

KIC 009667584

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009667584-01 | OBS | No | 0.576134 | 131.701369 | 168.8 | 1.140 | 11.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.76 |
| 009667584-02 | OBS | No | 0.576118 | 131.846212 | 154.8 | 1.322 | 10.4 | 11.0 | 1.84 | 7533 | 2.66 | 37899.11 |
| 009667584-03 | OBS | No | 0.576140 | 131.557568 | 174.7 | 1.211 | 9.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.25 |
| 009667584-04 | OBS | No | 0.576125 | 131.998494 | 252.0 | 1.500 | 8.8 | -1.0 | 1.84 | 7533 | 2.98 | 37898.55 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009667584-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 009667584-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 009667584-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—SAME_NTL_PERIOD |
| 009667584-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—NO_FITS—SAME_NTL_PERIOD—CENT_NOFITS |

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

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

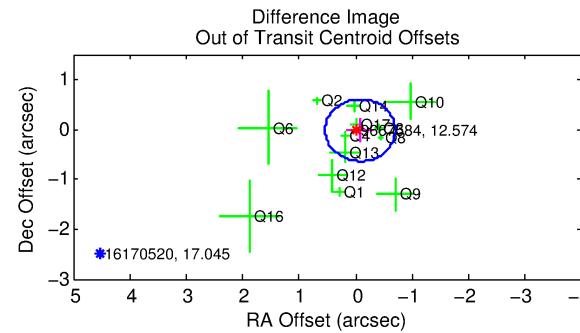
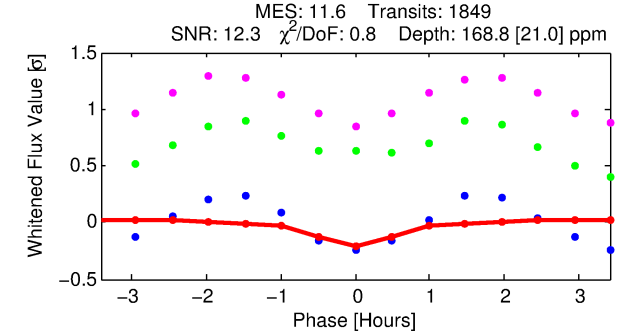
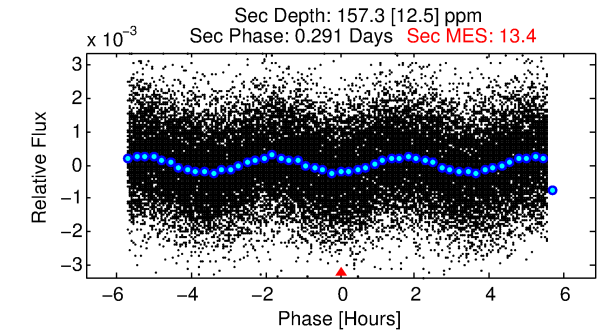
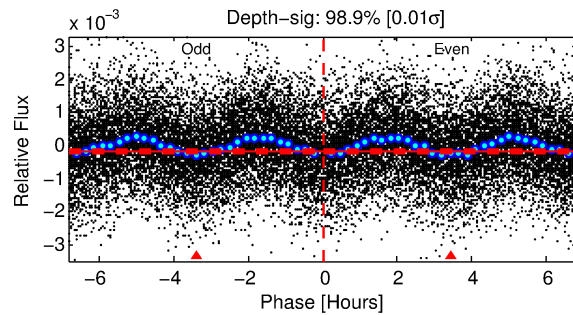
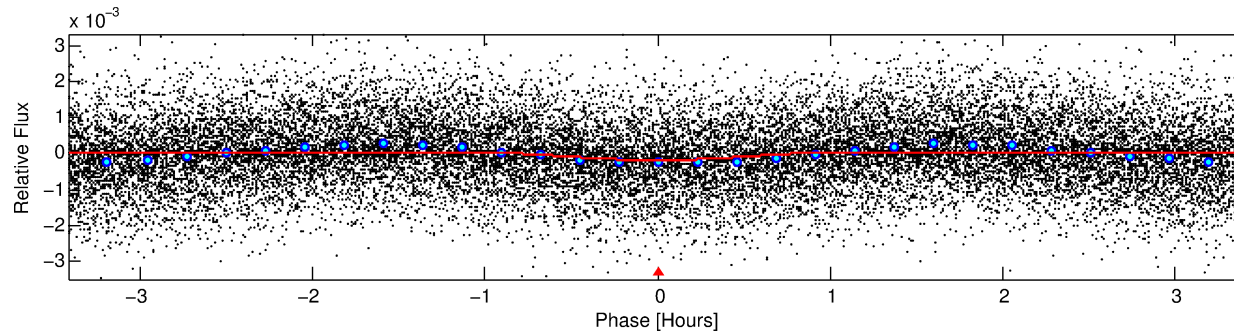
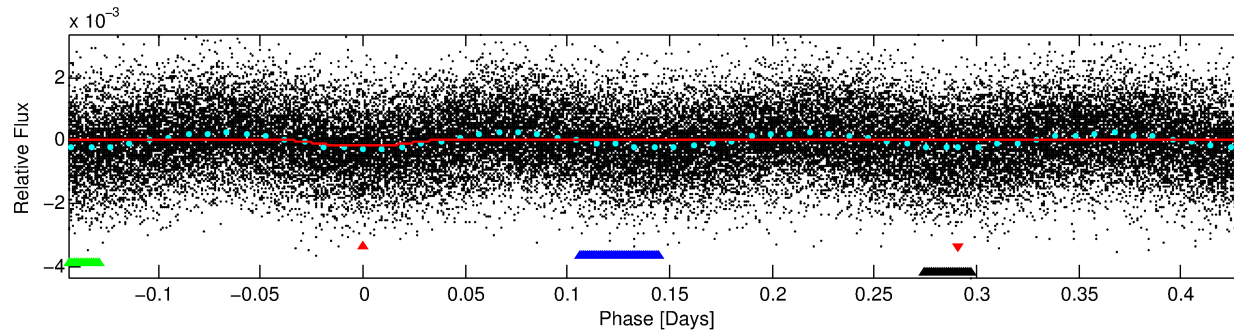
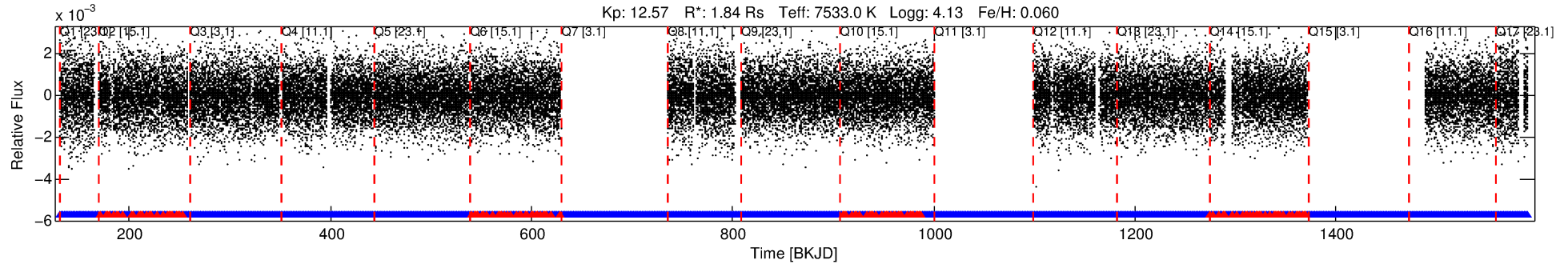
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009667584-01

No Significant Match Found

DV One-Page Summary

KIC: 9667584 Candidate: 1 of 4 Period: 0.576 d



DV Fit Results:

Period = 0.57613 [0.00001] d
Epoch = 131.7014 [0.0019] BKJD
Rp/R* = 0.0125 [0.0060]
a/R* = 3.46 [9.49]
b = 0.51 [4.41]
Seff = 37897.76 [14960.25]
Teq = 3558 [351] K
Rp = 2.50 [1.42] Re
a = 0.0161 [0.0039] AU
Ag = 3.57 [3.67] [0.70 σ]
Teffp = 7561 [1857] K [2.12 σ]

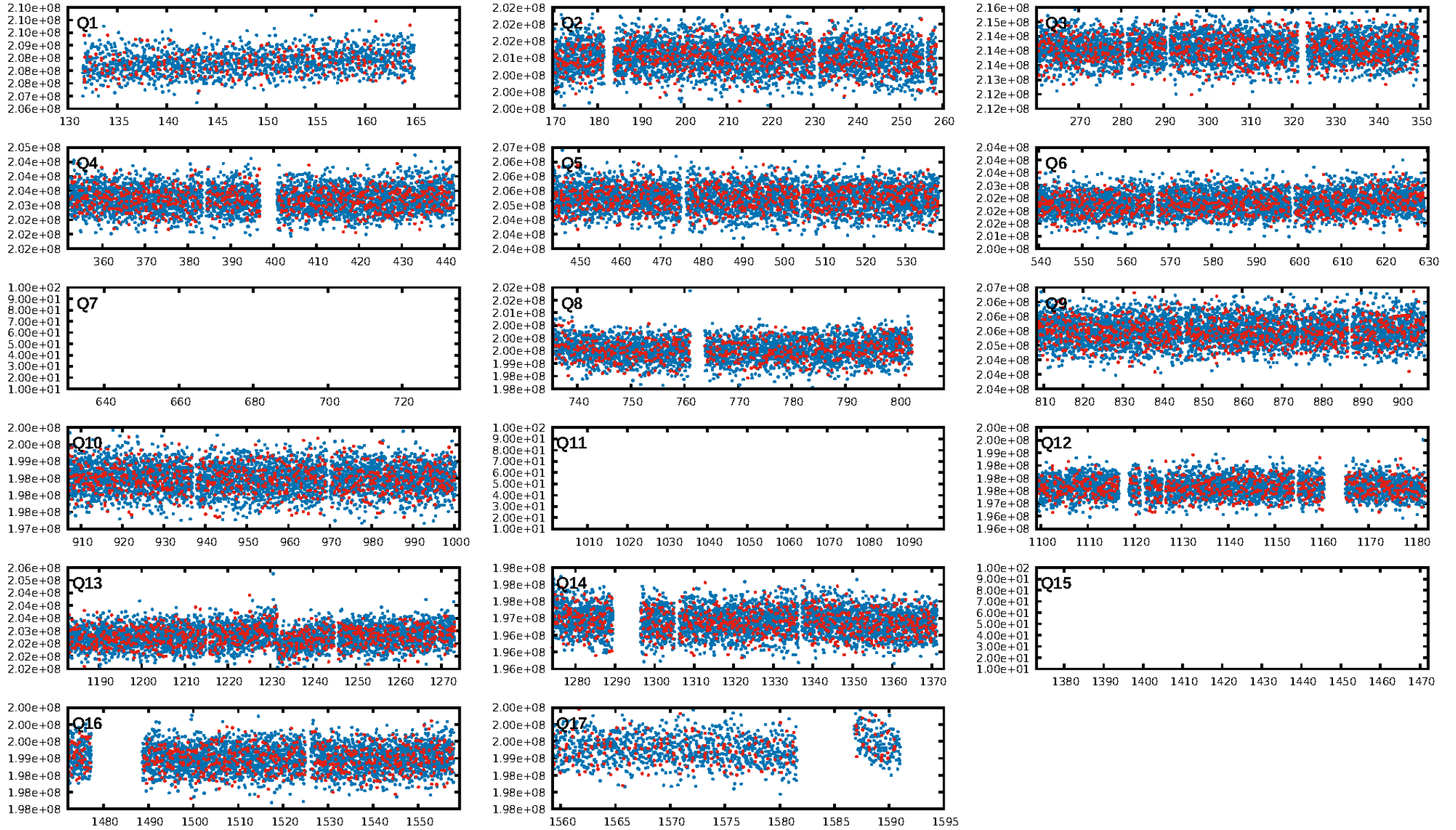
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.92 [1613/1745]
GhostDiagnostic-chr: 2.537
Centroid-sig: 5.4%
Centroid-so: 0.446 arcsec [3.68 σ]
OotOffset-rm: 0.078 arcsec [0.38 σ]
KicOffset-rm: 0.095 arcsec [0.46 σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 0.00 [0/14]

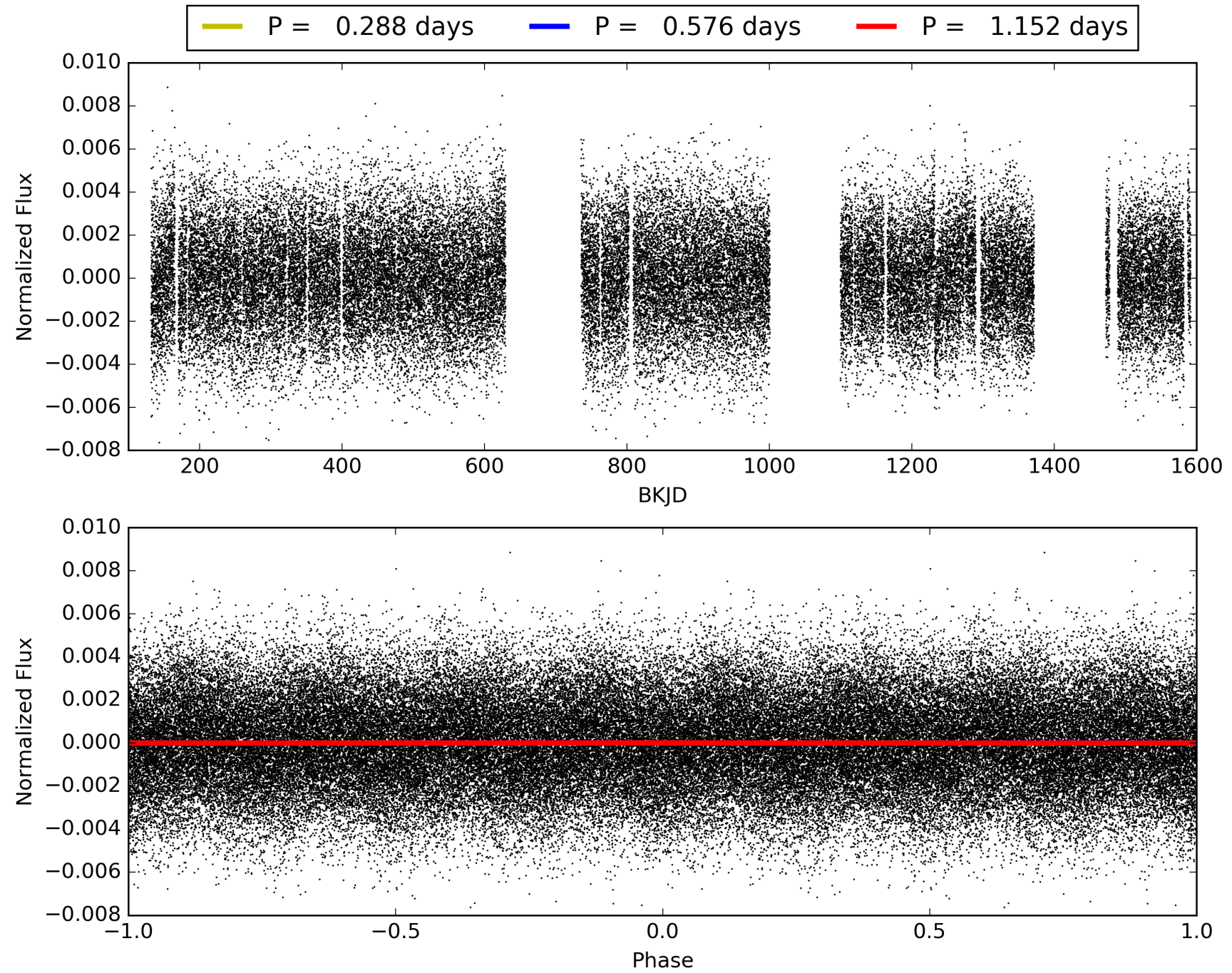
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:44:30 Z

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

TCE 009667584-01, PDC Light Curves

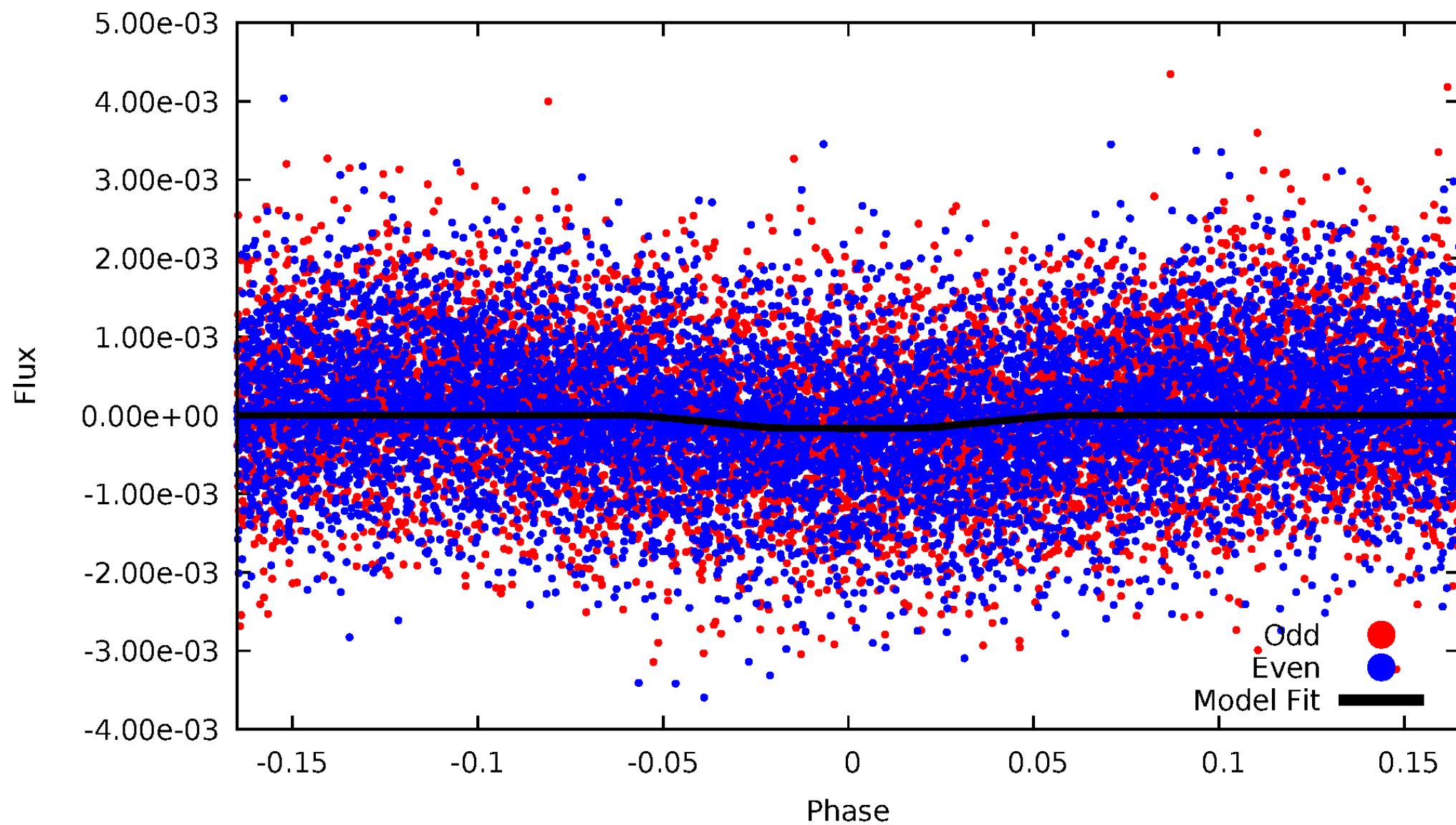


TCE 009667584-01



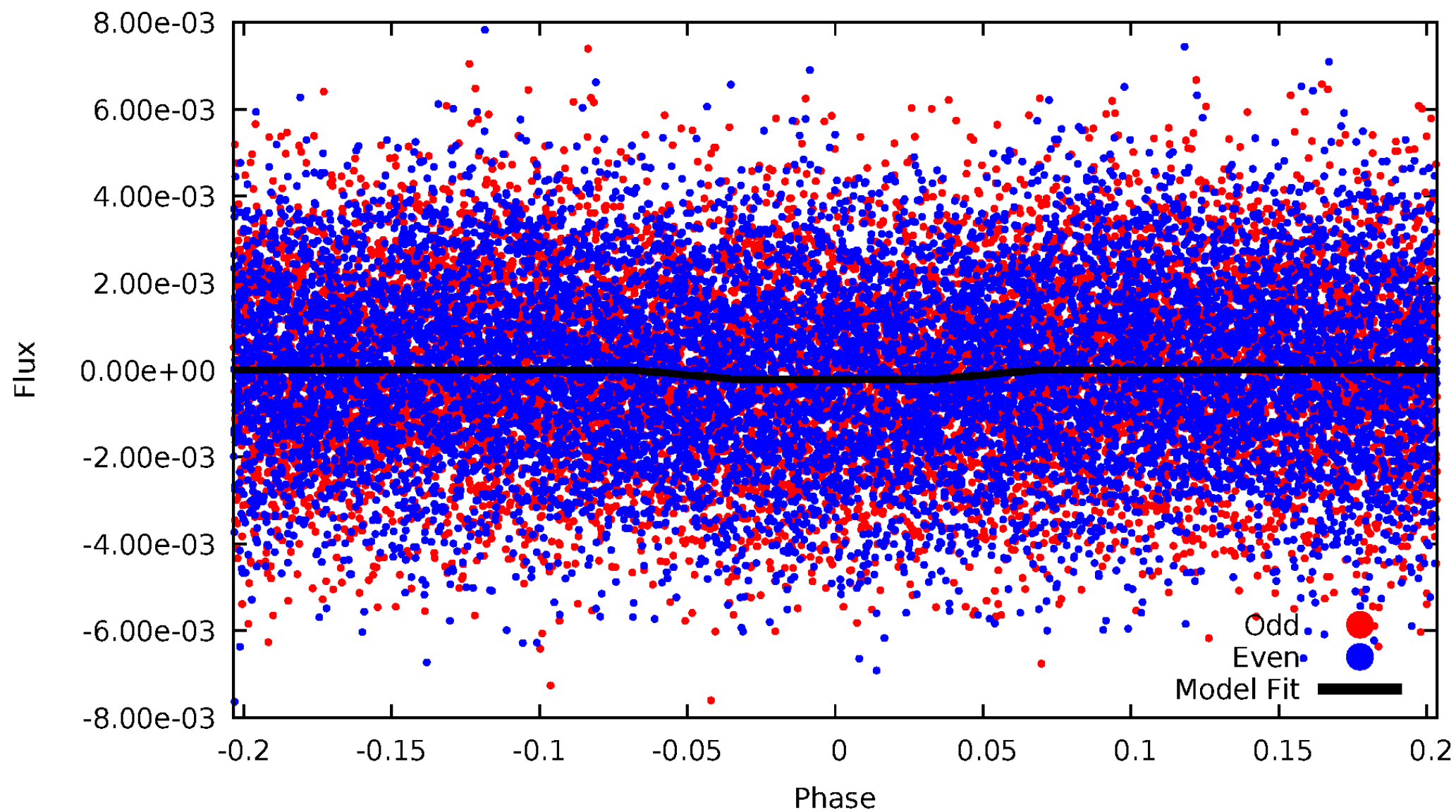
DV Odd/Even

TCE 009667584-01



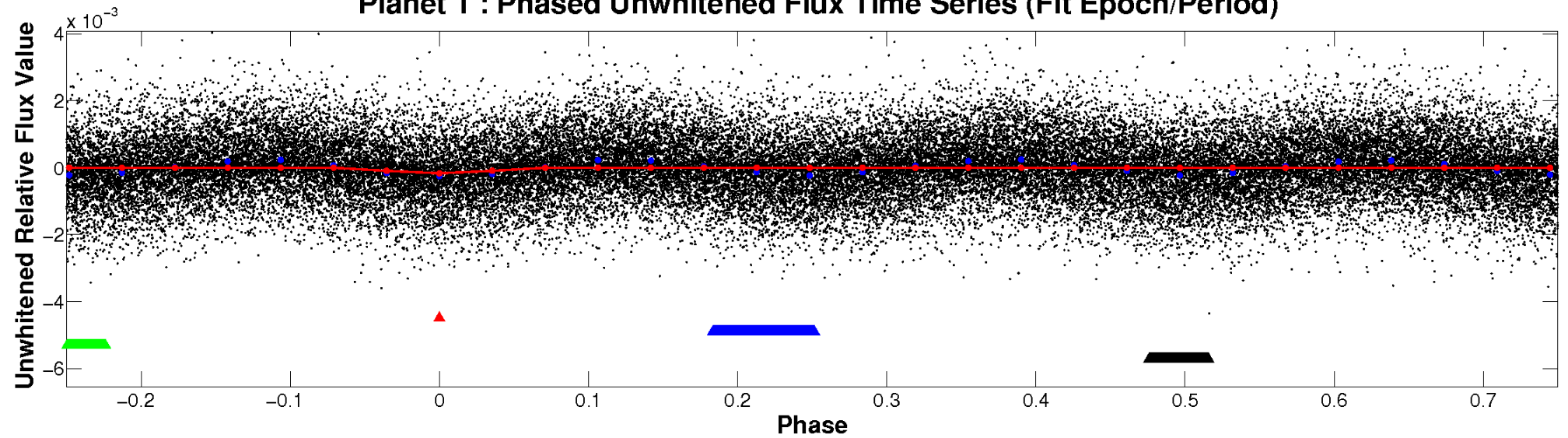
ALT Odd/Even

TCE 009667584-01

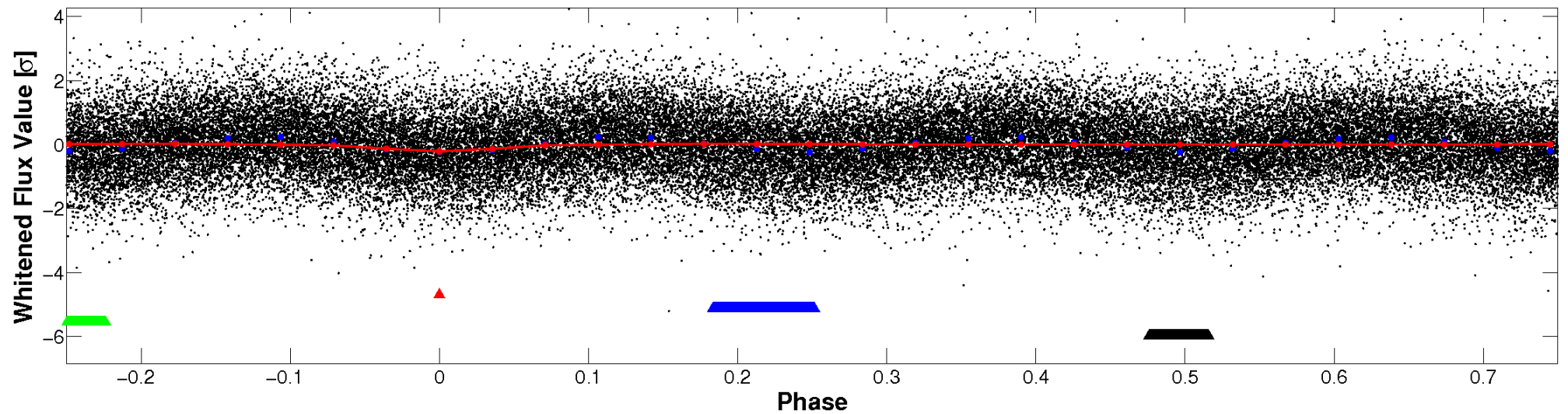


Non-Whitened Vs. Whitened Light Curve

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

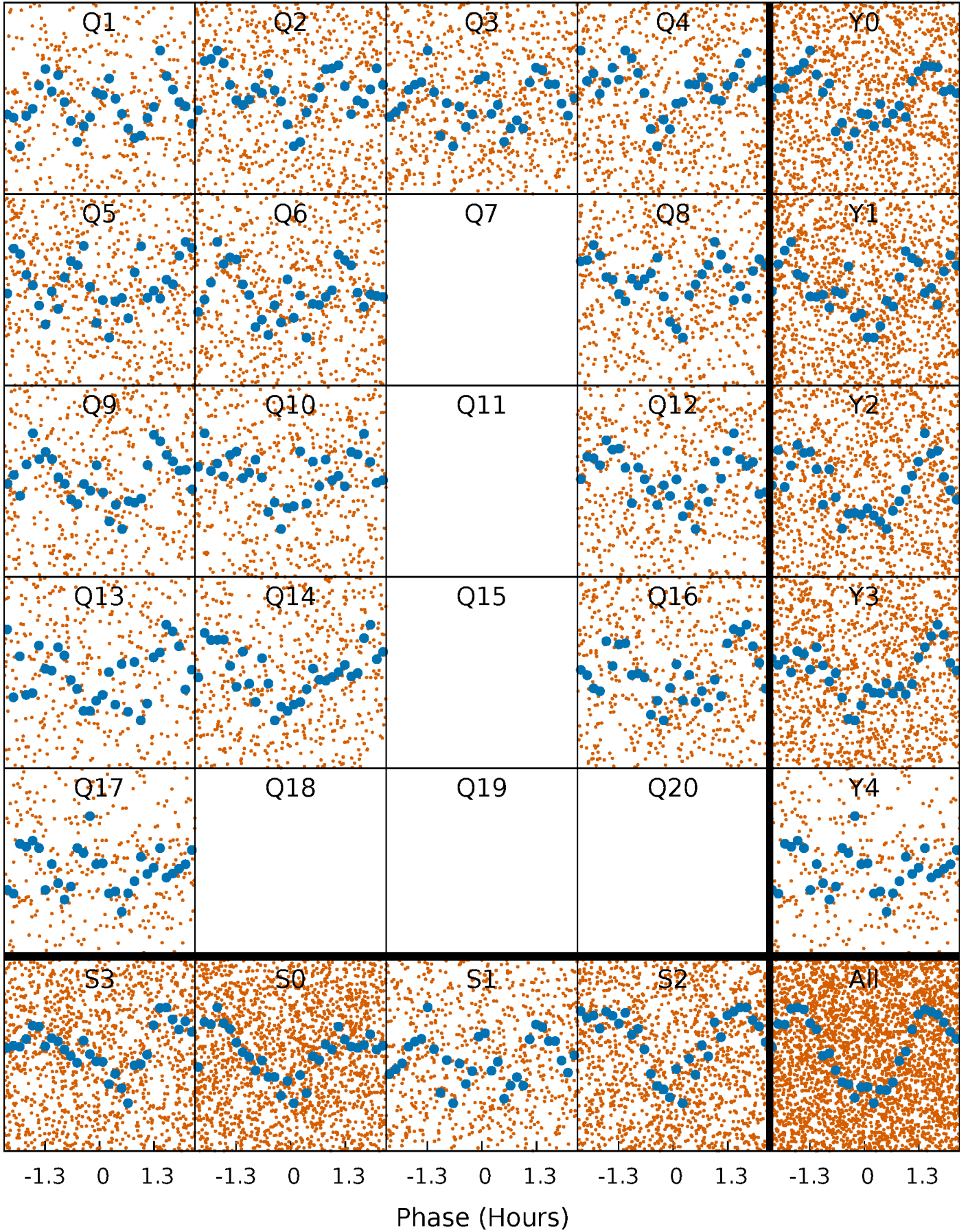


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



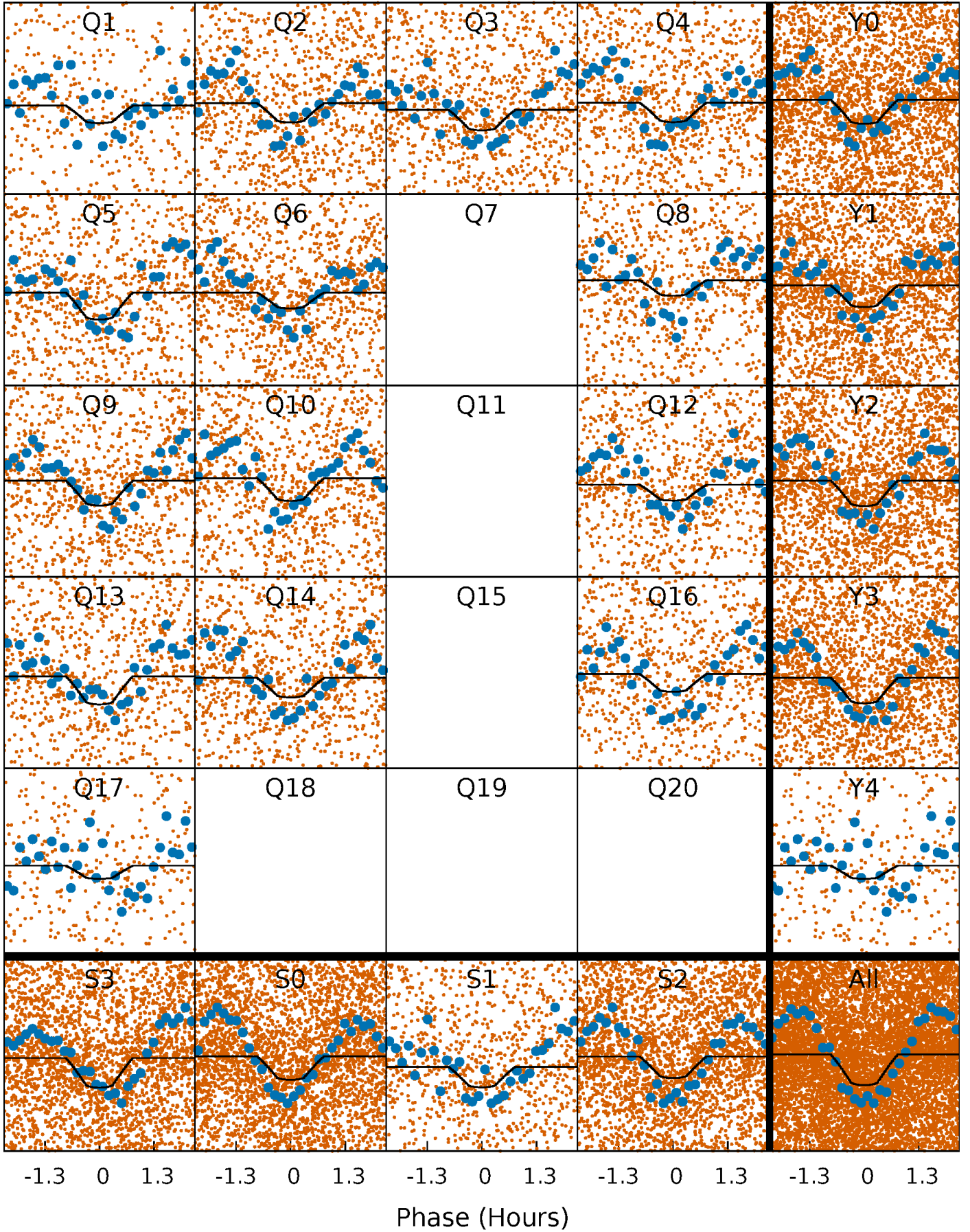
PDC Quarter-Phased Transit Curves

TCE 009667584-01 P= 0.576134 Days $T_0=131.701369$ (BKJD)



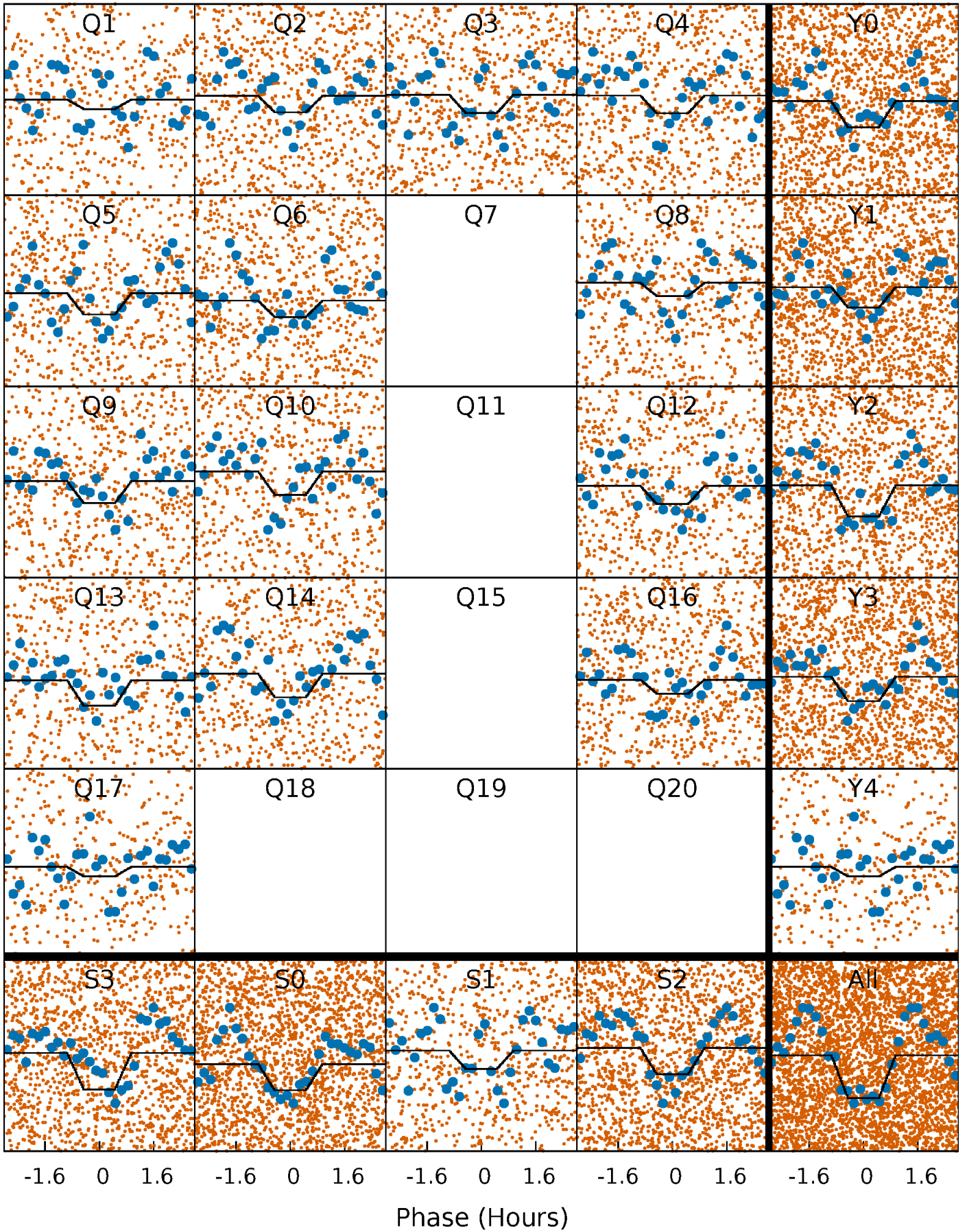
DV Quarter-Phased Transit Curves

TCE 009667584-01 P= 0.576134 Days $T_0=131.701369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

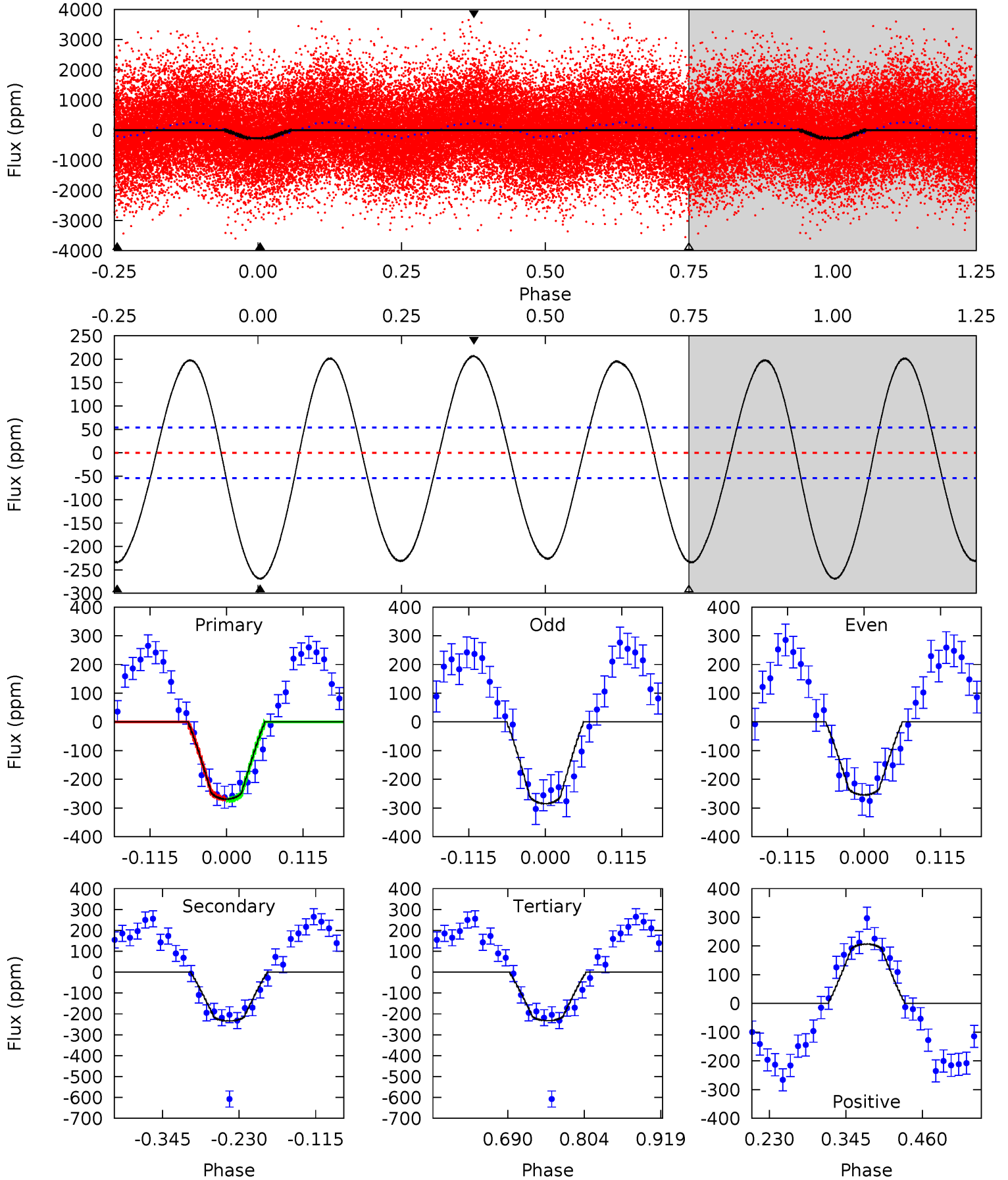
TCE 009667584-01 P= 0.576135 Days $T_0=131.702393$ (BKJD)



DV Model-Shift Uniqueness Test

009667584-01, P = 0.576134 Days, E = 131.125235 Days

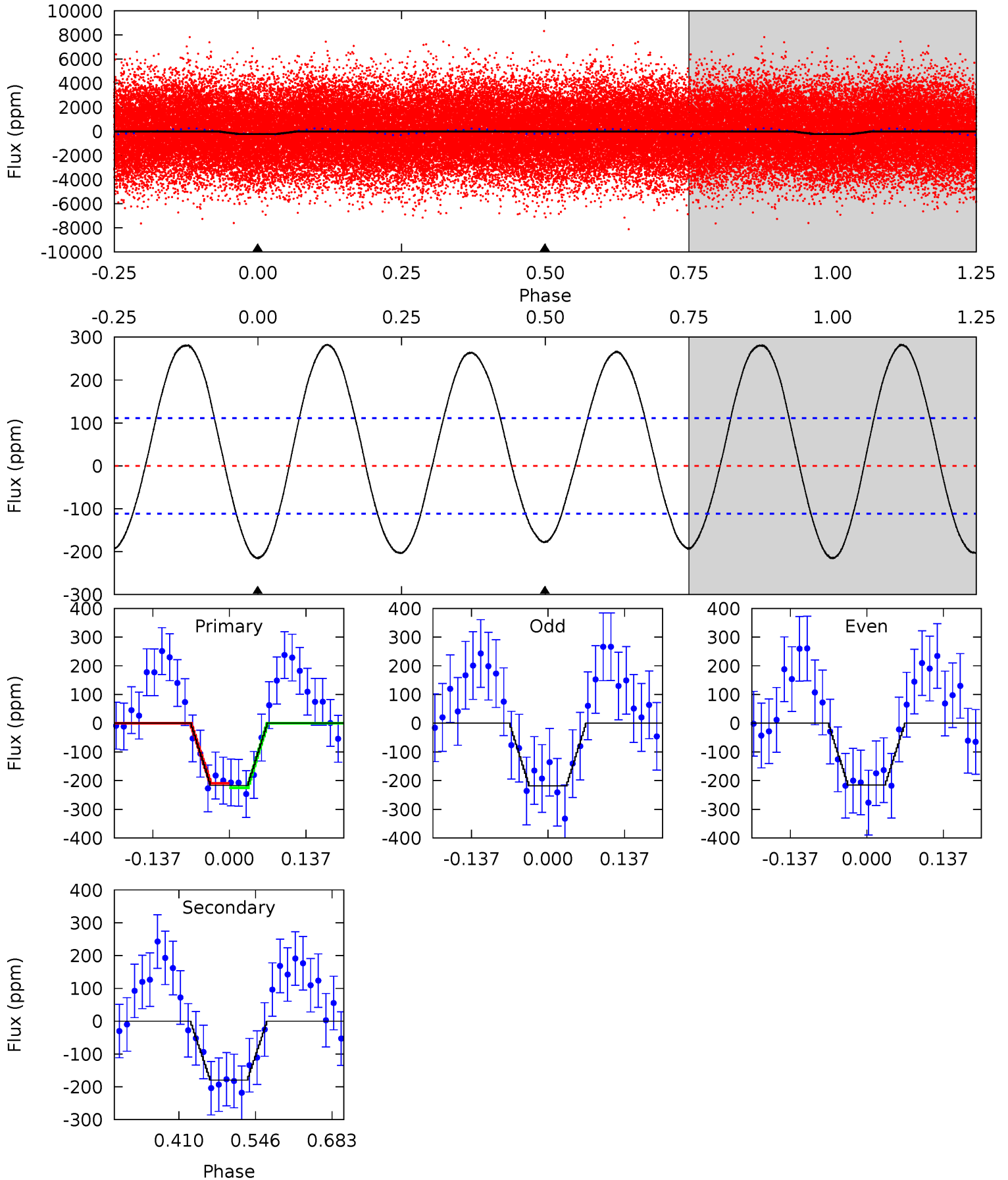
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 22.6 | 19.7 | 19.5 | 17.4 | 4.54 | 1.58 | 13.0 | 3.07 | 5.22 | 0.13 | 2.28 | 1.26 | 1.01 | 0.43 | 0.23 |



Alt Model-Shift Uniqueness Test

009667584-01, P = 0.576135 Days, E = 131.126258 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.75 | 7.25 | 0 | 0 | 4.50 | 1.49 | 6.31 | 8.75 | 8.75 | 7.25 | 7.25 | 0.08 | 0.98 | 0.57 | 0.30 |



Stellar Parameters For KIC 009667584

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7533^{+211}_{-342} | $4.129^{+0.101}_{-0.188}$ | $0.060^{+0.150}_{-0.350}$ | $1.840^{+0.549}_{-0.338}$ | $1.663^{+0.204}_{-0.250}$ | $0.376^{+0.218}_{-0.188}$ |
| | +3%/-5% | +2%/-5% | +250%/-583% | +30%/-18% | +12%/-15% | +58%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 009667584-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -234 ± 12 | $2.48^{+1.29}_{-1.16}$ | 5010^{+351}_{-317} | 8475^{+5019}_{-1924} | $5.470^{+12.871}_{-3.181}$ |
| Alt. | -180 ± 25 | $3.03^{+1.41}_{-1.36}$ | 5006^{+372}_{-308} | 6863^{+3310}_{-1406} | $2.710^{+5.841}_{-1.450}$ |

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 $A_{obs} \gg 1.0$

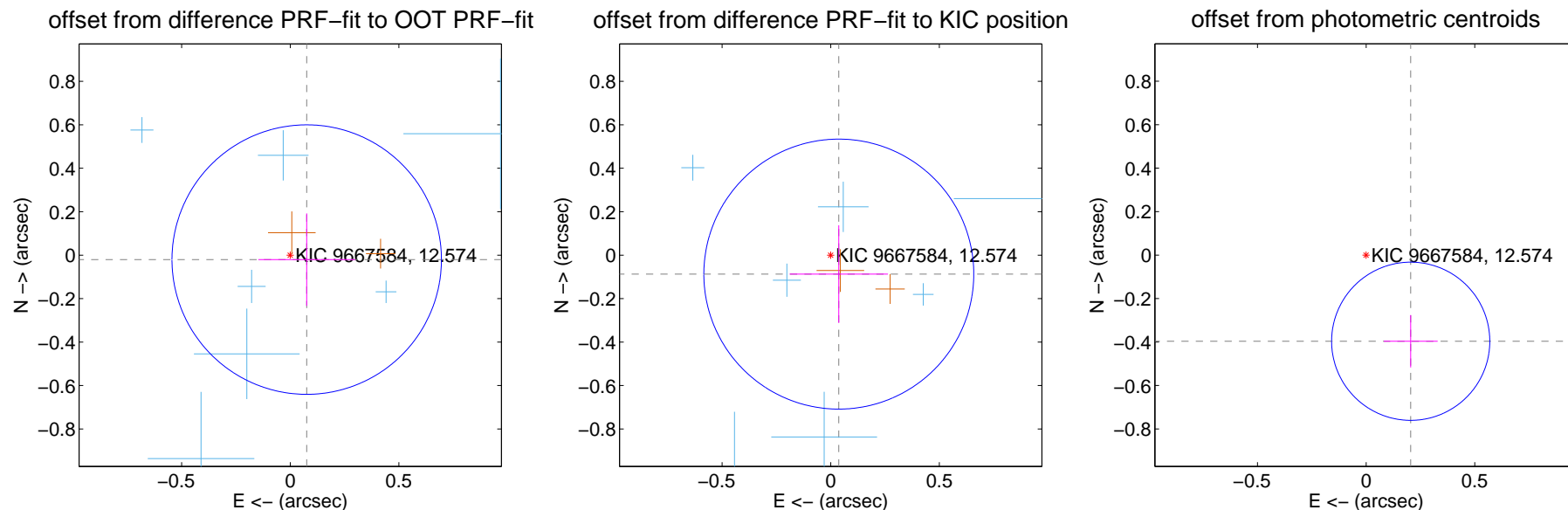
DV Centroid Data

Supplemental centroid analysis for 009667584-01. Kepler magnitude: 12.57. Transit SNR 12.31

There are 8 quarters with good PRF difference image offsets

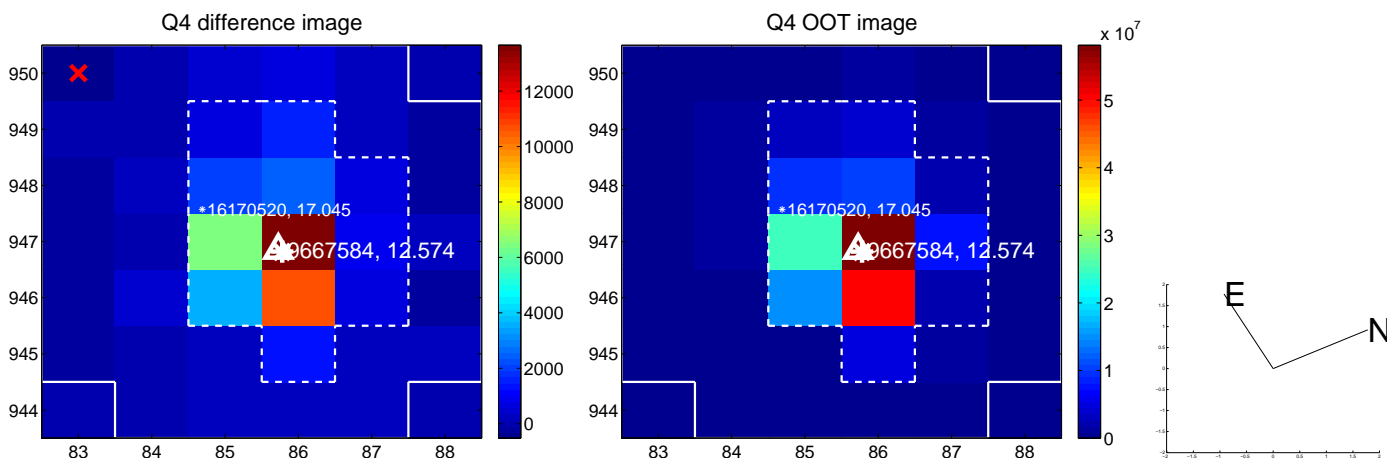
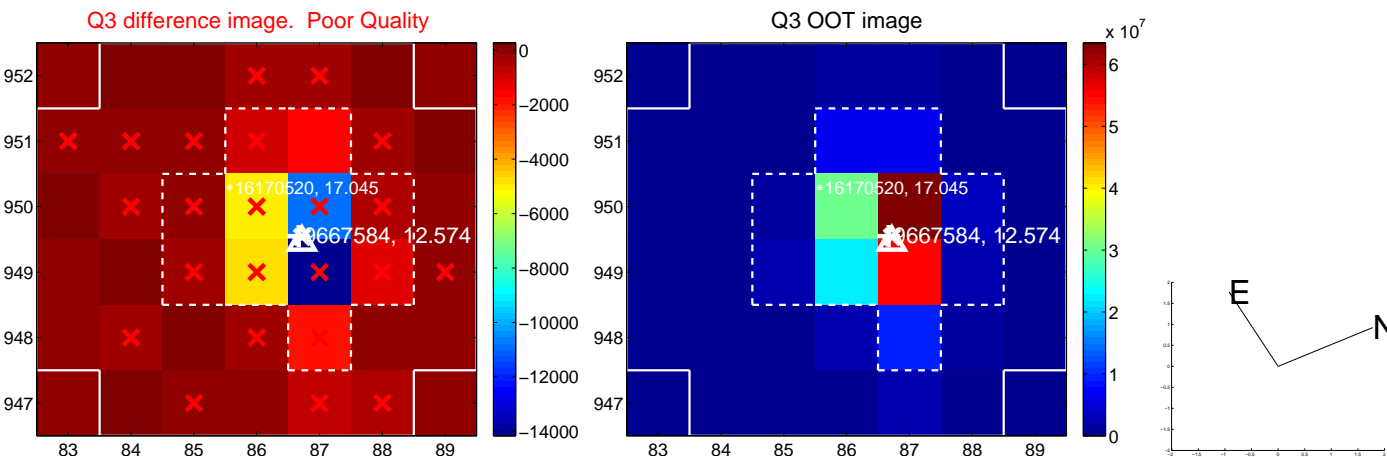
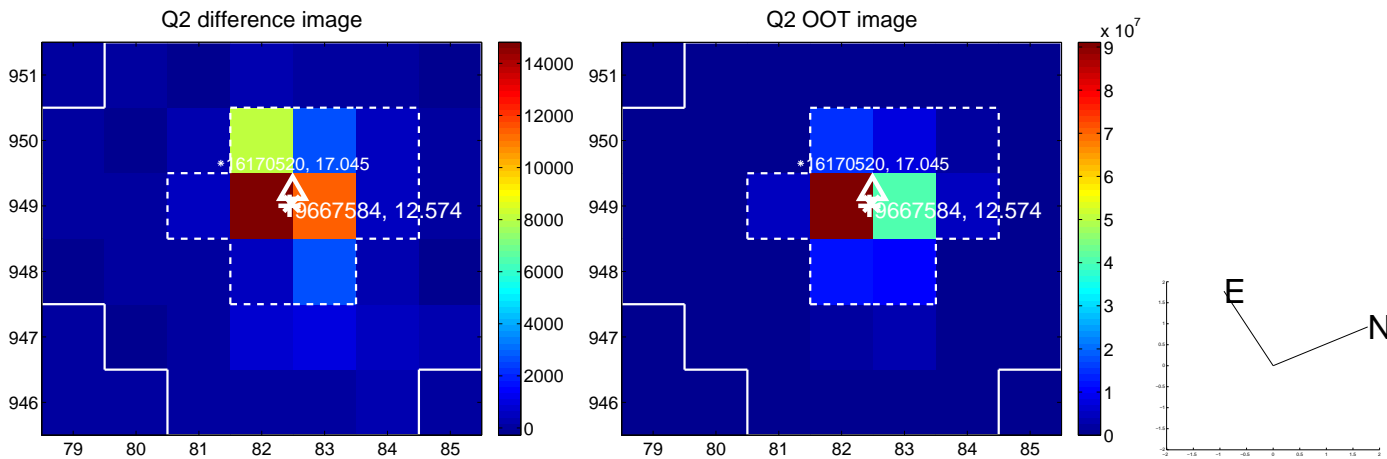
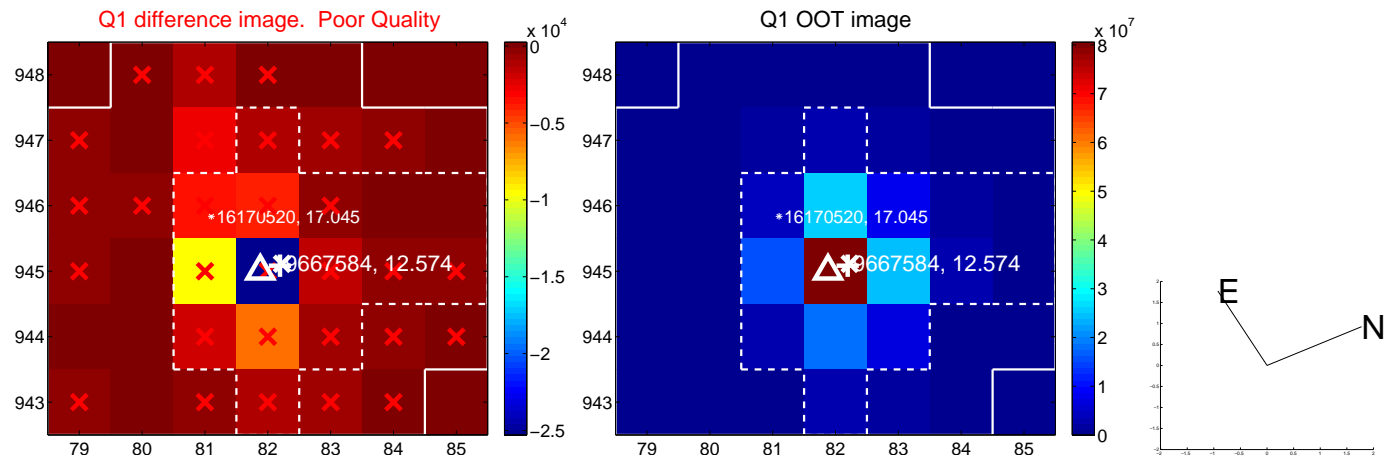
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.078 ± 0.207 | 0.38 | -0.076 ± 0.223 | -0.020 ± 0.213 |
| PRF-fit source offset from KIC position | 0.095 ± 0.207 | 0.46 | -0.037 ± 0.226 | -0.087 ± 0.225 |
| photometric centroid source offset | 0.45 ± 0.12 | 3.68 | -0.21 ± 0.12 | -0.40 ± 0.12 |

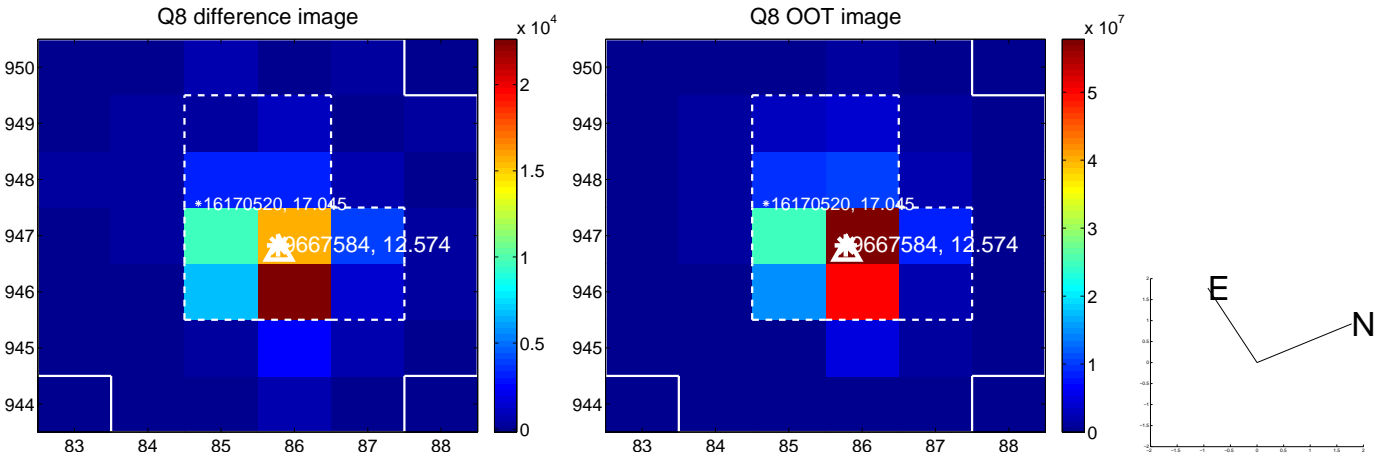
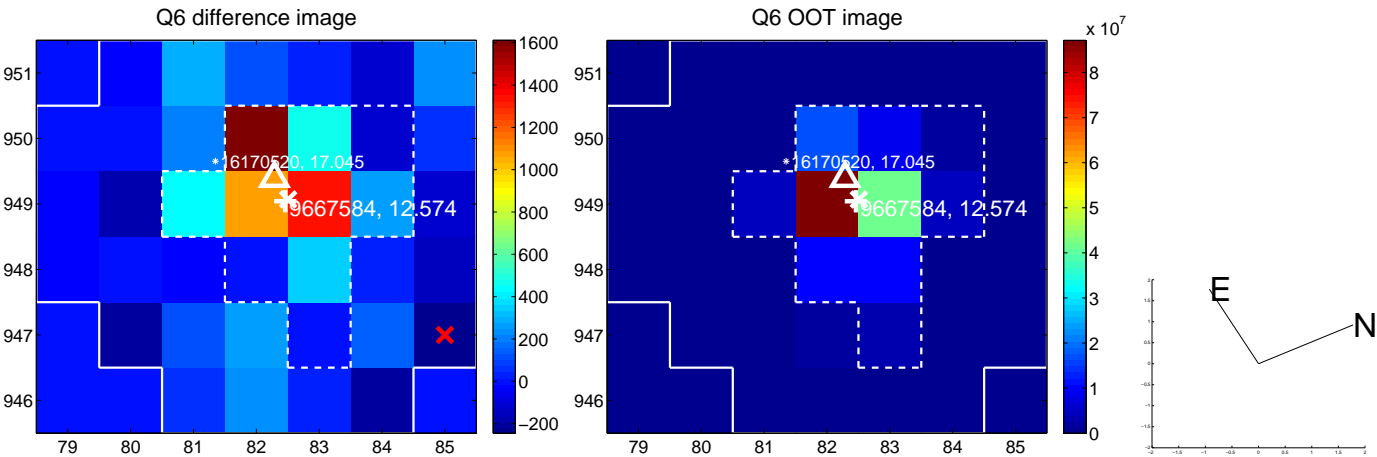
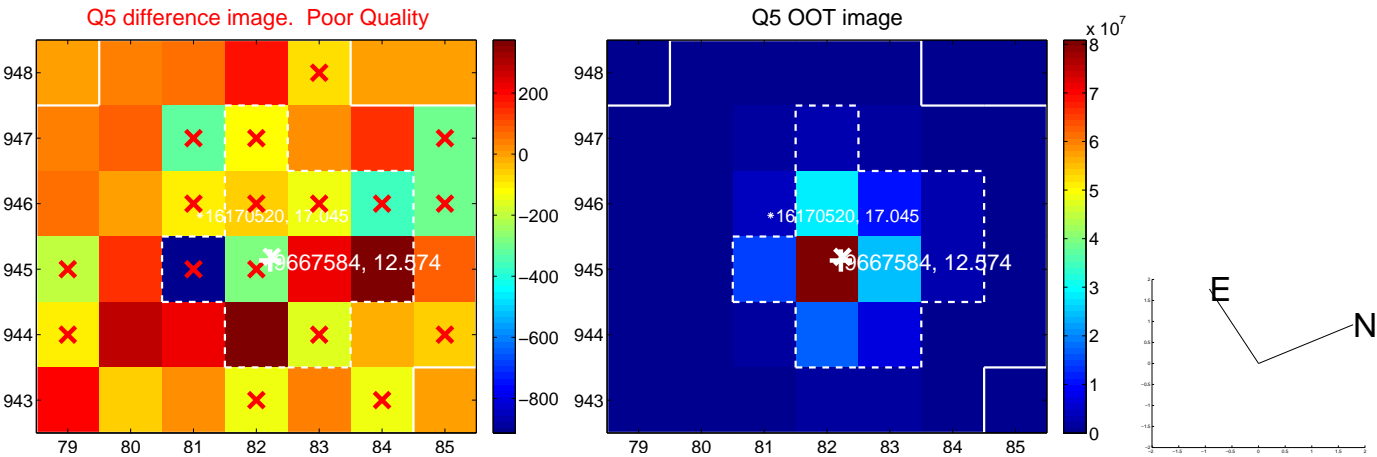


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

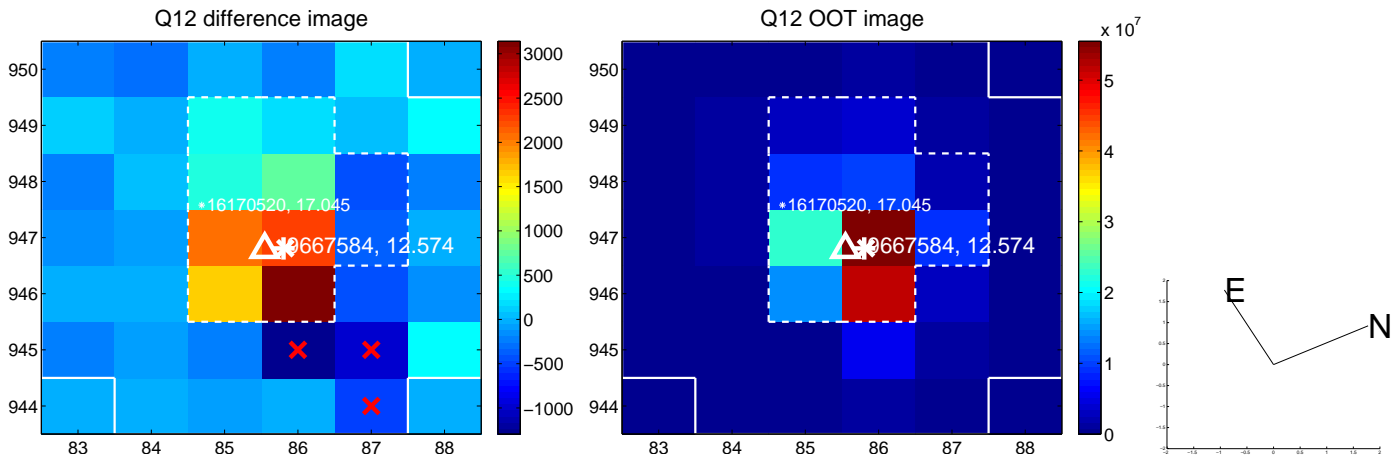
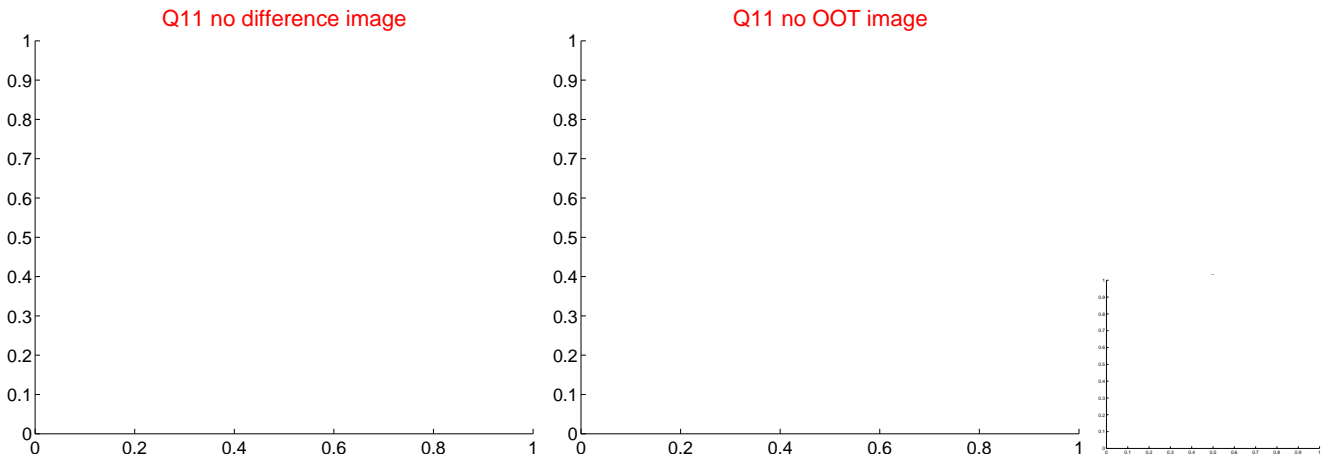
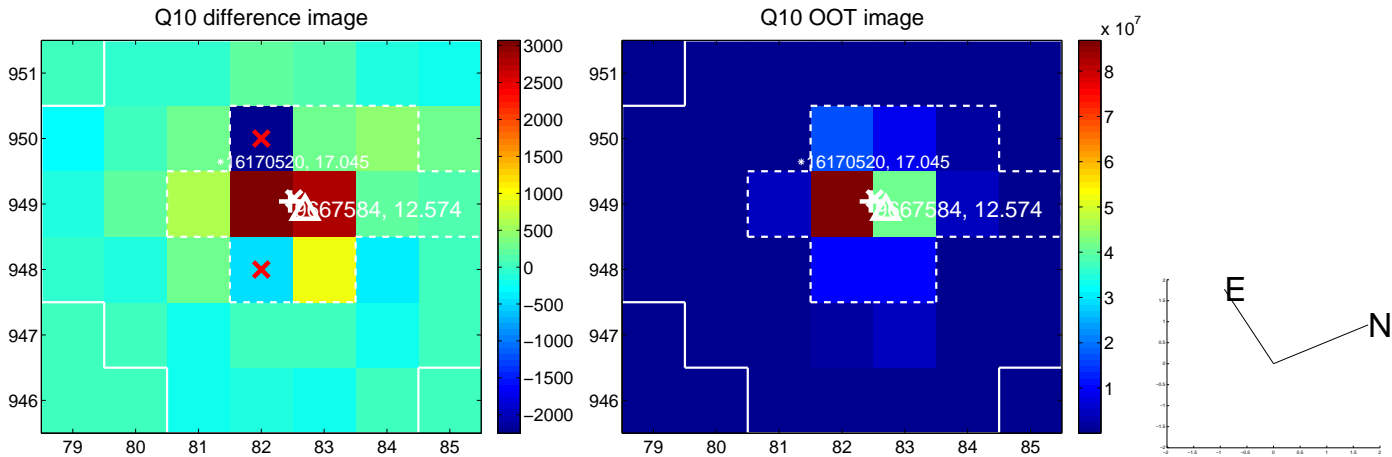
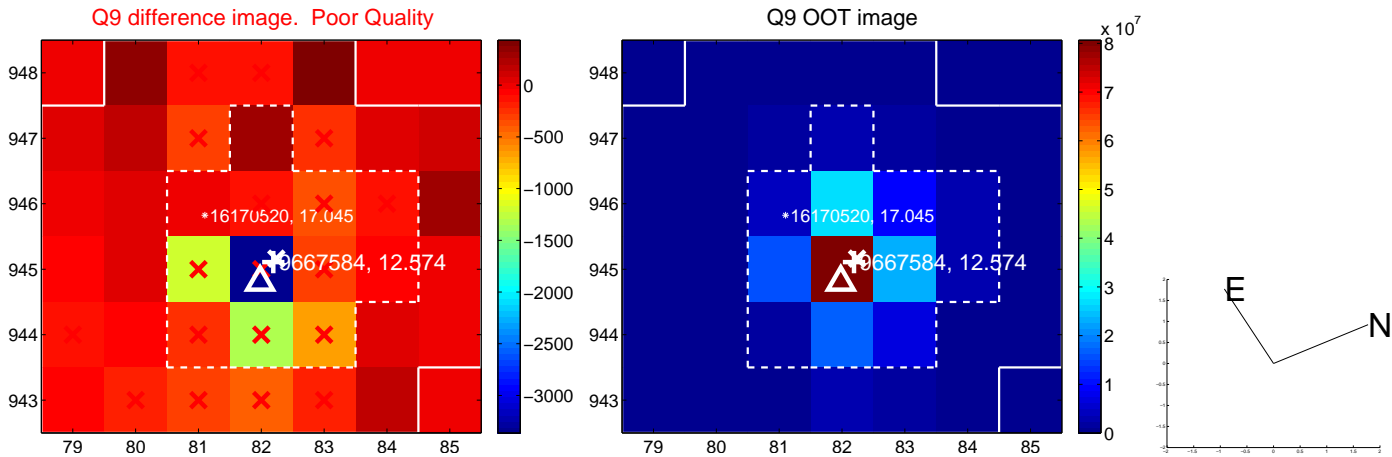
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



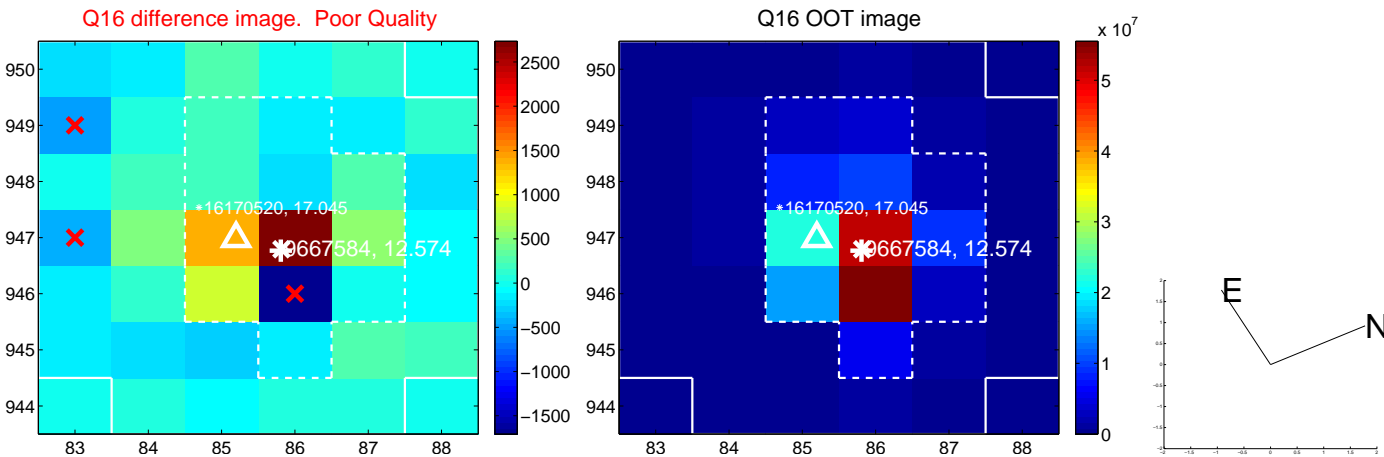
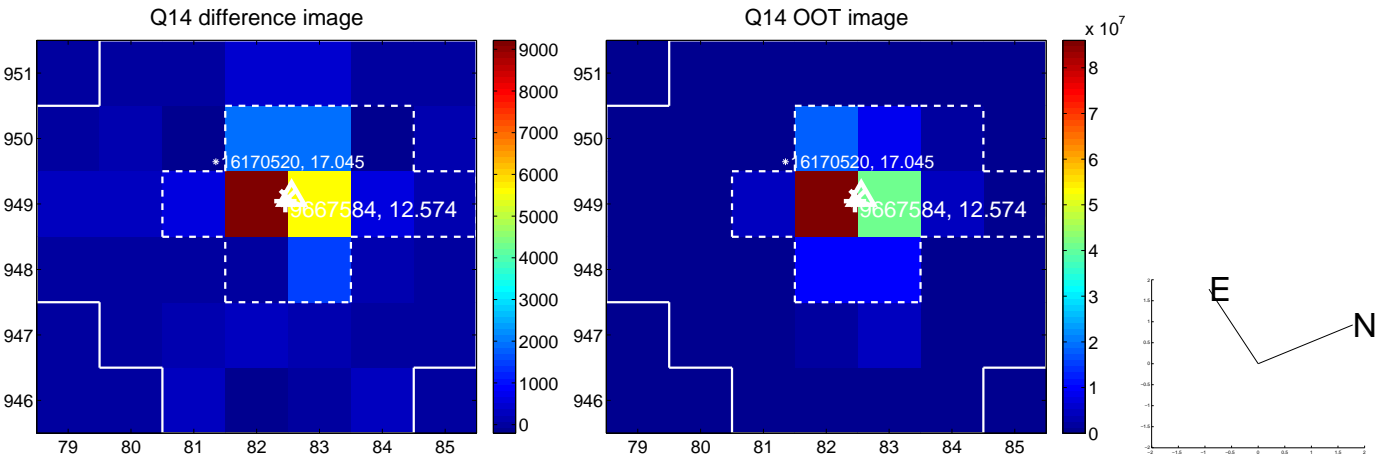
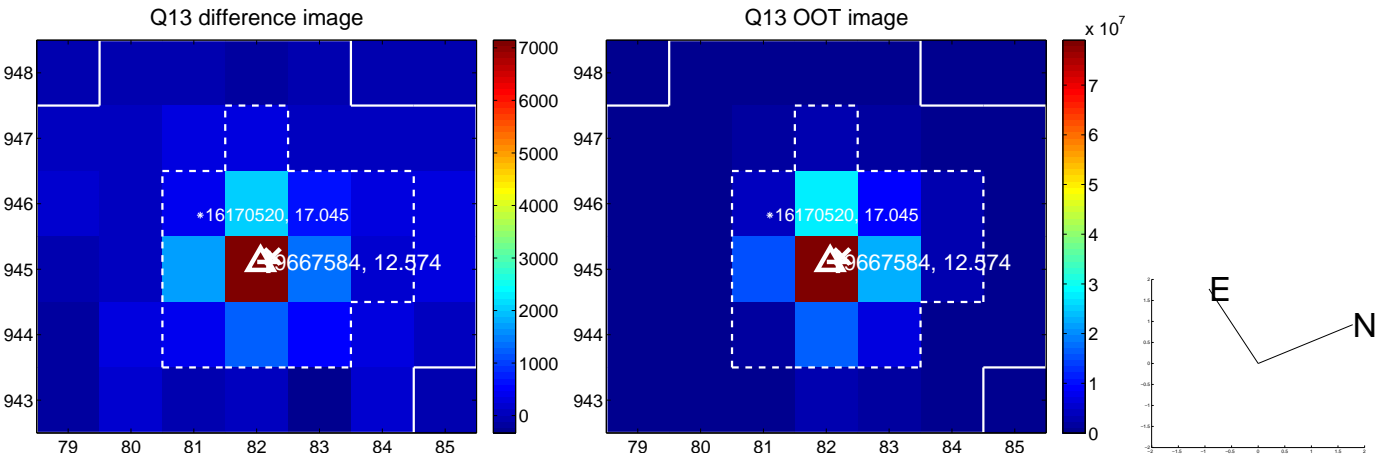
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



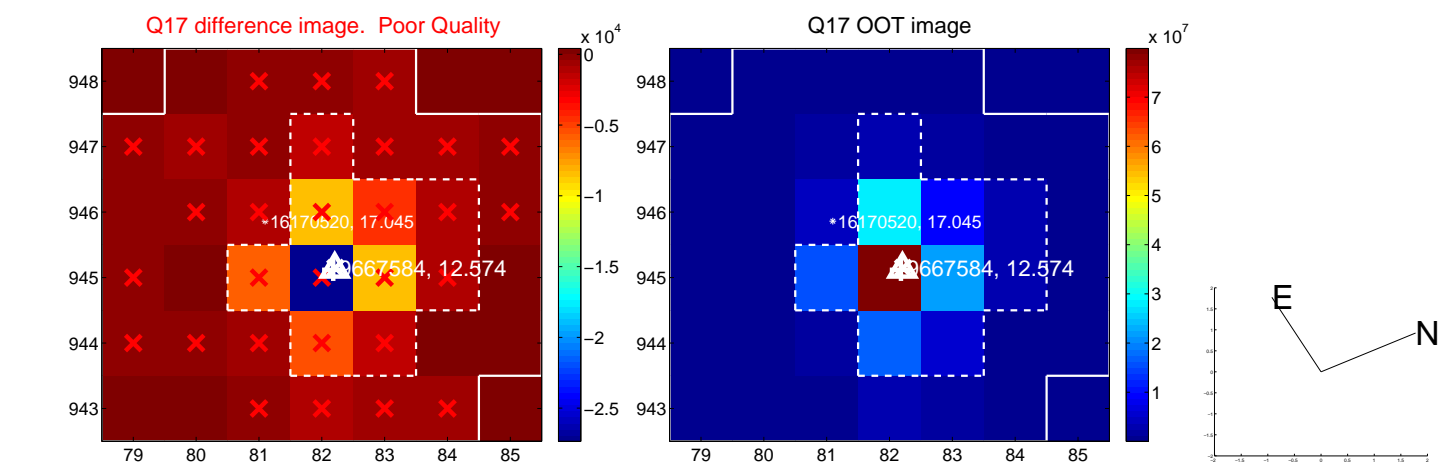
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



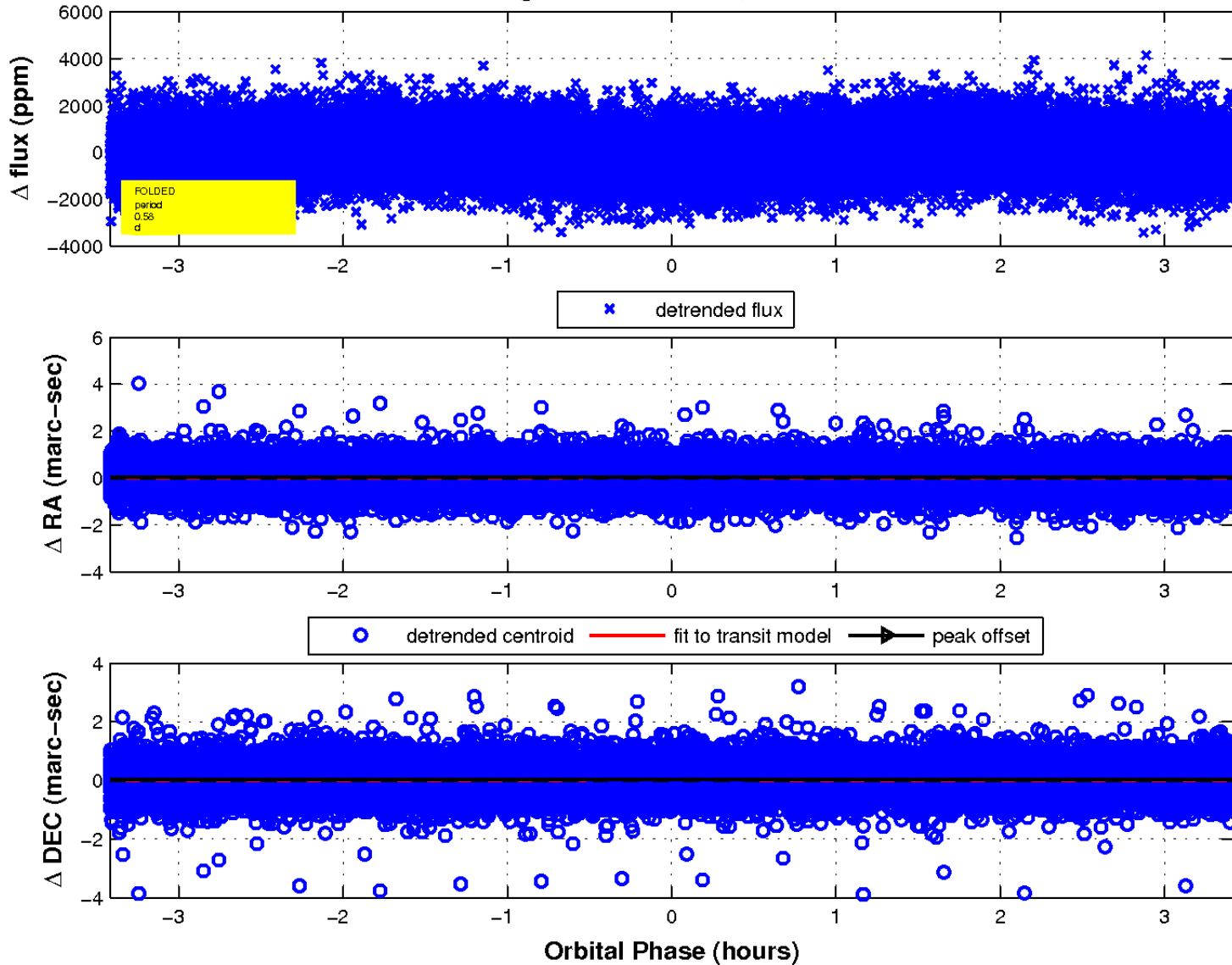
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

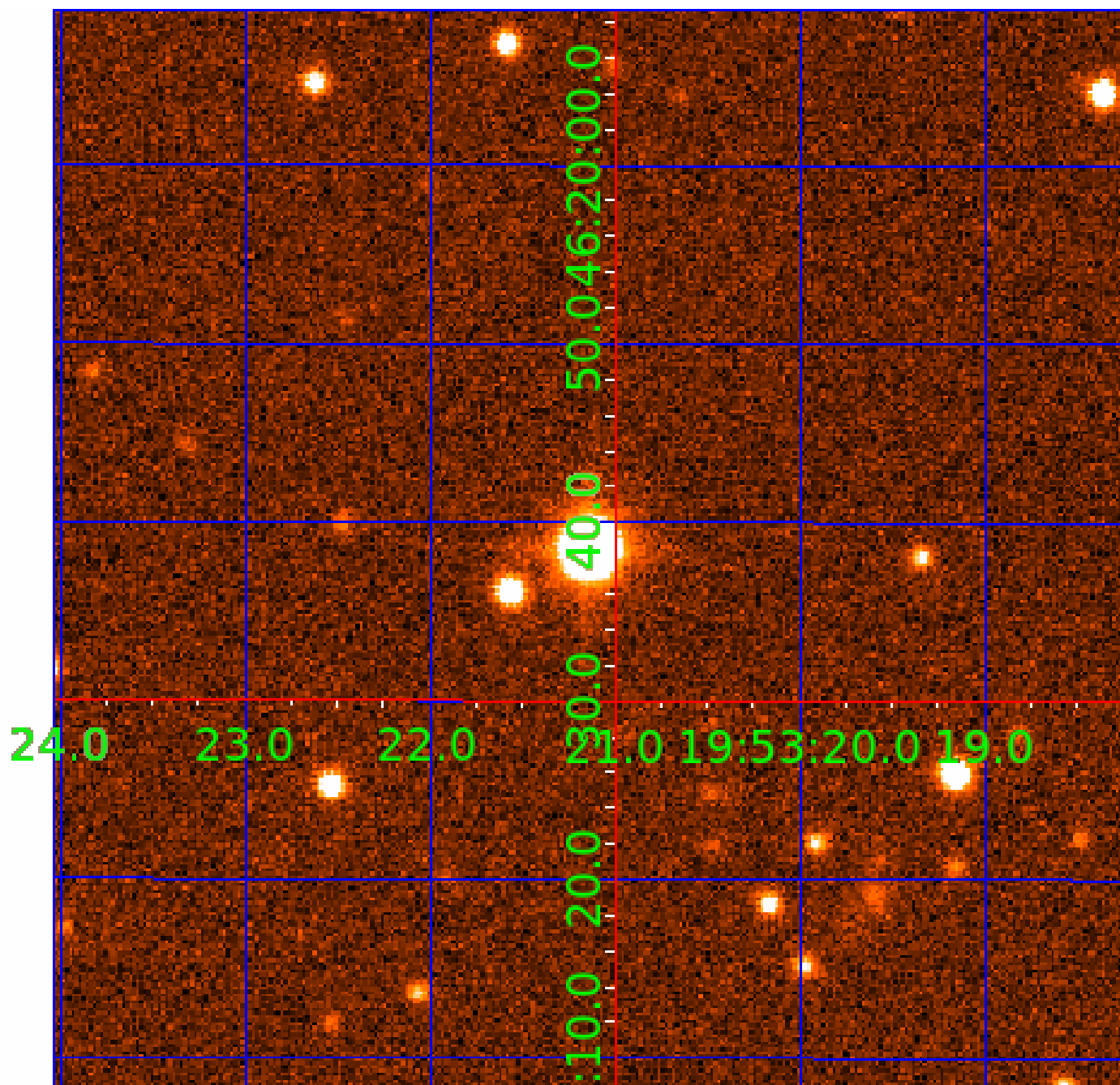


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 009667584

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009667584-01 | OBS | No | 0.576134 | 131.701369 | 168.8 | 1.140 | 11.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.76 |
| 009667584-02 | OBS | No | 0.576118 | 131.846212 | 154.8 | 1.322 | 10.4 | 11.0 | 1.84 | 7533 | 2.66 | 37899.11 |
| 009667584-03 | OBS | No | 0.576140 | 131.557568 | 174.7 | 1.211 | 9.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.25 |
| 009667584-04 | OBS | No | 0.576125 | 131.998494 | 252.0 | 1.500 | 8.8 | -1.0 | 1.84 | 7533 | 2.98 | 37898.55 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009667584-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 009667584-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 009667584-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—SAME_NTL_PERIOD |
| 009667584-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—NO_FITS—SAME_NTL_PERIOD—CENT_NOFITS |

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

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

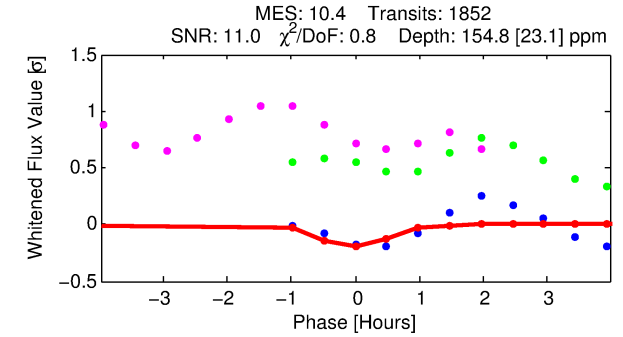
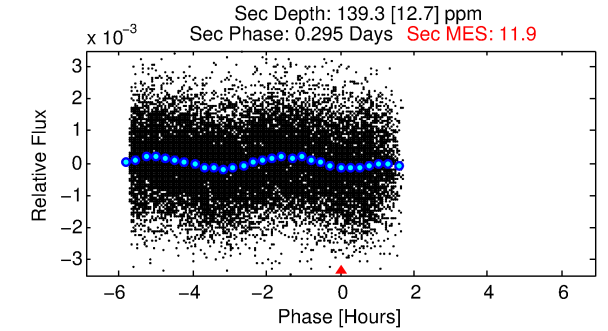
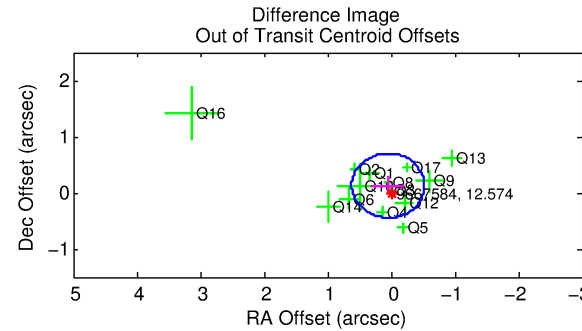
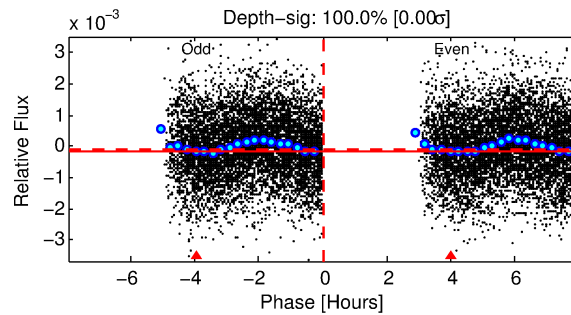
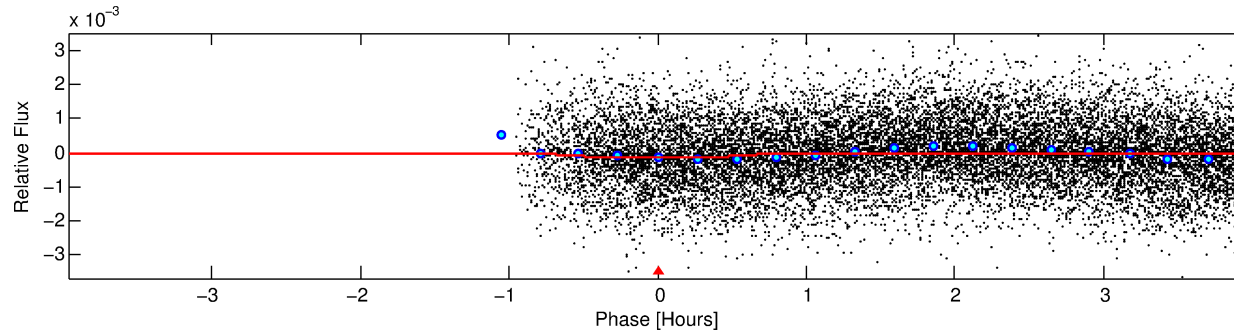
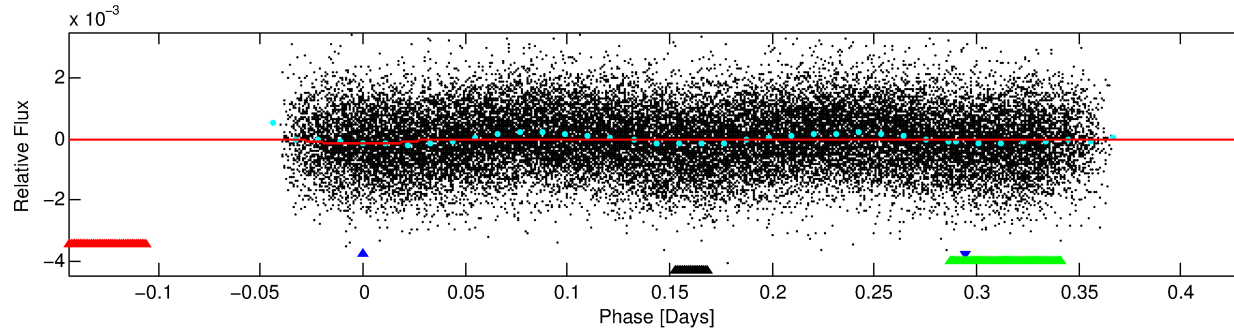
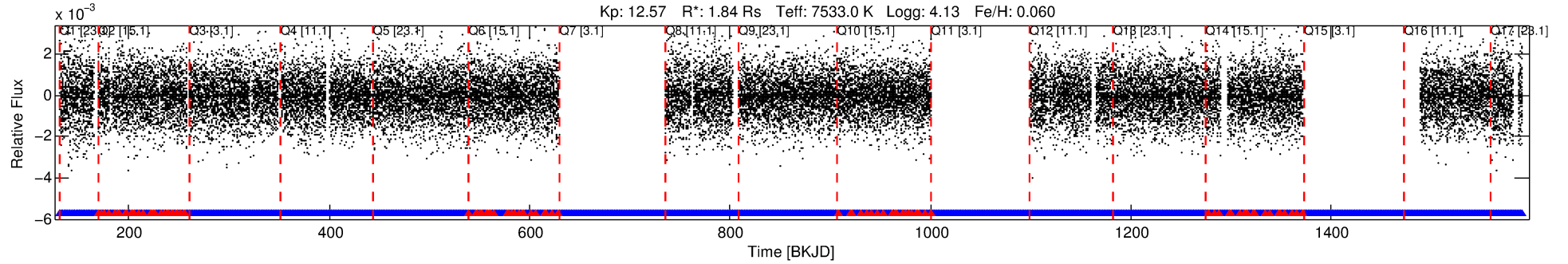
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009667584-02

No Significant Match Found

DV One-Page Summary

KIC: 9667584 Candidate: 2 of 4 Period: 0.576 d



DV Fit Results:

Period = 0.57612 [0.00001] d
Epoch = 131.8462 [0.0026] BKJD
Rp/R* = 0.0132 [0.0070]
a/R* = 1.81 [4.41]
b = 0.90 [0.75]
Seff = 37899.11 [14960.79]
Teq = 3558 [351] K
Rp = 2.66 [1.62] Re
a = 0.0161 [0.0039] AU
Ag = 2.80 [3.15] [0.57σ]
Teffp = 7114 [1929] K [1.81σ]

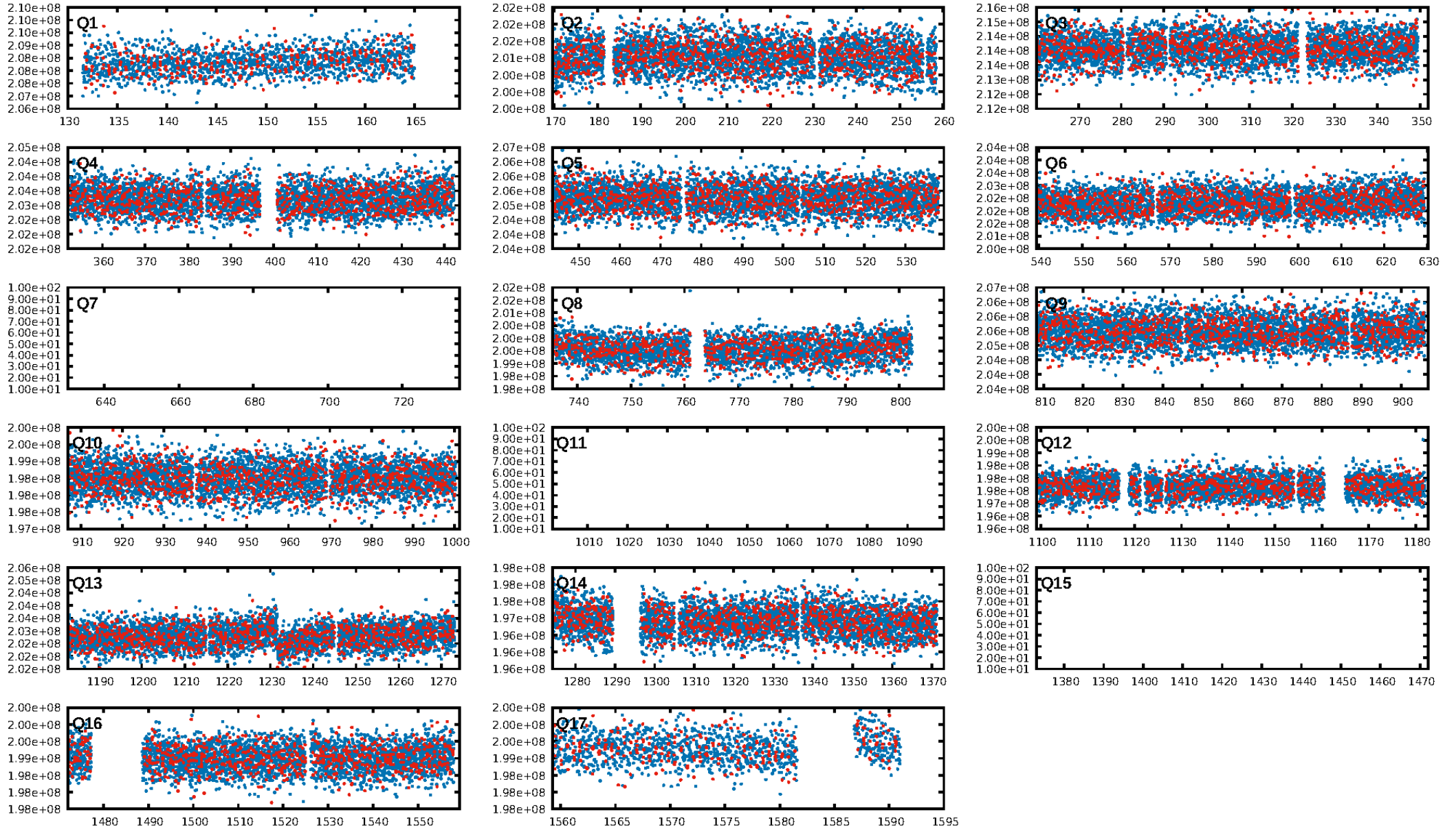
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [1646/1748]
GhostDiagnostic-chr: 0.8384
Centroid-sig: 24.3%
Centroid-so: 0.369 arcsec [2.94σ]
OotOffset-rm: 0.136 arcsec [0.71σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-rm: 0.102 arcsec [0.42σ]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.64 [9/14]
DiffImageOverlap-fno: 0.00 [0/14]

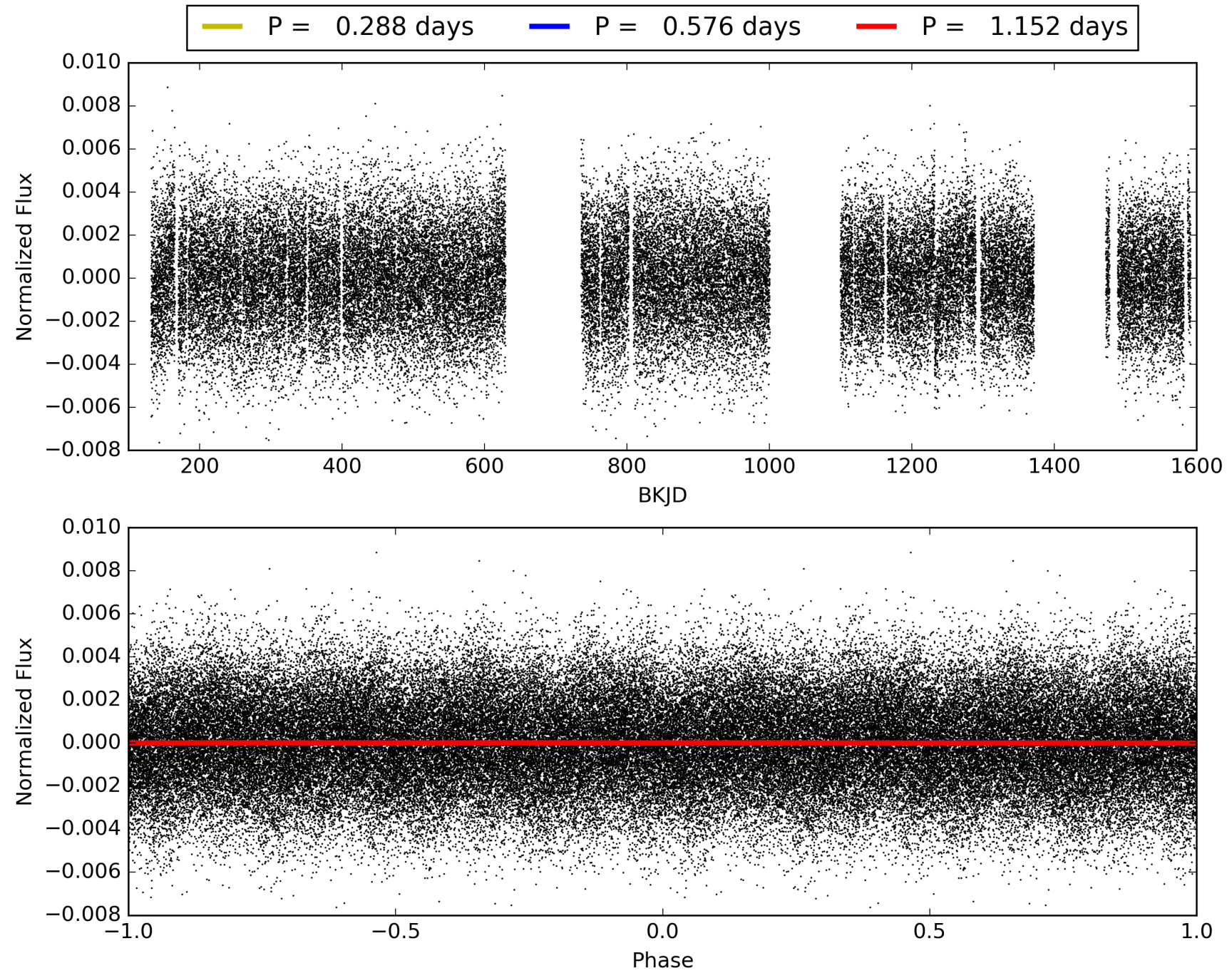
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:44:40 Z

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

TCE 009667584-02, PDC Light Curves

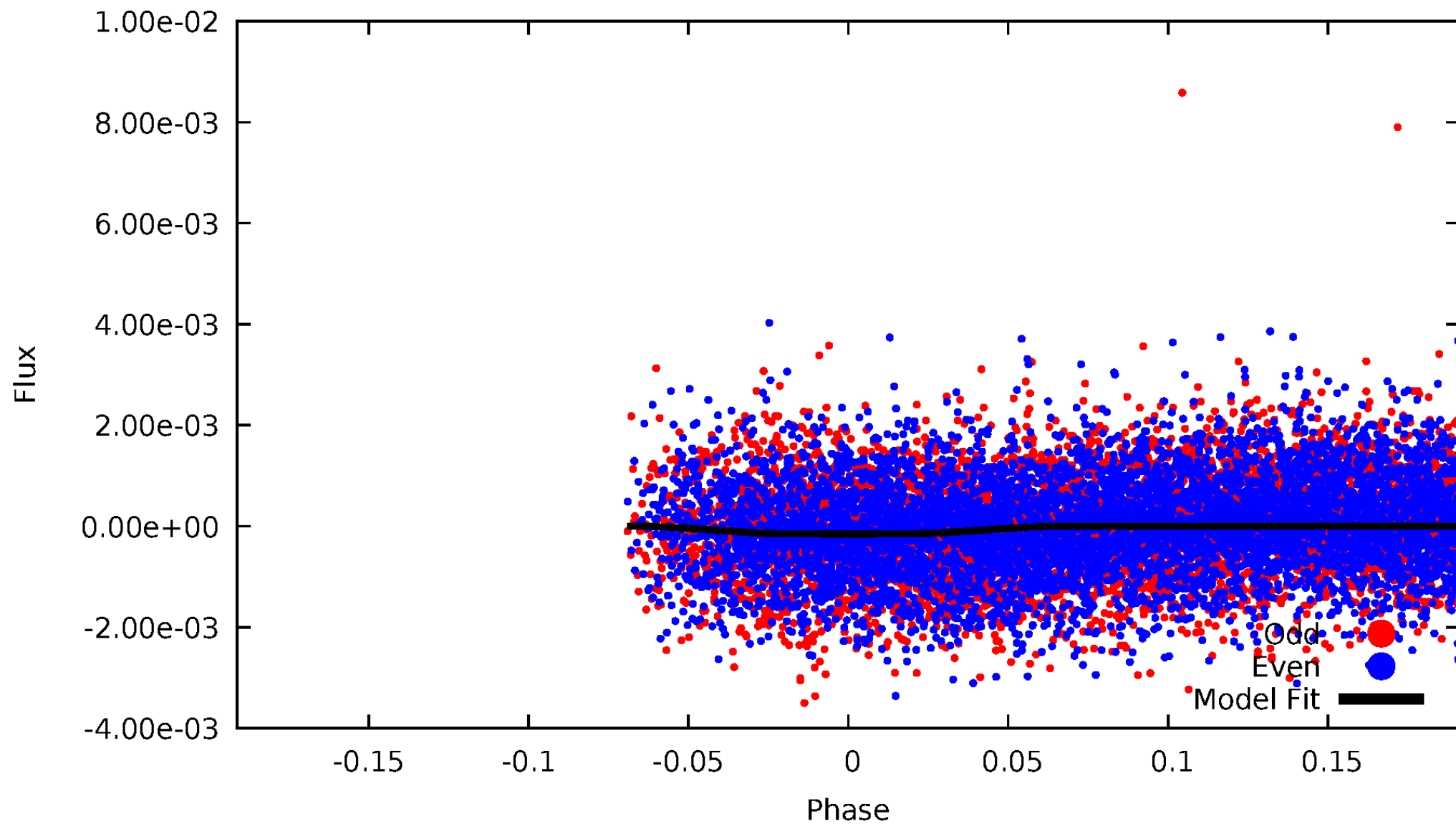


TCE 009667584-02



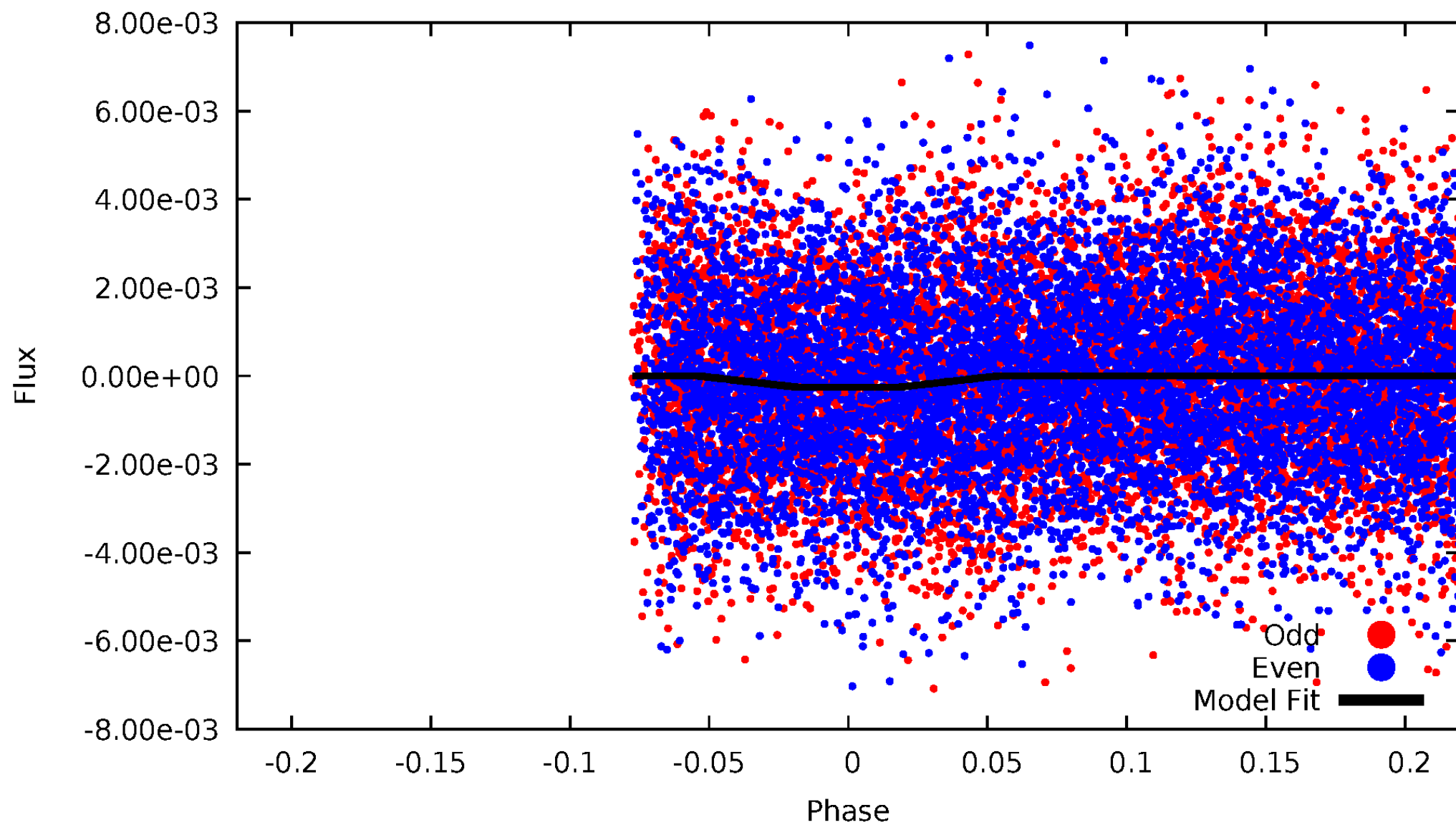
DV Odd/Even

TCE 009667584-02



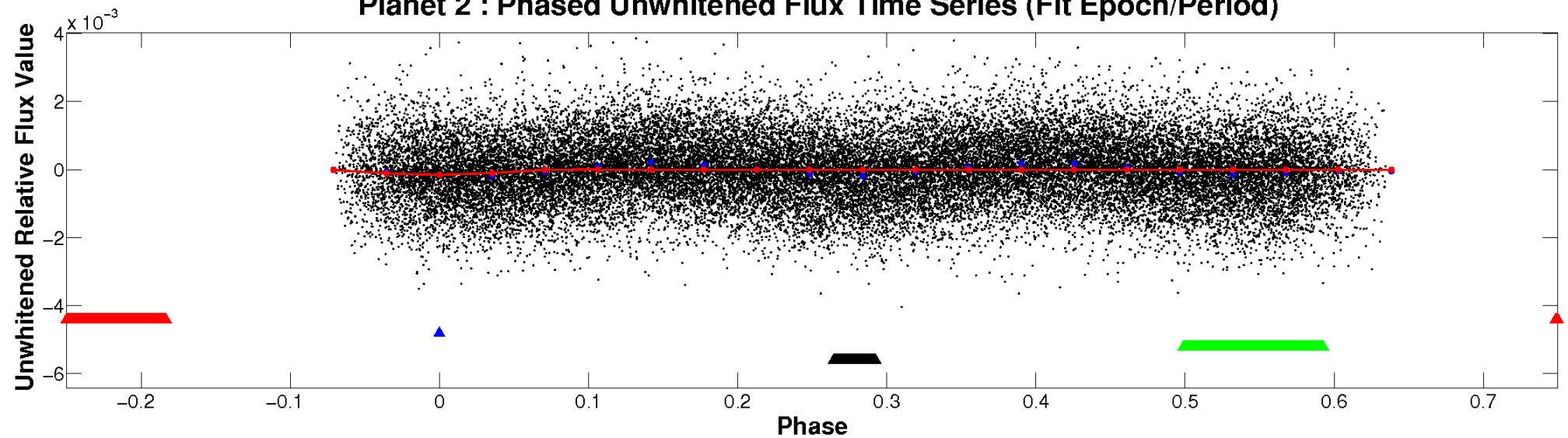
ALT Odd/Even

TCE 009667584-02

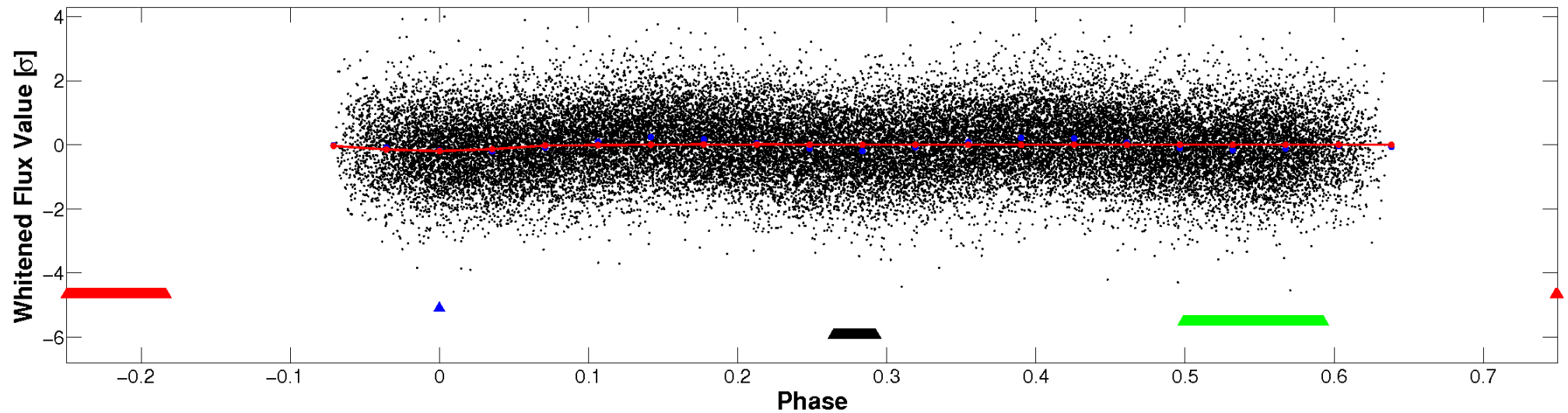


Non-Whitened Vs. Whitened Light Curve

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

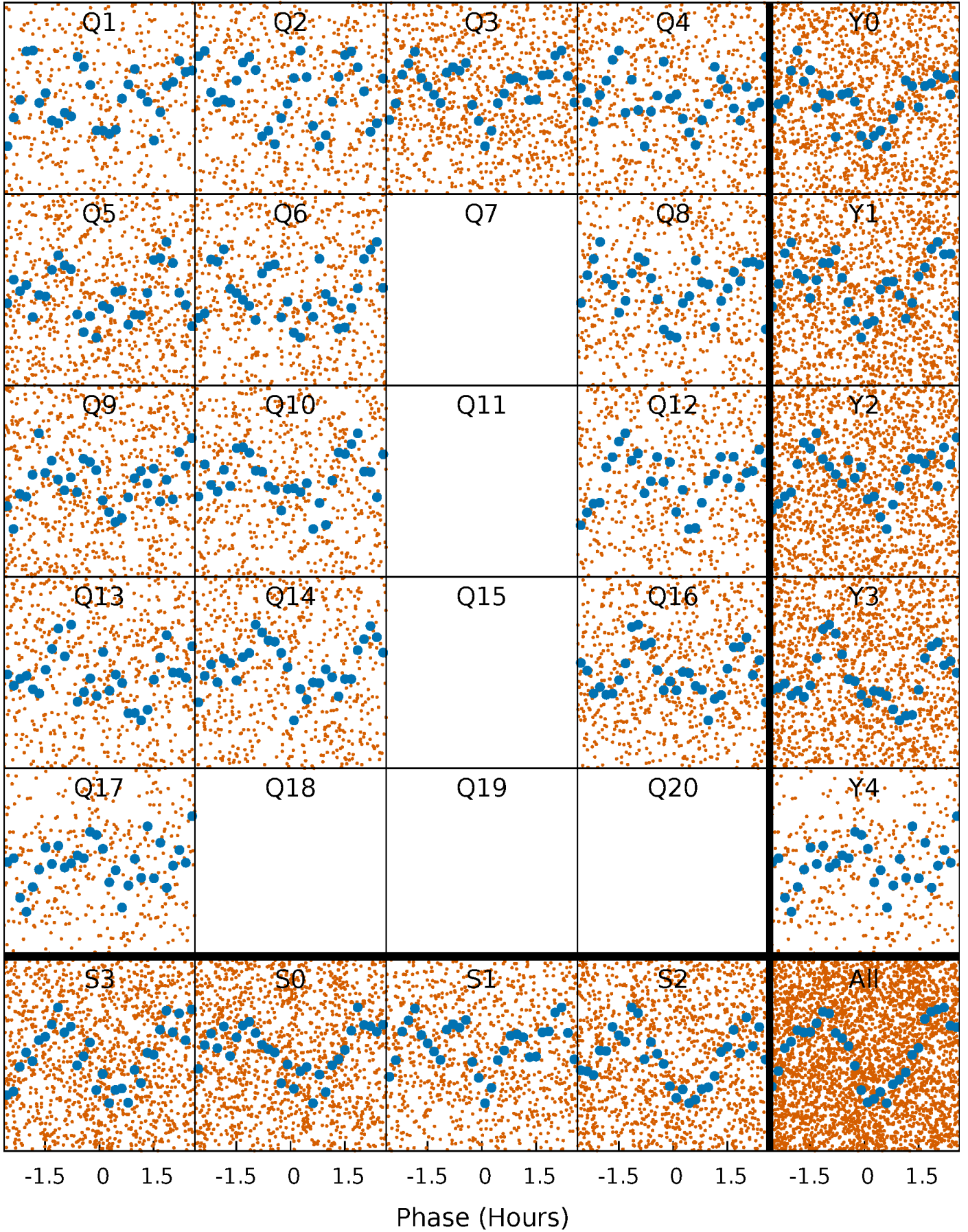


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



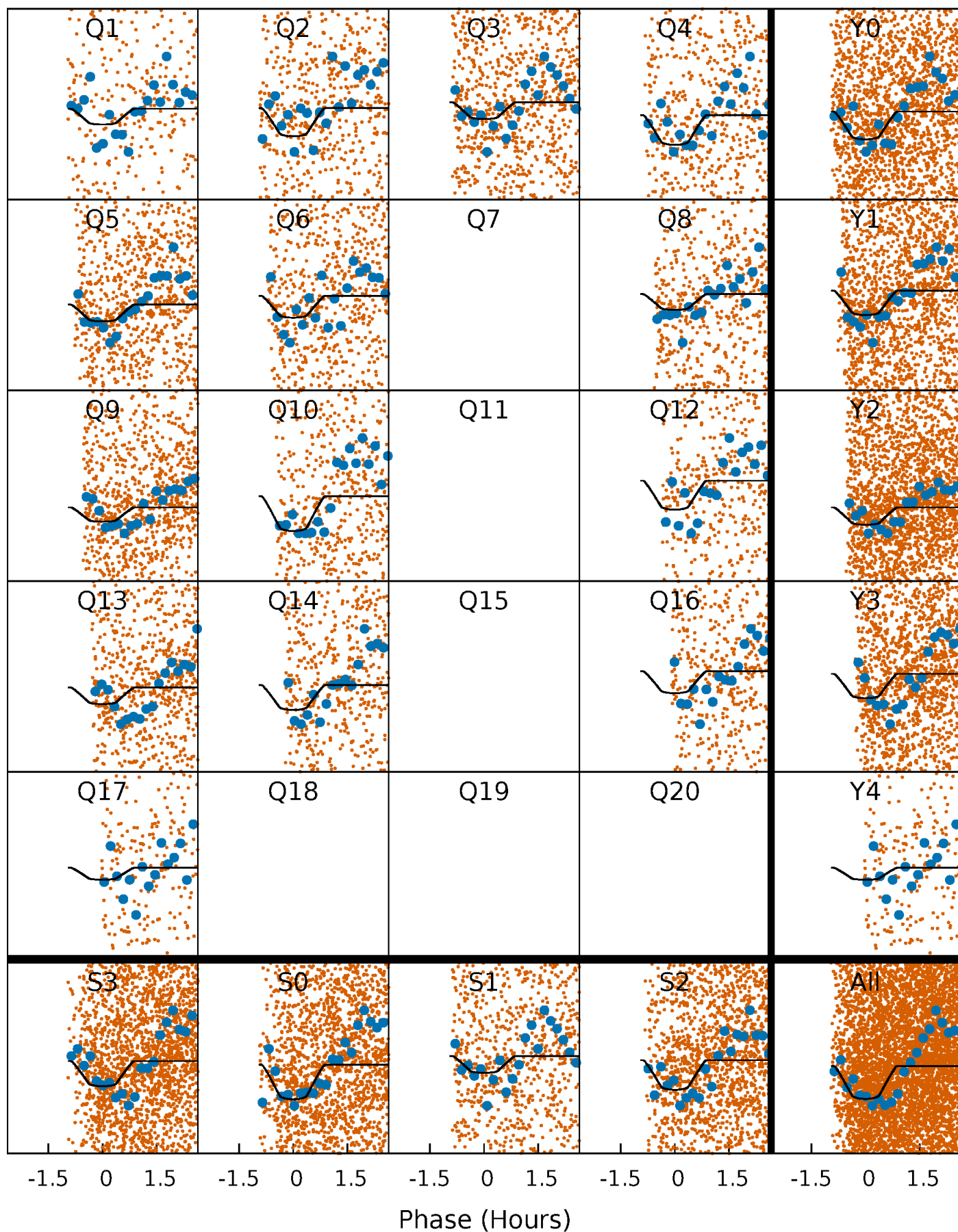
PDC Quarter-Phased Transit Curves

TCE 009667584-02 P= 0.576118 Days $T_0=131.846212$ (BKJD)



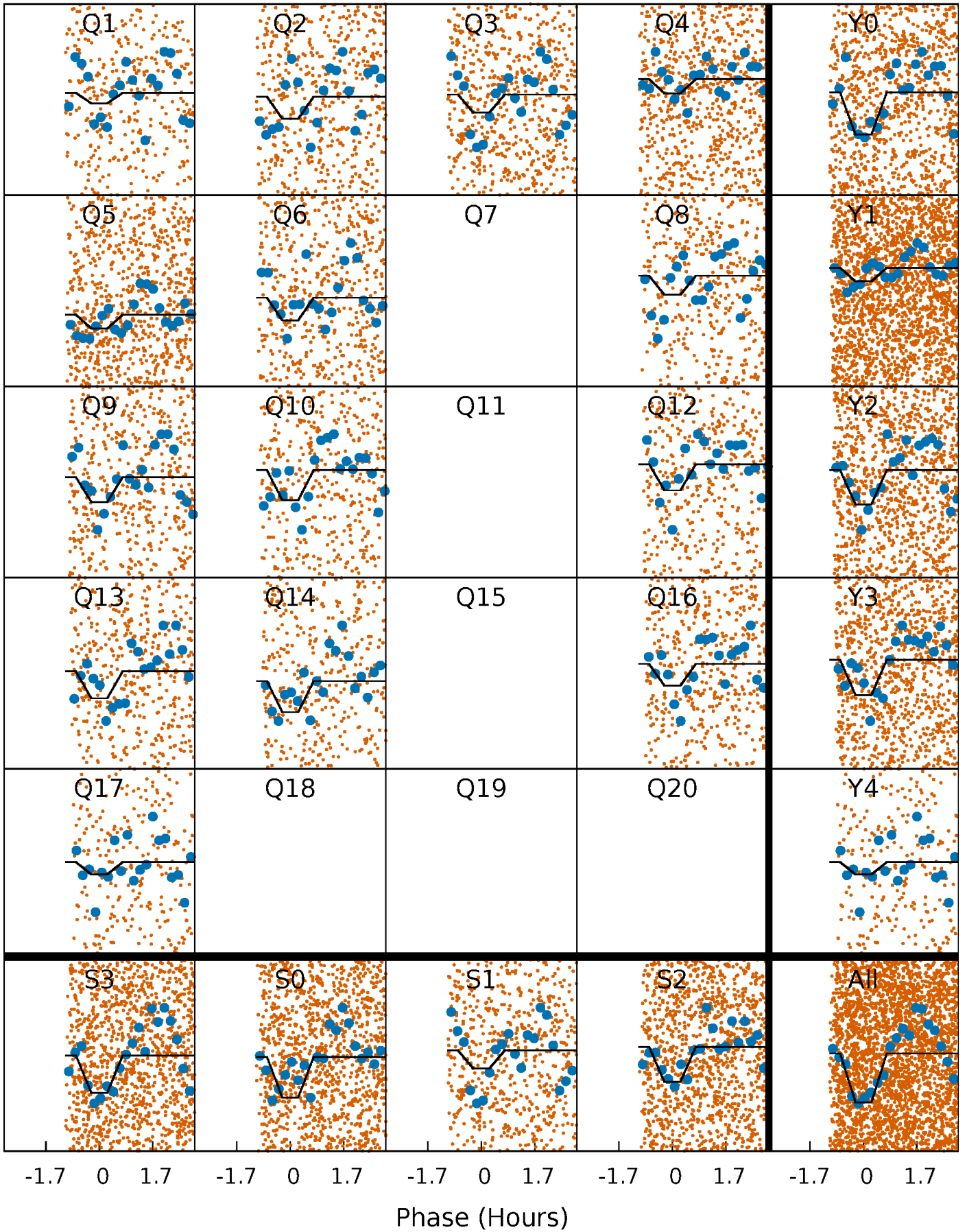
DV Quarter-Phased Transit Curves

TCE 009667584-02 $P = 0.576118$ Days $T_0 = 131.846212$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

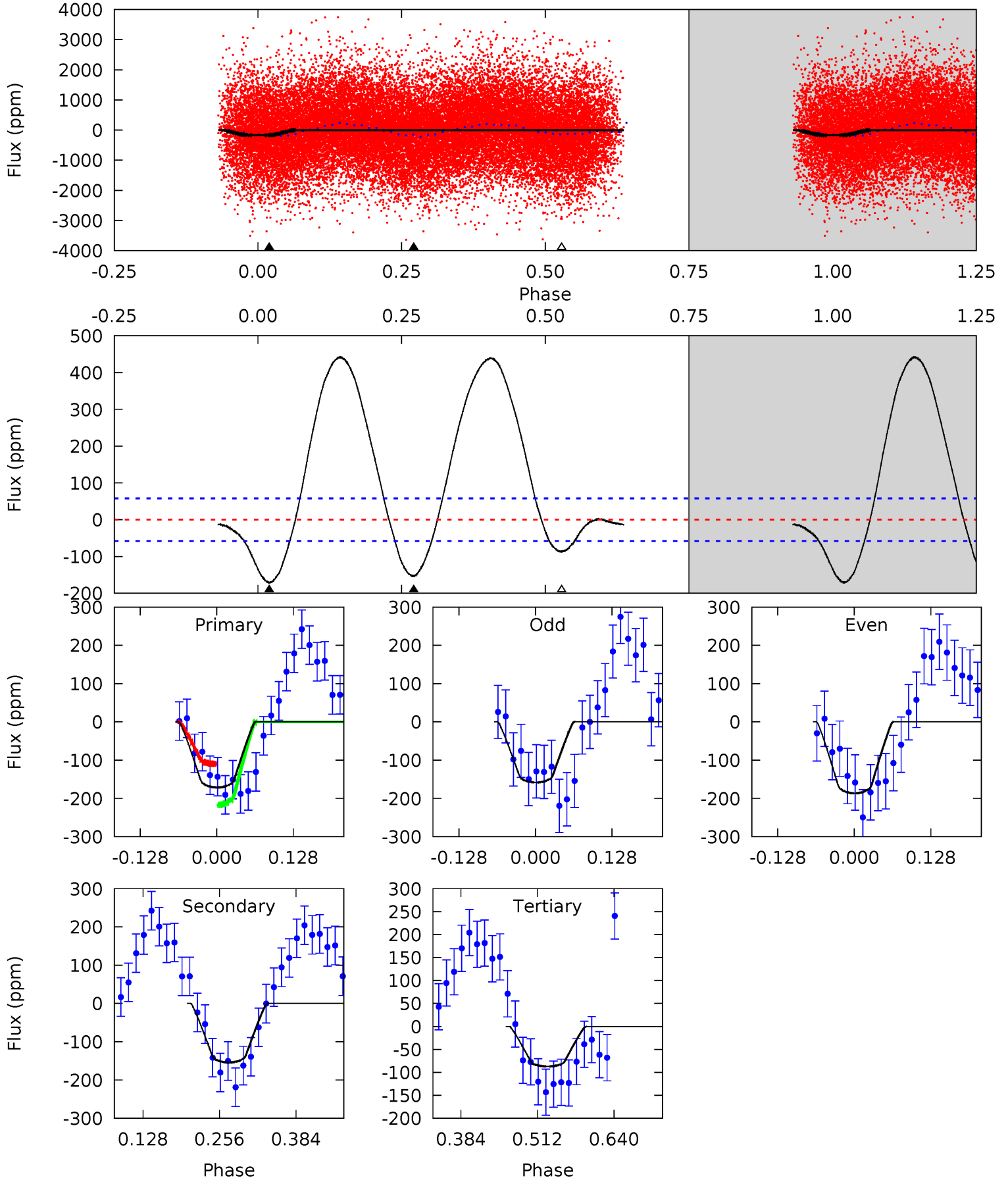
TCE 009667584-02 $P = 0.576130$ Days $T_0 = 131.850610$ (BKJD)



DV Model-Shift Uniqueness Test

009667584-02, P = 0.576118 Days, E = 131.270094 Days

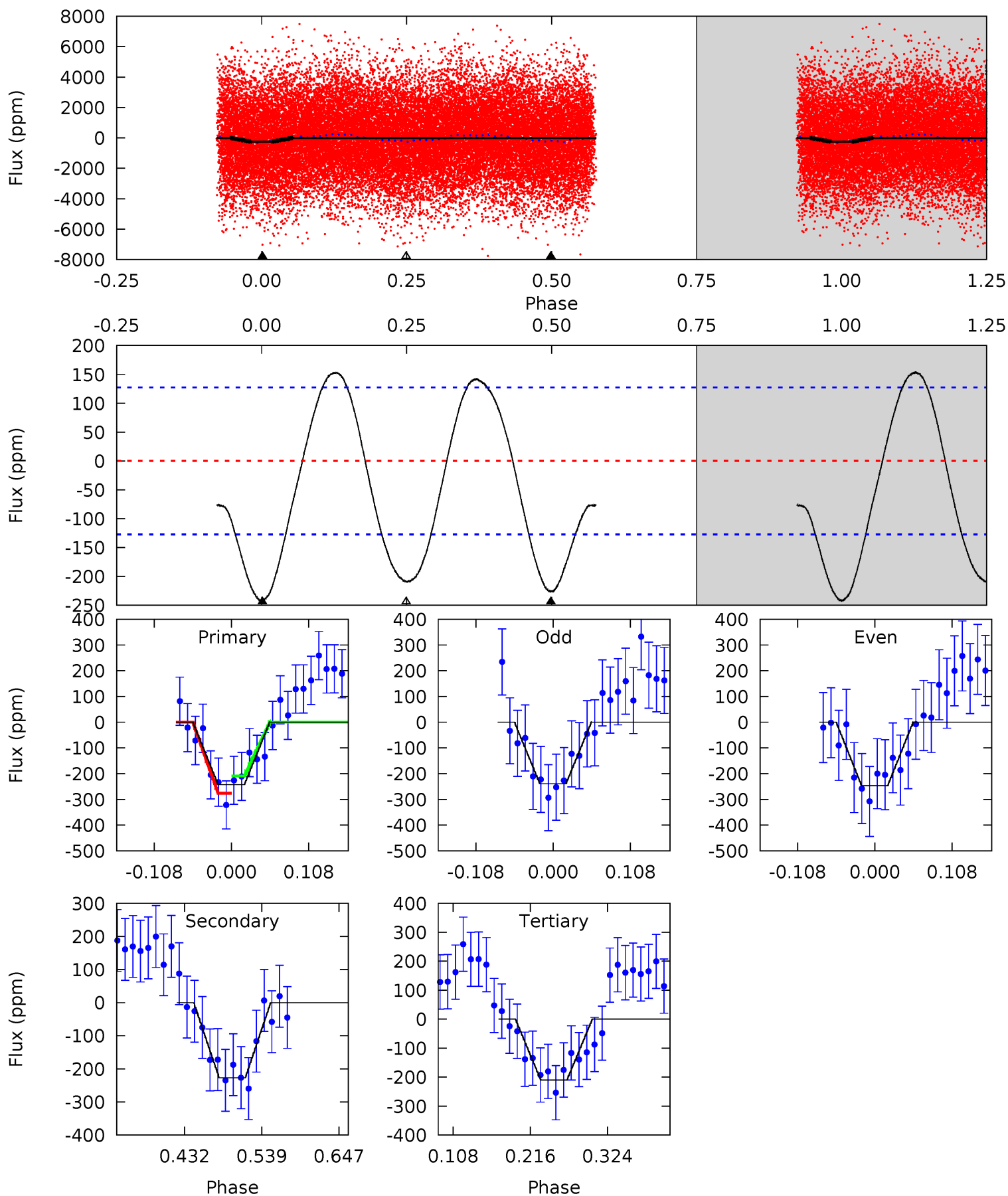
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.3 | 12.0 | 6.75 | 0 | 4.51 | 1.52 | 14.4 | 6.54 | 13.3 | 5.21 | 12.0 | 1.10 | 1.01 | 0.72 | 3.97 |



Alt Model-Shift Uniqueness Test

009667584-02, P = 0.576130 Days, E = 131.274480 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.68 | 8.11 | 7.50 | 0 | 4.55 | 1.61 | 4.78 | 1.18 | 8.68 | 0.61 | 8.11 | 0.13 | 1.10 | 0.39 | 1.14 |



Stellar Parameters For KIC 009667584

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7533^{+211}_{-342} | $4.129^{+0.101}_{-0.188}$ | $0.060^{+0.150}_{-0.350}$ | $1.840^{+0.549}_{-0.338}$ | $1.663^{+0.204}_{-0.250}$ | $0.376^{+0.218}_{-0.188}$ |
| | +3%/-5% | +2%/-5% | +250%/-583% | +30%/-18% | +12%/-15% | +58%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 009667584-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -154 ± 13 | $2.76^{+1.60}_{-1.35}$ | 5021^{+383}_{-319} | 6933^{+4175}_{-1573} | $2.788^{+7.975}_{-1.596}$ |
| Alt. | -227 ± 28 | $3.39^{+1.48}_{-1.53}$ | 5008^{+406}_{-284} | 6952^{+3337}_{-1383} | $2.798^{+6.497}_{-1.466}$ |

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 $A_{obs} \gg 1.0$

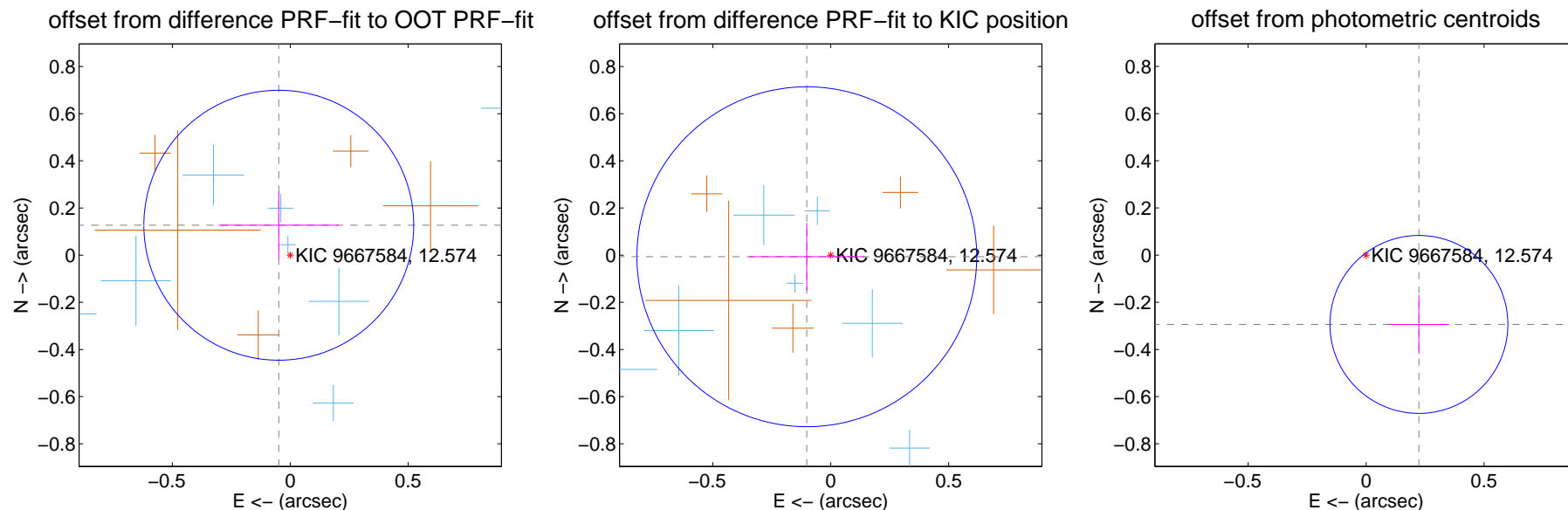
DV Centroid Data

Supplemental centroid analysis for 009667584-02. Kepler magnitude: 12.57. Transit SNR 10.96

There are 9 quarters with good PRF difference image offsets

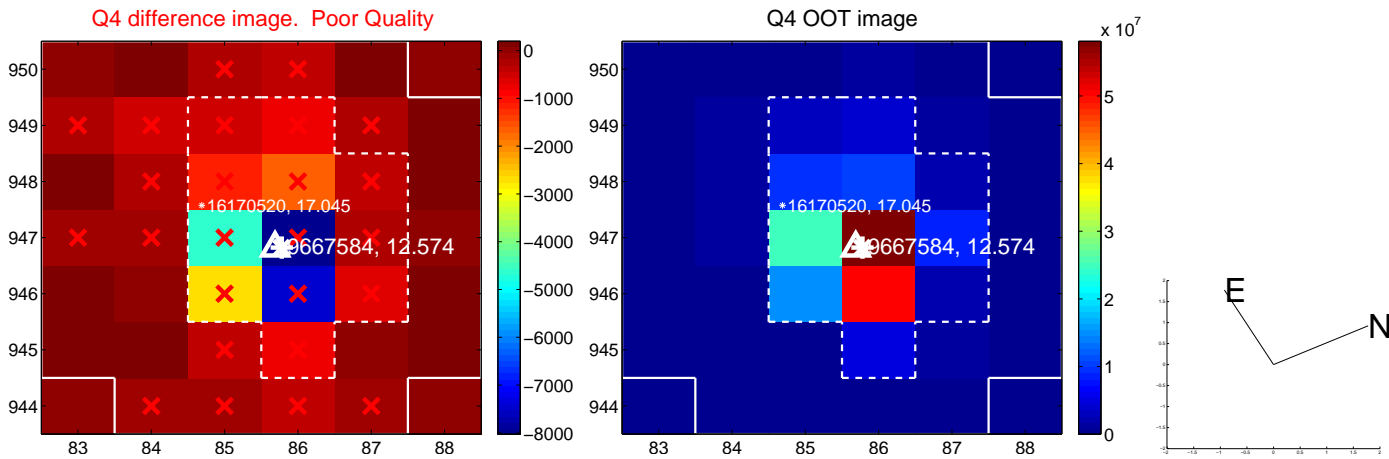
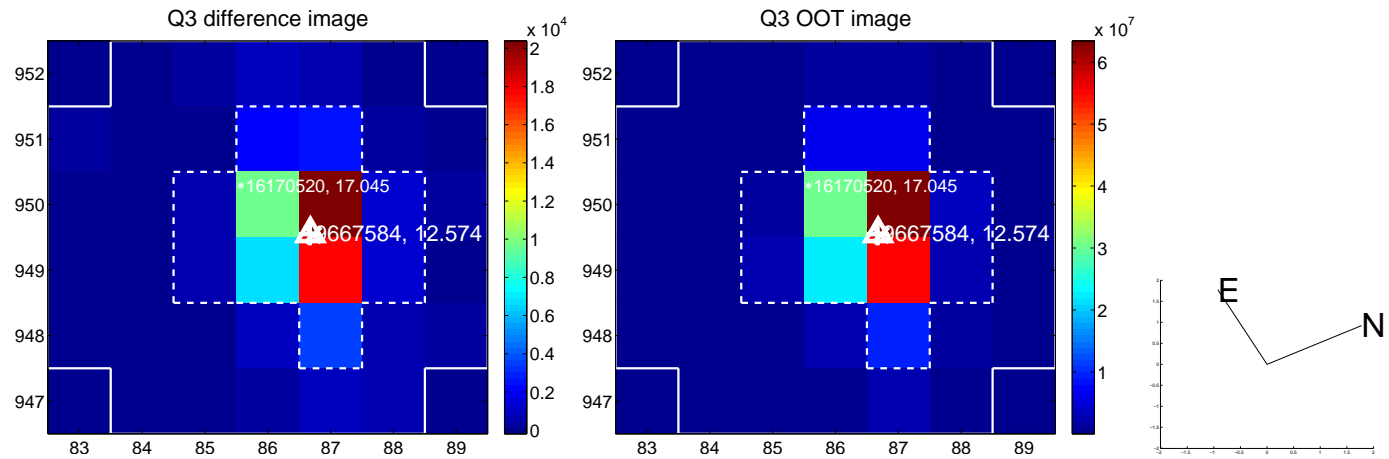
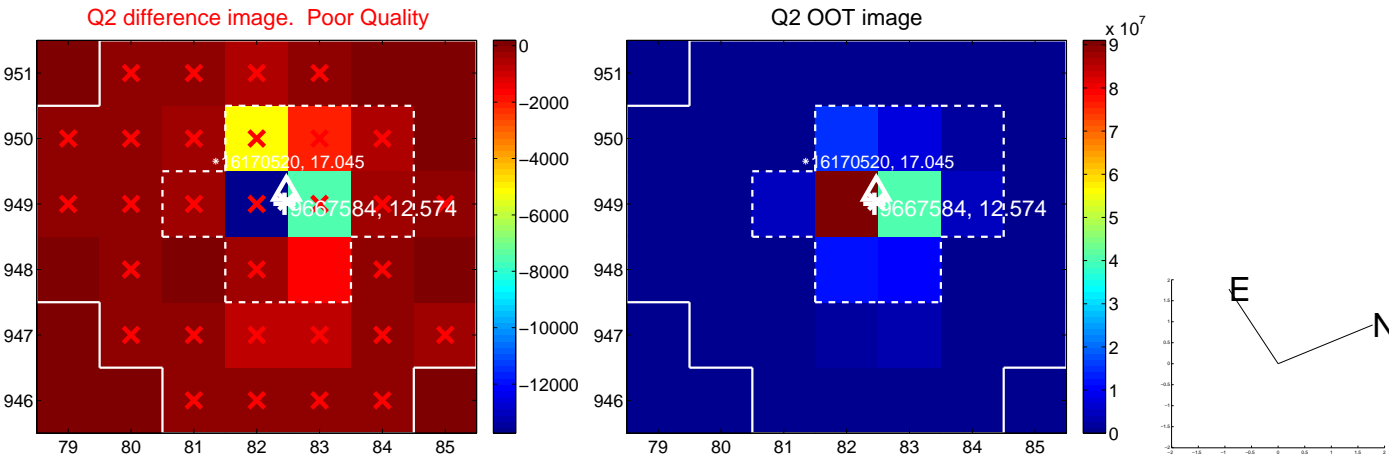
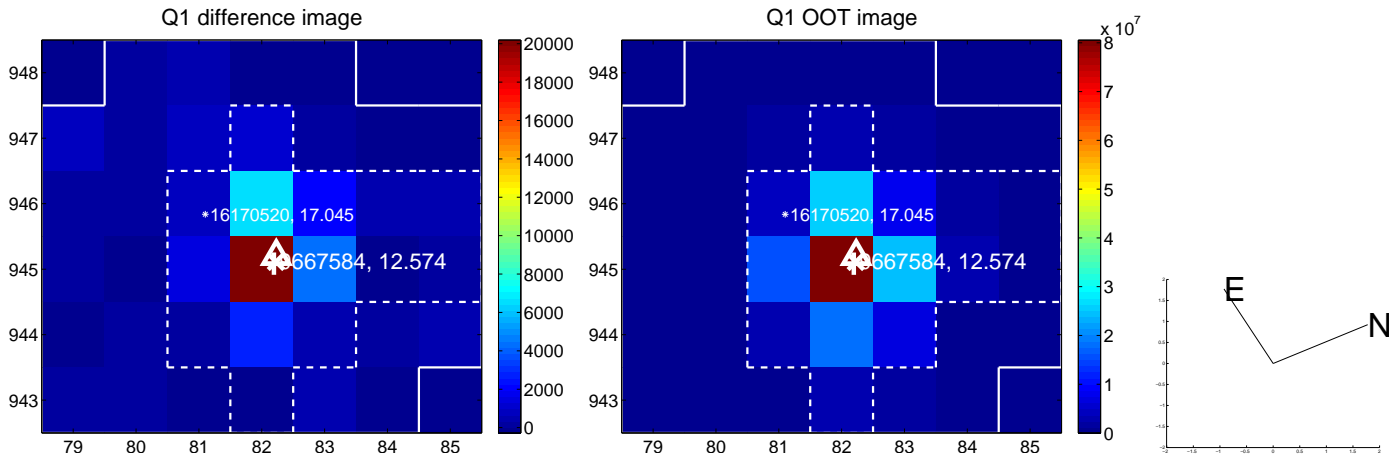
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.136 ± 0.191 | 0.71 | 0.049 ± 0.254 | 0.127 ± 0.142 |
| PRF-fit source offset from KIC position | 0.102 ± 0.240 | 0.42 | 0.101 ± 0.244 | -0.007 ± 0.143 |
| photometric centroid source offset | 0.37 ± 0.13 | 2.94 | -0.22 ± 0.13 | -0.29 ± 0.12 |

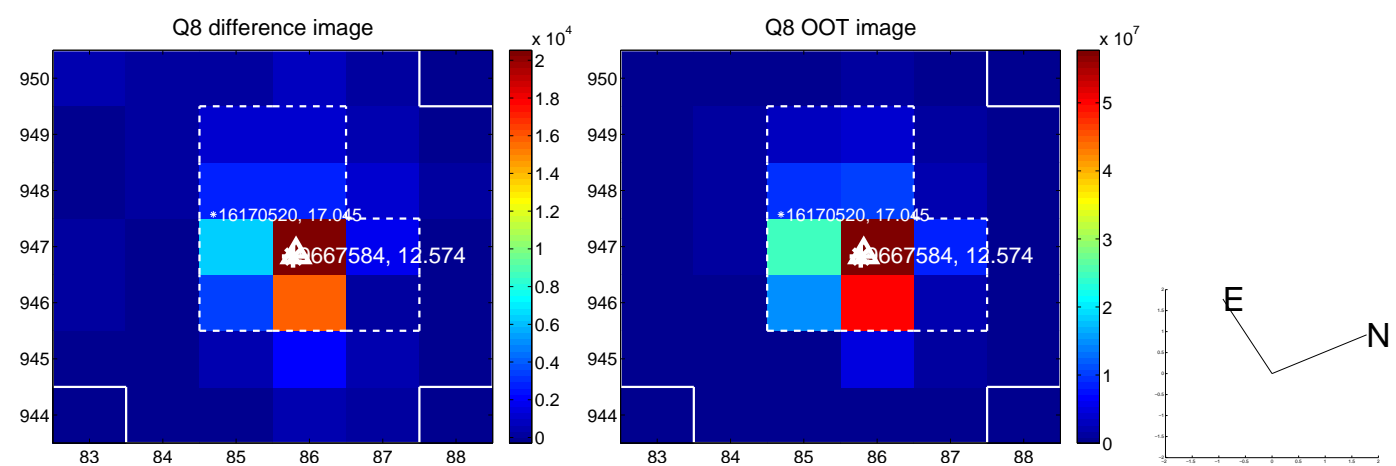
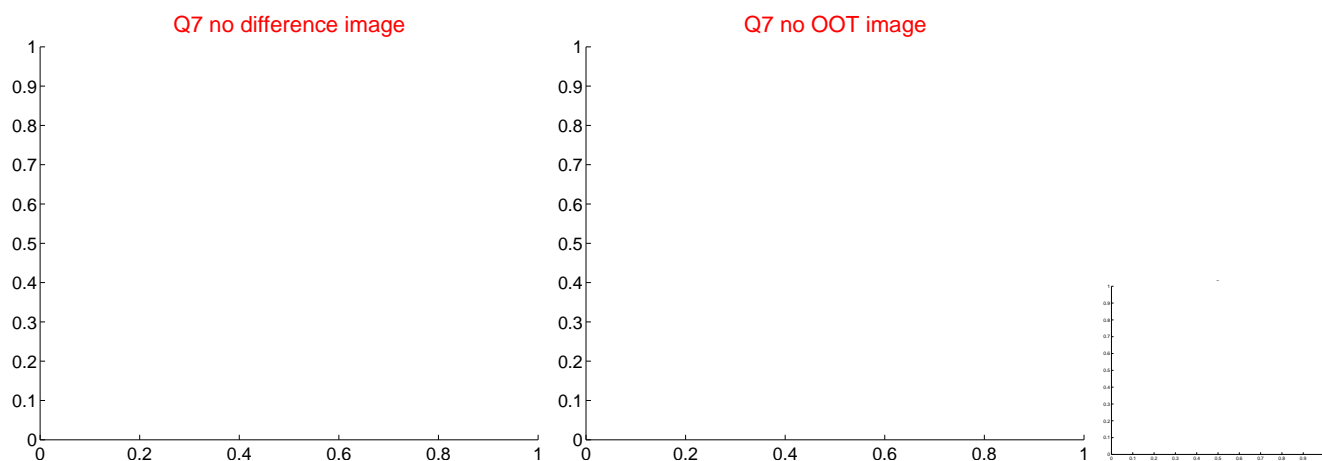
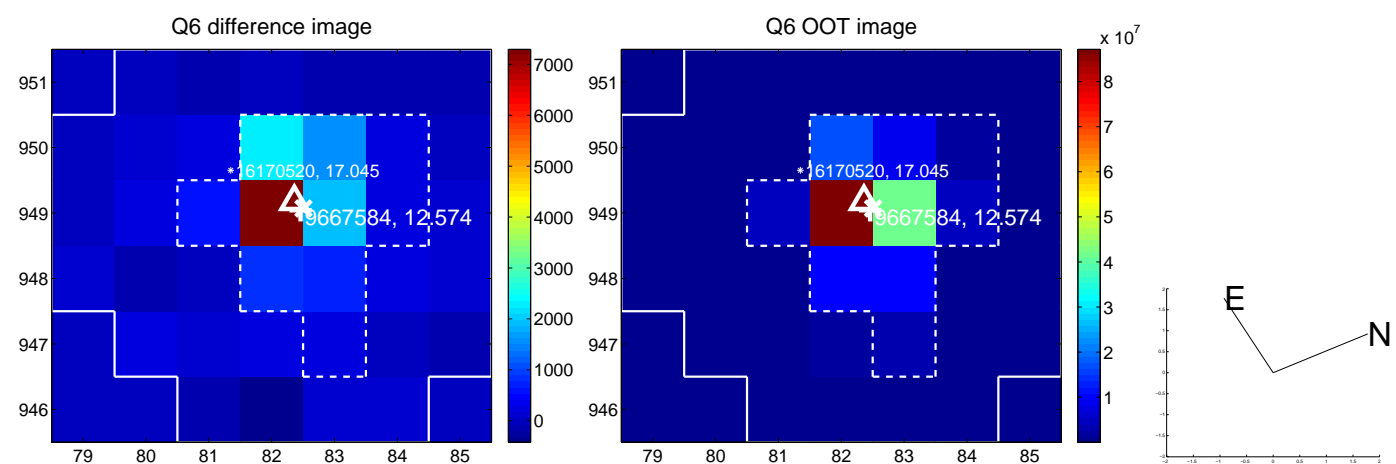
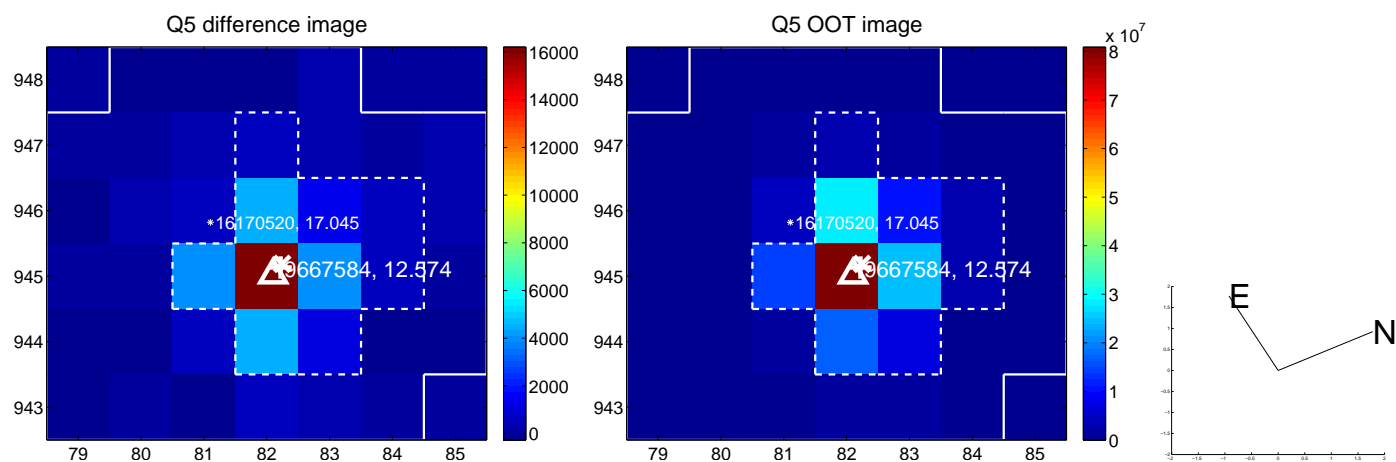


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

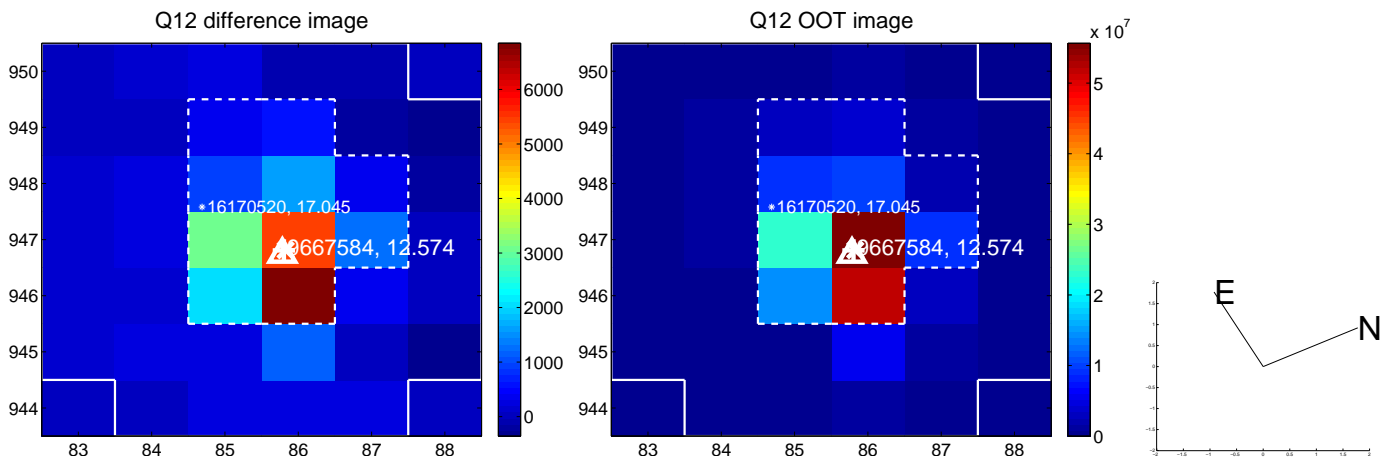
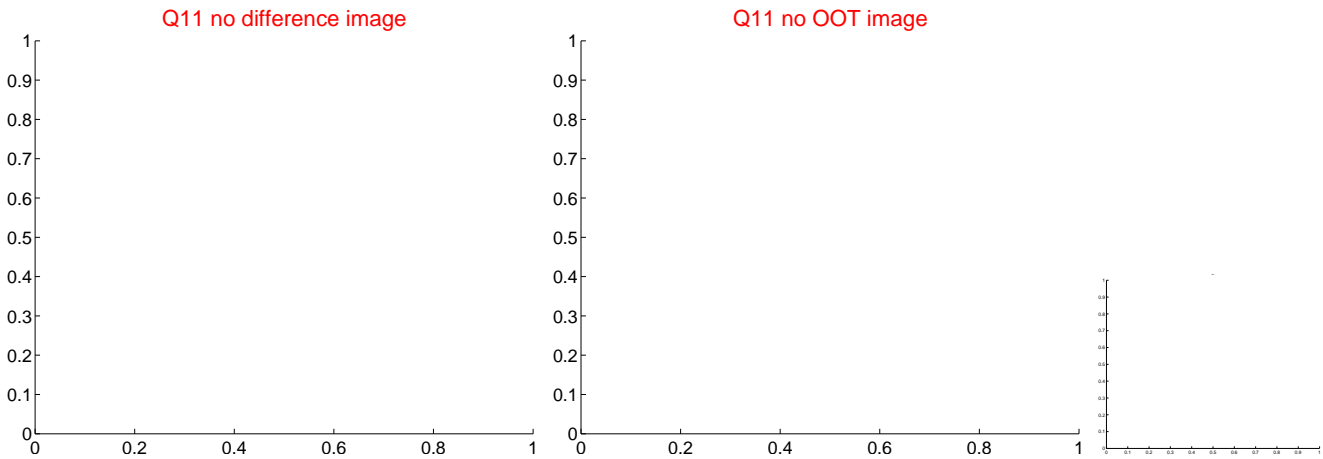
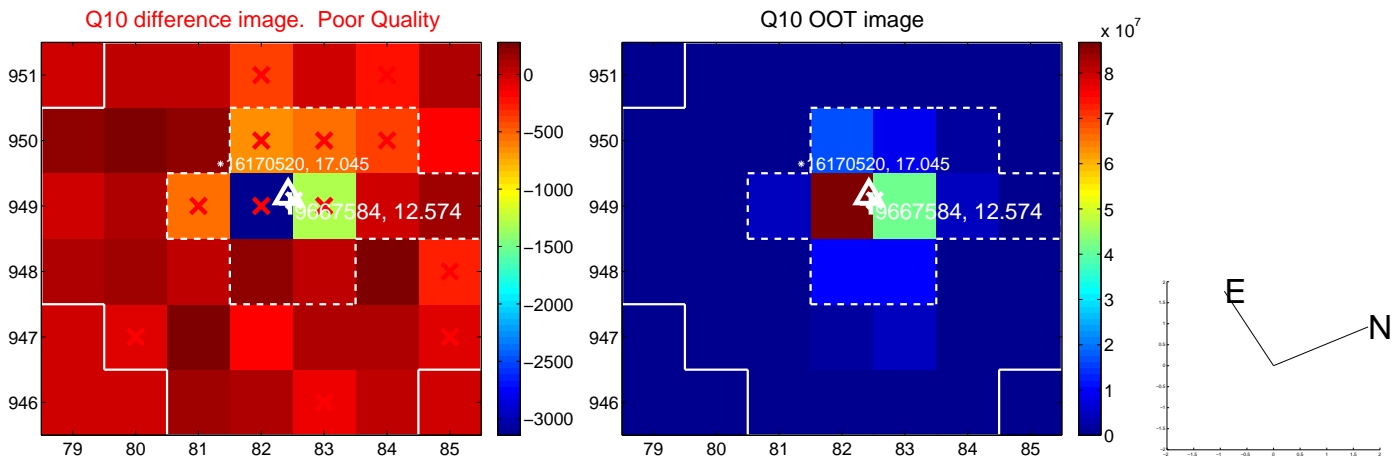
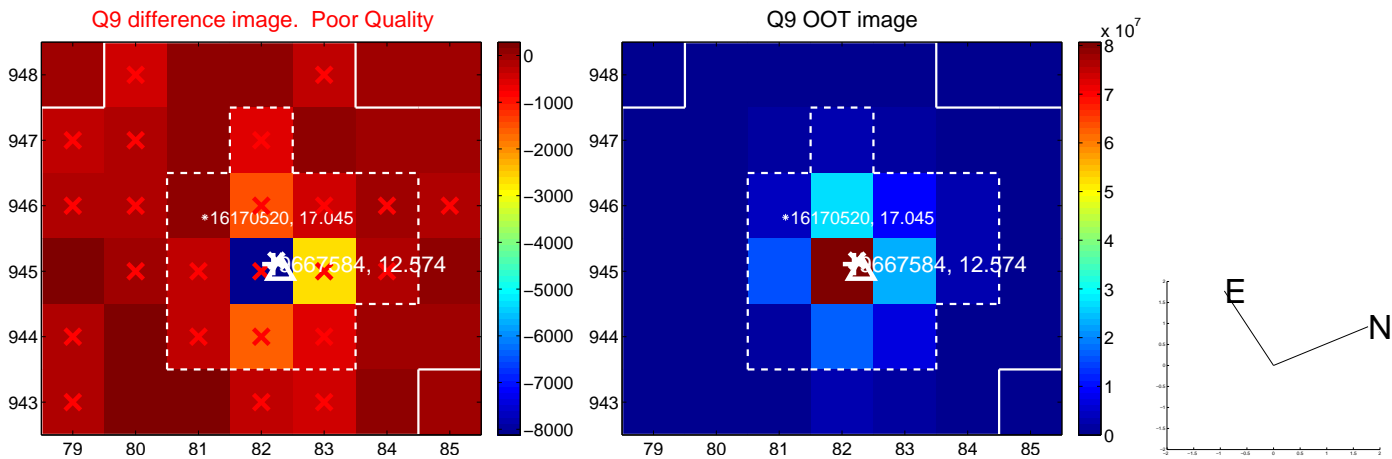
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



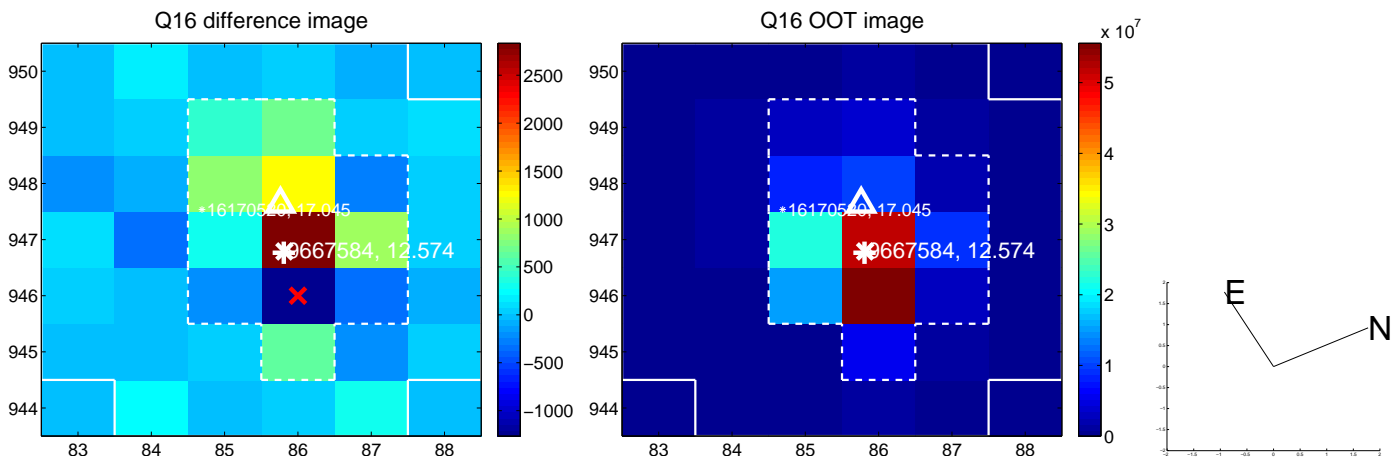
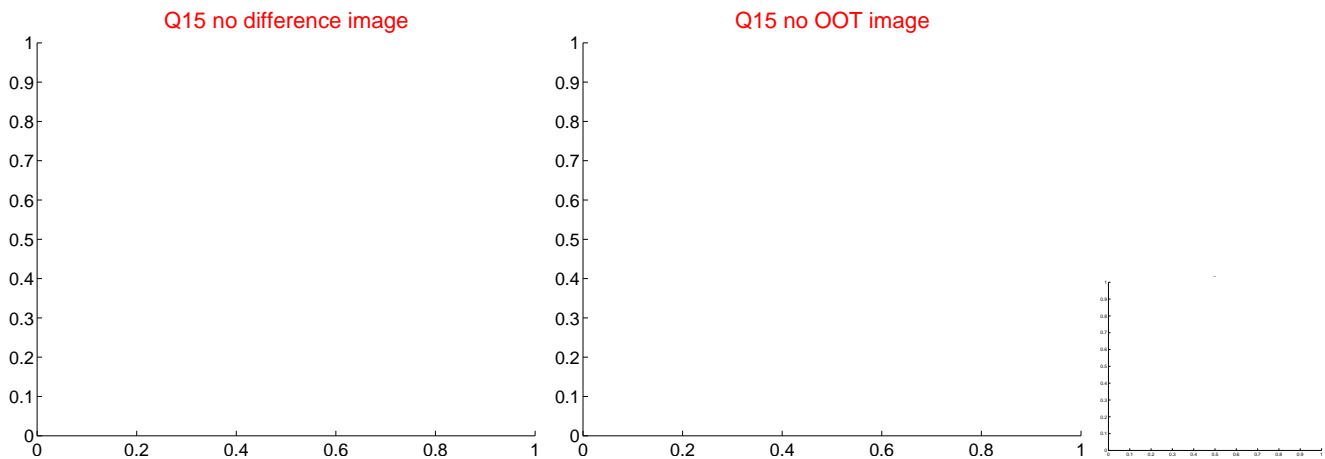
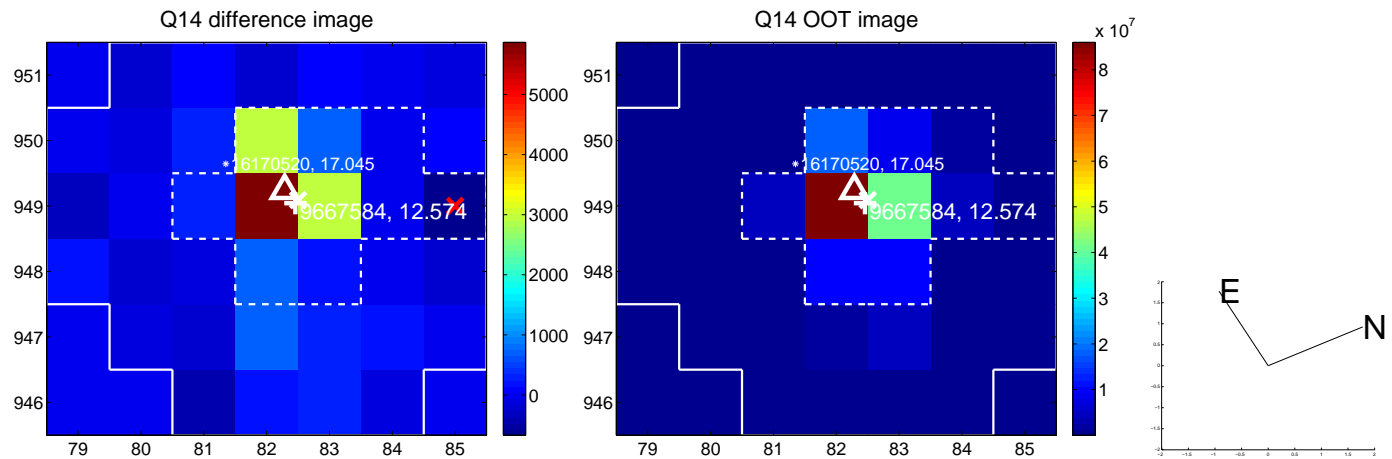
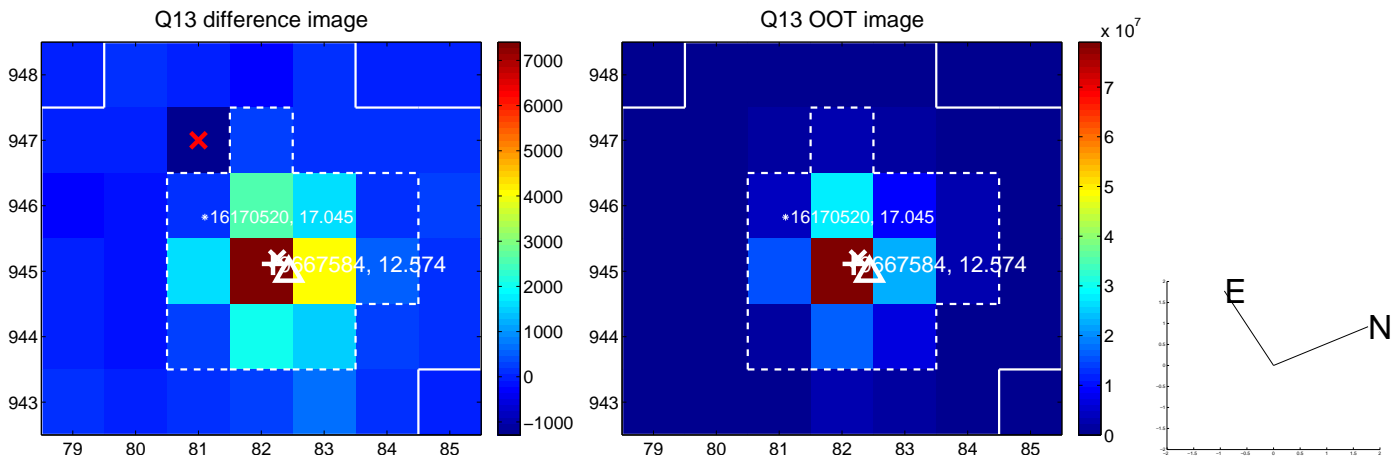
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



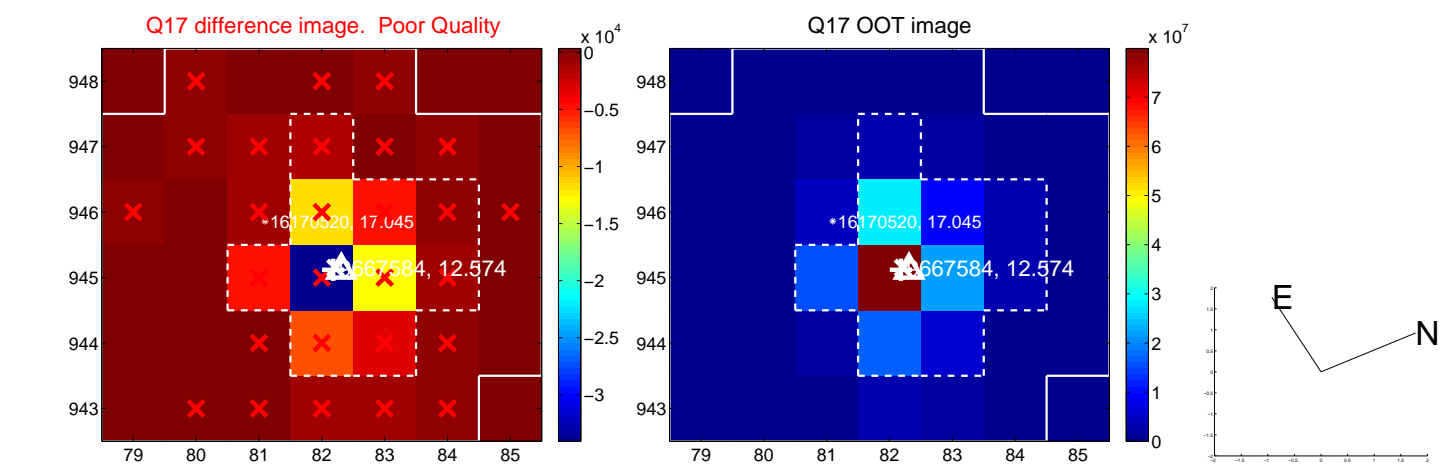
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



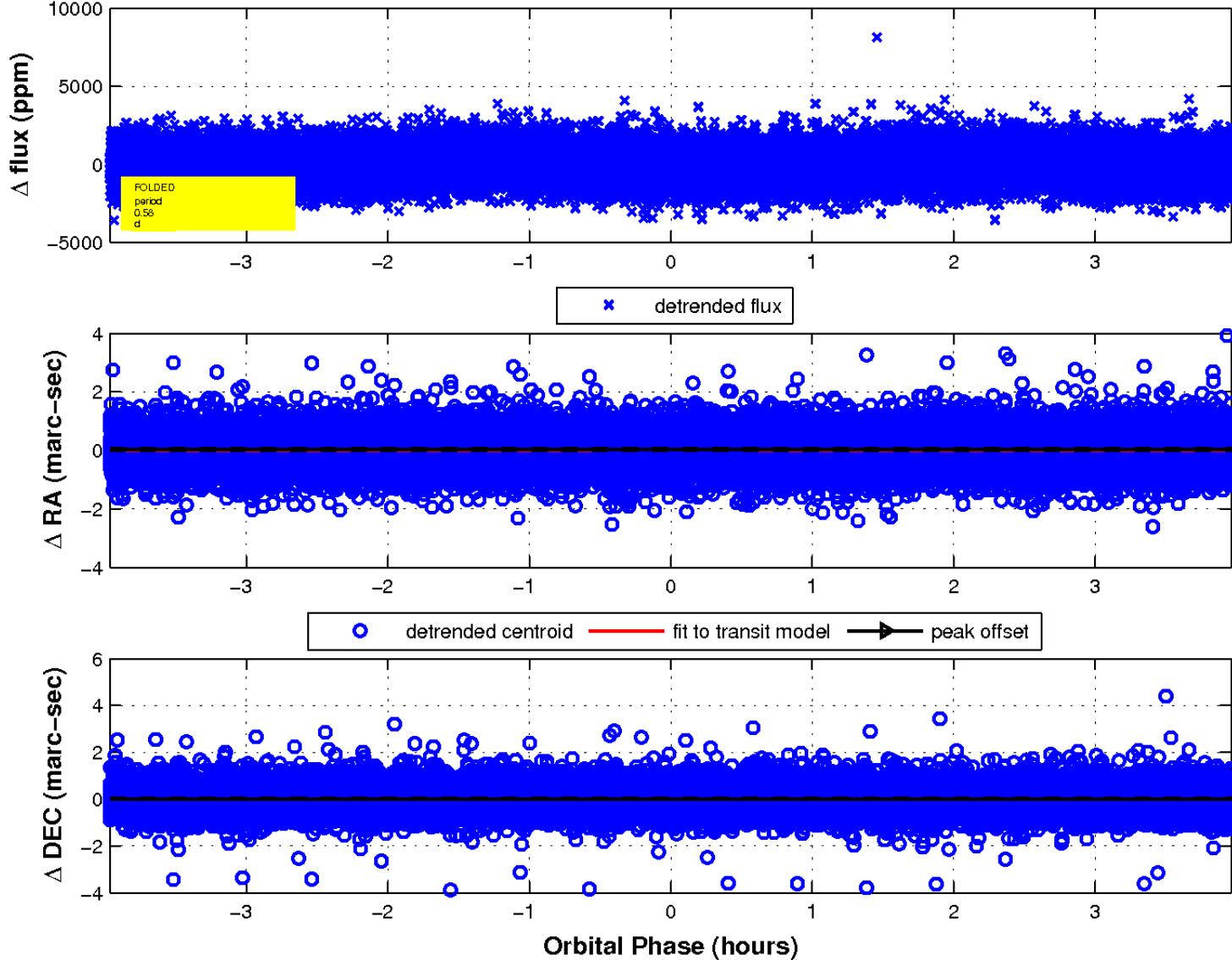
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

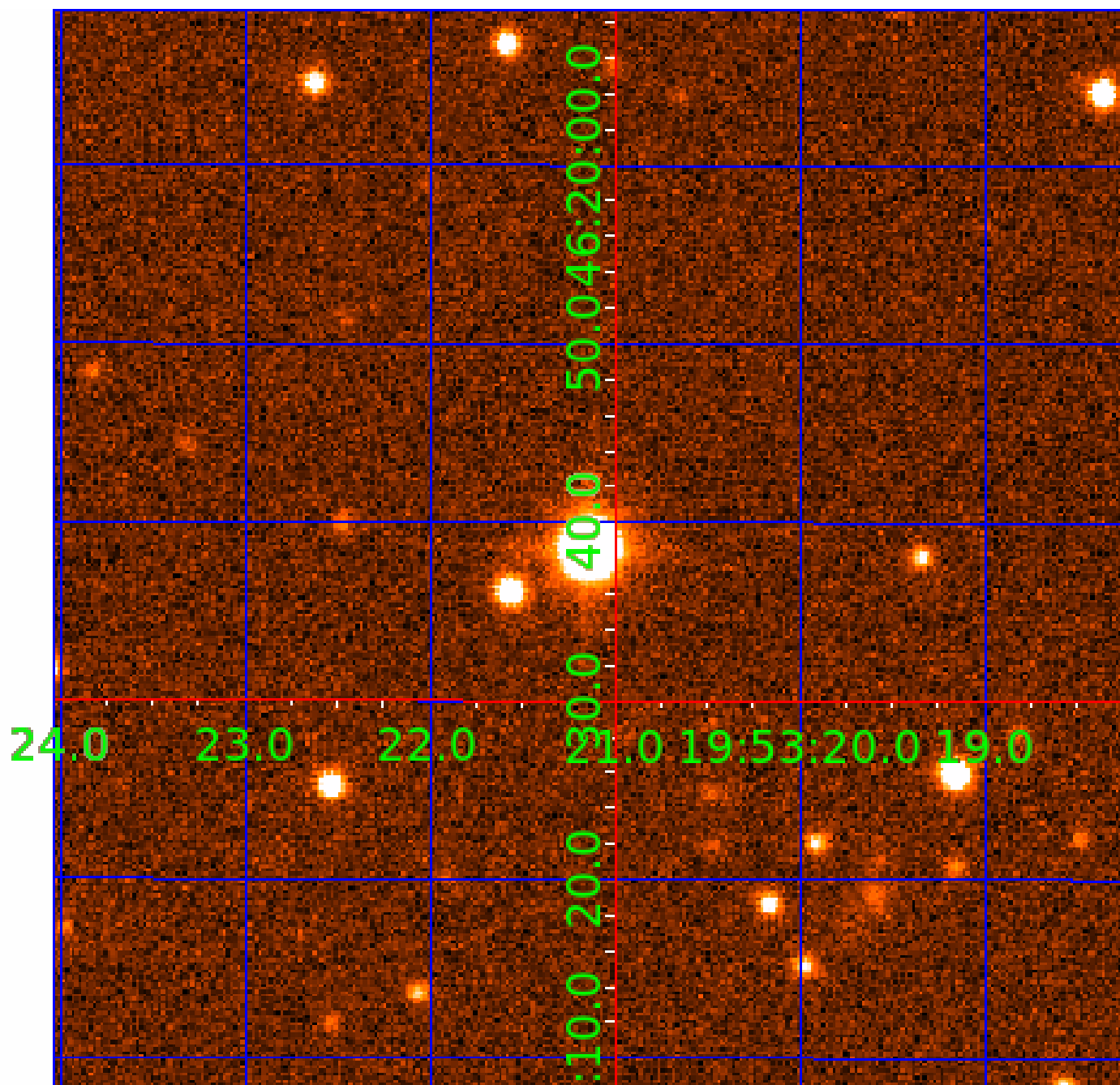


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 009667584

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009667584-01 | OBS | No | 0.576134 | 131.701369 | 168.8 | 1.140 | 11.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.76 |
| 009667584-02 | OBS | No | 0.576118 | 131.846212 | 154.8 | 1.322 | 10.4 | 11.0 | 1.84 | 7533 | 2.66 | 37899.11 |
| 009667584-03 | OBS | No | 0.576140 | 131.557568 | 174.7 | 1.211 | 9.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.25 |
| 009667584-04 | OBS | No | 0.576125 | 131.998494 | 252.0 | 1.500 | 8.8 | -1.0 | 1.84 | 7533 | 2.98 | 37898.55 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009667584-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 009667584-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 009667584-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—SAME_NTL_PERIOD |
| 009667584-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—NO_FITS—SAME_NTL_PERIOD—CENT_NOFITS |

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

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

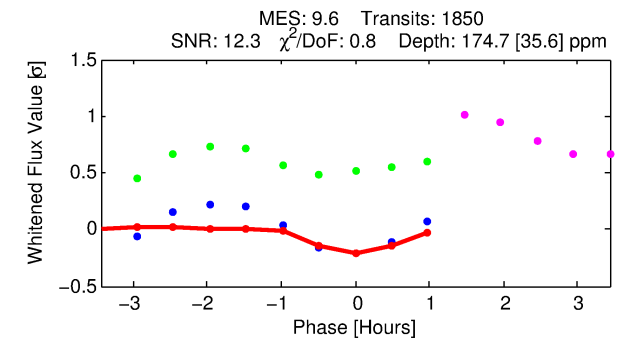
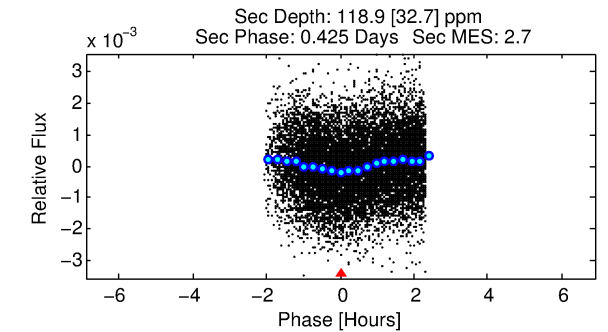
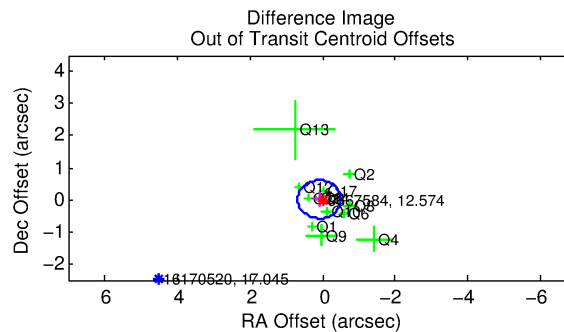
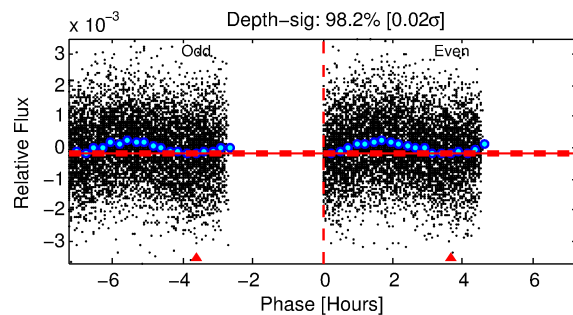
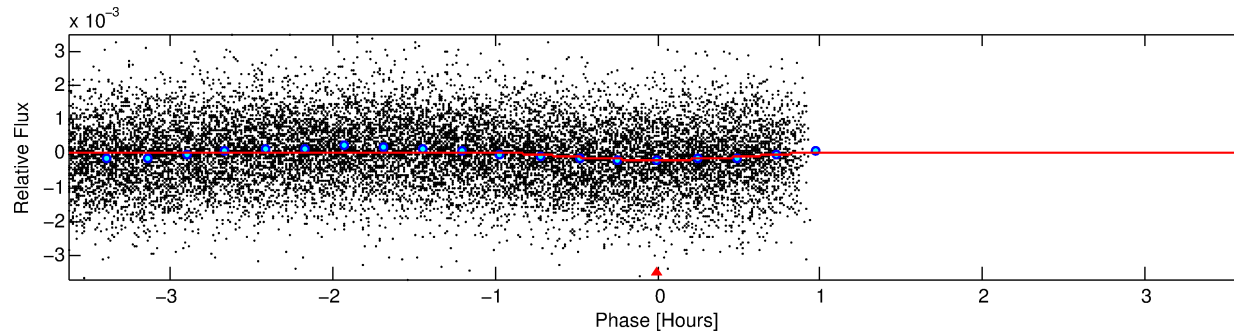
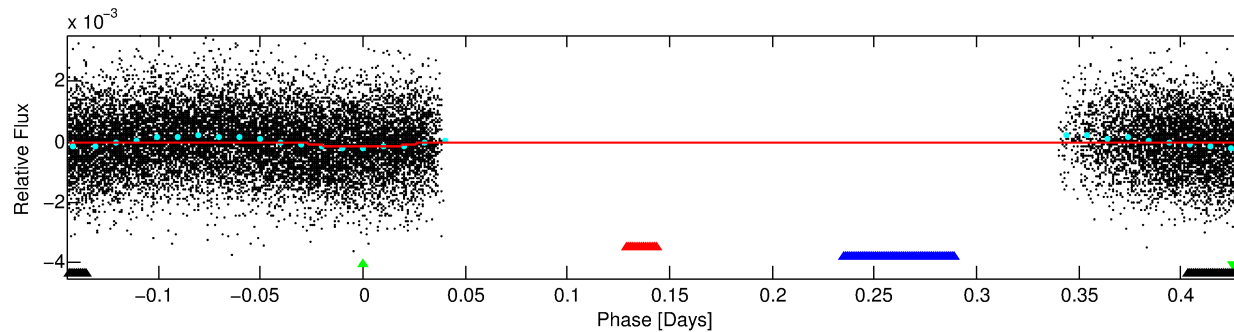
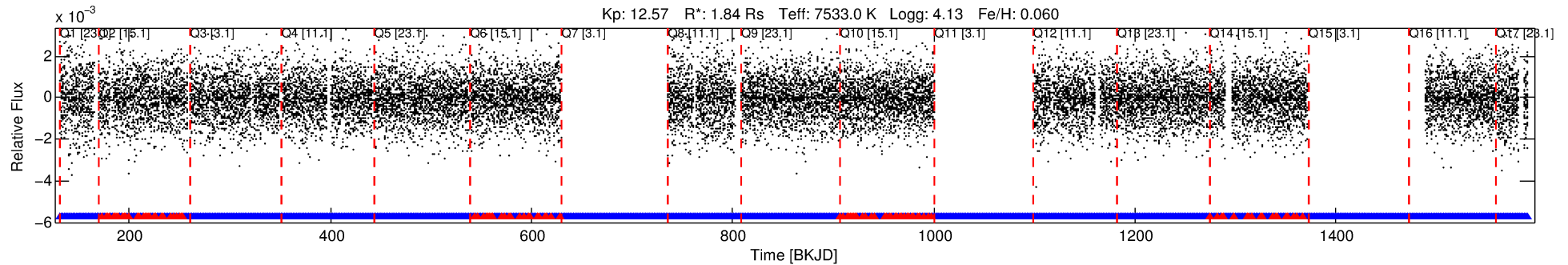
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009667584-03

No Significant Match Found

DV One-Page Summary

KIC: 9667584 Candidate: 3 of 4 Period: 0.576 d



DV Fit Results:

Period = 0.57614 [0.00002] d
Epoch = 131.5576 [0.0021] BKJD
Rp/R* = 0.0125 [0.0089]
a/R* = 3.57 [14.26]
b = 0.31 [12.93]
Seff = 37897.25 [14960.05]
Teq = 3558 [351] K
Rp = 2.50 [1.94] Re
a = 0.0161 [0.0039] AU
Ag = 2.70 [4.04] [0.42 σ]
Teffp = 7048 [2587] K [1.34 σ]

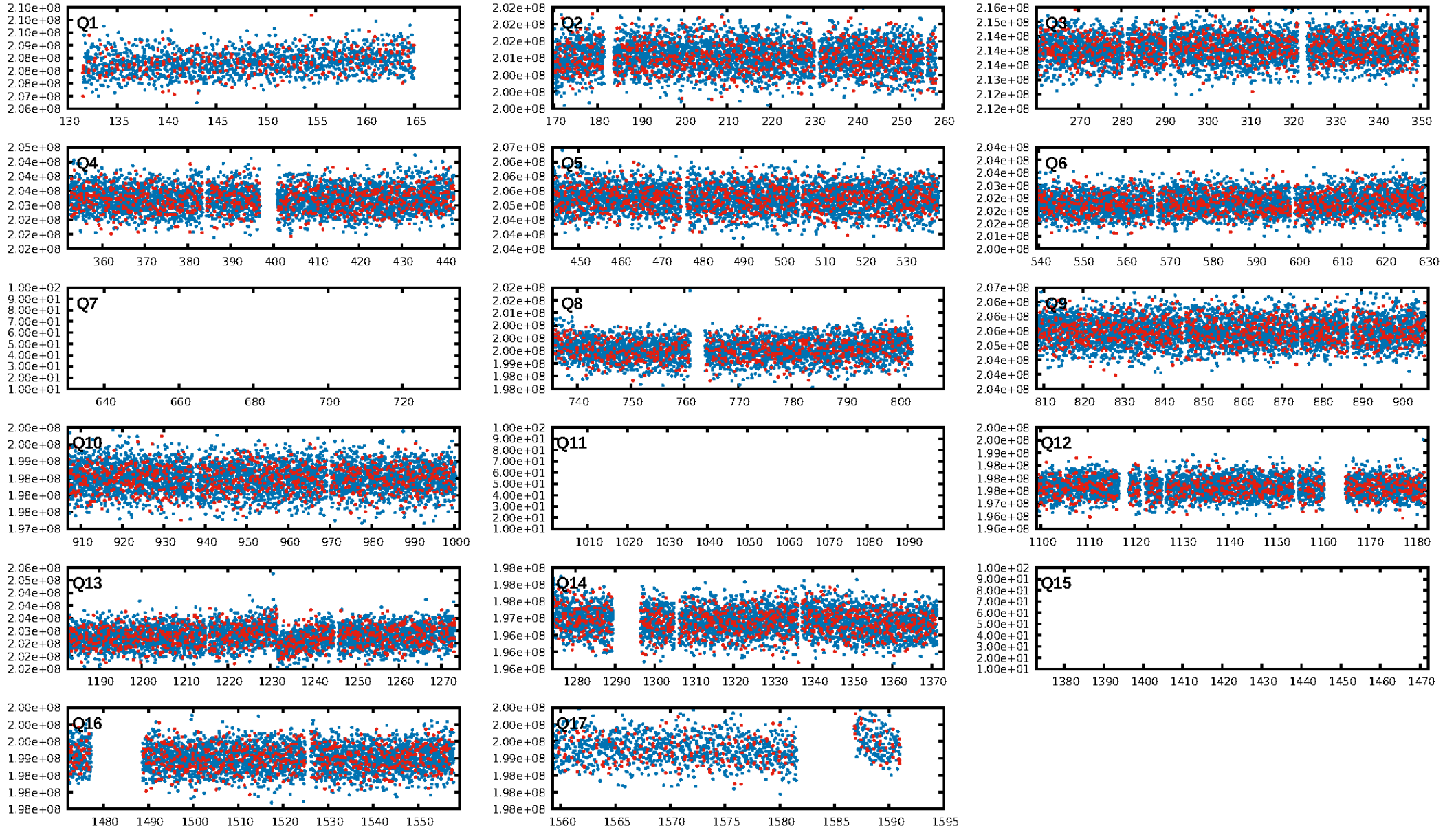
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.93 [1615/1744]
GhostDiagnostic-chr: 0.9685
Centroid-sig: 0.9%
Centroid-so: 0.479 arcsec [4.21 σ]
OotOffset-rm: 0.090 arcsec [0.45 σ]
KicOffset-rm: 0.196 arcsec [1.21 σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 0.69 [9/13]
DiffImageOverlap-fno: 0.00 [0/14]

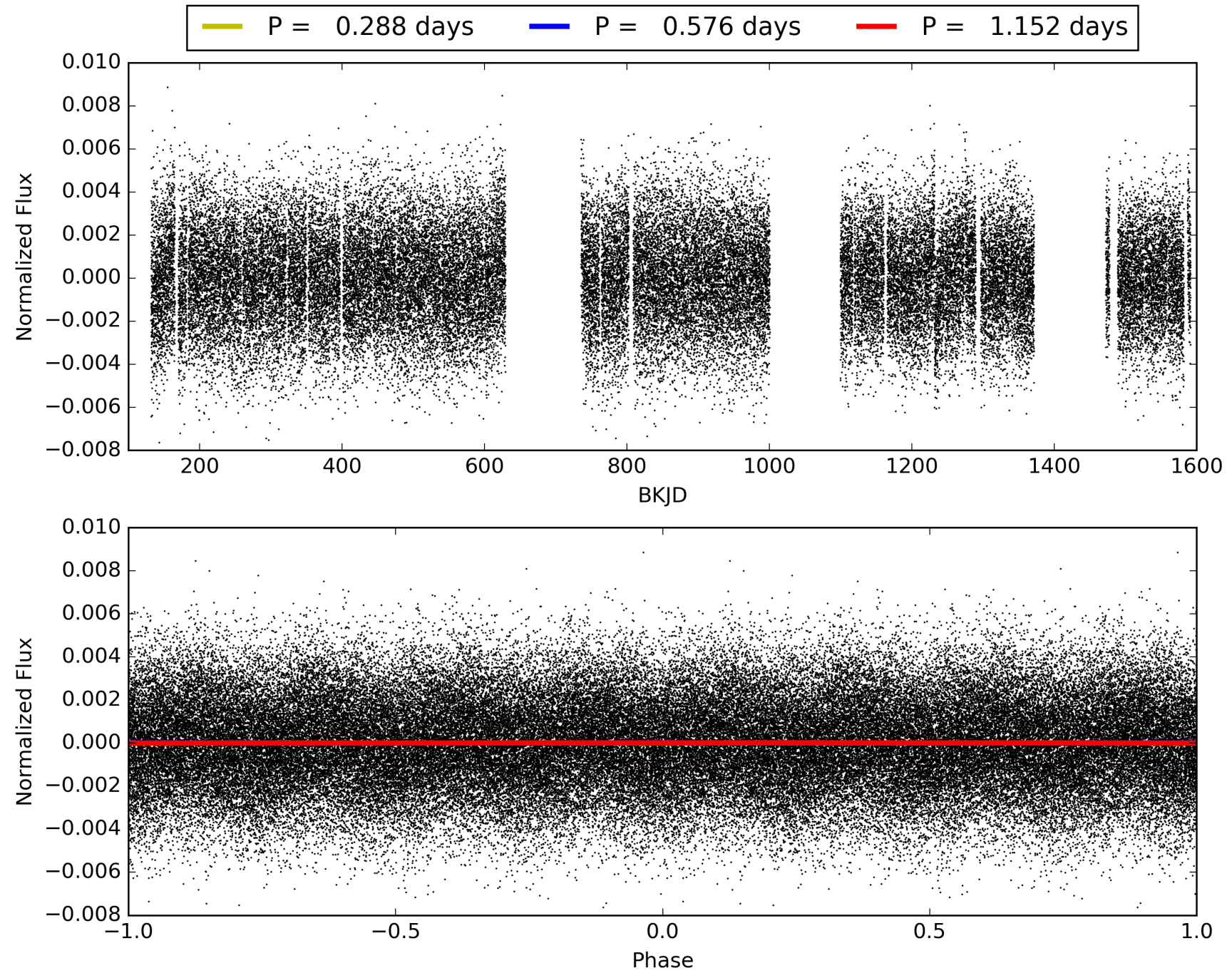
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:44:47 Z

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

TCE 009667584-03, PDC Light Curves

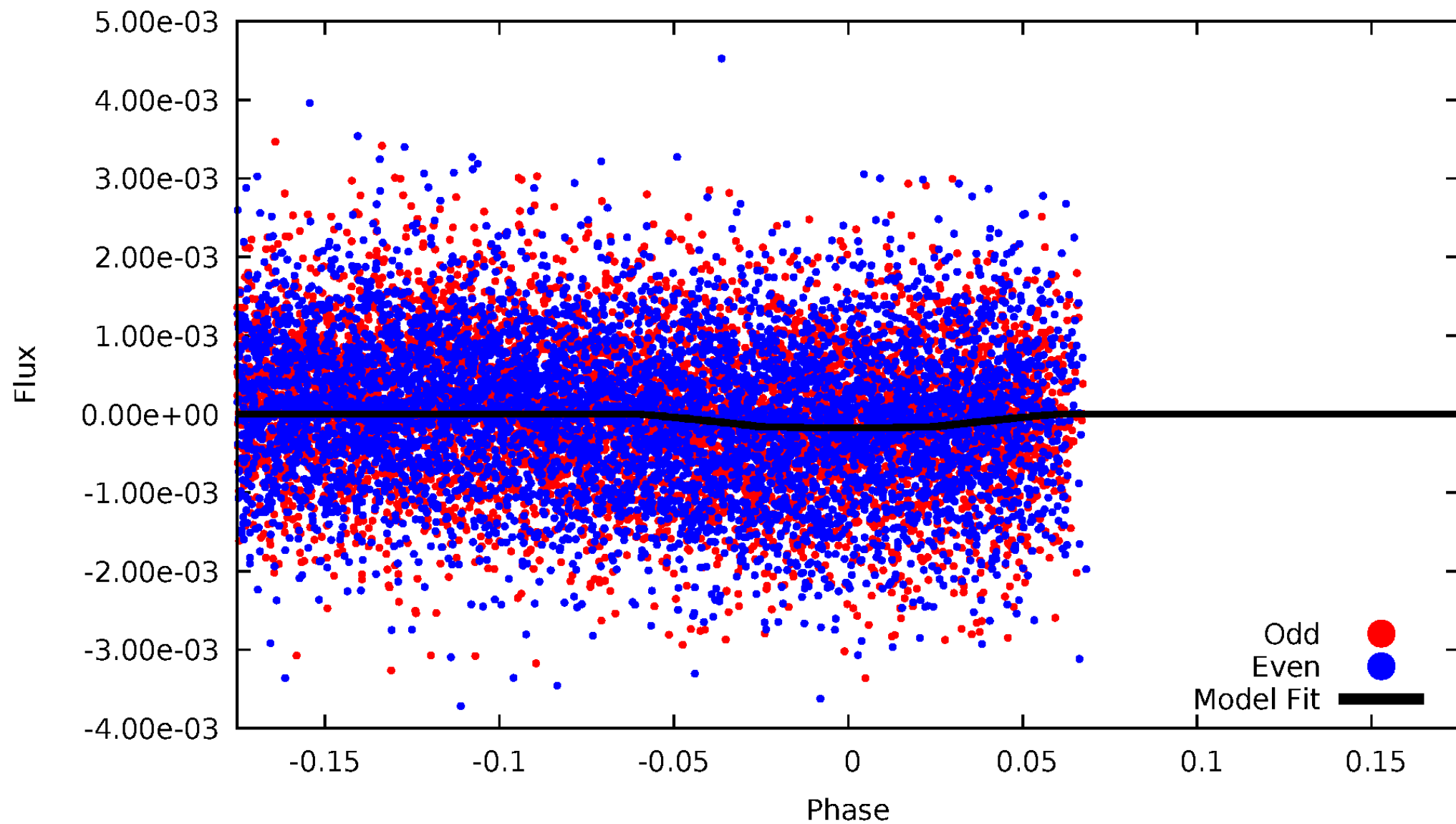


TCE 009667584-03



DV Odd/Even

TCE 009667584-03

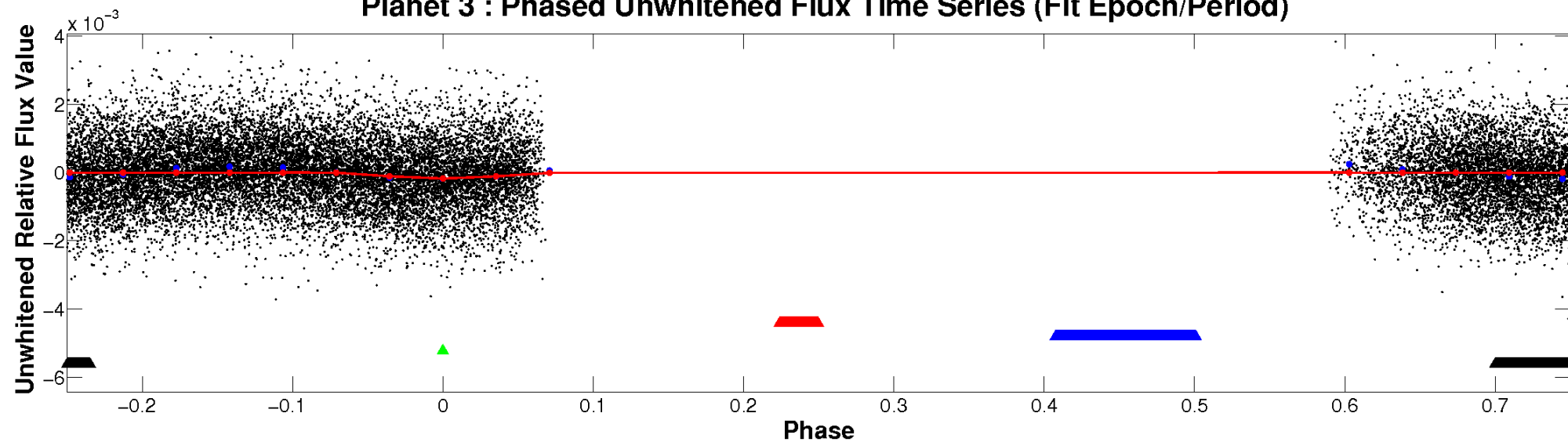


ALT Odd/Even

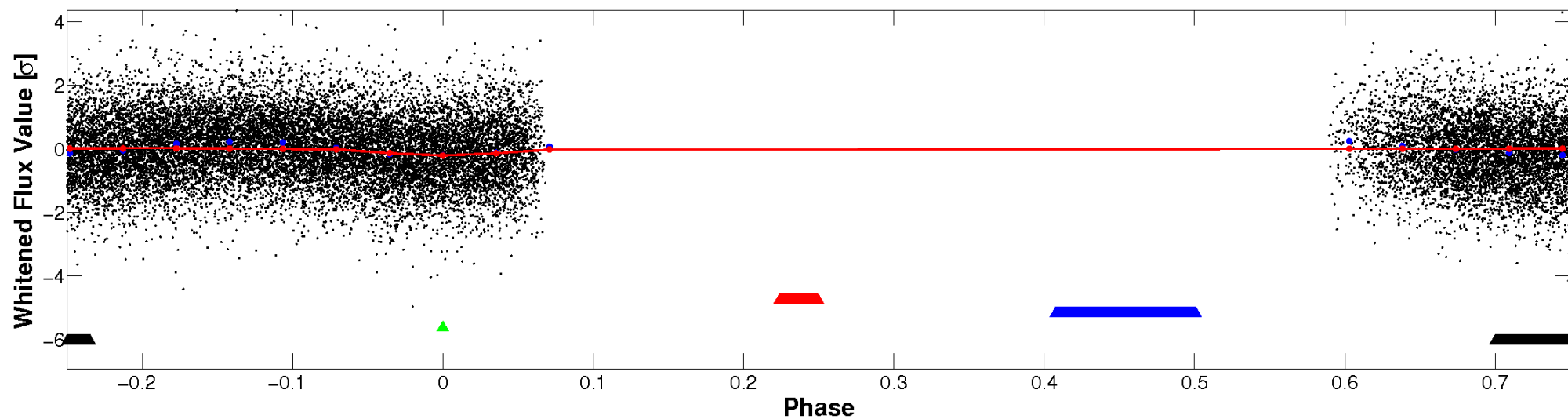
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

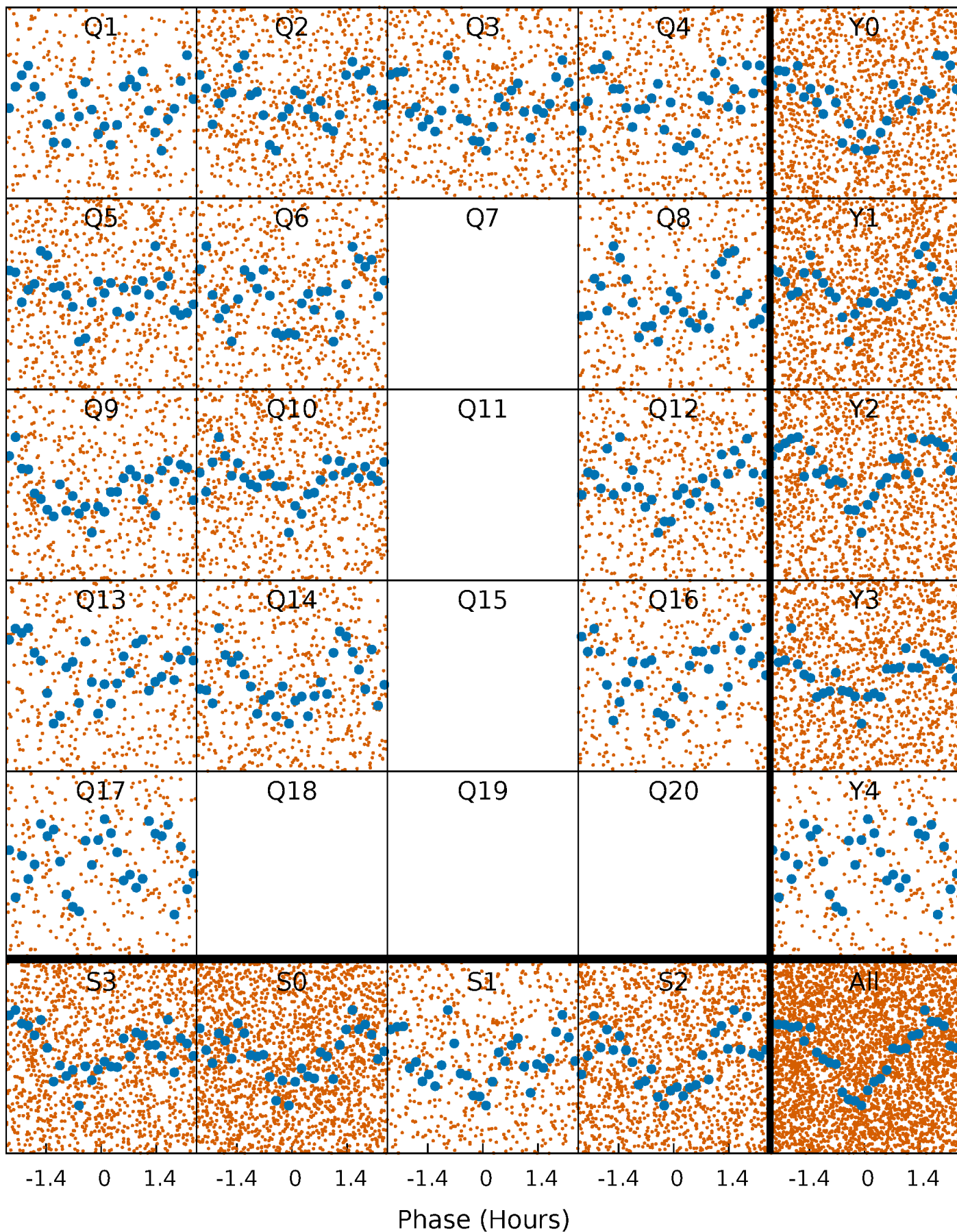


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



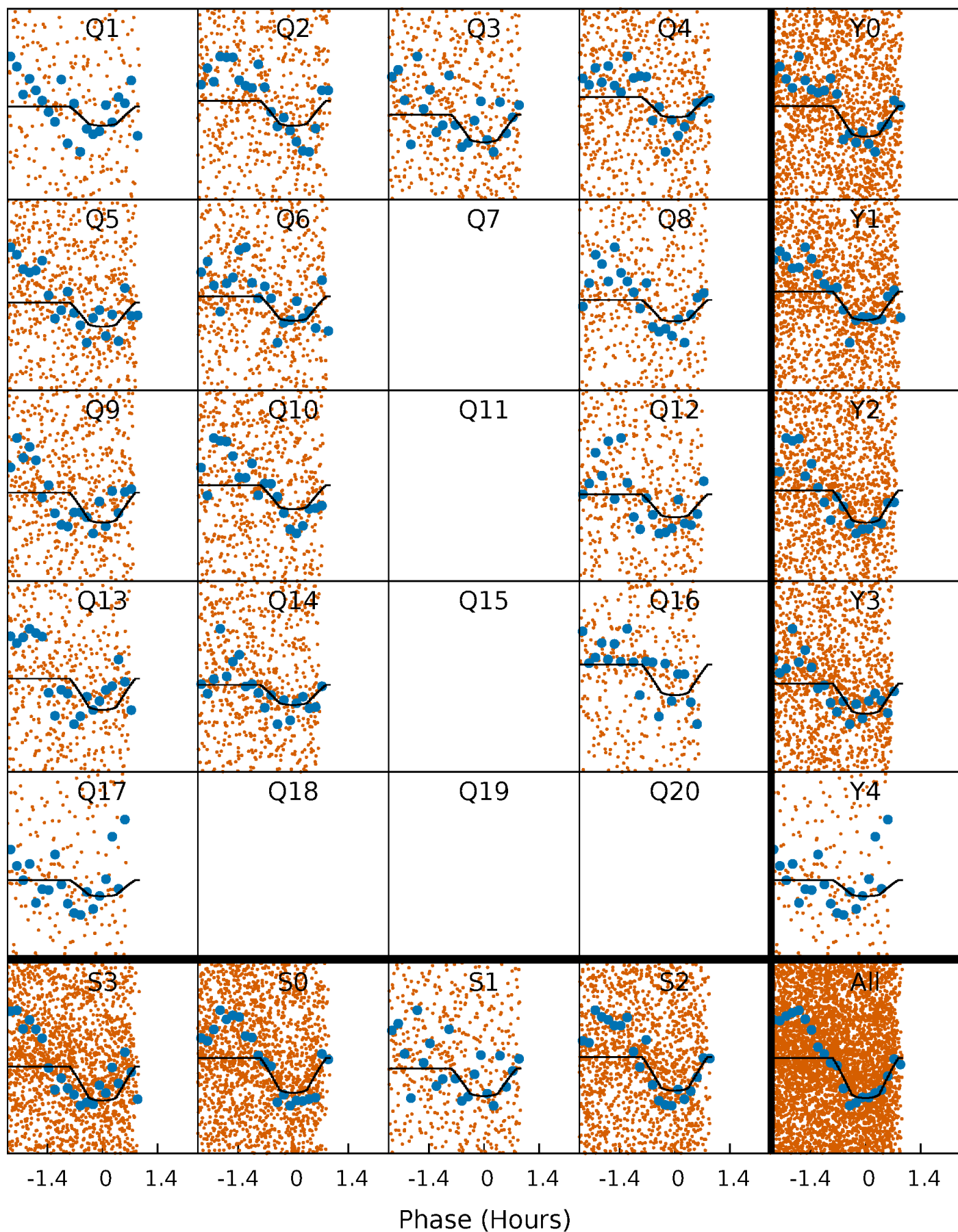
PDC Quarter-Phased Transit Curves

TCE 009667584-03 P= 0.576140 Days $T_0=131.557568$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009667584-03 P= 0.576140 Days $T_0=131.557568$ (BKJD)

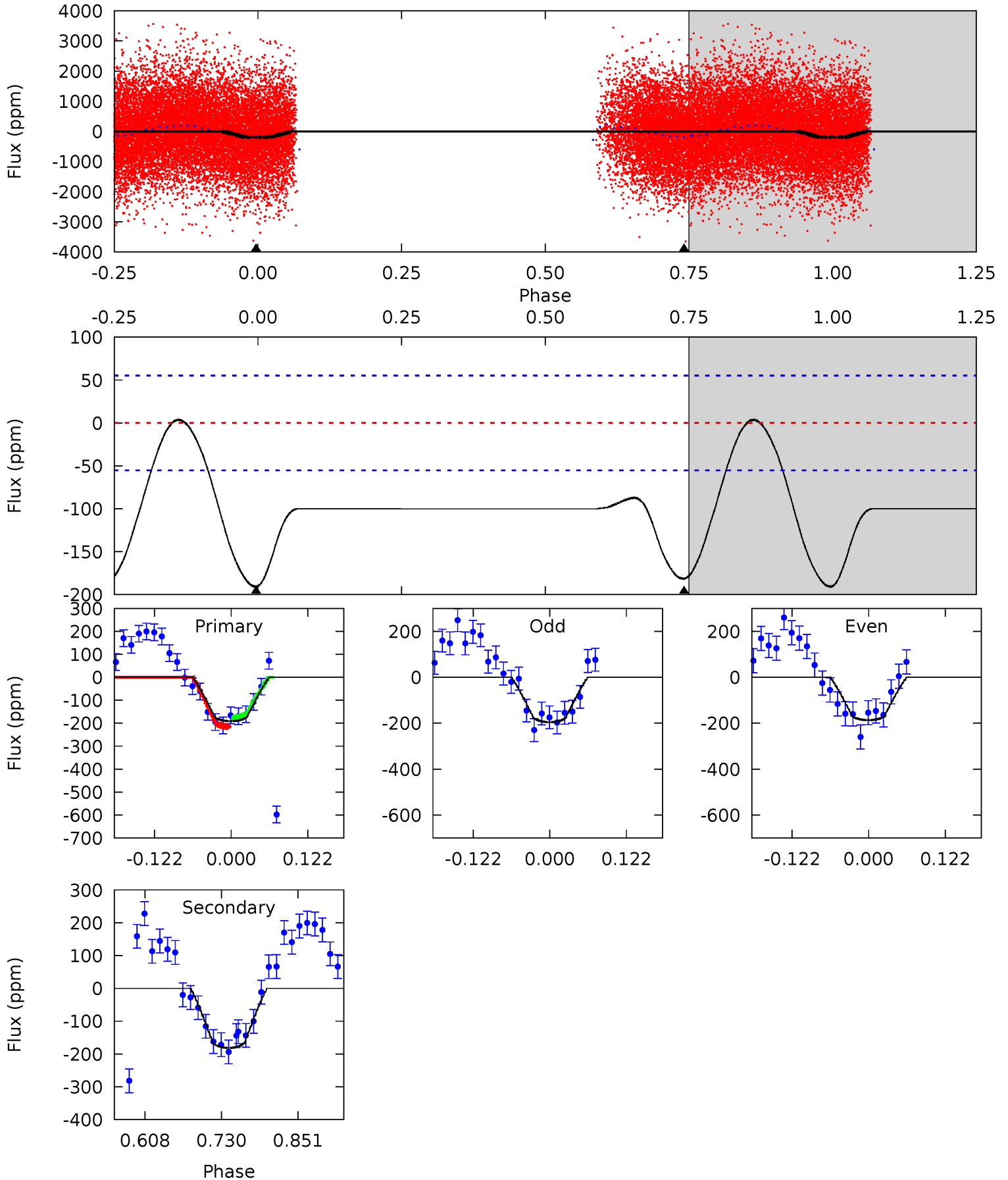


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009667584-03, P = 0.576140 Days, E = 130.981428 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.7 | 14.9 | 0 | 0 | 4.52 | 1.55 | 3.20 | 15.7 | 15.7 | 14.9 | 14.9 | 0.35 | 0.97 | 0.02 | 1.68 |



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009667584

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7533^{+211}_{-342} | $4.129^{+0.101}_{-0.188}$ | $0.060^{+0.150}_{-0.350}$ | $1.840^{+0.549}_{-0.338}$ | $1.663^{+0.204}_{-0.250}$ | $0.376^{+0.218}_{-0.188}$ |
| | +3%/-5% | +2%/-5% | +250%/-583% | +30%/-18% | +12%/-15% | +58%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 009667584-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -182±12 | $2.75^{+1.87}_{-1.53}$ | 5013^{+385}_{-305} | 7304^{+6130}_{-1861} | $3.276^{+13.463}_{-2.099}$ |
| Alt. | N/A | N/A | N/A | N/A | N/A |

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 $A_{obs} \gg 1.0$

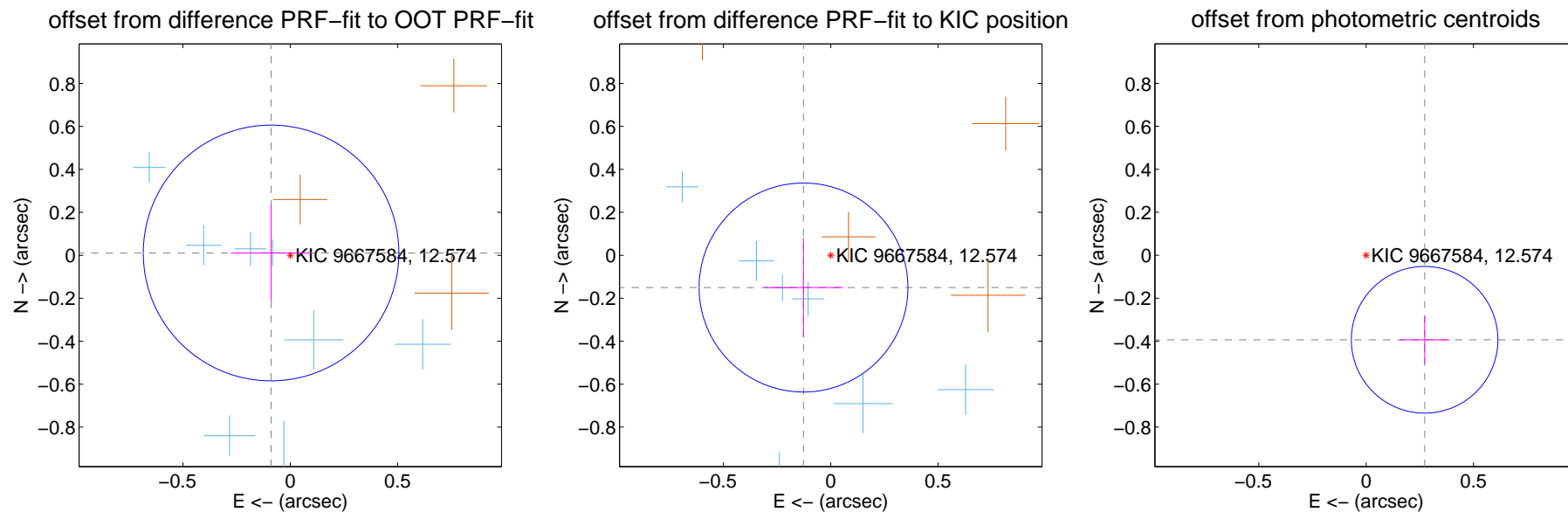
DV Centroid Data

Supplemental centroid analysis for 009667584-03. Kepler magnitude: 12.57. Transit SNR 12.29

There are 9 quarters with good PRF difference image offsets

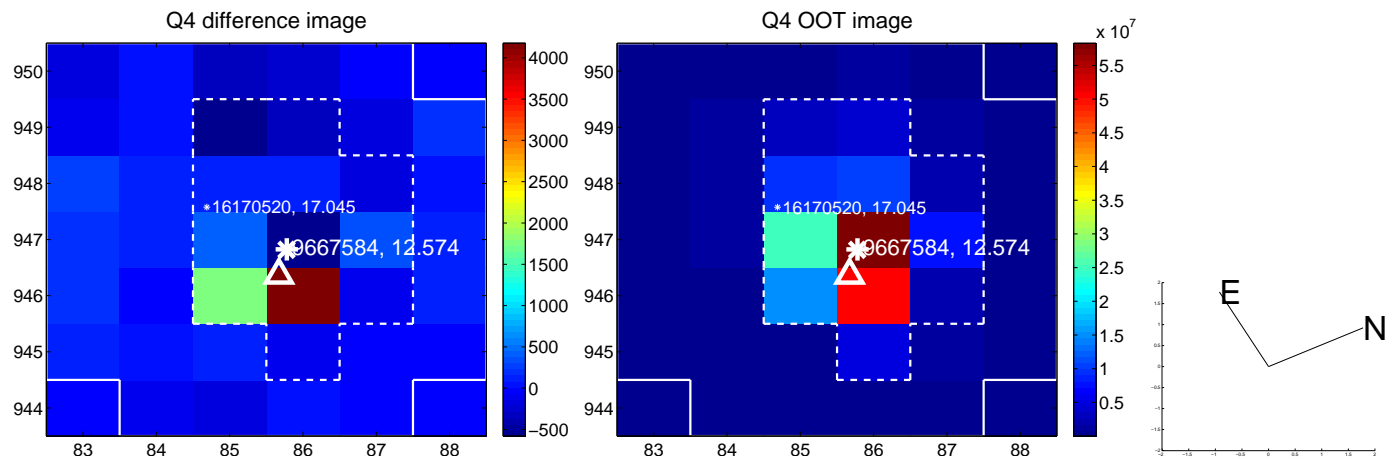
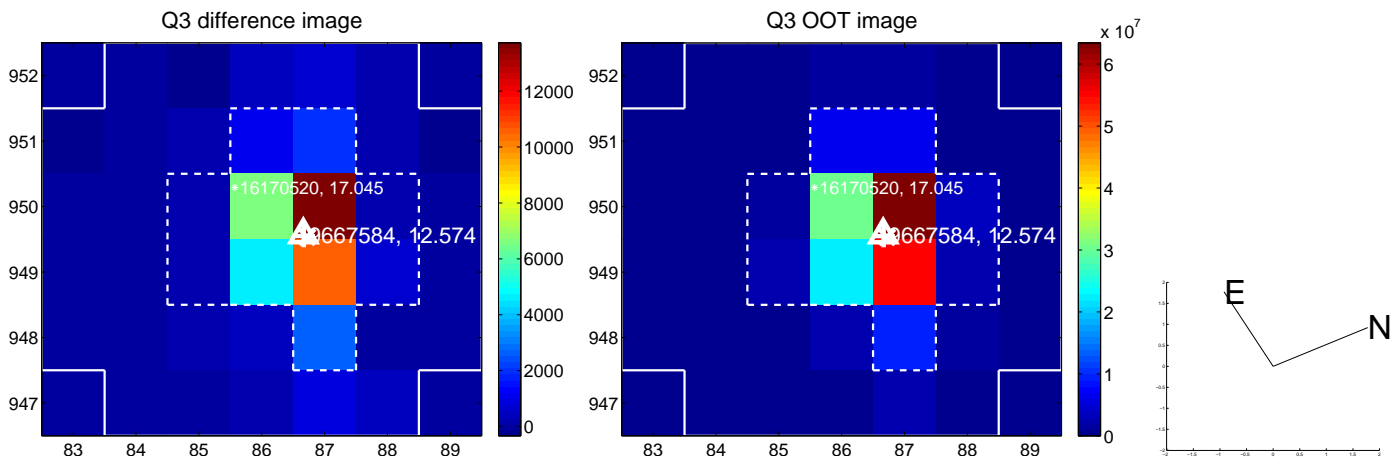
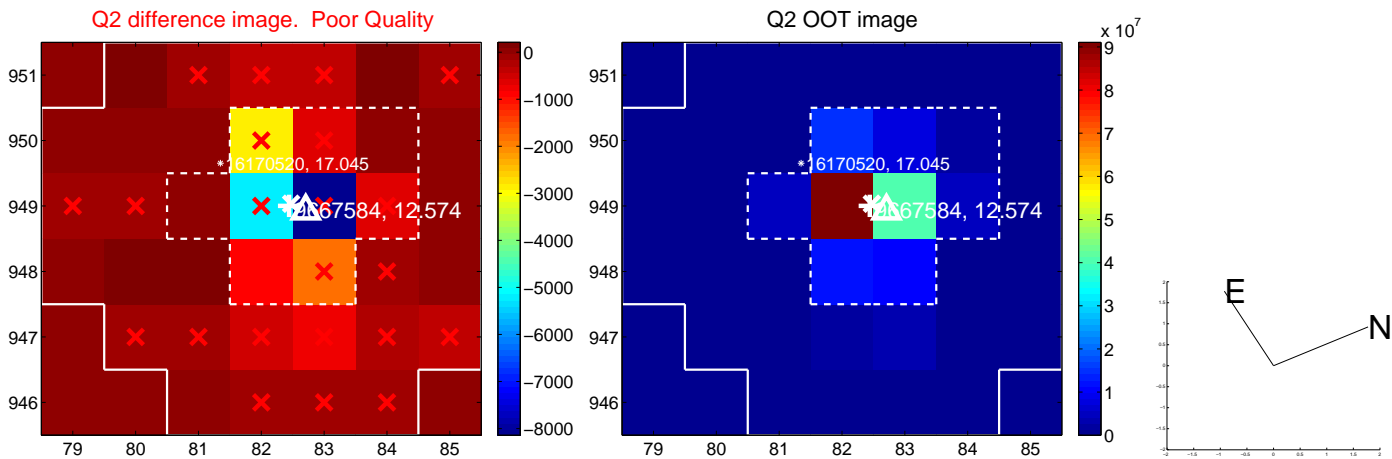
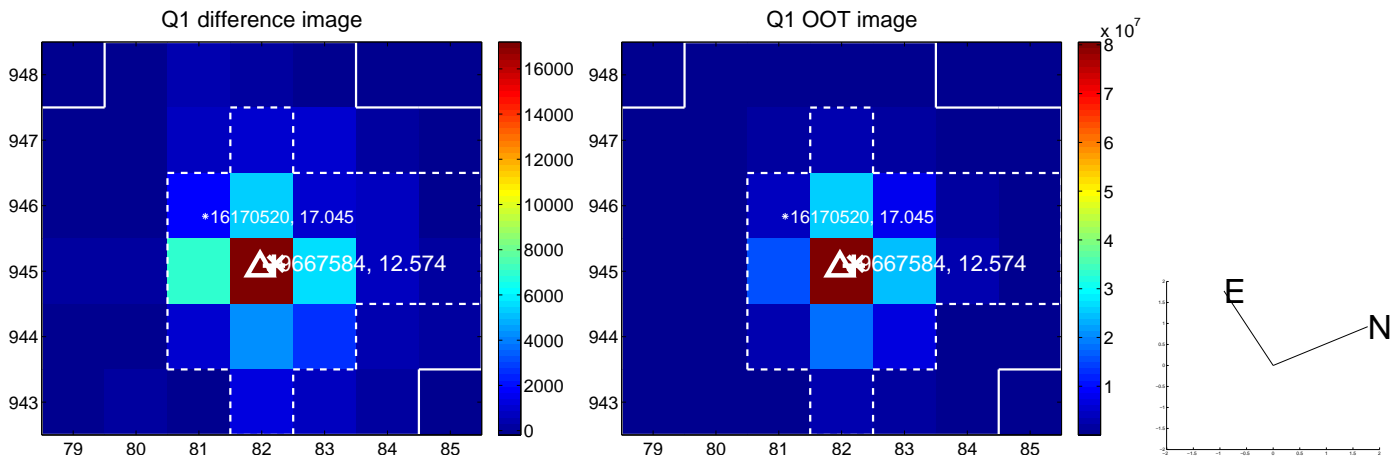
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.090 ± 0.198 | 0.45 | 0.089 ± 0.186 | 0.011 ± 0.224 |
| PRF-fit source offset from KIC position | 0.196 ± 0.162 | 1.21 | 0.127 ± 0.184 | -0.150 ± 0.231 |
| photometric centroid source offset | 0.48 ± 0.11 | 4.21 | -0.27 ± 0.12 | -0.39 ± 0.11 |

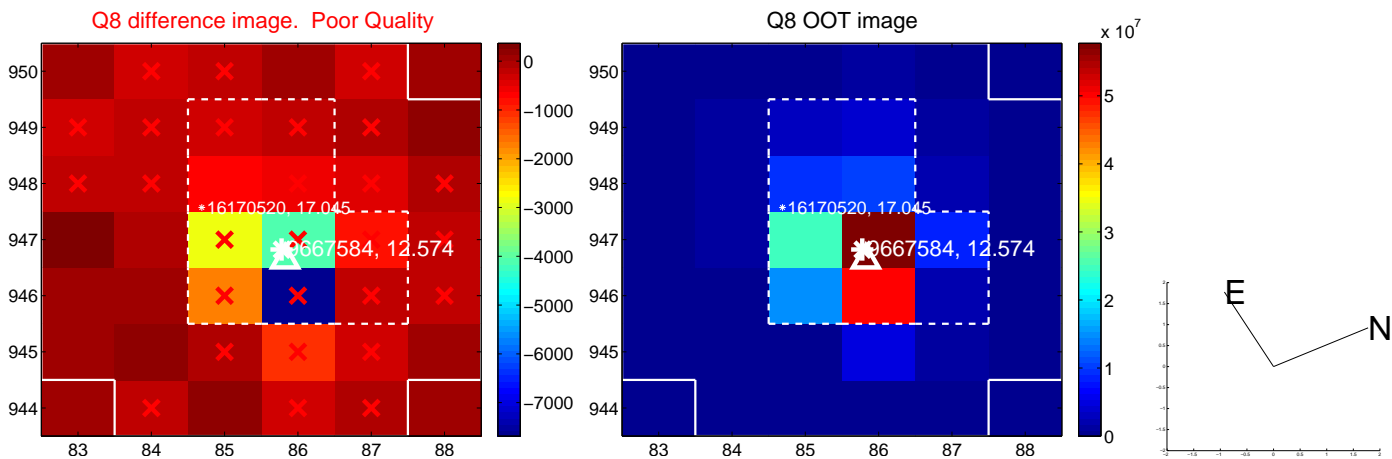
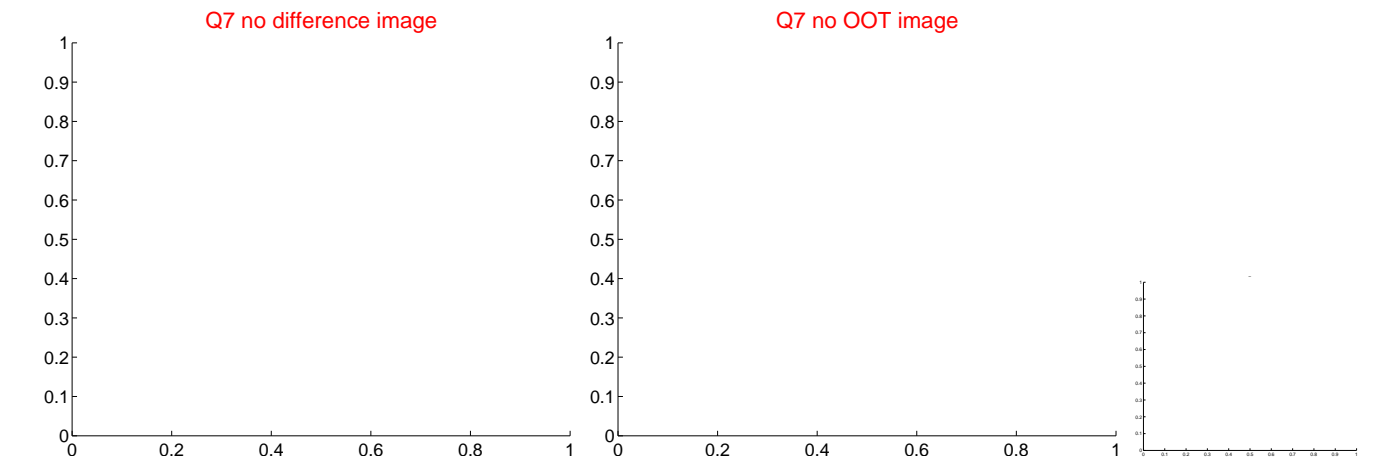
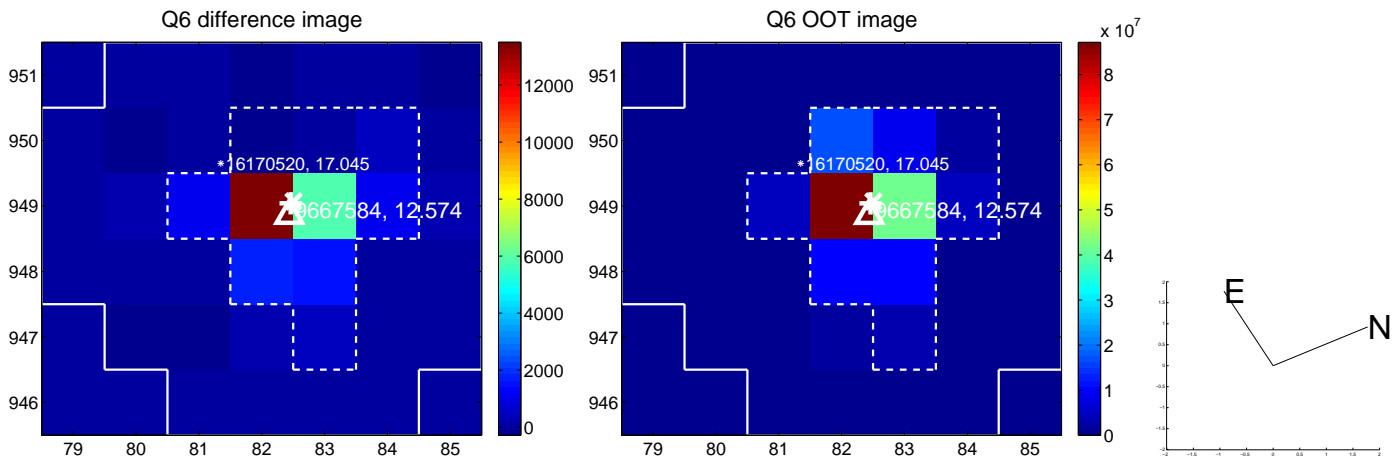
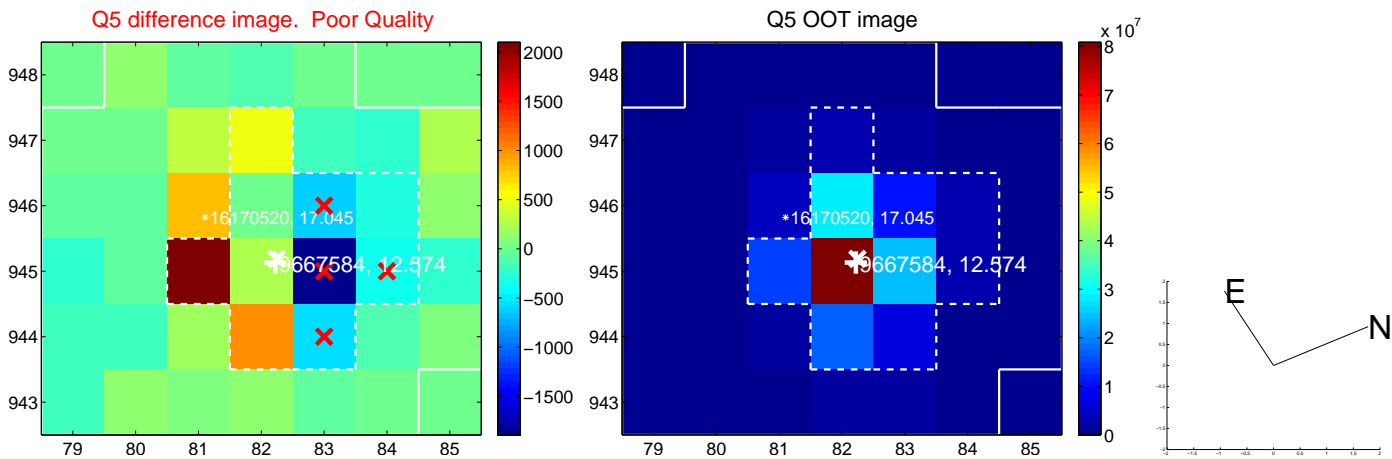


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

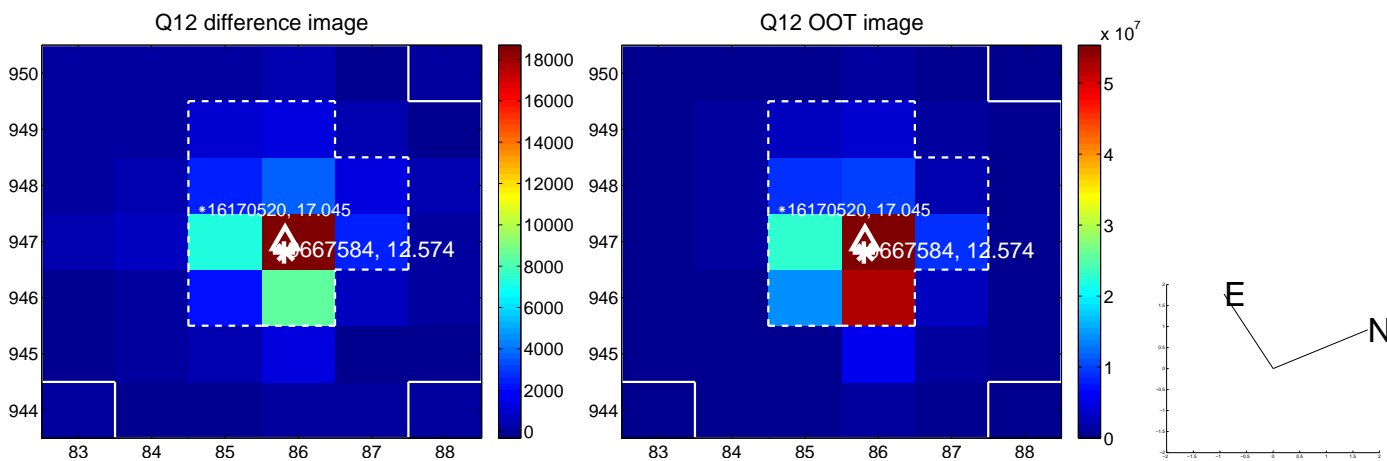
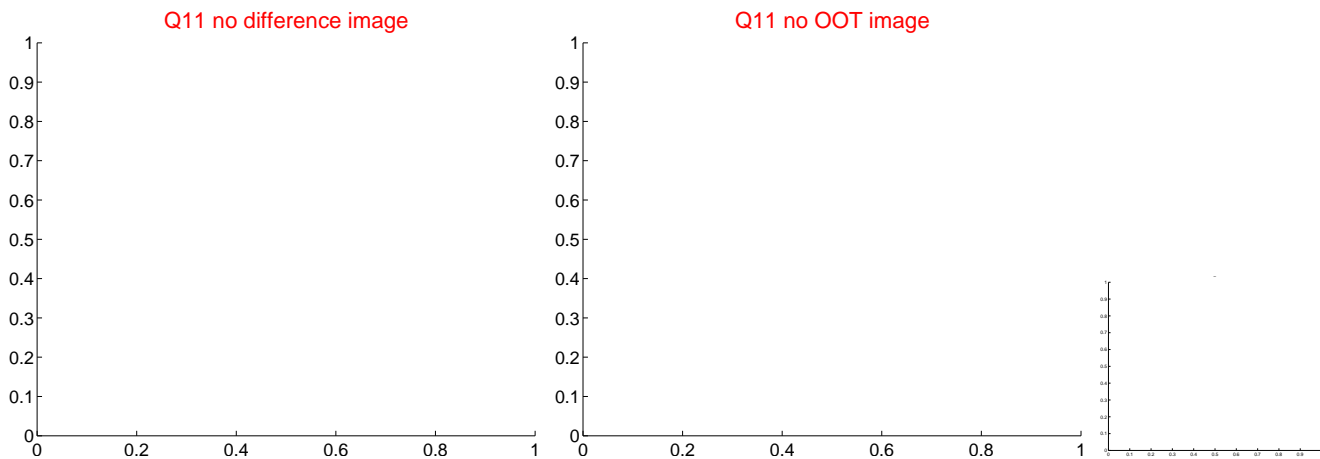
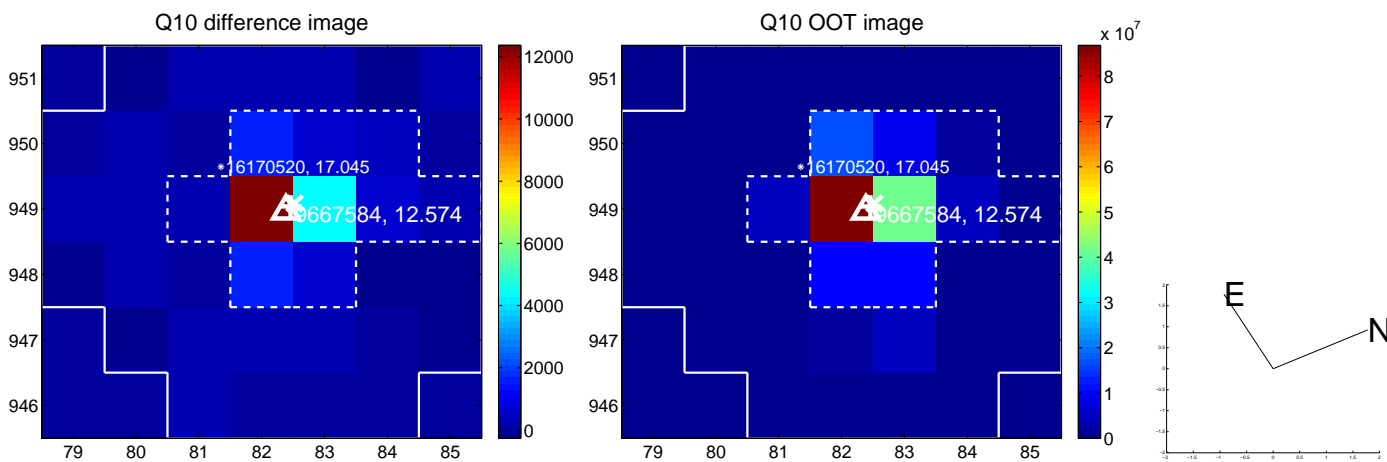
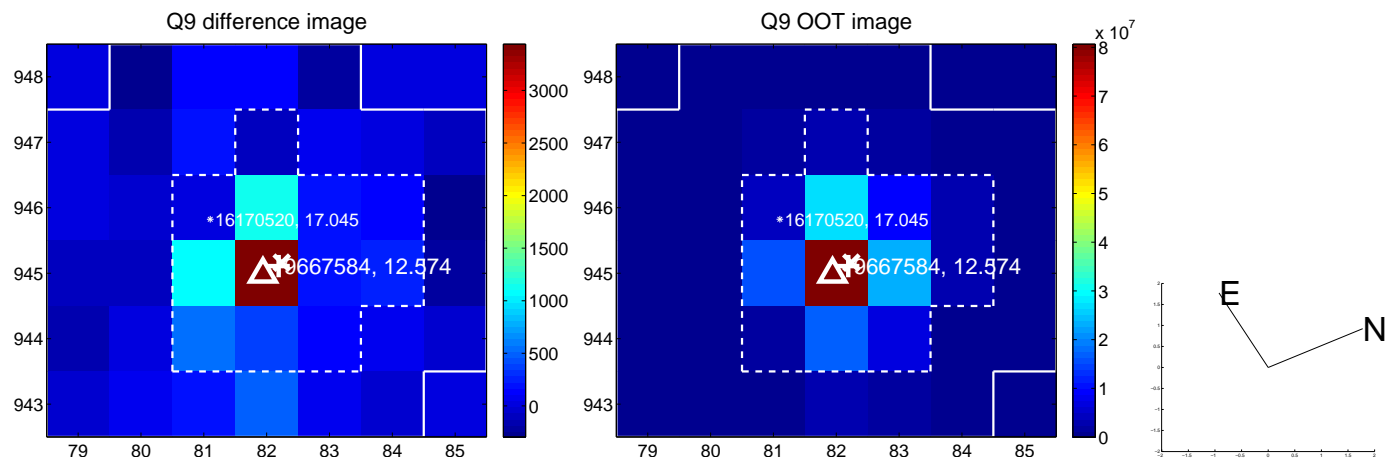
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



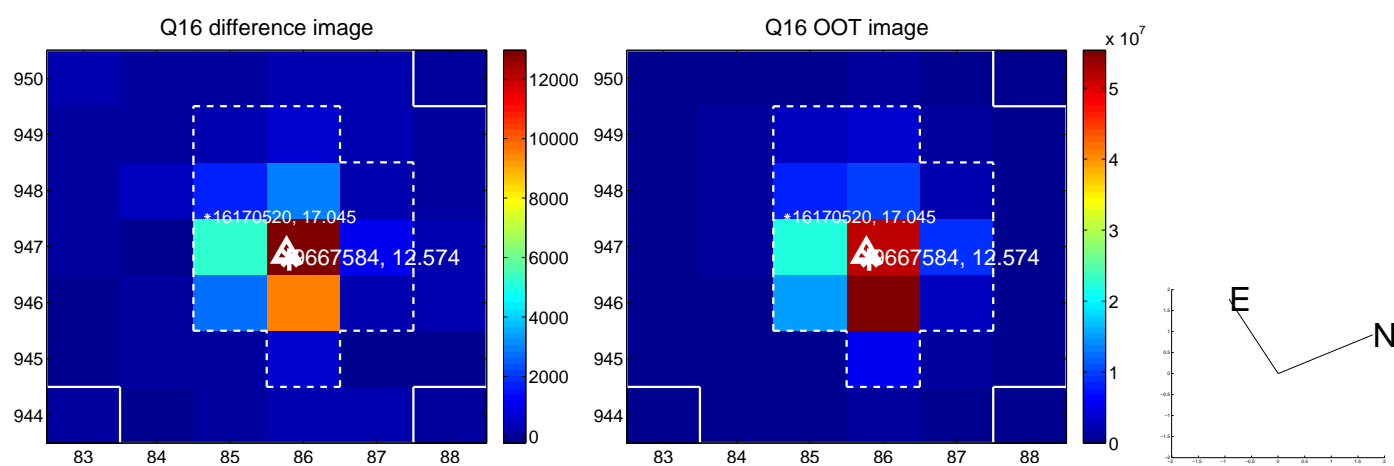
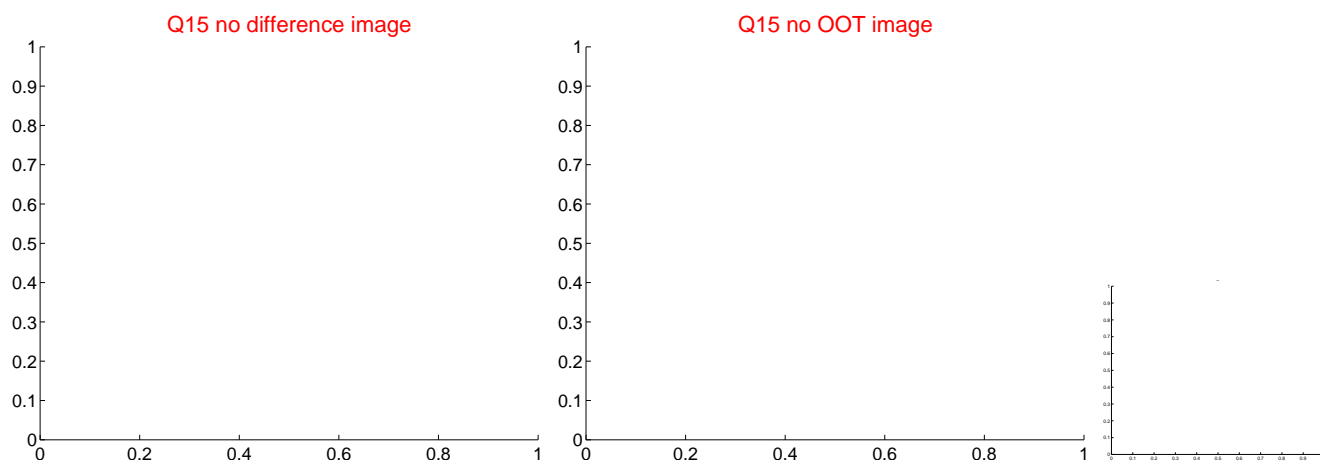
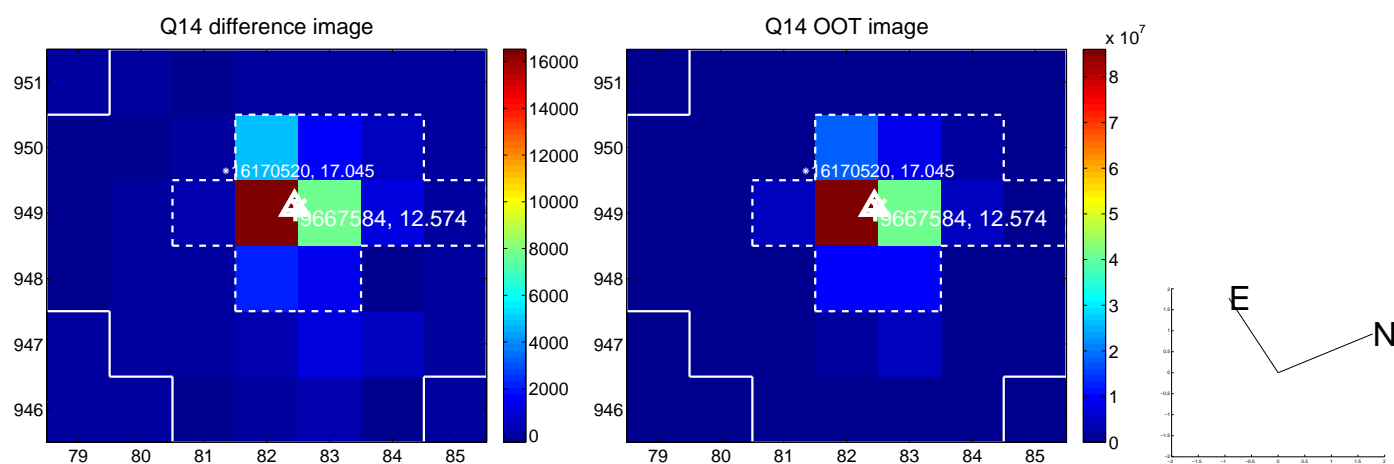
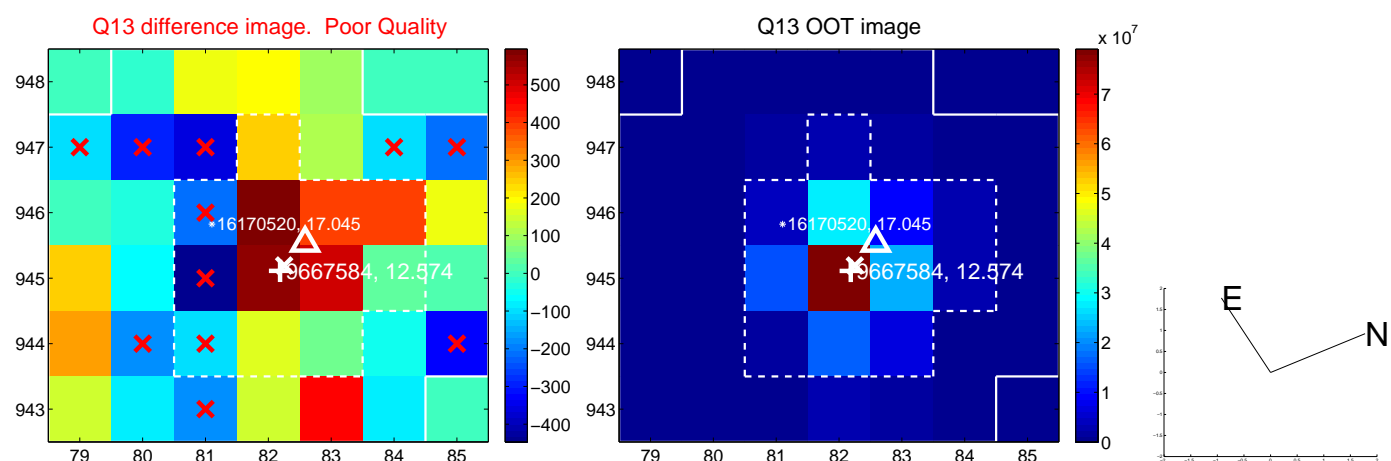
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



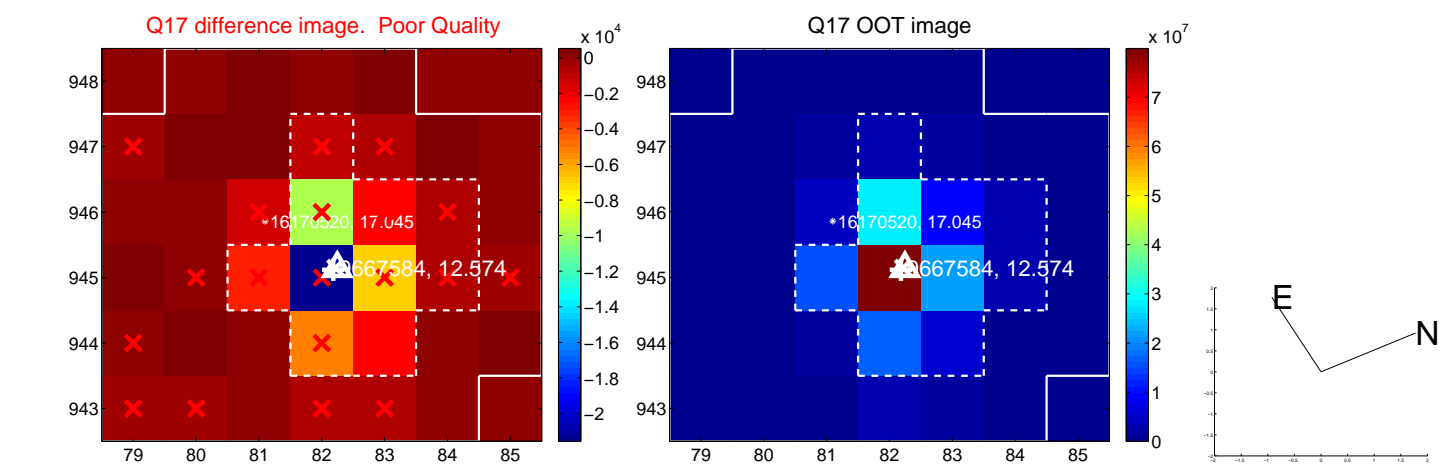
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



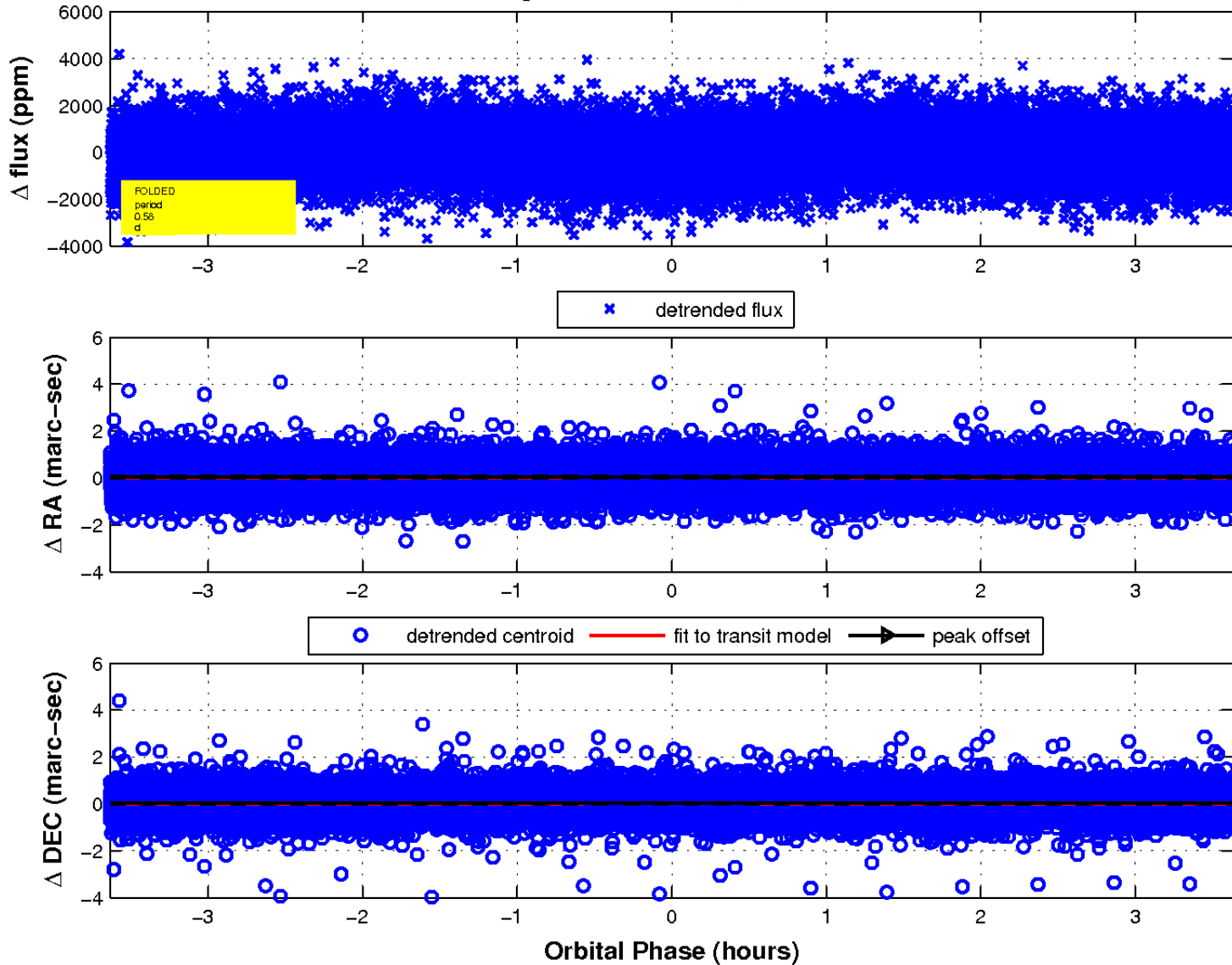
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

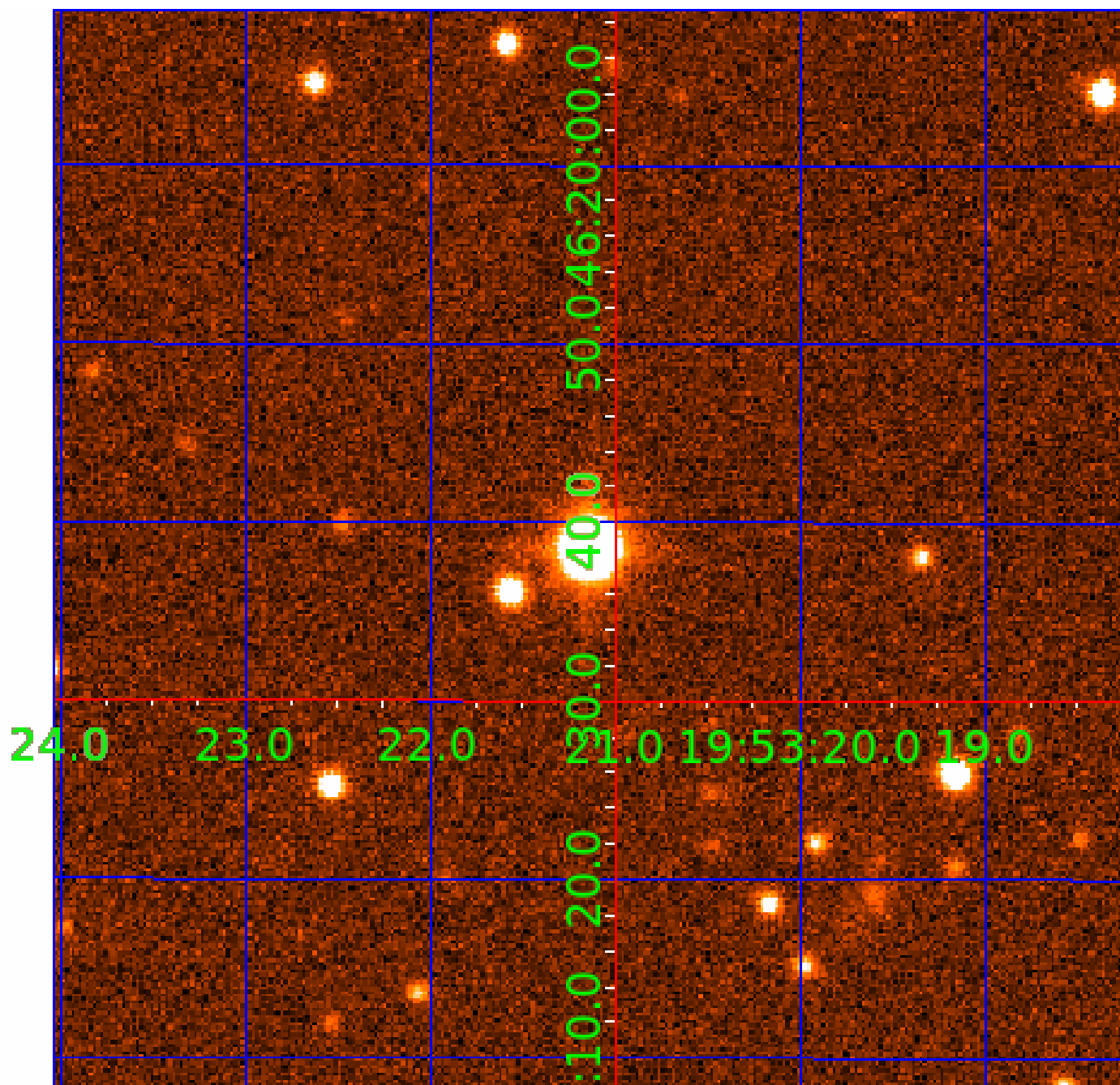


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 009667584

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009667584-01 | OBS | No | 0.576134 | 131.701369 | 168.8 | 1.140 | 11.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.76 |
| 009667584-02 | OBS | No | 0.576118 | 131.846212 | 154.8 | 1.322 | 10.4 | 11.0 | 1.84 | 7533 | 2.66 | 37899.11 |
| 009667584-03 | OBS | No | 0.576140 | 131.557568 | 174.7 | 1.211 | 9.6 | 12.3 | 1.84 | 7533 | 2.50 | 37897.25 |
| 009667584-04 | OBS | No | 0.576125 | 131.998494 | 252.0 | 1.500 | 8.8 | -1.0 | 1.84 | 7533 | 2.98 | 37898.55 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009667584-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 009667584-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |
| 009667584-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—SAME_NTL_PERIOD |
| 009667584-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—NO_FITS—SAME_NTL_PERIOD—CENT_NOFITS |

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

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

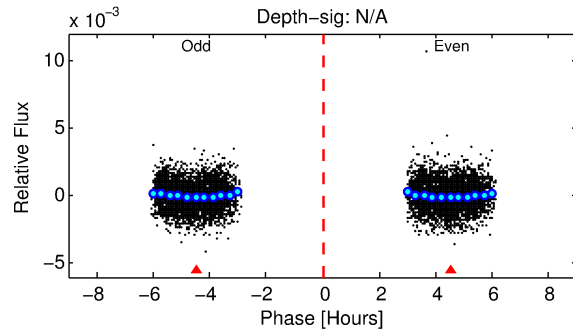
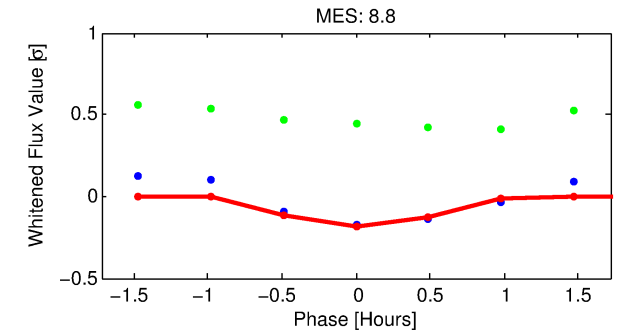
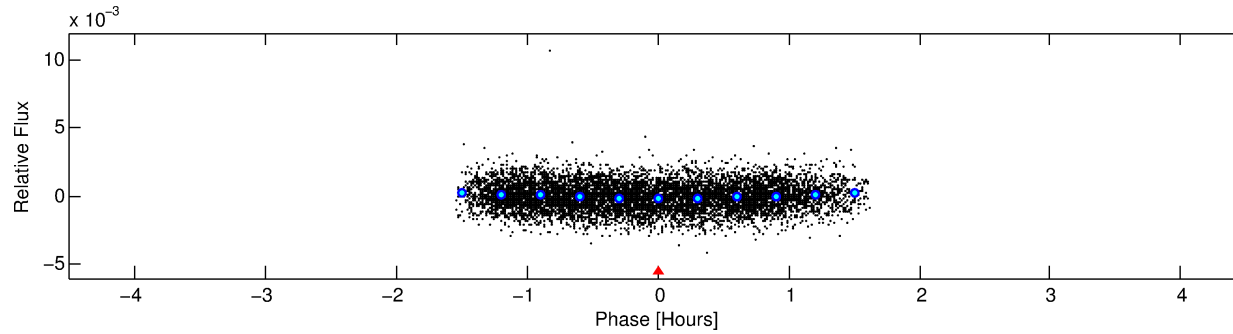
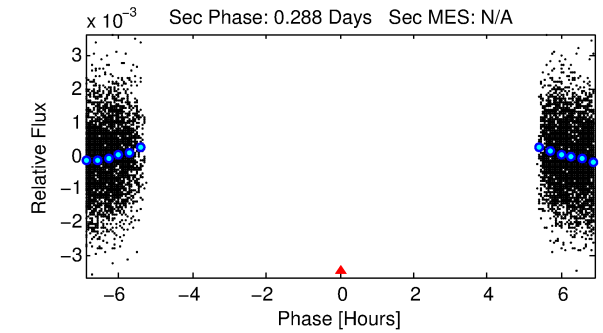
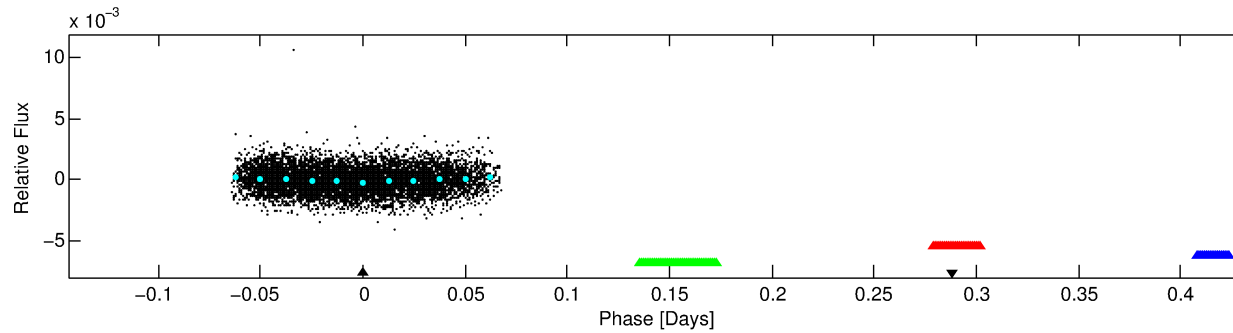
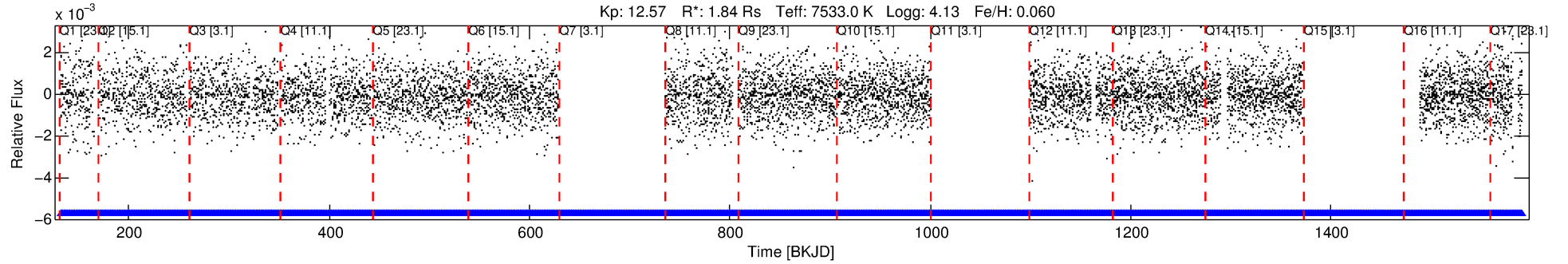
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009667584-04

No Significant Match Found

DV One-Page Summary

KIC: 9667584 Candidate: 4 of 4 Period: 0.576 d



TPS TCE Results:

Period = 0.57612 d
Epoch = 131.9985 BKJD

DV fit results are unavailable

DV Diagnostic Results:

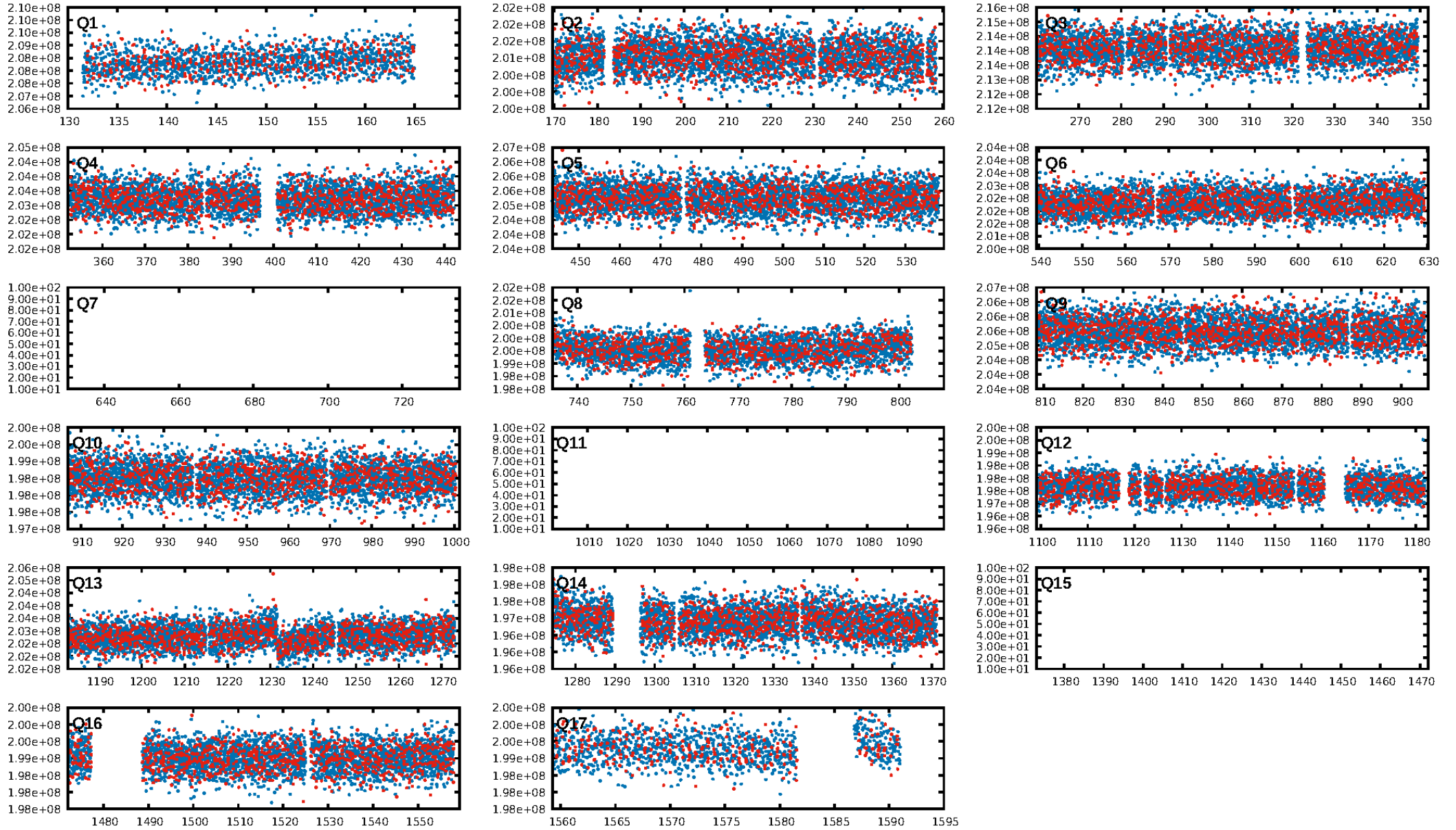
ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: N/A
GhostDiagnostic-chr: N/A

Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

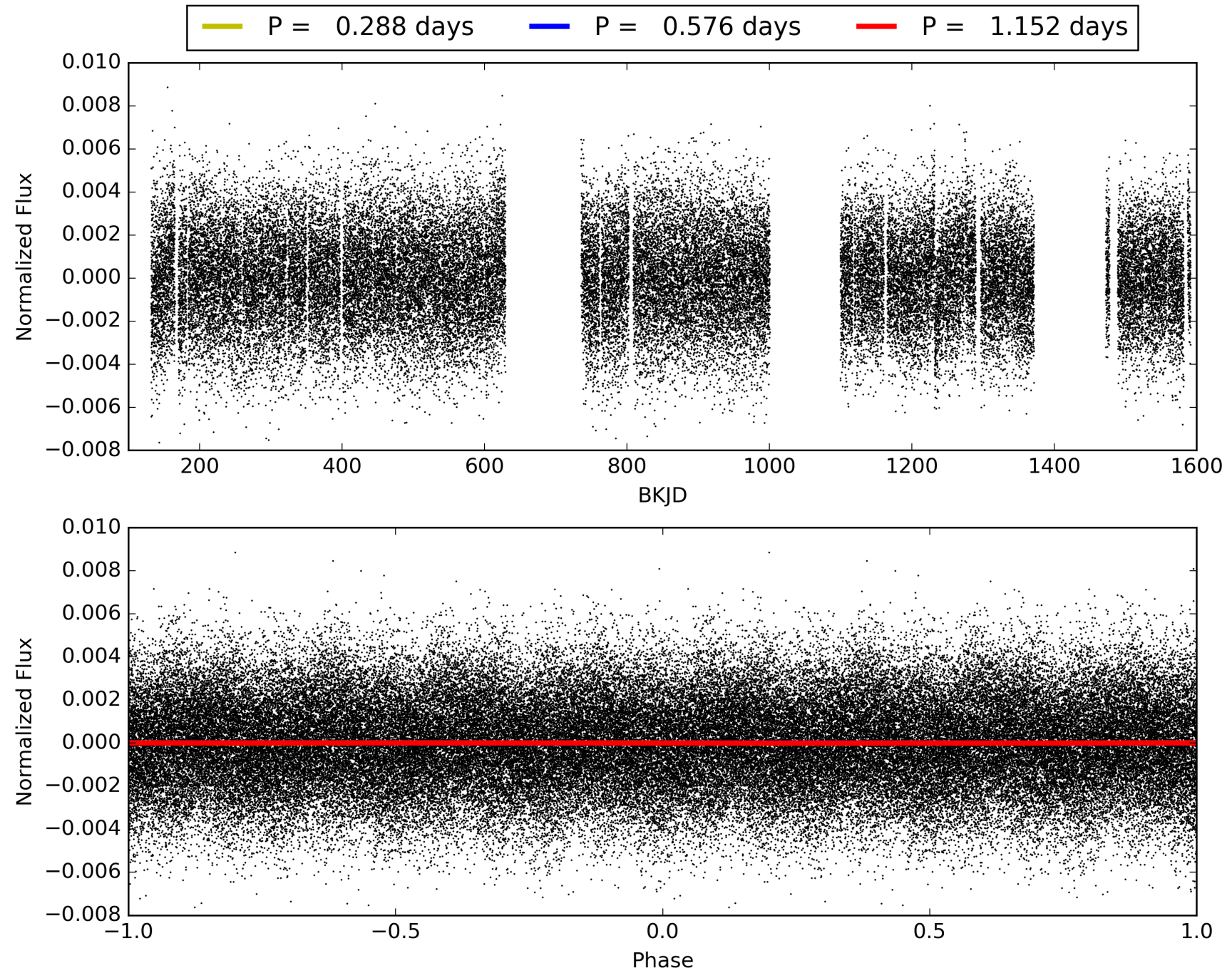
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:44:52 Z

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

TCE 009667584-04, PDC Light Curves

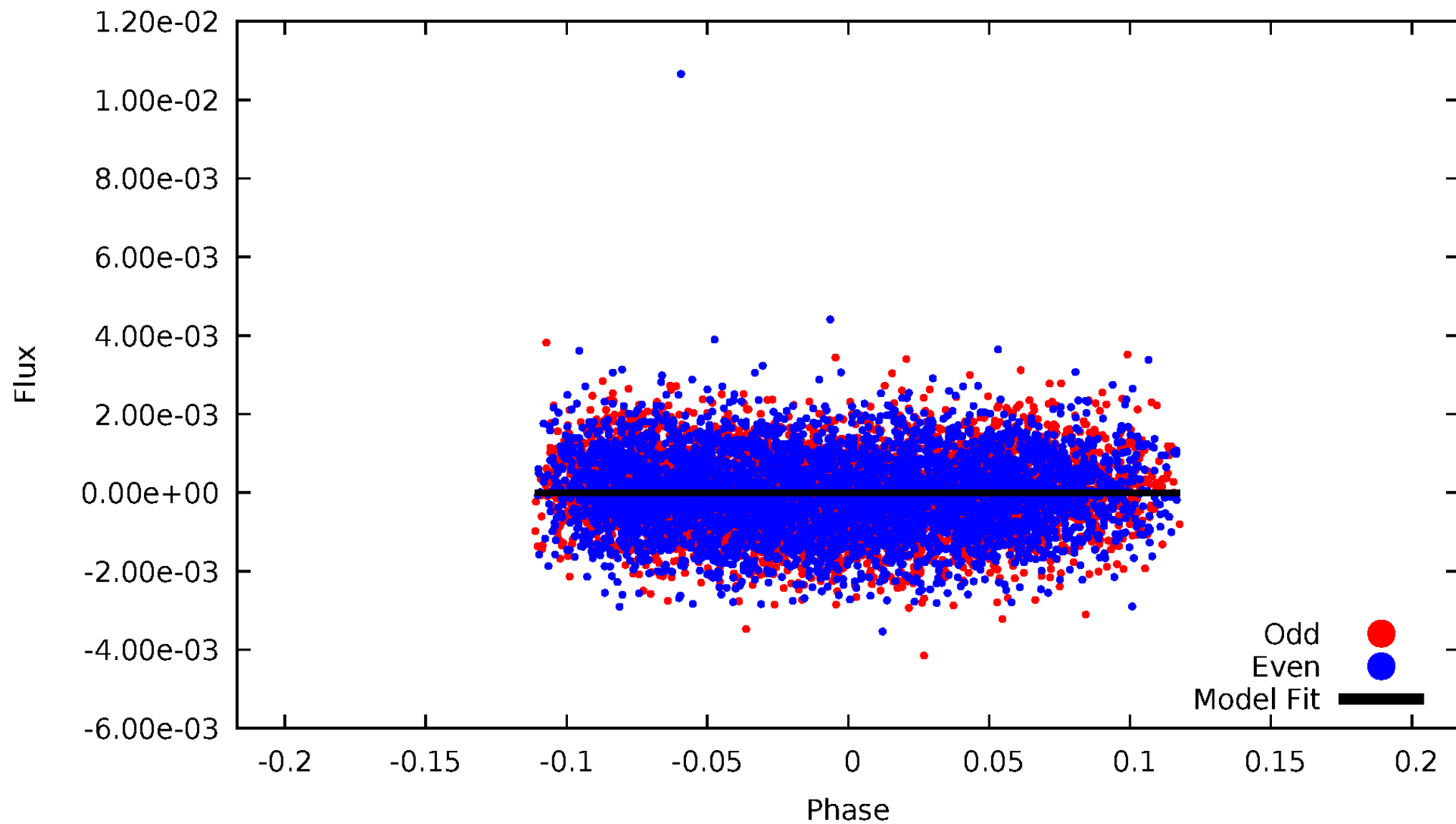


TCE 009667584-04



DV Odd/Even

TCE 009667584-04

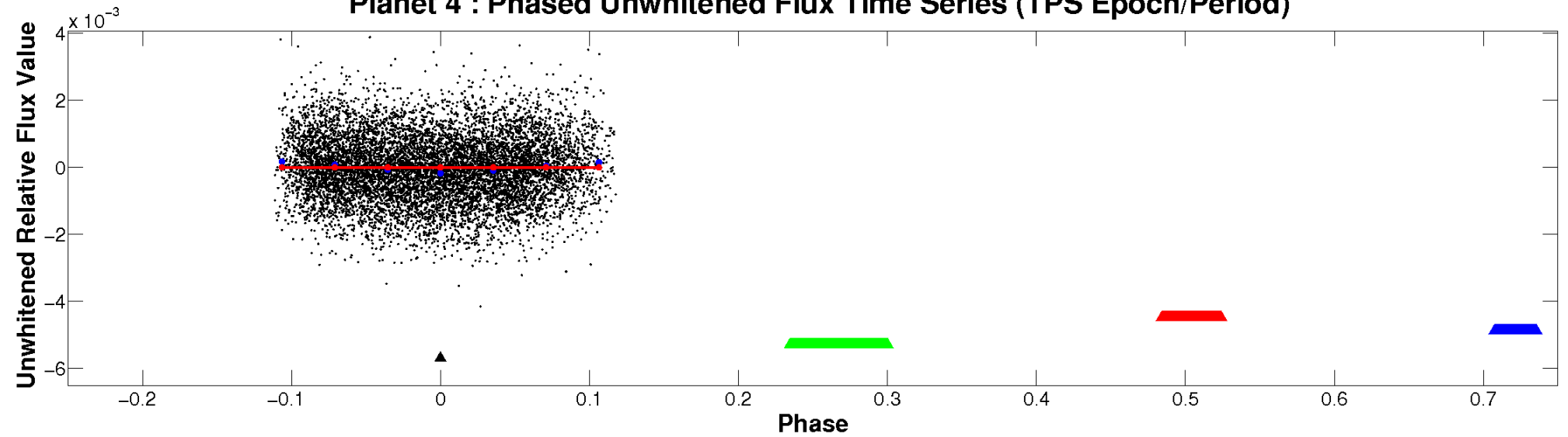


ALT Odd/Even

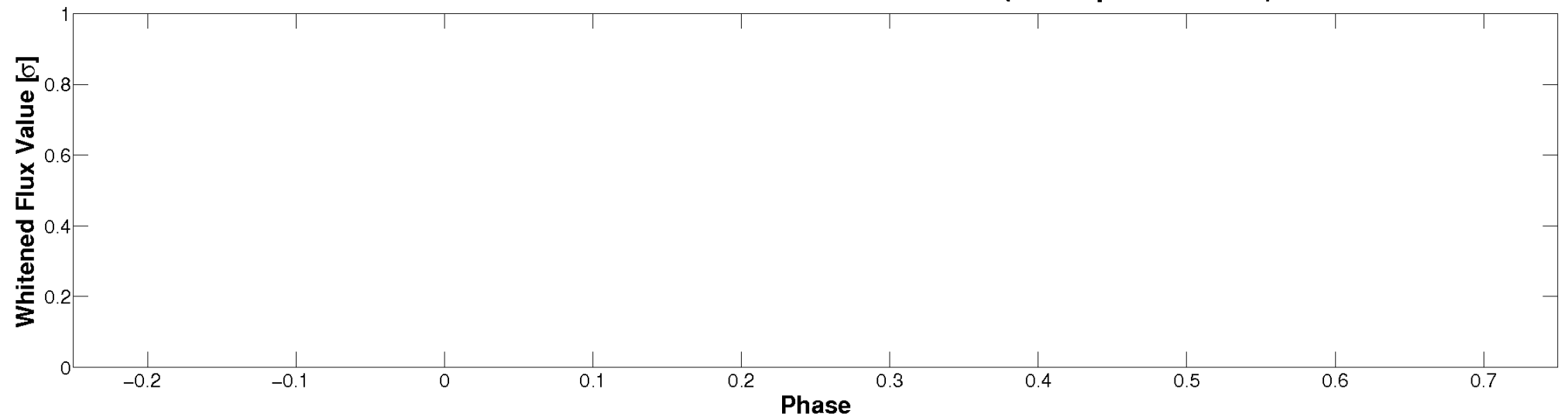
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

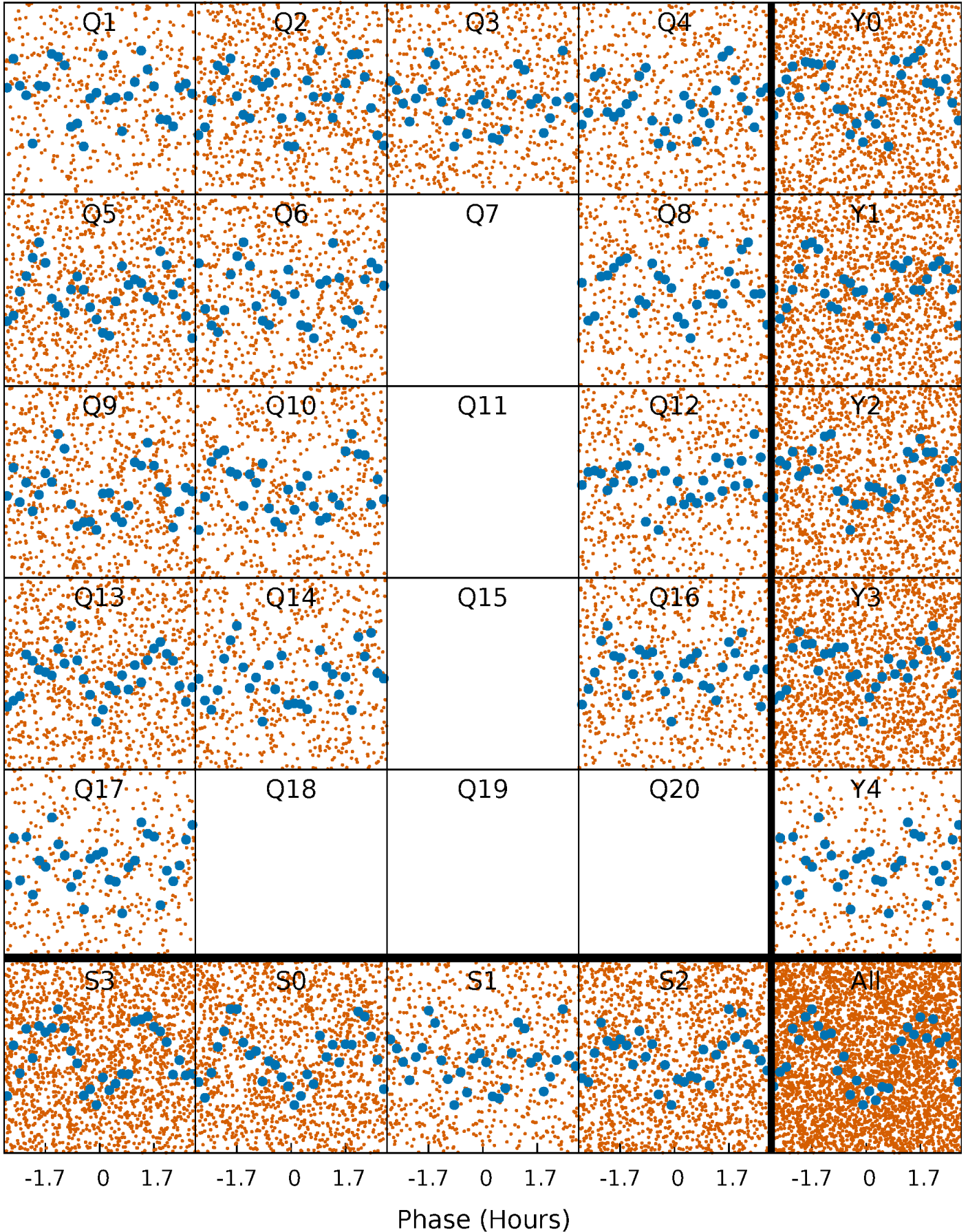


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



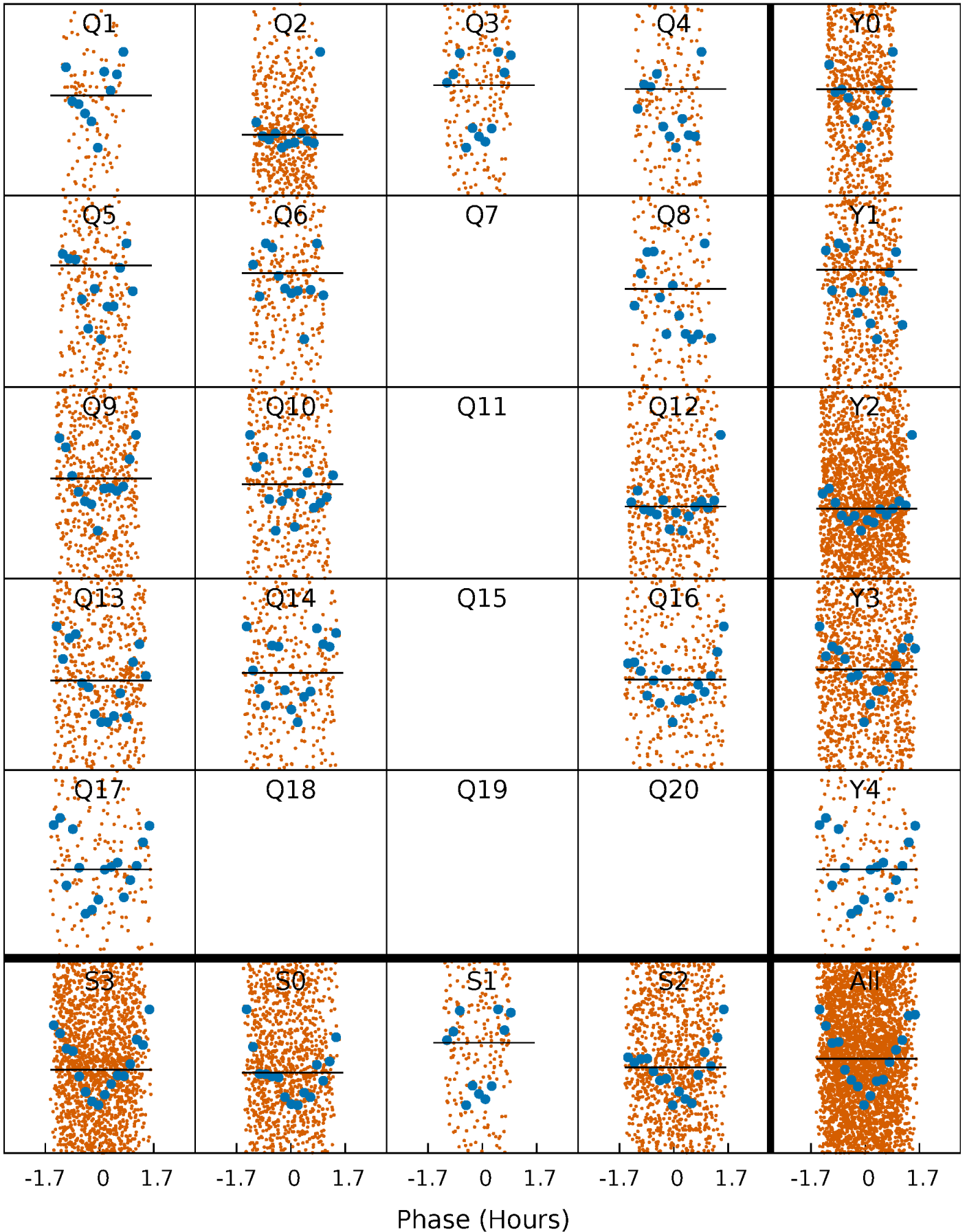
PDC Quarter-Phased Transit Curves

TCE 009667584-04 P= 0.576125 Days $T_0=131.998494$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009667584-04 P= 0.576125 Days $T_0=131.998494$ (BKJD)

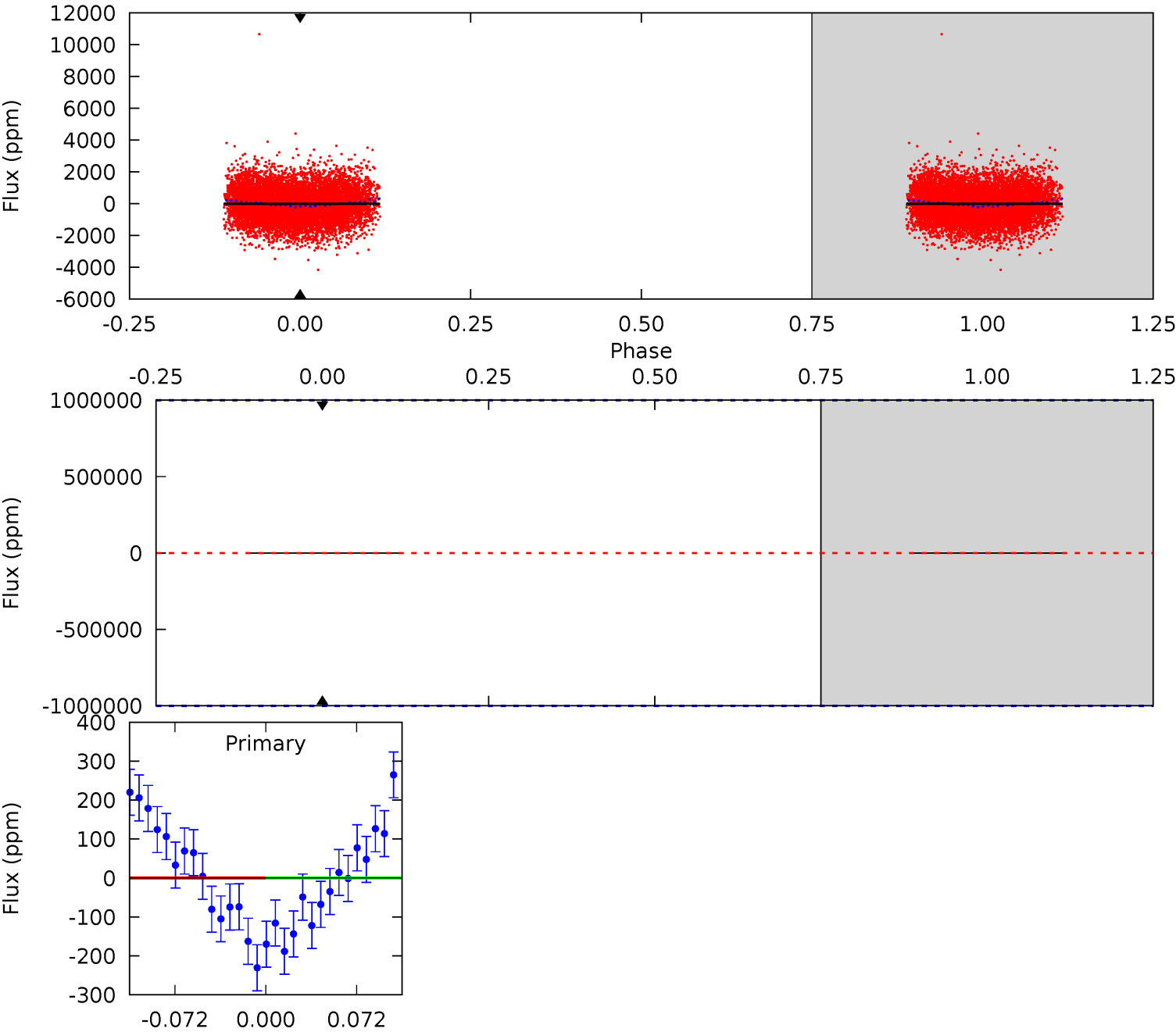


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009667584-04, P = 0.576125 Days, E = 131.422369 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009667584

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7533^{+211}_{-342} | $4.129^{+0.101}_{-0.188}$ | $0.060^{+0.150}_{-0.350}$ | $1.840^{+0.549}_{-0.338}$ | $1.663^{+0.204}_{-0.250}$ | $0.376^{+0.218}_{-0.188}$ |
| | +3%/-5% | +2%/-5% | +250%/-583% | +30%/-18% | +12%/-15% | +58%/-50% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 009667584-04 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|---------------------------|----------------------|---------------------------|-------------------------------|
| DV | 0 ± 1000000 | $15.14^{+15.37}_{-10.33}$ | 5023^{+356}_{-314} | -6181^{+49194}_{-30945} | $-1.379^{+105.308}_{-87.045}$ |
| Alt. | N/A | N/A | N/A | N/A | N/A |

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

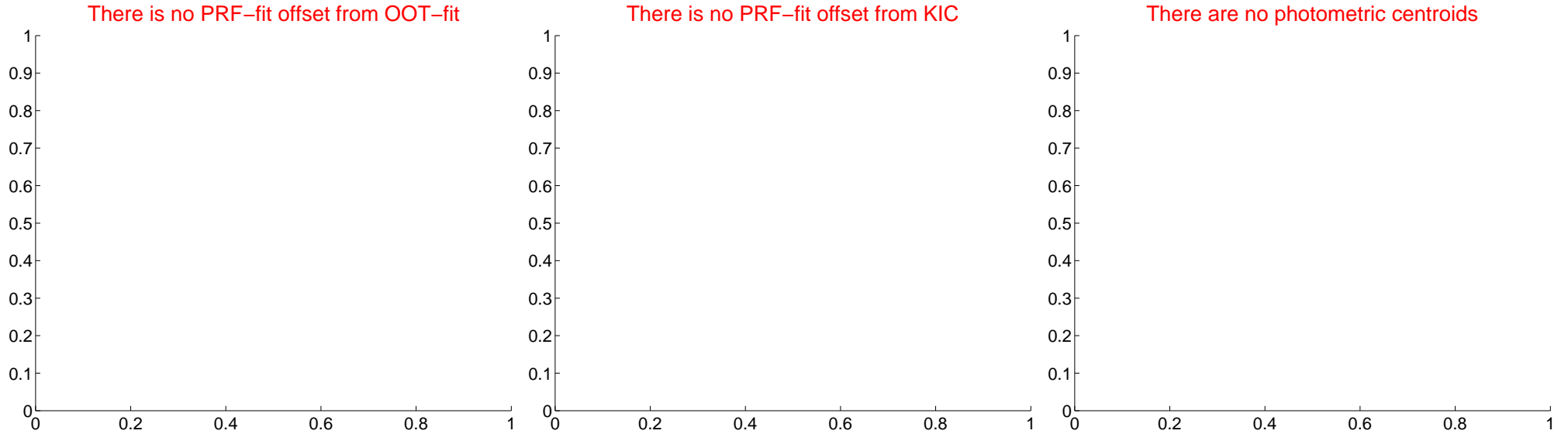
DV Centroid Data

Supplemental centroid analysis for 009667584-04. Kepler magnitude: 12.57. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

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

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------|--------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | — | — | — | — |

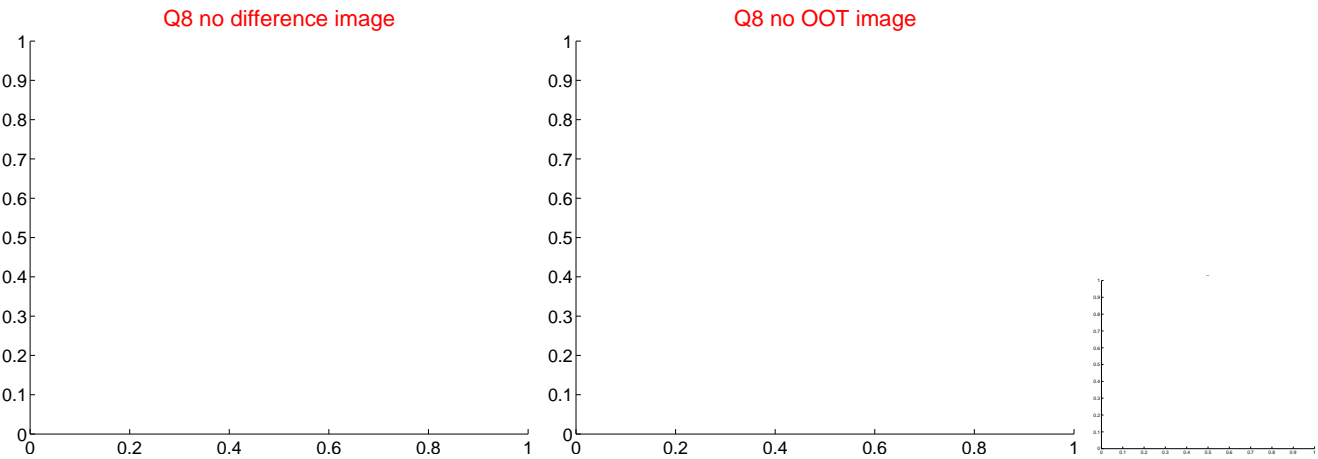
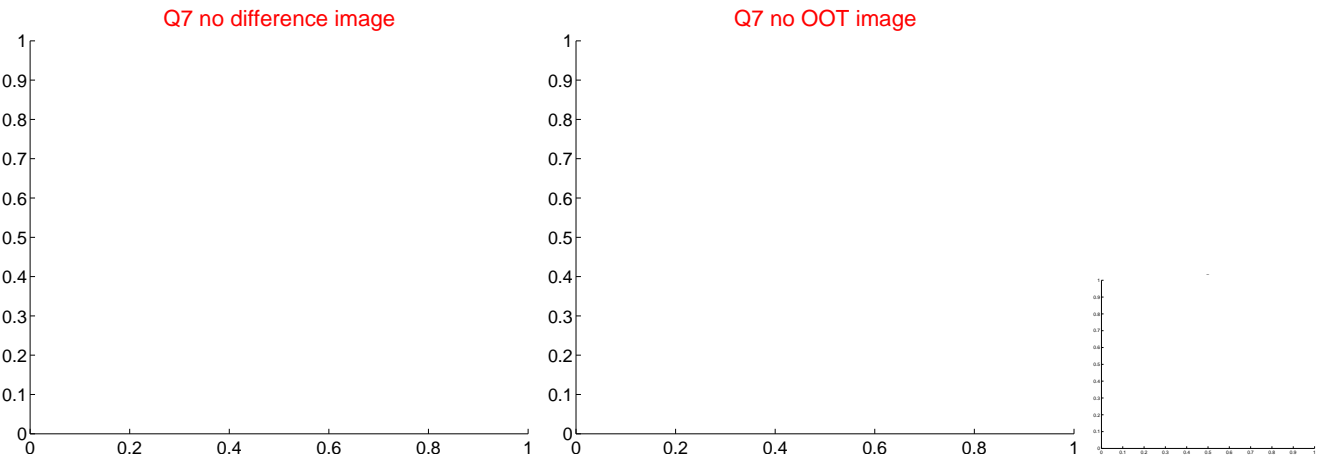
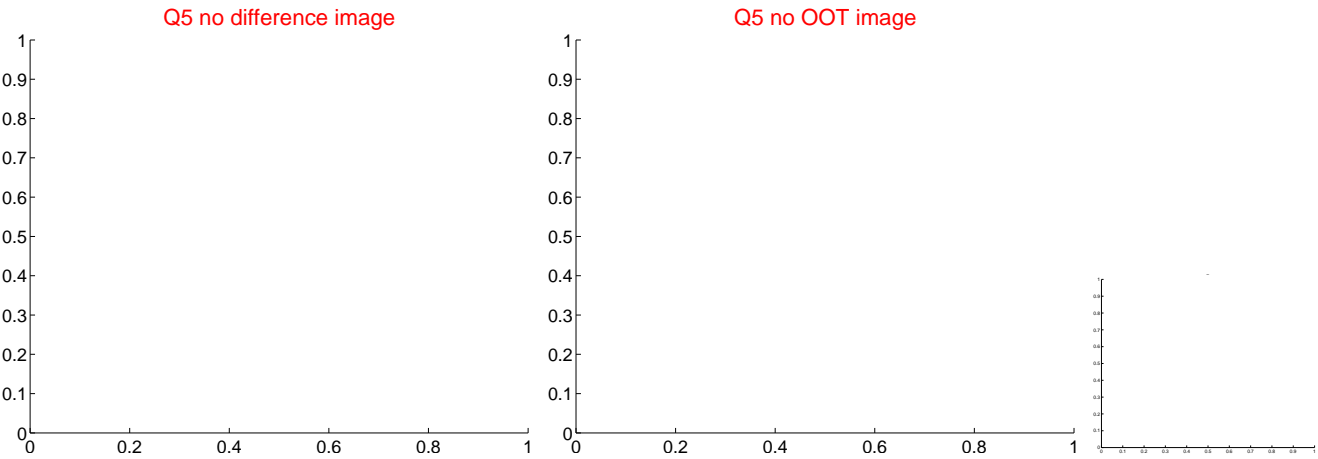


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



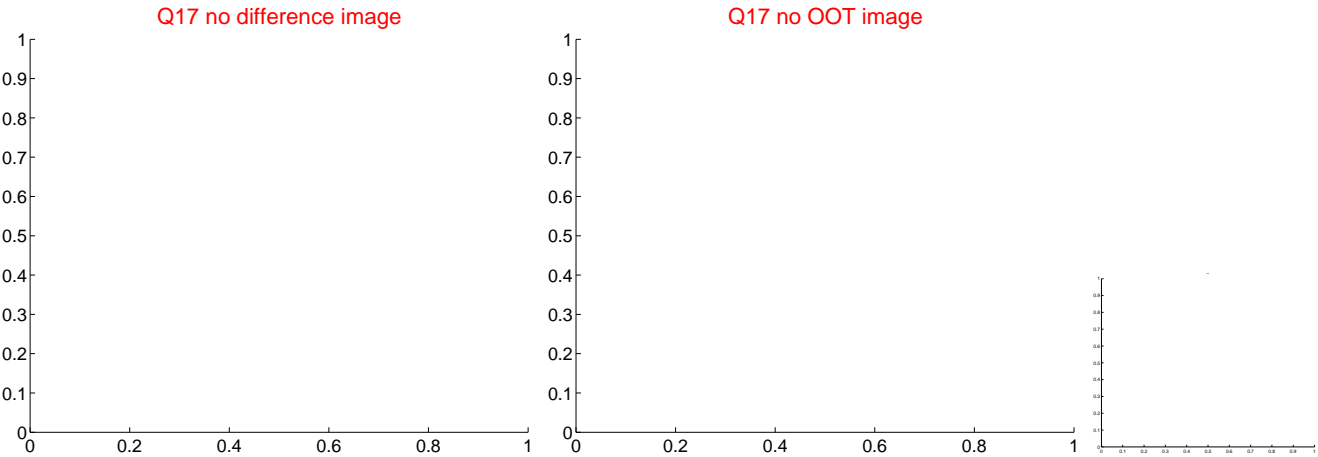
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

