

KIC 003735720

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 003735720-01 | OBS | No | 621.558834 | 330.806068 | 811.3 | 8.136 | 13.3 | 8.1 | 0.73 | 4858 | 2.50 | 0.16 |
| 003735720-02 | OBS | No | 297.041979 | 214.184952 | 422.2 | 3.771 | 11.1 | 7.0 | 0.73 | 4858 | 1.89 | 0.44 |
| 003735720-03 | OBS | No | 430.081921 | 489.680495 | 525.0 | 8.030 | 10.3 | 5.4 | 0.73 | 4858 | 1.72 | 0.27 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 003735720-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 003735720-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS |
| 003735720-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

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

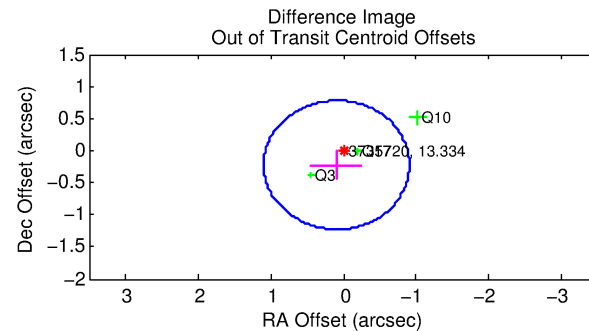
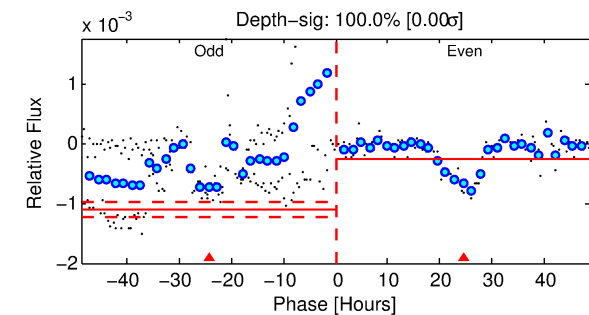
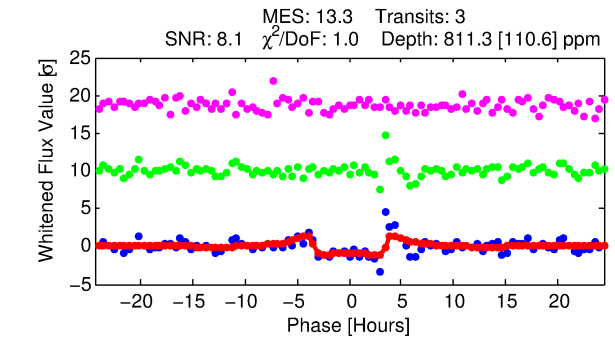
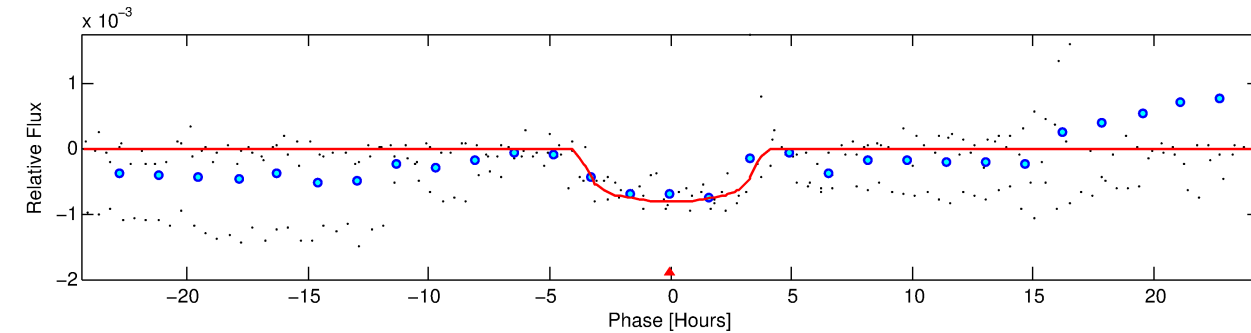
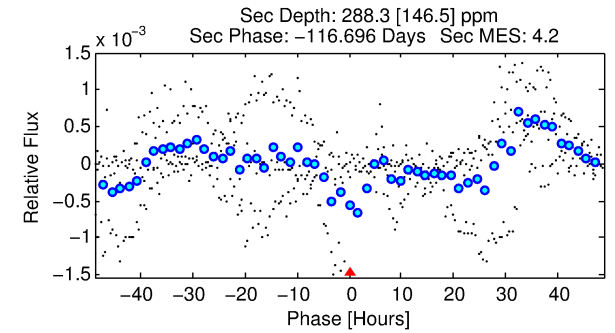
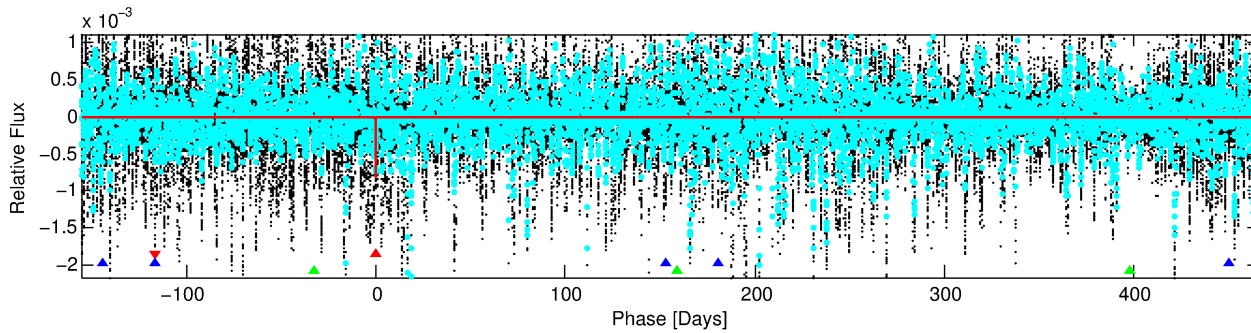
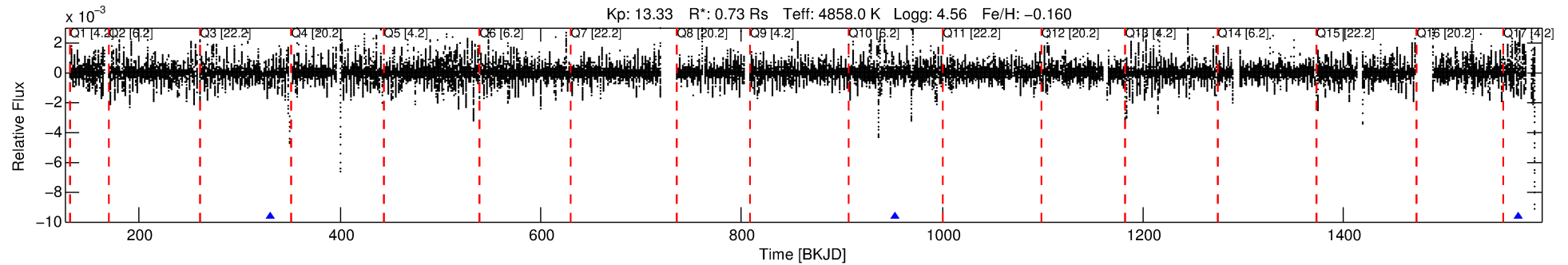
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003735720-01

No Significant Match Found

DV One-Page Summary

KIC: 3735720 Candidate: 1 of 3 Period: 621.559 d



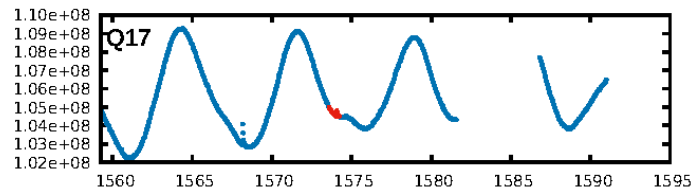
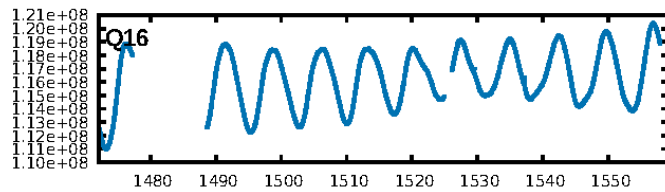
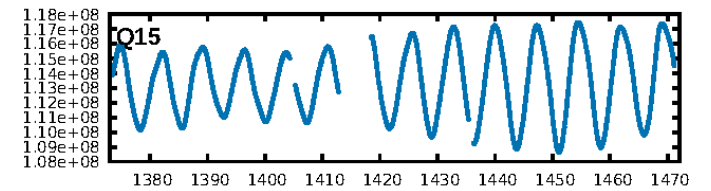
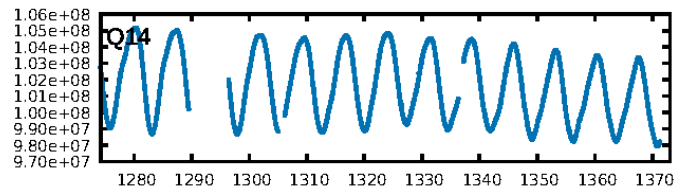
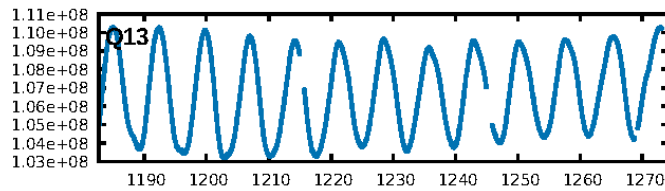
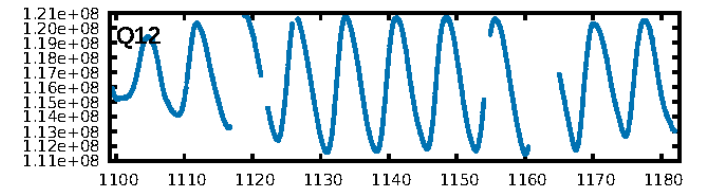
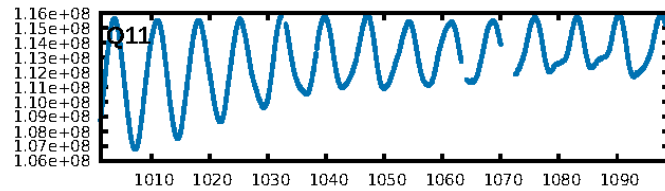
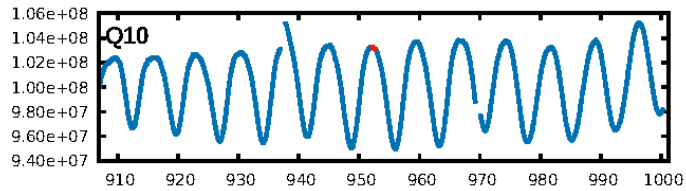
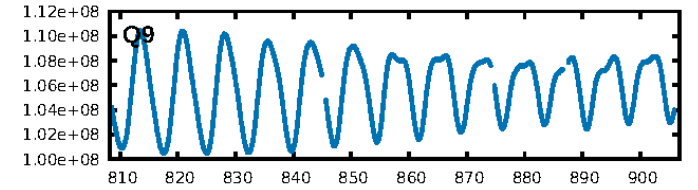
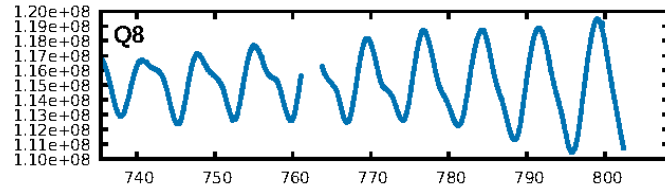
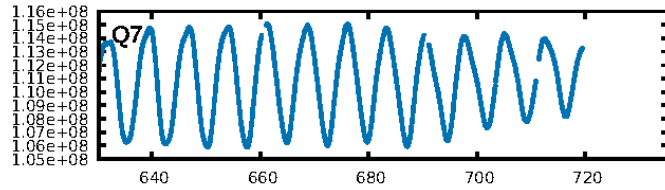
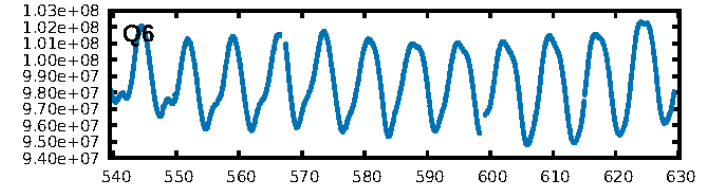
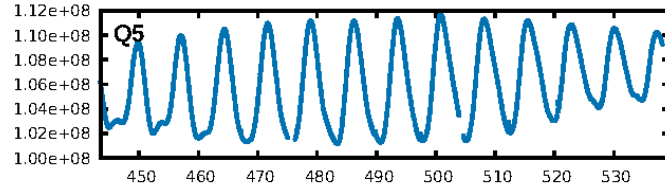
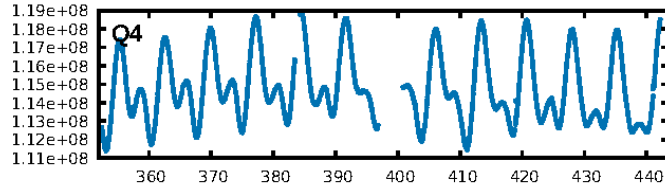
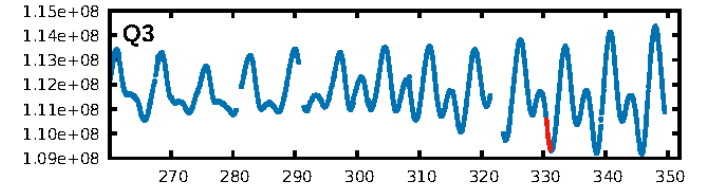
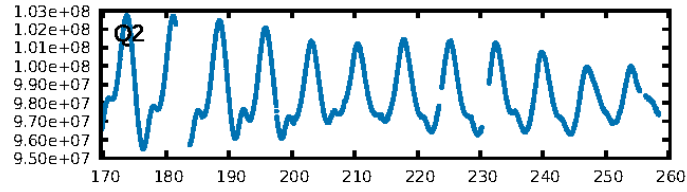
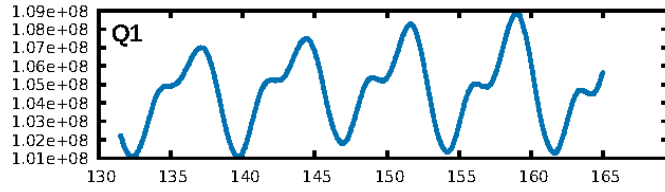
DV Fit Results:

Period = 621.55883 [0.00574] d
Epoch = 330.8061 [0.0071] BKJD
Rp/R* = 0.0315 [0.0032]
a/R* = 304.78 [74.24]
b = 0.89 [0.06]
Seff = 0.16 [0.03]
Teq = 162 [7] K
Rp = 2.50 [0.35] Re
a = 1.2686 [0.1014] AU
Ag = 40961.38 [22935.47] [1.79 σ]
Teffp = 3566 [500] K [6.81 σ]

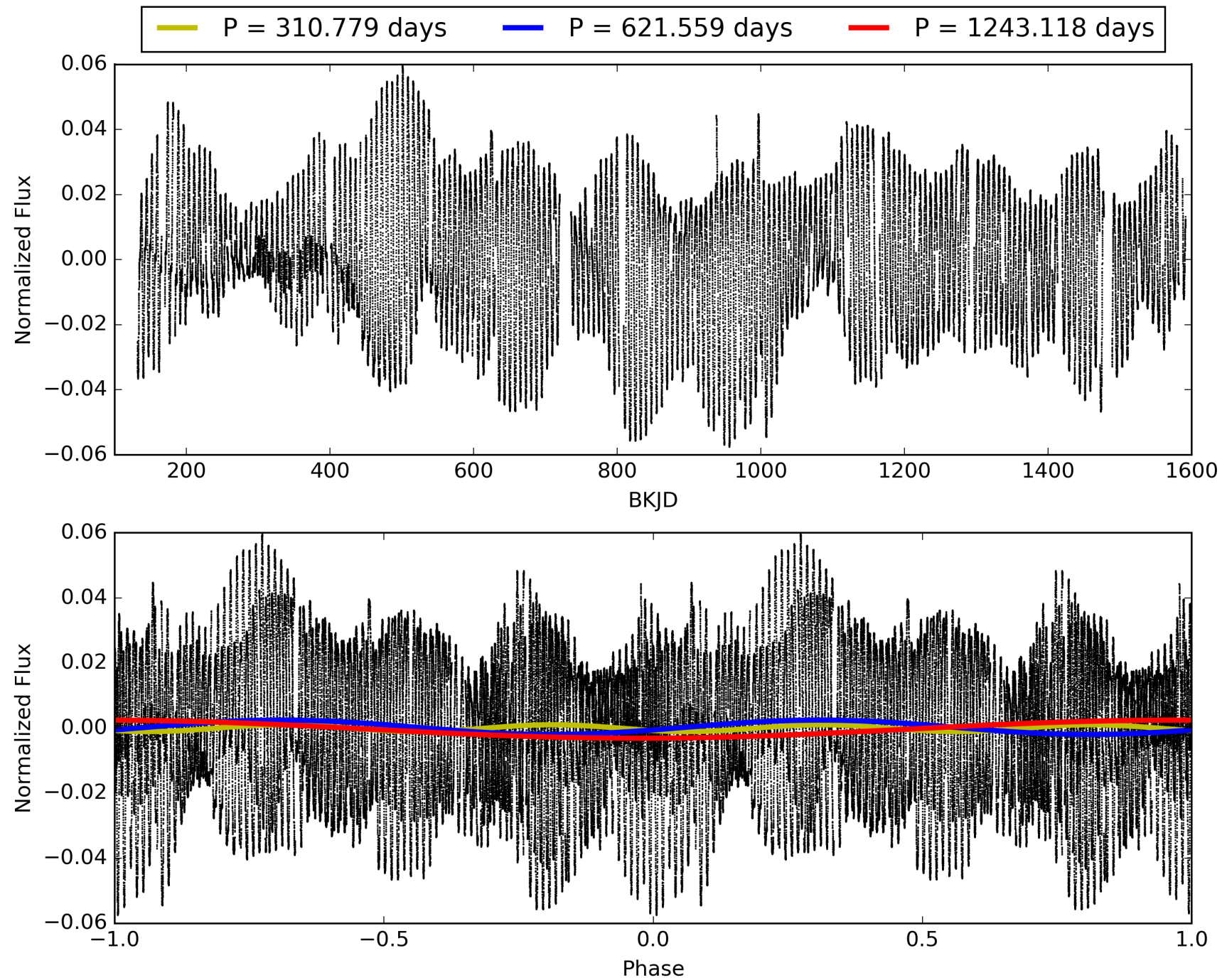
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [402.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 96.5%
Bootstrap-pfa: 2.39e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.4165
Centroid-sig: 0.0%
Centroid-so: 3.537 arcsec [3.25 σ]
OotOffset-rm: 0.244 arcsec [0.73 σ]
KicOffset-rm: 0.285 arcsec [1.05 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 003735720-01, PDC Light Curves

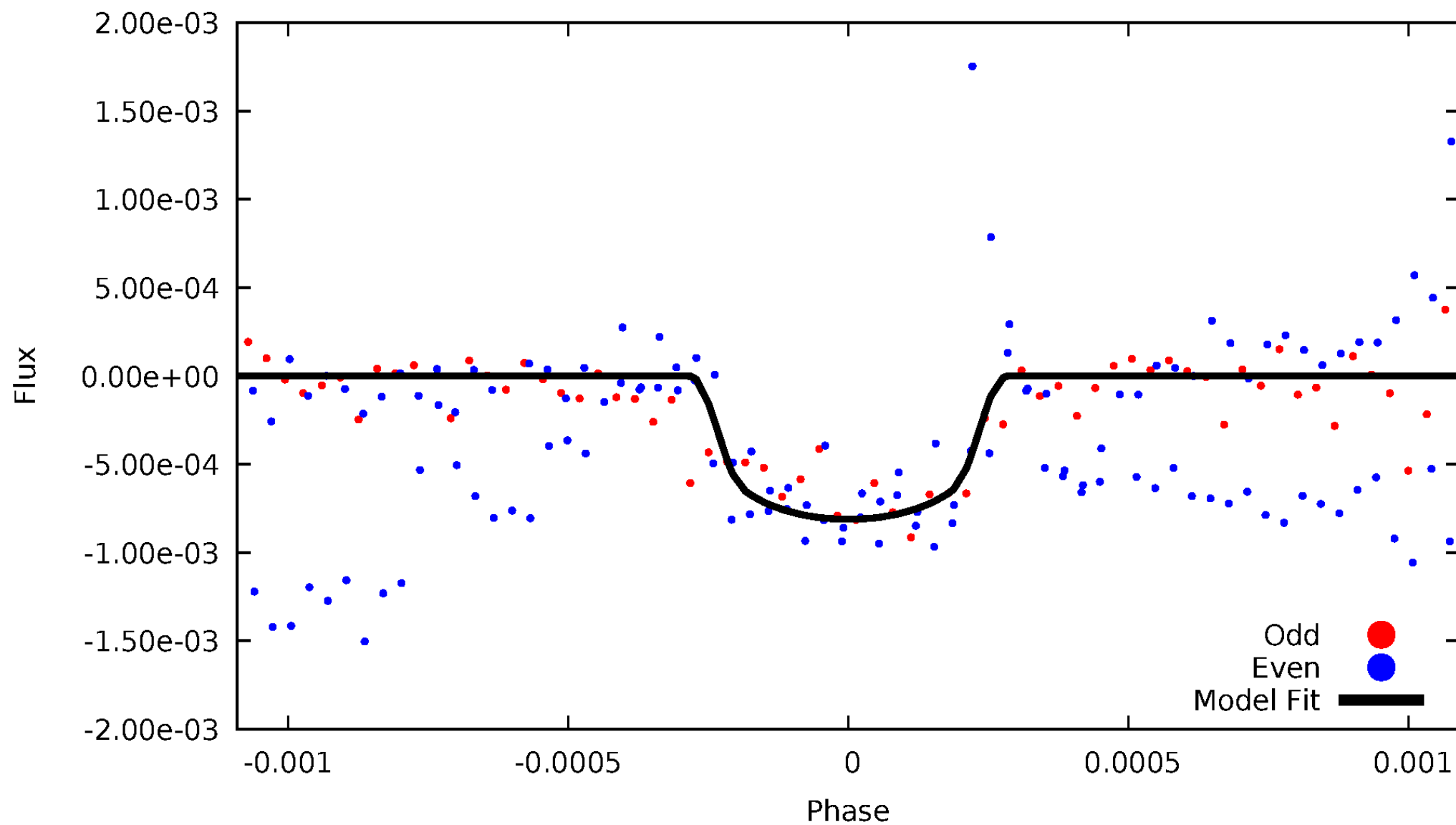


TCE 003735720-01



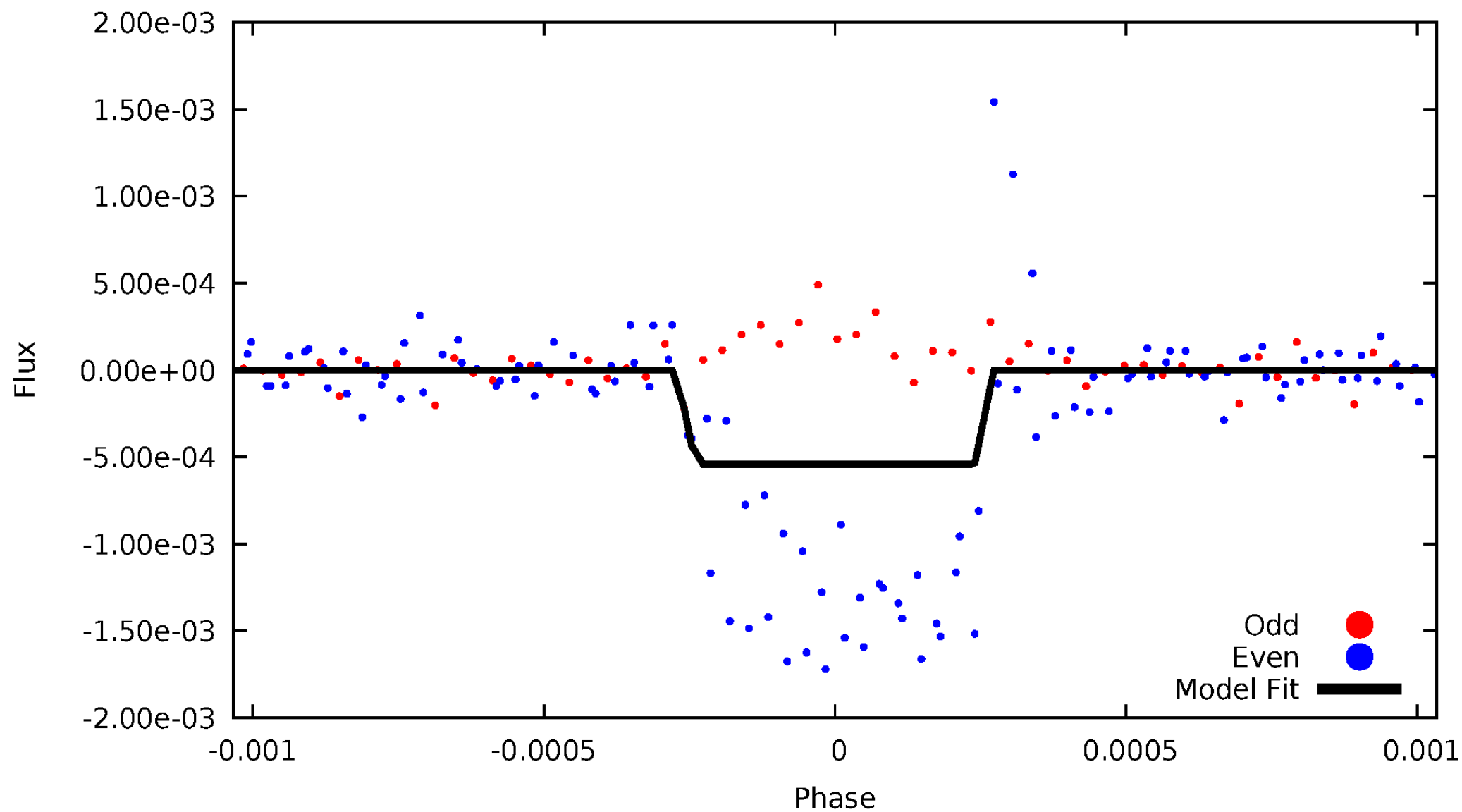
DV Odd/Even

TCE 003735720-01

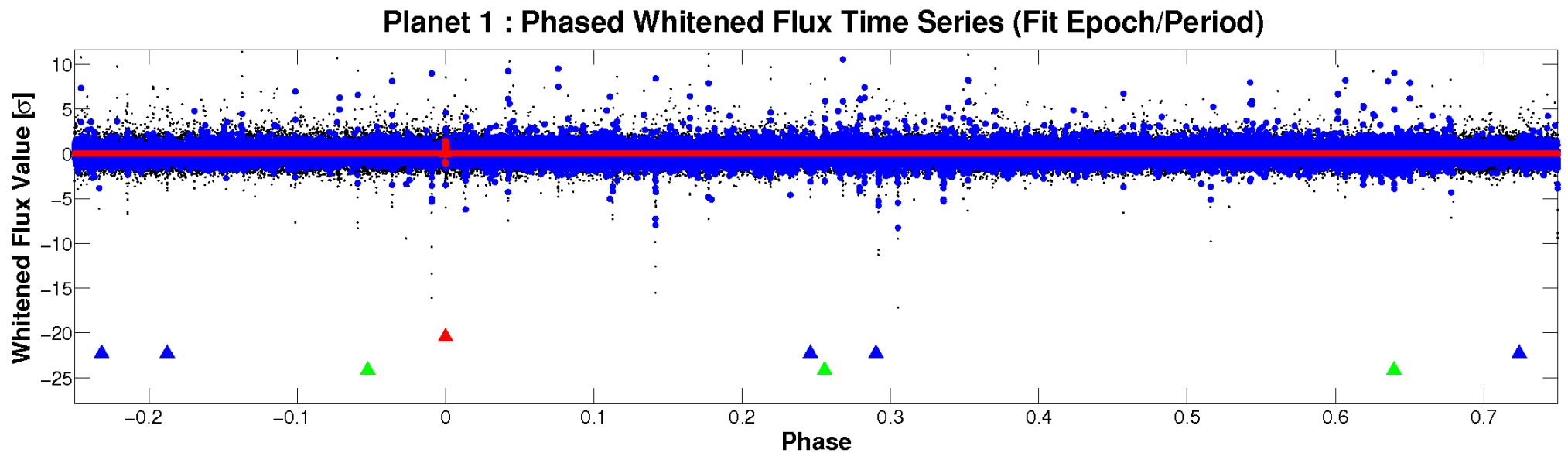
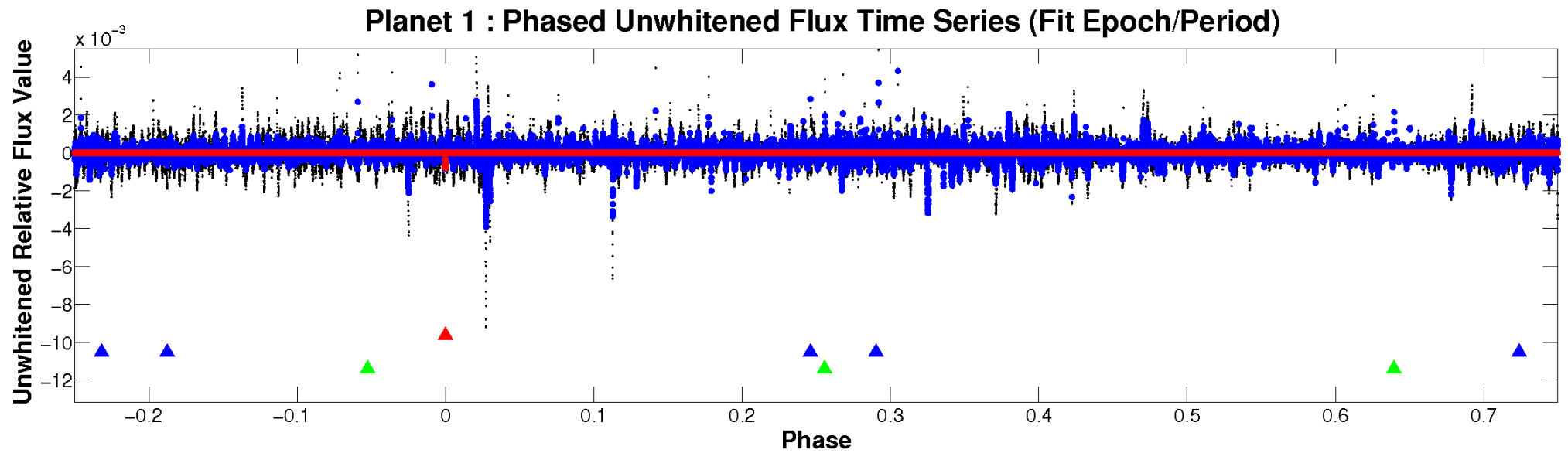


ALT Odd/Even

TCE 003735720-01

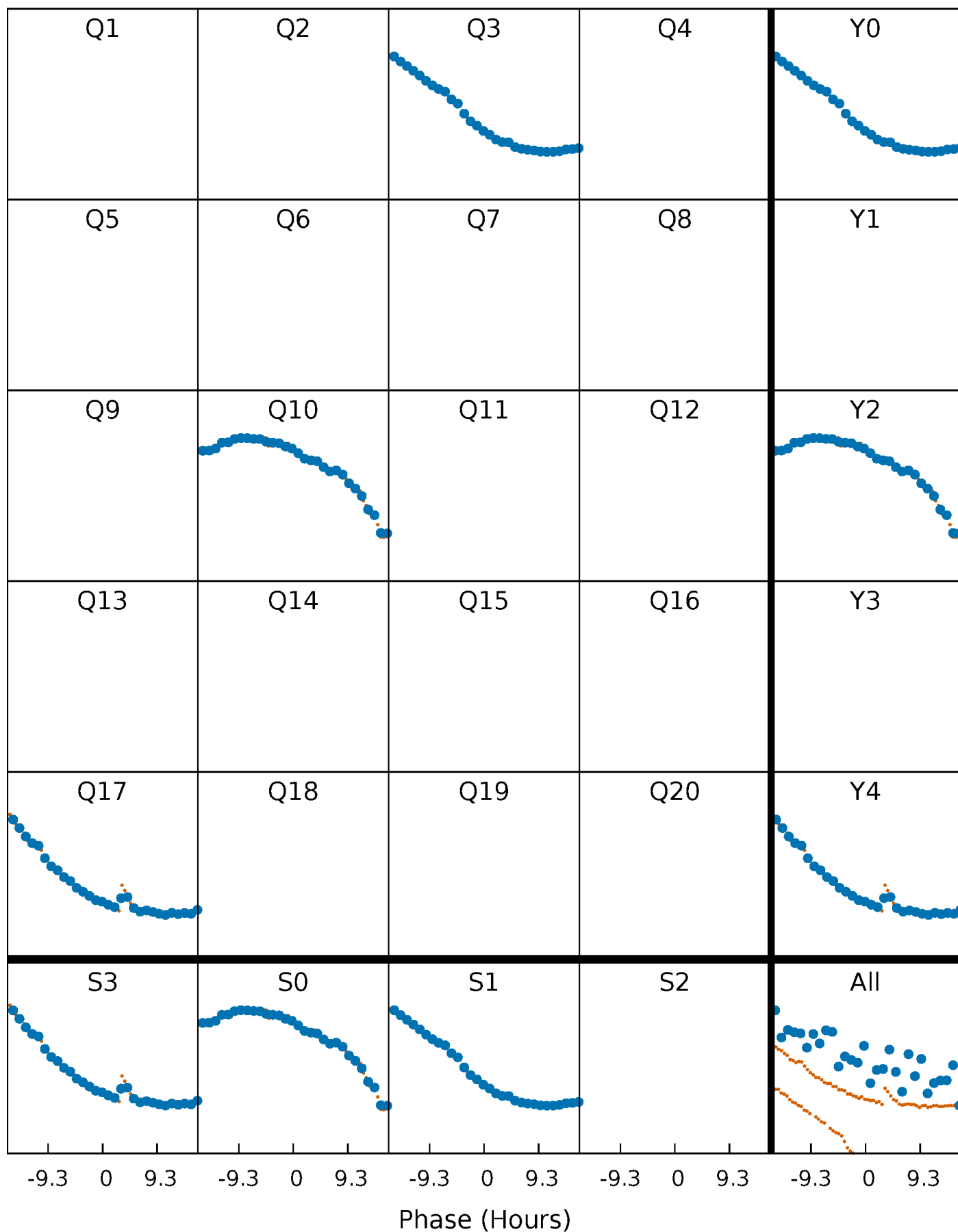


Non-Whitened Vs. Whitened Light Curve



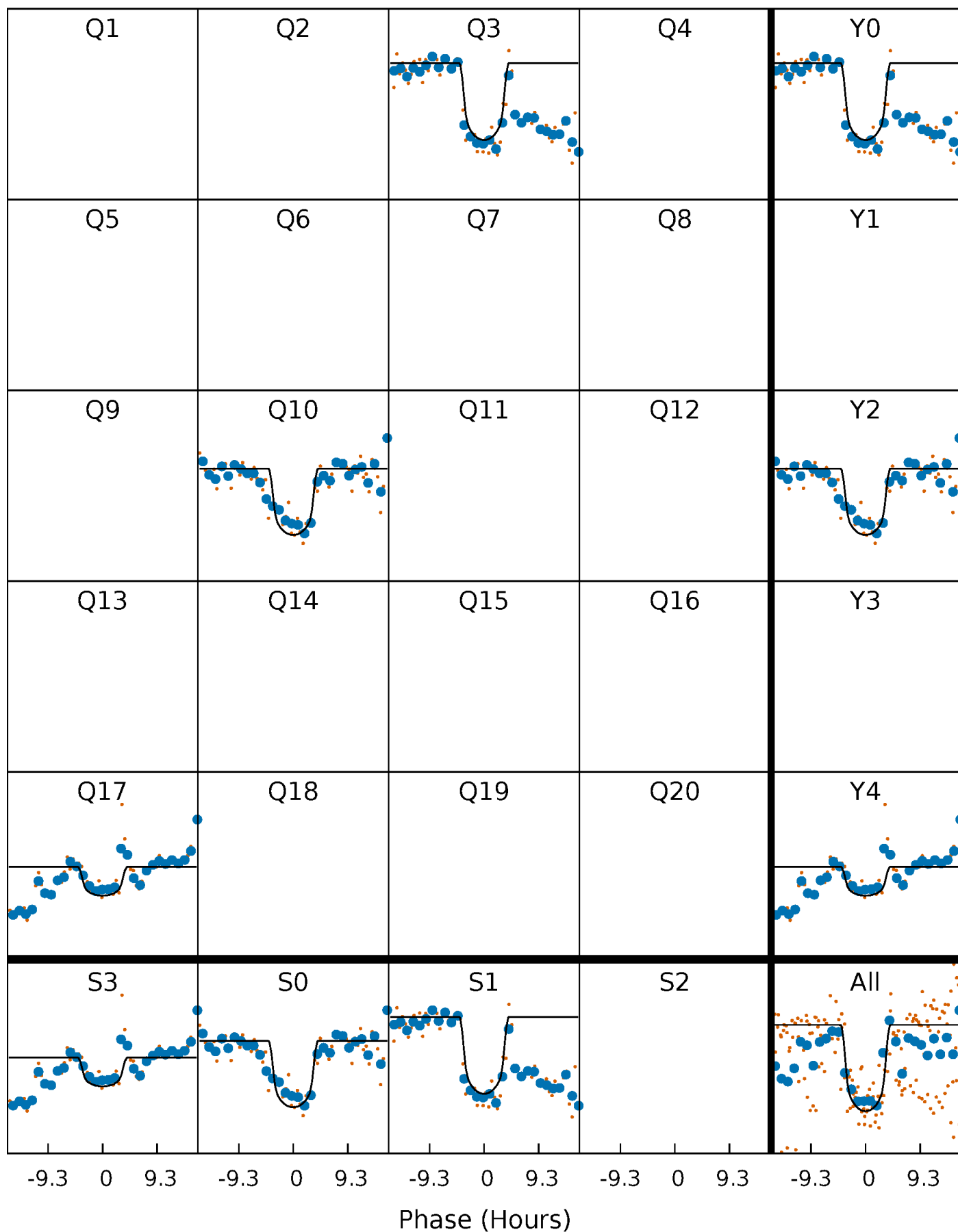
PDC Quarter-Phased Transit Curves

TCE 003735720-01 P=621.558834 Days $T_0=330.806068$ (BKJD)



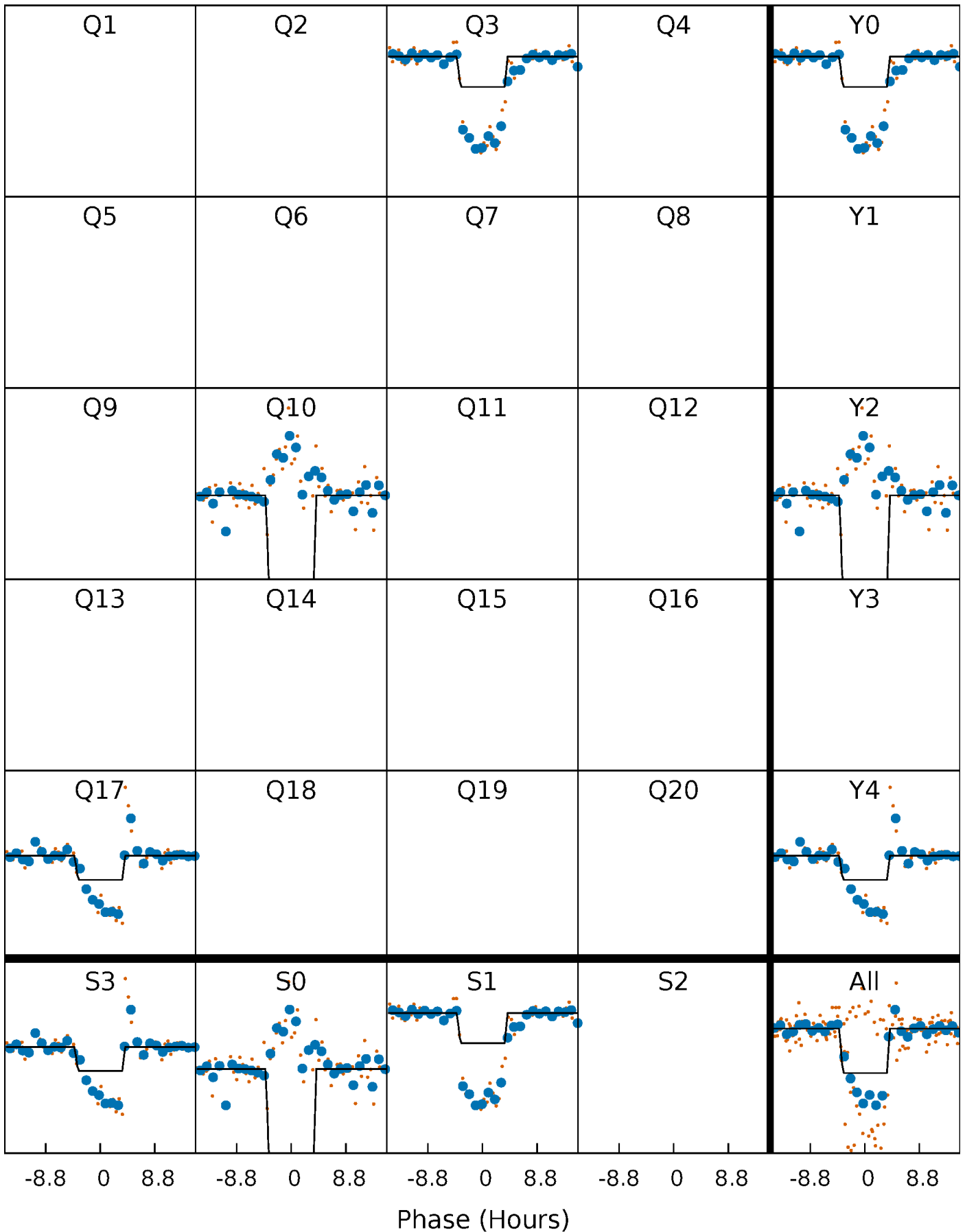
DV Quarter-Phased Transit Curves

TCE 003735720-01 P=621.558834 Days $T_0=330.806068$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

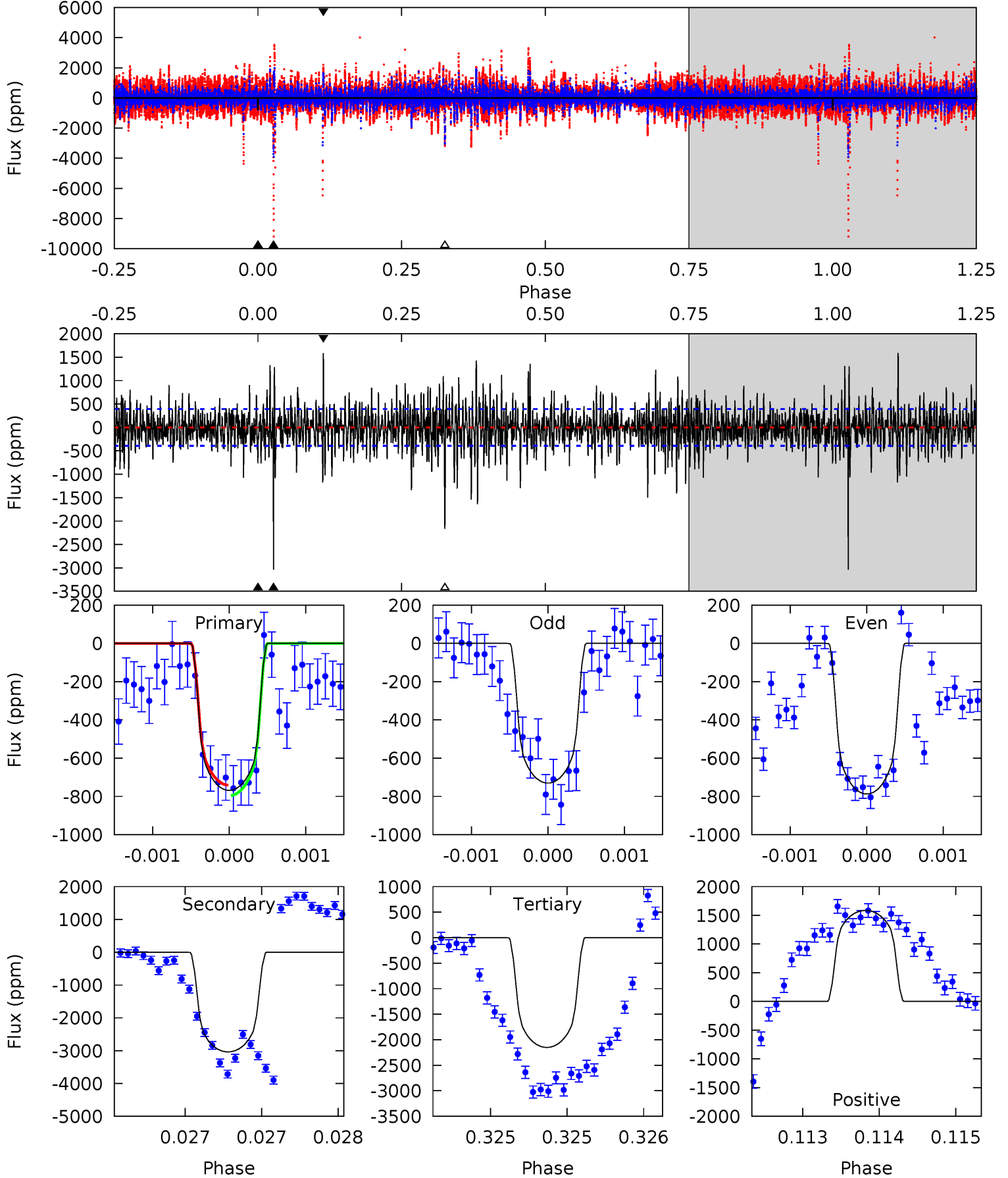
TCE 003735720-01 P=621.541217 Days $T_0=330.809221$ (BKJD)



DV Model-Shift Uniqueness Test

003735720-01, P = 621.558834 Days, E = 330.806068 Days

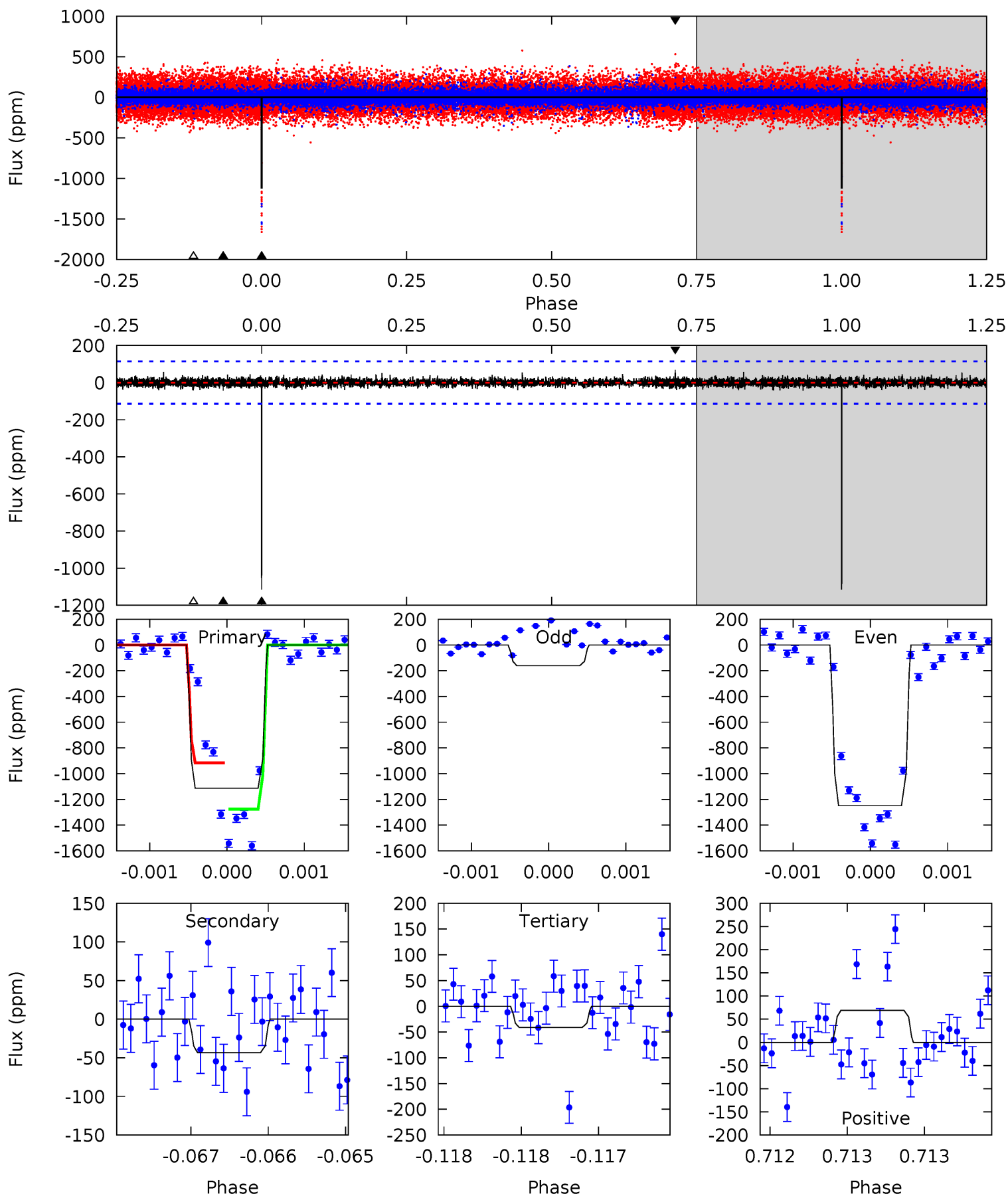
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.8 | 42.8 | 30.3 | 22.3 | 5.55 | 3.45 | 4.76 | -19.5 | -11.5 | 12.5 | 20.5 | 0.37 | 1.01 | 0.34 | 0.38 |



Alt Model-Shift Uniqueness Test

003735720-01, P = 621.541217 Days, E = 330.809221 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 54.1 | 2.11 | 2.00 | 3.36 | 5.56 | 3.46 | 0.50 | 52.1 | 50.8 | 0.11 | -1.25 | 35.1 | 0.74 | 0.06 | 8.77 |



Stellar Parameters For KIC 003735720

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--------------------------------------|
| | 4858^{+146}_{-131} | $4.564^{+0.065}_{-0.035}$ | $-0.160^{+0.300}_{-0.300}$ | $0.726^{+0.056}_{-0.068}$ | $0.705^{+0.083}_{-0.053}$ | $2.590^{+0.750}_{-0.375}$ |
| | +3%/-3% | +1%/-1% | +188%/-188% | +8%/-9% | +12%/-8% | +29%/-14% |
| 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 003735720-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|----------------|------------------------|-----------------|----------------------|-----------------------------|
| DV | -3037 ± 71 | $2.48^{+0.31}_{-0.27}$ | 225^{+8}_{-8} | 6281^{+458}_{-360} | $443948^{+111670}_{-89204}$ |
| Alt. | -43 ± 21 | $1.83^{+0.31}_{-0.26}$ | 226^{+8}_{-8} | 3120^{+255}_{-310} | 10998^{+7597}_{-5764} |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

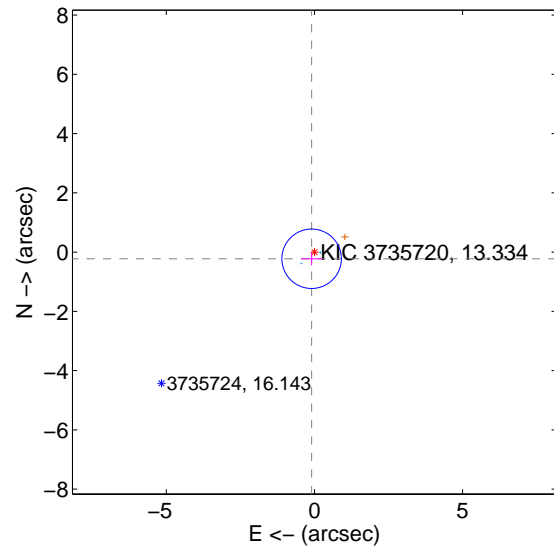
Supplemental centroid analysis for 003735720-01. Kepler magnitude: 13.33. Transit SNR 8.09

There are 2 quarters with good PRF difference image offsets

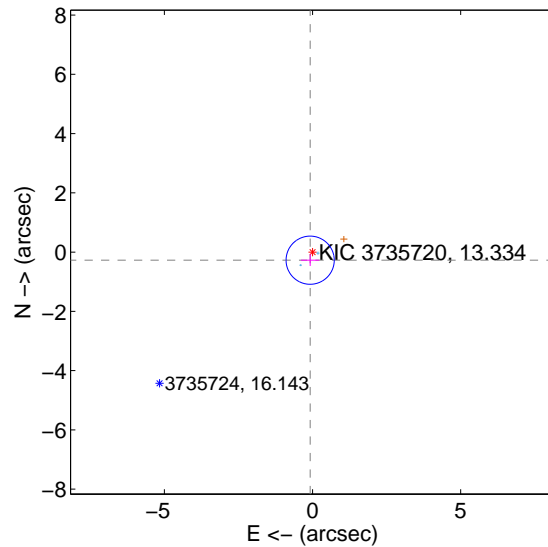
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.244 ± 0.334 | 0.73 | 0.096 ± 0.352 | -0.225 ± 0.220 |
| PRF-fit source offset from KIC position | 0.285 ± 0.271 | 1.05 | 0.080 ± 0.311 | -0.273 ± 0.197 |
| photometric centroid source offset | 3.54 ± 1.09 | 3.25 | 3.26 ± 1.11 | -1.37 ± 0.94 |

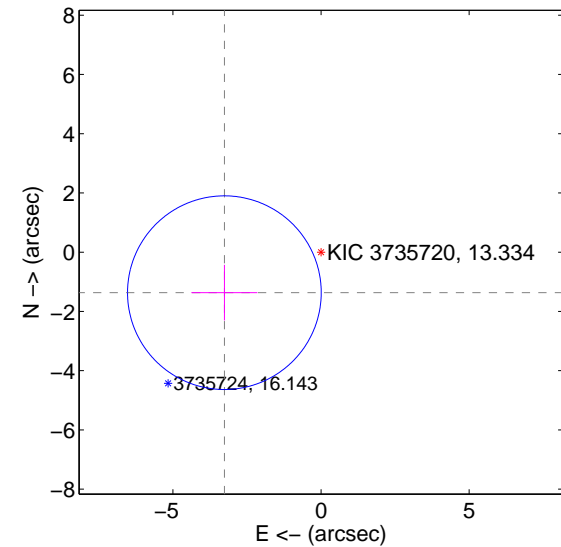
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

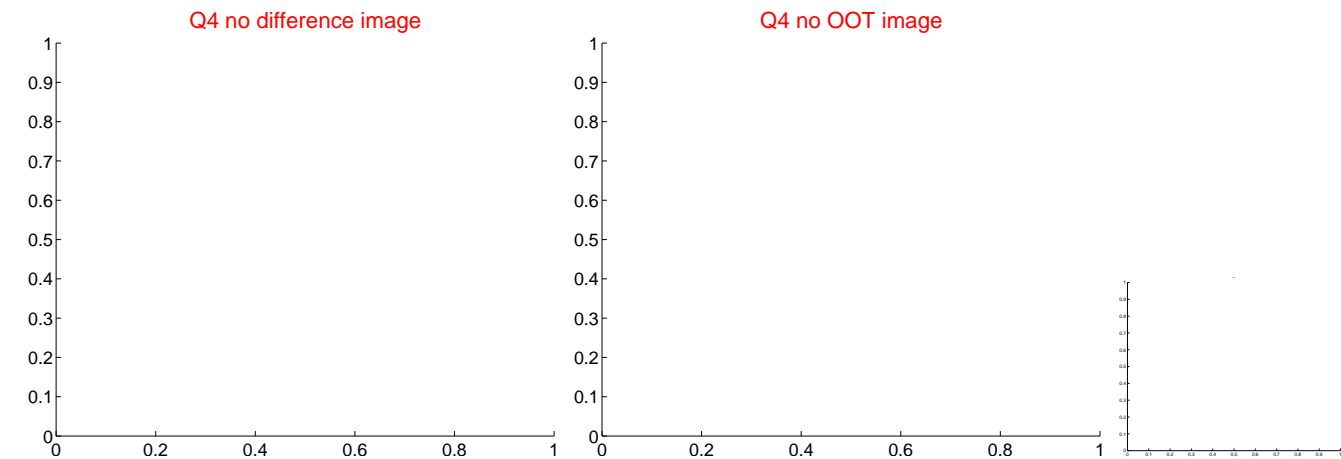
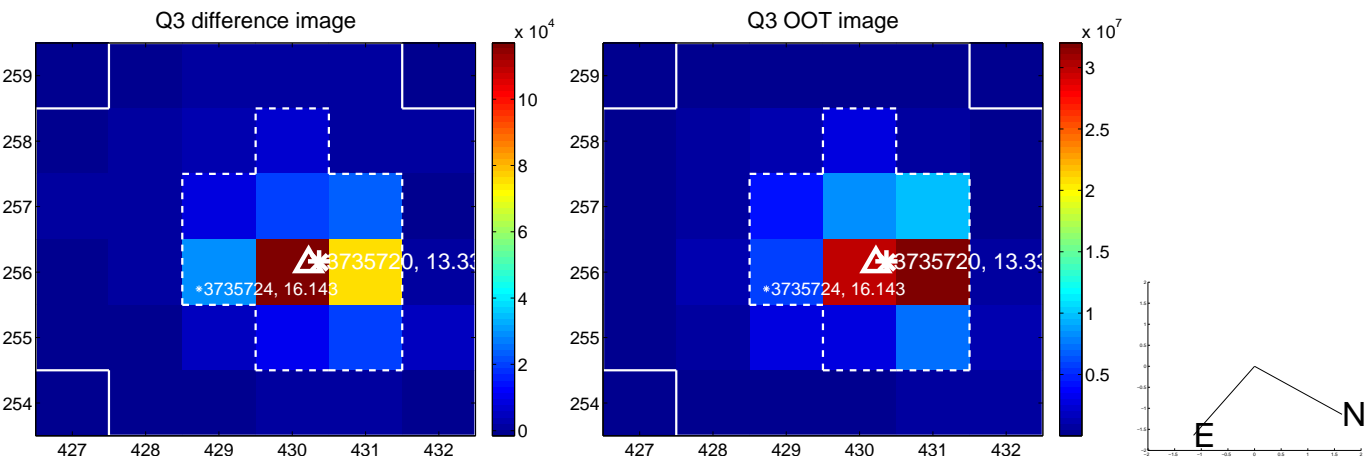


offset from photometric centroids



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.



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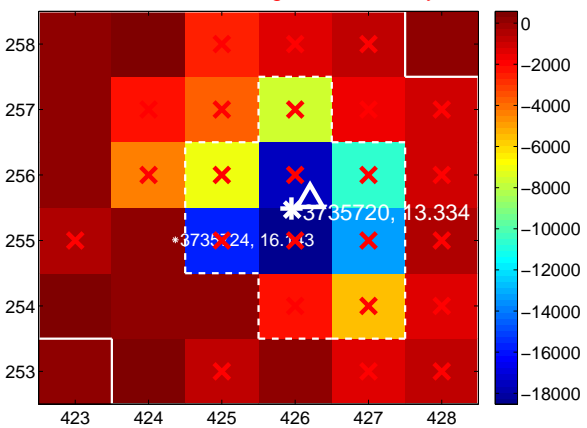
Q9 no difference image



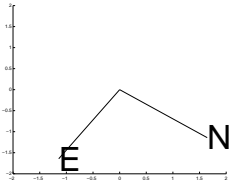
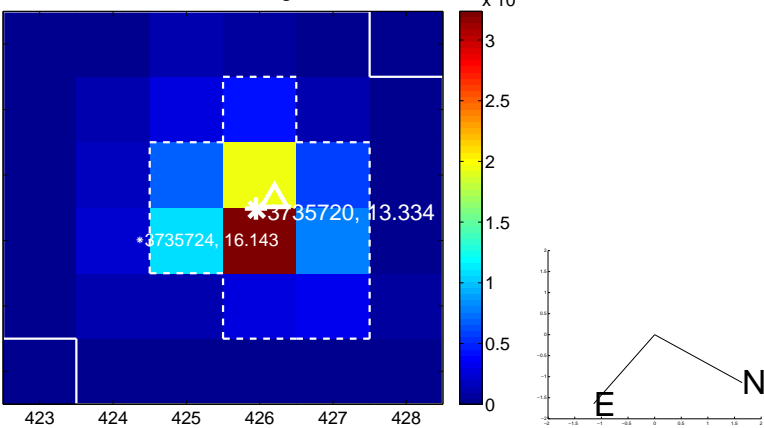
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



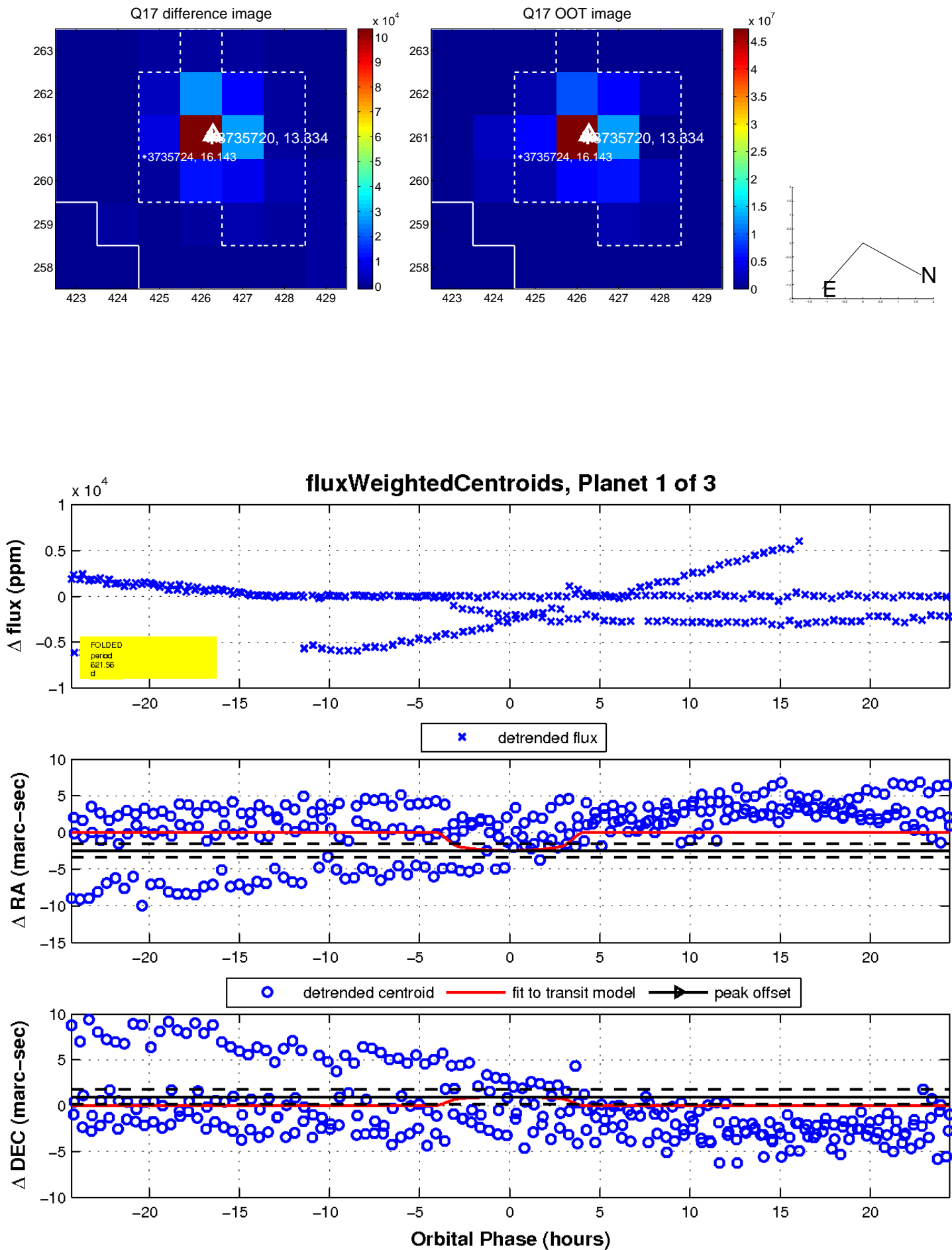
Q12 no OOT image



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

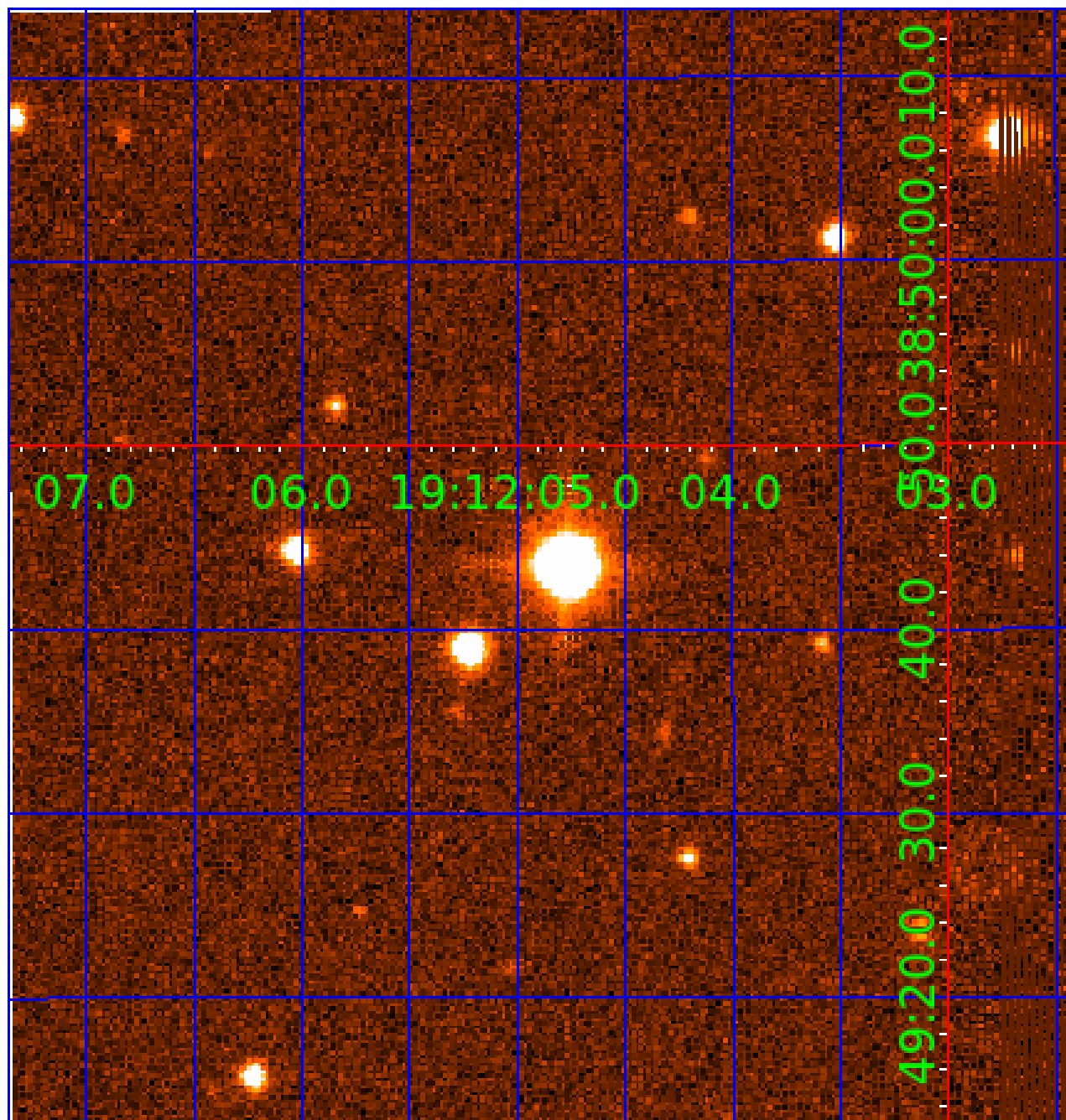


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003735720

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 003735720-01 | OBS | No | 621.558834 | 330.806068 | 811.3 | 8.136 | 13.3 | 8.1 | 0.73 | 4858 | 2.50 | 0.16 |
| 003735720-02 | OBS | No | 297.041979 | 214.184952 | 422.2 | 3.771 | 11.1 | 7.0 | 0.73 | 4858 | 1.89 | 0.44 |
| 003735720-03 | OBS | No | 430.081921 | 489.680495 | 525.0 | 8.030 | 10.3 | 5.4 | 0.73 | 4858 | 1.72 | 0.27 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 003735720-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 003735720-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS |
| 003735720-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

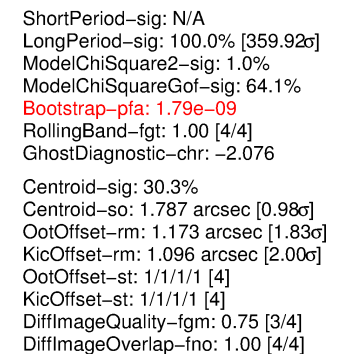
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 003735720-02

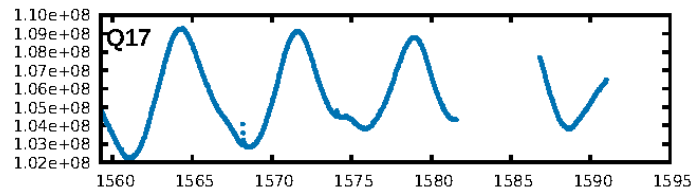
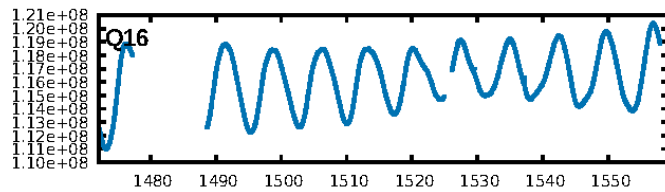
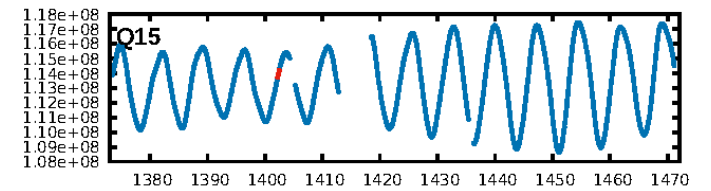
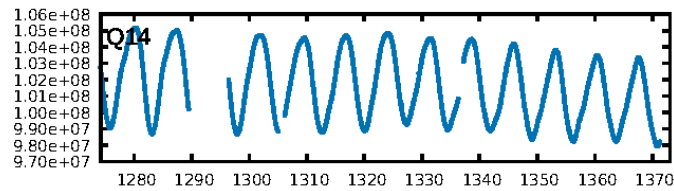
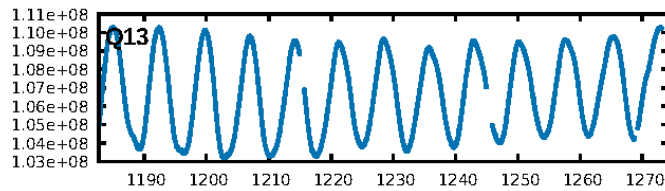
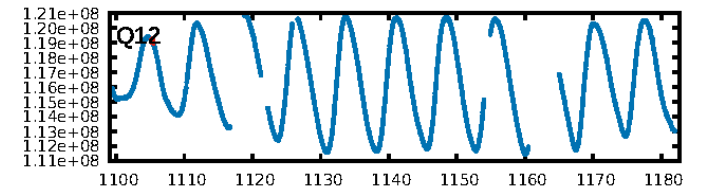
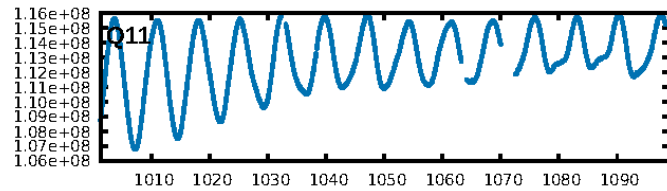
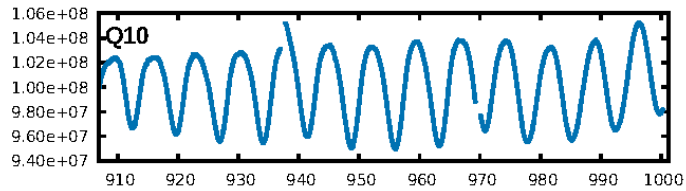
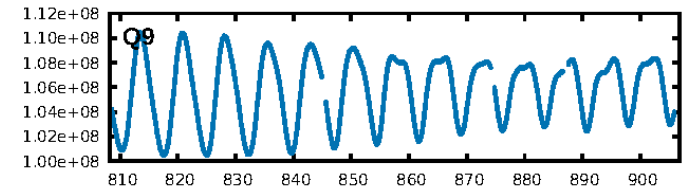
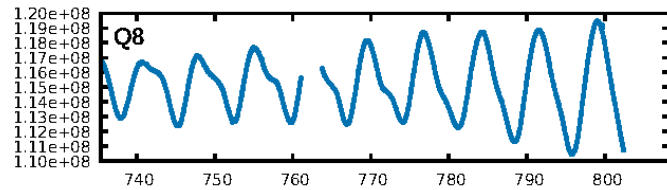
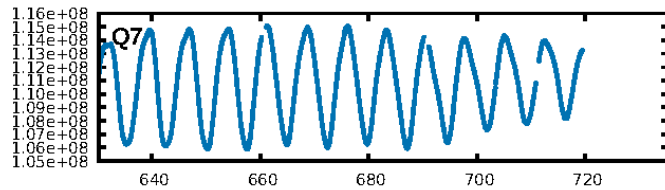
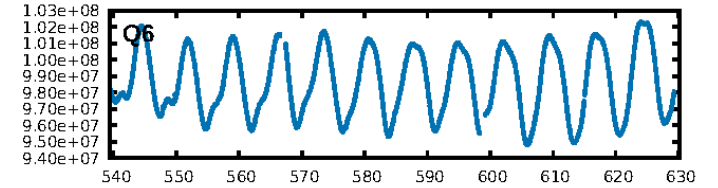
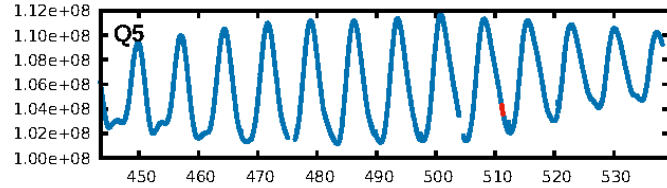
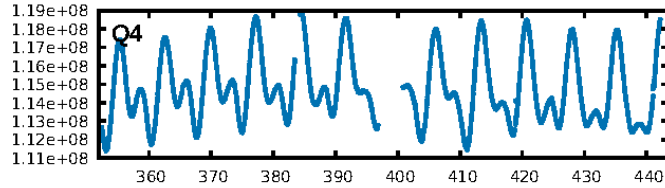
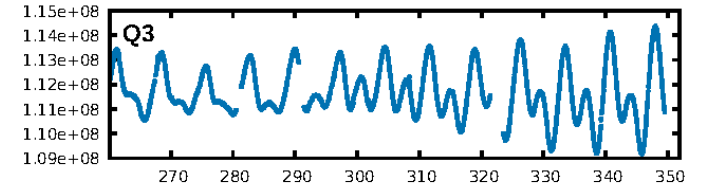
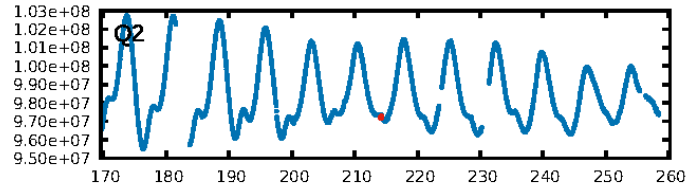
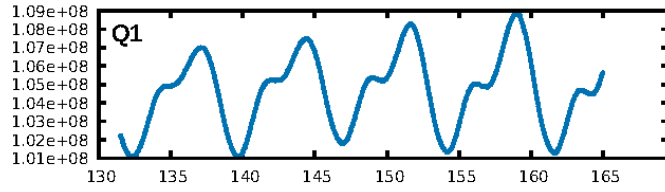
No Significant Match Found

KIC: 3735720 Candidate: 2 of 3 Period: 297.042 d

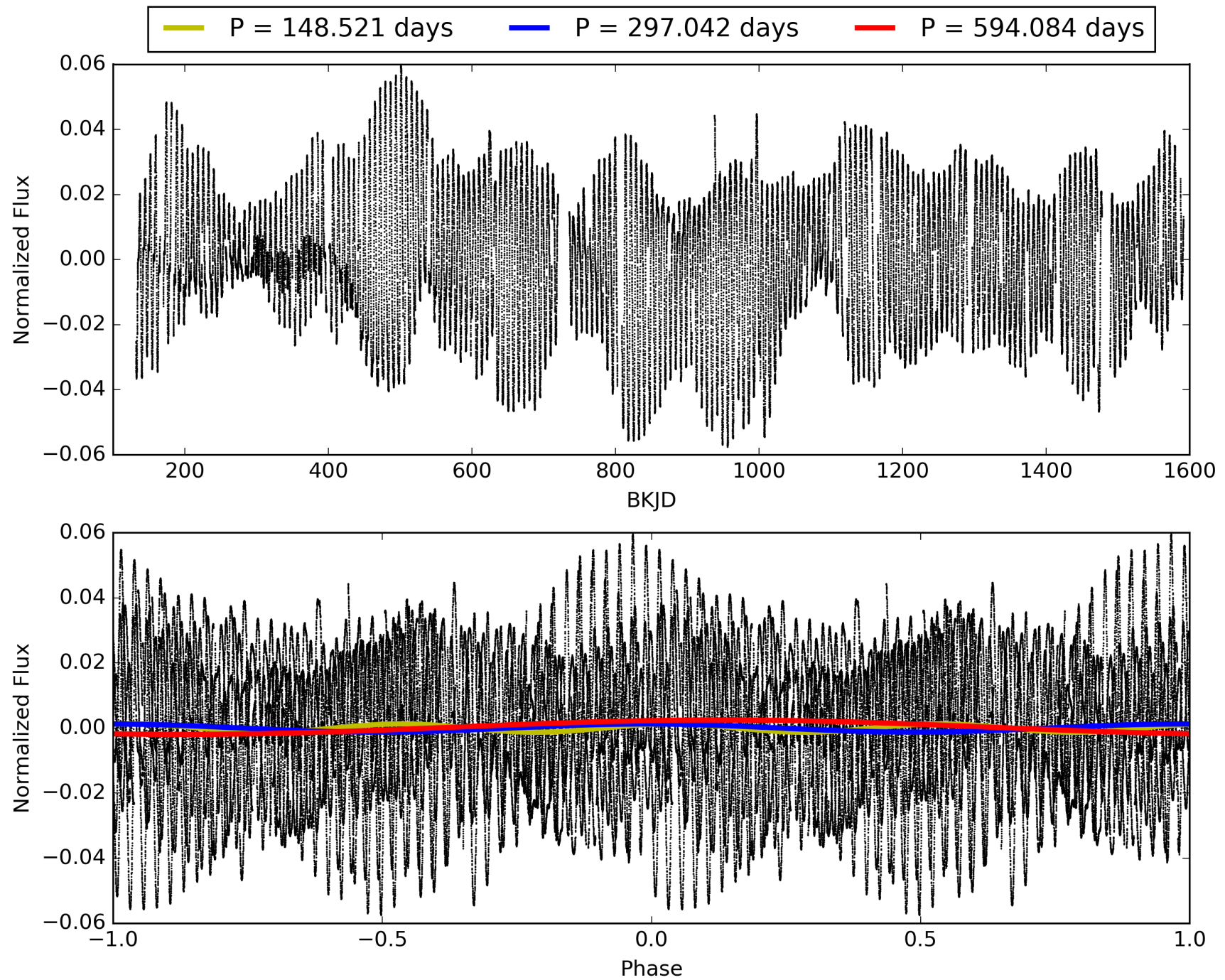


This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003735720-02, PDC Light Curves

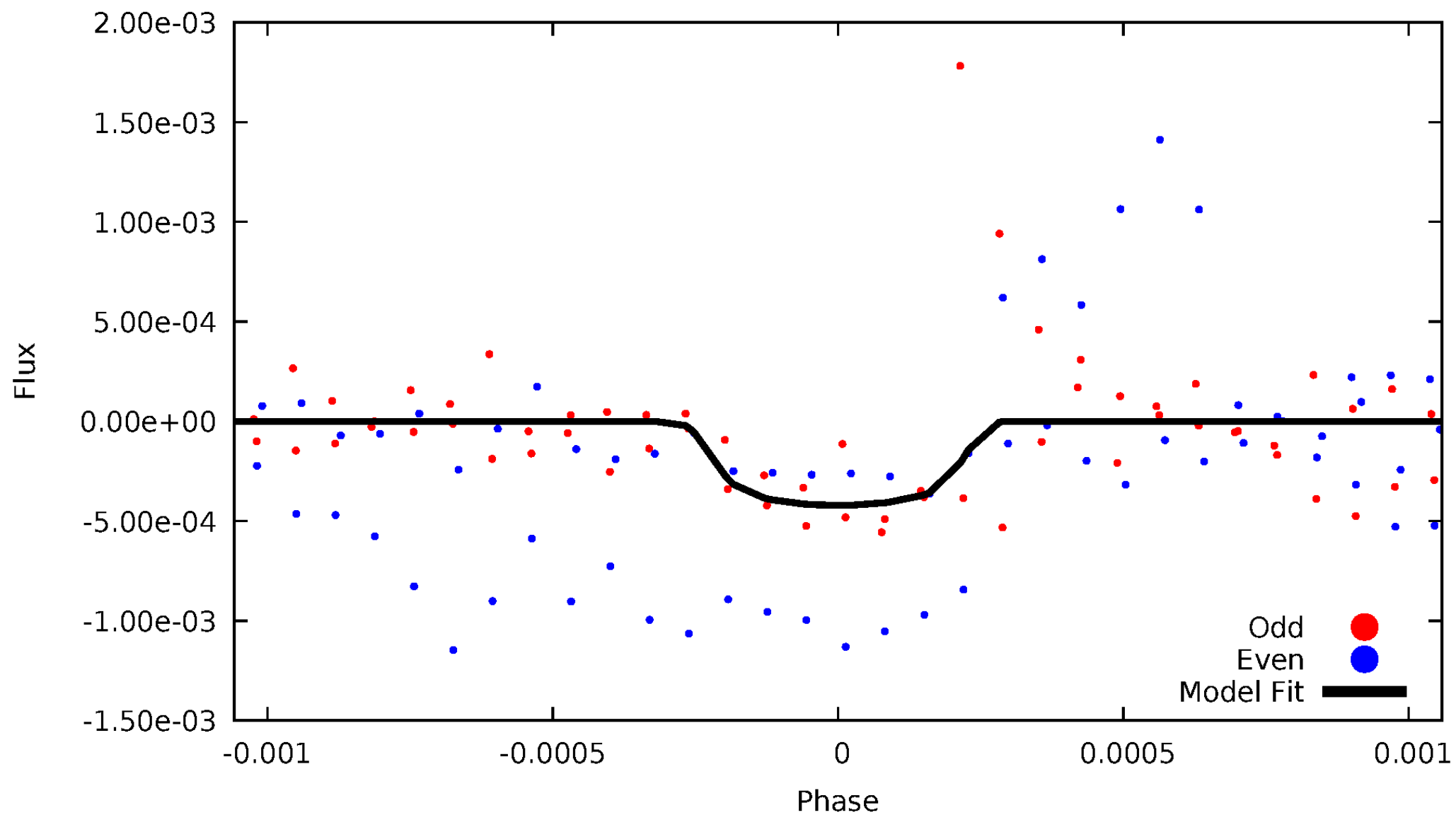


TCE 003735720-02



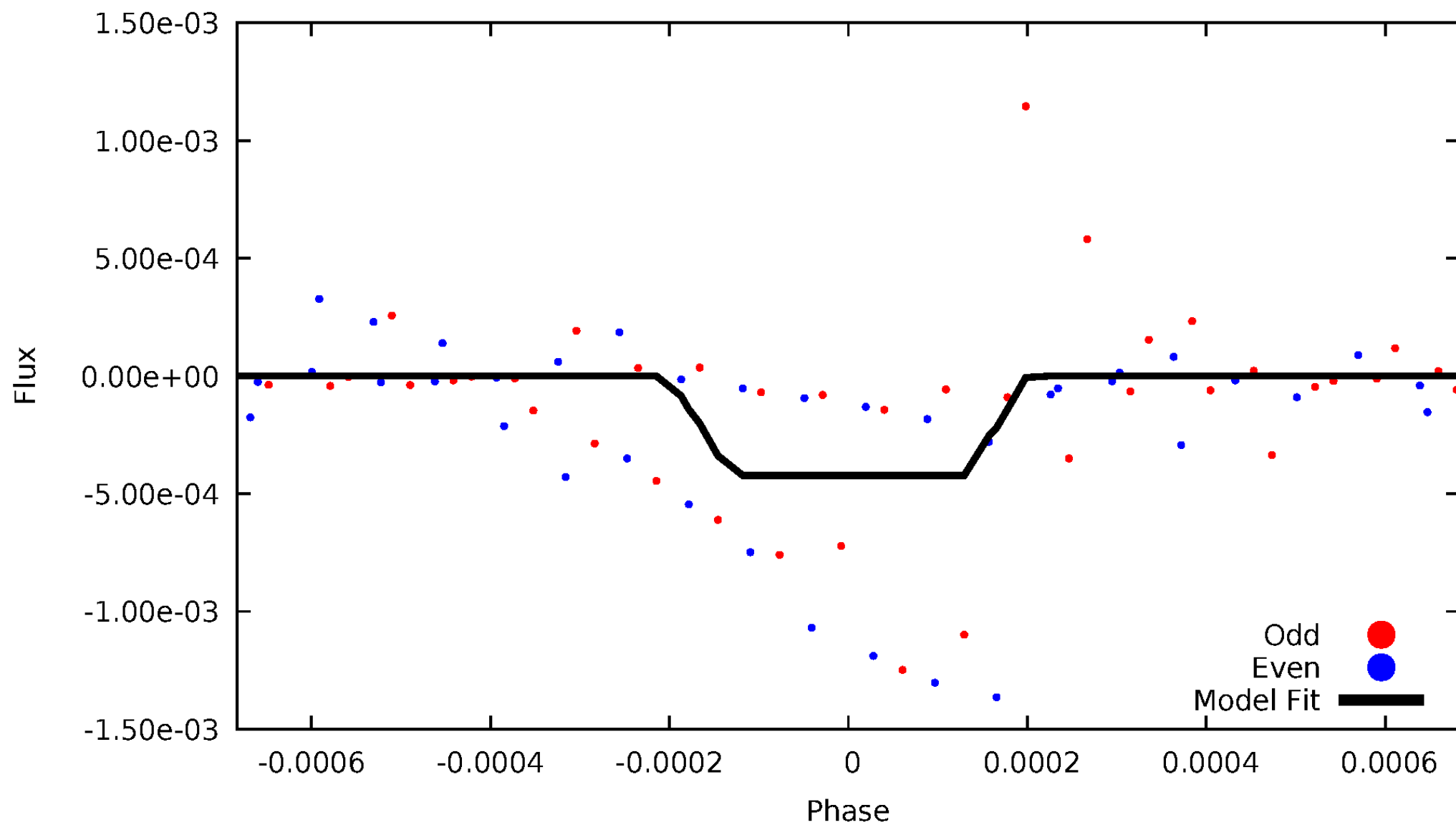
DV Odd/Even

TCE 003735720-02



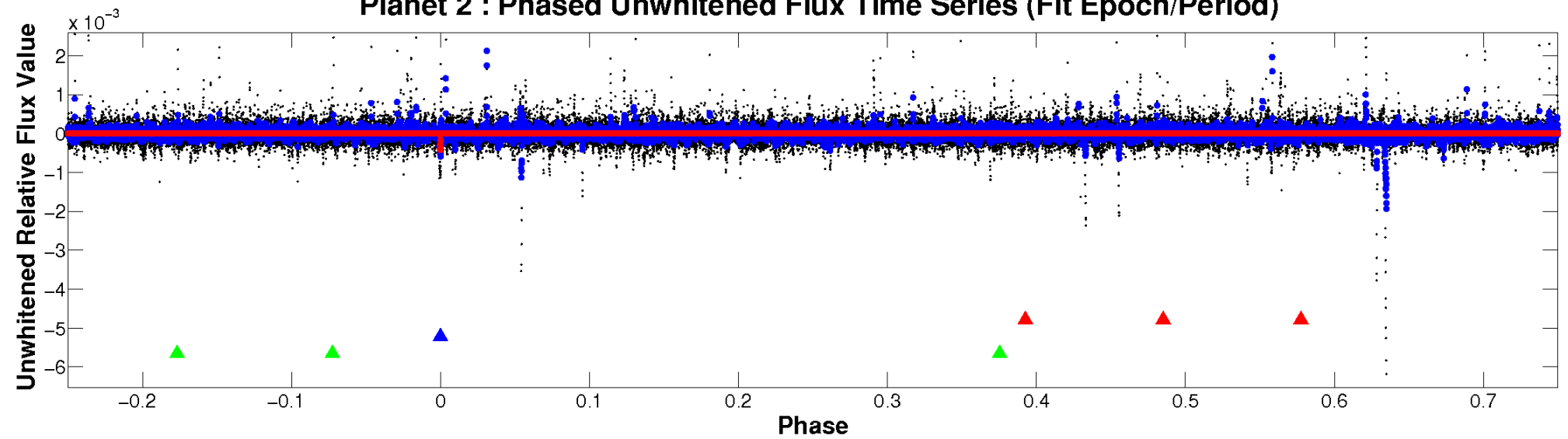
ALT Odd/Even

TCE 003735720-02

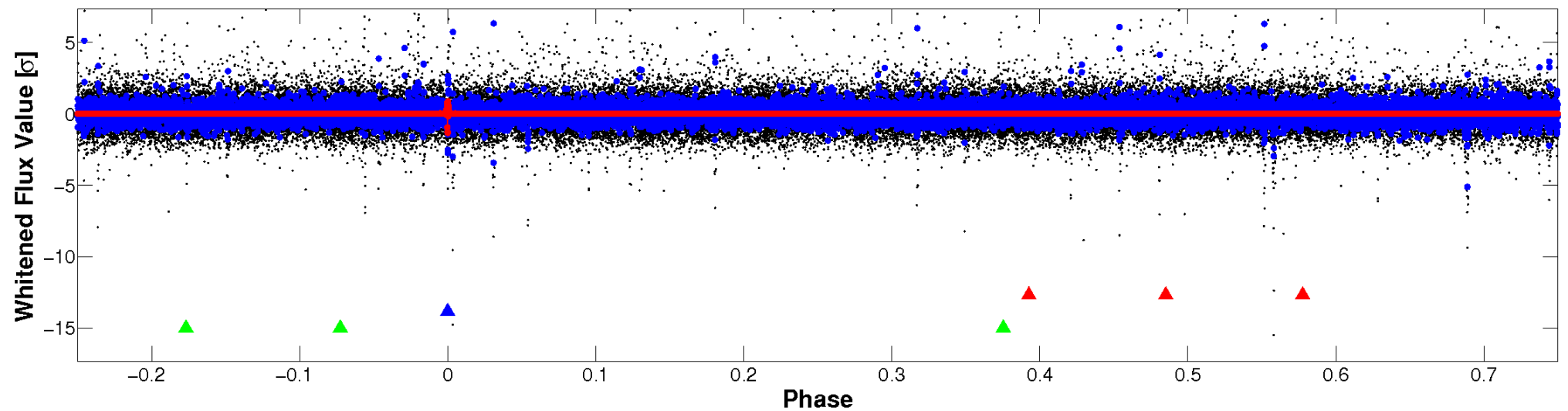


Non-Whitened Vs. Whitened Light Curve

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

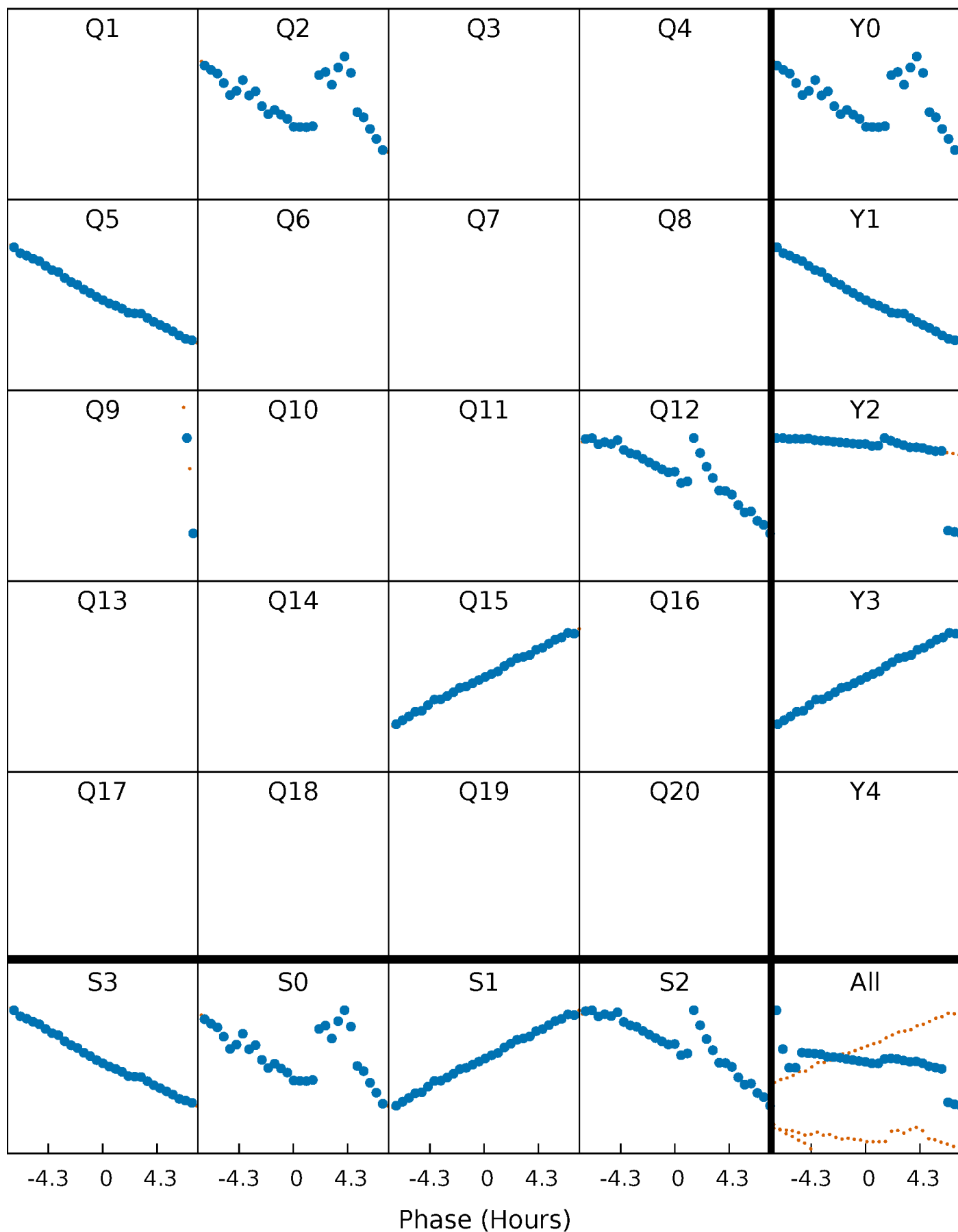


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



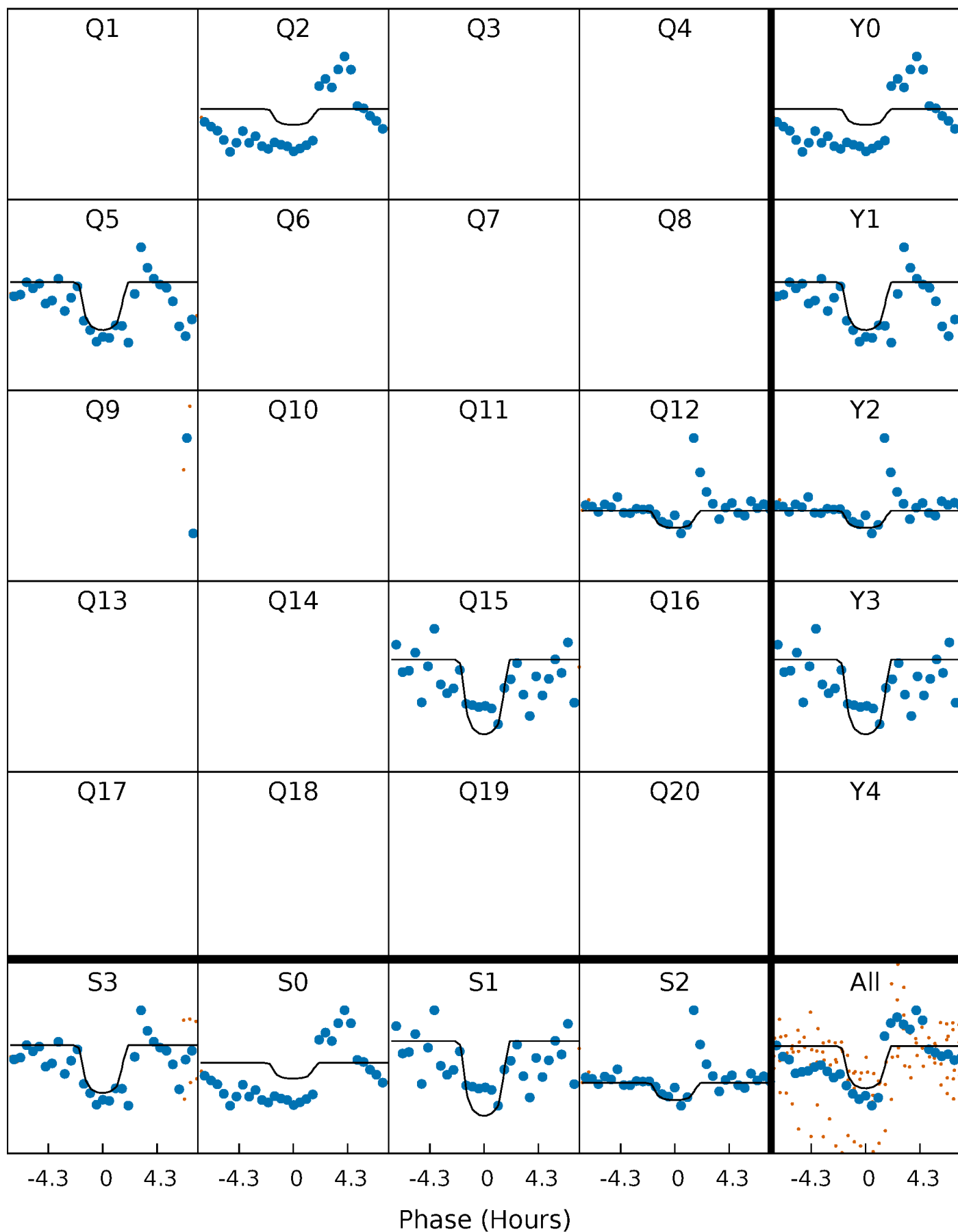
PDC Quarter-Phased Transit Curves

TCE 003735720-02 $P=297.041979$ Days $T_0=214.184952$ (BKJD)



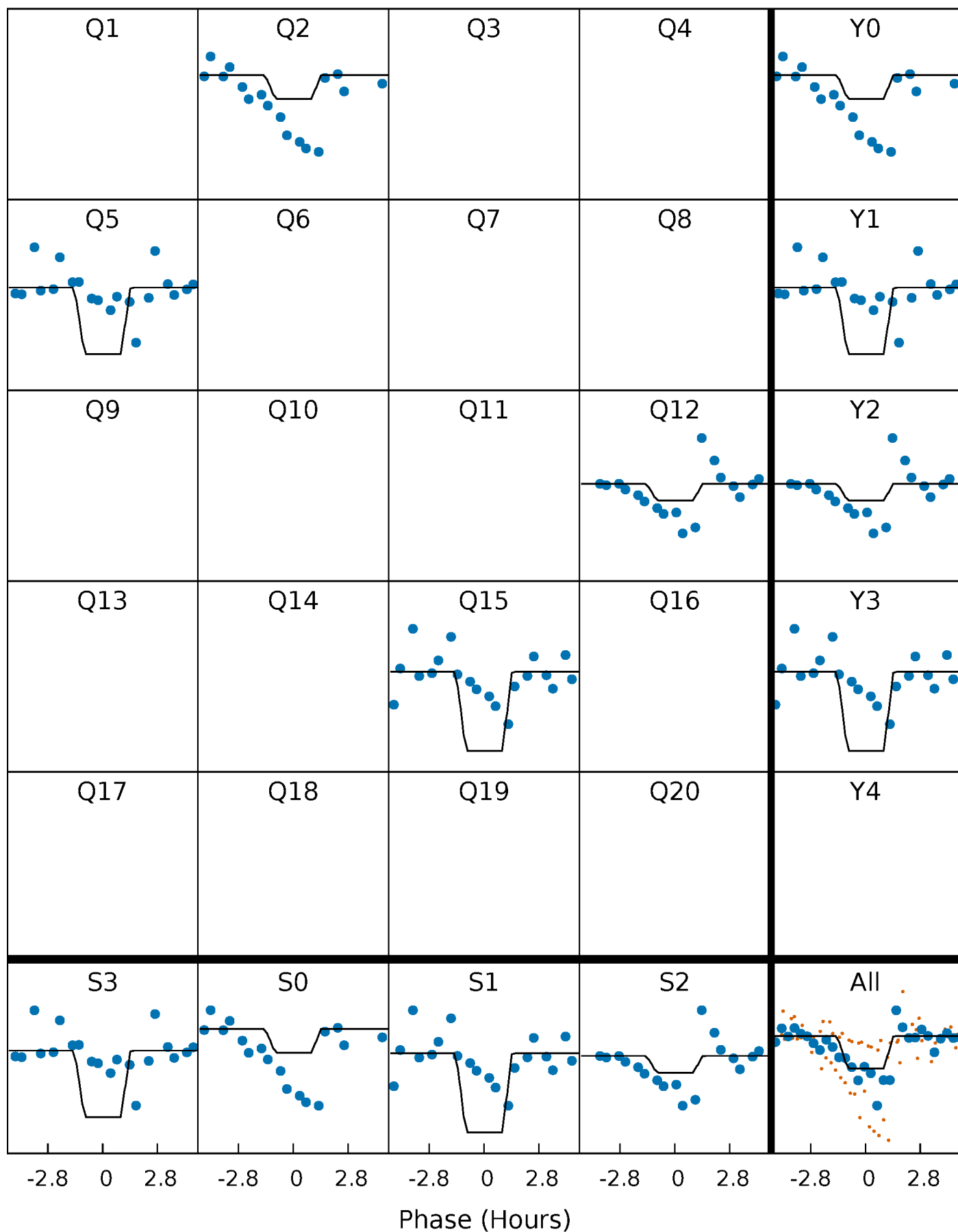
DV Quarter-Phased Transit Curves

TCE 003735720-02 P=297.041979 Days $T_0=214.184952$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

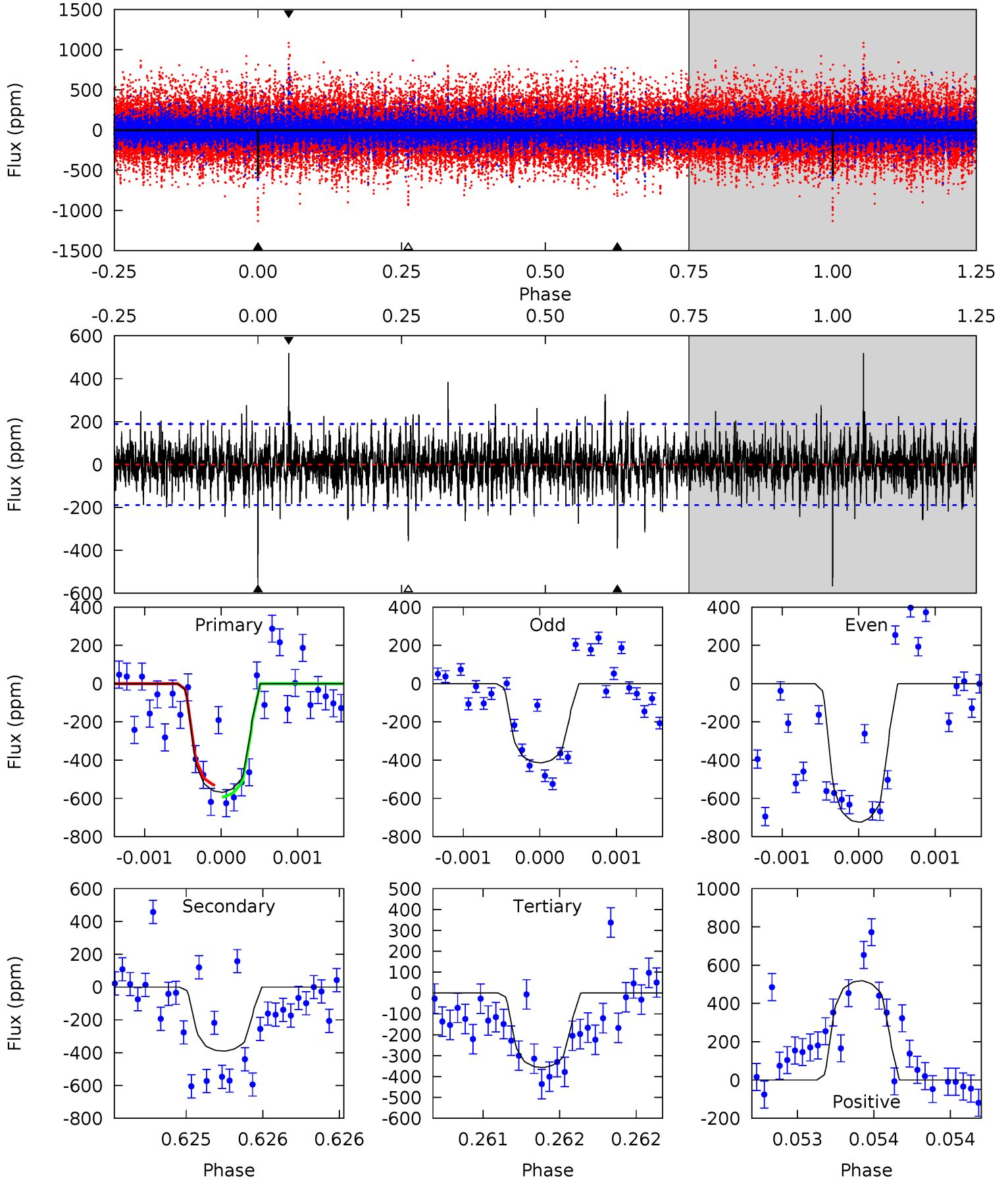
TCE 003735720-02 P=297.038171 Days $T_0=214.201117$ (BKJD)



DV Model-Shift Uniqueness Test

003735720-02, P = 297.041979 Days, E = 214.184952 Days

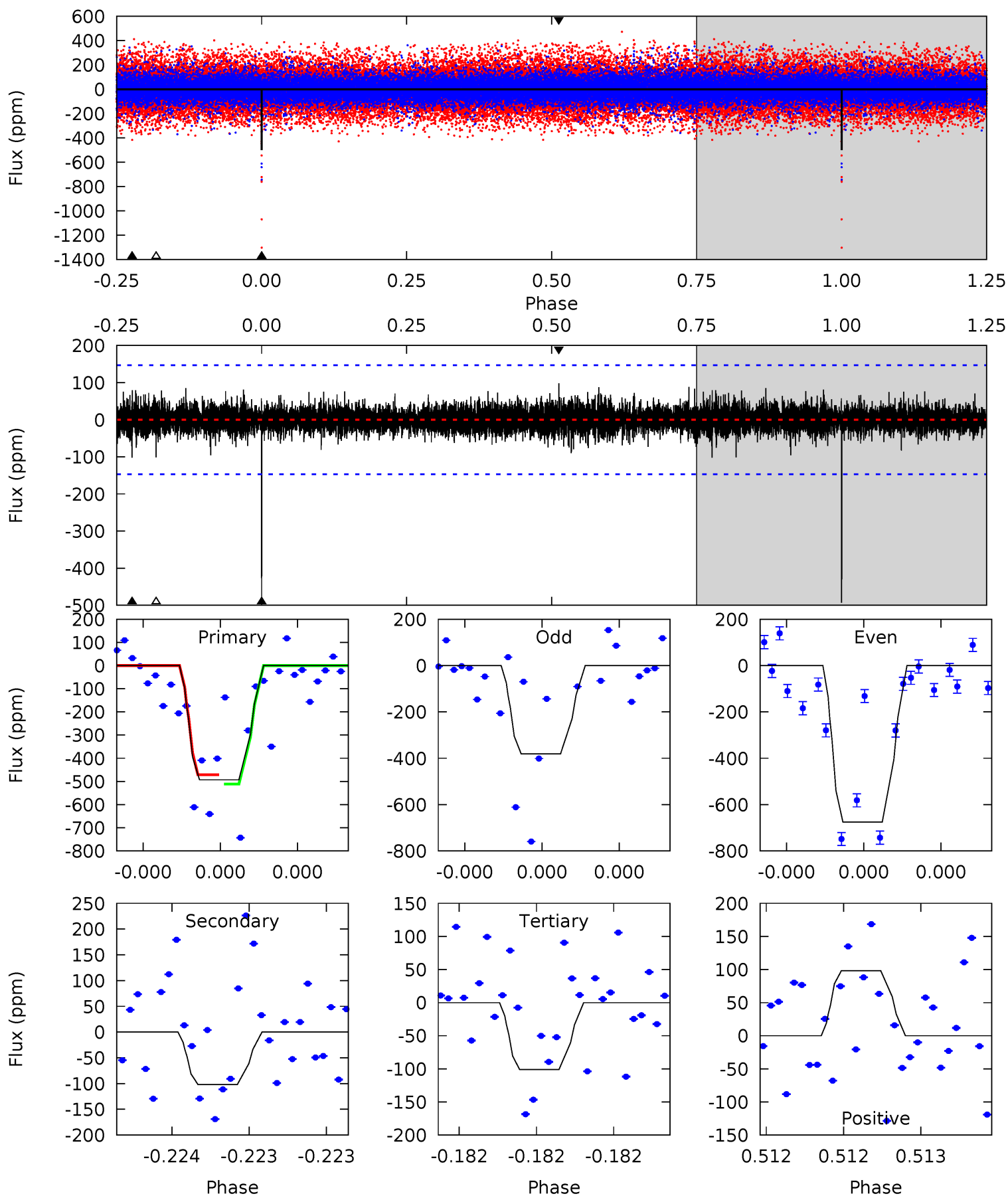
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.7 | 11.5 | 10.5 | 15.2 | 5.55 | 3.45 | 2.13 | 6.20 | 1.45 | 0.99 | -3.76 | 4.50 | 1.29 | 0.48 | 0.90 |



Alt Model-Shift Uniqueness Test

003735720-02, P = 297.038171 Days, E = 214.201117 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.8 | 3.88 | 3.85 | 3.74 | 5.61 | 3.54 | 0.77 | 15.0 | 15.1 | 0.03 | 0.14 | 6.02 | 1.09 | 0.17 | 0.74 |



Stellar Parameters For KIC 003735720

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--------------------------------------|
| | 4858^{+146}_{-131} | $4.564^{+0.065}_{-0.035}$ | $-0.160^{+0.300}_{-0.300}$ | $0.726^{+0.056}_{-0.068}$ | $0.705^{+0.083}_{-0.053}$ | $2.590^{+0.750}_{-0.375}$ |
| | +3%/-3% | +1%/-1% | +188%/-188% | +8%/-9% | +12%/-8% | +29%/-14% |
| 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 003735720-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|-------------------|----------------------|---------------------------|
| DV | -390 ± 34 | $1.87^{+0.46}_{-0.46}$ | 289^{+10}_{-10} | 4536^{+540}_{-385} | 37426^{+27189}_{-13496} |
| Alt. | -102 ± 26 | $1.63^{+0.47}_{-0.44}$ | 289^{+10}_{-10} | 3737^{+442}_{-356} | 12941^{+11820}_{-5883} |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

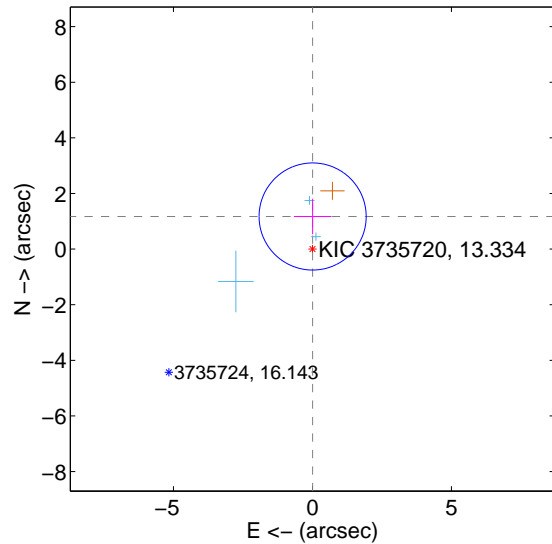
Supplemental centroid analysis for 003735720-02. Kepler magnitude: 13.33. Transit SNR 6.97

There are 3 quarters with good PRF difference image offsets

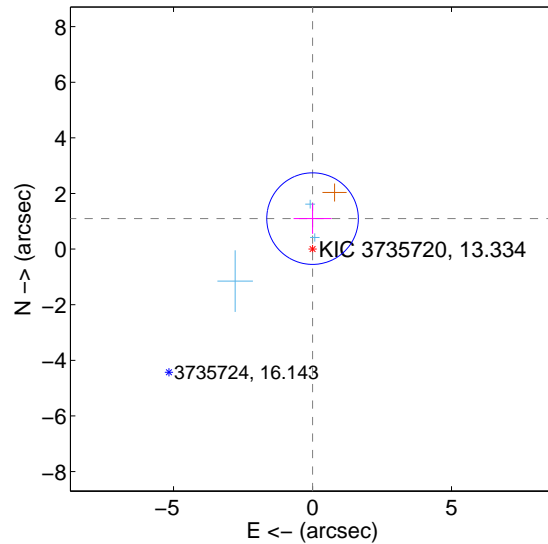
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 1.173 ± 0.642 | 1.83 | -0.007 ± 0.674 | 1.173 ± 0.638 |
| PRF-fit source offset from KIC position | 1.096 ± 0.549 | 2.00 | -0.001 ± 0.684 | 1.096 ± 0.548 |
| photometric centroid source offset | 1.79 ± 1.82 | 0.98 | -0.05 ± 1.94 | -1.79 ± 1.82 |

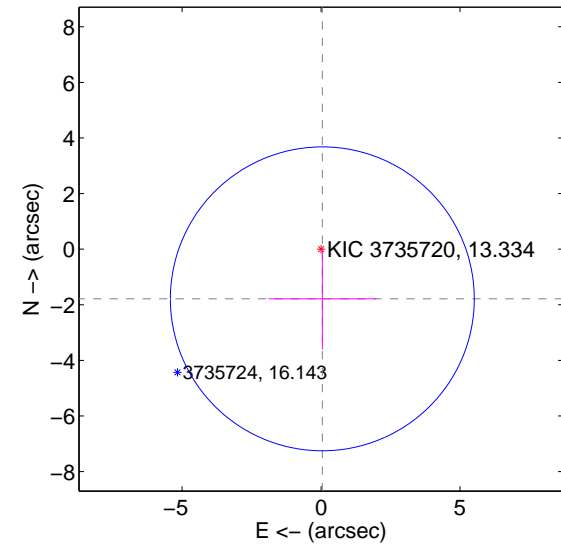
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

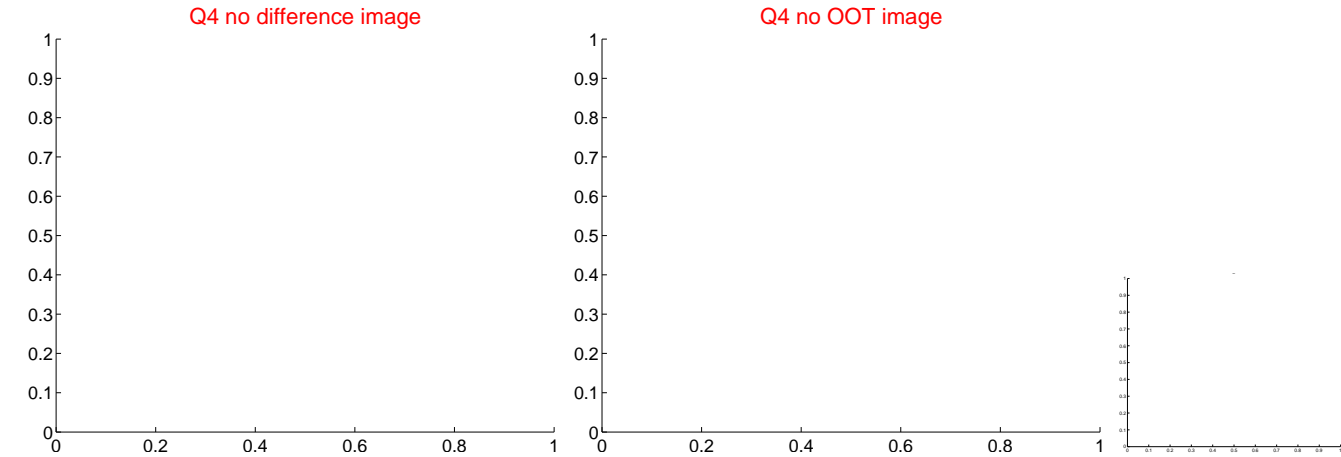
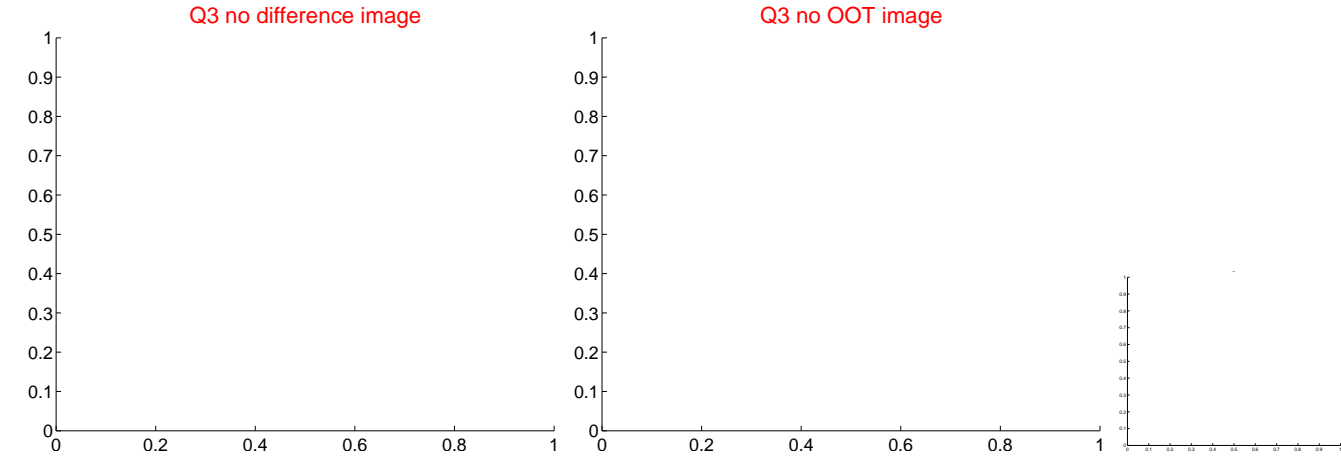
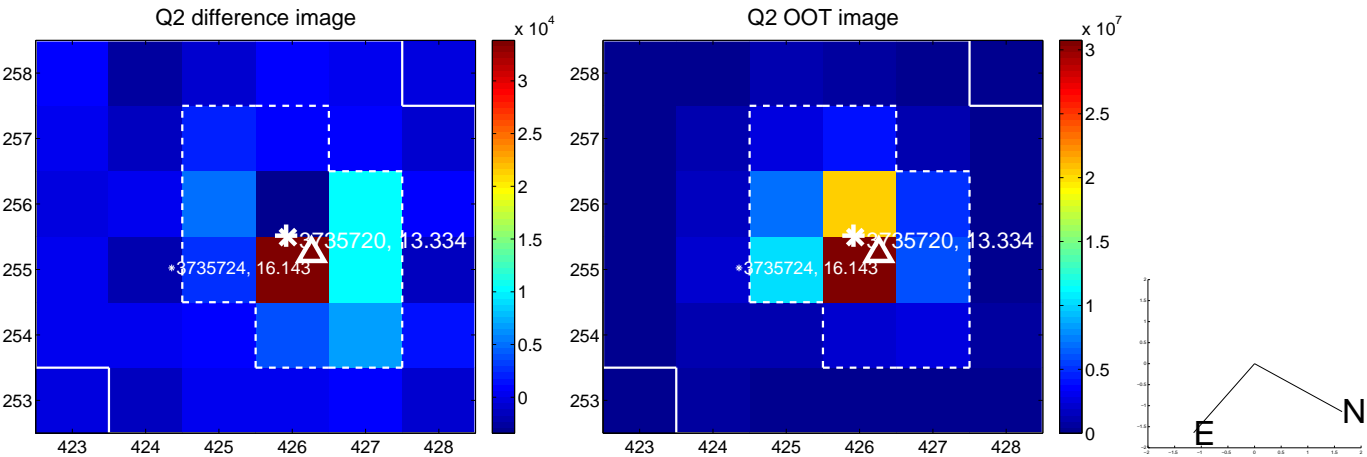
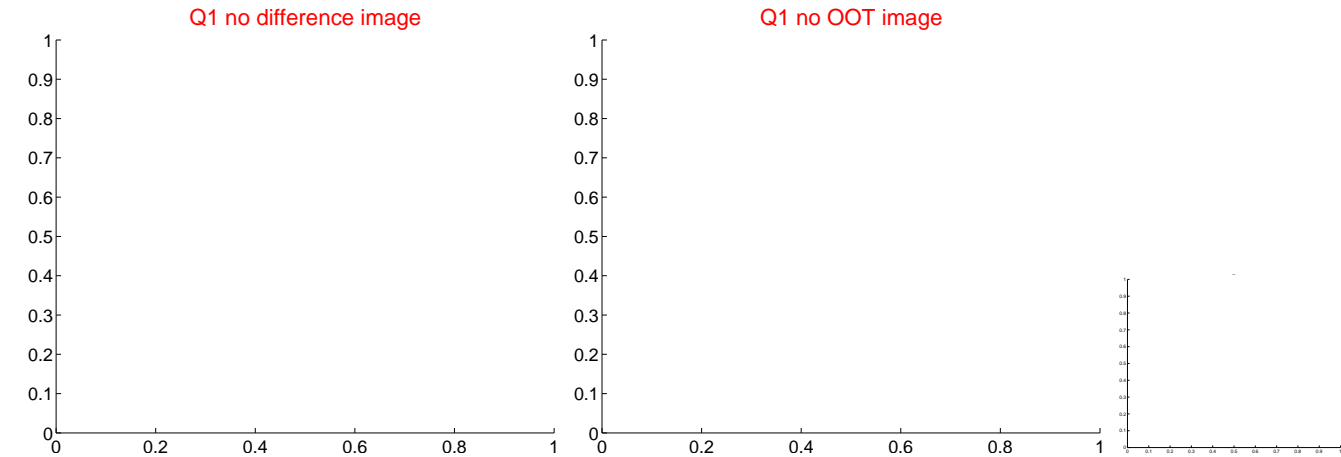


offset from photometric centroids

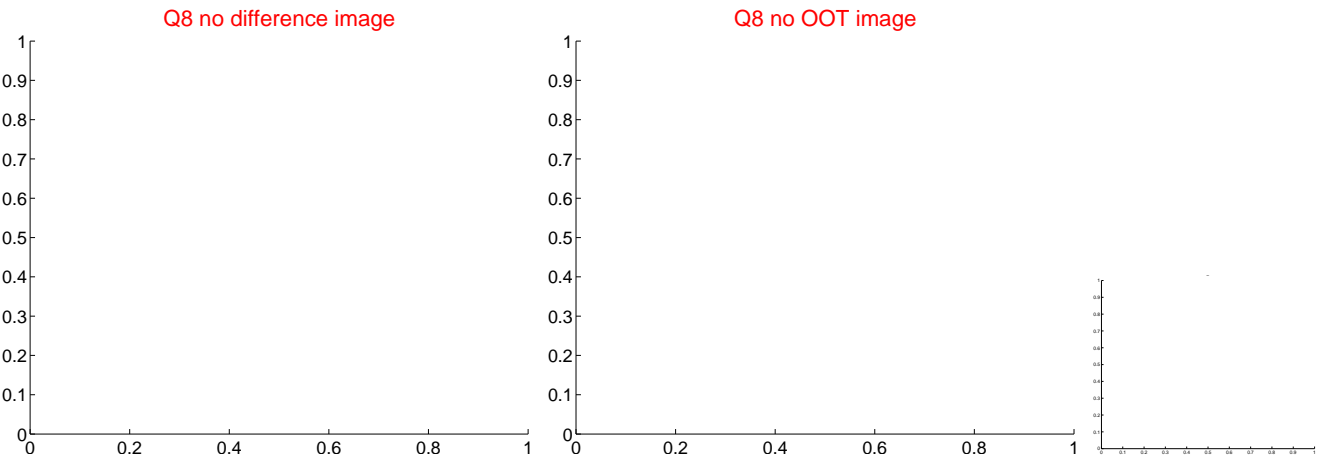
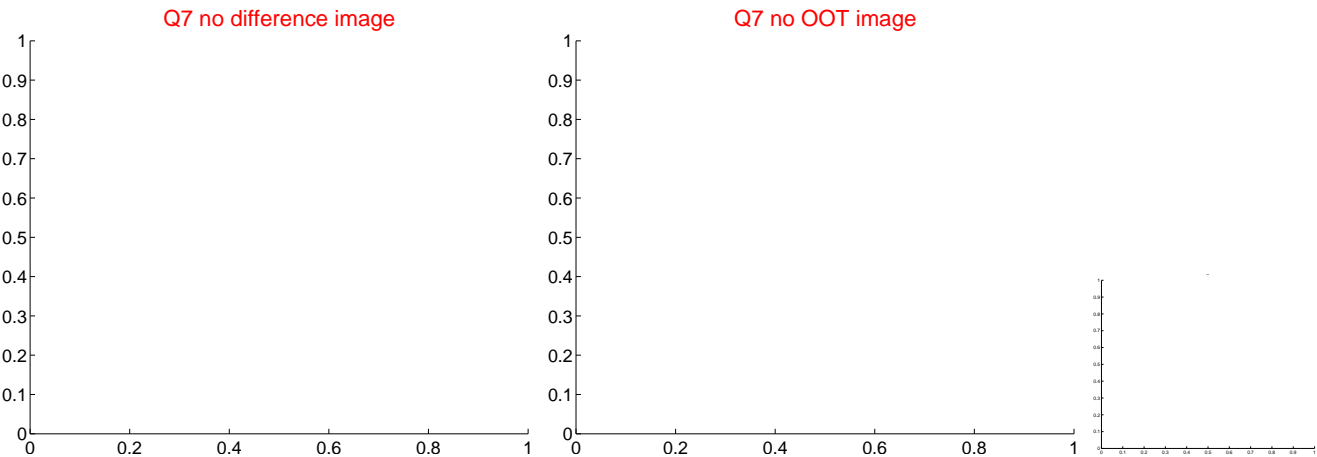
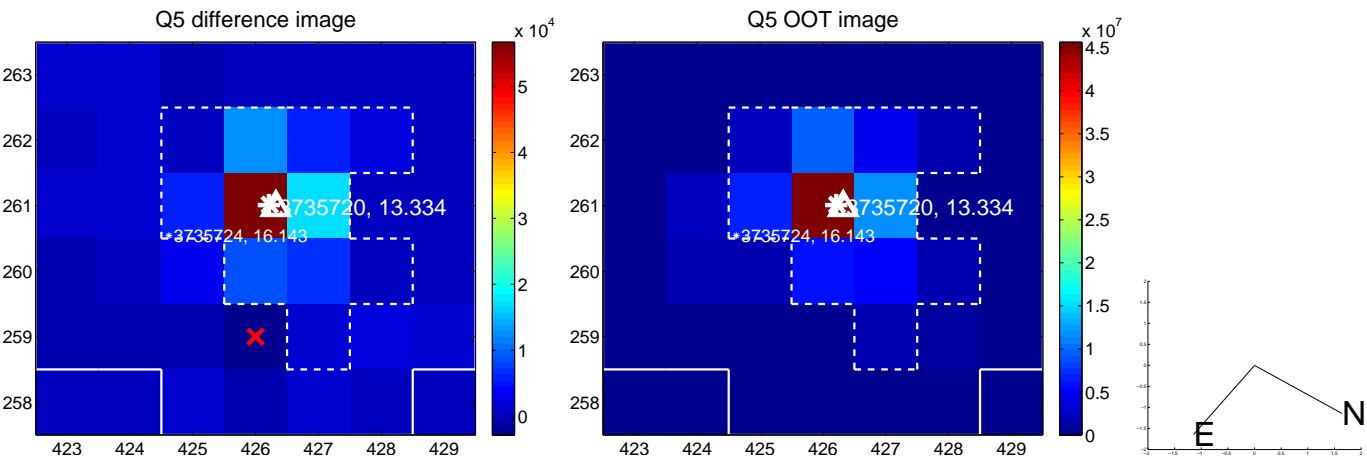


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

Q9 no difference image



Q9 no OOT image



Q10 no difference image



Q10 no OOT image



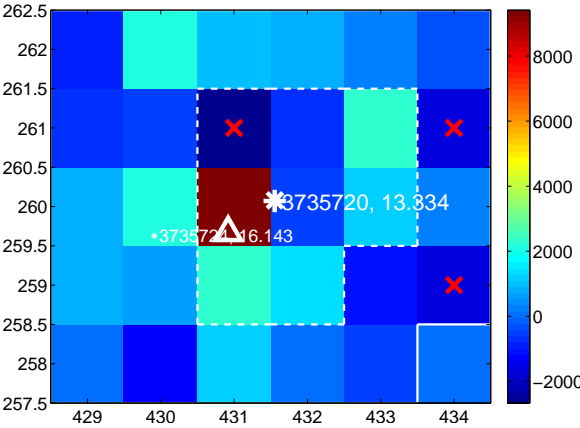
Q11 no difference image



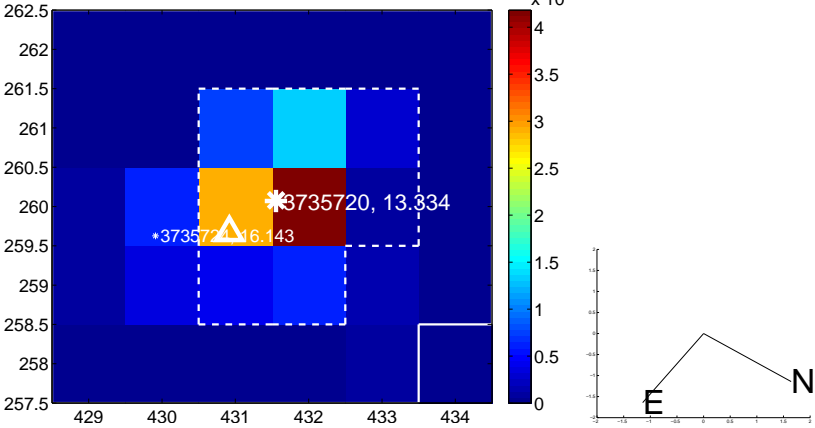
Q11 no OOT image



Q12 difference image



Q12 OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q13 no difference image



Q13 no OOT image



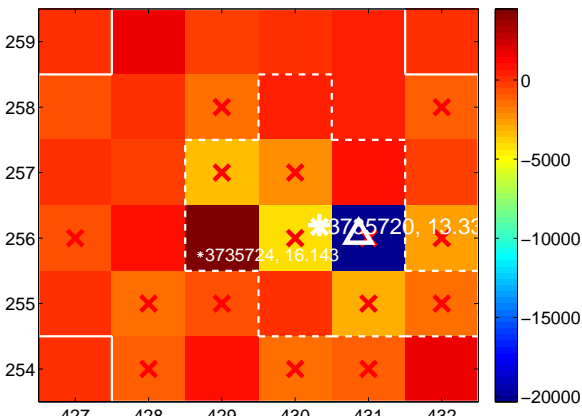
Q14 no difference image



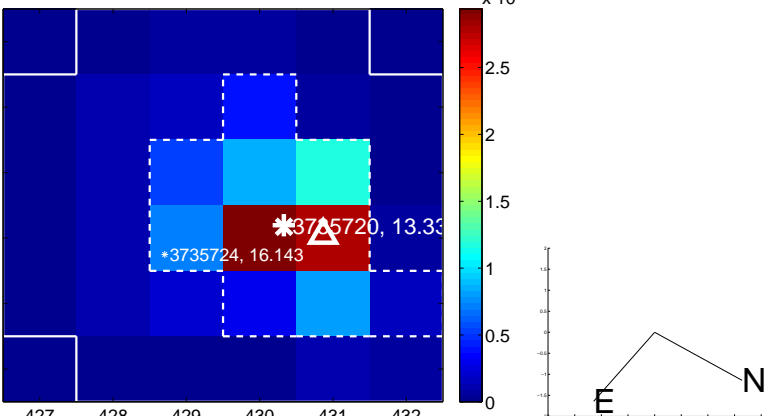
Q14 no OOT image



Q15 difference image. Poor Quality



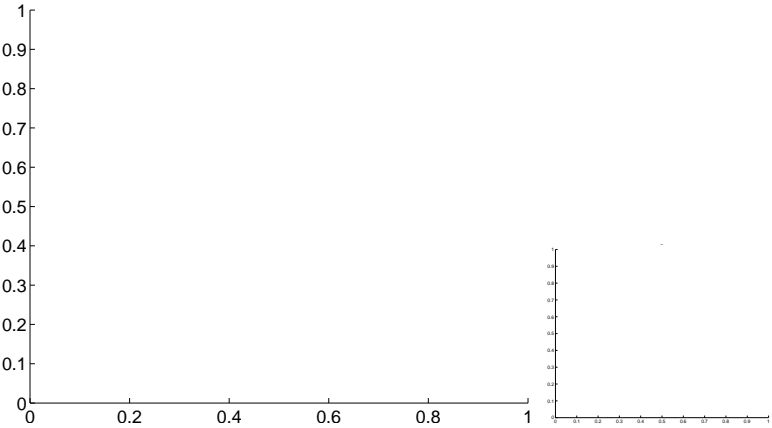
Q15 OOT image



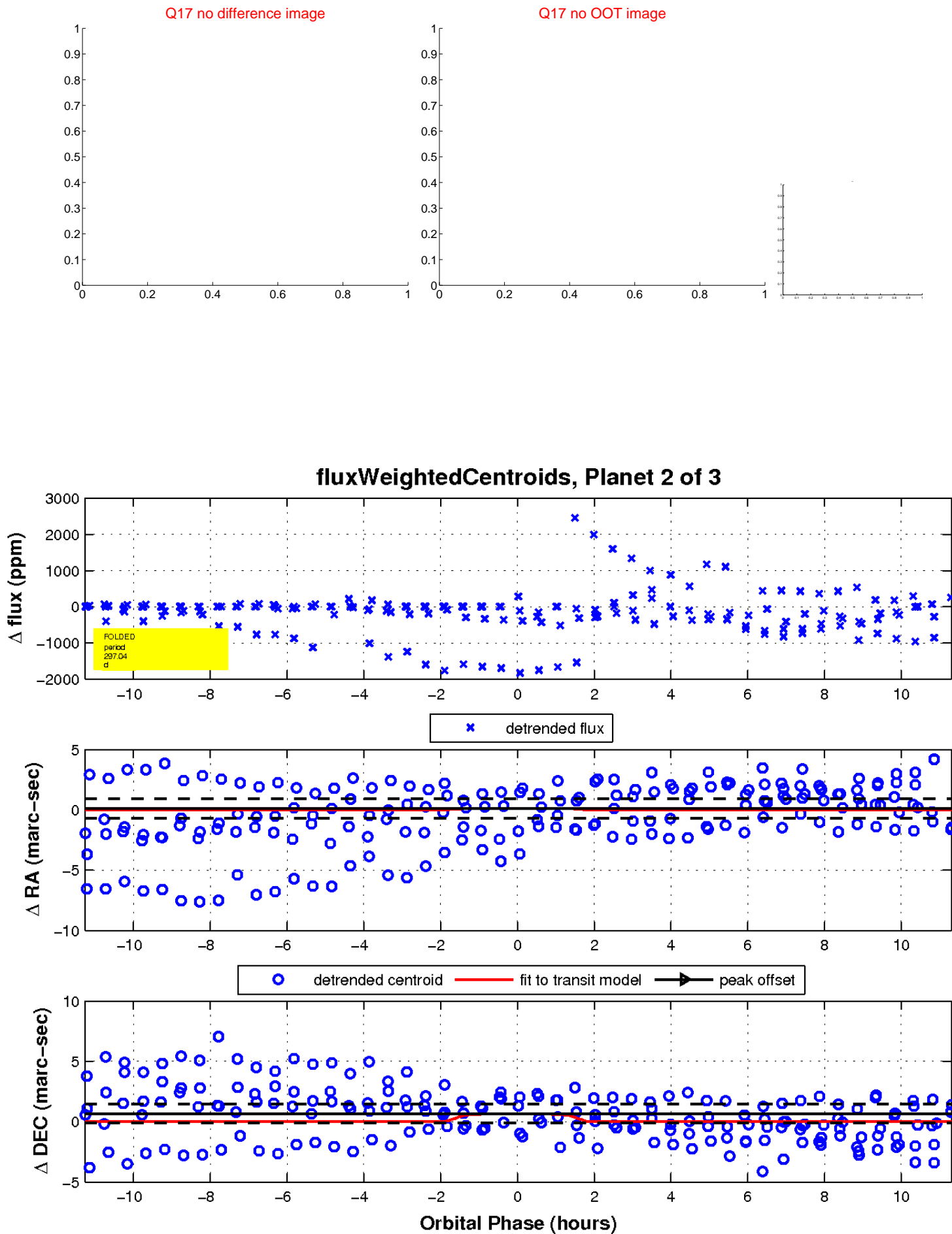
Q16 no difference image



Q16 no OOT image

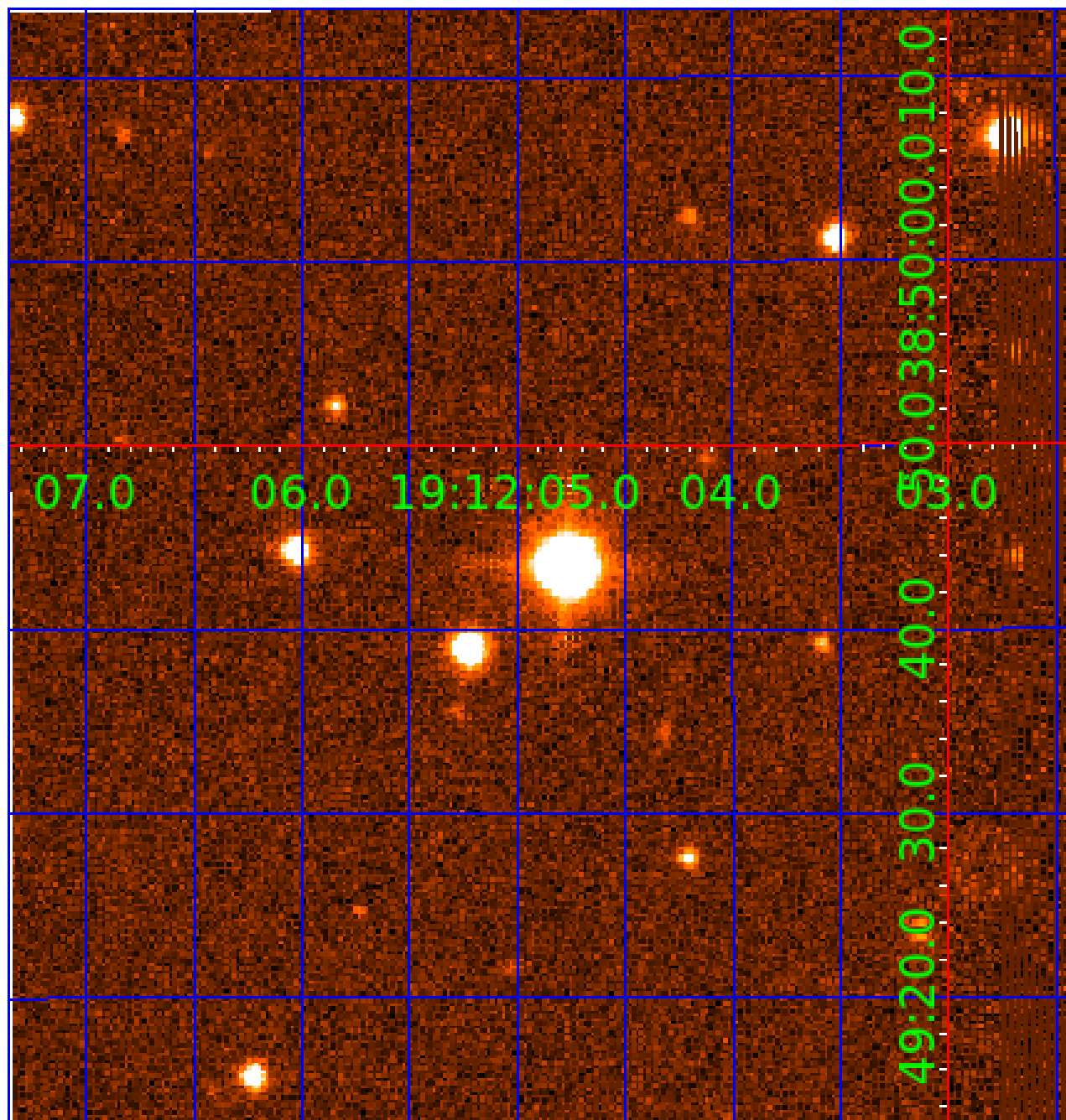


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003735720

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 003735720-01 | OBS | No | 621.558834 | 330.806068 | 811.3 | 8.136 | 13.3 | 8.1 | 0.73 | 4858 | 2.50 | 0.16 |
| 003735720-02 | OBS | No | 297.041979 | 214.184952 | 422.2 | 3.771 | 11.1 | 7.0 | 0.73 | 4858 | 1.89 | 0.44 |
| 003735720-03 | OBS | No | 430.081921 | 489.680495 | 525.0 | 8.030 | 10.3 | 5.4 | 0.73 | 4858 | 1.72 | 0.27 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 003735720-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 003735720-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS |
| 003735720-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

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

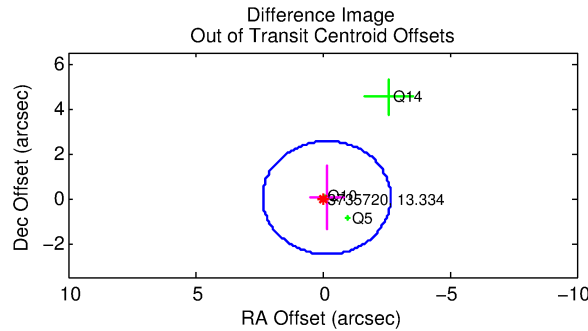
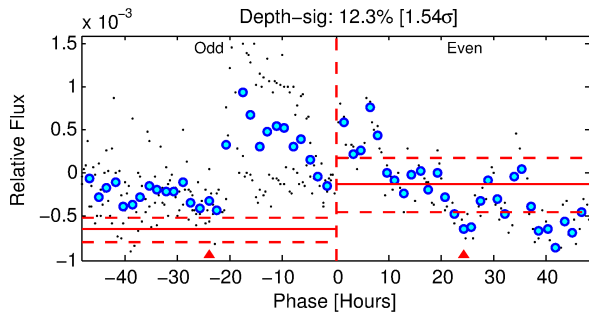
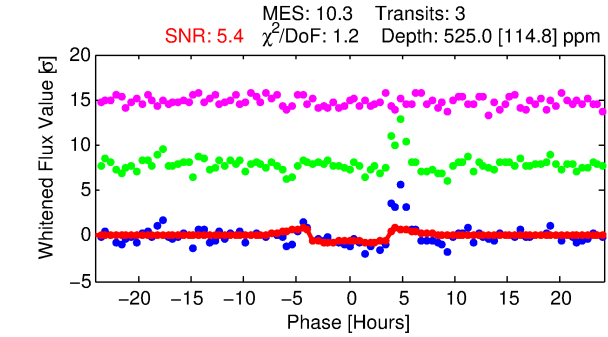
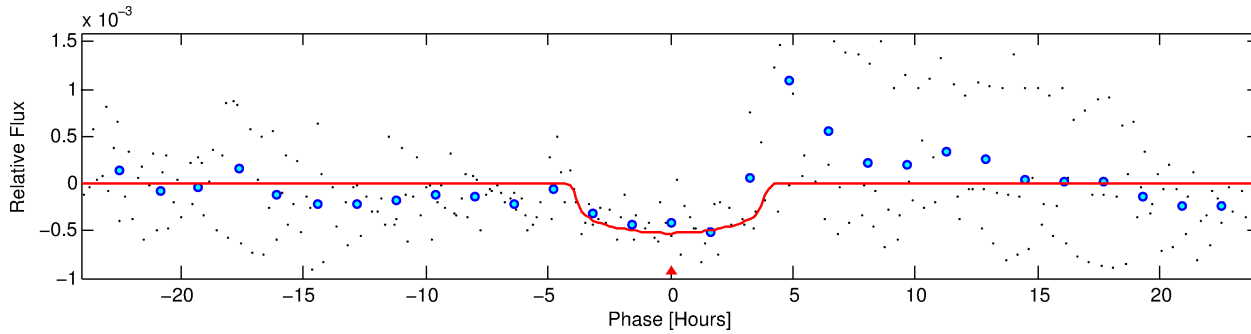
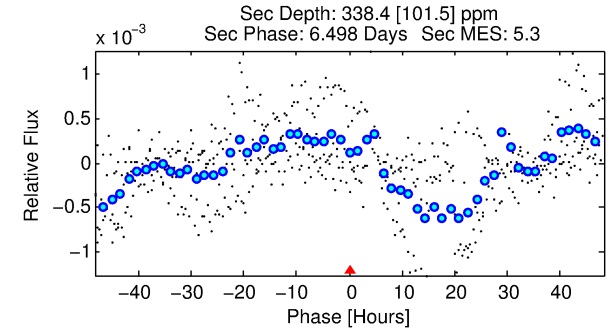
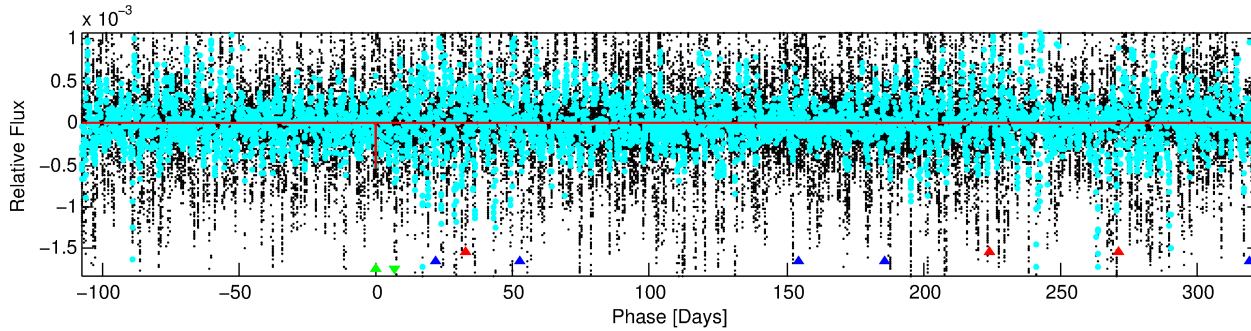
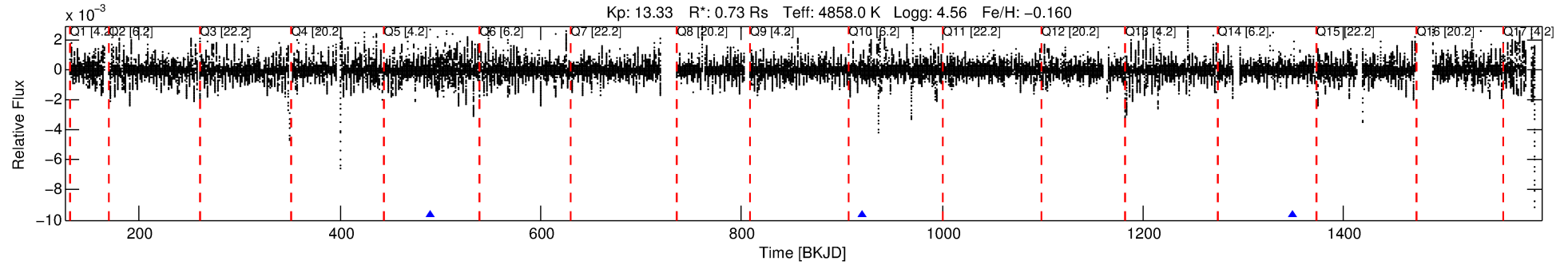
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003735720-03

No Significant Match Found

DV One-Page Summary

KIC: 3735720 Candidate: 3 of 3 Period: 430.082 d



DV Fit Results:

Period = 430.08192 [0.00853] d
Epoch = 489.6805 [0.0128] BKJD
Rp/R* = 0.0217 [0.0191]
a/R* = 333.79 [997.12]
b = 0.62 [3.07]
Seff = 0.27 [0.04]
Teq = 183 [8] K
Rp = 1.72 [1.52] Re
a = 0.9924 [0.0793] AU
Ag = 61812.40 [110535.20] [0.56 σ]
Teffp = 4469 [1998] K [2.14 σ]

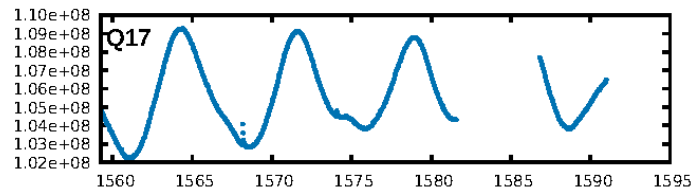
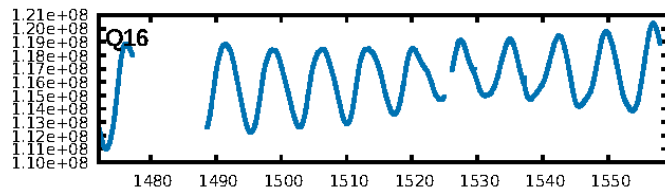
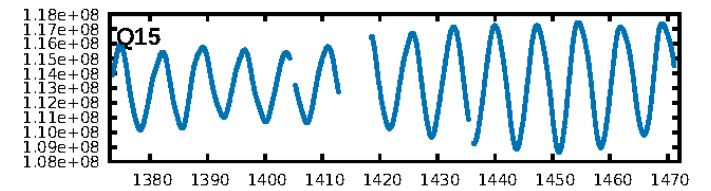
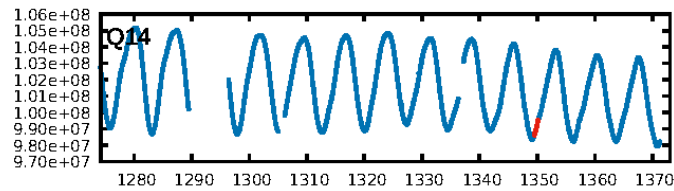
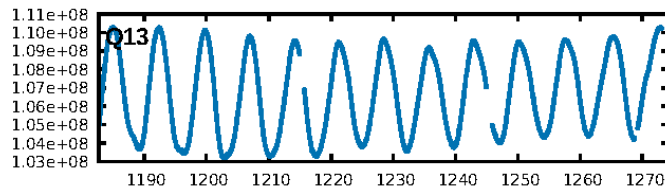
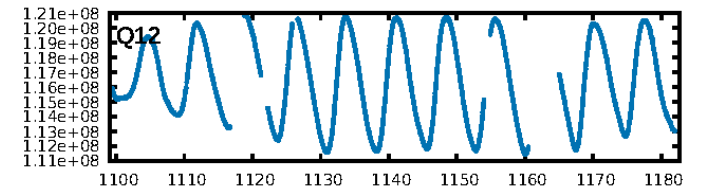
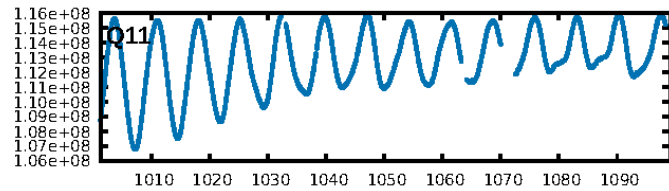
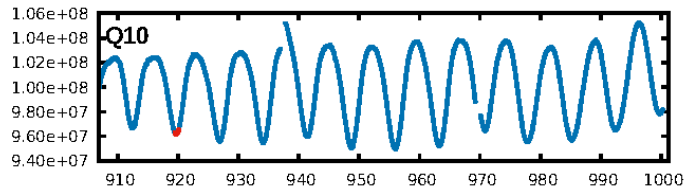
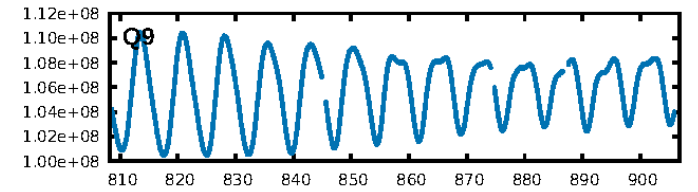
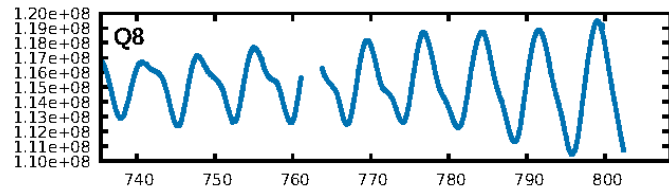
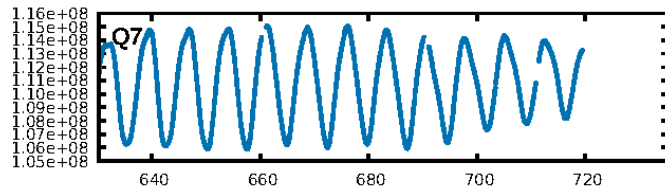
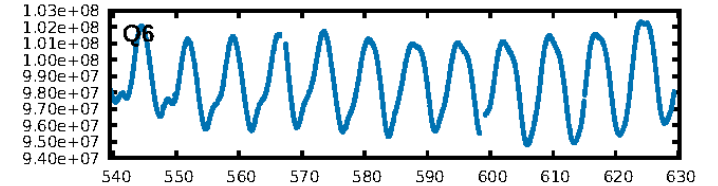
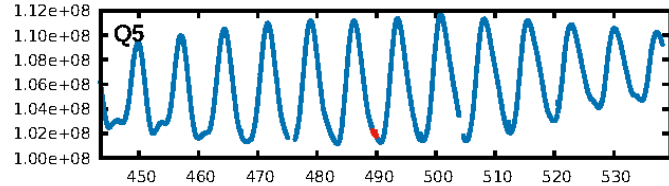
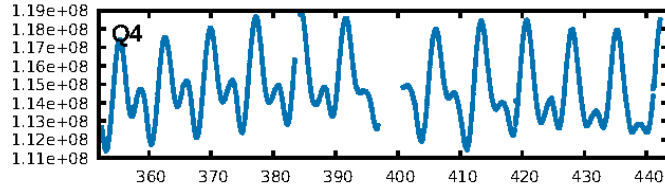
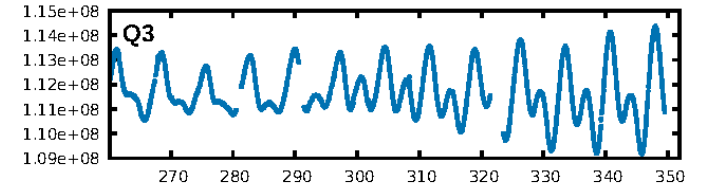
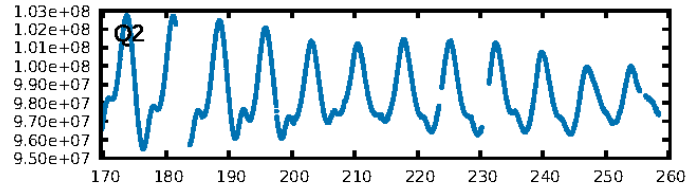
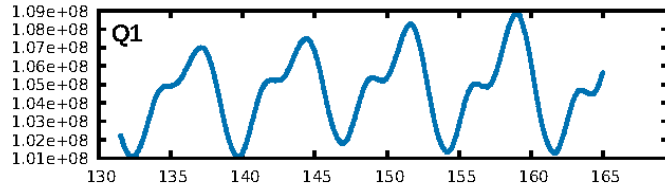
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [359.92 σ]
LongPeriod-sig: 100.0% [402.00 σ]
ModelChiSquare2-sig: 4.0%
ModelChiSquareGof-sig: 81.3%
Bootstrap-pfa: 4.93e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9525
Centroid-sig: 72.6%
Centroid-so: 0.985 arcsec [0.43 σ]
OotOffset-rm: 0.168 arcsec [0.20 σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-rm: 0.301 arcsec [0.28 σ]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

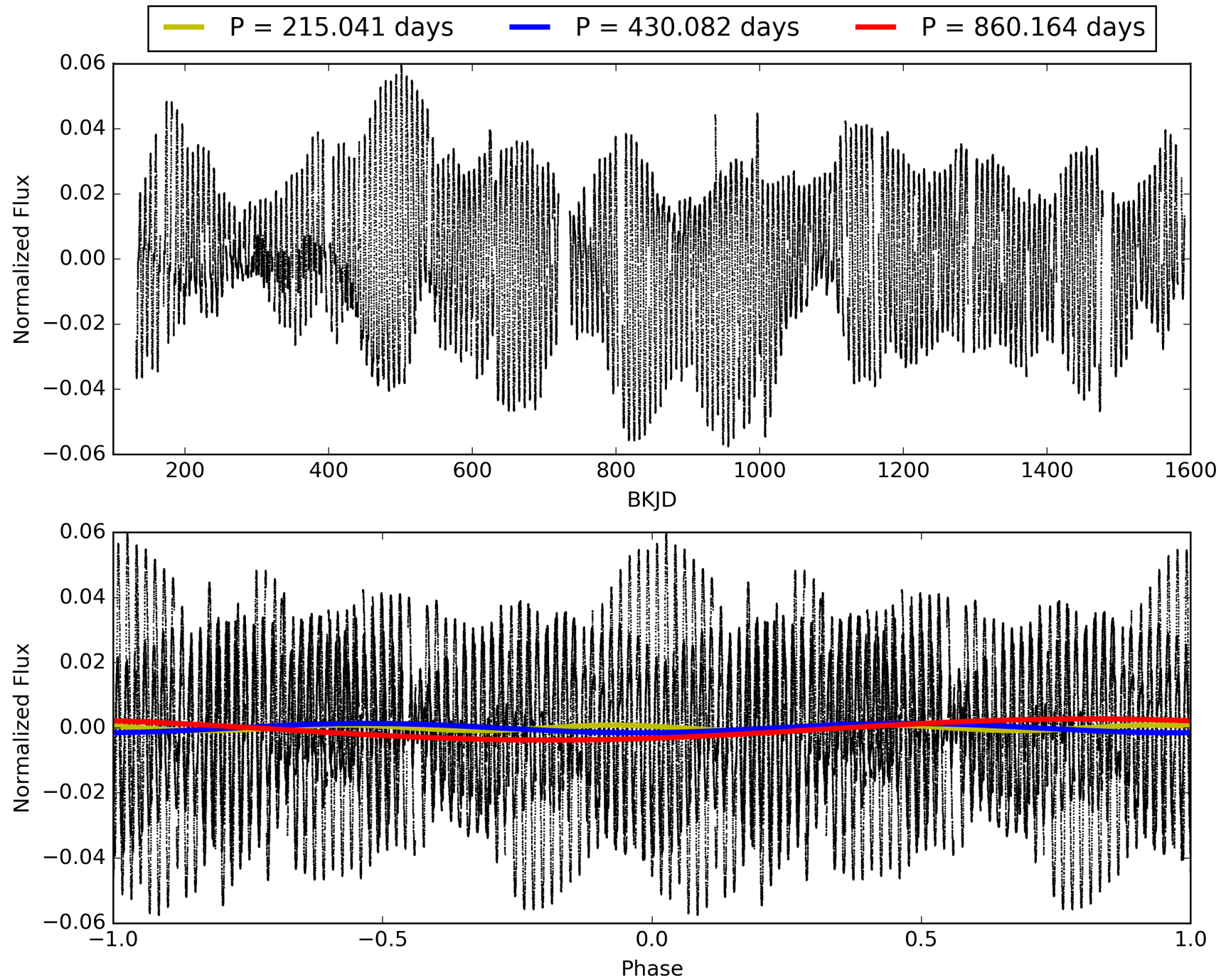
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:00:05 Z

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

TCE 003735720-03, PDC Light Curves

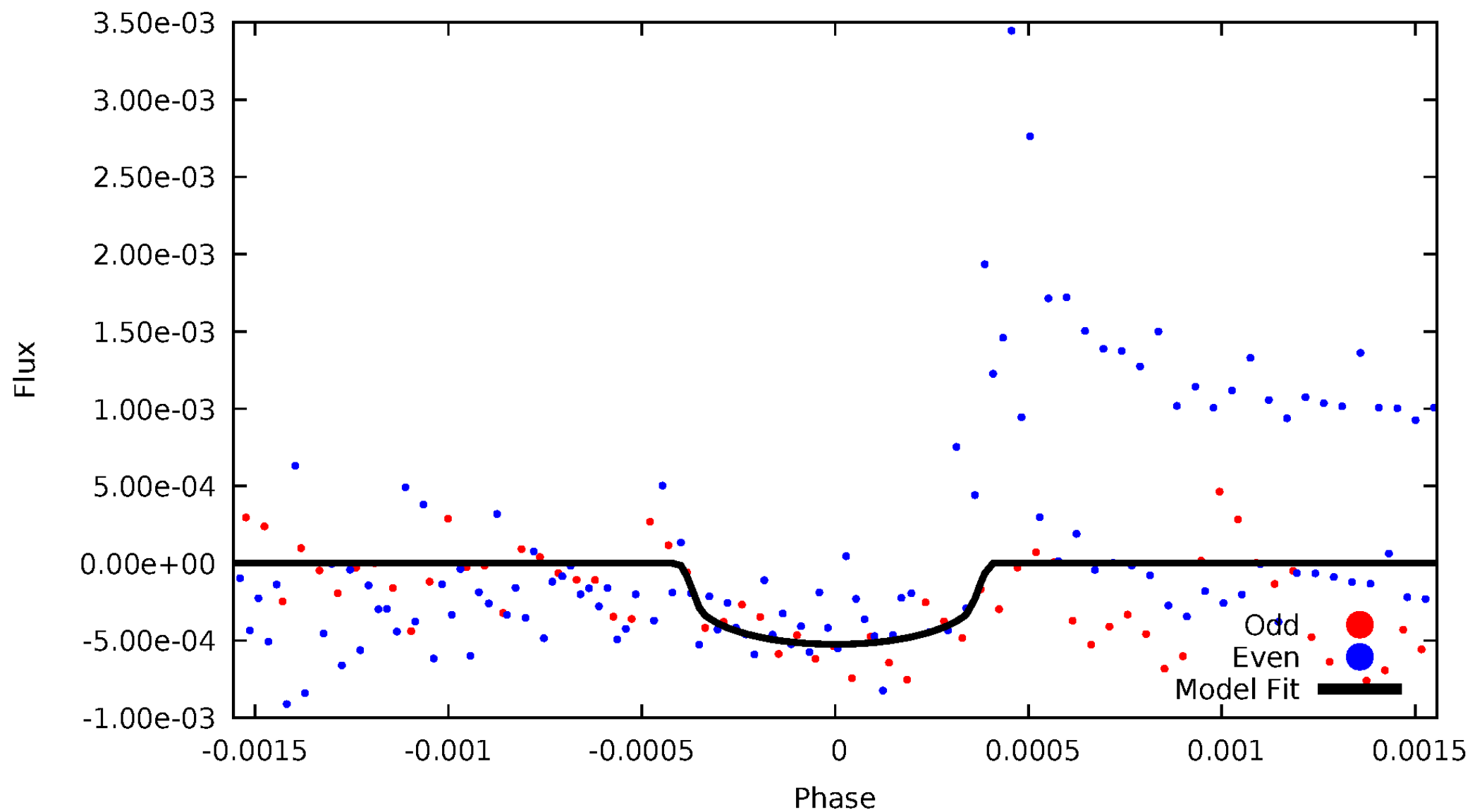


TCE 003735720-03



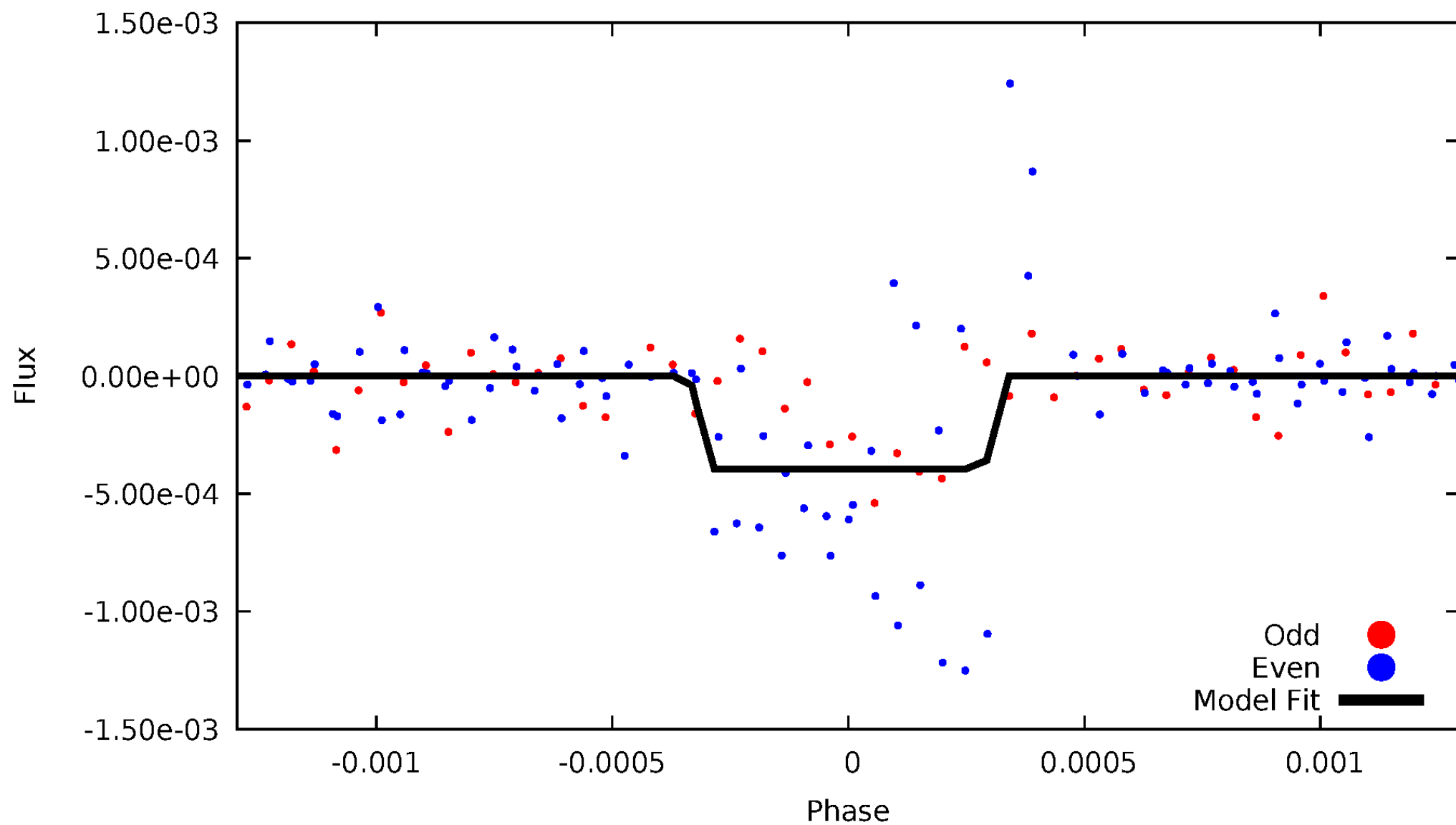
DV Odd/Even

TCE 003735720-03

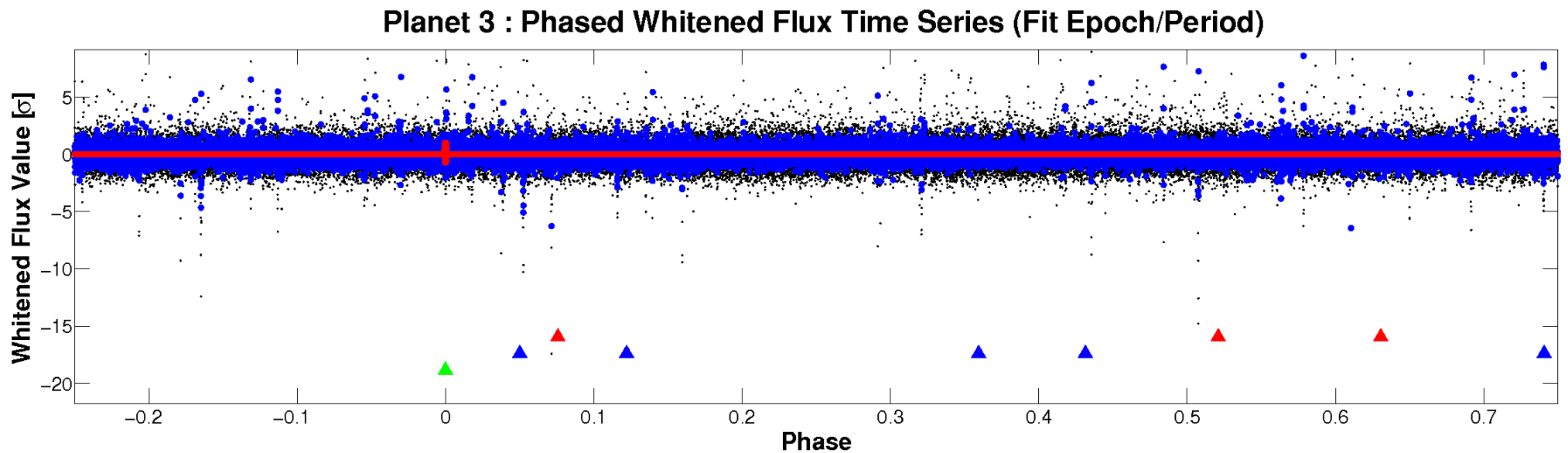
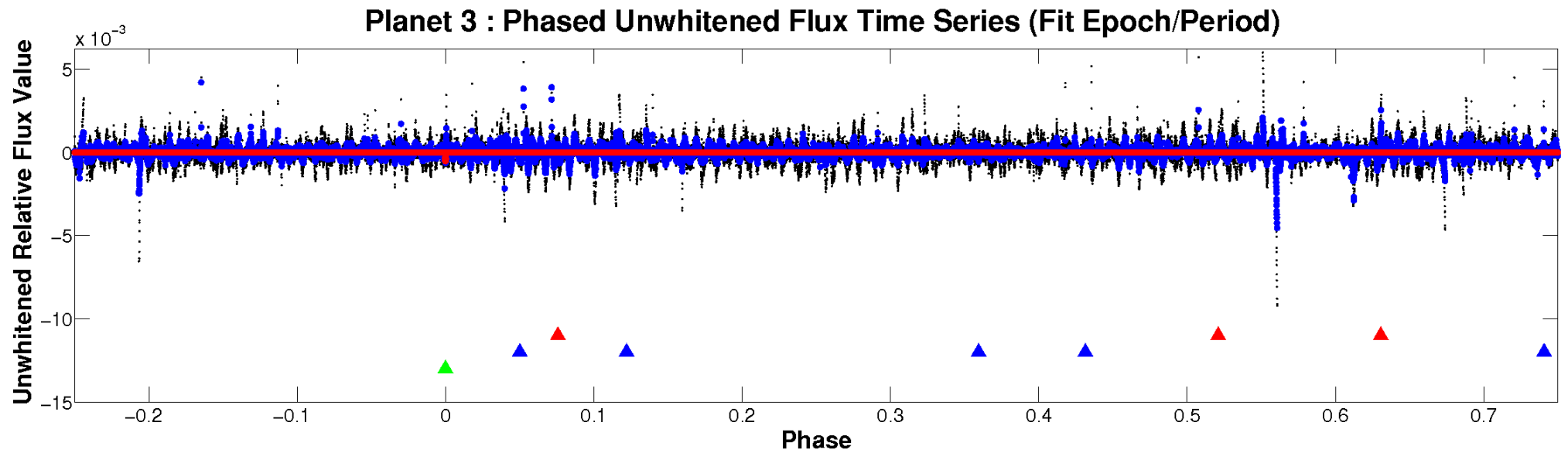


ALT Odd/Even

TCE 003735720-03

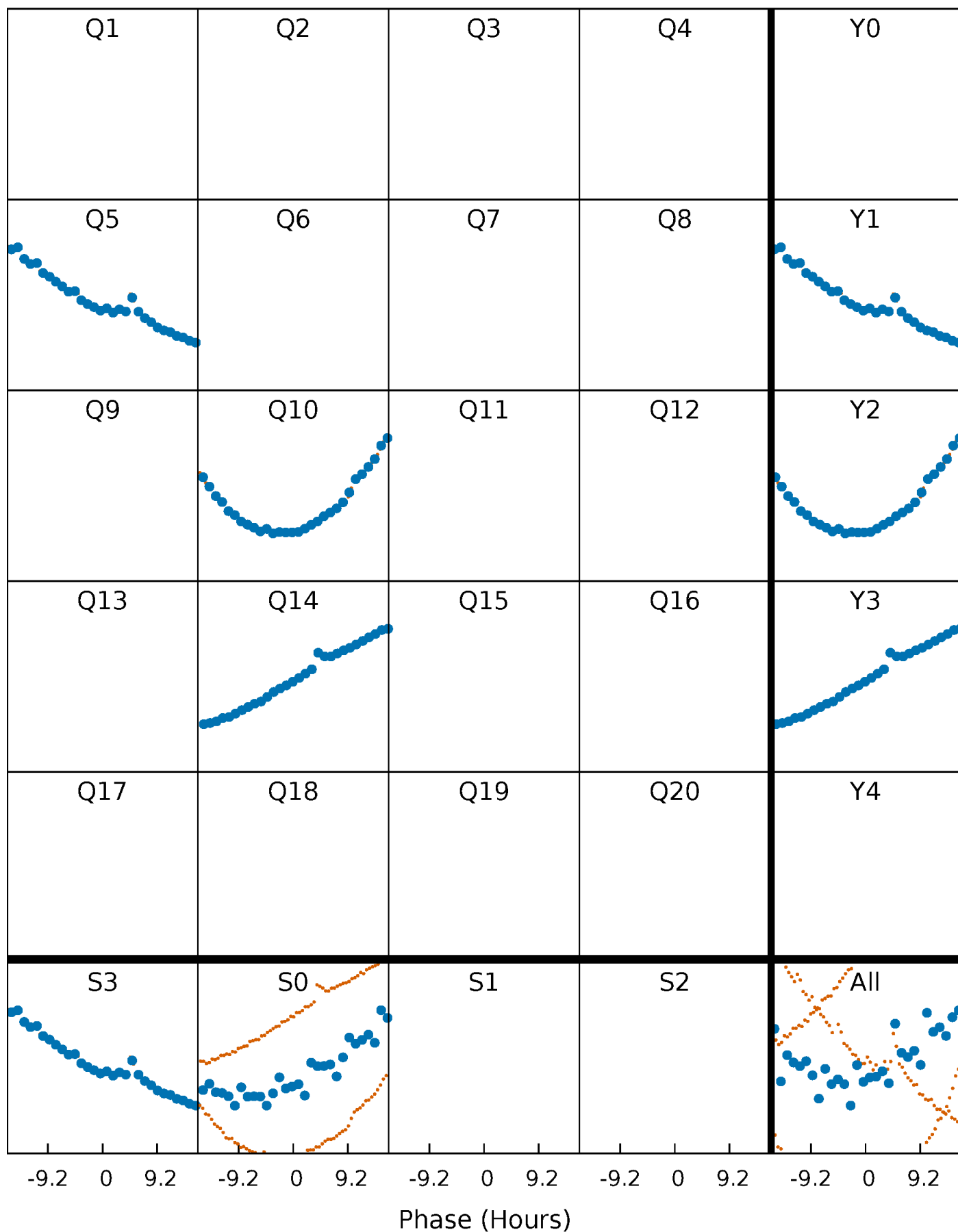


Non-Whitened Vs. Whitened Light Curve



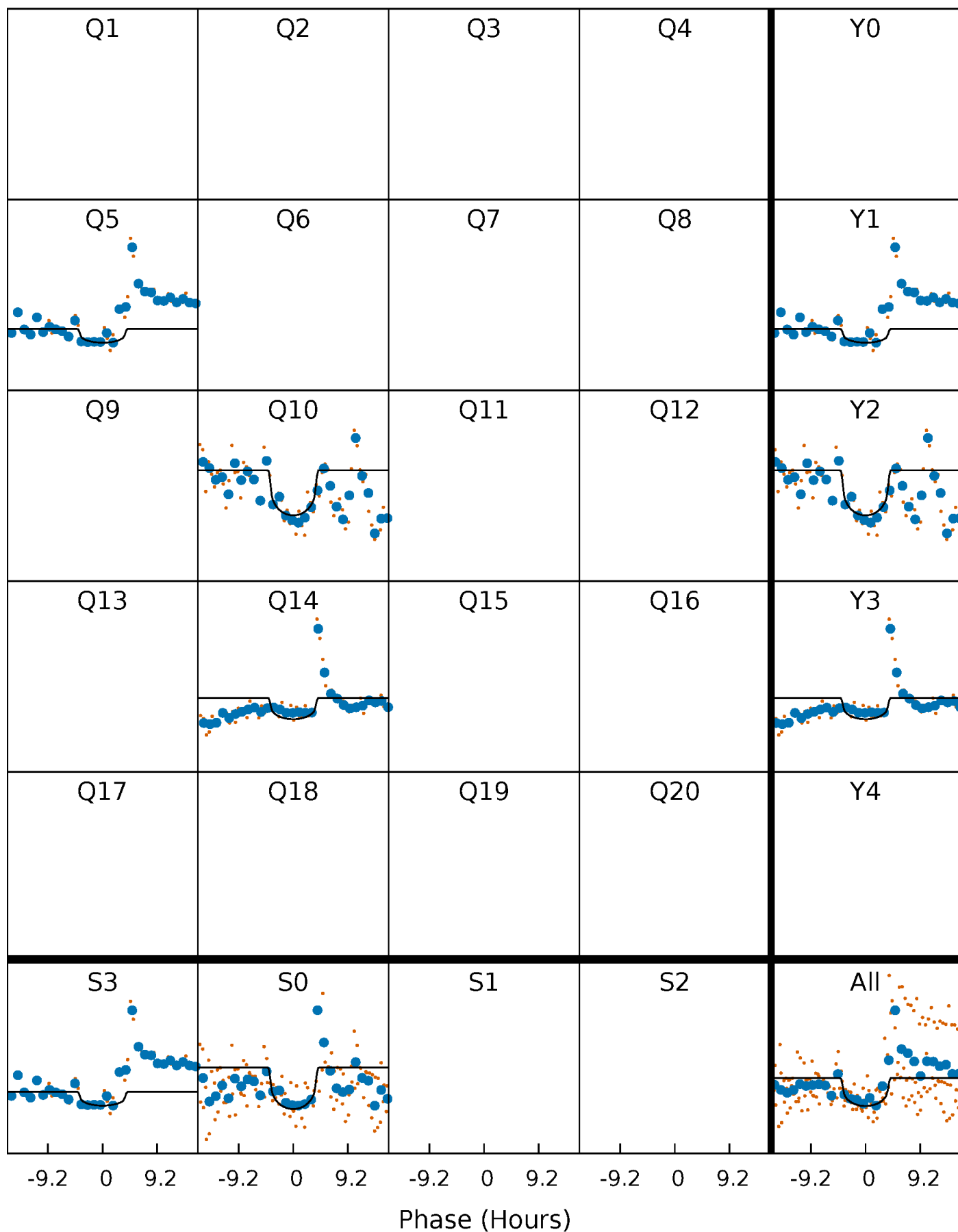
PDC Quarter-Phased Transit Curves

TCE 003735720-03 P=430.081921 Days $T_0=489.680495$ (BKJD)



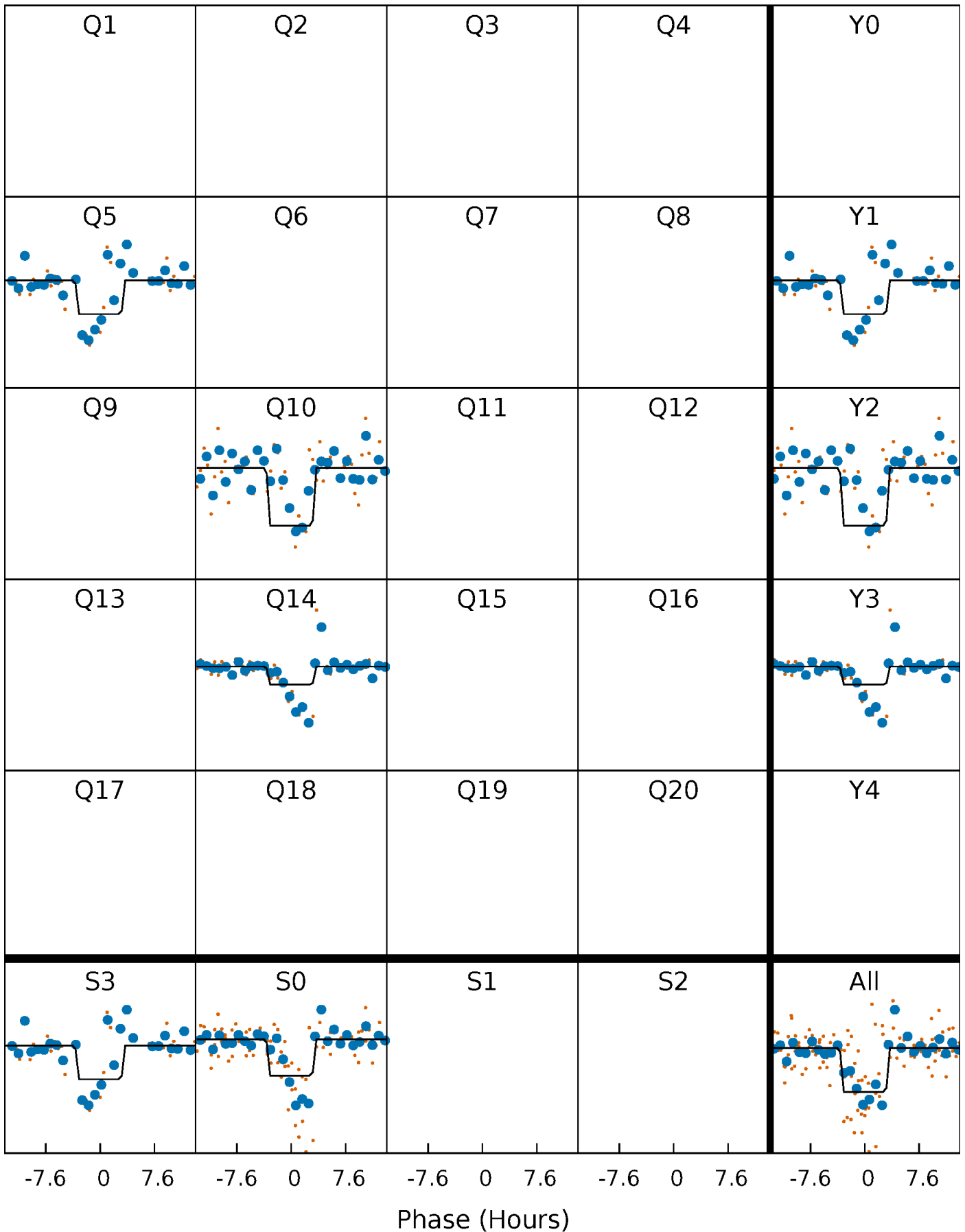
DV Quarter-Phased Transit Curves

TCE 003735720-03 $P=430.081921$ Days $T_0=489.680495$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

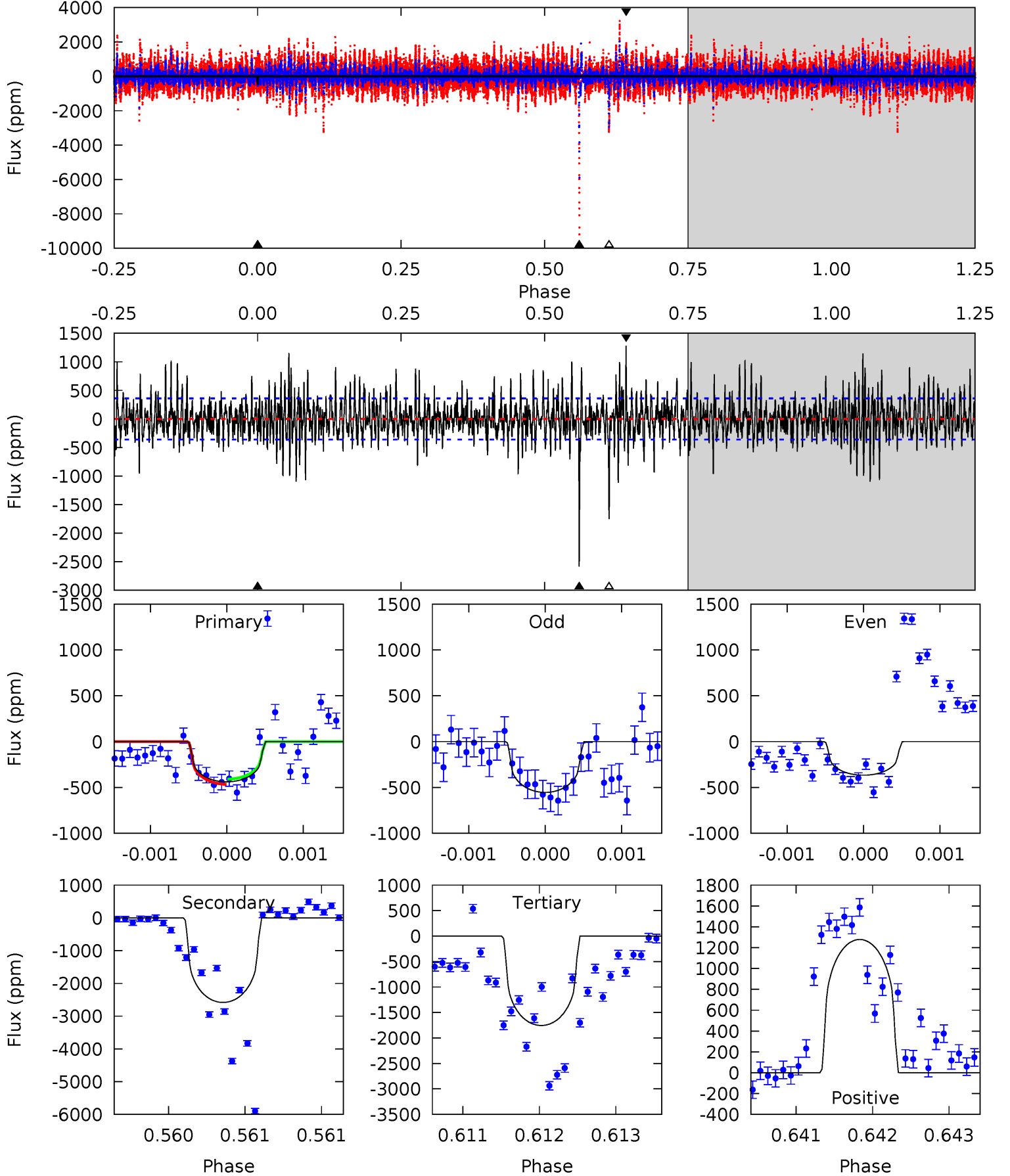
TCE 003735720-03 $P=430.106004$ Days $T_0=489.651394$ (BKJD)



DV Model-Shift Uniqueness Test

003735720-03, P = 430.081921 Days, E = 59.598574 Days

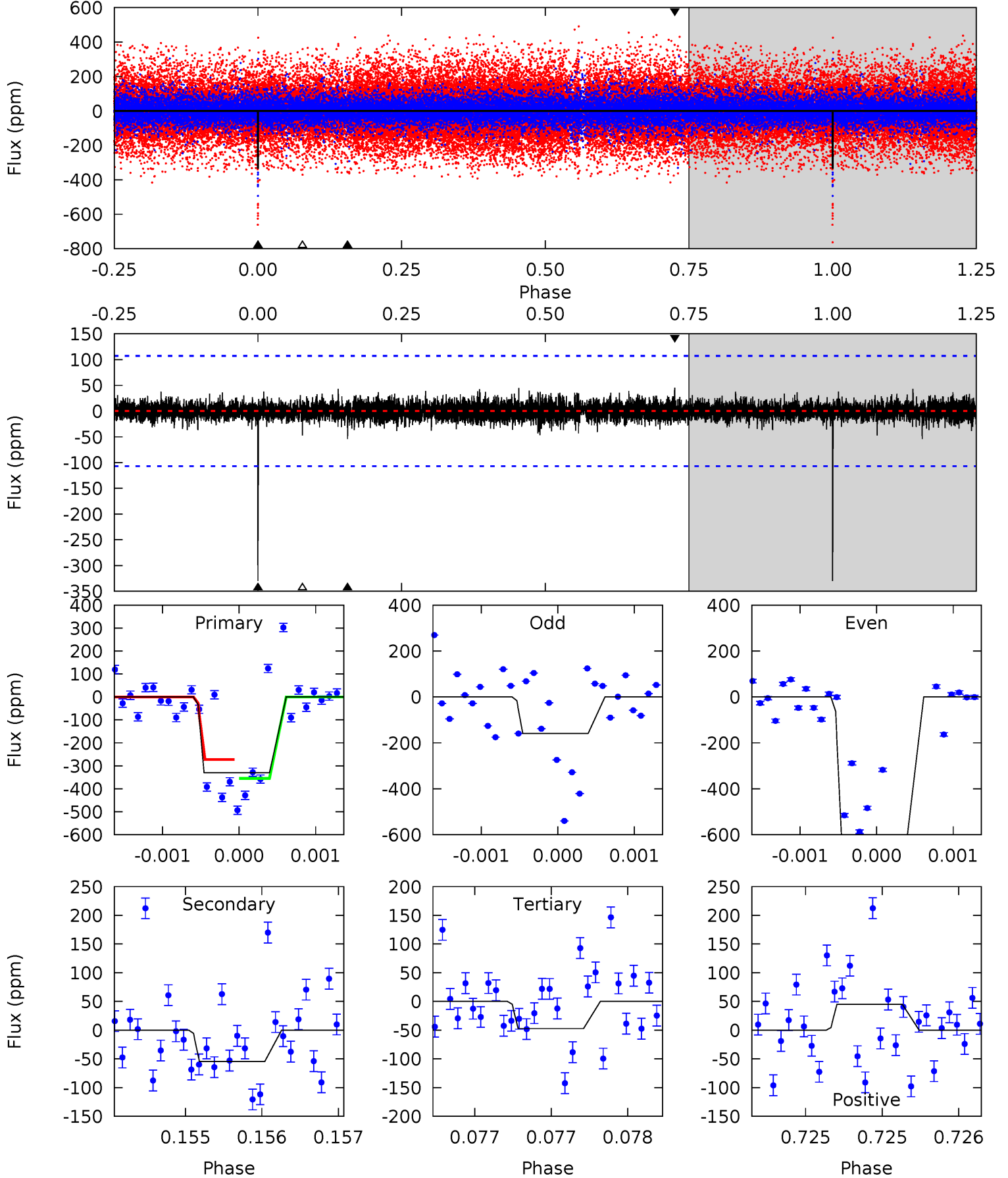
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.67 | 39.3 | 26.7 | 19.4 | 5.49 | 3.35 | 4.22 | -20.0 | -12.8 | 12.6 | 19.8 | 1.19 | 1.14 | 0.33 | 0.43 |



Alt Model-Shift Uniqueness Test

003735720-03, P = 430.106004 Days, E = 59.545390 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.1 | 2.81 | 2.44 | 2.33 | 5.54 | 3.42 | 0.51 | 14.6 | 14.7 | 0.37 | 0.48 | 12.6 | 1.14 | 0.12 | 2.01 |



Stellar Parameters For KIC 003735720

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--------------------------------------|
| | 4858^{+146}_{-131} | $4.564^{+0.065}_{-0.035}$ | $-0.160^{+0.300}_{-0.300}$ | $0.726^{+0.056}_{-0.068}$ | $0.705^{+0.083}_{-0.053}$ | $2.590^{+0.750}_{-0.375}$ |
| | +3%/-3% | +1%/-1% | +188%/-188% | +8%/-9% | +12%/-8% | +29%/-14% |
| 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 003735720-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|----------------|------------------------|-----------------|------------------------|-------------------------------|
| DV | -2582 ± 66 | $1.97^{+1.44}_{-1.13}$ | 255^{+9}_{-9} | 6834^{+5373}_{-1581} | $375653^{+1768572}_{-253963}$ |
| Alt. | -54 ± 19 | $1.80^{+1.46}_{-1.09}$ | 255^{+9}_{-9} | 3269^{+1118}_{-527} | 9019^{+46645}_{-6446} |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

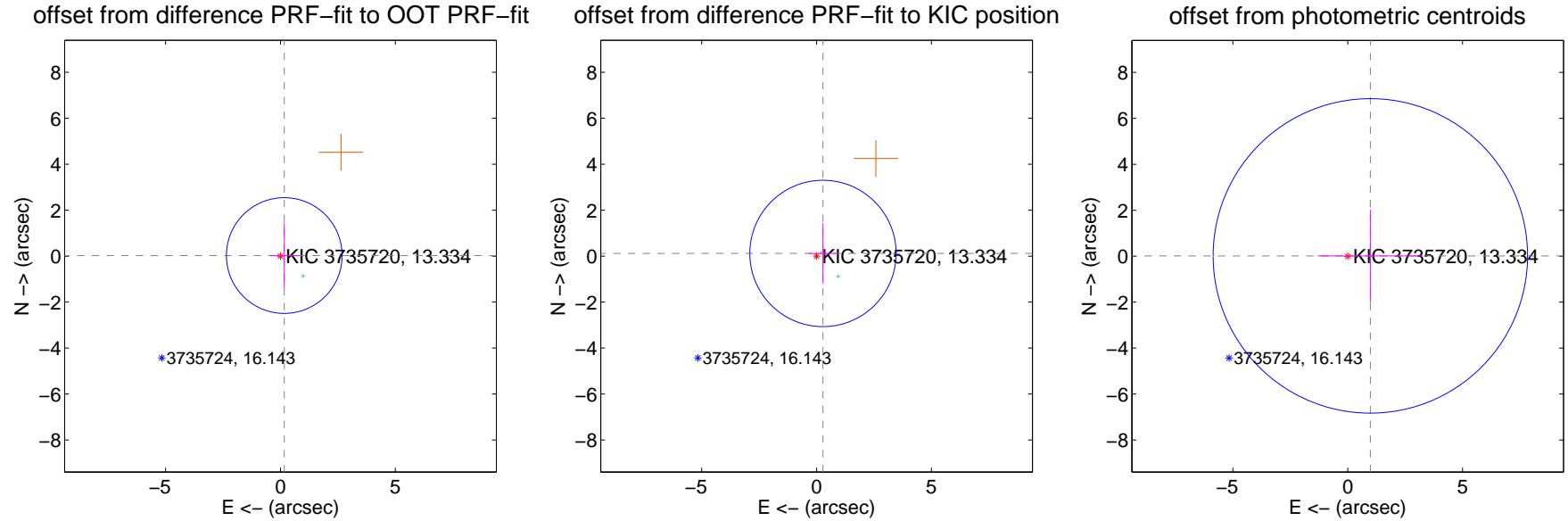
DV Centroid Data

Supplemental centroid analysis for 003735720-03. Kepler magnitude: 13.33. Transit SNR 5.38

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.168 ± 0.839 | 0.20 | -0.166 ± 0.644 | 0.026 ± 1.431 |
| PRF-fit source offset from KIC position | 0.301 ± 1.061 | 0.28 | -0.278 ± 0.629 | 0.117 ± 1.313 |
| photometric centroid source offset | 0.98 ± 2.28 | 0.43 | -0.98 ± 2.28 | 0.01 ± 2.02 |

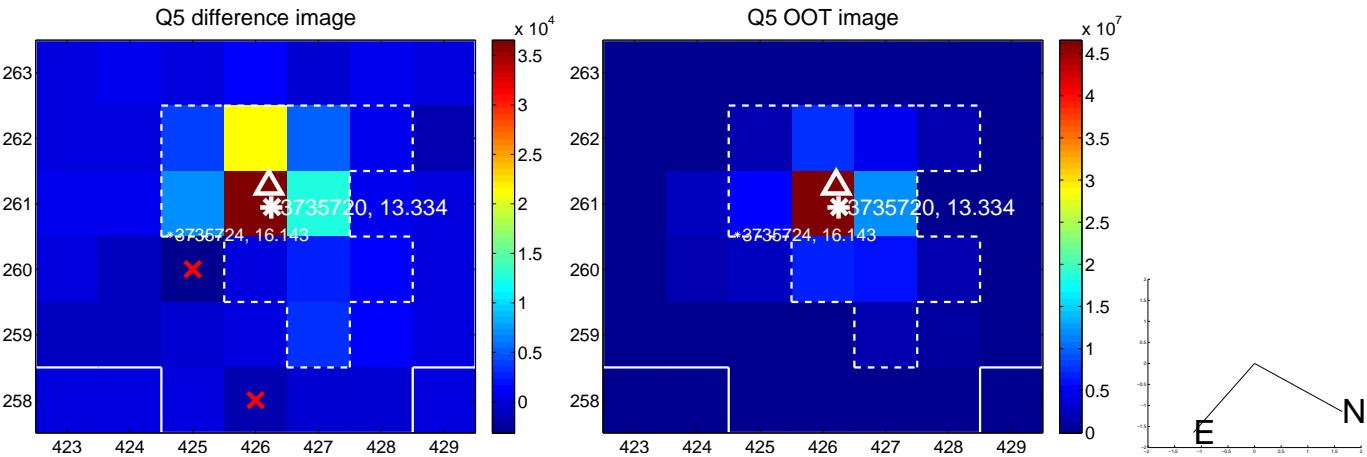


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

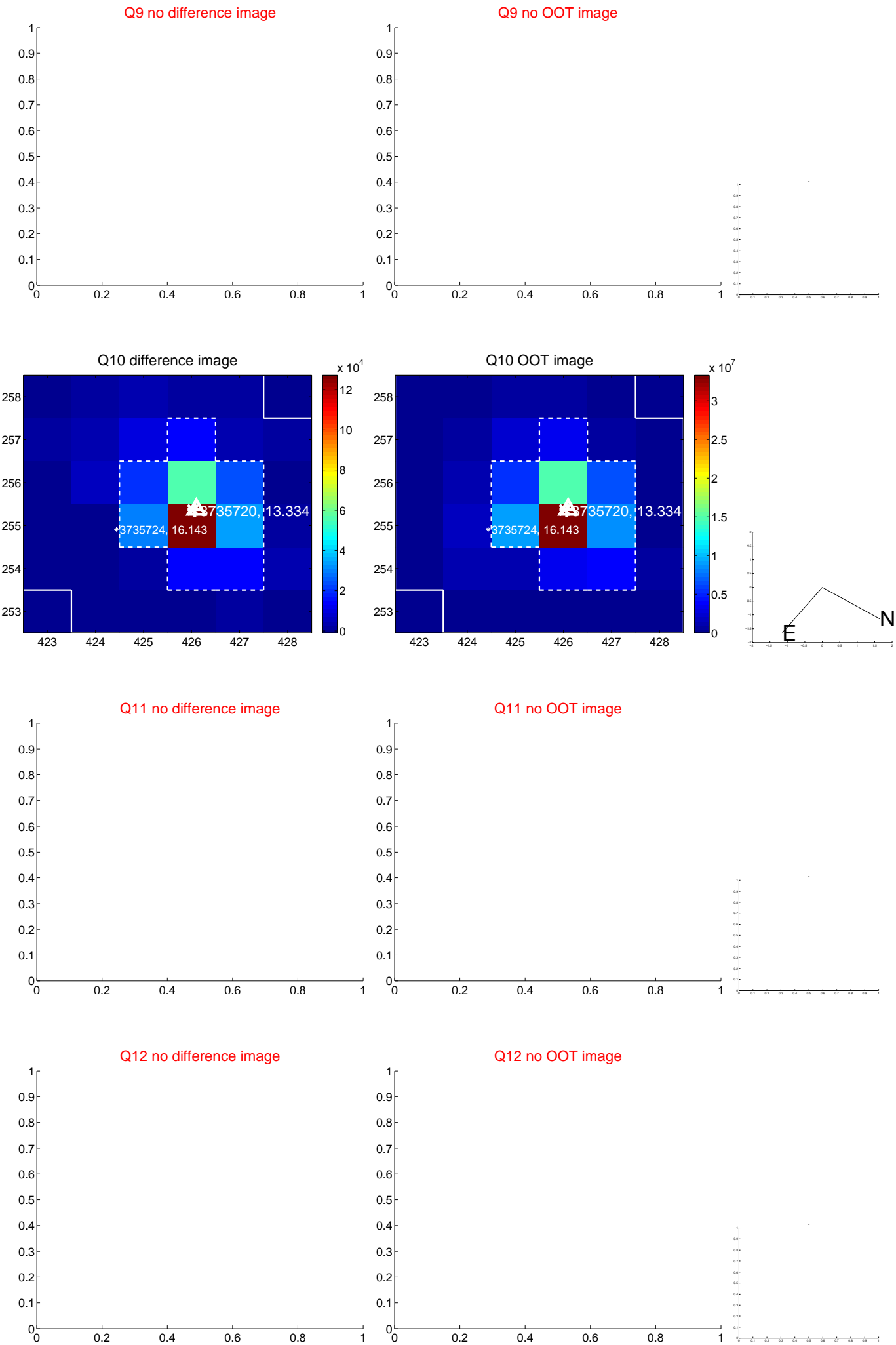
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



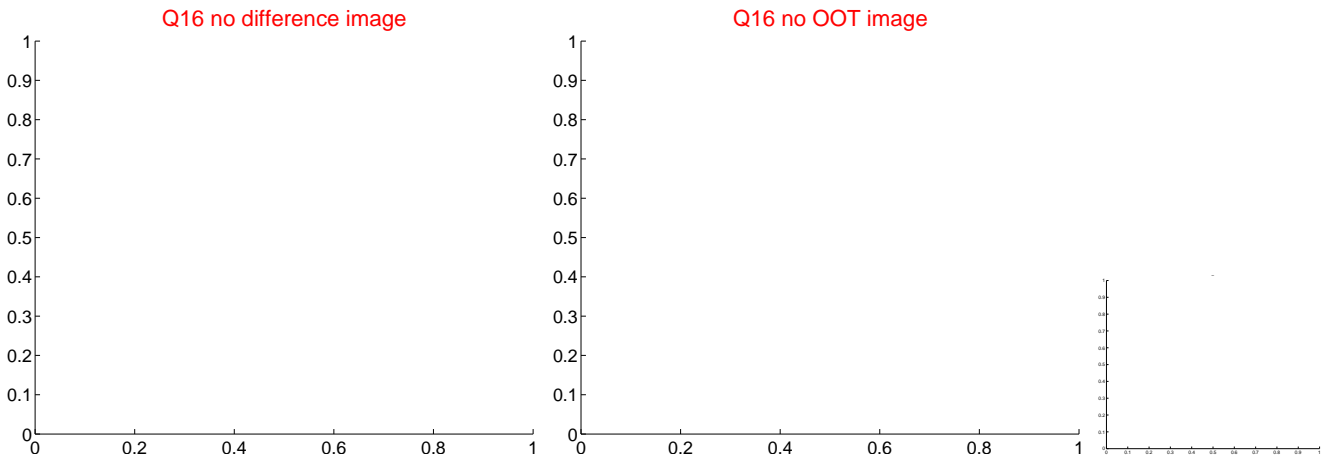
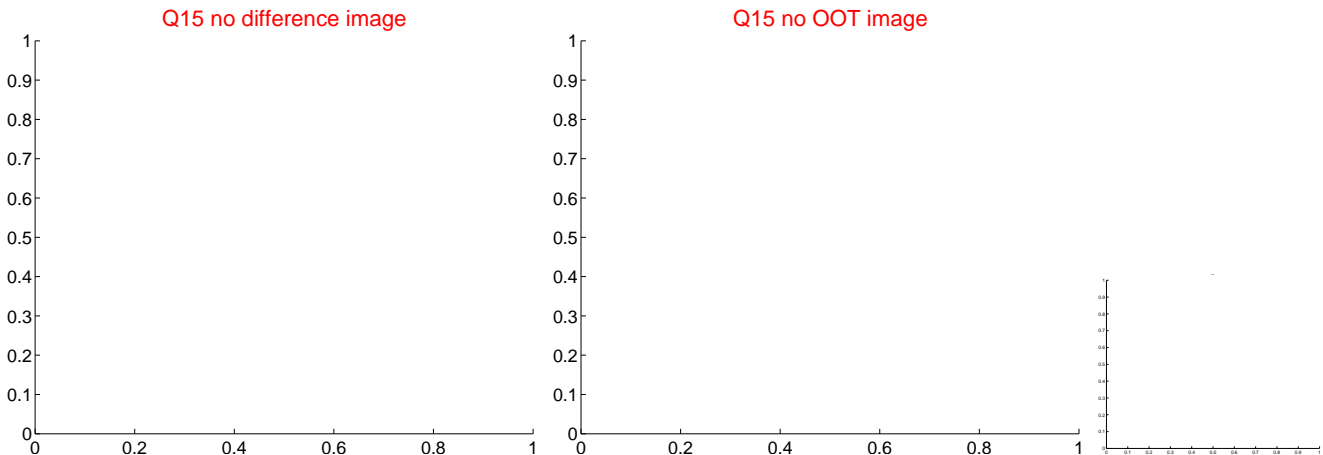
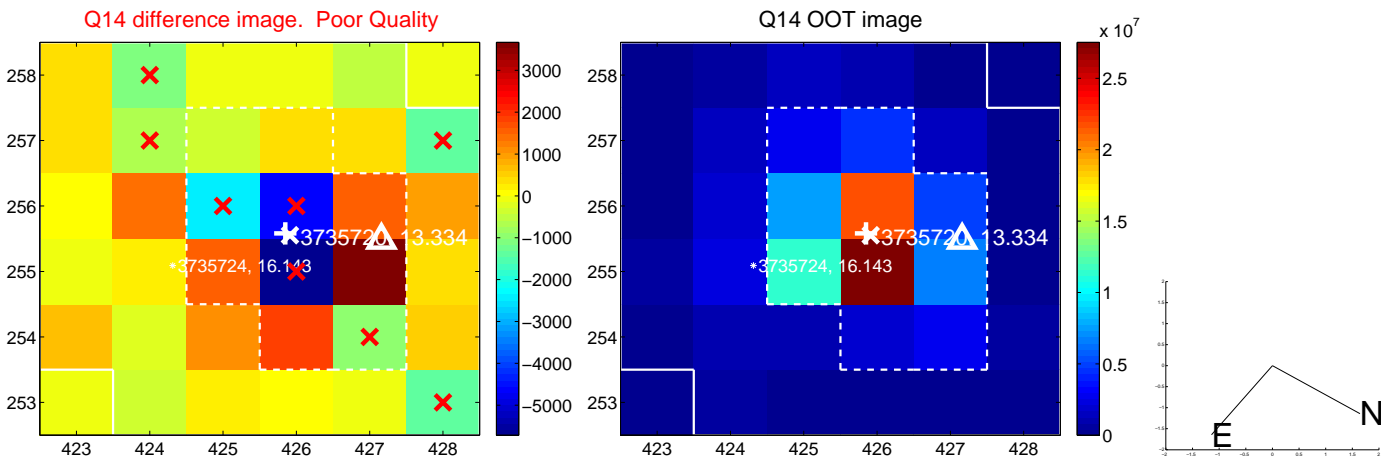
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



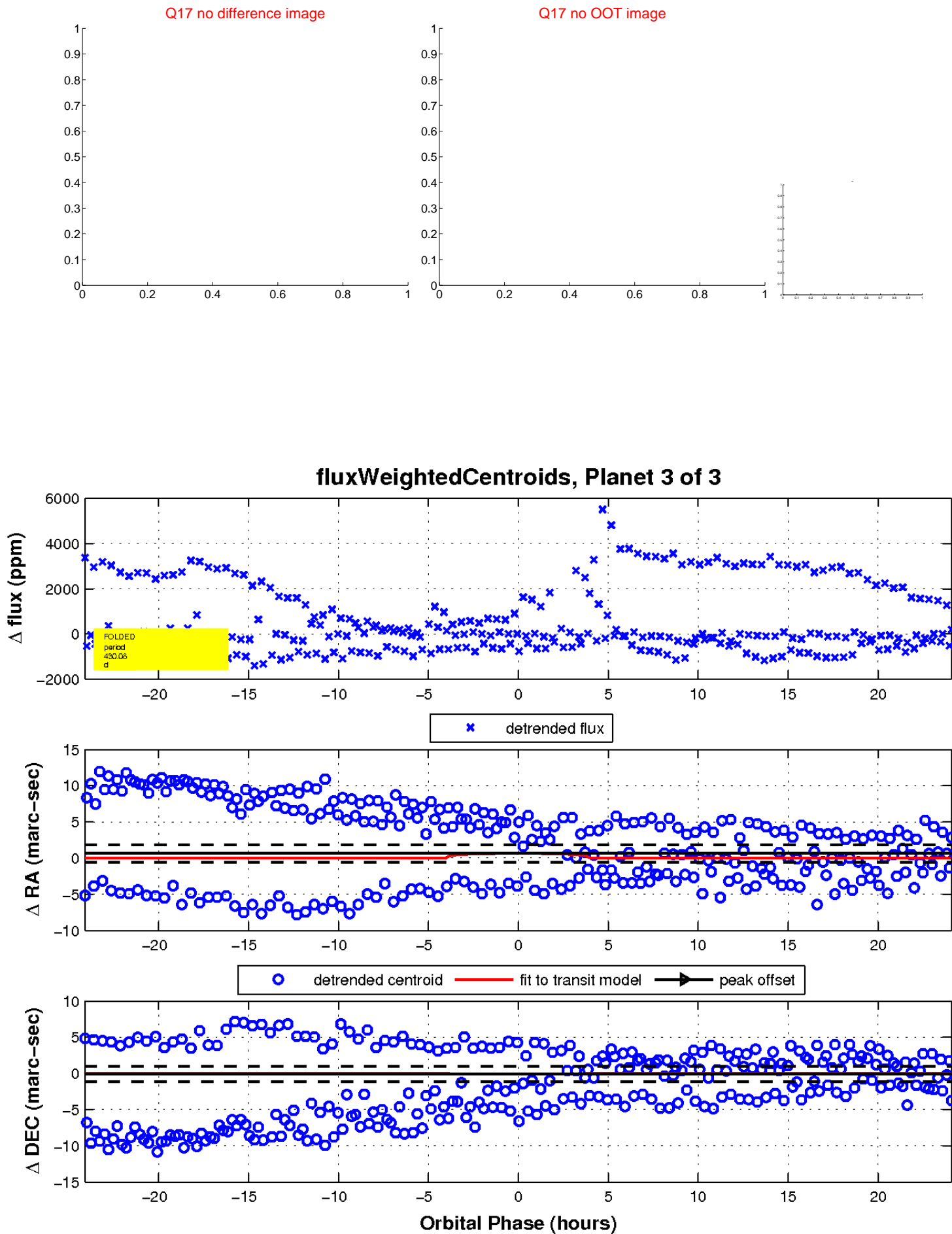
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

