

KIC 011442793

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 011442793-01 | OBS | 0351.01 | 331.603305 | 140.479505 | 8353.3 | 14.486 | 249.1 | 233.3 | 1.20 | 5970 | 10.96 | 1.76 |
| 011442793-02 | OBS | 0351.02 | 210.593472 | 147.099243 | 4164.3 | 12.058 | 101.8 | 121.8 | 1.20 | 5970 | 7.69 | 3.22 |
| 011442793-03 | OBS | 0351.03 | 59.736918 | 158.962394 | 563.2 | 8.537 | 29.1 | 30.2 | 1.20 | 5970 | 3.25 | 17.30 |
| 011442793-04 | OBS | 0351.04 | 91.939496 | 134.306521 | 507.8 | 10.028 | 24.9 | 25.1 | 1.20 | 5970 | 3.22 | 9.73 |
| 011442793-05 | OBS | 0351.07 | 124.914938 | 254.703976 | 519.5 | 11.738 | 18.2 | 18.9 | 1.20 | 5970 | 3.22 | 6.47 |
| 011442793-06 | OBS | 0351.06 | 7.008208 | 137.674831 | 116.3 | 4.417 | 14.8 | 16.6 | 1.20 | 5970 | 1.67 | 301.14 |
| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

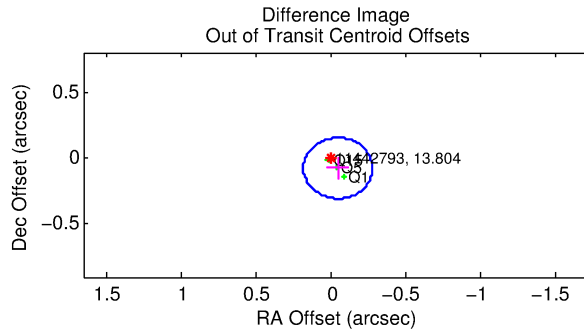
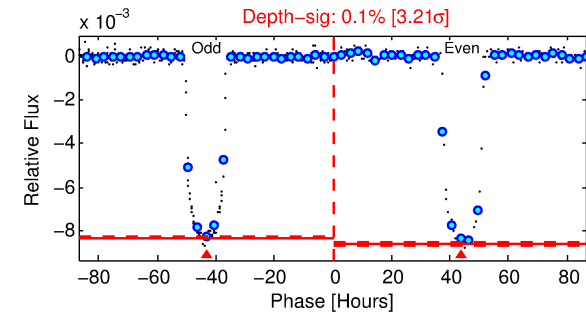
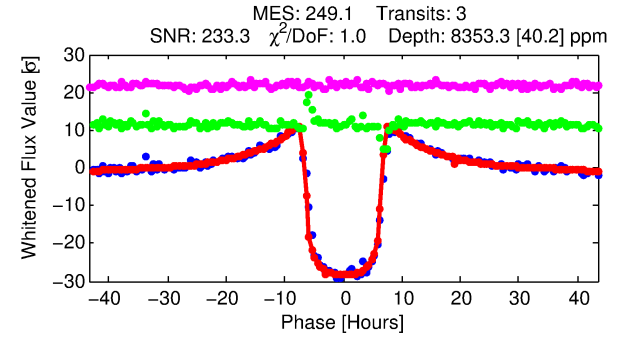
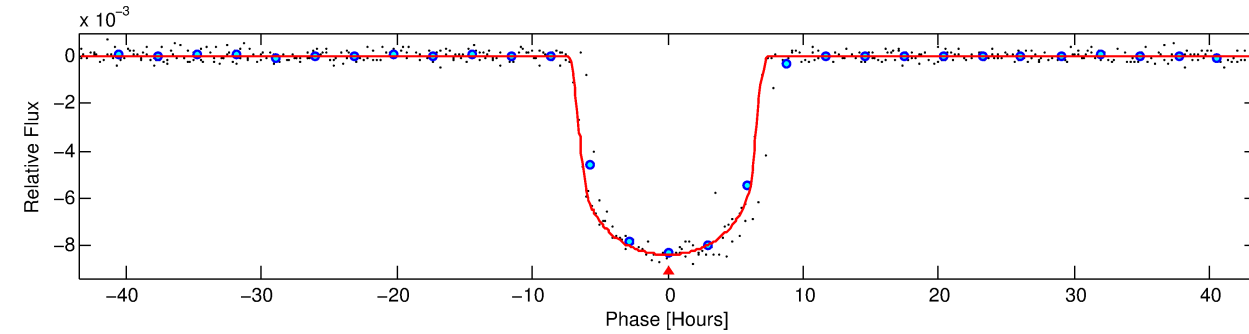
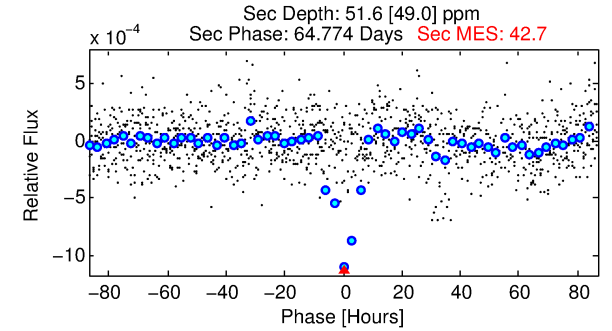
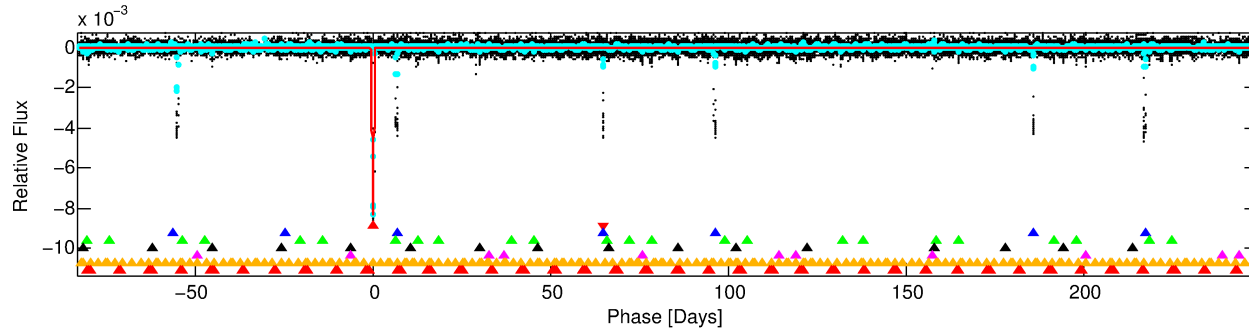
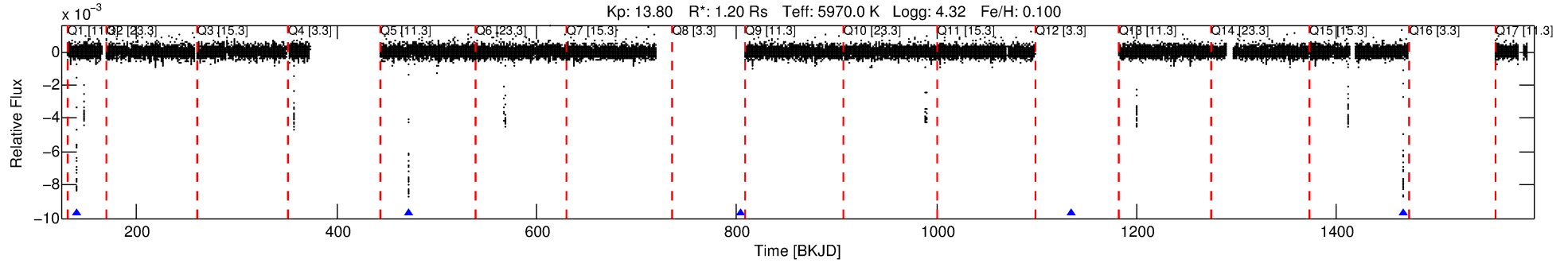
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-01

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 1 of 7 Period: 331.603 d
KOI: K00351.01 Name: Kepler-90h Corr: 0.987



DV Fit Results:

Period = 331.60331 [0.00029] d
Epoch = 140.4795 [0.0007] BKJD
Rp/R* = 0.0837 [0.0007]
a/R* = 185.16 [6.33]
b = 0.23 [0.14]
Seff = 1.76 [0.41]
Teq = 294 [17] K
Rp = 10.96 [1.78] Re
a = 0.9651 [0.1377] AU
Ag = 220.16 [214.65] [1.02 σ]
Teffp = 1749 [418] K [3.48 σ]

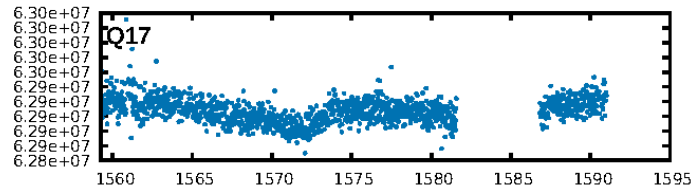
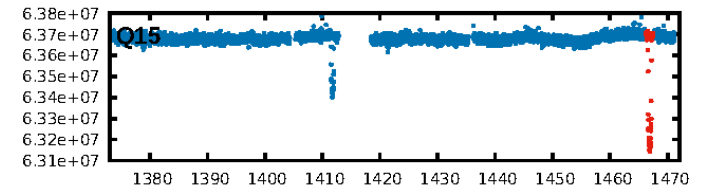
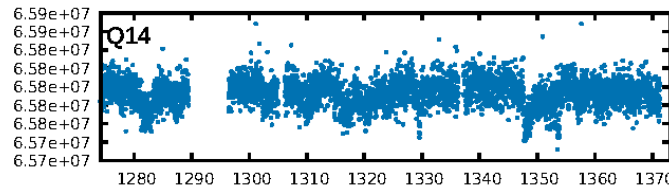
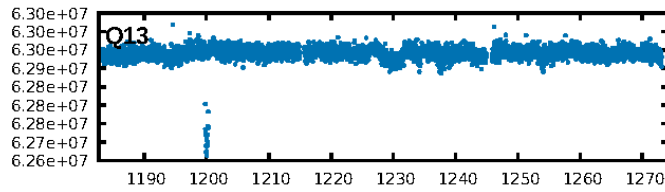
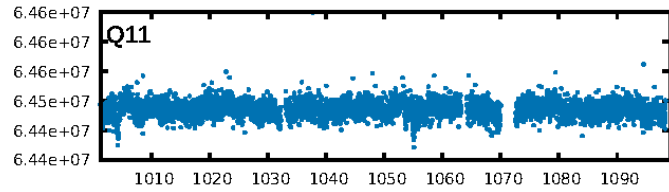
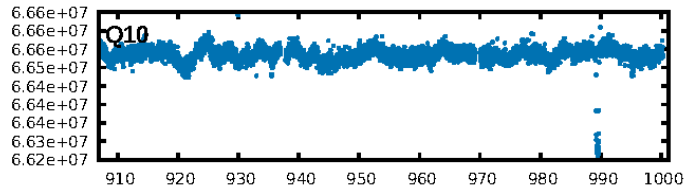
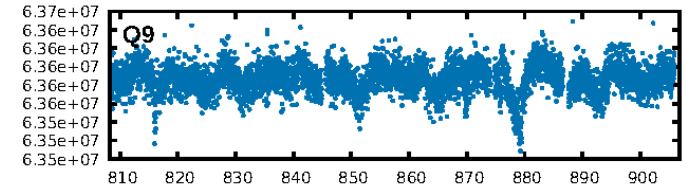
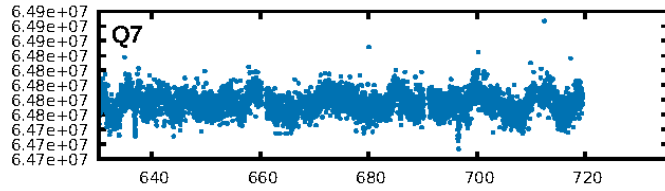
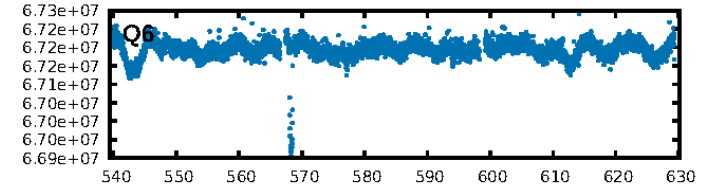
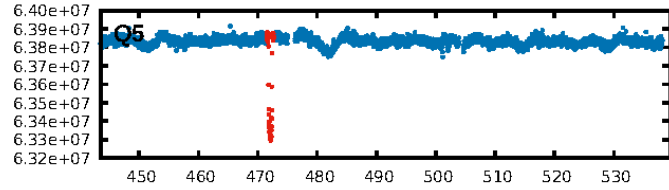
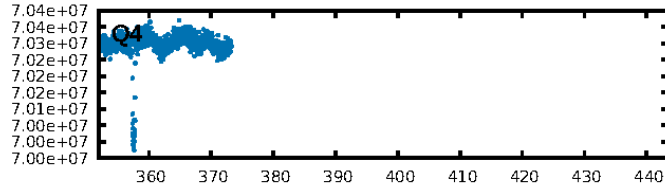
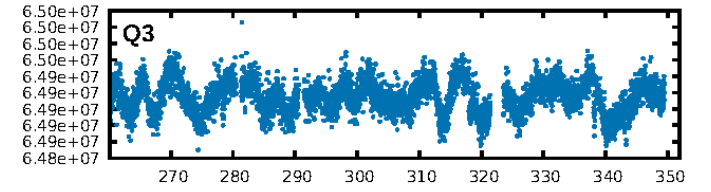
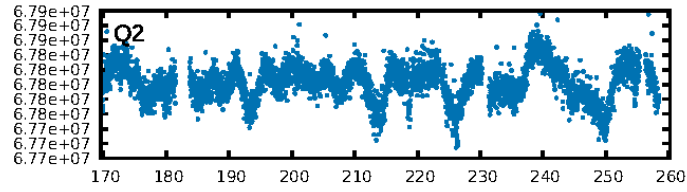
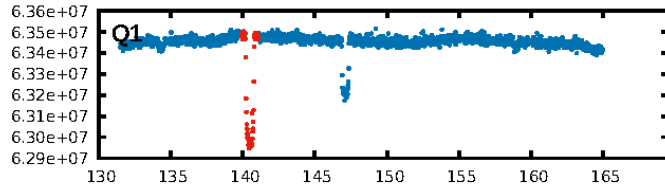
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [154.09 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 77.8%
ModelChiSquareGof-sig: 96.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 7.566
Centroid-sig: 8.6%
Centroid-so: 0.029 arcsec [0.68 σ]
OotOffset-rm: 0.093 arcsec [1.21 σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 0.130 arcsec [1.37 σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.67 [2/3]

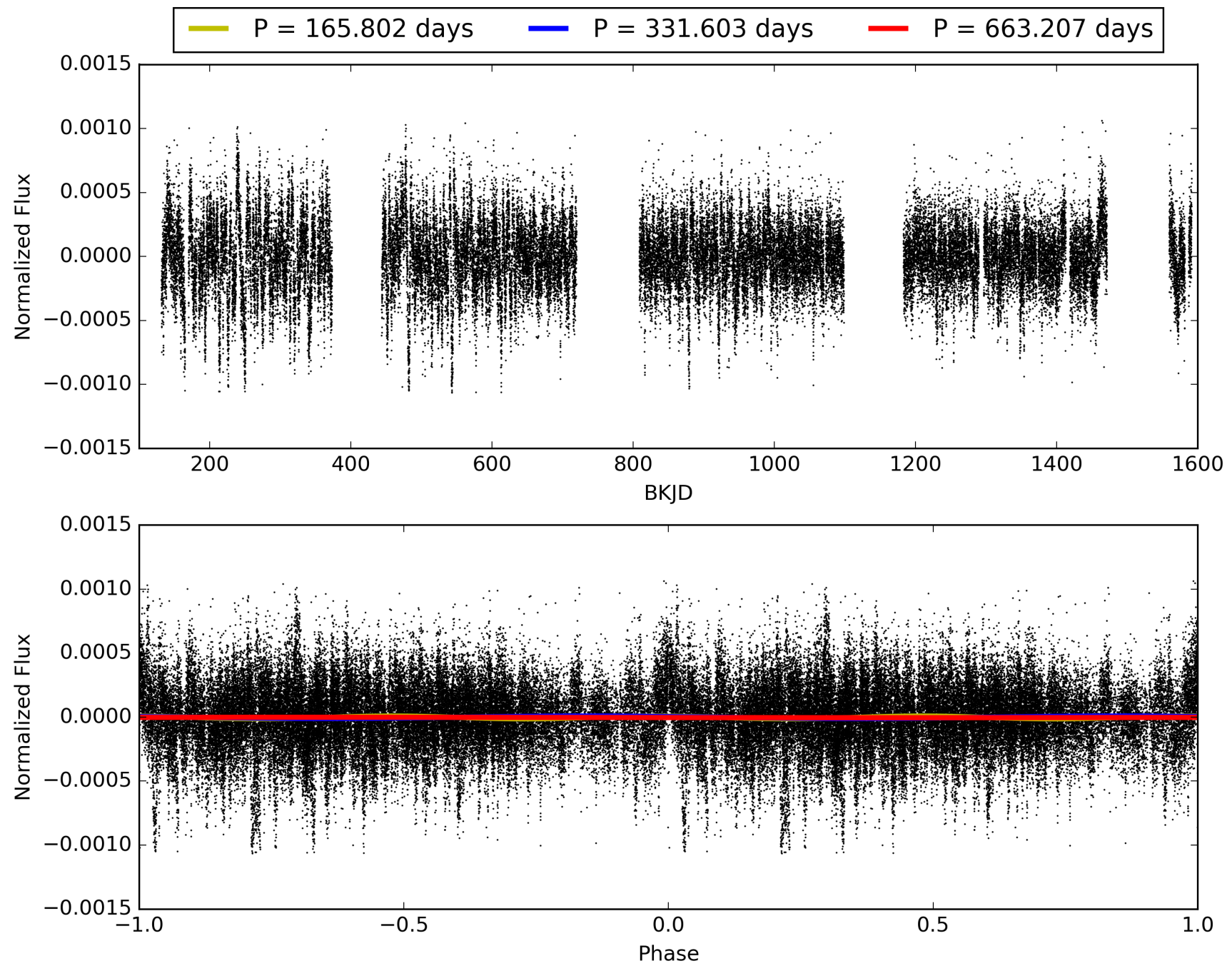
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:01:20 Z

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

TCE 011442793-01, PDC Light Curves

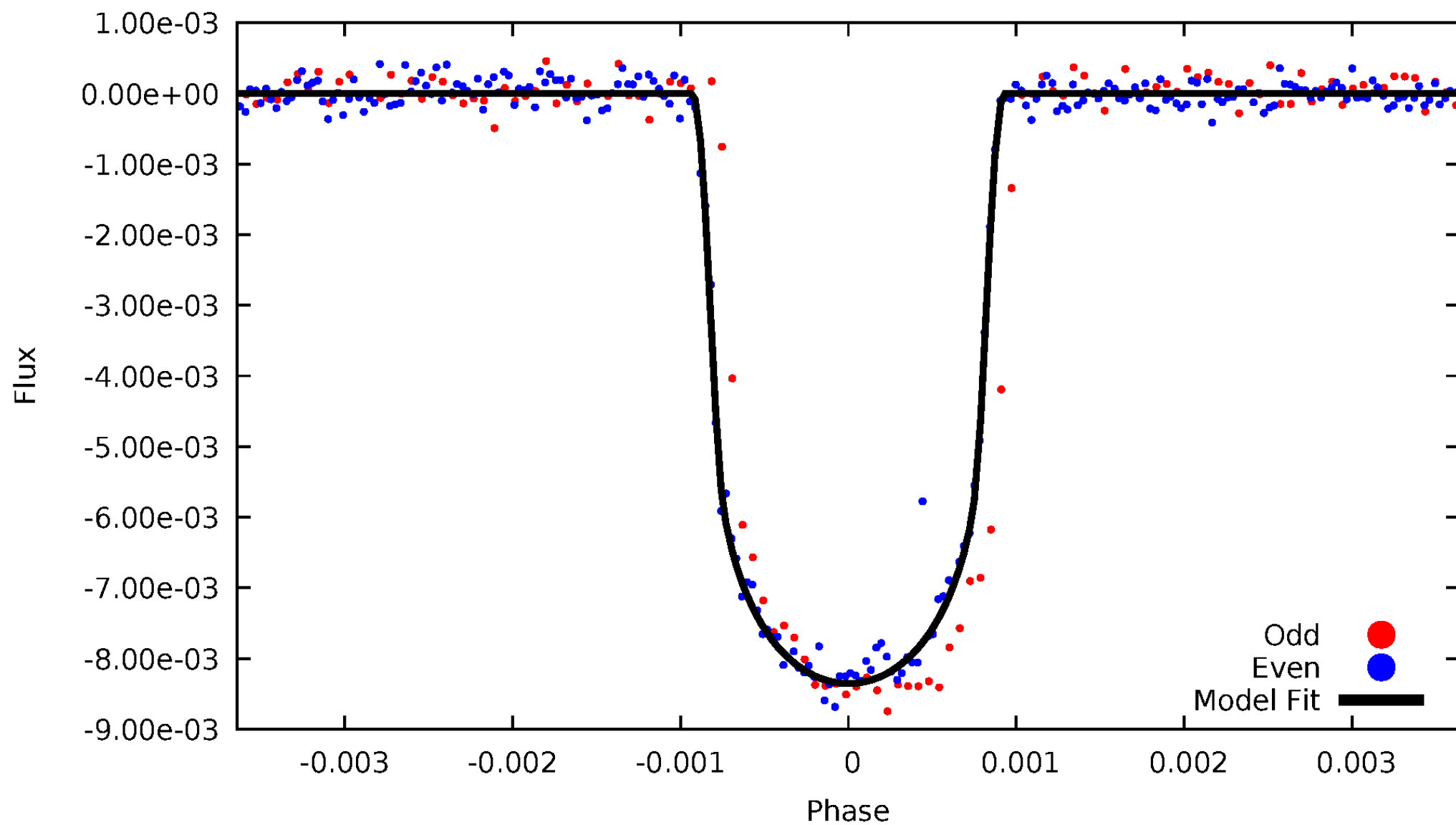


TCE 011442793-01



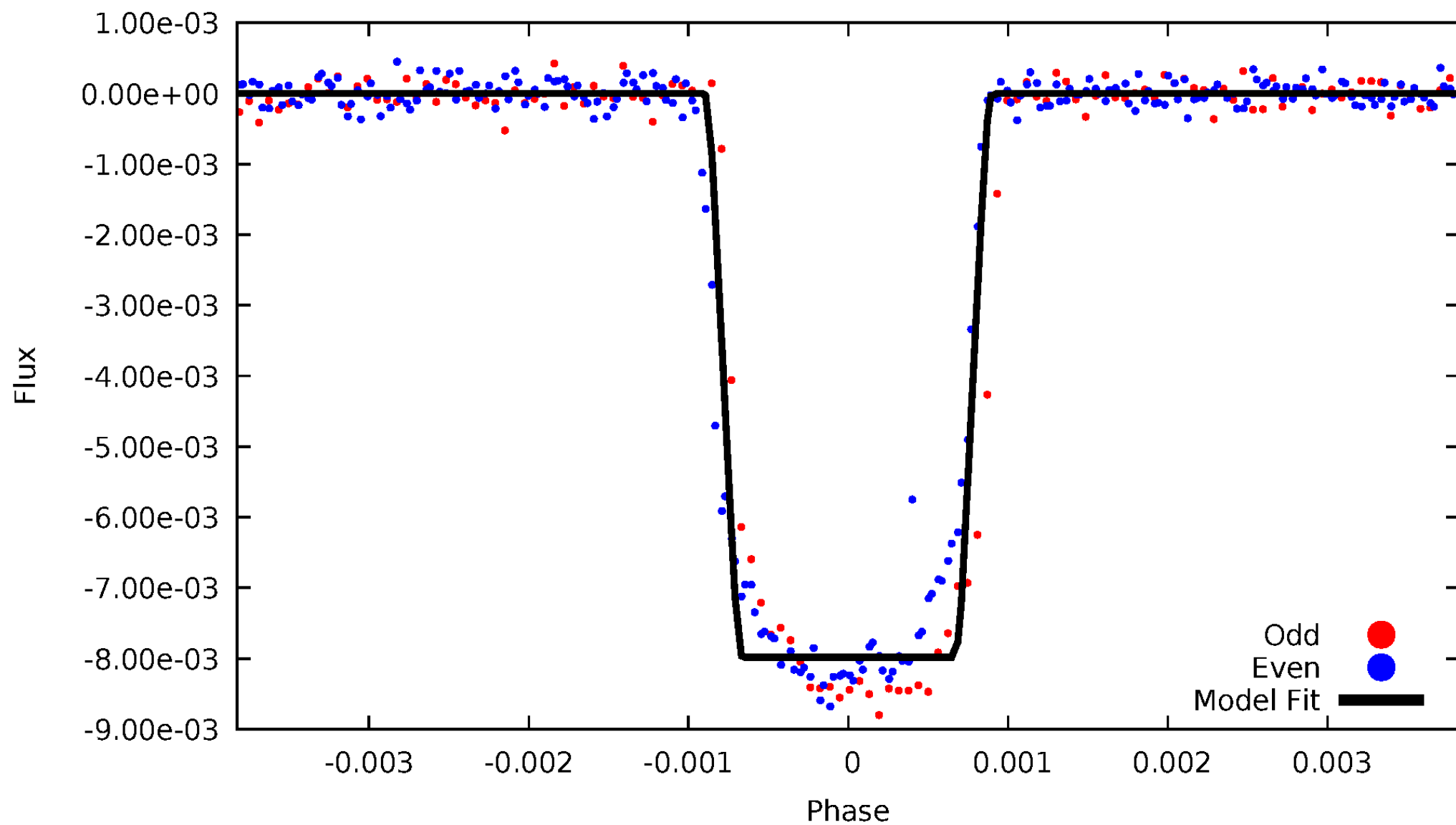
DV Odd/Even

TCE 011442793-01

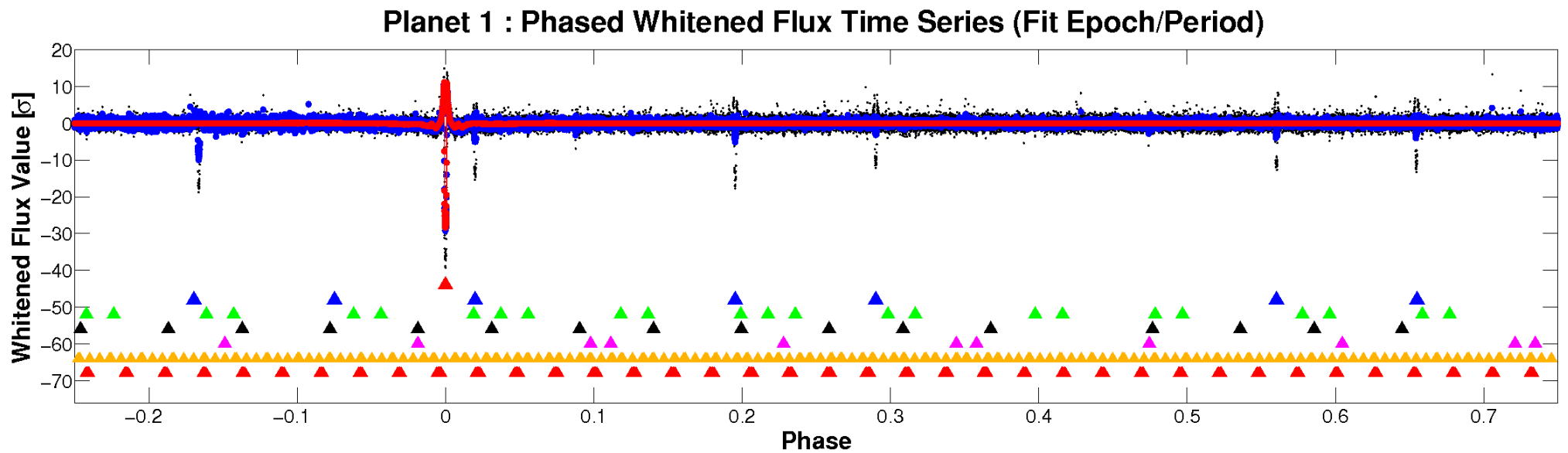
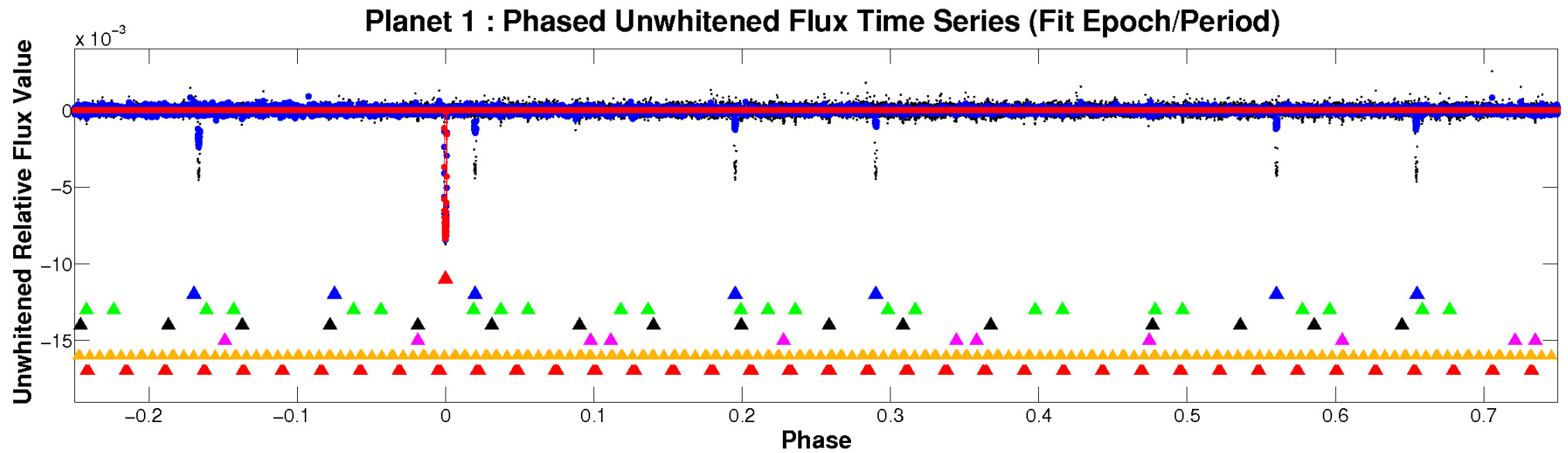


ALT Odd/Even

TCE 011442793-01

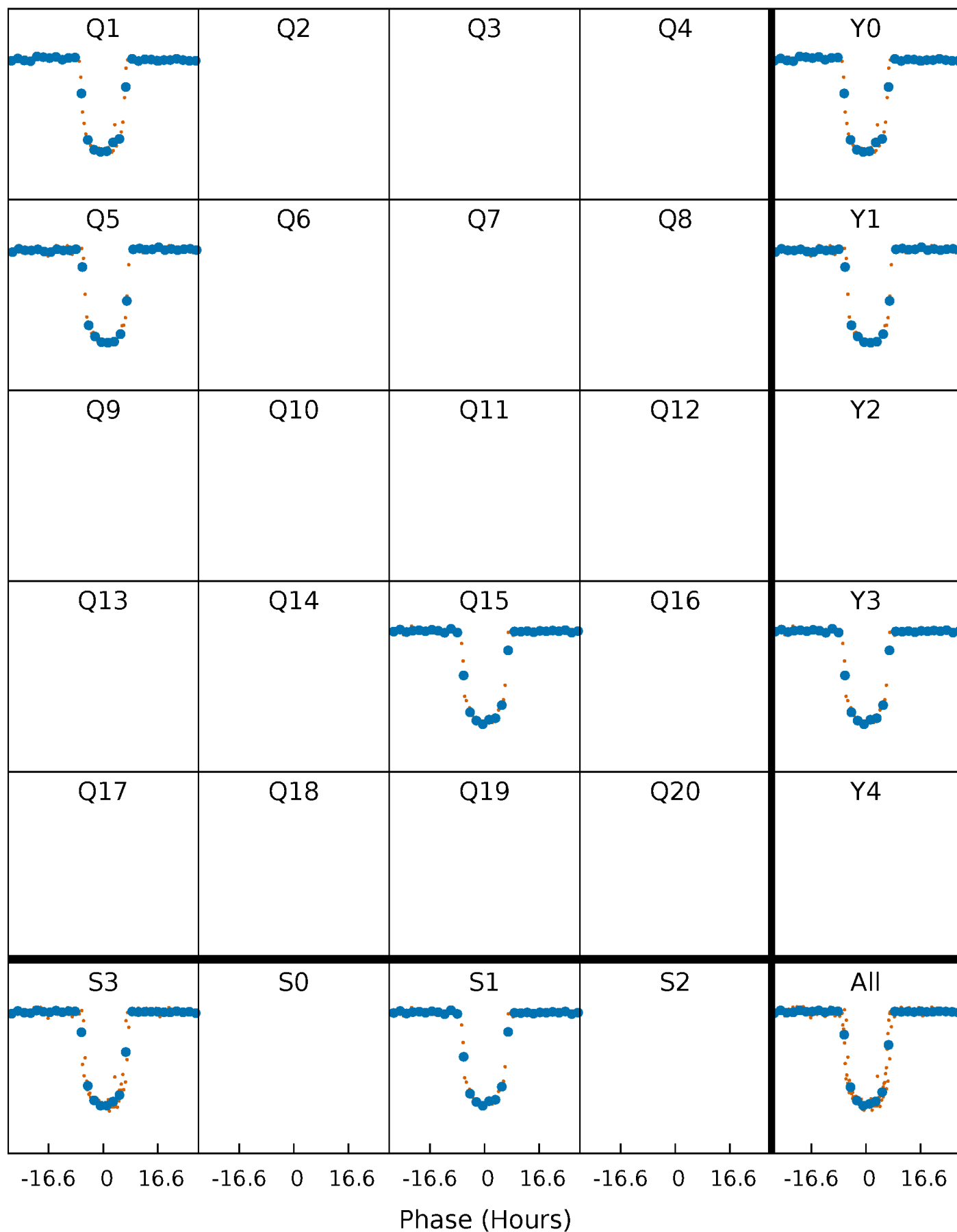


Non-Whitened Vs. Whitened Light Curve



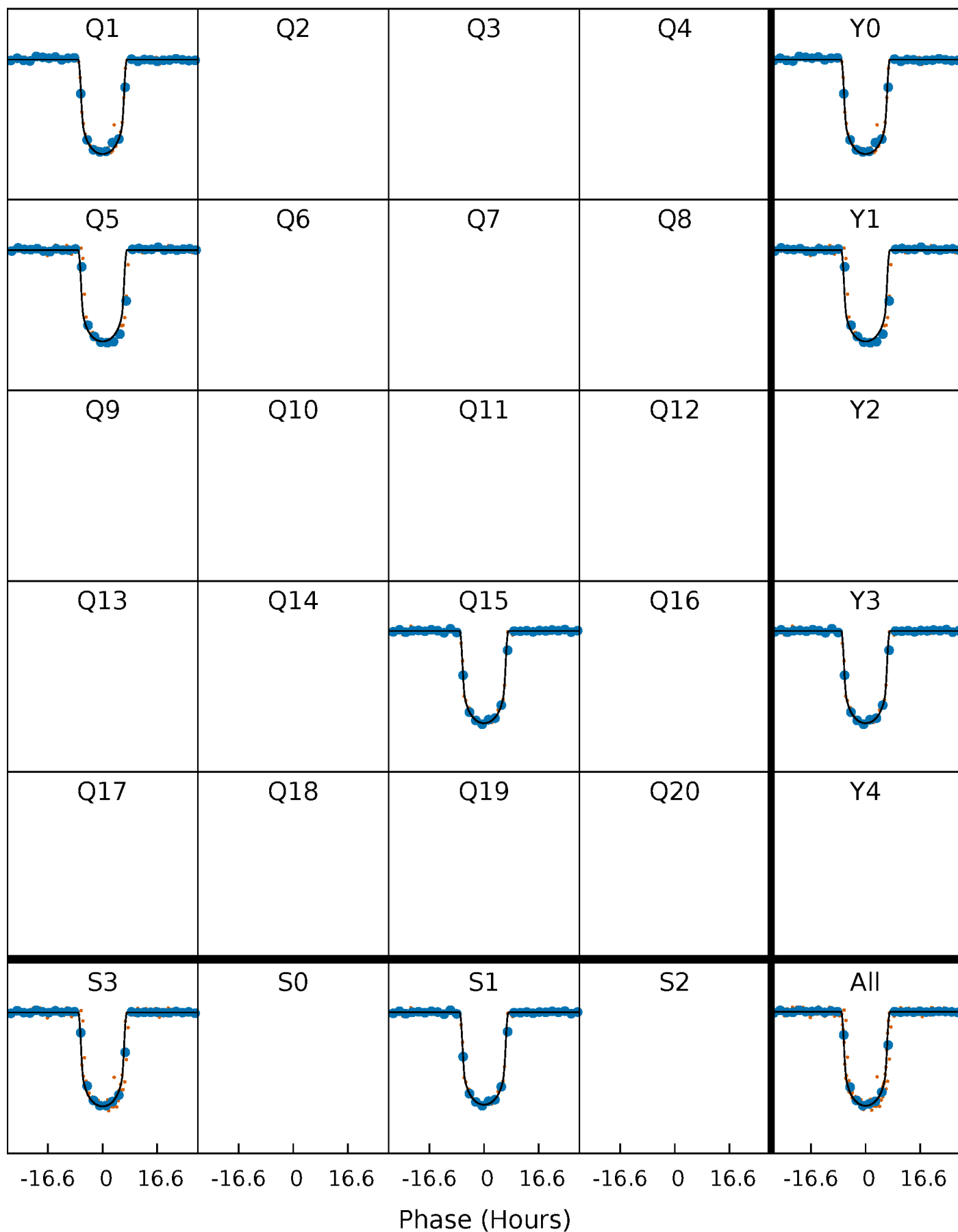
PDC Quarter-Phased Transit Curves

TCE 011442793-01 P=331.603305 Days $T_0=140.479505$ (BKJD)



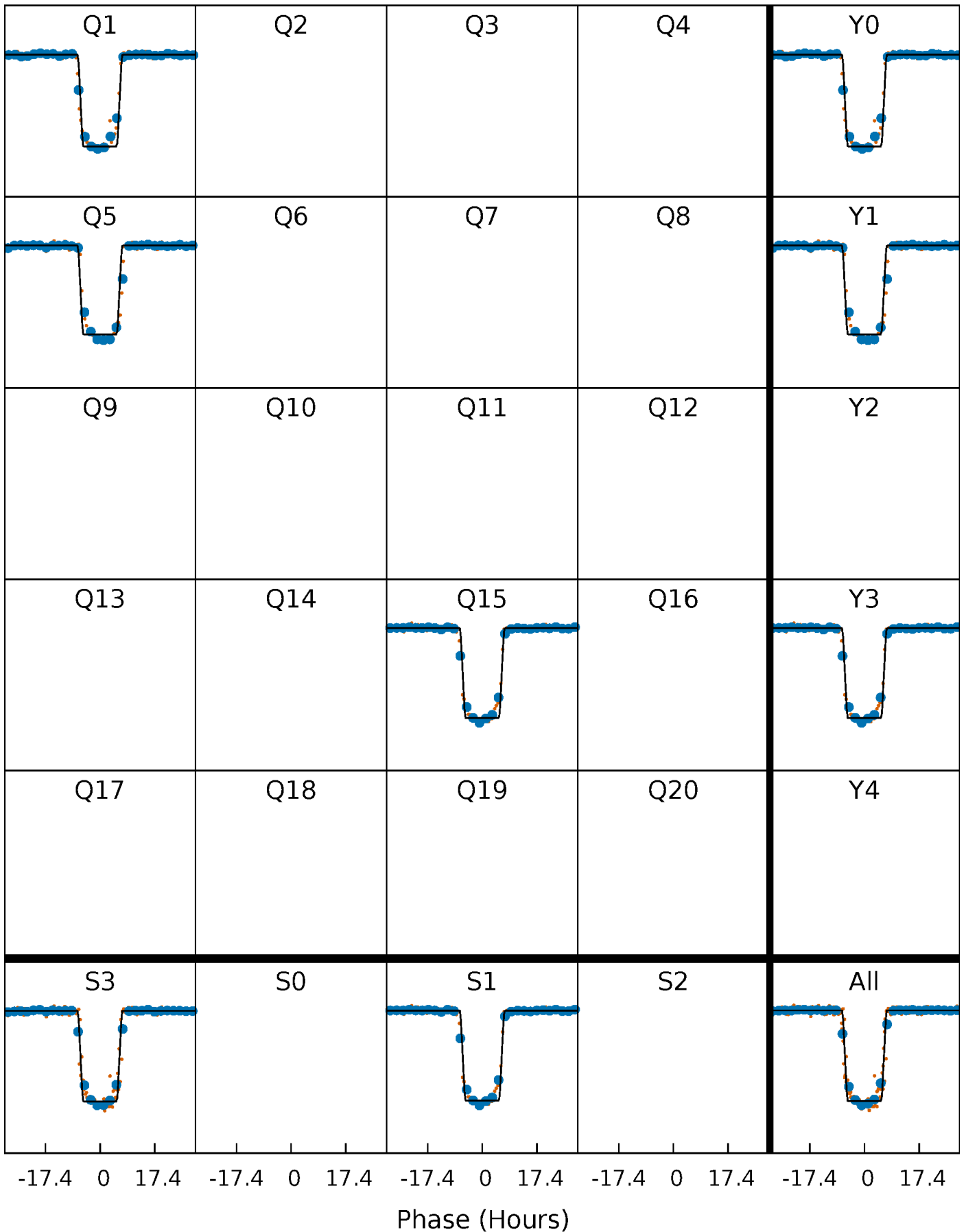
DV Quarter-Phased Transit Curves

TCE 011442793-01 P=331.603305 Days $T_0=140.479505$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

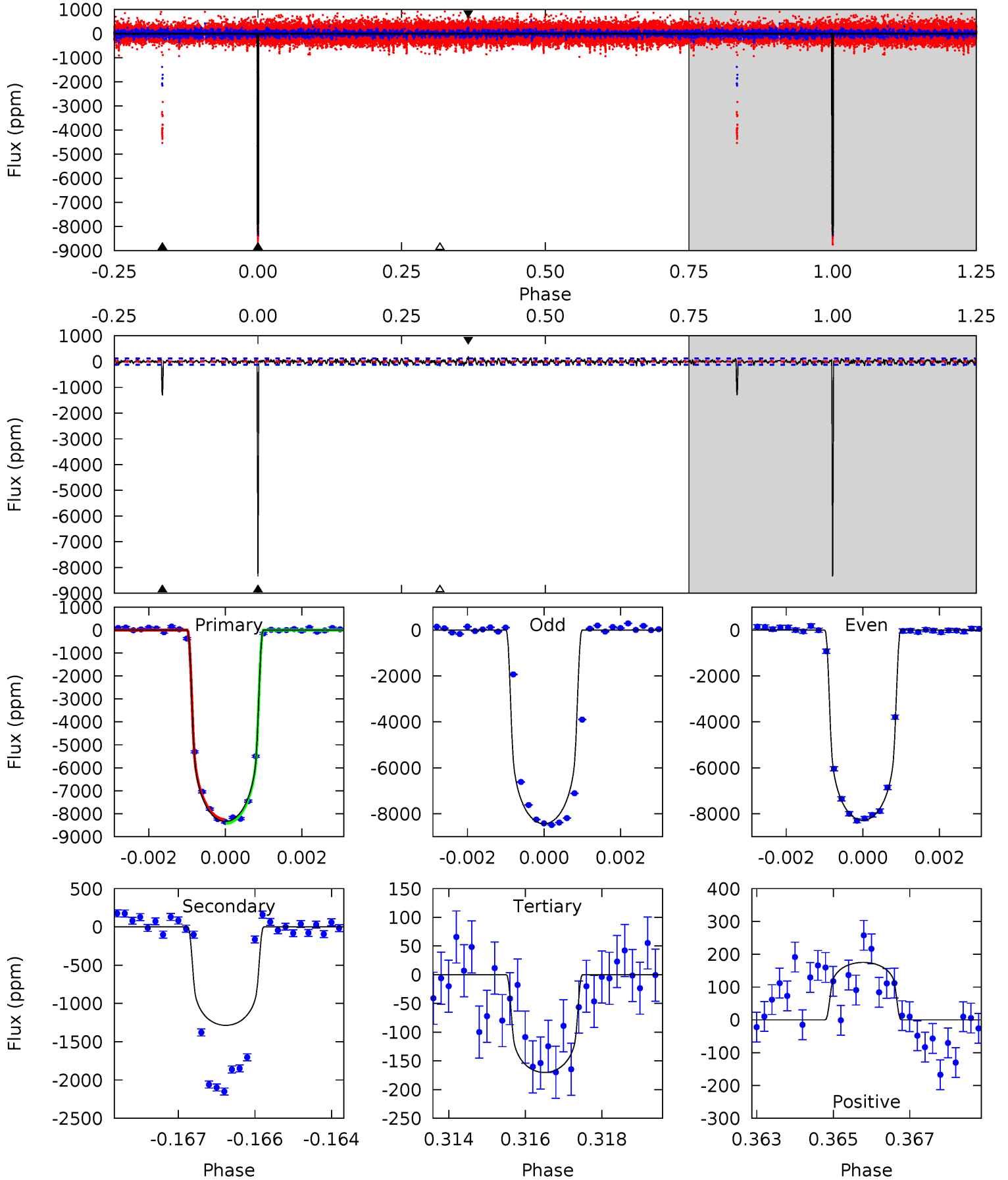
TCE 011442793-01 P=331.602623 Days $T_0=140.493576$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-01, P = 331.603305 Days, E = 140.479505 Days

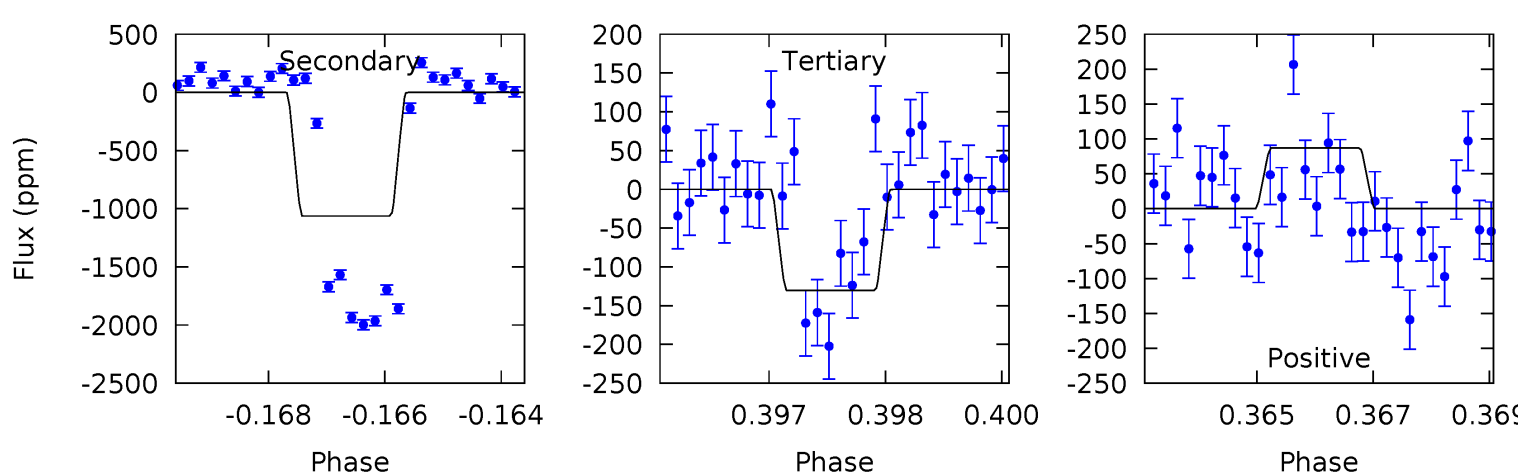
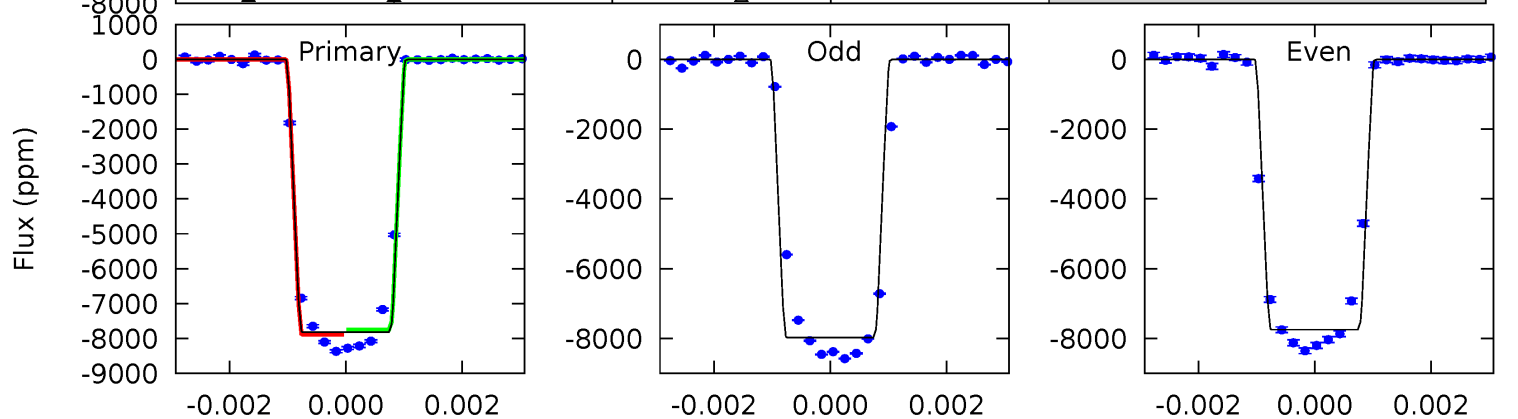
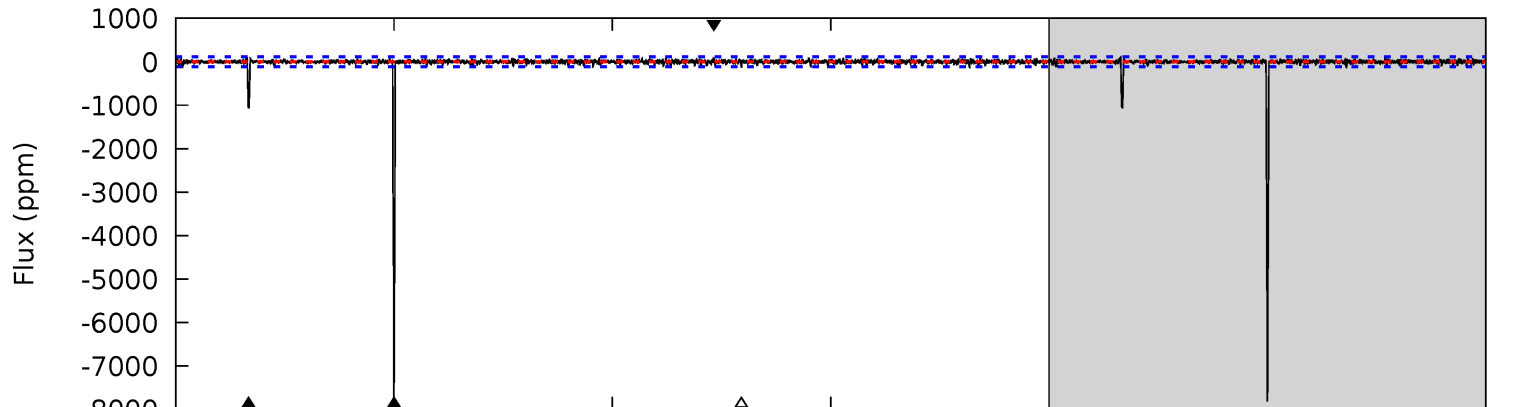
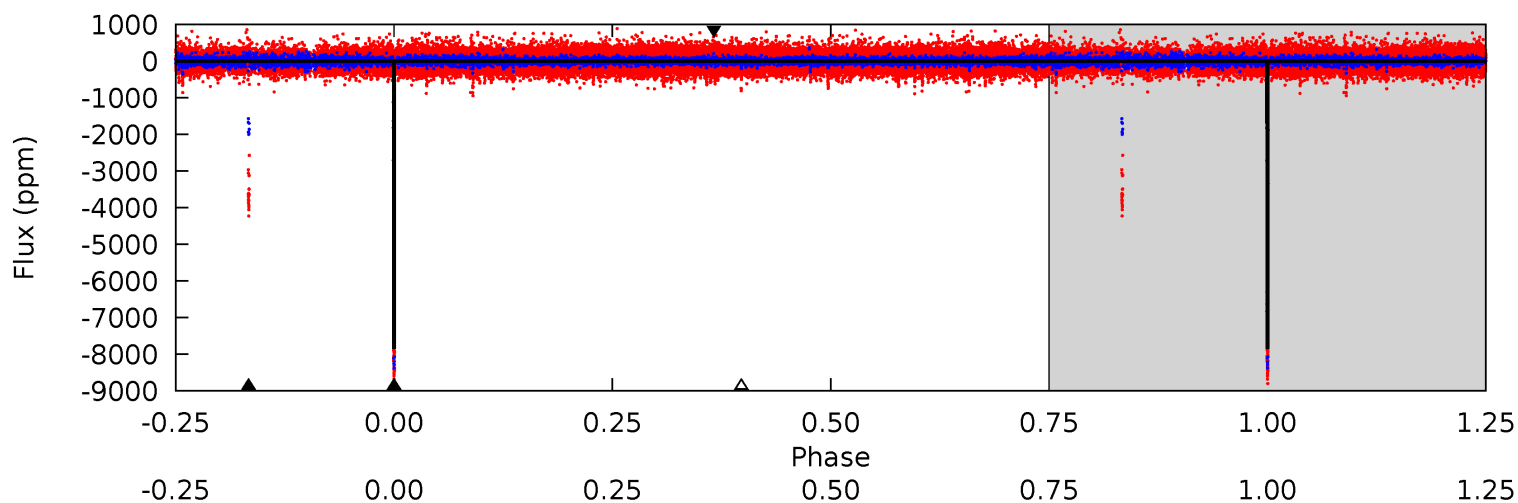
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 373.3 | 57.6 | 7.62 | 7.84 | 5.34 | 3.11 | 2.16 | 365.7 | 365.5 | 50.0 | 49.7 | 2.62 | 1.00 | 0.02 | 3.65 |



Alt Model-Shift Uniqueness Test

011442793-01, P = 331.602623 Days, E = 140.493576 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 358.5 | 48.7 | 5.98 | 4.00 | 5.35 | 3.13 | 1.12 | 352.5 | 354.5 | 42.7 | 44.7 | 4.03 | 1.00 | 0.01 | 2.92 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-01 / KOI 0351.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|----------------|-------------------------|-------------------|--------------------|----------------------|
| DV | -1286 ± 22 | $10.94^{+0.95}_{-0.84}$ | 409^{+19}_{-19} | 4175^{+66}_{-69} | 5495^{+959}_{-801} |
| Alt. | -1063 ± 22 | $11.70^{+1.09}_{-0.88}$ | 411^{+20}_{-18} | 3944^{+62}_{-62} | 3979^{+588}_{-648} |

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 $A_{obs} \gg 1.0$

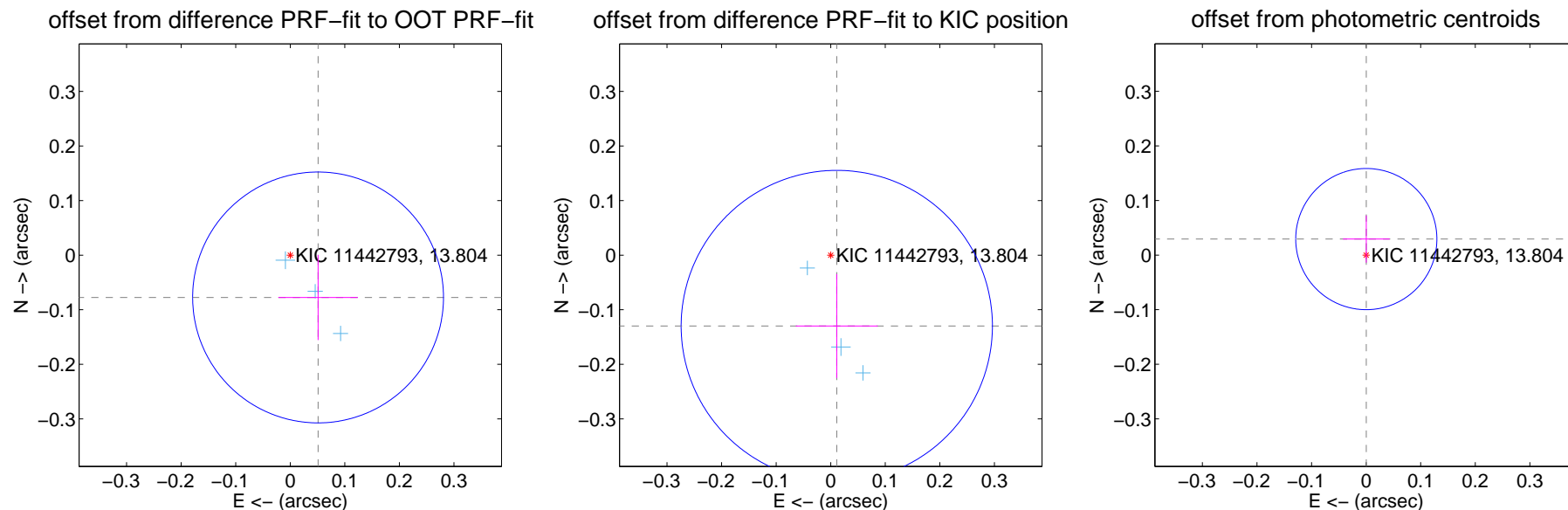
DV Centroid Data

Supplemental centroid analysis for 011442793-01. Kepler magnitude: 13.80. Transit SNR 233.33

There are 3 quarters with good PRF difference image offsets

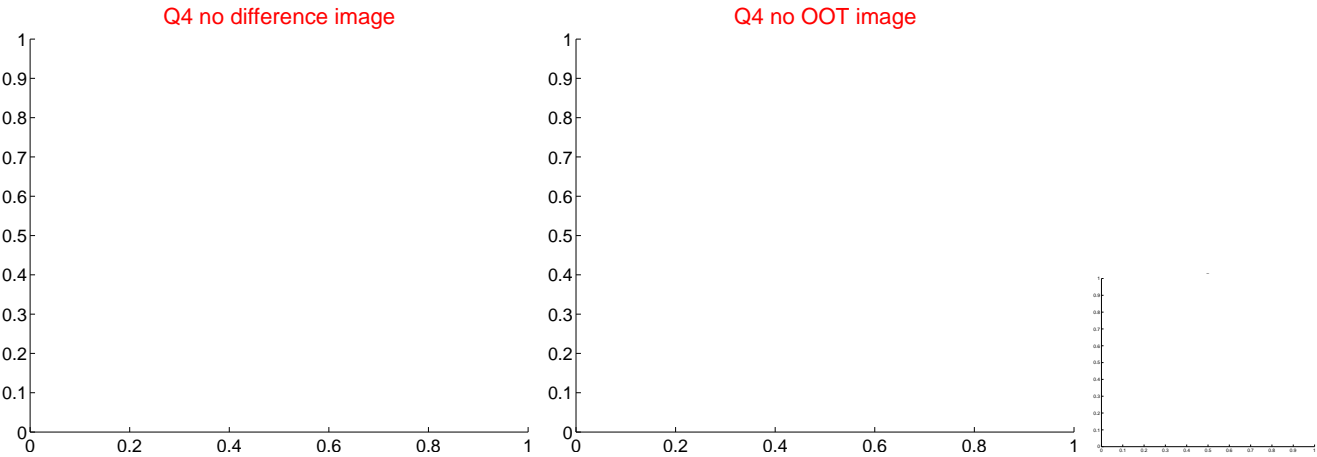
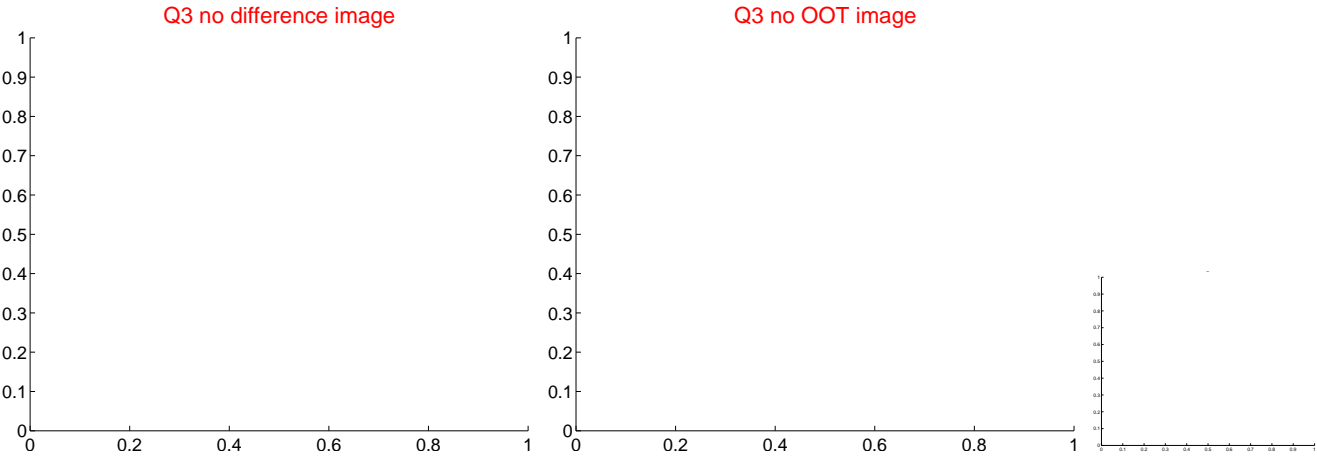
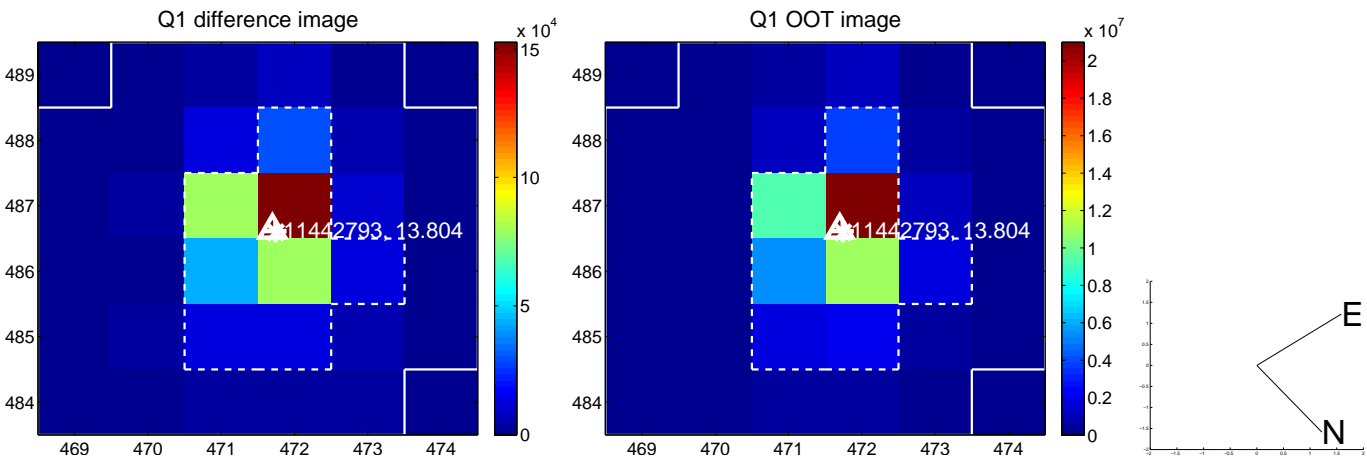
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.093 ± 0.077 | 1.21 | -0.051 ± 0.073 | -0.078 ± 0.078 |
| PRF-fit source offset from KIC position | 0.130 ± 0.095 | 1.37 | -0.011 ± 0.075 | -0.130 ± 0.095 |
| photometric centroid source offset | 0.03 ± 0.04 | 0.68 | -0.00 ± 0.04 | 0.03 ± 0.04 |

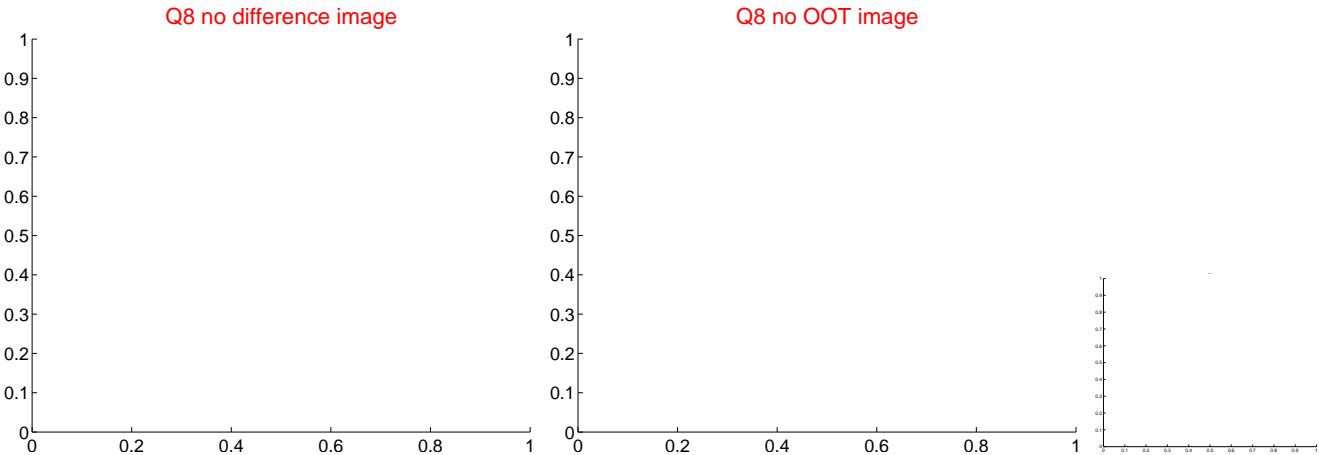
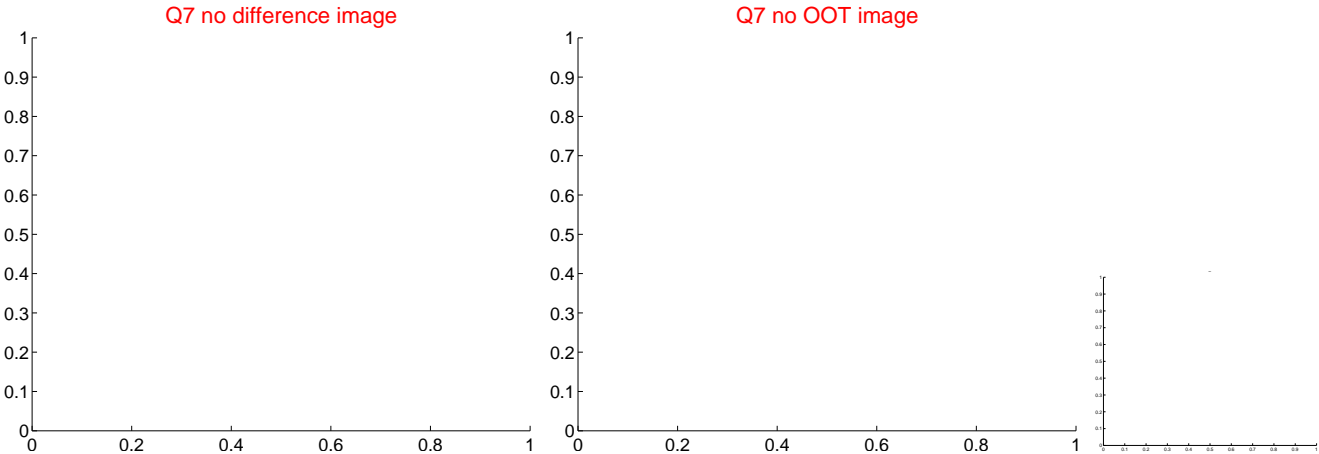
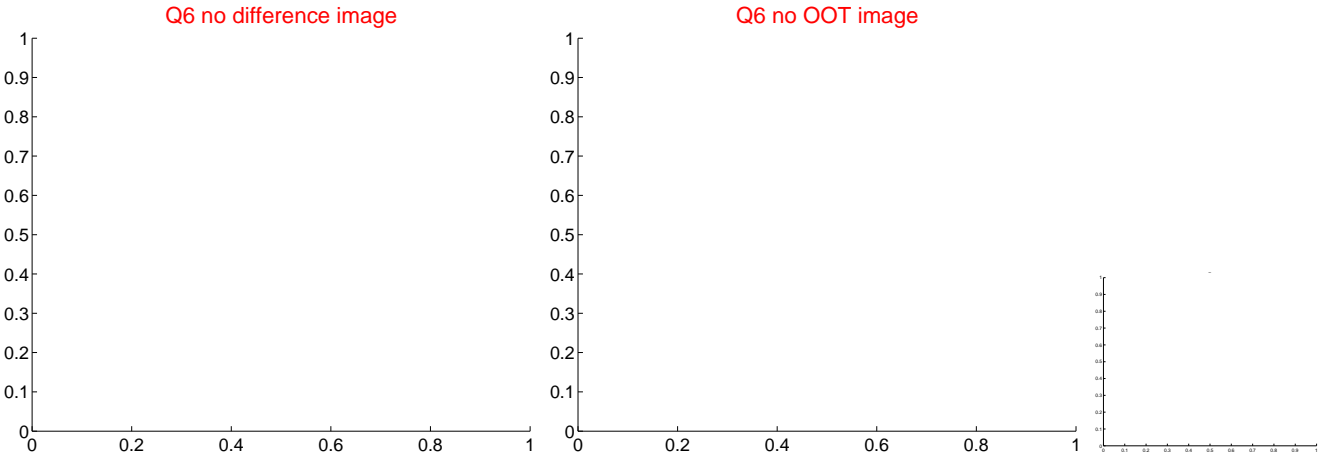
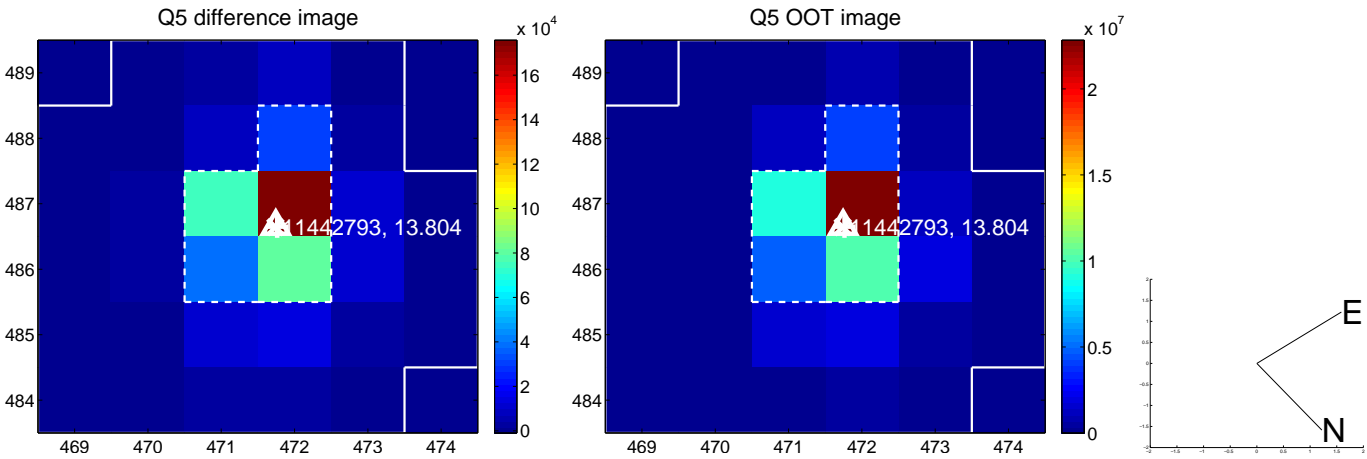


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q13 no difference image



Q13 no OOT image



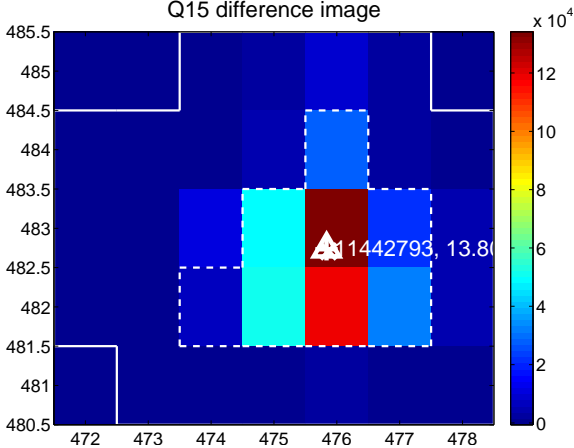
Q14 no difference image



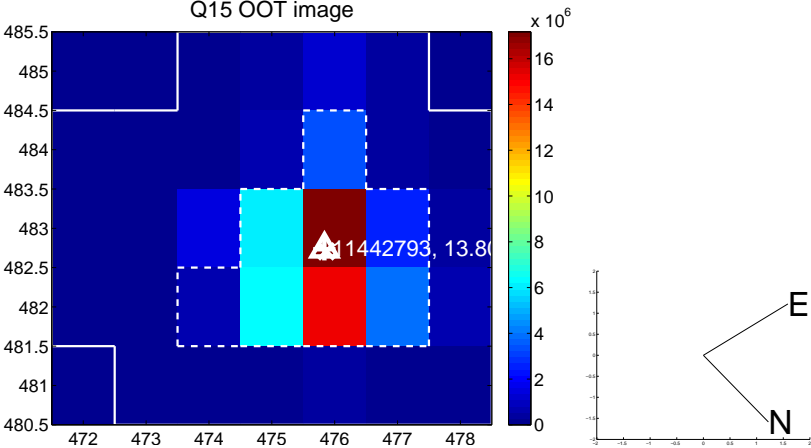
Q14 no OOT image



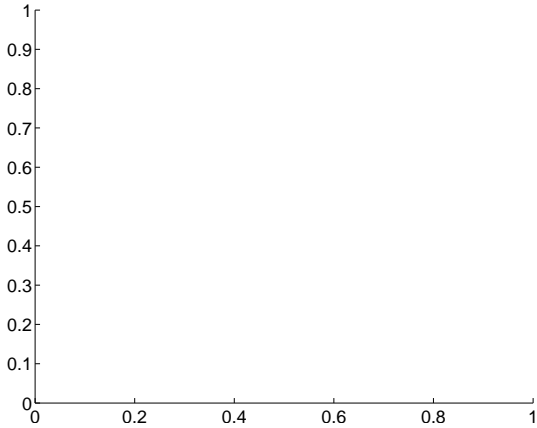
Q15 difference image



Q15 OOT image



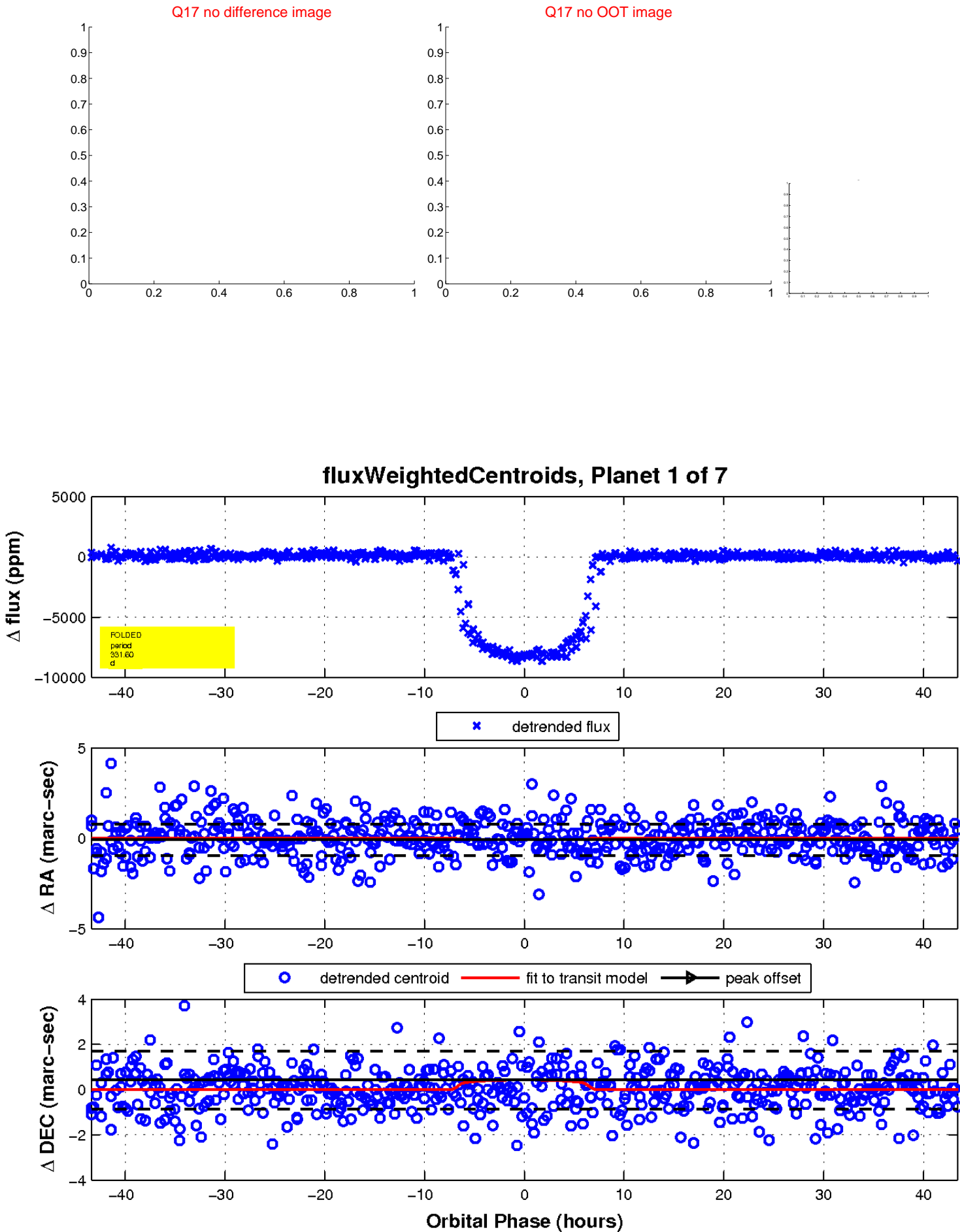
Q16 no difference image



Q16 no OOT image

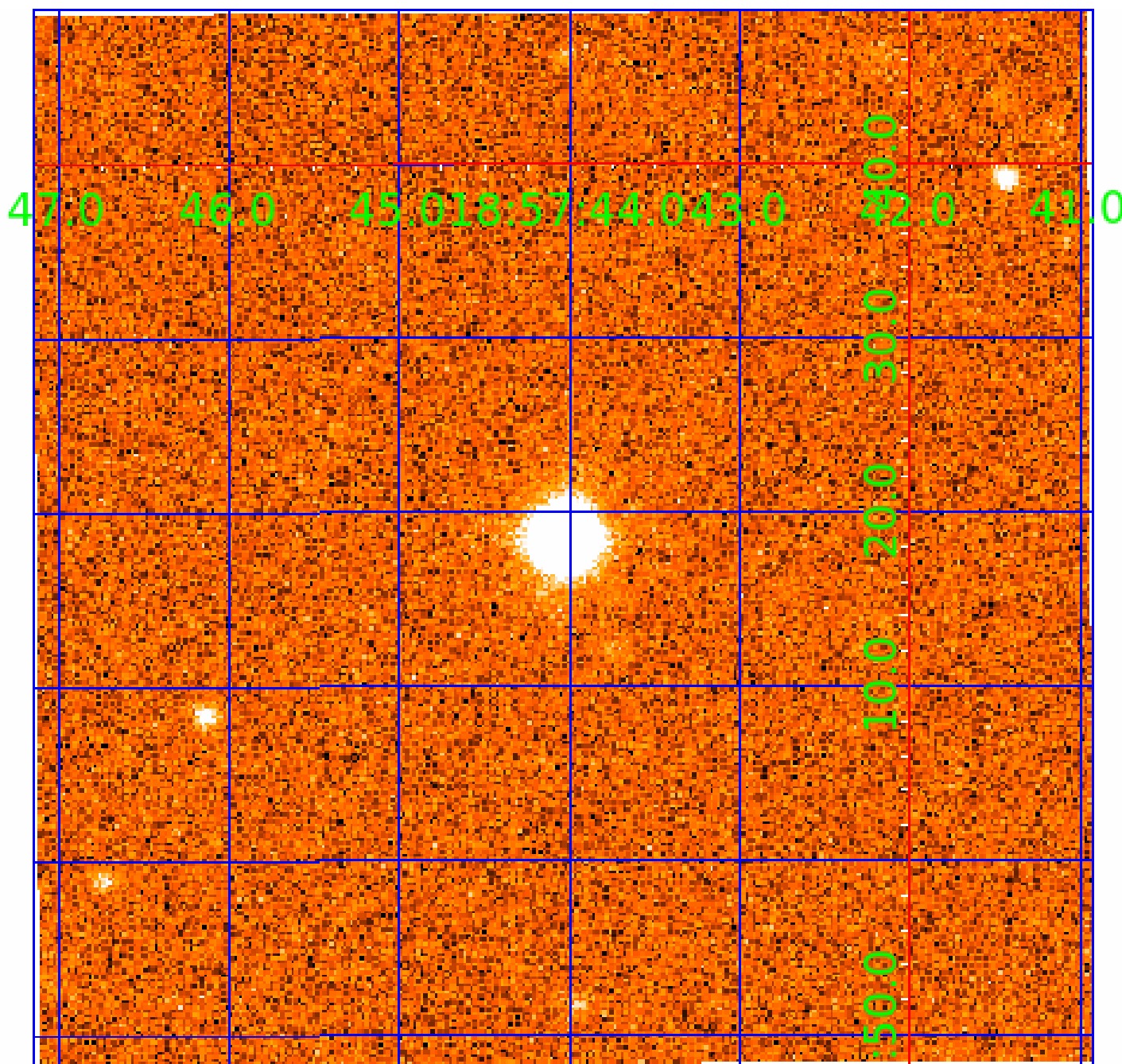


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011442793

Q1-17 DR25 TCE Parameters

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|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
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| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

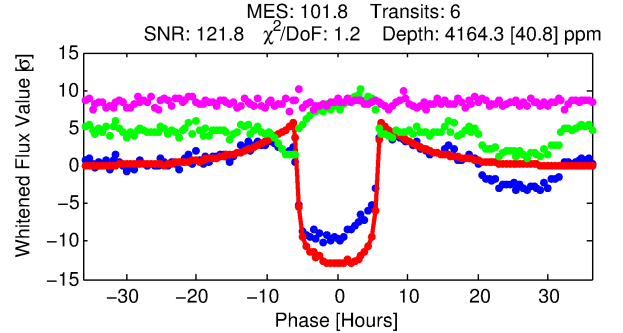
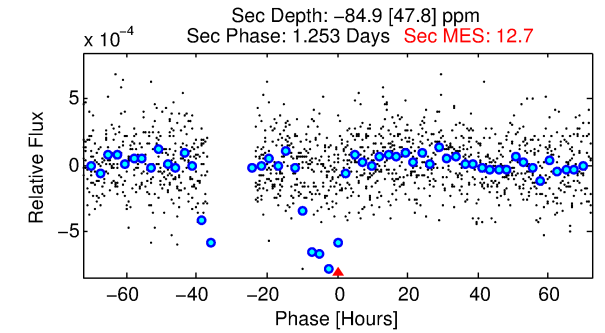
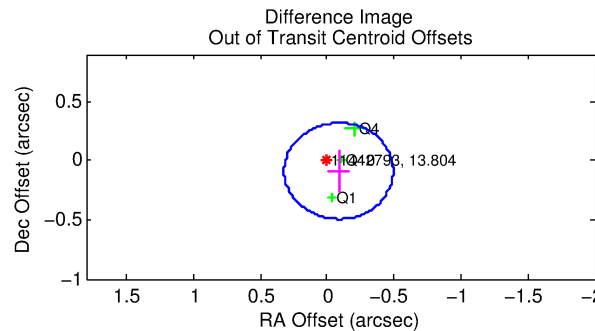
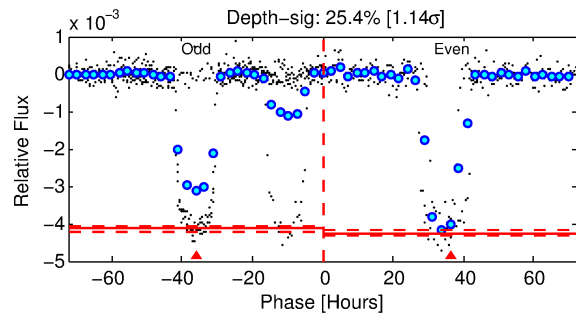
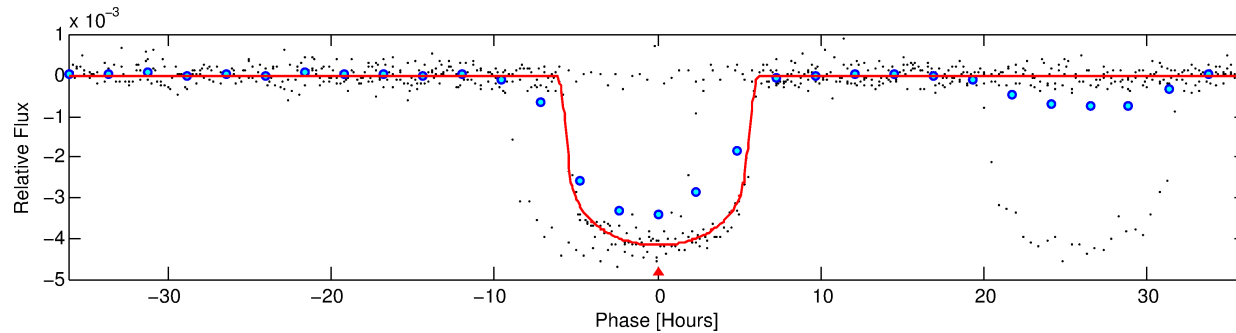
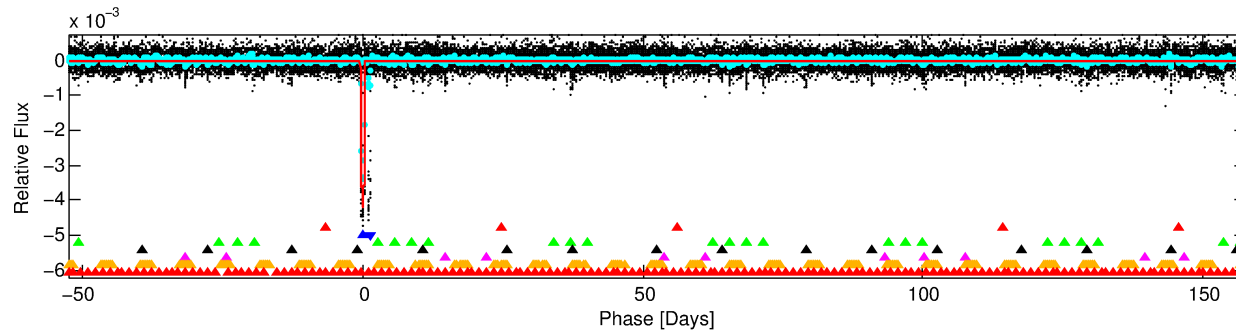
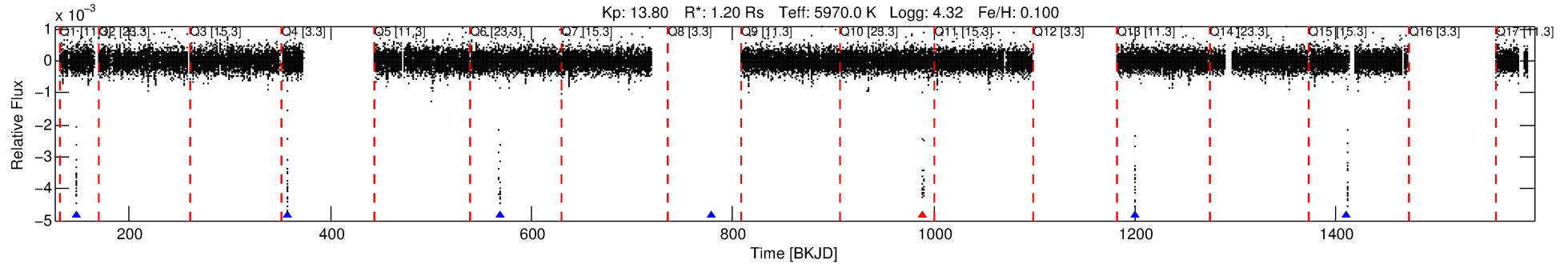
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-02

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 2 of 7 Period: 210.593 d
KOI: K00351.02 Name: Kepler-90g Corr: 0.954



DV Fit Results:

Period = 210.59347 [0.00036] d
Epoch = 147.0992 [0.0014] BKJD
Rp/R* = 0.0588 [0.0013]
a/R* = 140.86 [13.83]
b = 0.08 [1.23]
Seff = 3.22 [0.75]
Teq = 342 [20] K
Rp = 7.69 [1.26] Re
a = 0.7130 [0.1017] AU
Ag = N/A
Teffp = N/A

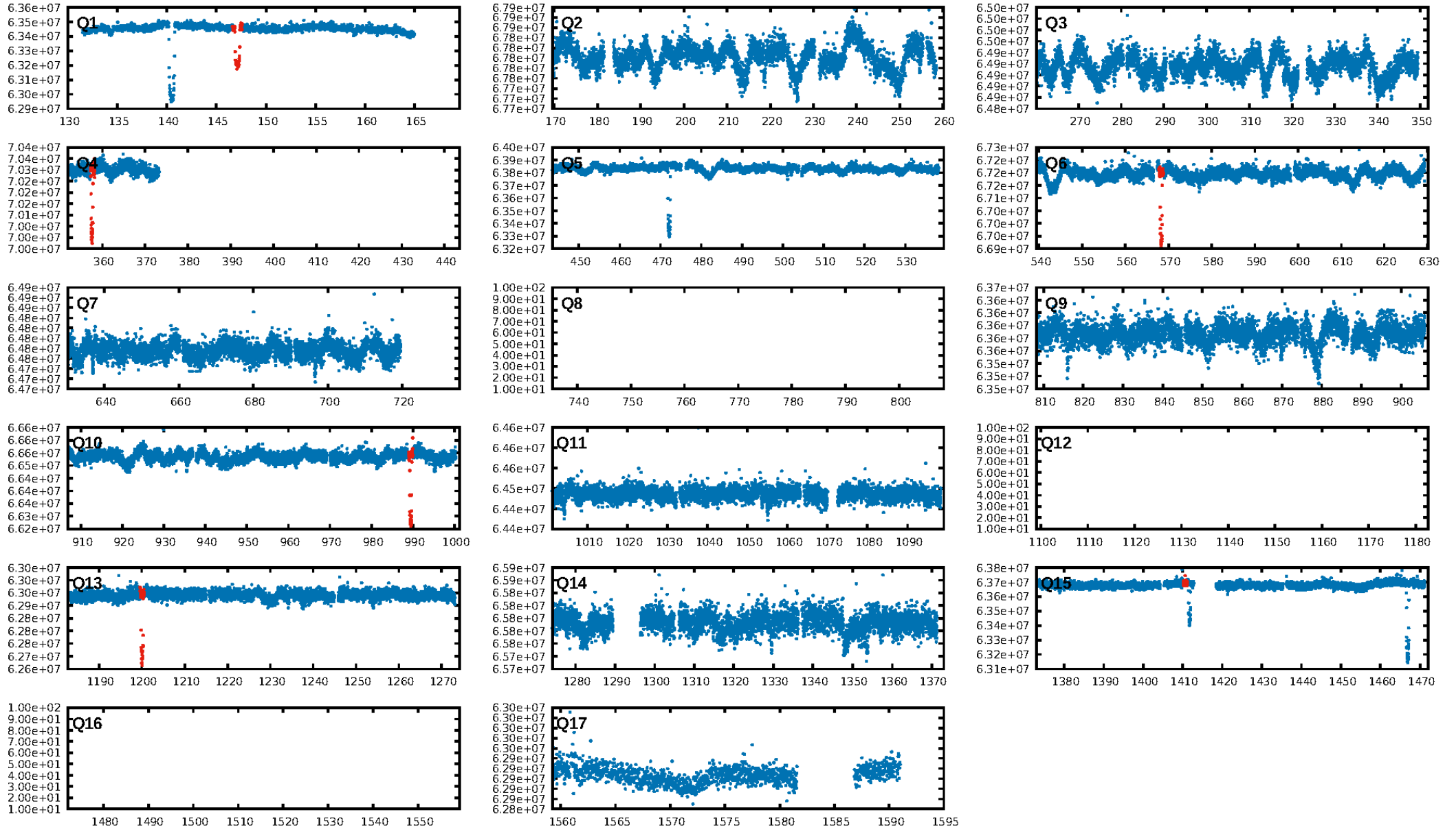
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [122.20 σ]
LongPeriod-sig: 100.0% [154.09 σ]
ModelChiSquare2-sig: 76.3%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 12.59
Centroid-sig: 1.4%
Centroid-so: 0.089 arcsec [1.25 σ]
OotOffset-rm: 0.123 arcsec [0.91 σ]
KicOffset-rm: 0.194 arcsec [1.26 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.75 [3/4]

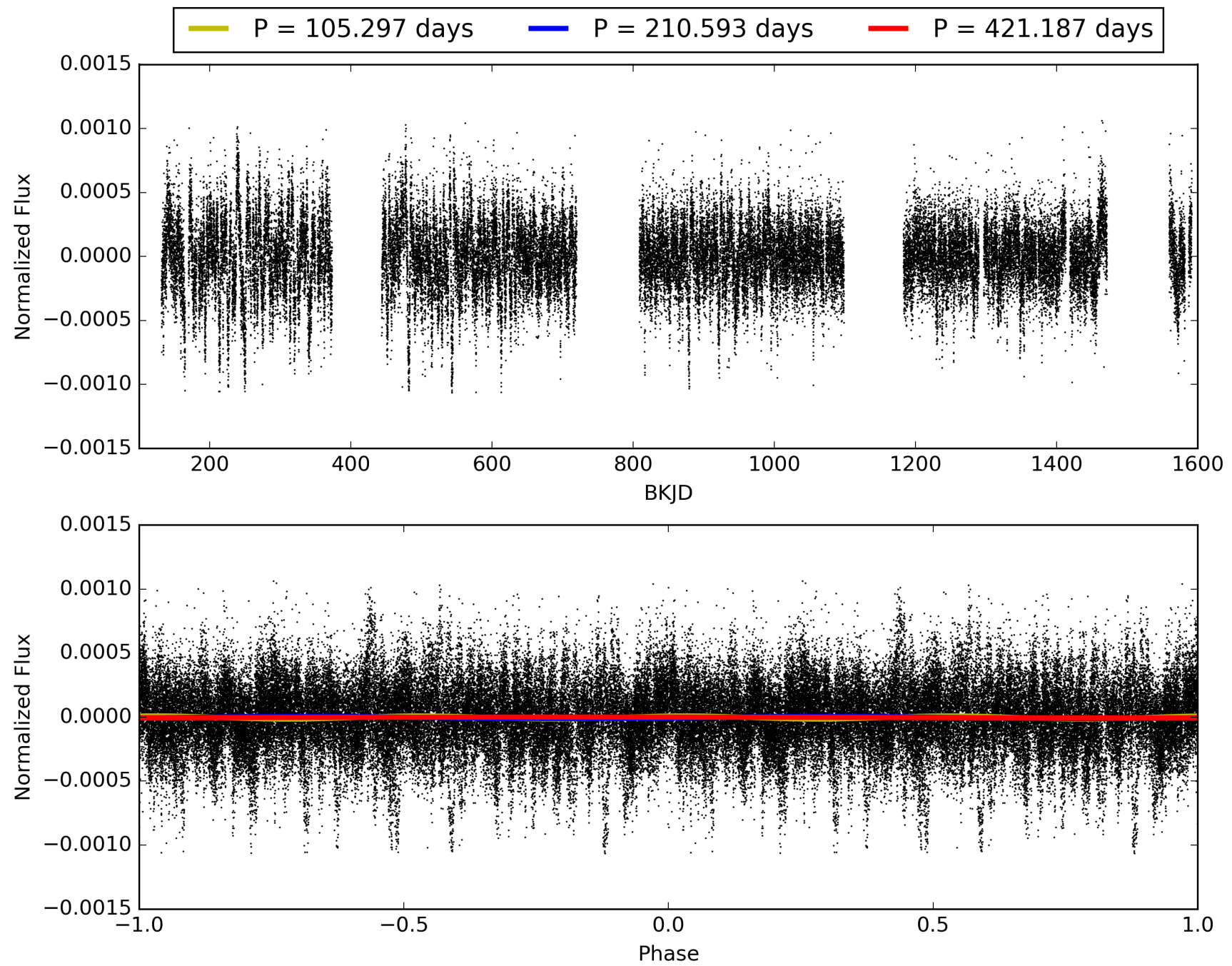
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:01:27 Z

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

TCE 011442793-02, PDC Light Curves

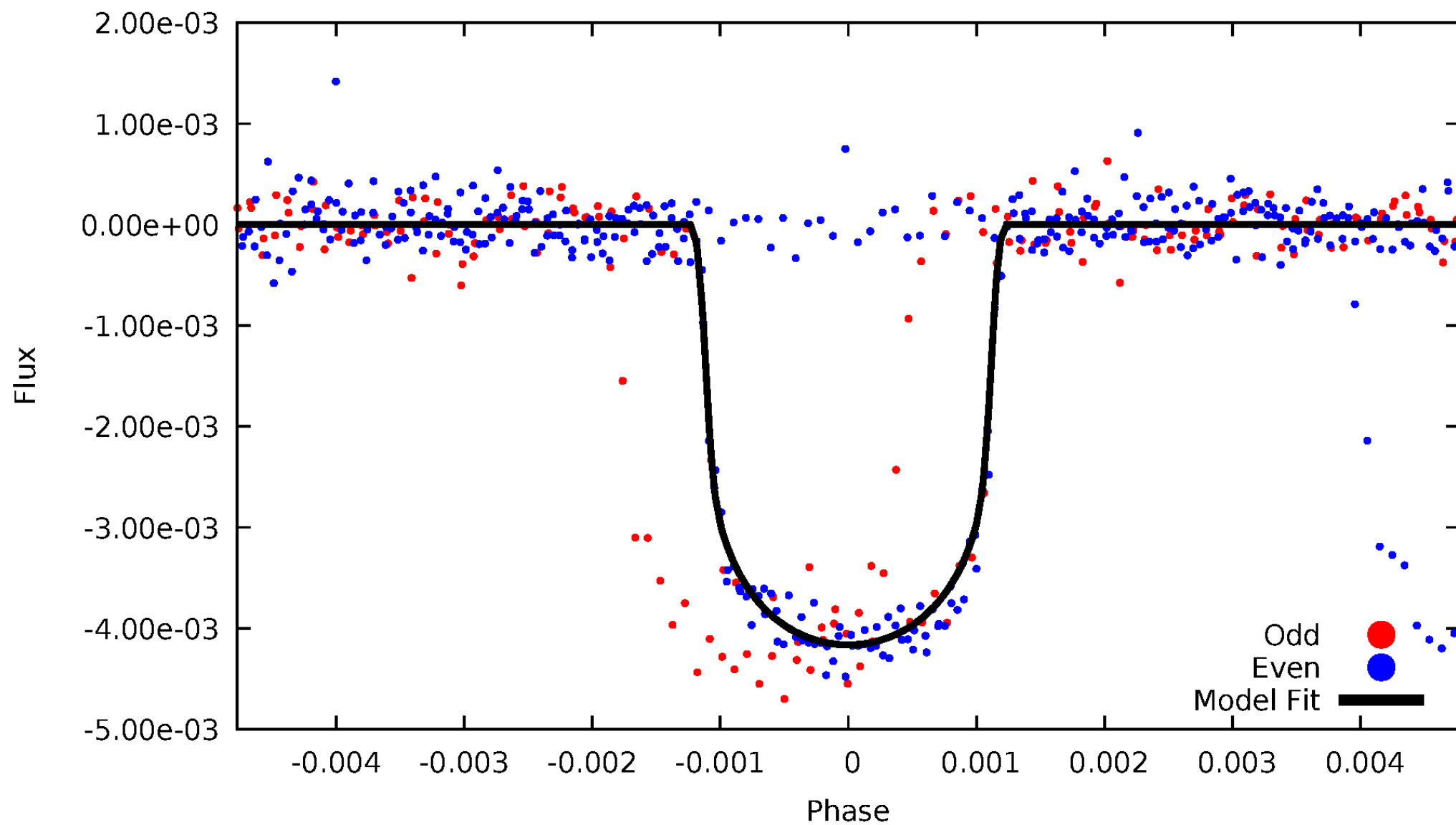


TCE 011442793-02



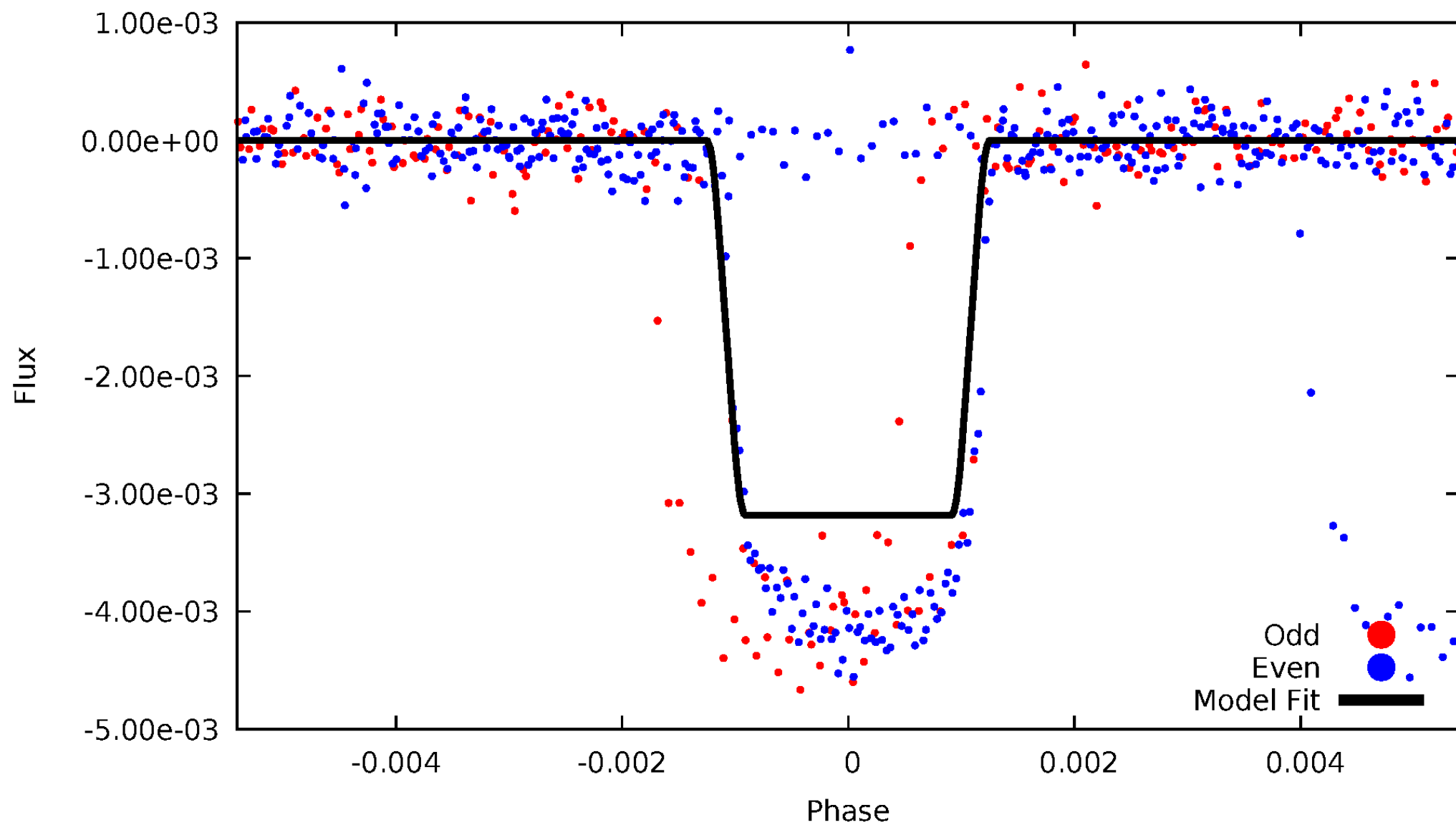
DV Odd/Even

TCE 011442793-02



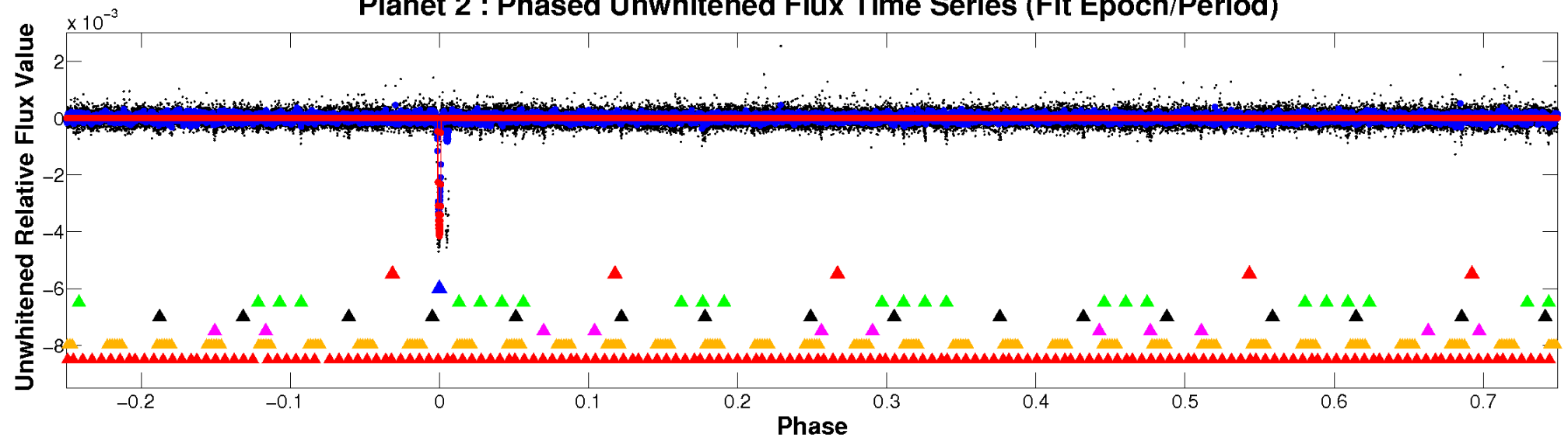
ALT Odd/Even

TCE 011442793-02

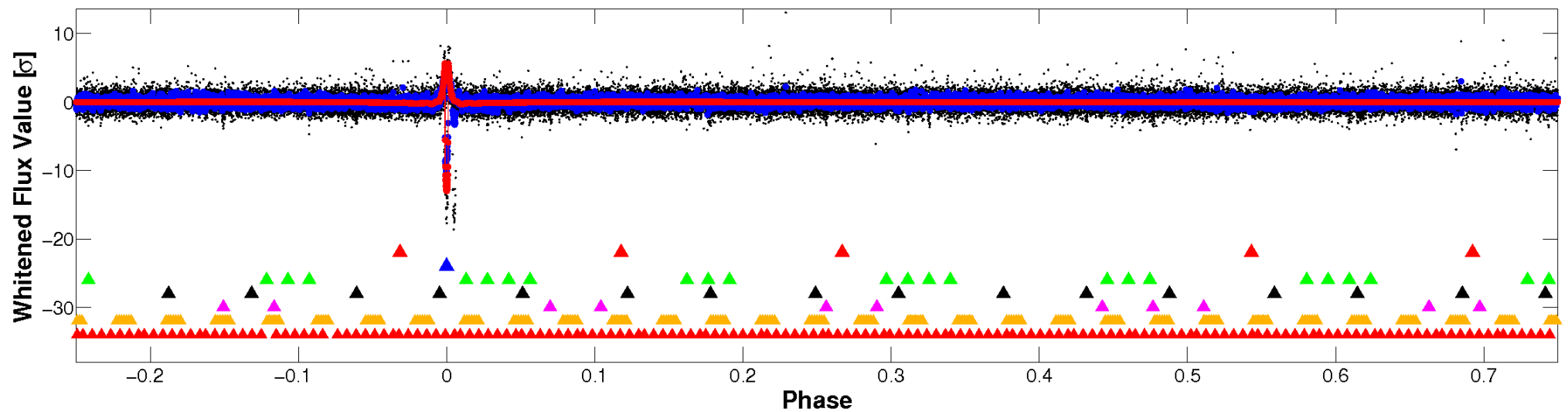


Non-Whitened Vs. Whitened Light Curve

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

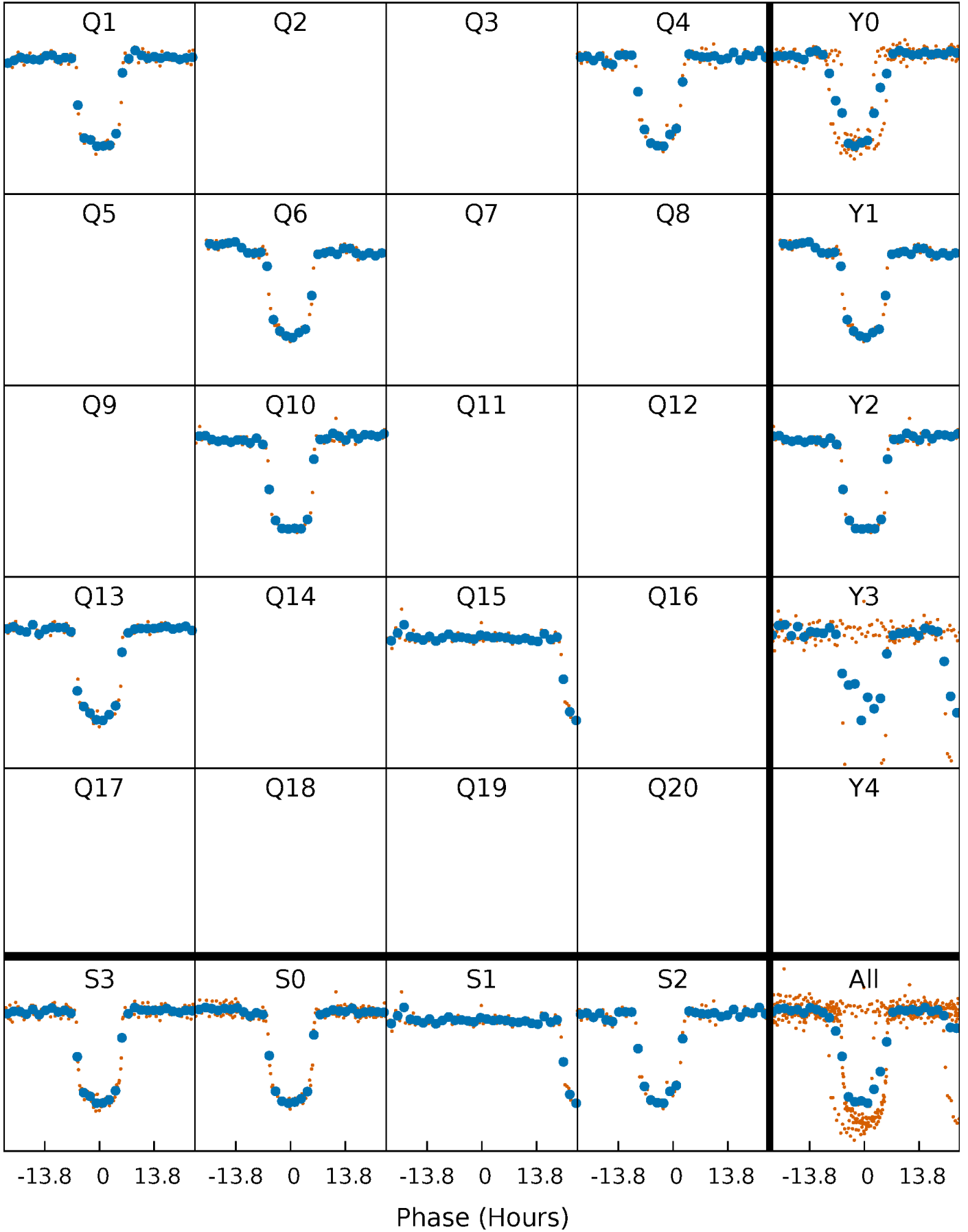


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



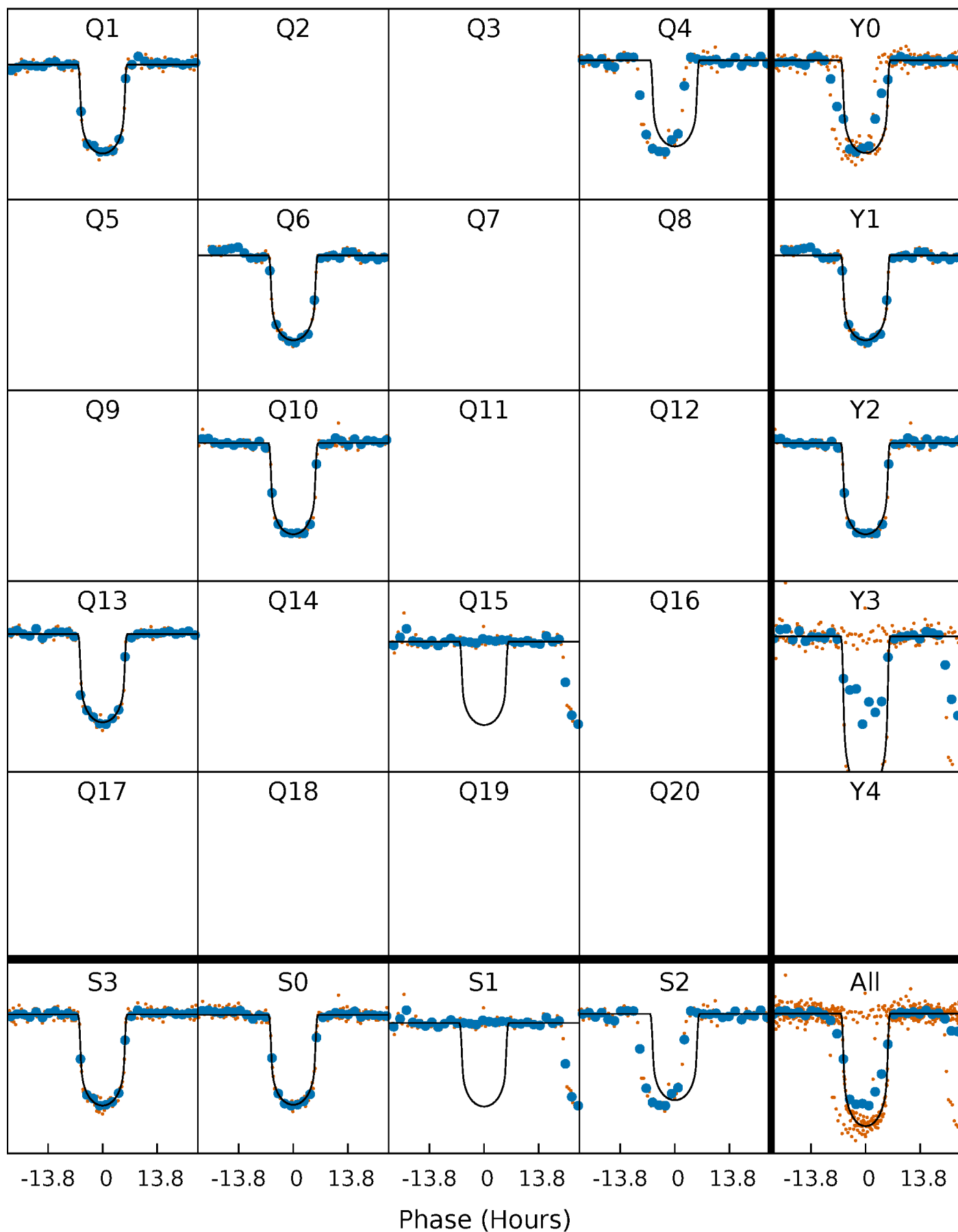
PDC Quarter-Phased Transit Curves

TCE 011442793-02 P=210.593472 Days $T_0=147.099243$ (BKJD)



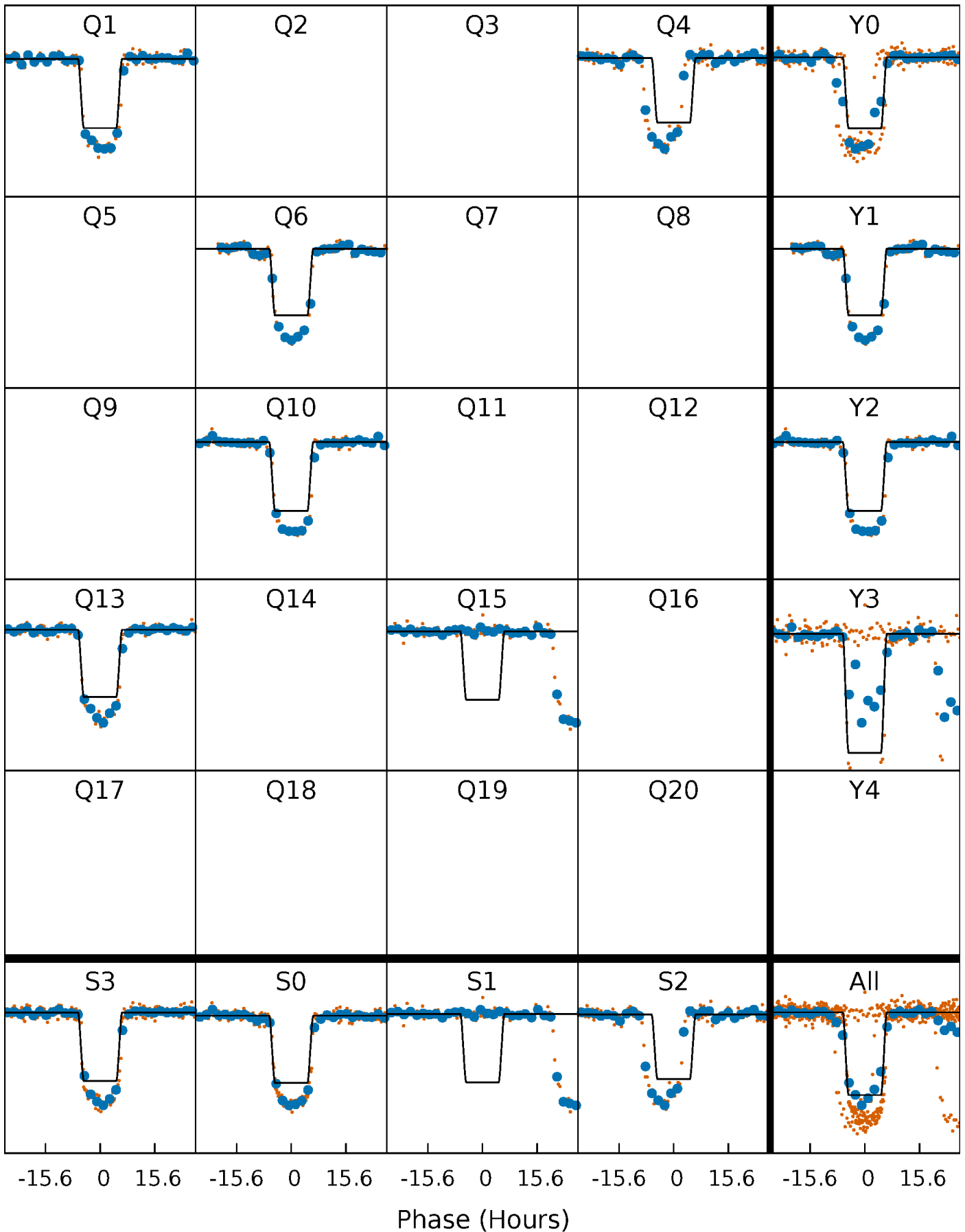
DV Quarter-Phased Transit Curves

TCE 011442793-02 P=210.593472 Days $T_0=147.099243$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

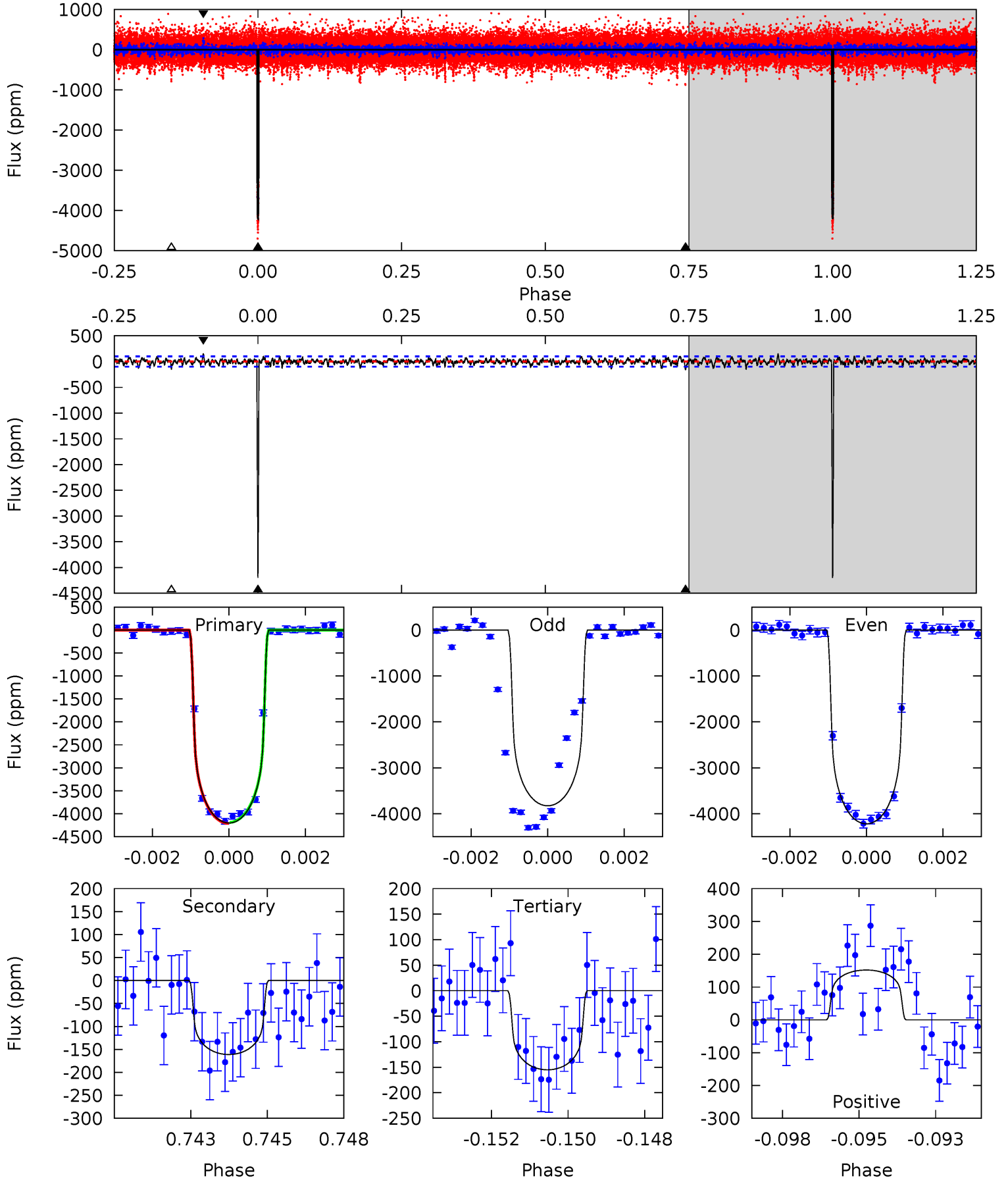
TCE 011442793-02 P=210.595080 Days $T_0=147.081749$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-02, P = 210.593472 Days, E = 147.099243 Days

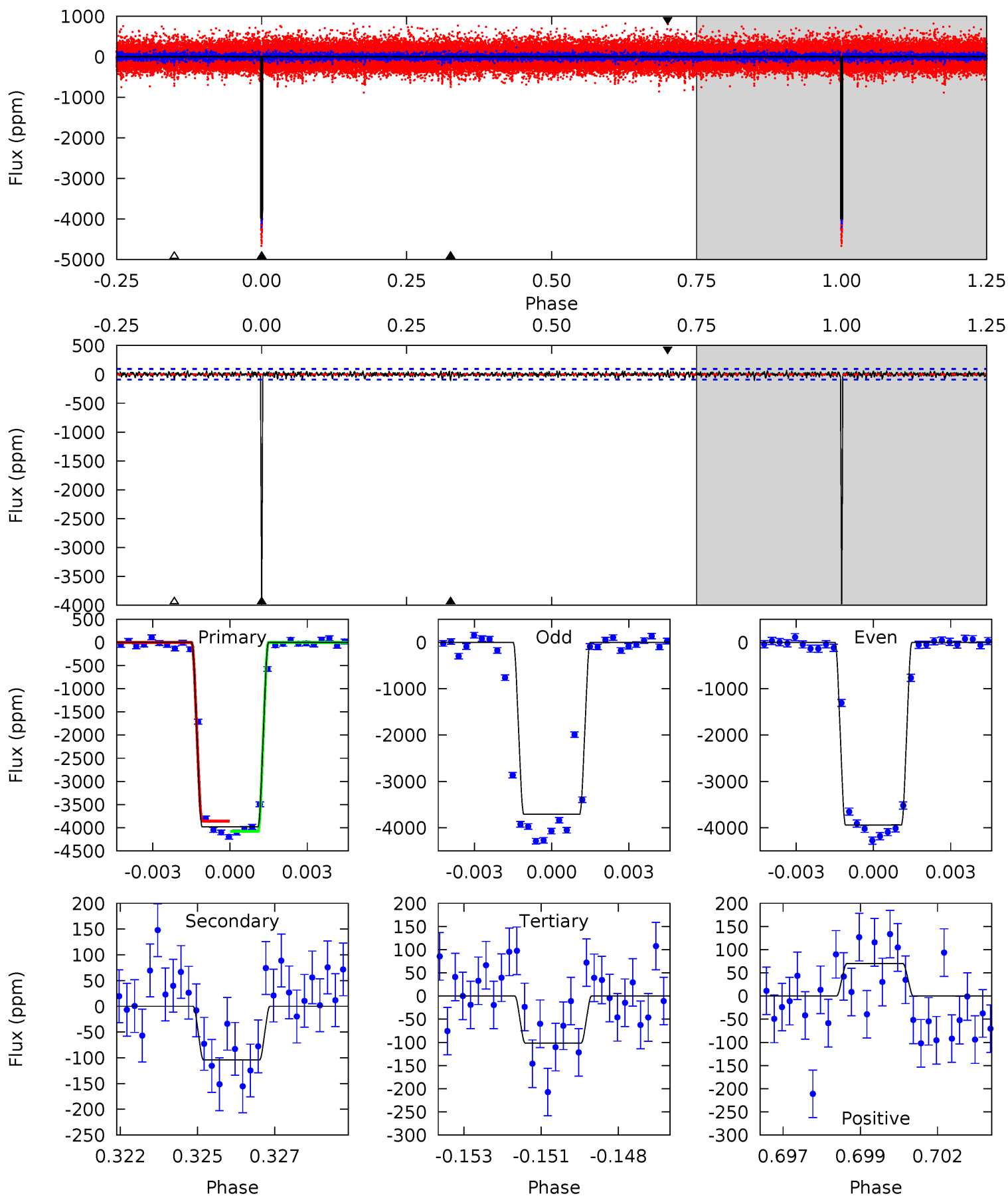
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 222.3 | 8.52 | 8.20 | 8.03 | 5.29 | 3.04 | 1.90 | 214.1 | 214.2 | 0.32 | 0.49 | 10.2 | 0.79 | 0.03 | 0.58 |



Alt Model-Shift Uniqueness Test

011442793-02, $P = 210.595080$ Days, $E = 147.081749$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 228.7 | 5.99 | 5.84 | 4.02 | 5.28 | 3.02 | 1.18 | 222.8 | 224.6 | 0.15 | 1.97 | 6.47 | 0.80 | 0.02 | 6.22 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-02 / KOI 0351.02

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------|
| DV | -161±19 | $7.70^{+0.74}_{-0.63}$ | 476^{+22}_{-19} | 3316^{+76}_{-71} | 749^{+171}_{-134} |
| Alt. | -104±17 | $7.43^{+0.67}_{-0.58}$ | 477^{+22}_{-19} | 3147^{+84}_{-85} | 526^{+130}_{-115} |

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

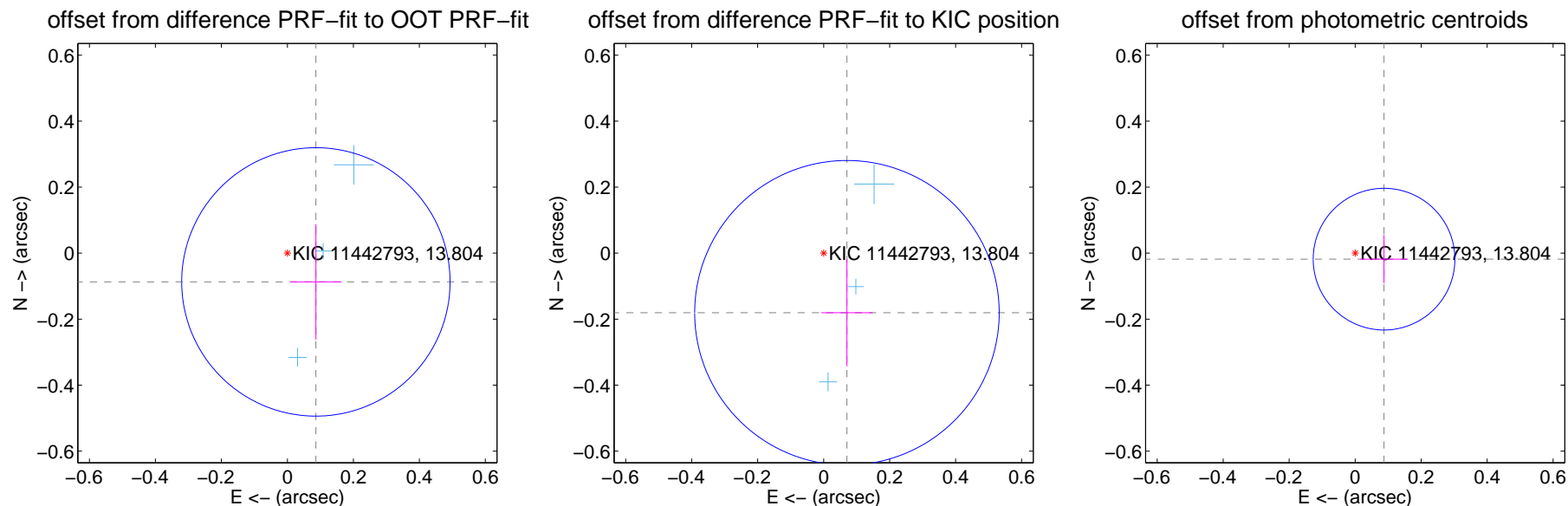
DV Centroid Data

Supplemental centroid analysis for 011442793-02. Kepler magnitude: 13.80. Transit SNR 121.78

There are 3 quarters with good PRF difference image offsets

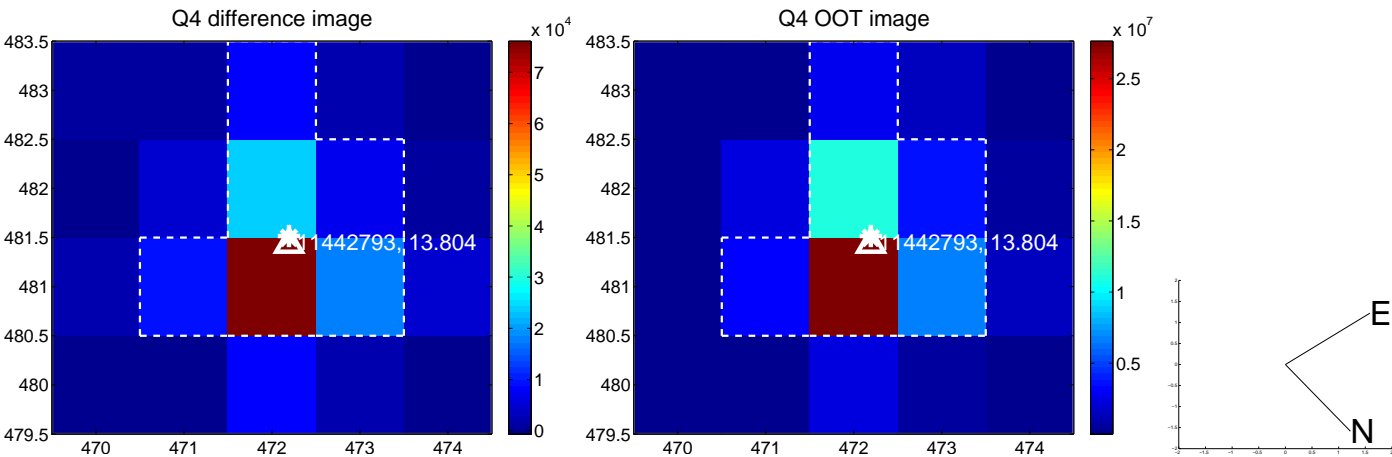
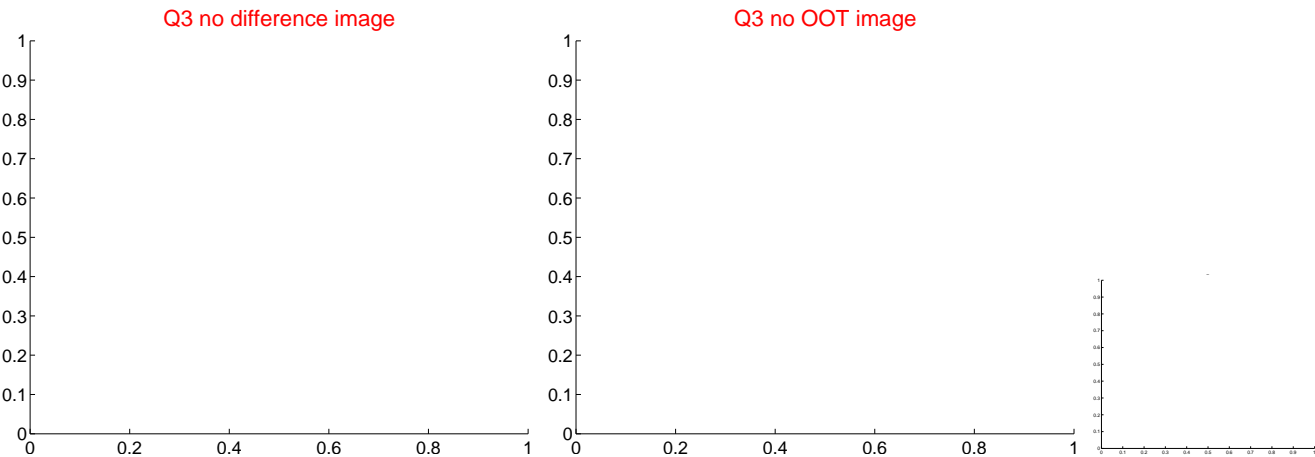
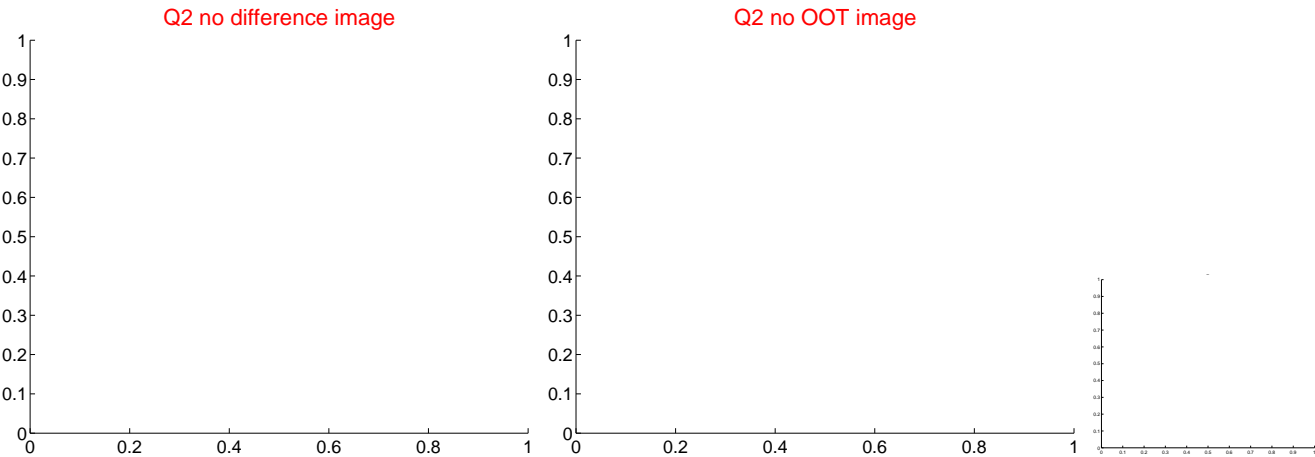
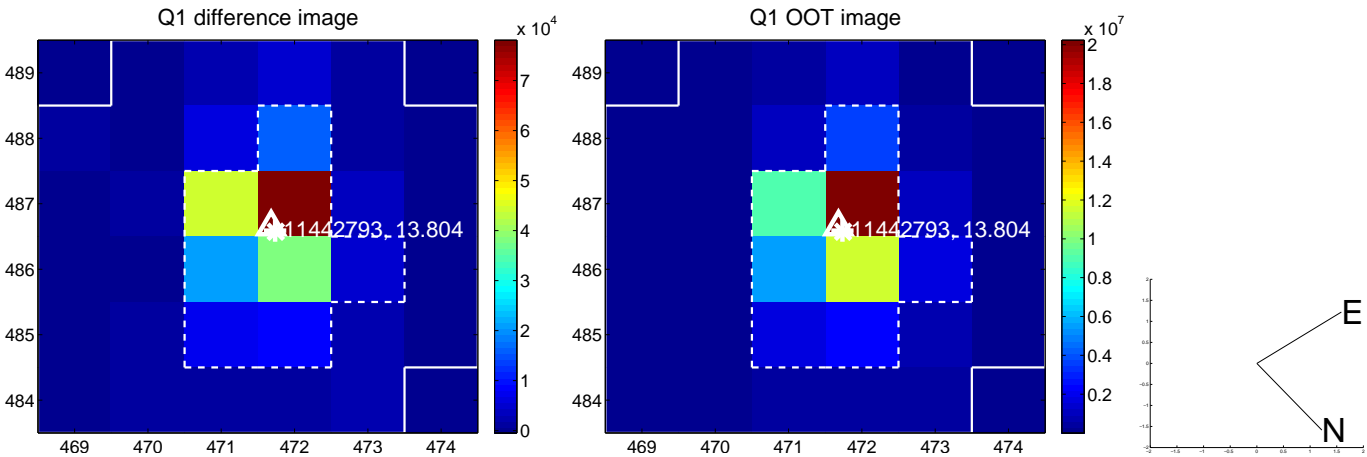
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.123 ± 0.136 | 0.91 | -0.086 ± 0.078 | -0.087 ± 0.174 |
| PRF-fit source offset from KIC position | 0.194 ± 0.154 | 1.26 | -0.071 ± 0.078 | -0.181 ± 0.162 |
| photometric centroid source offset | 0.09 ± 0.07 | 1.25 | -0.09 ± 0.07 | -0.02 ± 0.07 |



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.

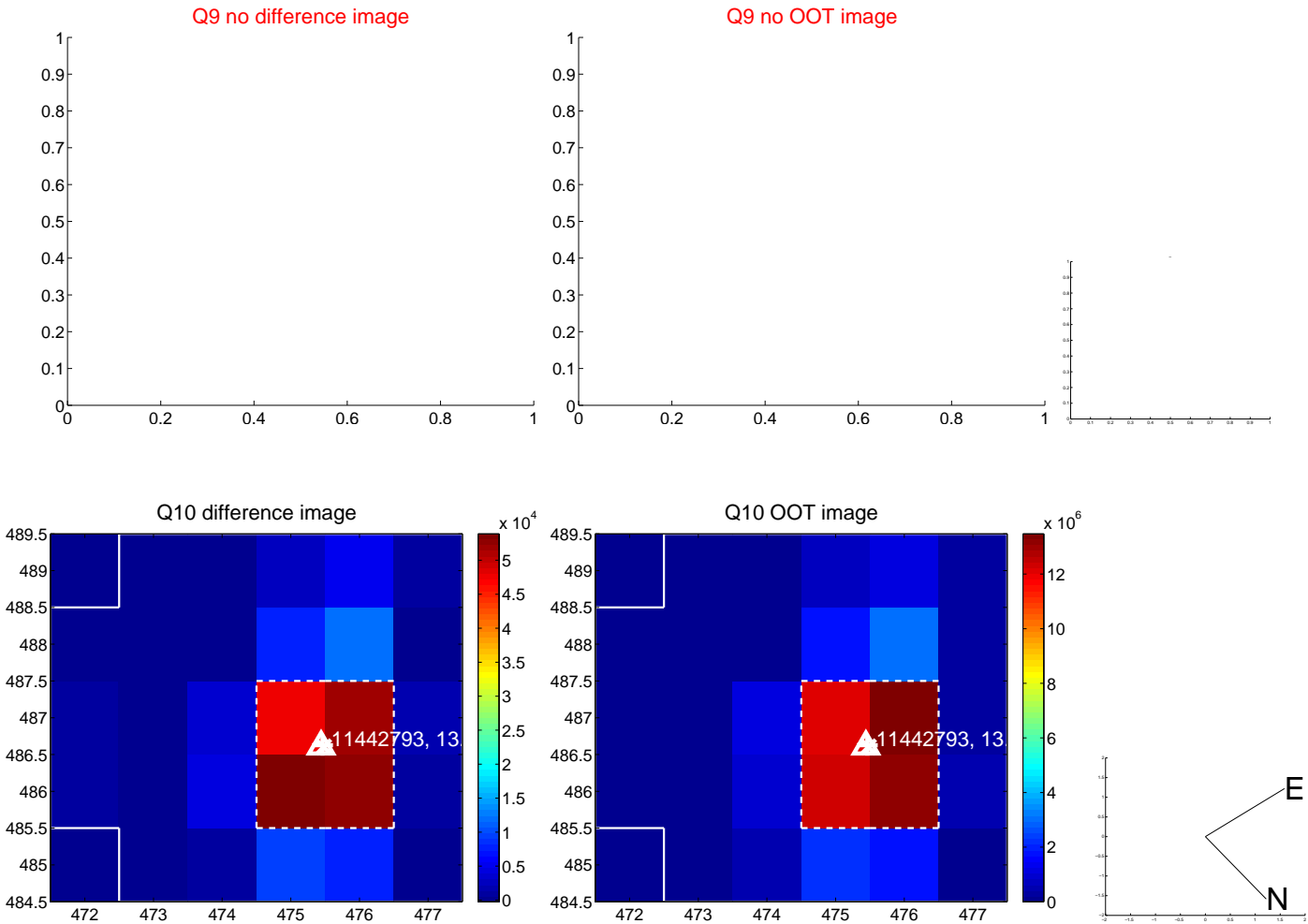
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

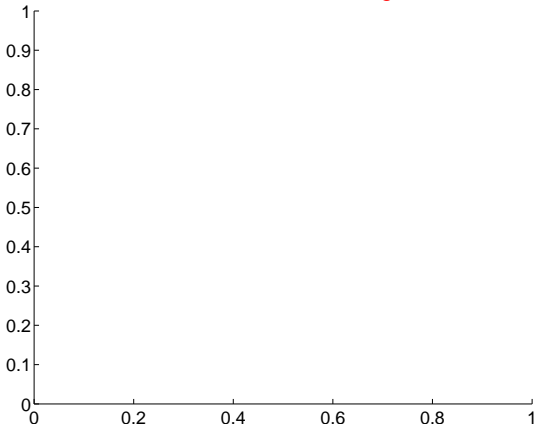


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

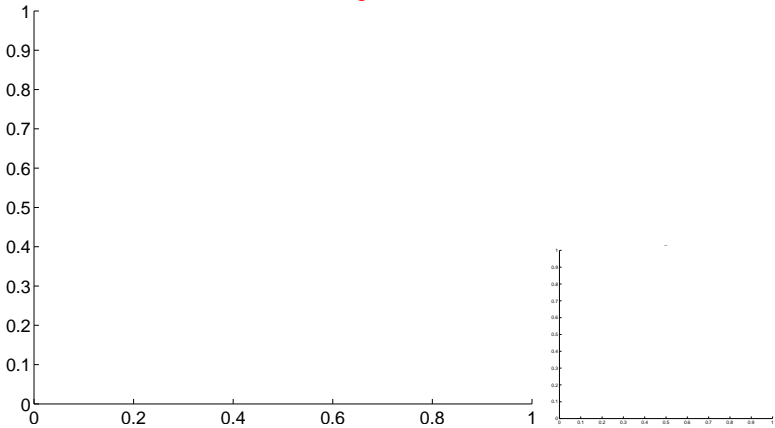


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

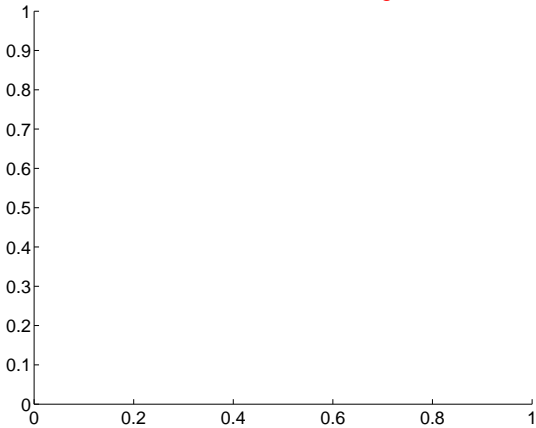
Q13 no difference image



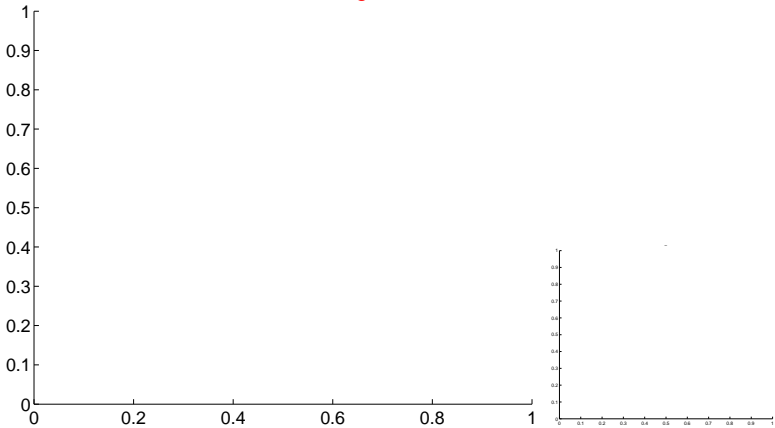
Q13 no OOT image



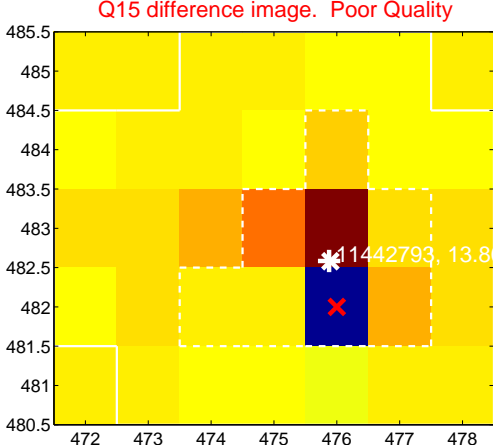
Q14 no difference image



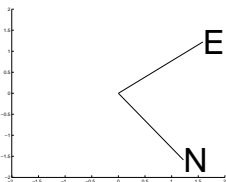
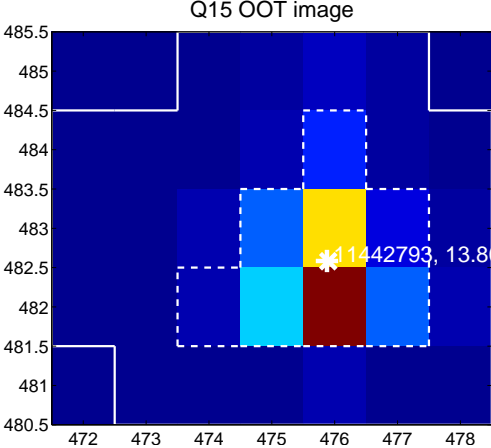
Q14 no OOT image



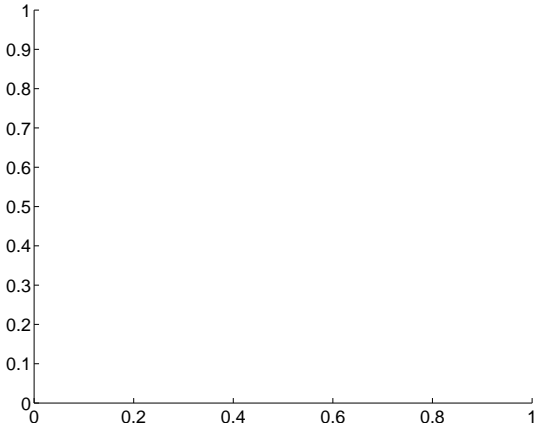
Q15 difference image. Poor Quality



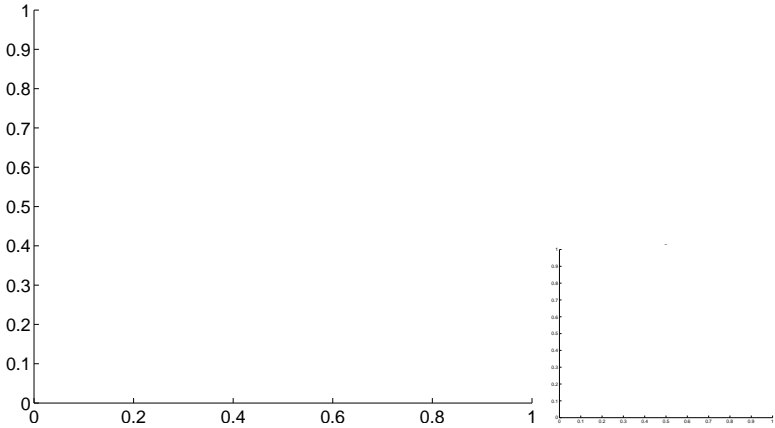
Q15 OOT image



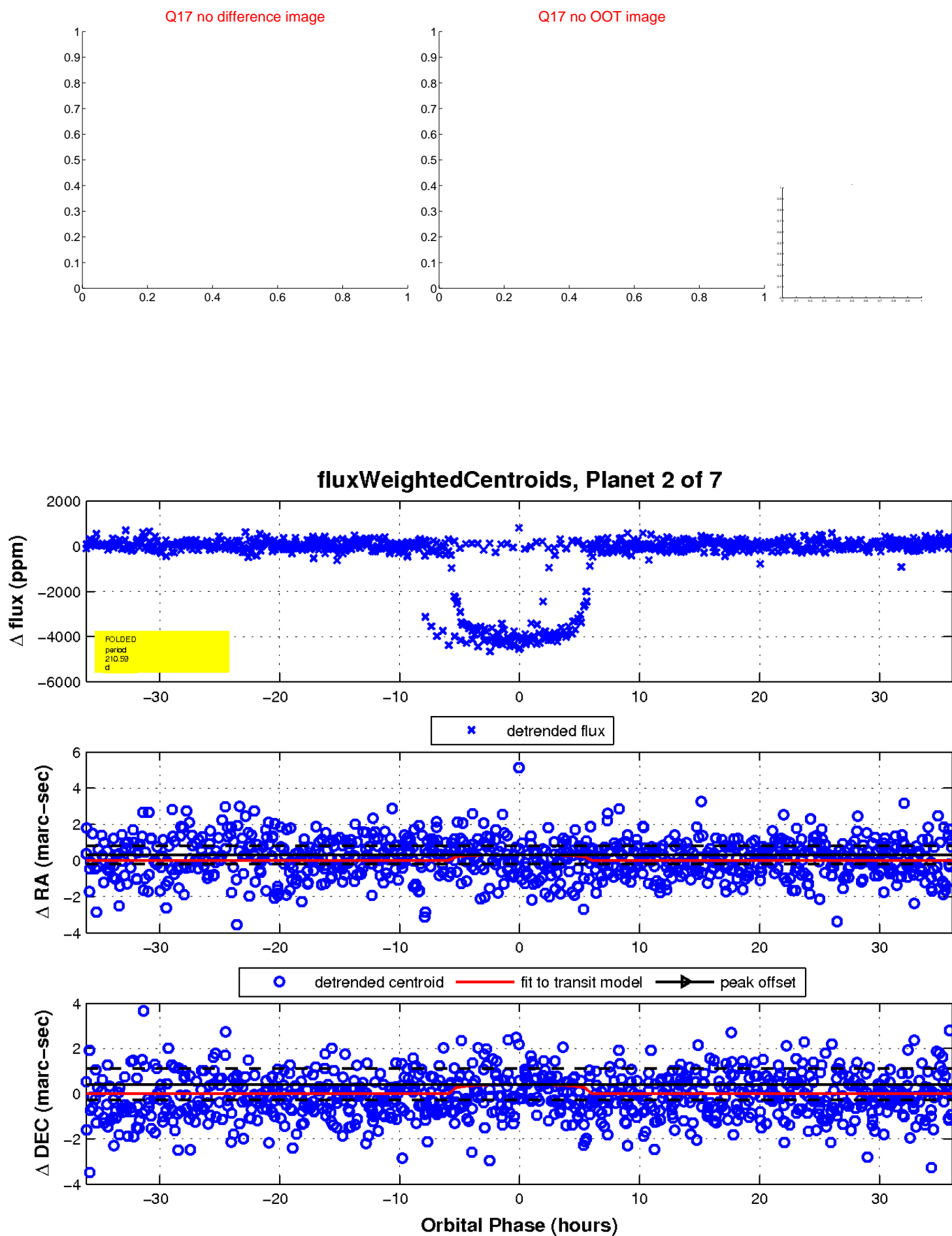
Q16 no difference image



Q16 no OOT image

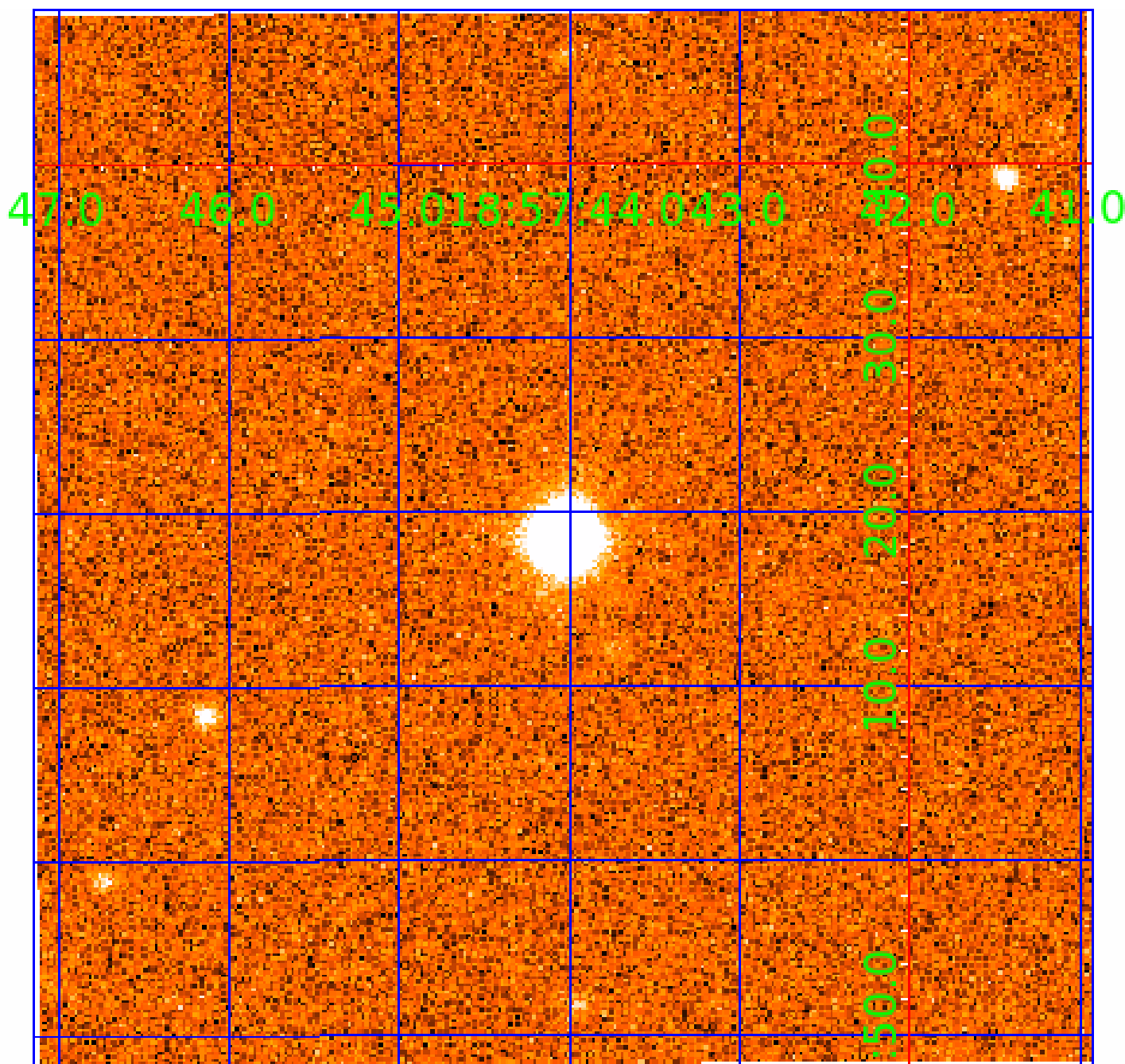


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011442793

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 011442793-01 | OBS | 0351.01 | 331.603305 | 140.479505 | 8353.3 | 14.486 | 249.1 | 233.3 | 1.20 | 5970 | 10.96 | 1.76 |
| 011442793-02 | OBS | 0351.02 | 210.593472 | 147.099243 | 4164.3 | 12.058 | 101.8 | 121.8 | 1.20 | 5970 | 7.69 | 3.22 |
| 011442793-03 | OBS | 0351.03 | 59.736918 | 158.962394 | 563.2 | 8.537 | 29.1 | 30.2 | 1.20 | 5970 | 3.25 | 17.30 |
| 011442793-04 | OBS | 0351.04 | 91.939496 | 134.306521 | 507.8 | 10.028 | 24.9 | 25.1 | 1.20 | 5970 | 3.22 | 9.73 |
| 011442793-05 | OBS | 0351.07 | 124.914938 | 254.703976 | 519.5 | 11.738 | 18.2 | 18.9 | 1.20 | 5970 | 3.22 | 6.47 |
| 011442793-06 | OBS | 0351.06 | 7.008208 | 137.674831 | 116.3 | 4.417 | 14.8 | 16.6 | 1.20 | 5970 | 1.67 | 301.14 |
| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

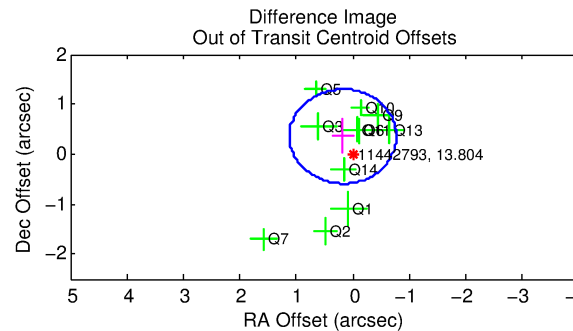
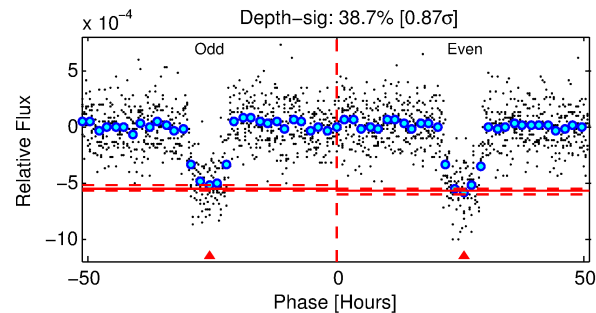
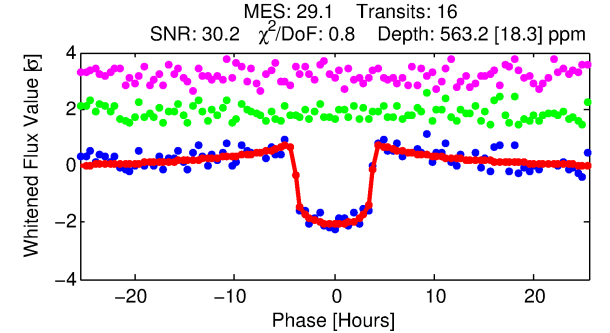
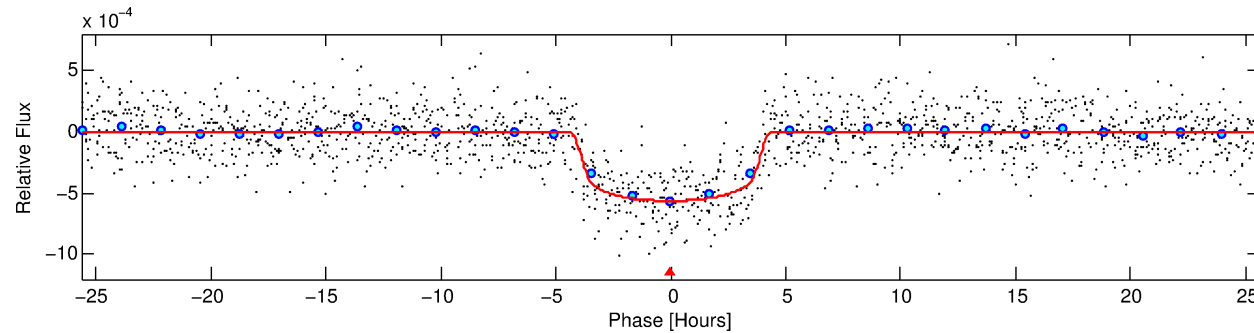
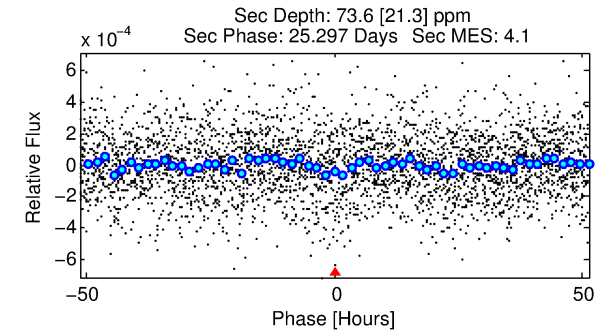
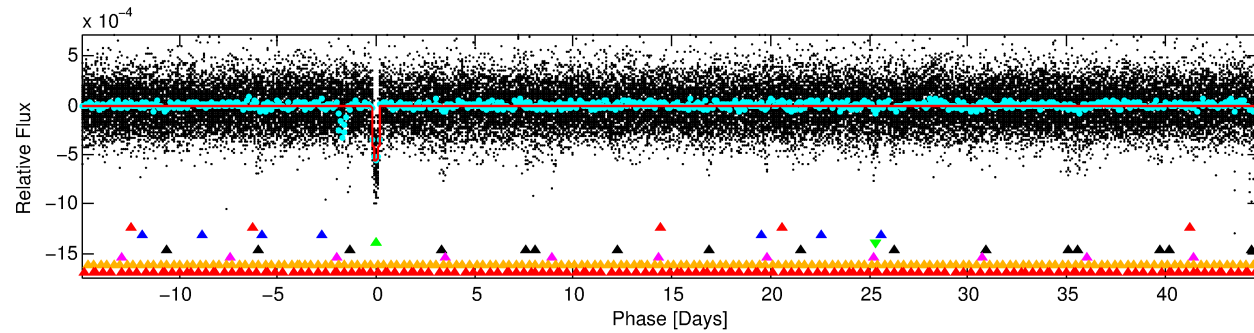
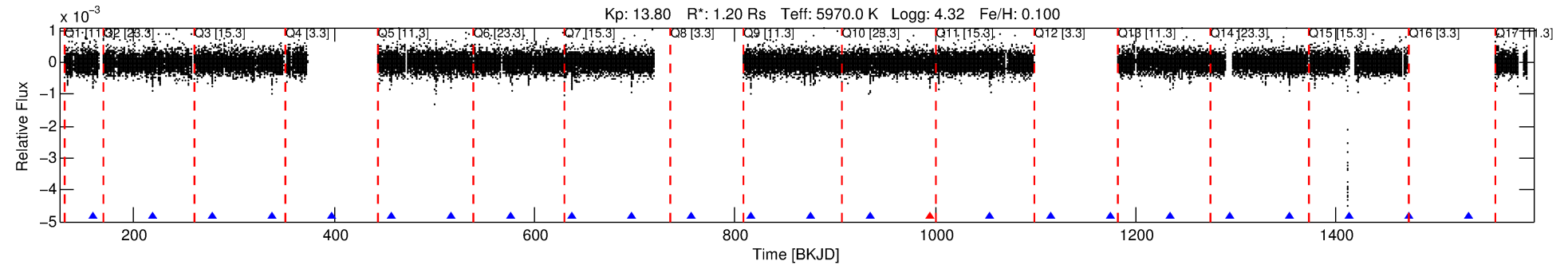
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-03

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 3 of 7 Period: 59.737 d
KOI: K00351.03 Name: Kepler-90d Corr: 0.969



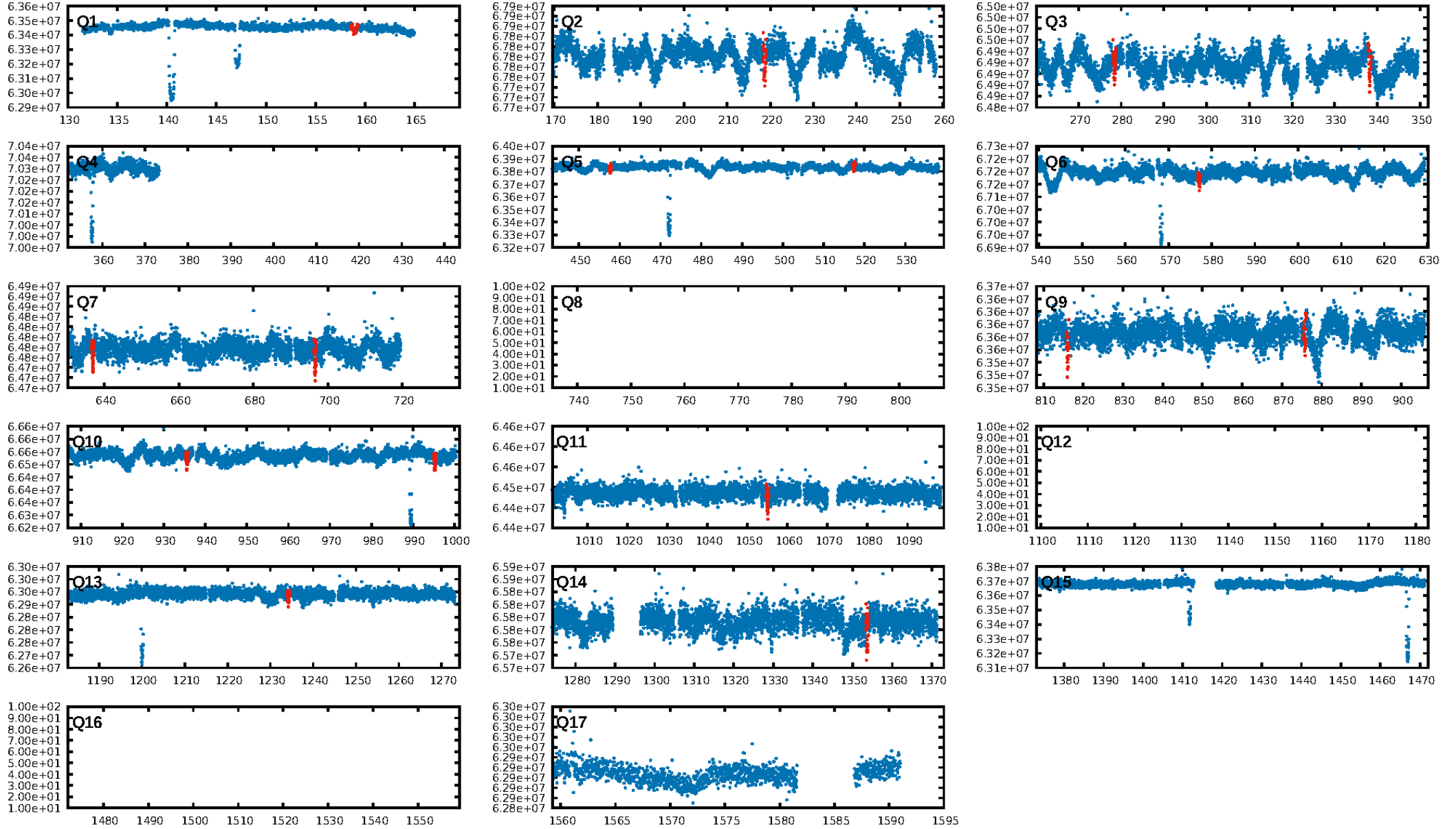
DV Fit Results:

Period = 59.73692 [0.00036] d
Epoch = 158.9624 [0.0039] BKJD
Rp/R* = 0.0248 [0.0013]
a/R* = 30.56 [6.94]
b = 0.85 [0.07]
Seff = 17.30 [4.02]
Teff = 520 [30] K
Rp = 3.25 [0.55] Re
a = 0.3078 [0.0439] AU
Ag = 364.29 [136.49] [2.66σ]
Teffp = 3512 [280] K [10.62σ]

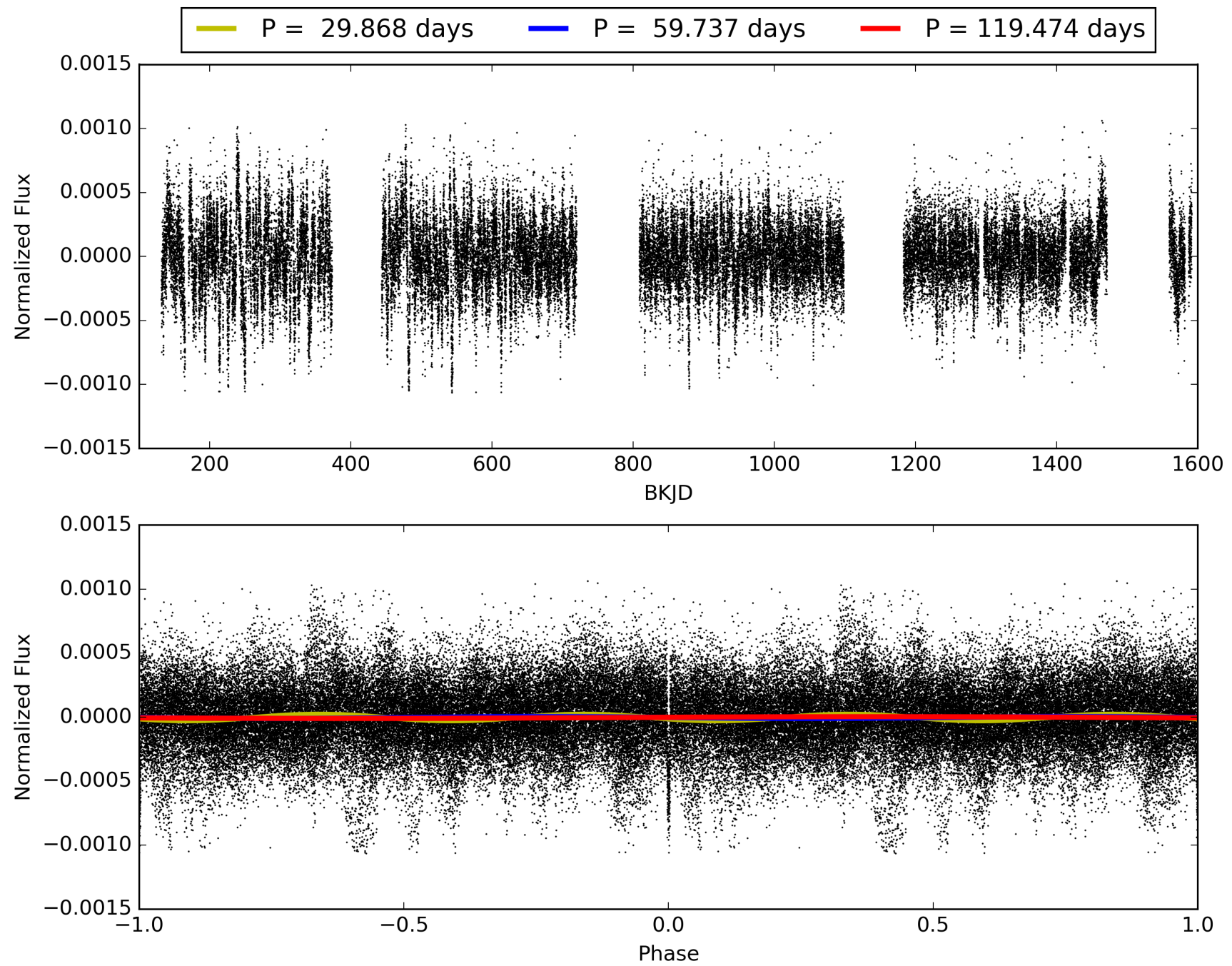
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [124.96σ]
LongPeriod-sig: 100.0% [58.69σ]
ModelChiSquare2-sig: 86.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.74e-153
RollingBand-fgt: 0.93 [14/15]
GhostDiagnostic-chr: 2.899
Centroid-sig: 7.2%
Centroid-so: 0.561 arcsec [1.53σ]
OotOffset-rm: 0.396 arcsec [1.26σ]
KicOffset-rm: 0.335 arcsec [1.11σ]
OotOffset-st: 4/3/0/4 [11]
KicOffset-st: 4/3/0/4 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 0.73 [8/11]

TCE 011442793-03, PDC Light Curves

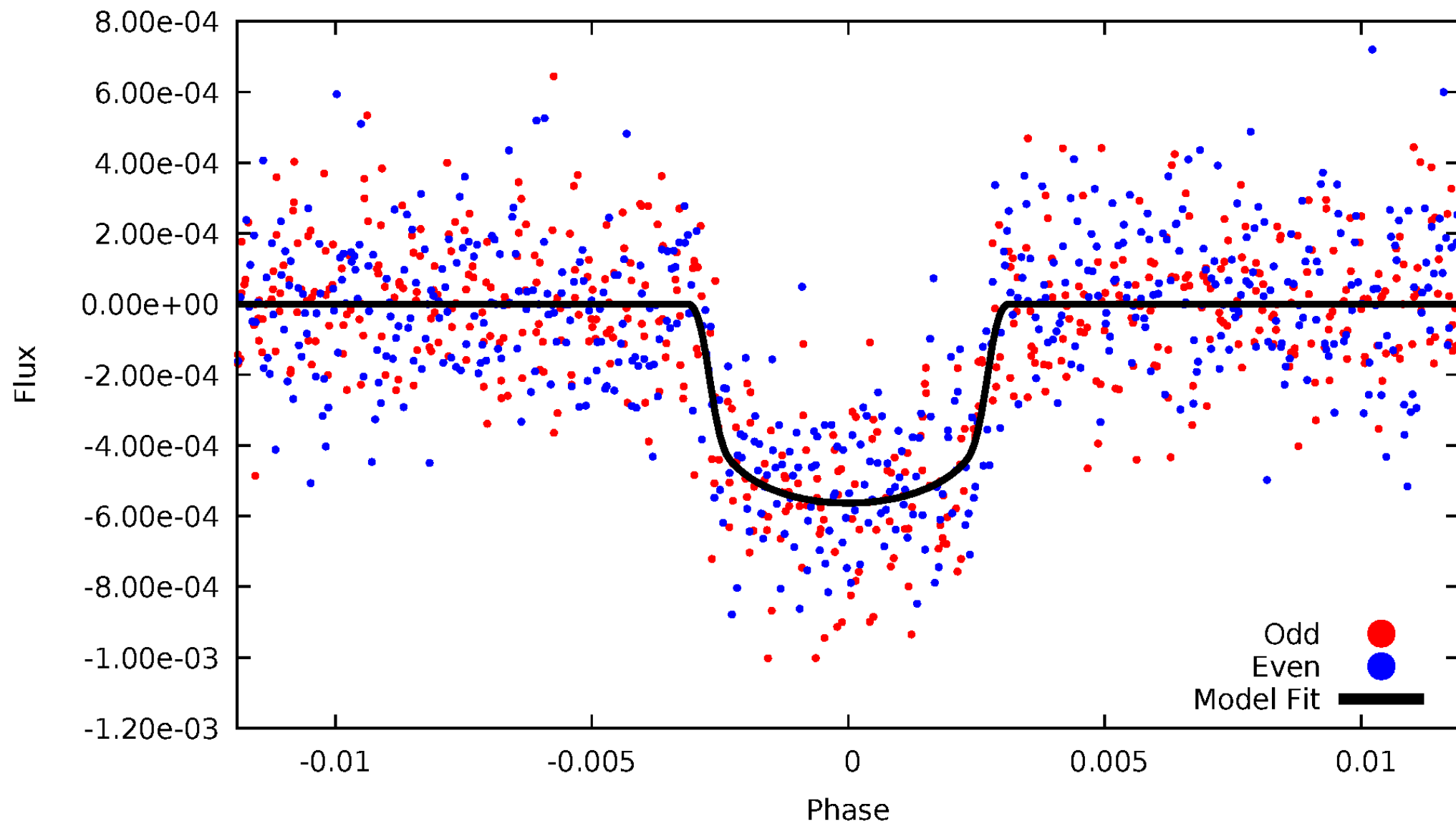


TCE 011442793-03



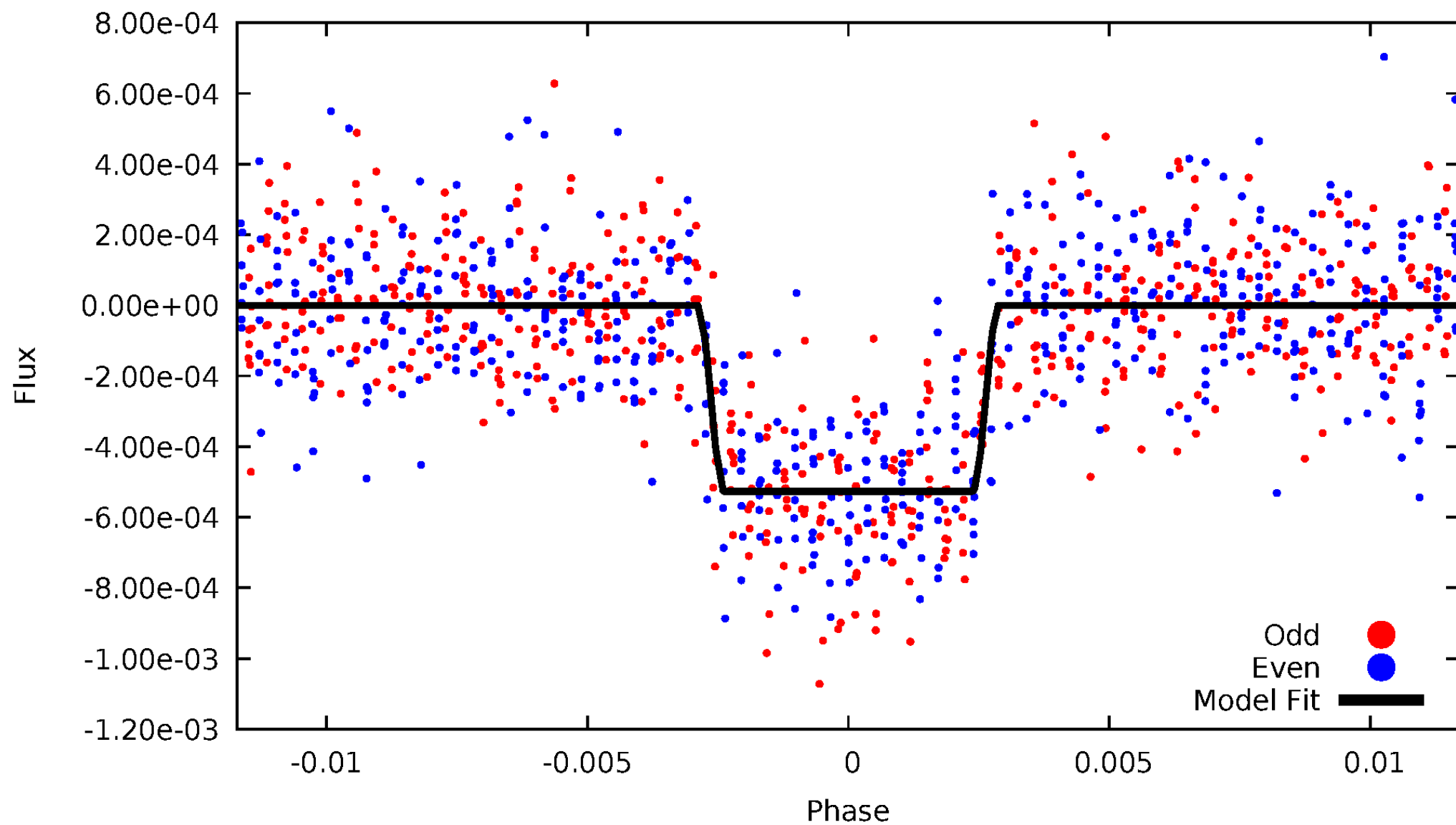
DV Odd/Even

TCE 011442793-03



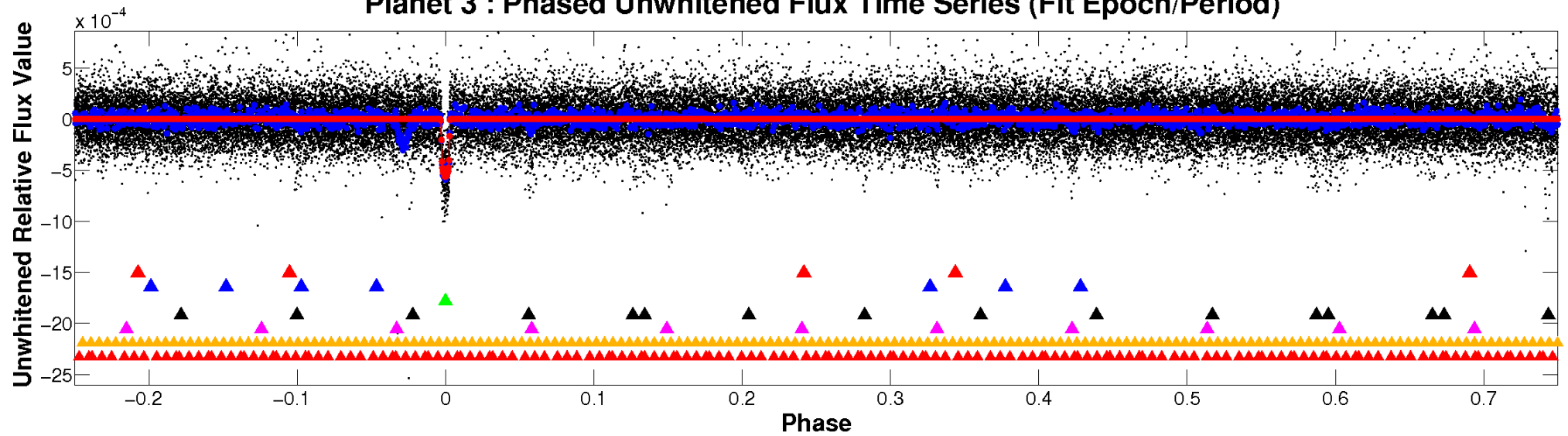
ALT Odd/Even

TCE 011442793-03

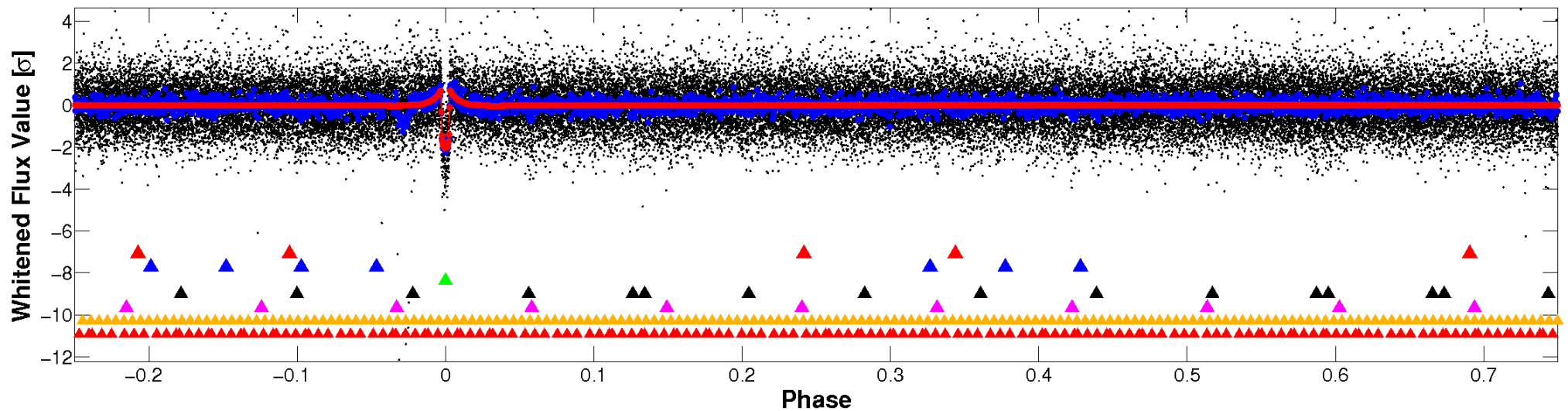


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

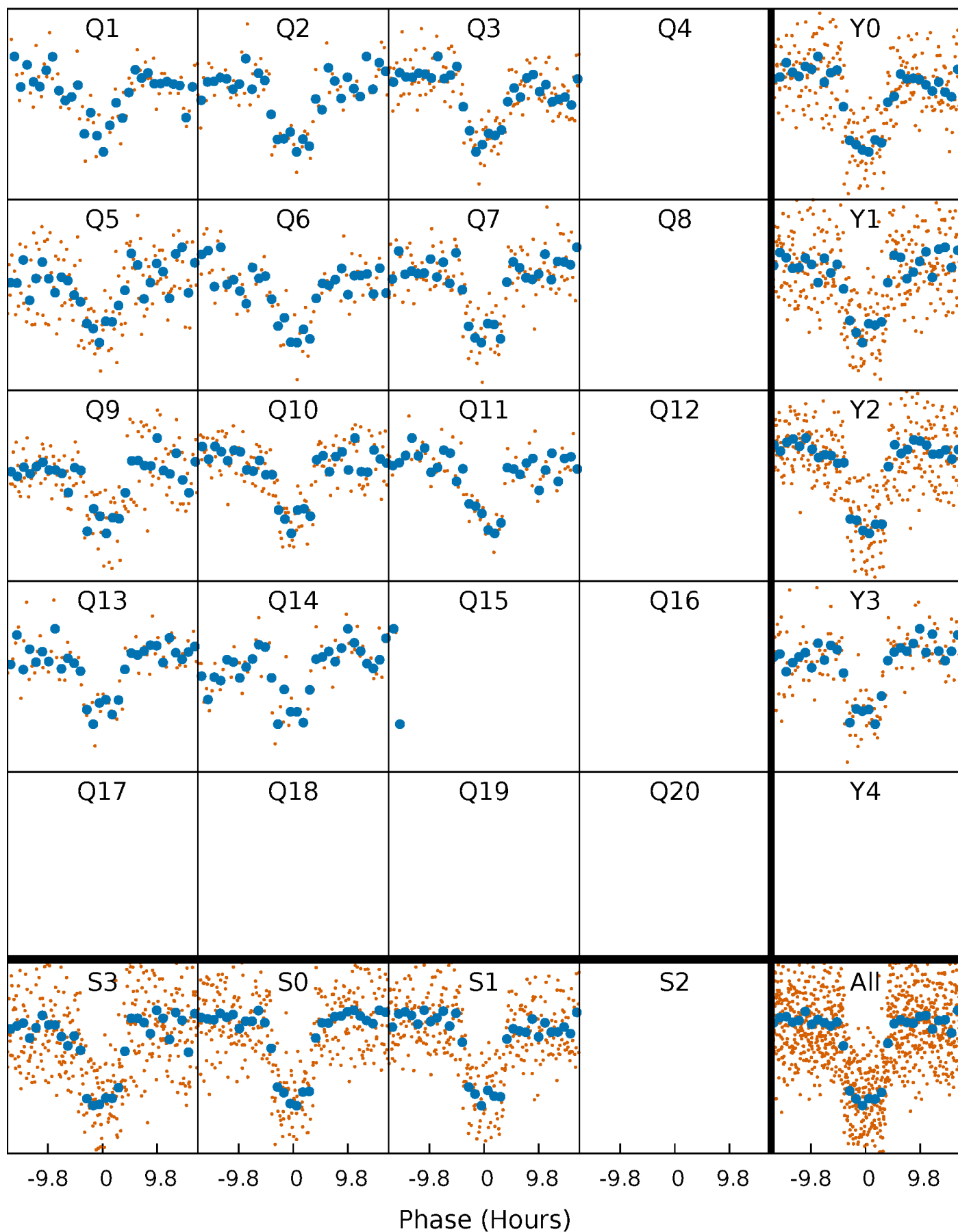


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



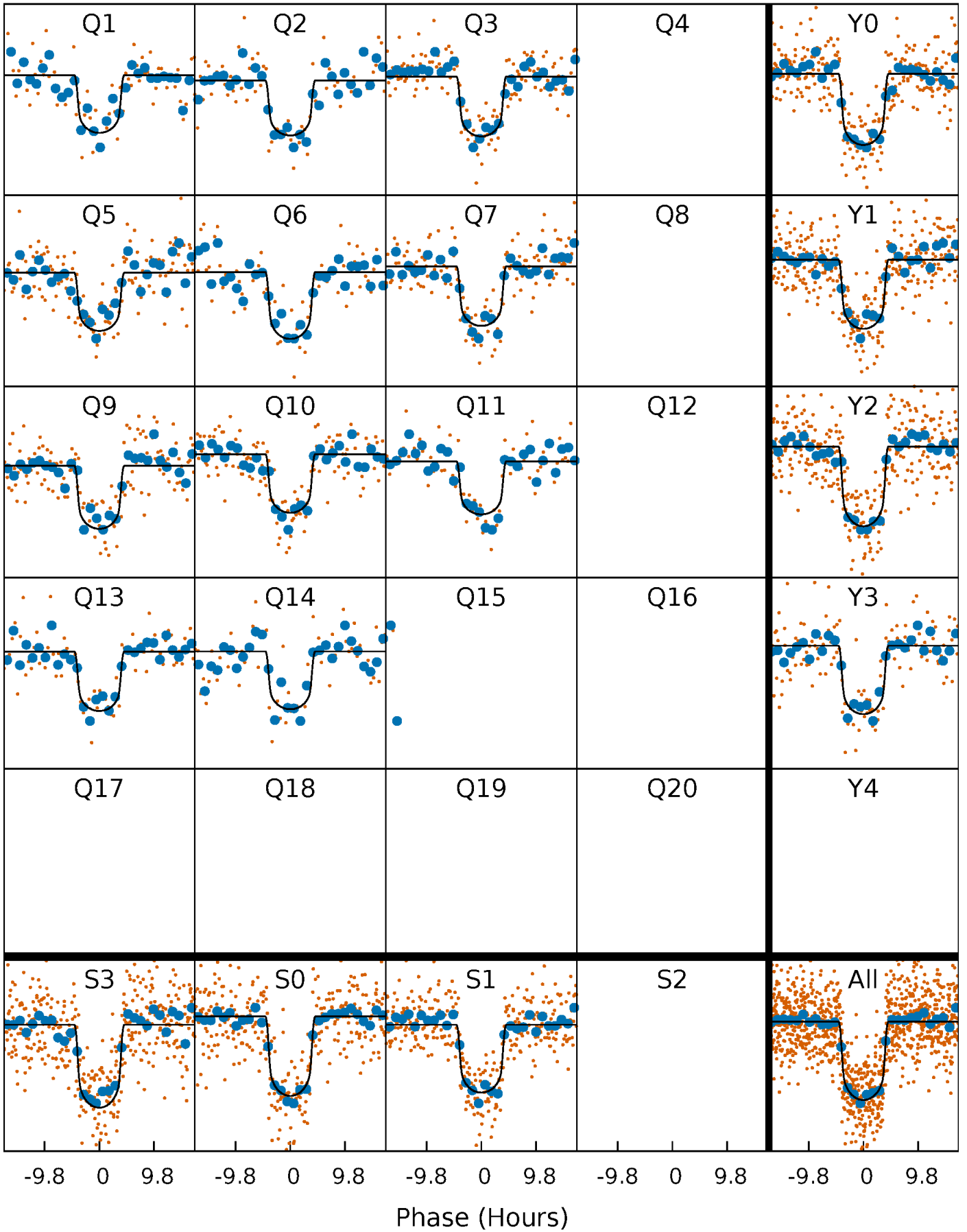
PDC Quarter-Phased Transit Curves

TCE 011442793-03 P= 59.736918 Days $T_0=158.962394$ (BKJD)



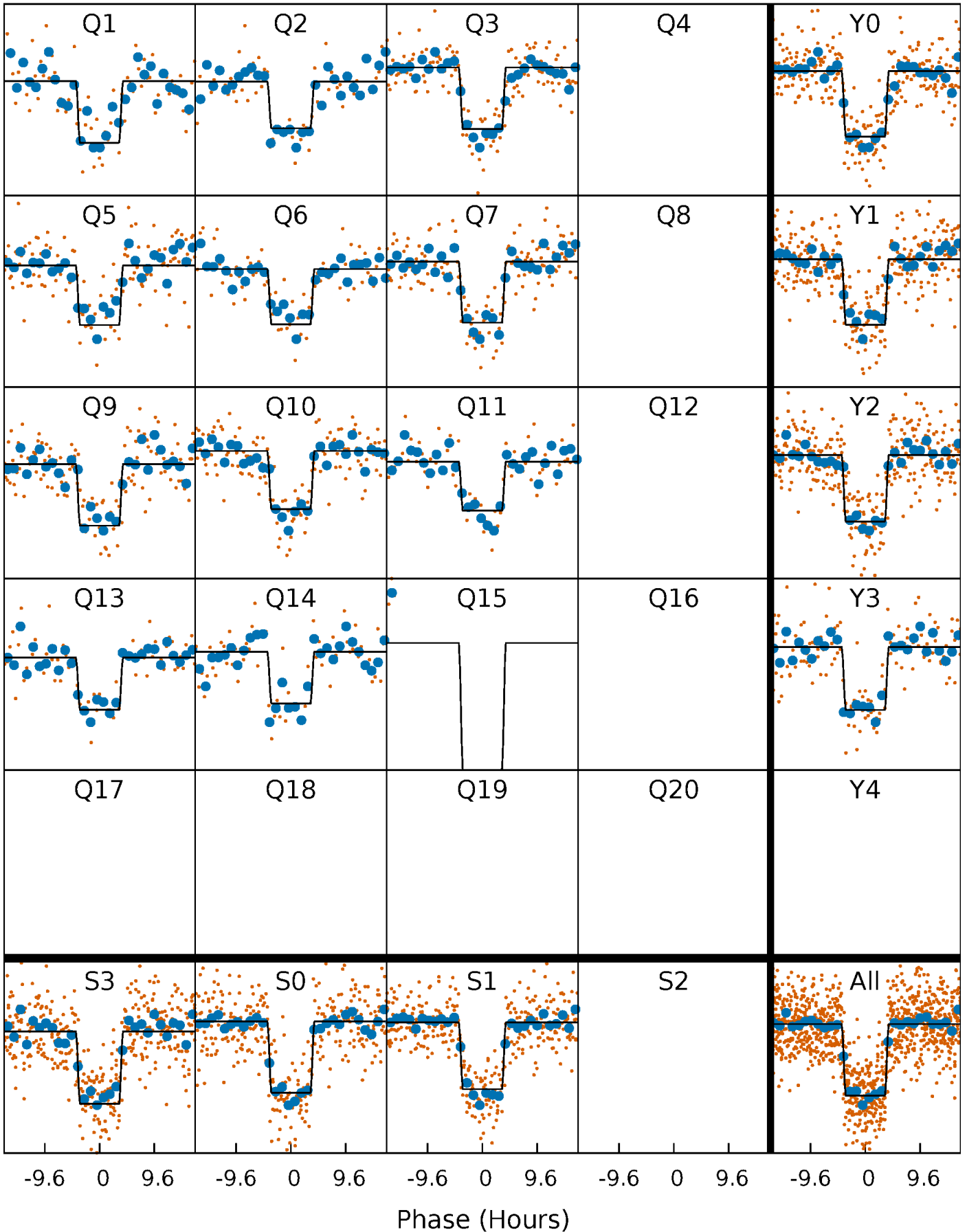
DV Quarter-Phased Transit Curves

TCE 011442793-03 P= 59.736918 Days $T_0=158.962394$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

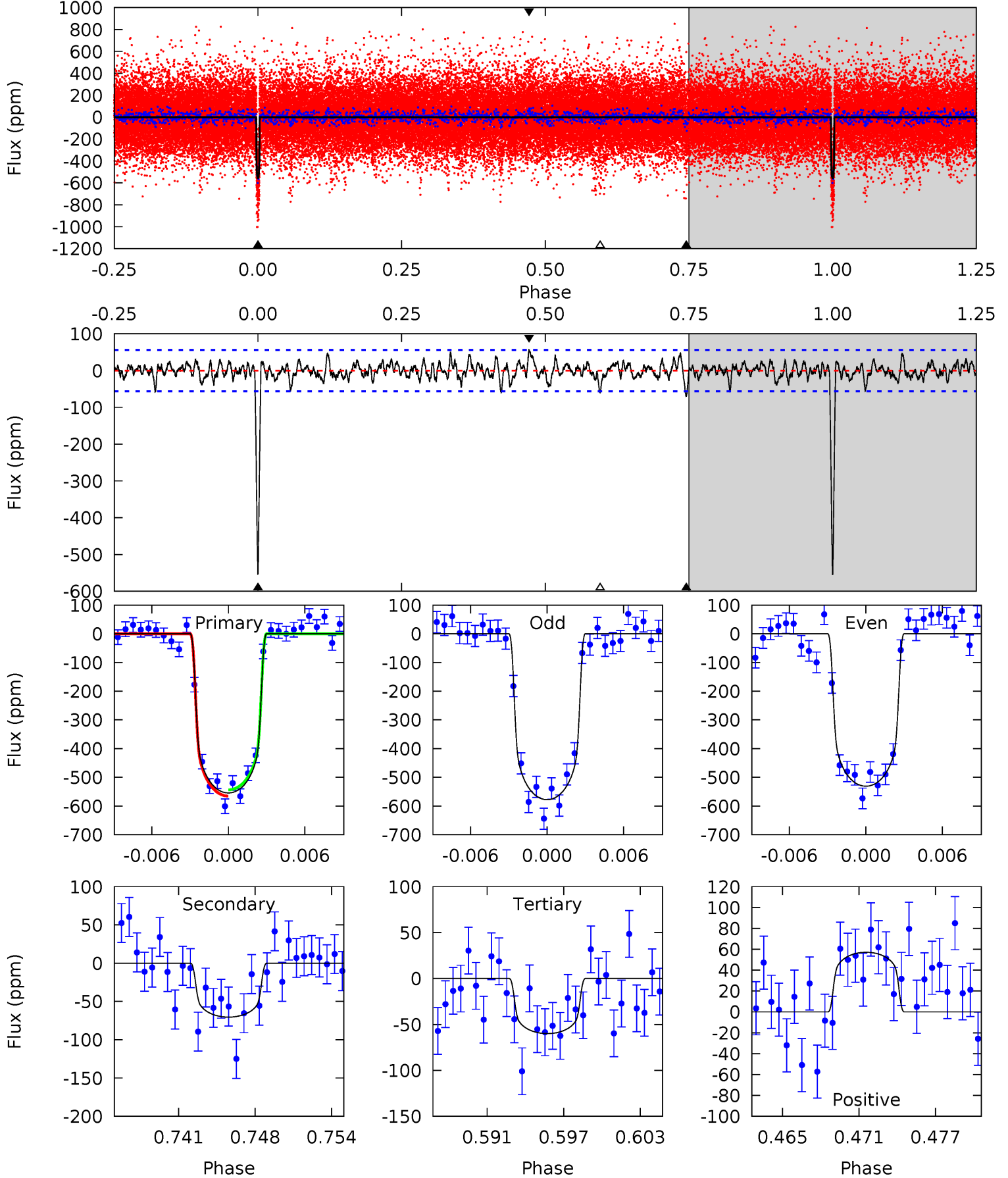
TCE 011442793-03 P= 59.737548 Days $T_0=158.955414$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-03, P = 59.736918 Days, E = 99.225476 Days

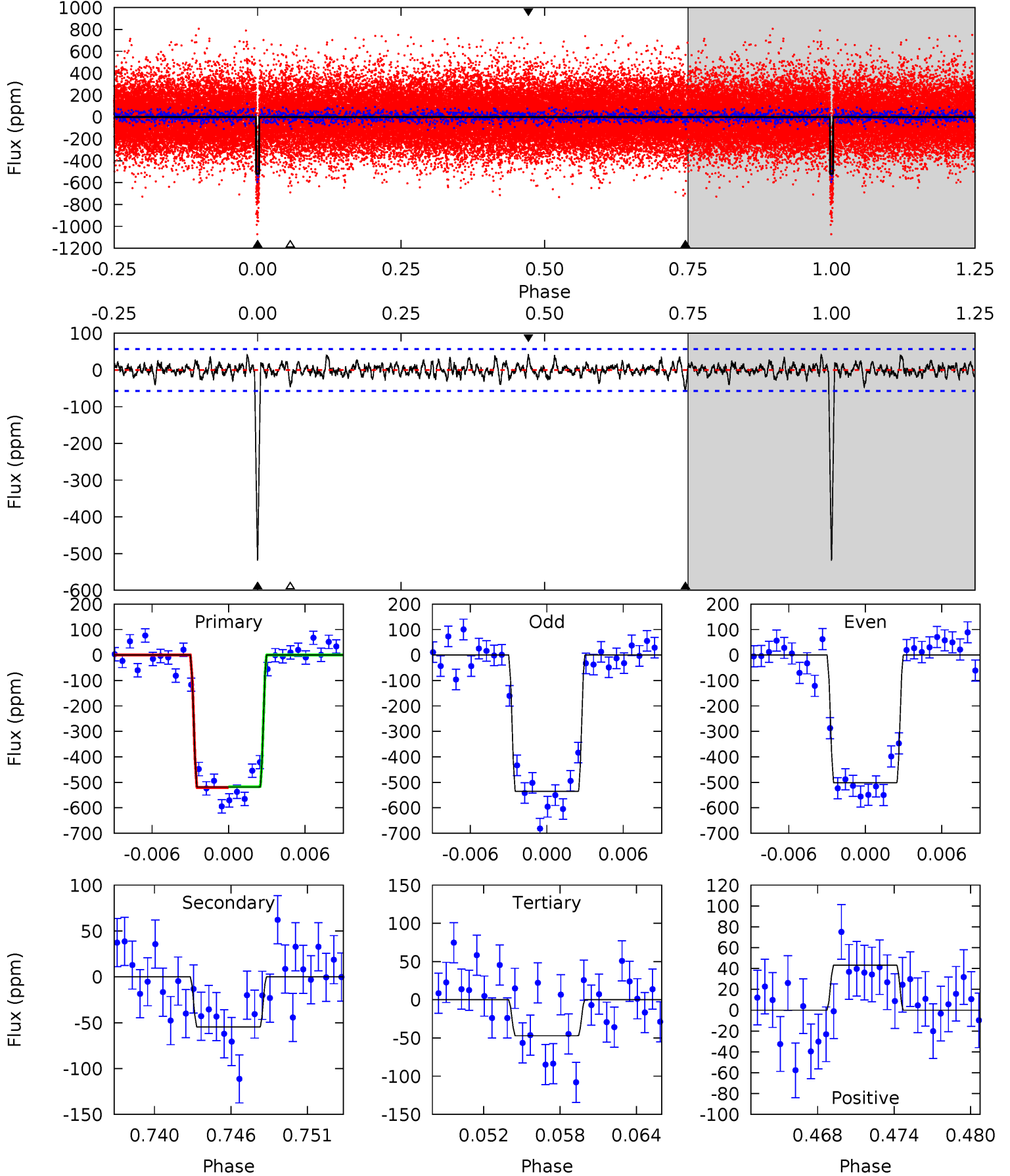
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 50.5 | 6.41 | 5.46 | 5.20 | 5.11 | 2.73 | 1.60 | 45.0 | 45.3 | 0.95 | 1.21 | 2.15 | 0.98 | 0.09 | 1.00 |



Alt Model-Shift Uniqueness Test

011442793-03, P = 59.737548 Days, E = 99.217866 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 46.5 | 4.91 | 4.23 | 3.87 | 5.13 | 2.76 | 1.15 | 42.3 | 42.7 | 0.69 | 1.04 | 1.52 | 1.00 | 0.08 | 0.14 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-03 / KOI 0351.03

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|----------------------|-------------------|
| DV | -70 ± 11 | $3.26^{+0.34}_{-0.31}$ | 726^{+31}_{-31} | 3840^{+135}_{-135} | 346^{+93}_{-76} |
| Alt. | -55 ± 11 | $3.04^{+0.31}_{-0.30}$ | 728^{+34}_{-31} | 3768^{+165}_{-175} | 305^{+99}_{-82} |

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

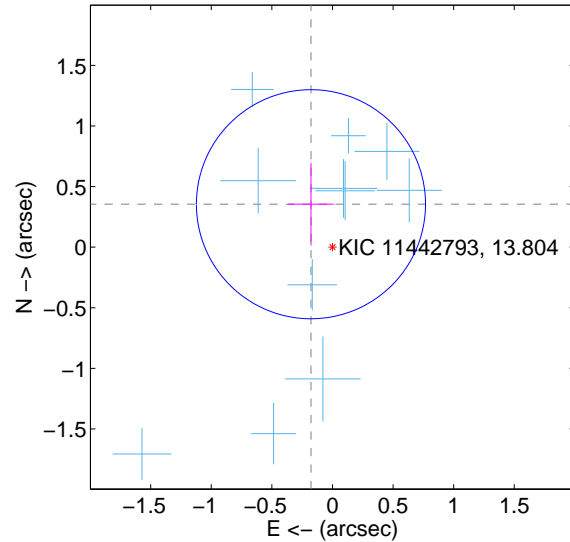
Supplemental centroid analysis for 011442793-03. Kepler magnitude: 13.80. Transit SNR 30.22

There are 11 quarters with good PRF difference image offsets

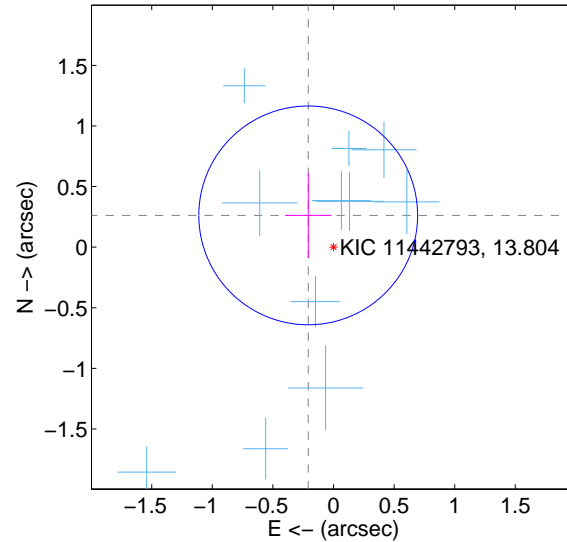
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.396 ± 0.315 | 1.26 | 0.177 ± 0.189 | 0.354 ± 0.339 |
| PRF-fit source offset from KIC position | 0.335 ± 0.301 | 1.11 | 0.209 ± 0.192 | 0.262 ± 0.353 |
| photometric centroid source offset | 0.56 ± 0.37 | 1.53 | -0.20 ± 0.35 | 0.52 ± 0.37 |

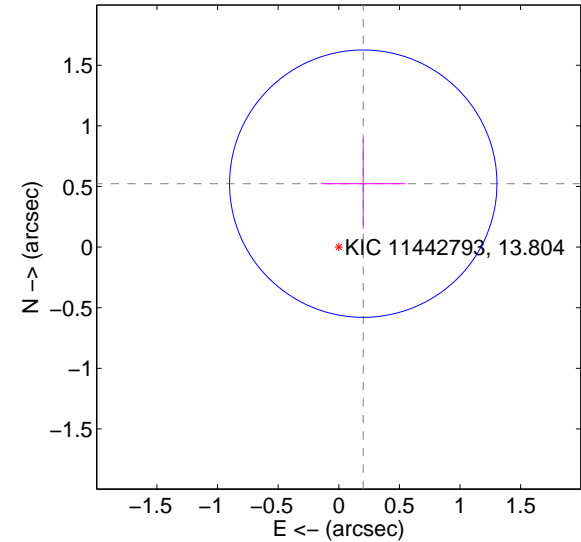
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

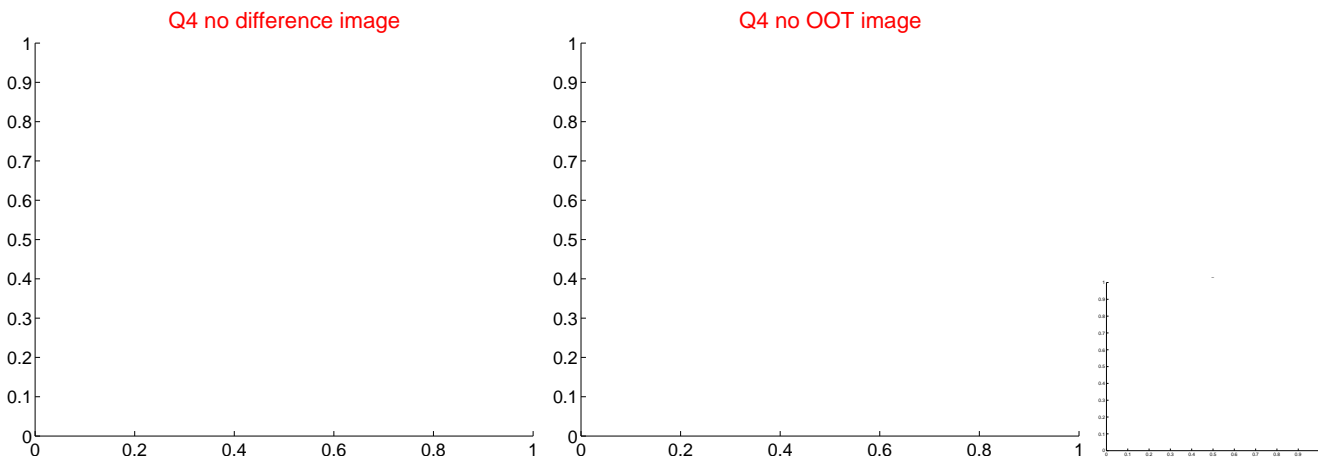
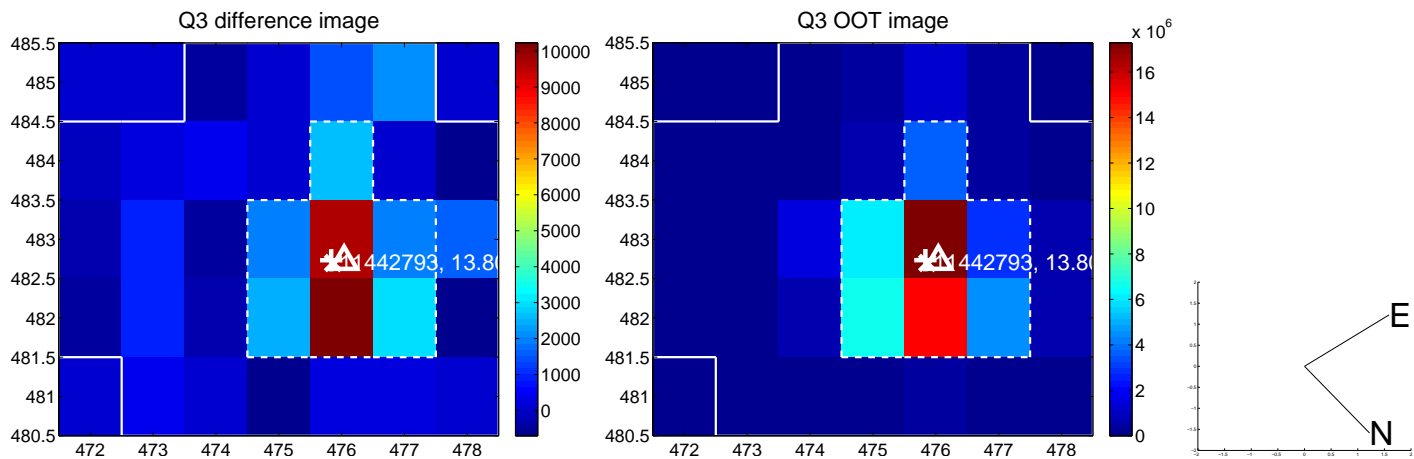
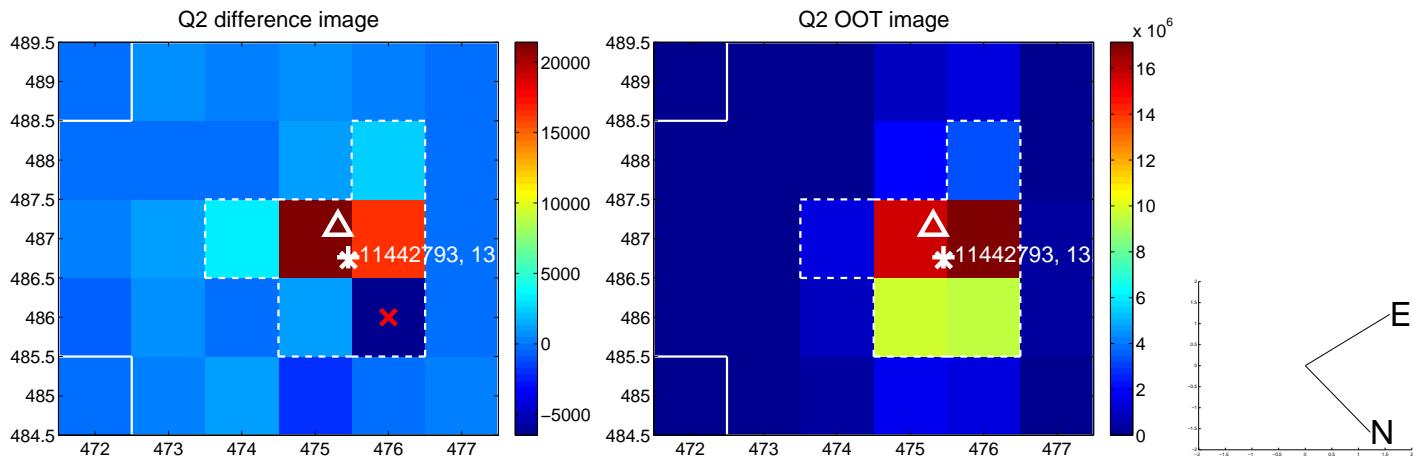
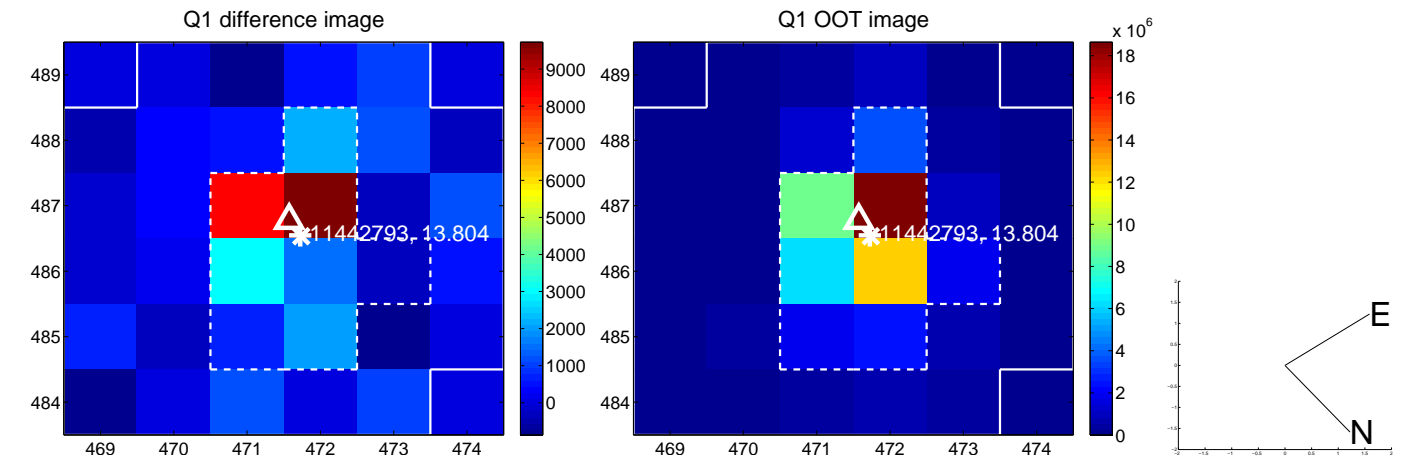


offset from photometric centroids

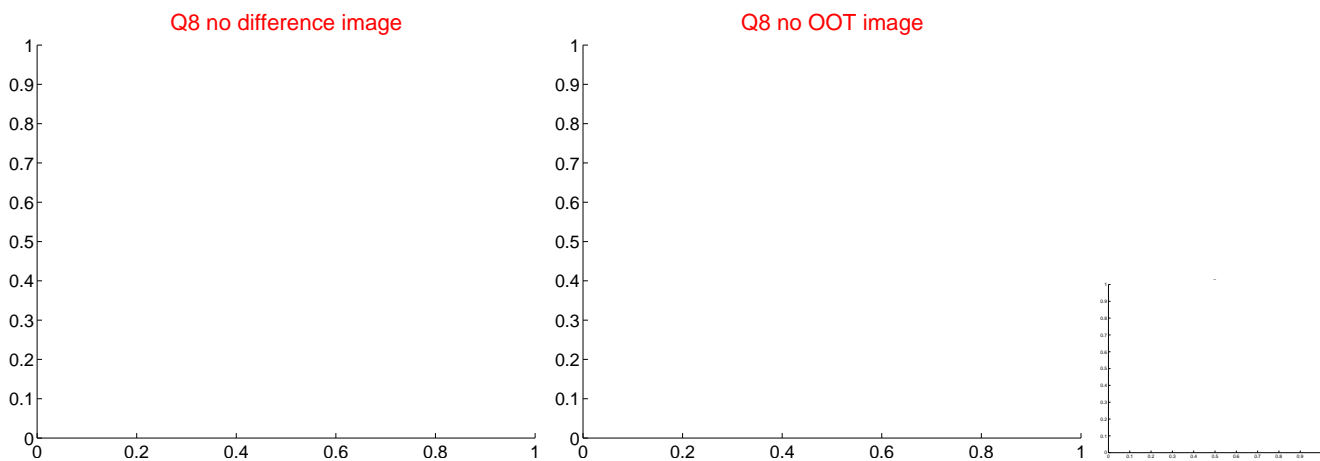
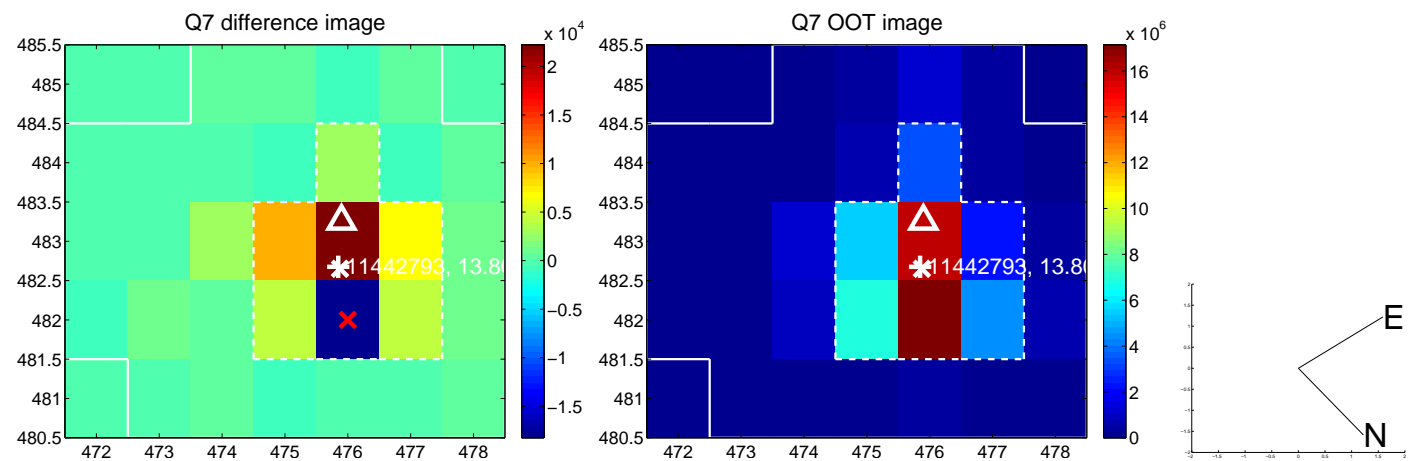
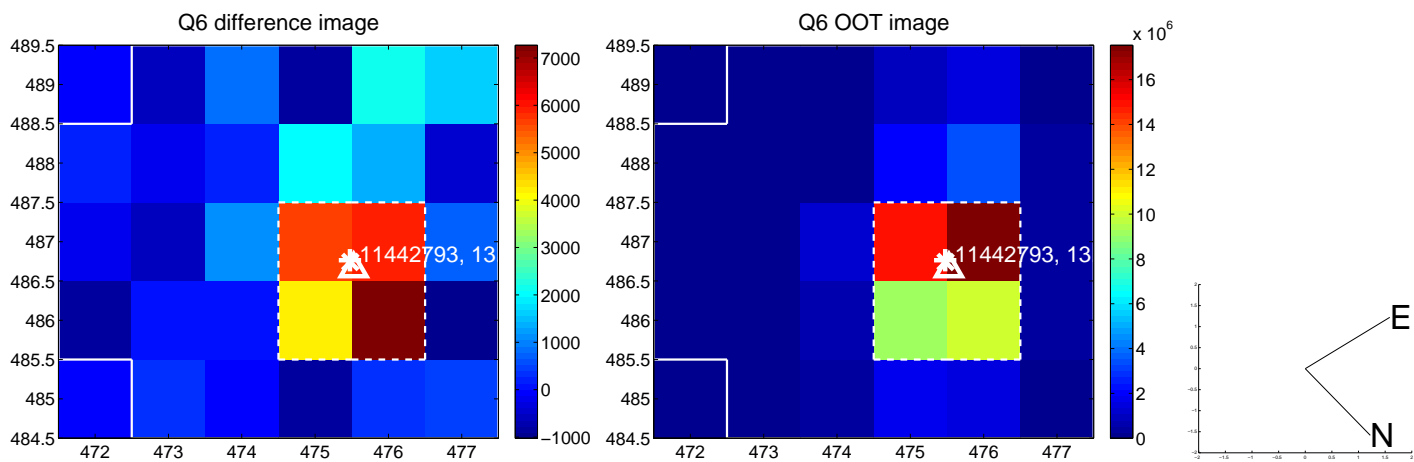
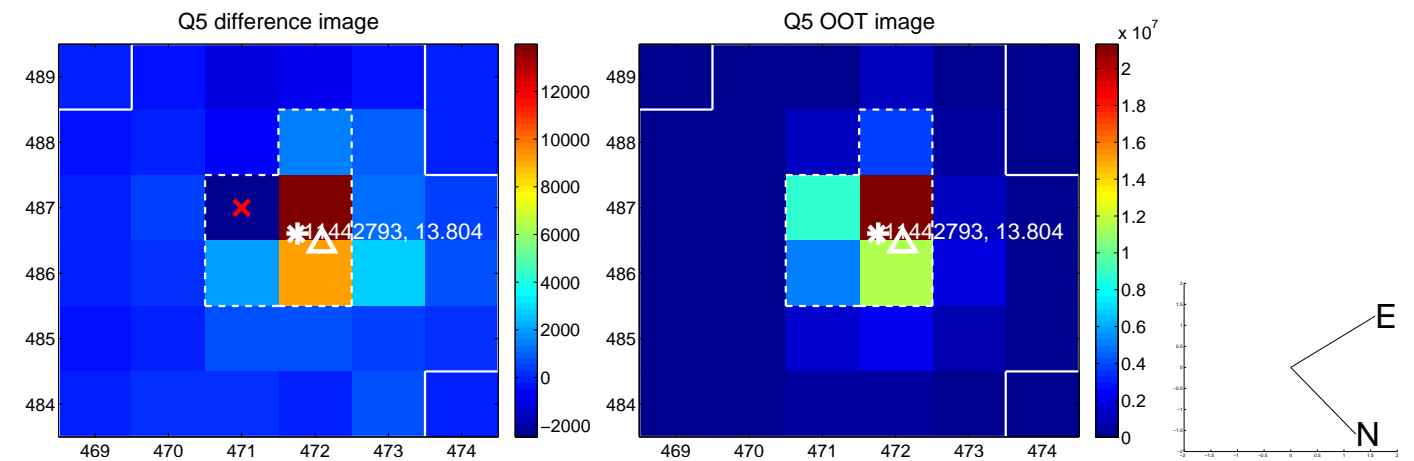


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

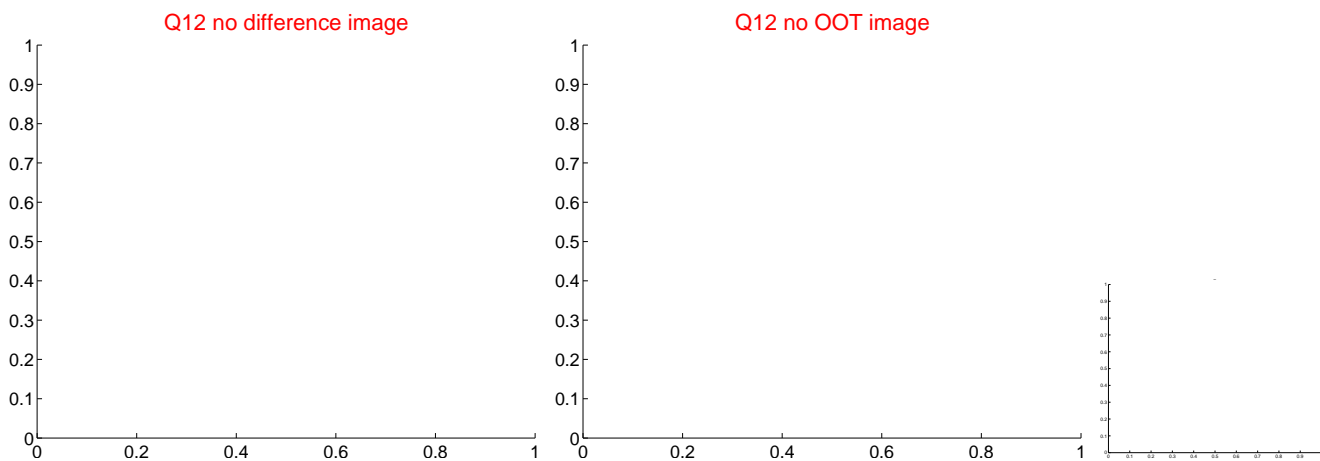
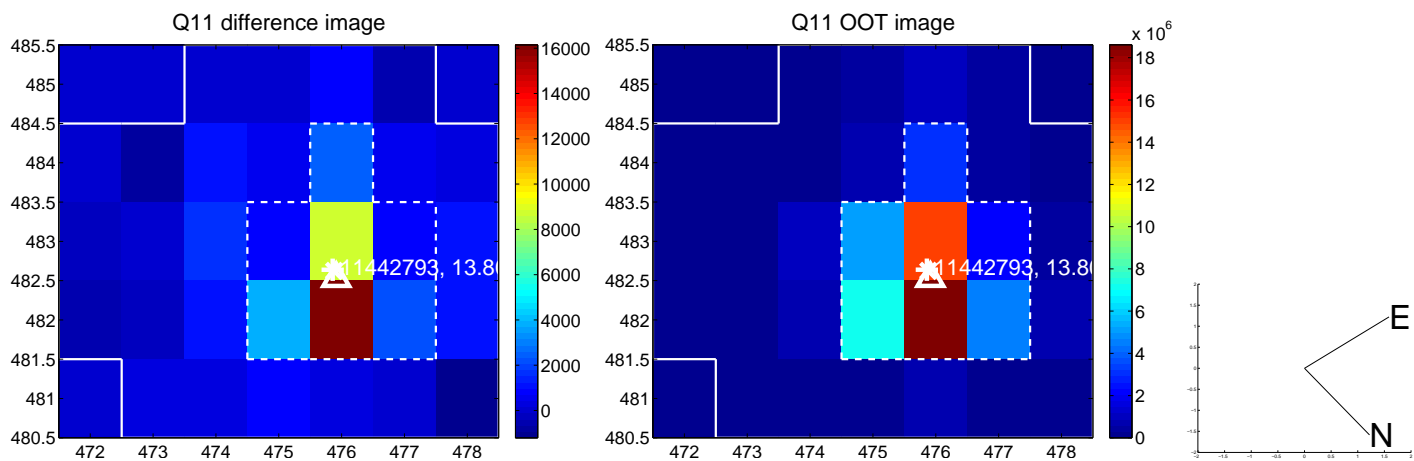
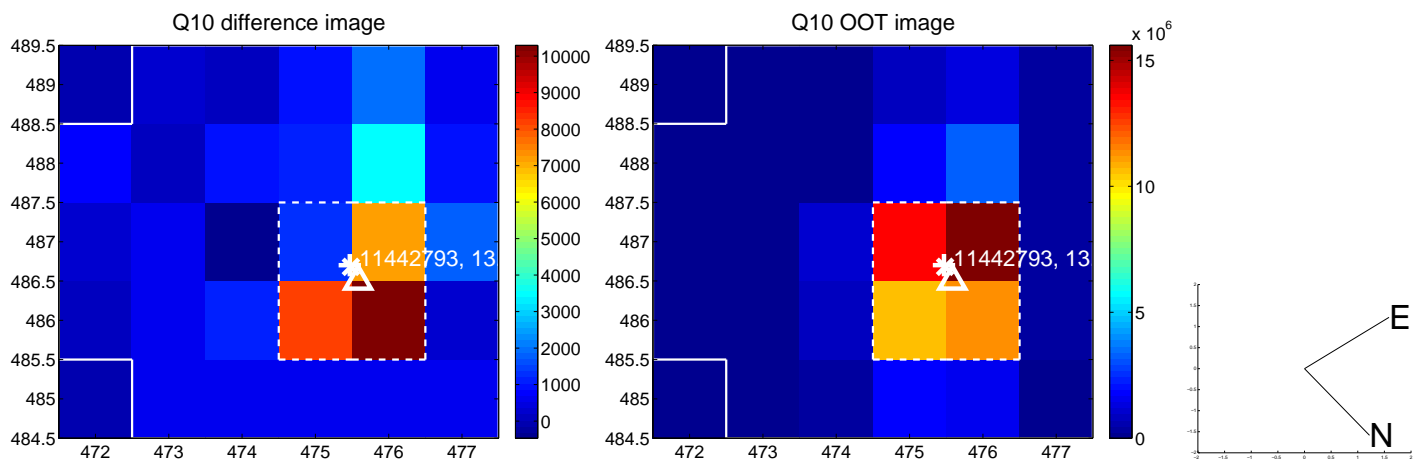
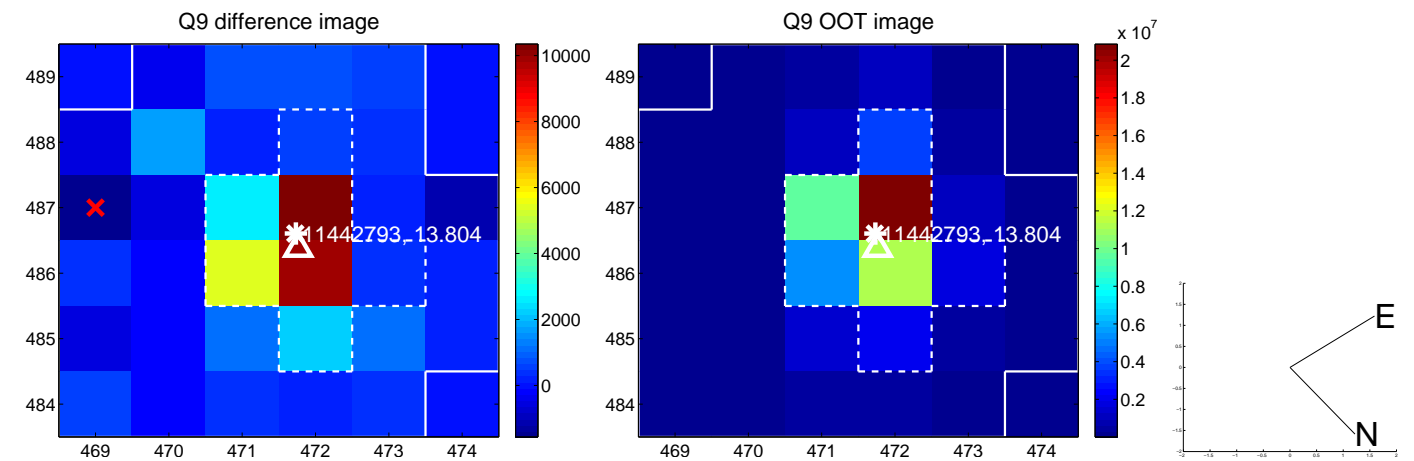
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



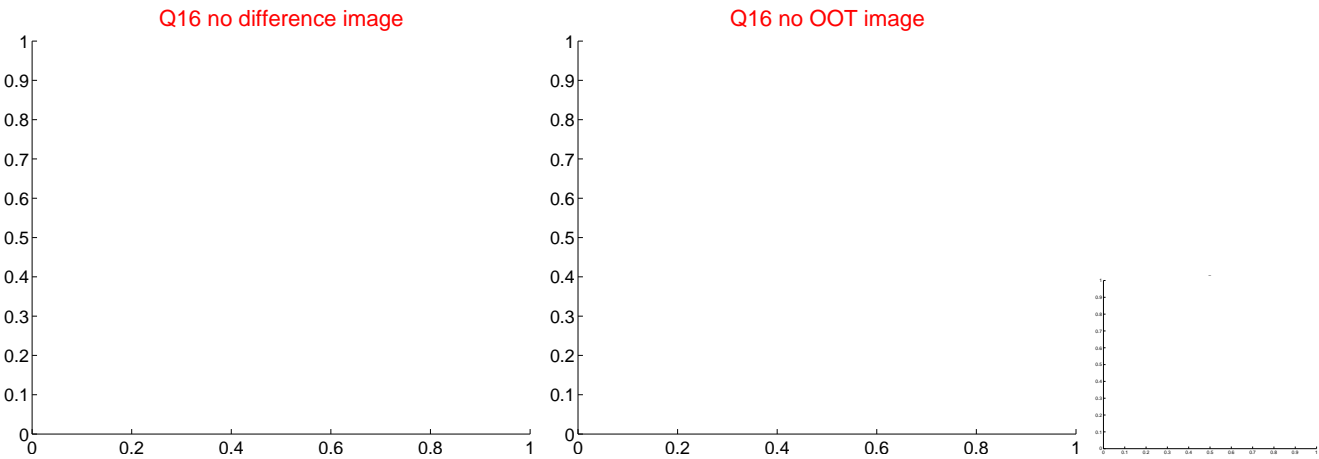
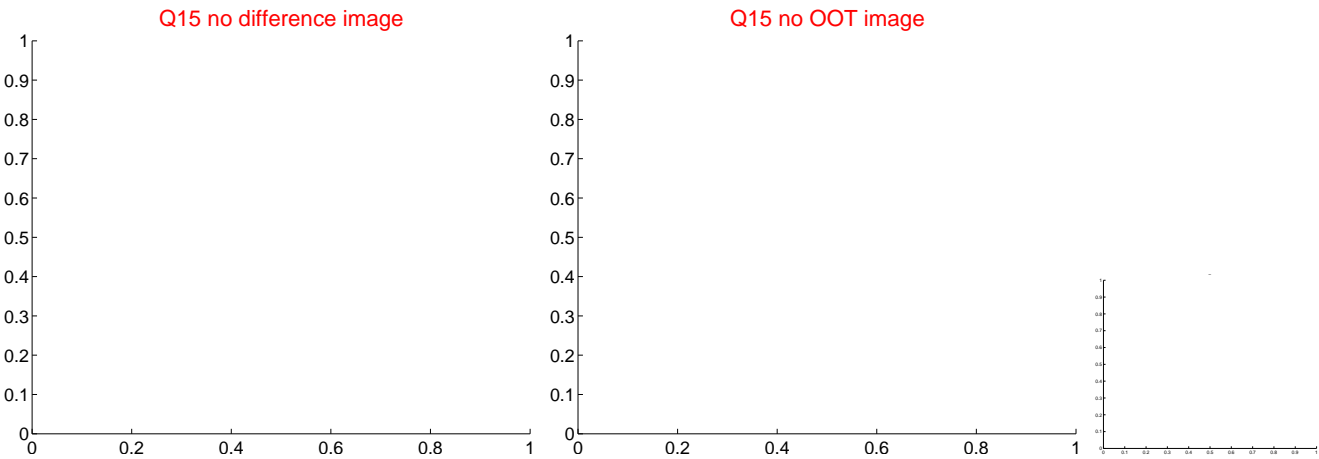
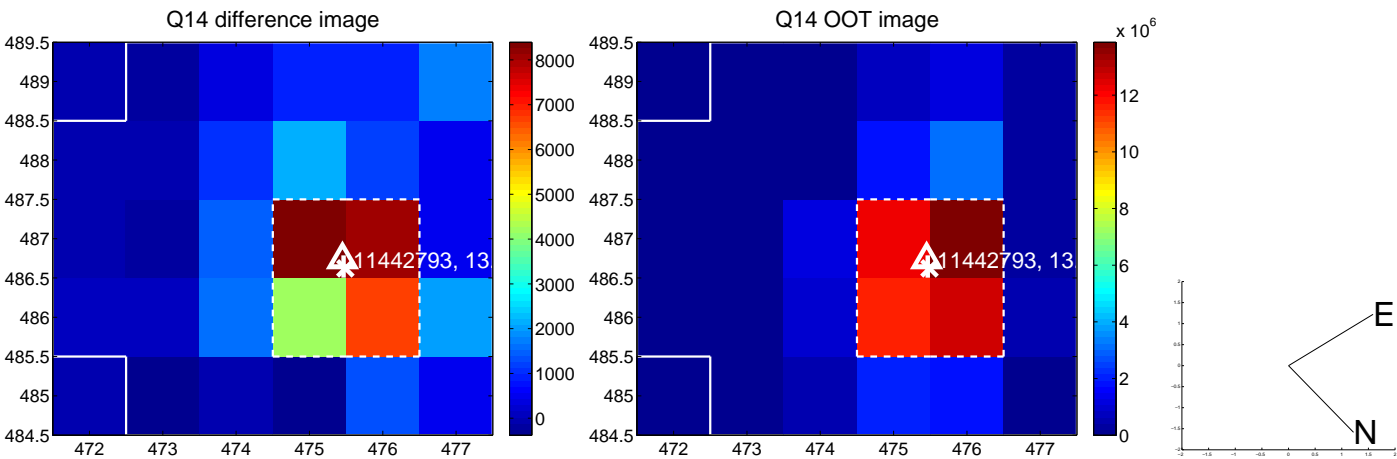
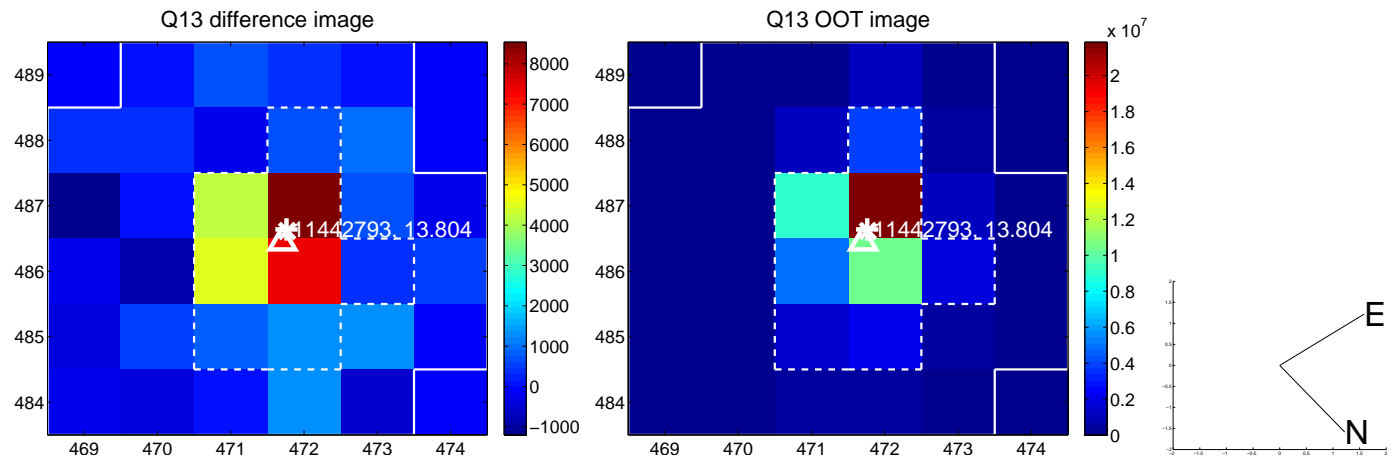
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



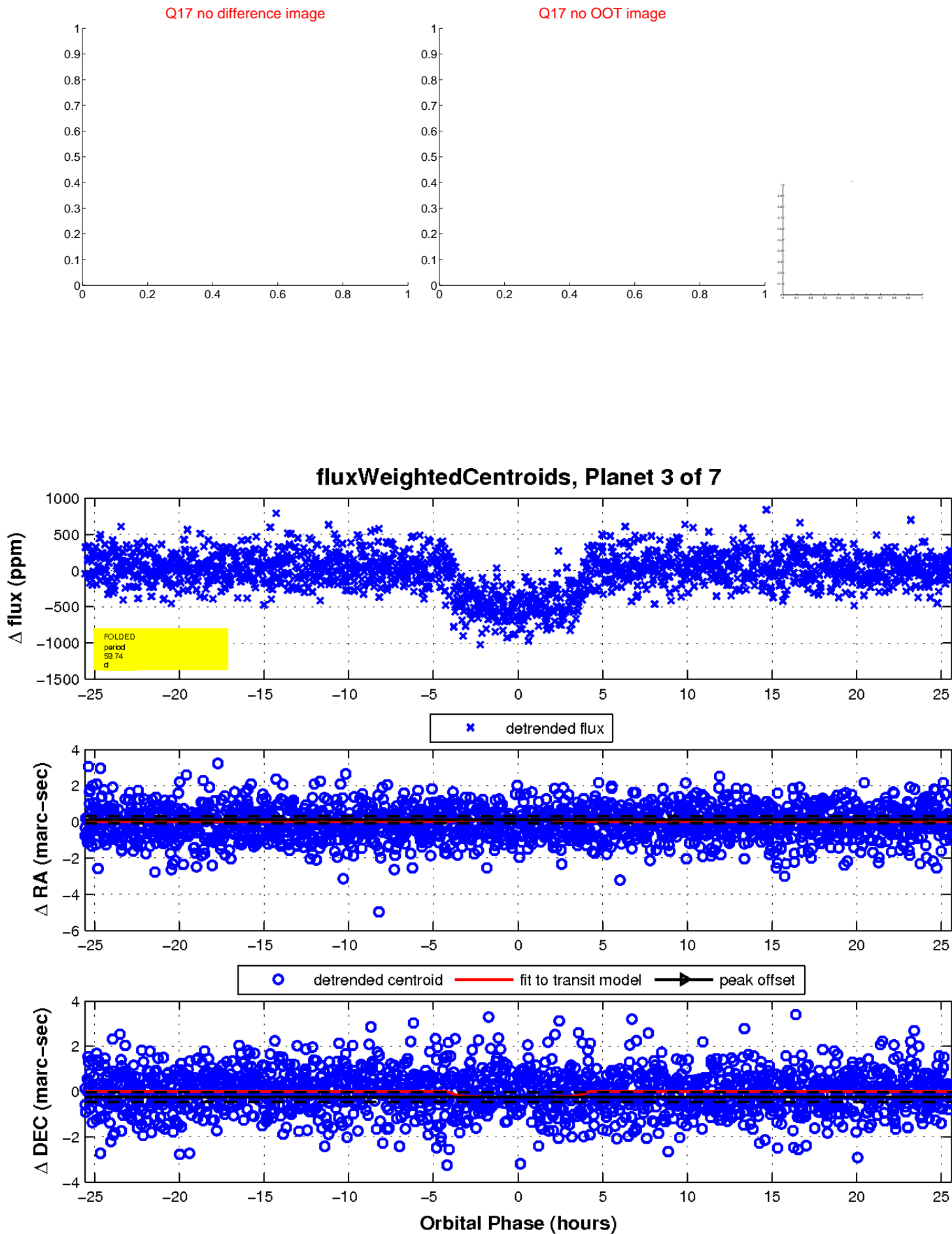
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



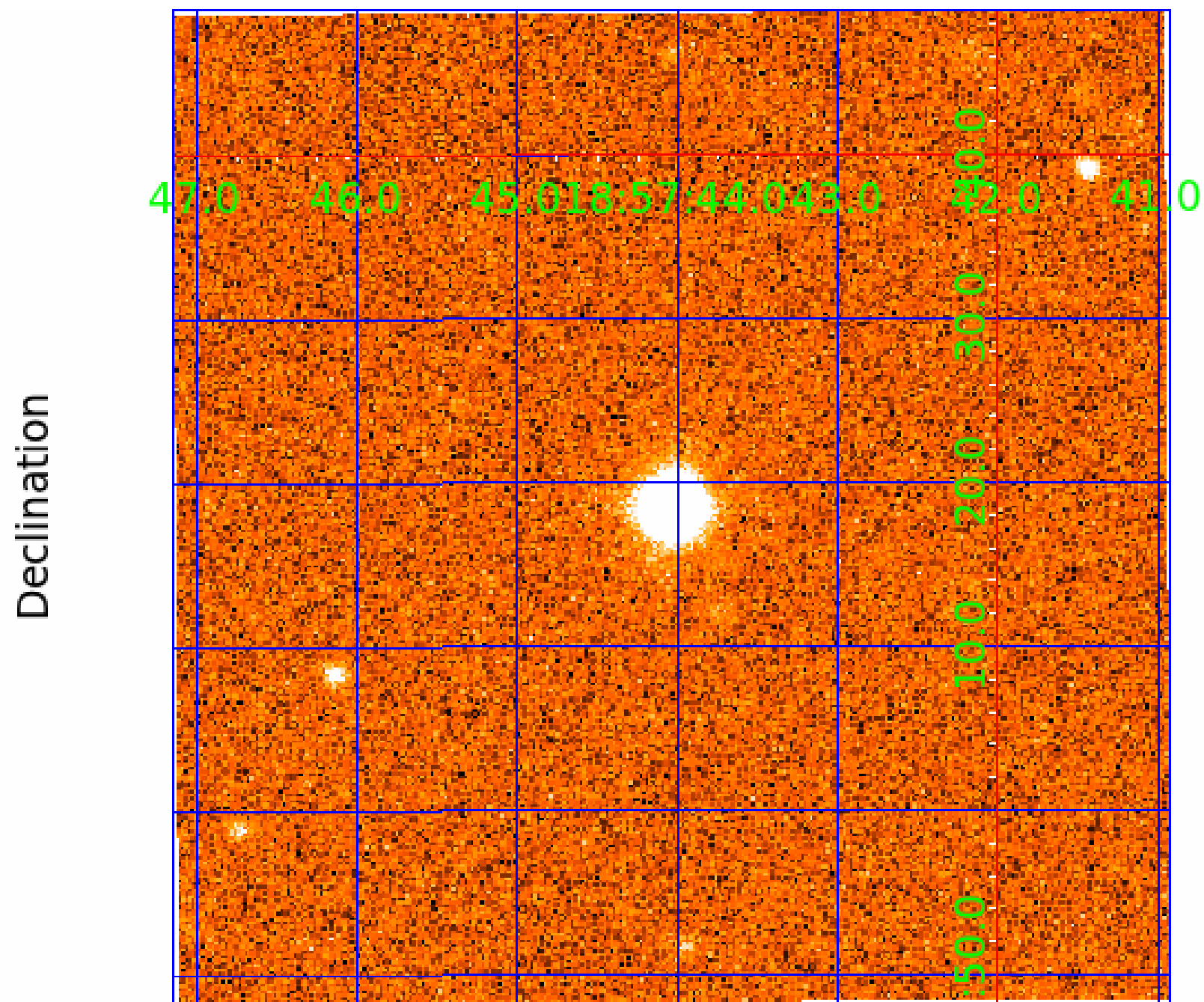
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011442793

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 011442793-01 | OBS | 0351.01 | 331.603305 | 140.479505 | 8353.3 | 14.486 | 249.1 | 233.3 | 1.20 | 5970 | 10.96 | 1.76 |
| 011442793-02 | OBS | 0351.02 | 210.593472 | 147.099243 | 4164.3 | 12.058 | 101.8 | 121.8 | 1.20 | 5970 | 7.69 | 3.22 |
| 011442793-03 | OBS | 0351.03 | 59.736918 | 158.962394 | 563.2 | 8.537 | 29.1 | 30.2 | 1.20 | 5970 | 3.25 | 17.30 |
| 011442793-04 | OBS | 0351.04 | 91.939496 | 134.306521 | 507.8 | 10.028 | 24.9 | 25.1 | 1.20 | 5970 | 3.22 | 9.73 |
| 011442793-05 | OBS | 0351.07 | 124.914938 | 254.703976 | 519.5 | 11.738 | 18.2 | 18.9 | 1.20 | 5970 | 3.22 | 6.47 |
| 011442793-06 | OBS | 0351.06 | 7.008208 | 137.674831 | 116.3 | 4.417 | 14.8 | 16.6 | 1.20 | 5970 | 1.67 | 301.14 |
| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

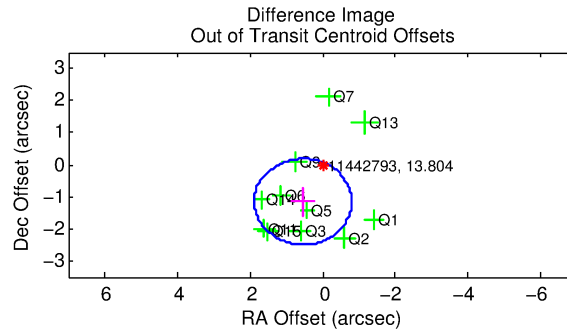
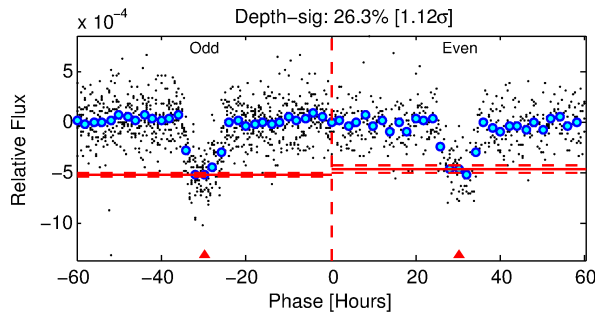
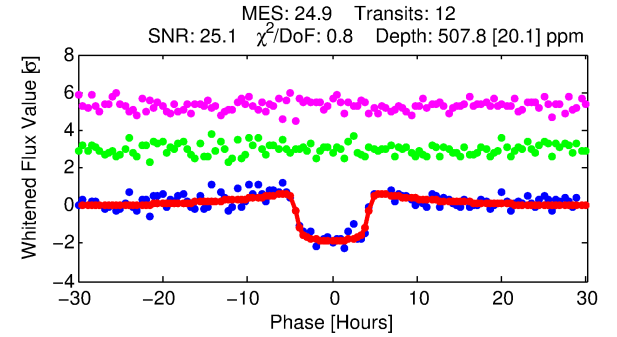
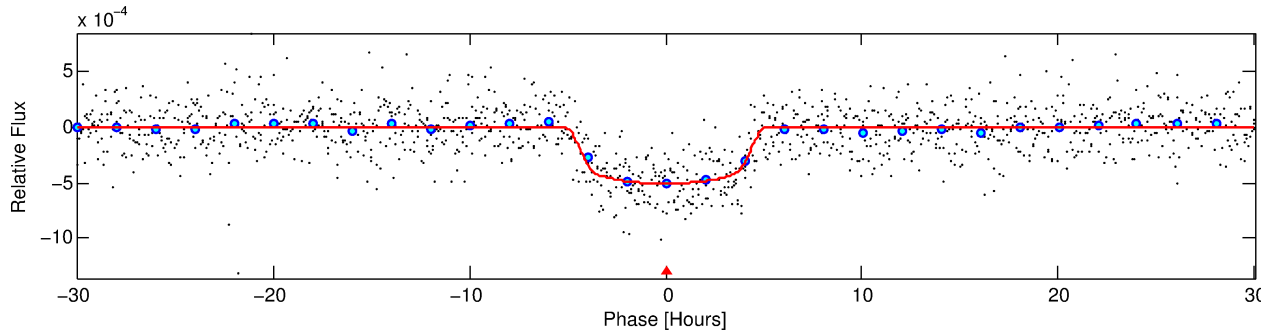
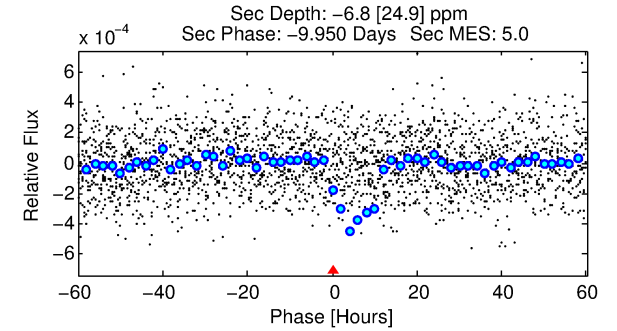
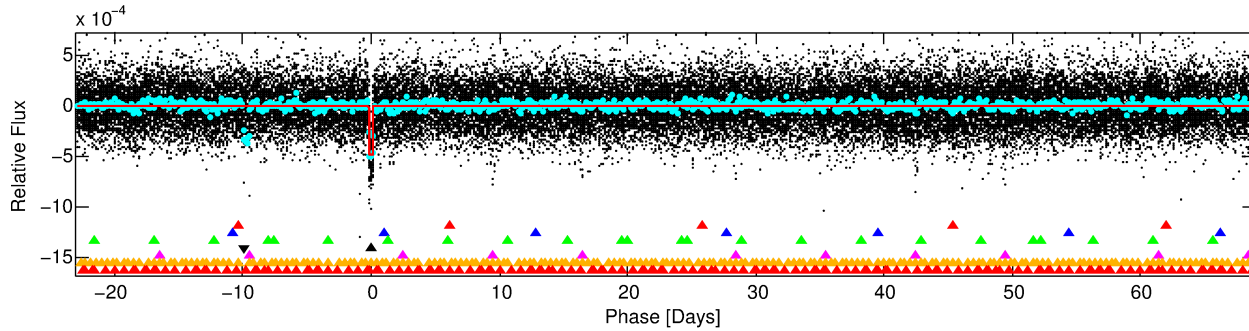
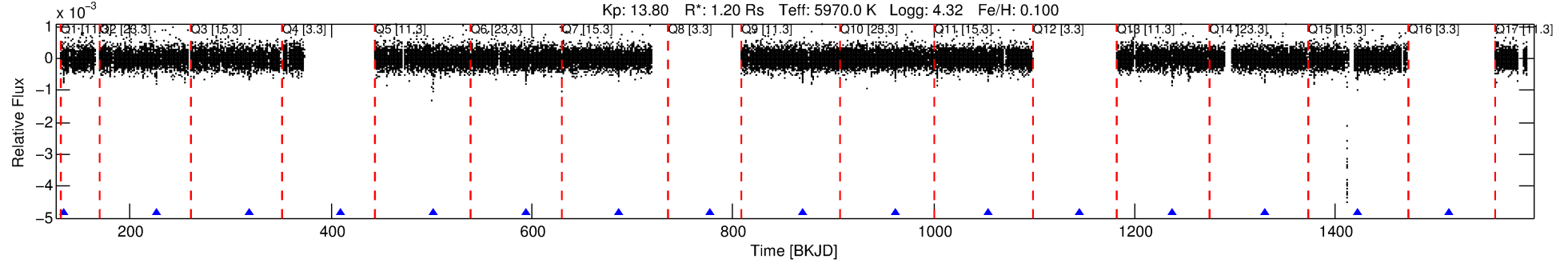
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-04

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 4 of 7 Period: 91.939 d
KOI: K00351.04 Name: Kepler-90e Corr: 0.950



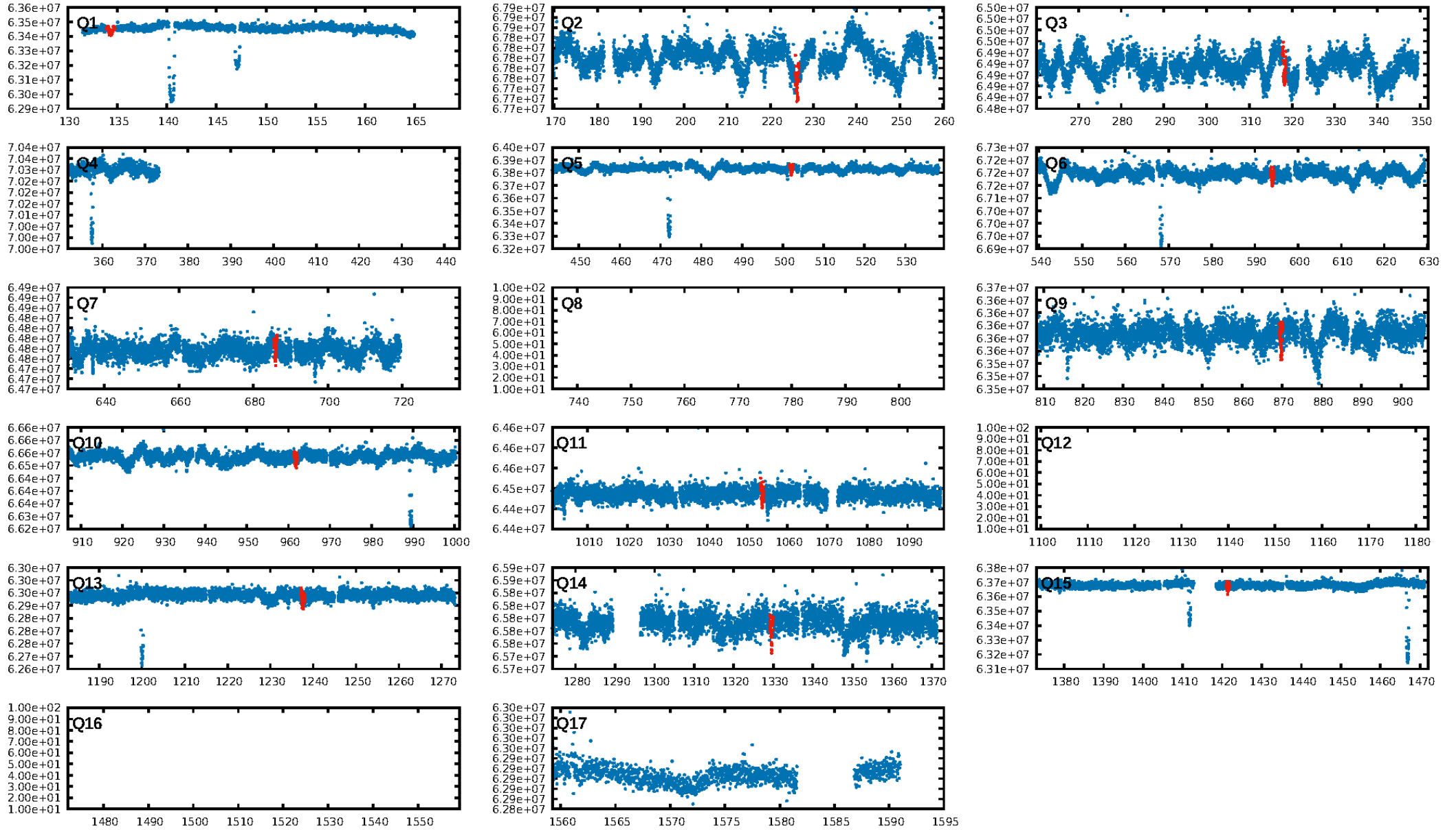
DV Fit Results:

Period = 91.93950 [0.00070] d
Epoch = 134.3065 [0.0057] BKJD
Rp/R* = 0.0246 [0.0010]
a/R* = 33.44 [5.50]
b = 0.91 [0.03]
Seff = 9.73 [2.26]
Teq = 450 [26] K
Rp = 3.22 [0.54] Re
a = 0.4103 [0.0586] AU
Ag = N/A
Teffp = N/A

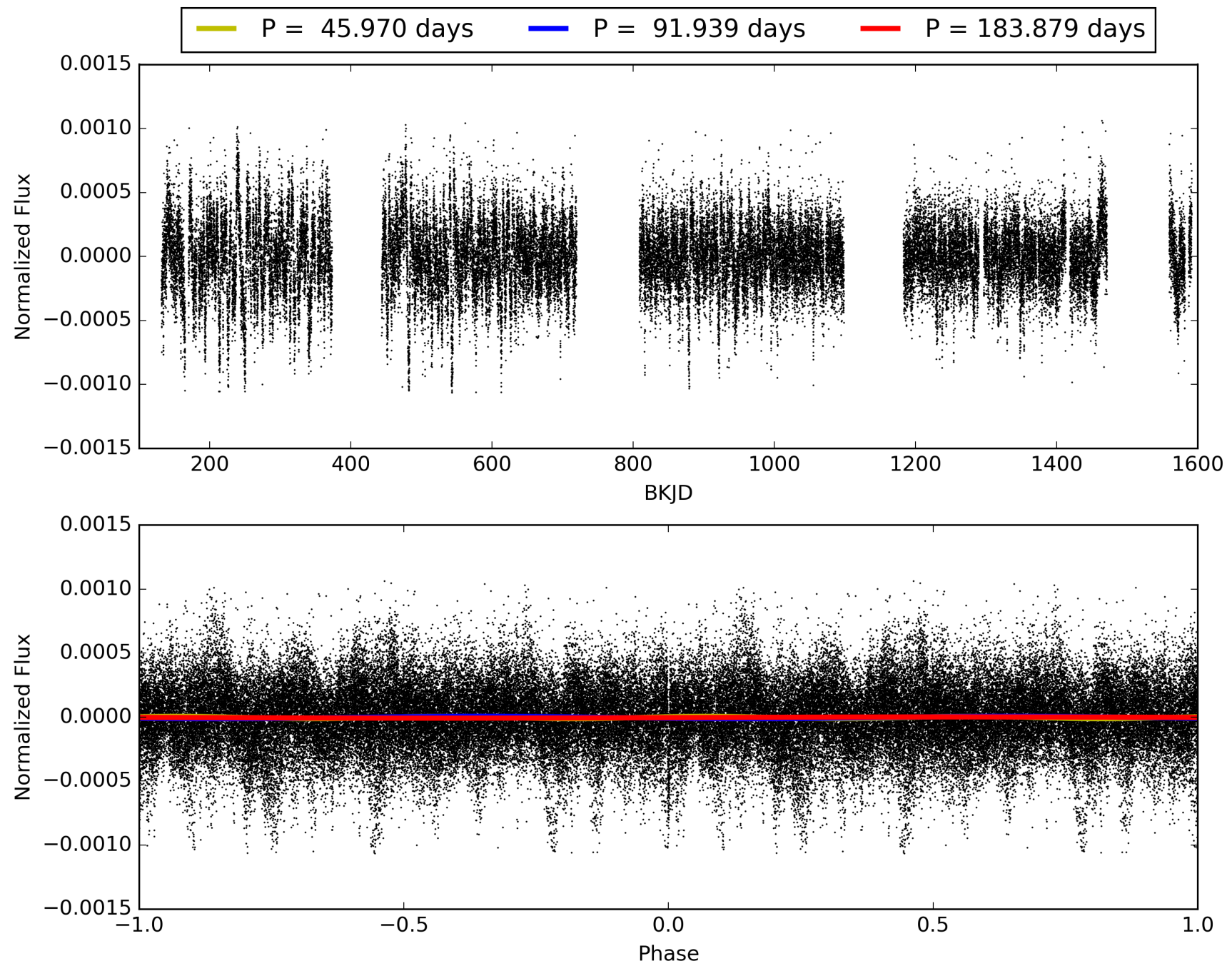
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.69σ]
LongPeriod-sig: 100.0% [51.26σ]
ModelChiSquare2-sig: 60.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.06e-100
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 6.066
Centroid-sig: 7.5%
Centroid-so: 0.799 arcsec [1.82σ]
OotOffset-rm: 1.279 arcsec [2.86σ]
KicOffset-rm: 1.354 arcsec [3.13σ]
OotOffset-st: 3/4/0/4 [11]
KicOffset-st: 3/4/0/4 [11]
DiffImageQuality-fgm: 0.91 [10/11]
DiffImageOverlap-fno: 0.50 [6/12]

TCE 011442793-04, PDC Light Curves

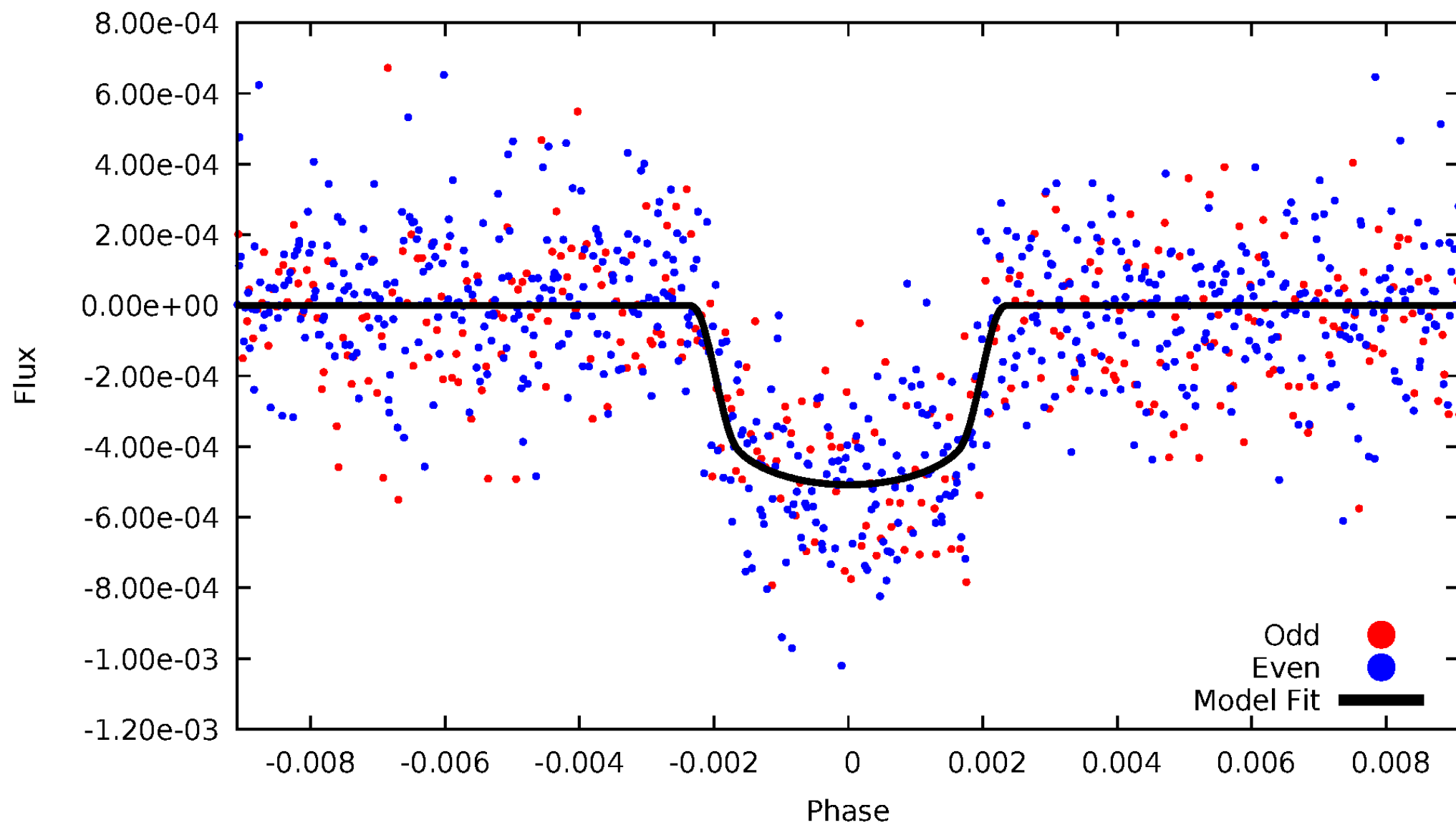


TCE 011442793-04



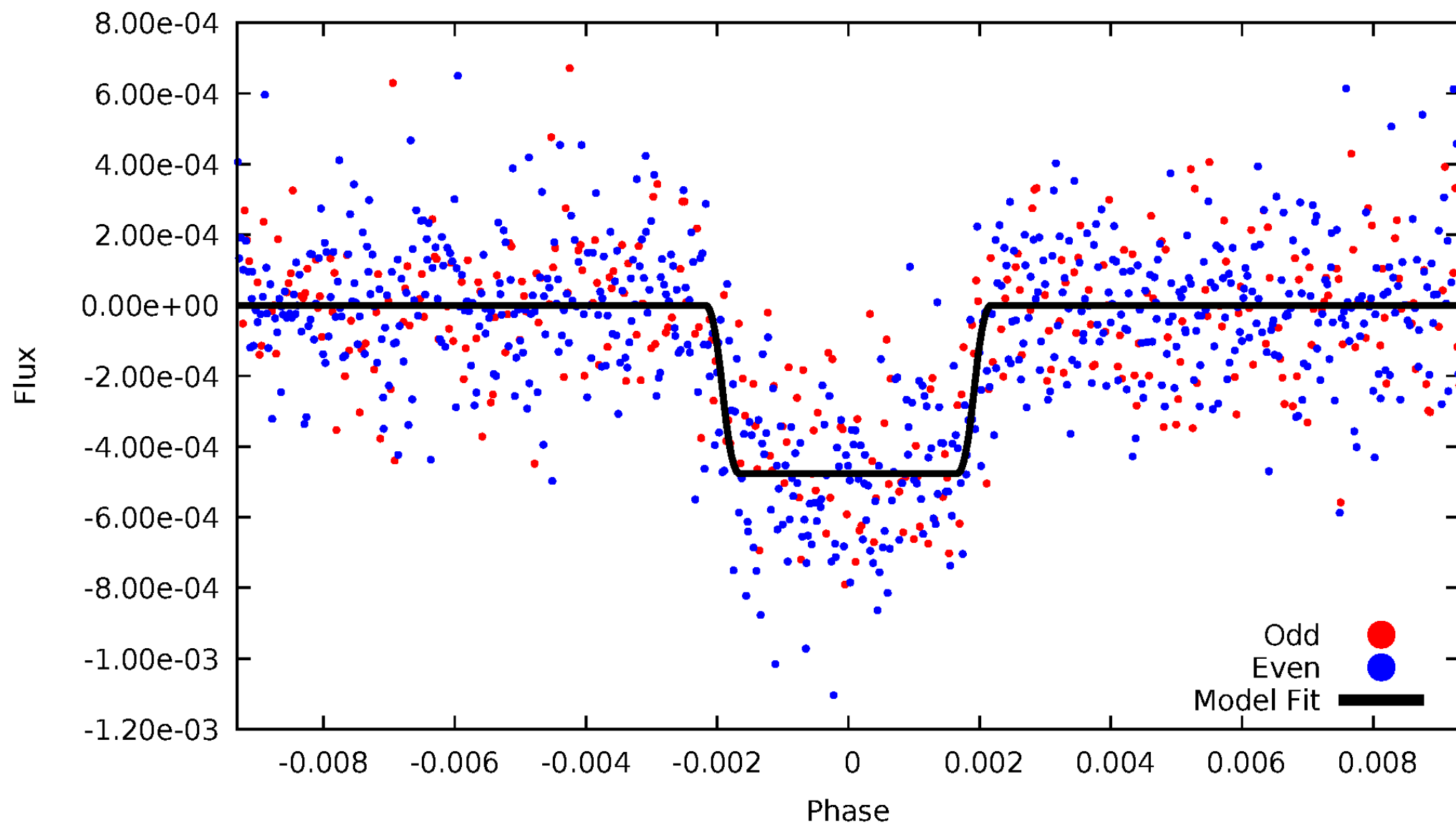
DV Odd/Even

TCE 011442793-04



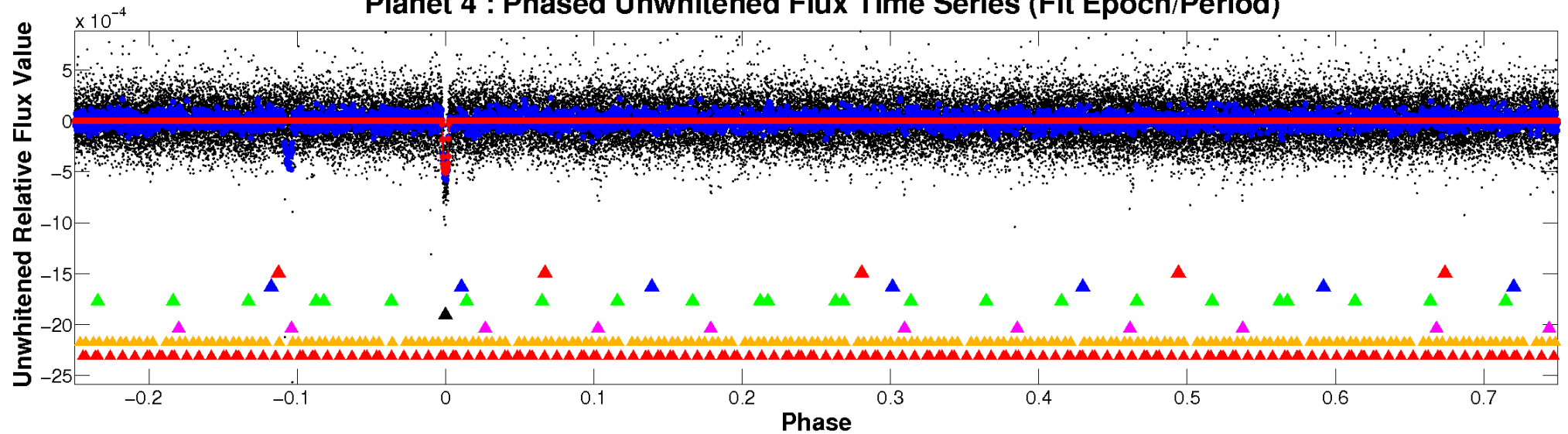
ALT Odd/Even

TCE 011442793-04

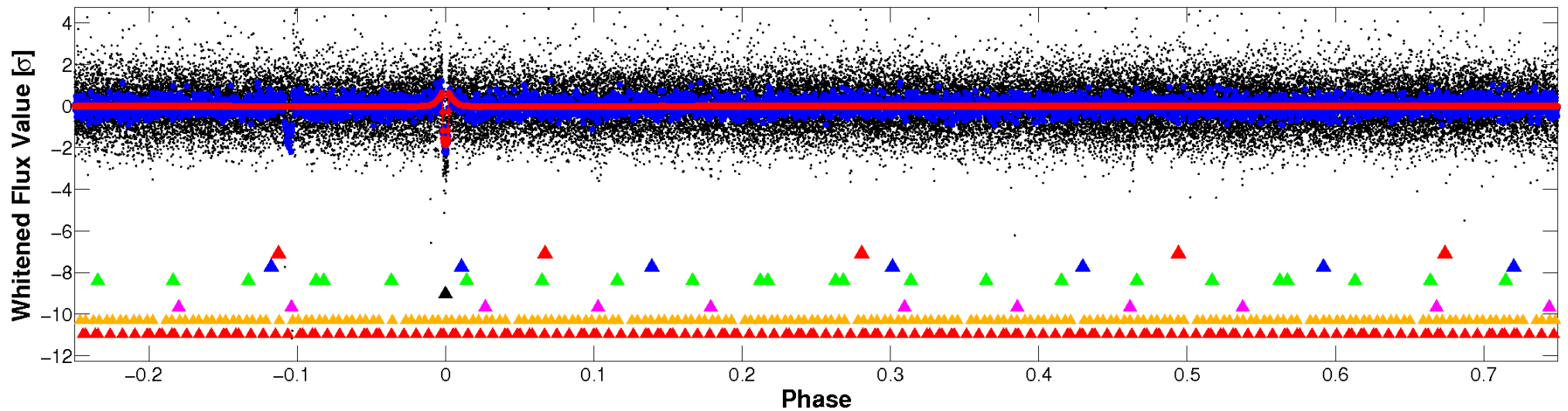


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

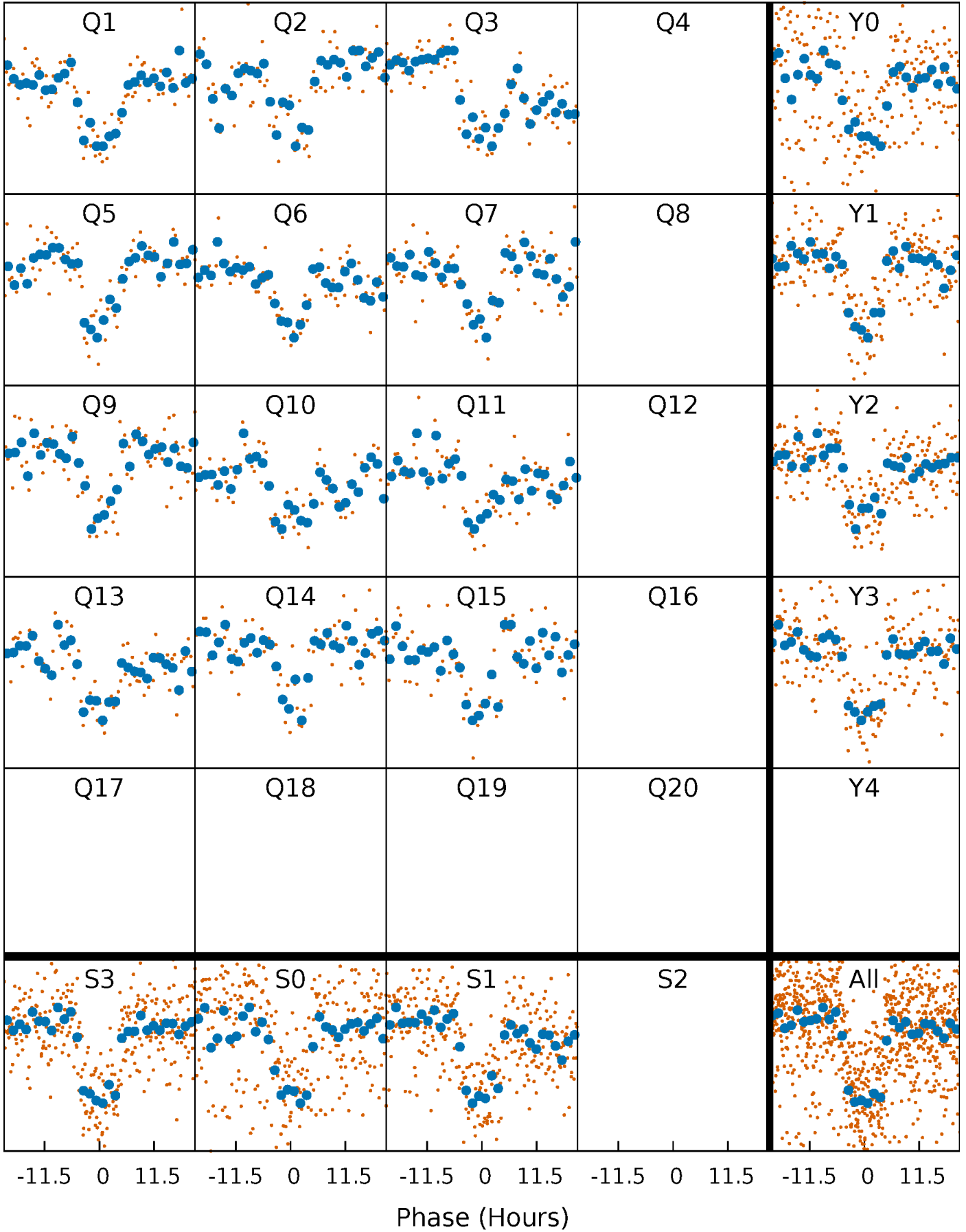


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



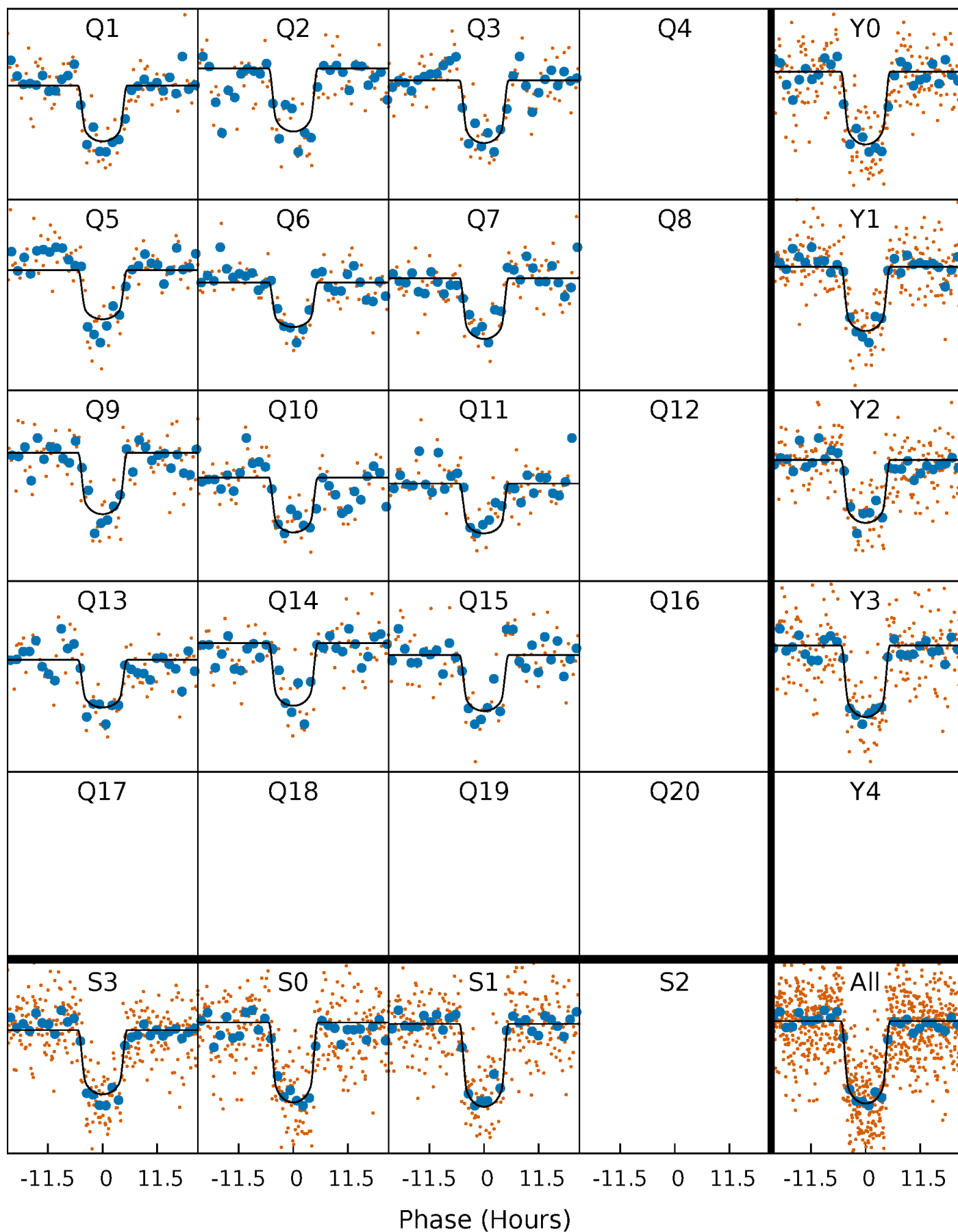
PDC Quarter-Phased Transit Curves

TCE 011442793-04 P= 91.939496 Days $T_0=134.306521$ (BKJD)



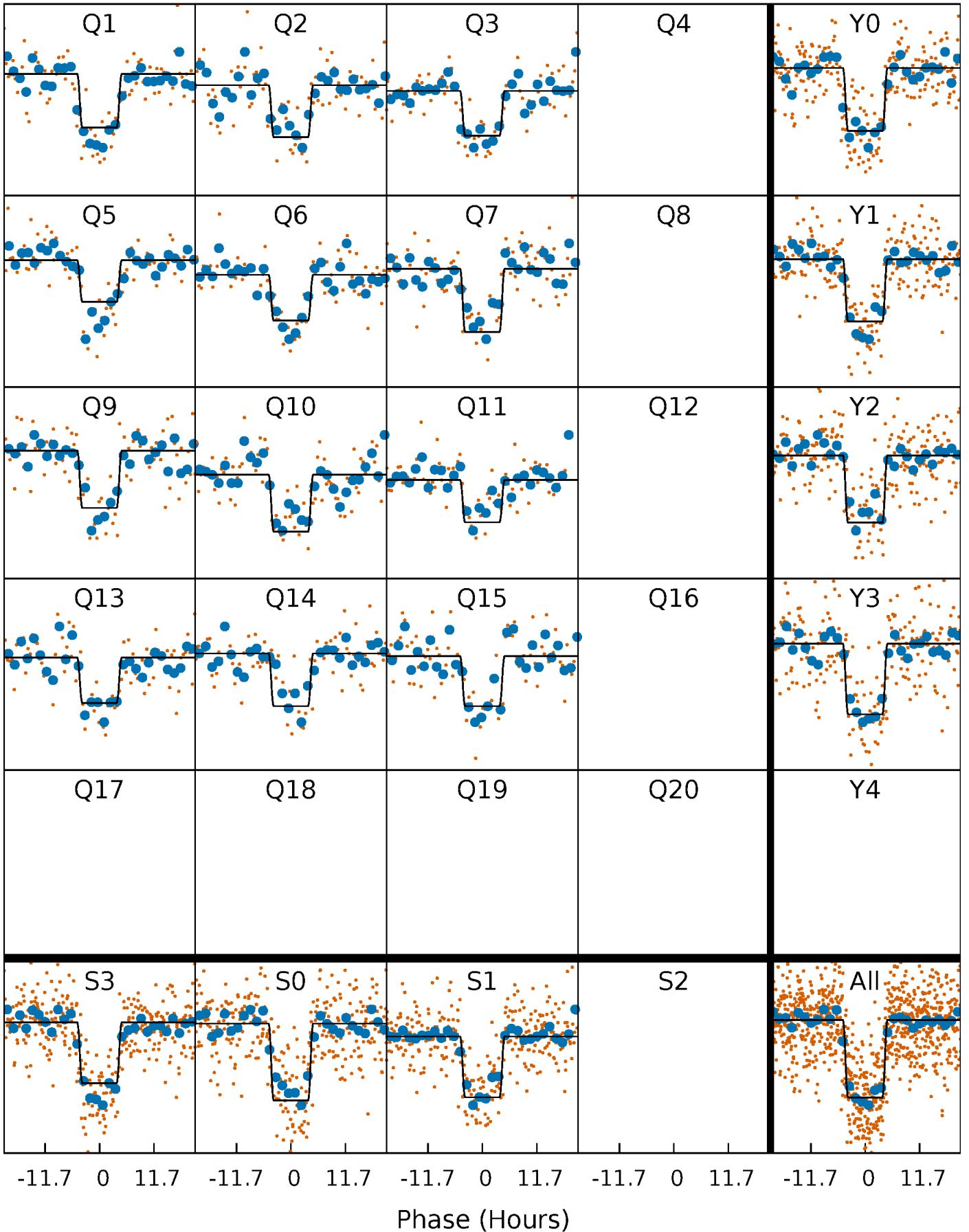
DV Quarter-Phased Transit Curves

TCE 011442793-04 P= 91.939496 Days $T_0=134.306521$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

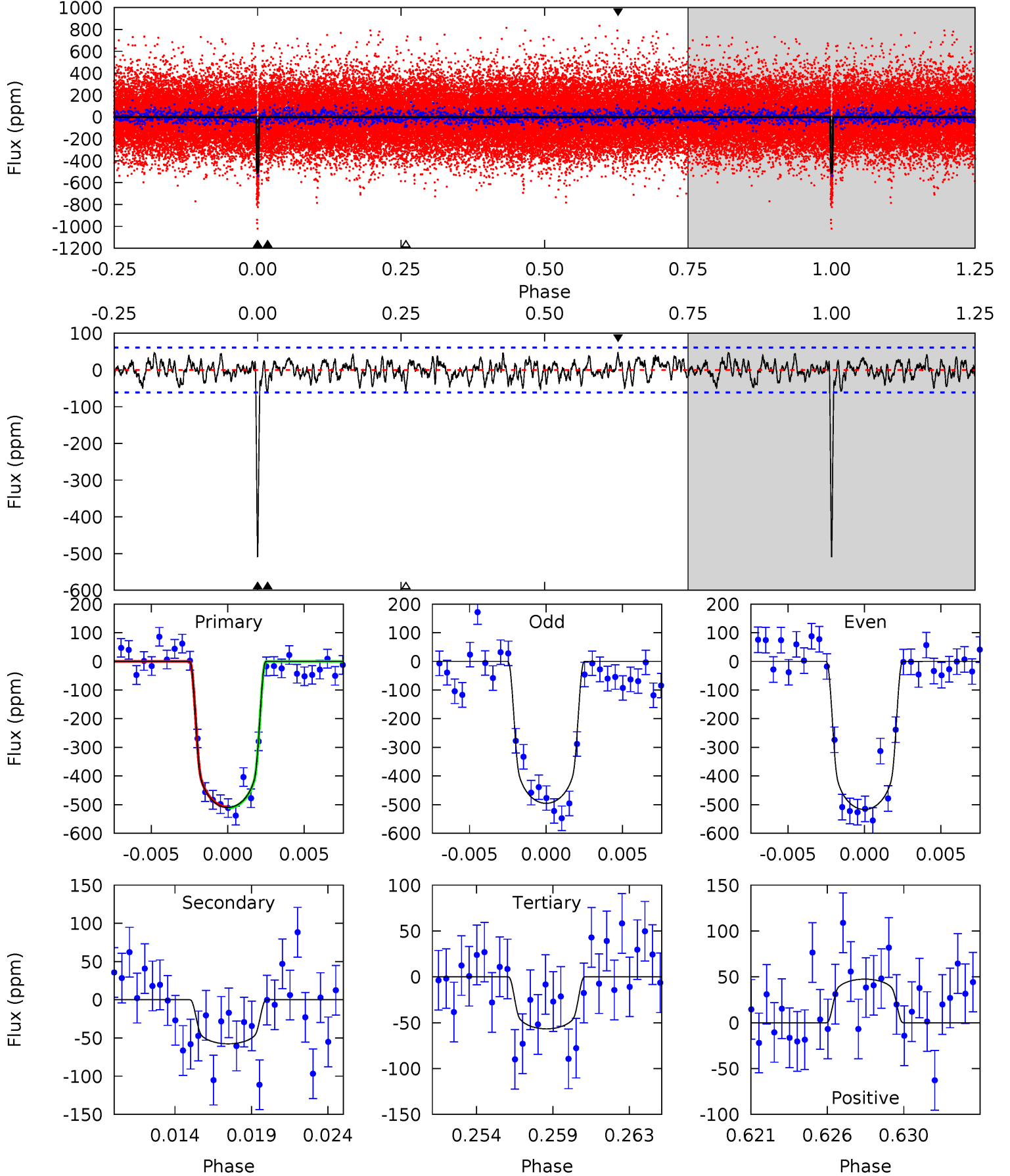
TCE 011442793-04 P= 91.936587 Days $T_0=134.329618$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-04, P = 91.939496 Days, E = 42.367025 Days

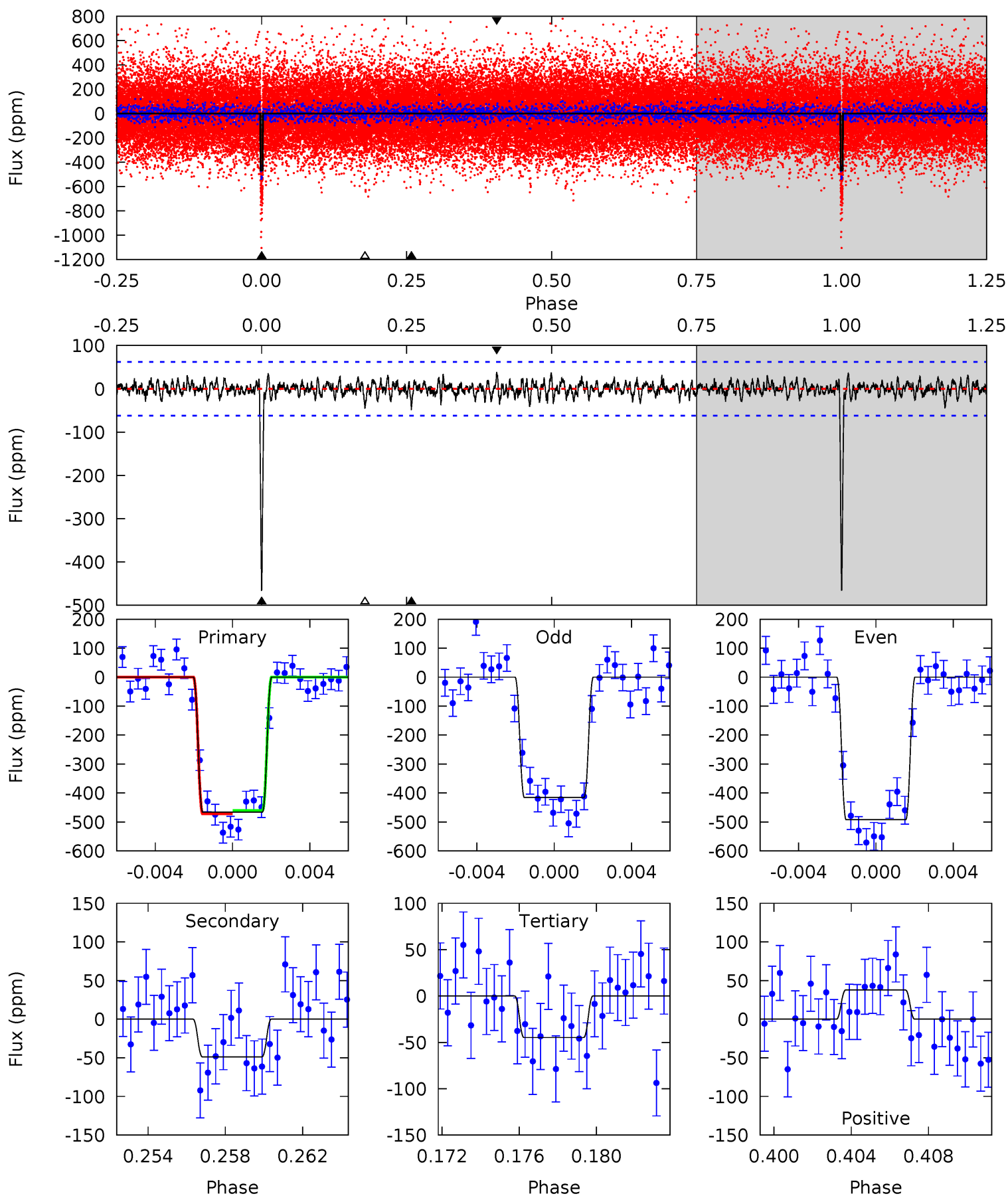
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 43.1 | 4.87 | 4.80 | 4.02 | 5.17 | 2.83 | 1.63 | 38.3 | 39.1 | 0.08 | 0.86 | 0.86 | 0.99 | 0.09 | 0.15 |



Alt Model-Shift Uniqueness Test

011442793-04, P = 91.936587 Days, E = 42.393031 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 39.0 | 4.08 | 3.75 | 3.16 | 5.19 | 2.86 | 1.03 | 35.3 | 35.9 | 0.33 | 0.91 | 3.05 | 0.97 | 0.07 | 0.50 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-04 / KOI 0351.04

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|-------------------|----------------------|---------------------|
| DV | -58 ± 12 | $3.22^{+0.34}_{-0.28}$ | 629^{+30}_{-27} | 3715^{+153}_{-137} | 513^{+150}_{-129} |
| Alt. | -49 ± 12 | $2.87^{+0.30}_{-0.26}$ | 632^{+28}_{-28} | 3766^{+174}_{-188} | 544^{+189}_{-158} |

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

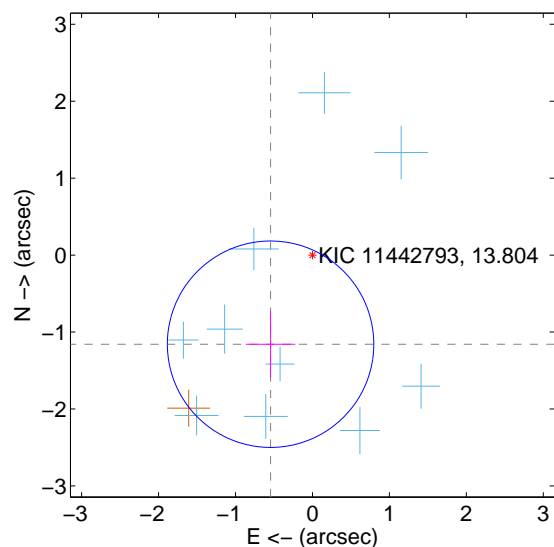
Supplemental centroid analysis for 011442793-04. Kepler magnitude: 13.80. Transit SNR 25.11

There are 10 quarters with good PRF difference image offsets

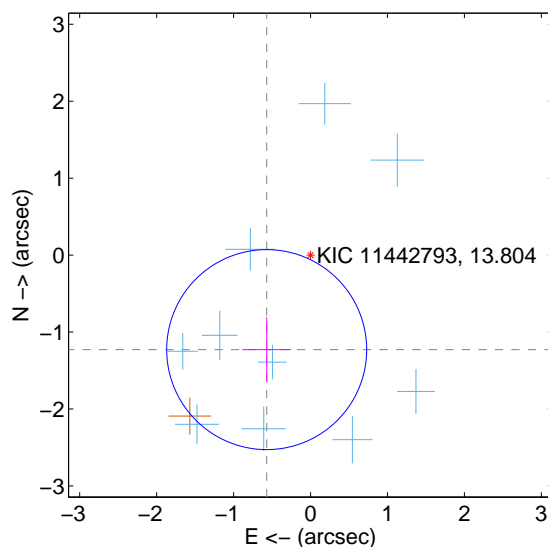
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 1.279 ± 0.447 | 2.86 | 0.544 ± 0.321 | -1.158 ± 0.430 |
| PRF-fit source offset from KIC position | 1.354 ± 0.433 | 3.13 | 0.570 ± 0.317 | -1.228 ± 0.422 |
| photometric centroid source offset | 0.80 ± 0.44 | 1.82 | -0.79 ± 0.44 | -0.13 ± 0.45 |

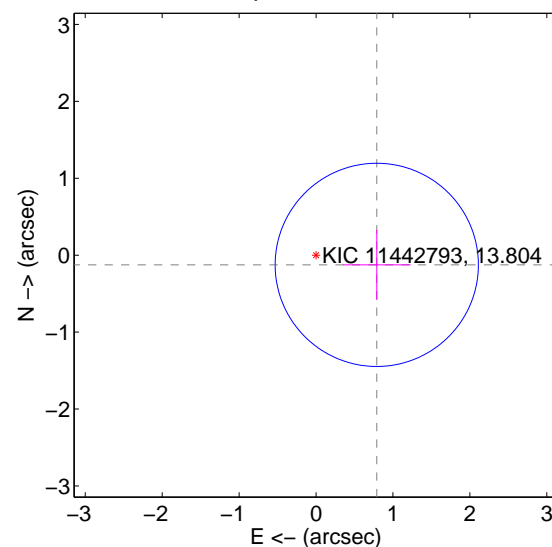
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

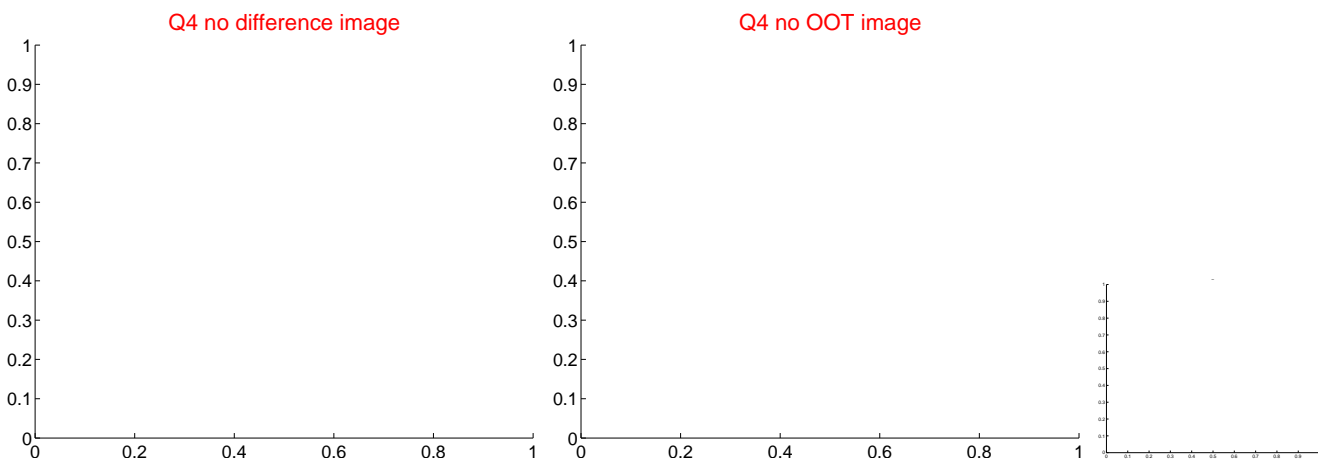
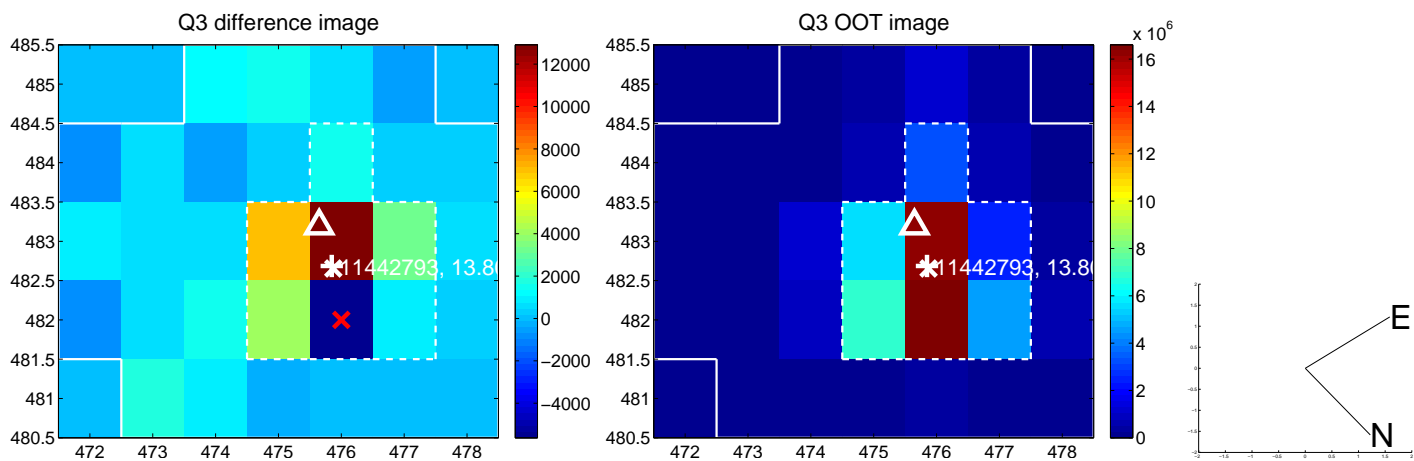
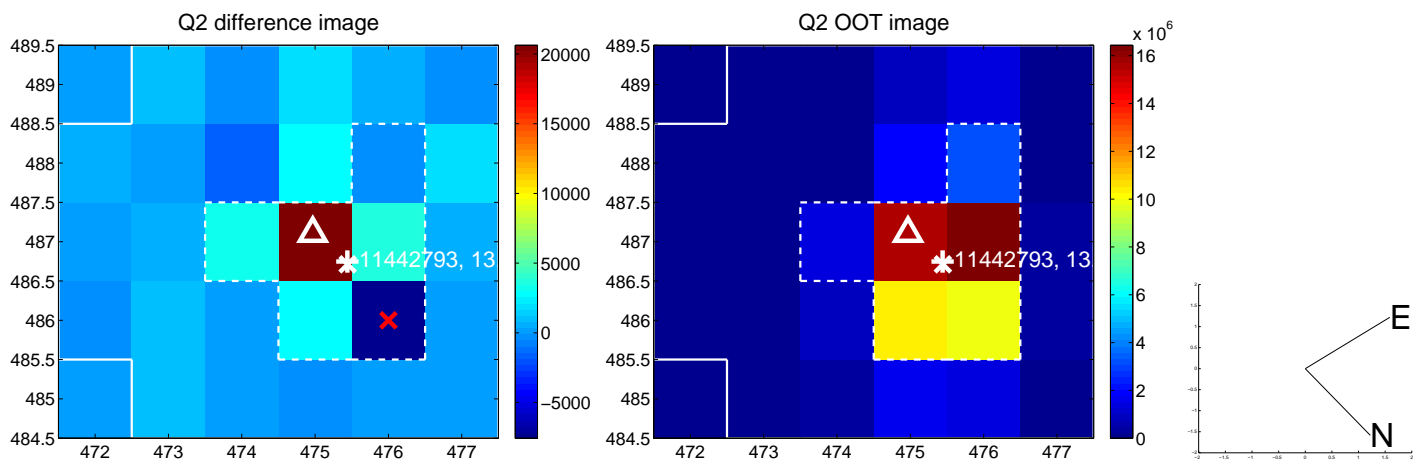
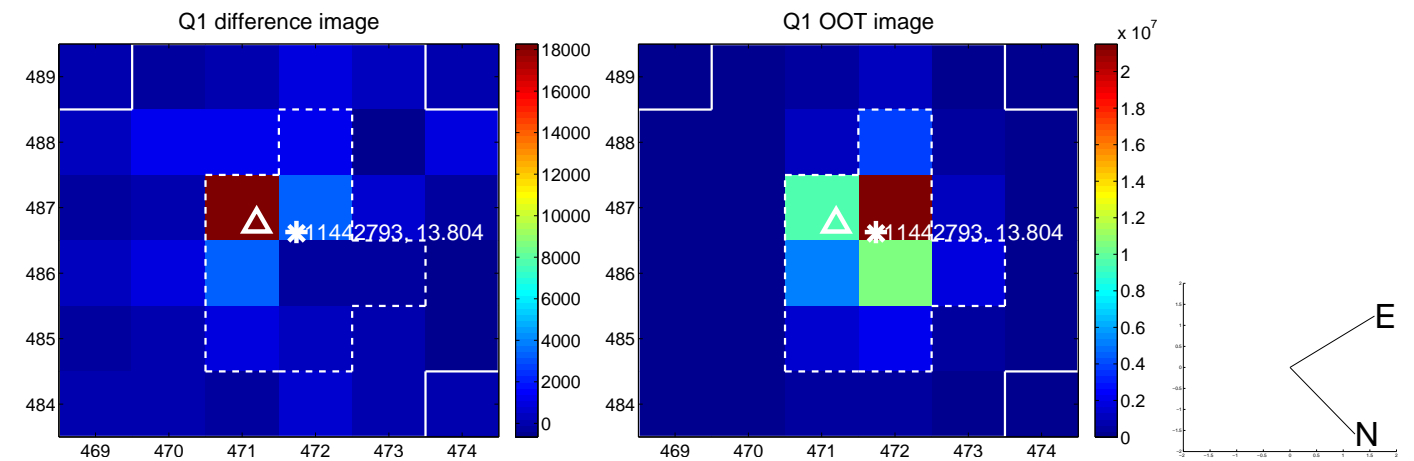


offset from photometric centroids

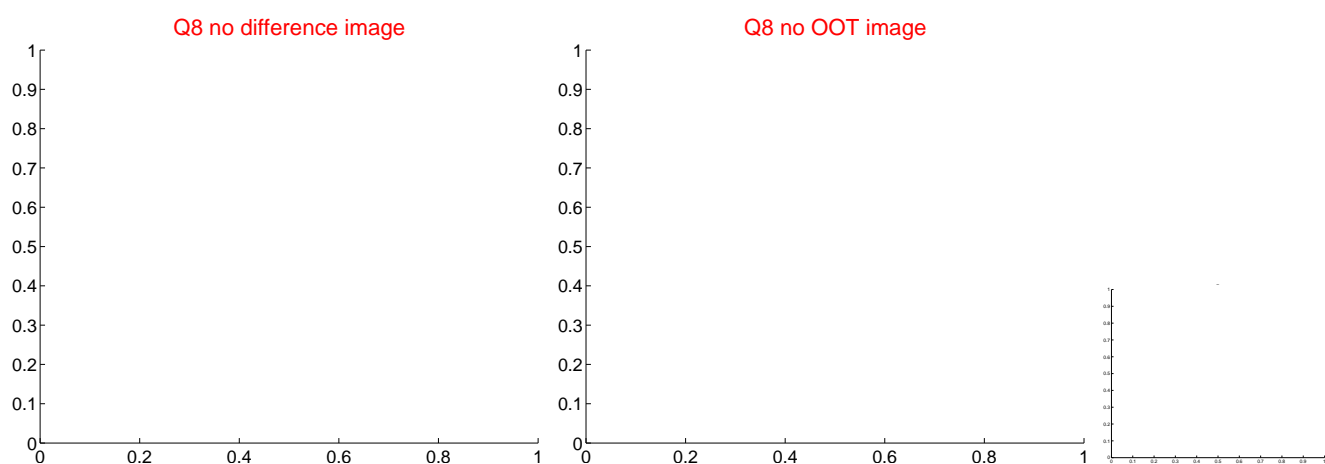
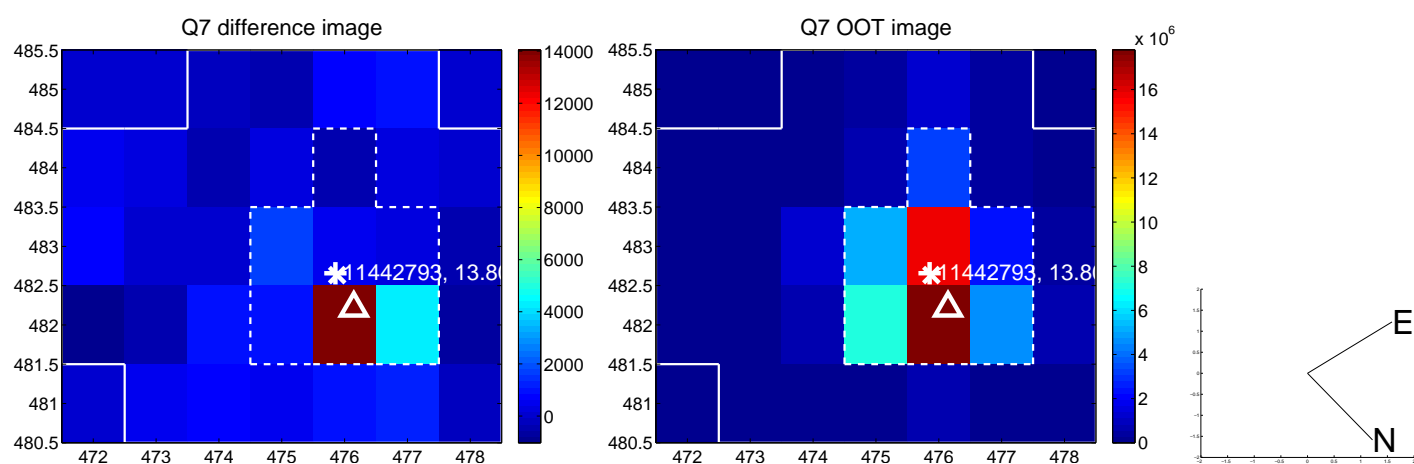
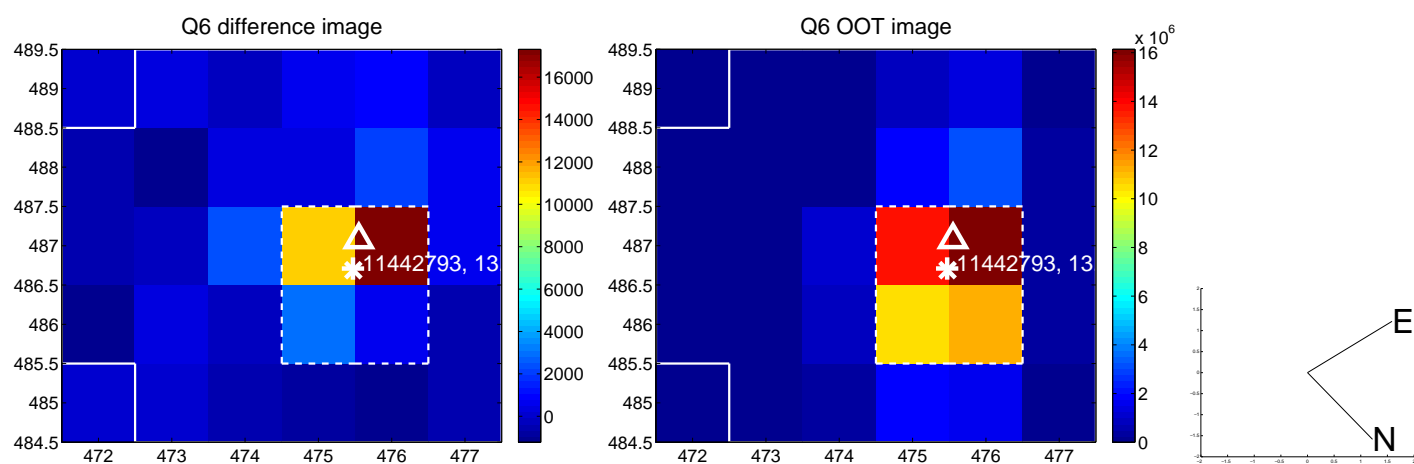
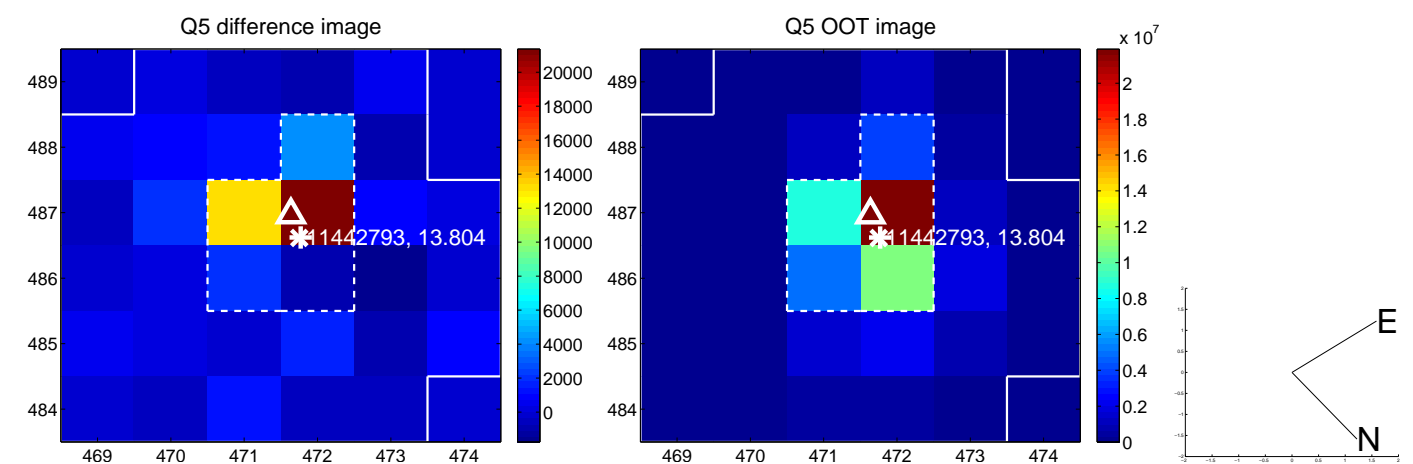


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

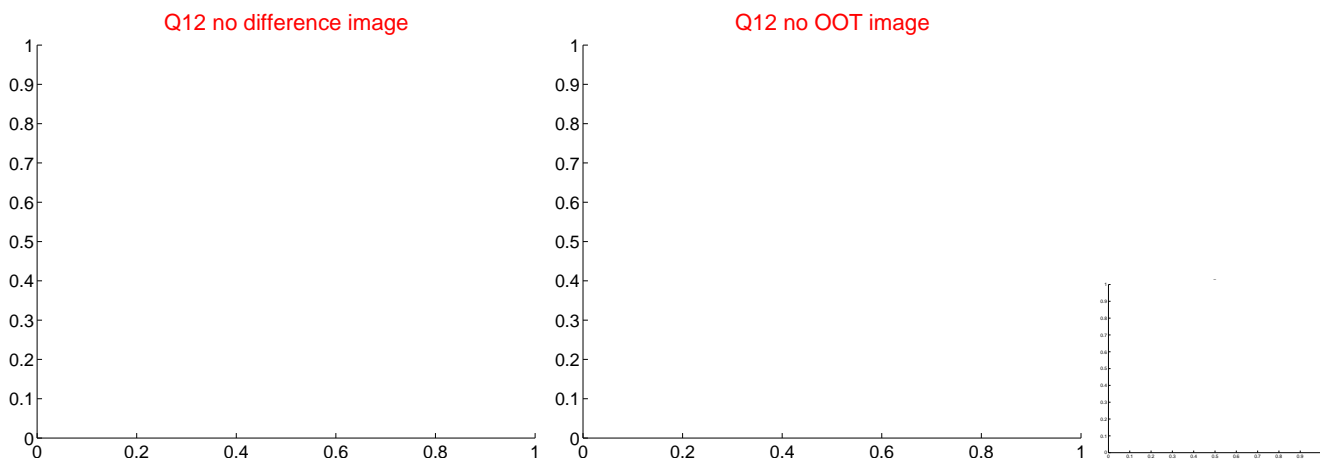
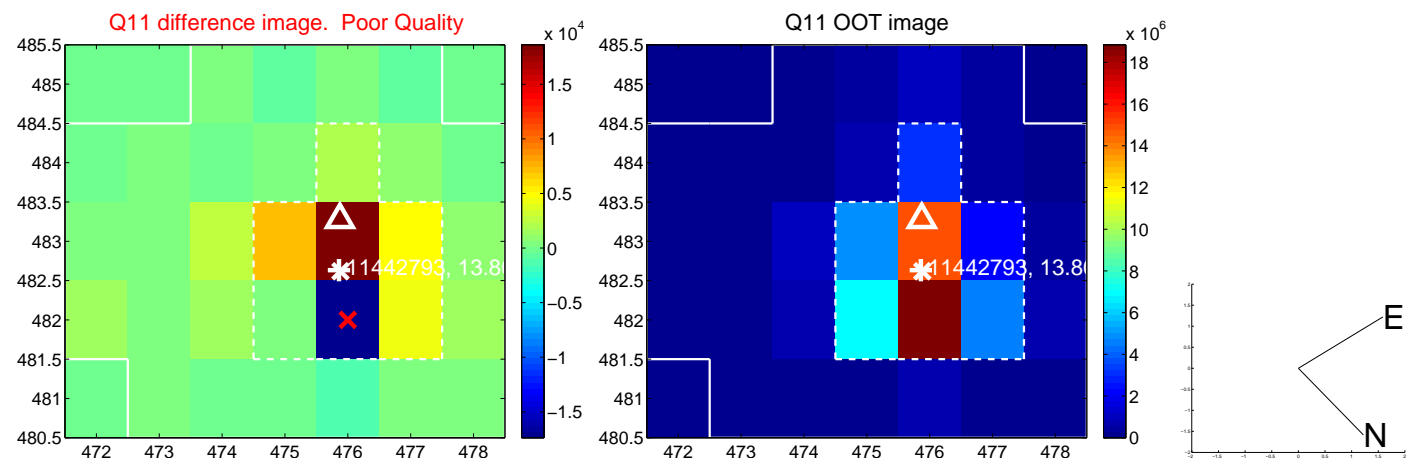
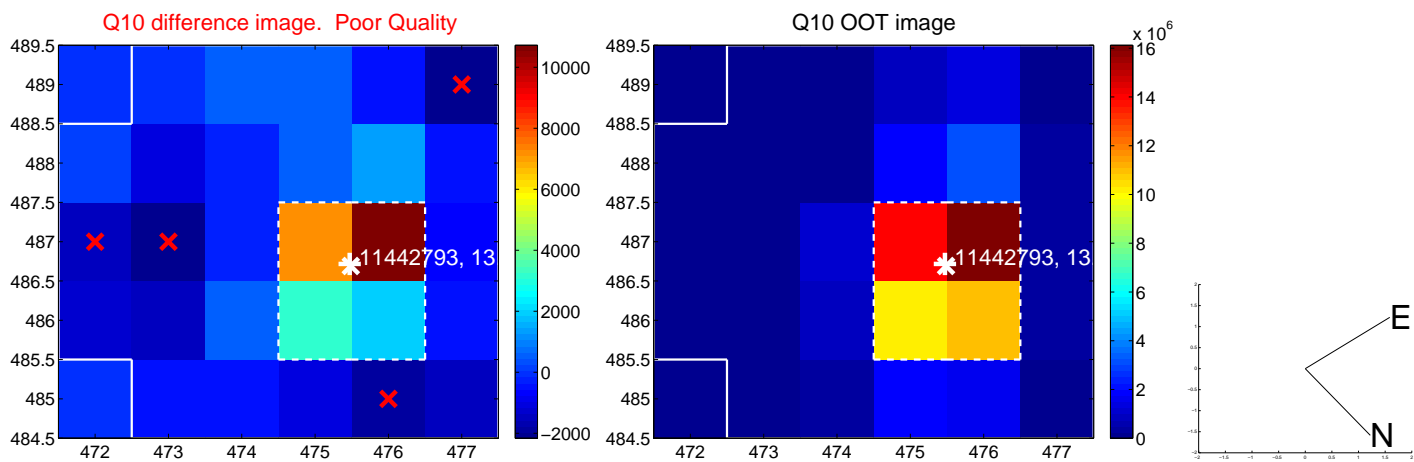
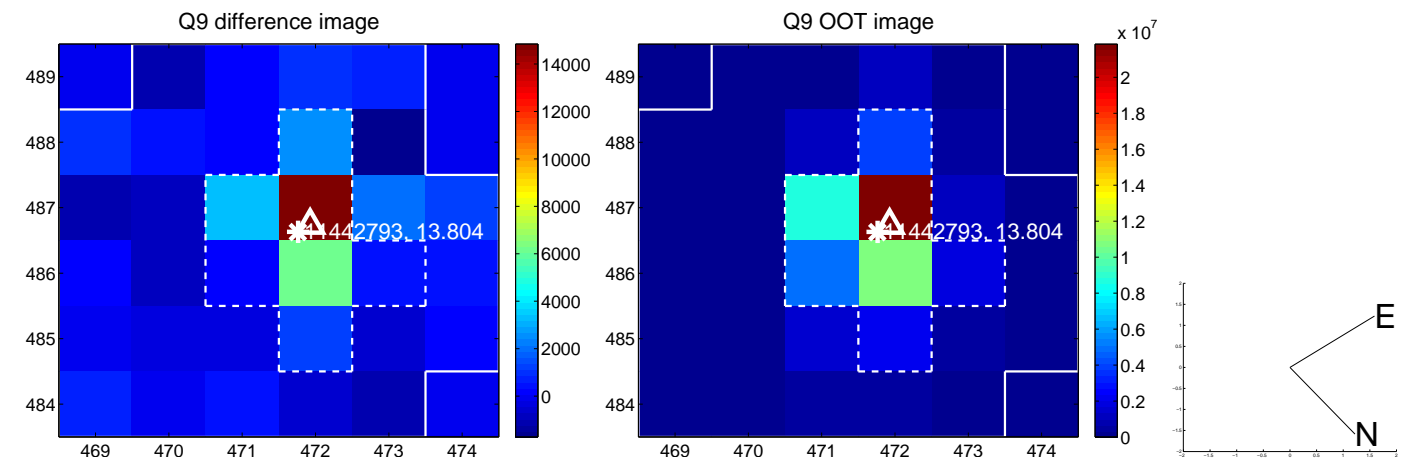
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



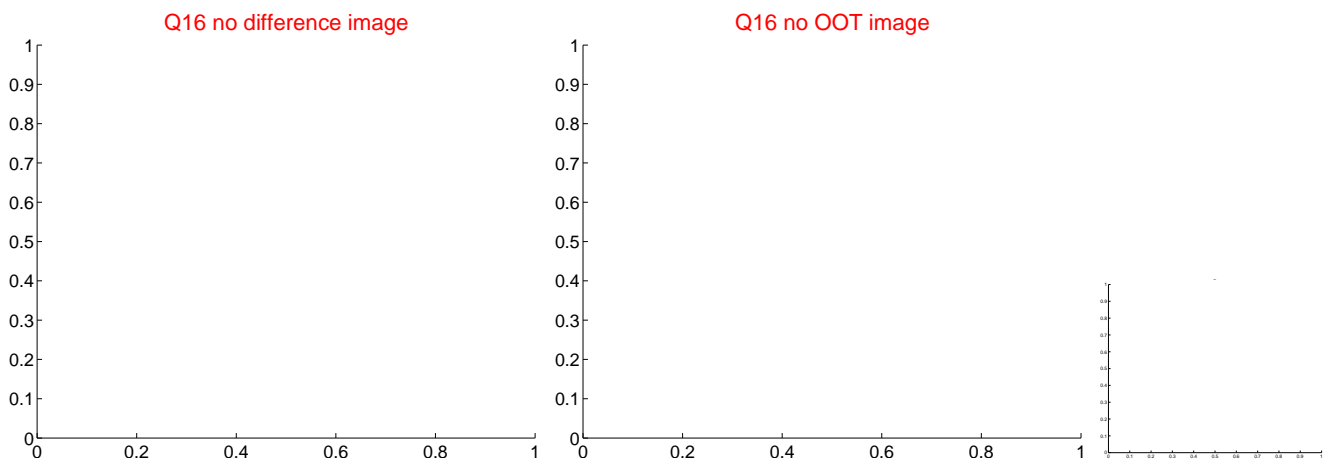
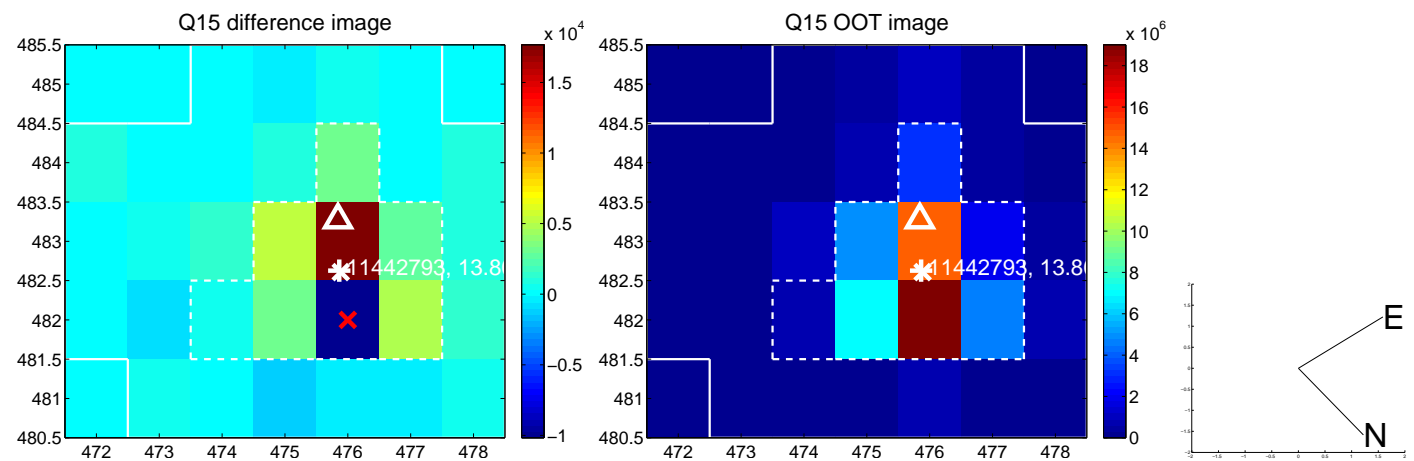
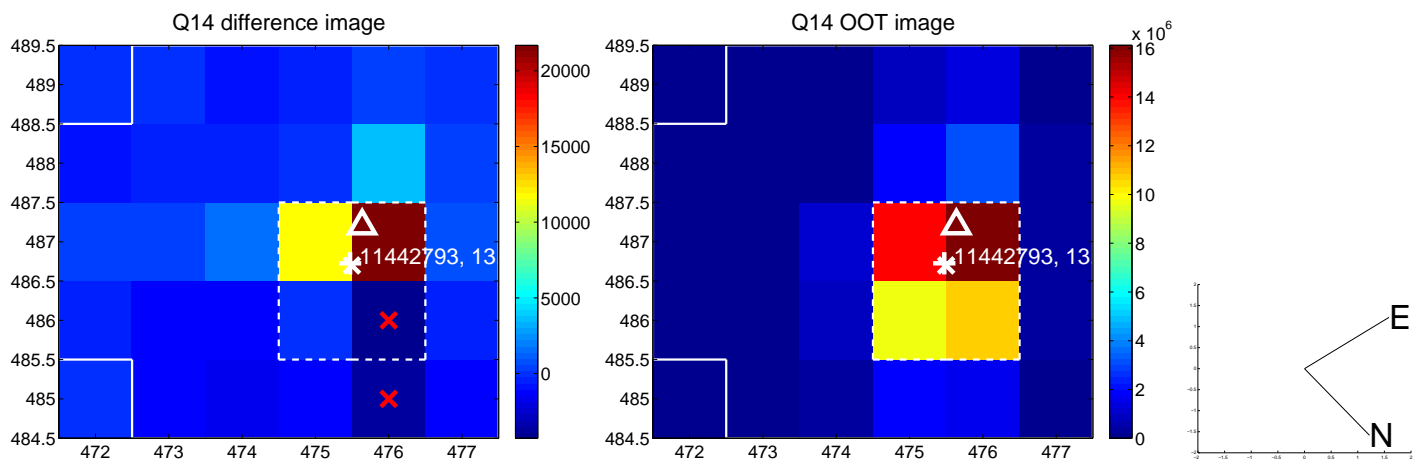
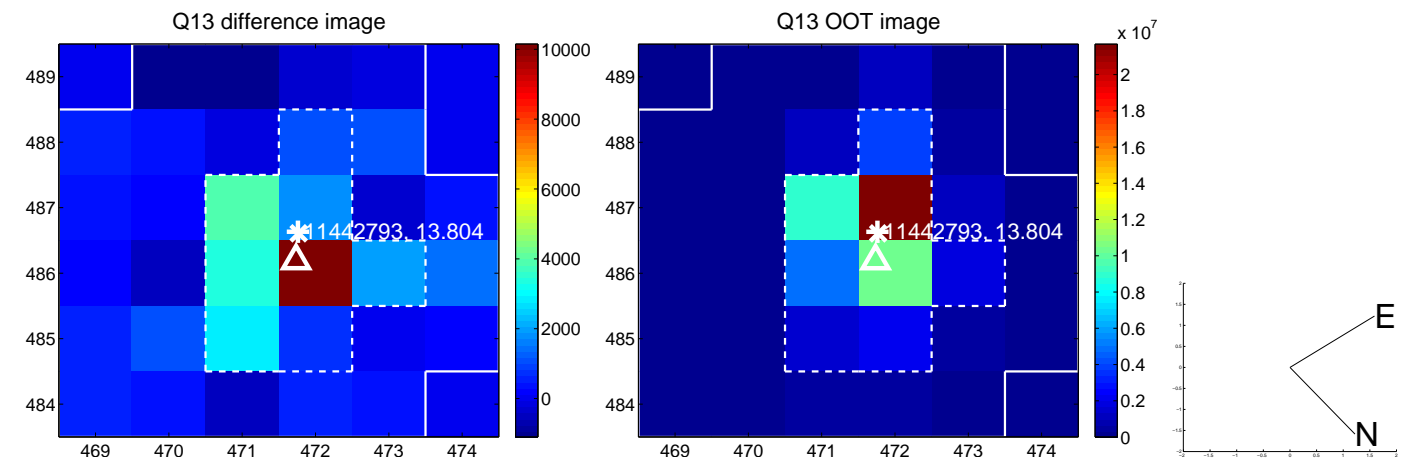
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



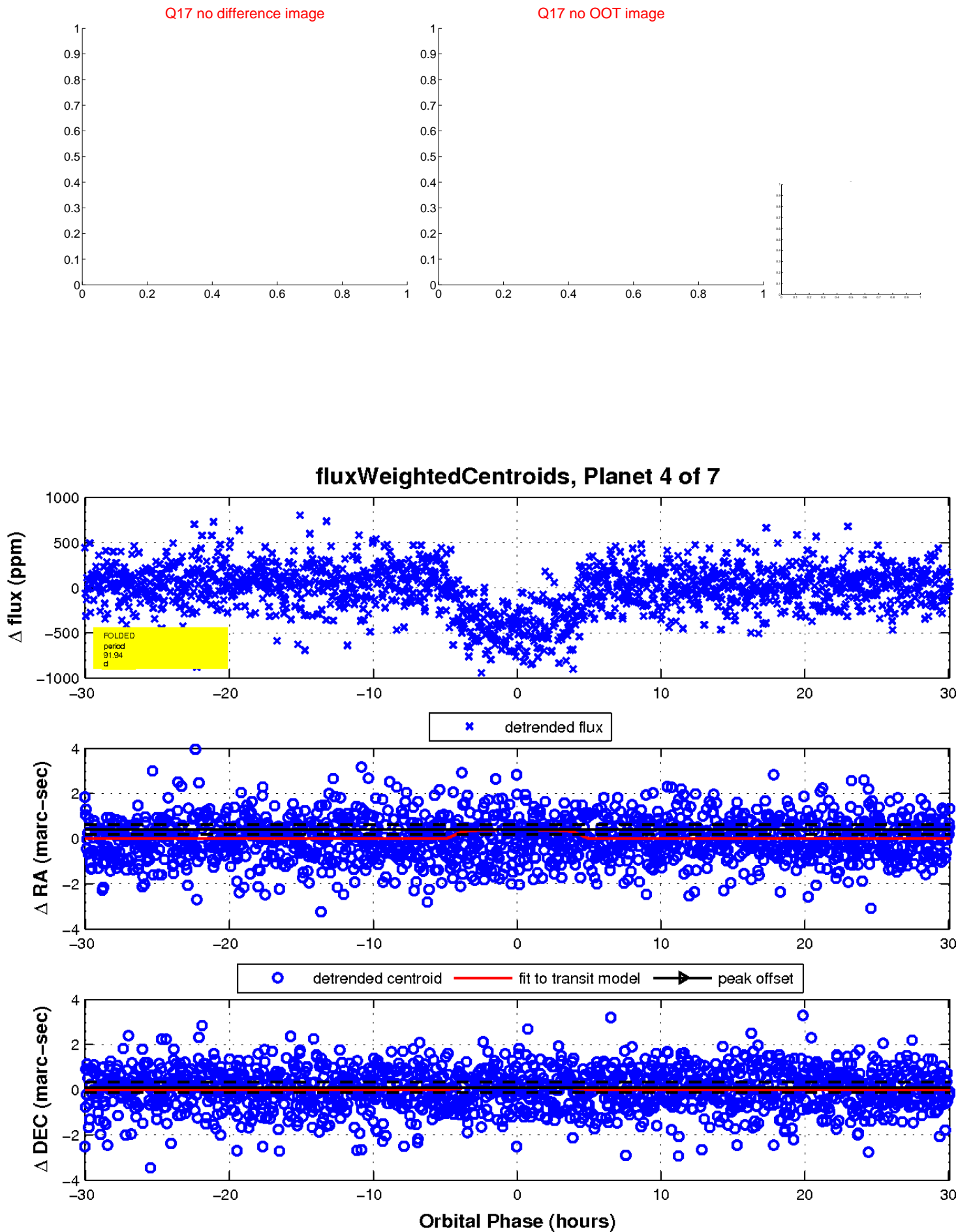
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

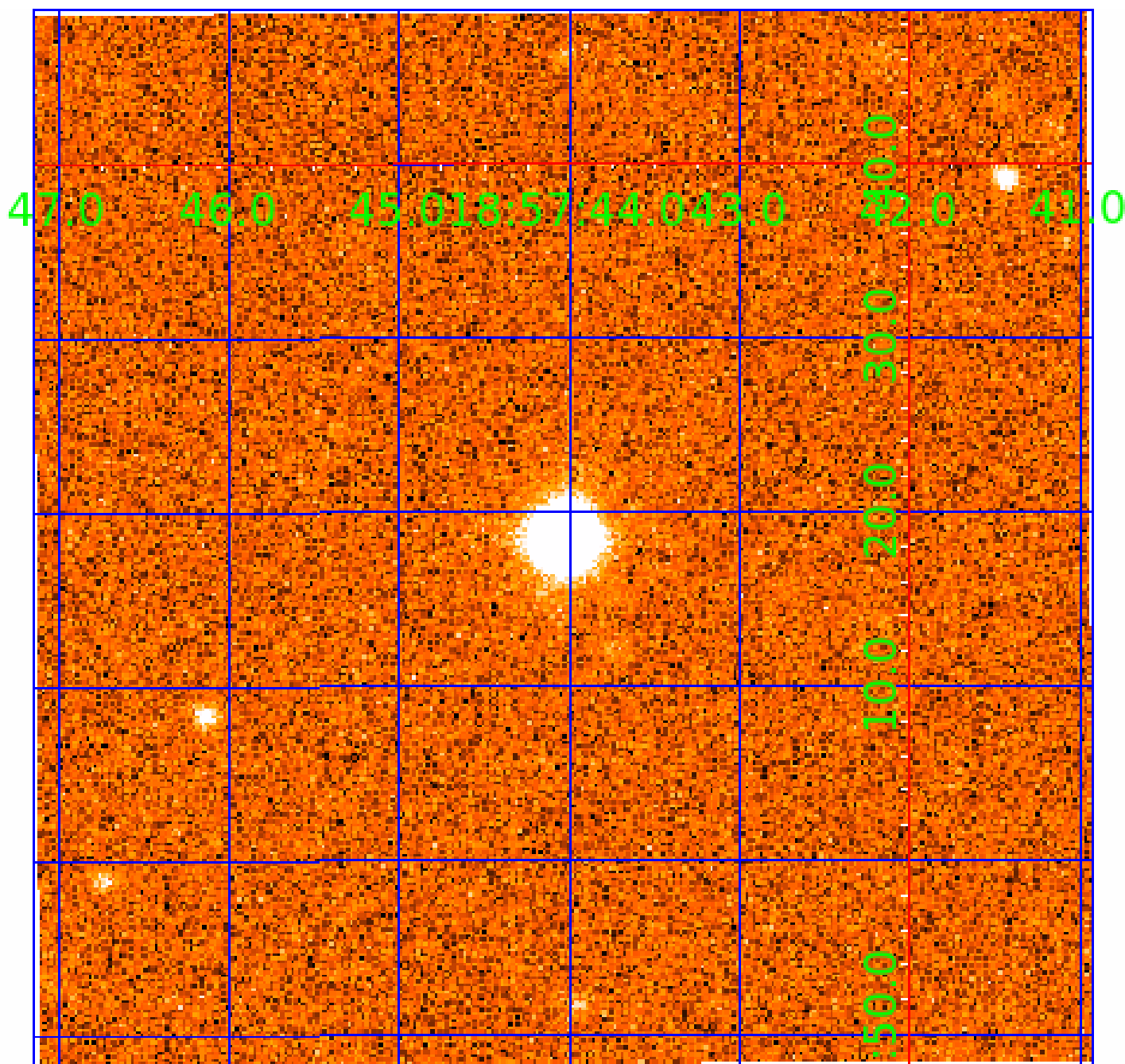


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011442793

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 011442793-01 | OBS | 0351.01 | 331.603305 | 140.479505 | 8353.3 | 14.486 | 249.1 | 233.3 | 1.20 | 5970 | 10.96 | 1.76 |
| 011442793-02 | OBS | 0351.02 | 210.593472 | 147.099243 | 4164.3 | 12.058 | 101.8 | 121.8 | 1.20 | 5970 | 7.69 | 3.22 |
| 011442793-03 | OBS | 0351.03 | 59.736918 | 158.962394 | 563.2 | 8.537 | 29.1 | 30.2 | 1.20 | 5970 | 3.25 | 17.30 |
| 011442793-04 | OBS | 0351.04 | 91.939496 | 134.306521 | 507.8 | 10.028 | 24.9 | 25.1 | 1.20 | 5970 | 3.22 | 9.73 |
| 011442793-05 | OBS | 0351.07 | 124.914938 | 254.703976 | 519.5 | 11.738 | 18.2 | 18.9 | 1.20 | 5970 | 3.22 | 6.47 |
| 011442793-06 | OBS | 0351.06 | 7.008208 | 137.674831 | 116.3 | 4.417 | 14.8 | 16.6 | 1.20 | 5970 | 1.67 | 301.14 |
| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

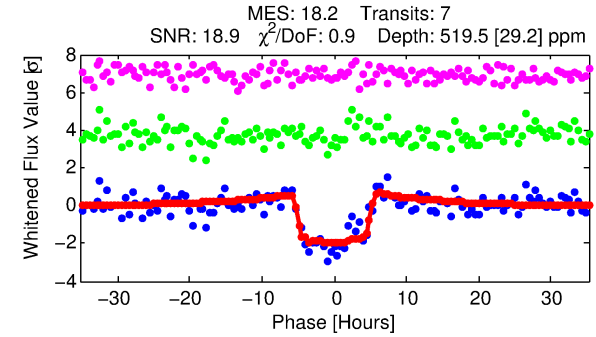
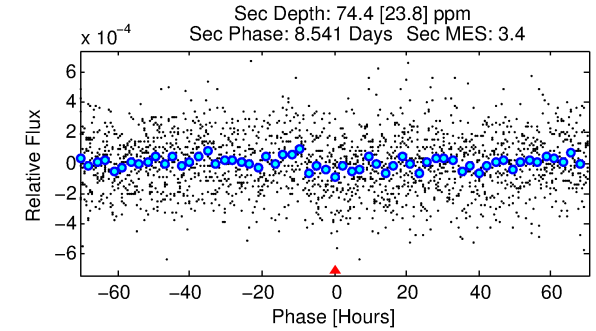
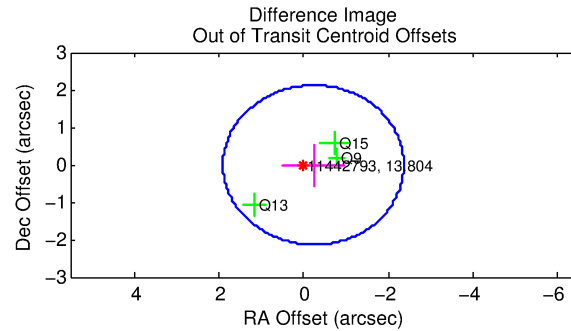
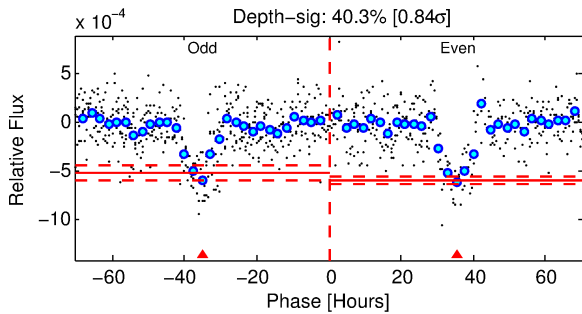
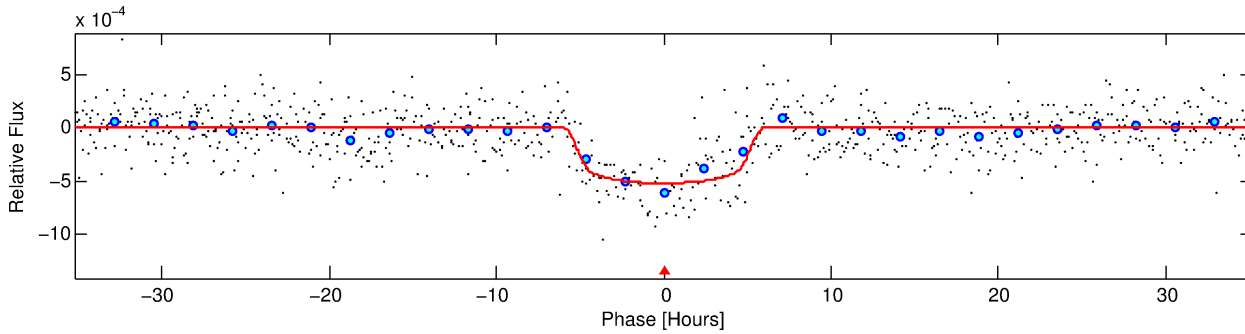
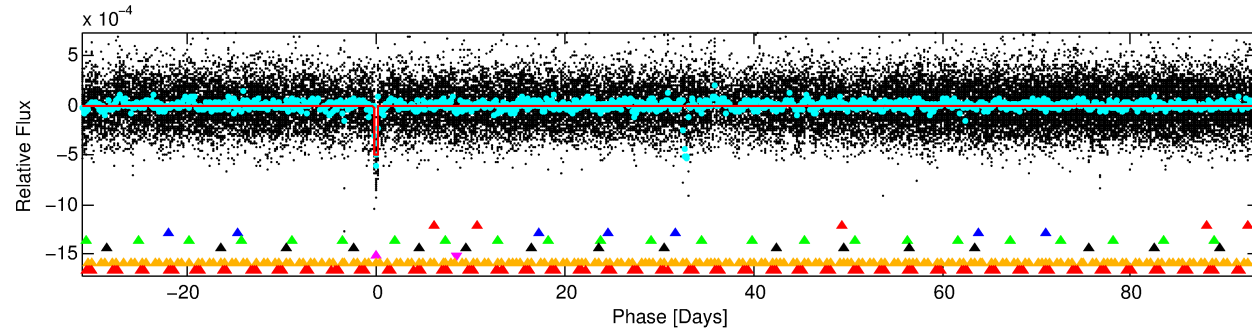
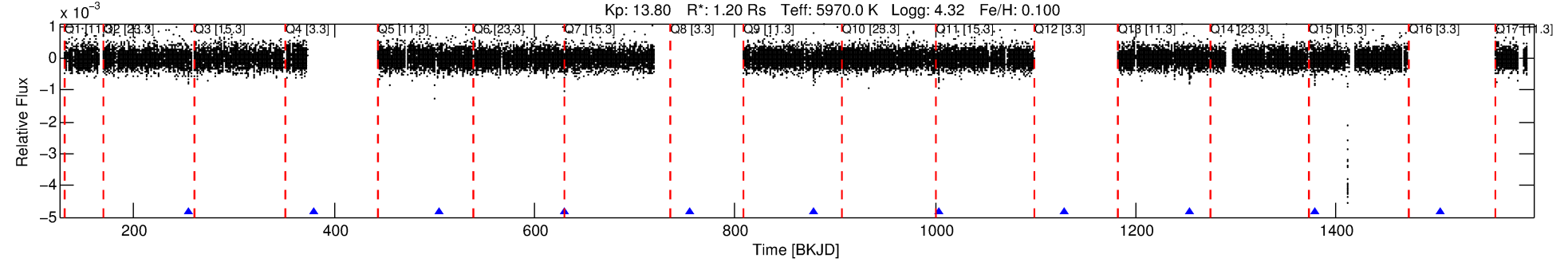
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-05

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 5 of 7 Period: 124.915 d
KOI: K00351.07 Corr: 0.927



DV Fit Results:

Period = 124.91494 [0.00157] d
Epoch = 254.7040 [0.0092] BKJD
Rp/R* = 0.0246 [0.0014]
a/R* = 40.63 [9.59]
b = 0.89 [0.05]
Seff = 6.47 [1.50]
Teq = 407 [24] K
Rp = 3.22 [0.56] Re
a = 0.5034 [0.0718] AU
Ag = 999.11 [403.10] [2.48 σ]
Teffp = 3535 [311] K [10.01 σ]

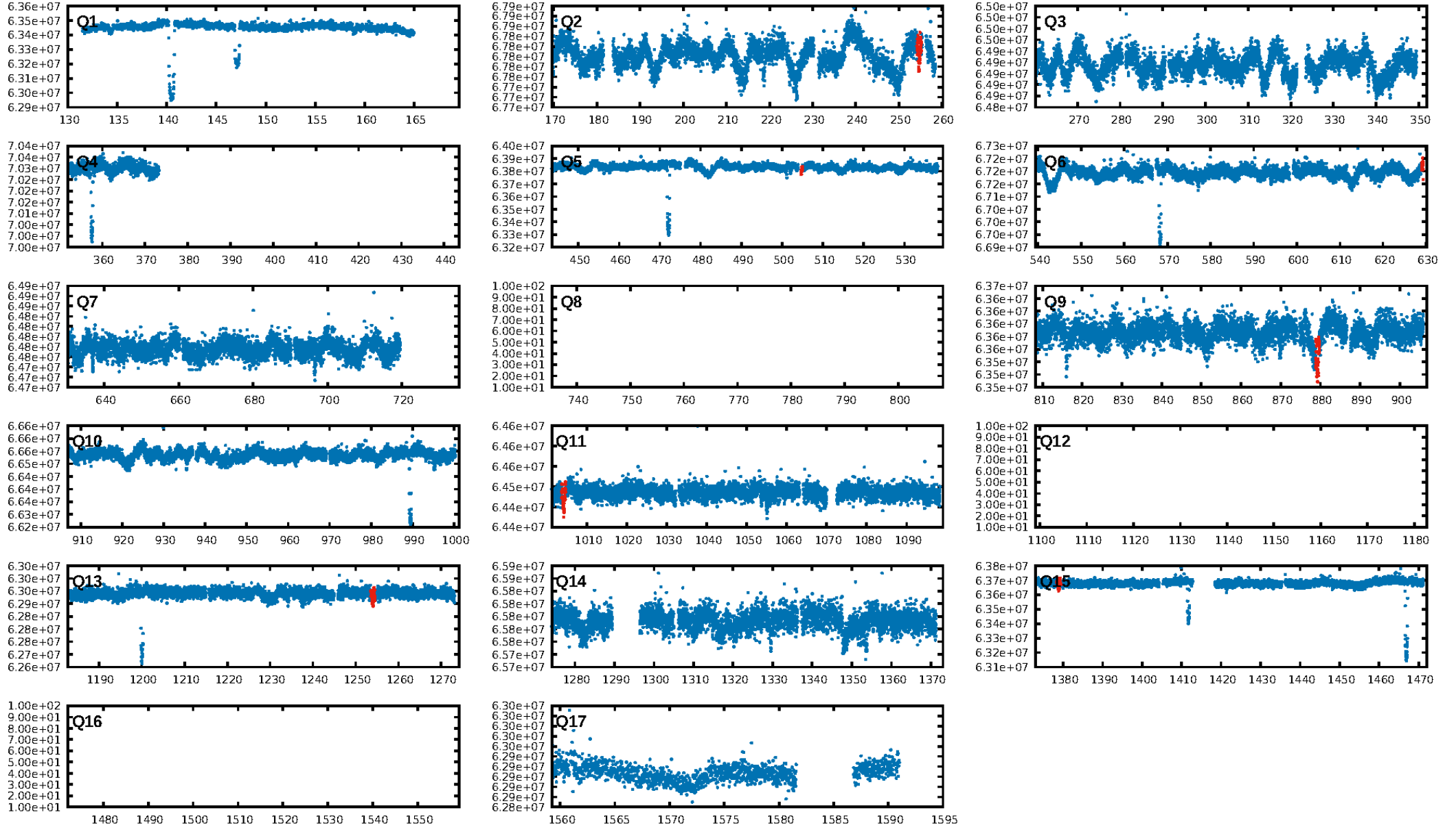
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [51.26 σ]
LongPeriod-sig: 100.0% [122.20 σ]
ModelChiSquare2-sig: 8.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.87e-51
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 4.541
Centroid-sig: 29.2%
Centroid-so: 0.785 arcsec [1.22 σ]
OotOffset-rm: 0.237 arcsec [0.33 σ]
KicOffset-rm: 0.248 arcsec [0.35 σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.67 [2/3]

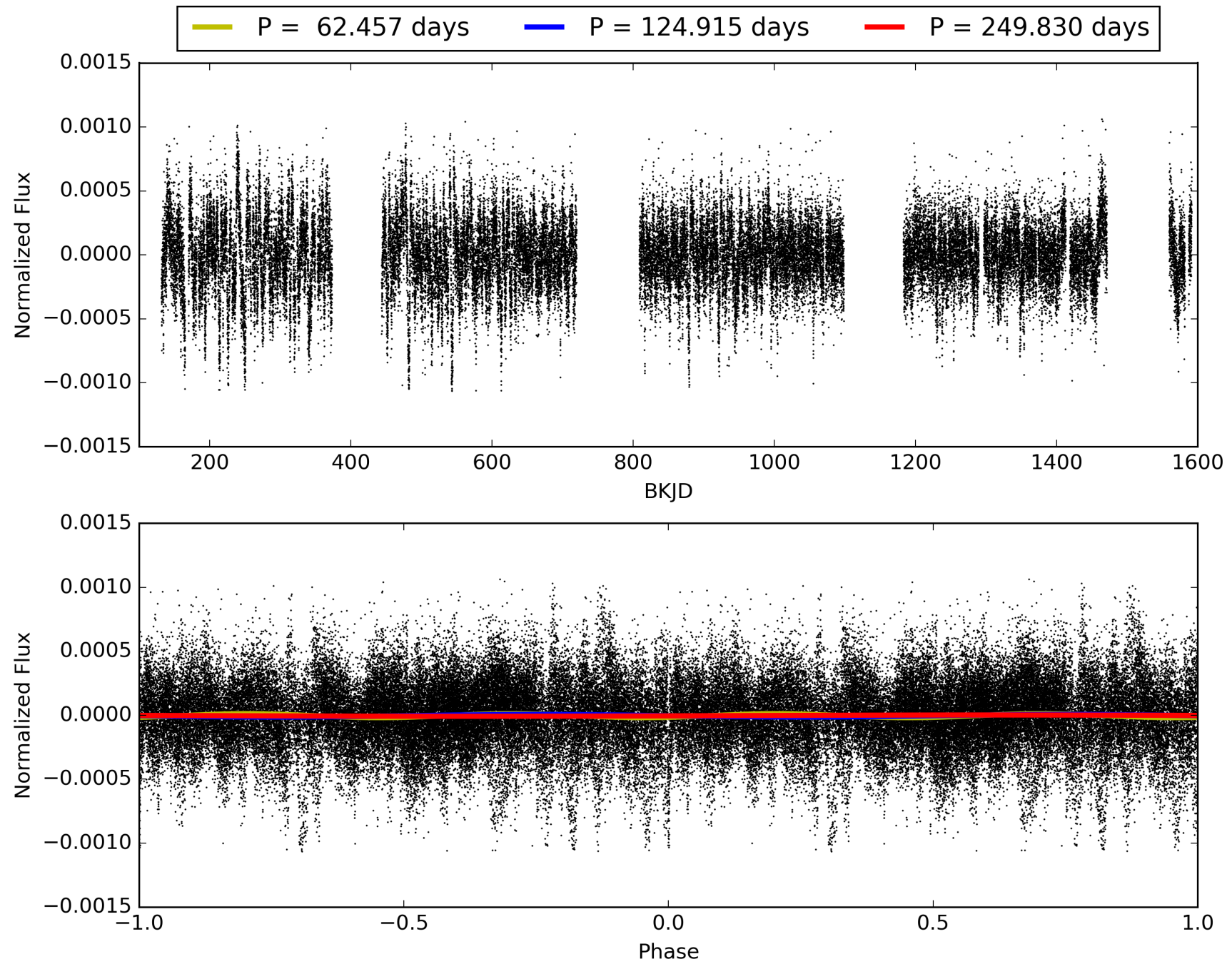
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:01:45 Z

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

TCE 011442793-05, PDC Light Curves

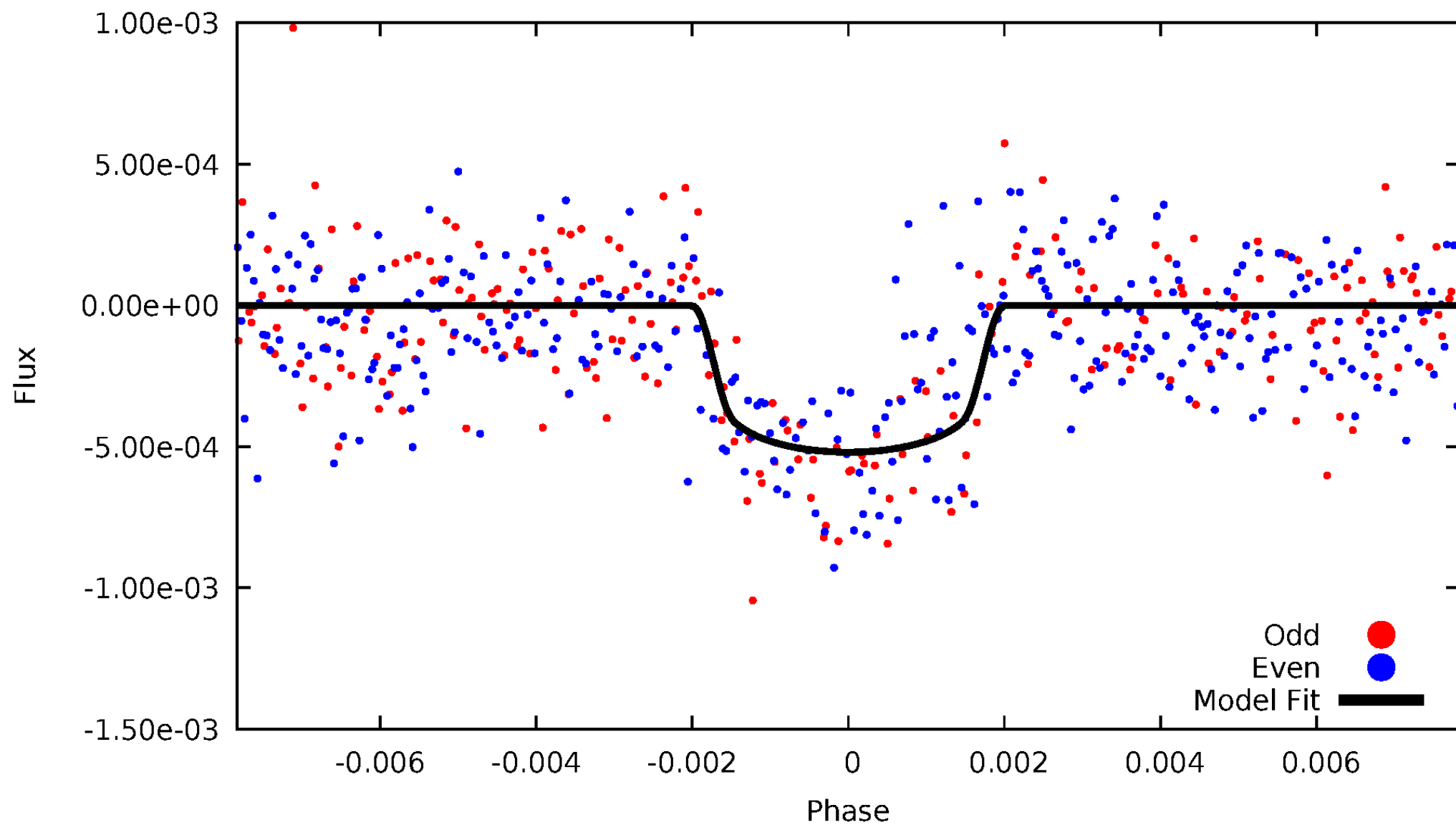


TCE 011442793-05



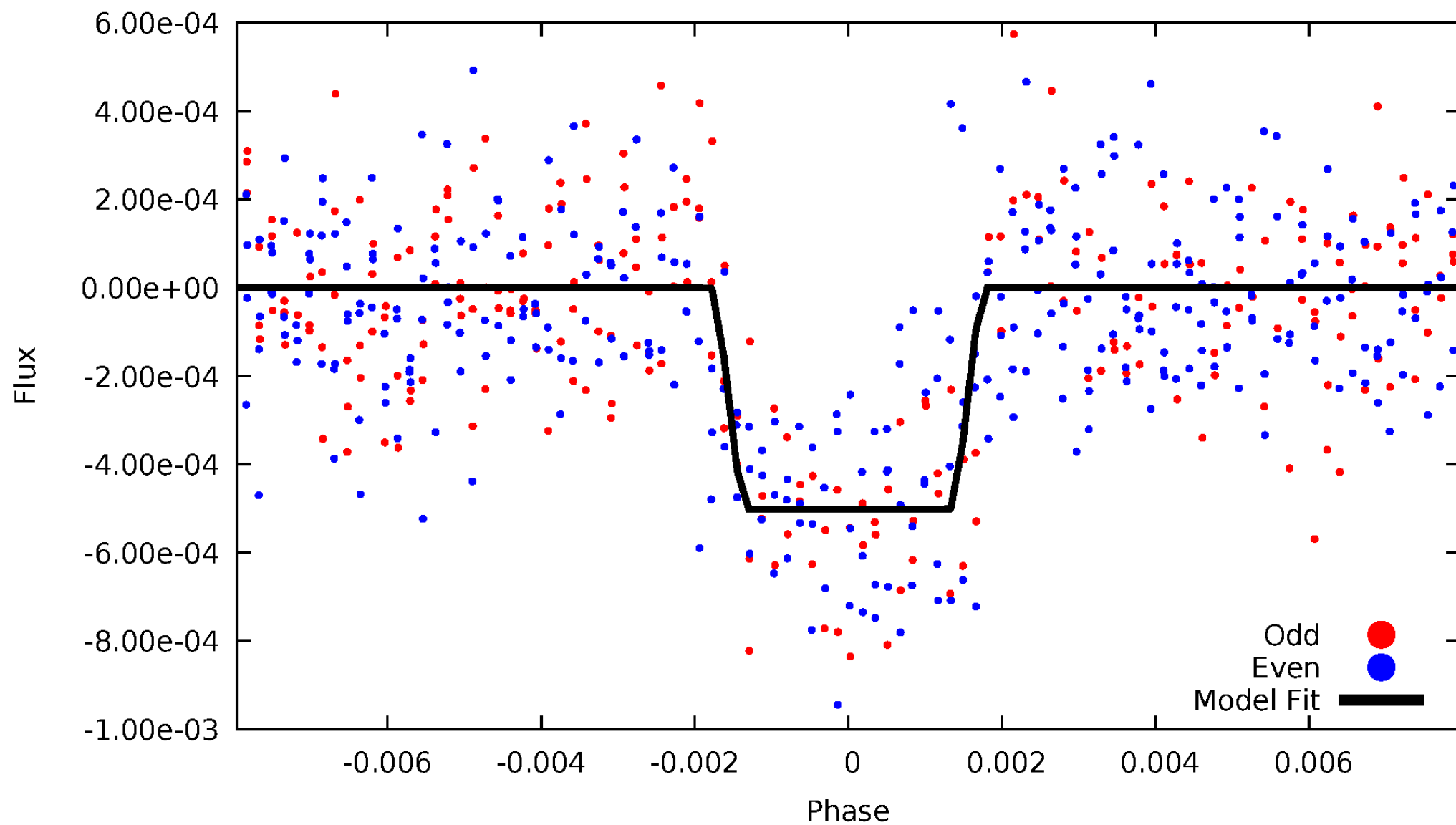
DV Odd/Even

TCE 011442793-05



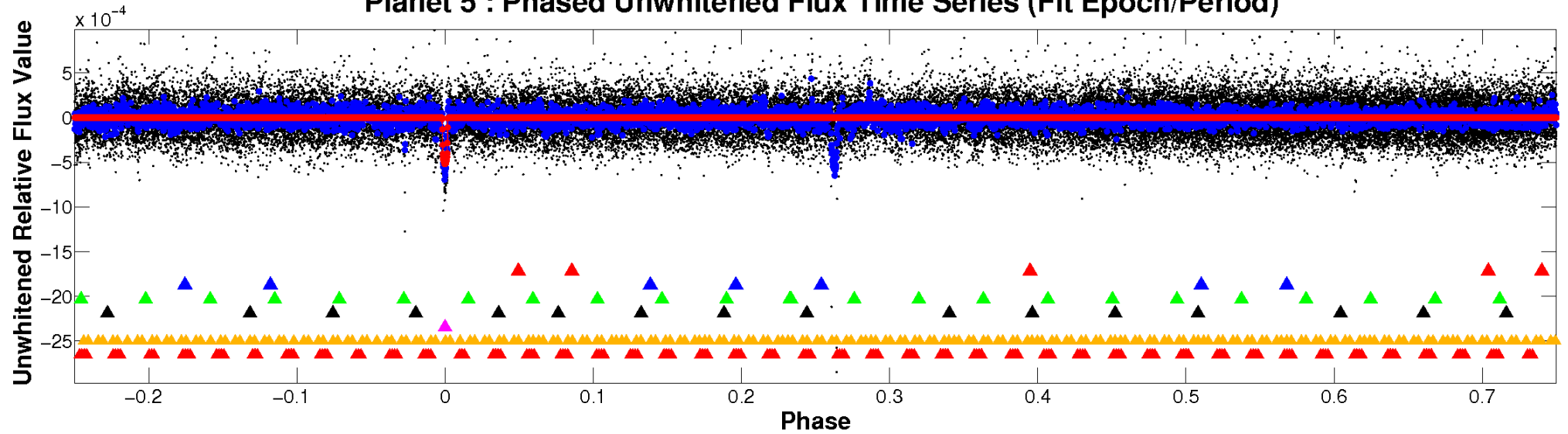
ALT Odd/Even

TCE 011442793-05

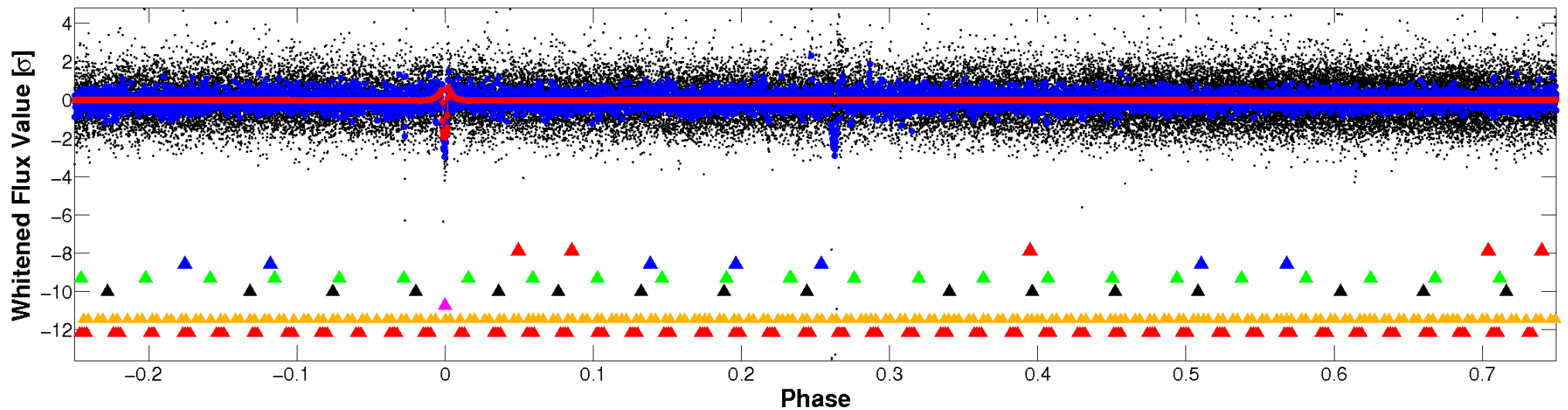


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

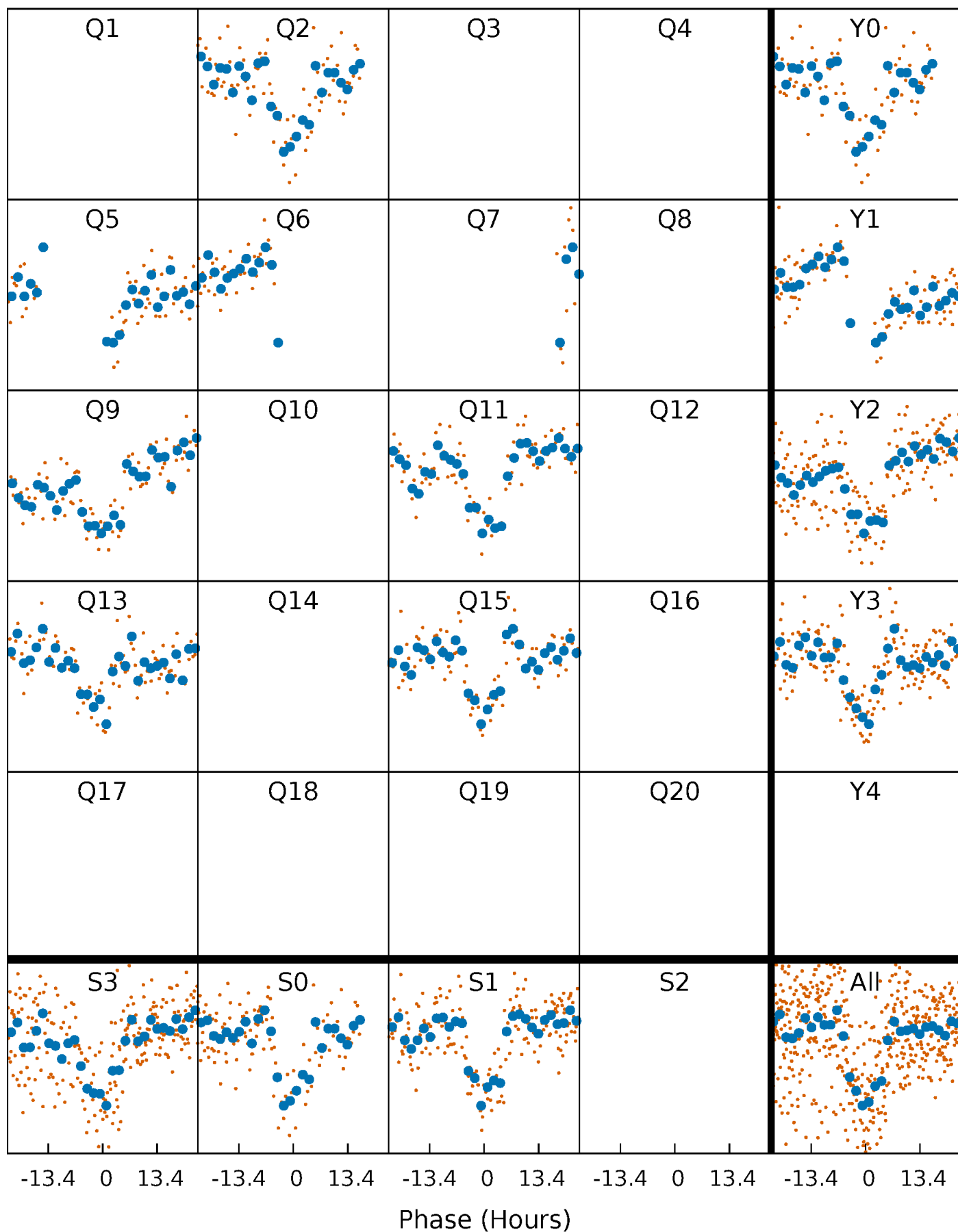


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



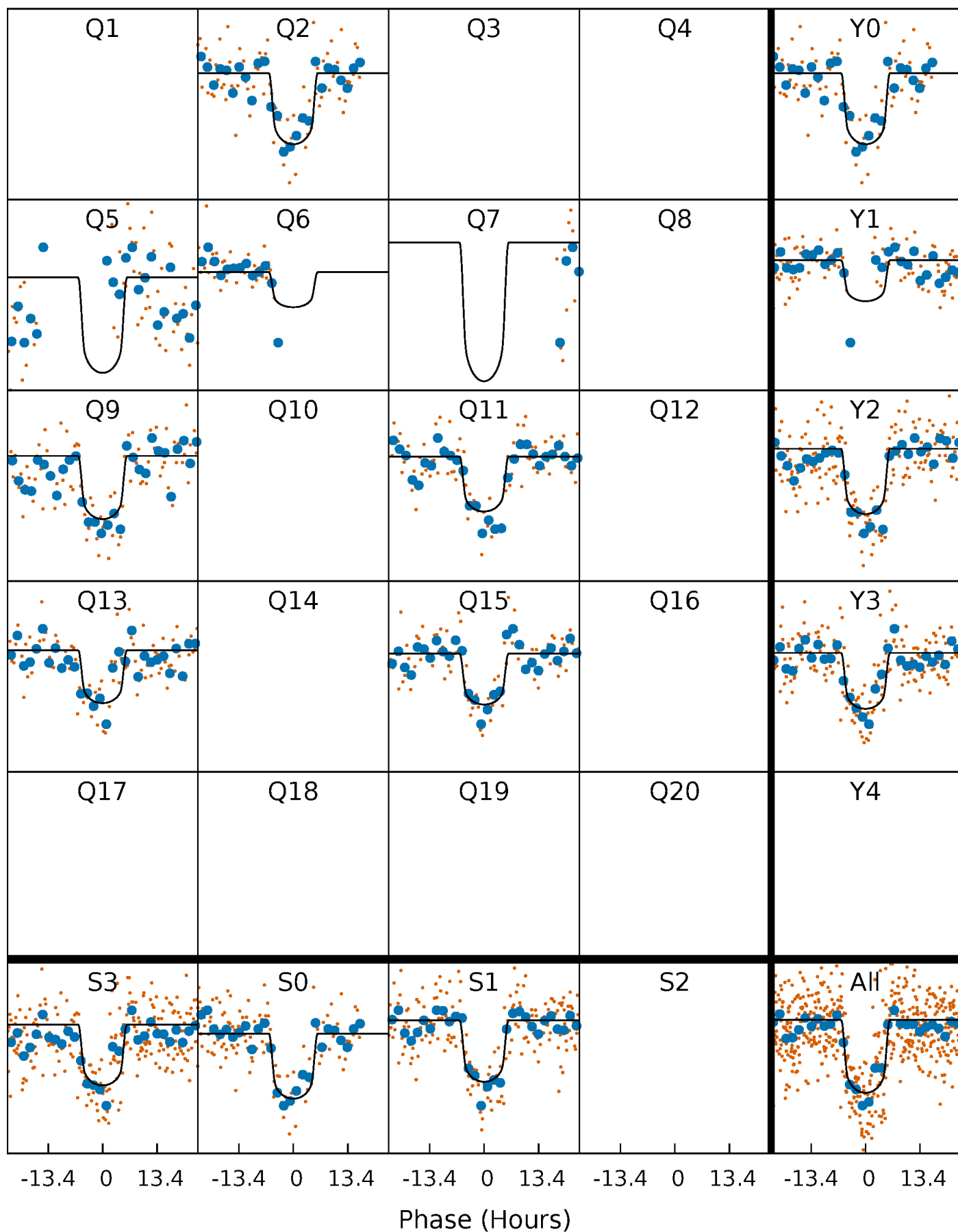
PDC Quarter-Phased Transit Curves

TCE 011442793-05 $P=124.914938$ Days $T_0=254.703976$ (BKJD)



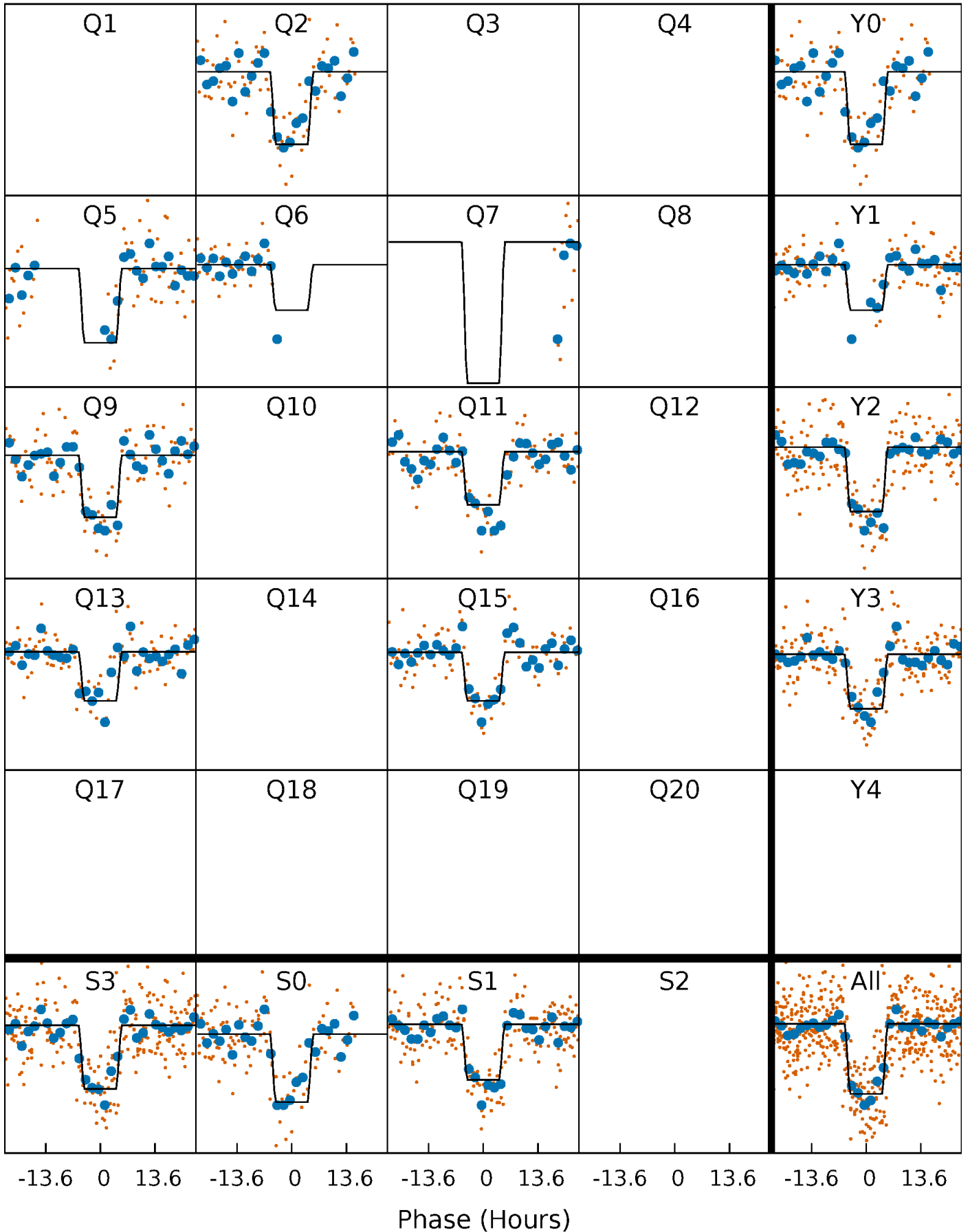
DV Quarter-Phased Transit Curves

TCE 011442793-05 $P=124.914938$ Days $T_0=254.703976$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

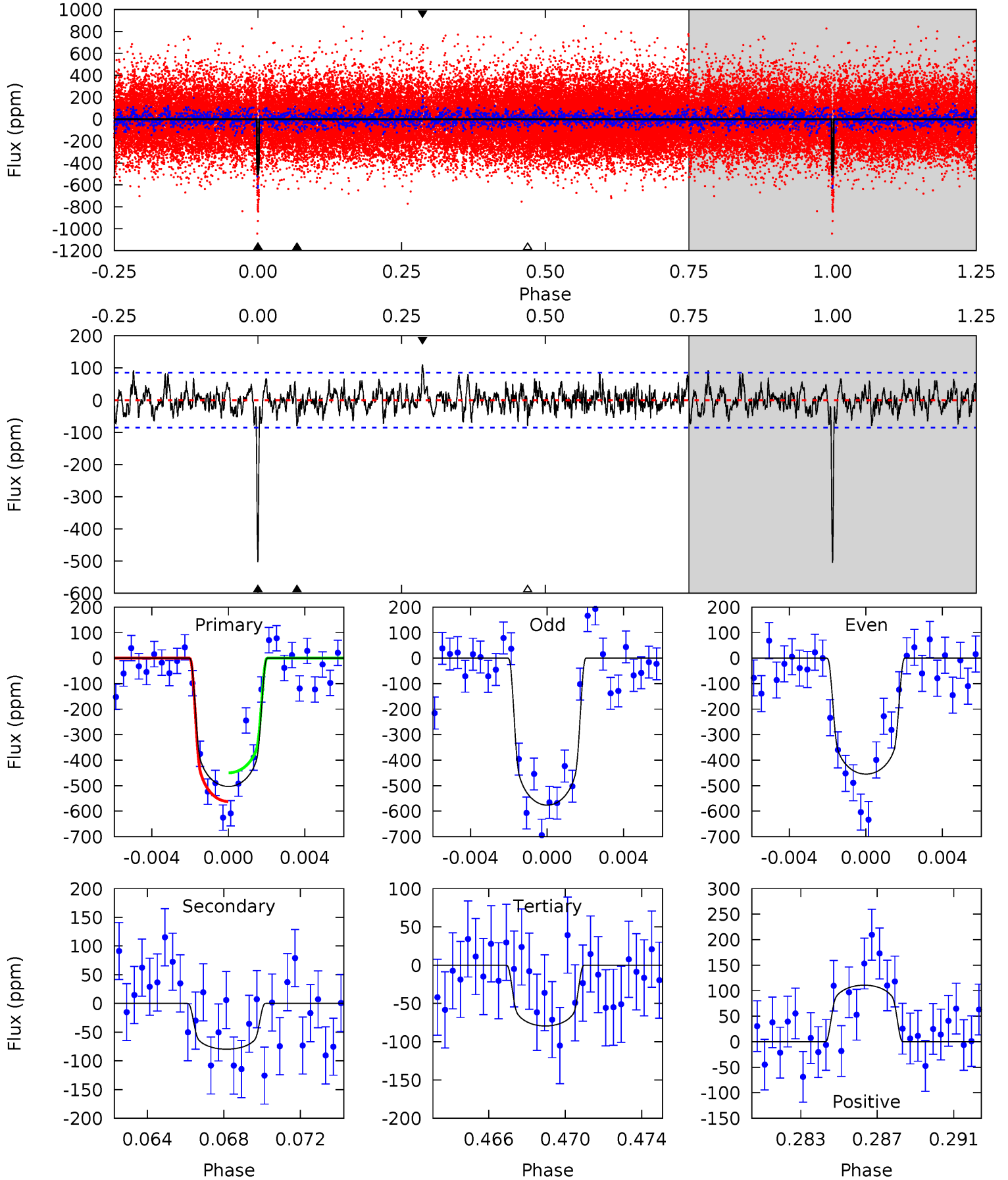
TCE 011442793-05 $P=124.910352$ Days $T_0=254.726002$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-05, P = 124.914938 Days, E = 129.789038 Days

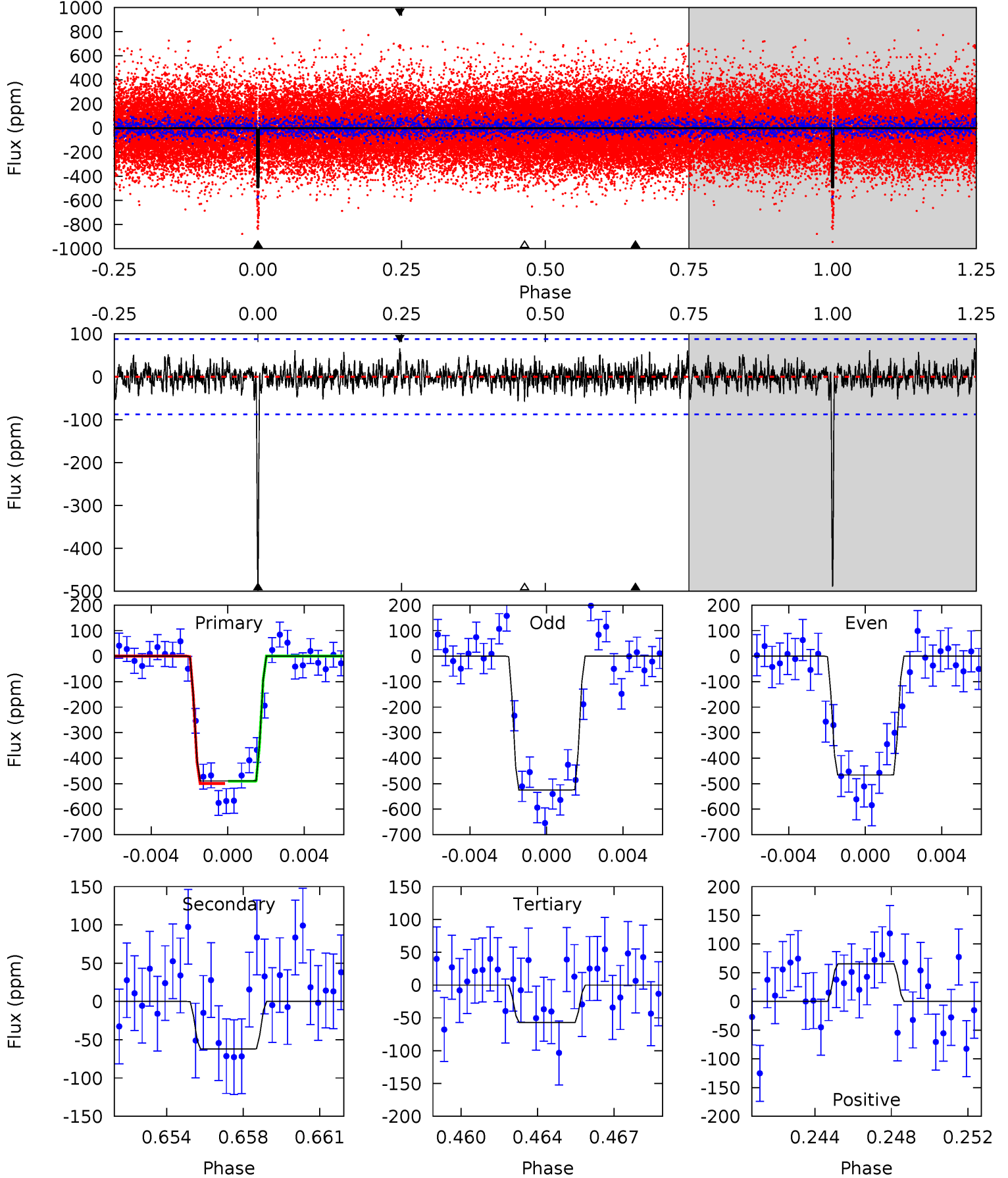
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 30.6 | 4.84 | 4.83 | 6.74 | 5.20 | 2.88 | 1.65 | 25.8 | 23.8 | 0.01 | -1.89 | 3.65 | 0.97 | 0.18 | 3.42 |



Alt Model-Shift Uniqueness Test

011442793-05, P = 124.910352 Days, E = 129.815650 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 29.1 | 3.69 | 3.39 | 3.91 | 5.22 | 2.91 | 1.05 | 25.7 | 25.2 | 0.30 | -0.22 | 1.71 | 1.04 | 0.12 | 0.27 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-05 / KOI 0351.07

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|-------------------|----------------------|----------------------|
| DV | -80 ± 16 | $3.21^{+0.36}_{-0.31}$ | 568^{+26}_{-25} | 3926^{+183}_{-188} | 1058^{+337}_{-292} |
| Alt. | -62 ± 17 | $2.95^{+0.33}_{-0.30}$ | 569^{+28}_{-25} | 3876^{+207}_{-224} | 959^{+391}_{-299} |

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 $A_{obs} \gg 1.0$

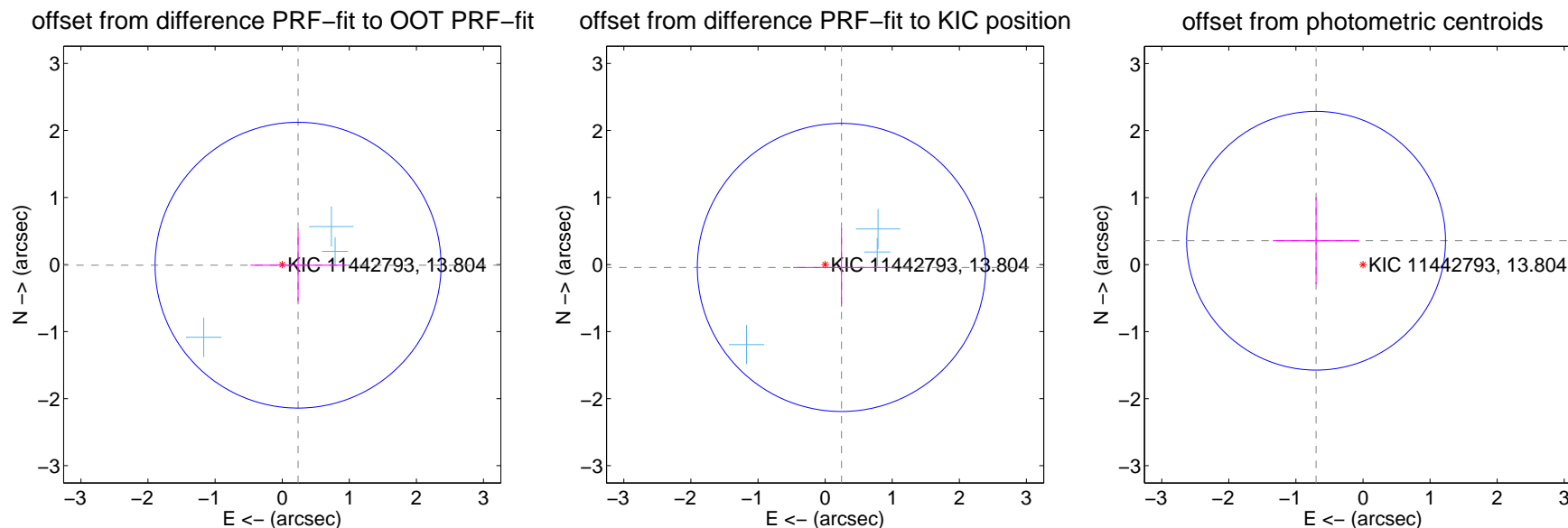
DV Centroid Data

Supplemental centroid analysis for 011442793-05. Kepler magnitude: 13.80. Transit SNR 18.90

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.237 ± 0.710 | 0.33 | -0.236 ± 0.711 | -0.010 ± 0.541 |
| PRF-fit source offset from KIC position | 0.248 ± 0.716 | 0.35 | -0.244 ± 0.720 | -0.043 ± 0.584 |
| photometric centroid source offset | 0.79 ± 0.64 | 1.22 | 0.70 ± 0.64 | 0.36 ± 0.65 |



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

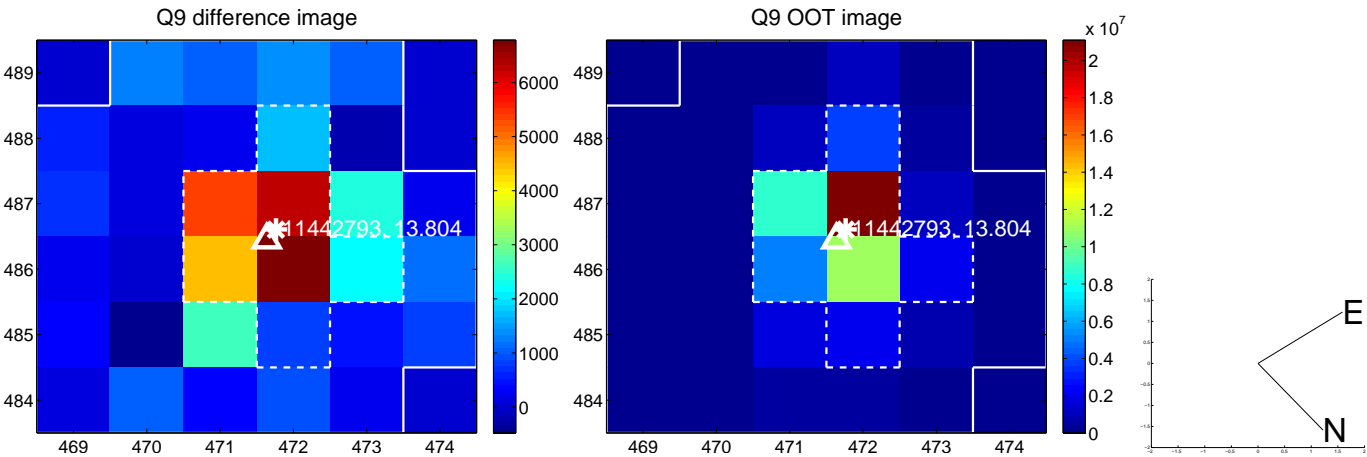
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



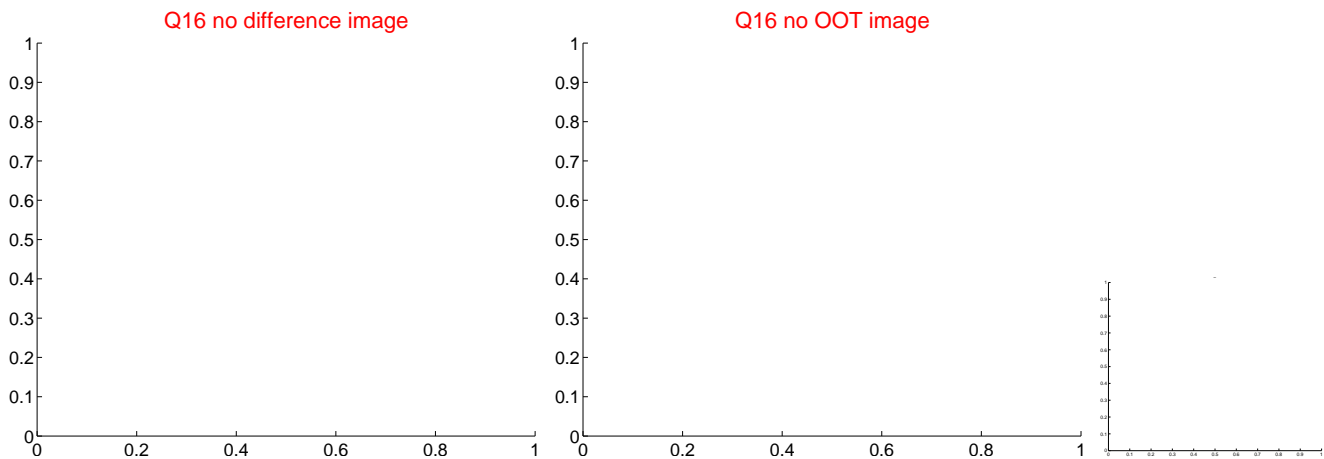
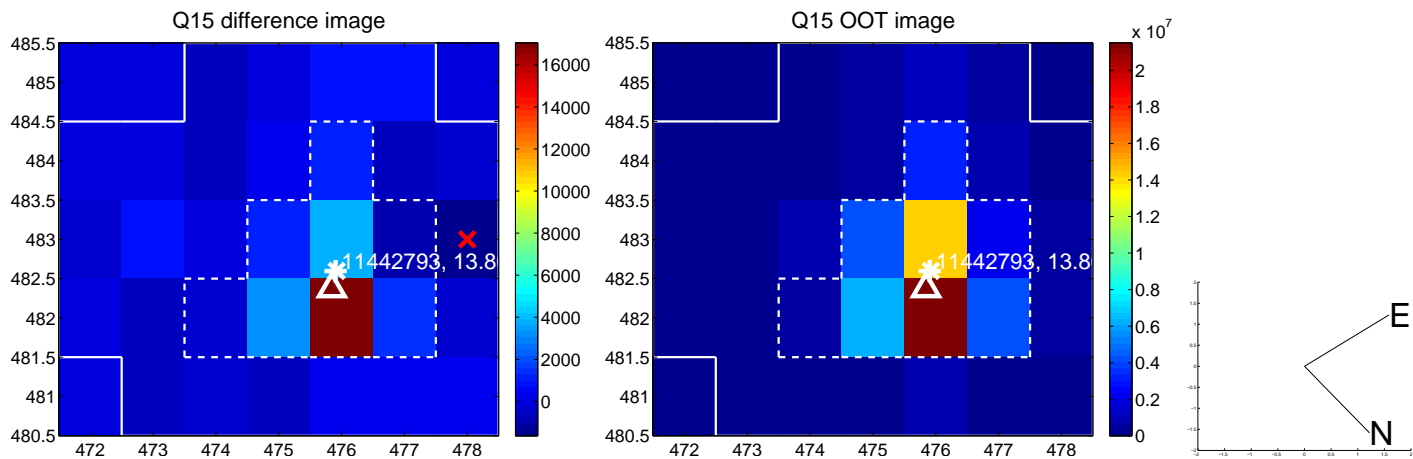
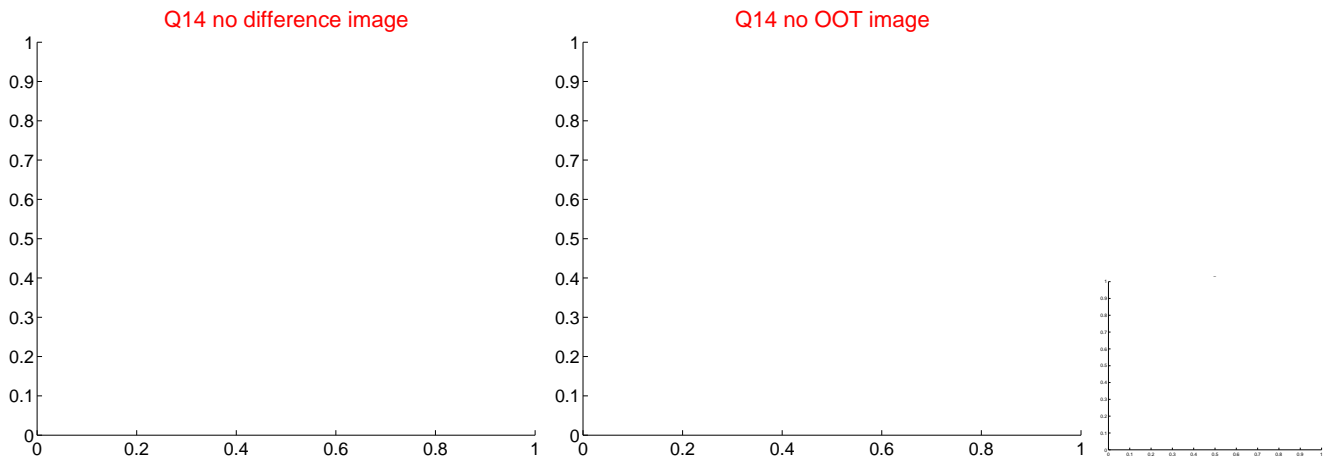
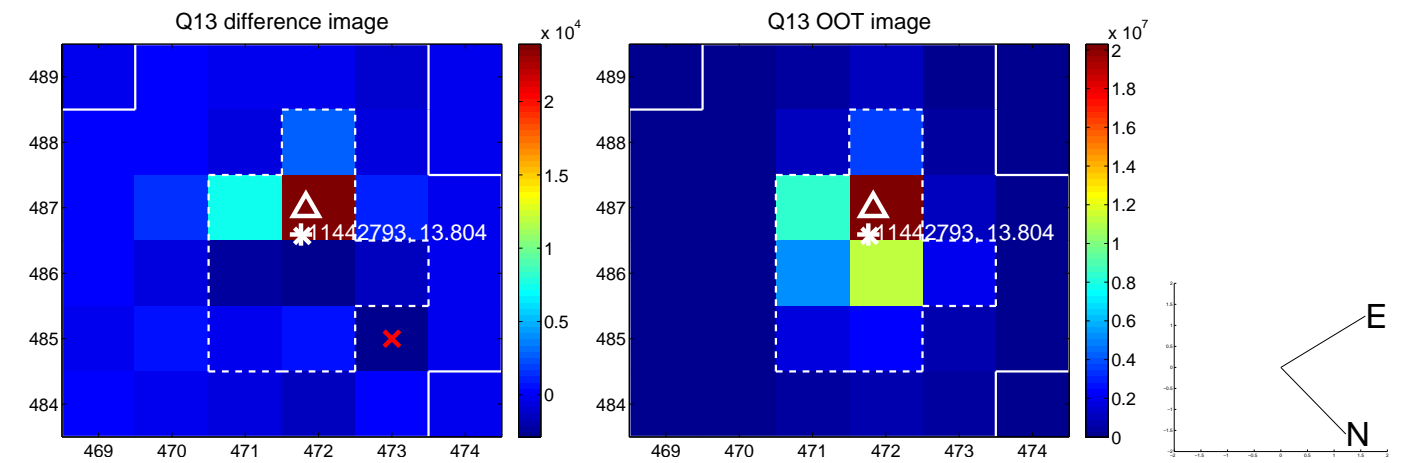
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



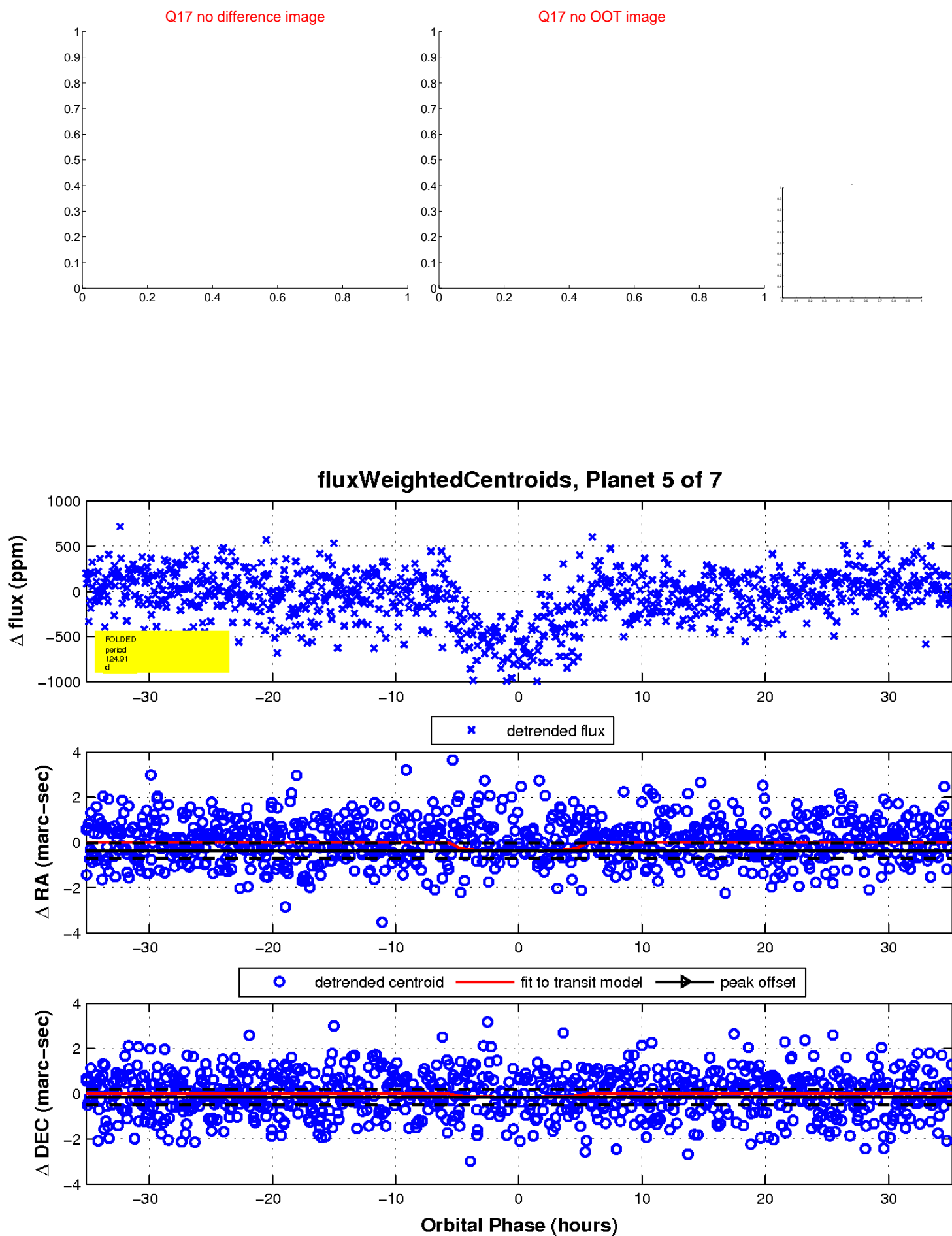
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

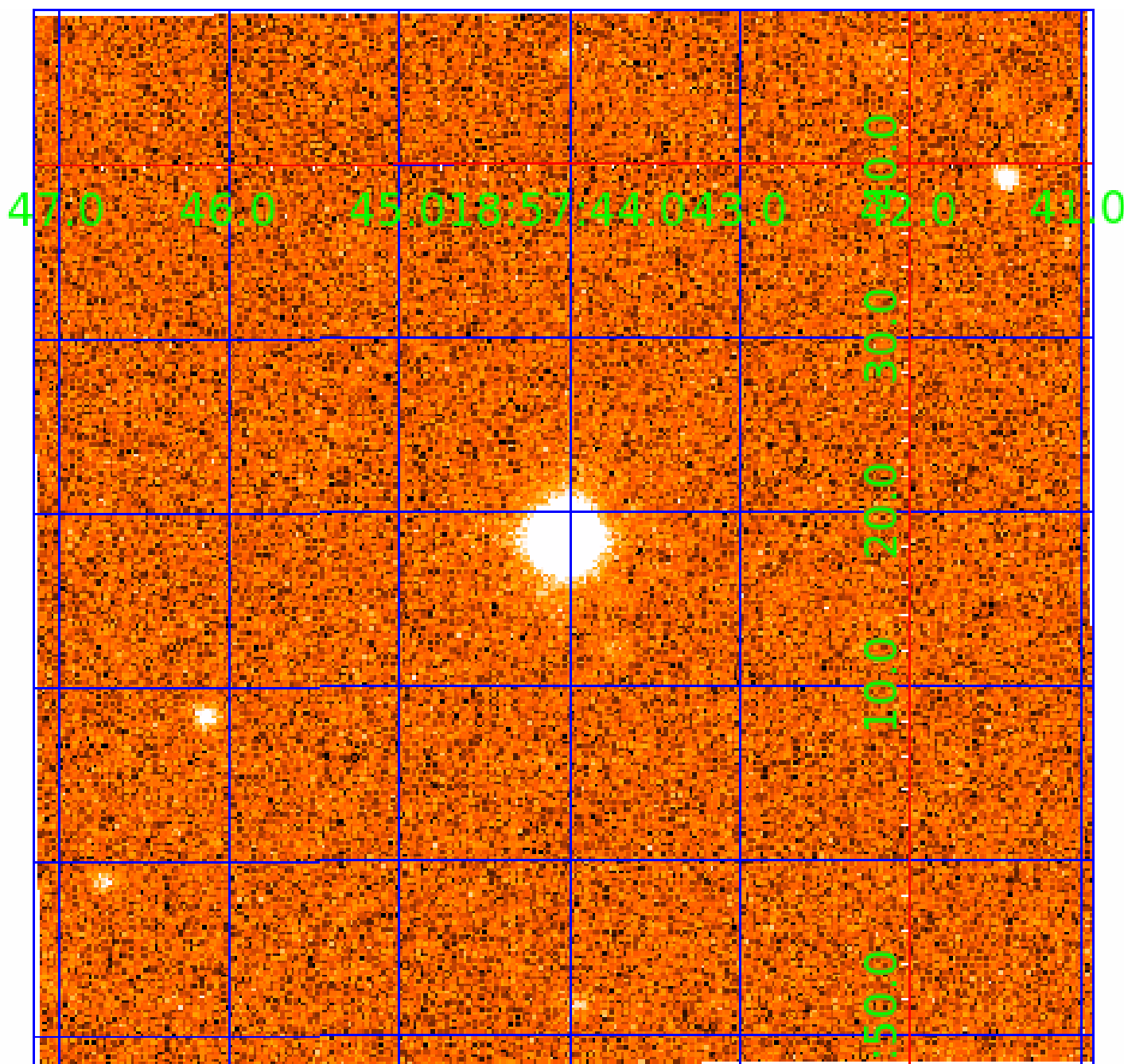


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011442793

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 011442793-01 | OBS | 0351.01 | 331.603305 | 140.479505 | 8353.3 | 14.486 | 249.1 | 233.3 | 1.20 | 5970 | 10.96 | 1.76 |
| 011442793-02 | OBS | 0351.02 | 210.593472 | 147.099243 | 4164.3 | 12.058 | 101.8 | 121.8 | 1.20 | 5970 | 7.69 | 3.22 |
| 011442793-03 | OBS | 0351.03 | 59.736918 | 158.962394 | 563.2 | 8.537 | 29.1 | 30.2 | 1.20 | 5970 | 3.25 | 17.30 |
| 011442793-04 | OBS | 0351.04 | 91.939496 | 134.306521 | 507.8 | 10.028 | 24.9 | 25.1 | 1.20 | 5970 | 3.22 | 9.73 |
| 011442793-05 | OBS | 0351.07 | 124.914938 | 254.703976 | 519.5 | 11.738 | 18.2 | 18.9 | 1.20 | 5970 | 3.22 | 6.47 |
| 011442793-06 | OBS | 0351.06 | 7.008208 | 137.674831 | 116.3 | 4.417 | 14.8 | 16.6 | 1.20 | 5970 | 1.67 | 301.14 |
| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

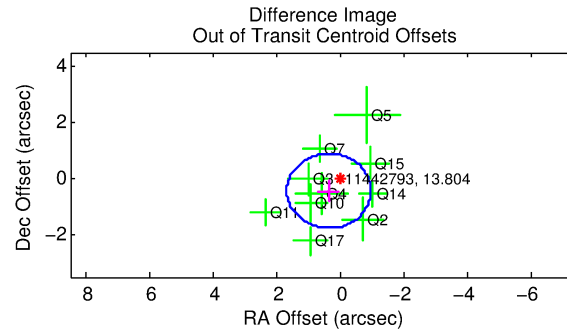
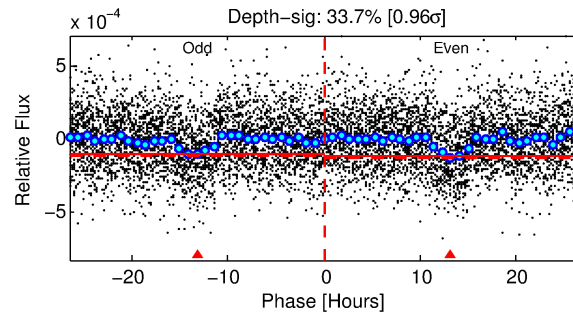
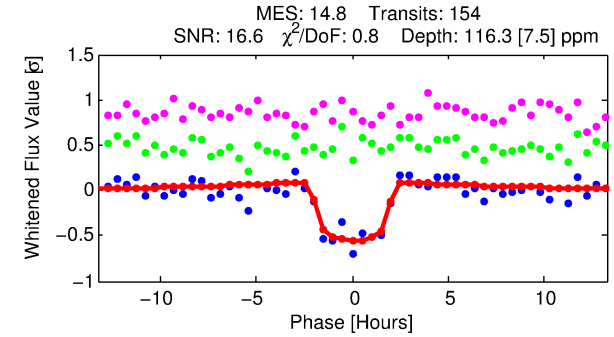
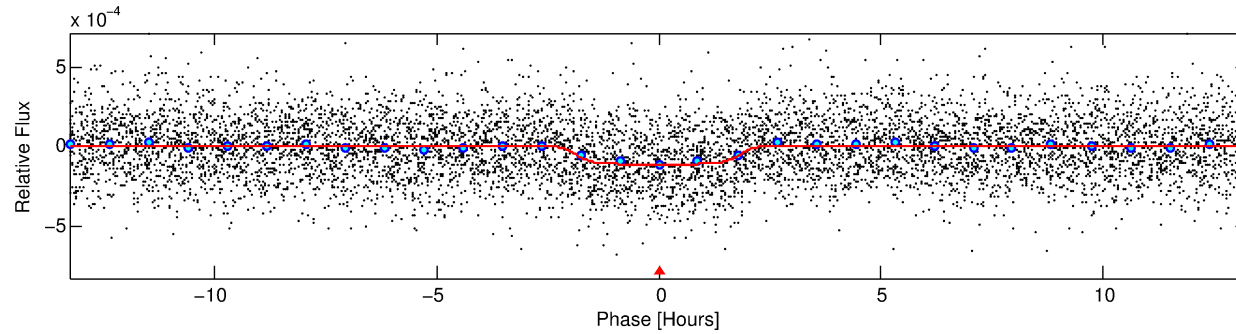
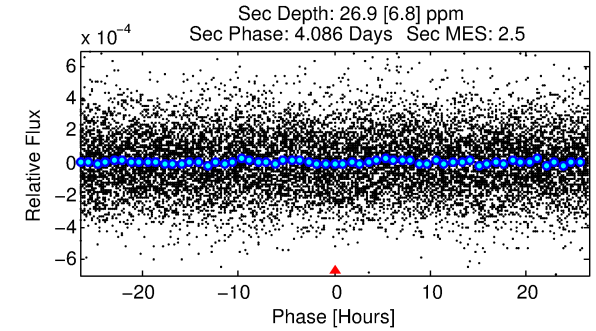
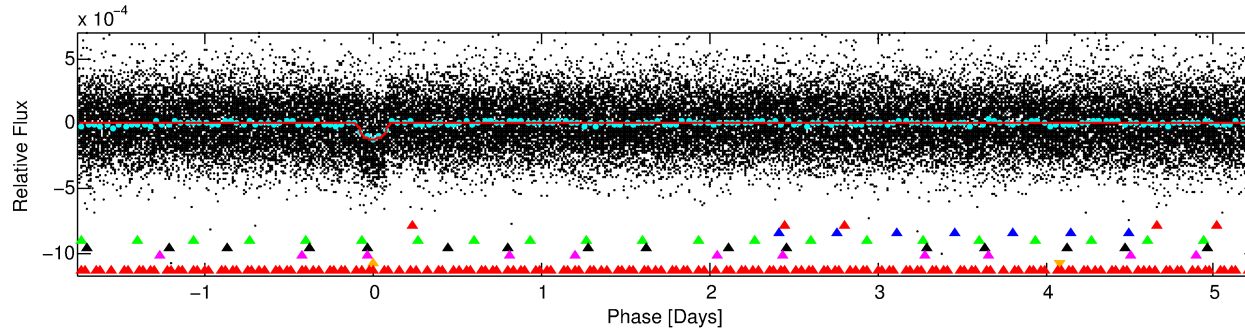
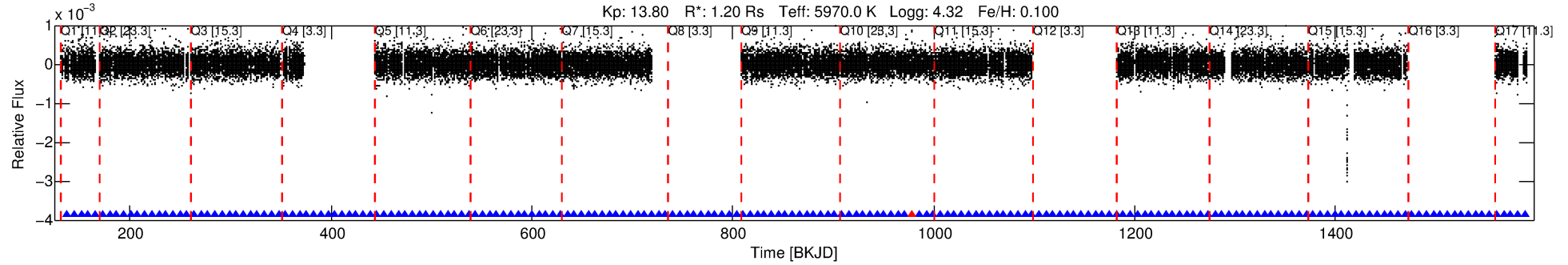
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-06

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 6 of 7 Period: 7.008 d
KOI: K00351.06 Name: Kepler-90b Corr: 0.917



DV Fit Results:

Period = 7.00821 [0.00005] d
Epoch = 137.6748 [0.0048] BKJD
Rp/R* = 0.0128 [0.0010]
a/R* = 3.98 [1.37]
b = 0.96 [0.03]
Seff = 301.14 [69.94]
Teq = 1062 [62] K
Rp = 1.67 [0.30] Re
a = 0.0738 [0.0105] AU
Ag = 28.93 [10.58] [2.64σ]
Teffp = 3809 [294] K [9.14σ]

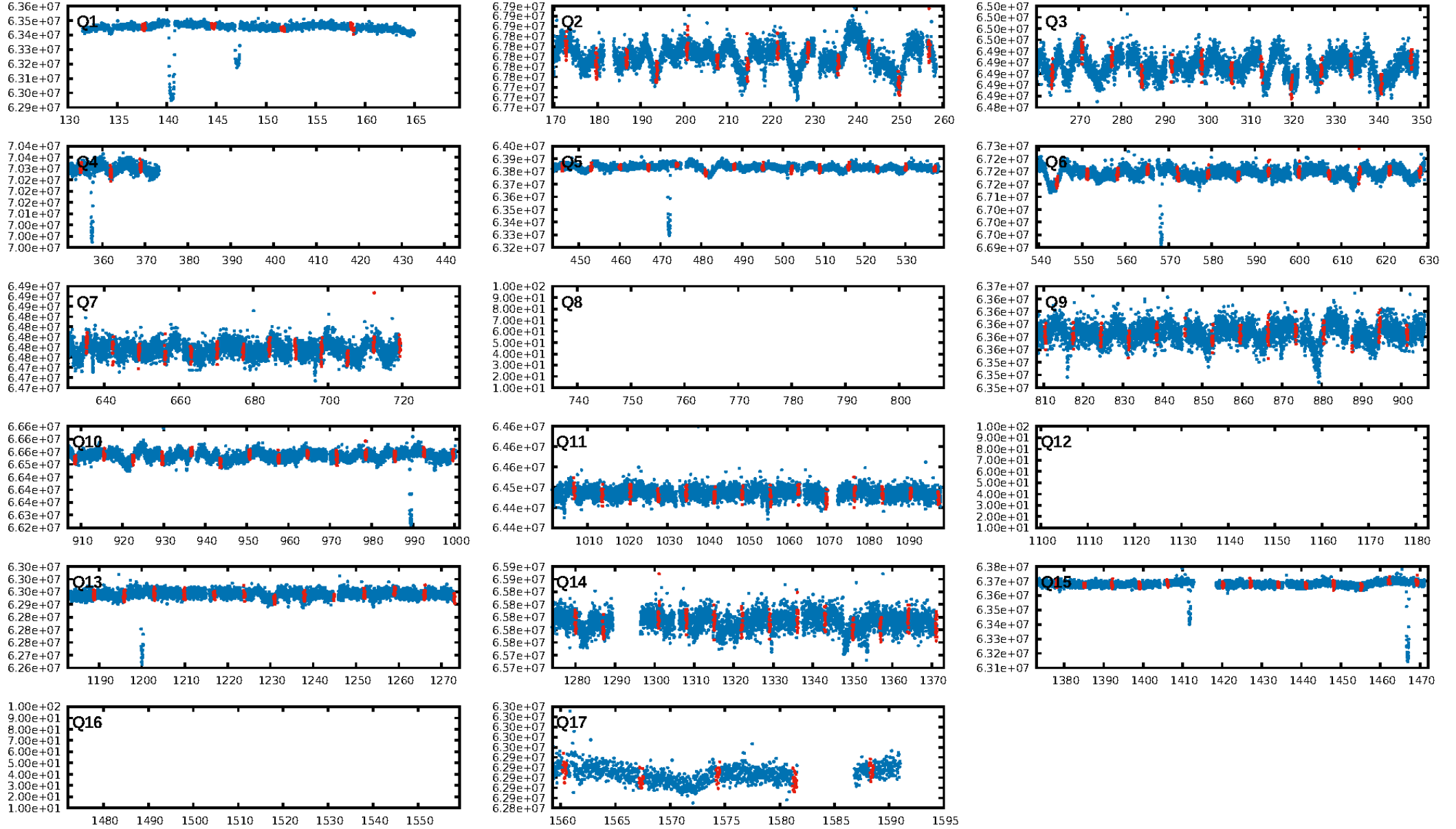
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.29σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.34e-47
RollingBand-fgt: 0.99 [142/143]
GhostDiagnostic-chr: 2.654
Centroid-sig: 64.4%
Centroid-so: 0.306 arcsec [0.40σ]
OotOffset-rm: 0.574 arcsec [1.30σ]
KicOffset-rm: 0.660 arcsec [1.58σ]
OotOffset-st: 3/4/1/2 [10]
KicOffset-st: 3/4/1/2 [10]
DiffImageQuality-fgm: 0.90 [9/10]
DiffImageOverlap-fno: 1.00 [14/14]

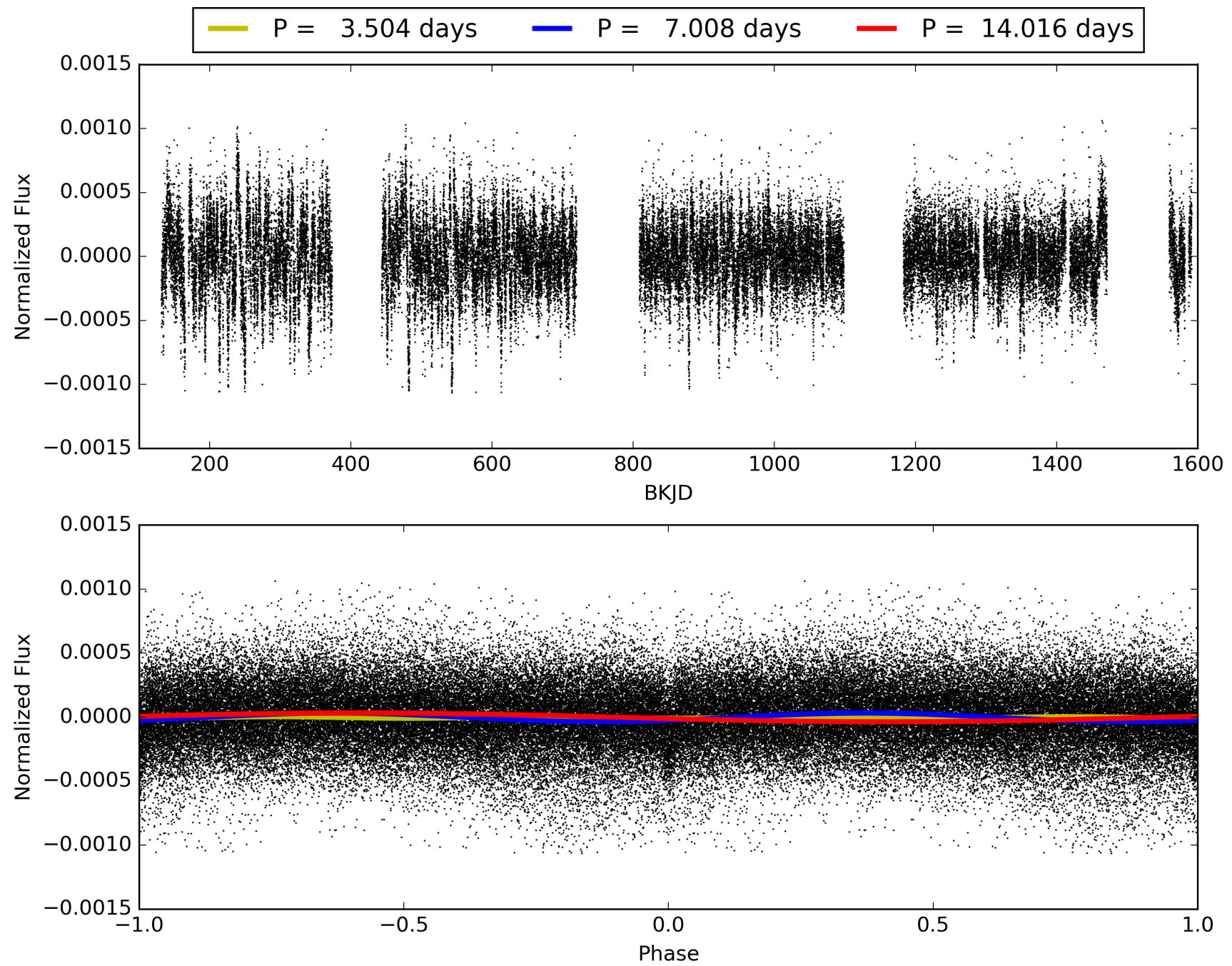
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:01:50 Z

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

TCE 011442793-06, PDC Light Curves

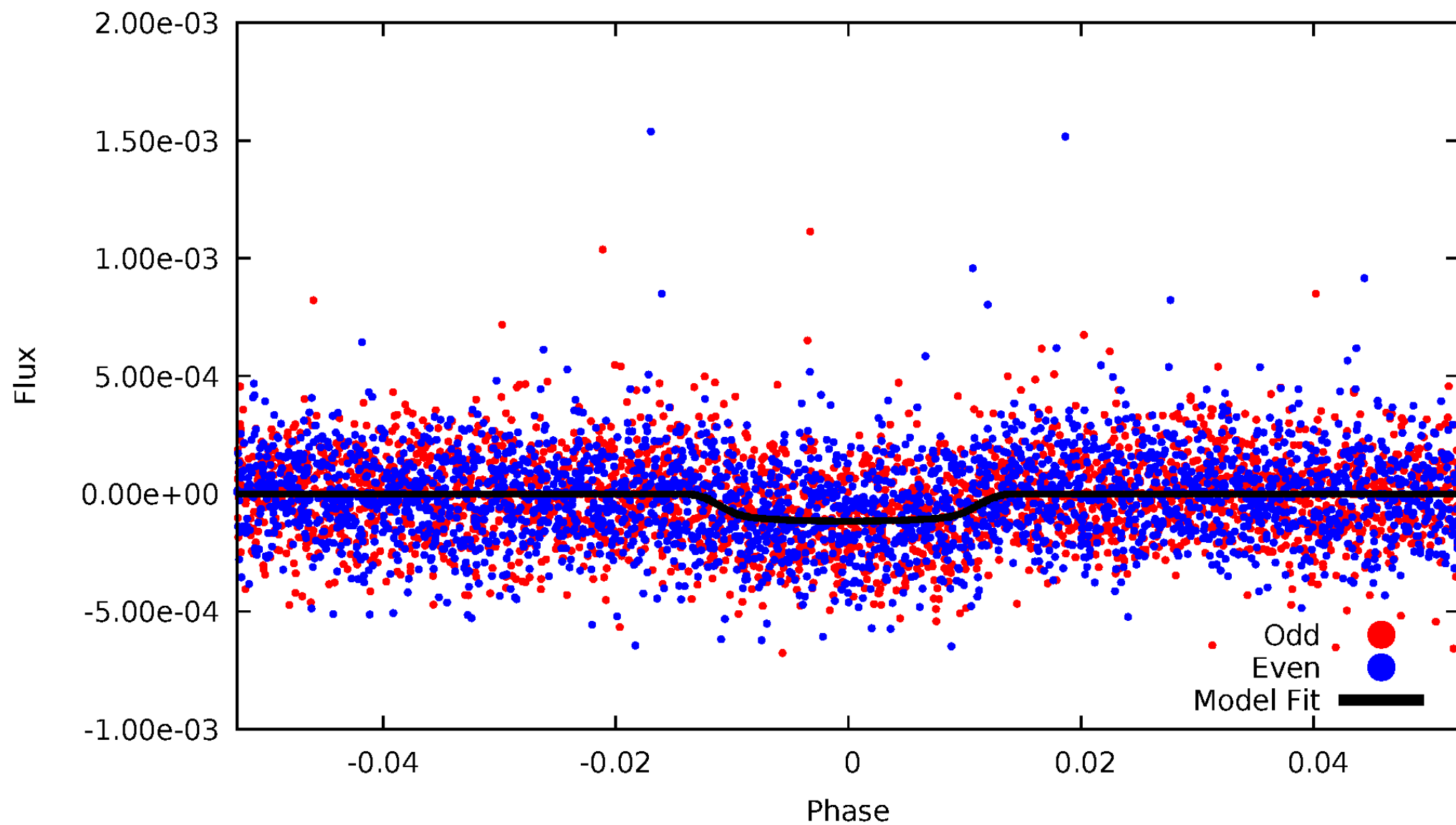


TCE 011442793-06



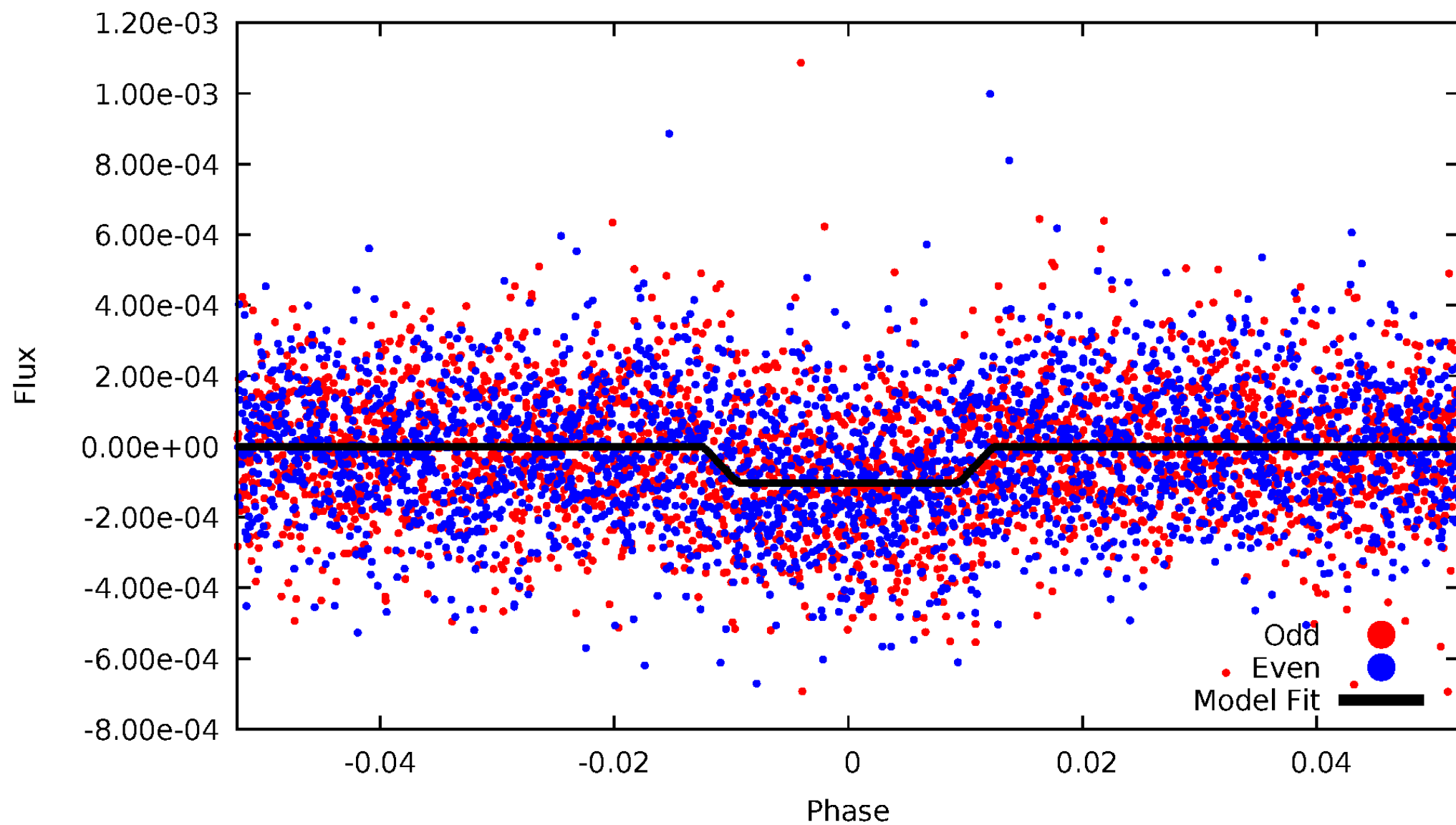
DV Odd/Even

TCE 011442793-06



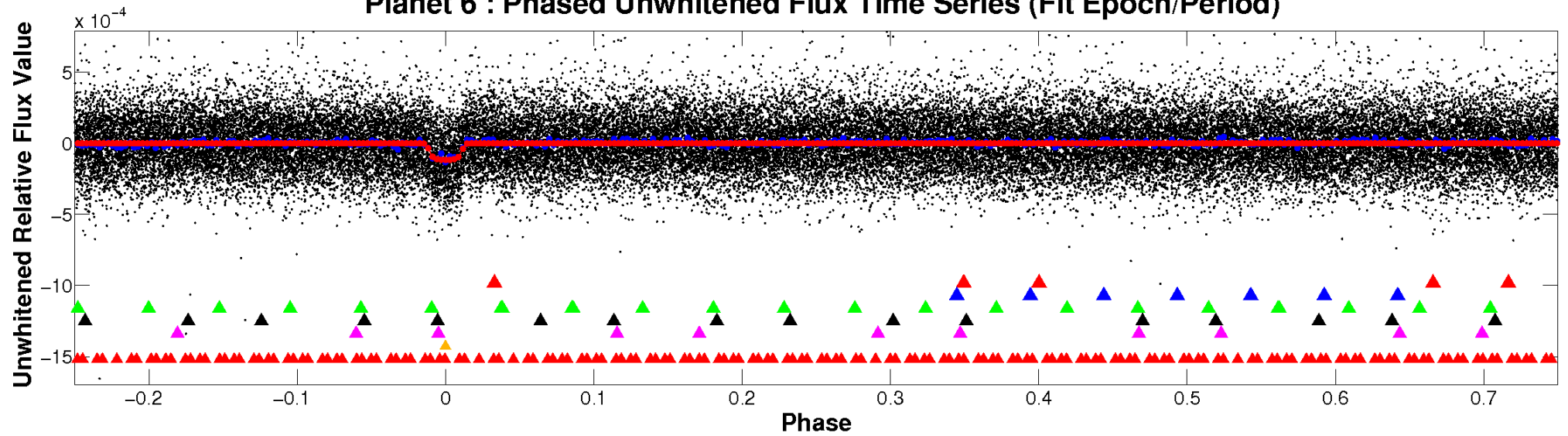
ALT Odd/Even

TCE 011442793-06

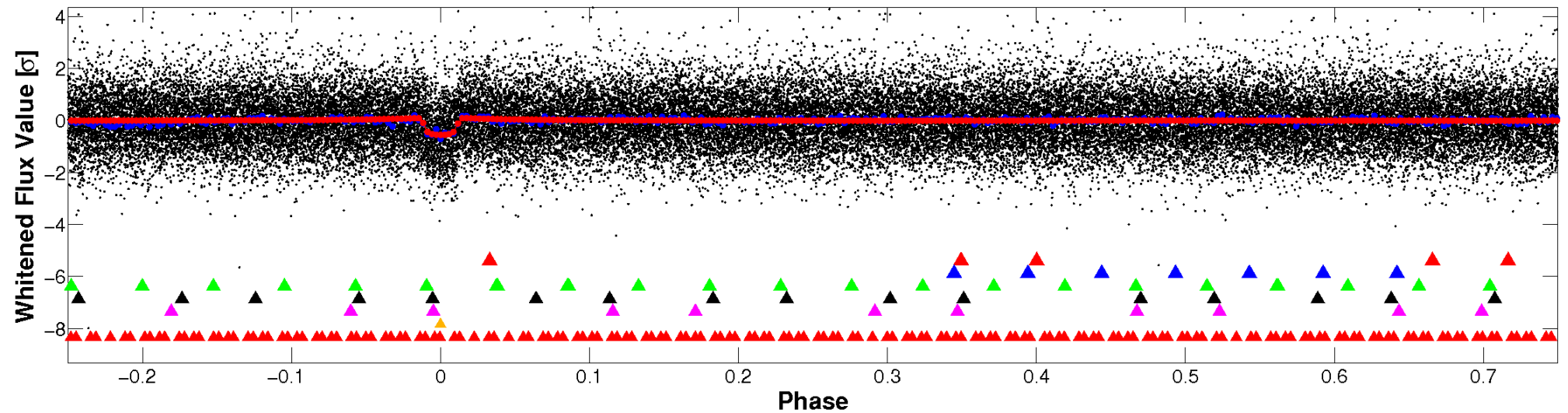


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

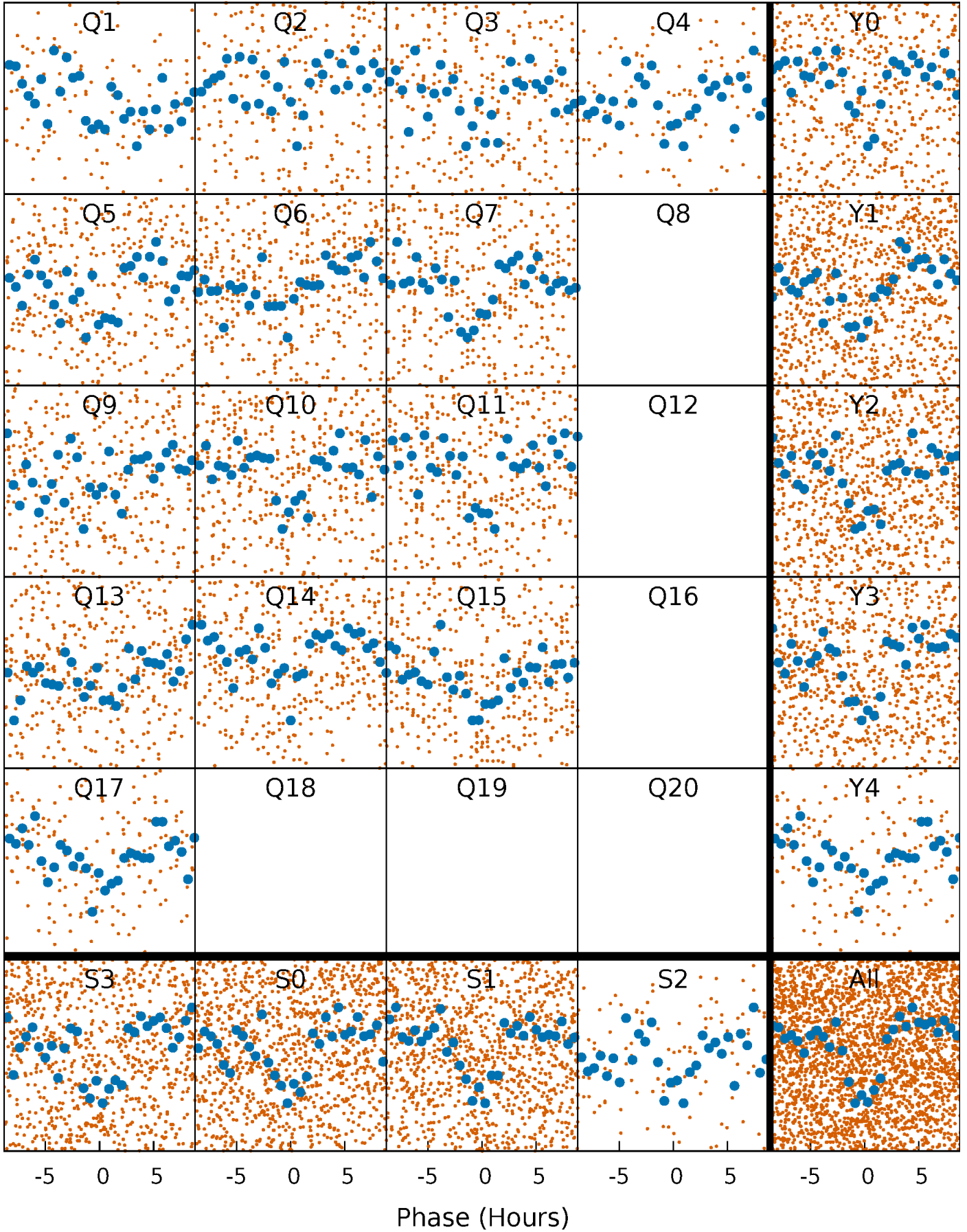


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



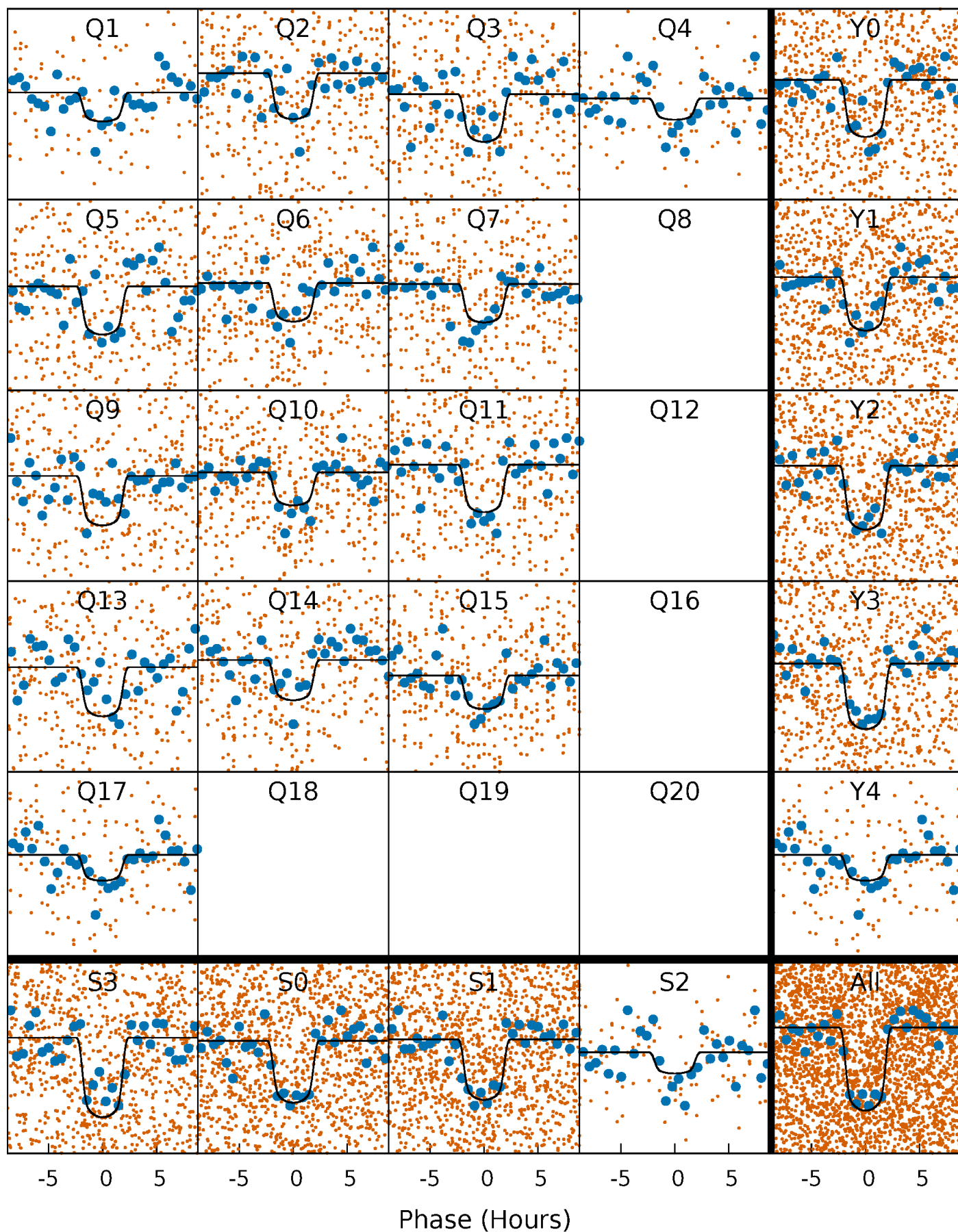
PDC Quarter-Phased Transit Curves

TCE 011442793-06 P= 7.008208 Days $T_0=137.674831$ (BKJD)



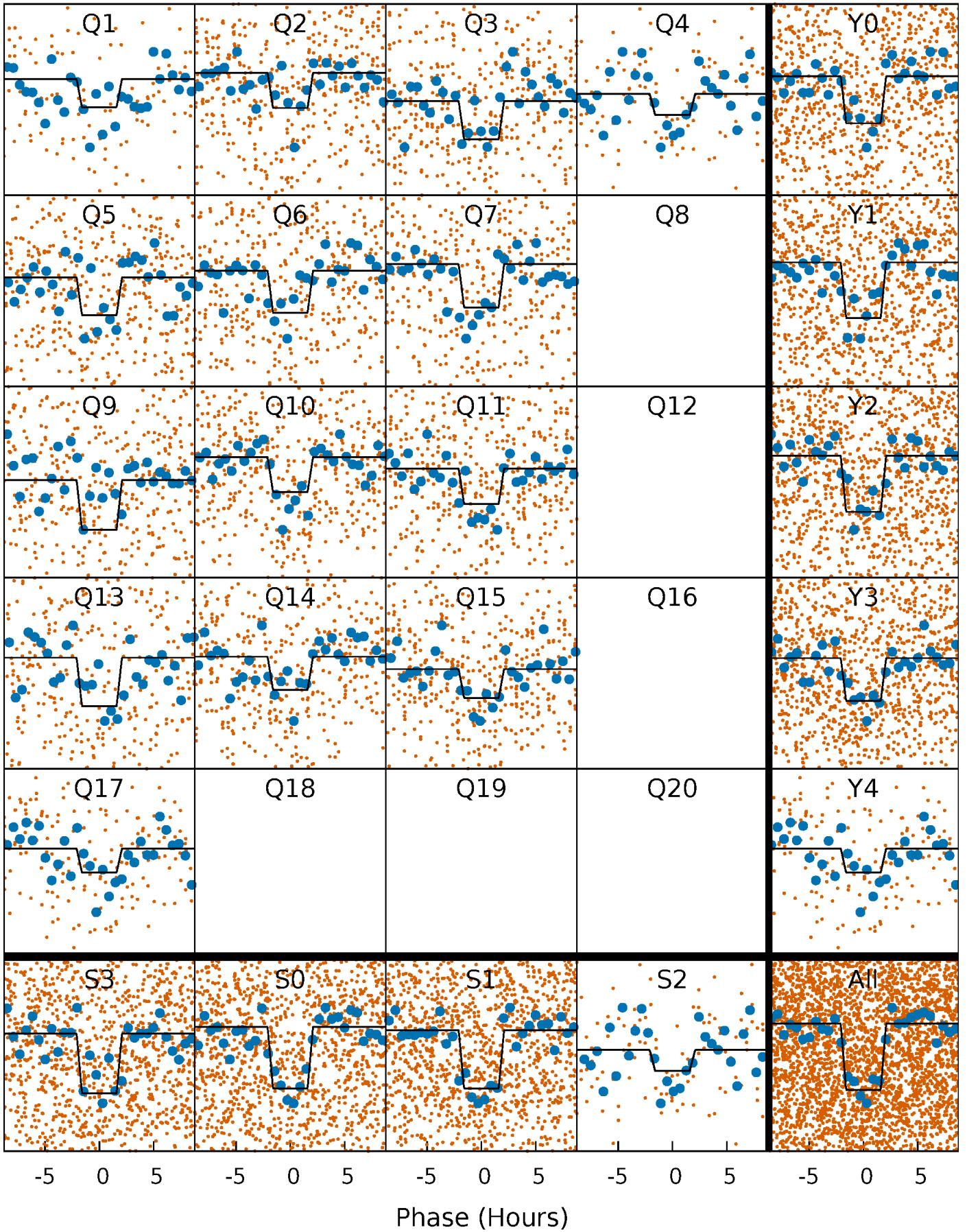
DV Quarter-Phased Transit Curves

TCE 011442793-06 P= 7.008208 Days $T_0=137.674831$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

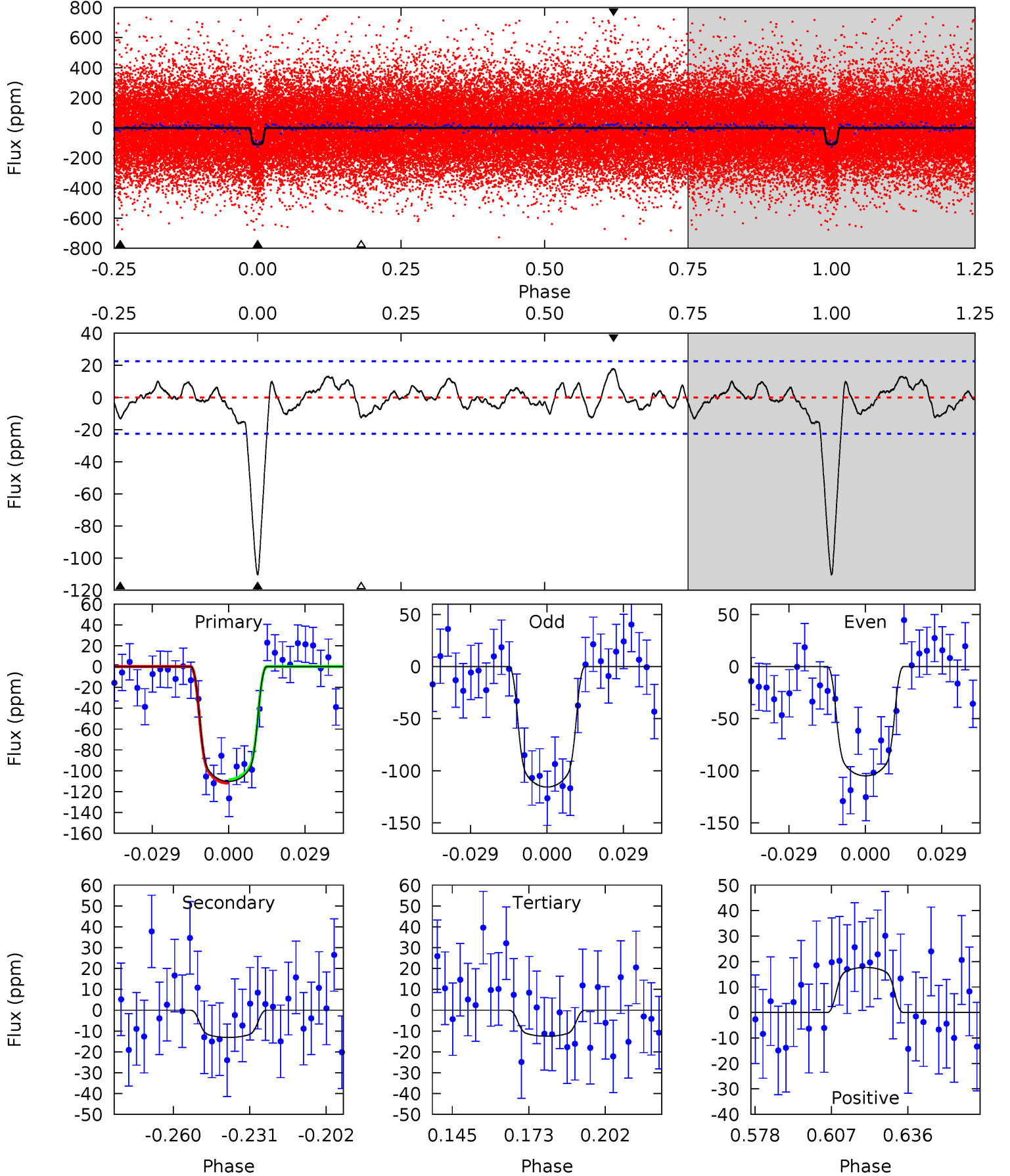
TCE 011442793-06 P= 7.008105 Days $T_0=137.682081$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-06, P = 7.008208 Days, E = 130.666623 Days

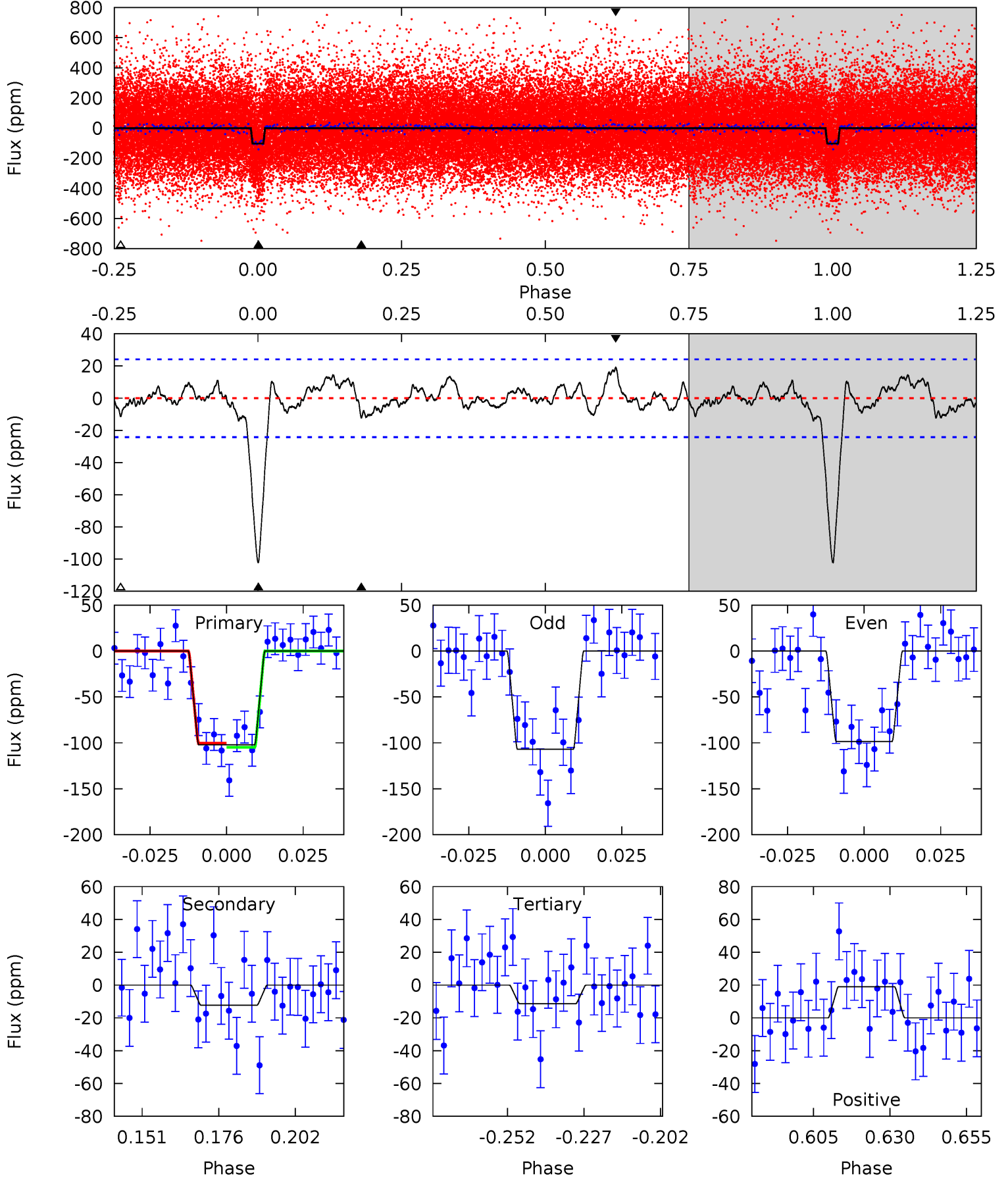
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 23.5 | 2.79 | 2.66 | 3.78 | 4.82 | 2.18 | 1.33 | 20.9 | 19.8 | 0.13 | -0.99 | 1.15 | 1.03 | 0.14 | 0.36 |



Alt Model-Shift Uniqueness Test

011442793-06, P = 7.008105 Days, E = 130.673976 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.5 | 2.47 | 2.29 | 3.81 | 4.85 | 2.24 | 1.17 | 18.2 | 16.7 | 0.18 | -1.34 | 0.85 | 0.98 | 0.16 | 0.45 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-06 / KOI 0351.06

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|--------------------|----------------------|-----------------|
| DV | -13 ± 5 | $1.67^{+0.20}_{-0.19}$ | 1486^{+67}_{-69} | 3610^{+236}_{-262} | 14^{+7}_{-5} |
| Alt. | -12 ± 5 | $1.34^{+0.19}_{-0.17}$ | 1486^{+72}_{-63} | 3850^{+291}_{-336} | 20^{+11}_{-9} |

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 $A_{obs} \gg 1.0$

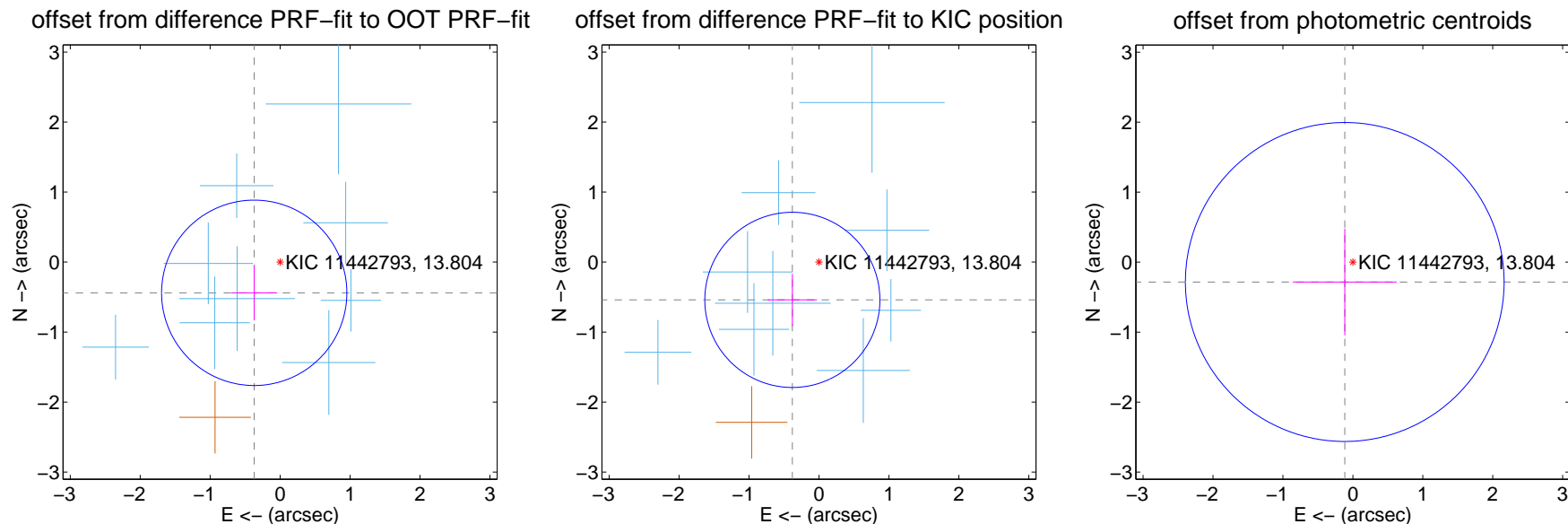
DV Centroid Data

Supplemental centroid analysis for 011442793-06. Kepler magnitude: 13.80. Transit SNR 16.61

There are 9 quarters with good PRF difference image offsets

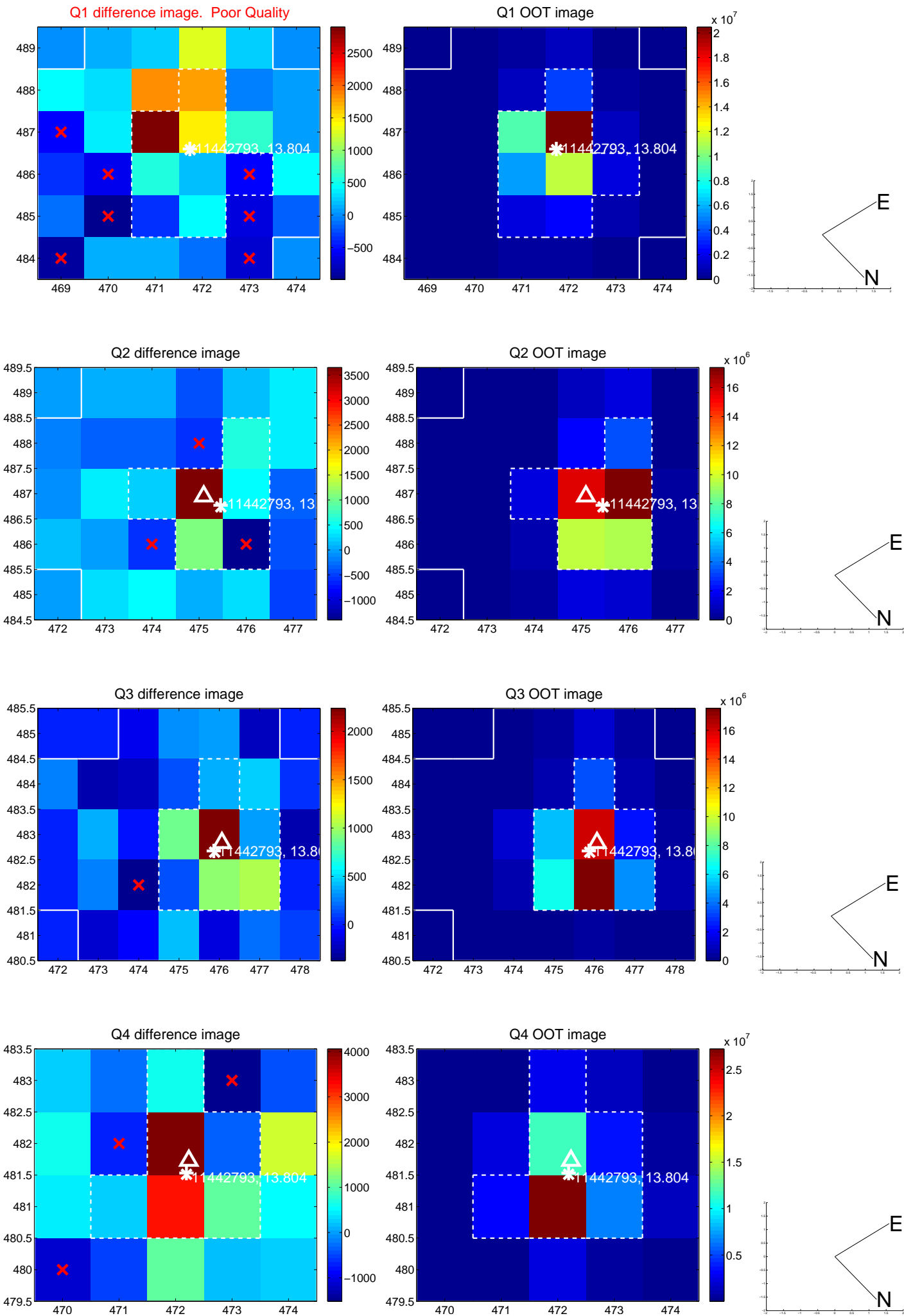
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.574 ± 0.441 | 1.30 | 0.370 ± 0.328 | -0.439 ± 0.393 |
| PRF-fit source offset from KIC position | 0.660 ± 0.417 | 1.58 | 0.381 ± 0.351 | -0.540 ± 0.371 |
| photometric centroid source offset | 0.31 ± 0.76 | 0.40 | 0.12 ± 0.74 | -0.28 ± 0.76 |

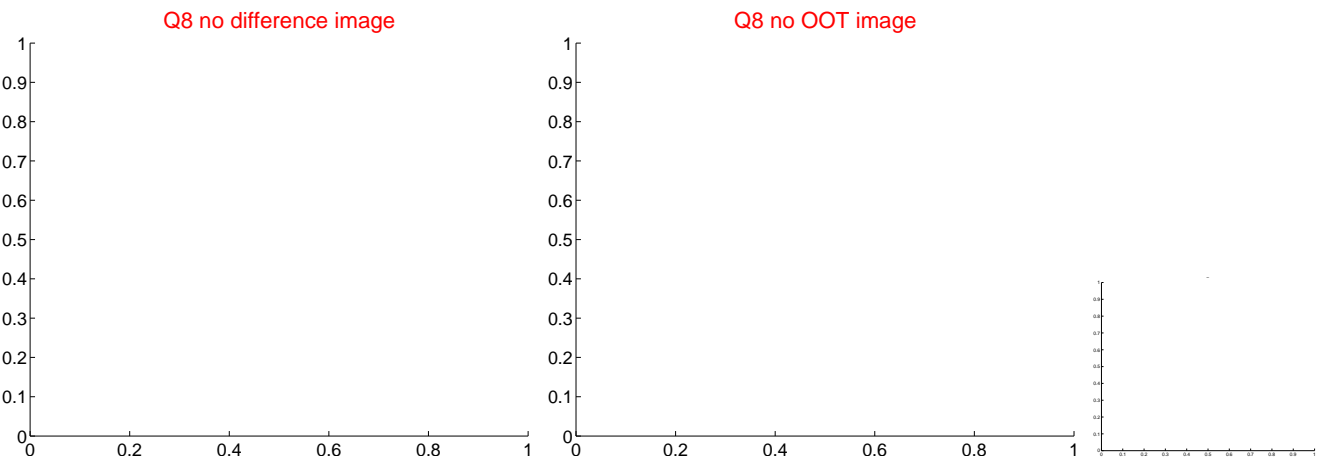
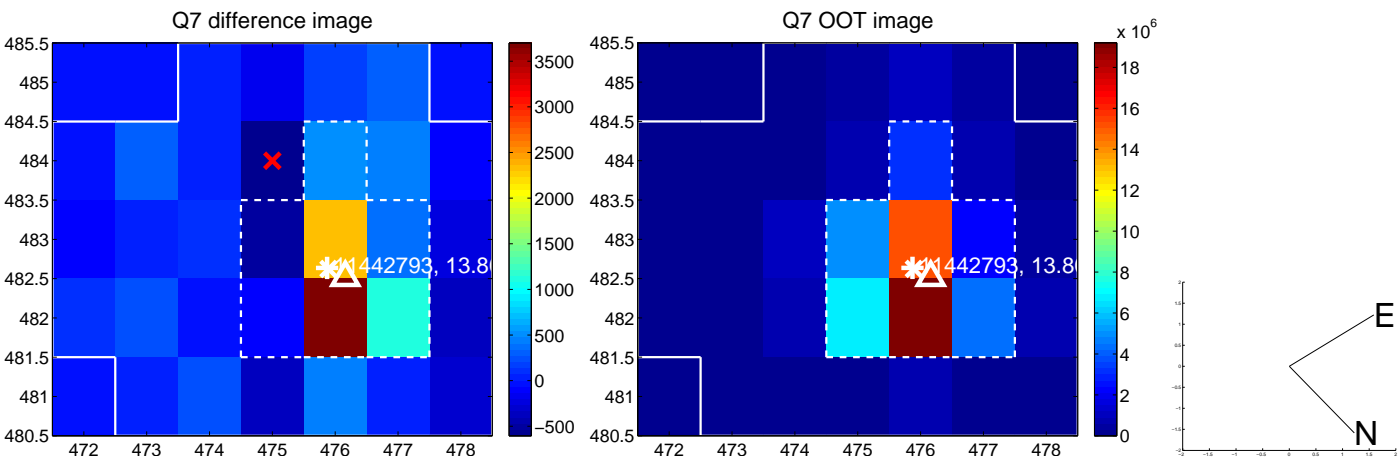
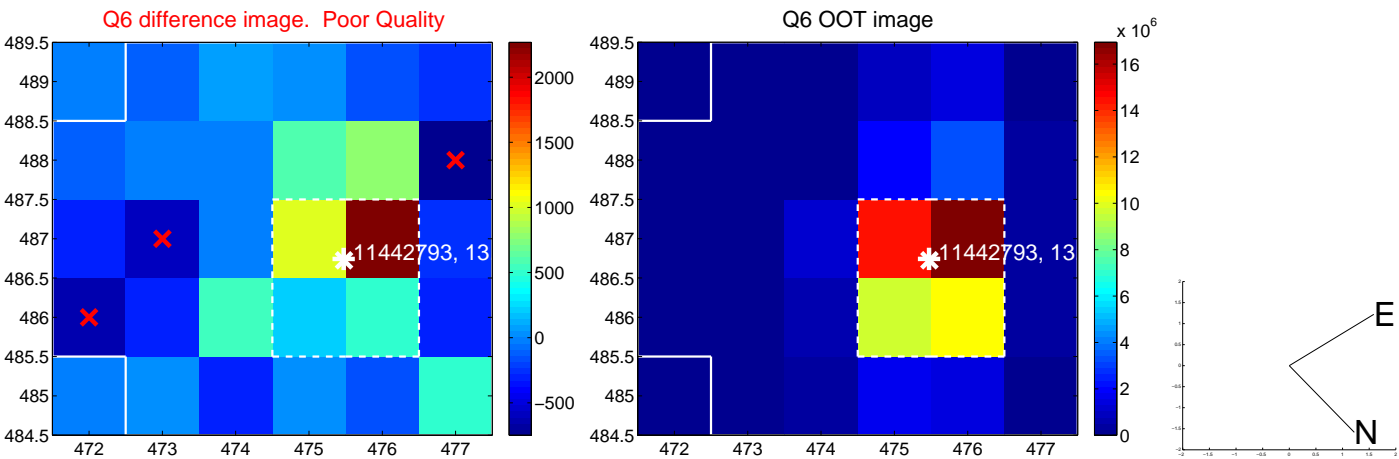
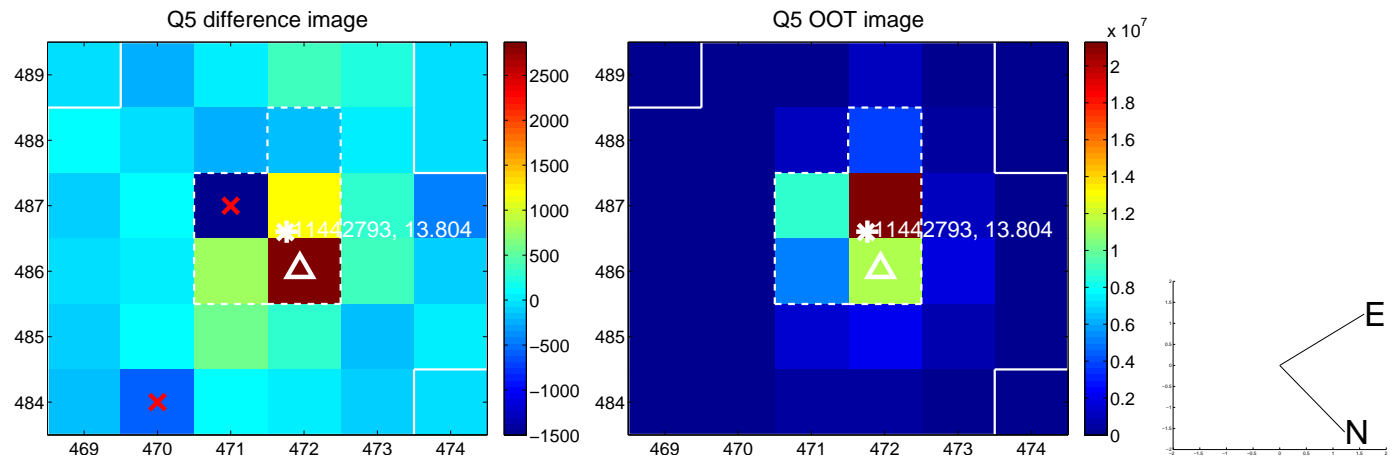


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

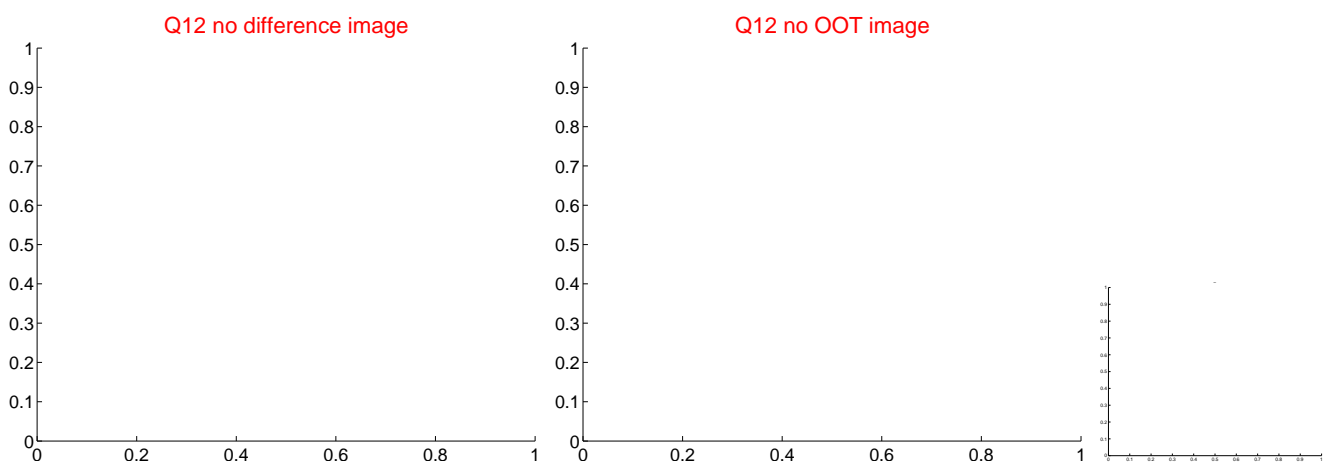
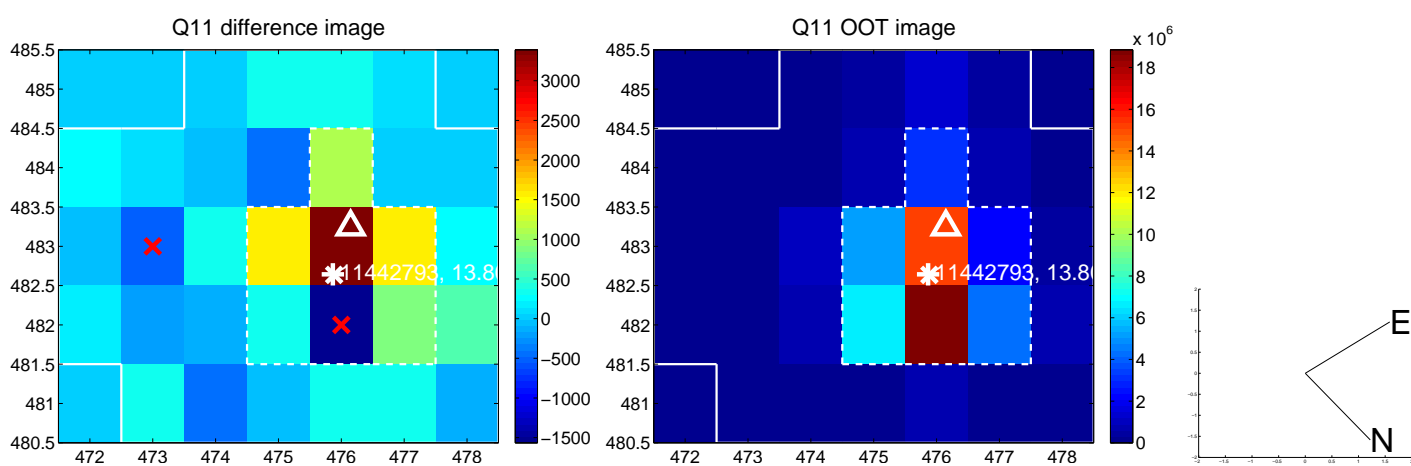
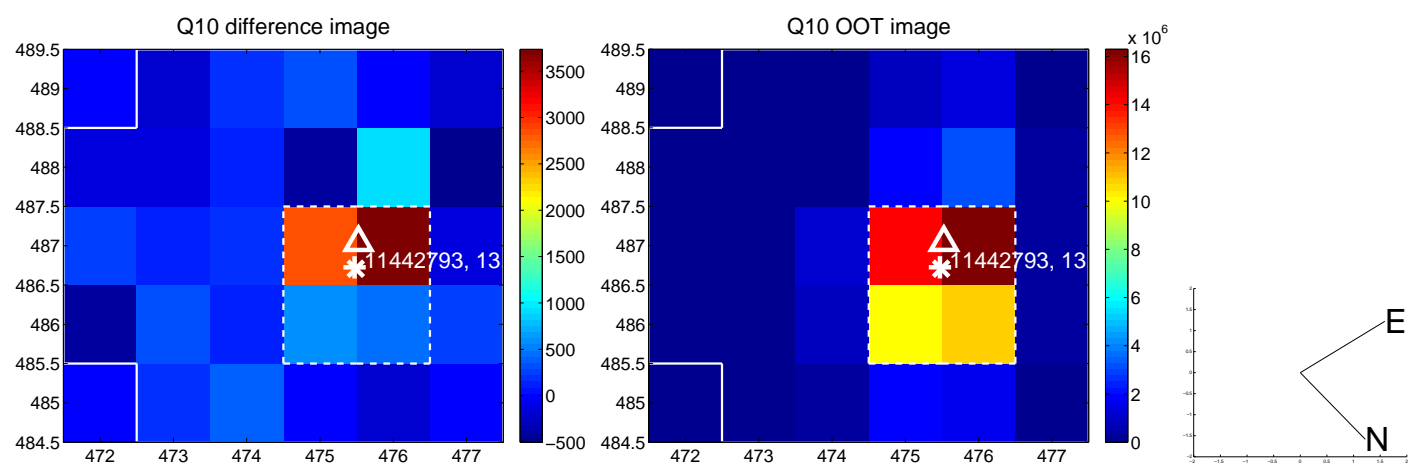
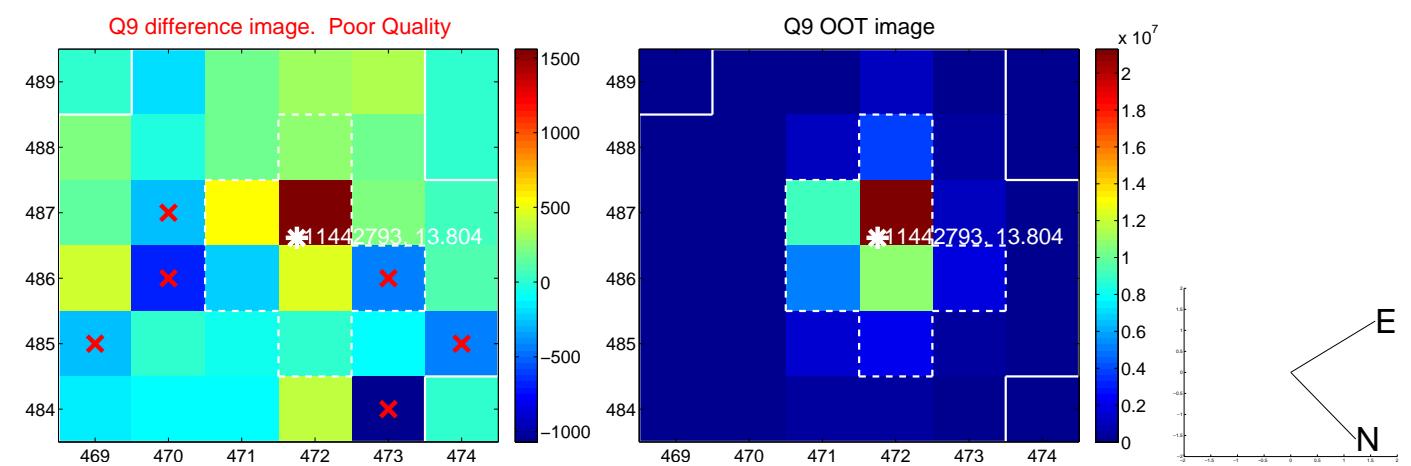
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



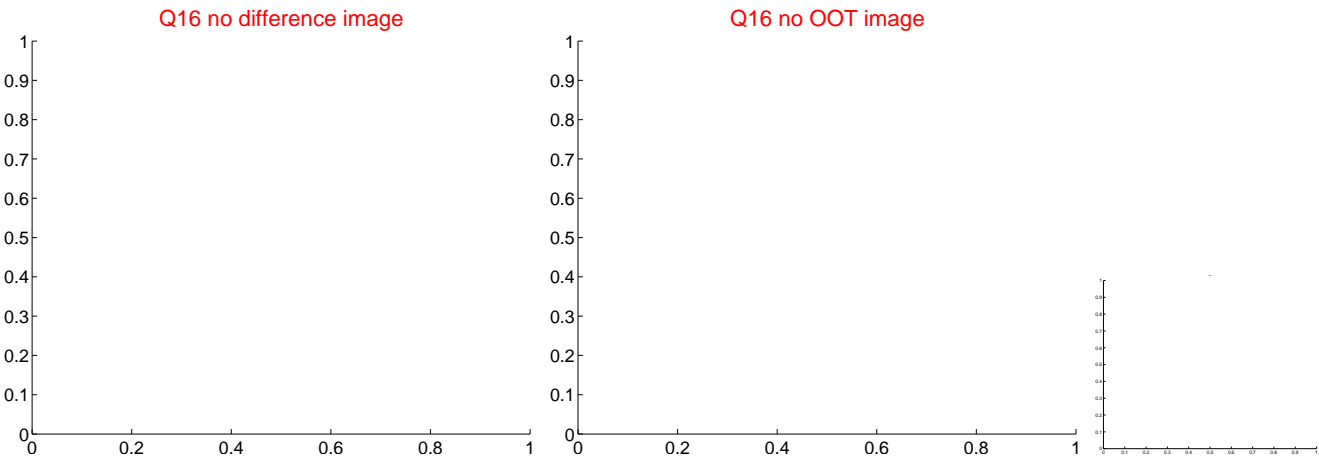
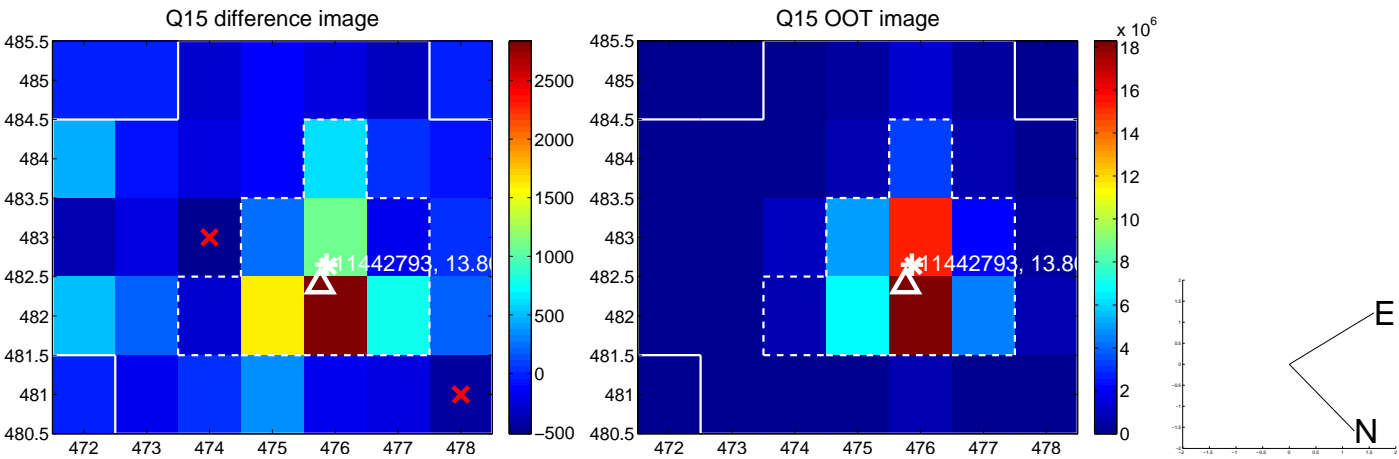
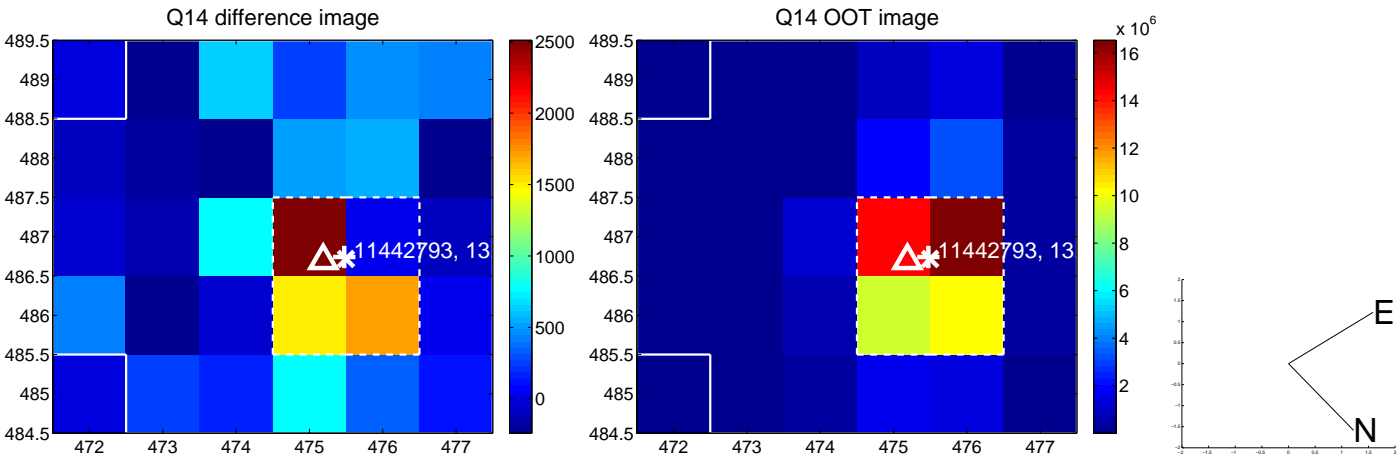
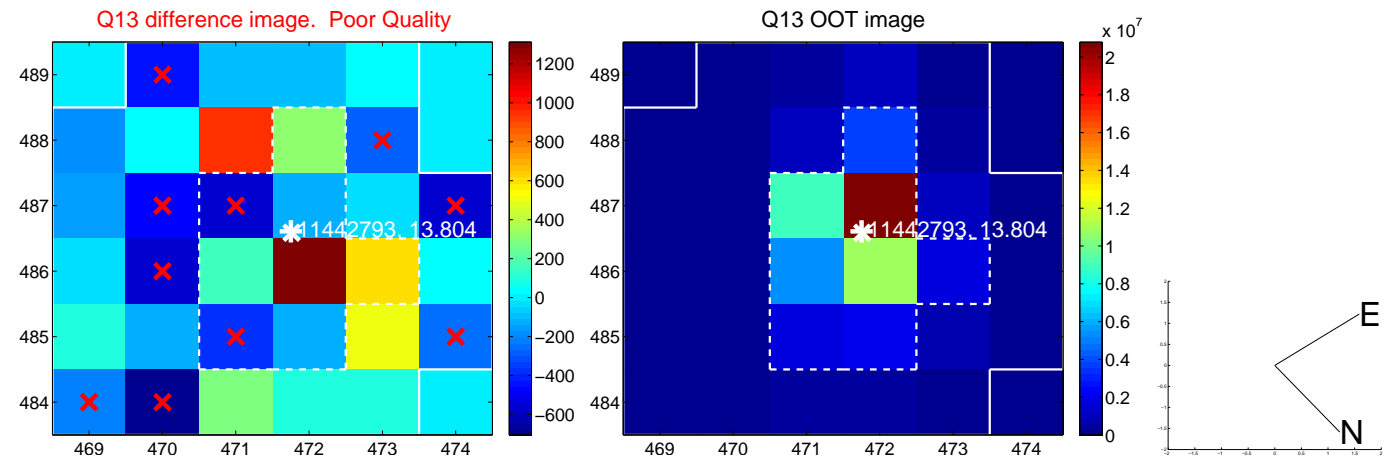
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



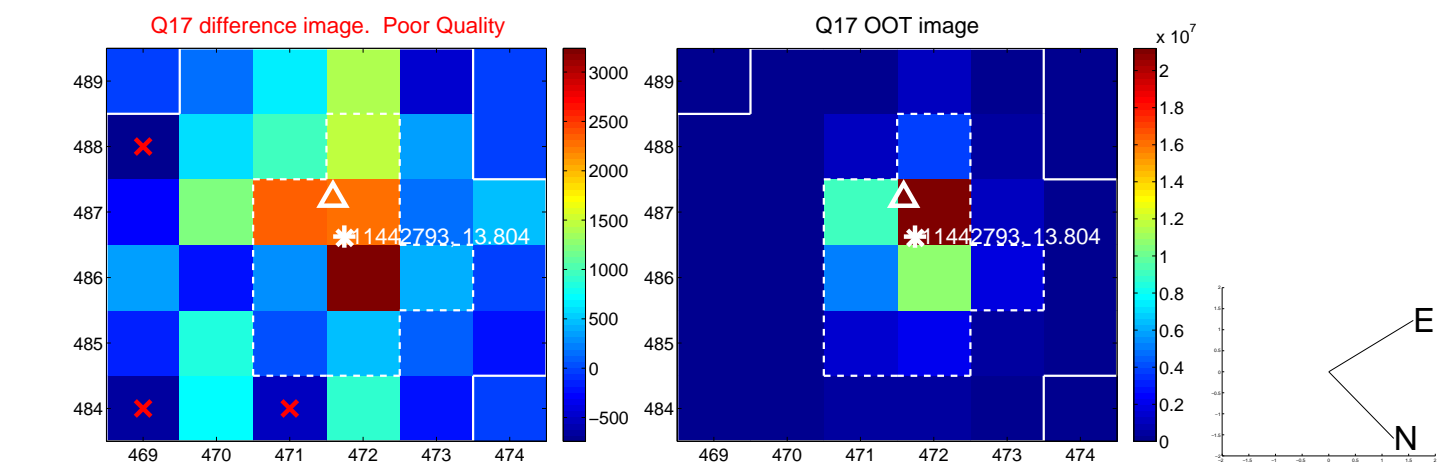
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



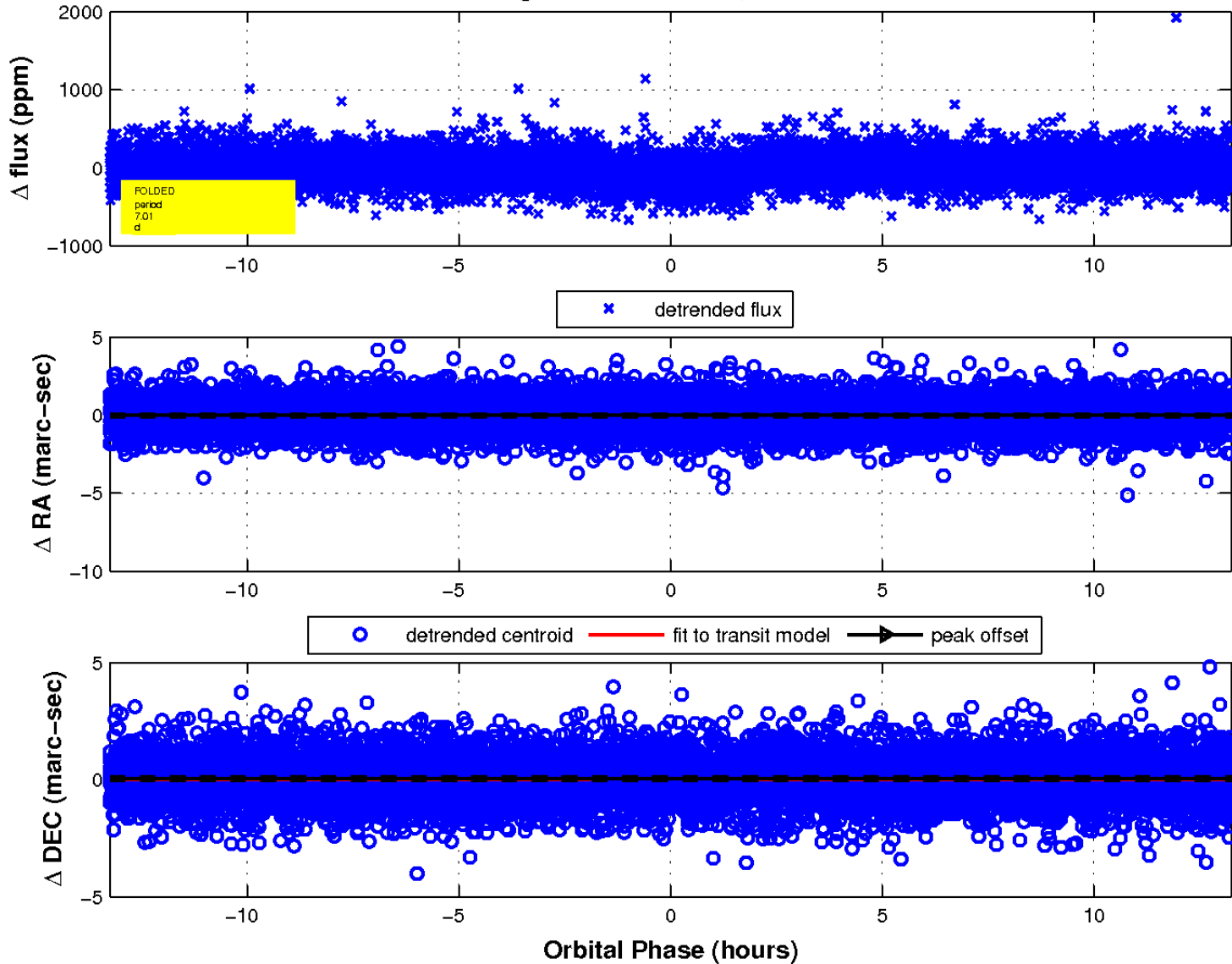
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

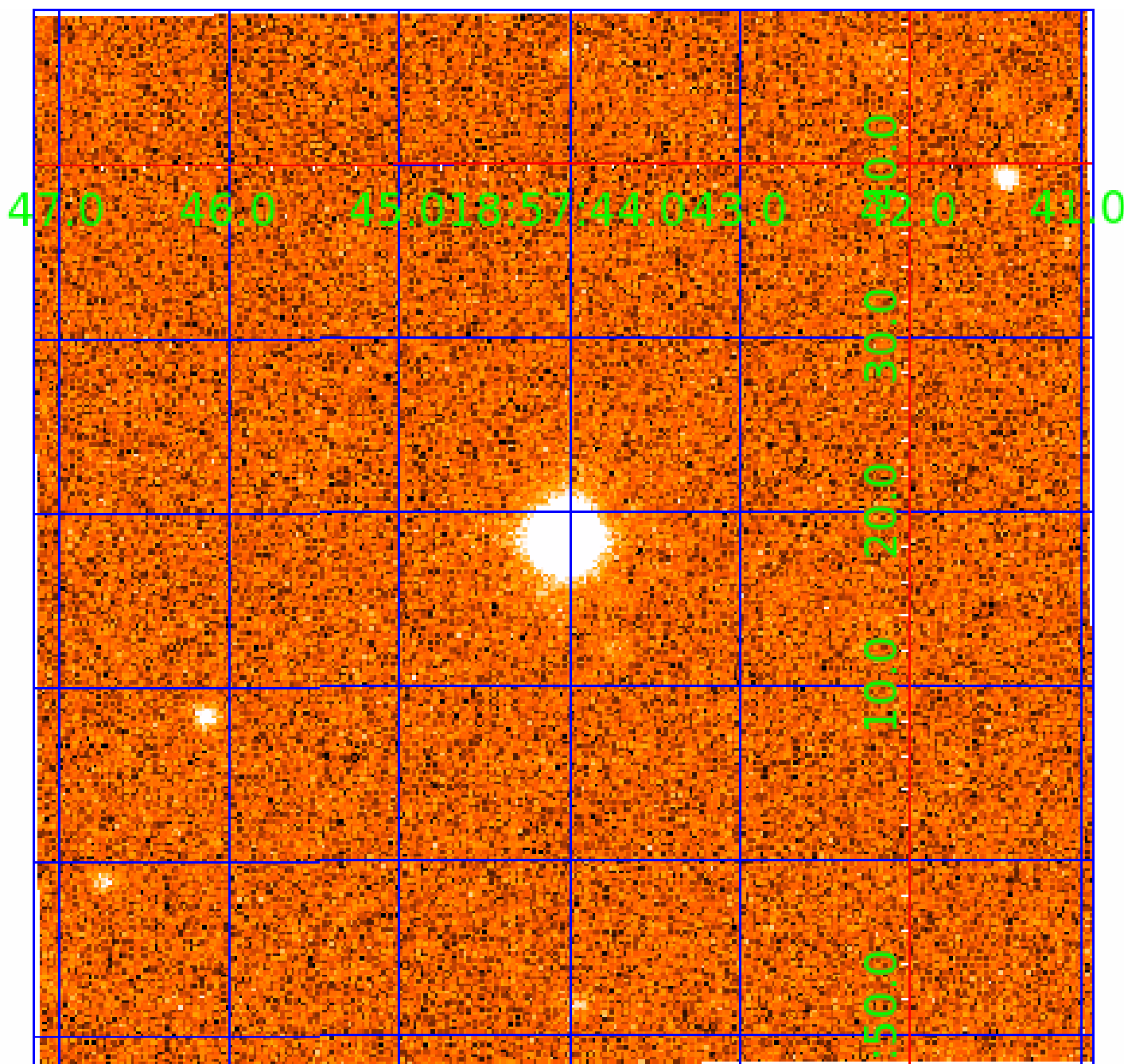


fluxWeightedCentroids, Planet 6 of 7



UKIRT Image

Declination



KIC 011442793

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-------|-------|-----------------------------|-----------------|------------------------|------------------------|
| 011442793-01 | OBS | 0351.01 | 331.603305 | 140.479505 | 8353.3 | 14.486 | 249.1 | 233.3 | 1.20 | 5970 | 10.96 | 1.76 |
| 011442793-02 | OBS | 0351.02 | 210.593472 | 147.099243 | 4164.3 | 12.058 | 101.8 | 121.8 | 1.20 | 5970 | 7.69 | 3.22 |
| 011442793-03 | OBS | 0351.03 | 59.736918 | 158.962394 | 563.2 | 8.537 | 29.1 | 30.2 | 1.20 | 5970 | 3.25 | 17.30 |
| 011442793-04 | OBS | 0351.04 | 91.939496 | 134.306521 | 507.8 | 10.028 | 24.9 | 25.1 | 1.20 | 5970 | 3.22 | 9.73 |
| 011442793-05 | OBS | 0351.07 | 124.914938 | 254.703976 | 519.5 | 11.738 | 18.2 | 18.9 | 1.20 | 5970 | 3.22 | 6.47 |
| 011442793-06 | OBS | 0351.06 | 7.008208 | 137.674831 | 116.3 | 4.417 | 14.8 | 16.6 | 1.20 | 5970 | 1.67 | 301.14 |
| 011442793-07 | OBS | 0351.05 | 8.719799 | 139.520964 | 143.1 | 4.809 | 14.1 | 16.7 | 1.20 | 5970 | 1.95 | 225.03 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|------------------------|
| 011442793-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | MOD_SEC_DV—MOD_SEC_ALT |
| 011442793-02 | OBS | PC | 0.88 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-03 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-04 | OBS | PC | 0.97 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-05 | OBS | PC | 0.99 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-06 | OBS | PC | 0.92 | 0 | 0 | 0 | 0 | NO_COMMENT |
| 011442793-07 | 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.

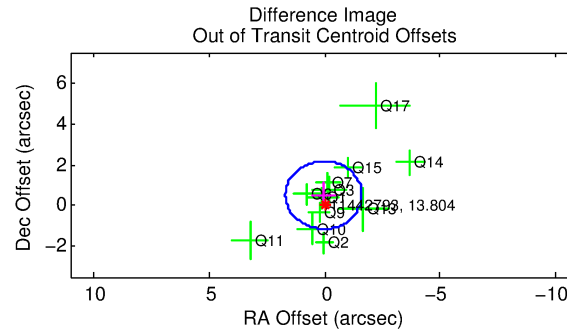
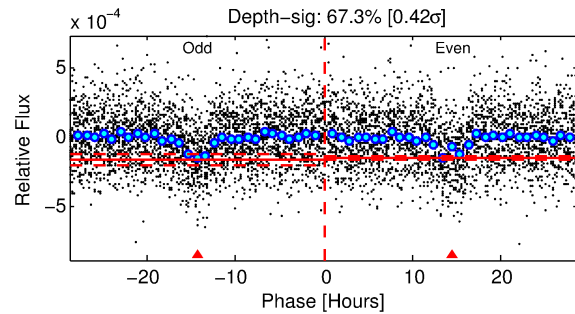
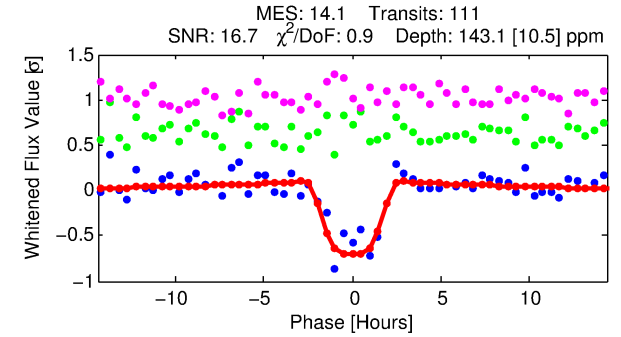
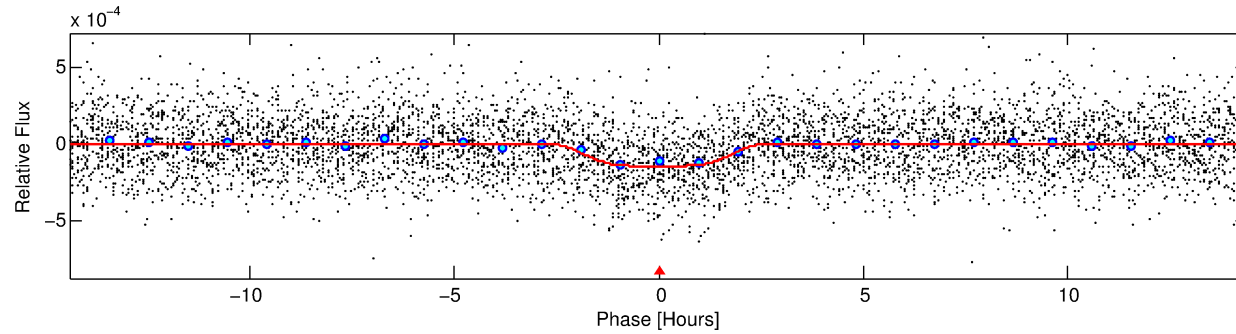
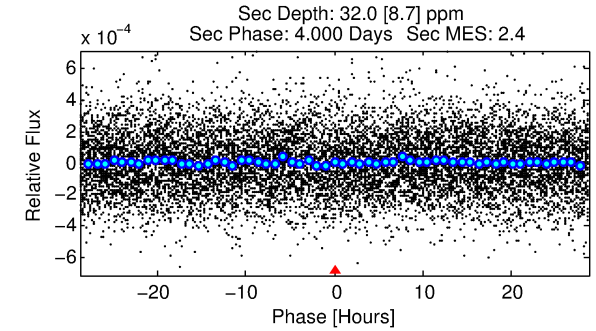
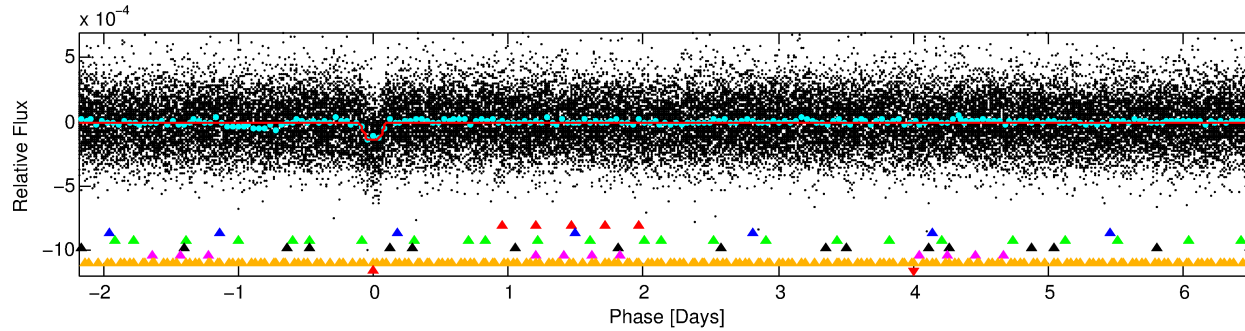
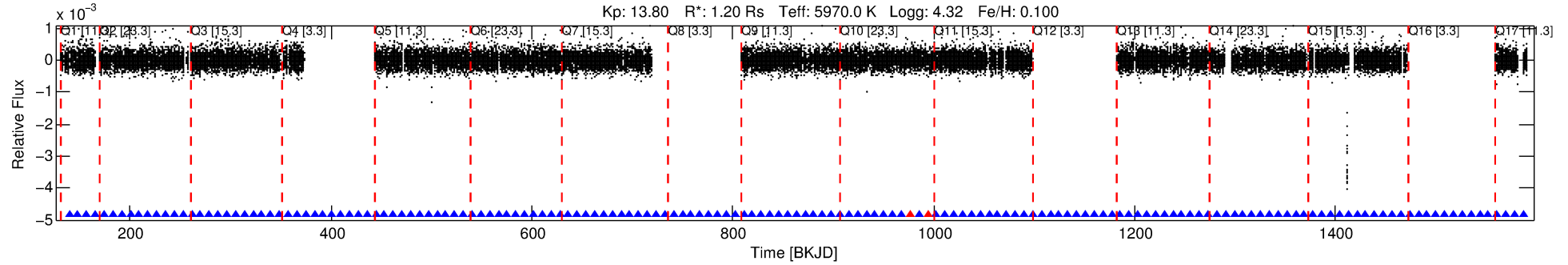
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011442793-07

No Significant Match Found

DV One-Page Summary

KIC: 11442793 Candidate: 7 of 7 Period: 8.720 d
KOI: K00351.05 Name: Kepler-90c Corr: 0.886



DV Fit Results:

Period = 8.71980 [0.00007] d
Epoch = 139.5210 [0.0062] BKJD
Rp/R* = 0.0149 [0.0008]
a/R* = 3.87 [0.59]
b = 0.98 [0.01]
Seff = 225.03 [52.26]
Teq = 988 [57] K
Rp = 1.95 [0.33] Re
a = 0.0853 [0.0122] AU
Ag = 33.83 [12.27] [2.68σ]
Teffp = 3683 [281] K [9.40σ]

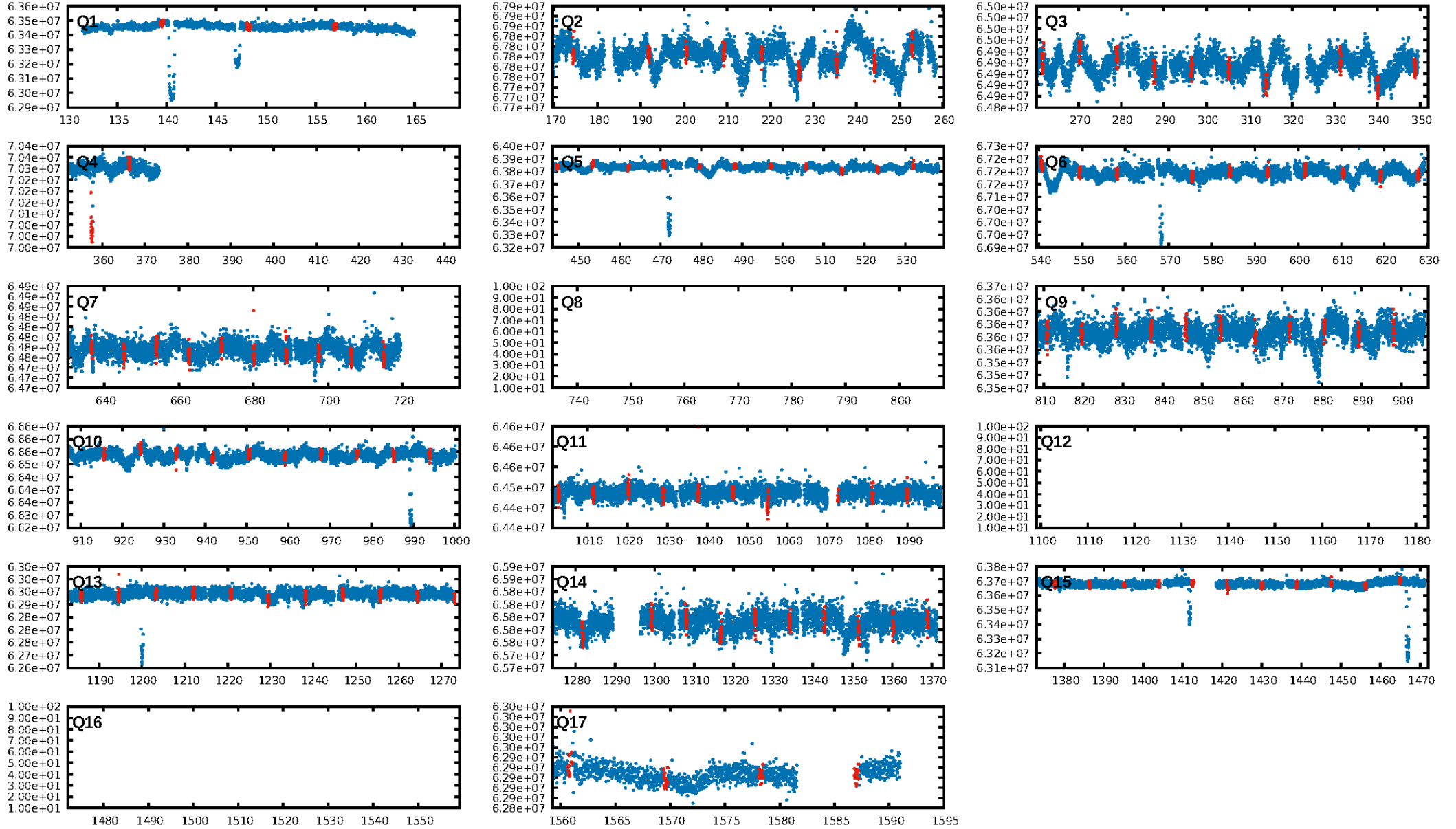
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.29σ]
LongPeriod-sig: 100.0% [124.96σ]
ModelChiSquare2-sig: 98.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.45e-44
RollingBand-fgt: 0.98 [101/103]
GhostDiagnostic-chr: 8.864
Centroid-sig: 4.5%
Centroid-so: 1.117 arcsec [1.53σ]
OotOffset-rm: 0.510 arcsec [0.92σ]
OotOffset-st: 4/4/0/4 [12]
KicOffset-rm: 0.433 arcsec [0.97σ]
KicOffset-st: 4/4/0/4 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [14/14]

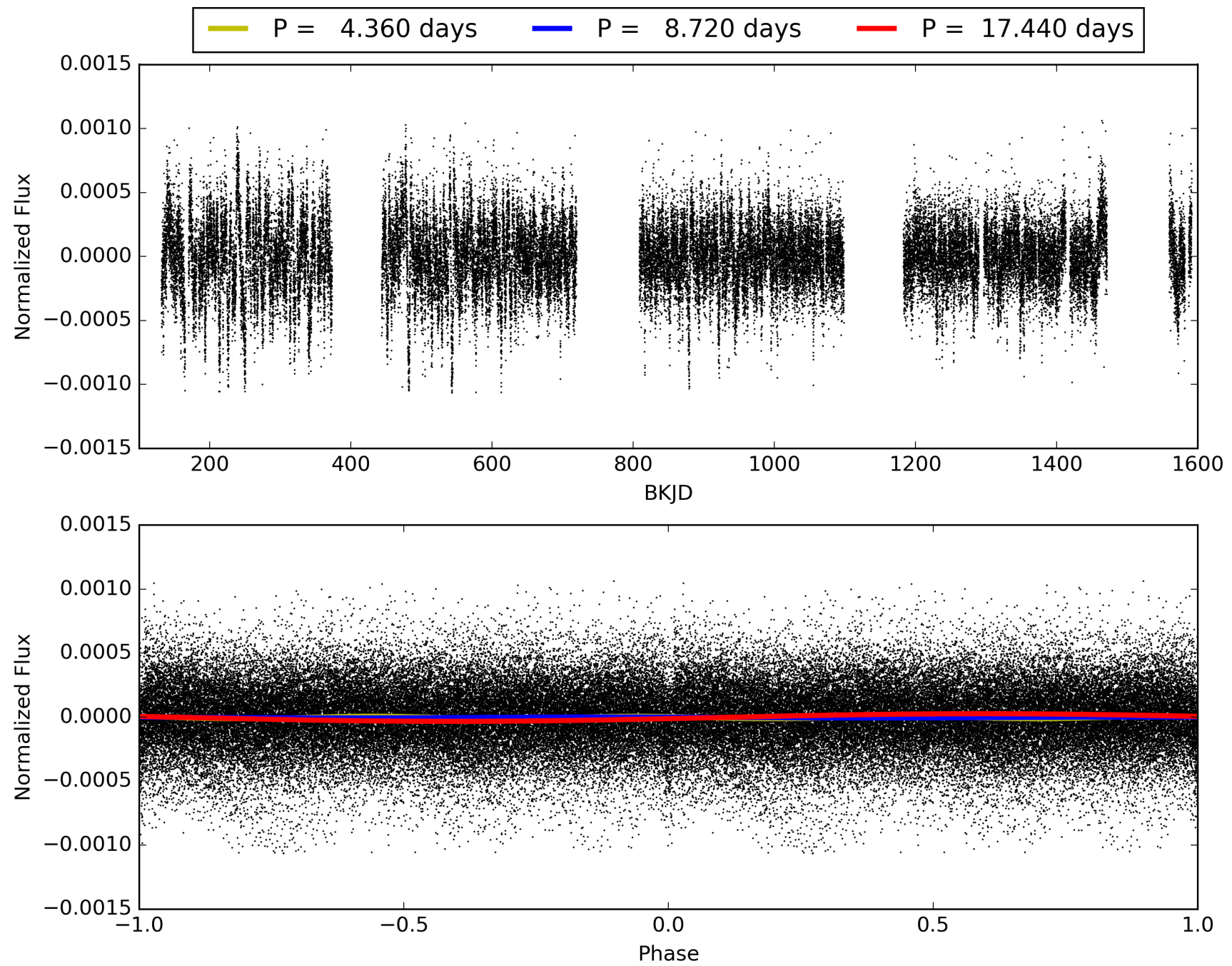
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:01:56 Z

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

TCE 011442793-07, PDC Light Curves

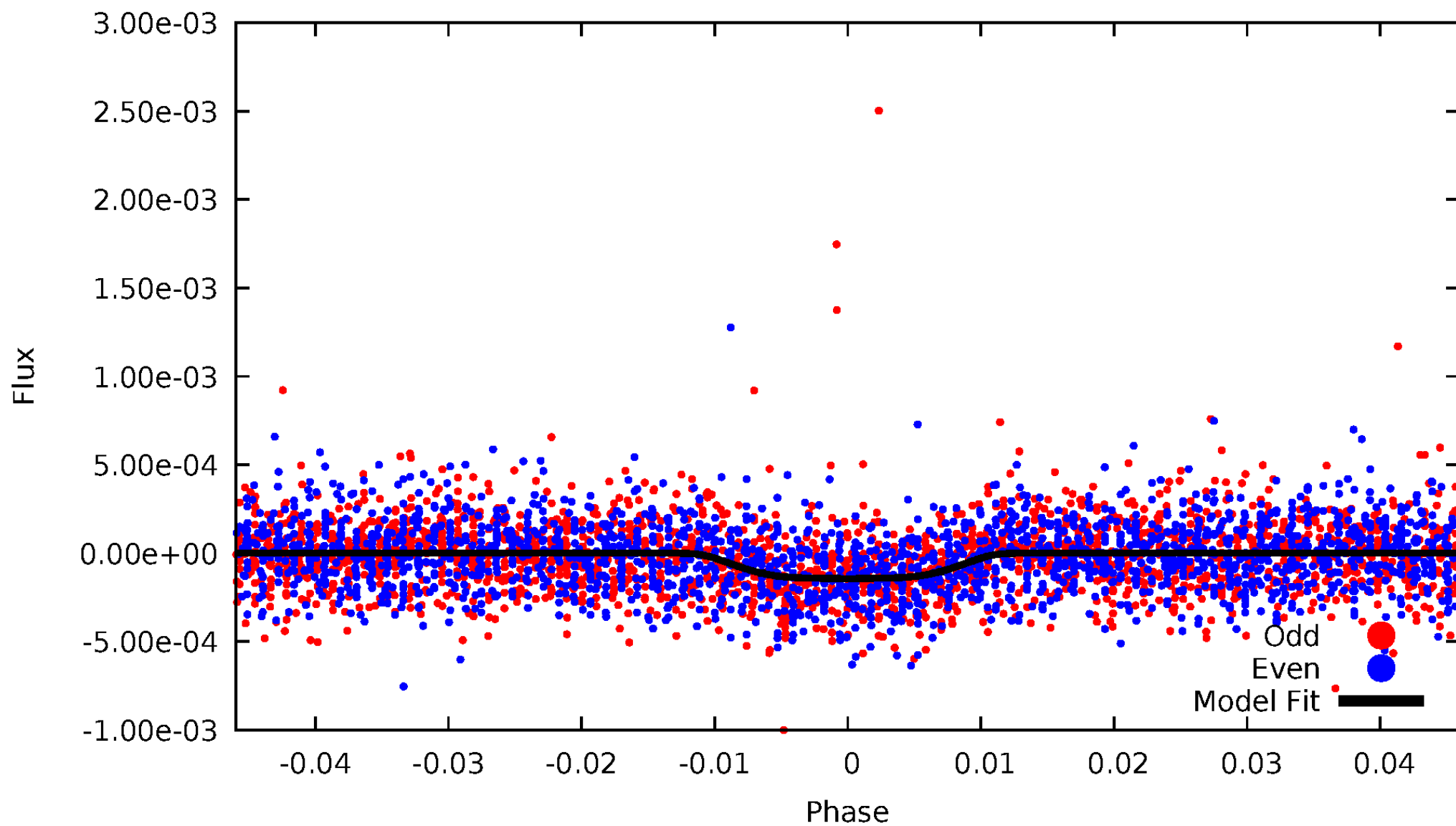


TCE 011442793-07



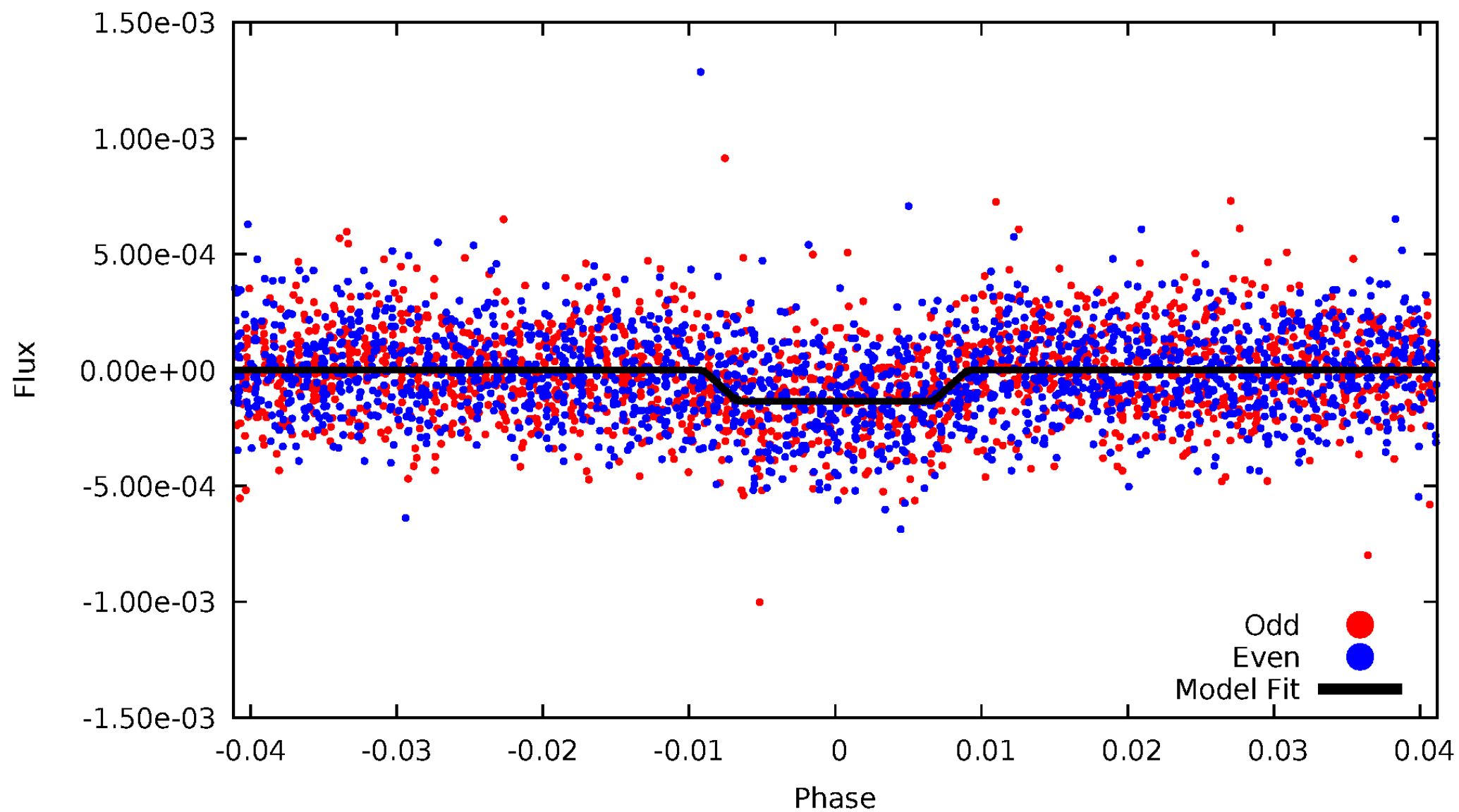
DV Odd/Even

TCE 011442793-07



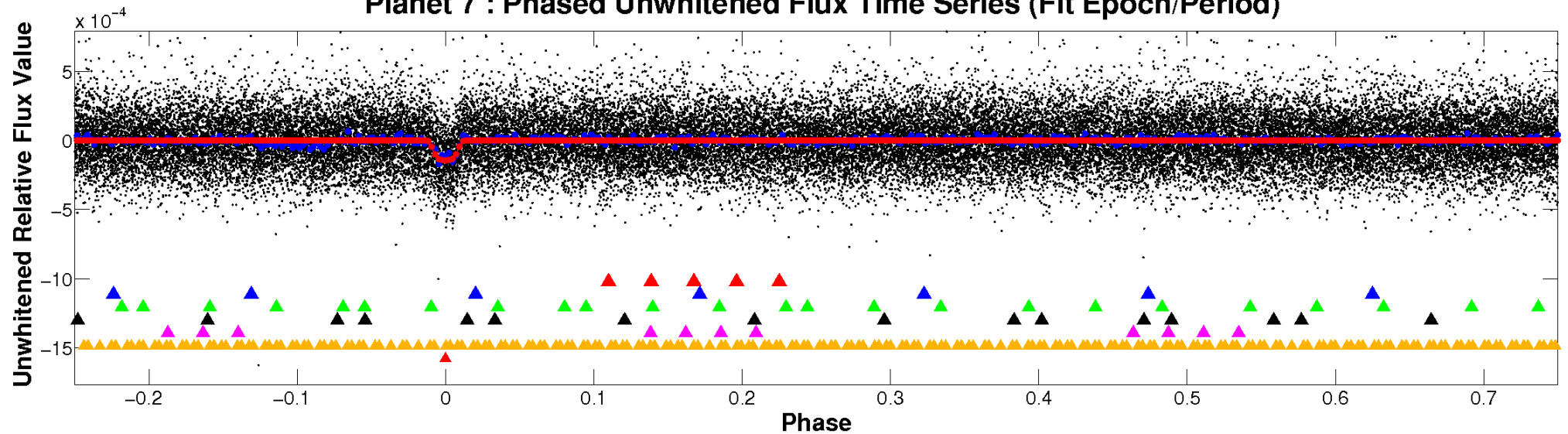
ALT Odd/Even

TCE 011442793-07

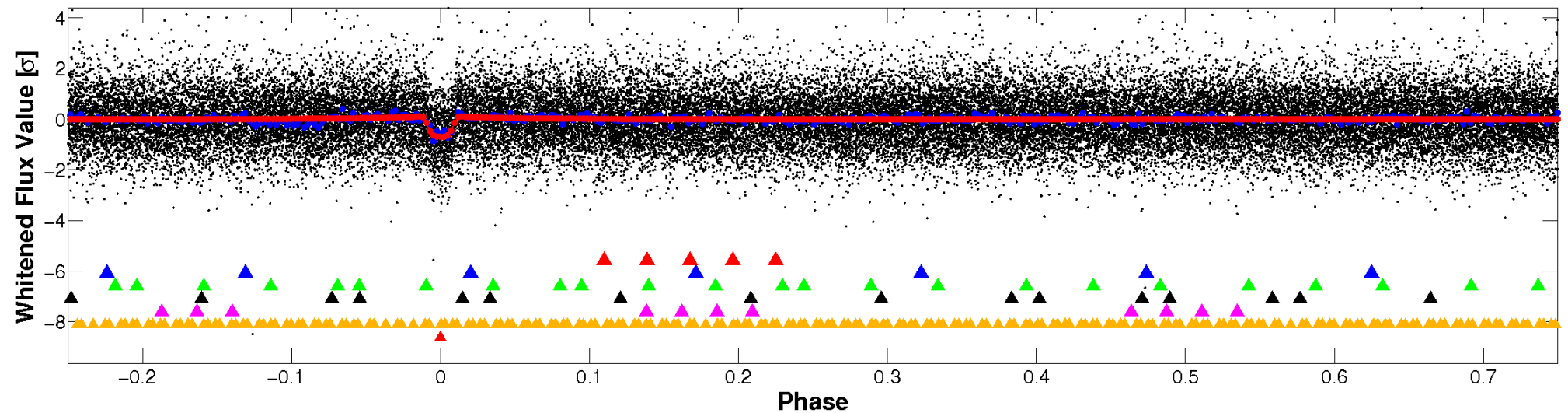


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

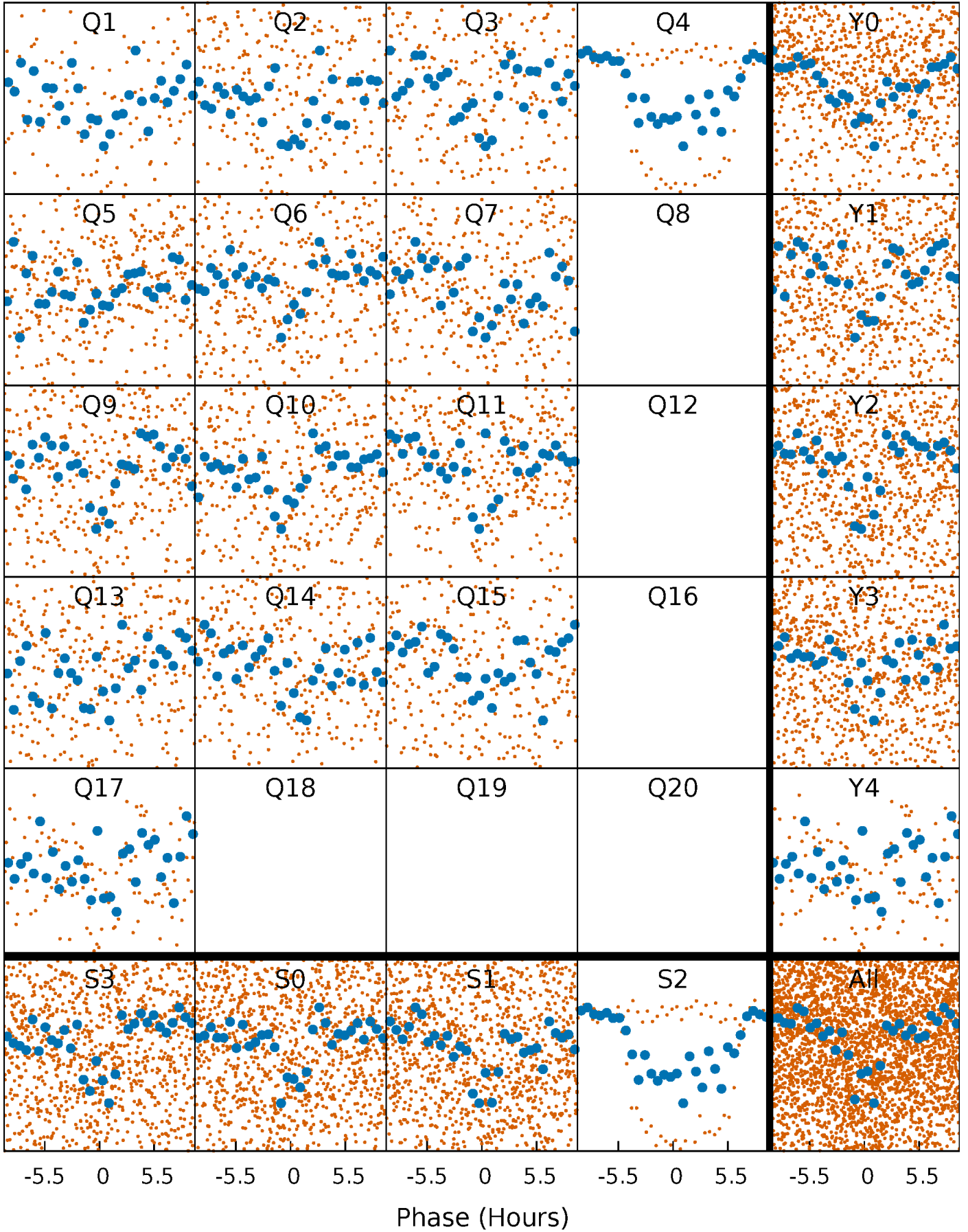


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



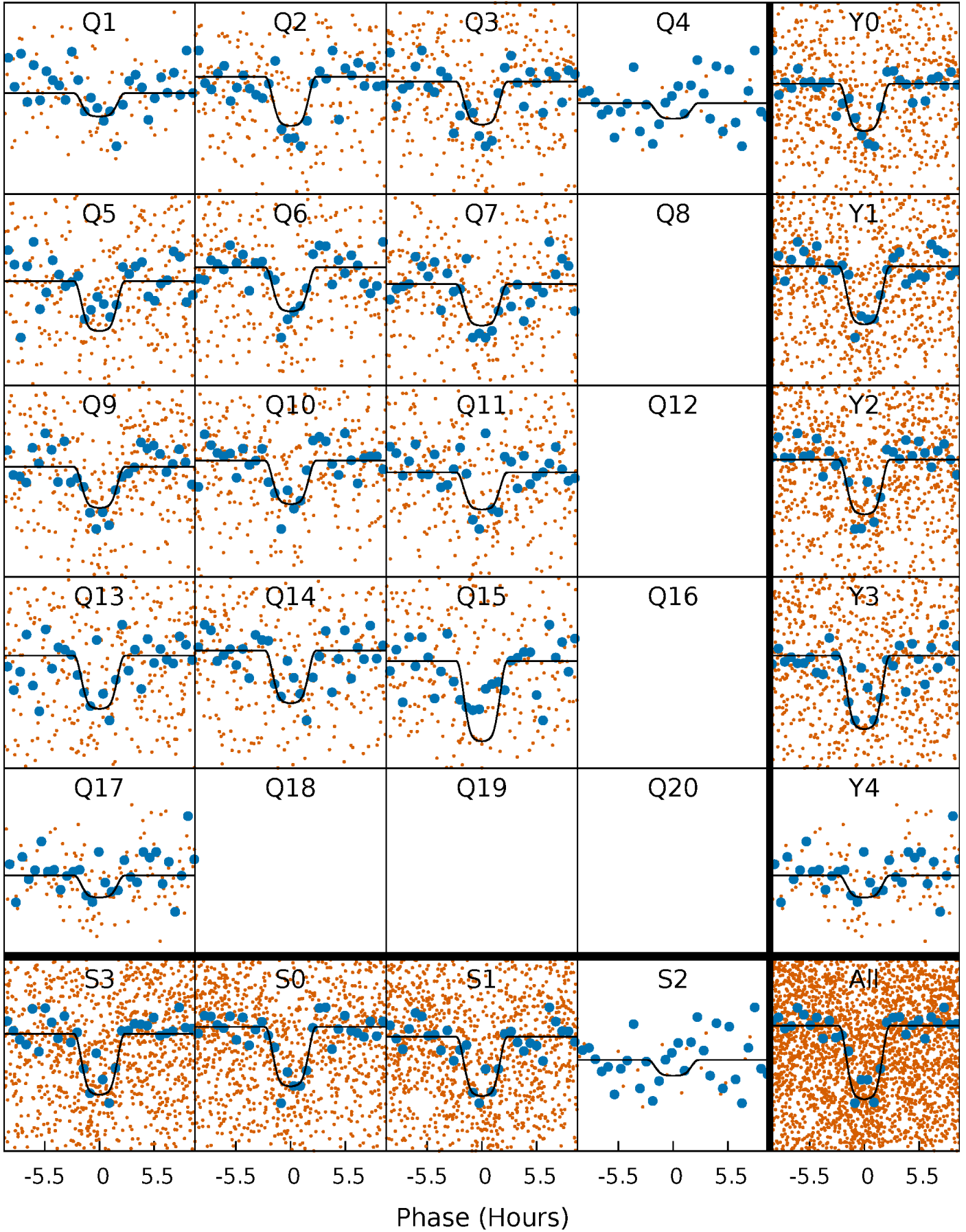
PDC Quarter-Phased Transit Curves

TCE 011442793-07 P= 8.719799 Days $T_0=139.520964$ (BKJD)



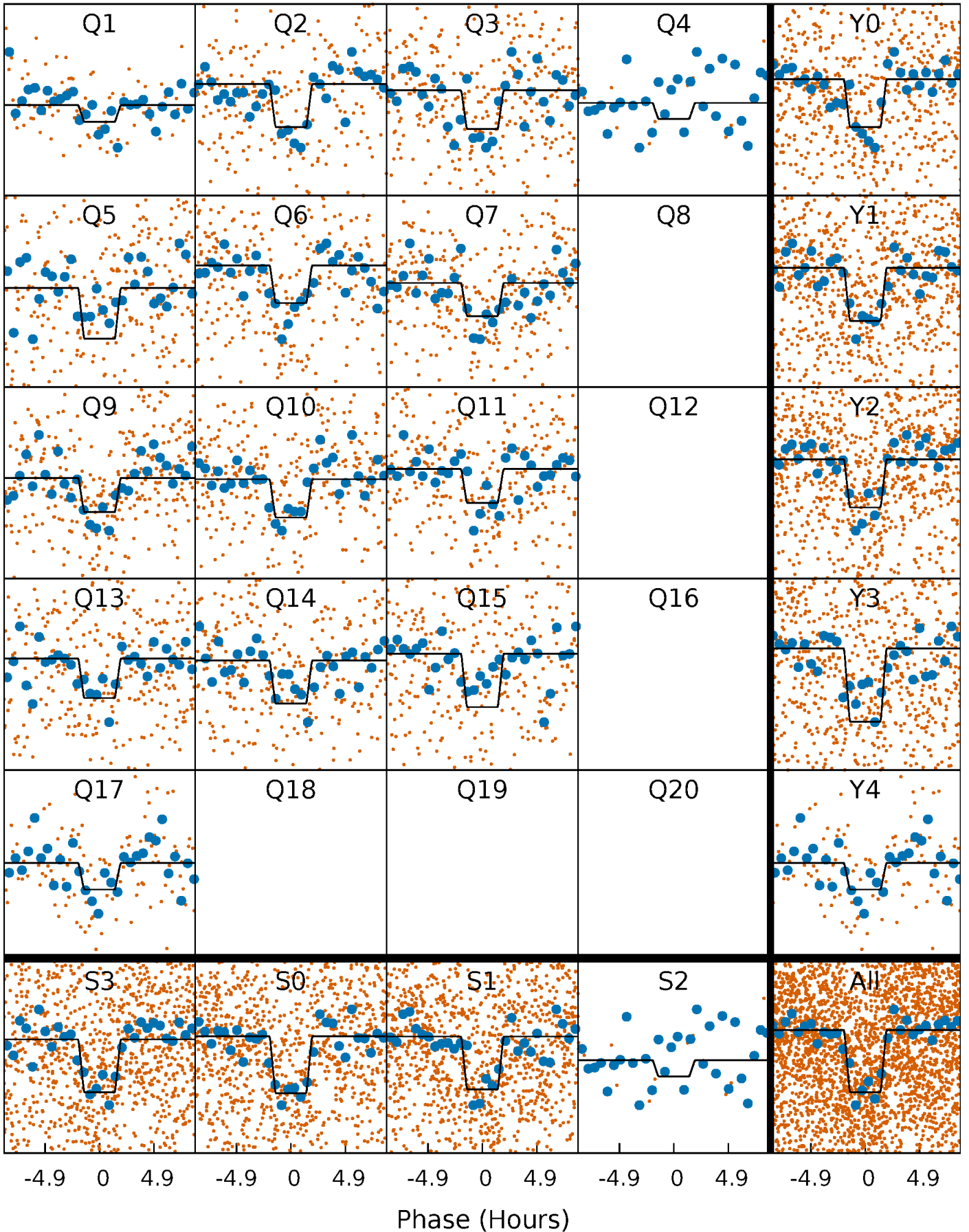
DV Quarter-Phased Transit Curves

TCE 011442793-07 P= 8.719799 Days $T_0=139.520964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

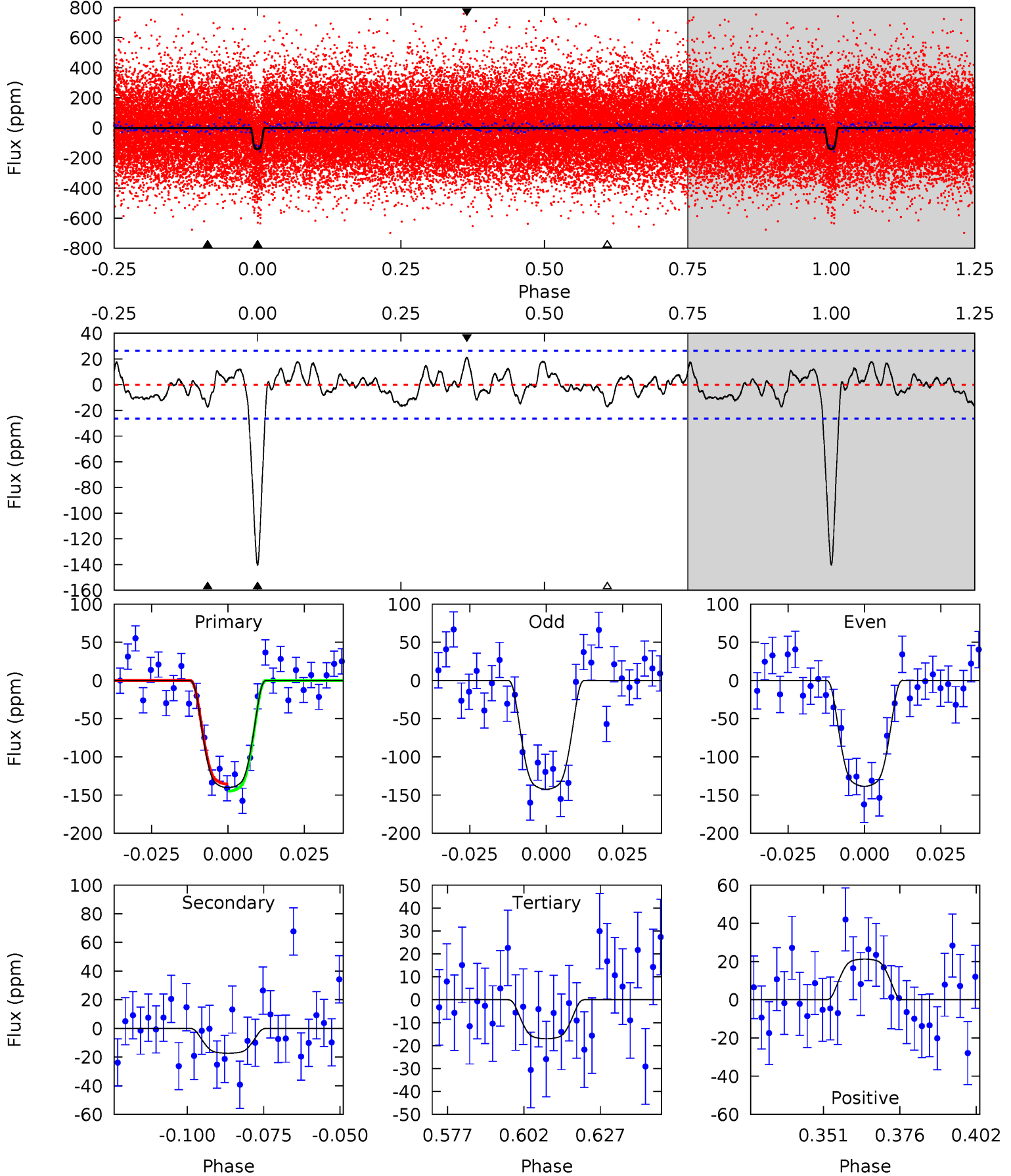
TCE 011442793-07 $P = 8.719782$ Days $T_0 = 139.525672$ (BKJD)



DV Model-Shift Uniqueness Test

011442793-07, P = 8.719799 Days, E = 130.801165 Days

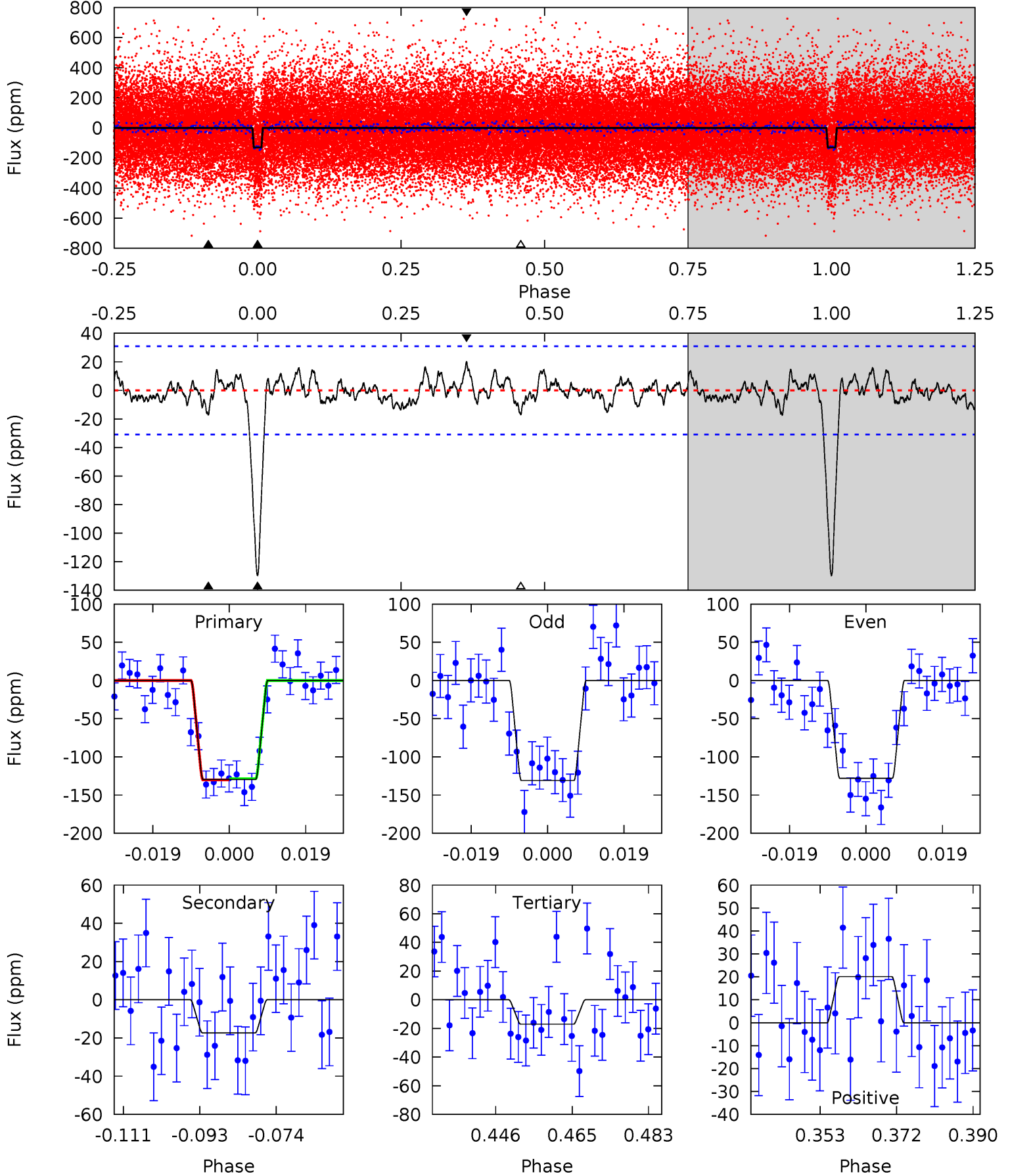
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.7 | 3.18 | 3.12 | 3.91 | 4.85 | 2.24 | 1.43 | 22.6 | 21.8 | 0.06 | -0.73 | 0.36 | 1.07 | 0.13 | 0.86 |



Alt Model-Shift Uniqueness Test

011442793-07, P = 8.719782 Days, E = 130.805890 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.5 | 2.75 | 2.71 | 3.18 | 4.91 | 2.35 | 1.02 | 17.8 | 17.3 | 0.05 | -0.43 | 0.23 | 1.05 | 0.13 | 0.13 |



Stellar Parameters For KIC 011442793

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5970^{+107}_{-131} | $4.317^{+0.110}_{-0.121}$ | $0.100^{+0.150}_{-0.150}$ | $1.200^{+0.195}_{-0.160}$ | $1.089^{+0.089}_{-0.080}$ | $0.889^{+0.377}_{-0.312}$ |
| | +2%/-2% | +3%/-3% | +150%/-150% | +16%/-13% | +8%/-7% | +42%/-35% |
| 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 011442793-07 / KOI 0351.05

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|------------------|
| DV | -17 ± 5 | $1.95^{+0.20}_{-0.19}$ | 1379^{+61}_{-64} | 3589^{+196}_{-234} | 18^{+7}_{-6} |
| Alt. | -17 ± 6 | $1.53^{+0.19}_{-0.17}$ | 1380^{+61}_{-57} | 3906^{+271}_{-292} | 30^{+15}_{-12} |

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

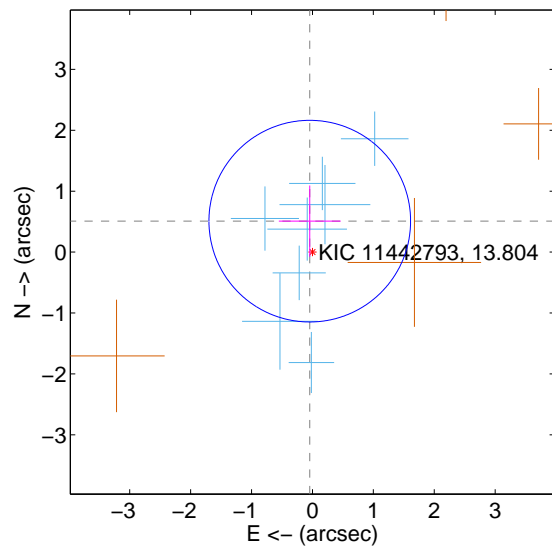
Supplemental centroid analysis for 011442793-07. Kepler magnitude: 13.80. Transit SNR 16.70

There are 8 quarters with good PRF difference image offsets

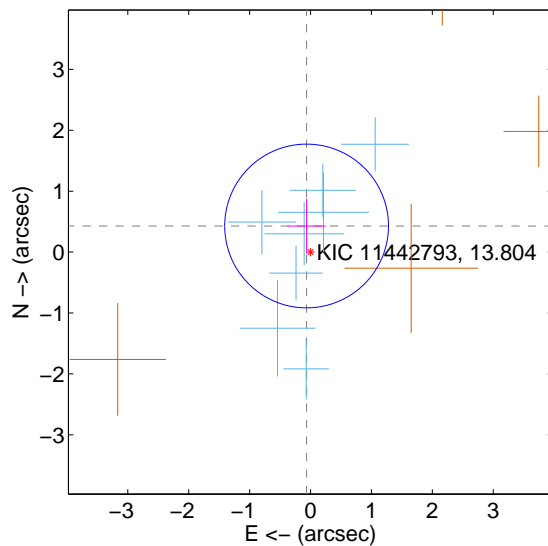
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.510 ± 0.552 | 0.92 | 0.044 ± 0.507 | 0.508 ± 0.584 |
| PRF-fit source offset from KIC position | 0.433 ± 0.448 | 0.97 | 0.065 ± 0.315 | 0.429 ± 0.451 |
| photometric centroid source offset | 1.12 ± 0.73 | 1.53 | -0.52 ± 0.71 | 0.99 ± 0.74 |

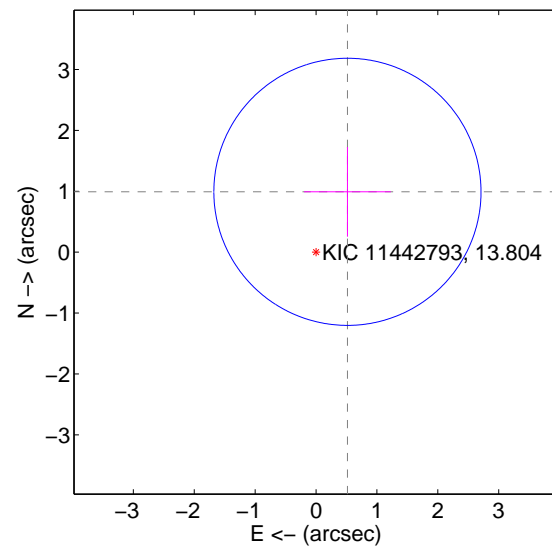
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

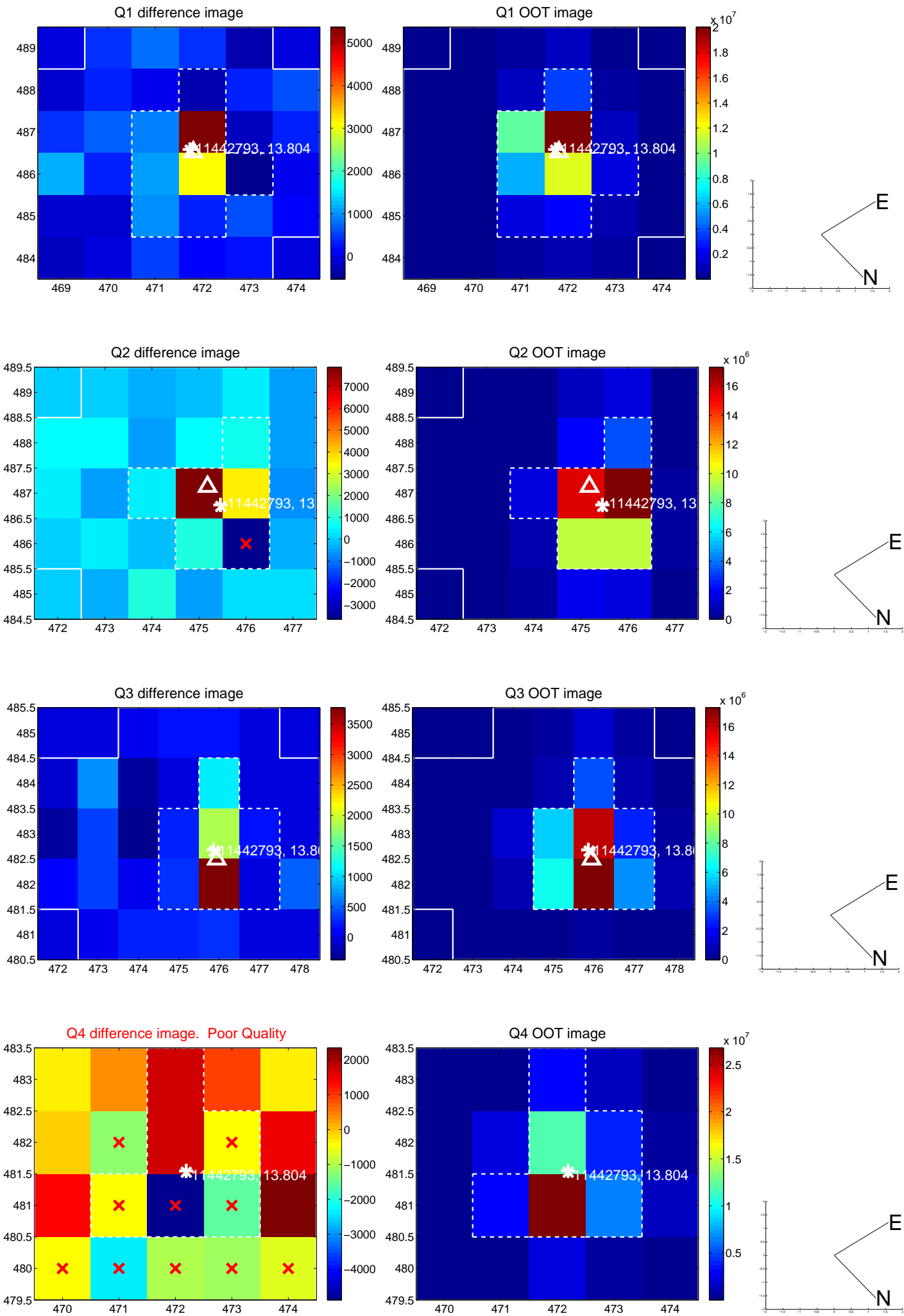


offset from photometric centroids

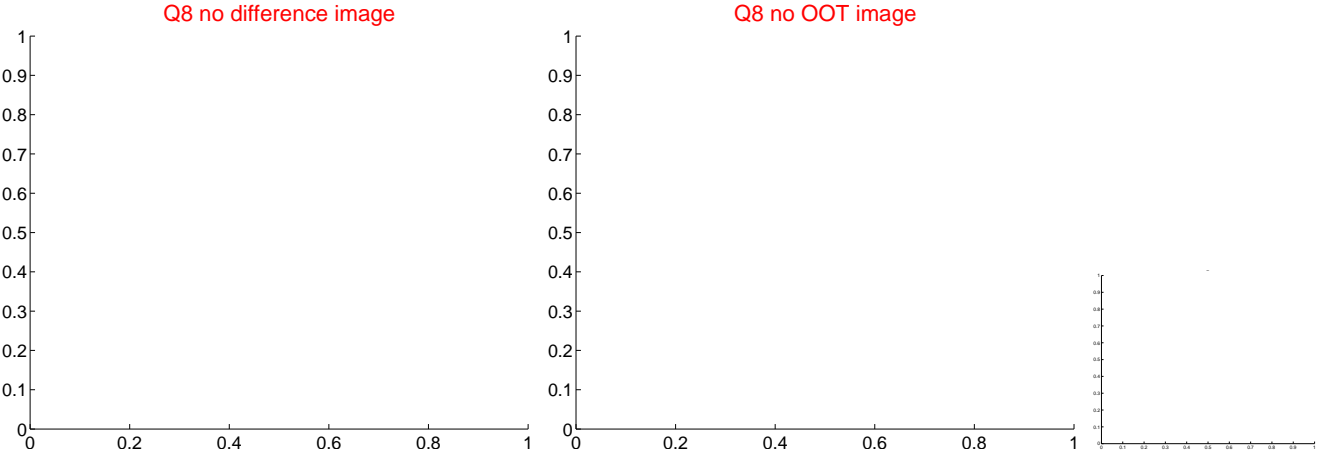
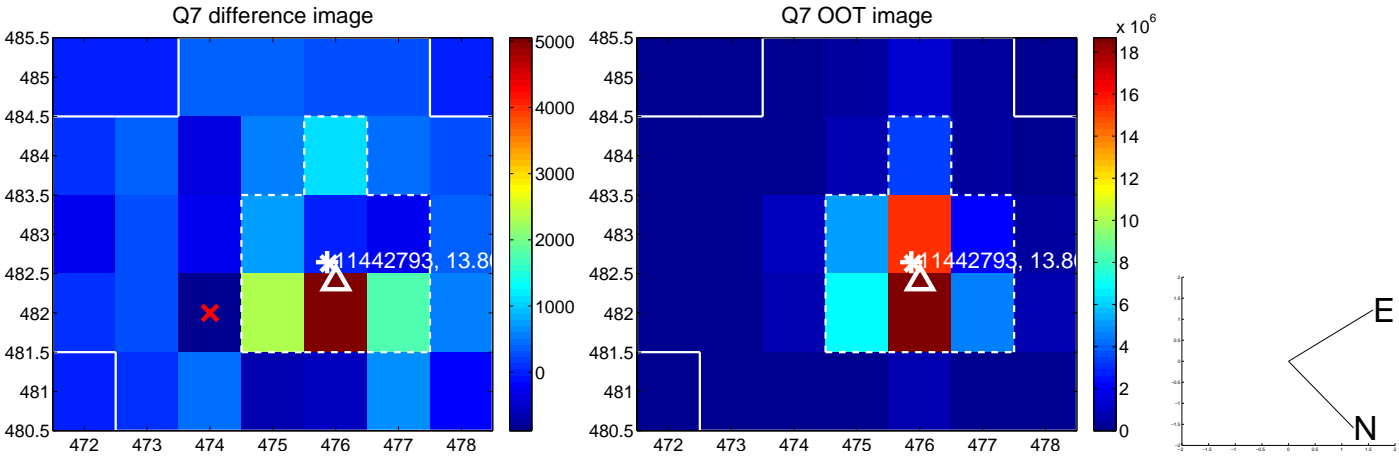
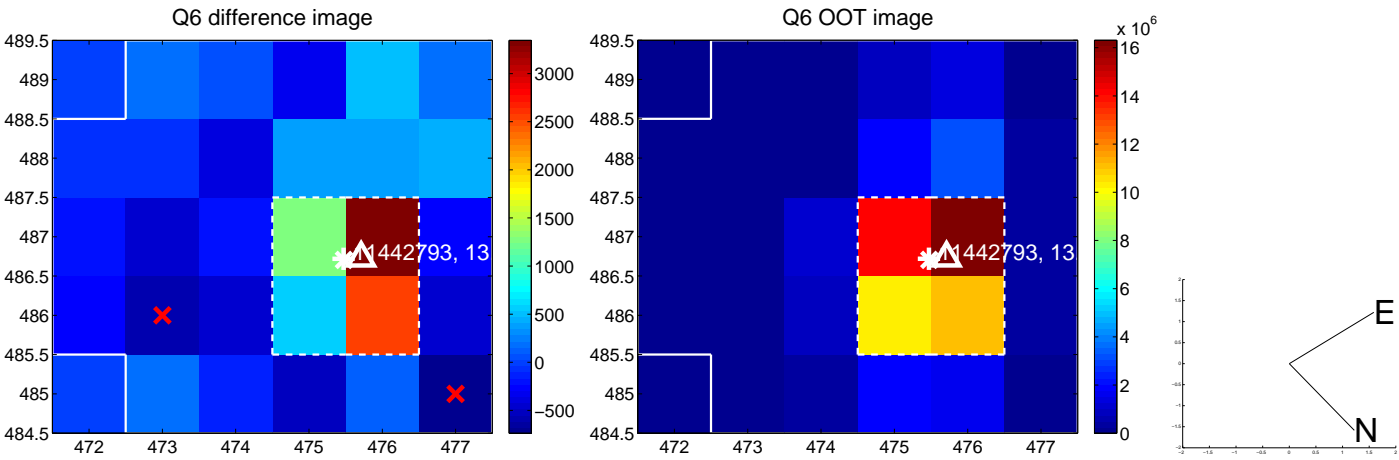
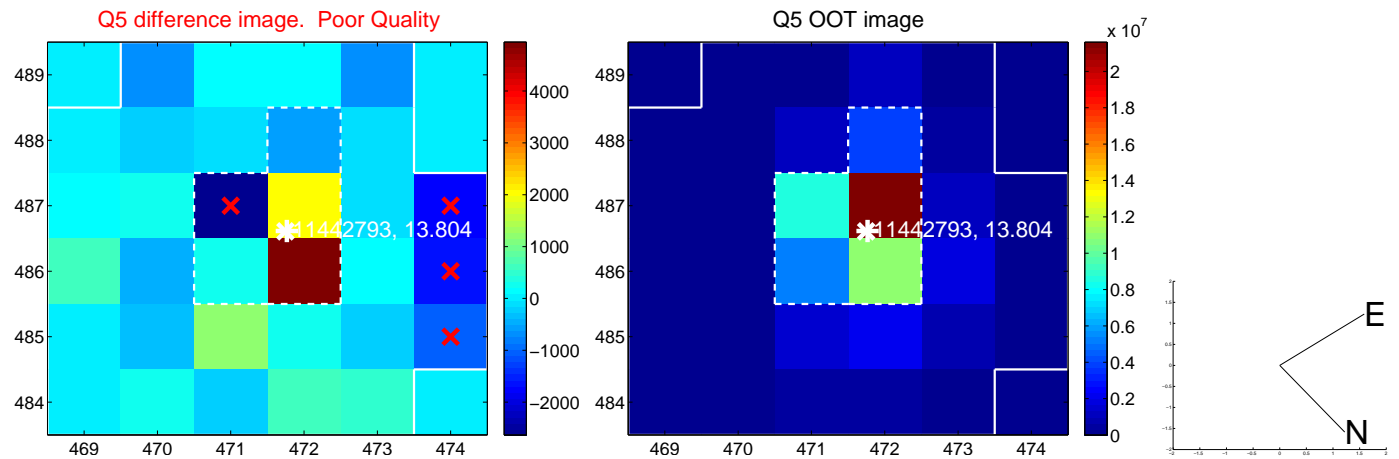


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

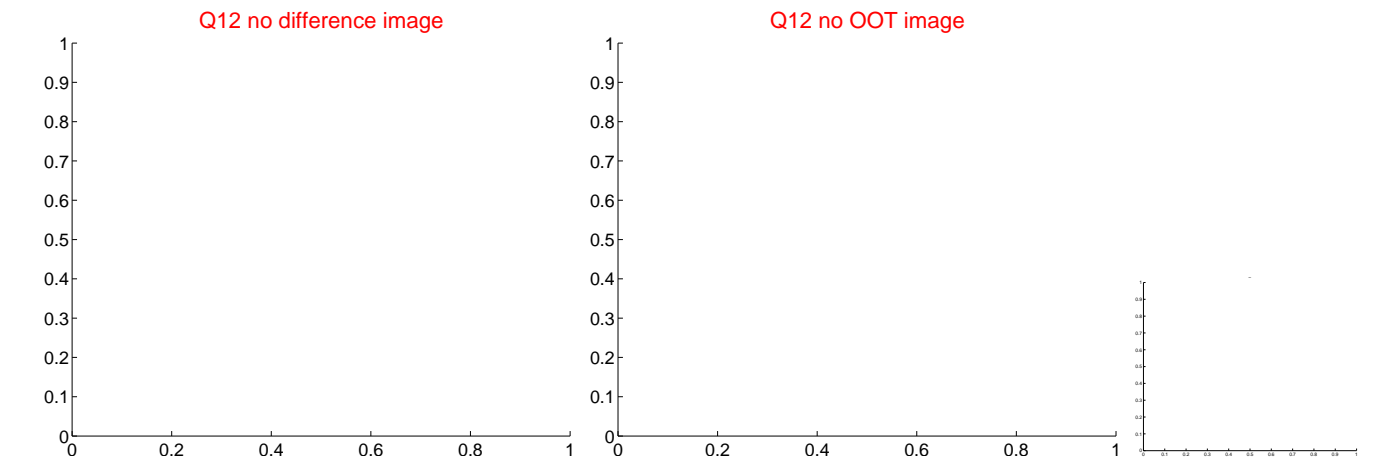
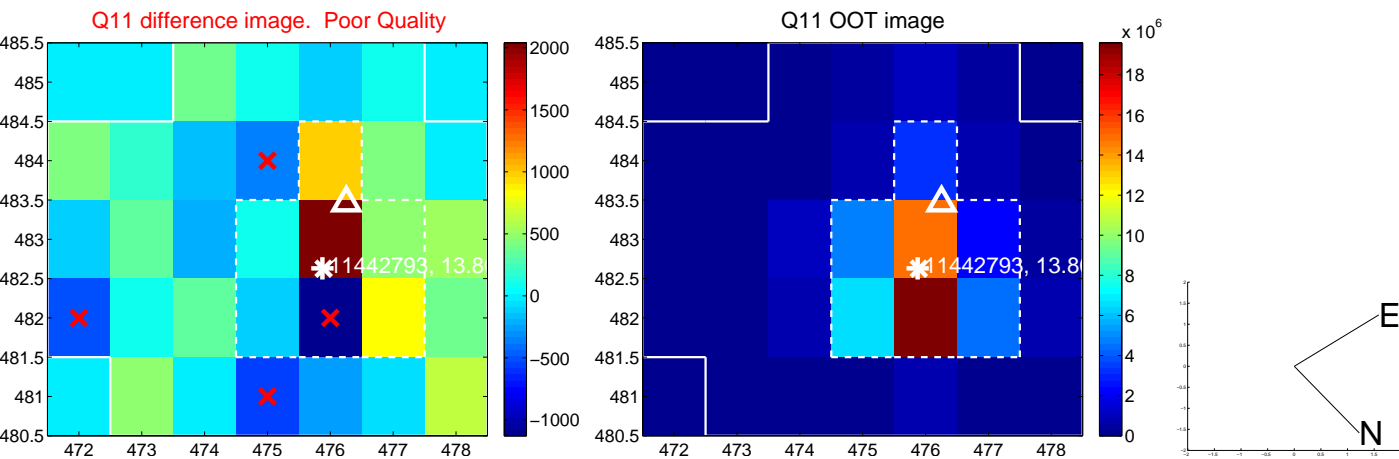
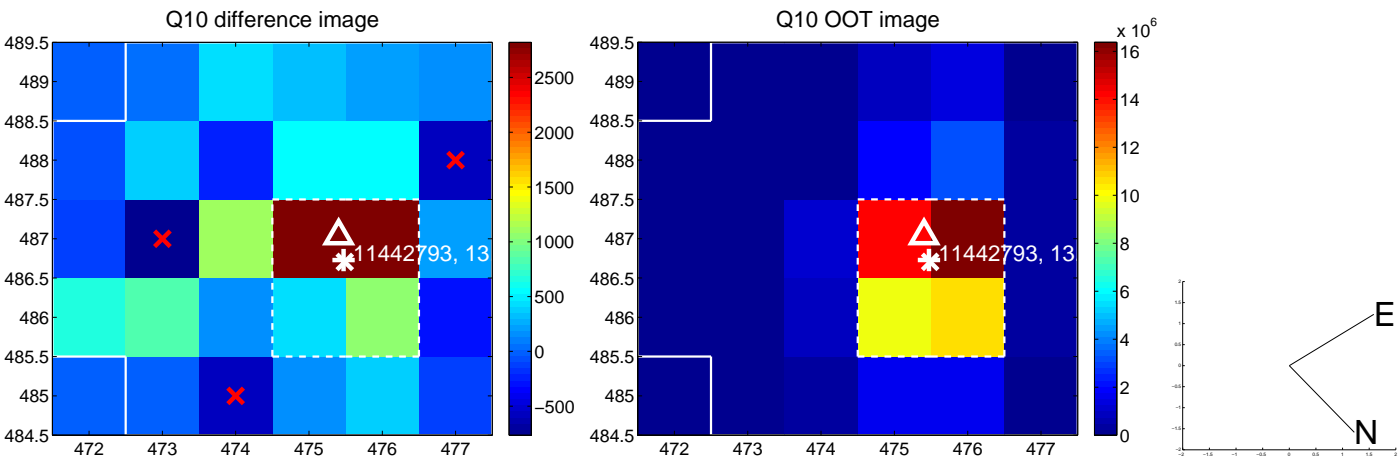
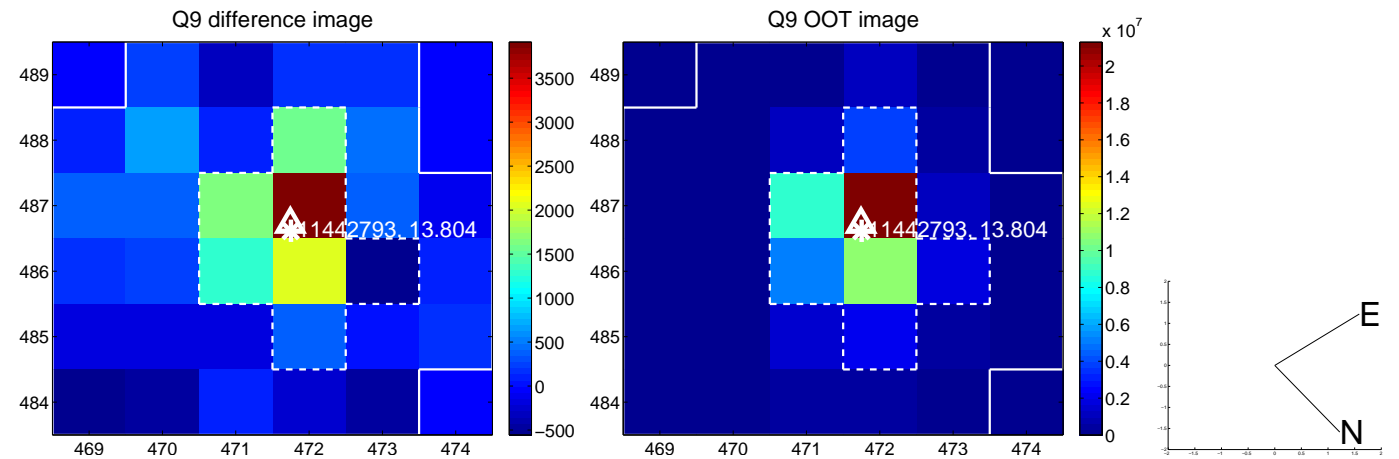
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



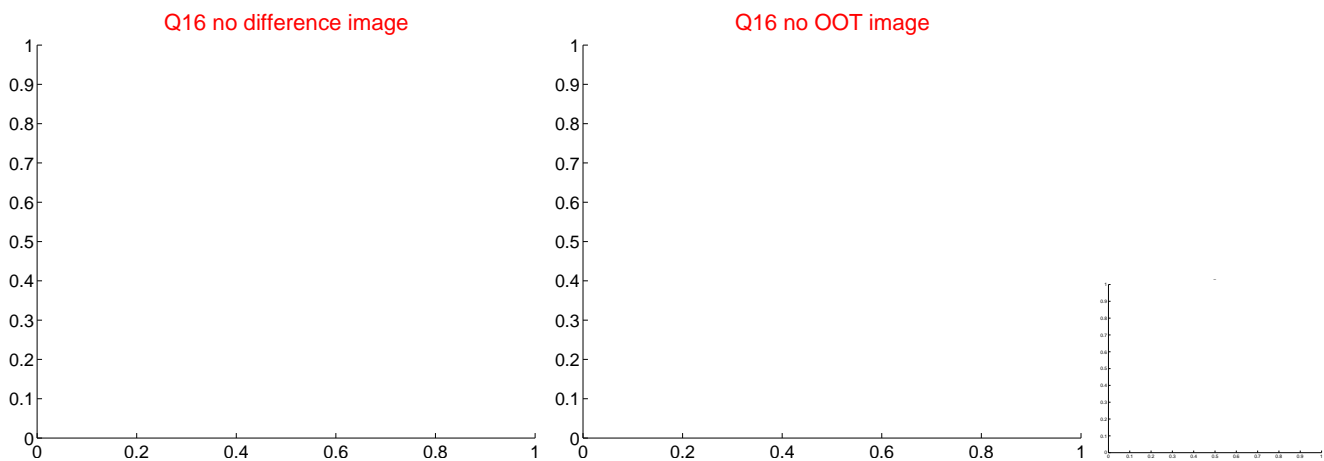
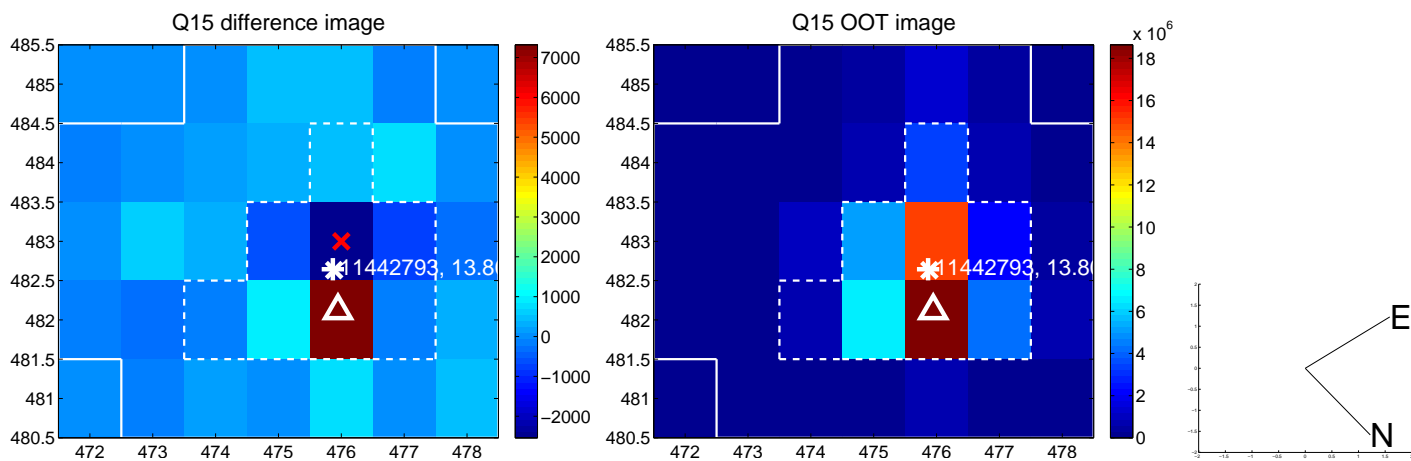
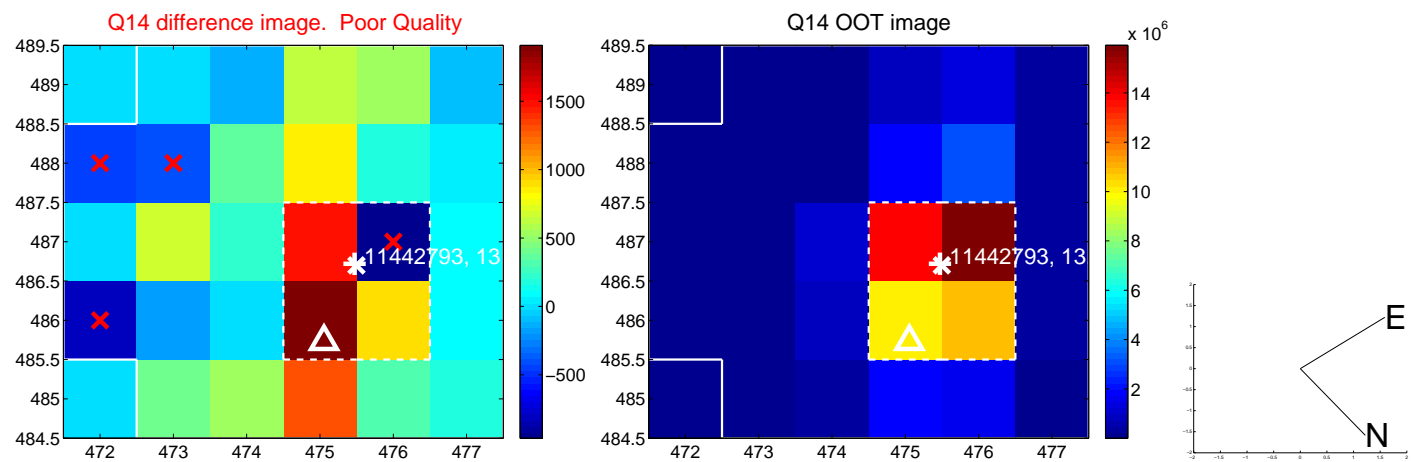
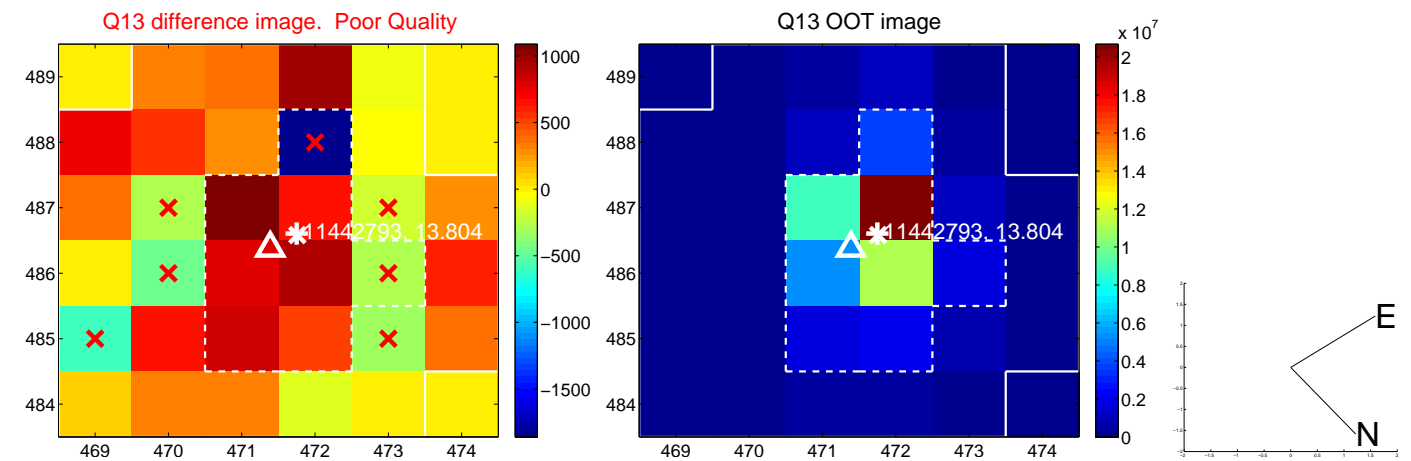
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



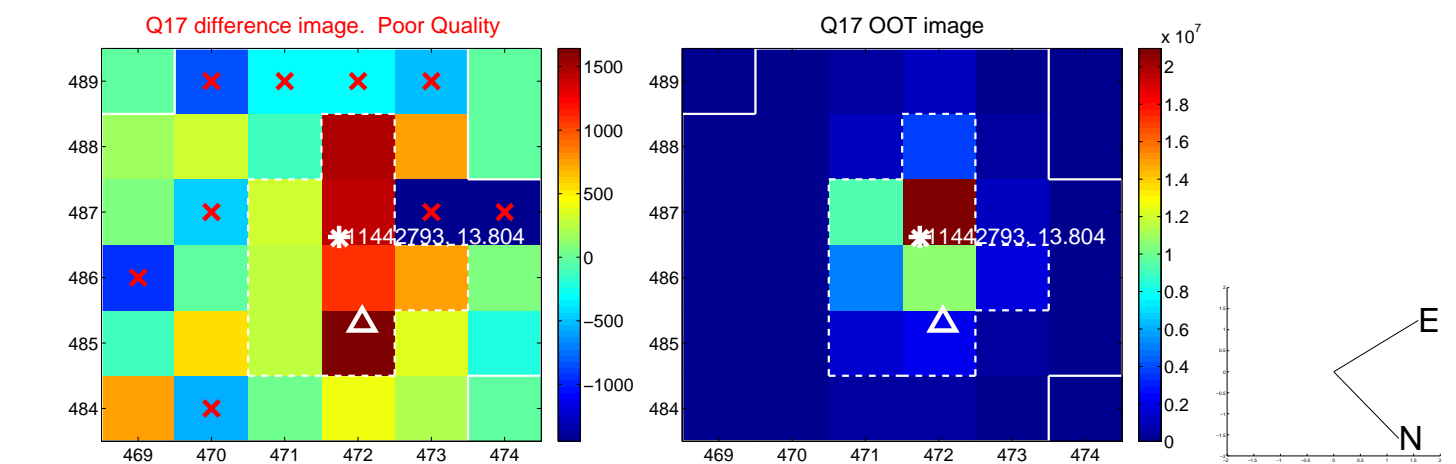
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



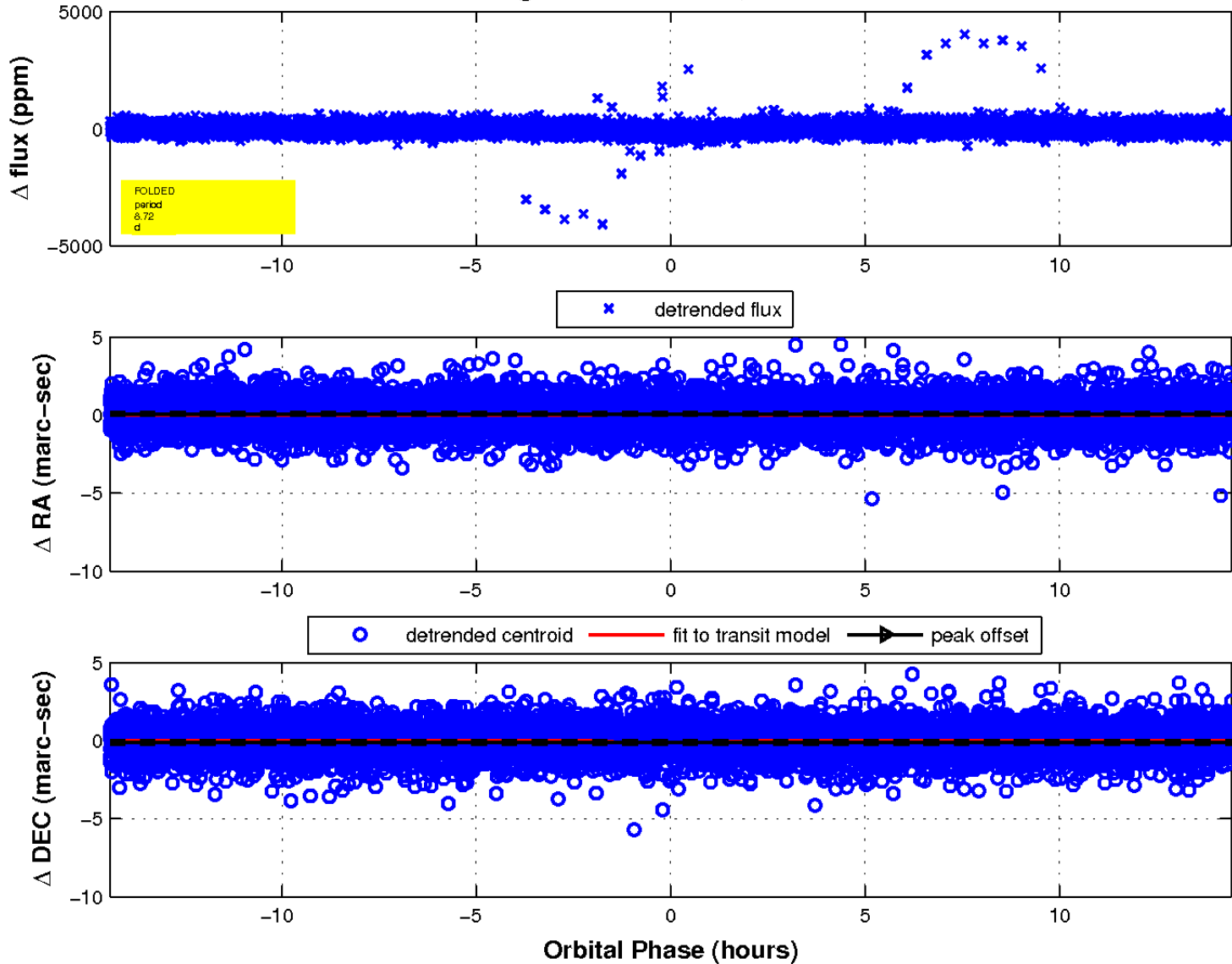
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 7 of 7



UKIRT Image

Declination

