

KIC 006707942

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 006707942-01 | OBS | 3569.01 | 9.014219 | 131.549959 | 34157.7 | 2.781 | 2156.1 | 1792.1 | 0.73 | 4842 | 15.64 | 45.15 |
| 006707942-02 | OBS | No | 9.014219 | 135.587241 | 1192.2 | 2.634 | 80.1 | 77.4 | 0.73 | 4842 | 3.32 | 45.15 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------------------|
| 006707942-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE |
| 006707942-02 | OBS | FP | 0.00 | 1 | 1 | 0 | 0 | IS_SEC_TCE |

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.

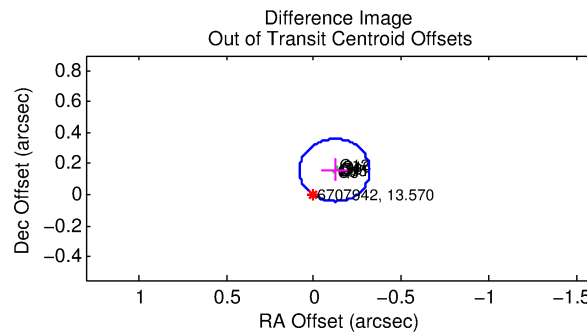
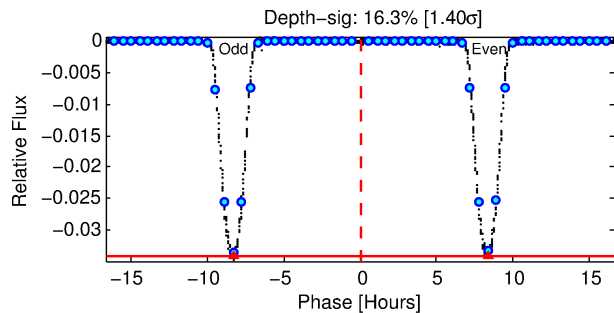
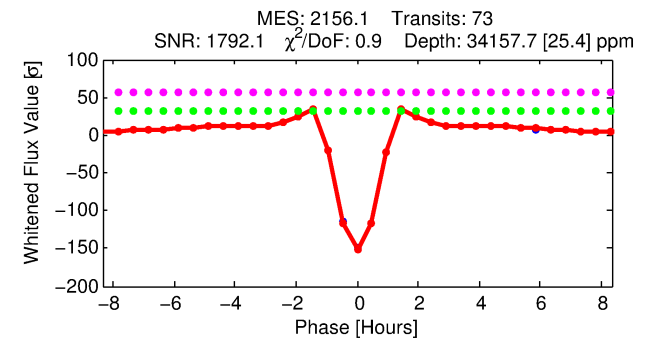
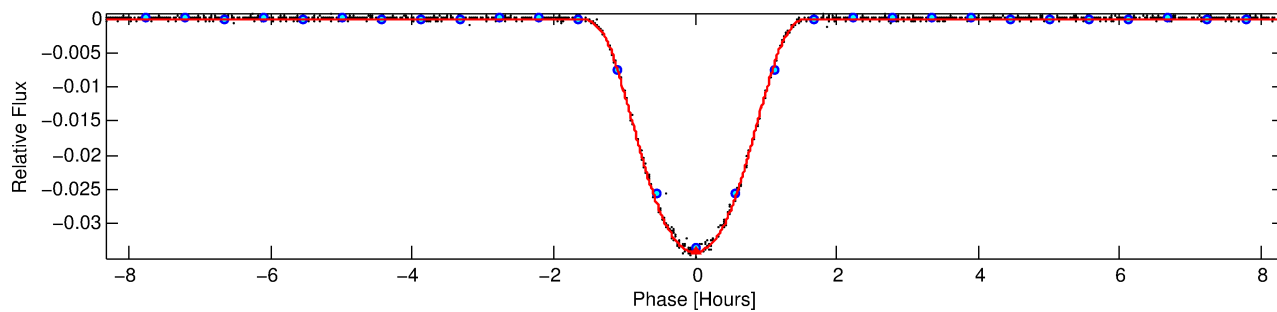
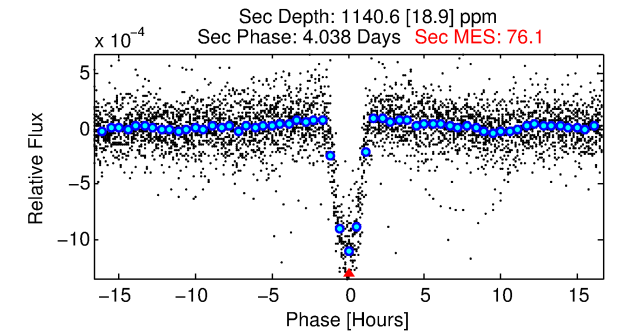
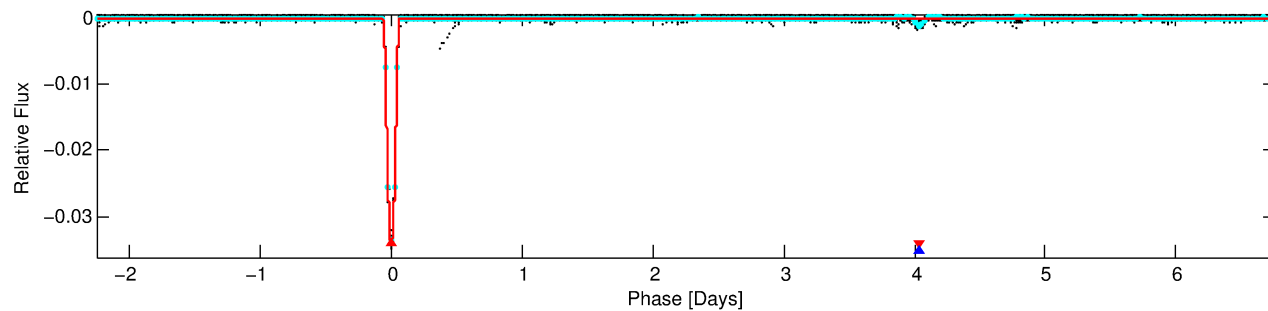
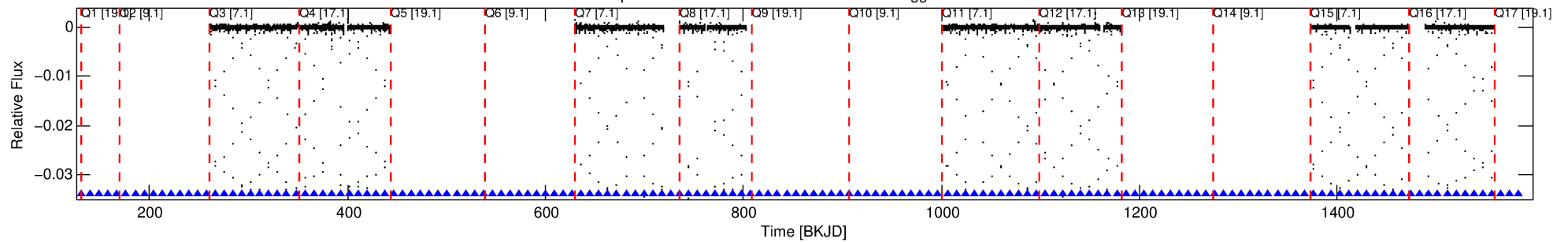
Ephemeris Match Information For 006707942-01

No Significant Match Found

DV One-Page Summary

KIC: 6707942 Candidate: 1 of 2 Period: 9.014 d
KOI: K03569.01 Corr: 0.997

Kp: 13.57 R*: 0.73 Rs Teff: 4842.0 K Logg: 4.57 Fe/H: -0.080



DV Fit Results:

Period = 9.01422 [0.00000] d
Epoch = 131.5500 [0.0000] BKJD
Rp/R* = 0.1963 [0.0003]
a/R* = 21.84 [0.02]
b = 0.81 [0.00]
Seff = 45.15 [8.08]
Teq = 661 [30] K
Rp = 15.64 [1.48] Re
a = 0.0762 [0.0058] AU
Ag = 14.92 [1.59] [8.75σ]
Teffp = 2008 [73] K [17.09σ]

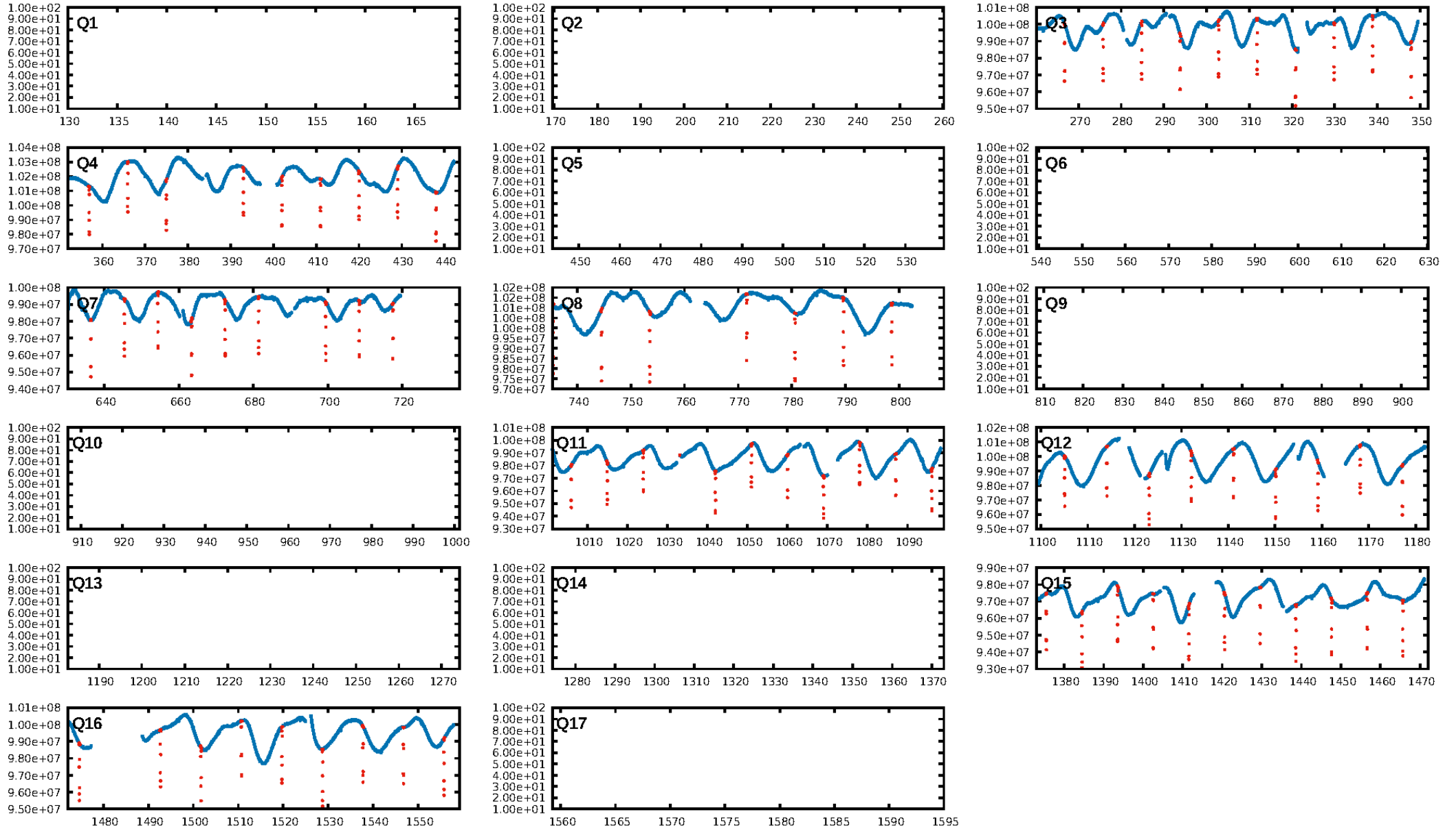
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [73/73]
GhostDiagnostic-chr: 3.26
Centroid-sig: 0.0%
Centroid-so: 0.139 arcsec [33.22σ]
OotOffset-rm: 0.198 arcsec [2.96σ]
OotOffset-st: 0/4/4/0 [8]
KicOffset-rm: 0.268 arcsec [3.83σ]
KicOffset-st: 0/4/4/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

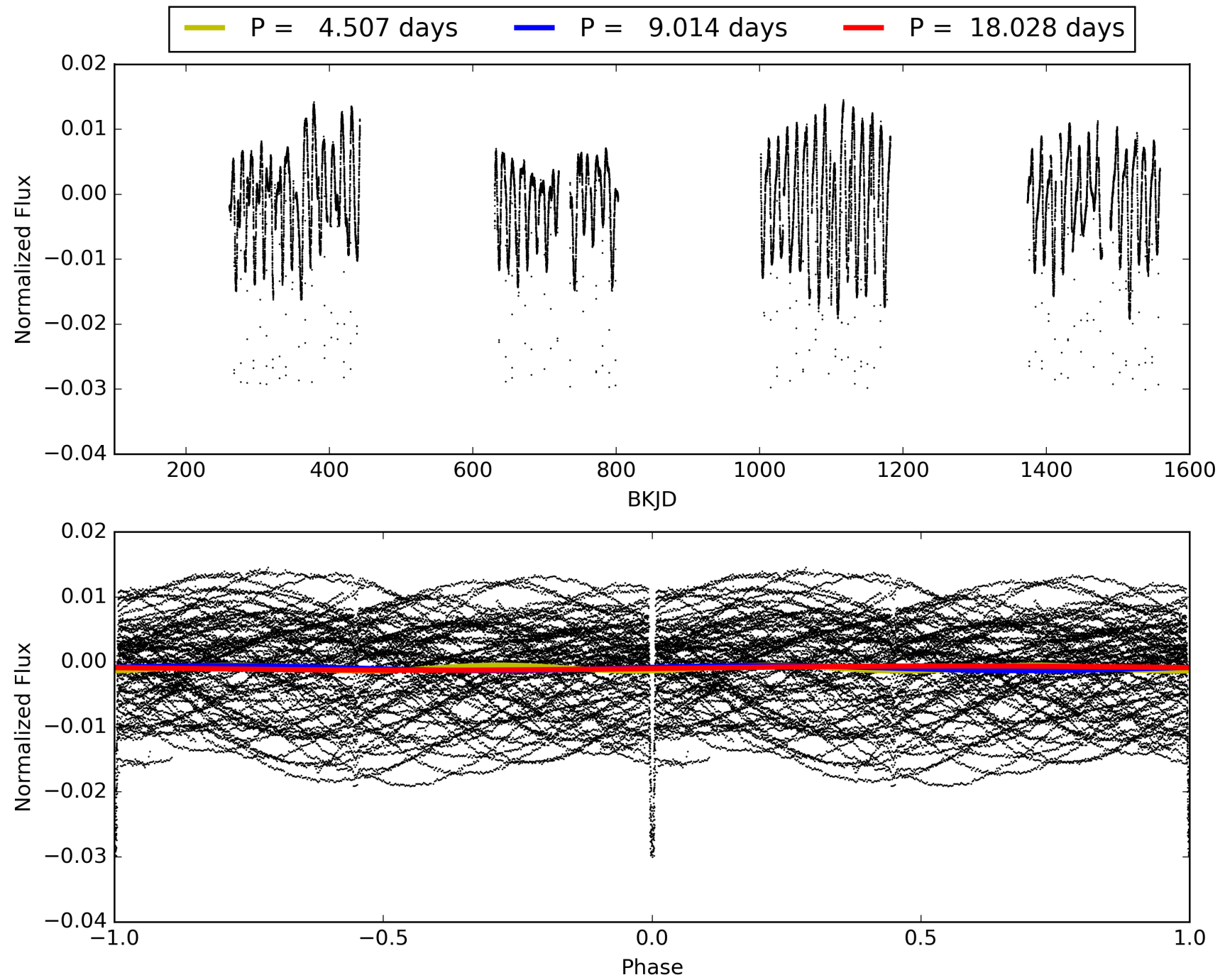
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:11:34 Z

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

TCE 006707942-01, PDC Light Curves

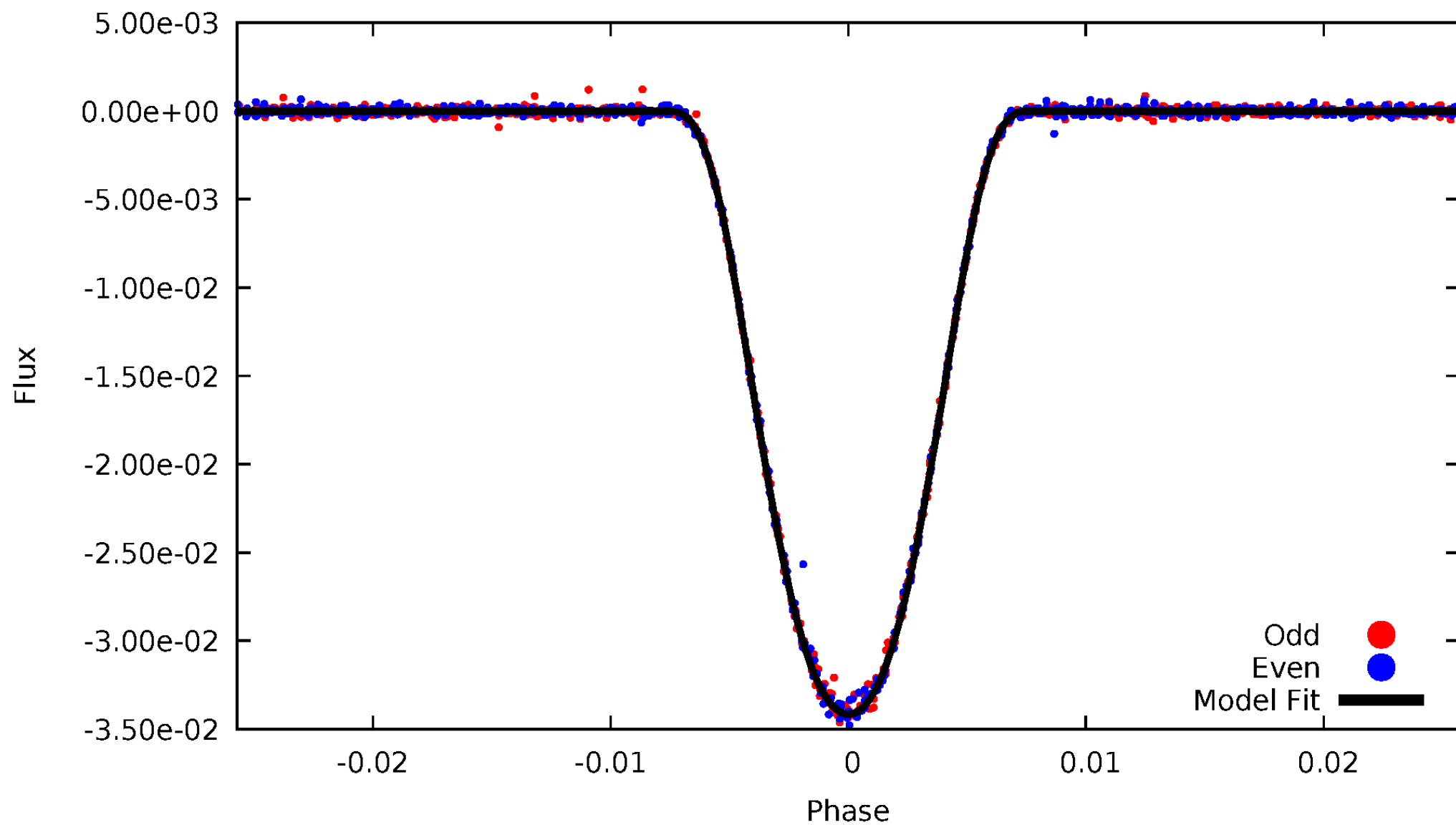


TCE 006707942-01



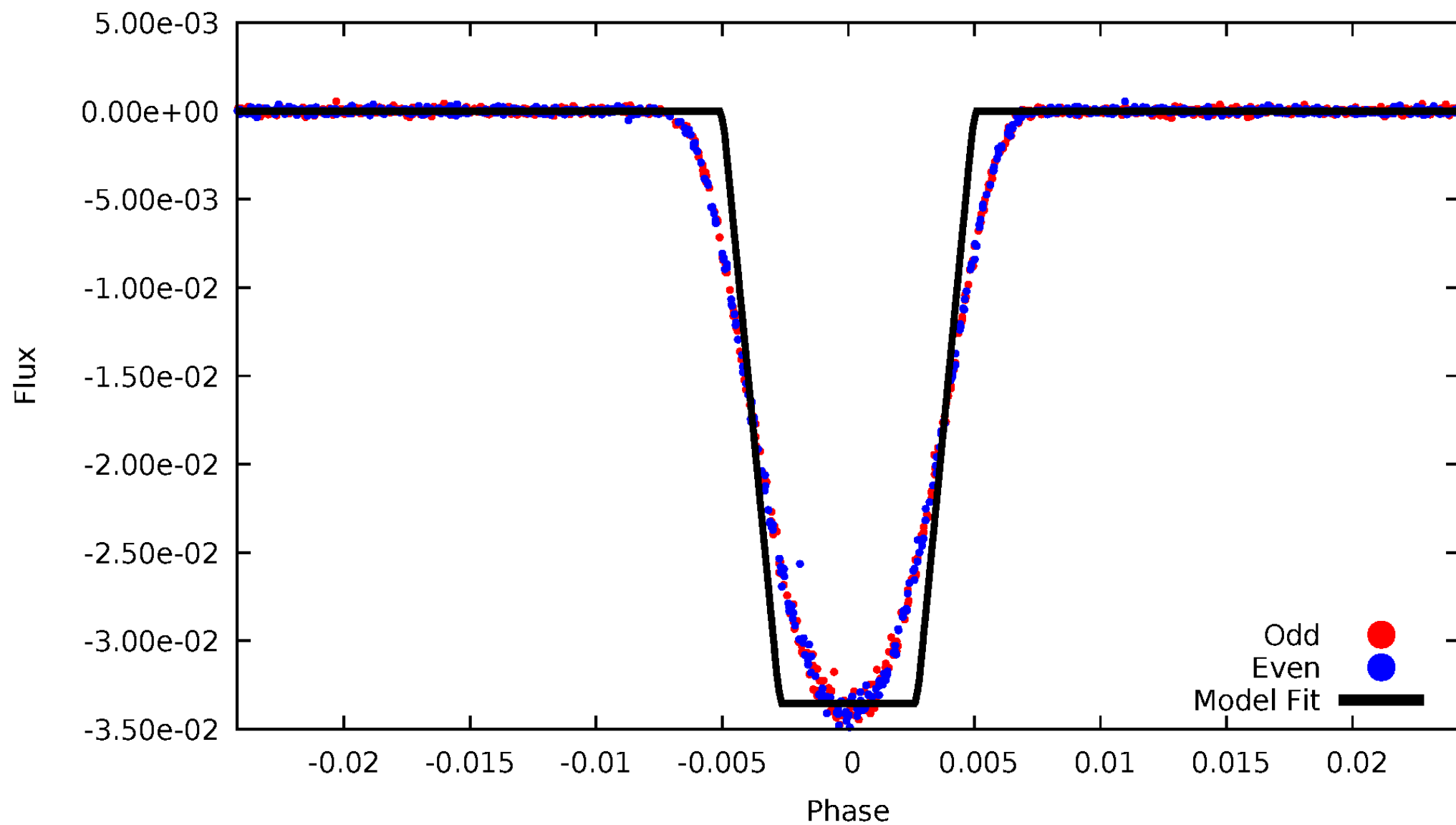
DV Odd/Even

TCE 006707942-01



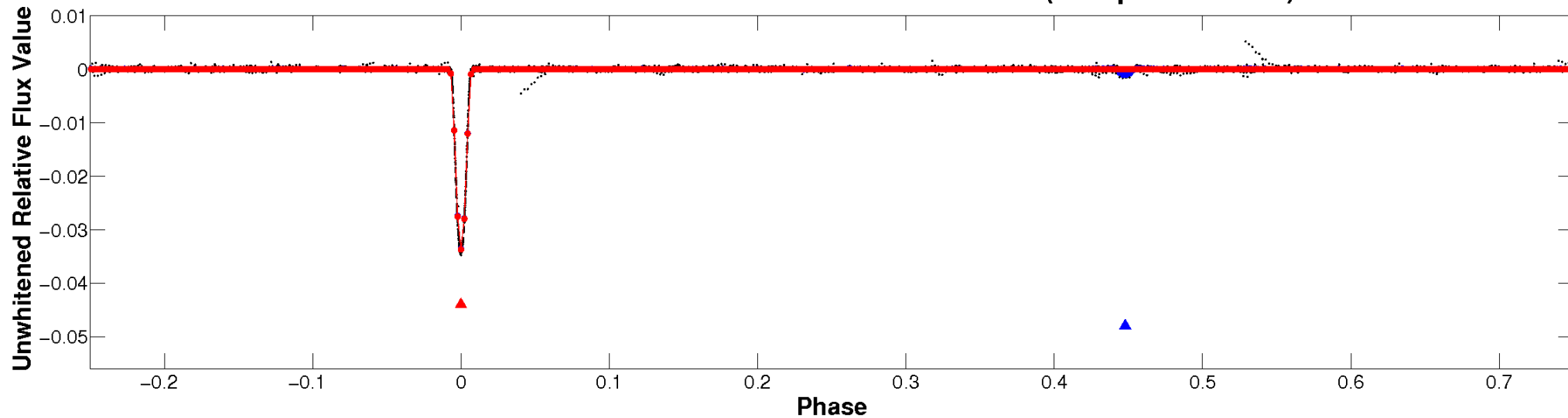
ALT Odd/Even

TCE 006707942-01

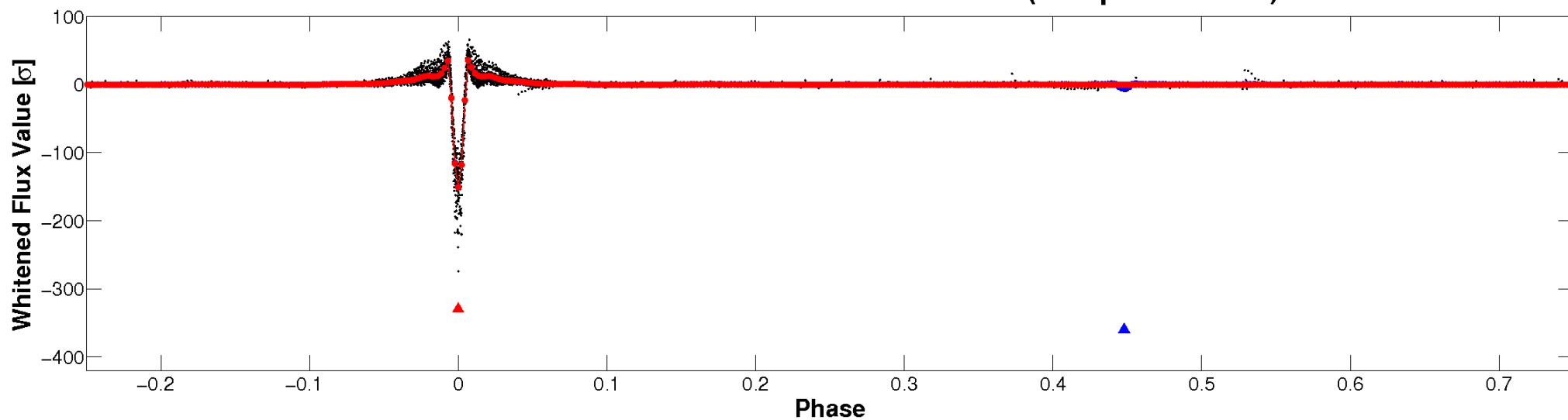


Non-Whitened Vs. Whitened Light Curve

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

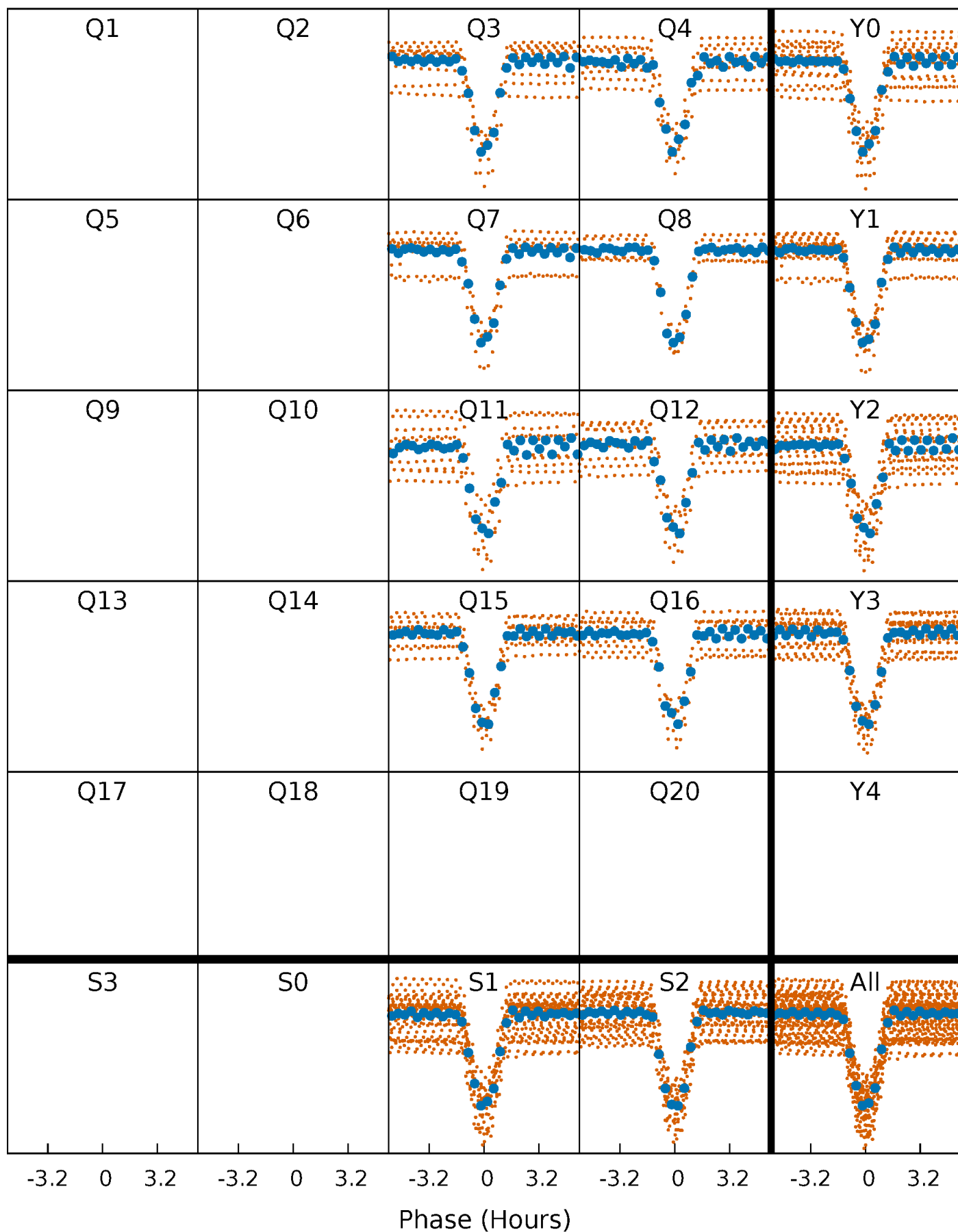


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



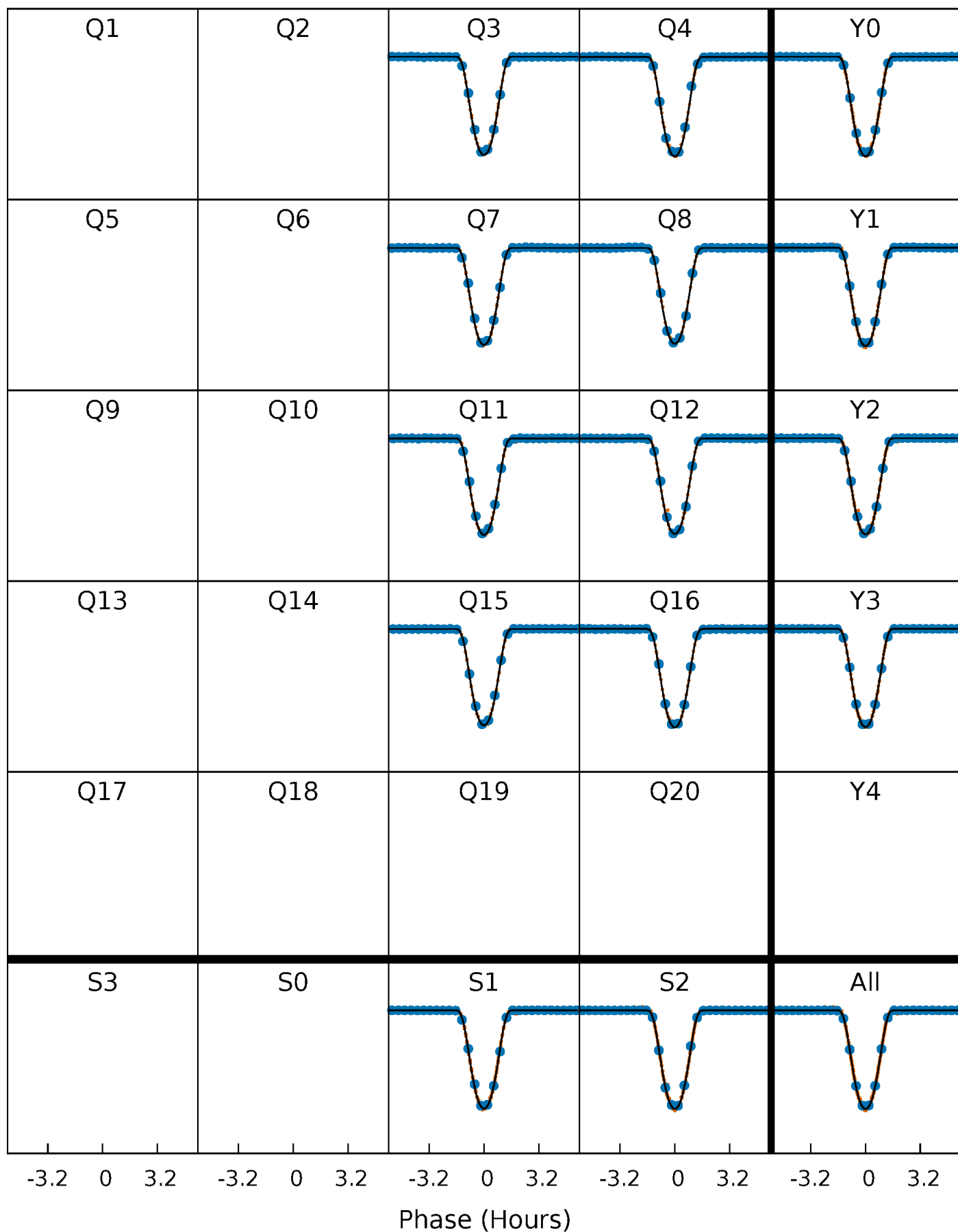
PDC Quarter-Phased Transit Curves

TCE 006707942-01 P= 9.014219 Days $T_0=131.549959$ (BKJD)



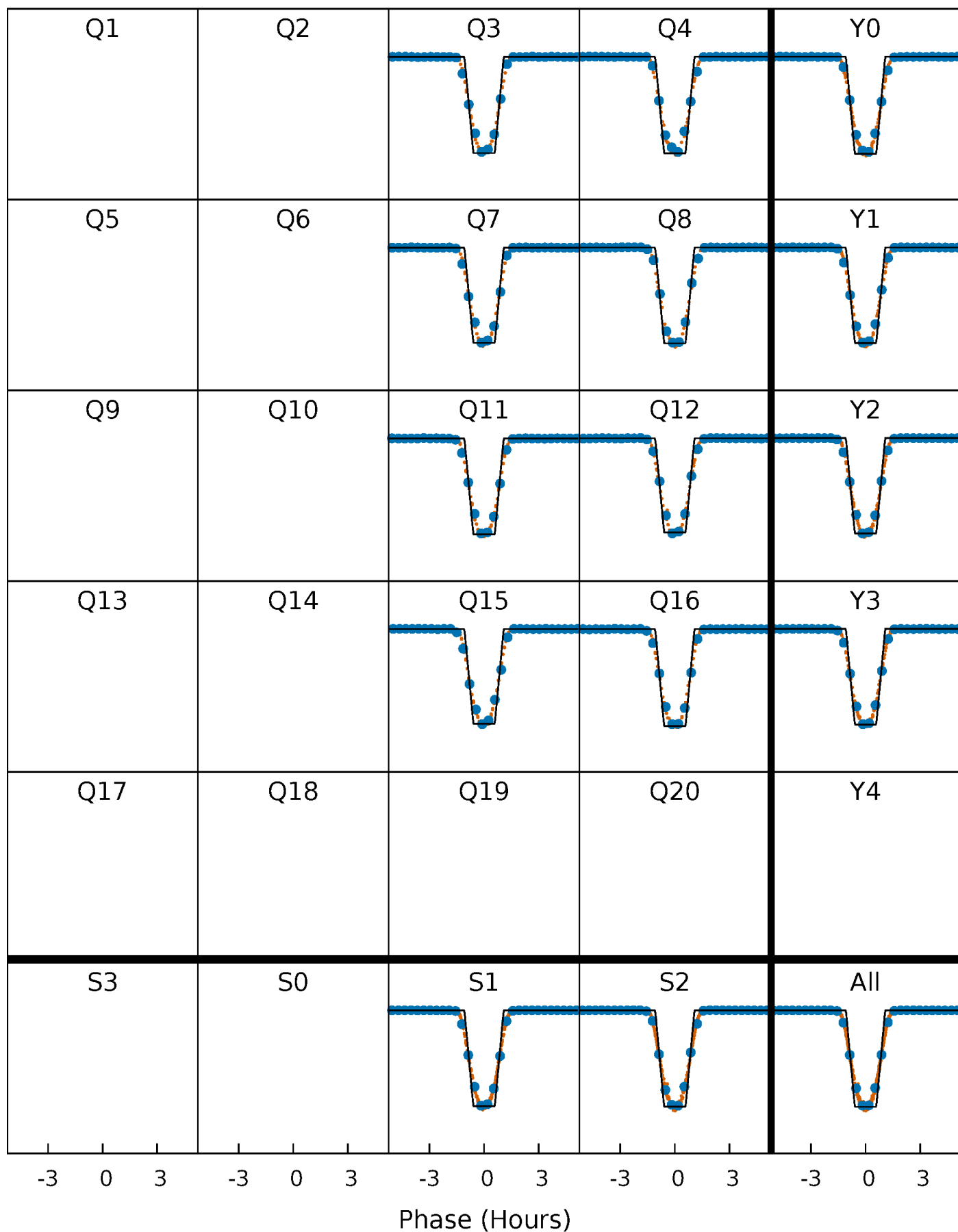
DV Quarter-Phased Transit Curves

TCE 006707942-01 P= 9.014219 Days $T_0=131.549959$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

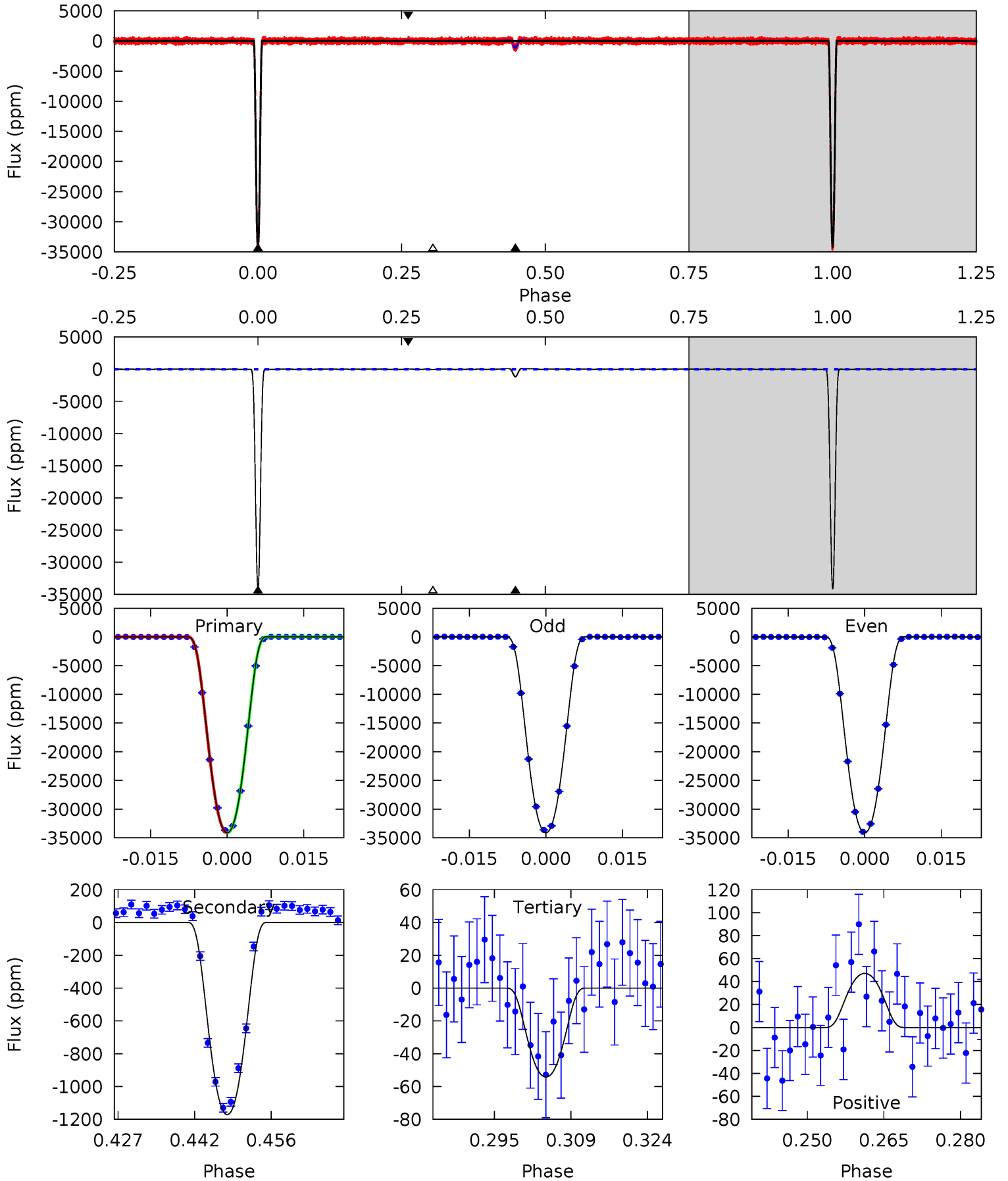
TCE 006707942-01 P= 9.014224 Days $T_0=131.549554$ (BKJD)



DV Model-Shift Uniqueness Test

006707942-01, P = 9.014219 Days, E = 131.549959 Days

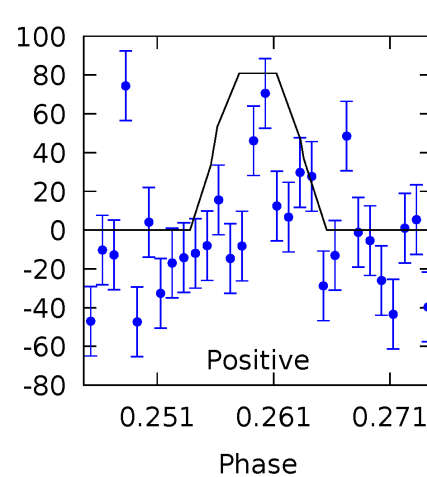
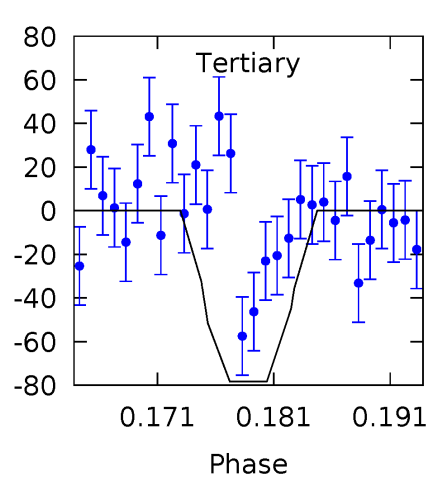
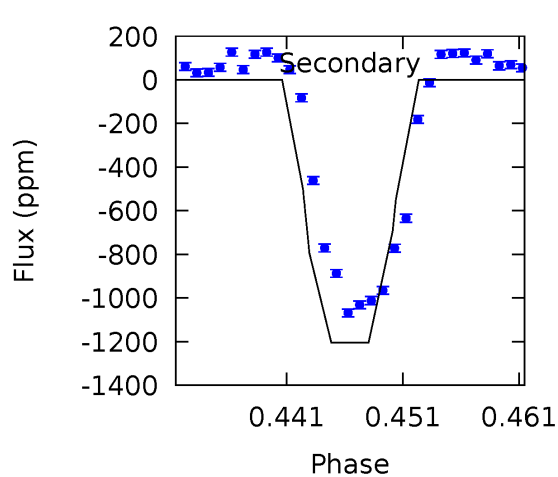
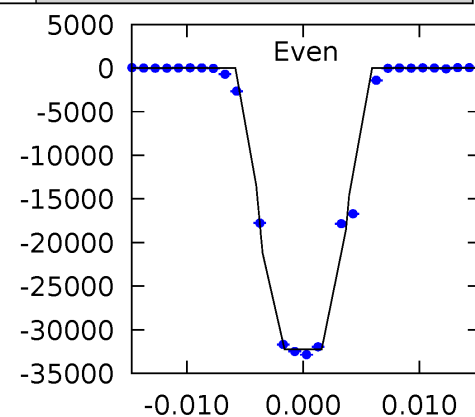
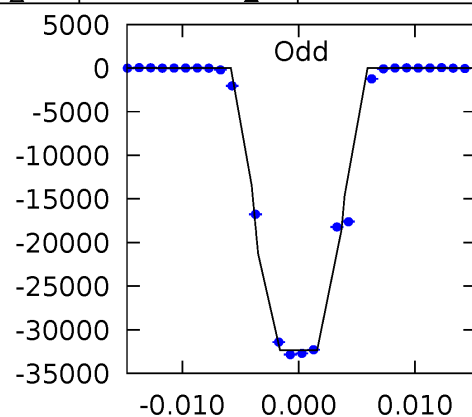
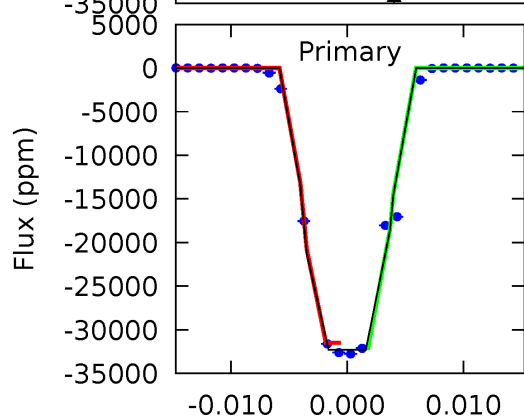
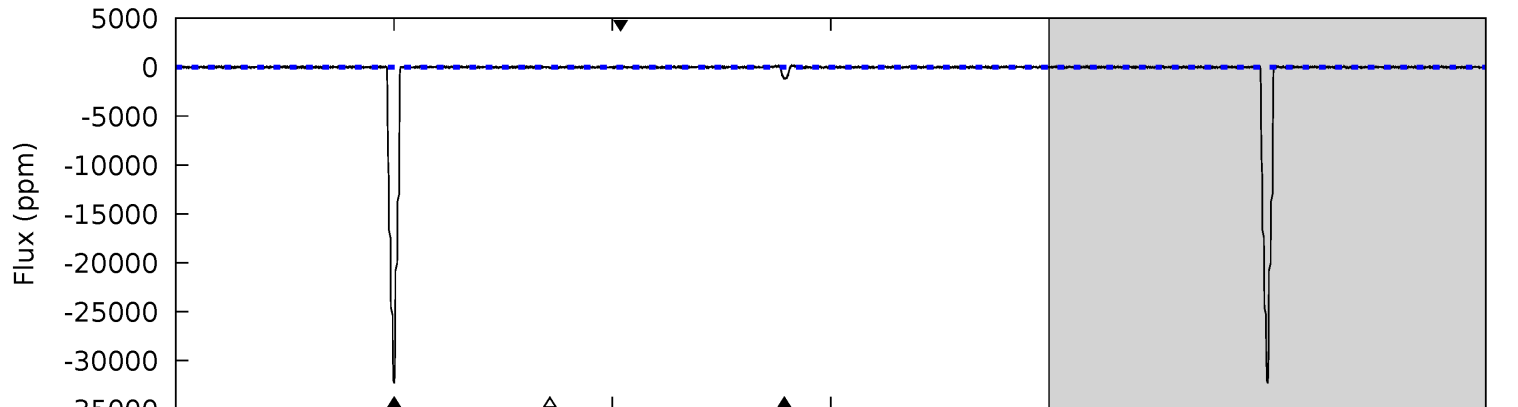
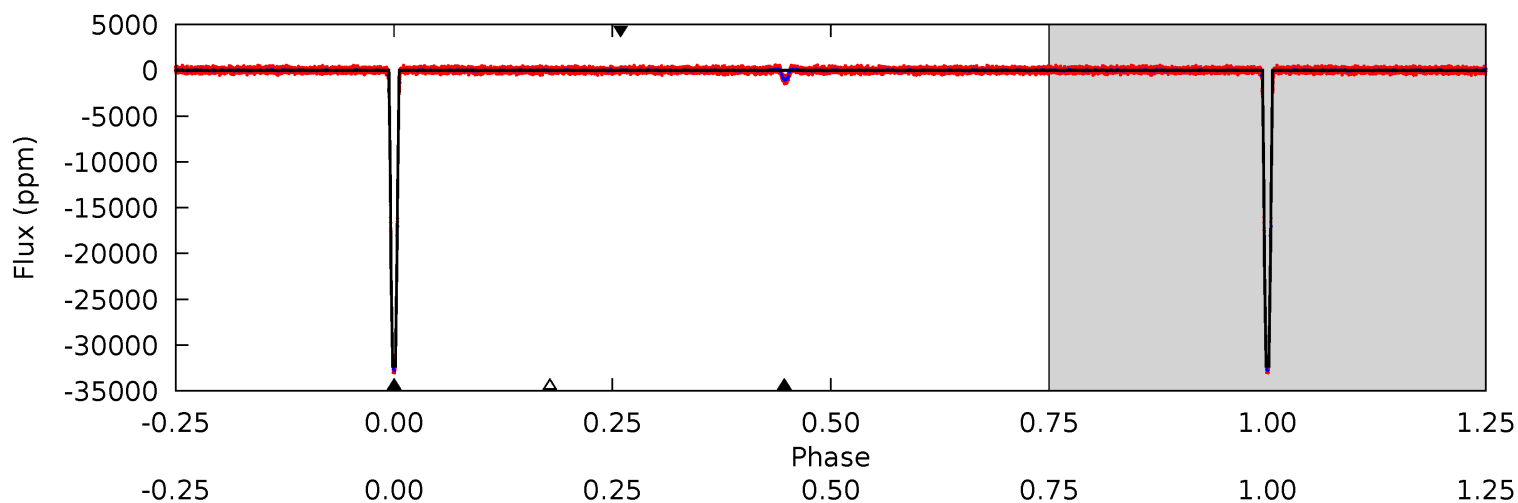
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4334 | 148.8 | 6.89 | 5.98 | 4.95 | 2.44 | 2.63 | 4327 | 4328 | 141.9 | 142.9 | 0.16 | 1.00 | 0.00 | 2.20 |



Alt Model-Shift Uniqueness Test

006707942-01, P = 9.014224 Days, E = 131.549554 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 1742 | 65.0 | 4.22 | 4.36 | 5.03 | 2.57 | 1.26 | 1738 | 1737 | 60.8 | 60.6 | 2.72 | 1.00 | 0.00 | 0 |



Stellar Parameters For KIC 006707942

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4842^{+175}_{-175} | $4.573^{+0.055}_{-0.040}$ | $-0.080^{+0.300}_{-0.300}$ | $0.730^{+0.062}_{-0.069}$ | $0.729^{+0.075}_{-0.061}$ | $2.633^{+0.638}_{-0.429}$ |
| | +4%/-4% | +1%/-1% | +375%/-375% | +8%/-9% | +10%/-8% | +24%/-16% |
| 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 006707942-01 / KOI 3569.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|----------------|-------------------------|----------------------|----------------------|------------------|
| DV | -1172 ± 8 | $15.67^{+0.83}_{-0.85}$ | 921^{+40}_{-41} | 2734^{+69}_{-64} | 15^{+1}_{-1} |
| Alt. | -1205 ± 19 | $14.62^{+0.74}_{-0.76}$ | 922^{+40}_{-39} | 2798^{+69}_{-71} | 18^{+1}_{-1} |

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

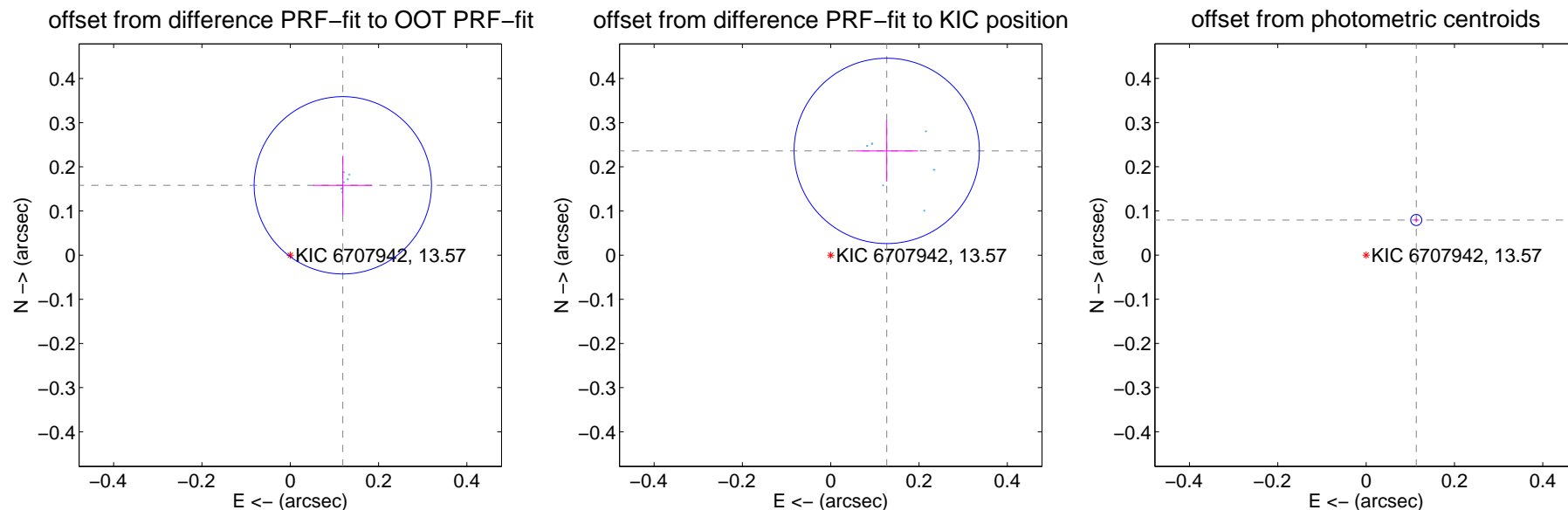
DV Centroid Data

Supplemental centroid analysis for 006707942-01. Kepler magnitude: 13.57. Transit SNR 1792.14

There are 8 quarters with good PRF difference image offsets

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

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.198 ± 0.067 | 2.96 | -0.119 ± 0.067 | 0.158 ± 0.067 |
| PRF-fit source offset from KIC position | 0.268 ± 0.070 | 3.83 | -0.127 ± 0.071 | 0.236 ± 0.070 |
| photometric centroid source offset | 0.14 ± 0.00 | 33.22 | -0.11 ± 0.00 | 0.08 ± 0.00 |



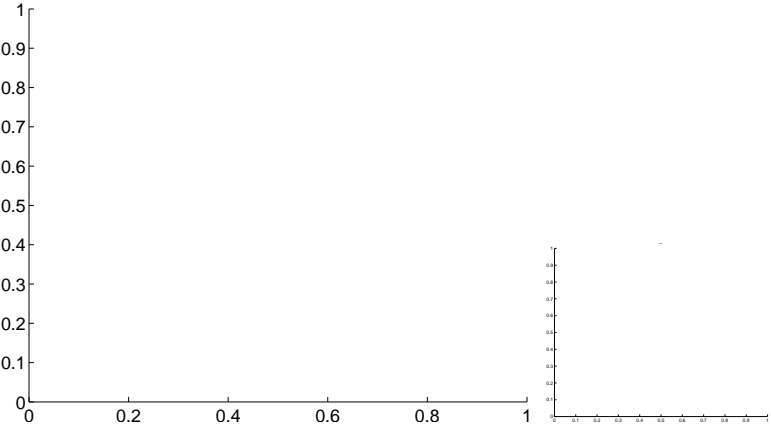
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q1 no difference image



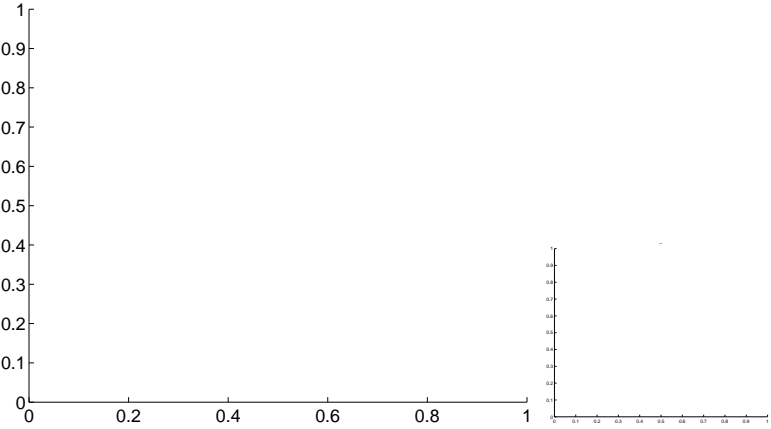
Q1 no OOT image



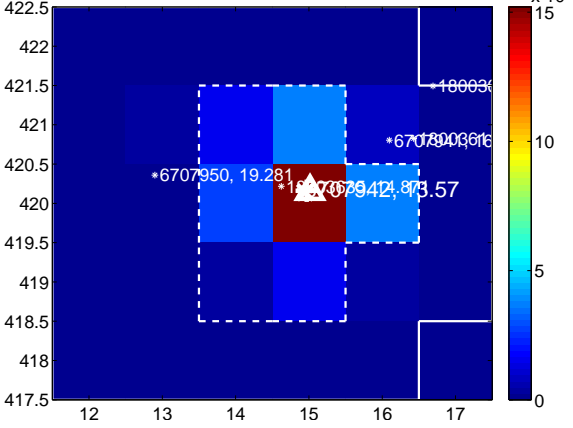
Q2 no difference image



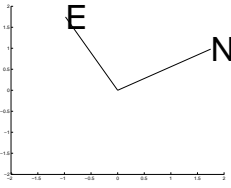
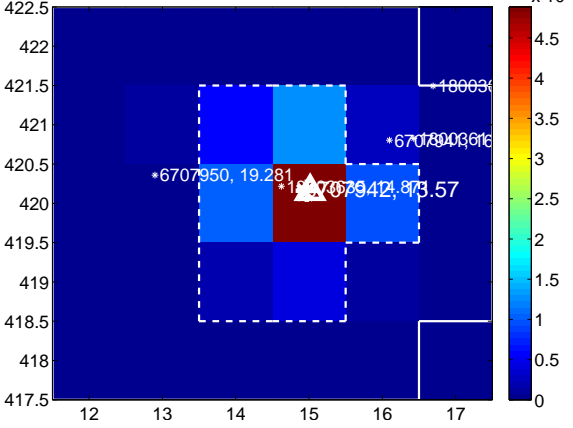
Q2 no OOT image



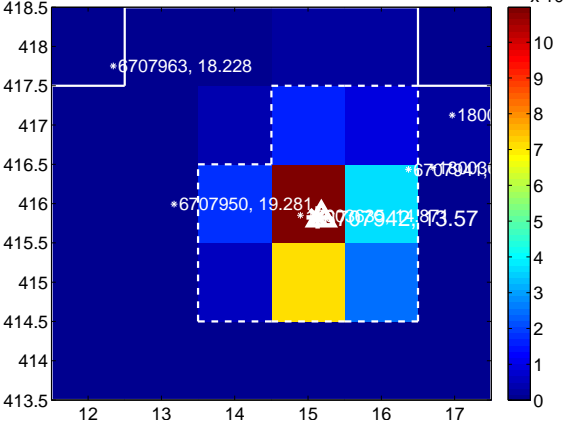
Q3 difference image



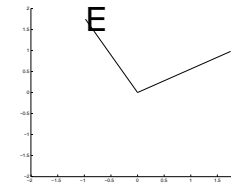
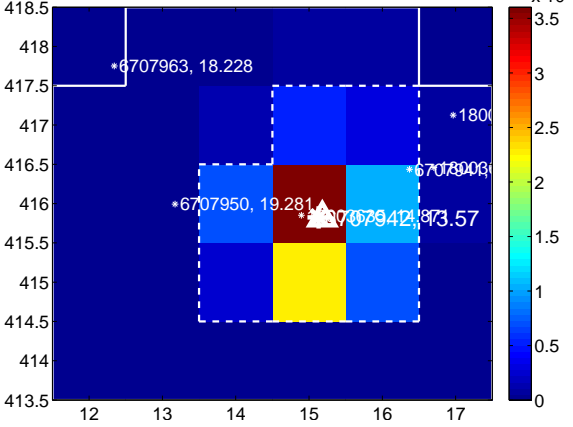
Q3 OOT image



Q4 difference image

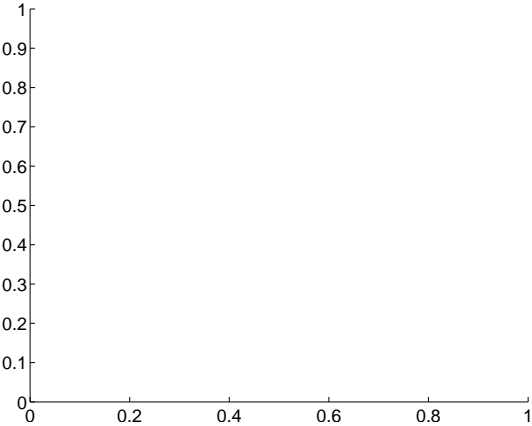


Q4 OOT image

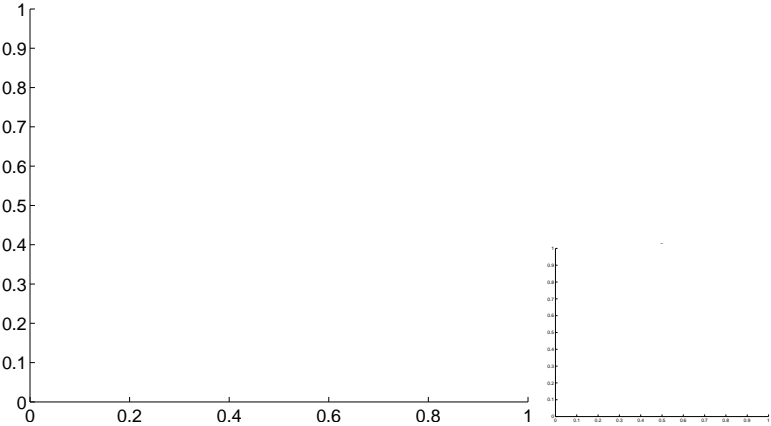


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

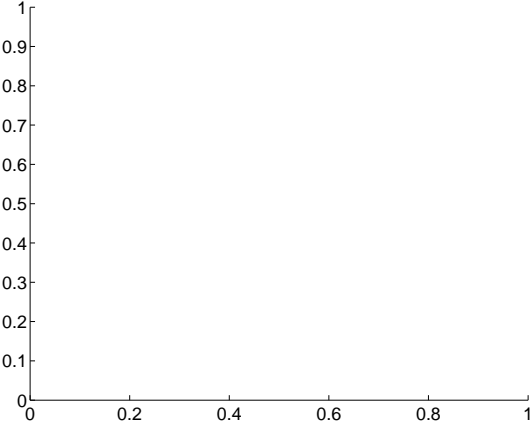
Q5 no difference image



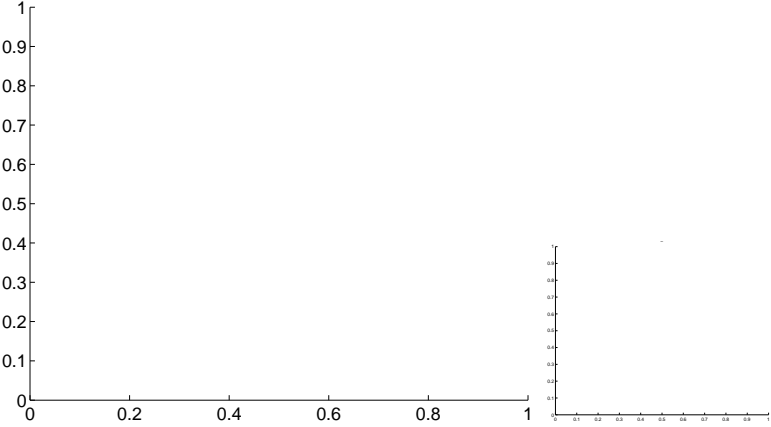
Q5 no OOT image



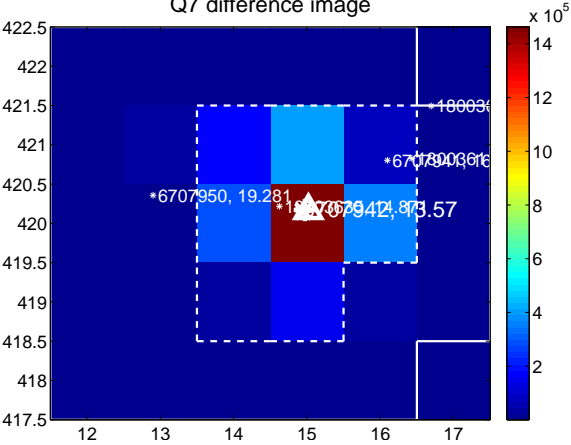
Q6 no difference image



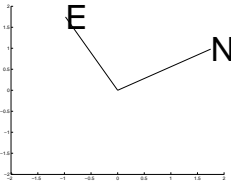
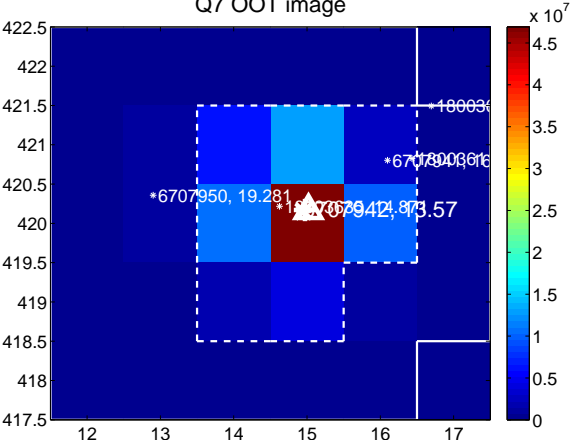
Q6 no OOT image



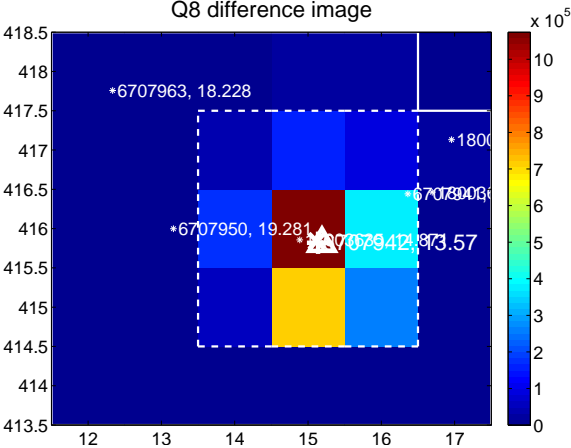
Q7 difference image



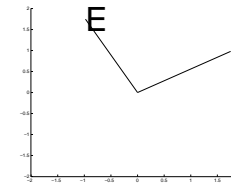
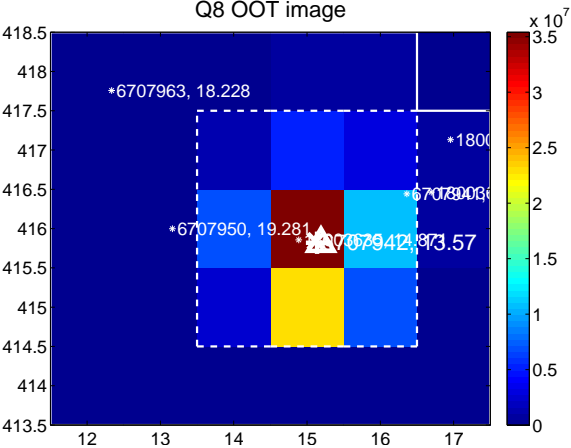
Q7 OOT image



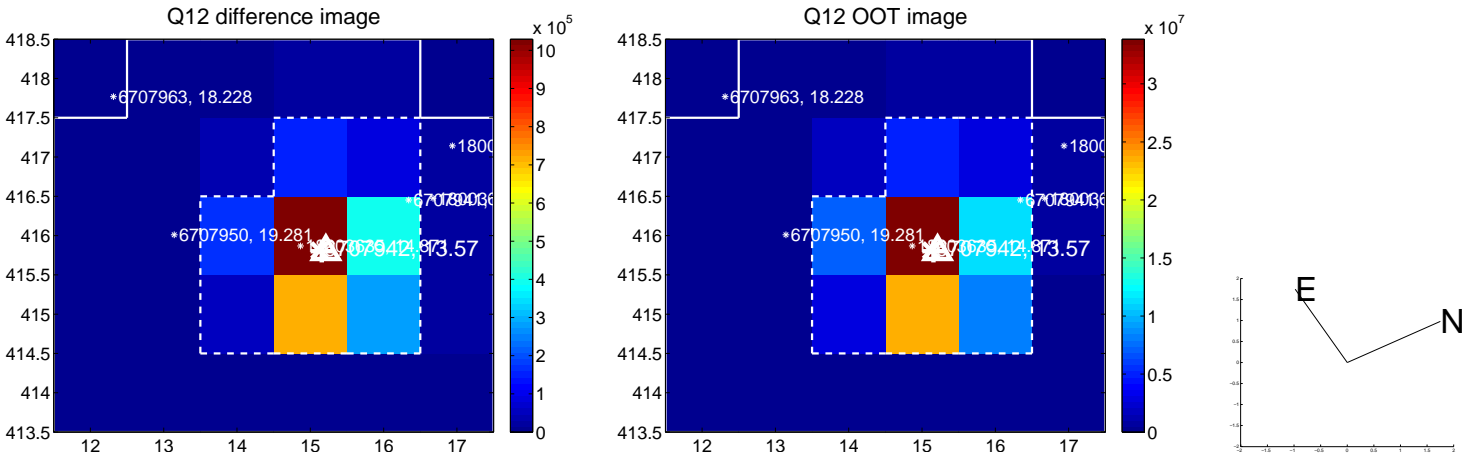
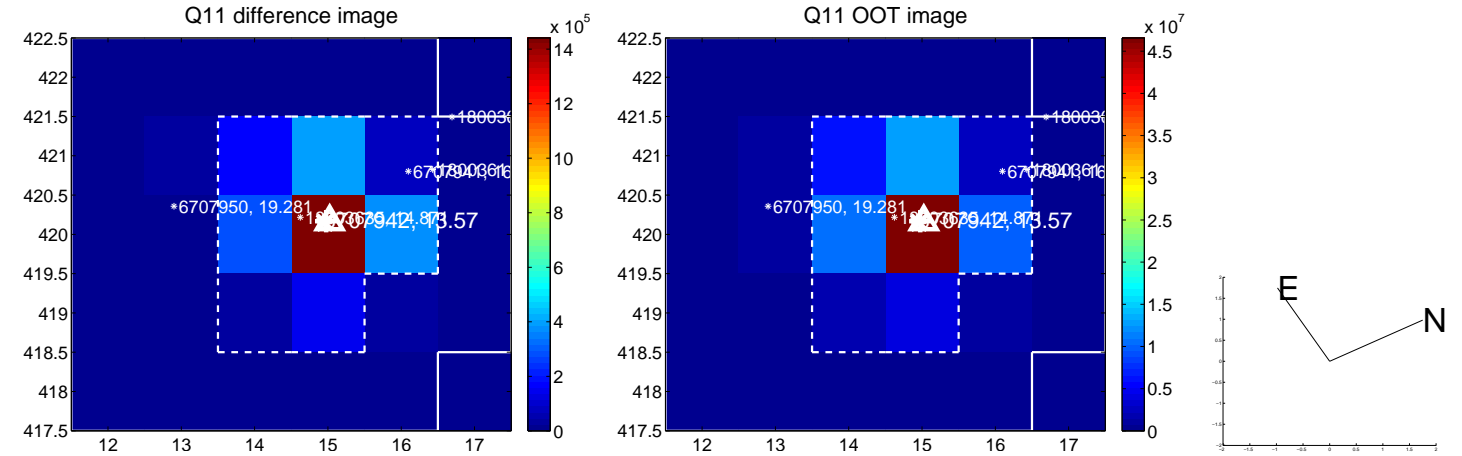
Q8 difference image



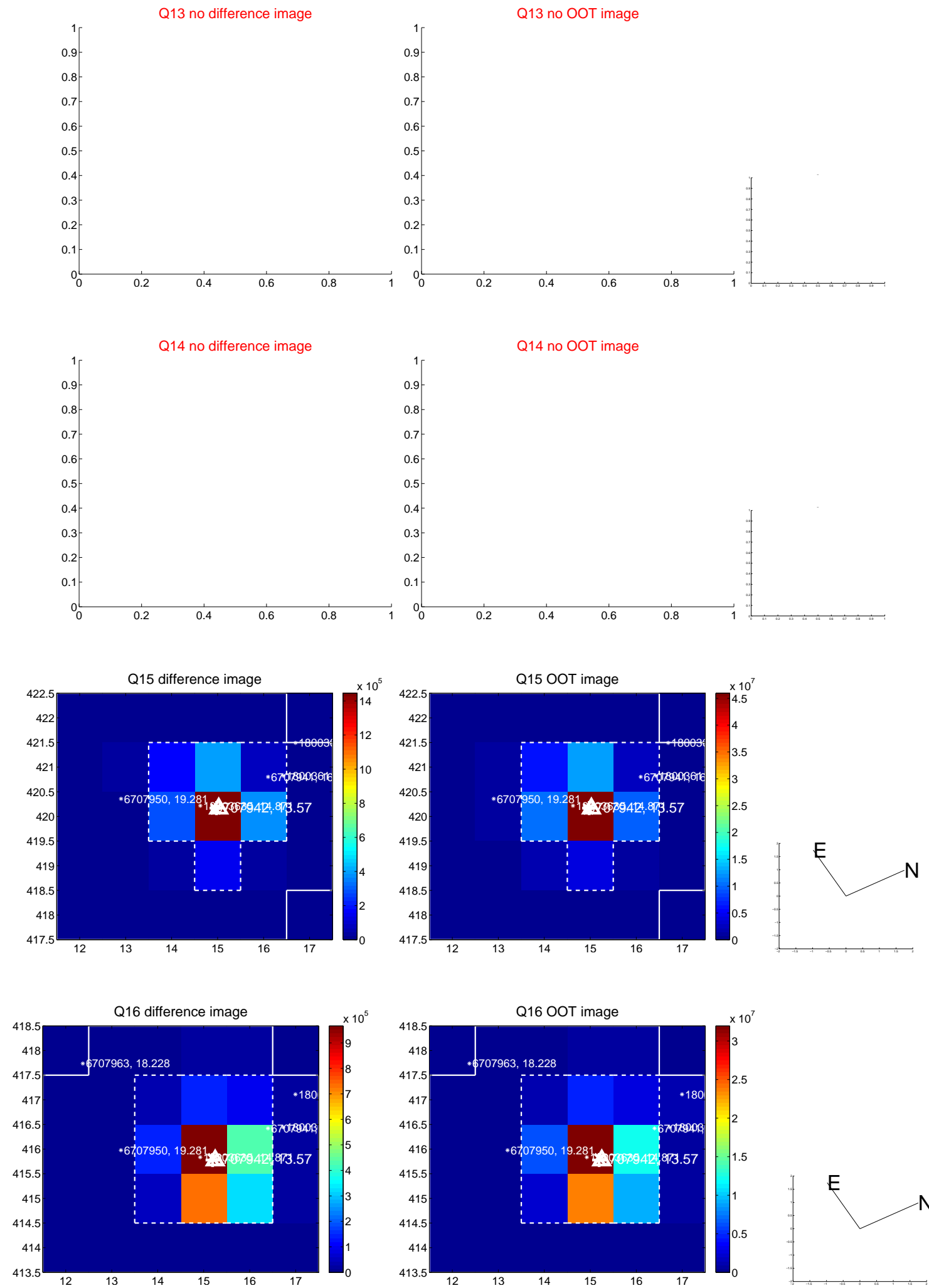
Q8 OOT image



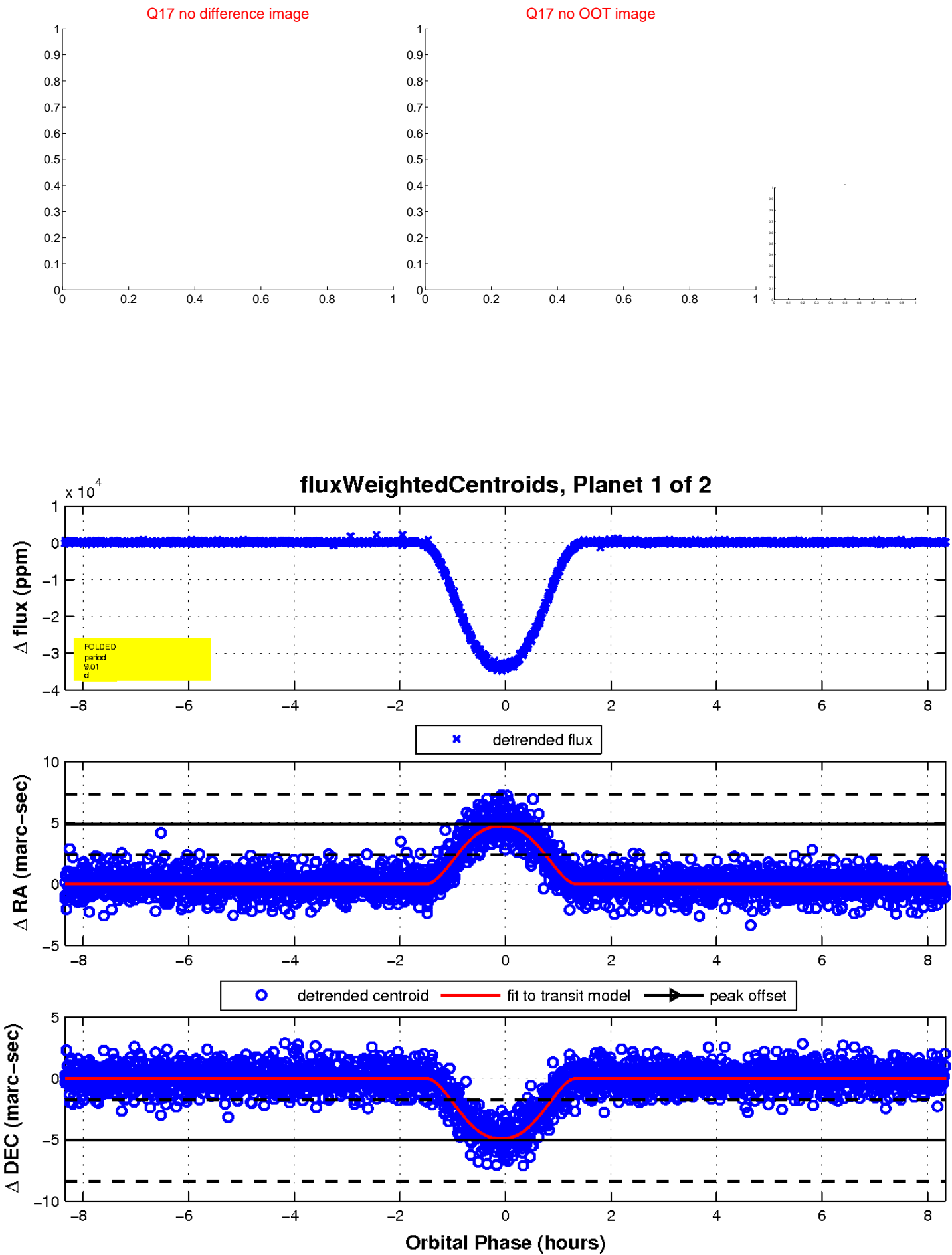
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

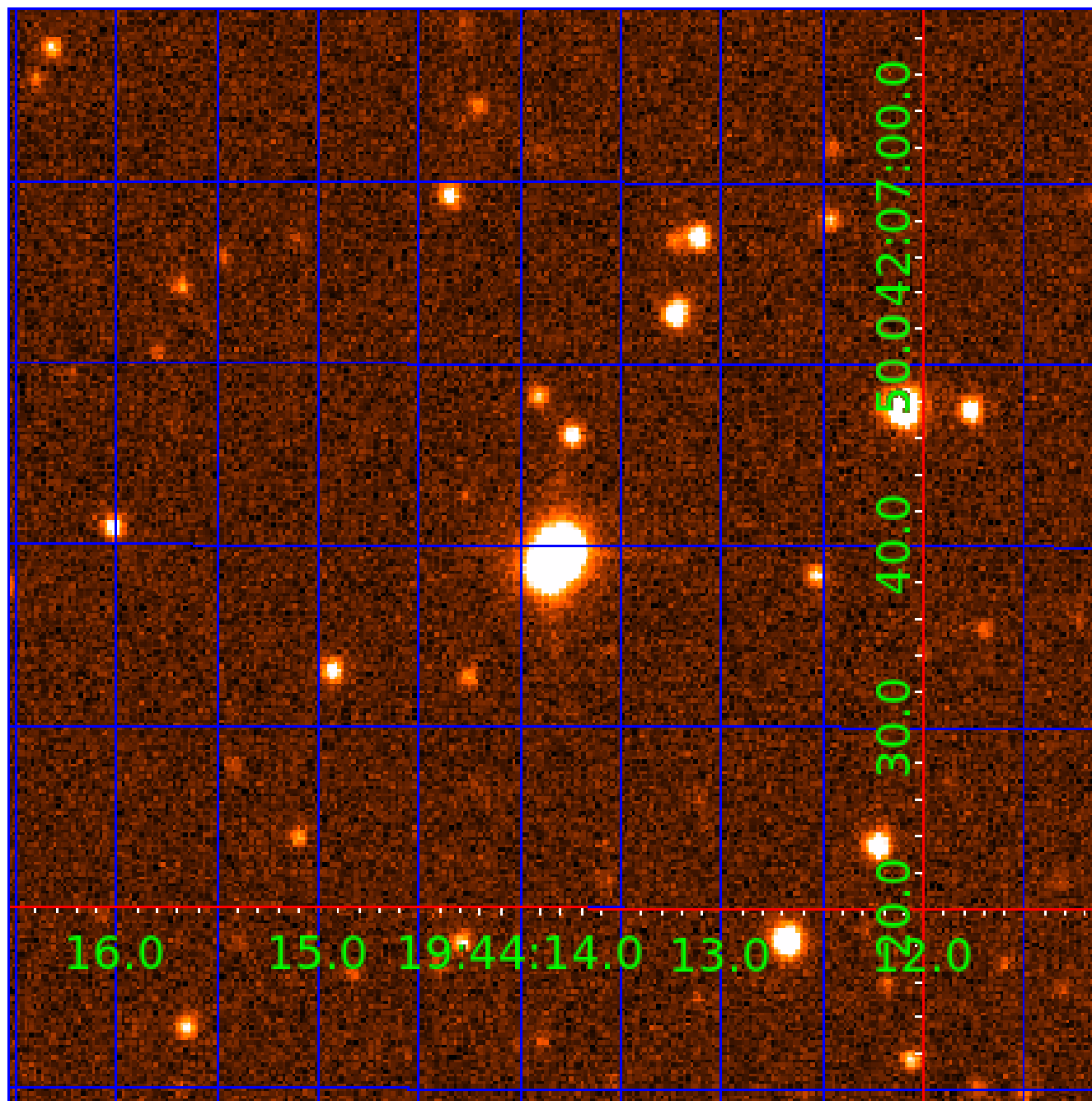


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006707942

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 006707942-01 | OBS | 3569.01 | 9.014219 | 131.549959 | 34157.7 | 2.781 | 2156.1 | 1792.1 | 0.73 | 4842 | 15.64 | 45.15 |
| 006707942-02 | OBS | No | 9.014219 | 135.587241 | 1192.2 | 2.634 | 80.1 | 77.4 | 0.73 | 4842 | 3.32 | 45.15 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------------------|
| 006707942-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE |
| 006707942-02 | OBS | FP | 0.00 | 1 | 1 | 0 | 0 | IS_SEC_TCE |

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 006707942-02

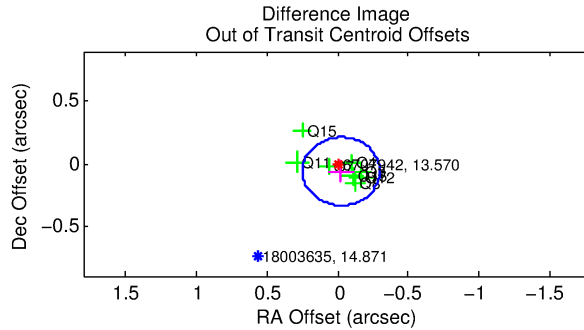
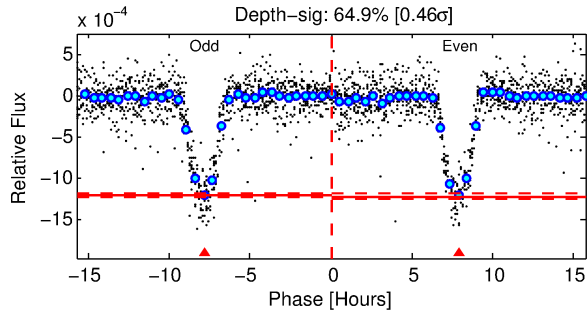
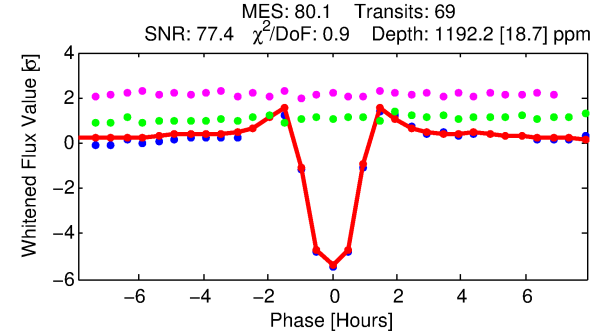
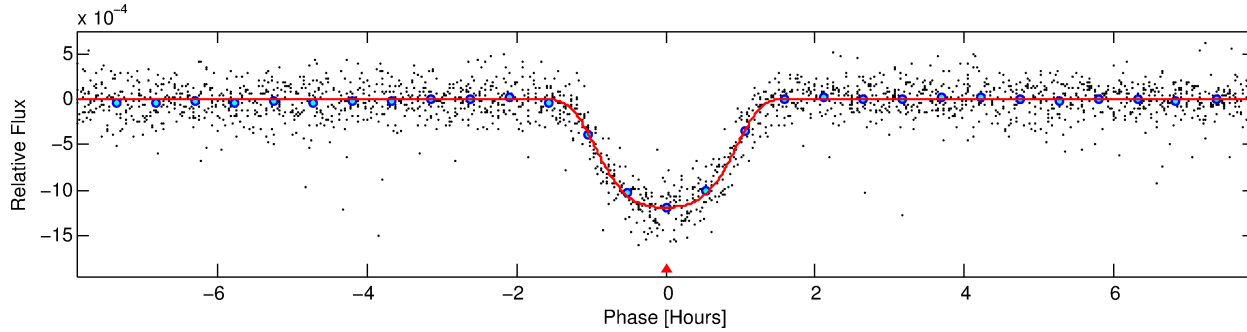
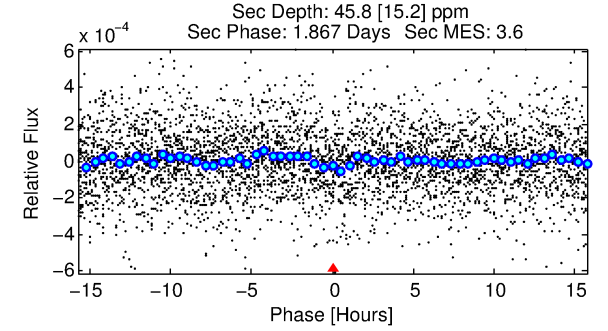
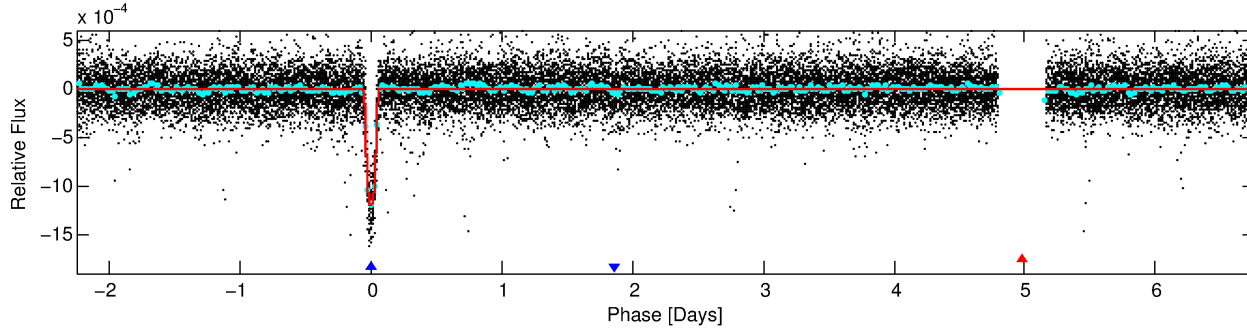
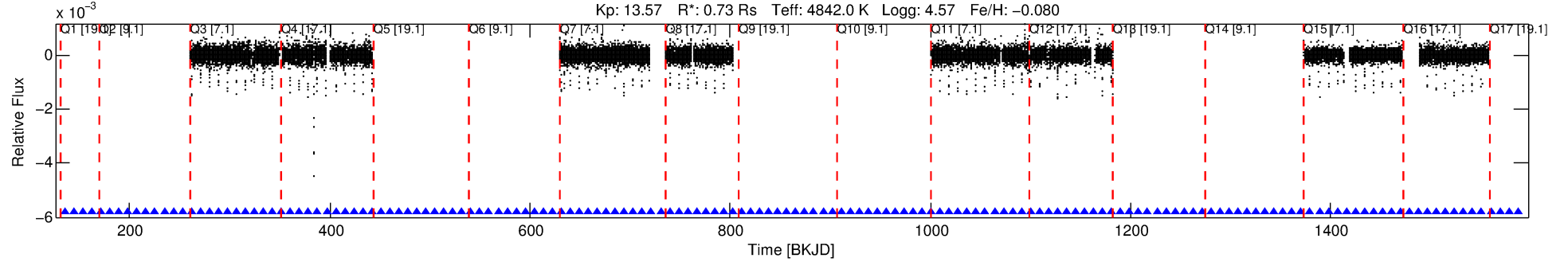
No Significant Match Found

DV One-Page Summary

KIC: 6707942 Candidate: 2 of 2 Period: 9.014 d

KOI: K03569 Corr: No Ephemeris Match

Kp: 13.57 R*: 0.73 Rs Teff: 4842.0 K Logg: 4.57 Fe/H: -0.080



DV Fit Results:

Period = 9.01422 [0.00001] d
Epoch = 135.5872 [0.0007] BKJD
Rp/R* = 0.0417 [0.0006]
a/R* = 11.51 [0.37]
b = 0.94 [0.00]
Seff = 45.15 [8.08]
Teq = 661 [30] K
Rp = 3.32 [0.32] Re
a = 0.0762 [0.0058] AU
Ag = 13.27 [4.63] [2.65σ]
Teffp = 1950 [177] K [7.20σ]

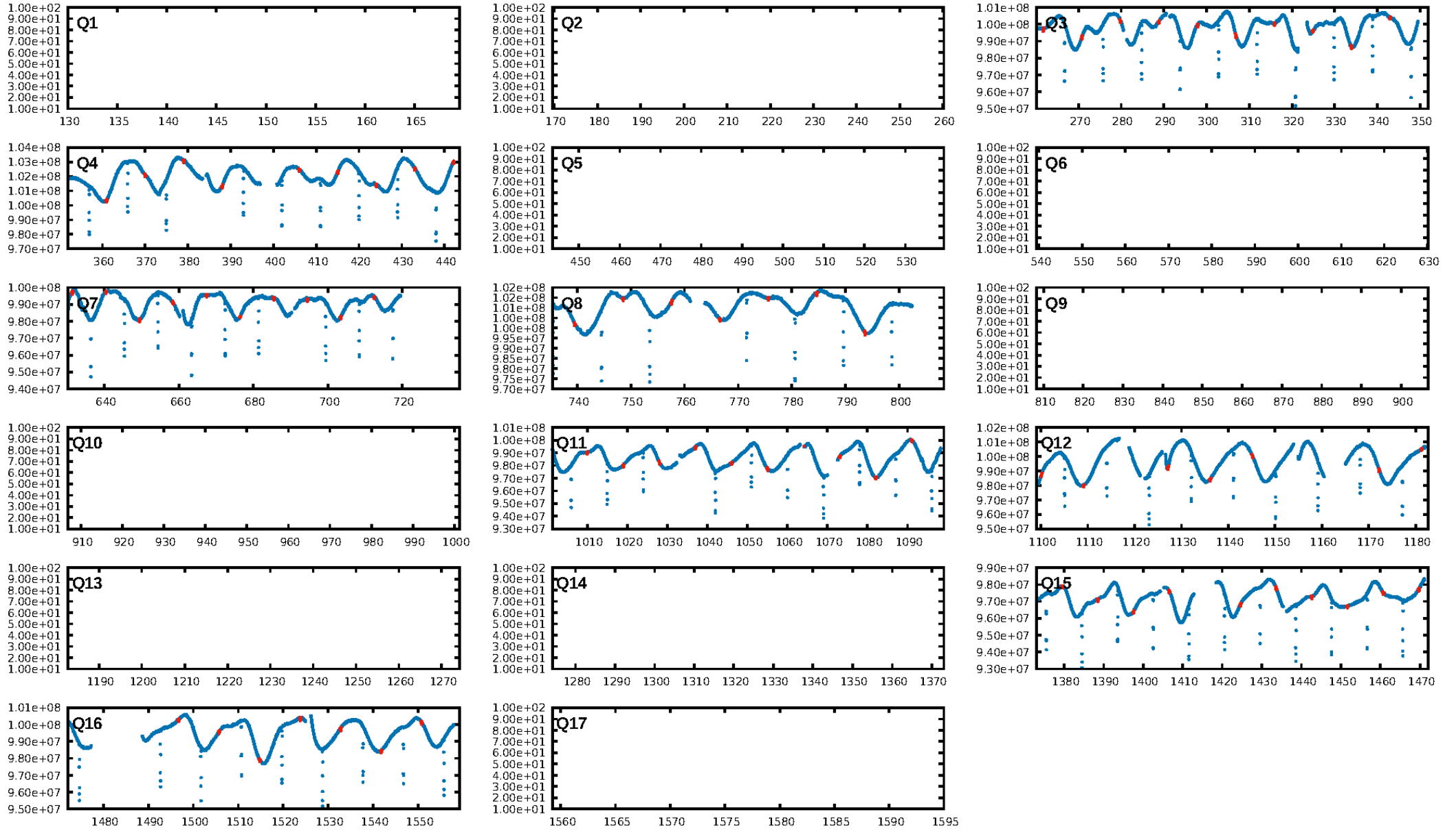
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 61.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [69/69]
GhostDiagnostic-chr: 3.017
Centroid-sig: 12.3%
Centroid-so: 0.152 arcsec [1.38σ]
OotOffset-rm: 0.066 arcsec [0.72σ]
KicOffset-rm: 0.033 arcsec [0.29σ]
OotOffset-st: 0/4/4/0 [8]
KicOffset-st: 0/4/4/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

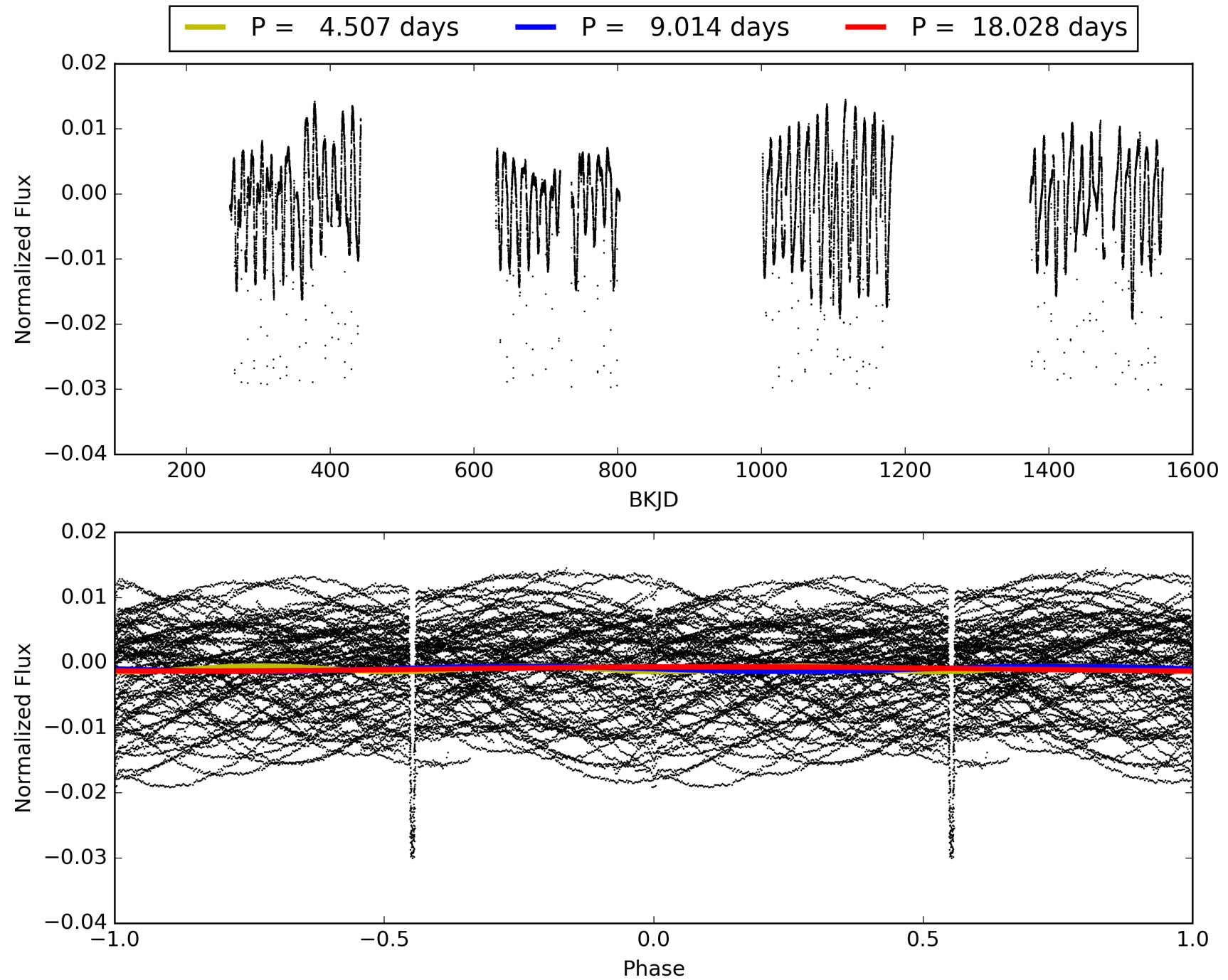
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:11:38 Z

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

TCE 006707942-02, PDC Light Curves

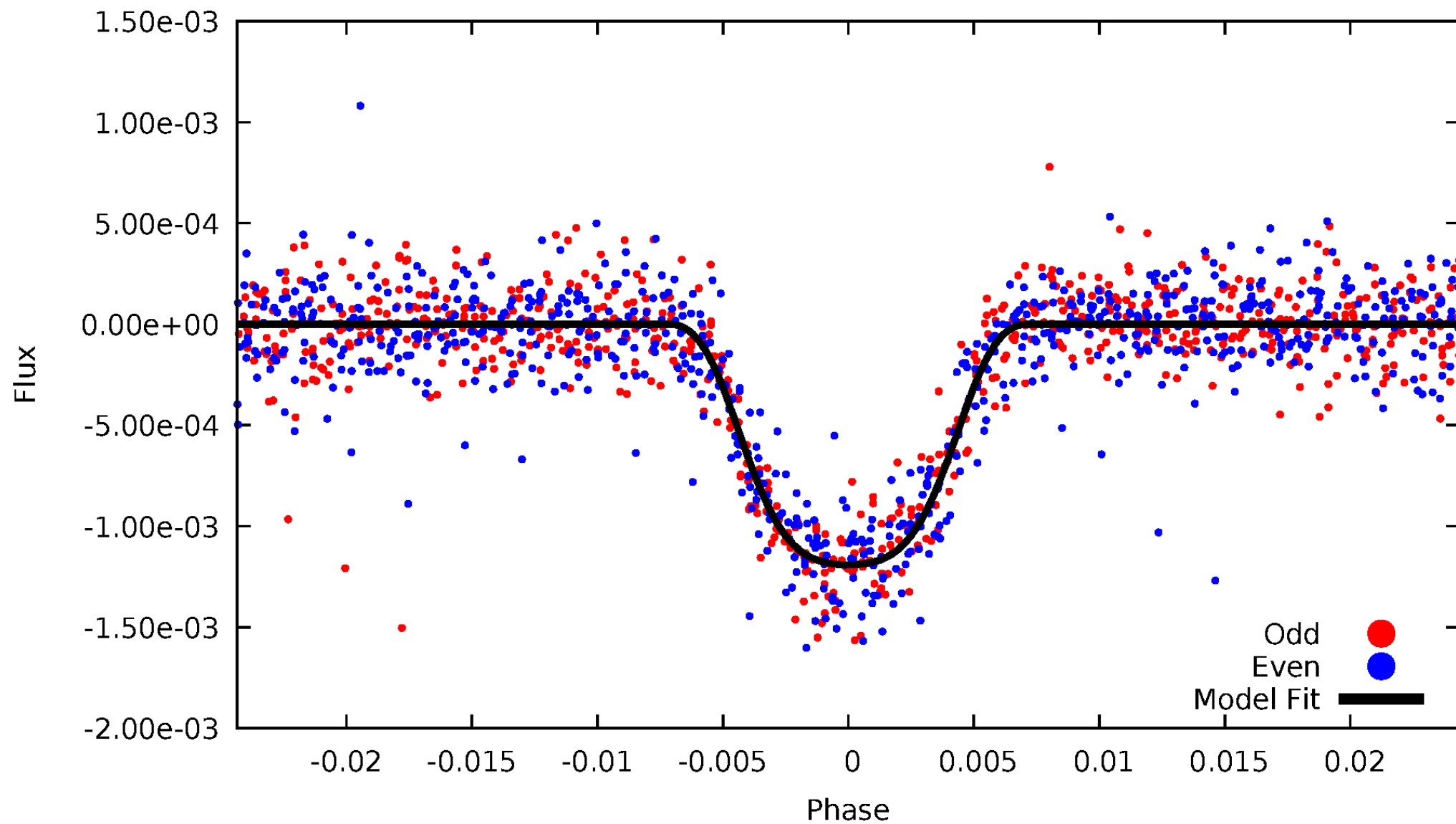


TCE 006707942-02



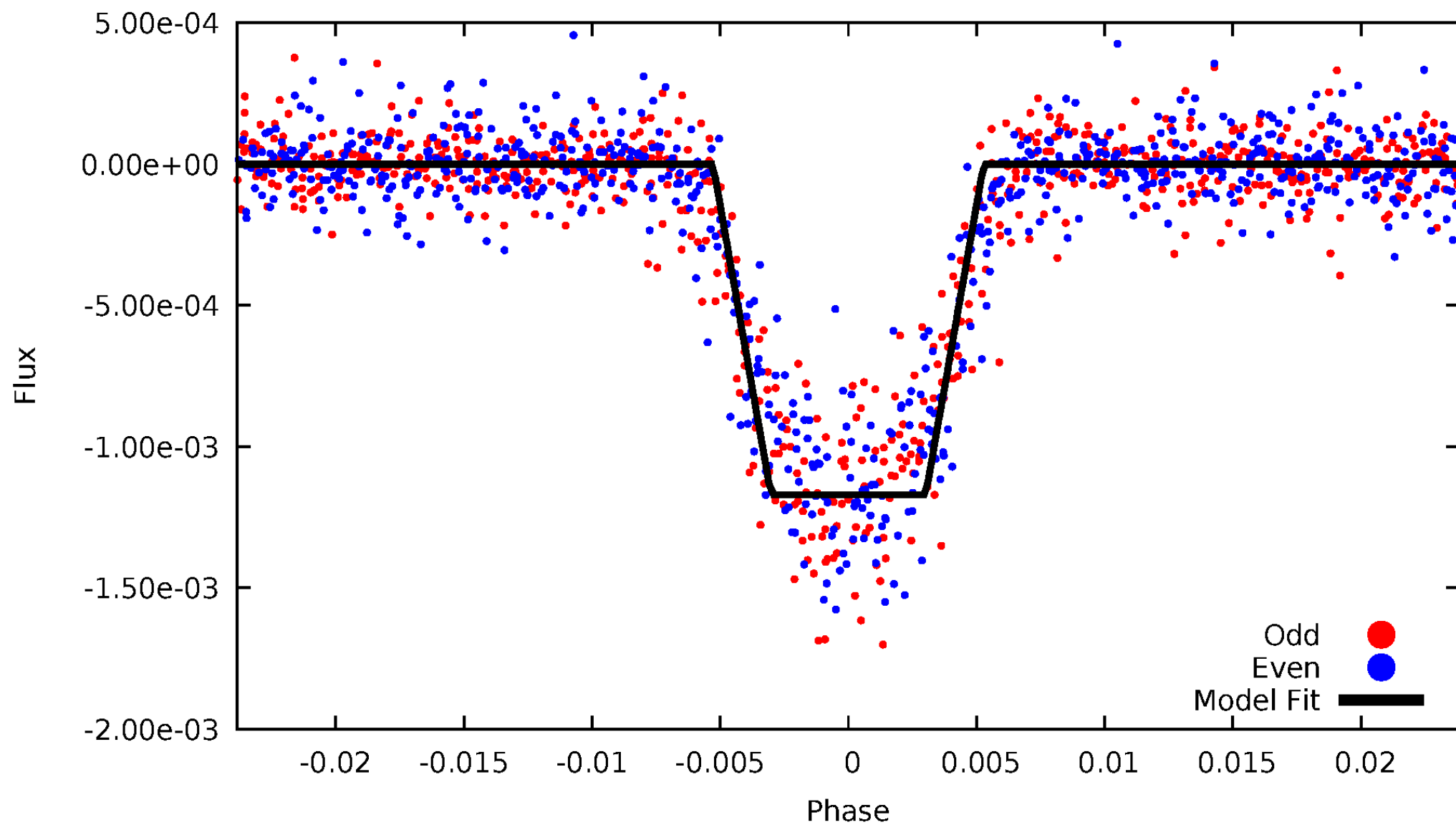
DV Odd/Even

TCE 006707942-02



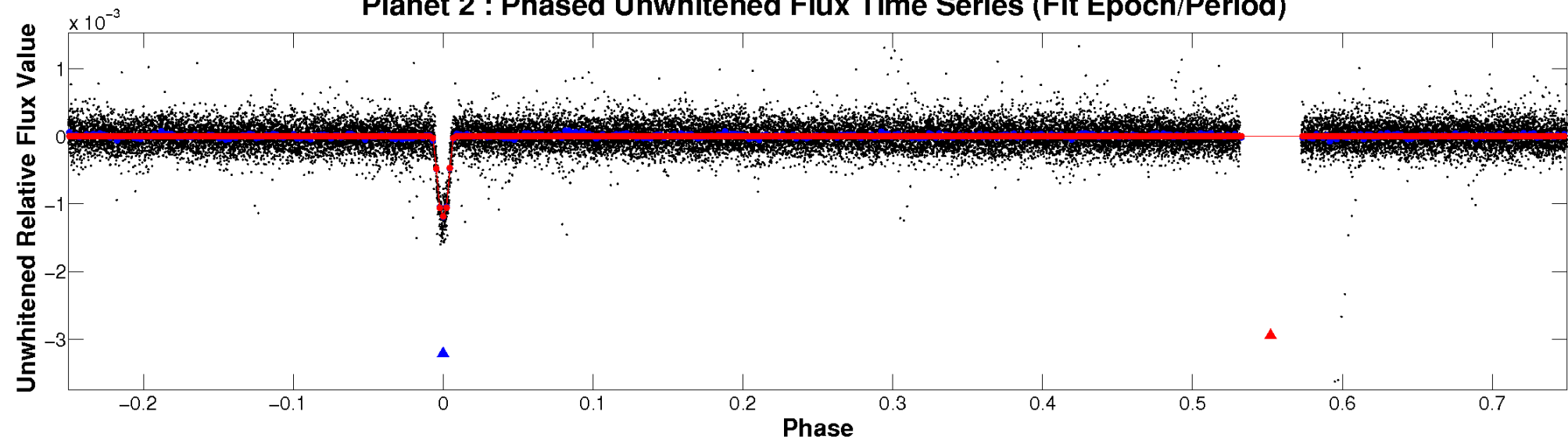
ALT Odd/Even

TCE 006707942-02

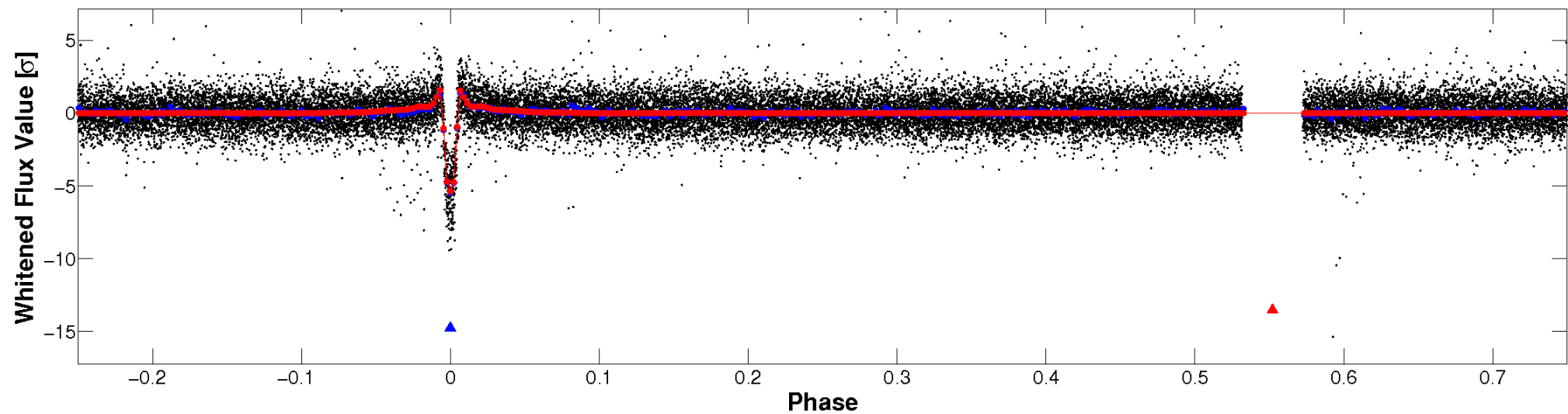


Non-Whitened Vs. Whitened Light Curve

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

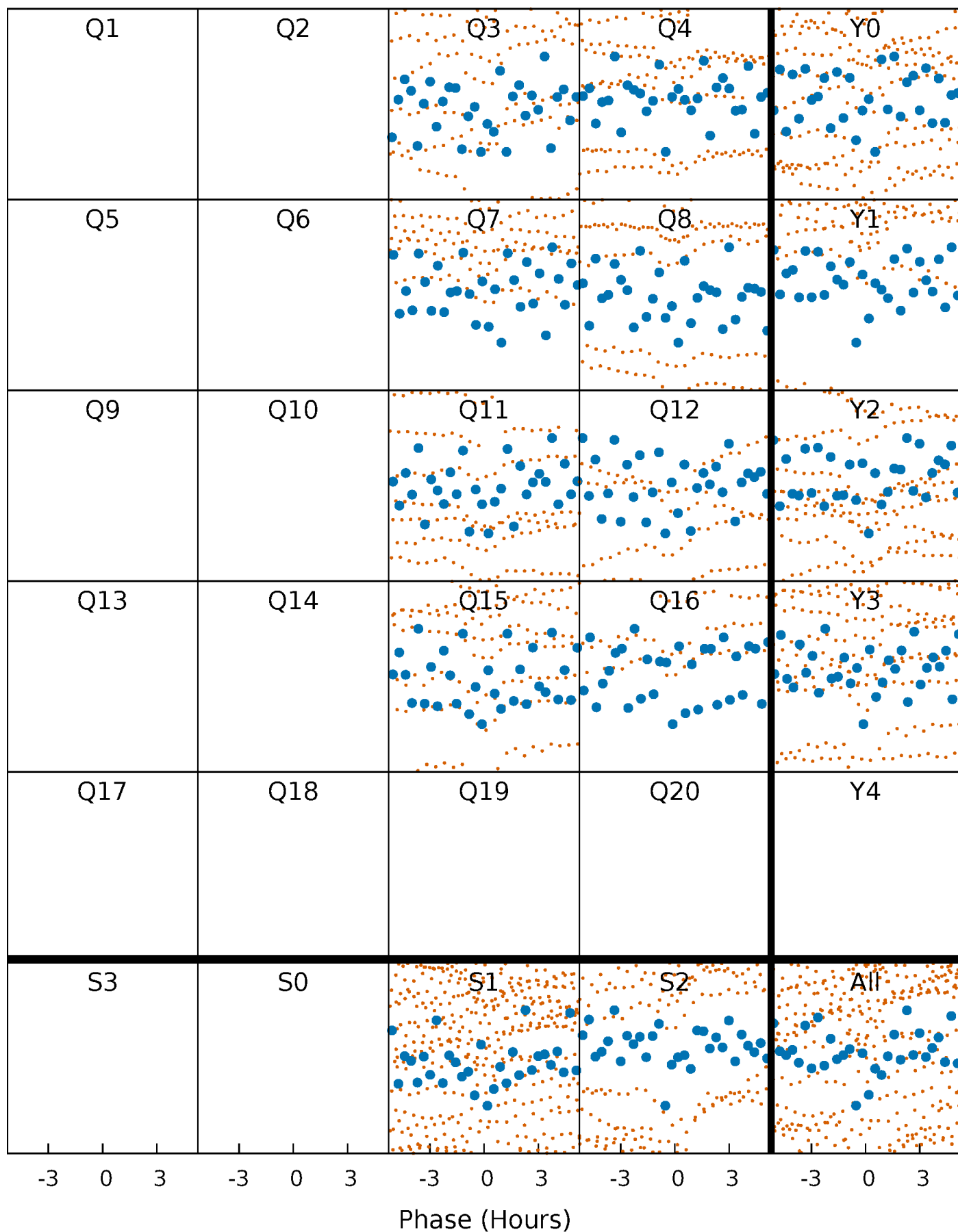


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



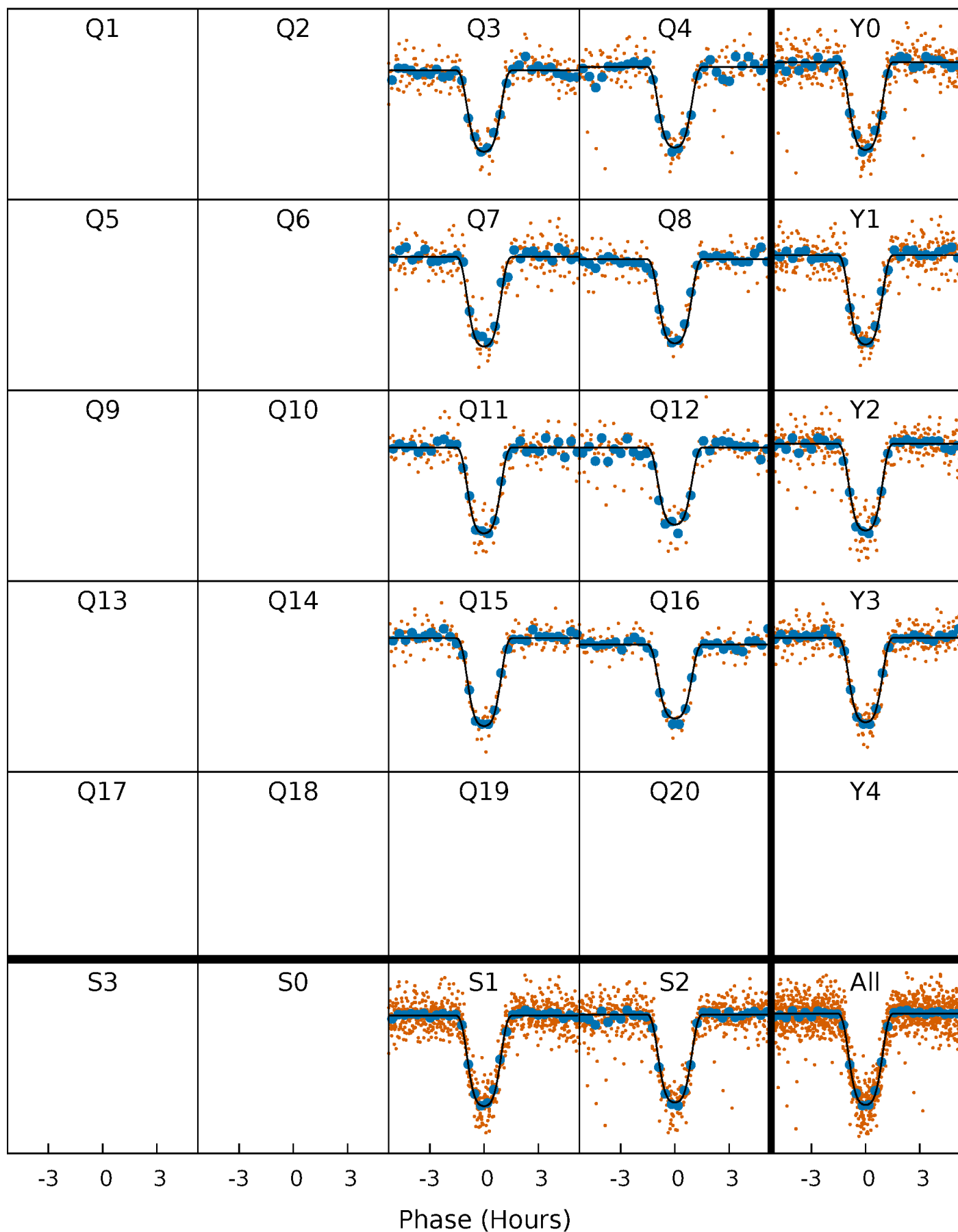
PDC Quarter-Phased Transit Curves

TCE 006707942-02 P= 9.014219 Days $T_0=135.587241$ (BKJD)



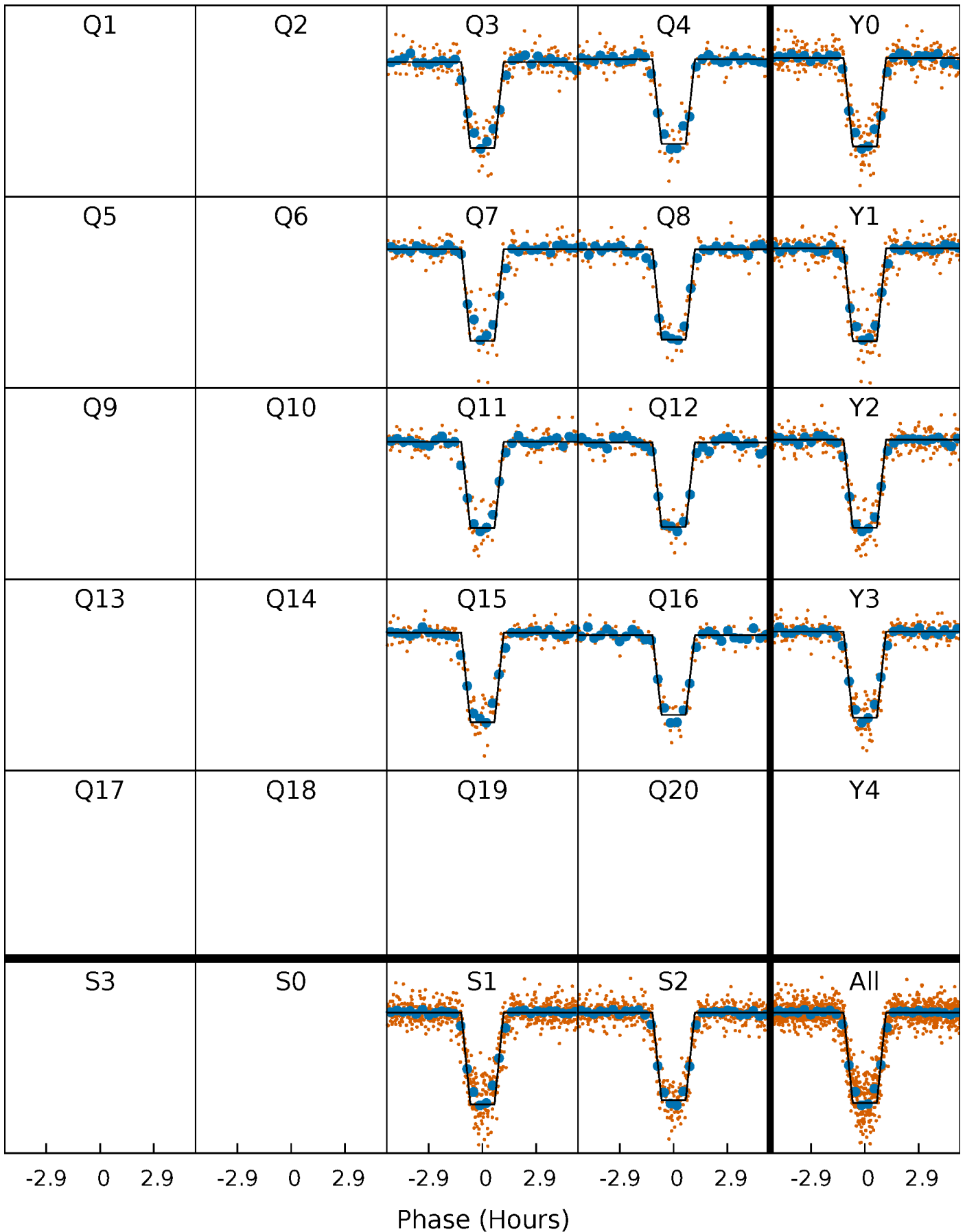
DV Quarter-Phased Transit Curves

TCE 006707942-02 P= 9.014219 Days $T_0=135.587241$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

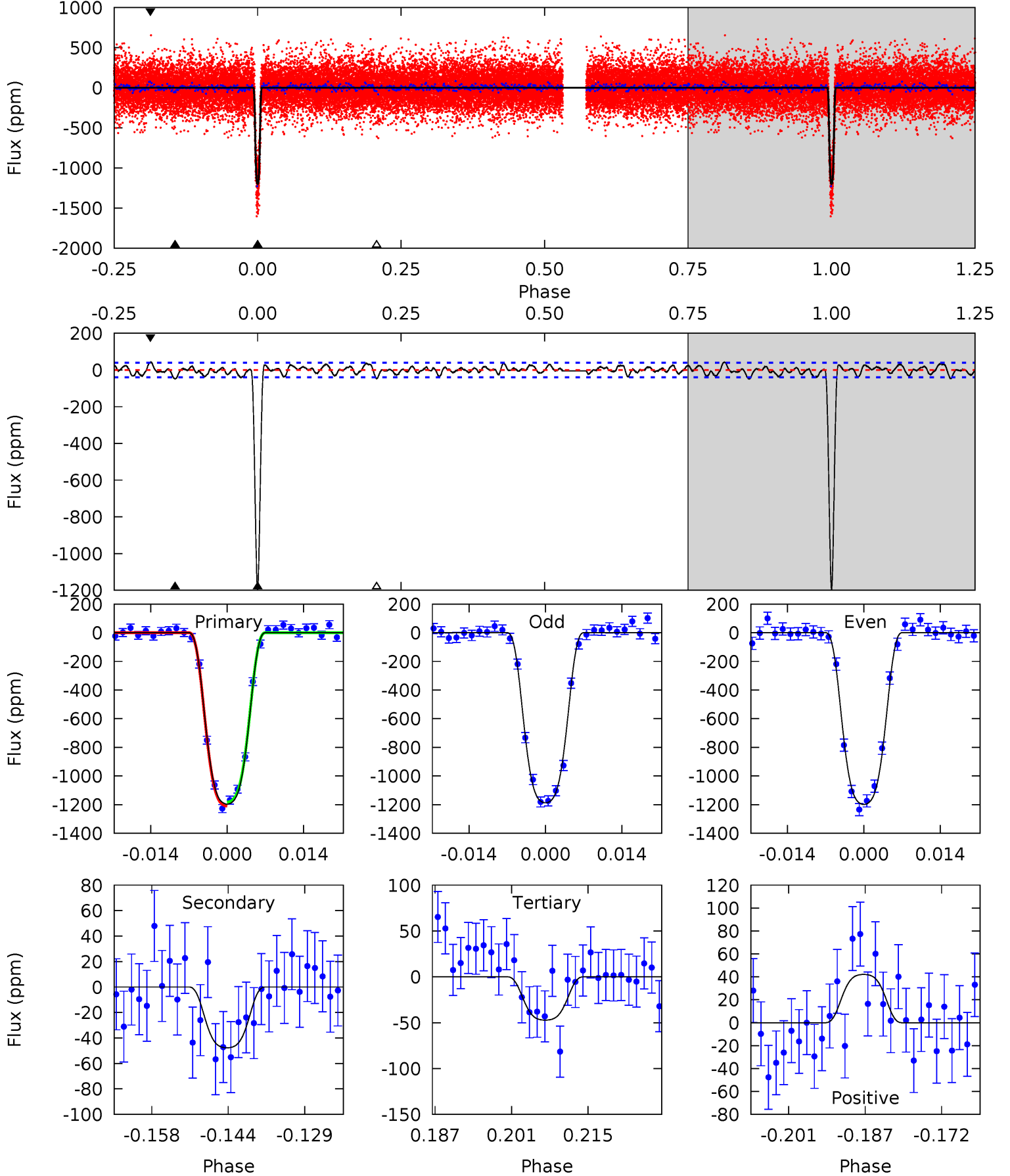
TCE 006707942-02 P= 9.014224 Days $T_0=135.586556$ (BKJD)



DV Model-Shift Uniqueness Test

006707942-02, P = 9.014219 Days, E = 135.587241 Days

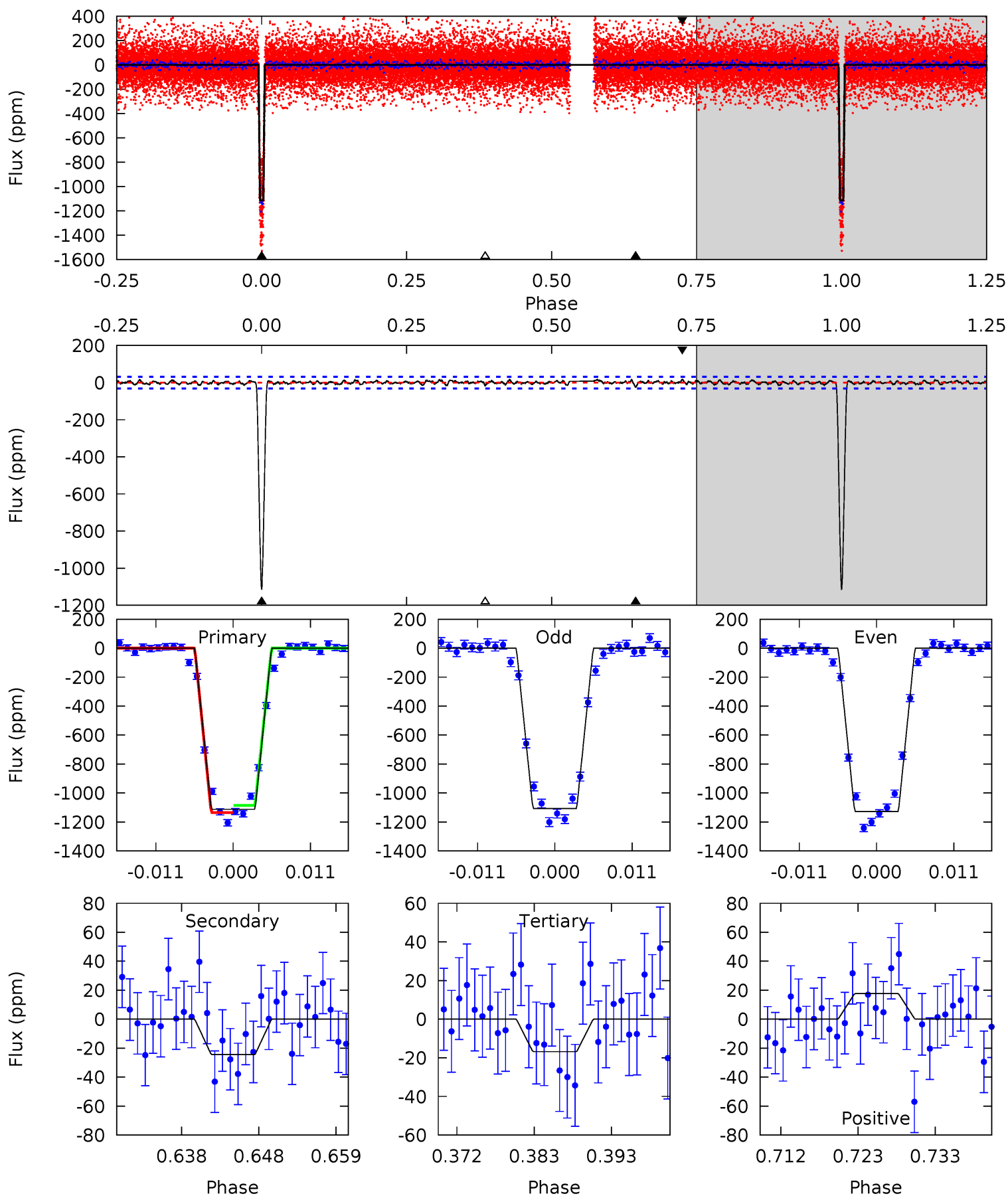
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 149.5 | 5.97 | 5.90 | 5.26 | 4.96 | 2.45 | 1.96 | 143.6 | 144.2 | 0.07 | 0.70 | 0.73 | 1.00 | 0.03 | 1.71 |



Alt Model-Shift Uniqueness Test

006707942-02, P = 9.014224 Days, E = 135.586556 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 177.2 | 3.89 | 2.68 | 2.81 | 5.01 | 2.55 | 0.91 | 174.5 | 174.4 | 1.21 | 1.08 | 1.53 | 1.00 | 0.02 | 3.95 |



Stellar Parameters For KIC 006707942

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--------------------------------------|
| | 4842^{+175}_{-175} | $4.573^{+0.055}_{-0.040}$ | $-0.080^{+0.300}_{-0.300}$ | $0.730^{+0.062}_{-0.069}$ | $0.729^{+0.075}_{-0.061}$ | $2.633^{+0.638}_{-0.429}$ |
| | +4%/-4% | +1%/-1% | +375%/-375% | +8%/-9% | +10%/-8% | +24%/-16% |
| 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 006707942-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|------------------|
| DV | -48 ± 8 | $3.32^{+0.18}_{-0.18}$ | 924^{+36}_{-39} | 2704^{+82}_{-87} | 14^{+3}_{-2} |
| Alt. | -24 ± 6 | $2.73^{+0.15}_{-0.15}$ | 922^{+36}_{-39} | 2599^{+97}_{-113} | 11^{+3}_{-3} |

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

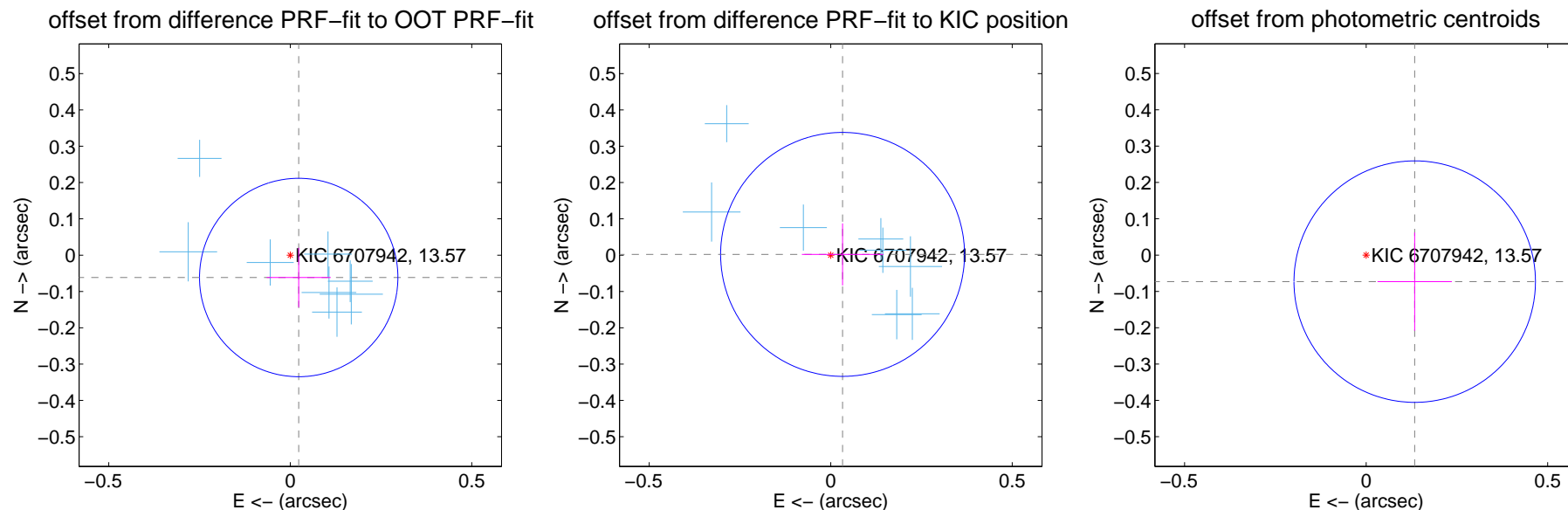
DV Centroid Data

Supplemental centroid analysis for 006707942-02. Kepler magnitude: 13.57. Transit SNR 77.35

There are 8 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 | 0.066 ± 0.091 | 0.72 | -0.023 ± 0.088 | -0.062 ± 0.082 |
| PRF-fit source offset from KIC position | 0.033 ± 0.112 | 0.29 | -0.033 ± 0.112 | 0.002 ± 0.085 |
| photometric centroid source offset | 0.15 ± 0.11 | 1.38 | -0.13 ± 0.10 | -0.07 ± 0.14 |



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.

Q1 no difference image



Q1 no OOT image



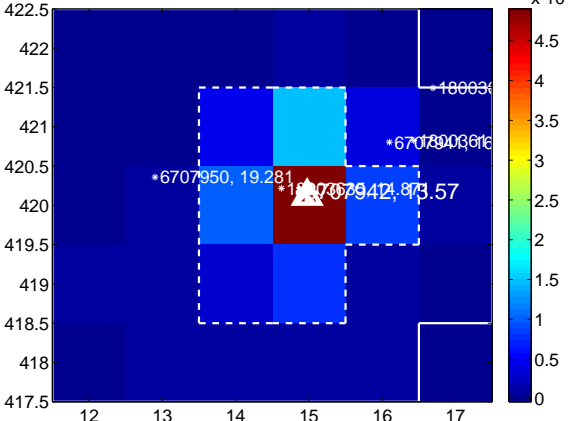
Q2 no difference image



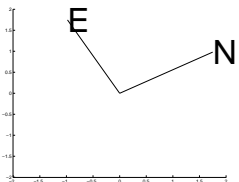
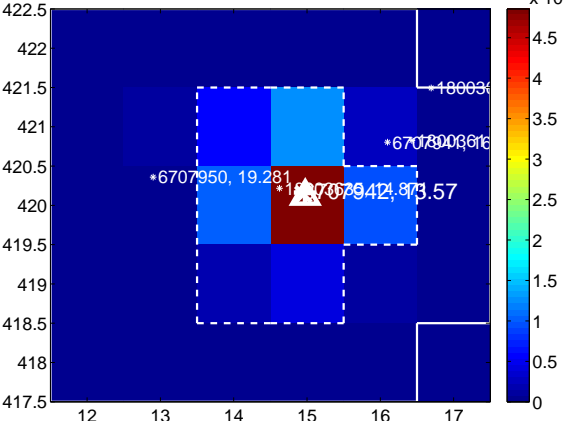
Q2 no OOT image



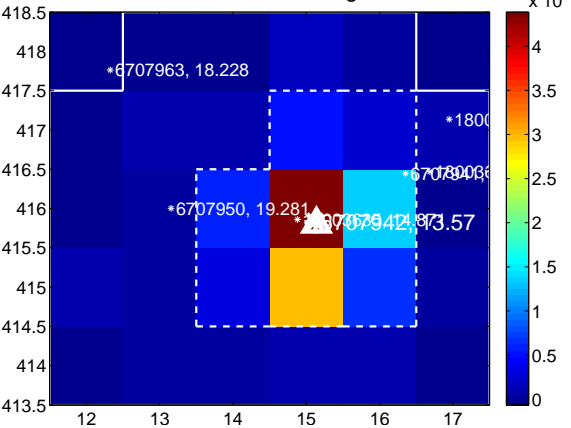
Q3 difference image



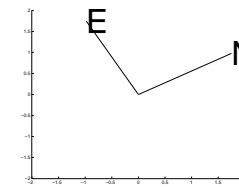
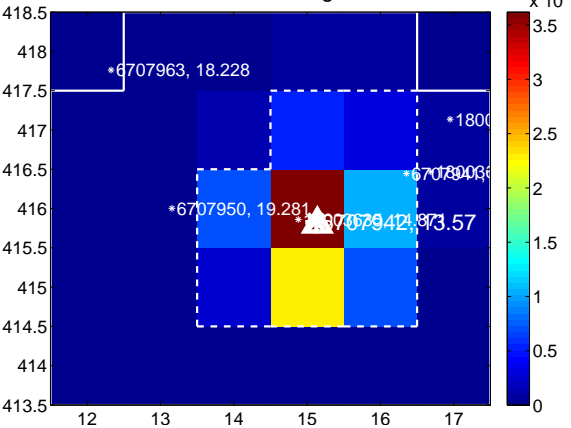
Q3 OOT image



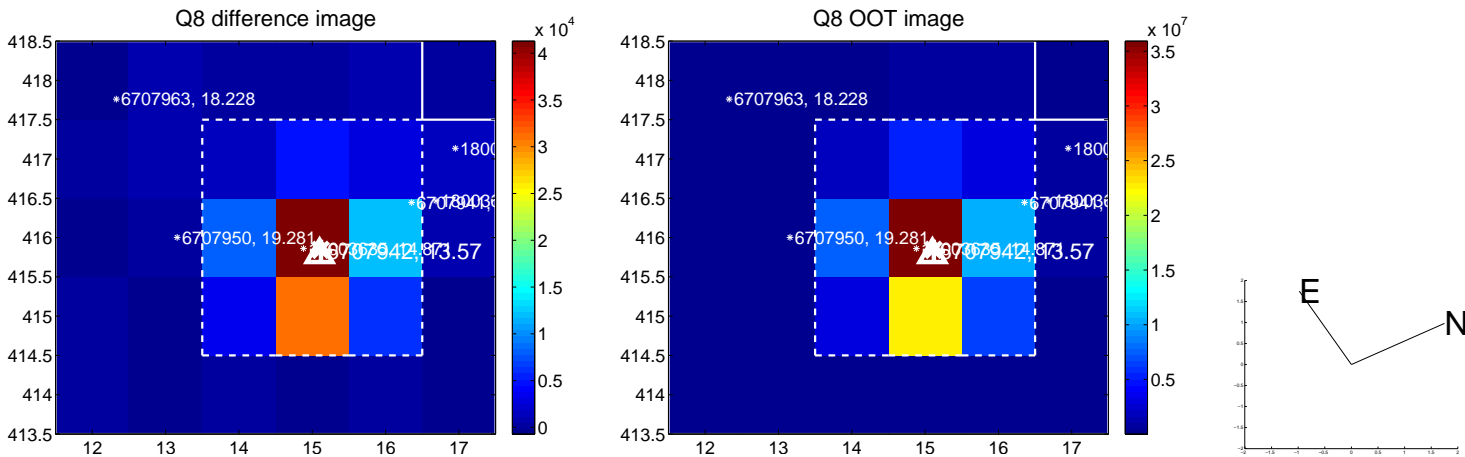
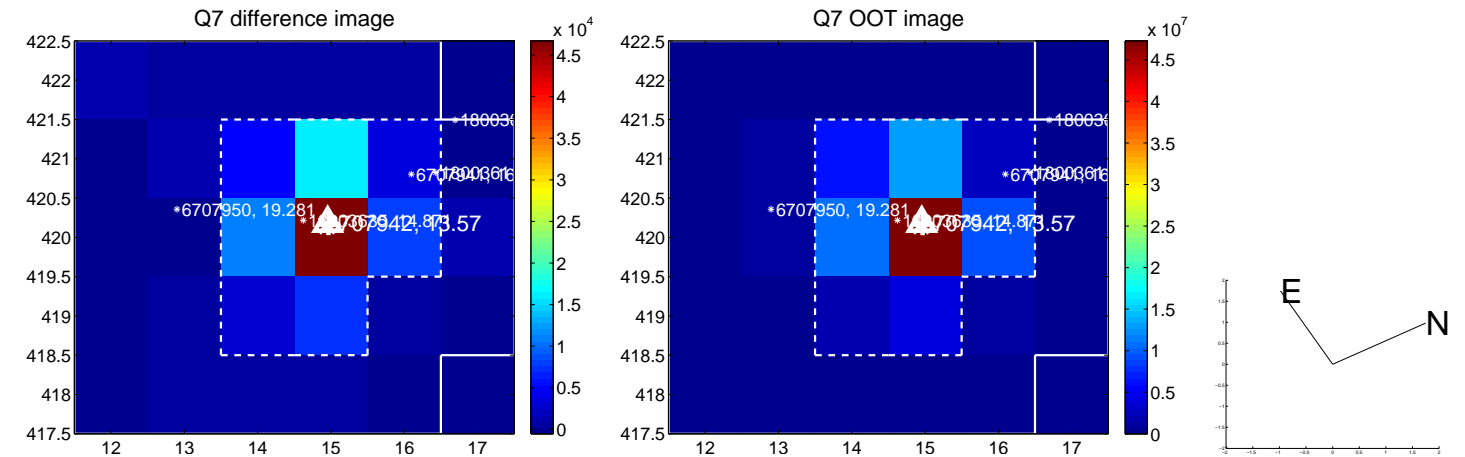
Q4 difference image



Q4 OOT image



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.

Q9 no difference image



Q9 no OOT image



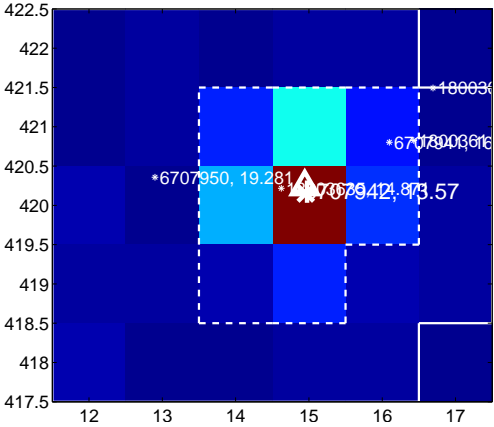
Q10 no difference image



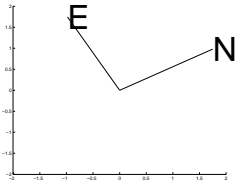
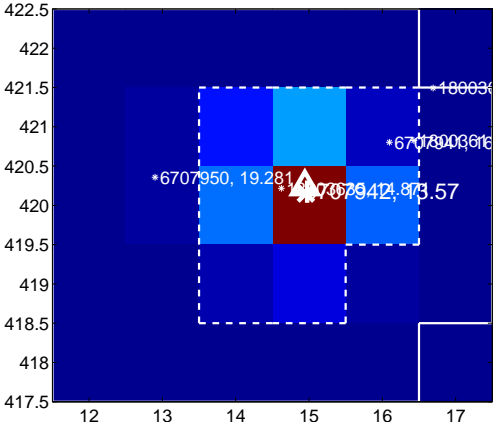
Q10 no OOT image



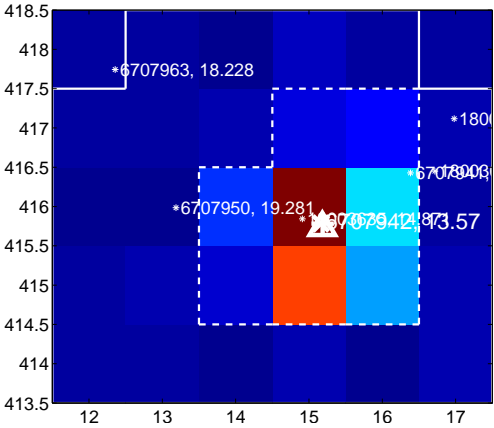
Q11 difference image



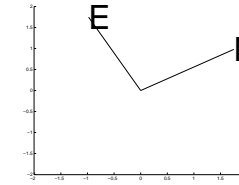
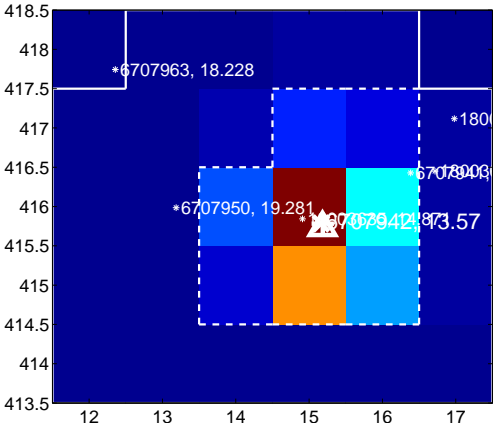
Q11 OOT image



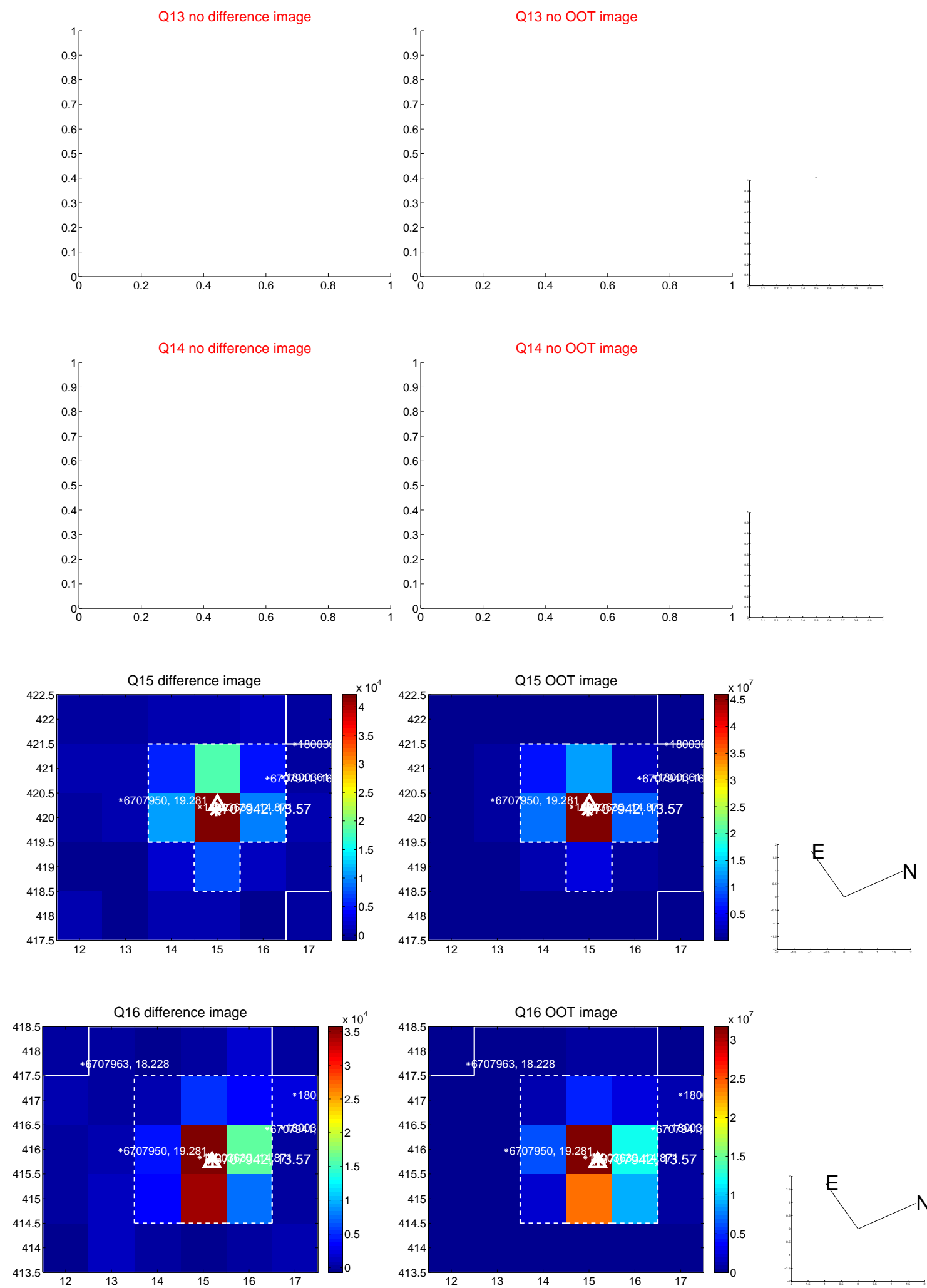
Q12 difference image



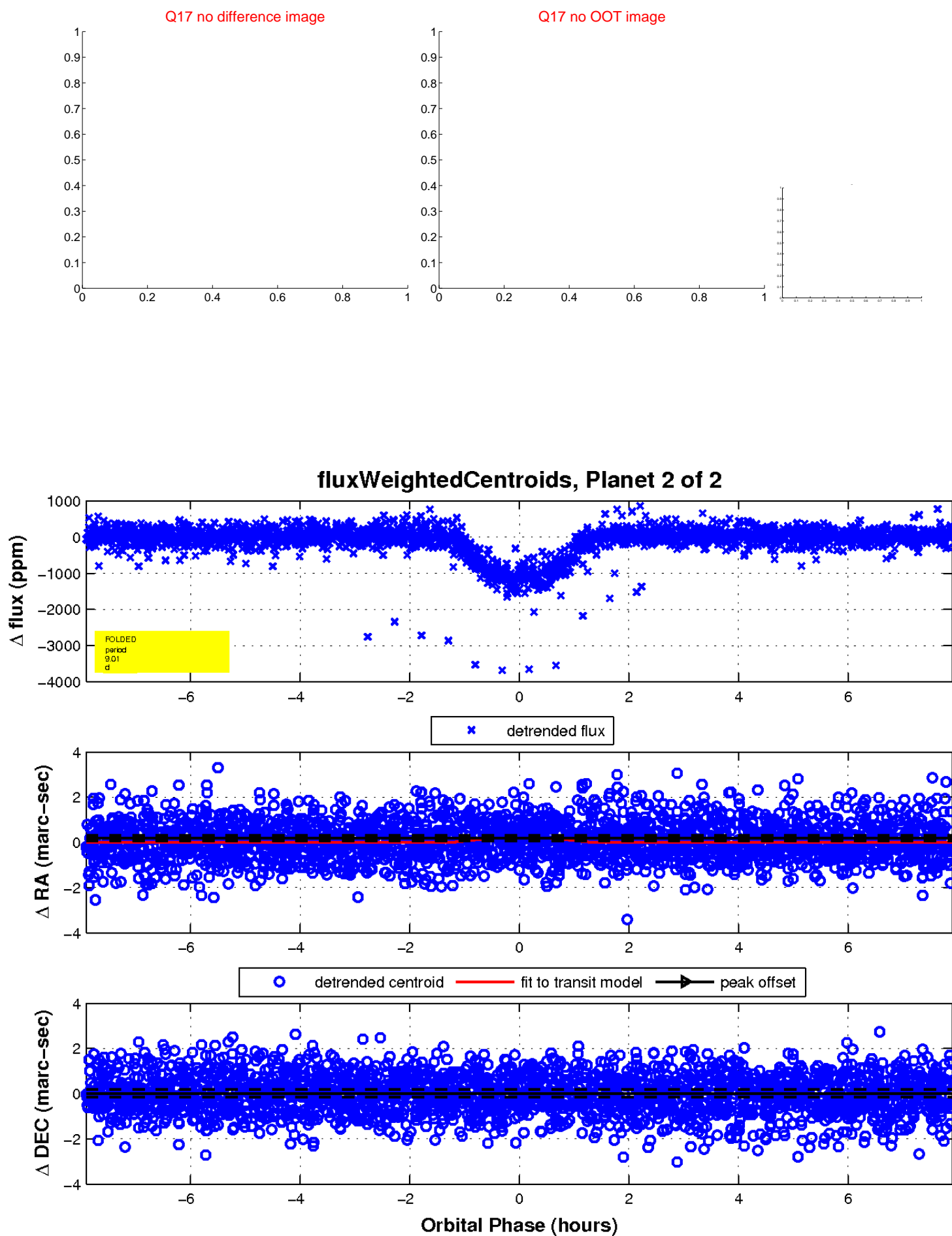
Q12 OOT image



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

