

KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
| 007287162-02 | OBS | No | 50.058830 | 158.793992 | 254.0 | 2.248 | 22.9 | 4.3 | 1.96 | 6603 | 3.83 | 81.65 |
| 007287162-03 | OBS | No | 32.263302 | 134.339844 | 329.2 | 2.269 | 14.0 | 7.8 | 1.96 | 6603 | 3.76 | 146.67 |
| 007287162-04 | OBS | No | 12.071544 | 141.706183 | 122.0 | 4.390 | 7.7 | 8.1 | 1.96 | 6603 | 2.53 | 544.01 |
| 007287162-05 | OBS | No | 38.497378 | 133.655123 | 165.5 | 2.477 | 9.1 | 3.4 | 1.96 | 6603 | 2.96 | 115.89 |
| 007287162-06 | OBS | No | 32.302366 | 139.350892 | 221.7 | 3.181 | 11.2 | 5.7 | 1.96 | 6603 | 3.31 | 146.43 |
| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

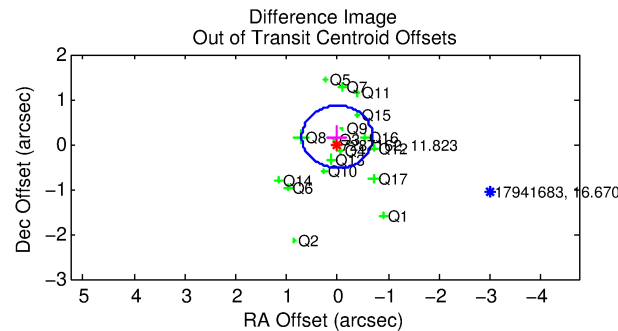
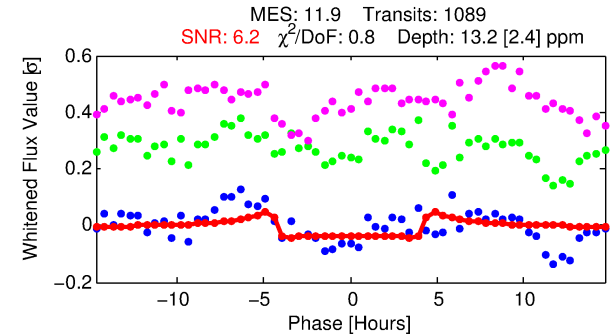
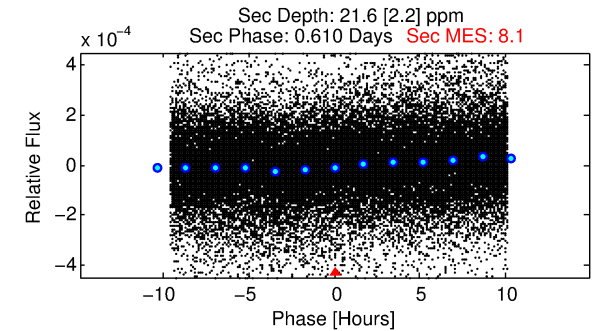
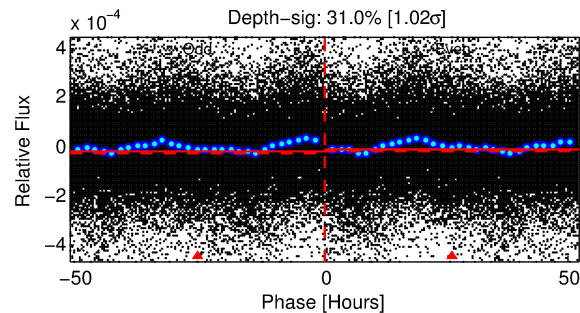
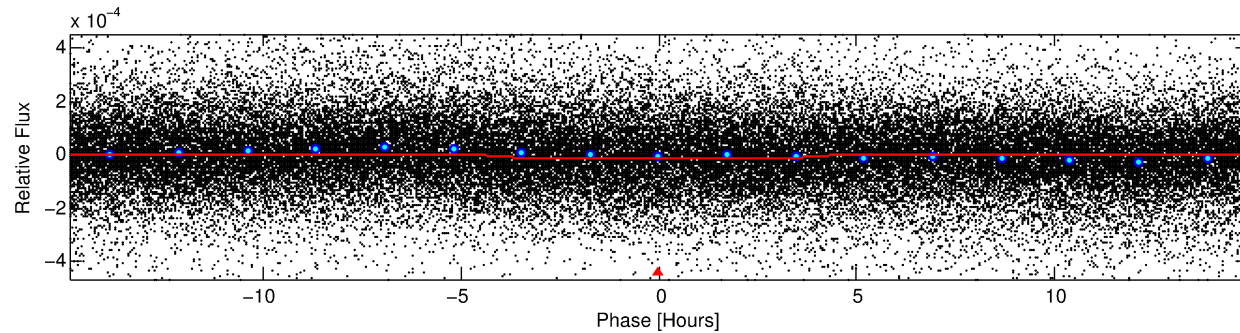
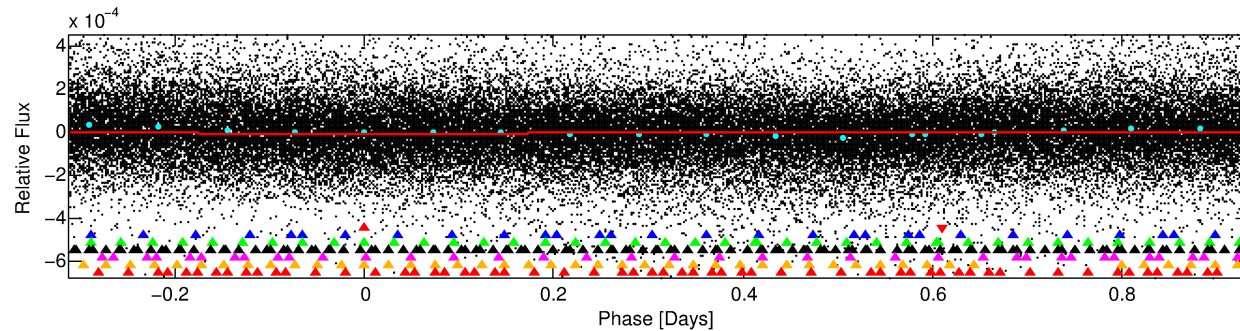
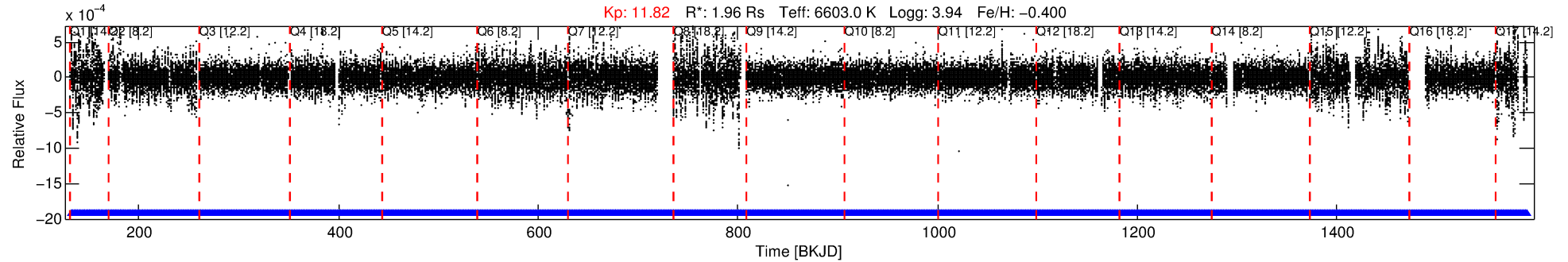
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-01

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 1 of 7 Period: 1.243 d



DV Fit Results:

Period = 1.24335 [0.00002] d
Epoch = 132.4912 [0.0048] BKJD
 R_p/R^* = 0.0034 [0.0019]
 a/R^* = 1.21 [1.14]
 b = 0.50 [4.54]
 Seff = 11267.56 [5412.86]
 T_{eq} = 2627 [316] K
 R_p = 0.74 [0.46] R_e
 a = 0.0241 [0.0071] AU
 A_g = 12.77 [15.13] [0.78 σ]
 T_{eff} = 7678 [2101] K [2.38 σ]

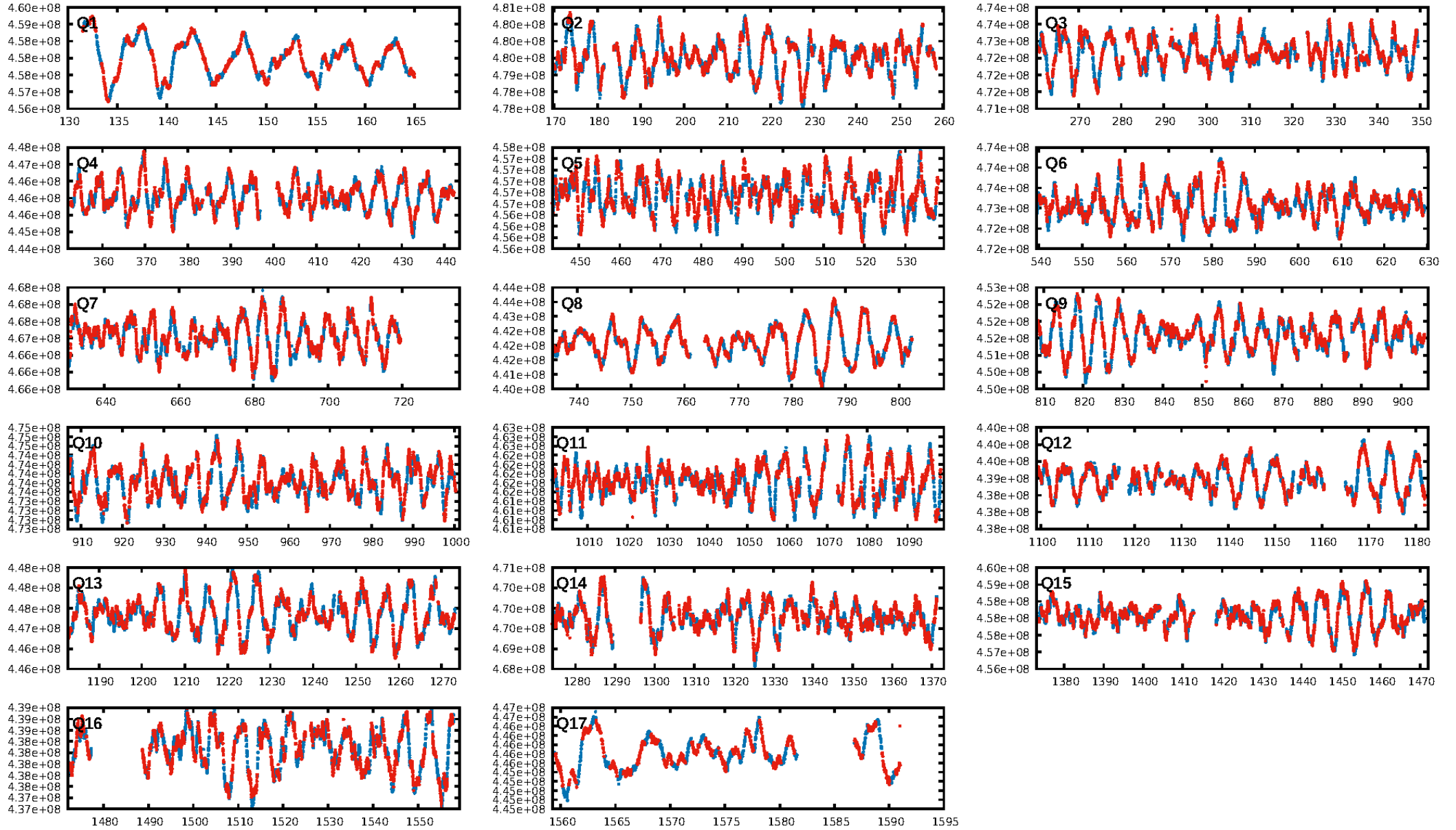
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [26.72 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.05e-26
RollingBand-fgt: 1.00 [1040/1040]
GhostDiagnostic-chr: -1.972
Centroid-sig: 55.4%
Centroid-so: 0.454 arcsec [0.90 σ]
OotOffset-rm: 0.165 arcsec [0.71 σ]
KicOffset-rm: 0.360 arcsec [1.48 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

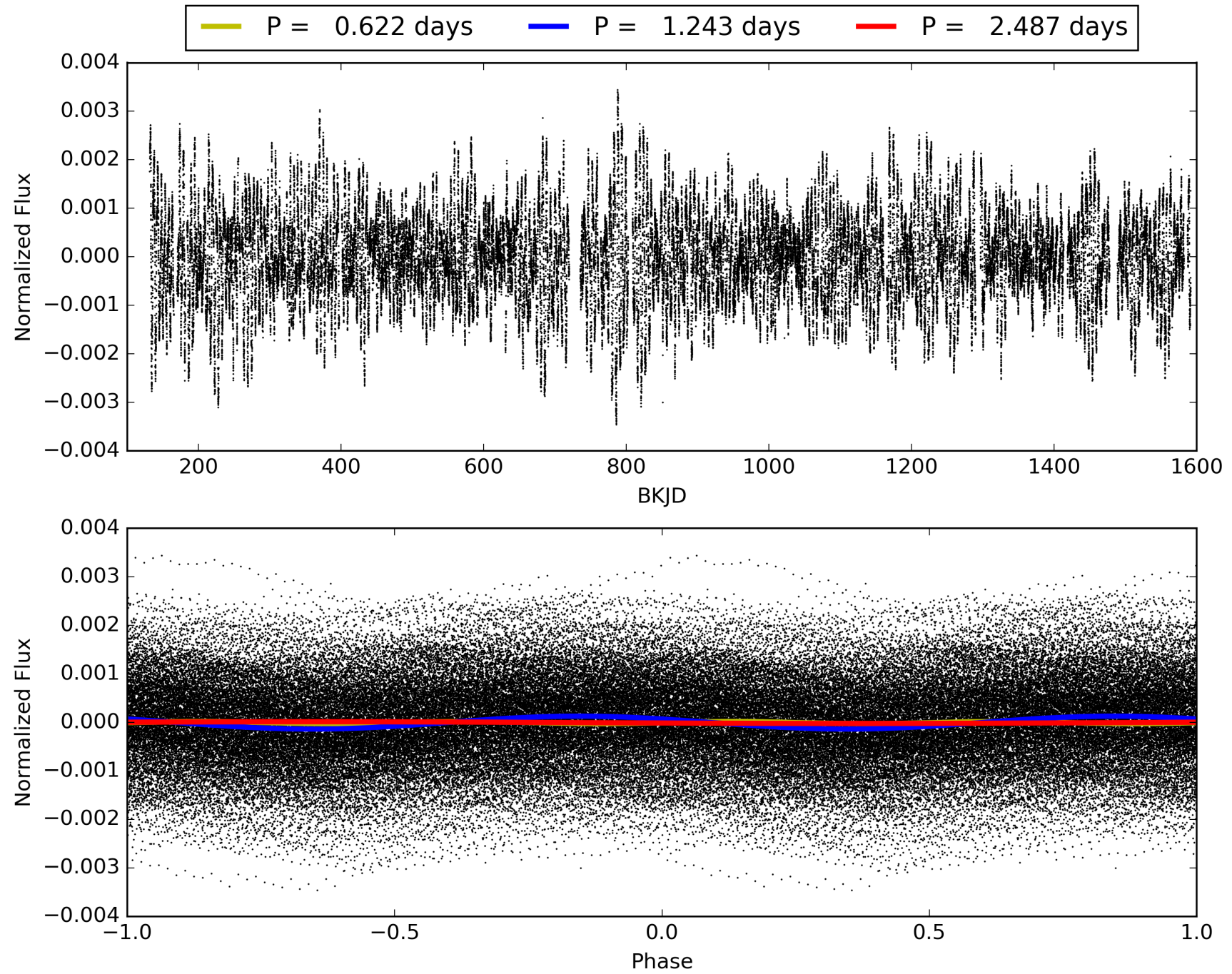
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:11:50 Z

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

TCE 007287162-01, PDC Light Curves

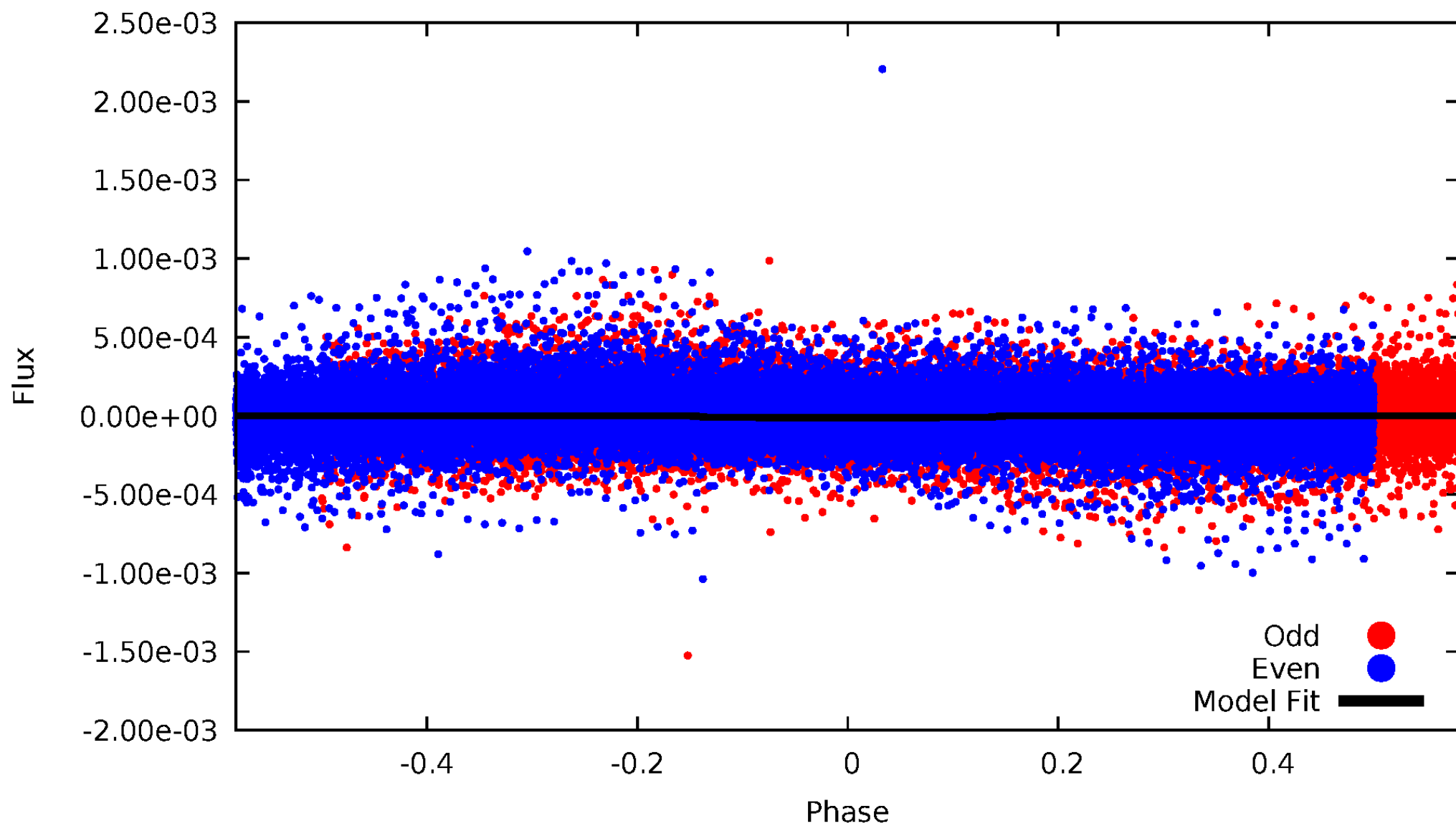


TCE 007287162-01



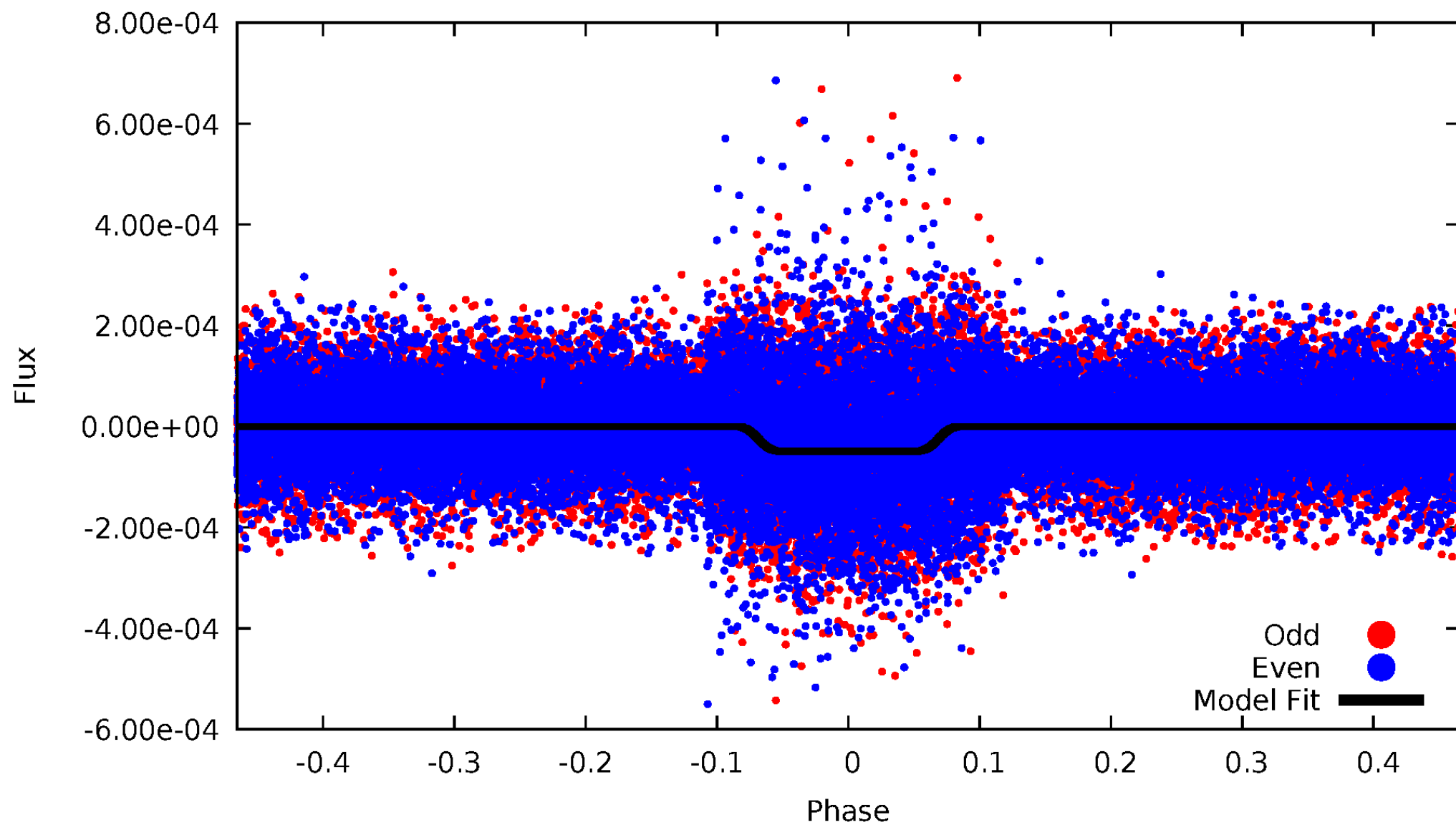
DV Odd/Even

TCE 007287162-01



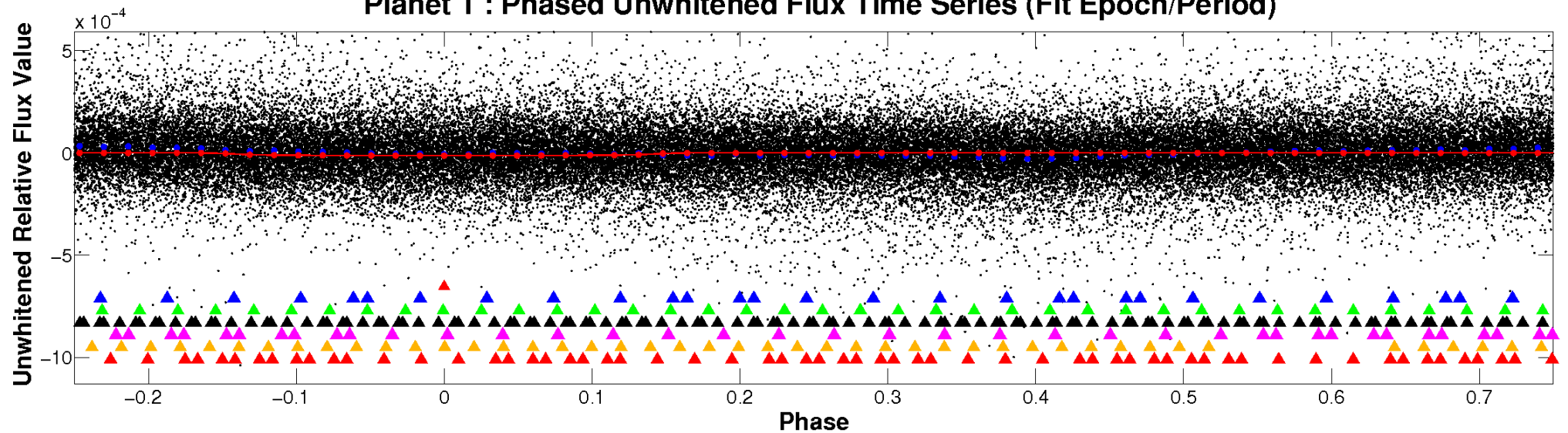
ALT Odd/Even

TCE 007287162-01

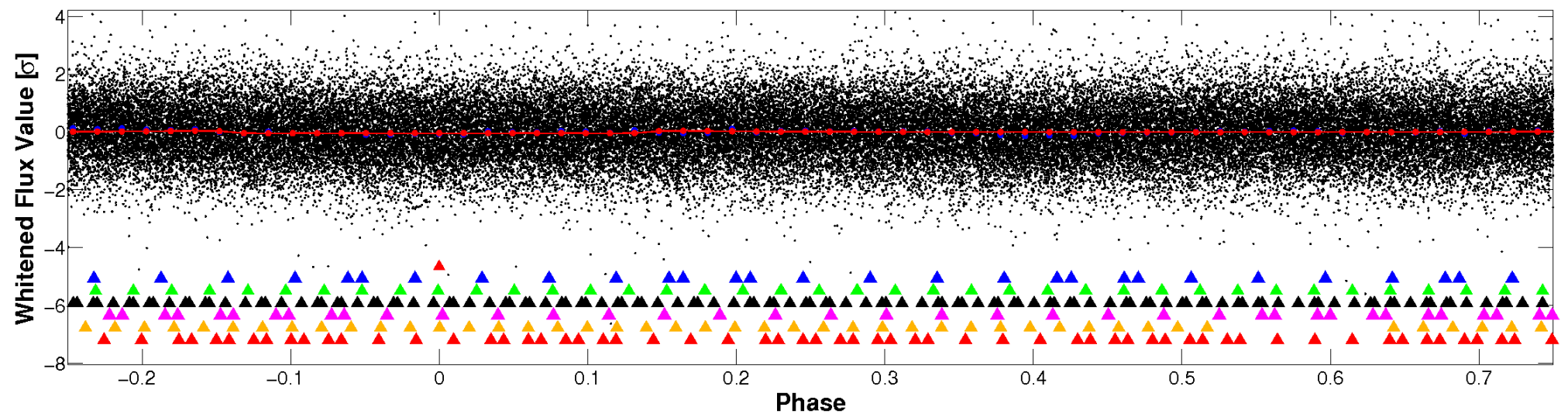


Non-Whitened Vs. Whitened Light Curve

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

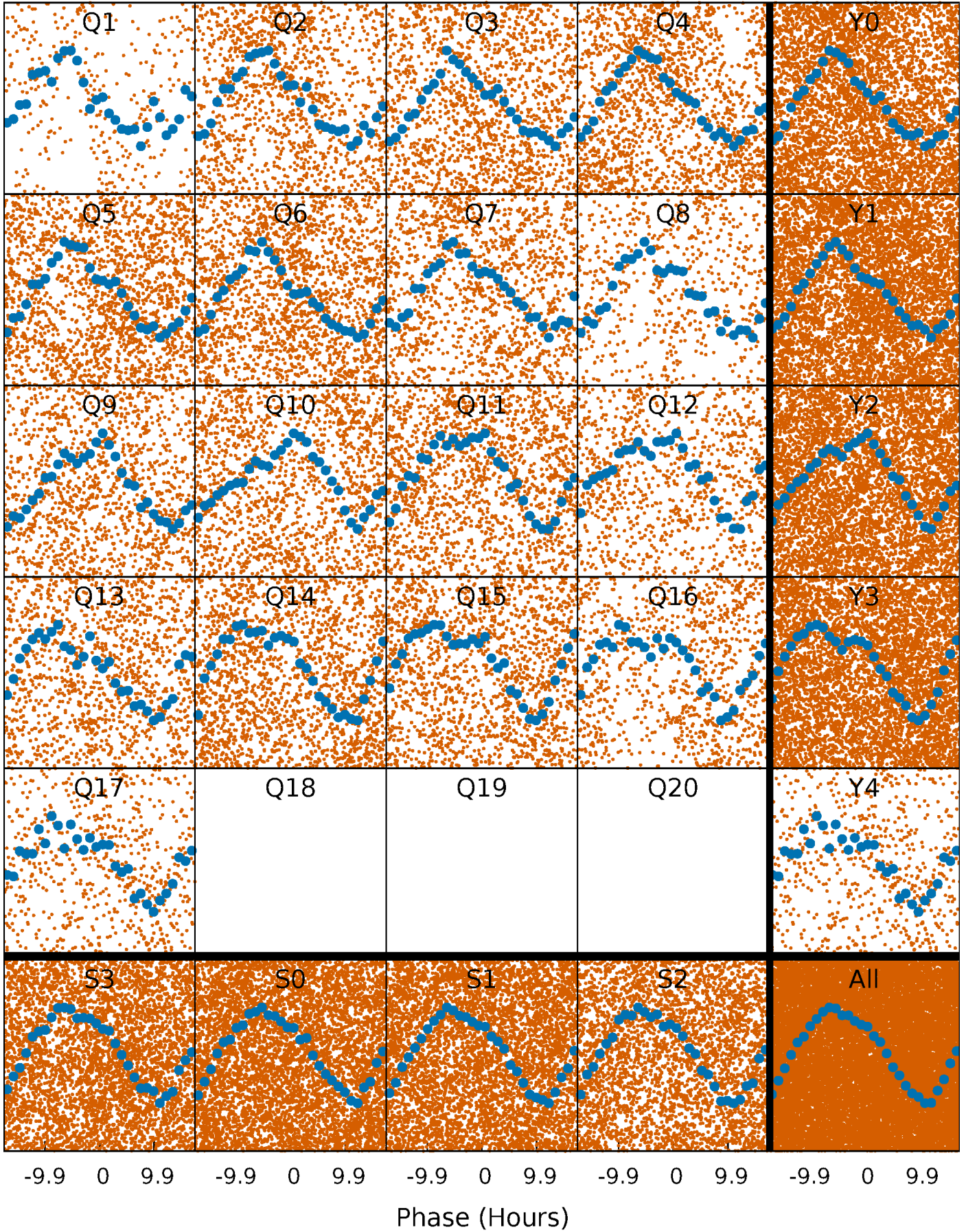


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



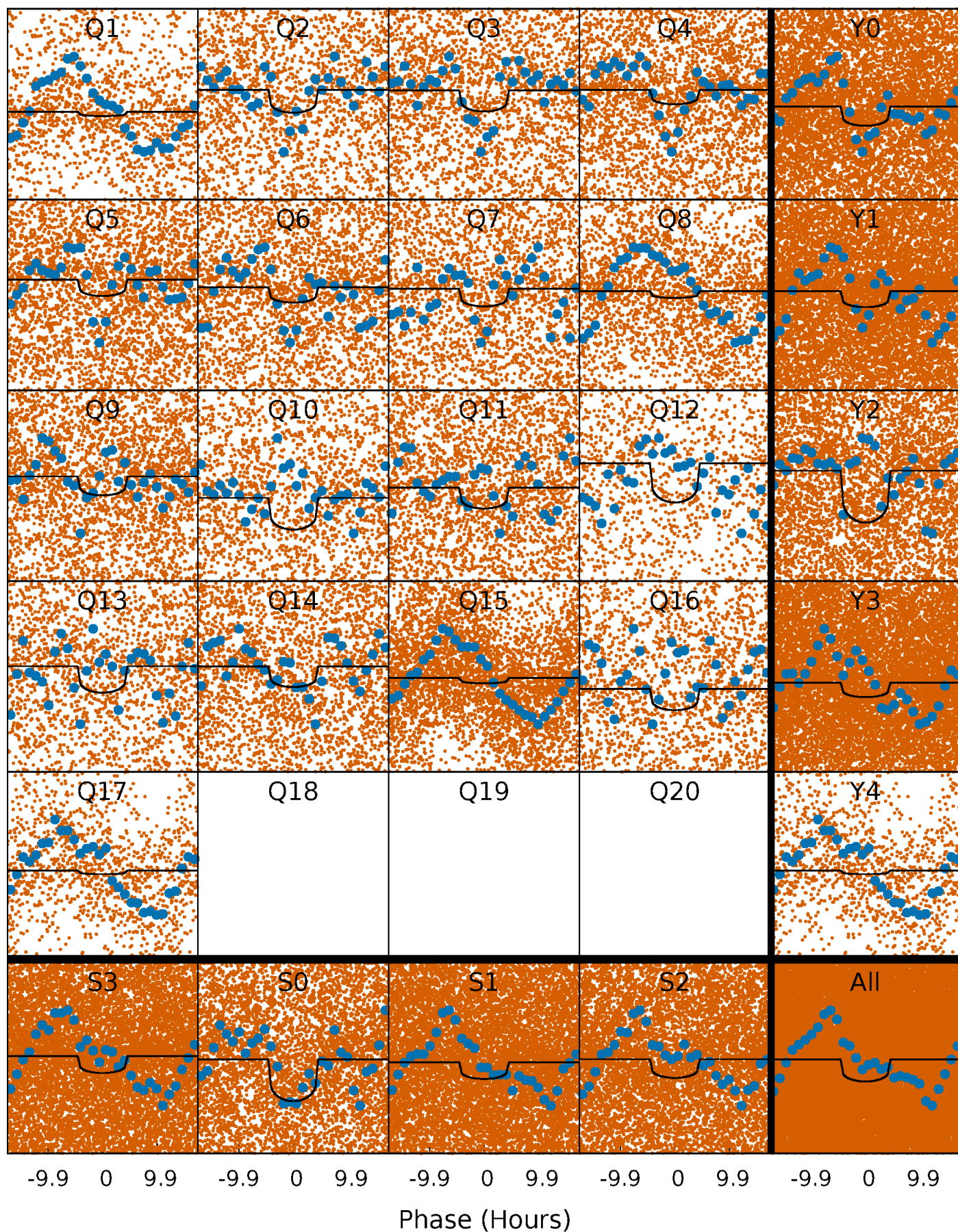
PDC Quarter-Phased Transit Curves

TCE 007287162-01 P= 1.243349 Days $T_0=132.491250$ (BKJD)



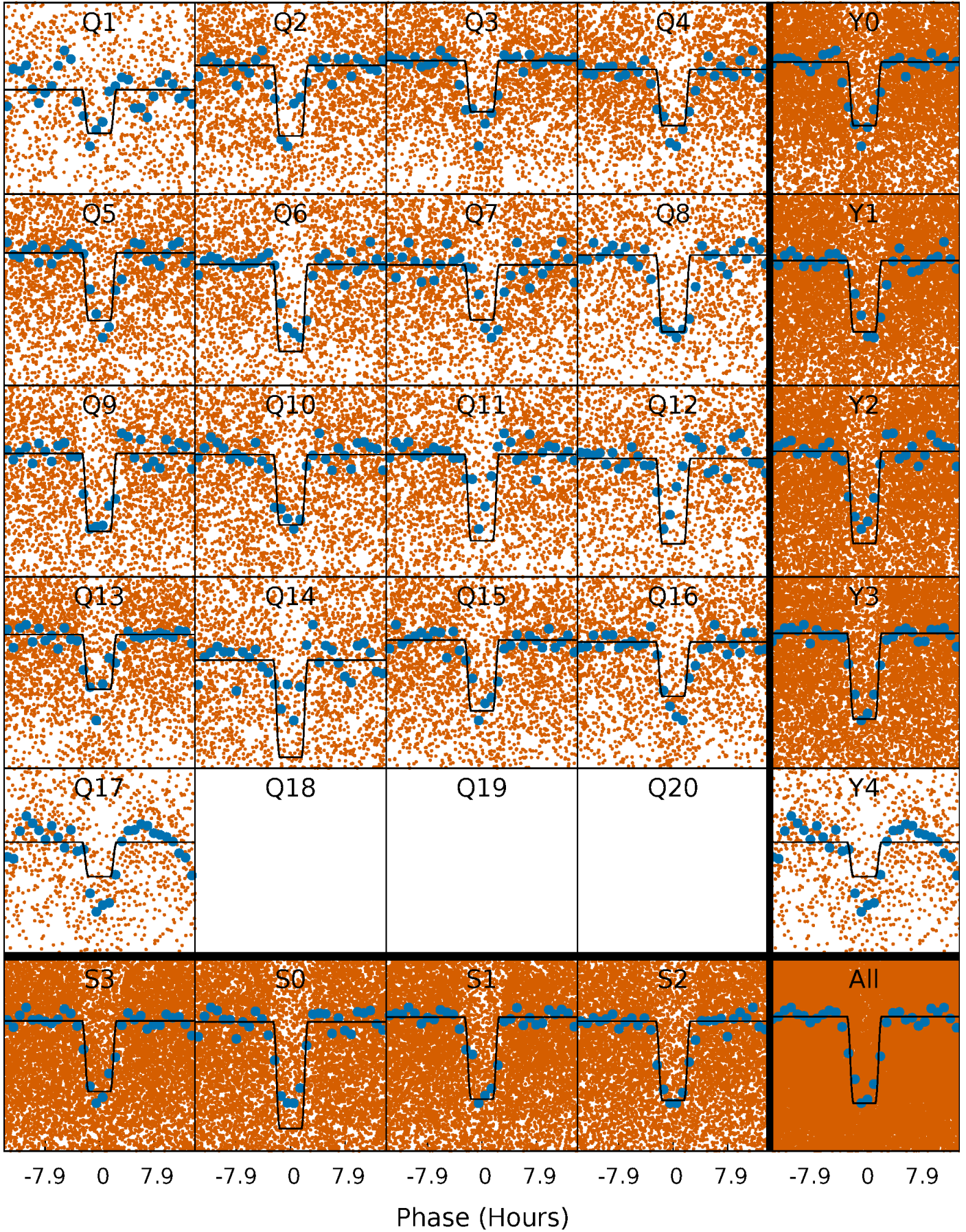
DV Quarter-Phased Transit Curves

TCE 007287162-01 P= 1.243349 Days $T_0=132.491250$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

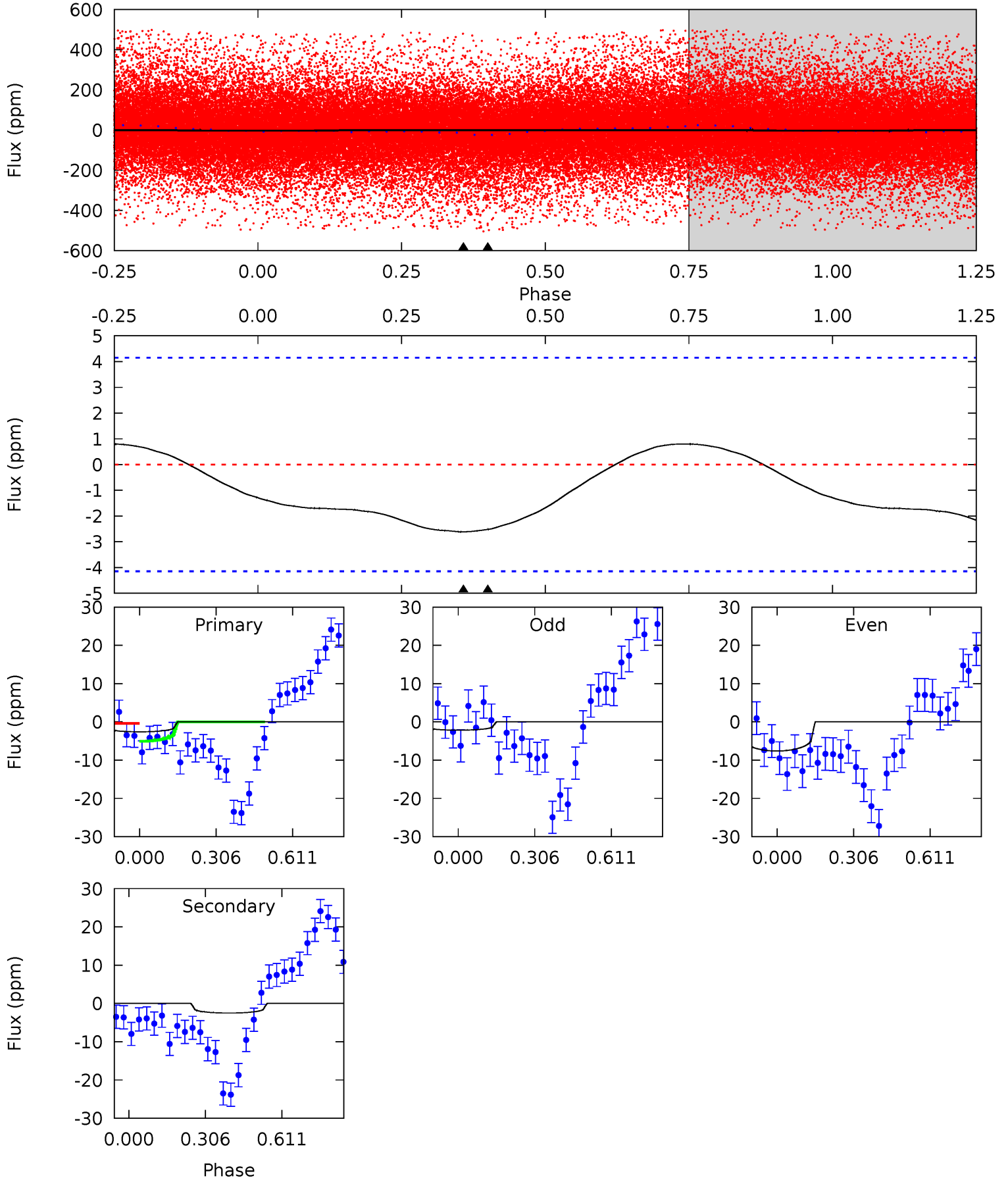
TCE 007287162-01 P= 1.243183 Days $T_0=132.487008$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-01, P = 1.243349 Days, E = 131.247901 Days

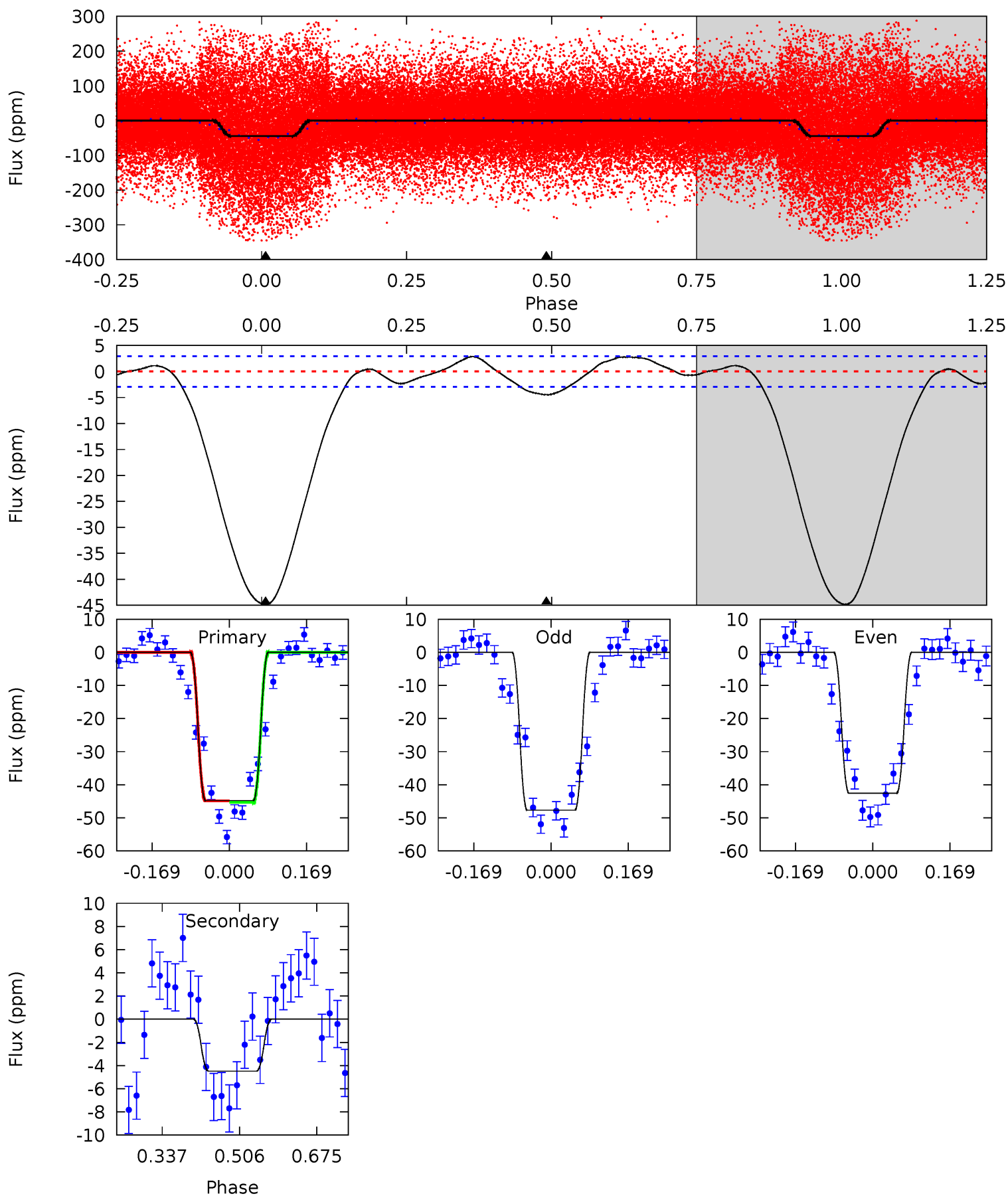
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.73 | 2.63 | 0 | 0 | 4.32 | 1.02 | 0.88 | 2.73 | 2.73 | 2.63 | 2.63 | 2.90 | 0.16 | 0.23 | 2.49 |



Alt Model-Shift Uniqueness Test

007287162-01, P = 1.243183 Days, E = 131.243825 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 67.8 | 6.79 | 0 | 0 | 4.45 | 1.38 | 1.71 | 67.8 | 67.8 | 6.79 | 6.79 | 3.88 | 0.90 | 0.06 | 0.36 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|---------------------------|
| DV | -3 ± 1 | $0.71^{+0.41}_{-0.36}$ | 3638^{+230}_{-310} | 4312^{+1919}_{-999} | $1.472^{+5.039}_{-0.940}$ |
| Alt. | -4 ± 1 | $1.46^{+0.48}_{-0.44}$ | 3617^{+238}_{-275} | 3552^{+641}_{-643} | $0.679^{+0.693}_{-0.291}$ |

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 $A_{obs} \gg 1.0$

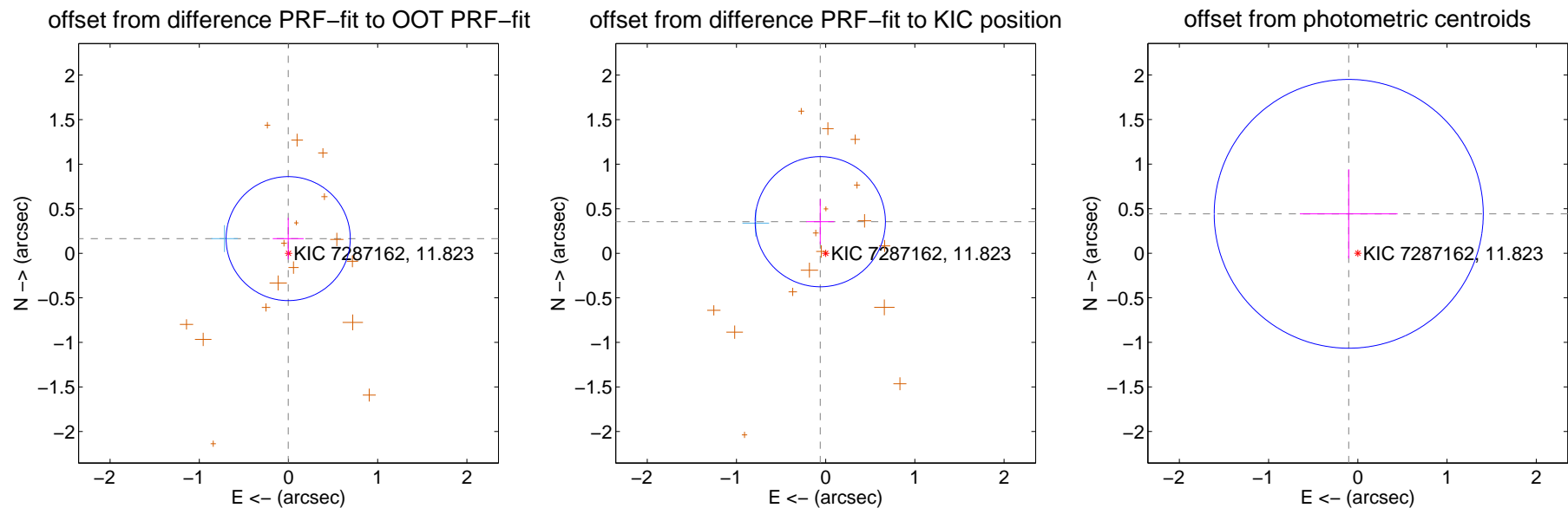
DV Centroid Data

Supplemental centroid analysis for 007287162-01. **Kepler magnitude: 11.82.** Transit SNR 6.22

There are 1 quarters with good PRF difference image offsets

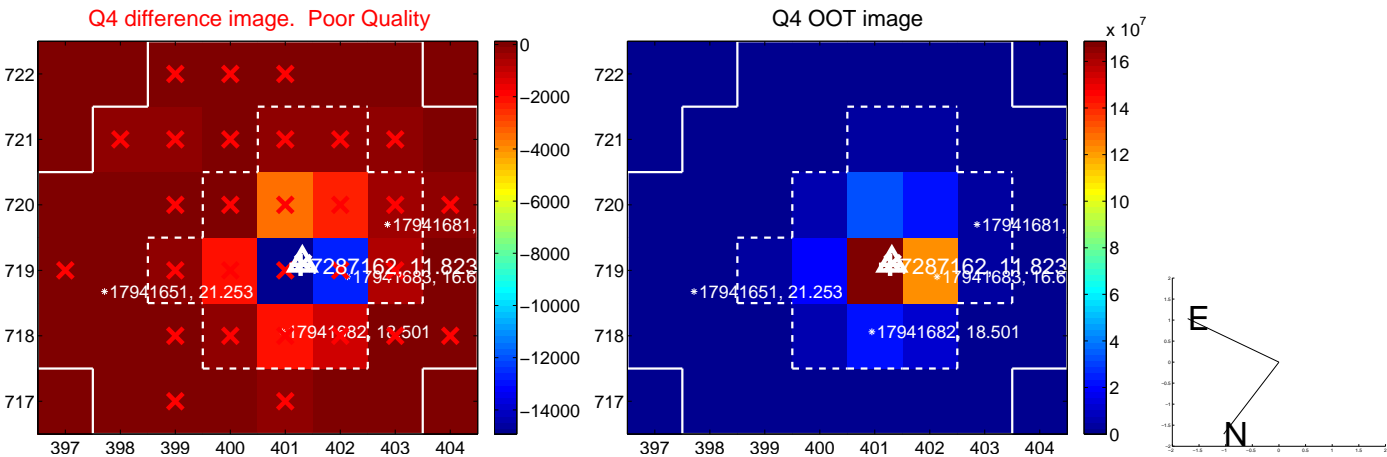
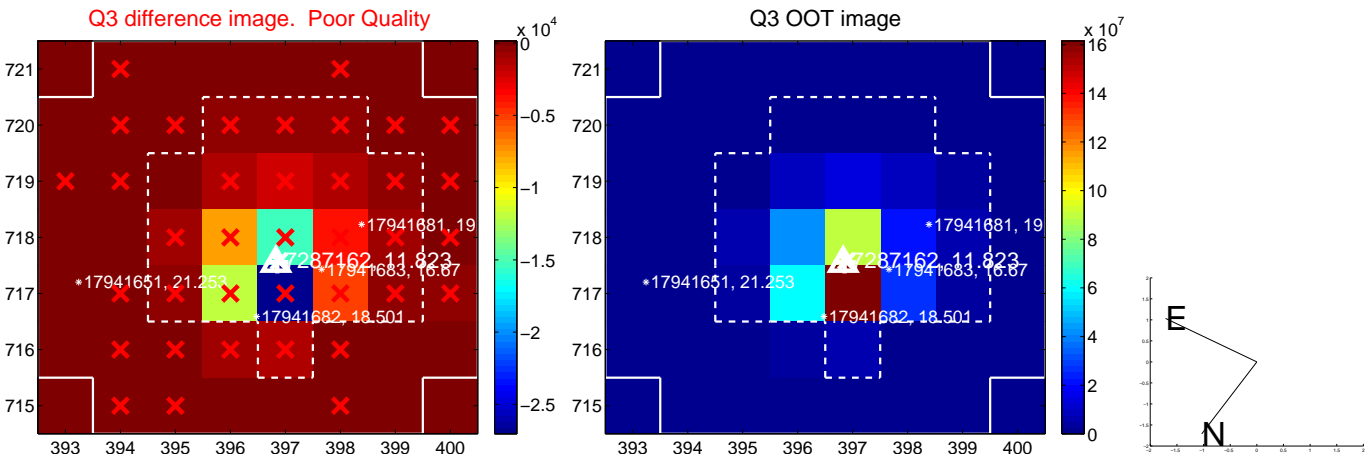
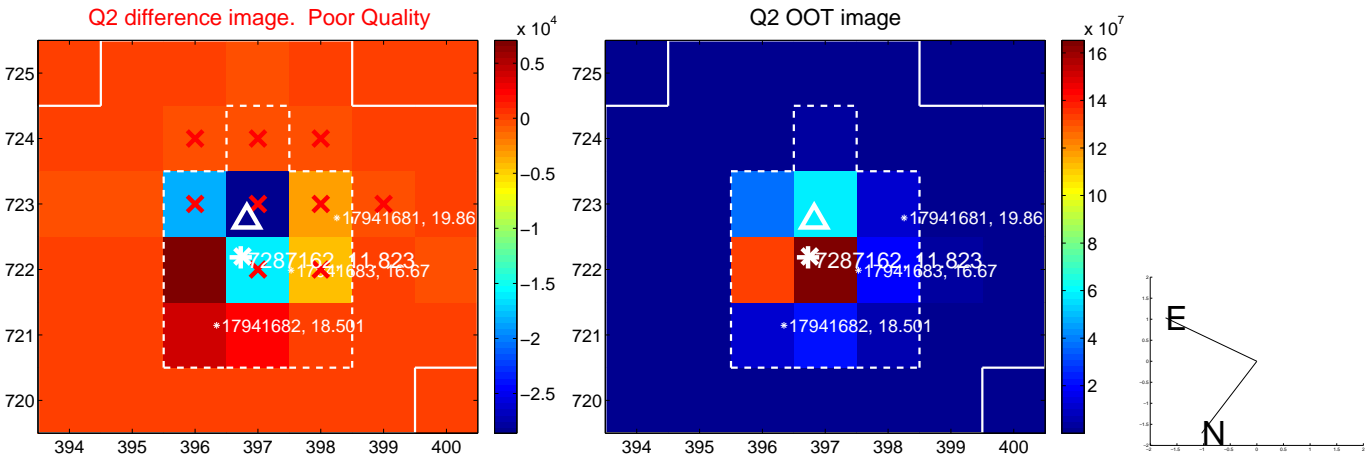
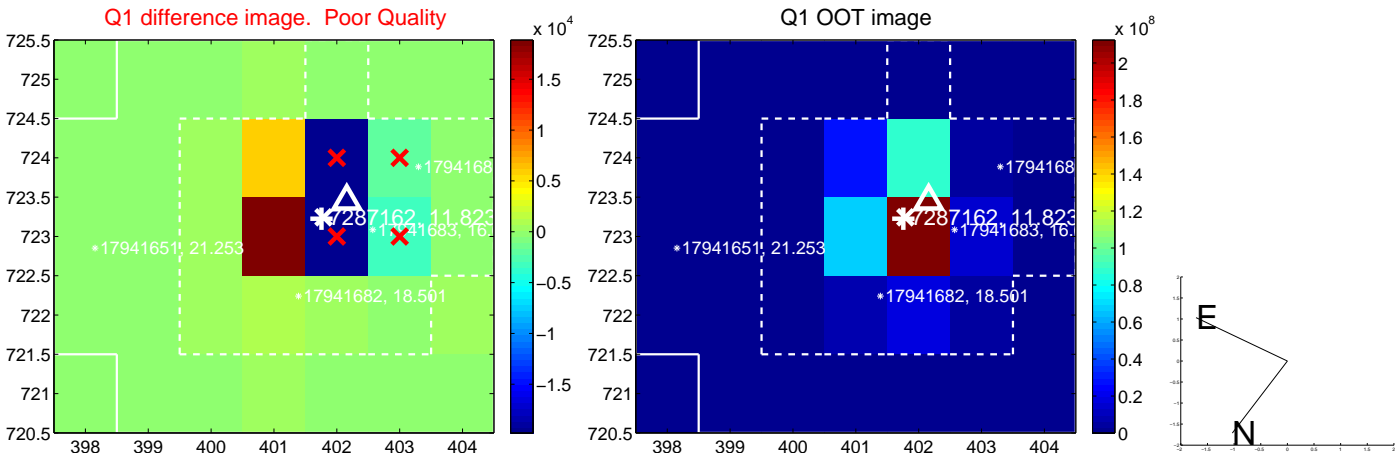
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.165 ± 0.232 | 0.71 | 0.003 ± 0.174 | 0.165 ± 0.233 |
| PRF-fit source offset from KIC position | 0.360 ± 0.243 | 1.48 | 0.061 ± 0.157 | 0.354 ± 0.254 |
| photometric centroid source offset | 0.45 ± 0.50 | 0.90 | 0.10 ± 0.55 | 0.44 ± 0.50 |

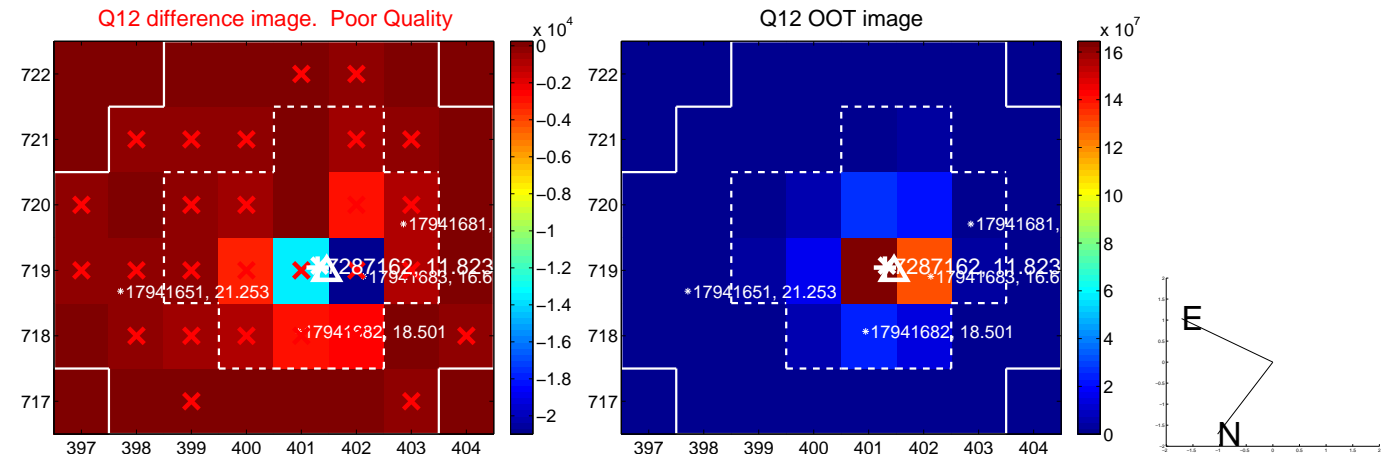
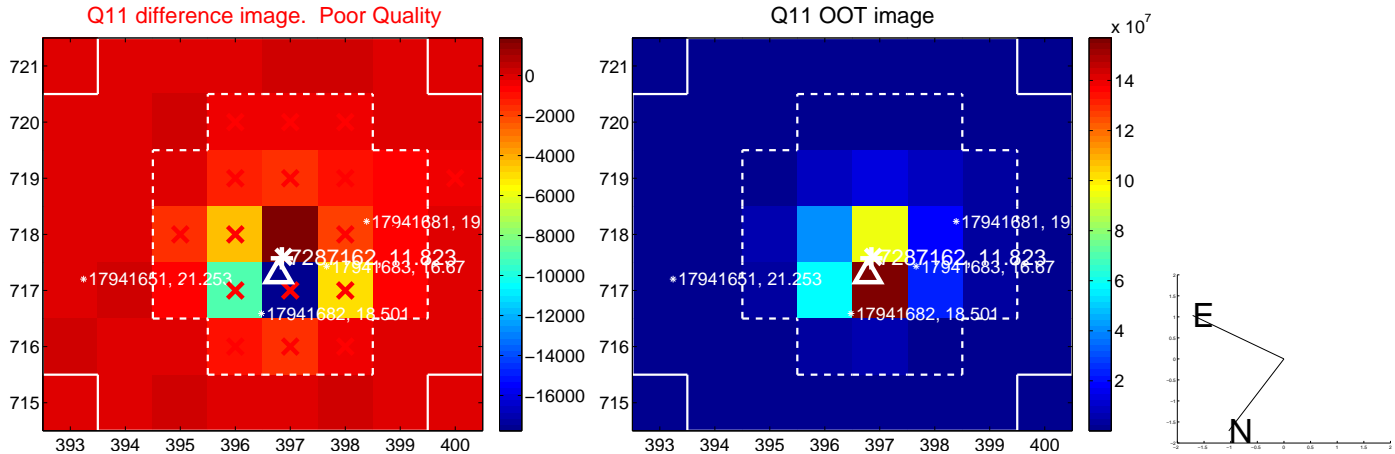
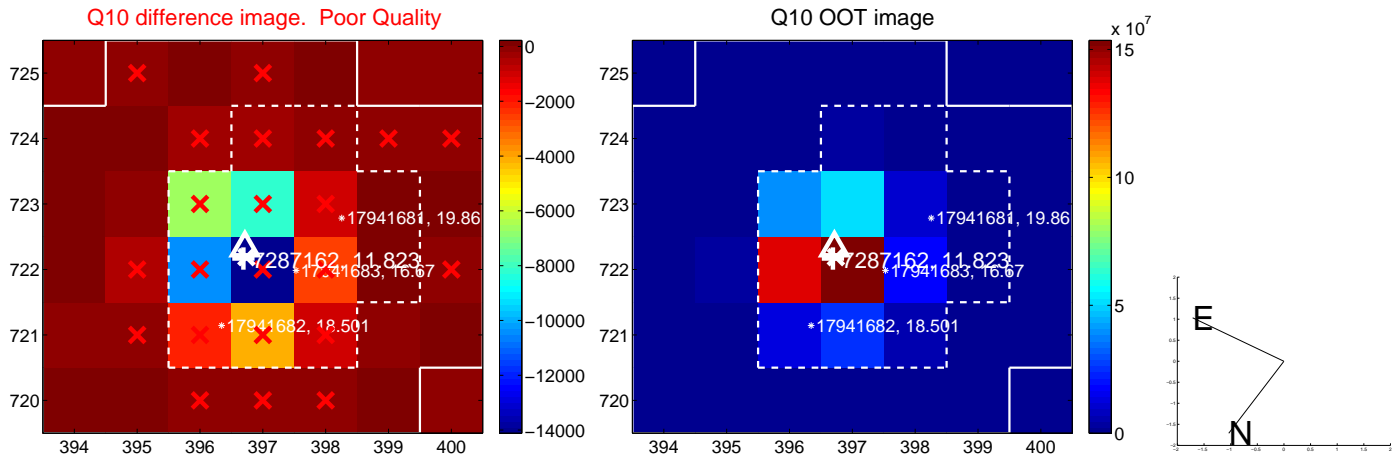
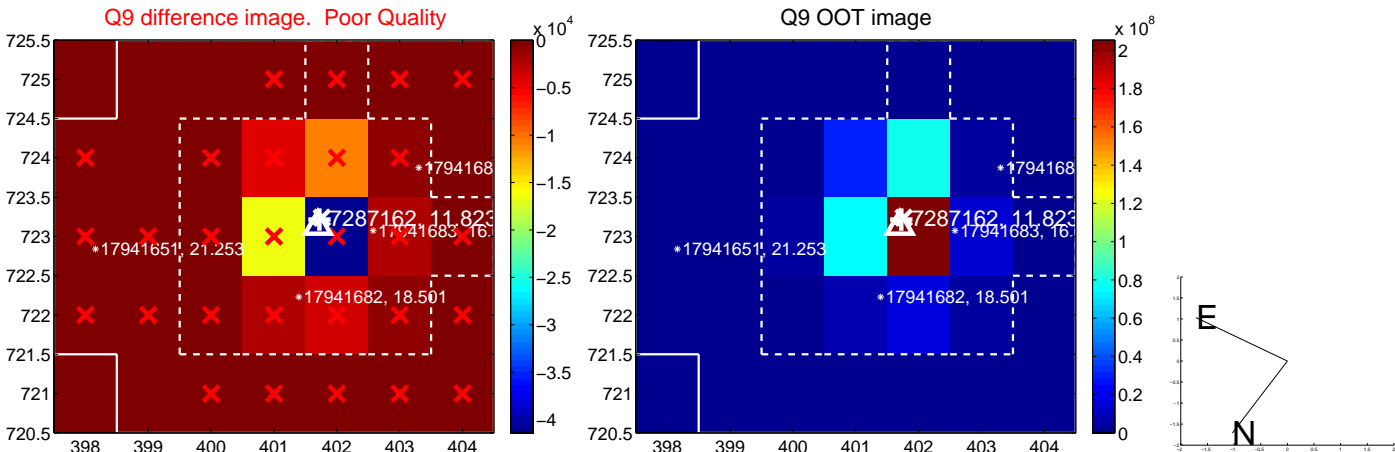


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

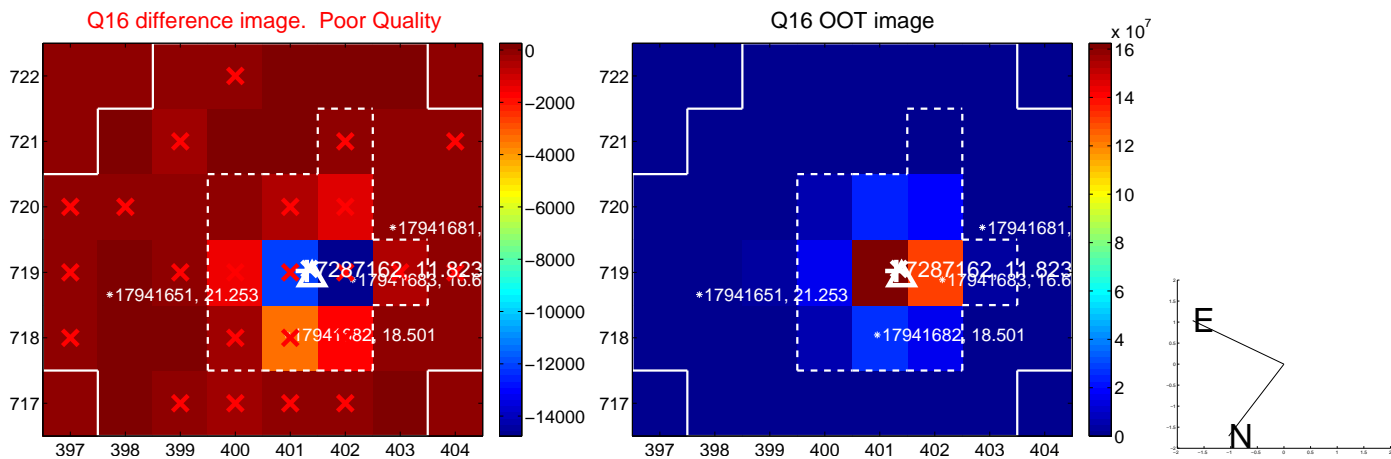
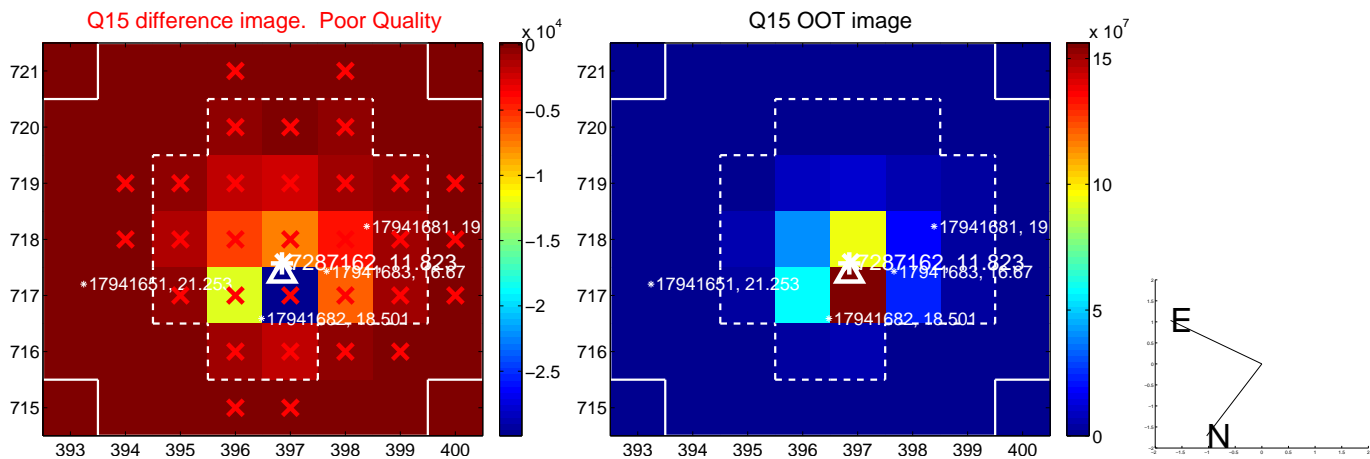
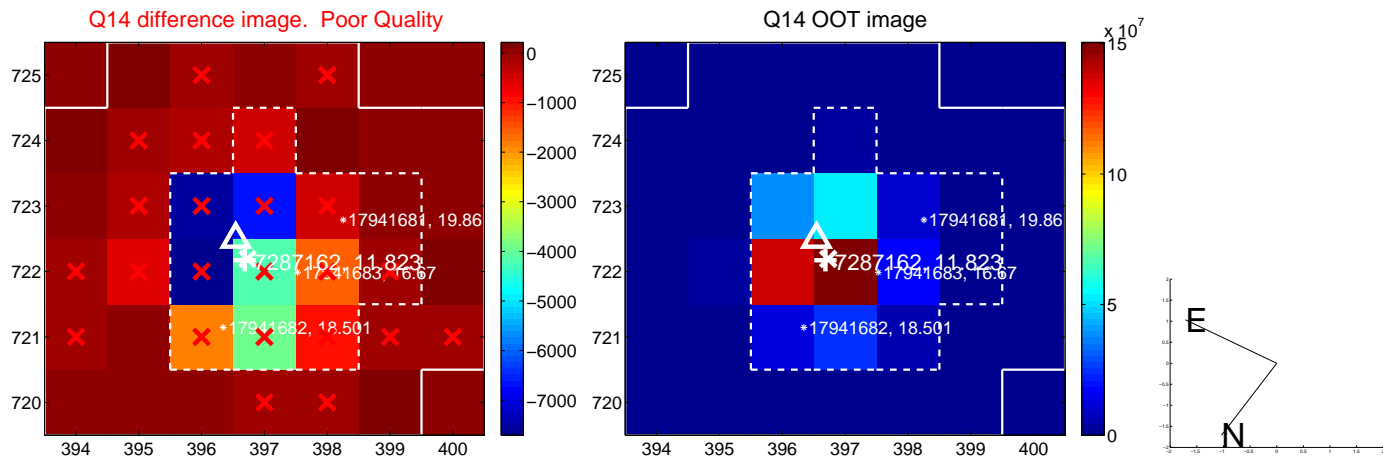
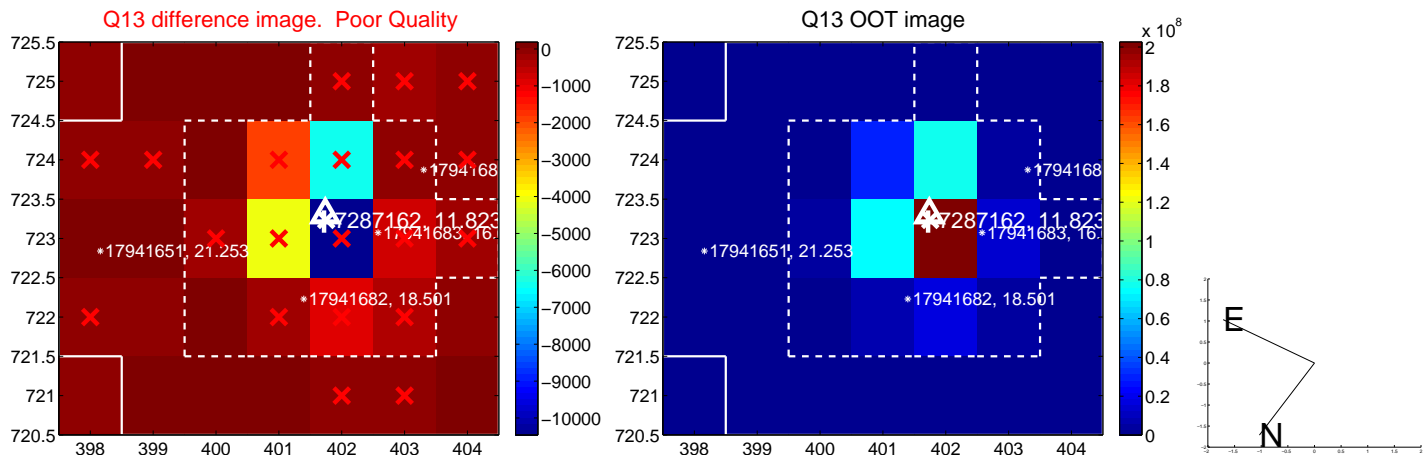
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



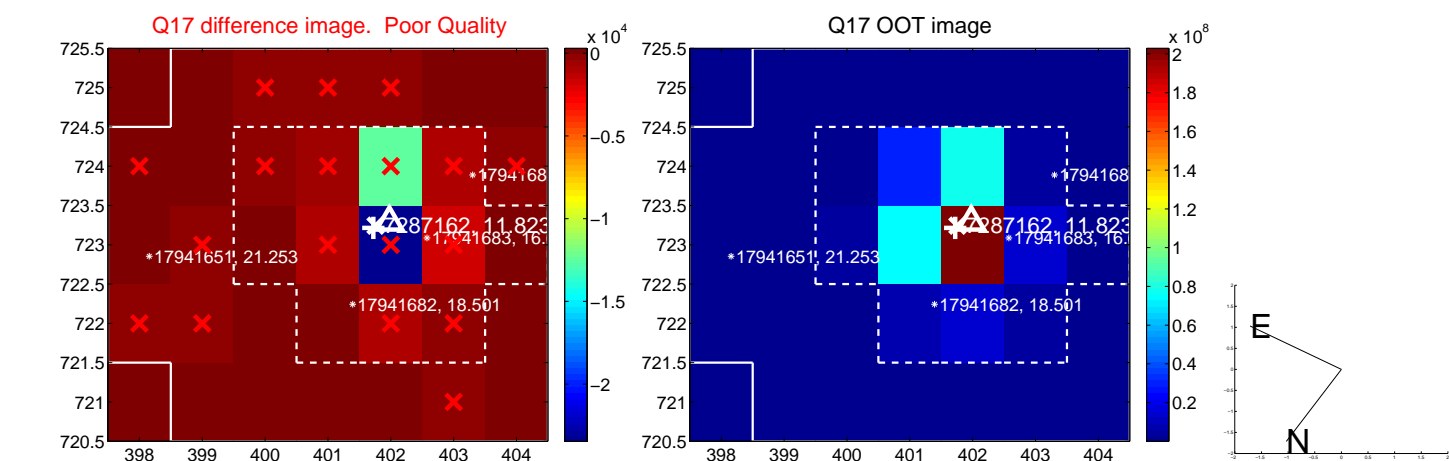
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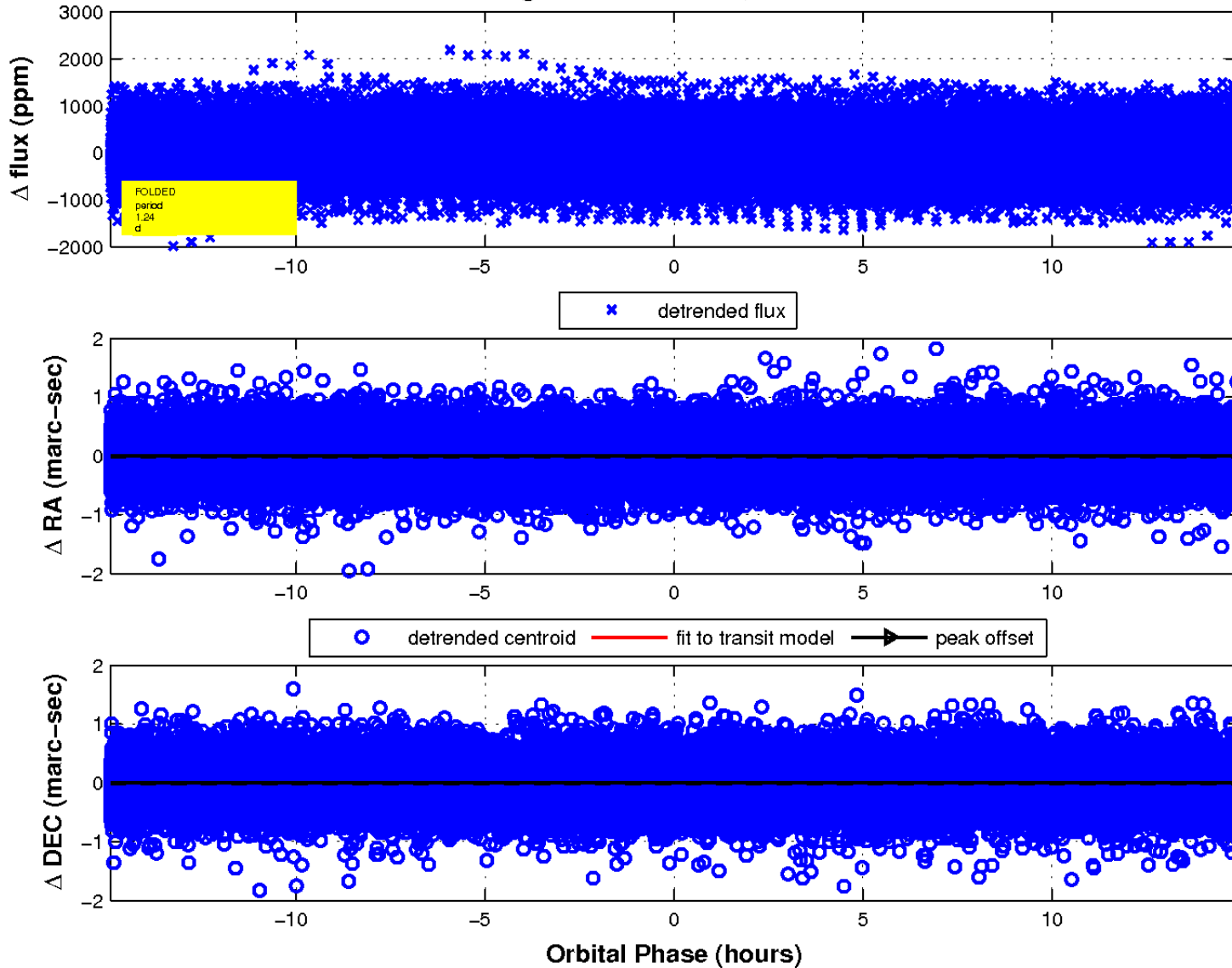
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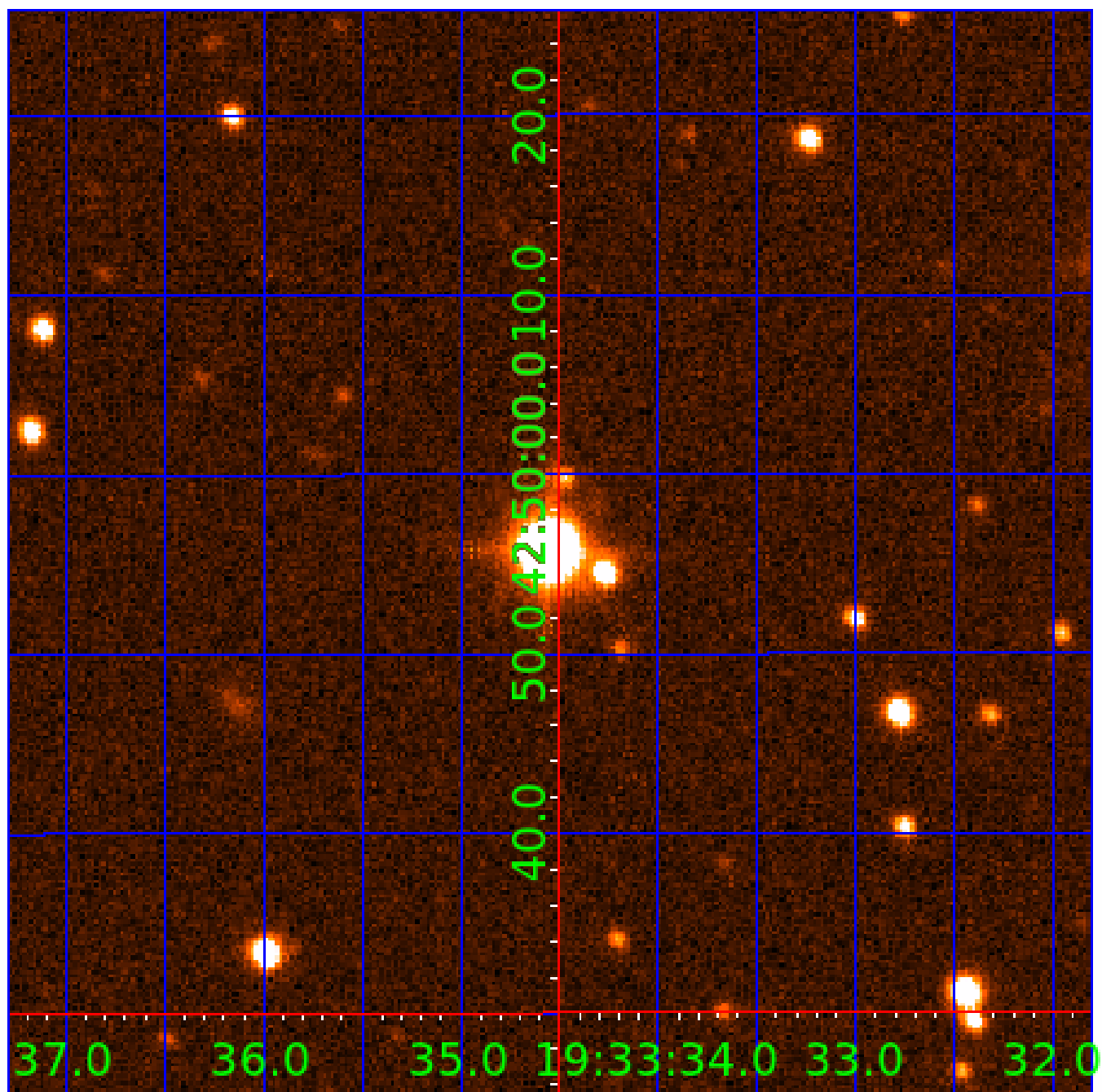


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
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| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

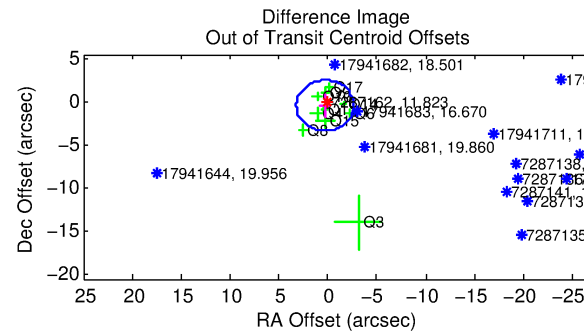
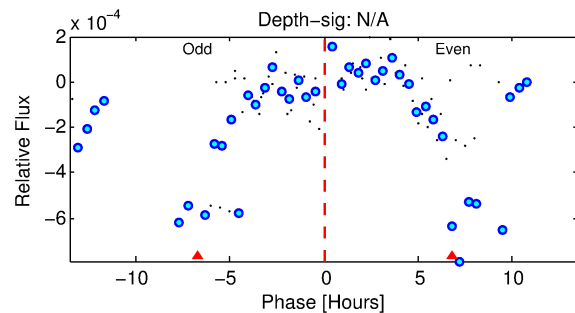
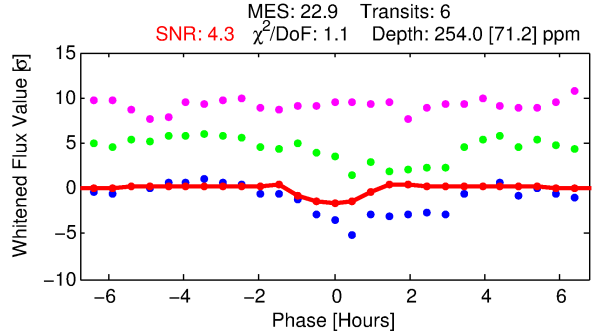
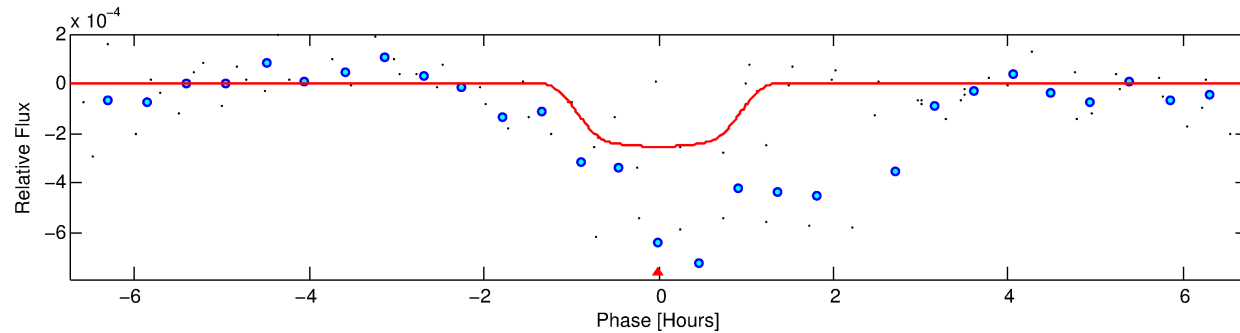
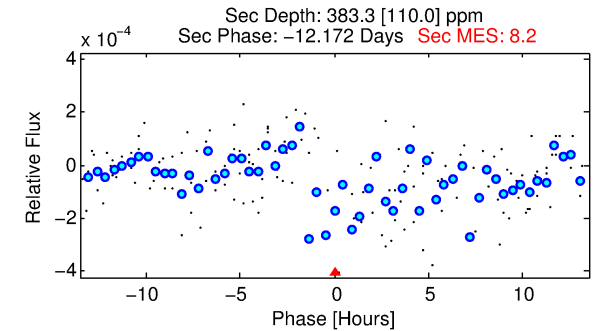
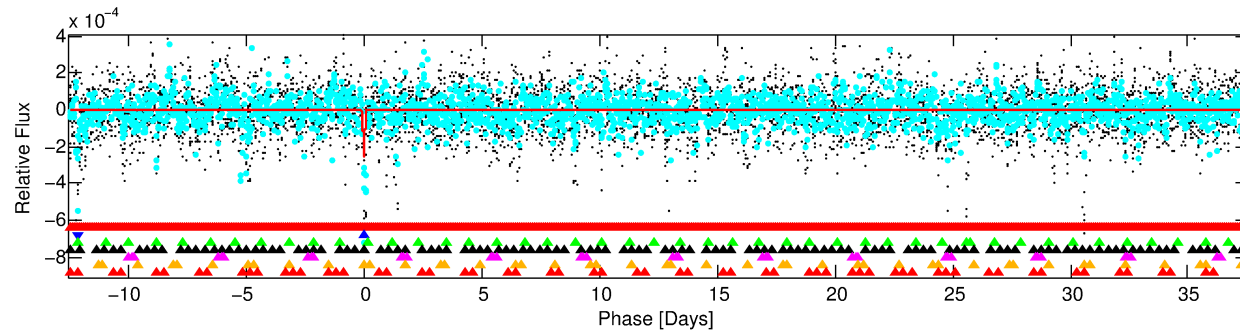
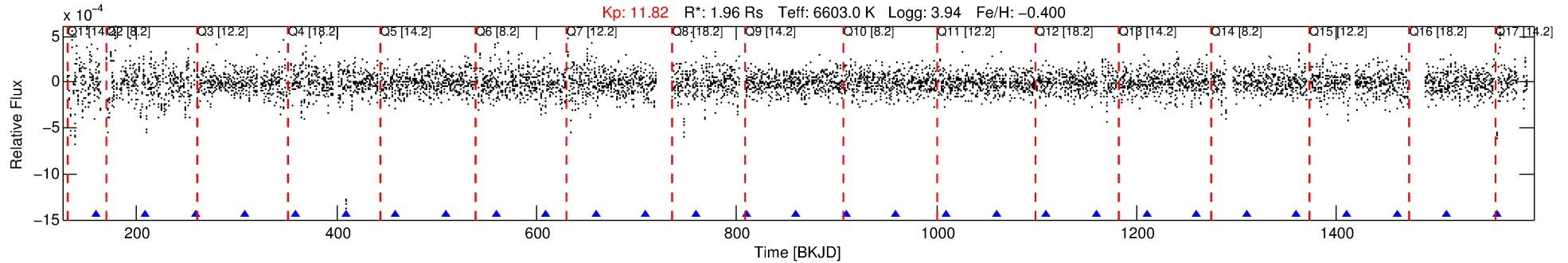
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-02

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 2 of 7 Period: 50.059 d



DV Fit Results:

Period = 50.05883 [0.00061] d
Epoch = 158.7940 [0.0108] BKJD
Rp/R* = 0.0179 [0.0078]
a/R* = 64.06 [151.27]
b = 0.95 [0.26]
Seff = 81.65 [39.23]
Teq = 767 [92] K
Rp = 3.83 [2.06] Re
a = 0.2836 [0.0835] AU
Ag = 1154.52 [1193.40] [0.97σ]
Teffp = 6908 [1604] K [3.82σ]

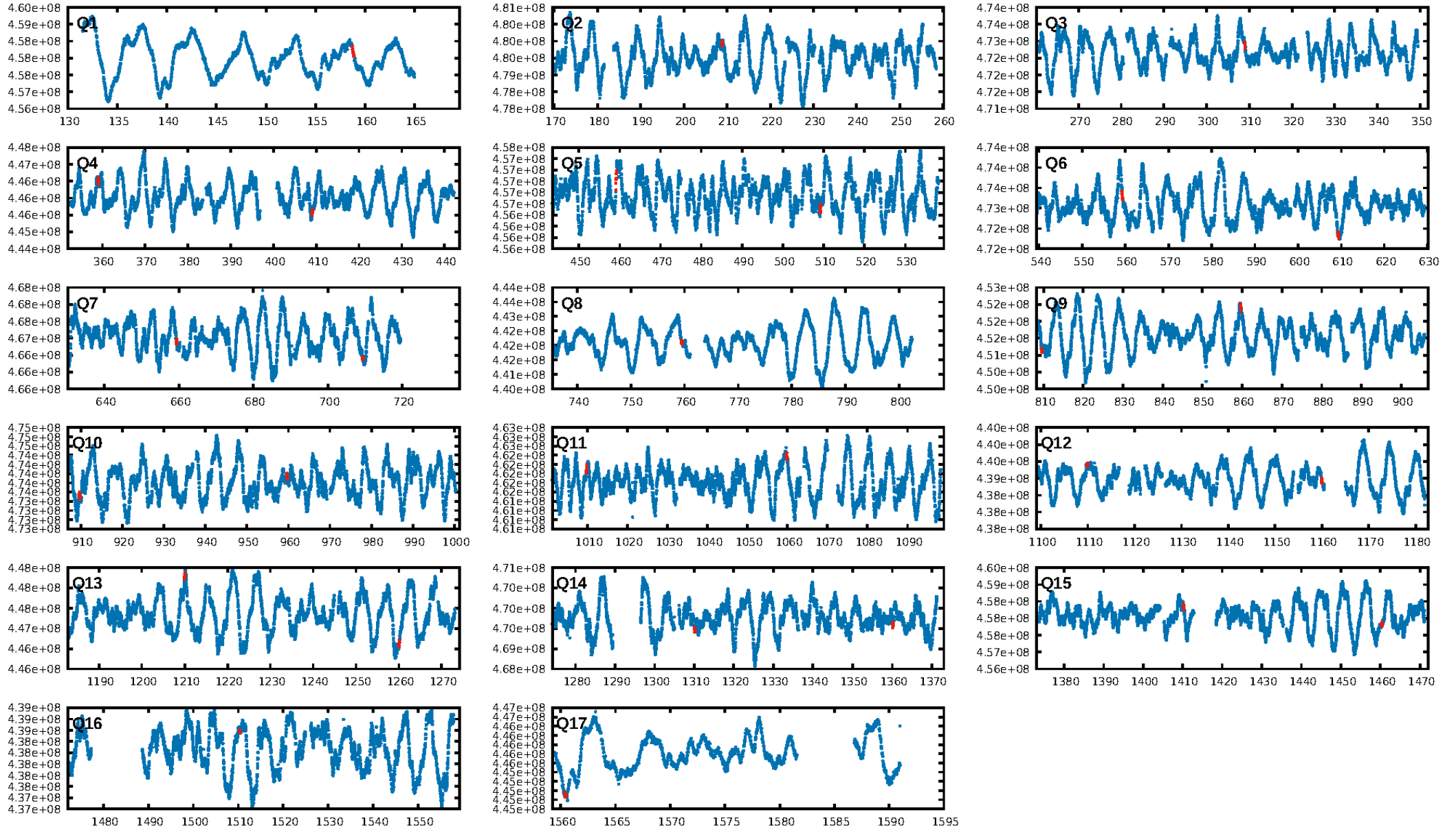
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [82.95σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 83.6%
Bootstrap-pfa: 4.82e-68
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.8909
Centroid-sig: 26.4%
Centroid-so: 0.411 arcsec [1.29σ]
OotOffset-rm: 0.514 arcsec [0.53σ]
KicOffset-rm: 0.442 arcsec [0.72σ]
OotOffset-st: 3/3/2/2 [10]
KicOffset-st: 3/3/2/2 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.29 [5/17]

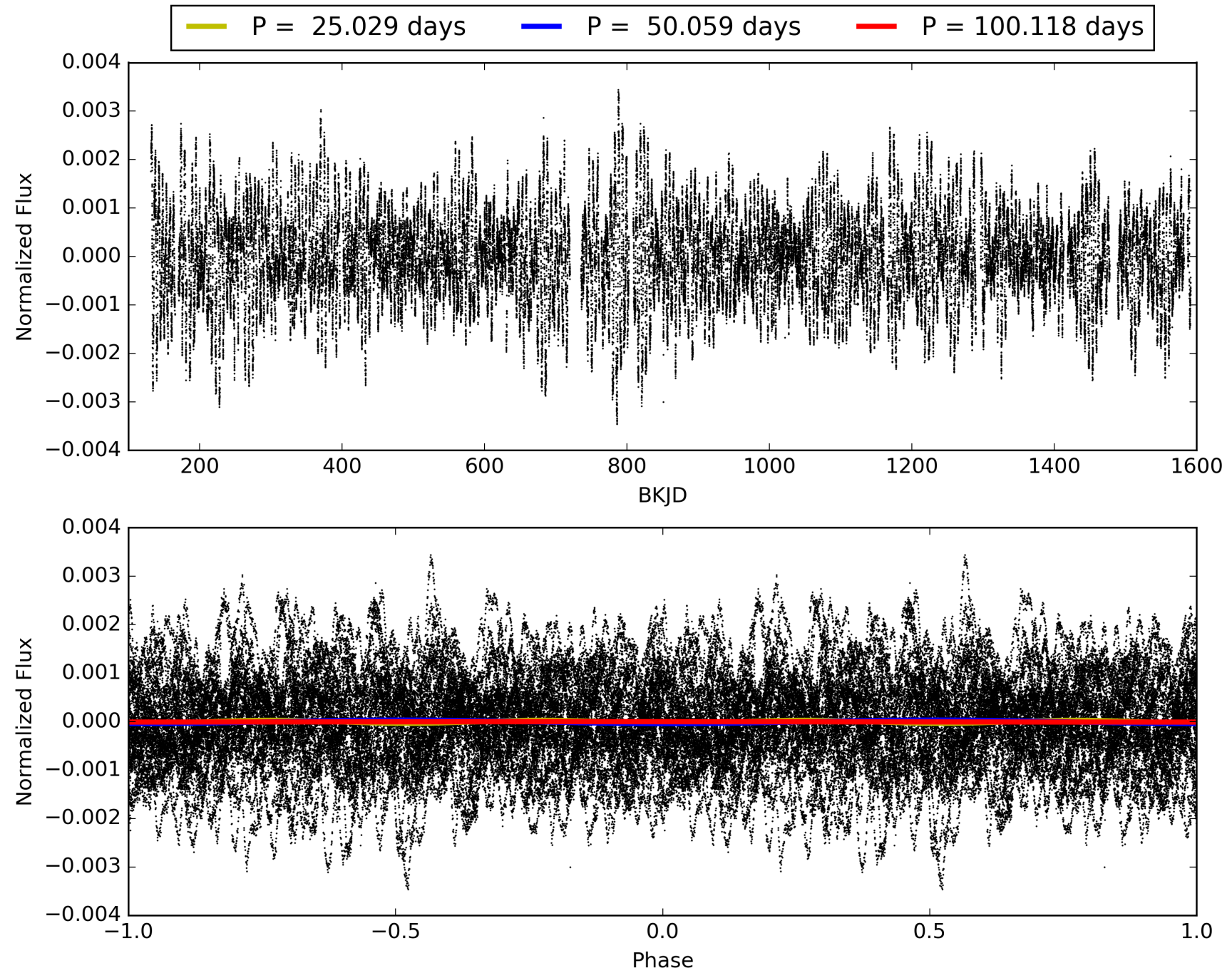
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:12:01 Z

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

TCE 007287162-02, PDC Light Curves

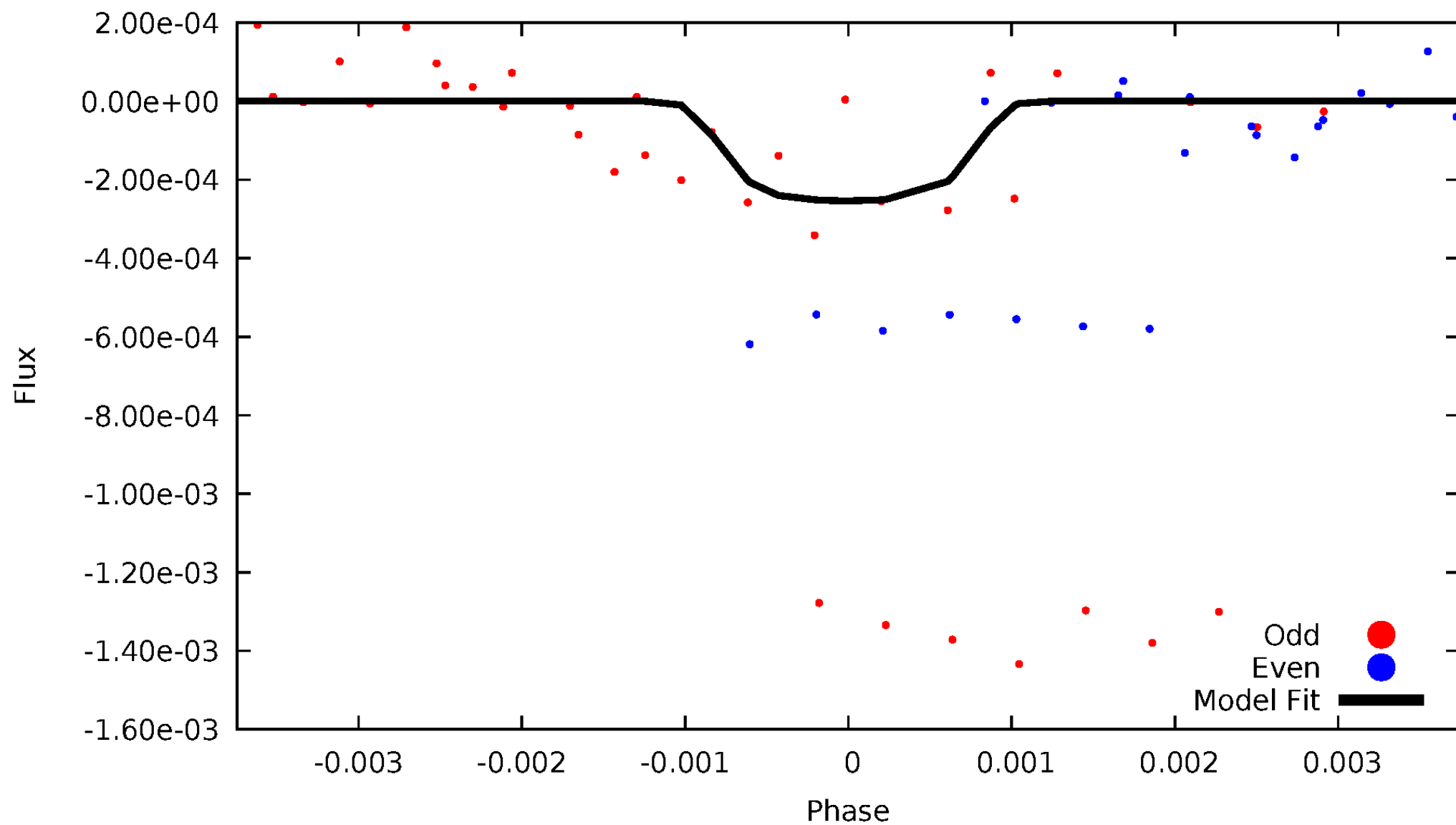


TCE 007287162-02



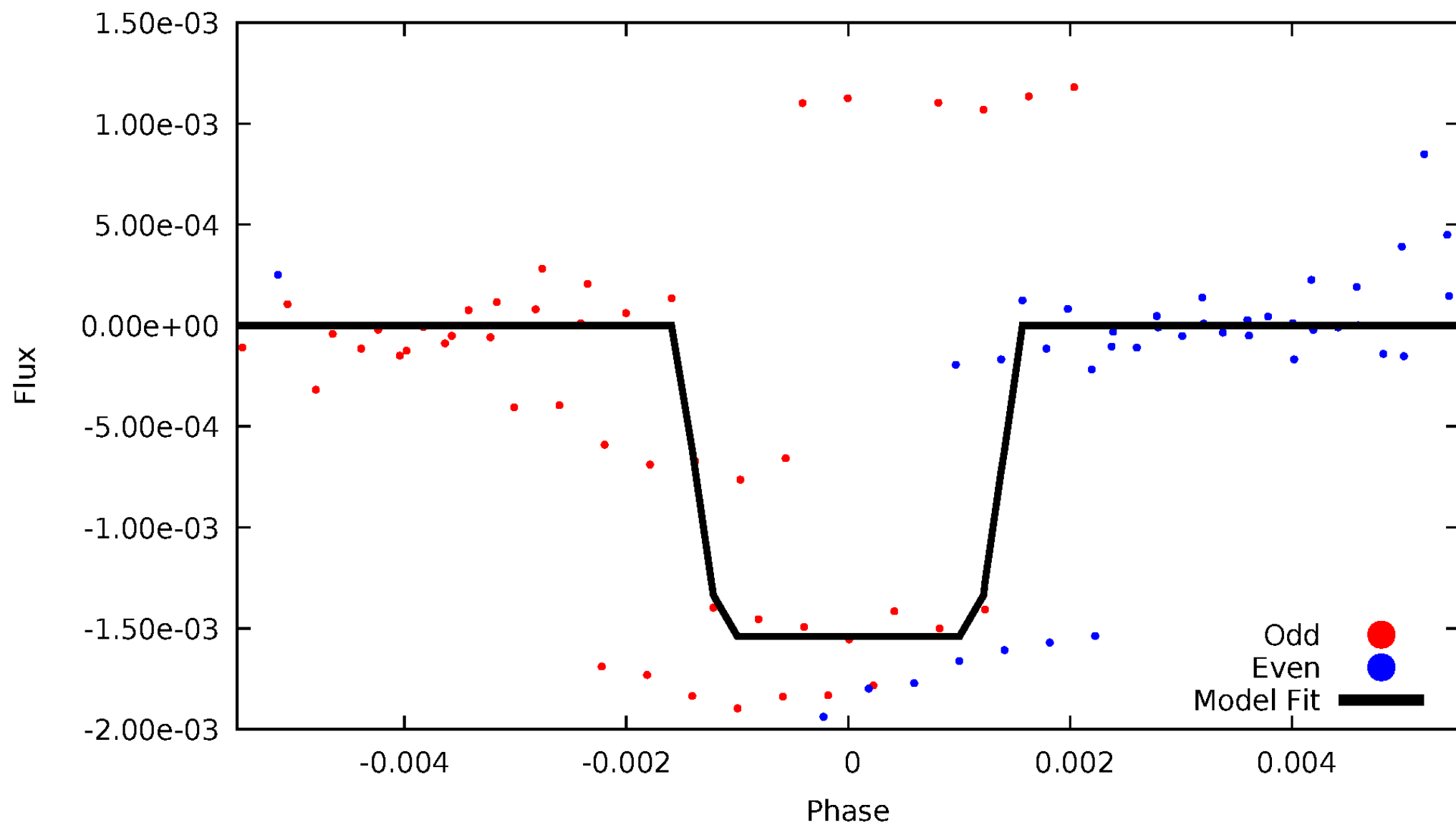
DV Odd/Even

TCE 007287162-02



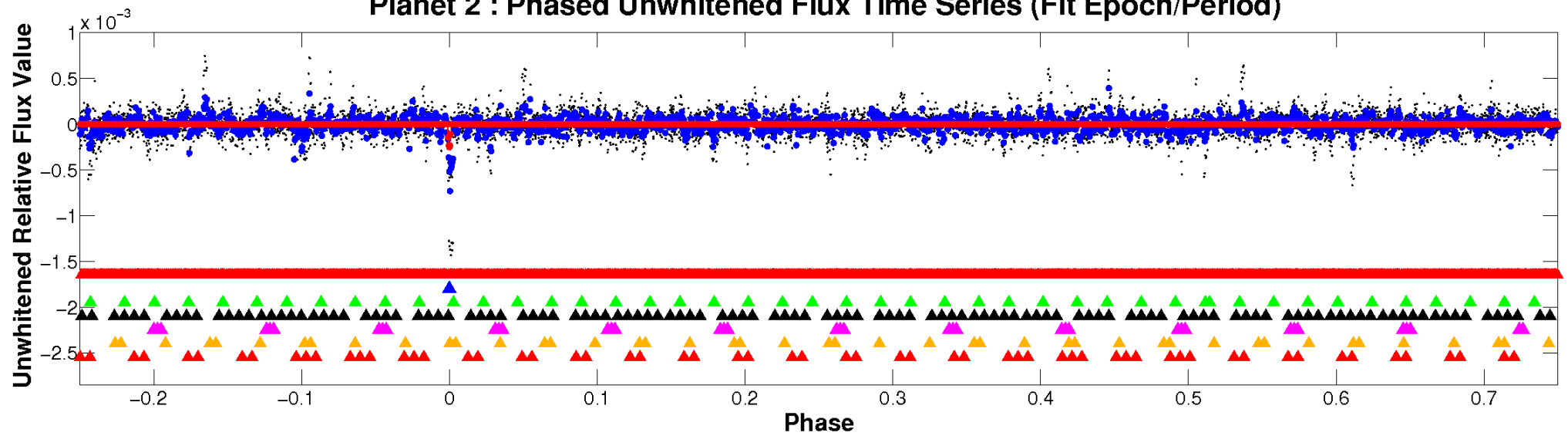
ALT Odd/Even

TCE 007287162-02

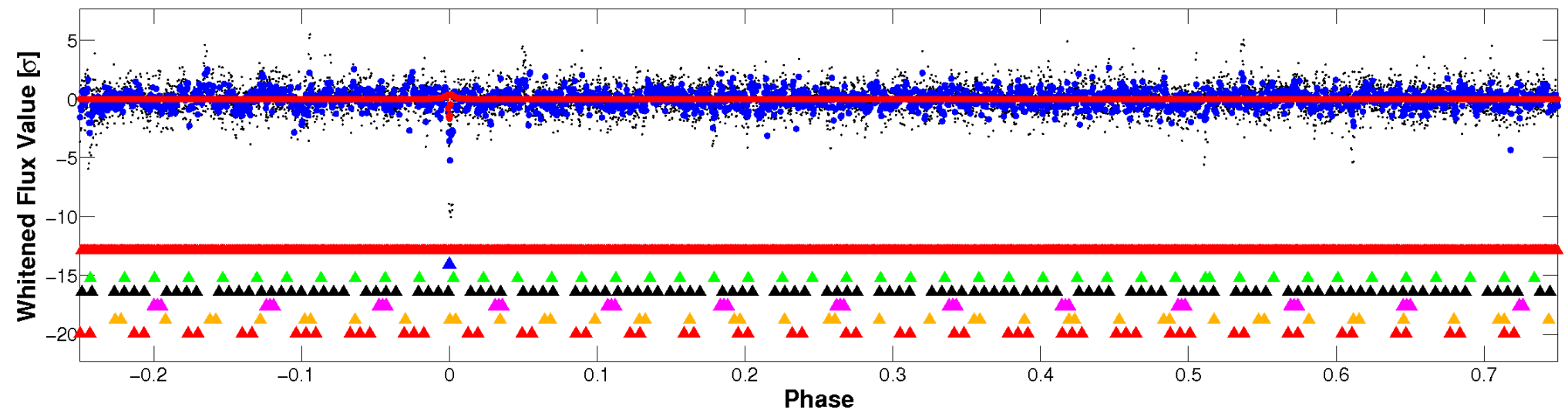


Non-Whitened Vs. Whitened Light Curve

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

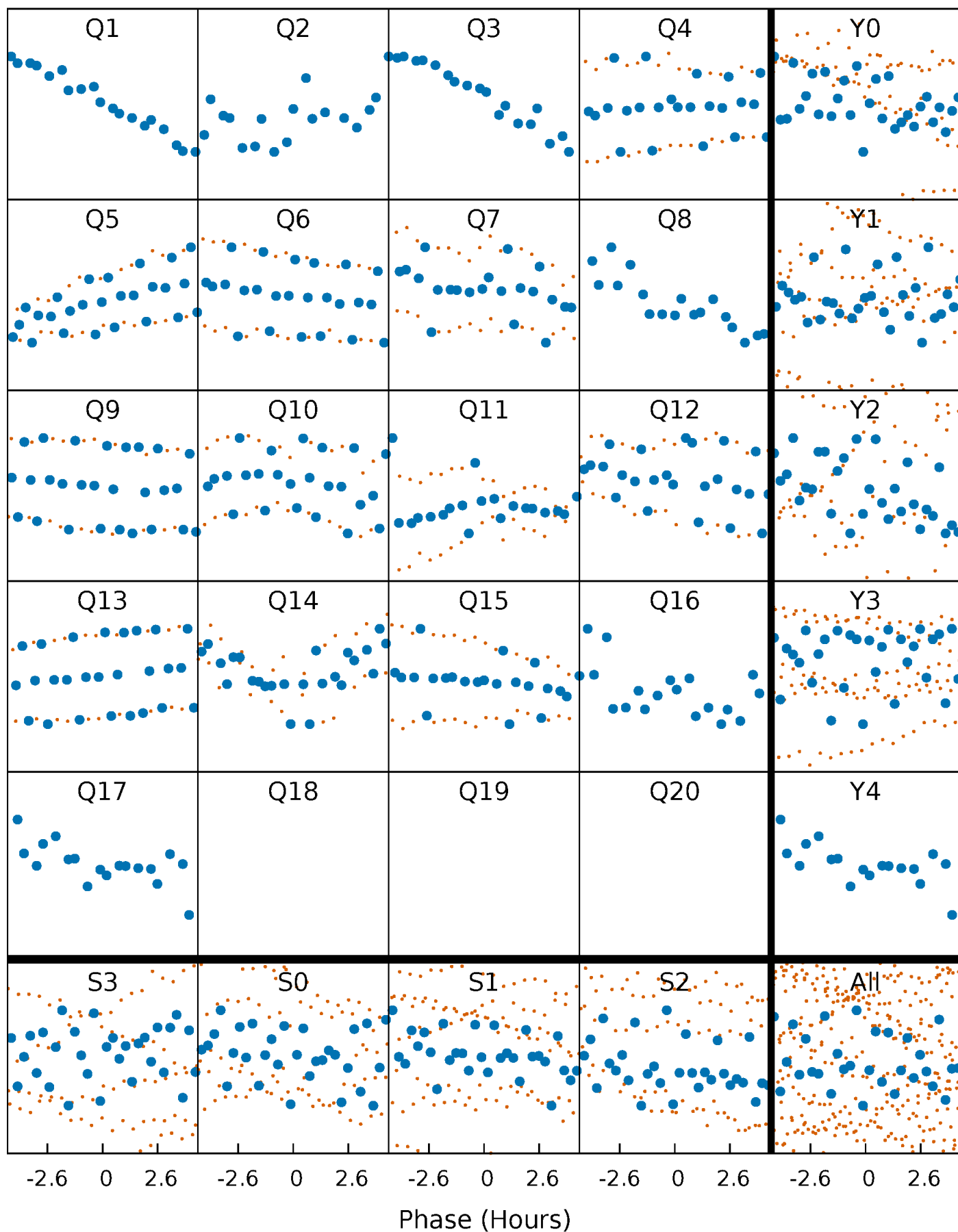


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



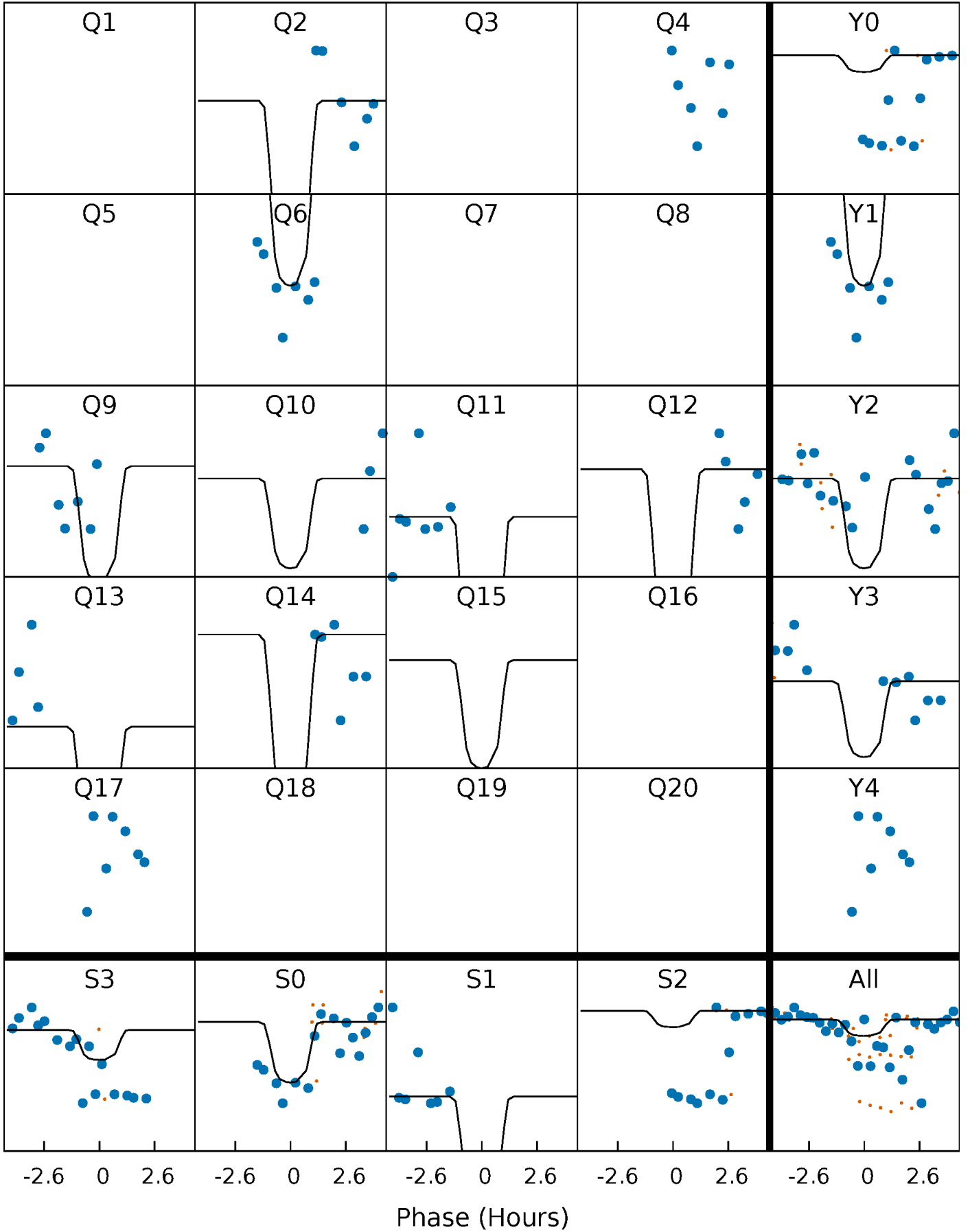
PDC Quarter-Phased Transit Curves

TCE 007287162-02 P= 50.058830 Days $T_0=158.793992$ (BKJD)



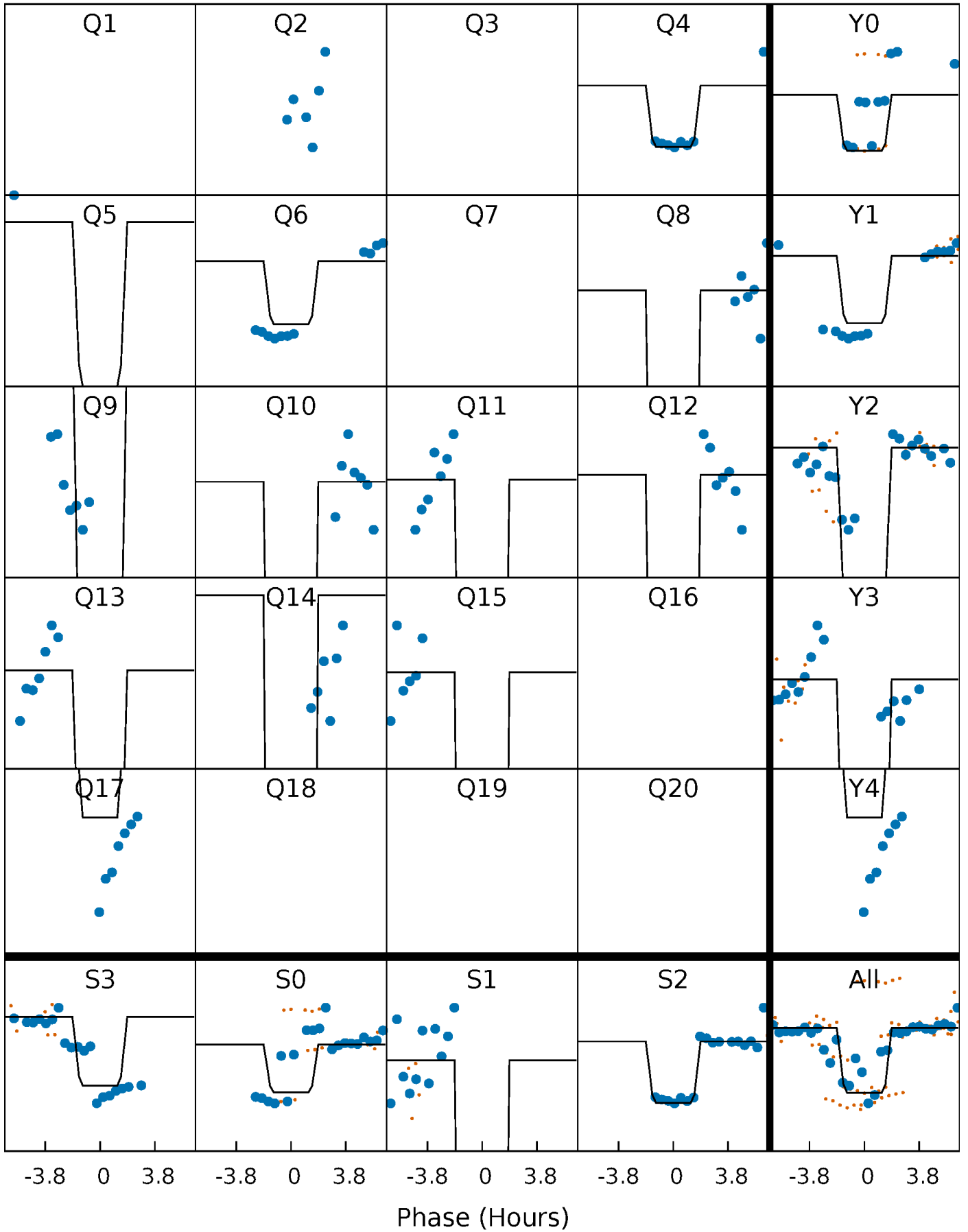
DV Quarter-Phased Transit Curves

TCE 007287162-02 P= 50.058830 Days $T_0=158.793992$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

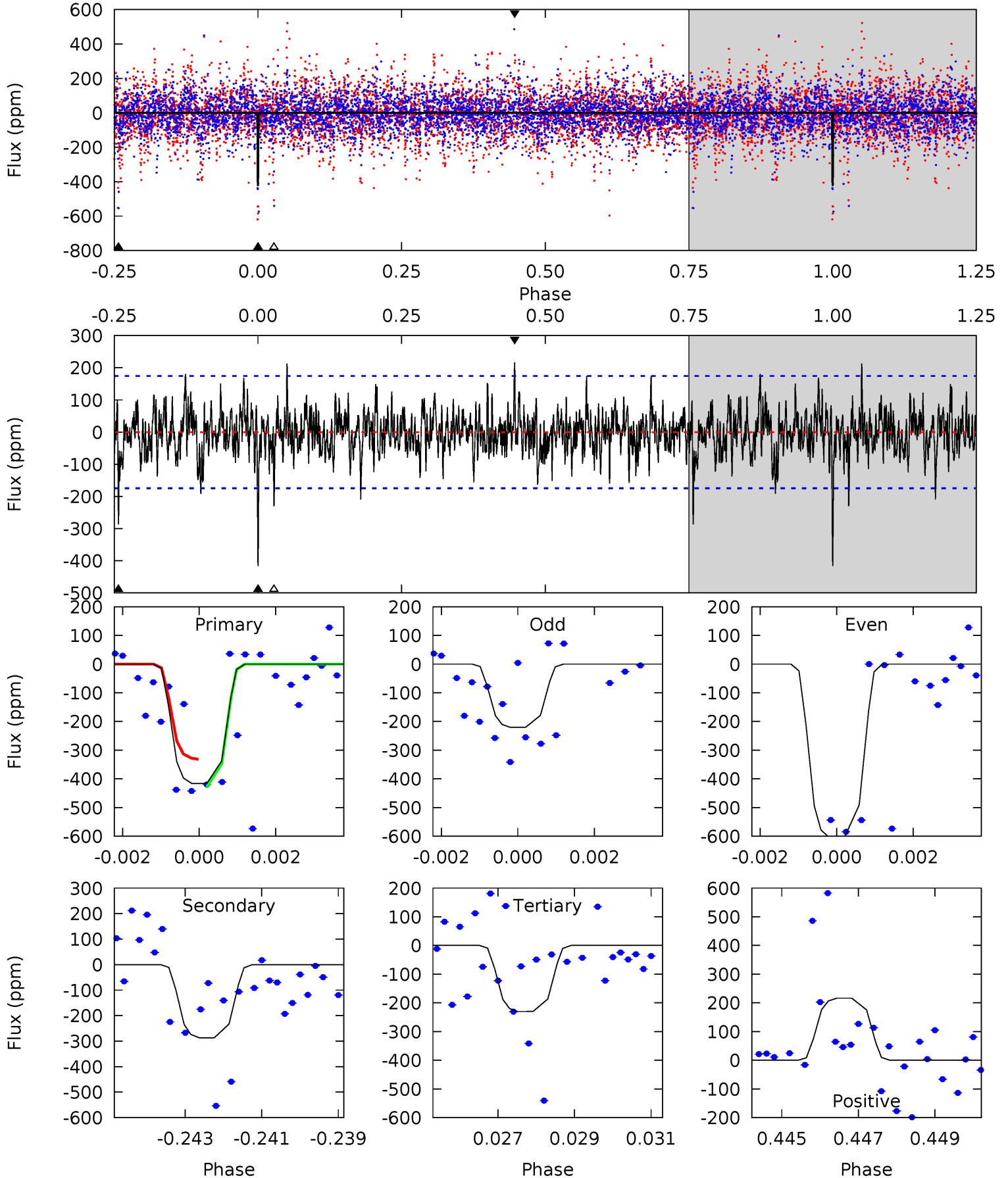
TCE 007287162-02 P= 50.055743 Days $T_0=158.861396$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-02, P = 50.058830 Days, E = 108.735162 Days

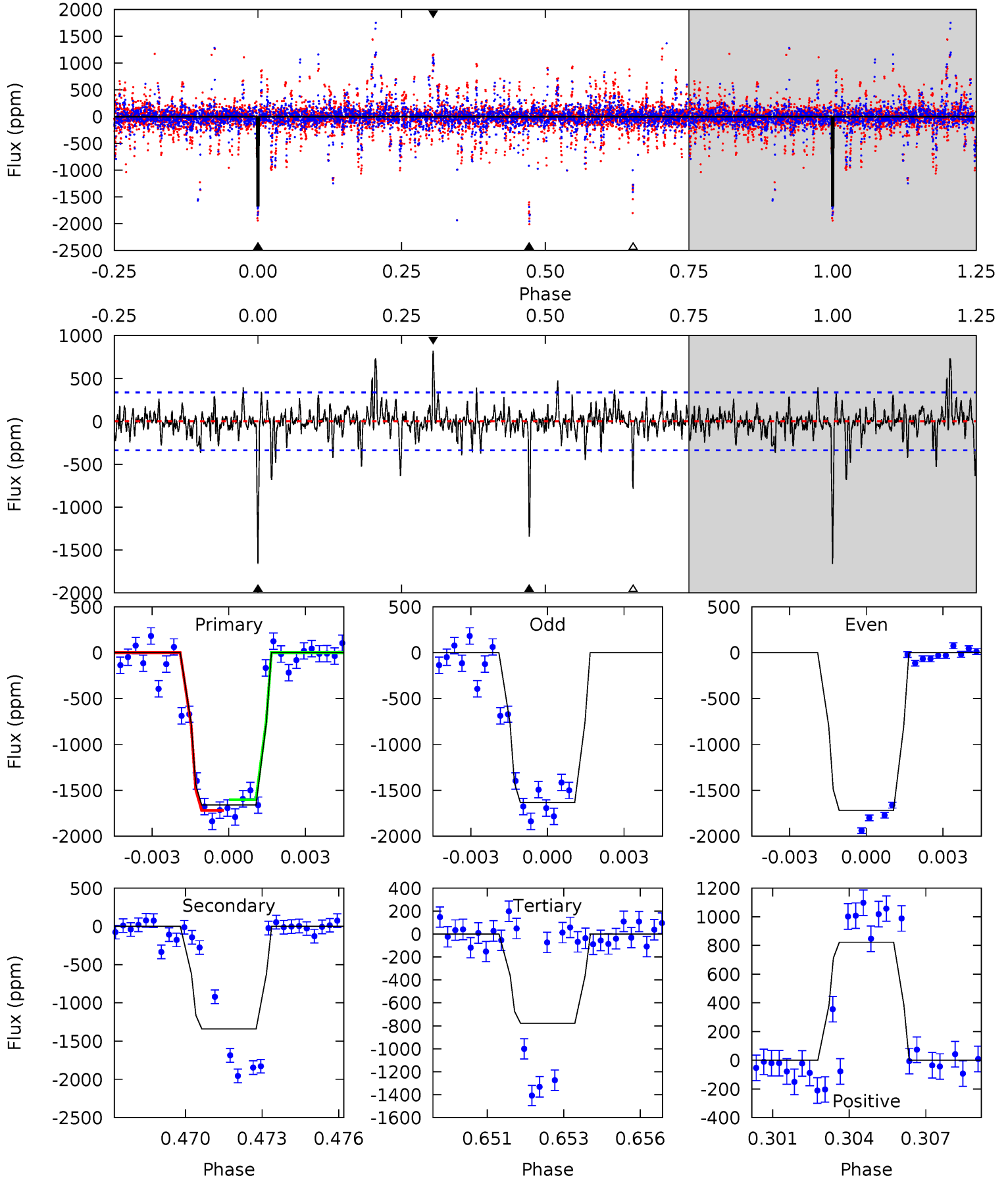
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.7 | 8.74 | 7.01 | 6.60 | 5.32 | 3.08 | 1.69 | 5.67 | 6.08 | 1.73 | 2.14 | 5.98 | 1.29 | 0.34 | 1.54 |



Alt Model-Shift Uniqueness Test

007287162-02, P = 50.055743 Days, E = 108.805653 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 25.9 | 21.0 | 12.2 | 12.9 | 5.26 | 2.99 | 2.10 | 13.8 | 13.1 | 8.80 | 8.10 | 0.47 | 0.75 | 0.33 | 0 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|------------------------|--------------------|------------------------|----------------------|
| DV | -287 ± 33 | $3.63^{+1.75}_{-1.58}$ | 1055^{+66}_{-83} | 6397^{+2398}_{-1004} | 983^{+1903}_{-544} |
| Alt. | -1340 ± 64 | $8.14^{+2.25}_{-2.06}$ | 1061^{+57}_{-88} | 6312^{+922}_{-564} | 904^{+697}_{-342} |

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 $A_{obs} \gg 1.0$

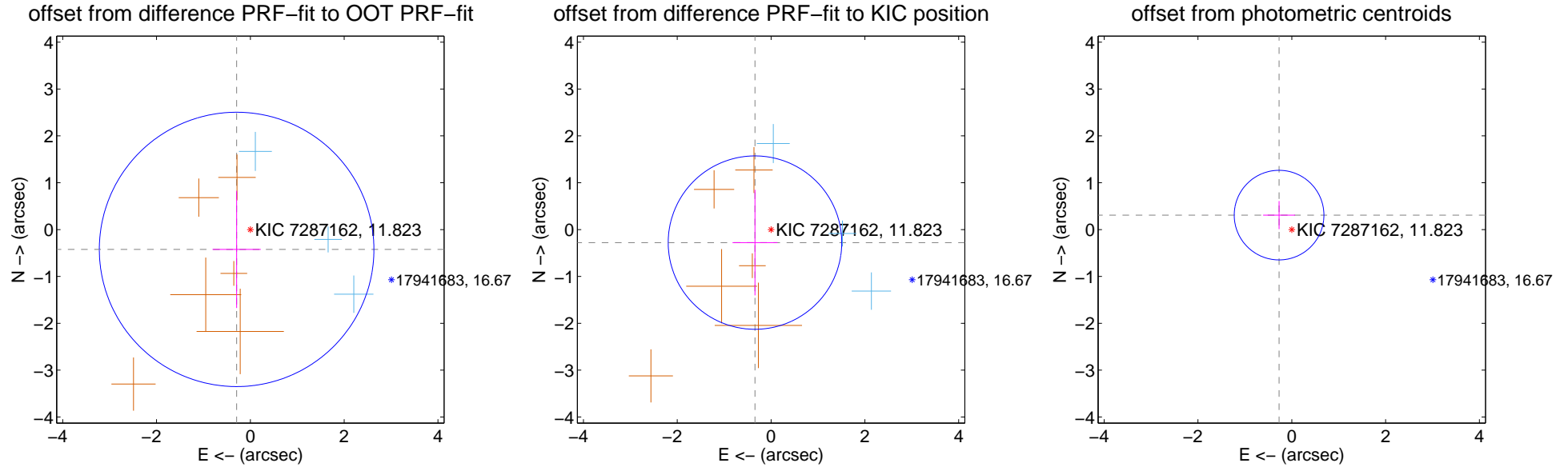
DV Centroid Data

Supplemental centroid analysis for 007287162-02. **Kepler magnitude: 11.82.** Transit SNR 4.28

There are 3 quarters with good PRF difference image offsets

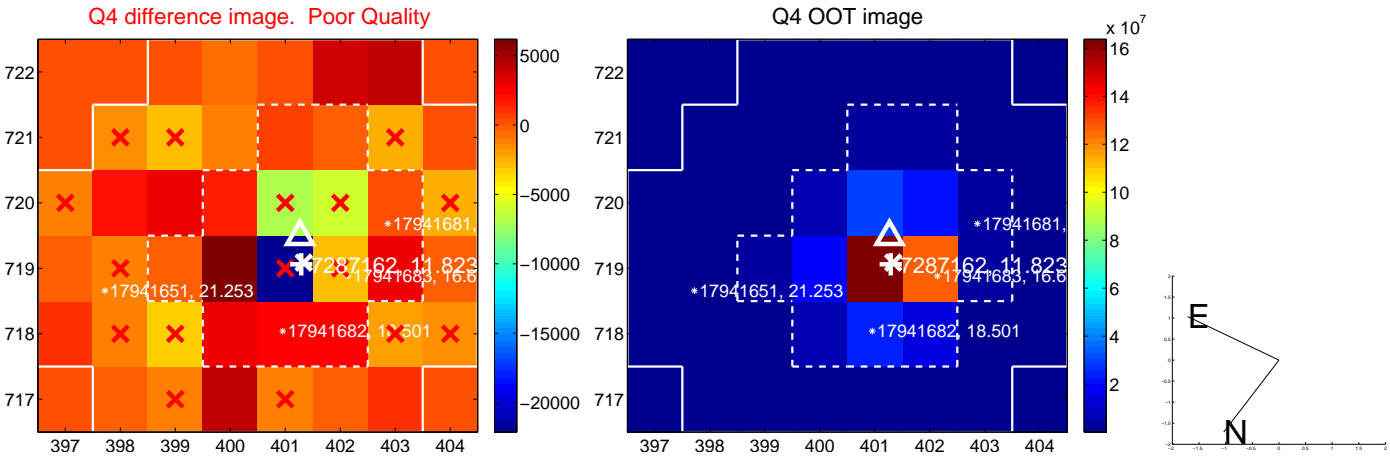
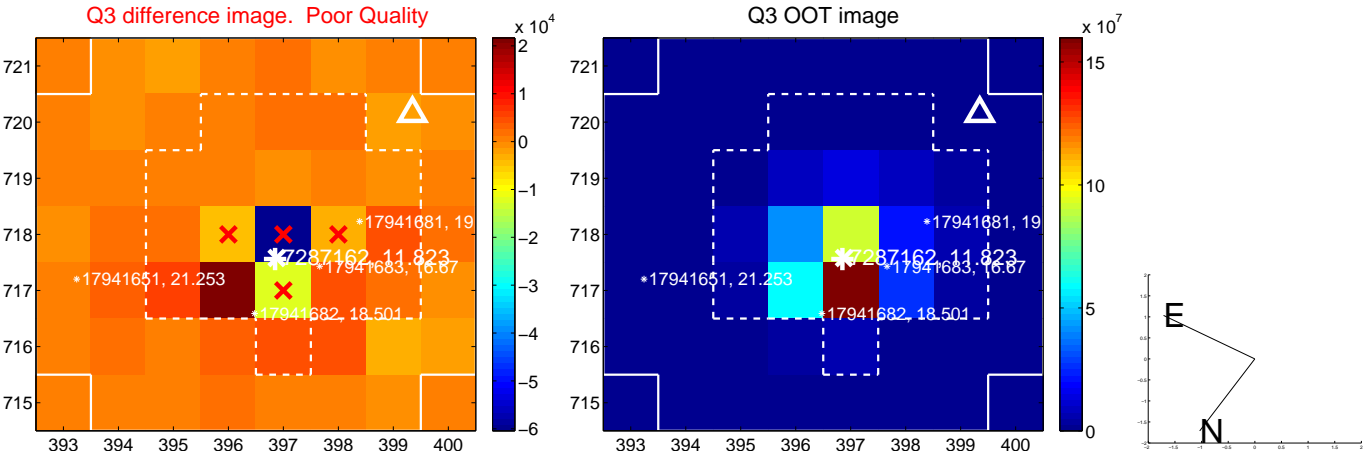
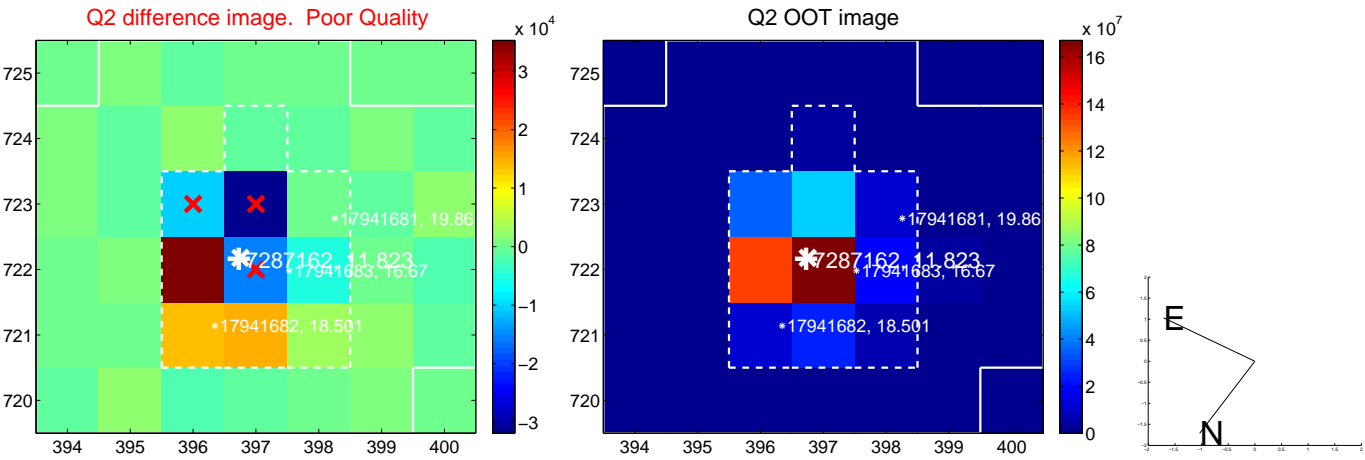
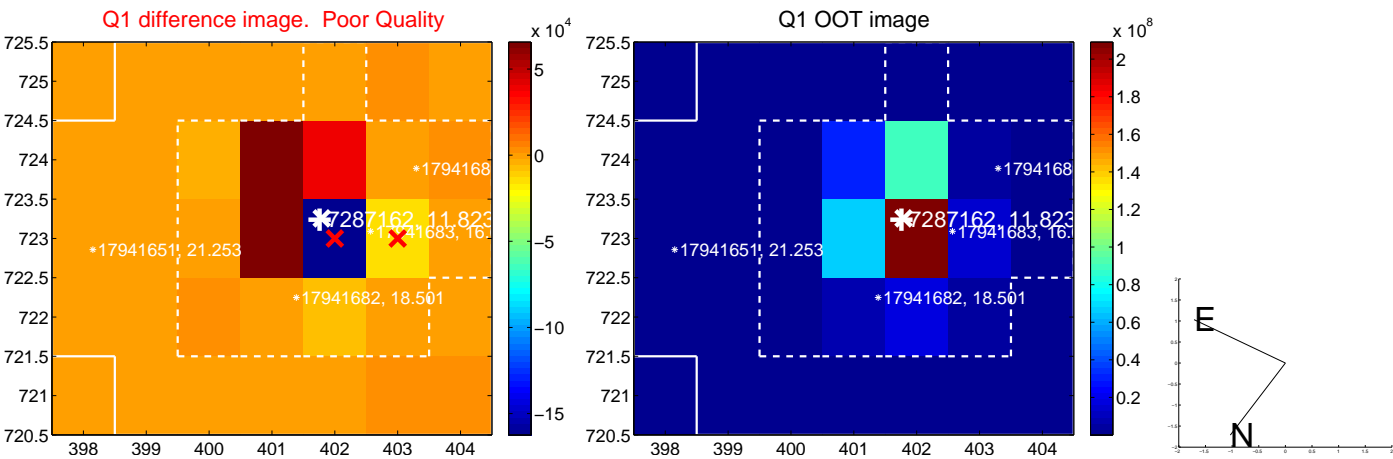
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.514 ± 0.976 | 0.53 | 0.293 ± 0.515 | -0.423 ± 1.250 |
| PRF-fit source offset from KIC position | 0.442 ± 0.617 | 0.72 | 0.343 ± 0.479 | -0.278 ± 1.127 |
| photometric centroid source offset | 0.41 ± 0.32 | 1.29 | 0.27 ± 0.34 | 0.31 ± 0.30 |

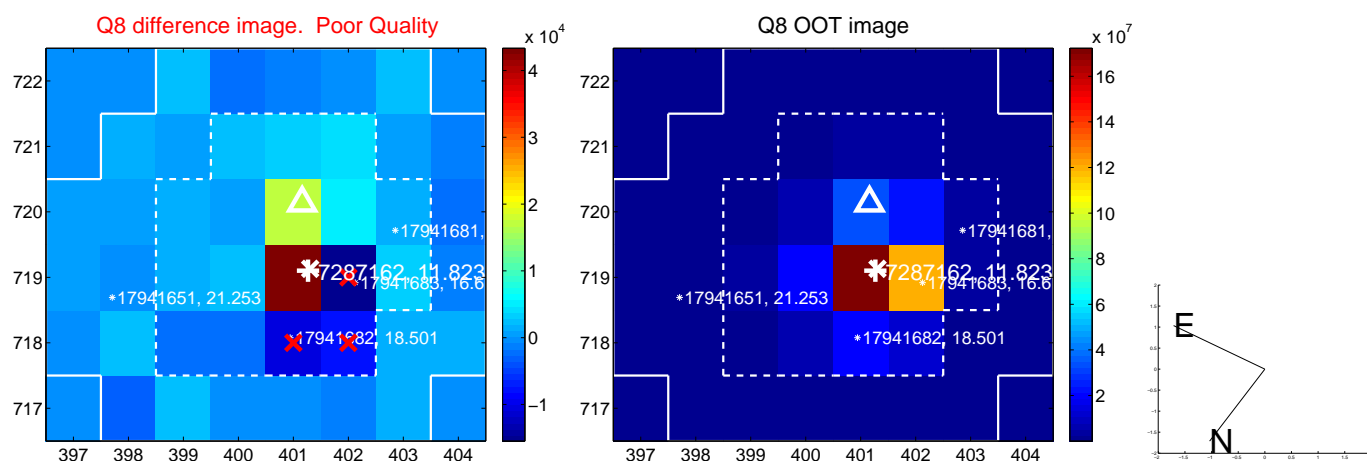
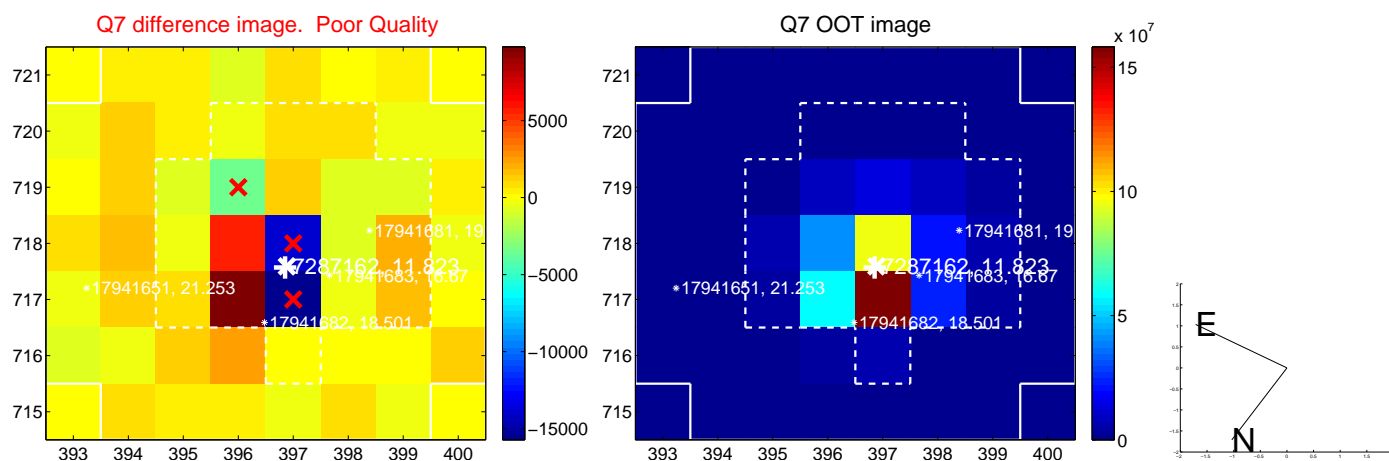
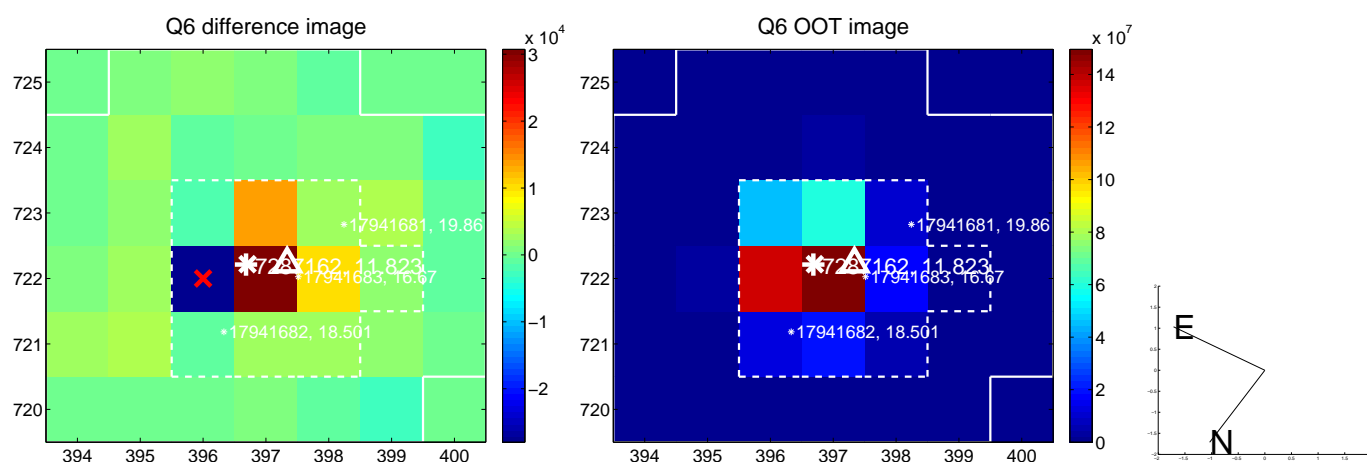
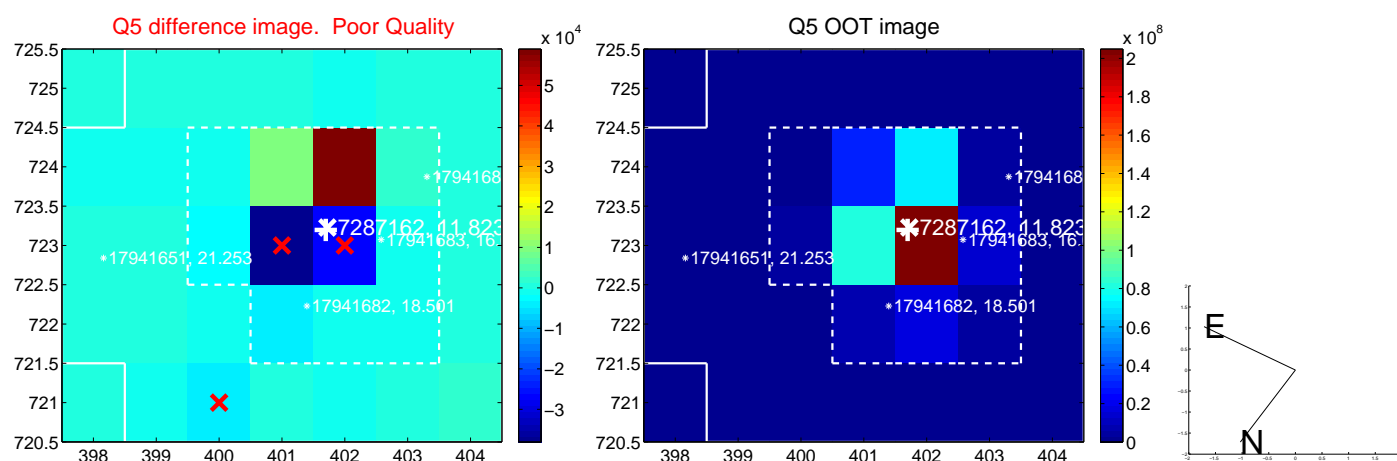


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

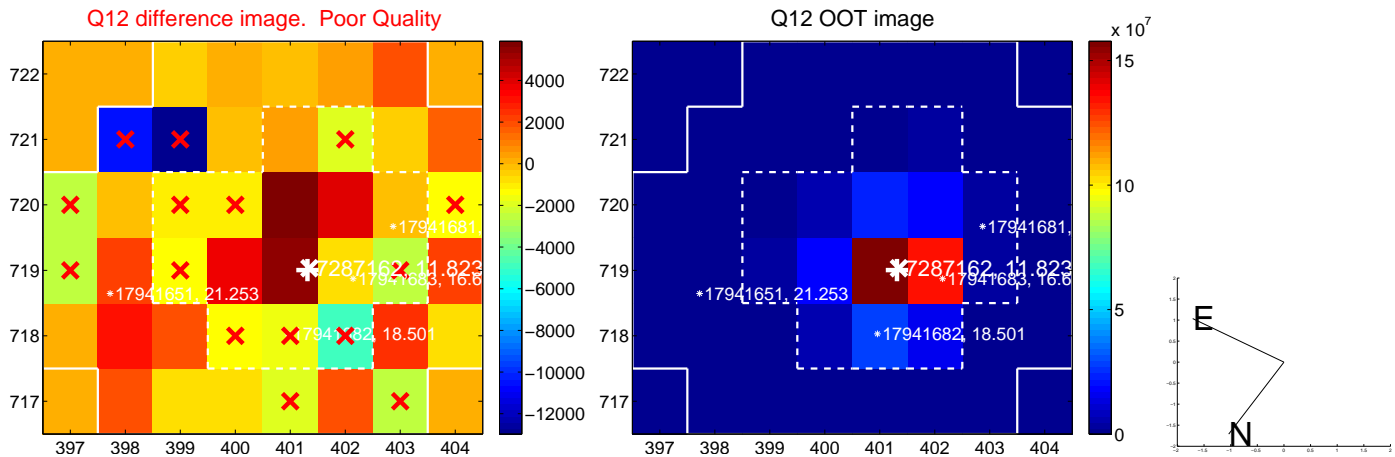
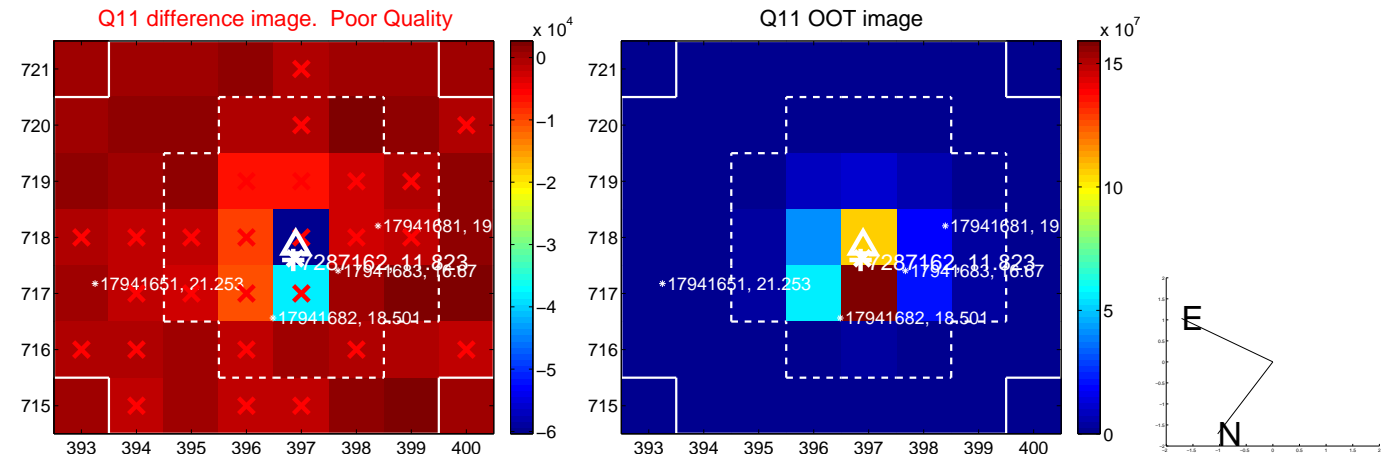
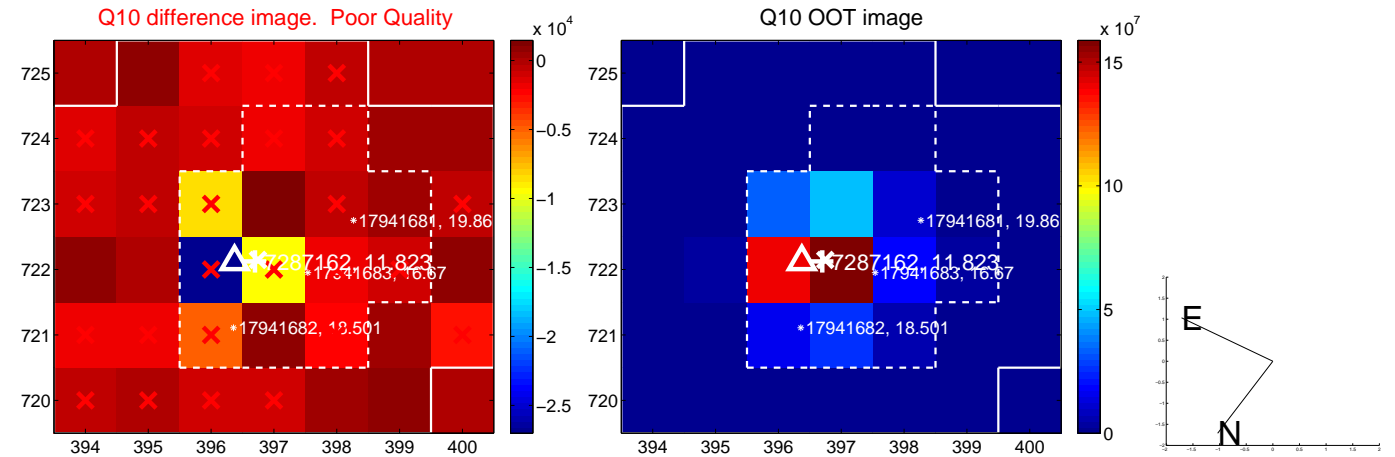
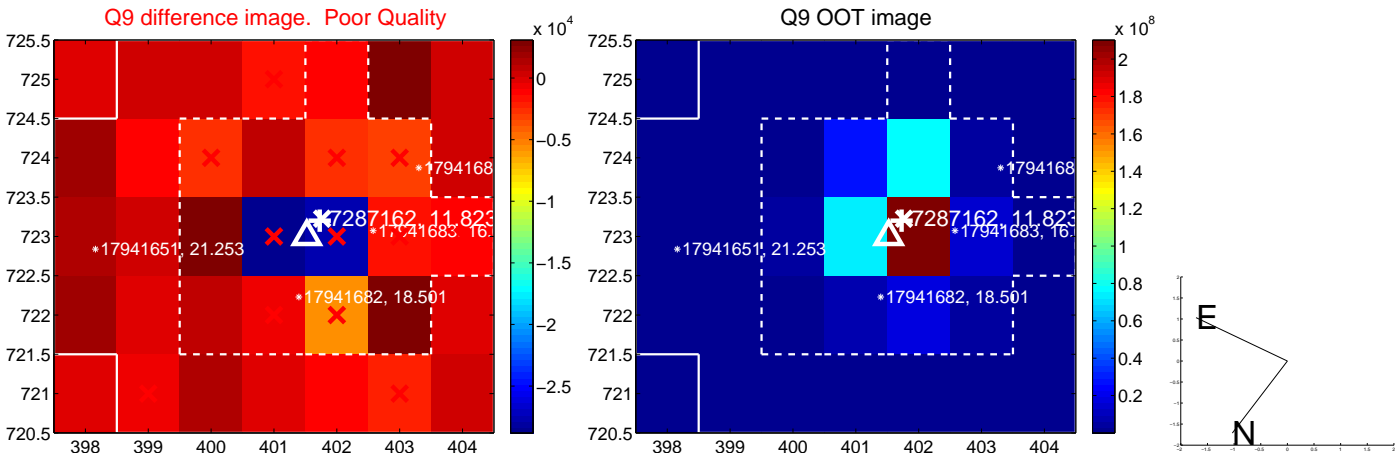
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



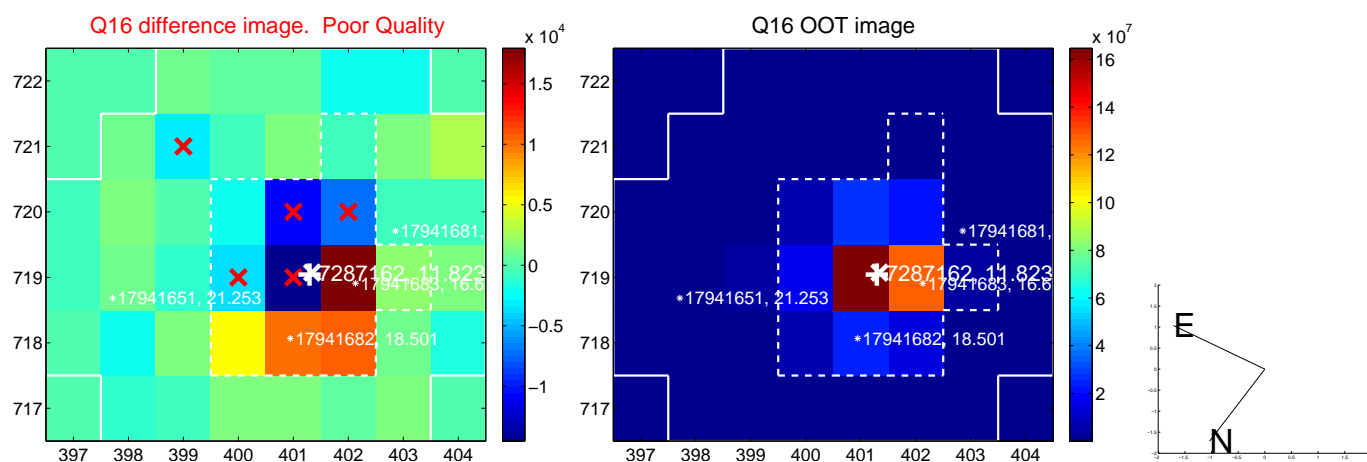
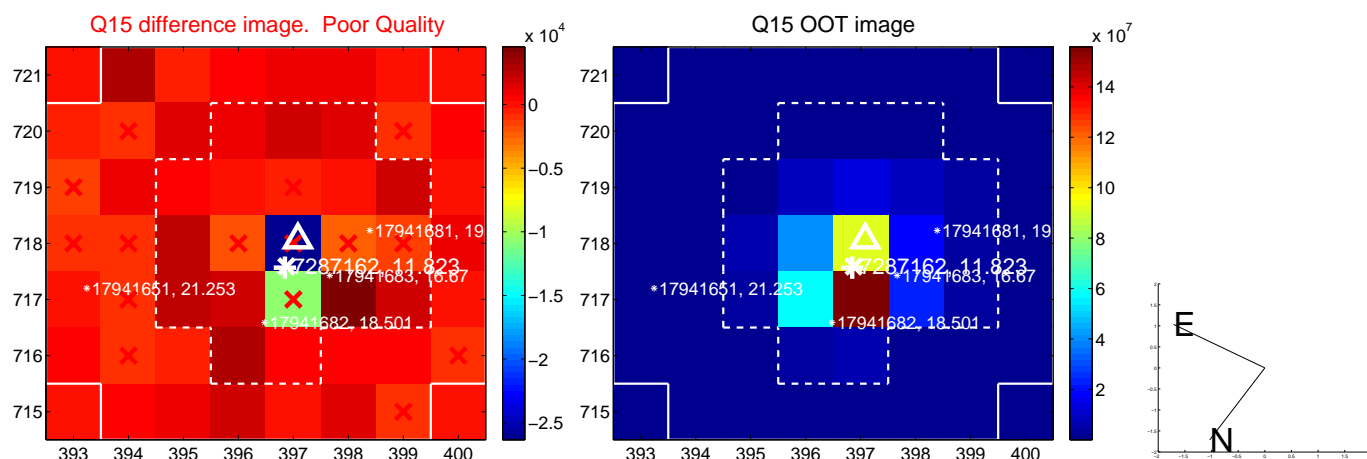
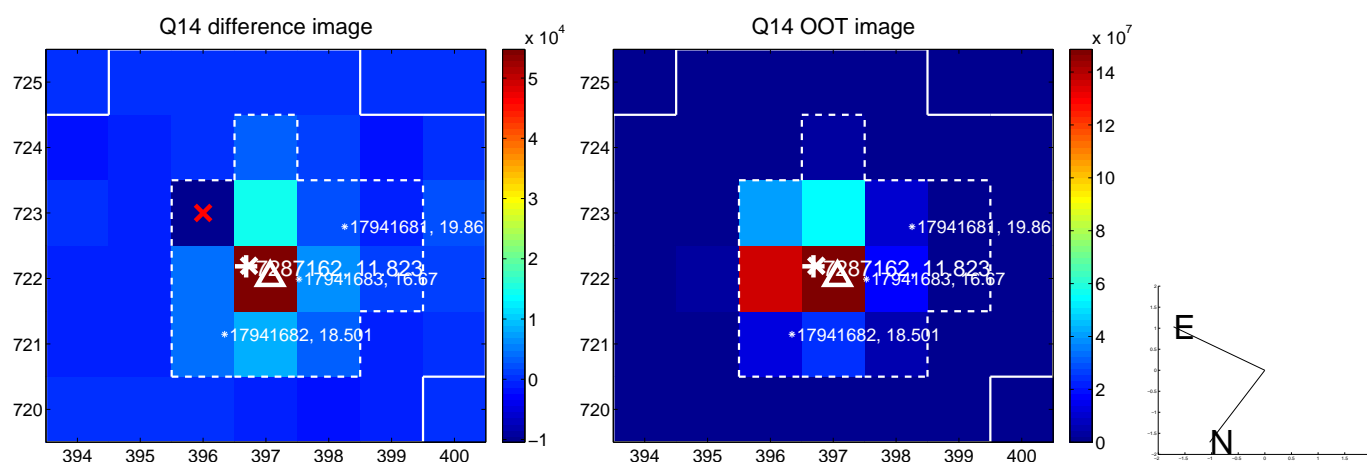
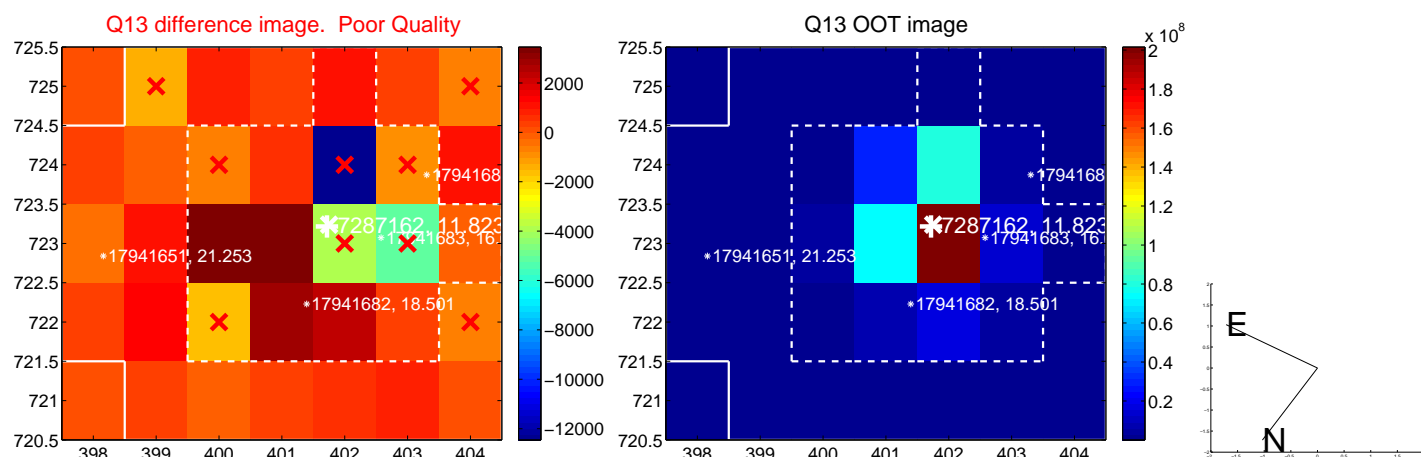
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



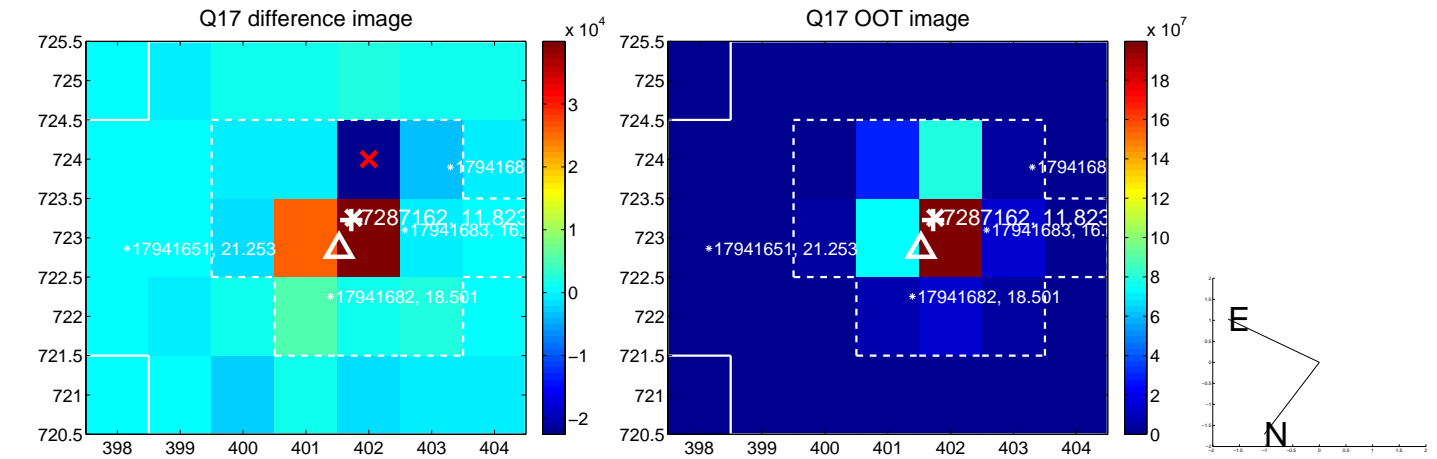
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



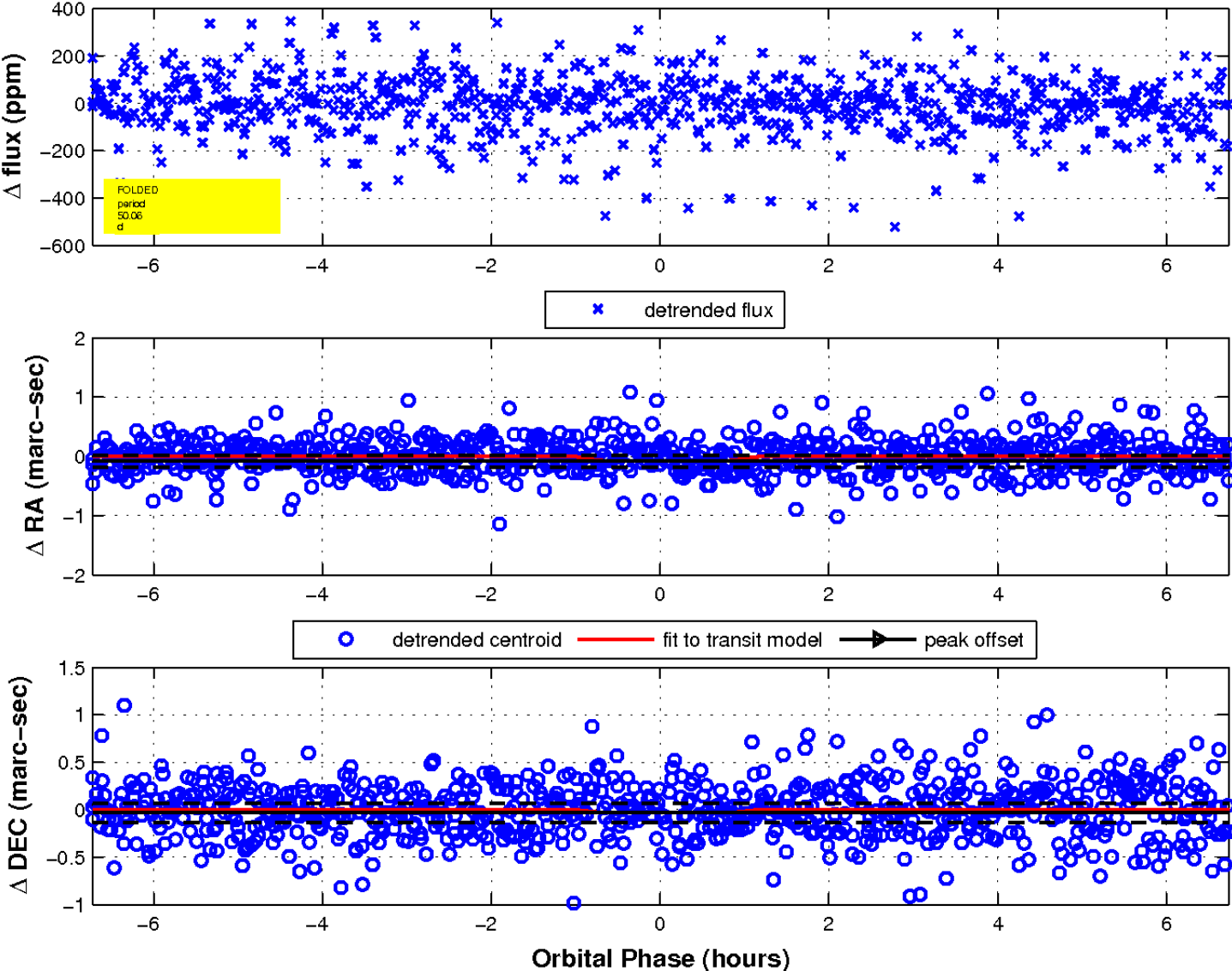
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

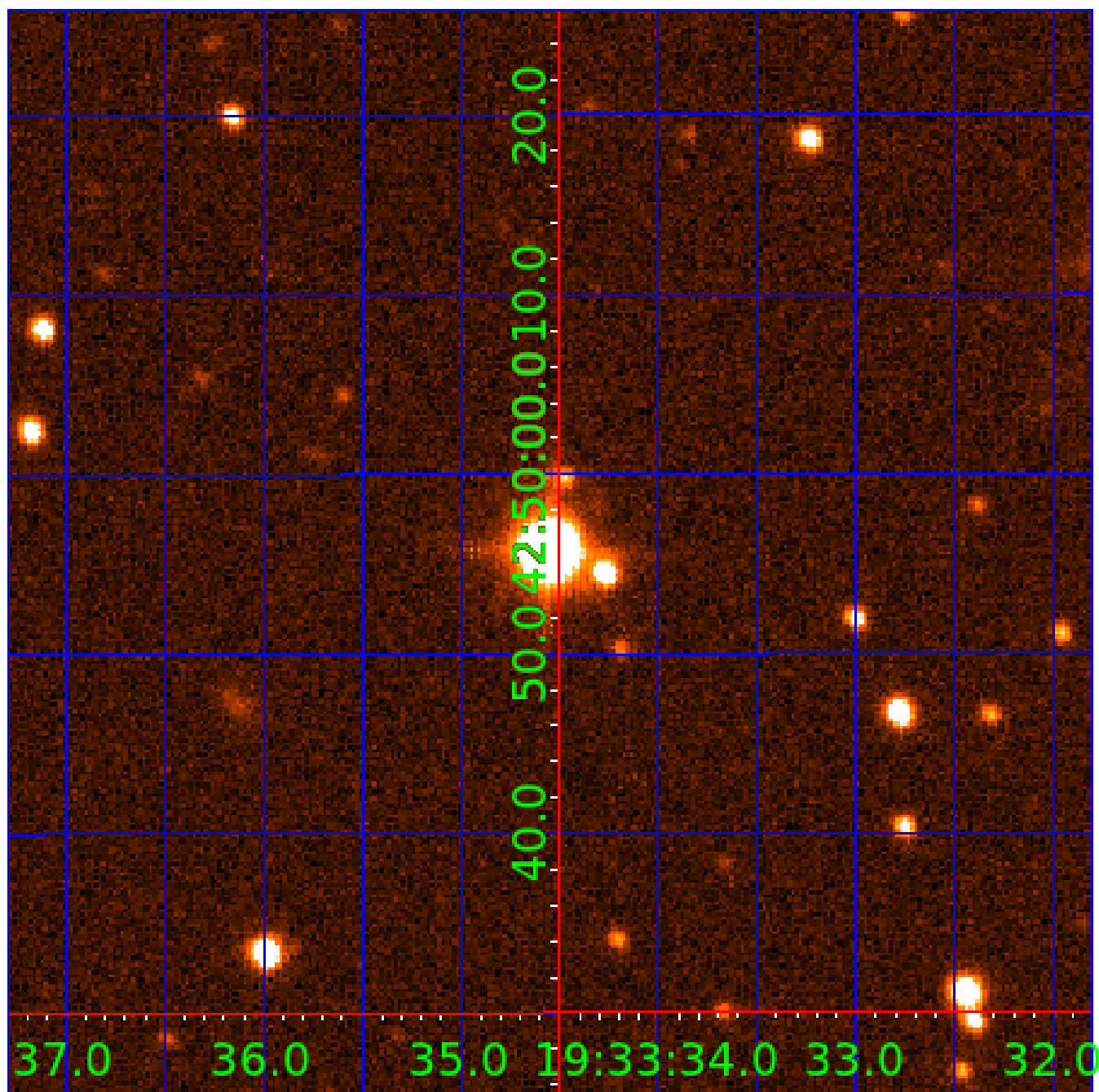


fluxWeightedCentroids, Planet 2 of 7



UKIRT Image

Declination



KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
| 007287162-02 | OBS | No | 50.058830 | 158.793992 | 254.0 | 2.248 | 22.9 | 4.3 | 1.96 | 6603 | 3.83 | 81.65 |
| 007287162-03 | OBS | No | 32.263302 | 134.339844 | 329.2 | 2.269 | 14.0 | 7.8 | 1.96 | 6603 | 3.76 | 146.67 |
| 007287162-04 | OBS | No | 12.071544 | 141.706183 | 122.0 | 4.390 | 7.7 | 8.1 | 1.96 | 6603 | 2.53 | 544.01 |
| 007287162-05 | OBS | No | 38.497378 | 133.655123 | 165.5 | 2.477 | 9.1 | 3.4 | 1.96 | 6603 | 2.96 | 115.89 |
| 007287162-06 | OBS | No | 32.302366 | 139.350892 | 221.7 | 3.181 | 11.2 | 5.7 | 1.96 | 6603 | 3.31 | 146.43 |
| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

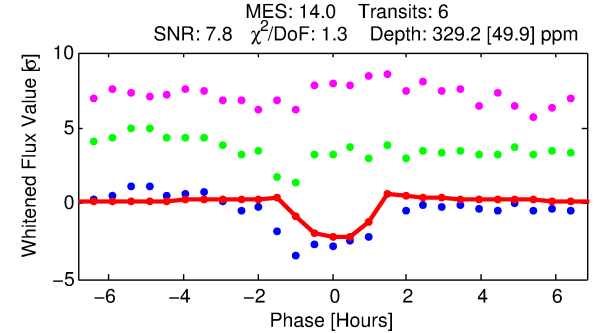
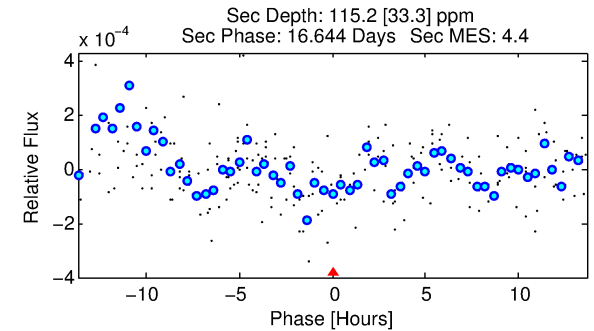
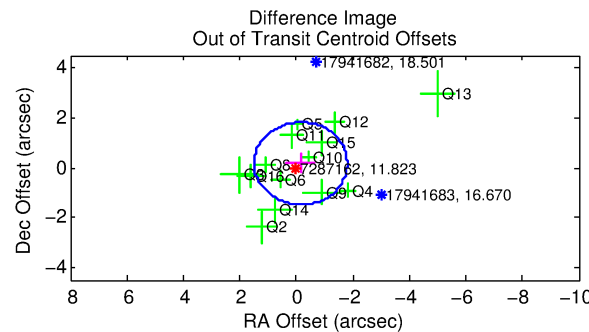
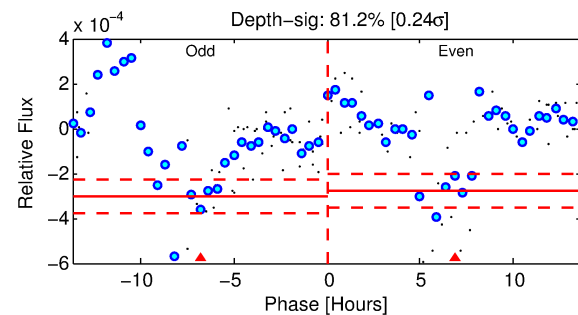
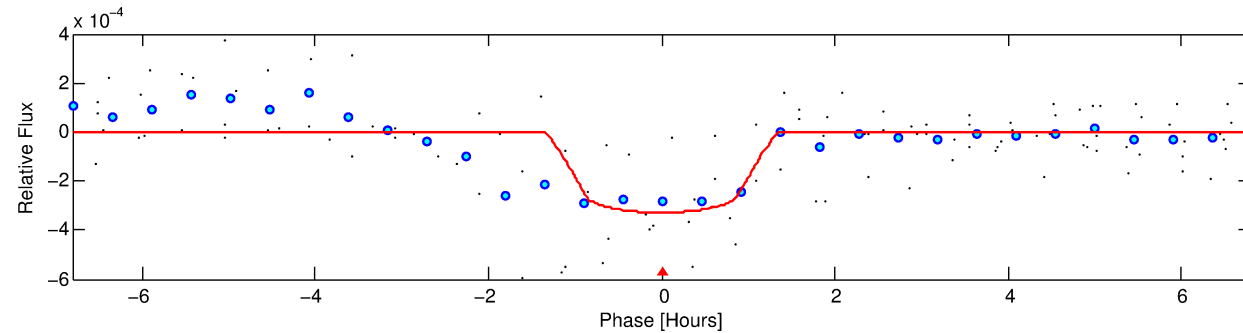
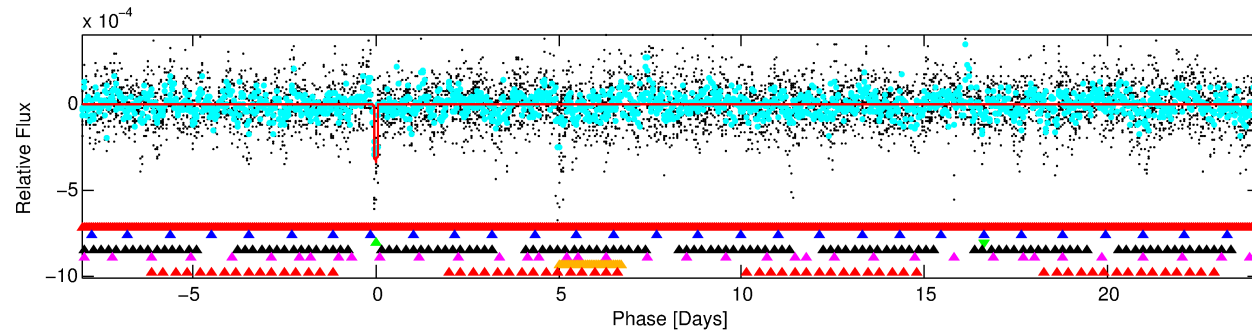
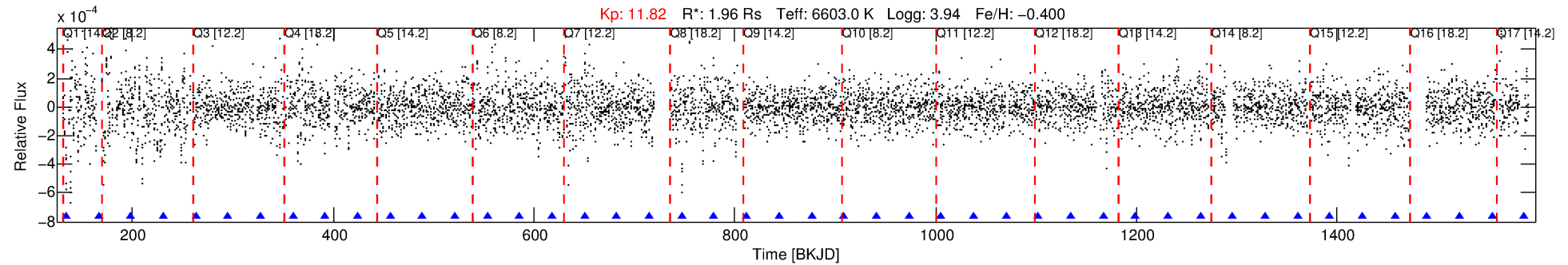
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-03

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 3 of 7 Period: 32.263 d



DV Fit Results:

Period = 32.26330 [0.00034] d
Epoch = 134.3398 [0.0106] BKJD
Rp/R* = 0.0176 [0.0288]
a/R* = 87.05 [796.68]
b = 0.63 [8.86]
Seff = 146.67 [70.46]
Teq = 887 [107] K
Rp = 3.76 [6.27] Re
a = 0.2116 [0.0623] AU
Ag = 200.53 [666.27] [0.30 σ]
Teffp = 5163 [4248] K [1.01 σ]

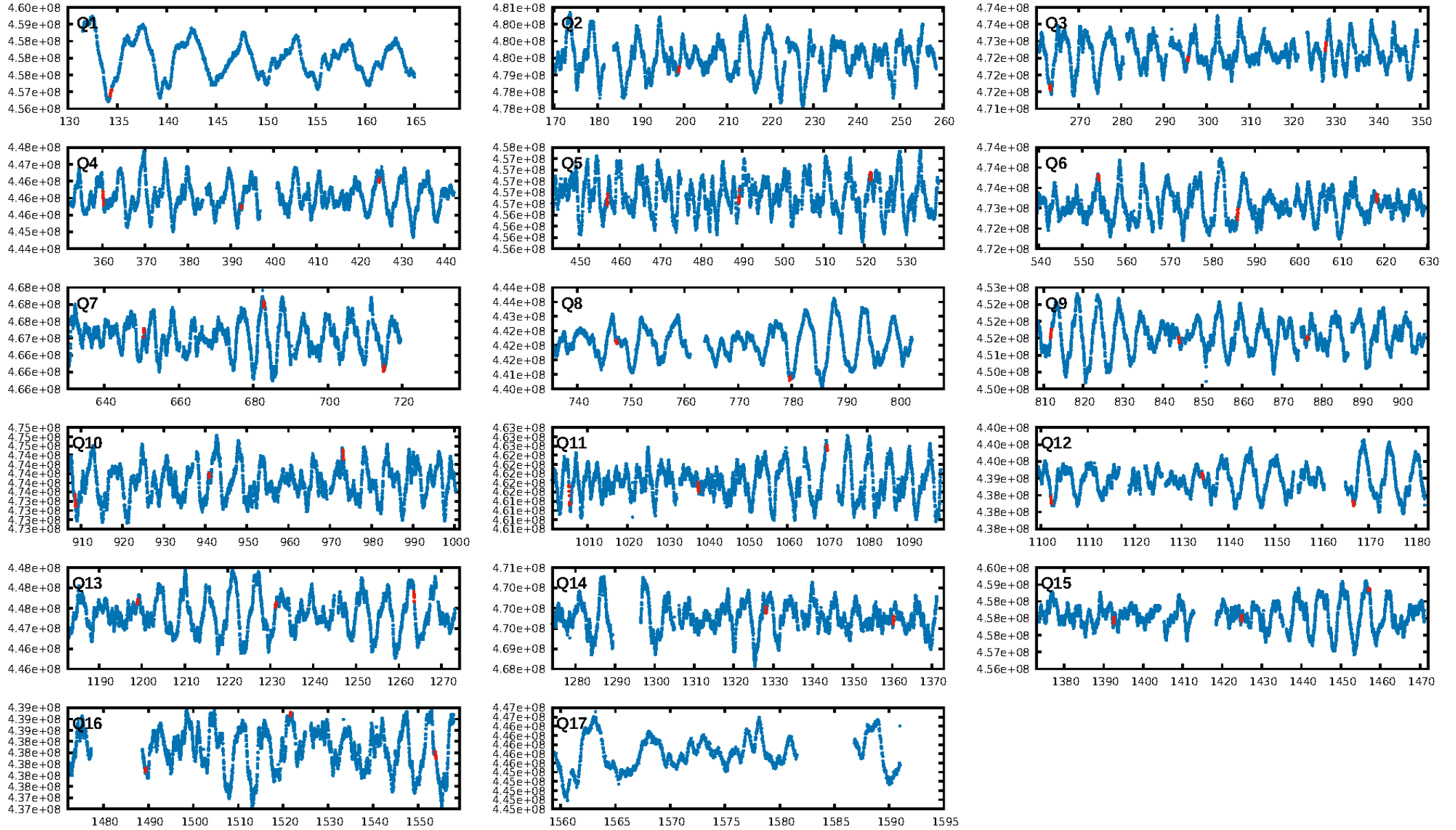
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.82 σ]
LongPeriod-sig: 19.0% [0.24 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 87.0%
Bootstrap-pfa: 1.80e-28
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.03912
Centroid-sig: 25.4%
Centroid-so: 0.114 arcsec [0.55 σ]
OotOffset-rm: 0.226 arcsec [0.41 σ]
KicOffset-rm: 0.460 arcsec [1.05 σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 0.44 [7/16]

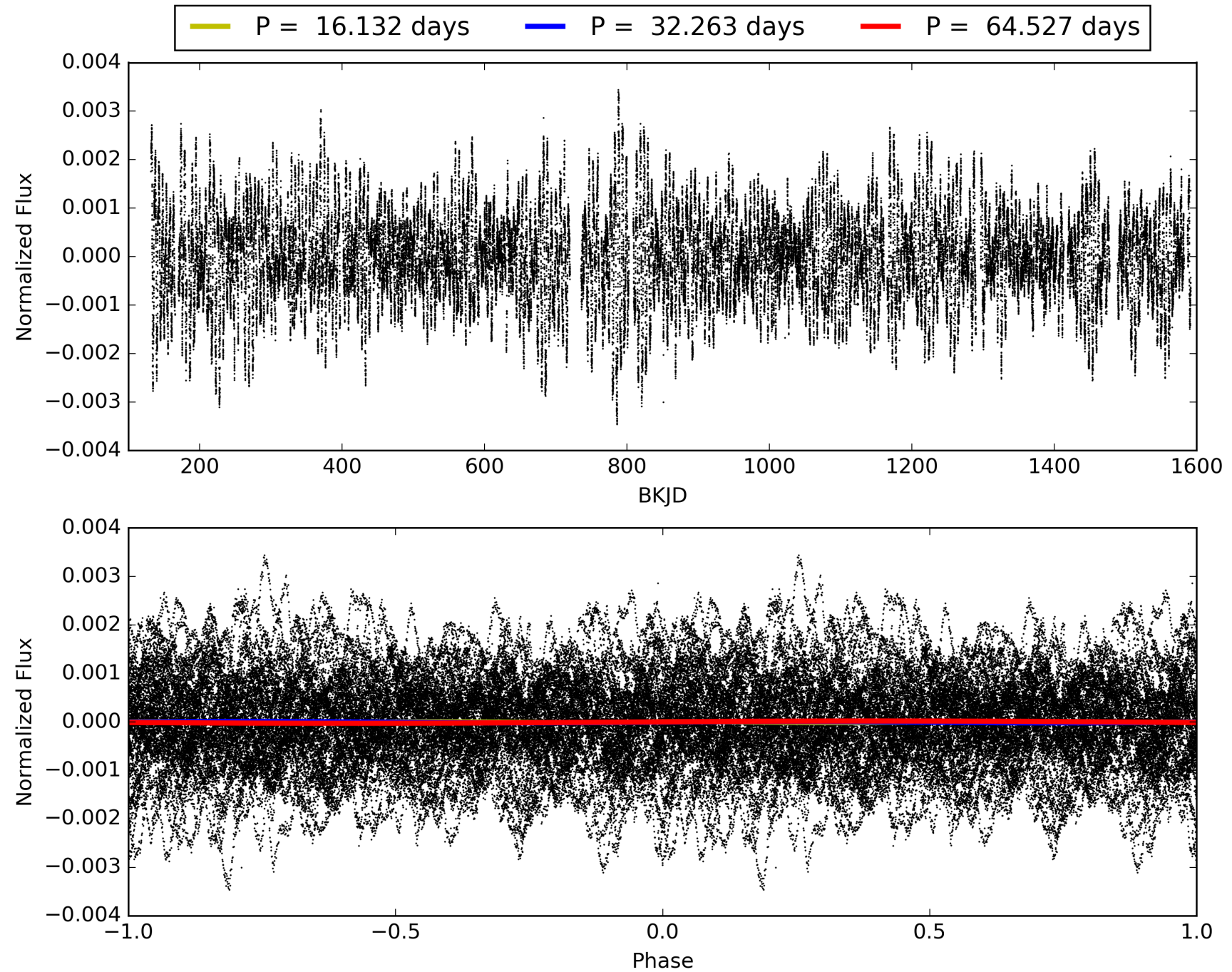
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:12:05 Z

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

TCE 007287162-03, PDC Light Curves

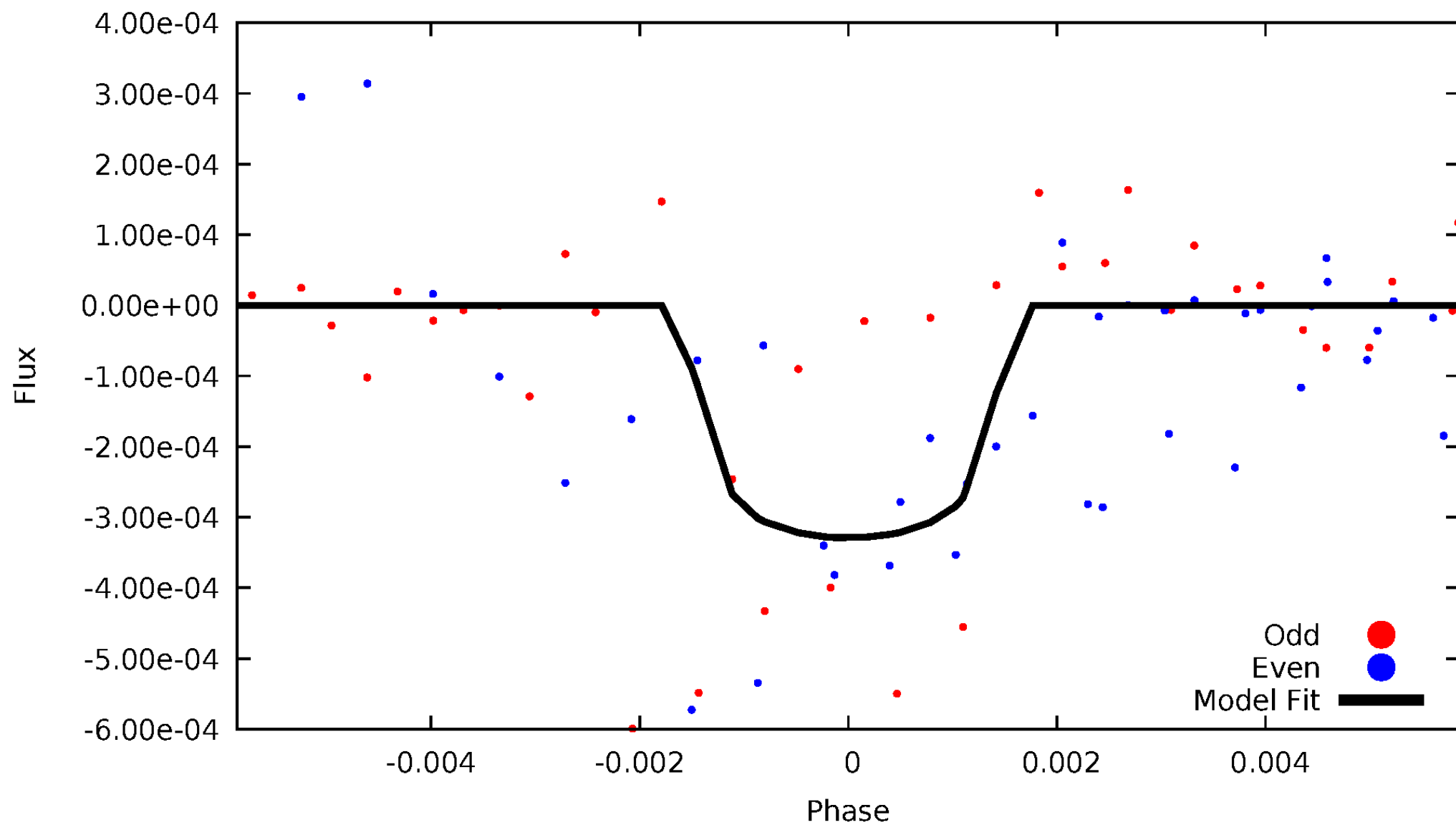


TCE 007287162-03



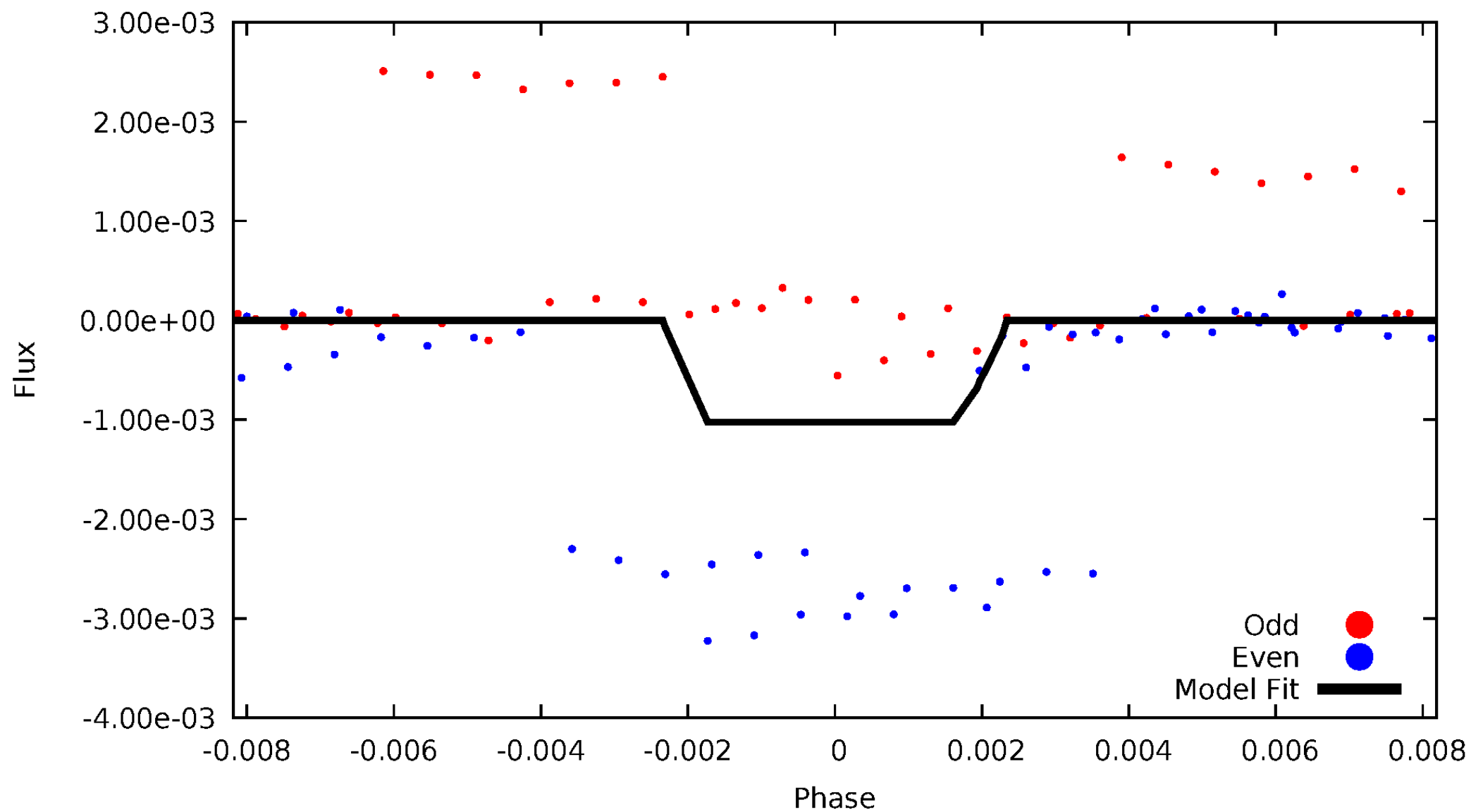
DV Odd/Even

TCE 007287162-03



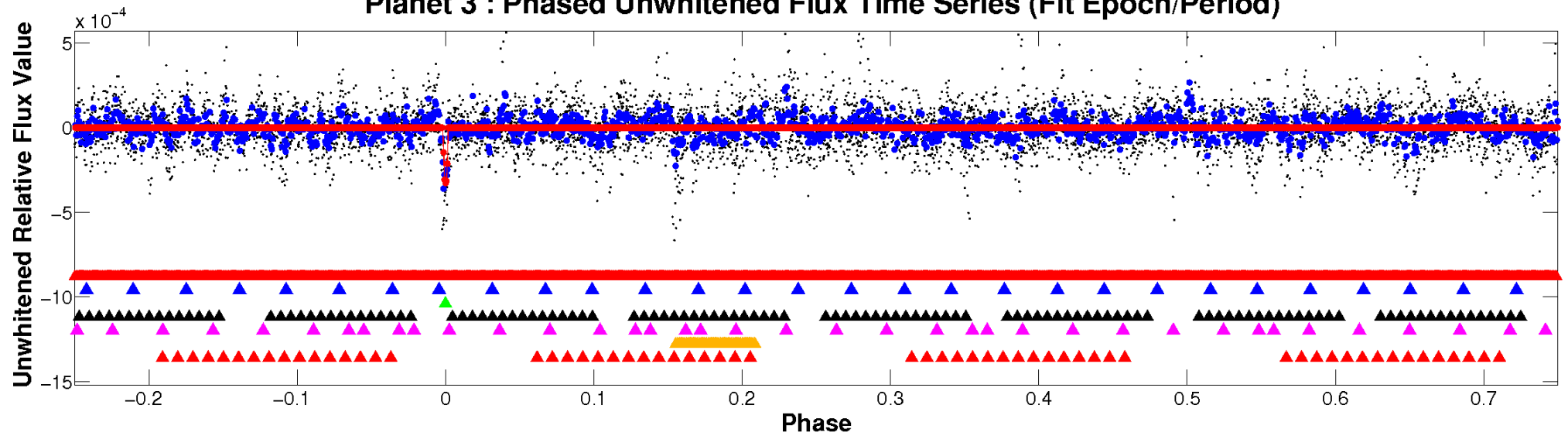
ALT Odd/Even

TCE 007287162-03

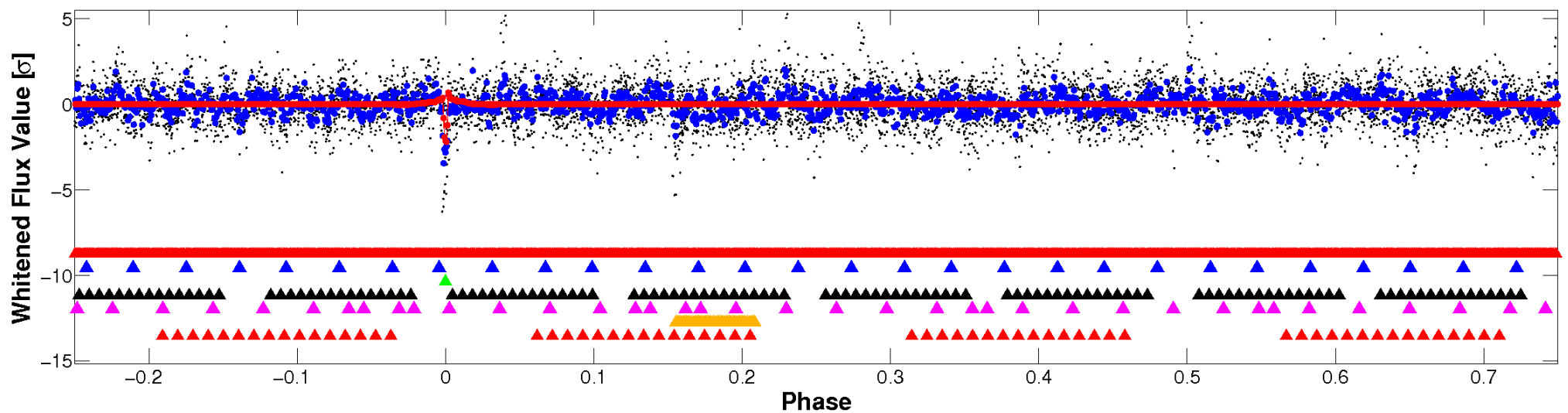


Non-Whitened Vs. Whitened Light Curve

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

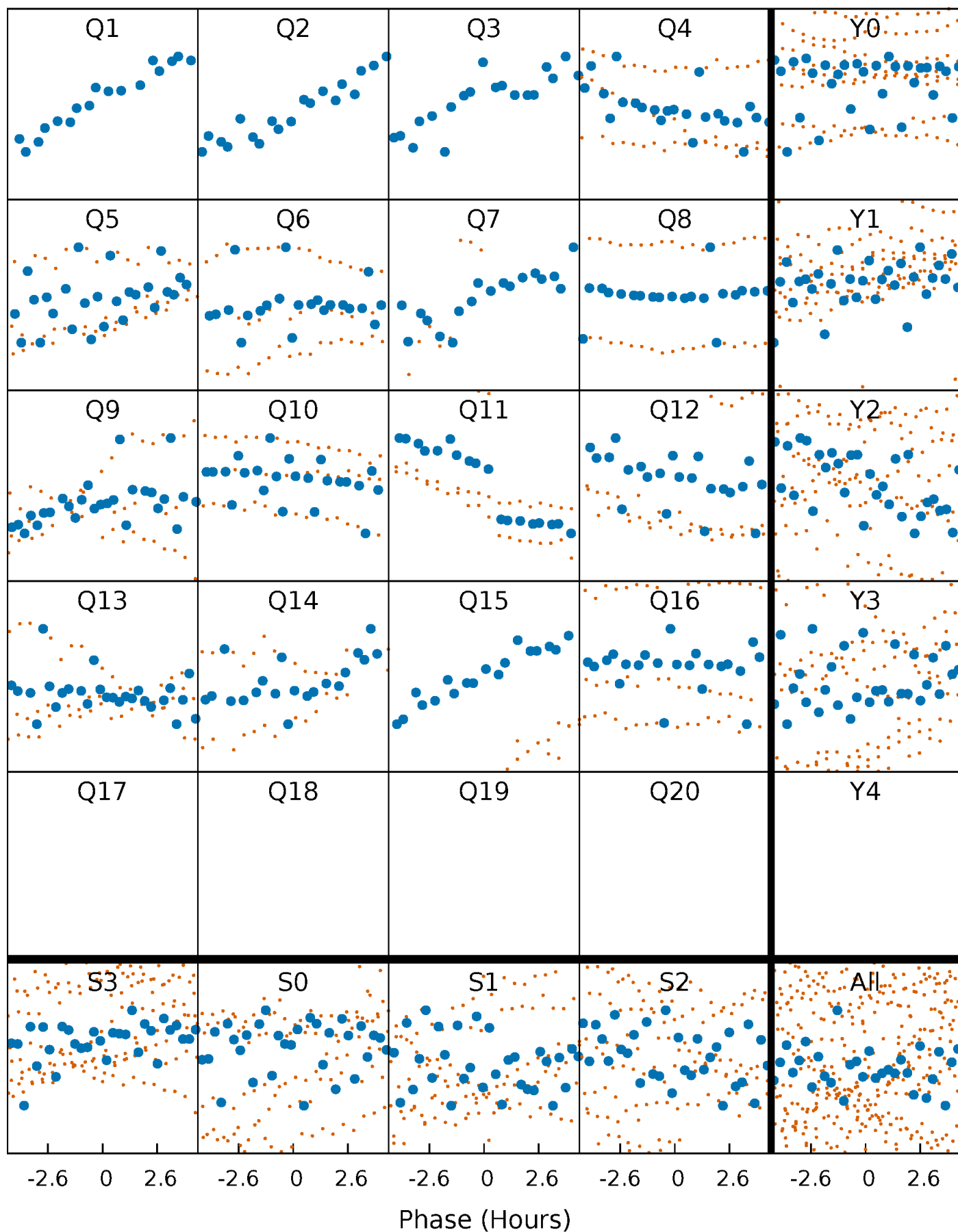


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



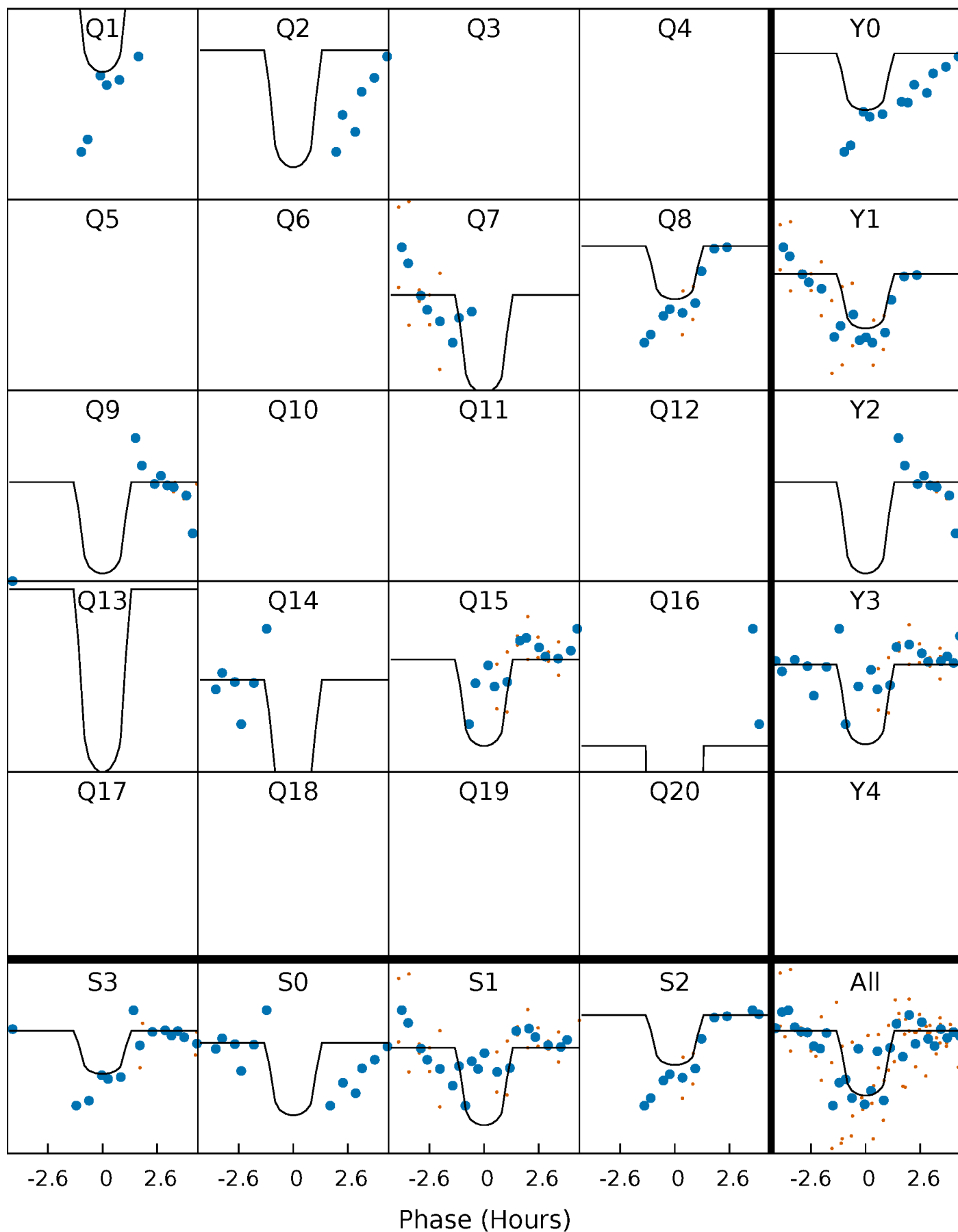
PDC Quarter-Phased Transit Curves

TCE 007287162-03 P= 32.263302 Days $T_0=134.339844$ (BKJD)



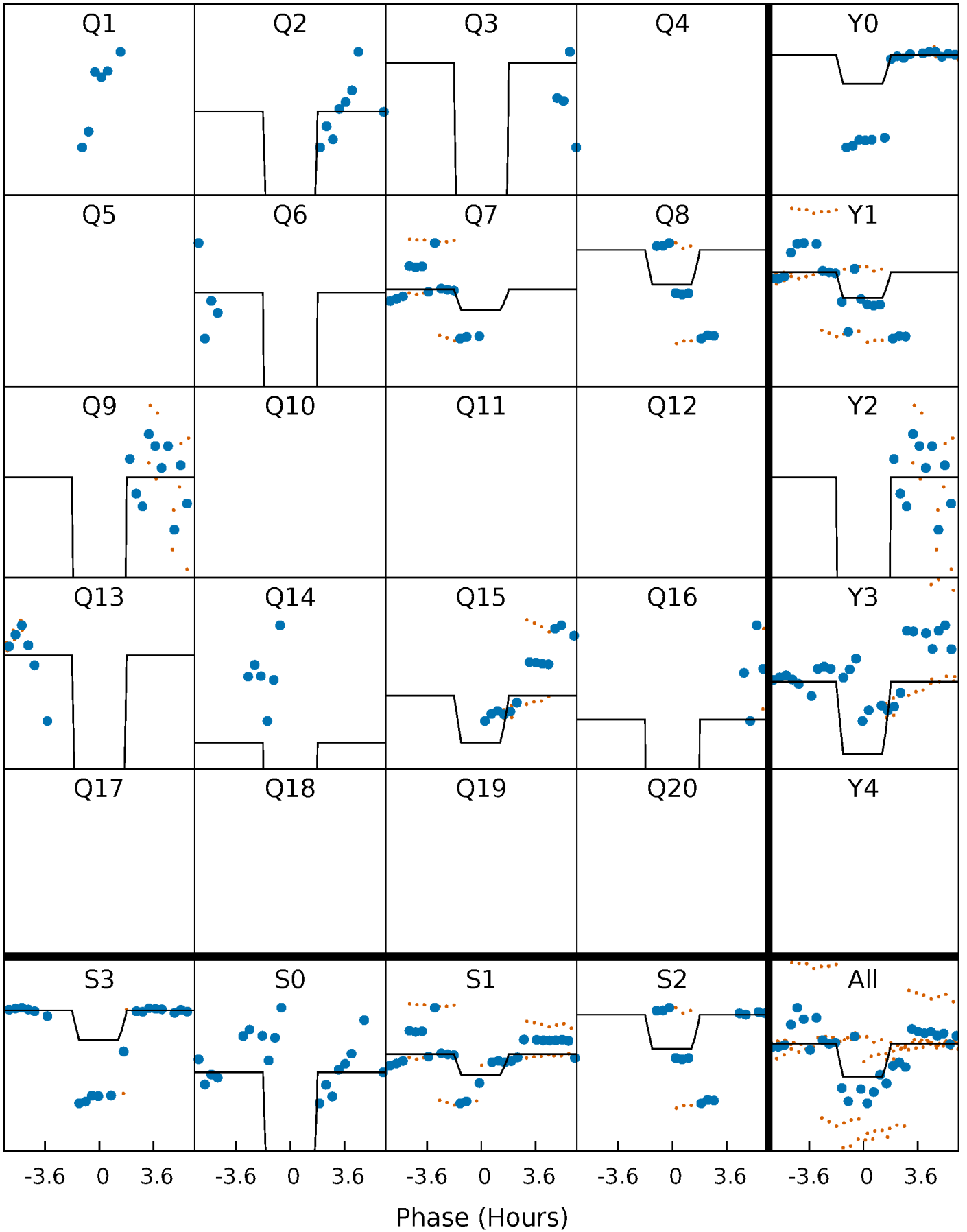
DV Quarter-Phased Transit Curves

TCE 007287162-03 P= 32.263302 Days $T_0=134.339844$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

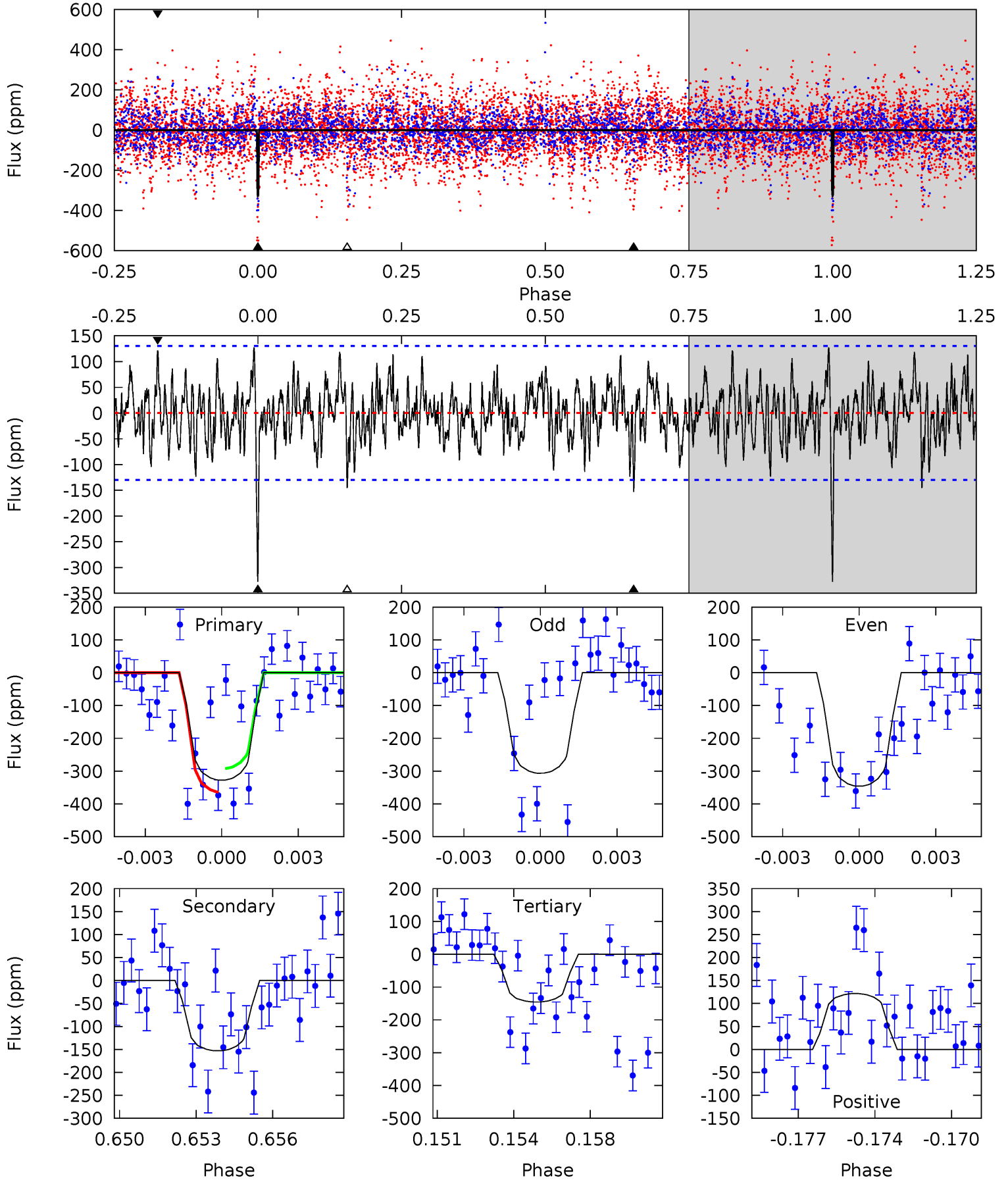
TCE 007287162-03 P= 32.262162 Days $T_0=134.347251$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-03, P = 32.263302 Days, E = 102.076542 Days

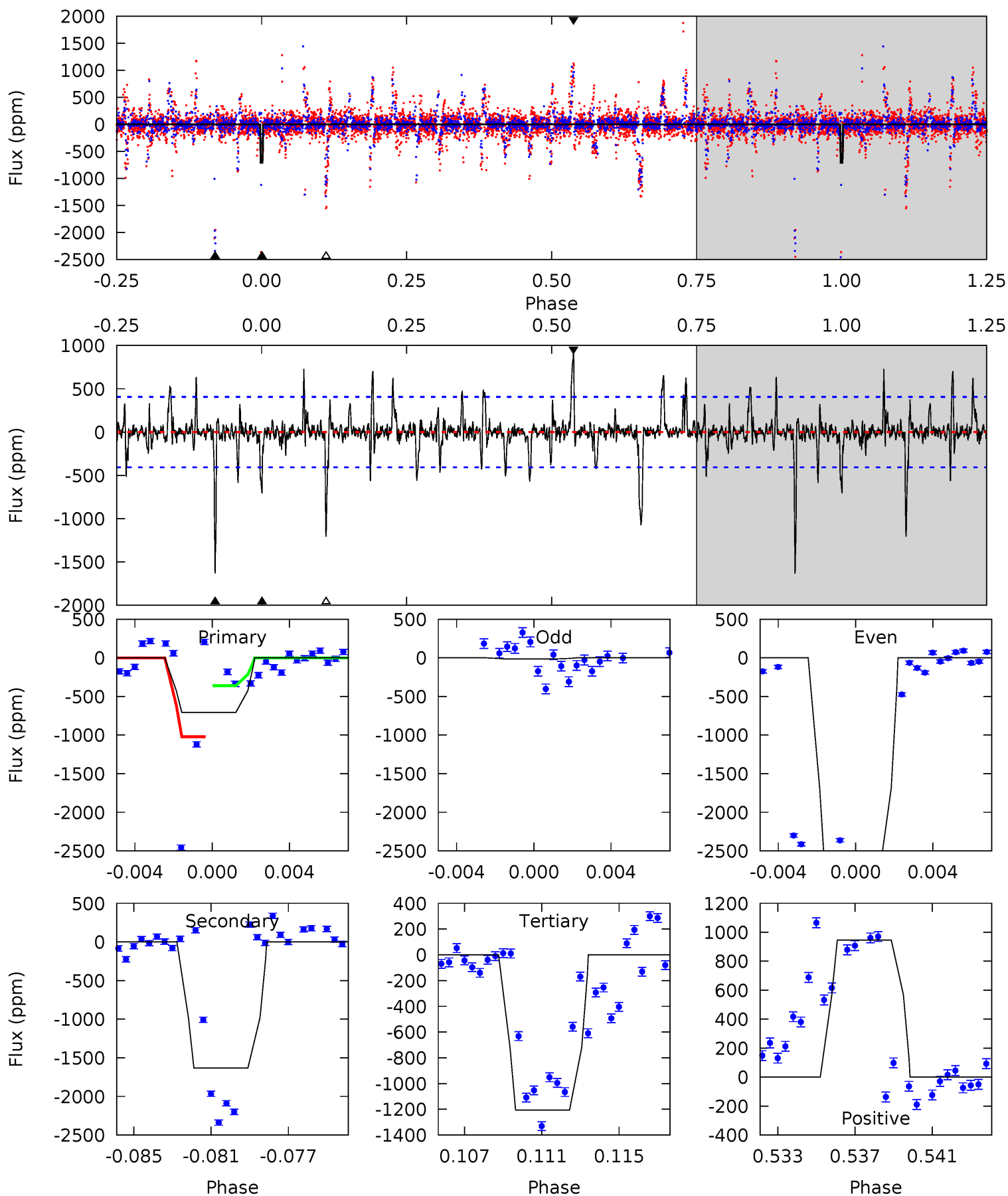
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.2 | 6.16 | 5.86 | 4.89 | 5.24 | 2.95 | 1.76 | 7.33 | 8.29 | 0.30 | 1.27 | 0.79 | 1.00 | 0.28 | 1.44 |



Alt Model-Shift Uniqueness Test

007287162-03, P = 32.262162 Days, E = 102.085089 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.03 | 20.8 | 15.4 | 12.1 | 5.19 | 2.86 | 1.94 | -6.34 | -3.04 | 5.46 | 8.76 | 18.7 | 0.99 | 0.37 | 4.63 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|------------------------|---------------------|------------------------|----------------------|
| DV | -153 ± 25 | $5.68^{+5.33}_{-3.90}$ | 1226^{+70}_{-102} | 4567^{+3534}_{-977} | 115^{+1194}_{-86} |
| Alt. | -1633 ± 78 | $7.61^{+5.57}_{-4.74}$ | 1226^{+78}_{-113} | 6942^{+6664}_{-1626} | 695^{+4324}_{-462} |

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 $A_{obs} \gg 1.0$

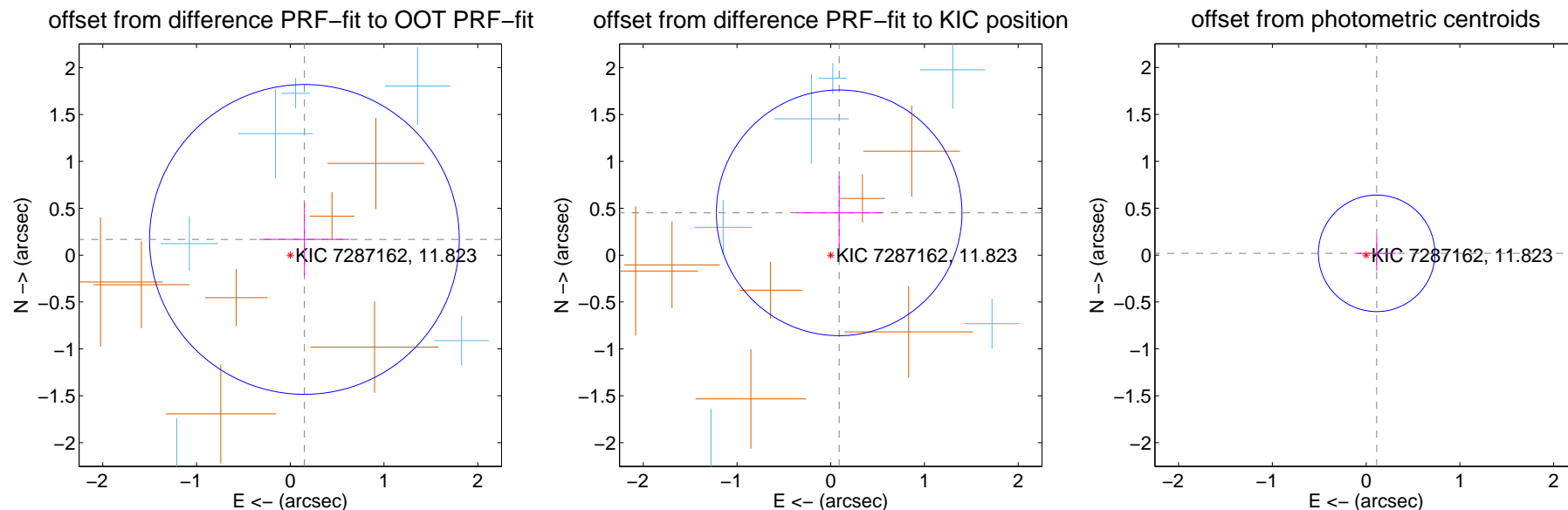
DV Centroid Data

Supplemental centroid analysis for 007287162-03. **Kepler magnitude: 11.82.** Transit SNR 7.83

There are 6 quarters with good PRF difference image offsets

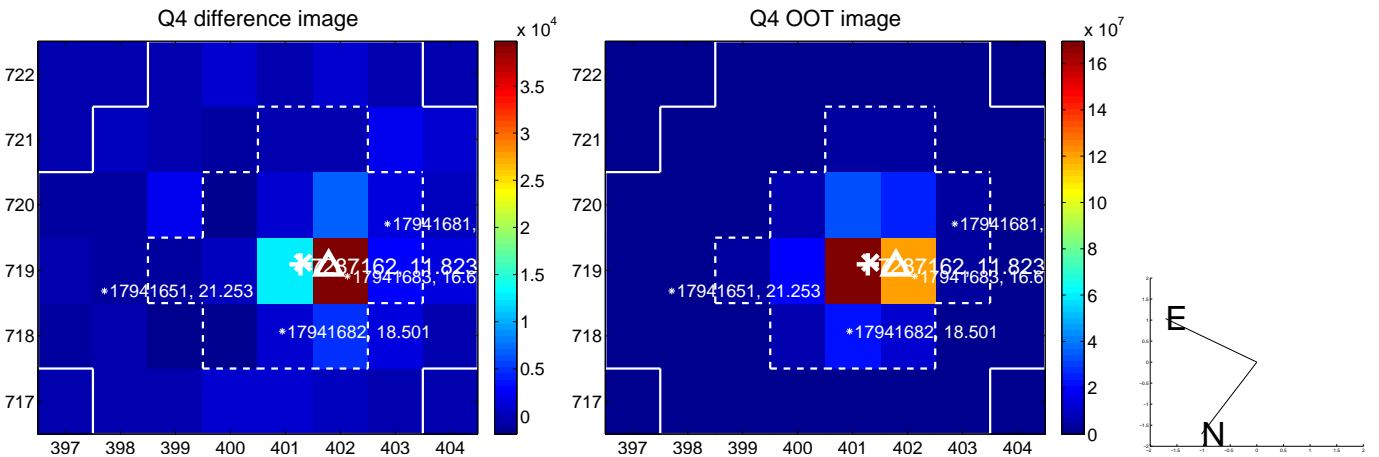
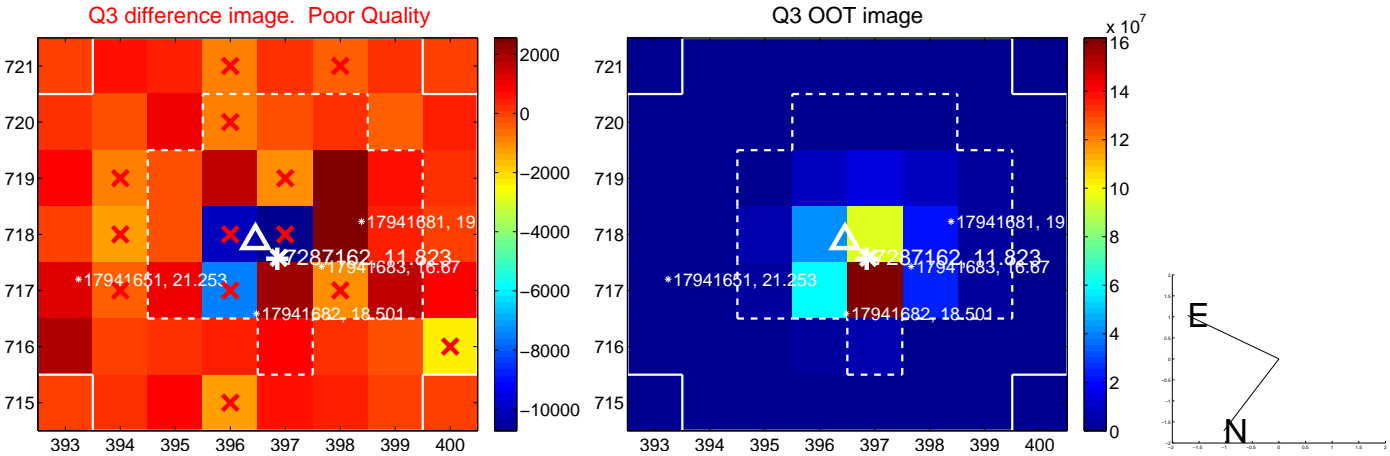
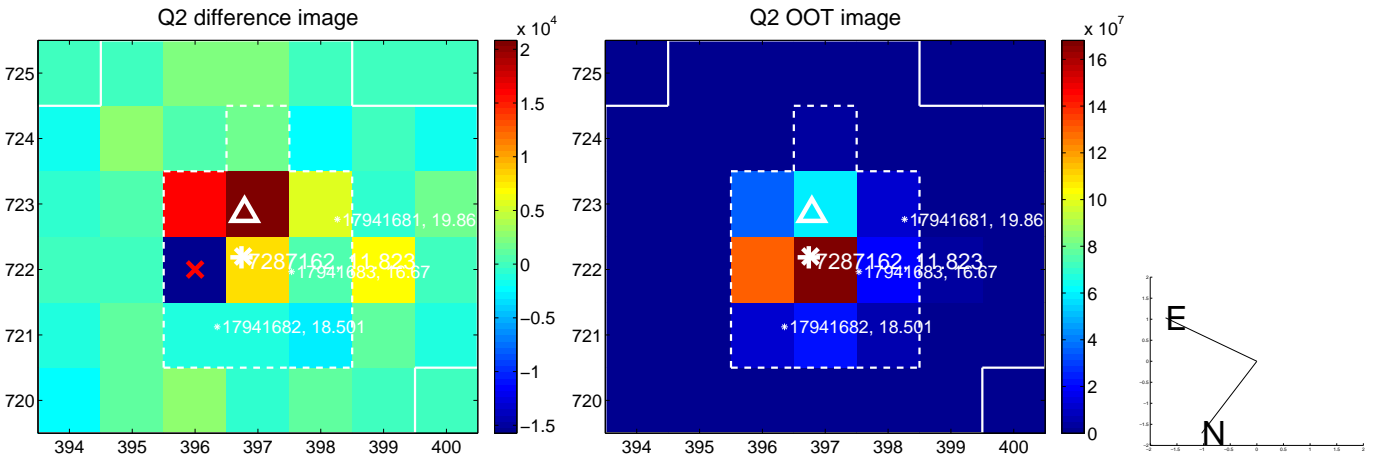
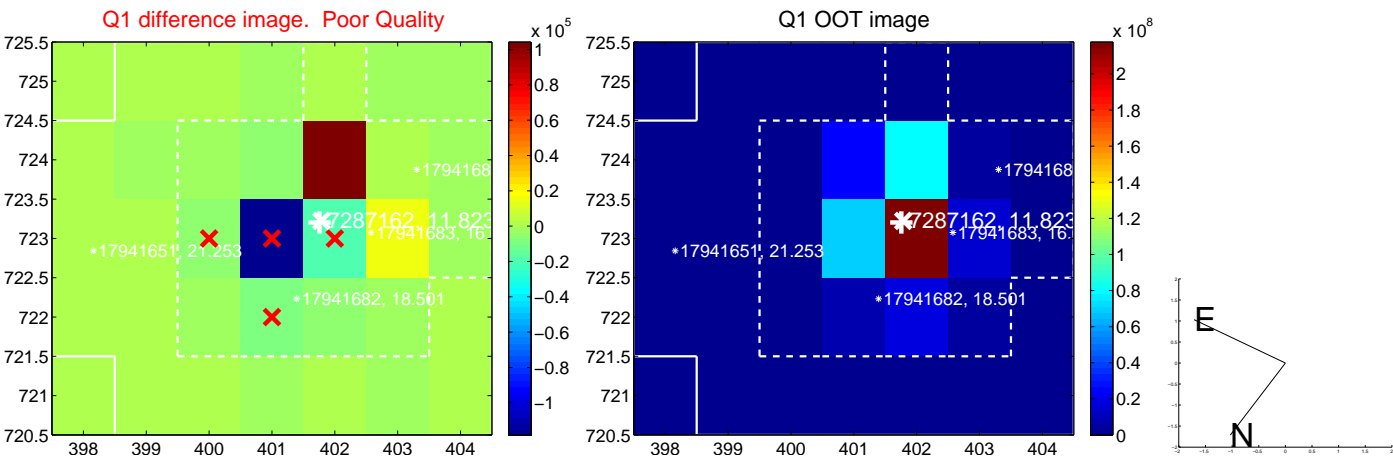
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.226 ± 0.551 | 0.41 | -0.151 ± 0.480 | 0.168 ± 0.391 |
| PRF-fit source offset from KIC position | 0.460 ± 0.437 | 1.05 | -0.090 ± 0.459 | 0.451 ± 0.388 |
| photometric centroid source offset | 0.11 ± 0.21 | 0.55 | -0.11 ± 0.21 | 0.02 ± 0.19 |

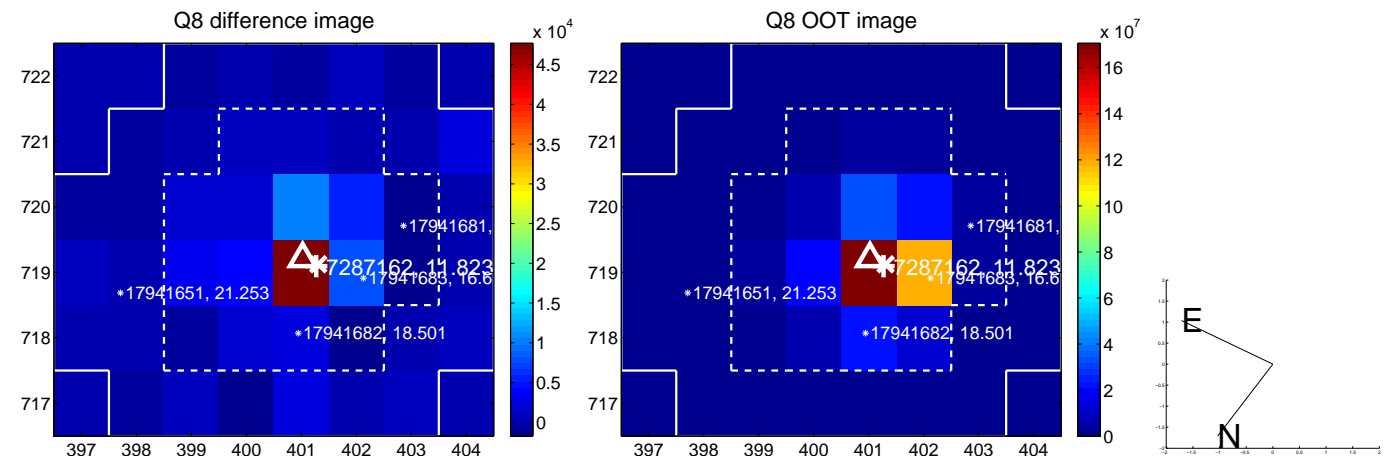
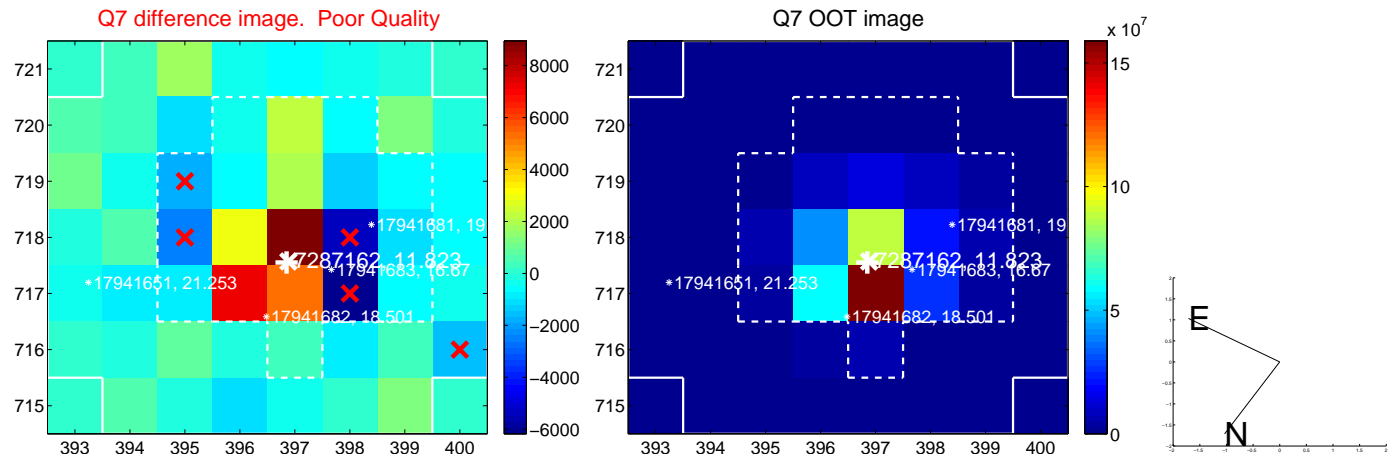
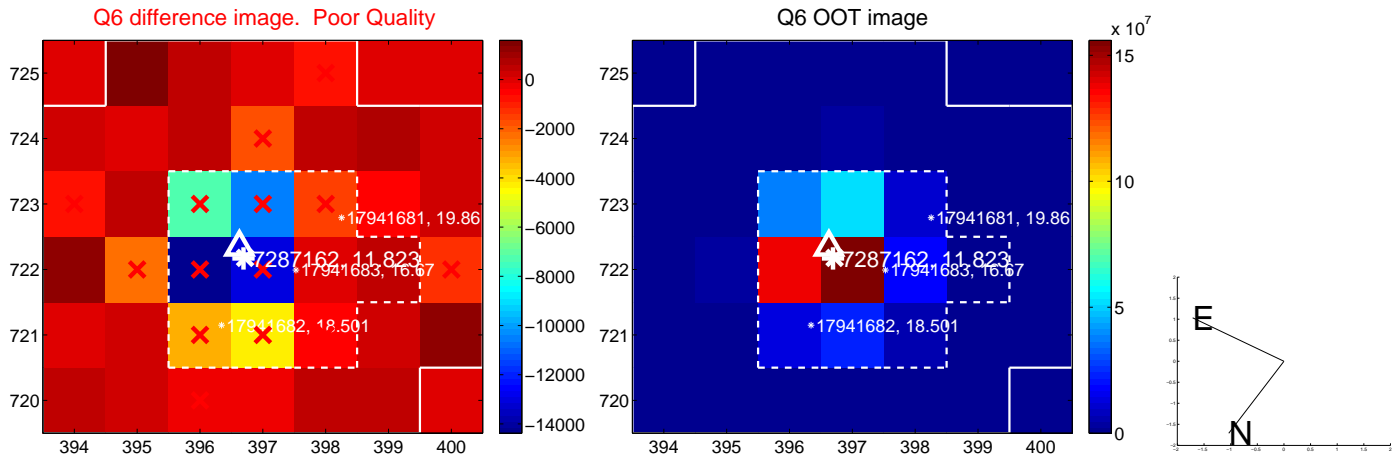
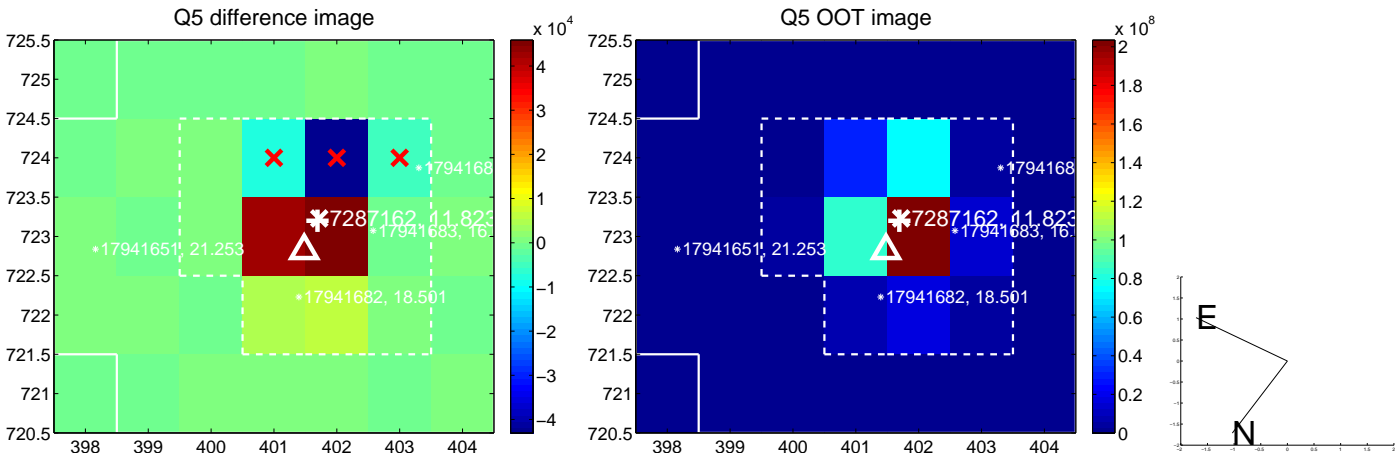


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

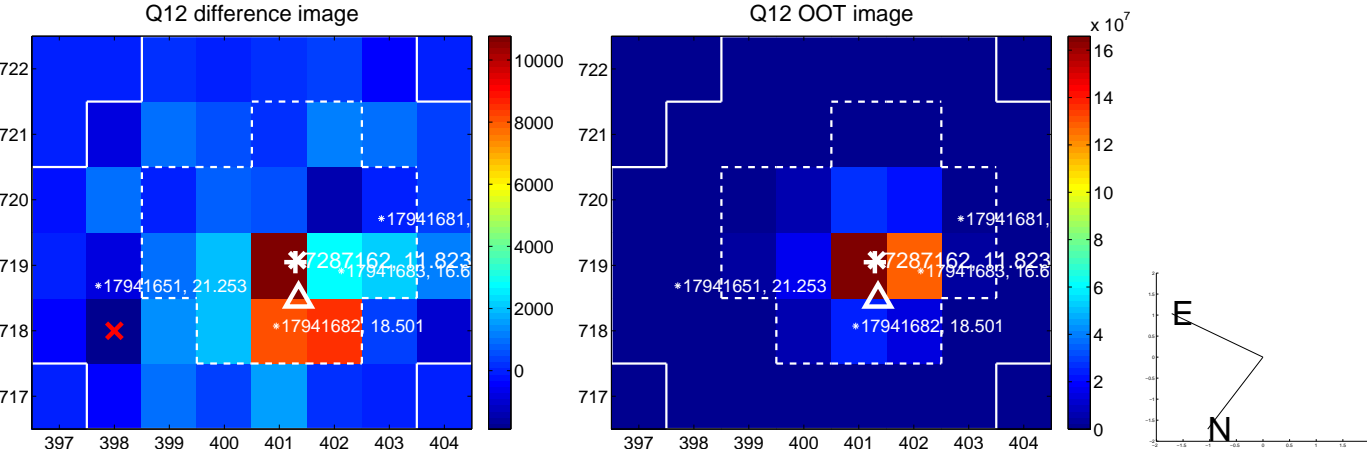
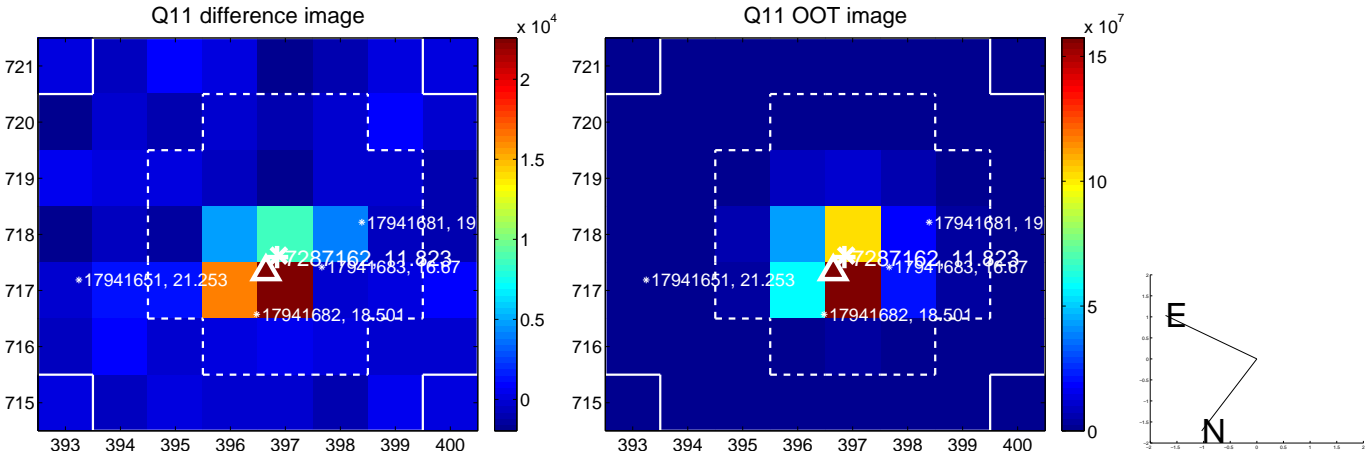
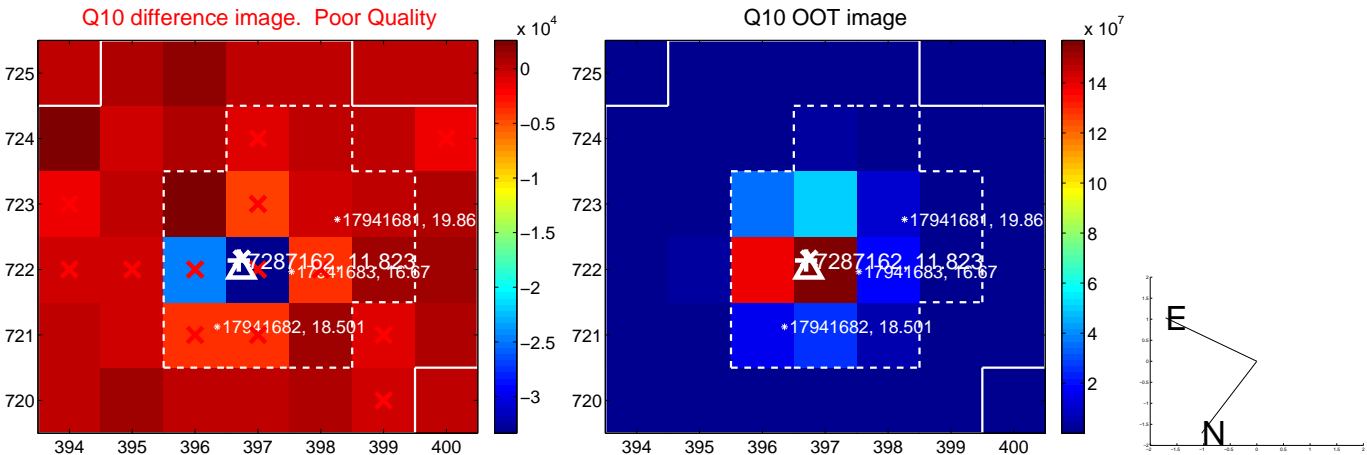
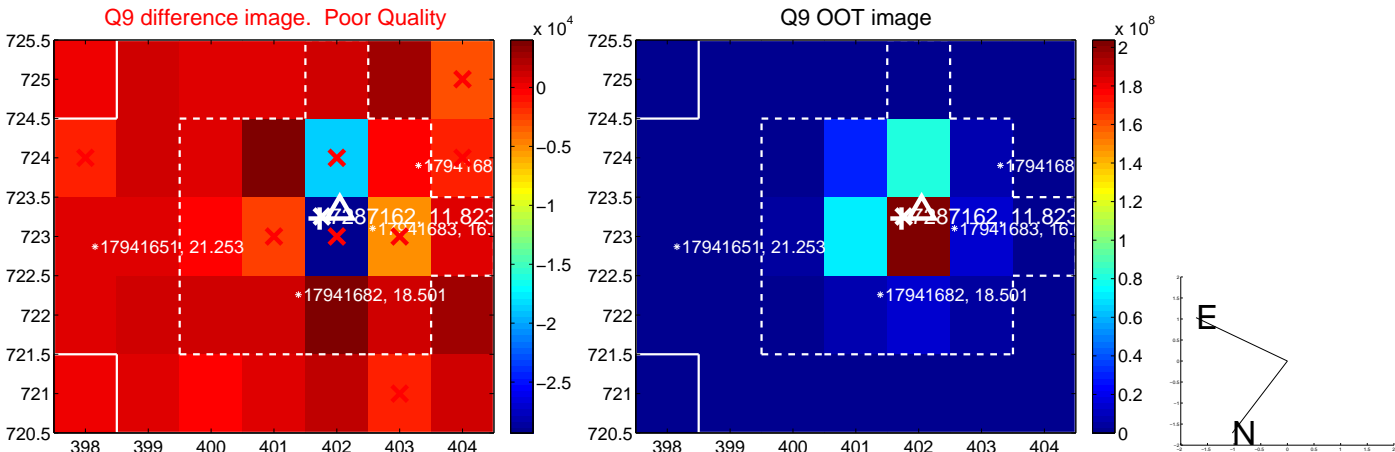
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



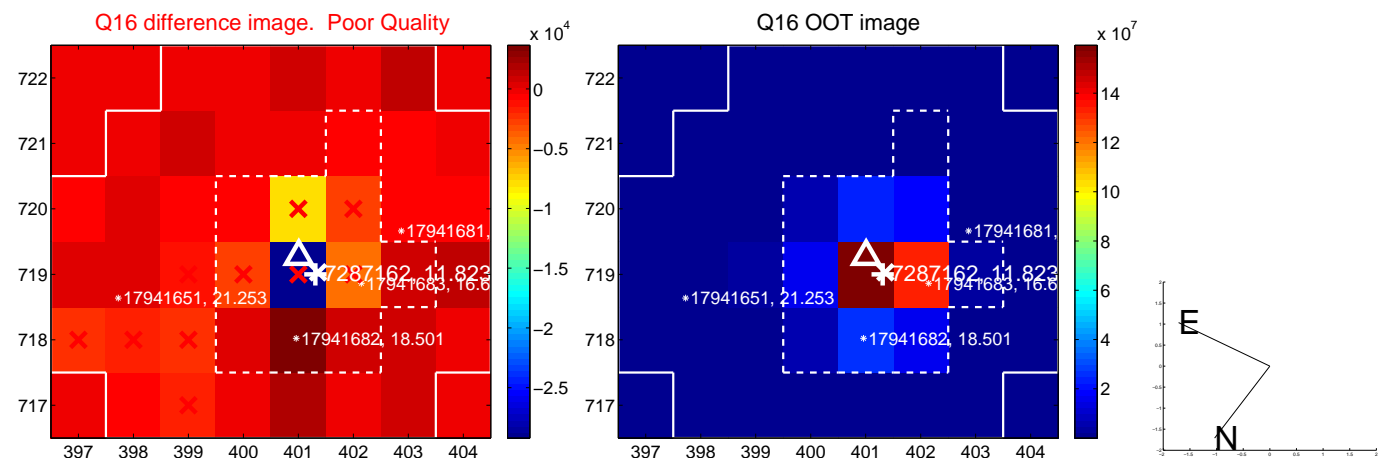
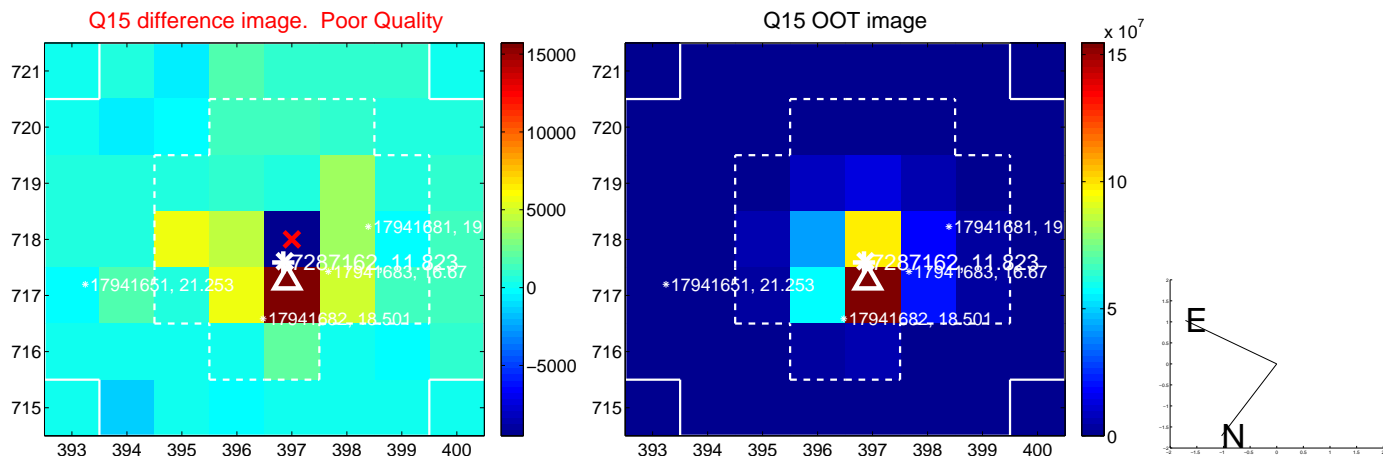
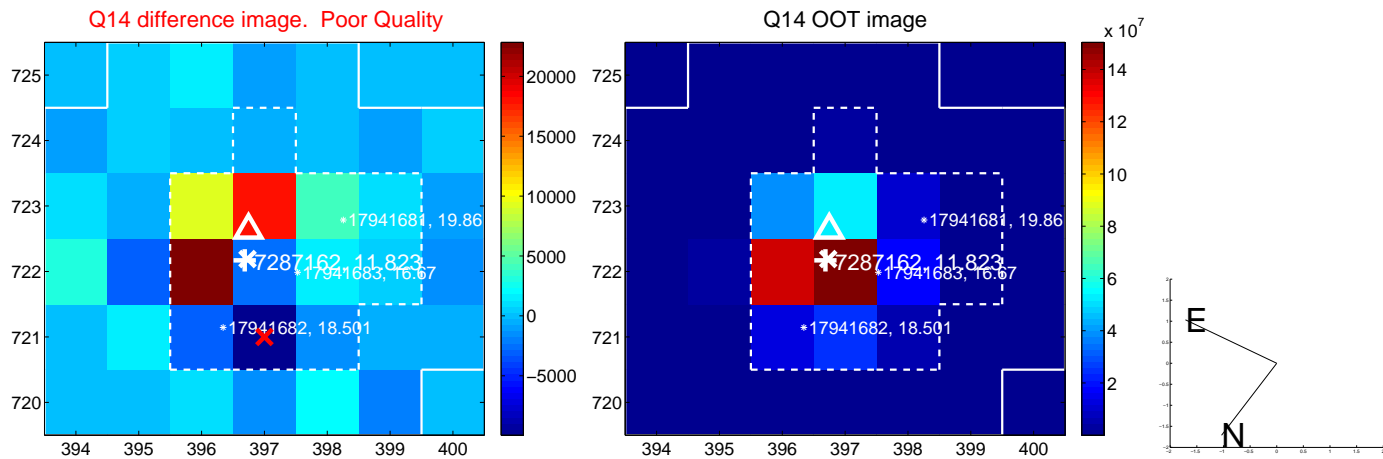
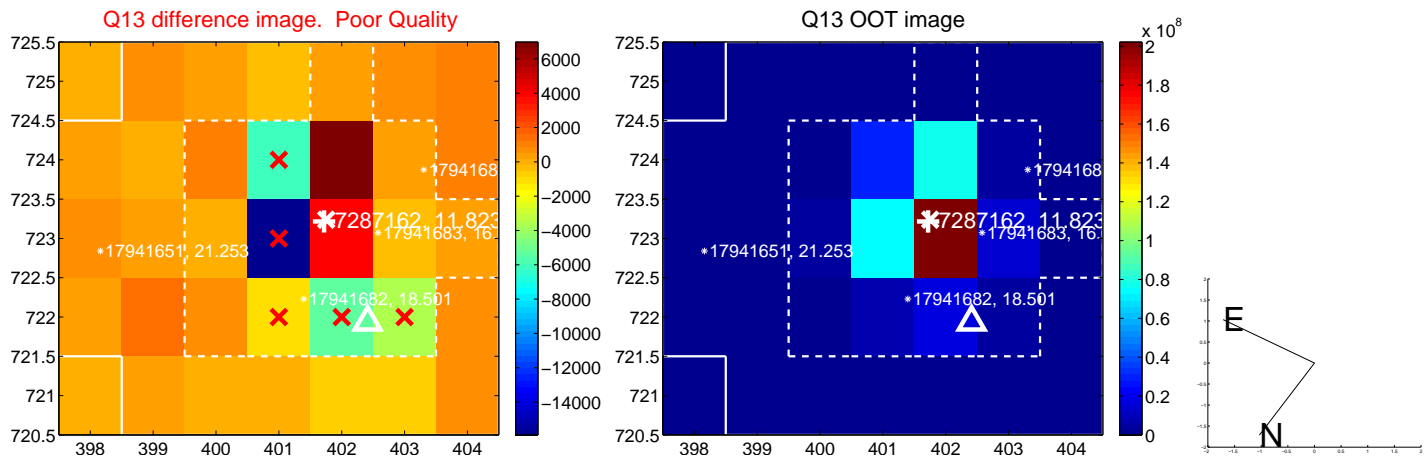
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



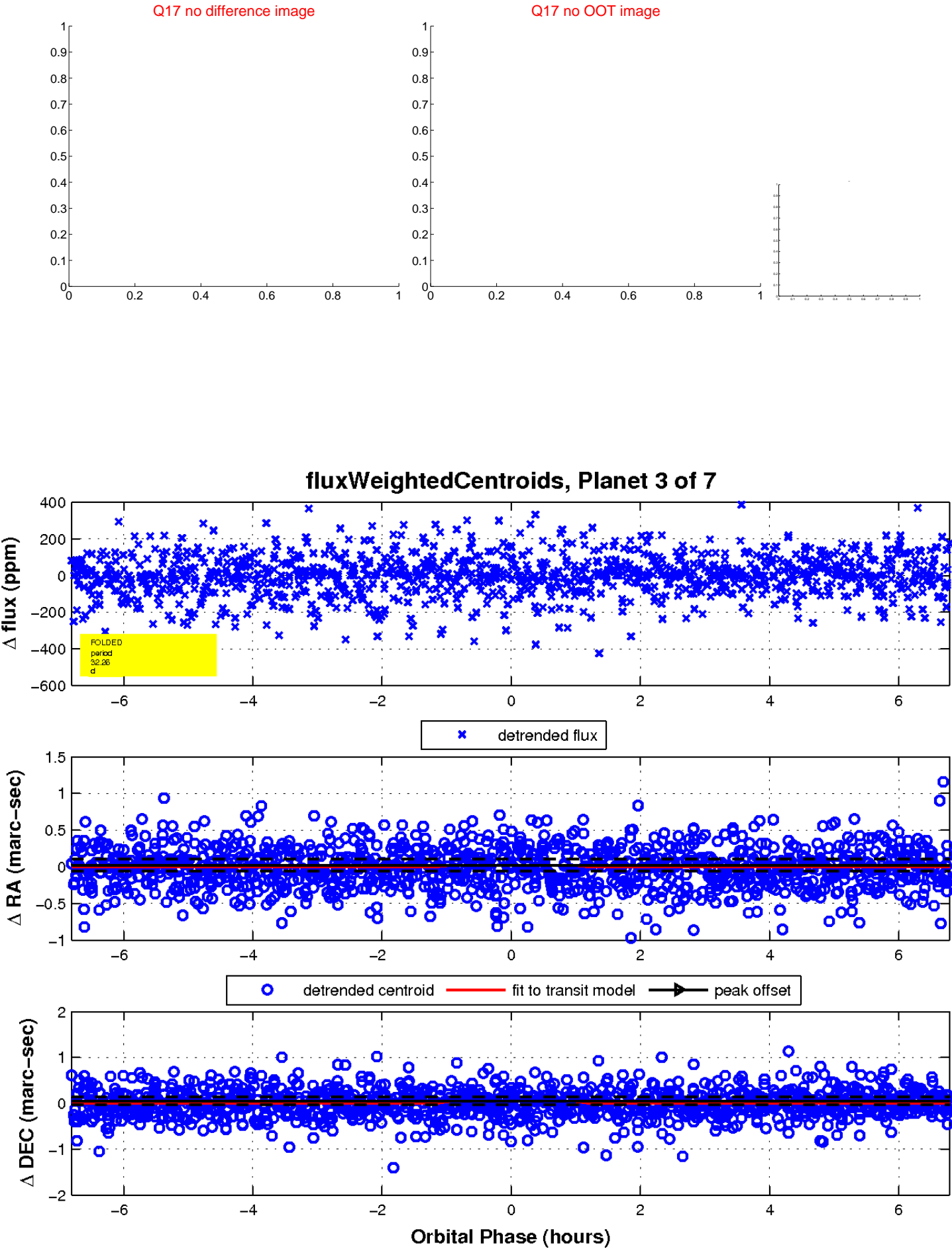
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

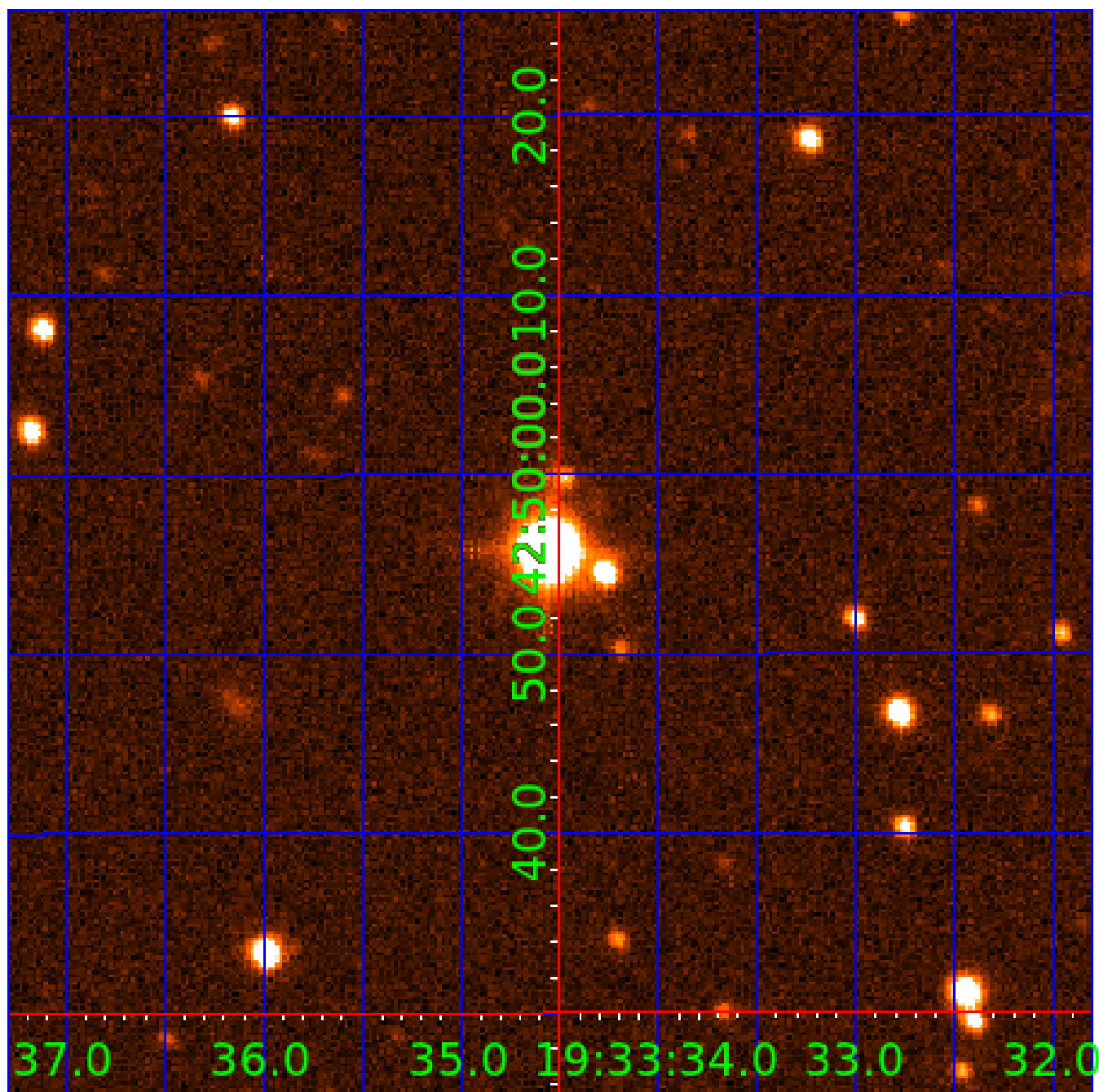


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
| 007287162-02 | OBS | No | 50.058830 | 158.793992 | 254.0 | 2.248 | 22.9 | 4.3 | 1.96 | 6603 | 3.83 | 81.65 |
| 007287162-03 | OBS | No | 32.263302 | 134.339844 | 329.2 | 2.269 | 14.0 | 7.8 | 1.96 | 6603 | 3.76 | 146.67 |
| 007287162-04 | OBS | No | 12.071544 | 141.706183 | 122.0 | 4.390 | 7.7 | 8.1 | 1.96 | 6603 | 2.53 | 544.01 |
| 007287162-05 | OBS | No | 38.497378 | 133.655123 | 165.5 | 2.477 | 9.1 | 3.4 | 1.96 | 6603 | 2.96 | 115.89 |
| 007287162-06 | OBS | No | 32.302366 | 139.350892 | 221.7 | 3.181 | 11.2 | 5.7 | 1.96 | 6603 | 3.31 | 146.43 |
| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

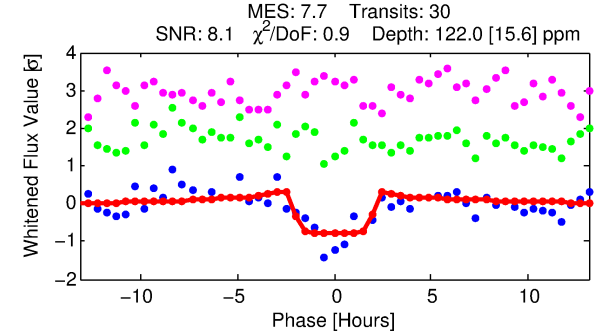
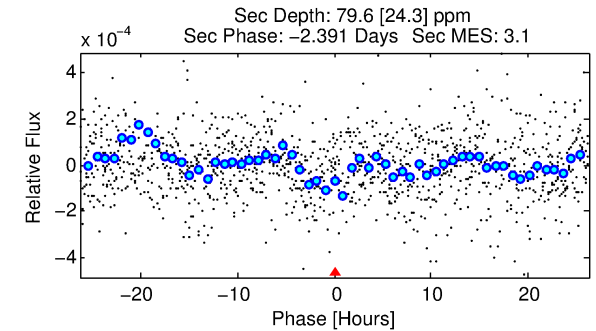
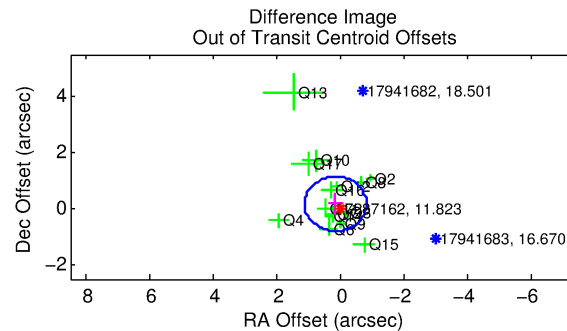
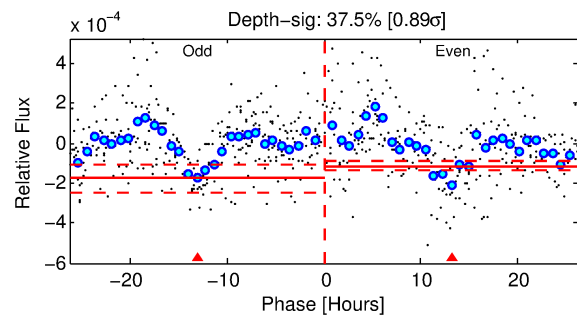
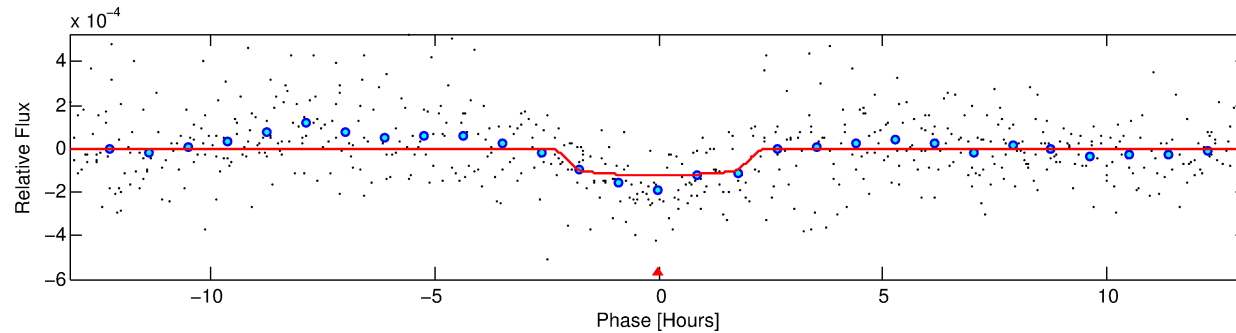
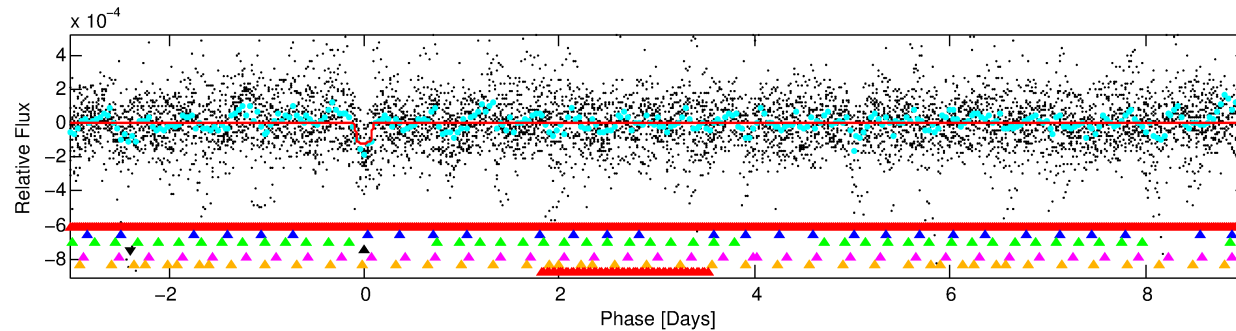
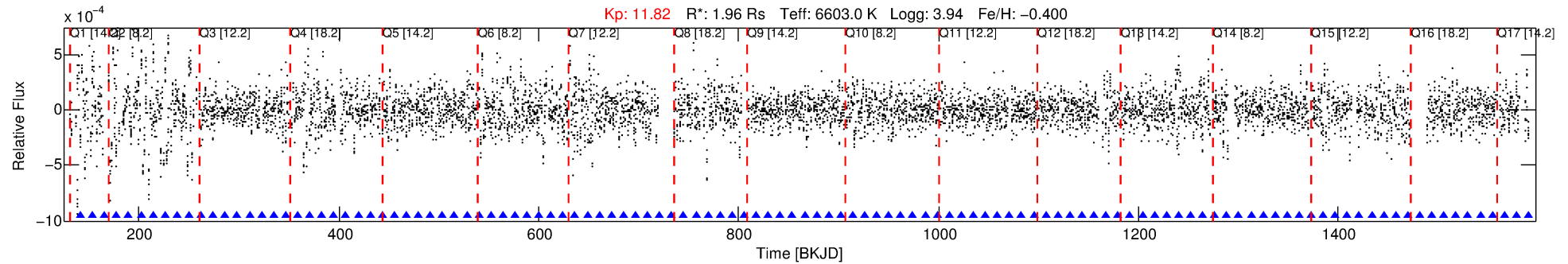
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-04

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 4 of 7 Period: 12.072 d



DV Fit Results:

Period = 12.07154 [0.00013] d
Epoch = 141.7062 [0.0089] BKJD
 R_p/R^* = 0.0118 [0.0041]
 a/R^* = 9.77 [19.07]
 b = 0.90 [0.42]
 S_{eff} = 544.01 [261.34]
 T_{eq} = 1231 [148] K
 R_p = 2.53 [1.17] R_e
 a = 0.1099 [0.0323] AU
 A_g = 82.79 [73.42] [1.11 σ]
 T_{eff} = 5743 [1094] K [4.09 σ]

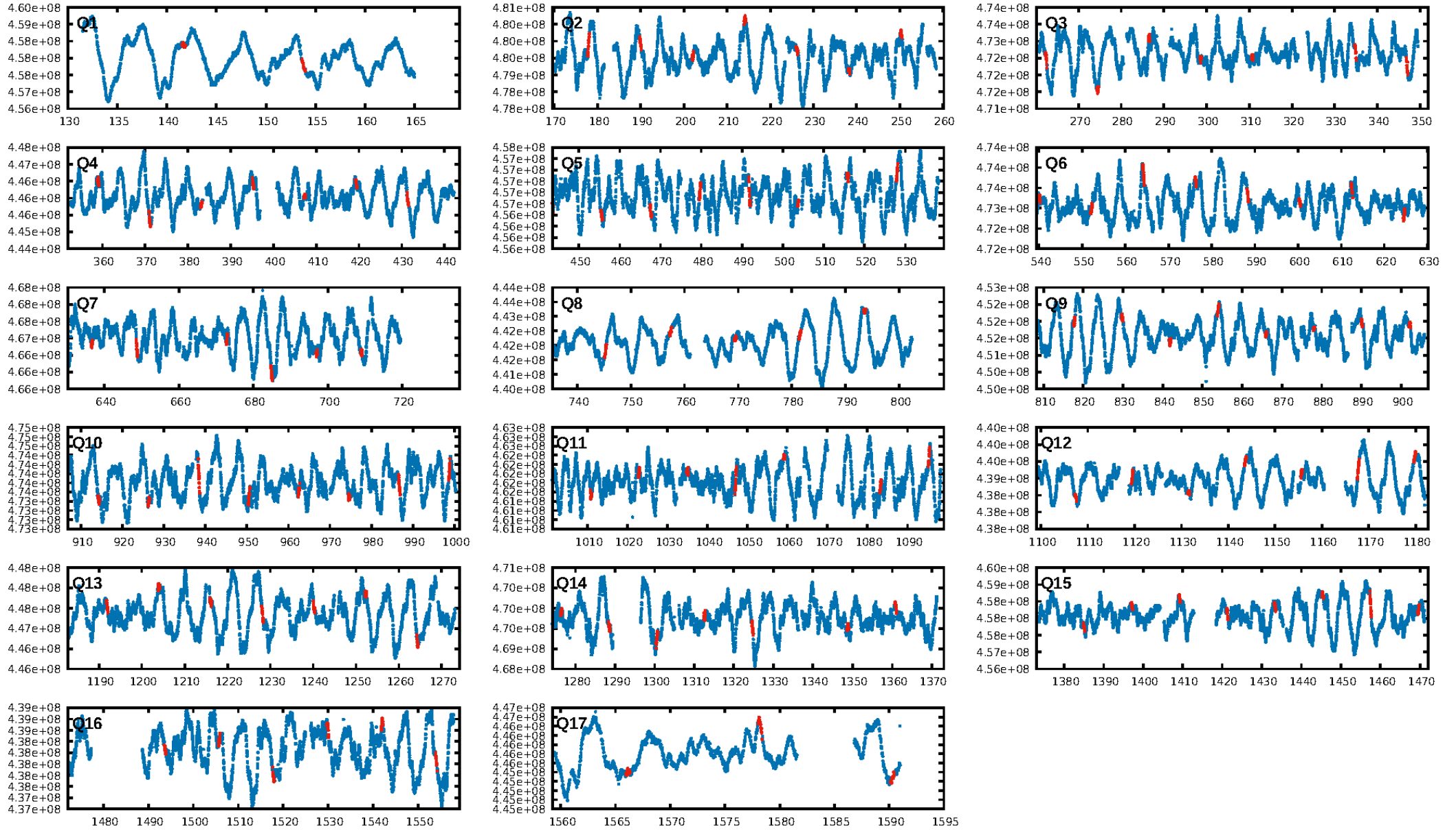
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.72 σ]
LongPeriod-sig: 100.0% [42.77 σ]
ModelChiSquare2-sig: 76.3%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 1.90e-10
RollingBand-fgt: 1.00 [28/28]
GhostDiagnostic-chr: -0.2991
Centroid-sig: 83.8%
Centroid-so: 0.209 arcsec [0.84 σ]
OotOffset-rm: 0.237 arcsec [0.73 σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-rm: 0.406 arcsec [1.25 σ]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 0.29 [5/17]

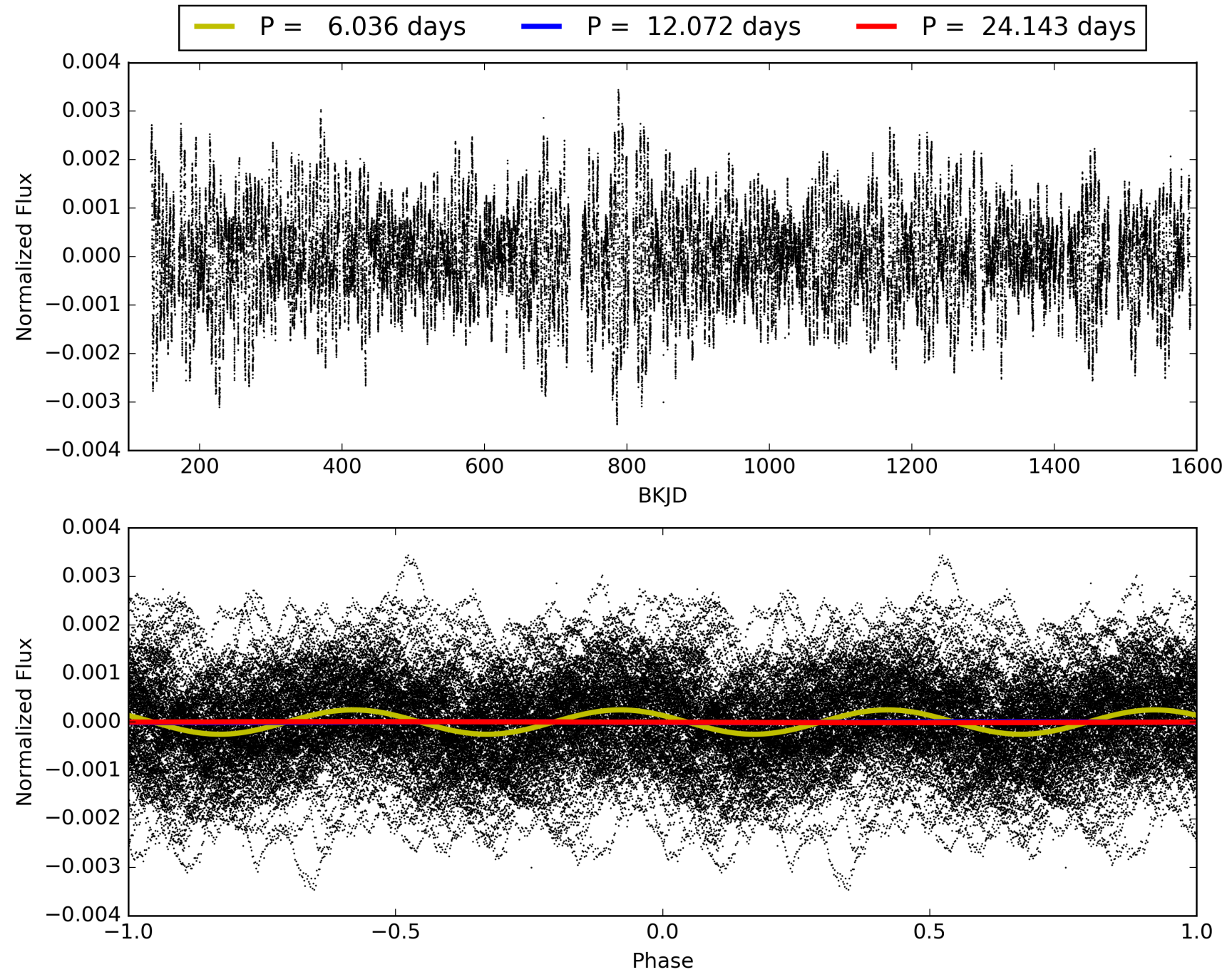
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:12:08 Z

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

TCE 007287162-04, PDC Light Curves

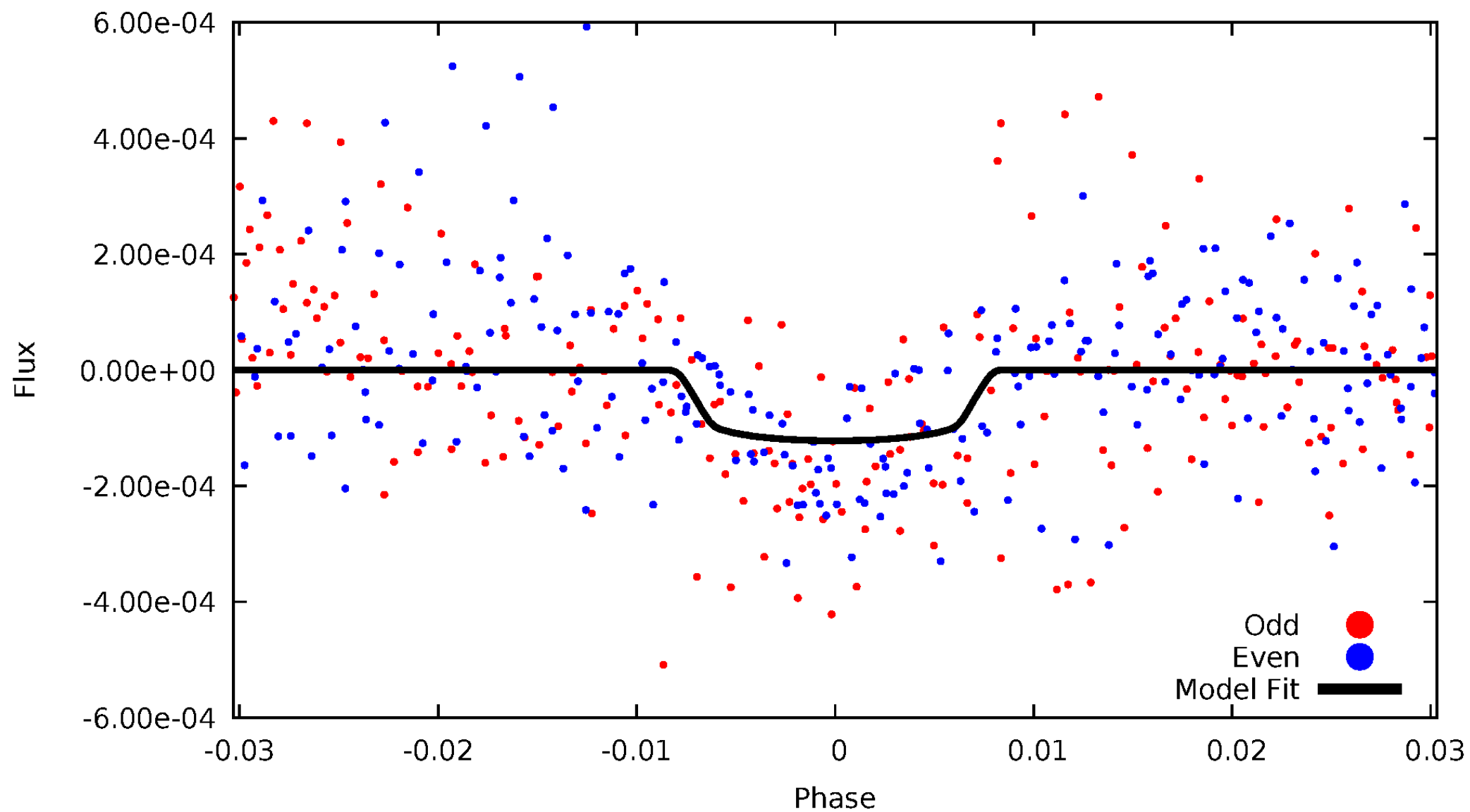


TCE 007287162-04



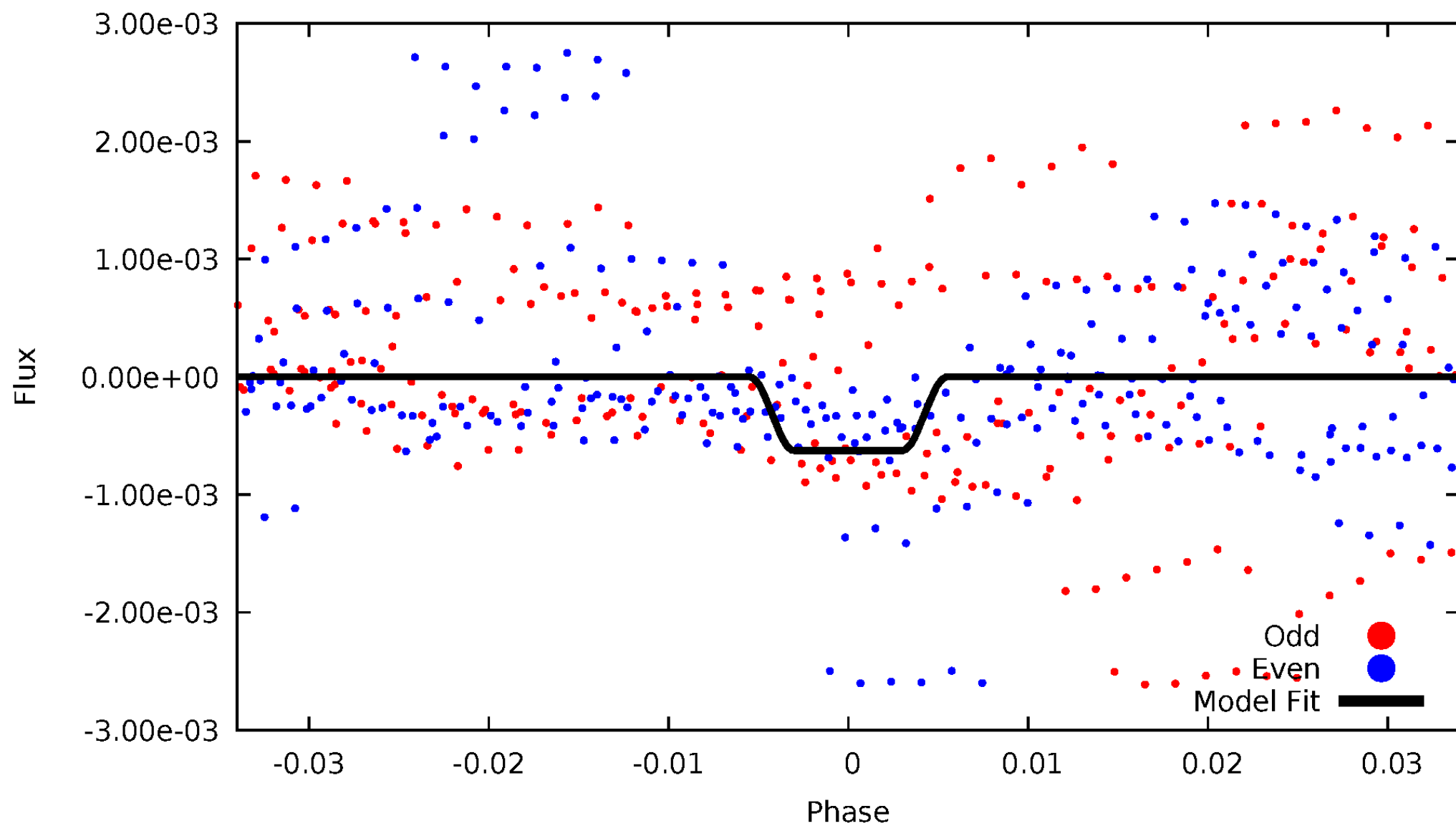
DV Odd/Even

TCE 007287162-04



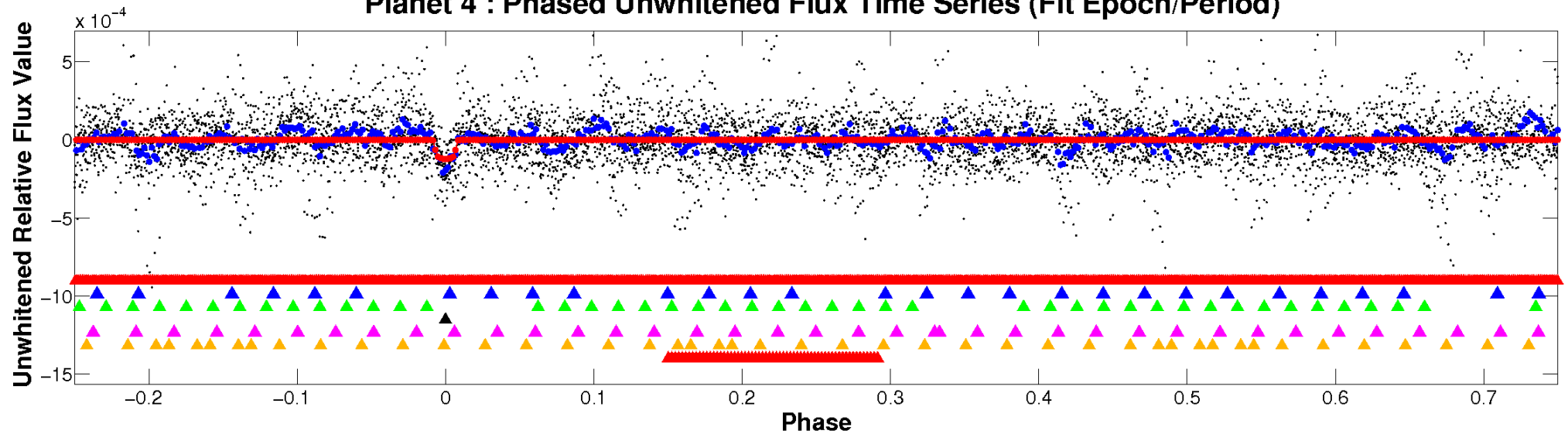
ALT Odd/Even

TCE 007287162-04

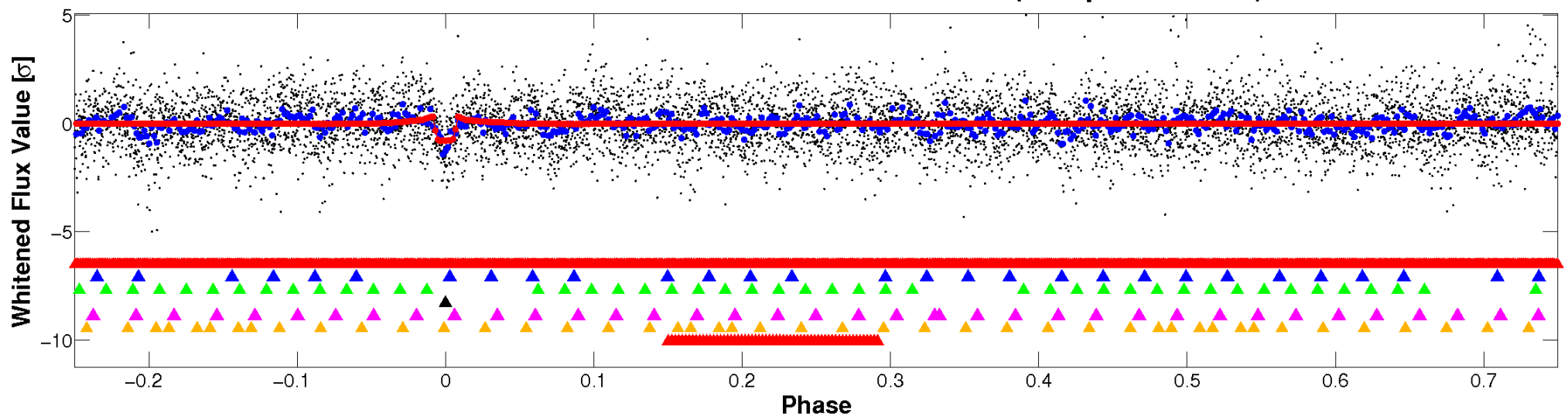


Non-Whitened Vs. Whitened Light Curve

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

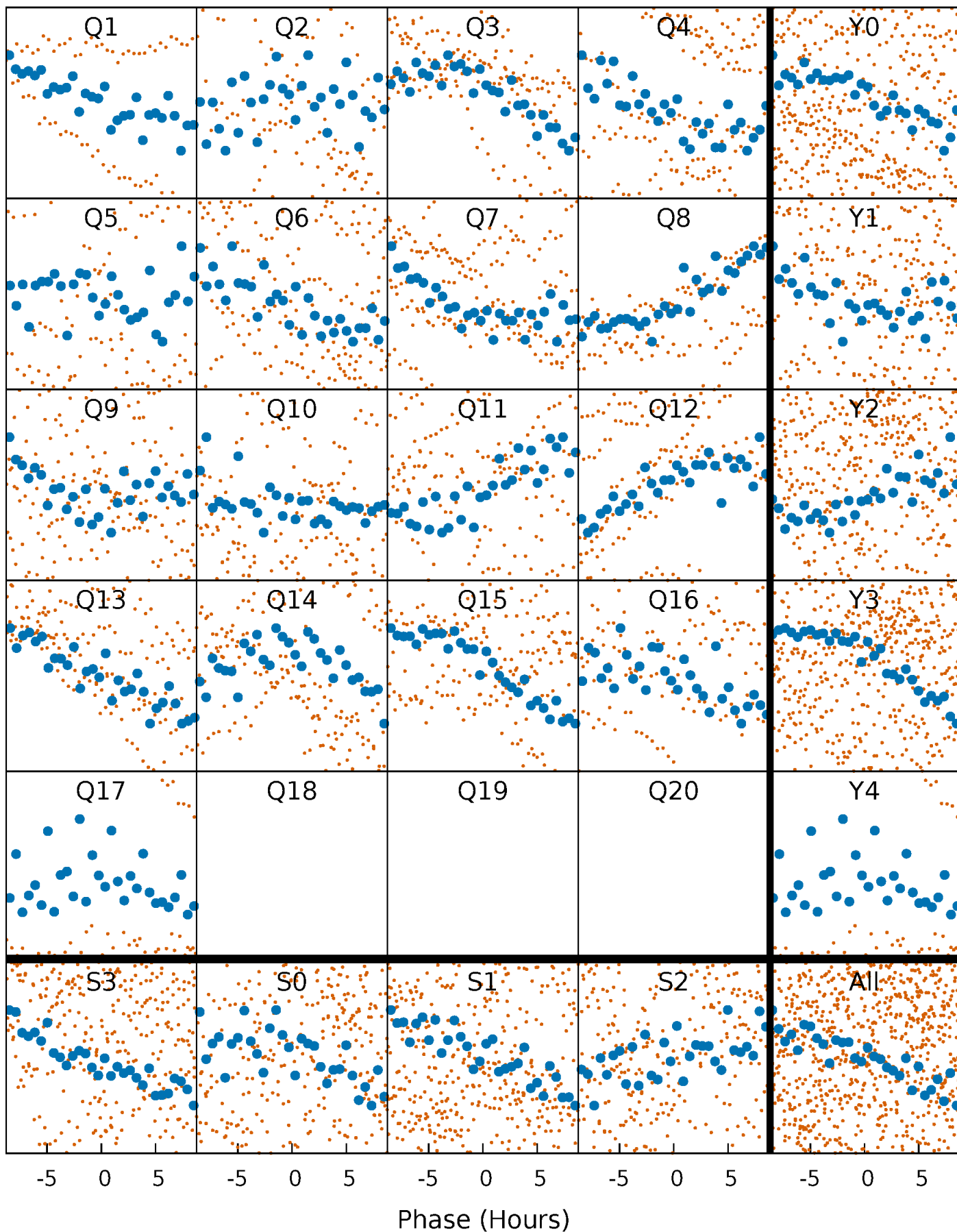


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



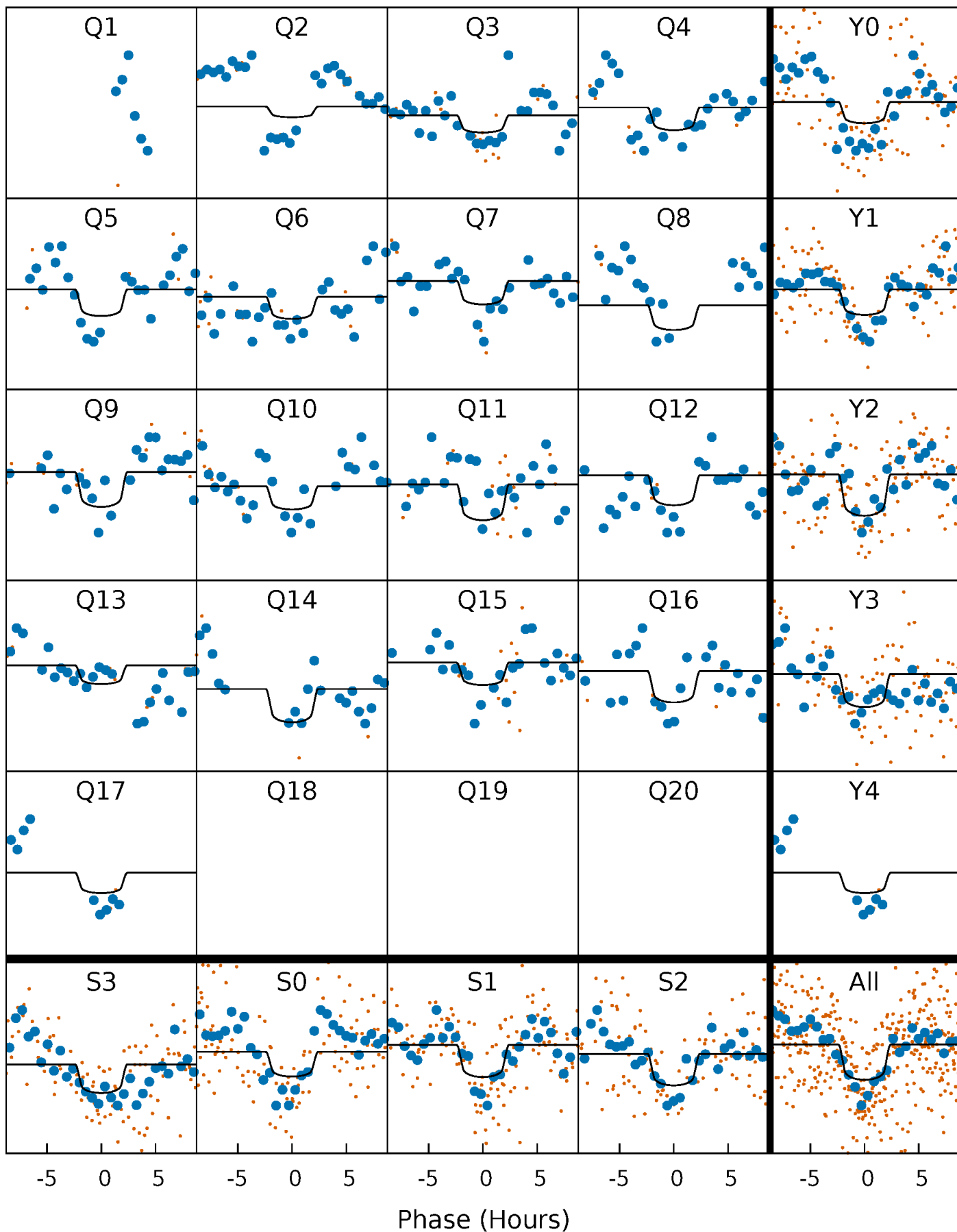
PDC Quarter-Phased Transit Curves

TCE 007287162-04 P= 12.071544 Days $T_0=141.706183$ (BKJD)



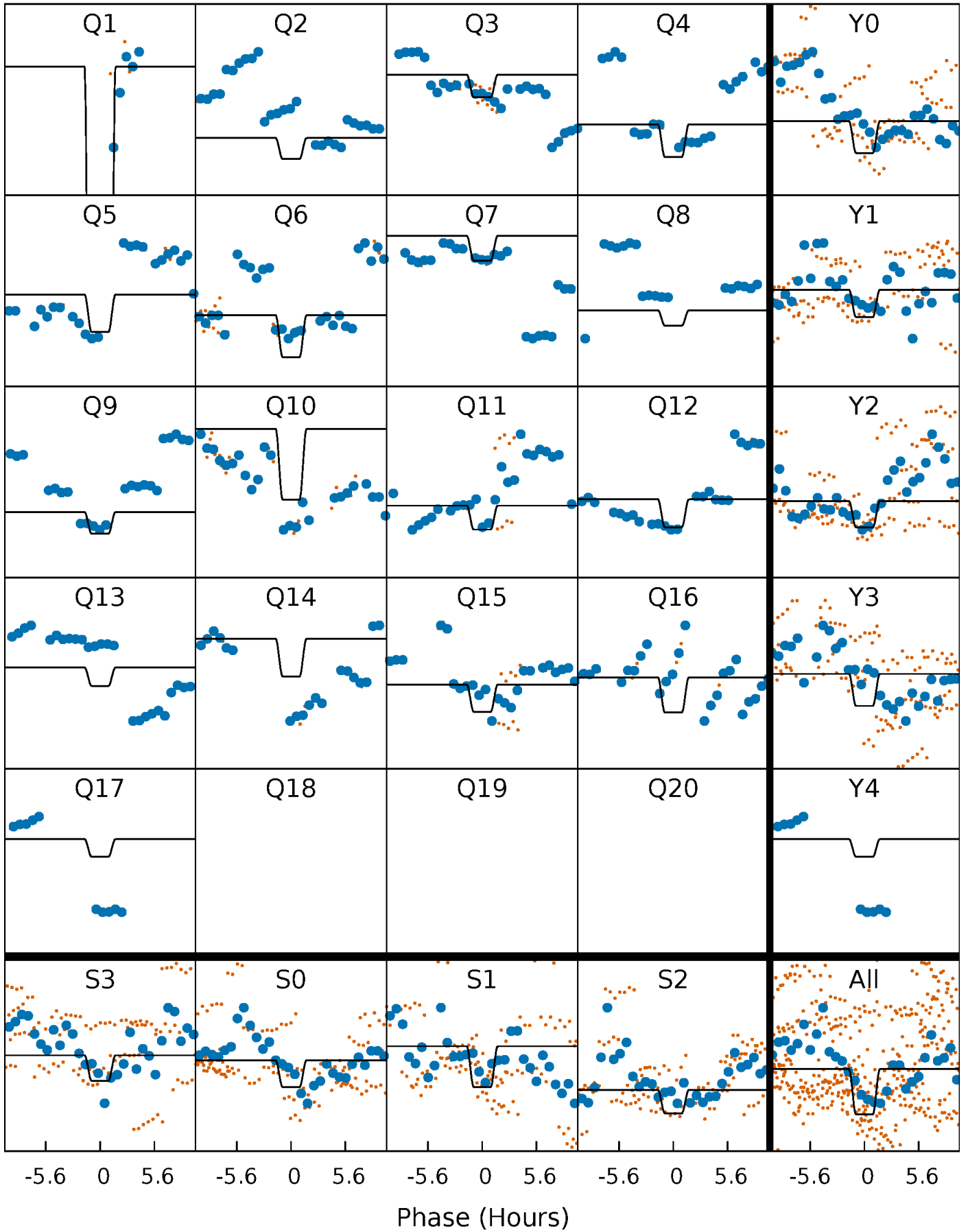
DV Quarter-Phased Transit Curves

TCE 007287162-04 P= 12.071544 Days $T_0=141.706183$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

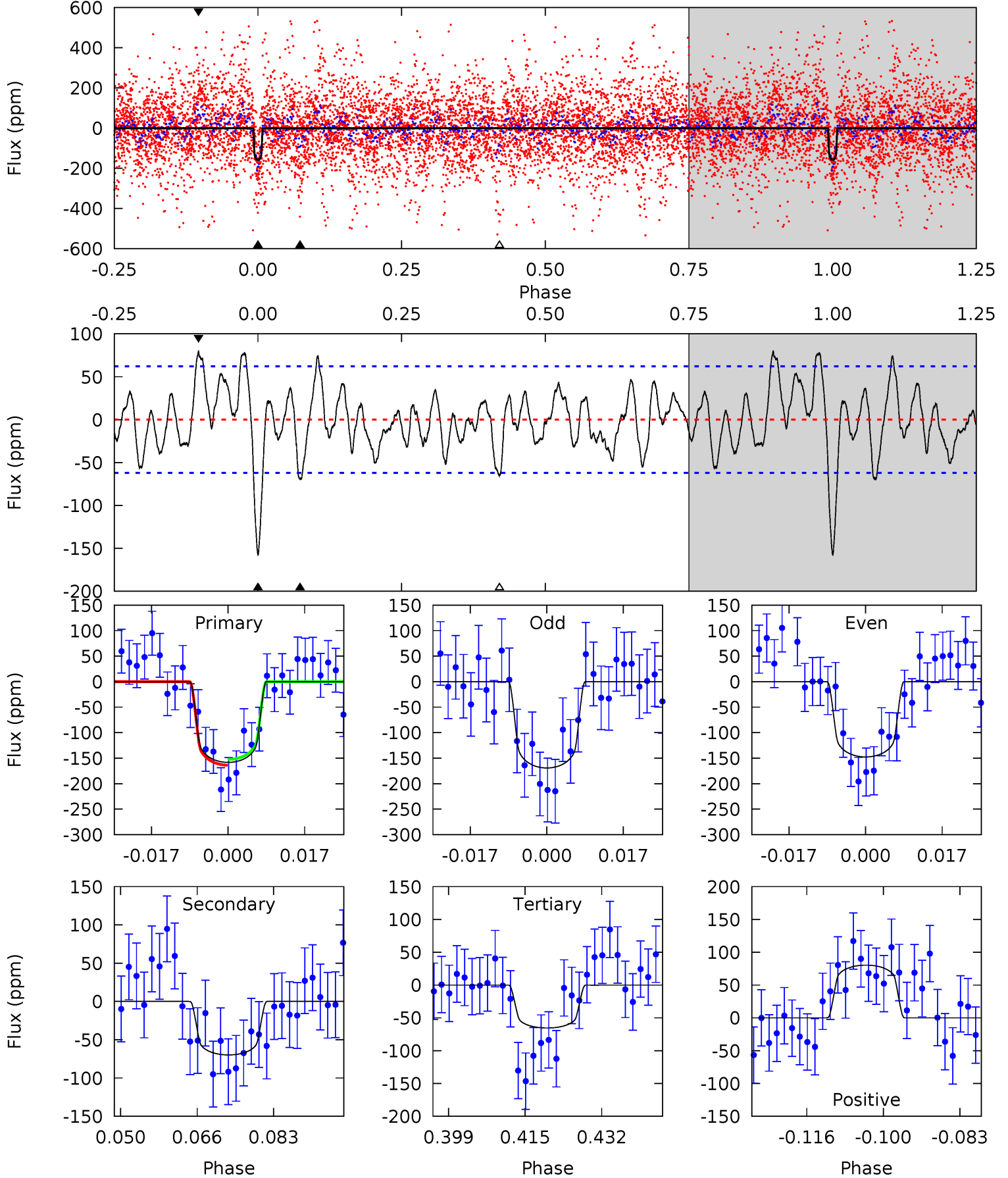
TCE 007287162-04 P= 12.071440 Days $T_0=141.705046$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-04, P = 12.071544 Days, E = 129.634639 Days

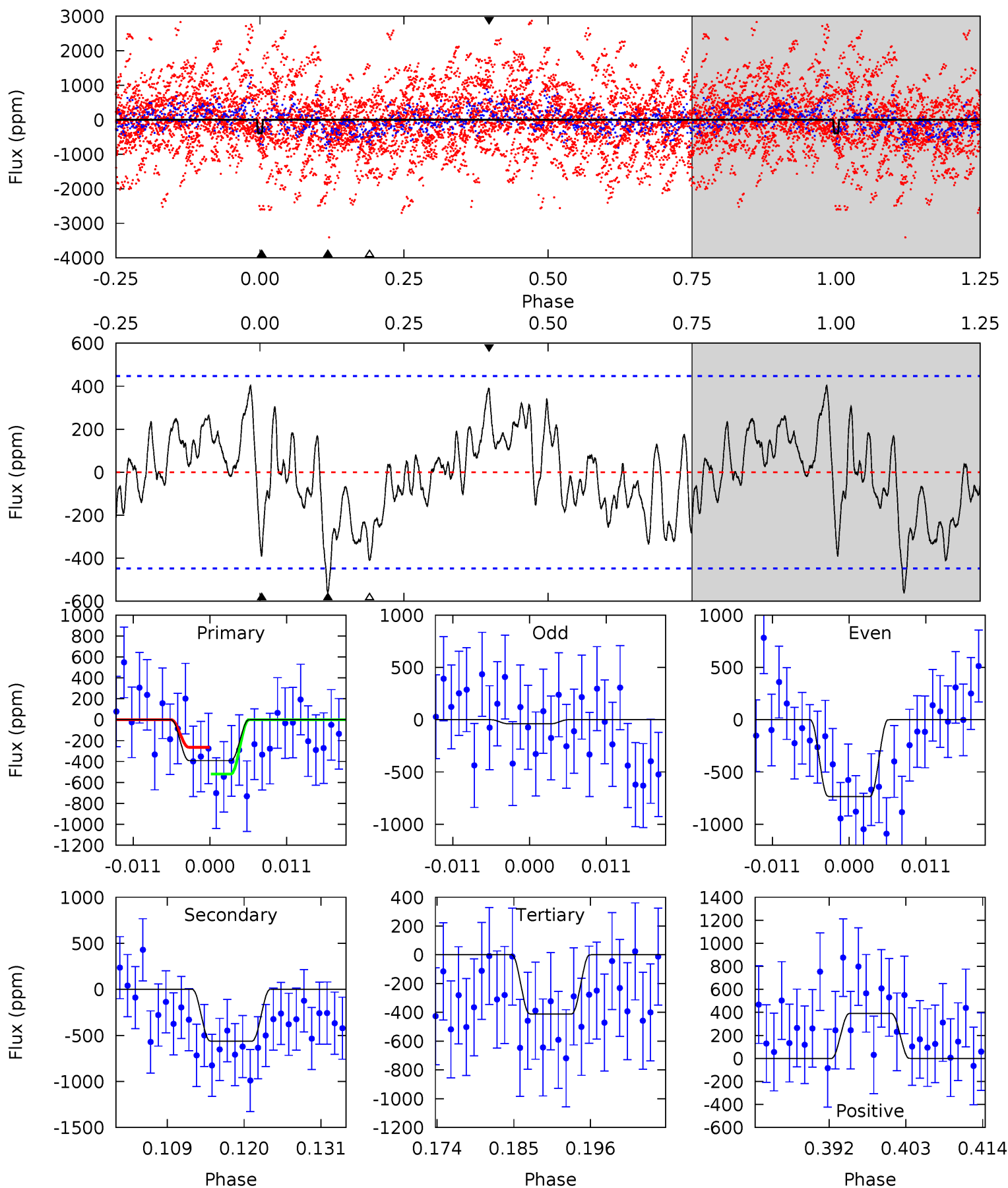
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.6 | 5.55 | 5.20 | 6.38 | 4.93 | 2.40 | 2.22 | 7.37 | 6.18 | 0.35 | -0.83 | 0.86 | 0.89 | 0.34 | 0.45 |



Alt Model-Shift Uniqueness Test

007287162-04, $P = 12.071440$ Days, $E = 129.633606$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.38 | 6.30 | 4.60 | 4.38 | 5.01 | 2.55 | 1.87 | -0.22 | 0.00 | 1.70 | 1.92 | 3.96 | 0.94 | 0.42 | 1.44 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-04 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|----------------------|-----------------------|-------------------|
| DV | -70 ± 13 | $2.39^{+0.91}_{-0.91}$ | 1691^{+107}_{-136} | 5582^{+1350}_{-721} | 85^{+121}_{-44} |
| Alt. | -562 ± 89 | $5.24^{+1.15}_{-1.20}$ | 1689^{+109}_{-134} | 6389^{+679}_{-560} | 142^{+90}_{-51} |

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 $A_{obs} \gg 1.0$

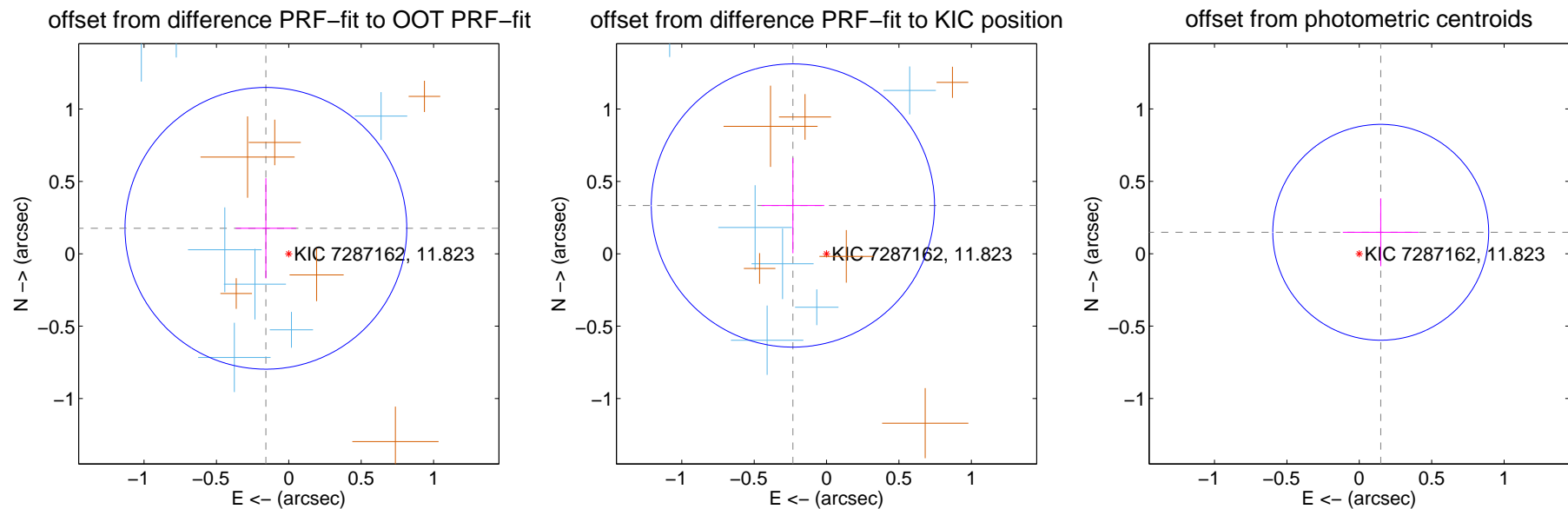
DV Centroid Data

Supplemental centroid analysis for 007287162-04. **Kepler magnitude: 11.82.** Transit SNR 8.12

There are 8 quarters with good PRF difference image offsets

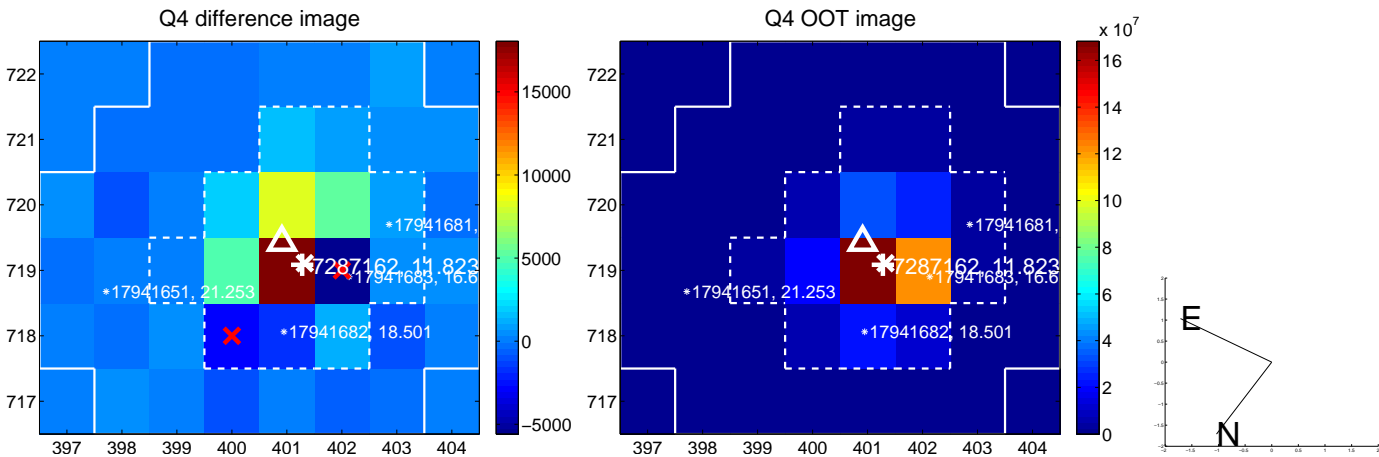
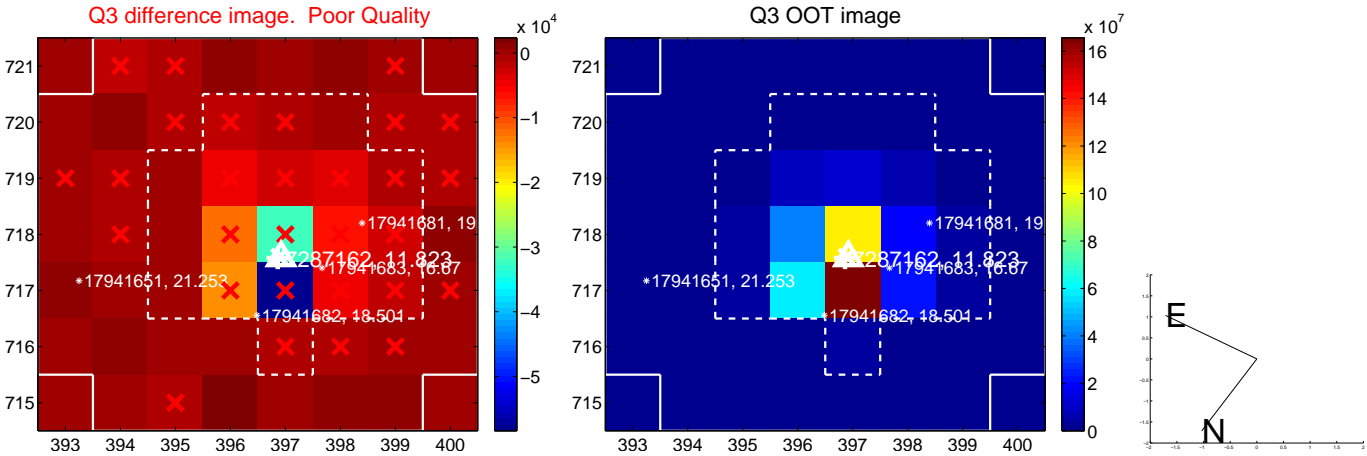
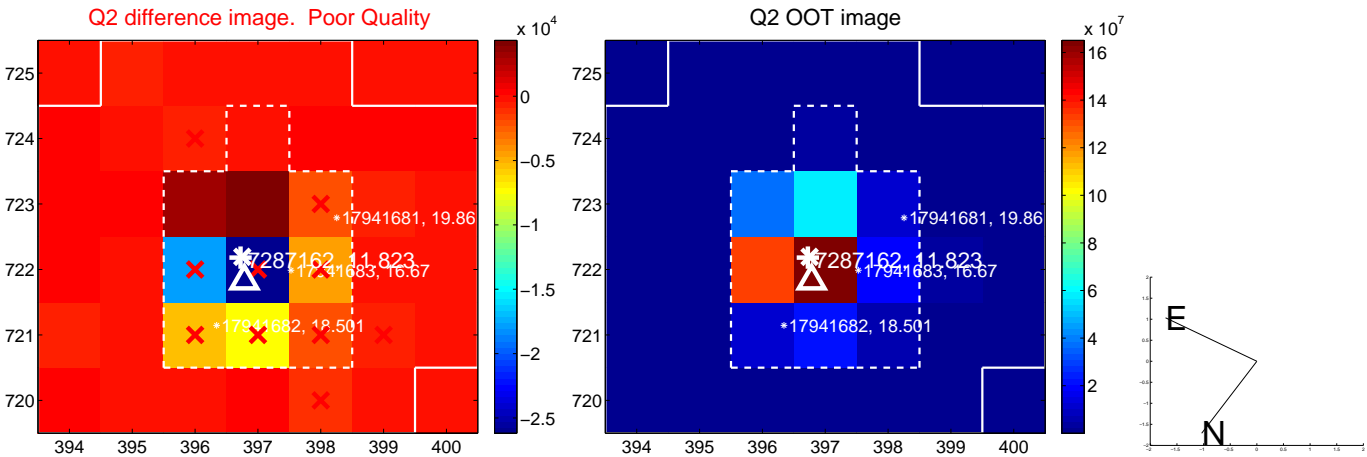
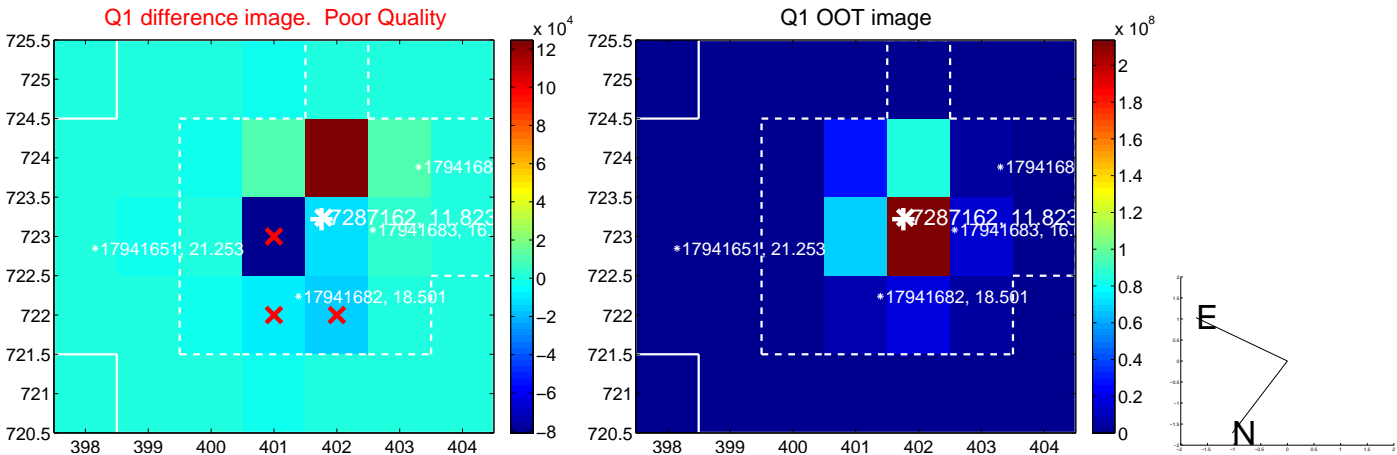
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.237 ± 0.324 | 0.73 | 0.158 ± 0.209 | 0.176 ± 0.346 |
| PRF-fit source offset from KIC position | 0.406 ± 0.326 | 1.25 | 0.232 ± 0.216 | 0.333 ± 0.329 |
| photometric centroid source offset | 0.21 ± 0.25 | 0.84 | -0.15 ± 0.26 | 0.15 ± 0.23 |

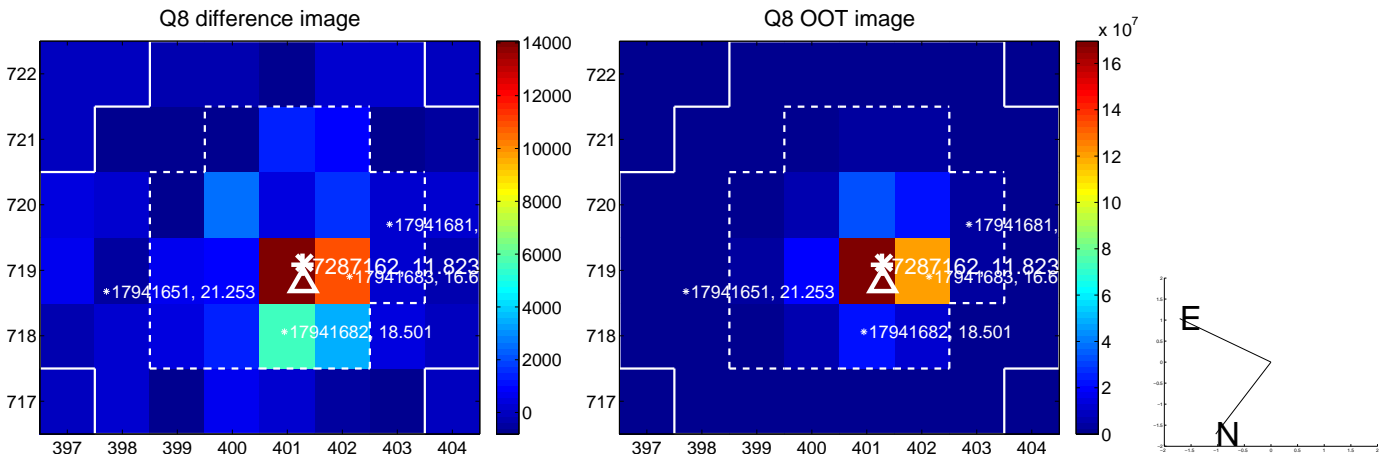
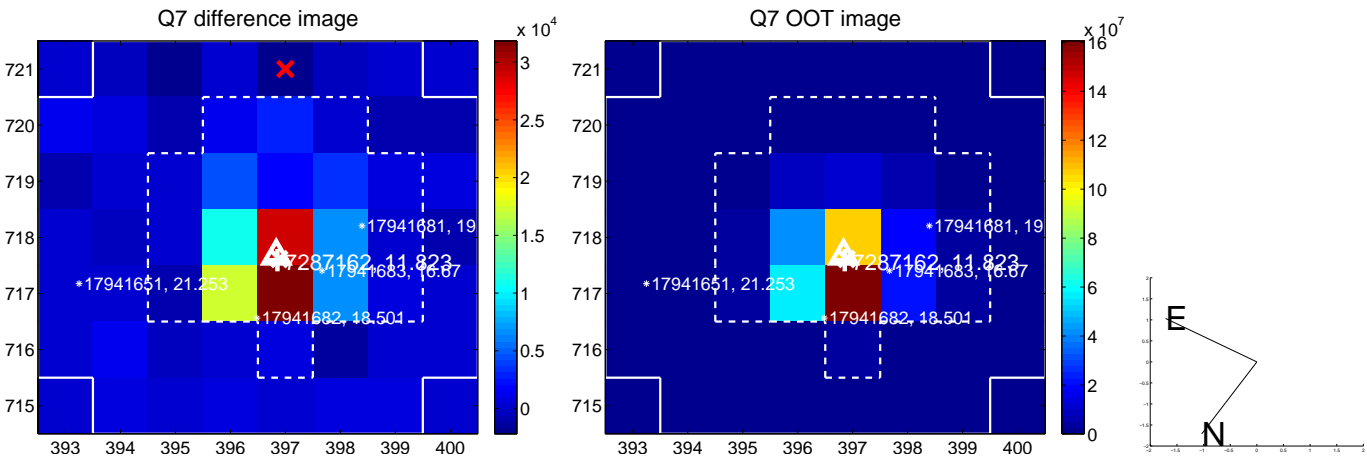
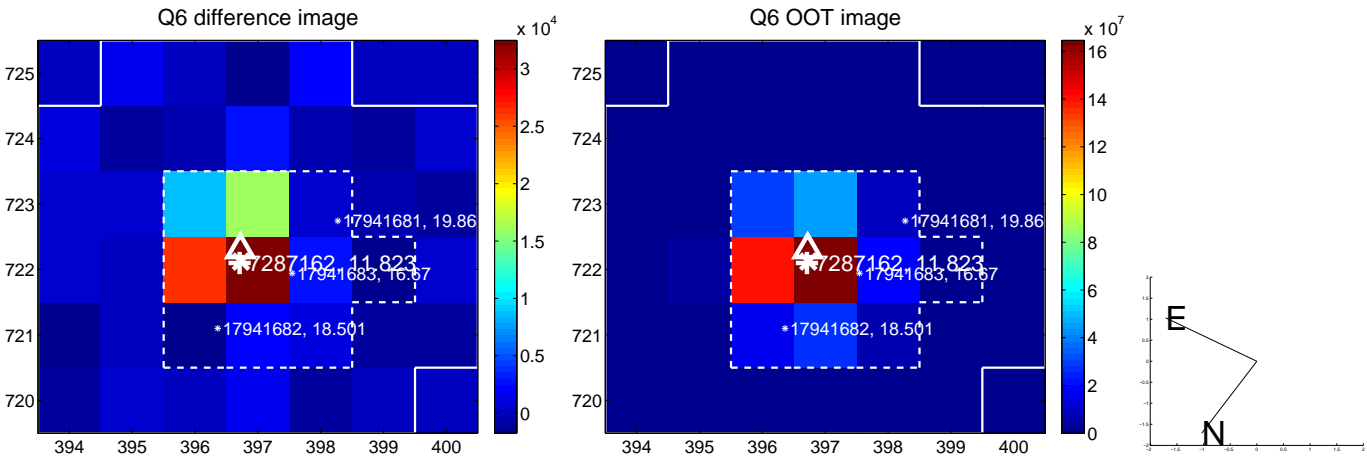
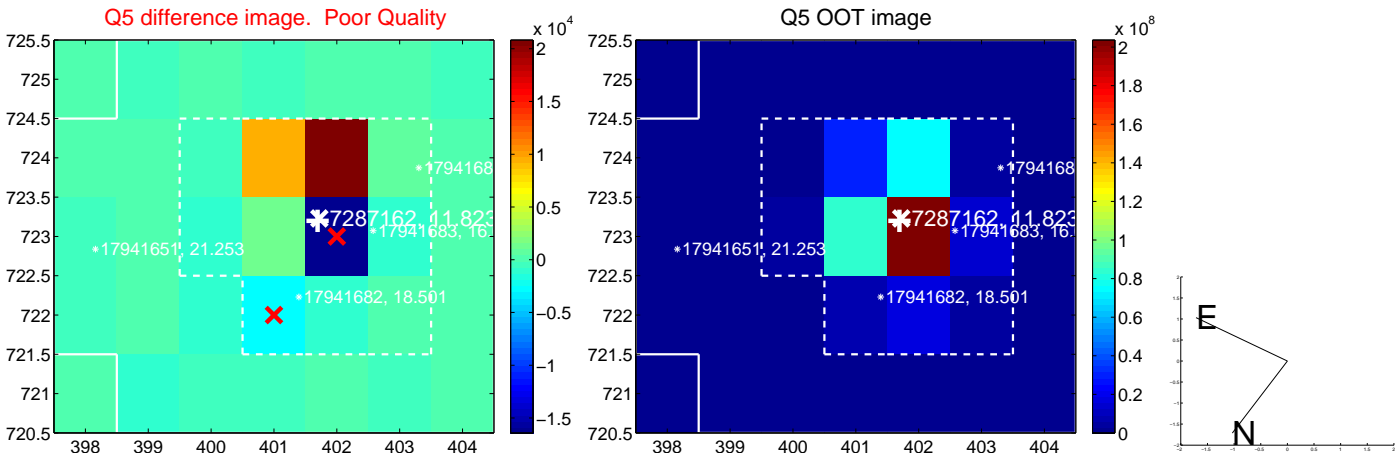


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

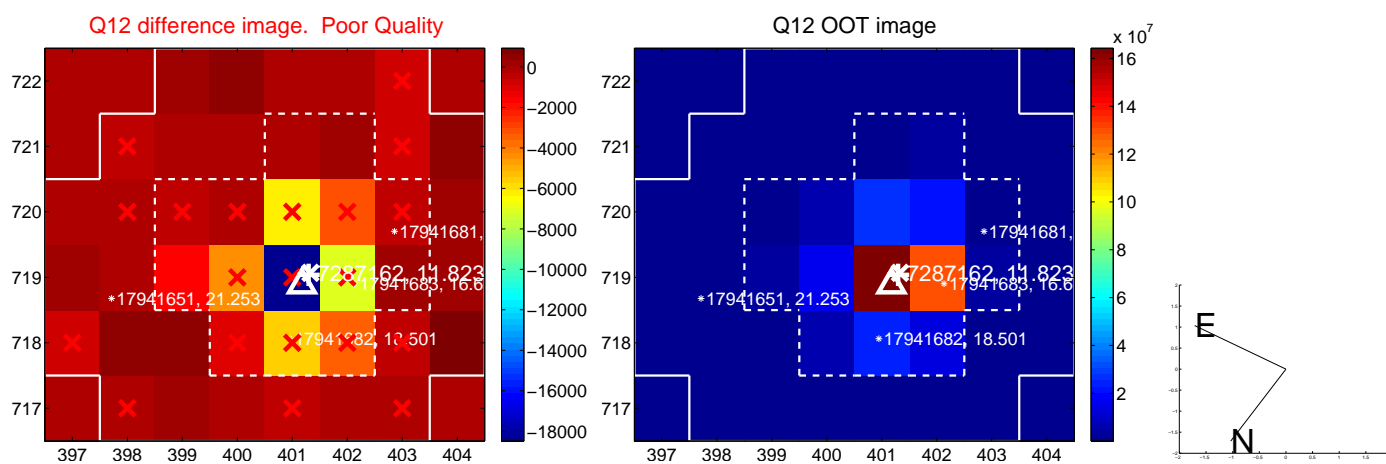
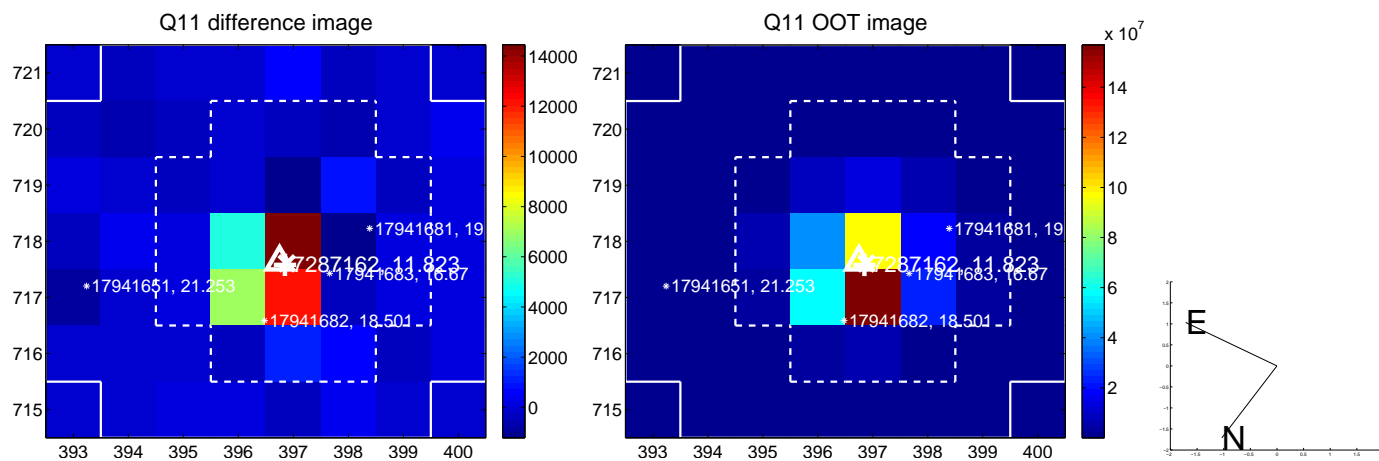
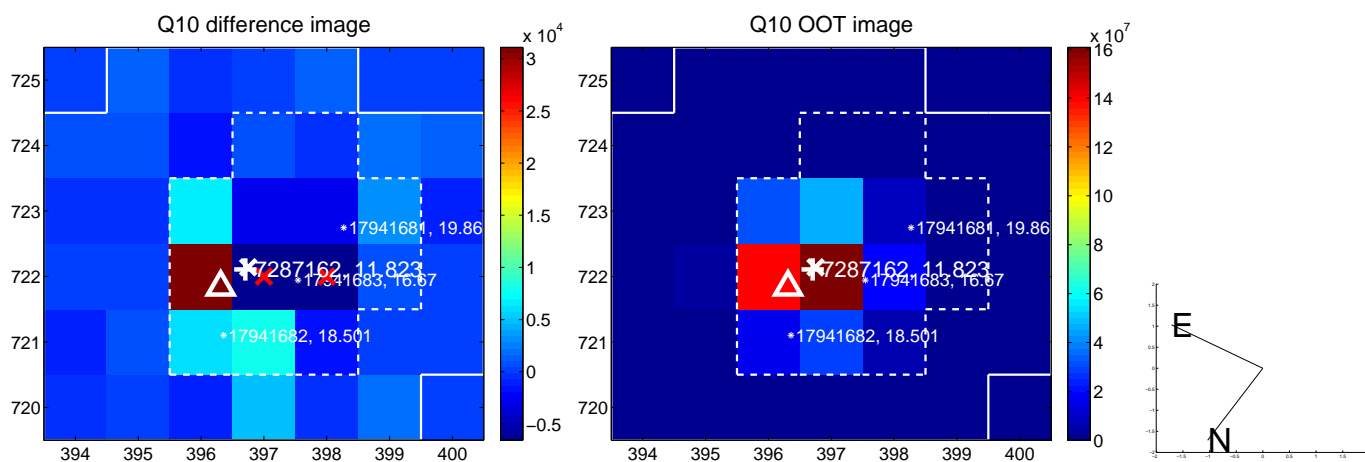
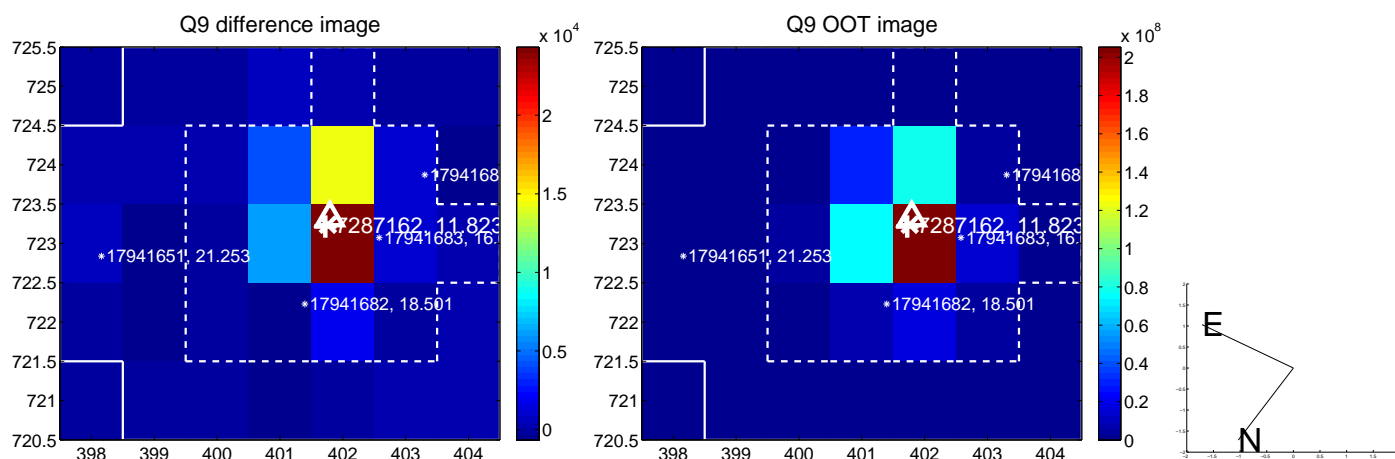
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



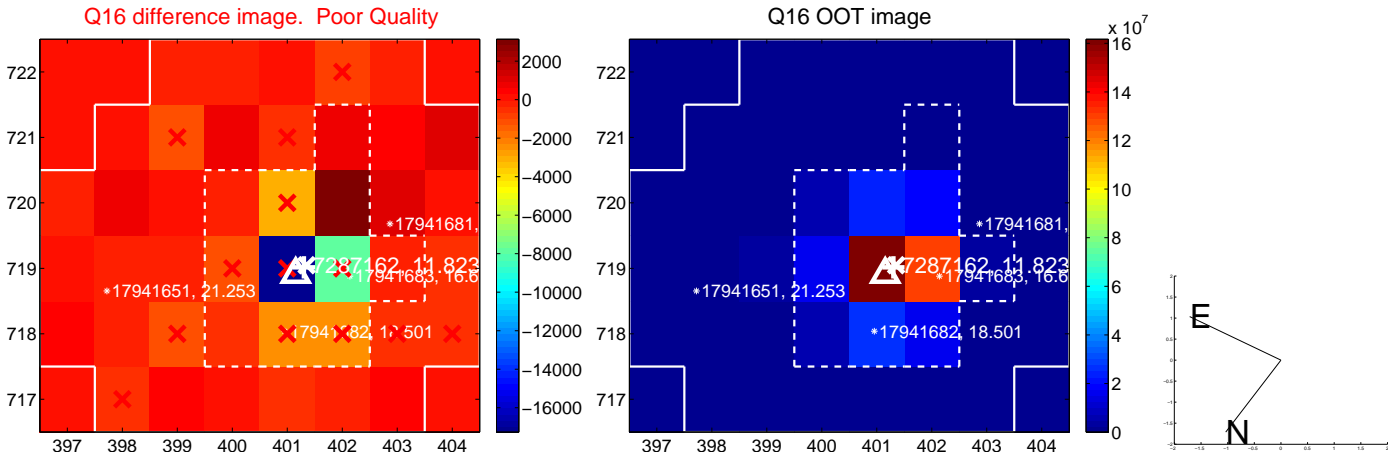
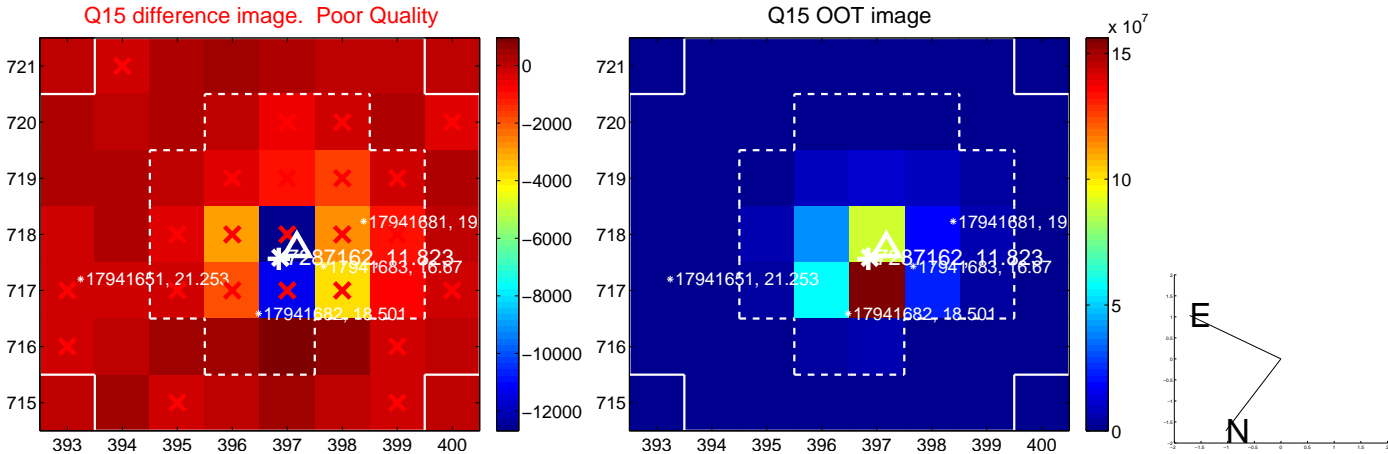
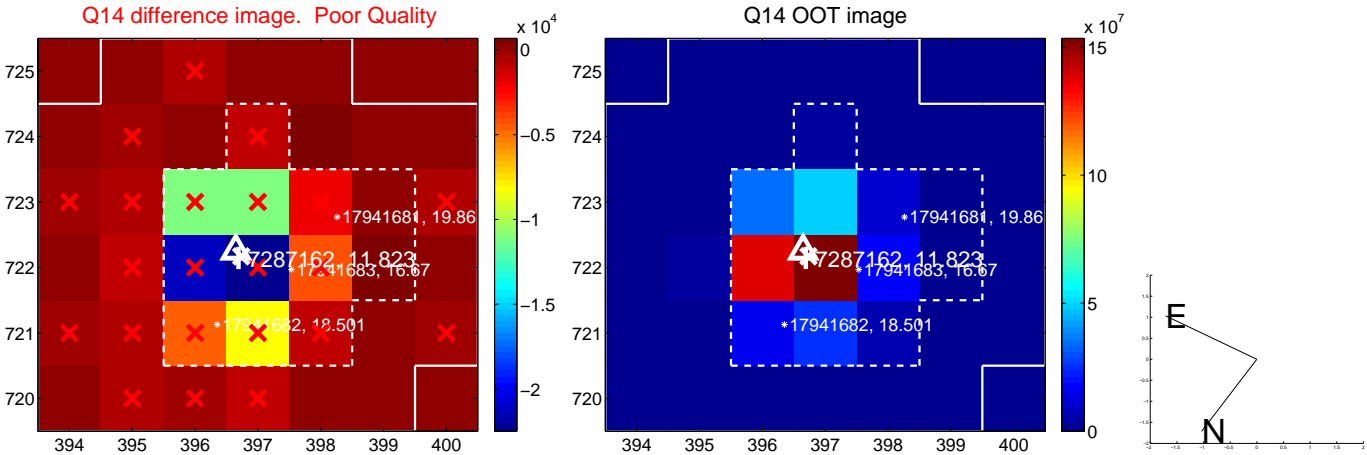
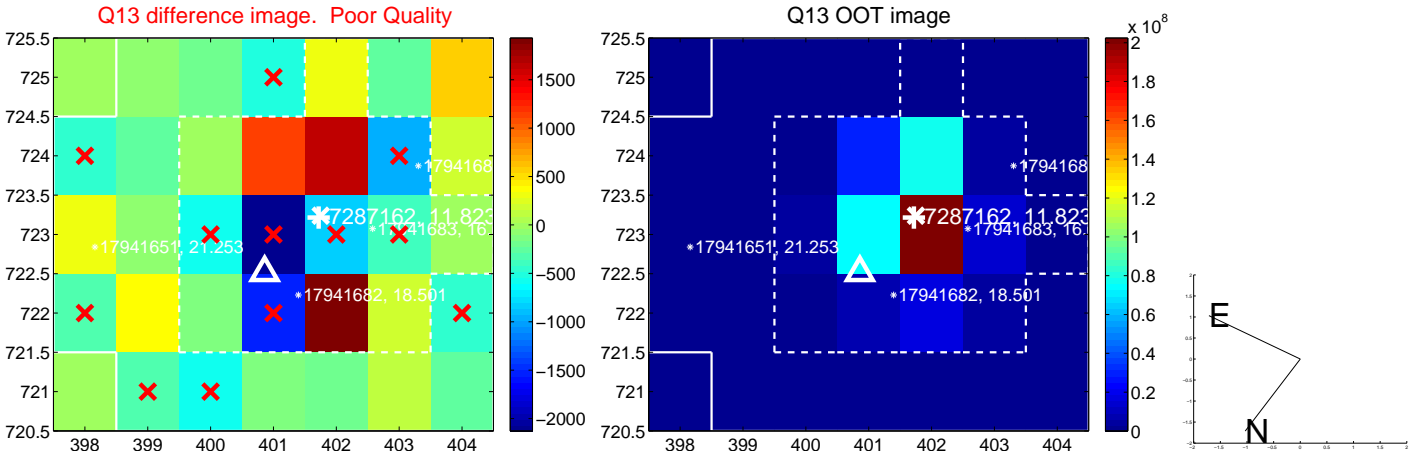
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



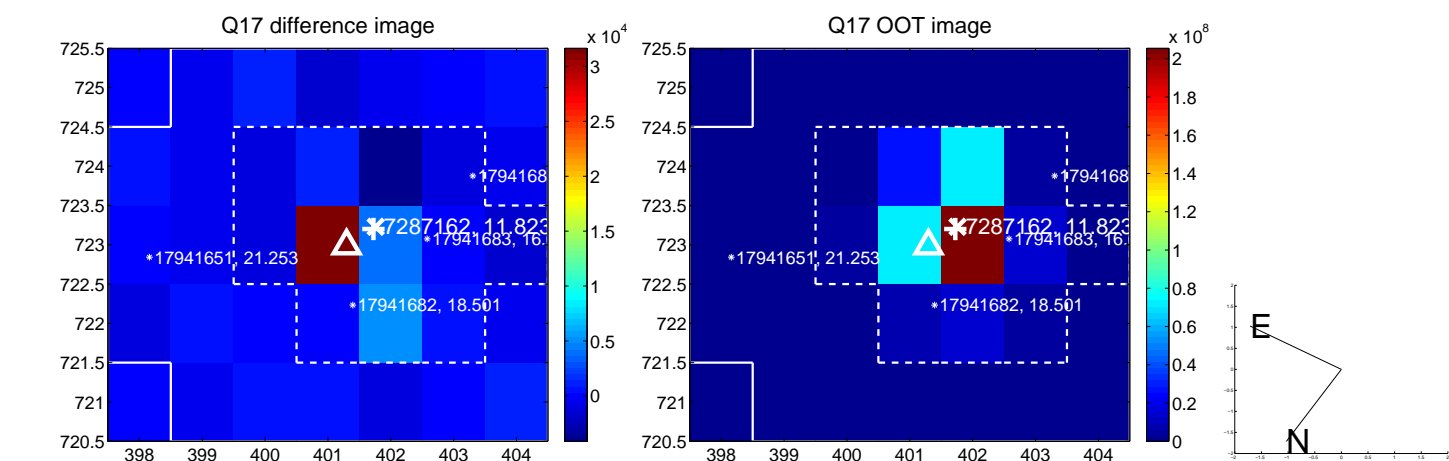
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



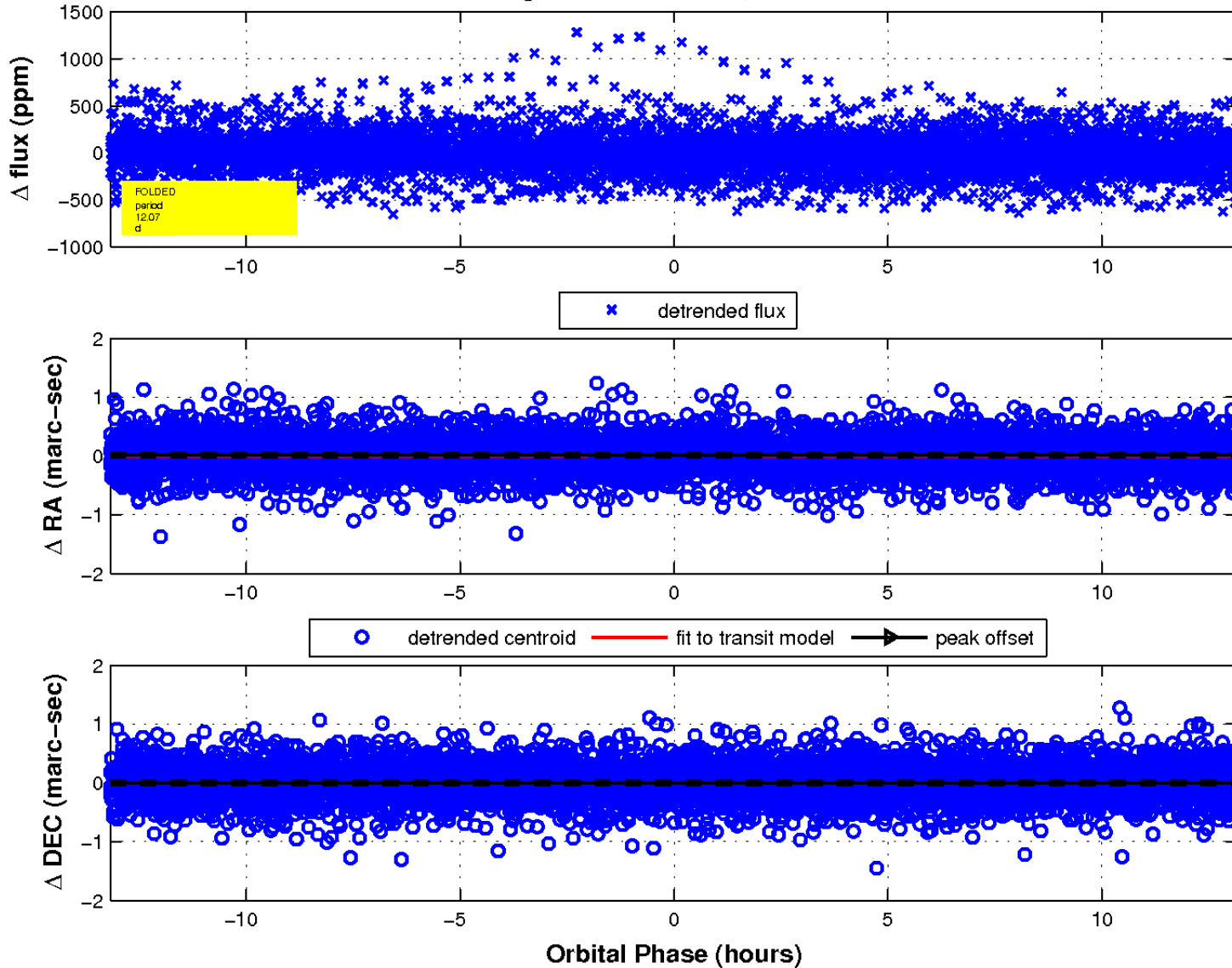
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

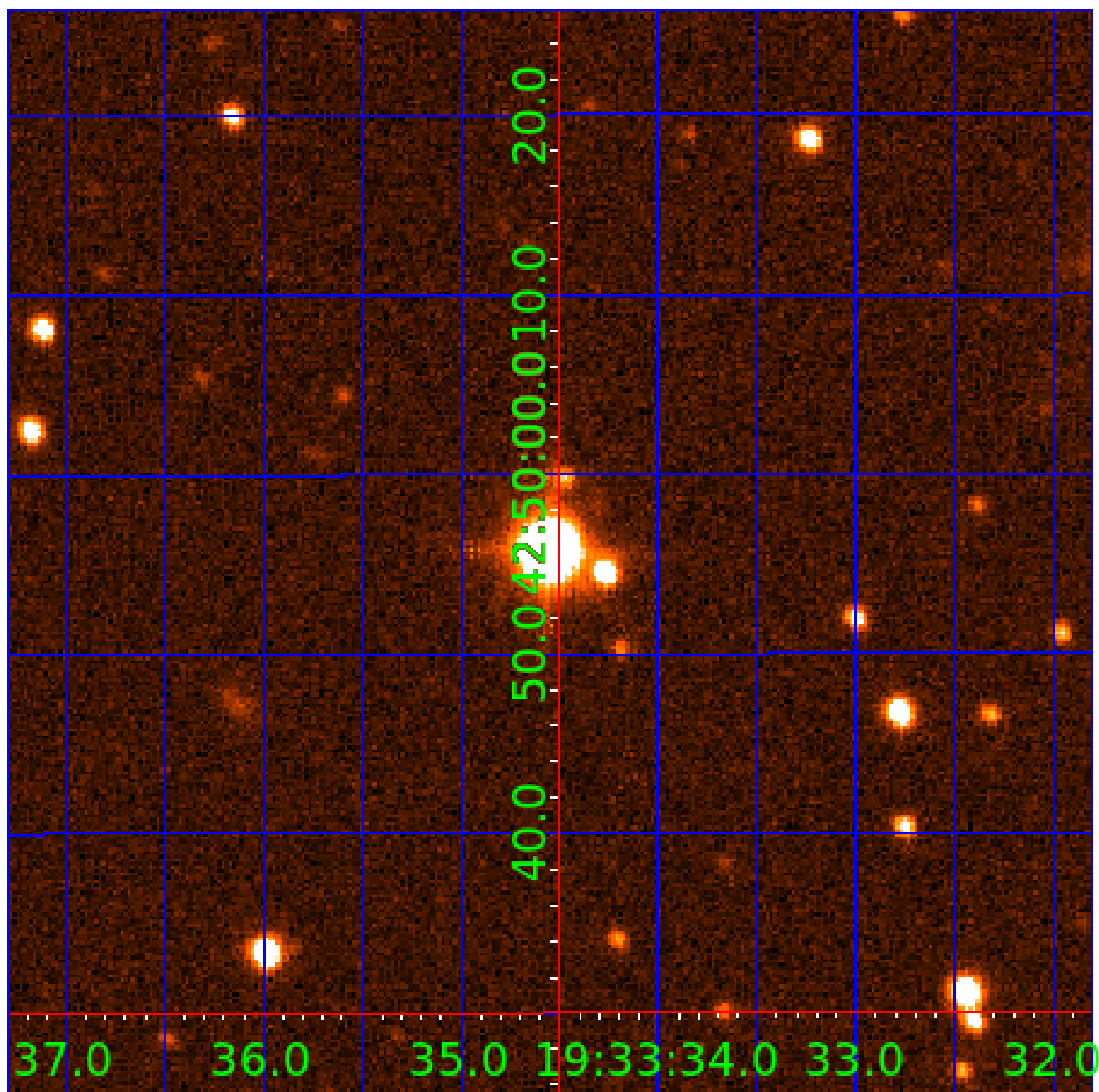


fluxWeightedCentroids, Planet 4 of 7



UKIRT Image

Declination



KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
| 007287162-02 | OBS | No | 50.058830 | 158.793992 | 254.0 | 2.248 | 22.9 | 4.3 | 1.96 | 6603 | 3.83 | 81.65 |
| 007287162-03 | OBS | No | 32.263302 | 134.339844 | 329.2 | 2.269 | 14.0 | 7.8 | 1.96 | 6603 | 3.76 | 146.67 |
| 007287162-04 | OBS | No | 12.071544 | 141.706183 | 122.0 | 4.390 | 7.7 | 8.1 | 1.96 | 6603 | 2.53 | 544.01 |
| 007287162-05 | OBS | No | 38.497378 | 133.655123 | 165.5 | 2.477 | 9.1 | 3.4 | 1.96 | 6603 | 2.96 | 115.89 |
| 007287162-06 | OBS | No | 32.302366 | 139.350892 | 221.7 | 3.181 | 11.2 | 5.7 | 1.96 | 6603 | 3.31 | 146.43 |
| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

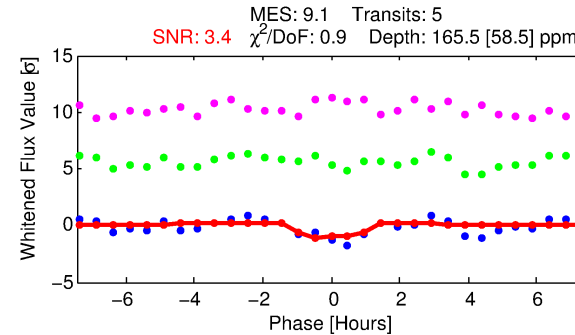
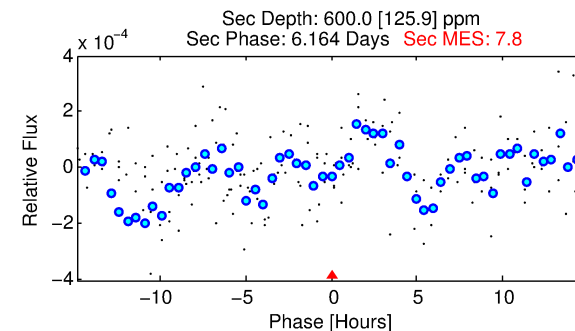
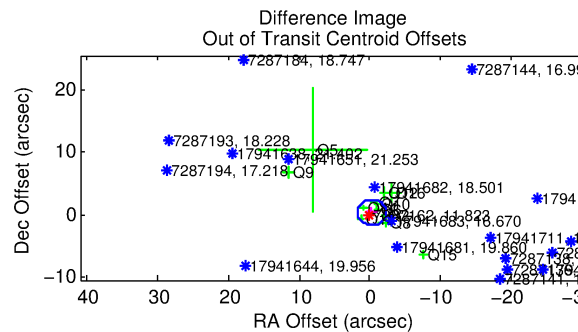
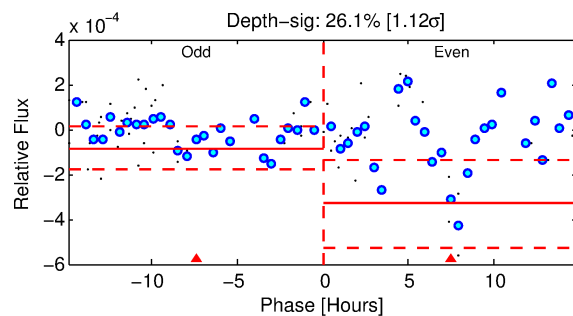
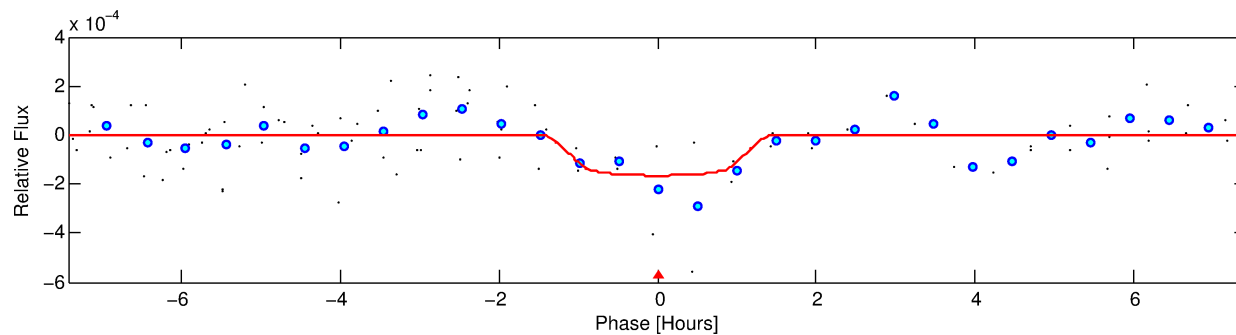
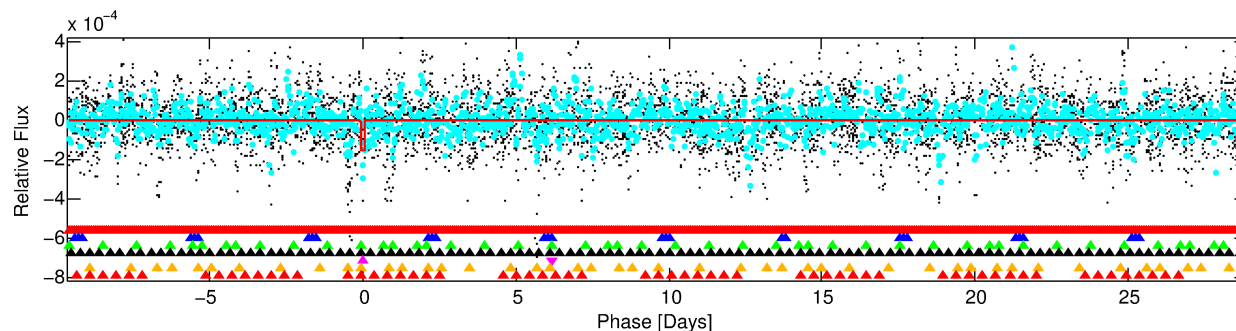
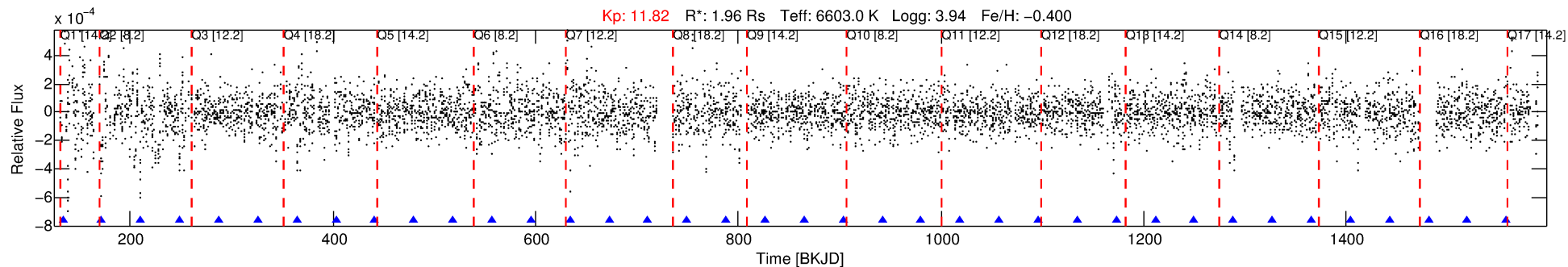
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-05

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 5 of 7 Period: 38.497 d



DV Fit Results:

Period = 38.49738 [0.00497] d
Epoch = 133.6551 [0.0568] BKJD
Rp/R* = 0.0138 [0.0272]
a/R* = 54.62 [630.90]
b = 0.90 [2.41]
Seff = 115.89 [55.67]
Teq = 837 [100] K
Rp = 2.96 [5.90] Re
a = 0.2381 [0.0701] AU
Ag = 2141.18 [8516.19] [0.25 σ]
Teffp = 8799 [8692] K [0.92 σ]

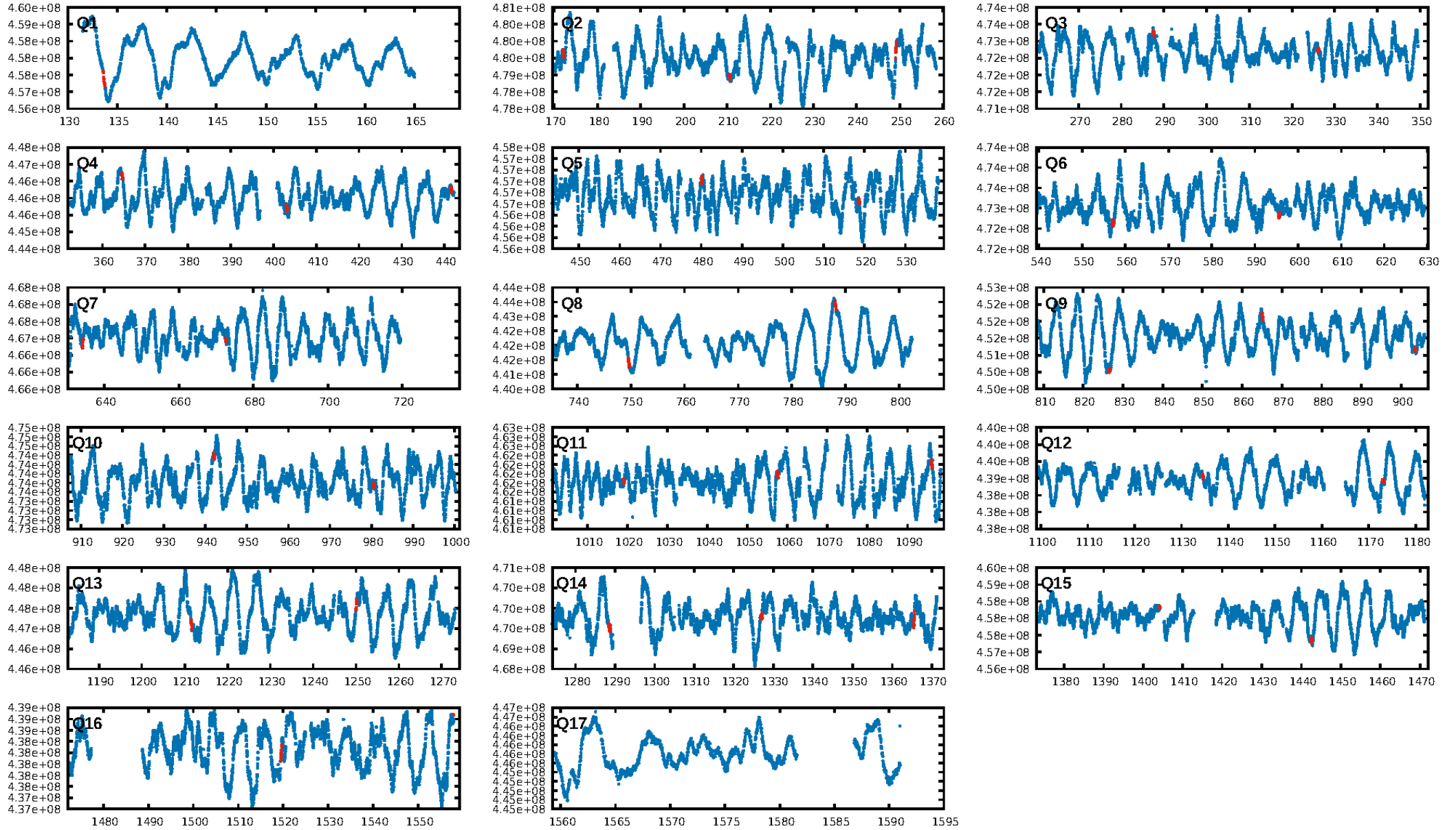
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.88 σ]
LongPeriod-sig: 100.0% [82.95 σ]
ModelChiSquare2-sig: 38.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.86e-19
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.5631
Centroid-sig: 80.5%
Centroid-so: 0.101 arcsec [0.24 σ]
OotOffset-rm: 0.433 arcsec [0.64 σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-rm: 0.484 arcsec [0.66 σ]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 0.19 [3/16]

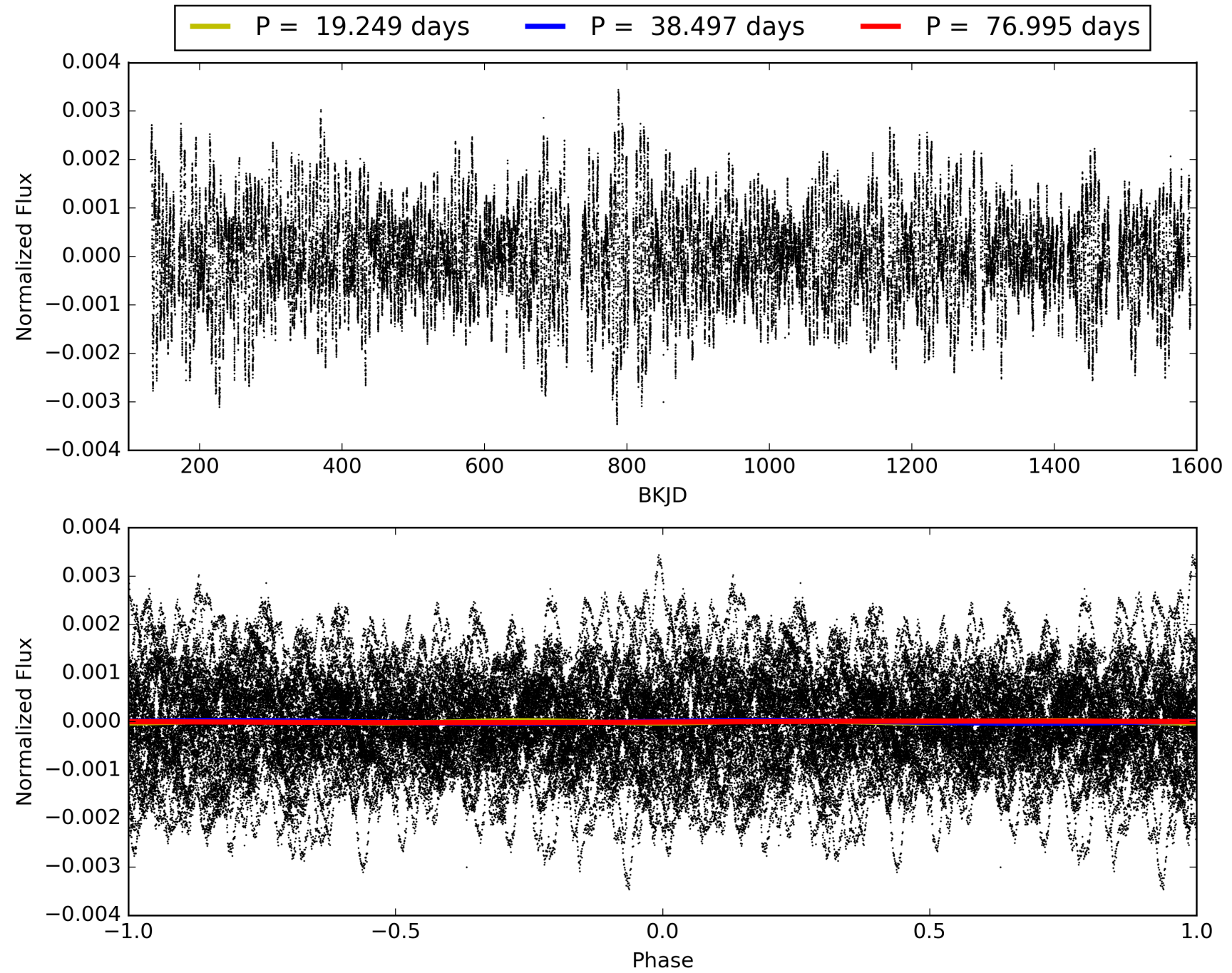
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:12:11 Z

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

TCE 007287162-05, PDC Light Curves

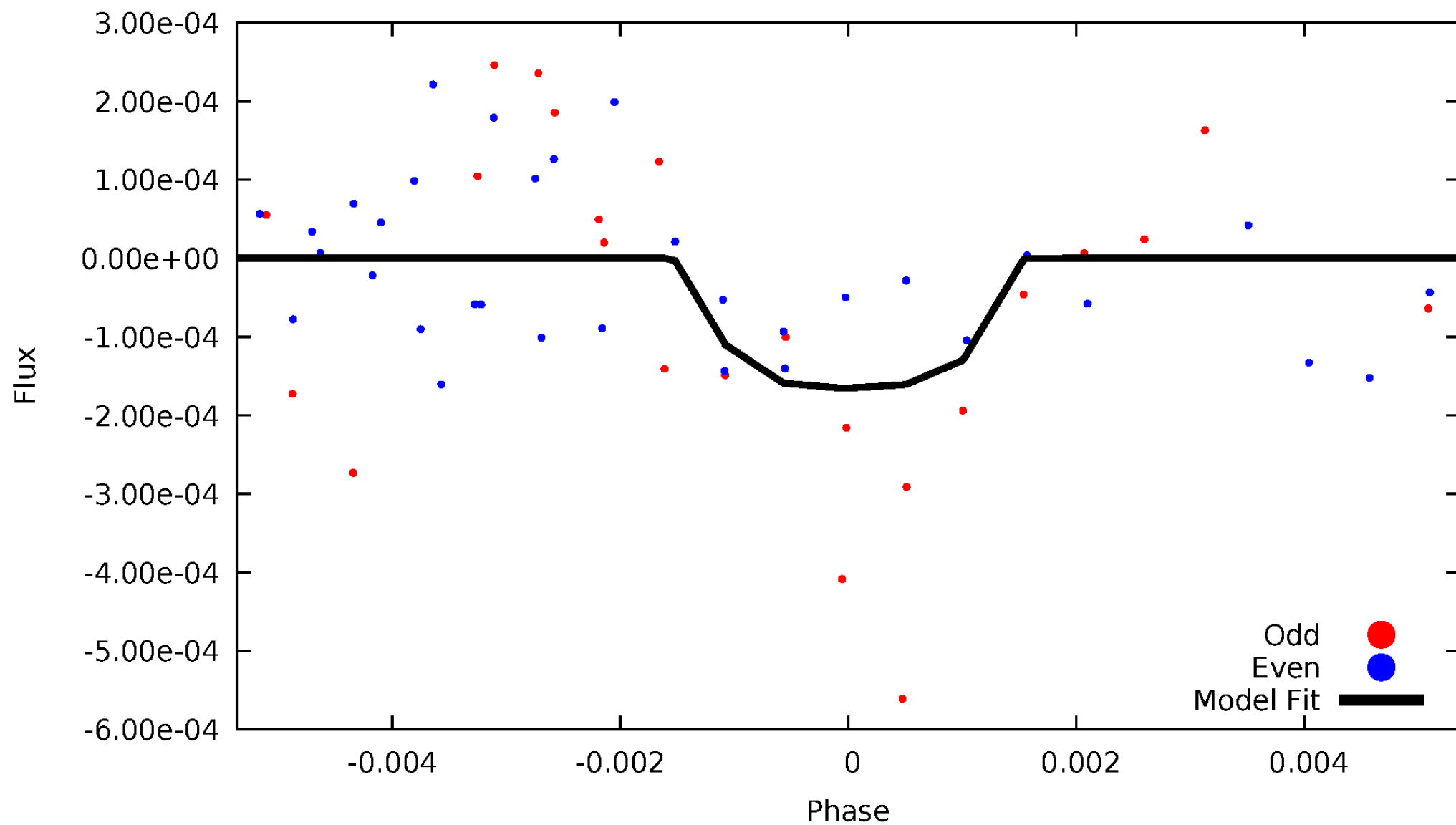


TCE 007287162-05



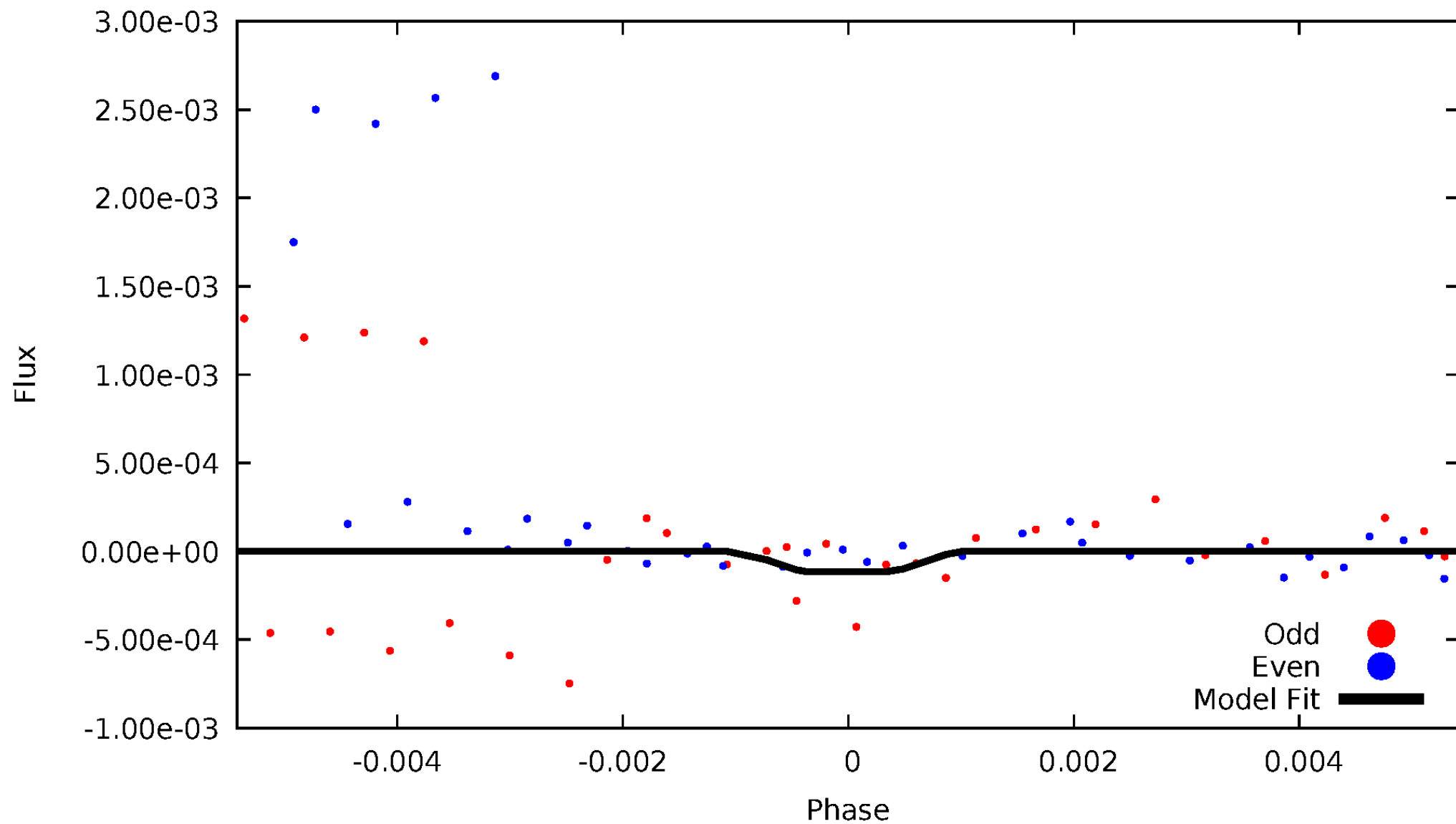
DV Odd/Even

TCE 007287162-05

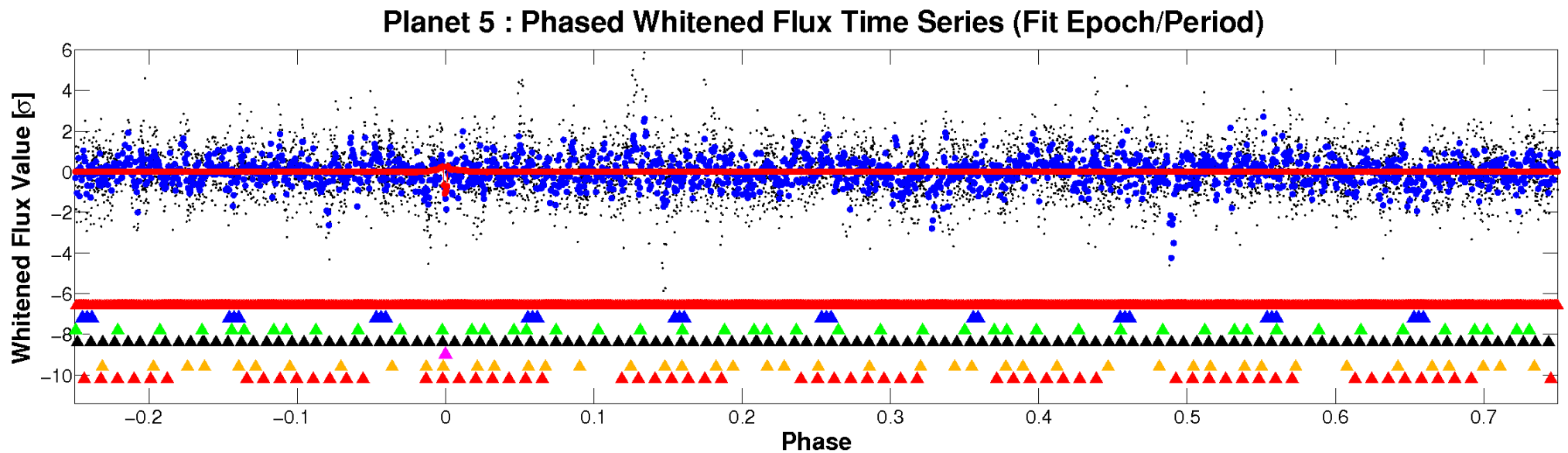
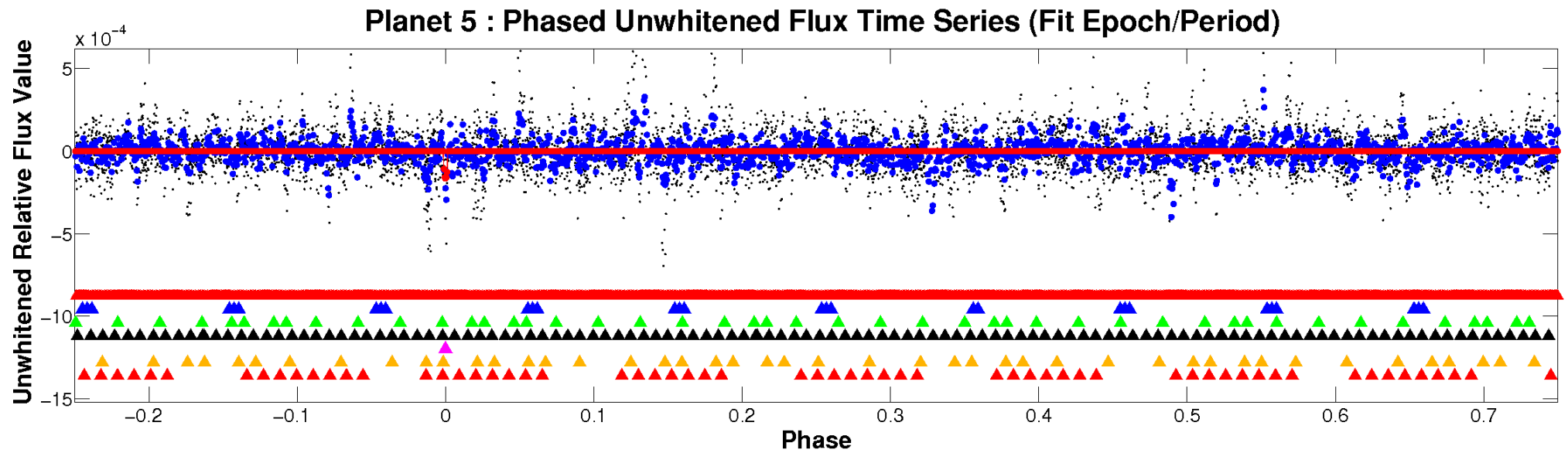


ALT Odd/Even

TCE 007287162-05

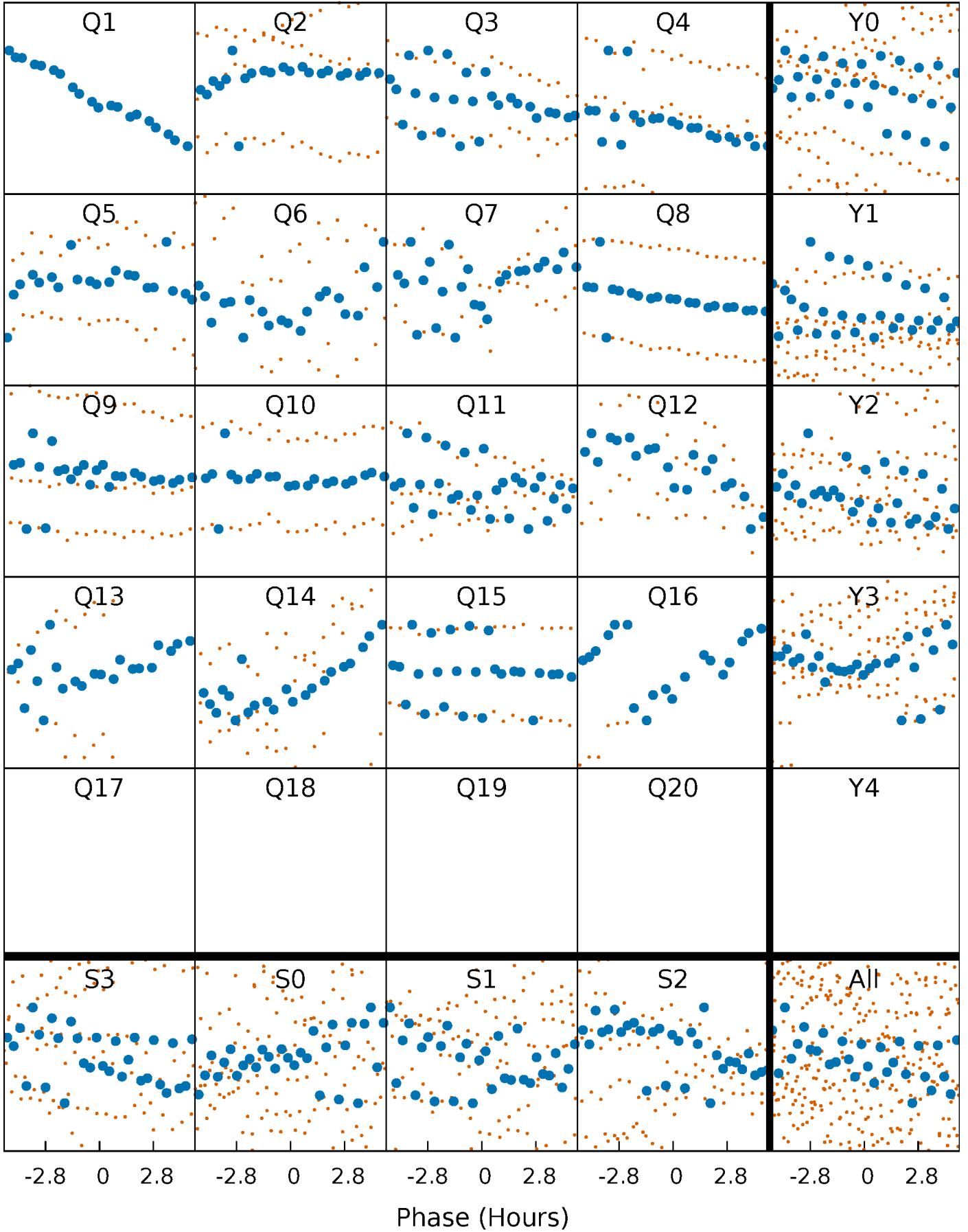


Non-Whitened Vs. Whitened Light Curve



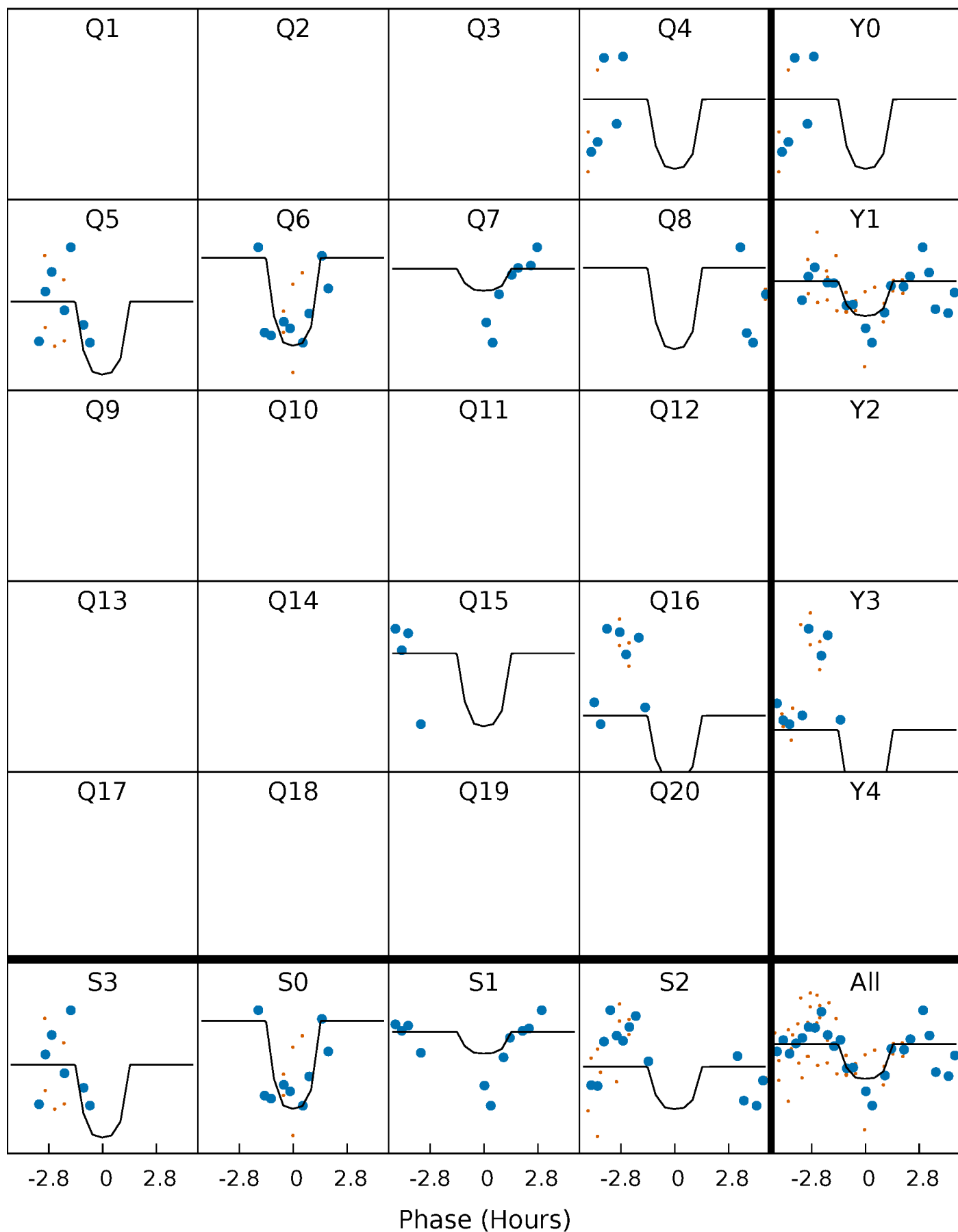
PDC Quarter-Phased Transit Curves

TCE 007287162-05 $P = 38.497378$ Days $T_0 = 133.655123$ (BKJD)



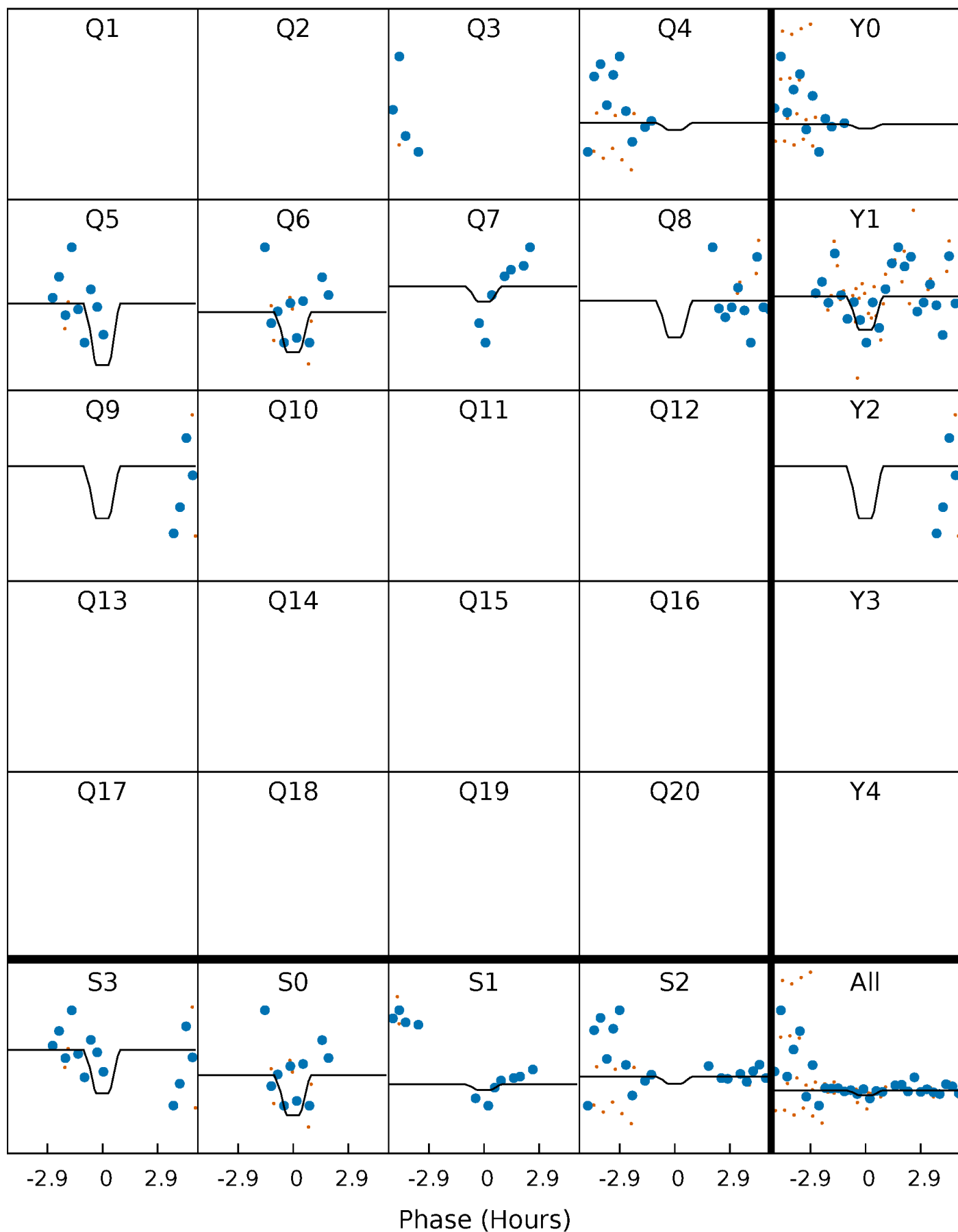
DV Quarter-Phased Transit Curves

TCE 007287162-05 $P = 38.497378$ Days $T_0 = 133.655123$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

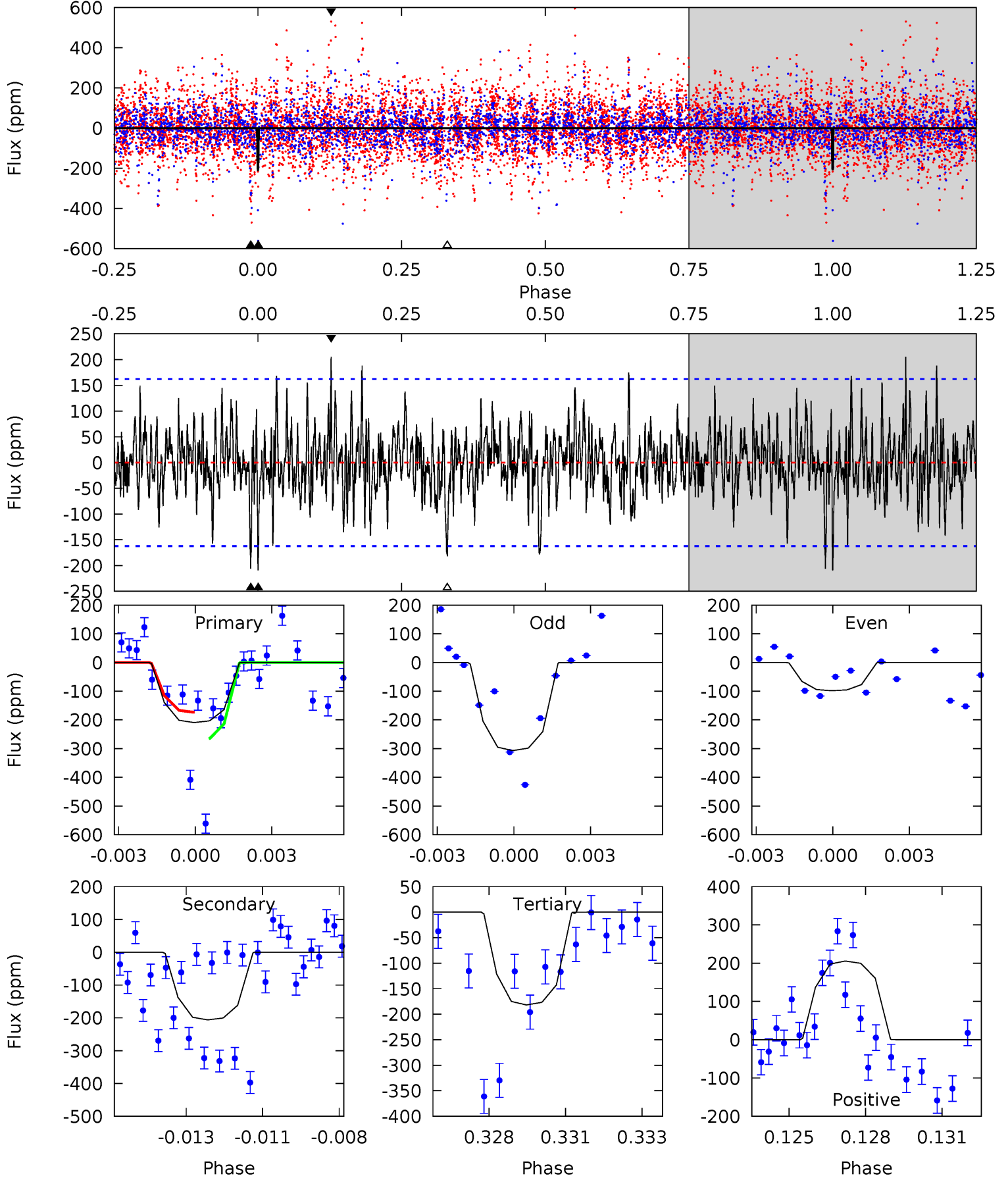
TCE 007287162-05 P= 38.511976 Days $T_0=133.480901$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-05, P = 38.497378 Days, E = 95.157745 Days

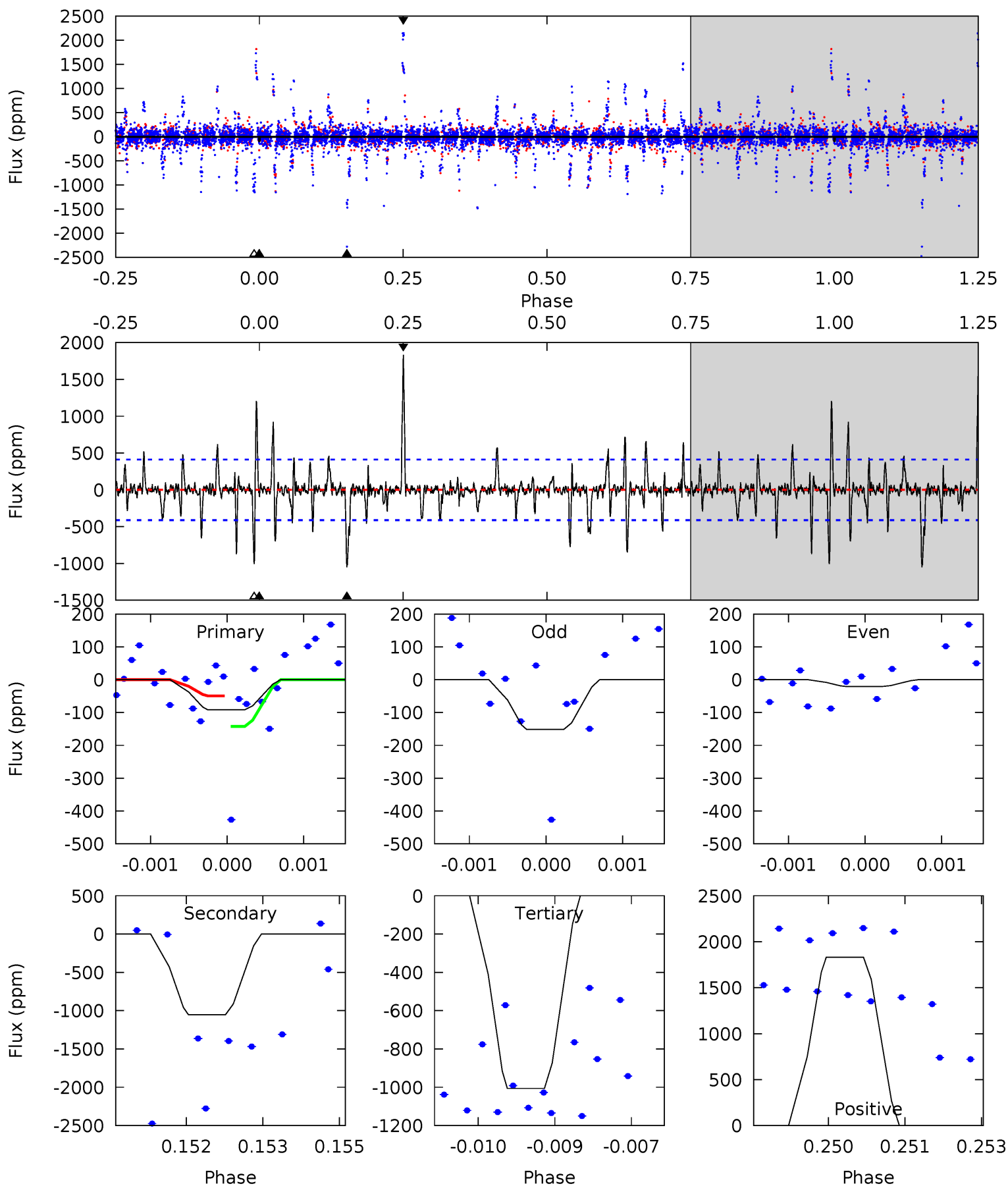
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.80 | 6.70 | 5.91 | 6.68 | 5.27 | 3.00 | 1.65 | 0.89 | 0.12 | 0.79 | 0.02 | 3.36 | 1.35 | 0.50 | 1.48 |



Alt Model-Shift Uniqueness Test

007287162-05, P = 38.511976 Days, E = 94.968925 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.20 | 13.7 | 13.1 | 23.9 | 5.39 | 3.19 | 2.19 | -11.9 | -22.7 | 0.59 | -10.2 | 0.55 | 3.46 | 0.64 | 0.62 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-05 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|----------------|------------------------|--------------------|-------------------------|-------------------------|
| DV | -206 ± 31 | $4.65^{+5.02}_{-3.08}$ | 1152^{+69}_{-91} | 5264^{+4861}_{-1273} | 288^{+2498}_{-221} |
| Alt. | -1051 ± 77 | $4.74^{+5.24}_{-3.17}$ | 1151^{+81}_{-95} | 7887^{+11829}_{-2408} | 1468^{+12523}_{-1128} |

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 $A_{obs} \gg 1.0$

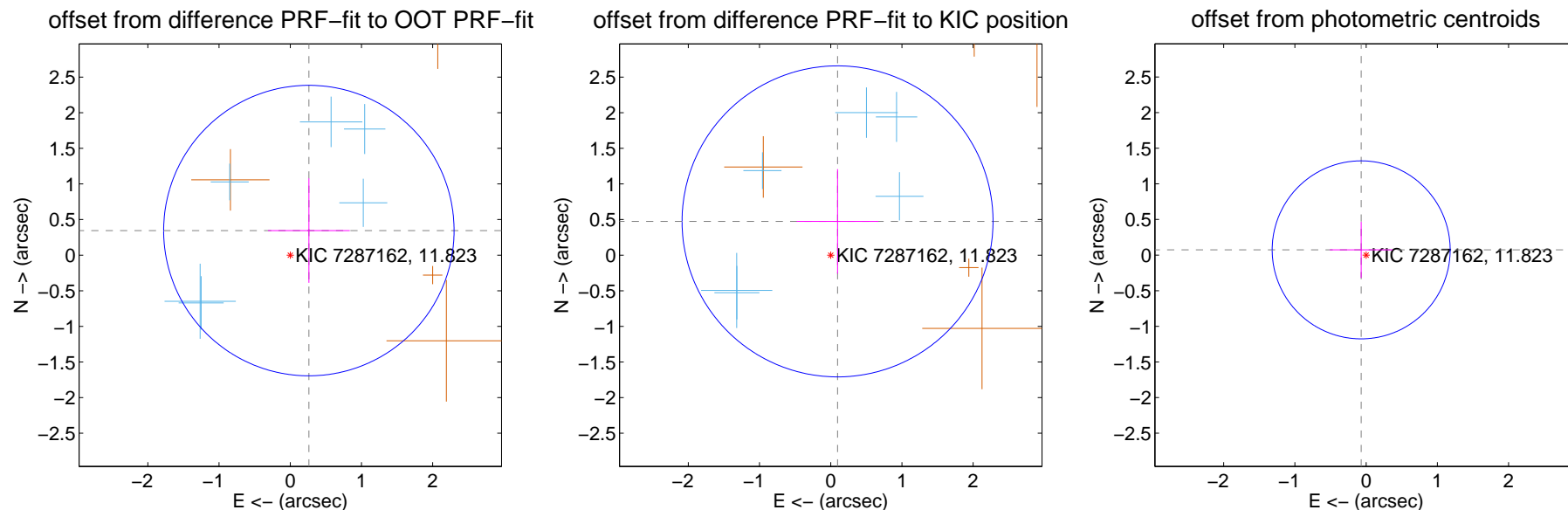
DV Centroid Data

Supplemental centroid analysis for 007287162-05. **Kepler magnitude: 11.82.** Transit SNR 3.40

There are 6 quarters with good PRF difference image offsets

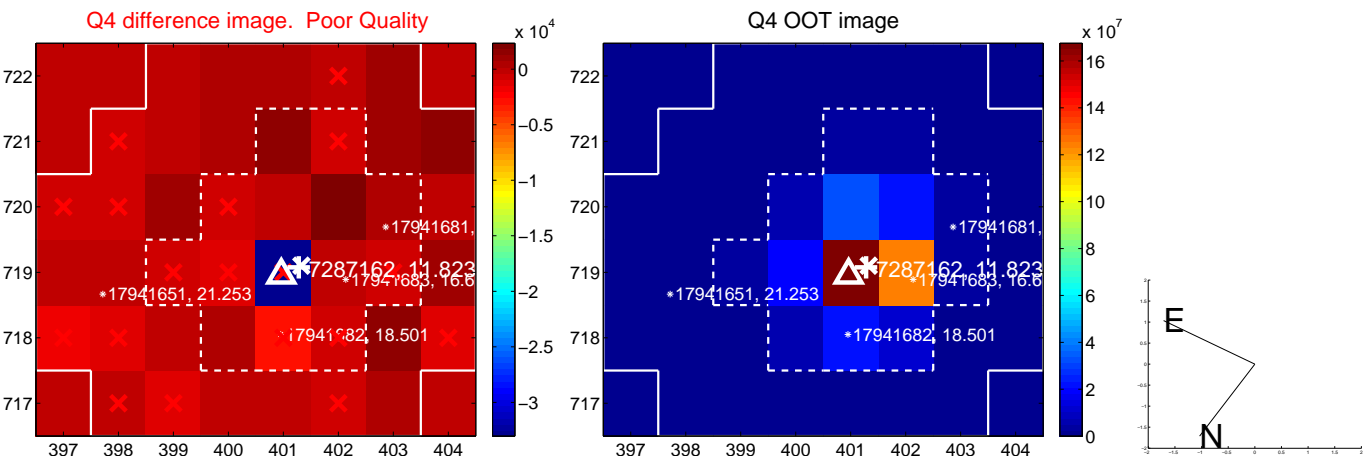
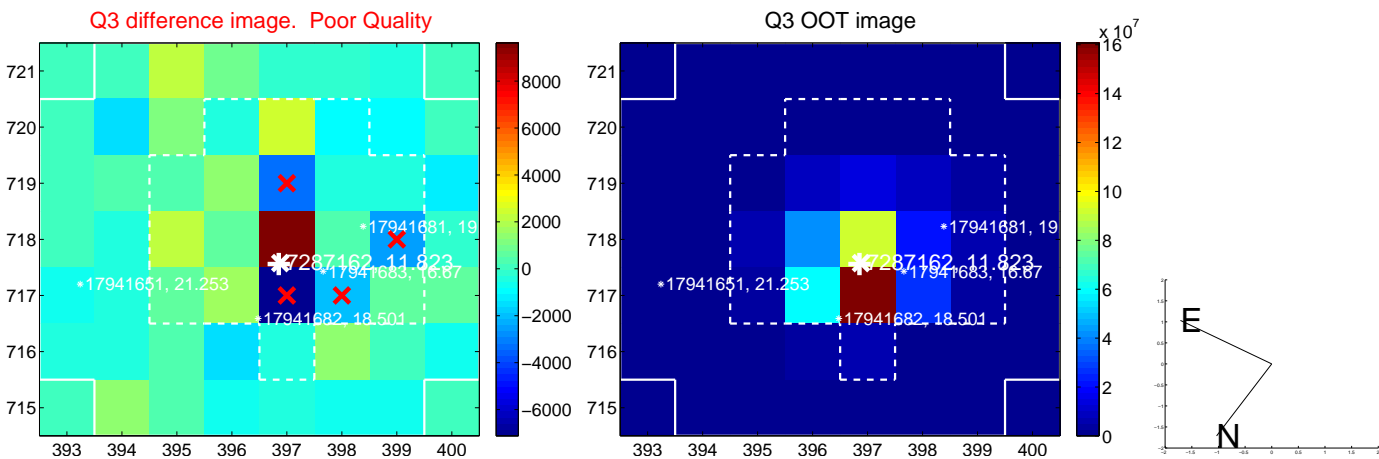
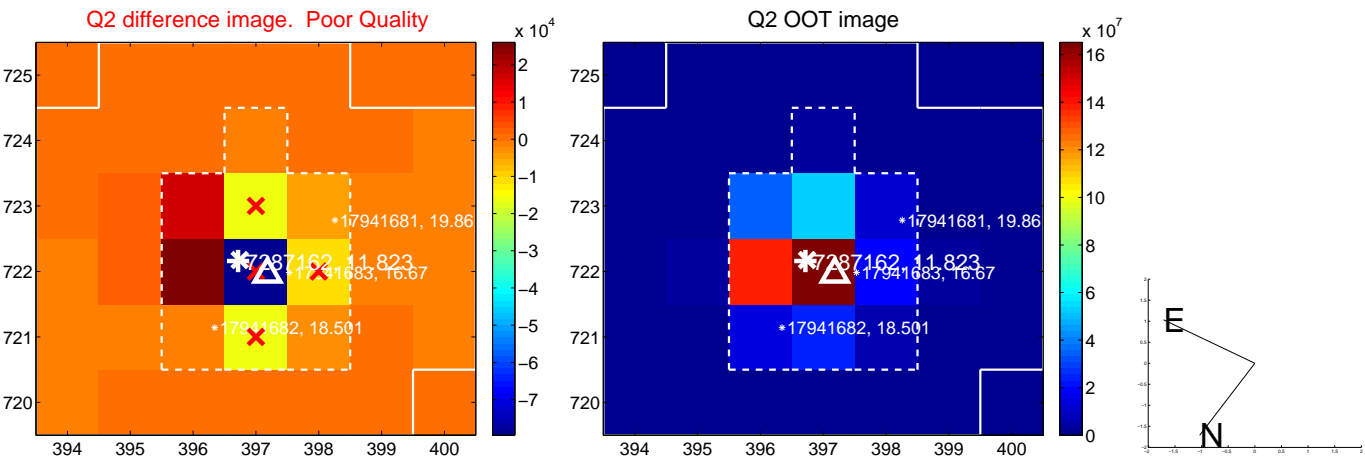
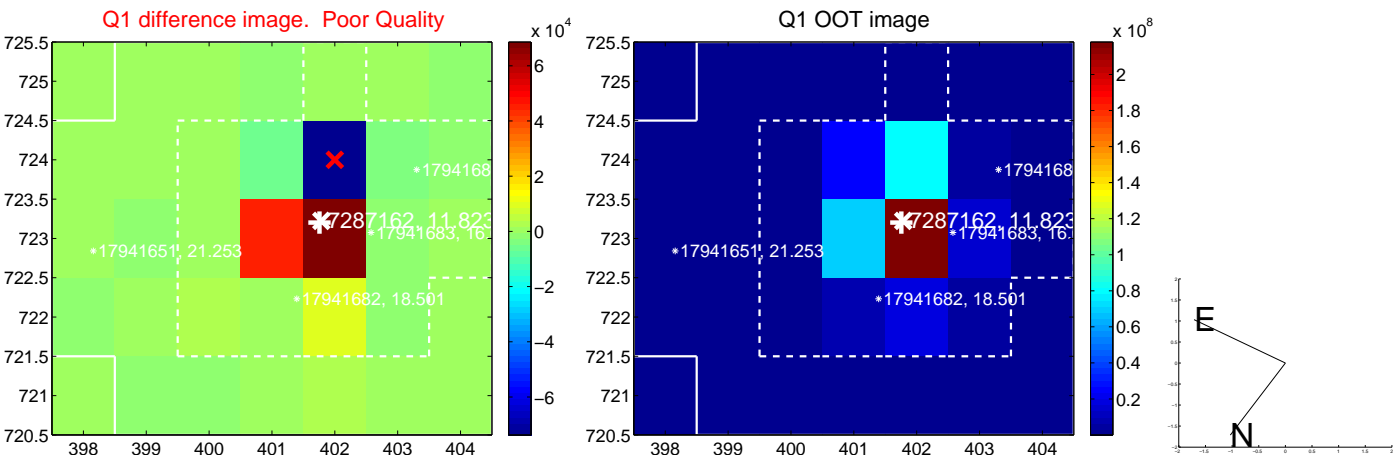
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.433 ± 0.680 | 0.64 | -0.261 ± 0.574 | 0.345 ± 0.733 |
| PRF-fit source offset from KIC position | 0.484 ± 0.728 | 0.66 | -0.096 ± 0.574 | 0.474 ± 0.733 |
| photometric centroid source offset | 0.10 ± 0.42 | 0.24 | 0.07 ± 0.44 | 0.07 ± 0.39 |

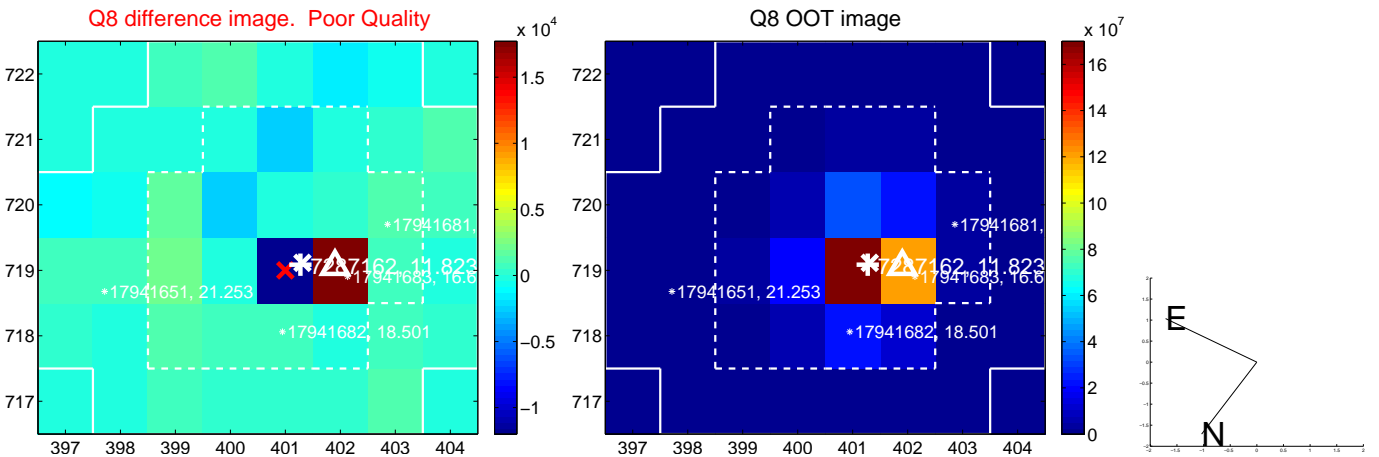
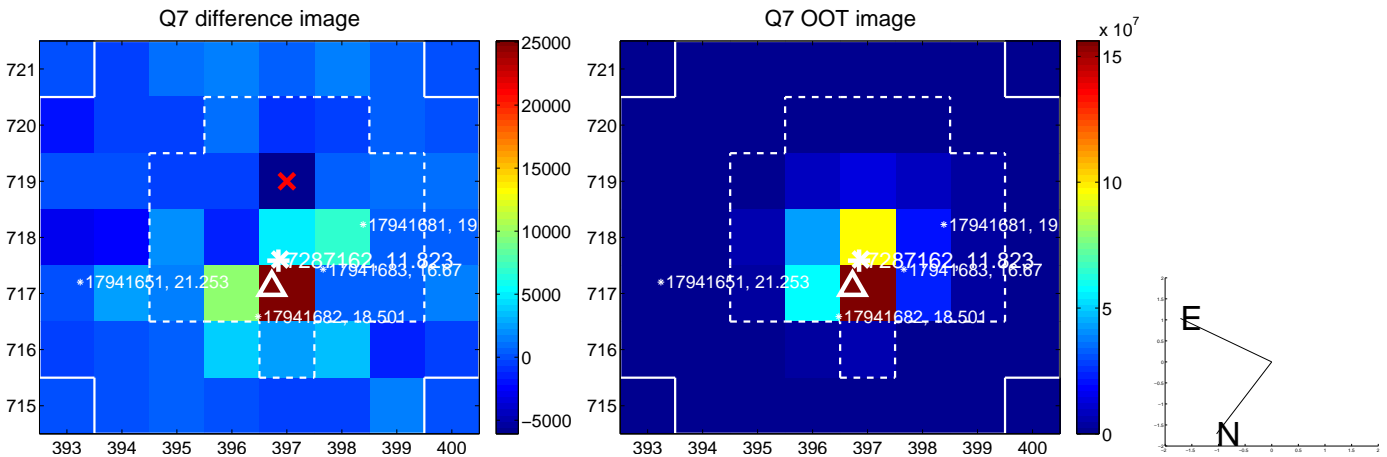
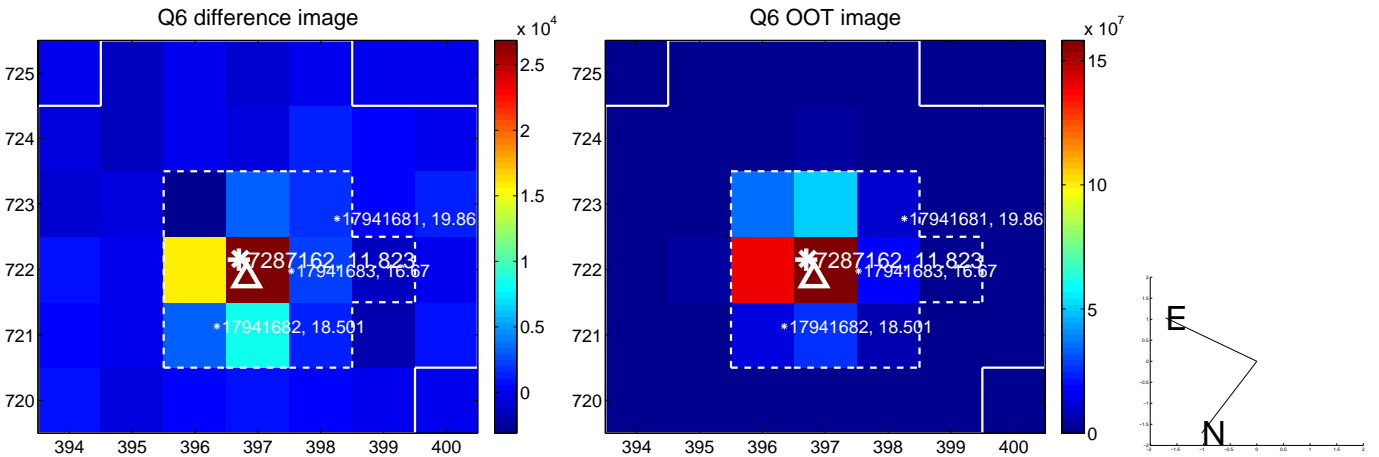
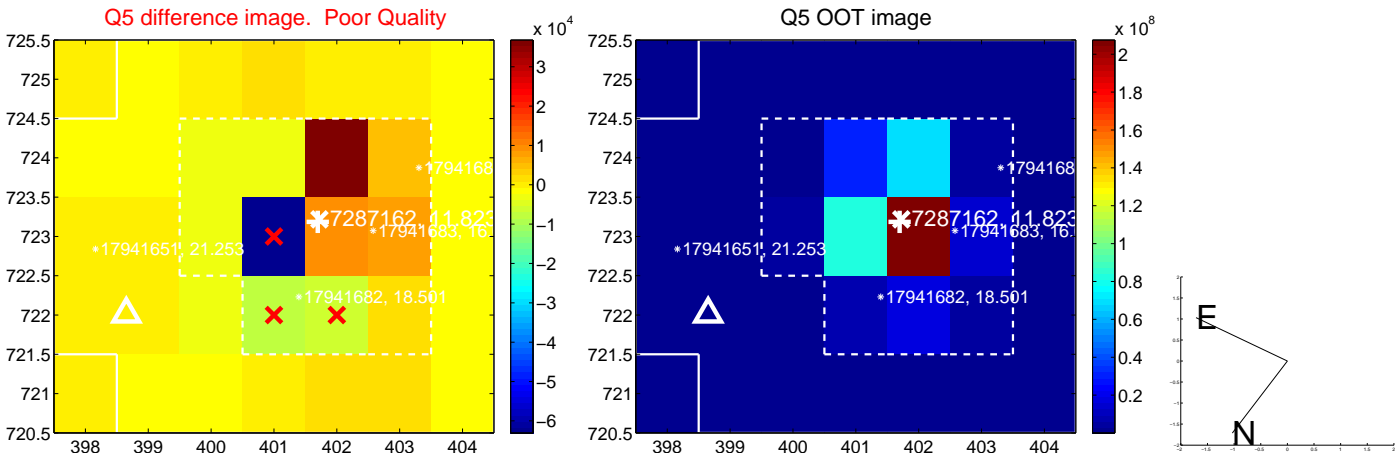


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

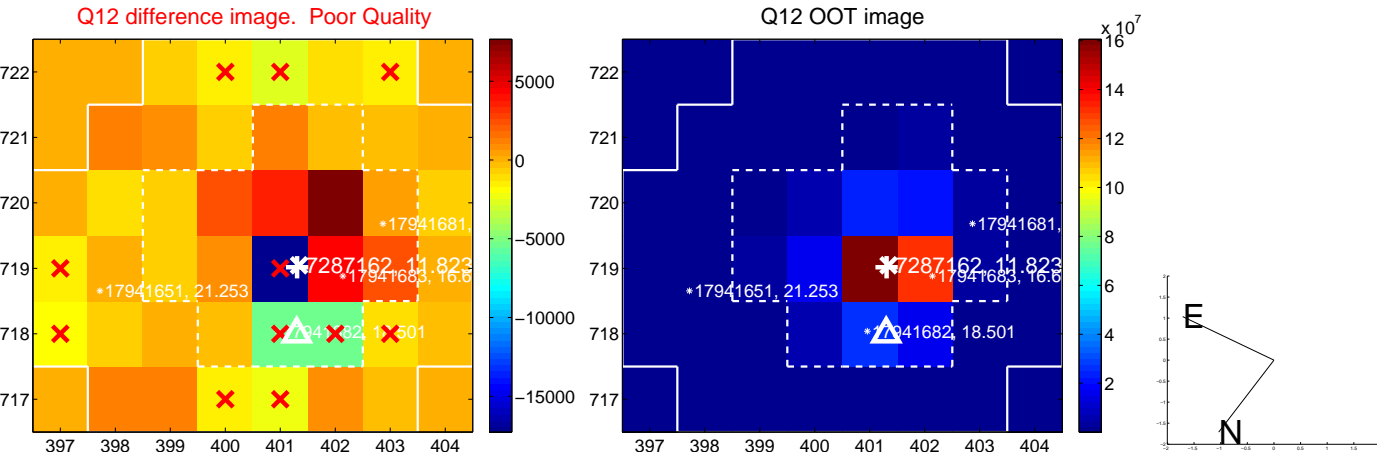
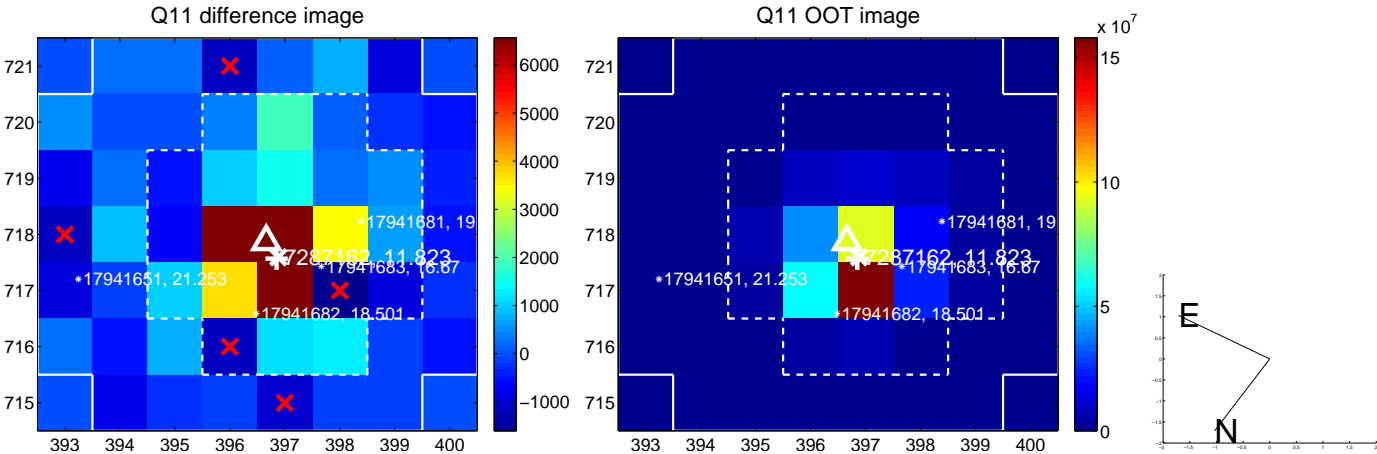
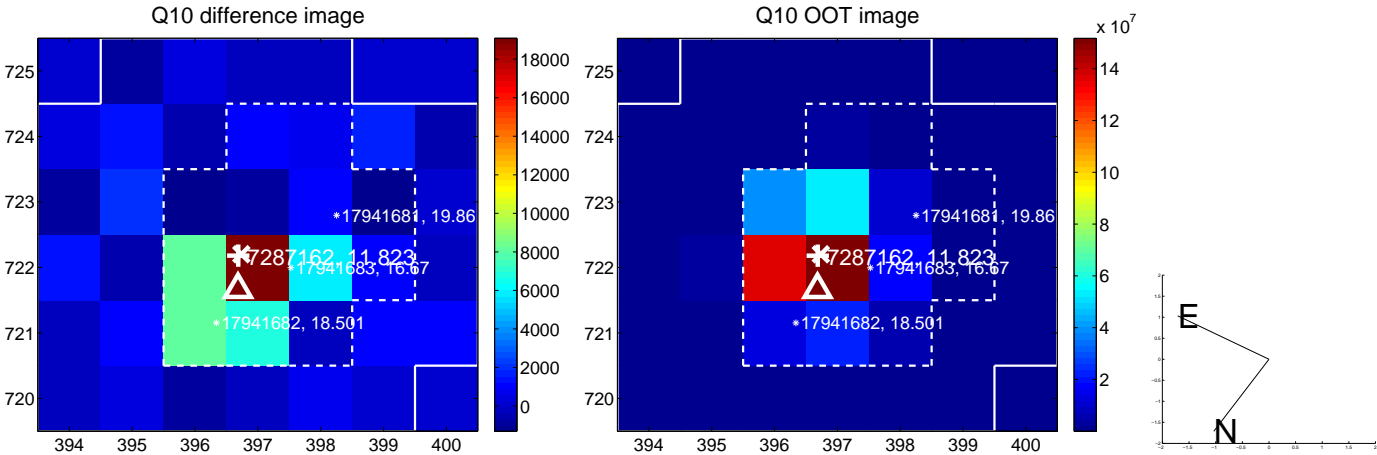
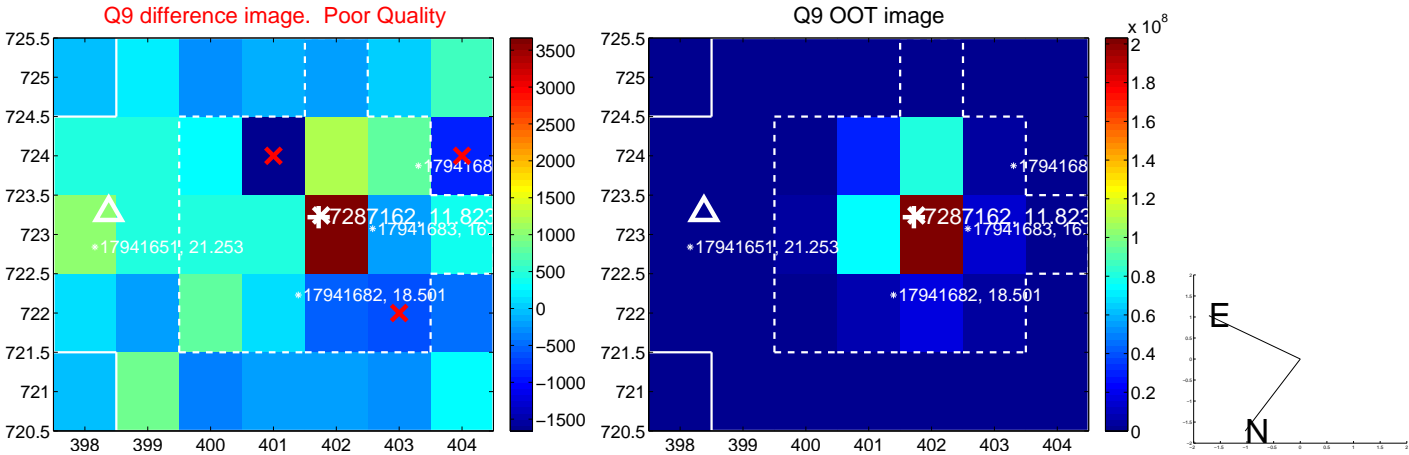
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



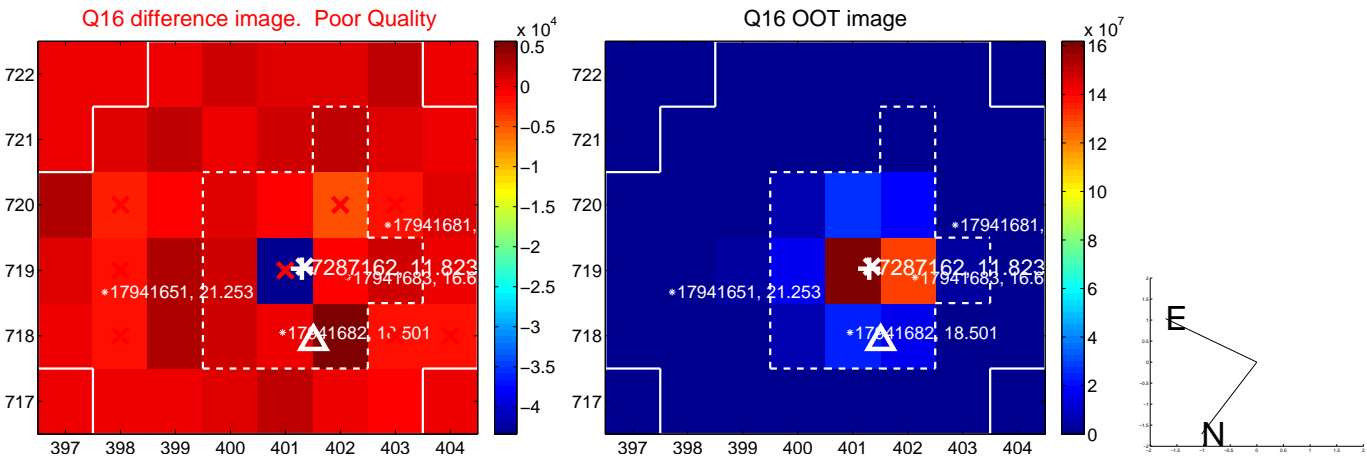
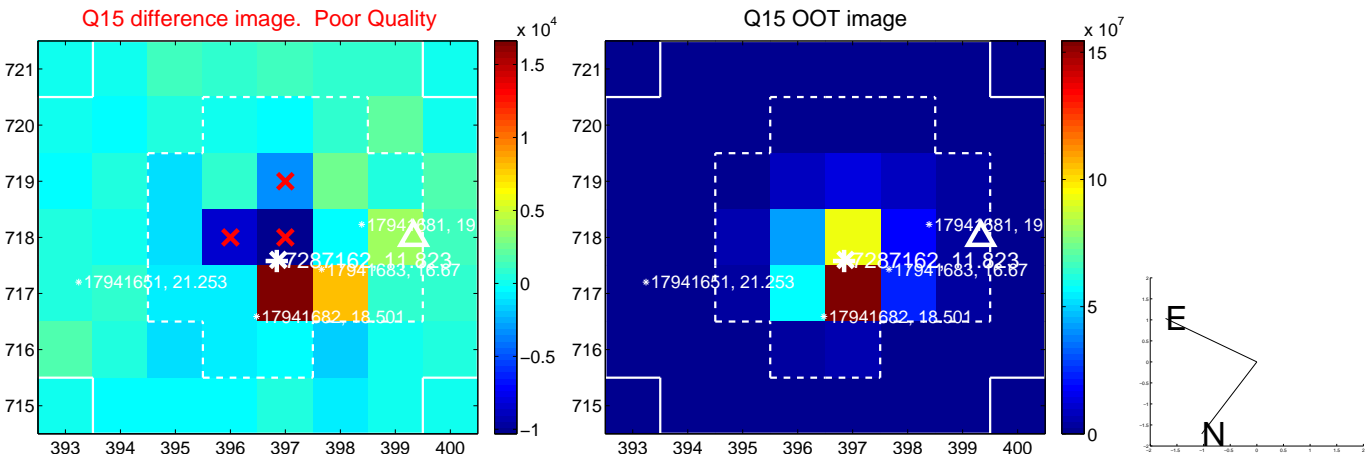
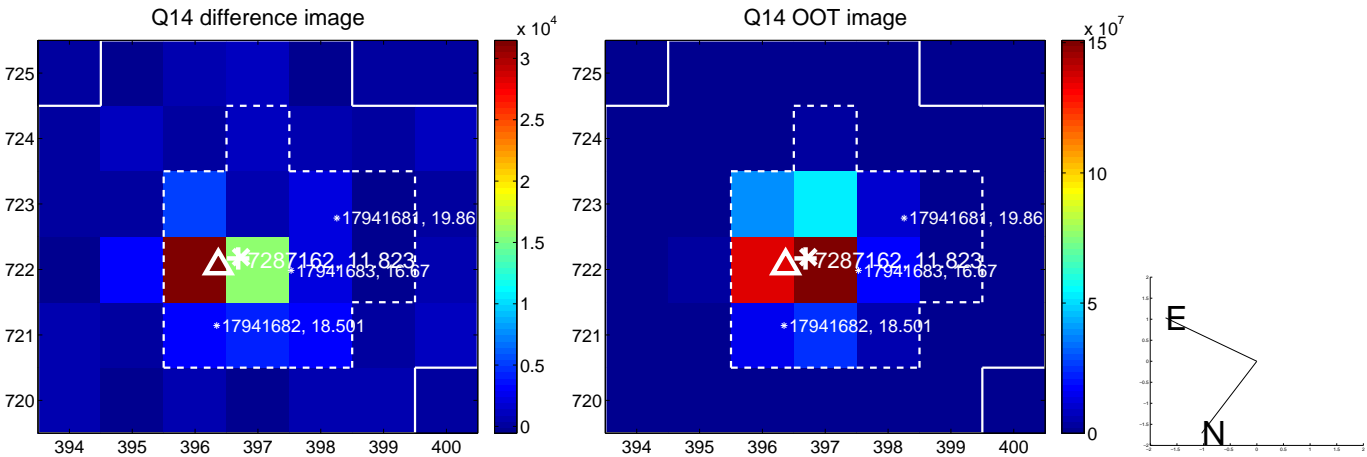
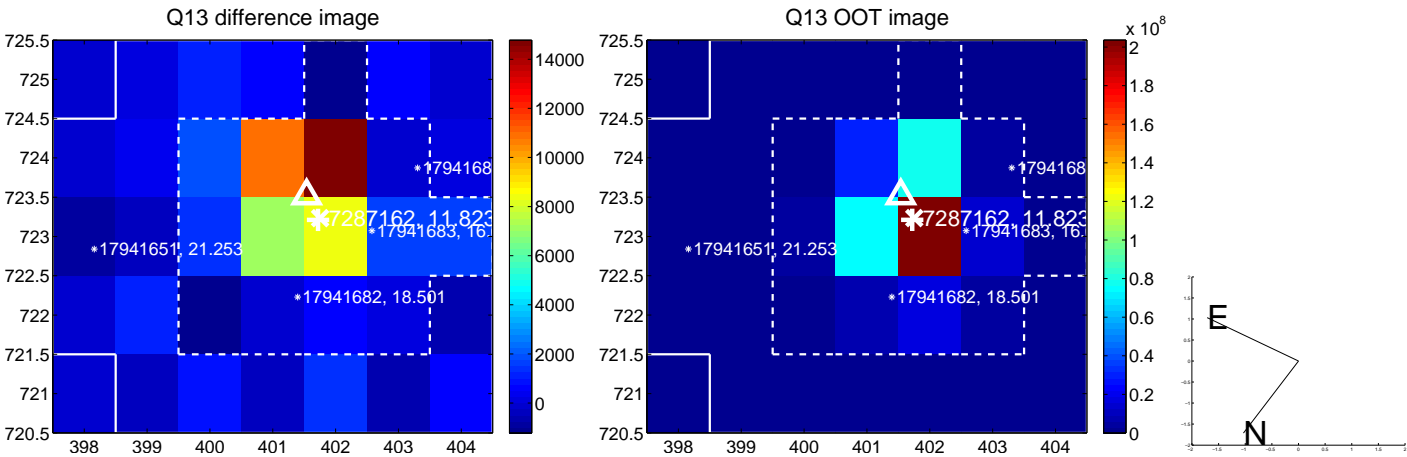
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



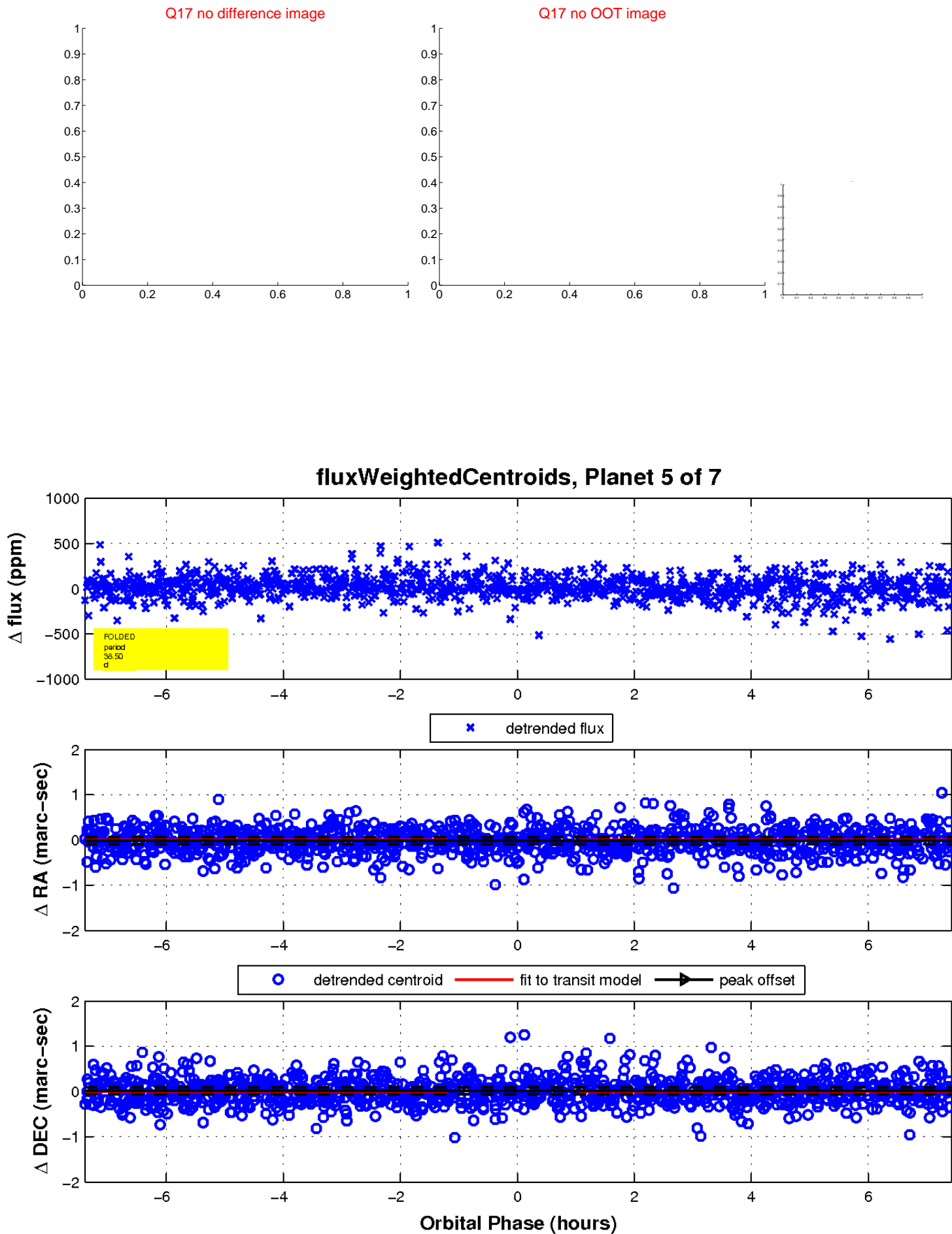
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

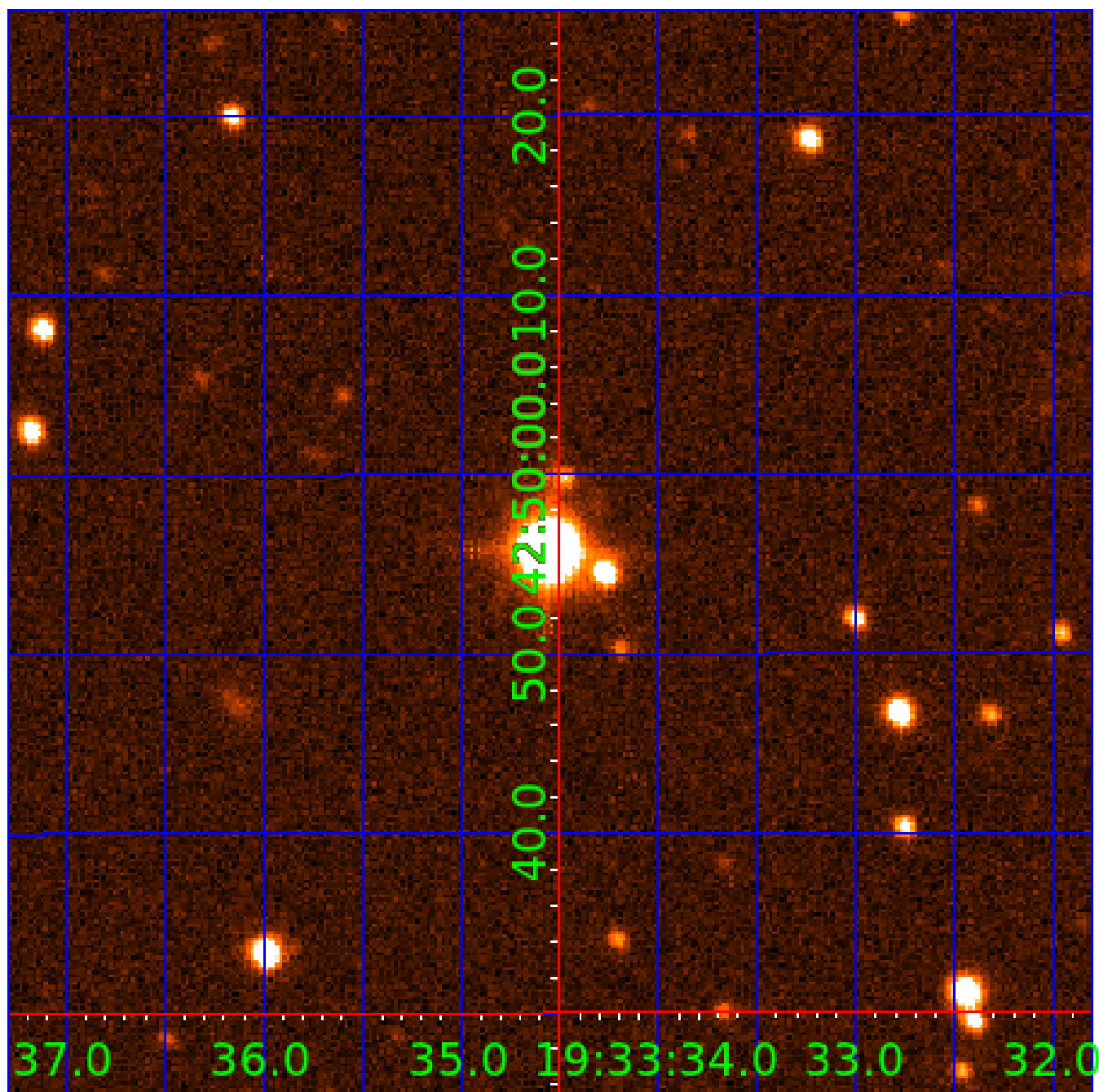


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
| 007287162-02 | OBS | No | 50.058830 | 158.793992 | 254.0 | 2.248 | 22.9 | 4.3 | 1.96 | 6603 | 3.83 | 81.65 |
| 007287162-03 | OBS | No | 32.263302 | 134.339844 | 329.2 | 2.269 | 14.0 | 7.8 | 1.96 | 6603 | 3.76 | 146.67 |
| 007287162-04 | OBS | No | 12.071544 | 141.706183 | 122.0 | 4.390 | 7.7 | 8.1 | 1.96 | 6603 | 2.53 | 544.01 |
| 007287162-05 | OBS | No | 38.497378 | 133.655123 | 165.5 | 2.477 | 9.1 | 3.4 | 1.96 | 6603 | 2.96 | 115.89 |
| 007287162-06 | OBS | No | 32.302366 | 139.350892 | 221.7 | 3.181 | 11.2 | 5.7 | 1.96 | 6603 | 3.31 | 146.43 |
| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

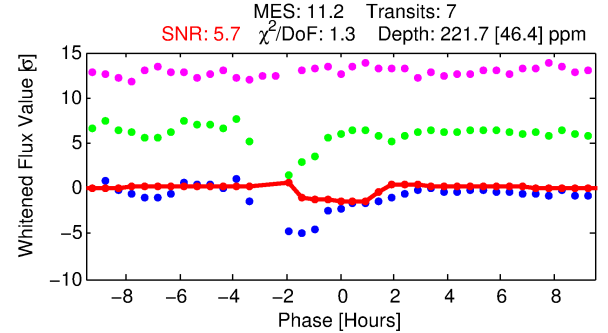
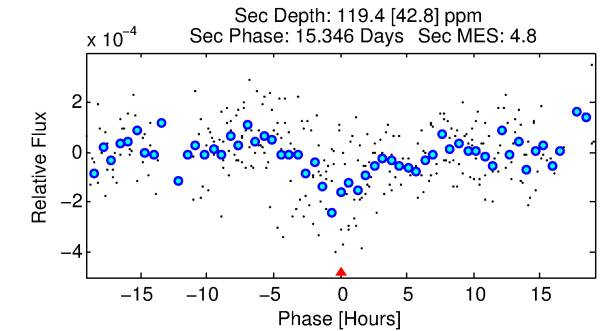
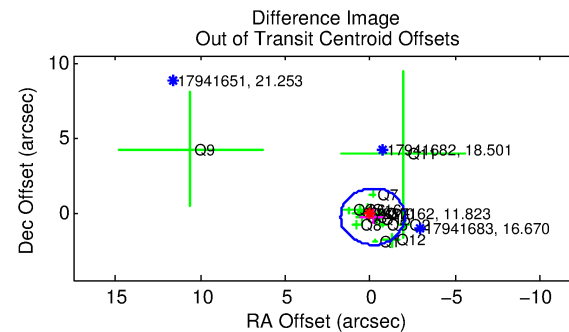
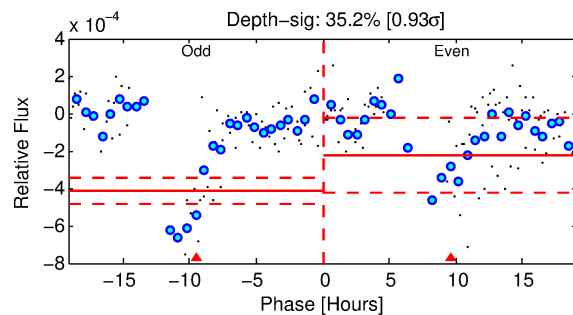
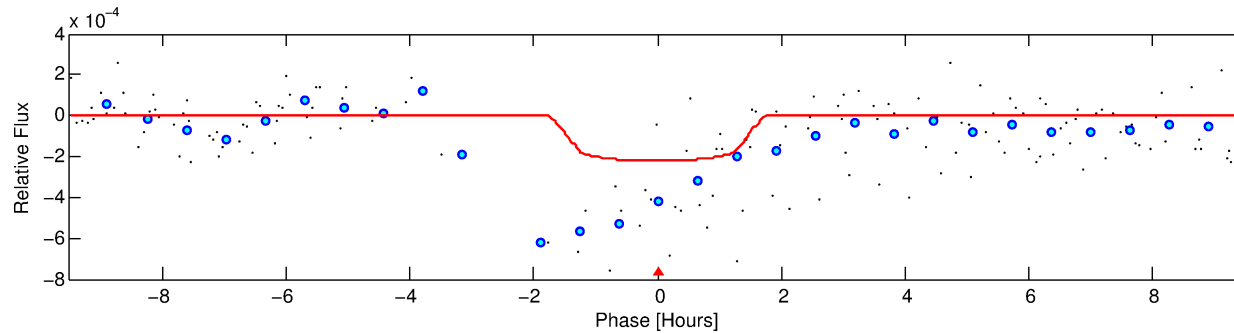
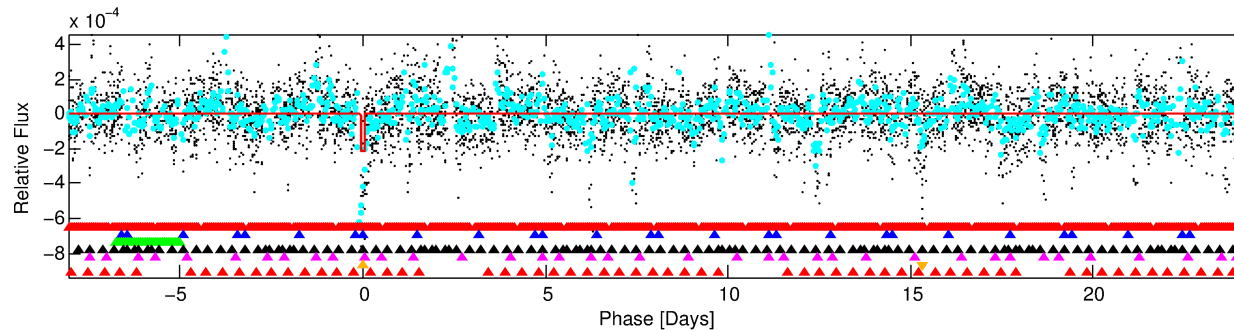
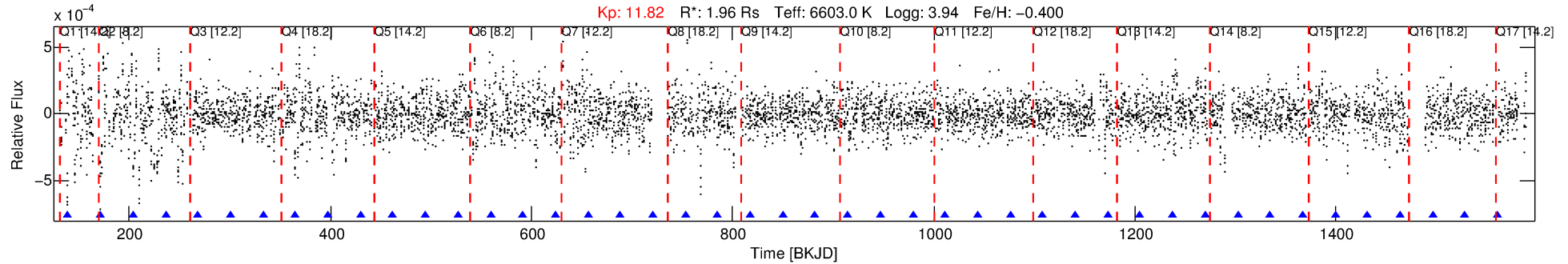
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-06

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 6 of 7 Period: 32.302 d



DV Fit Results:

Period = 32.30237 [0.00318] d
Epoch = 139.3509 [0.0103] BKJD
Rp/R* = 0.0154 [0.0143]
a/R* = 42.83 [227.37]
b = 0.85 [1.71]
Seff = 146.43 [70.35]
Teq = 887 [107] K
Rp = 3.31 [3.24] Re
a = 0.2118 [0.0623] AU
Ag = 269.55 [525.89] [0.51 σ]
Teffp = 5557 [2636] K [1.77 σ]

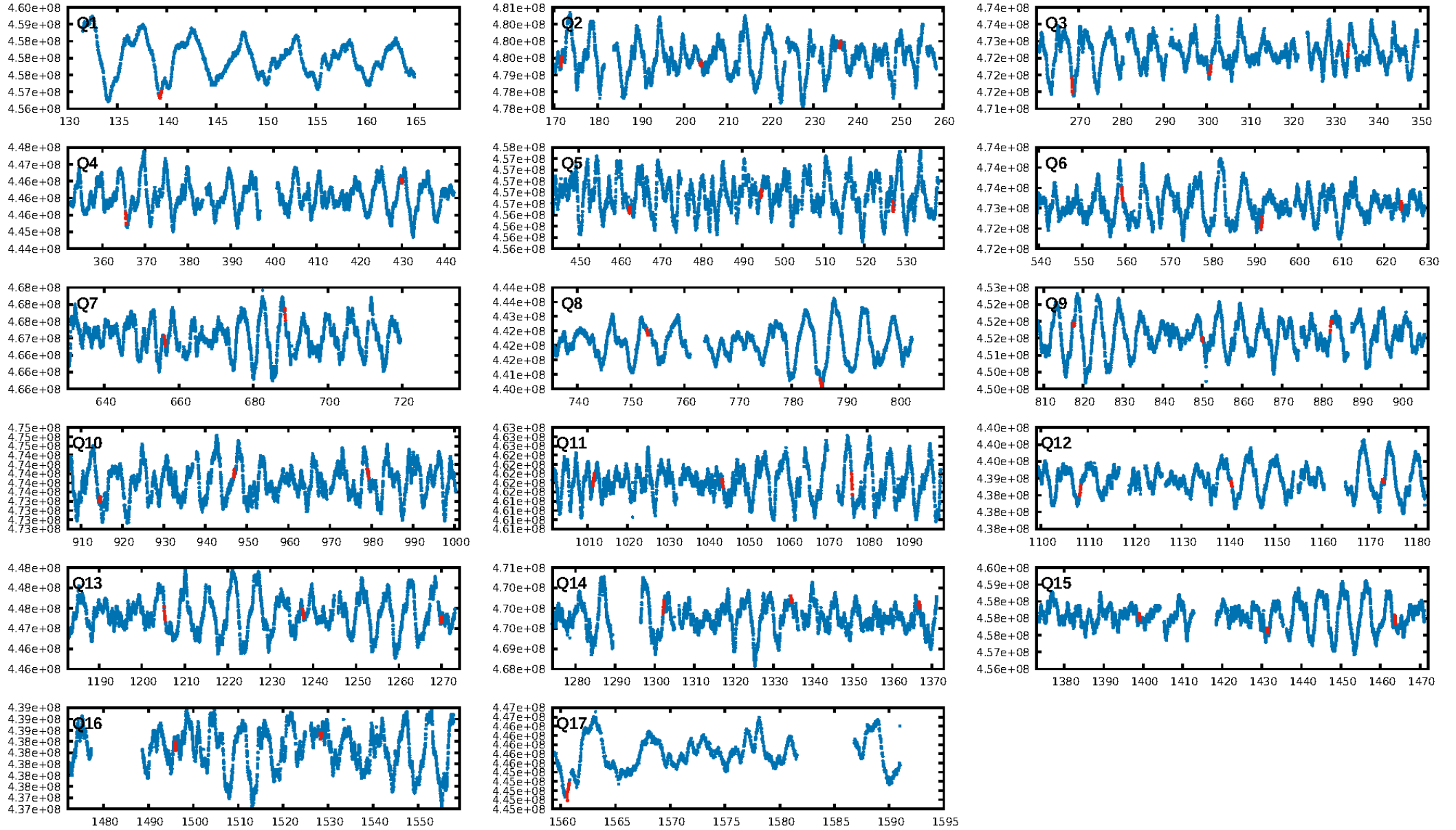
DV Diagnostic Results:

ShortPeriod-sig: 19.0% [0.24 σ]
LongPeriod-sig: 100.0% [36.88 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.56e-23
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.462
Centroid-sig: 13.1%
Centroid-so: 0.365 arcsec [1.41 σ]
OotOffset-rm: 0.311 arcsec [0.49 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.148 arcsec [0.25 σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.19 [3/16]

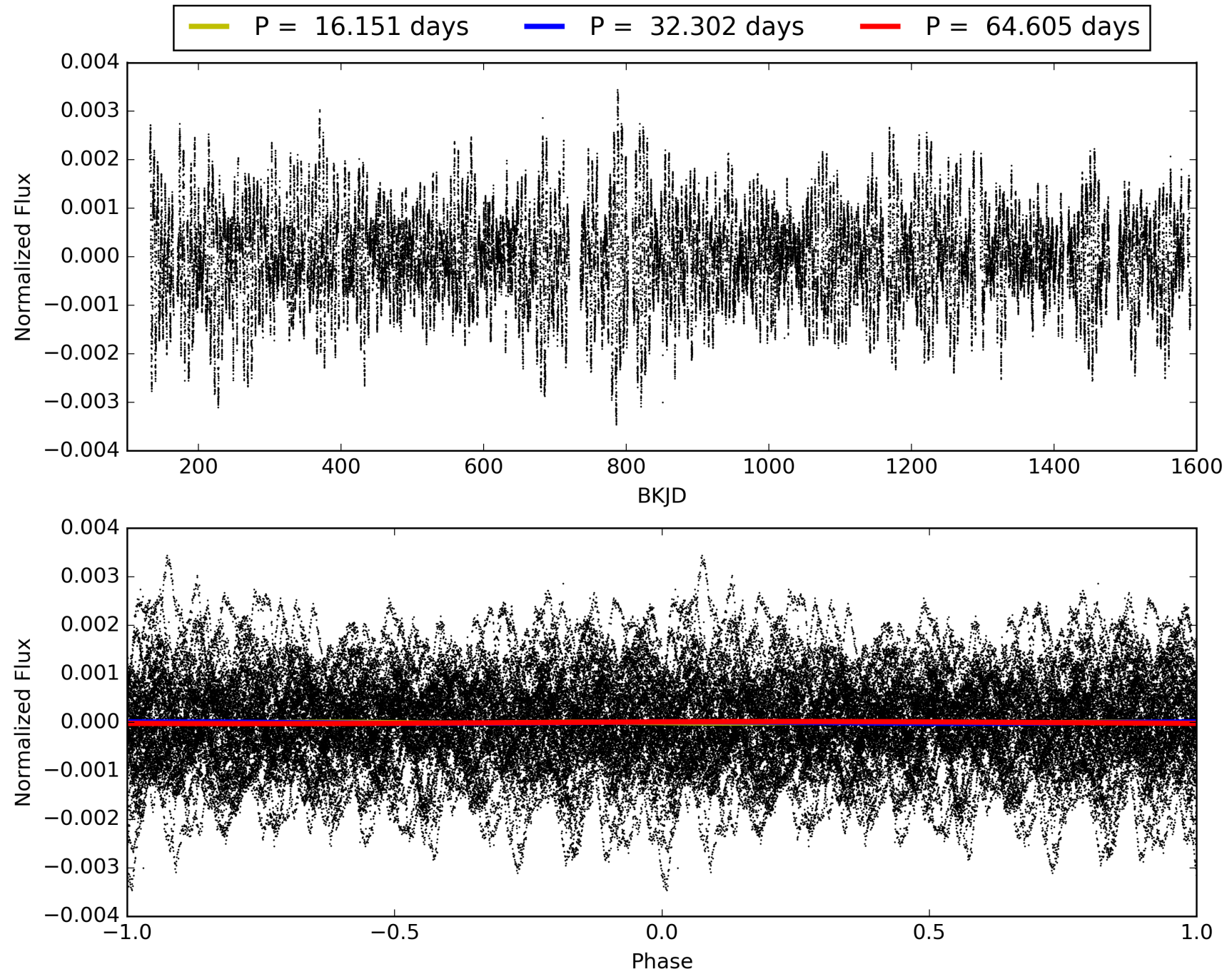
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:12:14 Z

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

TCE 007287162-06, PDC Light Curves

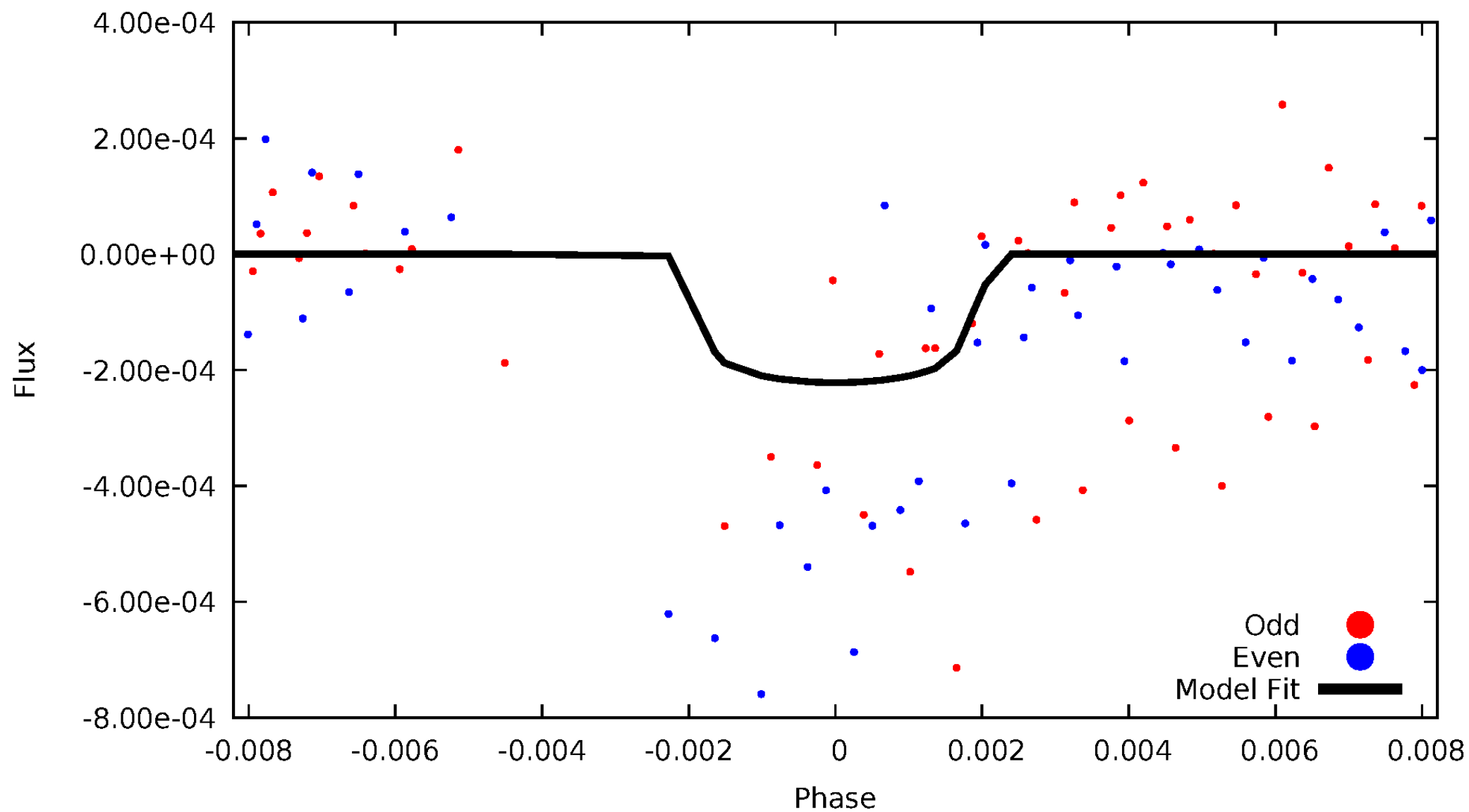


TCE 007287162-06



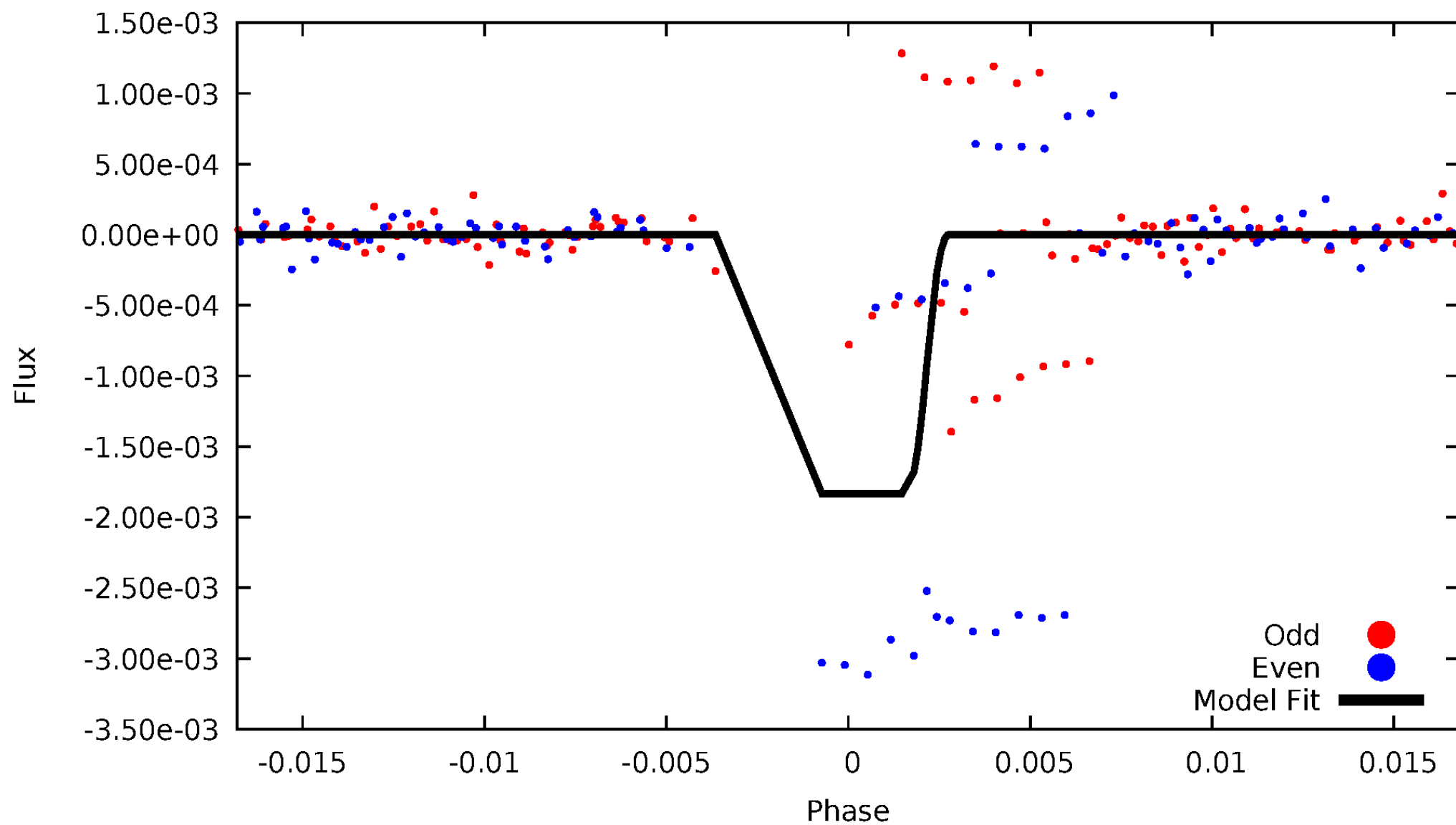
DV Odd/Even

TCE 007287162-06



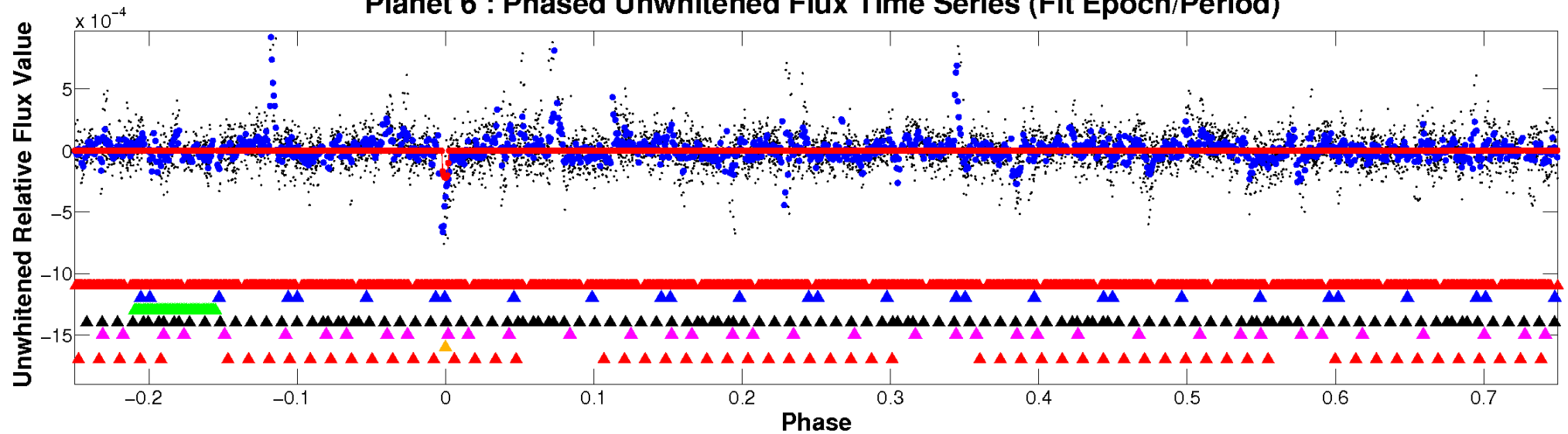
ALT Odd/Even

TCE 007287162-06

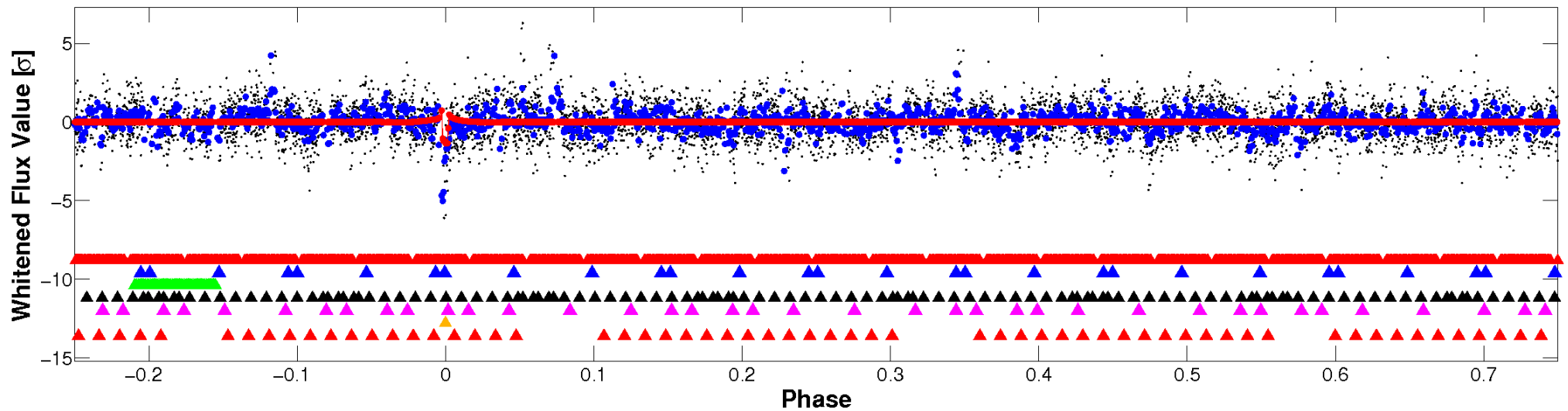


Non-Whitened Vs. Whitened Light Curve

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

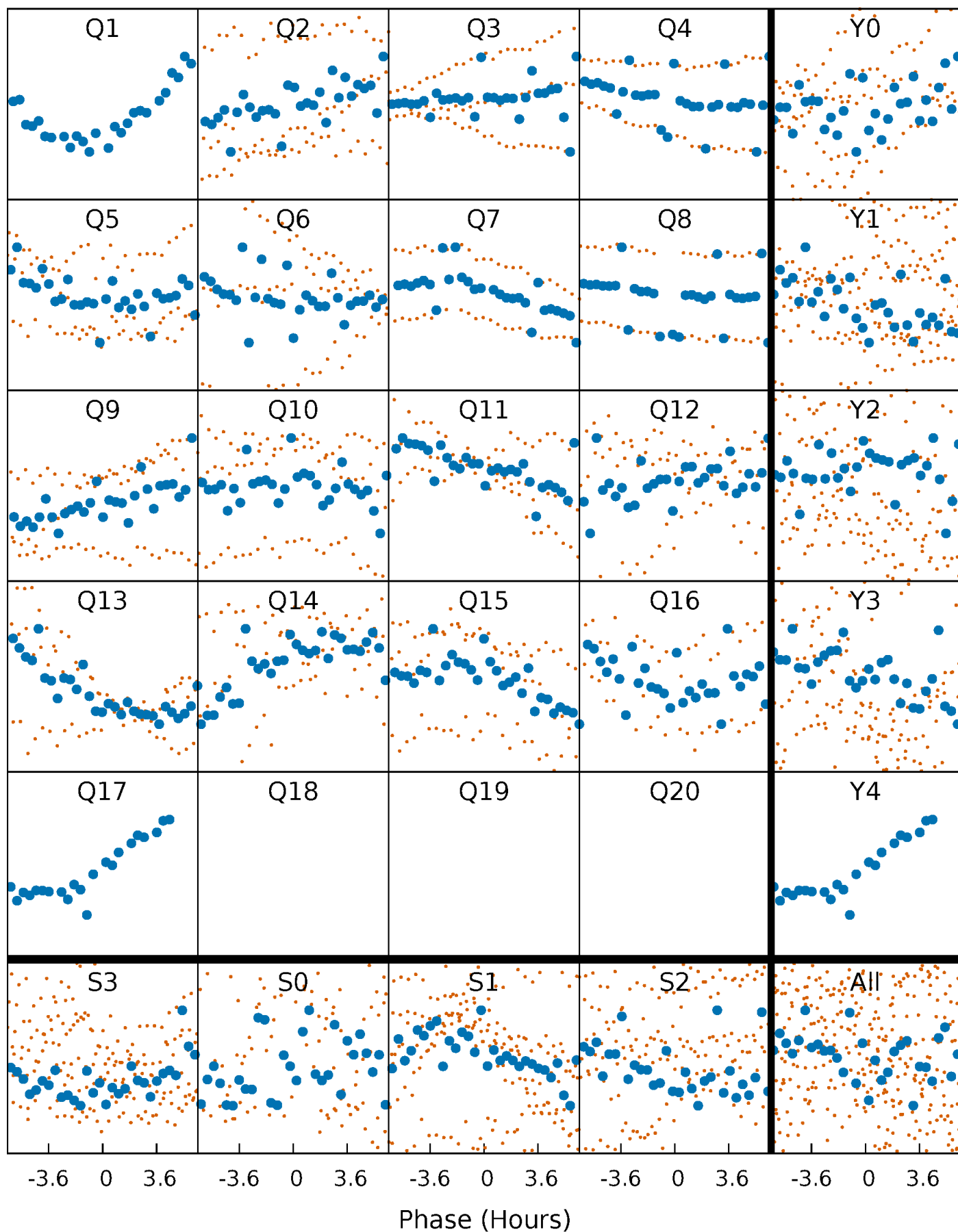


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



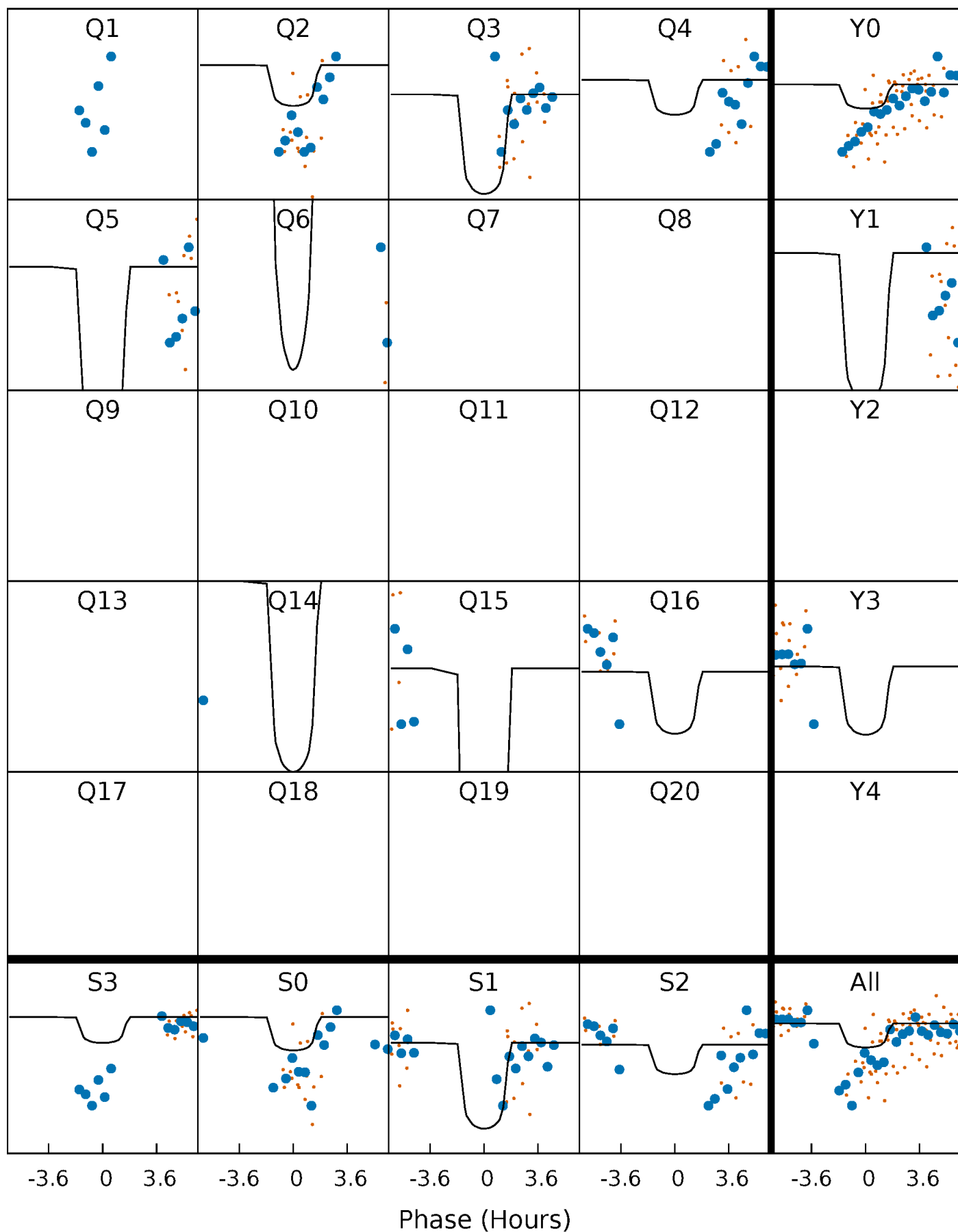
PDC Quarter-Phased Transit Curves

TCE 007287162-06 P= 32.302366 Days $T_0=139.350891$ (BKJD)



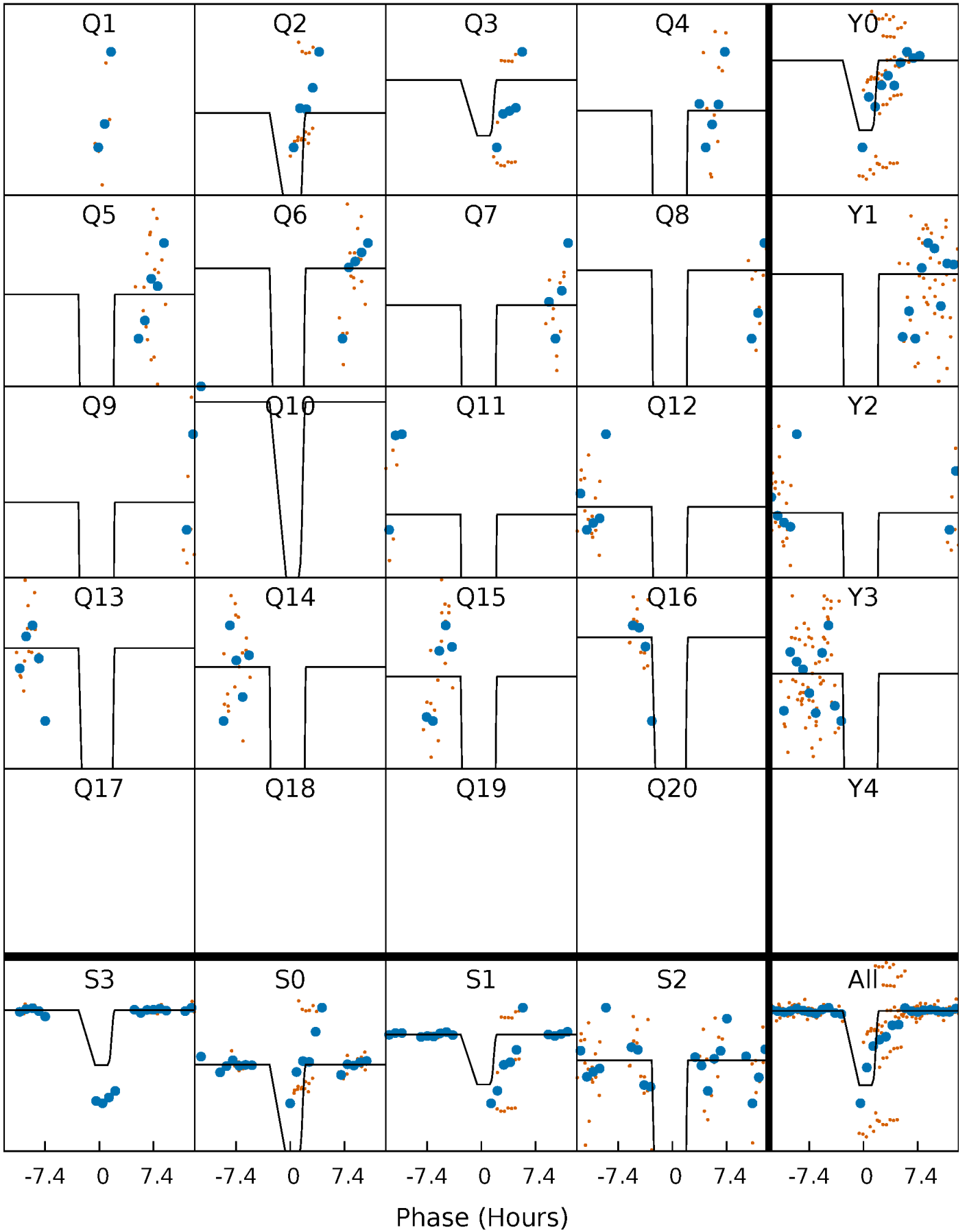
DV Quarter-Phased Transit Curves

TCE 007287162-06 P= 32.302366 Days $T_0=139.350891$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

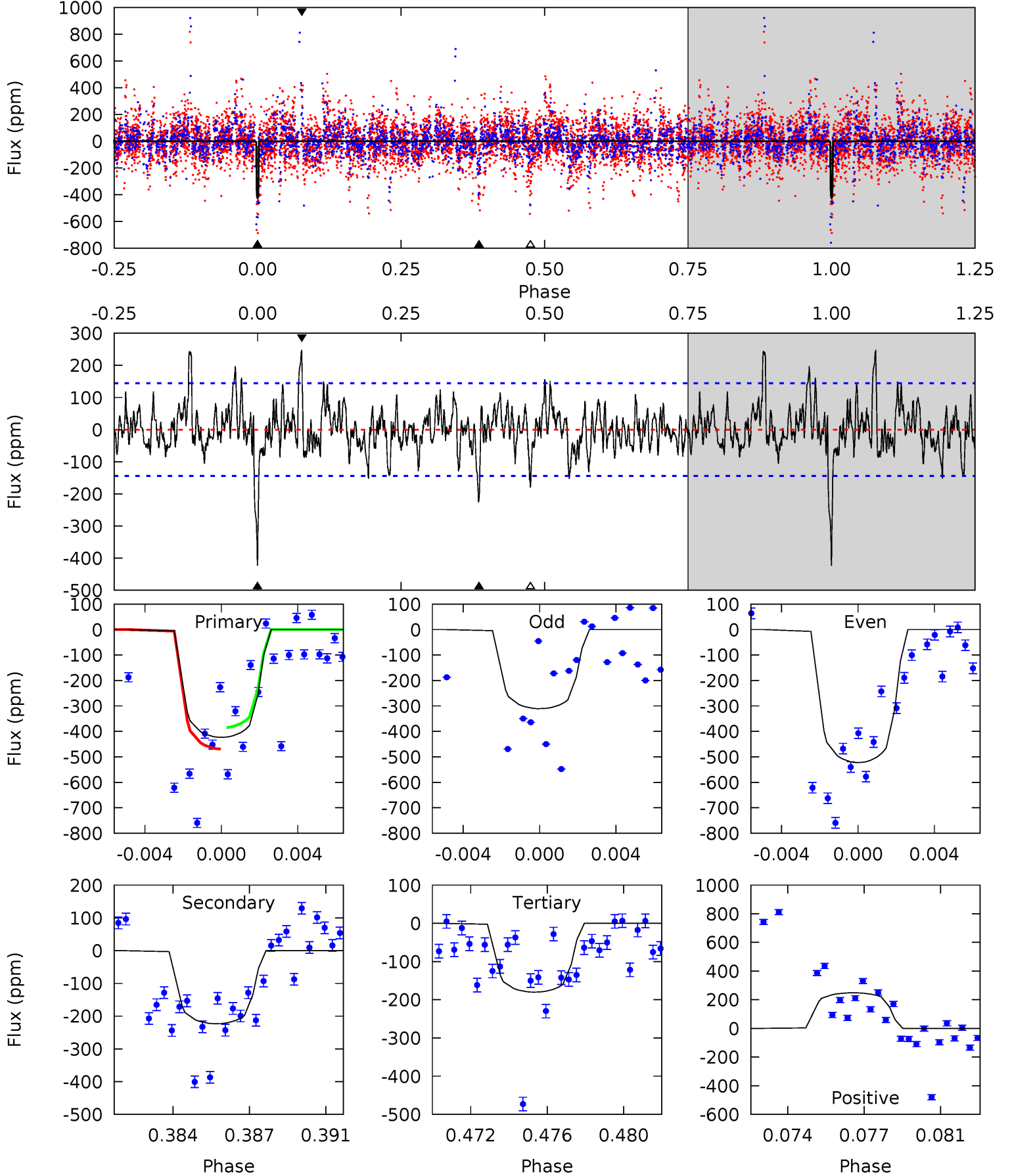
TCE 007287162-06 P= 32.302883 Days $T_0=139.300934$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-06, P = 32.302366 Days, E = 107.048525 Days

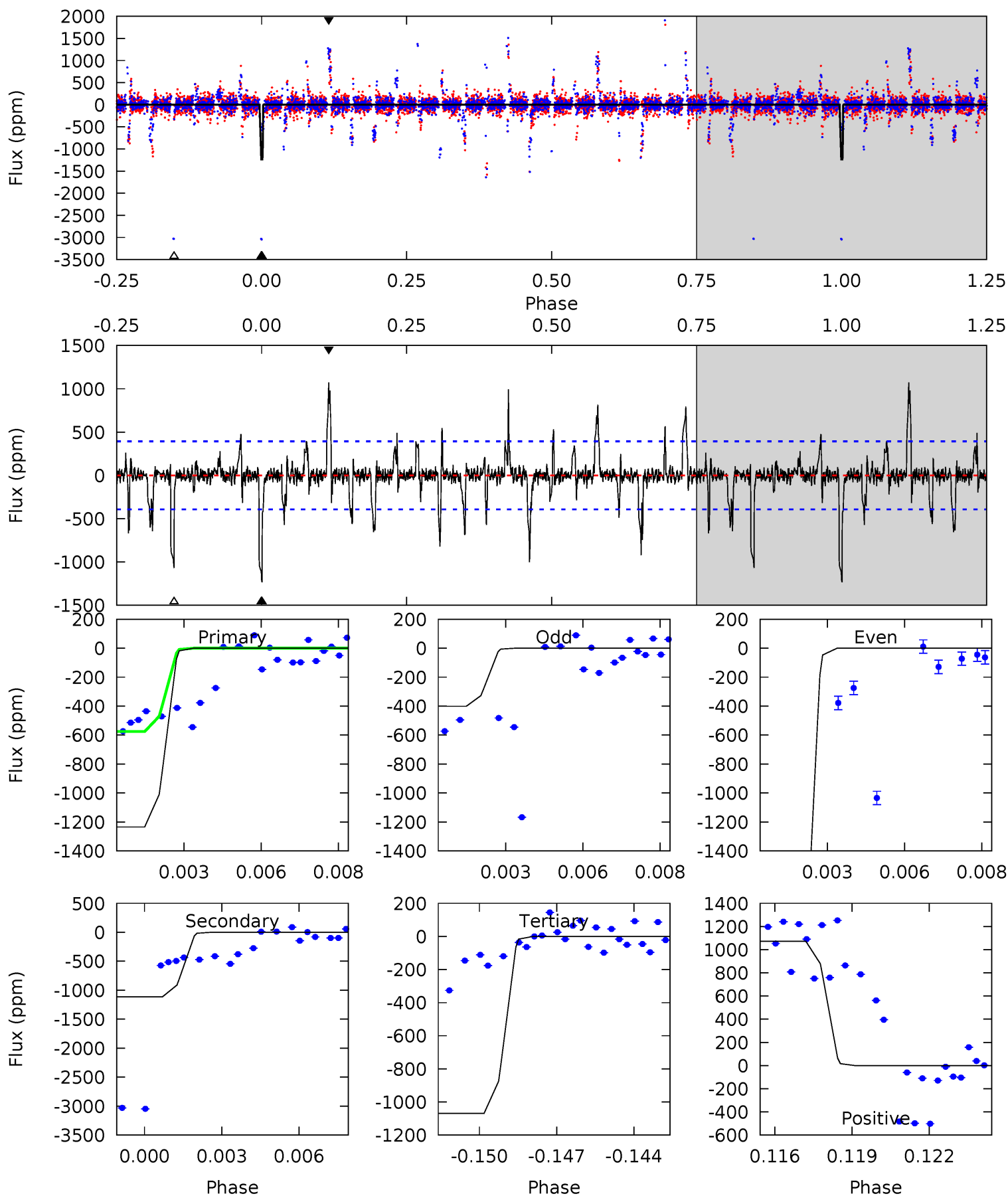
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.3 | 8.06 | 6.51 | 8.97 | 5.21 | 2.90 | 1.93 | 8.79 | 6.33 | 1.56 | -0.91 | 3.77 | 1.04 | 0.37 | 1.47 |



Alt Model-Shift Uniqueness Test

007287162-06, P = 32.302883 Days, E = 106.998051 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.5 | 14.9 | 14.3 | 14.4 | 5.26 | 2.99 | 1.79 | 2.22 | 2.17 | 0.61 | 0.55 | 16.4 | 1.24 | 0.46 | 0.00 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-06 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|------------------------|---------------------|------------------------|----------------------|
| DV | -223 ± 28 | $3.80^{+2.68}_{-2.26}$ | 1225^{+77}_{-92} | 5956^{+4003}_{-1277} | 394^{+2008}_{-264} |
| Alt. | -1114 ± 75 | $8.78^{+3.36}_{-2.96}$ | 1225^{+76}_{-100} | 5849^{+1409}_{-769} | 353^{+486}_{-164} |

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 $A_{obs} \gg 1.0$

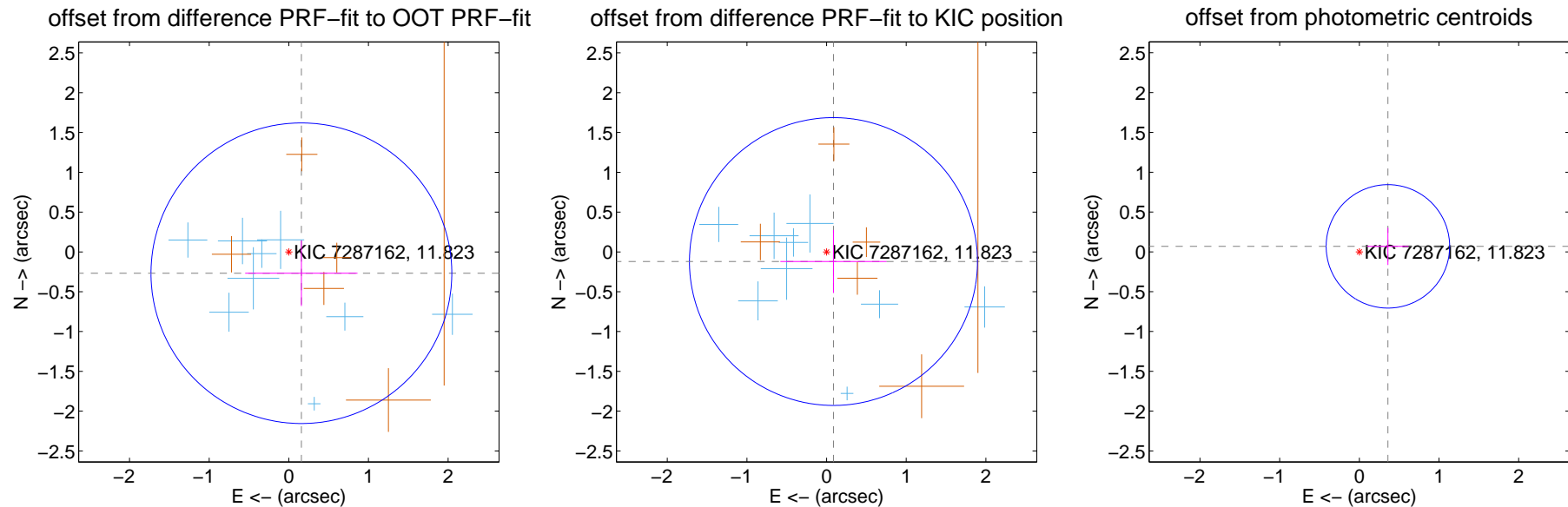
DV Centroid Data

Supplemental centroid analysis for 007287162-06. **Kepler magnitude: 11.82.** Transit SNR 5.70

There are 9 quarters with good PRF difference image offsets

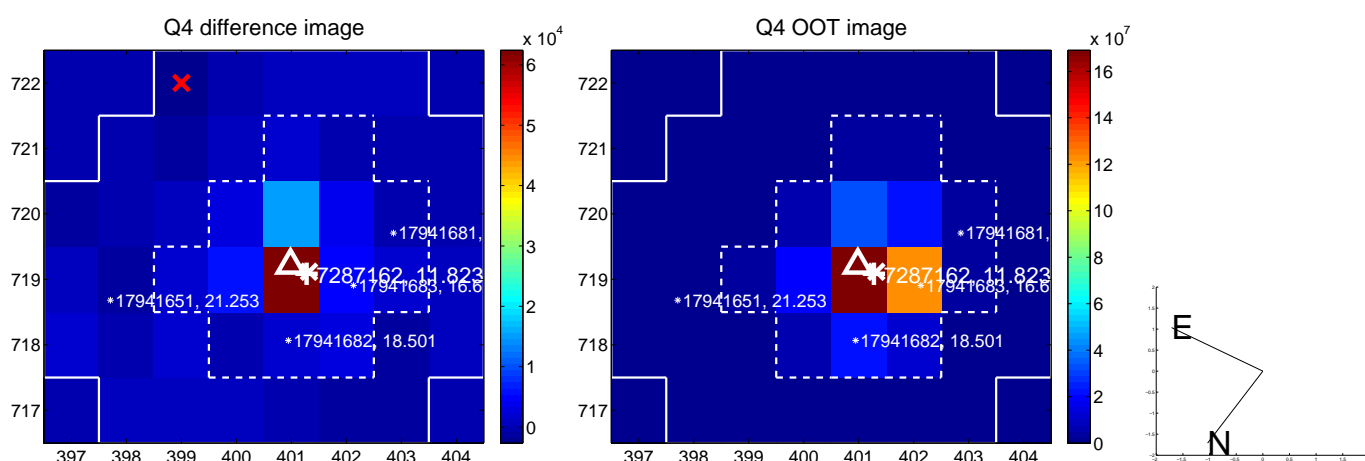
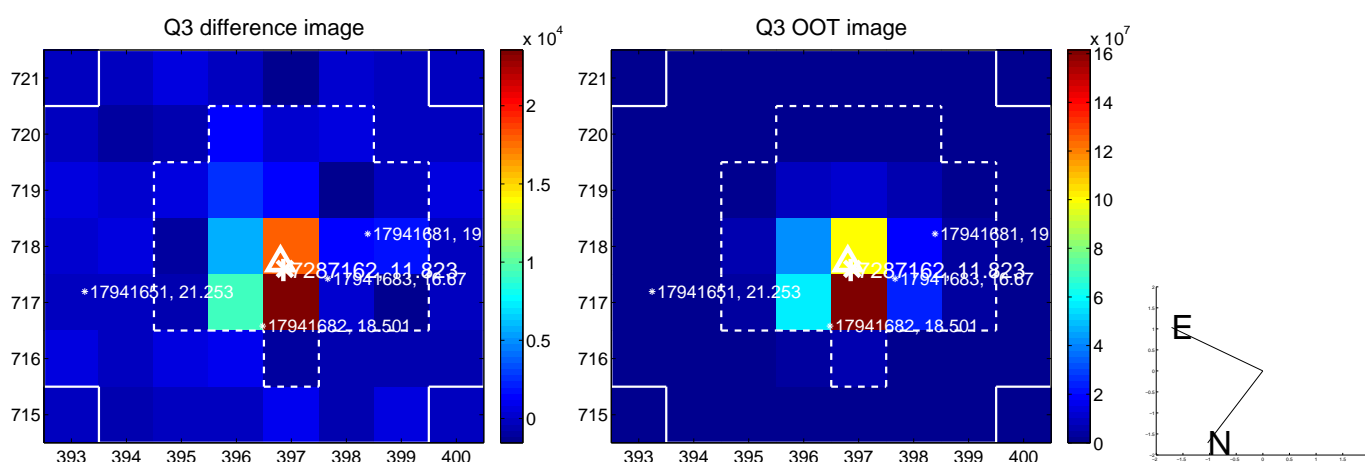
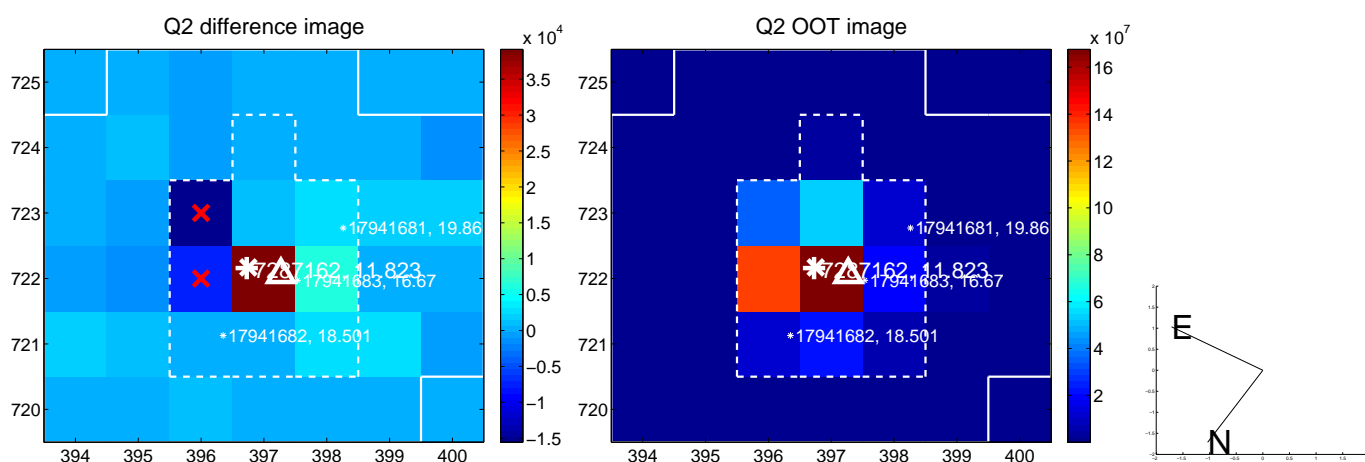
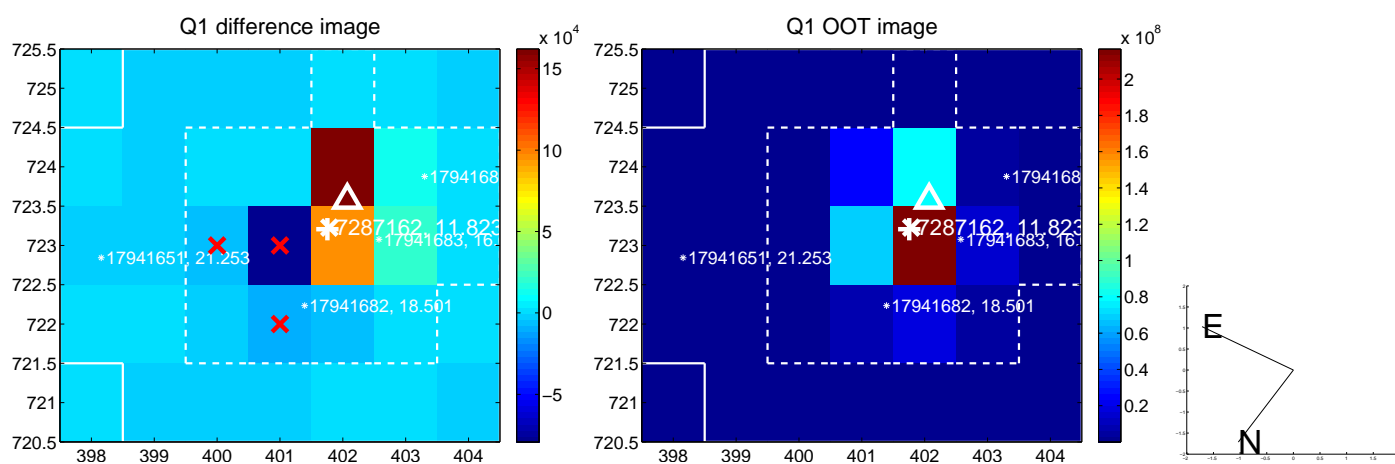
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.311 ± 0.629 | 0.49 | -0.158 ± 0.705 | -0.268 ± 0.412 |
| PRF-fit source offset from KIC position | 0.148 ± 0.602 | 0.25 | -0.086 ± 0.666 | -0.121 ± 0.395 |
| photometric centroid source offset | 0.37 ± 0.26 | 1.41 | -0.36 ± 0.26 | 0.07 ± 0.23 |

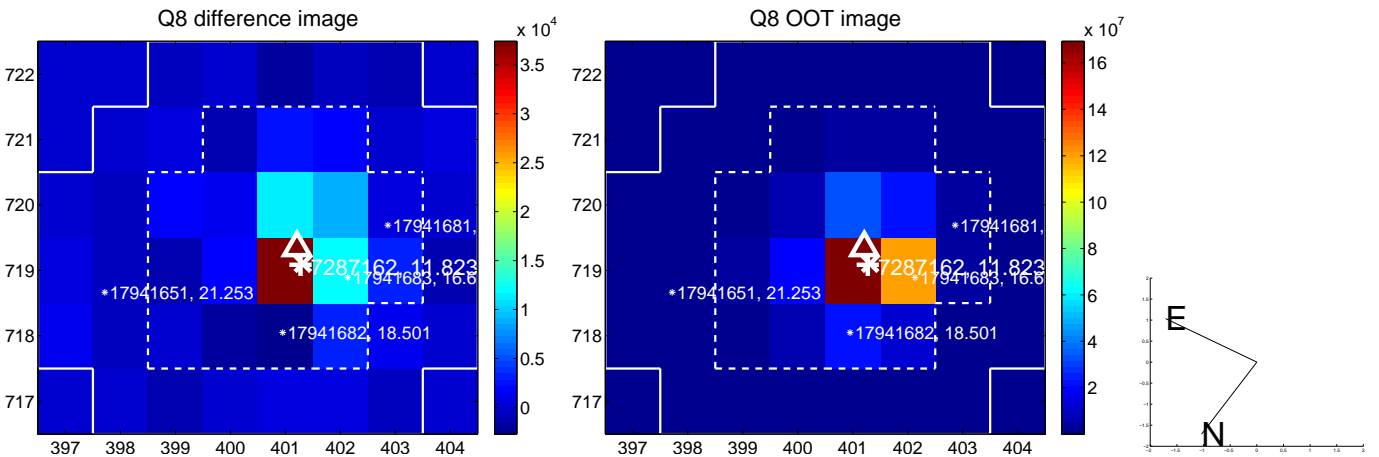
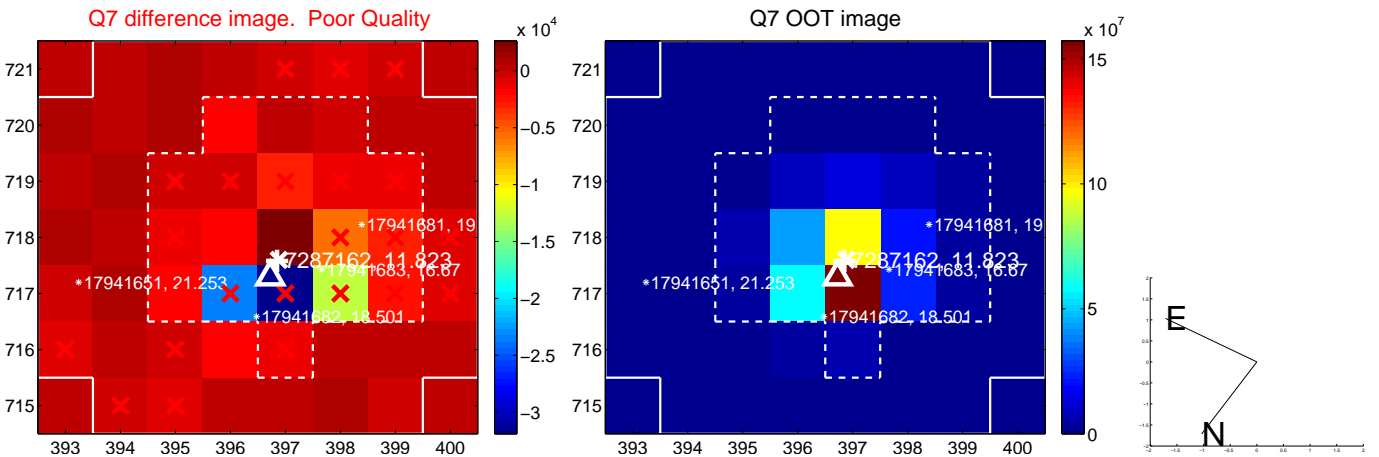
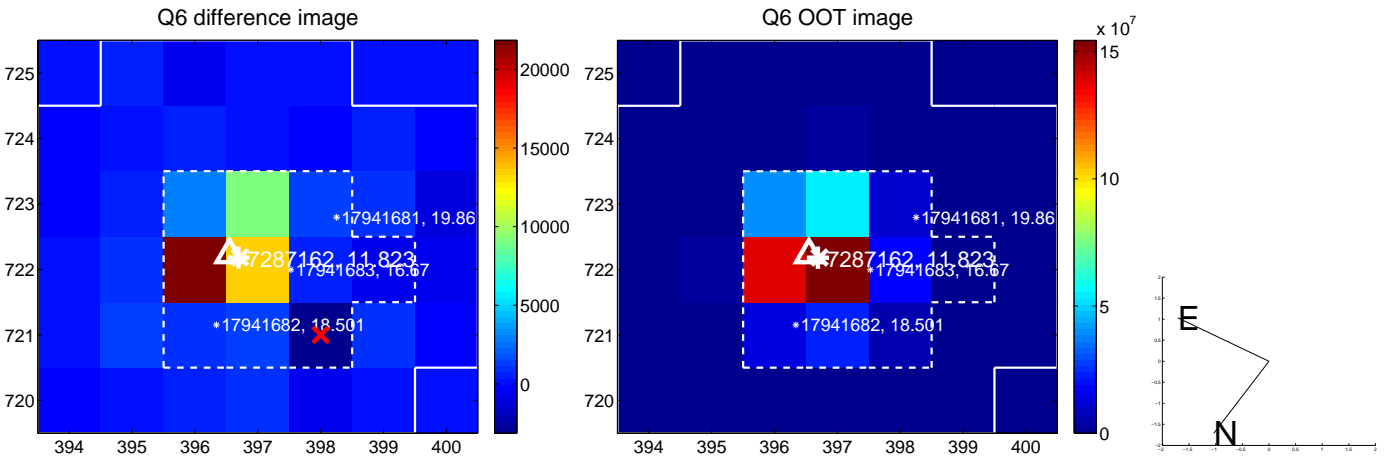
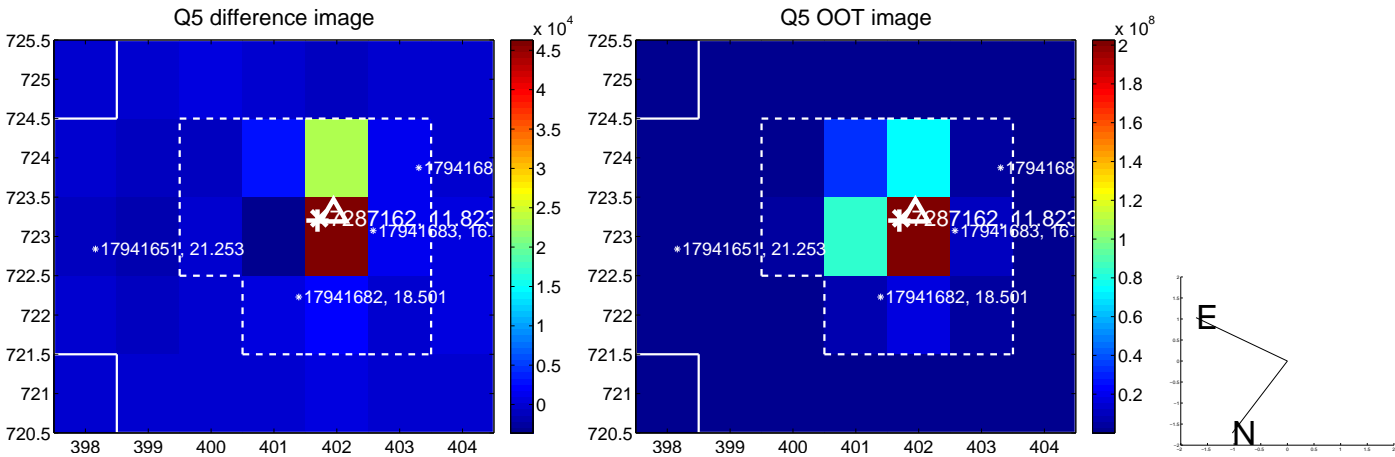


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

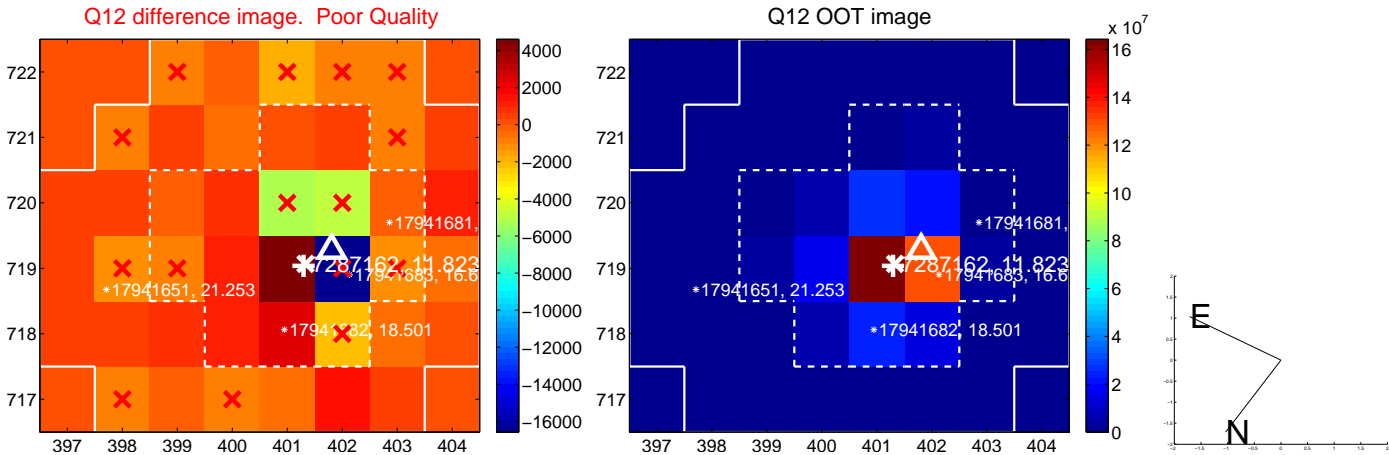
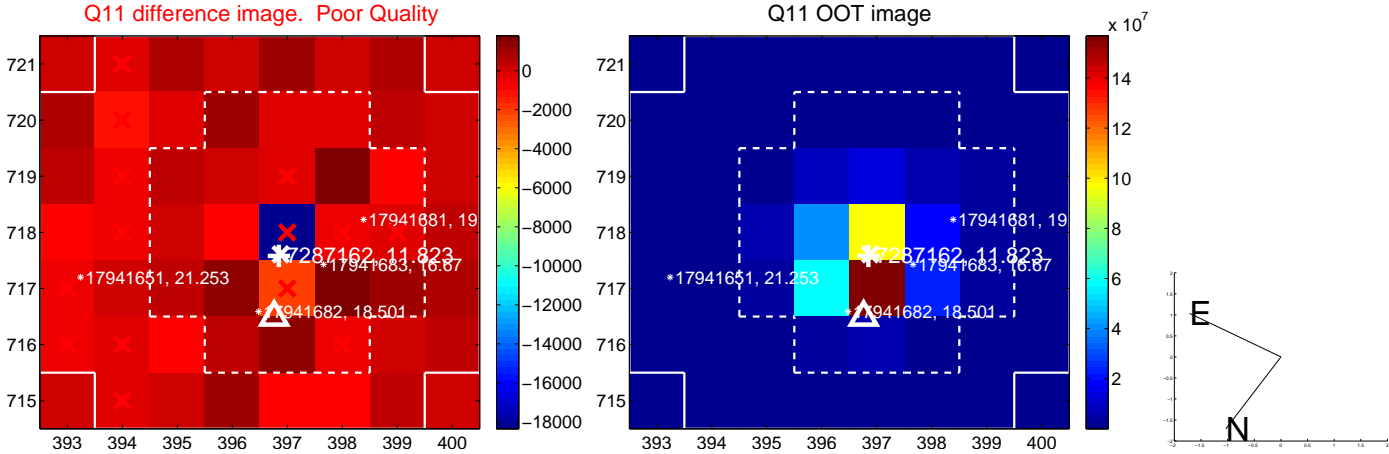
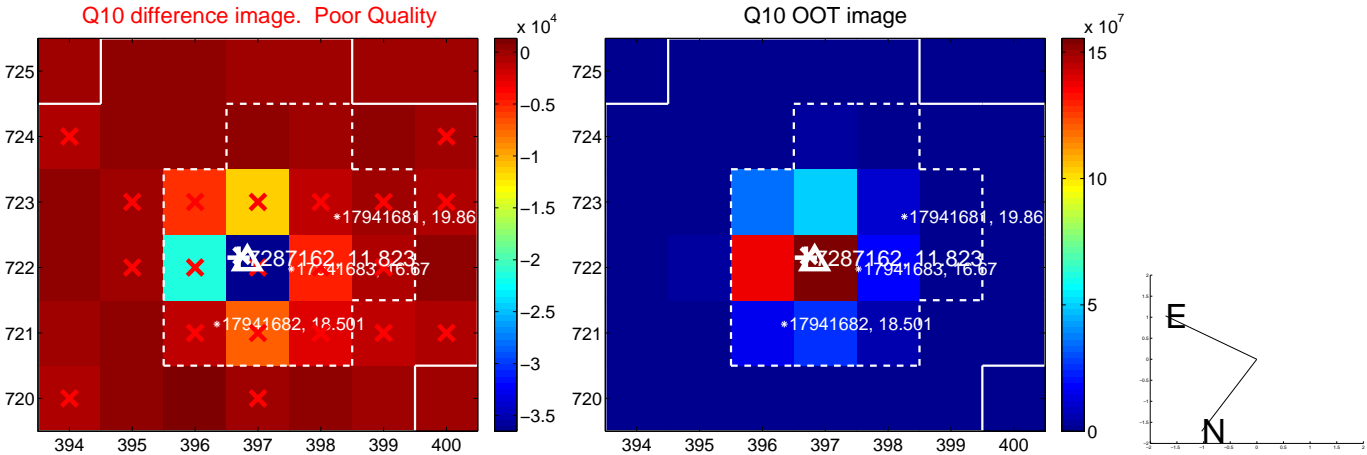
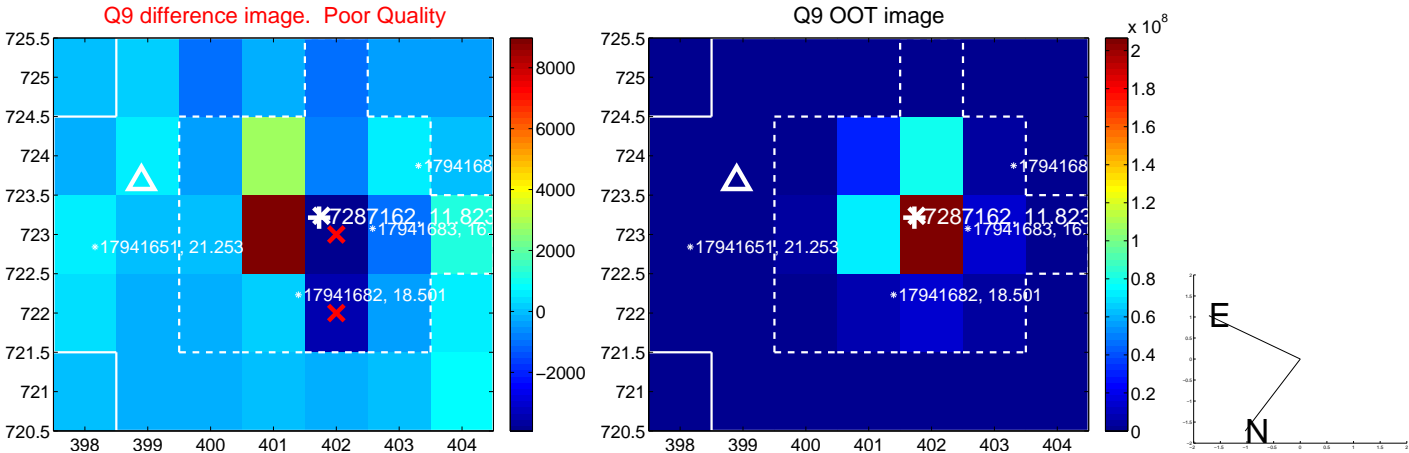
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



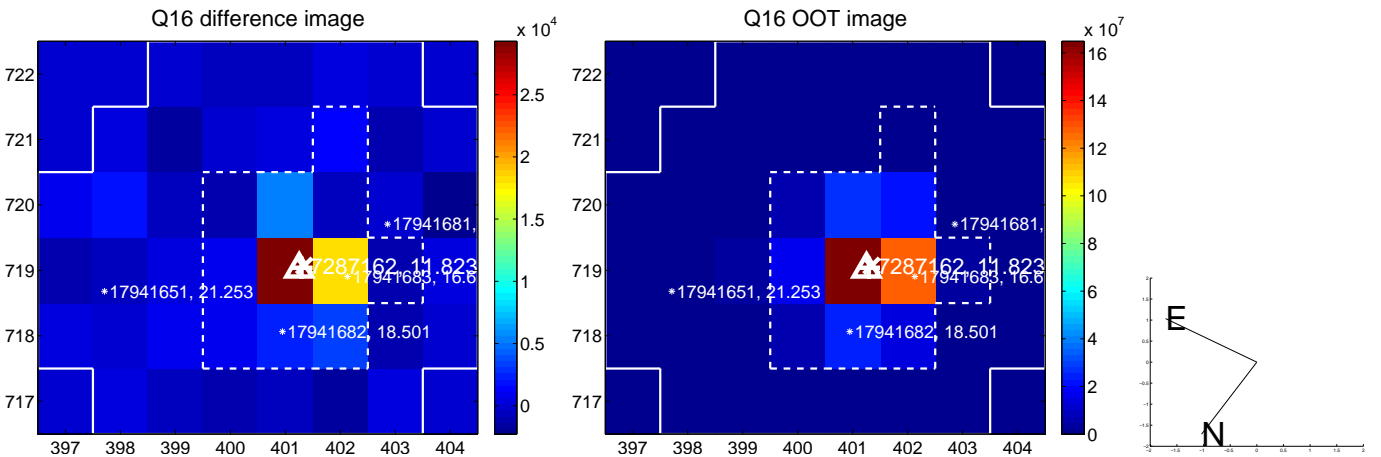
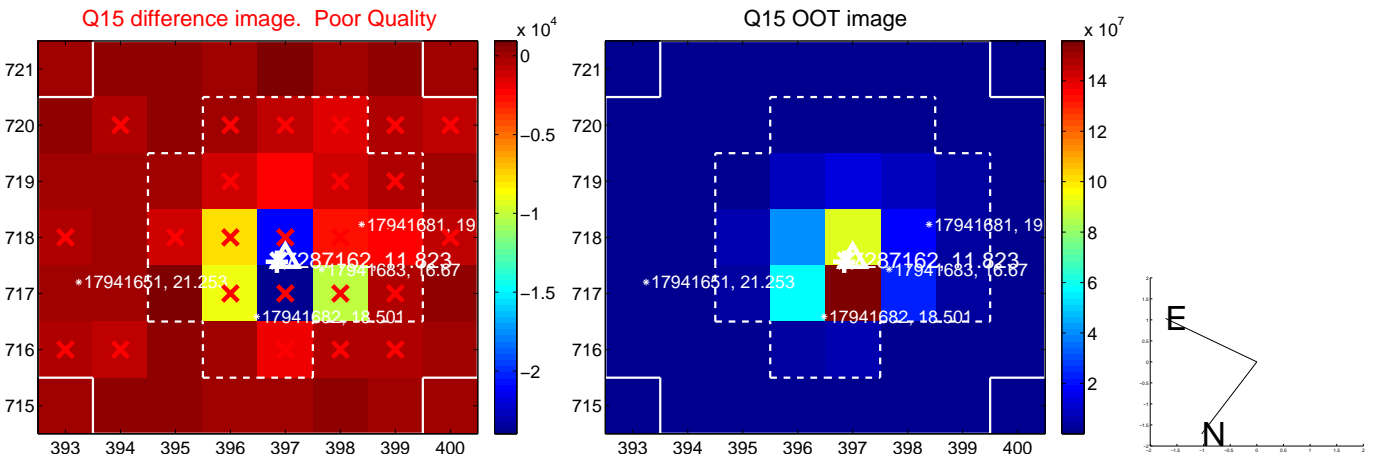
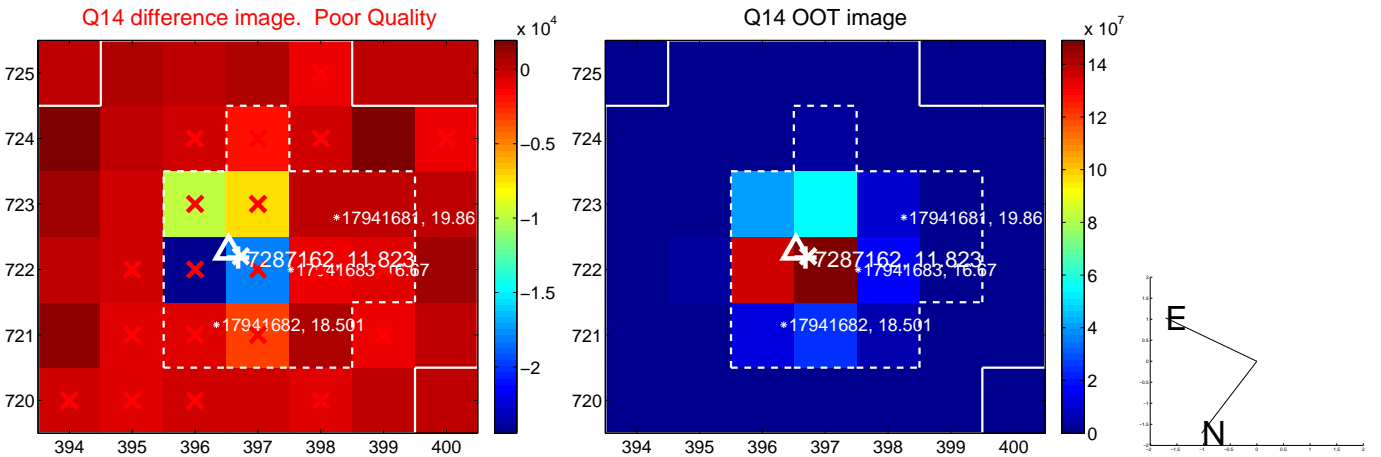
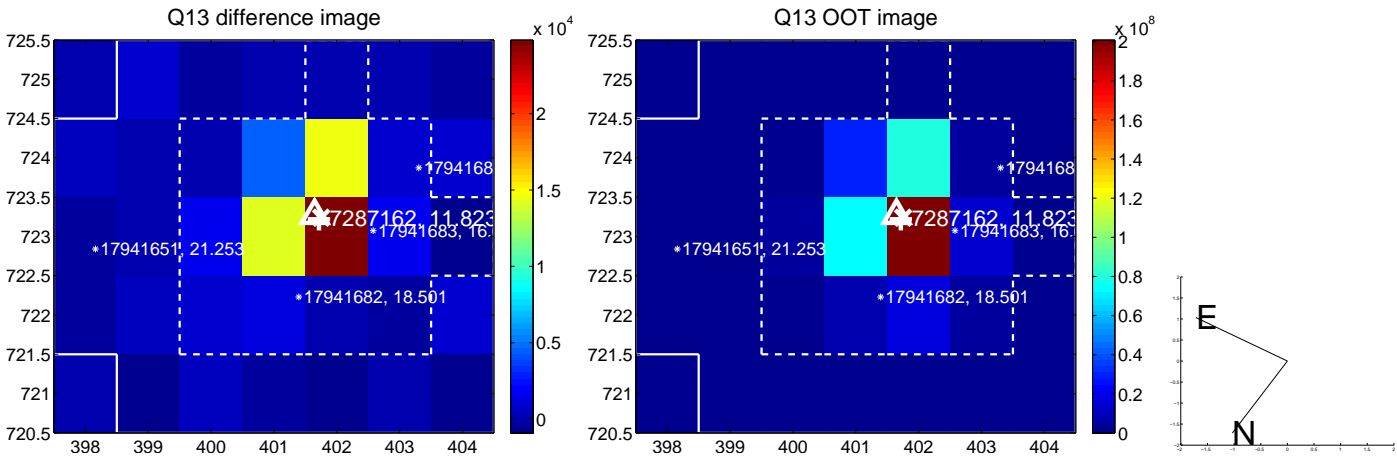
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



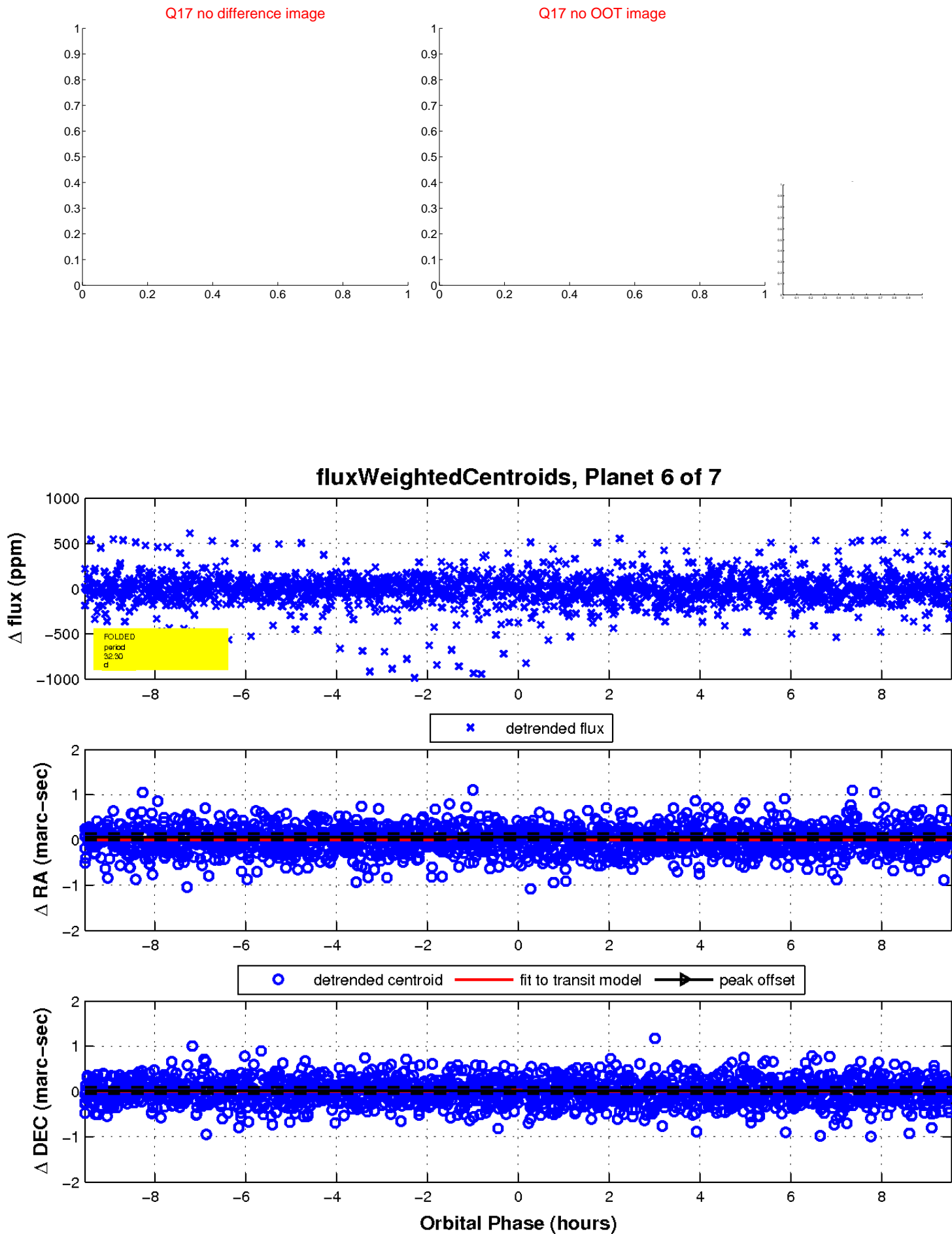
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

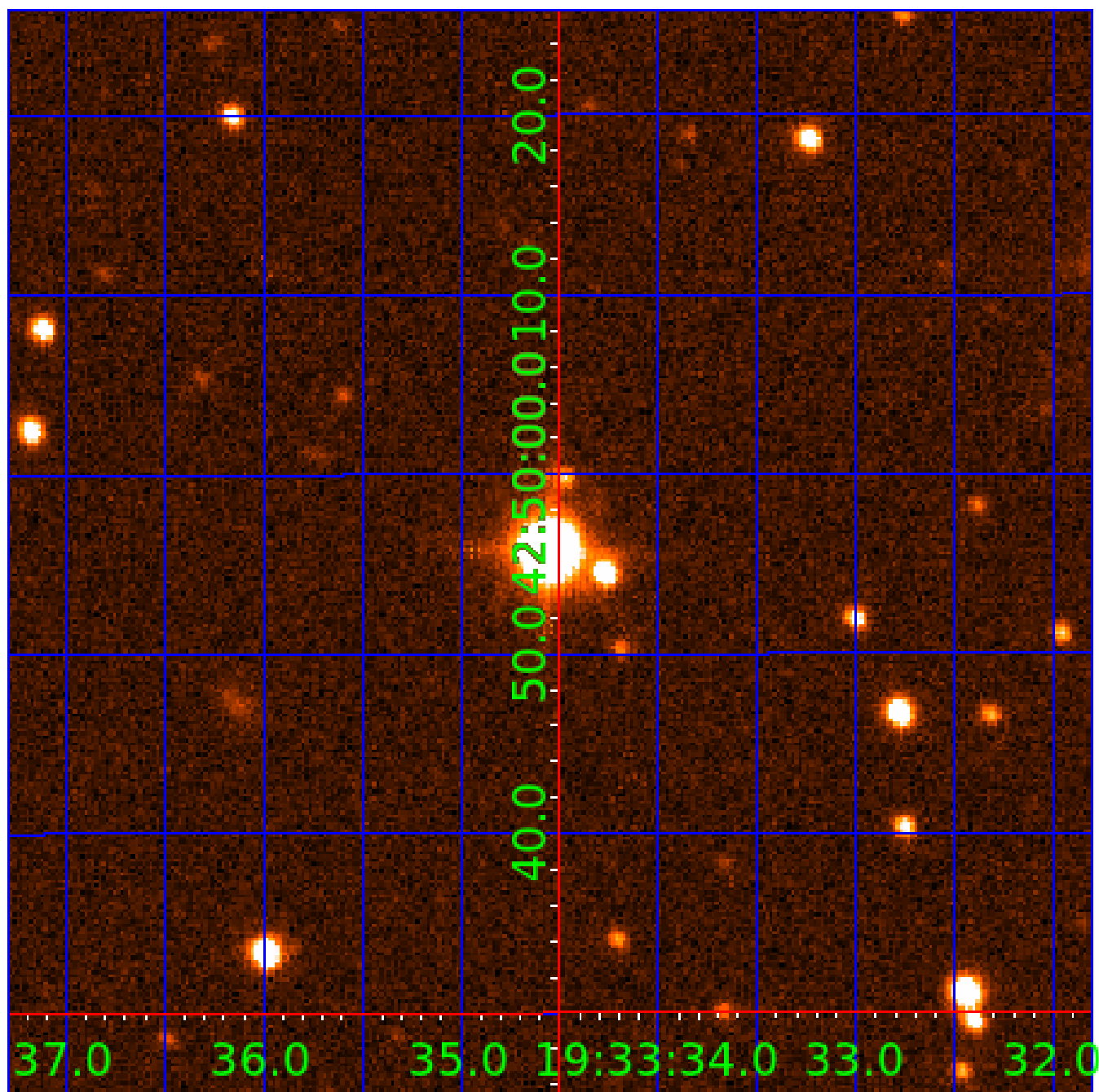


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007287162

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007287162-01 | OBS | No | 1.243349 | 132.491250 | 13.2 | 8.677 | 11.9 | 6.2 | 1.96 | 6603 | 0.74 | 11267.56 |
| 007287162-02 | OBS | No | 50.058830 | 158.793992 | 254.0 | 2.248 | 22.9 | 4.3 | 1.96 | 6603 | 3.83 | 81.65 |
| 007287162-03 | OBS | No | 32.263302 | 134.339844 | 329.2 | 2.269 | 14.0 | 7.8 | 1.96 | 6603 | 3.76 | 146.67 |
| 007287162-04 | OBS | No | 12.071544 | 141.706183 | 122.0 | 4.390 | 7.7 | 8.1 | 1.96 | 6603 | 2.53 | 544.01 |
| 007287162-05 | OBS | No | 38.497378 | 133.655123 | 165.5 | 2.477 | 9.1 | 3.4 | 1.96 | 6603 | 2.96 | 115.89 |
| 007287162-06 | OBS | No | 32.302366 | 139.350892 | 221.7 | 3.181 | 11.2 | 5.7 | 1.96 | 6603 | 3.31 | 146.43 |
| 007287162-07 | OBS | No | 24.114708 | 133.150969 | 226.1 | 5.138 | 8.9 | 8.3 | 1.96 | 6603 | 4.11 | 216.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 007287162-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS |
| 007287162-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_FEW_MEAS |
| 007287162-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST |
| 007287162-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |
| 007287162-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT |
| 007287162-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT |

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

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

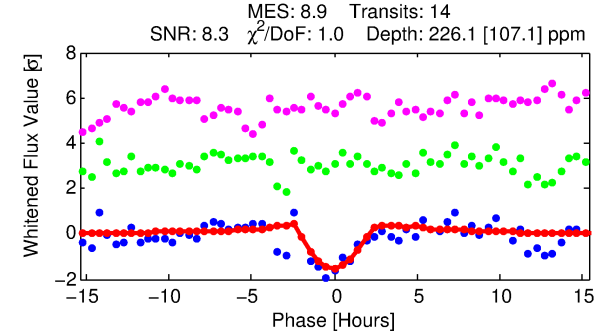
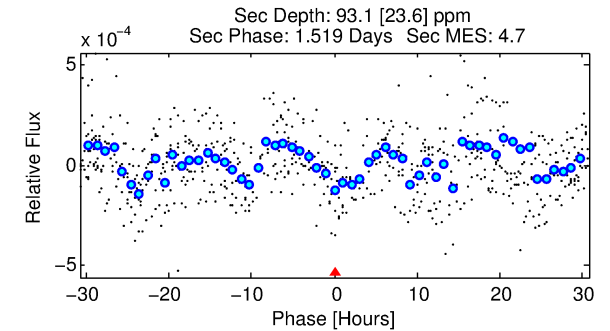
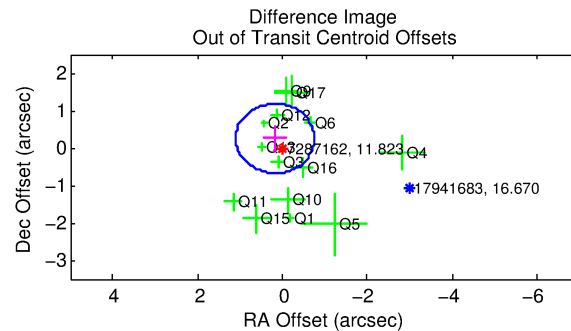
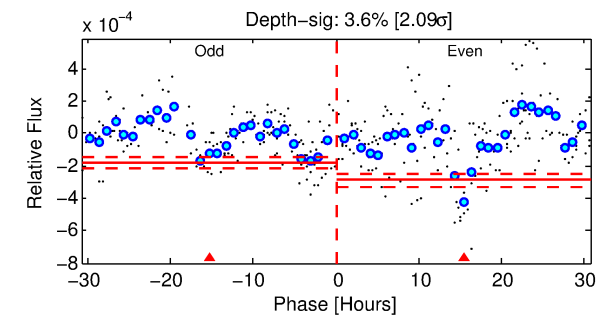
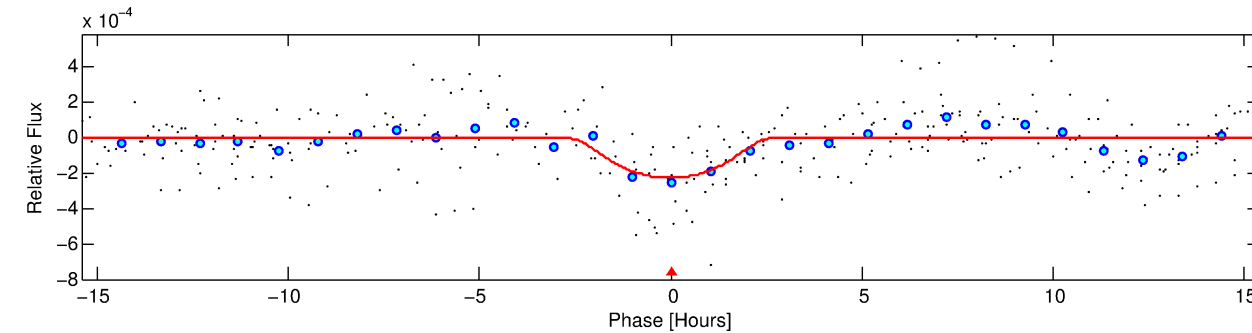
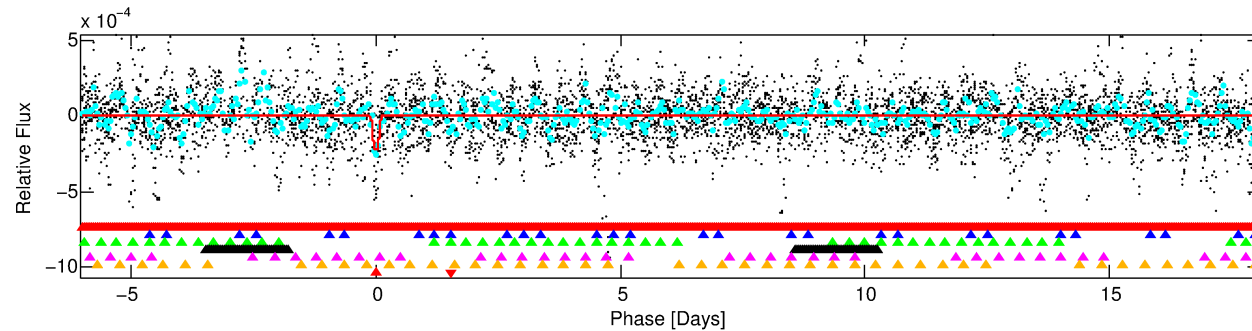
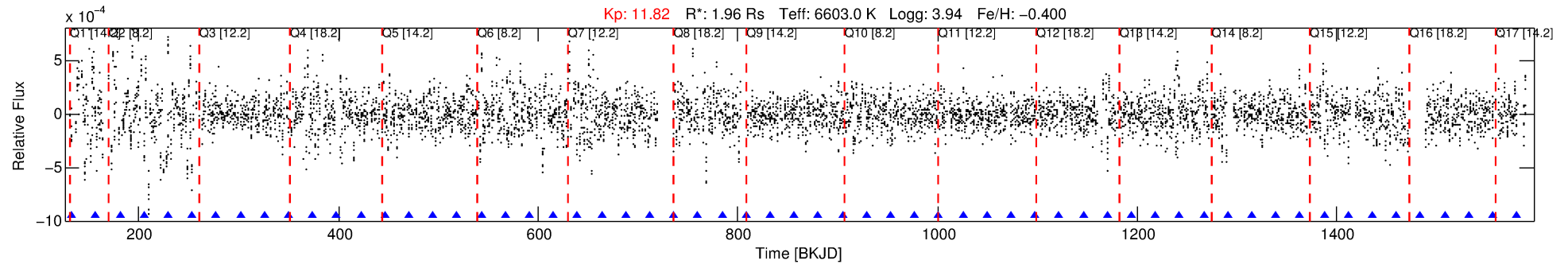
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007287162-07

No Significant Match Found

DV One-Page Summary

KIC: 7287162 Candidate: 7 of 7 Period: 24.115 d



DV Fit Results:

Period = 24.11471 [0.00040] d
Epoch = 133.1510 [0.0138] BKJD
Rp/R* = 0.0192 [0.0096]
a/R* = 9.44 [3.53]
b = 0.98 [0.03]
Seff = 216.23 [103.87]
Teq = 978 [117] K
Rp = 4.11 [2.42] Re
a = 0.1743 [0.0513] AU
Ag = 92.19 [104.75] [0.87 σ]
Teffp = 4685 [1220] K [3.02 σ]

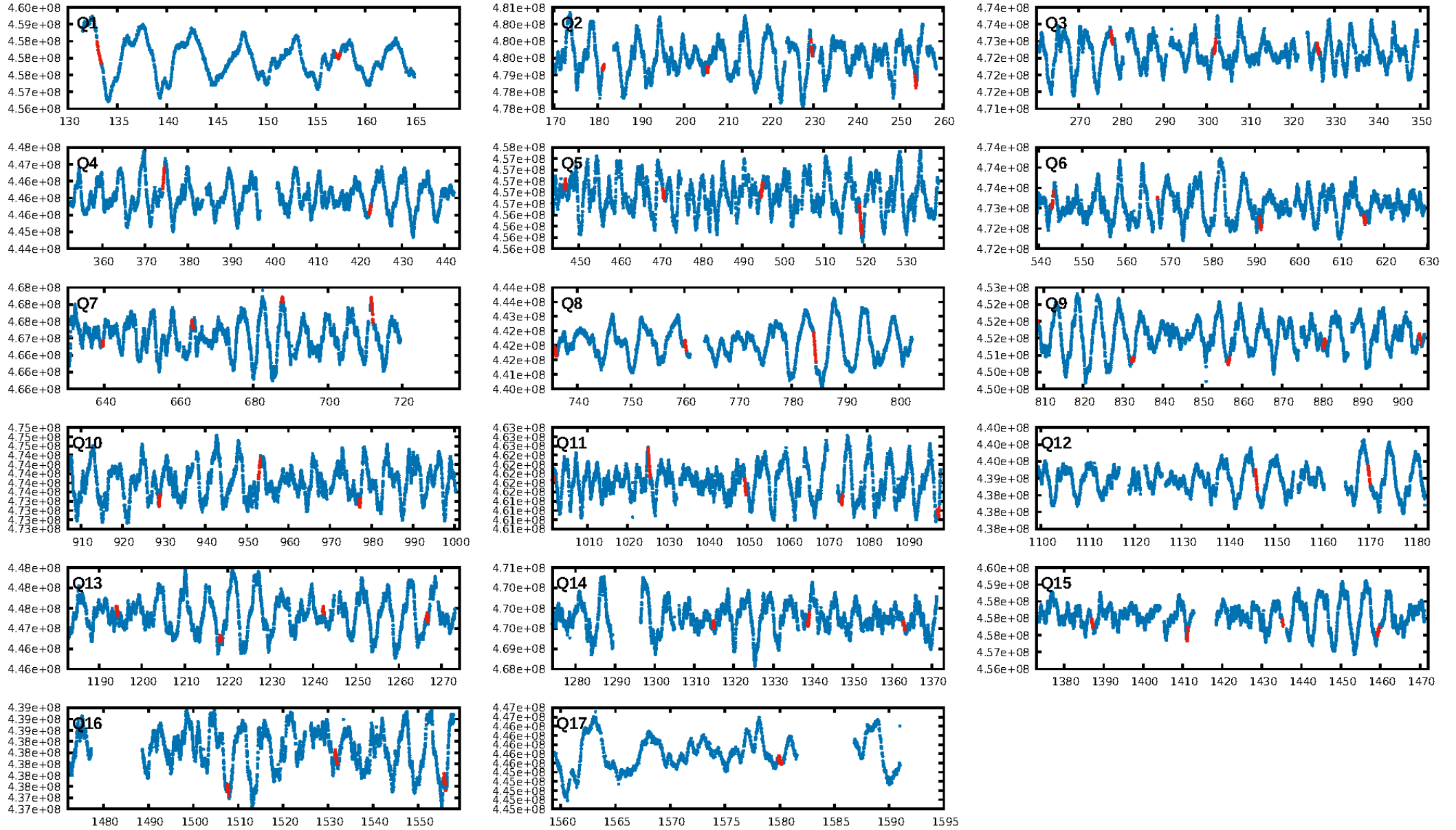
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.77 σ]
LongPeriod-sig: 100.0% [34.82 σ]
ModelChiSquare2-sig: 9.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.12e-12
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: -2.739
Centroid-sig: 67.3%
Centroid-so: 0.181 arcsec [0.82 σ]
OotOffset-rm: 0.306 arcsec [0.99 σ]
KicOffset-rm: 0.448 arcsec [1.49 σ]
OotOffset-st: 3/3/3/5 [14]
KicOffset-st: 3/3/3/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/17]

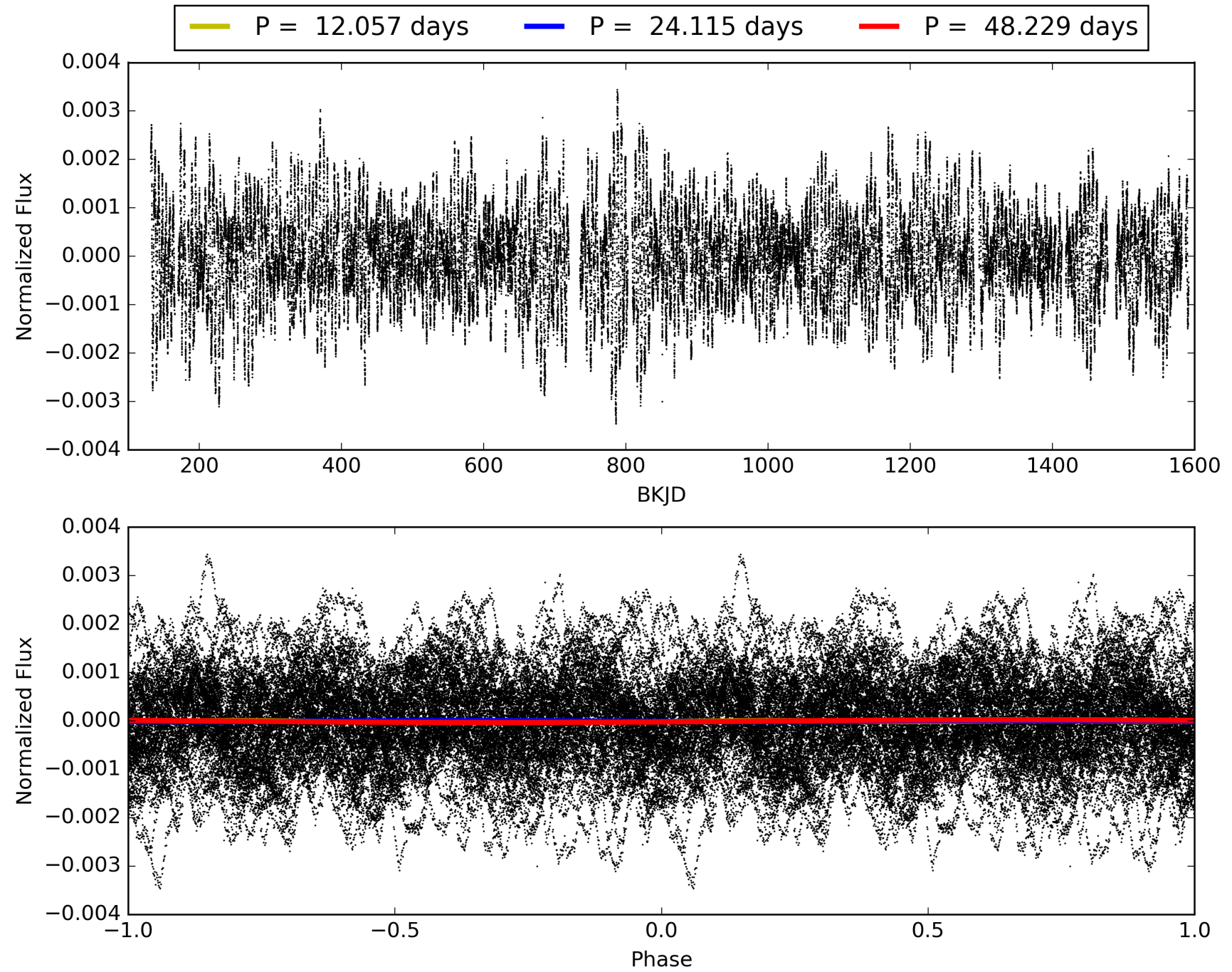
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:12:17 Z

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

TCE 007287162-07, PDC Light Curves

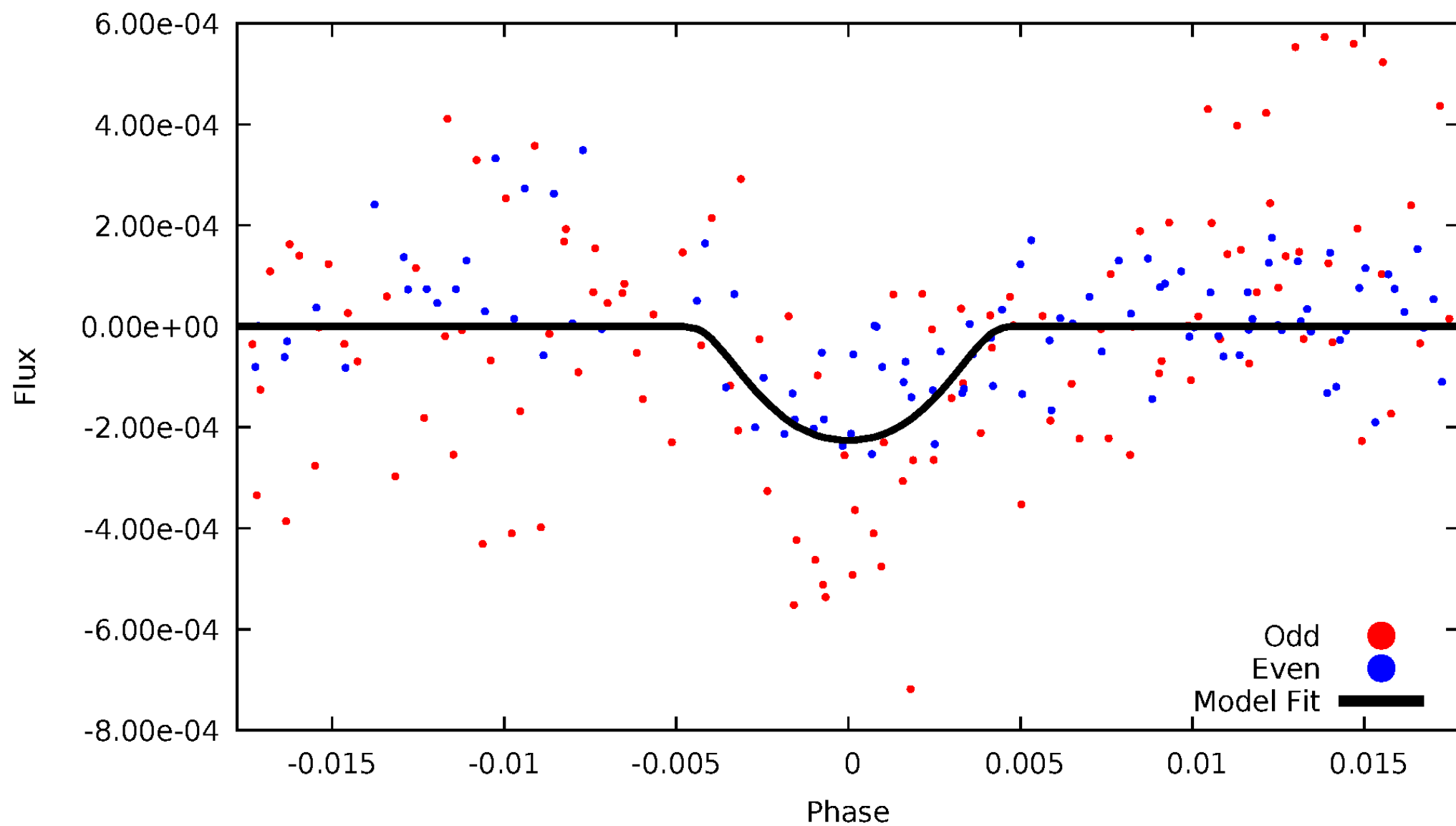


TCE 007287162-07



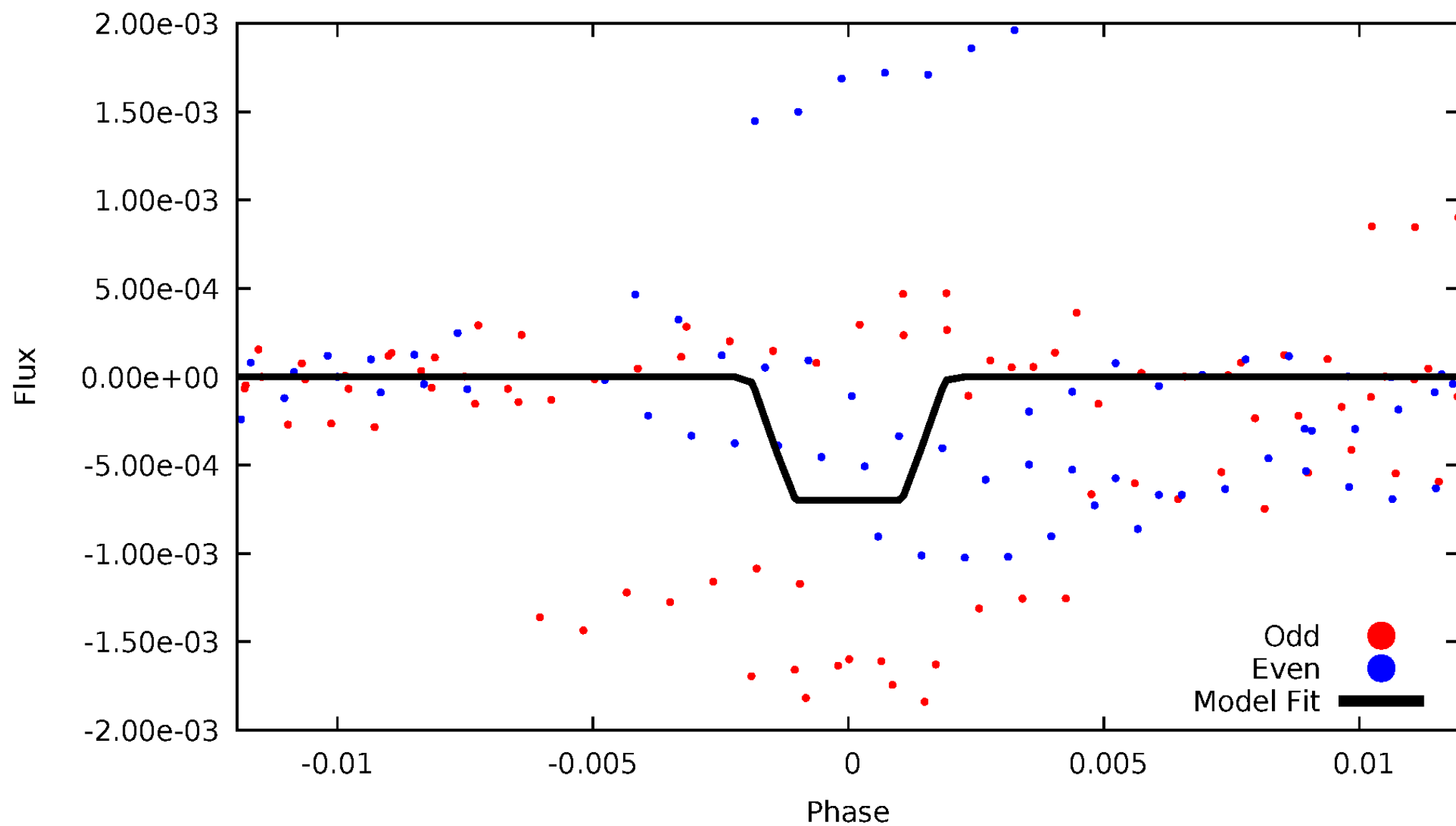
DV Odd/Even

TCE 007287162-07



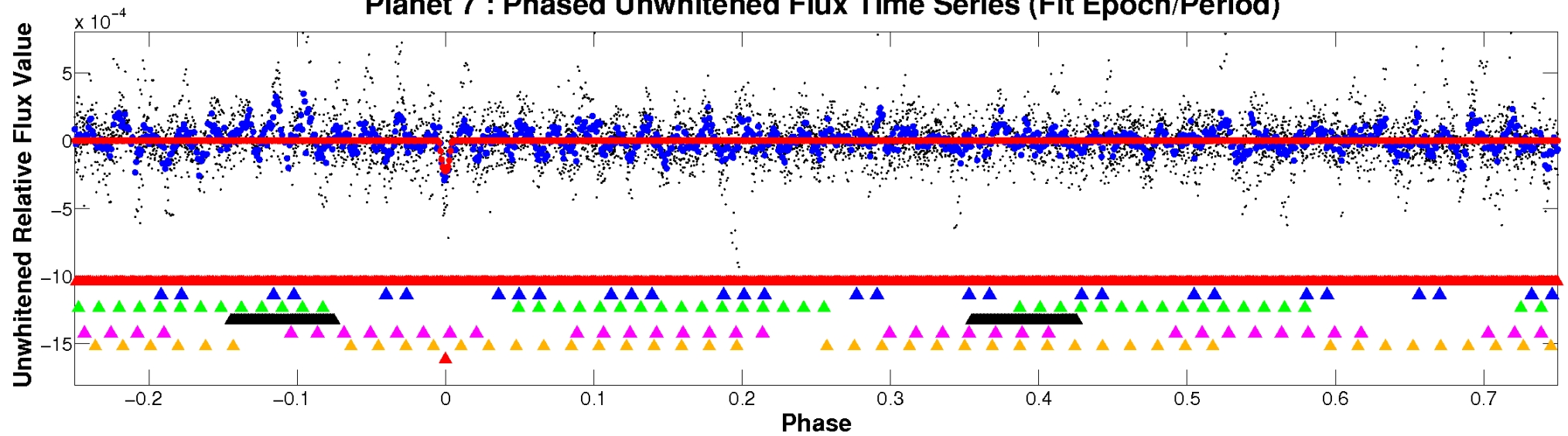
ALT Odd/Even

TCE 007287162-07

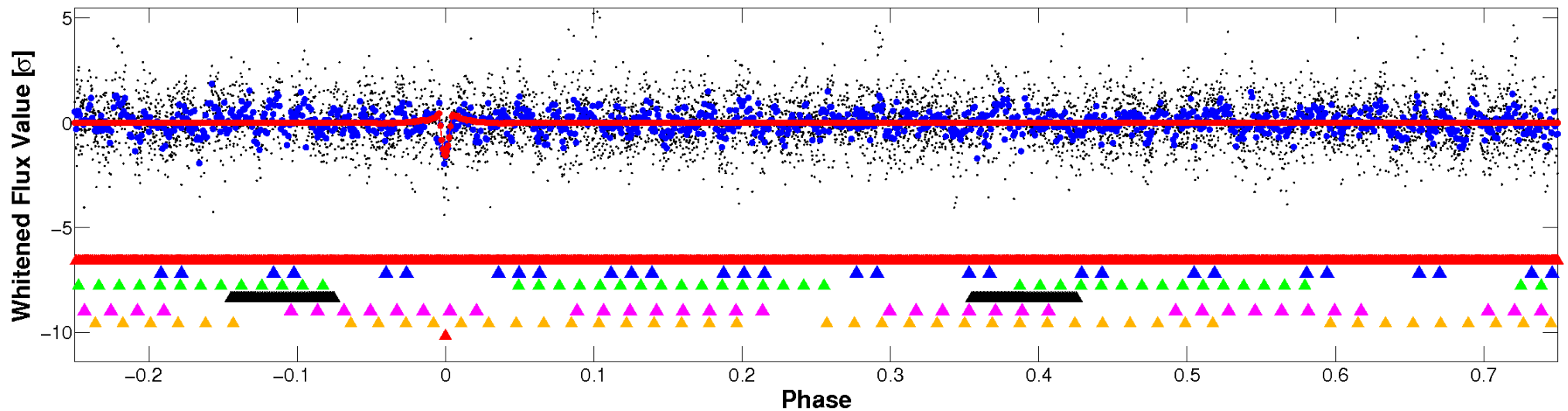


Non-Whitened Vs. Whitened Light Curve

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

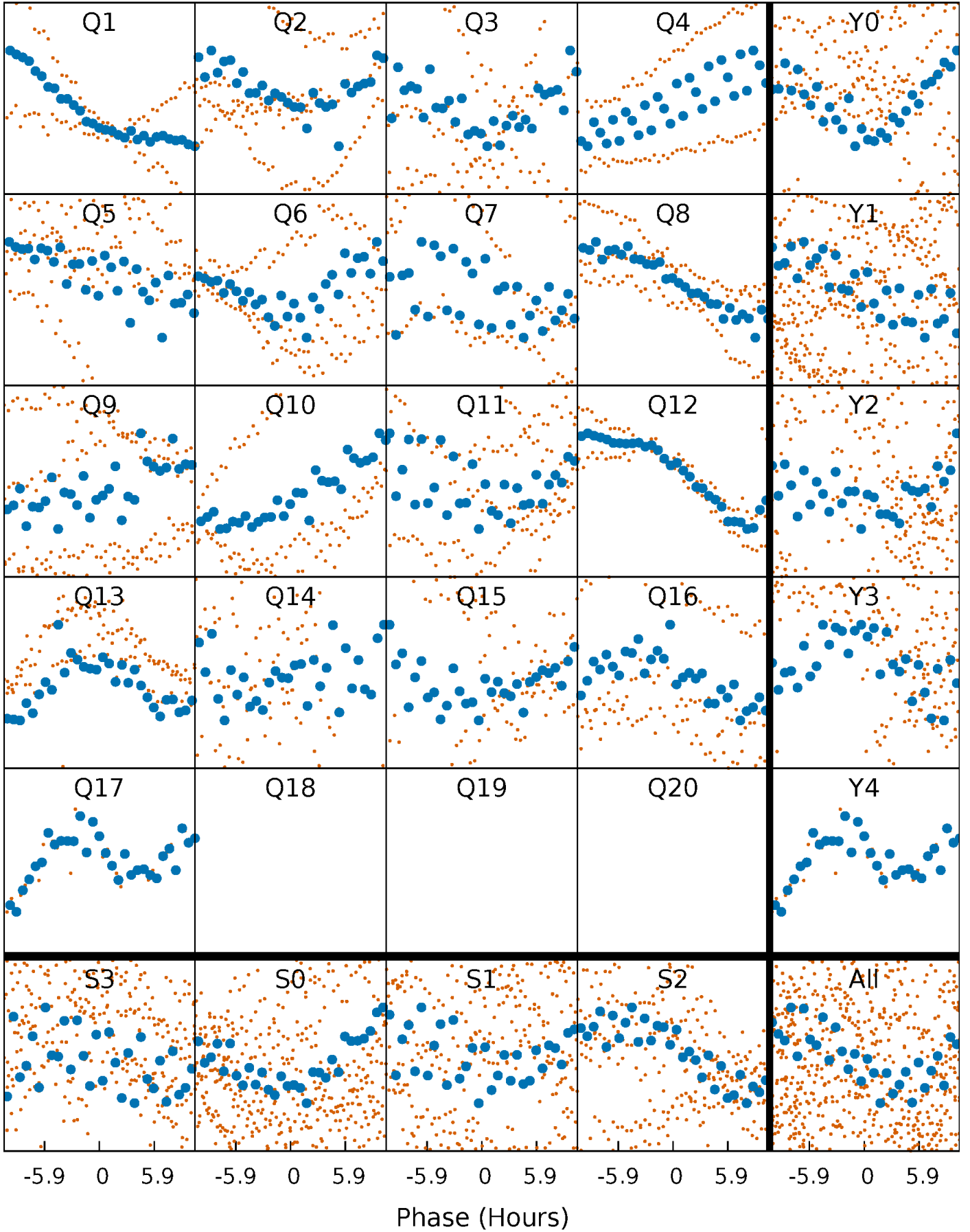


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



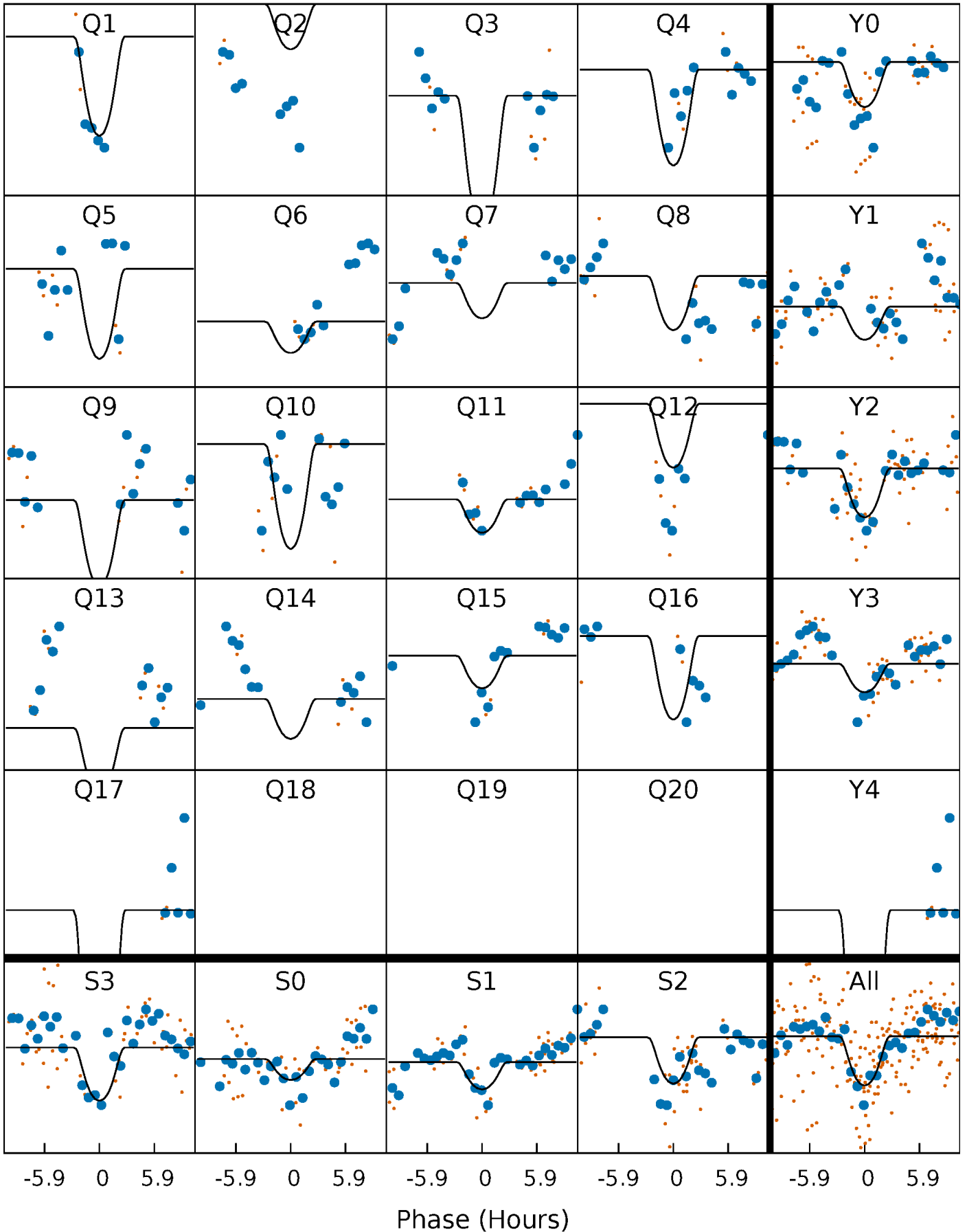
PDC Quarter-Phased Transit Curves

TCE 007287162-07 P= 24.114708 Days $T_0=133.150969$ (BKJD)



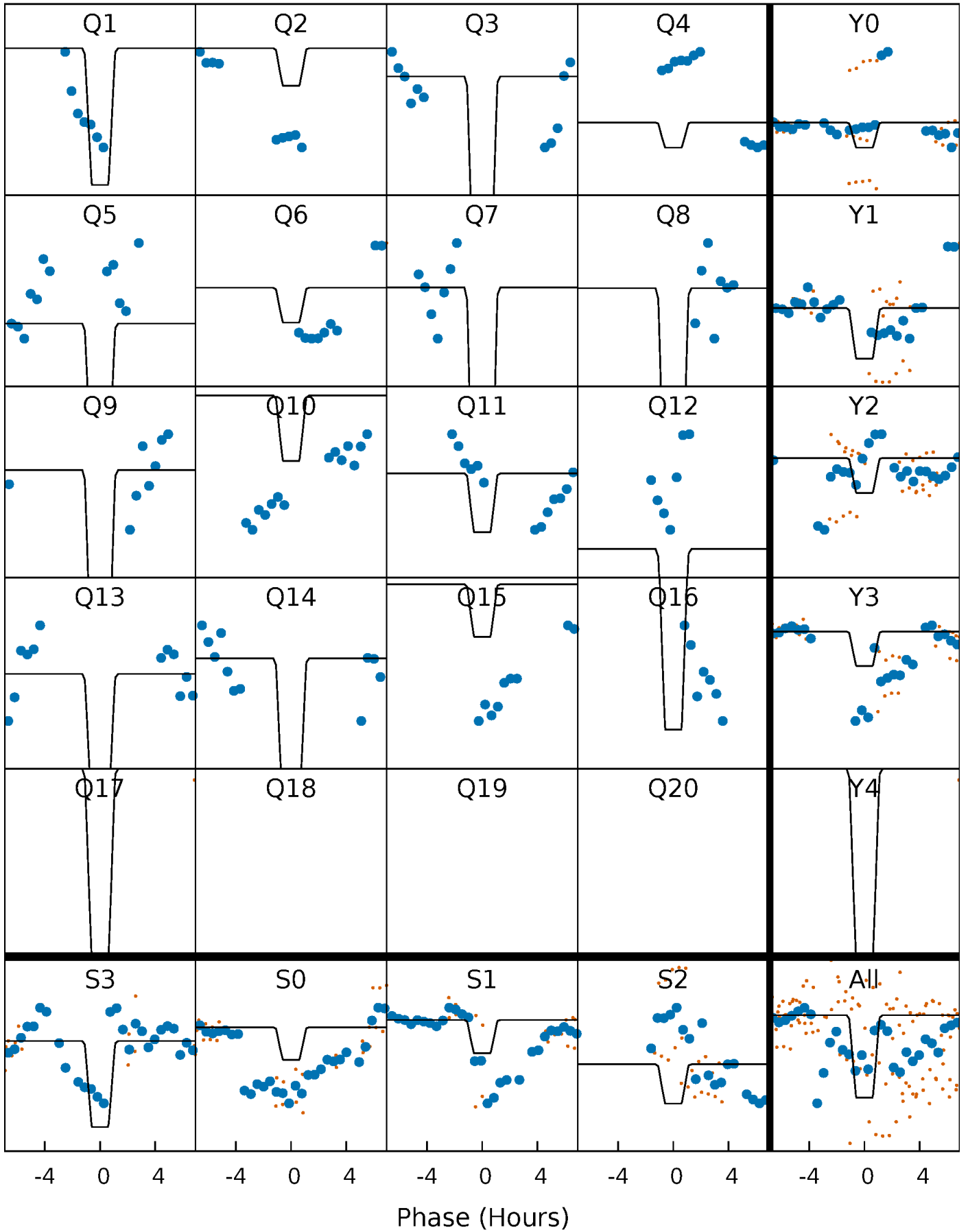
DV Quarter-Phased Transit Curves

TCE 007287162-07 P= 24.114708 Days $T_0=133.150969$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

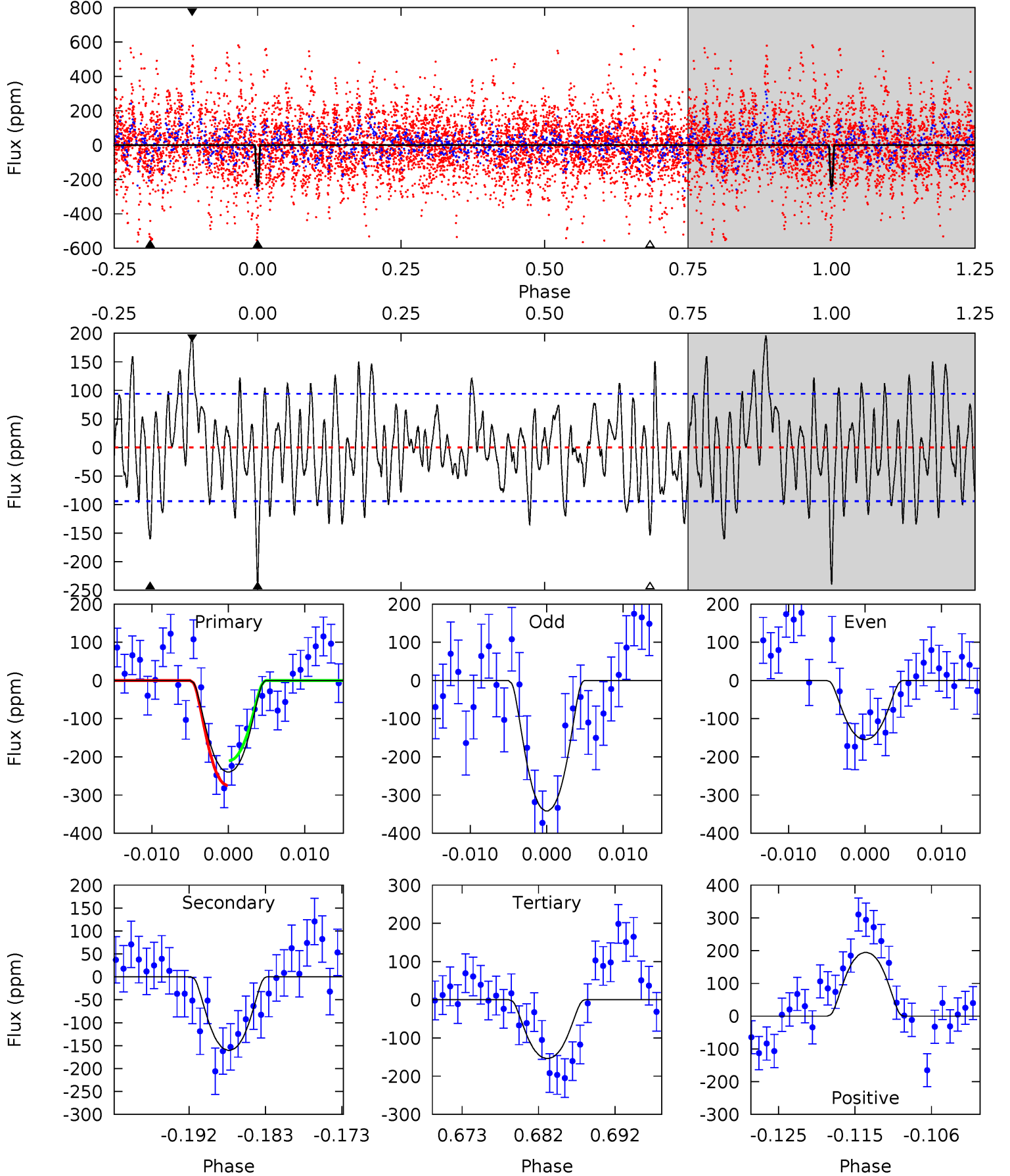
TCE 007287162-07 P= 24.114484 Days $T_0=133.159755$ (BKJD)



DV Model-Shift Uniqueness Test

007287162-07, P = 24.114708 Days, E = 109.036261 Days

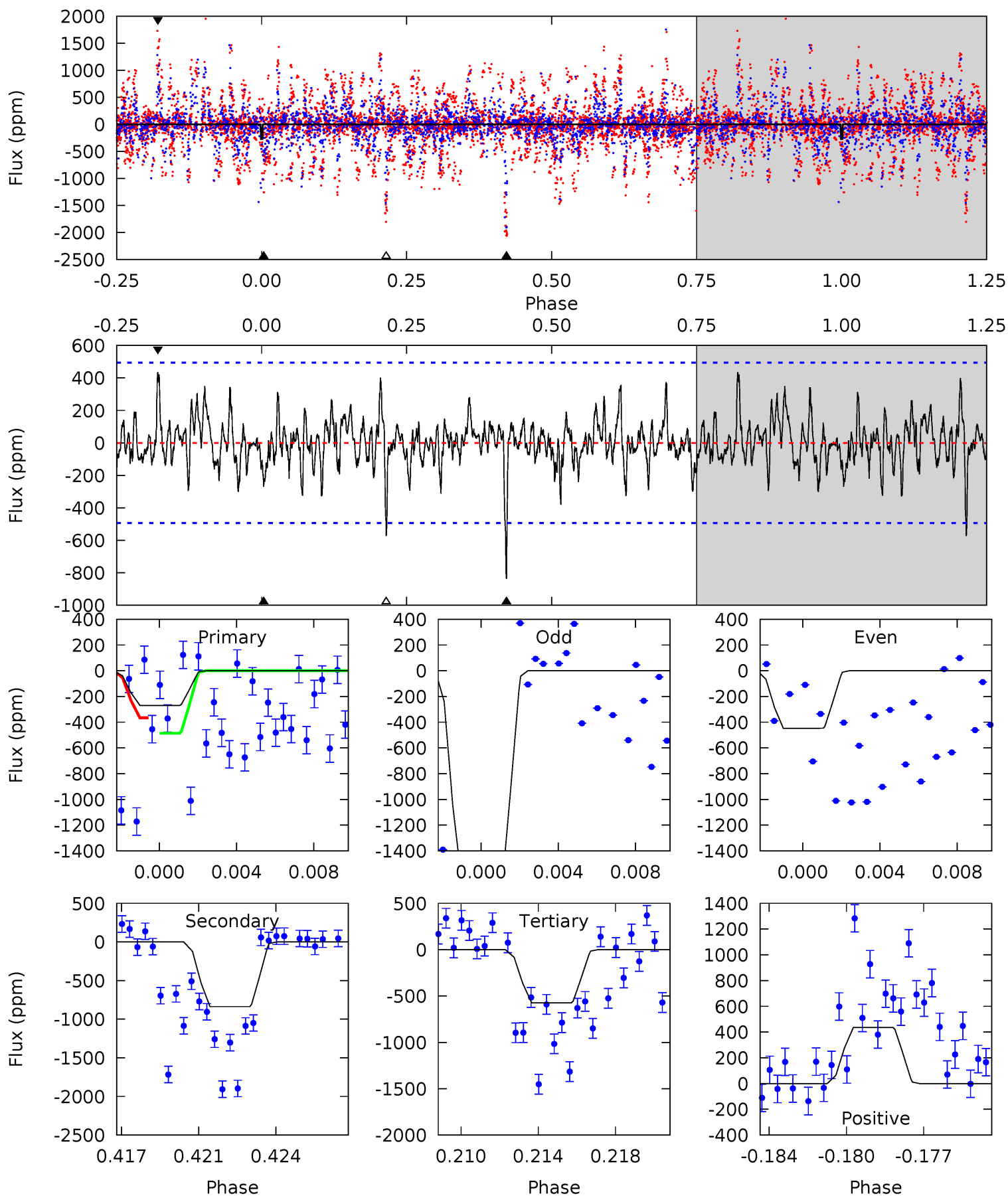
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.8 | 8.58 | 8.23 | 10.4 | 5.03 | 2.59 | 3.23 | 4.61 | 2.42 | 0.35 | -1.84 | 4.97 | 1.14 | 0.45 | 1.70 |



Alt Model-Shift Uniqueness Test

007287162-07, P = 24.114484 Days, E = 109.045271 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 2.84 | 8.83 | 6.04 | 4.59 | 5.21 | 2.90 | 1.25 | -3.20 | -1.75 | 2.79 | 4.24 | 5.65 | 1.05 | 0.34 | 0 |



Stellar Parameters For KIC 007287162

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 6603^{+167}_{-184} | $3.936^{+0.273}_{-0.117}$ | $-0.400^{+0.300}_{-0.250}$ | $1.964^{+0.406}_{-0.609}$ | $1.212^{+0.213}_{-0.174}$ | $0.225^{+0.405}_{-0.081}$ |
| | +3%/-3% | +7%/-3% | +75%/-62% | +21%/-31% | +18%/-14% | +180%/-36% |
| Source | PHO1 | FLK73 | 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 007287162-07 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|---------------|------------------------|---------------------|------------------------|---------------------|
| DV | -160 ± 19 | $4.01^{+2.18}_{-1.86}$ | 1346^{+84}_{-117} | 5340^{+1795}_{-871} | 168^{+419}_{-99} |
| Alt. | -837 ± 95 | $5.28^{+2.50}_{-1.84}$ | 1349^{+86}_{-110} | 6965^{+2049}_{-1082} | 495^{+735}_{-258} |

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 $A_{obs} \gg 1.0$

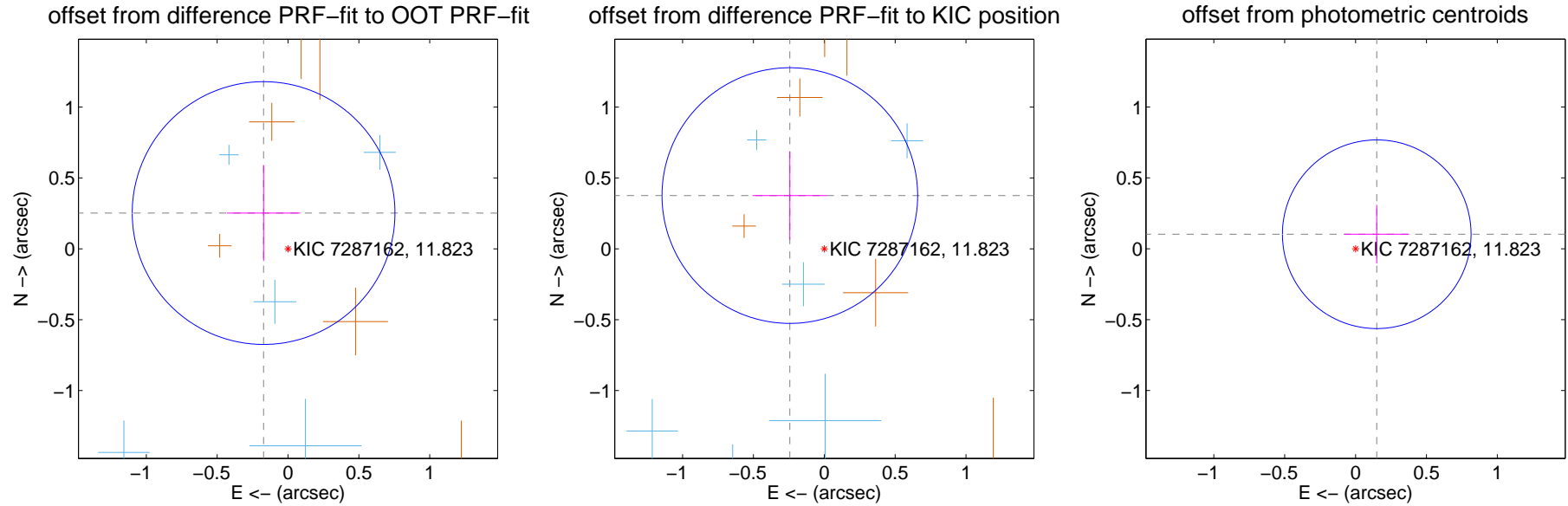
DV Centroid Data

Supplemental centroid analysis for 007287162-07. **Kepler magnitude: 11.82.** Transit SNR 8.35

There are 7 quarters with good PRF difference image offsets

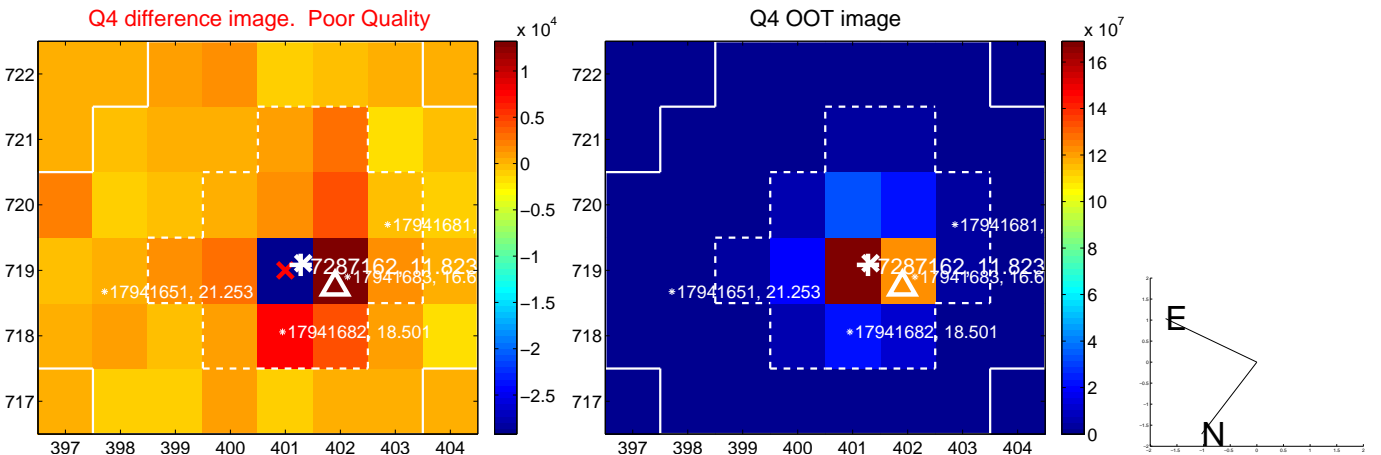
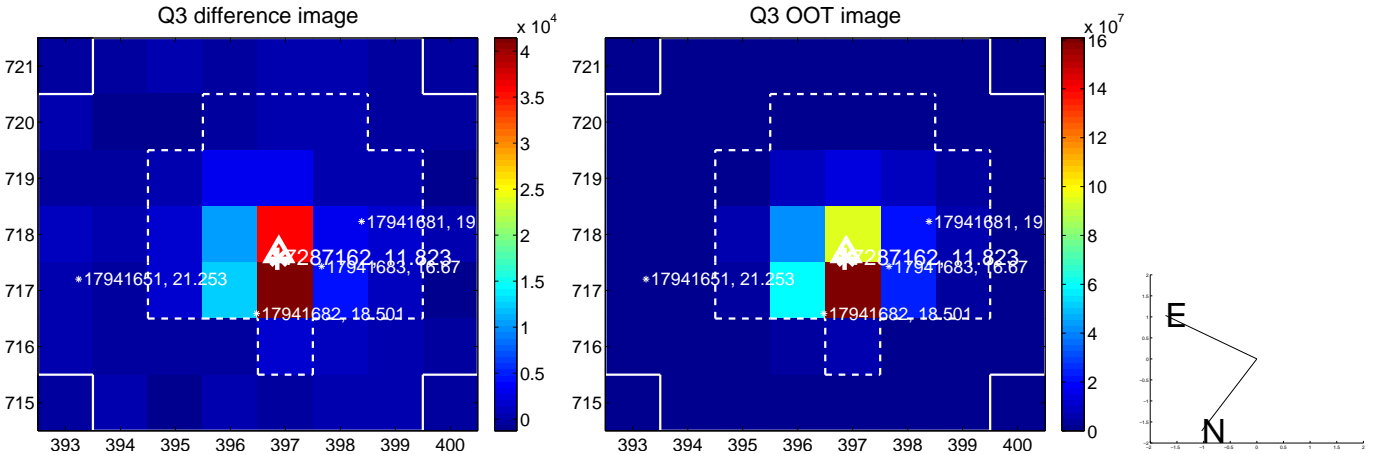
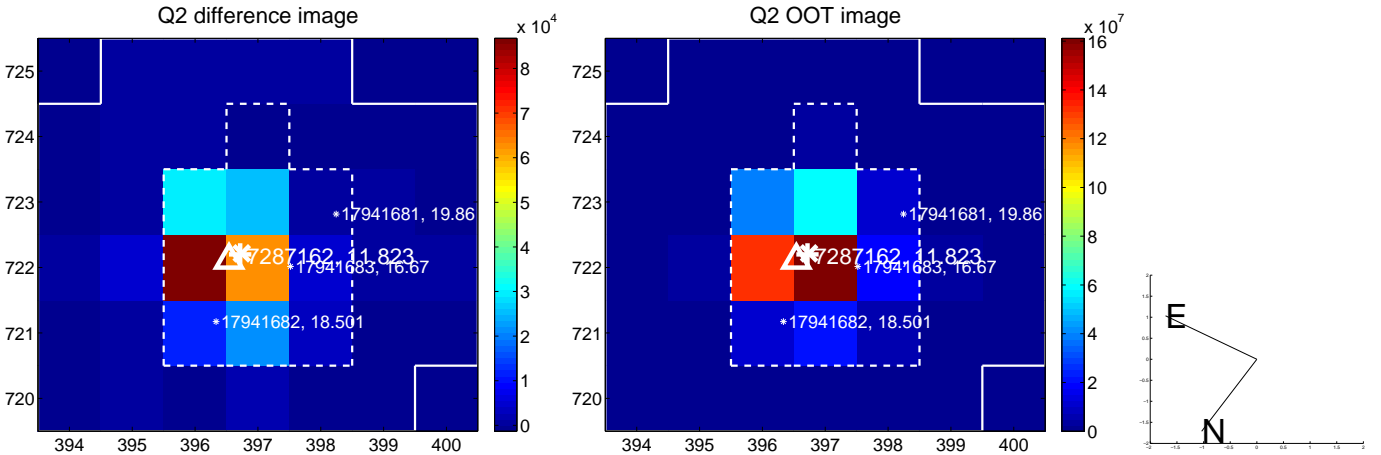
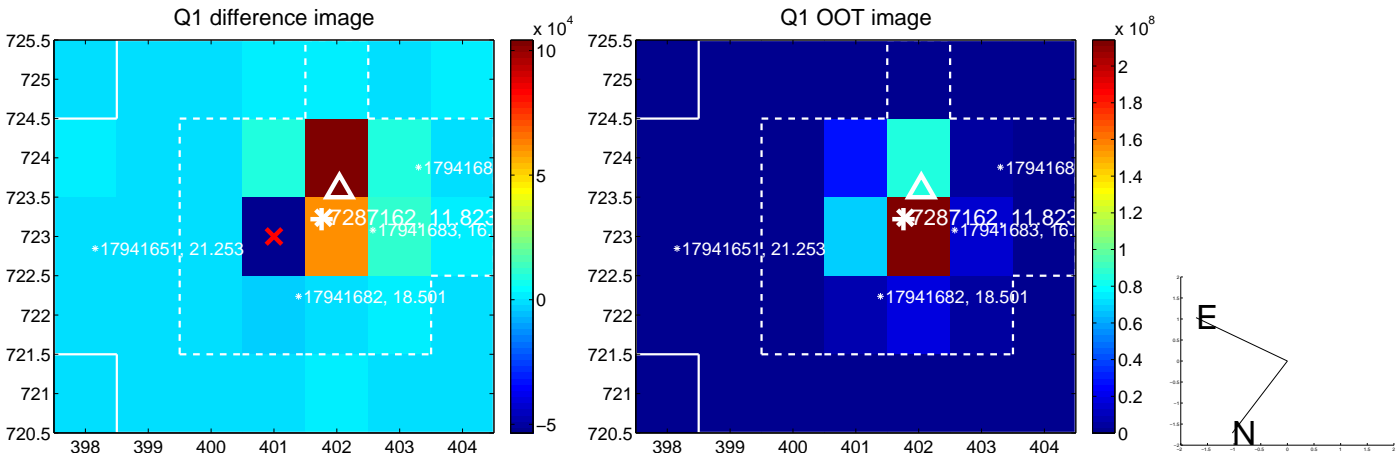
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 0.306 ± 0.309 | 0.99 | 0.172 ± 0.259 | 0.252 ± 0.339 |
| PRF-fit source offset from KIC position | 0.448 ± 0.301 | 1.49 | 0.243 ± 0.264 | 0.376 ± 0.311 |
| photometric centroid source offset | 0.18 ± 0.22 | 0.82 | -0.15 ± 0.23 | 0.10 ± 0.21 |

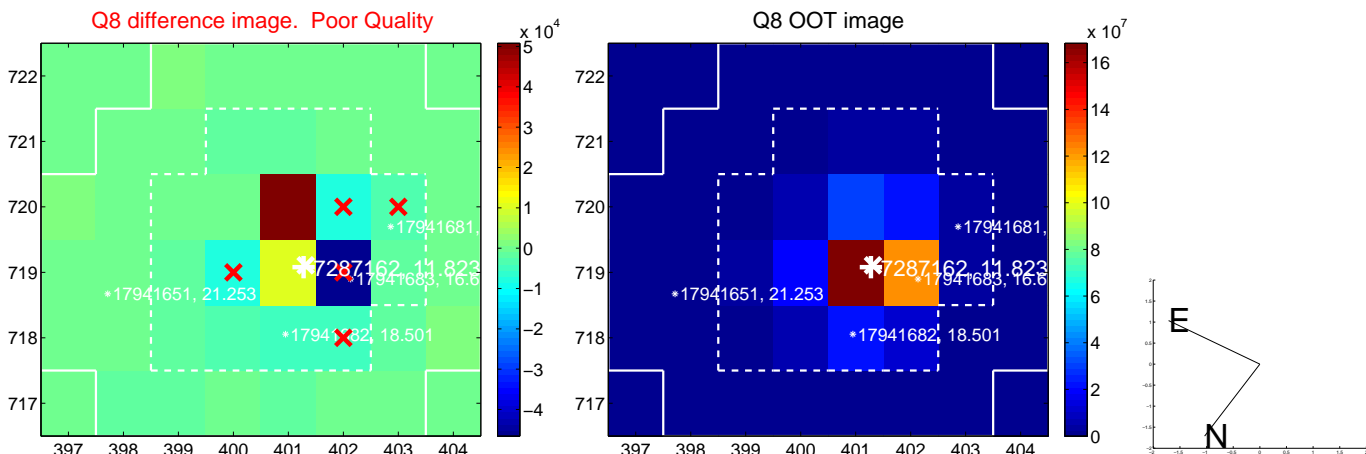
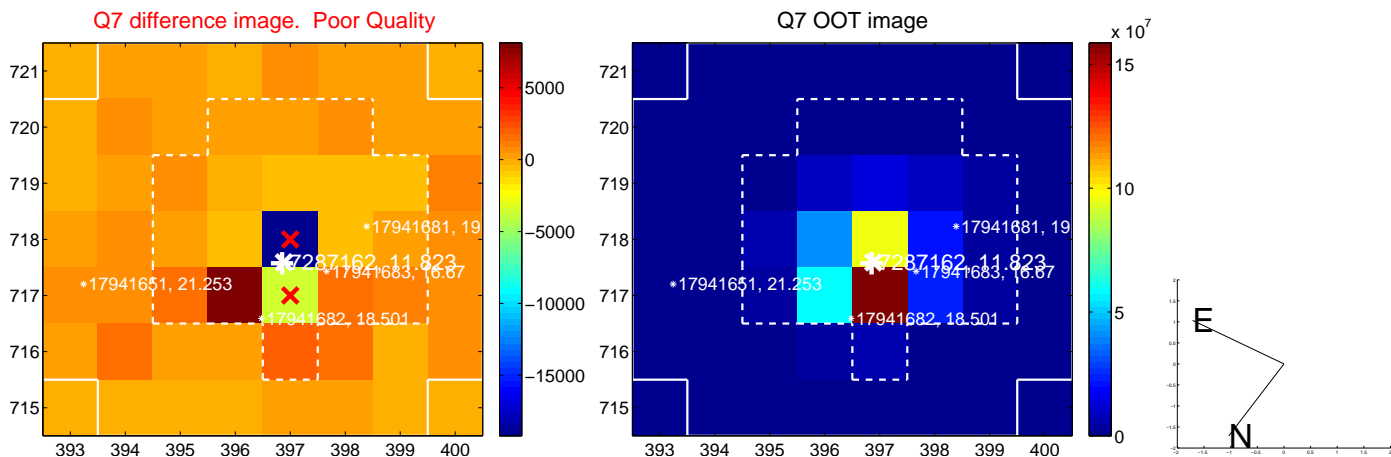
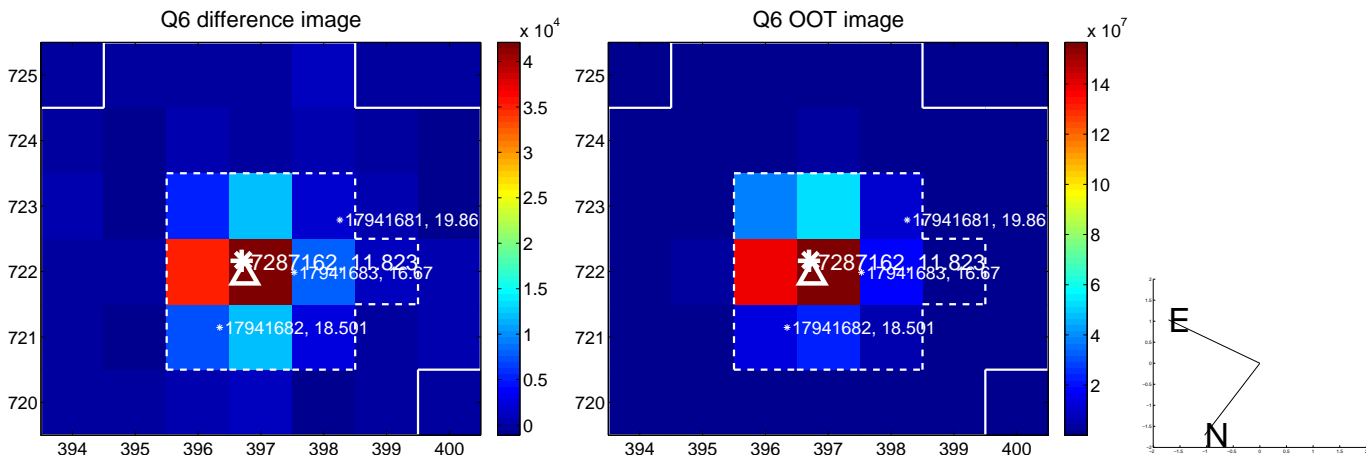
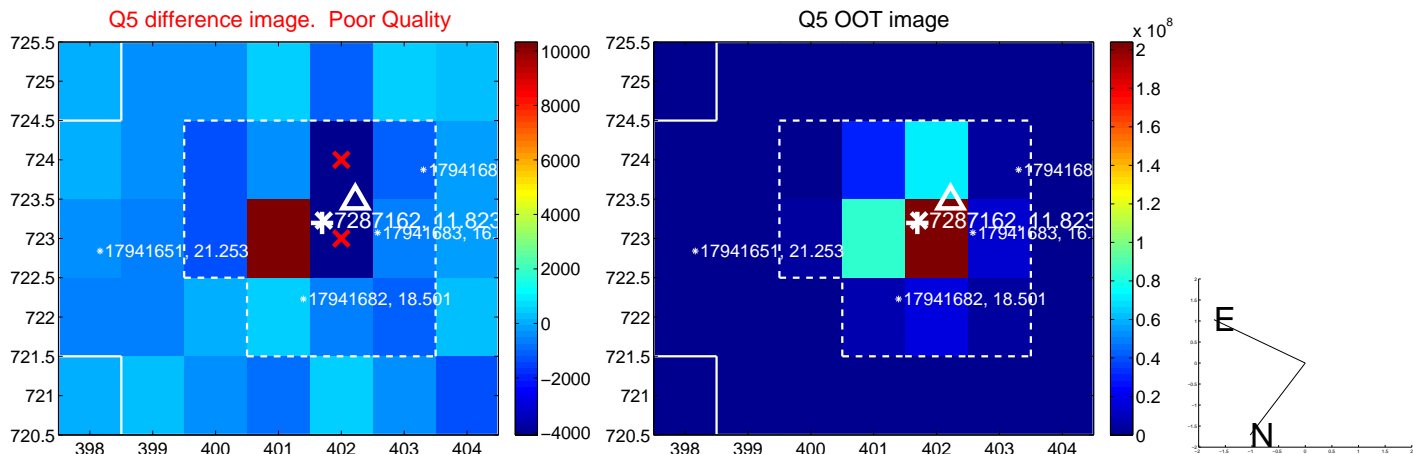


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

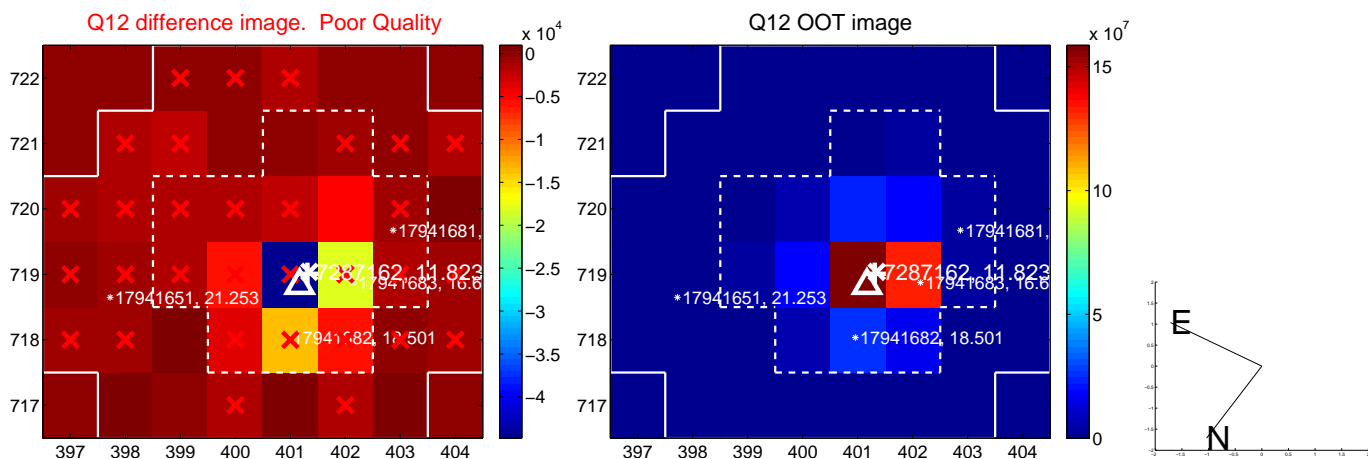
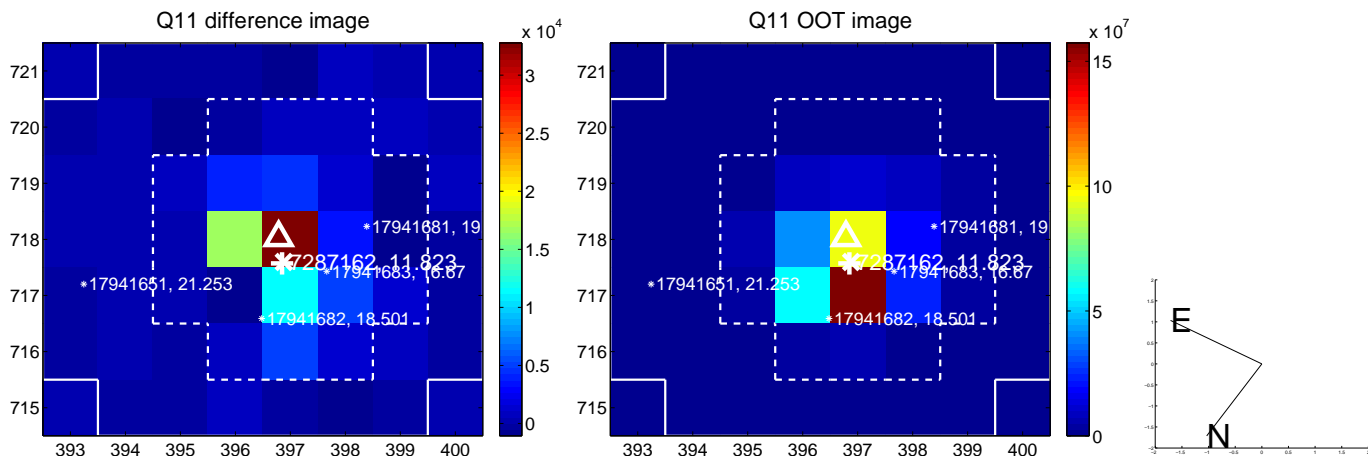
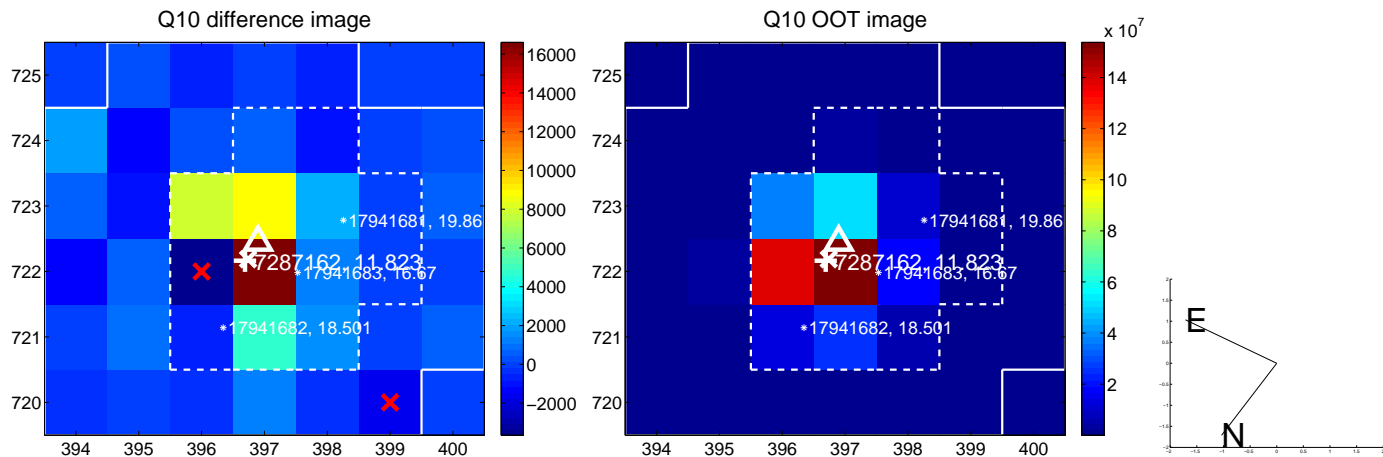
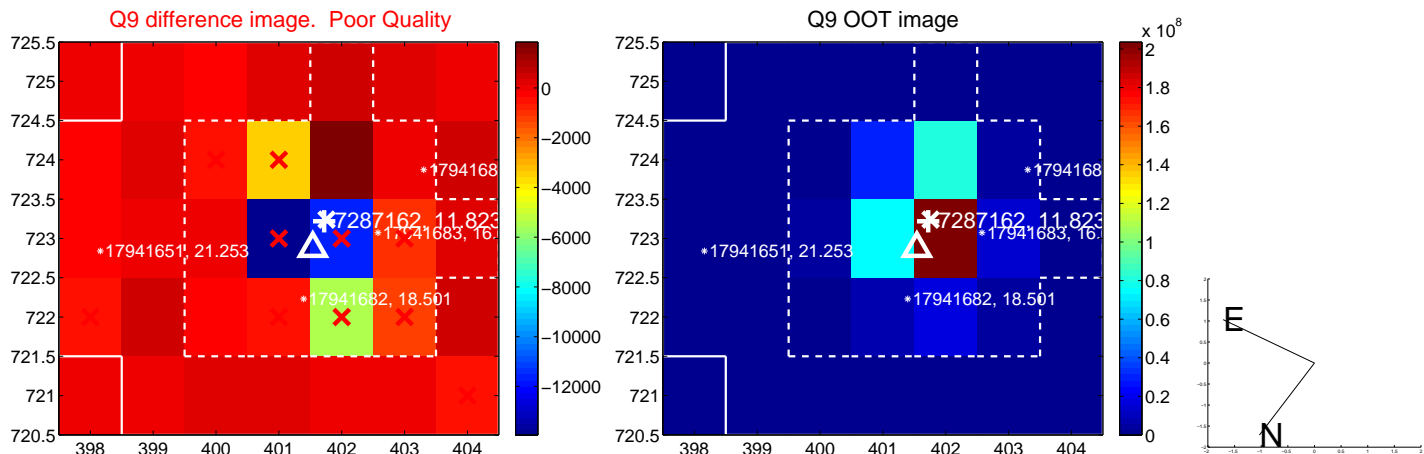
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



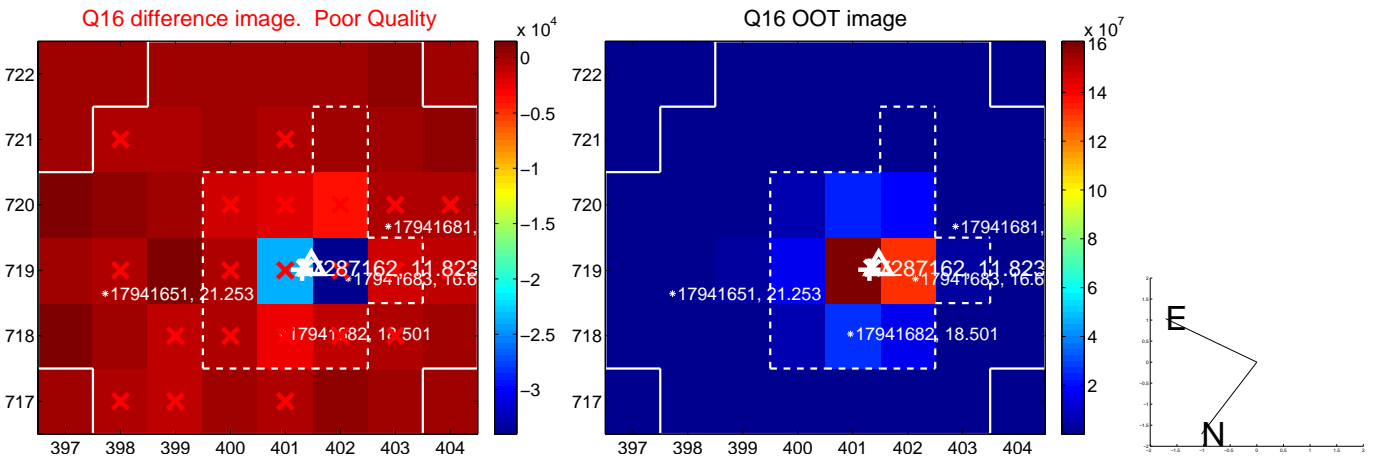
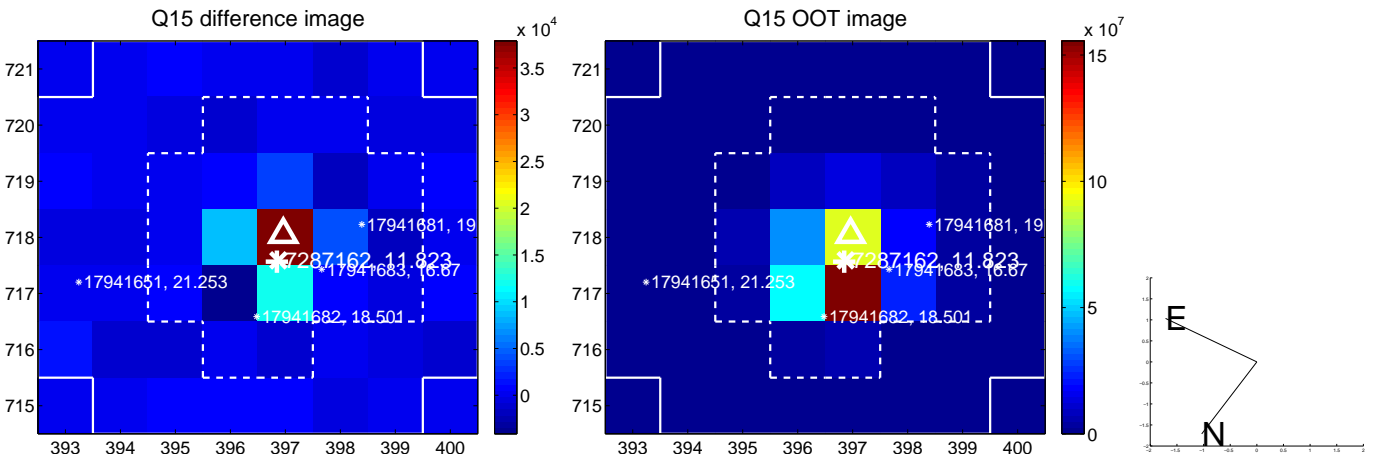
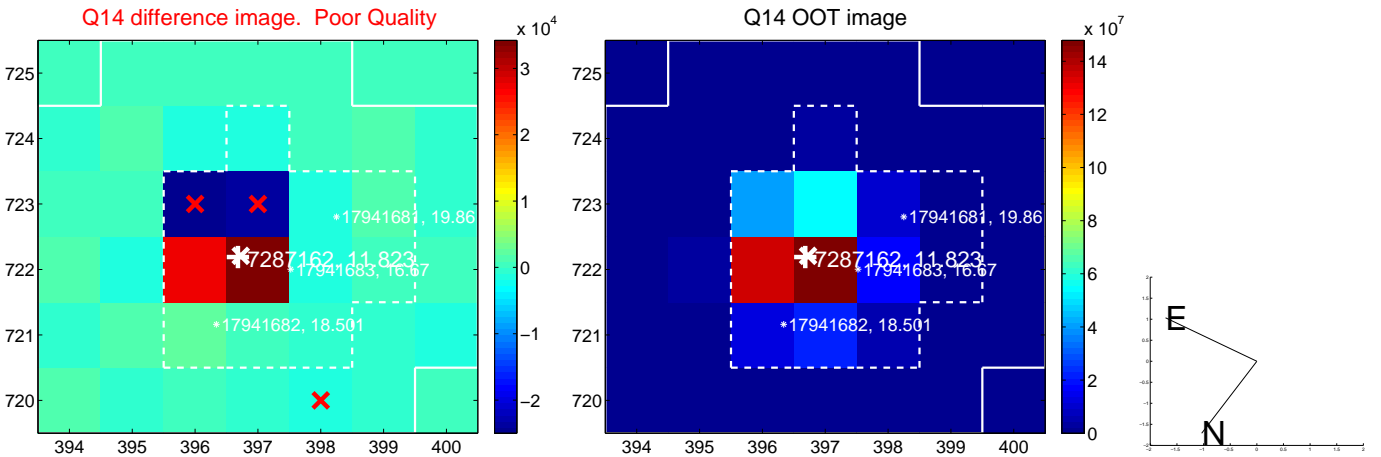
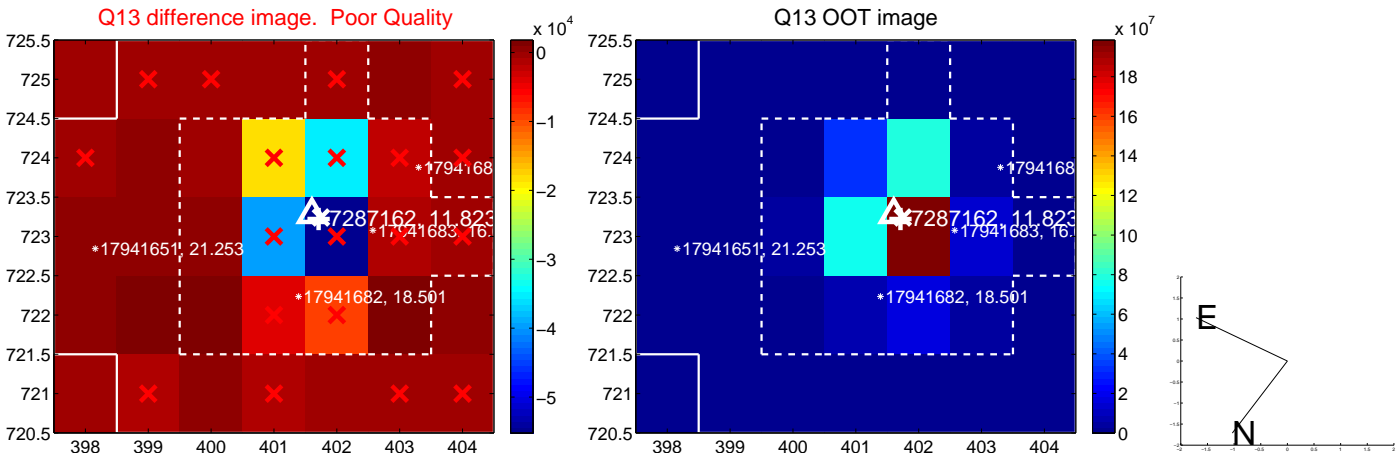
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



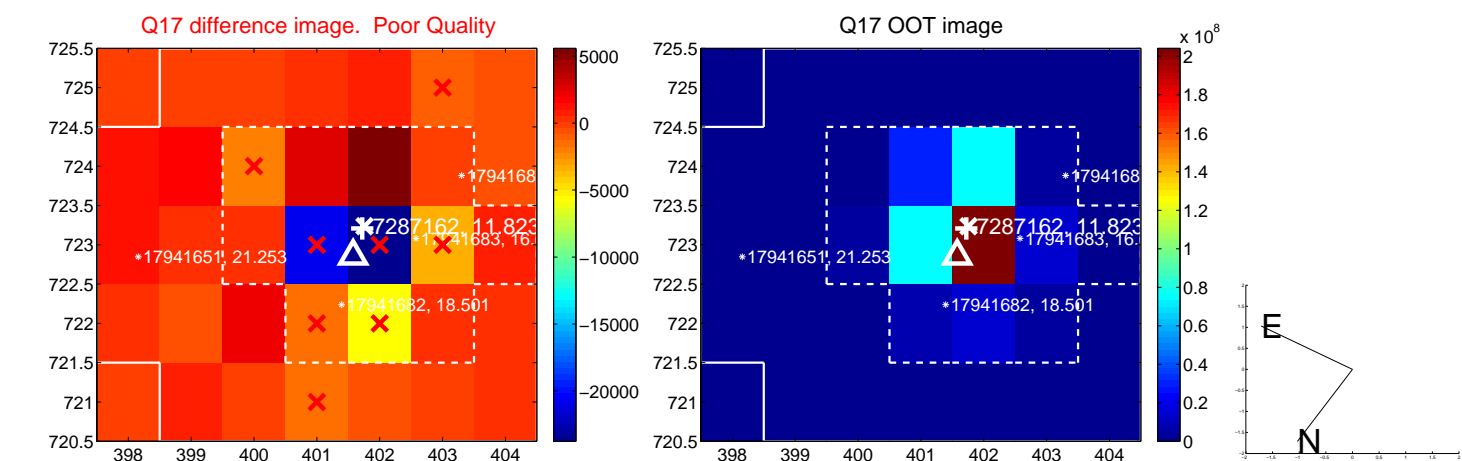
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



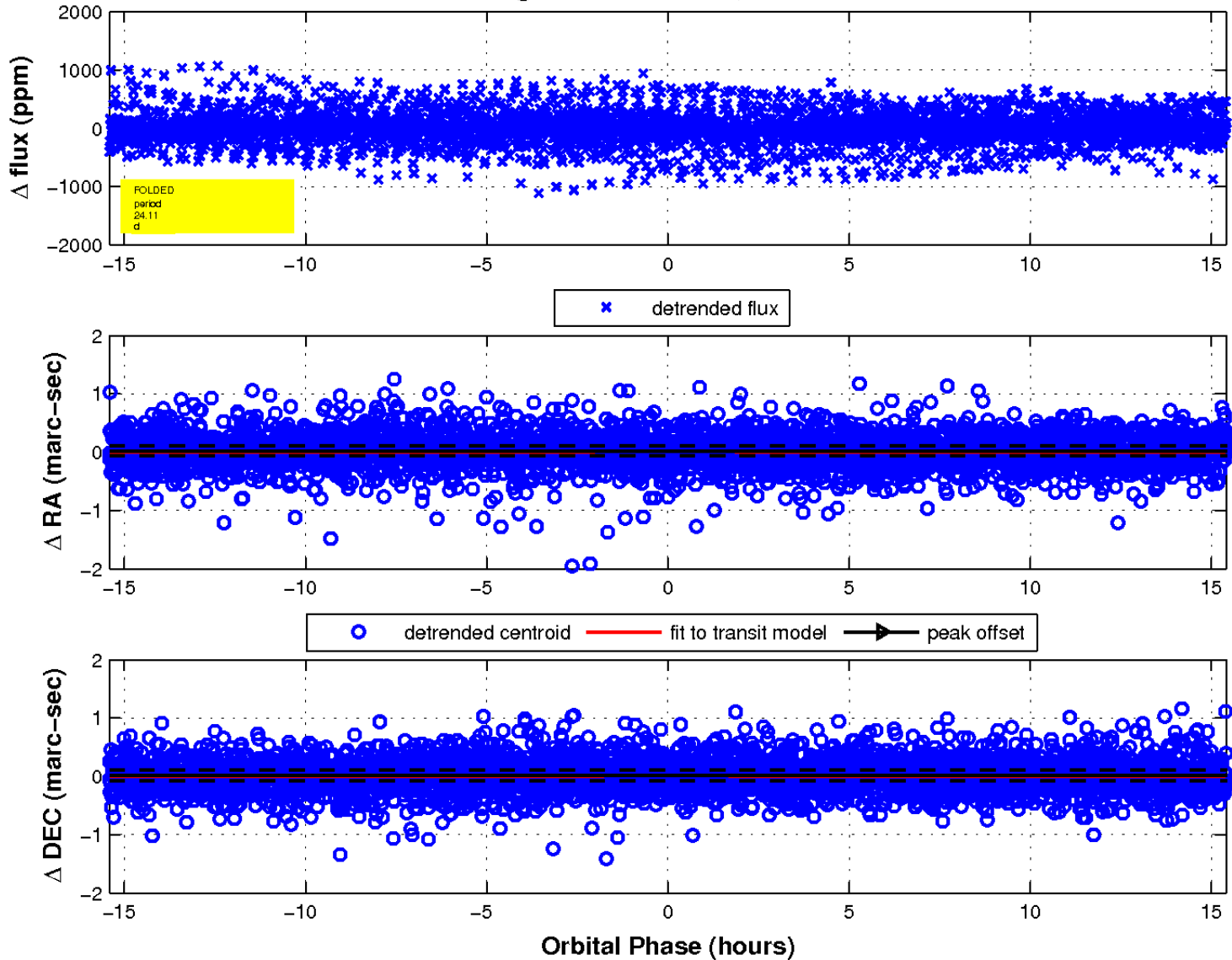
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 7 of 7



UKIRT Image

Declination

