

KIC 006877673

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|---------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 006877673-01 | OBS | 6784.01 | 36.758210 | 156.099378 | 262157.1 | 10.500 | 26927.0 | -1.0 | 0.98 | 6085 | 48.50 | 25.86 |
| 006877673-02 | OBS | No | 36.758406 | 135.419217 | 191953.6 | 10.917 | 17556.4 | 8177.7 | 0.98 | 6085 | 43.66 | 25.86 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 006877673-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS |
| 006877673-02 | 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.

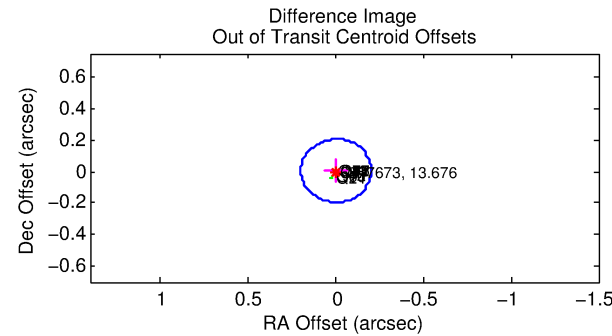
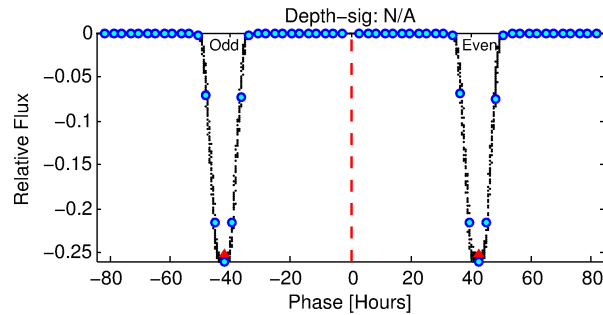
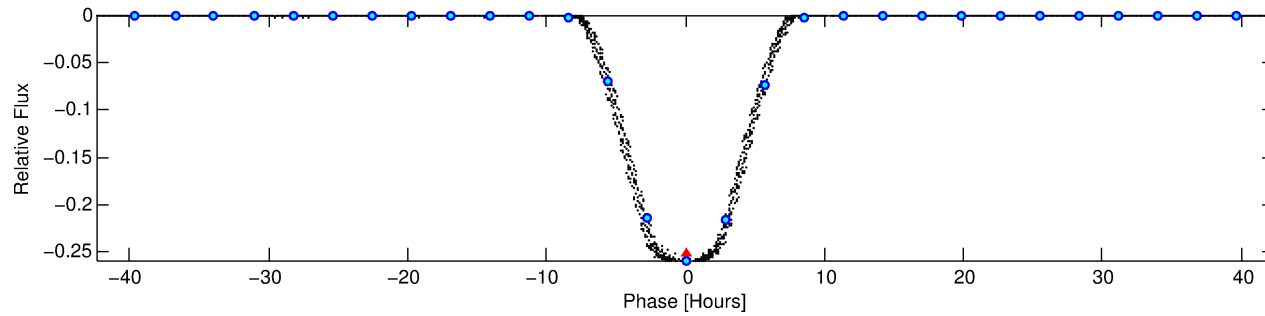
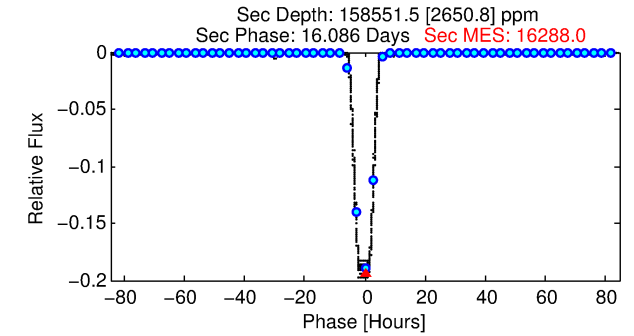
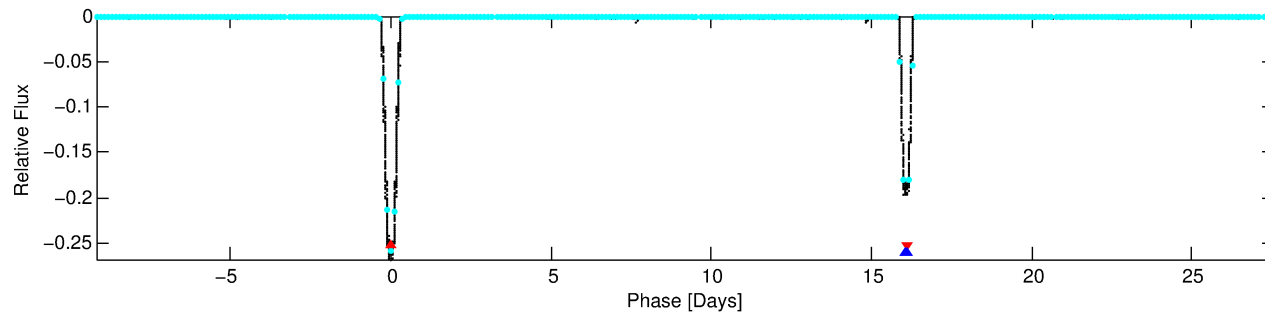
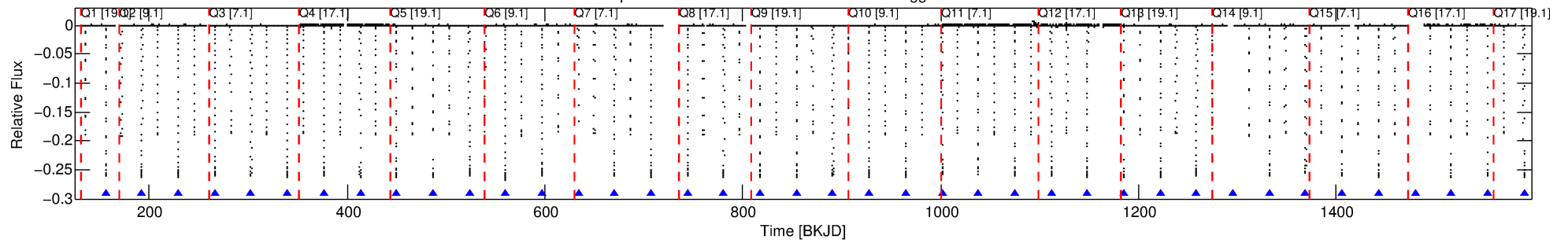
Ephemeris Match Information For 006877673-01

No Significant Match Found

DV One-Page Summary

KIC: 6877673 Candidate: 1 of 2 Period: 36.758 d
KOI: K06784.01 Corr: 0.821

Kp: 13.68 R*: 0.98 Rs Teff: 6085.0 K Logg: 4.44 Fe/H: -0.320



TPS TCE Results:

Period = 36.75821 d
Epoch = 156.0994 BKJD

DV fit results are unavailable

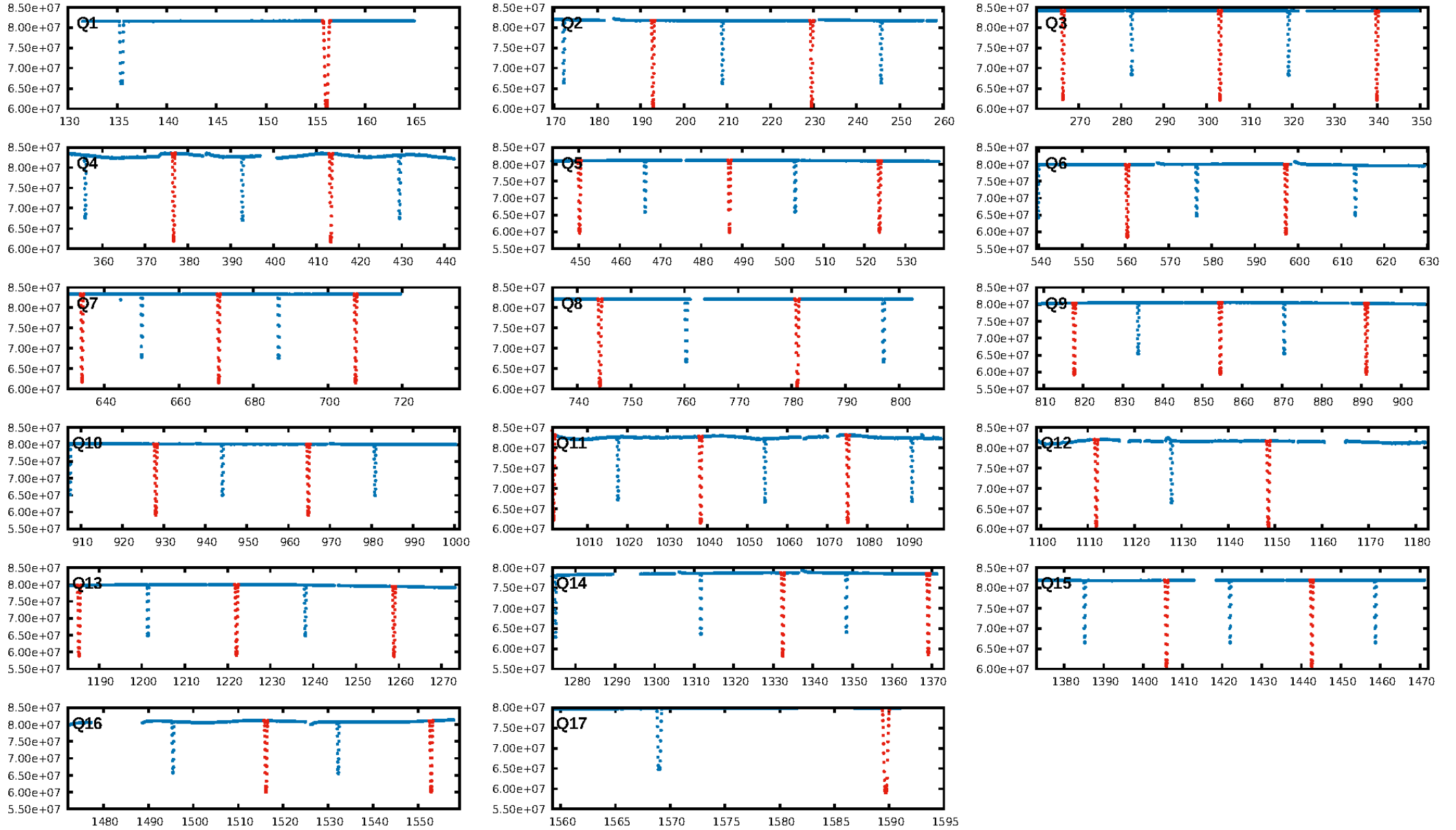
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [36/36]
GhostDiagnostic-chr: 3.839
Centroid-sig: 0.0%
Centroid-so: 0.056 arcsec [146.37σ]
OotOffset-rm: 0.007 arcsec [0.10σ]
KicOffset-rm: 0.023 arcsec [0.34σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

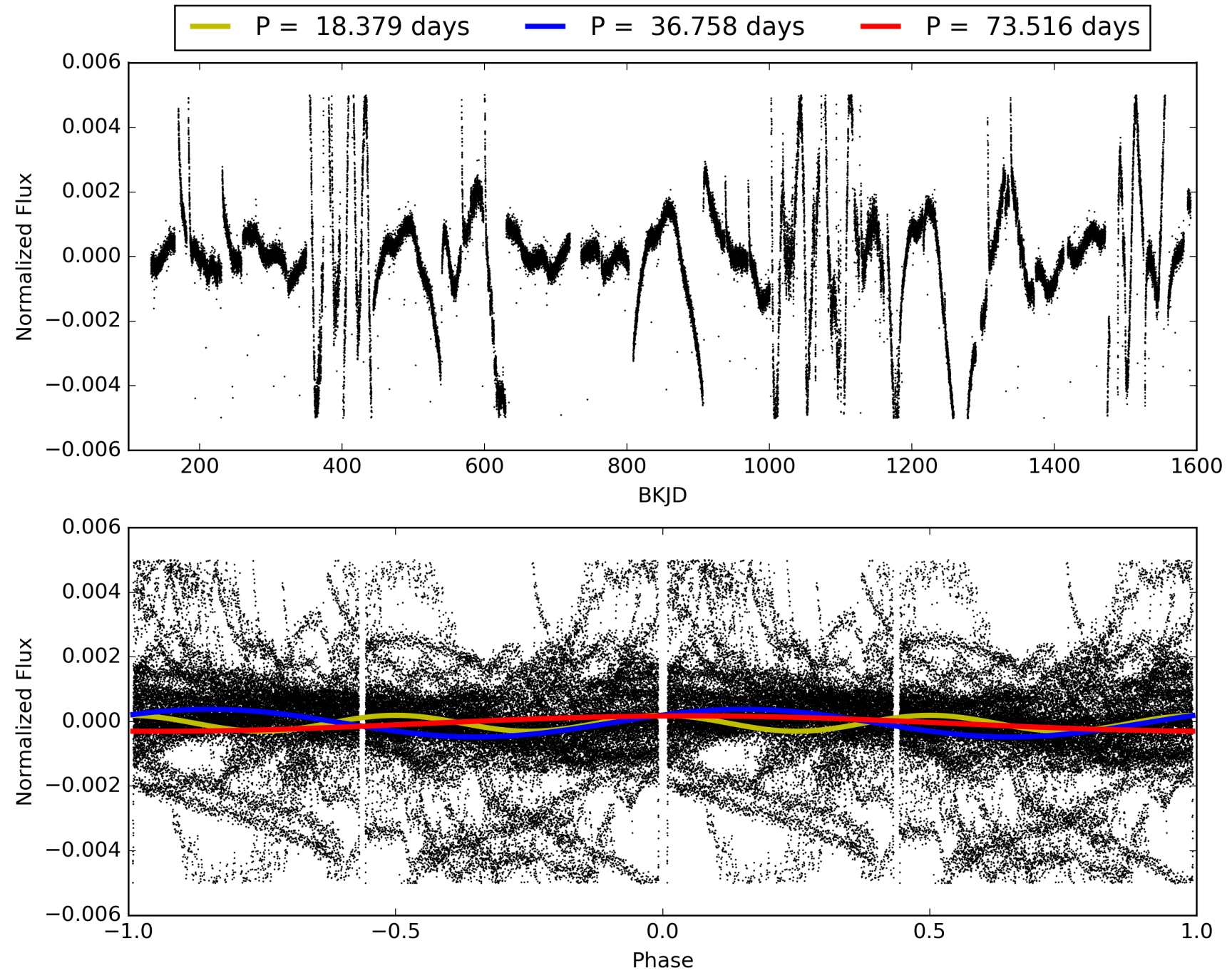
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:50:44 Z

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

TCE 006877673-01, PDC Light Curves

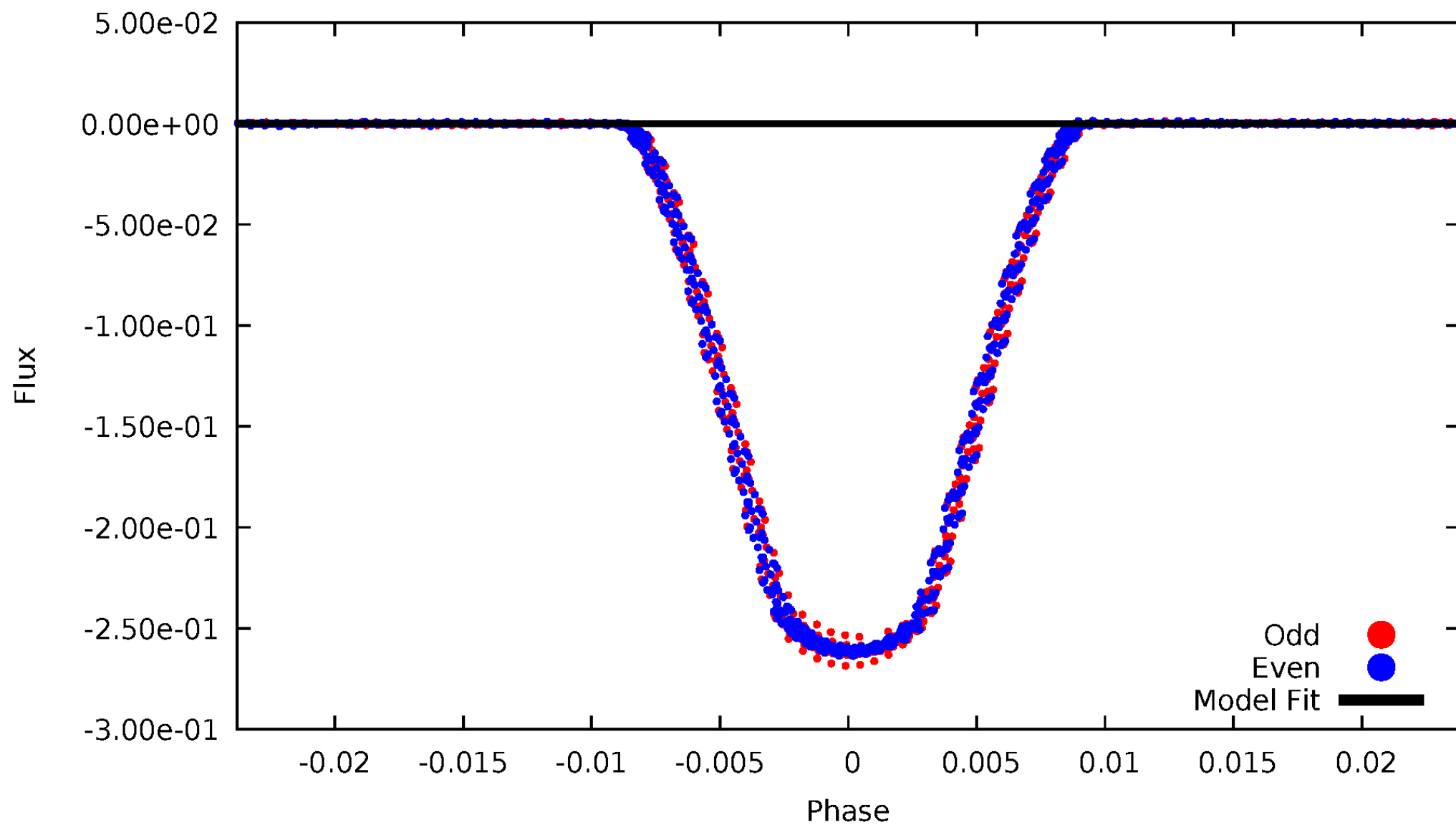


TCE 006877673-01



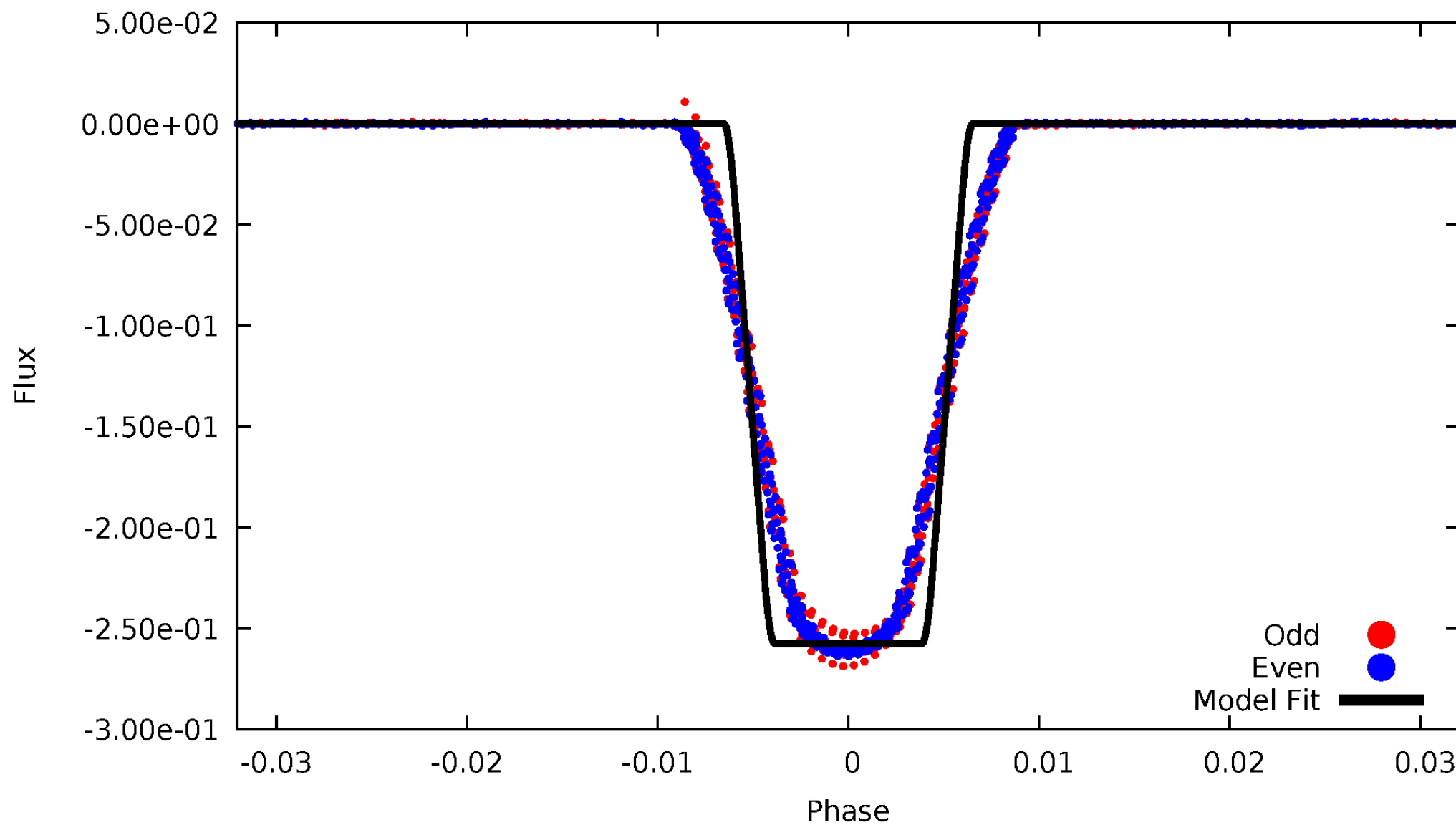
DV Odd/Even

TCE 006877673-01



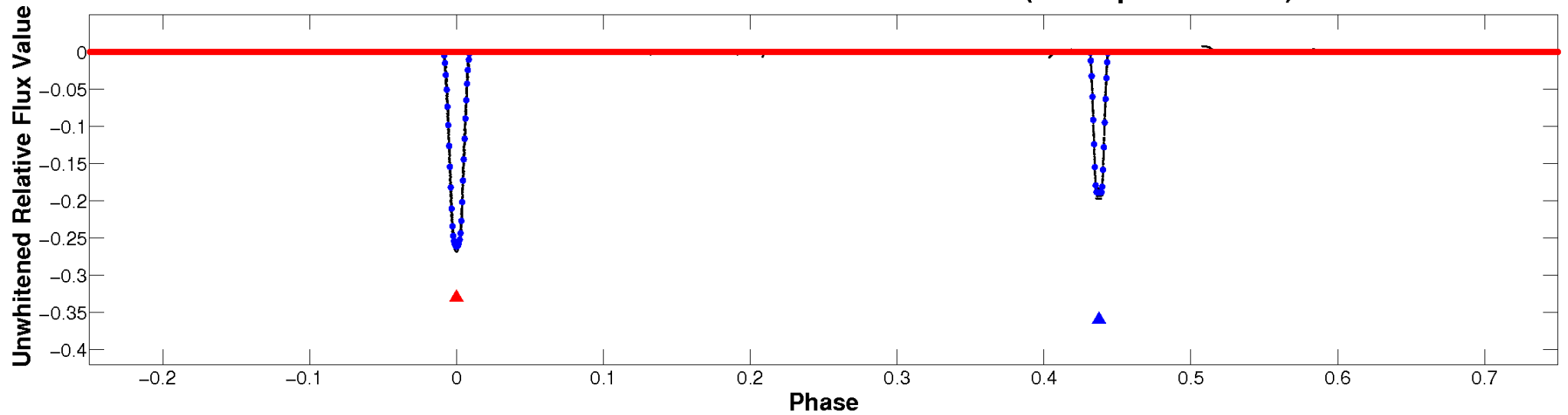
ALT Odd/Even

TCE 006877673-01



Non-Whitened Vs. Whitened Light Curve

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

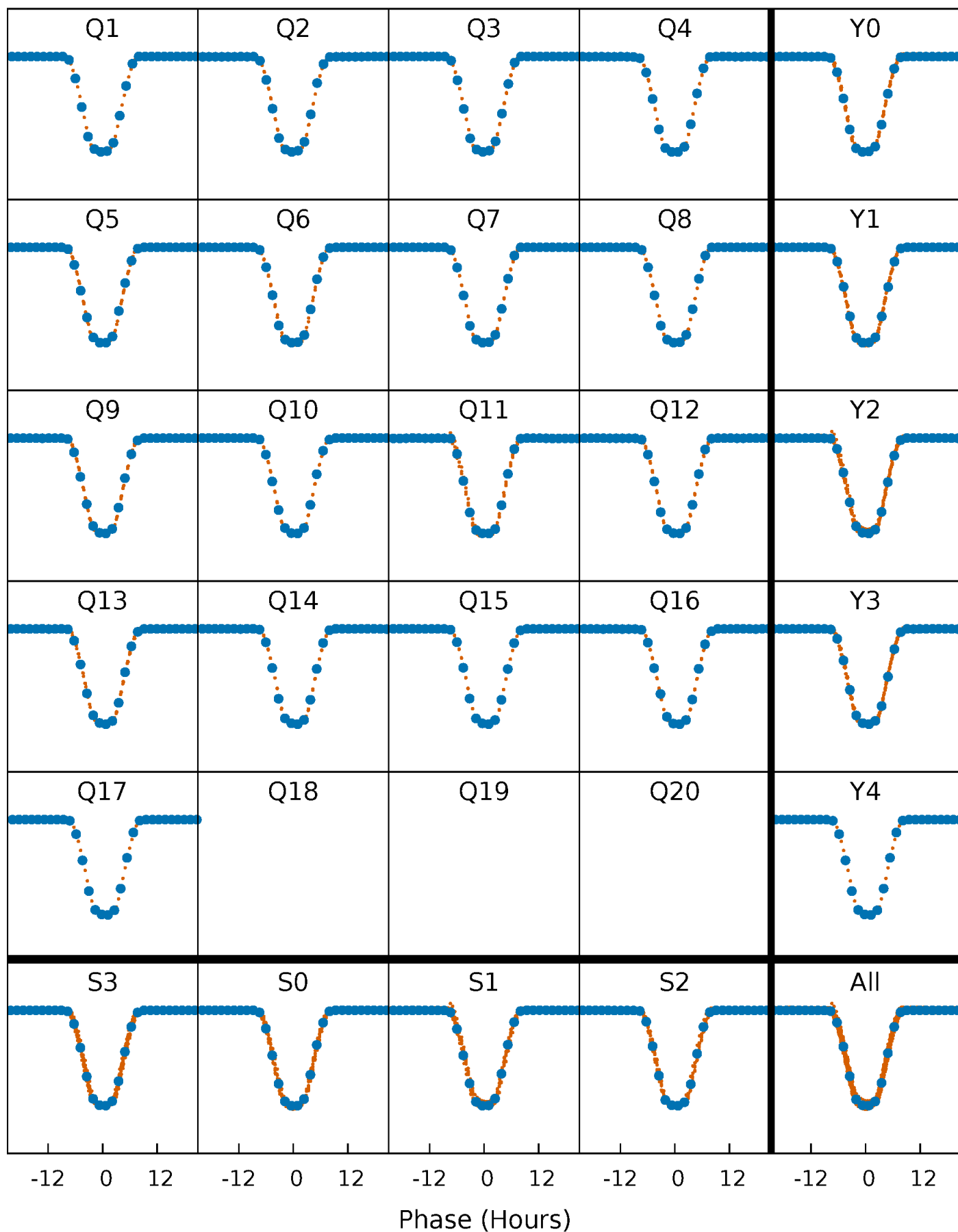


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



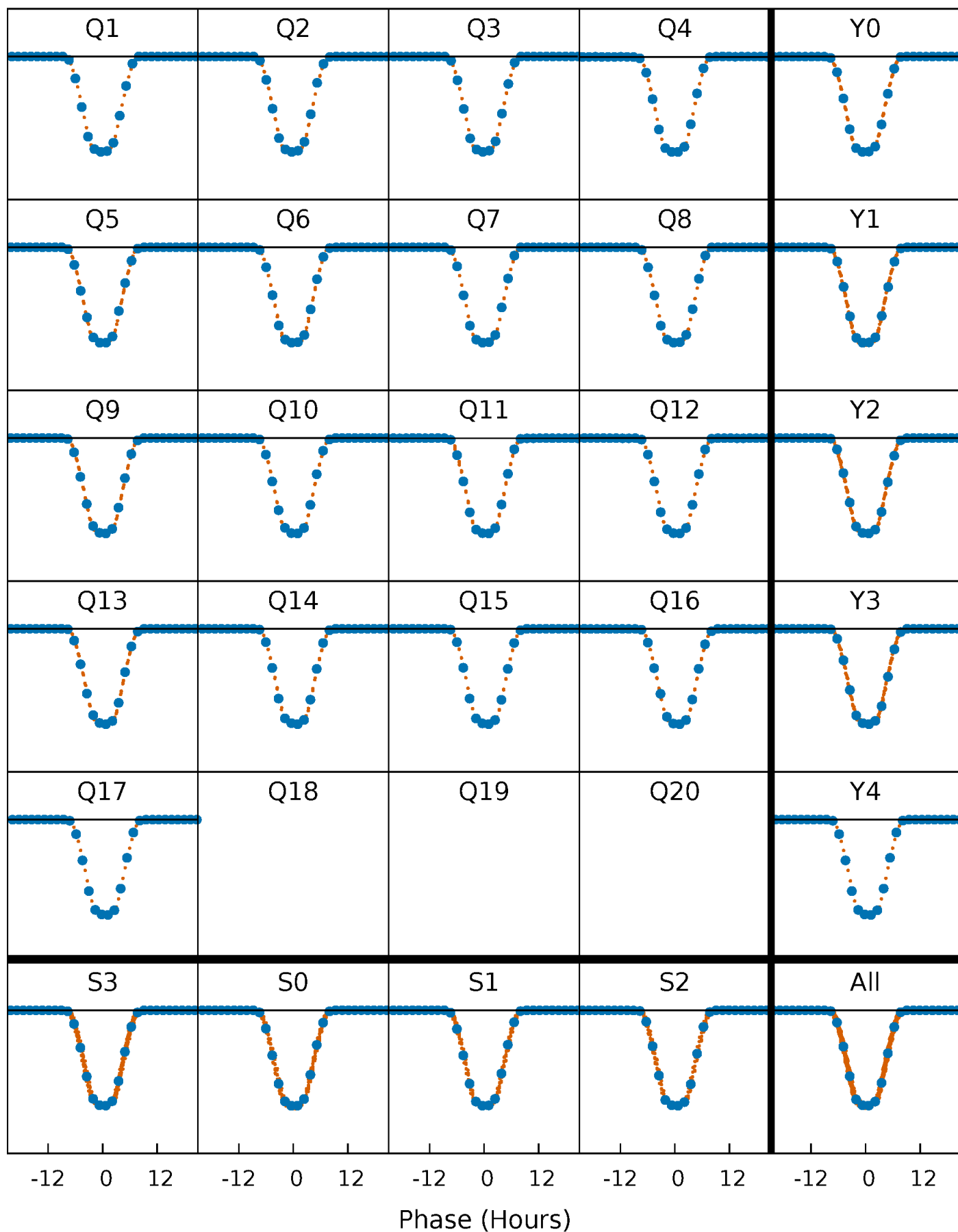
PDC Quarter-Phased Transit Curves

TCE 006877673-01 P= 36.758210 Days $T_0=156.099378$ (BKJD)



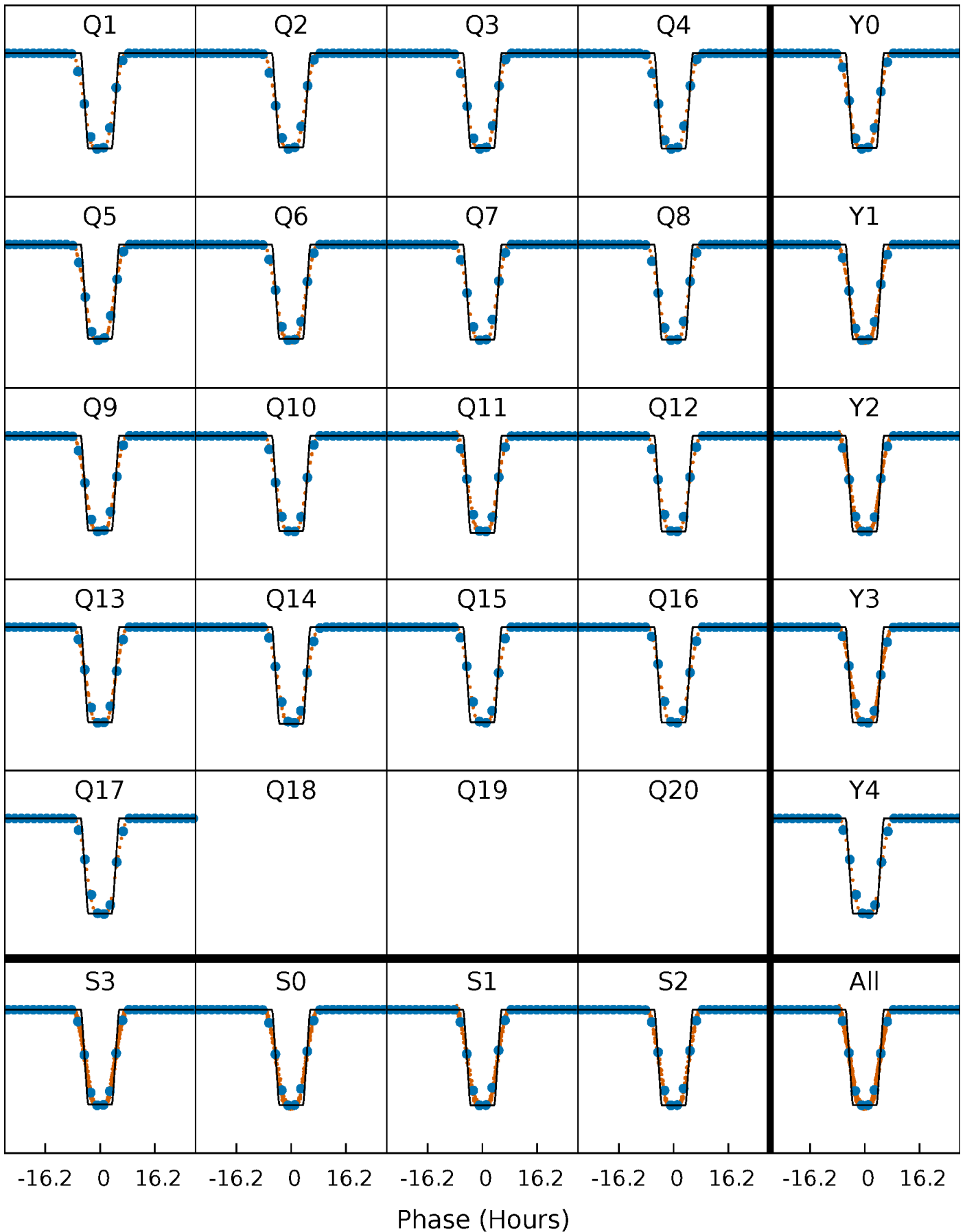
DV Quarter-Phased Transit Curves

TCE 006877673-01 P= 36.758210 Days $T_0=156.099378$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

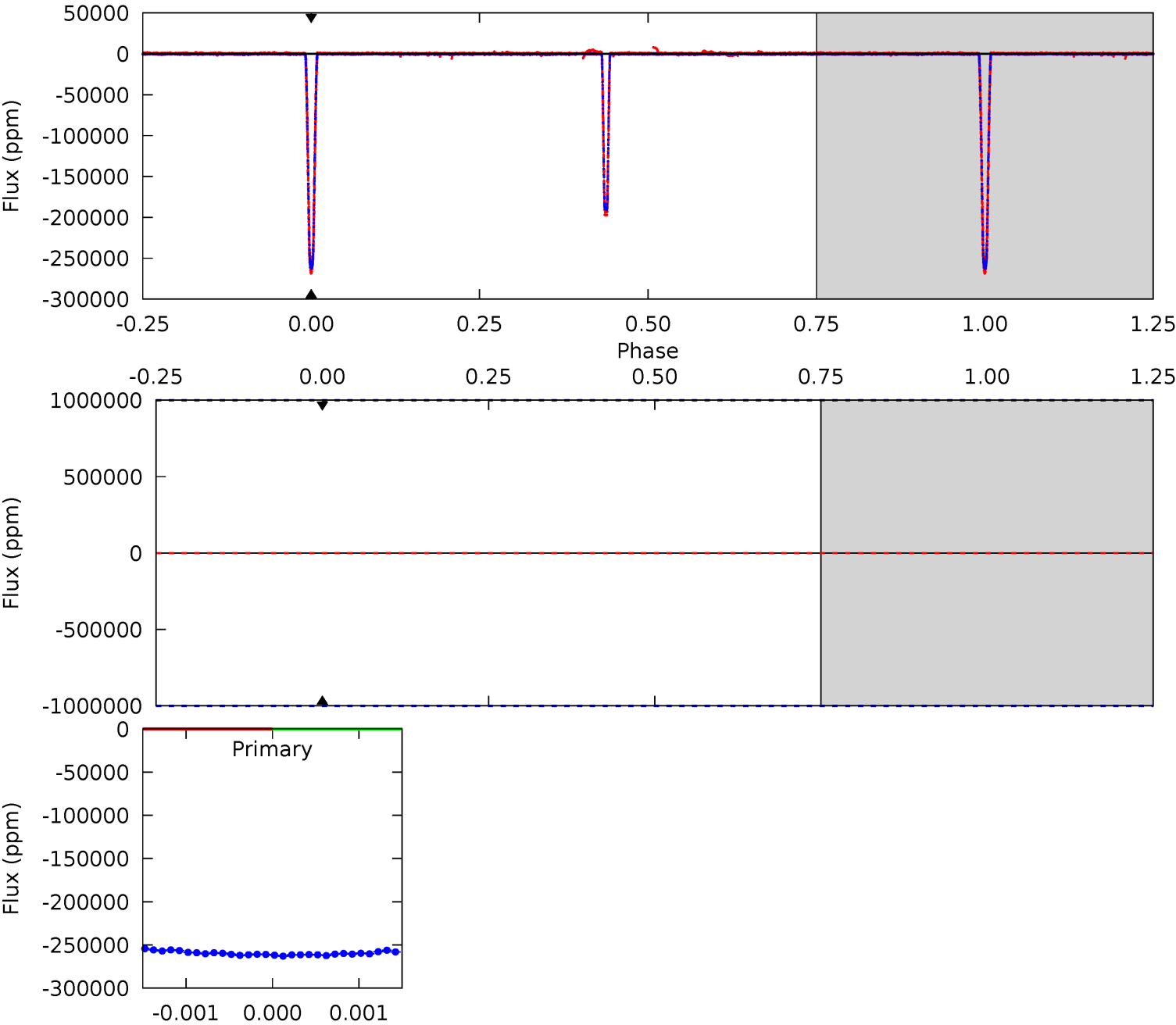
TCE 006877673-01 P= 36.758210 Days $T_0=156.105607$ (BKJD)



DV Model-Shift Uniqueness Test

006877673-01, P = 36.758210 Days, E = 119.341168 Days

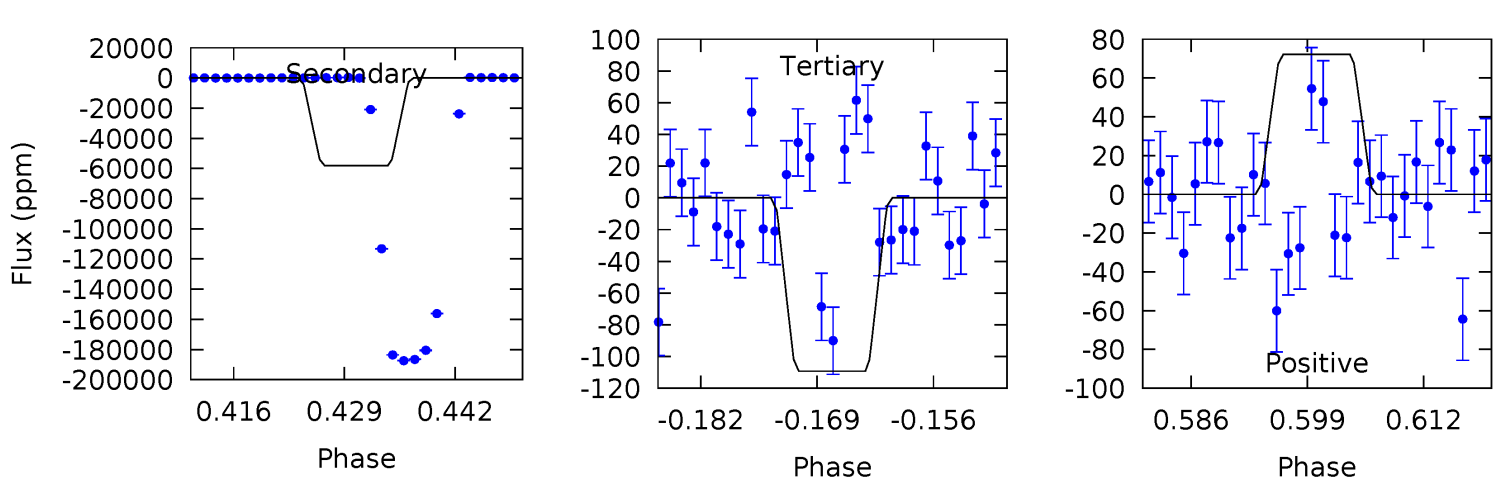
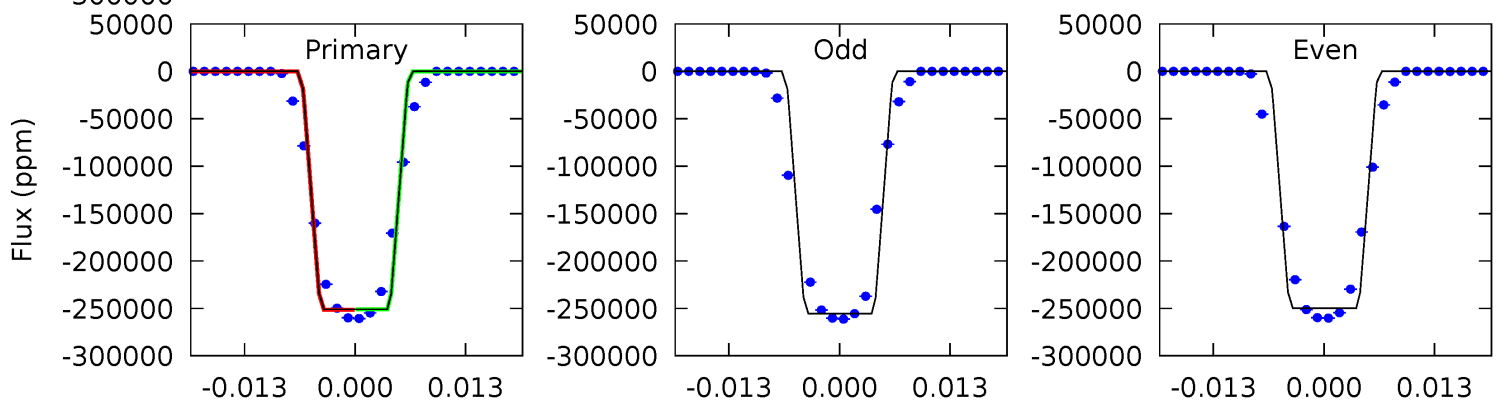
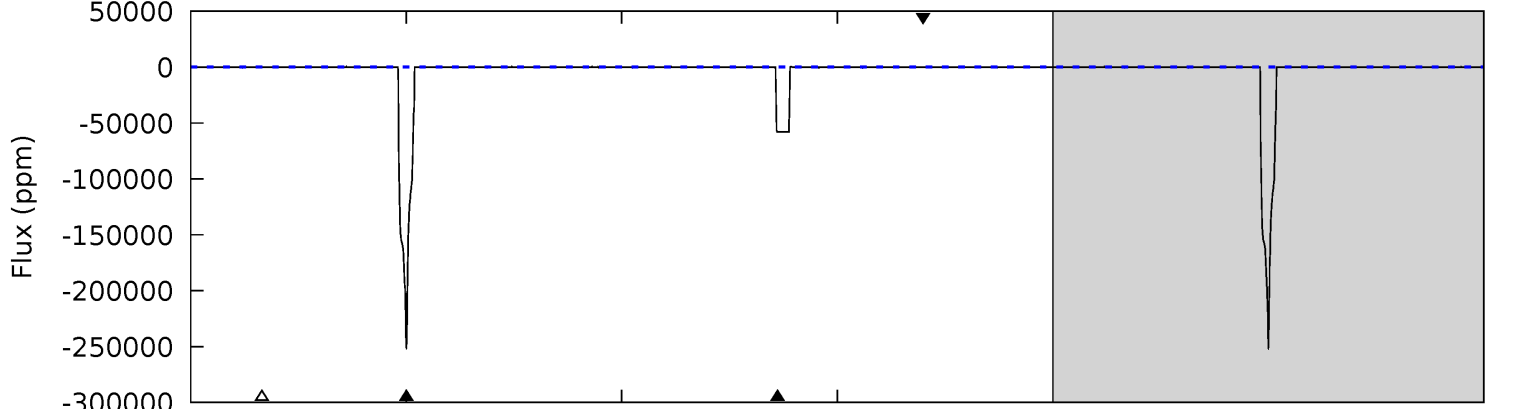
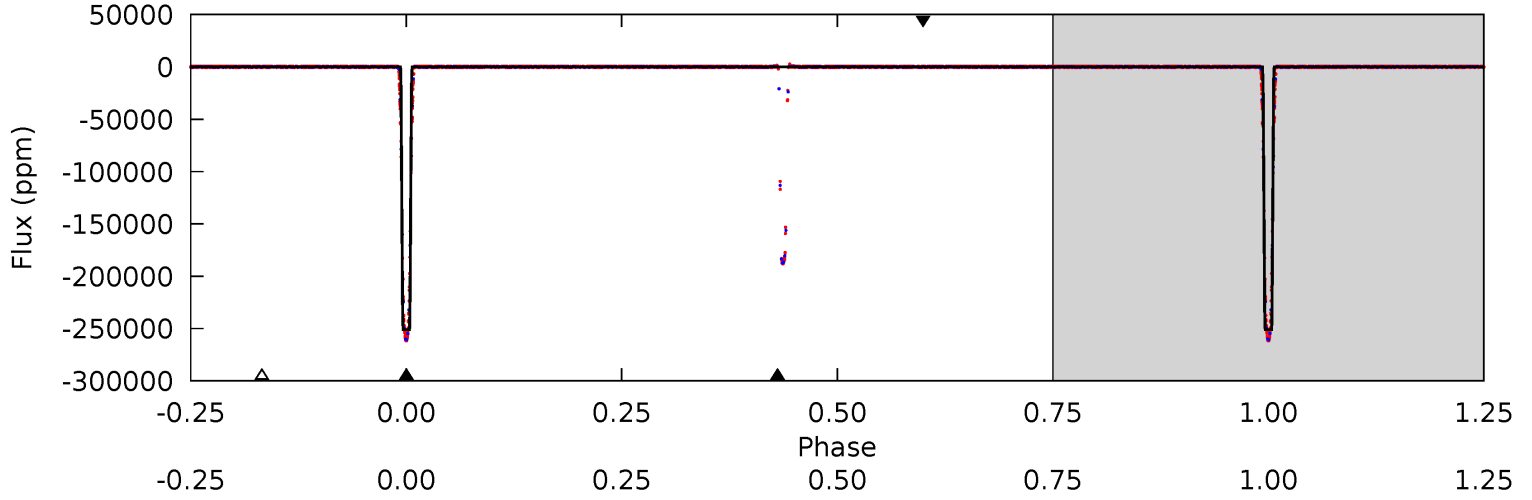
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Alt Model-Shift Uniqueness Test

006877673-01, P = 36.758210 Days, E = 119.347397 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 13858 | 3202 | 6.03 | 3.99 | 4.98 | 2.48 | 48.3 | 13852 | 13854 | 3196 | 3198 | 173.0 | 1.00 | 0.00 | 0 |



Stellar Parameters For KIC 006877673

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6085^{+164}_{-182} | $4.438^{+0.084}_{-0.196}$ | $-0.320^{+0.300}_{-0.300}$ | $0.979^{+0.294}_{-0.126}$ | $0.959^{+0.128}_{-0.116}$ | $1.438^{+0.521}_{-0.737}$ |
| | +3%/-3% | +2%/-4% | +94%/-94% | +30%/-13% | +13%/-12% | +36%/-51% |
| Source | PHO1 | 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 006877673-01 / KOI 6784.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|---------------------------|----------------------|-------------------------|----------------------------------|
| DV | 0 ± 1000000 | $50.46^{+12.80}_{-11.22}$ | 815^{+62}_{-41} | -2843^{+8158}_{-2257} | $-25.573^{+1153.781}_{-904.401}$ |
| Alt. | -57989 ± 18 | $55.91^{+14.10}_{-11.80}$ | 810^{+57}_{-39} | 4434^{+409}_{-305} | 488^{+306}_{-172} |

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

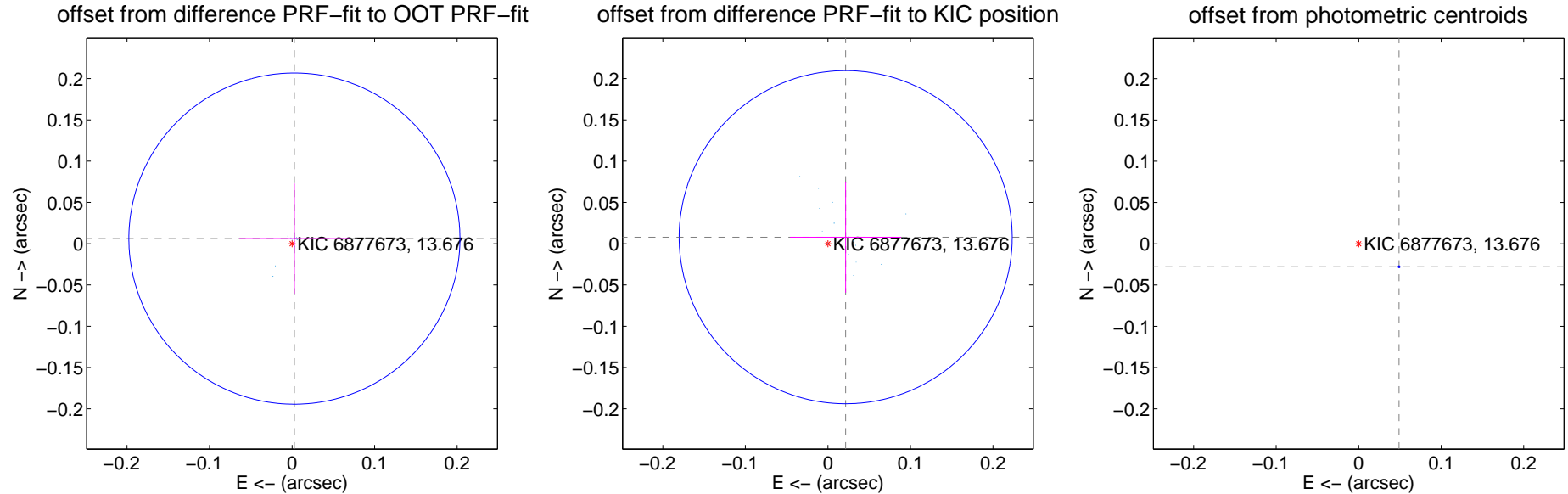
DV Centroid Data

Supplemental centroid analysis for 006877673-01. Kepler magnitude: 13.68. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

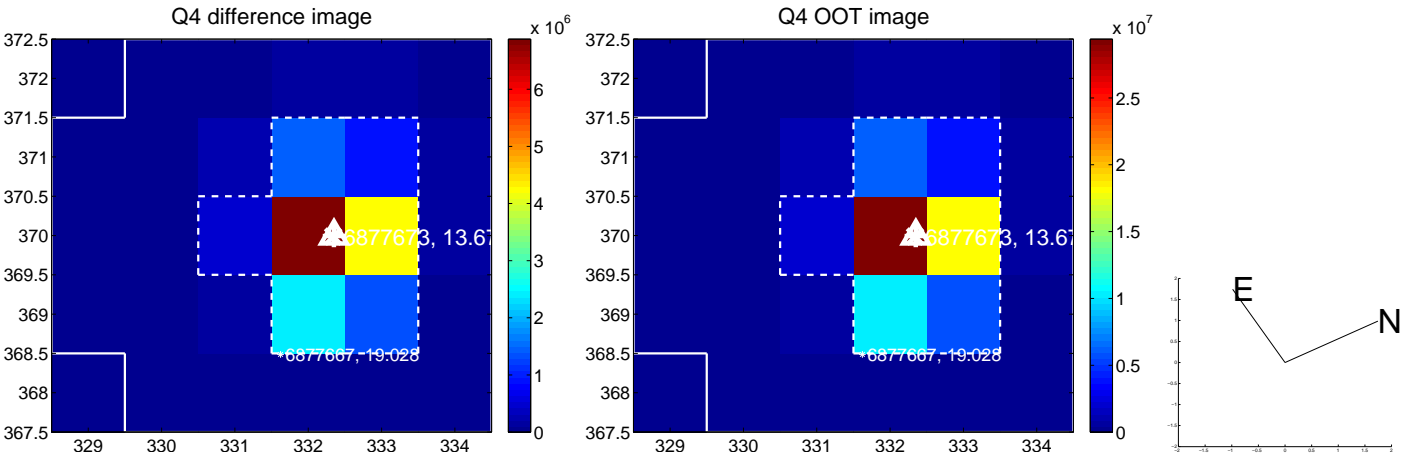
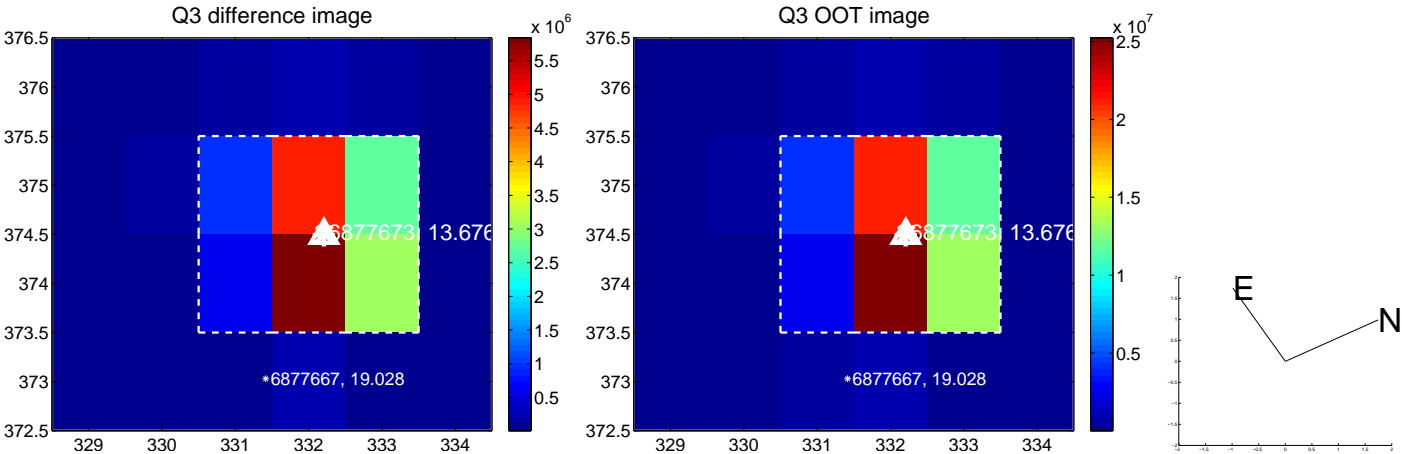
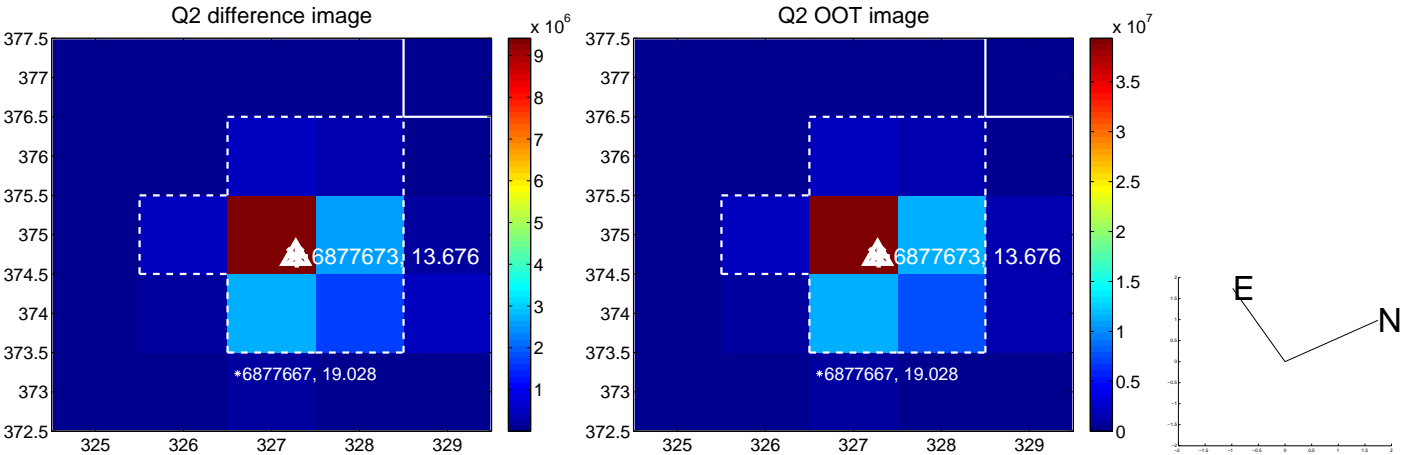
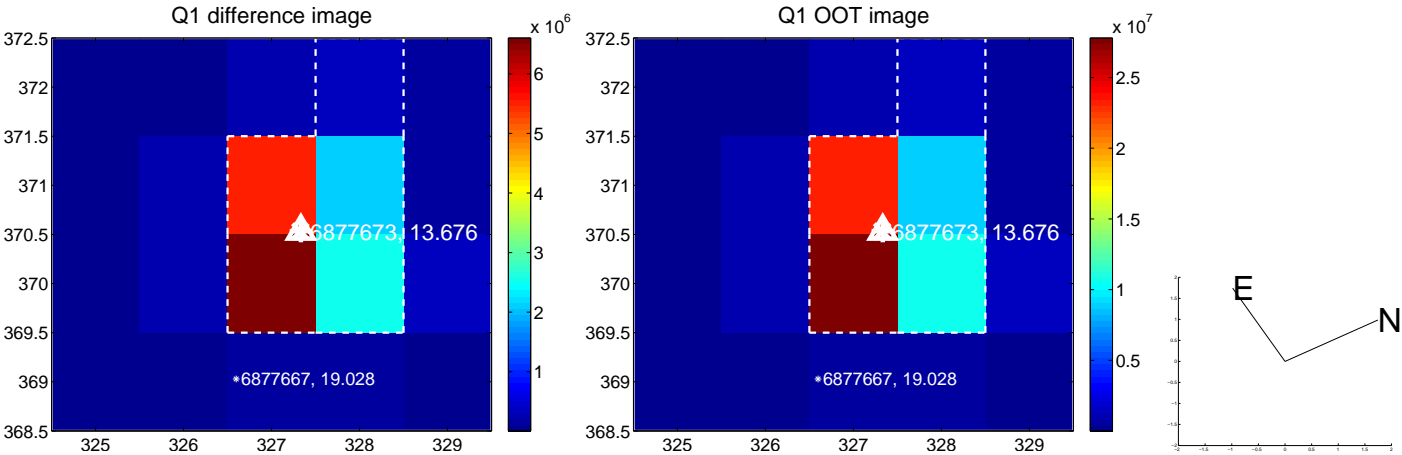
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.007 ± 0.067 | 0.10 | -0.003 ± 0.067 | 0.006 ± 0.067 |
| PRF-fit source offset from KIC position | 0.023 ± 0.067 | 0.34 | -0.022 ± 0.067 | 0.008 ± 0.067 |
| photometric centroid source offset | 0.06 ± 0.00 | 146.37 | -0.05 ± 0.00 | -0.03 ± 0.00 |

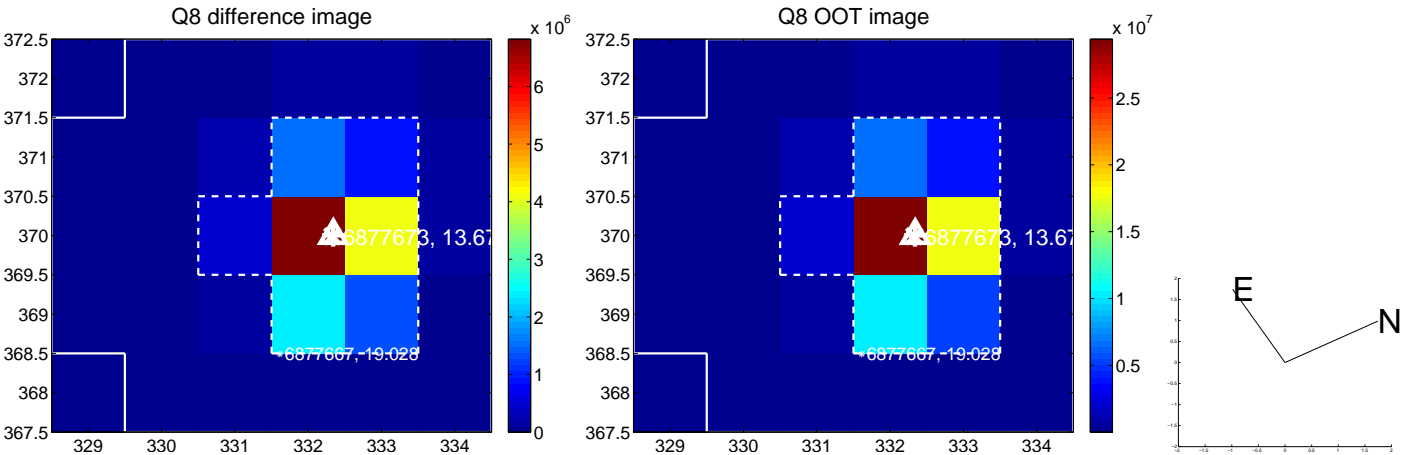
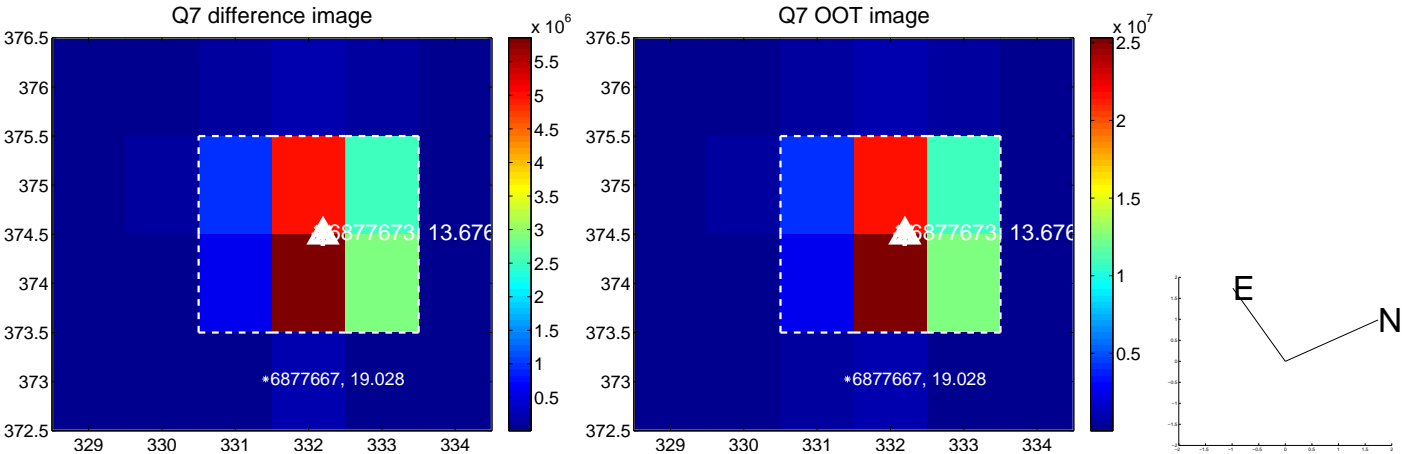
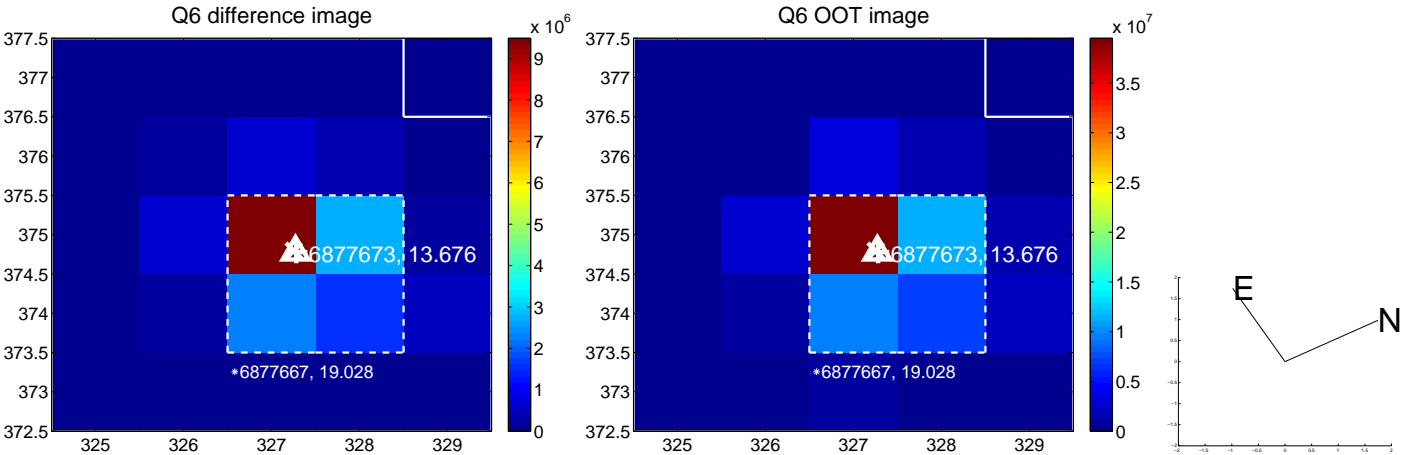
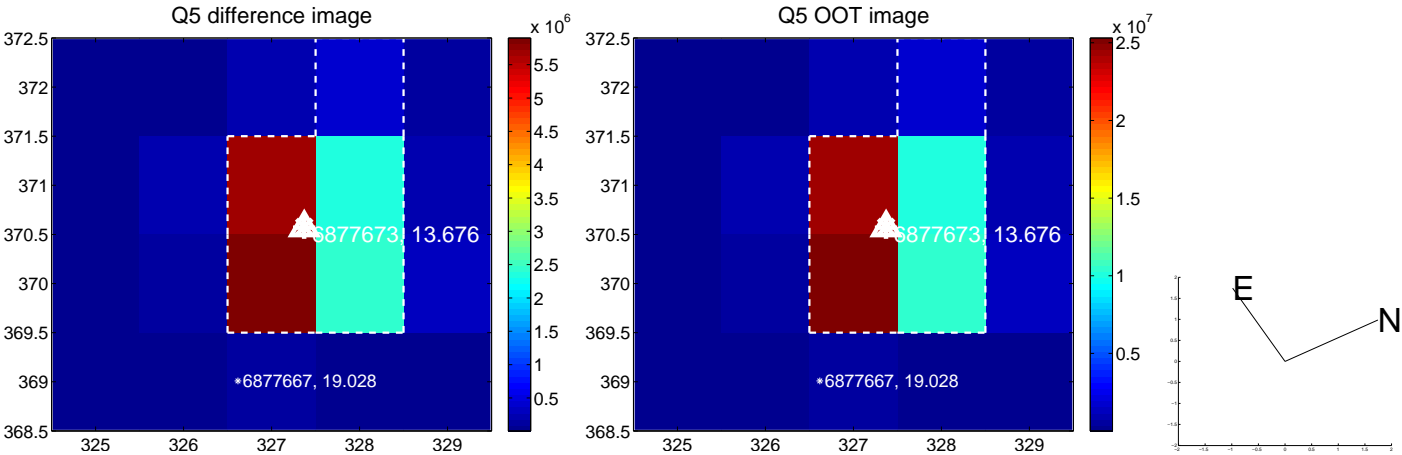


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

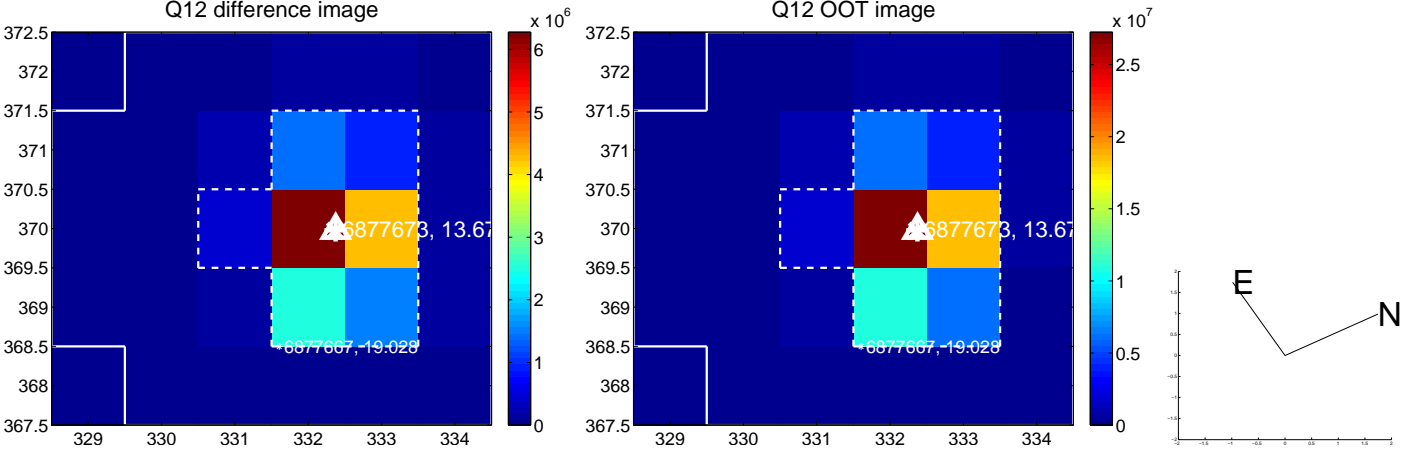
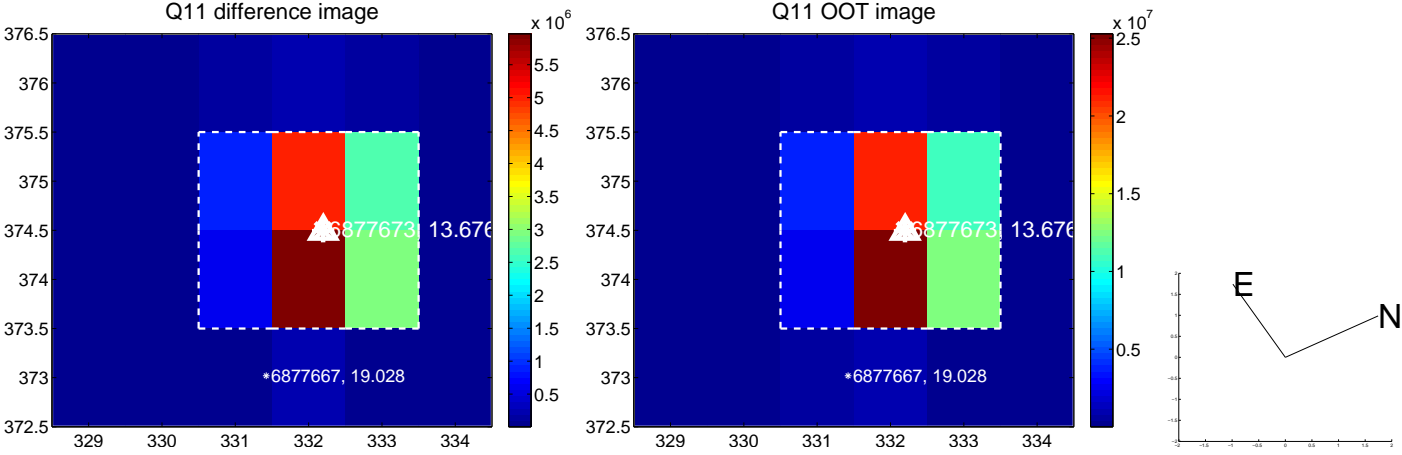
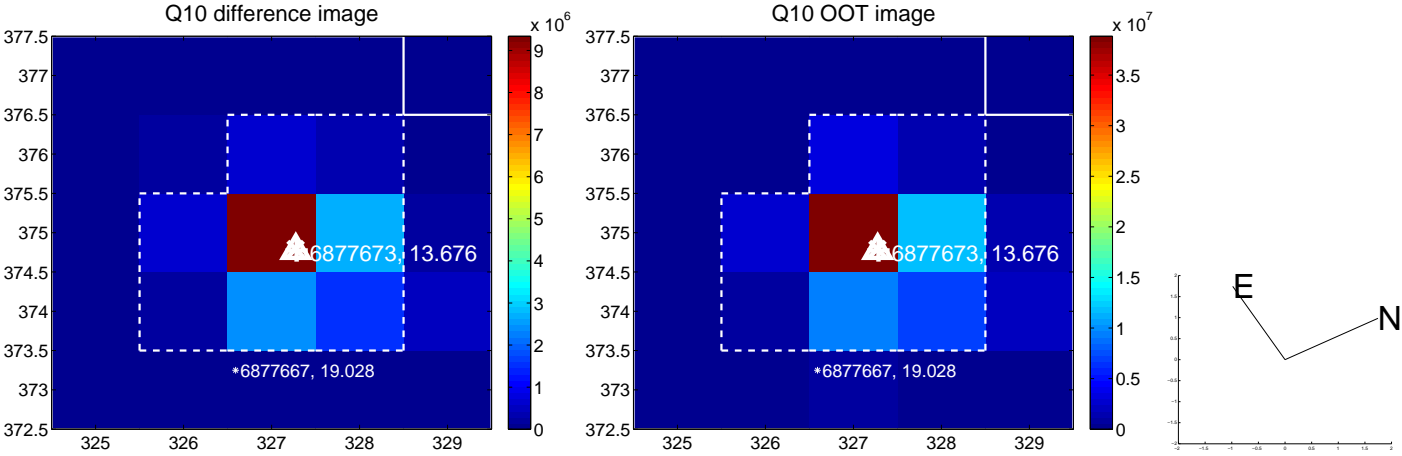
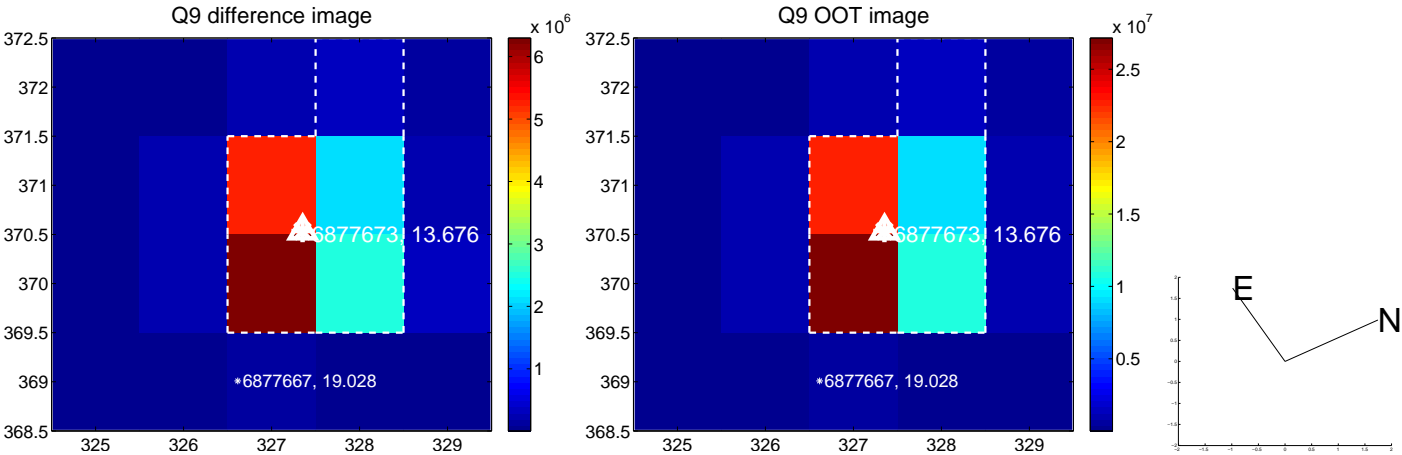
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



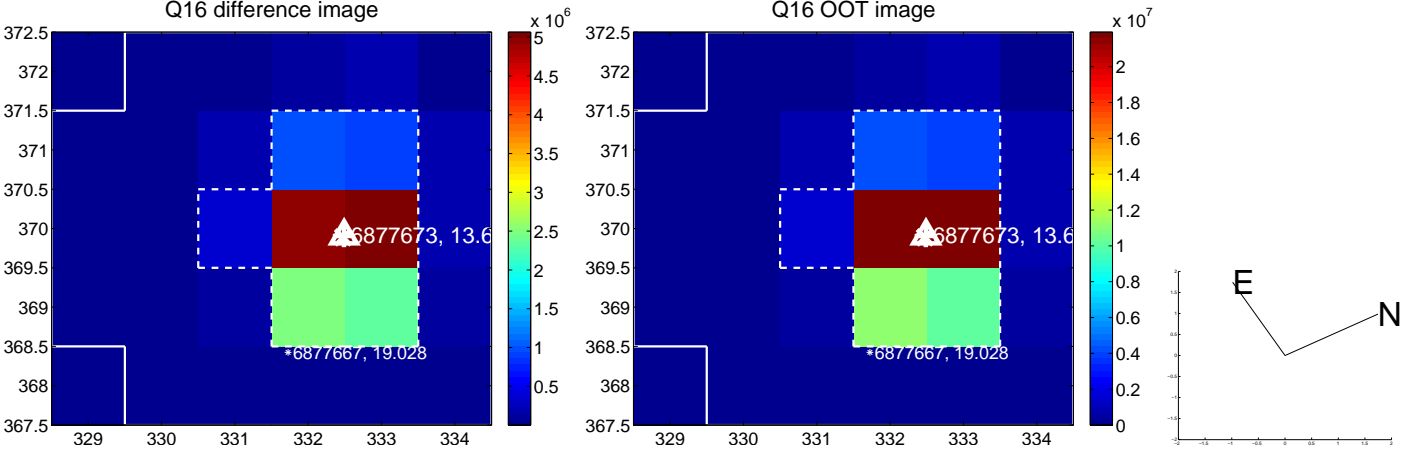
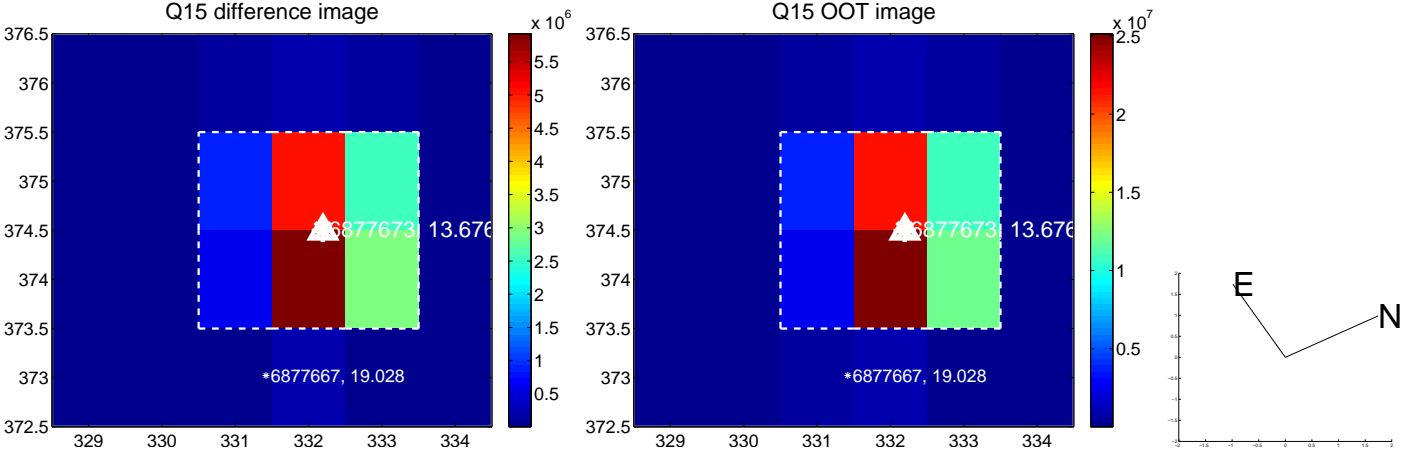
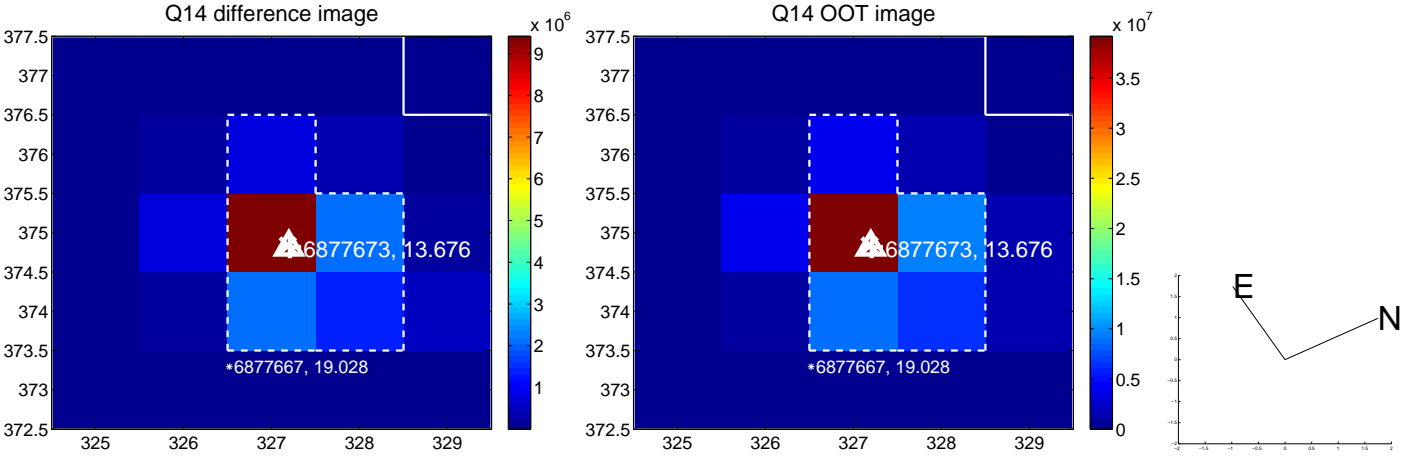
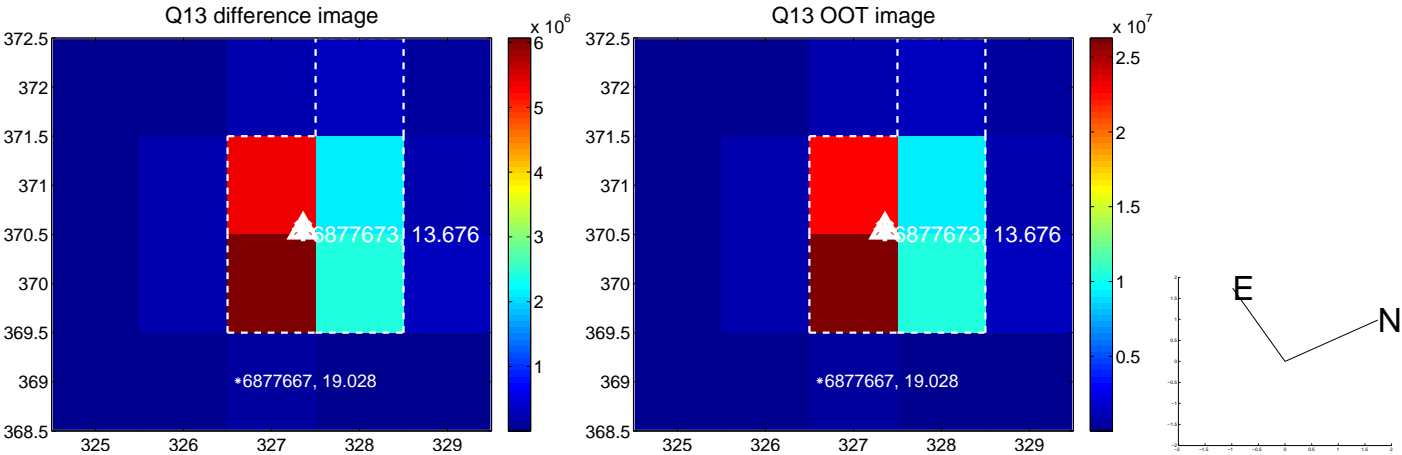
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



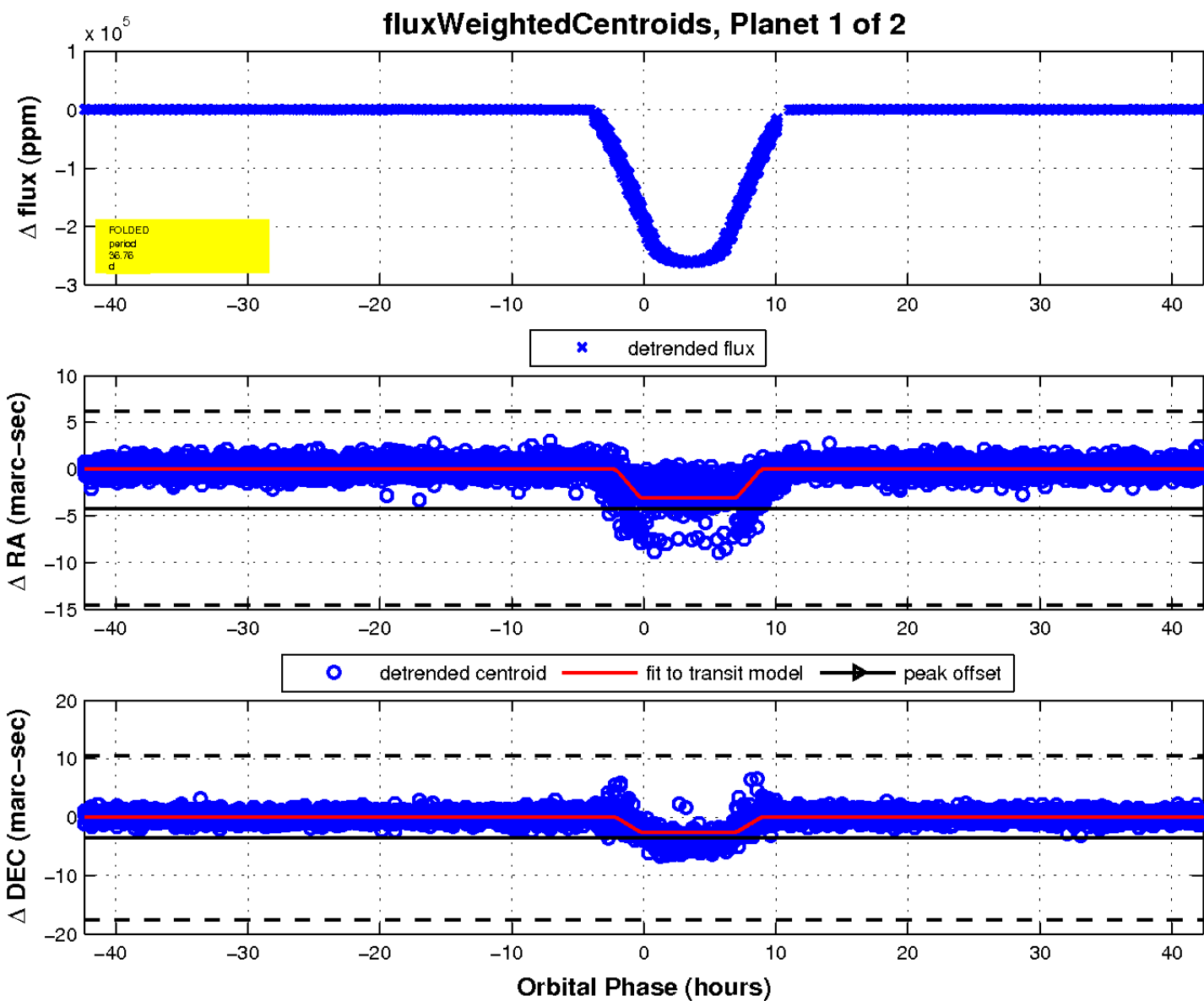
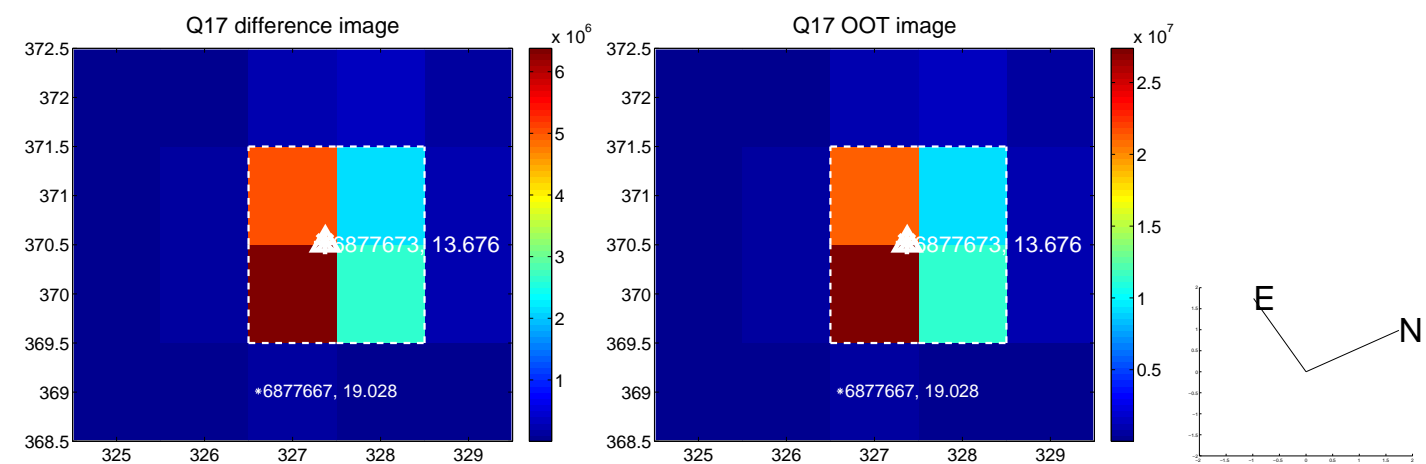
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

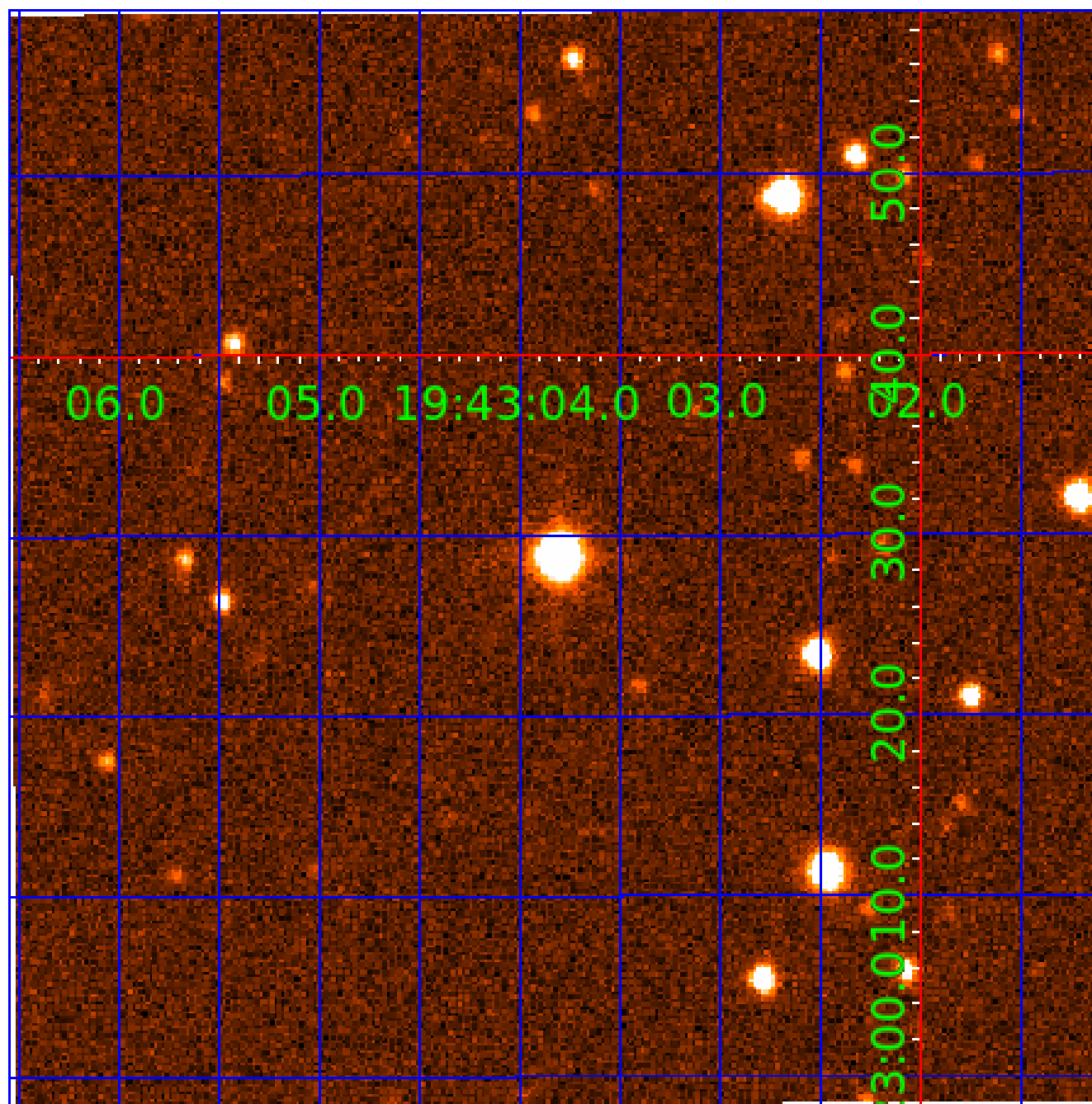


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006877673

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|---------|--------|-----------------------------|-----------------|------------------------|------------------------|
| 006877673-01 | OBS | 6784.01 | 36.758210 | 156.099378 | 262157.1 | 10.500 | 26927.0 | -1.0 | 0.98 | 6085 | 48.50 | 25.86 |
| 006877673-02 | OBS | No | 36.758406 | 135.419217 | 191953.6 | 10.917 | 17556.4 | 8177.7 | 0.98 | 6085 | 43.66 | 25.86 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 006877673-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS |
| 006877673-02 | 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.

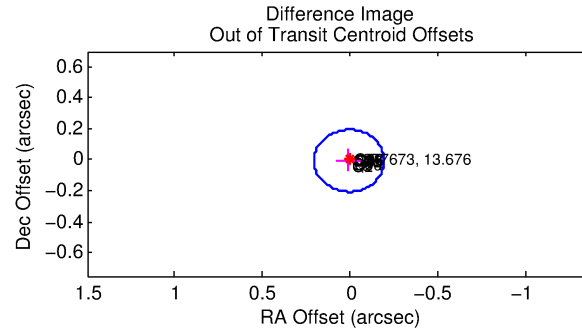
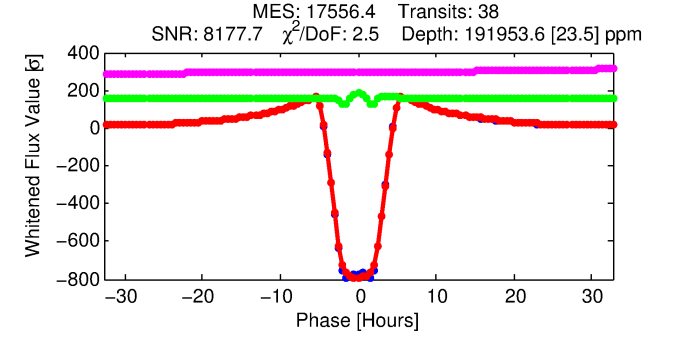
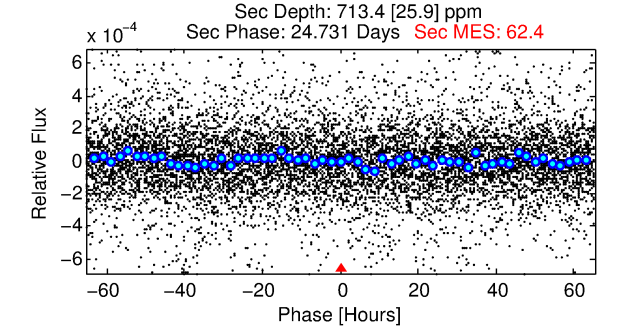
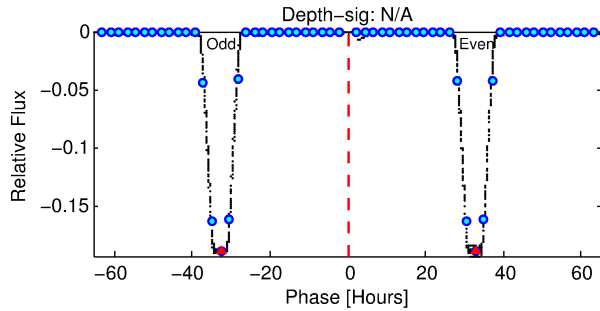
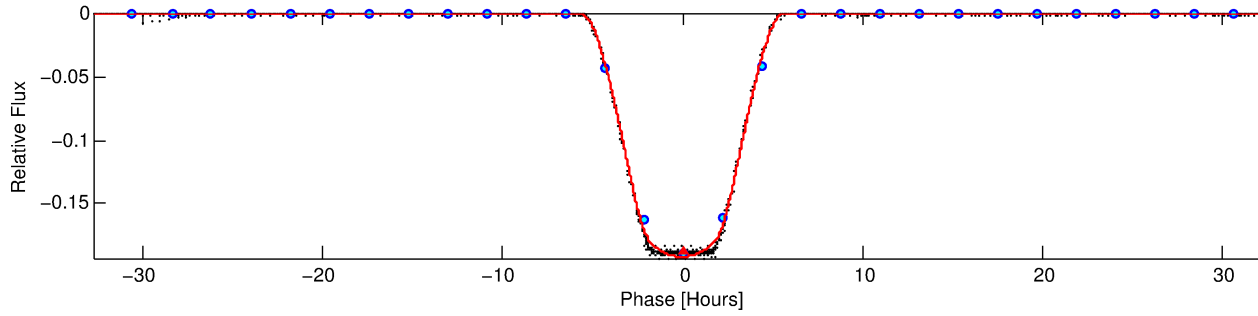
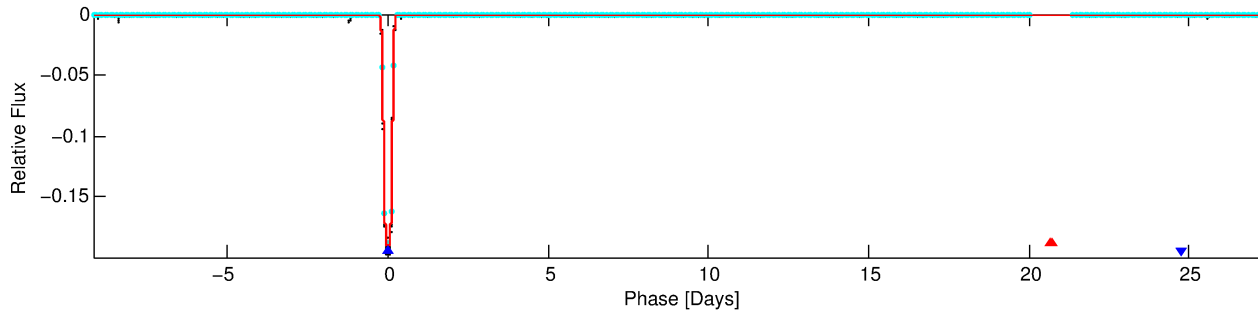
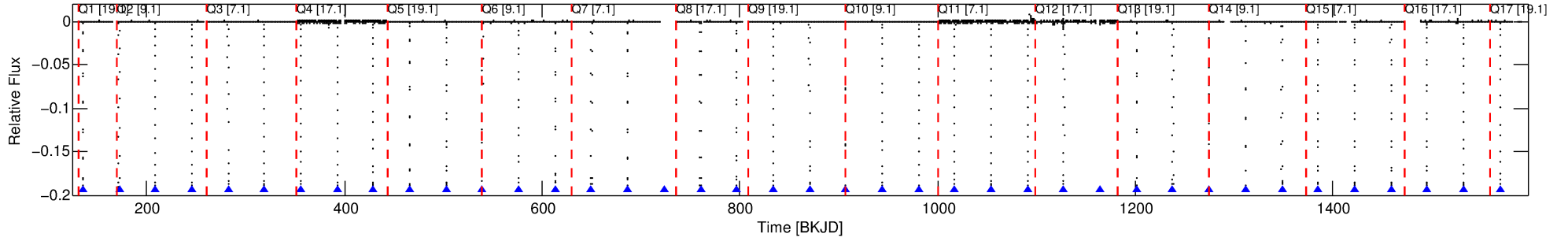
Ephemeris Match Information For 006877673-02

No Significant Match Found

DV One-Page Summary

KIC: 6877673 Candidate: 2 of 2 Period: 36.758 d
KOI: K06784 Corr: No Ephemeris Match

Kp: 13.68 R*: 0.98 Rs Teff: 6085.0 K Logg: 4.44 Fe/H: -0.320



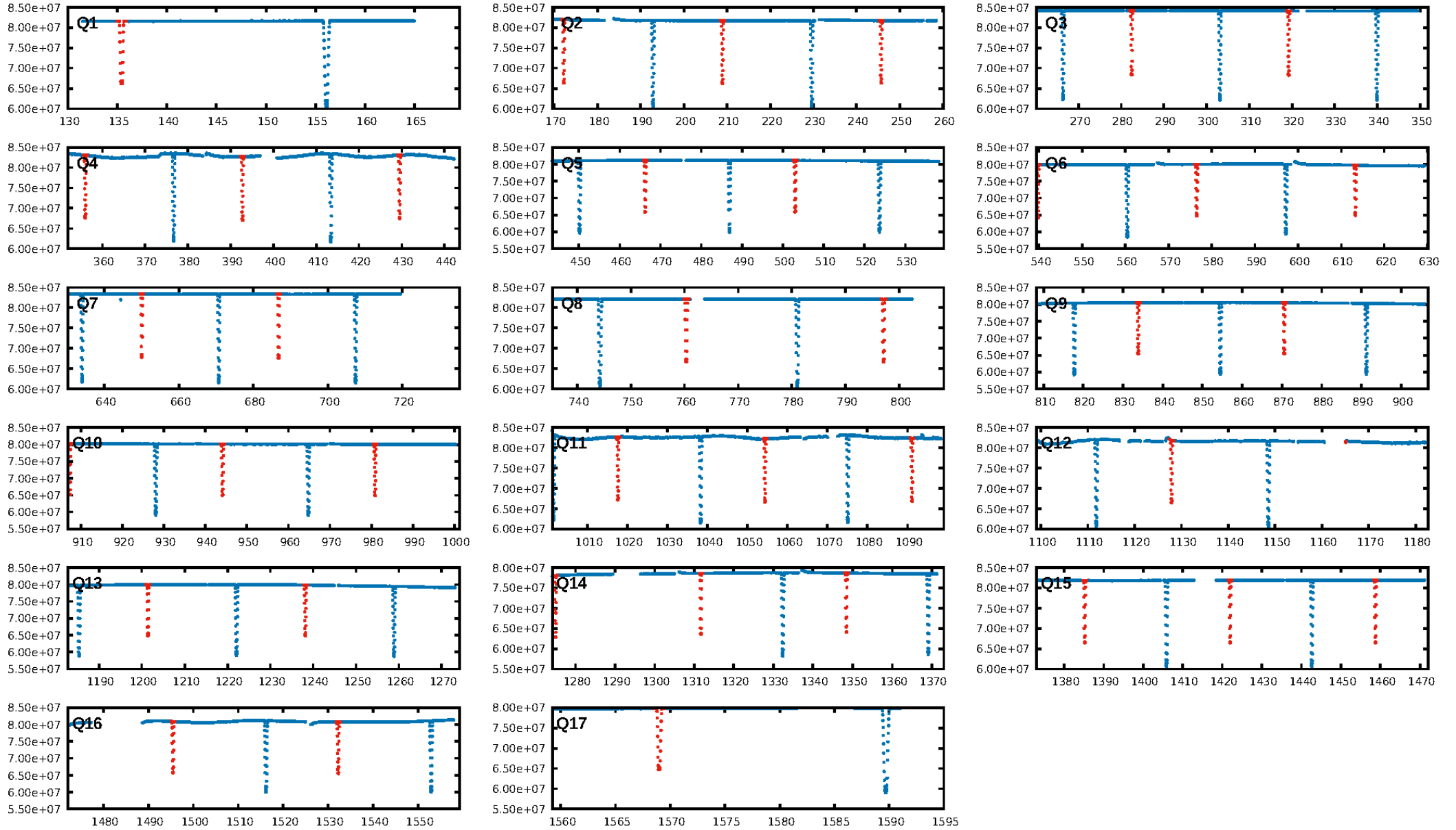
DV Fit Results:

Period = 36.75841 [0.00000] d
Epoch = 135.4192 [0.0000] BKJD
Rp/R* = 0.4087 [0.0000]
a/R* = 35.56 [0.01]
b = 0.27 [0.00]
Seff = 25.86 [9.84]
Teq = 575 [55] K
Rp = 43.66 [13.11] Re
a = 0.2134 [0.0534] AU
Ag = 9.37 [3.40] [2.46σ]
Teffp = 1556 [49] K [13.39σ]

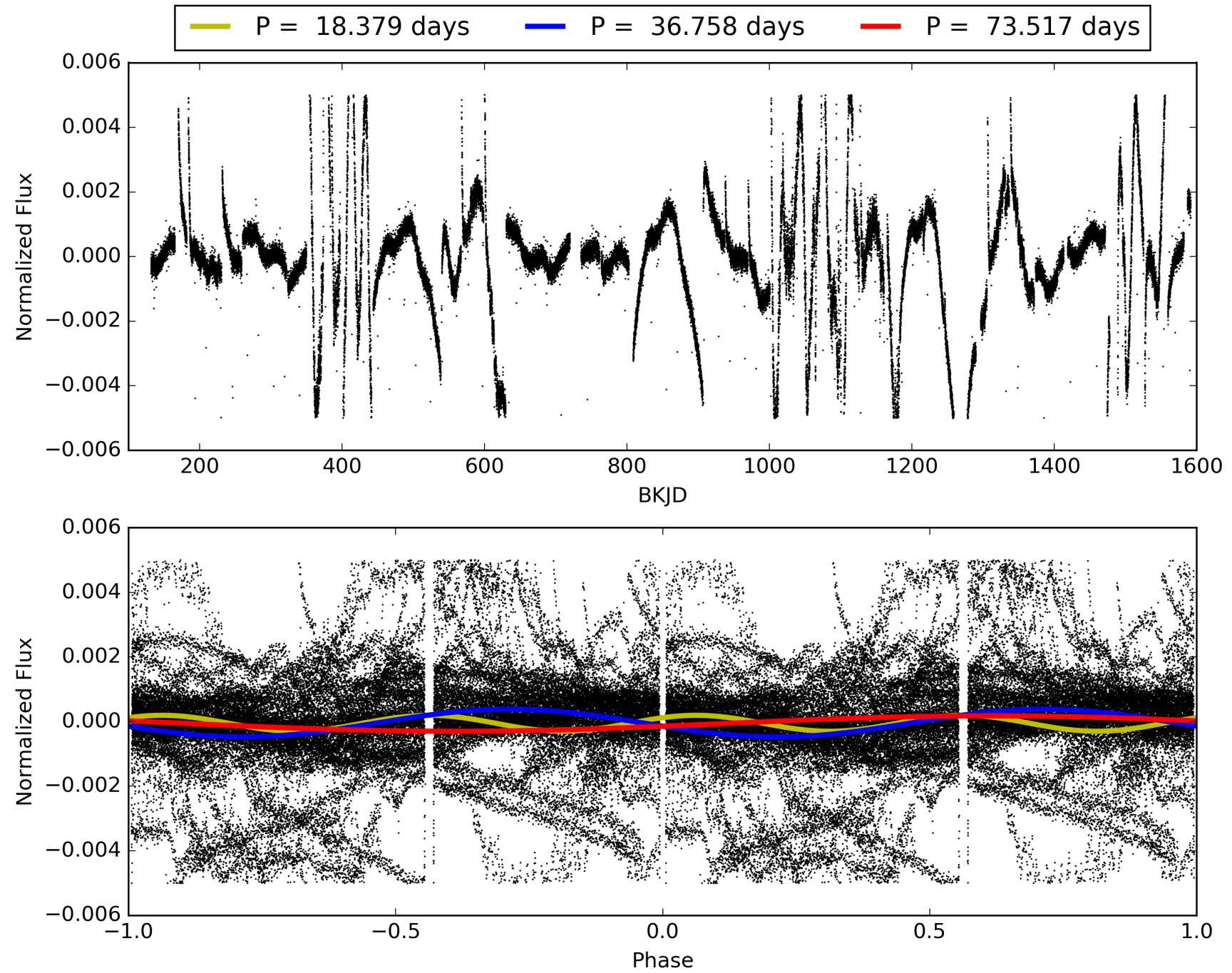
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [36/36]
GhostDiagnostic-chr: 4.226
Centroid-sig: 0.0%
Centroid-so: 0.052 arcsec [89.78σ]
OotOffset-rm: 0.011 arcsec [0.16σ]
KicOffset-rm: 0.022 arcsec [0.33σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 006877673-02, PDC Light Curves

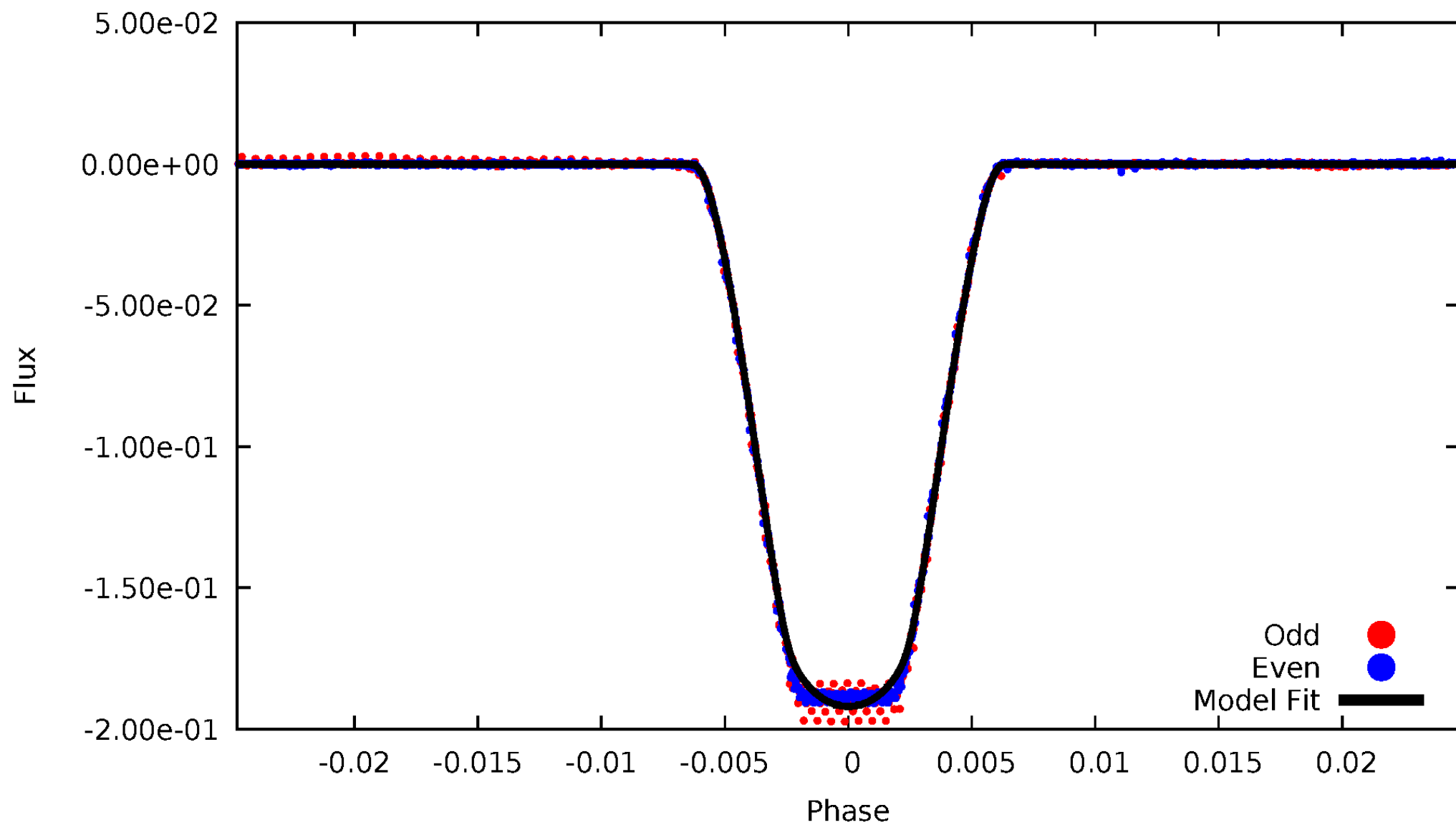


TCE 006877673-02



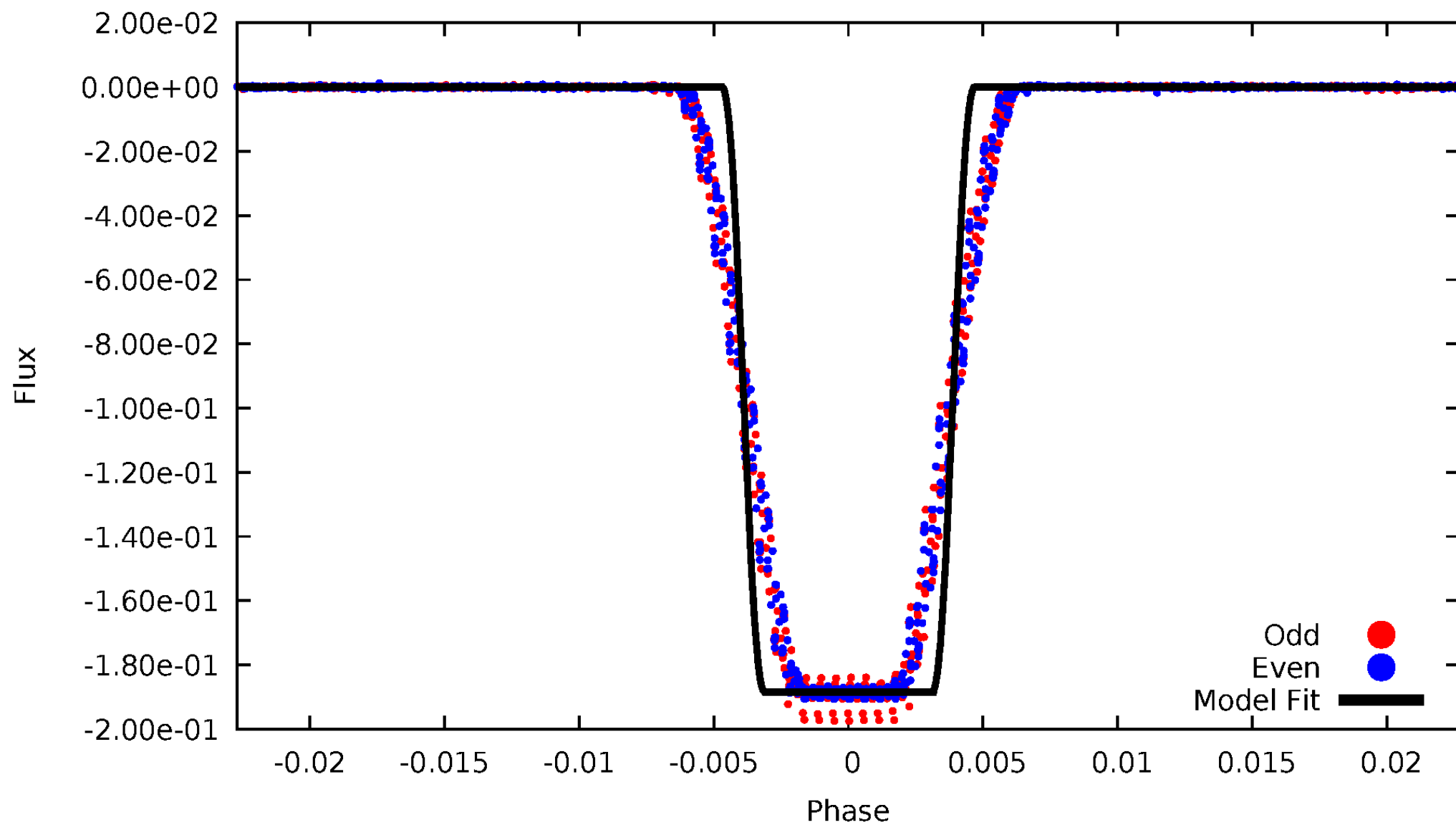
DV Odd/Even

TCE 006877673-02



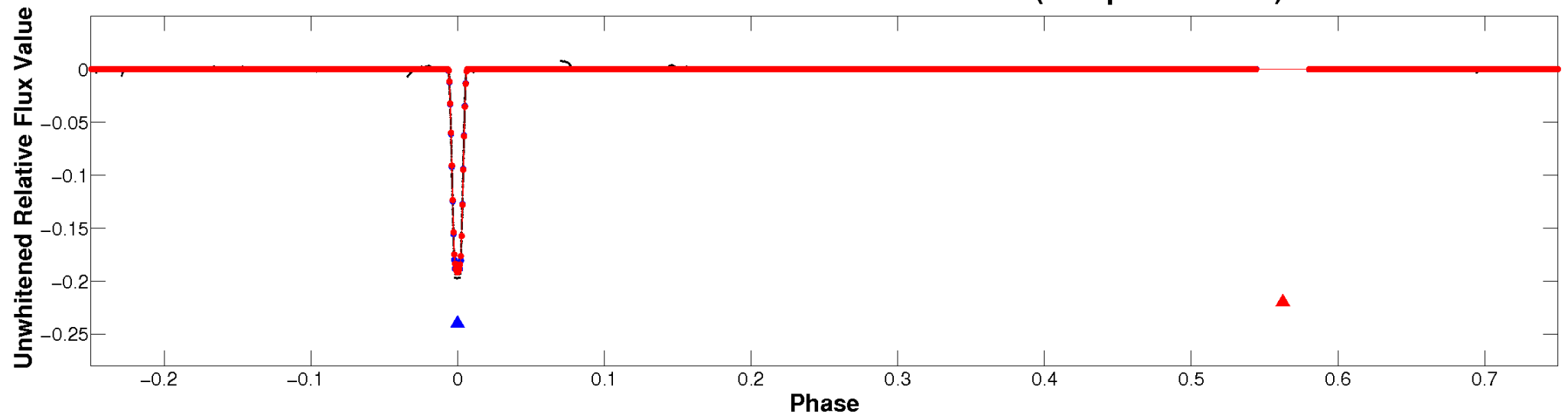
ALT Odd/Even

TCE 006877673-02

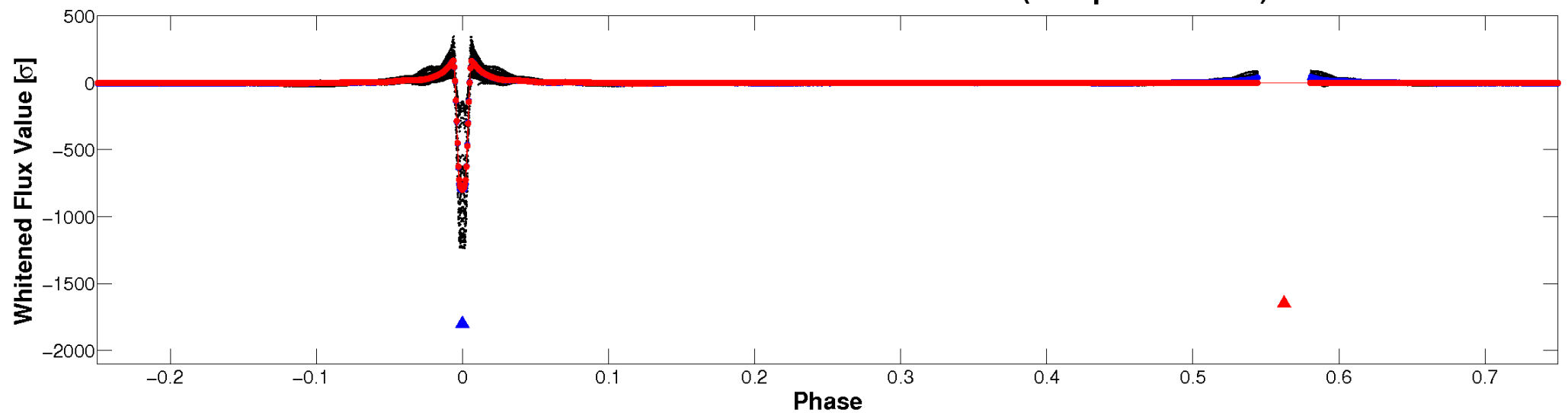


Non-Whitened Vs. Whitened Light Curve

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

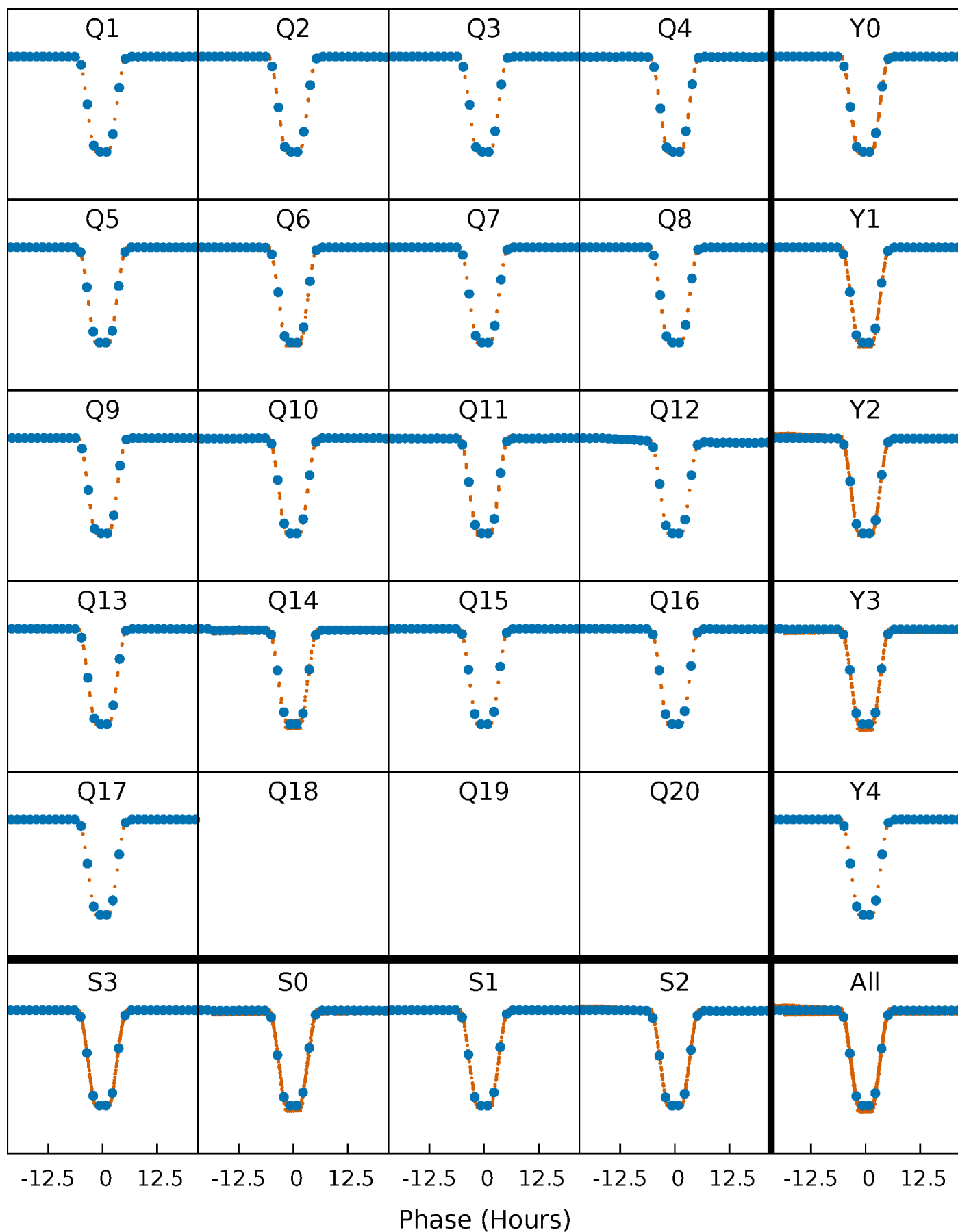


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



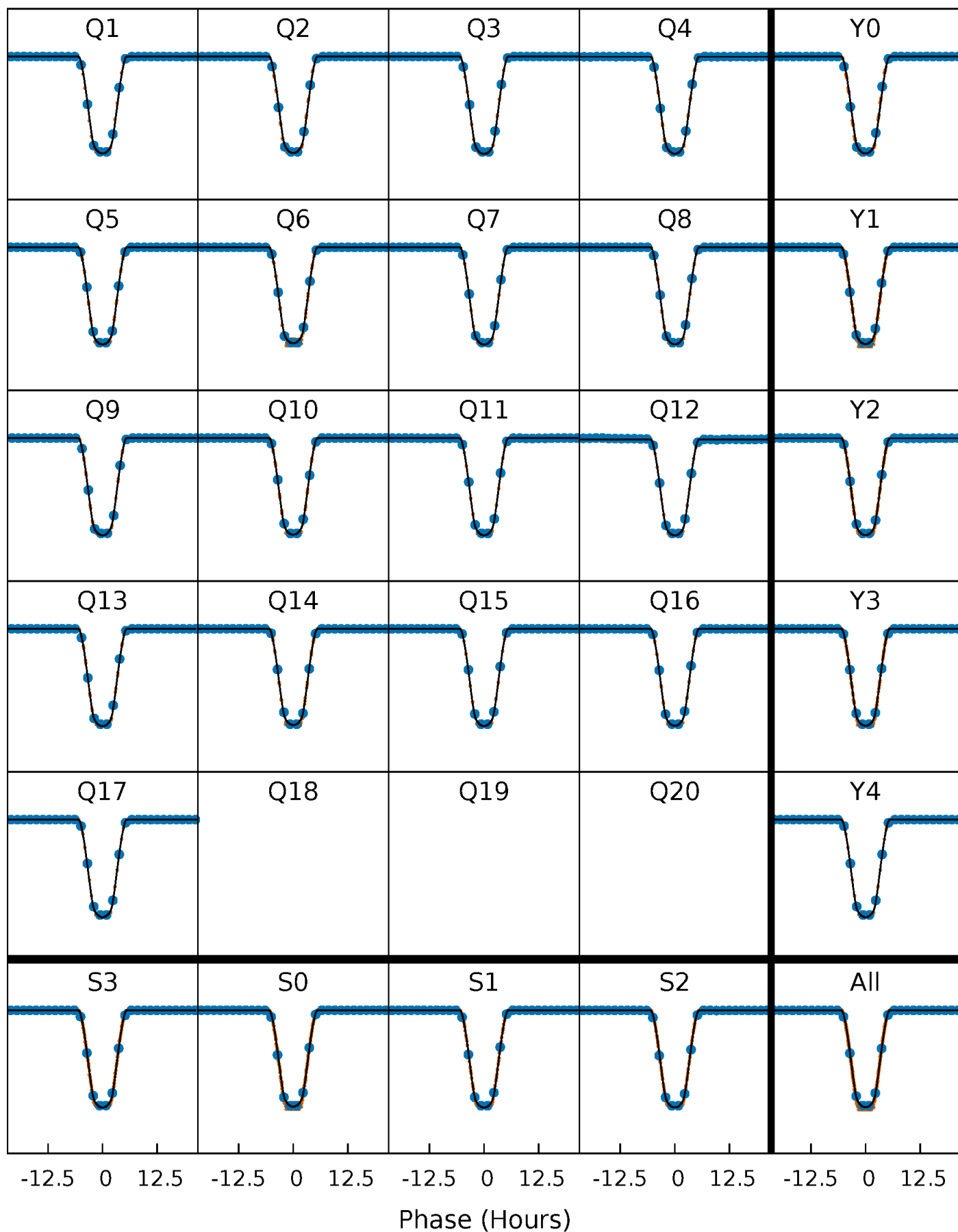
PDC Quarter-Phased Transit Curves

TCE 006877673-02 P= 36.758406 Days $T_0=135.419217$ (BKJD)



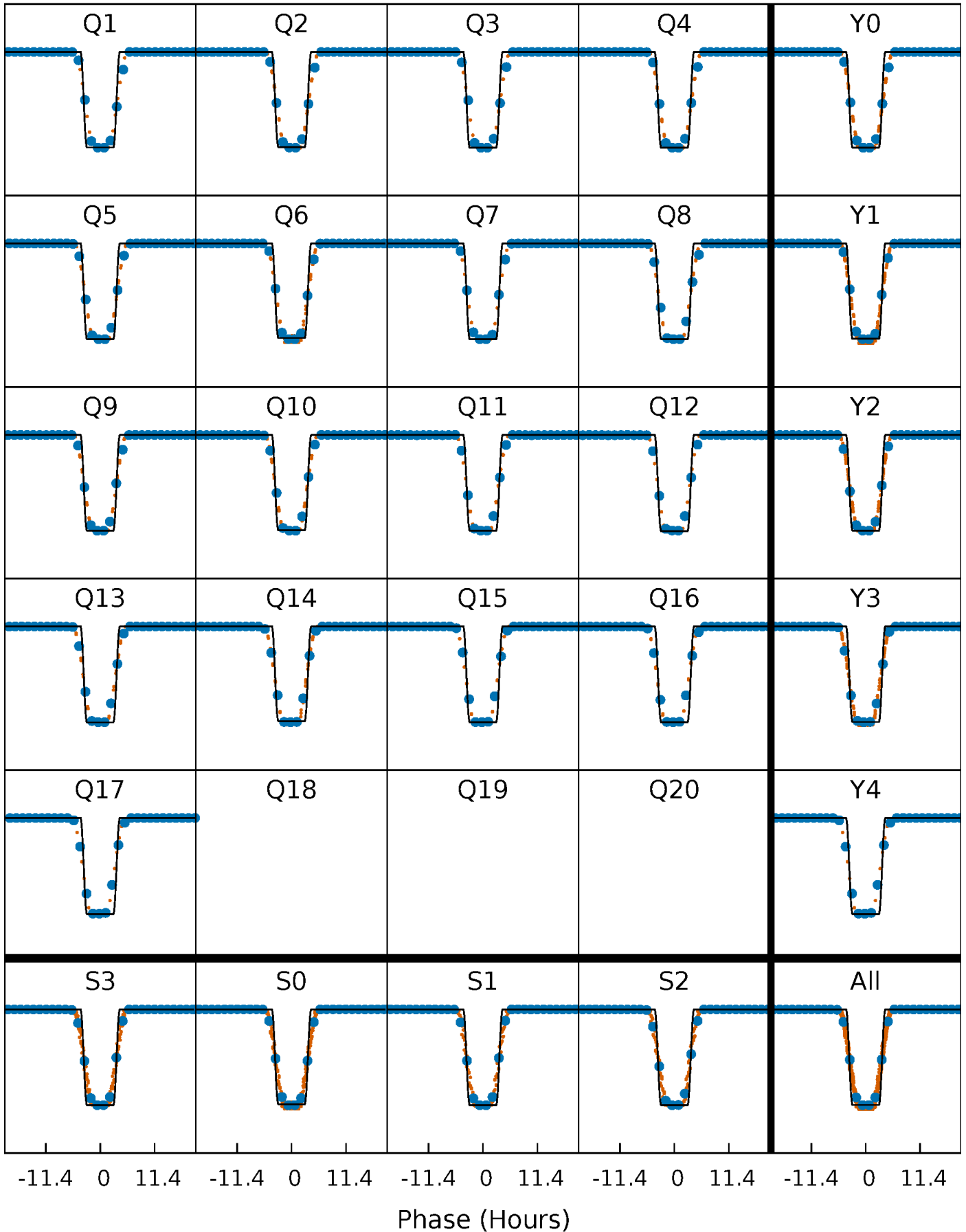
DV Quarter-Phased Transit Curves

TCE 006877673-02 P= 36.758406 Days $T_0=135.419217$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

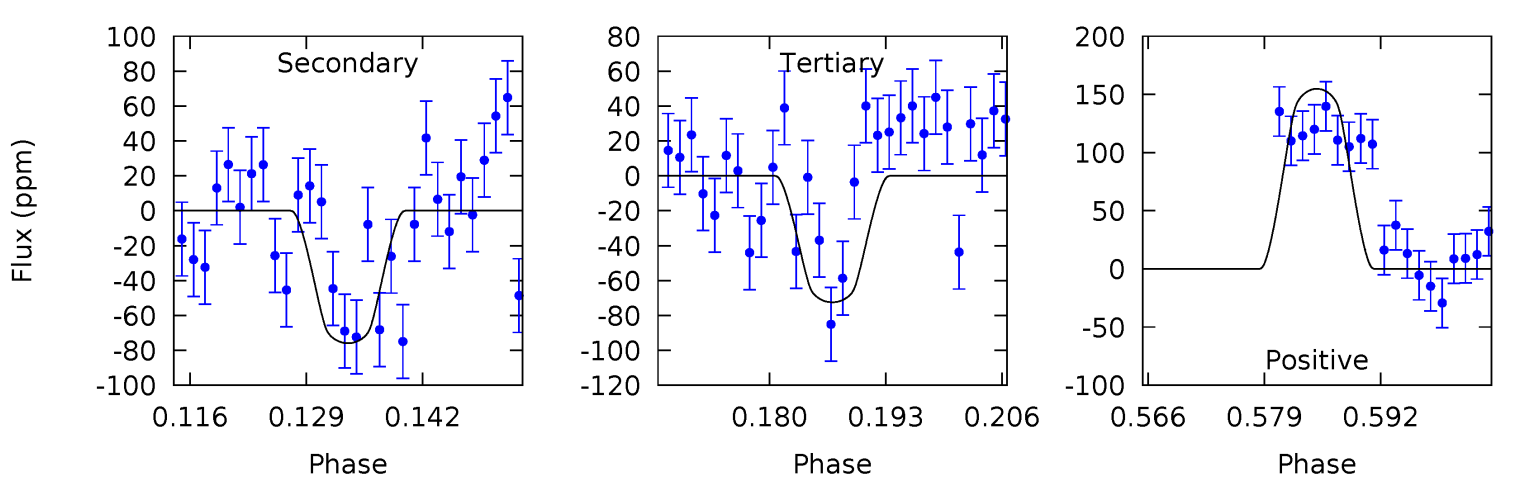
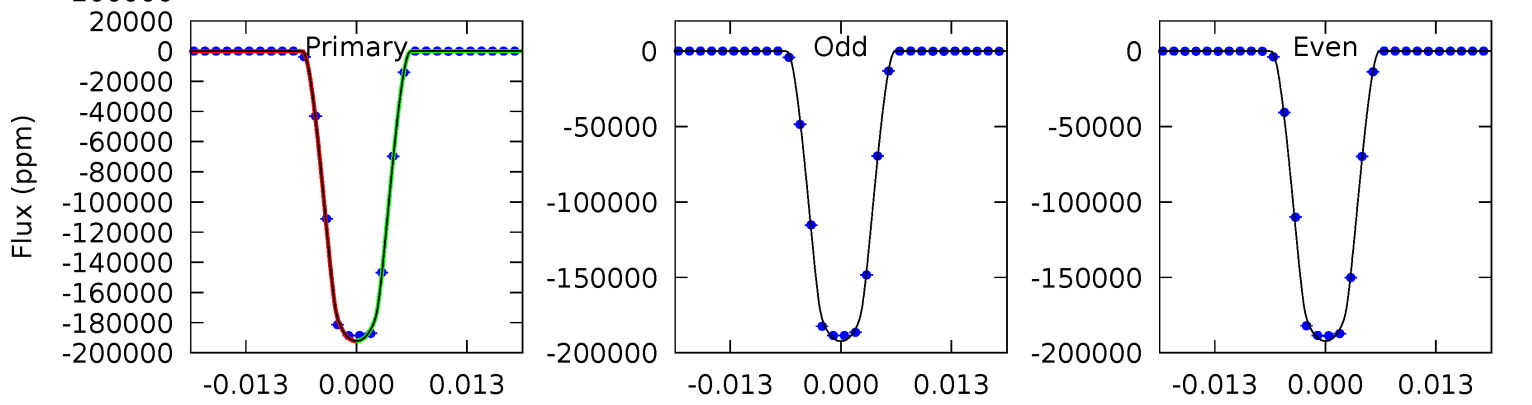
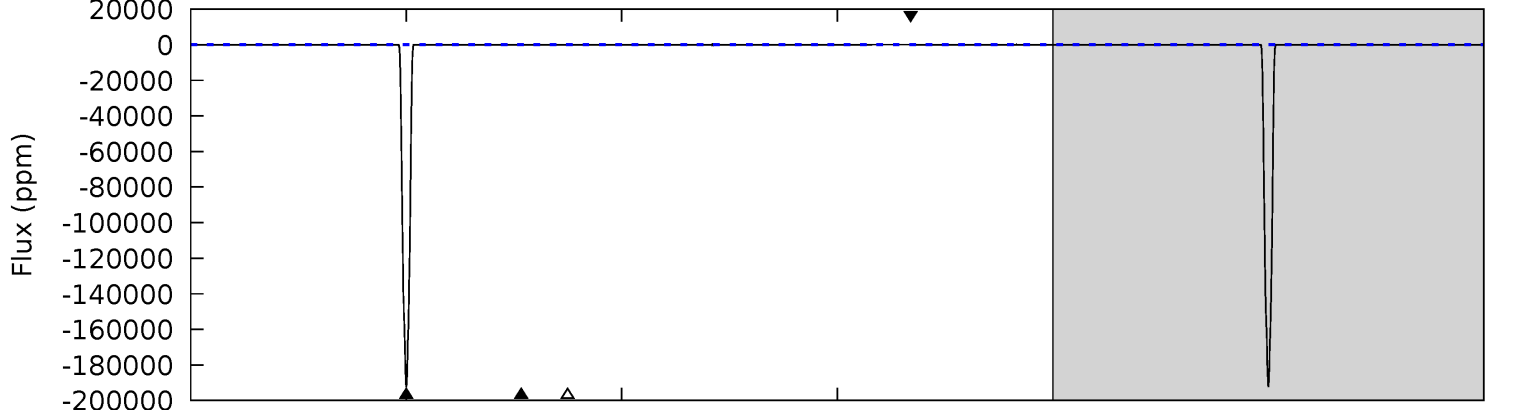
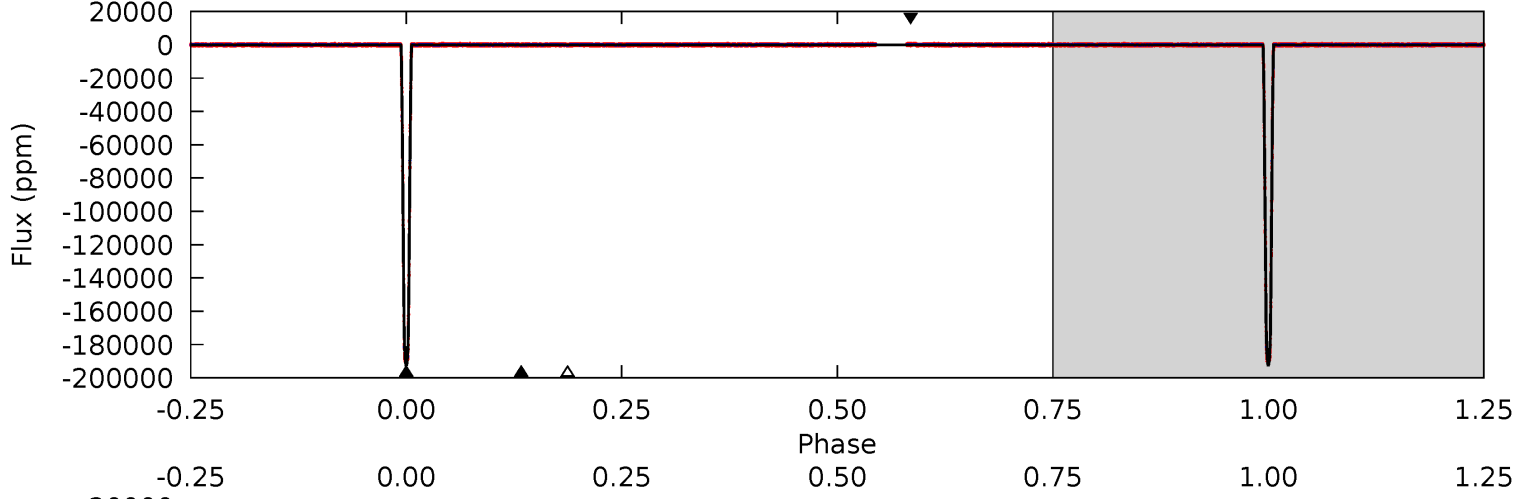
TCE 006877673-02 P= 36.759101 Days $T_0=135.405176$ (BKJD)



DV Model-Shift Uniqueness Test

006877673-02, P = 36.758406 Days, E = 98.660811 Days

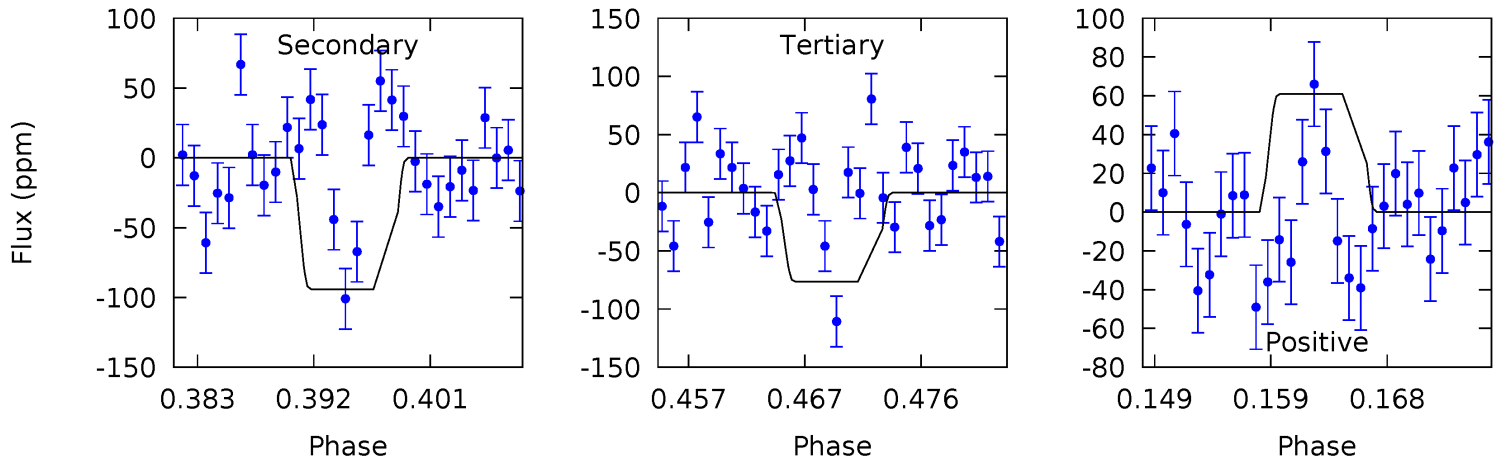
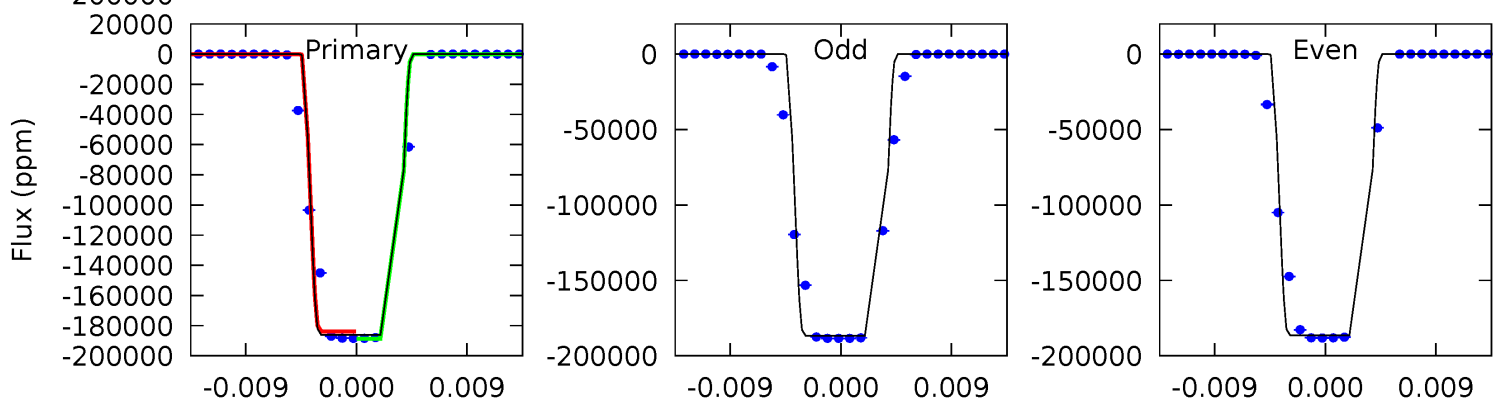
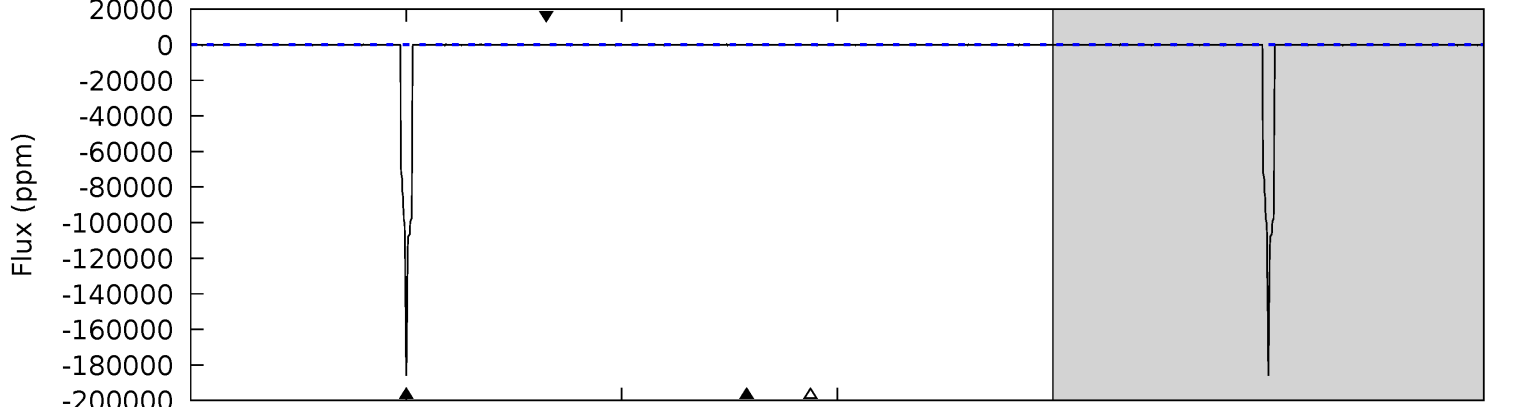
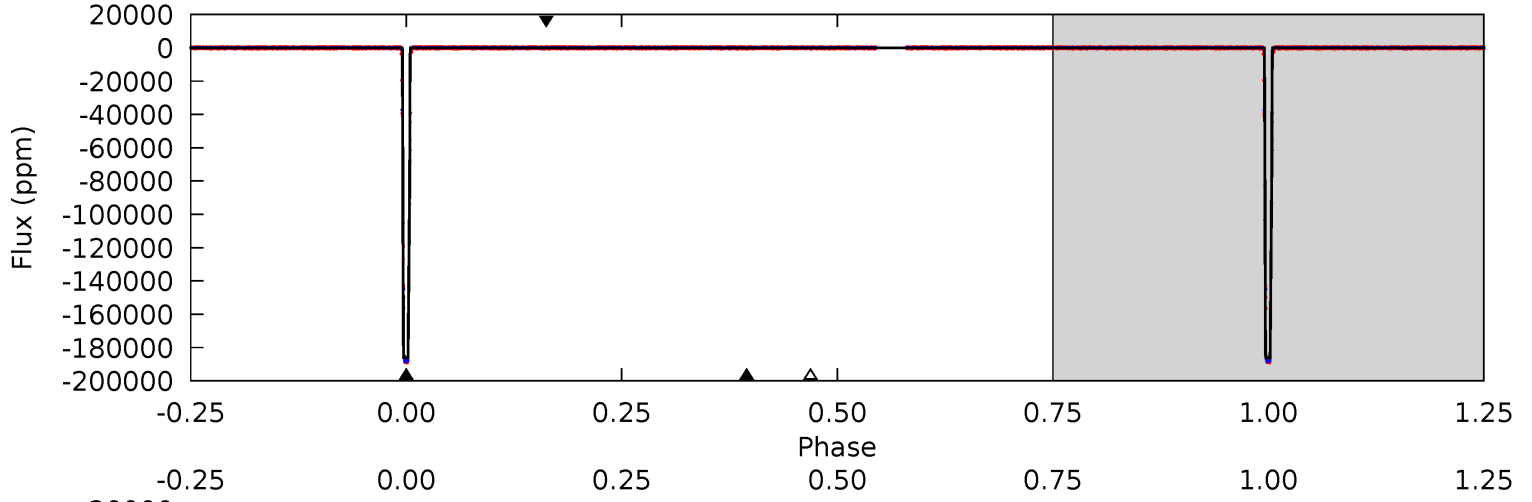
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 19837 | 7.84 | 7.48 | 16.0 | 4.98 | 2.49 | 3.33 | 19829 | 19821 | 0.36 | -8.14 | 5.29 | 1.00 | 0.00 | 0 |



Alt Model-Shift Uniqueness Test

006877673-02, P = 36.759101 Days, E = 98.646075 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 12212 | 6.17 | 5.02 | 4.00 | 5.04 | 2.60 | 1.26 | 12207 | 12208 | 1.16 | 2.17 | 11.8 | 1.00 | 0.00 | 0 |



Stellar Parameters For KIC 006877673

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6085^{+164}_{-182} | $4.438^{+0.084}_{-0.196}$ | $-0.320^{+0.300}_{-0.300}$ | $0.979^{+0.294}_{-0.126}$ | $0.959^{+0.128}_{-0.116}$ | $1.438^{+0.521}_{-0.737}$ |
| | +3%/-3% | +2%/-4% | +94%/-94% | +30%/-13% | +13%/-12% | +36%/-51% |
| Source | PHO1 | 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 006877673-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|-------------------------|----------------------|----------------------|---------------------------|
| DV | -76 ± 10 | $43.89^{+7.00}_{-3.22}$ | 813^{+54}_{-42} | 1836^{+39}_{-45} | $0.938^{+0.218}_{-0.220}$ |
| Alt. | -94 ± 15 | $46.78^{+7.54}_{-3.41}$ | 815^{+54}_{-43} | 1856^{+52}_{-53} | $1.018^{+0.262}_{-0.269}$ |

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

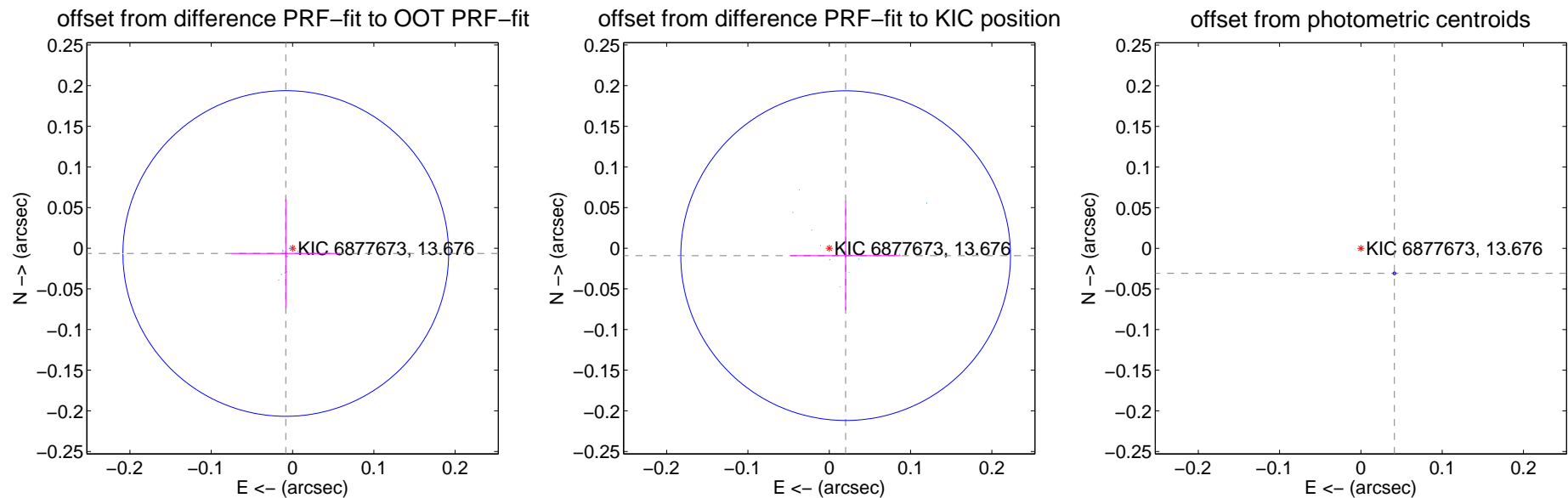
DV Centroid Data

Supplemental centroid analysis for 006877673-02. Kepler magnitude: 13.68. Transit SNR 8177.73

There are 16 quarters with good PRF difference image offsets

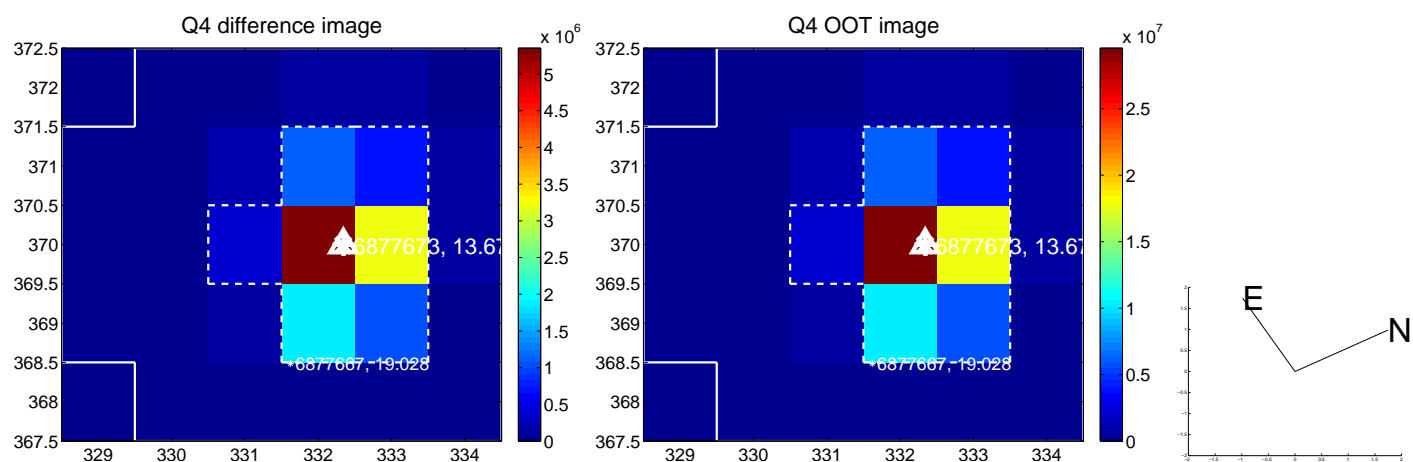
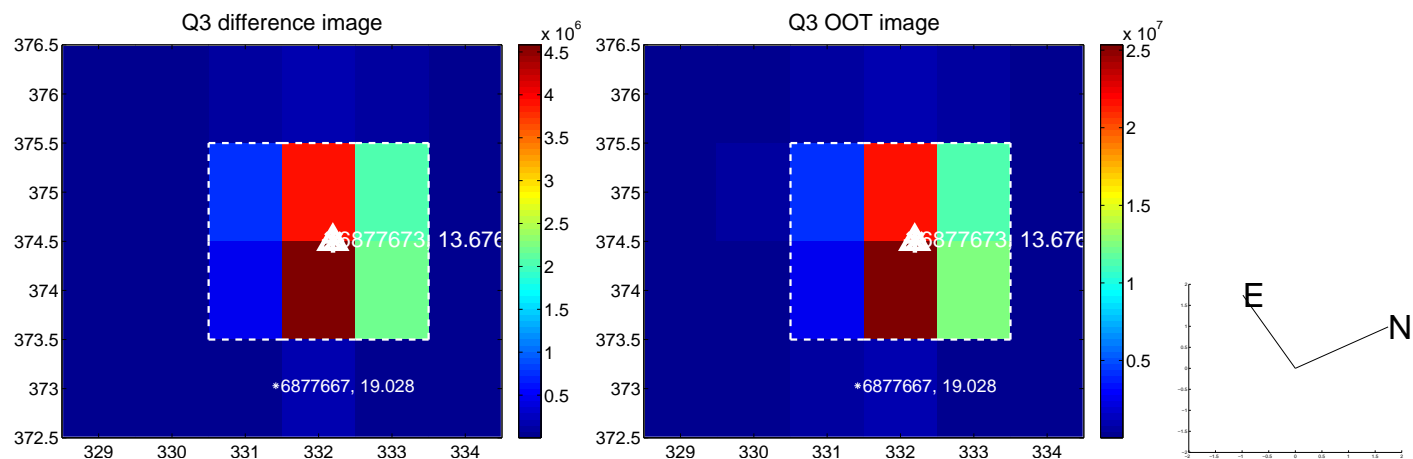
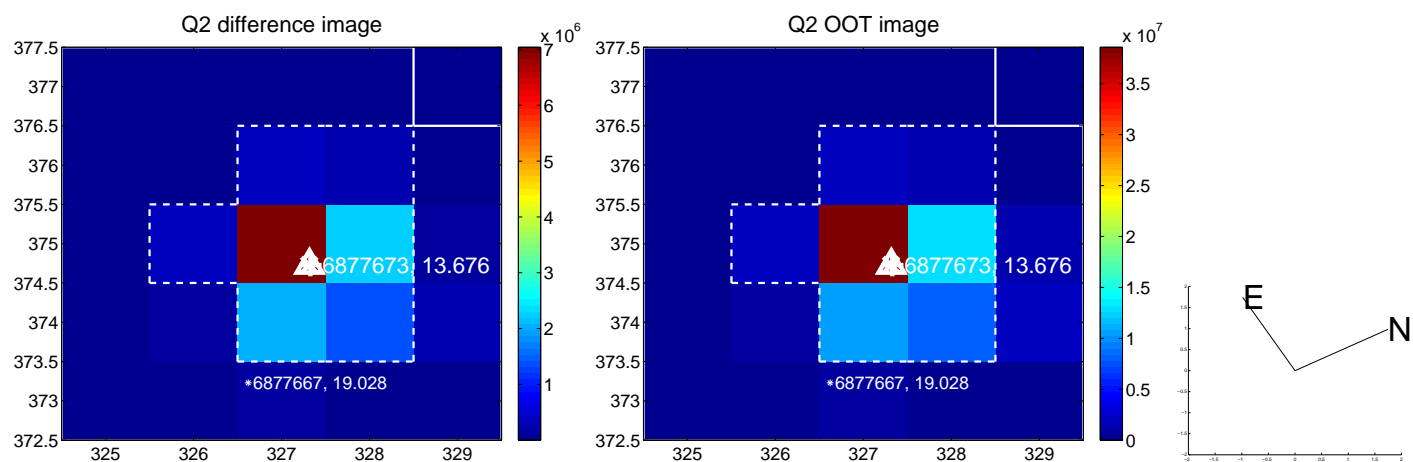
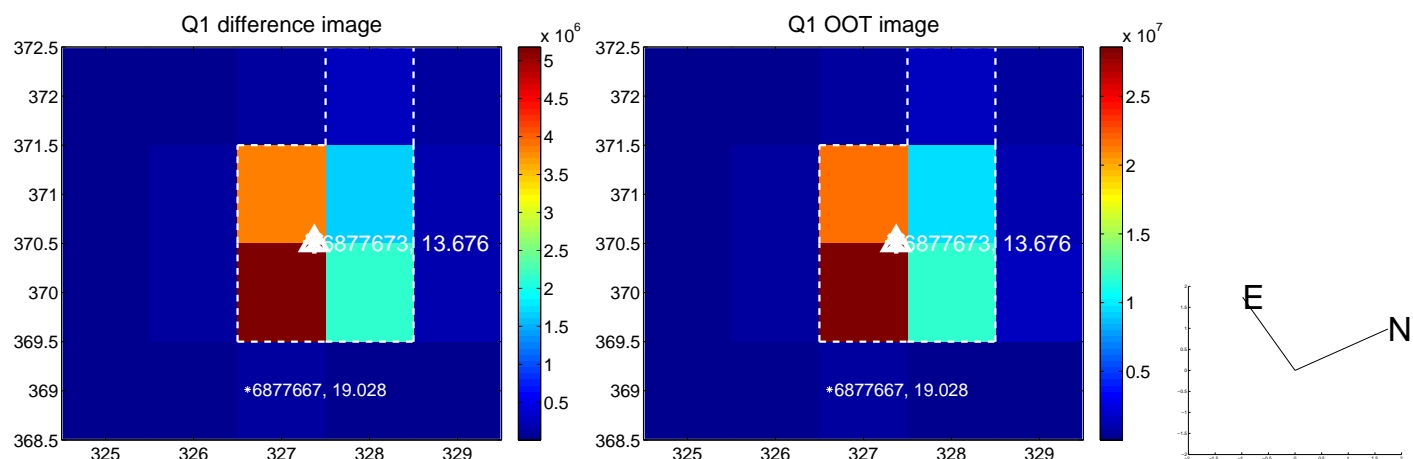
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.011 ± 0.067 | 0.16 | 0.008 ± 0.067 | -0.006 ± 0.067 |
| PRF-fit source offset from KIC position | 0.022 ± 0.068 | 0.33 | -0.020 ± 0.068 | -0.009 ± 0.067 |
| photometric centroid source offset | 0.05 ± 0.00 | 89.78 | -0.04 ± 0.00 | -0.03 ± 0.00 |

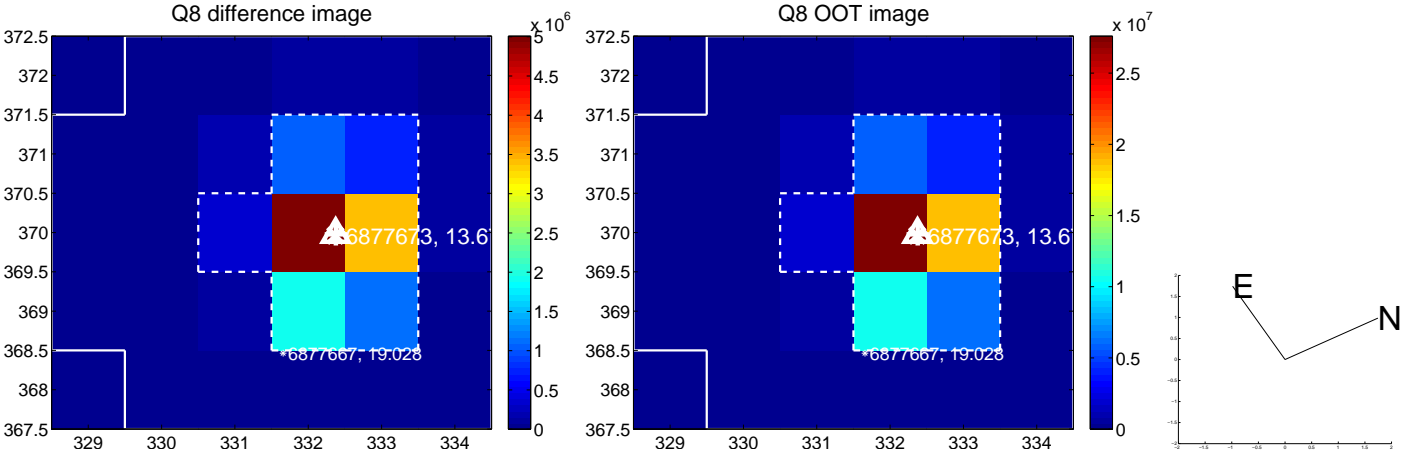
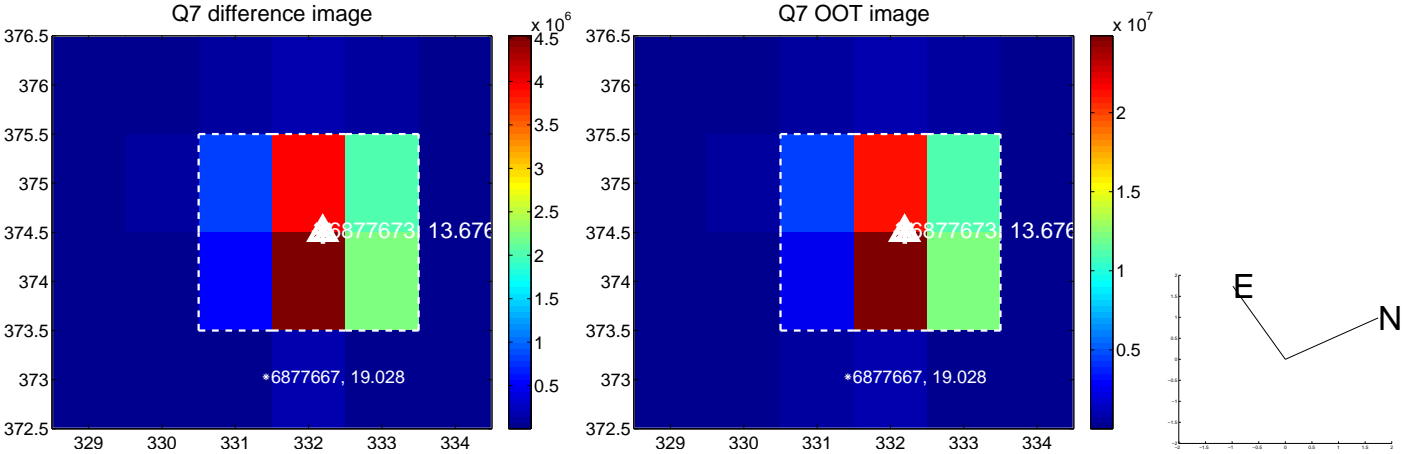
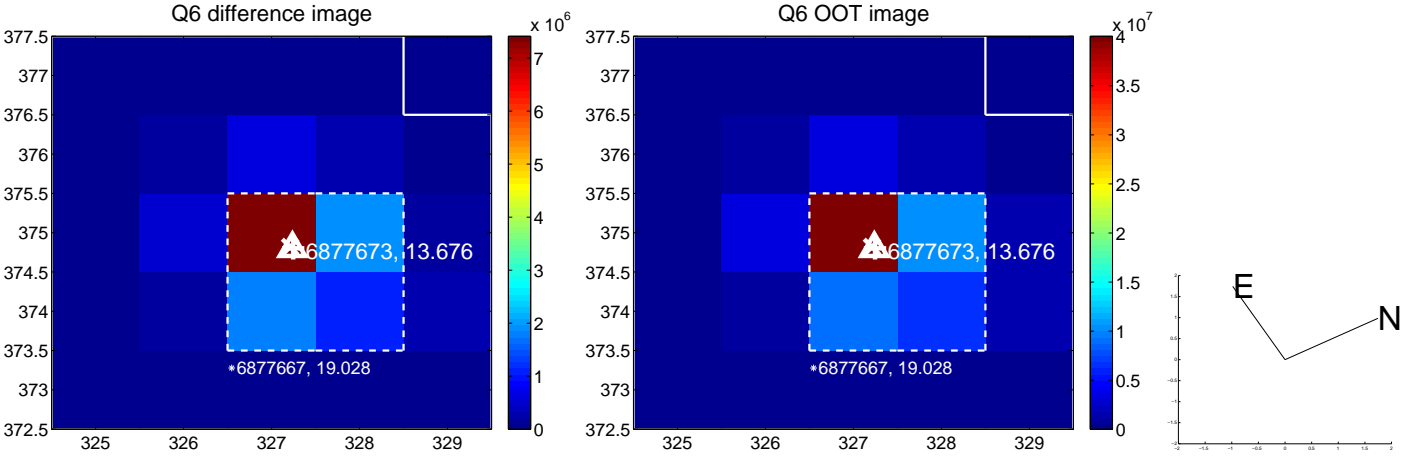
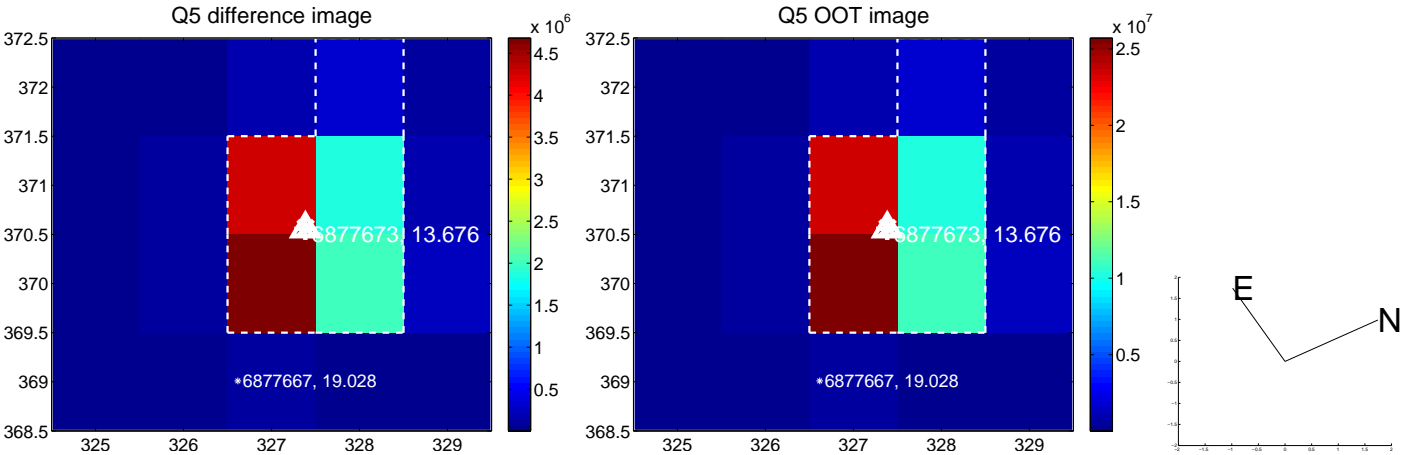


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

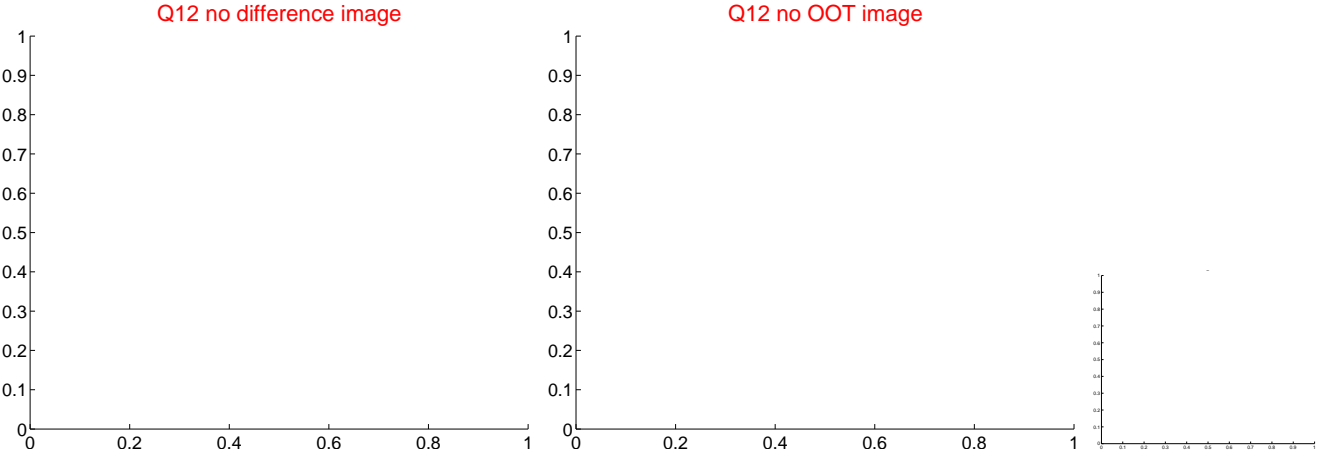
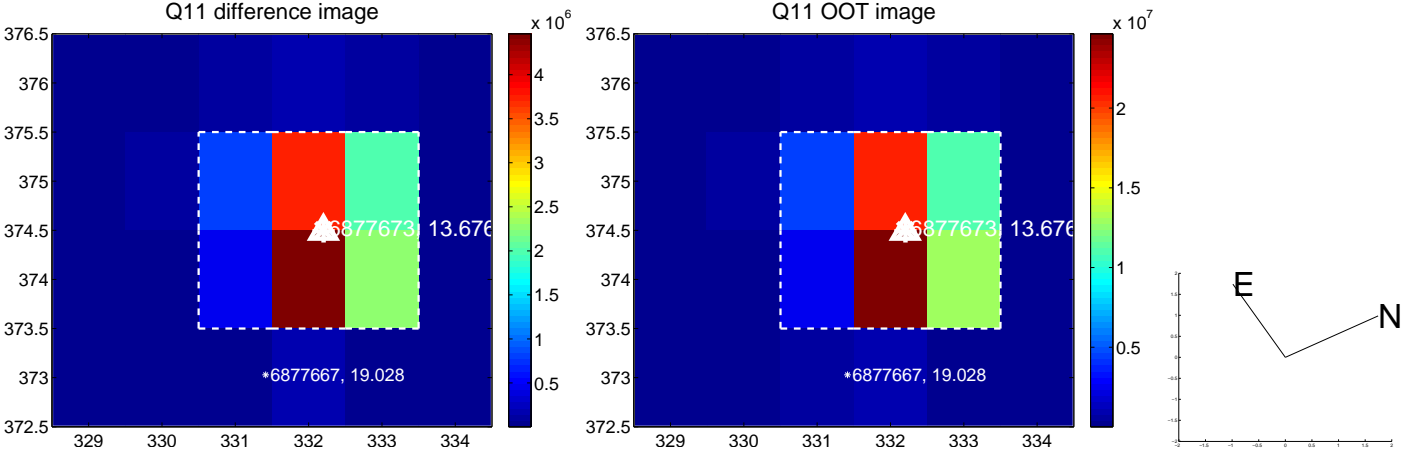
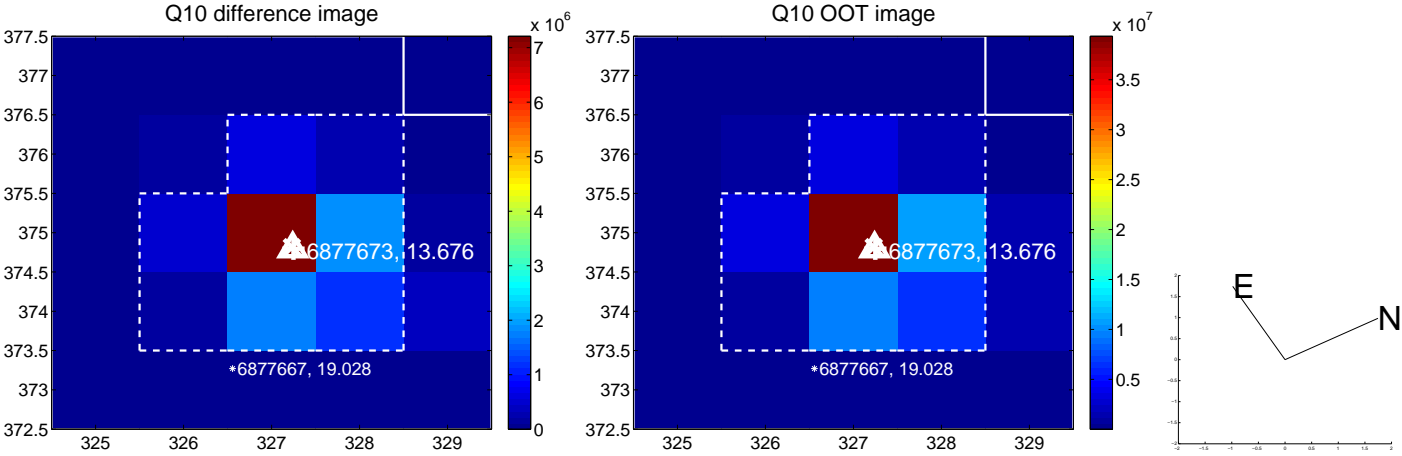
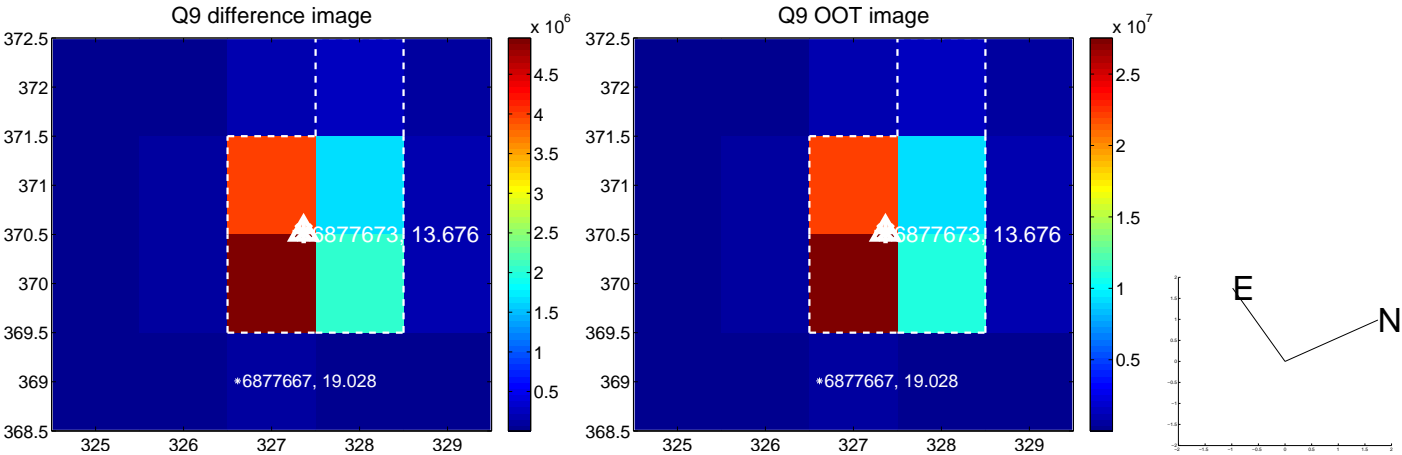
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



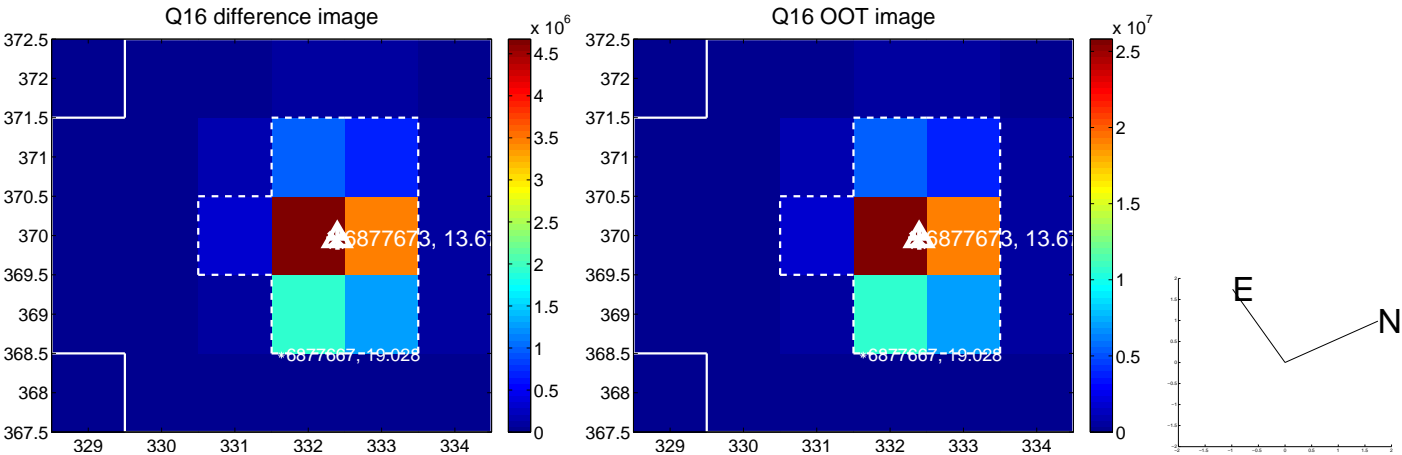
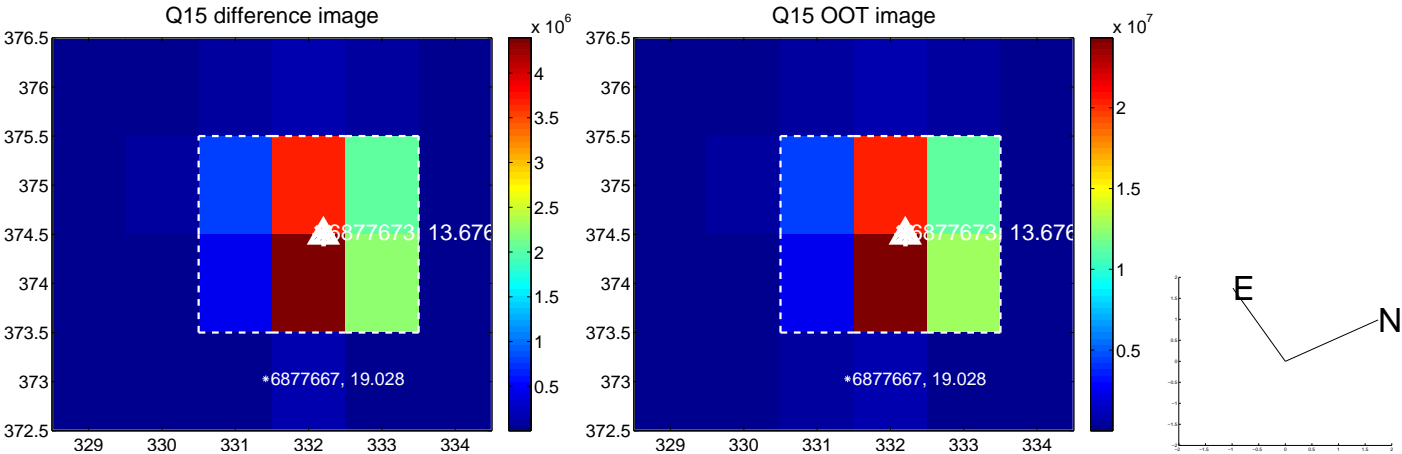
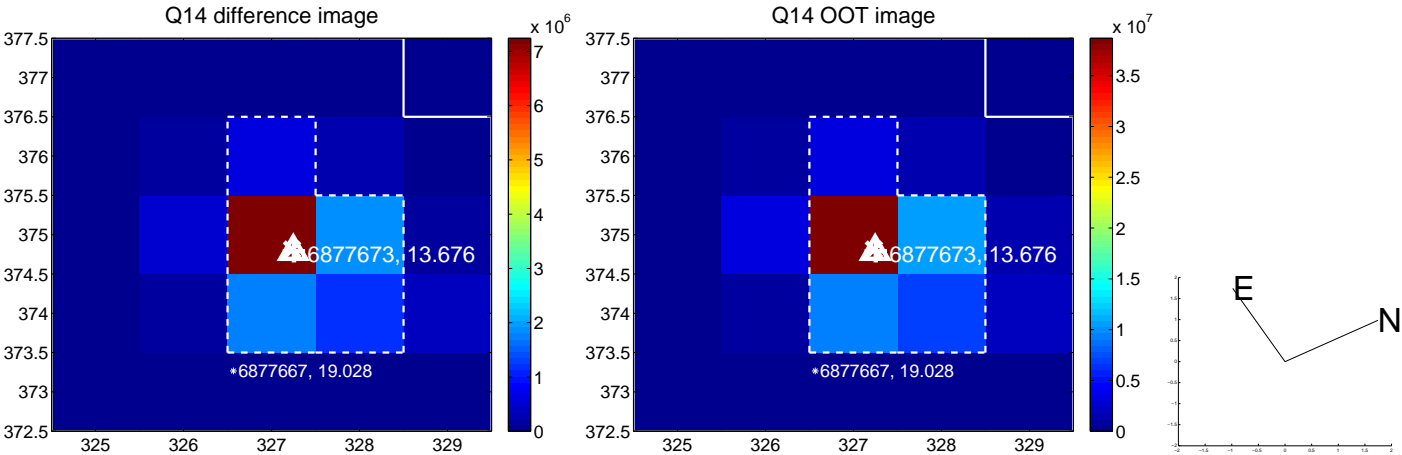
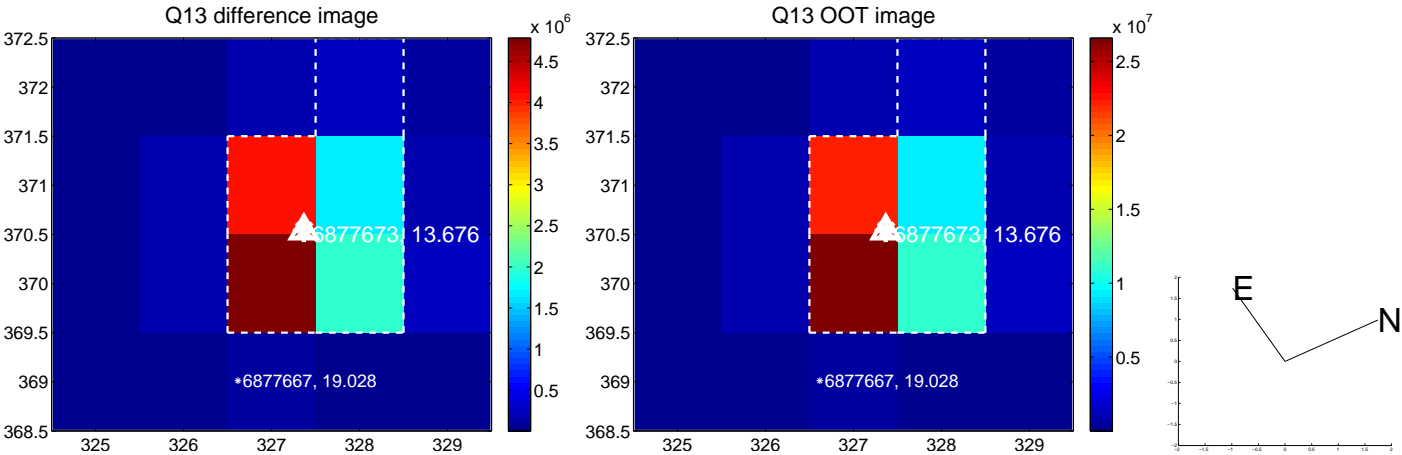
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



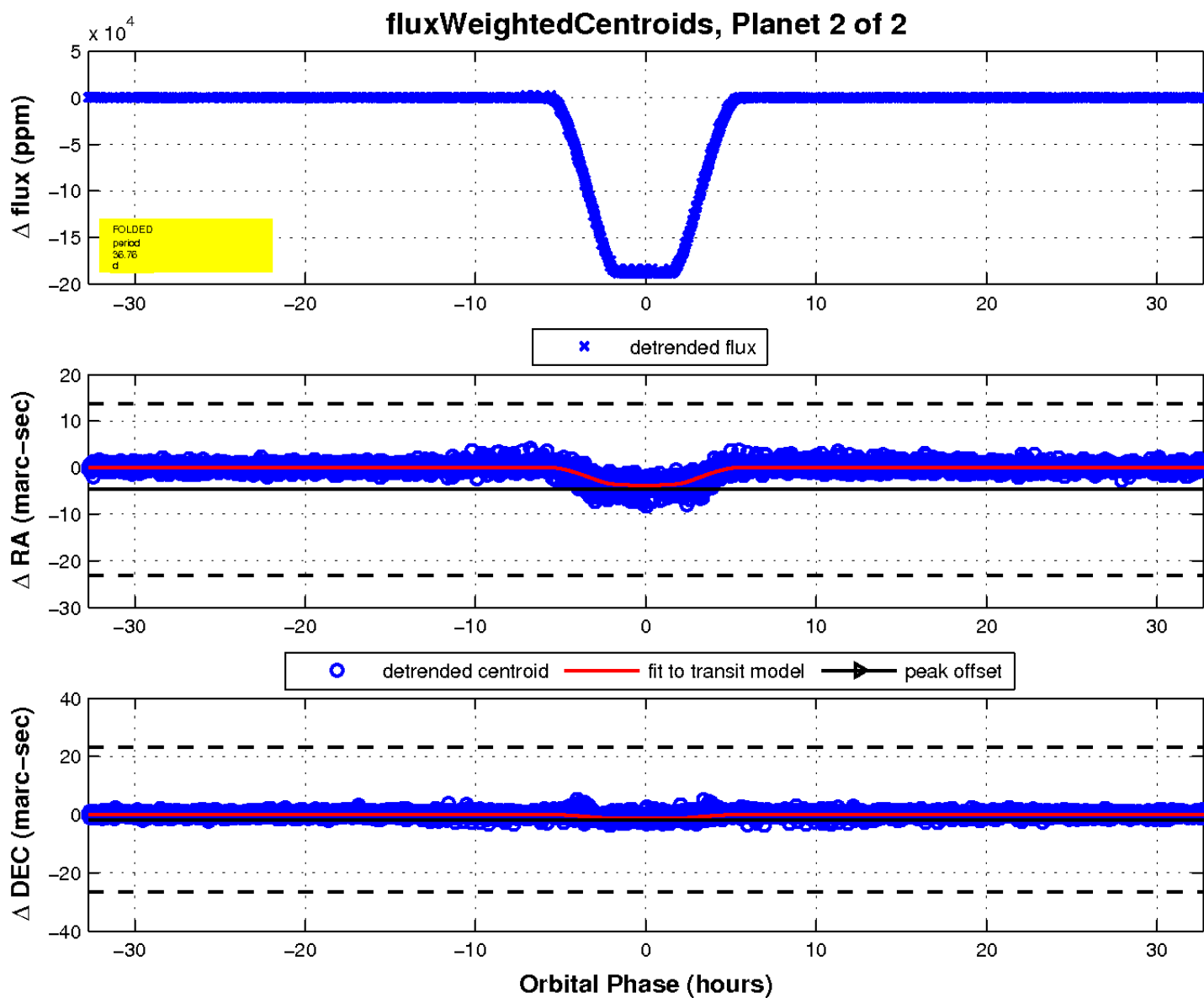
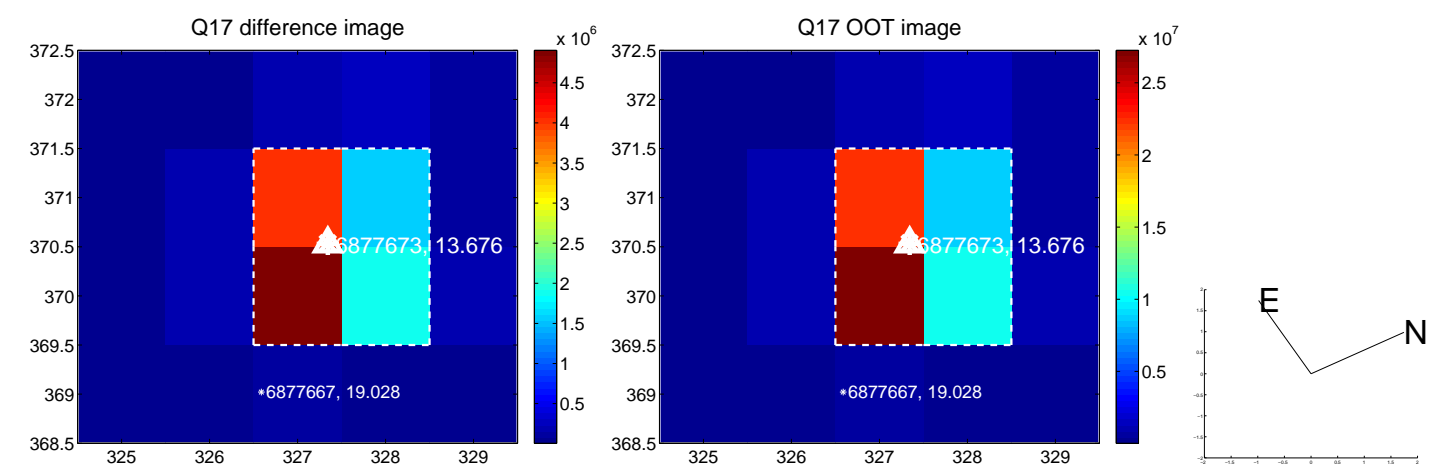
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

