

KIC 005647463

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005647463-01 | OBS | No | 334.045304 | 287.399702 | 1985.5 | 30.681 | 18.4 | 3.4 | 0.60 | 4999 | 2.90 | 0.32 |
| 005647463-02 | OBS | No | 488.494634 | 490.362648 | 3100.4 | 21.902 | 13.7 | 4.4 | 0.60 | 4999 | 3.81 | 0.19 |
| 005647463-03 | OBS | No | 514.951682 | 139.022800 | 3984.1 | 5.224 | 18.7 | 9.6 | 0.60 | 4999 | 3.70 | 0.18 |
| 005647463-04 | OBS | No | 507.832828 | 317.866664 | 3731.9 | 3.531 | 17.1 | 10.2 | 0.60 | 4999 | 6.95 | 0.18 |
| 005647463-05 | OBS | No | 191.798045 | 153.944638 | 1429.7 | 1.708 | 15.9 | 6.6 | 0.60 | 4999 | 2.23 | 0.67 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005647463-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 005647463-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

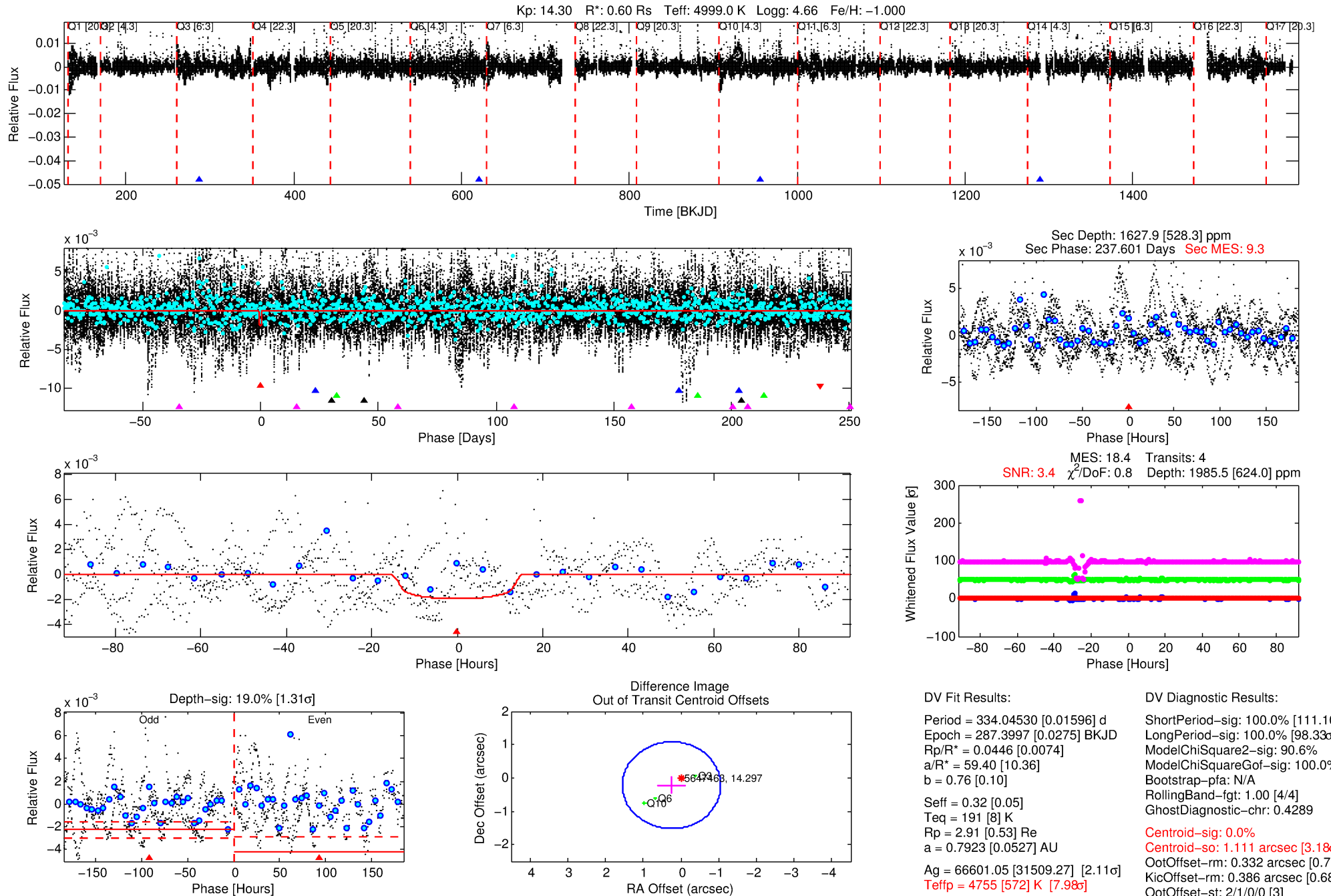
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005647463-01

No Significant Match Found

DV One-Page Summary

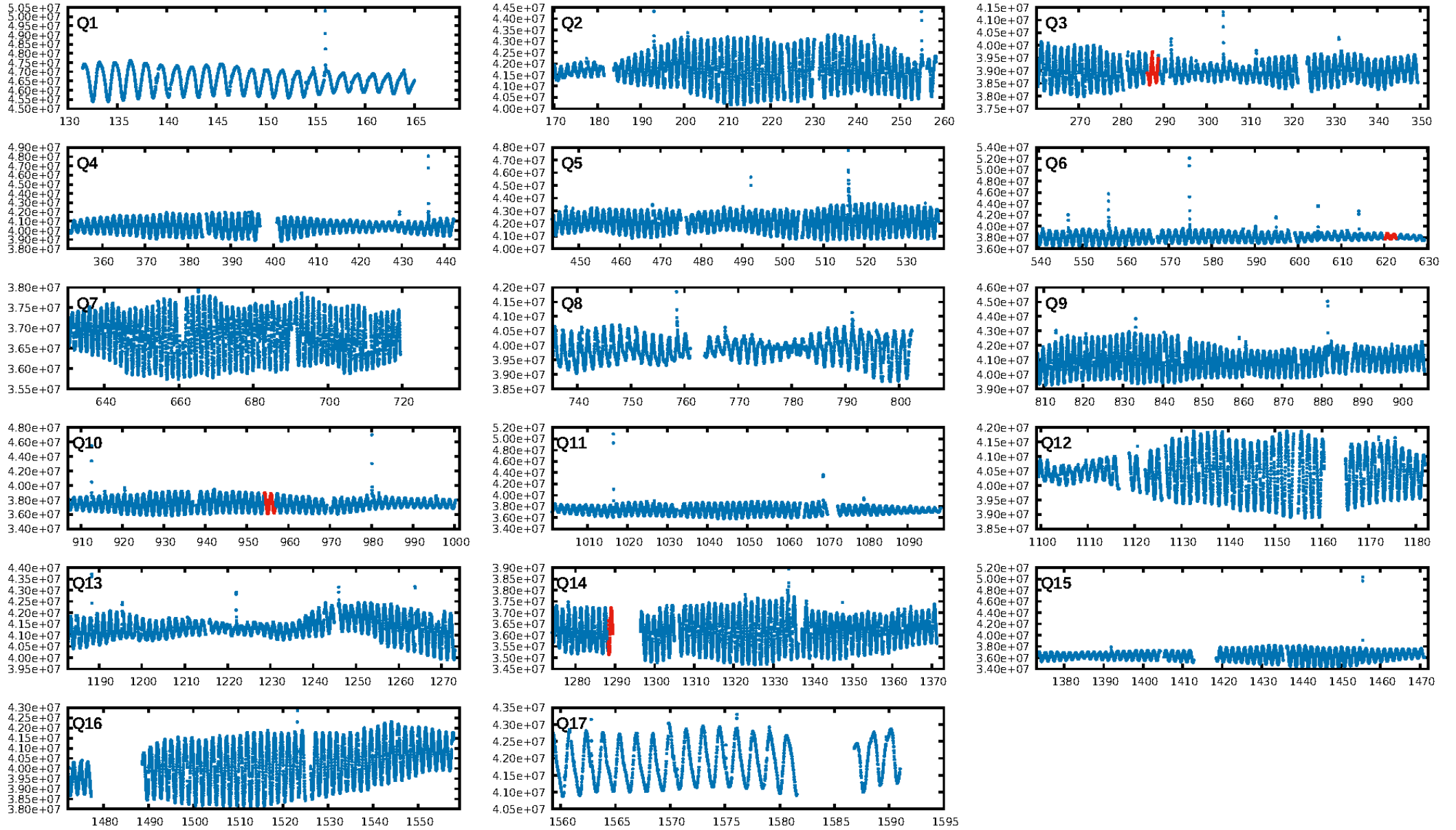
KIC: 5647463 Candidate: 1 of 5 Period: 334.045 d



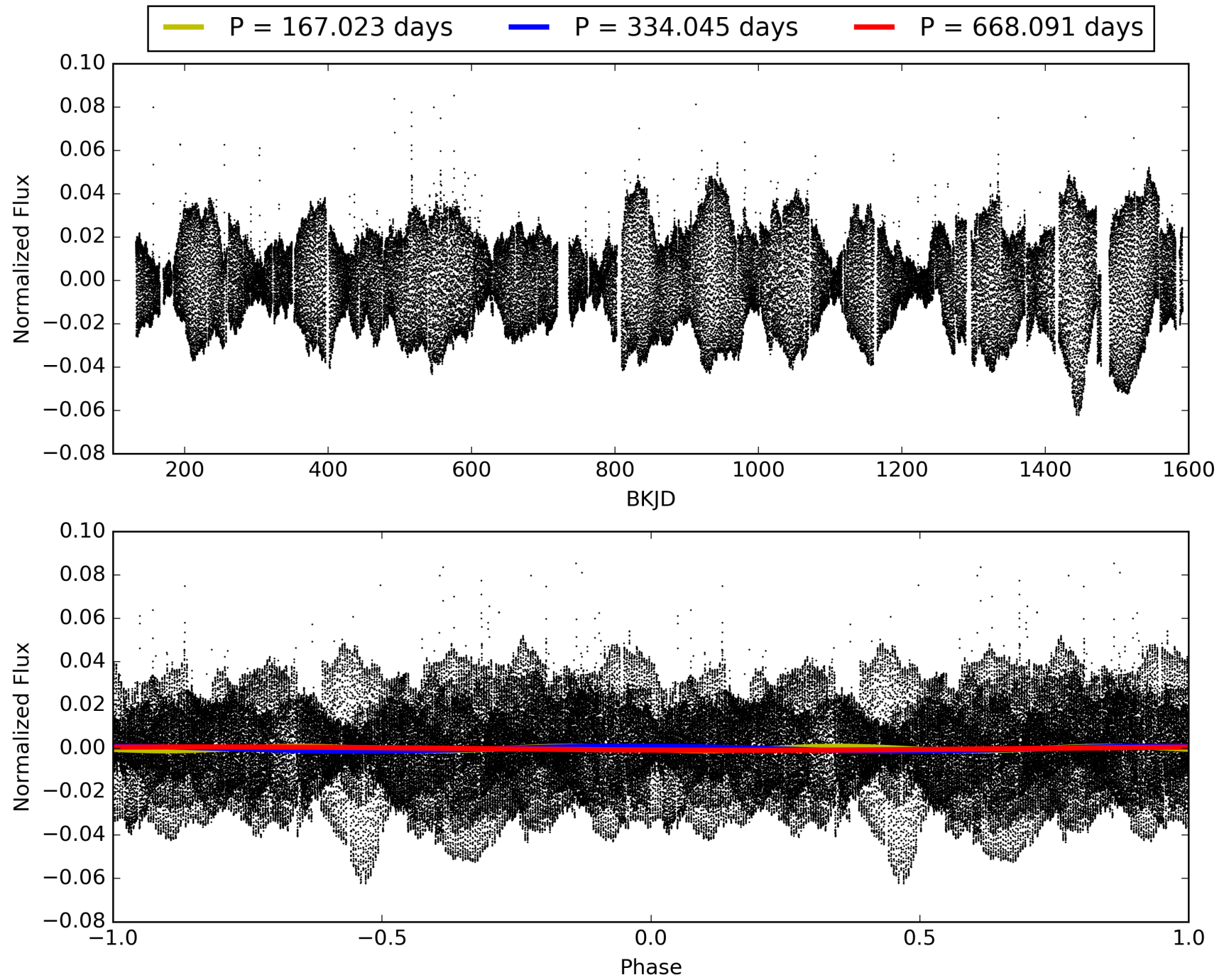
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:21:27 Z

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

TCE 005647463-01, PDC Light Curves

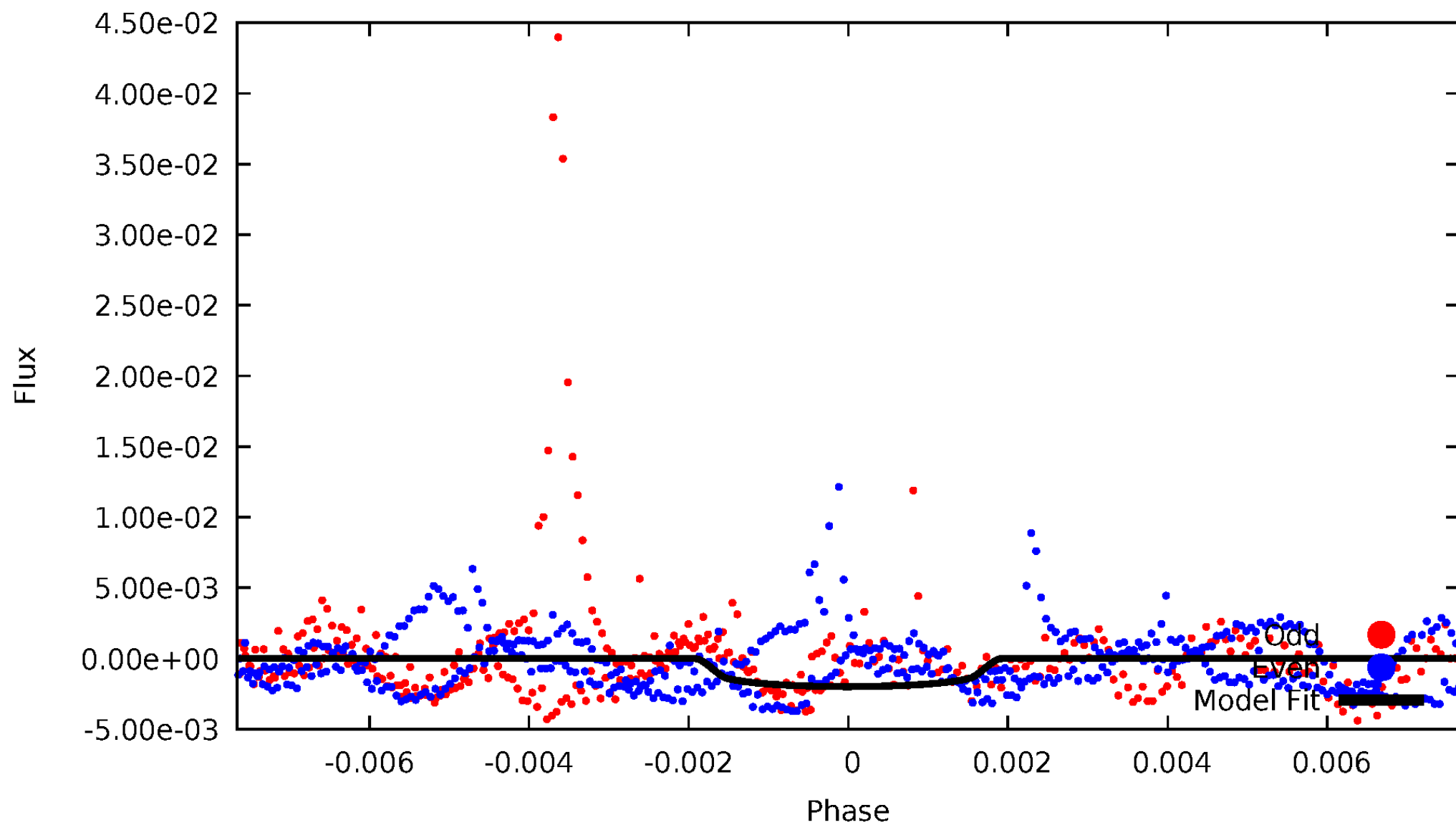


TCE 005647463-01



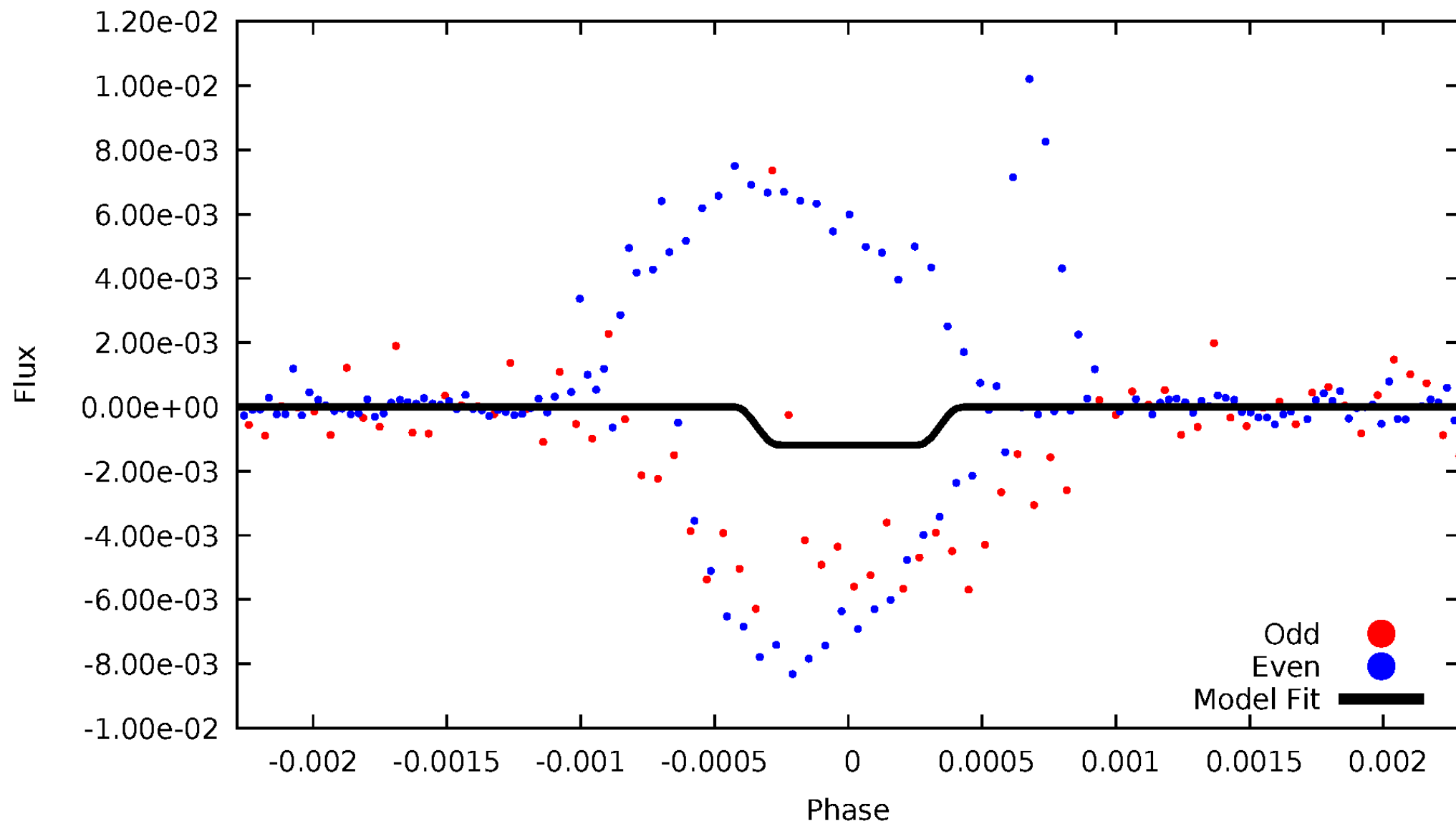
DV Odd/Even

TCE 005647463-01



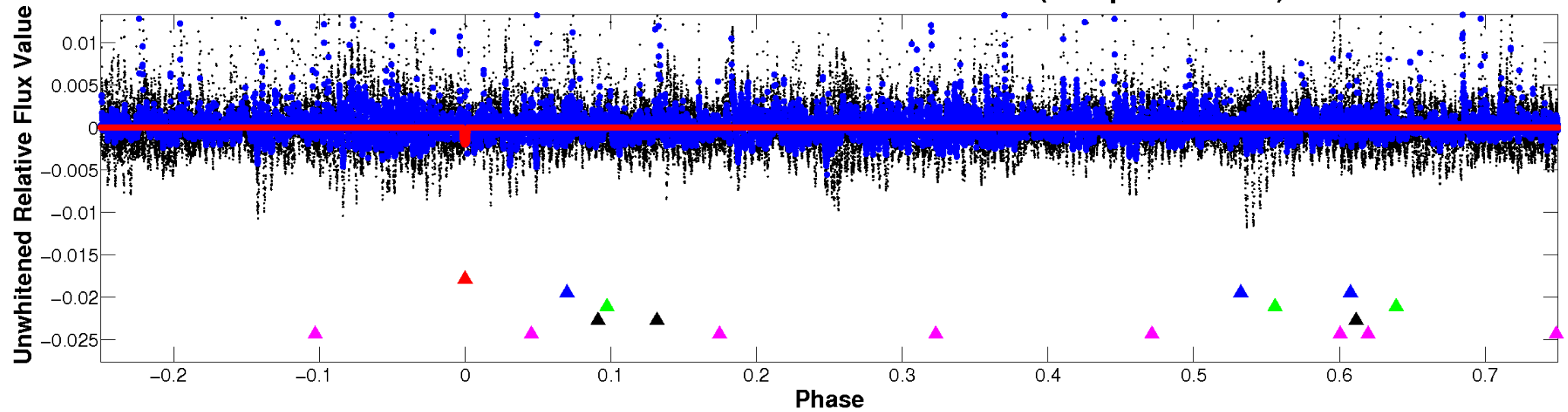
ALT Odd/Even

TCE 005647463-01

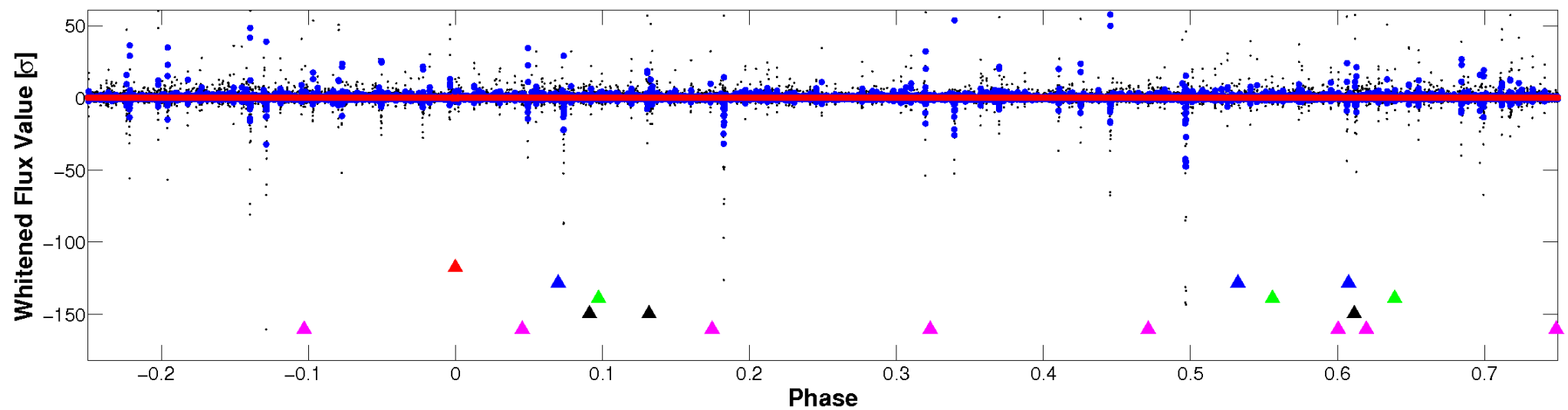


Non-Whitened Vs. Whitened Light Curve

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

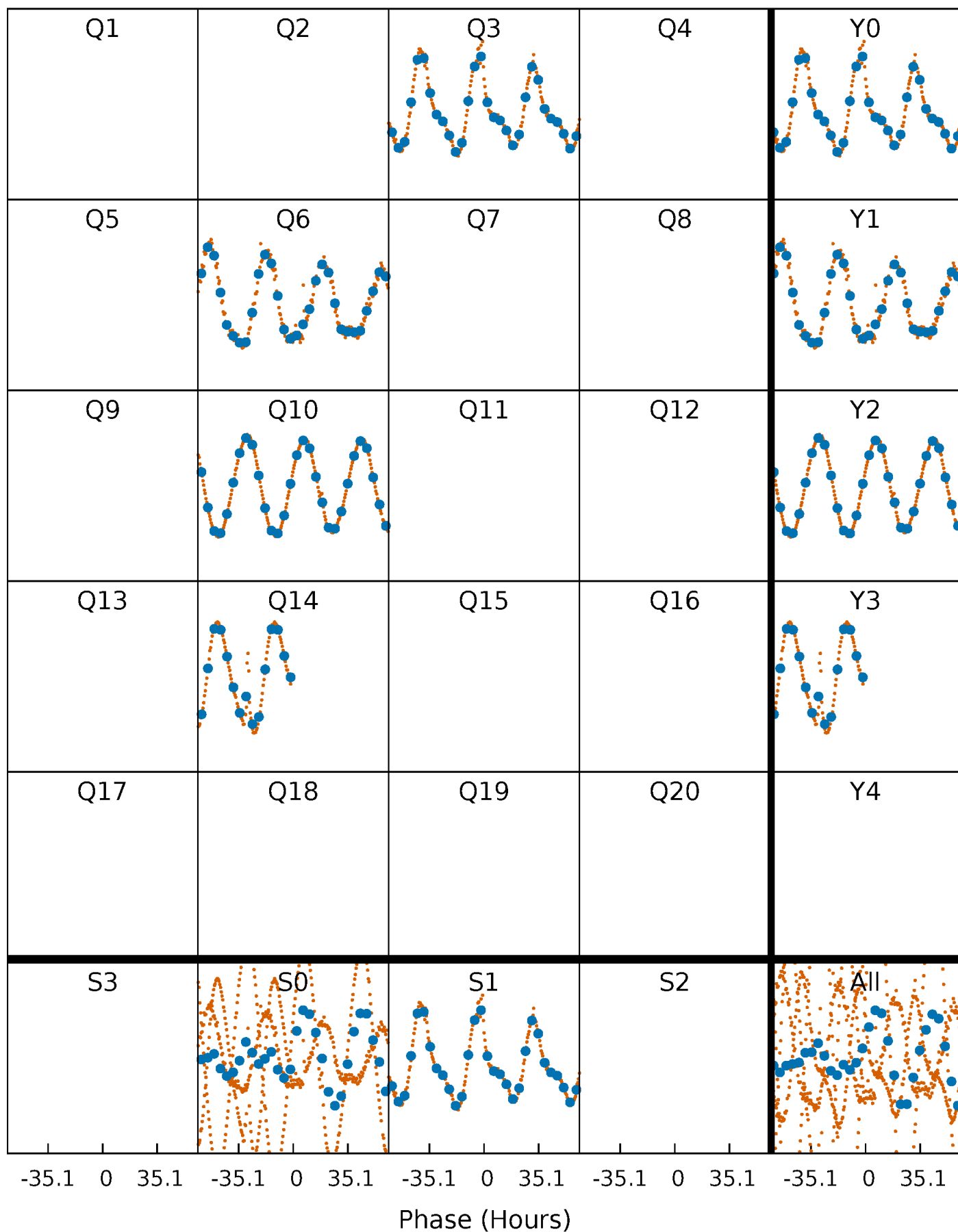


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



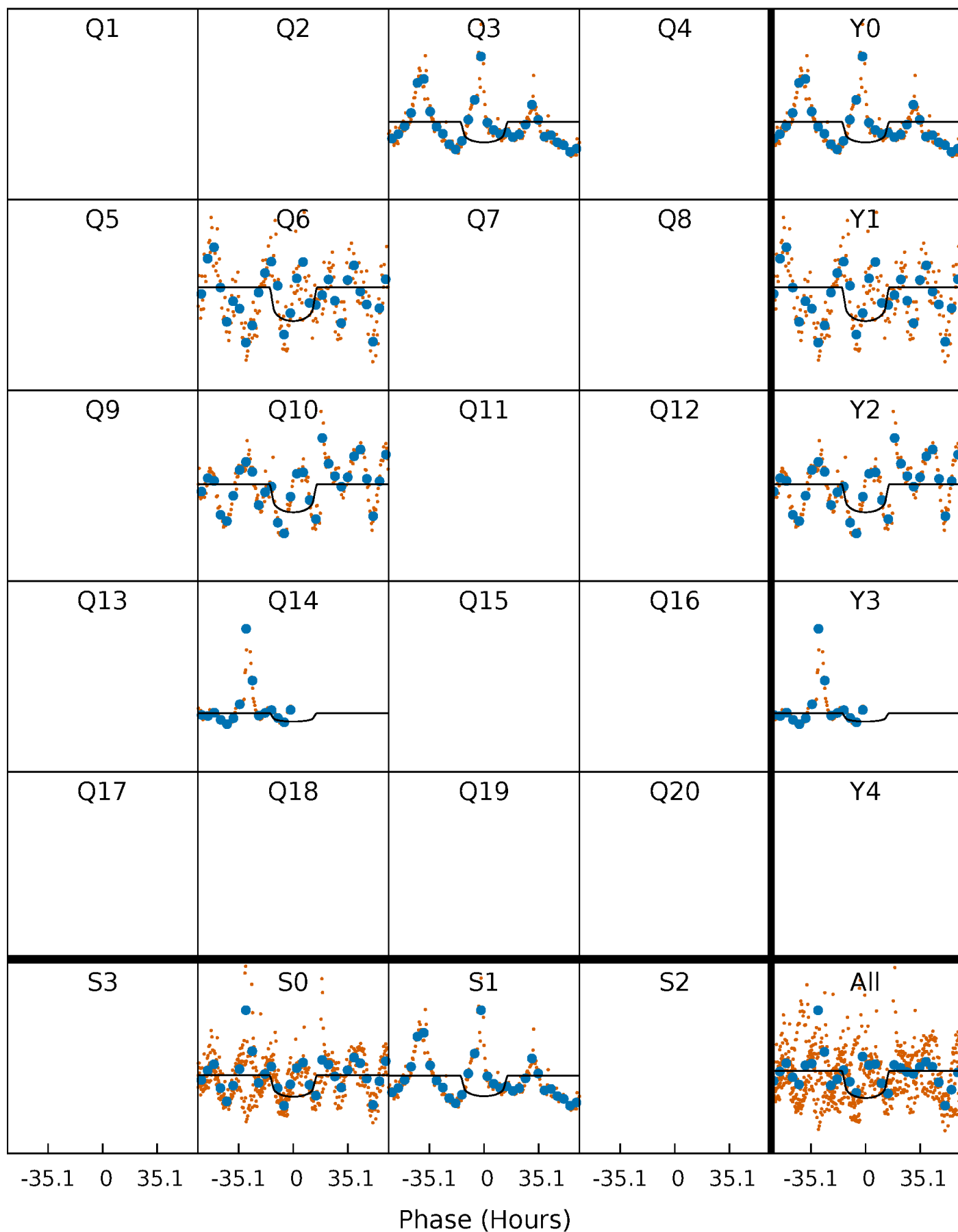
PDC Quarter-Phased Transit Curves

TCE 005647463-01 P=334.045304 Days $T_0=287.399702$ (BKJD)



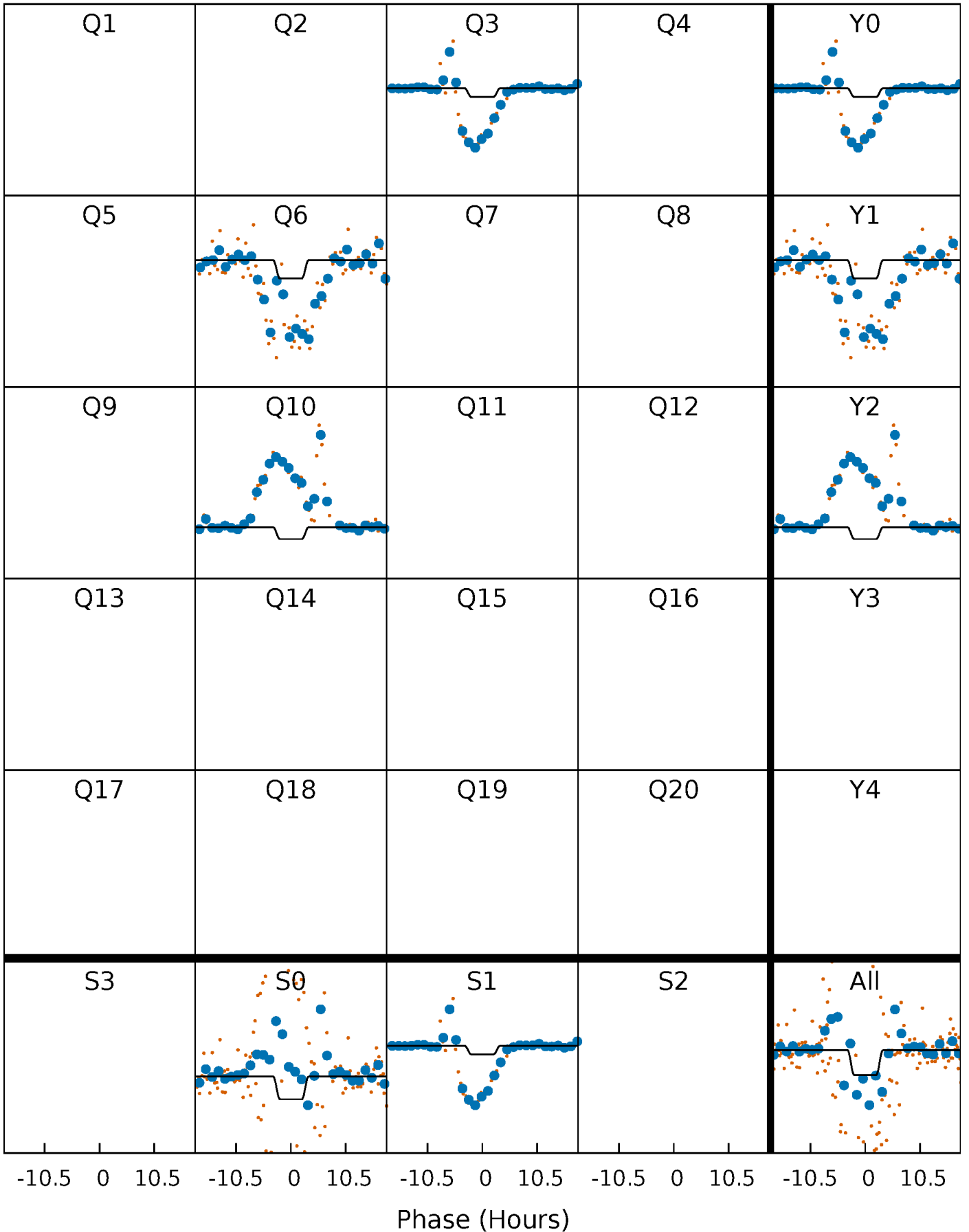
DV Quarter-Phased Transit Curves

TCE 005647463-01 P=334.045304 Days $T_0=287.399702$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

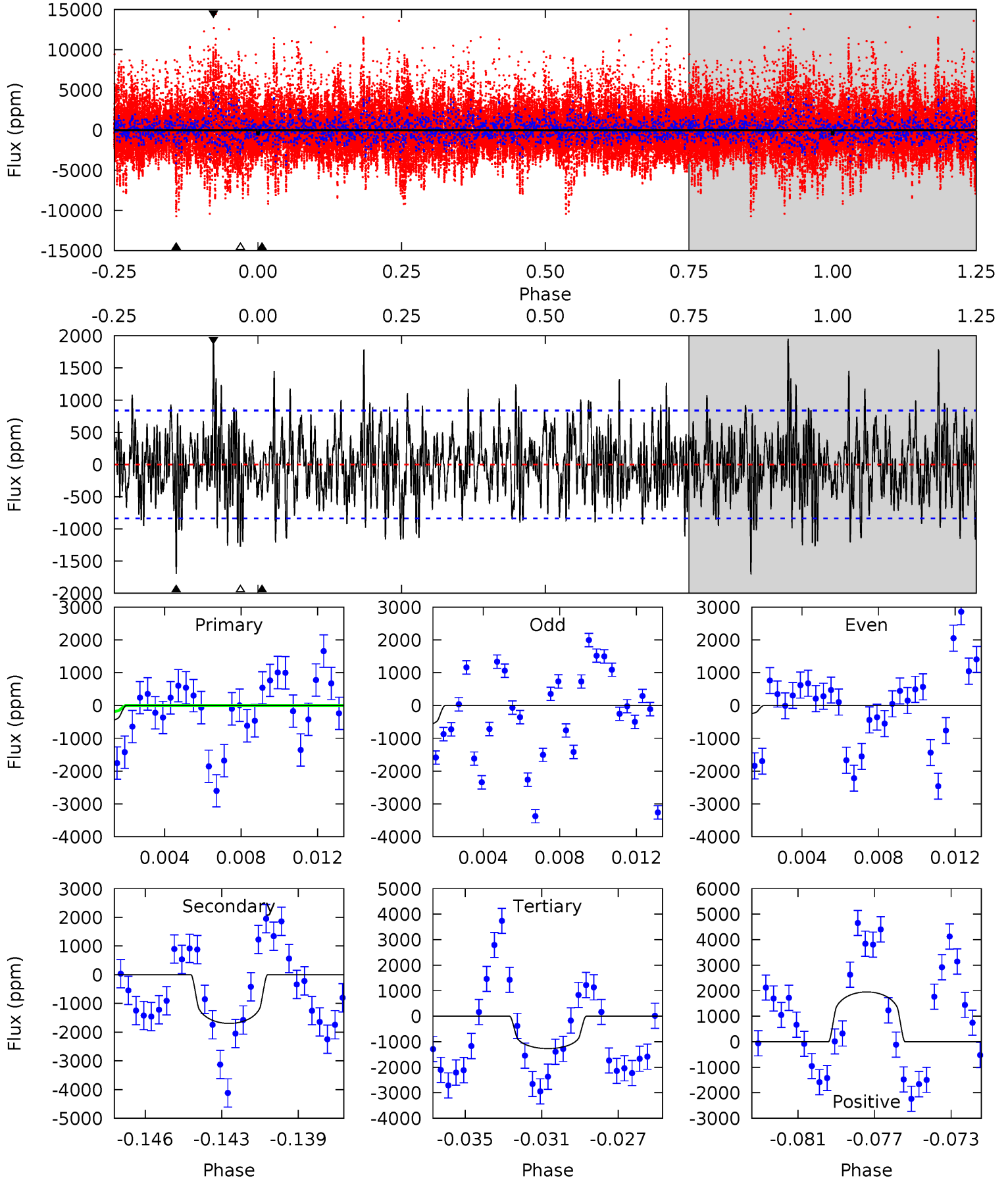
TCE 005647463-01 P=334.218119 Days $T_0=287.593342$ (BKJD)



DV Model-Shift Uniqueness Test

005647463-01, P = 334.045304 Days, E = 287.399702 Days

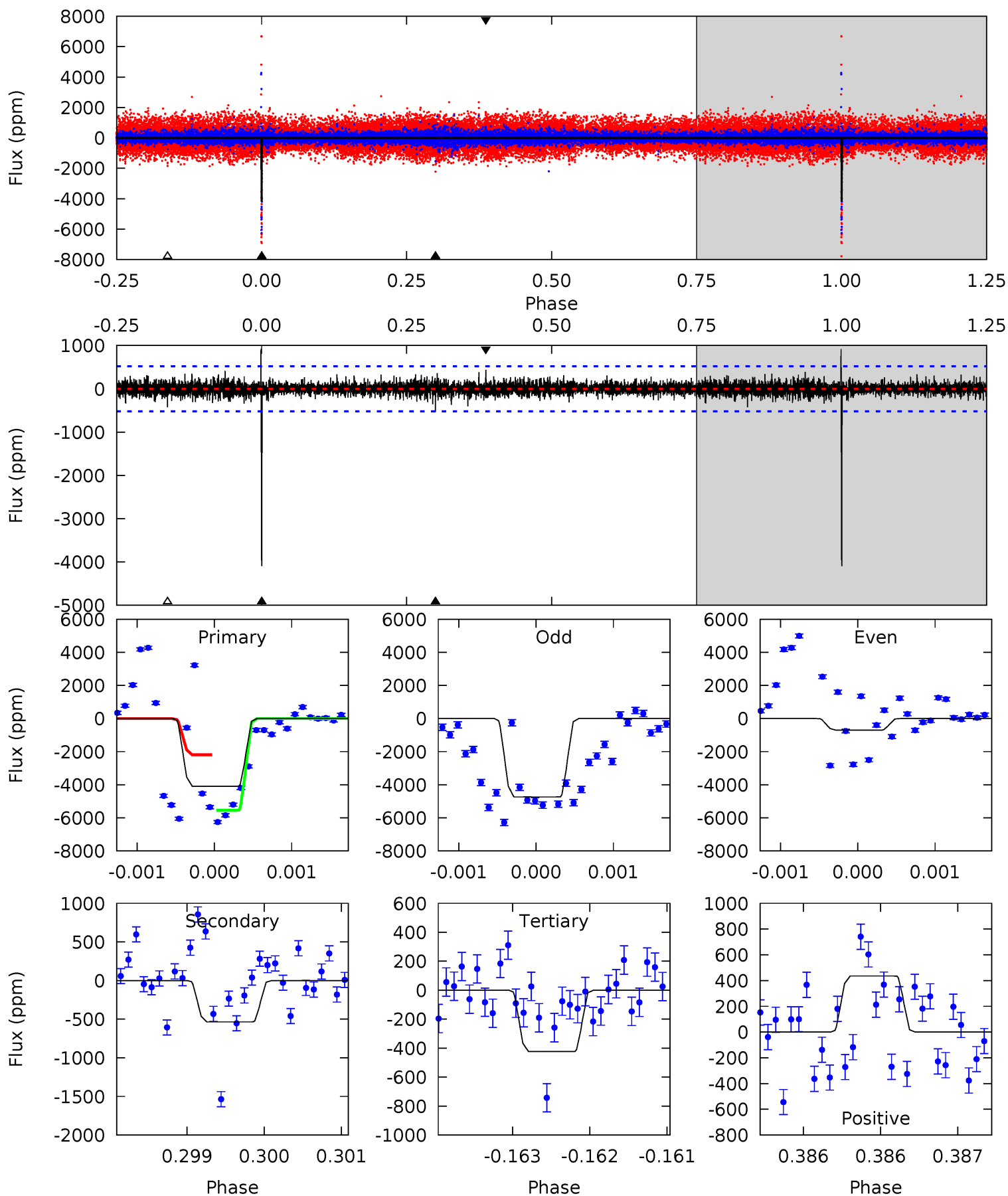
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.39 | 10.5 | 7.89 | 12.1 | 5.21 | 2.89 | 2.79 | -4.49 | -8.74 | 2.66 | -1.59 | 1.08 | 0.52 | 0.54 | 1.79 |



Alt Model-Shift Uniqueness Test

005647463-01, P = 334.218119 Days, E = 287.593342 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 43.3 | 5.67 | 4.48 | 4.61 | 5.48 | 3.34 | 0.91 | 38.9 | 38.7 | 1.19 | 1.05 | 22.3 | 0.43 | 0.18 | 17.9 |



Stellar Parameters For KIC 005647463

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4999^{+149}_{-164} | $4.660^{+0.055}_{-0.035}$ | $-1.000^{+0.300}_{-0.300}$ | $0.597^{+0.046}_{-0.046}$ | $0.594^{+0.051}_{-0.025}$ | $3.937^{+0.889}_{-0.542}$ |
| | +3%/-3% | +1%/-1% | +30%/-30% | +8%/-8% | +9%/-4% | +23%/-14% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005647463-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|------------------------|-------------------|----------------------|---------------------------|
| DV | -1695 ± 161 | $2.89^{+0.49}_{-0.51}$ | 266^{+10}_{-10} | 4847^{+412}_{-352} | 71041^{+33681}_{-19773} |
| Alt. | -536 ± 94 | $2.25^{+0.49}_{-0.48}$ | 266^{+10}_{-10} | 4255^{+464}_{-327} | 37431^{+24809}_{-13275} |

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

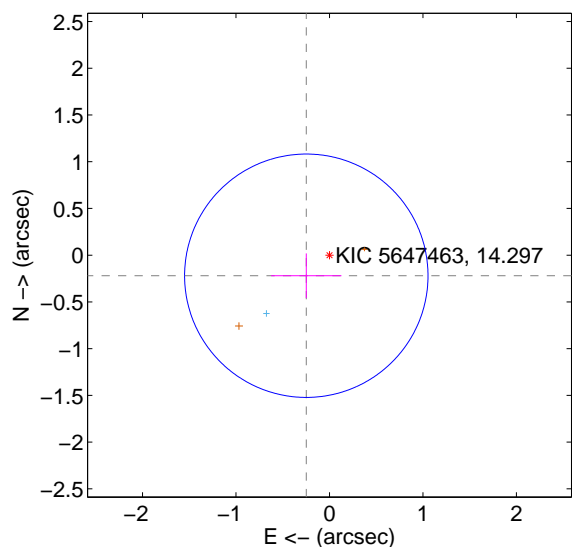
Supplemental centroid analysis for 005647463-01. Kepler magnitude: 14.30. Transit SNR 3.40

There are 1 quarters with good PRF difference image offsets

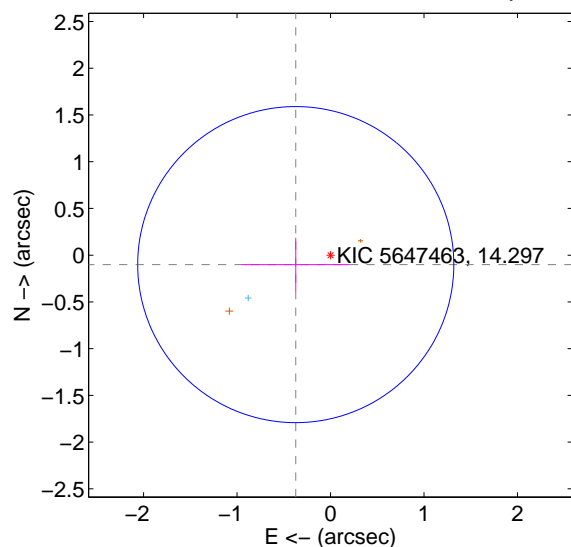
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.332 ± 0.434 | 0.76 | 0.248 ± 0.376 | -0.220 ± 0.239 |
| PRF-fit source offset from KIC position | 0.386 ± 0.564 | 0.68 | 0.372 ± 0.579 | -0.101 ± 0.286 |
| photometric centroid source offset | 1.11 ± 0.35 | 3.18 | 0.25 ± 0.29 | -1.08 ± 0.35 |

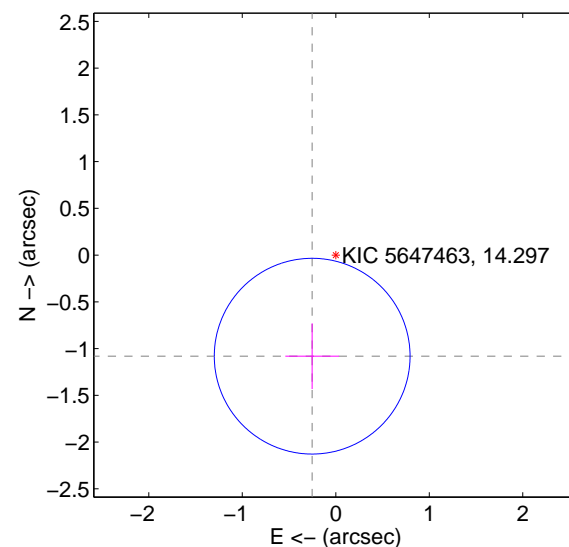
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

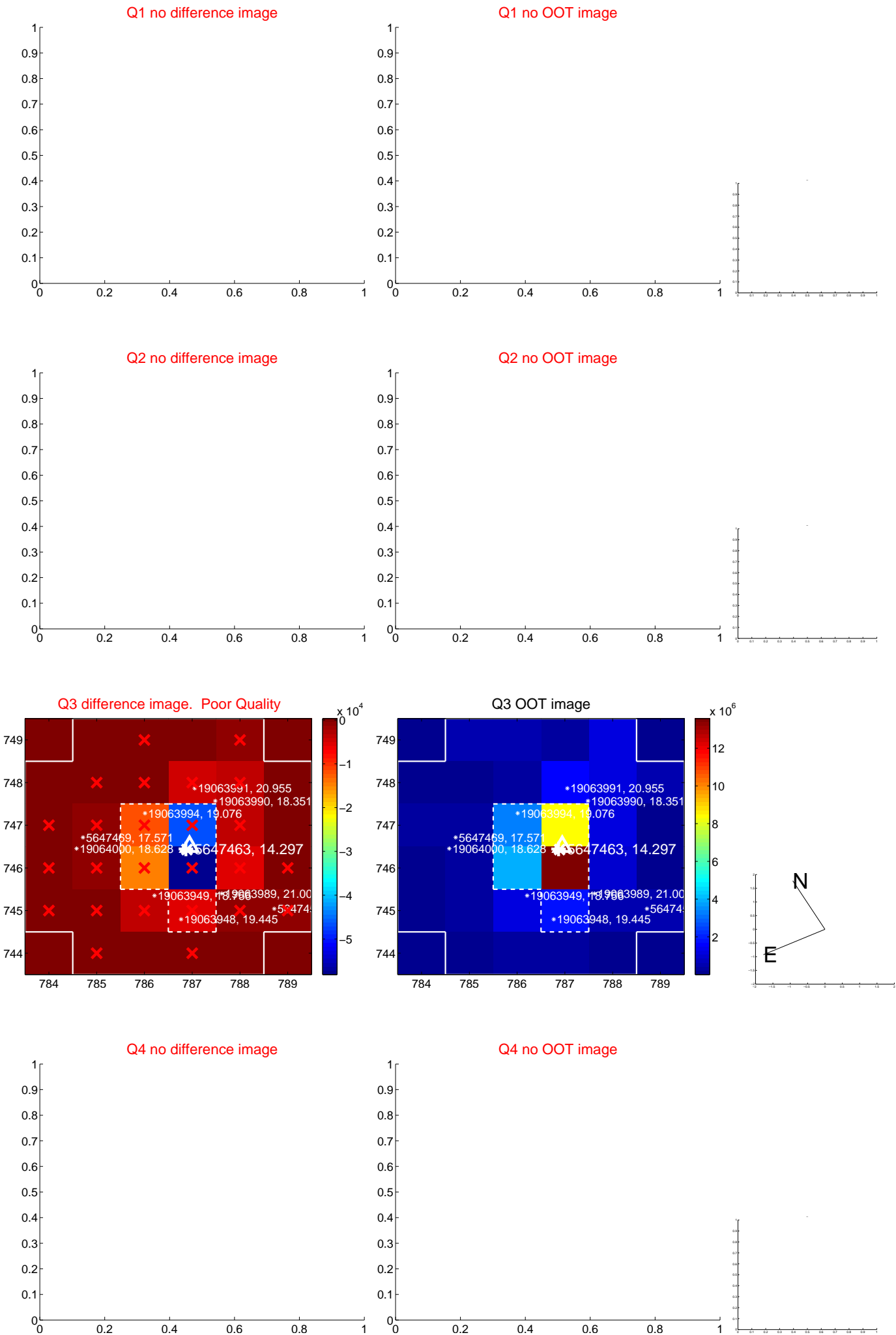


offset from photometric centroids

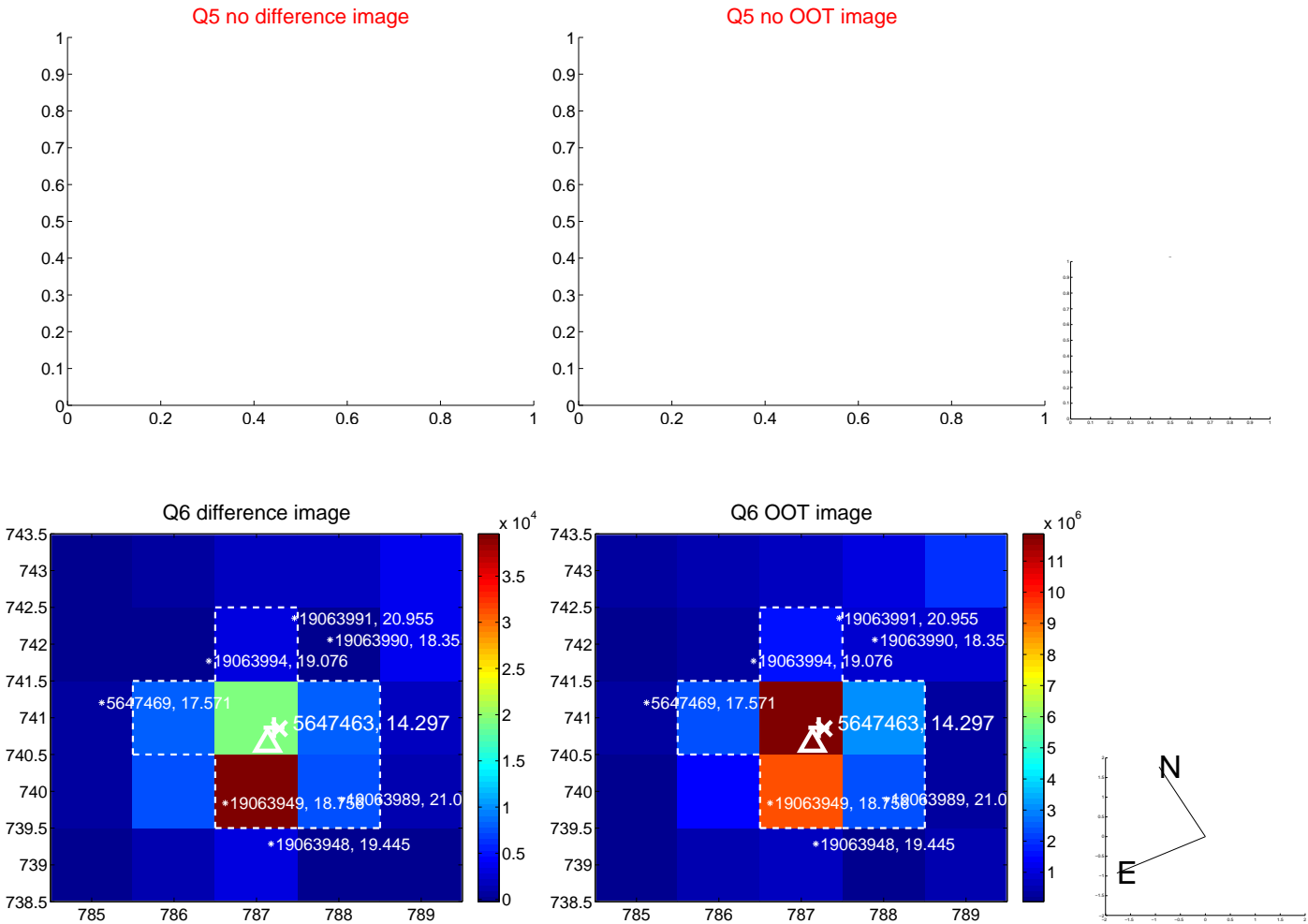


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

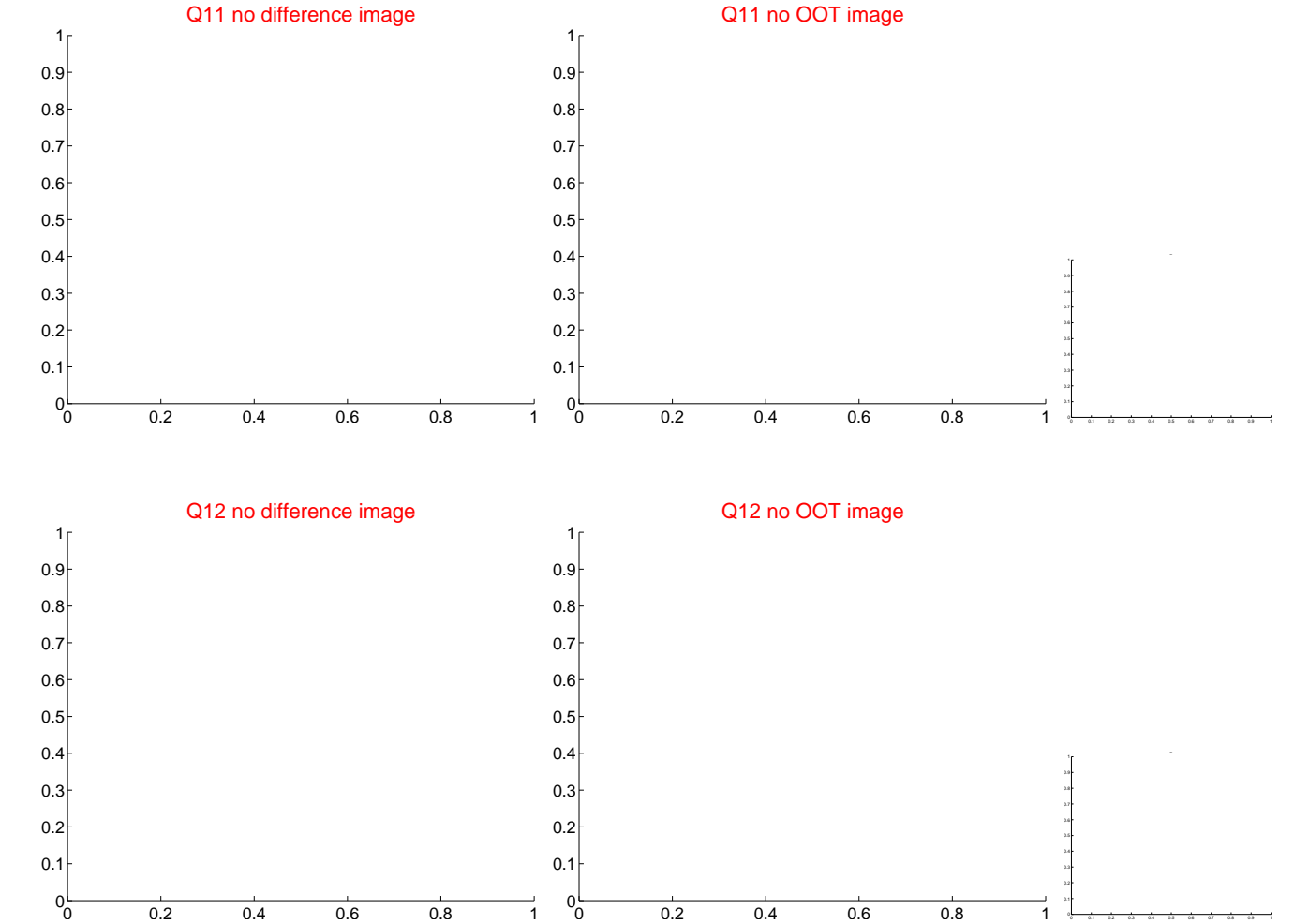
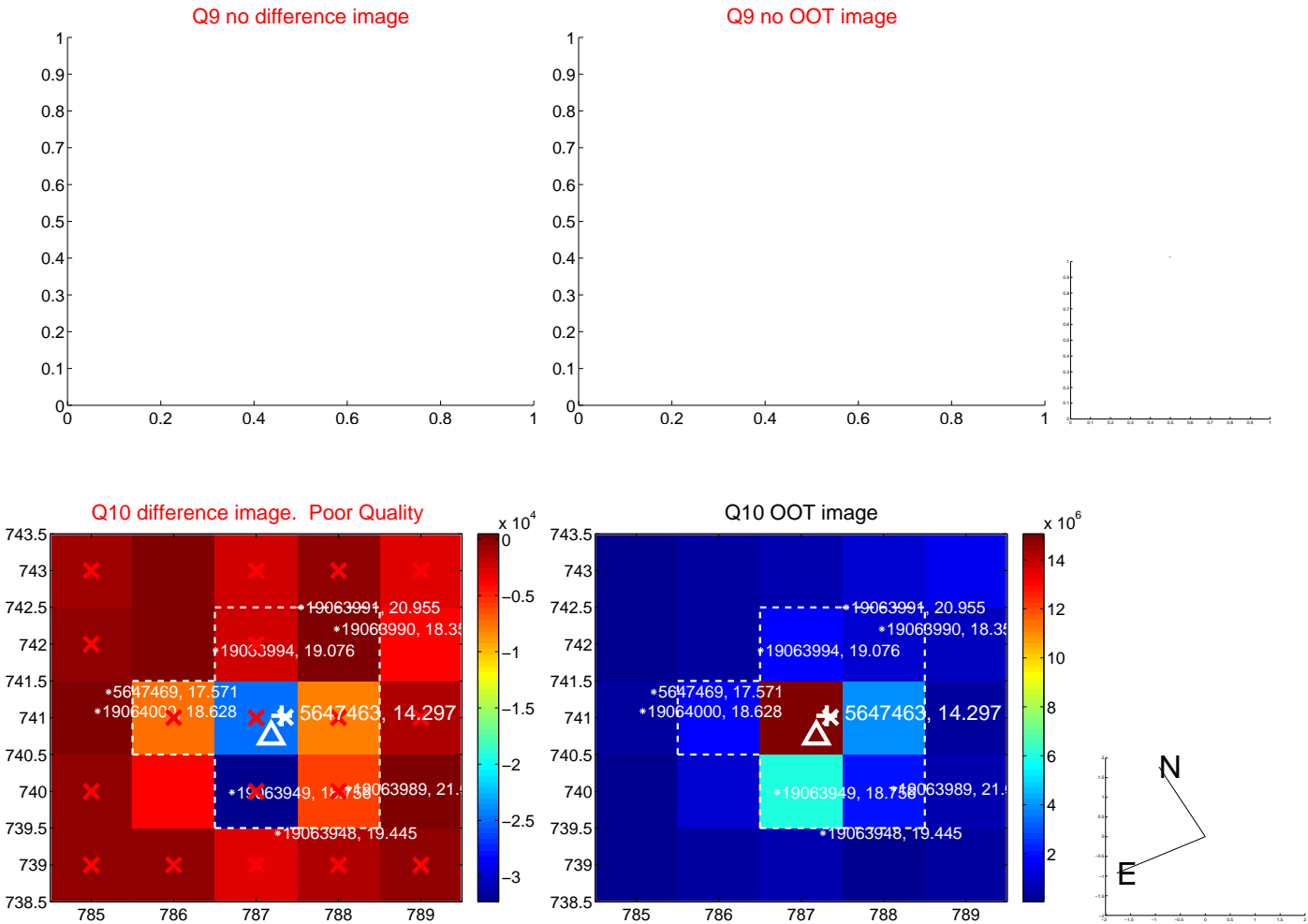
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



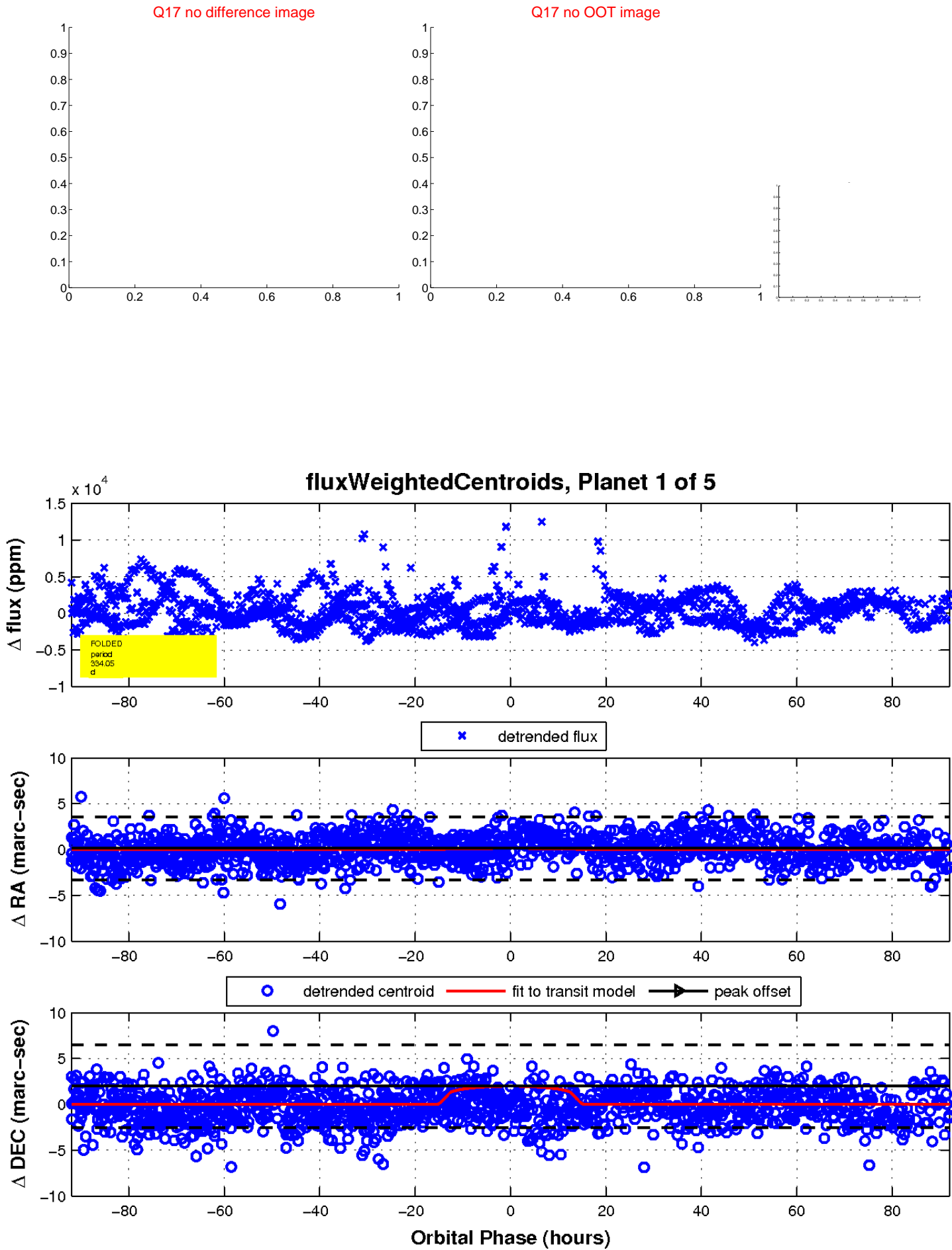
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



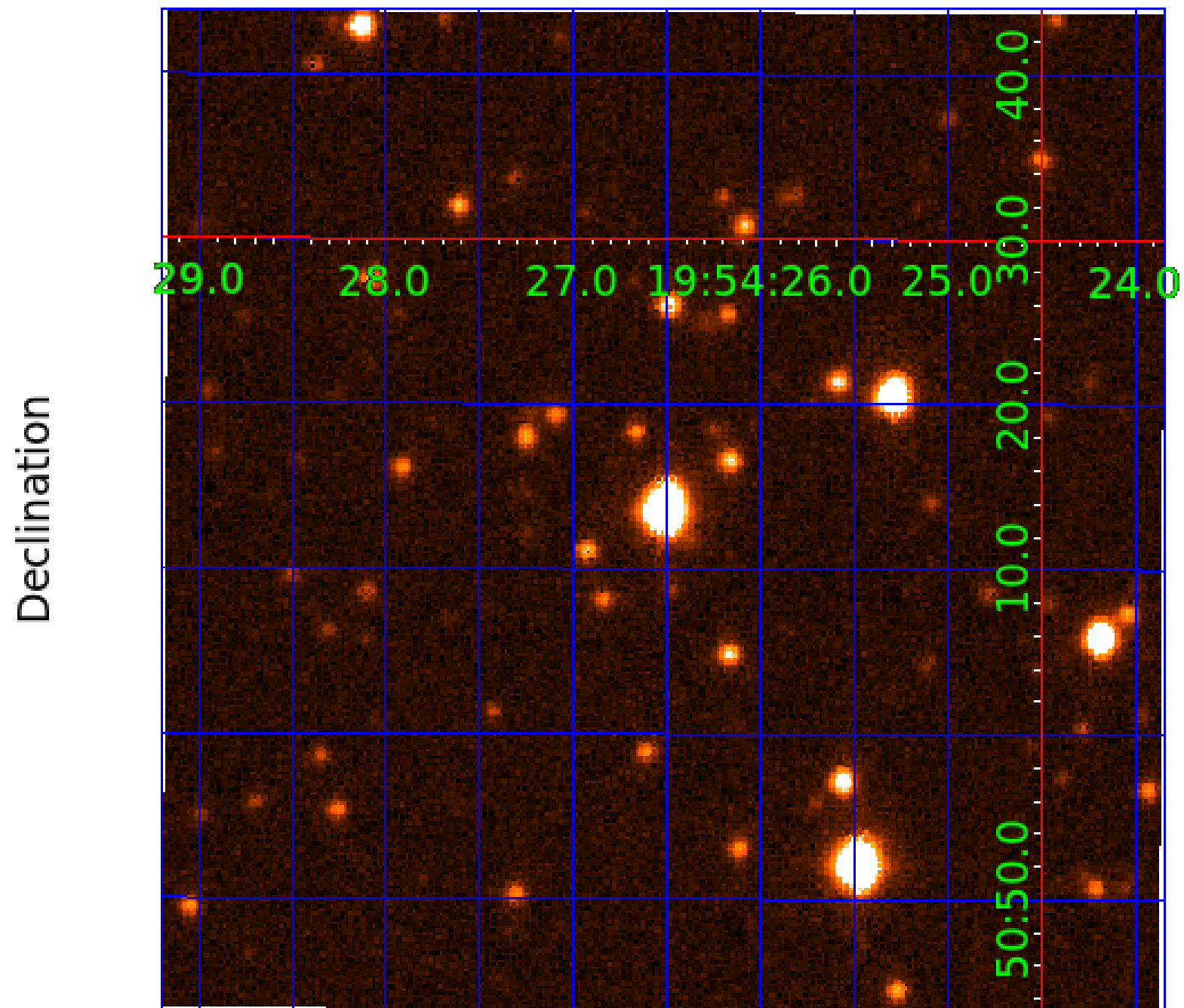
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005647463

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005647463-01 | OBS | No | 334.045304 | 287.399702 | 1985.5 | 30.681 | 18.4 | 3.4 | 0.60 | 4999 | 2.90 | 0.32 |
| 005647463-02 | OBS | No | 488.494634 | 490.362648 | 3100.4 | 21.902 | 13.7 | 4.4 | 0.60 | 4999 | 3.81 | 0.19 |
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| 005647463-04 | OBS | No | 507.832828 | 317.866664 | 3731.9 | 3.531 | 17.1 | 10.2 | 0.60 | 4999 | 6.95 | 0.18 |
| 005647463-05 | OBS | No | 191.798045 | 153.944638 | 1429.7 | 1.708 | 15.9 | 6.6 | 0.60 | 4999 | 2.23 | 0.67 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005647463-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 005647463-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

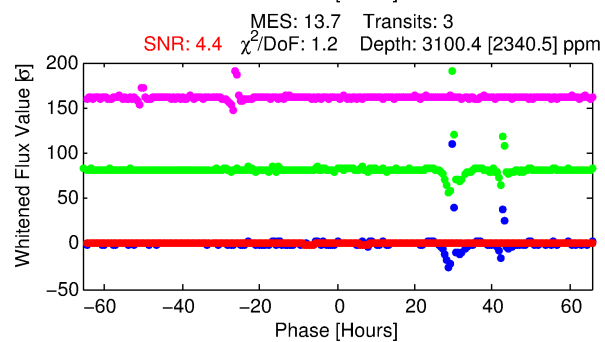
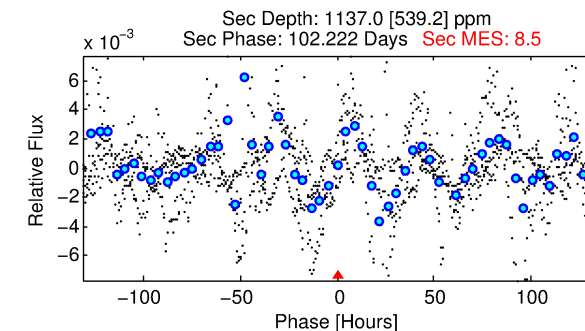
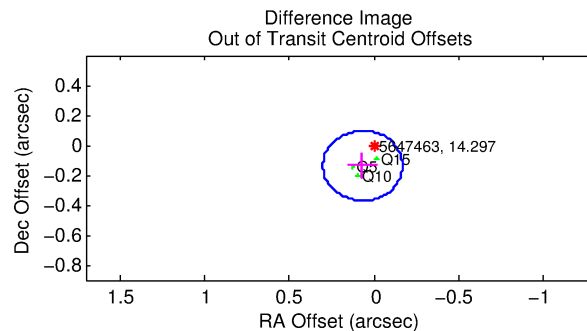
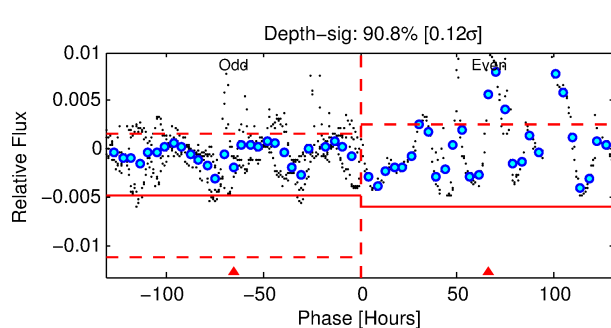
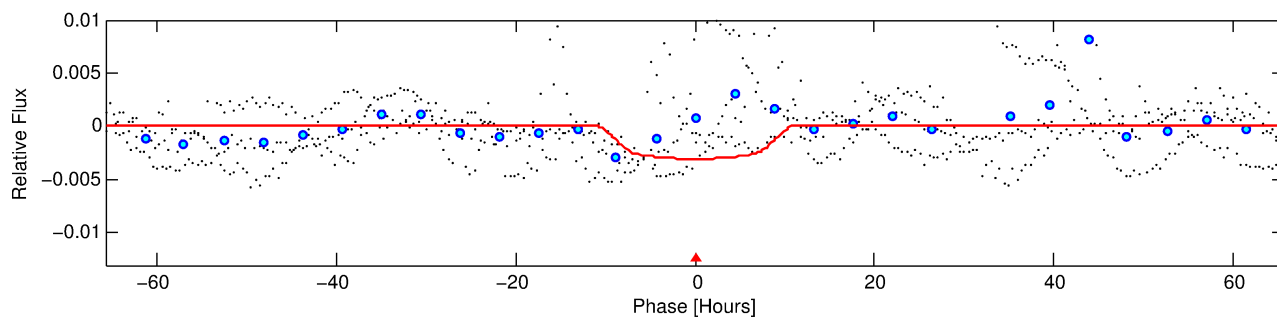
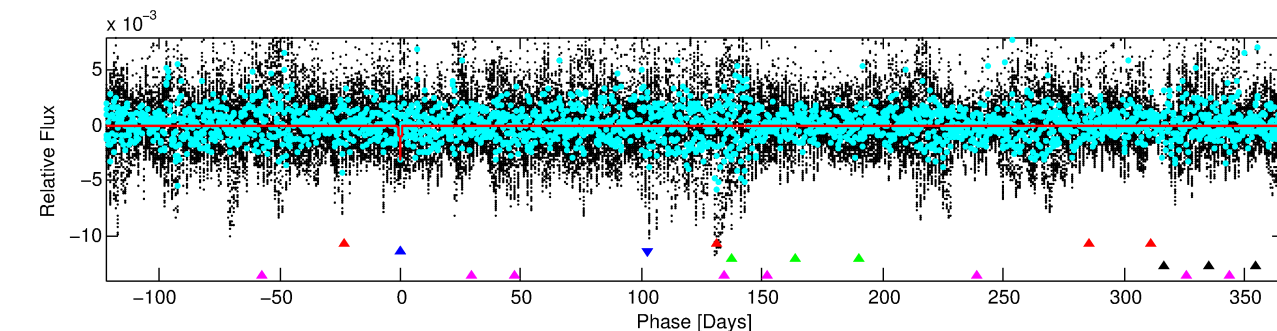
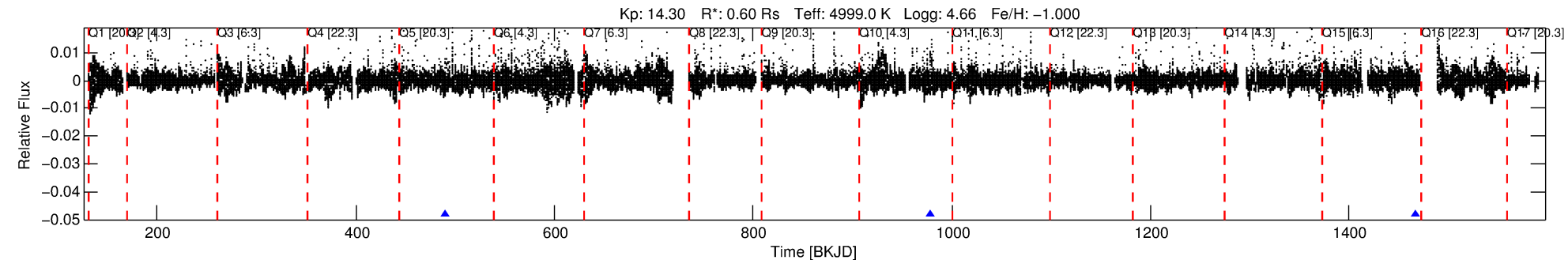
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005647463-02

No Significant Match Found

DV One-Page Summary

KIC: 5647463 Candidate: 2 of 5 Period: 488.495 d



DV Fit Results:

Period = 488.49463 [0.06693] d
Epoch = 490.3626 [0.0901] BKJD
Rp/R* = 0.0584 [0.0231]
a/R* = 108.68 [44.96]
b = 0.84 [0.15]
Seff = 0.19 [0.03]
Teq = 169 [7] K
Rp = 3.81 [1.53] Re
a = 1.0208 [0.0679] AU
Ag = 44983.58 [41718.25] [1.08σ]
Teff = 3798 [884] K [4.10σ]

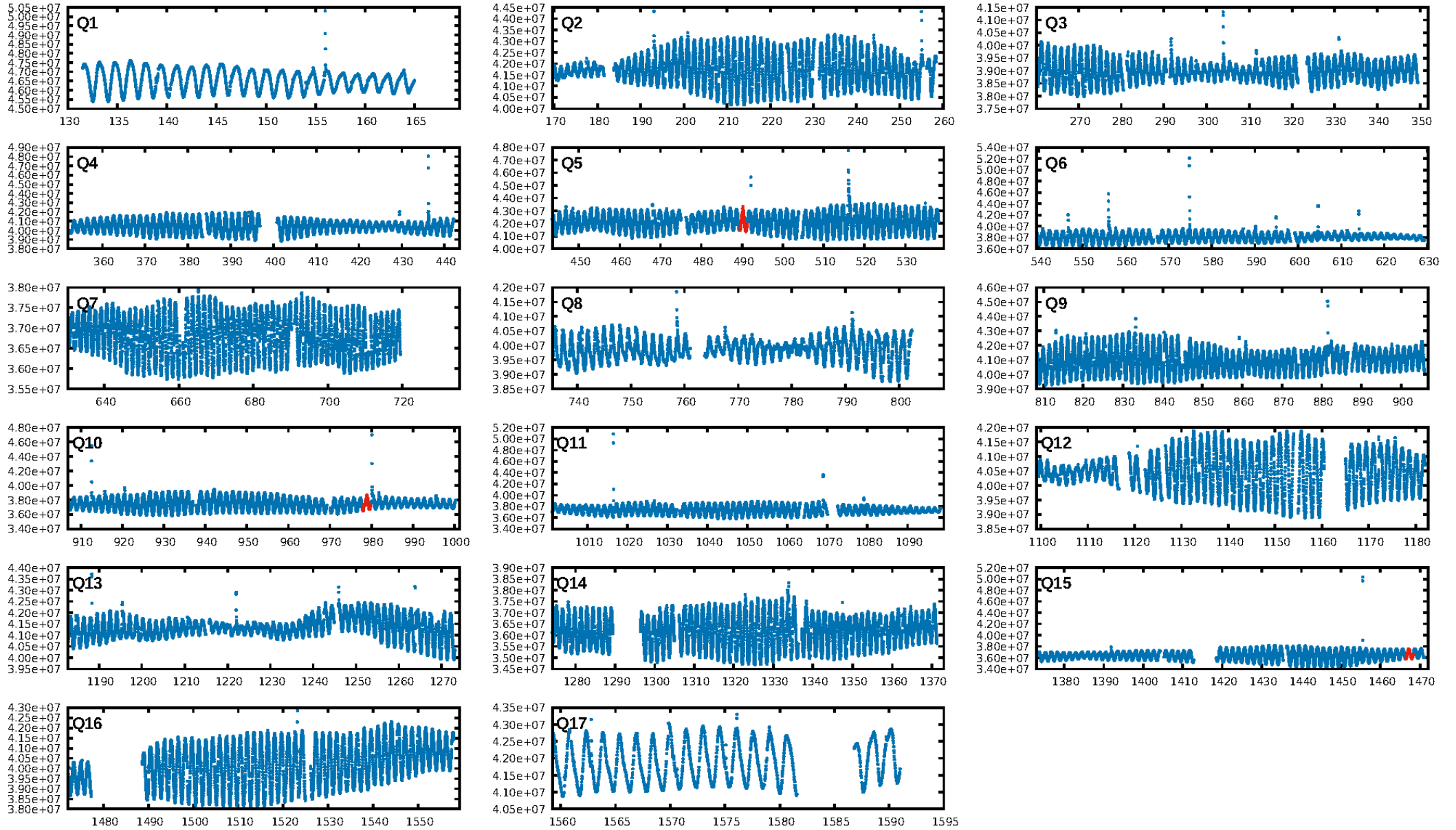
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [98.33σ]
LongPeriod-sig: 100.0% [20.92σ]
ModelChiSquare2-sig: 38.9%
ModelChiSquareGof-sig: 96.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.4446
Centroid-sig: 50.2%
Centroid-so: 0.532 arcsec [2.00σ]
OotOffset-rm: 0.153 arcsec [1.96σ]
KicOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

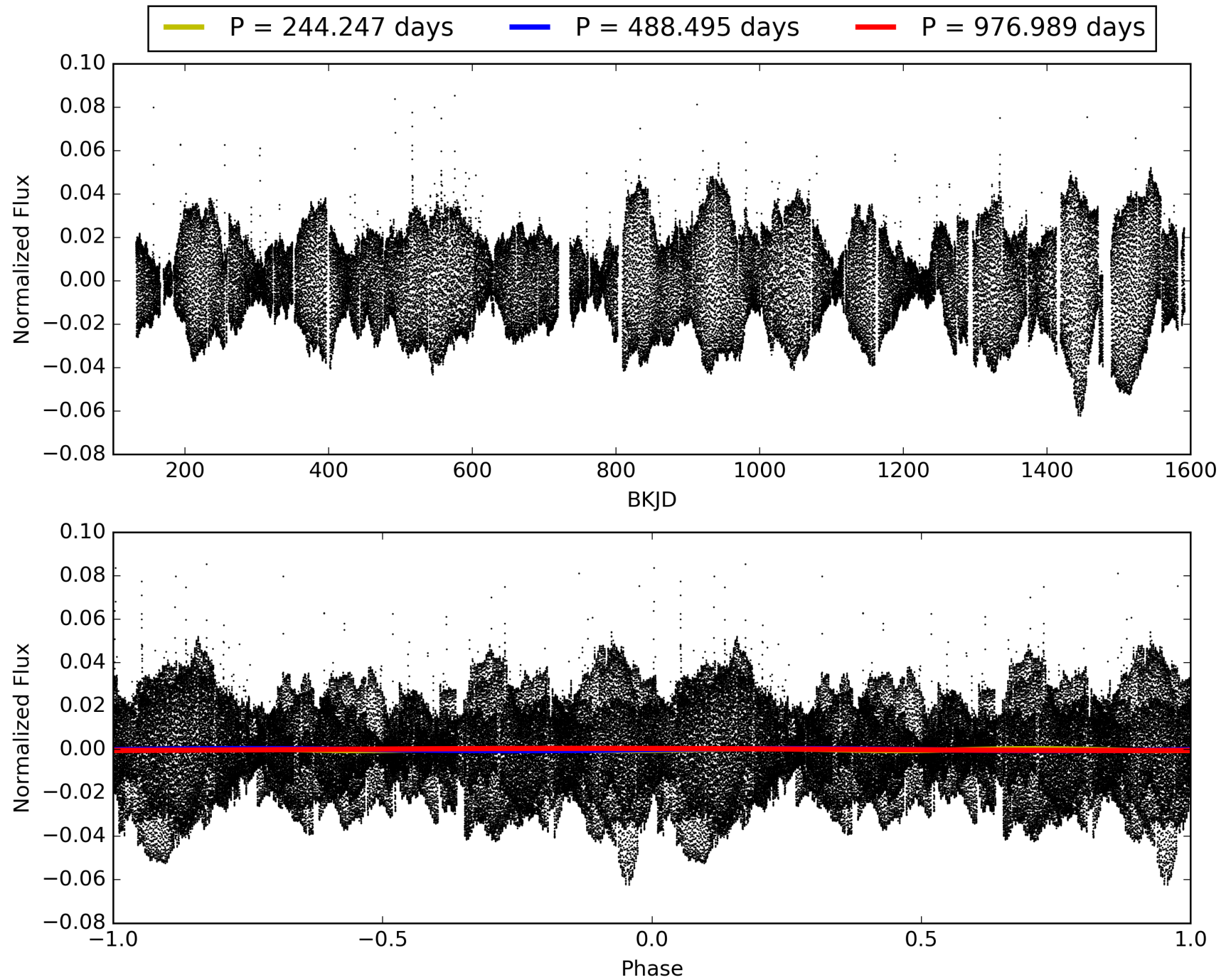
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:21:35 Z

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TCE 005647463-02, PDC Light Curves

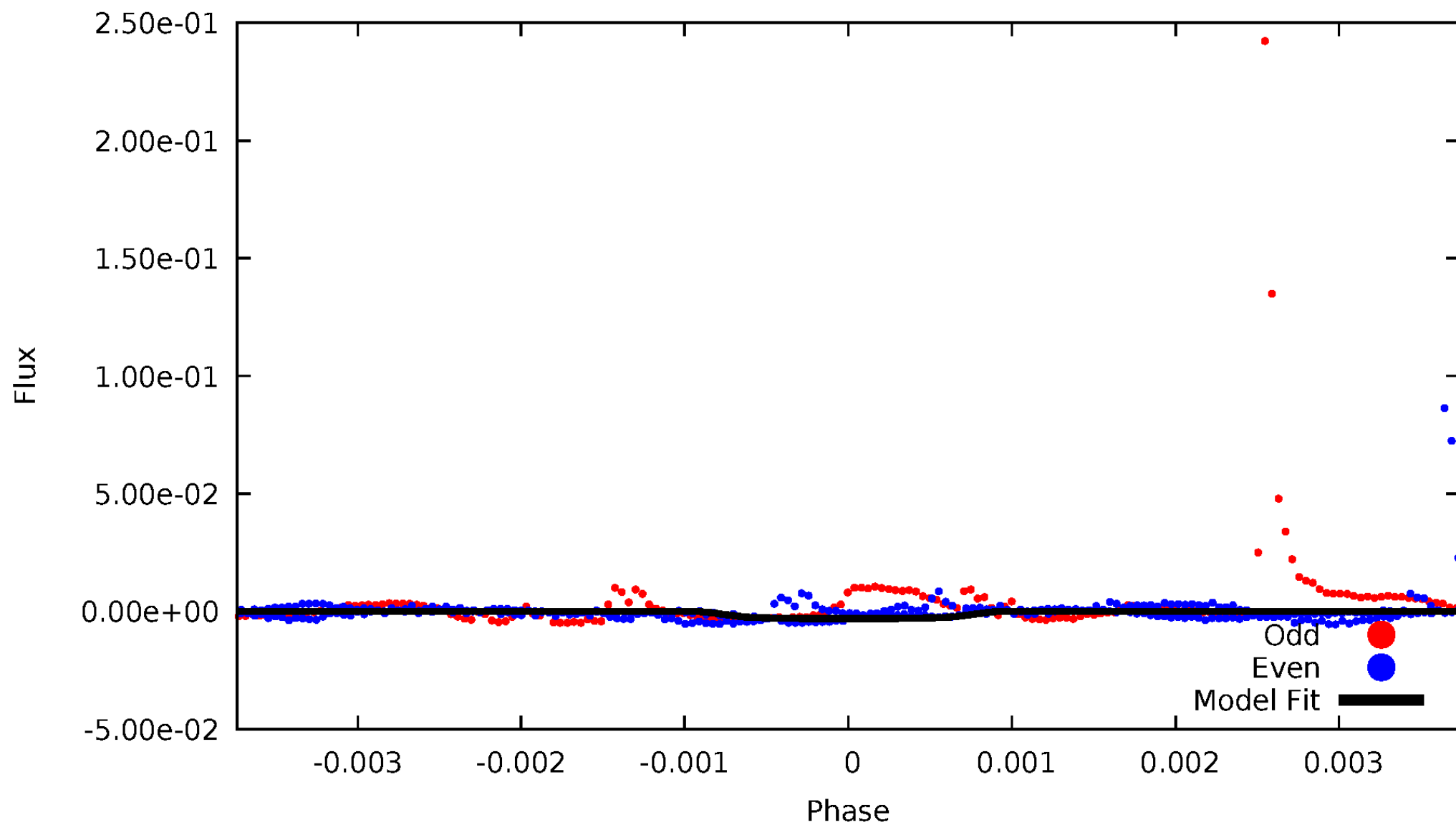


TCE 005647463-02



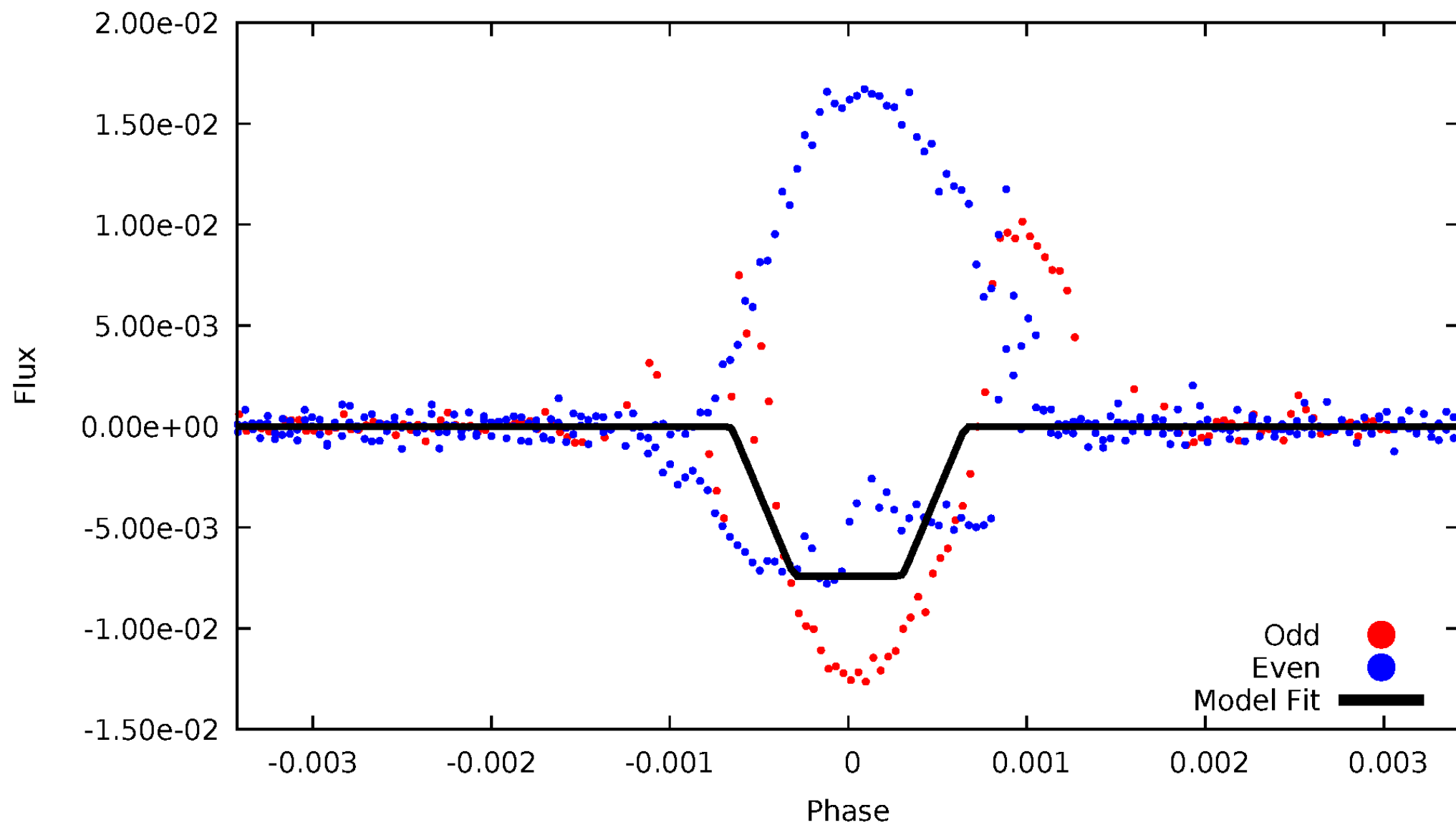
DV Odd/Even

TCE 005647463-02



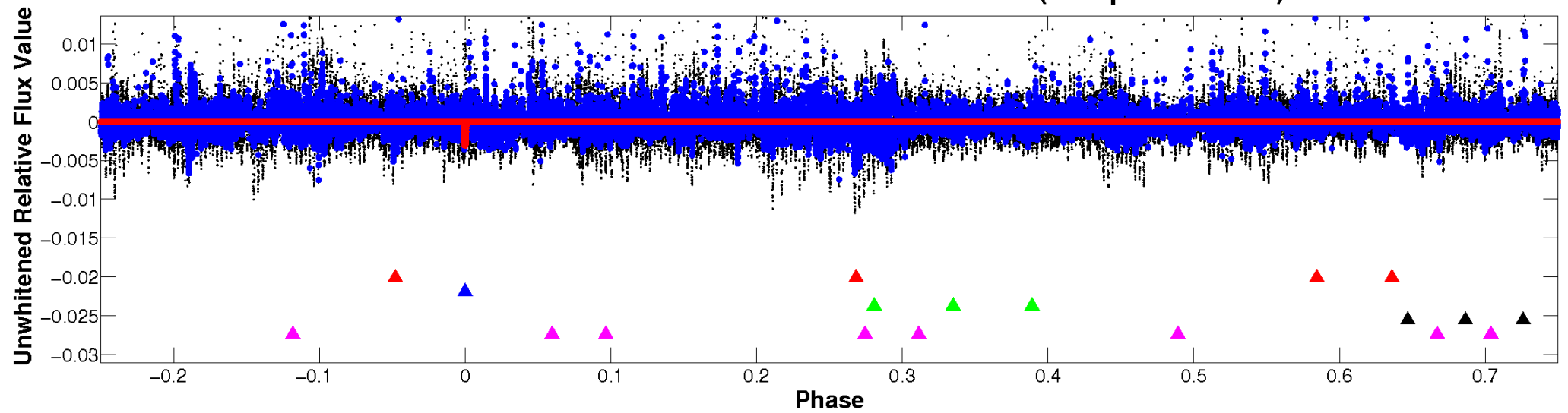
ALT Odd/Even

TCE 005647463-02

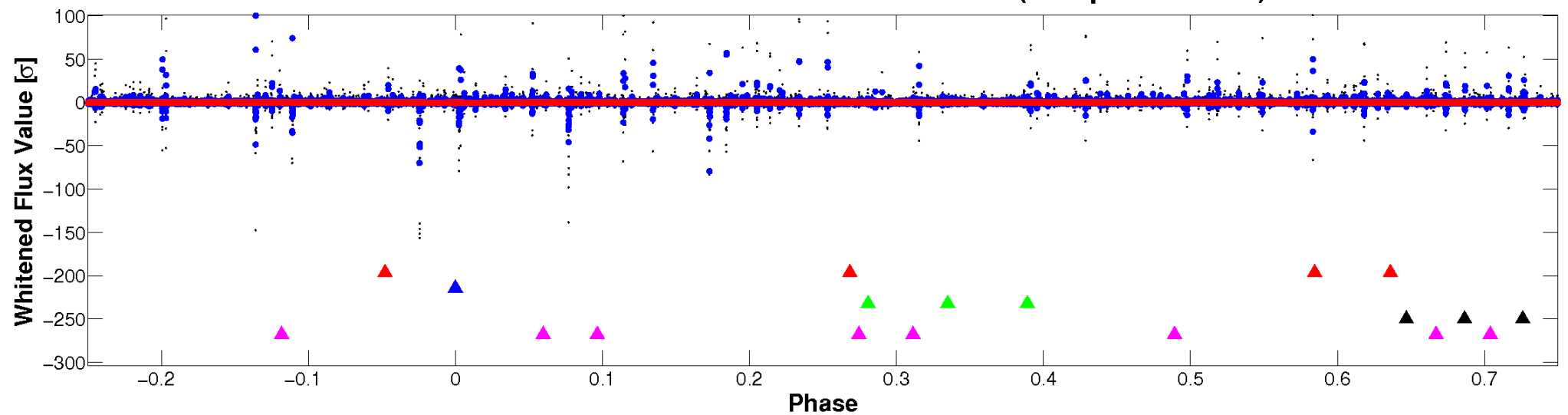


Non-Whitened Vs. Whitened Light Curve

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

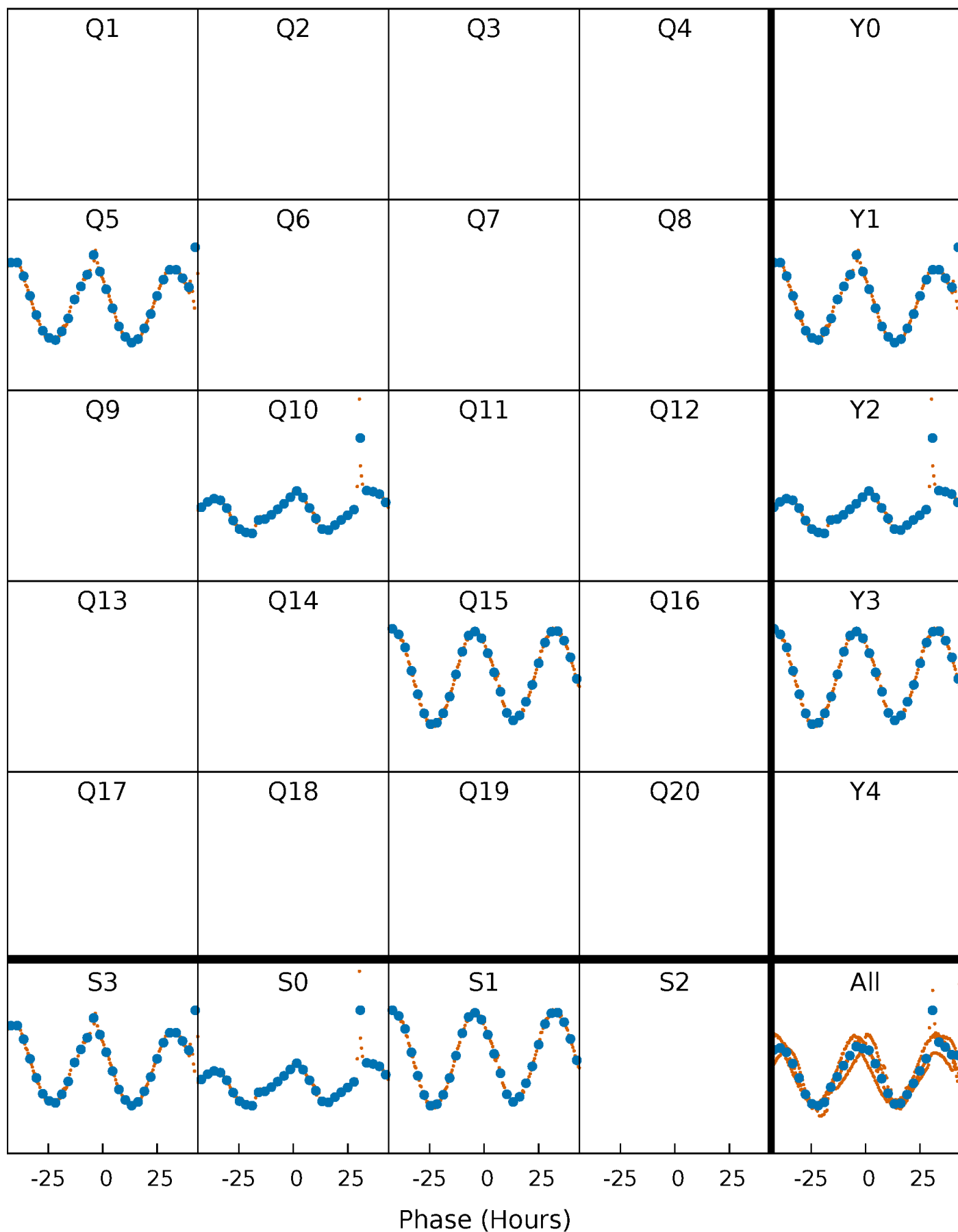


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



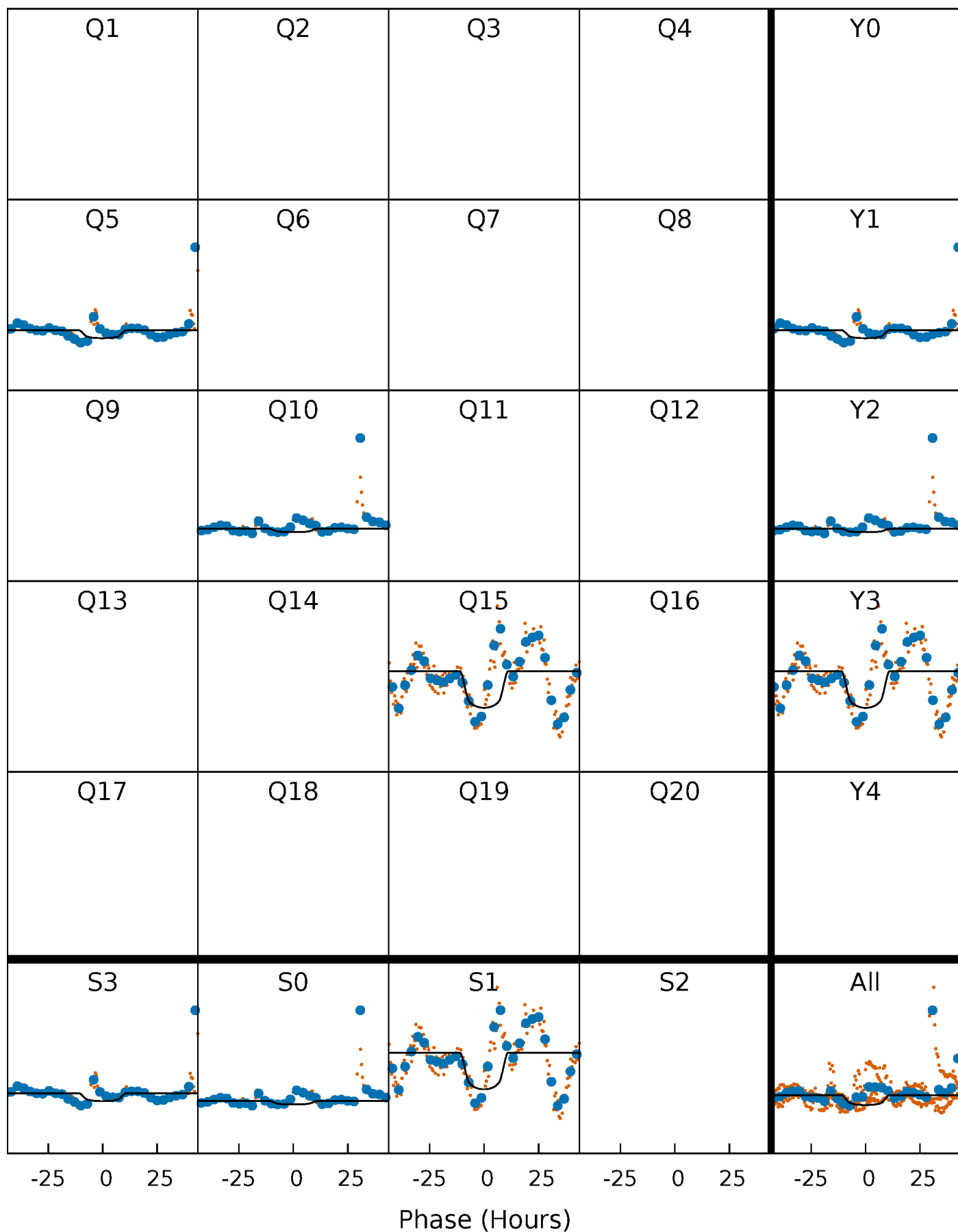
PDC Quarter-Phased Transit Curves

TCE 005647463-02 $P=488.494634$ Days $T_0=490.362648$ (BKJD)



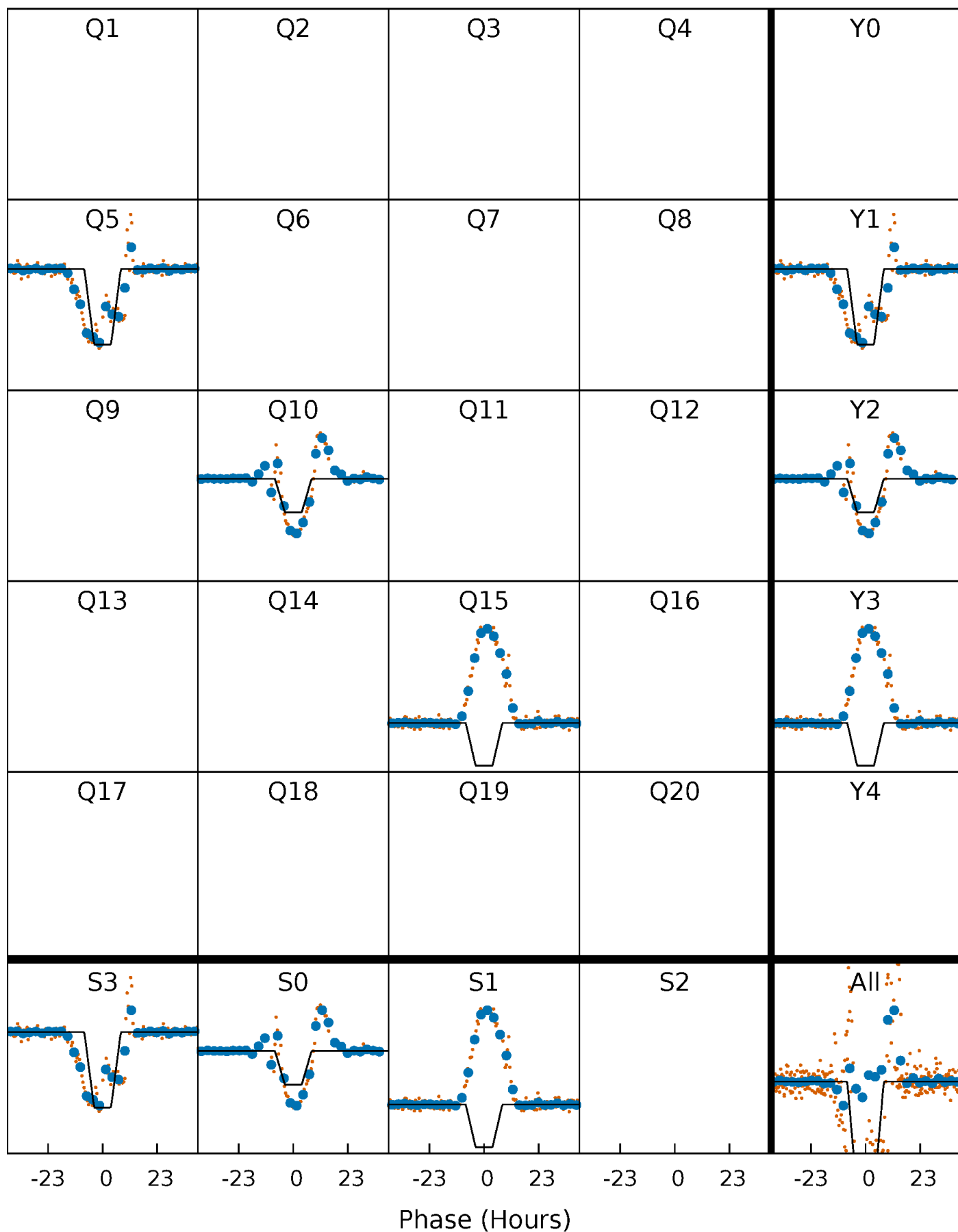
DV Quarter-Phased Transit Curves

TCE 005647463-02 $P=488.494634$ Days $T_0=490.362648$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

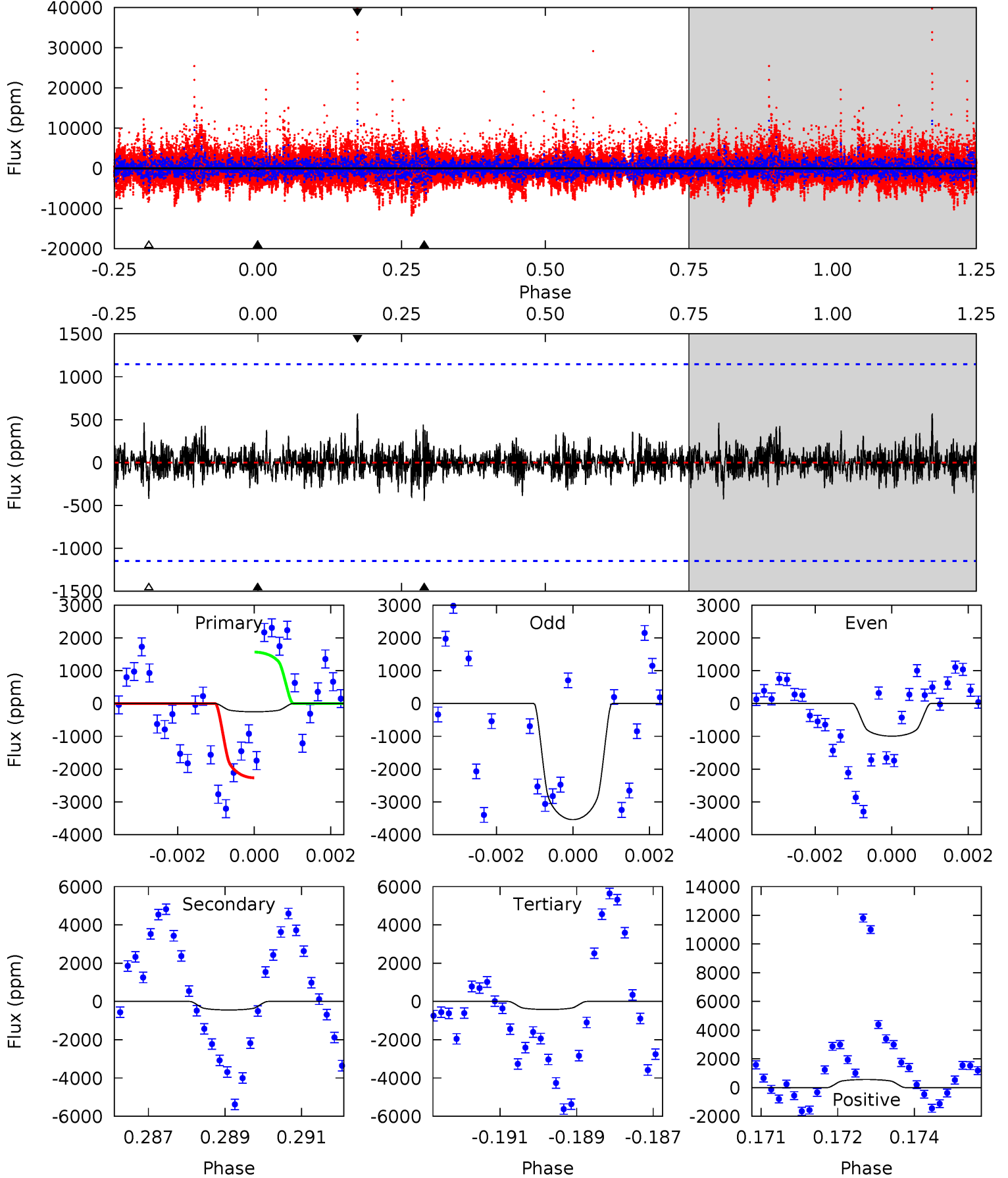
TCE 005647463-02 P=488.729888 Days $T_0=489.729998$ (BKJD)



DV Model-Shift Uniqueness Test

005647463-02, P = 488.494634 Days, E = 1.868014 Days

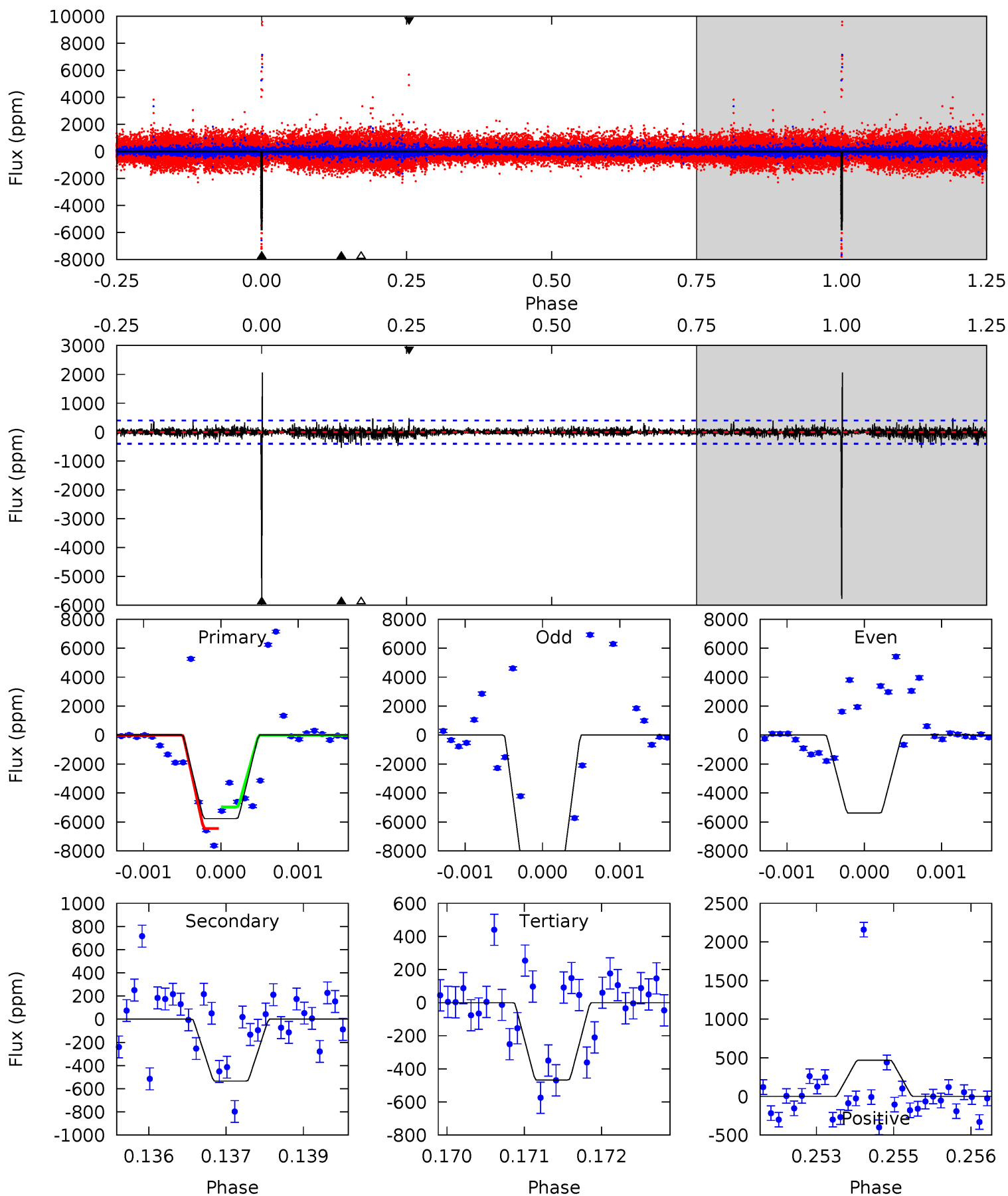
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 1.18 | 2.07 | 1.96 | 2.62 | 5.34 | 3.11 | 0.55 | -0.78 | -1.44 | 0.11 | -0.55 | 4.32 | -0.93 | 0.56 | 1.63 |



Alt Model-Shift Uniqueness Test

005647463-02, P = 488.729888 Days, E = 1.000110 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 77.3 | 7.16 | 6.26 | 6.28 | 5.40 | 3.21 | 0.96 | 71.0 | 71.0 | 0.90 | 0.87 | 47.7 | 0.03 | 0.26 | 0 |



Stellar Parameters For KIC 005647463

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4999^{+149}_{-164} | $4.660^{+0.055}_{-0.035}$ | $-1.000^{+0.300}_{-0.300}$ | $0.597^{+0.046}_{-0.046}$ | $0.594^{+0.051}_{-0.025}$ | $3.937^{+0.889}_{-0.542}$ |
| | +3%/-3% | +1%/-1% | +30%/-30% | +8%/-8% | +9%/-4% | +23%/-14% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005647463-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|----------------|------------------------|-----------------|----------------------|---------------------------|
| DV | -445 ± 215 | $3.78^{+1.47}_{-1.40}$ | 234^{+8}_{-9} | 3433^{+624}_{-438} | 18024^{+29733}_{-10836} |
| Alt. | -534 ± 75 | $5.52^{+1.58}_{-1.44}$ | 235^{+8}_{-8} | 3157^{+351}_{-225} | 9998^{+9804}_{-3893} |

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 $A_{obs} \gg 1.0$

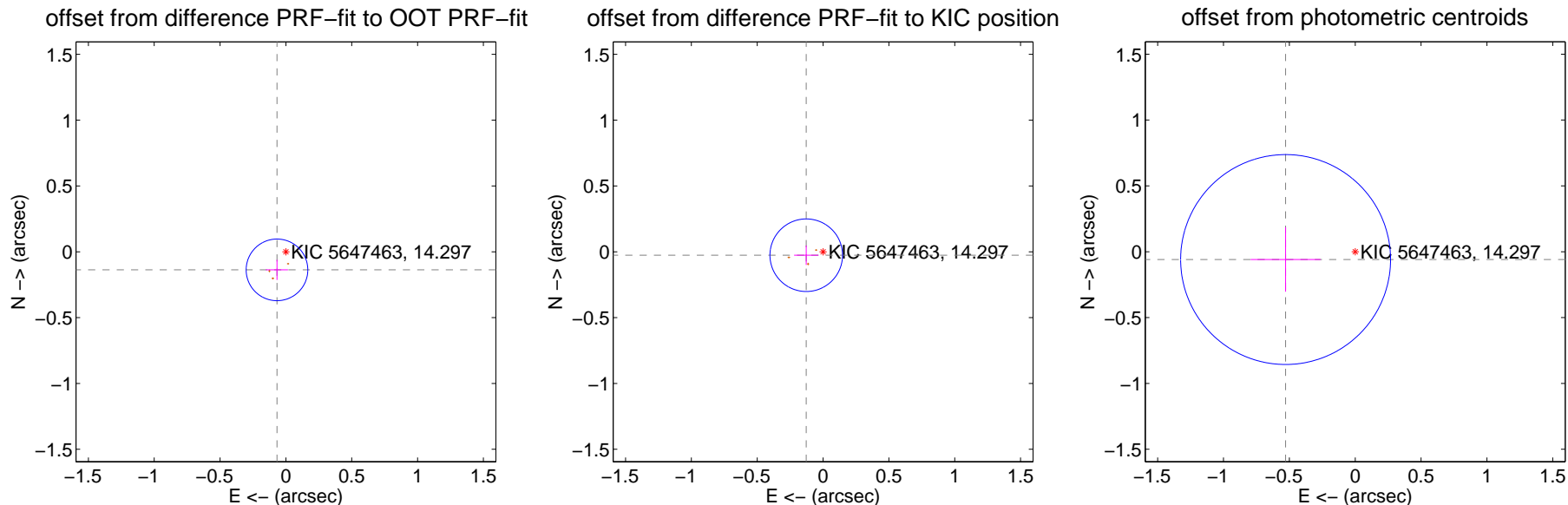
DV Centroid Data

Supplemental centroid analysis for 005647463-02. Kepler magnitude: 14.30. Transit SNR 4.42

There are 0 quarters with good PRF difference image offsets

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

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.153 ± 0.078 | 1.96 | 0.068 ± 0.084 | -0.137 ± 0.076 |
| PRF-fit source offset from KIC position | 0.130 ± 0.092 | 1.42 | 0.128 ± 0.093 | -0.026 ± 0.074 |
| photometric centroid source offset | 0.53 ± 0.27 | 2.00 | 0.53 ± 0.27 | -0.06 ± 0.24 |

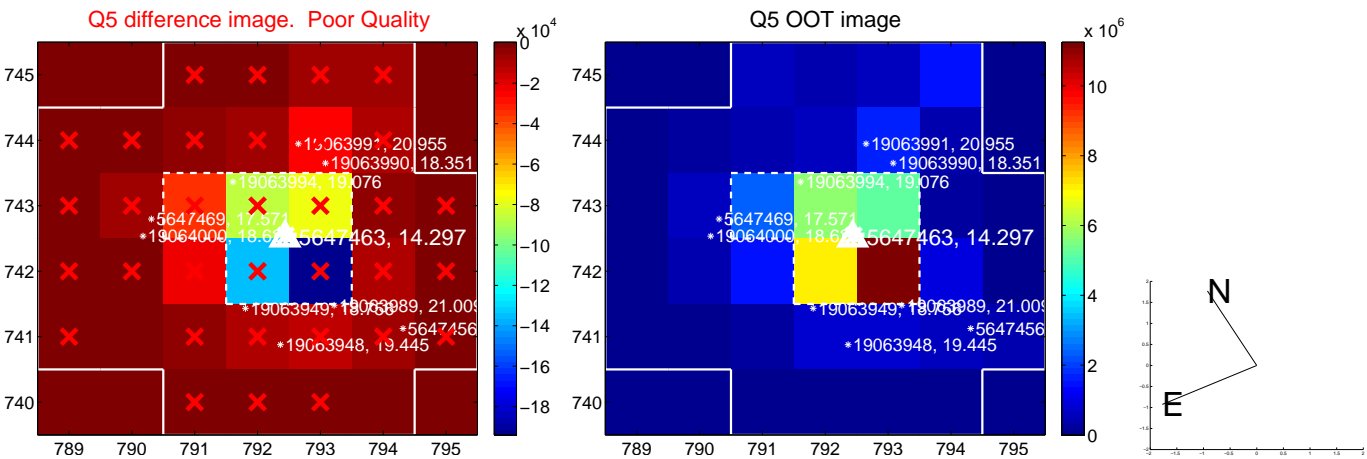


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

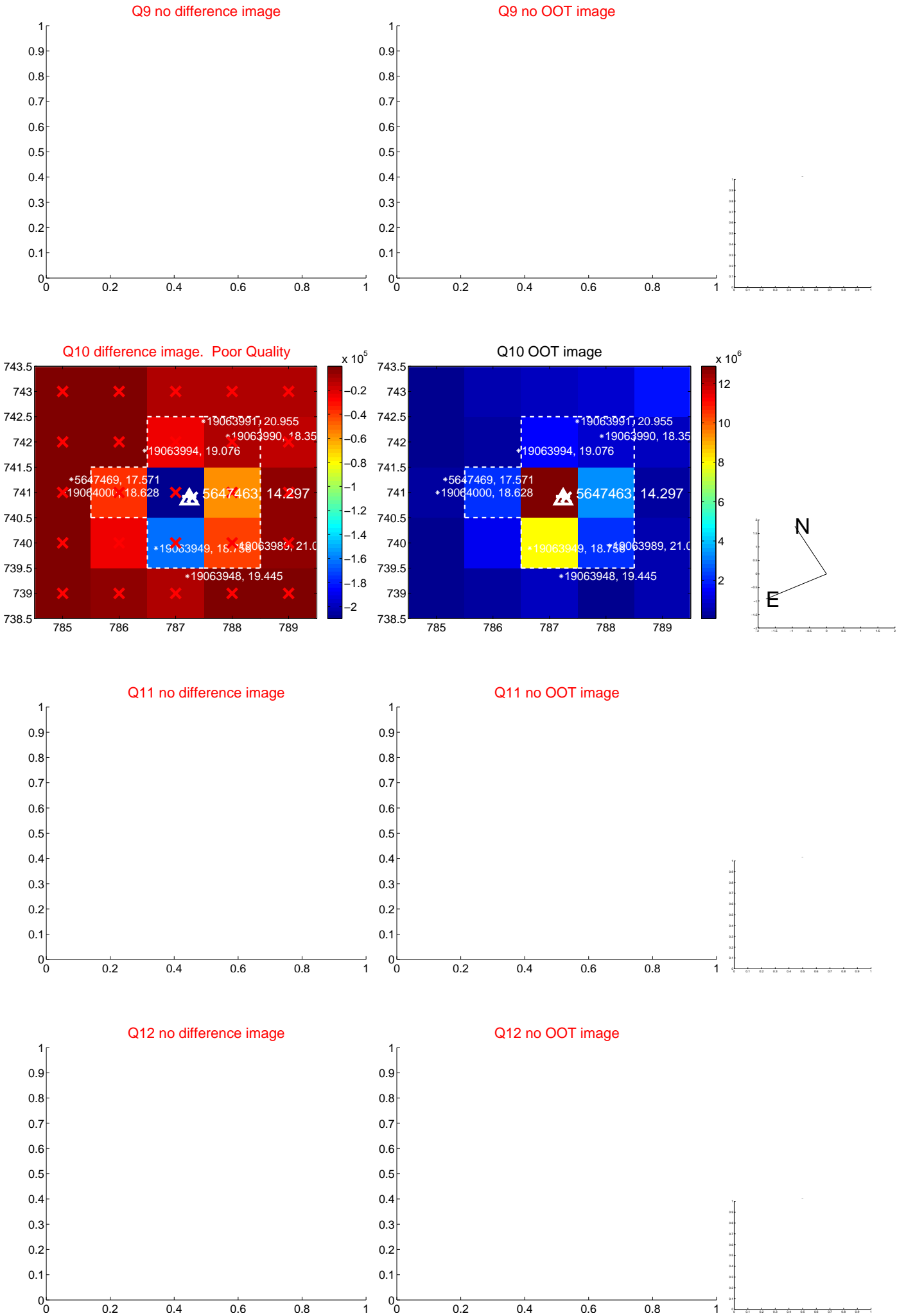
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



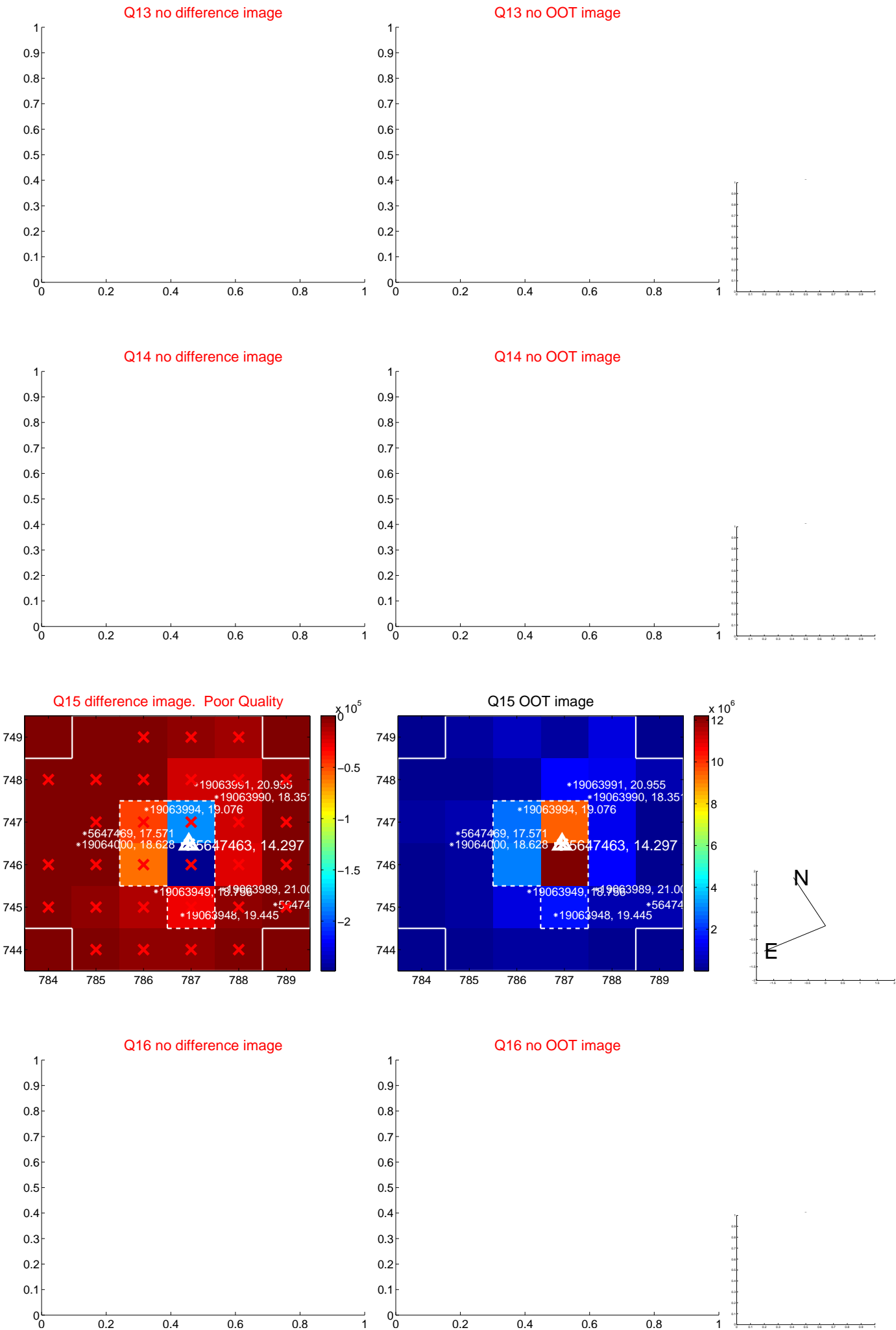
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



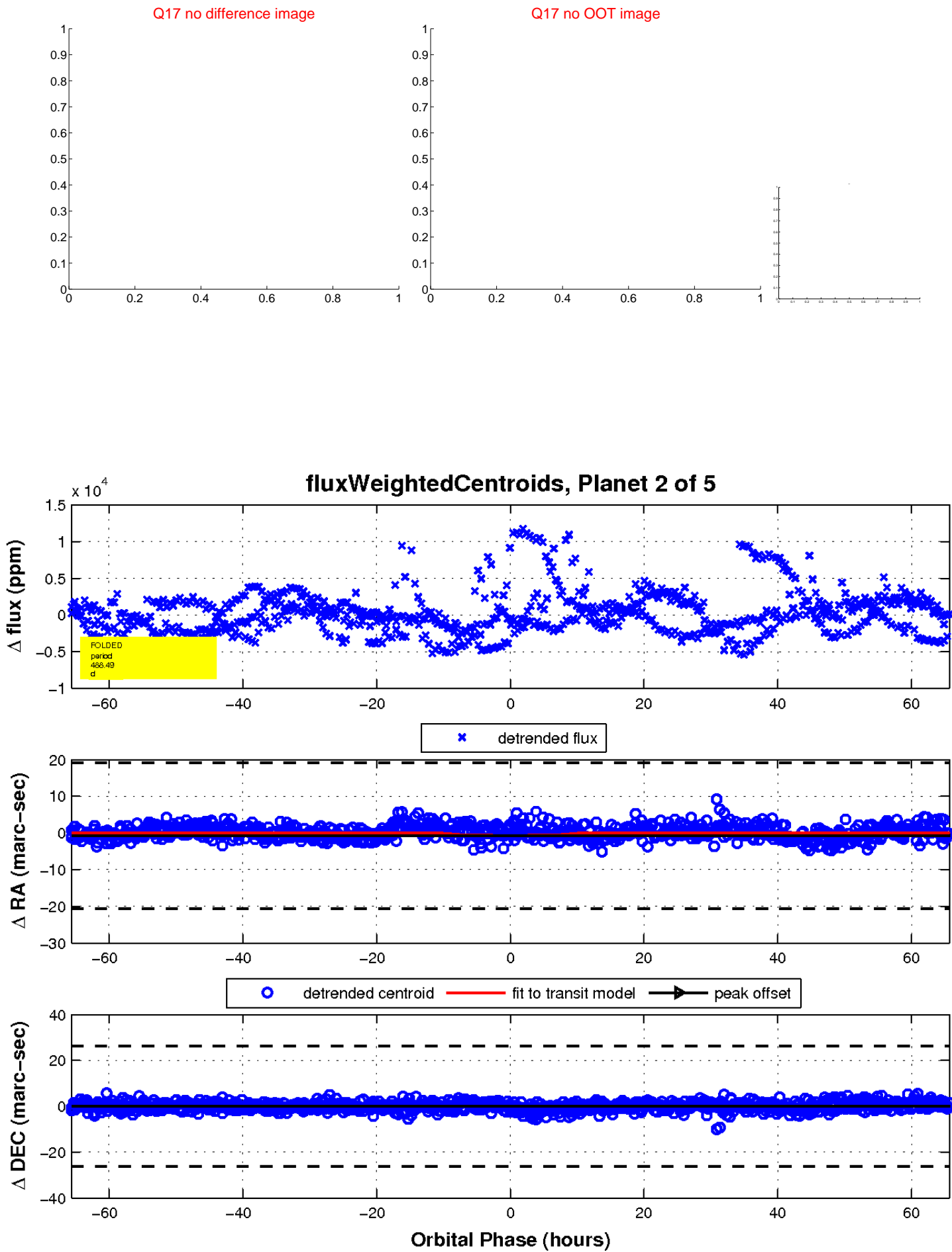
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



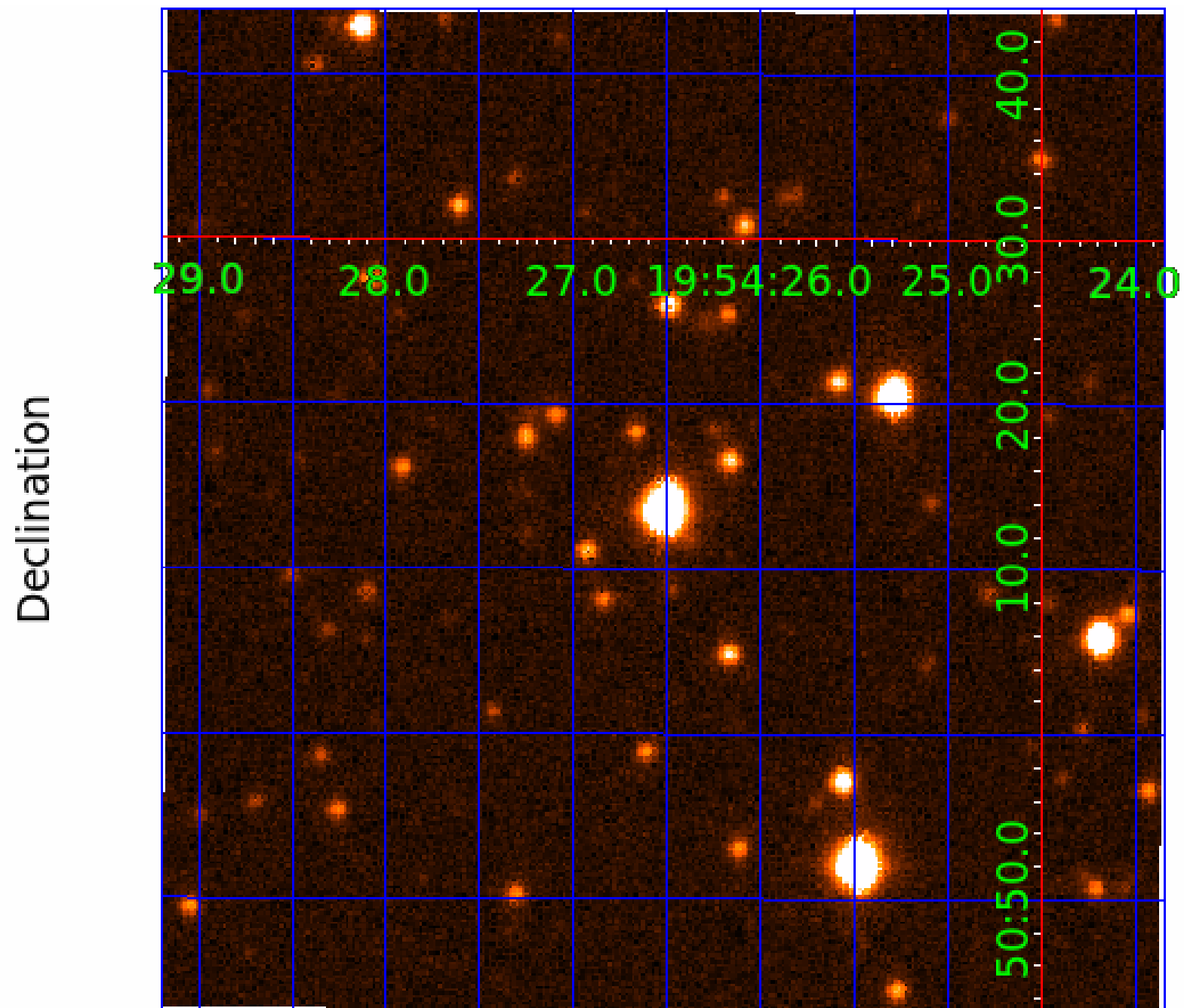
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image



KIC 005647463

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005647463-01 | OBS | No | 334.045304 | 287.399702 | 1985.5 | 30.681 | 18.4 | 3.4 | 0.60 | 4999 | 2.90 | 0.32 |
| 005647463-02 | OBS | No | 488.494634 | 490.362648 | 3100.4 | 21.902 | 13.7 | 4.4 | 0.60 | 4999 | 3.81 | 0.19 |
| 005647463-03 | OBS | No | 514.951682 | 139.022800 | 3984.1 | 5.224 | 18.7 | 9.6 | 0.60 | 4999 | 3.70 | 0.18 |
| 005647463-04 | OBS | No | 507.832828 | 317.866664 | 3731.9 | 3.531 | 17.1 | 10.2 | 0.60 | 4999 | 6.95 | 0.18 |
| 005647463-05 | OBS | No | 191.798045 | 153.944638 | 1429.7 | 1.708 | 15.9 | 6.6 | 0.60 | 4999 | 2.23 | 0.67 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005647463-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 005647463-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

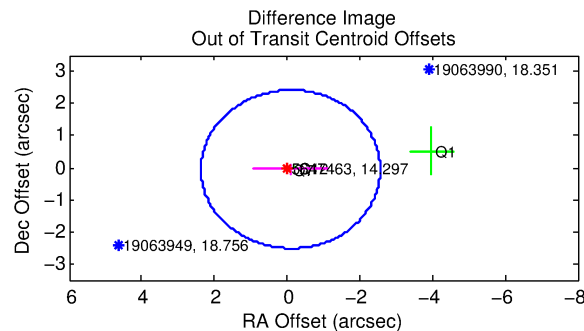
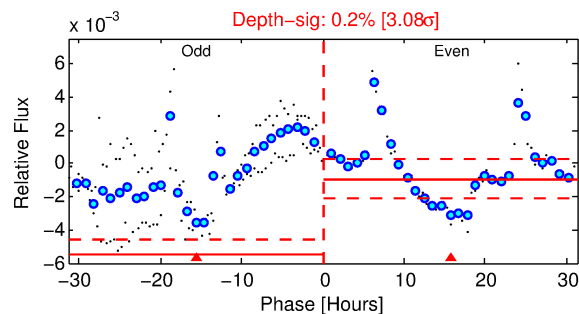
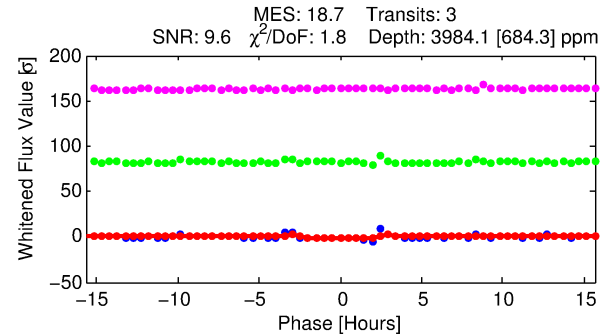
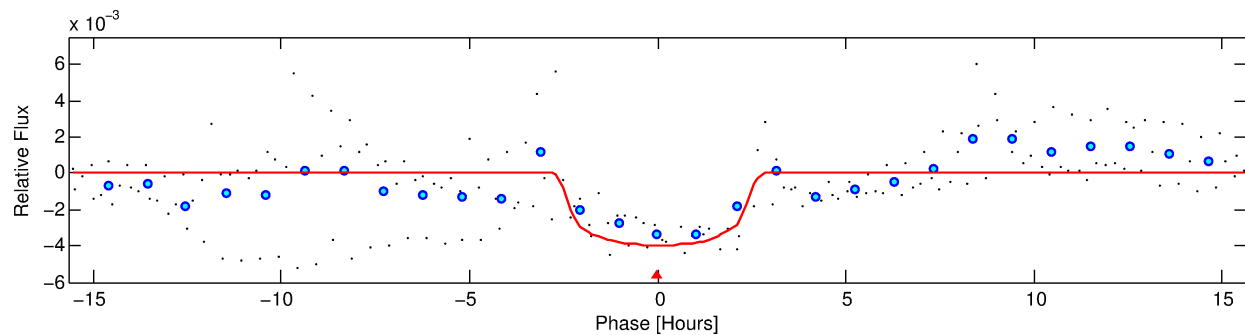
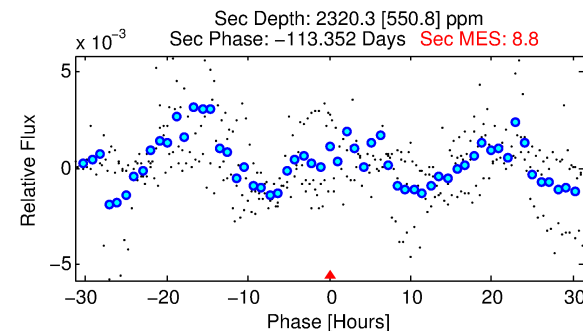
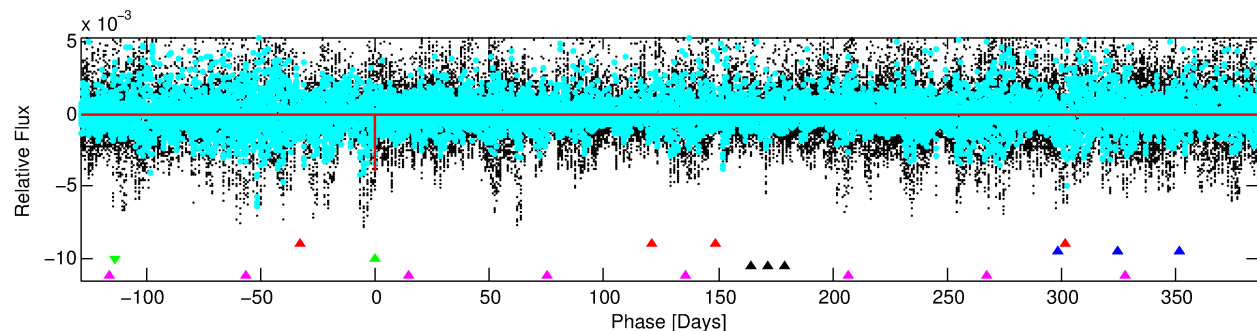
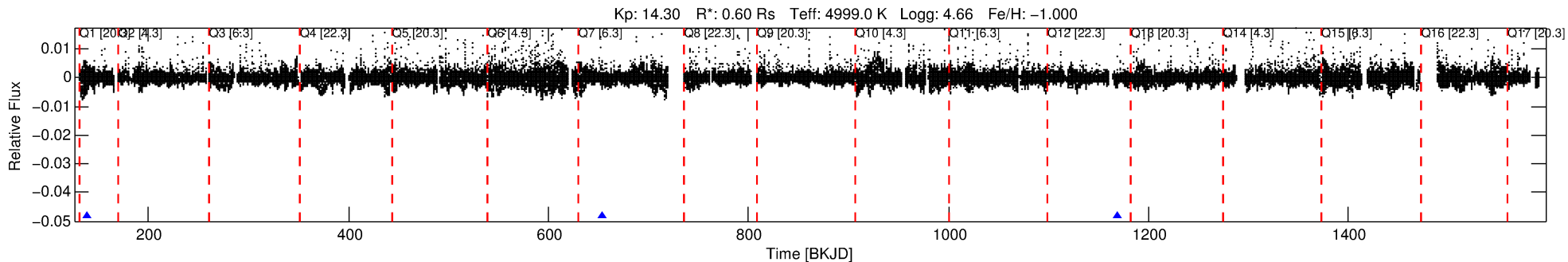
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005647463-03

No Significant Match Found

DV One-Page Summary

KIC: 5647463 Candidate: 3 of 5 Period: 514.952 d



DV Fit Results:

Period = 514.95168 [0.00347] d
Epoch = 139.0228 [0.0050] BKJD
Rp/R* = 0.0568 [0.0209]
a/R* = 795.86 [1060.17]
b = 0.01 [227.37]
Seff = 0.18 [0.03]
Teq = 166 [7] K
Rp = 3.70 [1.39] Re
a = 1.0573 [0.0703] AU
Ag = 104259.86 [81430.50] [1.28σ]
Teffp = 4604 [904] K [4.91σ]

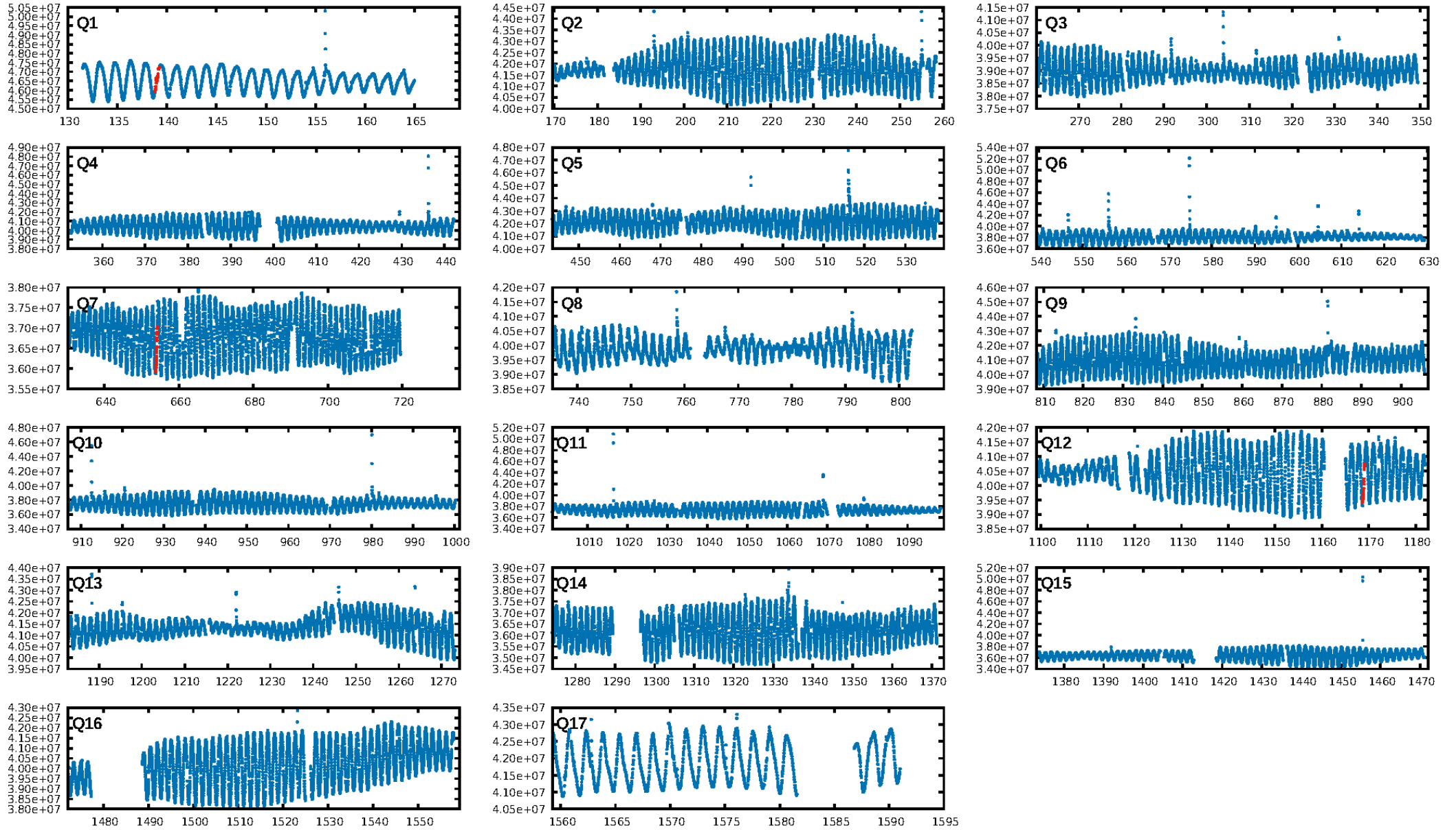
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.10σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 17.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.7856
Centroid-sig: 82.7%
Centroid-so: 0.388 arcsec [1.31σ]
OotOffset-rm: 0.107 arcsec [0.13σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.067 arcsec [0.26σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

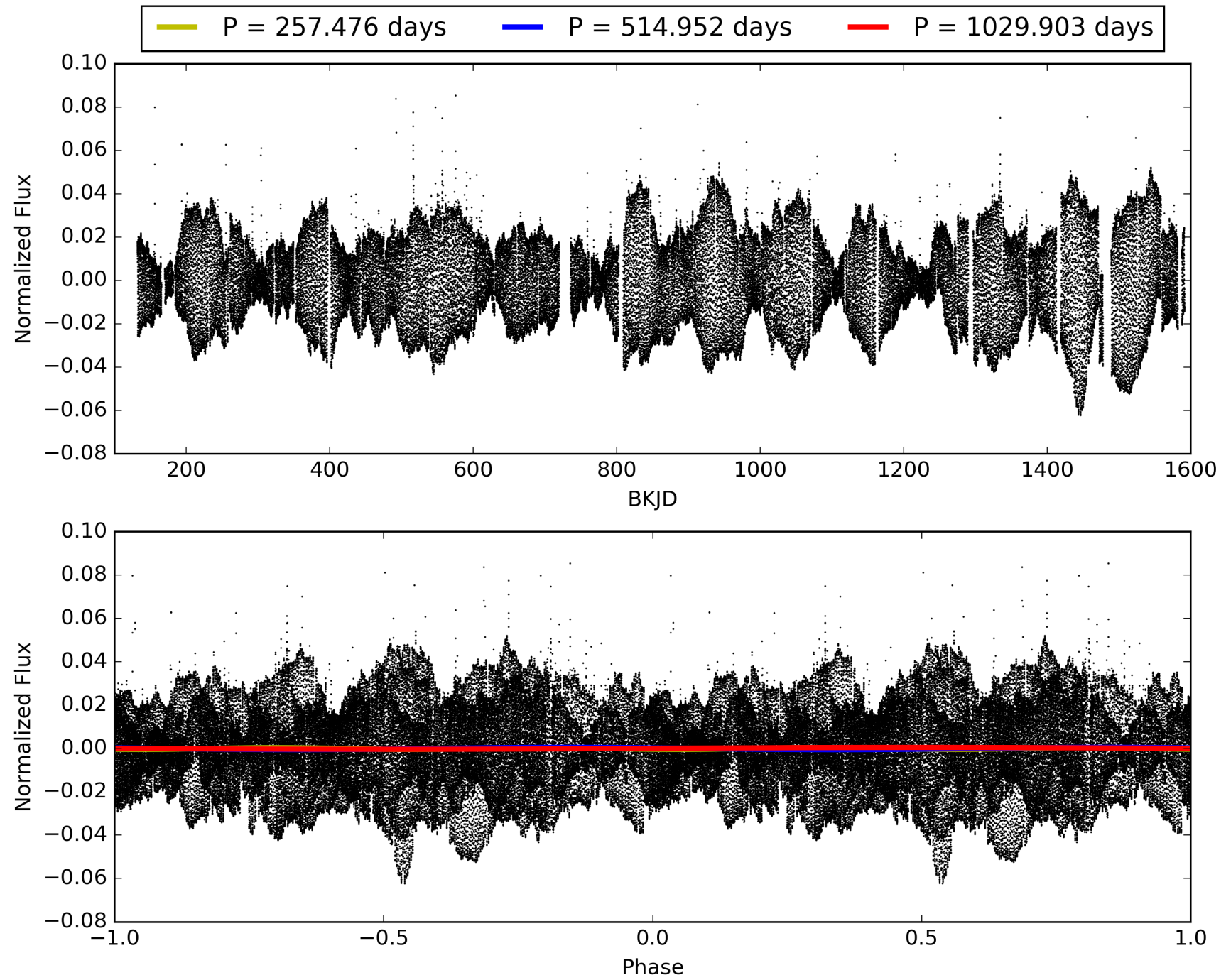
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:21:50 Z

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

TCE 005647463-03, PDC Light Curves

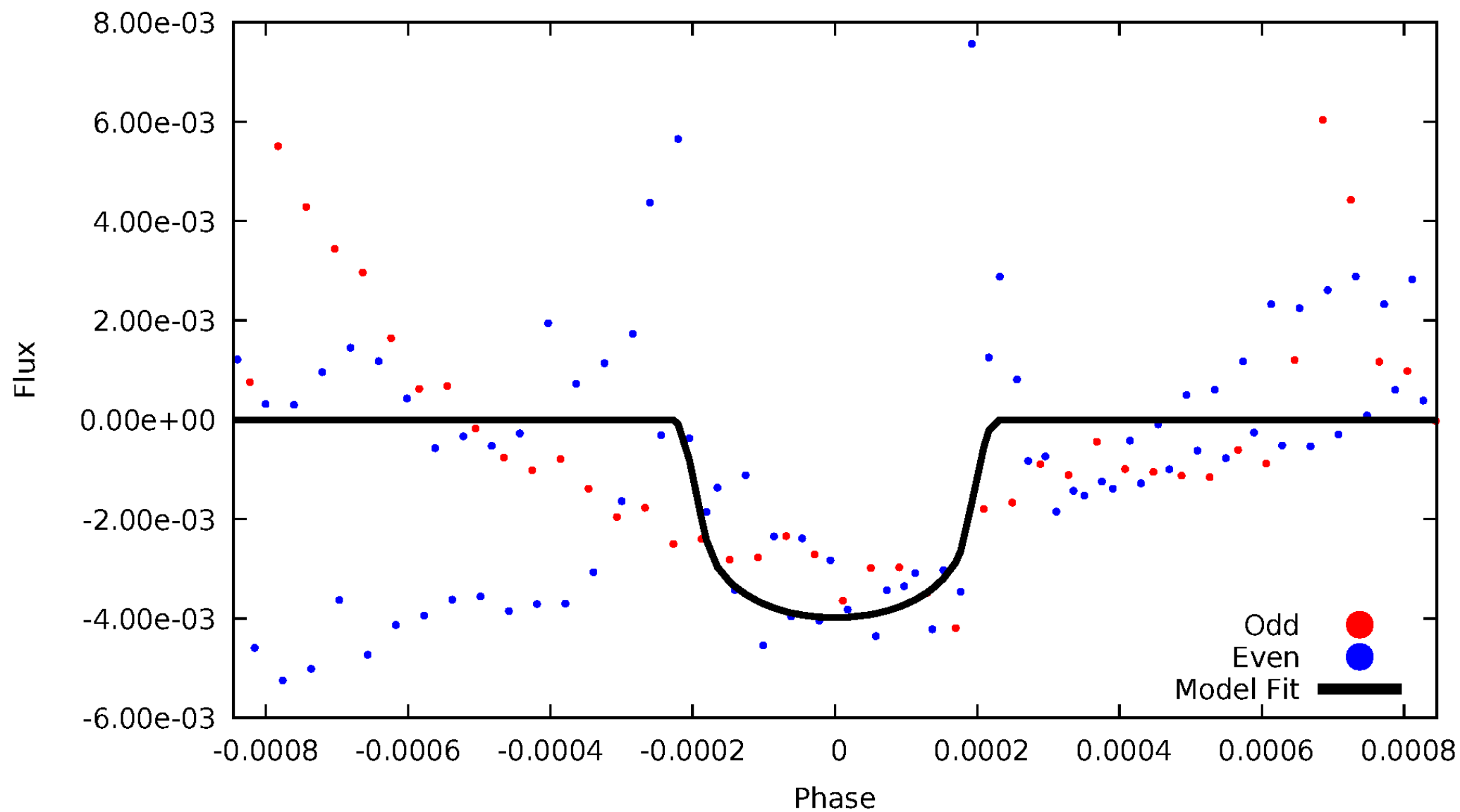


TCE 005647463-03



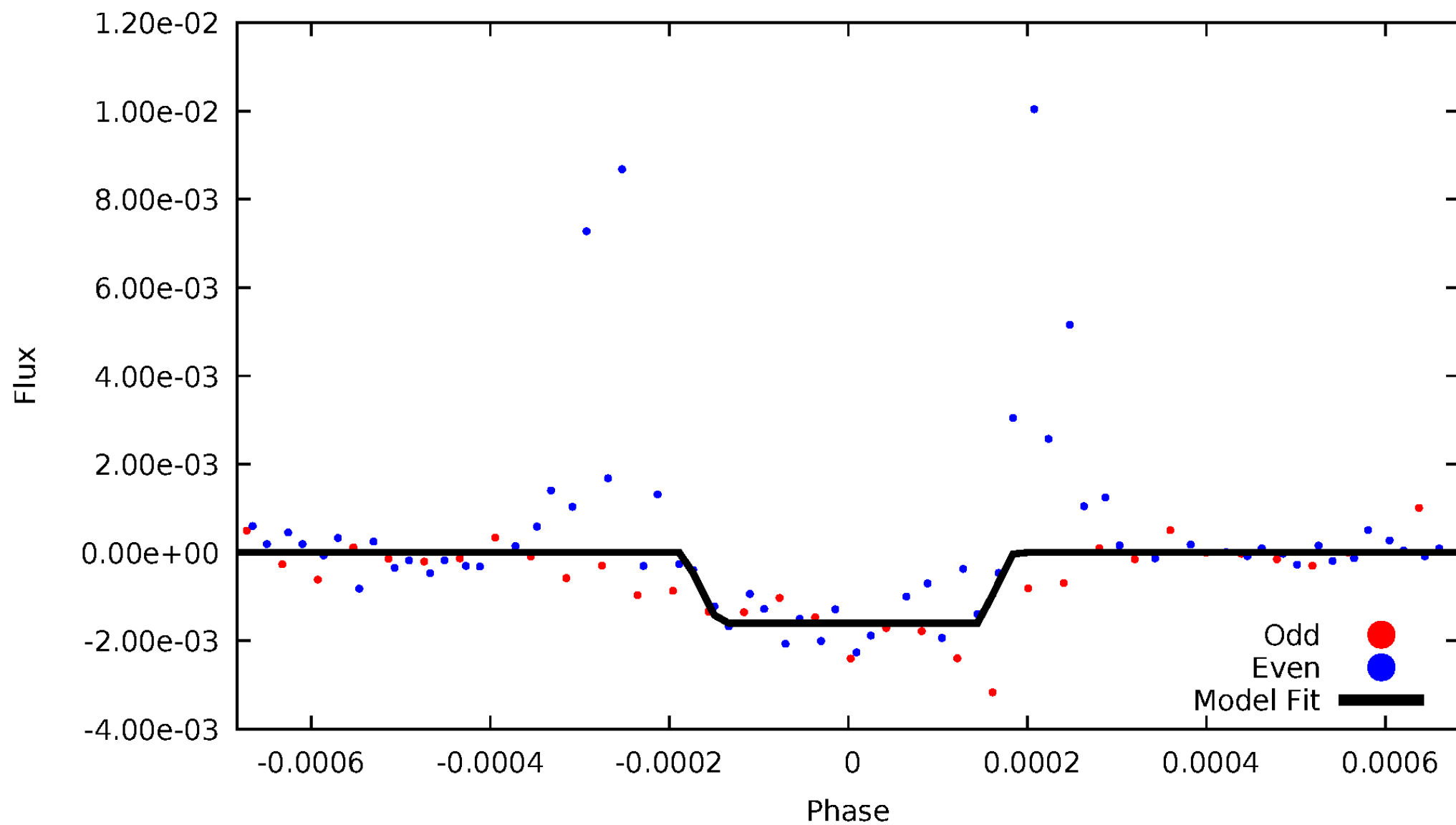
DV Odd/Even

TCE 005647463-03



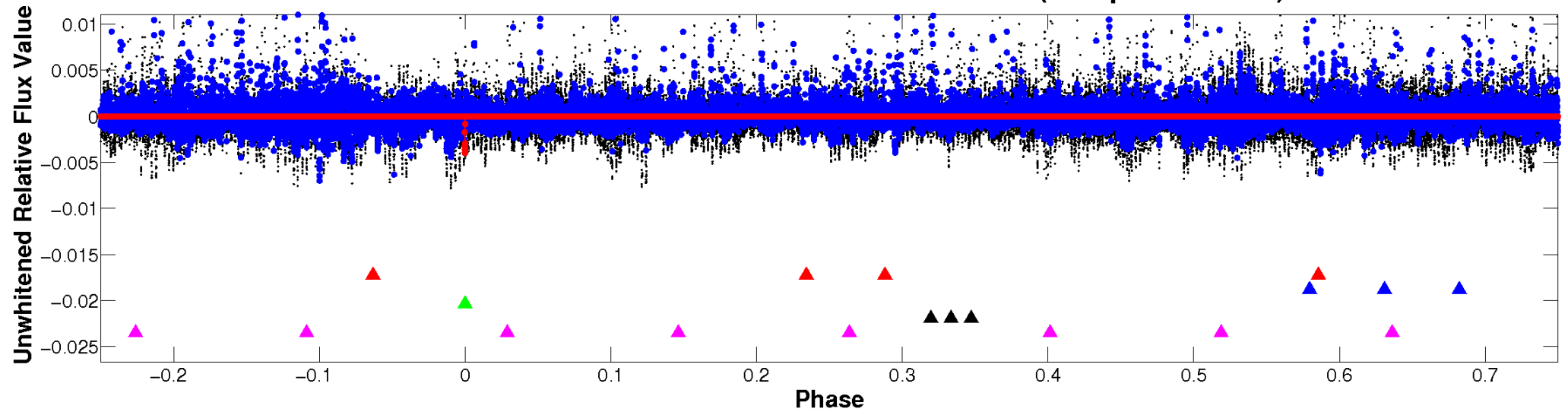
ALT Odd/Even

TCE 005647463-03

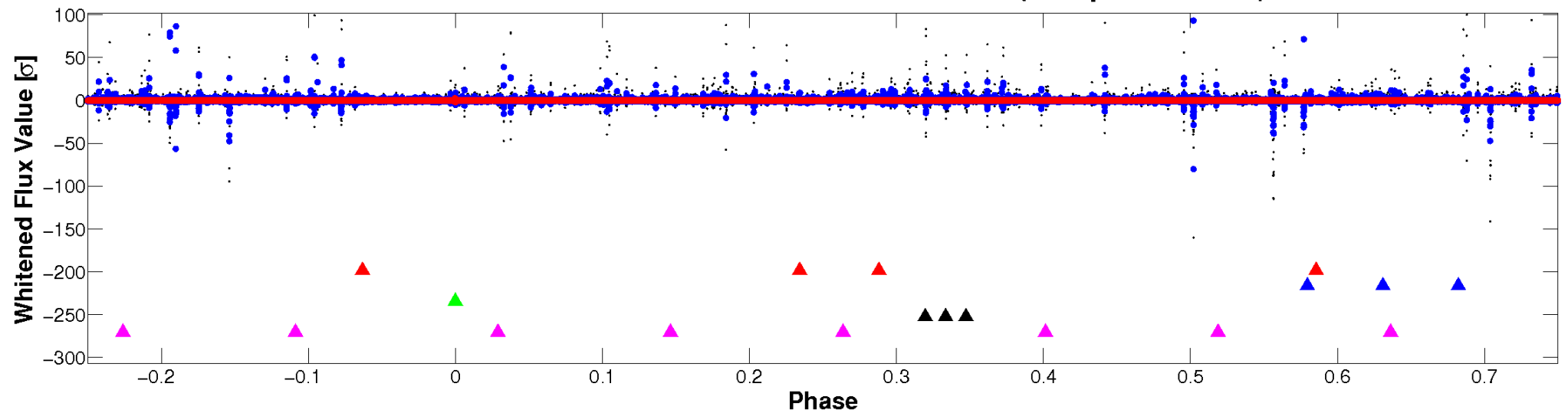


Non-Whitened Vs. Whitened Light Curve

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

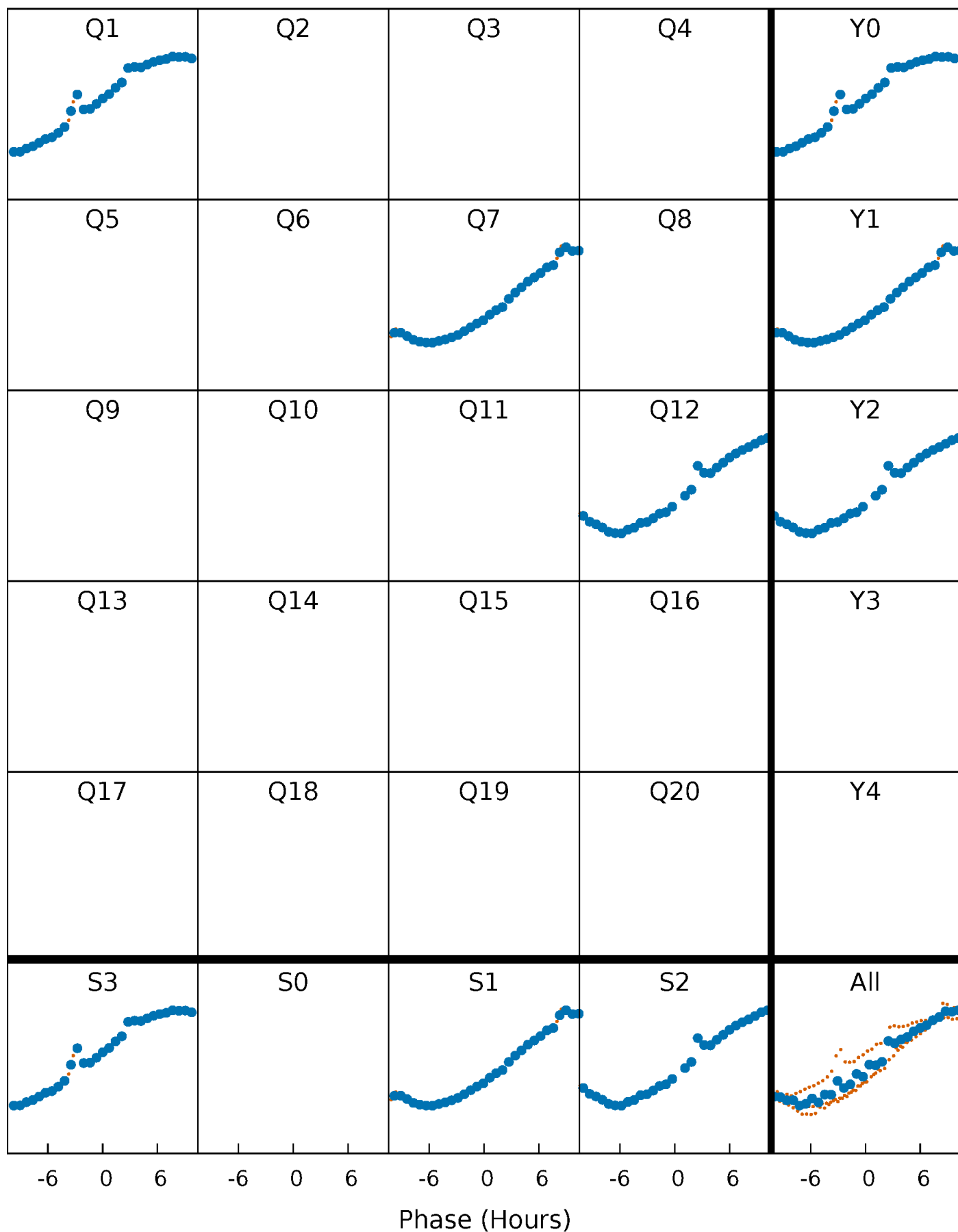


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



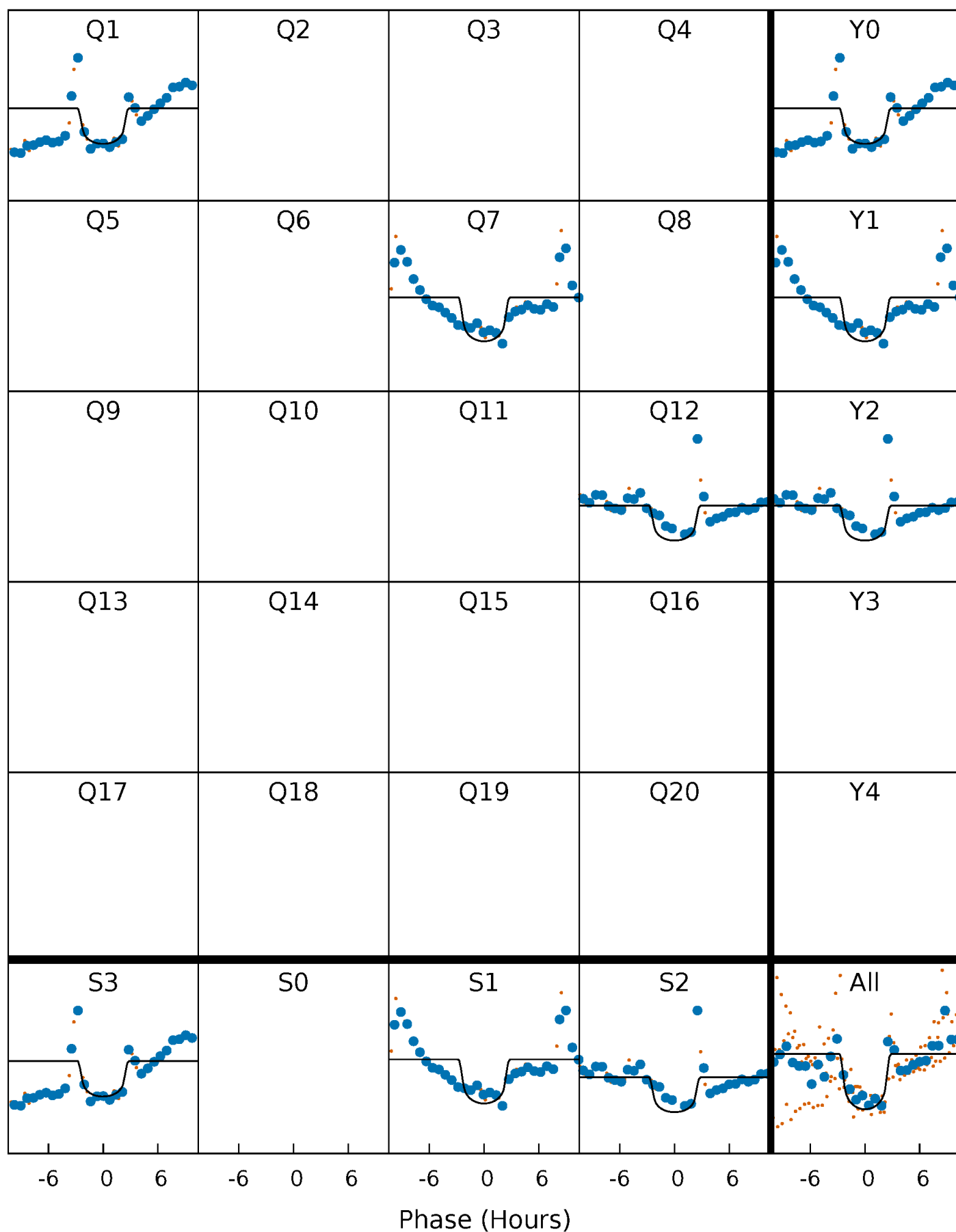
PDC Quarter-Phased Transit Curves

TCE 005647463-03 P=514.951682 Days $T_0=139.022800$ (BKJD)



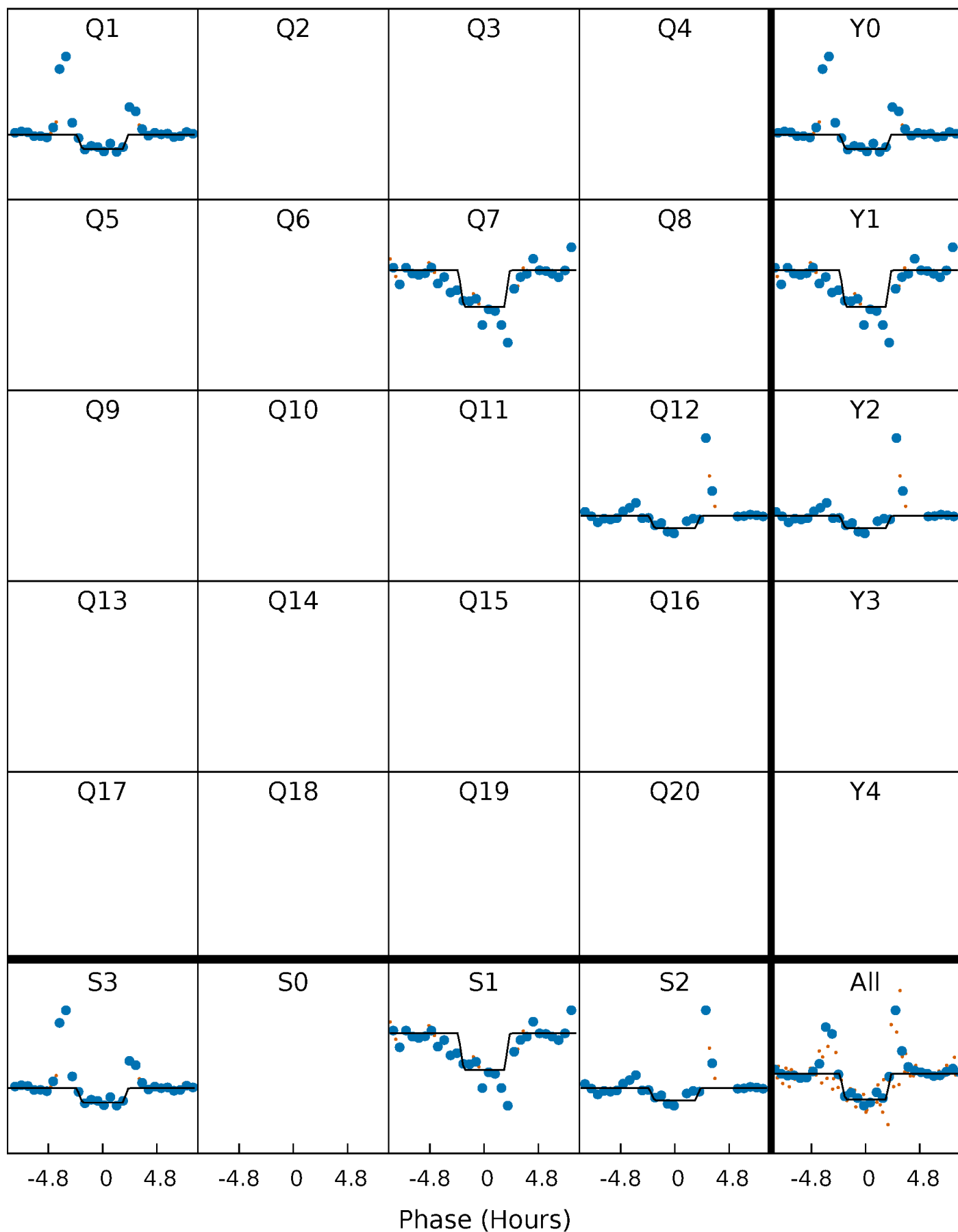
DV Quarter-Phased Transit Curves

TCE 005647463-03 P=514.951682 Days $T_0=139.022800$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

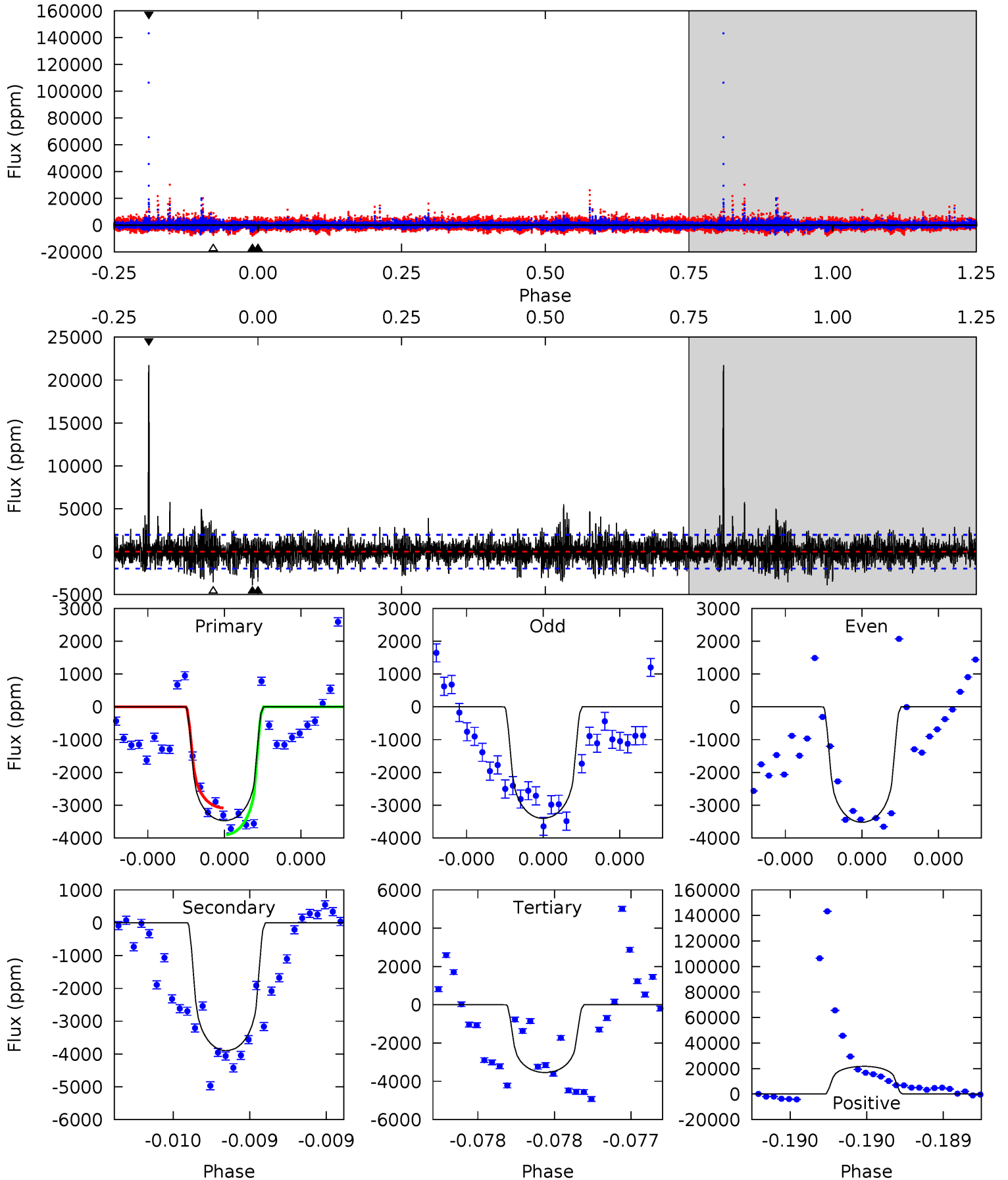
TCE 005647463-03 P=514.939334 Days $T_0=139.039408$ (BKJD)



DV Model-Shift Uniqueness Test

005647463-03, P = 514.951682 Days, E = 139.022800 Days

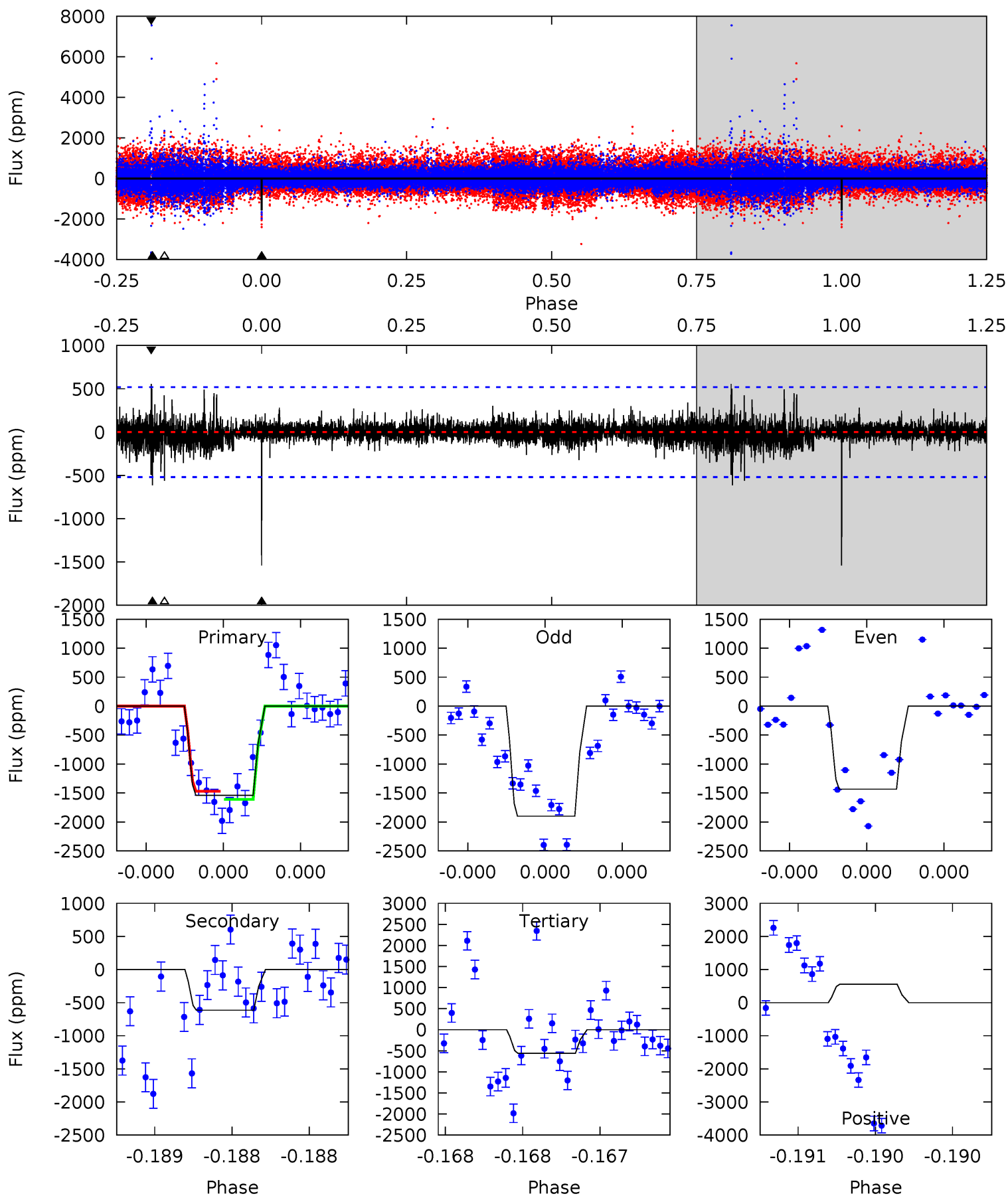
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.89 | 11.1 | 10.1 | 61.9 | 5.59 | 3.51 | 3.09 | -0.19 | -52.0 | 1.02 | -50.8 | 0.09 | 0.96 | 0.85 | 1.16 |



Alt Model-Shift Uniqueness Test

005647463-03, P = 514.939334 Days, E = 139.039408 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.7 | 6.65 | 6.07 | 6.01 | 5.62 | 3.56 | 0.78 | 10.6 | 10.6 | 0.57 | 0.64 | 1.76 | 1.07 | 0.27 | 0.76 |



Stellar Parameters For KIC 005647463

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4999^{+149}_{-164} | $4.660^{+0.055}_{-0.035}$ | $-1.000^{+0.300}_{-0.300}$ | $0.597^{+0.046}_{-0.046}$ | $0.594^{+0.051}_{-0.025}$ | $3.937^{+0.889}_{-0.542}$ |
| | +3%/-3% | +1%/-1% | +30%/-30% | +8%/-8% | +9%/-4% | +23%/-14% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005647463-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|------------------------|----------------------|-----------------------|-----------------------------|
| DV | -3898 ± 351 | $3.71^{+1.41}_{-1.44}$ | 231^{+8}_{-9} | 5242^{+1327}_{-706} | $178841^{+287269}_{-83982}$ |
| Alt. | -614 ± 92 | $2.71^{+1.29}_{-1.30}$ | 231^{+7}_{-8} | 4076^{+1263}_{-526} | $52178^{+143446}_{-29126}$ |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

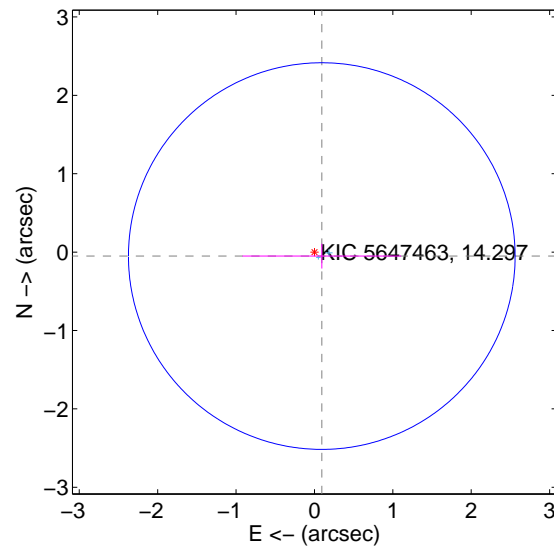
Supplemental centroid analysis for 005647463-03. Kepler magnitude: 14.30. Transit SNR 9.57

There are 2 quarters with good PRF difference image offsets

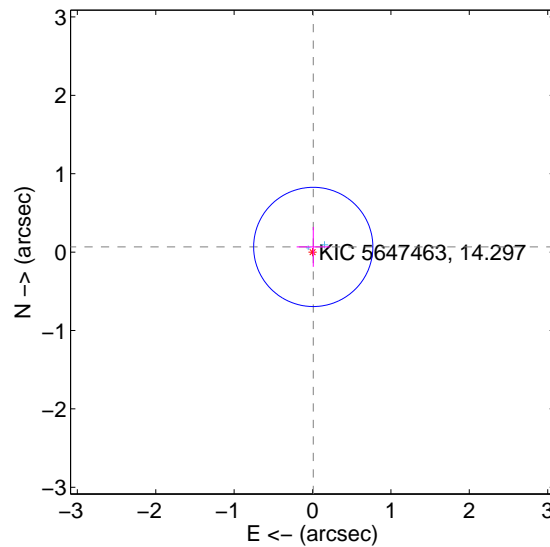
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.107 ± 0.822 | 0.13 | -0.094 ± 1.012 | -0.051 ± 0.159 |
| PRF-fit source offset from KIC position | 0.067 ± 0.254 | 0.26 | -0.009 ± 0.211 | 0.066 ± 0.254 |
| photometric centroid source offset | 0.39 ± 0.30 | 1.31 | 0.35 ± 0.31 | -0.17 ± 0.25 |

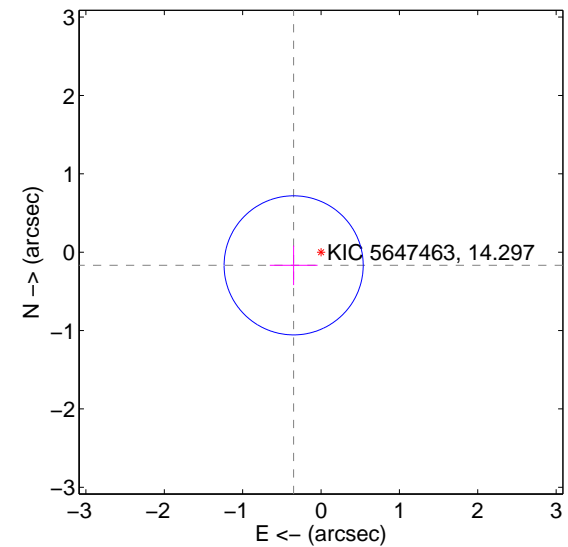
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

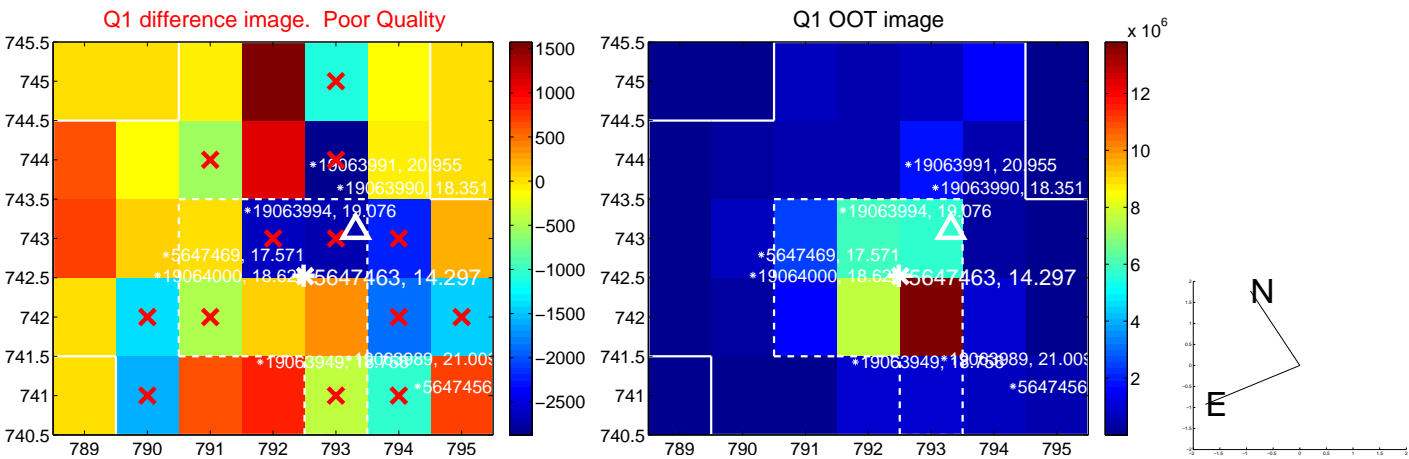


offset from photometric centroids



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

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



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

Q5 no difference image



Q5 no OOT image



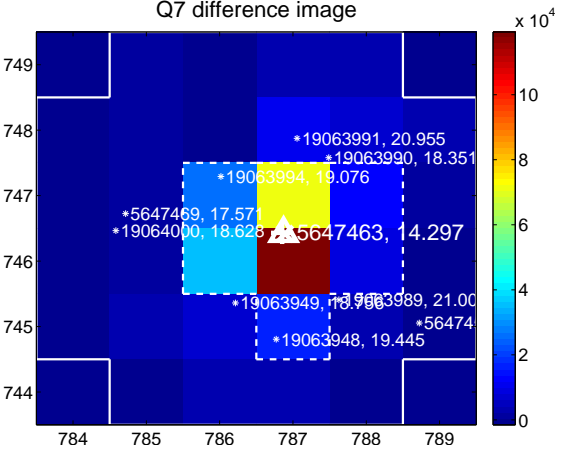
Q6 no difference image



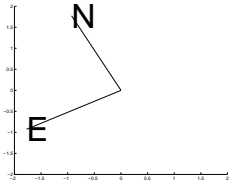
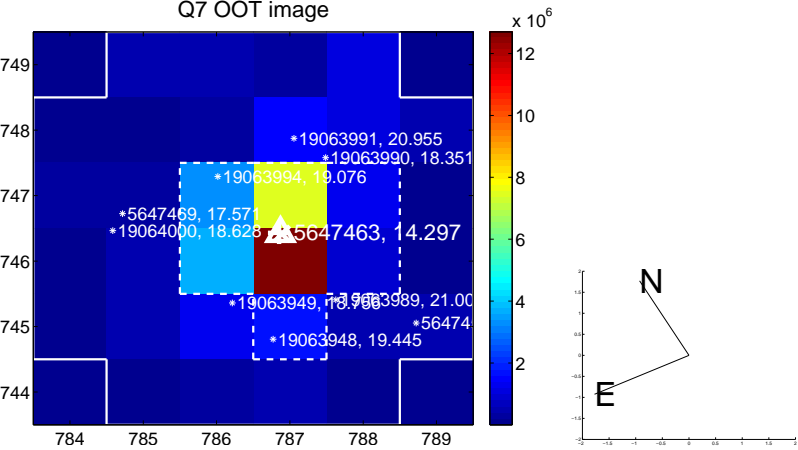
Q6 no OOT image



Q7 difference image



Q7 OOT image



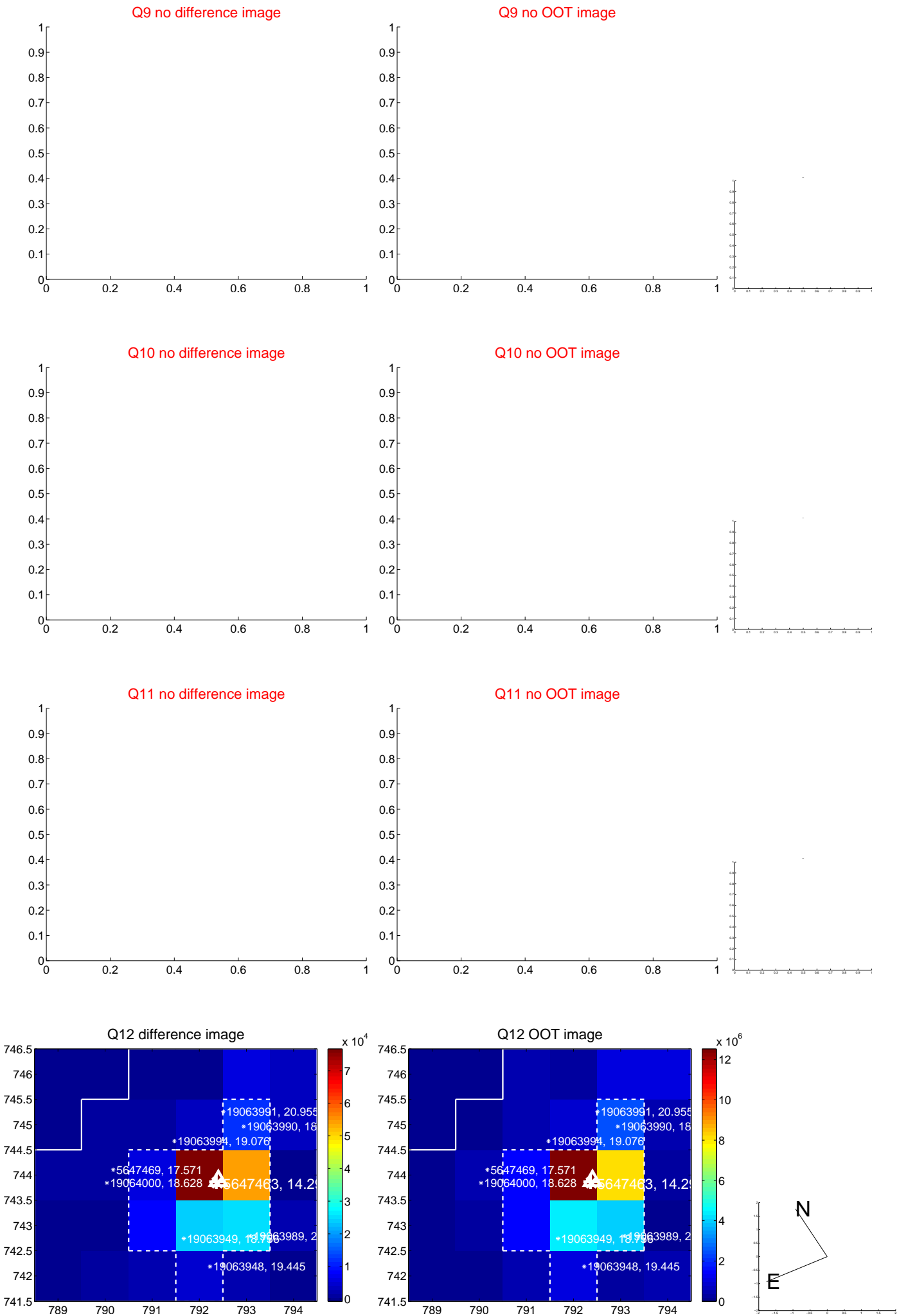
Q8 no difference image



Q8 no OOT image



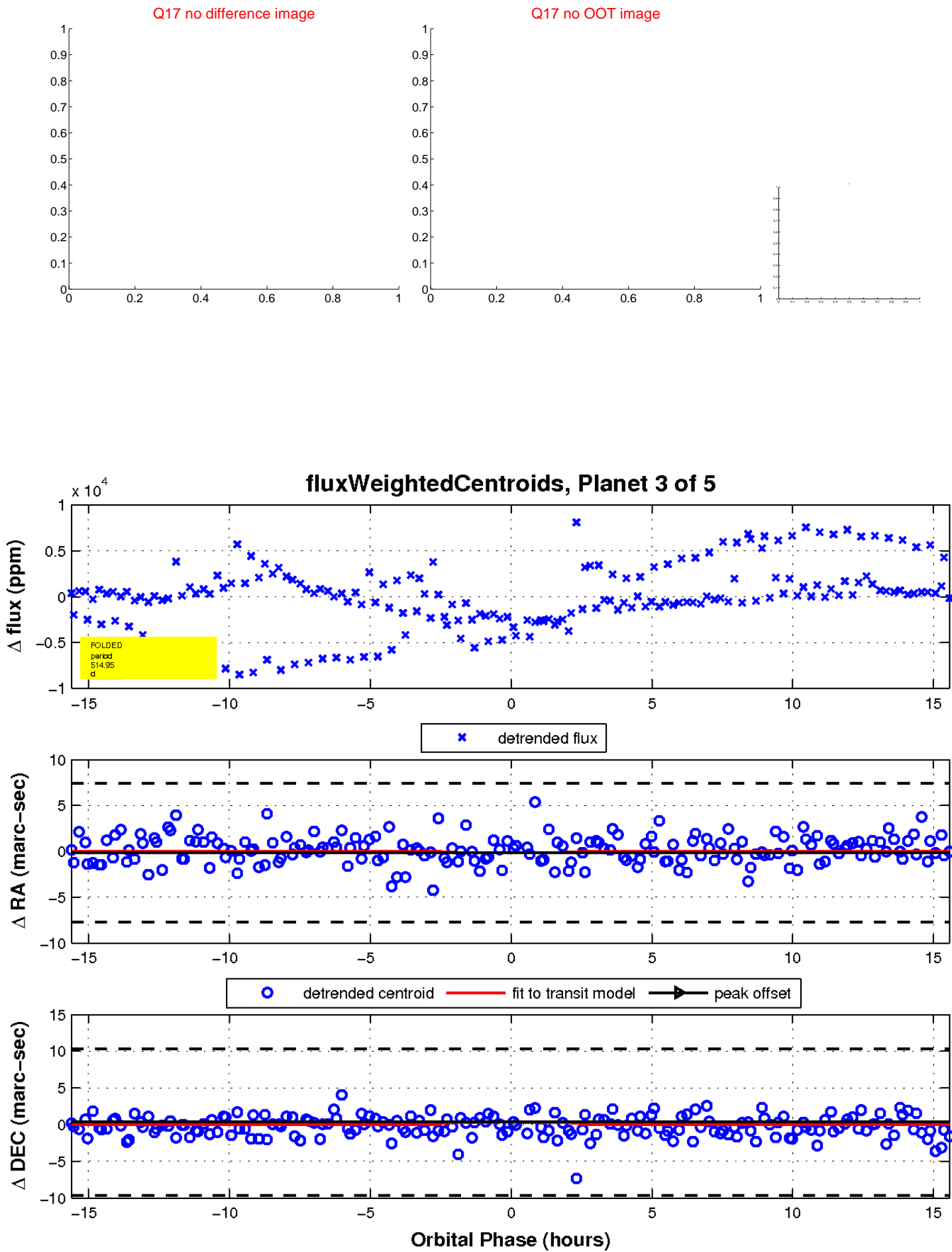
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



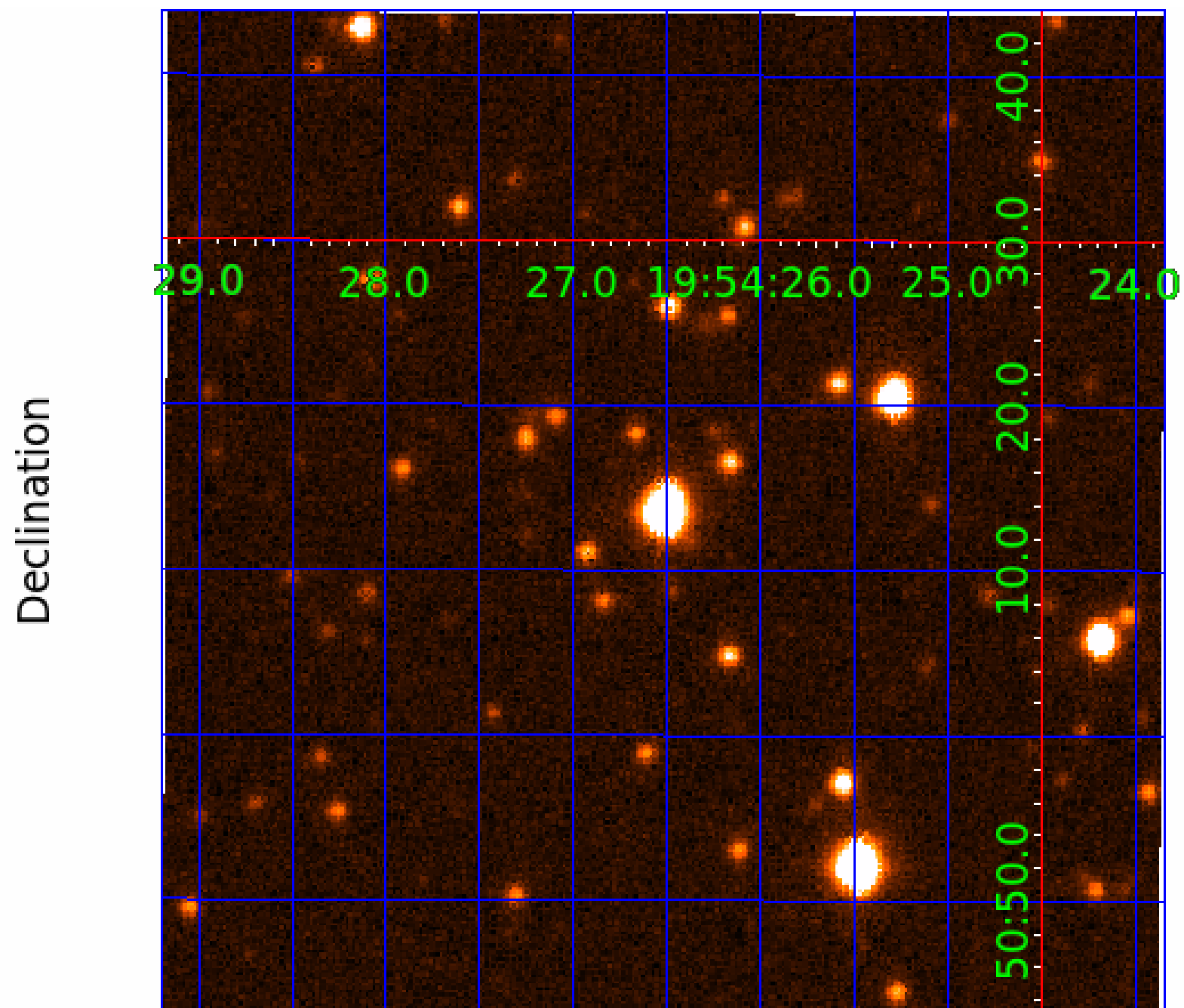
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005647463

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005647463-01 | OBS | No | 334.045304 | 287.399702 | 1985.5 | 30.681 | 18.4 | 3.4 | 0.60 | 4999 | 2.90 | 0.32 |
| 005647463-02 | OBS | No | 488.494634 | 490.362648 | 3100.4 | 21.902 | 13.7 | 4.4 | 0.60 | 4999 | 3.81 | 0.19 |
| 005647463-03 | OBS | No | 514.951682 | 139.022800 | 3984.1 | 5.224 | 18.7 | 9.6 | 0.60 | 4999 | 3.70 | 0.18 |
| 005647463-04 | OBS | No | 507.832828 | 317.866664 | 3731.9 | 3.531 | 17.1 | 10.2 | 0.60 | 4999 | 6.95 | 0.18 |
| 005647463-05 | OBS | No | 191.798045 | 153.944638 | 1429.7 | 1.708 | 15.9 | 6.6 | 0.60 | 4999 | 2.23 | 0.67 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005647463-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 005647463-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

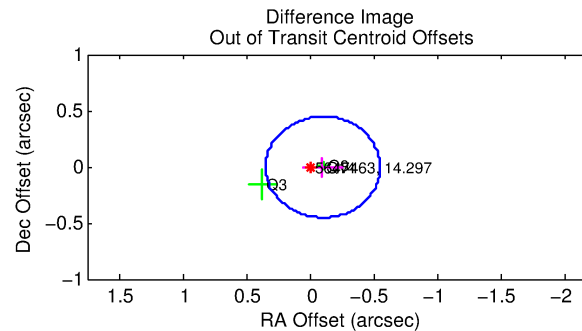
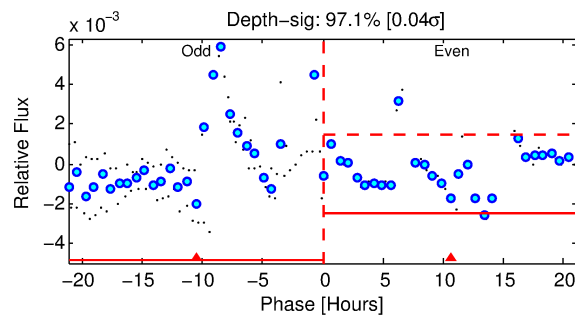
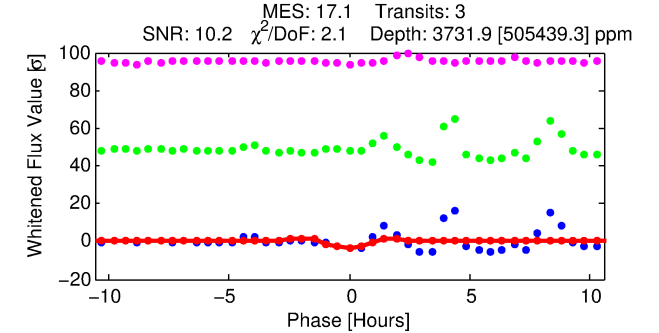
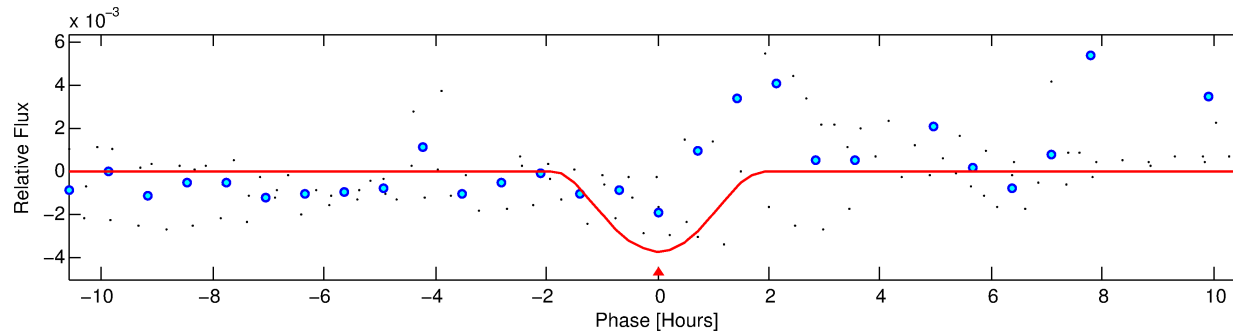
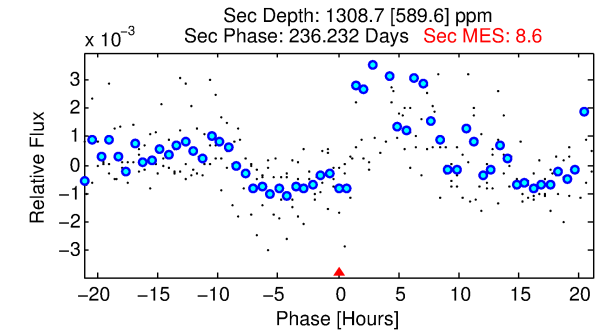
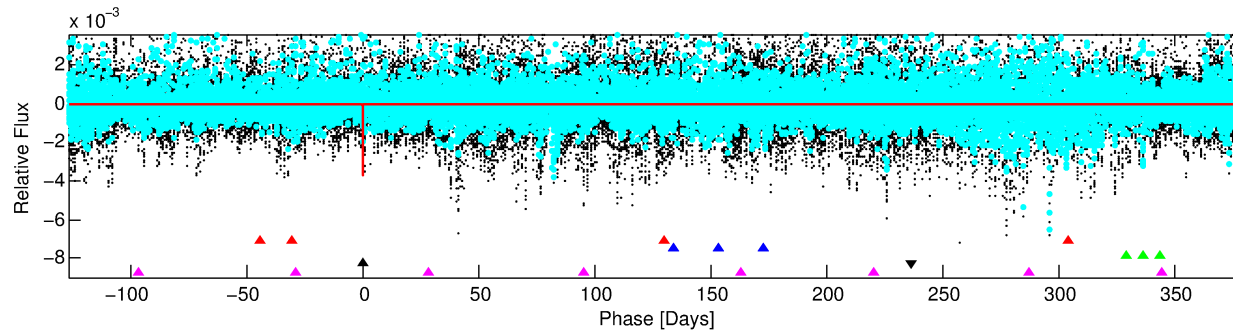
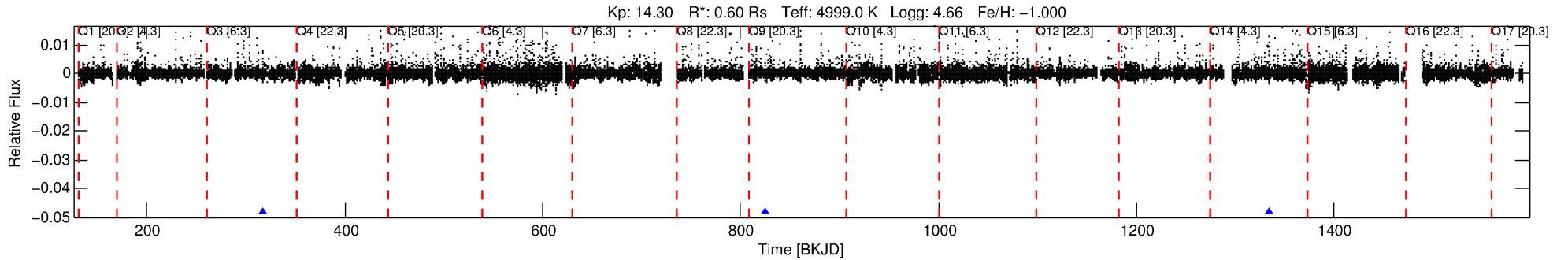
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005647463-04

No Significant Match Found

DV One-Page Summary

KIC: 5647463 Candidate: 4 of 5 Period: 507.833 d



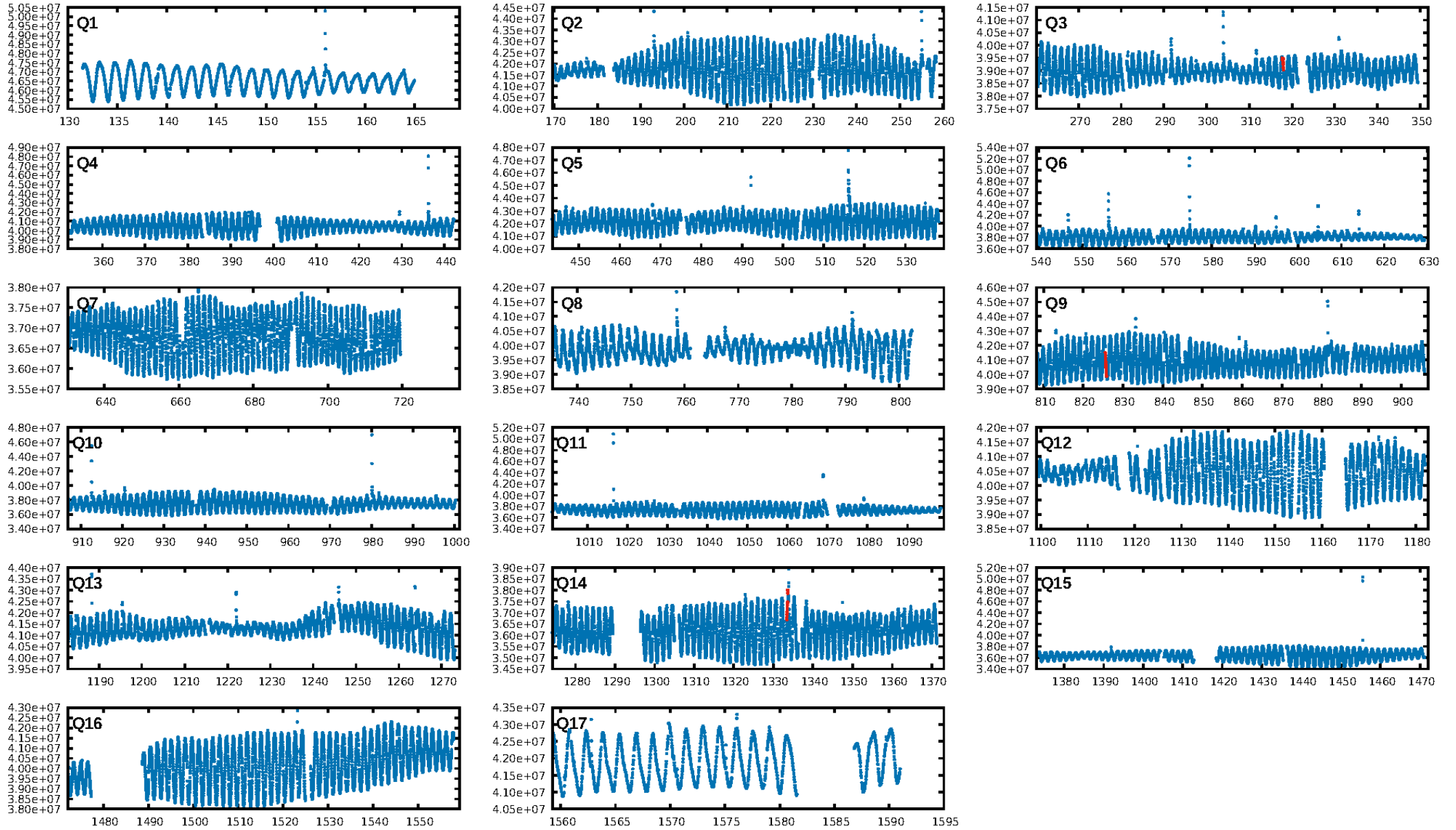
DV Fit Results:

Period = 507.83283 [0.01482] d
Epoch = 317.8667 [0.0161] BKJD
Rp/R* = 0.1067 [1.0411]
a/R* = 520.91 [953.82]
b = 1.00 [10.84]
Seff = 0.18 [0.03]
Teff = 166 [7] K
Rp = 6.95 [67.82] Re
a = 1.0475 [0.0696] AU
Ag = 16358.53 [319387.64] [0.05σ]
Teffp = 2911 [14210] K [0.19σ]

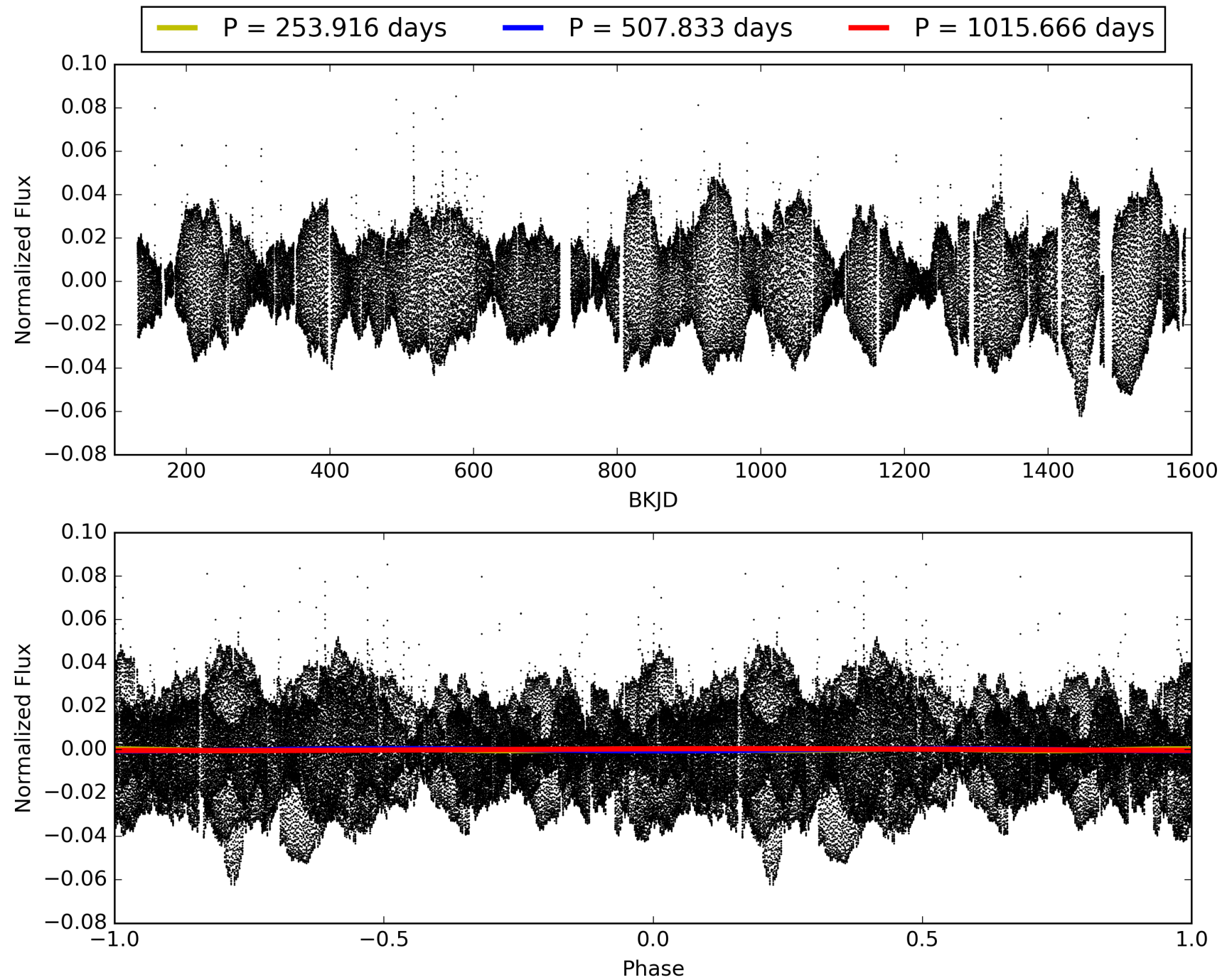
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.92σ]
LongPeriod-sig: 100.0% [27.10σ]
ModelChiSquare2-sig: 33.5%
ModelChiSquareGof-sig: 48.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.084
Centroid-sig: 99.4%
Centroid-so: 0.316 arcsec [0.74σ]
OotOffset-rm: 0.103 arcsec [0.69σ]
KicOffset-rm: 0.117 arcsec [1.31σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 005647463-04, PDC Light Curves

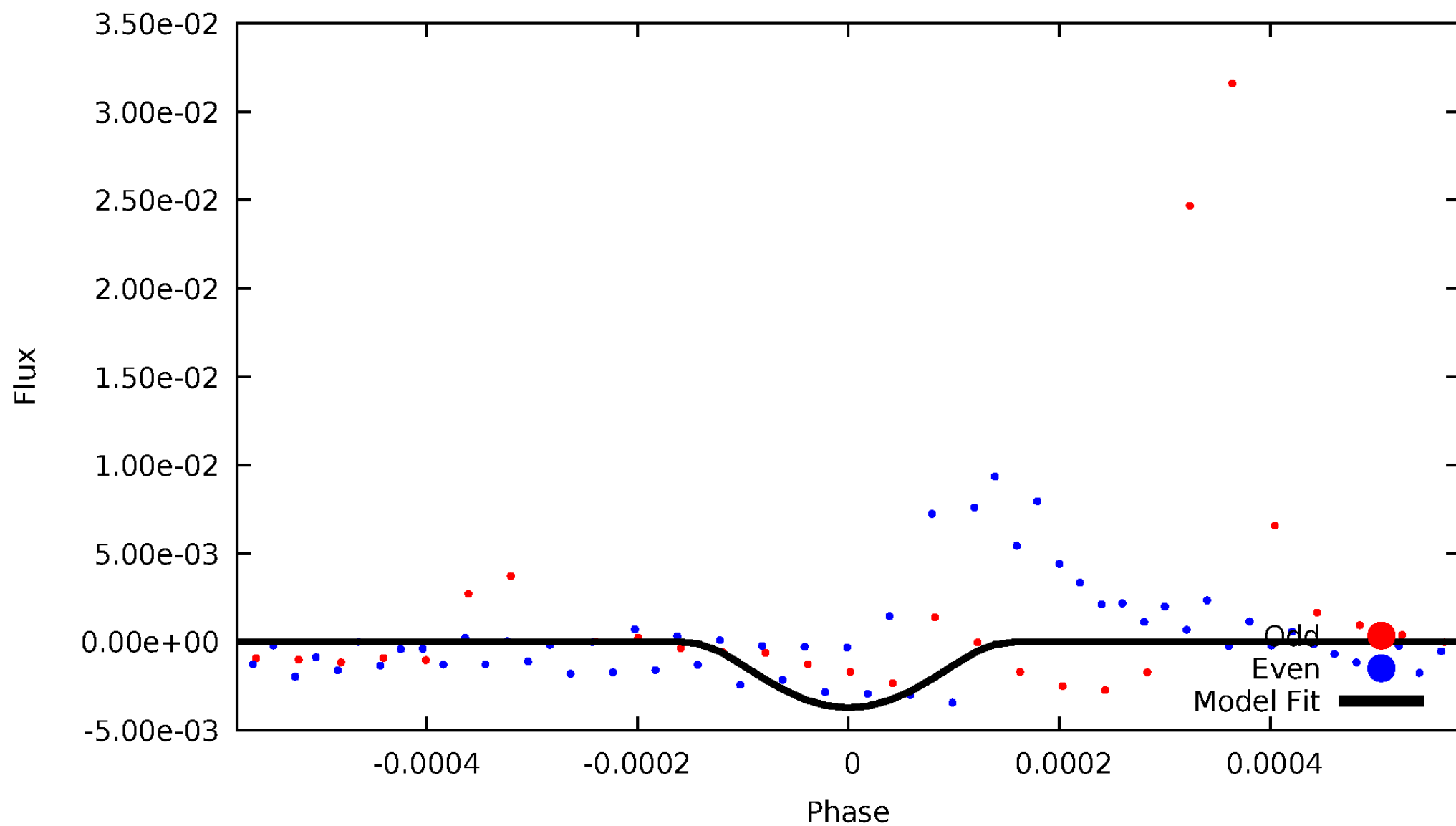


TCE 005647463-04



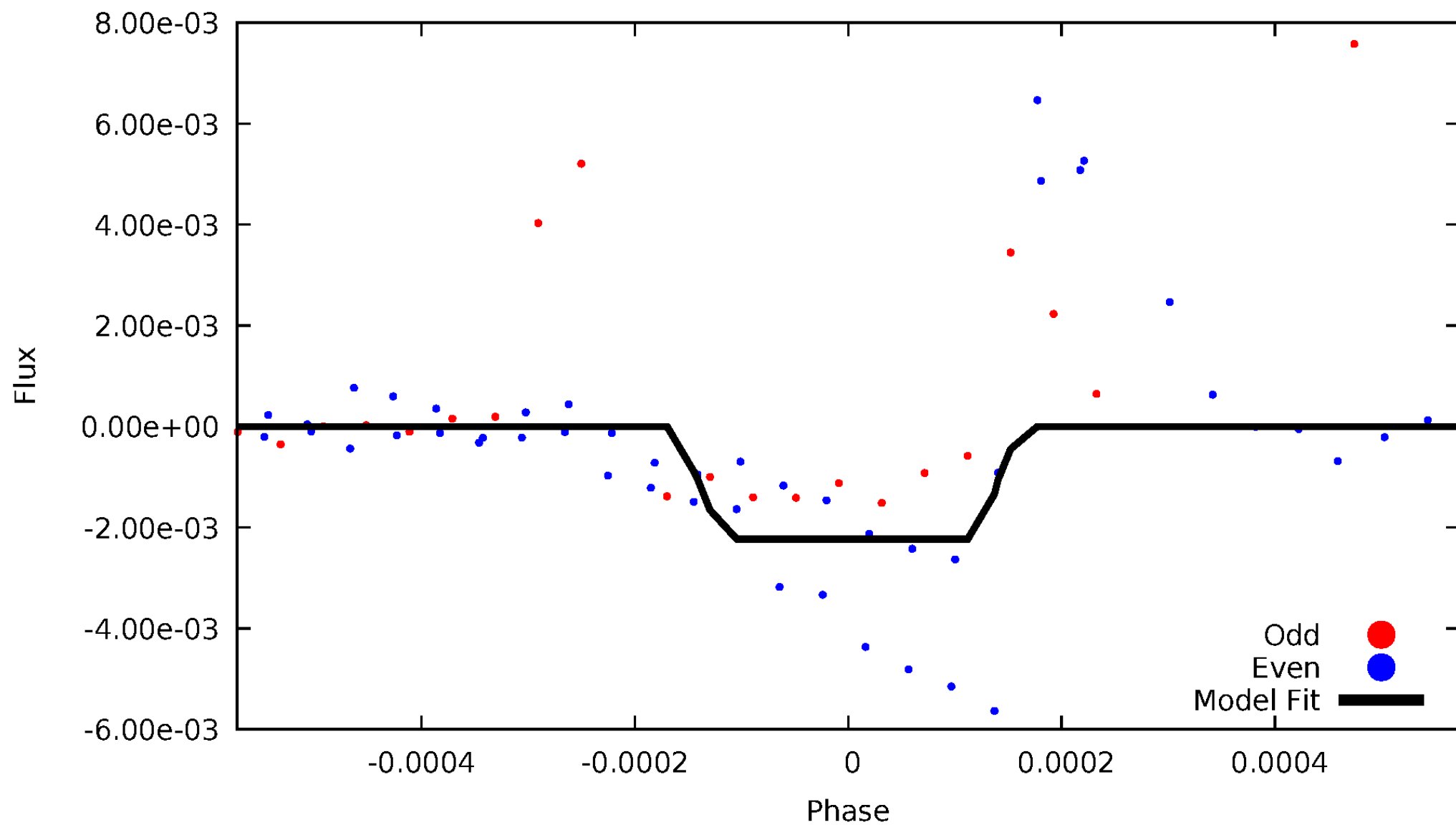
DV Odd/Even

TCE 005647463-04



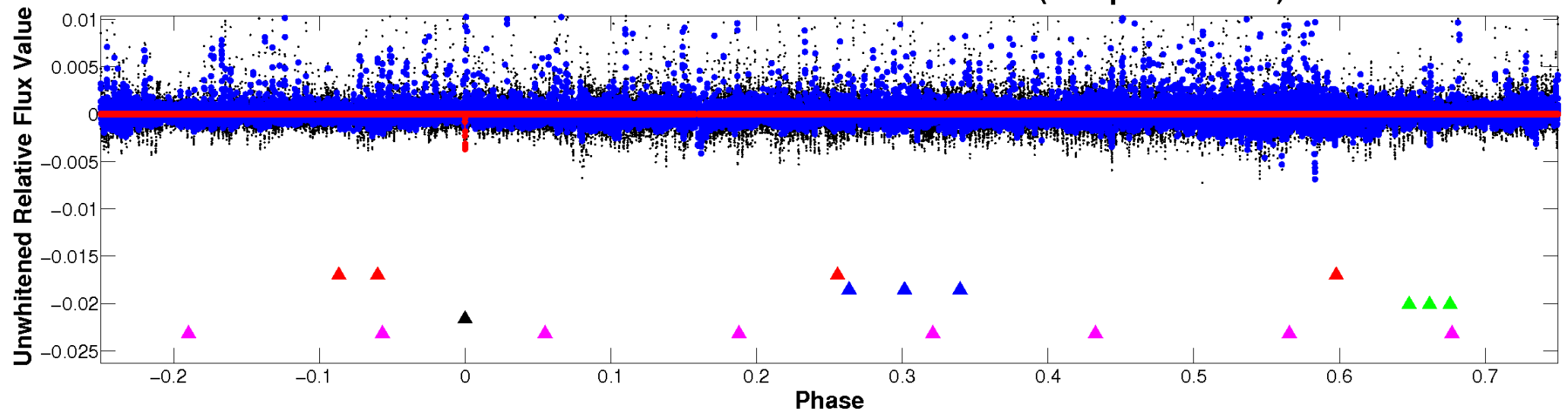
ALT Odd/Even

TCE 005647463-04

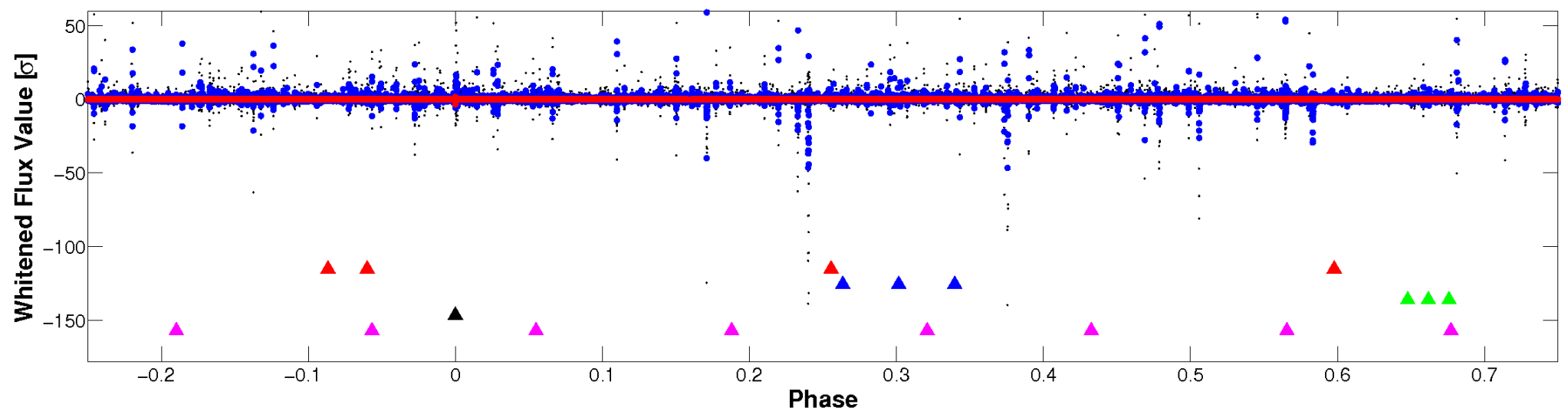


Non-Whitened Vs. Whitened Light Curve

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

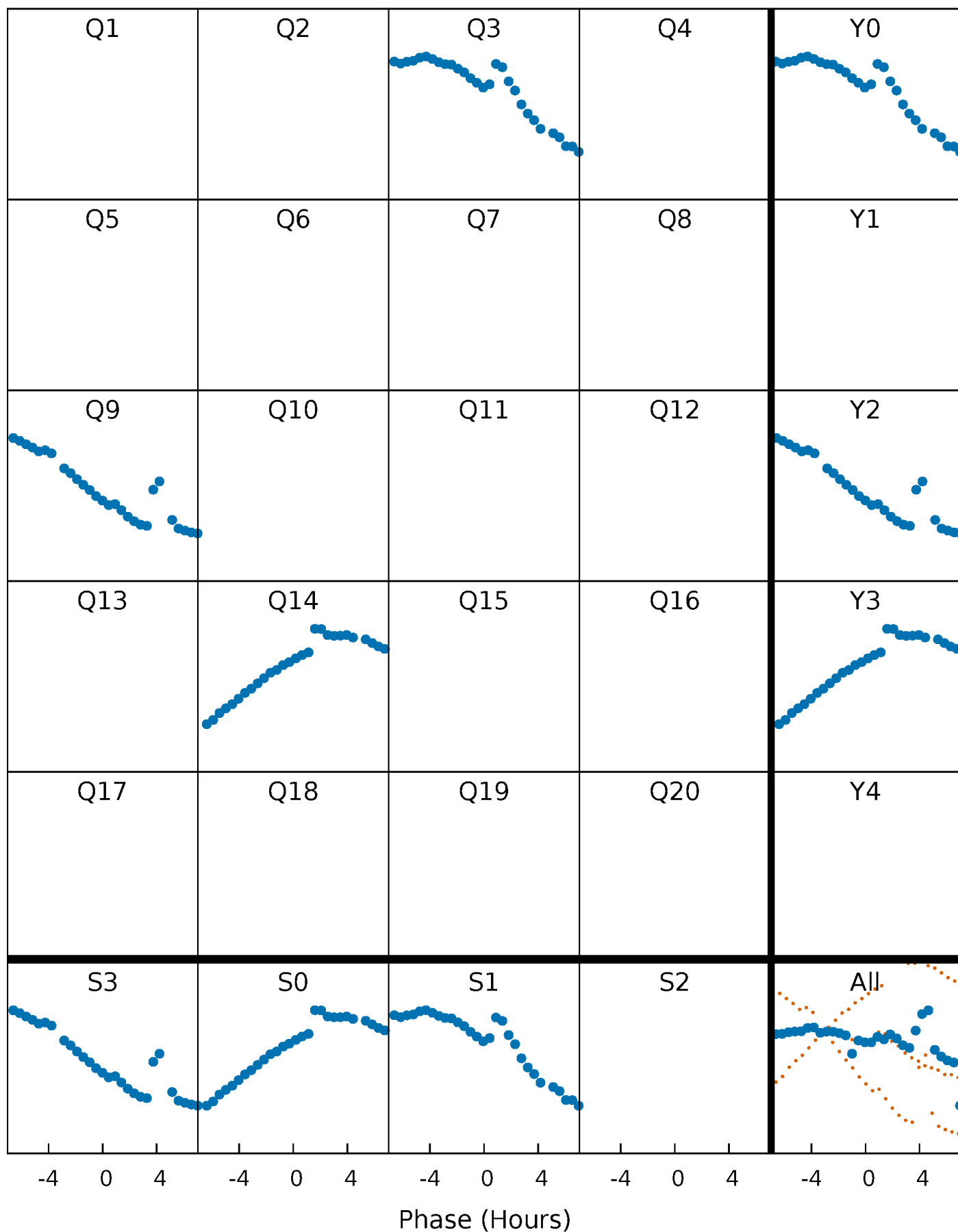


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



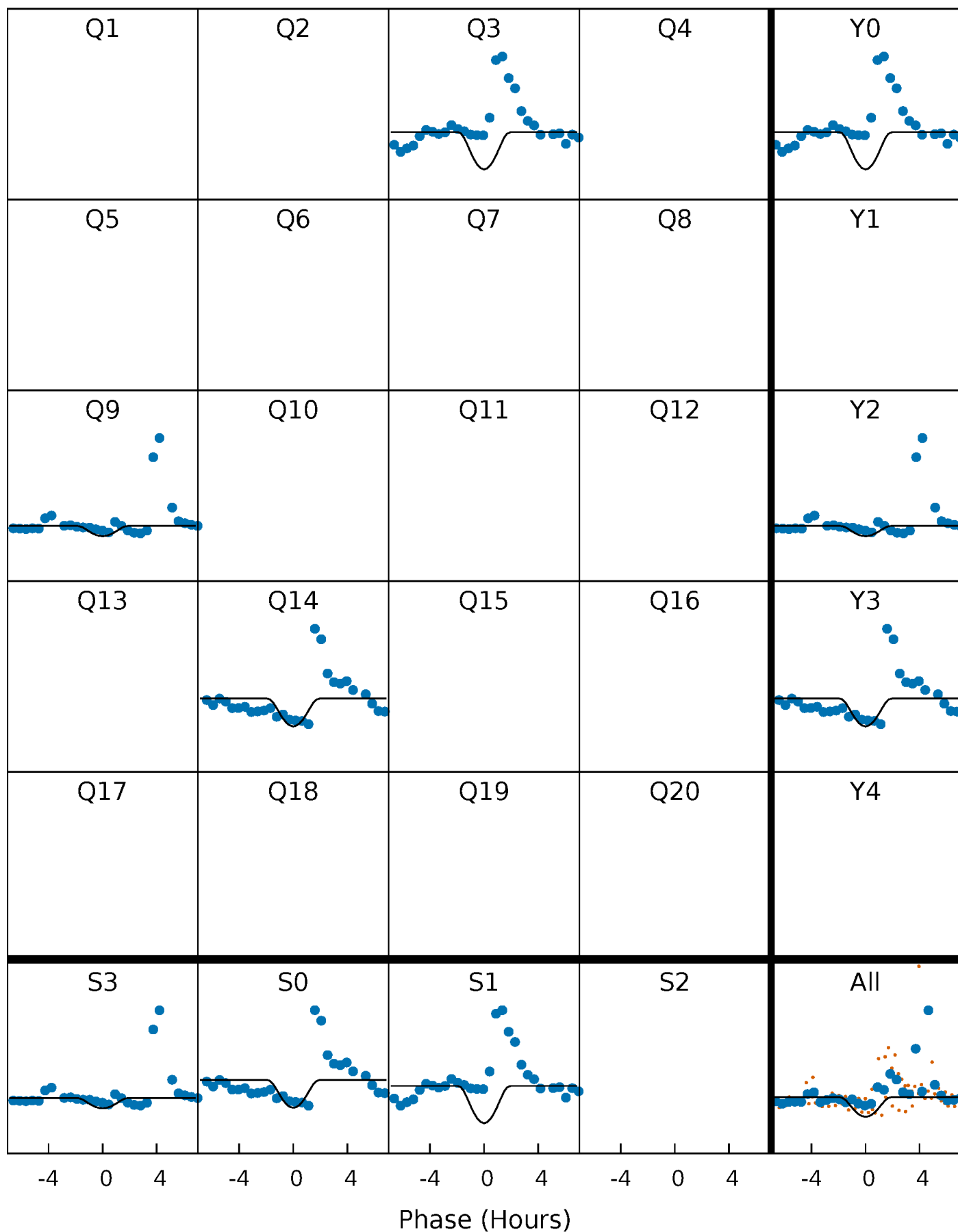
PDC Quarter-Phased Transit Curves

TCE 005647463-04 $P=507.832828$ Days $T_0=317.866664$ (BKJD)



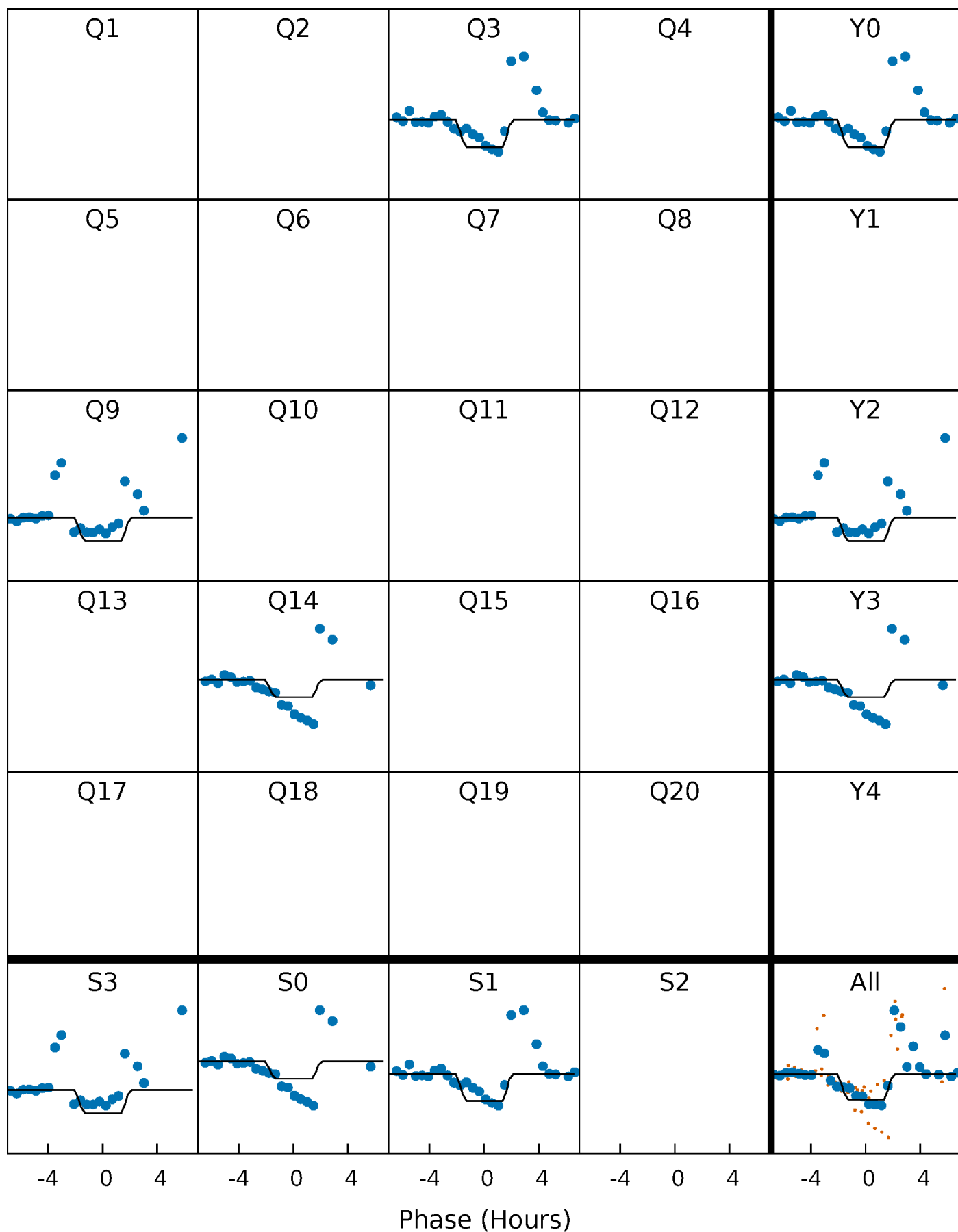
DV Quarter-Phased Transit Curves

TCE 005647463-04 P=507.832828 Days $T_0=317.866664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

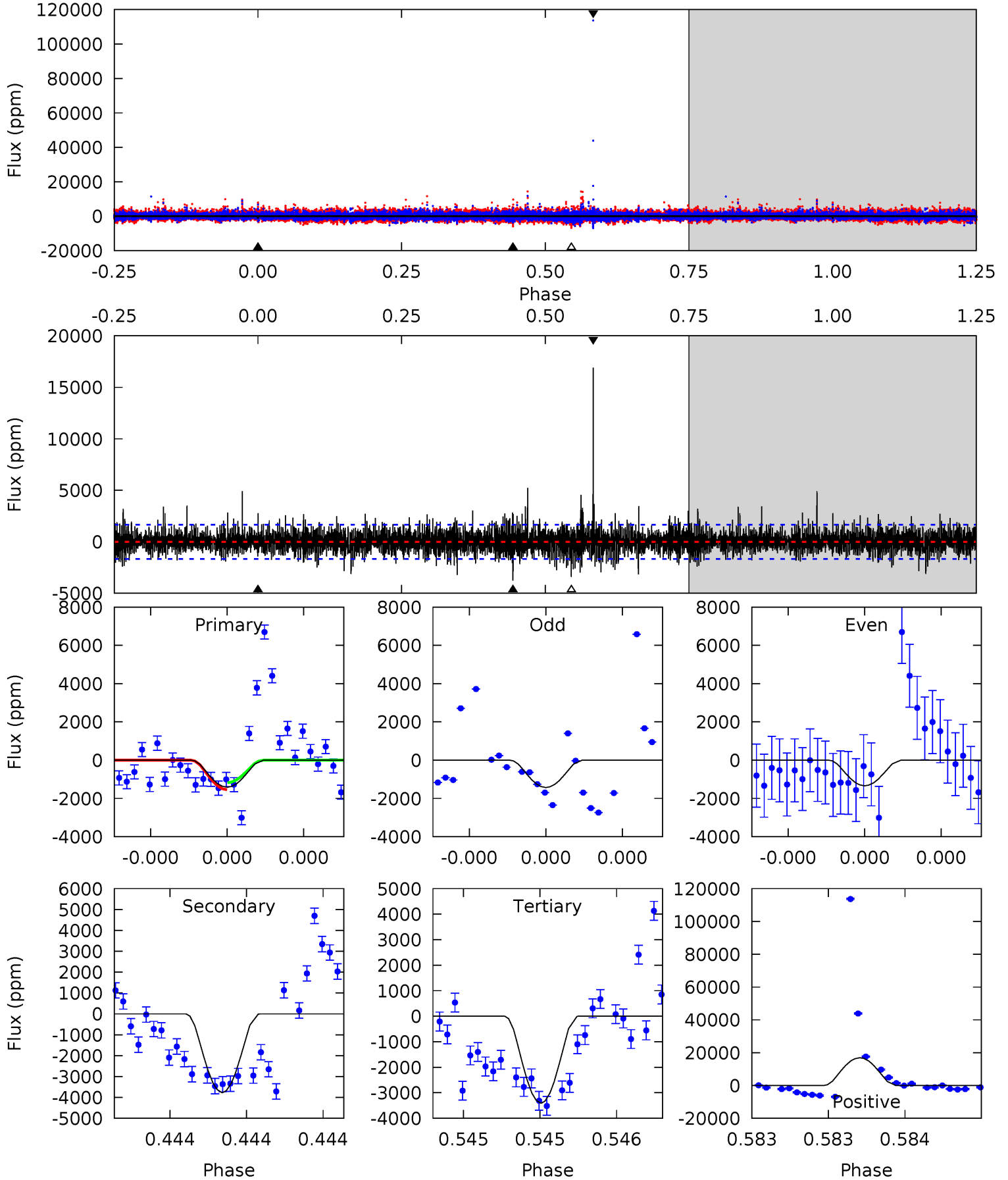
TCE 005647463-04 P=507.848889 Days $T_0=317.815207$ (BKJD)



DV Model-Shift Uniqueness Test

005647463-04, P = 507.832828 Days, E = 317.866664 Days

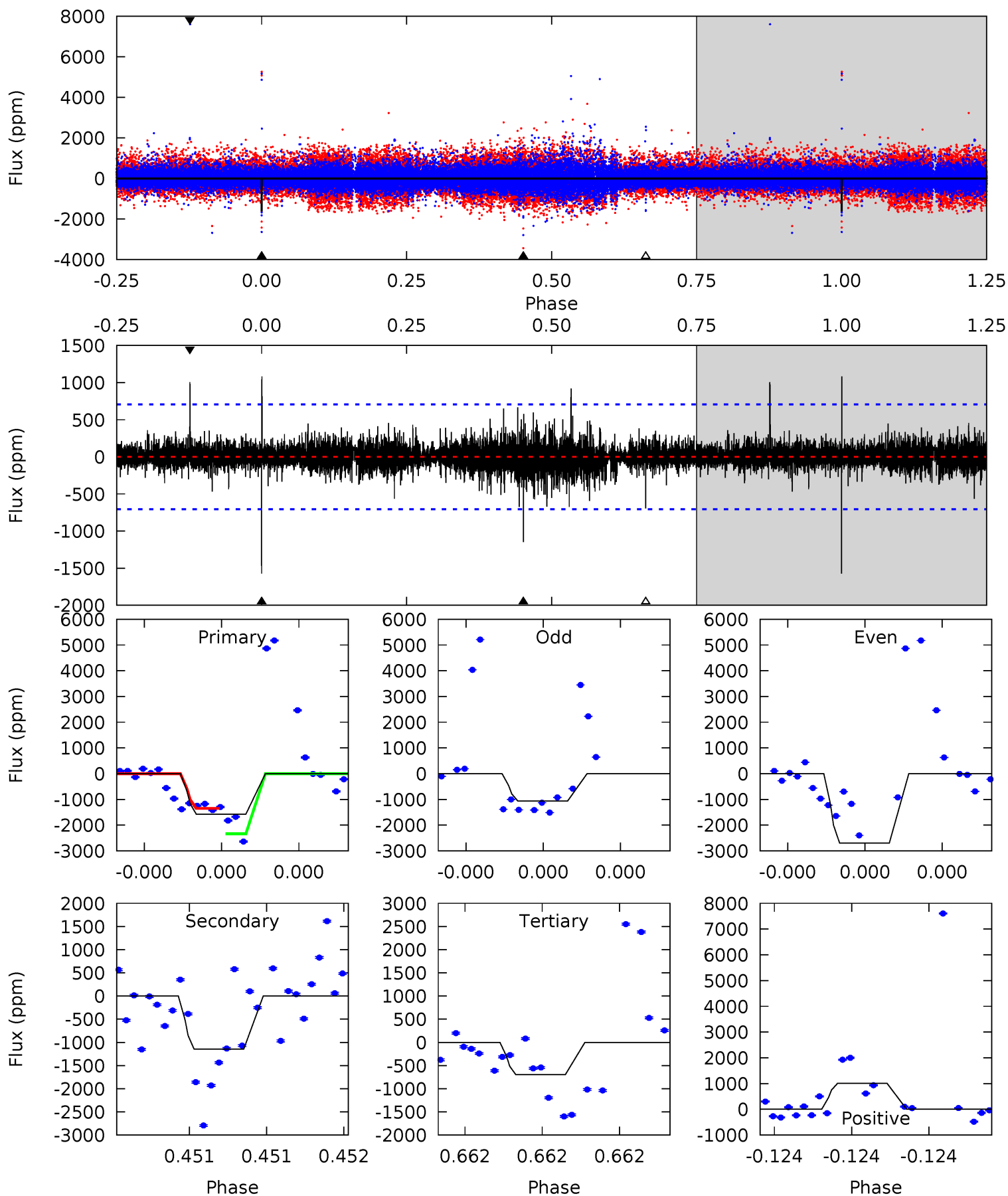
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.80 | 12.8 | 11.6 | 57.5 | 5.64 | 3.58 | 2.68 | -6.79 | -52.7 | 1.22 | -44.7 | 0.06 | 0.71 | 0.82 | 0.69 |



Alt Model-Shift Uniqueness Test

005647463-04, P = 507.848889 Days, E = 317.815207 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 | 9.19 | 5.57 | 8.06 | 5.65 | 3.60 | 0.88 | 7.04 | 4.54 | 3.62 | 1.13 | 6.42 | 1.30 | 0.41 | 4.02 |



Stellar Parameters For KIC 005647463

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4999^{+149}_{-164} | $4.660^{+0.055}_{-0.035}$ | $-1.000^{+0.300}_{-0.300}$ | $0.597^{+0.046}_{-0.046}$ | $0.594^{+0.051}_{-0.025}$ | $3.937^{+0.889}_{-0.542}$ |
| | +3%/-3% | +1%/-1% | +30%/-30% | +8%/-8% | +9%/-4% | +23%/-14% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005647463-04 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|---------------------------|----------------------|----------------------|----------------------|
| DV | -3768 ± 294 | $48.14^{+51.37}_{-33.28}$ | 231^{+8}_{-8} | 2326^{+837}_{-343} | 978^{+9408}_{-751} |
| Alt. | -1146 ± 125 | $49.64^{+49.94}_{-34.47}$ | 232^{+8}_{-8} | 2039^{+650}_{-267} | 293^{+2823}_{-223} |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

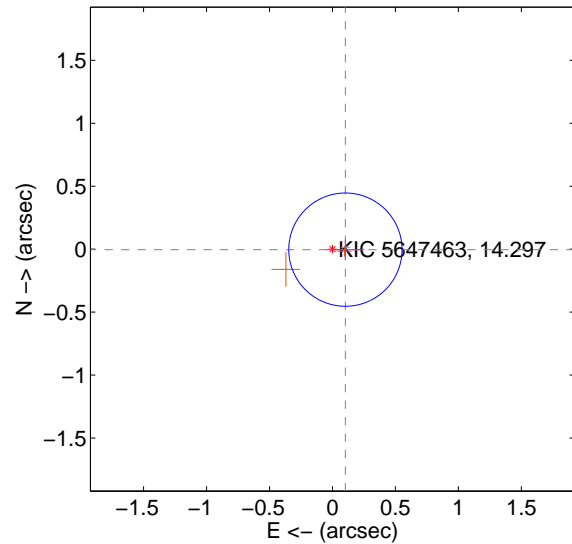
Supplemental centroid analysis for 005647463-04. Kepler magnitude: 14.30. Transit SNR 10.16

There are 1 quarters with good PRF difference image offsets

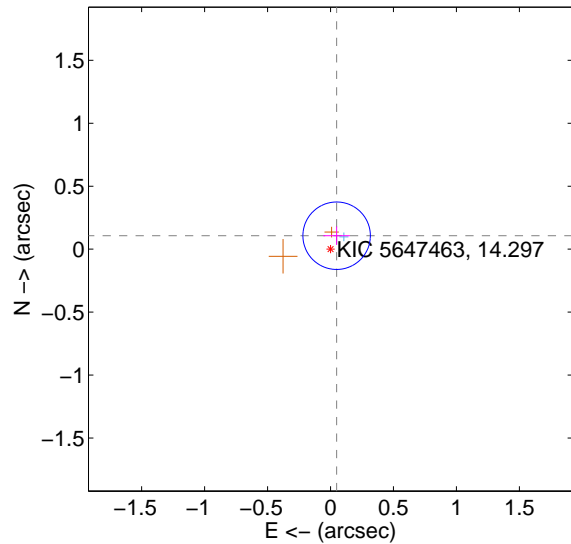
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.103 ± 0.150 | 0.69 | -0.103 ± 0.151 | -0.004 ± 0.082 |
| PRF-fit source offset from KIC position | 0.117 ± 0.089 | 1.31 | -0.049 ± 0.105 | 0.107 ± 0.074 |
| photometric centroid source offset | 0.32 ± 0.43 | 0.74 | 0.31 ± 0.43 | -0.06 ± 0.41 |

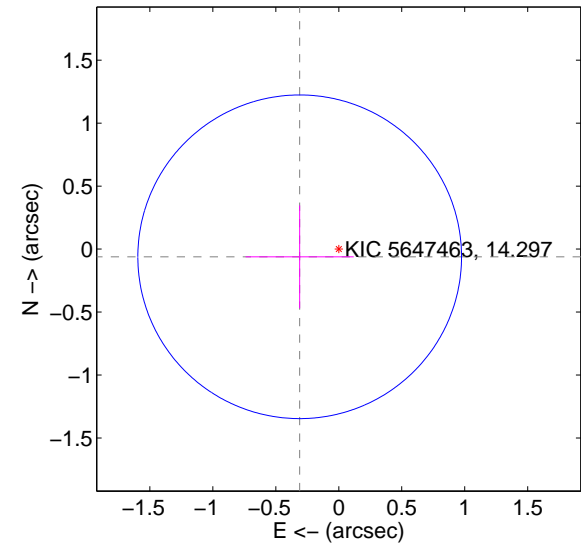
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

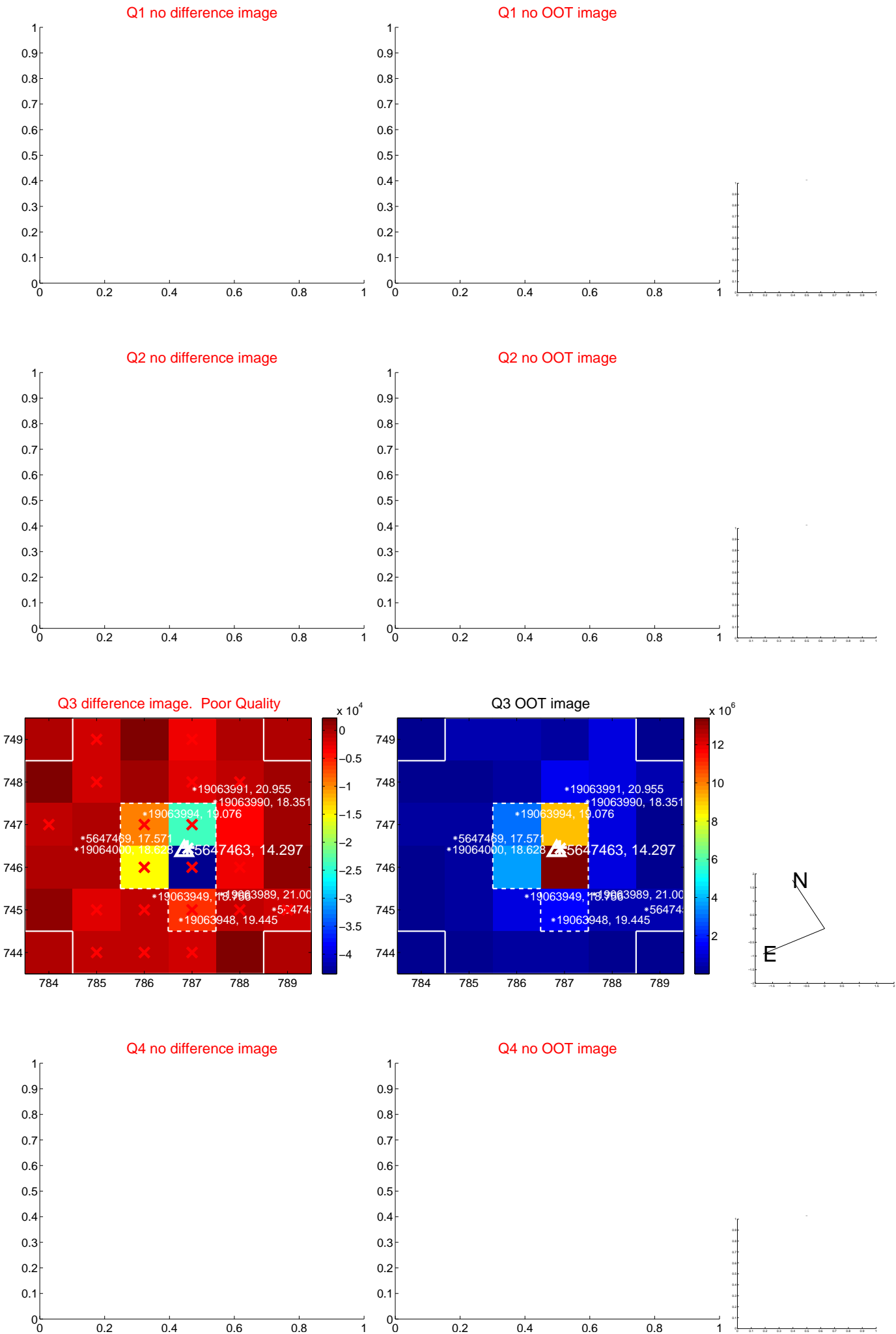


offset from photometric centroids



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

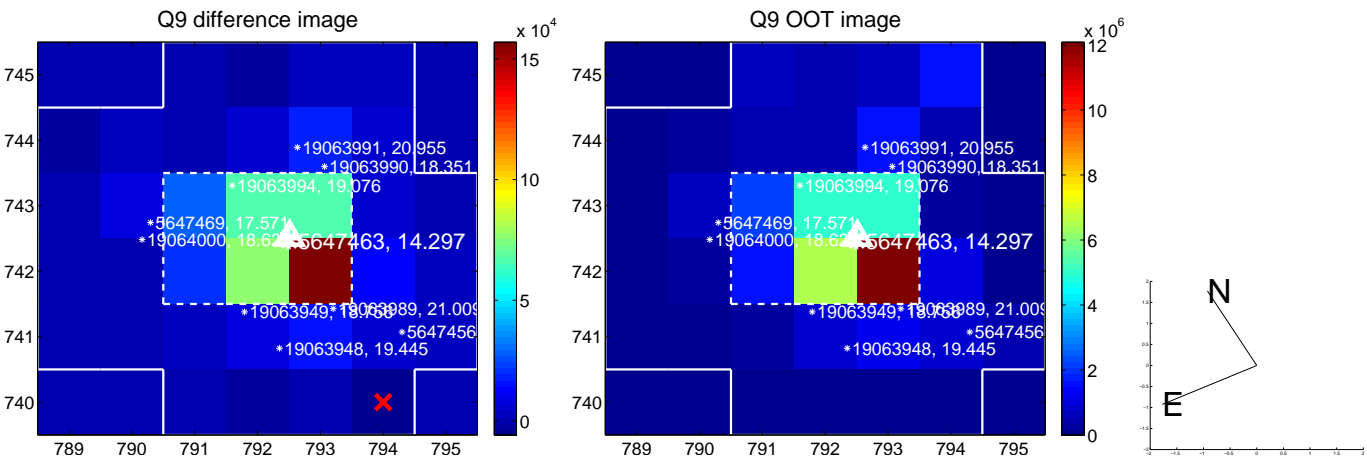
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



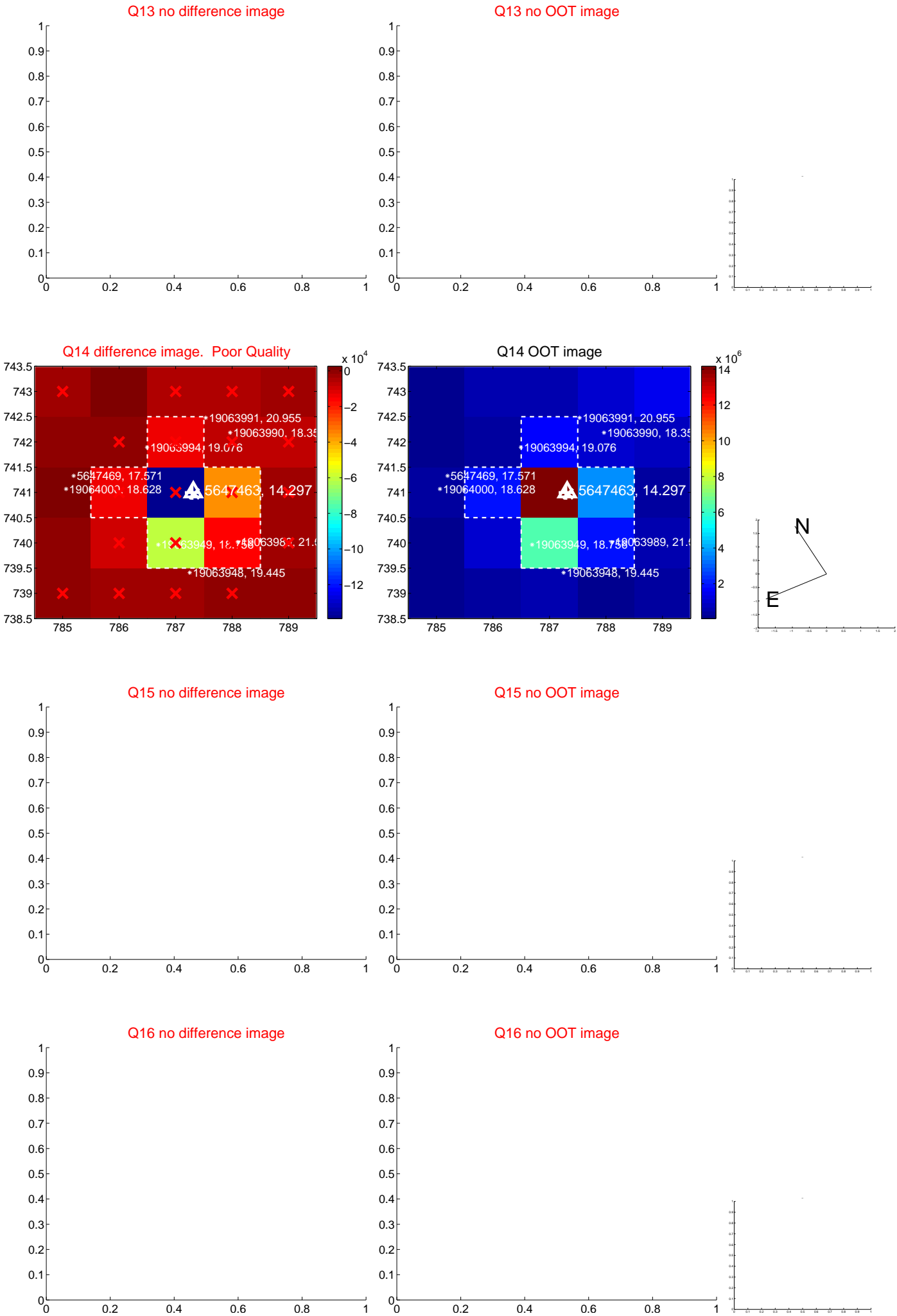
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



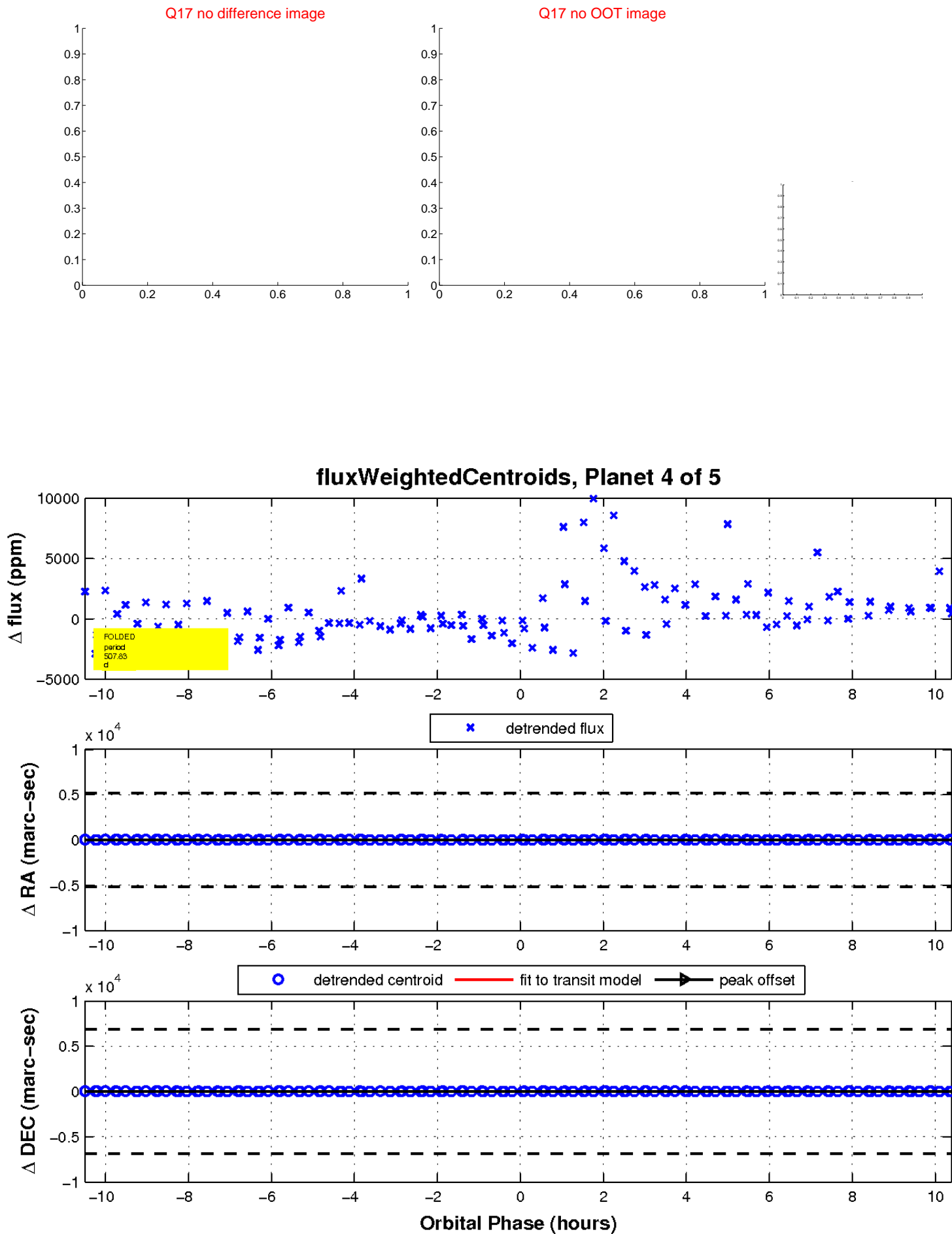
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



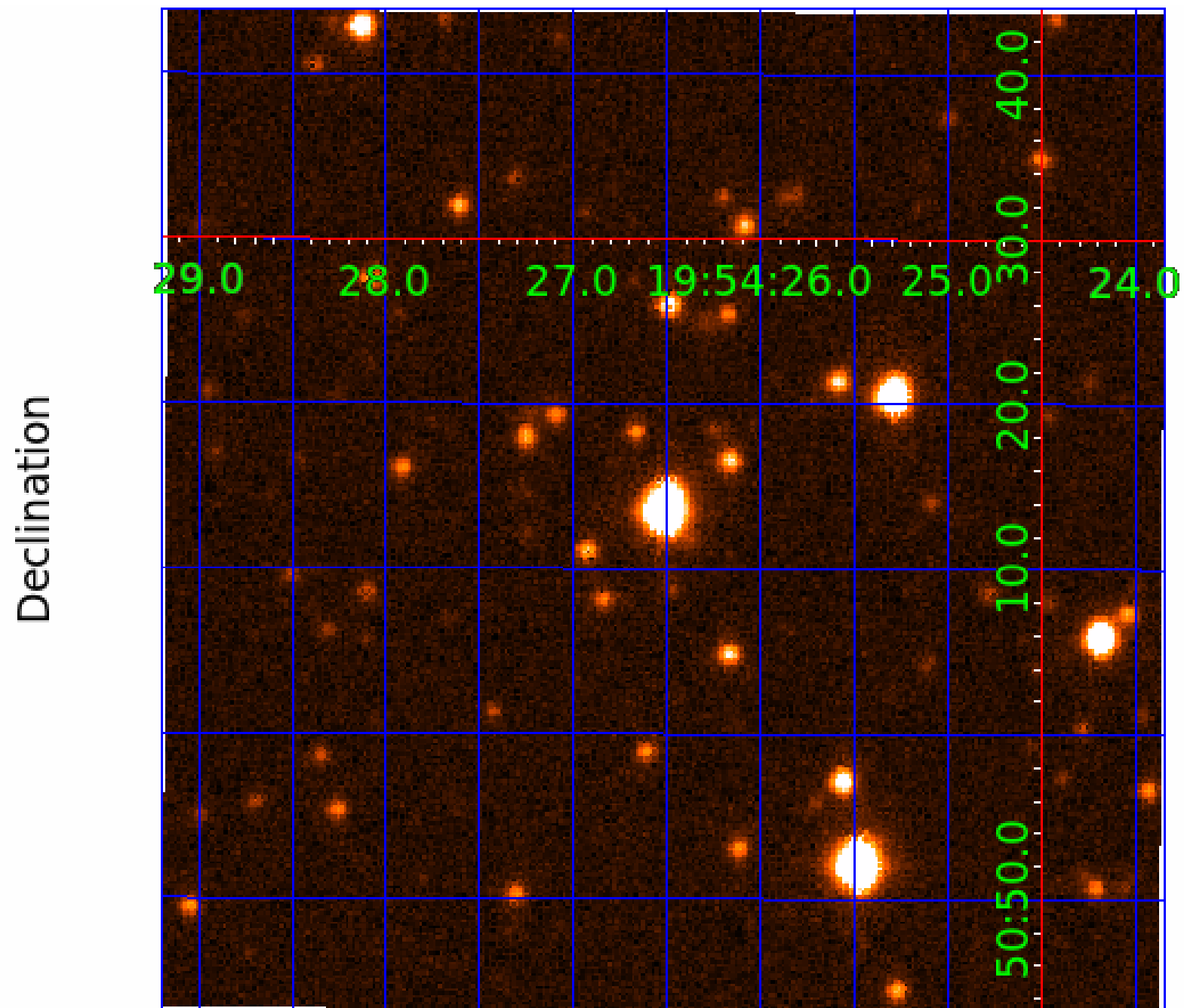
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005647463

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005647463-01 | OBS | No | 334.045304 | 287.399702 | 1985.5 | 30.681 | 18.4 | 3.4 | 0.60 | 4999 | 2.90 | 0.32 |
| 005647463-02 | OBS | No | 488.494634 | 490.362648 | 3100.4 | 21.902 | 13.7 | 4.4 | 0.60 | 4999 | 3.81 | 0.19 |
| 005647463-03 | OBS | No | 514.951682 | 139.022800 | 3984.1 | 5.224 | 18.7 | 9.6 | 0.60 | 4999 | 3.70 | 0.18 |
| 005647463-04 | OBS | No | 507.832828 | 317.866664 | 3731.9 | 3.531 | 17.1 | 10.2 | 0.60 | 4999 | 6.95 | 0.18 |
| 005647463-05 | OBS | No | 191.798045 | 153.944638 | 1429.7 | 1.708 | 15.9 | 6.6 | 0.60 | 4999 | 2.23 | 0.67 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 005647463-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 005647463-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS |
| 005647463-05 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

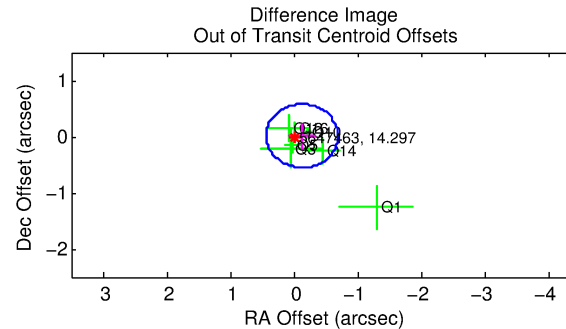
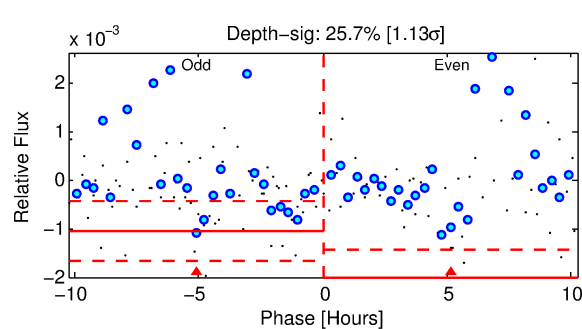
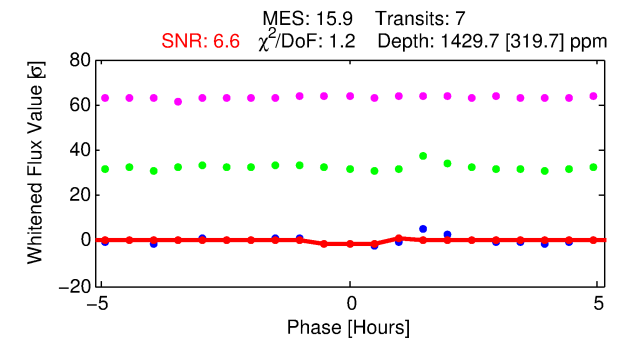
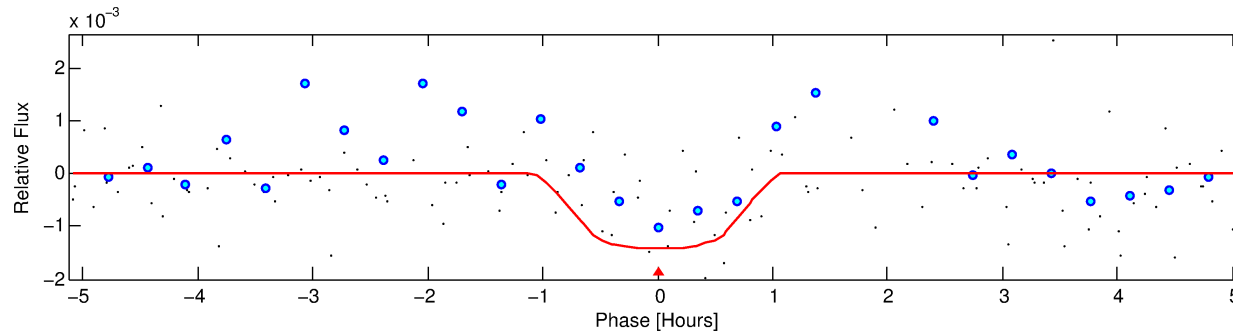
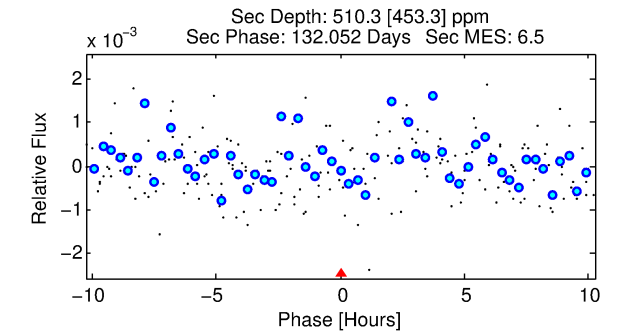
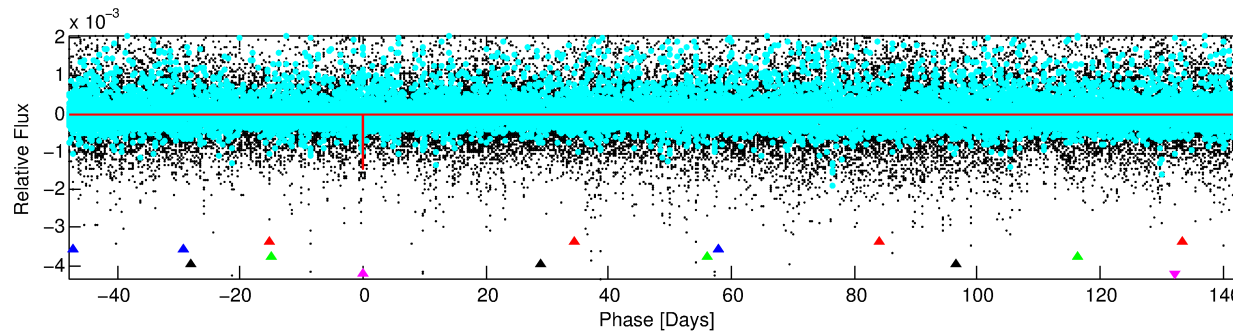
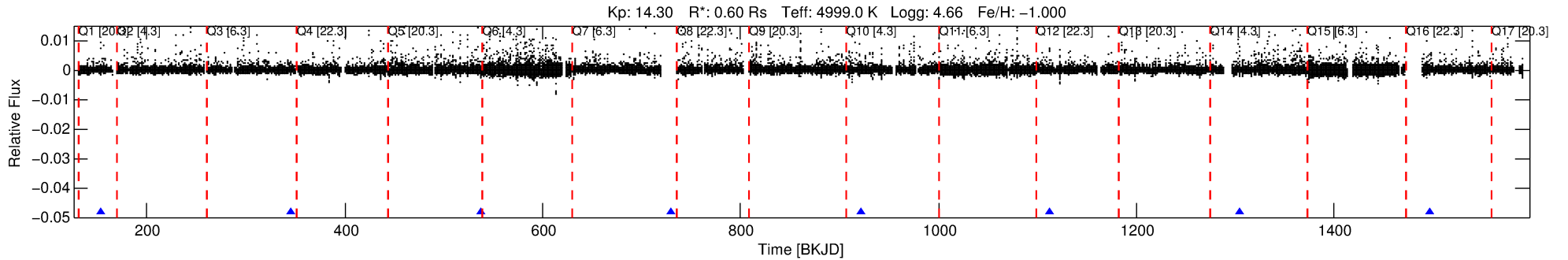
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005647463-05

No Significant Match Found

DV One-Page Summary

KIC: 5647463 Candidate: 5 of 5 Period: 191.798 d



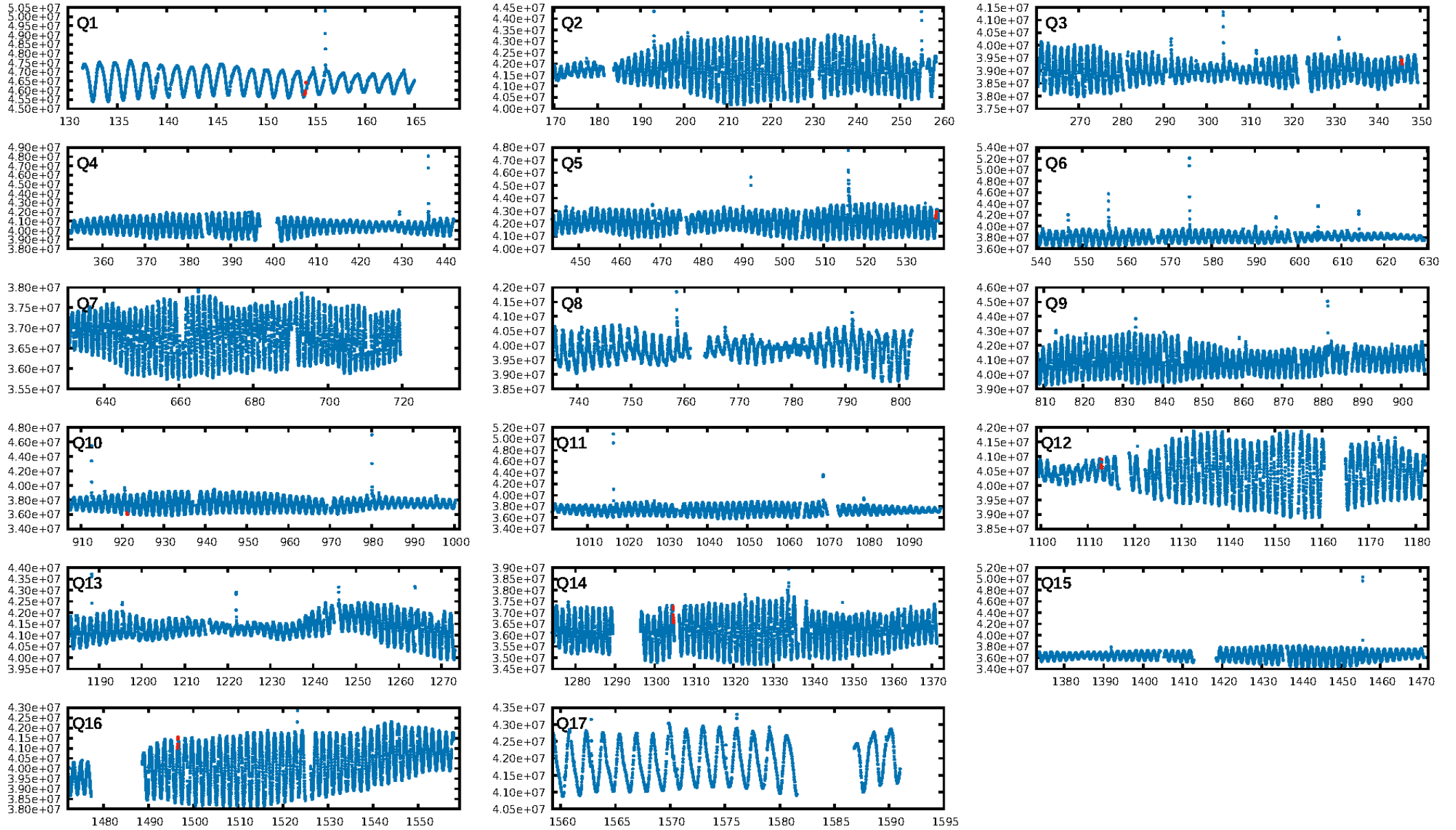
DV Fit Results:

Period = 191.79805 [0.00163] d
Epoch = 153.9446 [0.0072] BKJD
Rp/R* = 0.0343 [0.0787]
a/R* = 873.14 [8116.91]
b = 0.18 [49.10]
Seff = 0.67 [0.11]
Teq = 230 [9] K
Rp = 2.23 [5.13] Re
a = 0.5473 [0.0364] AU
Ag = 16881.33 [78985.06] [0.21σ]
Teffp = 4059 [4749] K [0.81σ]

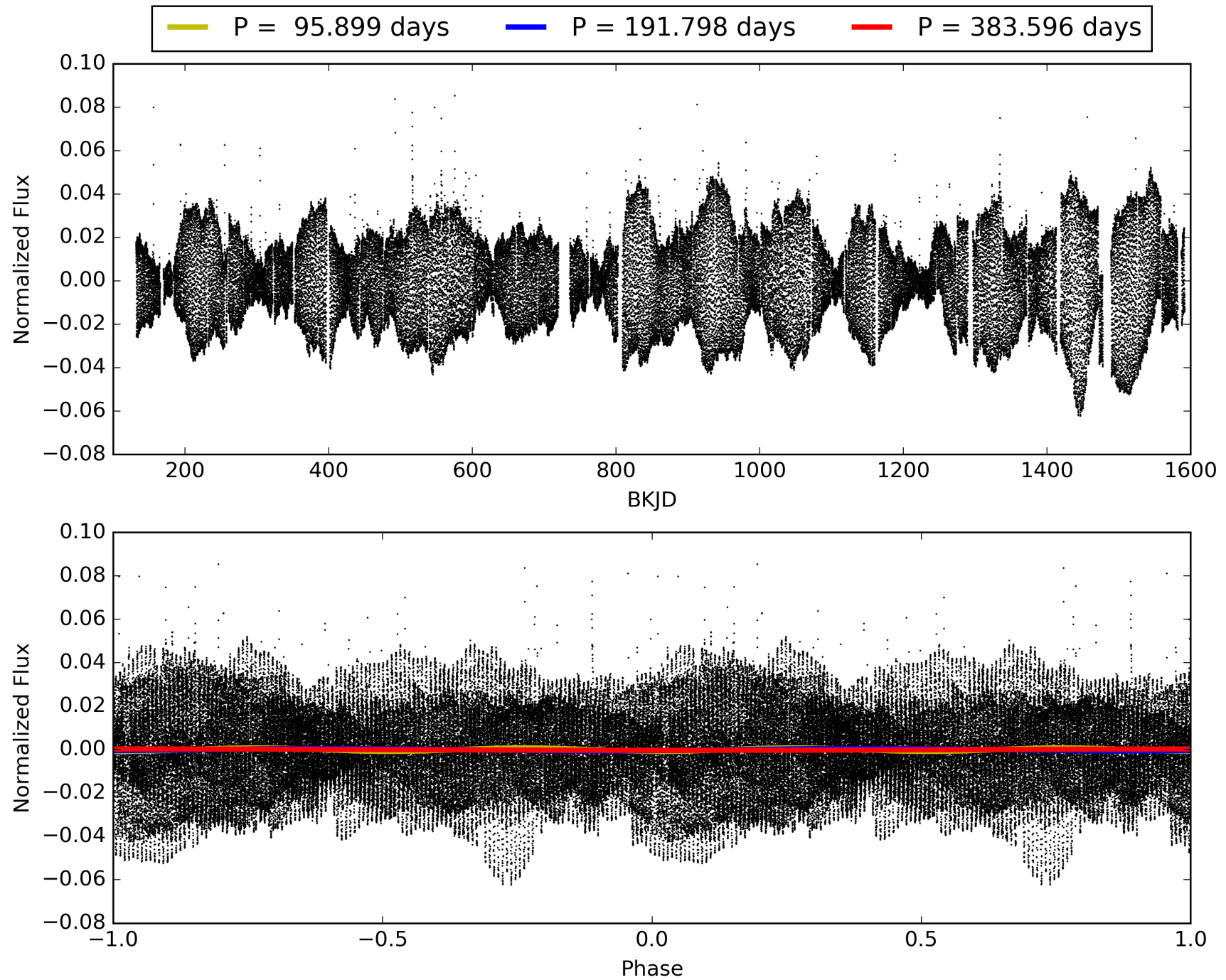
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [111.10σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 59.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 2.31
Centroid-sig: 24.6%
Centroid-so: 0.619 arcsec [0.82σ]
OotOffset-rm: 0.127 arcsec [0.67σ]
OotOffset-st: 2/1/2/2 [7]
KicOffset-rm: 0.125 arcsec [1.01σ]
KicOffset-st: 2/1/2/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 1.00 [7/7]

TCE 005647463-05, PDC Light Curves

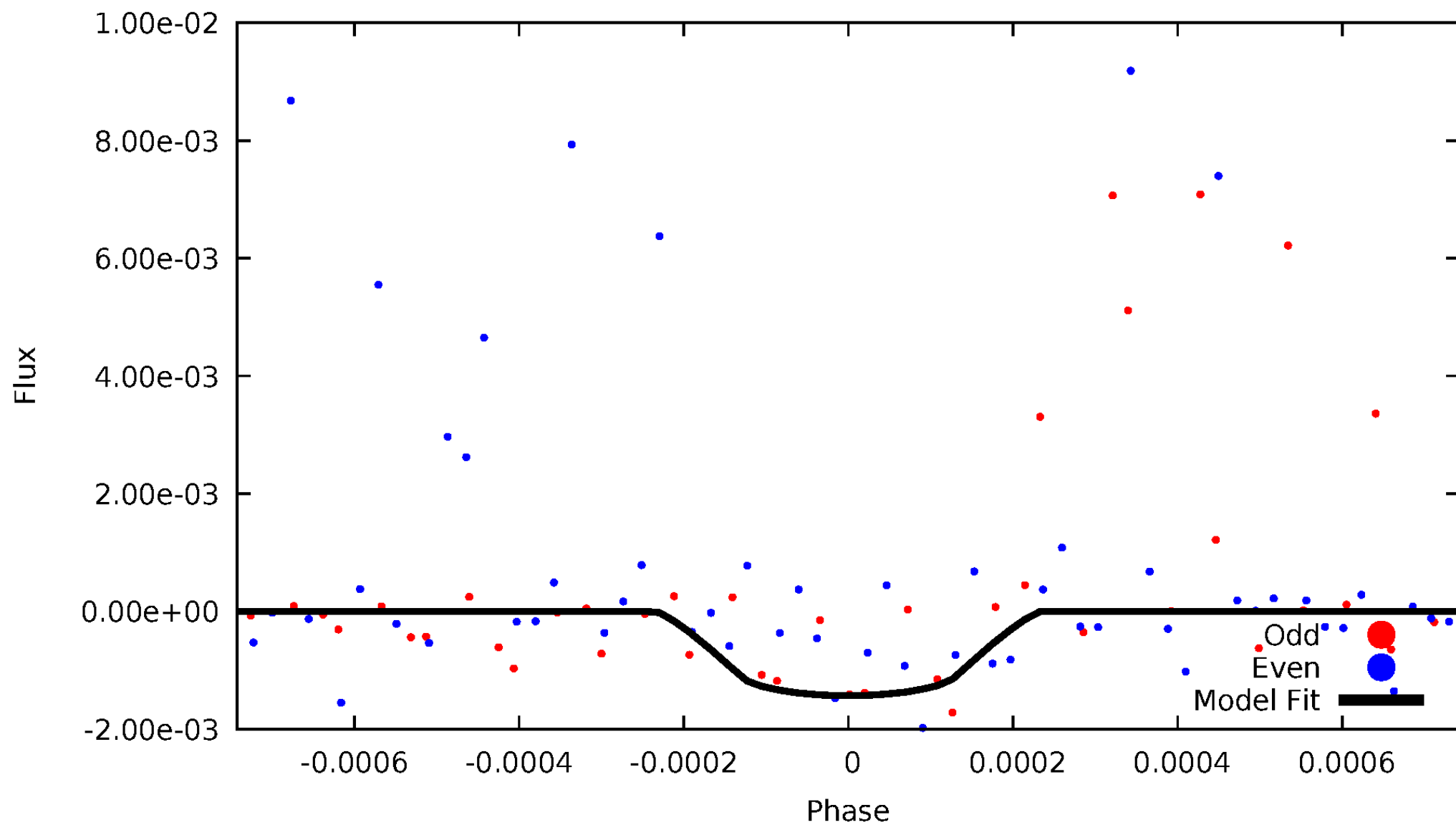


TCE 005647463-05



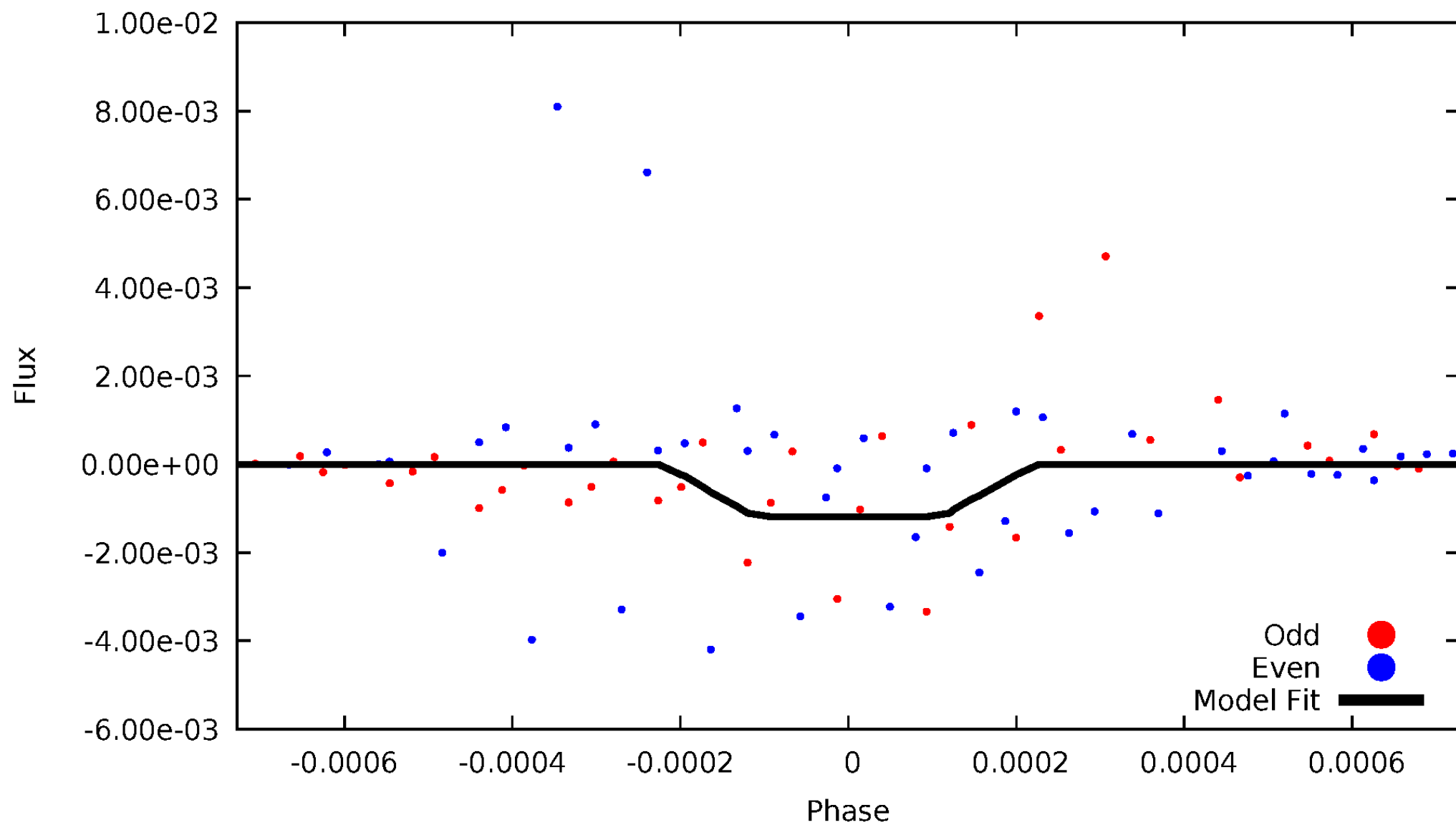
DV Odd/Even

TCE 005647463-05



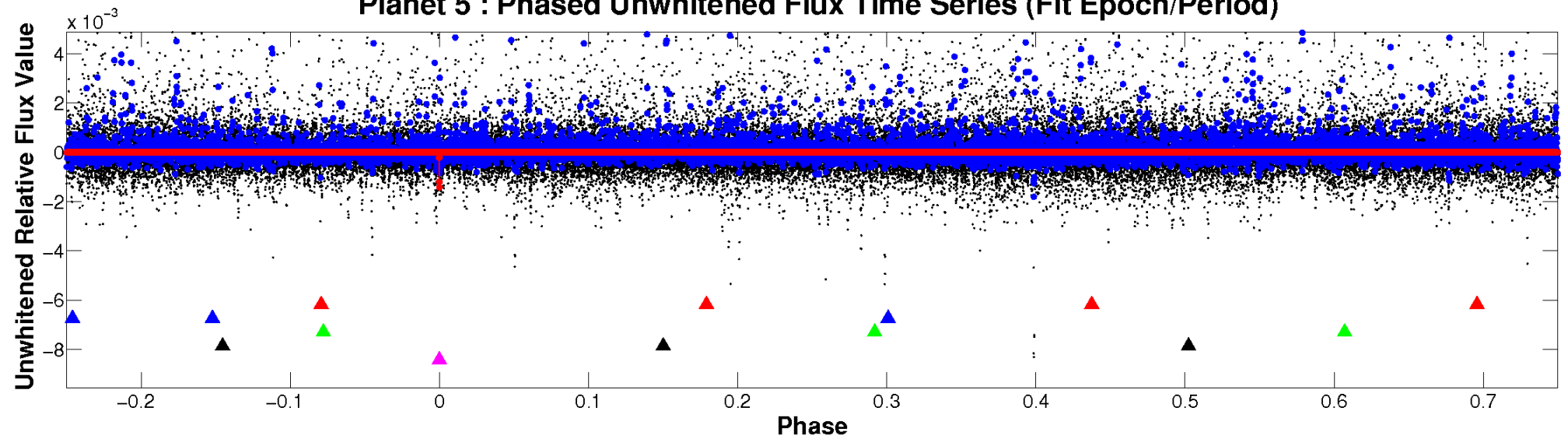
ALT Odd/Even

TCE 005647463-05

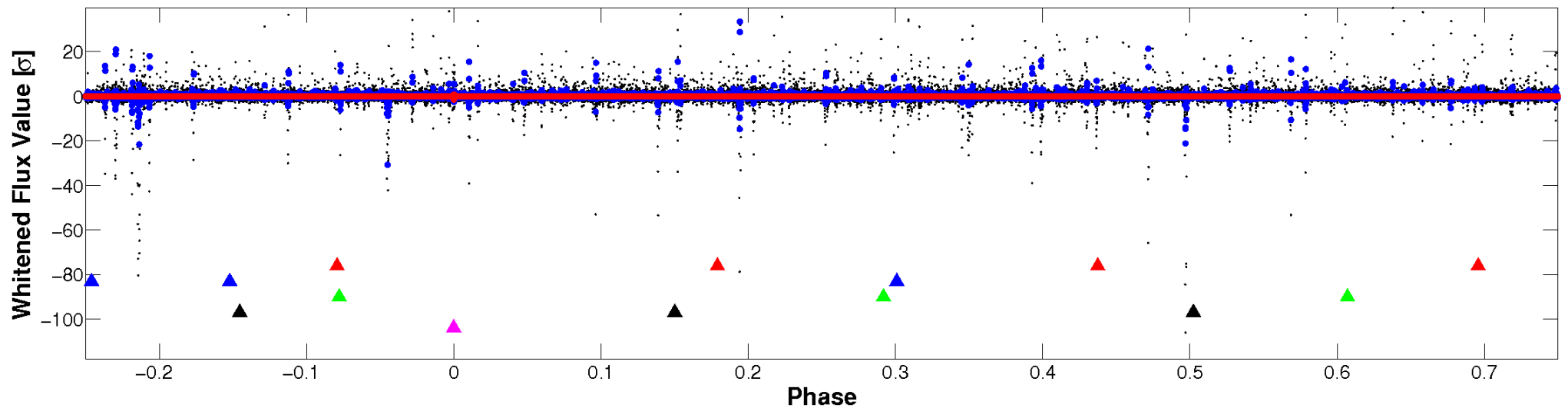


Non-Whitened Vs. Whitened Light Curve

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

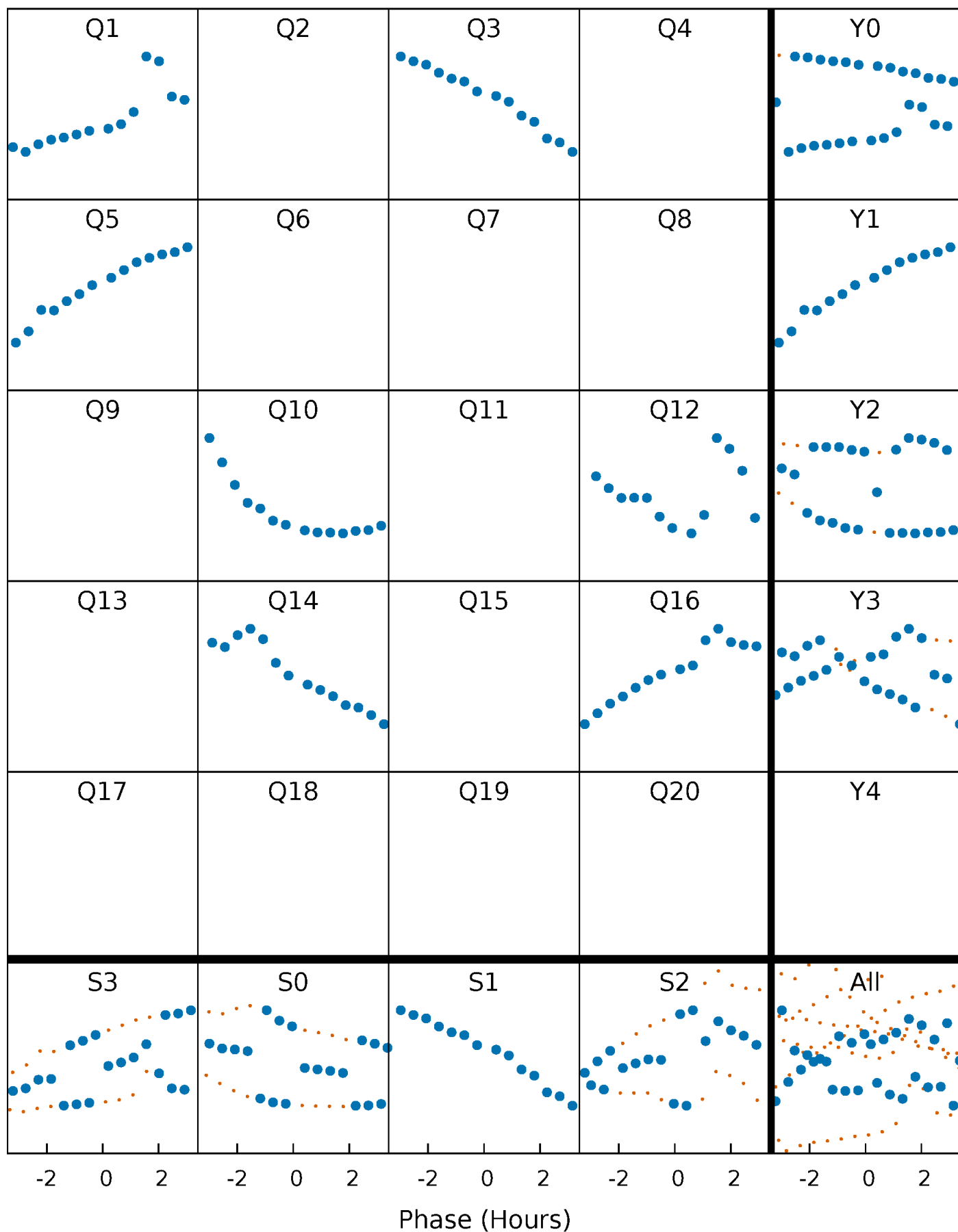


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



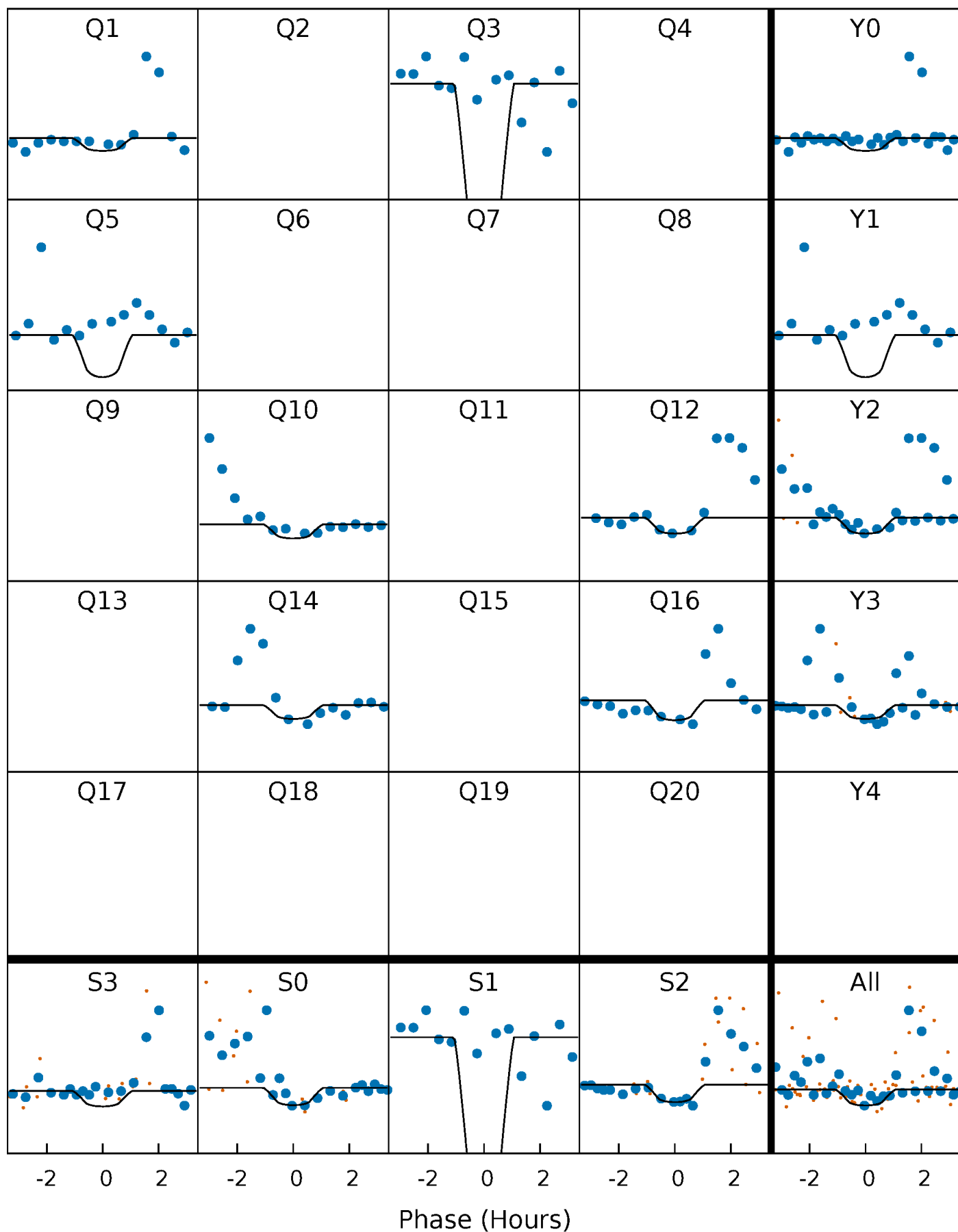
PDC Quarter-Phased Transit Curves

TCE 005647463-05 P=191.798045 Days $T_0=153.944638$ (BKJD)



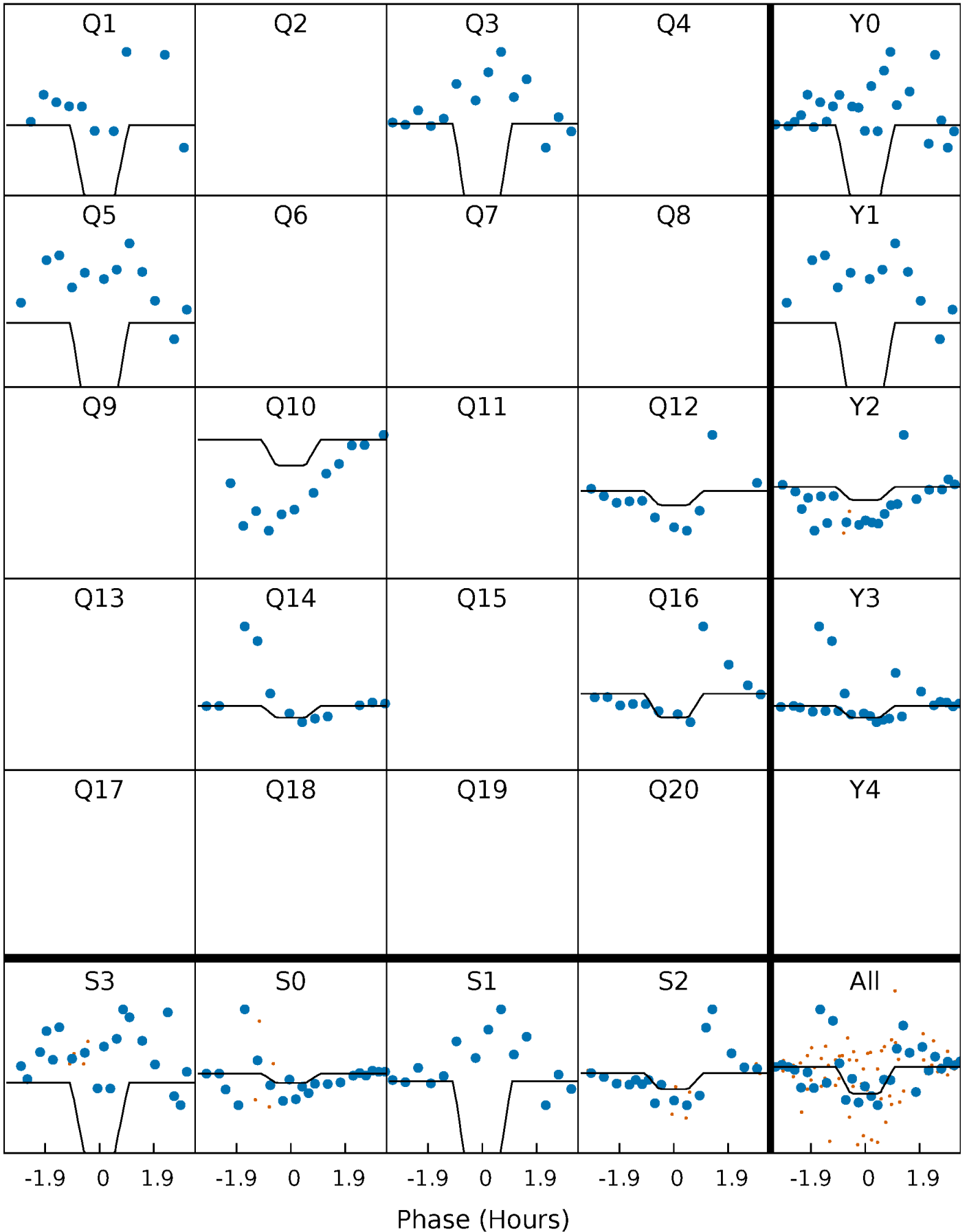
DV Quarter-Phased Transit Curves

TCE 005647463-05 $P=191.798045$ Days $T_0=153.944638$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

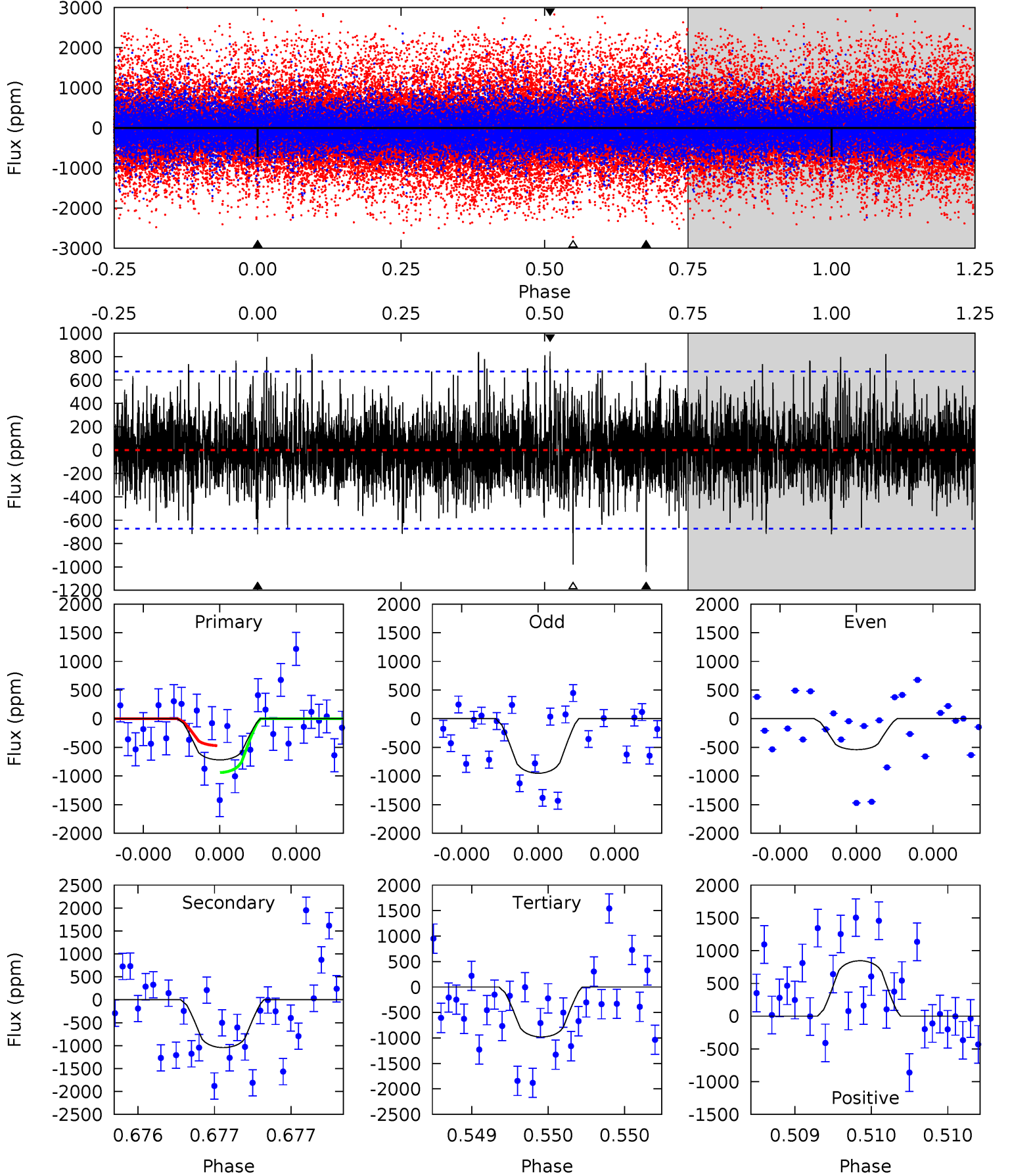
TCE 005647463-05 $P=191.797198$ Days $T_0=153.951693$ (BKJD)



DV Model-Shift Uniqueness Test

005647463-05, P = 191.798045 Days, E = 153.944638 Days

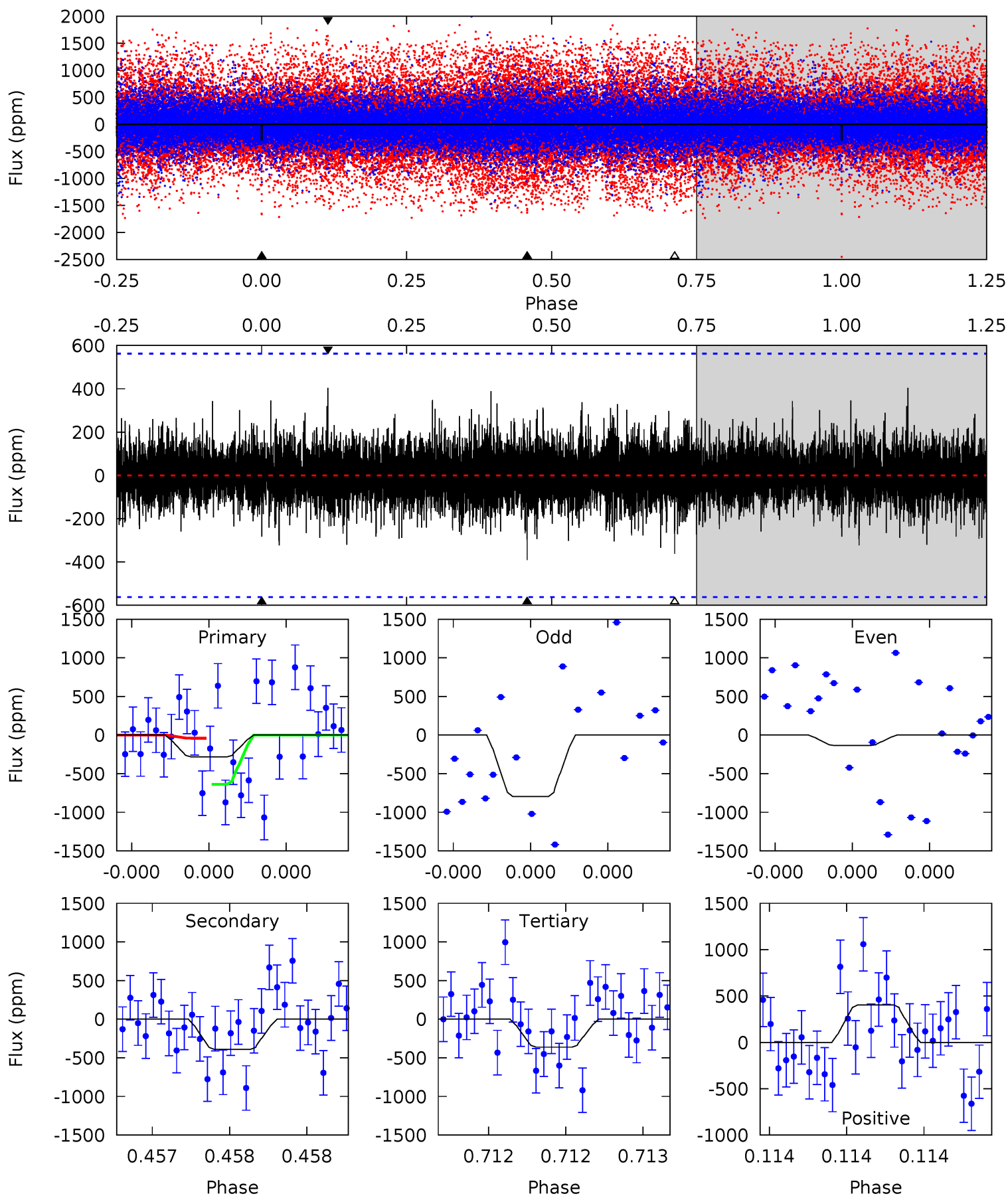
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.98 | 8.67 | 8.15 | 7.03 | 5.59 | 3.51 | 1.74 | -2.17 | -1.05 | 0.53 | 1.65 | 1.67 | 0.84 | 0.45 | 1.97 |



Alt Model-Shift Uniqueness Test

005647463-05, P = 191.797198 Days, E = 153.951693 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 2.81 | 3.90 | 3.61 | 4.03 | 5.61 | 3.54 | 0.86 | -0.80 | -1.22 | 0.29 | -0.13 | 3.20 | 1.58 | 0.51 | 0 |



Stellar Parameters For KIC 005647463

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4999^{+149}_{-164} | $4.660^{+0.055}_{-0.035}$ | $-1.000^{+0.300}_{-0.300}$ | $0.597^{+0.046}_{-0.046}$ | $0.594^{+0.051}_{-0.025}$ | $3.937^{+0.889}_{-0.542}$ |
| | +3%/-3% | +1%/-1% | +30%/-30% | +8%/-8% | +9%/-4% | +23%/-14% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

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

Secondary Eclipse Parameters for KIC 005647463-05 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|------------------------|----------------------|-----------------------|--------------------------|
| DV | -1044 ± 120 | $4.06^{+4.08}_{-2.60}$ | 320^{+11}_{-11} | 3897^{+2105}_{-780} | 10545^{+75557}_{-7821} |
| Alt. | -391 ± 100 | $4.33^{+4.13}_{-2.95}$ | 321^{+12}_{-12} | 3241^{+1622}_{-552} | 3340^{+31895}_{-2470} |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

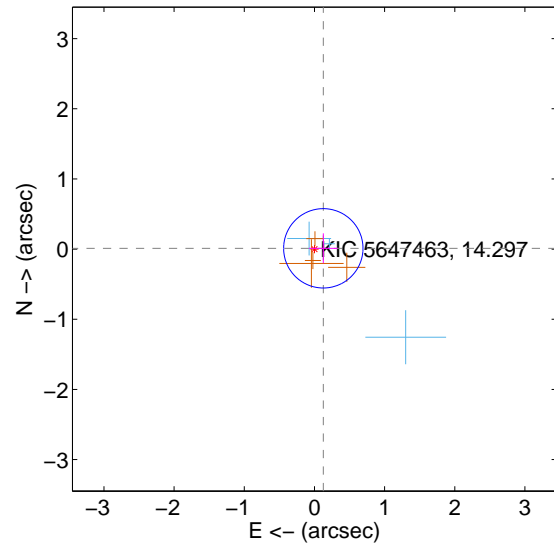
Supplemental centroid analysis for 005647463-05. Kepler magnitude: 14.30. Transit SNR 6.57

There are 3 quarters with good PRF difference image offsets

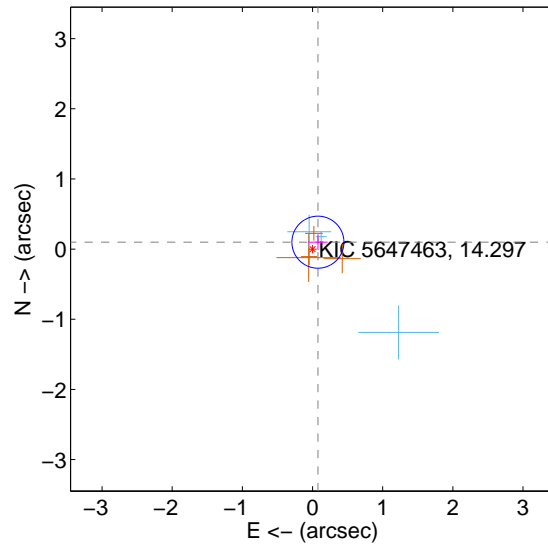
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.127 ± 0.188 | 0.67 | -0.126 ± 0.205 | 0.011 ± 0.213 |
| PRF-fit source offset from KIC position | 0.125 ± 0.124 | 1.01 | -0.077 ± 0.140 | 0.099 ± 0.113 |
| photometric centroid source offset | 0.62 ± 0.75 | 0.82 | 0.18 ± 0.81 | 0.59 ± 0.75 |

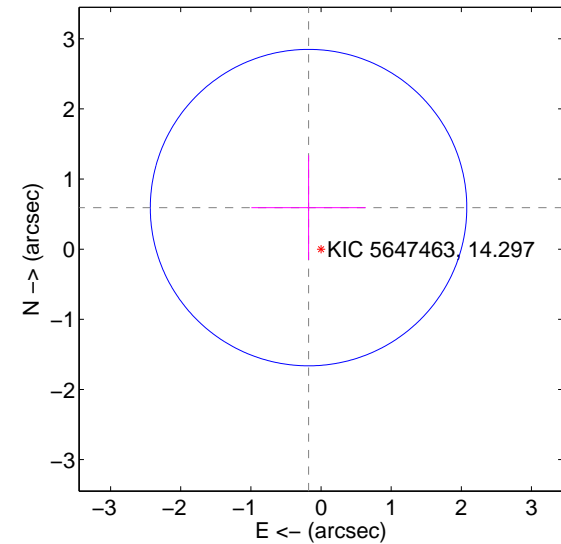
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

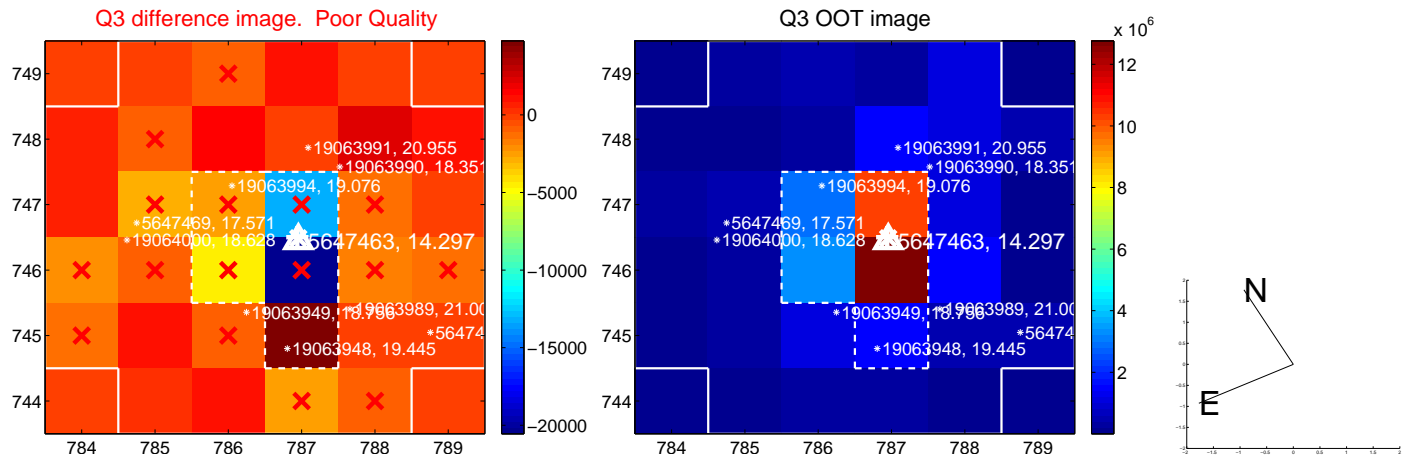
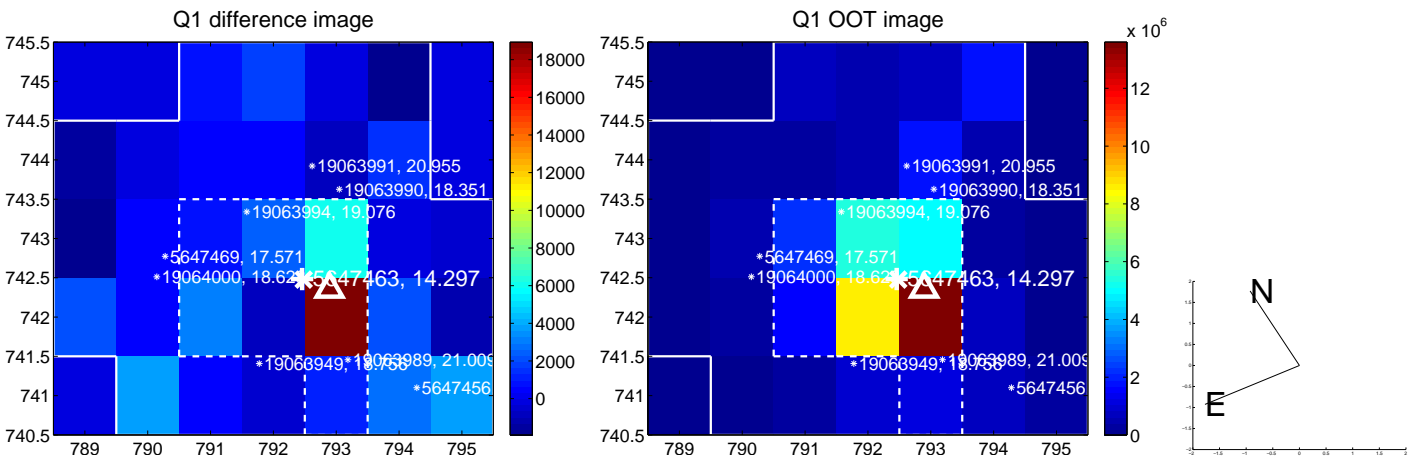


offset from photometric centroids

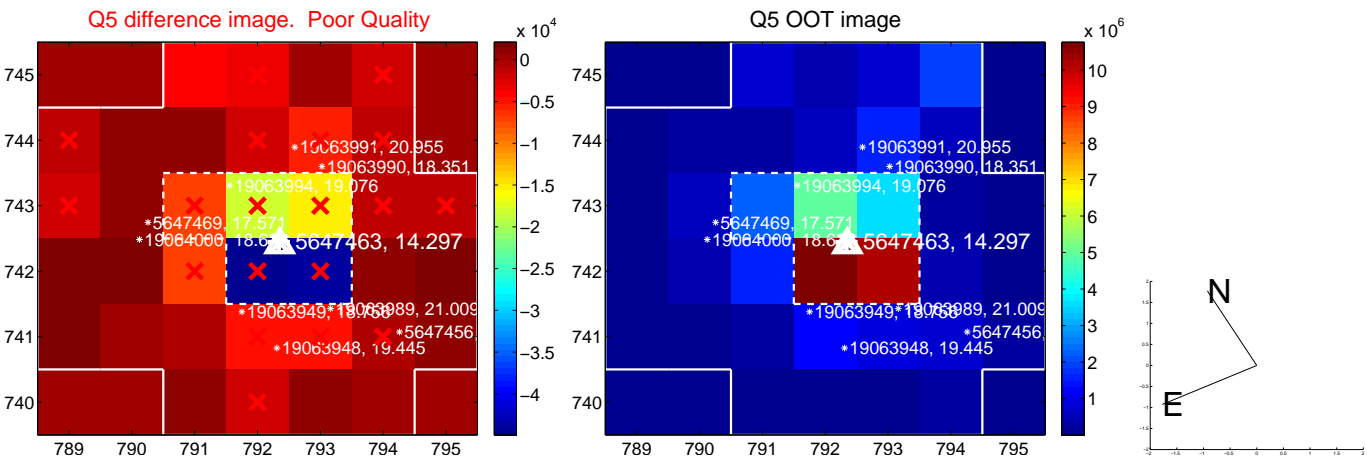


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

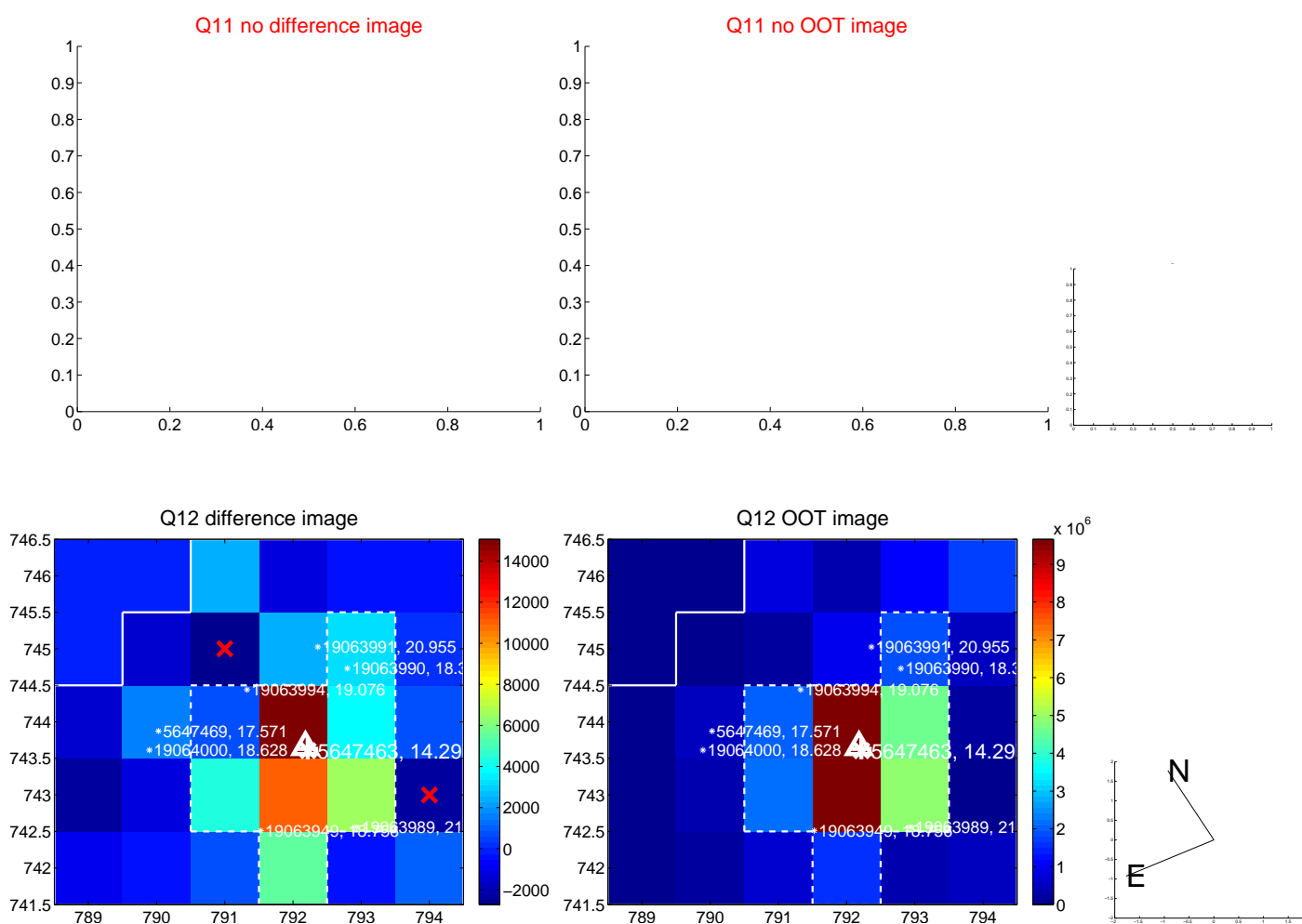
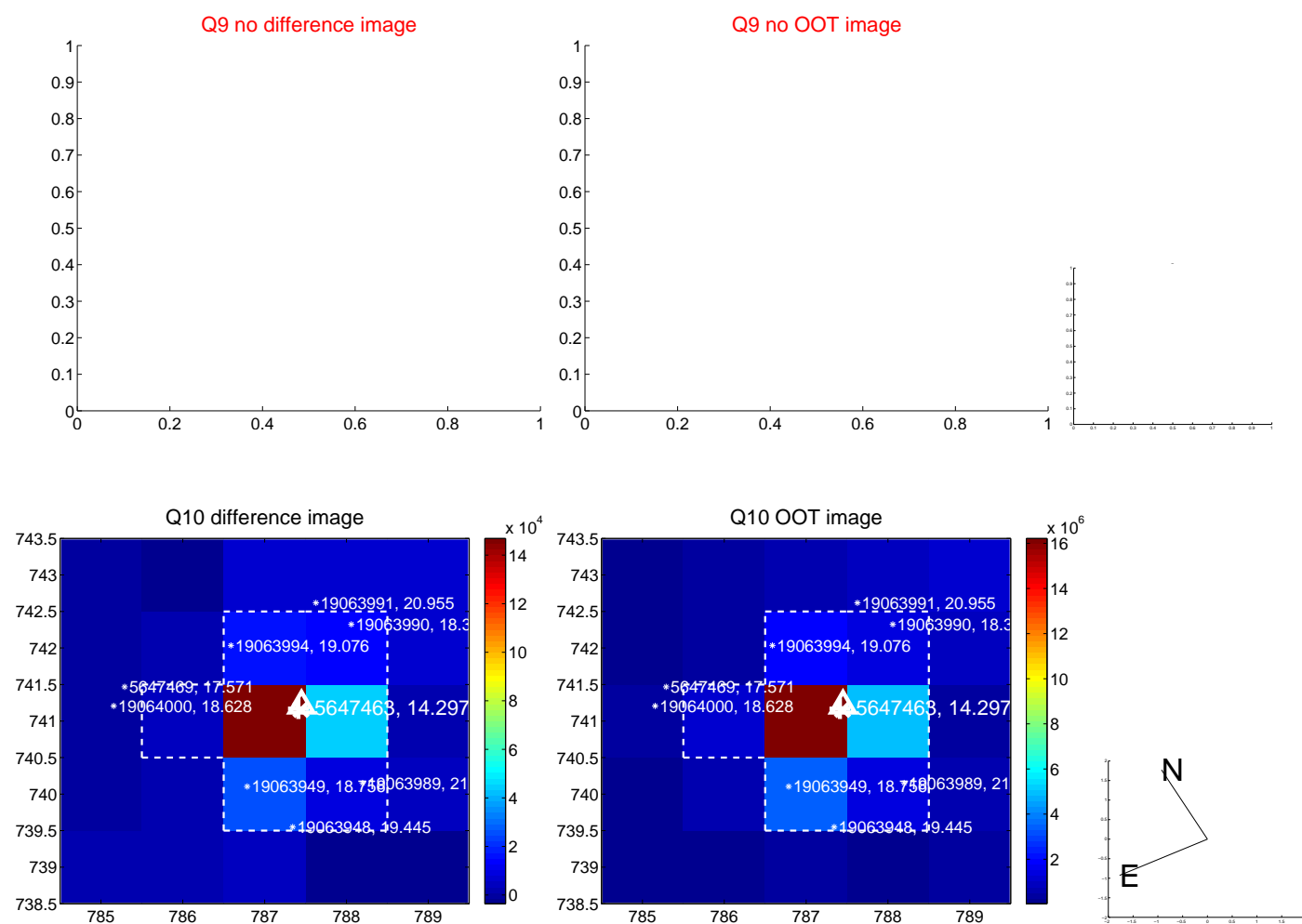
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



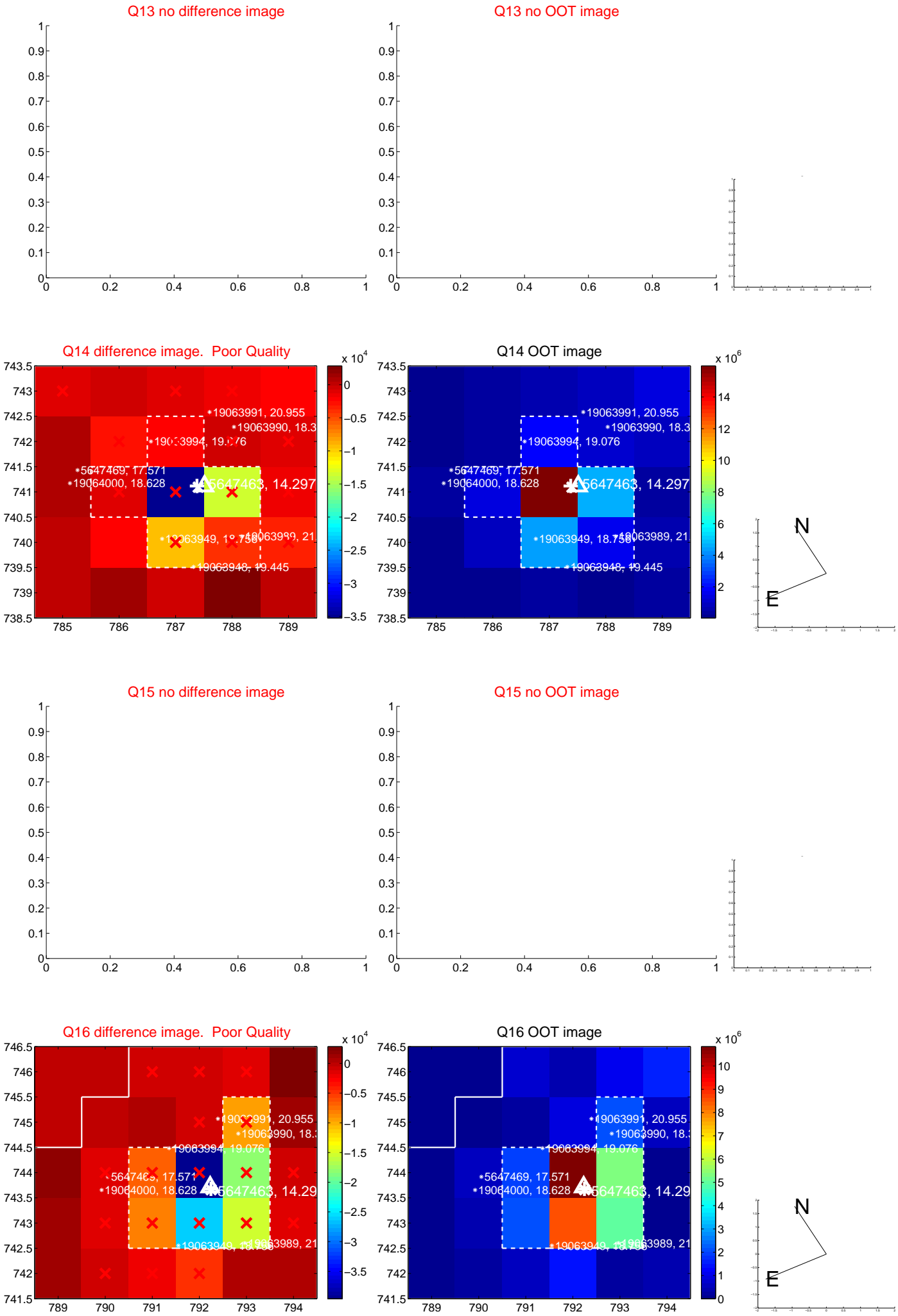
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



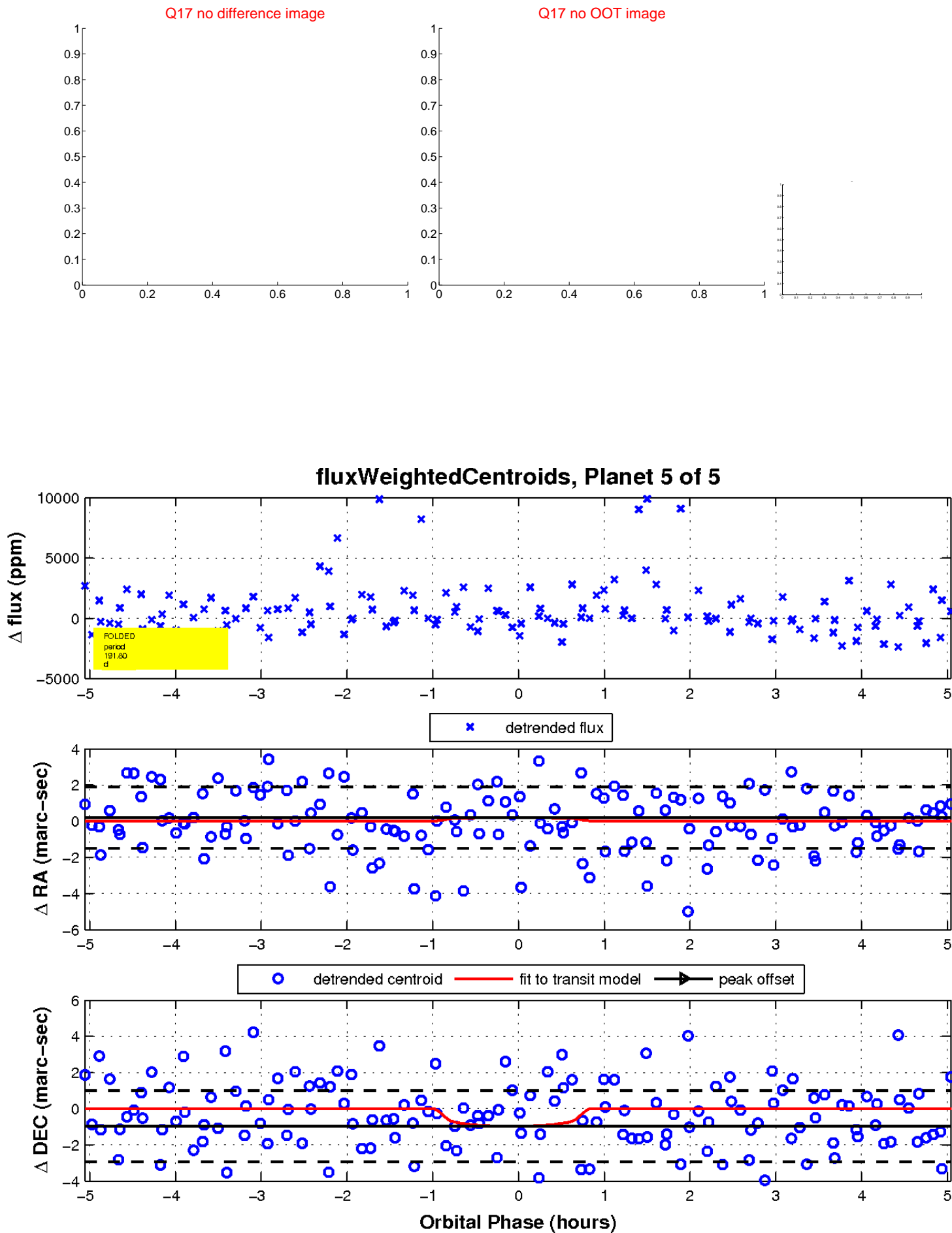
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



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



UKIRT Image

