

KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
| 011465987-03 | OBS | No | 261.487804 | 305.572200 | 2018.0 | 5.605 | 13.6 | 7.4 | 0.73 | 5174 | 3.57 | 0.63 |
| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

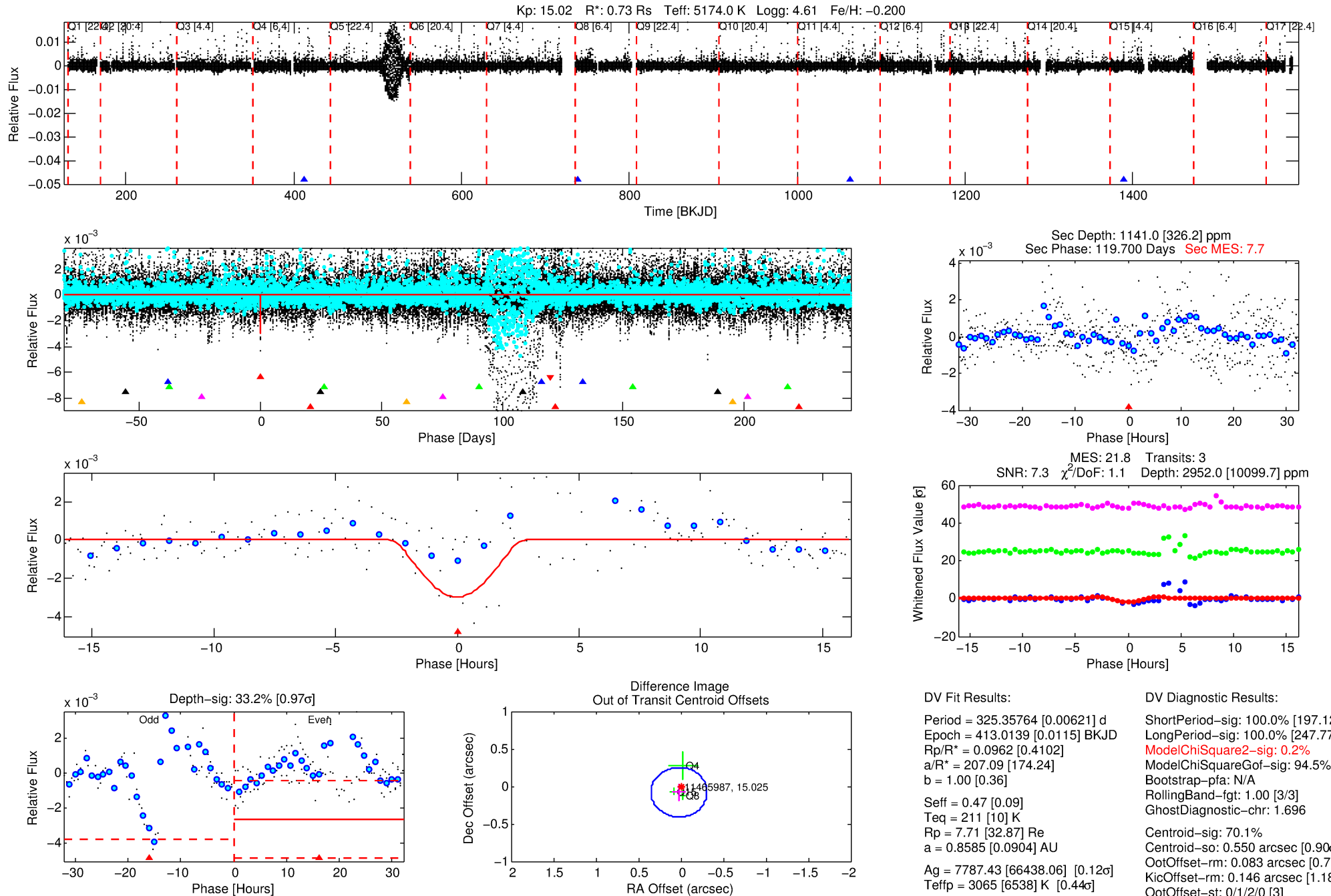
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011465987-01

No Significant Match Found

DV One-Page Summary

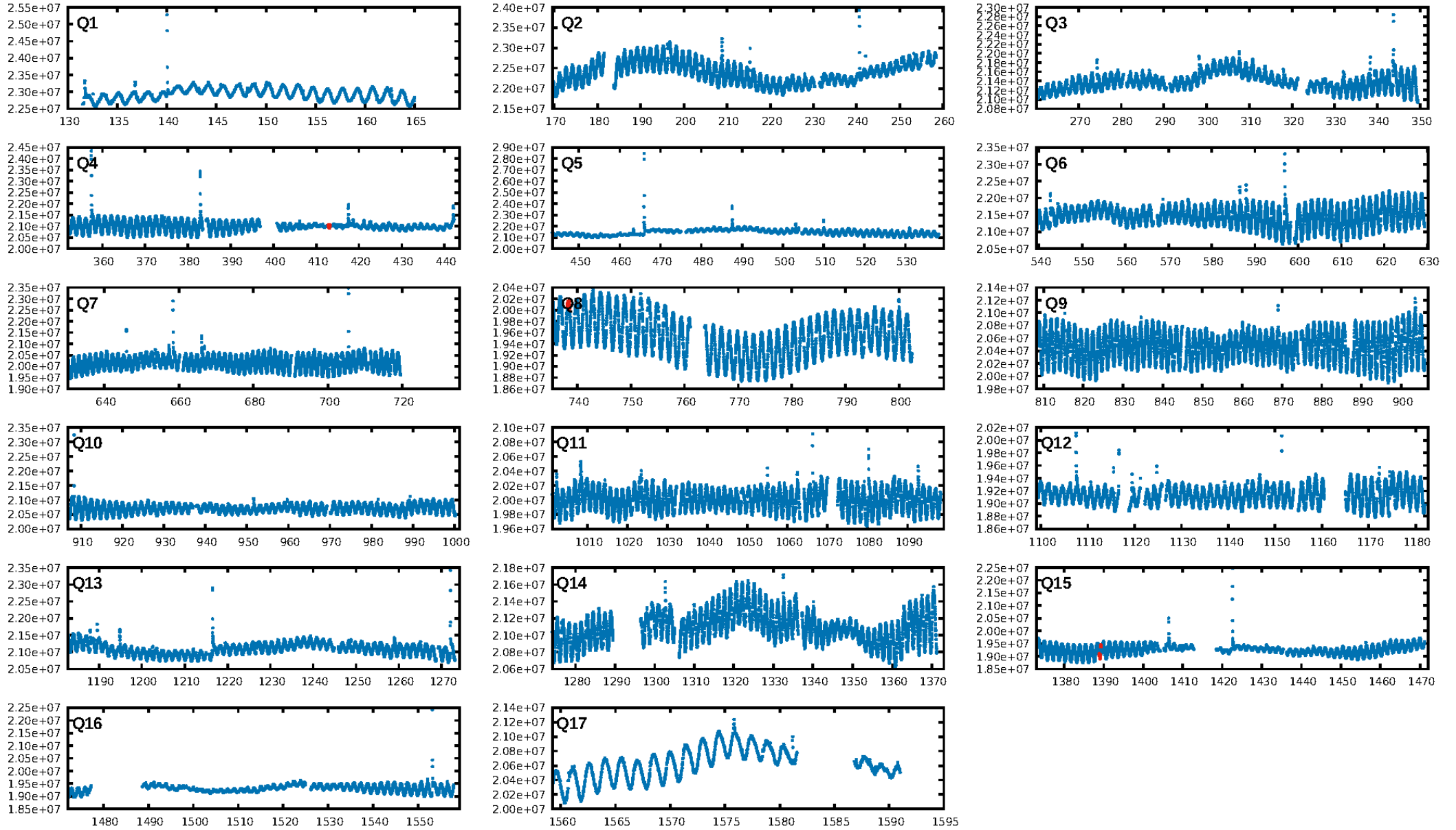
KIC: 11465987 Candidate: 1 of 7 Period: 325.358 d



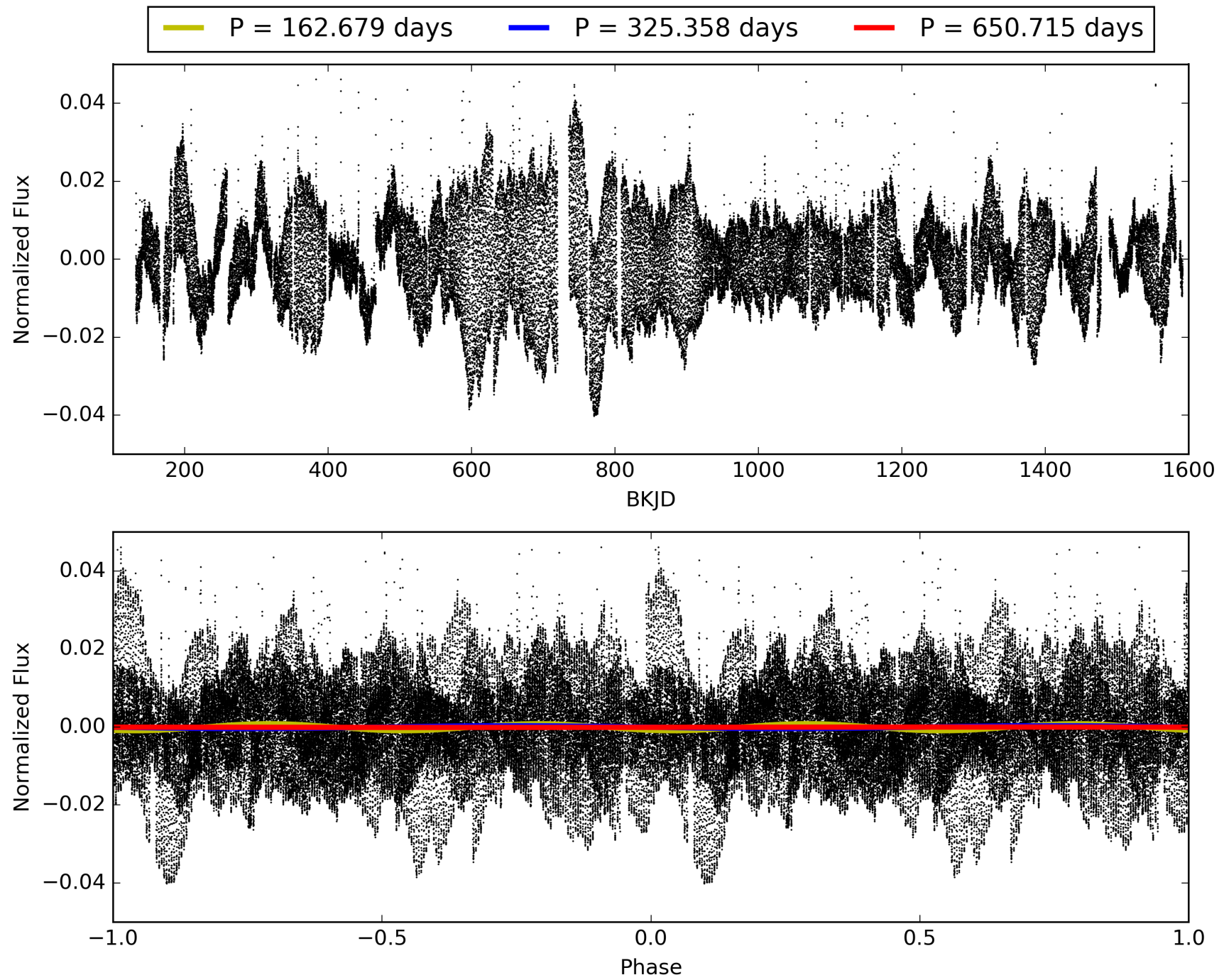
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:10:42 Z

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

TCE 011465987-01, PDC Light Curves

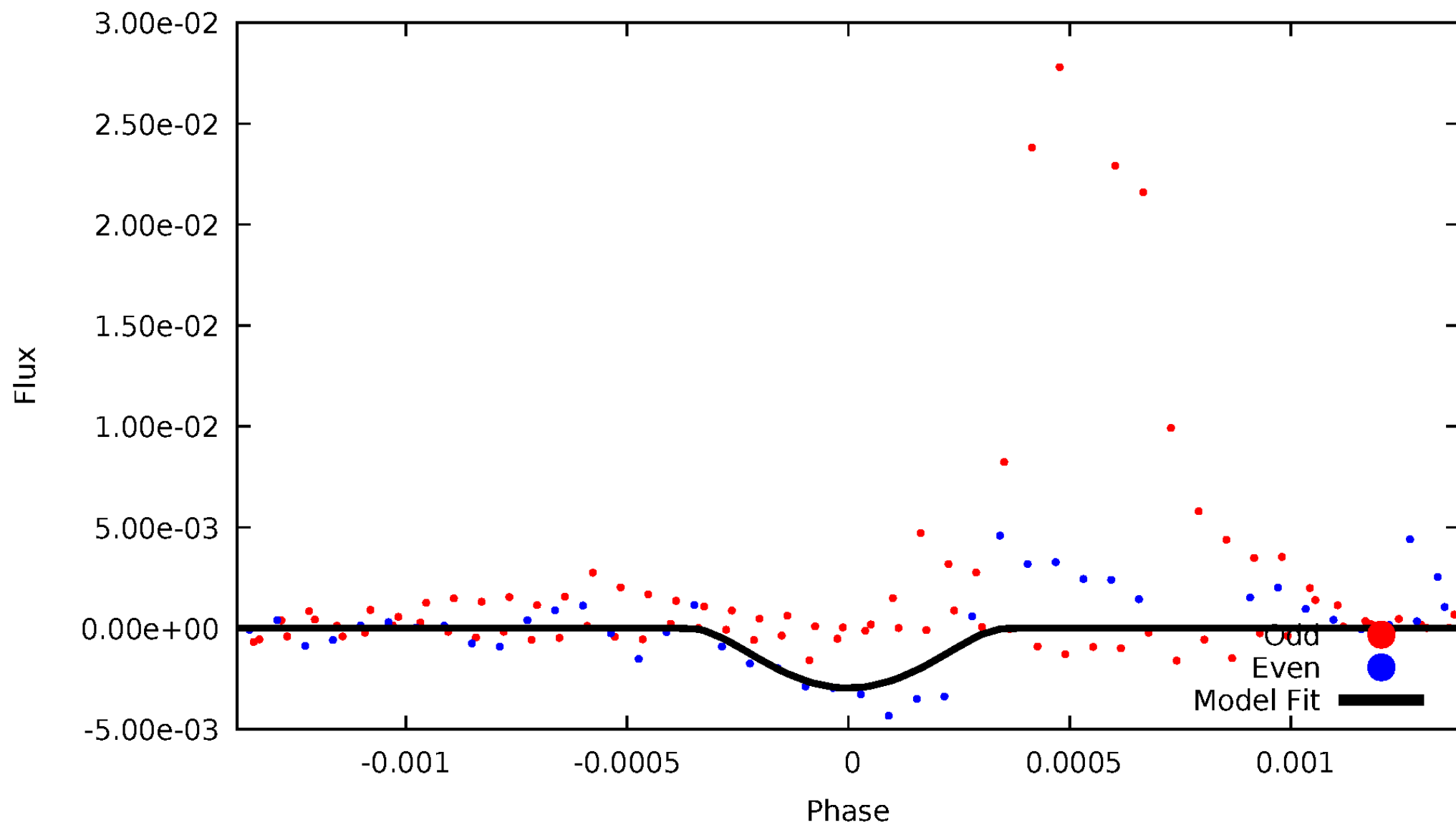


TCE 011465987-01



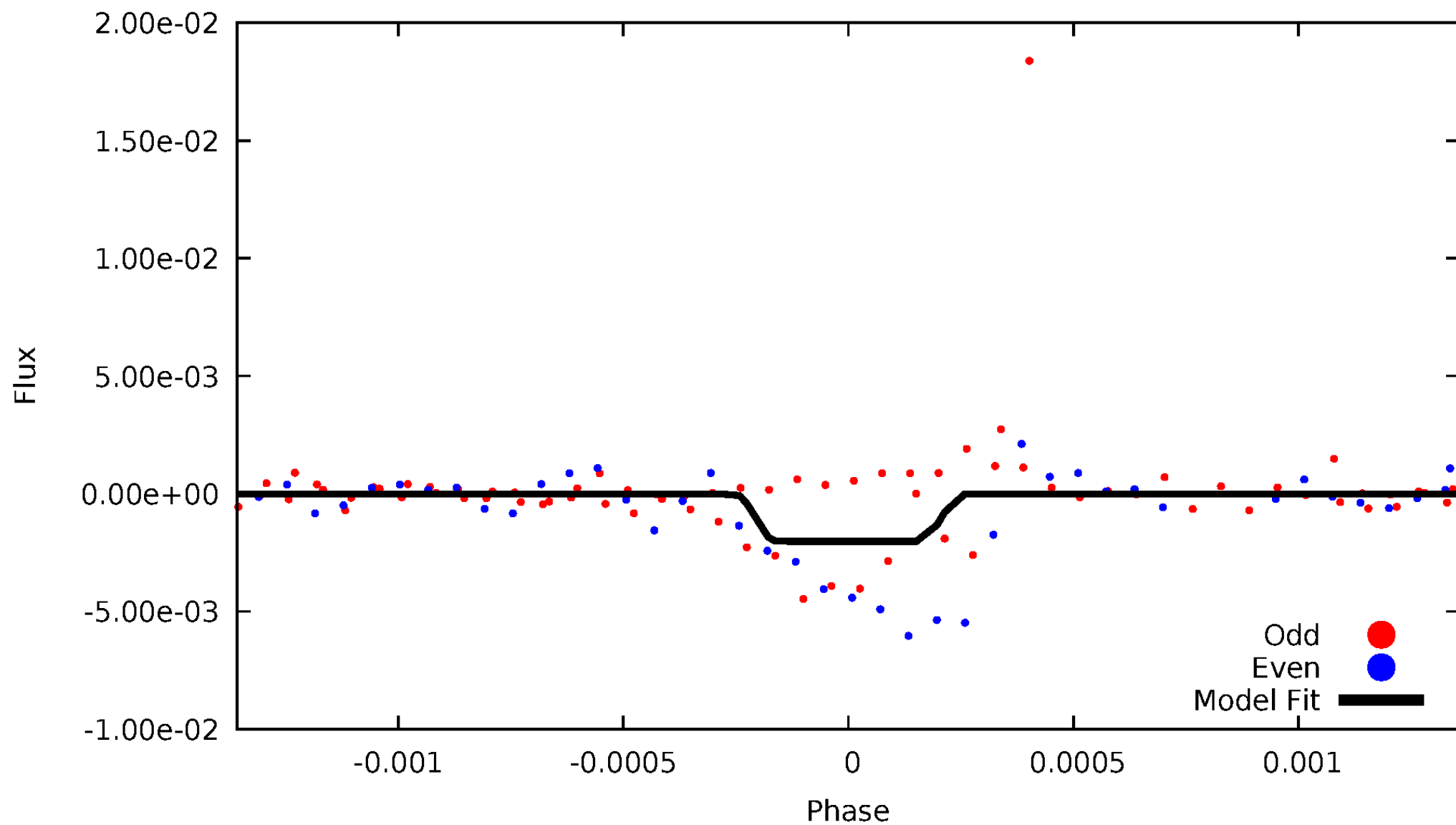
DV Odd/Even

TCE 011465987-01



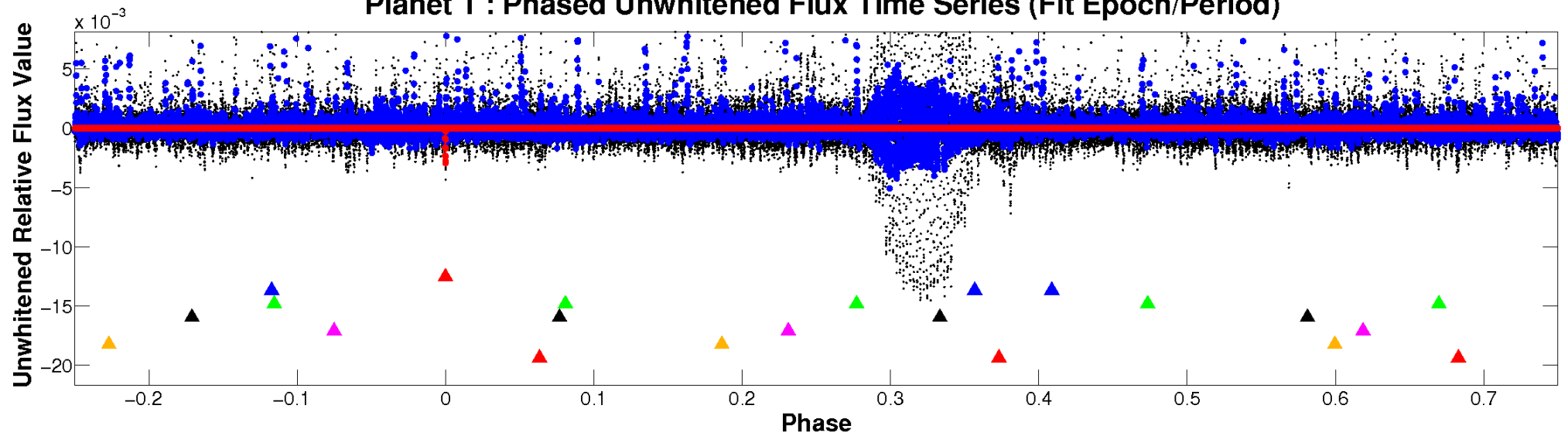
ALT Odd/Even

TCE 011465987-01

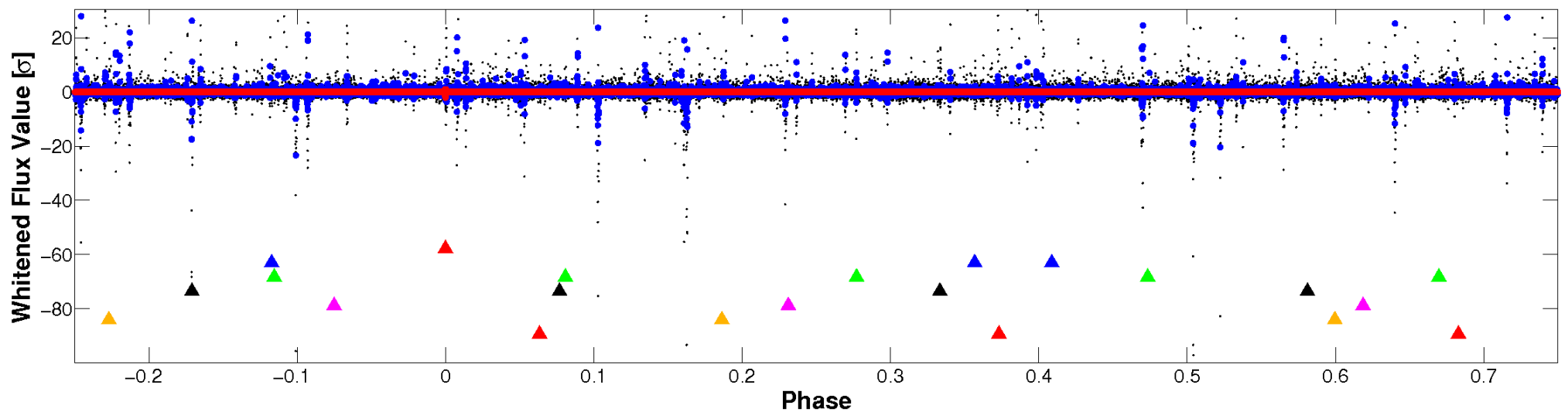


Non-Whitened Vs. Whitened Light Curve

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

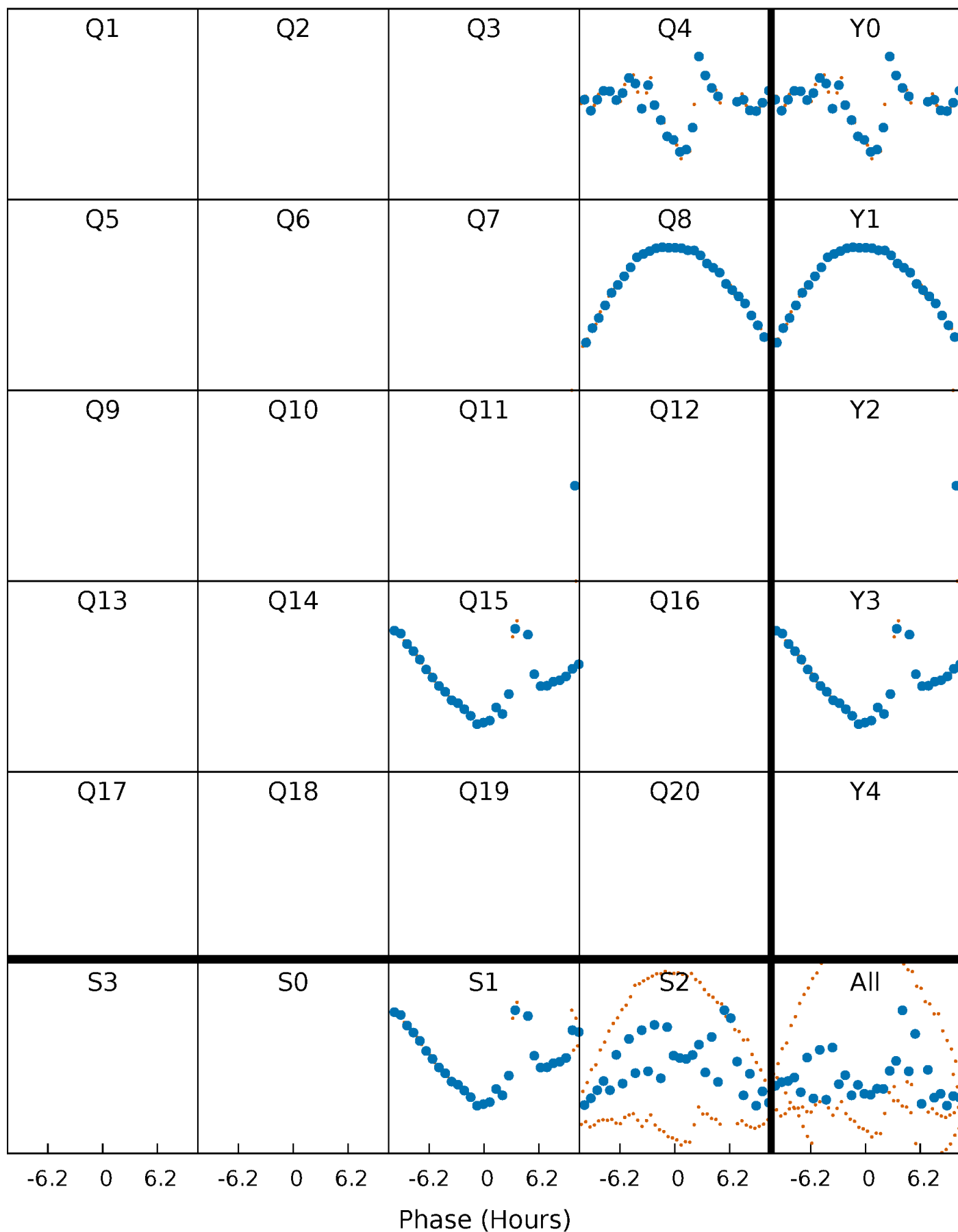


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



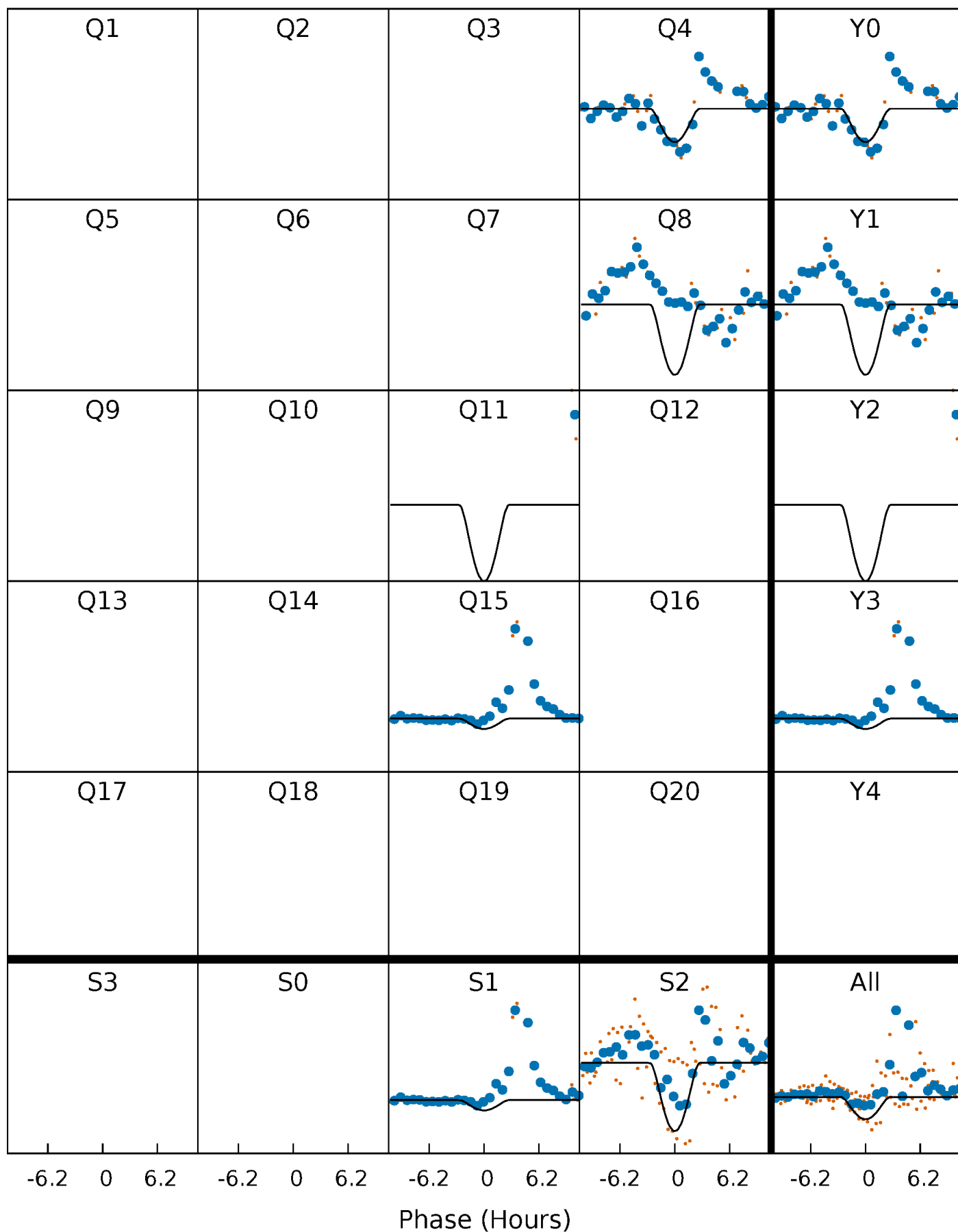
PDC Quarter-Phased Transit Curves

TCE 011465987-01 P=325.357636 Days $T_0=413.013937$ (BKJD)



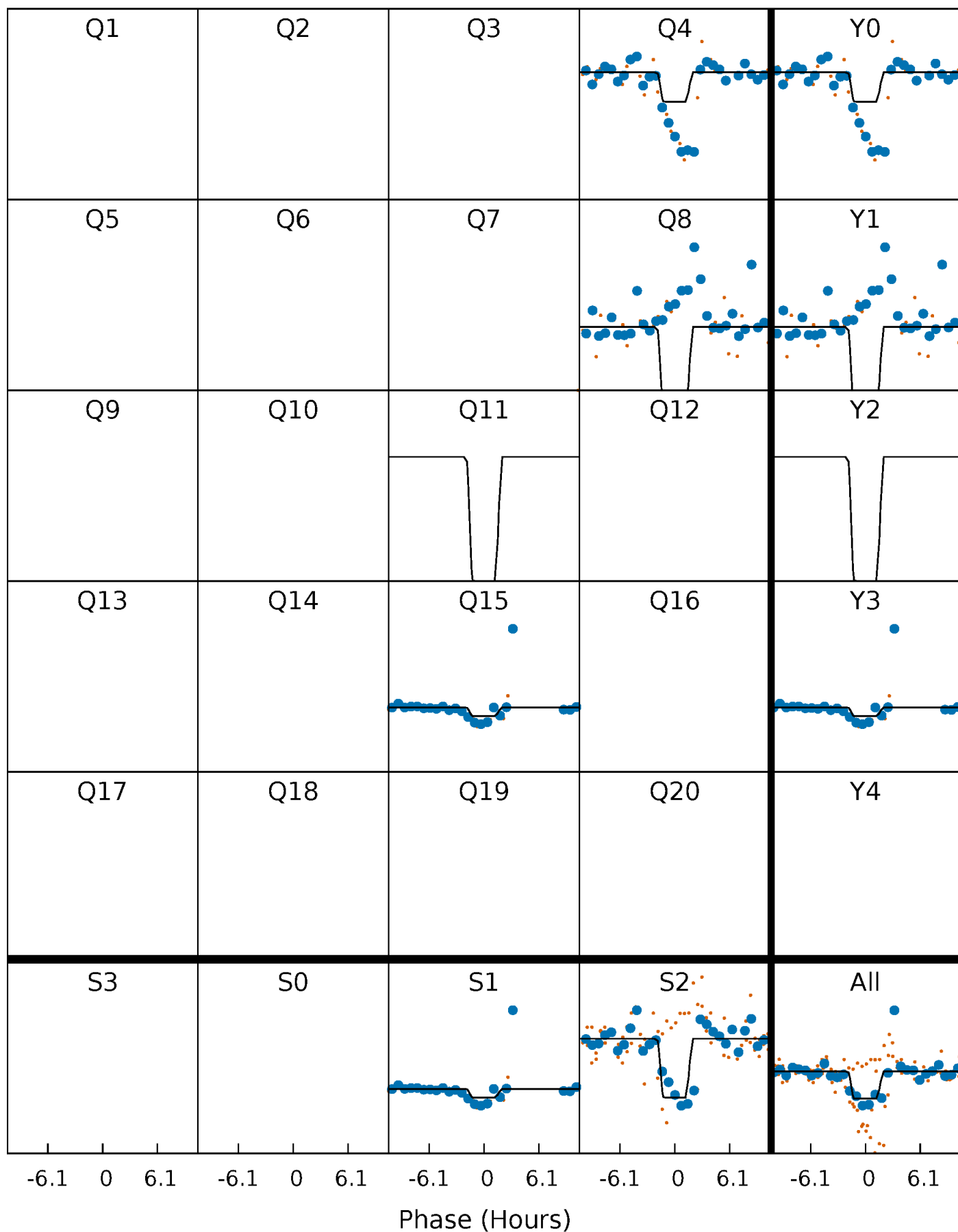
DV Quarter-Phased Transit Curves

TCE 011465987-01 P=325.357636 Days $T_0=413.013937$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

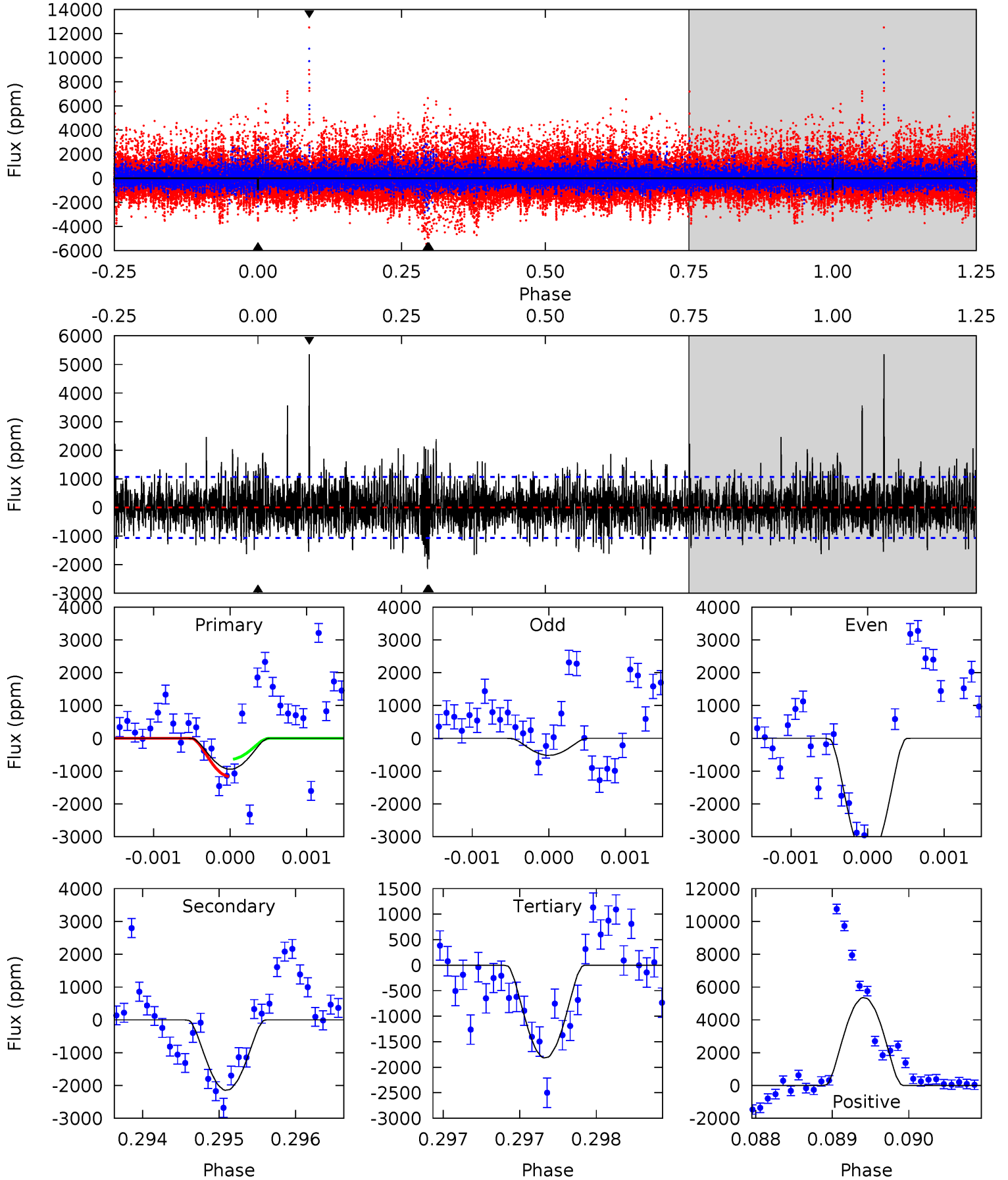
TCE 011465987-01 P=325.363576 Days $T_0=413.000125$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-01, $P = 325.357636$ Days, $E = 87.656301$ Days

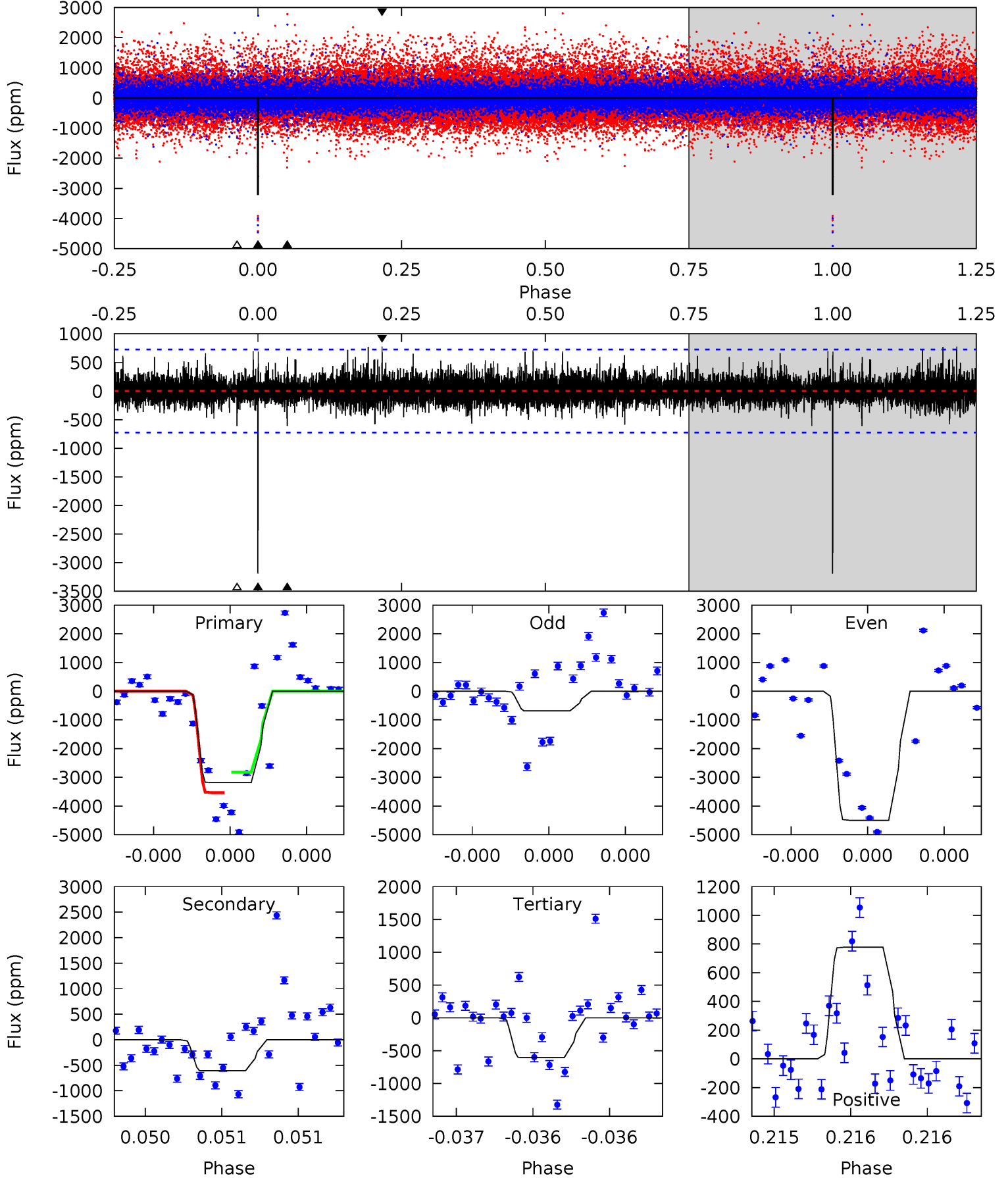
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 4.88 | 11.1 | 9.41 | 27.7 | 5.51 | 3.38 | 2.80 | -4.53 | -22.8 | 1.69 | -16.6 | 3.72 | -2.85 | 0.71 | 1.37 |



Alt Model-Shift Uniqueness Test

011465987-01, $P = 325.363576$ Days, $E = 87.636549$ Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 24.5 | 4.67 | 4.66 | 5.97 | 5.57 | 3.48 | 1.11 | 19.8 | 18.5 | 0.01 | -1.31 | 15.8 | 0.75 | 0.20 | 2.77 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|---------------------------|----------------------|-----------------------|-----------------------|
| DV | -2145 ± 193 | $26.10^{+26.97}_{-17.45}$ | 297^{+13}_{-11} | 2718^{+1046}_{-433} | 1285^{+9646}_{-986} |
| Alt. | -608 ± 130 | $25.70^{+27.94}_{-17.67}$ | 297^{+12}_{-11} | 2330^{+811}_{-352} | 360^{+3396}_{-281} |

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

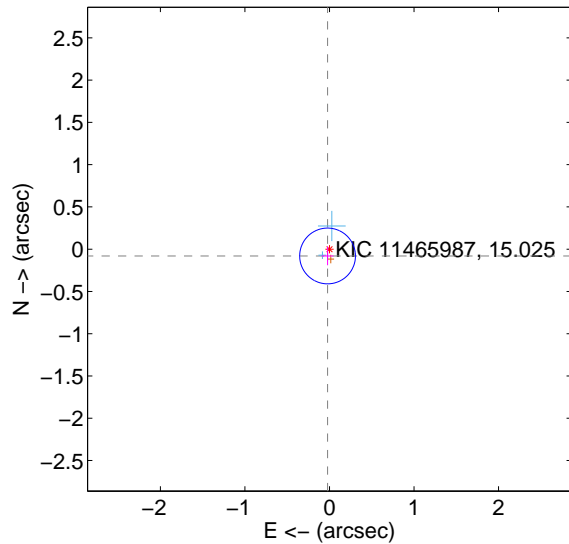
Supplemental centroid analysis for 011465987-01. Kepler magnitude: 15.03. Transit SNR 7.29

There are 2 quarters with good PRF difference image offsets

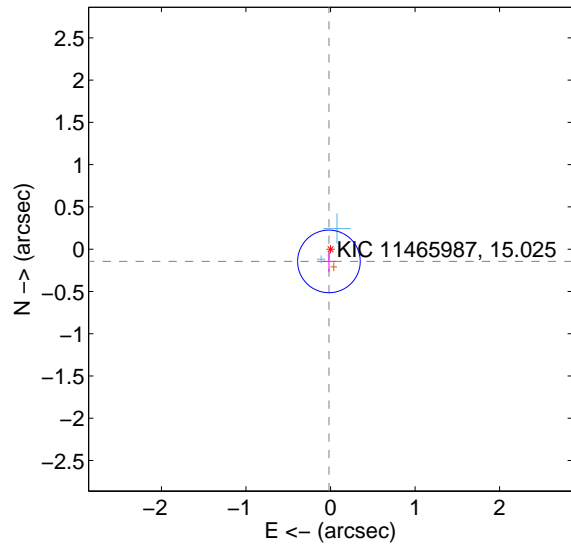
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 0.083 ± 0.110 | 0.76 | 0.023 ± 0.069 | -0.080 ± 0.109 |
| PRF-fit source offset from KIC position | 0.146 ± 0.123 | 1.18 | 0.019 ± 0.077 | -0.145 ± 0.123 |
| photometric centroid source offset | 0.55 ± 0.61 | 0.90 | 0.43 ± 0.58 | 0.34 ± 0.66 |

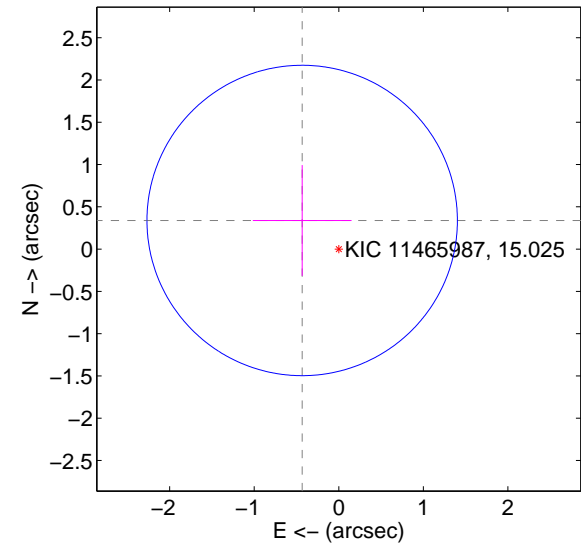
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

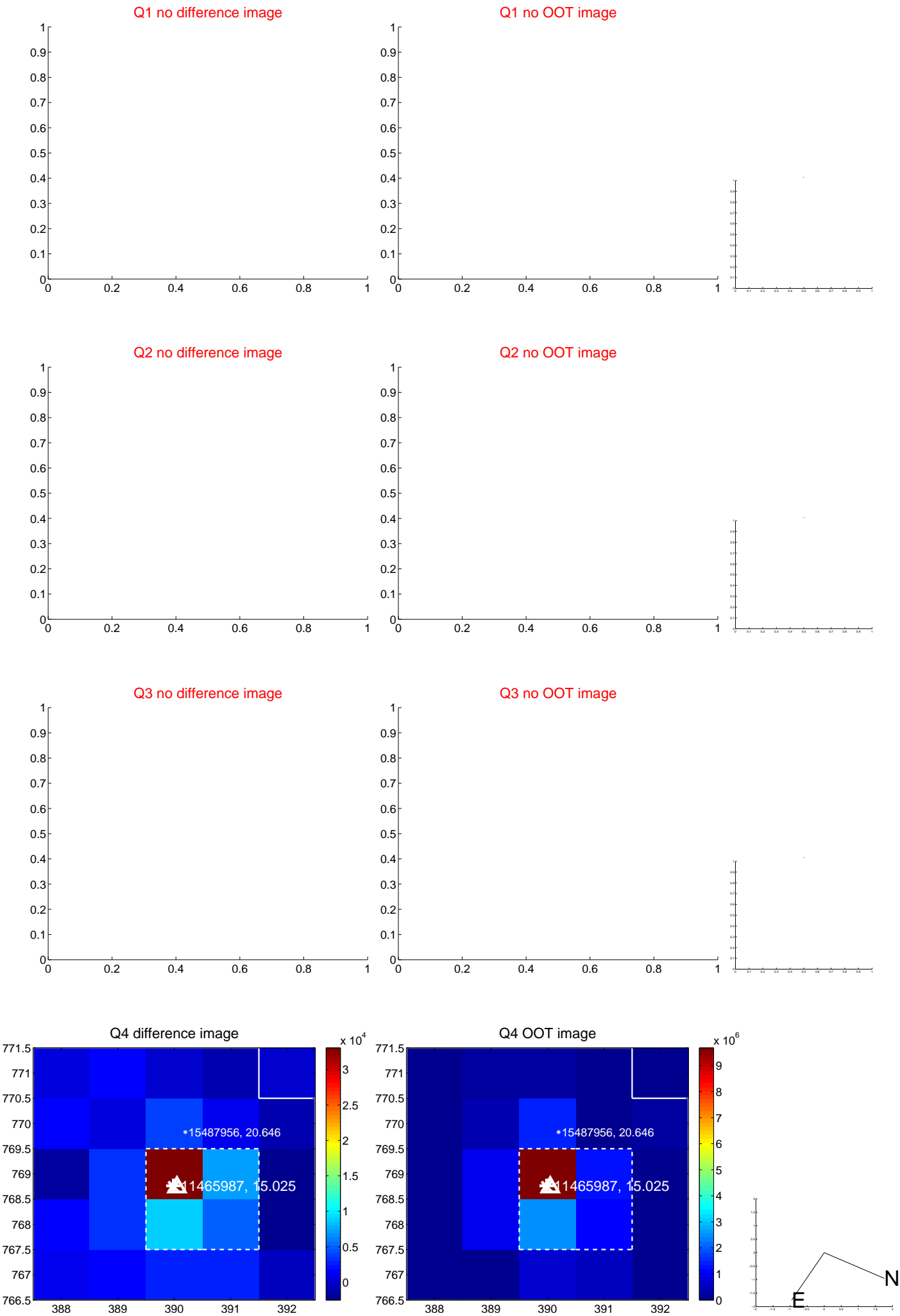


offset from photometric centroids

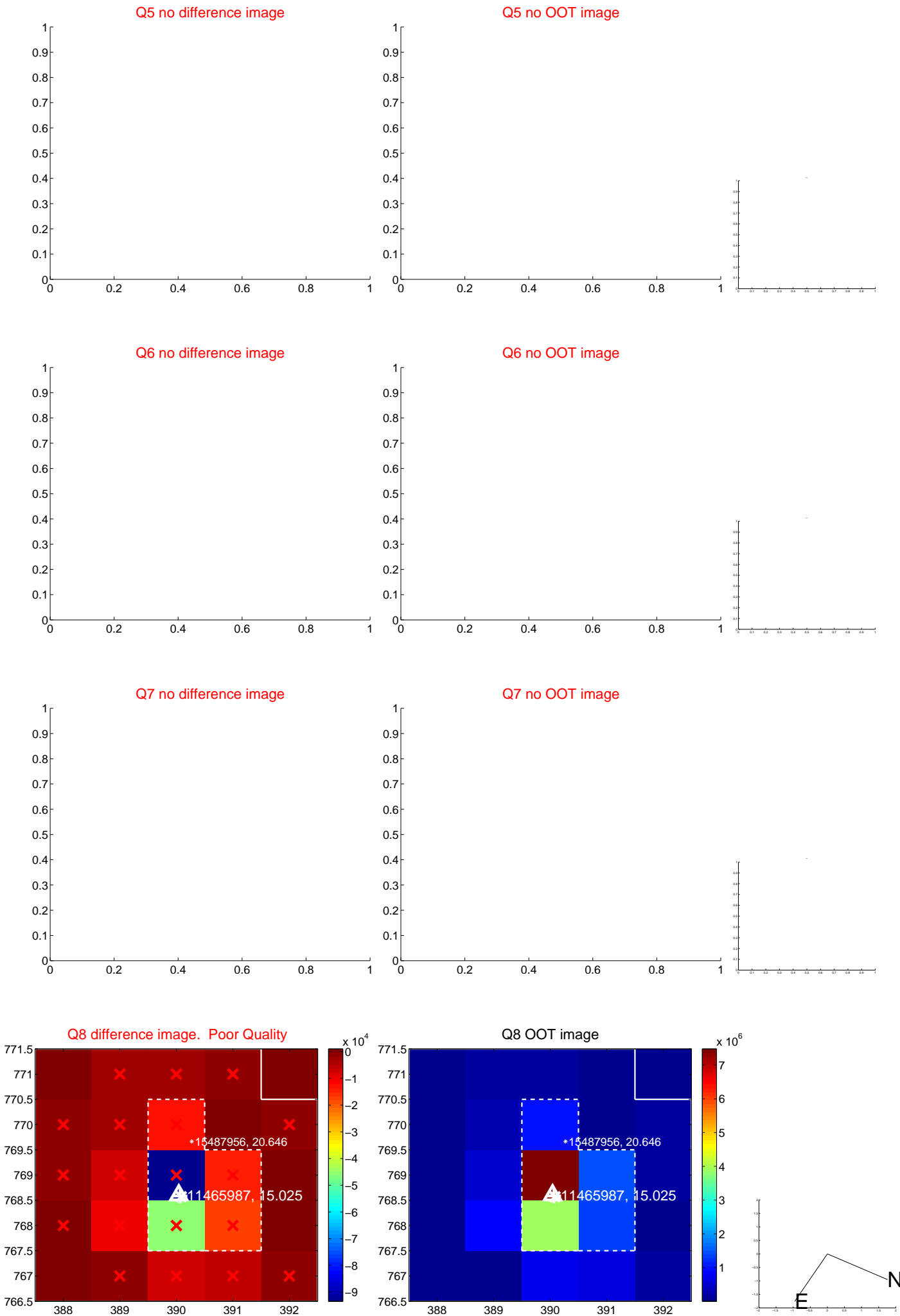


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



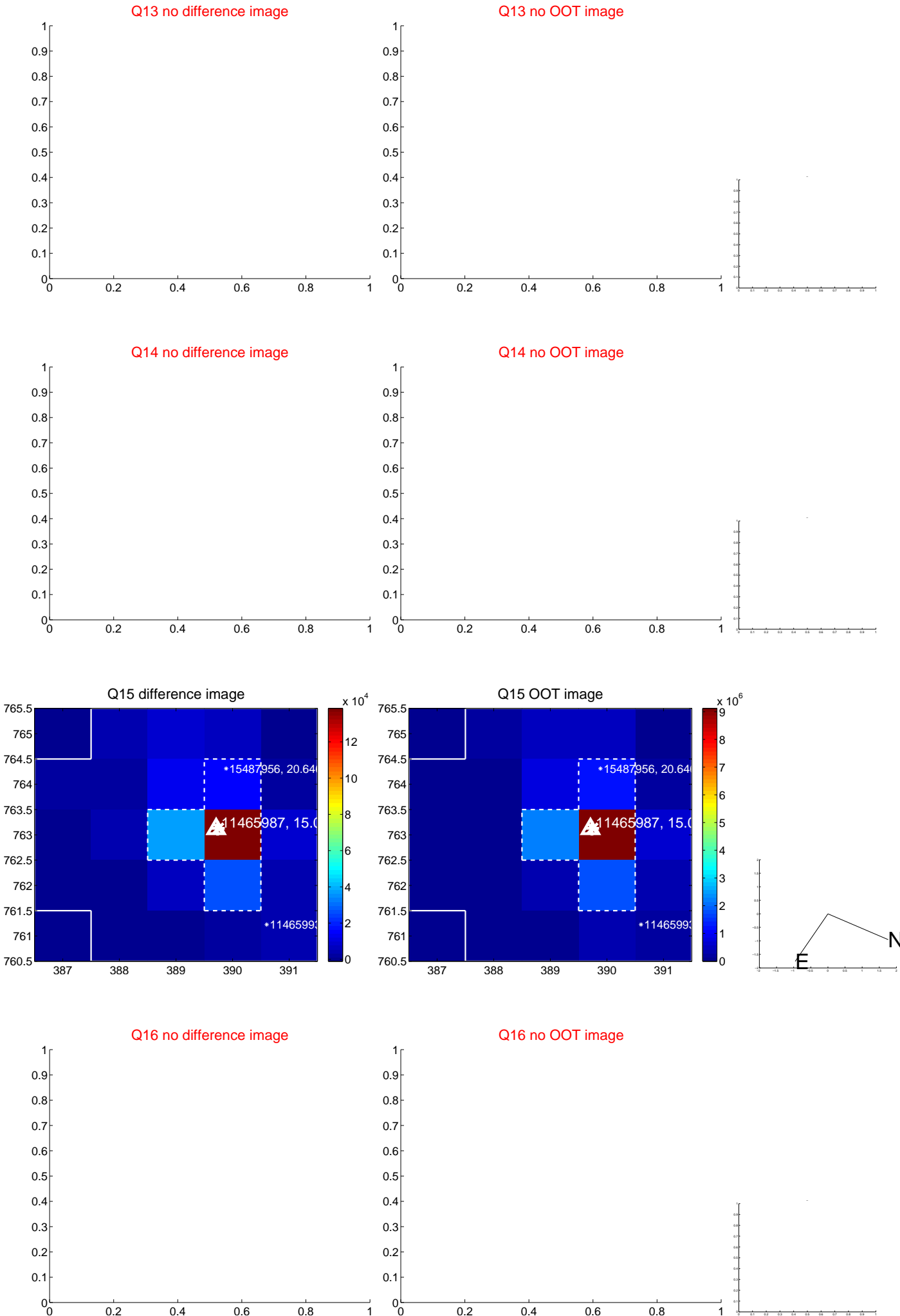
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



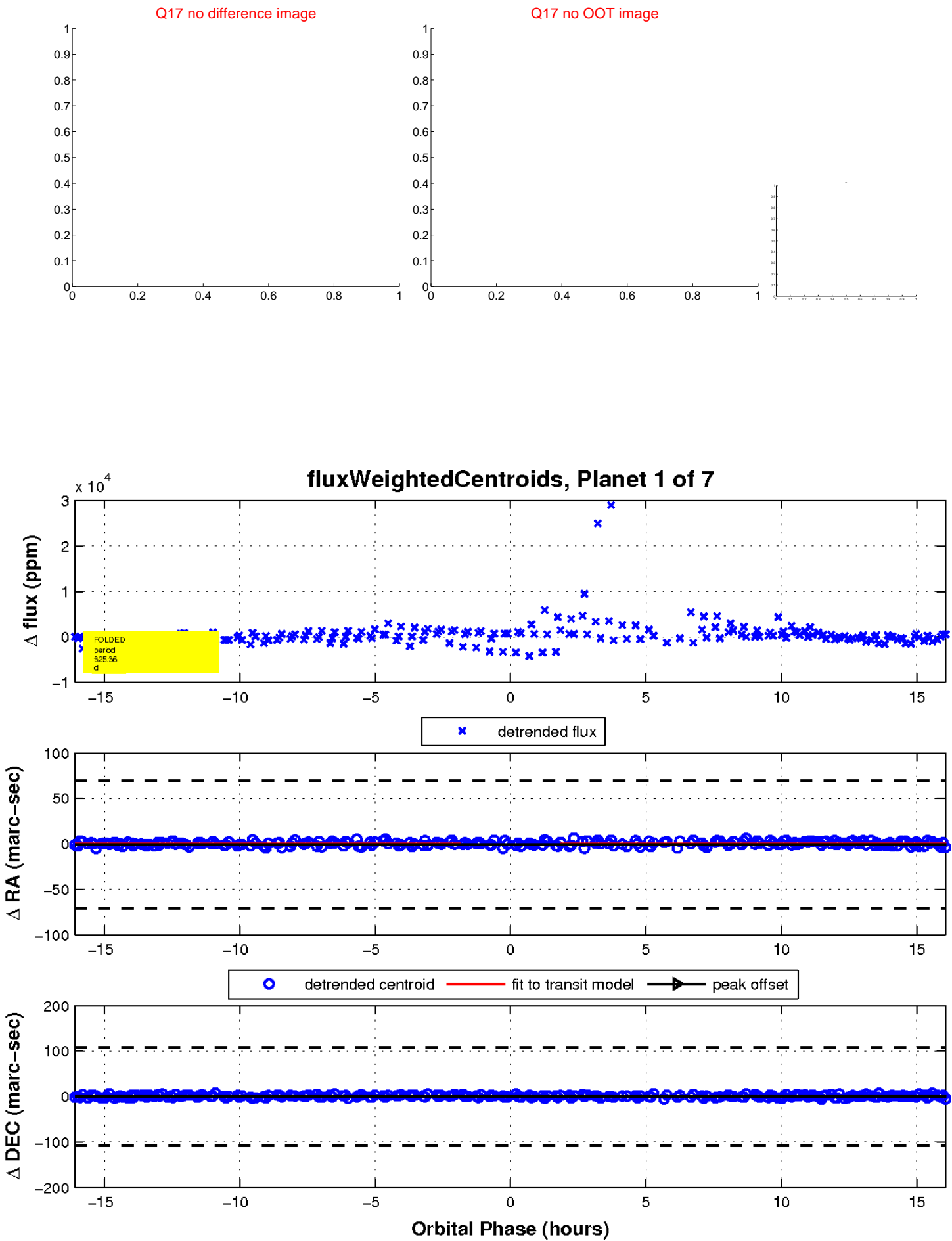
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

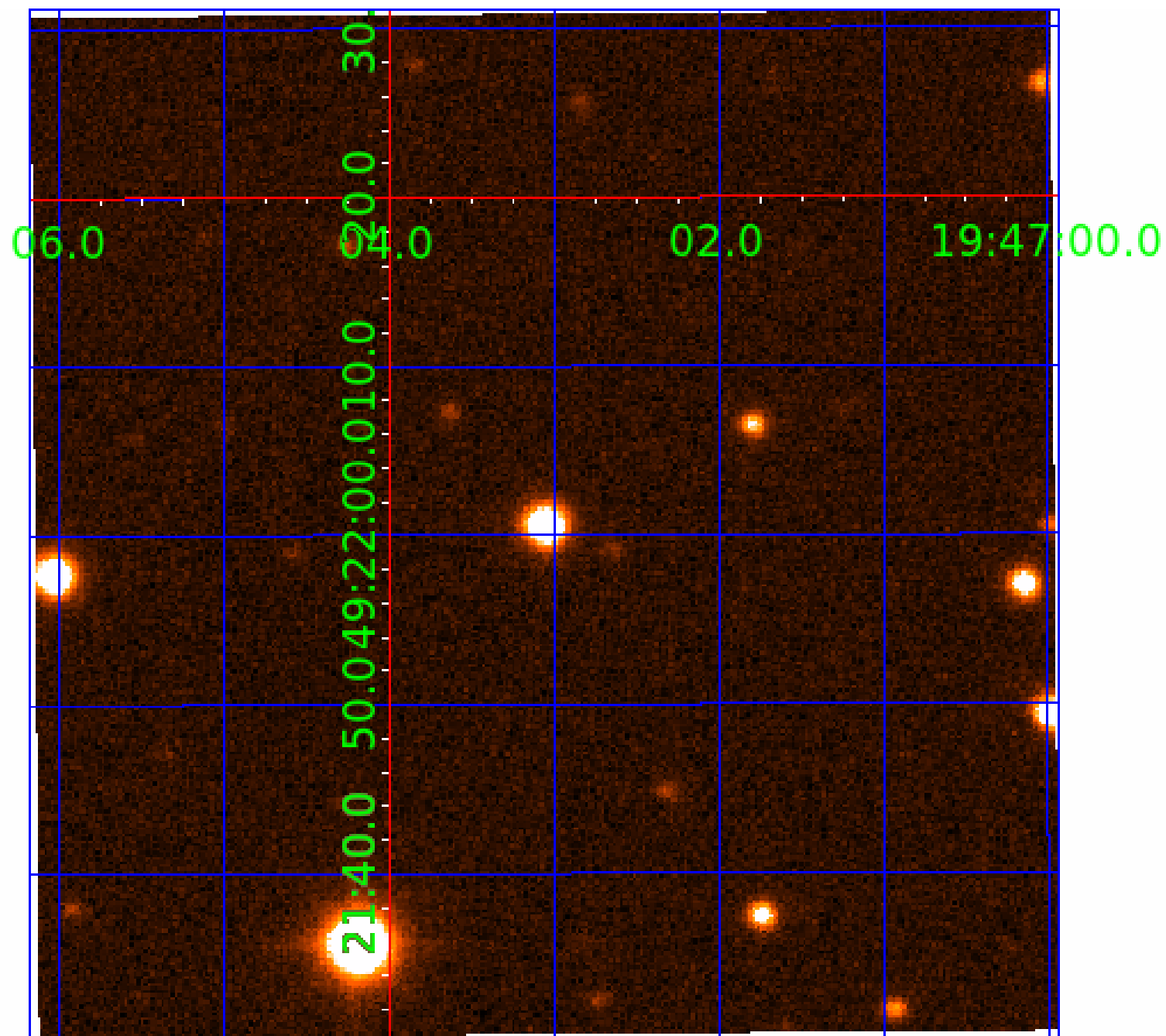


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
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| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

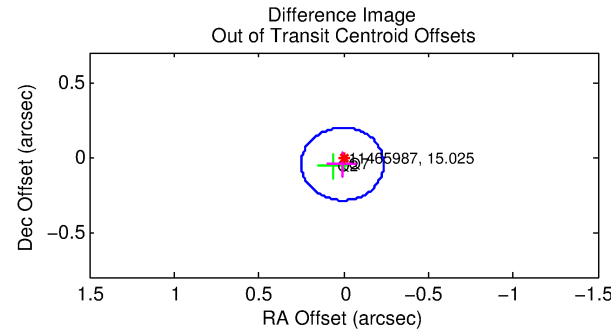
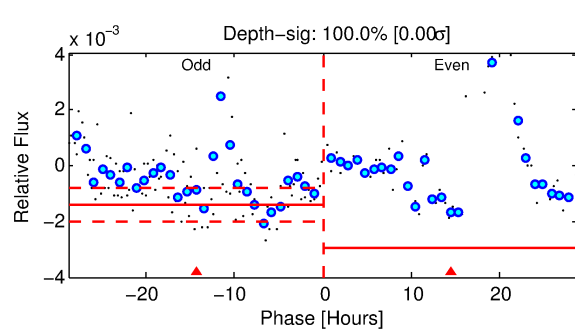
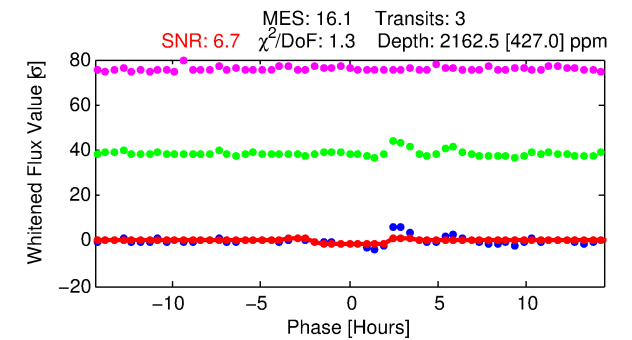
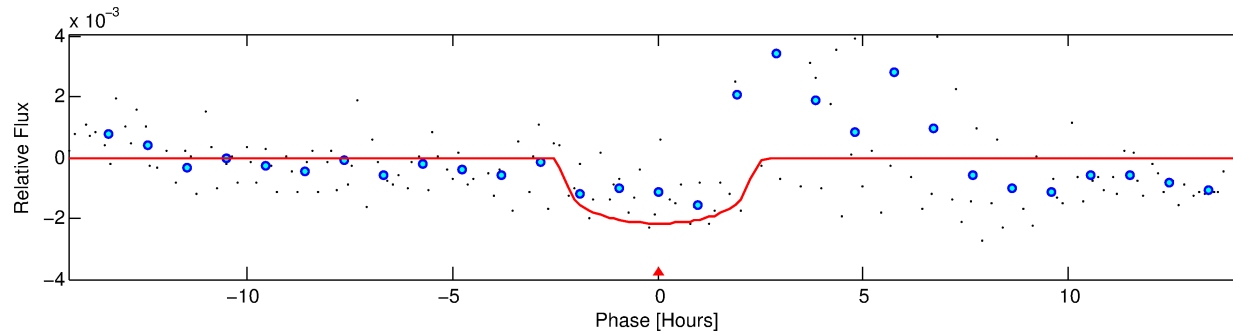
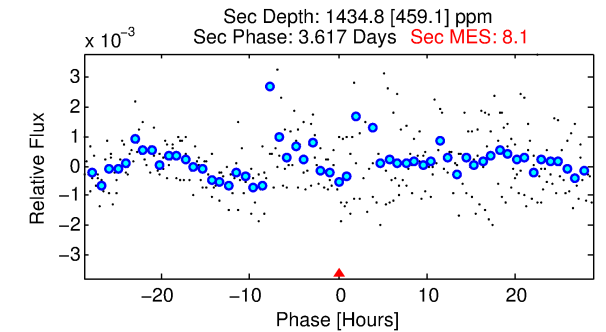
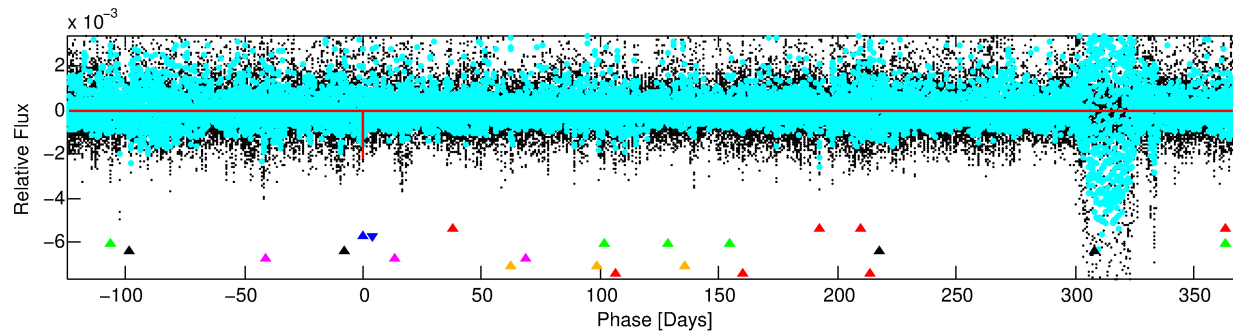
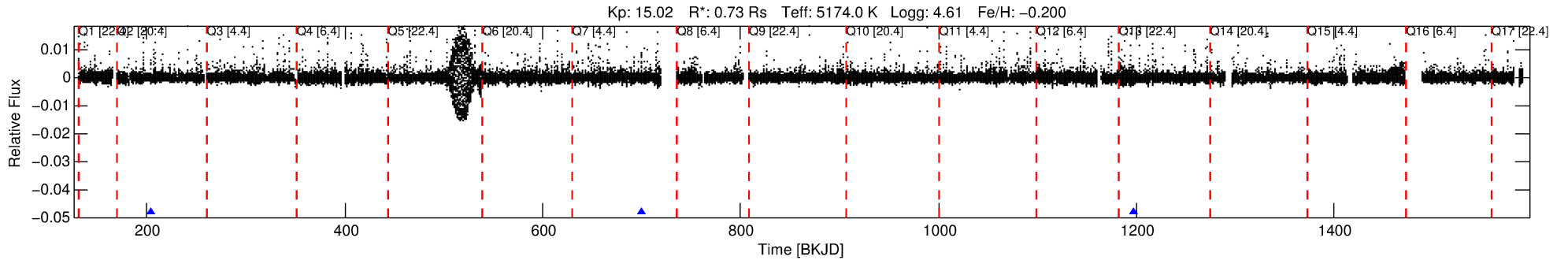
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011465987-02

No Significant Match Found

DV One-Page Summary

KIC: 11465987 Candidate: 2 of 7 Period: 496.488 d



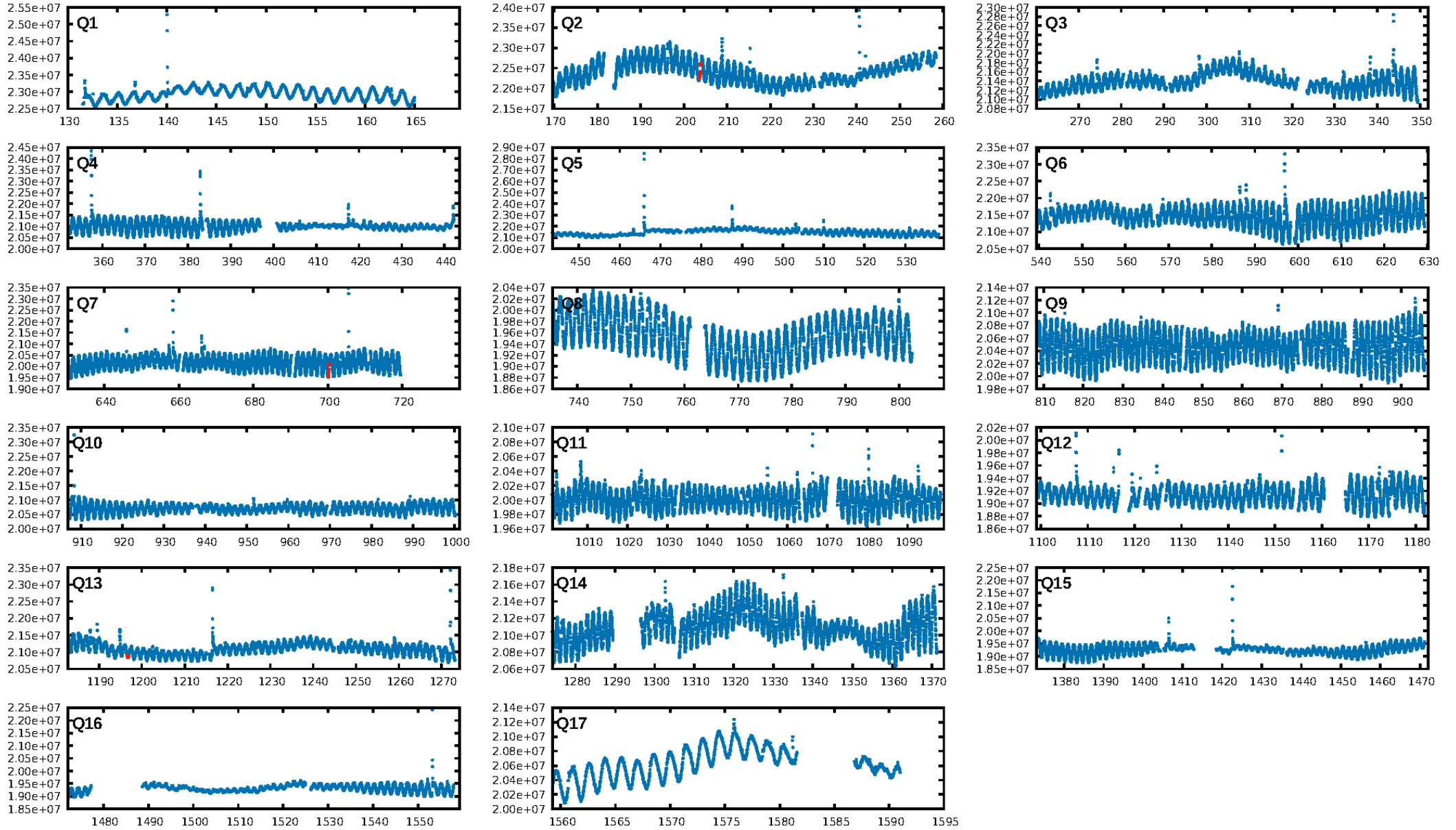
DV Fit Results:

Period = 496.48836 [0.00631] d
Epoch = 203.7548 [0.0064] BKJD
Rp/R* = 0.0415 [0.0608]
a/R* = 826.10 [4386.51]
b = 0.03 [195.19]
Seff = 0.27 [0.05]
Teq = 183 [9] K
Rp = 3.33 [4.89] Re
a = 1.1379 [0.1199] AU
Ag = 92304.80 [272032.04] [0.34σ]
Teffp = 4940 [3638] K [1.31σ]

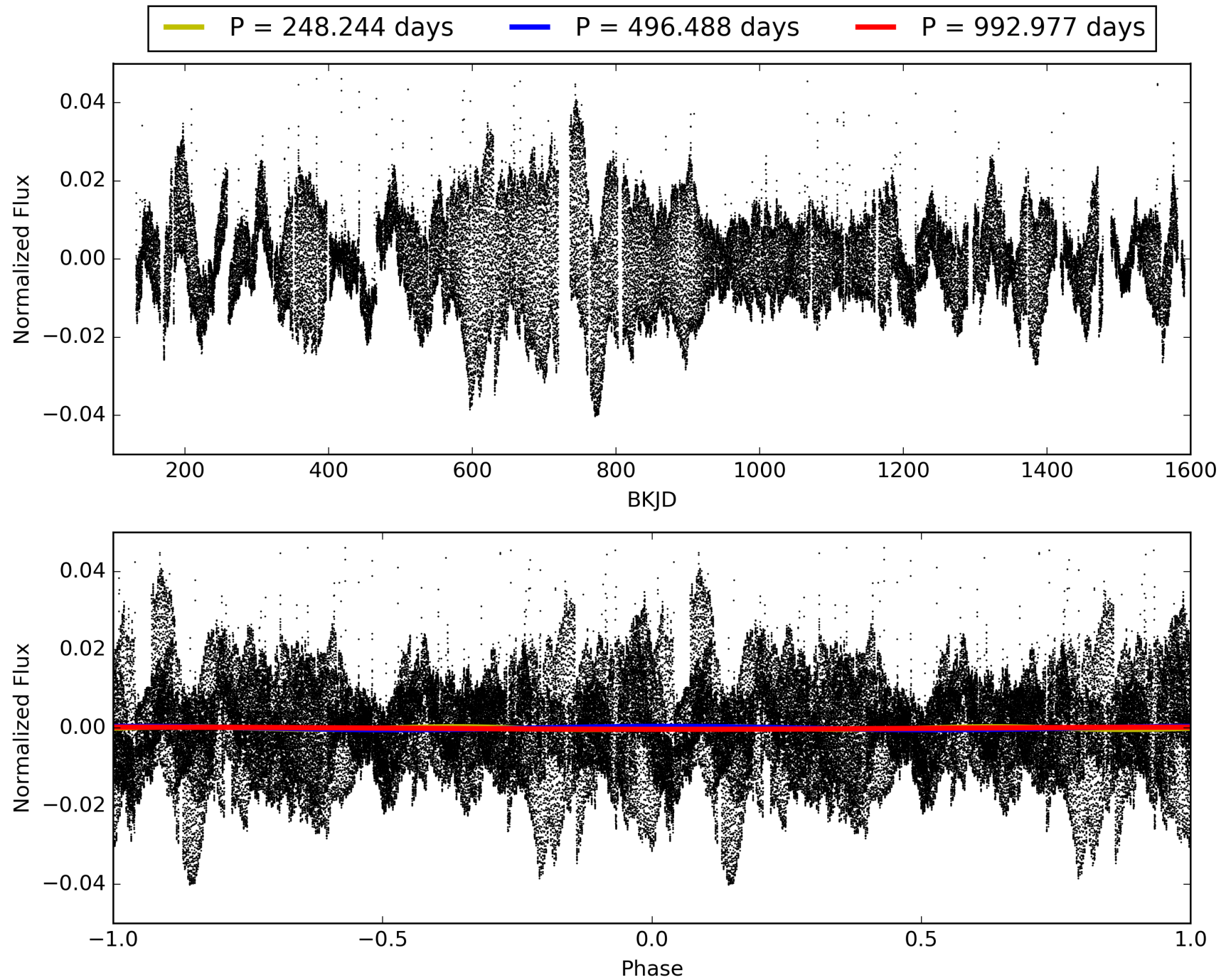
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [127.34σ]
LongPeriod-sig: 100.0% [99.29σ]
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 66.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 55.03
Centroid-sig: 83.9%
Centroid-so: 0.112 arcsec [0.16σ]
OotOffset-rm: 0.046 arcsec [0.57σ]
KicOffset-rm: 0.103 arcsec [1.27σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 011465987-02, PDC Light Curves

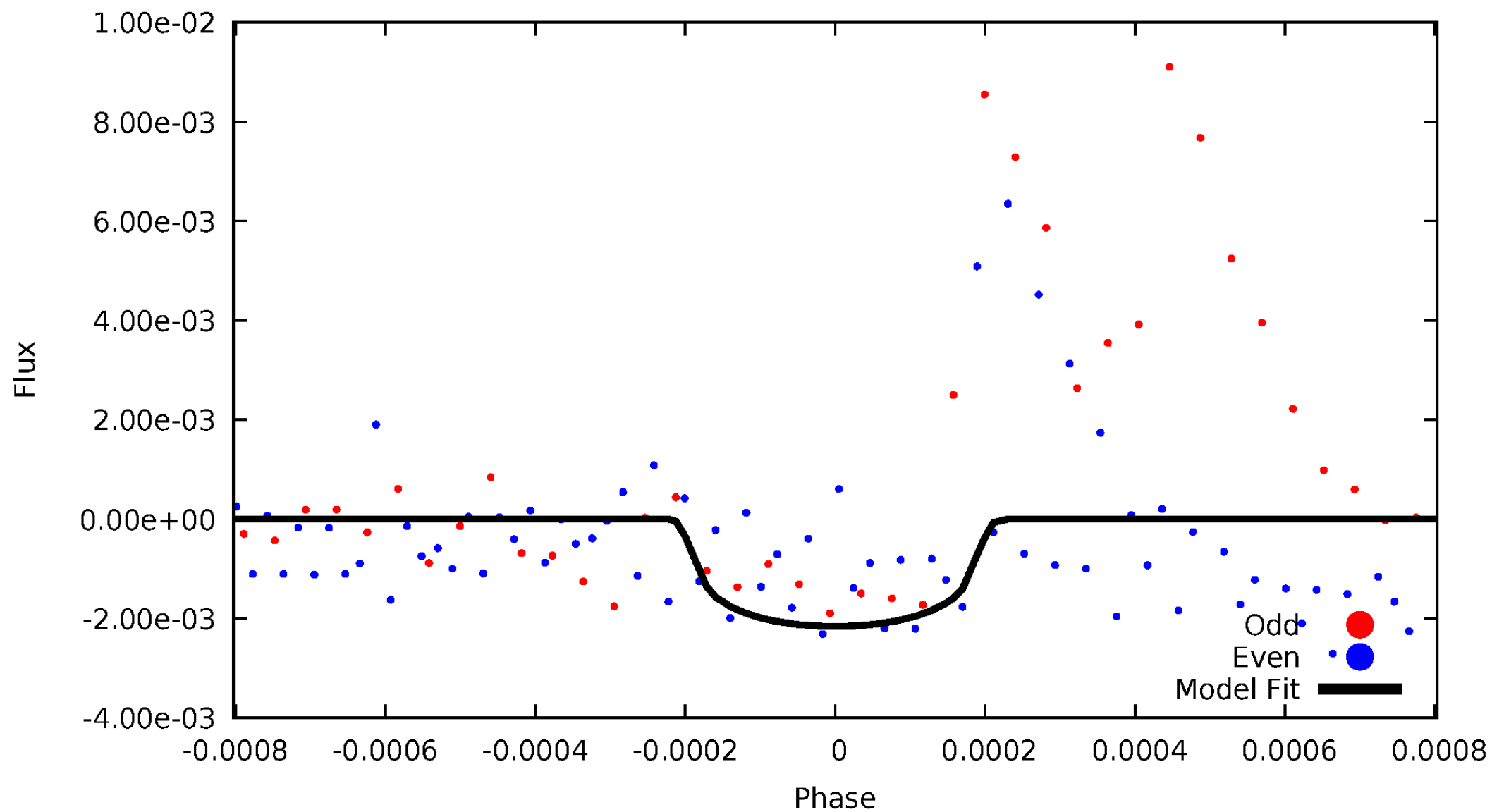


TCE 011465987-02



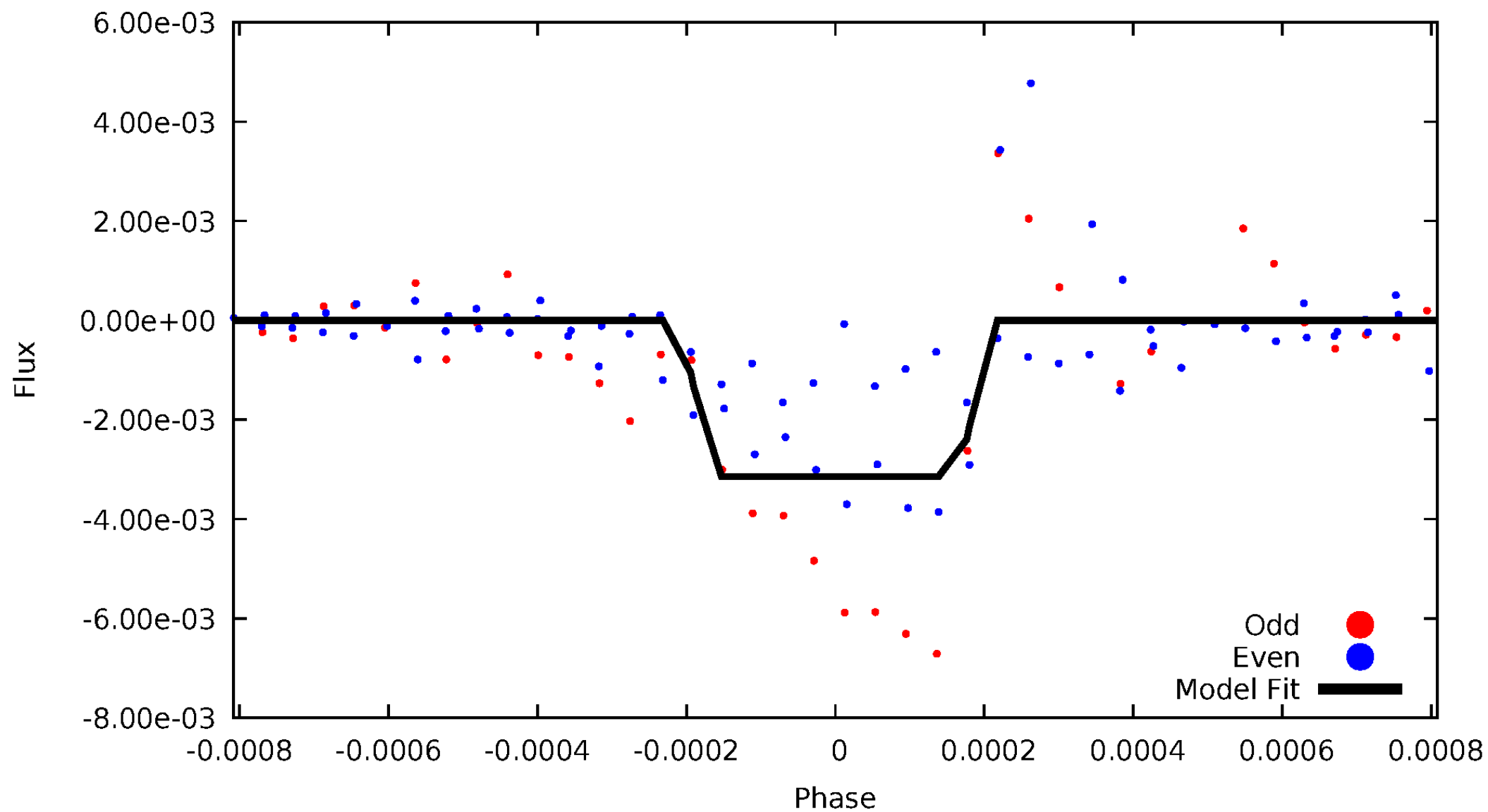
DV Odd/Even

TCE 011465987-02



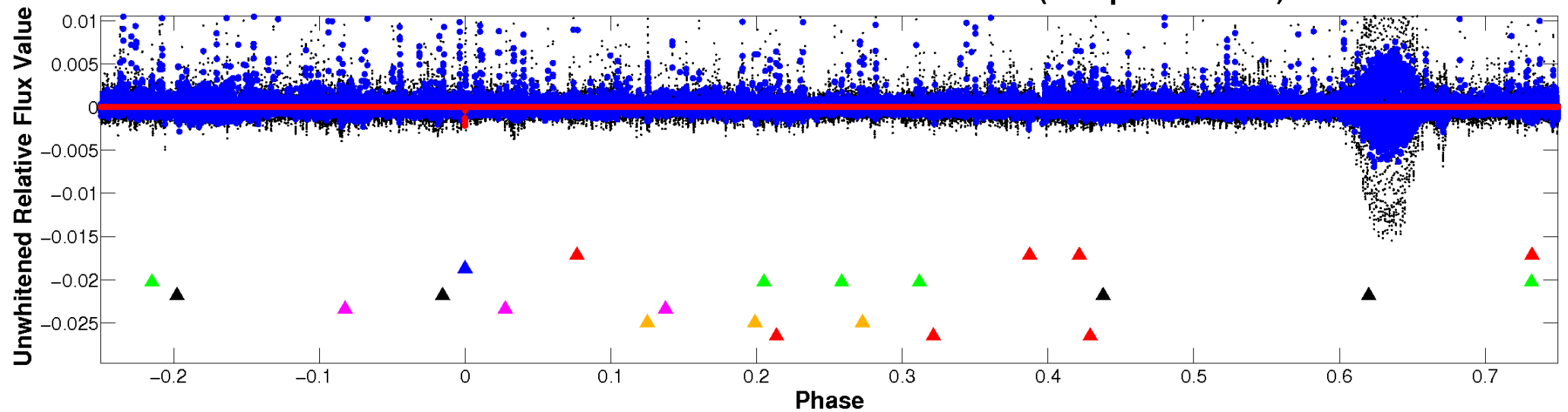
ALT Odd/Even

TCE 011465987-02

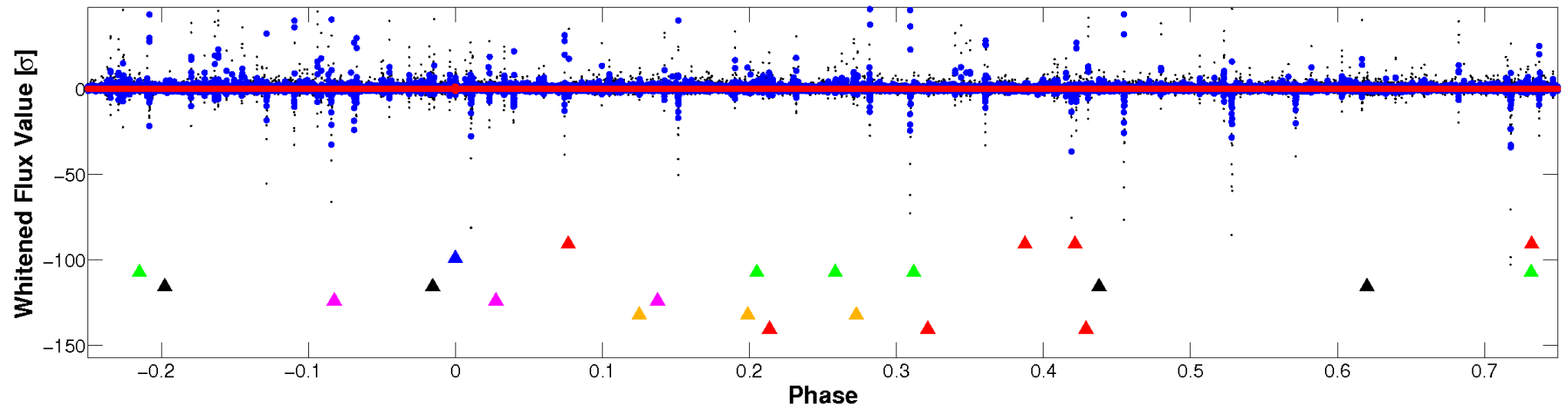


Non-Whitened Vs. Whitened Light Curve

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

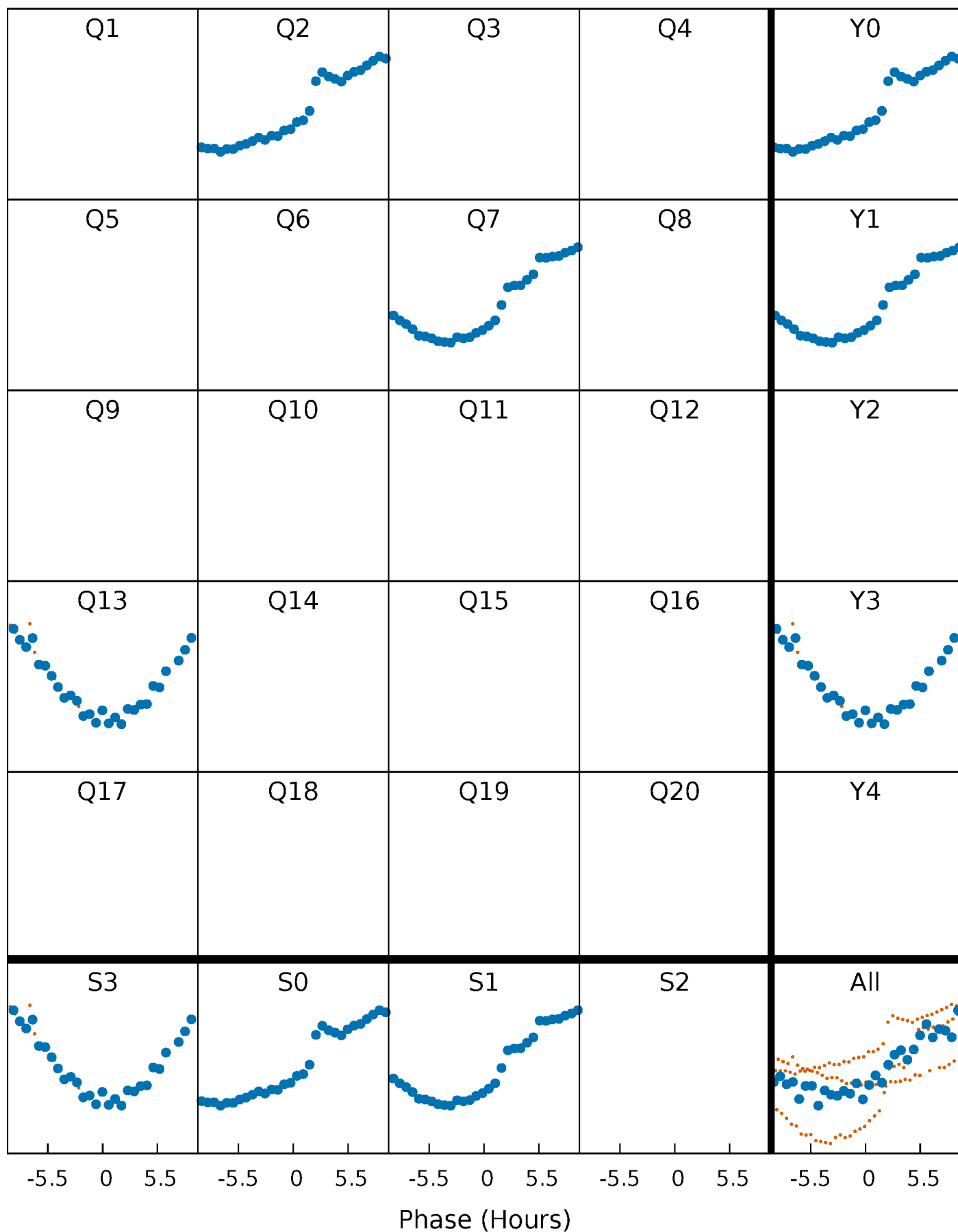


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



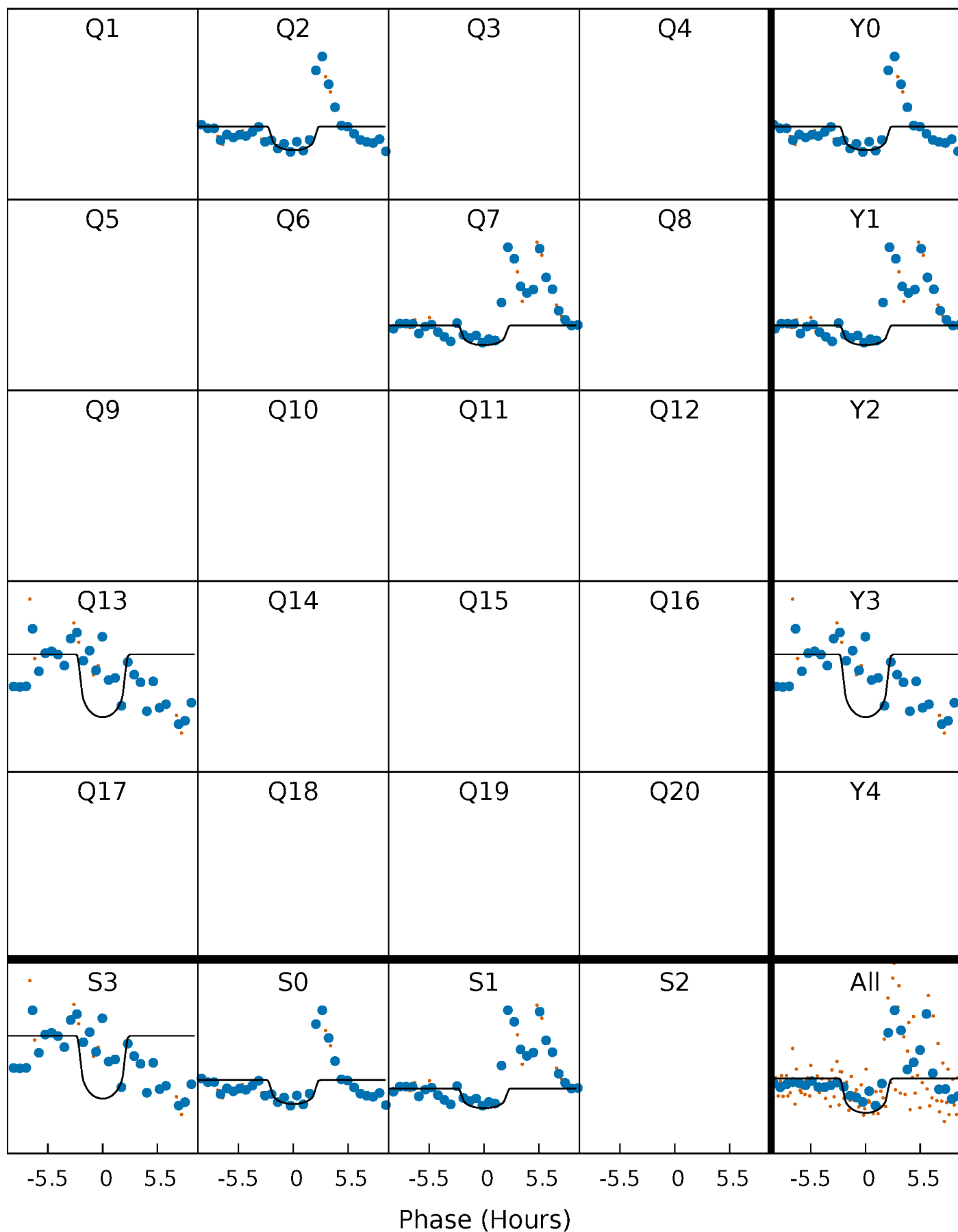
PDC Quarter-Phased Transit Curves

TCE 011465987-02 $P=496.488363$ Days $T_0=203.754804$ (BKJD)



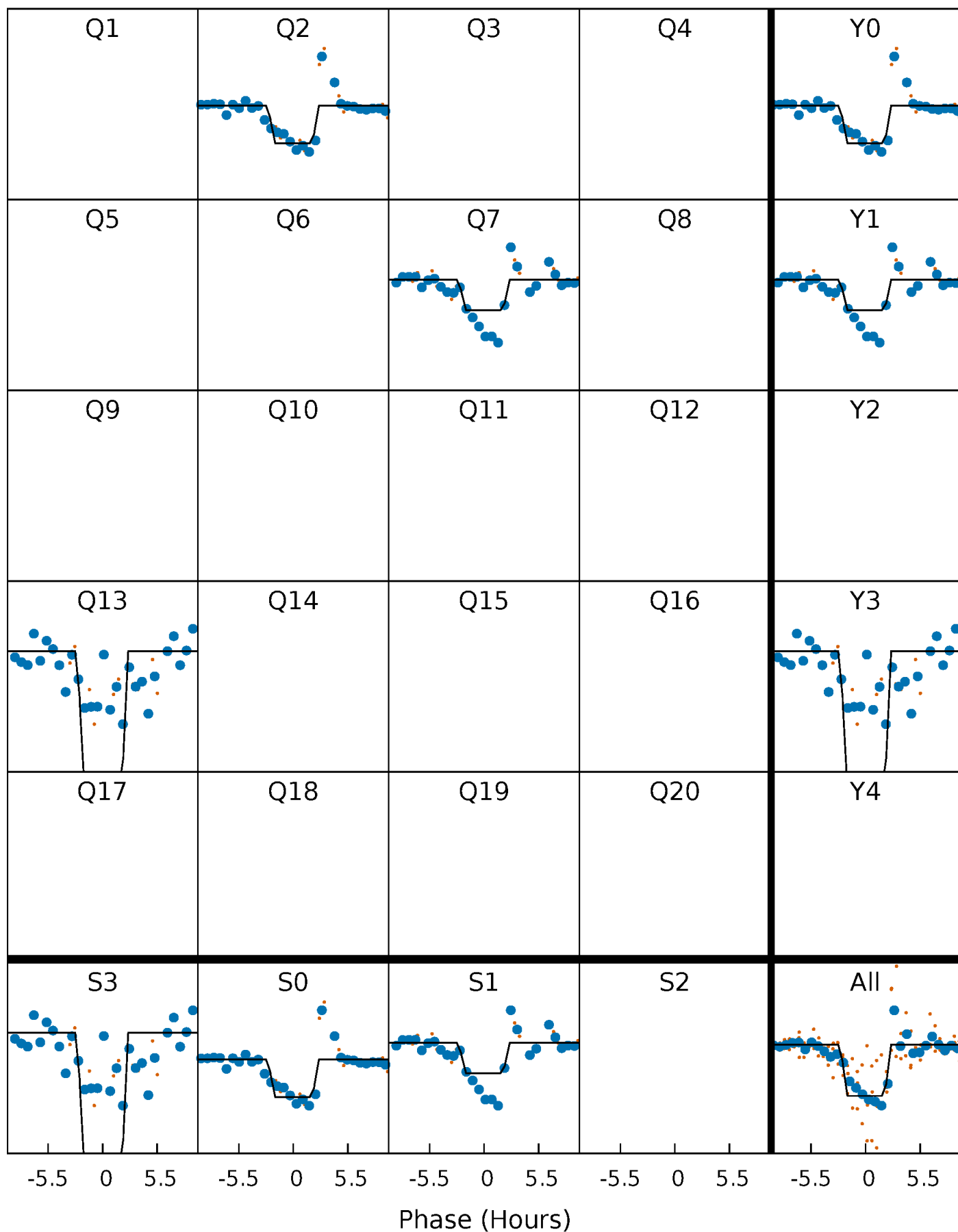
DV Quarter-Phased Transit Curves

TCE 011465987-02 $P=496.488363$ Days $T_0=203.754804$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

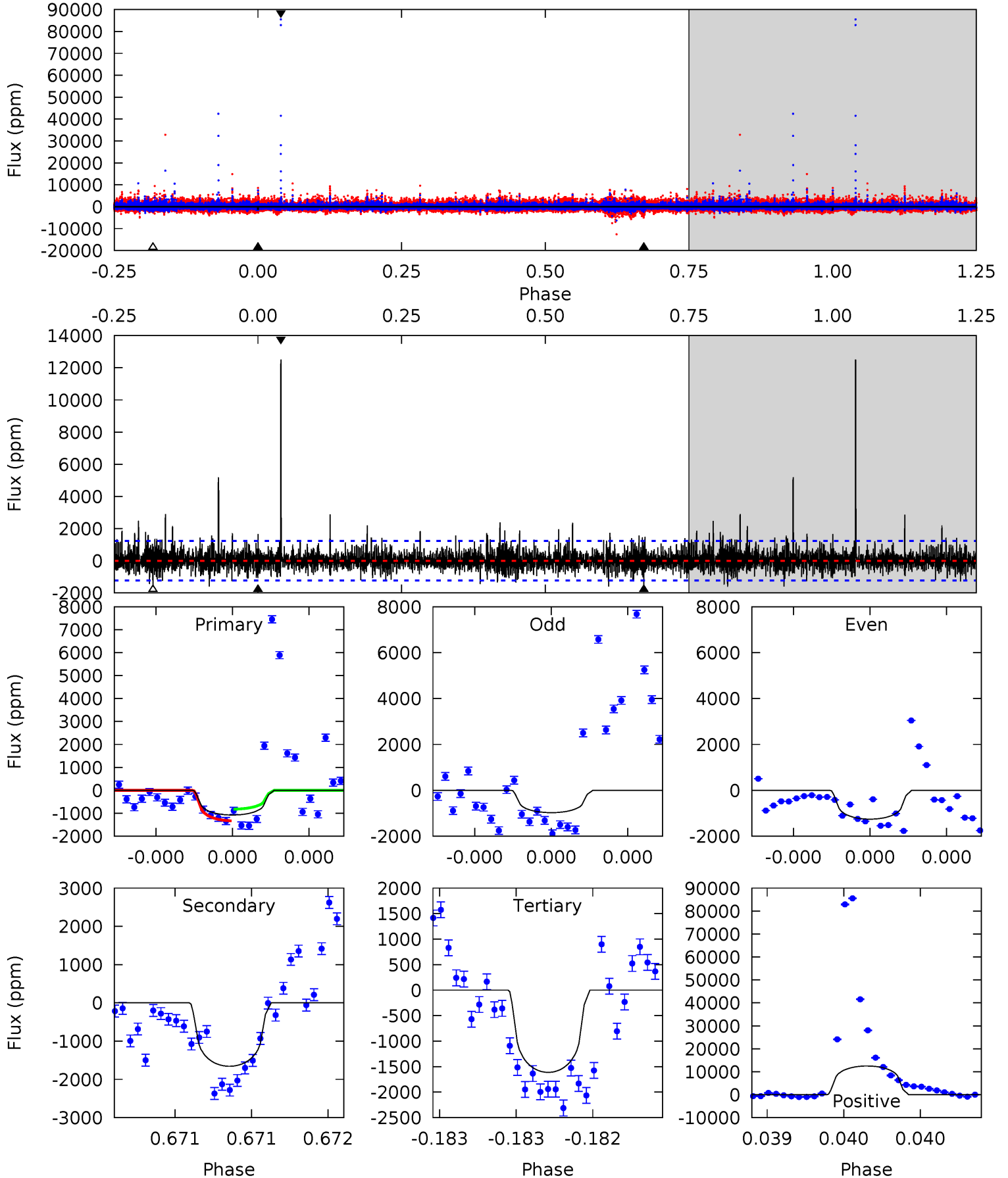
TCE 011465987-02 P=496.494641 Days $T_0=203.738897$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-02, P = 496.488363 Days, E = 203.754804 Days

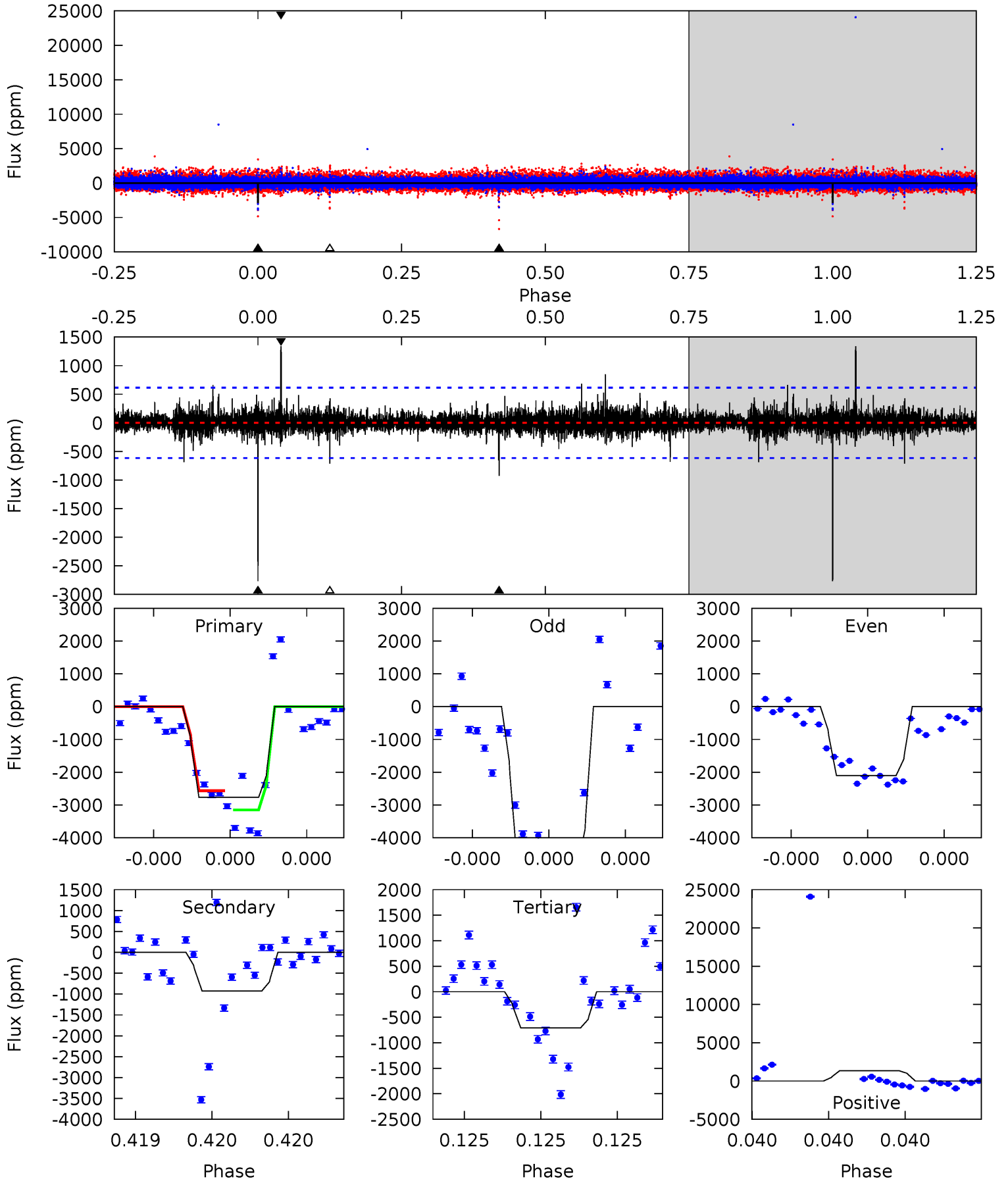
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.90 | 7.54 | 7.34 | 56.9 | 5.60 | 3.53 | 2.34 | -2.44 | -52.0 | 0.20 | -49.4 | 0.30 | 1.11 | 0.88 | 1.15 |



Alt Model-Shift Uniqueness Test

011465987-02, P = 496.494641 Days, E = 203.738897 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 25.3 | 8.47 | 6.48 | 12.2 | 5.62 | 3.56 | 0.98 | 18.8 | 13.1 | 1.99 | -3.74 | 13.6 | 0.98 | 0.33 | 2.52 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-----------------|------------------------|-------------------|-----------------------|----------------------------|
| DV | -1657 ± 220 | $4.91^{+4.30}_{-3.17}$ | 258^{+10}_{-10} | 4392^{+2756}_{-870} | $47735^{+370239}_{-34591}$ |
| Alt. | -928 ± 110 | $5.52^{+4.40}_{-3.38}$ | 258^{+10}_{-10} | 3799^{+1729}_{-621} | $21640^{+117666}_{-14708}$ |

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

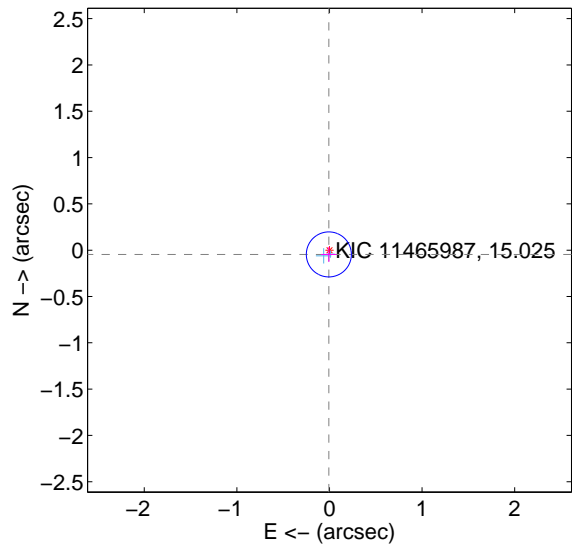
Supplemental centroid analysis for 011465987-02. Kepler magnitude: 15.03. Transit SNR 6.67

There are 2 quarters with good PRF difference image offsets

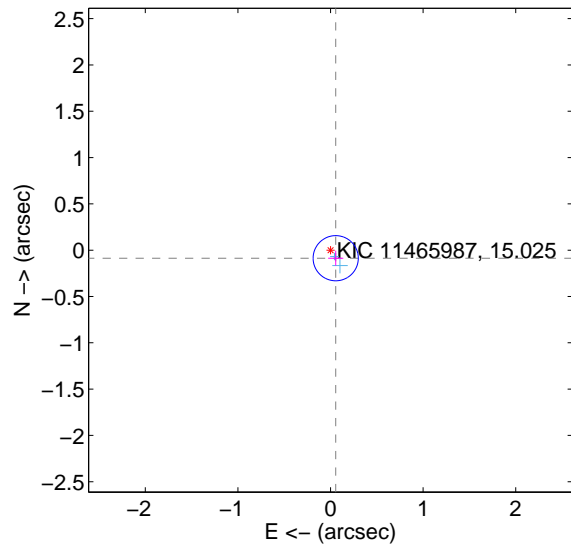
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.046 ± 0.081 | 0.57 | 0.007 ± 0.082 | -0.046 ± 0.081 |
| PRF-fit source offset from KIC position | 0.103 ± 0.081 | 1.27 | -0.056 ± 0.082 | -0.087 ± 0.081 |
| photometric centroid source offset | 0.11 ± 0.69 | 0.16 | 0.11 ± 0.69 | -0.01 ± 0.77 |

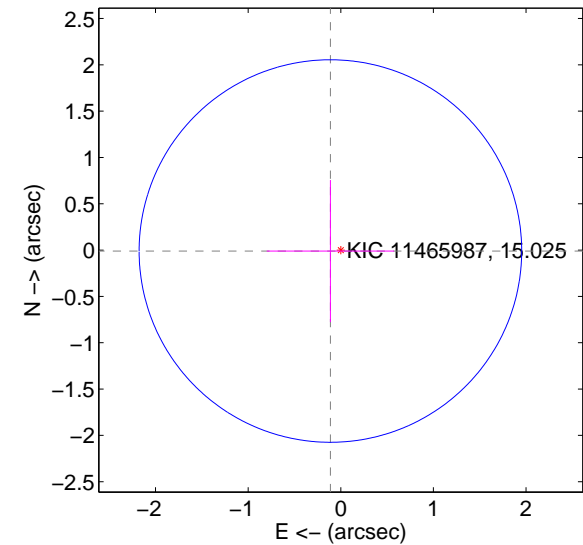
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

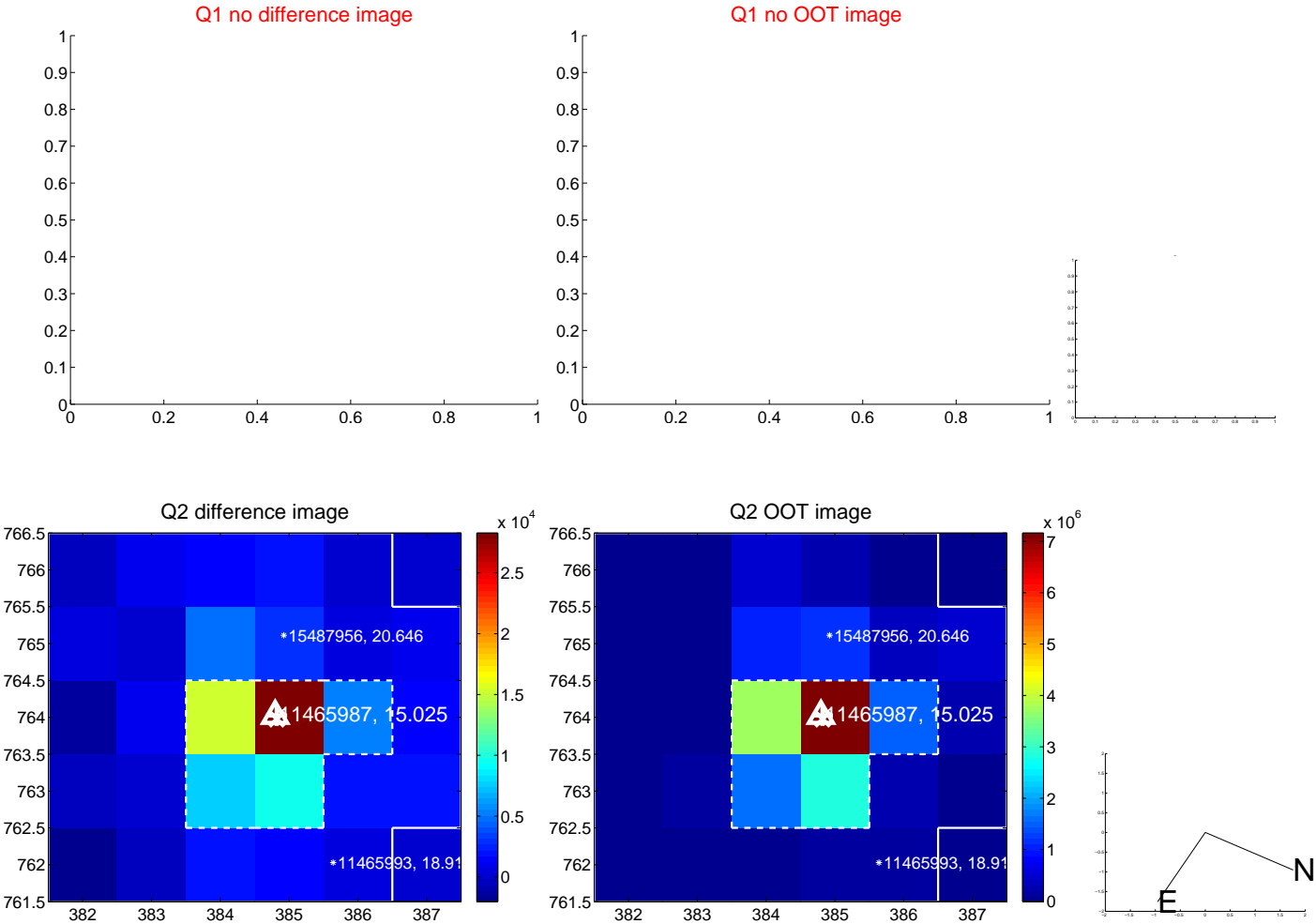


offset from photometric centroids

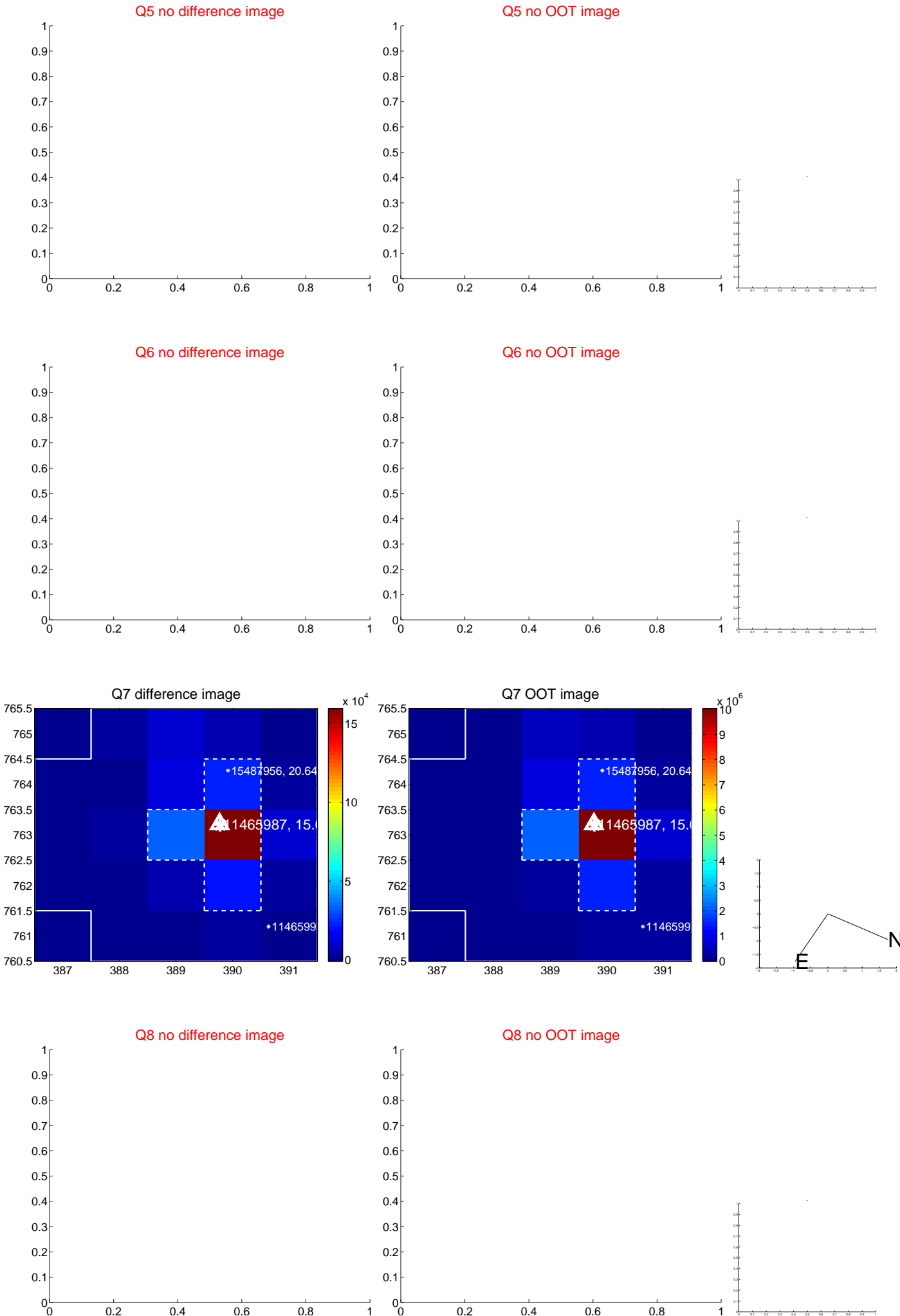


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



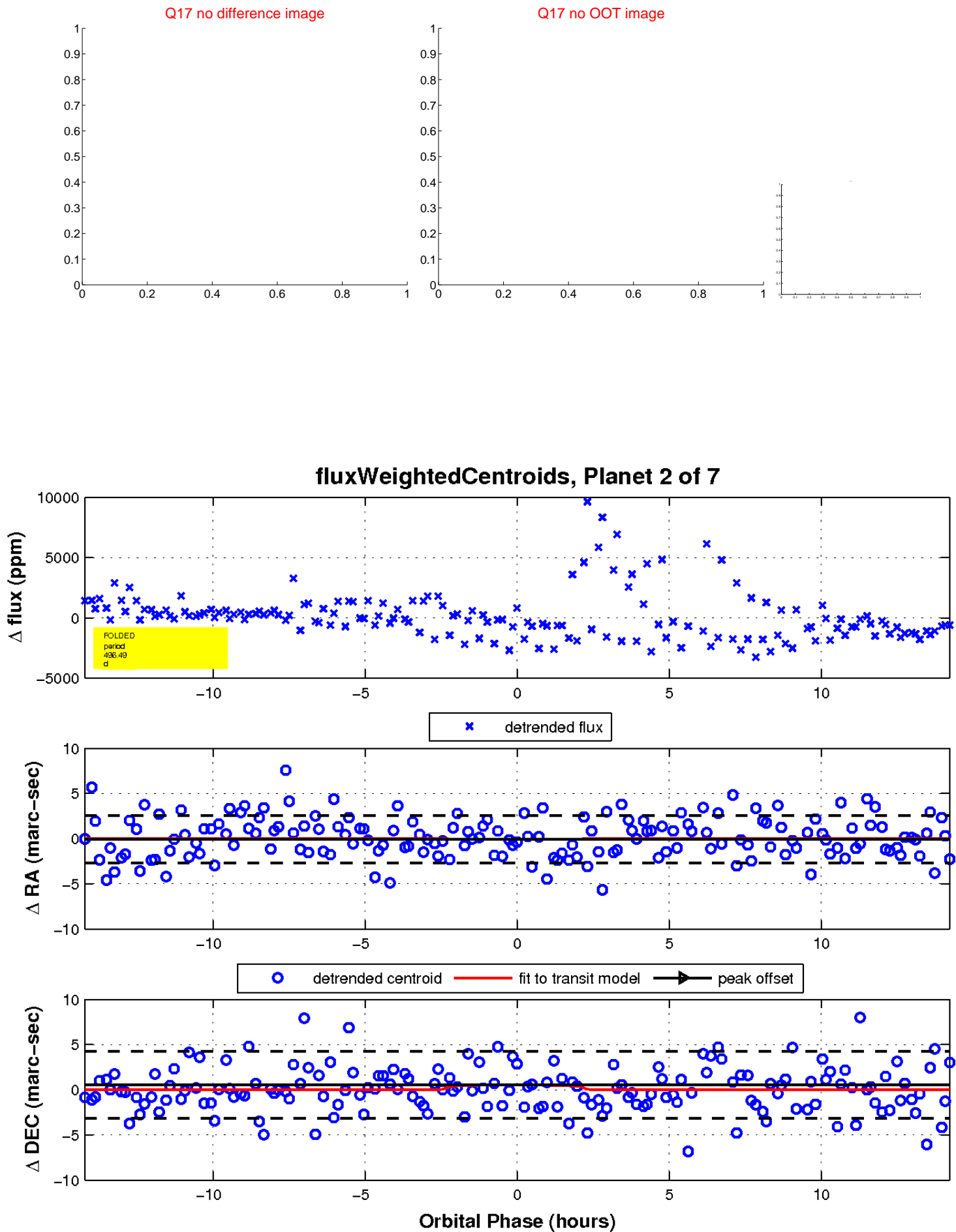
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

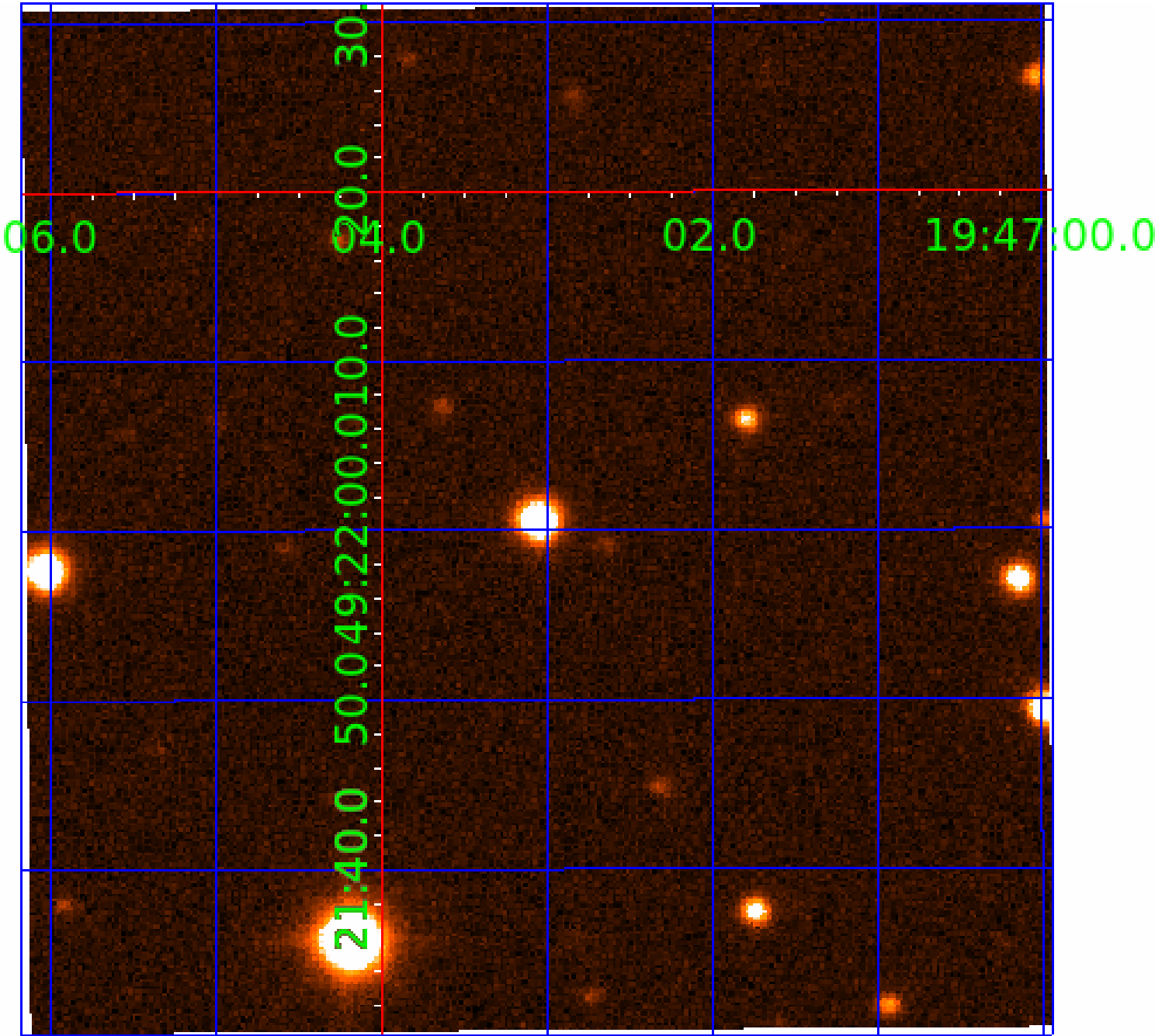


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
| 011465987-03 | OBS | No | 261.487804 | 305.572200 | 2018.0 | 5.605 | 13.6 | 7.4 | 0.73 | 5174 | 3.57 | 0.63 |
| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

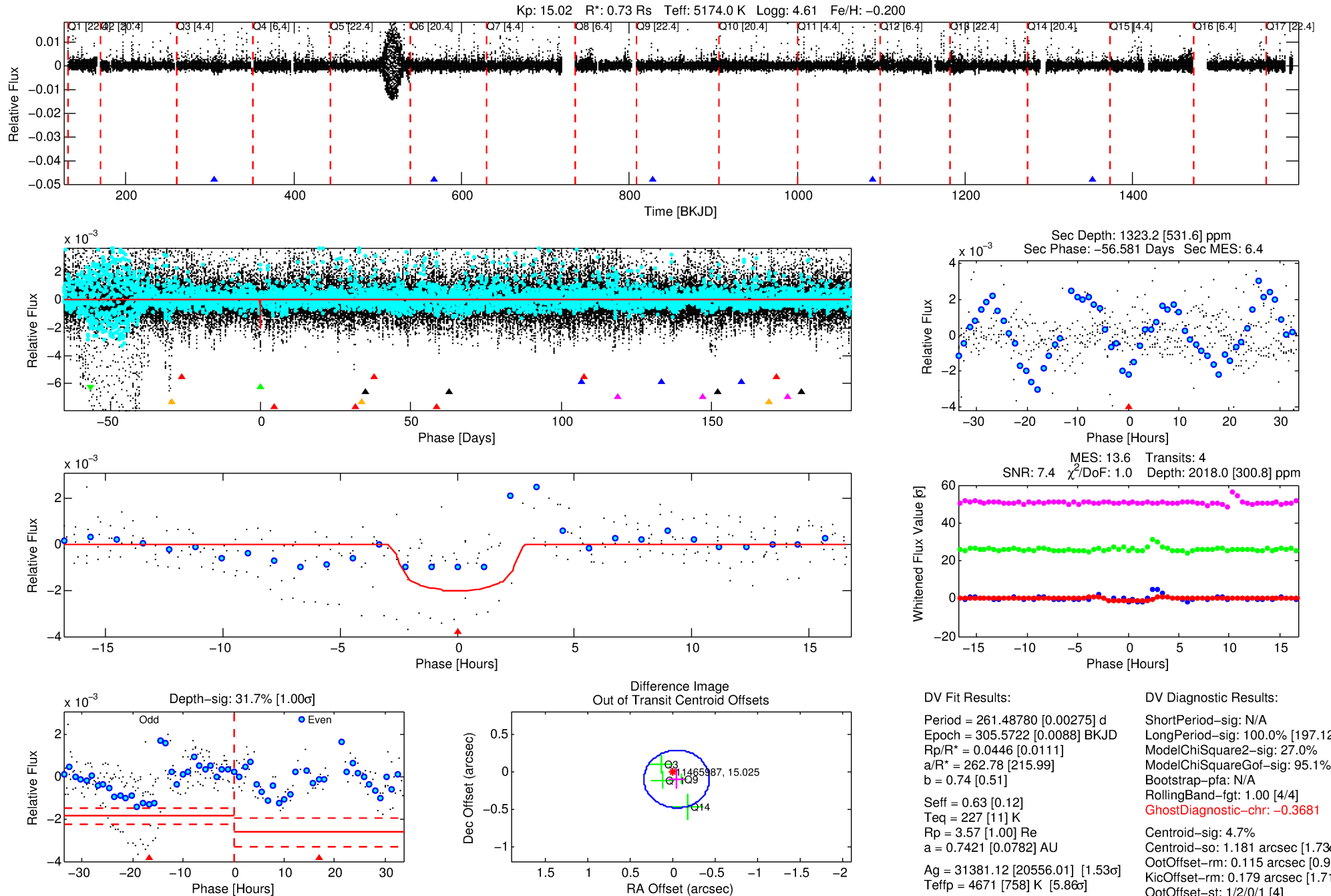
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011465987-03

No Significant Match Found

DV One-Page Summary

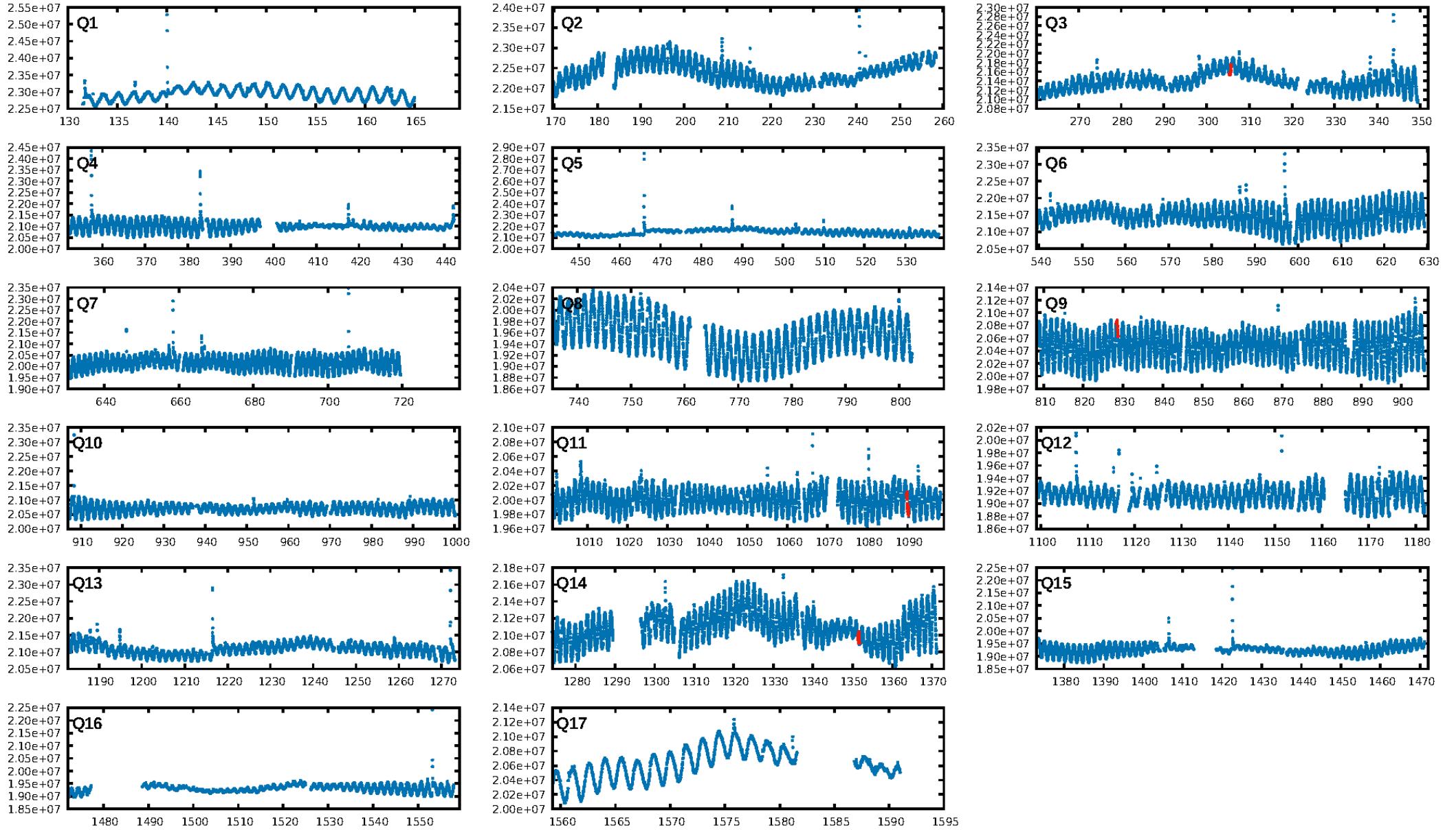
KIC: 11465987 Candidate: 3 of 7 Period: 261.488 d



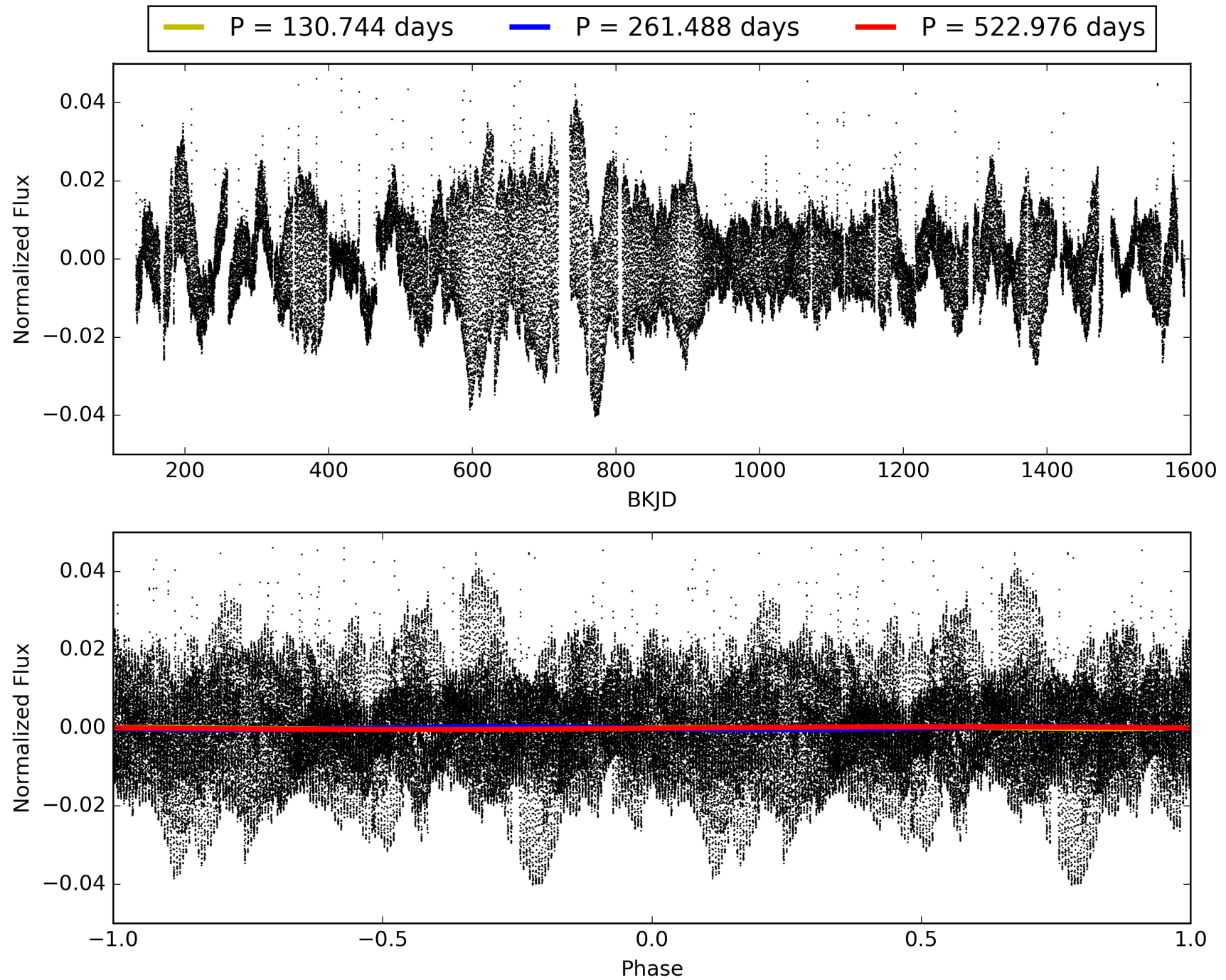
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:11:08 Z

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

TCE 011465987-03, PDC Light Curves

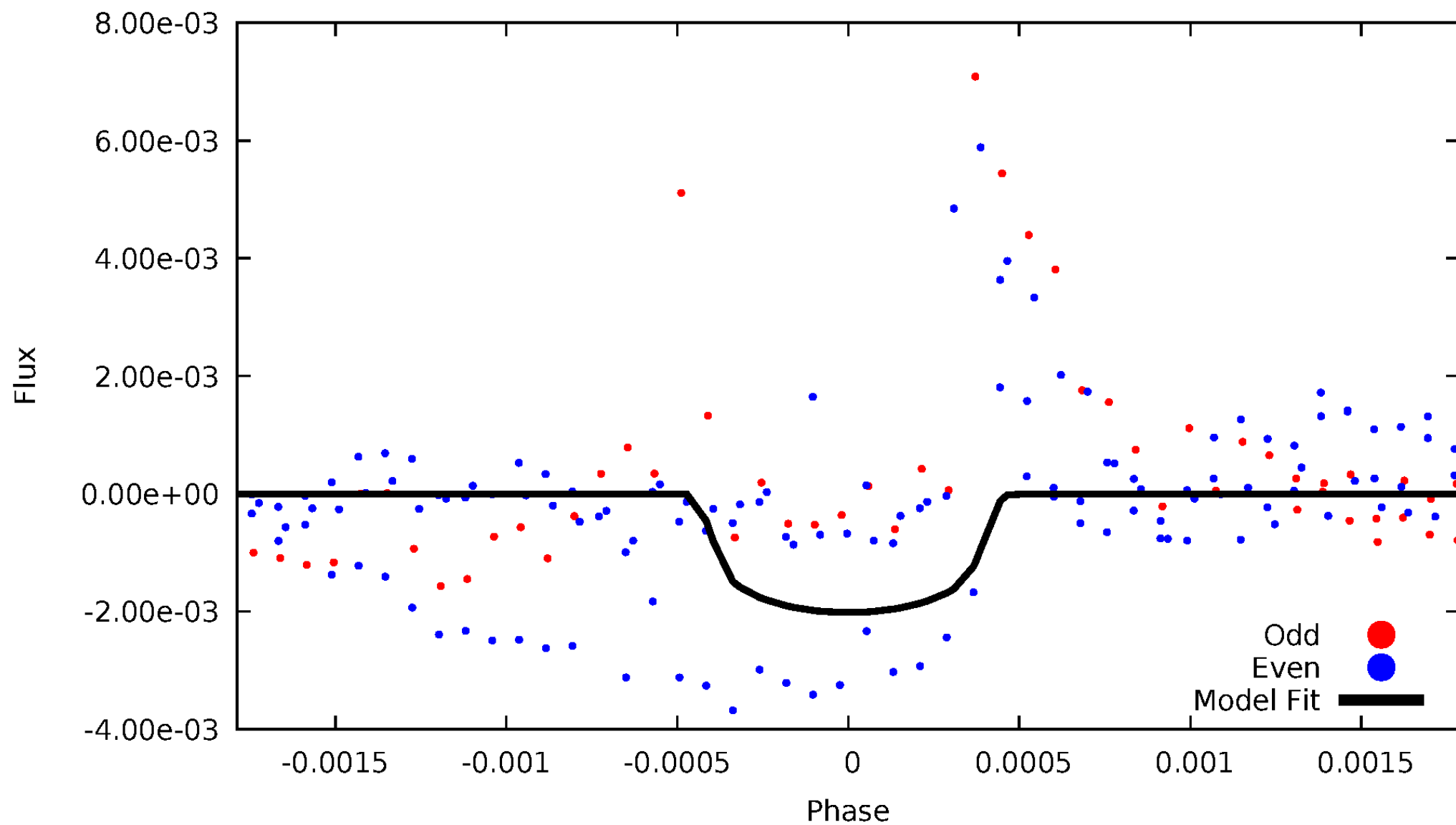


TCE 011465987-03



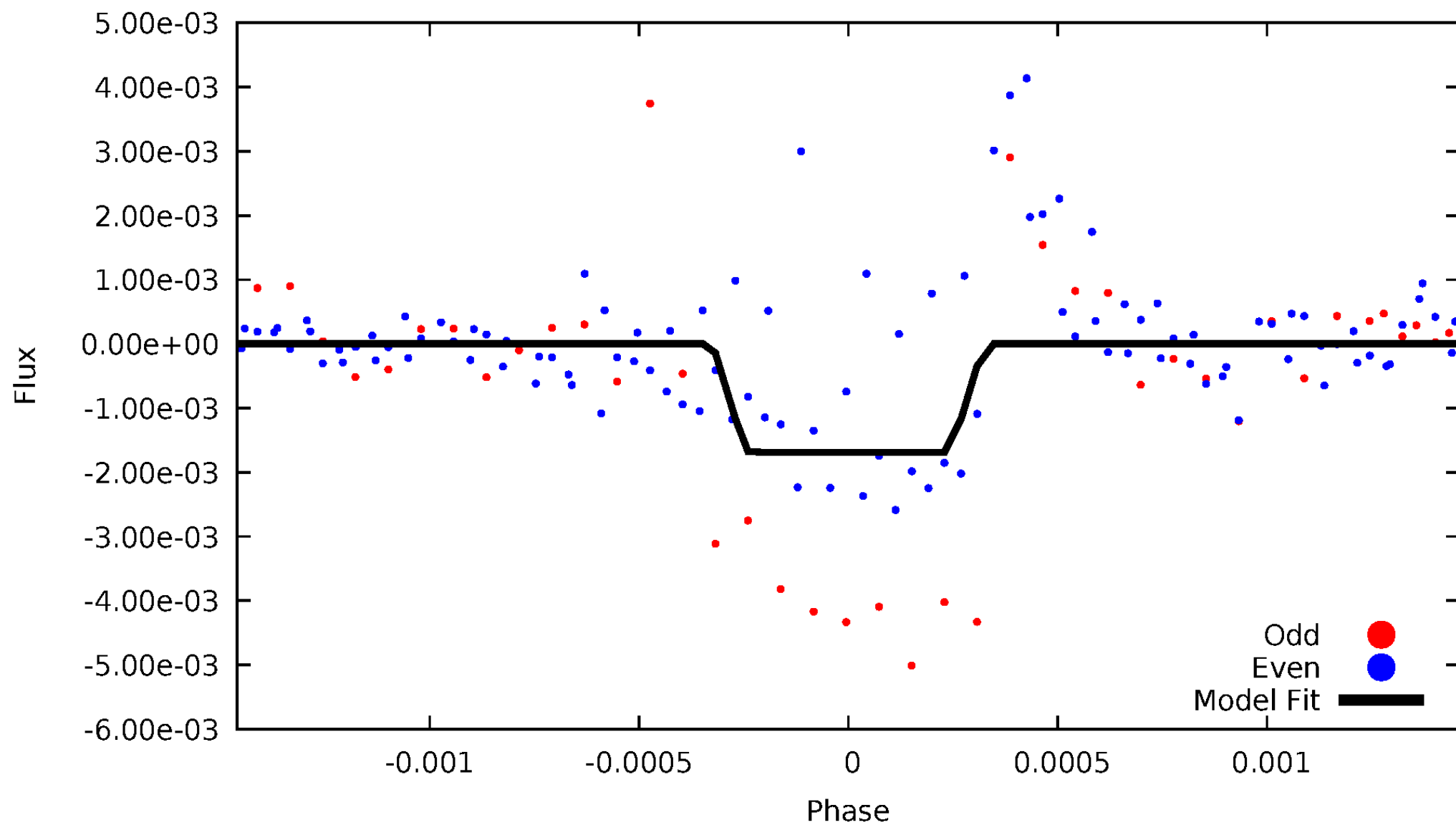
DV Odd/Even

TCE 011465987-03



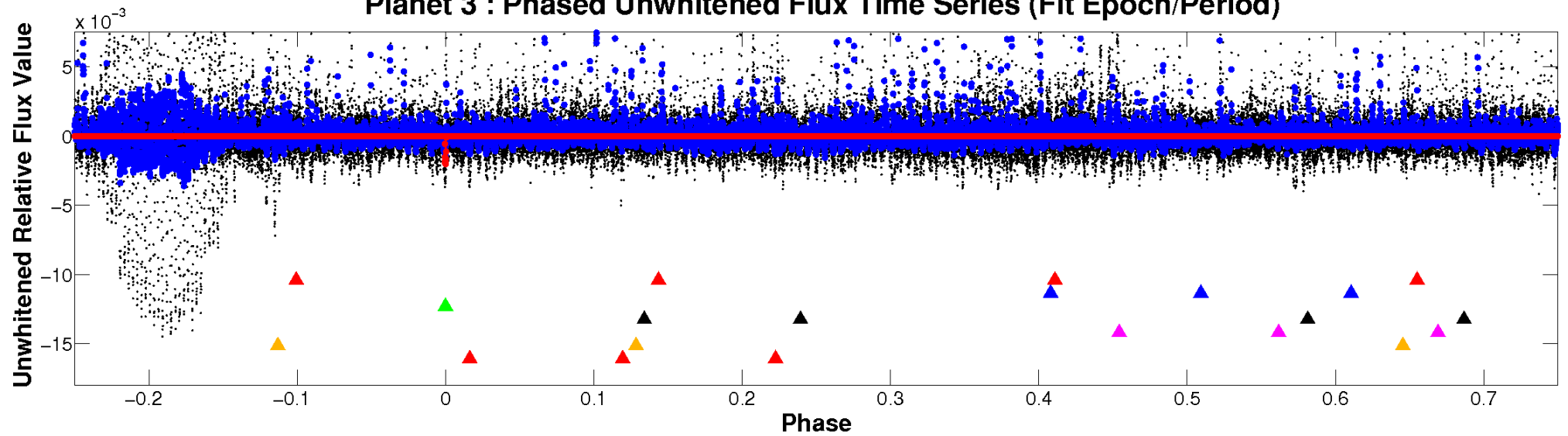
ALT Odd/Even

TCE 011465987-03

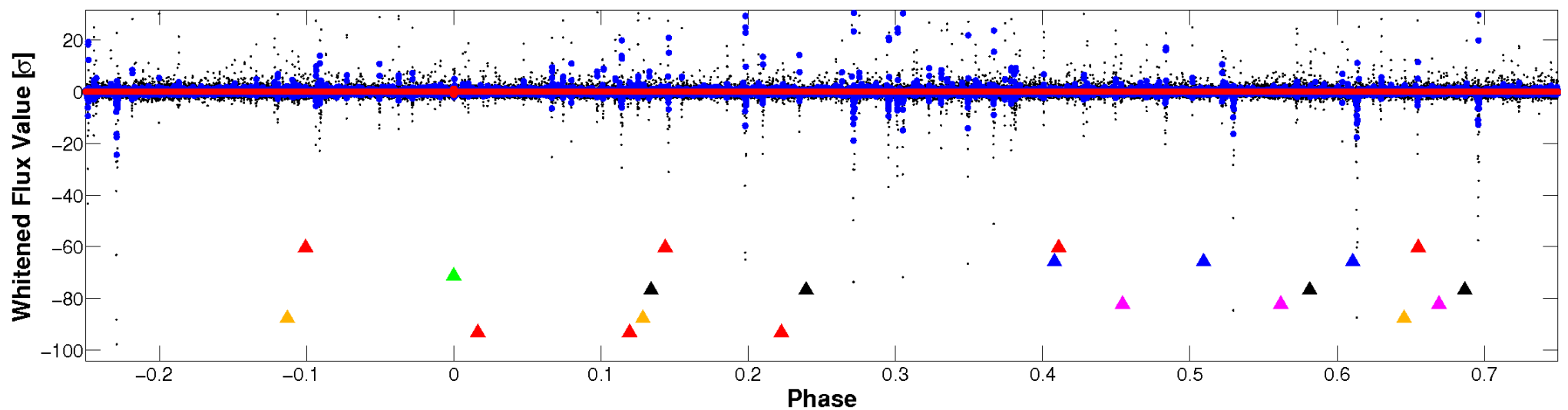


Non-Whitened Vs. Whitened Light Curve

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

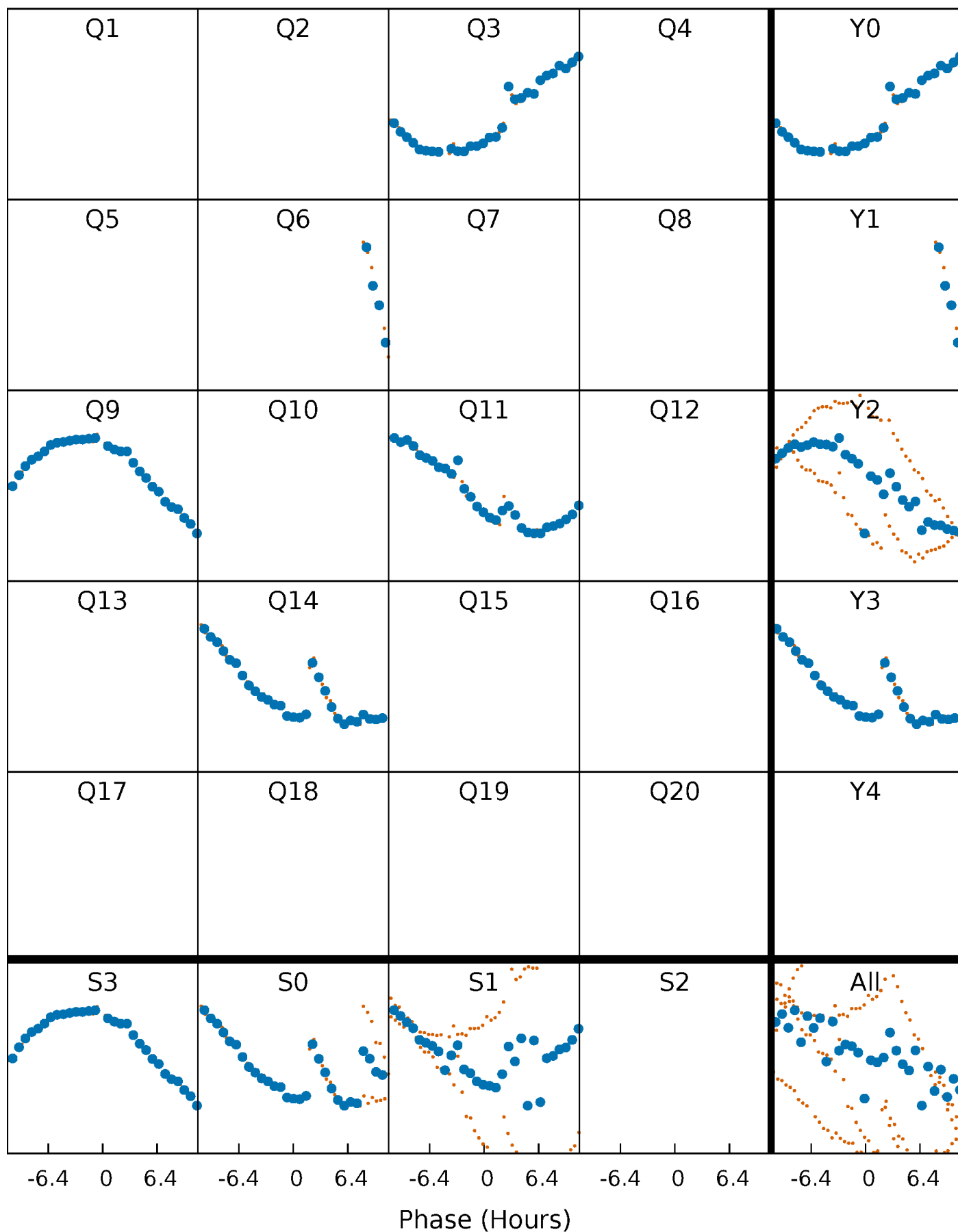


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



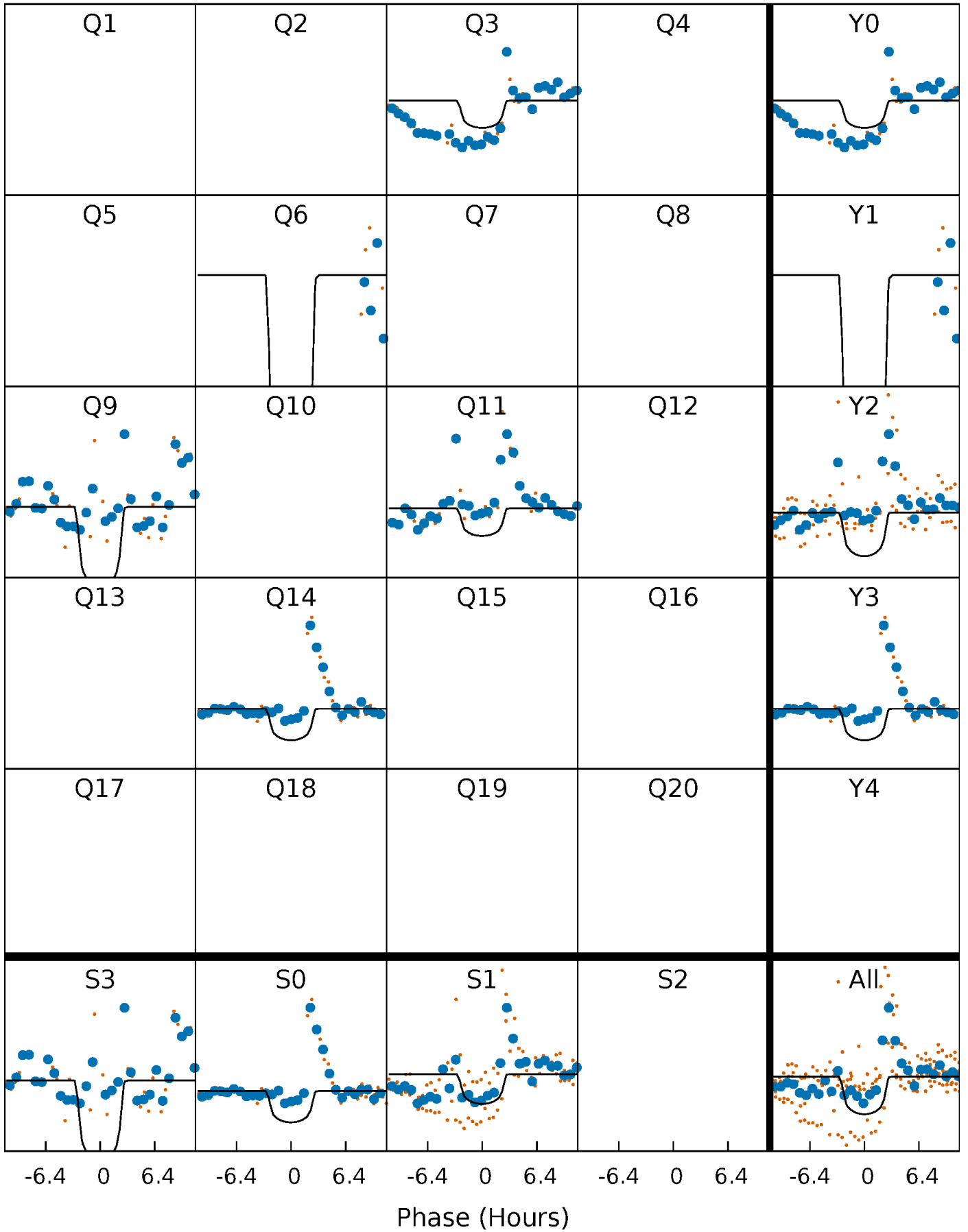
PDC Quarter-Phased Transit Curves

TCE 011465987-03 $P=261.487804$ Days $T_0=305.572200$ (BKJD)



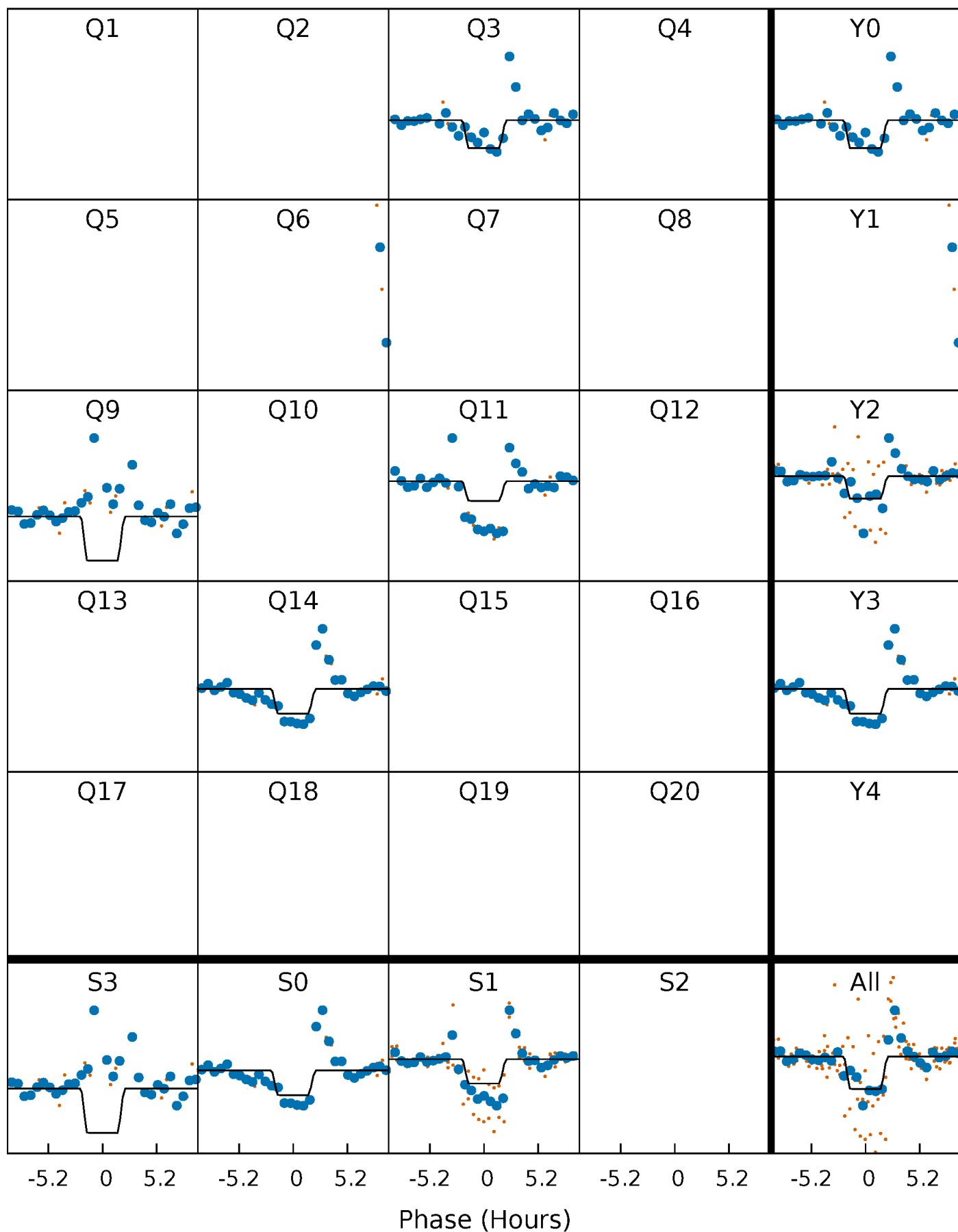
DV Quarter-Phased Transit Curves

TCE 011465987-03 $P=261.487804$ Days $T_0=305.572200$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

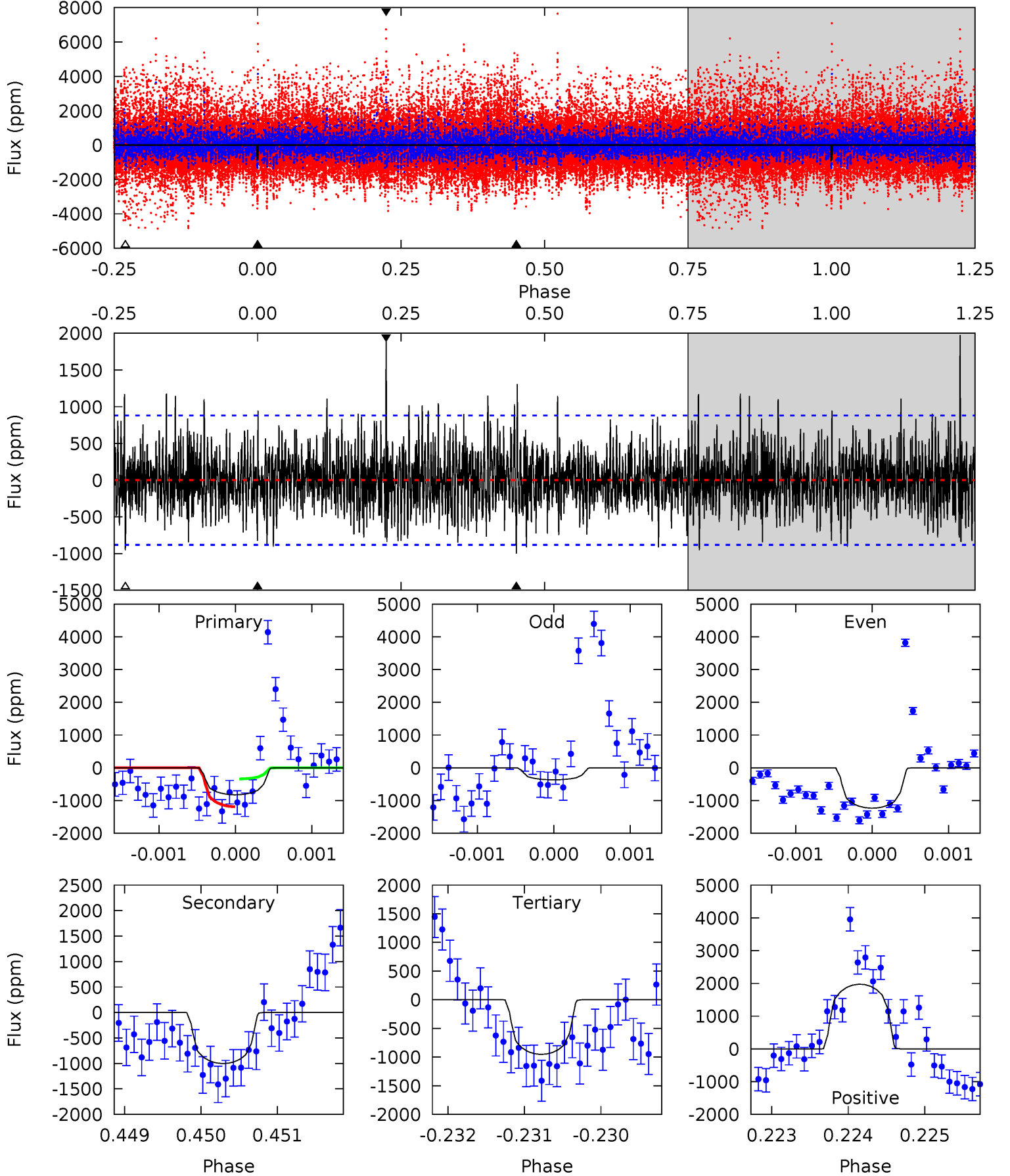
TCE 011465987-03 $P=261.481456$ Days $T_0=305.587407$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-03, P = 261.487804 Days, E = 44.084396 Days

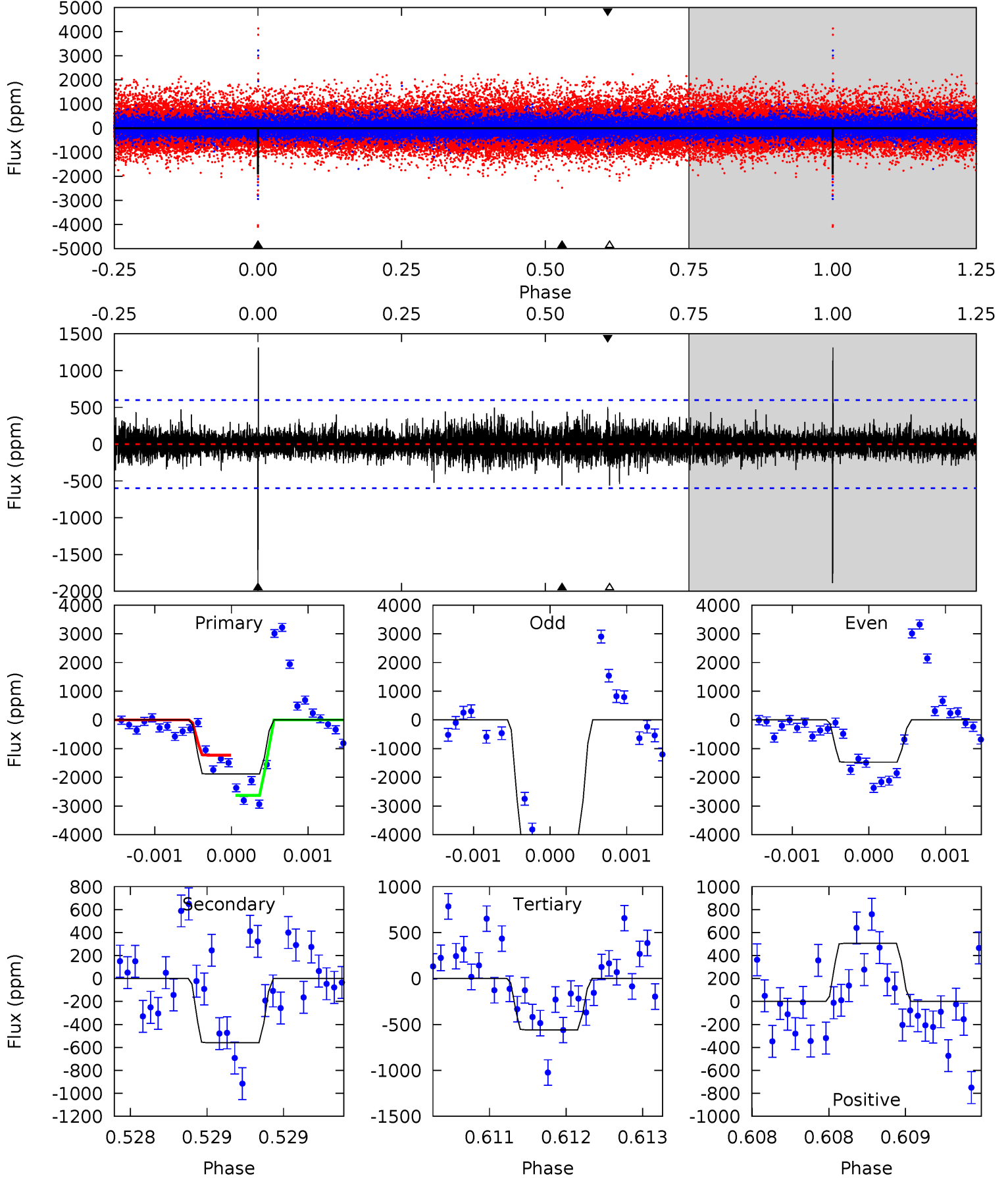
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-------|-------|------|
| 5.11 | 6.20 | 5.90 | 12.2 | 5.45 | 3.29 | 1.93 | -0.79 | -7.12 | 0.30 | -6.02 | 2.03 | -4.52 | 0.66 | 2.61 |



Alt Model-Shift Uniqueness Test

011465987-03, P = 261.481456 Days, E = 44.105951 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 17.4 | 5.17 | 5.16 | 4.67 | 5.53 | 3.42 | 1.03 | 12.3 | 12.8 | 0.01 | 0.49 | 11.6 | 0.92 | 0.41 | 6.49 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-03 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|------------------------|----------------------|----------------------|--------------------------|
| DV | -1001 ± 161 | $3.58^{+0.92}_{-0.91}$ | 319^{+13}_{-11} | 4524^{+607}_{-421} | 23508^{+21394}_{-9214} |
| Alt. | -559 ± 108 | $3.39^{+0.91}_{-0.90}$ | 319^{+13}_{-12} | 4136^{+525}_{-401} | 14529^{+12884}_{-6104} |

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

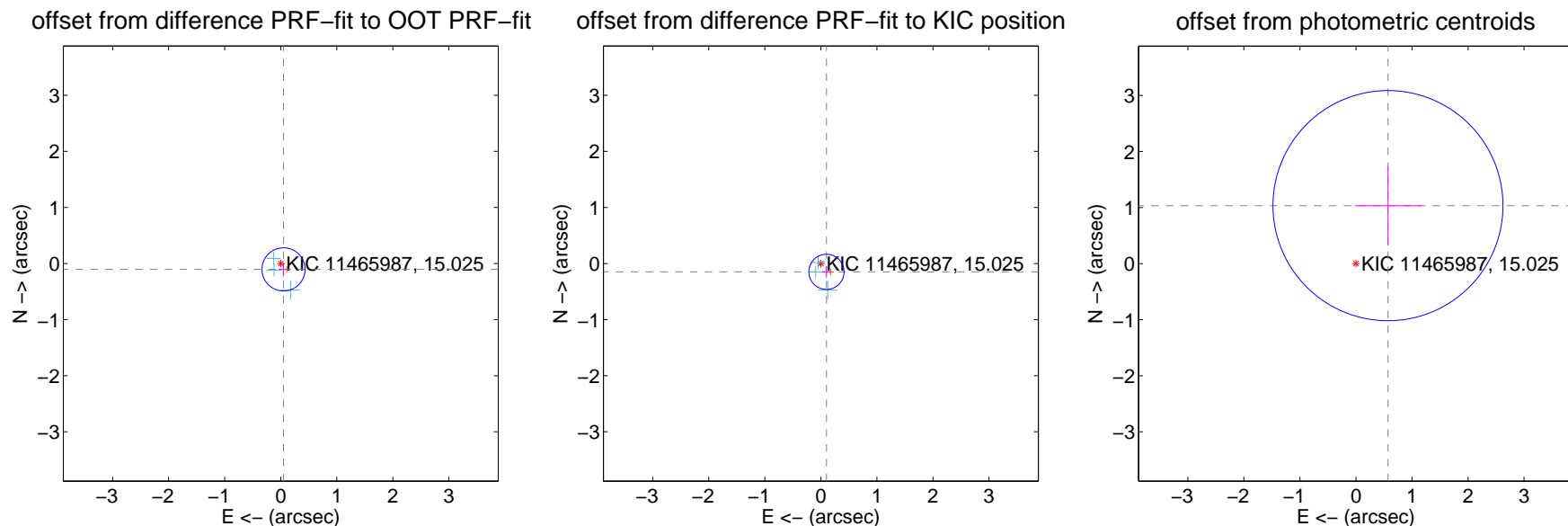
DV Centroid Data

Supplemental centroid analysis for 011465987-03. Kepler magnitude: 15.03. Transit SNR 7.37

There are 3 quarters with good PRF difference image offsets

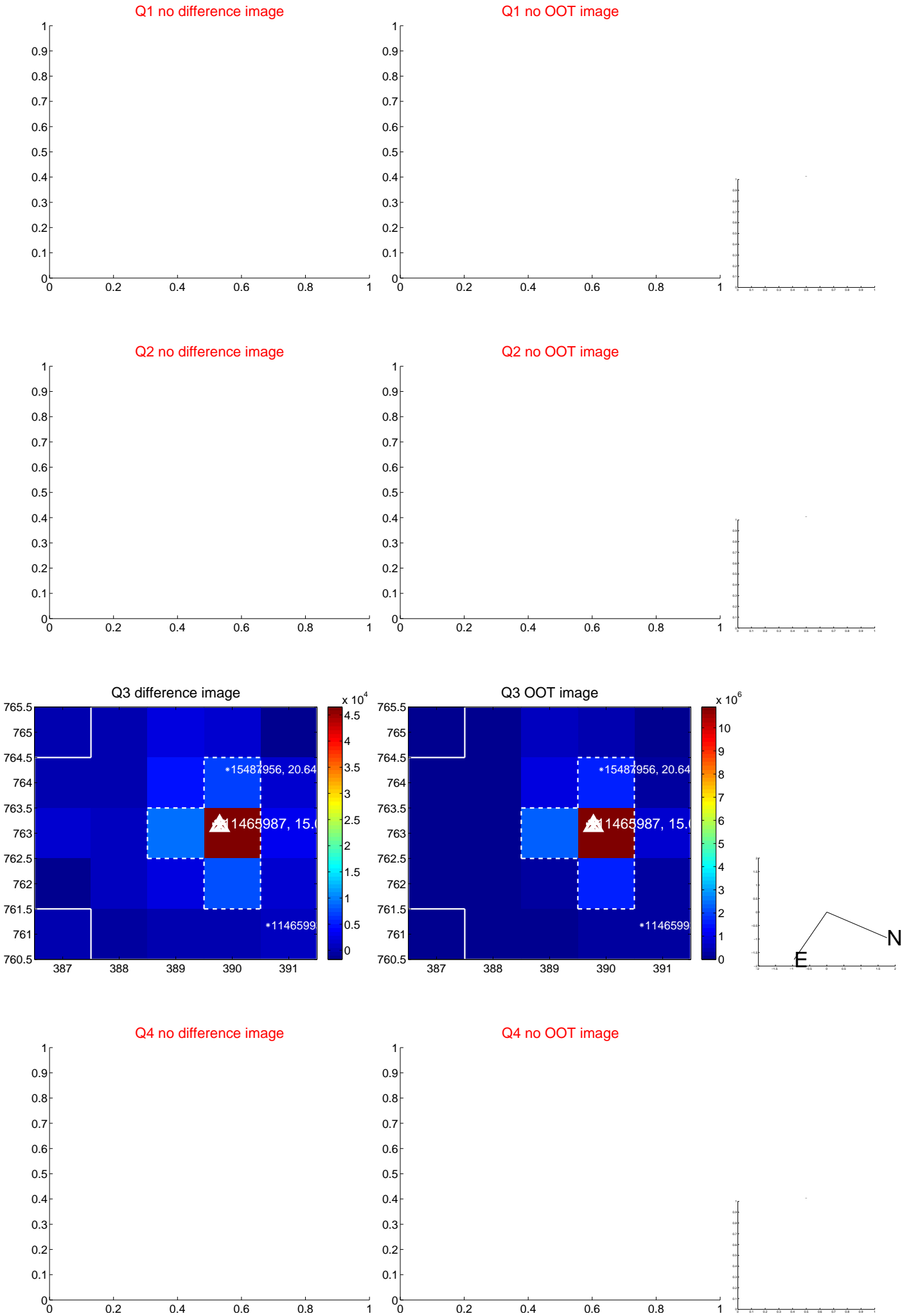
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.115 ± 0.128 | 0.90 | -0.049 ± 0.089 | -0.104 ± 0.121 |
| PRF-fit source offset from KIC position | 0.179 ± 0.105 | 1.71 | -0.100 ± 0.082 | -0.148 ± 0.103 |
| photometric centroid source offset | 1.18 ± 0.68 | 1.73 | -0.57 ± 0.60 | 1.03 ± 0.71 |



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

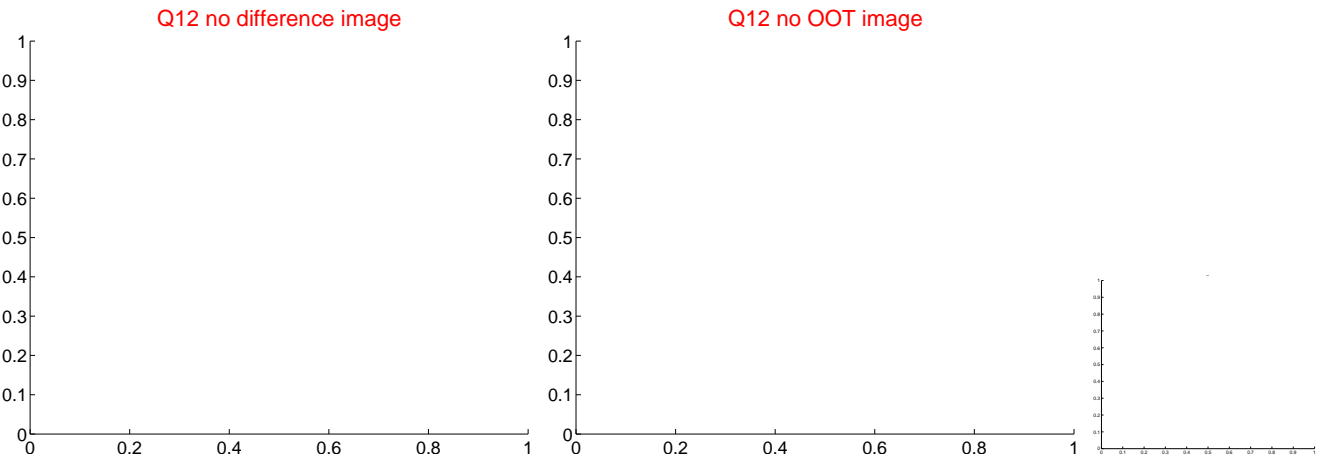
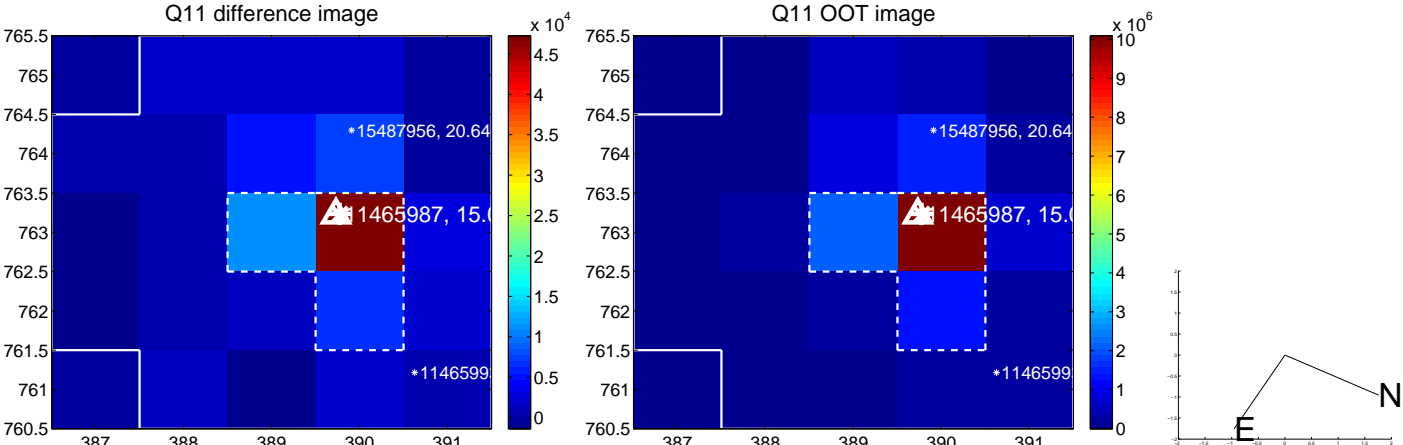
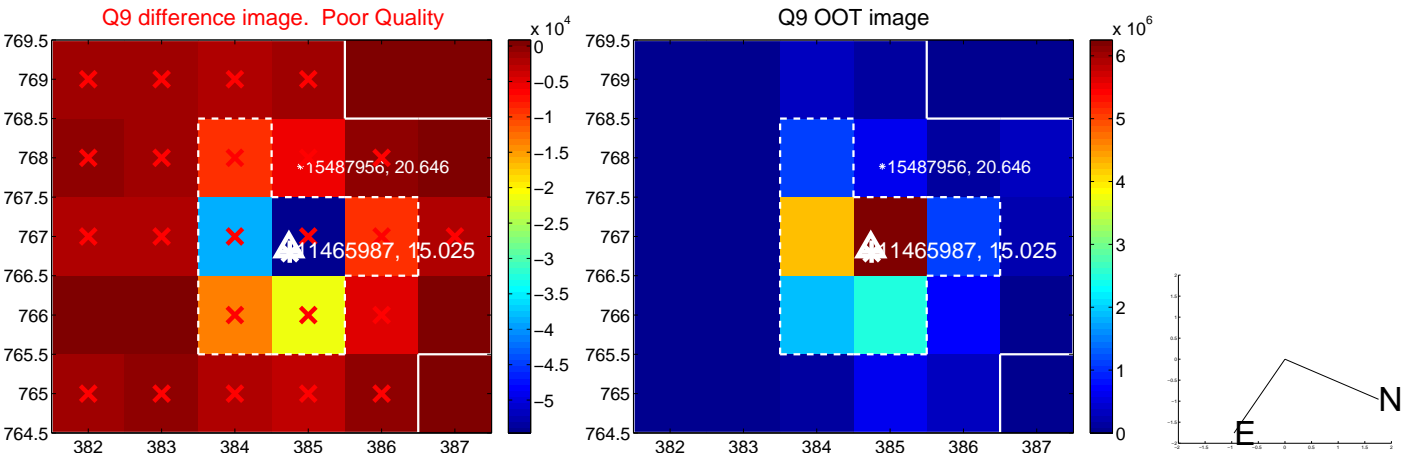
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



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

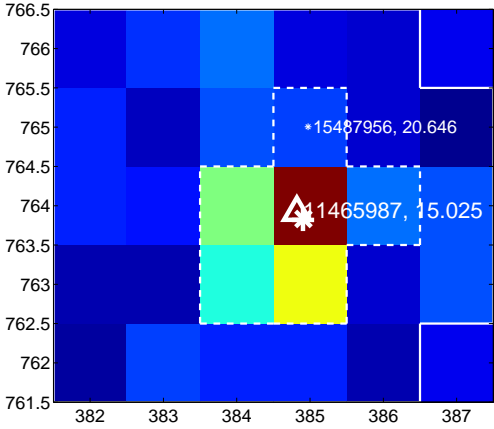
Q13 no difference image



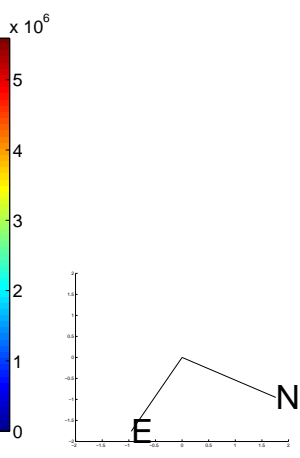
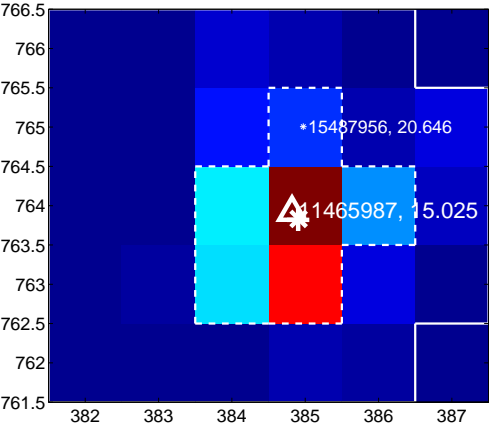
Q13 no OOT image



Q14 difference image



Q14 OOT image



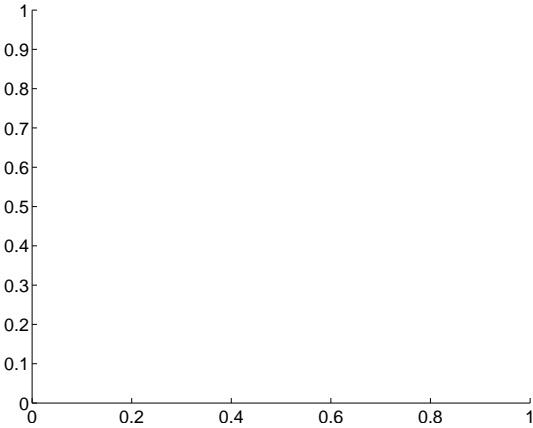
Q15 no difference image



Q15 no OOT image



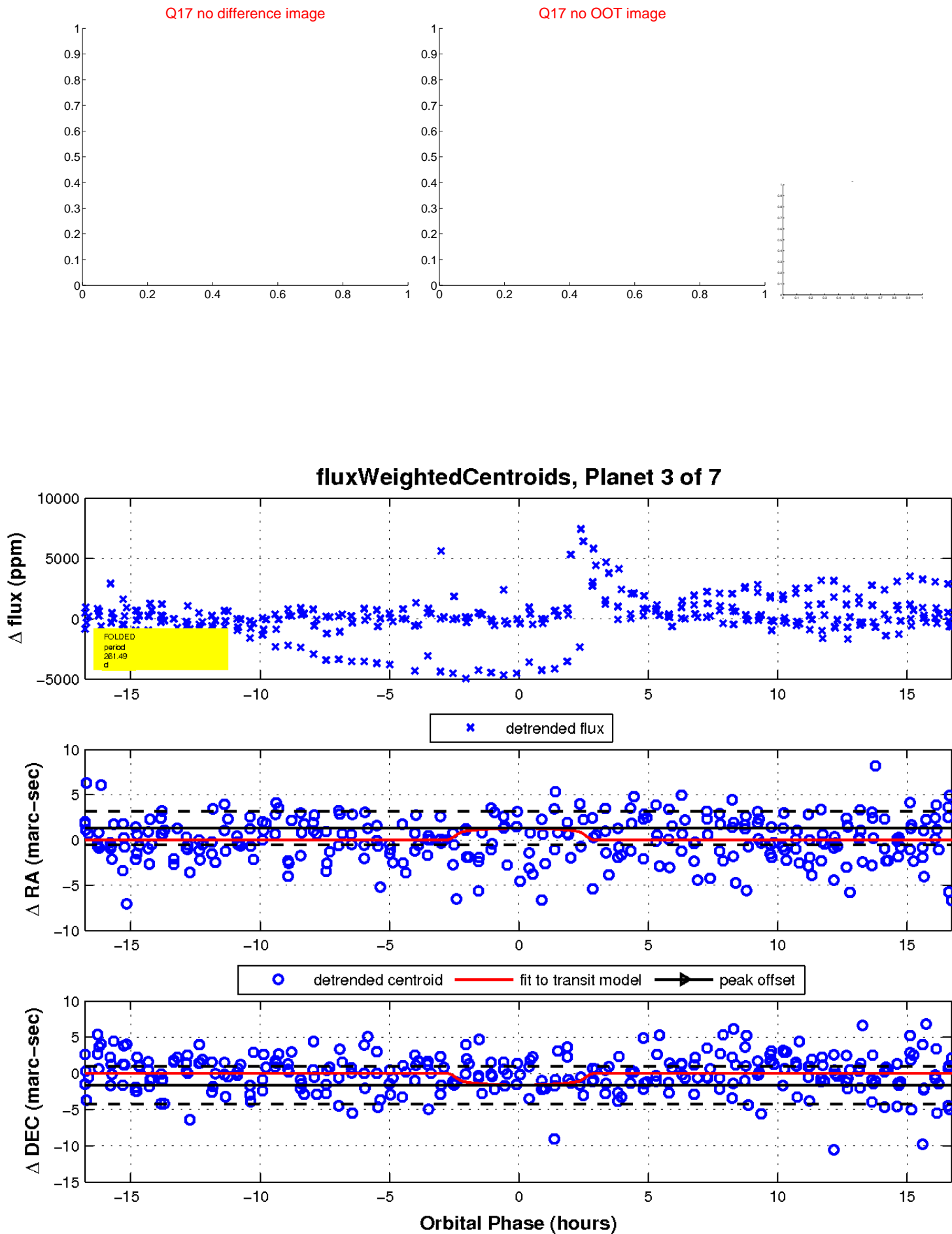
Q16 no difference image



Q16 no OOT image

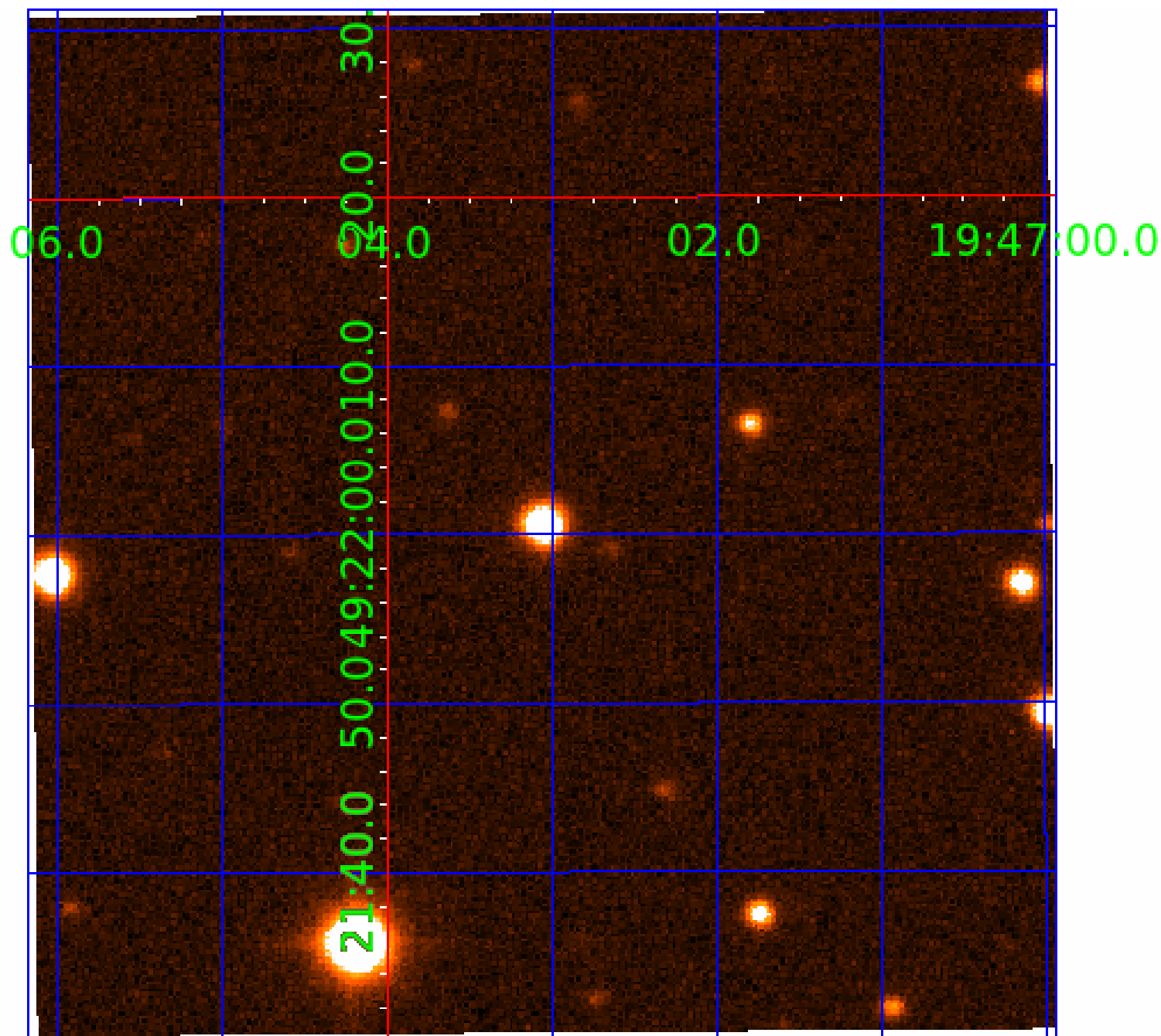


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
| 011465987-03 | OBS | No | 261.487804 | 305.572200 | 2018.0 | 5.605 | 13.6 | 7.4 | 0.73 | 5174 | 3.57 | 0.63 |
| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

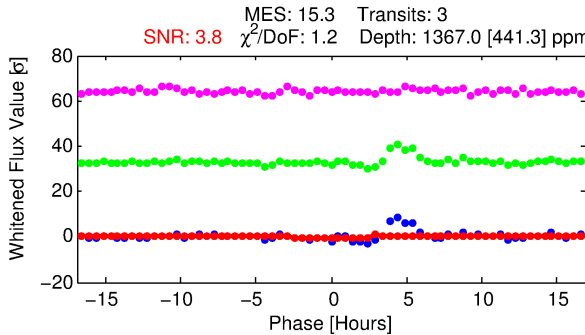
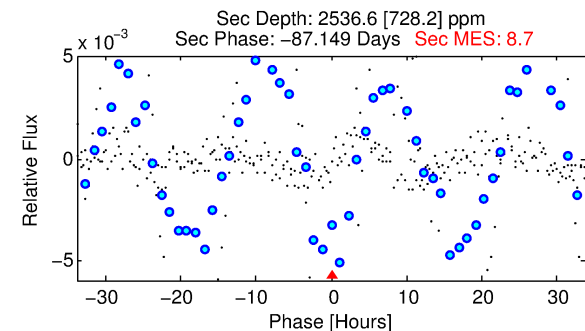
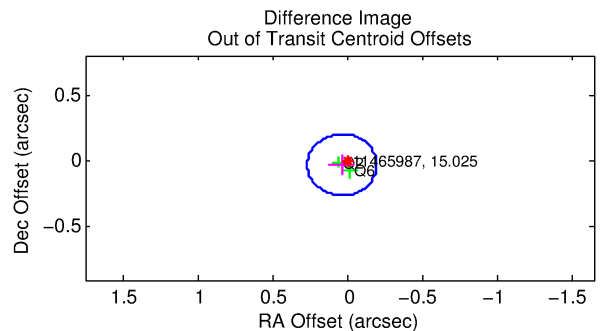
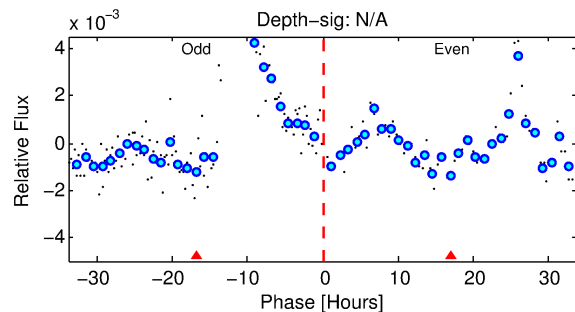
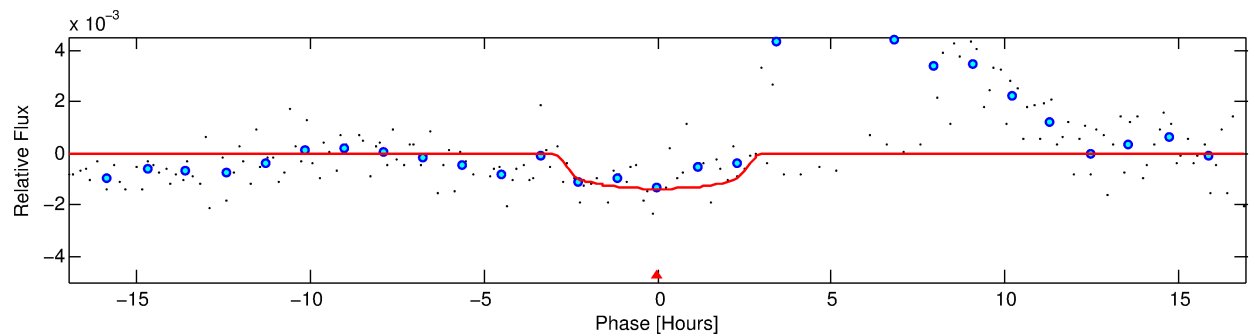
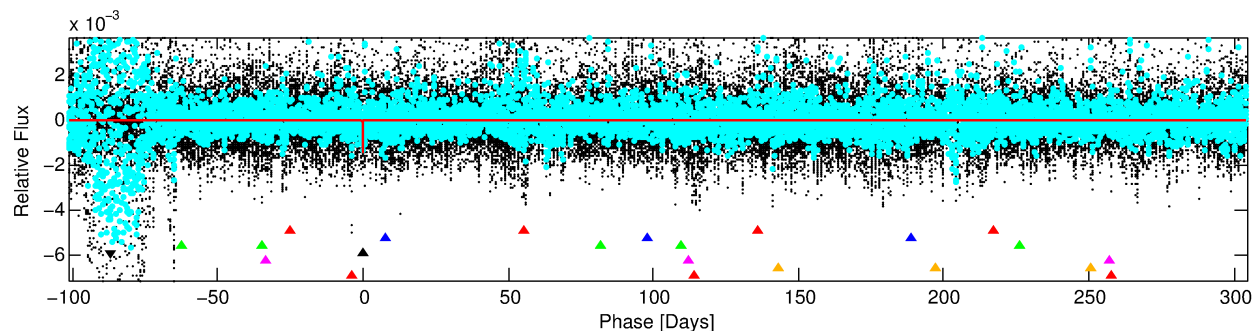
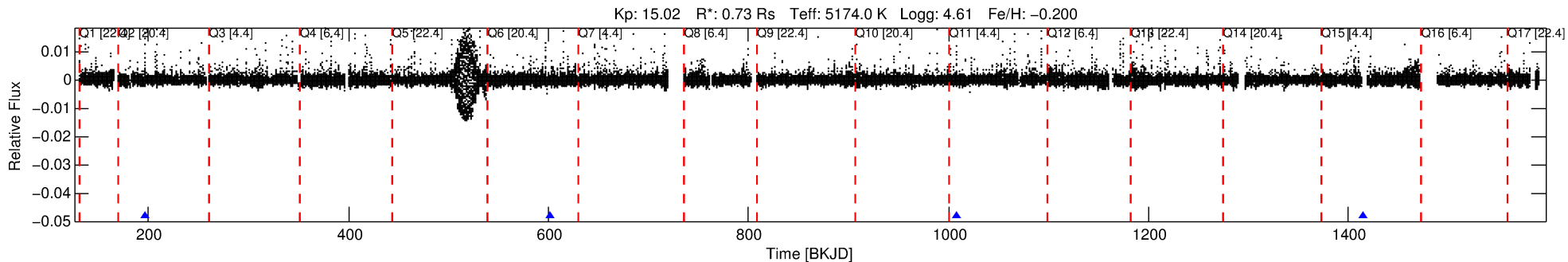
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011465987-04

No Significant Match Found

DV One-Page Summary

KIC: 11465987 Candidate: 4 of 7 Period: 406.001 d



DV Fit Results:

Period = 406.00103 [0.01101] d
Epoch = 196.1101 [0.0126] BKJD
Rp/R* = 0.0354 [0.0521]
a/R* = 448.61 [2391.70]
b = 0.64 [5.10]
Seff = 0.35 [0.07]
Teff = 196 [9] K
Rp = 2.83 [4.19] Re
a = 0.9951 [0.1048] AU
Ag = 171934.15 [509446.19] [0.34σ]
Teffp = 6172 [4570] K [1.31σ]

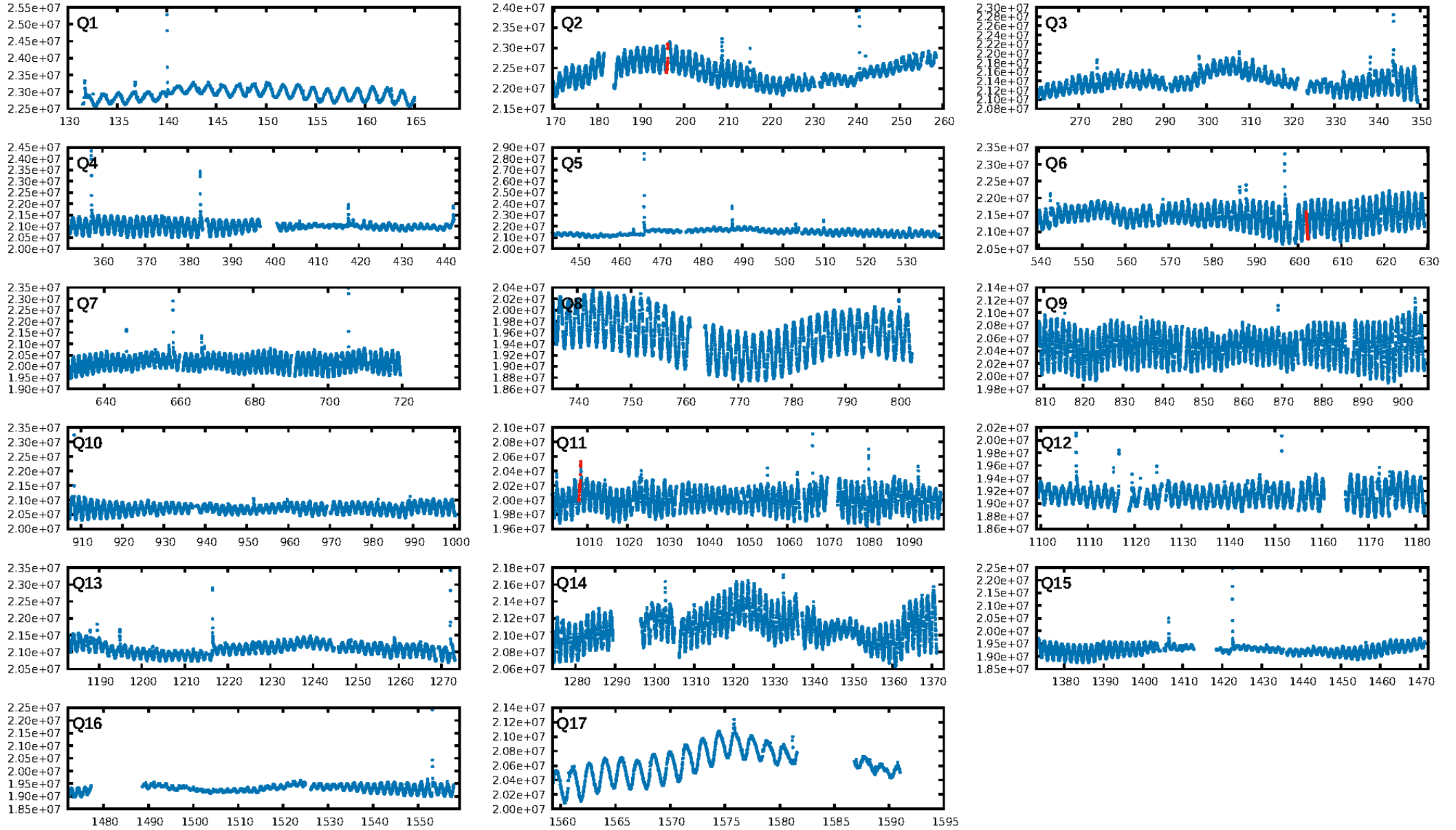
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [247.77σ]
LongPeriod-sig: 100.0% [171.32σ]
ModelChiSquare2-sig: 2.8%
ModelChiSquareGof-sig: 76.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.5807
Centroid-sig: 13.5%
Centroid-so: 1.301 arcsec [1.15σ]
OotOffset-rm: 0.045 arcsec [0.58σ]
KicOffset-rm: 0.159 arcsec [2.19σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

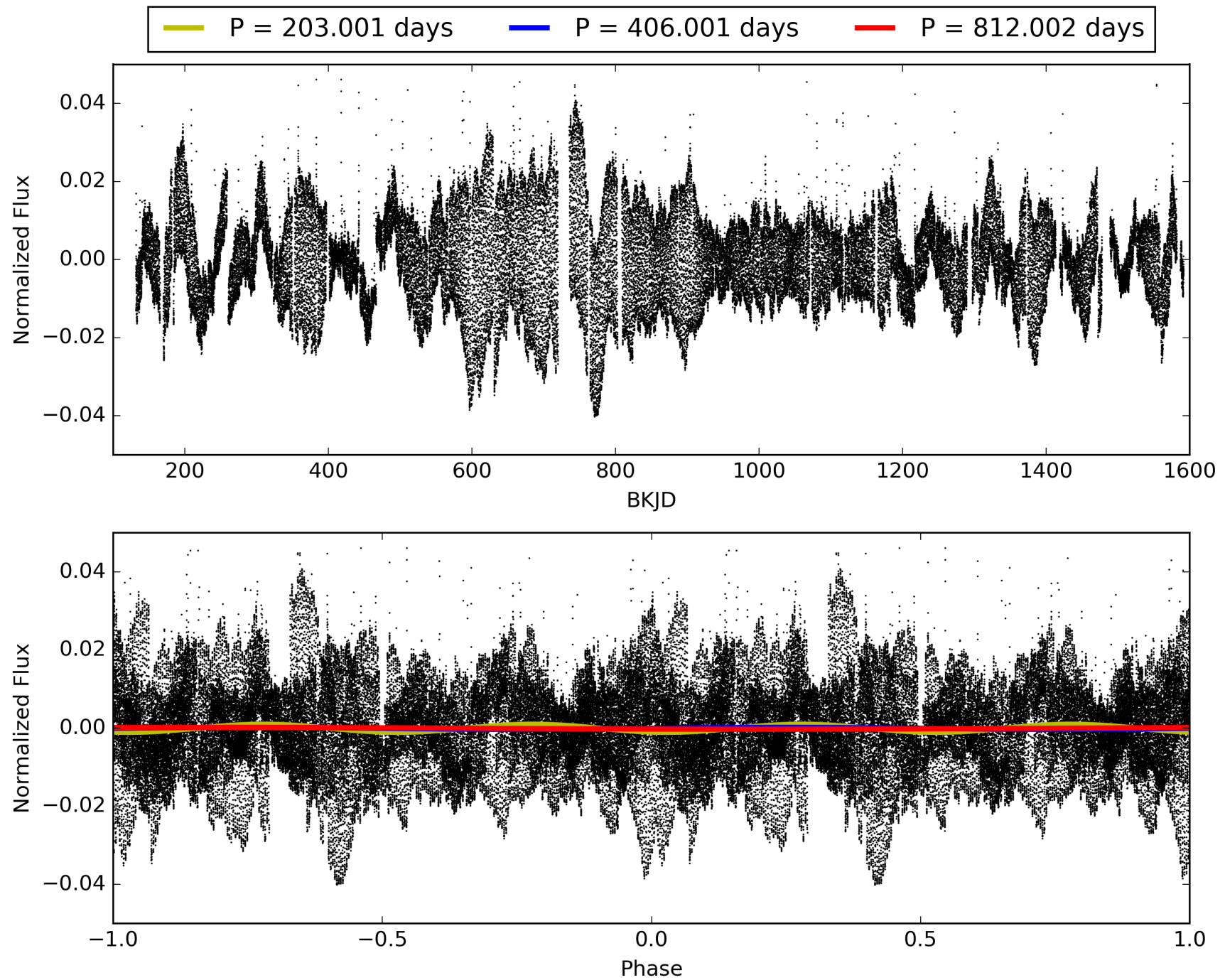
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:11:20 Z

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

TCE 011465987-04, PDC Light Curves

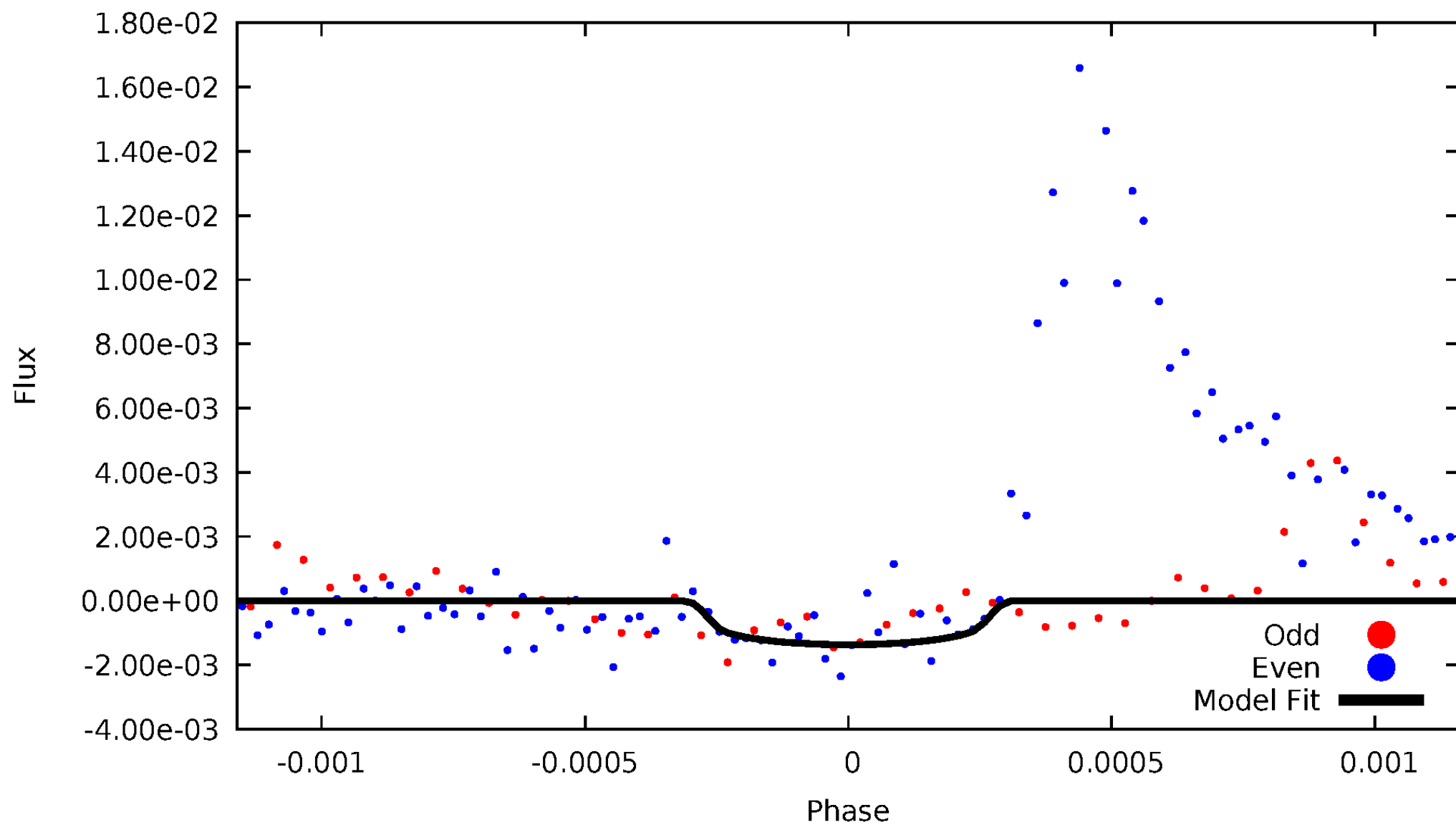


TCE 011465987-04



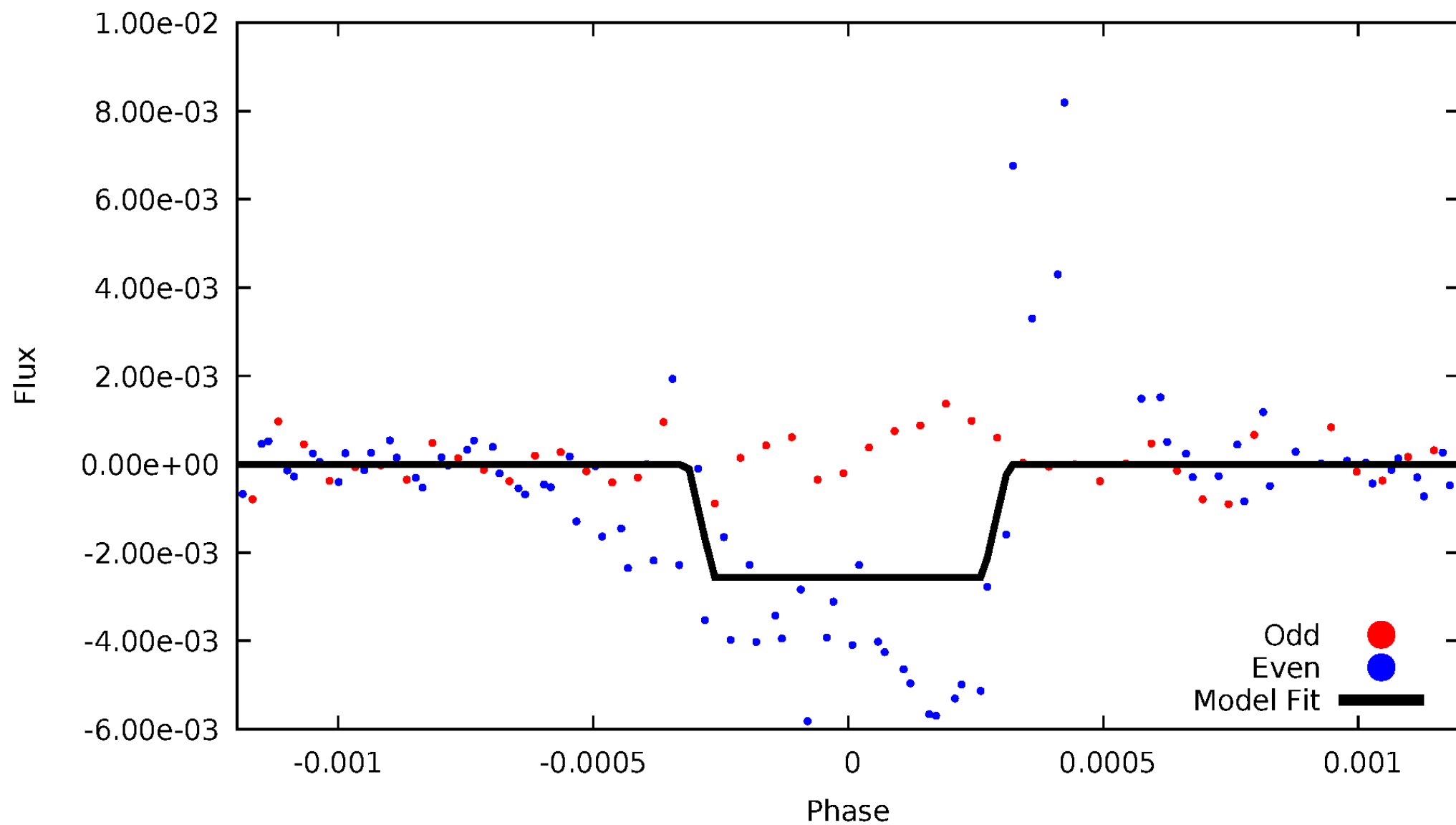
DV Odd/Even

TCE 011465987-04



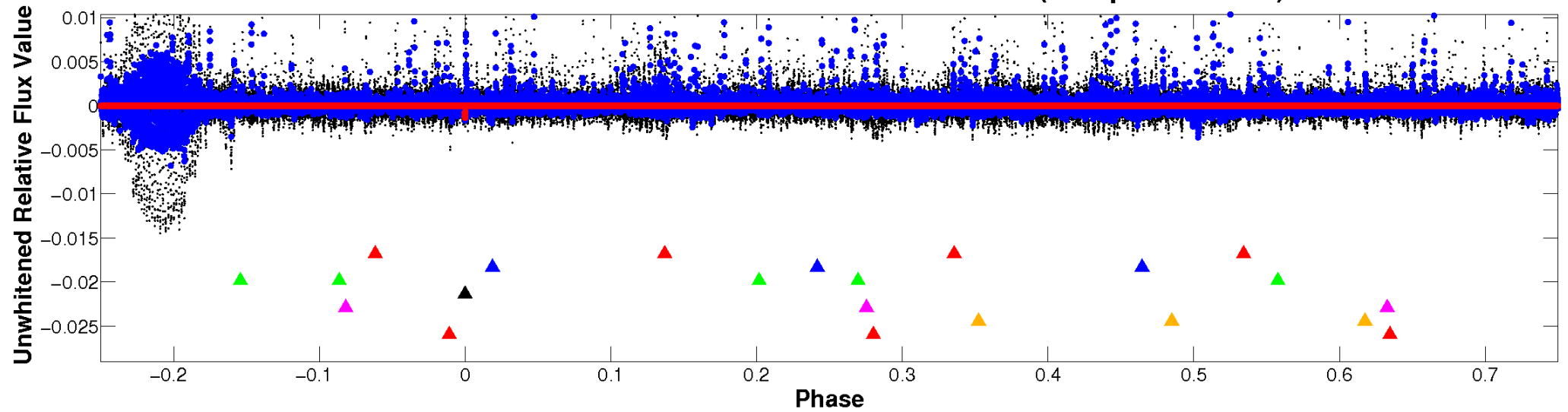
ALT Odd/Even

TCE 011465987-04

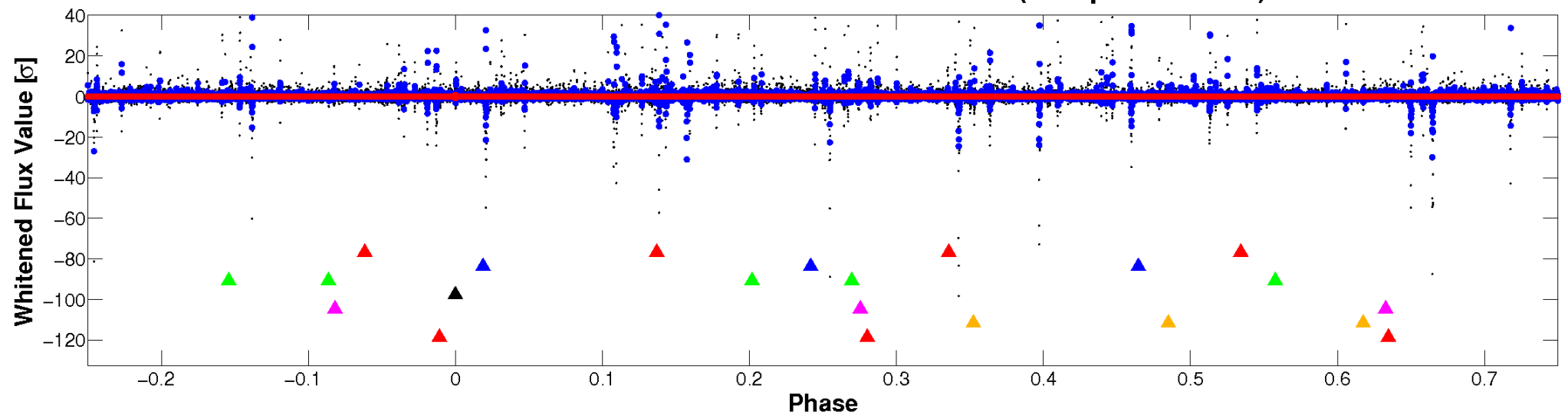


Non-Whitened Vs. Whitened Light Curve

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

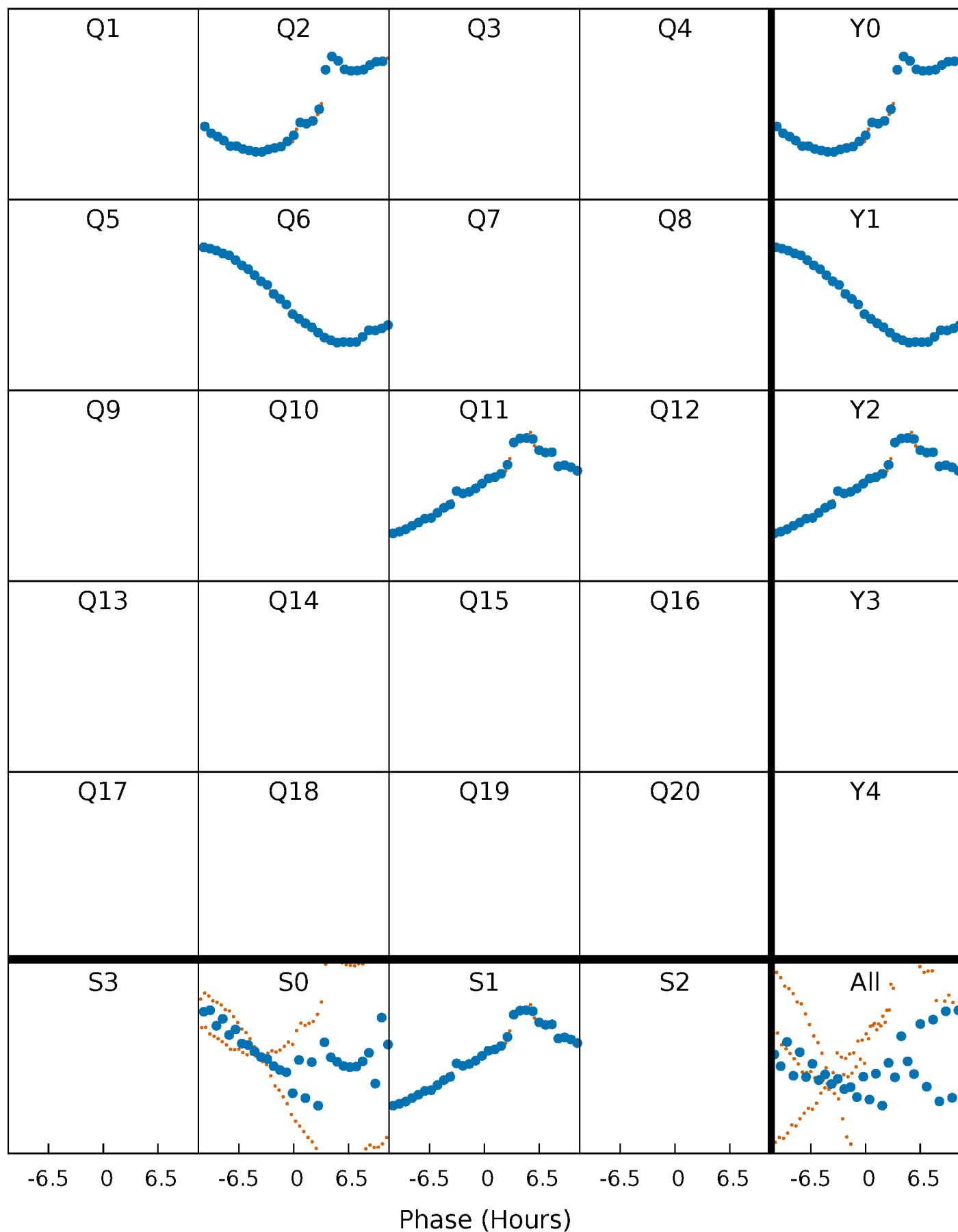


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 011465987-04 $P=406.001030$ Days $T_0=196.110058$ (BKJD)



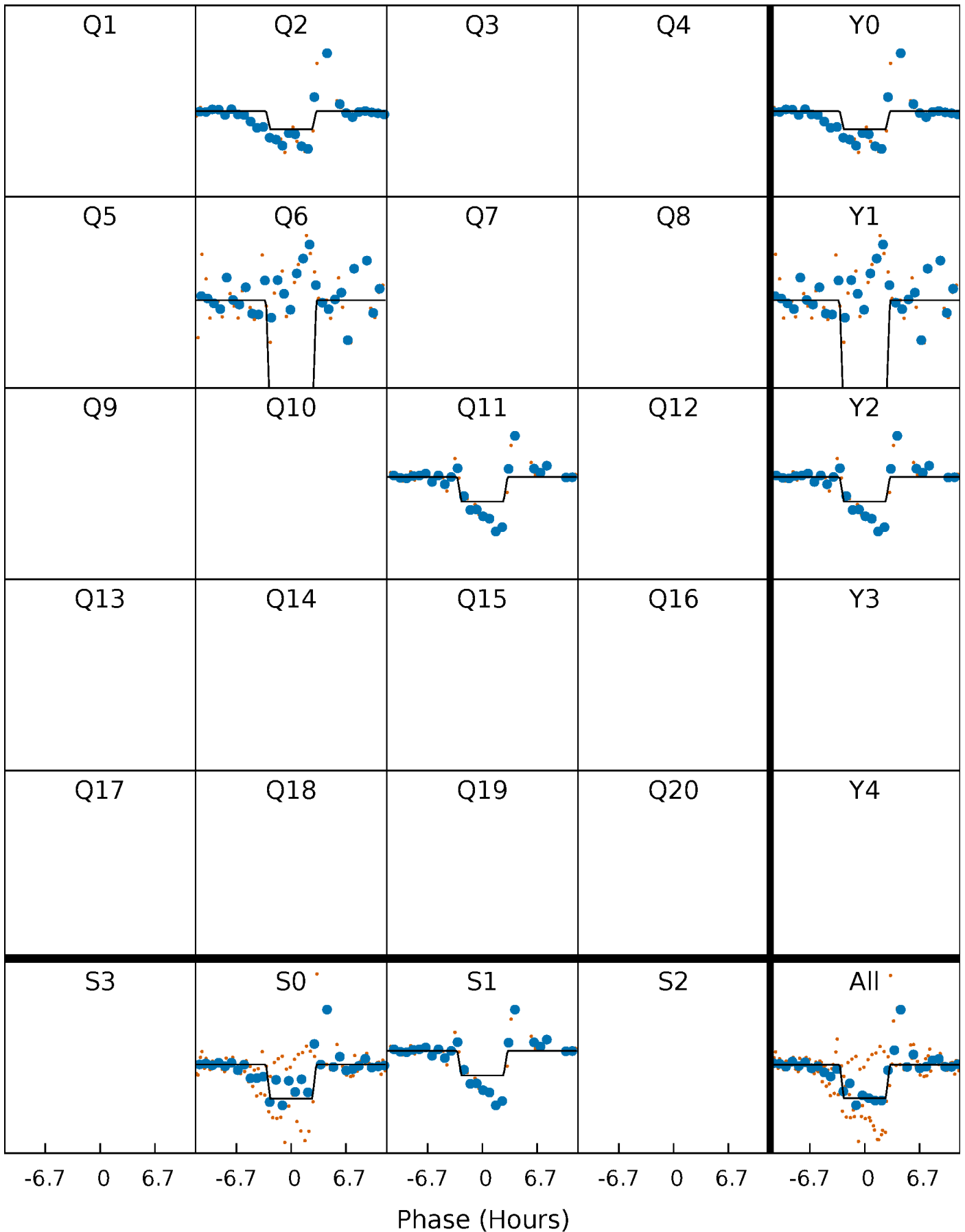
DV Quarter-Phased Transit Curves

TCE 011465987-04 $P=406.001030$ Days $T_0=196.110058$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

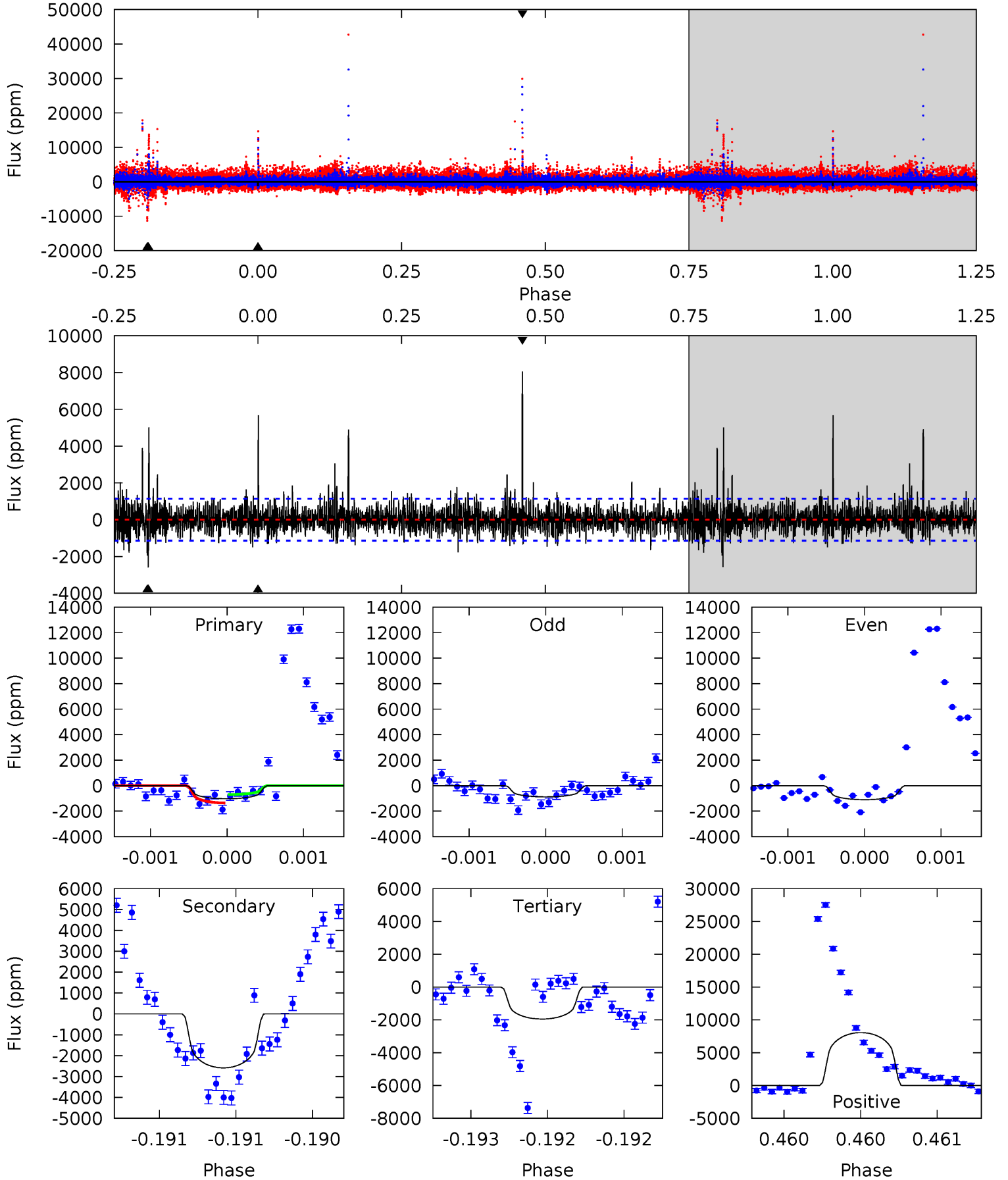
TCE 011465987-04 $P=405.987592$ Days $T_0=196.136627$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-04, P = 406.001030 Days, E = 196.110058 Days

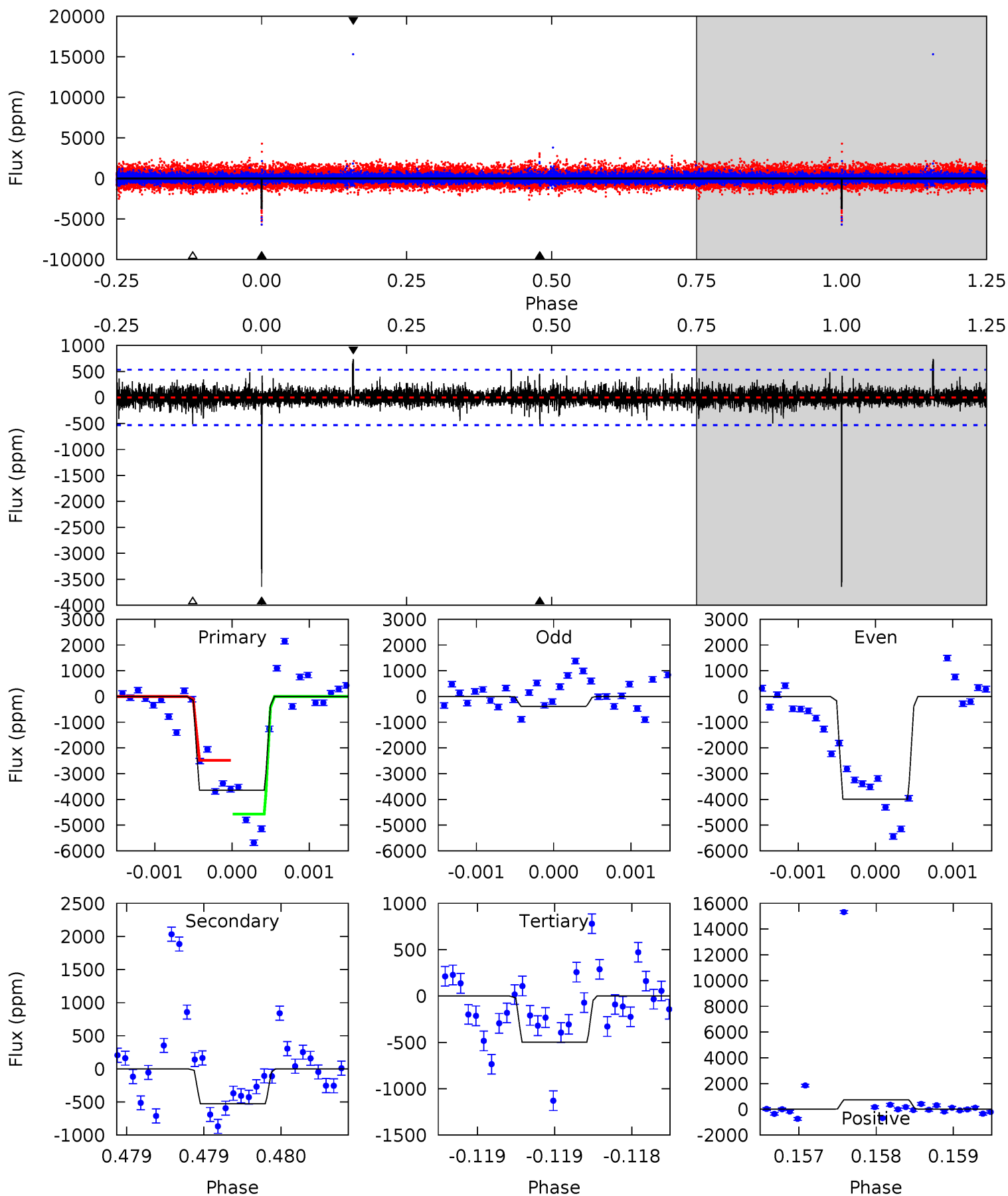
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 5.00 | 12.6 | 9.50 | 39.2 | 5.54 | 3.44 | 2.77 | -4.50 | -34.2 | 3.10 | -26.7 | 0.32 | 1.16 | 0.76 | 1.62 |



Alt Model-Shift Uniqueness Test

011465987-04, P = 405.987592 Days, E = 196.136627 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 37.8 | 5.49 | 5.17 | 7.65 | 5.54 | 3.42 | 0.95 | 32.6 | 30.1 | 0.32 | -2.16 | 19.9 | 0.67 | 0.17 | 10.7 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-04 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -2585 ± 205 | $4.56^{+3.45}_{-2.89}$ | 276^{+11}_{-11} | 5014^{+3385}_{-1049} | $66787^{+456721}_{-44865}$ |
| Alt. | -529 ± 96 | $5.04^{+3.66}_{-3.20}$ | 275^{+11}_{-9} | 3560^{+1605}_{-567} | 11354^{+67348}_{-7666} |

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

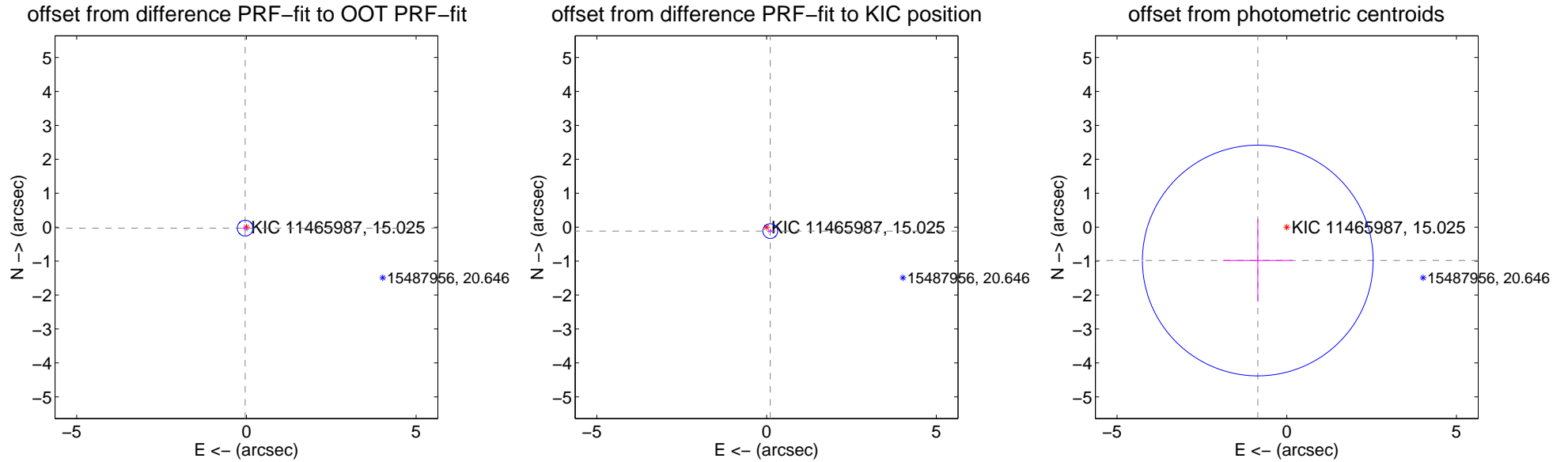
DV Centroid Data

Supplemental centroid analysis for 011465987-04. Kepler magnitude: 15.03. Transit SNR 3.78

There are 2 quarters with good PRF difference image offsets

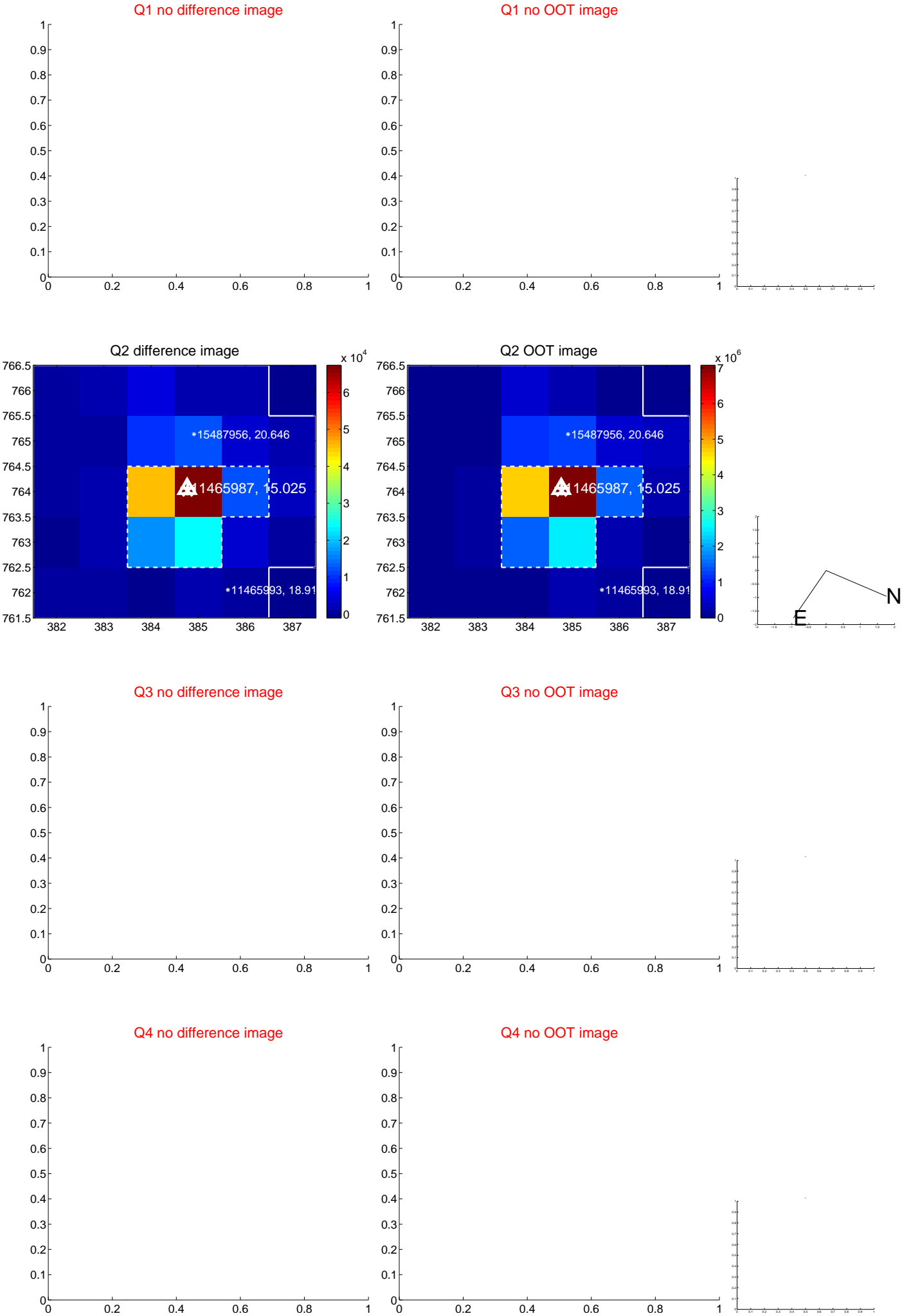
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.045 ± 0.077 | 0.58 | 0.035 ± 0.079 | -0.029 ± 0.076 |
| PRF-fit source offset from KIC position | 0.159 ± 0.073 | 2.19 | -0.109 ± 0.072 | -0.116 ± 0.073 |
| photometric centroid source offset | 1.30 ± 1.13 | 1.15 | 0.85 ± 1.02 | -0.98 ± 1.21 |



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.

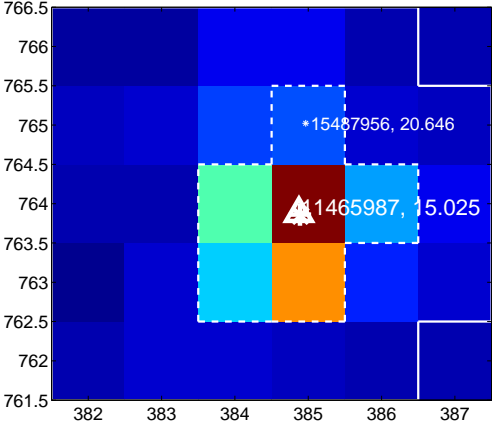
Q5 no difference image



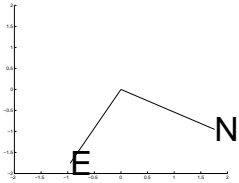
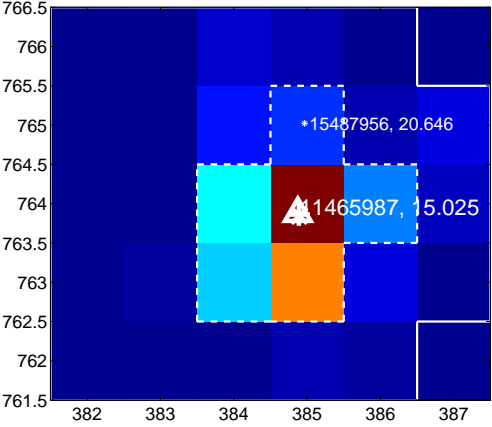
Q5 no OOT image



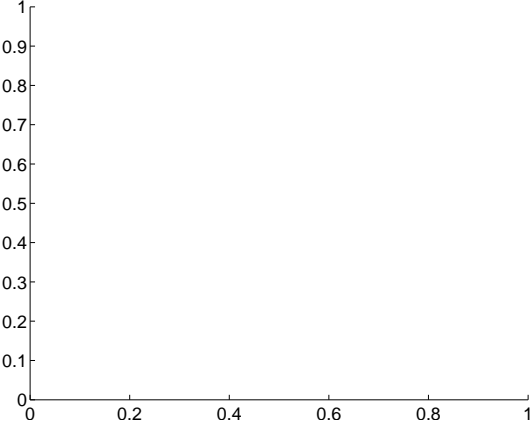
Q6 difference image



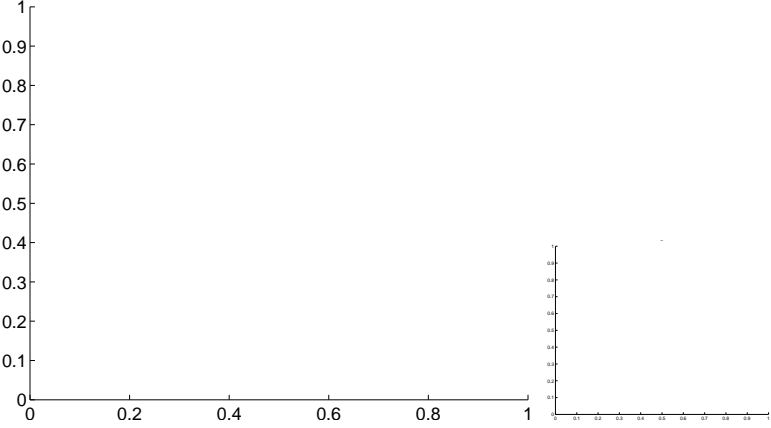
Q6 OOT image



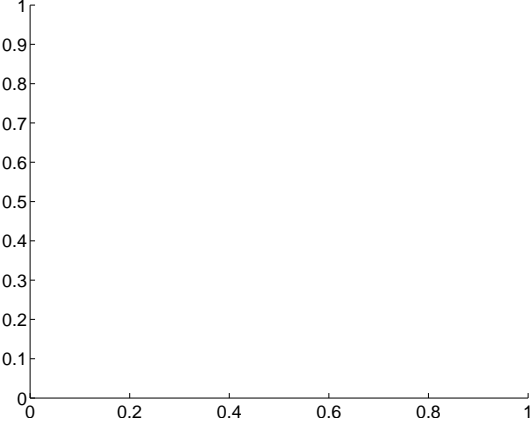
Q7 no difference image



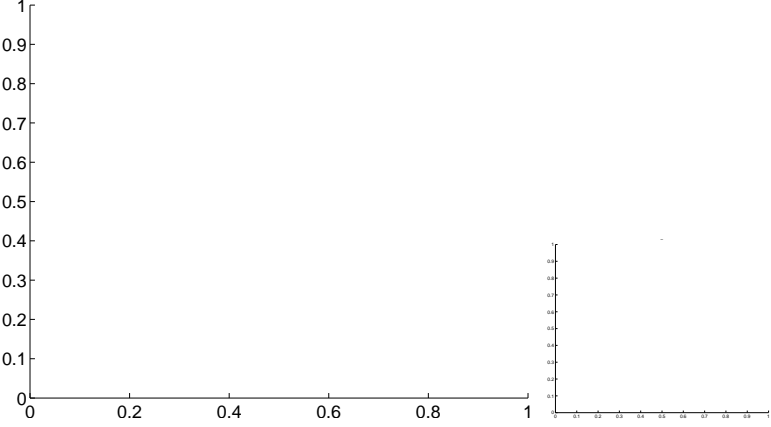
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



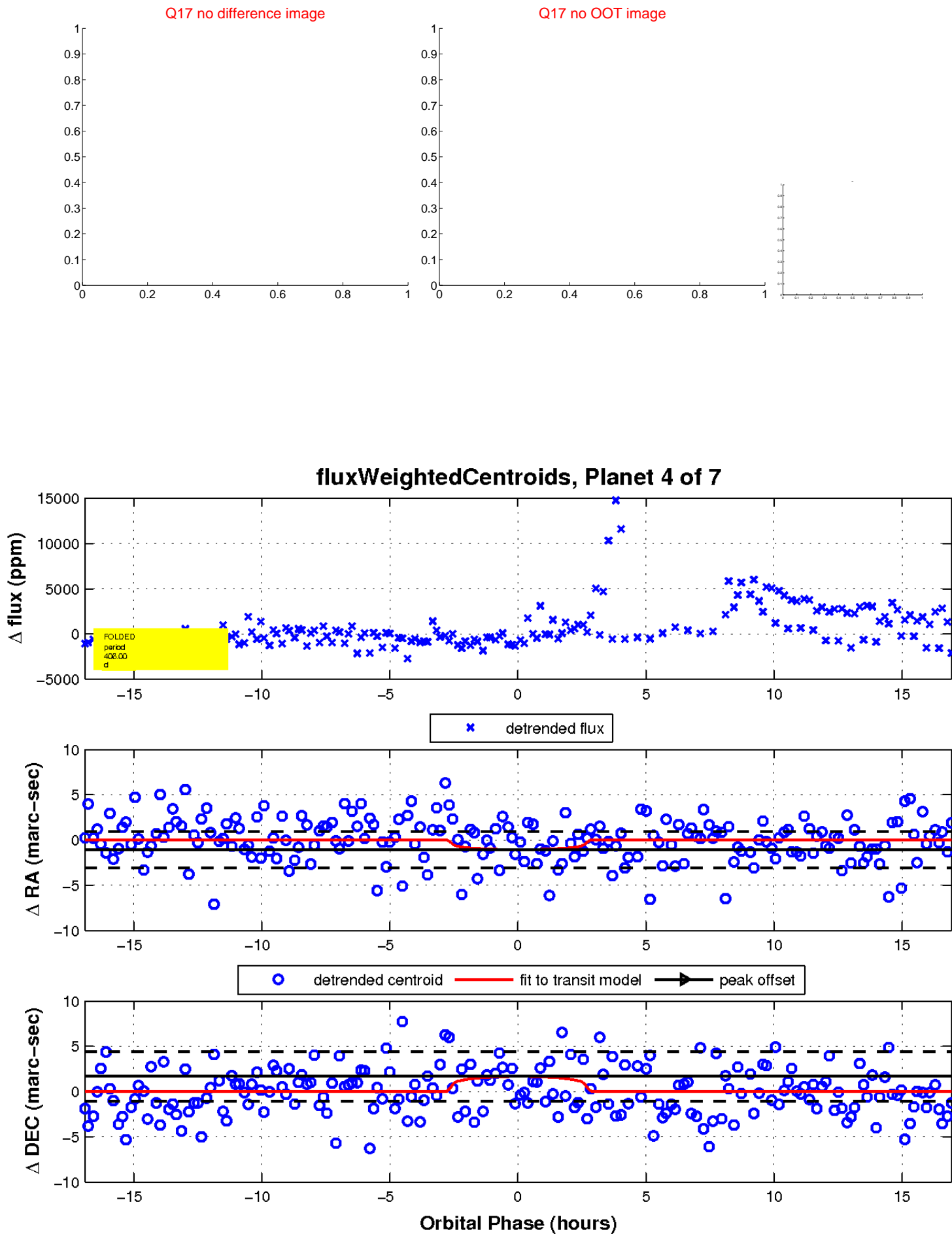
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

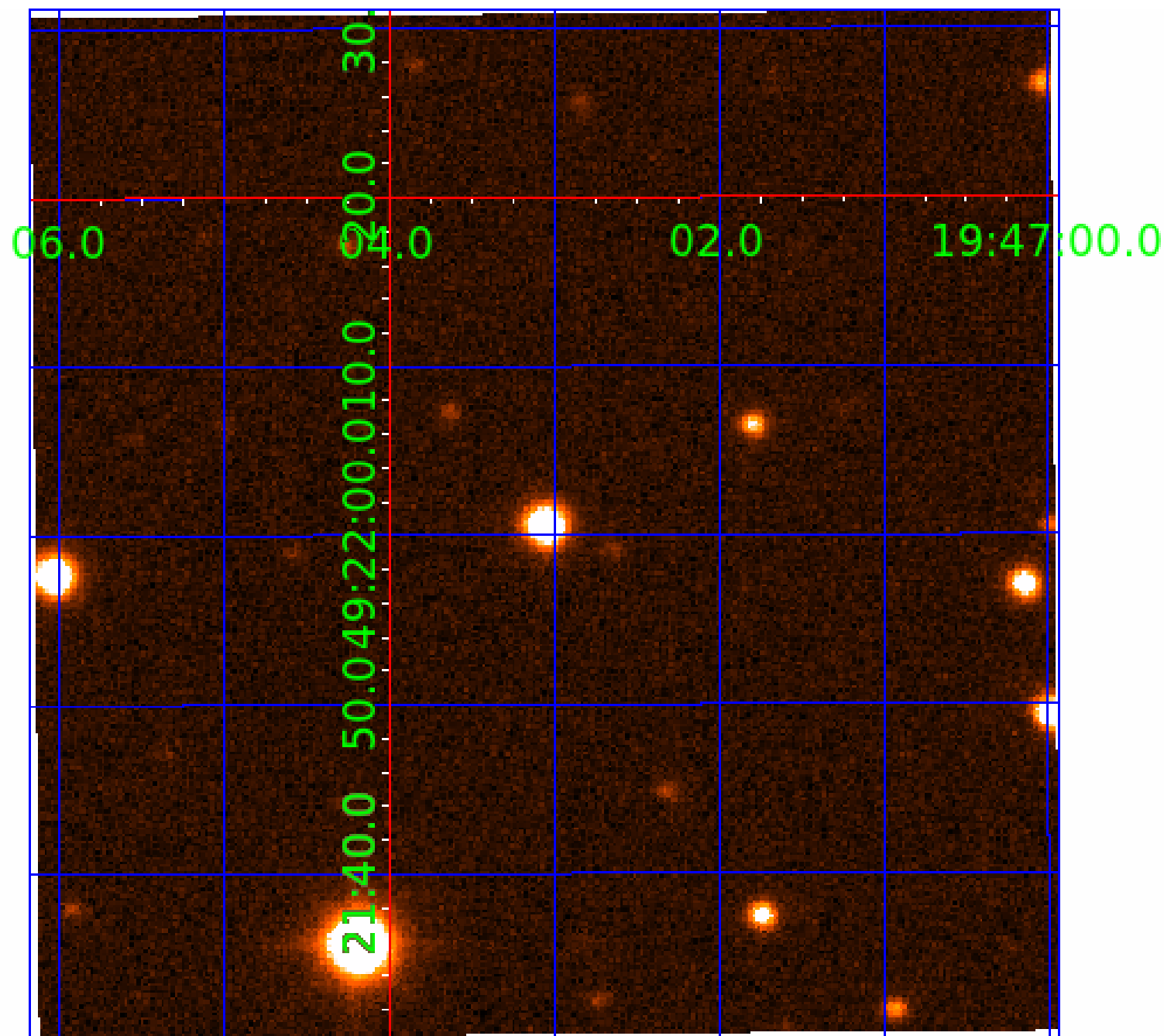


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
| 011465987-03 | OBS | No | 261.487804 | 305.572200 | 2018.0 | 5.605 | 13.6 | 7.4 | 0.73 | 5174 | 3.57 | 0.63 |
| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

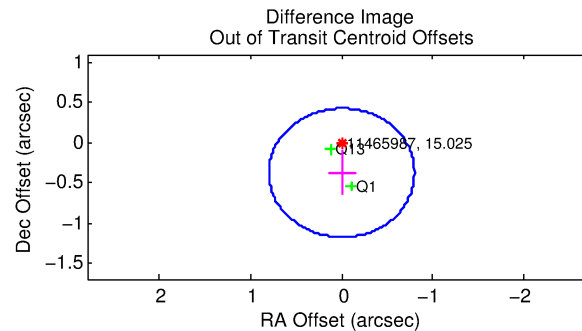
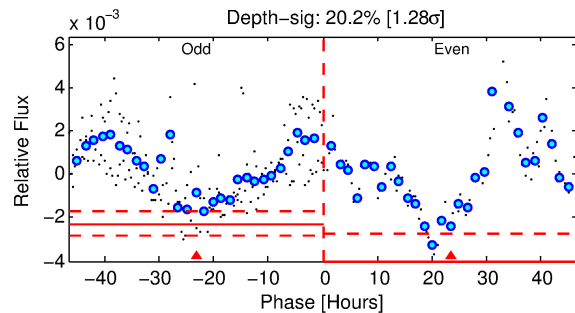
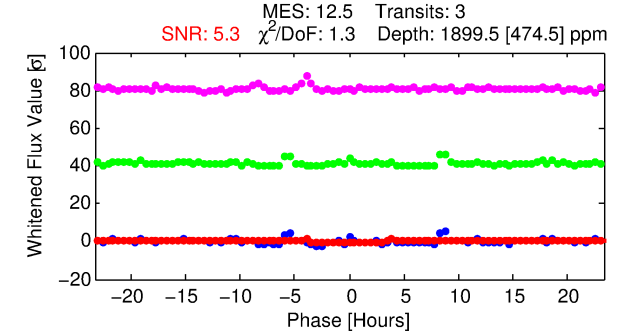
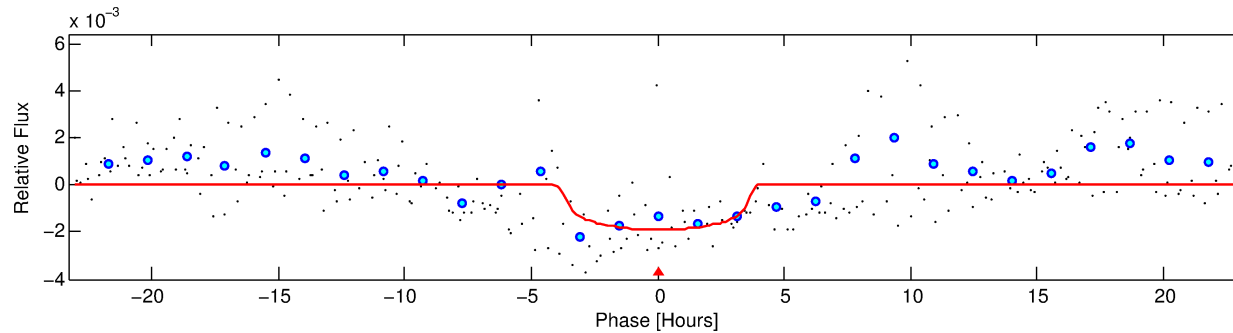
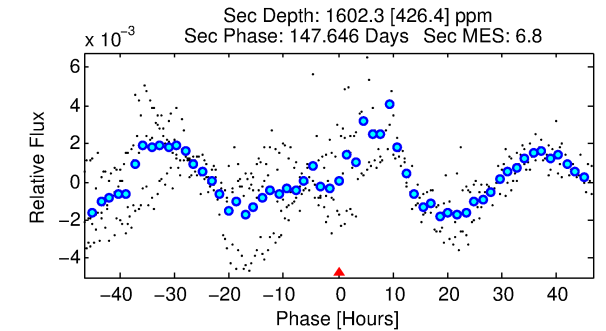
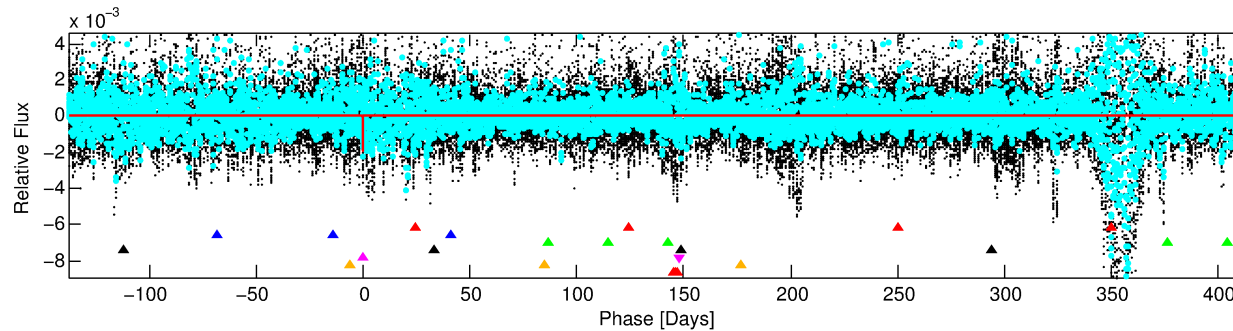
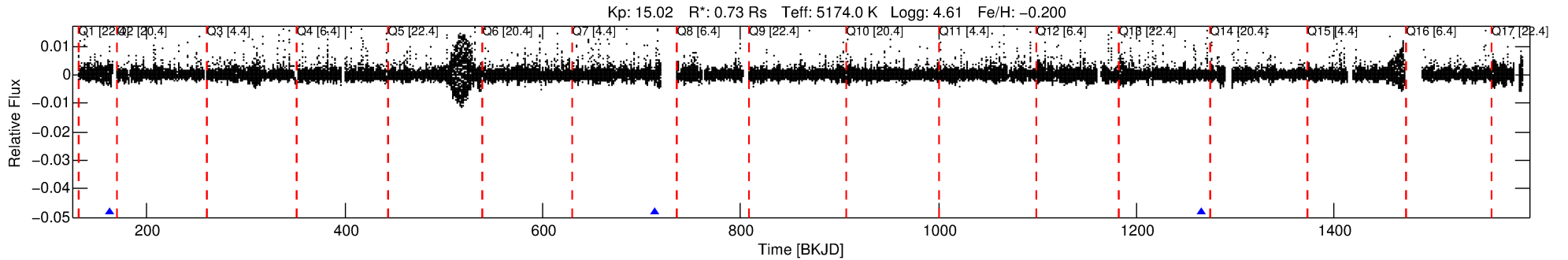
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011465987-05

No Significant Match Found

DV One-Page Summary

KIC: 11465987 Candidate: 5 of 7 Period: 551.078 d



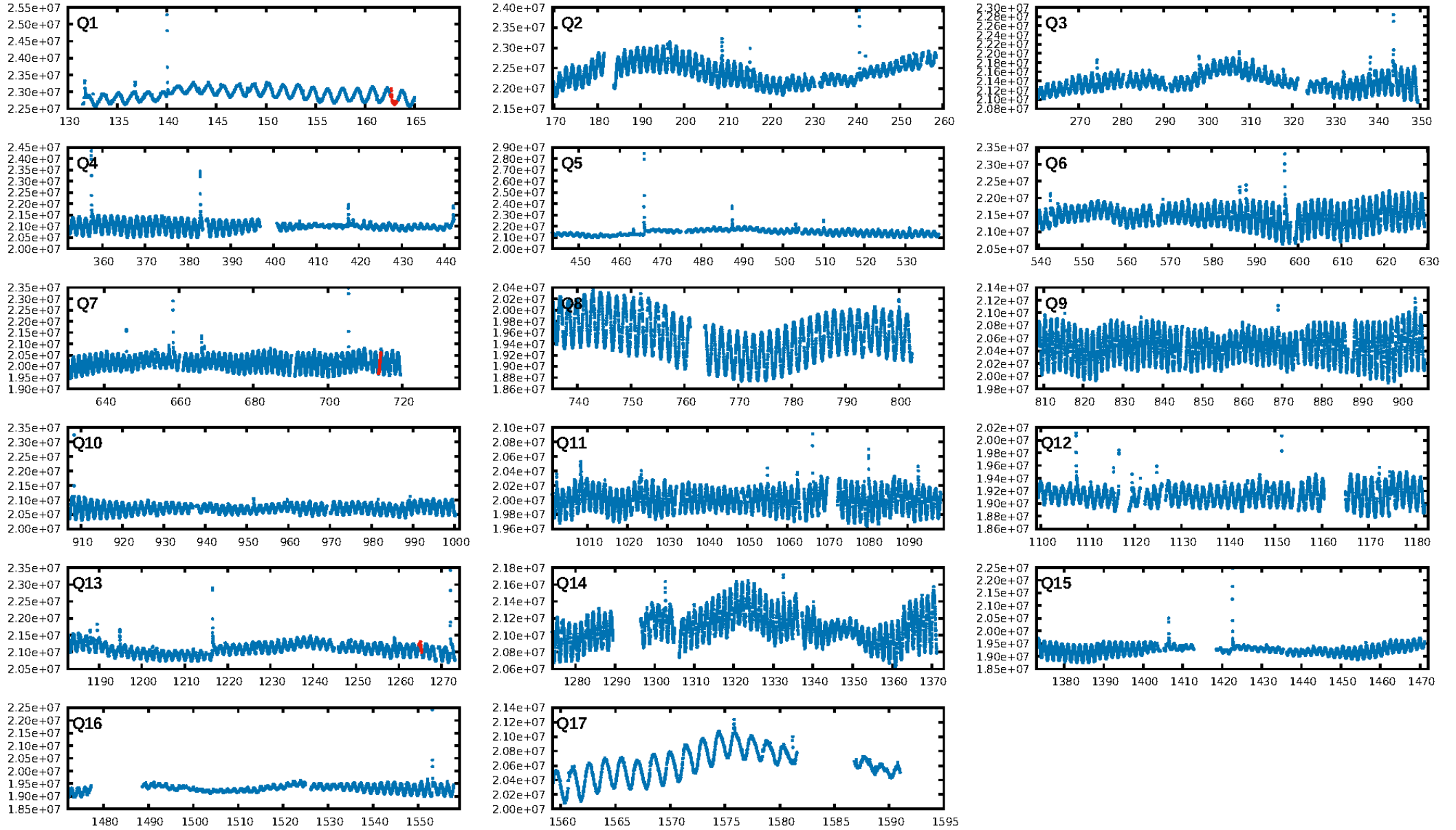
DV Fit Results:

Period = 551.07823 [0.00818] d
Epoch = 162.8693 [0.0107] BKJD
Rp/R* = 0.0415 [0.0160]
a/R* = 456.85 [568.86]
b = 0.61 [1.28]
Seff = 0.23 [0.04]
Teq = 177 [8] K
Rp = 3.32 [1.35] Re
a = 1.2198 [0.1285] AU
Ag = 118983.27 [98595.62] [1.21σ]
Teffp = 5084 [1047] K [4.68σ]

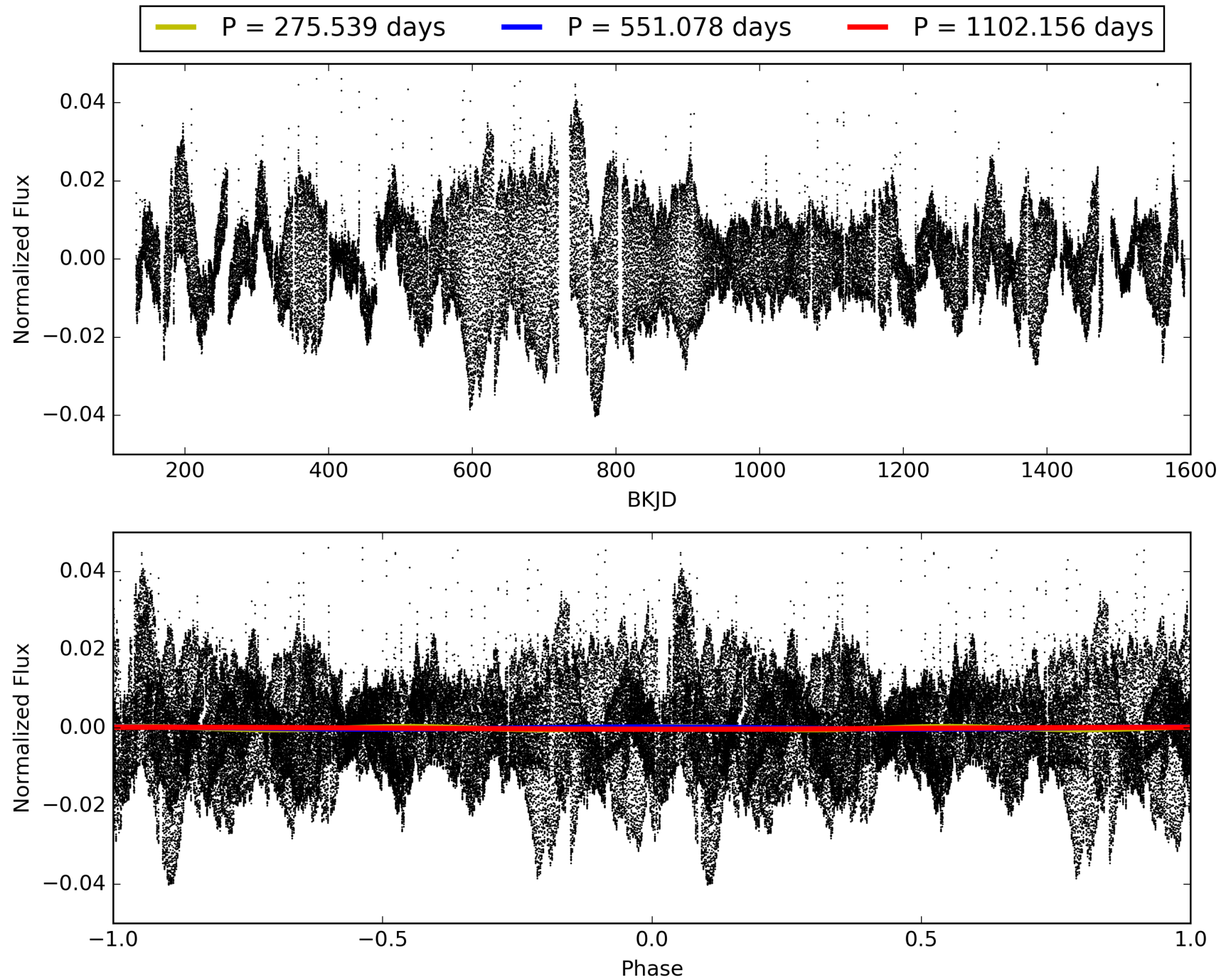
DV Diagnostic Results:

ShortPeriod-sig: 94.7% [1.93σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 45.1%
ModelChiSquareGof-sig: 87.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.957
Centroid-sig: 13.0%
Centroid-so: 0.998 arcsec [1.52σ]
OotOffset-rm: 0.377 arcsec [1.41σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 0.406 arcsec [1.59σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 011465987-05, PDC Light Curves

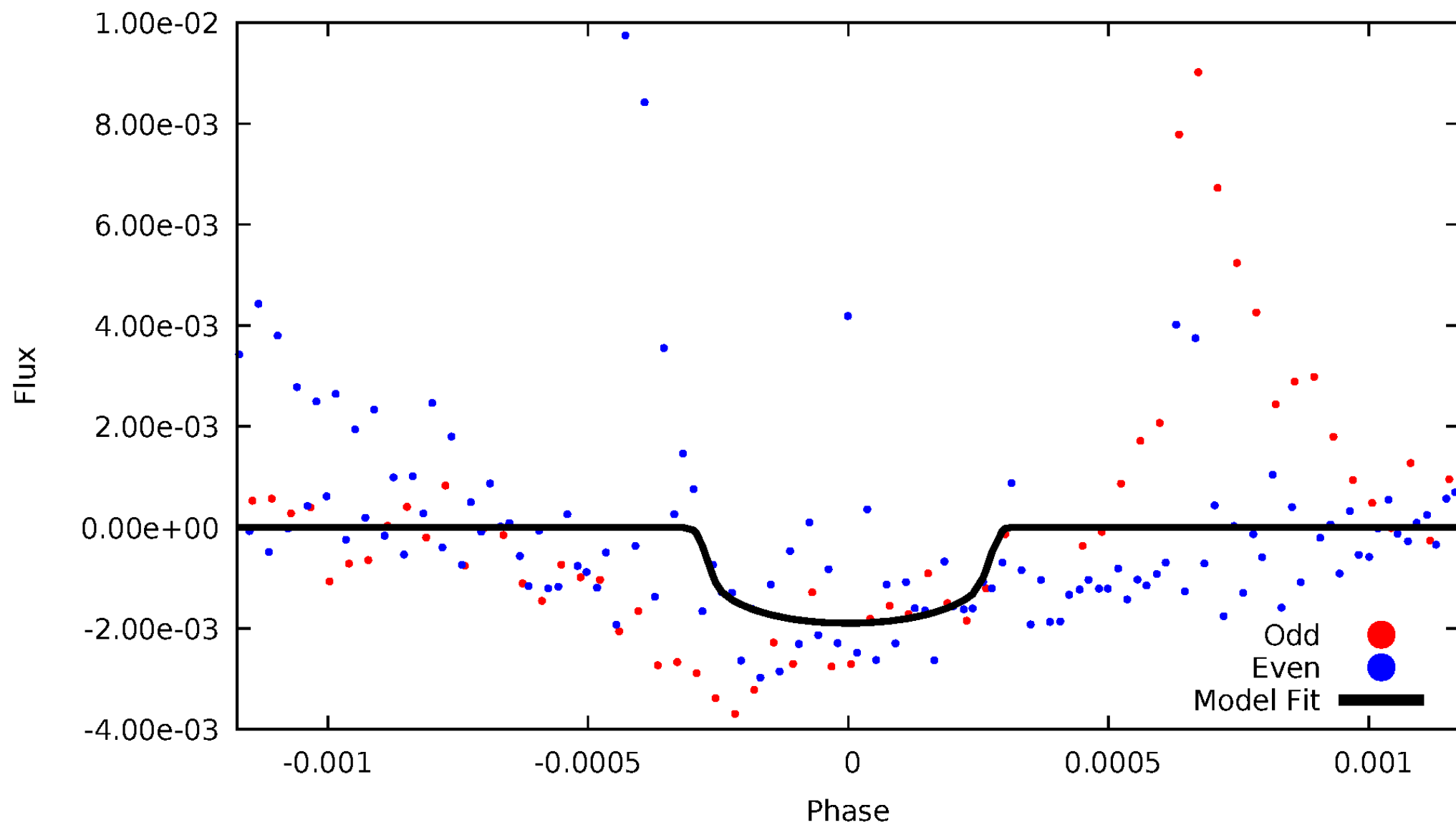


TCE 011465987-05



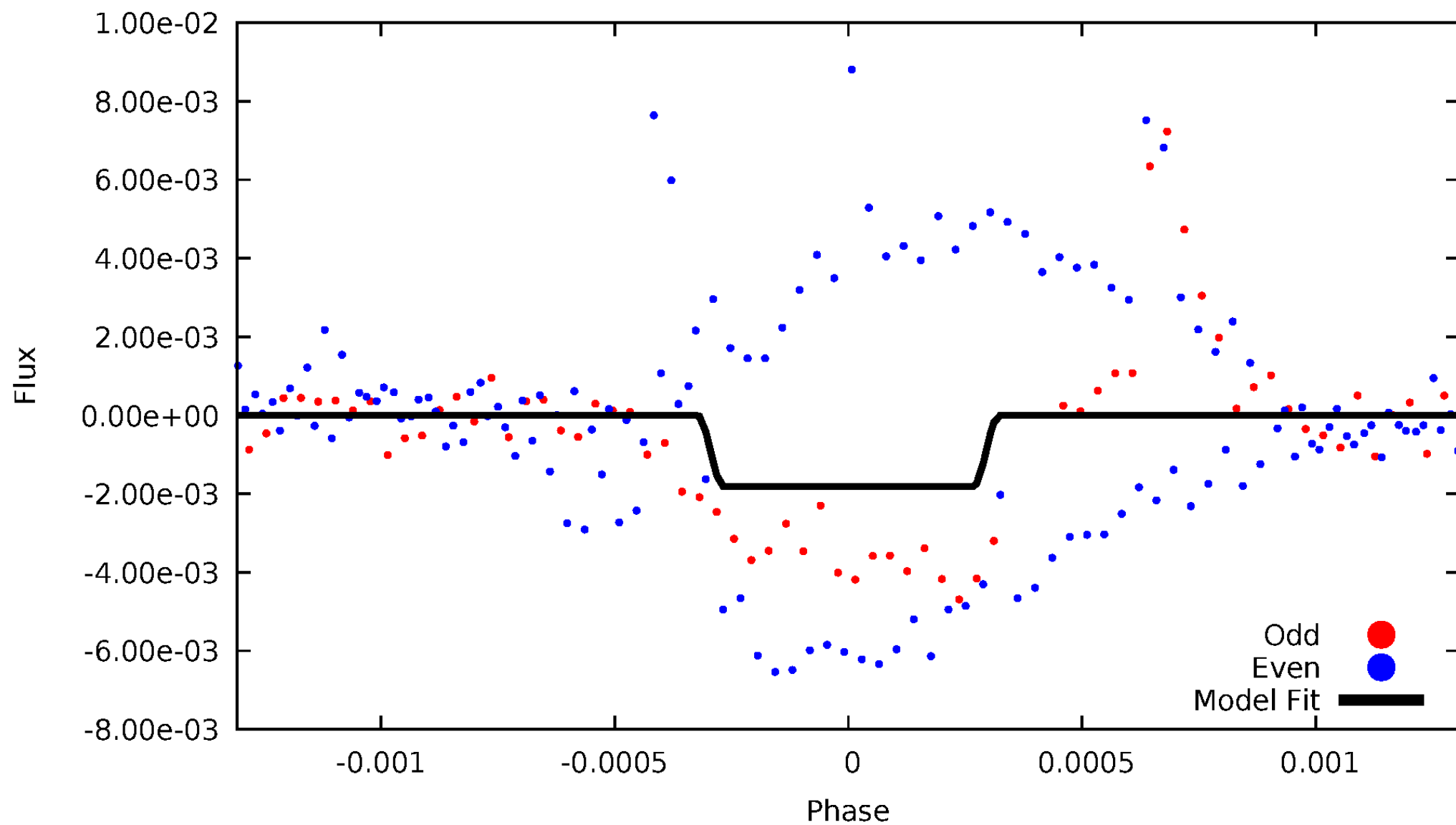
DV Odd/Even

TCE 011465987-05



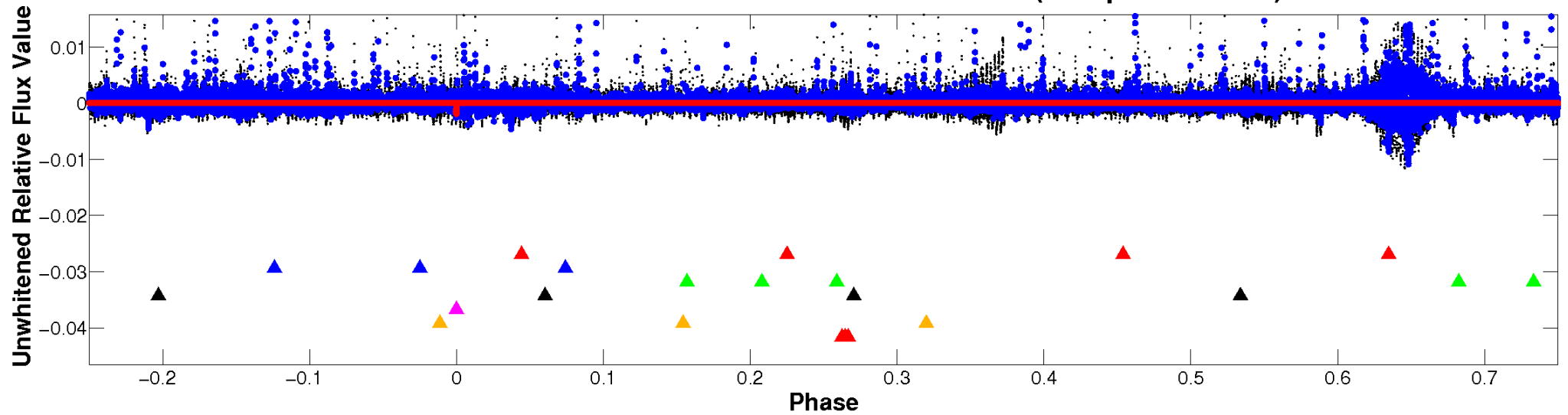
ALT Odd/Even

TCE 011465987-05

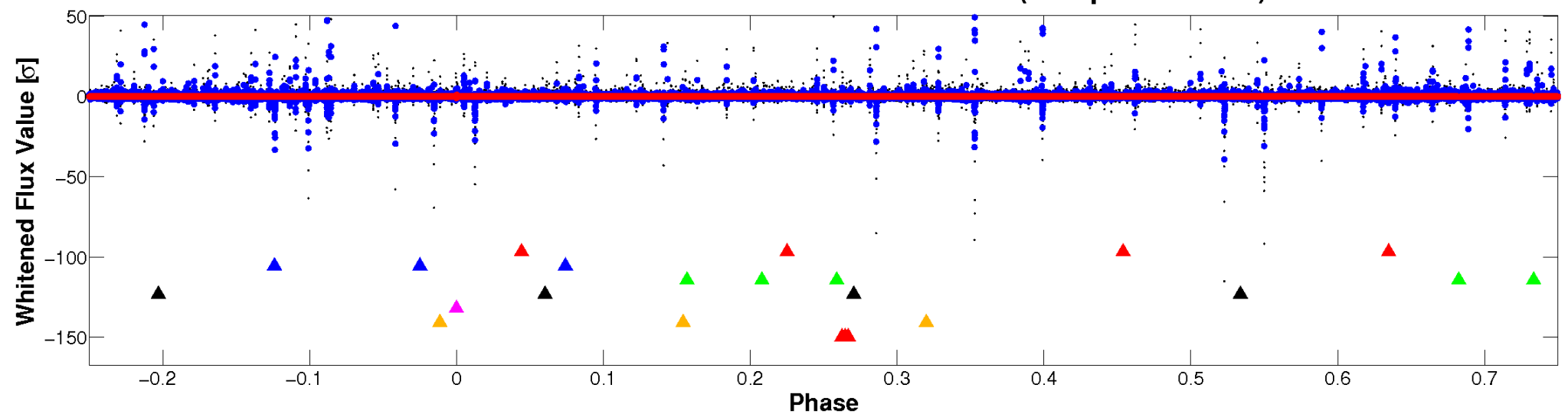


Non-Whitened Vs. Whitened Light Curve

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

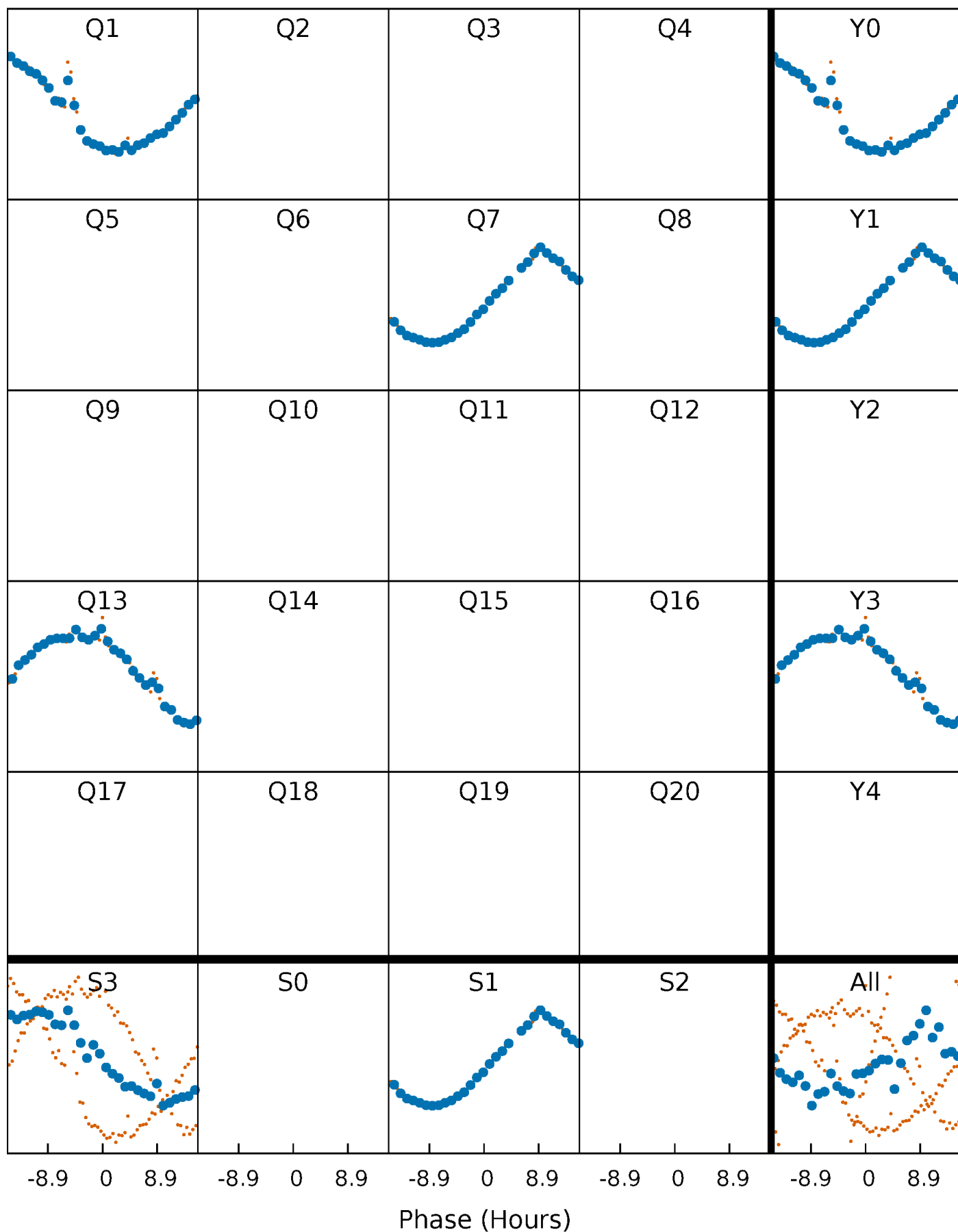


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



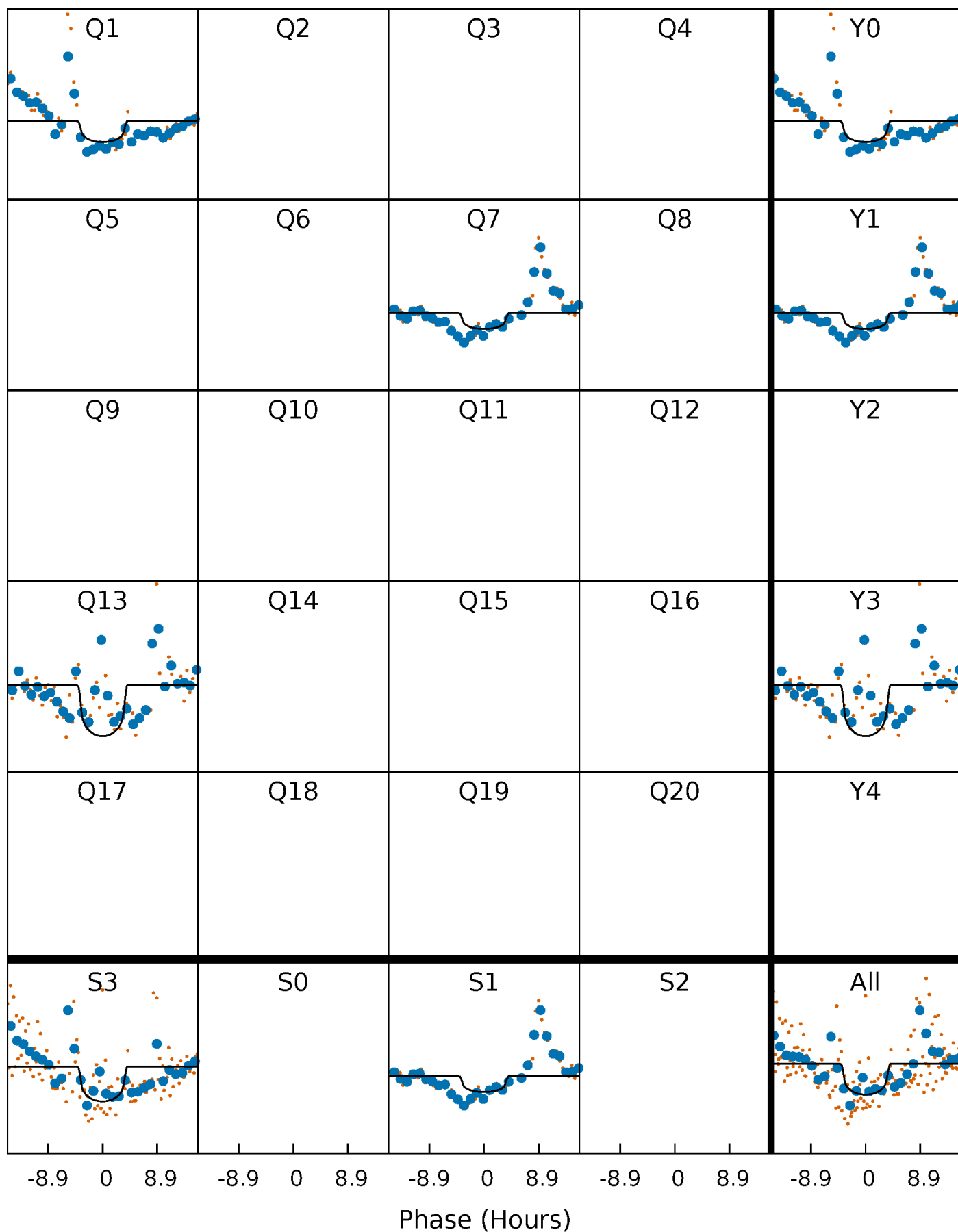
PDC Quarter-Phased Transit Curves

TCE 011465987-05 $P=551.078234$ Days $T_0=162.869345$ (BKJD)



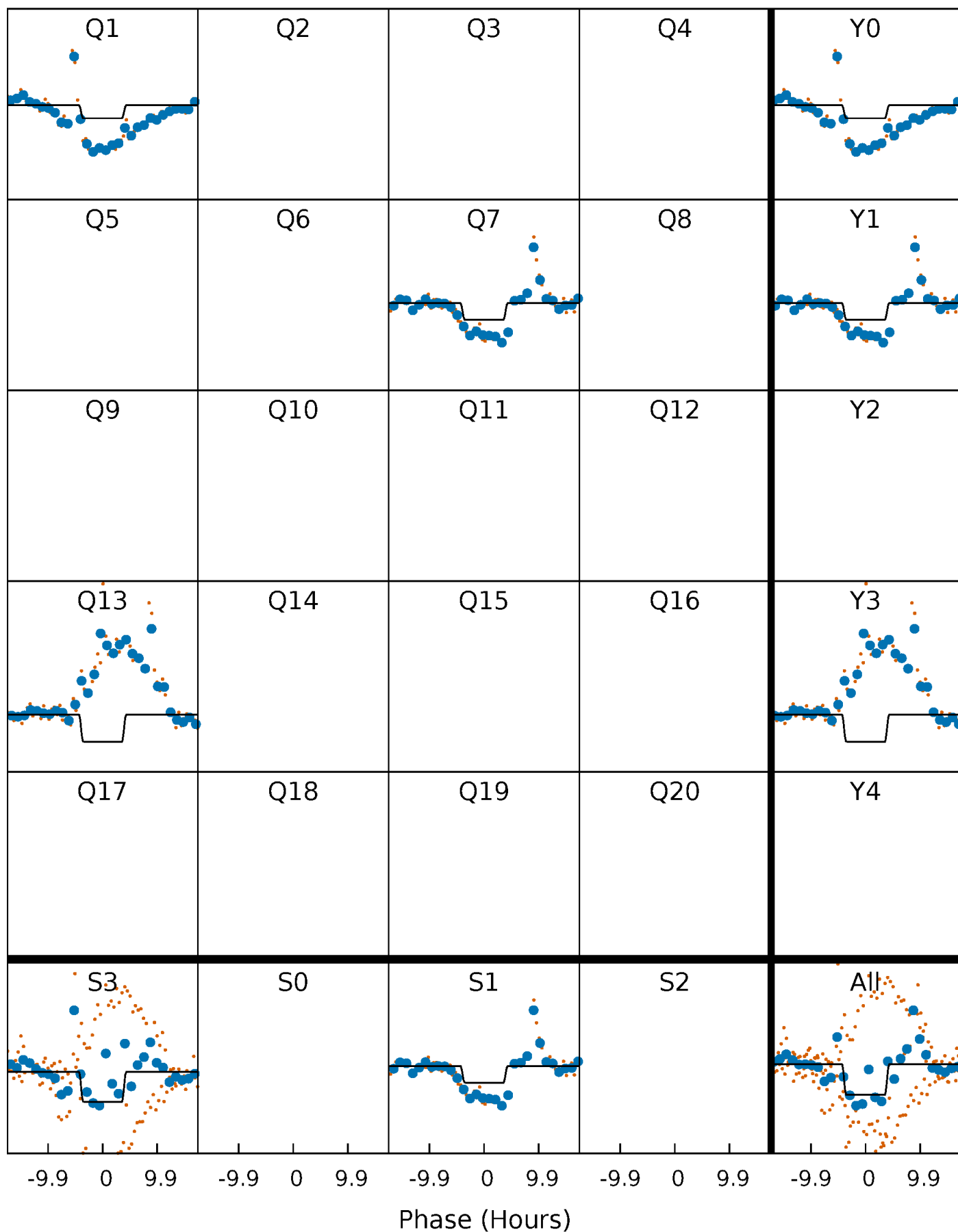
DV Quarter-Phased Transit Curves

TCE 011465987-05 $P=551.078234$ Days $T_0=162.869345$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

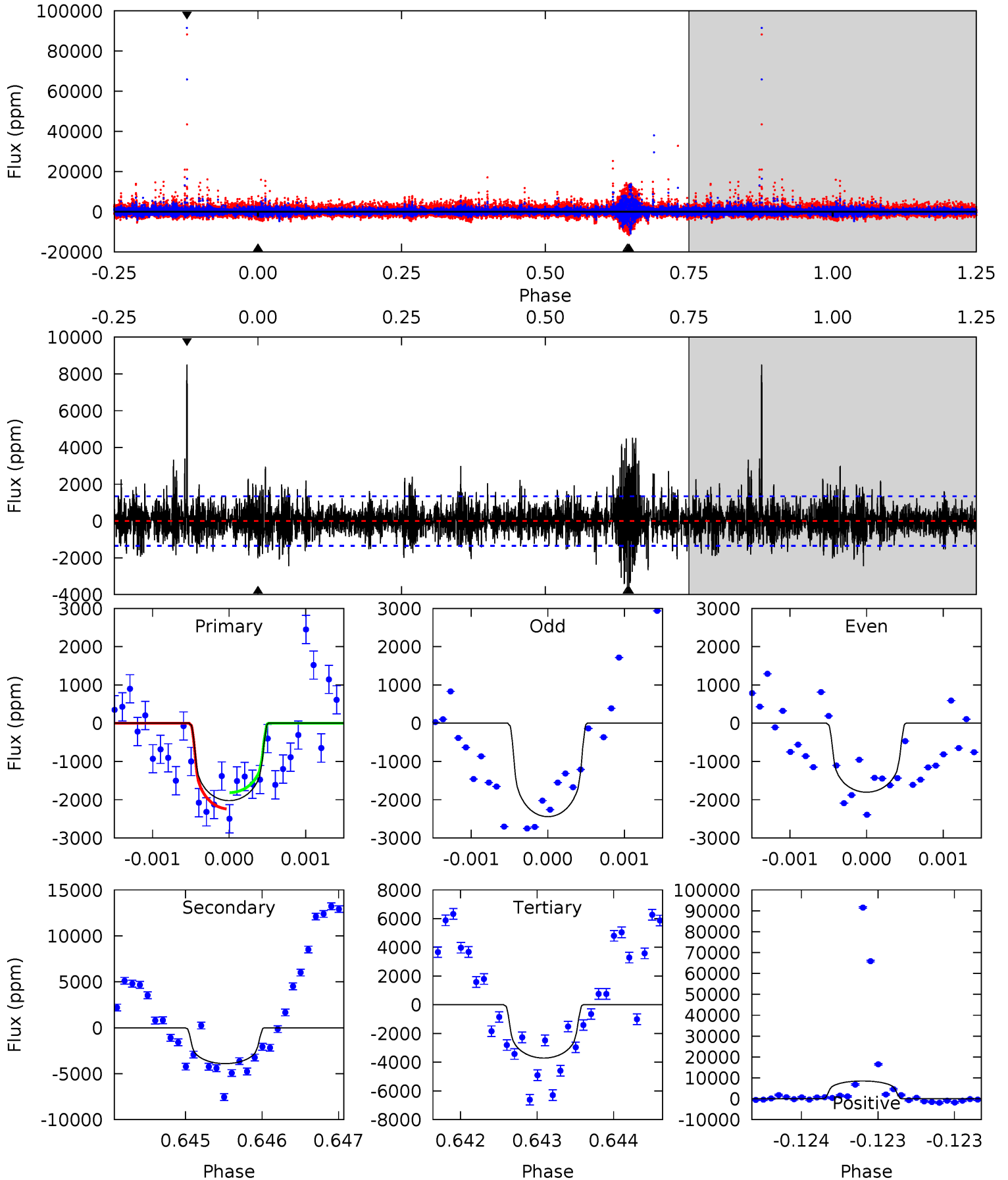
TCE 011465987-05 $P=551.079491$ Days $T_0=162.862542$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-05, P = 551.078234 Days, E = 162.869345 Days

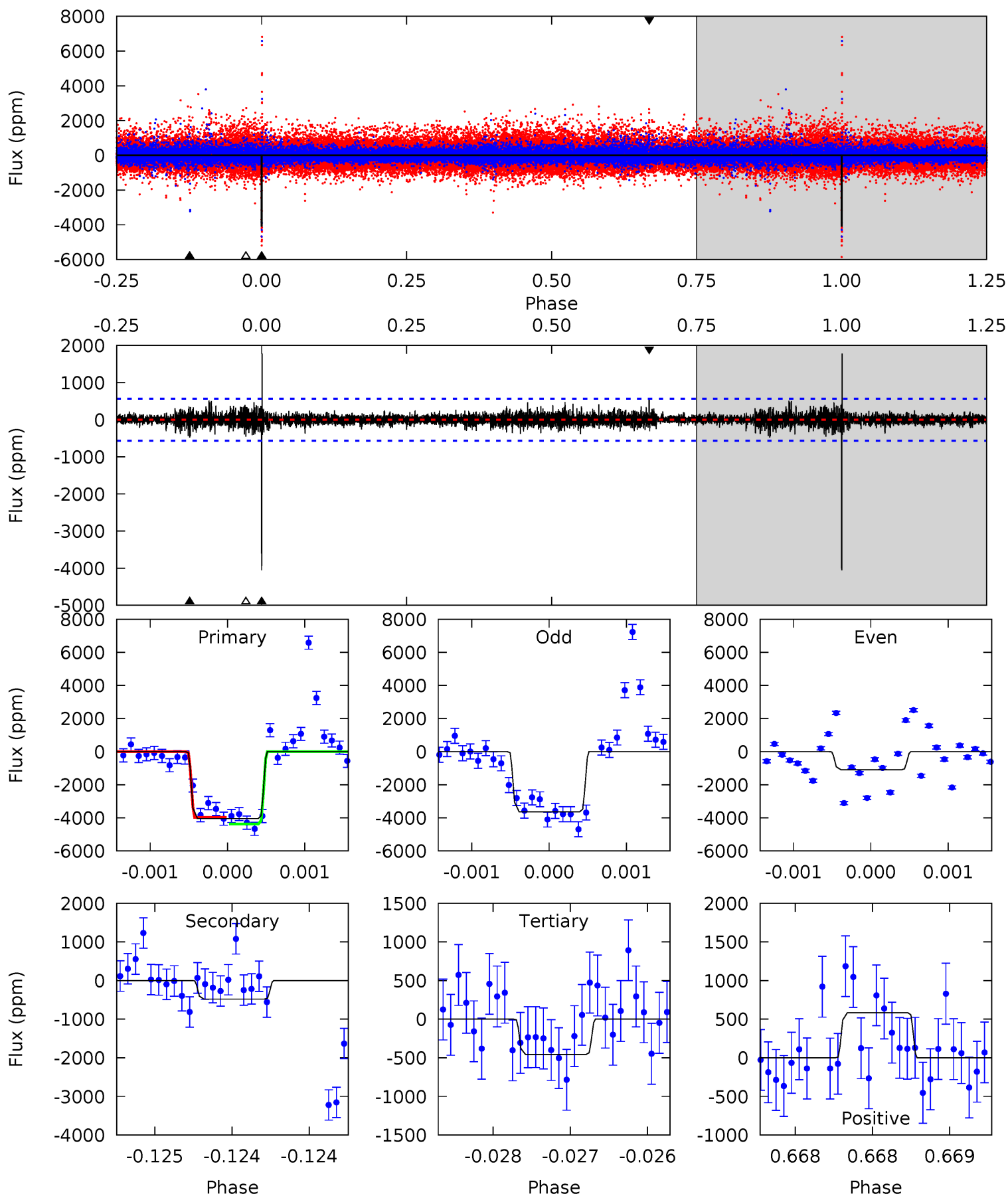
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 8.32 | 16.1 | 15.3 | 34.9 | 5.54 | 3.43 | 3.17 | -6.95 | -26.6 | 0.79 | -18.9 | 0.81 | 0.75 | 0.69 | 0 |



Alt Model-Shift Uniqueness Test

011465987-05, P = 551.079491 Days, E = 162.862542 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 39.6 | 4.68 | 4.45 | 5.69 | 5.53 | 3.42 | 0.93 | 35.2 | 33.9 | 0.23 | -1.01 | 15.6 | 0.50 | 0.31 | 2.00 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-05 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|------------------------|----------------------|-----------------------|------------------------------|
| DV | -3905 ± 243 | $3.30^{+1.42}_{-1.20}$ | 250^{+10}_{-10} | 6320^{+1955}_{-975} | $290173^{+416581}_{-148145}$ |
| Alt. | -479 ± 102 | $3.47^{+1.42}_{-1.28}$ | 250^{+9}_{-9} | 3980^{+728}_{-476} | 32160^{+45381}_{-16844} |

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

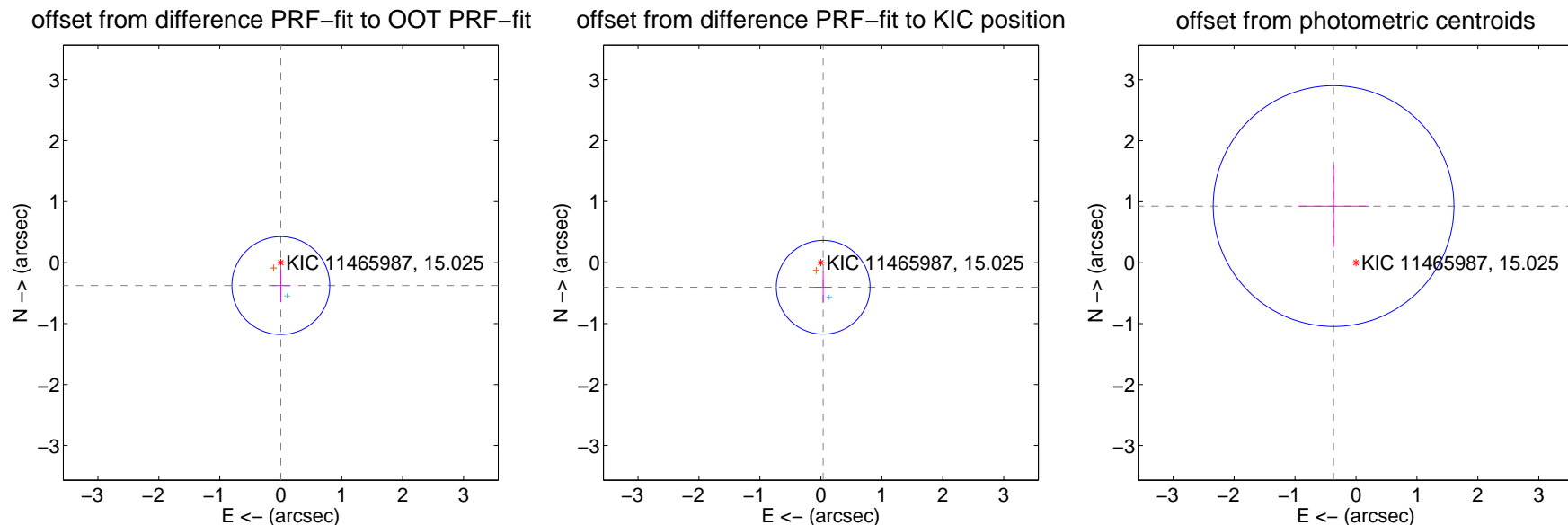
DV Centroid Data

Supplemental centroid analysis for 011465987-05. Kepler magnitude: 15.03. Transit SNR 5.27

There are 1 quarters with good PRF difference image offsets

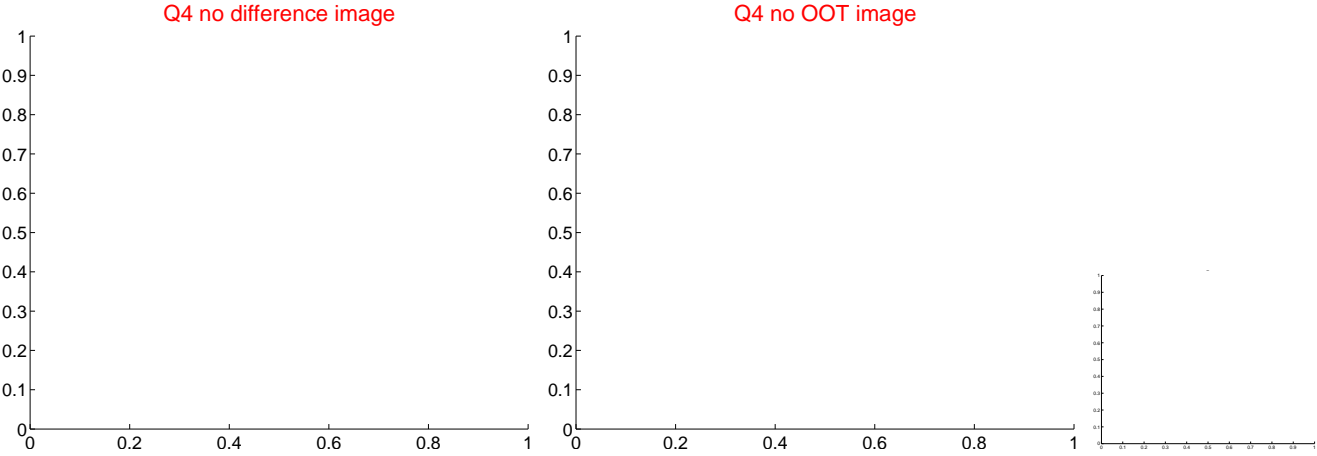
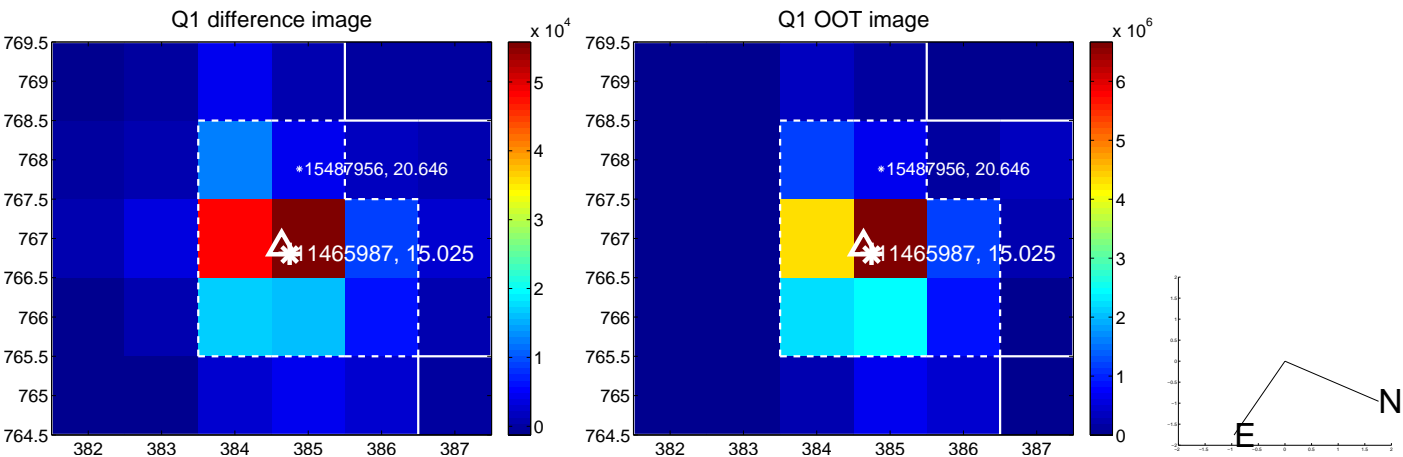
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.377 ± 0.268 | 1.41 | -0.001 ± 0.146 | -0.377 ± 0.268 |
| PRF-fit source offset from KIC position | 0.406 ± 0.256 | 1.59 | -0.038 ± 0.141 | -0.405 ± 0.257 |
| photometric centroid source offset | 1.00 ± 0.66 | 1.52 | 0.37 ± 0.58 | 0.93 ± 0.67 |



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.



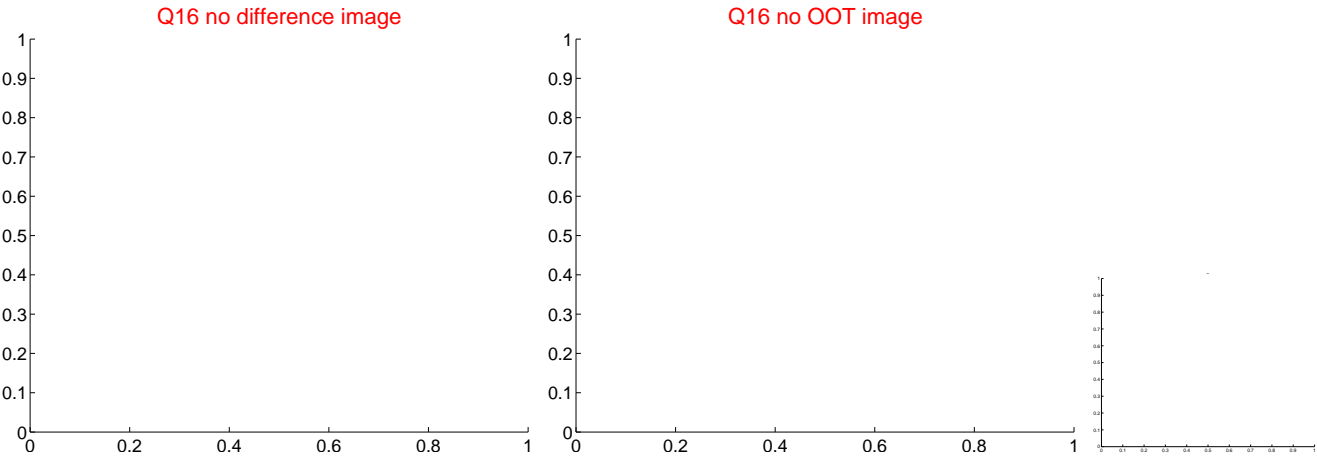
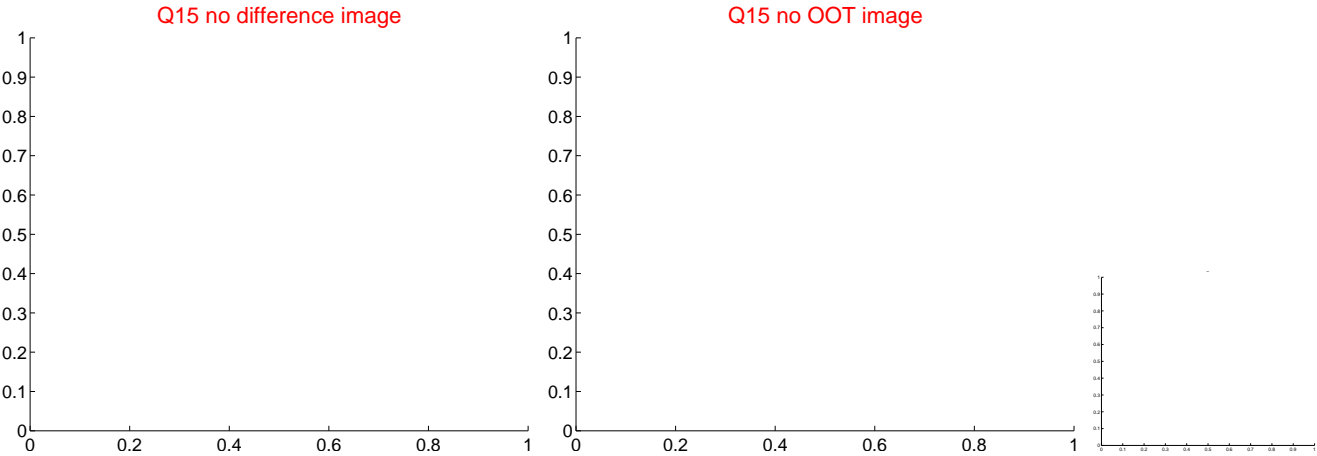
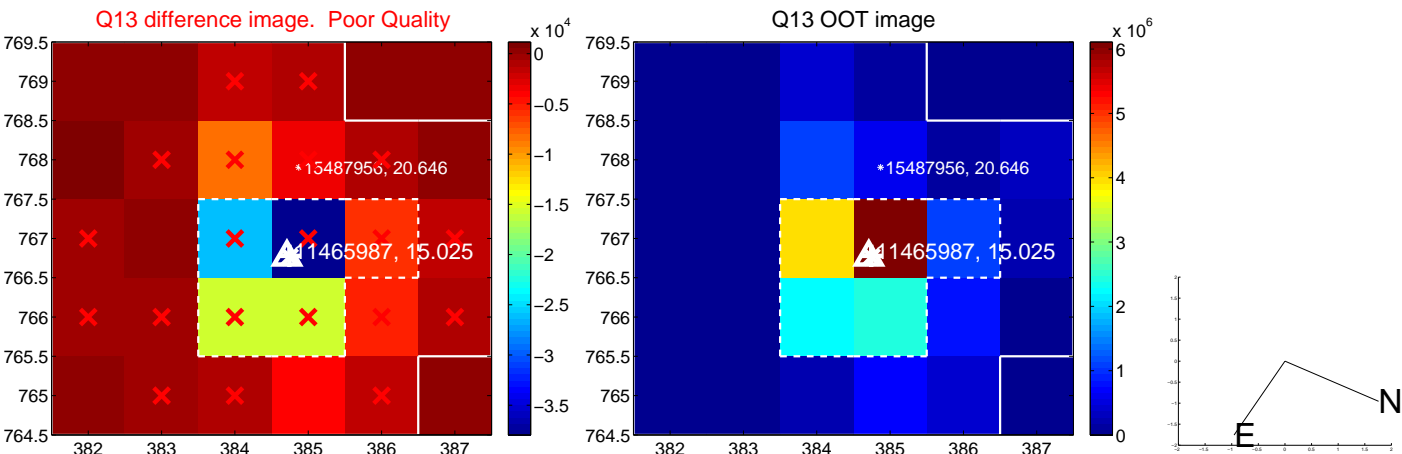
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



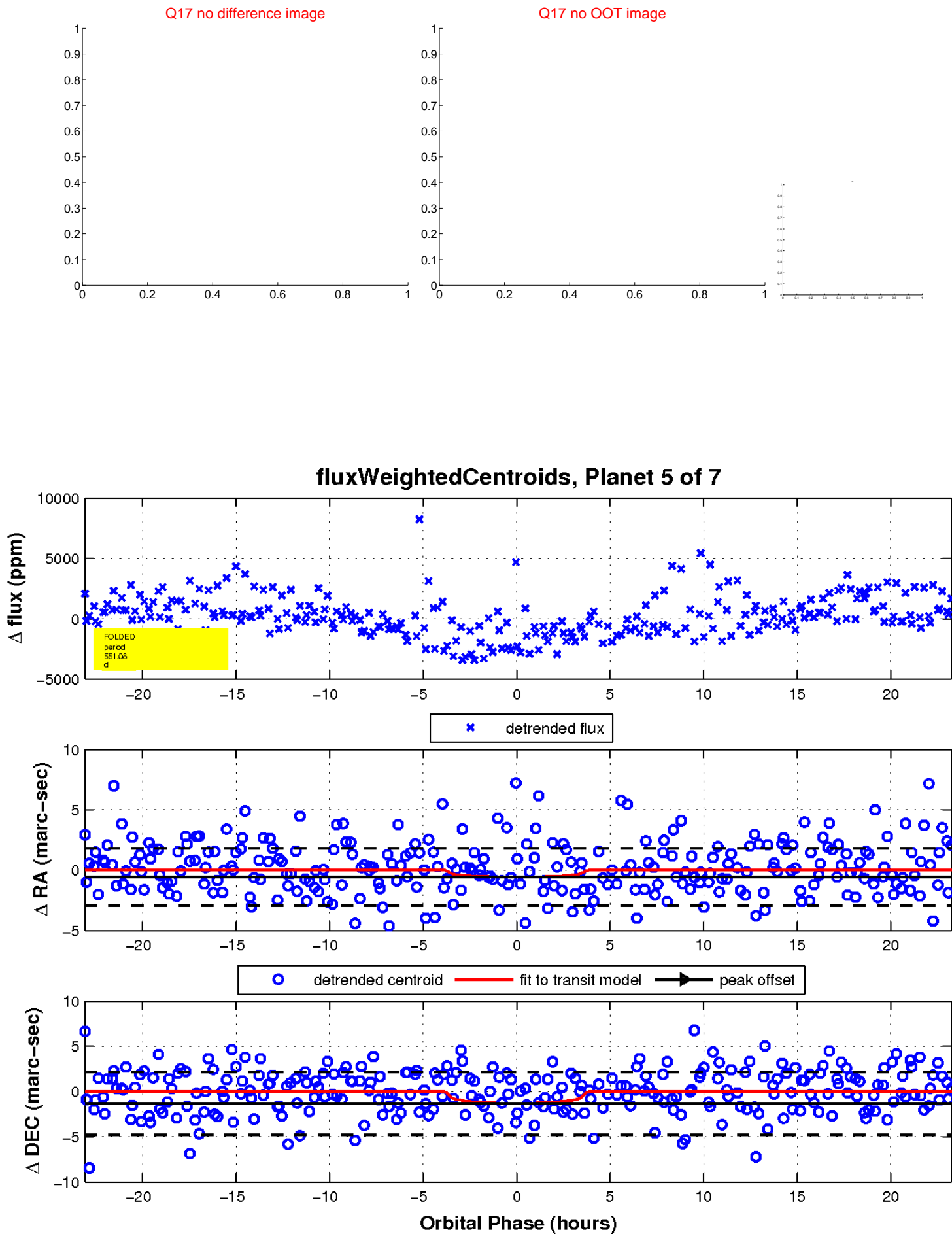
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

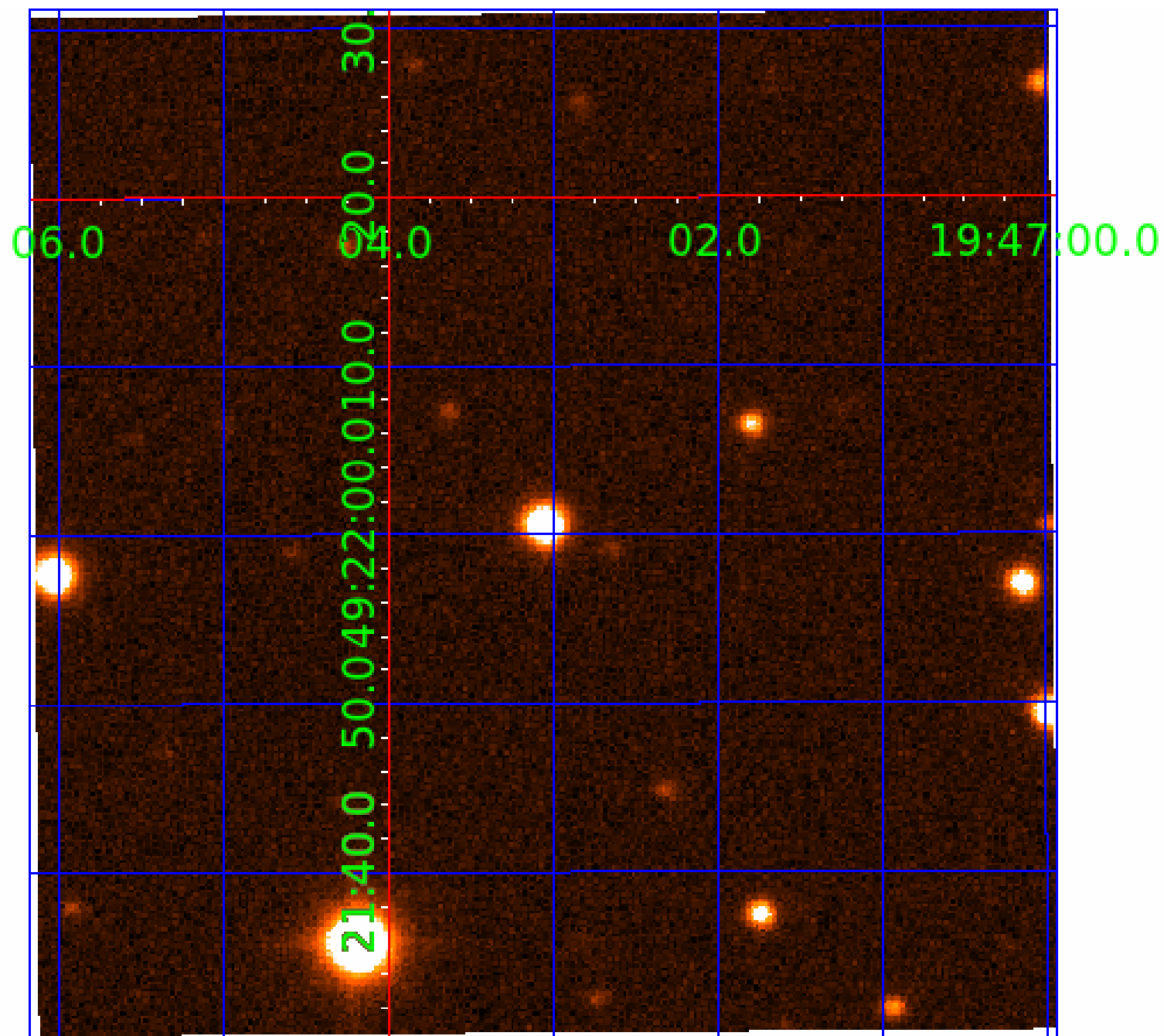


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
| 011465987-03 | OBS | No | 261.487804 | 305.572200 | 2018.0 | 5.605 | 13.6 | 7.4 | 0.73 | 5174 | 3.57 | 0.63 |
| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

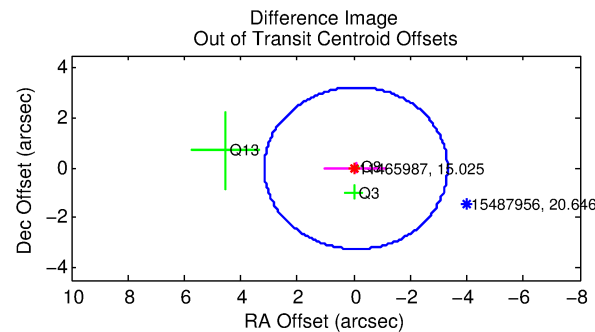
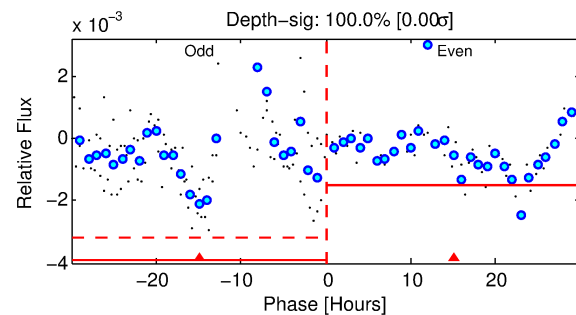
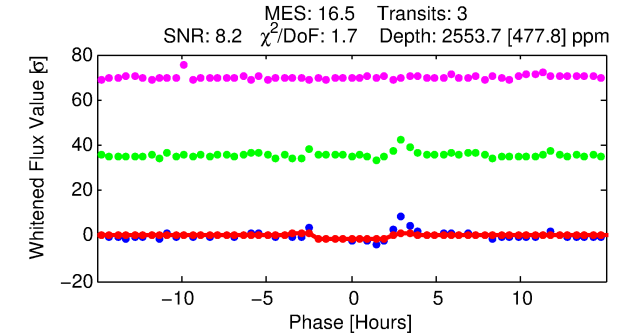
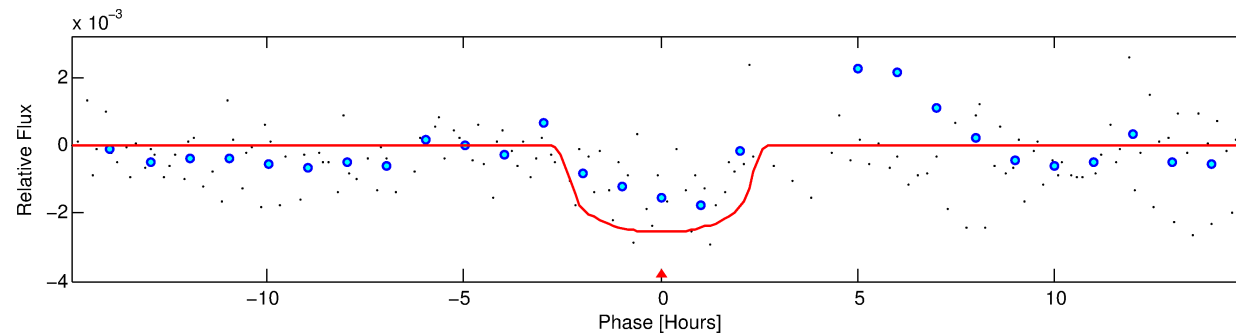
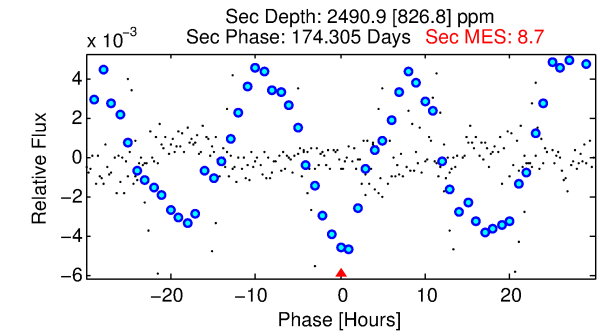
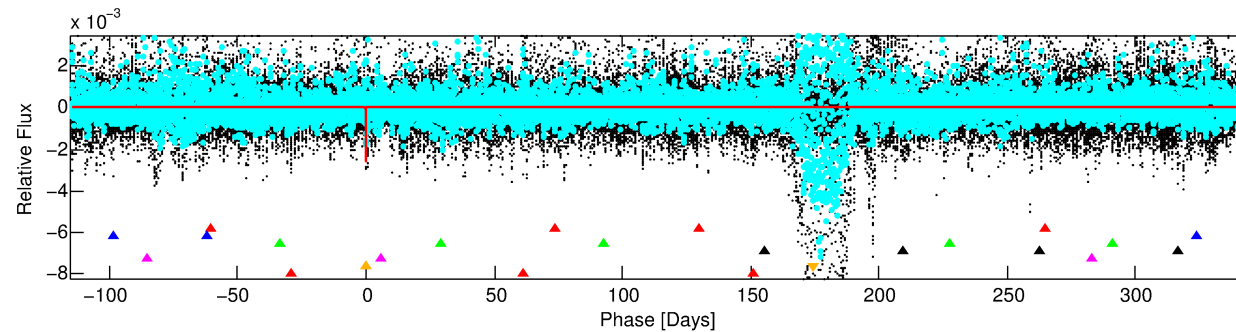
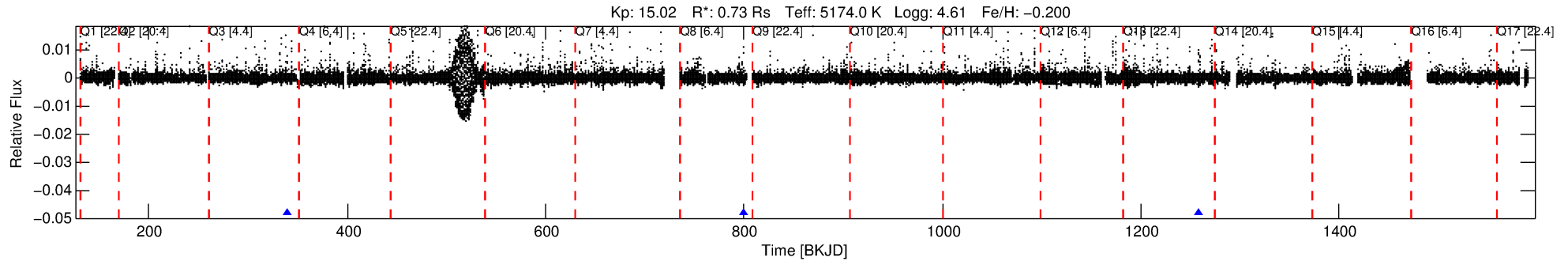
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011465987-06

No Significant Match Found

DV One-Page Summary

KIC: 11465987 Candidate: 6 of 7 Period: 459.825 d



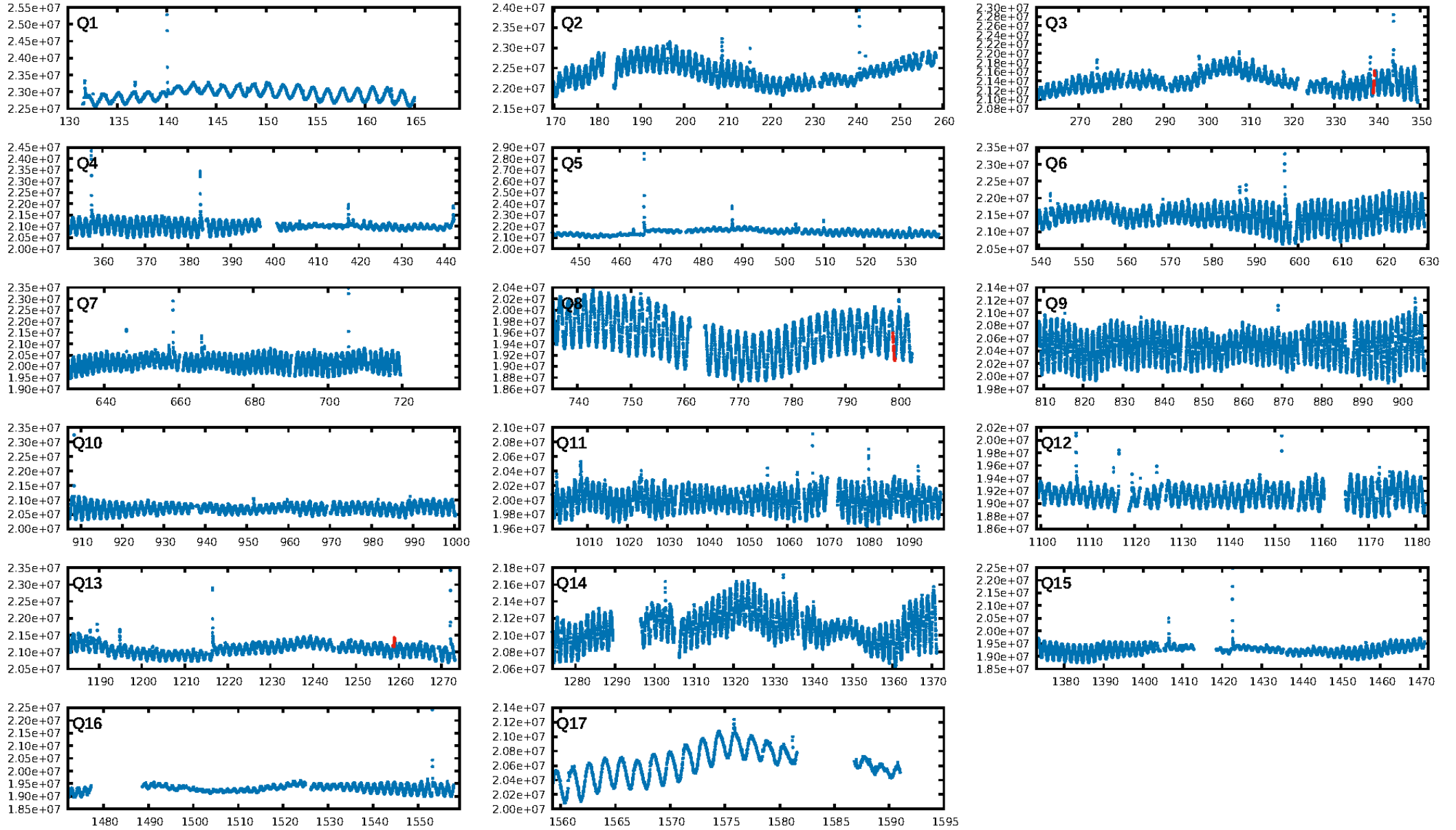
DV Fit Results:

Period = 459.82542 [0.00554] d
Epoch = 339.1716 [0.0075] BKJD
Rp/R* = 0.0453 [0.0542]
a/R* = 726.97 [3134.77]
b = 0.16 [26.08]
Seff = 0.30 [0.06]
Teq = 188 [9] K
Rp = 3.63 [4.37] Re
a = 1.0812 [0.1139] AU
Ag = 121645.57 [294644.36] [0.41σ]
Teffp = 5431 [3286] K [1.60σ]

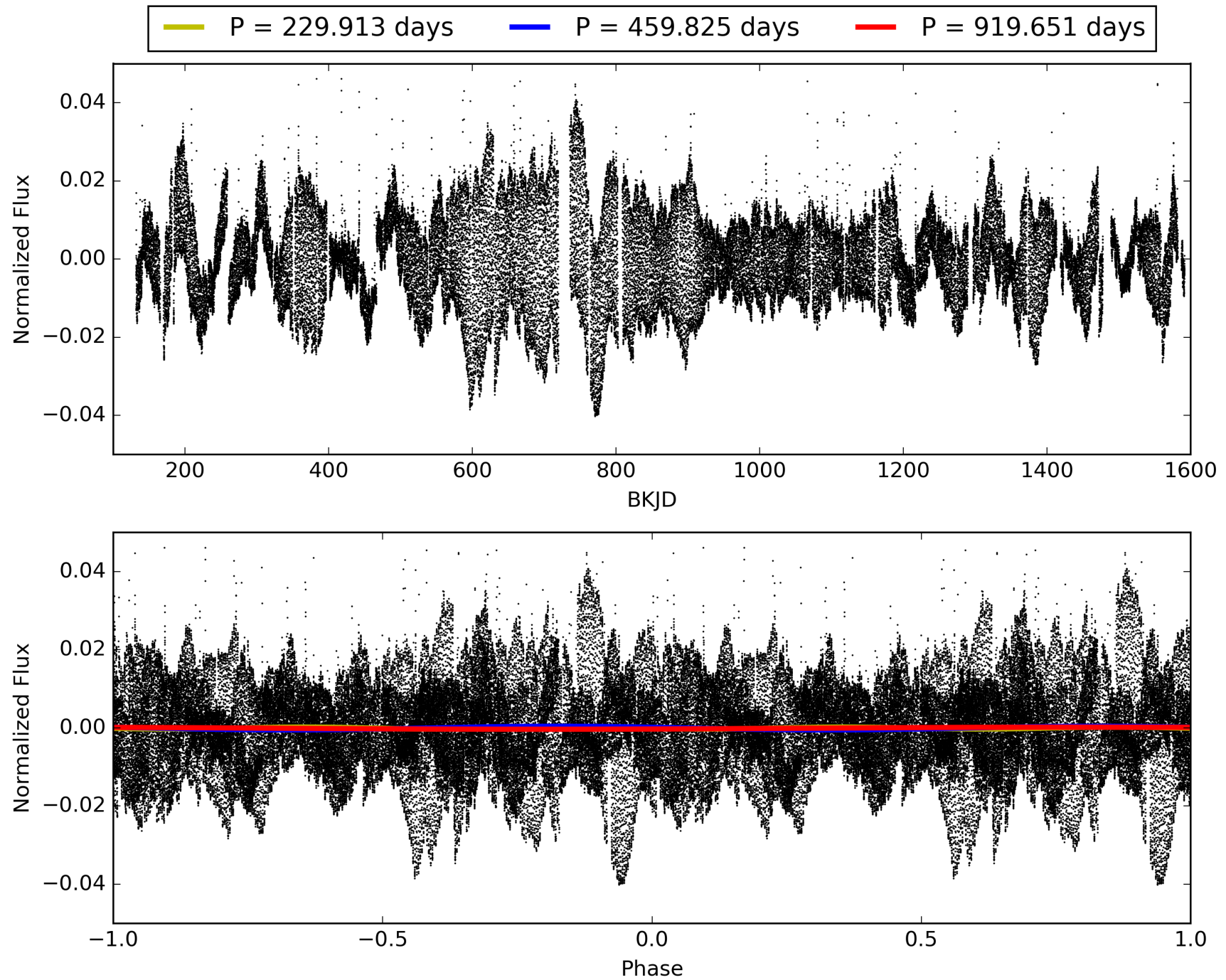
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [171.32σ]
LongPeriod-sig: 100.0% [127.34σ]
ModelChiSquare2-sig: 15.5%
ModelChiSquareGof-sig: 29.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.379
Centroid-sig: 24.7%
Centroid-so: 0.500 arcsec [0.87σ]
OotOffset-rm: 0.079 arcsec [0.07σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.114 arcsec [0.06σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 011465987-06, PDC Light Curves

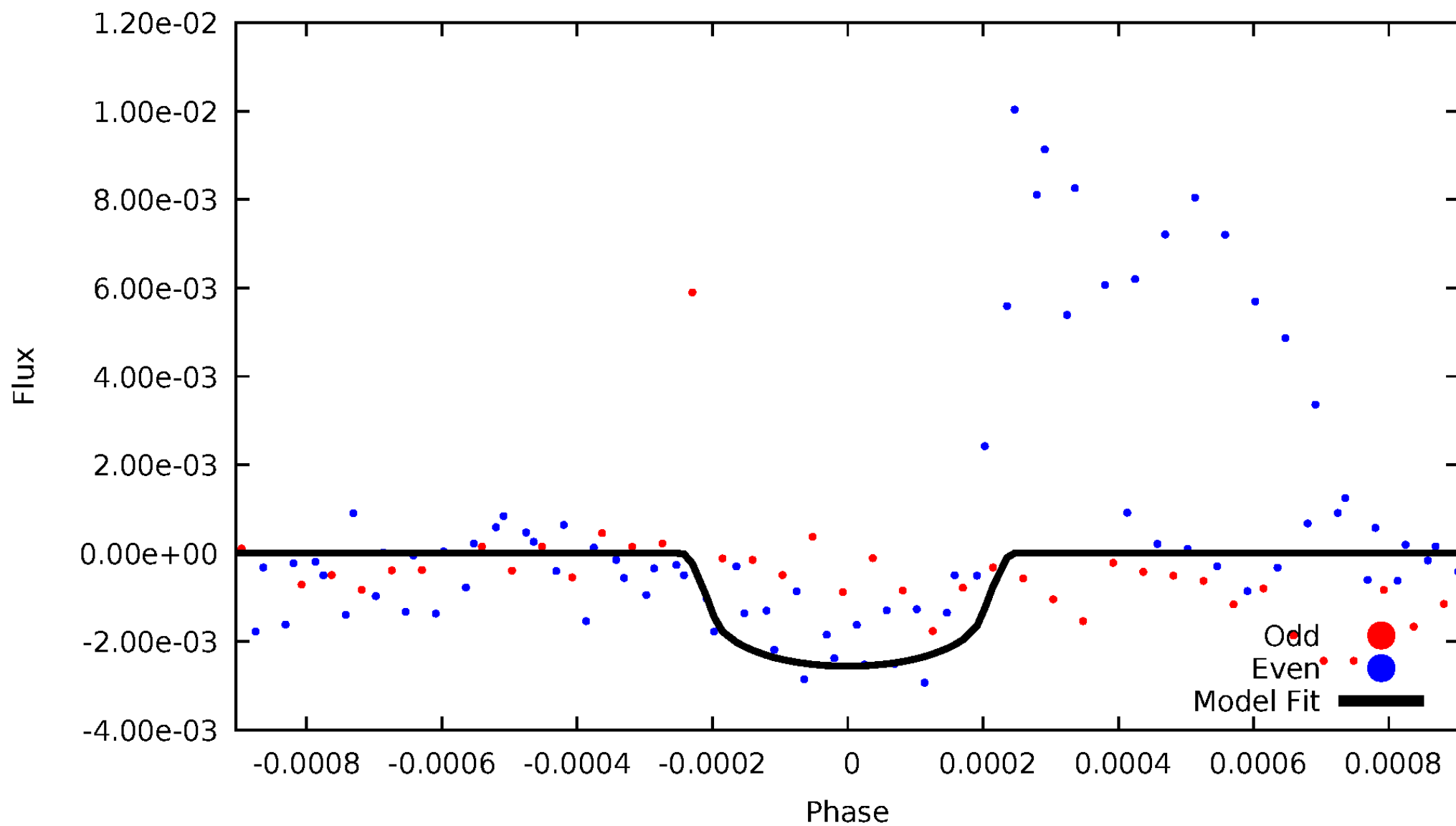


TCE 011465987-06



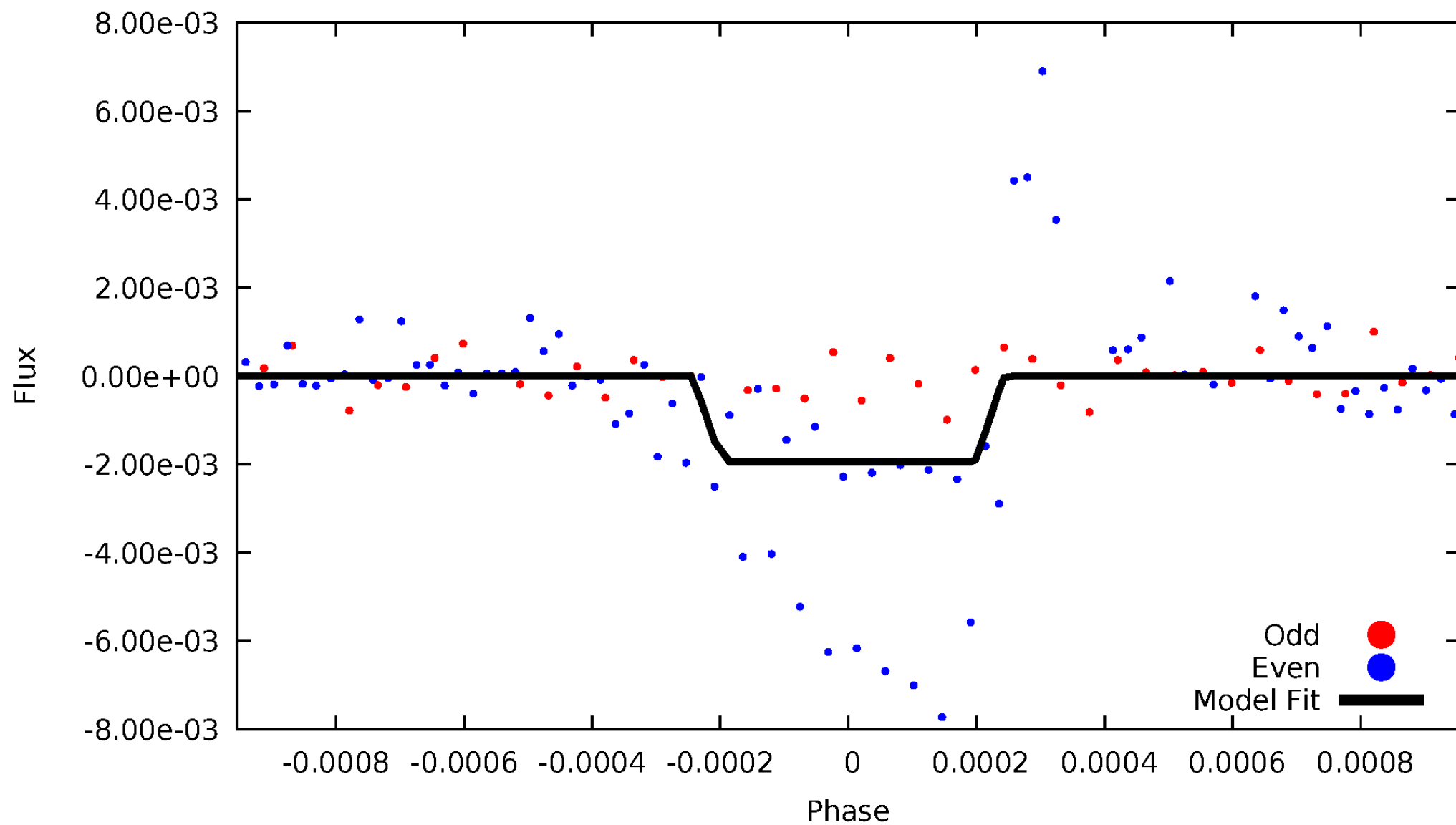
DV Odd/Even

TCE 011465987-06



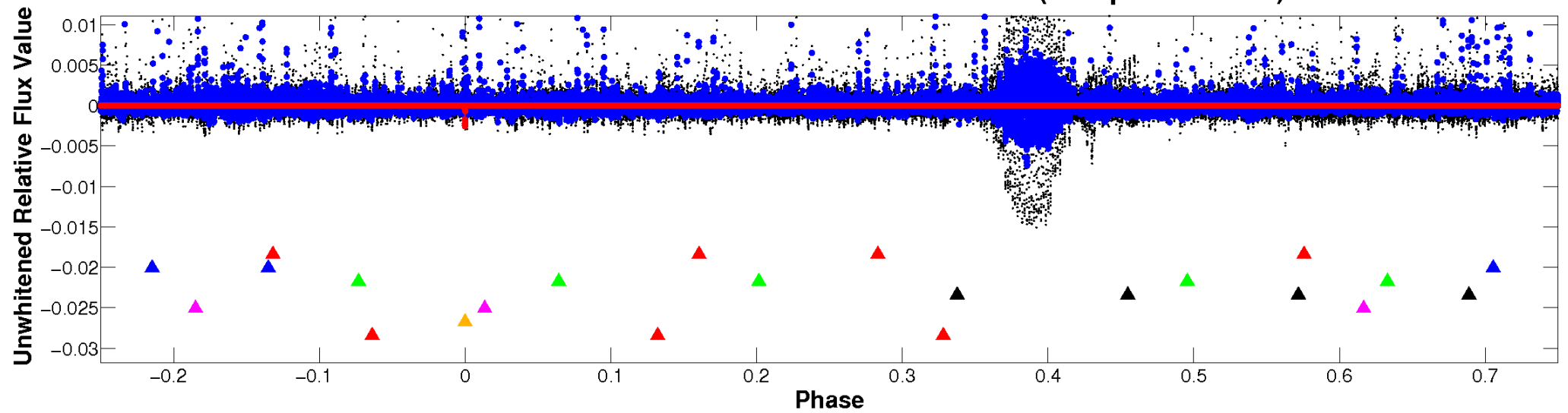
ALT Odd/Even

TCE 011465987-06

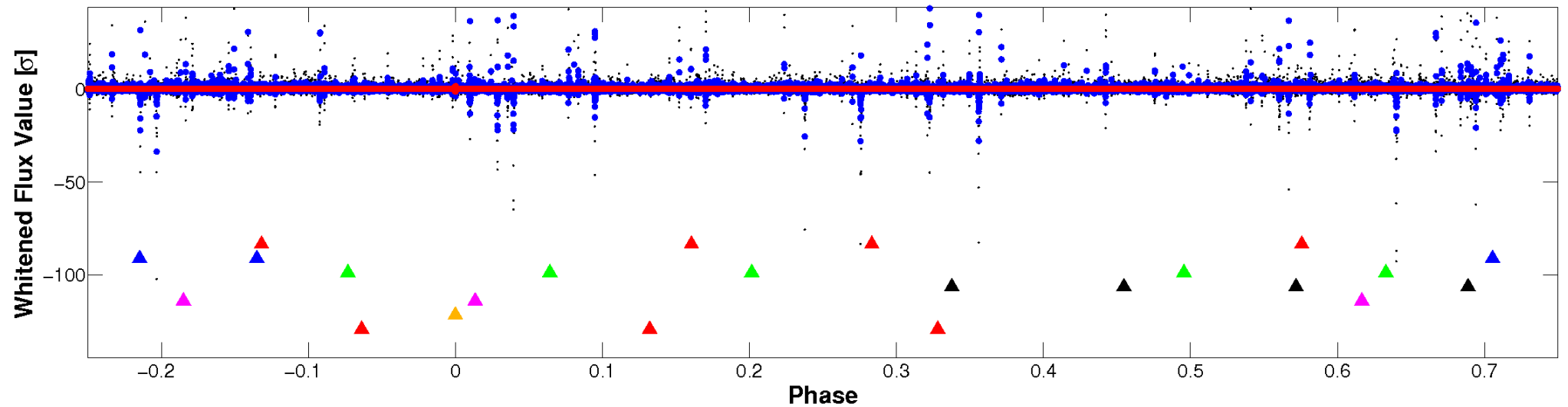


Non-Whitened Vs. Whitened Light Curve

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

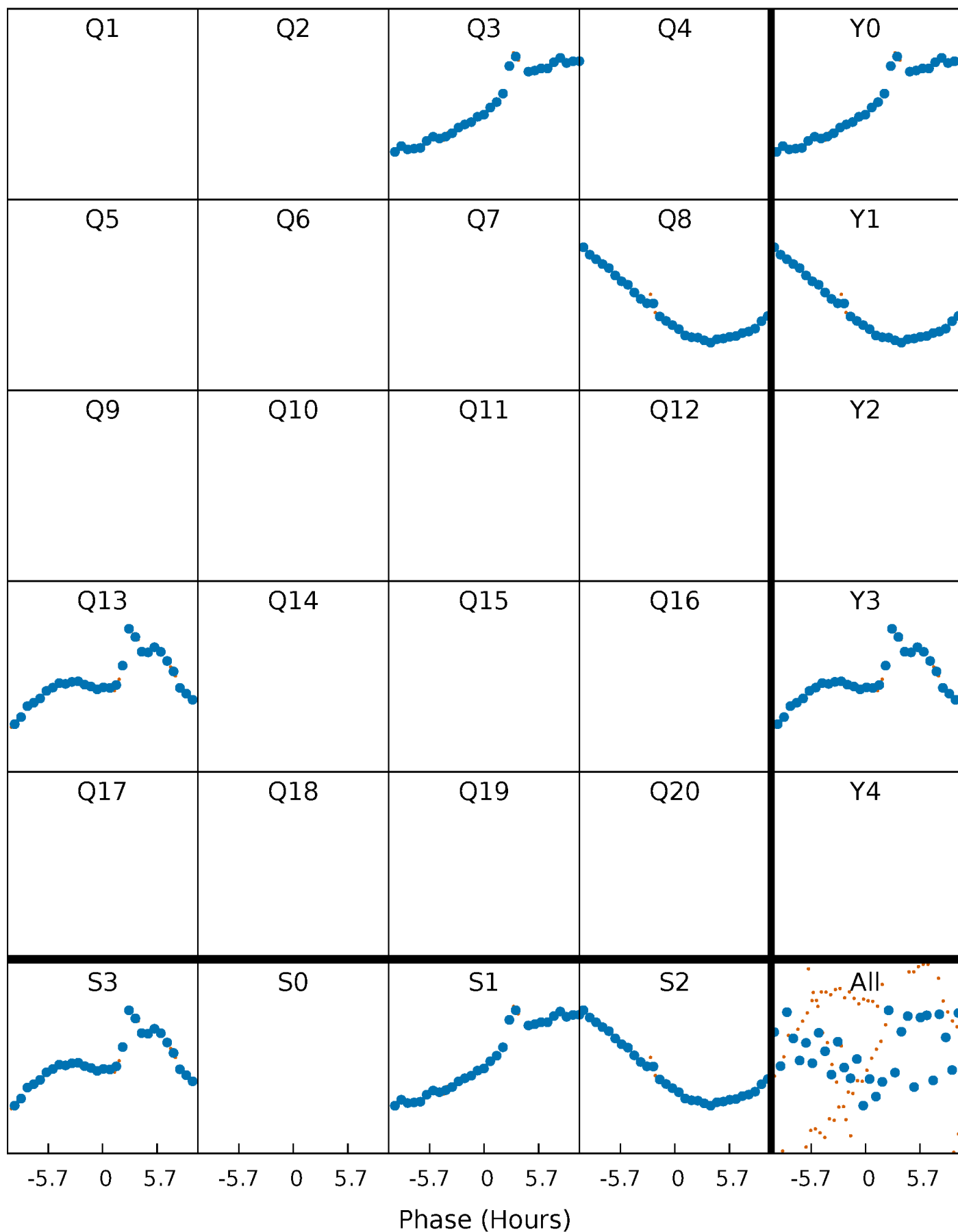


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



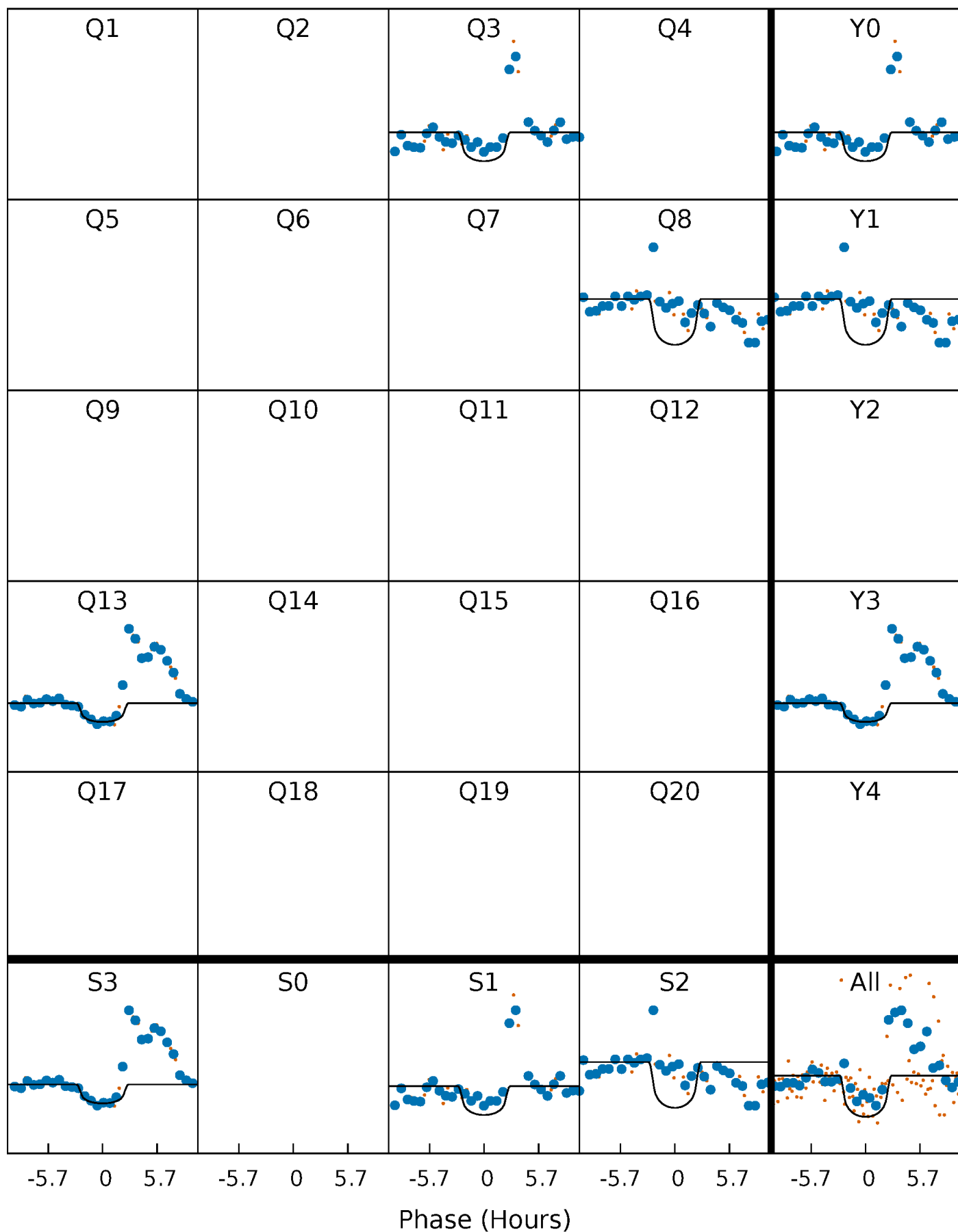
PDC Quarter-Phased Transit Curves

TCE 011465987-06 P=459.825424 Days $T_0=339.171618$ (BKJD)



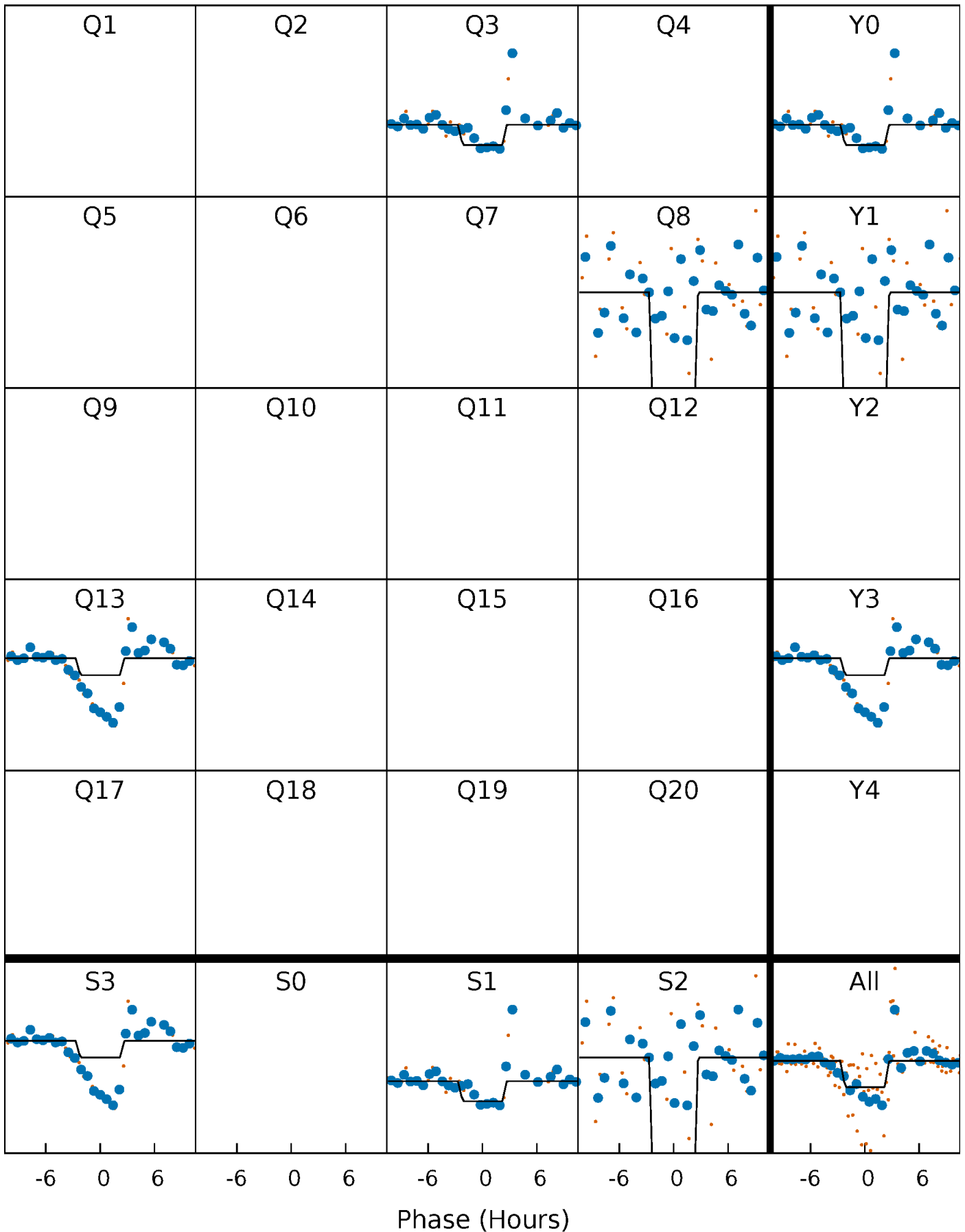
DV Quarter-Phased Transit Curves

TCE 011465987-06 $P=459.825424$ Days $T_0=339.171618$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

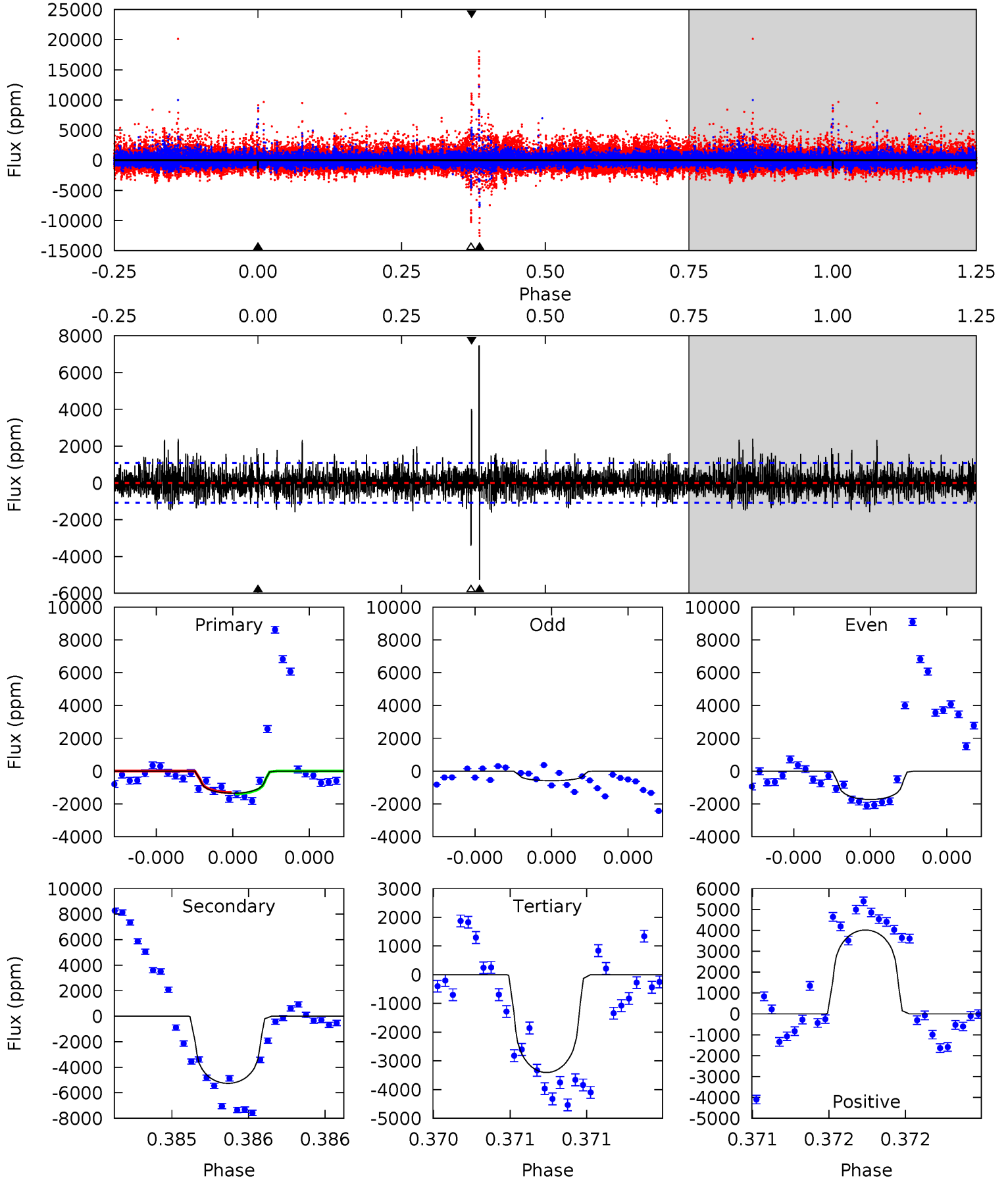
TCE 011465987-06 $P=459.823212$ Days $T_0=339.160879$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-06, P = 459.825424 Days, E = 339.171618 Days

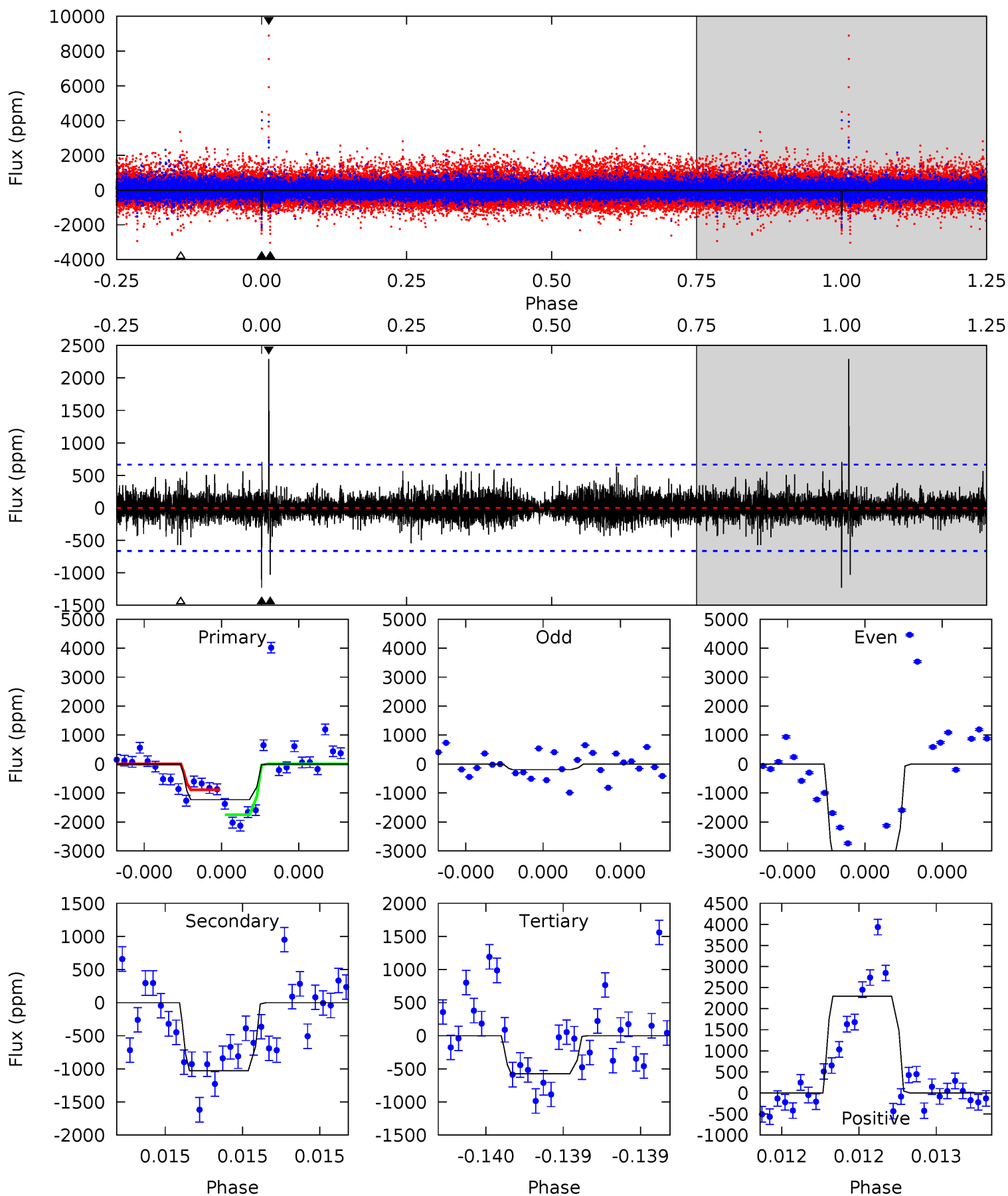
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 6.96 | 27.1 | 17.5 | 20.7 | 5.58 | 3.49 | 2.62 | -10.6 | -13.7 | 9.56 | 6.40 | 1.57 | 1.01 | 0.59 | 0.20 |



Alt Model-Shift Uniqueness Test

011465987-06, P = 459.823212 Days, E = 339.160879 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.3 | 8.63 | 4.80 | 19.2 | 5.58 | 3.50 | 1.00 | 5.52 | -8.92 | 3.83 | -10.6 | 16.4 | 1.53 | 0.65 | 3.65 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-06 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|------------------------|----------------------|------------------------|------------------------------|
| DV | -5261 ± 194 | $4.92^{+3.77}_{-3.27}$ | 265^{+10}_{-9} | 5659^{+5351}_{-1253} | $139872^{+1113672}_{-95618}$ |
| Alt. | -1028 ± 119 | $4.63^{+4.05}_{-2.90}$ | 265^{+12}_{-11} | 4105^{+2238}_{-763} | $30827^{+183148}_{-21774}$ |

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

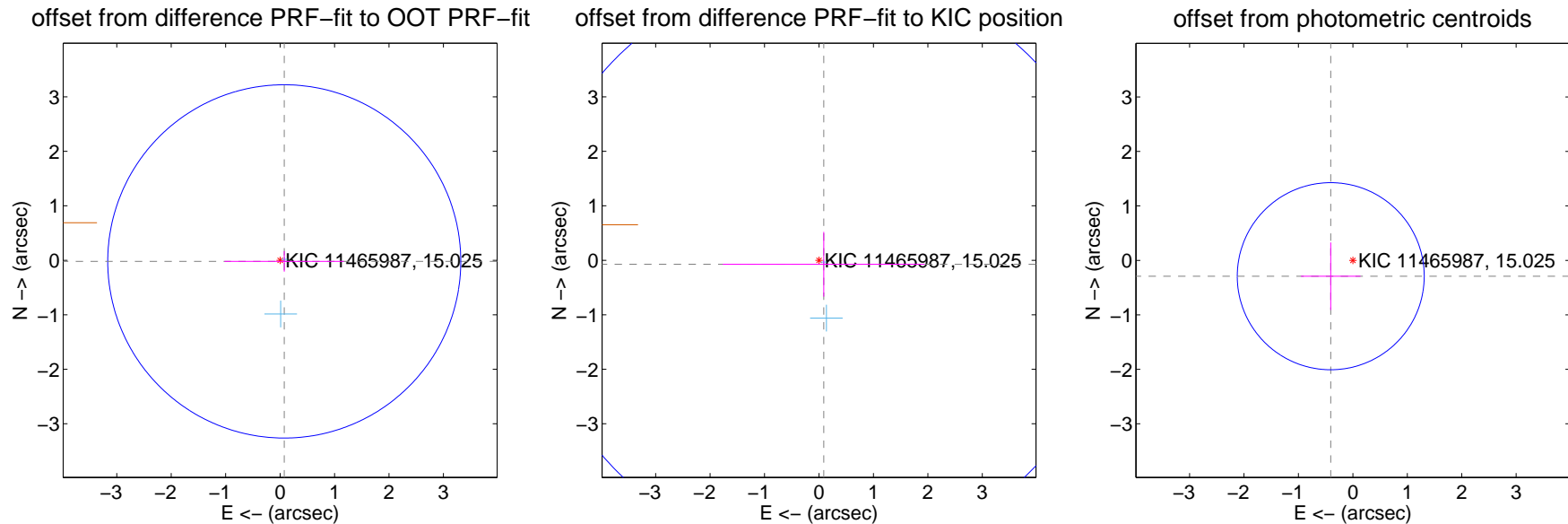
DV Centroid Data

Supplemental centroid analysis for 011465987-06. Kepler magnitude: 15.03. Transit SNR 8.19

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.079 ± 1.081 | 0.07 | -0.076 ± 1.097 | -0.020 ± 0.189 |
| PRF-fit source offset from KIC position | 0.114 ± 1.791 | 0.06 | -0.088 ± 1.855 | -0.073 ± 0.595 |
| photometric centroid source offset | 0.50 ± 0.57 | 0.87 | 0.41 ± 0.55 | -0.29 ± 0.62 |



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.

Q1 no difference image



Q1 no OOT image



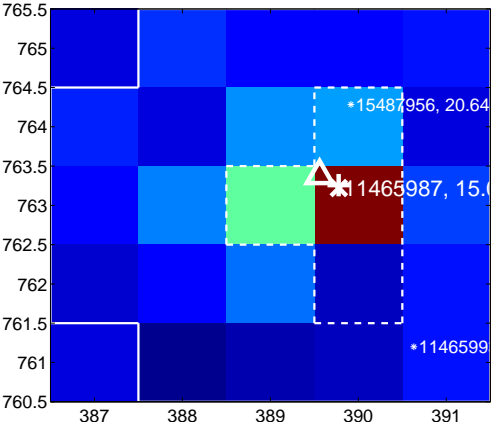
Q2 no difference image



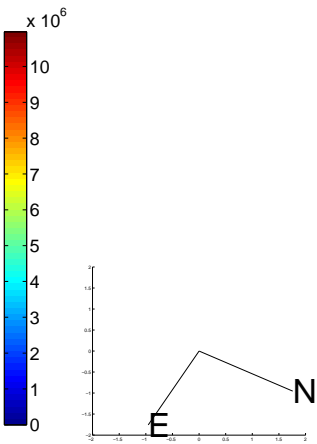
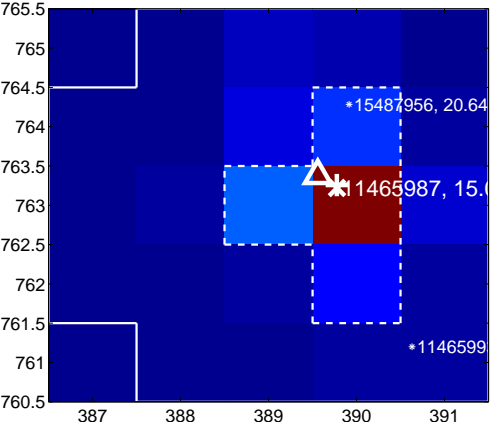
Q2 no OOT image



Q3 difference image



Q3 OOT image



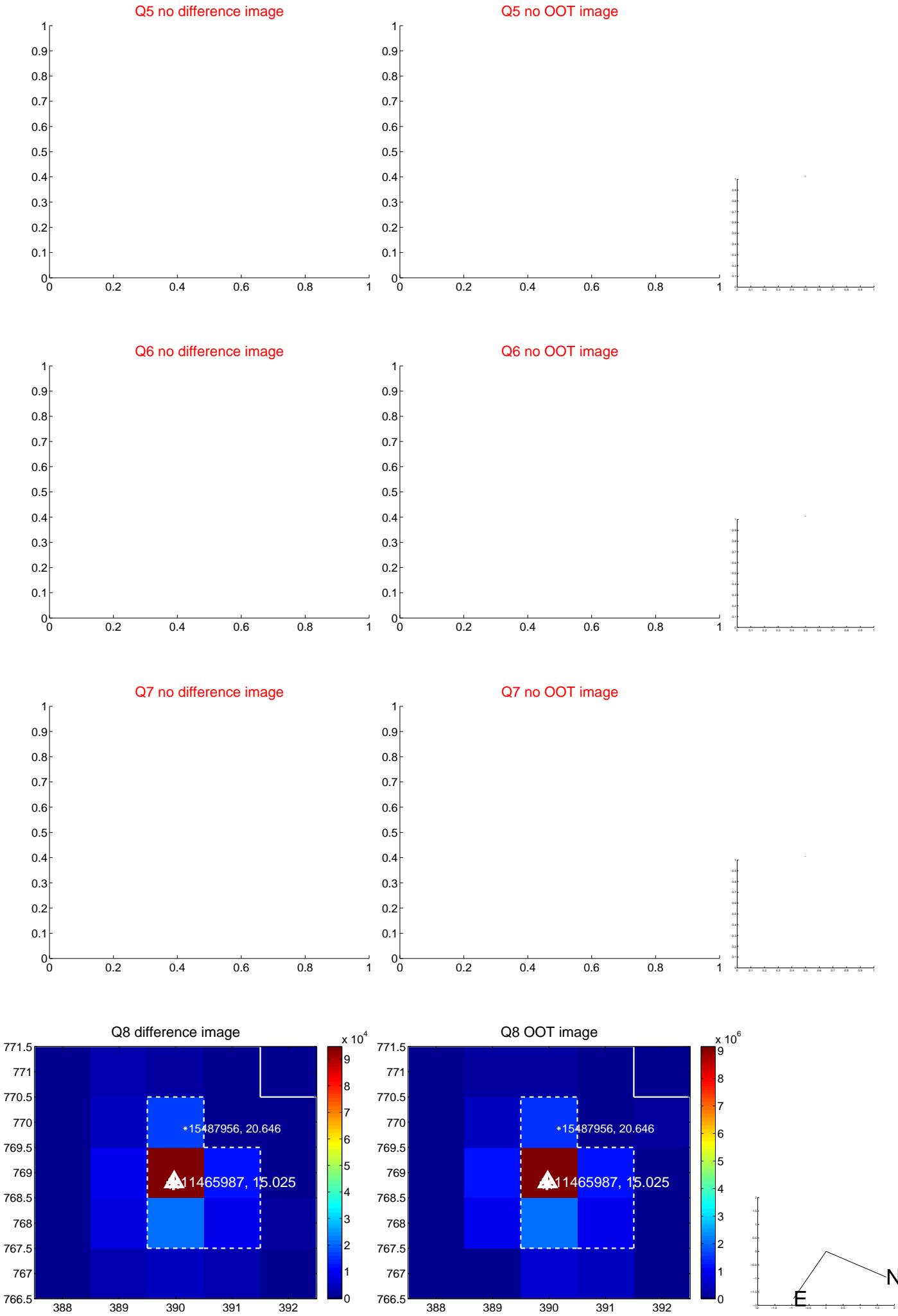
Q4 no difference image



Q4 no OOT image



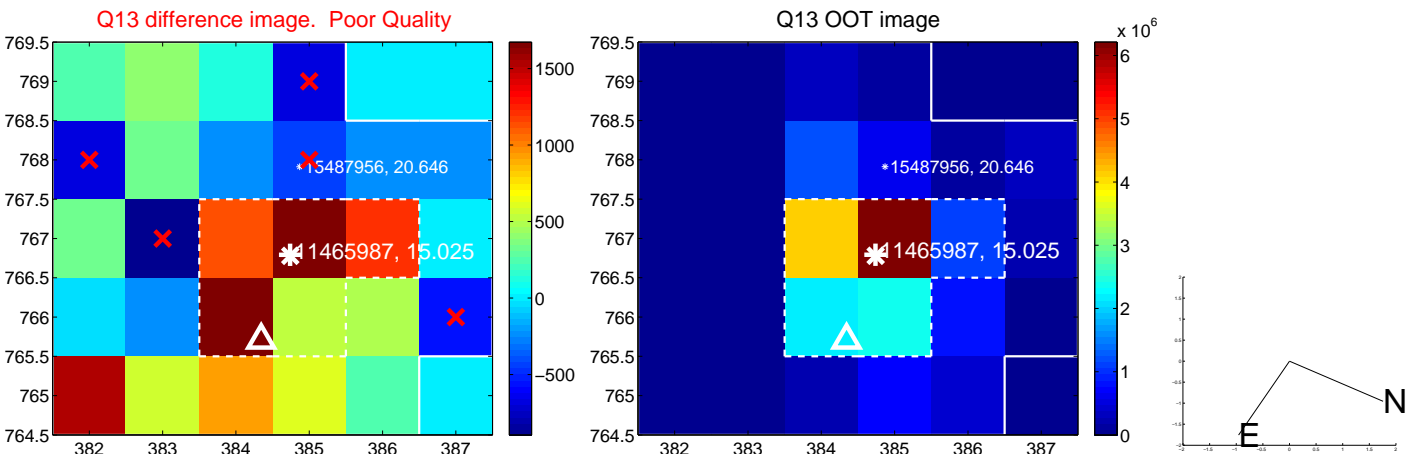
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



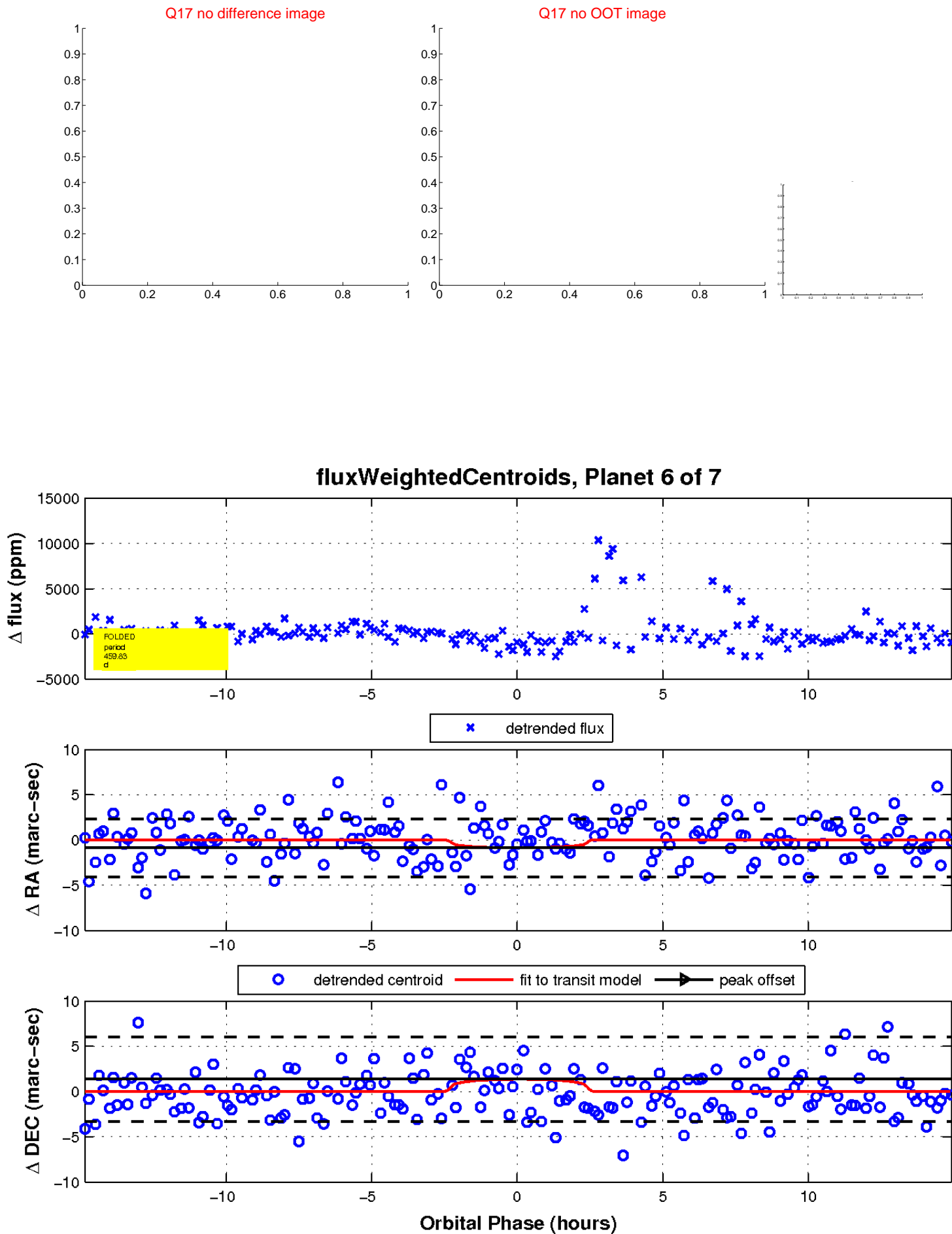
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

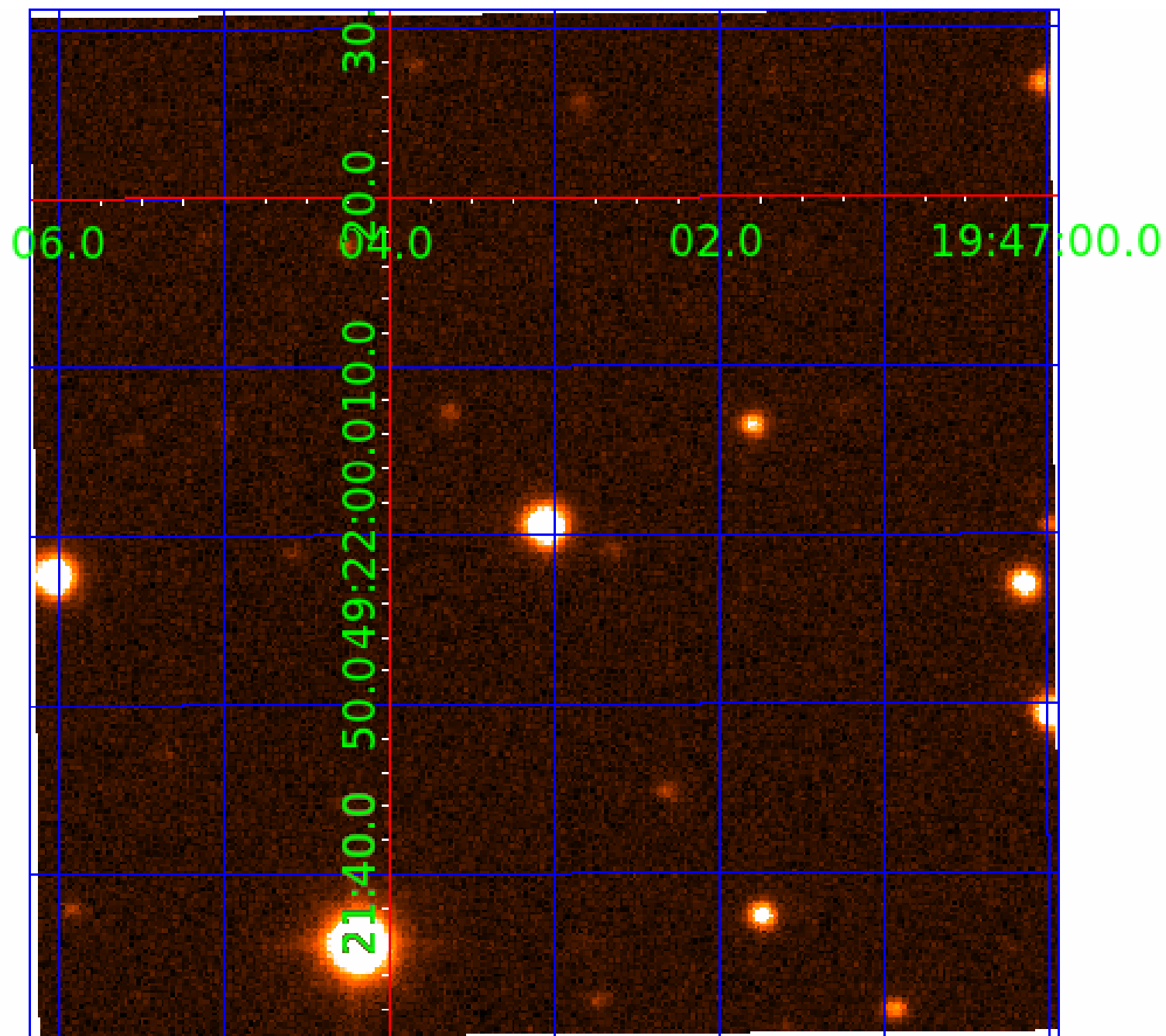


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011465987

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 011465987-01 | OBS | No | 325.357636 | 413.013937 | 2952.0 | 5.391 | 21.8 | 7.3 | 0.73 | 5174 | 7.71 | 0.47 |
| 011465987-02 | OBS | No | 496.488363 | 203.754804 | 2162.5 | 4.780 | 16.1 | 6.7 | 0.73 | 5174 | 3.33 | 0.27 |
| 011465987-03 | OBS | No | 261.487804 | 305.572200 | 2018.0 | 5.605 | 13.6 | 7.4 | 0.73 | 5174 | 3.57 | 0.63 |
| 011465987-04 | OBS | No | 406.001030 | 196.110058 | 1367.0 | 5.653 | 15.3 | 3.8 | 0.73 | 5174 | 2.83 | 0.35 |
| 011465987-05 | OBS | No | 551.078234 | 162.869345 | 1899.5 | 7.762 | 12.5 | 5.3 | 0.73 | 5174 | 3.32 | 0.23 |
| 011465987-06 | OBS | No | 459.825424 | 339.171618 | 2553.7 | 4.989 | 16.5 | 8.2 | 0.73 | 5174 | 3.63 | 0.30 |
| 011465987-07 | OBS | No | 549.928400 | 309.858511 | 1022.6 | 12.000 | 14.4 | -1.0 | 0.73 | 5174 | 2.29 | 0.23 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 011465987-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-02 | 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 |
| 011465987-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV |
| 011465987-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 011465987-05 | 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 |
| 011465987-06 | 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—MOD_POS_ALT—CENT_FEW_DIFFS |
| 011465987-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS |

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

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

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

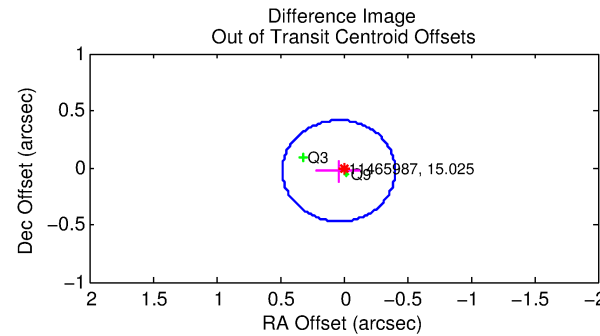
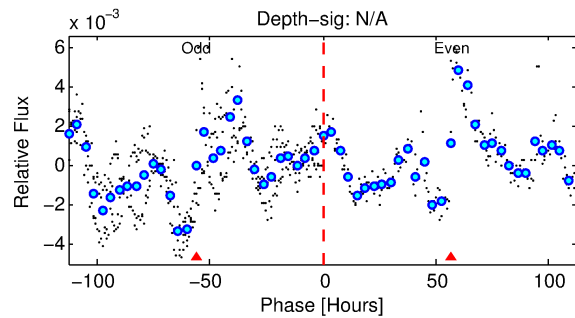
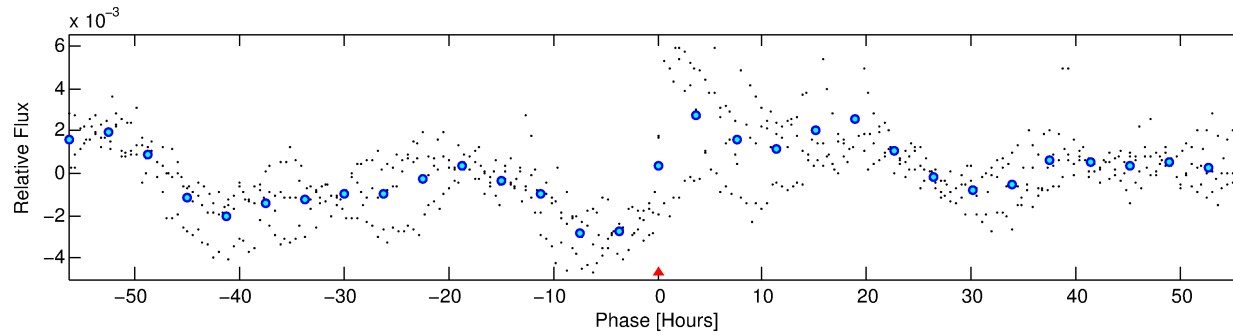
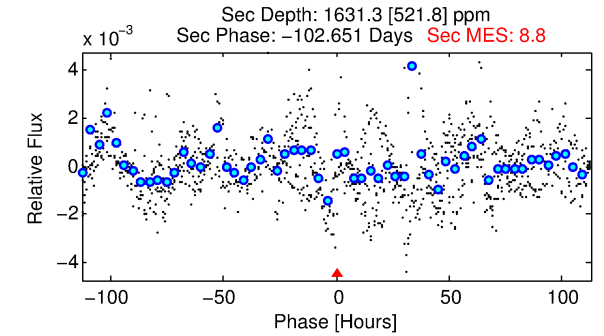
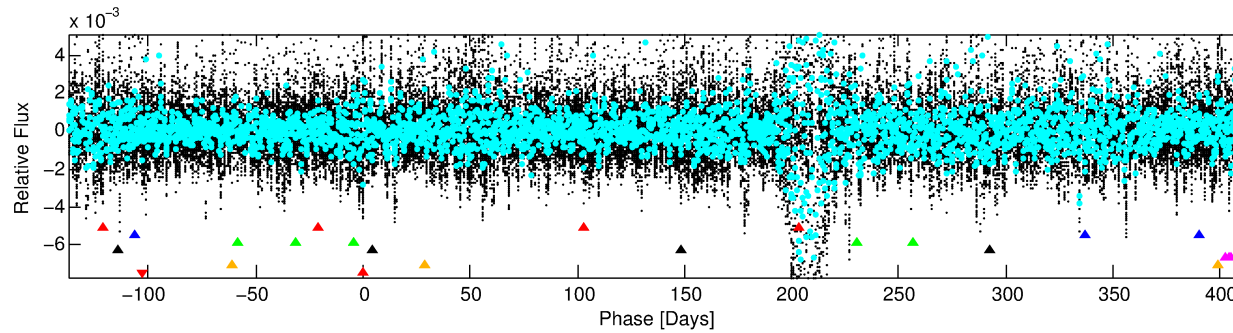
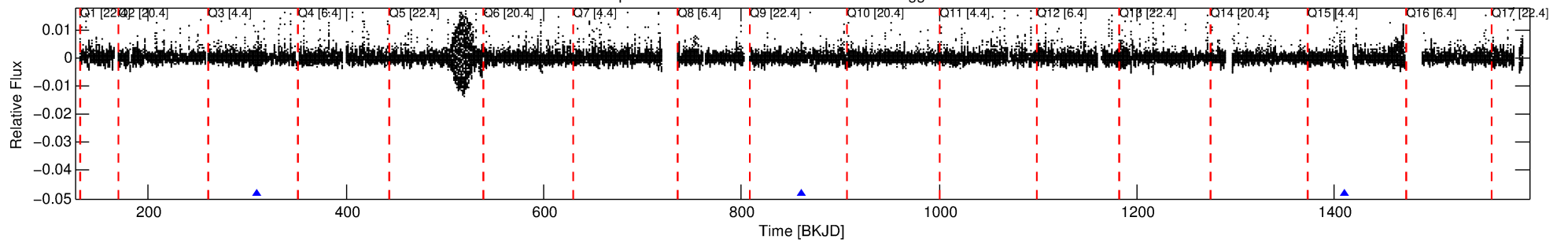
Ephemeris Match Information For 011465987-07

No Significant Match Found

DV One-Page Summary

KIC: 11465987 Candidate: 7 of 7 Period: 549.928 d

Kp: 15.02 R*: 0.73 Rs Teff: 5174.0 K Logg: 4.61 Fe/H: -0.200



TPS TCE Results:

Period = 549.92840 d
Epoch = 309.8585 BKJD

DV fit results are unavailable

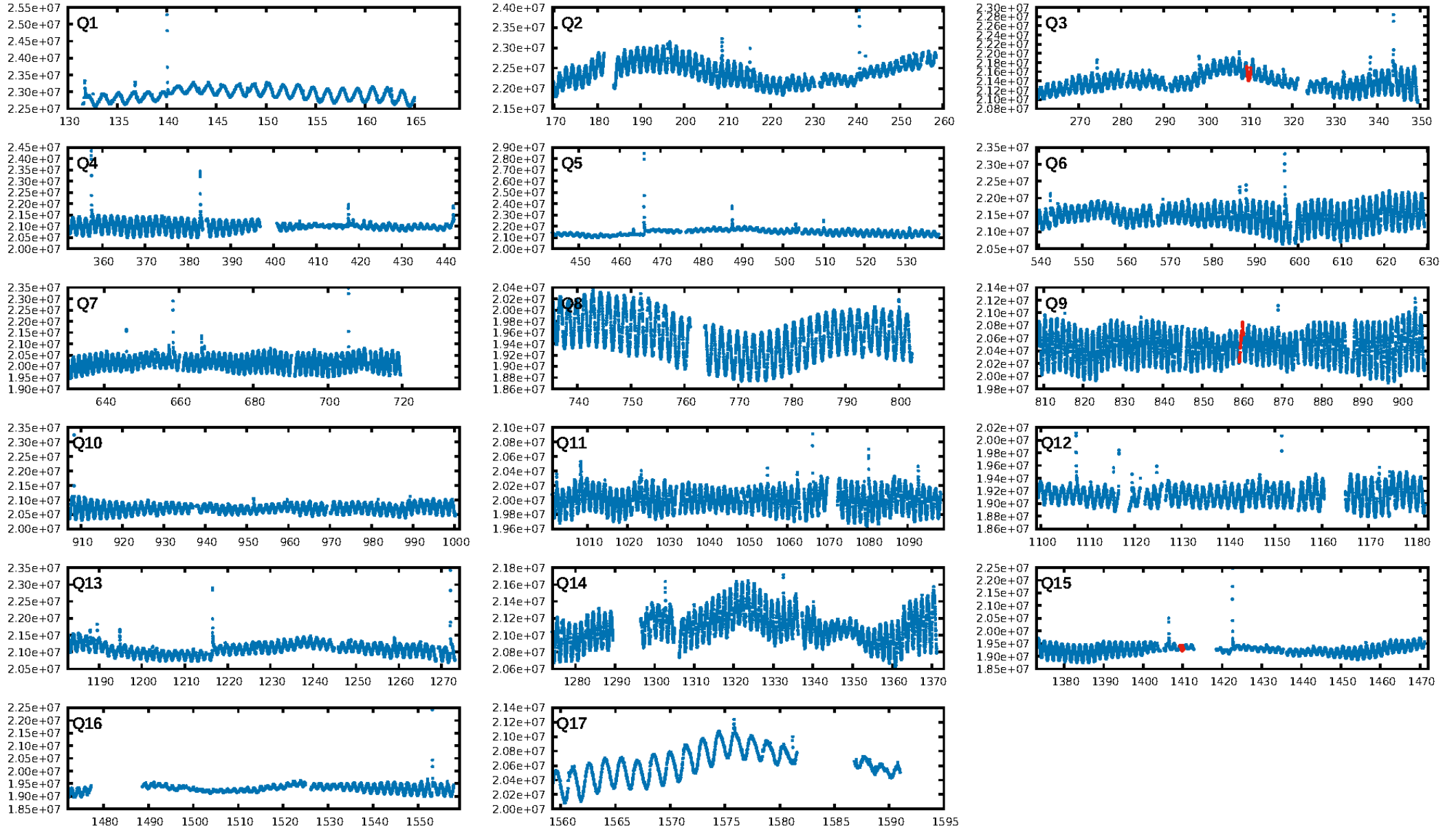
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.29 σ]
LongPeriod-sig: 94.7% [1.93 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 12.05
Centroid-sig: 2.2%
Centroid-so: 7.166 arcsec [2.18 σ]
OotOffset-rm: 0.047 arcsec [0.32 σ]
KicOffset-rm: 0.088 arcsec [0.68 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

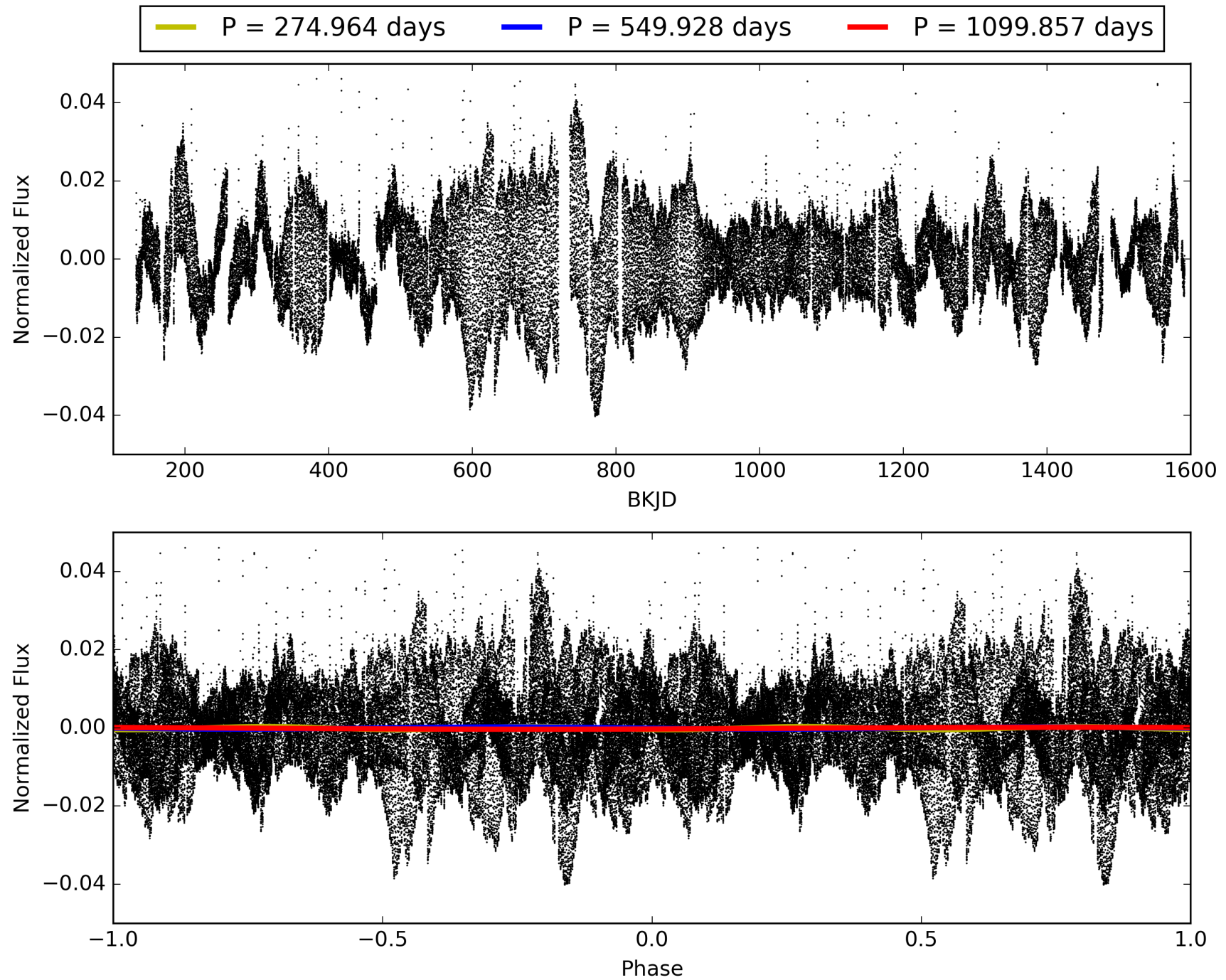
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:11:56 Z

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

TCE 011465987-07, PDC Light Curves

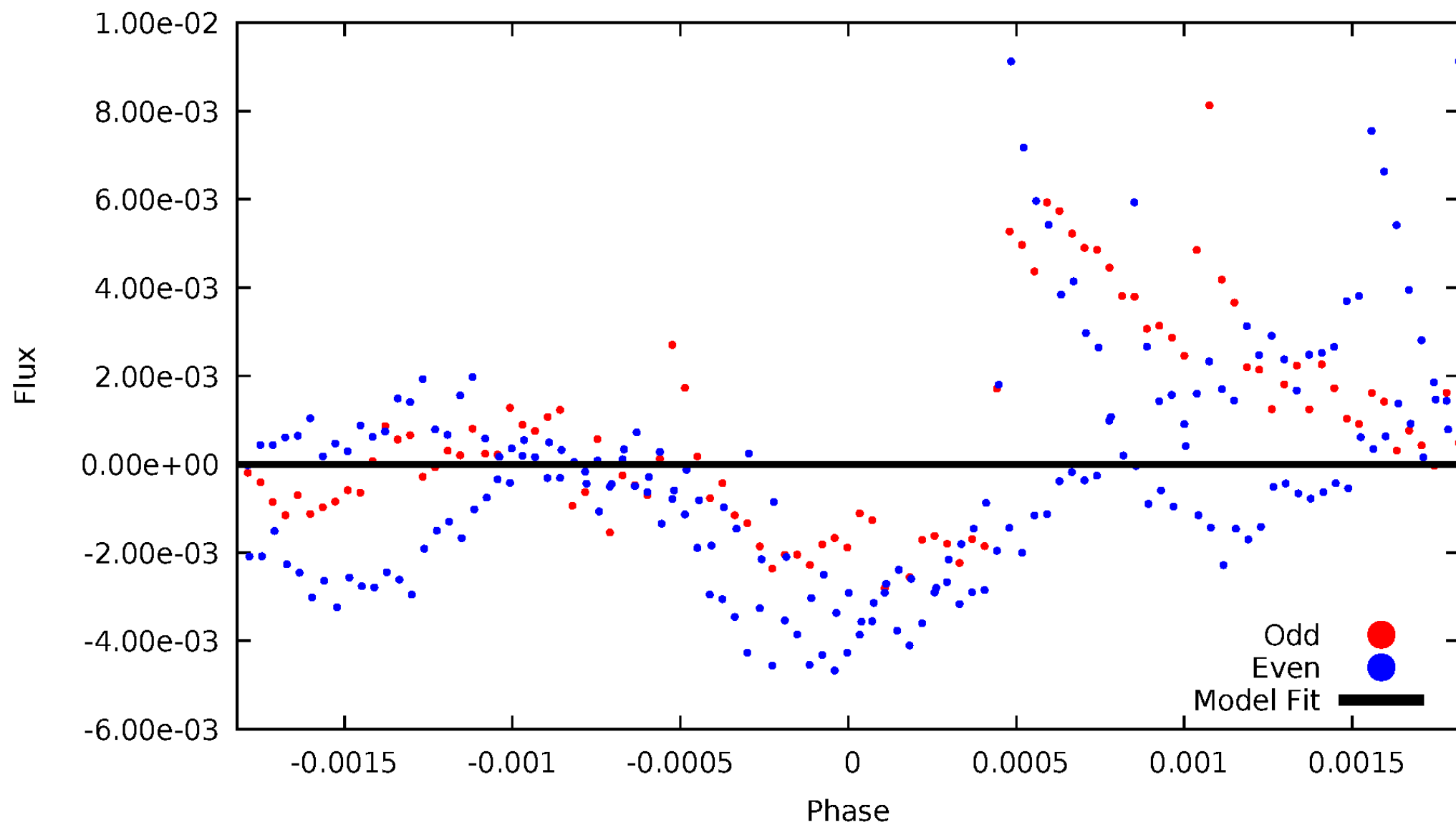


TCE 011465987-07



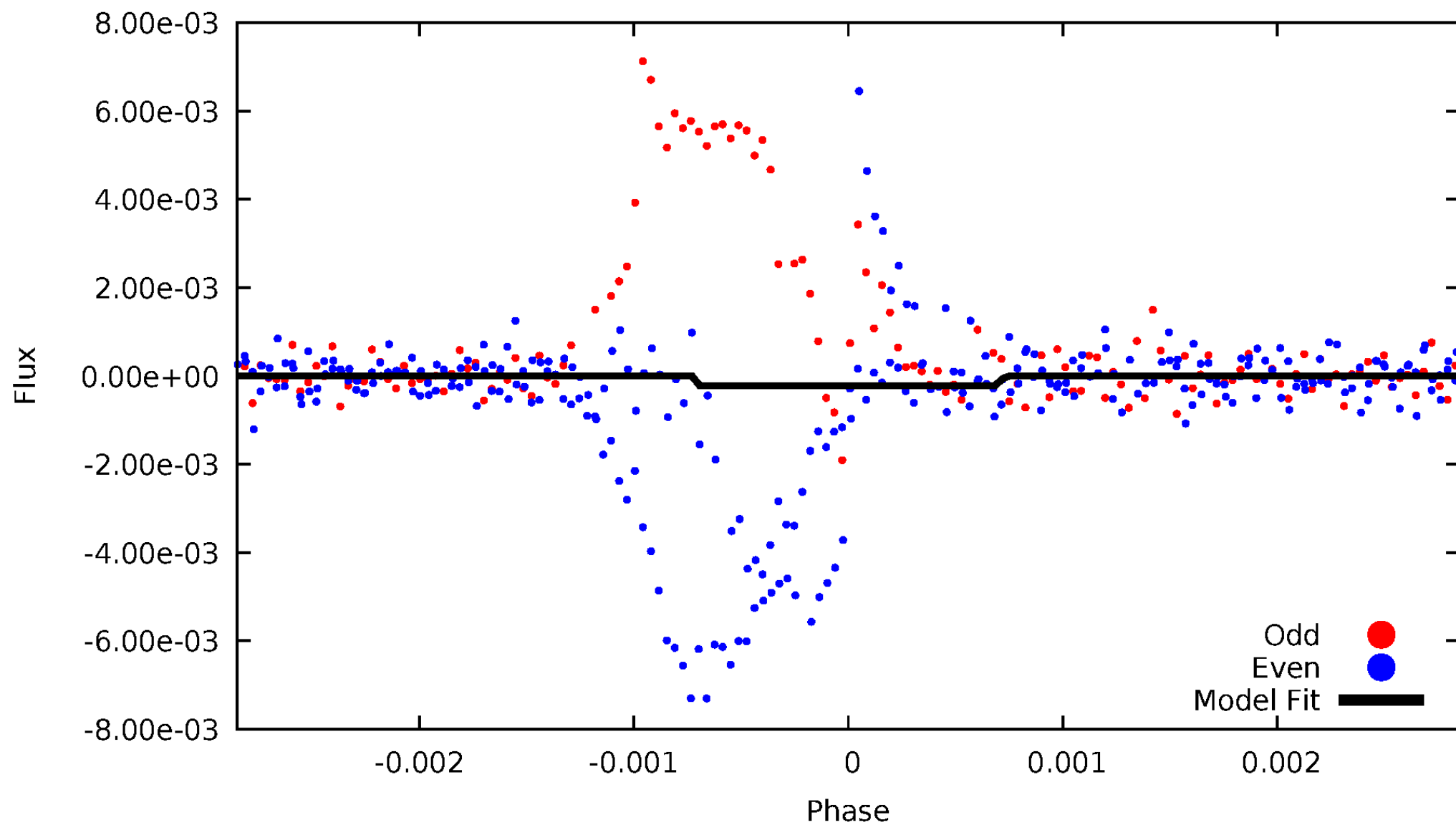
DV Odd/Even

TCE 011465987-07



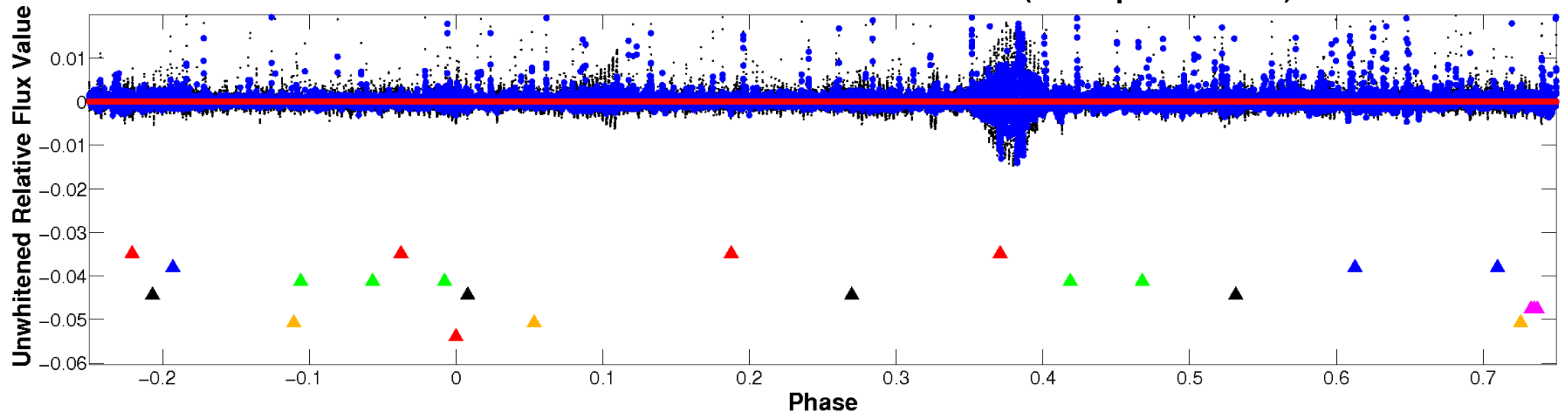
ALT Odd/Even

TCE 011465987-07

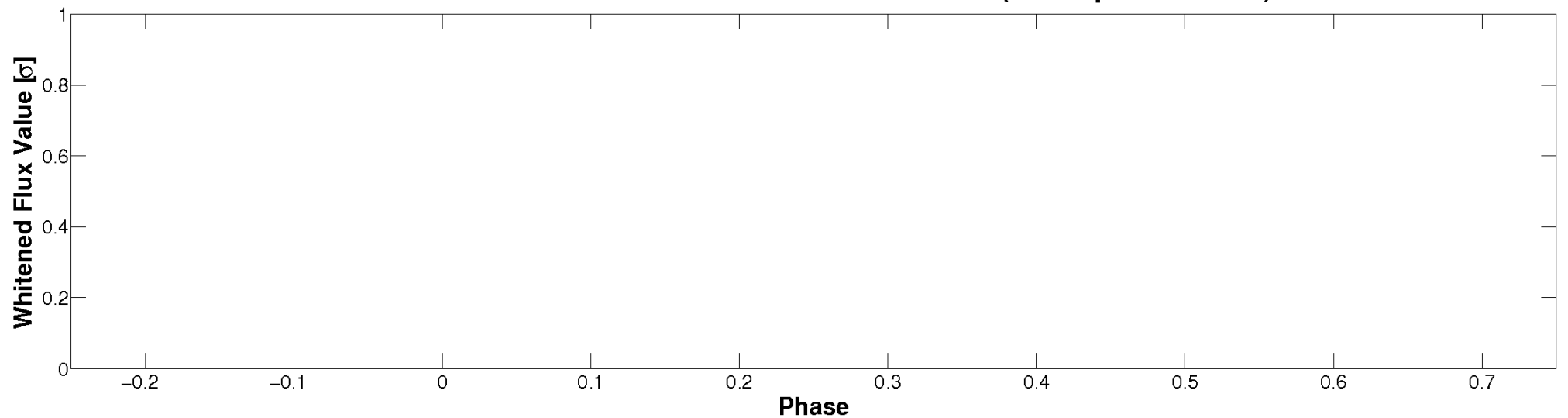


Non-Whitened Vs. Whitened Light Curve

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

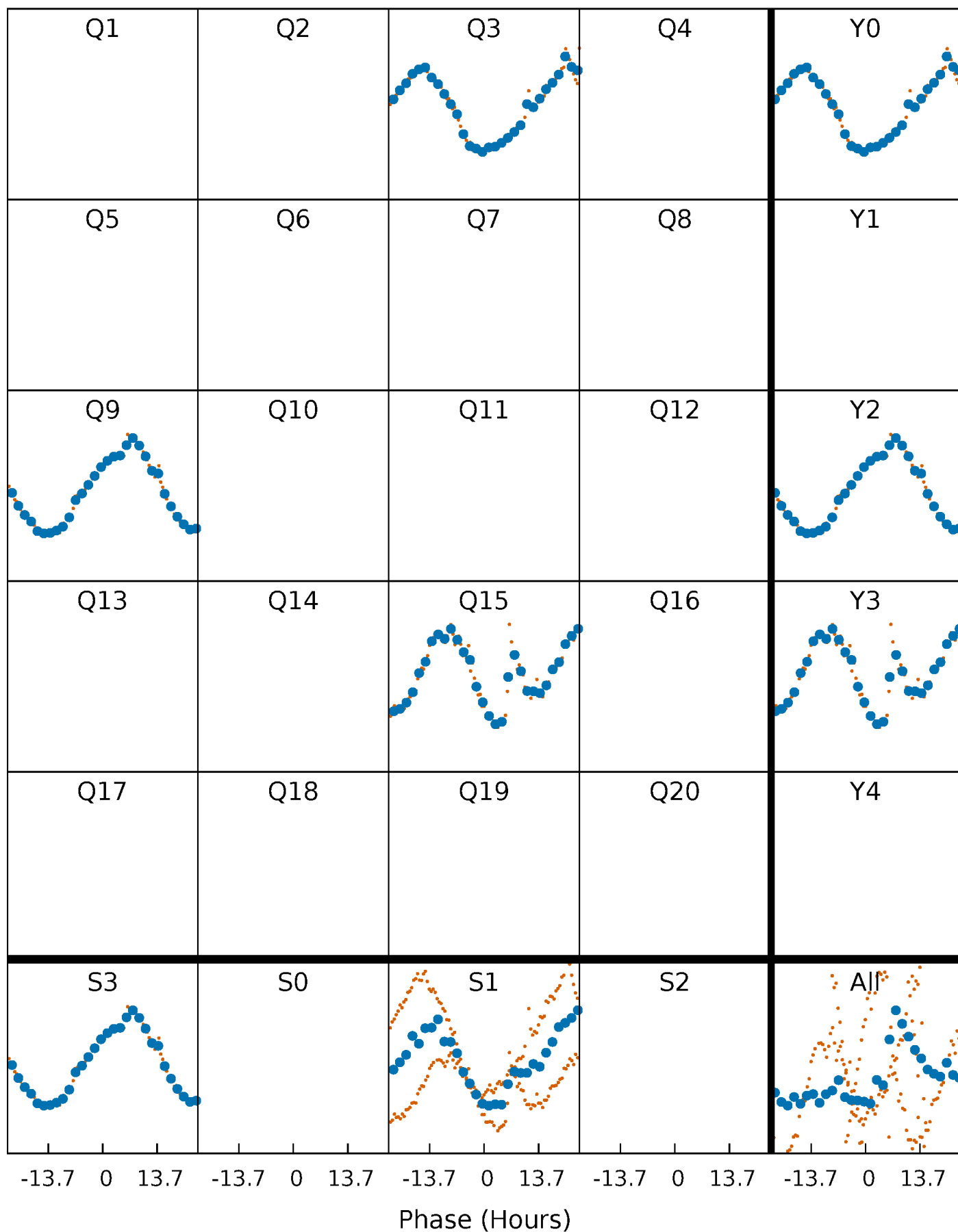


Planet 7 : Phased Whitened Flux Time Series (TPS Epoch/Period)



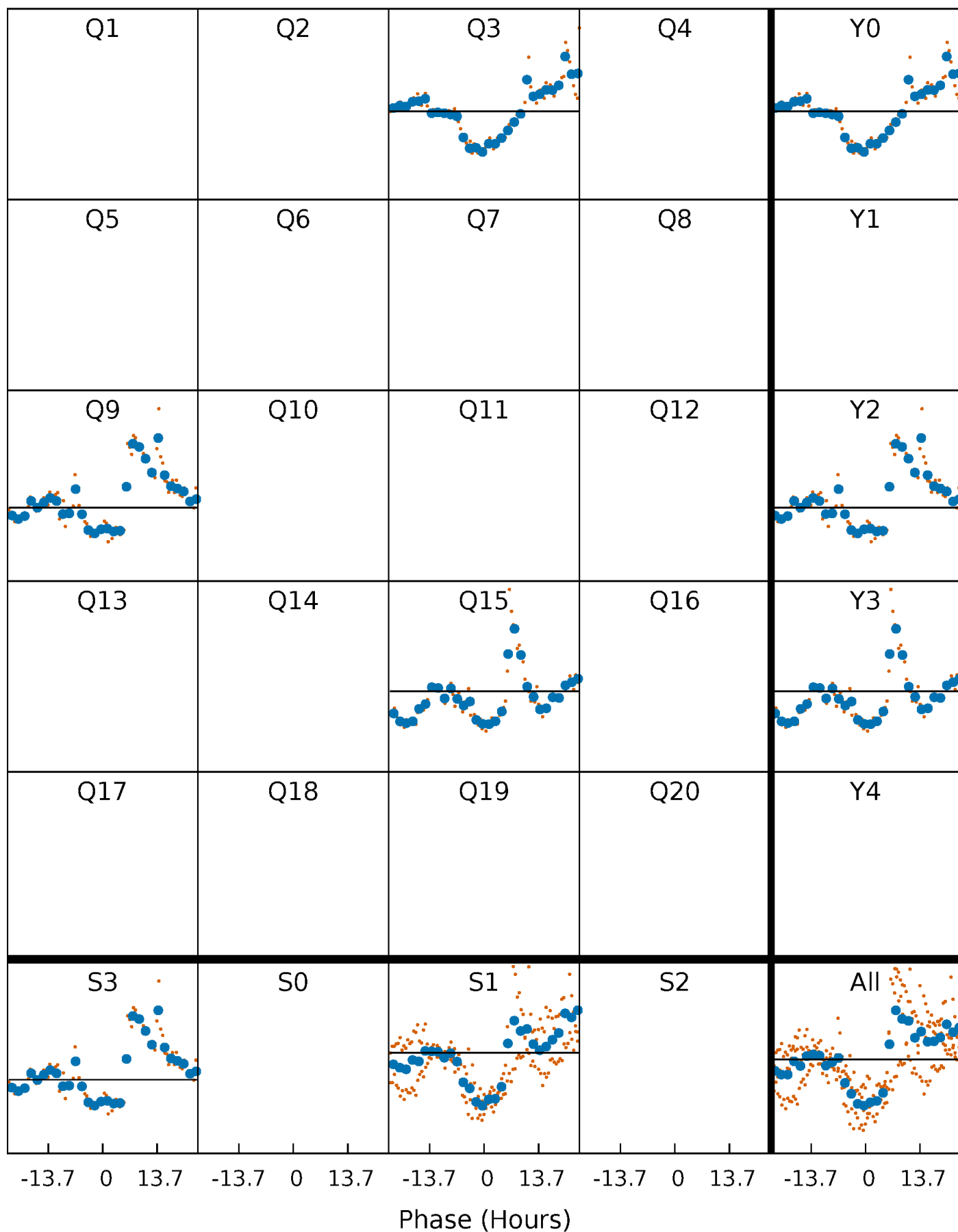
PDC Quarter-Phased Transit Curves

TCE 011465987-07 $P=549.928400$ Days $T_0=309.858511$ (BKJD)



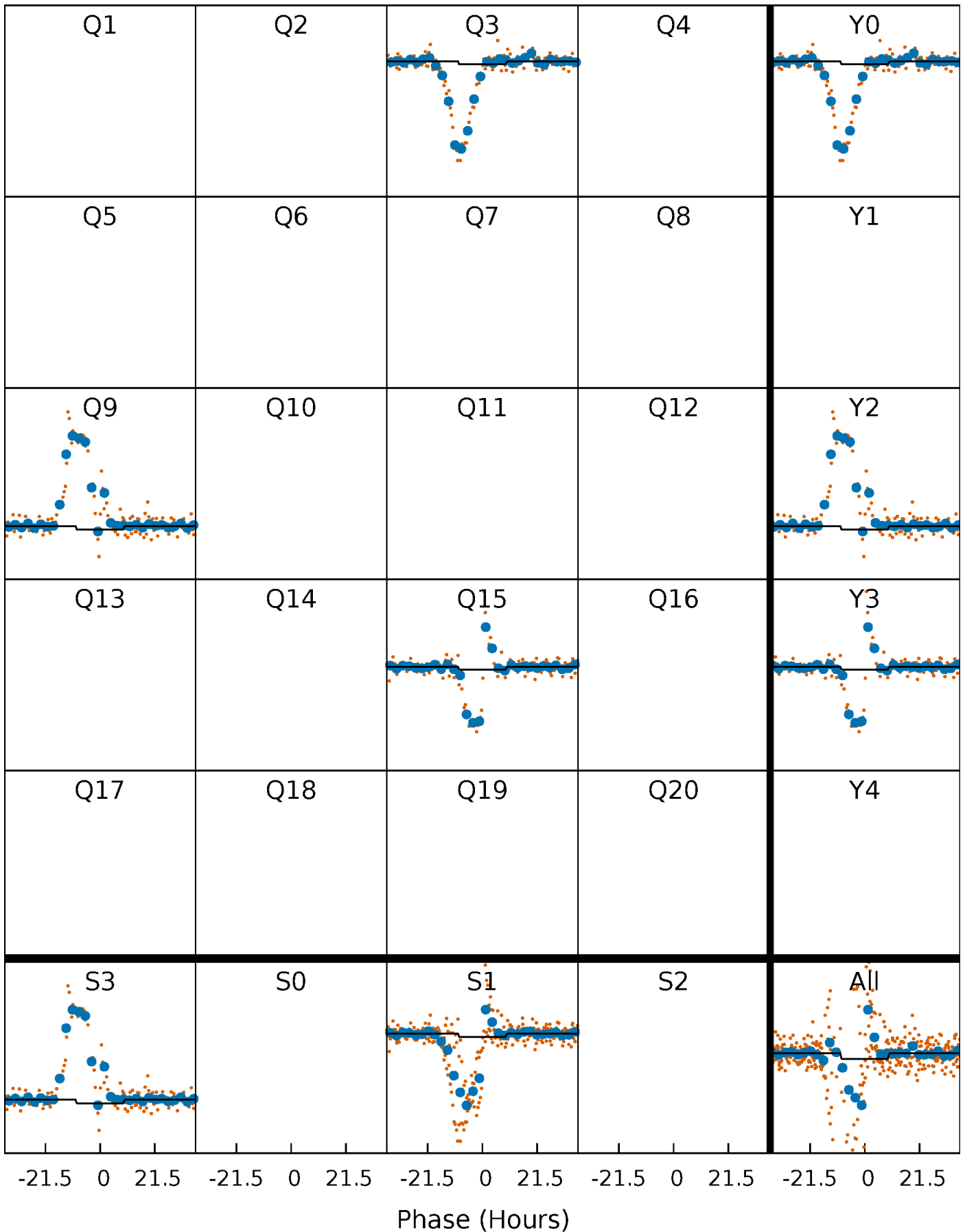
DV Quarter-Phased Transit Curves

TCE 011465987-07 $P=549.928400$ Days $T_0=309.858511$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

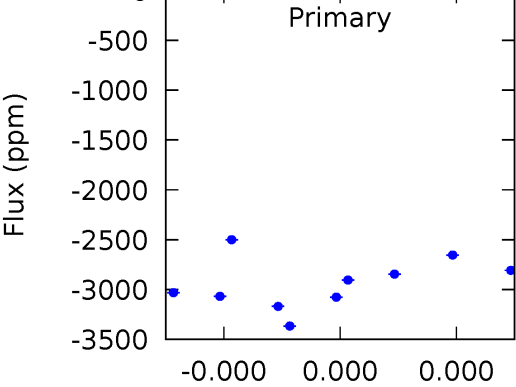
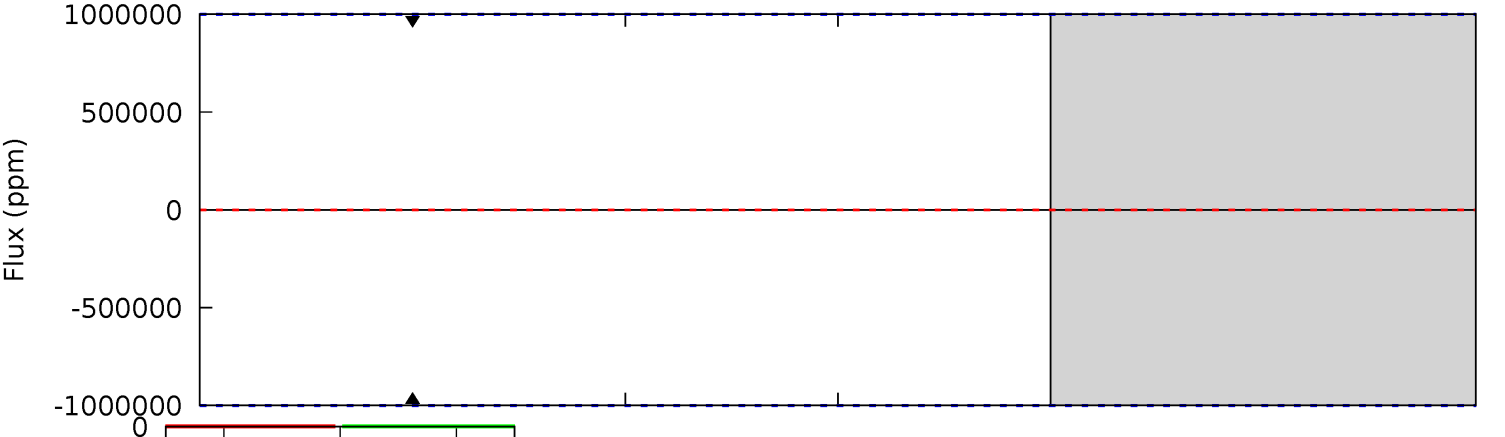
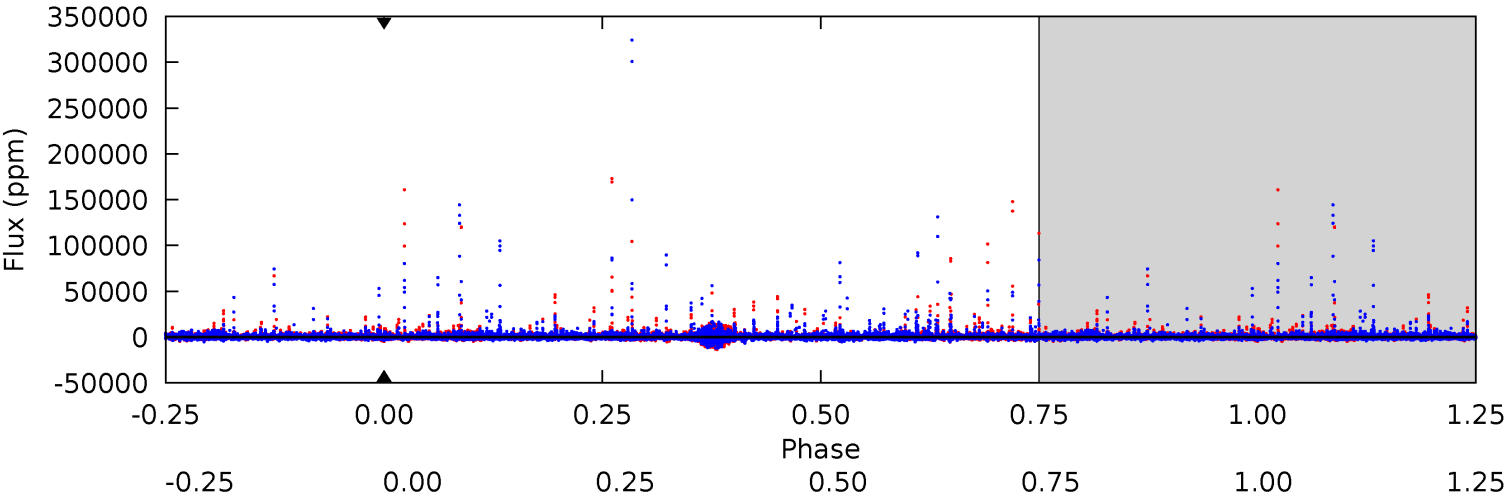
TCE 011465987-07 $P=549.928400$ Days $T_0=310.097343$ (BKJD)



DV Model-Shift Uniqueness Test

011465987-07, P = 549.928400 Days, E = 309.858511 Days

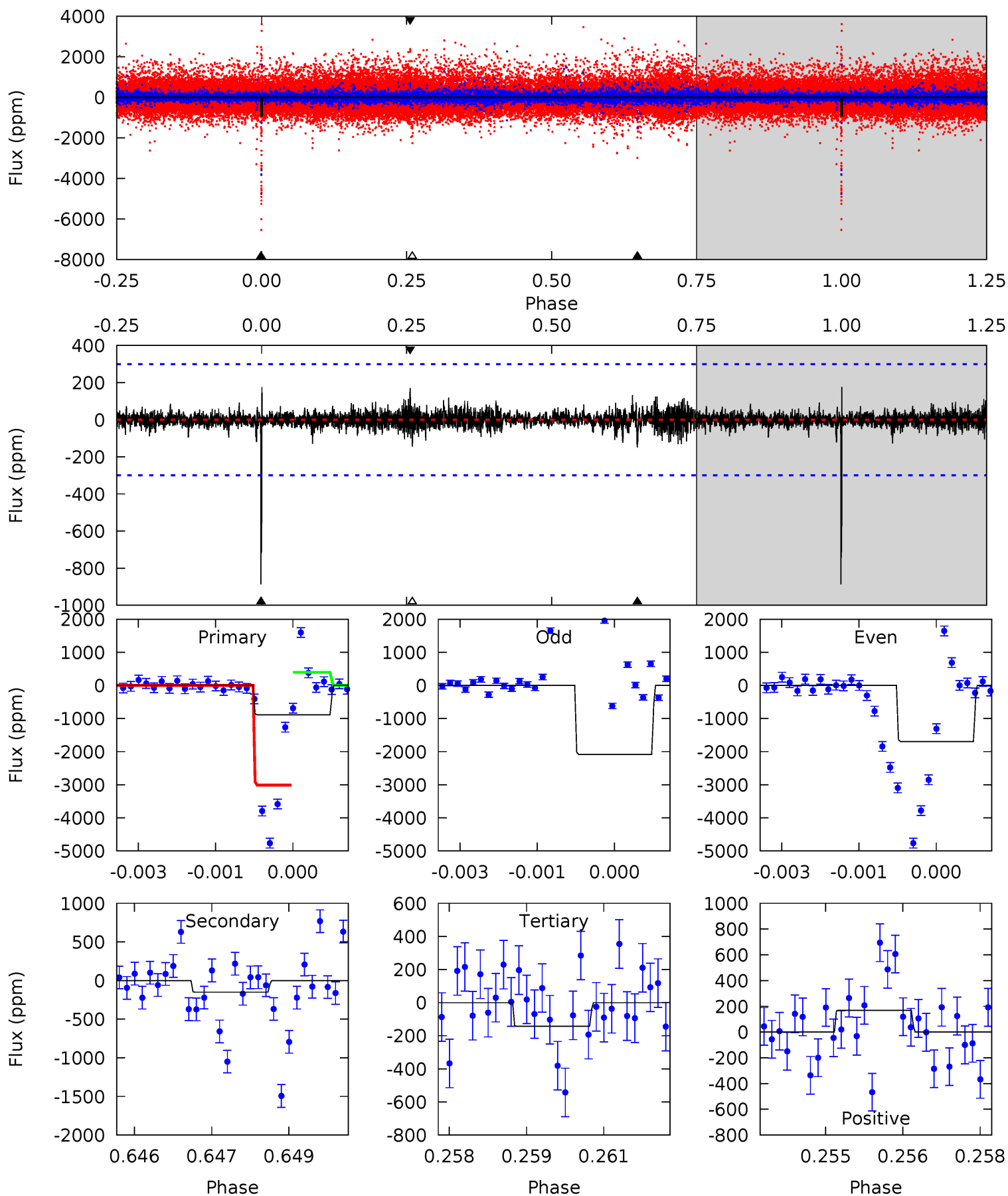
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00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



Alt Model-Shift Uniqueness Test

011465987-07, P = 549.928400 Days, E = 310.097343 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.0 | 2.70 | 2.58 | 3.05 | 5.39 | 3.19 | 0.50 | 13.4 | 12.9 | 0.12 | -0.34 | 3.72 | 0.34 | 0.17 | 22.8 |



Stellar Parameters For KIC 011465987

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5174^{+153}_{-153} | $4.608^{+0.039}_{-0.077}$ | $-0.200^{+0.300}_{-0.300}$ | $0.734^{+0.096}_{-0.059}$ | $0.801^{+0.073}_{-0.090}$ | $2.857^{+0.524}_{-0.766}$ |
| | +3%/-3% | +1%/-2% | +150%/-150% | +13%/-8% | +9%/-11% | +18%/-27% |
| 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 011465987-07 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|------------------------|----------------------|---------------------------|--|
| DV | 0 ± 1000000 | $6.32^{+6.56}_{-4.21}$ | 249^{+9}_{-9} | -3377^{+18727}_{-11226} | $-12048.631^{+3600355.620}_{-3438635.056}$ |
| Alt. | -150 ± 56 | $5.73^{+6.30}_{-3.98}$ | 249^{+10}_{-9} | 2833^{+1280}_{-493} | 3676^{+34672}_{-2935} |

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

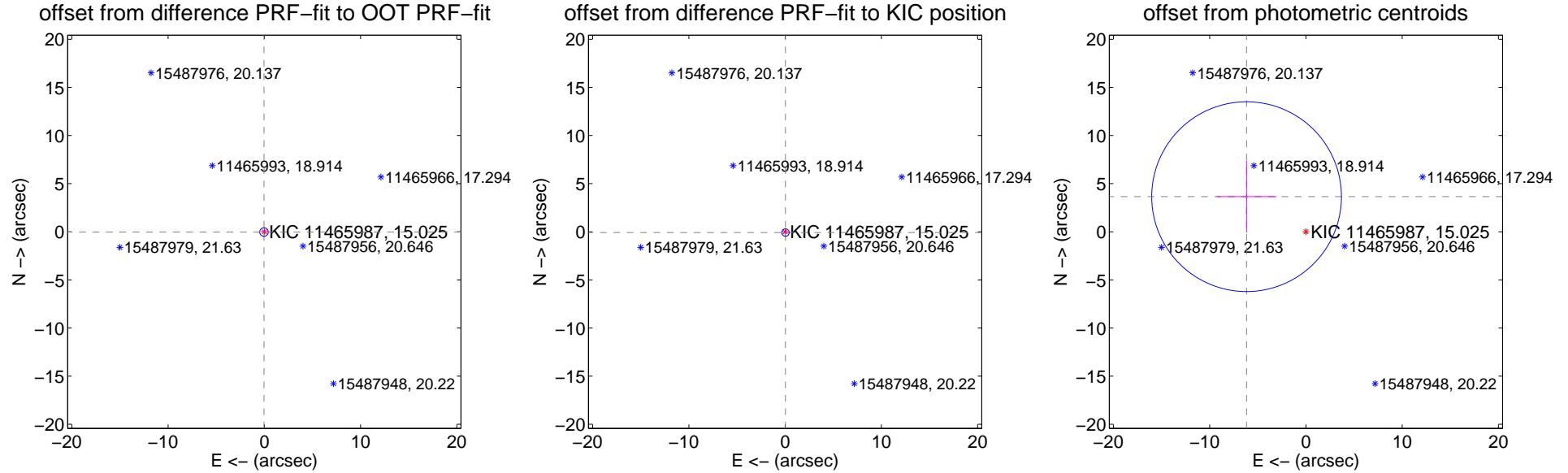
DV Centroid Data

Supplemental centroid analysis for 011465987-07. Kepler magnitude: 15.03. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

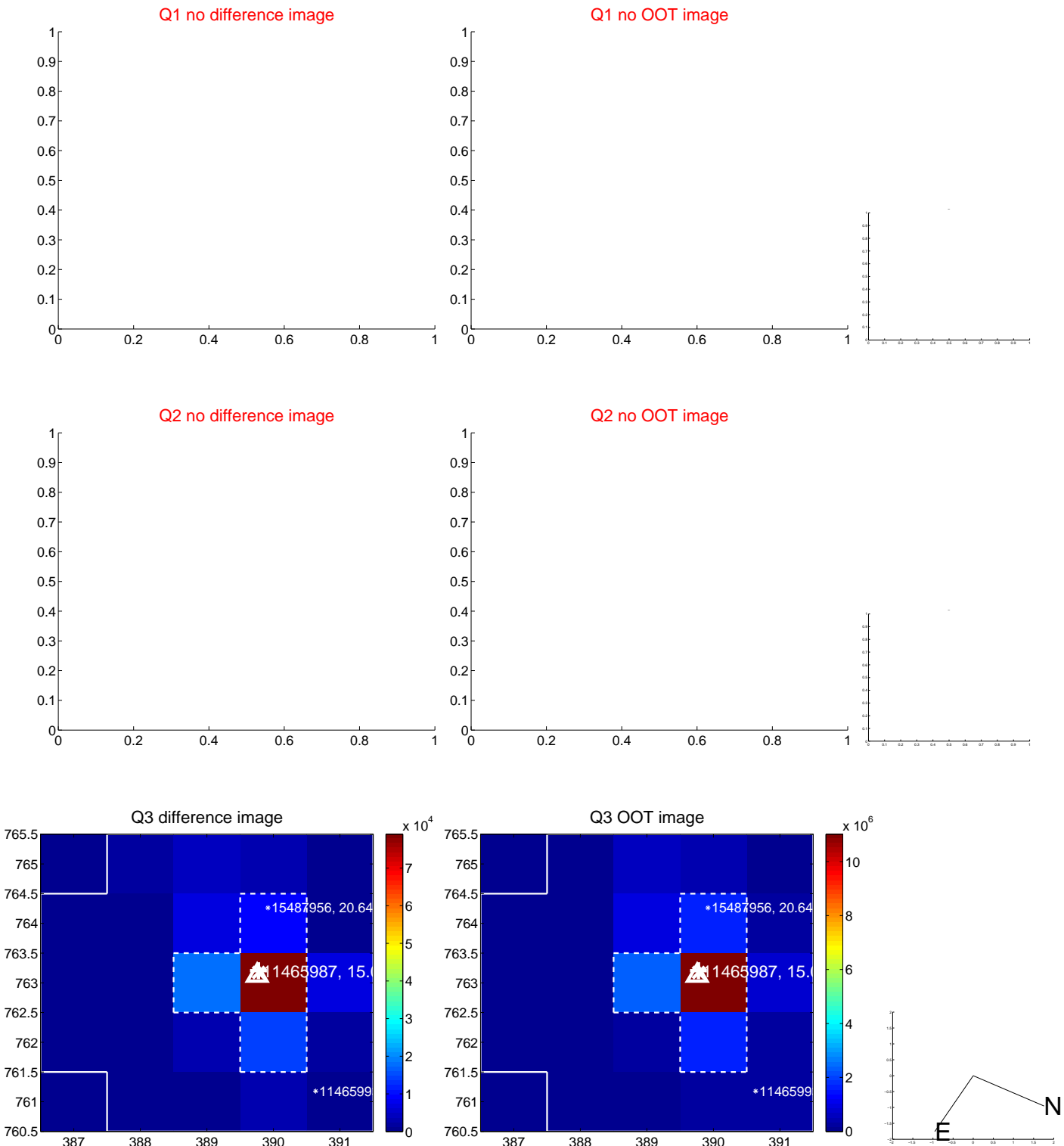
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.047 ± 0.148 | 0.32 | 0.038 ± 0.170 | -0.027 ± 0.092 |
| PRF-fit source offset from KIC position | 0.088 ± 0.129 | 0.68 | -0.034 ± 0.163 | -0.081 ± 0.088 |
| photometric centroid source offset | 7.17 ± 3.29 | 2.18 | 6.17 ± 3.12 | 3.65 ± 3.72 |



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.

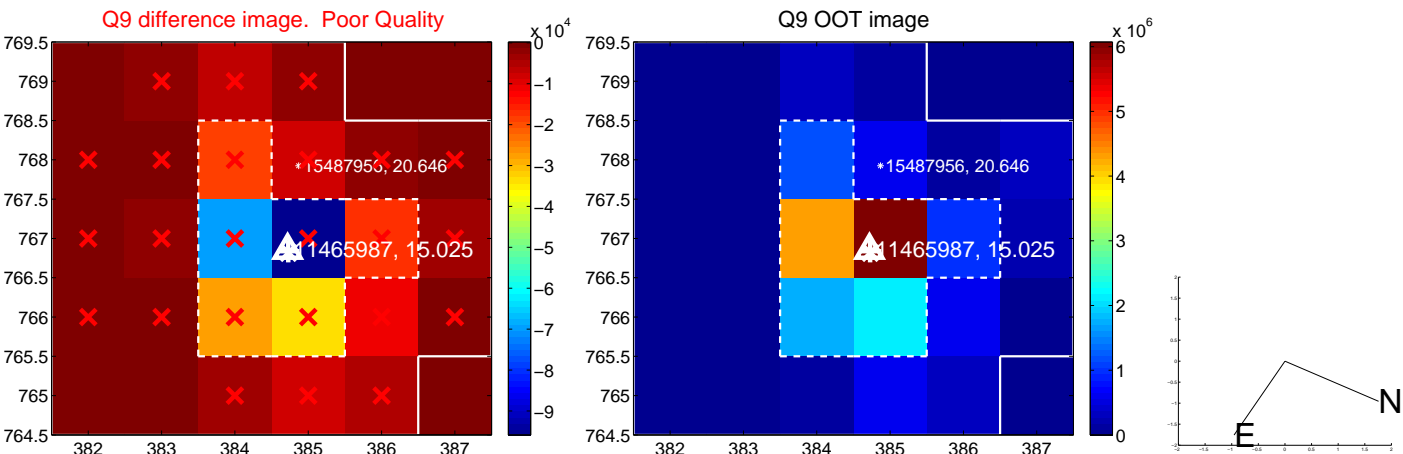
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



white \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.



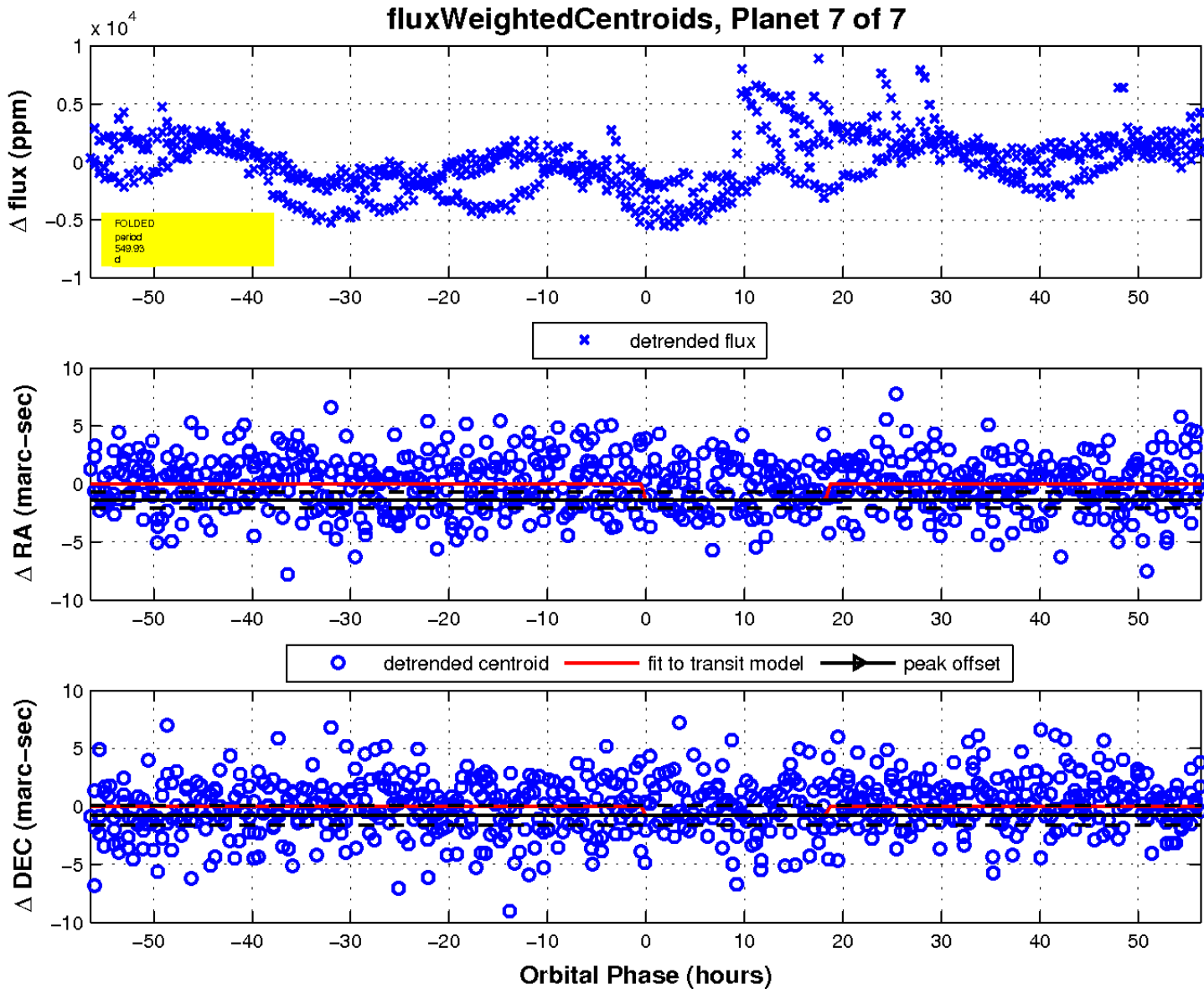
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination

