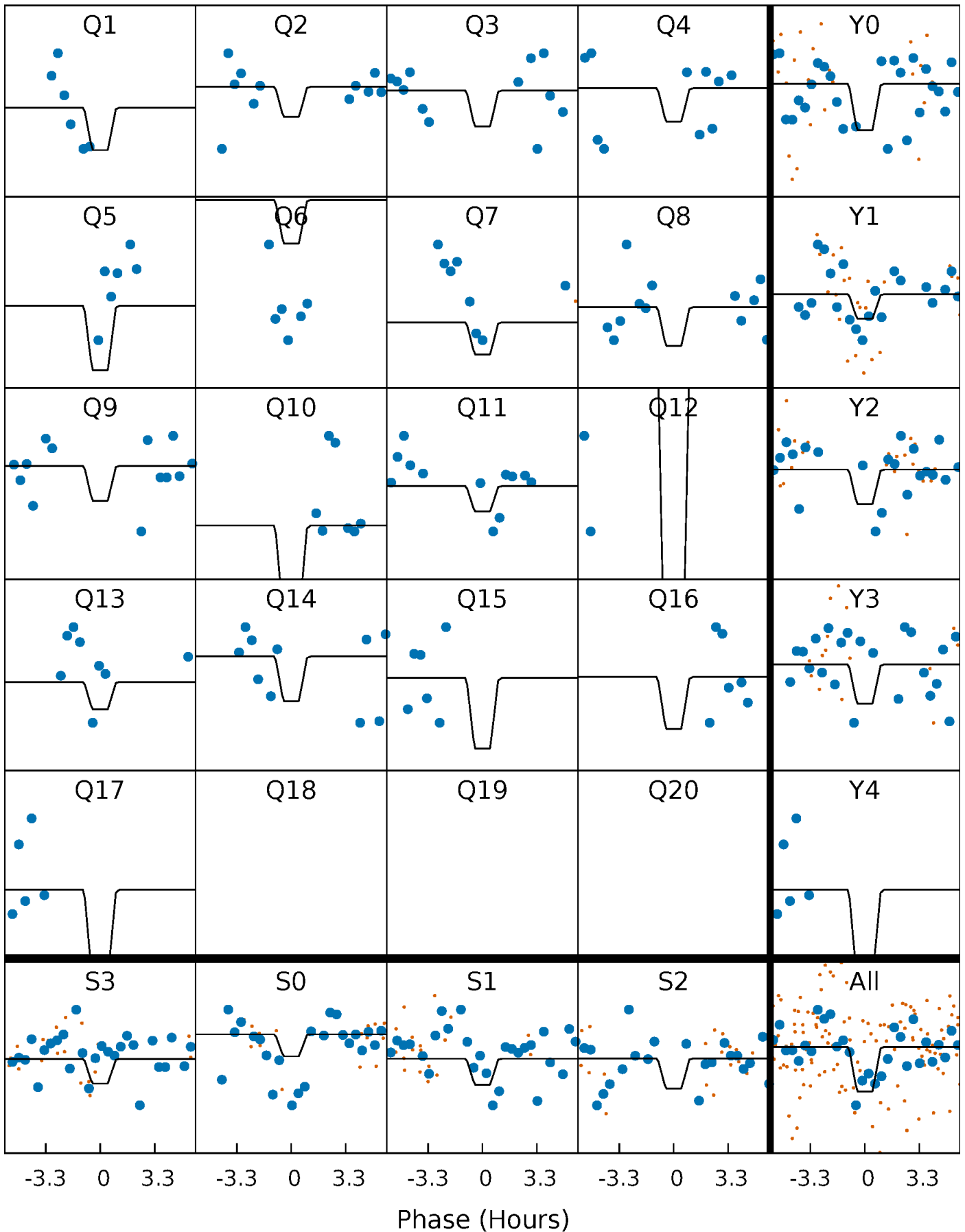
DV Quarter-Phased Transit Curves

TCE 011757334-02 P= 51.374631 Days $T_0=133.330909$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

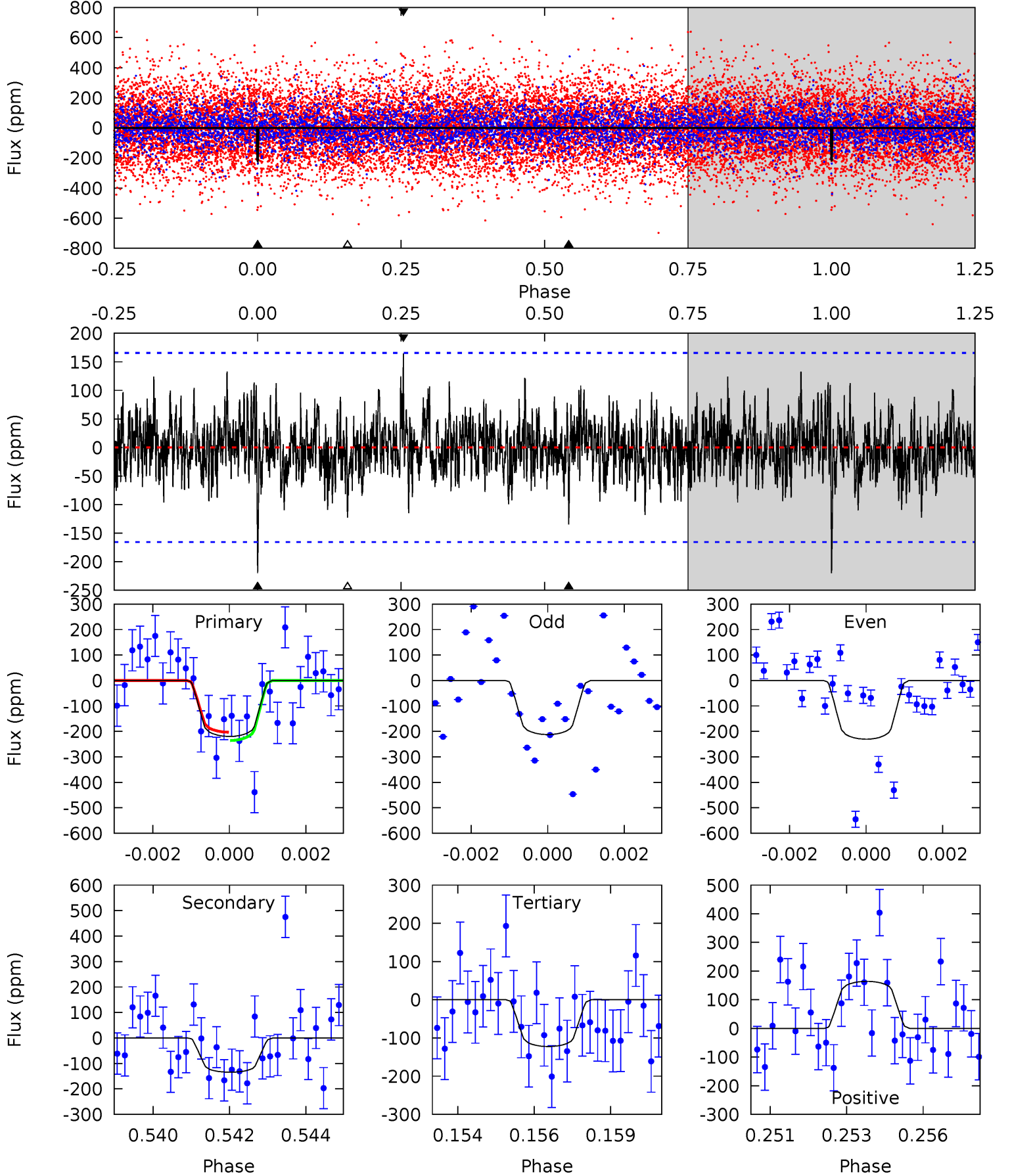
TCE 011757334-02 P= 51.376455 Days $T_0=133.297831$ (BKJD)



DV Model-Shift Uniqueness Test

011757334-02, P = 51.374631 Days, E = 81.956278 Days

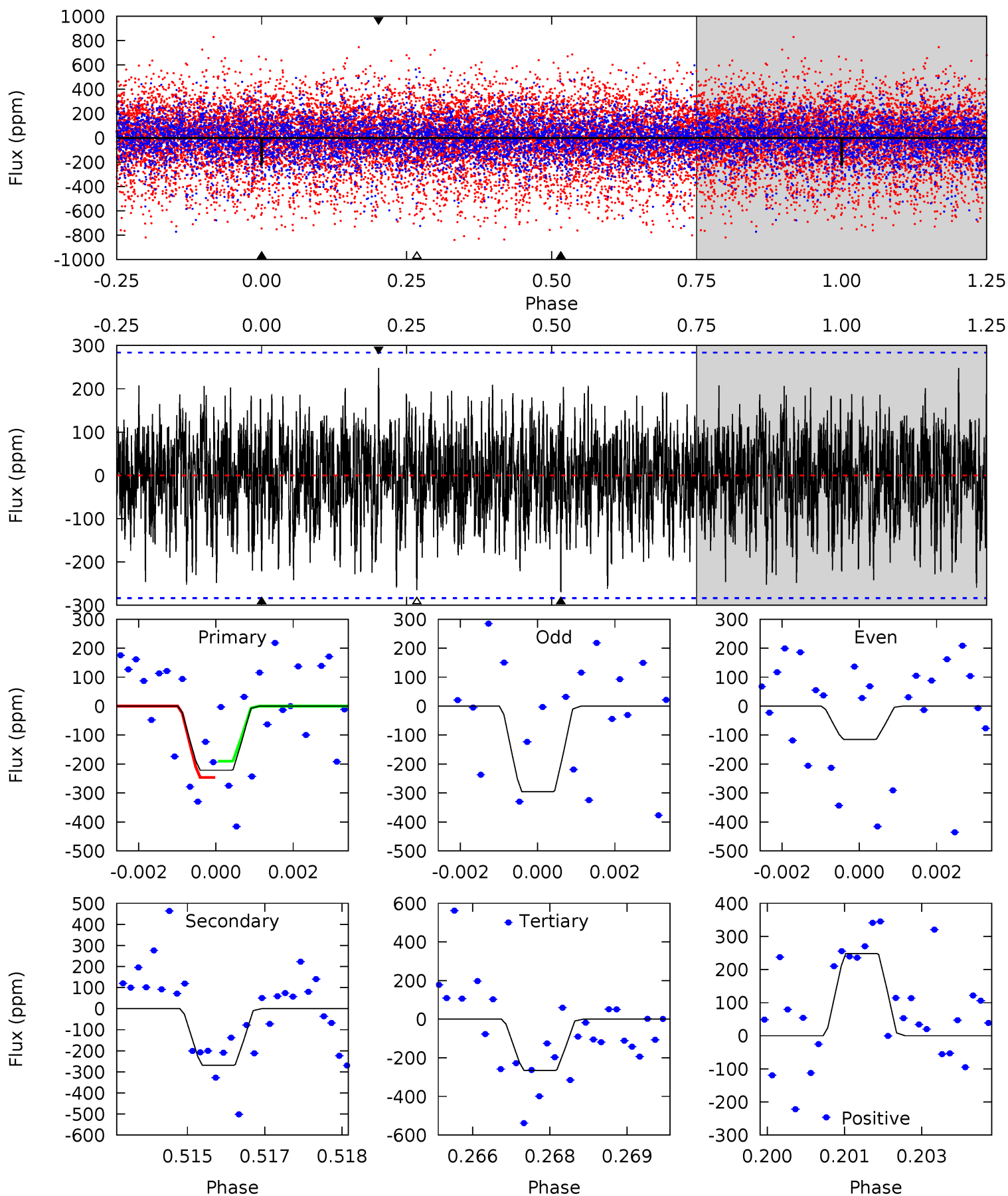
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 7.03 | 4.30 | 3.92 | 5.25 | 5.30 | 3.04 | 1.24 | 3.11 | 1.77 | 0.38 | -0.95 | 0.29 | 1.05 | 0.43 | 0.52 |



Alt Model-Shift Uniqueness Test

011757334-02, P = 51.376455 Days, E = 81.921376 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.18 | 5.07 | 5.00 | 4.69 | 5.36 | 3.14 | 1.53 | -0.81 | -0.50 | 0.08 | 0.39 | 1.70 | 2.09 | 0.48 | 0.53 |



Stellar Parameters For KIC 011757334

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 7318^{+230}_{-307} | $4.084^{+0.175}_{-0.175}$ | $-0.220^{+0.250}_{-0.350}$ | $1.829^{+0.539}_{-0.441}$ | $1.478^{+0.209}_{-0.255}$ | $0.340^{+0.333}_{-0.171}$ |
| | +3%/-4% | +4%/-4% | +114%/-159% | +29%/-24% | +14%/-17% | +98%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 011757334-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|-----------------------|
| DV | -134 ± 31 | $3.23^{+1.96}_{-1.61}$ | 1097^{+86}_{-81} | 6132^{+3002}_{-1203} | 666^{+1916}_{-411} |
| Alt. | -269 ± 53 | $3.21^{+1.78}_{-1.69}$ | 1095^{+82}_{-77} | 7386^{+4708}_{-1562} | 1367^{+4474}_{-827} |

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

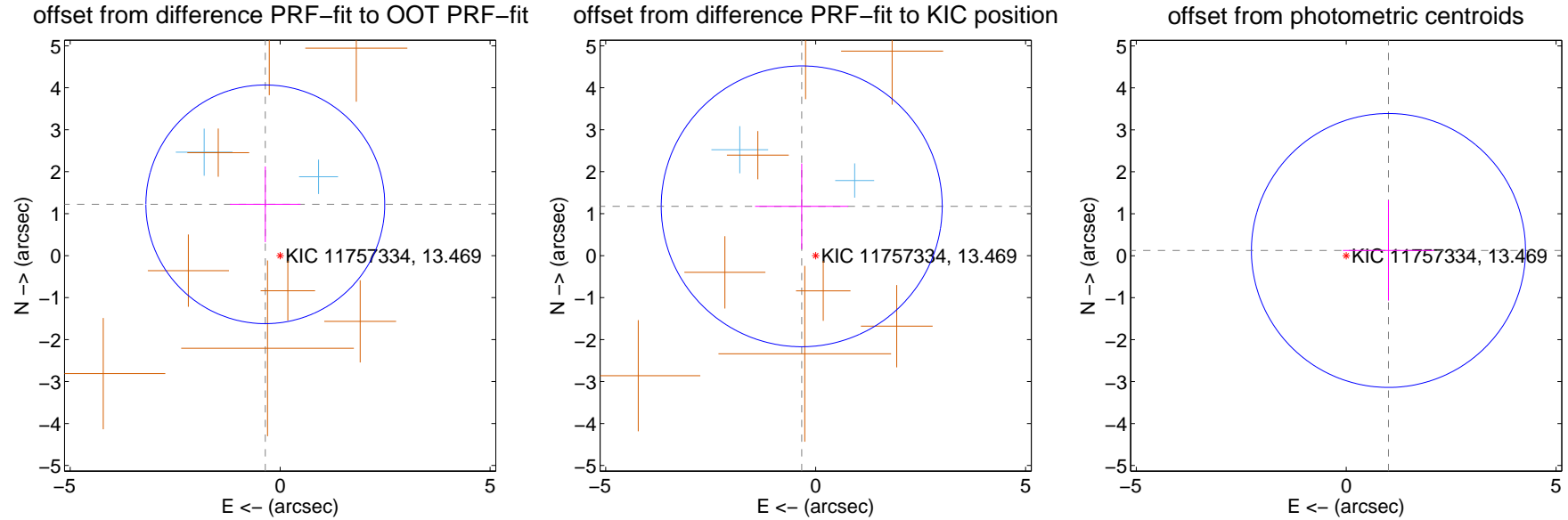
DV Centroid Data

Supplemental centroid analysis for 011757334-02. Kepler magnitude: 13.47. Transit SNR 7.73

There are 2 quarters with good PRF difference image offsets

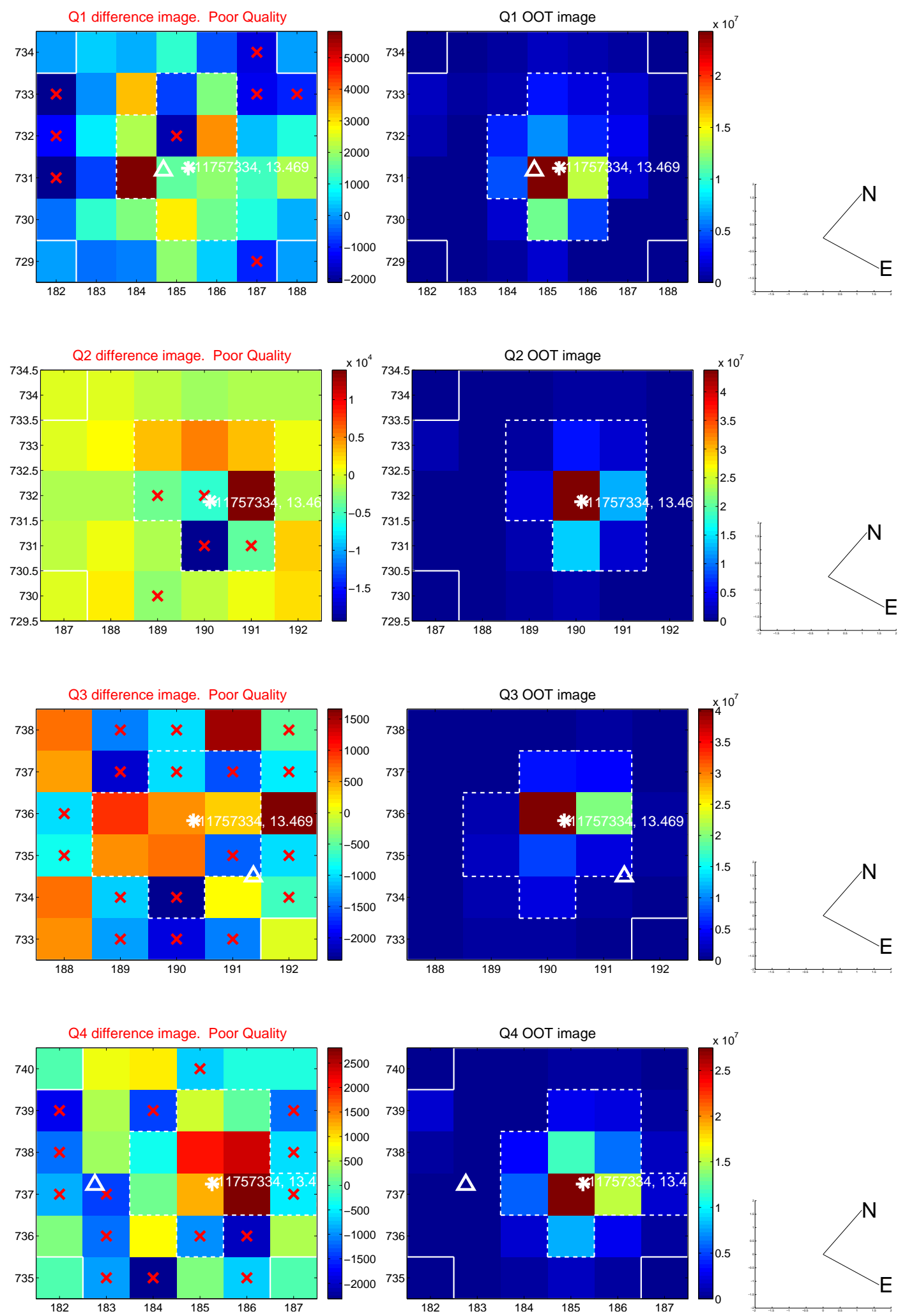
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 1.273 ± 0.948 | 1.34 | 0.353 ± 0.841 | 1.223 ± 0.901 |
| PRF-fit source offset from KIC position | 1.221 ± 1.115 | 1.09 | 0.332 ± 1.109 | 1.175 ± 1.020 |
| photometric centroid source offset | 1.01 ± 1.09 | 0.93 | -1.01 ± 1.09 | 0.12 ± 1.20 |

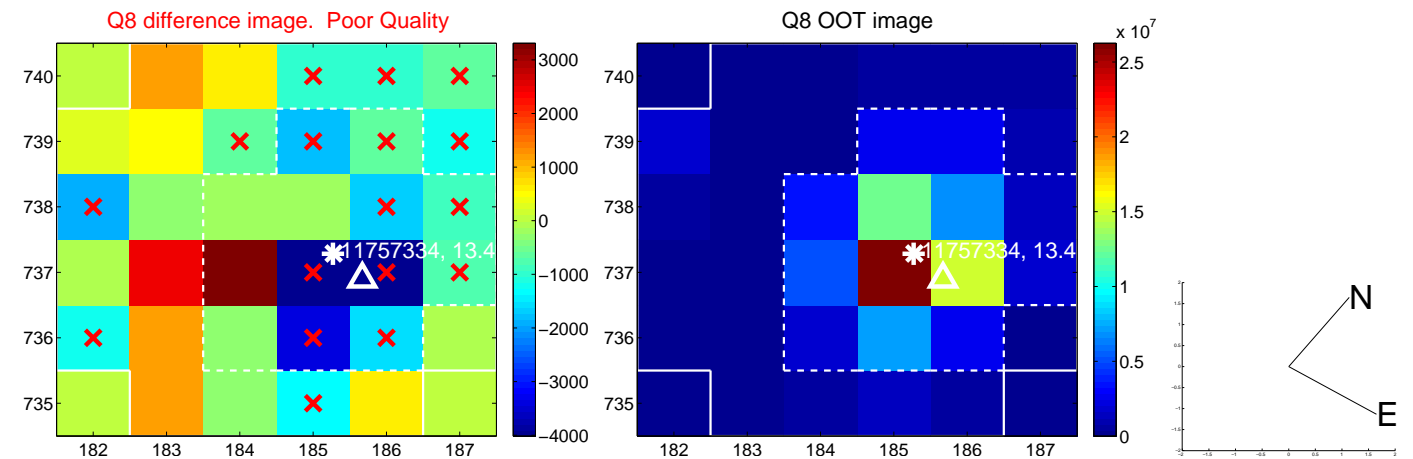
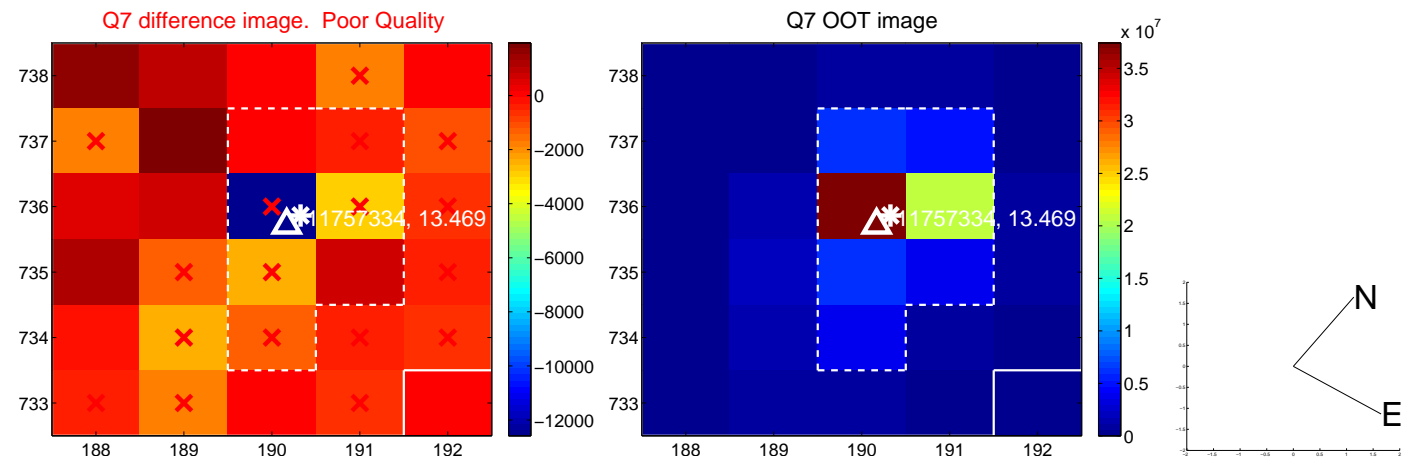
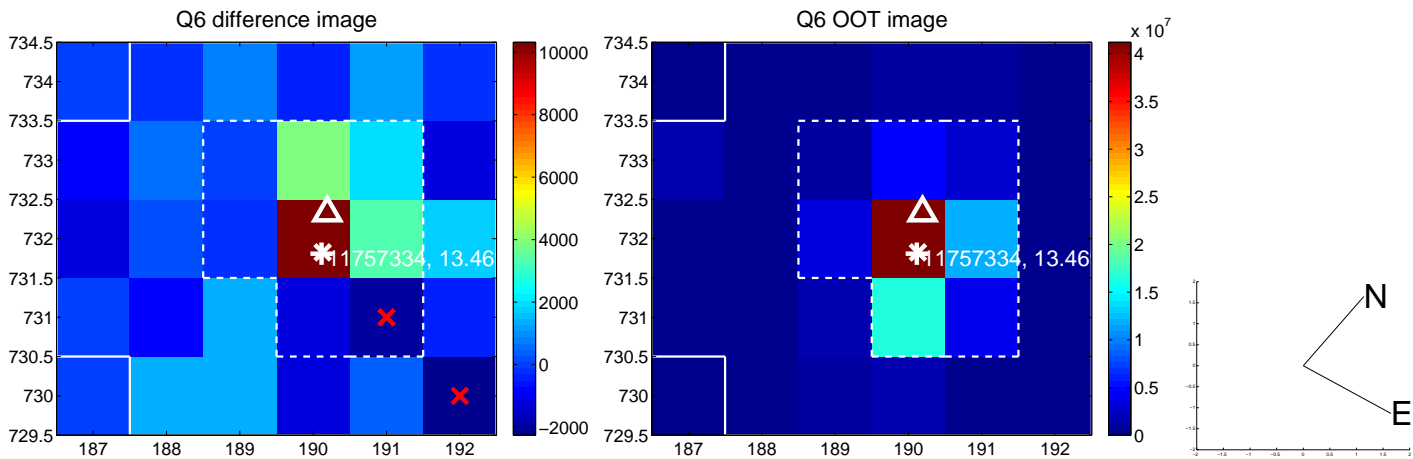
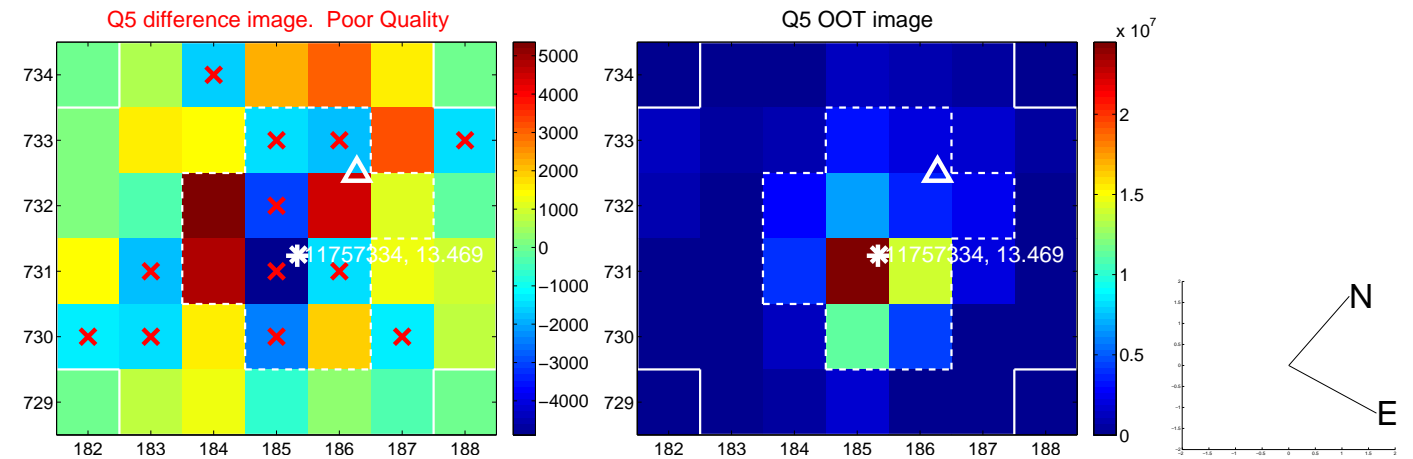


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

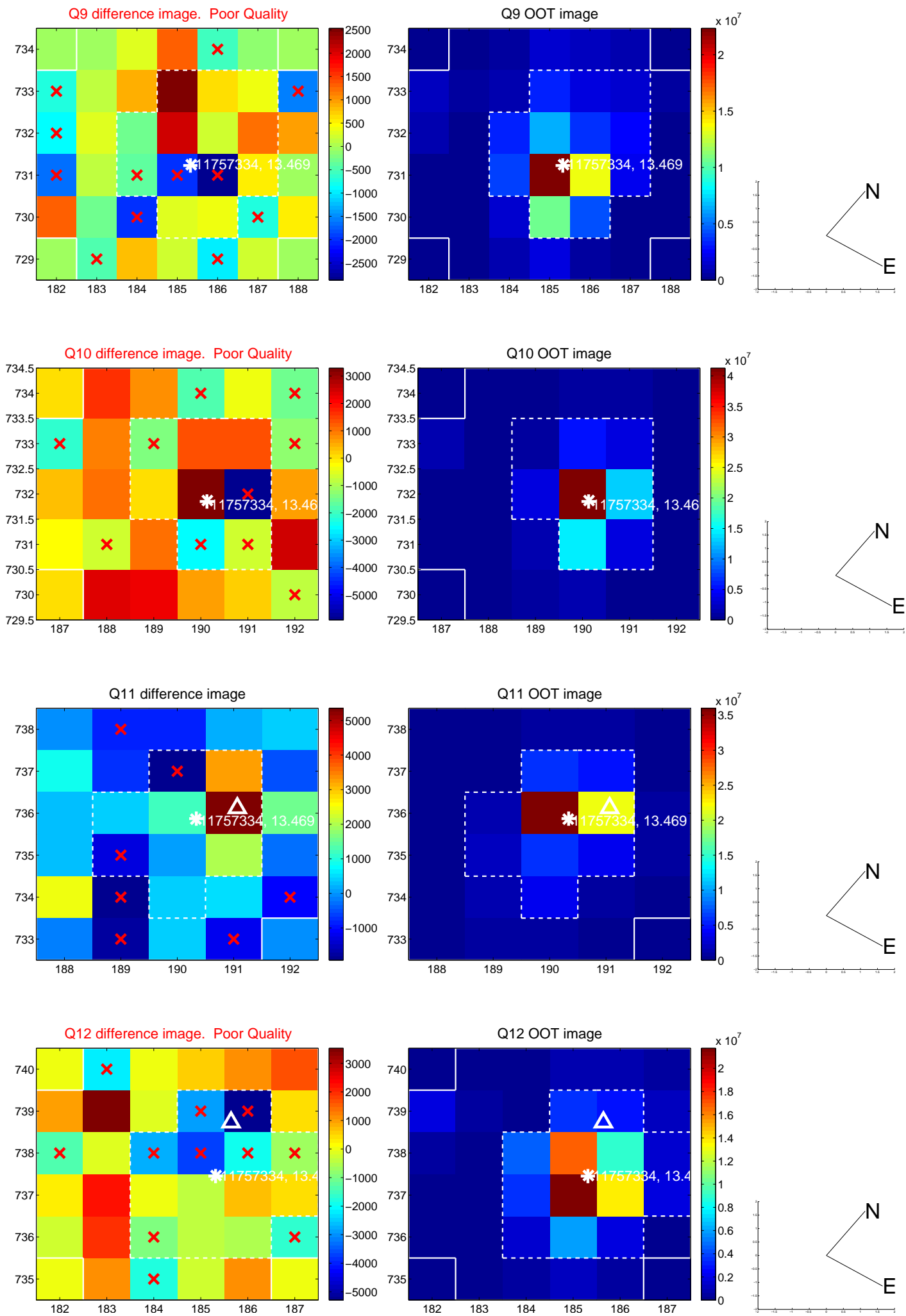
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



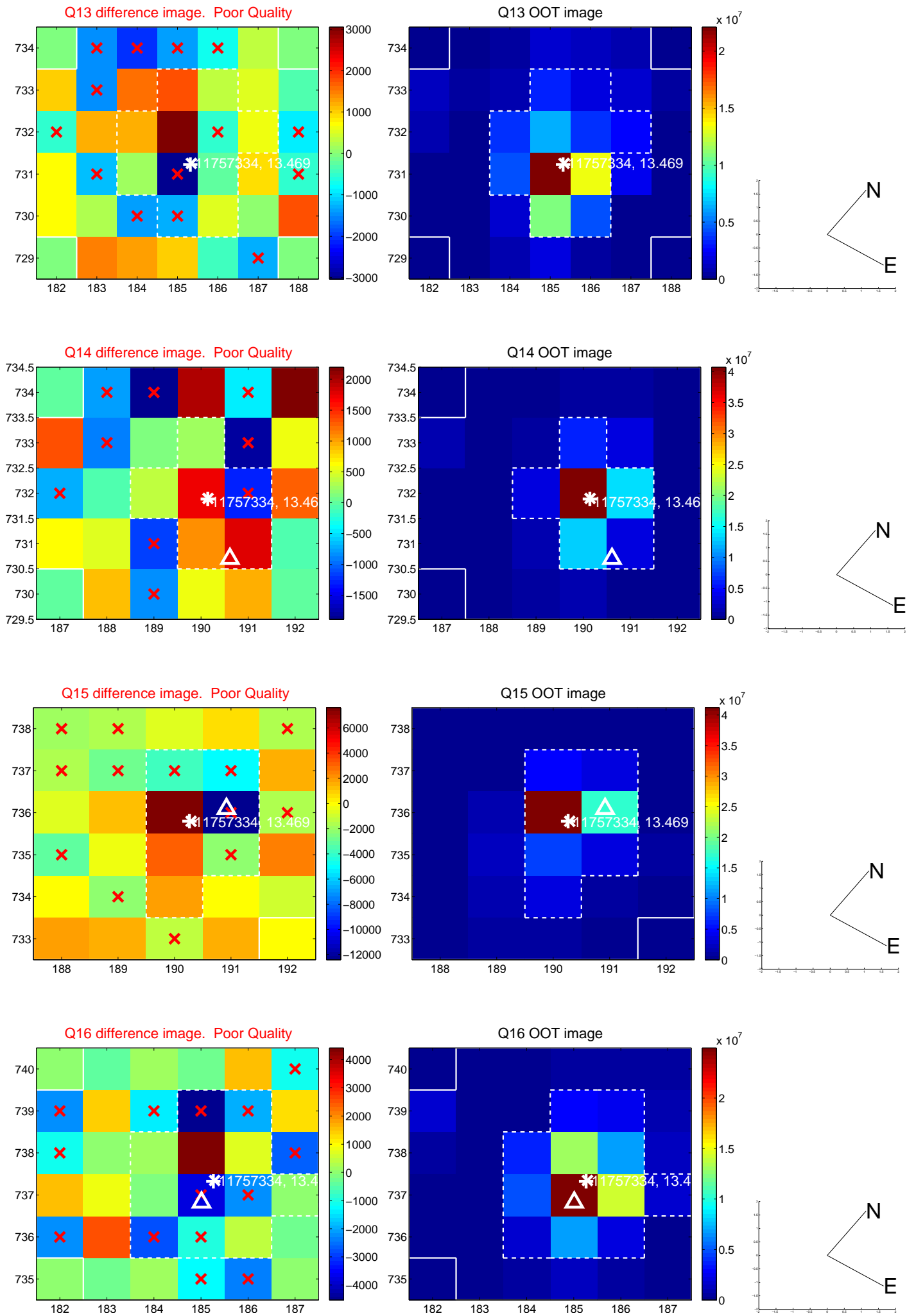
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



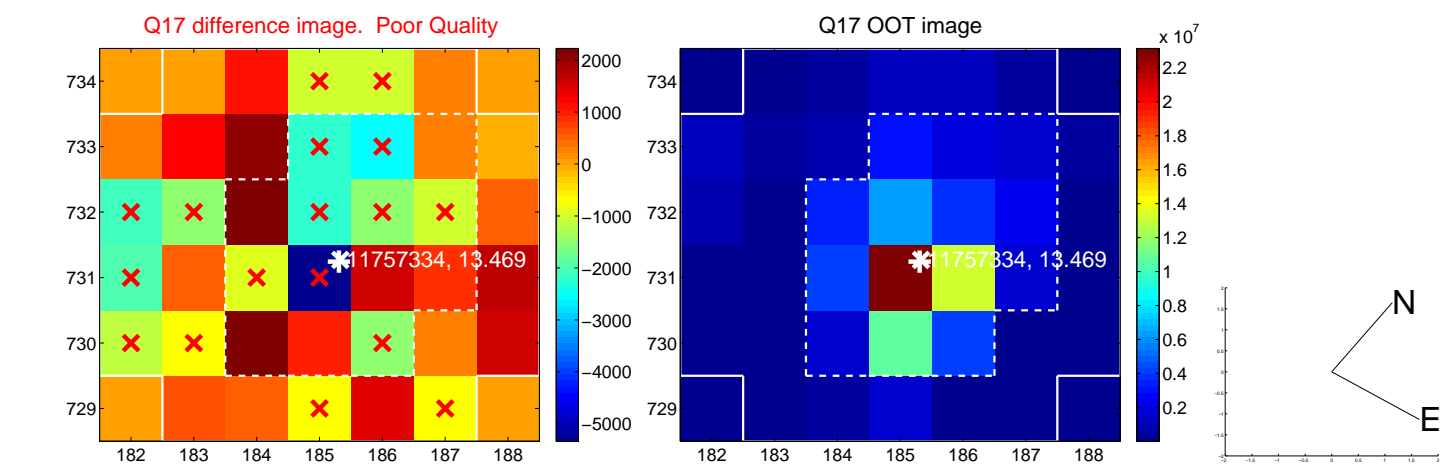
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



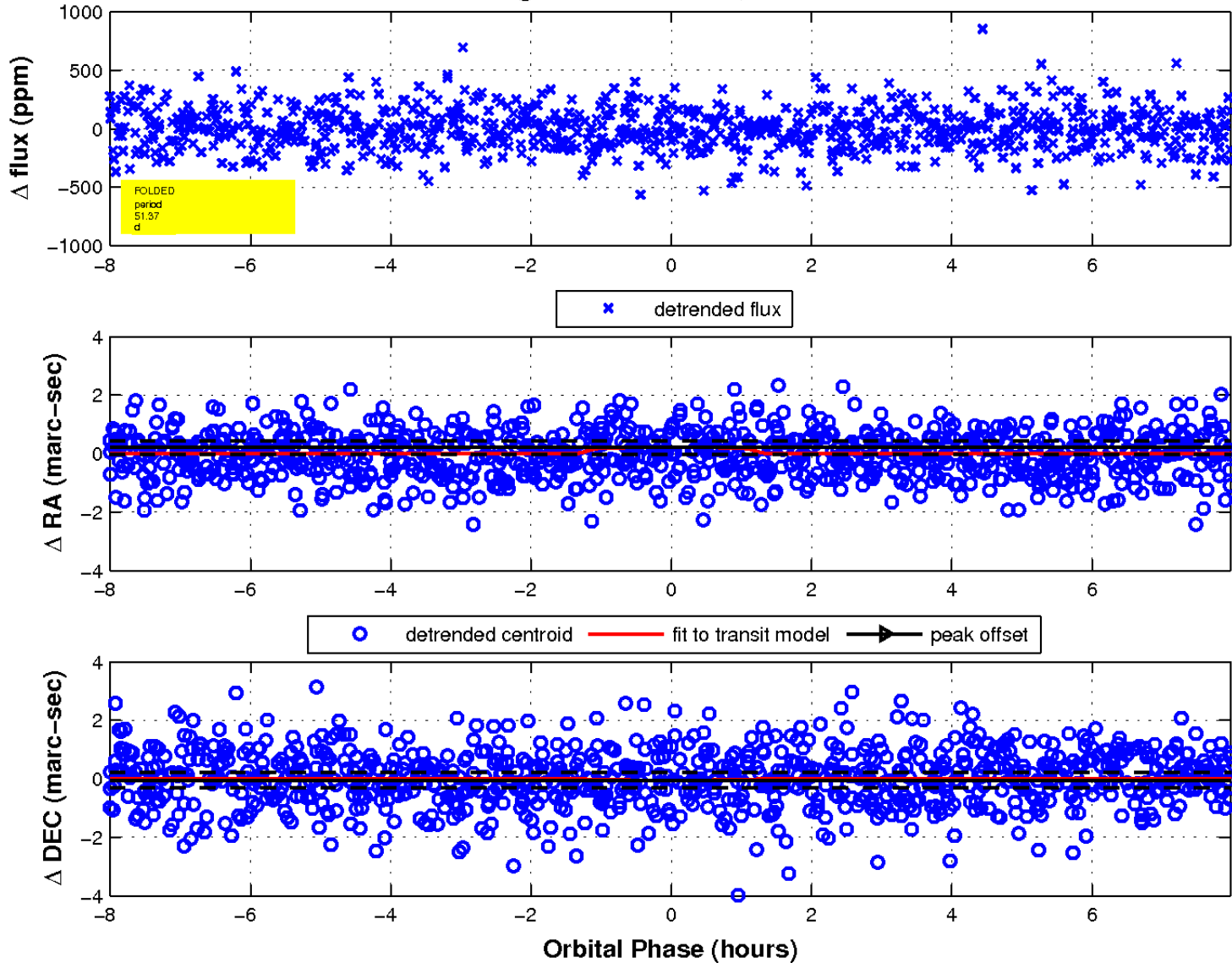
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

