

KIC 007597005

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007597005-01 | OBS | 3961.01 | 0.704539 | 132.183384 | 202.4 | 1.046 | 22.8 | 28.2 | 1.01 | 6063 | 1.72 | 4792.46 |
| 007597005-02 | OBS | No | 0.704533 | 131.831569 | 70.0 | 1.248 | 9.8 | 11.2 | 1.01 | 6063 | 1.00 | 4792.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007597005-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET |
| 007597005-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 0 | IS_SEC_TCE—CENT_RESOLVED_OFFSET |

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

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

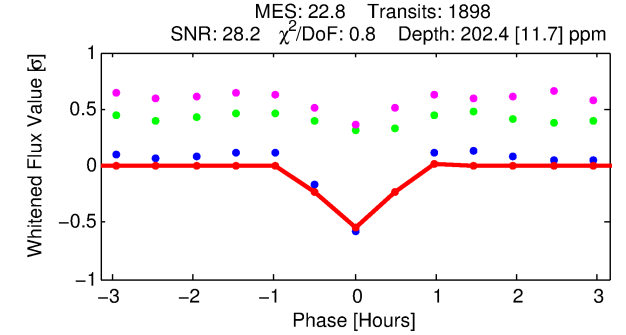
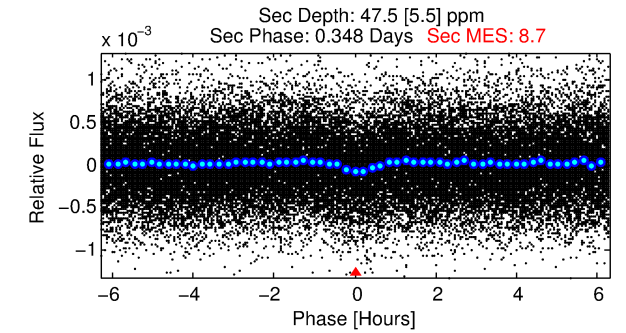
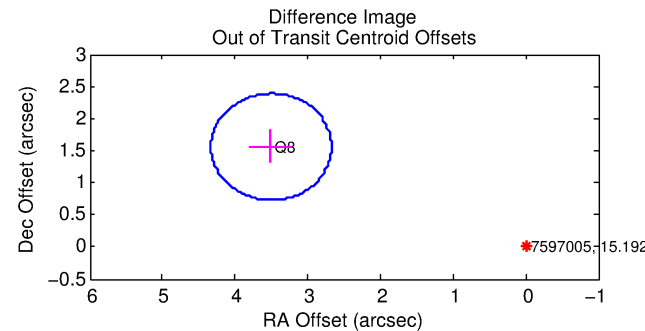
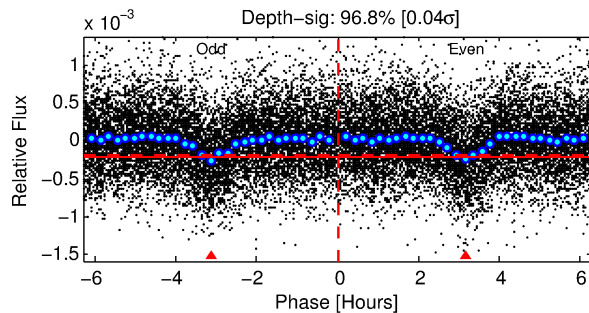
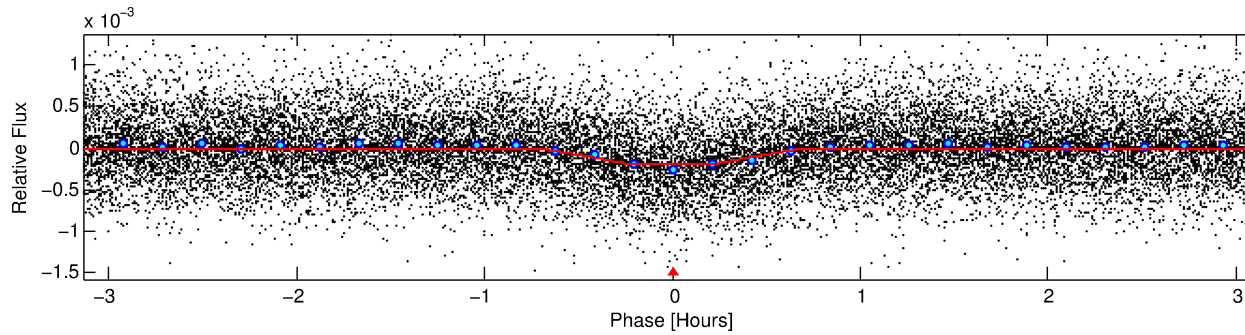
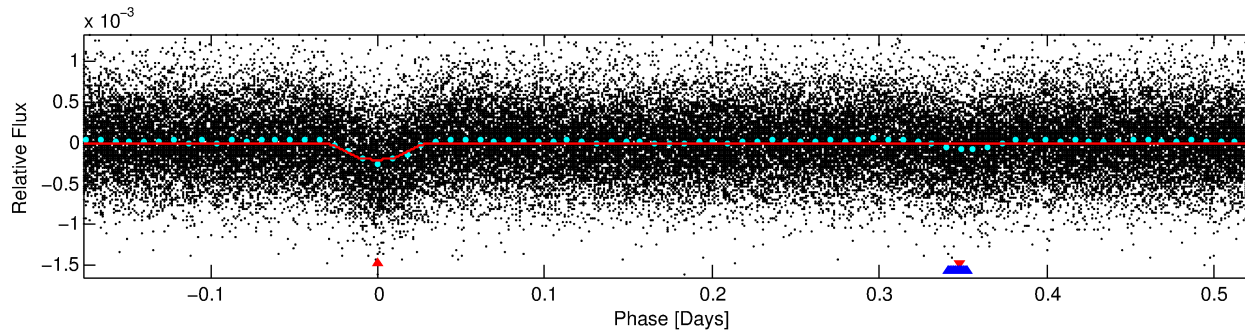
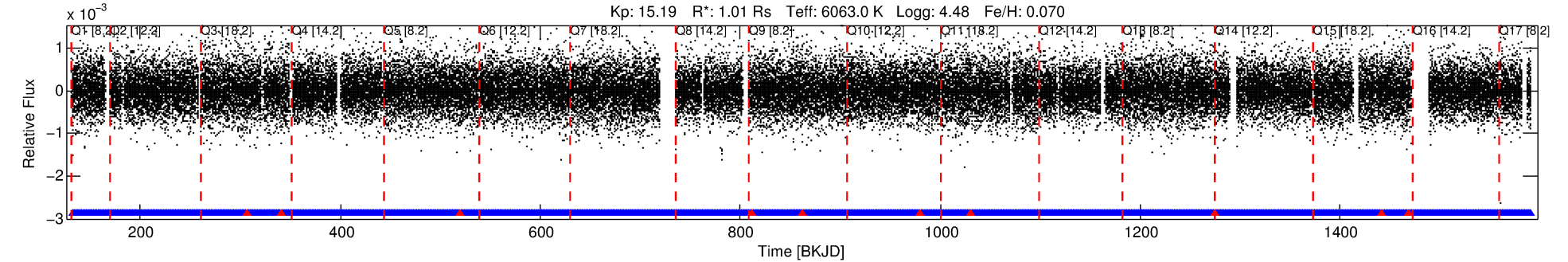
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007597005-01

No Significant Match Found

DV One-Page Summary

KIC: 7597005 Candidate: 1 of 2 Period: 0.705 d
KOI: K03961.01 Corr: 0.940



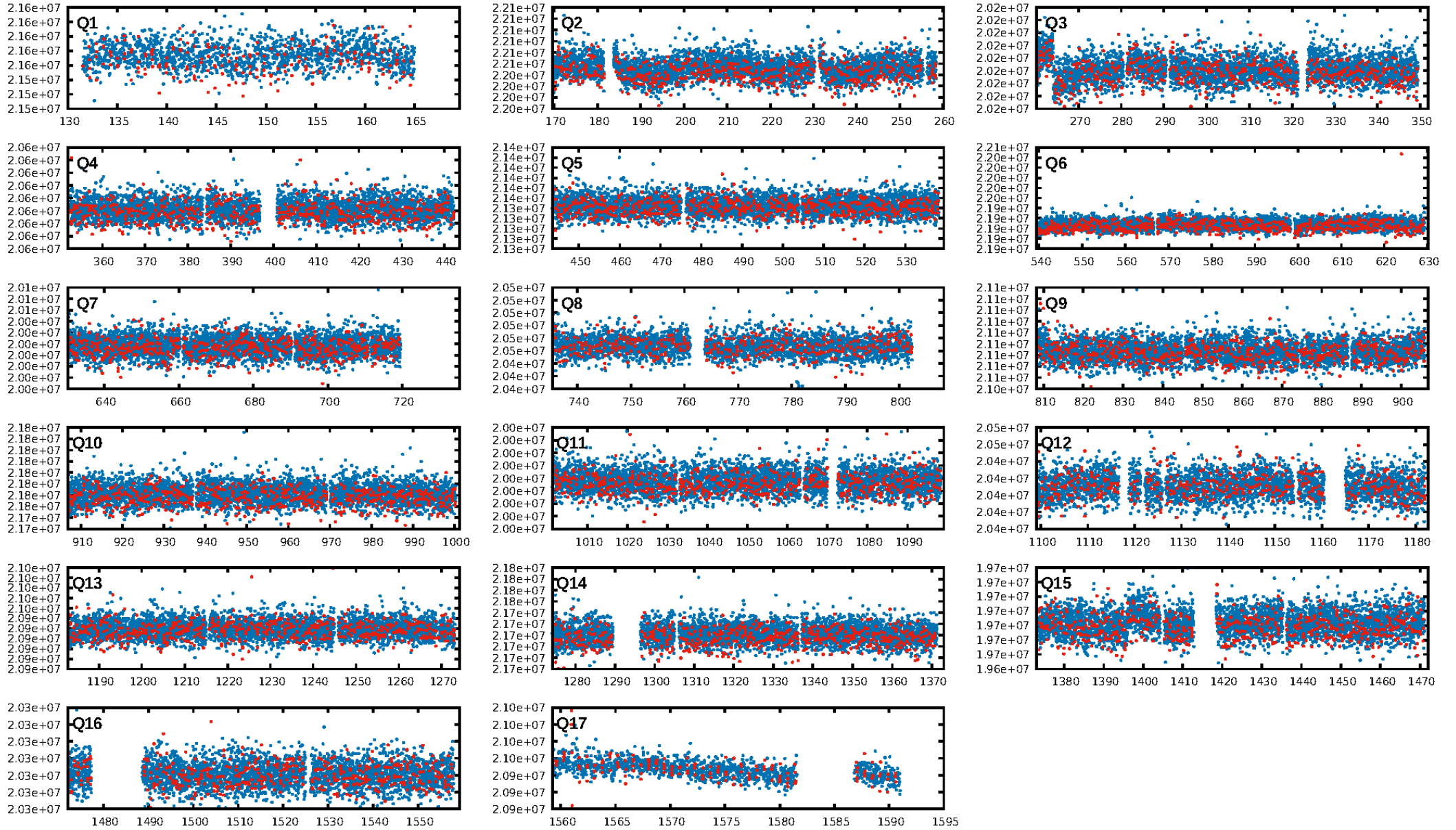
DV Fit Results:

Period = 0.70454 [0.00000] d
Epoch = 132.1834 [0.0006] BKJD
Rp/R* = 0.0155 [0.0042]
a/R* = 2.59 [3.00]
b = 0.90 [0.29]
Seff = 4792.46 [2017.69]
Teq = 2122 [223] K
Rp = 1.72 [0.71] Re
a = 0.0161 [0.0043] AU
Ag = 2.30 [1.56] [0.83σ]
Teffp = 4039 [580] K [3.09σ]

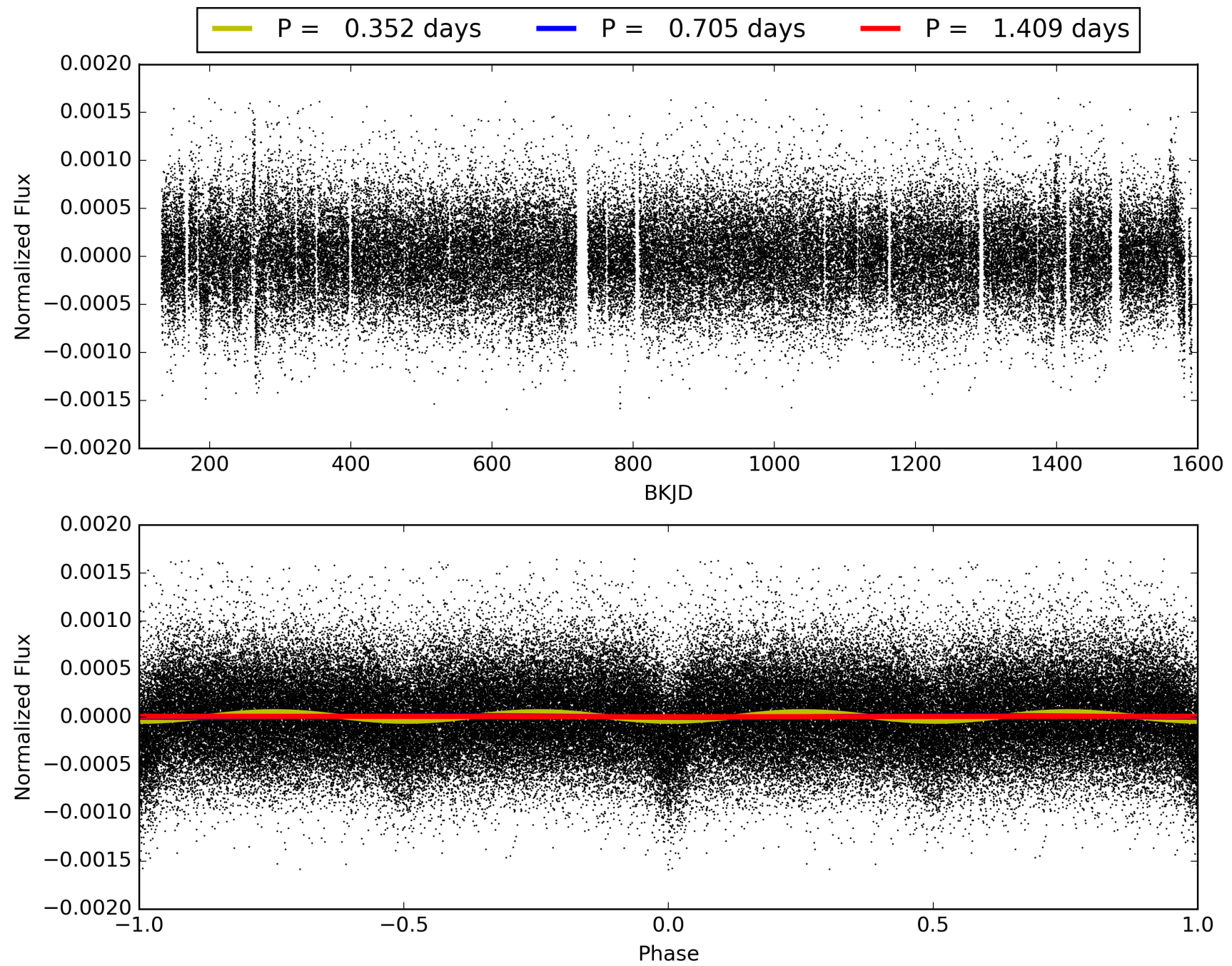
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.39e-113
RollingBand-fgt: 0.99 [1802/1812]
GhostDiagnostic-chr: -0.4704
Centroid-sig: 0.0%
Centroid-so: 12.614 arcsec [23.83σ]
OotOffset-rm: 3.836 arcsec [13.87σ]
KicOffset-rm: 4.006 arcsec [14.50σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007597005-01, PDC Light Curves

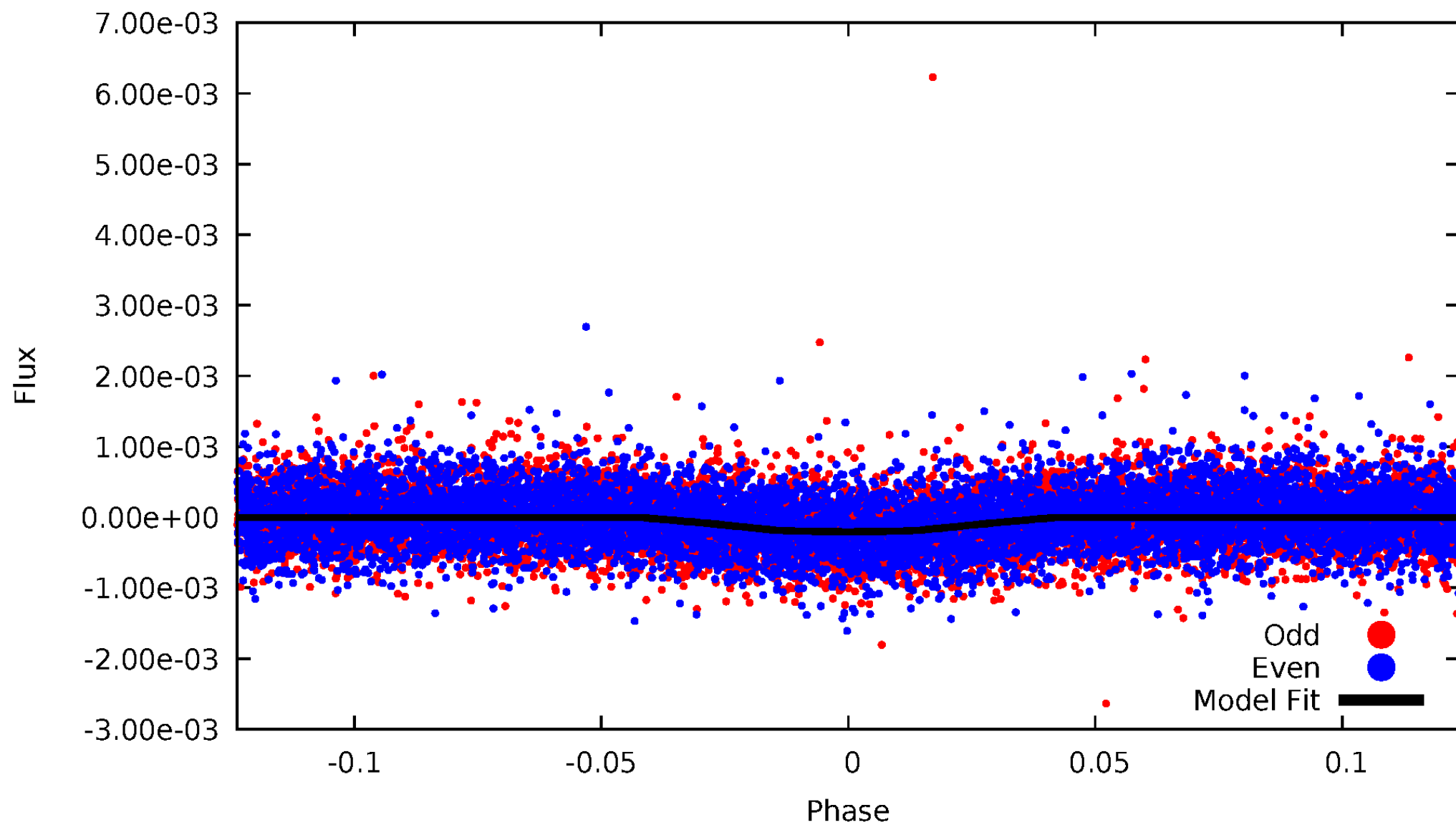


TCE 007597005-01



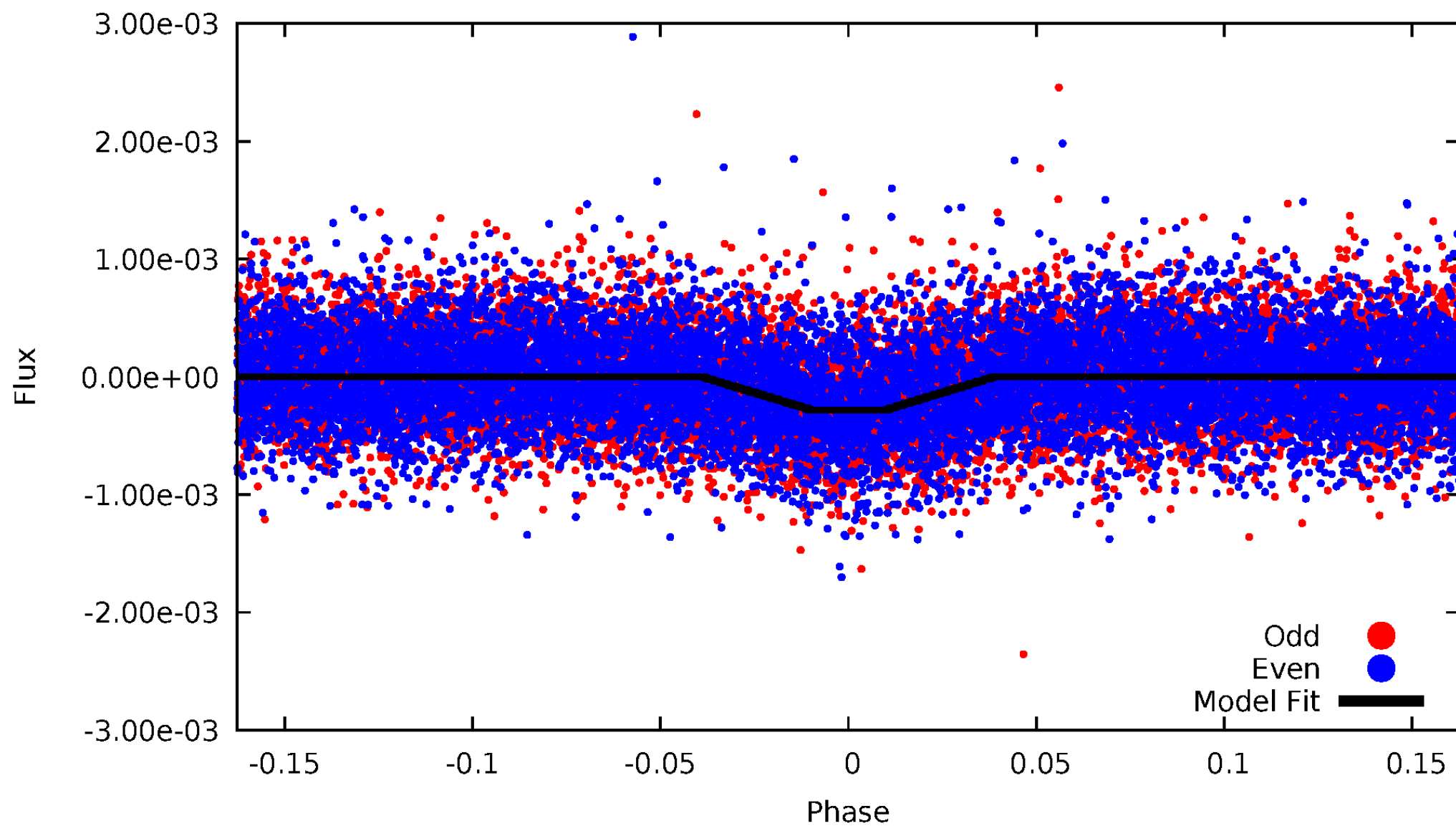
DV Odd/Even

TCE 007597005-01

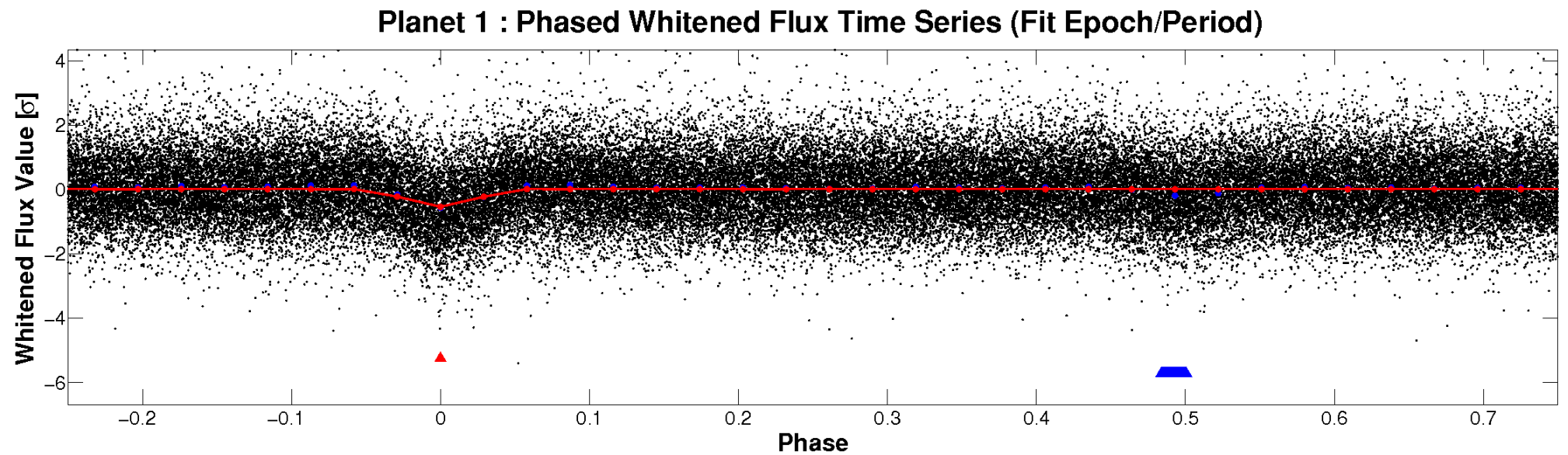
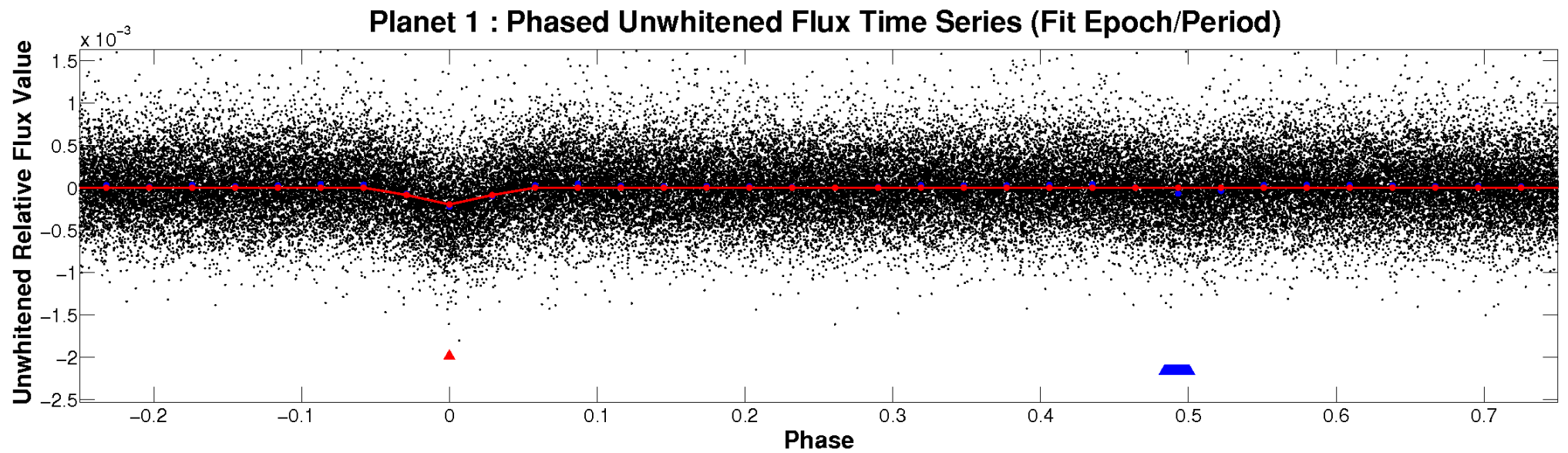


ALT Odd/Even

TCE 007597005-01

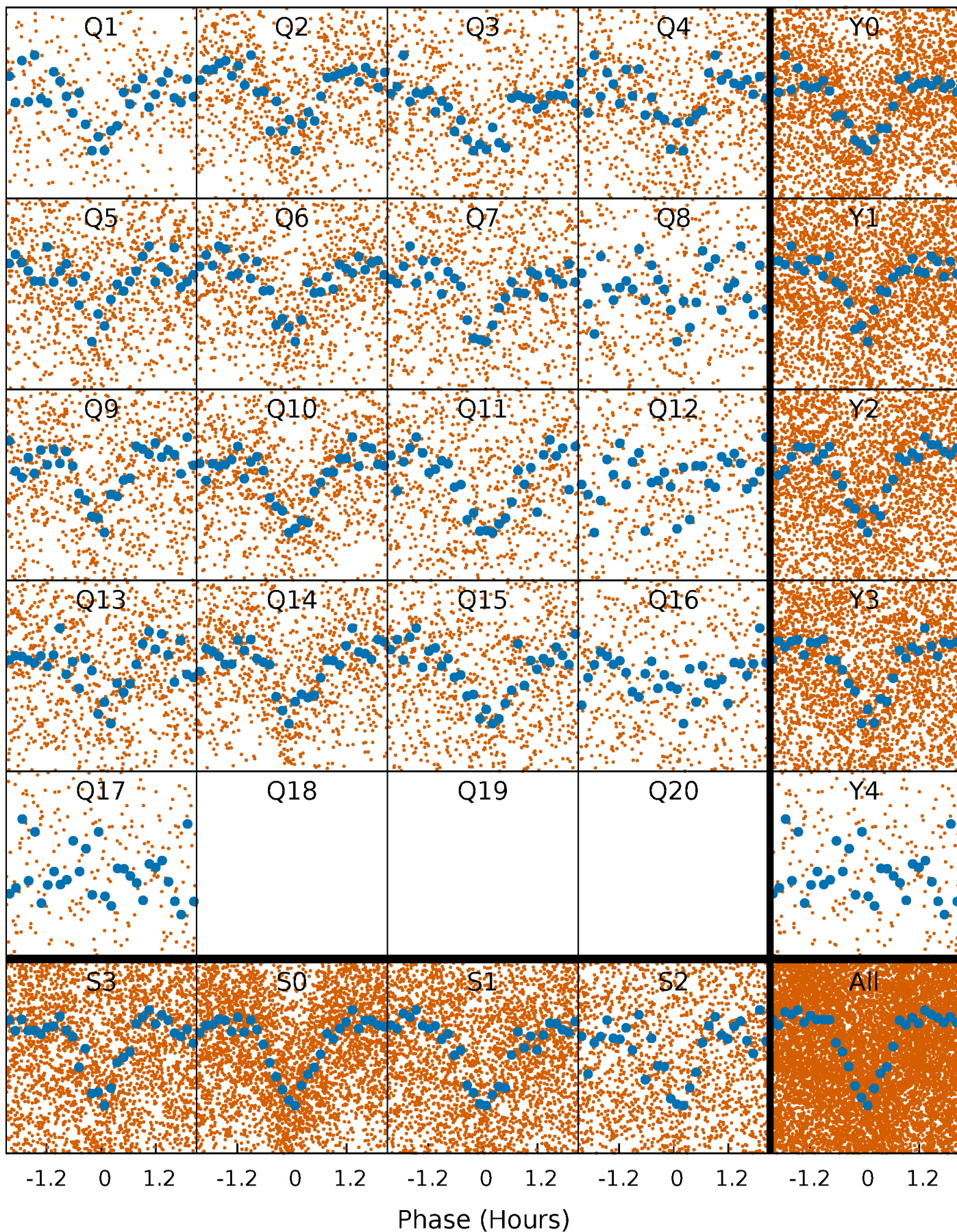


Non-Whitened Vs. Whitened Light Curve



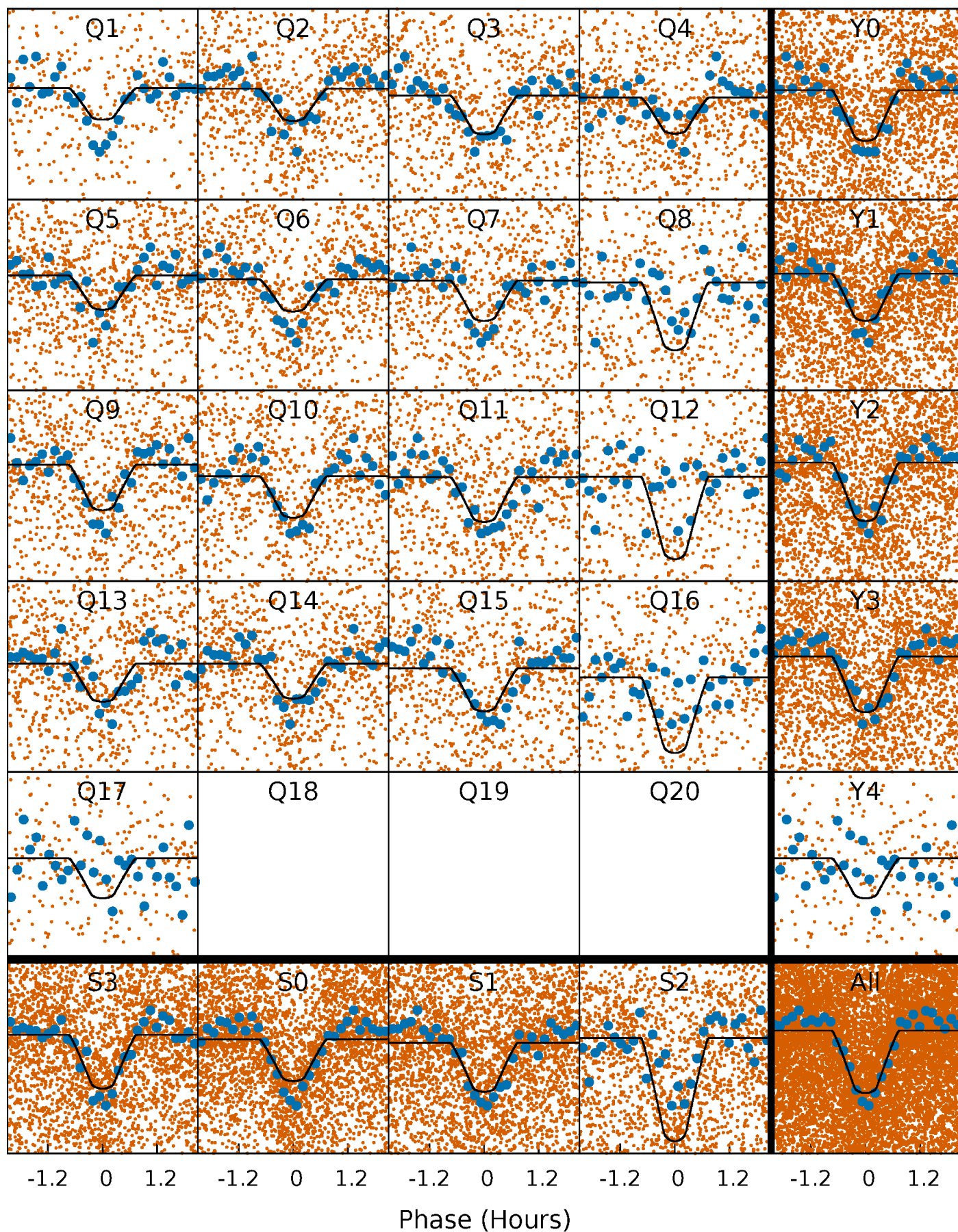
PDC Quarter-Phased Transit Curves

TCE 007597005-01 P= 0.704539 Days $T_0=132.183384$ (BKJD)



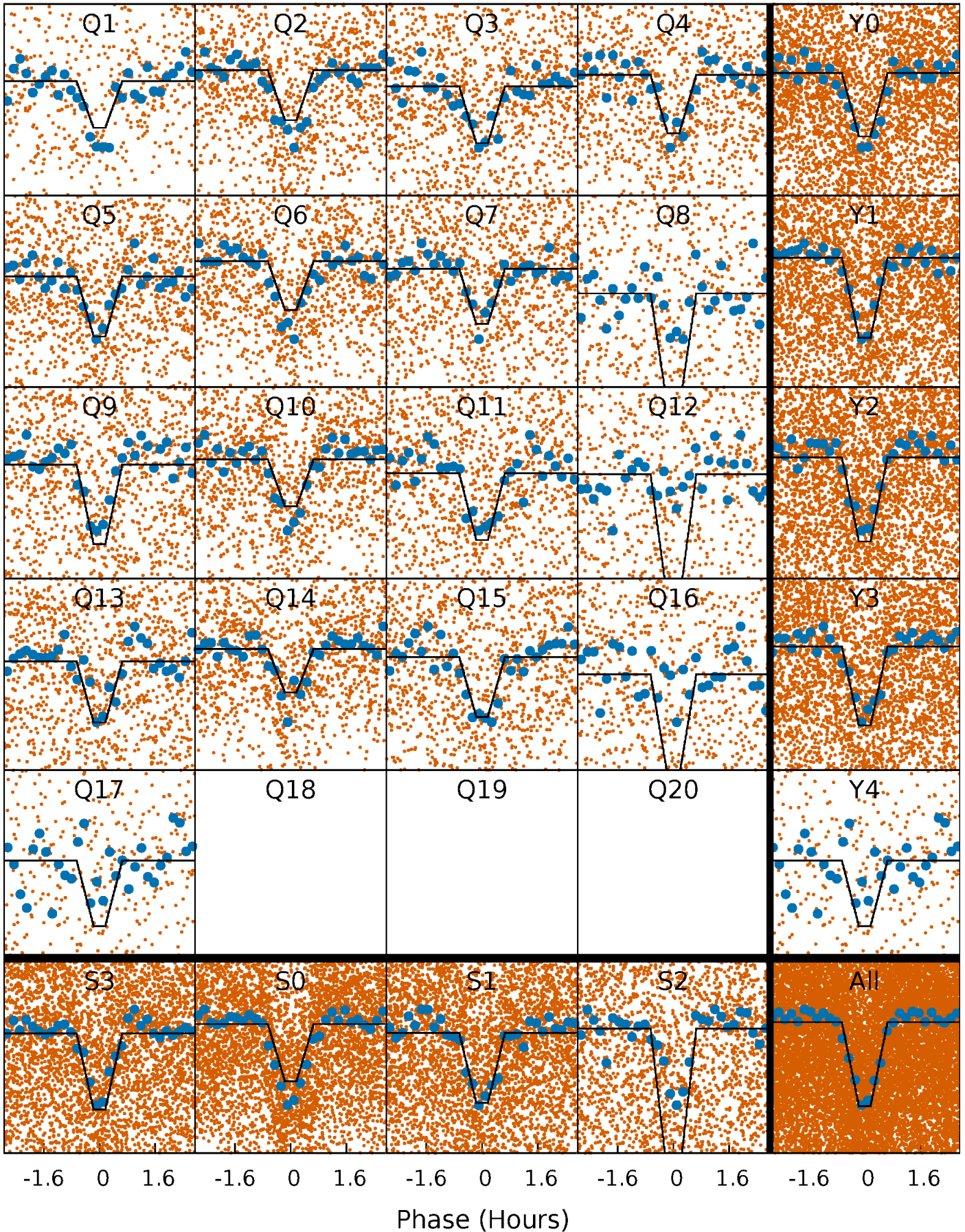
DV Quarter-Phased Transit Curves

TCE 007597005-01 P= 0.704539 Days $T_0=132.183384$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

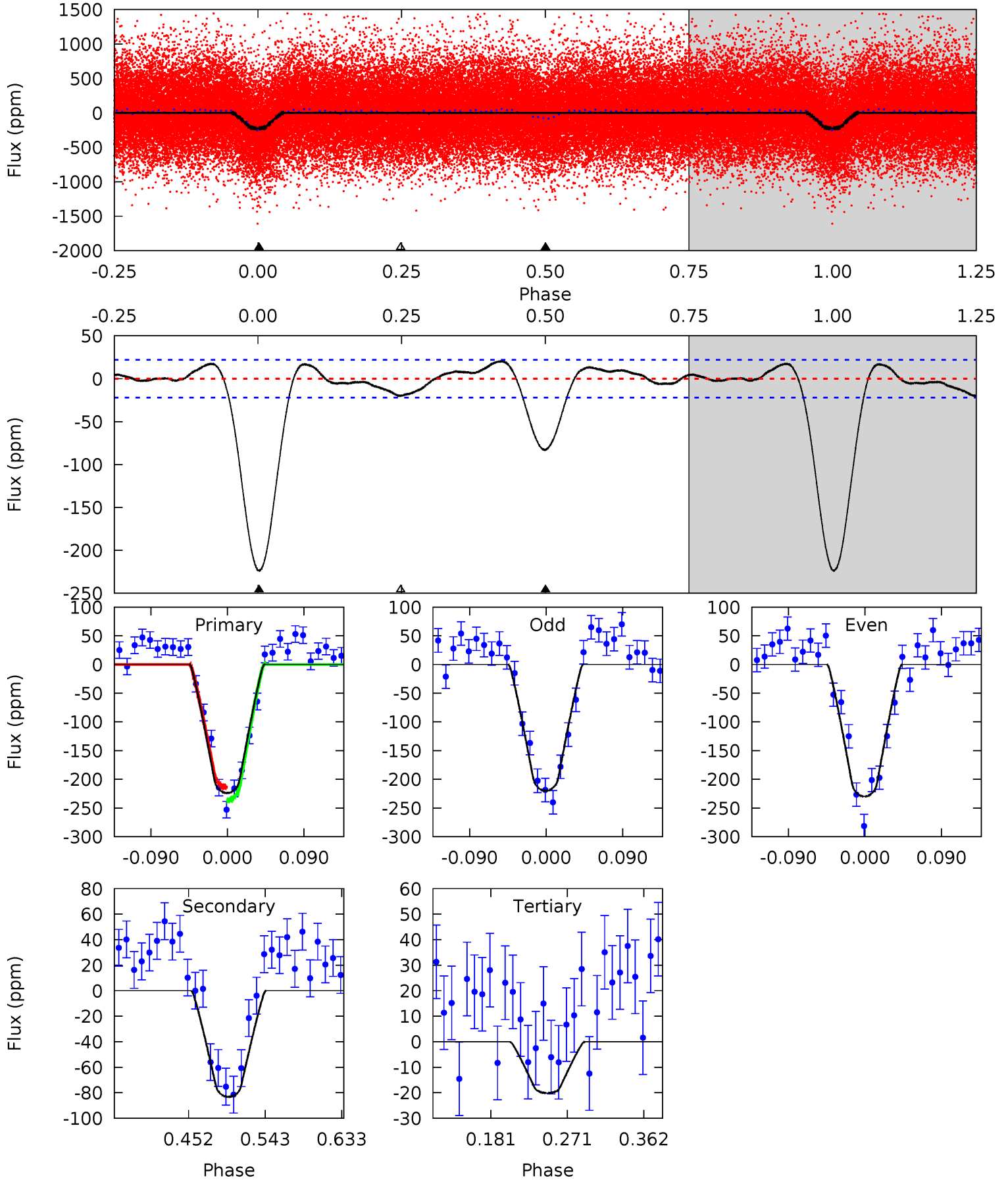
TCE 007597005-01 P= 0.704541 Days $T_0=132.182985$ (BKJD)



DV Model-Shift Uniqueness Test

007597005-01, P = 0.704539 Days, E = 131.478845 Days

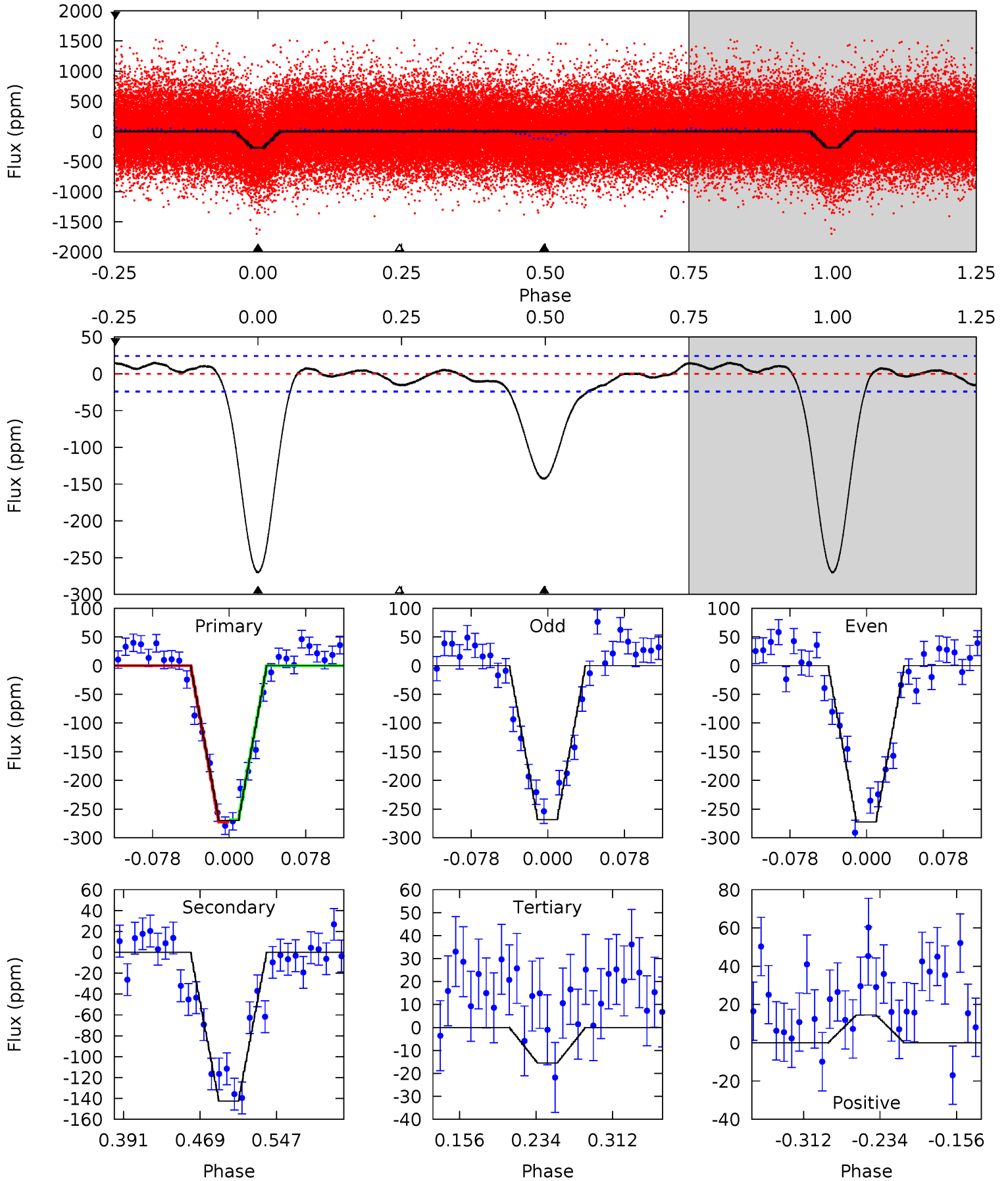
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 46.8 | 17.4 | 4.21 | 0 | 4.59 | 1.69 | 1.75 | 42.6 | 46.8 | 13.2 | 17.4 | 1.05 | 1.00 | 0.08 | 2.41 |



Alt Model-Shift Uniqueness Test

007597005-01, P = 0.704541 Days, E = 131.478444 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 51.5 | 27.2 | 2.96 | 2.77 | 4.62 | 1.76 | 1.62 | 48.5 | 48.7 | 24.2 | 24.4 | 0.42 | 0.98 | 0.05 | 0.38 |



Stellar Parameters For KIC 007597005

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6063^{+190}_{-232} | $4.476^{+0.054}_{-0.216}$ | $0.070^{+0.250}_{-0.350}$ | $1.012^{+0.318}_{-0.106}$ | $1.117^{+0.130}_{-0.159}$ | $1.519^{+0.340}_{-0.806}$ |
| | +3%/-4% | +1%/-5% | +357%/-500% | +31%/-10% | +12%/-14% | +22%/-53% |
| 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 007597005-01 / KOI 3961.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -83 ± 5 | $1.79^{+0.55}_{-0.52}$ | 3038^{+242}_{-155} | 4679^{+705}_{-462} | $3.605^{+3.249}_{-1.523}$ |
| Alt. | -143 ± 5 | $1.90^{+0.56}_{-0.48}$ | 3021^{+233}_{-163} | 5096^{+760}_{-467} | $5.404^{+4.341}_{-2.096}$ |

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

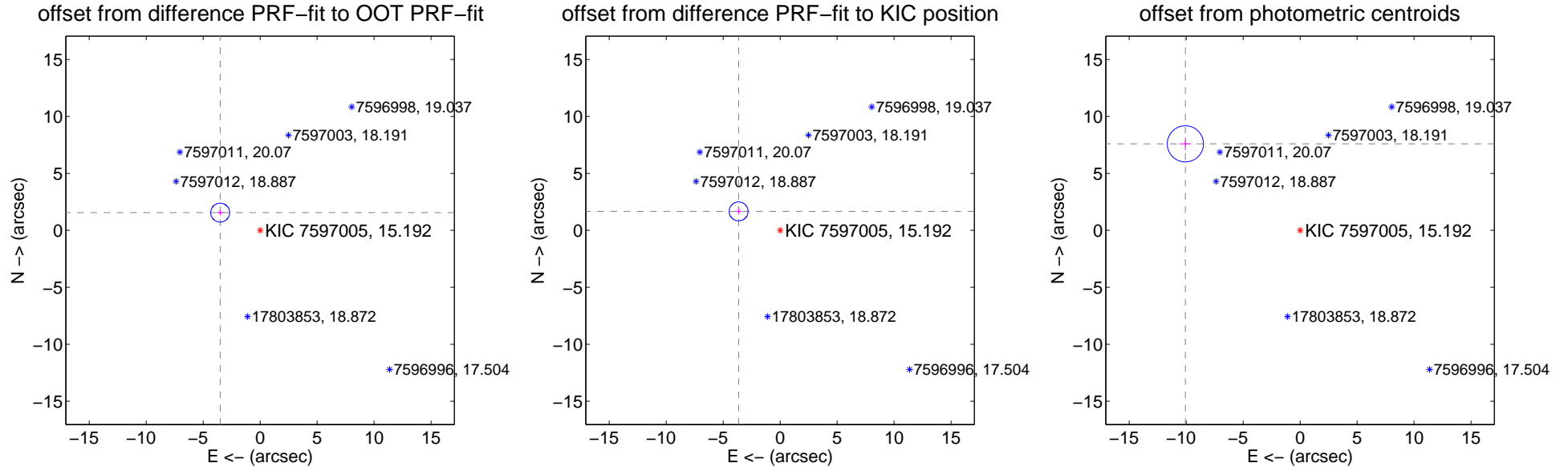
DV Centroid Data

Supplemental centroid analysis for 007597005-01. Kepler magnitude: 15.19. Transit SNR 28.17

There are 1 quarters with good PRF difference image offsets

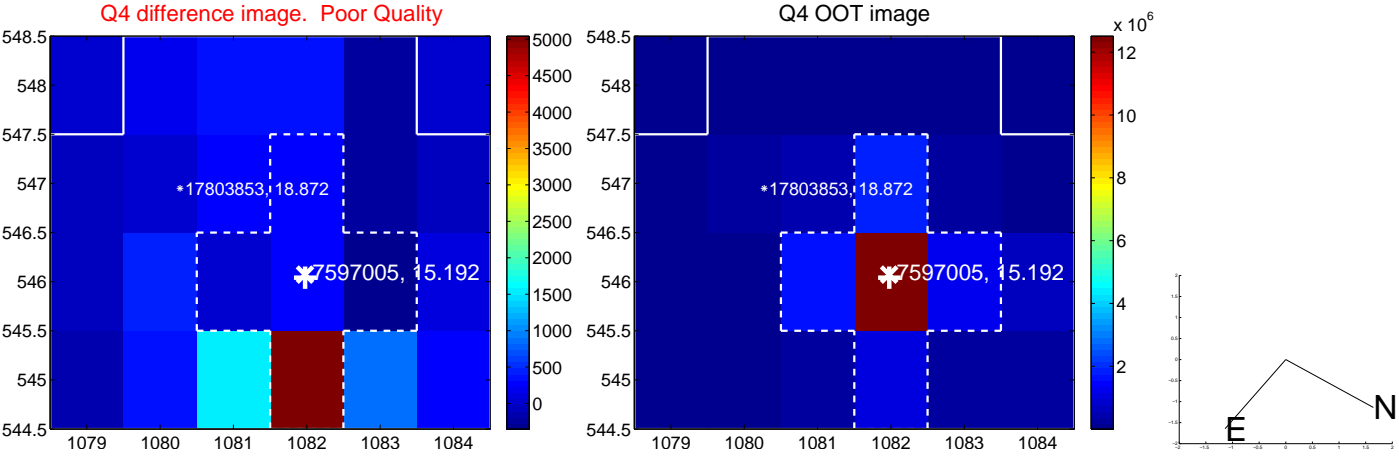
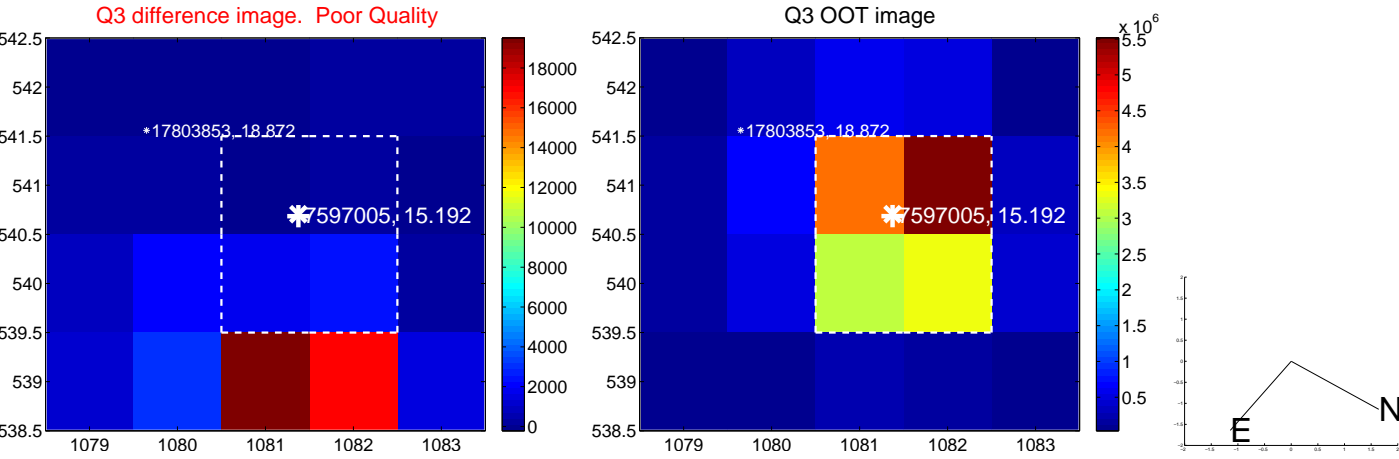
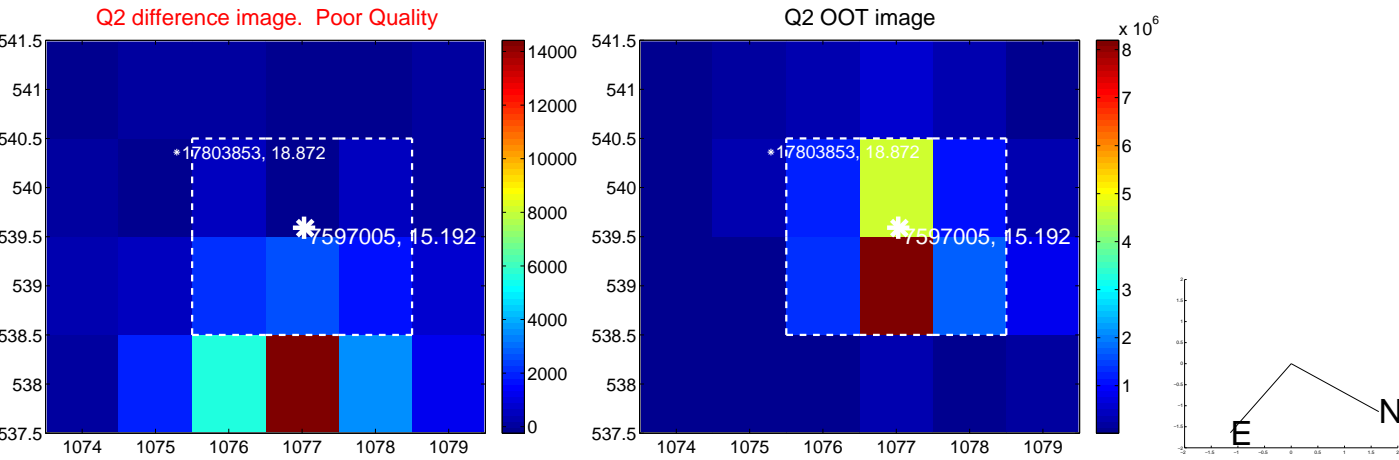
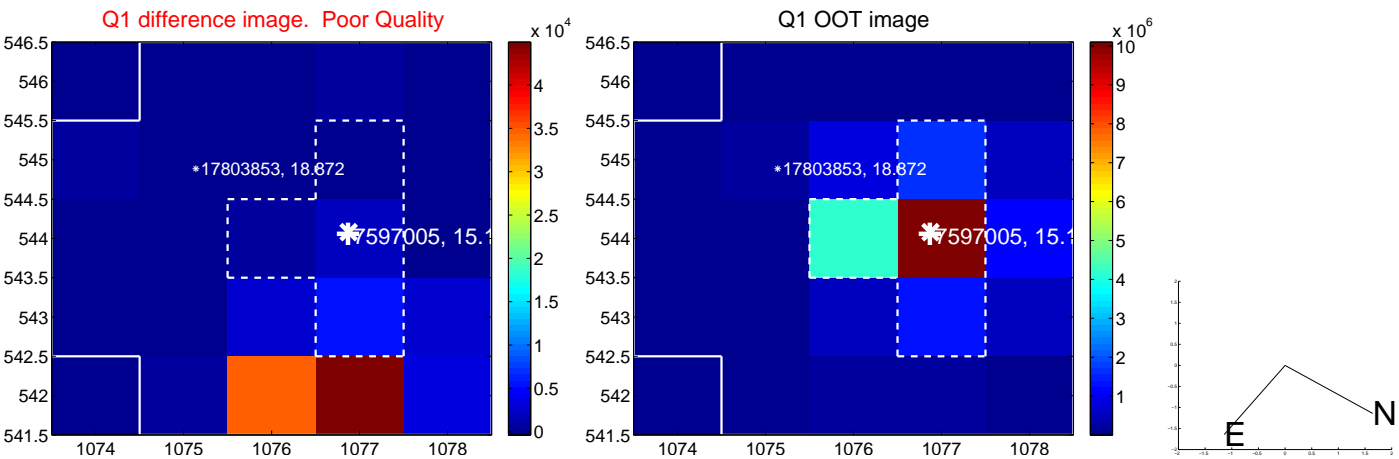
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 3.836 ± 0.277 | 13.87 | 3.505 ± 0.282 | 1.559 ± 0.246 |
| PRF-fit source offset from KIC position | 4.006 ± 0.276 | 14.50 | 3.643 ± 0.282 | 1.666 ± 0.246 |
| photometric centroid source offset | 12.61 ± 0.53 | 23.83 | 10.07 ± 0.51 | 7.60 ± 0.56 |

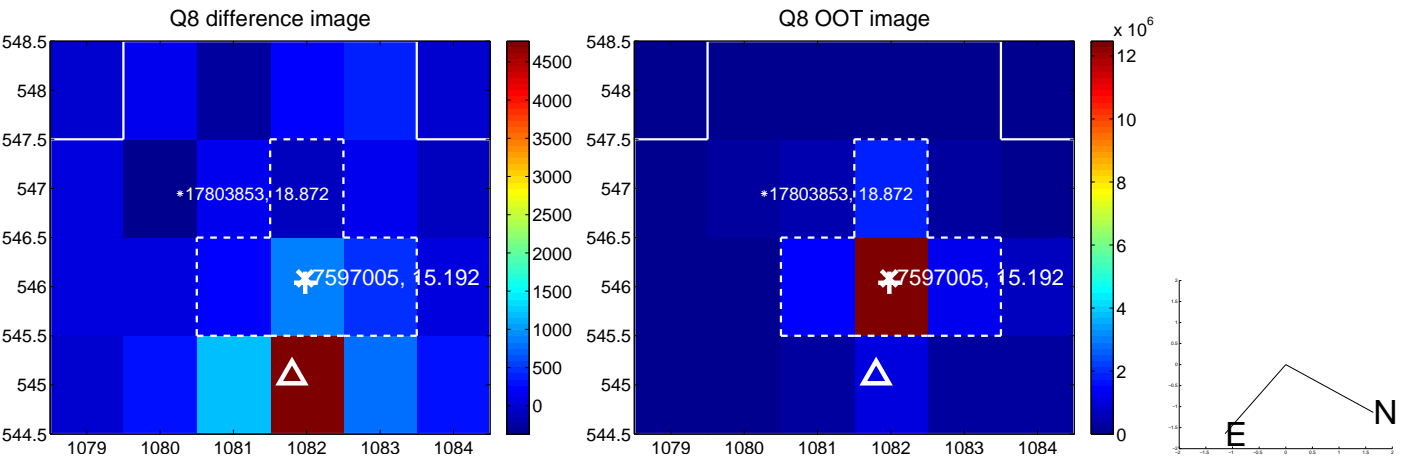
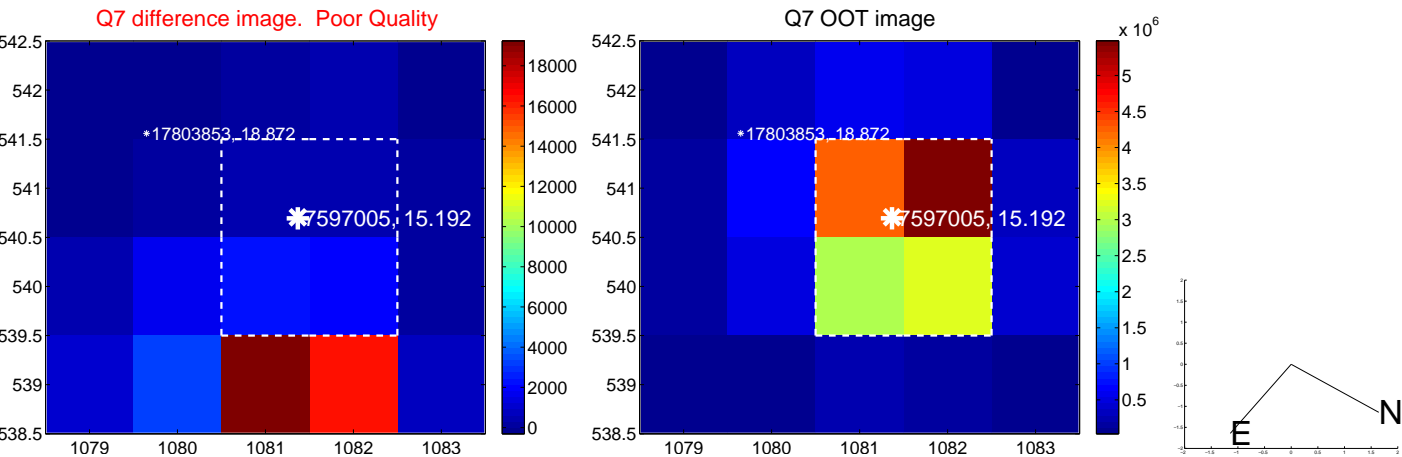
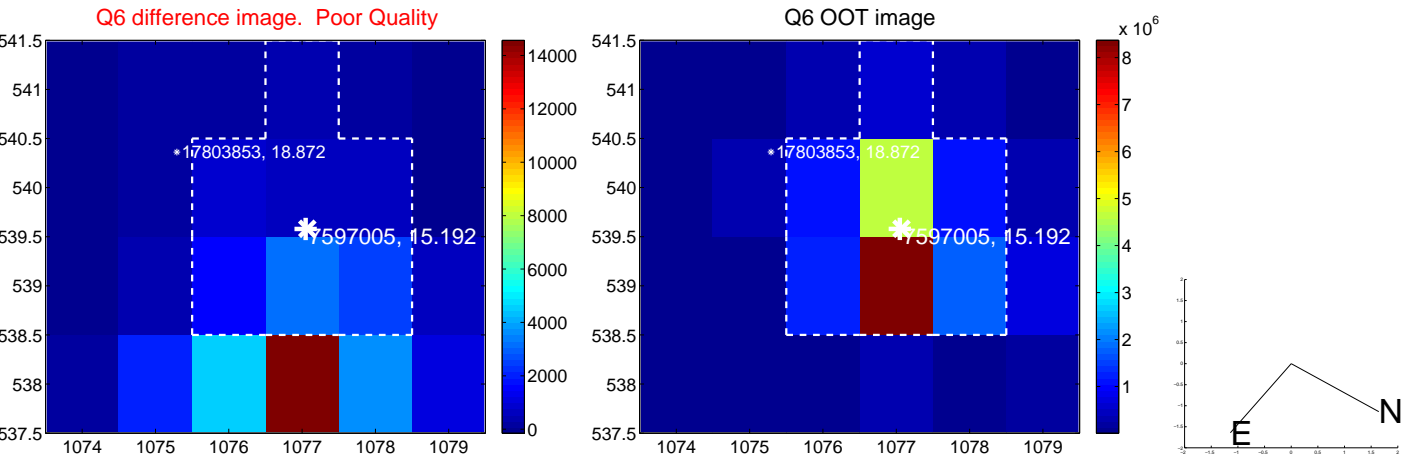
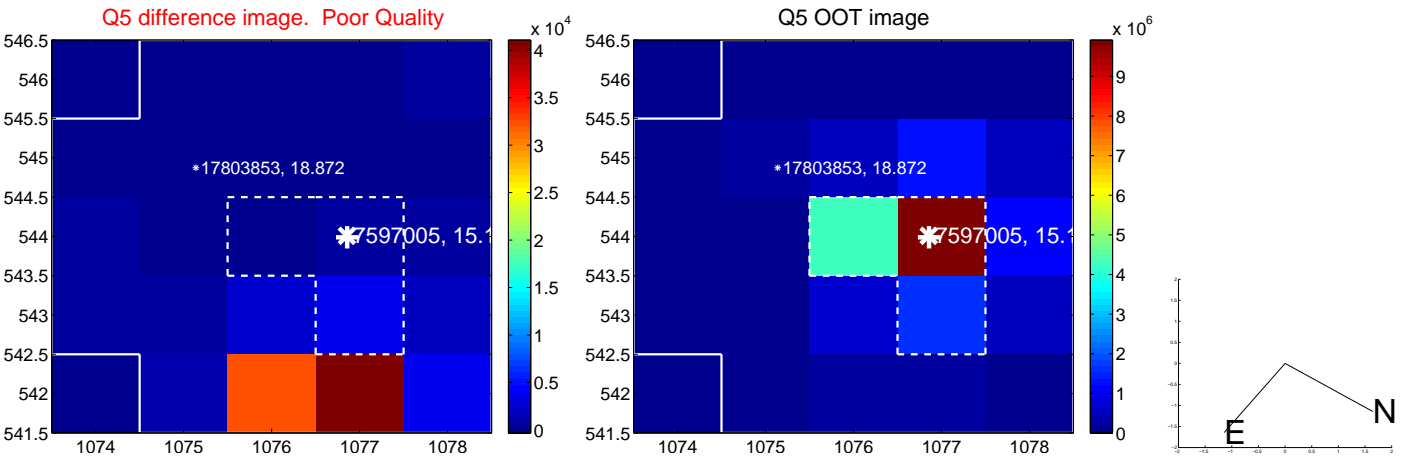


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

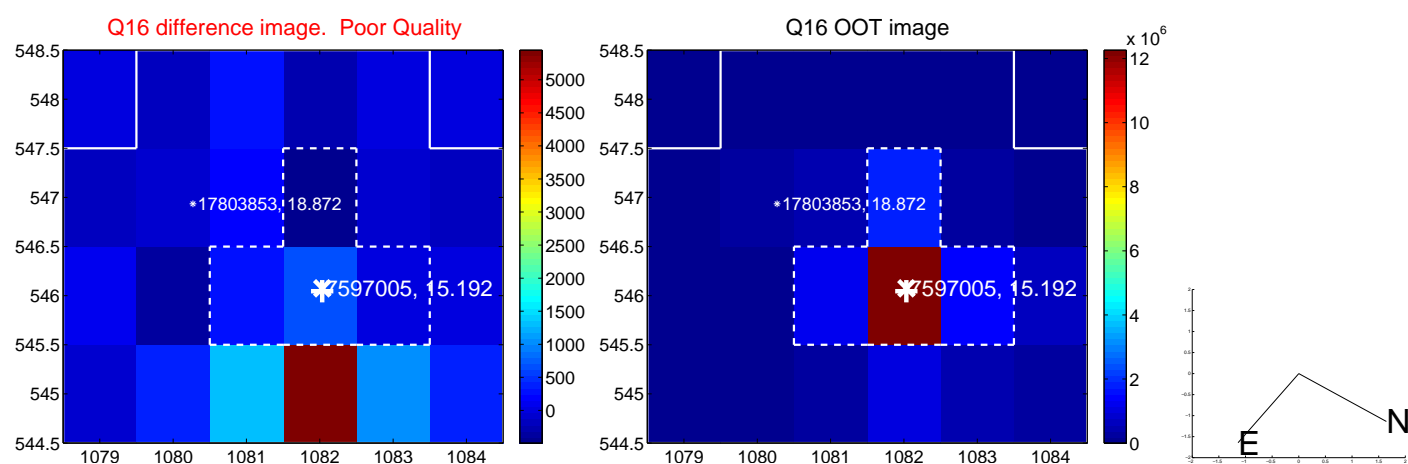
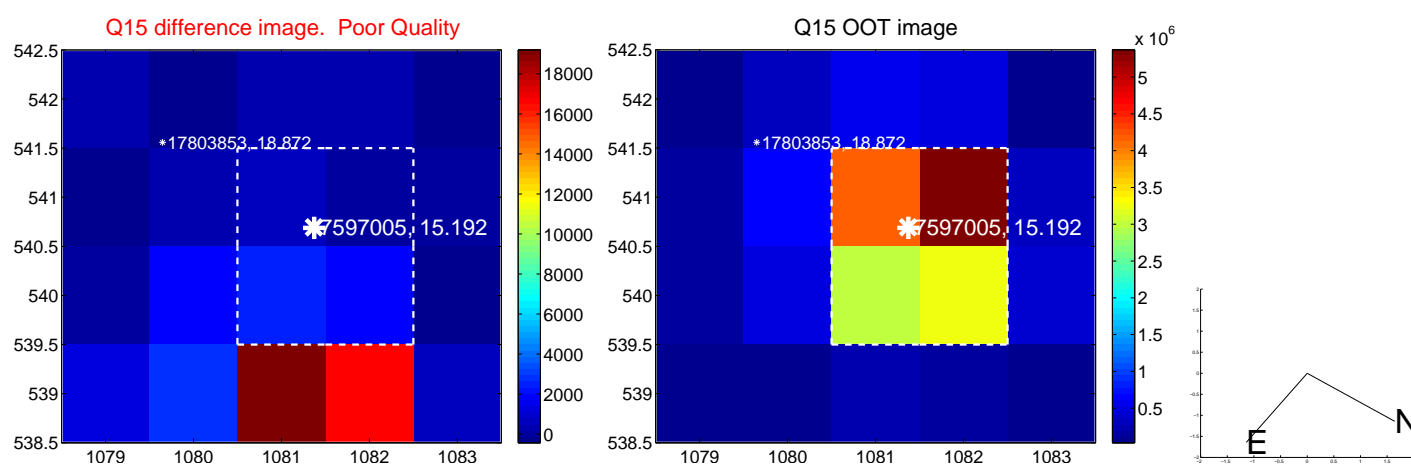
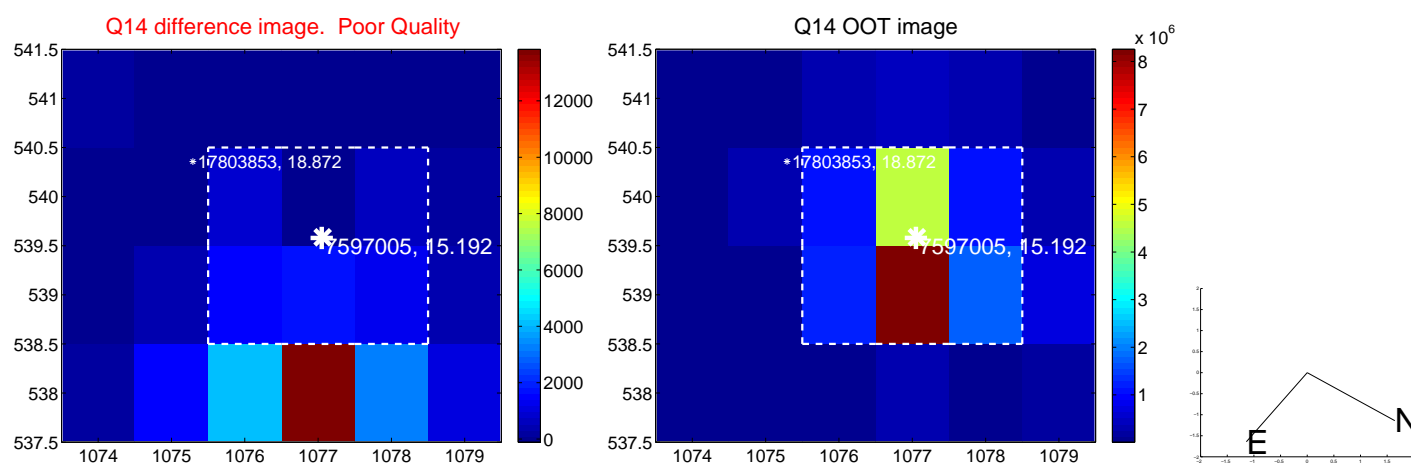
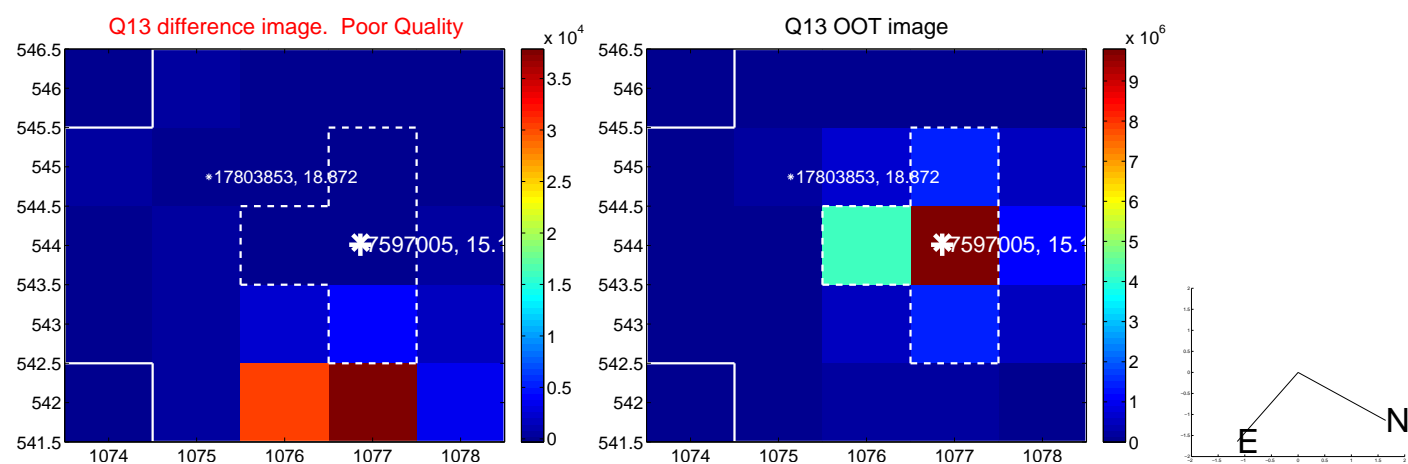
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



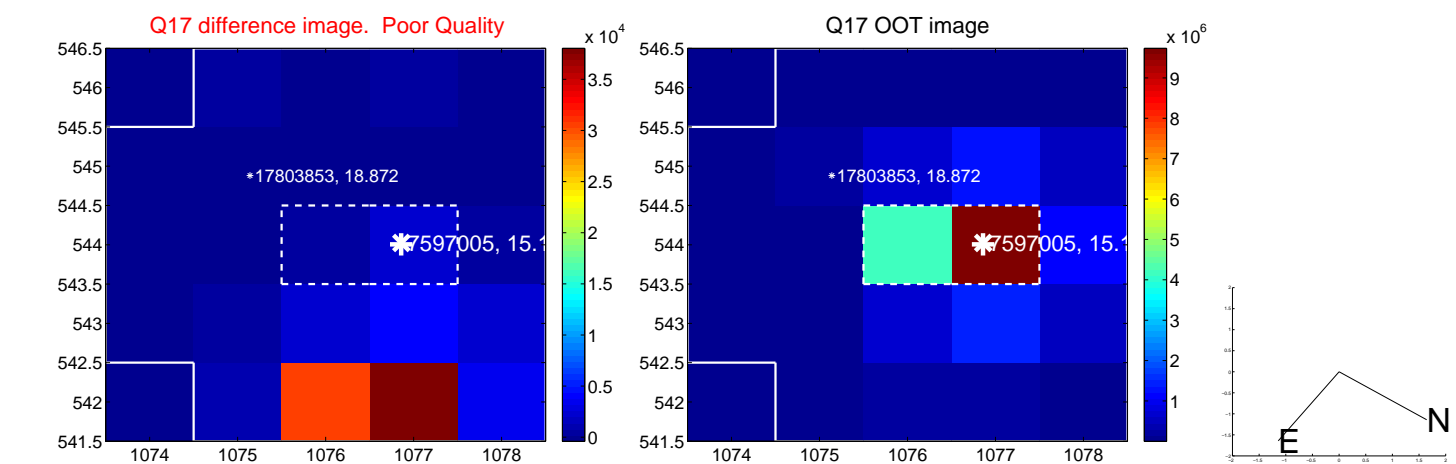
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



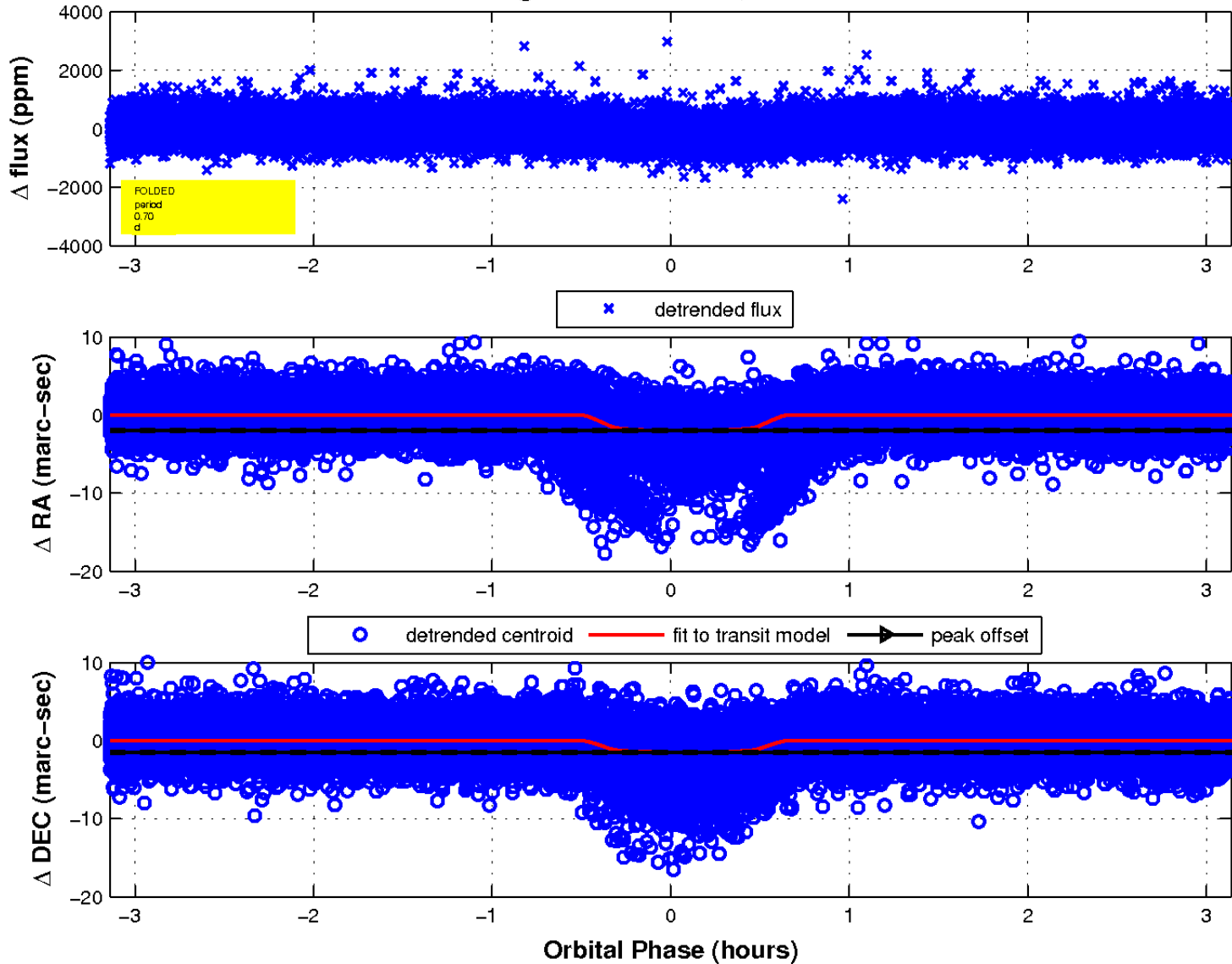
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

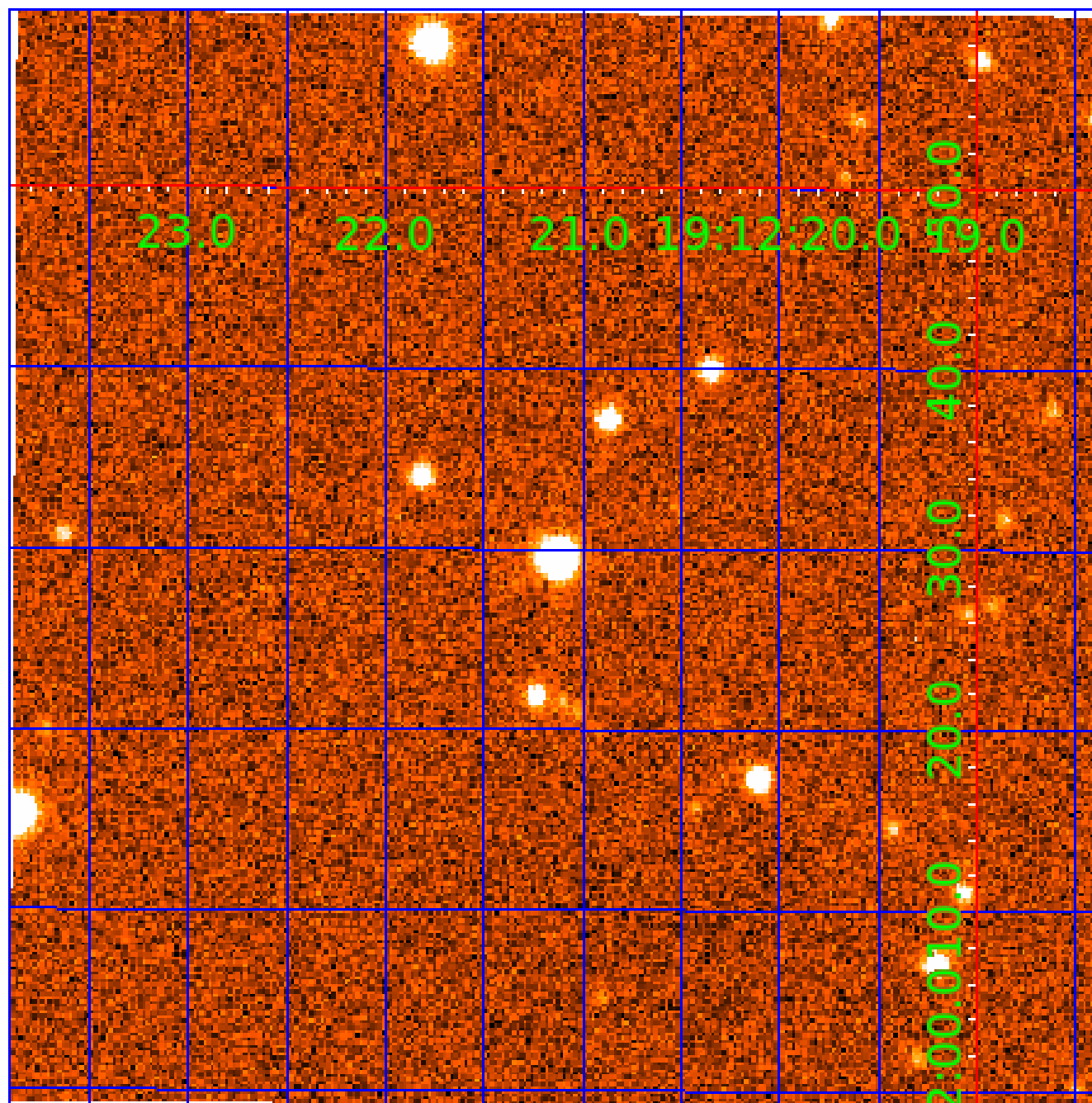


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007597005

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007597005-01 | OBS | 3961.01 | 0.704539 | 132.183384 | 202.4 | 1.046 | 22.8 | 28.2 | 1.01 | 6063 | 1.72 | 4792.46 |
| 007597005-02 | OBS | No | 0.704533 | 131.831569 | 70.0 | 1.248 | 9.8 | 11.2 | 1.01 | 6063 | 1.00 | 4792.51 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 007597005-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET |
| 007597005-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 0 | IS_SEC_TCE—CENT_RESOLVED_OFFSET |

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.

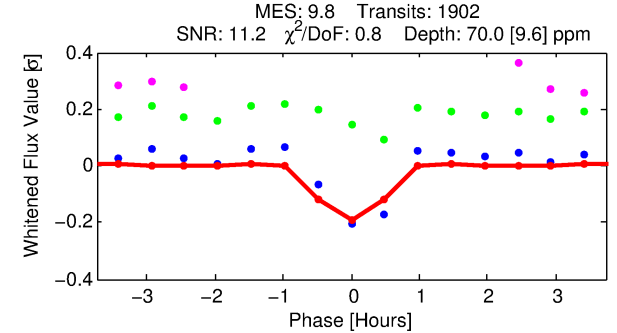
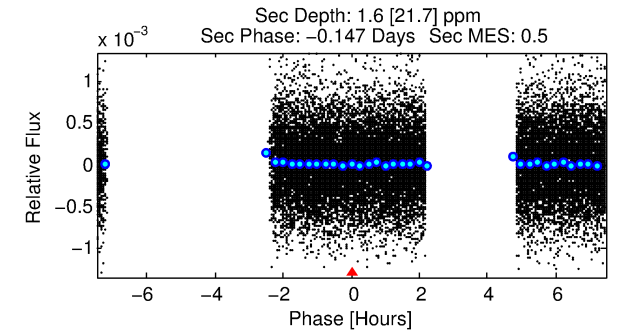
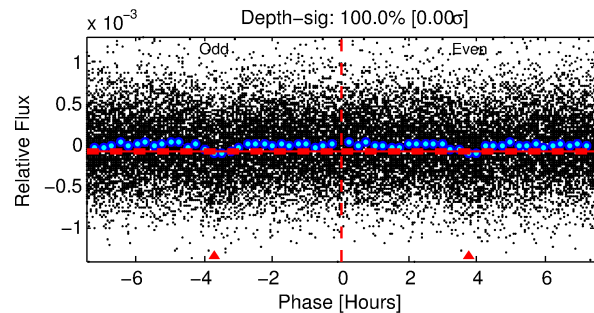
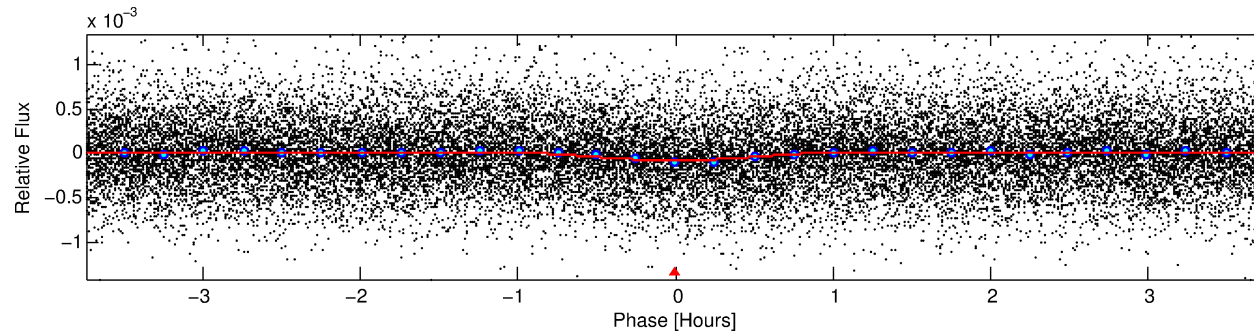
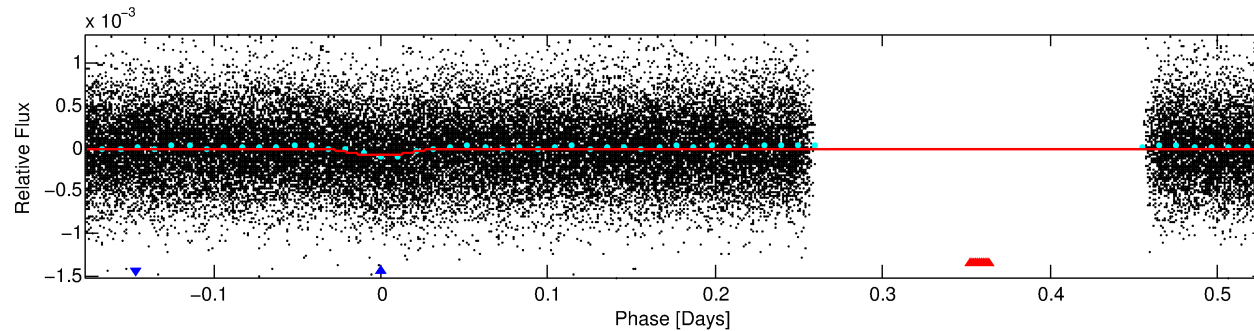
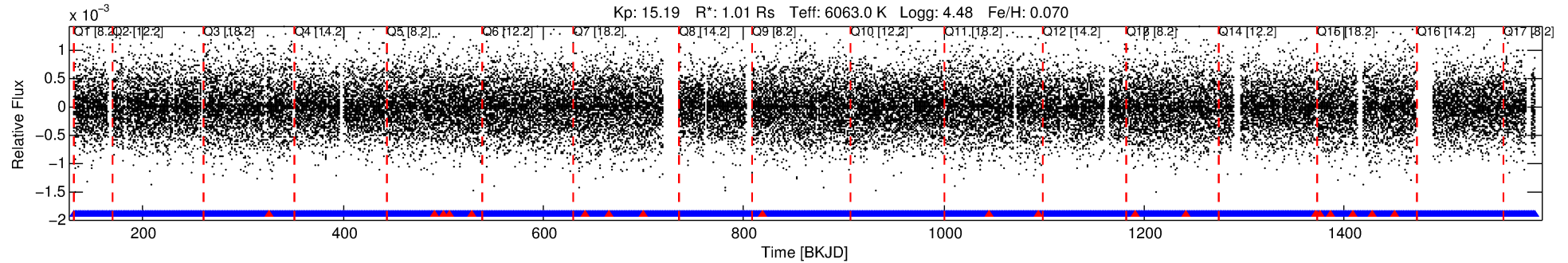
Ephemeris Match Information For 007597005-02

No Significant Match Found

DV One-Page Summary

KIC: 7597005 Candidate: 2 of 2 Period: 0.705 d

KOI: K03961 Corr: No Ephemeris Match



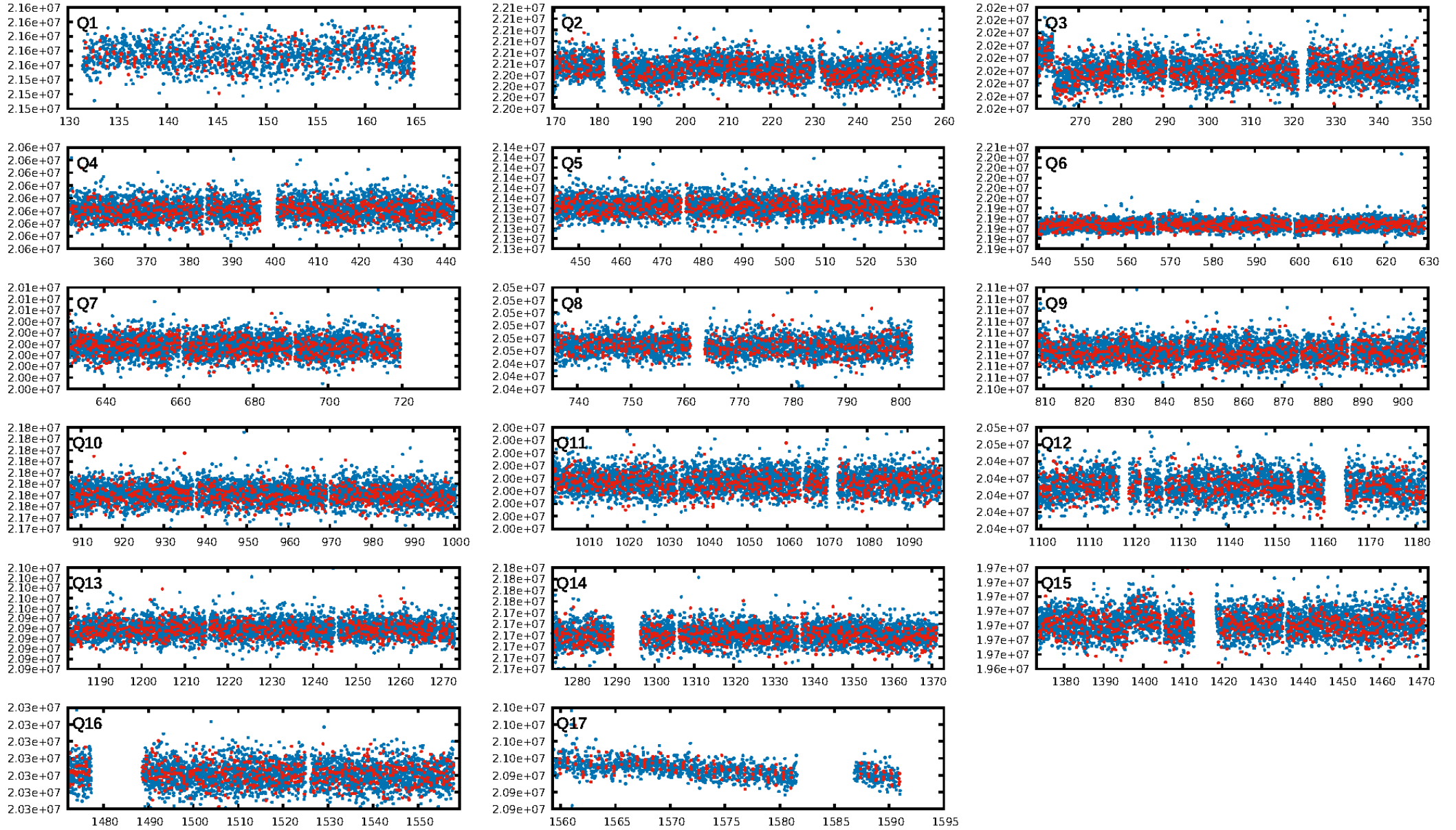
DV Fit Results:

Period = 0.70453 [0.00001] d
Epoch = 131.8316 [0.0019] BKJD
Rp/R* = 0.0091 [0.0054]
a/R* = 2.18 [5.24]
b = 0.90 [0.66]
Seff = 4792.51 [2017.71]
Teq = 2122 [223] K
Rp = 1.01 [0.68] Re
a = 0.0161 [0.0043] AU
Ag = 0.22 [3.07] [-0.25σ]
Teffp = 2250 [7803] K [0.02σ]

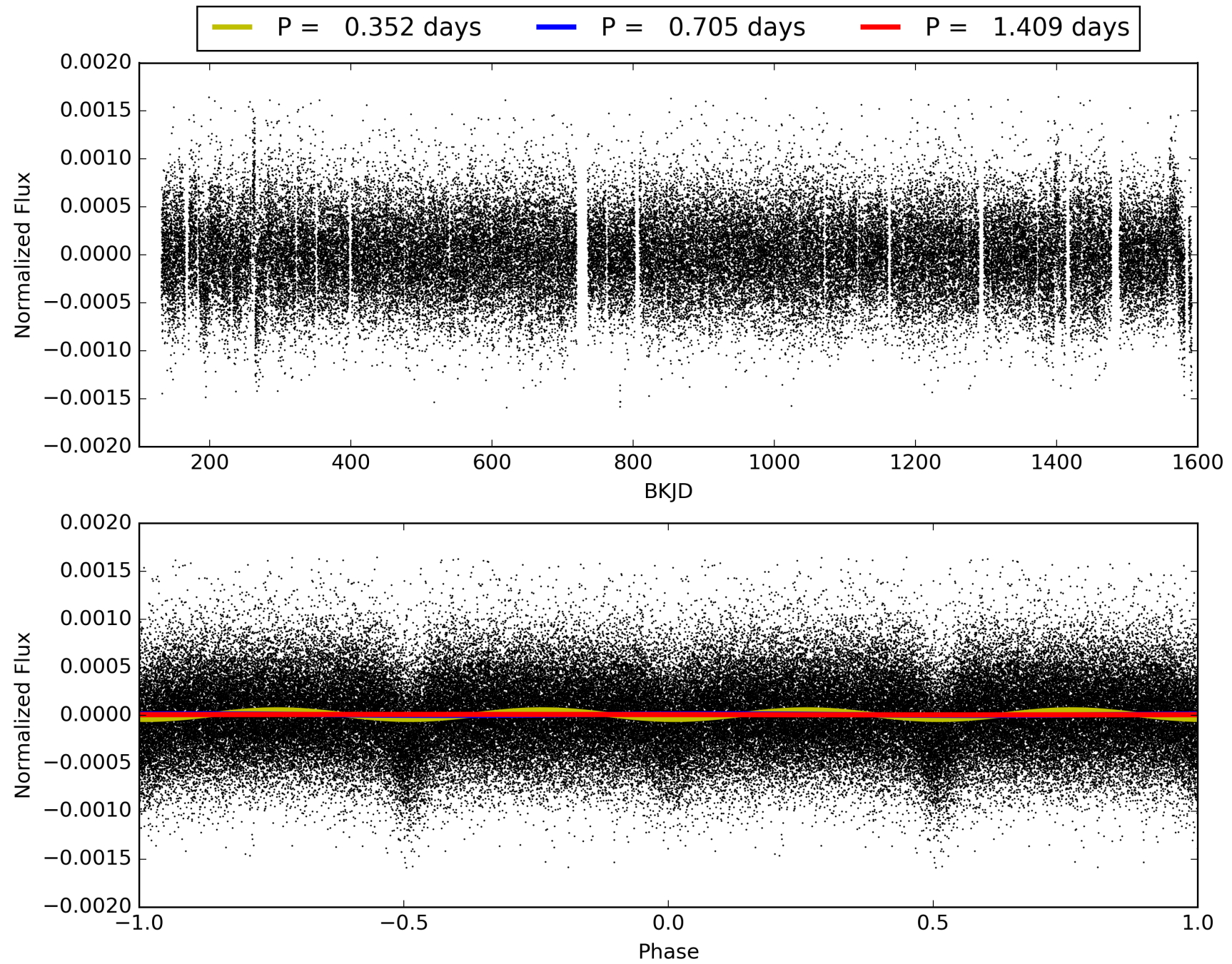
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.35e-26
RollingBand-fgt: 0.99 [1797/1816]
GhostDiagnostic-chr: -1.08
Centroid-sig: 0.0%
Centroid-so: 6.248 arcsec [4.70σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007597005-02, PDC Light Curves

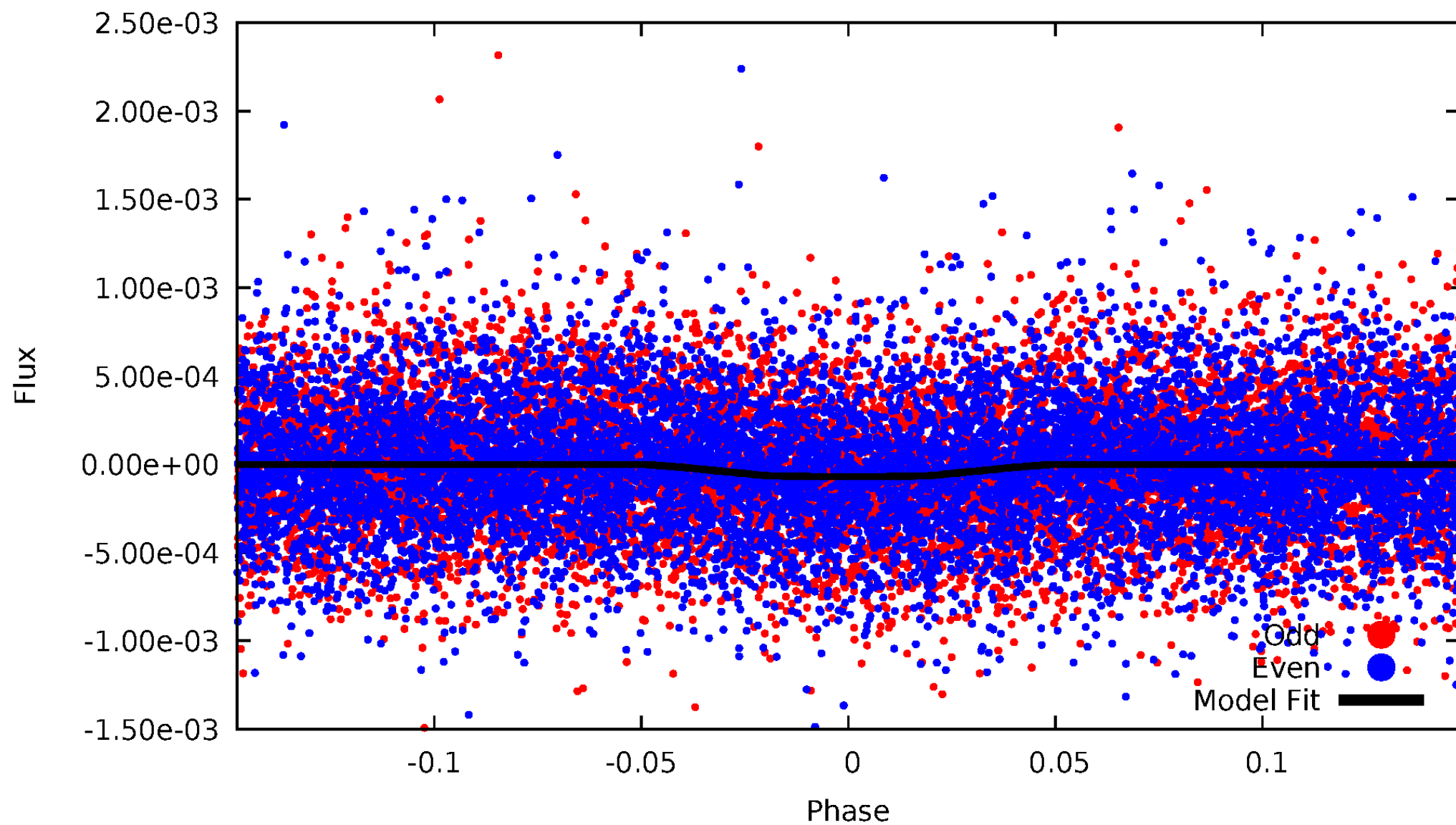


TCE 007597005-02



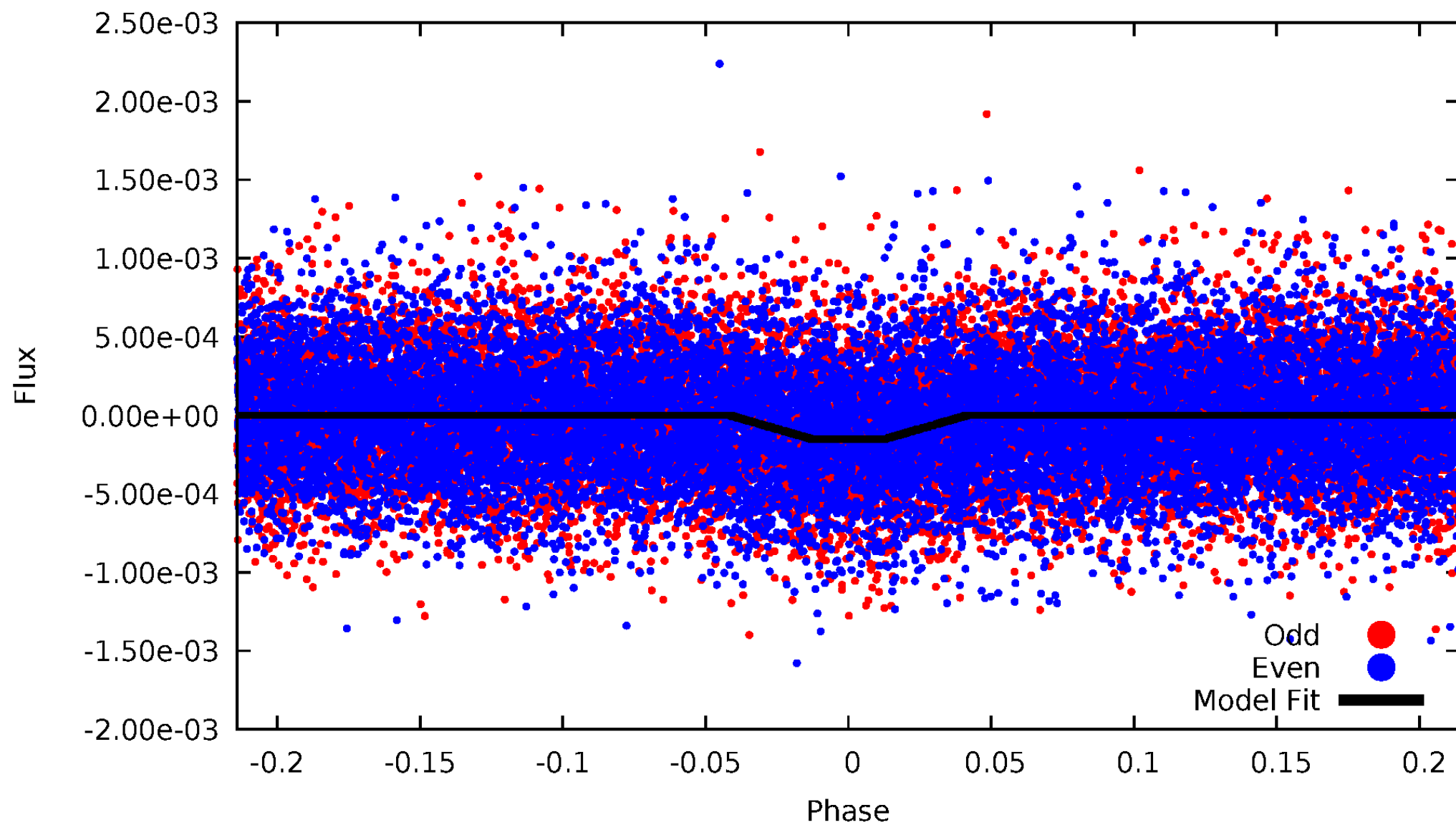
DV Odd/Even

TCE 007597005-02



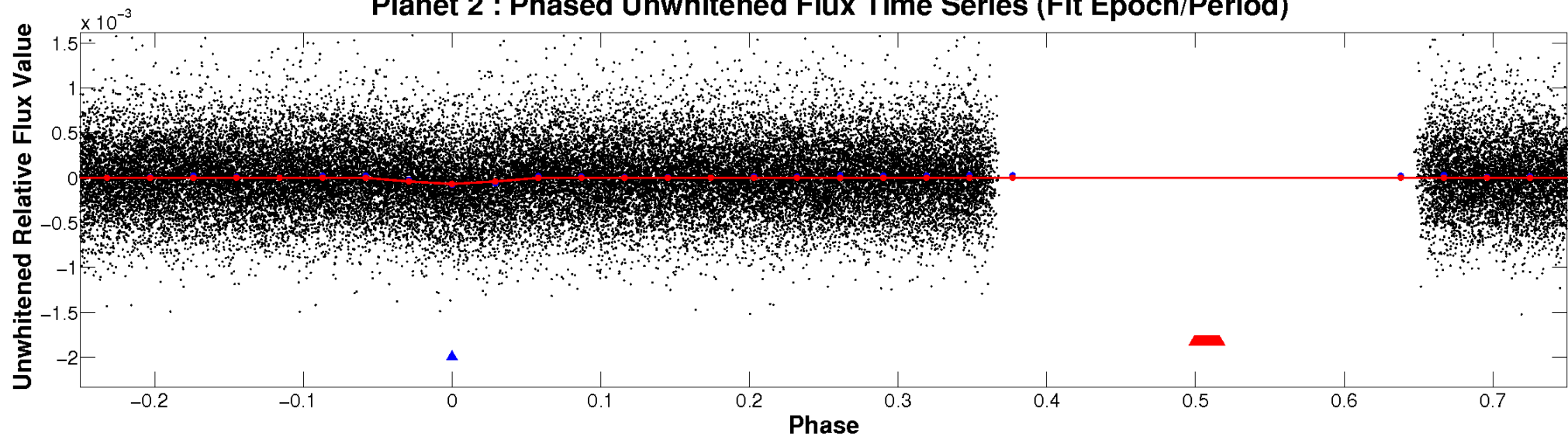
ALT Odd/Even

TCE 007597005-02

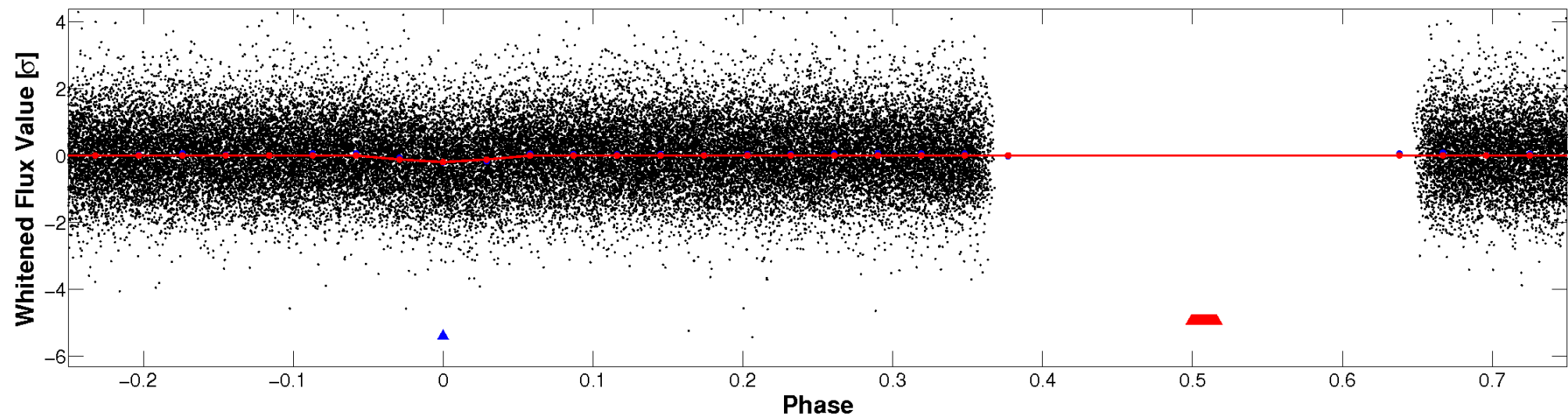


Non-Whitened Vs. Whitened Light Curve

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

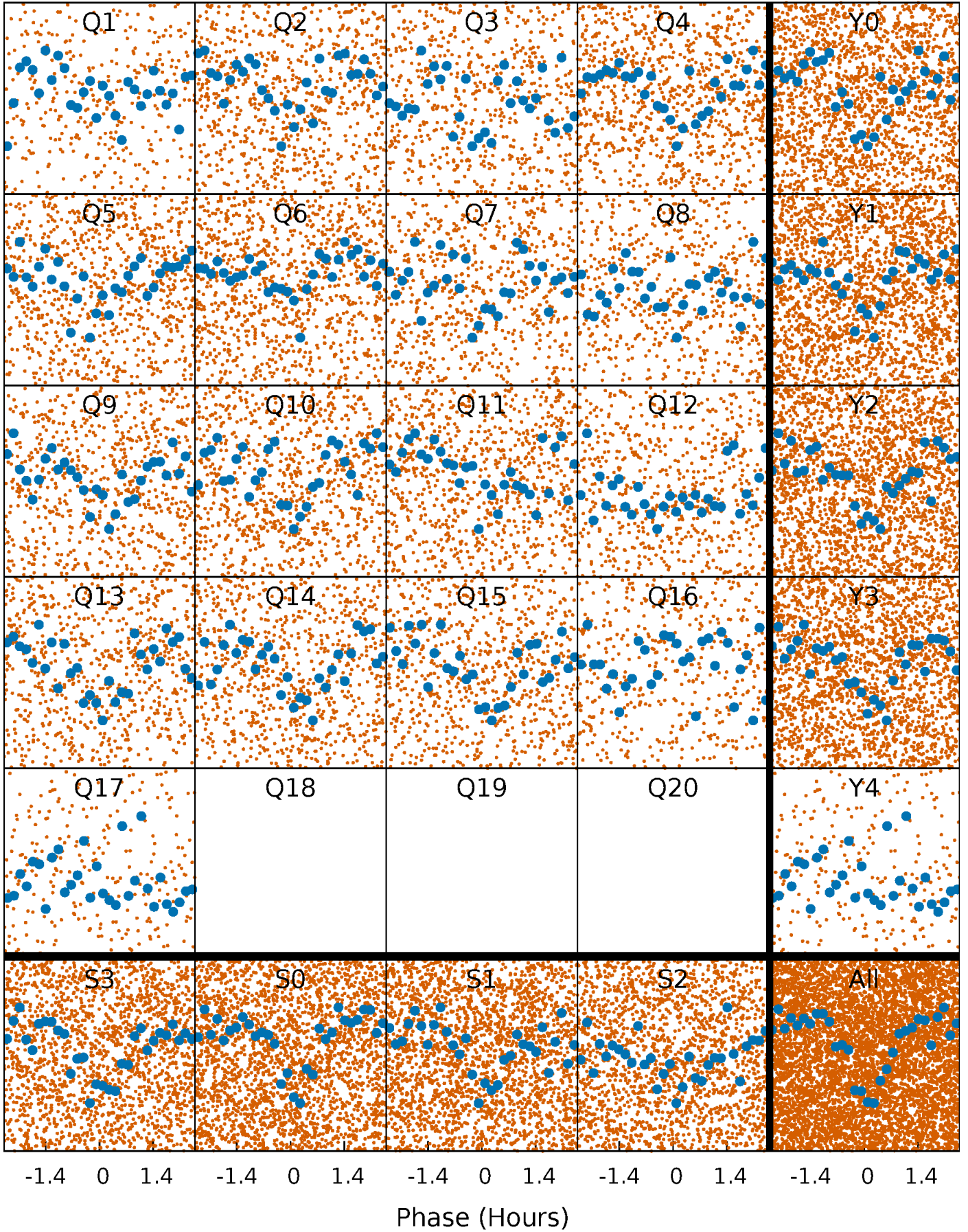


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



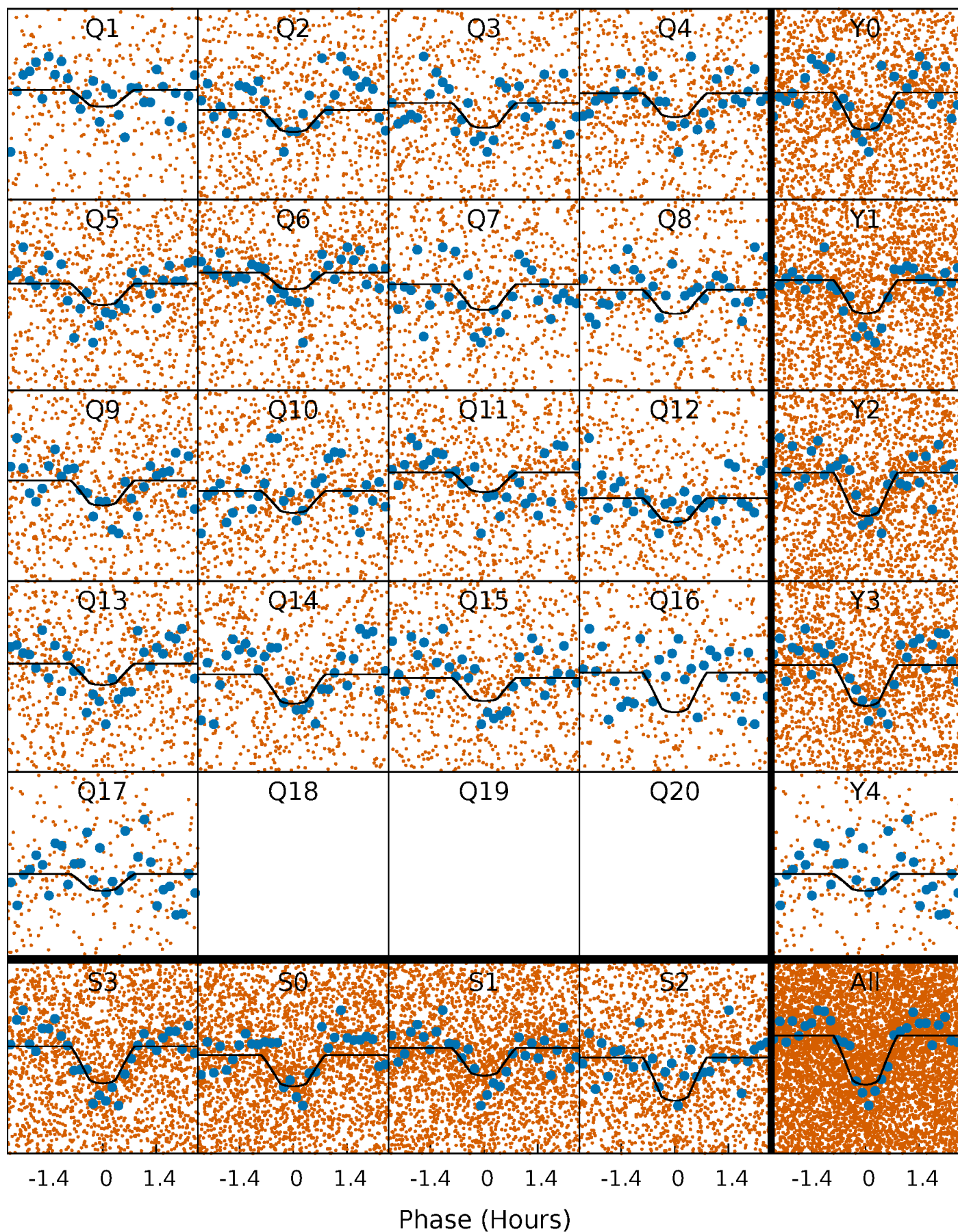
PDC Quarter-Phased Transit Curves

TCE 007597005-02 P= 0.704533 Days $T_0=131.831569$ (BKJD)



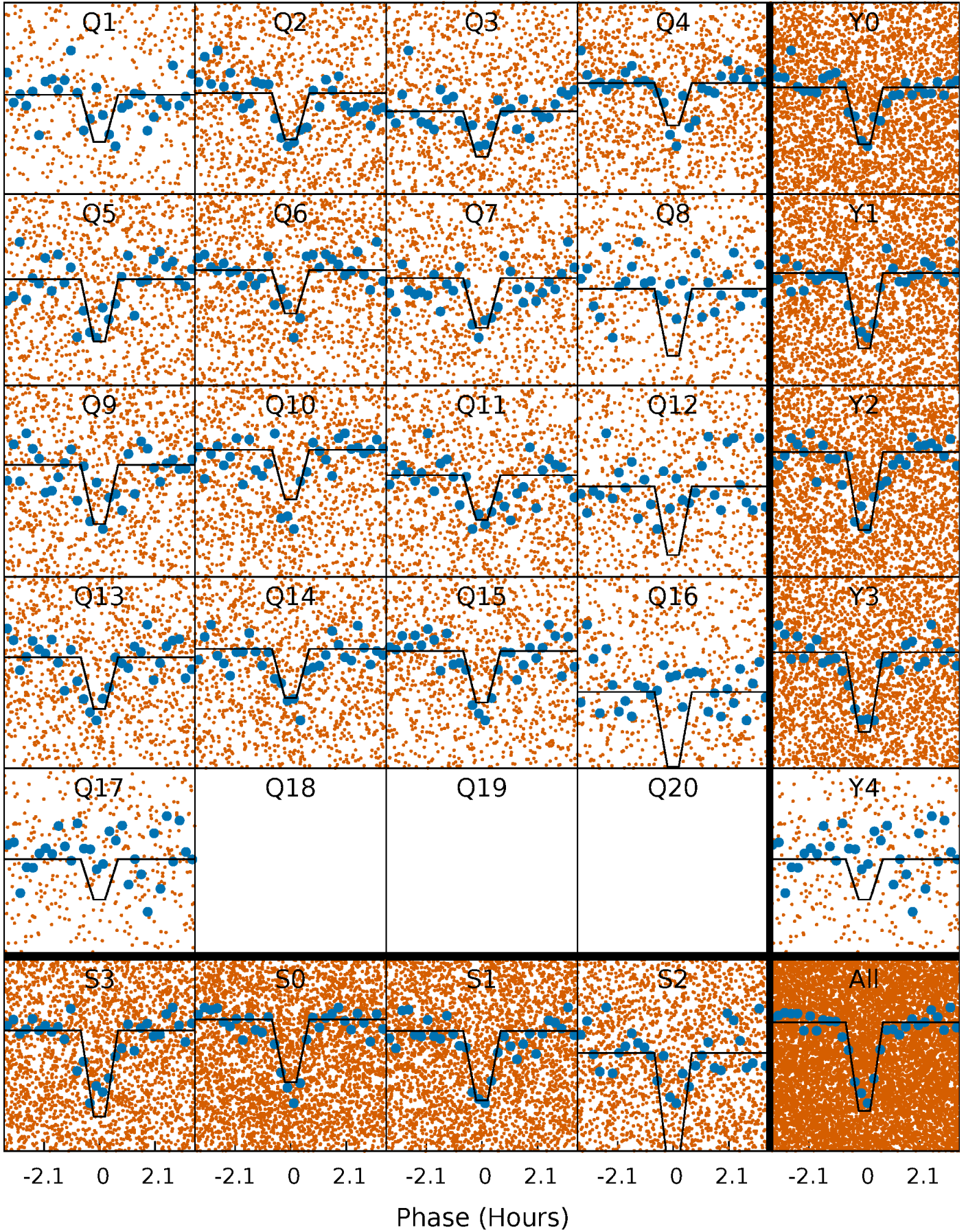
DV Quarter-Phased Transit Curves

TCE 007597005-02 $P = 0.704533$ Days $T_0 = 131.831569$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

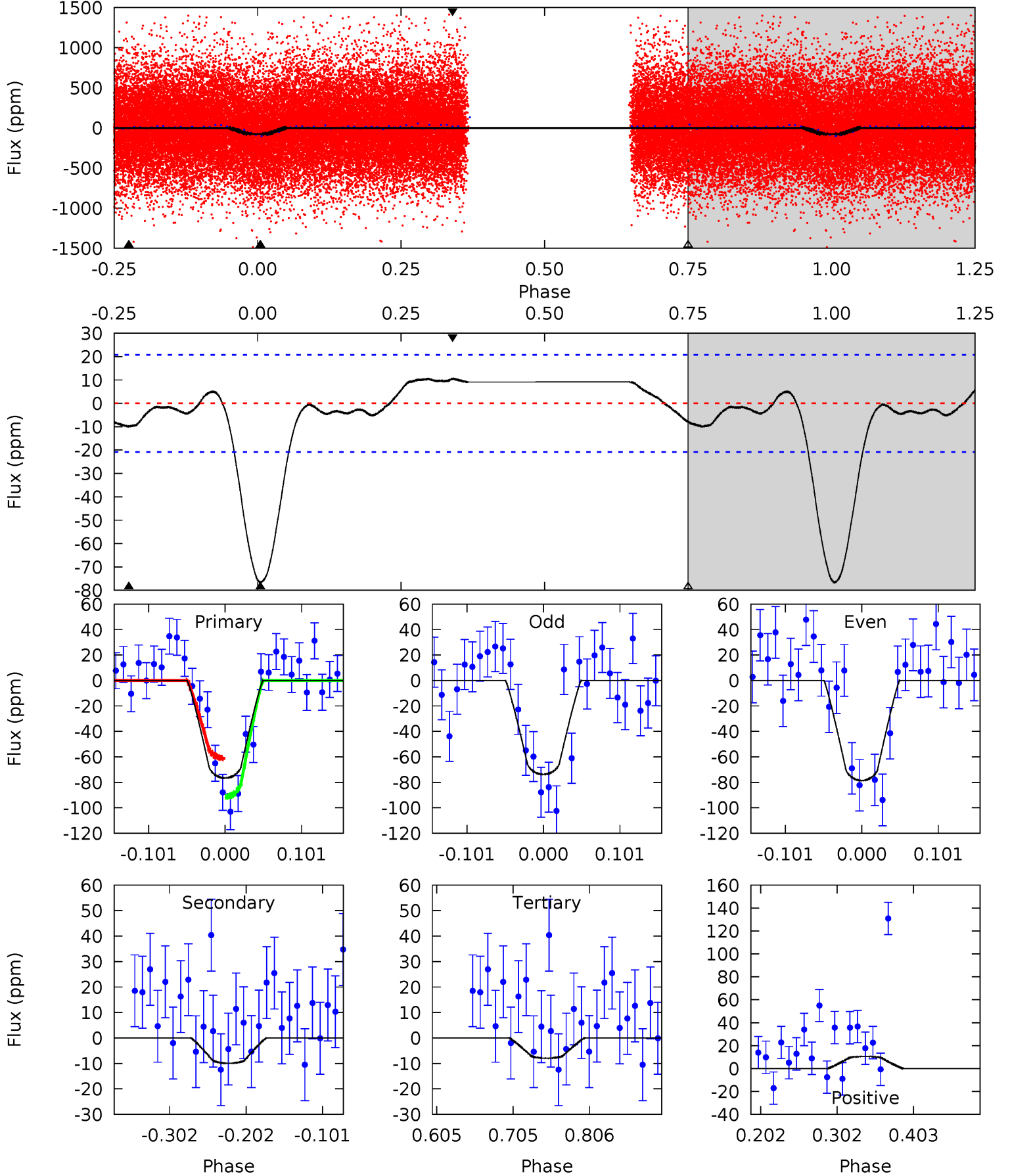
TCE 007597005-02 P= 0.704541 Days $T_0=131.829113$ (BKJD)



DV Model-Shift Uniqueness Test

007597005-02, P = 0.704533 Days, E = 131.127036 Days

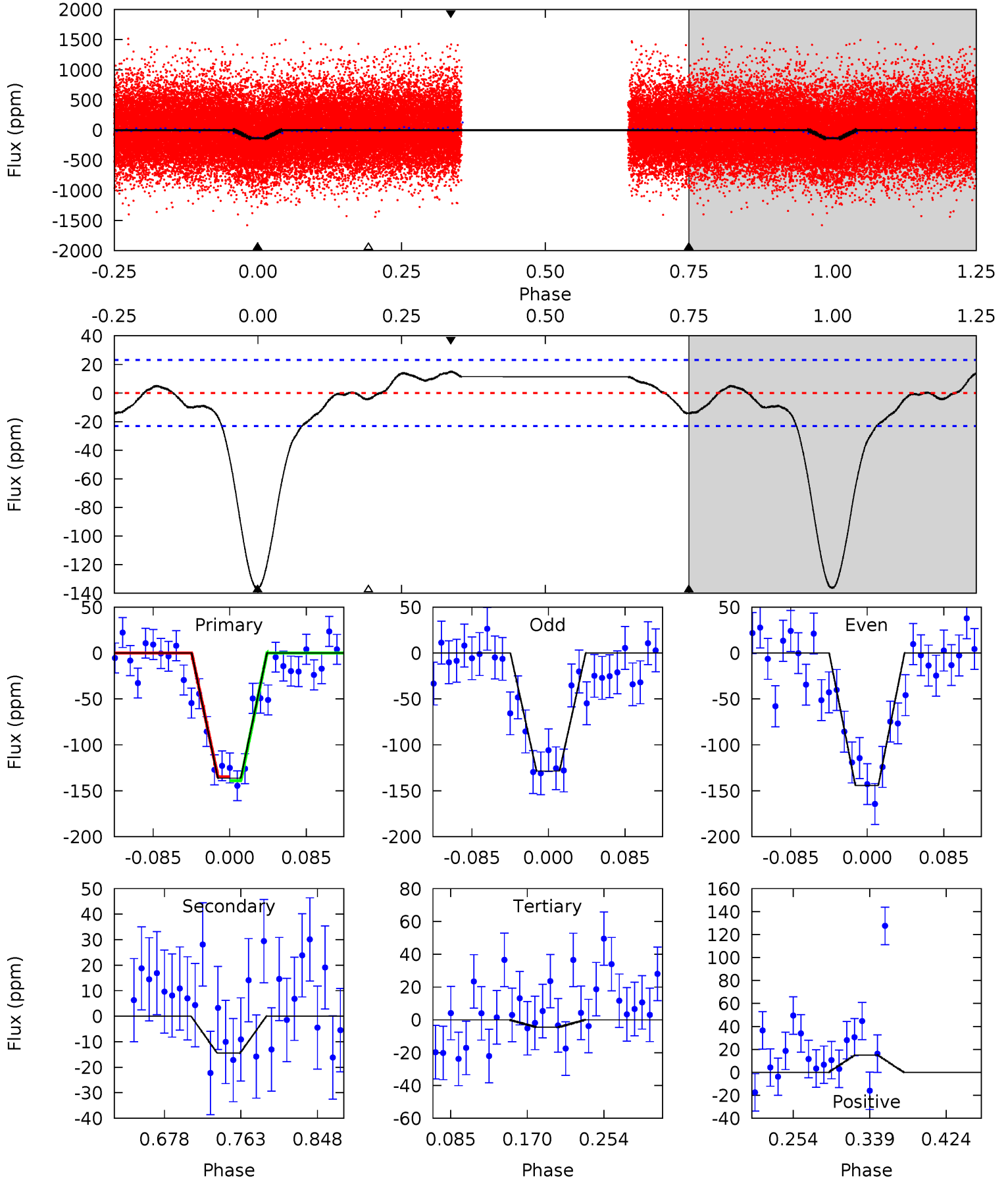
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.8 | 2.18 | 1.74 | 2.32 | 4.56 | 1.64 | 1.30 | 15.1 | 14.5 | 0.44 | -0.14 | 0.53 | 0.99 | 0.12 | 3.35 |



Alt Model-Shift Uniqueness Test

007597005-02, P = 0.704541 Days, E = 131.124572 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 27.2 | 2.88 | 0.88 | 3.00 | 4.60 | 1.72 | 1.85 | 26.3 | 24.2 | 2.01 | -0.12 | 1.57 | 0.99 | 0.10 | 0.44 |



Stellar Parameters For KIC 007597005

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 6063^{+190}_{-232} | $4.476^{+0.054}_{-0.216}$ | $0.070^{+0.250}_{-0.350}$ | $1.012^{+0.318}_{-0.106}$ | $1.117^{+0.130}_{-0.159}$ | $1.519^{+0.340}_{-0.806}$ |
| | +3%/-4% | +1%/-5% | +357%/-500% | +31%/-10% | +12%/-14% | +22%/-53% |
| 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 007597005-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|---------------------------|
| DV | -10 ± 5 | $1.11^{+0.59}_{-0.60}$ | 3029^{+220}_{-153} | 3625^{+1543}_{-947} | $1.092^{+4.101}_{-0.703}$ |
| Alt. | -14 ± 5 | $1.44^{+0.67}_{-0.64}$ | 3034^{+241}_{-167} | 3489^{+1000}_{-835} | $0.940^{+2.202}_{-0.543}$ |

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

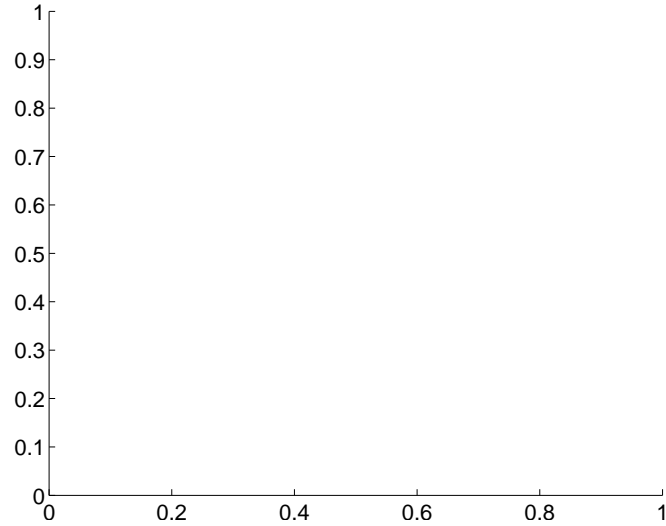
Supplemental centroid analysis for 007597005-02. Kepler magnitude: 15.19. Transit SNR 11.21

There are 0 quarters with good PRF difference image offsets

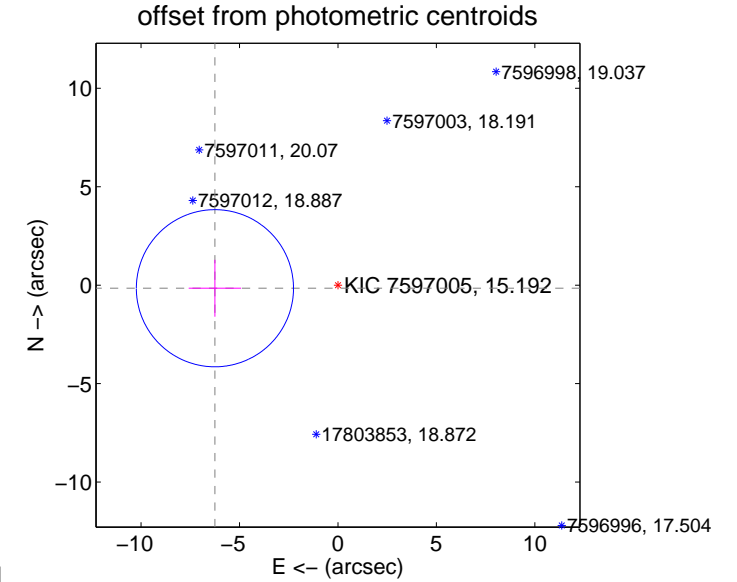
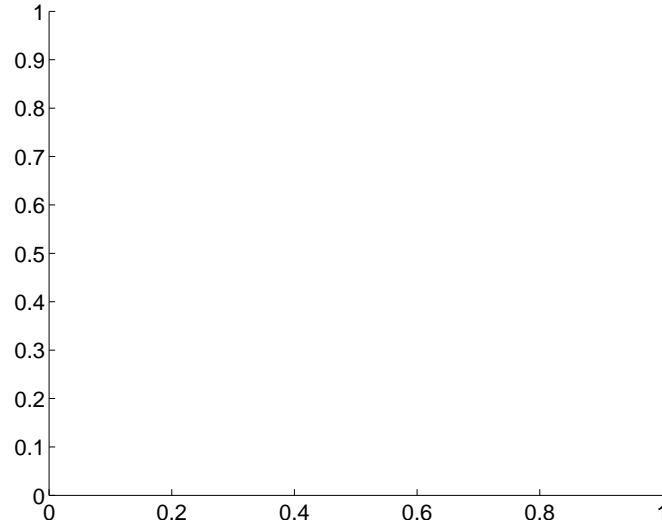
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-----------------|------------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | 6.25 ± 1.33 | 4.70 | 6.25 ± 1.33 | -0.16 ± 1.44 |

There is no PRF-fit offset from OOT-fit

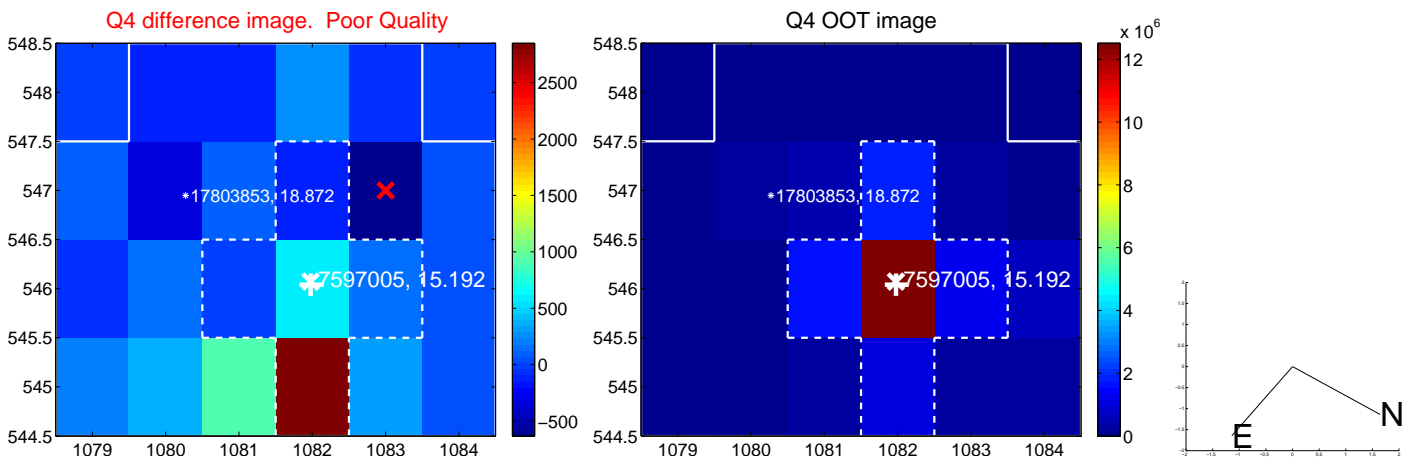
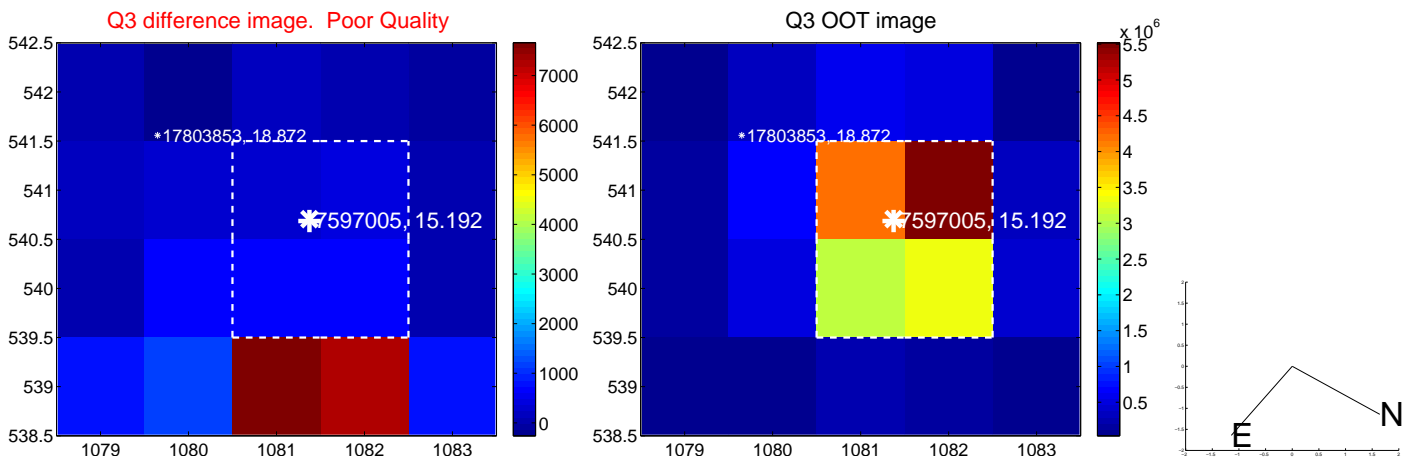
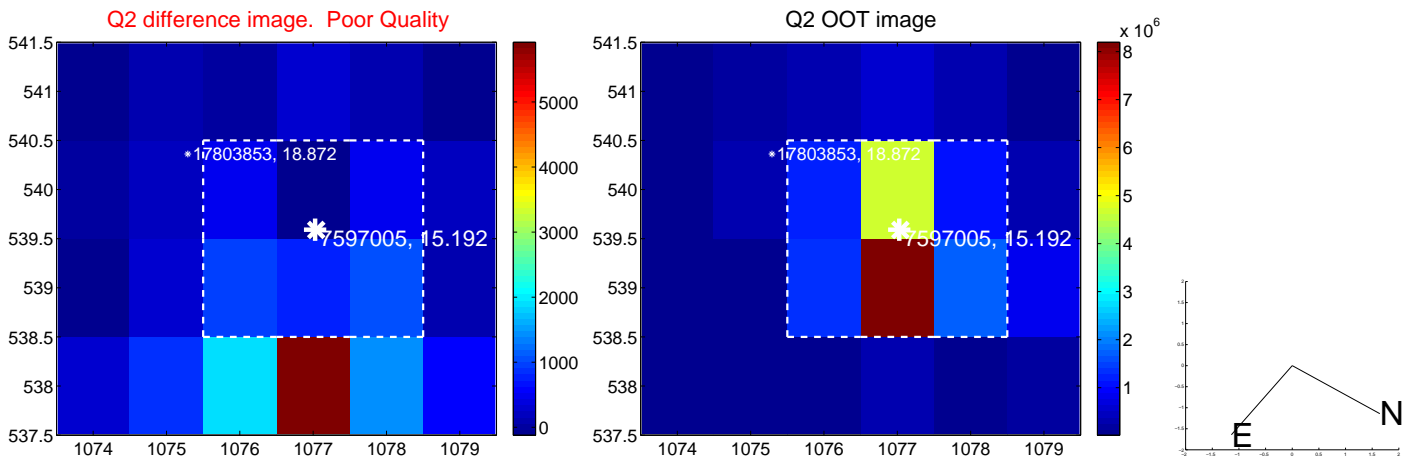
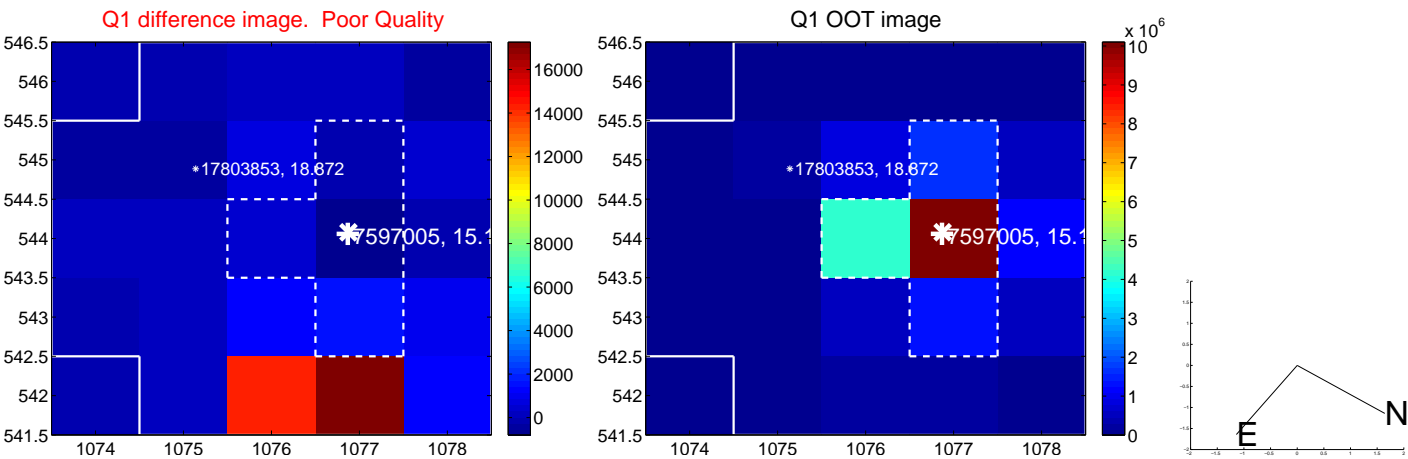


There is no PRF-fit offset from KIC

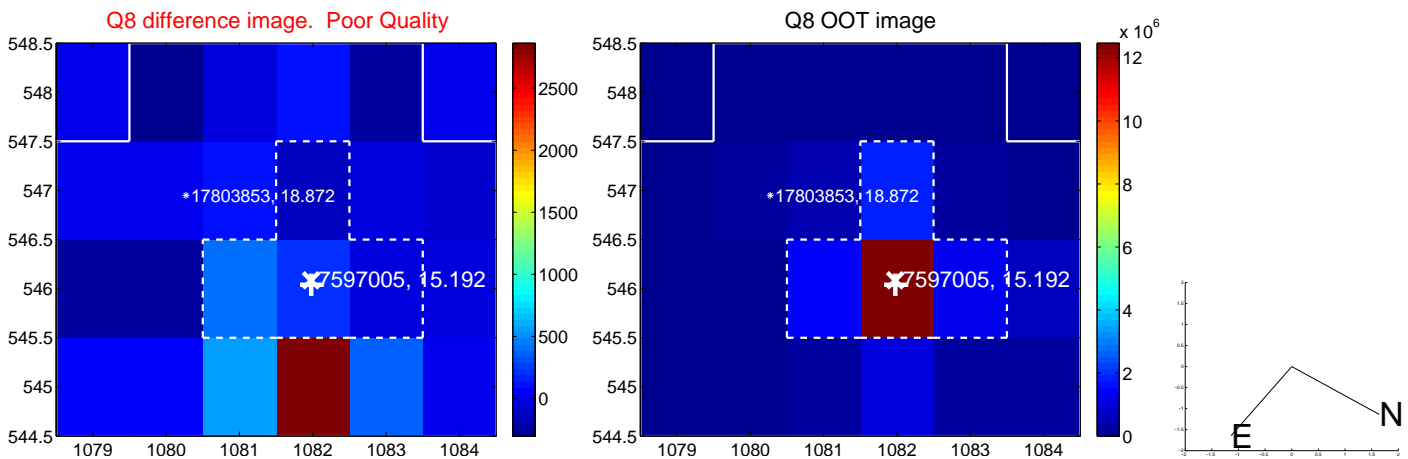
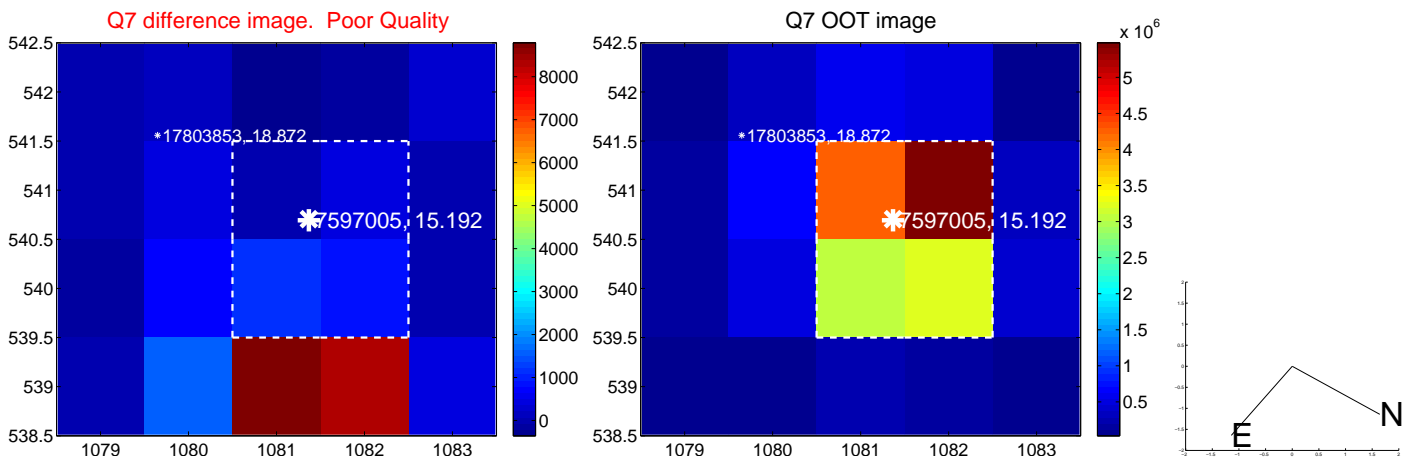
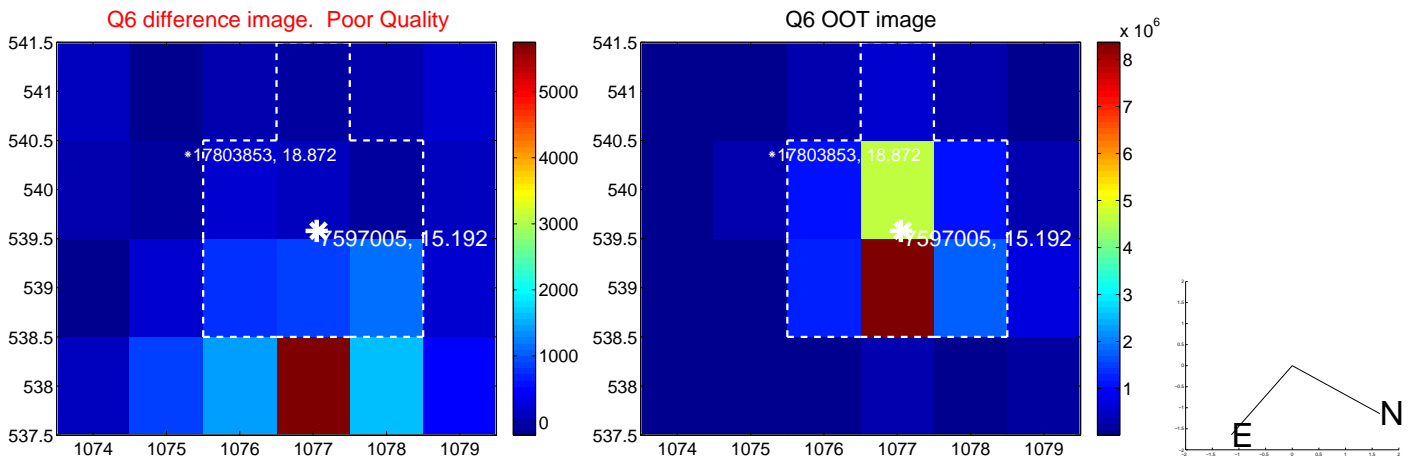
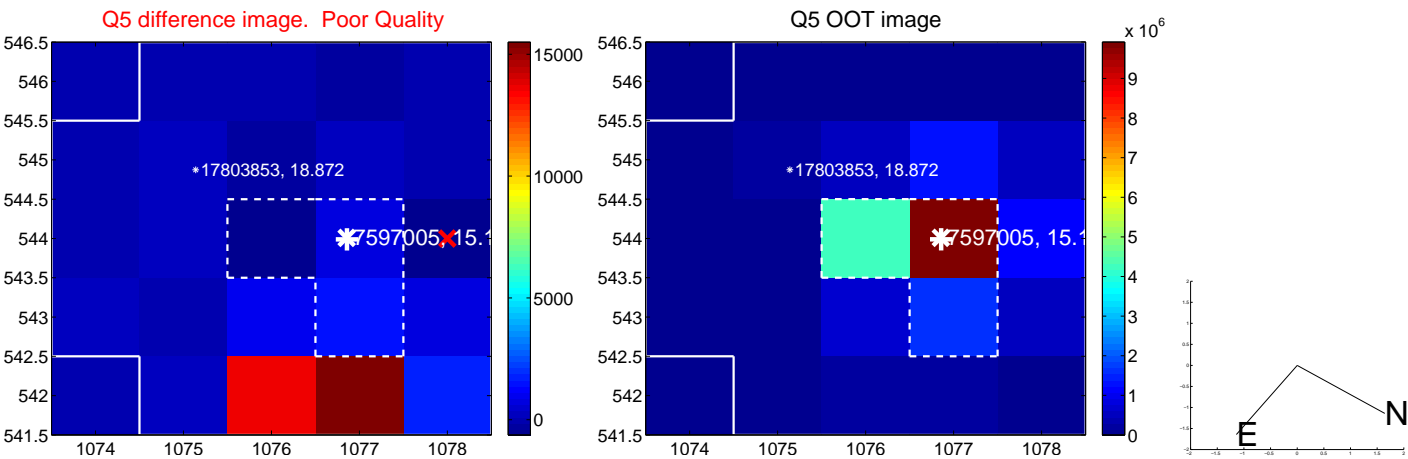


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

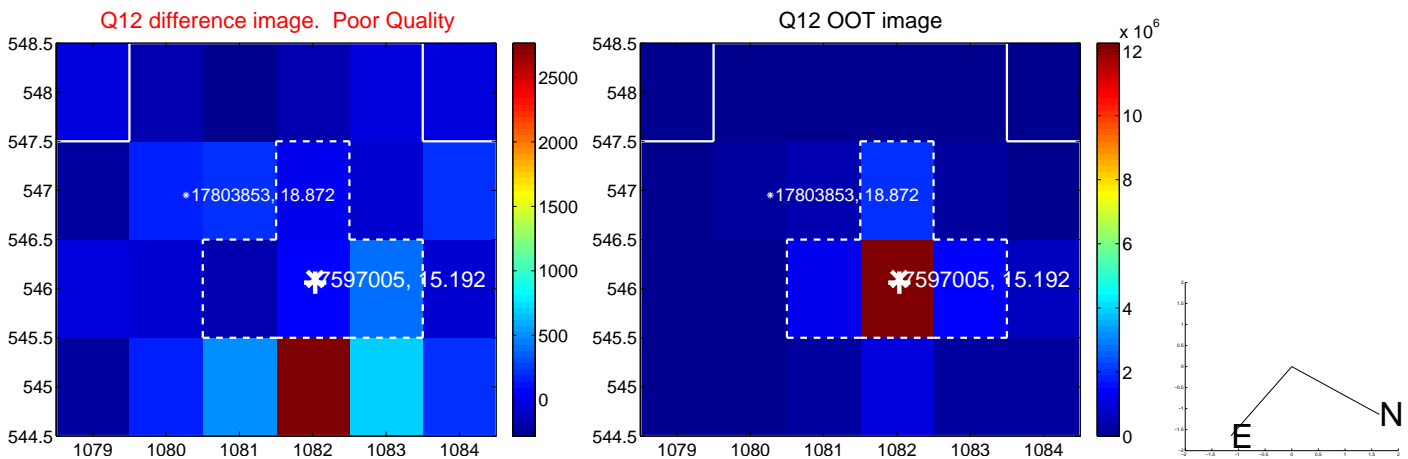
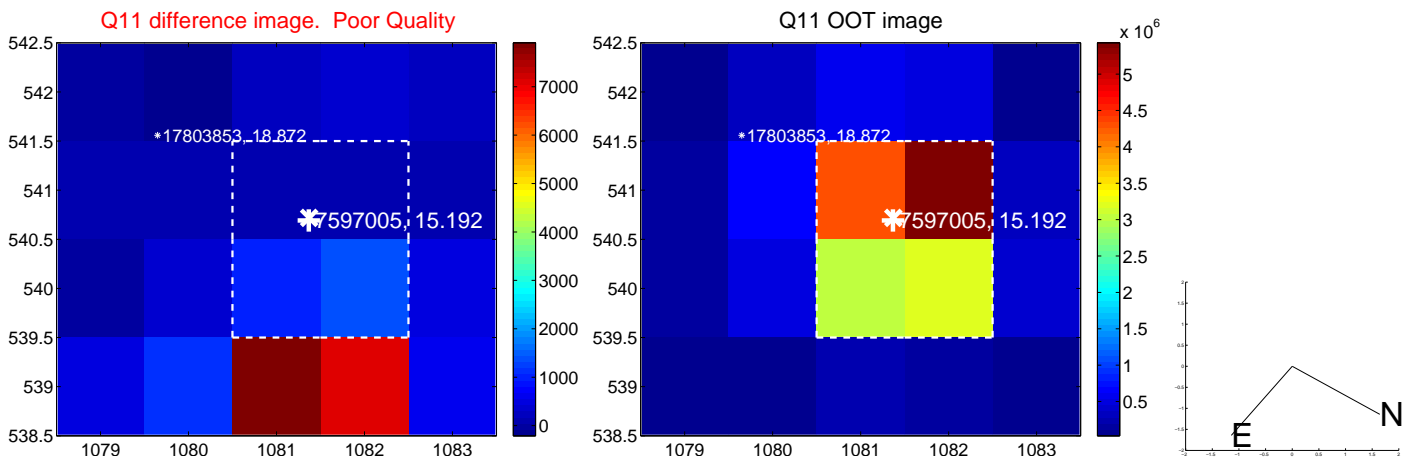
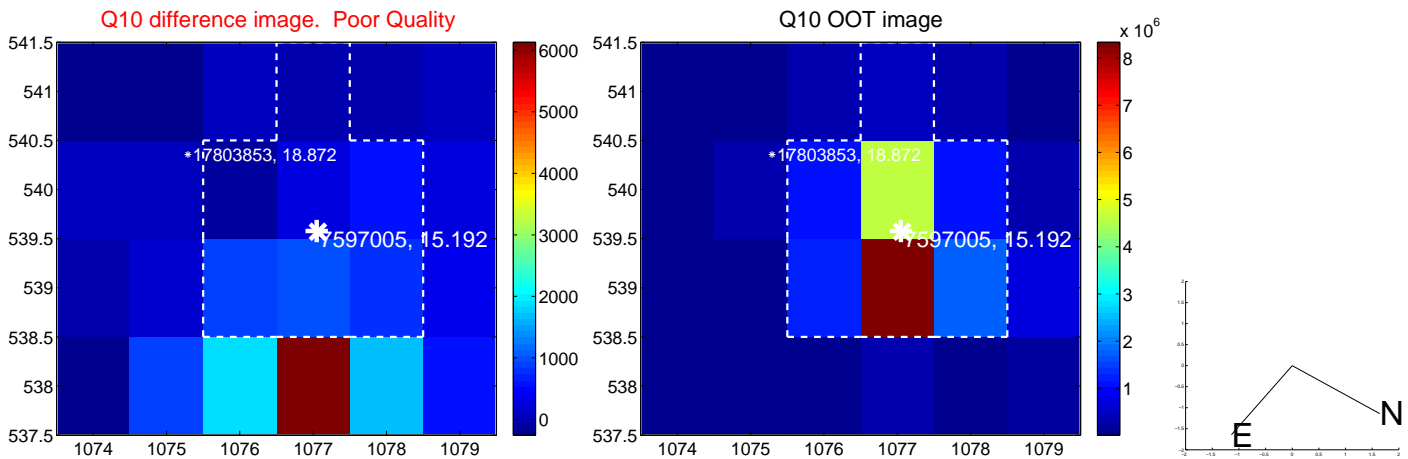
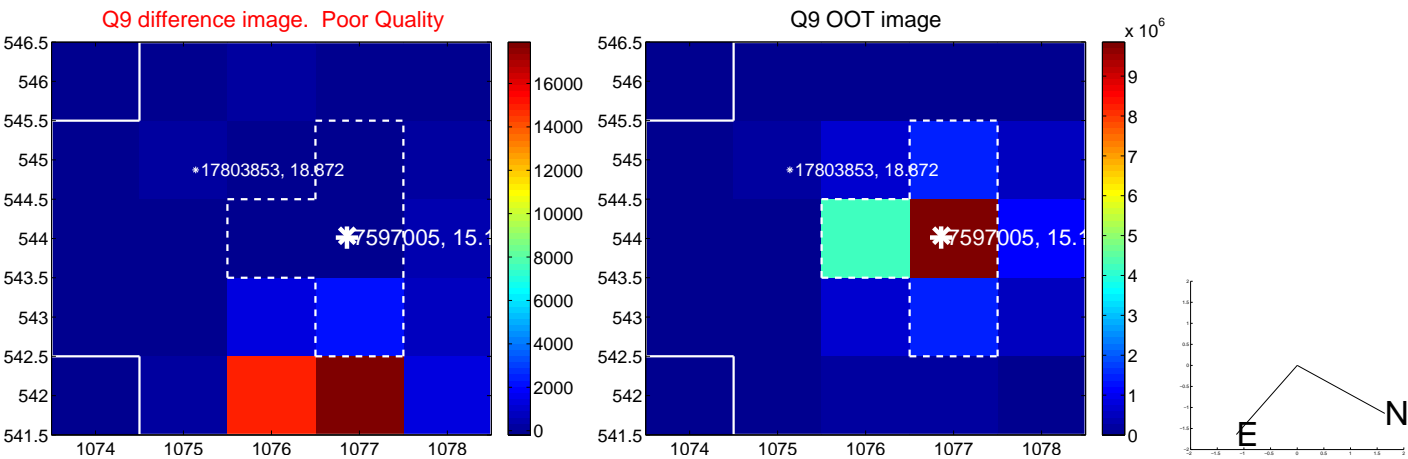
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



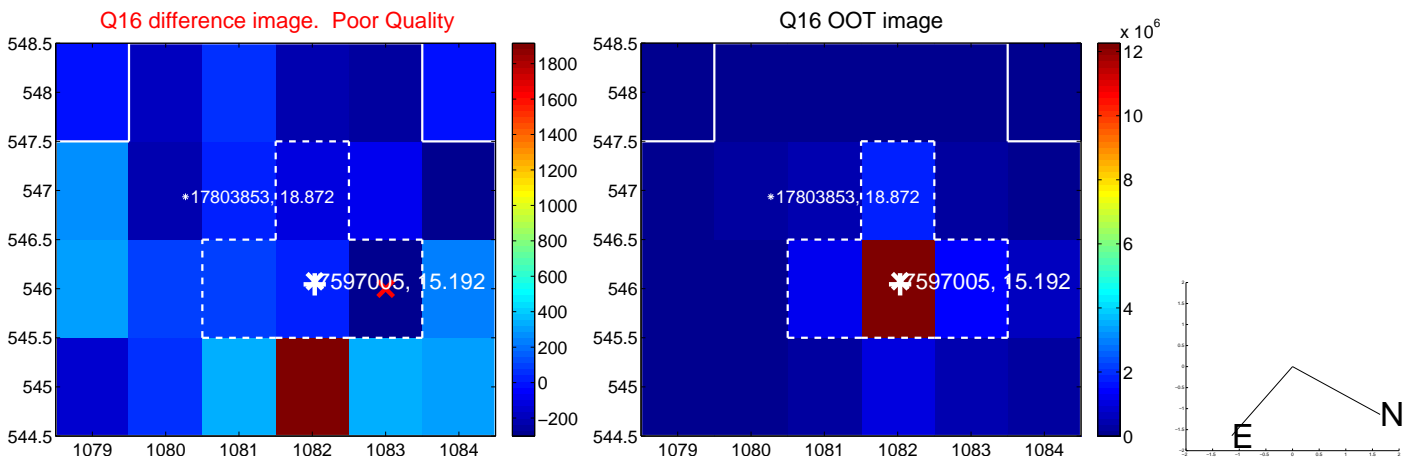
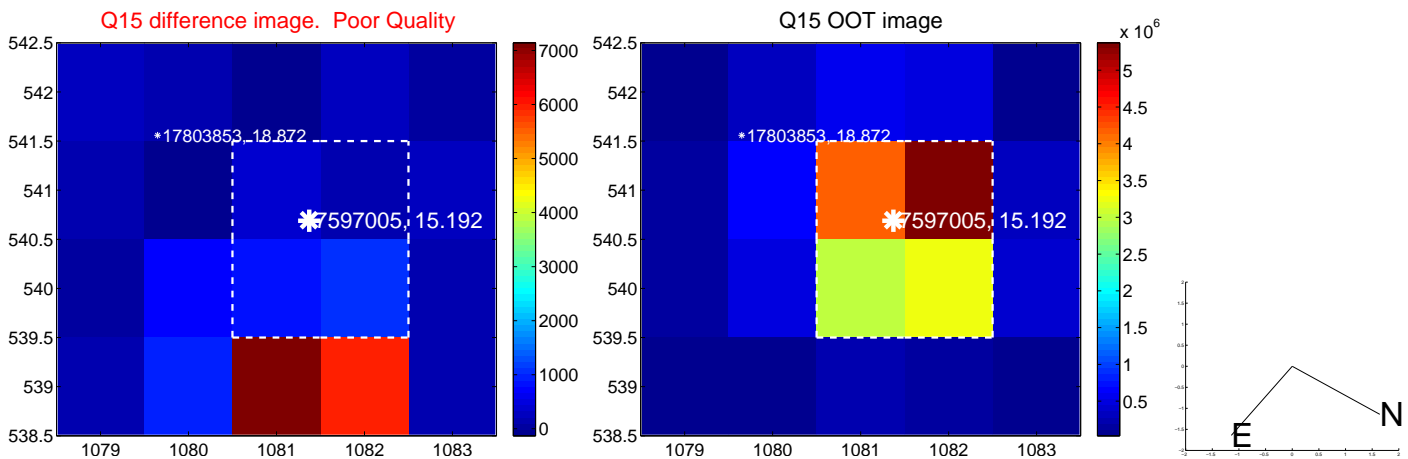
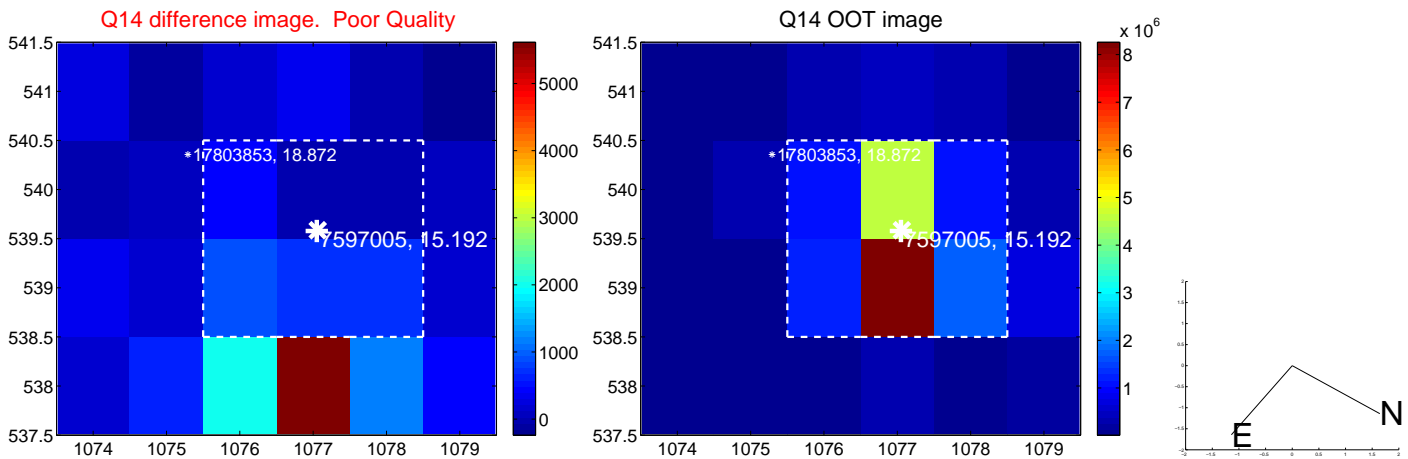
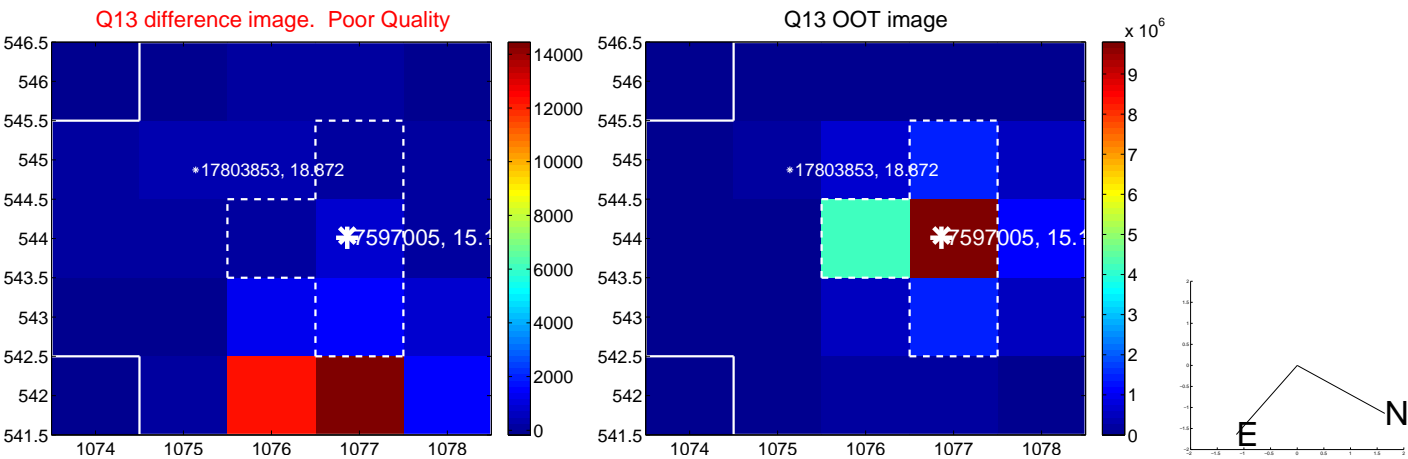
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



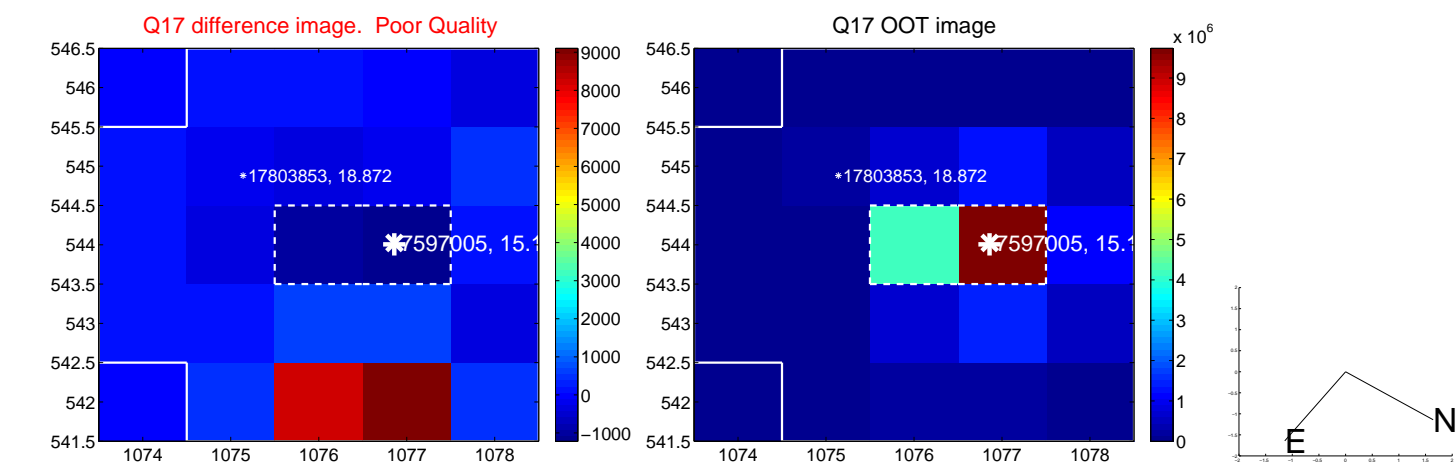
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



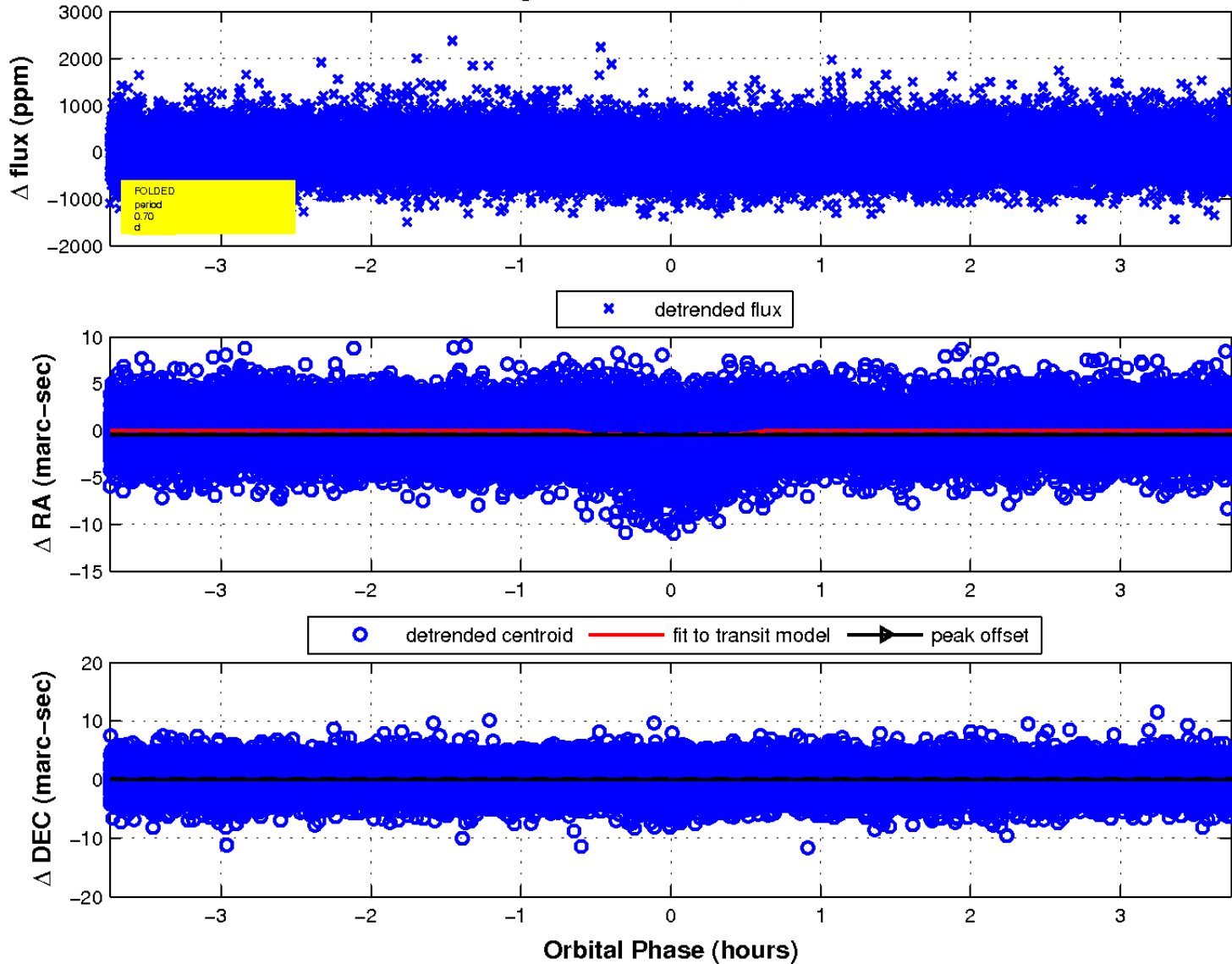
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

