

KIC 005794570

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005794570-01 | OBS | 2675.01 | 5.448316 | 132.491240 | 539.9 | 2.390 | 93.6 | 98.7 | 0.91 | 5721 | 2.47 | 216.54 |
| 005794570-02 | OBS | 2675.02 | 1.116124 | 131.850420 | 88.9 | 1.495 | 34.7 | 35.3 | 0.91 | 5721 | 1.02 | 1793.07 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 005794570-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 005794570-02 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |

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

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

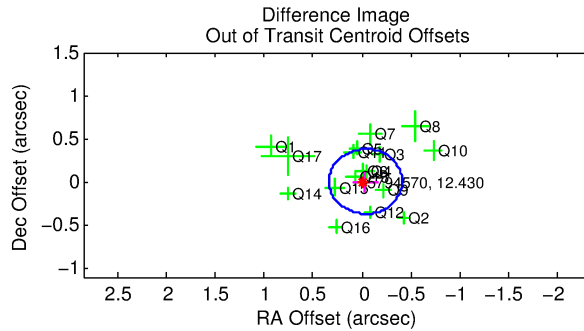
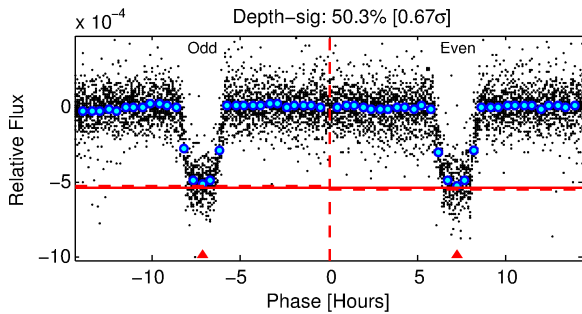
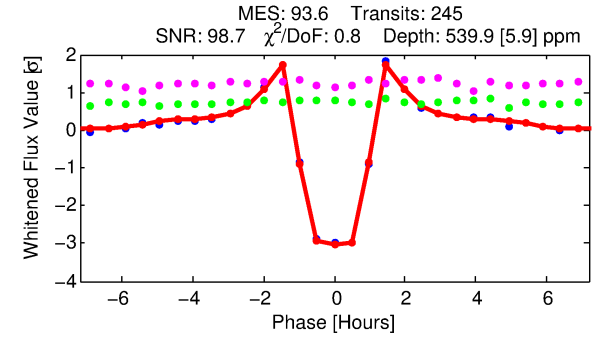
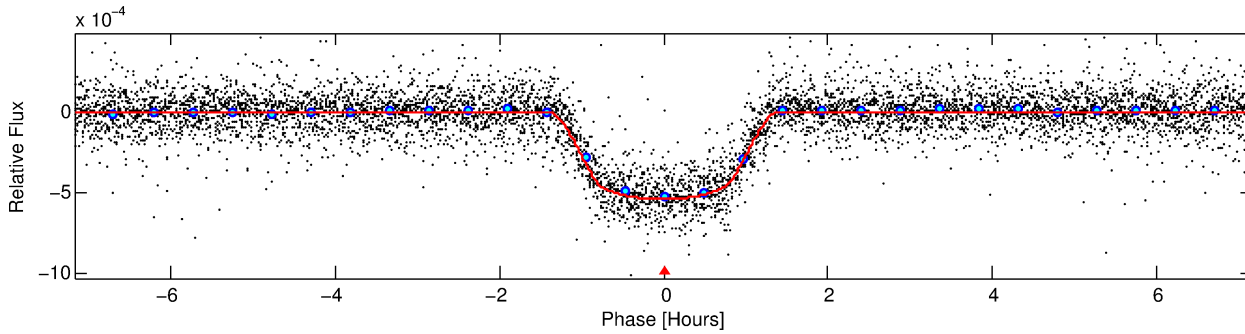
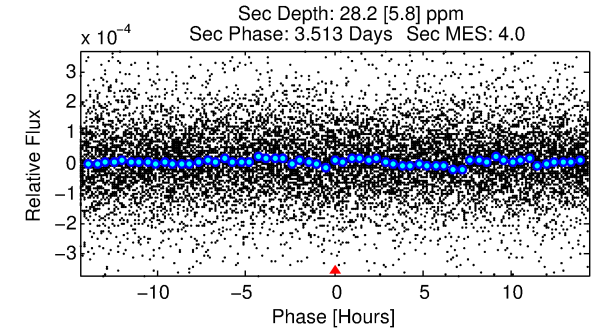
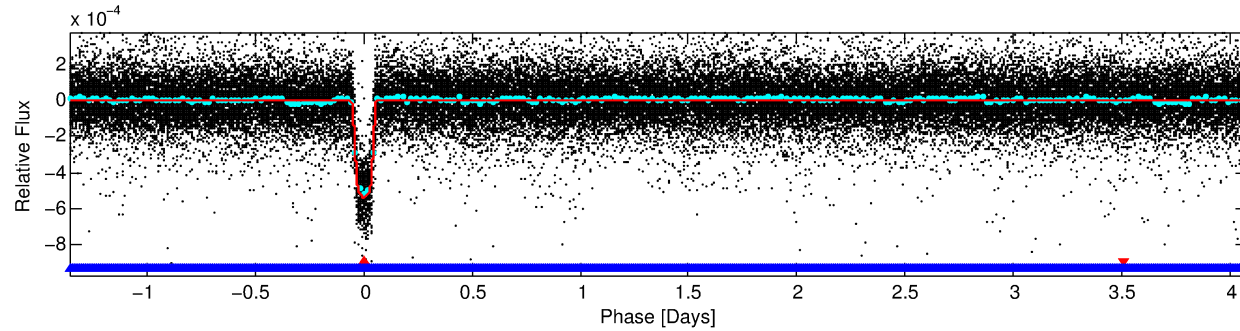
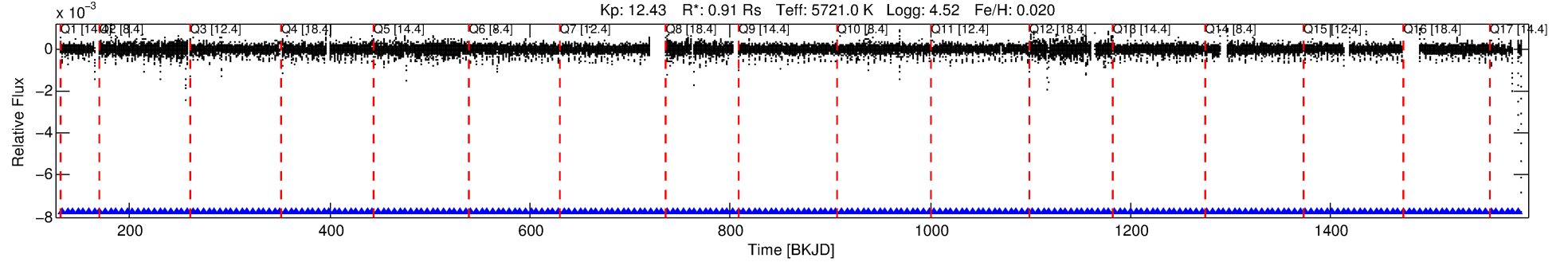
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005794570-01

No Significant Match Found

DV One-Page Summary

KIC: 5794570 Candidate: 1 of 2 Period: 5.448 d
KOI: K02675.01 Corr: 0.964



DV Fit Results:

Period = 5.44832 [0.00000] d
Epoch = 132.4912 [0.0003] BKJD
Rp/R* = 0.0250 [0.0008]
a/R* = 9.06 [1.24]
b = 0.88 [0.03]
Seff = 216.54 [46.48]
Teq = 978 [52] K
Rp = 2.47 [0.36] Re
a = 0.0603 [0.0077] AU
Ag = 9.20 [2.68] [3.06σ]
Teffp = 2634 [153] K [10.23σ]

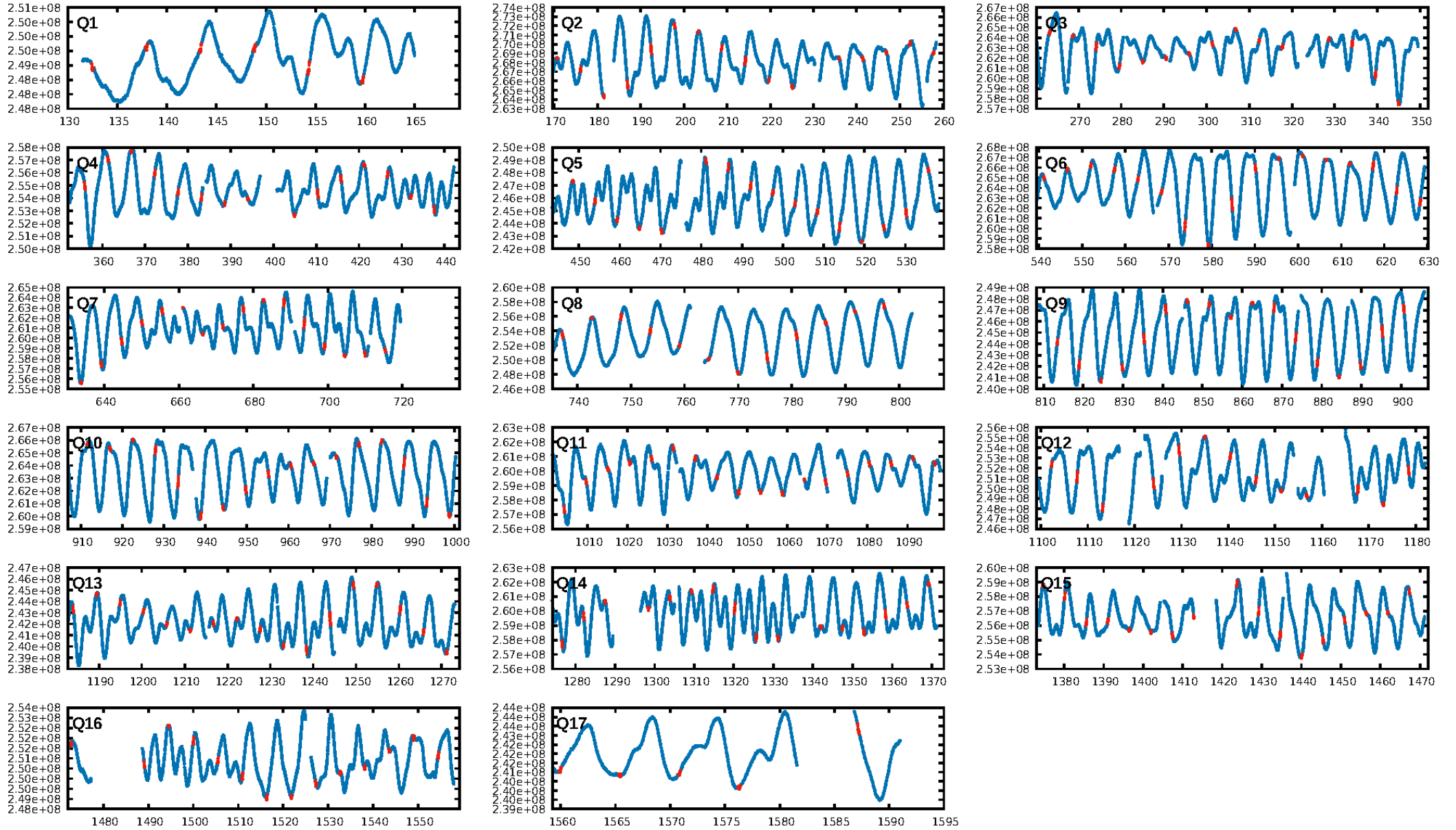
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.88σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [234/234]
GhostDiagnostic-chr: 1.91
Centroid-sig: N/A
Centroid-so: 0.157 arcsec [2.28σ]
OotOffset-rm: 0.035 arcsec [0.28σ]
KicOffset-rm: 0.072 arcsec [0.59σ]
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]

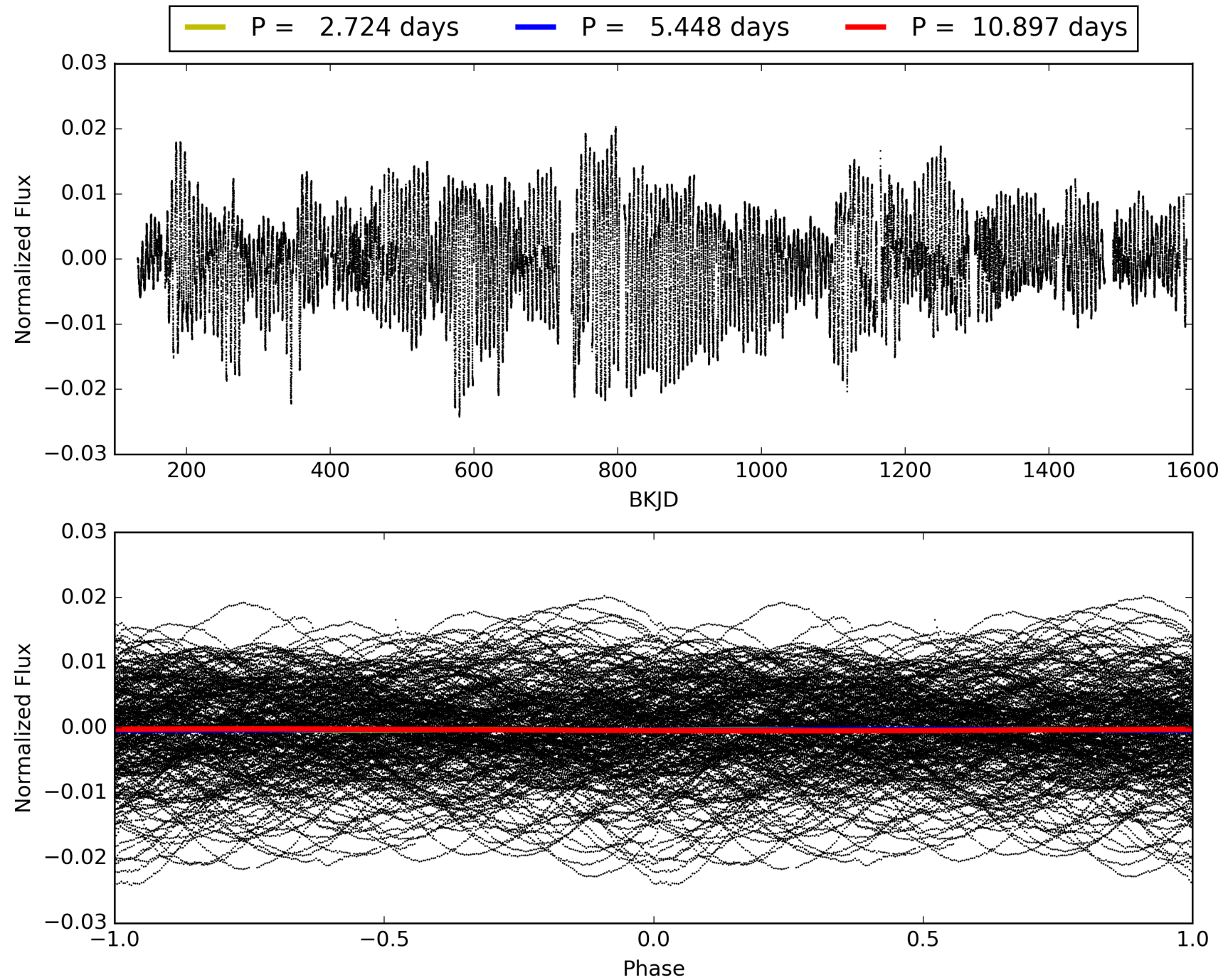
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:08:31 Z

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

TCE 005794570-01, PDC Light Curves

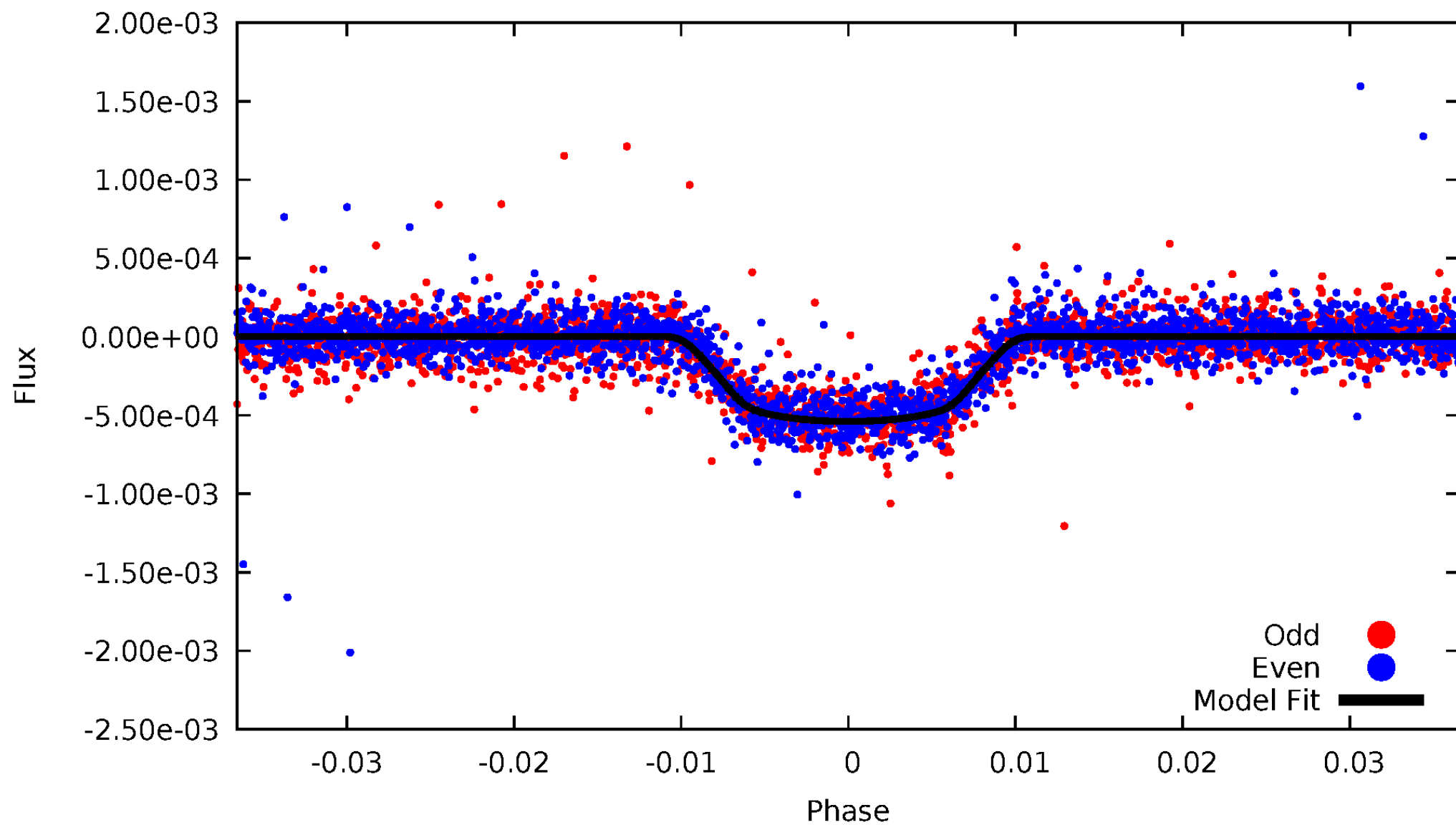


TCE 005794570-01



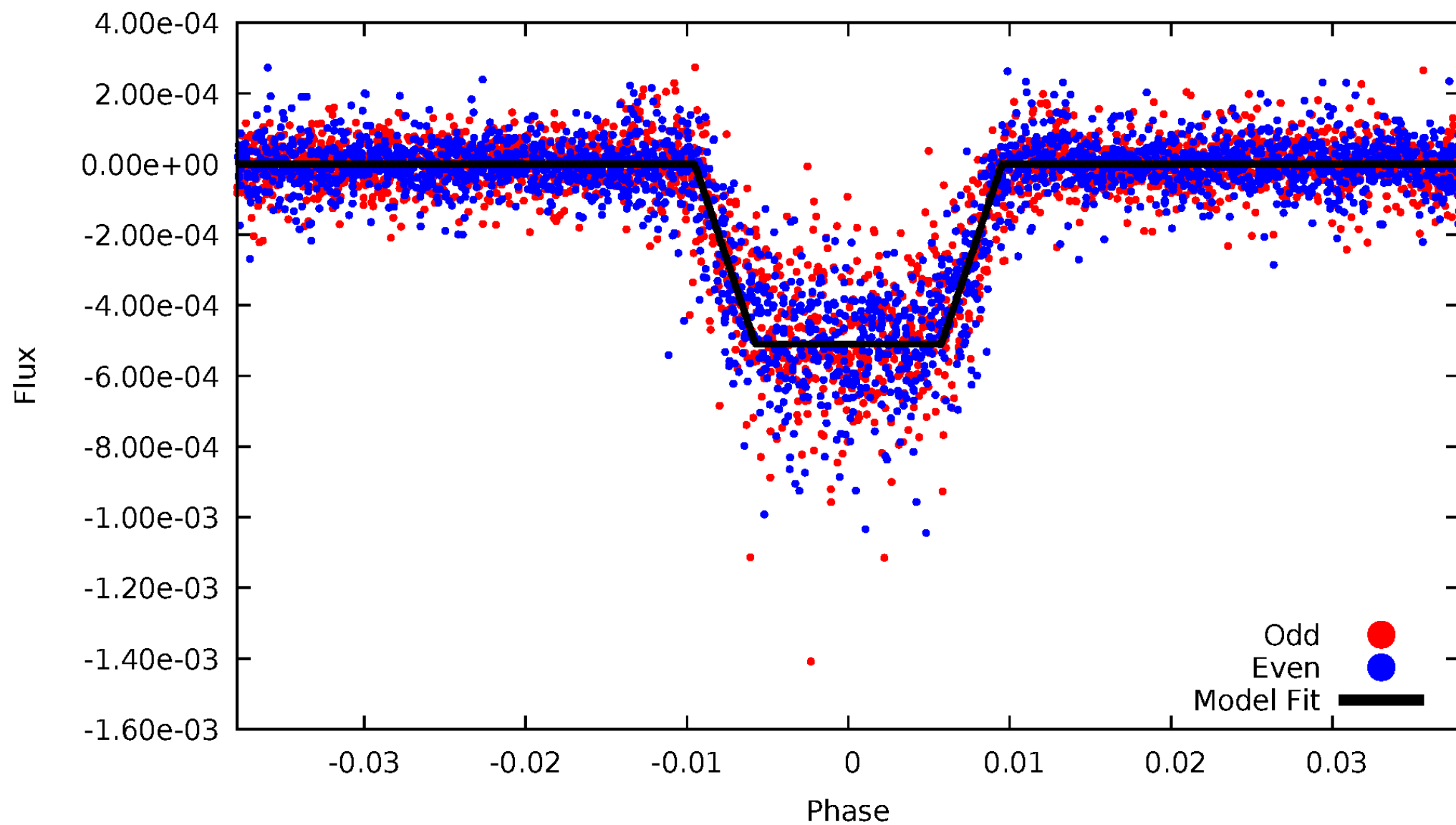
DV Odd/Even

TCE 005794570-01



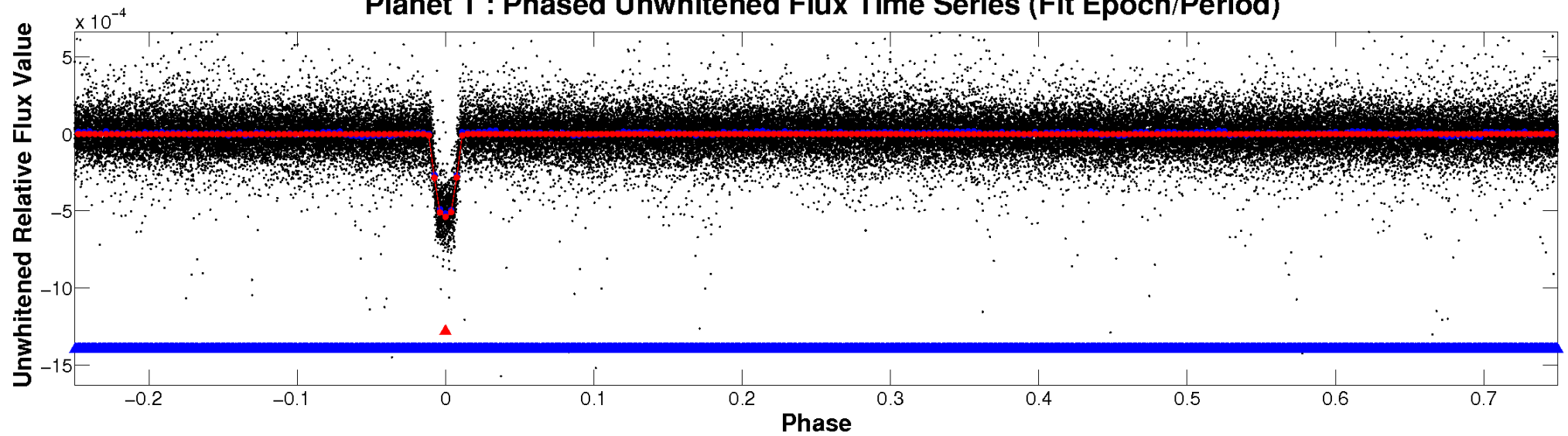
ALT Odd/Even

TCE 005794570-01

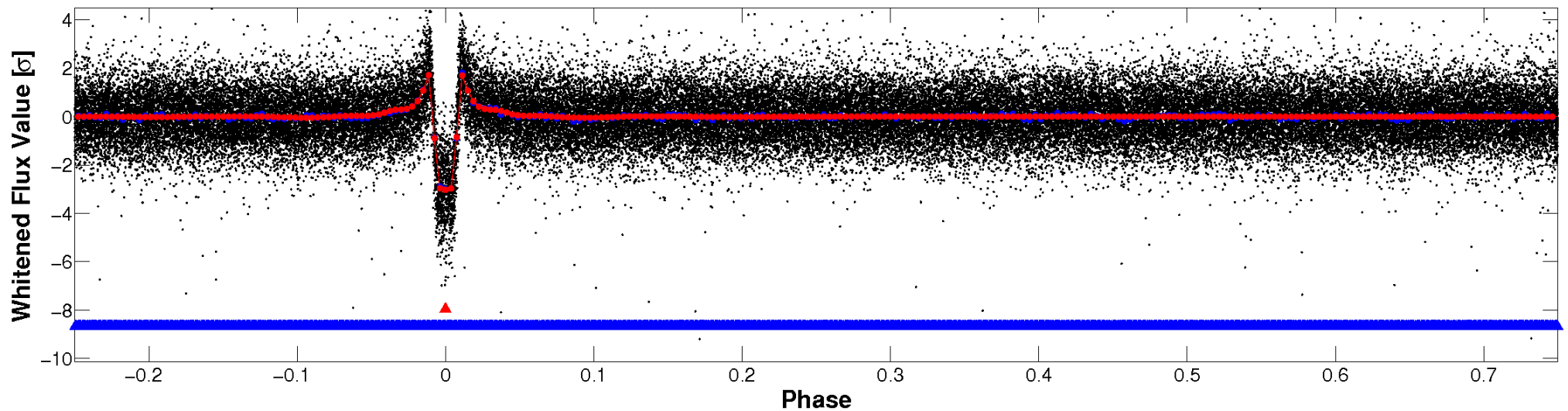


Non-Whitened Vs. Whitened Light Curve

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

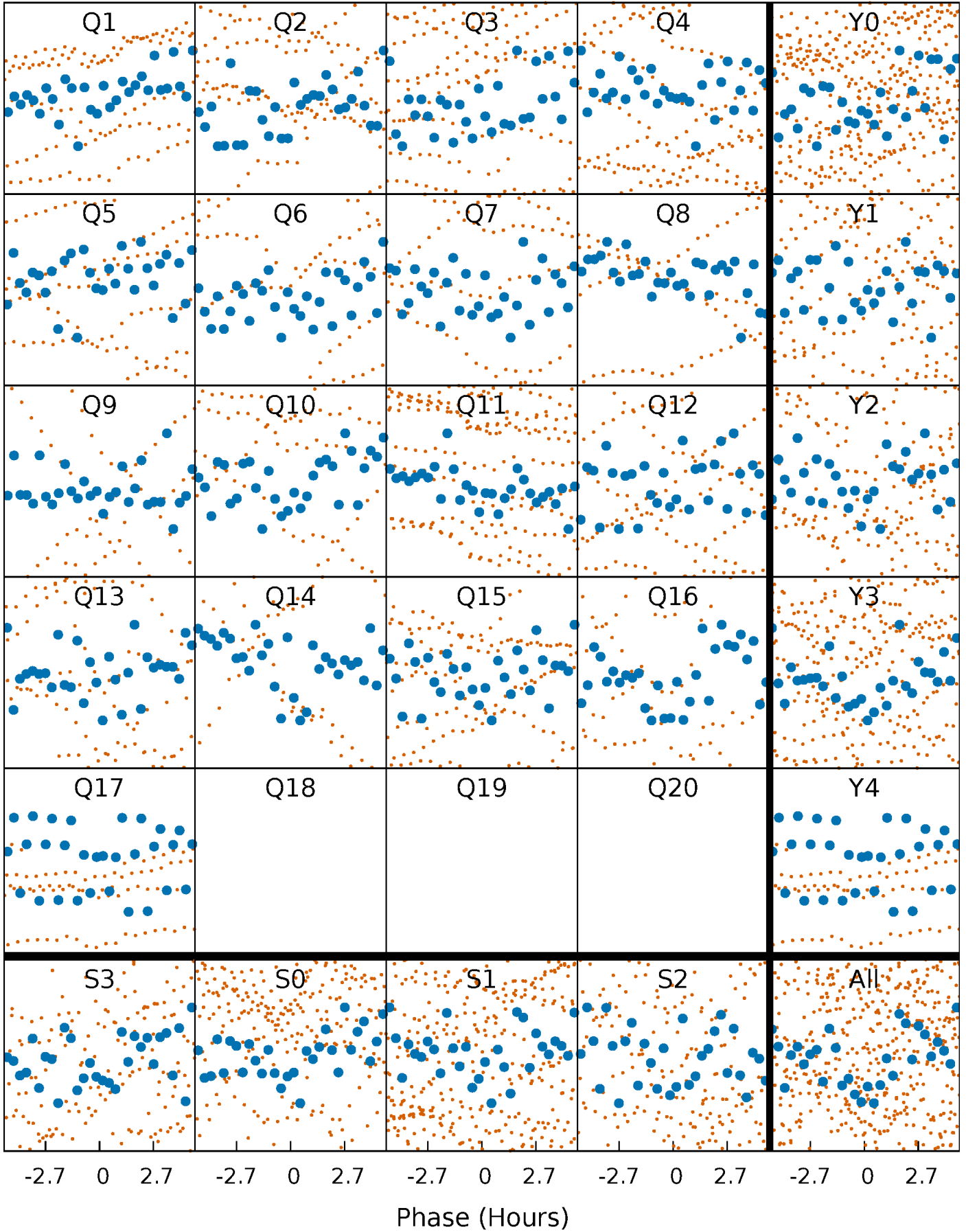


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



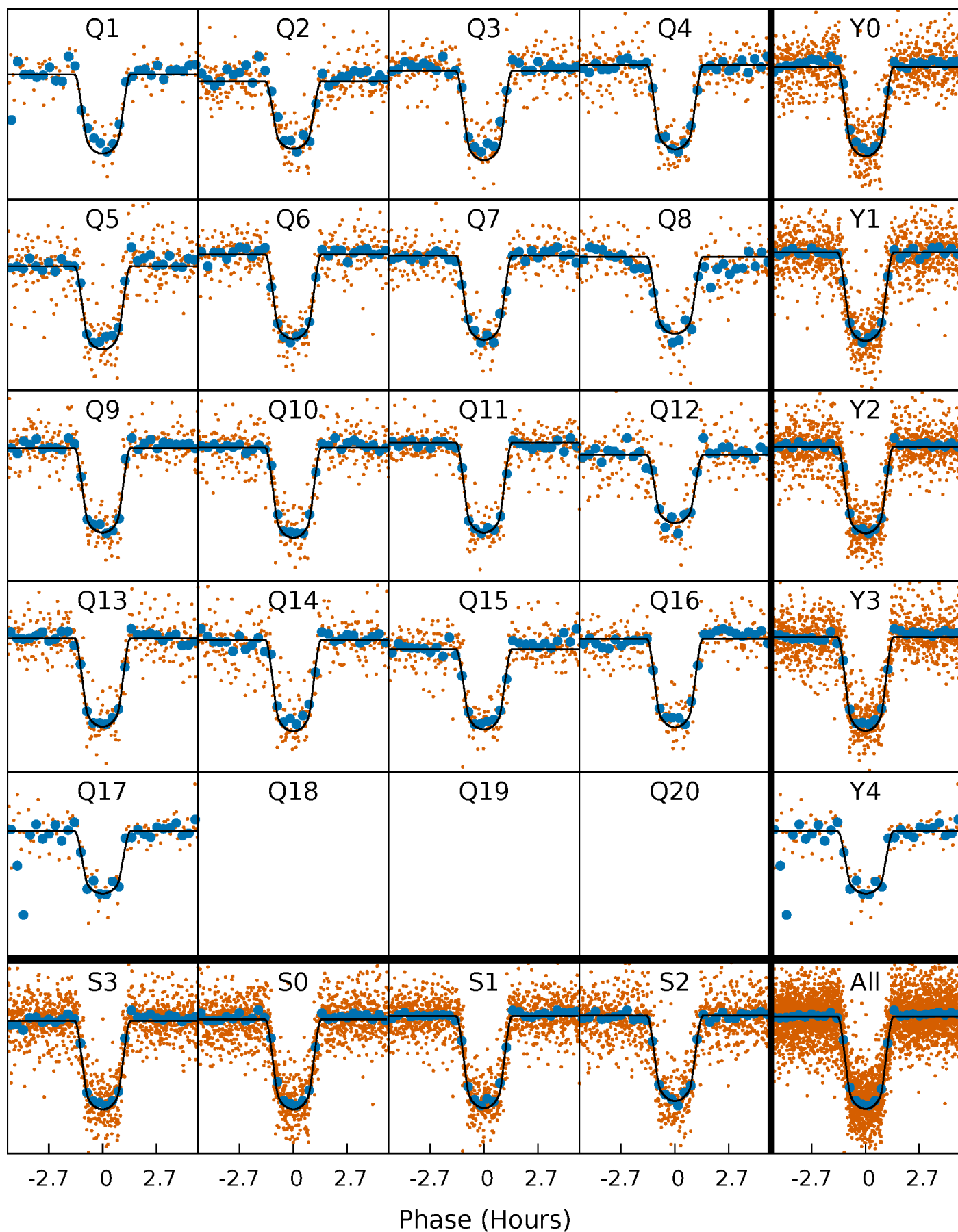
PDC Quarter-Phased Transit Curves

TCE 005794570-01 P= 5.448316 Days $T_0=132.491240$ (BKJD)



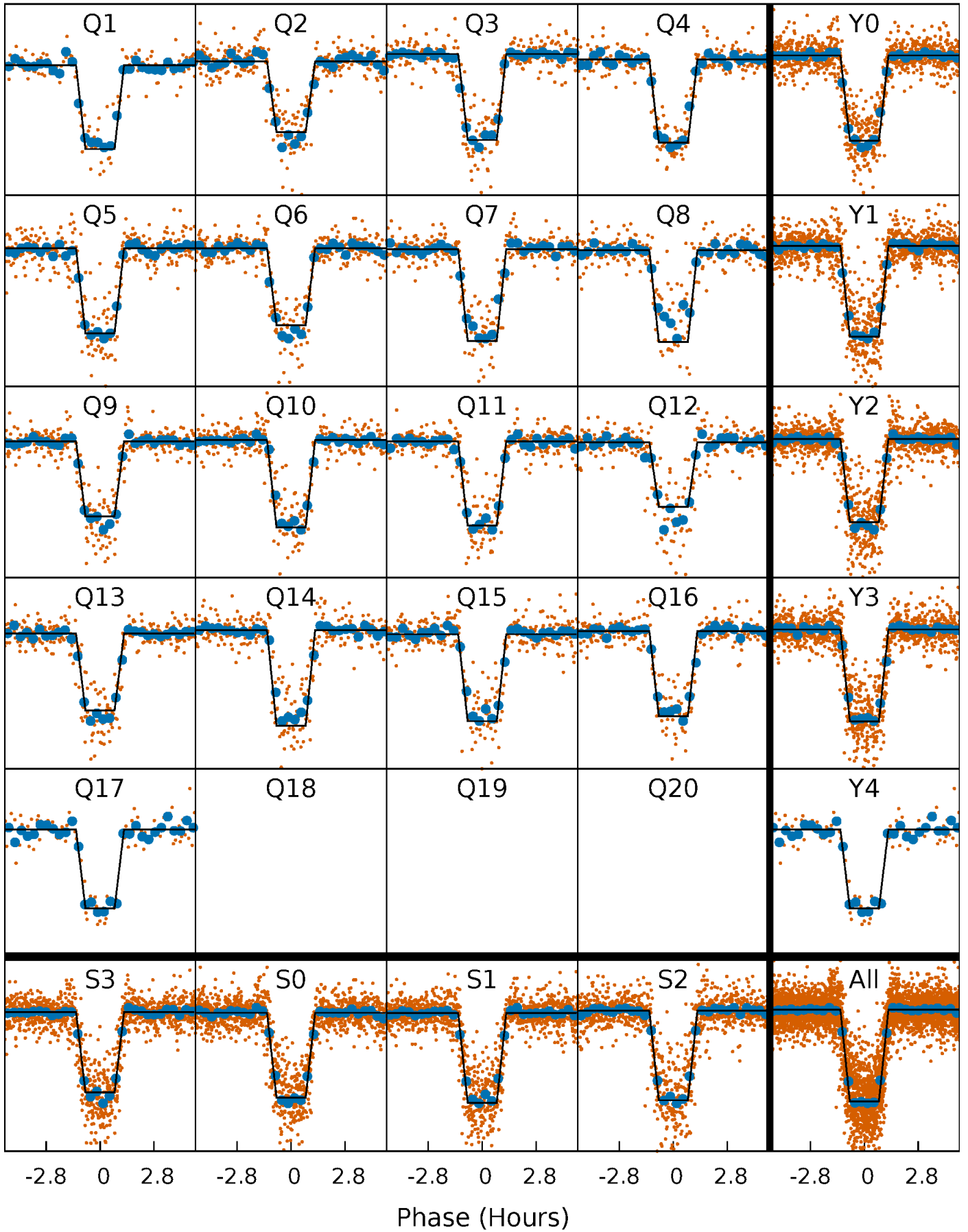
DV Quarter-Phased Transit Curves

TCE 005794570-01 P= 5.448316 Days $T_0=132.491240$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

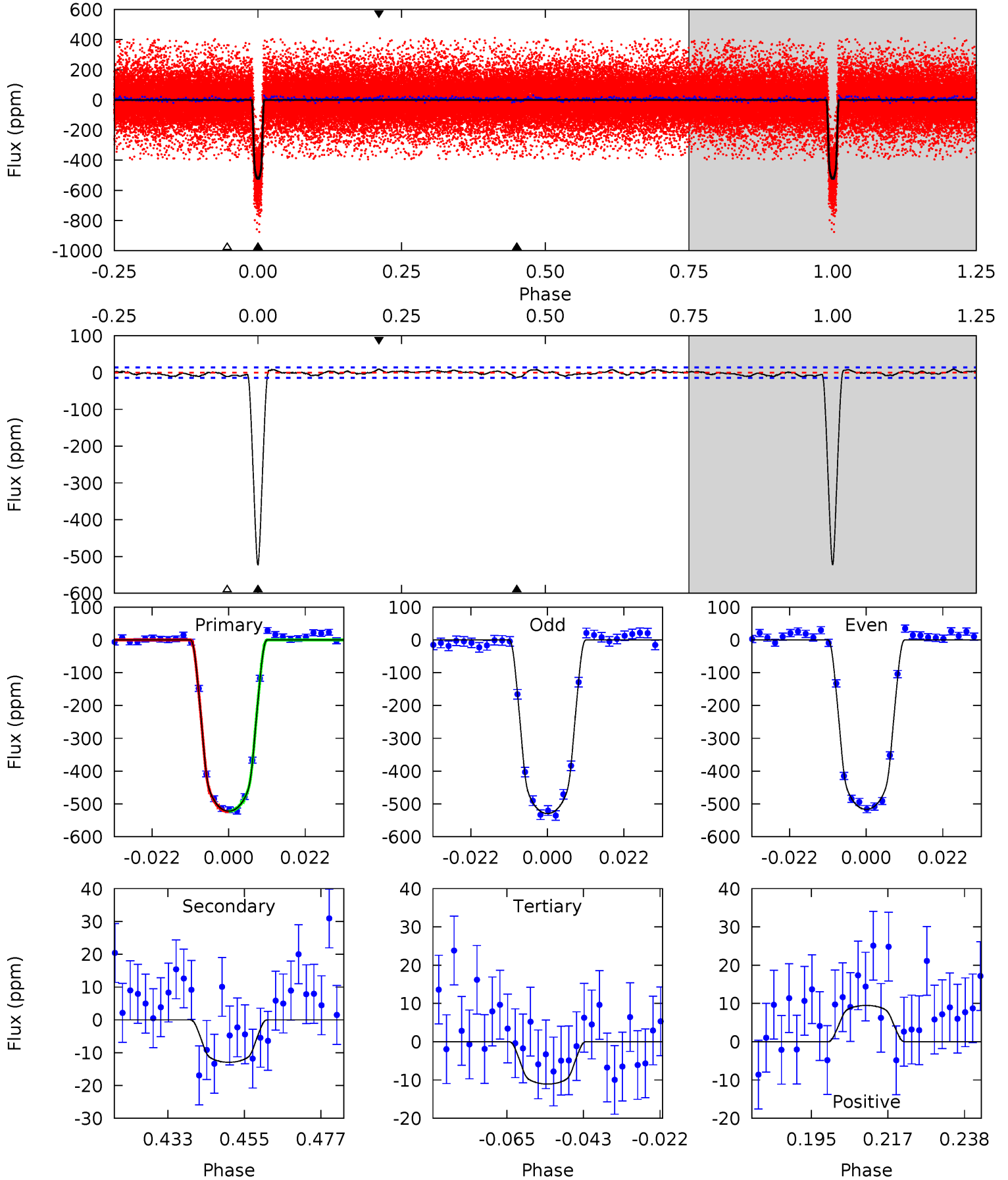
TCE 005794570-01 P= 5.448304 Days $T_0=132.493091$ (BKJD)



DV Model-Shift Uniqueness Test

005794570-01, P = 5.448316 Days, E = 127.042924 Days

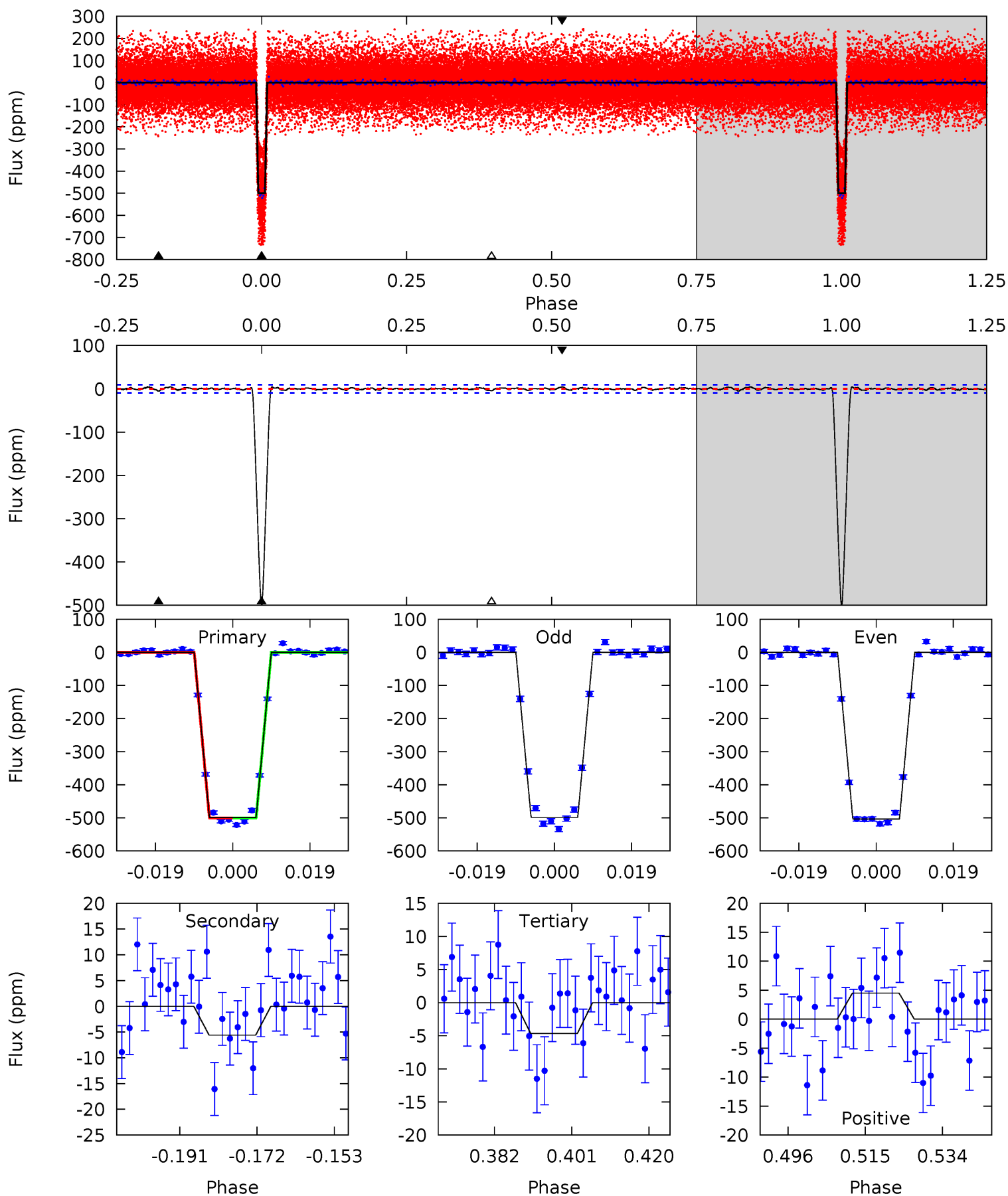
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 179.8 | 4.46 | 3.81 | 3.27 | 4.88 | 2.30 | 1.51 | 176.0 | 176.5 | 0.65 | 1.19 | 2.21 | 0.99 | 0.02 | 0.32 |



Alt Model-Shift Uniqueness Test

005794570-01, P = 5.448304 Days, E = 127.044787 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 261.7 | 2.93 | 2.44 | 2.36 | 4.90 | 2.34 | 0.79 | 259.3 | 259.4 | 0.48 | 0.57 | 1.35 | 1.02 | 0.01 | 0.07 |



Stellar Parameters For KIC 005794570

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------------------|
| | 5721^{+103}_{-126} | $4.517^{+0.028}_{-0.112}$ | $0.020^{+0.150}_{-0.150}$ | $0.905^{+0.127}_{-0.045}$ | $0.983^{+0.056}_{-0.070}$ | $1.868^{+0.253}_{-0.593}$ |
| | +2%/-2% | +1%/-2% | +750%/-750% | +14%/-5% | +6%/-7% | +14%/-32% |
| Source | SPE59 | SPE59 | SPE59 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005794570-01 / KOI 2675.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -13 ± 3 | $2.51^{+0.19}_{-0.13}$ | 1380^{+52}_{-40} | 2842^{+98}_{-120} | $3.958^{+1.001}_{-1.018}$ |
| Alt. | -6 ± 2 | $2.27^{+0.16}_{-0.13}$ | 1381^{+50}_{-42} | 2593^{+120}_{-159} | $2.115^{+0.793}_{-0.757}$ |

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

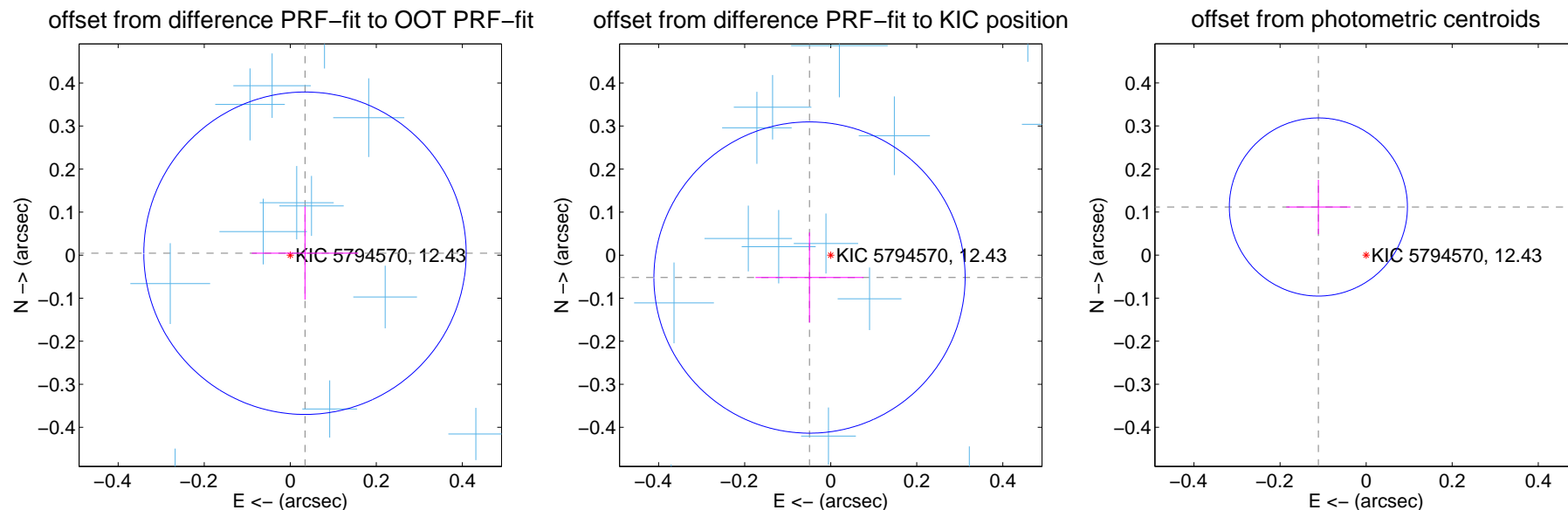
DV Centroid Data

Supplemental centroid analysis for 005794570-01. Kepler magnitude: 12.43. Transit SNR 98.70

There are 17 quarters with good PRF difference image offsets

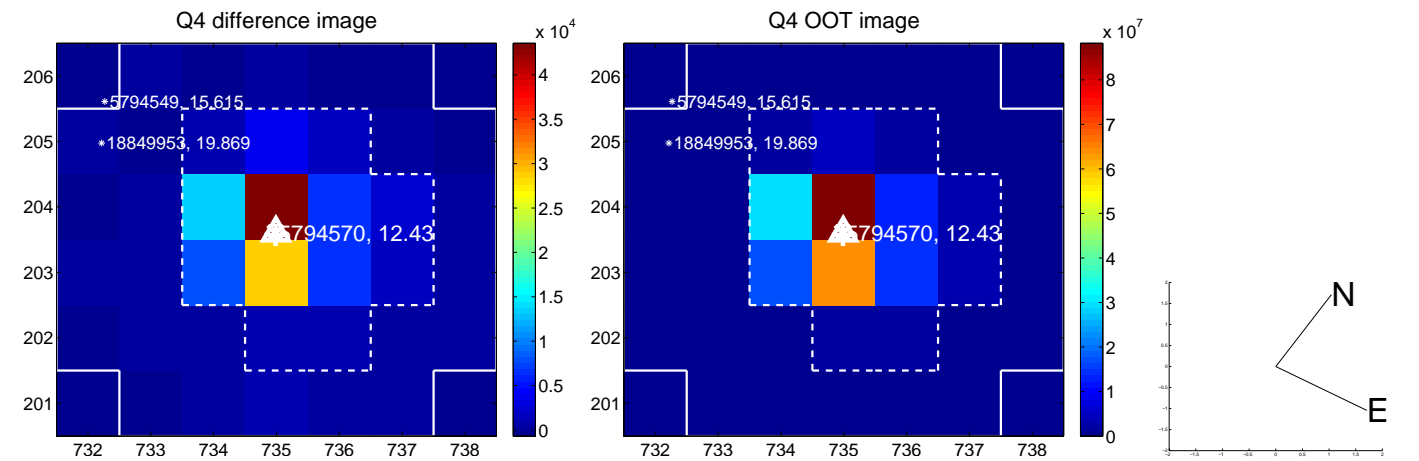
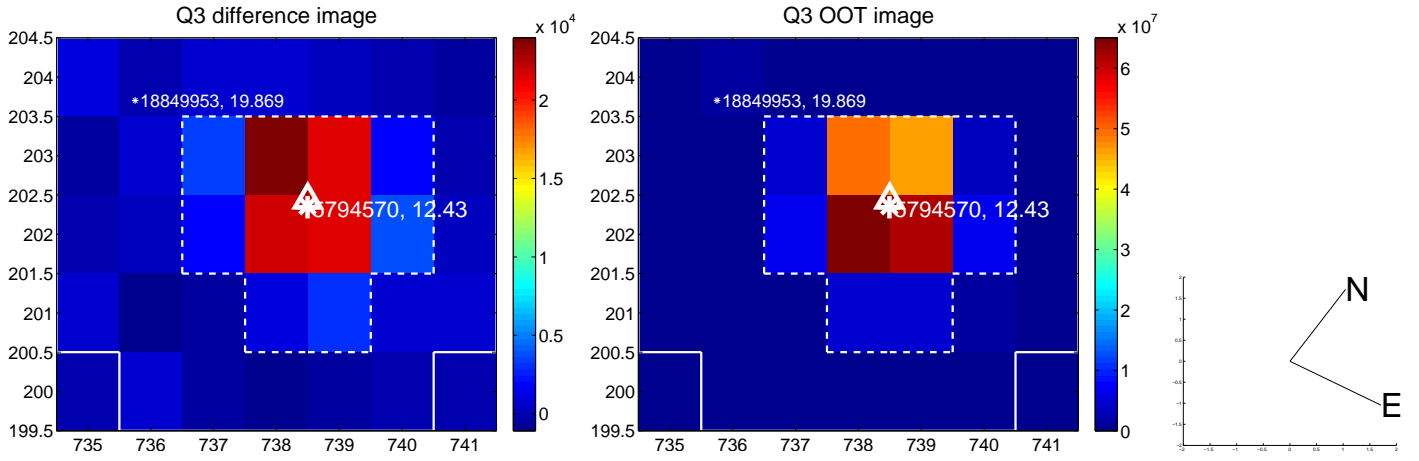
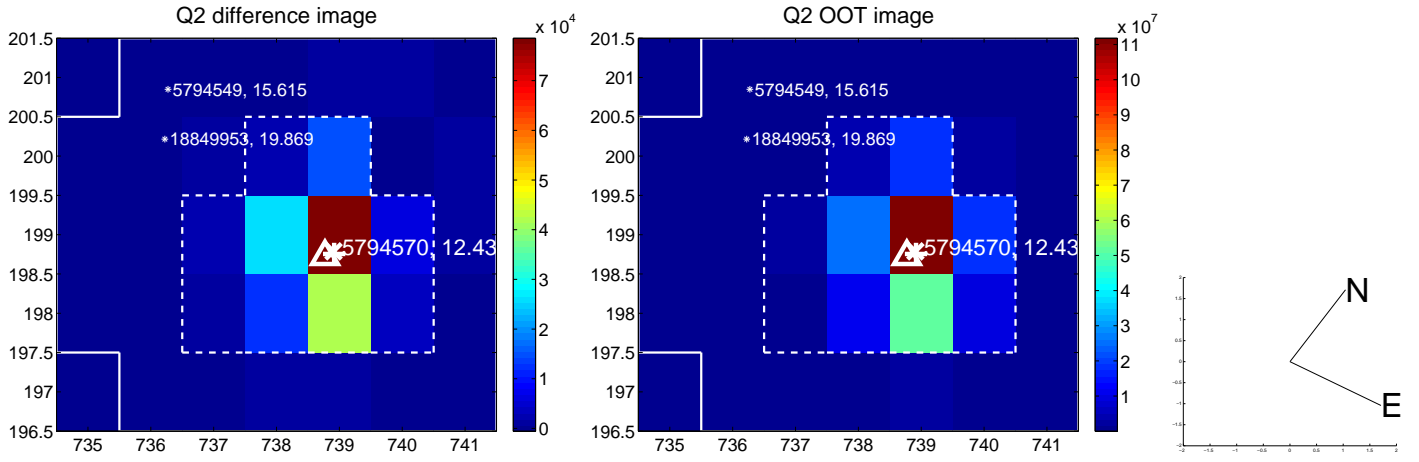
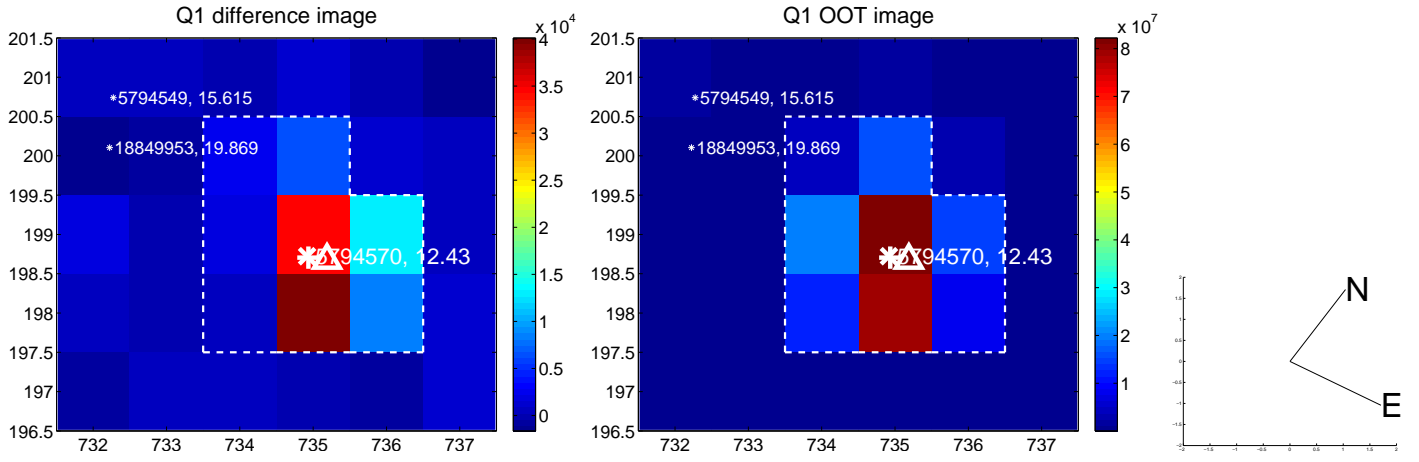
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.035 ± 0.125 | 0.28 | -0.034 ± 0.124 | 0.004 ± 0.108 |
| PRF-fit source offset from KIC position | 0.072 ± 0.121 | 0.59 | 0.049 ± 0.126 | -0.052 ± 0.105 |
| photometric centroid source offset | 0.16 ± 0.07 | 2.28 | 0.11 ± 0.07 | 0.11 ± 0.06 |

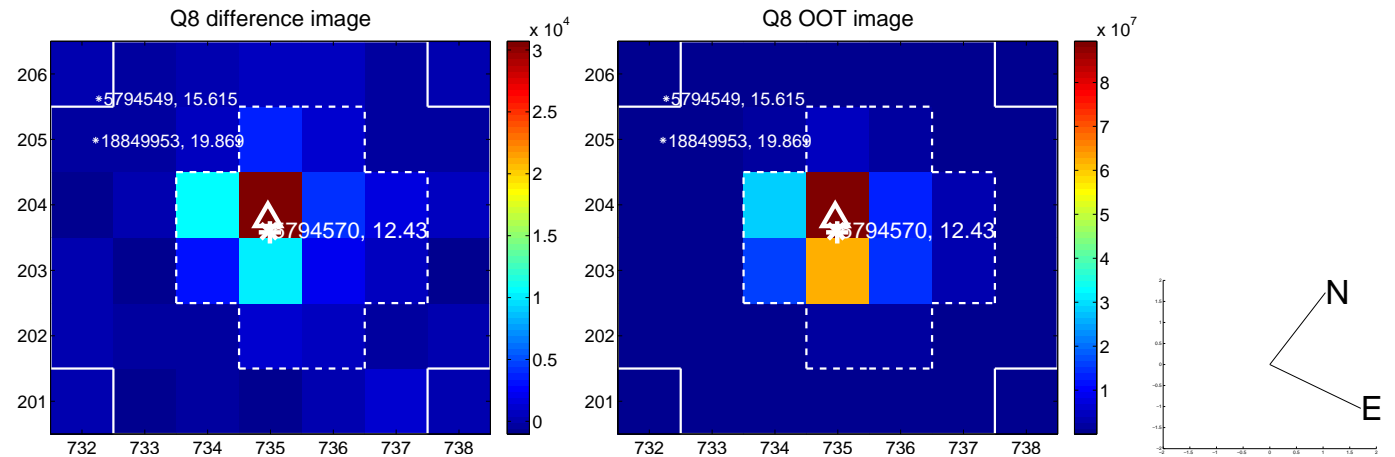
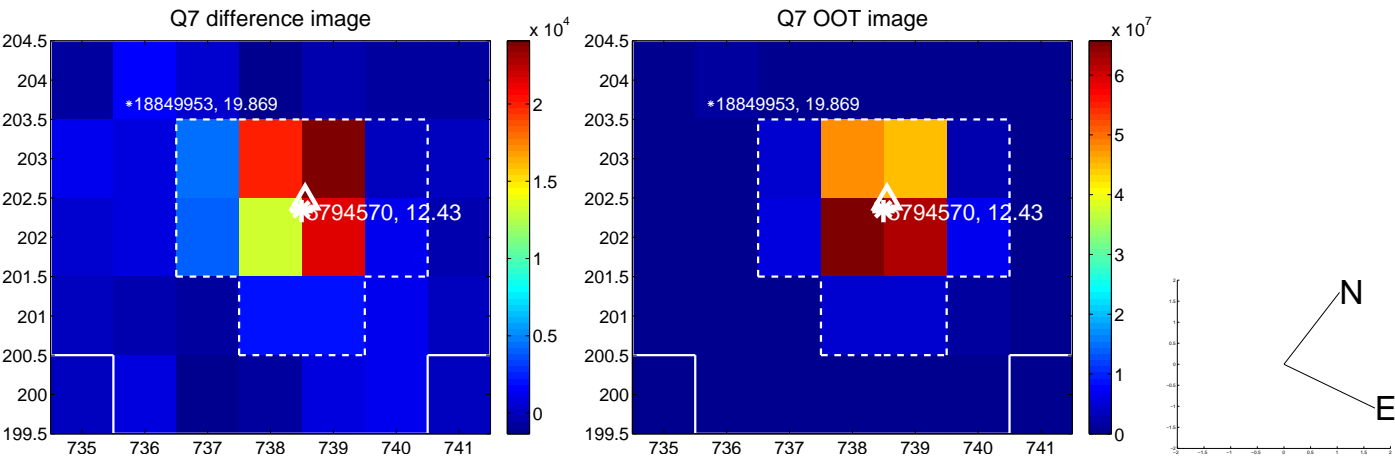
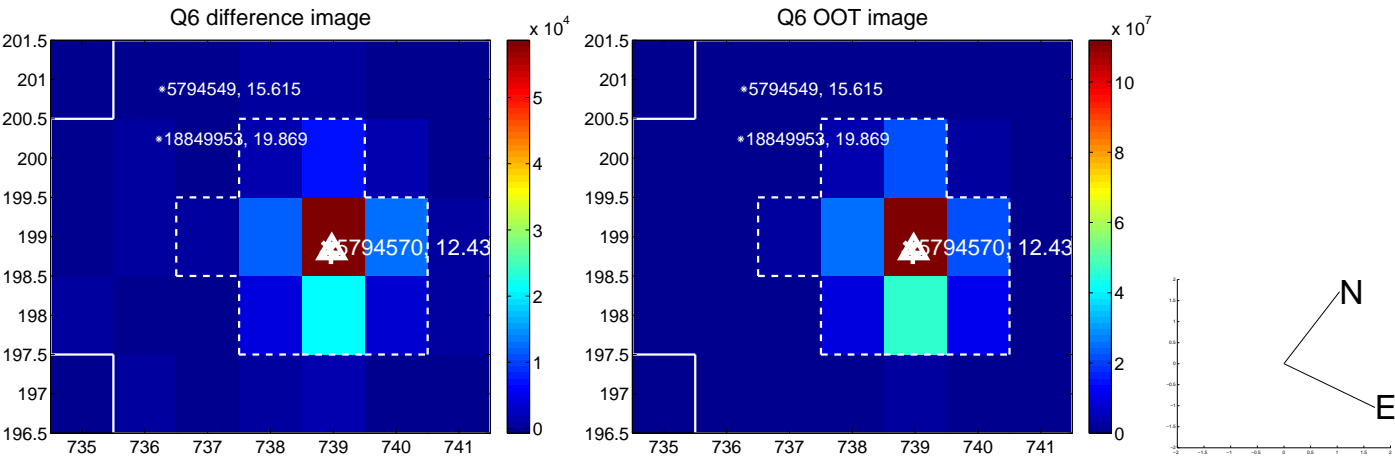
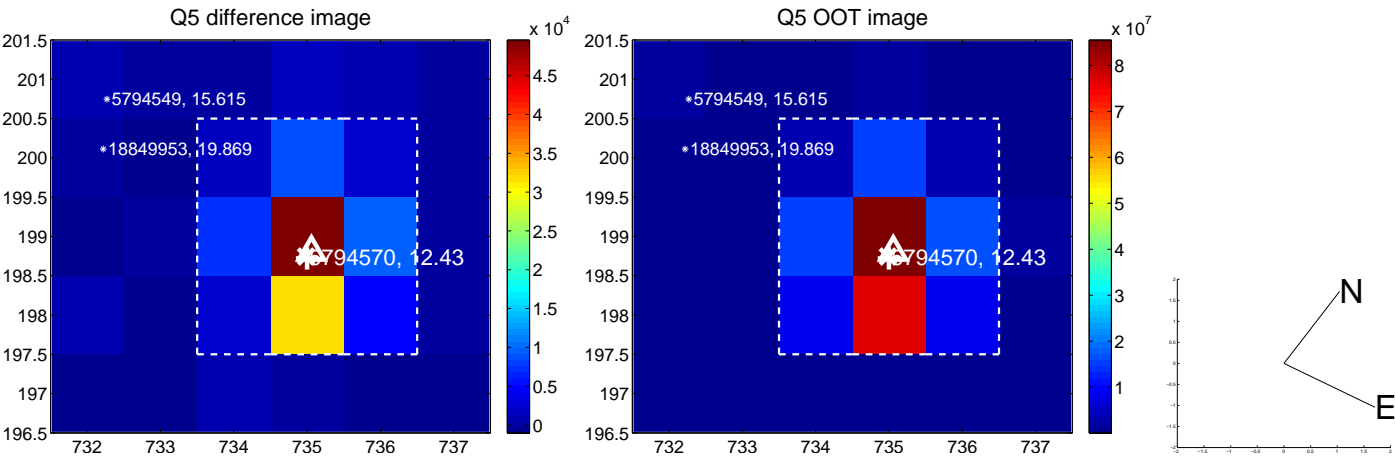


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

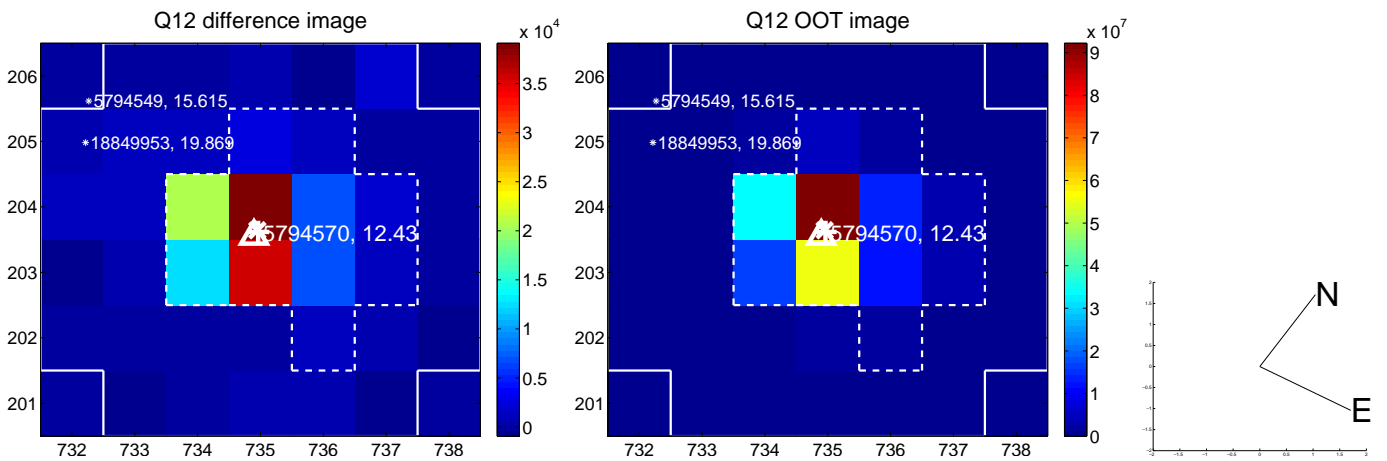
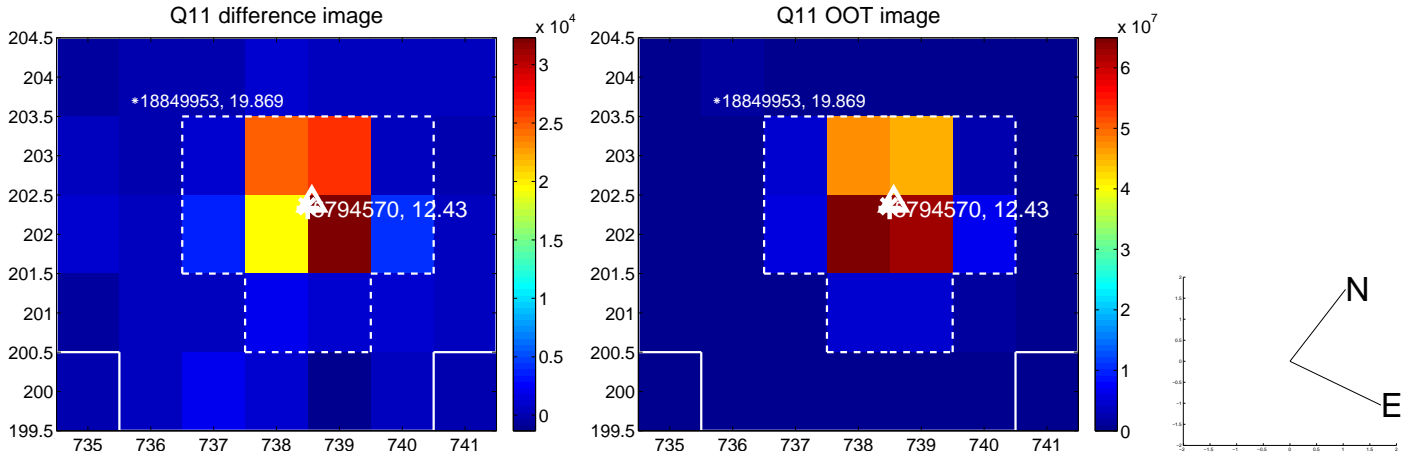
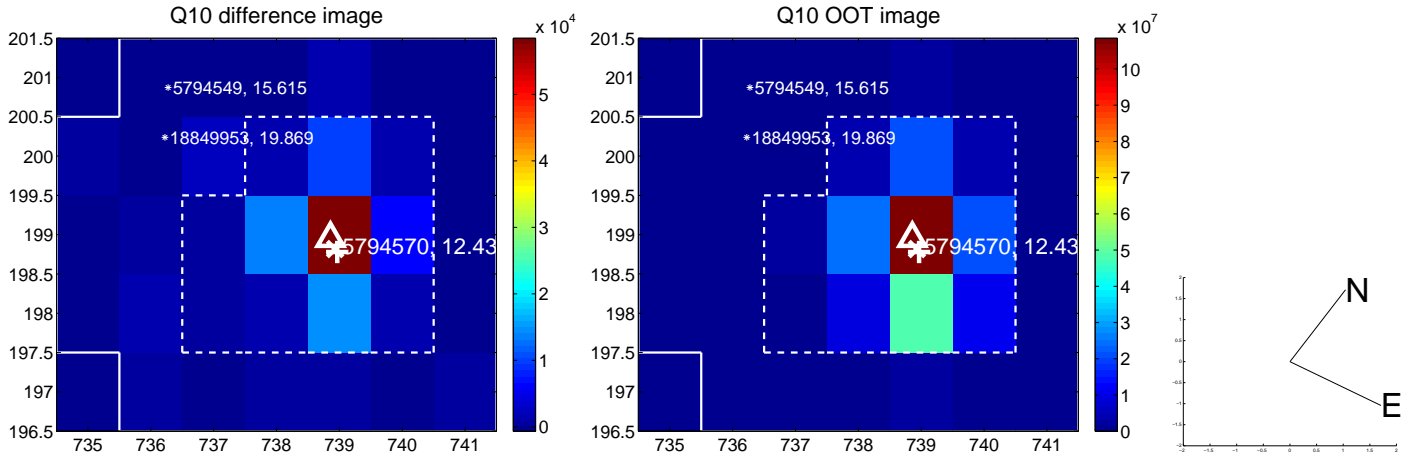
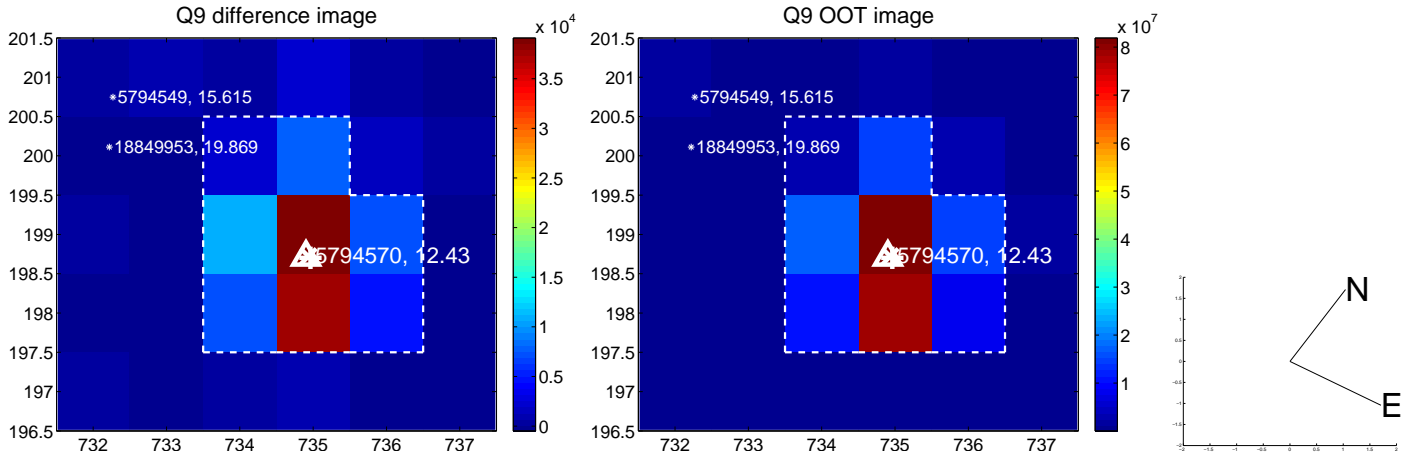
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



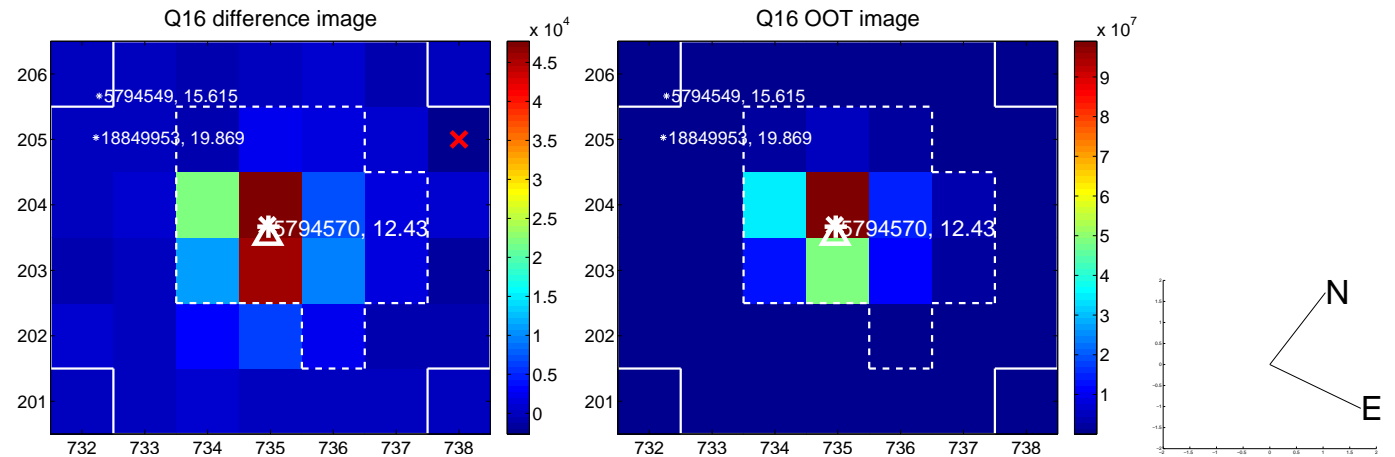
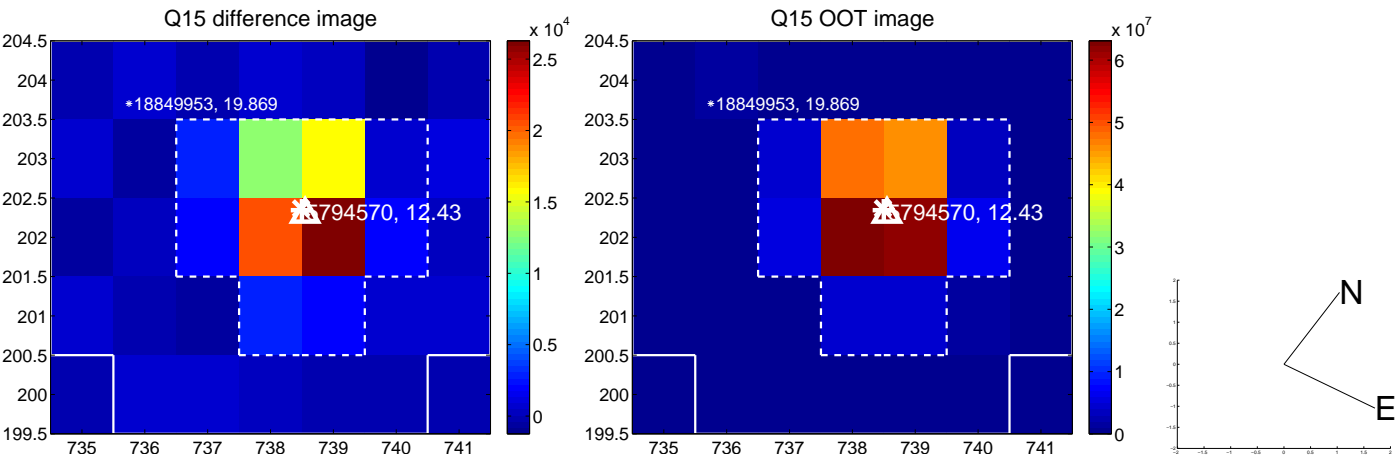
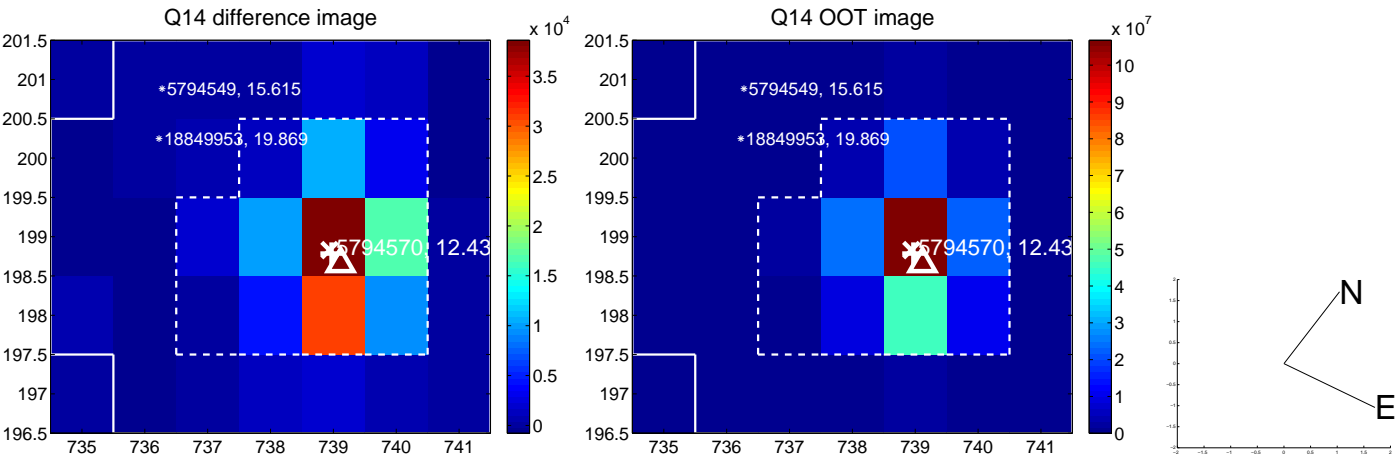
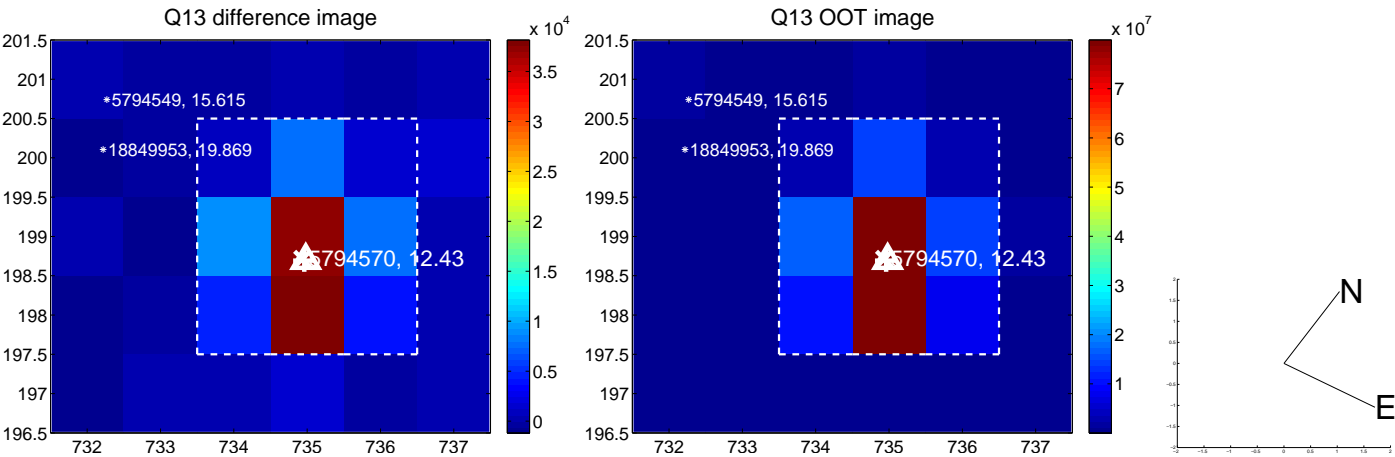
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

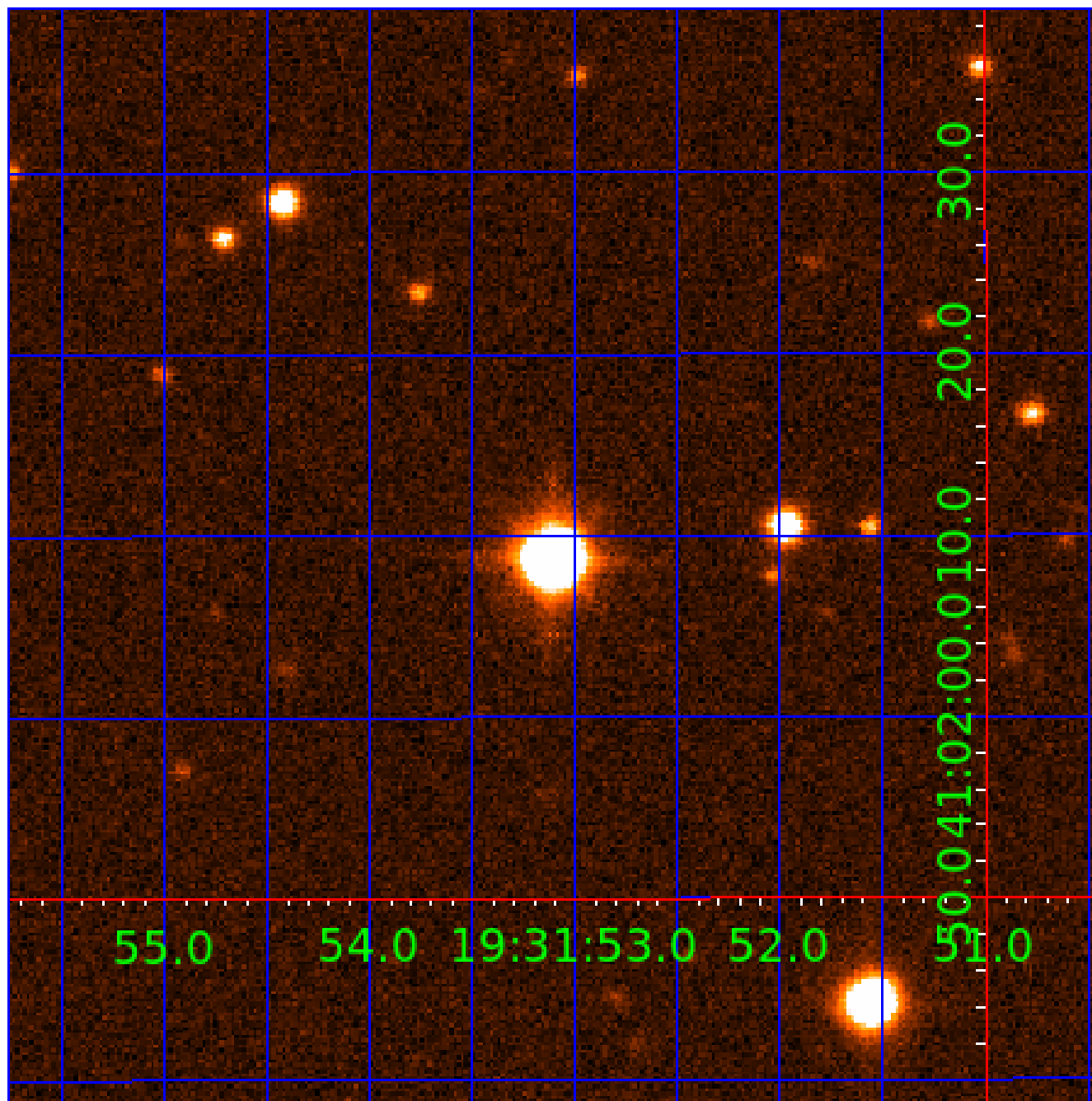


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005794570

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005794570-01 | OBS | 2675.01 | 5.448316 | 132.491240 | 539.9 | 2.390 | 93.6 | 98.7 | 0.91 | 5721 | 2.47 | 216.54 |
| 005794570-02 | OBS | 2675.02 | 1.116124 | 131.850420 | 88.9 | 1.495 | 34.7 | 35.3 | 0.91 | 5721 | 1.02 | 1793.07 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------|
| 005794570-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 005794570-02 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |

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

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

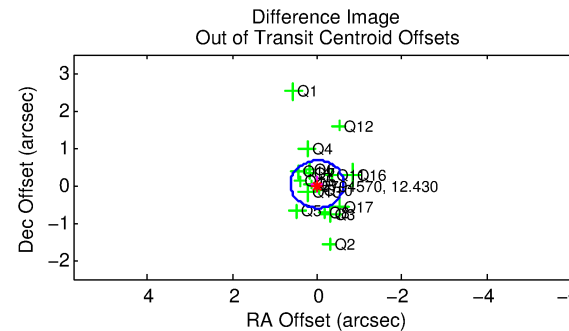
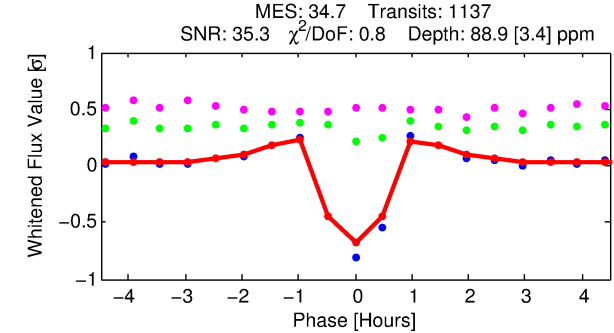
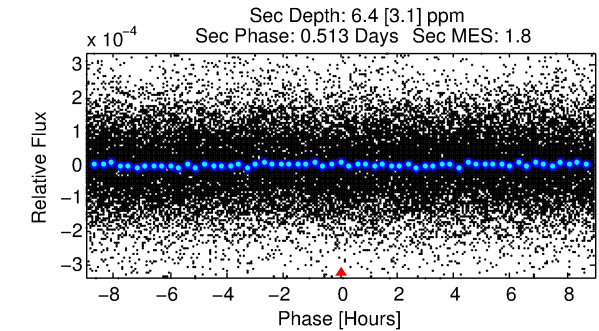
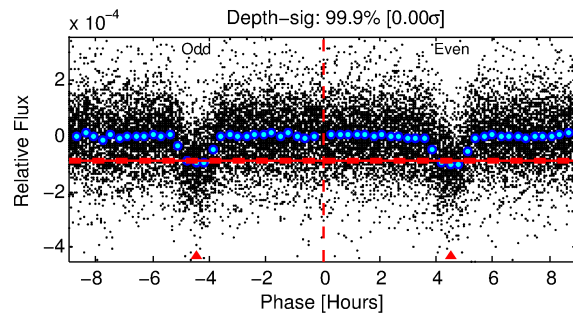
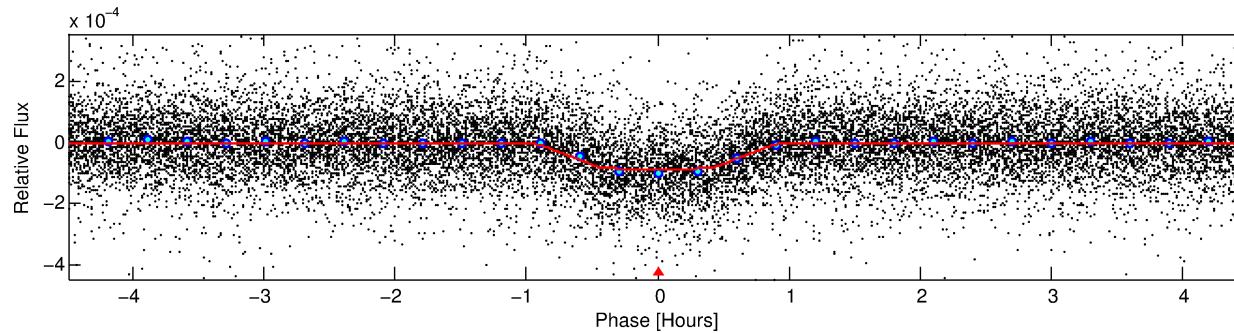
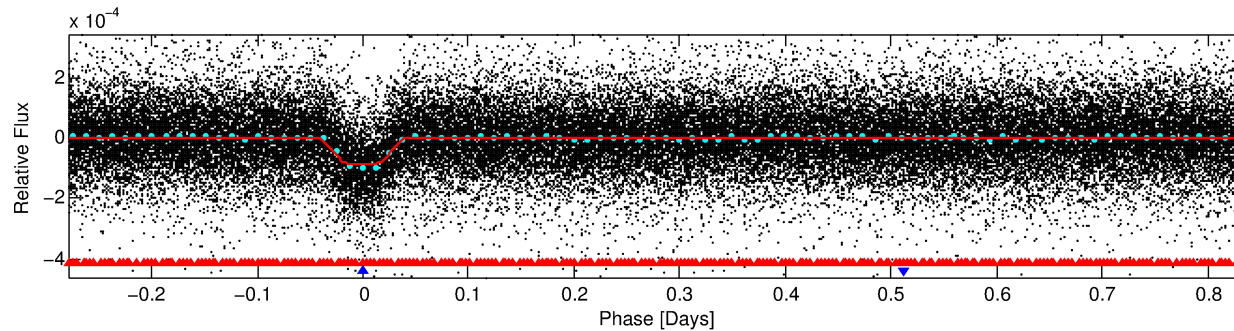
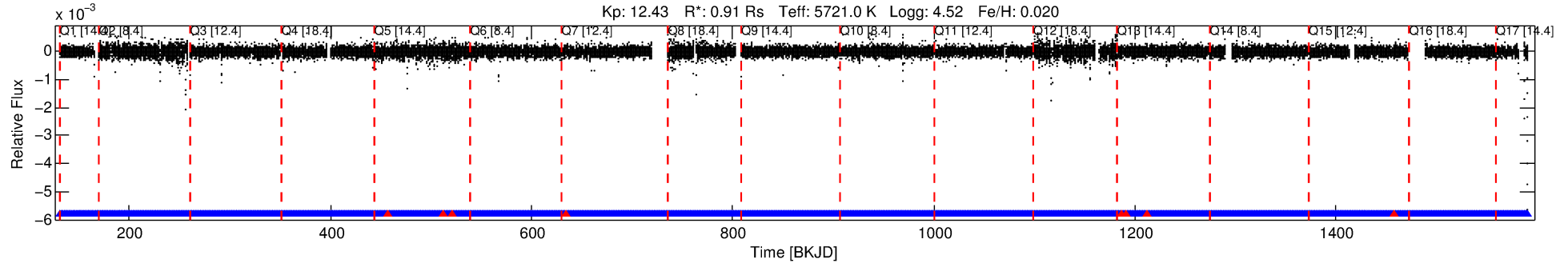
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005794570-02

No Significant Match Found

DV One-Page Summary

KIC: 5794570 Candidate: 2 of 2 Period: 1.116 d
KOI: K02675.02 Corr: 0.953



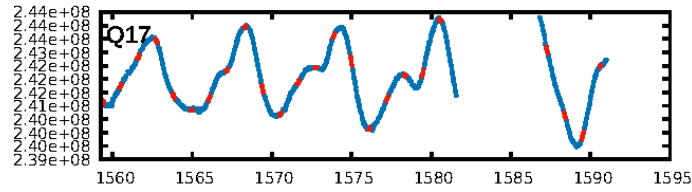
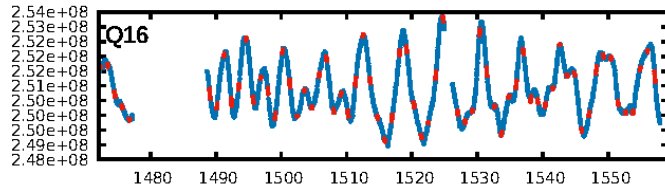
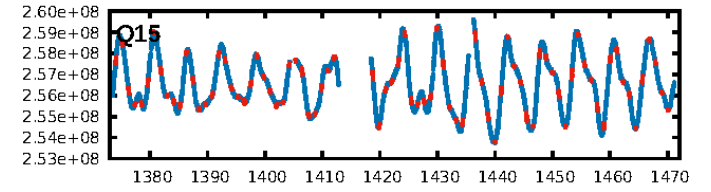
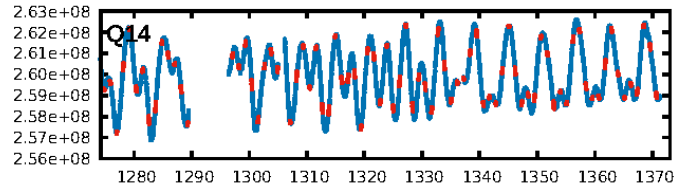
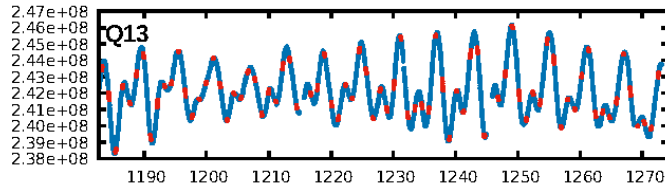
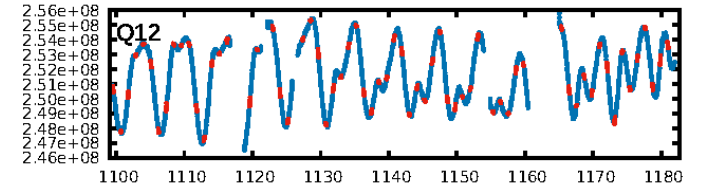
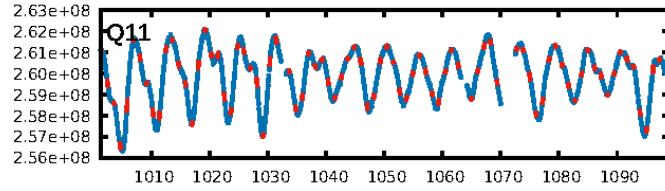
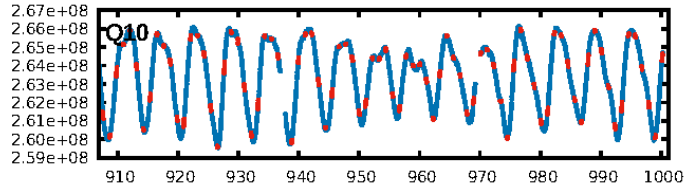
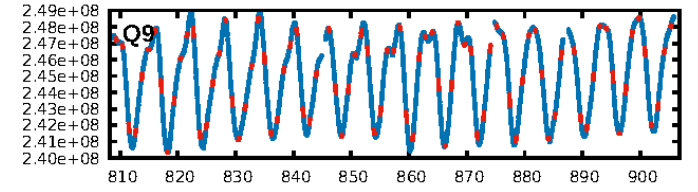
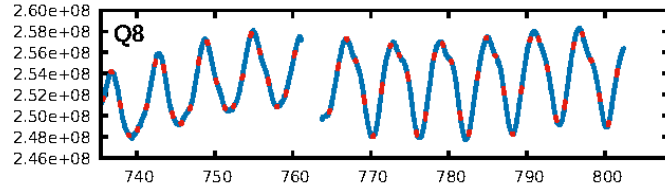
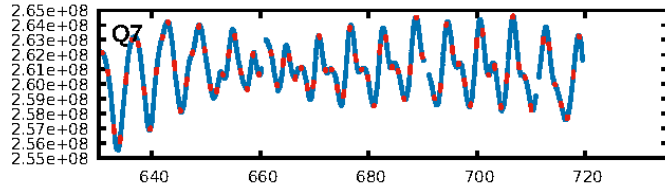
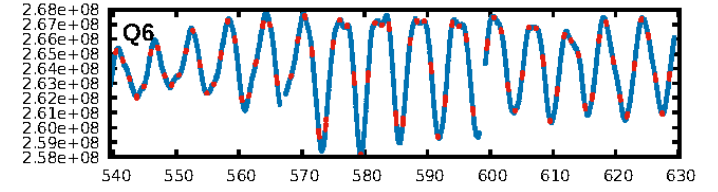
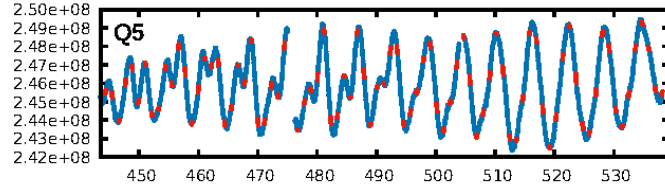
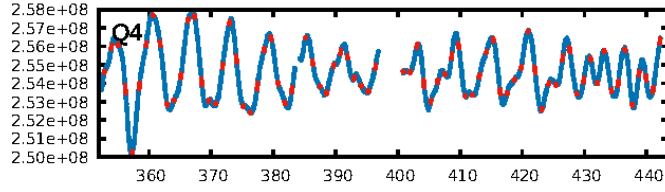
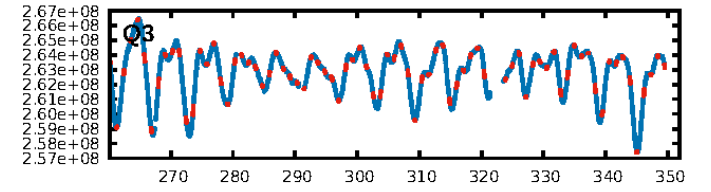
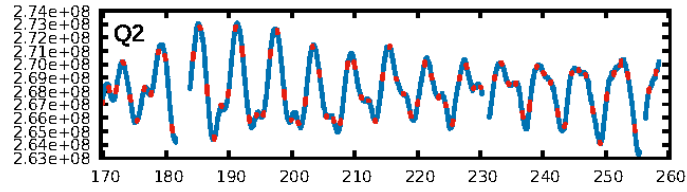
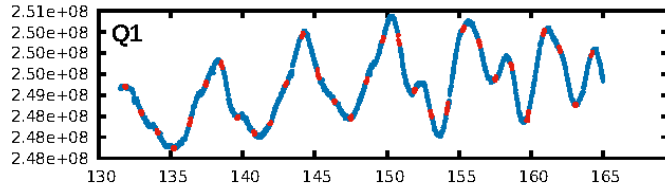
DV Fit Results:

Period = 1.11612 [0.00000] d
Epoch = 131.8504 [0.0005] BKJD
Rp/R* = 0.0103 [0.0015]
a/R* = 2.78 [1.68]
b = 0.90 [0.15]
Seff = 1793.07 [384.87]
Teff = 1659 [89] K
Rp = 1.02 [0.21] Re
a = 0.0209 [0.0027] AU
Ag = 1.49 [0.88] [0.55 σ]
Teffp = 2832 [403] K [2.85 σ]

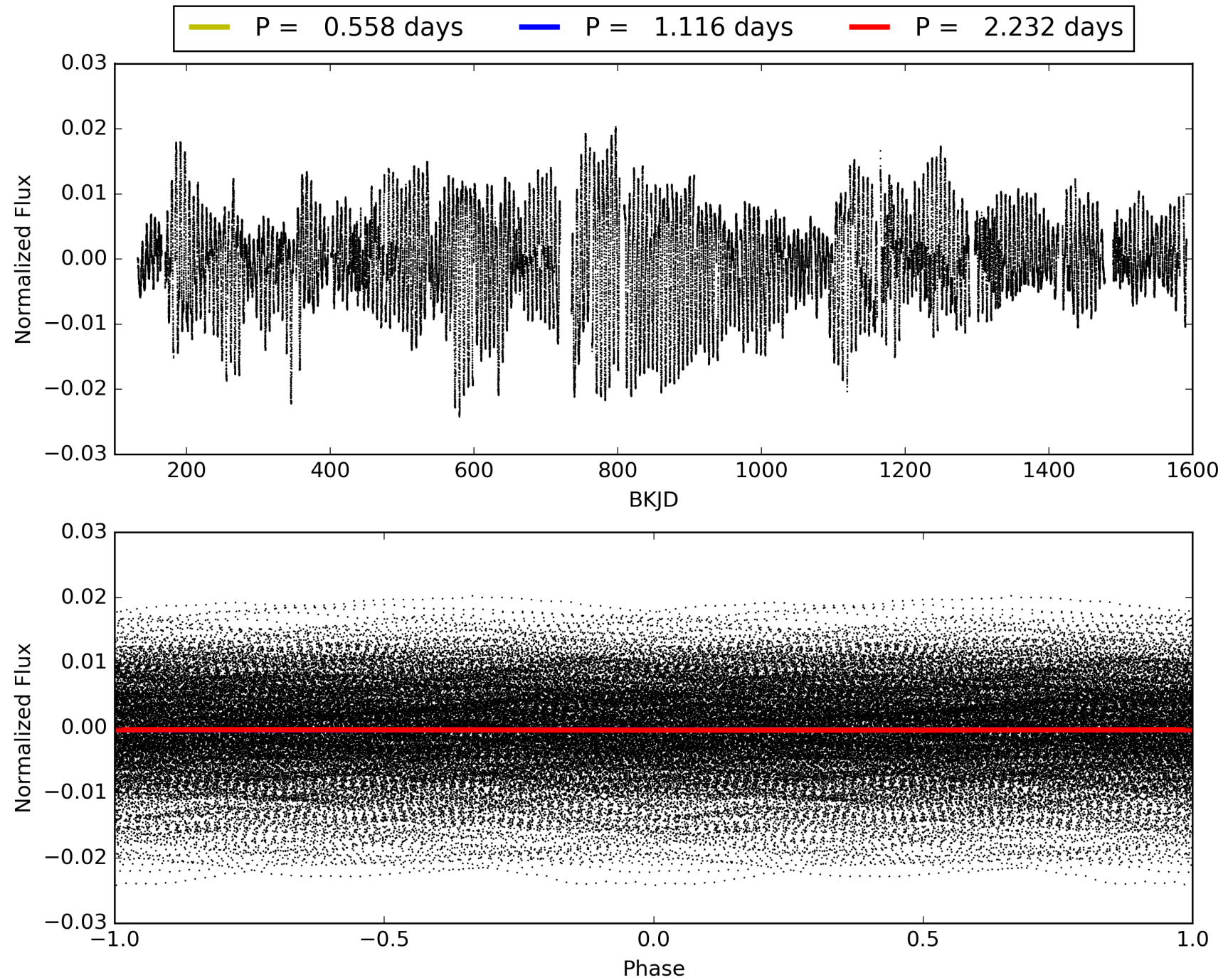
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [36.88 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.44e-232
RollingBand-fgt: 0.99 [1078/1086]
GhostDiagnostic-chr: 3.184
Centroid-sig: N/A
Centroid-so: 0.046 arcsec [0.22 σ]
OotOffset-rm: 0.029 arcsec [0.14 σ]
KicOffset-rm: 0.115 arcsec [0.90 σ]
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]

TCE 005794570-02, PDC Light Curves

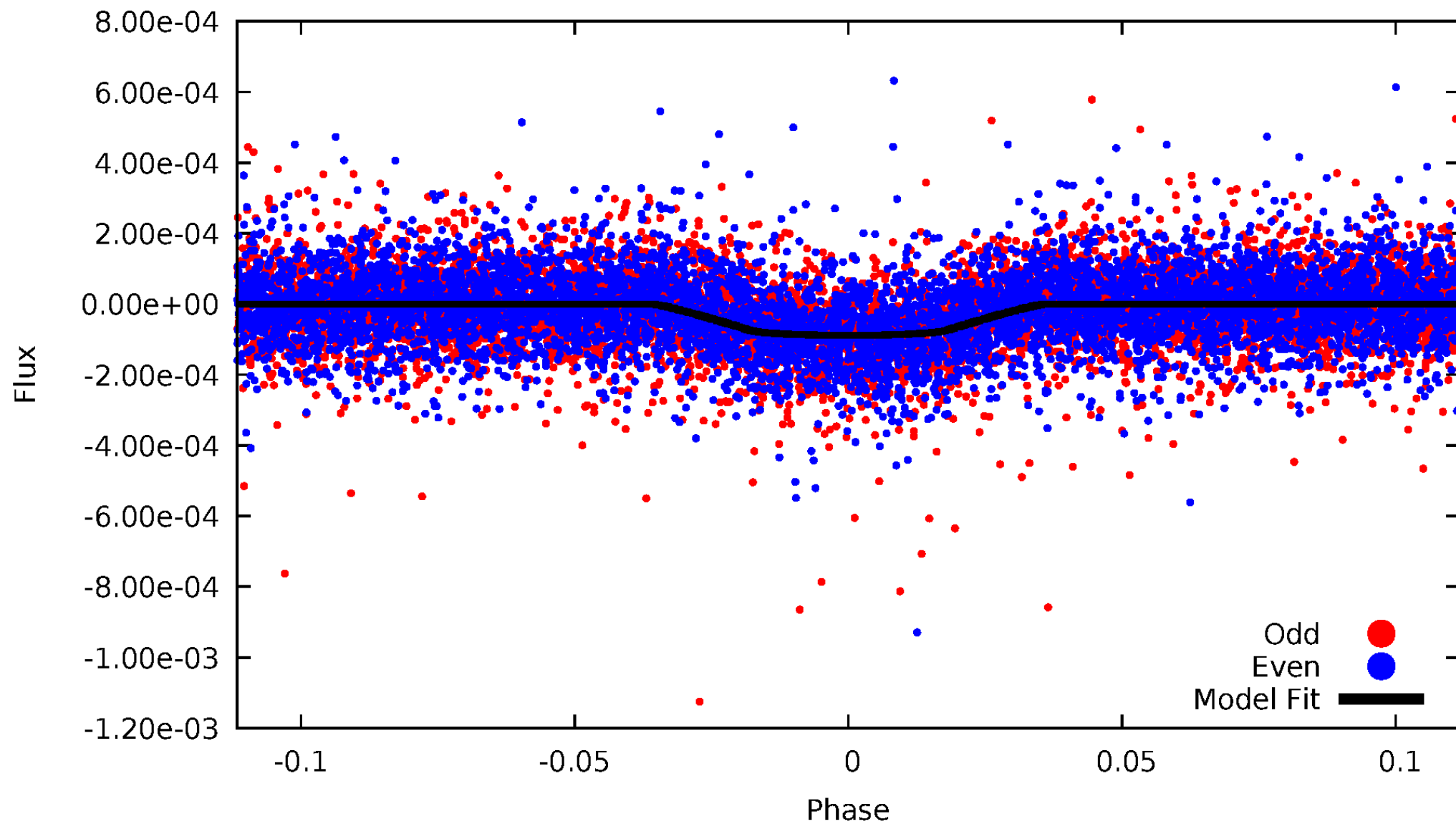


TCE 005794570-02



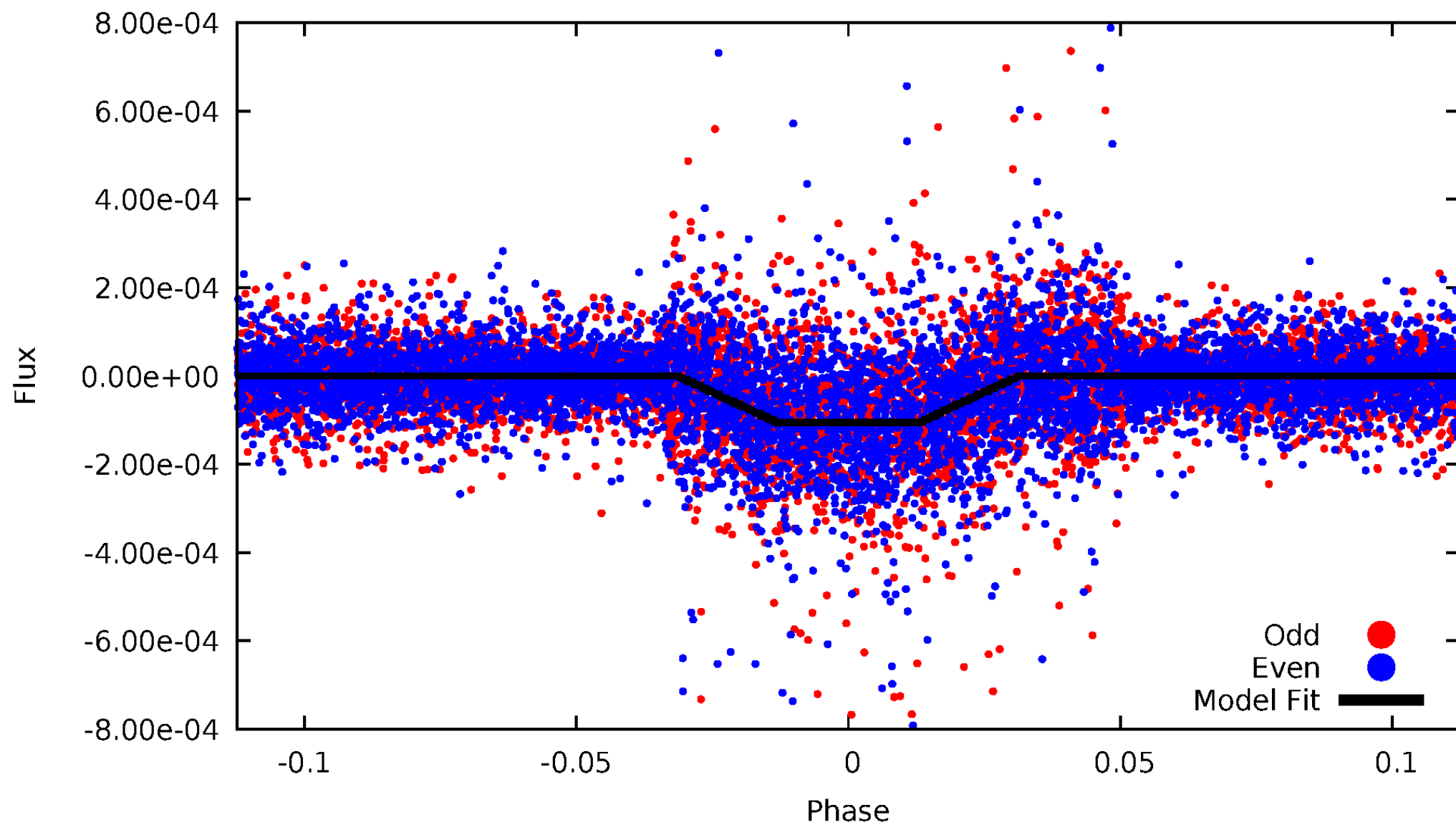
DV Odd/Even

TCE 005794570-02



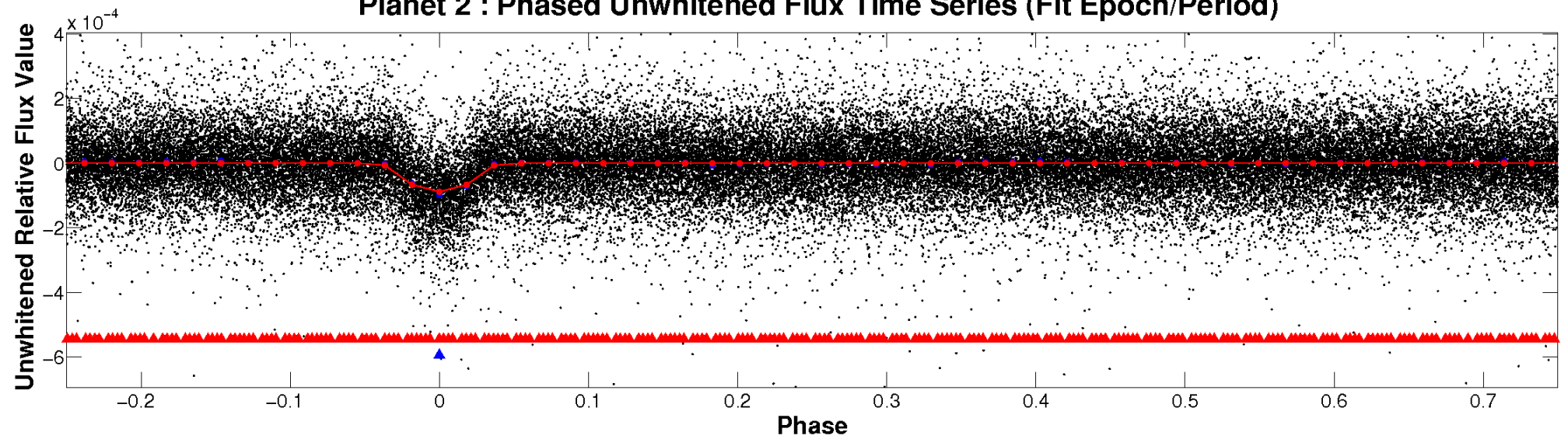
ALT Odd/Even

TCE 005794570-02

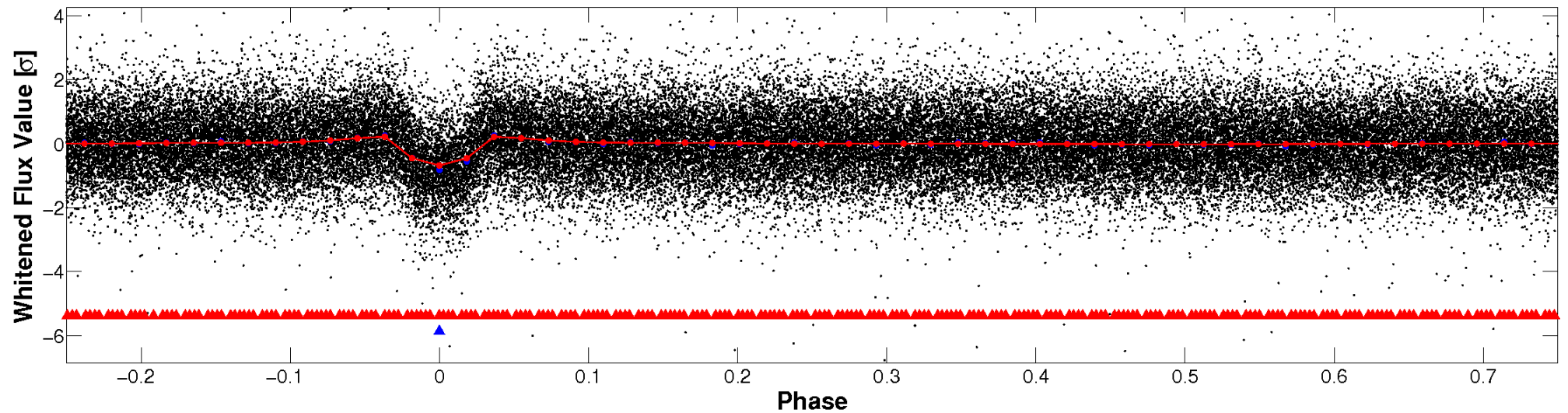


Non-Whitened Vs. Whitened Light Curve

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

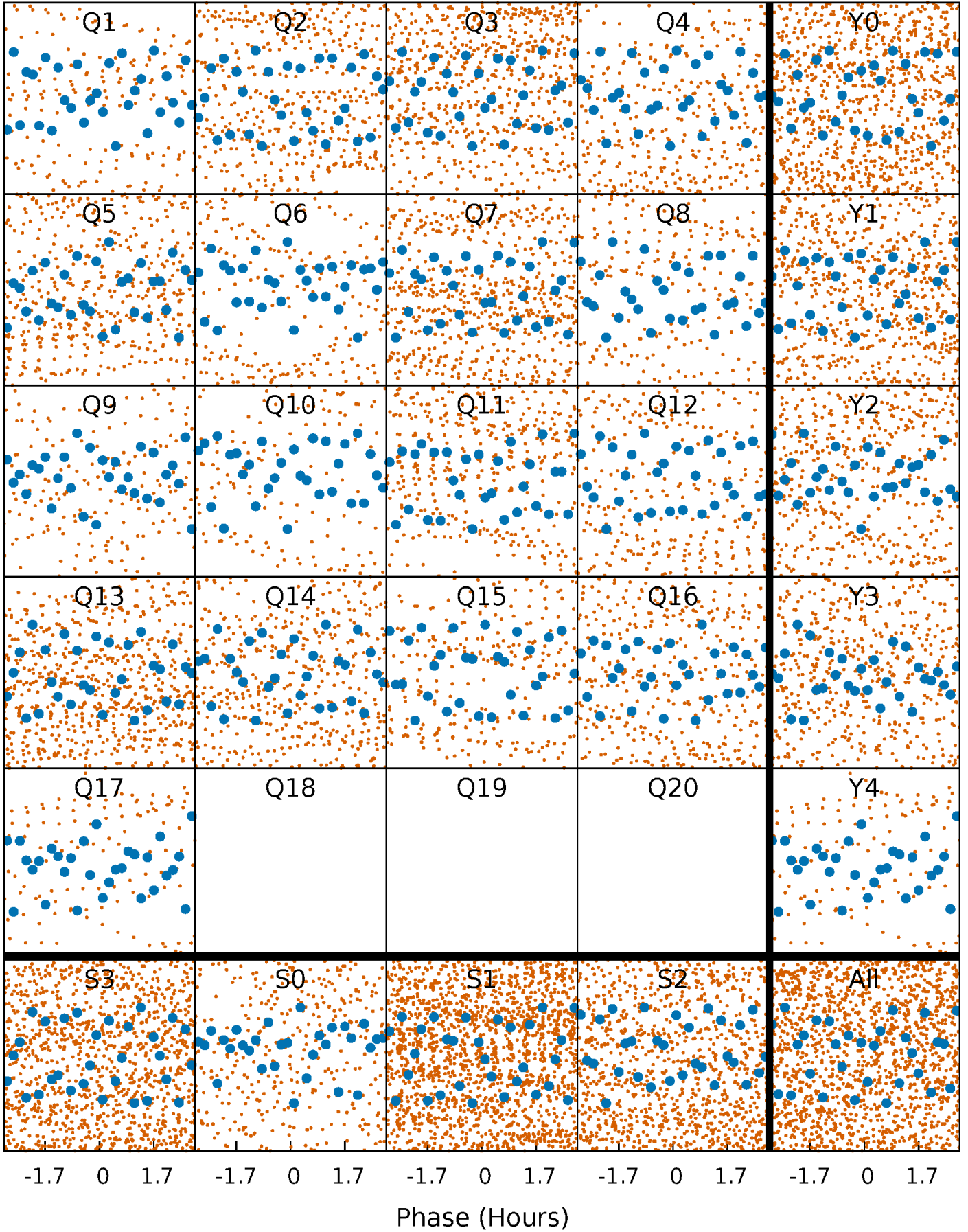


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



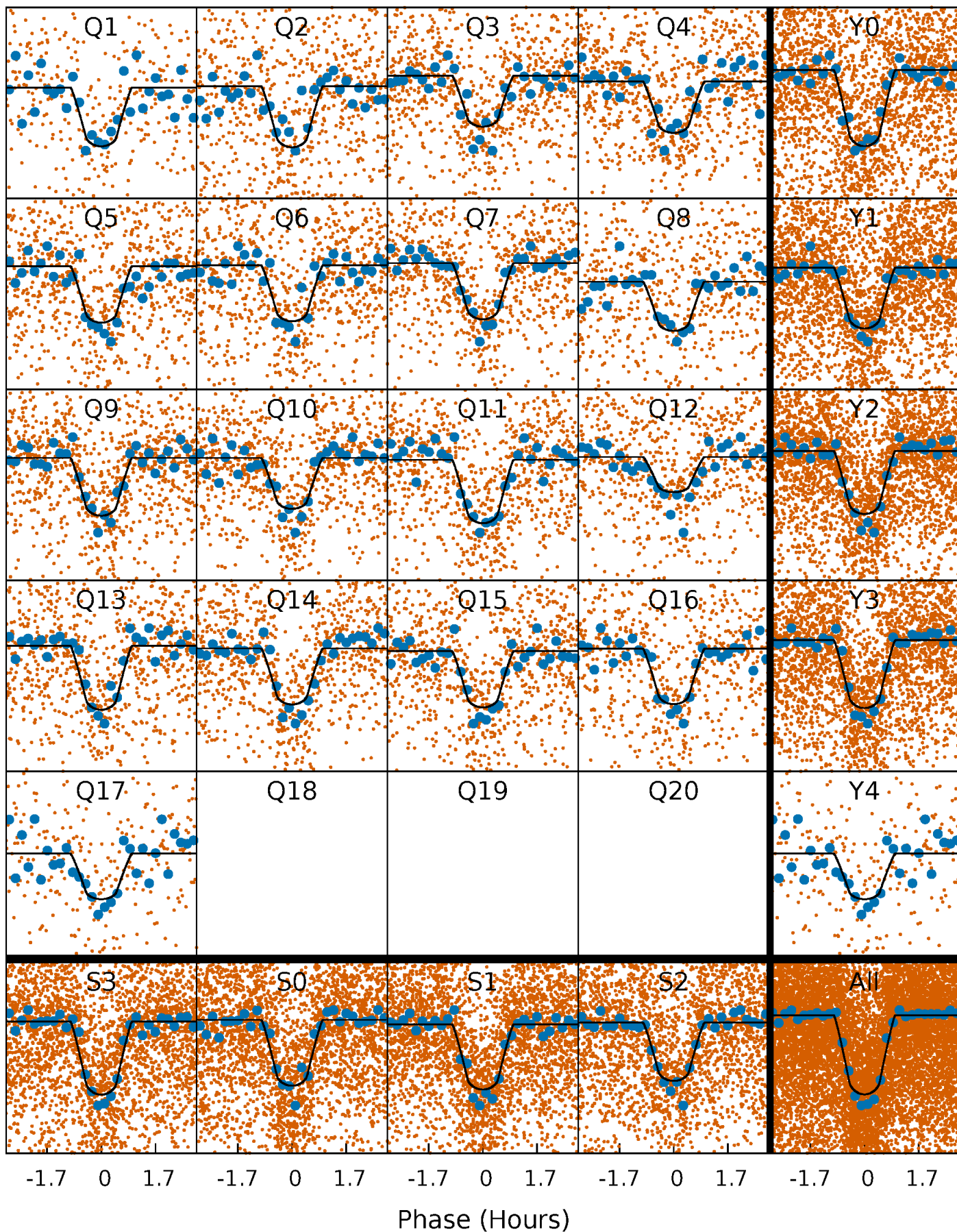
PDC Quarter-Phased Transit Curves

TCE 005794570-02 $P = 1.116124$ Days $T_0 = 131.850420$ (BKJD)



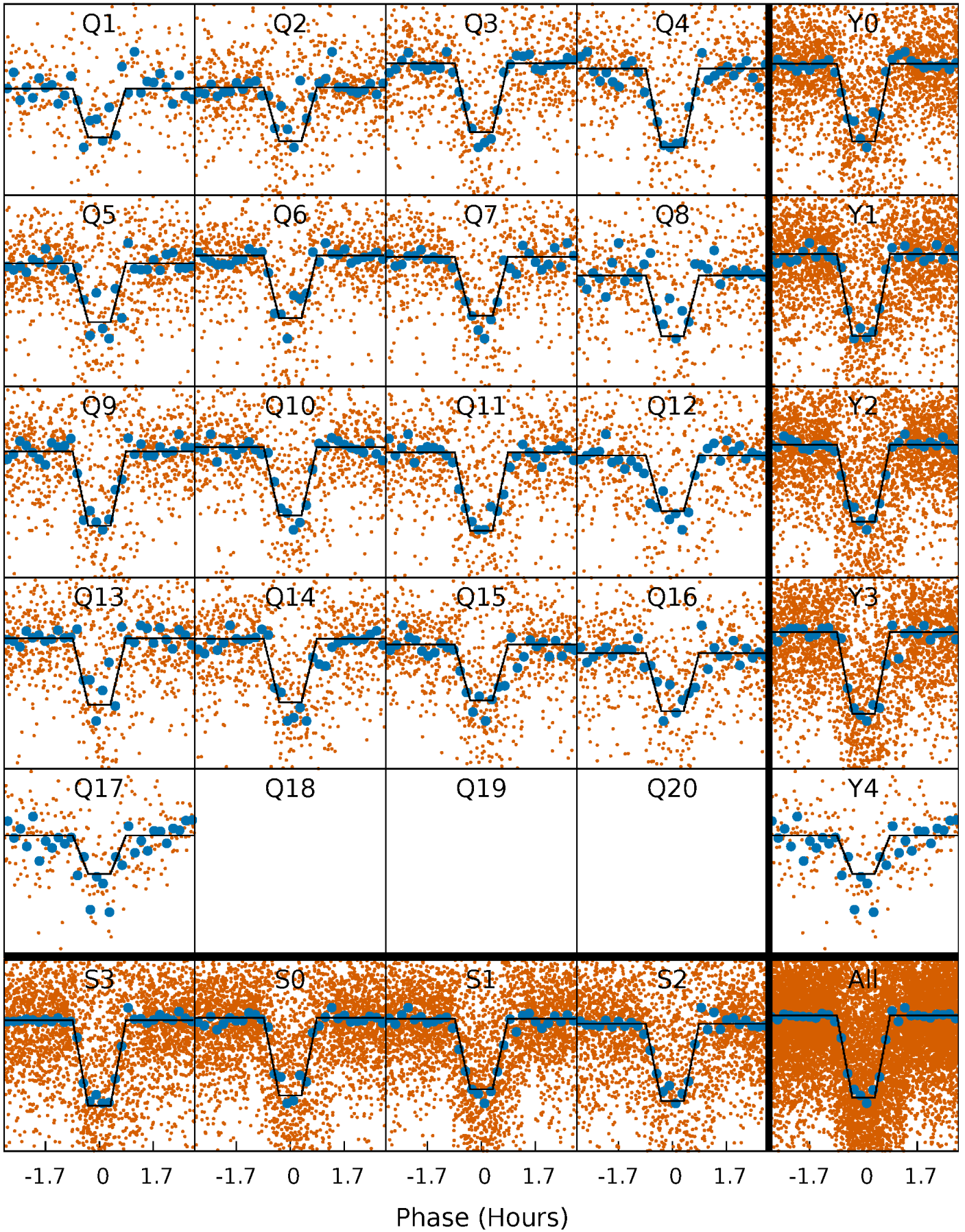
DV Quarter-Phased Transit Curves

TCE 005794570-02 P= 1.116124 Days $T_0=131.850420$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

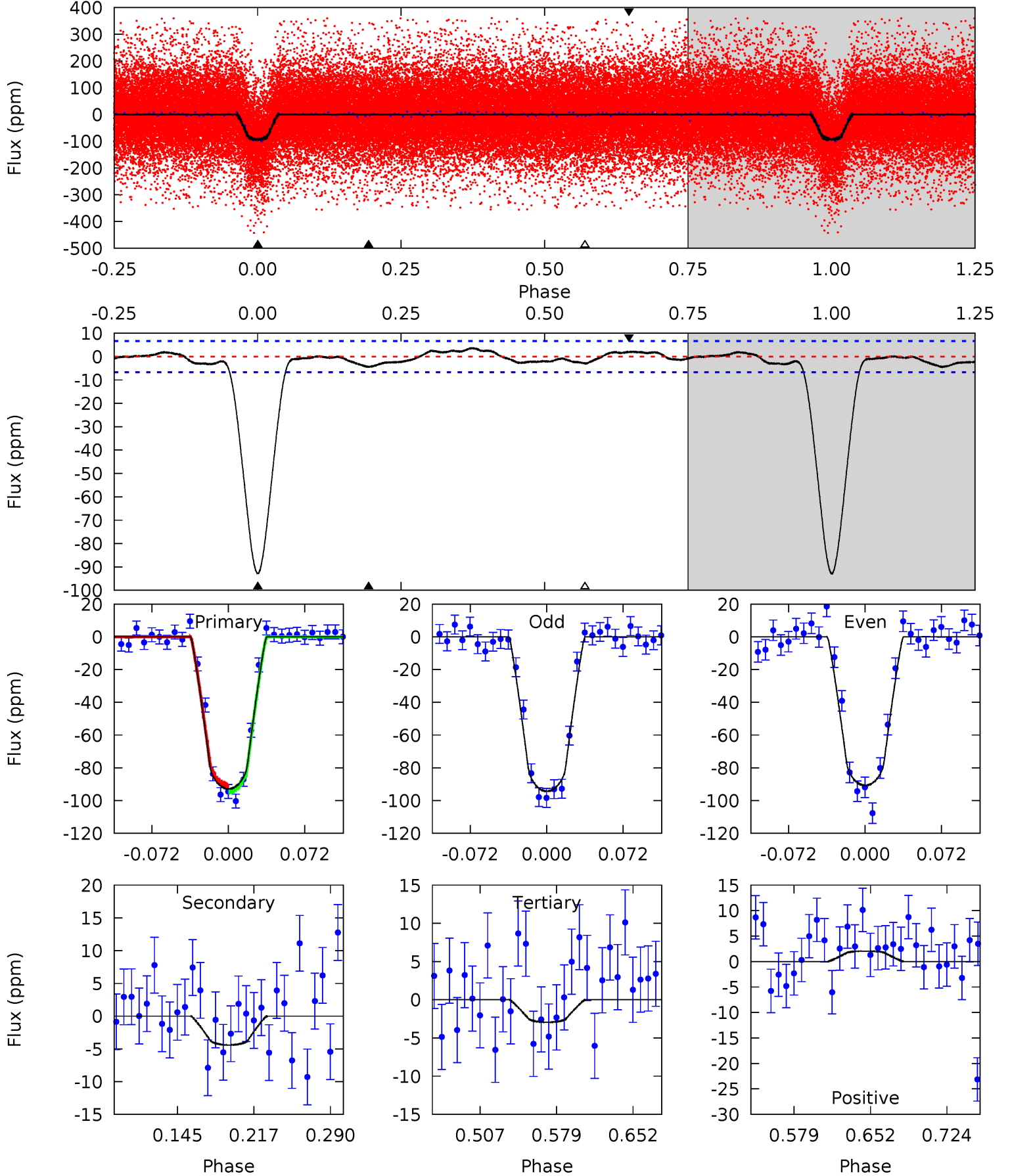
TCE 005794570-02 P= 1.116125 Days $T_0=131.850444$ (BKJD)



DV Model-Shift Uniqueness Test

005794570-02, P = 1.116124 Days, E = 130.734296 Days

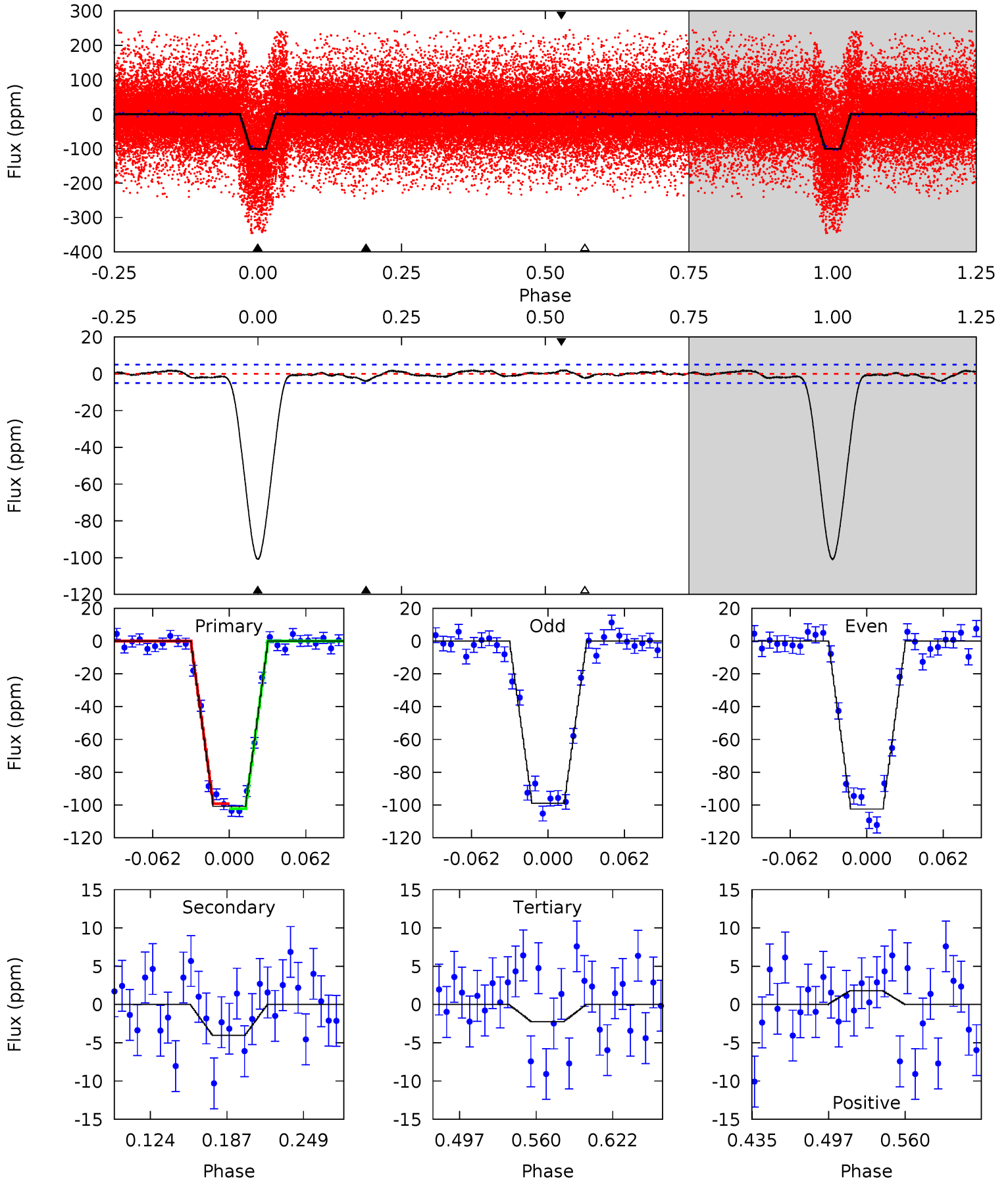
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 64.6 | 3.06 | 2.05 | 1.42 | 4.63 | 1.80 | 1.25 | 62.6 | 63.2 | 1.02 | 1.64 | 1.24 | 1.00 | 0.04 | 1.27 |



Alt Model-Shift Uniqueness Test

005794570-02, P = 1.116125 Days, E = 130.734319 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 93.3 | 3.74 | 2.08 | 1.67 | 4.66 | 1.86 | 0.96 | 91.2 | 91.7 | 1.65 | 2.06 | 1.65 | 1.05 | 0.02 | 1.41 |



Stellar Parameters For KIC 005794570

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------------------|
| | 5721^{+103}_{-126} | $4.517^{+0.028}_{-0.112}$ | $0.020^{+0.150}_{-0.150}$ | $0.905^{+0.127}_{-0.045}$ | $0.983^{+0.056}_{-0.070}$ | $1.868^{+0.253}_{-0.593}$ |
| | +2%/-2% | +1%/-2% | +750%/-750% | +14%/-5% | +6%/-7% | +14%/-32% |
| Source | SPE59 | SPE59 | SPE59 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005794570-02 / KOI 2675.02

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|--------------------|----------------------|---------------------------|
| DV | -4 ± 1 | $1.04^{+0.16}_{-0.16}$ | 2346^{+84}_{-68} | 3021^{+257}_{-317} | $0.967^{+0.513}_{-0.370}$ |
| Alt. | -4 ± 1 | $1.04^{+0.18}_{-0.17}$ | 2348^{+78}_{-69} | 2961^{+257}_{-297} | $0.888^{+0.478}_{-0.328}$ |

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 $A_{obs} \gg 1.0$

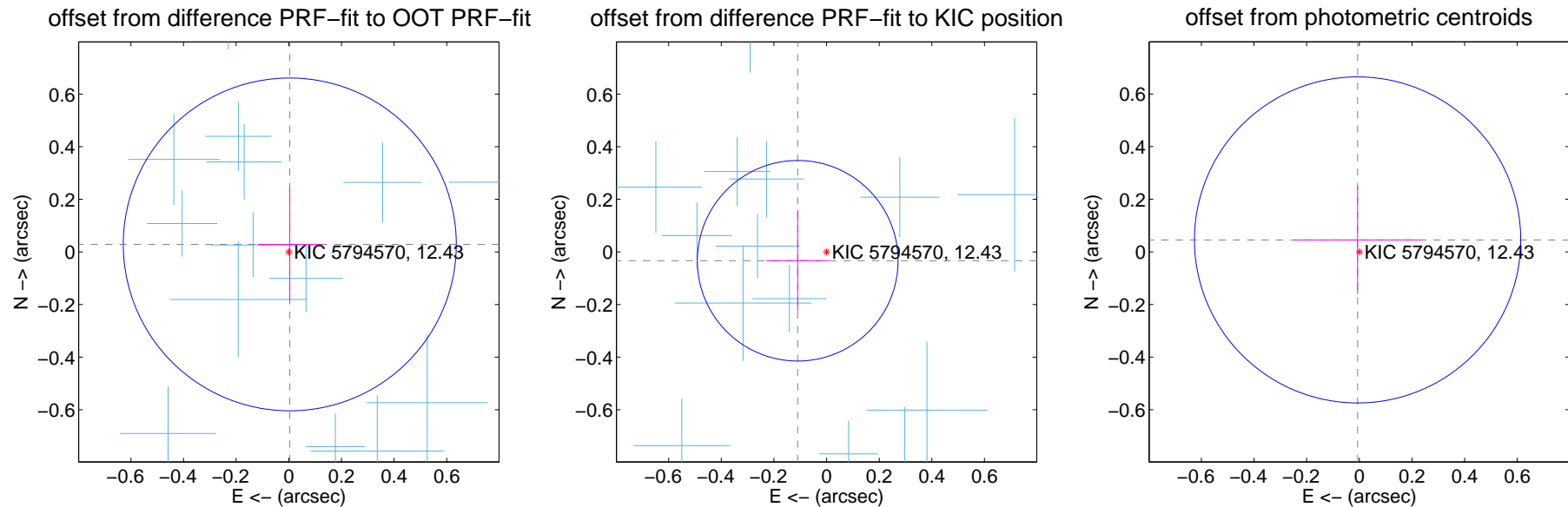
DV Centroid Data

Supplemental centroid analysis for 005794570-02. Kepler magnitude: 12.43. Transit SNR 35.25

There are 17 quarters with good PRF difference image offsets

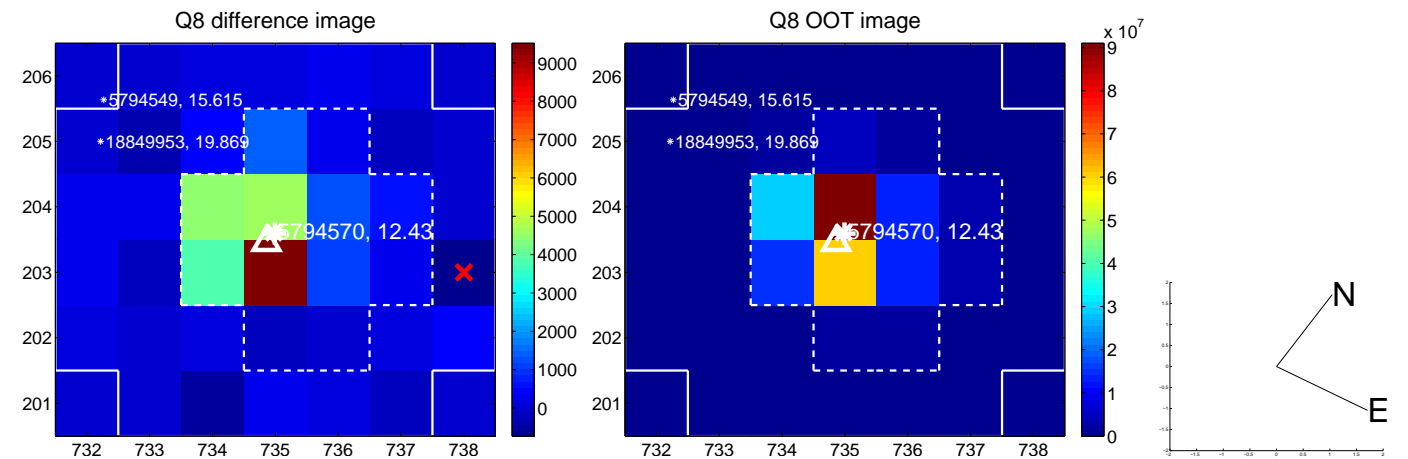
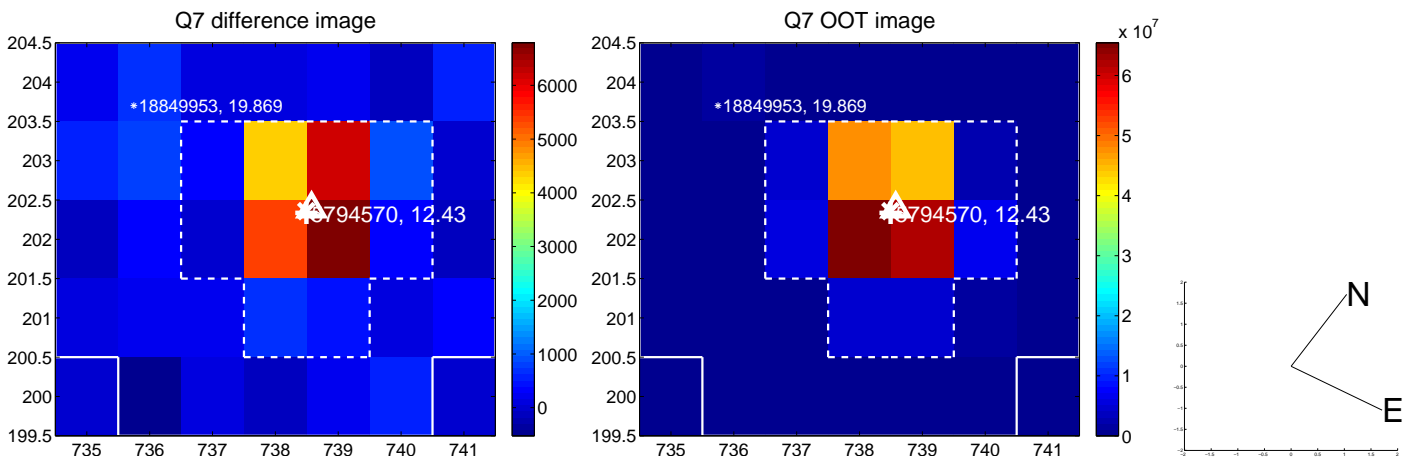
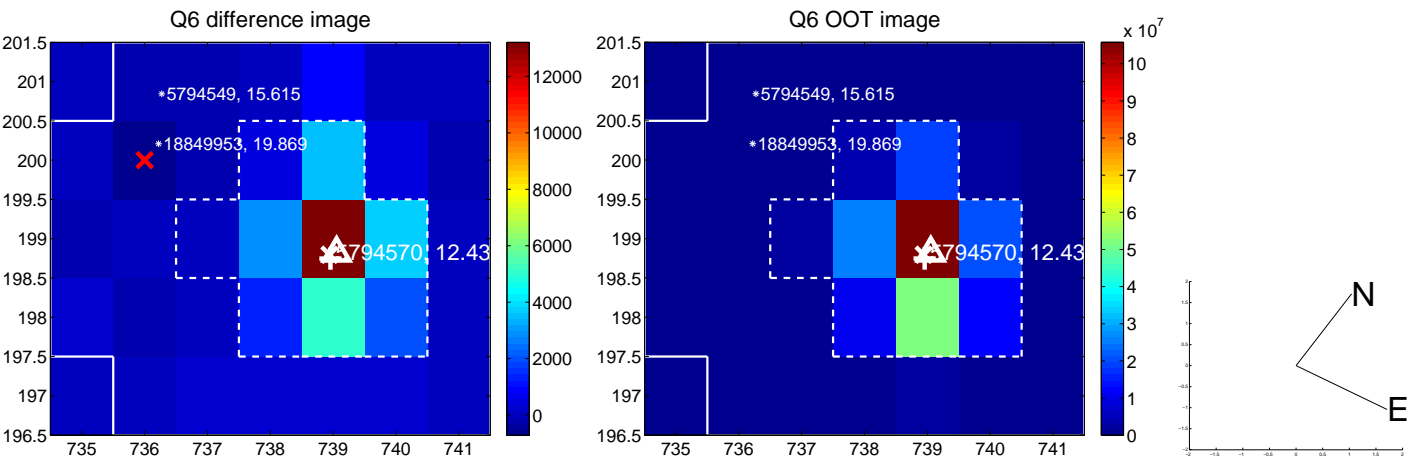
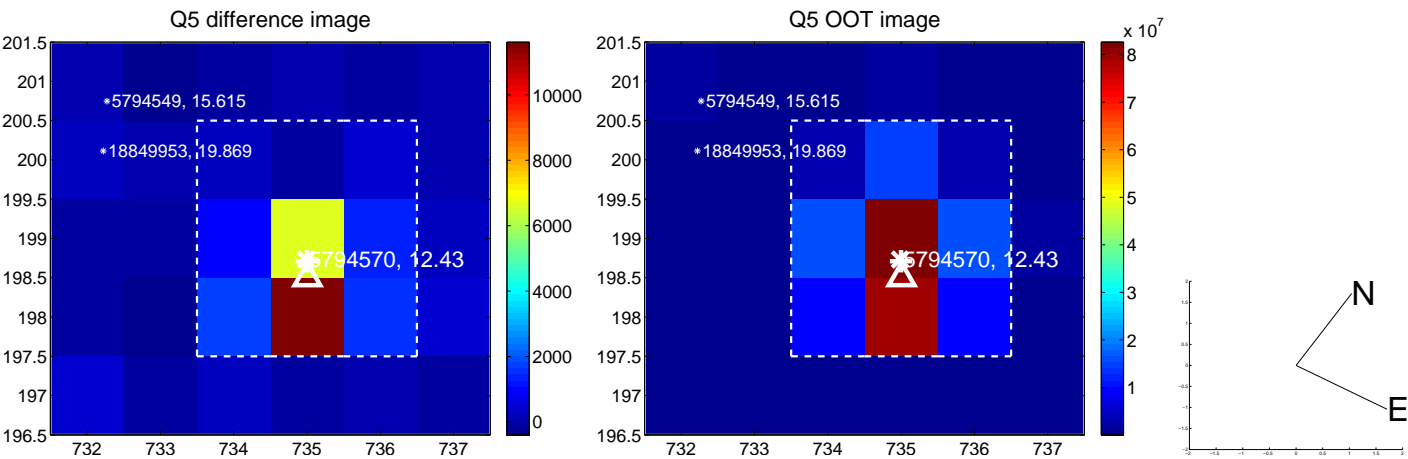
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.029 ± 0.211 | 0.14 | -0.004 ± 0.121 | 0.029 ± 0.215 |
| PRF-fit source offset from KIC position | 0.115 ± 0.127 | 0.90 | 0.110 ± 0.119 | -0.034 ± 0.193 |
| photometric centroid source offset | 0.05 ± 0.21 | 0.22 | 0.01 ± 0.24 | 0.05 ± 0.21 |

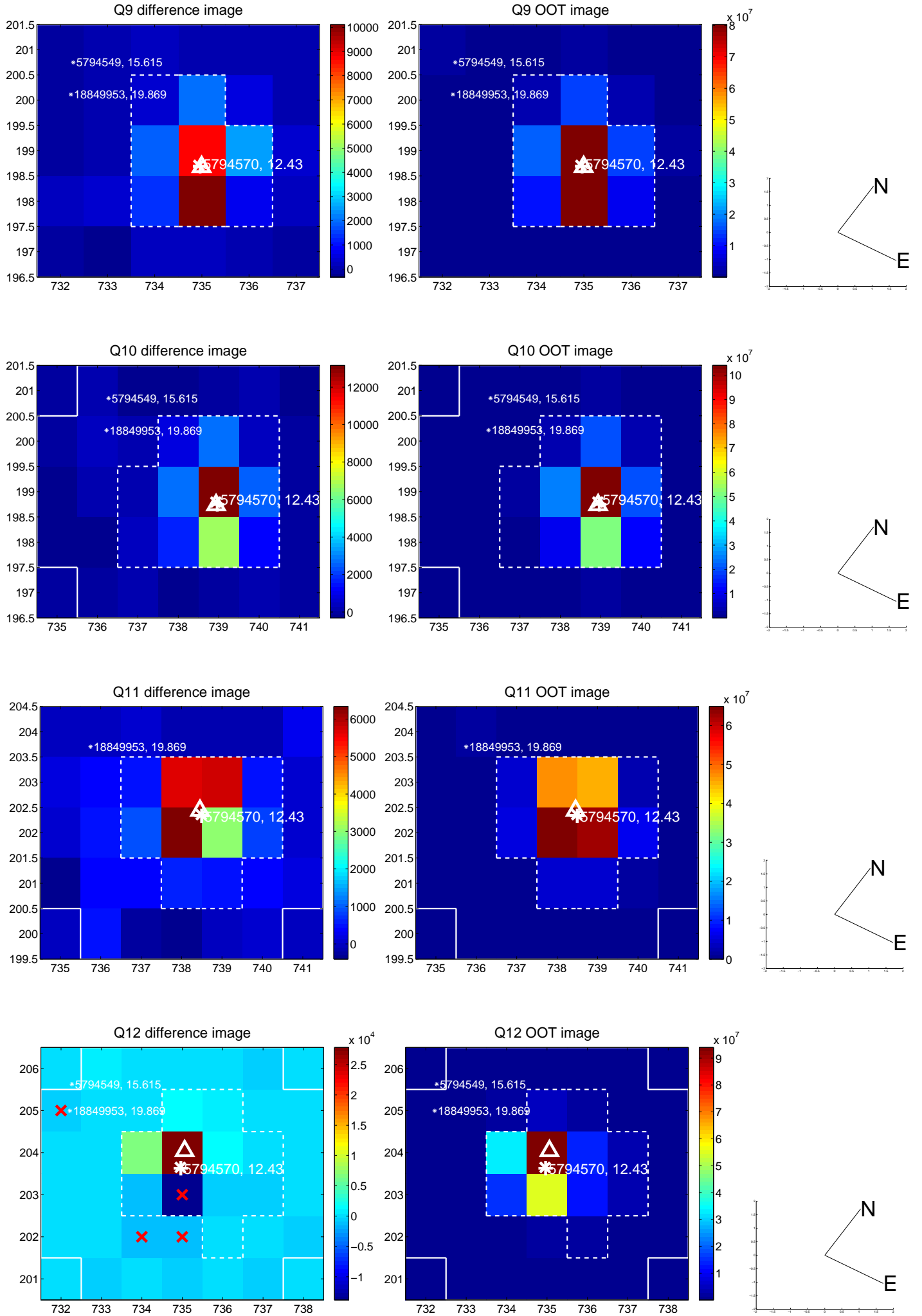


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

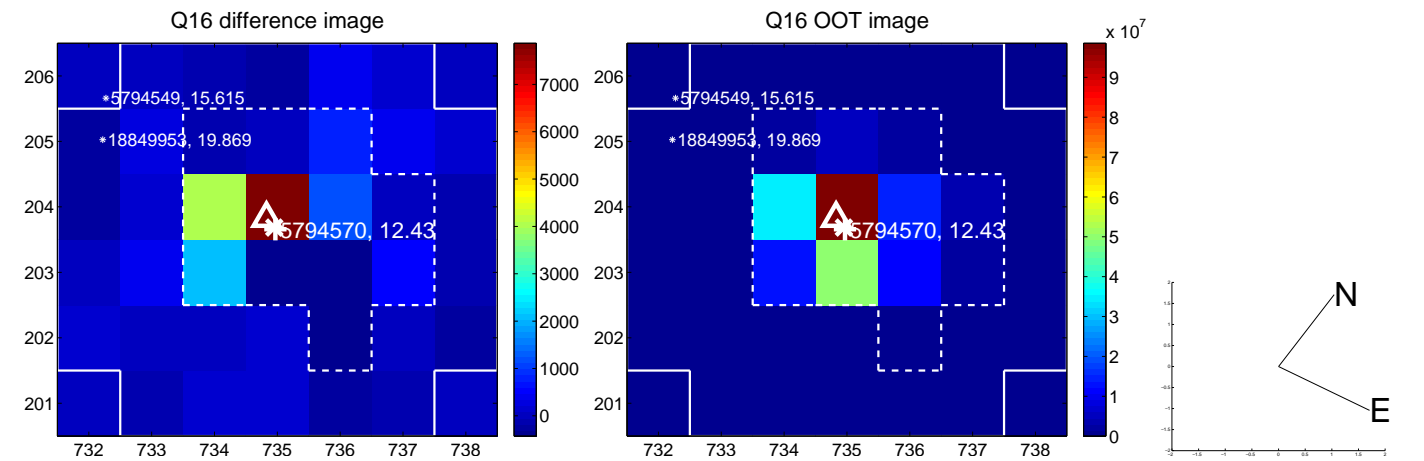
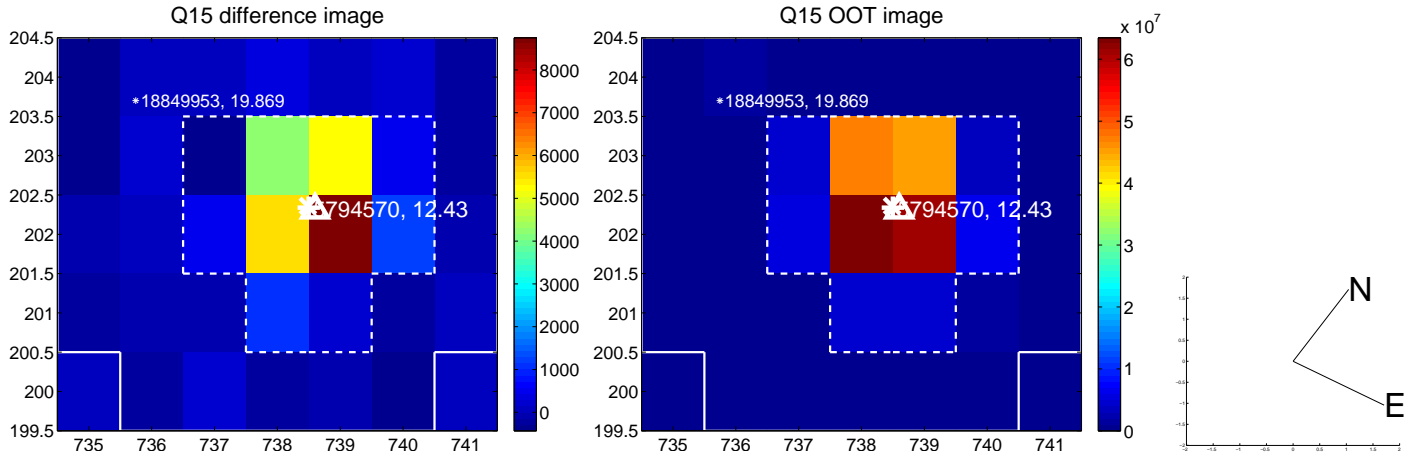
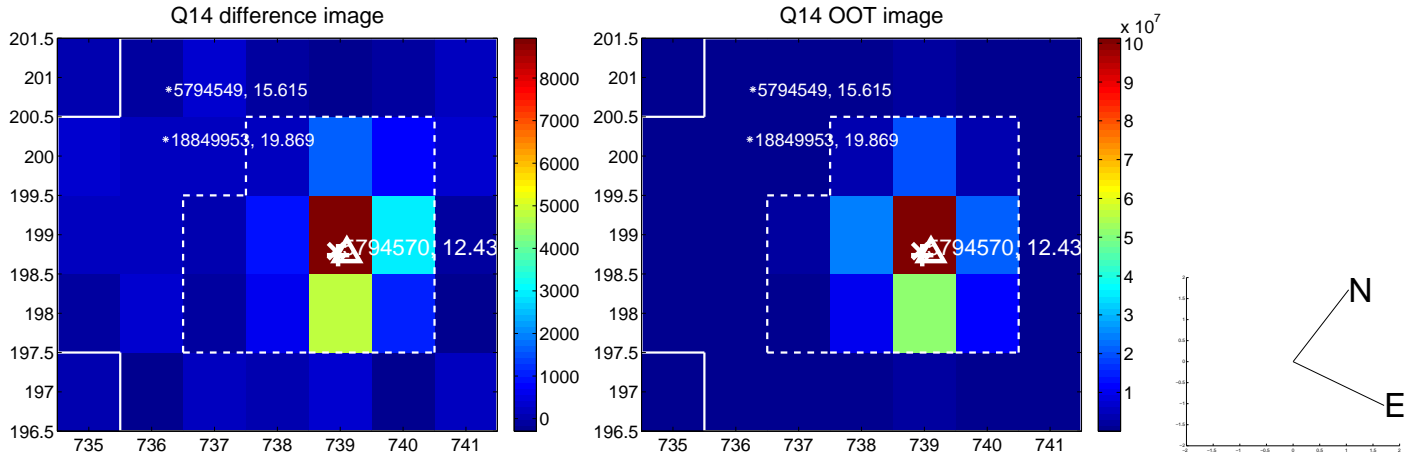
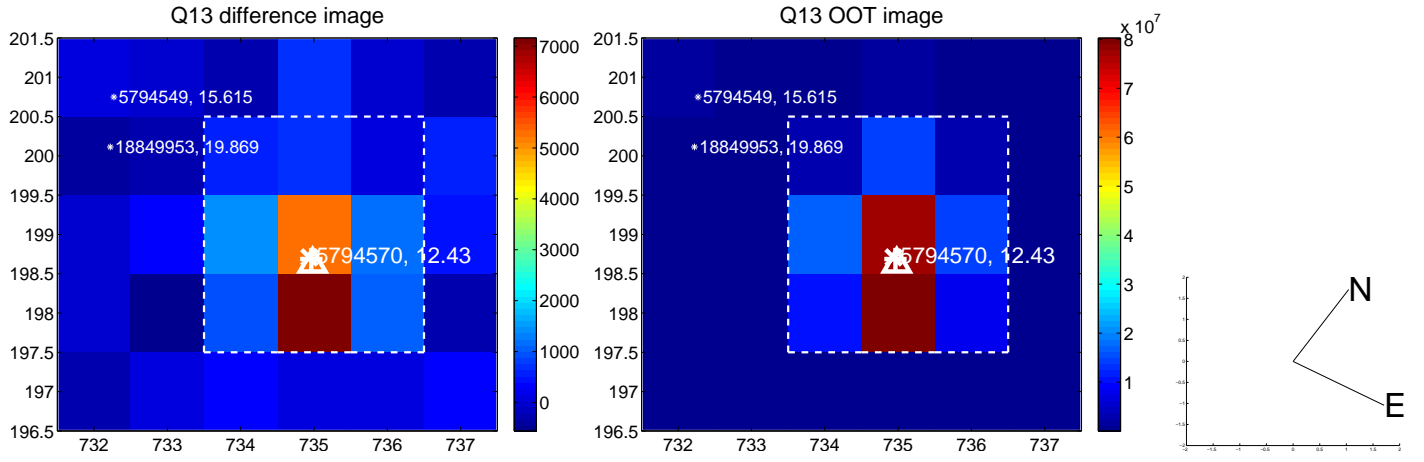
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



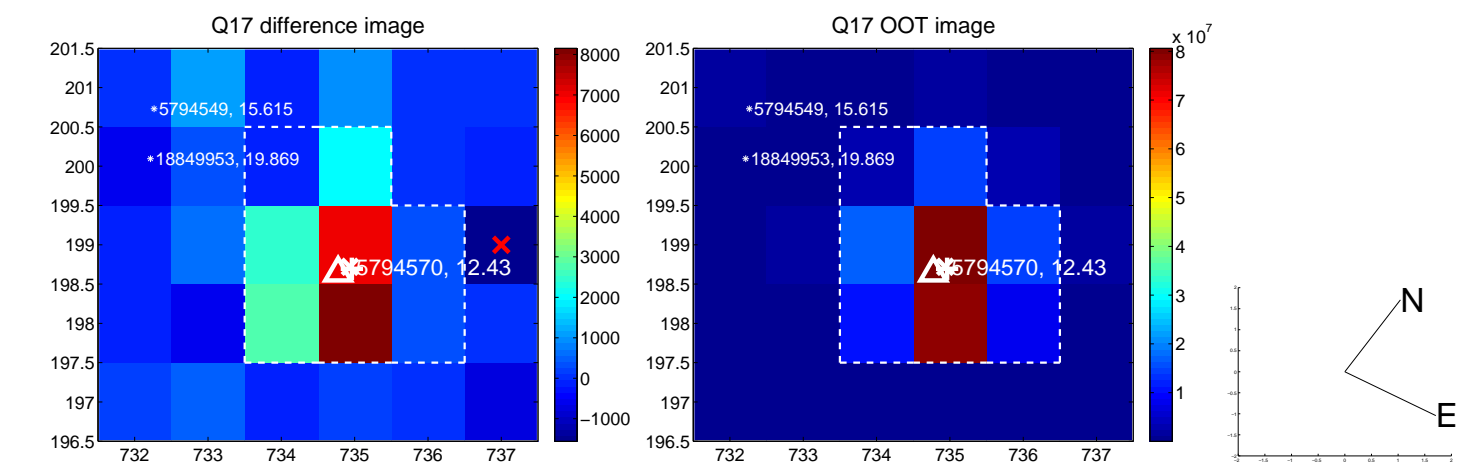
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



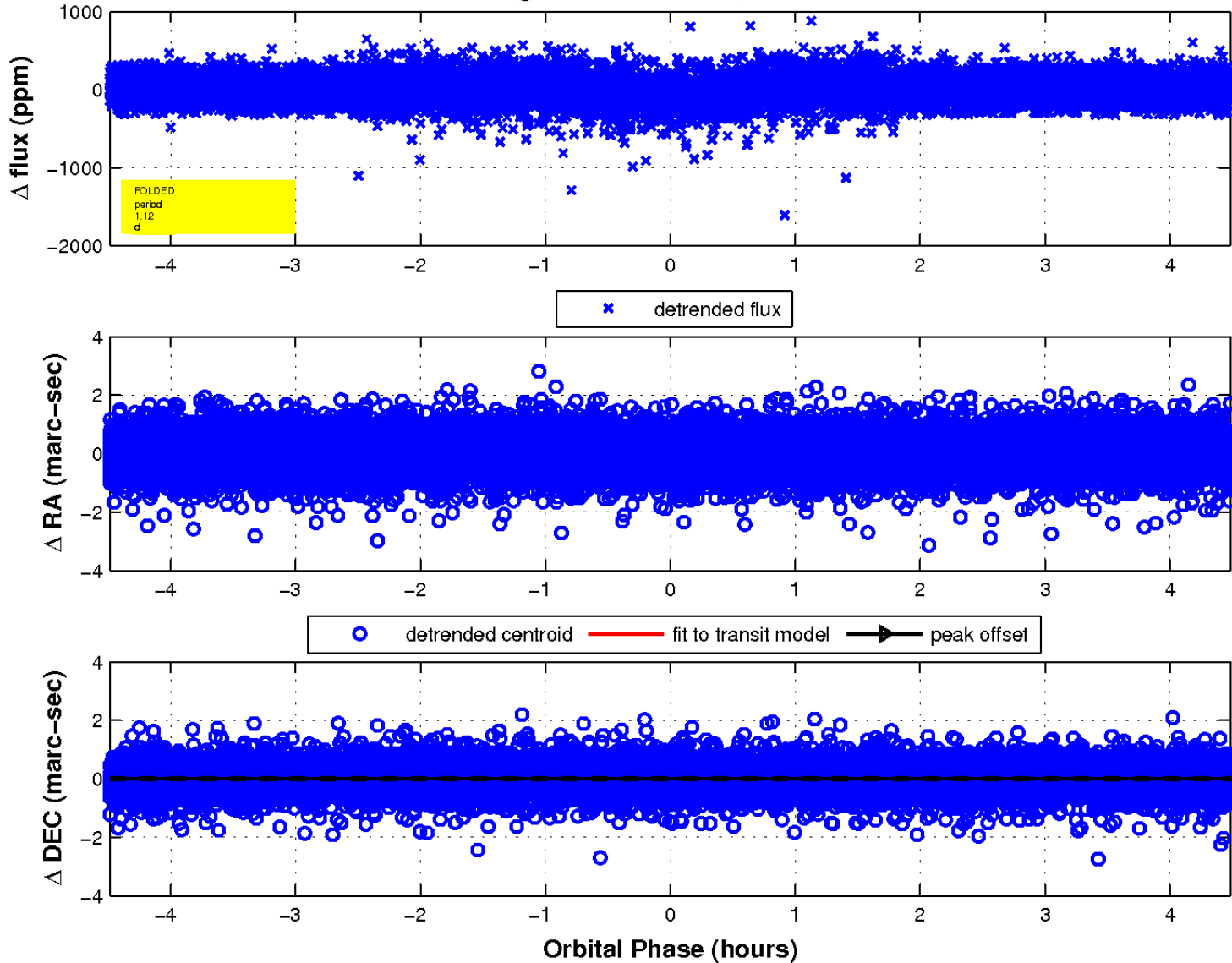
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

