

KIC 005547480

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005547480-01 | OBS | 0224.01 | 3.979869 | 132.071359 | 835.2 | 2.251 | 55.0 | 59.2 | 0.97 | 6032 | 4.30 | 448.39 |
| 005547480-02 | OBS | No | 3.979809 | 134.071523 | 99.5 | 1.801 | 7.4 | 8.2 | 0.97 | 6032 | 1.14 | 448.40 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005547480-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST |
| 005547480-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 0 | IS_SEC_TCE—CENT_UNRESOLVED_OFFSET |

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

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

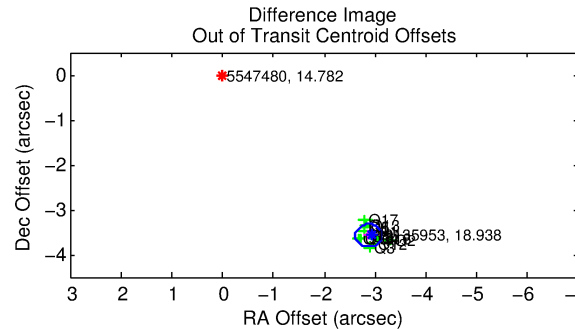
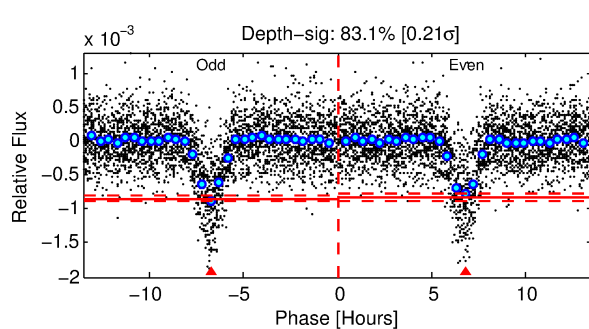
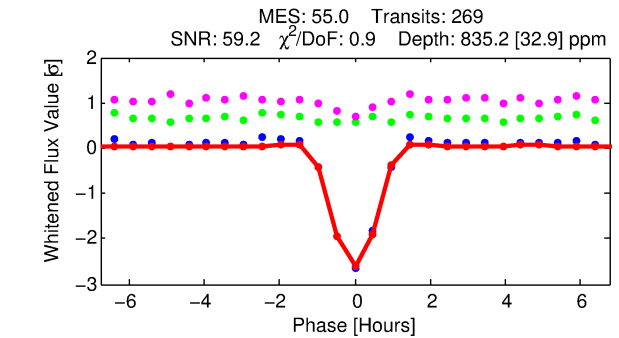
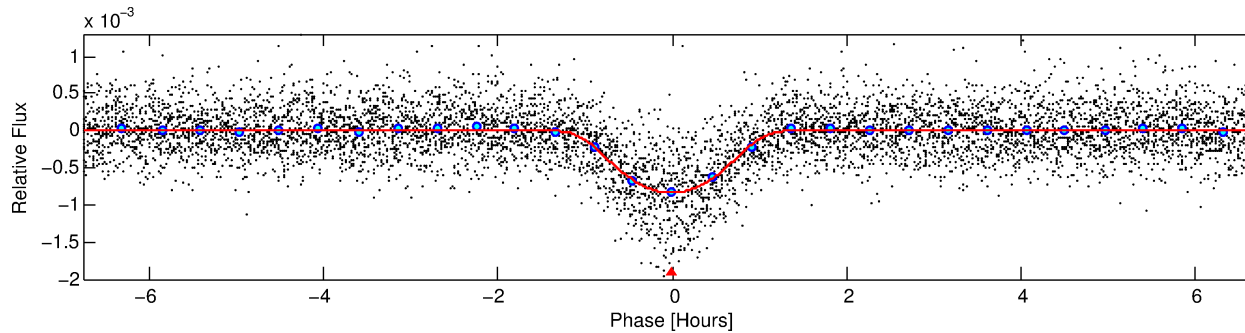
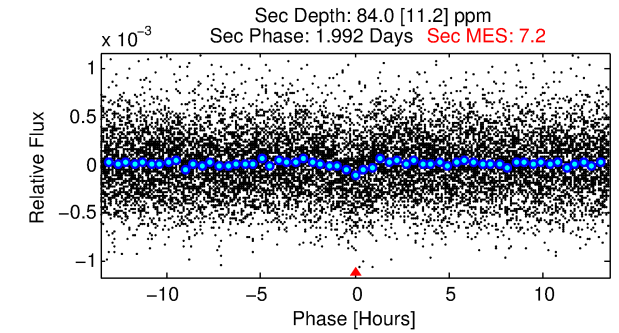
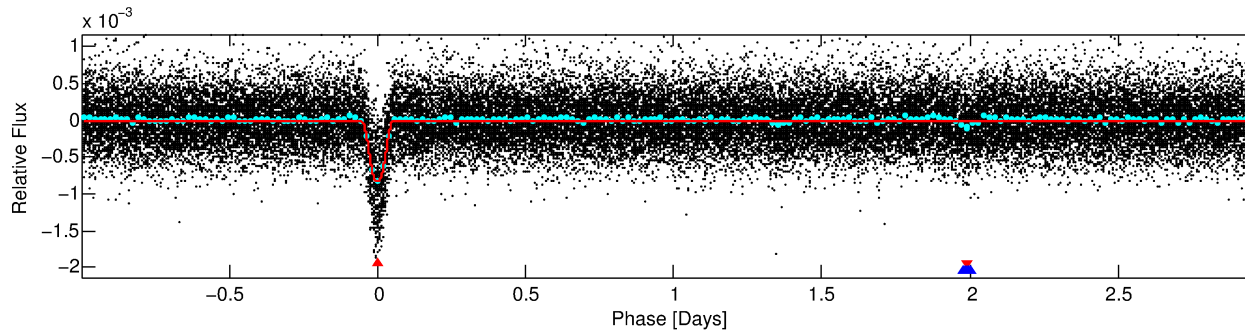
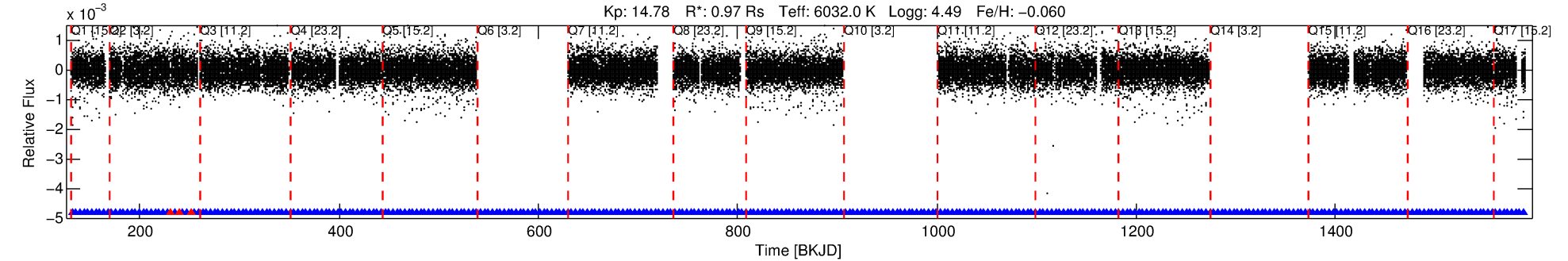
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005547480-01

No Significant Match Found

DV One-Page Summary

KIC: 5547480 Candidate: 1 of 2 Period: 3.980 d
KOI: K00224.01 Corr: 0.973



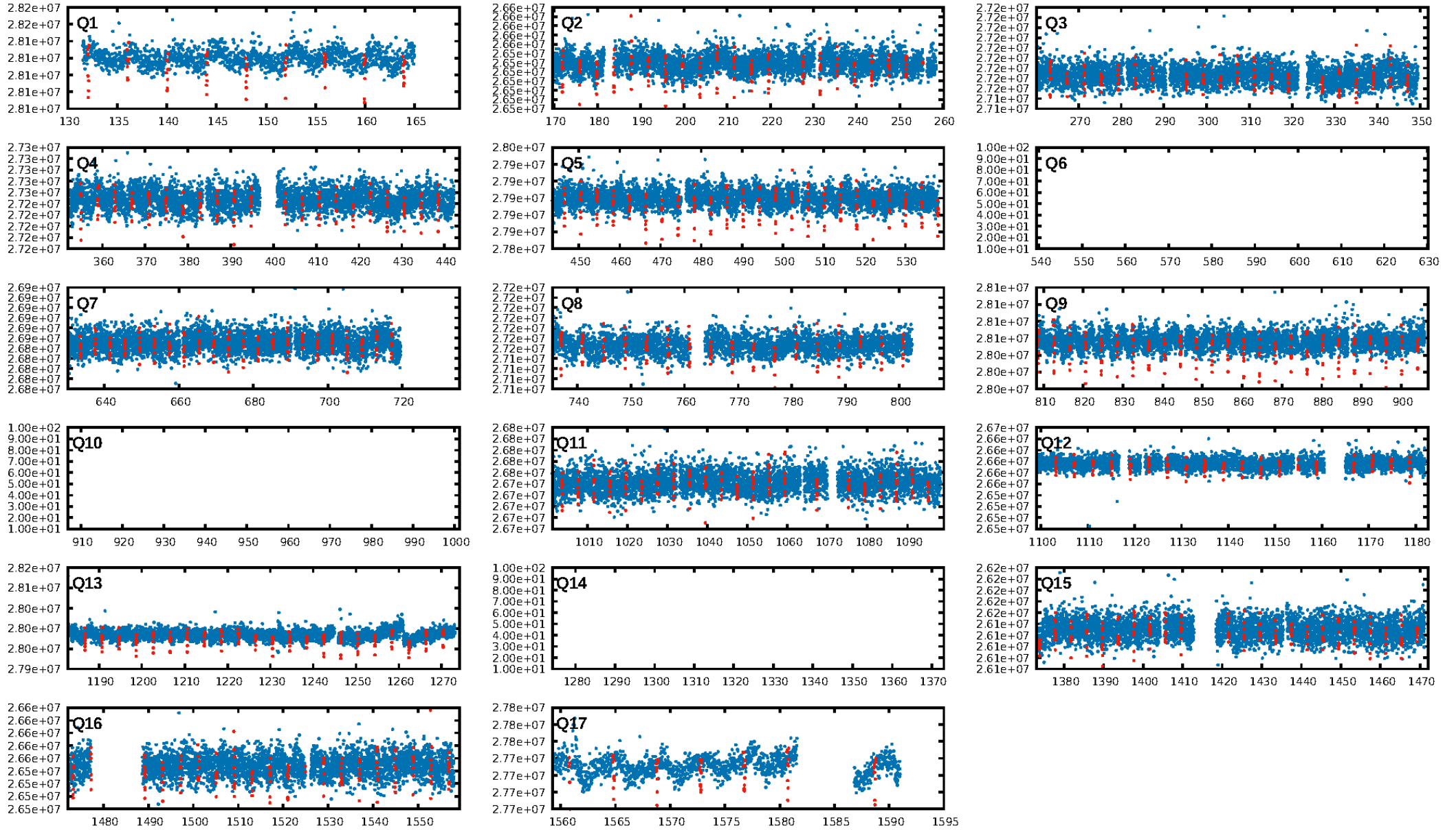
DV Fit Results:

Period = 3.97987 [0.00000] d
Epoch = 132.0714 [0.0007] BKJD
Rp/R* = 0.0405 [0.0131]
a/R* = 4.79 [0.61]
b = 0.98 [0.03]
Seff = 448.39 [188.06]
Teq = 1173 [123] K
Rp = 4.30 [1.97] Re
a = 0.0500 [0.0136] AU
Ag = 6.24 [4.81] [1.09σ]
Teffp = 2868 [484] K [3.39σ]

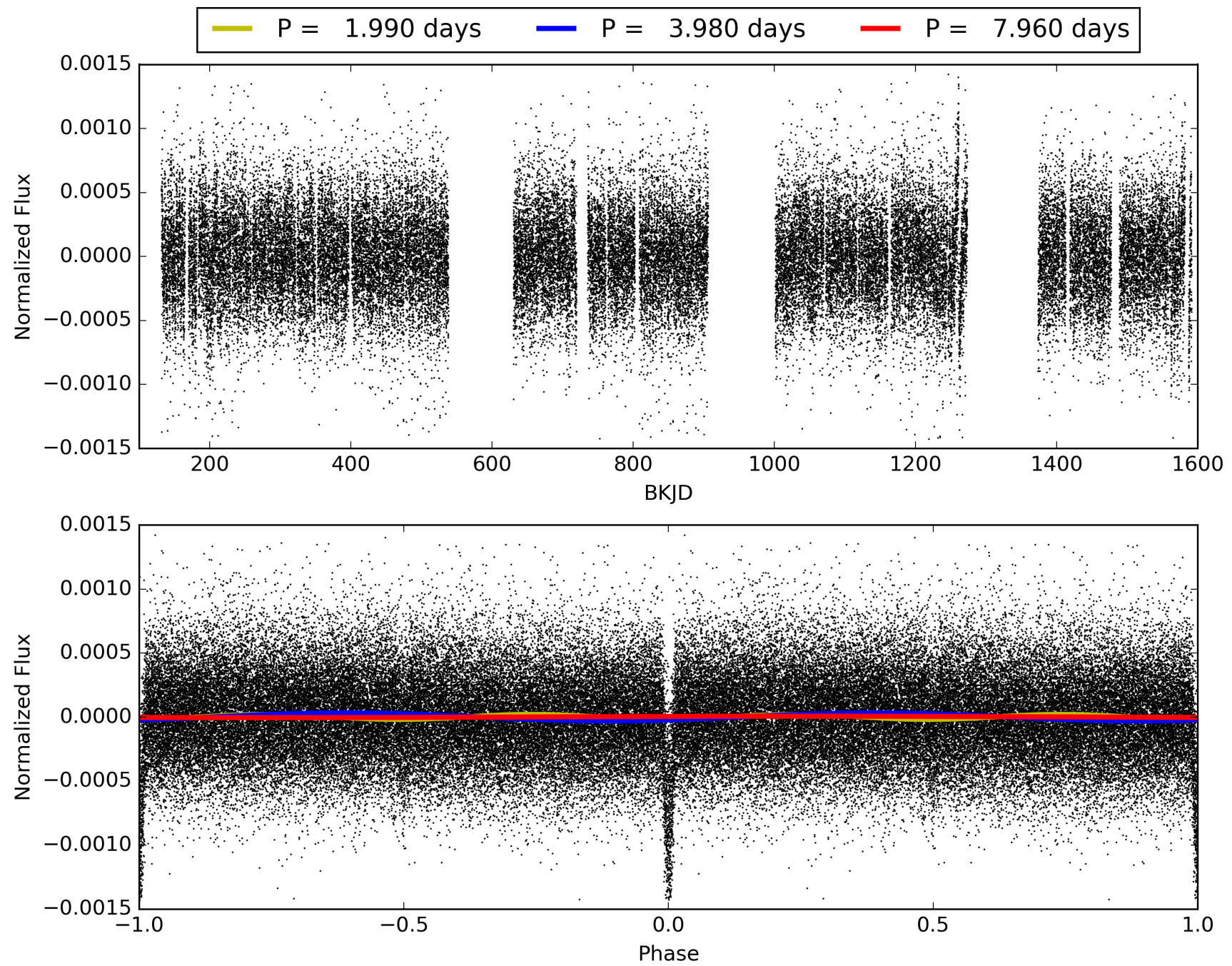
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [250/253]
GhostDiagnostic-chr: 0.1319
Centroid-sig: 0.0%
Centroid-so: 8.921 arcsec [39.93σ]
OotOffset-rm: 4.584 arcsec [53.70σ]
KicOffset-rm: 4.472 arcsec [56.43σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 005547480-01, PDC Light Curves

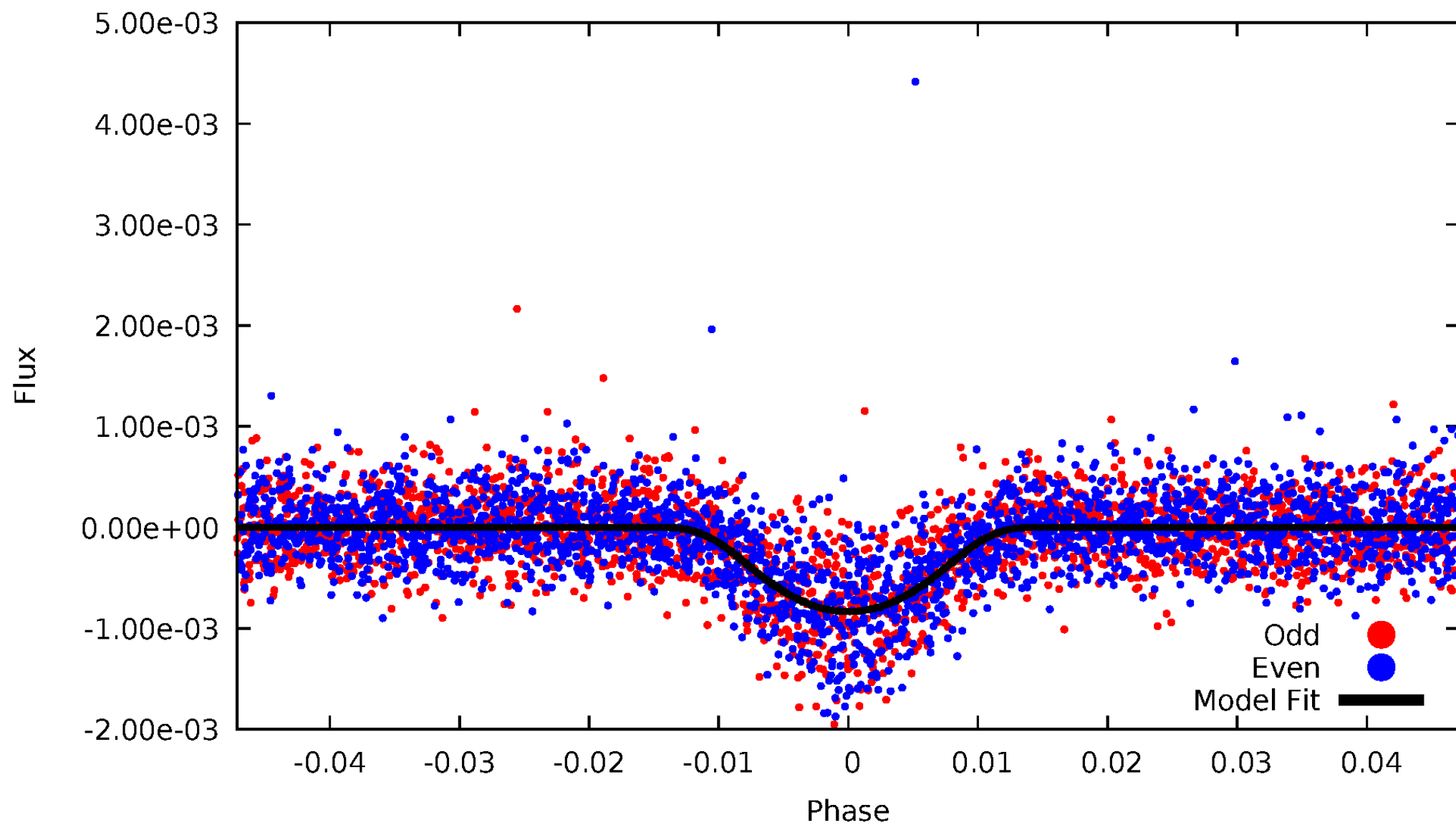


TCE 005547480-01



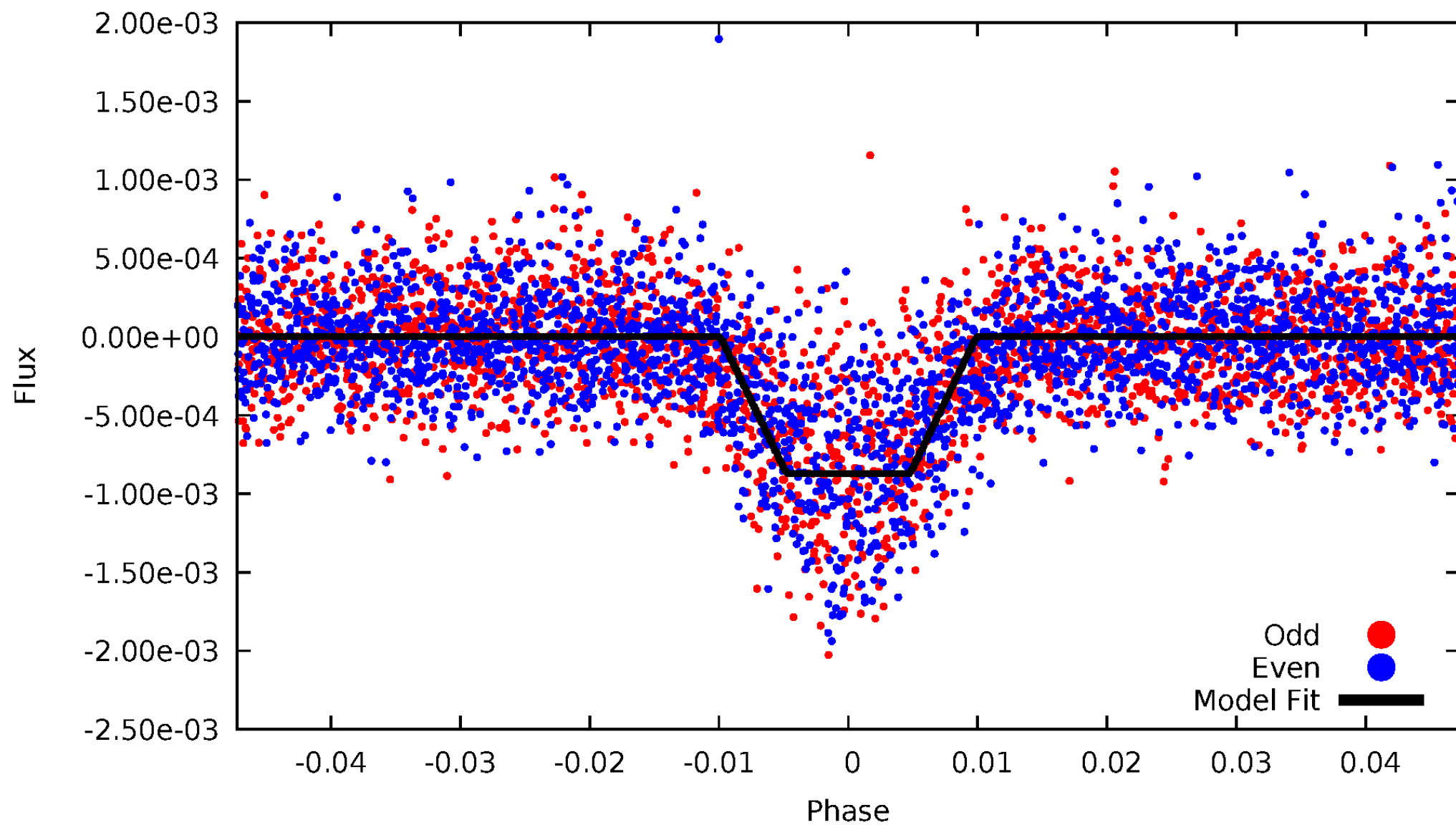
DV Odd/Even

TCE 005547480-01

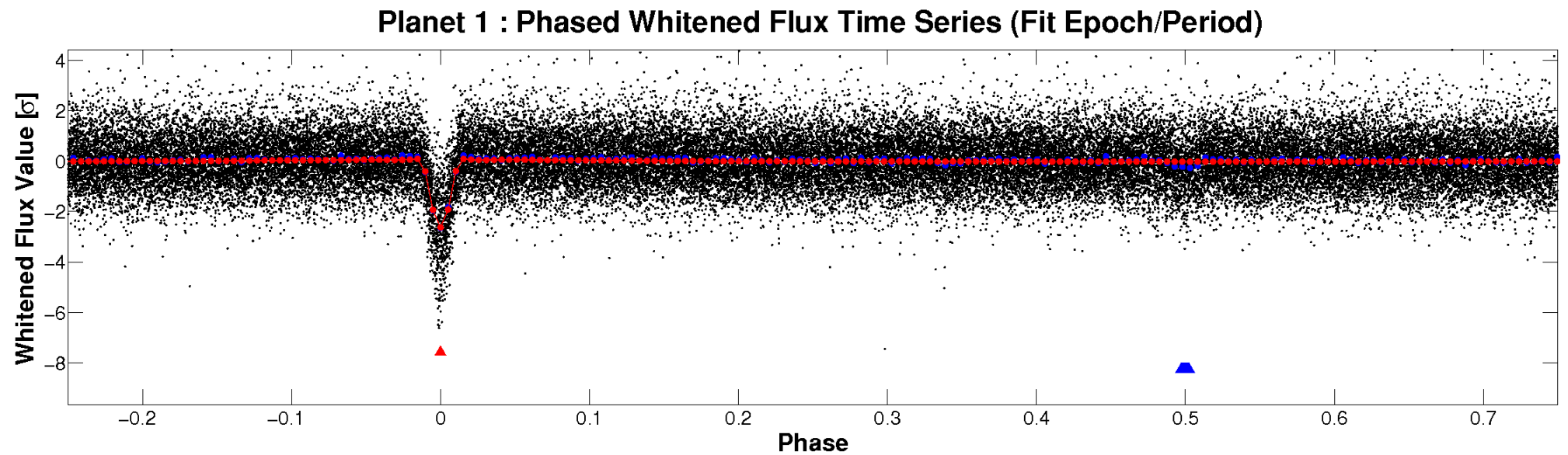
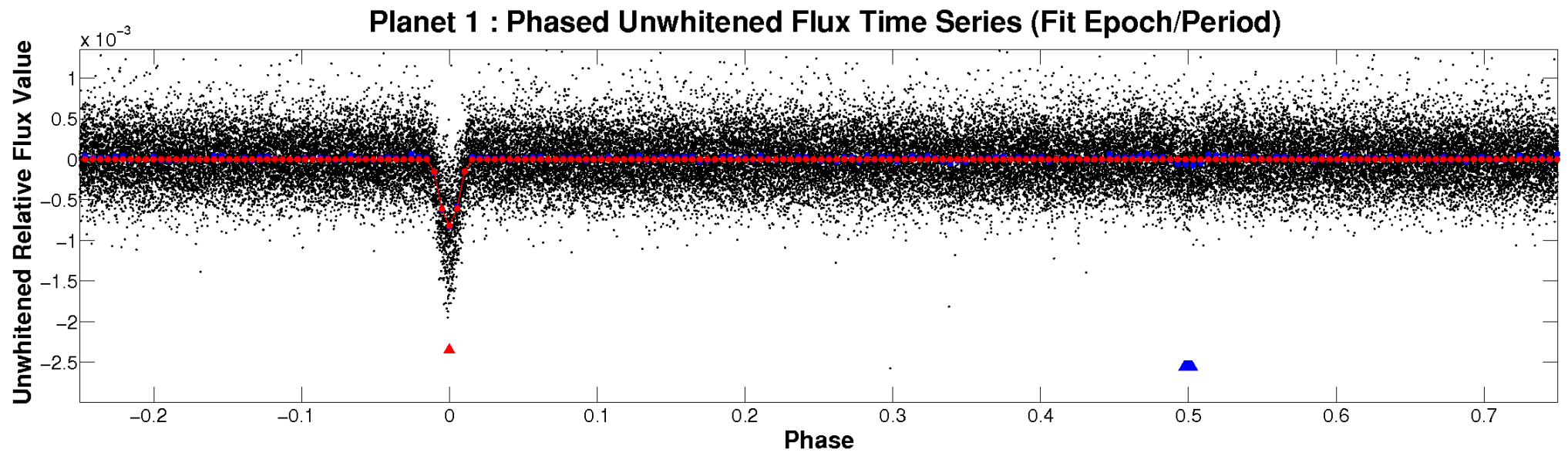


ALT Odd/Even

TCE 005547480-01

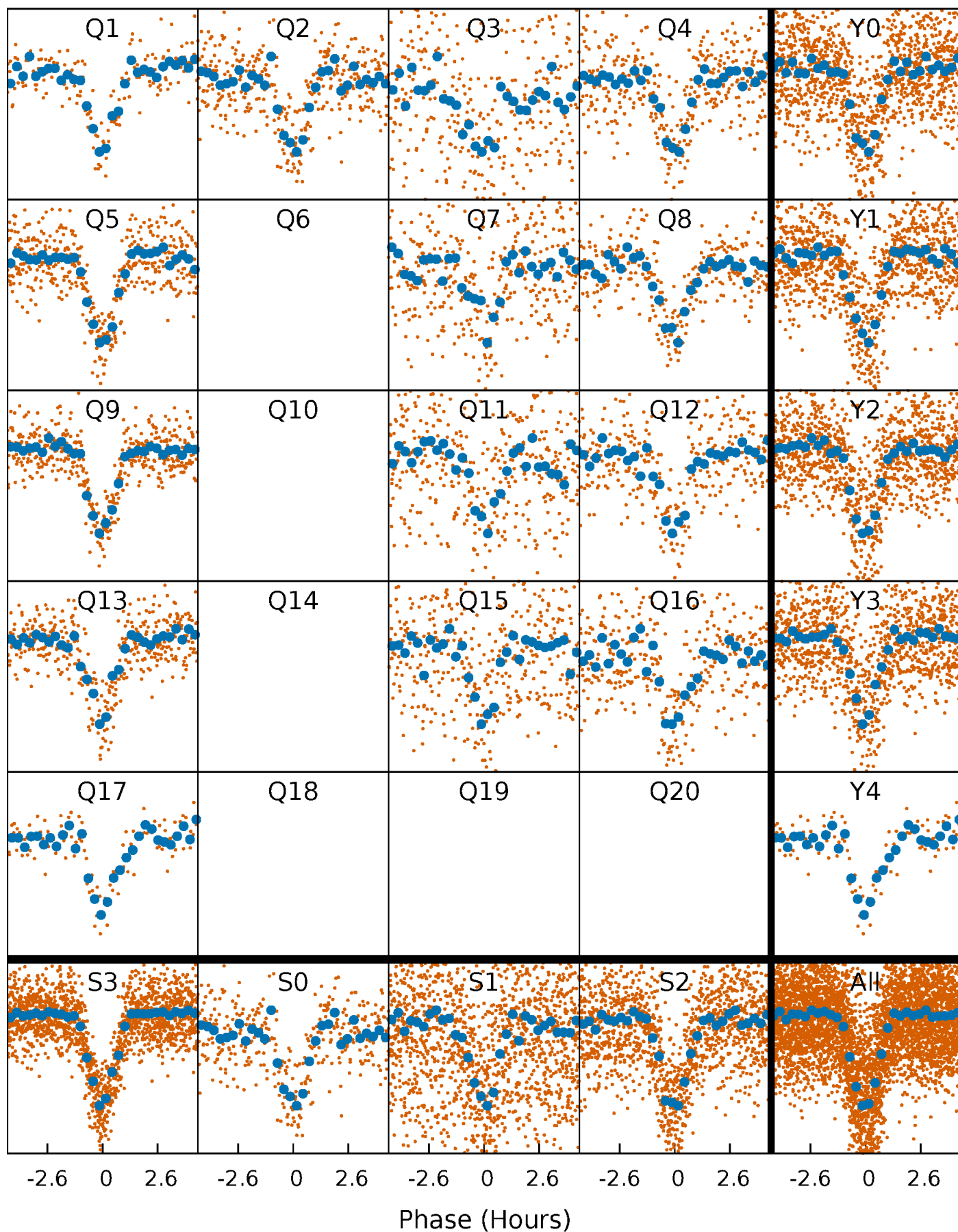


Non-Whitened Vs. Whitened Light Curve



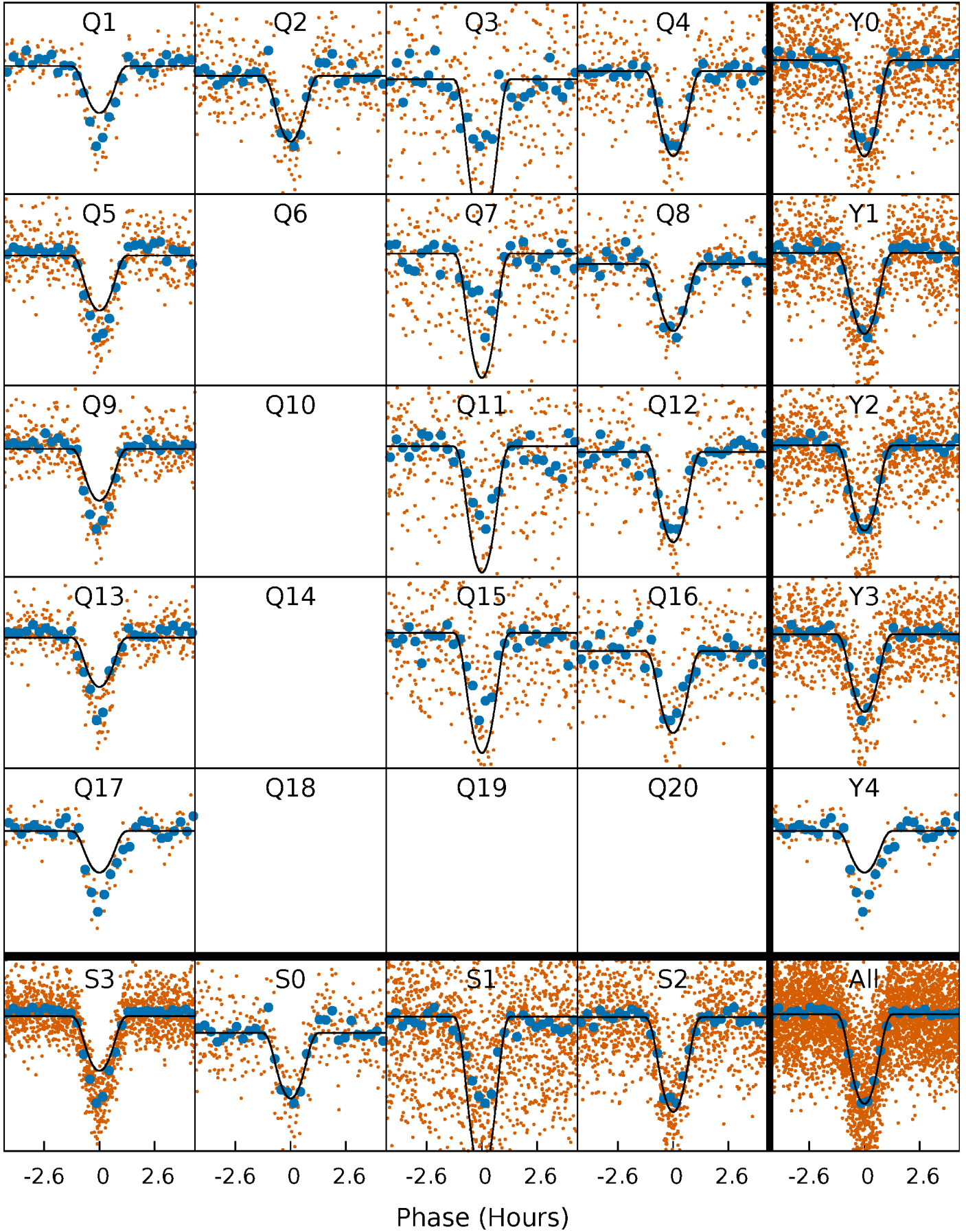
PDC Quarter-Phased Transit Curves

TCE 005547480-01 P= 3.979869 Days $T_0=132.071359$ (BKJD)



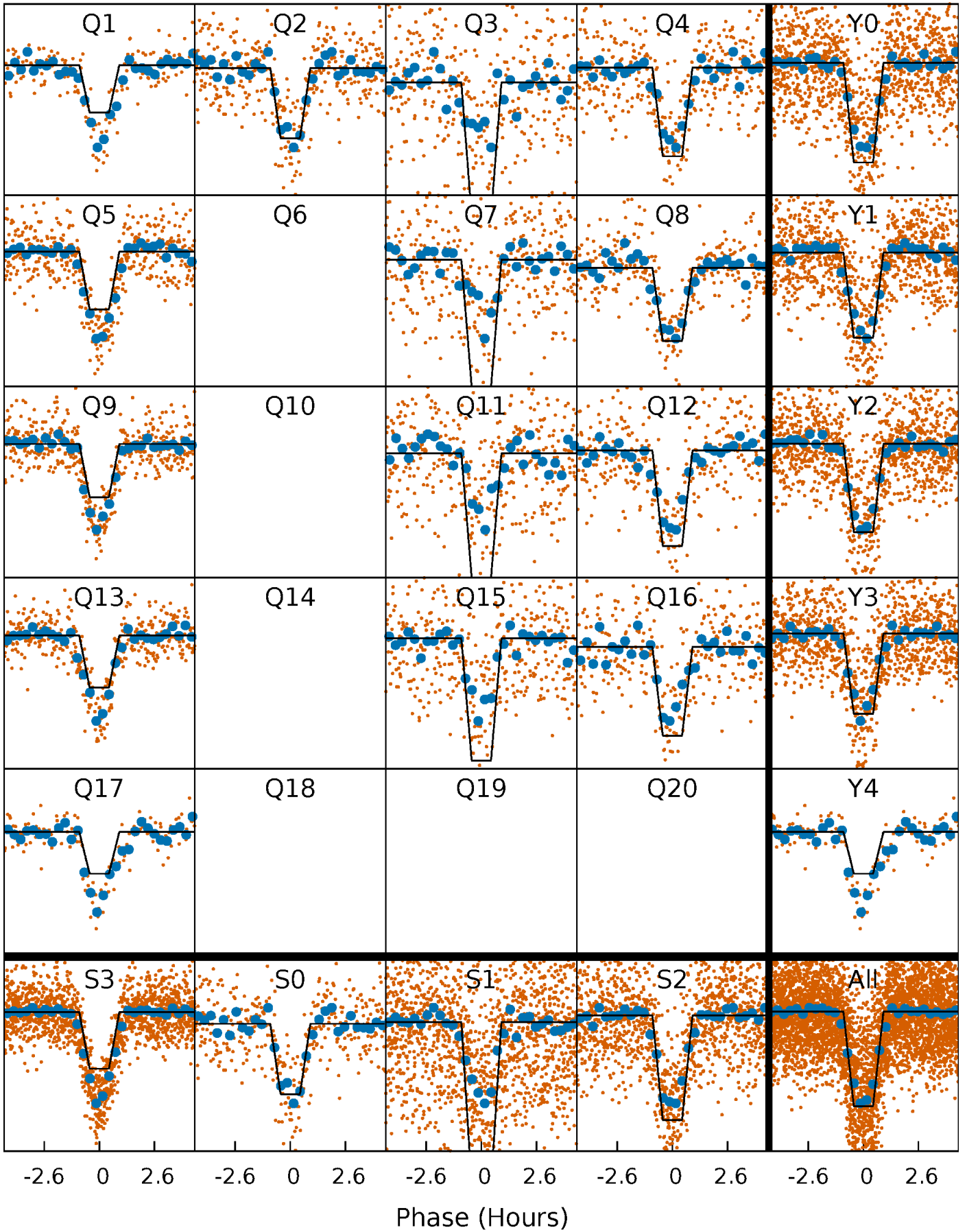
DV Quarter-Phased Transit Curves

TCE 005547480-01 P= 3.979869 Days $T_0=132.071359$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

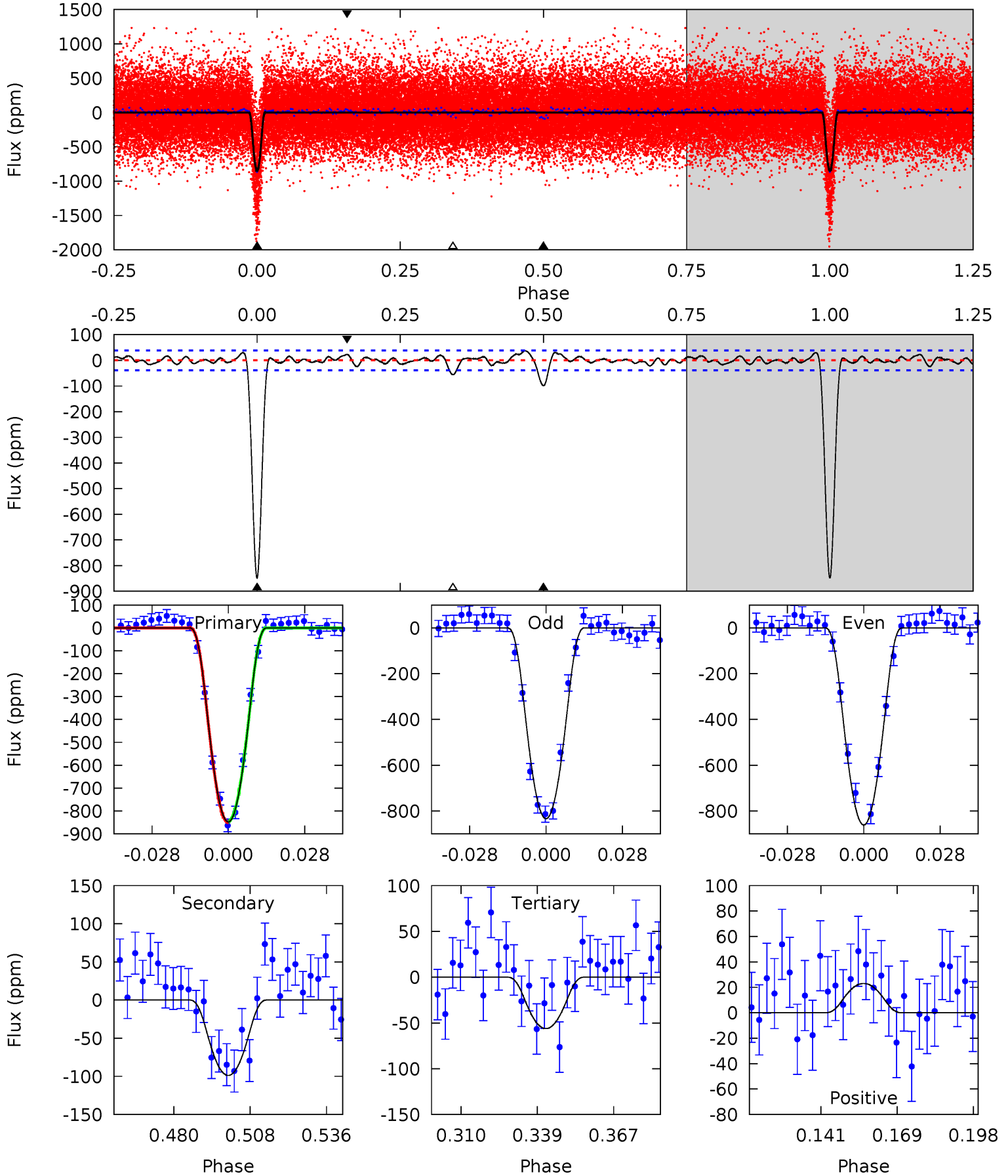
TCE 005547480-01 P= 3.979880 Days $T_0=132.069058$ (BKJD)



DV Model-Shift Uniqueness Test

005547480-01, P = 3.979869 Days, E = 128.091490 Days

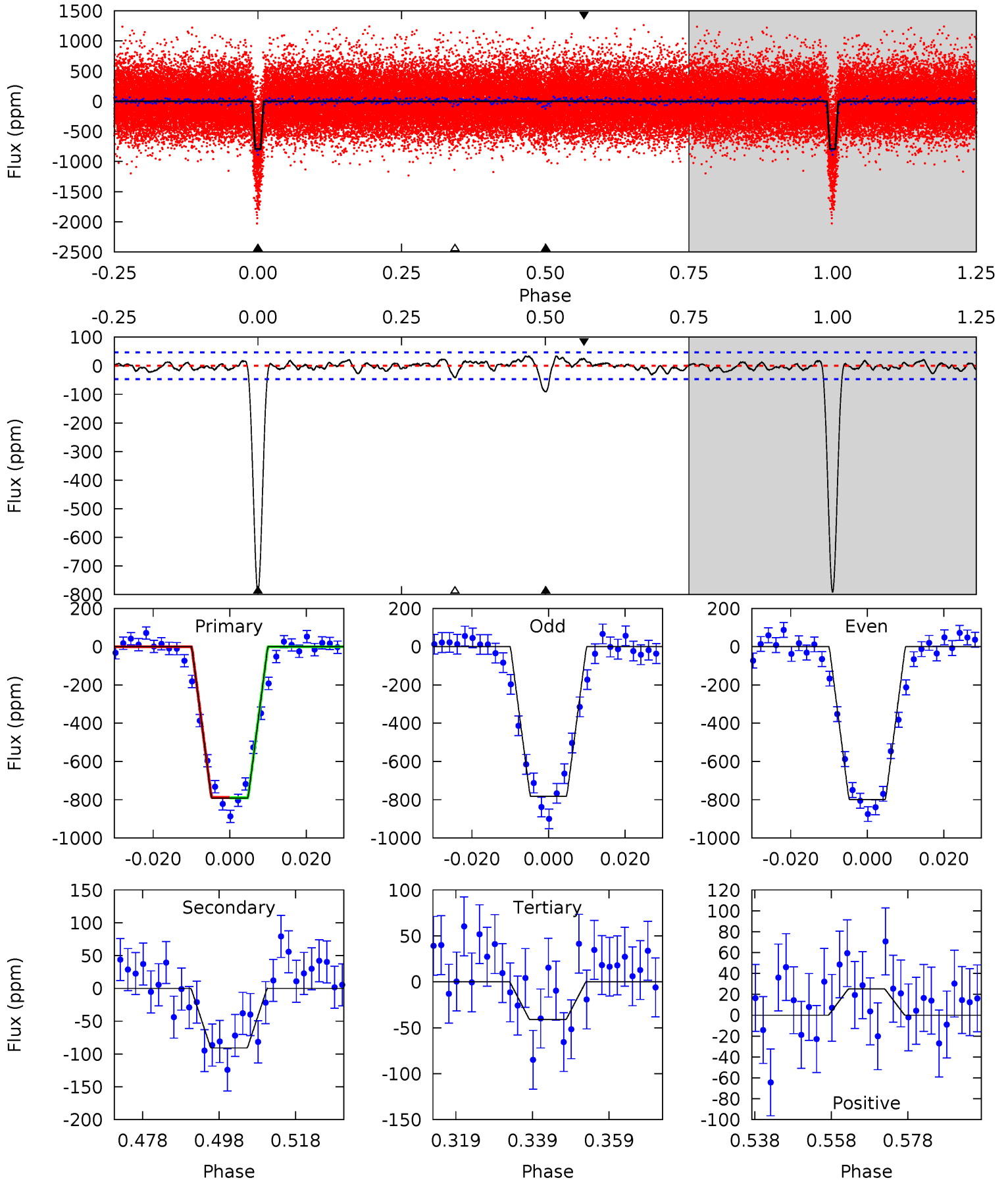
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 106.0 | 12.4 | 7.02 | 2.88 | 4.82 | 2.19 | 1.54 | 98.9 | 103.1 | 5.33 | 9.47 | 1.72 | 1.01 | 0.04 | 0.46 |



Alt Model-Shift Uniqueness Test

005547480-01, P = 3.979880 Days, E = 128.089178 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 82.7 | 9.49 | 4.31 | 2.63 | 4.89 | 2.33 | 1.30 | 78.4 | 80.1 | 5.18 | 6.86 | 0.86 | 1.05 | 0.04 | 0.09 |



Stellar Parameters For KIC 005547480

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6032^{+168}_{-210} | $4.485^{+0.054}_{-0.216}$ | $-0.060^{+0.250}_{-0.300}$ | $0.973^{+0.315}_{-0.105}$ | $1.055^{+0.139}_{-0.153}$ | $1.612^{+0.460}_{-0.850}$ |
| | +3%/-3% | +1%/-5% | +417%/-500% | +32%/-11% | +13%/-15% | +29%/-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 005547480-01 / KOI 0224.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -99 ± 8 | $4.48^{+1.59}_{-1.46}$ | 1672^{+124}_{-87} | 3446^{+493}_{-306} | $6.623^{+7.645}_{-3.036}$ |
| Alt. | -91 ± 10 | $3.26^{+1.58}_{-1.49}$ | 1671^{+131}_{-85} | 3804^{+982}_{-484} | 11^{+26}_{-6} |

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

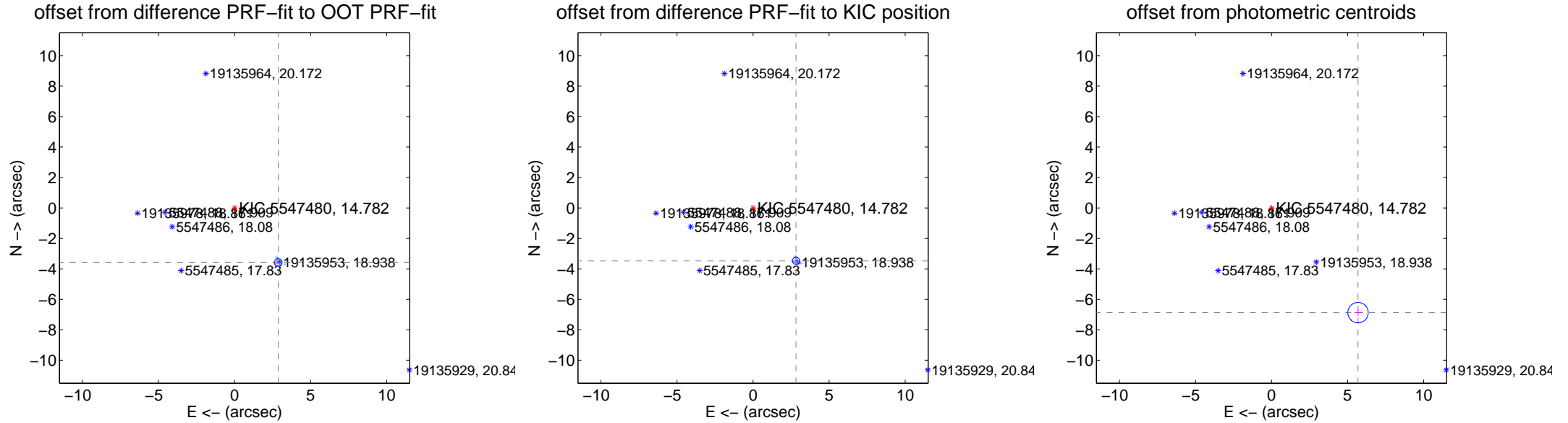
DV Centroid Data

Supplemental centroid analysis for 005547480-01. Kepler magnitude: 14.78. Transit SNR 59.16

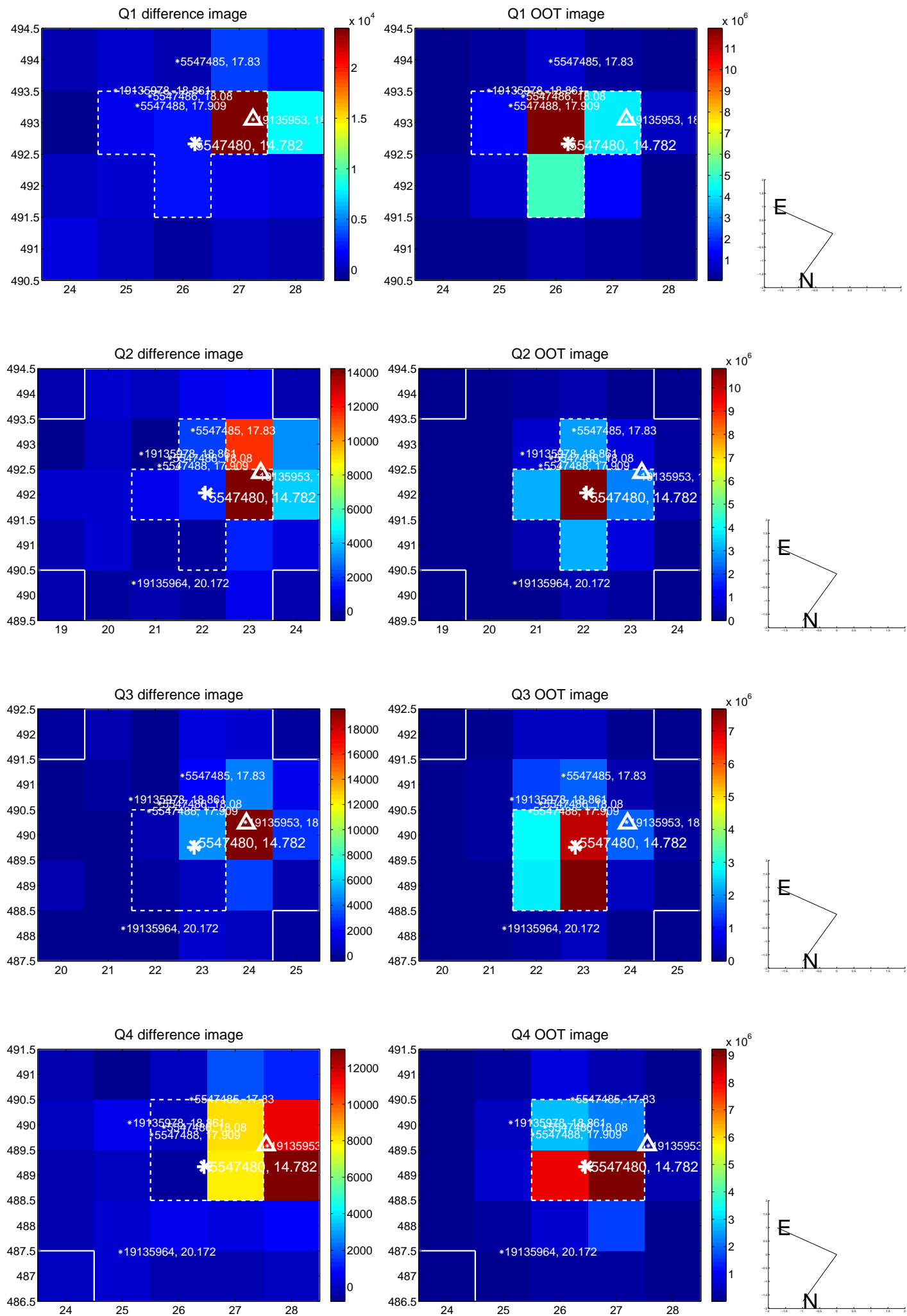
There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

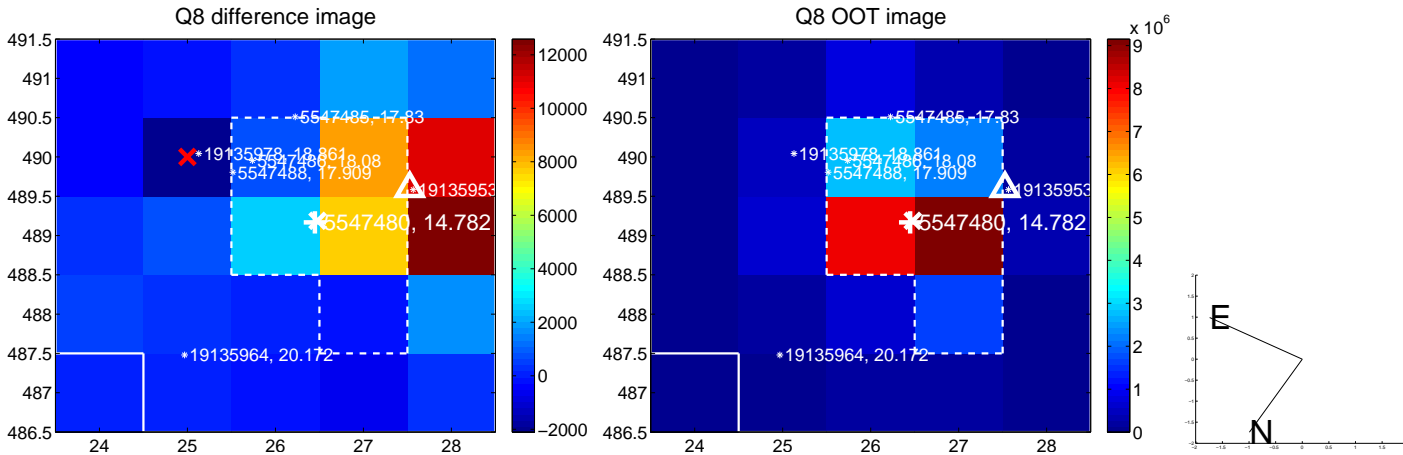
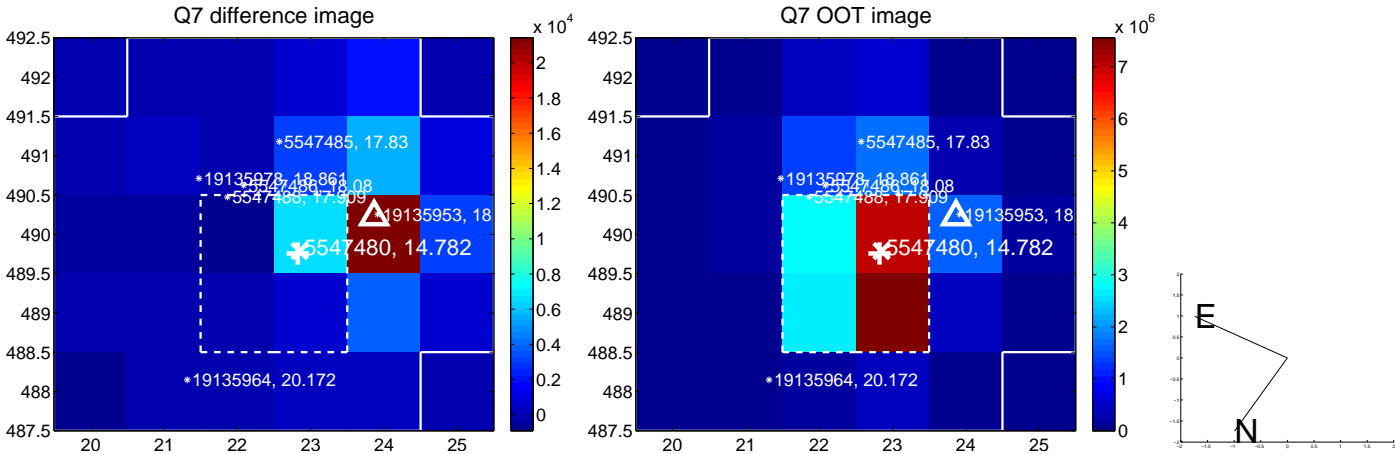
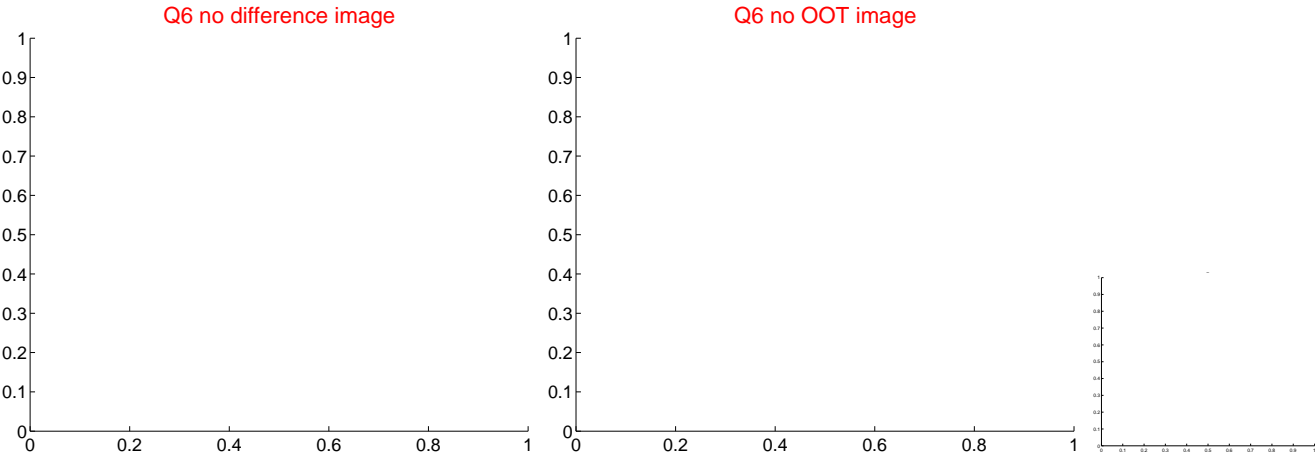
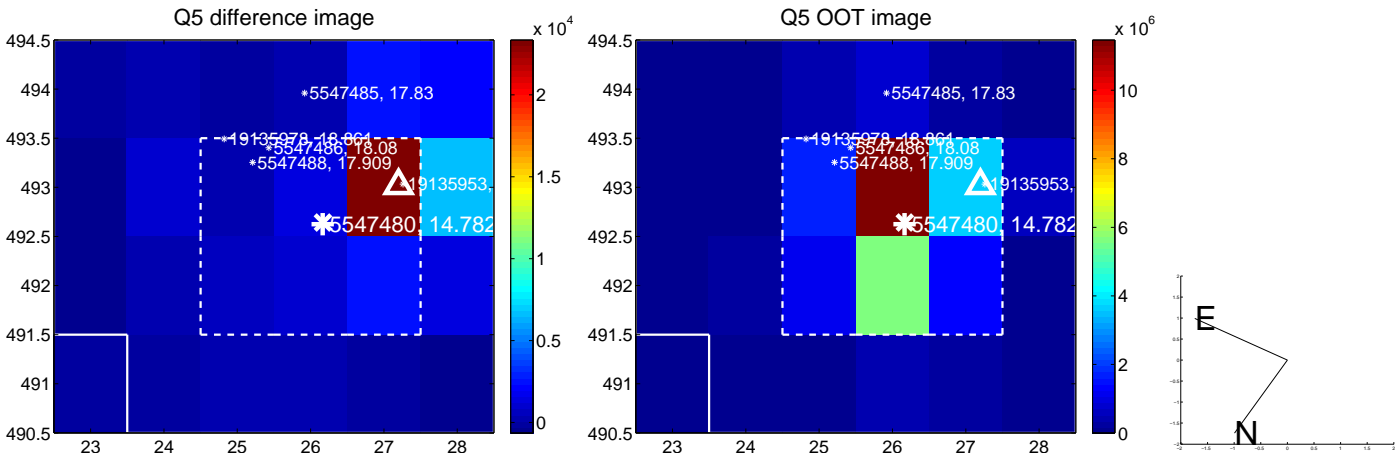
| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 4.584 \pm 0.085 | 53.70 | -2.866 \pm 0.079 | -3.577 \pm 0.082 |
| PRF-fit source offset from KIC position | 4.472 \pm 0.079 | 56.43 | -2.824 \pm 0.073 | -3.468 \pm 0.078 |
| photometric centroid source offset | 8.92 \pm 0.22 | 39.93 | -5.69 \pm 0.23 | -6.87 \pm 0.22 |



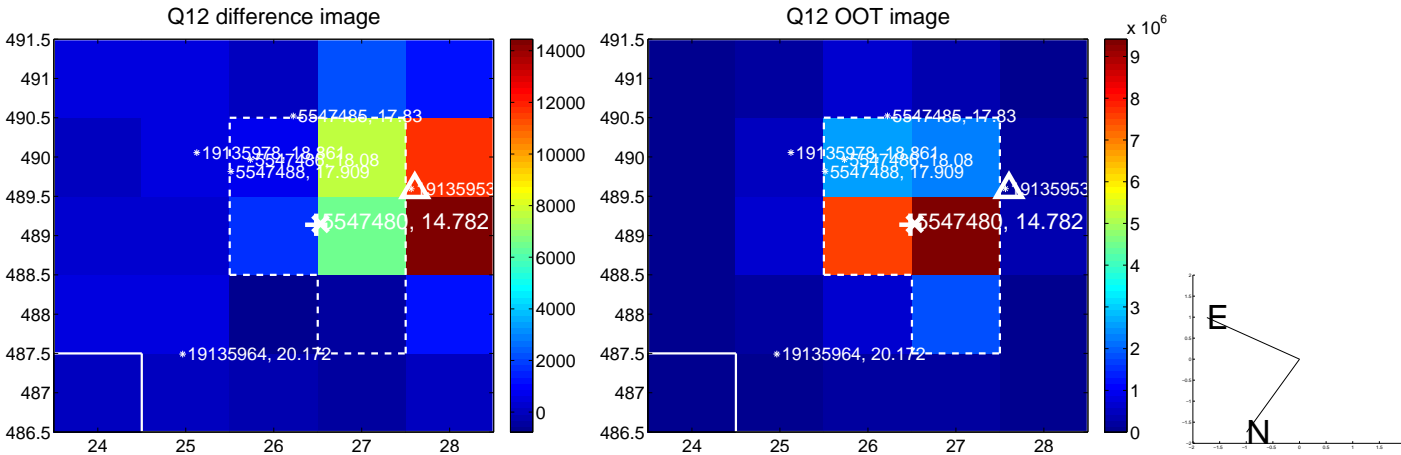
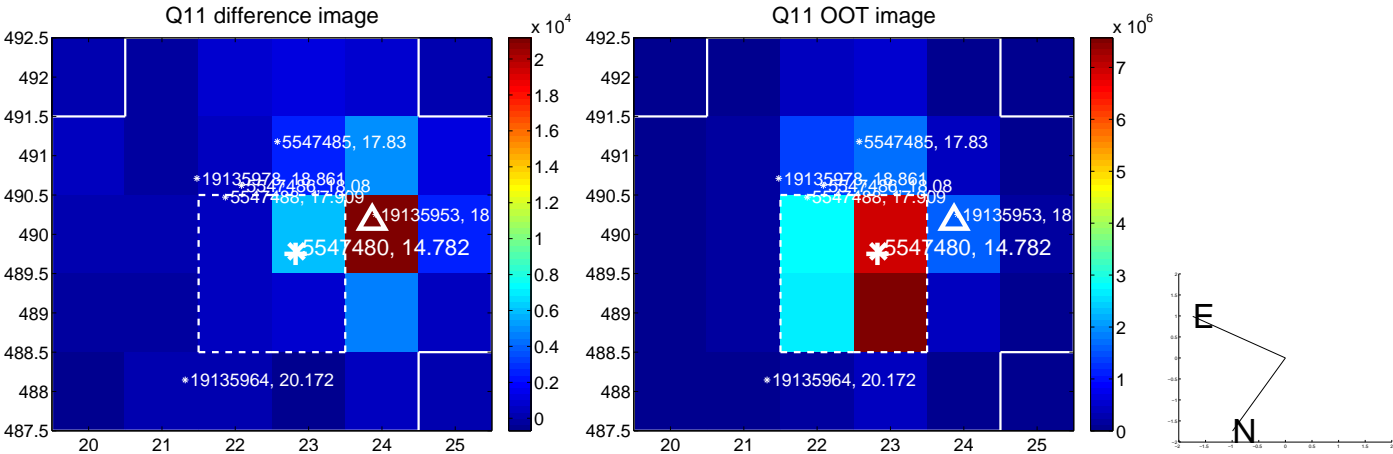
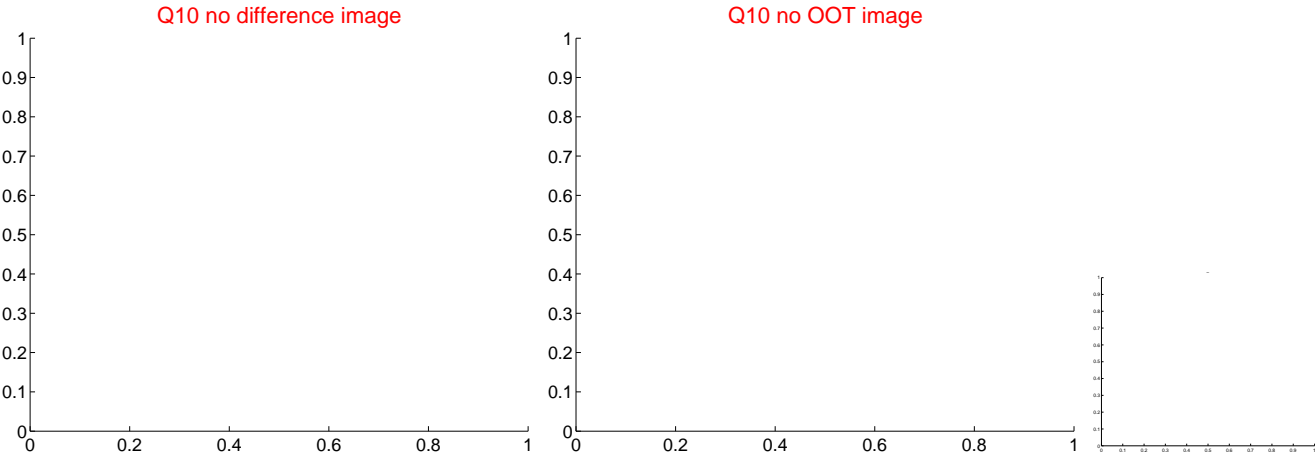
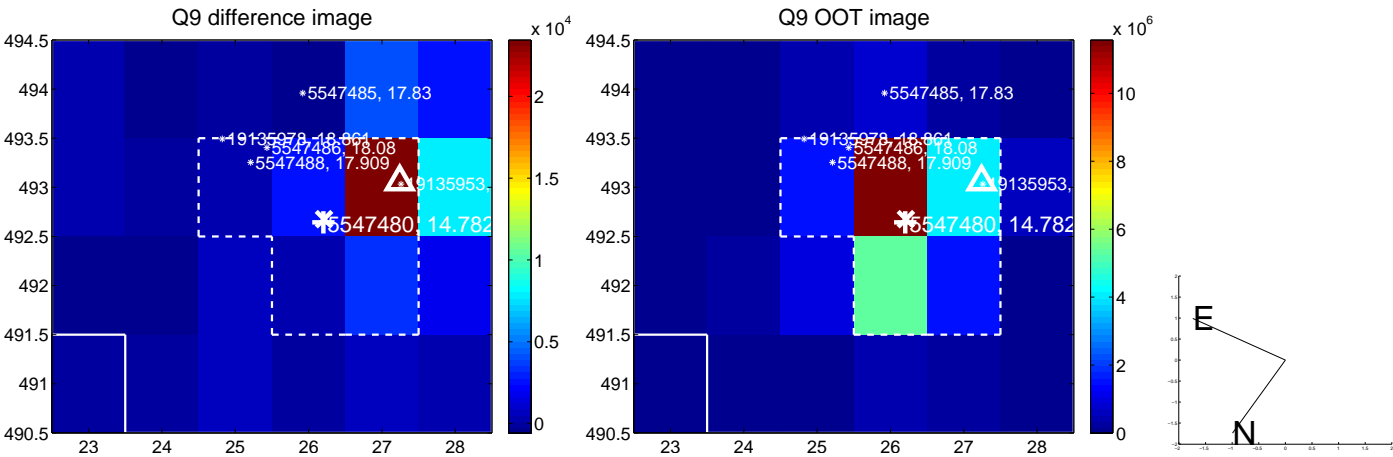
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



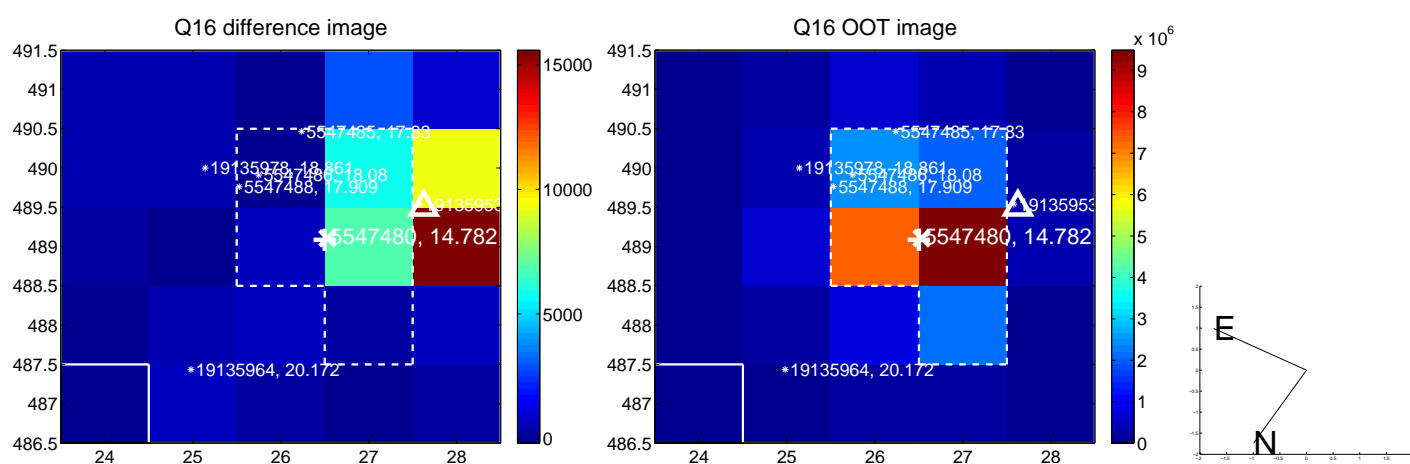
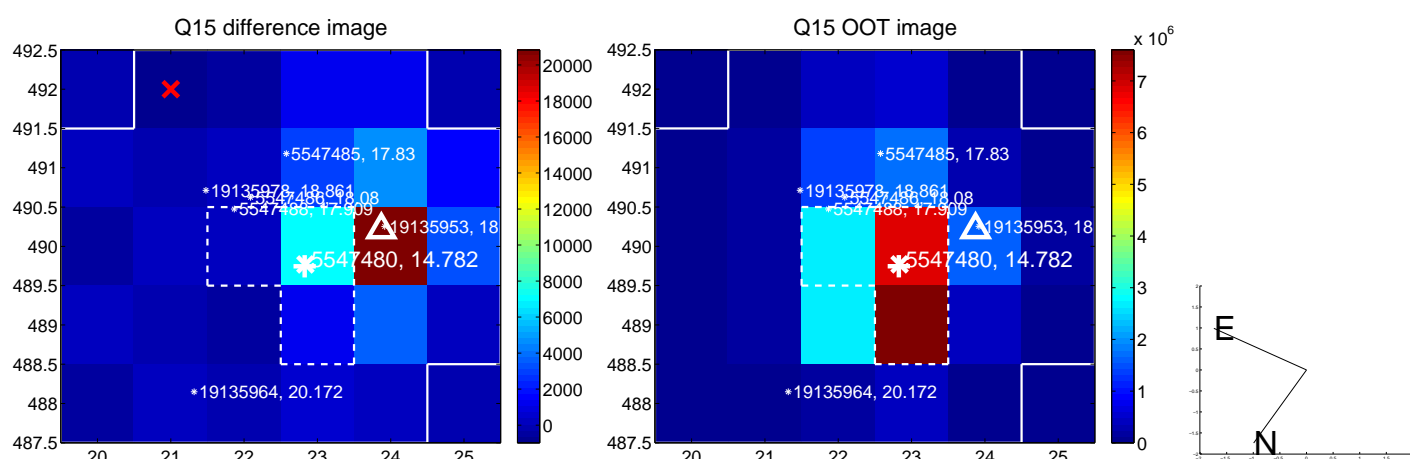
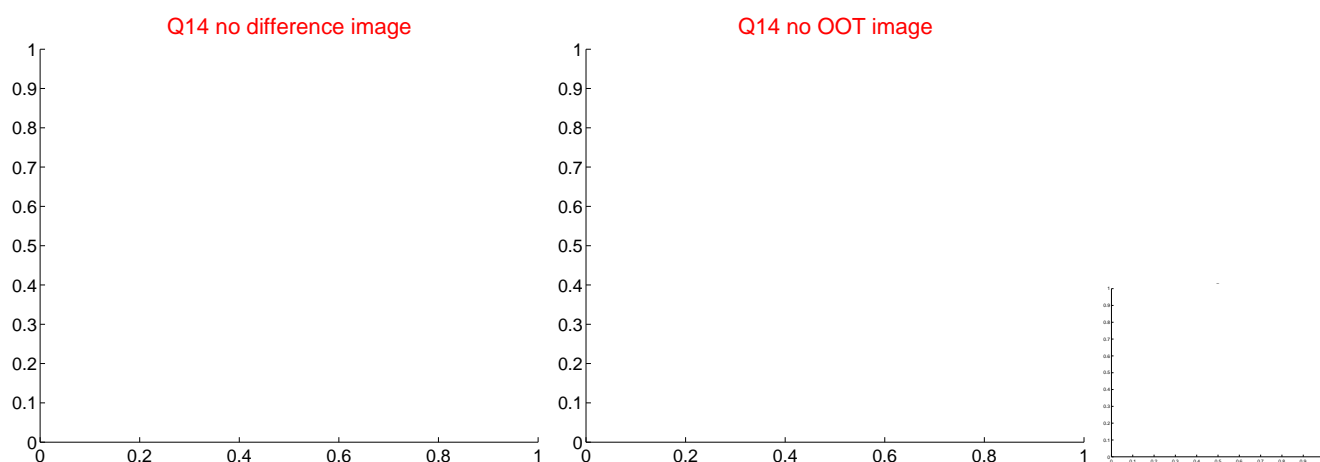
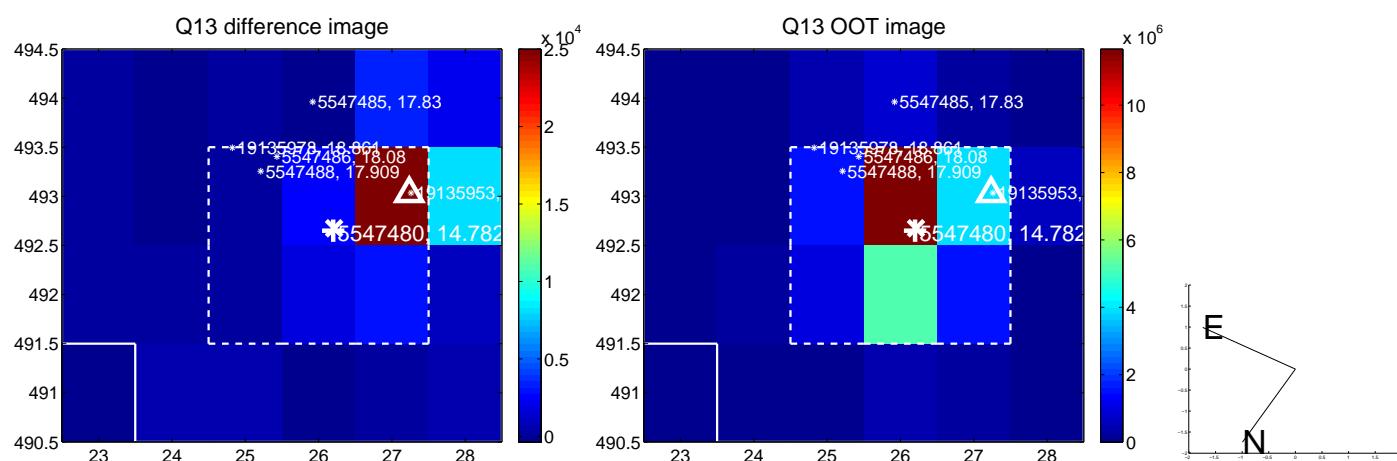
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



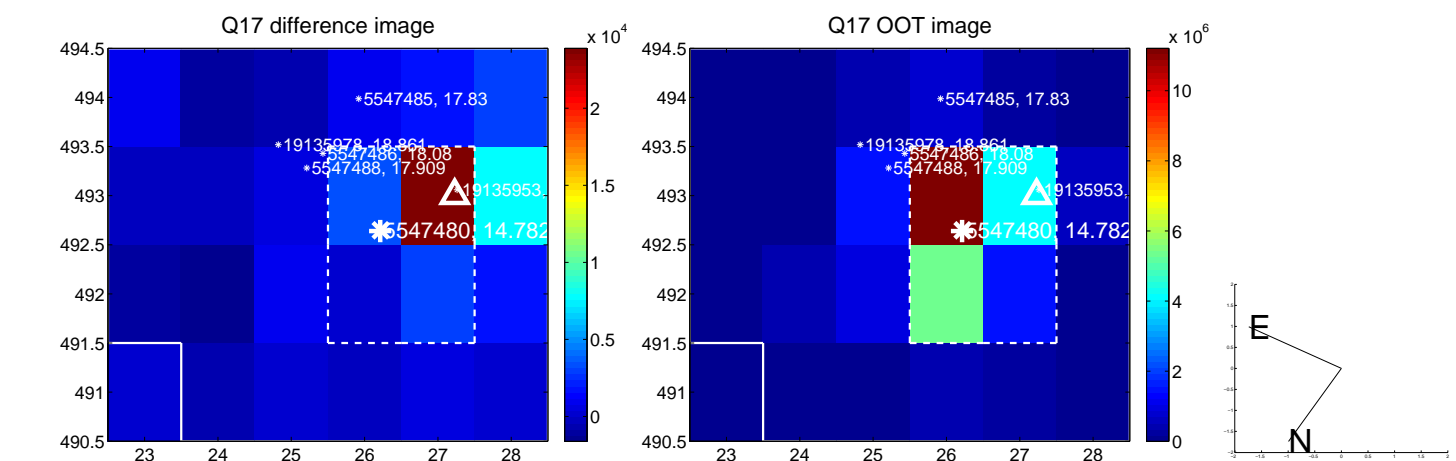
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



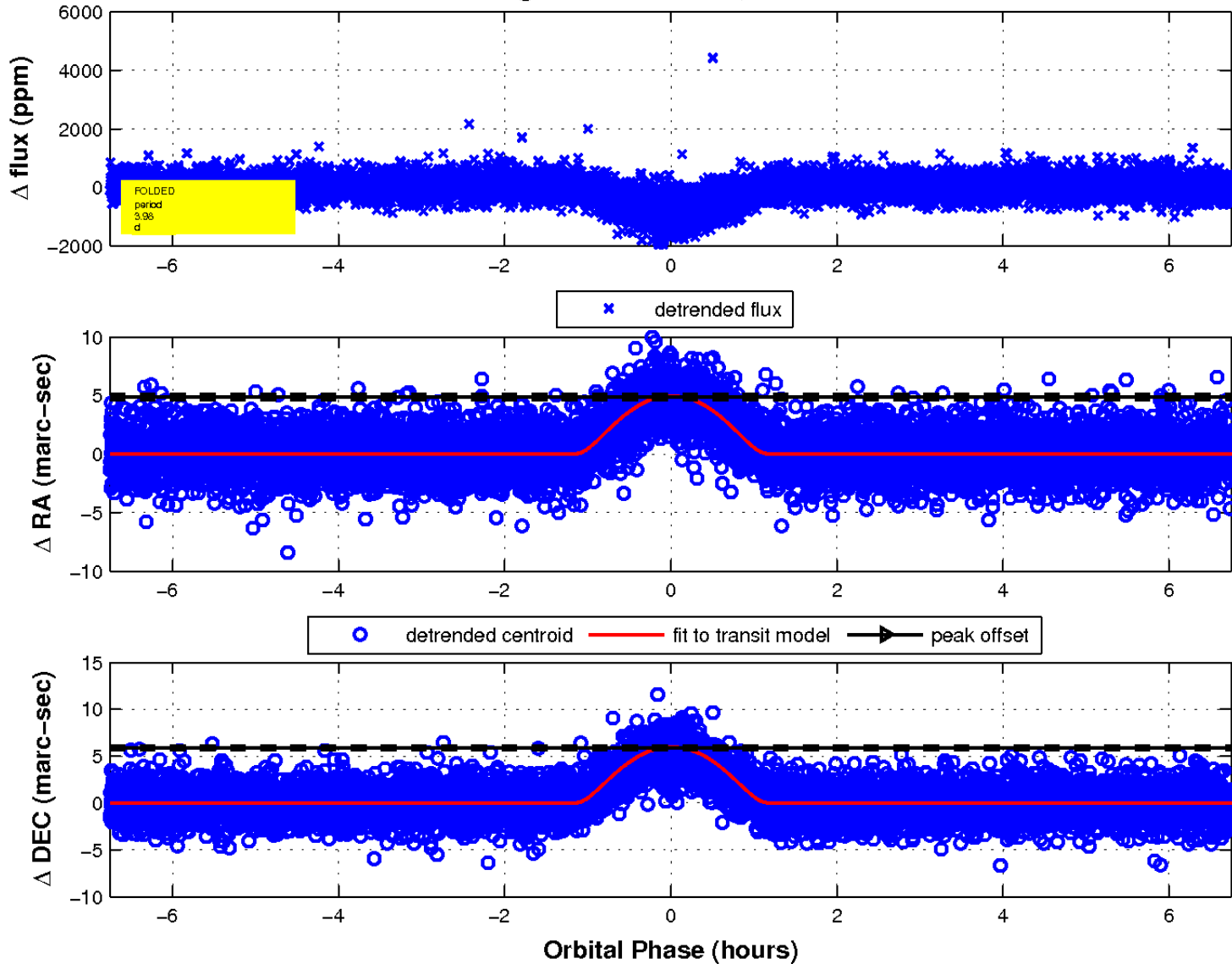
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

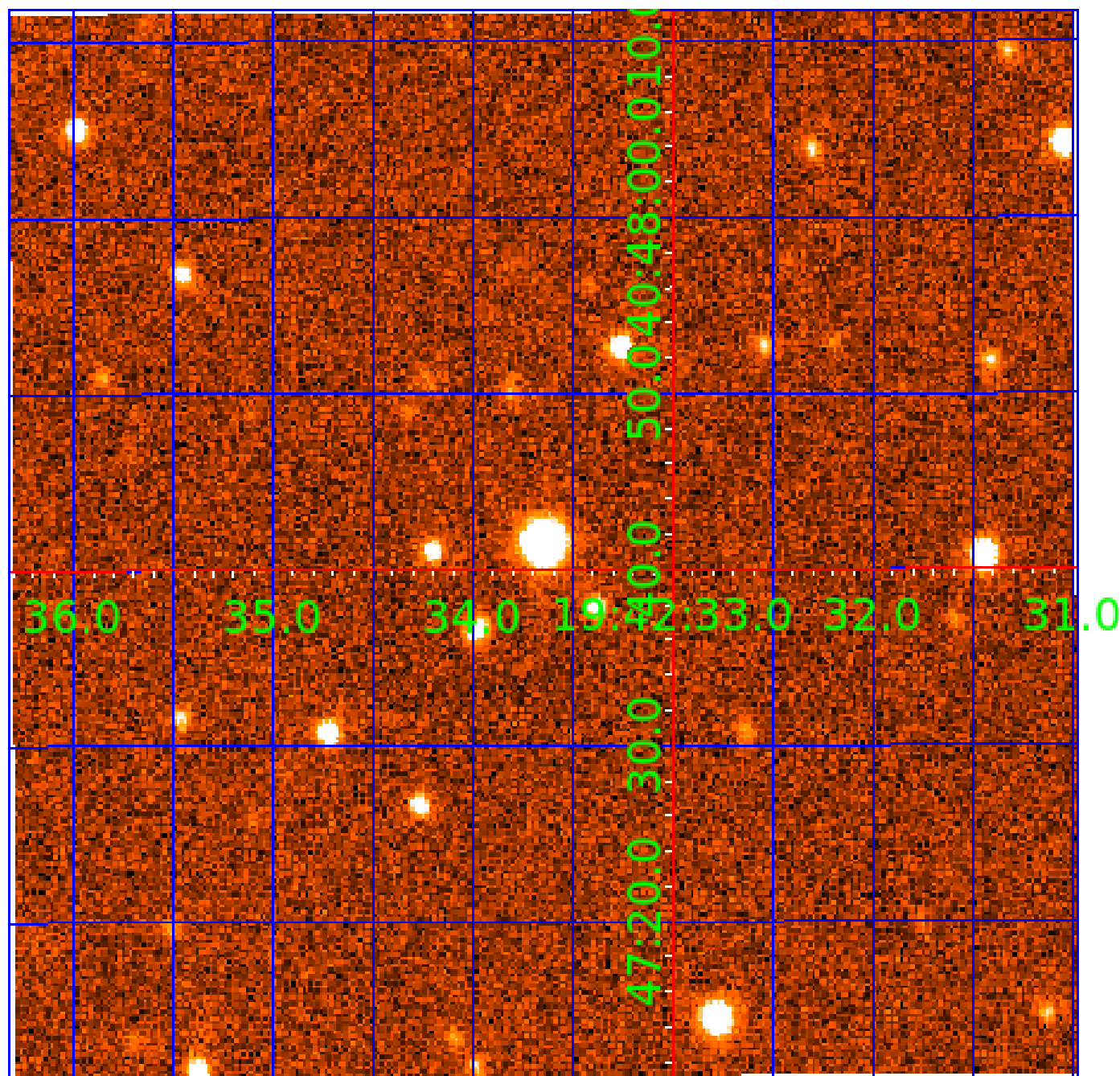


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005547480

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005547480-01 | OBS | 0224.01 | 3.979869 | 132.071359 | 835.2 | 2.251 | 55.0 | 59.2 | 0.97 | 6032 | 4.30 | 448.39 |
| 005547480-02 | OBS | No | 3.979809 | 134.071523 | 99.5 | 1.801 | 7.4 | 8.2 | 0.97 | 6032 | 1.14 | 448.40 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005547480-01 | OBS | FP | 0.00 | 0 | 1 | 1 | 0 | MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST |
| 005547480-02 | OBS | FP | 0.00 | 1 | 1 | 1 | 0 | IS_SEC_TCE—CENT_UNRESOLVED_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.

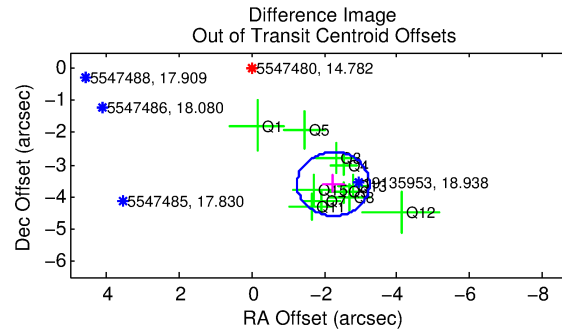
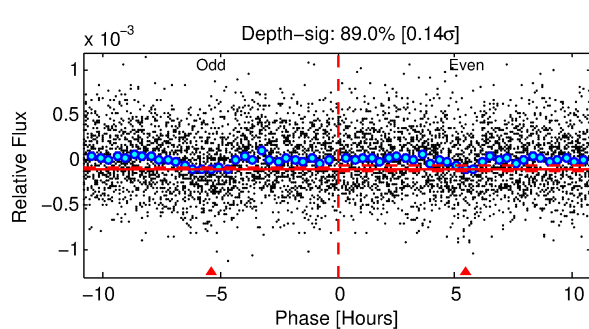
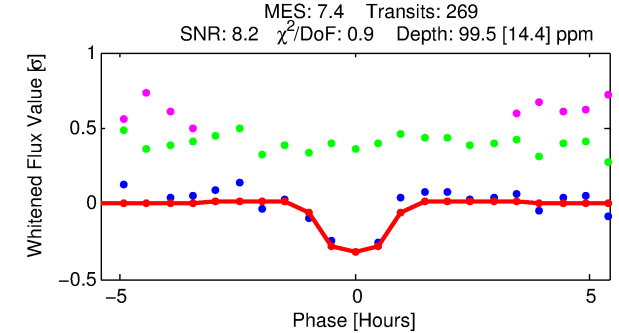
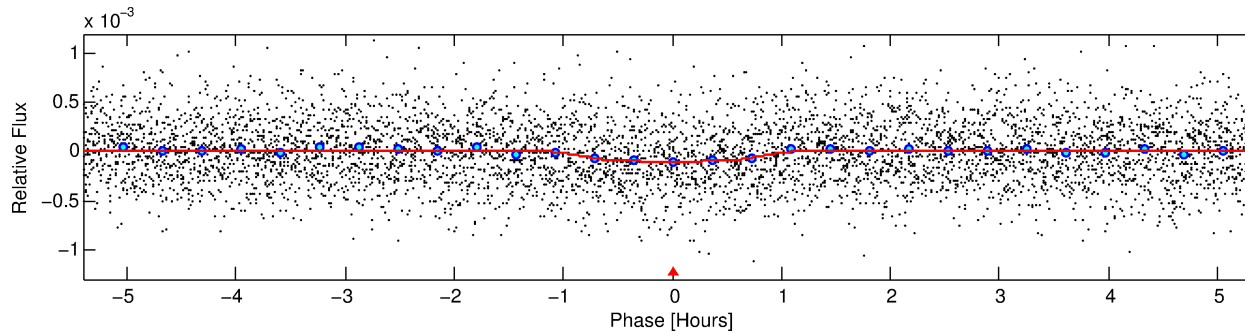
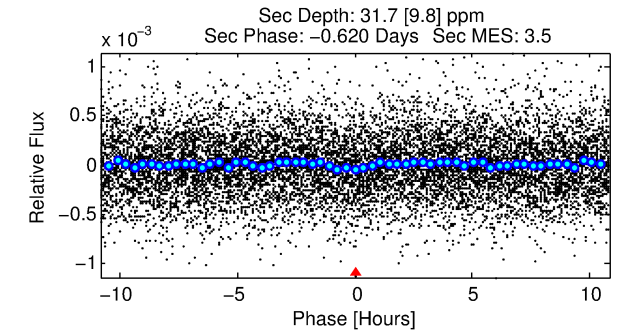
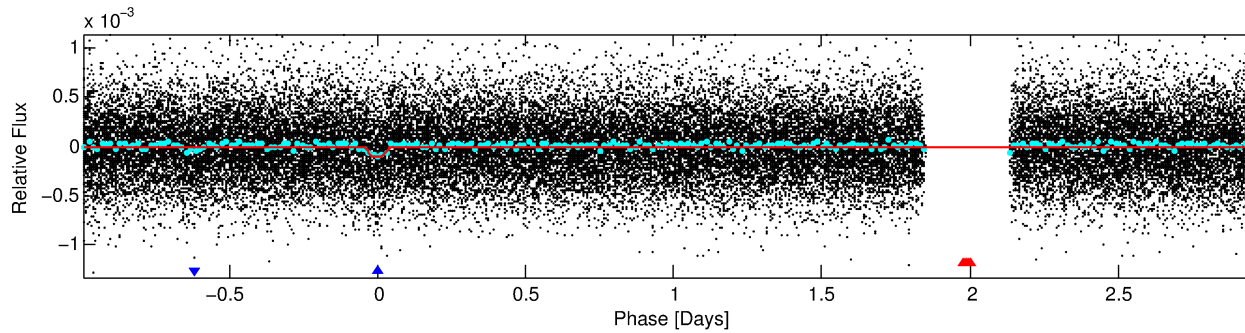
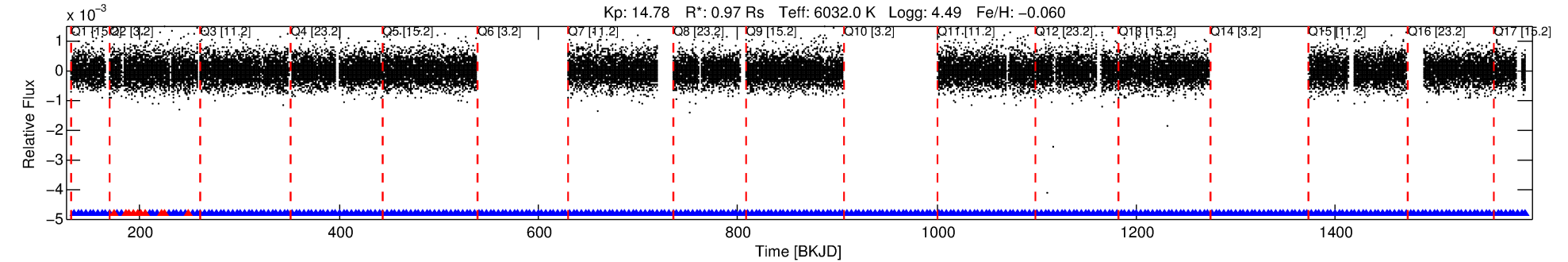
Ephemeris Match Information For 005547480-02

No Significant Match Found

DV One-Page Summary

KIC: 5547480 Candidate: 2 of 2 Period: 3.980 d

KOI: K00224 Corr: No Ephemeris Match



DV Fit Results:

Period = 3.97981 [0.00003] d
Epoch = 134.0715 [0.0043] BKJD
Rp/R* = 0.0107 [0.0075]
a/R* = 8.15 [28.68]
b = 0.89 [0.85]
Seff = 448.40 [188.07]
Teq = 1173 [123] K
Rp = 1.14 [0.88] Re
a = 0.0500 [0.0136] AU
Ag = 33.80 [50.27] [0.65σ]
Teffp = 4374 [1576] K [2.03σ]

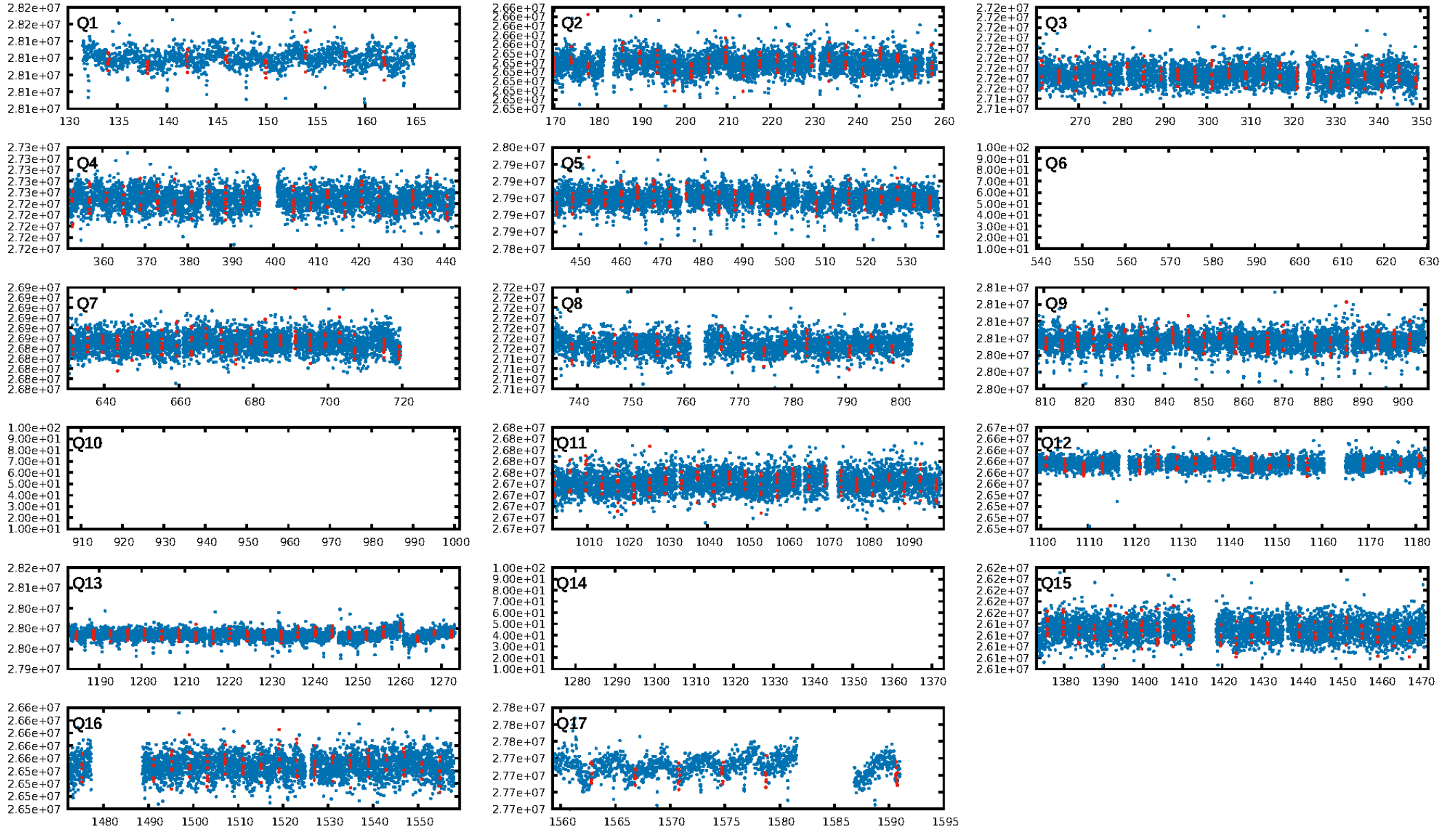
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.22e-14
RollingBand-fgt: 0.96 [245/255]
GhostDiagnostic-chr: 0.2957
Centroid-sig: 0.0%
Centroid-so: 5.860 arcsec [3.53σ]
OotOffset-rm: 4.247 arcsec [12.81σ]
KicOffset-rm: 4.145 arcsec [12.77σ]
OotOffset-st: 0/4/3/4 [11]
KicOffset-st: 0/4/3/4 [11]
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DiffImageOverlap-fno: 1.00 [14/14]

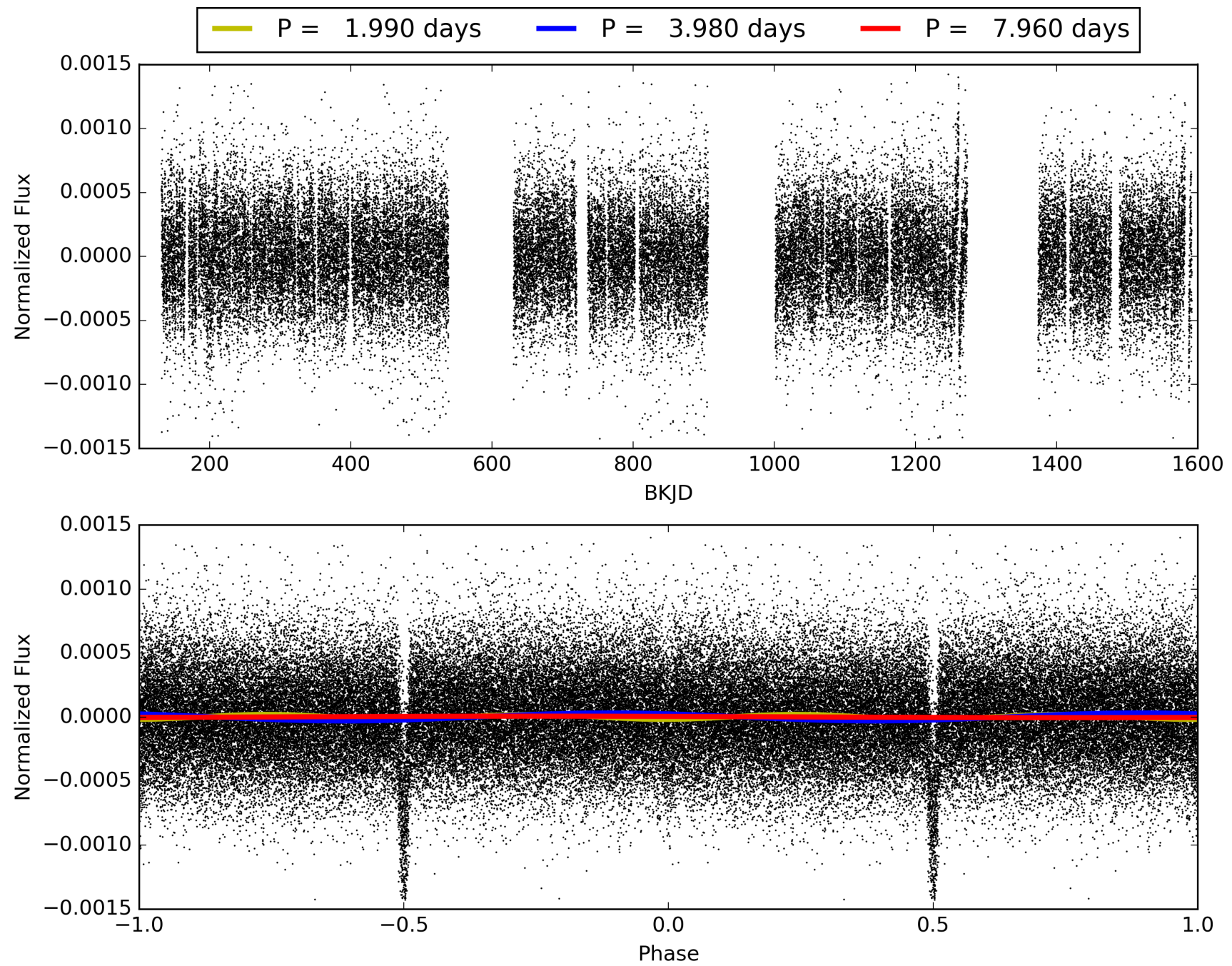
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:45:00 Z

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

TCE 005547480-02, PDC Light Curves

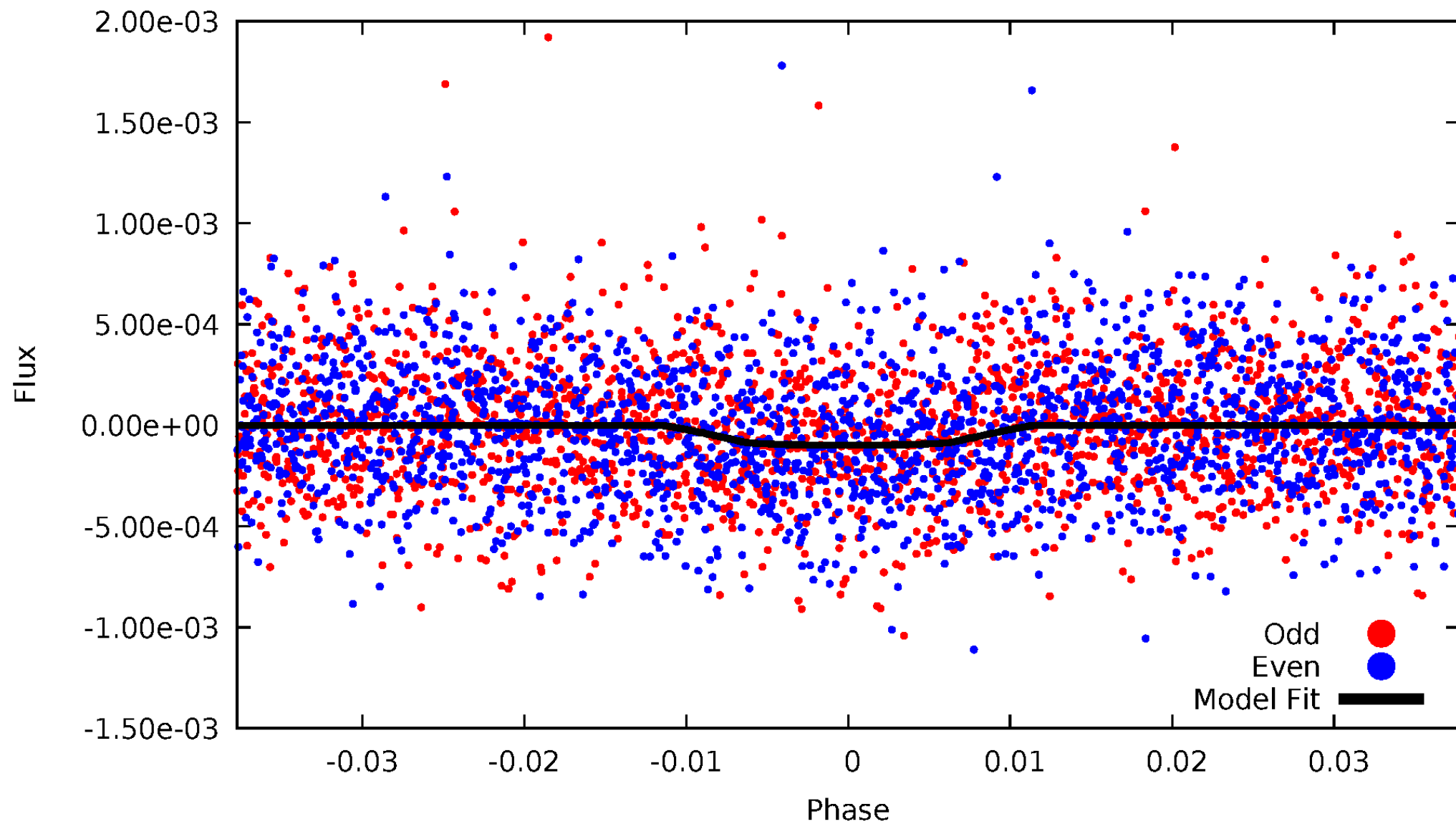


TCE 005547480-02



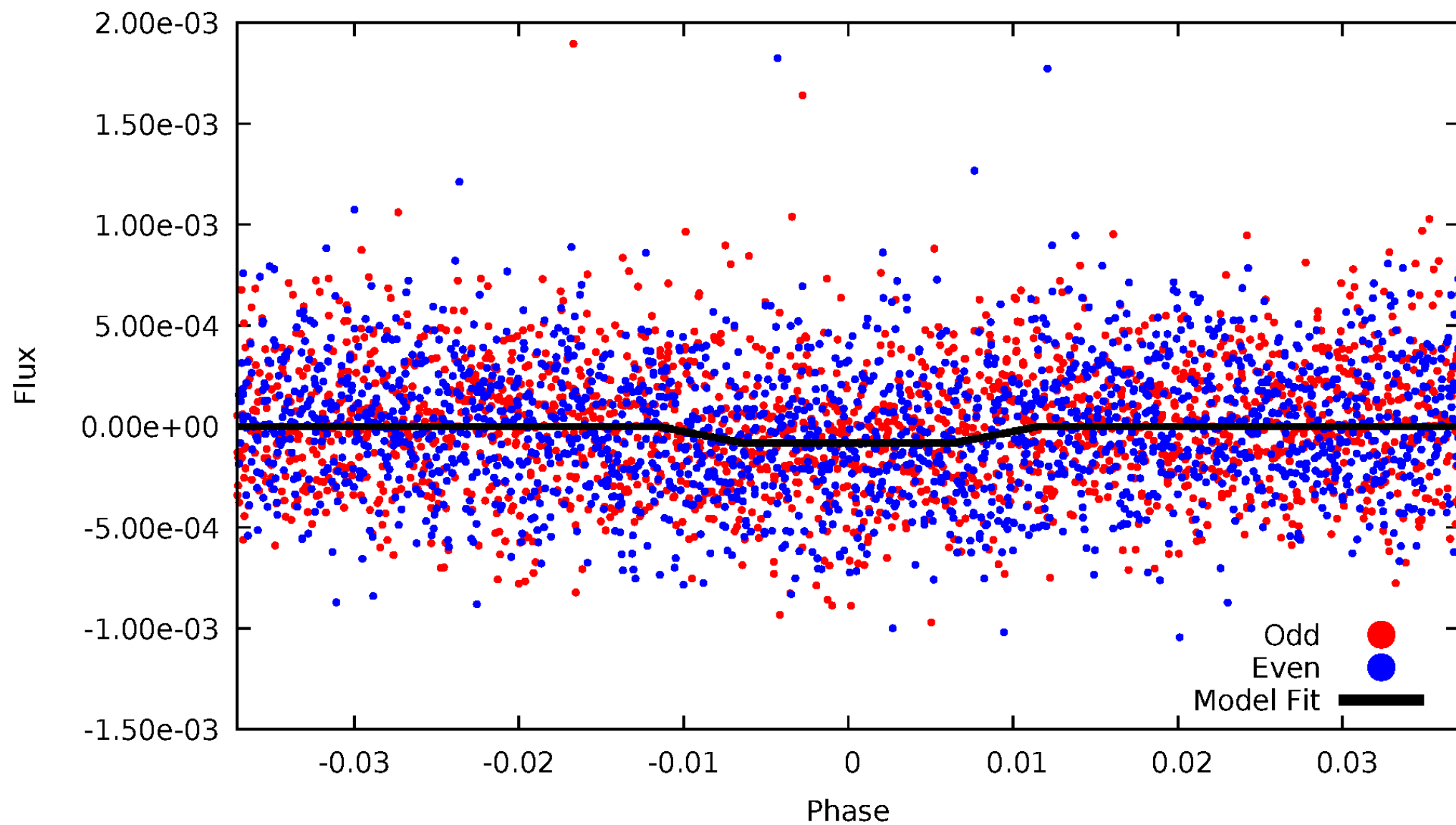
DV Odd/Even

TCE 005547480-02



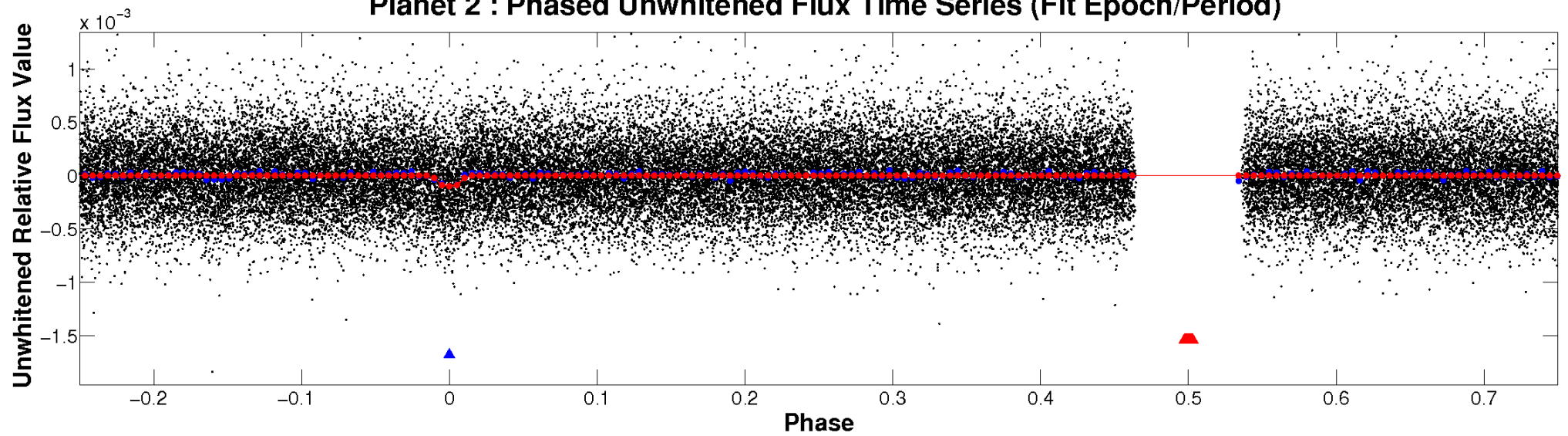
ALT Odd/Even

TCE 005547480-02

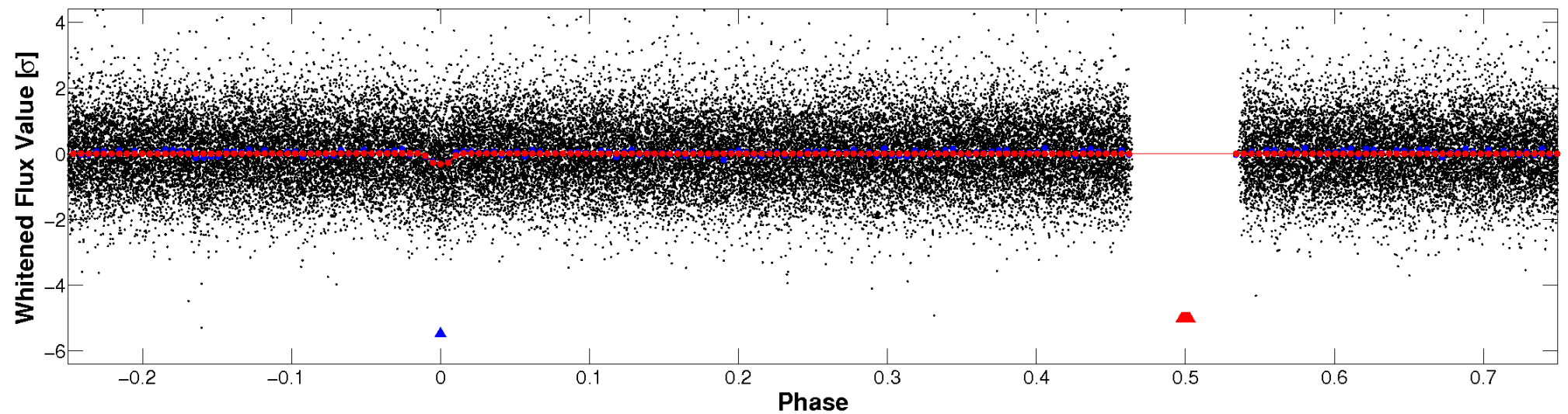


Non-Whitened Vs. Whitened Light Curve

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

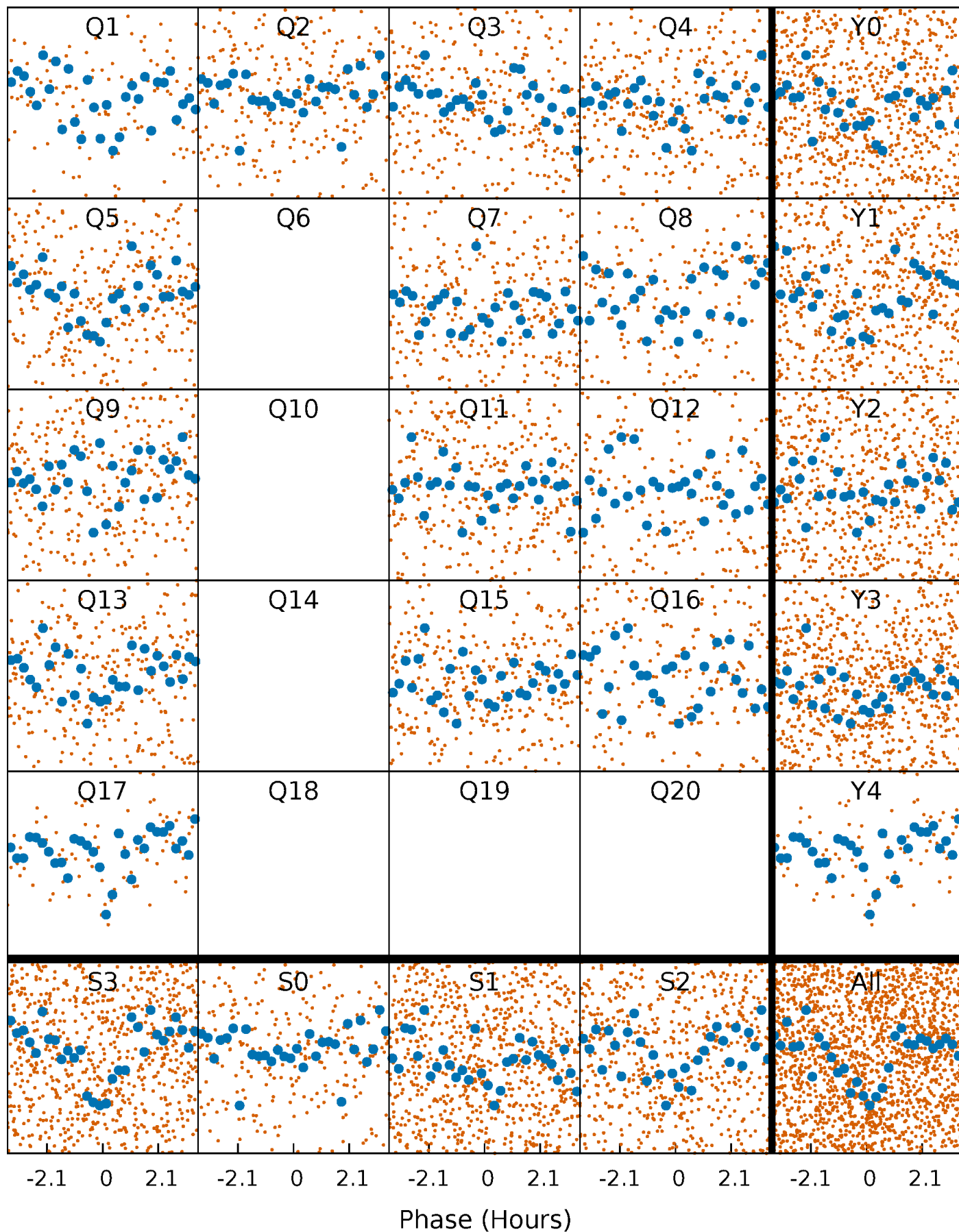


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



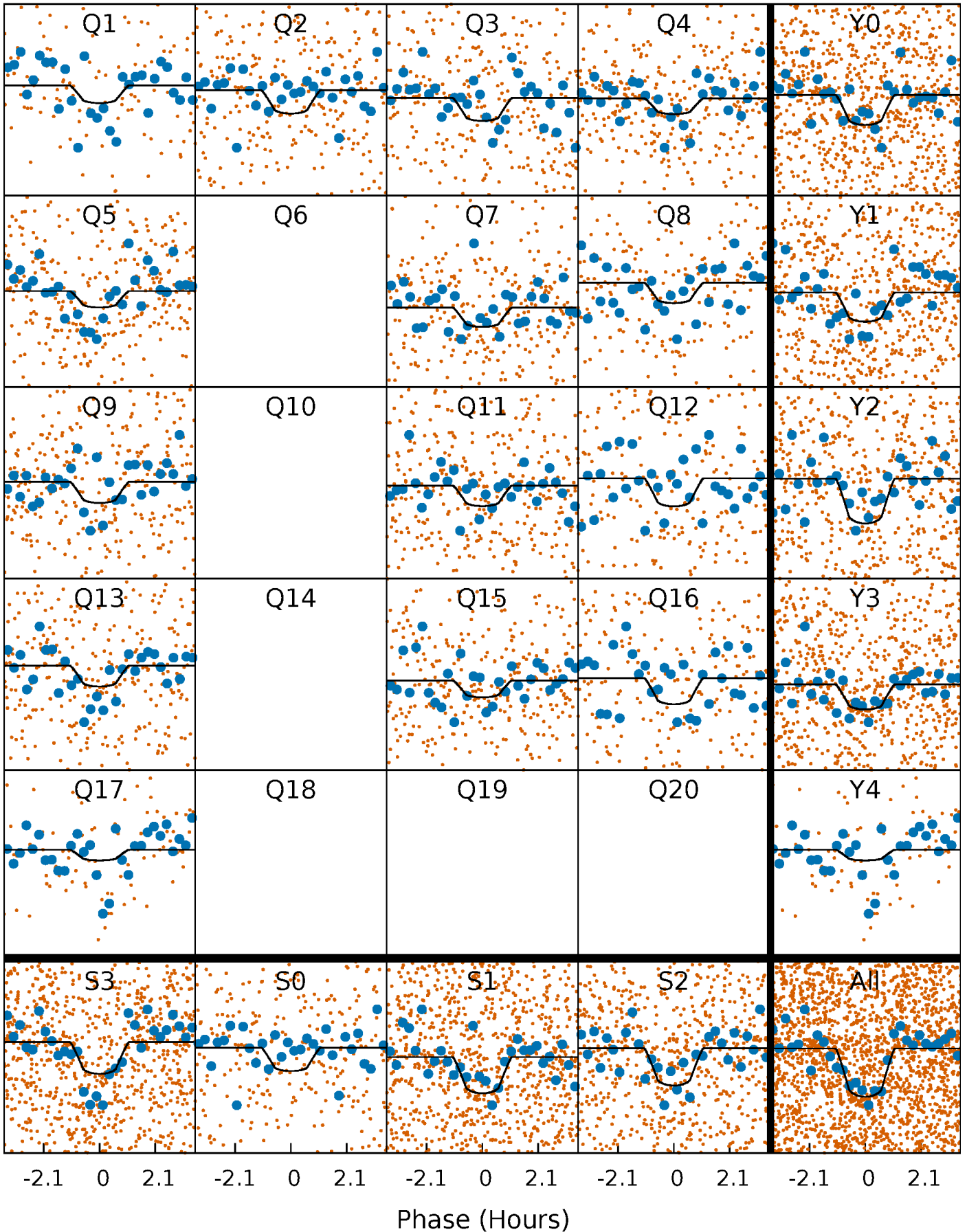
PDC Quarter-Phased Transit Curves

TCE 005547480-02 P= 3.979809 Days $T_0=134.071523$ (BKJD)



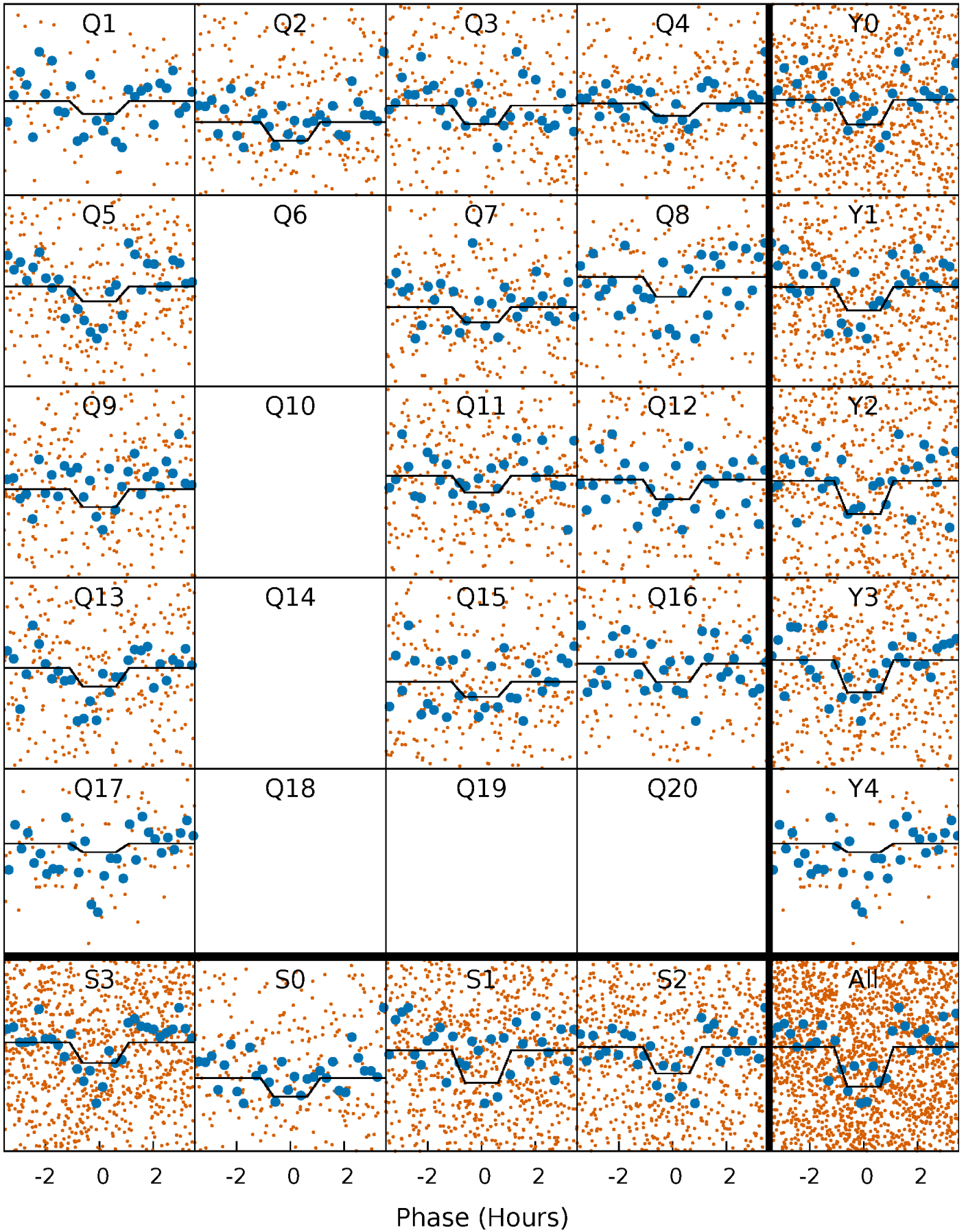
DV Quarter-Phased Transit Curves

TCE 005547480-02 P= 3.979809 Days $T_0=134.071523$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

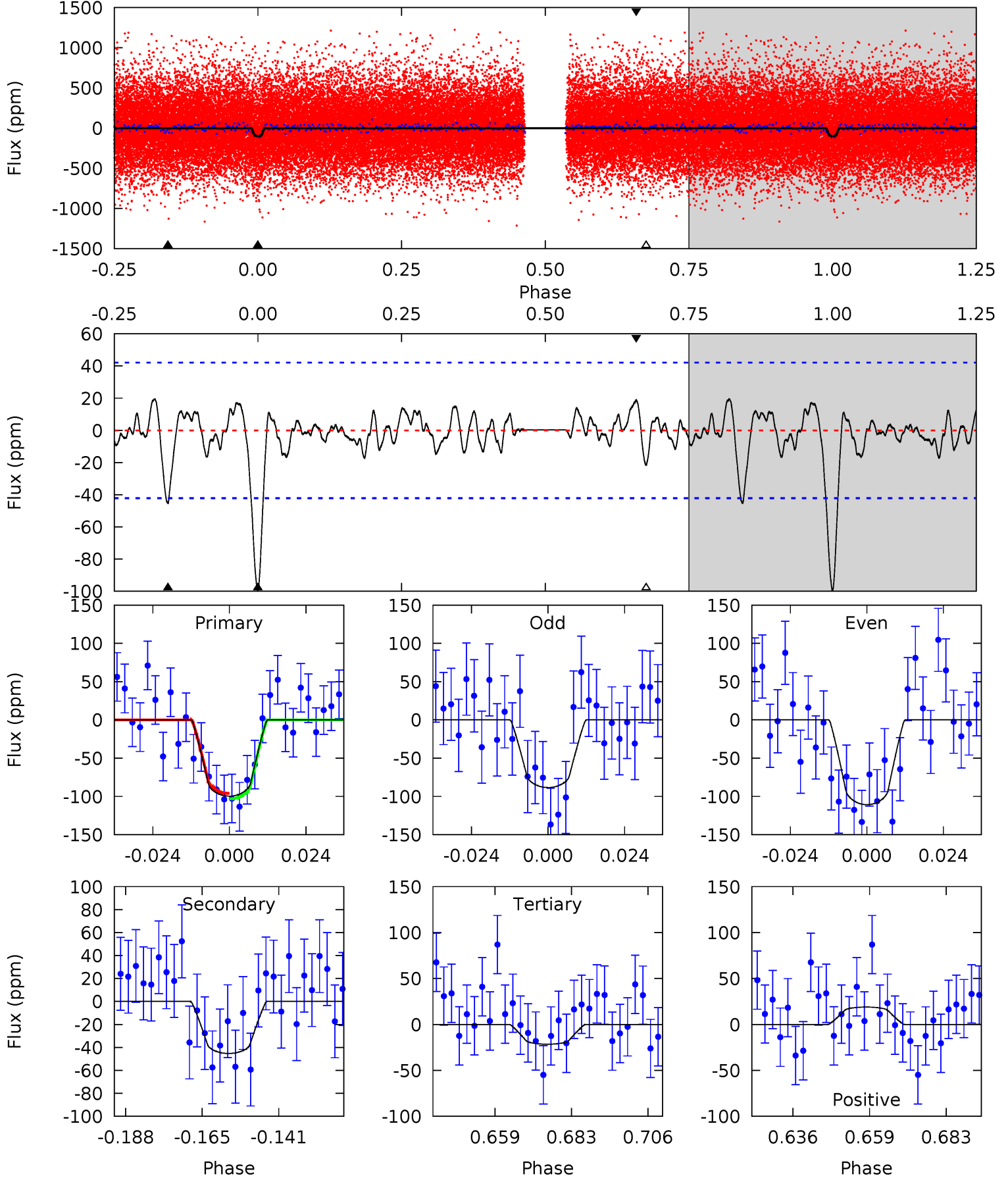
TCE 005547480-02 $P = 3.979872$ Days $T_0 = 134.063520$ (BKJD)



DV Model-Shift Uniqueness Test

005547480-02, P = 3.979809 Days, E = 130.091714 Days

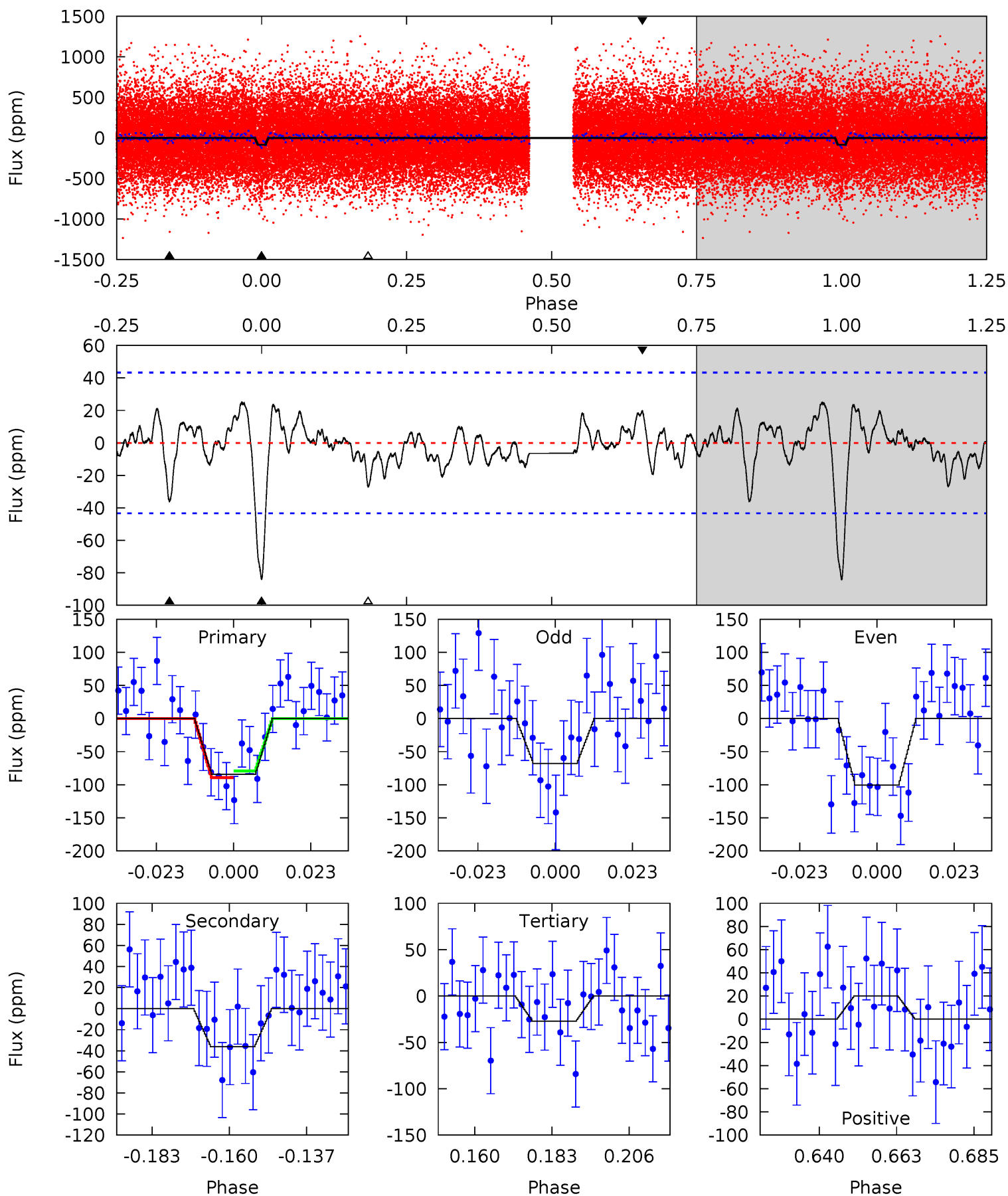
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.5 | 5.23 | 2.48 | 2.18 | 4.86 | 2.26 | 0.92 | 9.01 | 9.32 | 2.74 | 3.05 | 1.29 | 1.02 | 0.16 | 0.41 |



Alt Model-Shift Uniqueness Test

005547480-02, P = 3.979872 Days, E = 130.083648 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.47 | 4.07 | 3.05 | 2.25 | 4.87 | 2.28 | 1.06 | 6.42 | 7.21 | 1.03 | 1.82 | 1.83 | 0.92 | 0.23 | 0.56 |



Stellar Parameters For KIC 005547480

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6032^{+168}_{-210} | $4.485^{+0.054}_{-0.216}$ | $-0.060^{+0.250}_{-0.300}$ | $0.973^{+0.315}_{-0.105}$ | $1.055^{+0.139}_{-0.153}$ | $1.612^{+0.460}_{-0.850}$ |
| | +3%/-3% | +1%/-5% | +417%/-500% | +32%/-11% | +13%/-15% | +29%/-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 005547480-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|---------------------|-----------------------|-------------------|
| DV | -45 ± 9 | $1.25^{+0.84}_{-0.74}$ | 1673^{+133}_{-85} | 4803^{+2583}_{-869} | 39^{+189}_{-25} |
| Alt. | -36 ± 9 | $1.14^{+0.80}_{-0.65}$ | 1668^{+121}_{-78} | 4735^{+2362}_{-884} | 38^{+145}_{-25} |

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 $A_{obs} \gg 1.0$

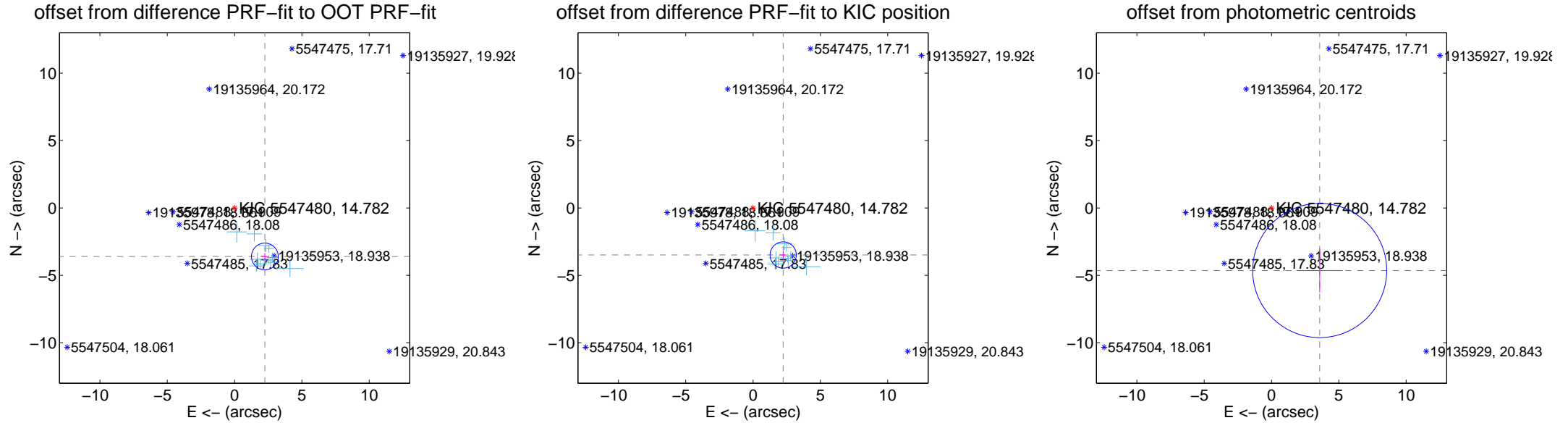
DV Centroid Data

Supplemental centroid analysis for 005547480-02. Kepler magnitude: 14.78. Transit SNR 8.24

There are 11 quarters with good PRF difference image offsets

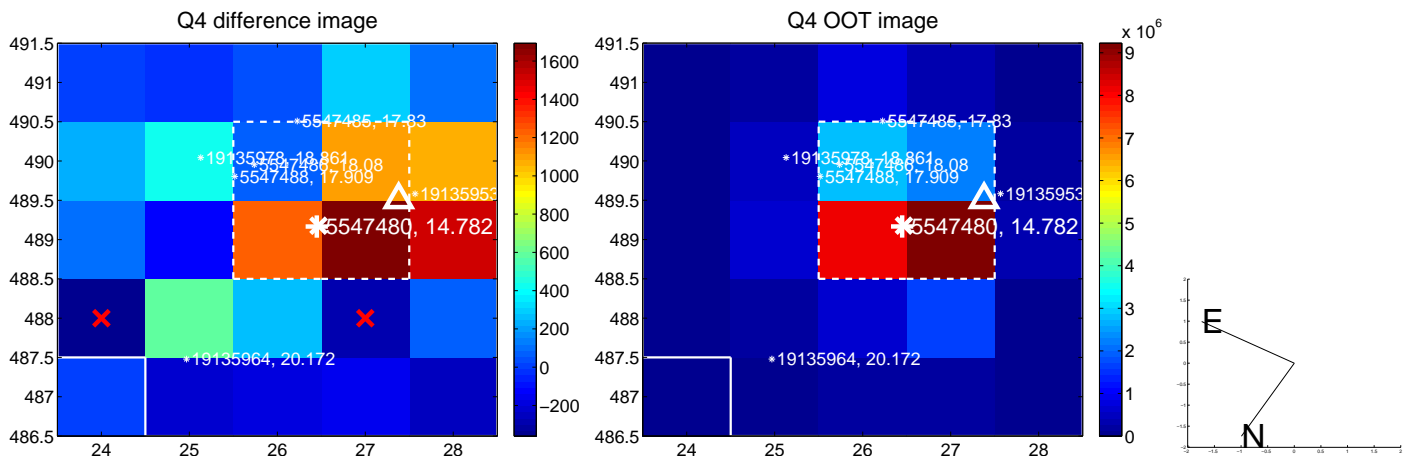
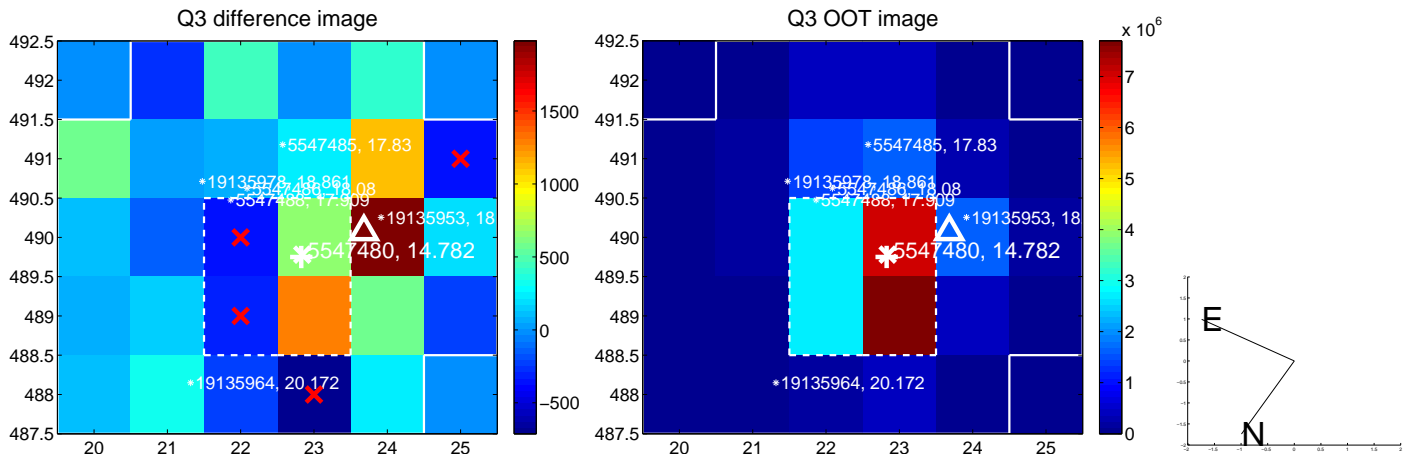
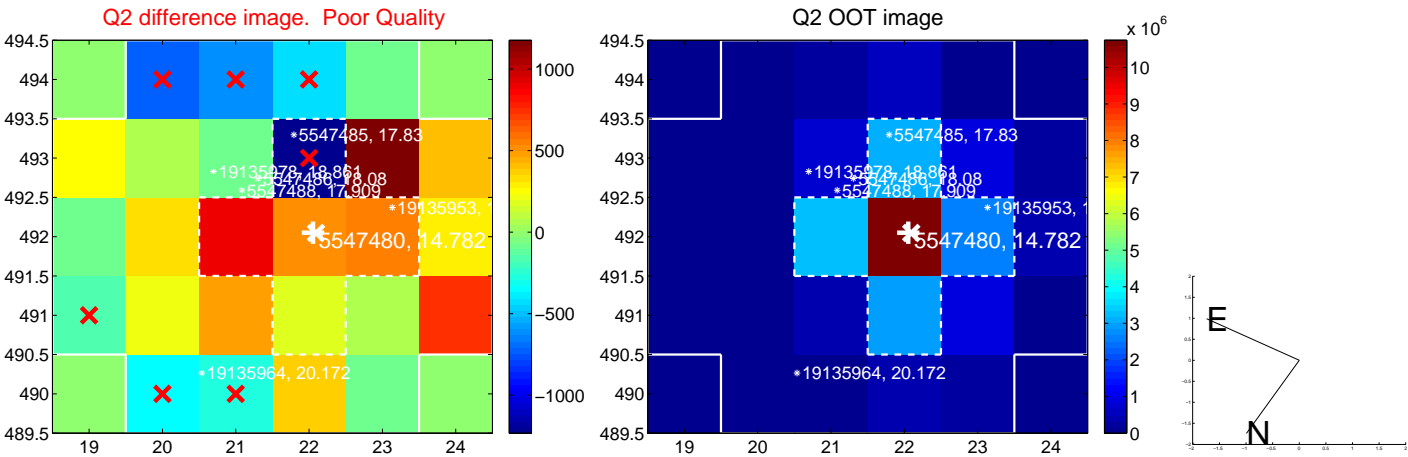
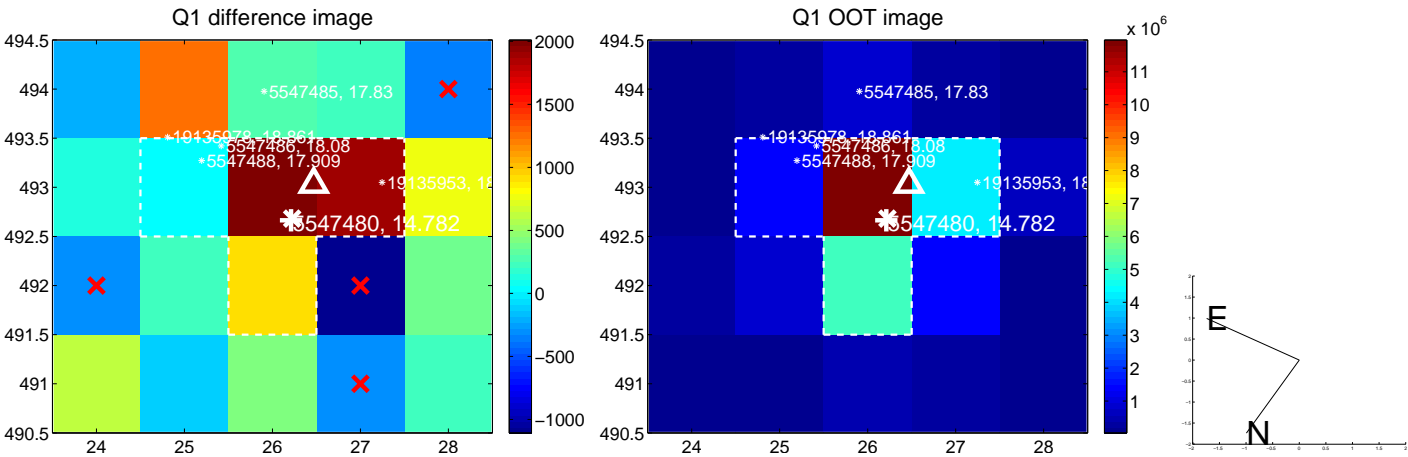
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 4.247 ± 0.332 | 12.81 | -2.249 ± 0.281 | -3.603 ± 0.256 |
| PRF-fit source offset from KIC position | 4.145 ± 0.325 | 12.77 | -2.237 ± 0.255 | -3.490 ± 0.265 |
| photometric centroid source offset | 5.86 ± 1.66 | 3.53 | -3.58 ± 1.71 | -4.64 ± 1.63 |

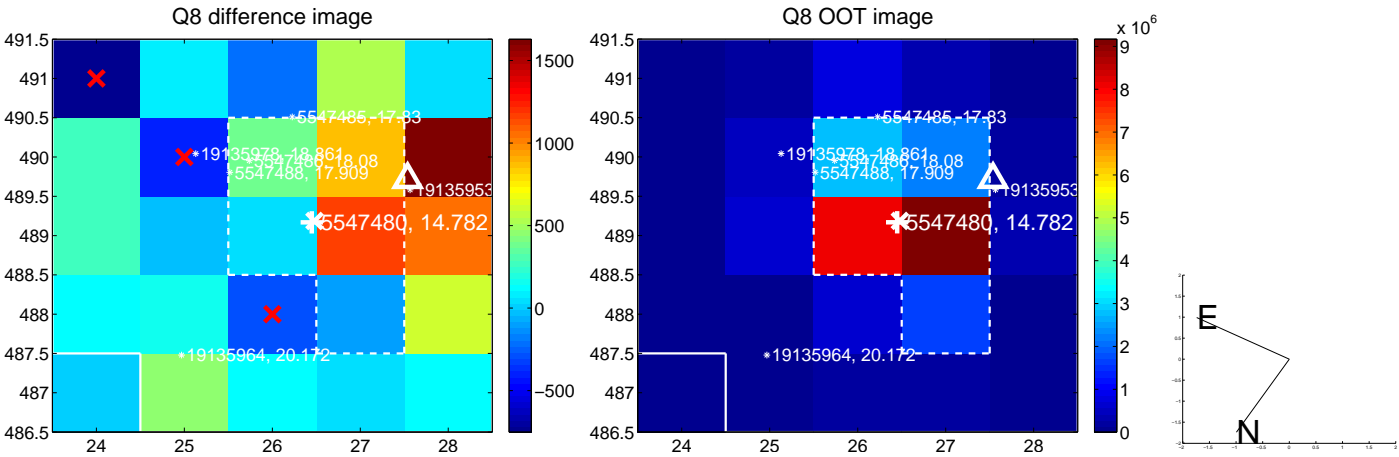
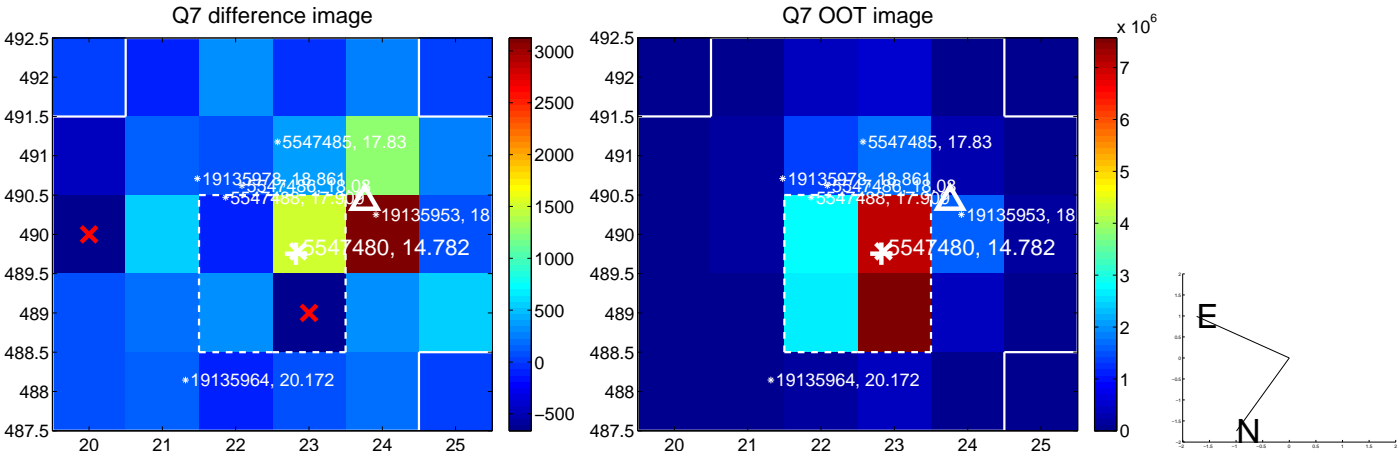
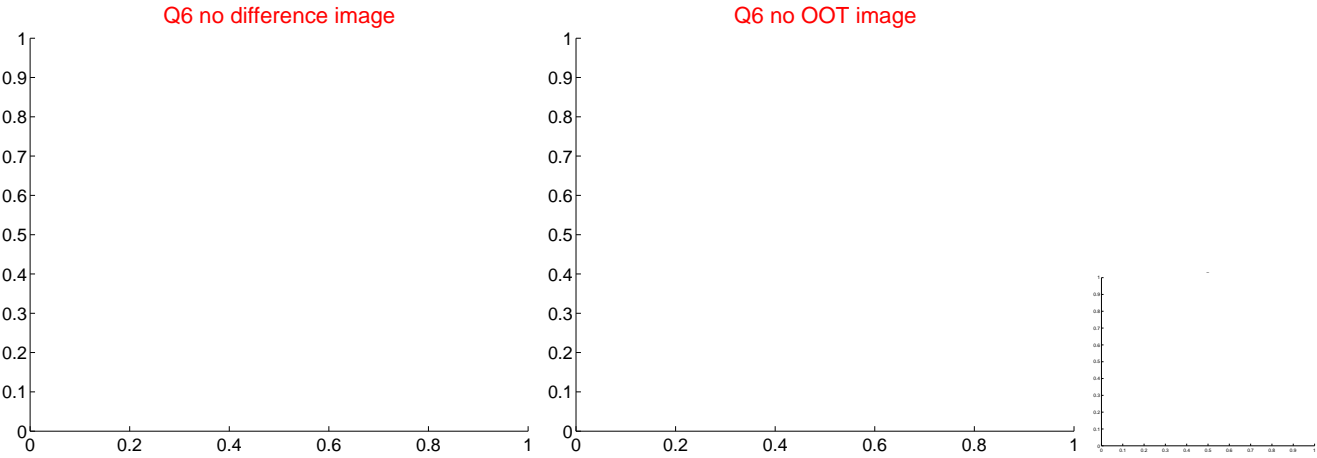
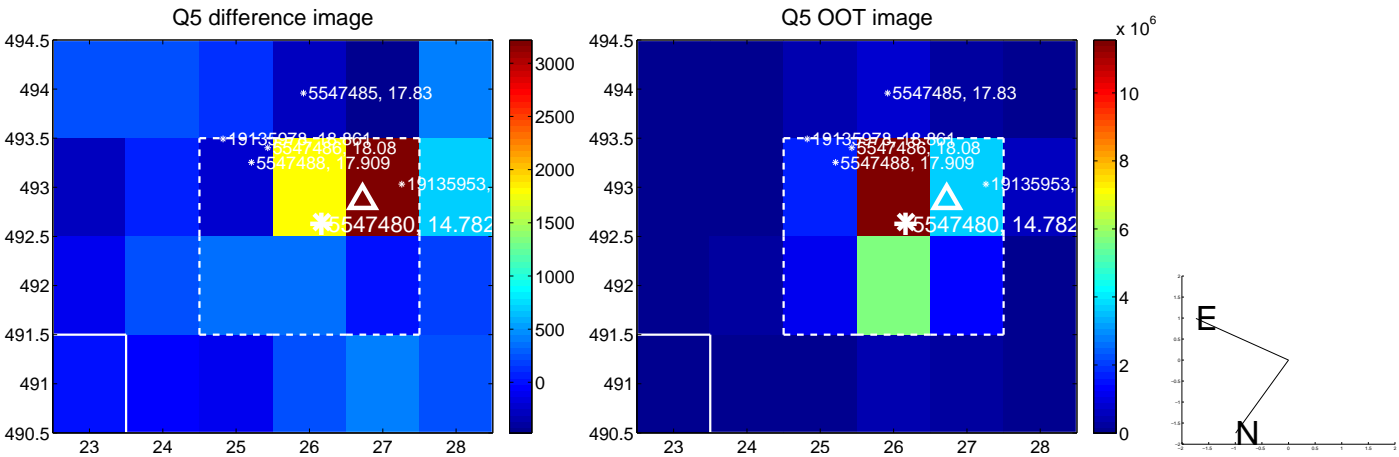


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

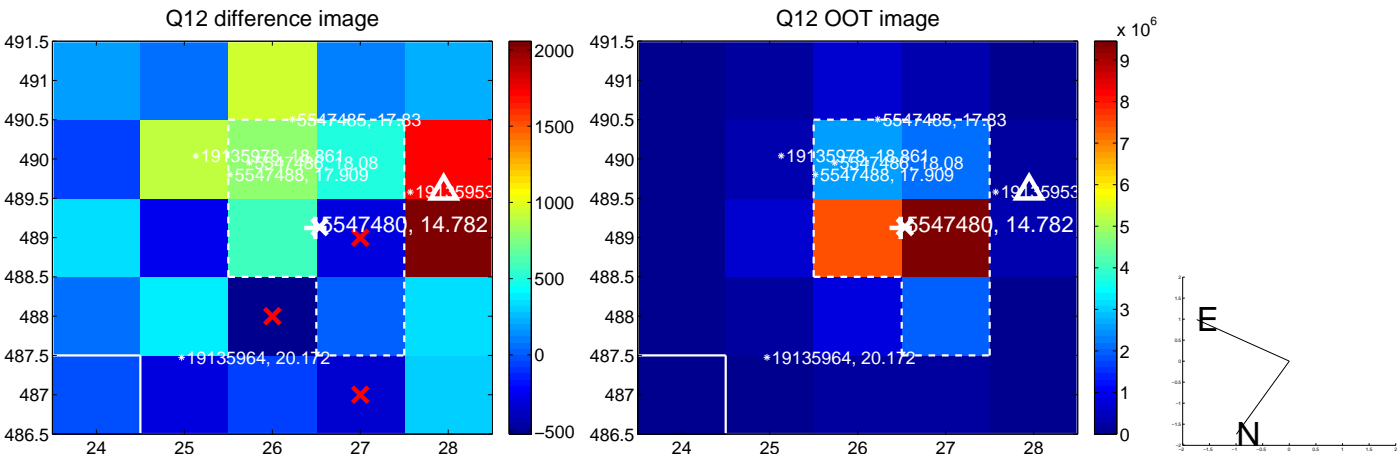
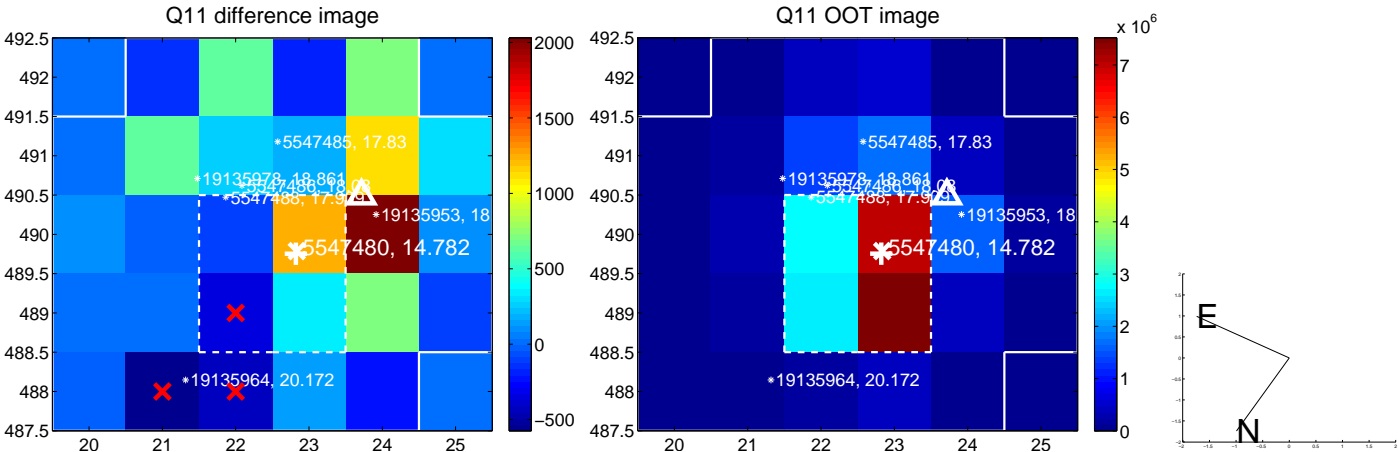
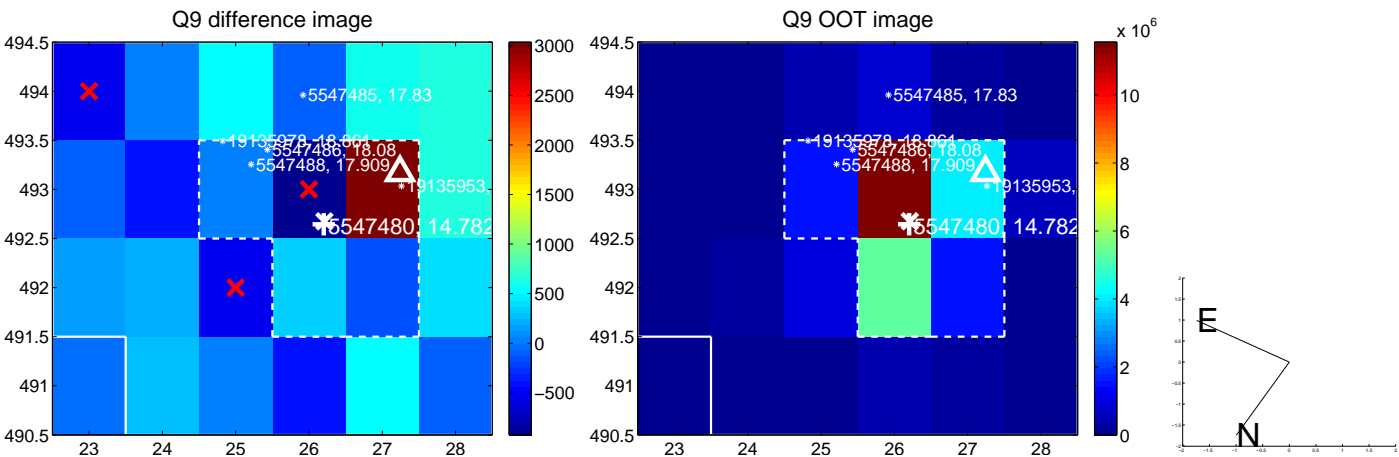
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



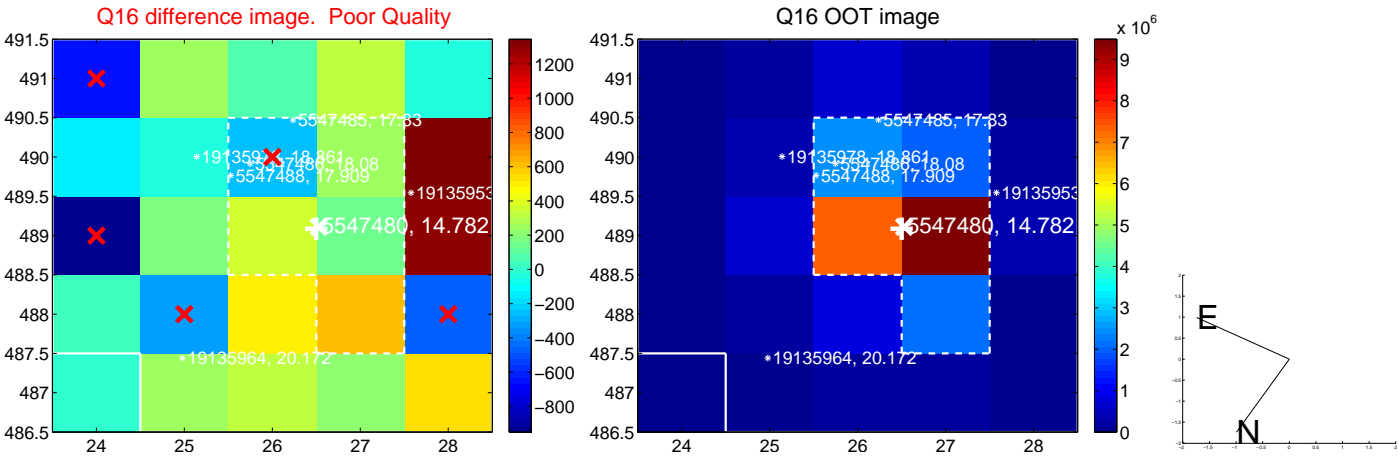
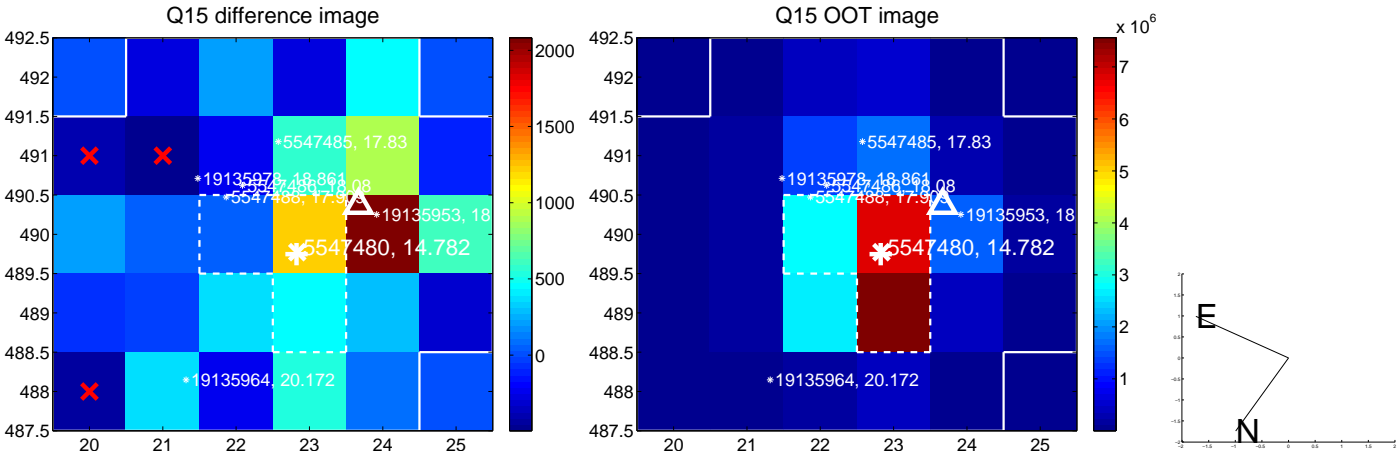
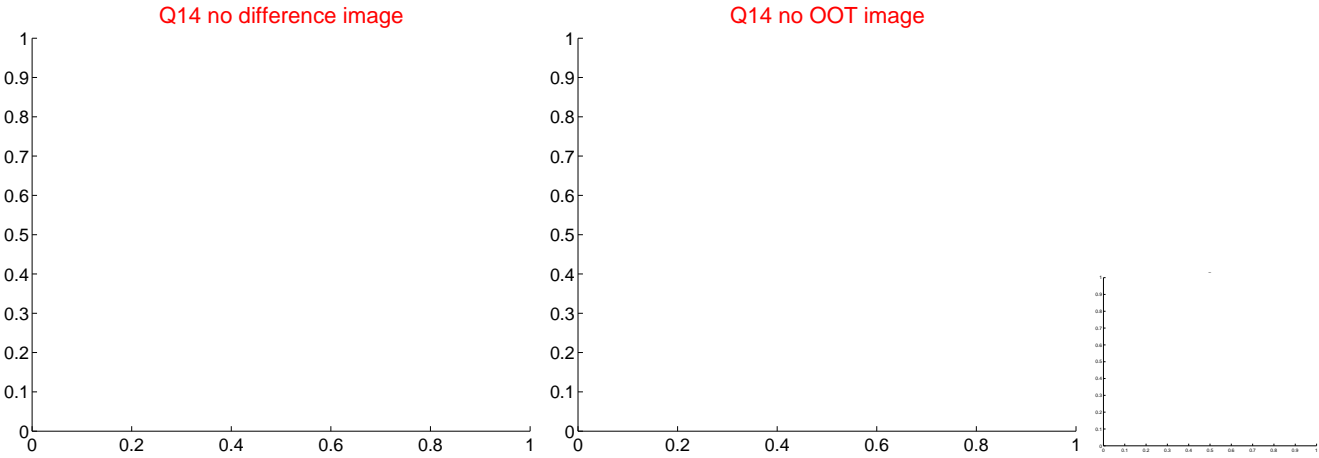
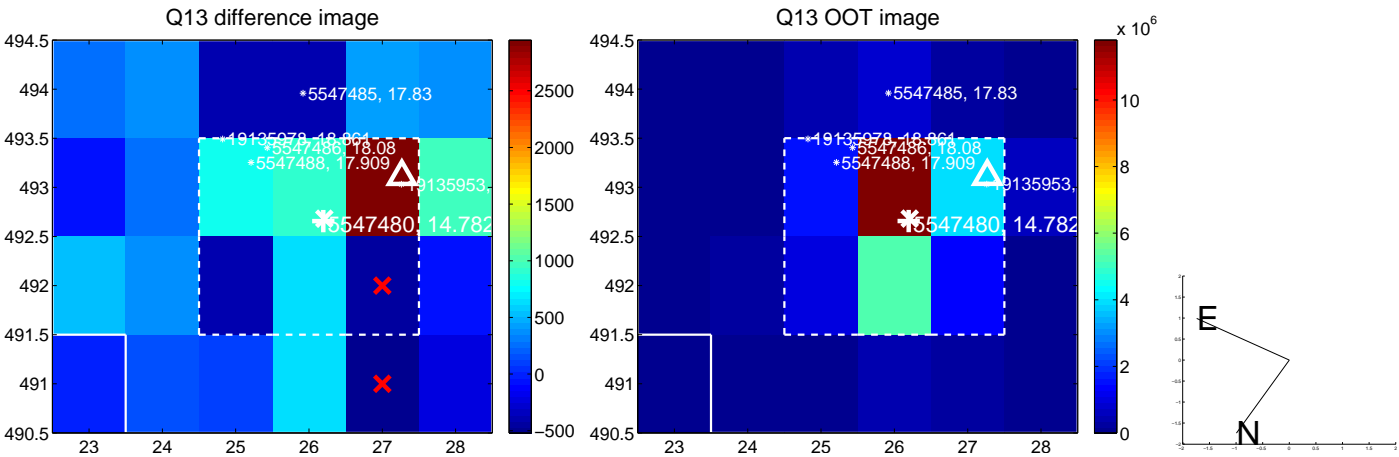
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



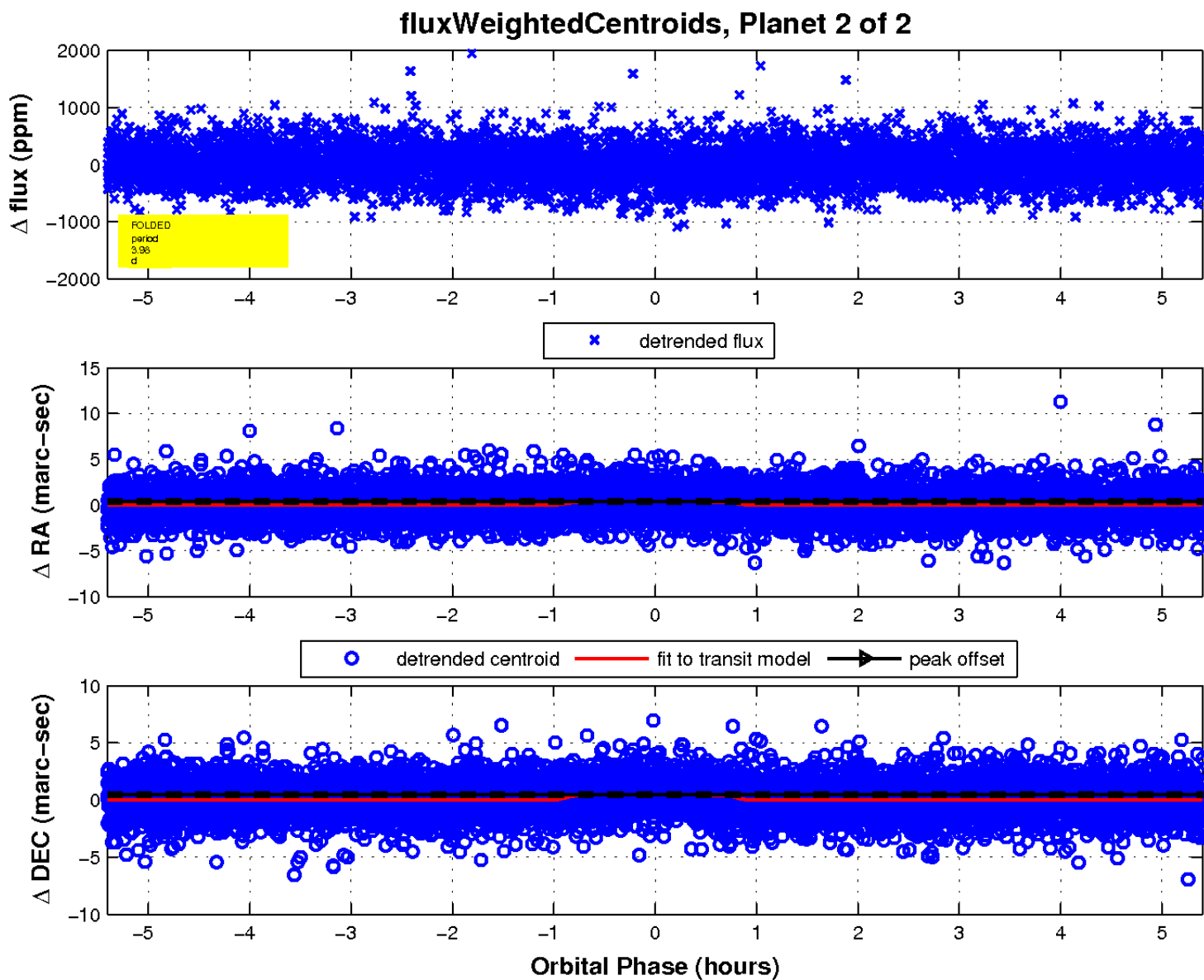
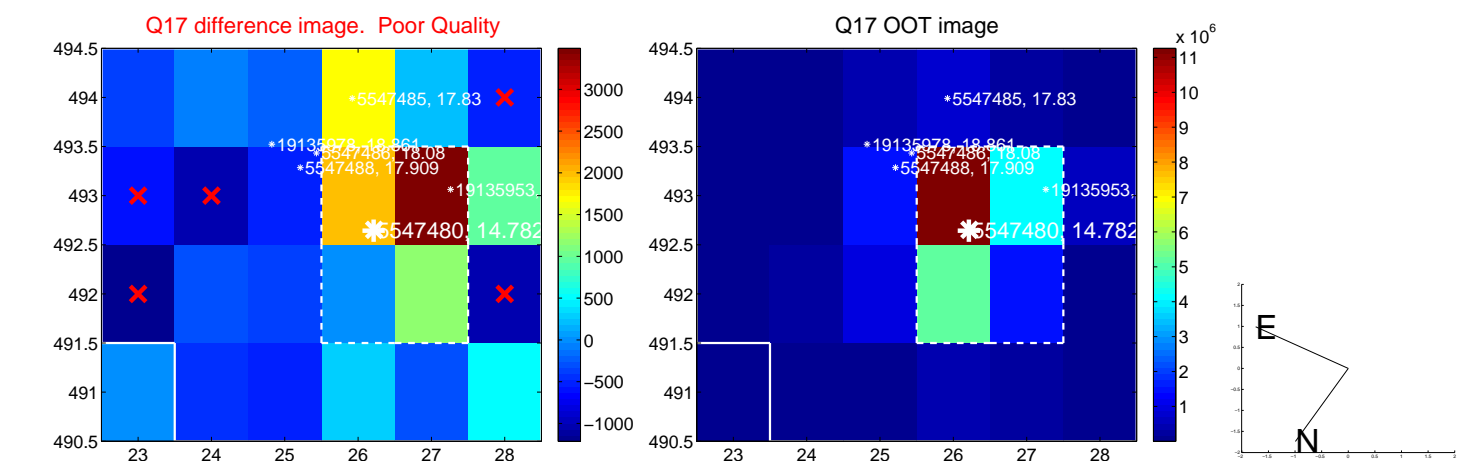
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

