

KIC 008804829

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008804829-01 | OBS | No | 369.187581 | 233.189033 | 576.5 | 11.578 | 8.2 | 8.3 | 0.75 | 5525 | 1.90 | 0.53 |
| 008804829-02 | OBS | No | 369.152529 | 235.161819 | 576.2 | 14.511 | 9.1 | 9.1 | 0.75 | 5525 | 1.90 | 0.53 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008804829-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 008804829-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS |

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

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

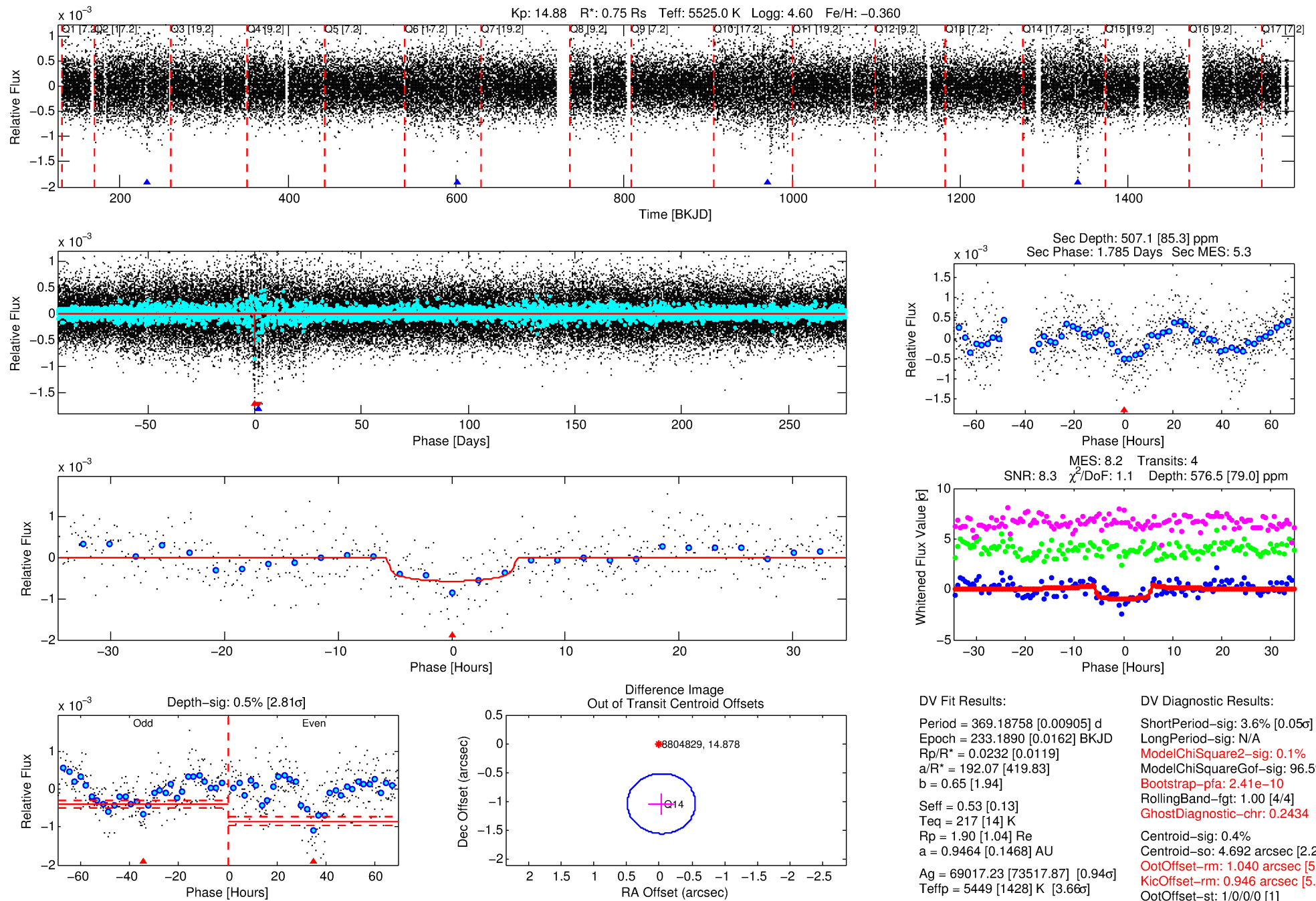
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008804829-01

No Significant Match Found

DV One-Page Summary

KIC: 8804829 Candidate: 1 of 2 Period: 369.188 d



DV Fit Results:

Period = 369.18758 [0.00905] d
Epoch = 233.1890 [0.0162] BKJD
Rp/R* = 0.0232 [0.0119]
a/R* = 192.07 [419.83]
b = 0.65 [1.94]
Seff = 0.53 [0.13]
Teq = 217 [14] K
Rp = 1.90 [1.04] Re
a = 0.9464 [0.1468] AU
Ag = 69017.23 [73517.87] [0.94 σ]
Teffp = 5449 [1428] K [3.66 σ]

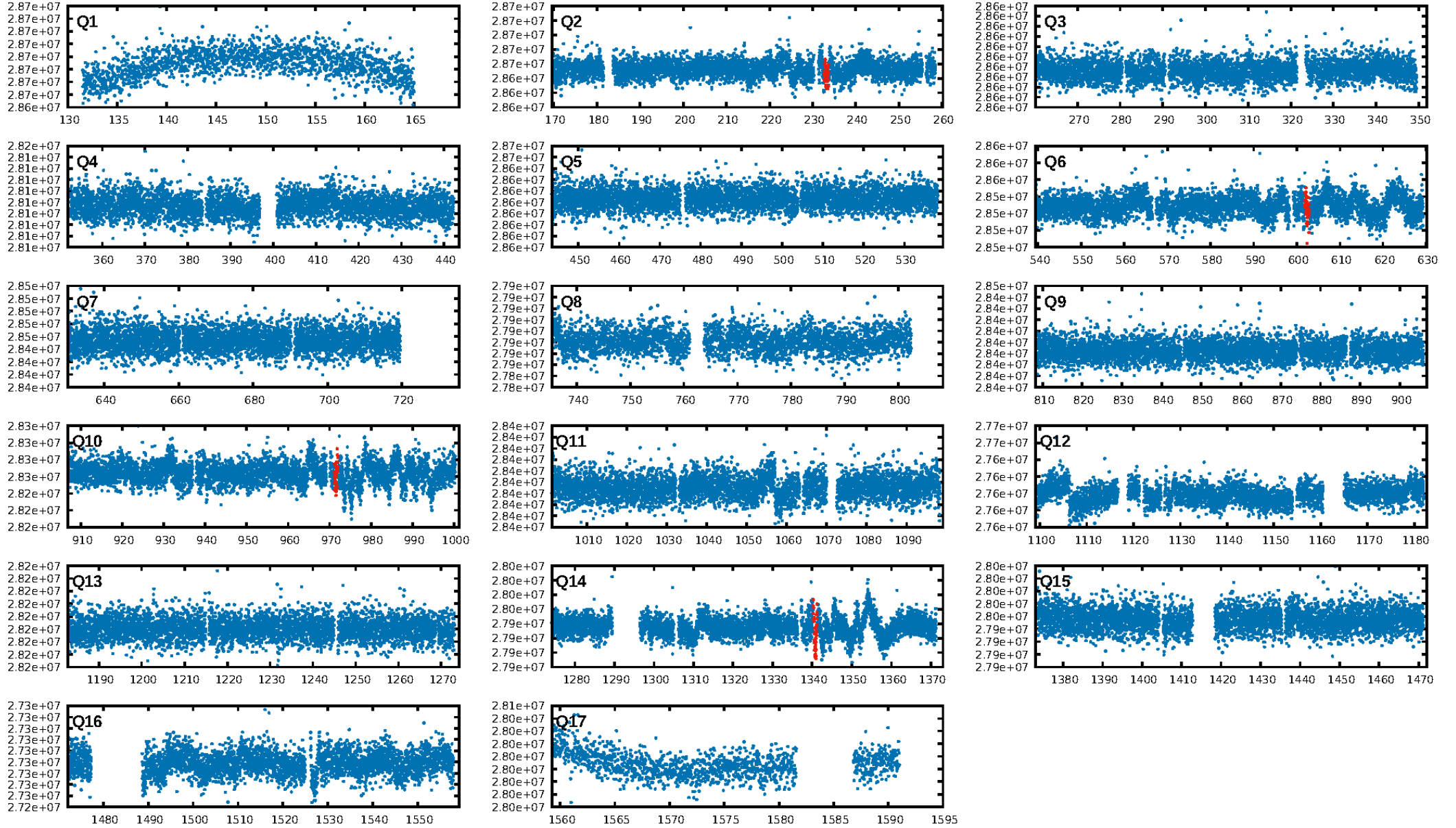
DV Diagnostic Results:

ShortPeriod-sig: 3.6% [0.05 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 96.5%
Bootstrap-pfa: 2.41e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.2434
Centroid-sig: 0.4%
Centroid-so: 4.692 arcsec [2.28 σ]
OotOffset-rm: 1.040 arcsec [5.99 σ]
KicOffset-rm: 0.946 arcsec [5.45 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

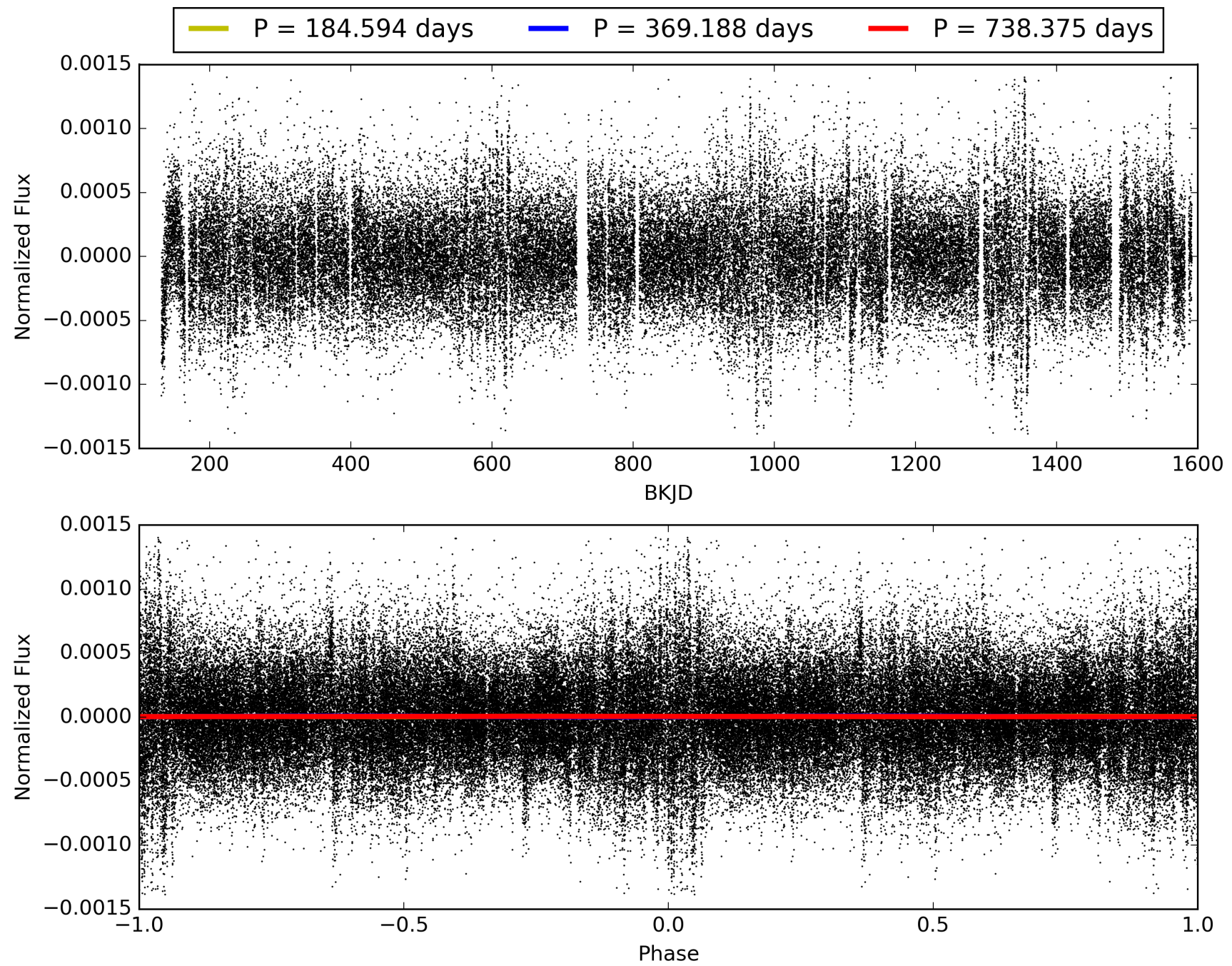
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:11:59 Z

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

TCE 008804829-01, PDC Light Curves

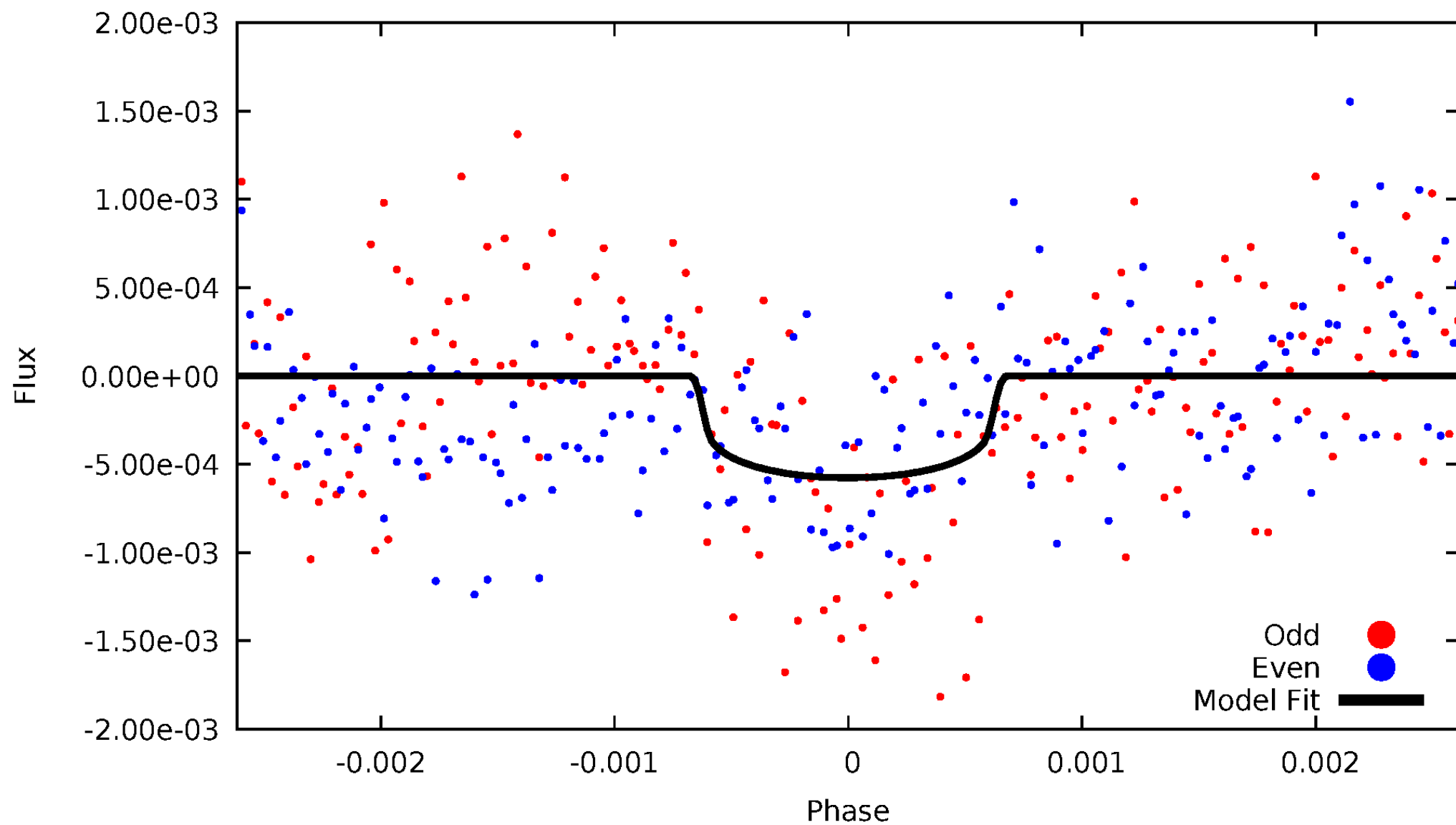


TCE 008804829-01



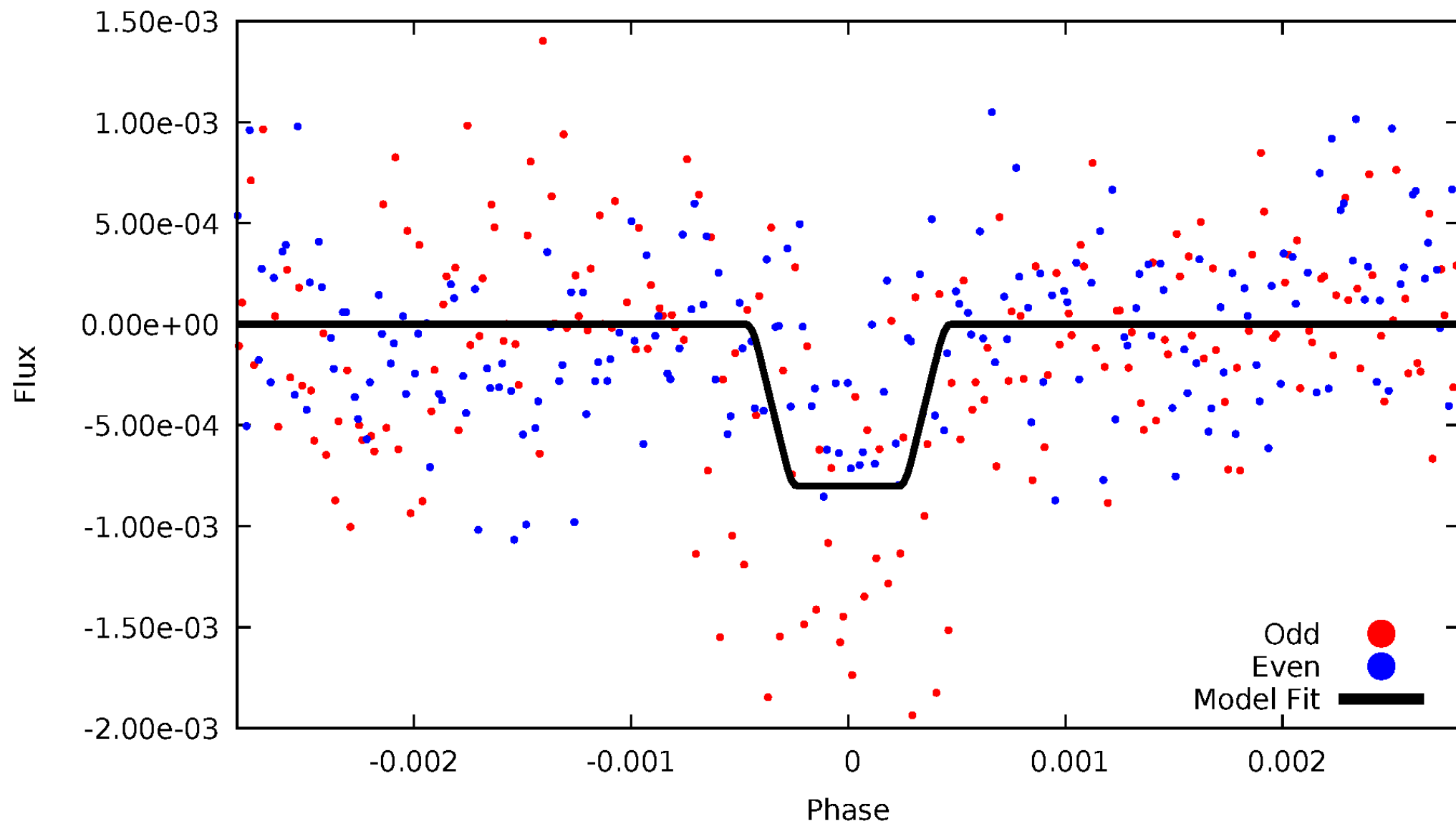
DV Odd/Even

TCE 008804829-01

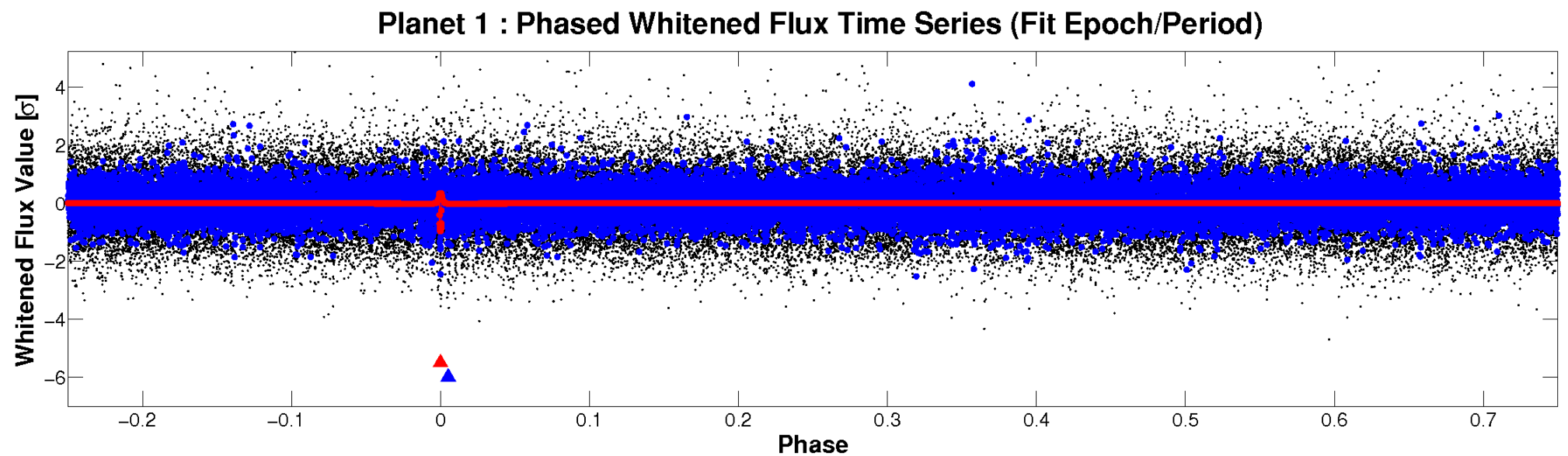
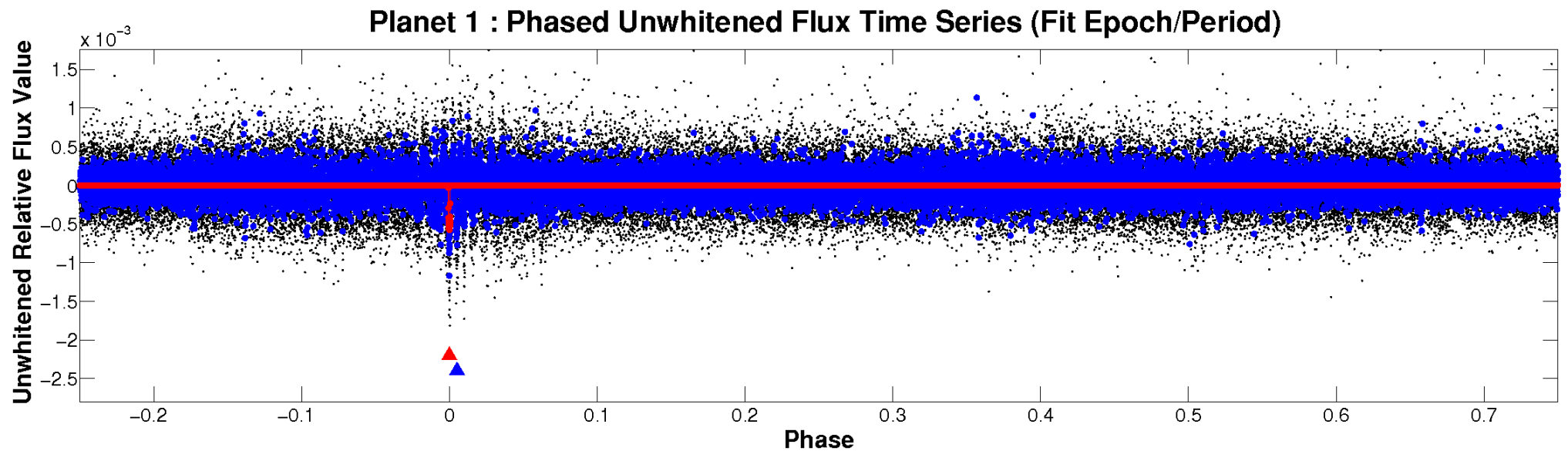


ALT Odd/Even

TCE 008804829-01

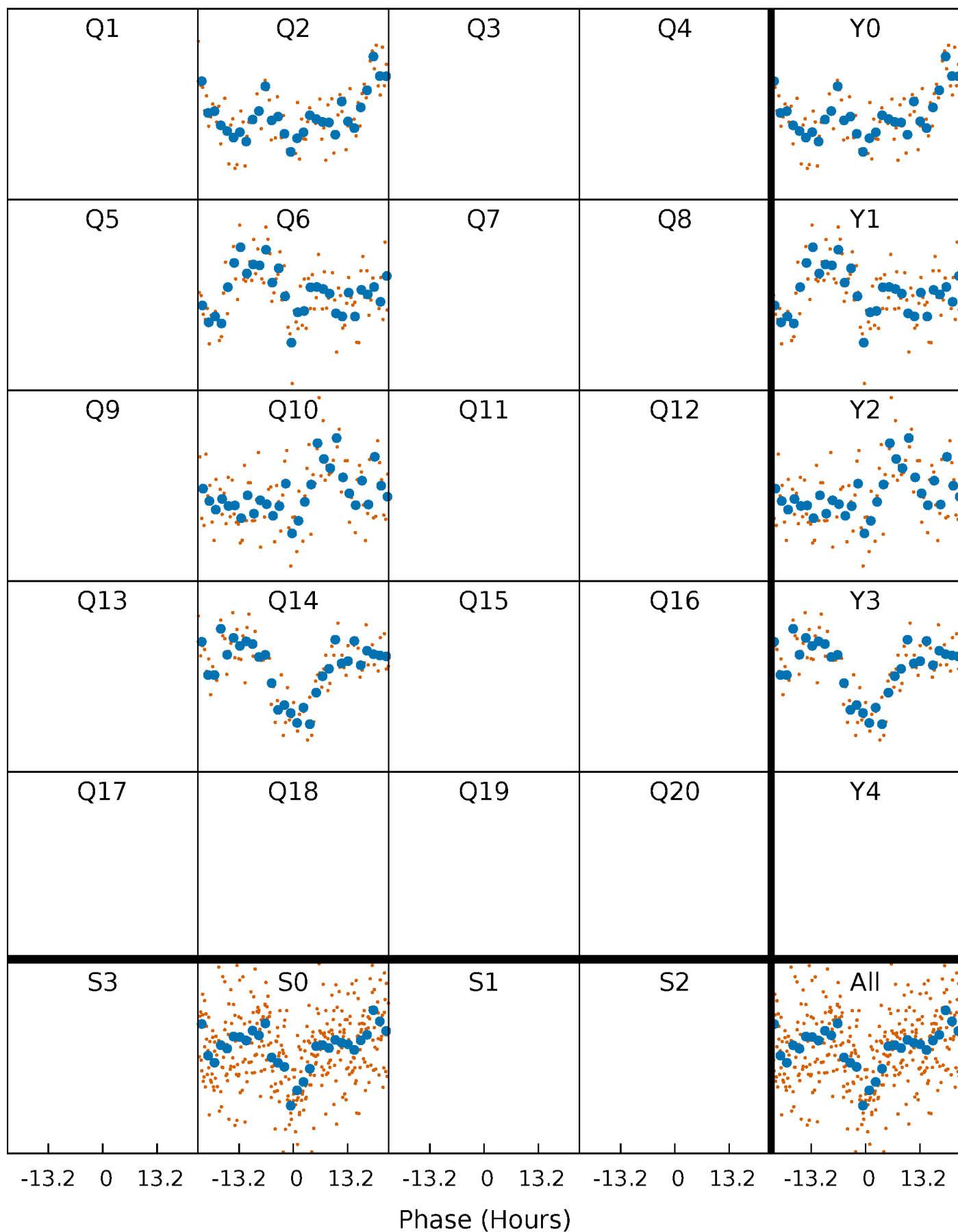


Non-Whitened Vs. Whitened Light Curve



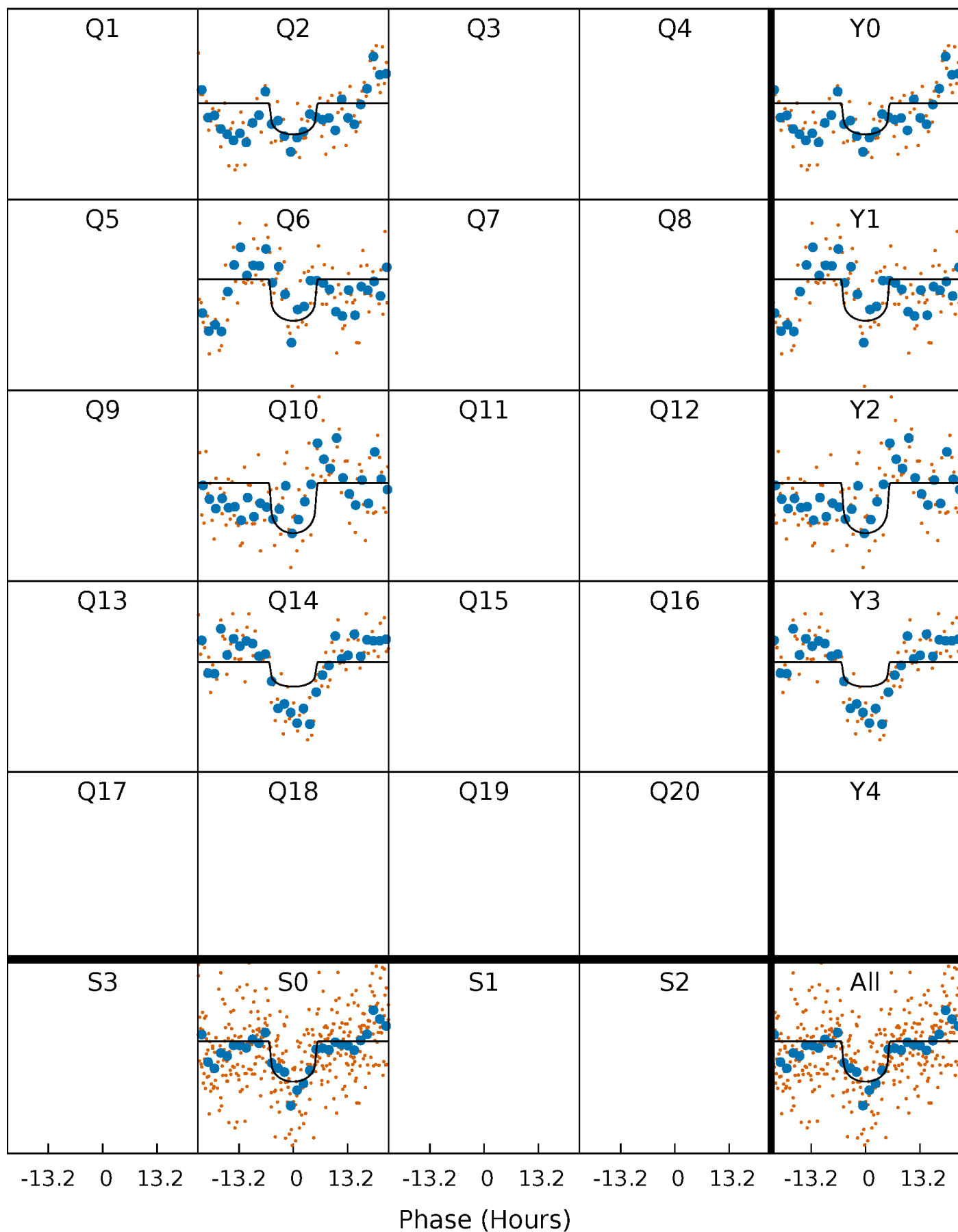
PDC Quarter-Phased Transit Curves

TCE 008804829-01 P=369.187581 Days $T_0=233.189033$ (BKJD)



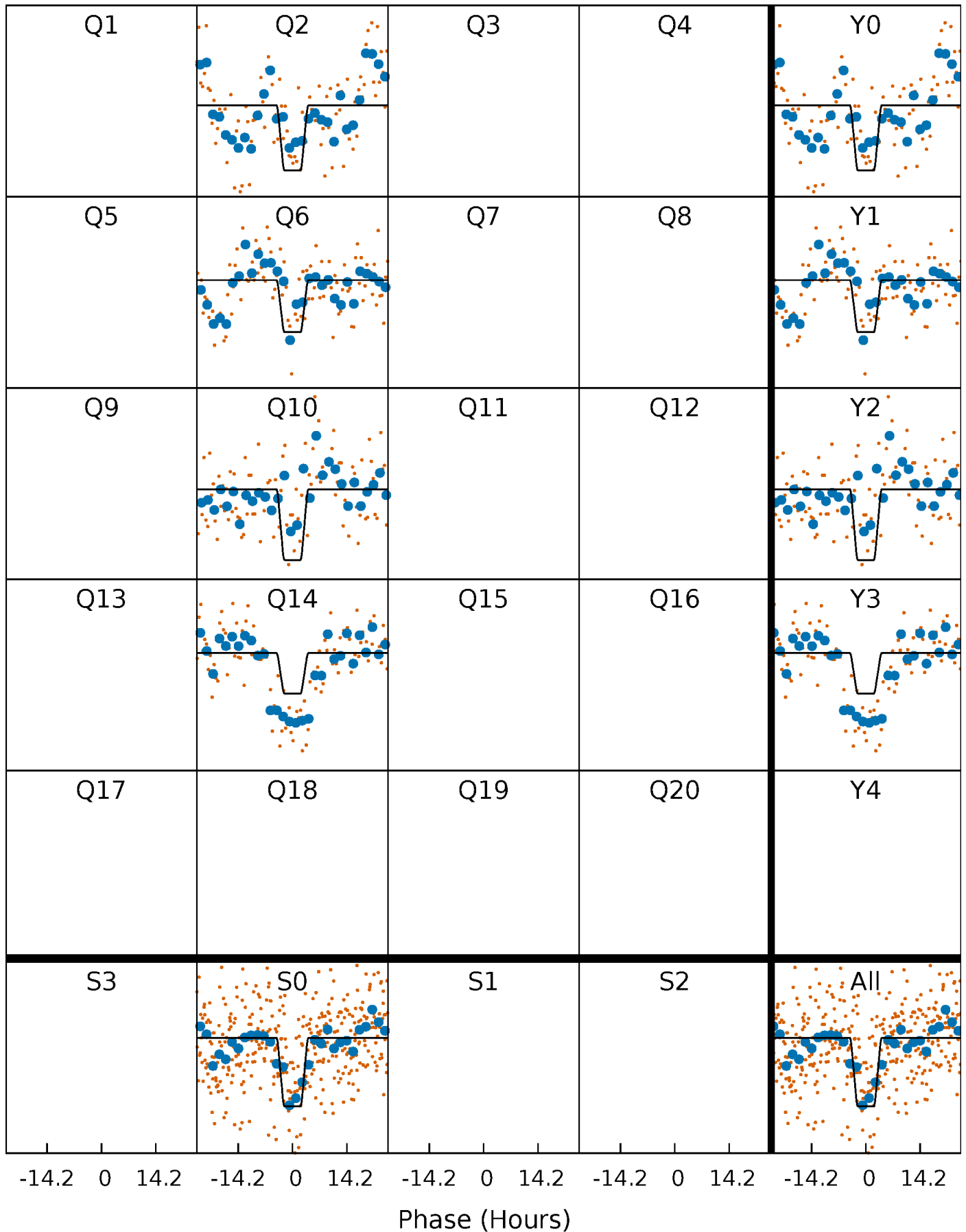
DV Quarter-Phased Transit Curves

TCE 008804829-01 P=369.187581 Days $T_0=233.189033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

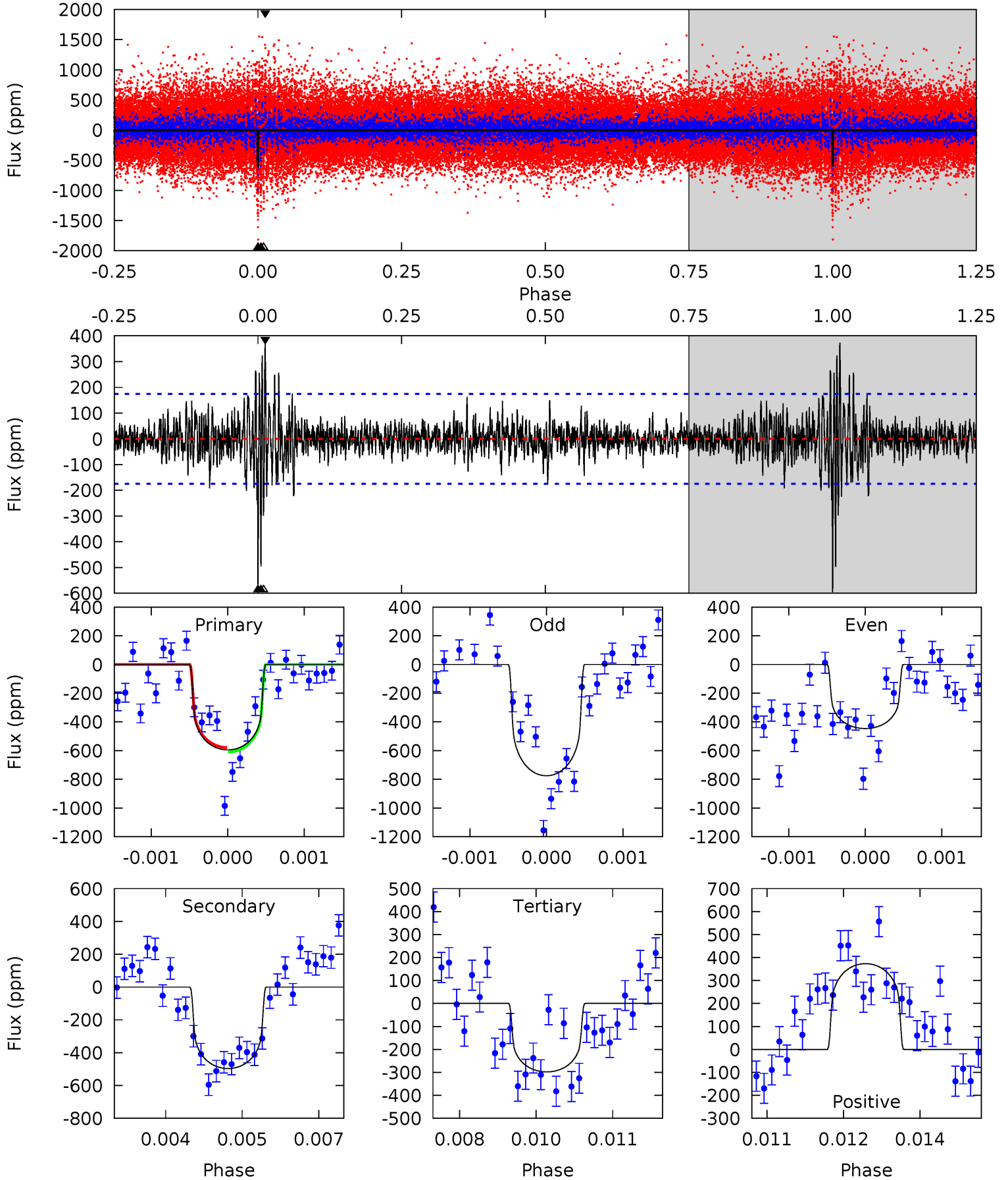
TCE 008804829-01 P=369.207184 Days $T_0=233.166658$ (BKJD)



DV Model-Shift Uniqueness Test

008804829-01, P = 369.187581 Days, E = 233.189033 Days

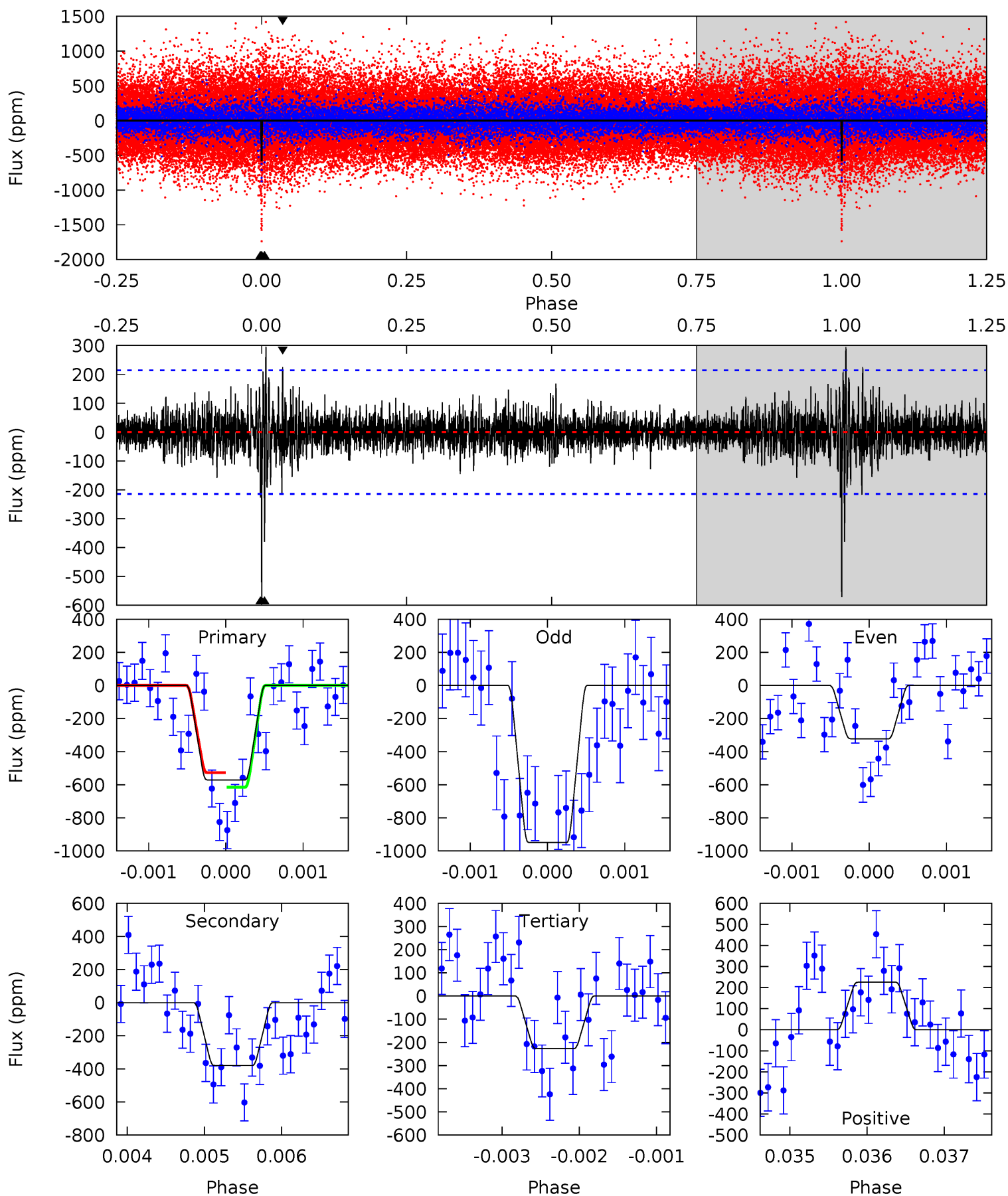
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 18.4 | 15.4 | 9.21 | 11.5 | 5.40 | 3.20 | 1.70 | 9.19 | 6.86 | 6.15 | 3.82 | 5.14 | 1.36 | 0.39 | 0.48 |



Alt Model-Shift Uniqueness Test

008804829-01, P = 369.207184 Days, E = 233.166658 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.6 | 9.69 | 5.78 | 5.75 | 5.46 | 3.31 | 1.16 | 8.78 | 8.82 | 3.91 | 3.94 | 8.26 | 1.53 | 0.34 | 1.11 |



Stellar Parameters For KIC 008804829

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5525^{+148}_{-165} | $4.603^{+0.037}_{-0.120}$ | $-0.360^{+0.350}_{-0.300}$ | $0.753^{+0.141}_{-0.060}$ | $0.843^{+0.080}_{-0.098}$ | $2.778^{+0.467}_{-1.035}$ |
| | +3%/-3% | +1%/-3% | +97%/-83% | +19%/-8% | +9%/-12% | +17%/-37% |
| 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 008804829-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|----------------------------|
| DV | -497 ± 32 | $1.95^{+1.03}_{-0.88}$ | 308^{+14}_{-12} | 5422^{+1957}_{-853} | $64786^{+148561}_{-37249}$ |
| Alt. | -380 ± 39 | $2.37^{+1.02}_{-0.99}$ | 308^{+15}_{-11} | 4737^{+1236}_{-634} | 33172^{+61528}_{-17110} |

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

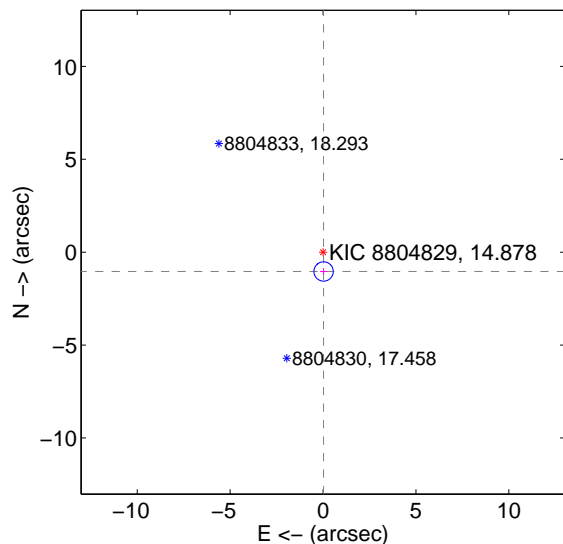
Supplemental centroid analysis for 008804829-01. Kepler magnitude: 14.88. Transit SNR 8.31

There are 1 quarters with good PRF difference image offsets

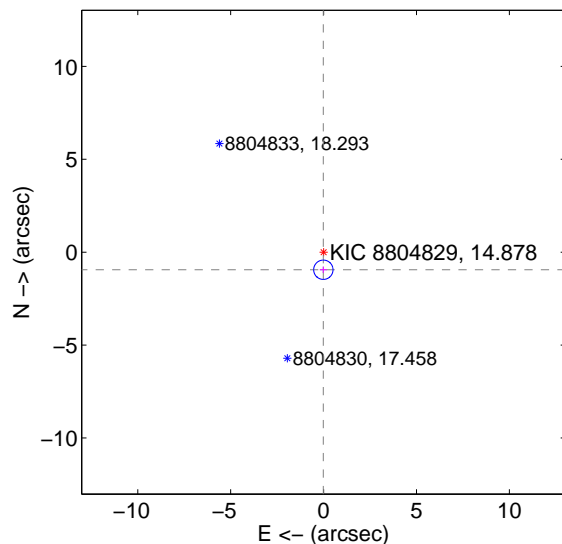
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 1.040 ± 0.174 | 5.99 | -0.031 ± 0.195 | -1.039 ± 0.174 |
| PRF-fit source offset from KIC position | 0.946 ± 0.174 | 5.45 | 0.013 ± 0.195 | -0.946 ± 0.174 |
| photometric centroid source offset | 4.69 ± 2.05 | 2.28 | 4.02 ± 2.09 | -2.42 ± 1.95 |

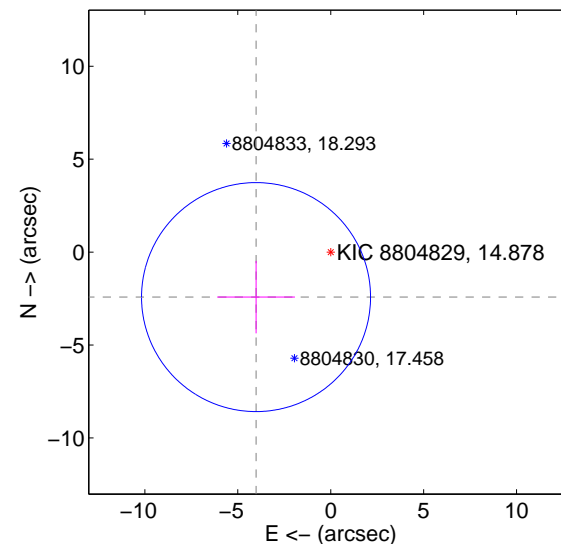
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

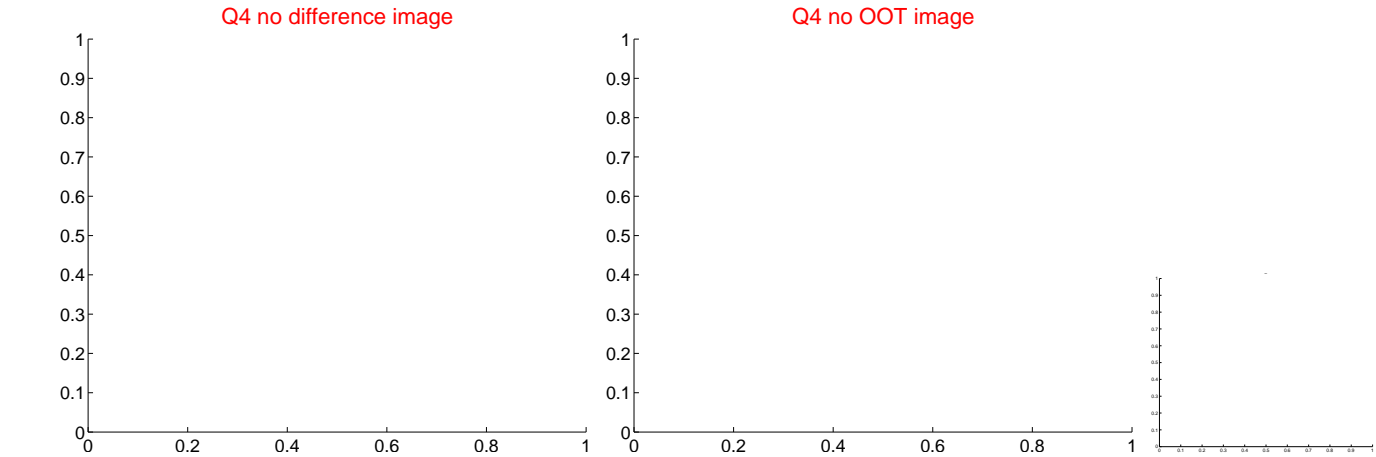
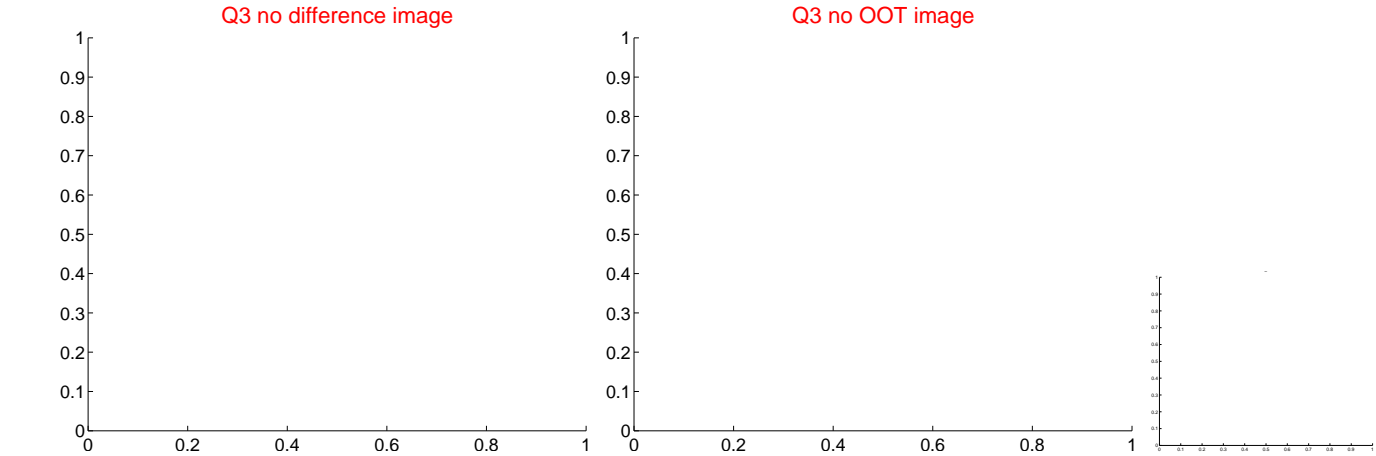
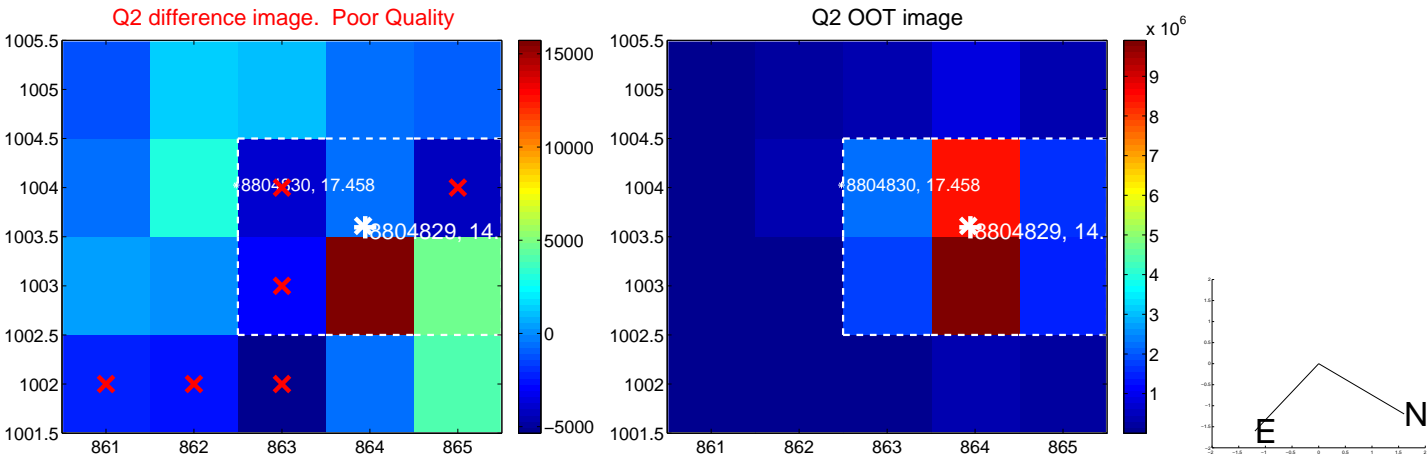
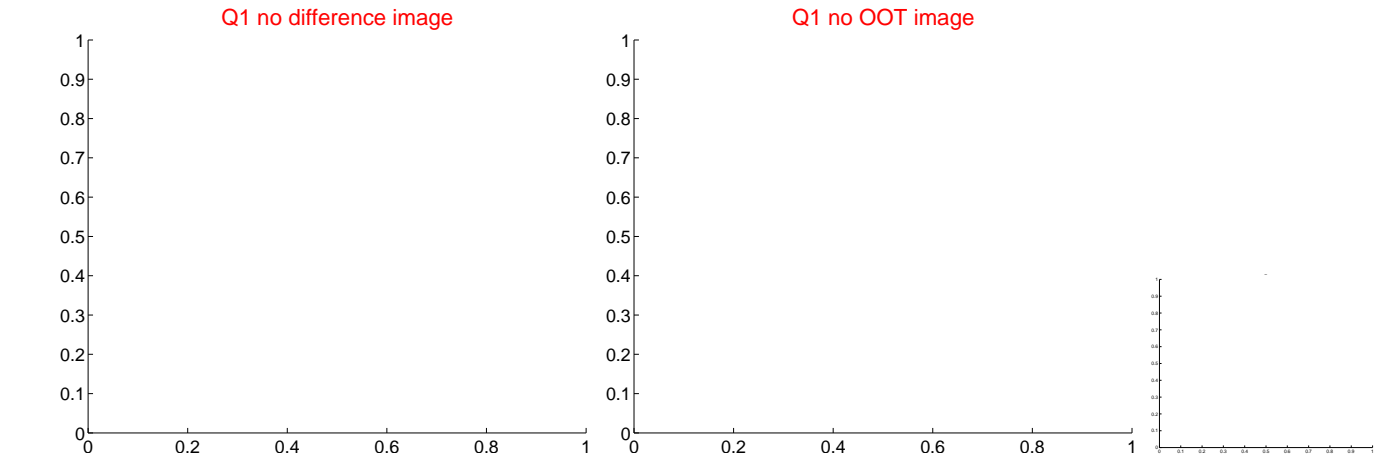


offset from photometric centroids



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

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



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

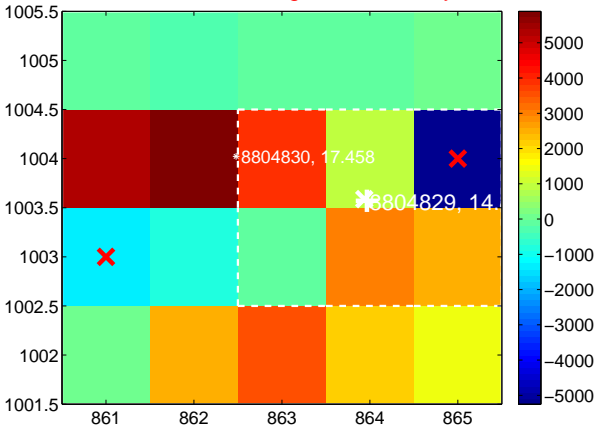
Q5 no difference image



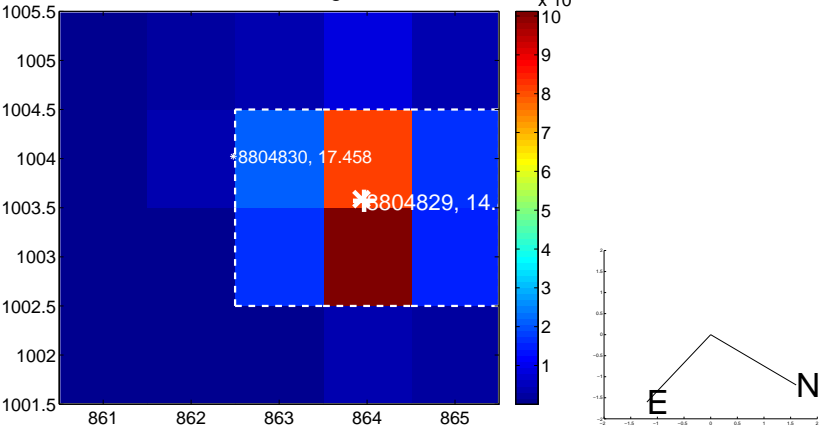
Q5 no OOT image



Q6 difference image. Poor Quality



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.

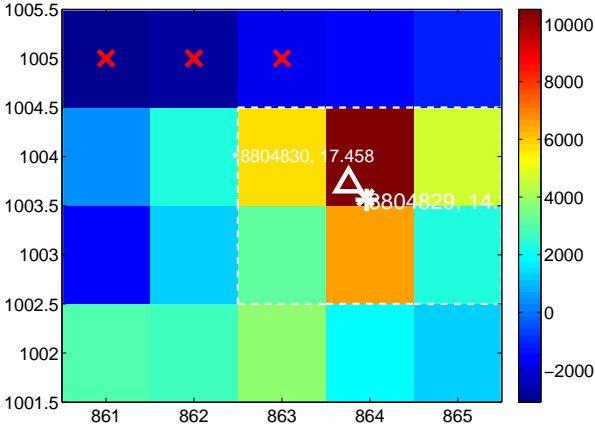
Q13 no difference image



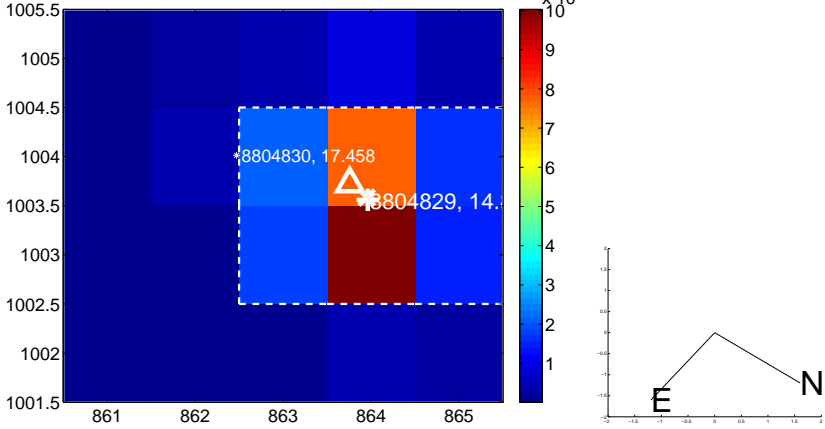
Q13 no OOT image



Q14 difference image



Q14 OOT image



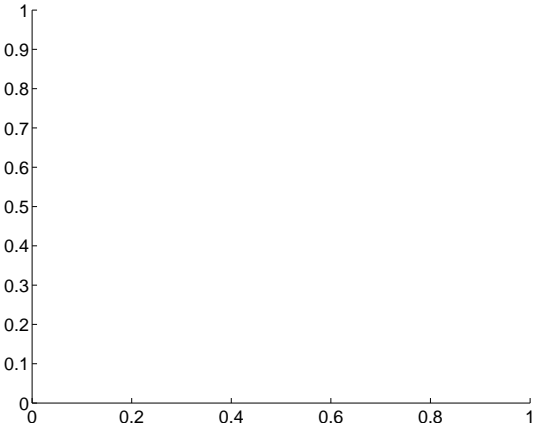
Q15 no difference image



Q15 no OOT image



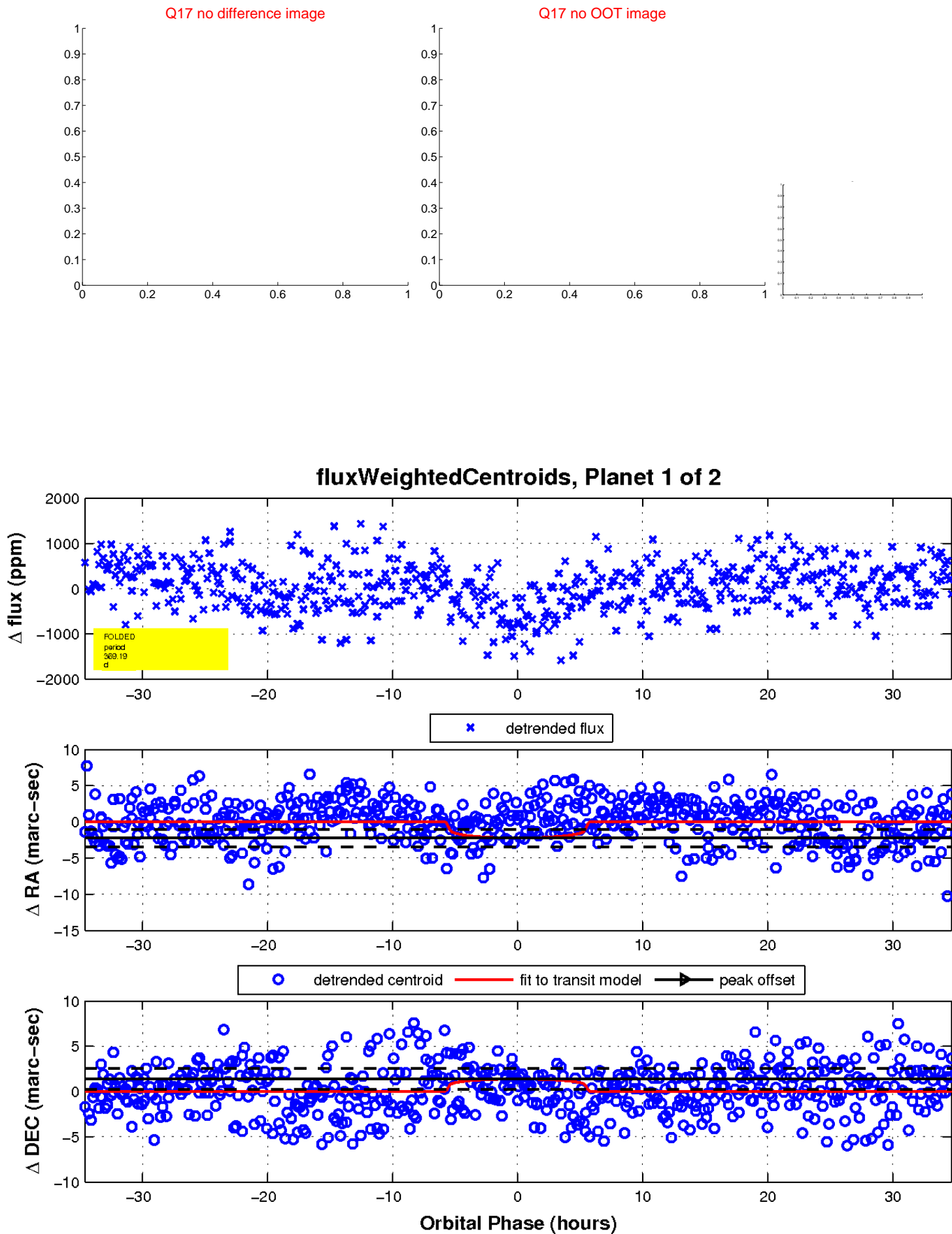
Q16 no difference image



Q16 no OOT image

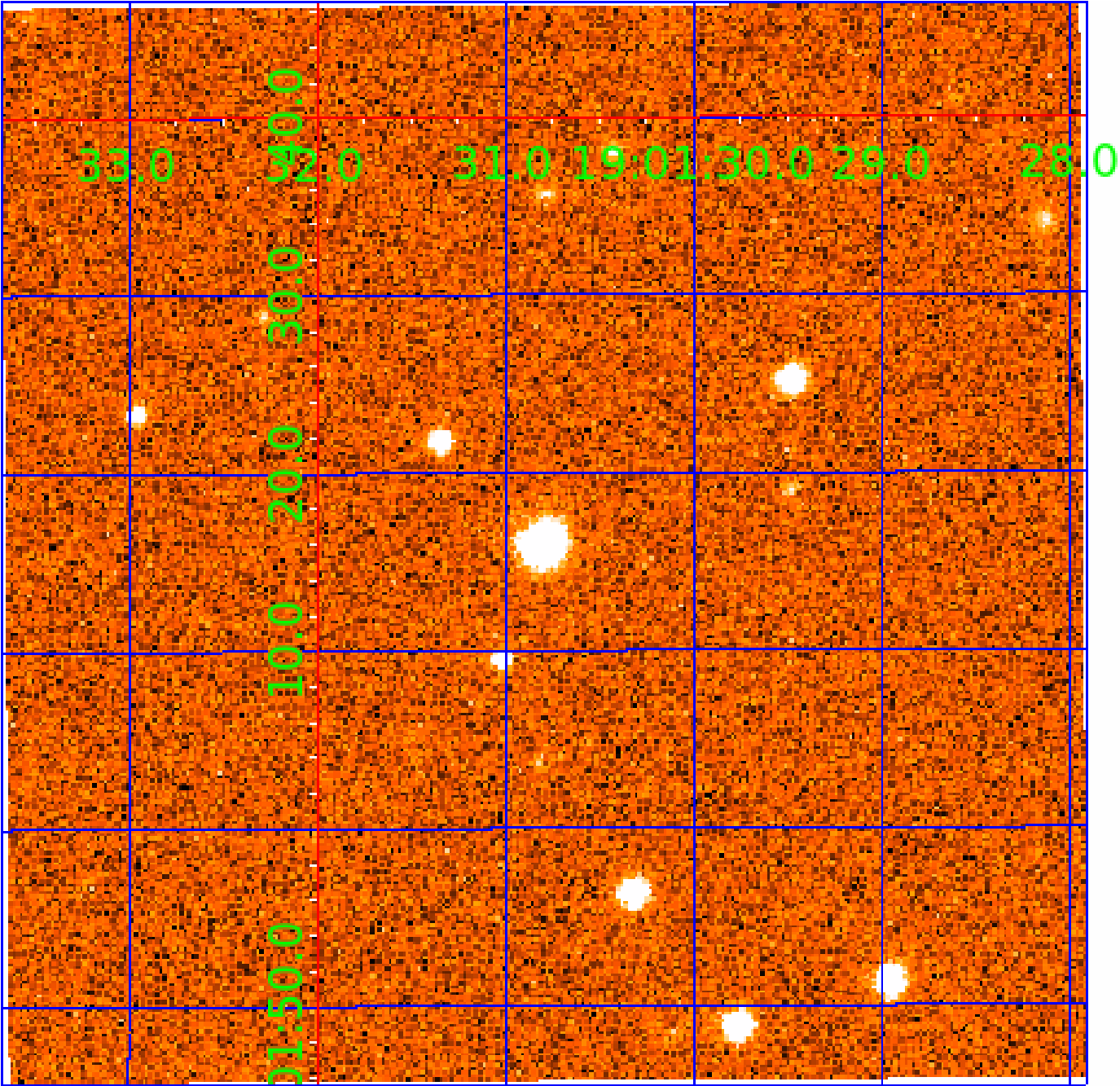


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008804829

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008804829-01 | OBS | No | 369.187581 | 233.189033 | 576.5 | 11.578 | 8.2 | 8.3 | 0.75 | 5525 | 1.90 | 0.53 |
| 008804829-02 | OBS | No | 369.152529 | 235.161819 | 576.2 | 14.511 | 9.1 | 9.1 | 0.75 | 5525 | 1.90 | 0.53 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 008804829-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 008804829-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS |

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

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

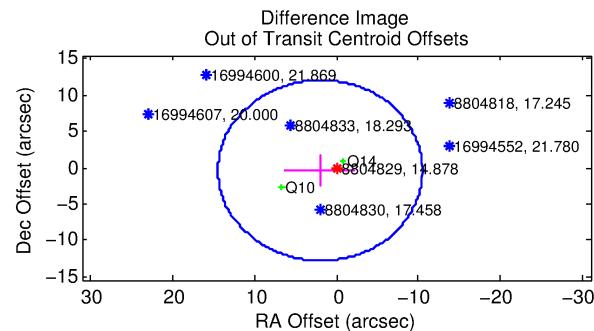
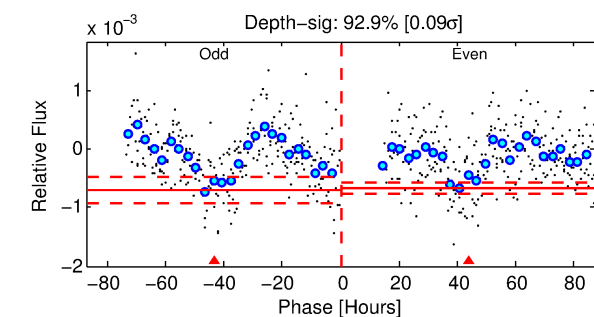
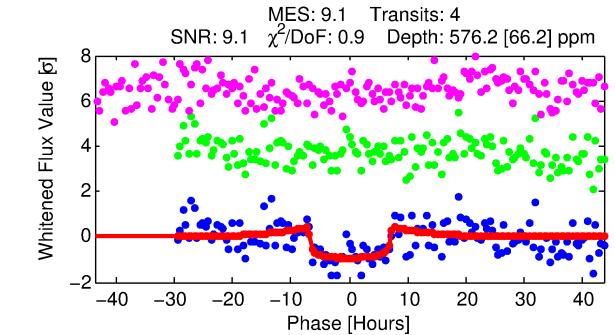
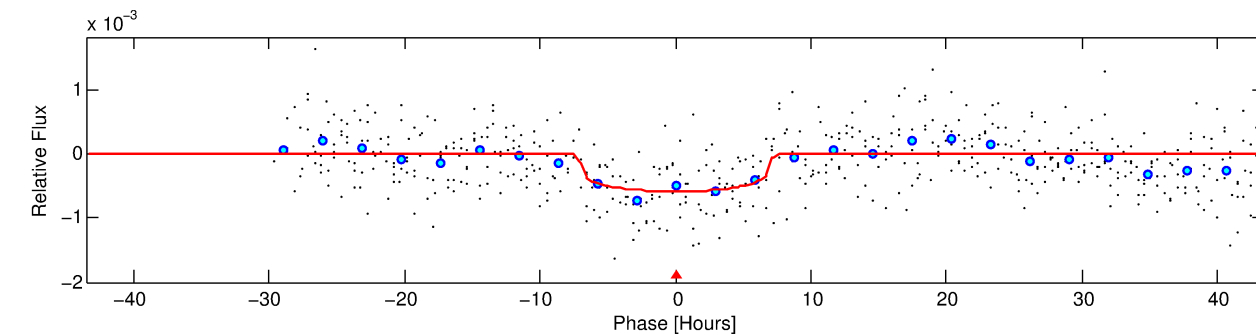
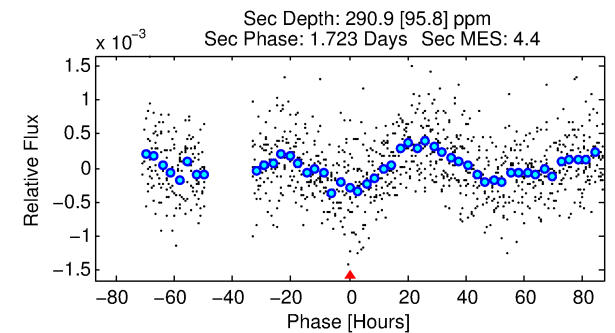
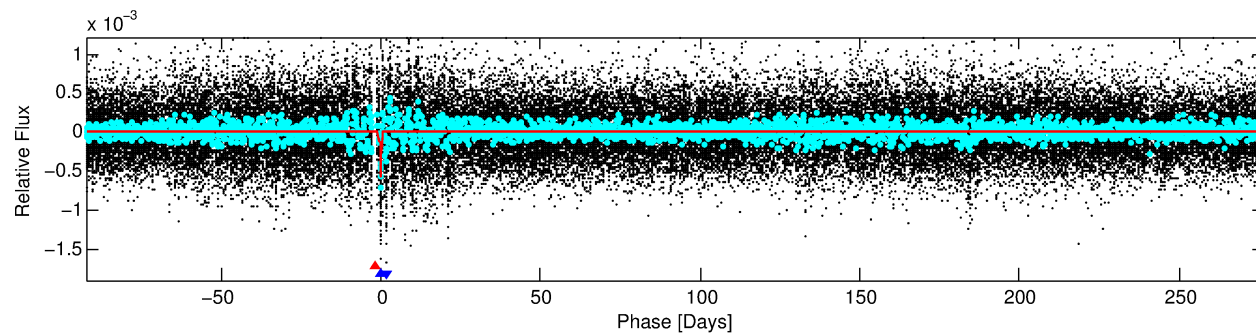
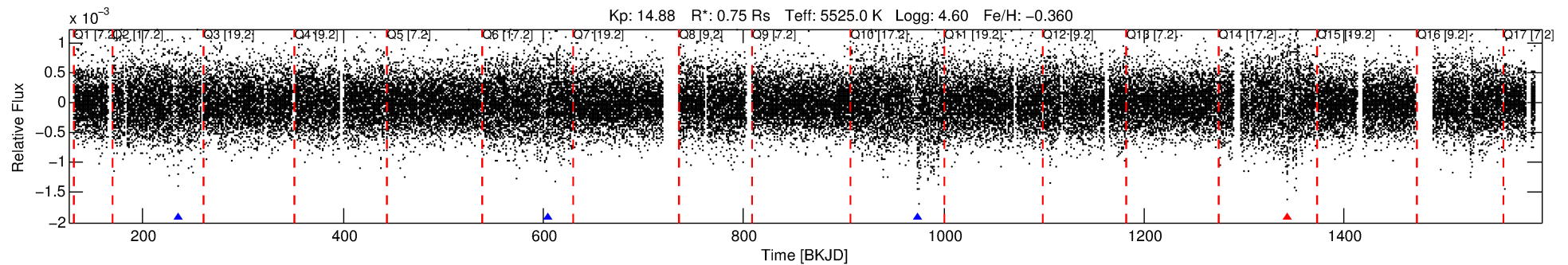
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008804829-02

No Significant Match Found

DV One-Page Summary

KIC: 8804829 Candidate: 2 of 2 Period: 369.153 d



DV Fit Results:

Period = 369.15253 [0.00867] d
Epoch = 235.1618 [0.0165] BKJD
Rp/R* = 0.0232 [0.0073]
a/R* = 152.54 [200.86]
b = 0.66 [1.16]
Seff = 0.53 [0.13]
Teff = 217 [14] K
Rp = 1.90 [0.70] Re
a = 0.9463 [0.1468] AU
Ag = 39525.13 [29565.87] [1.34 σ]
Teffp = 4740 [858] K [5.27 σ]

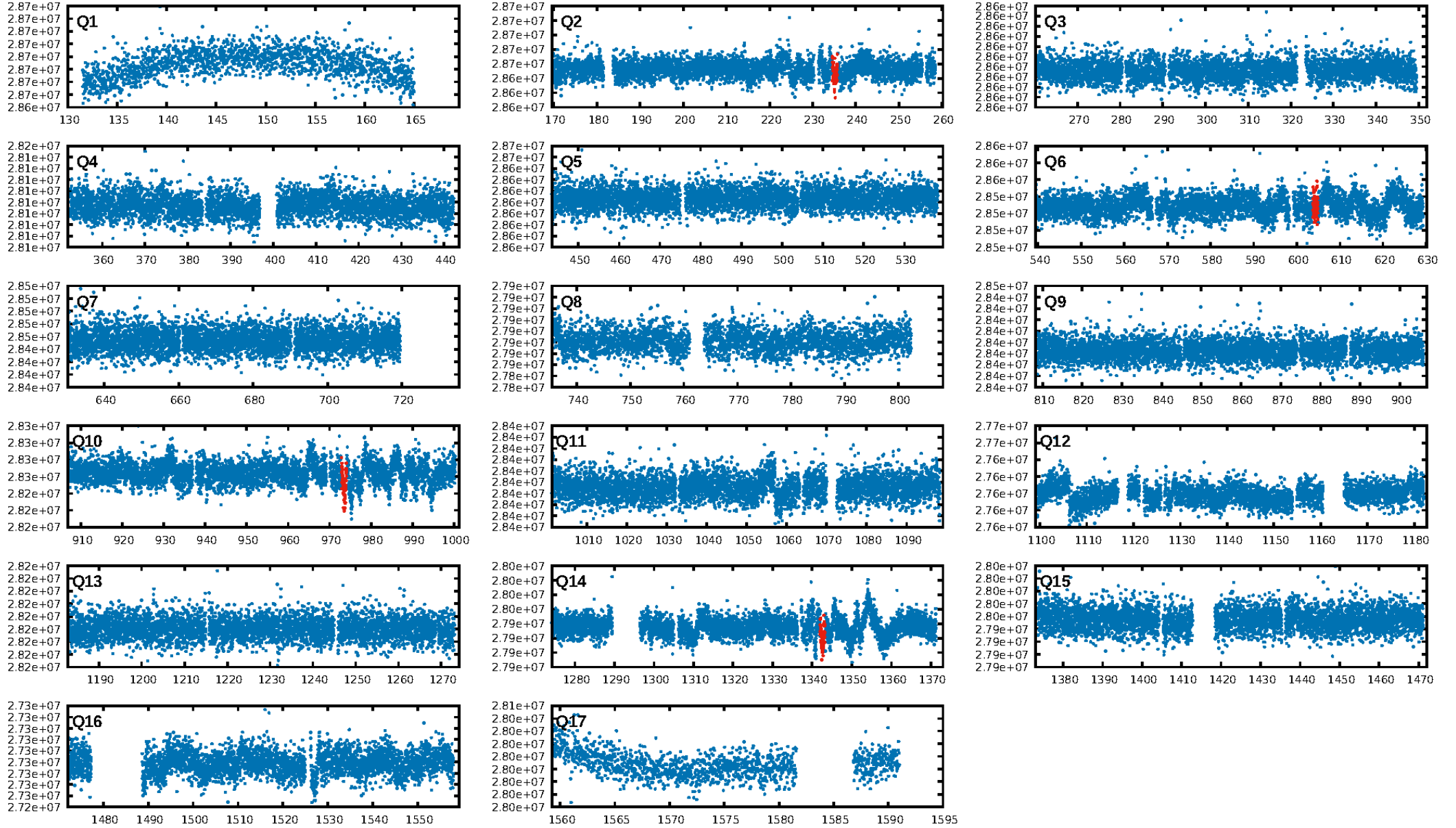
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 3.6% [0.05 σ]
ModelChiSquare2-sig: 5.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.11e-10
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 6.866
Centroid-sig: 7.4%
Centroid-so: 3.408 arcsec [1.63 σ]
OotOffset-rm: 2.003 arcsec [0.48 σ]
KicOffset-rm: 2.037 arcsec [0.49 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [4/4]

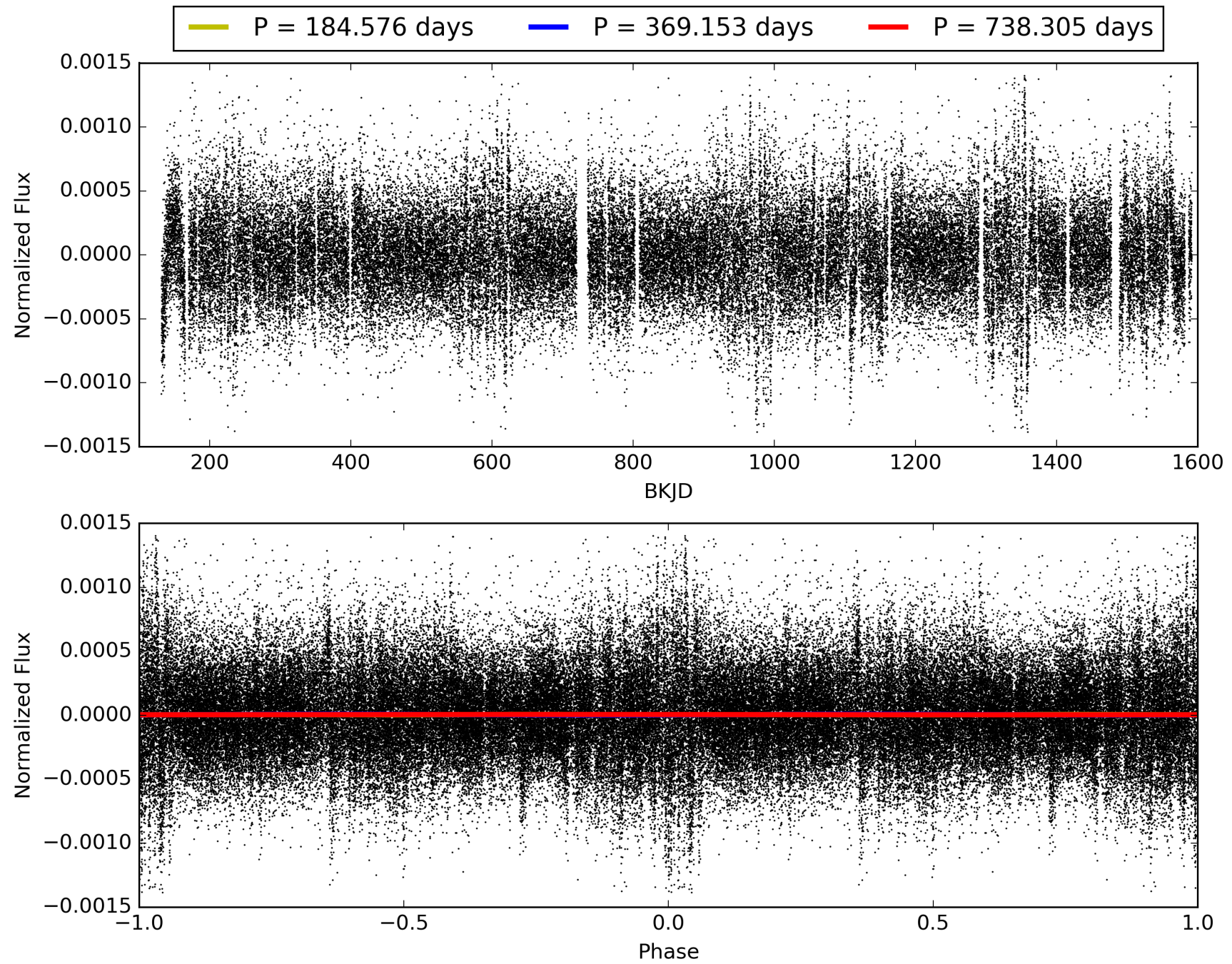
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:12:08 Z

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

TCE 008804829-02, PDC Light Curves

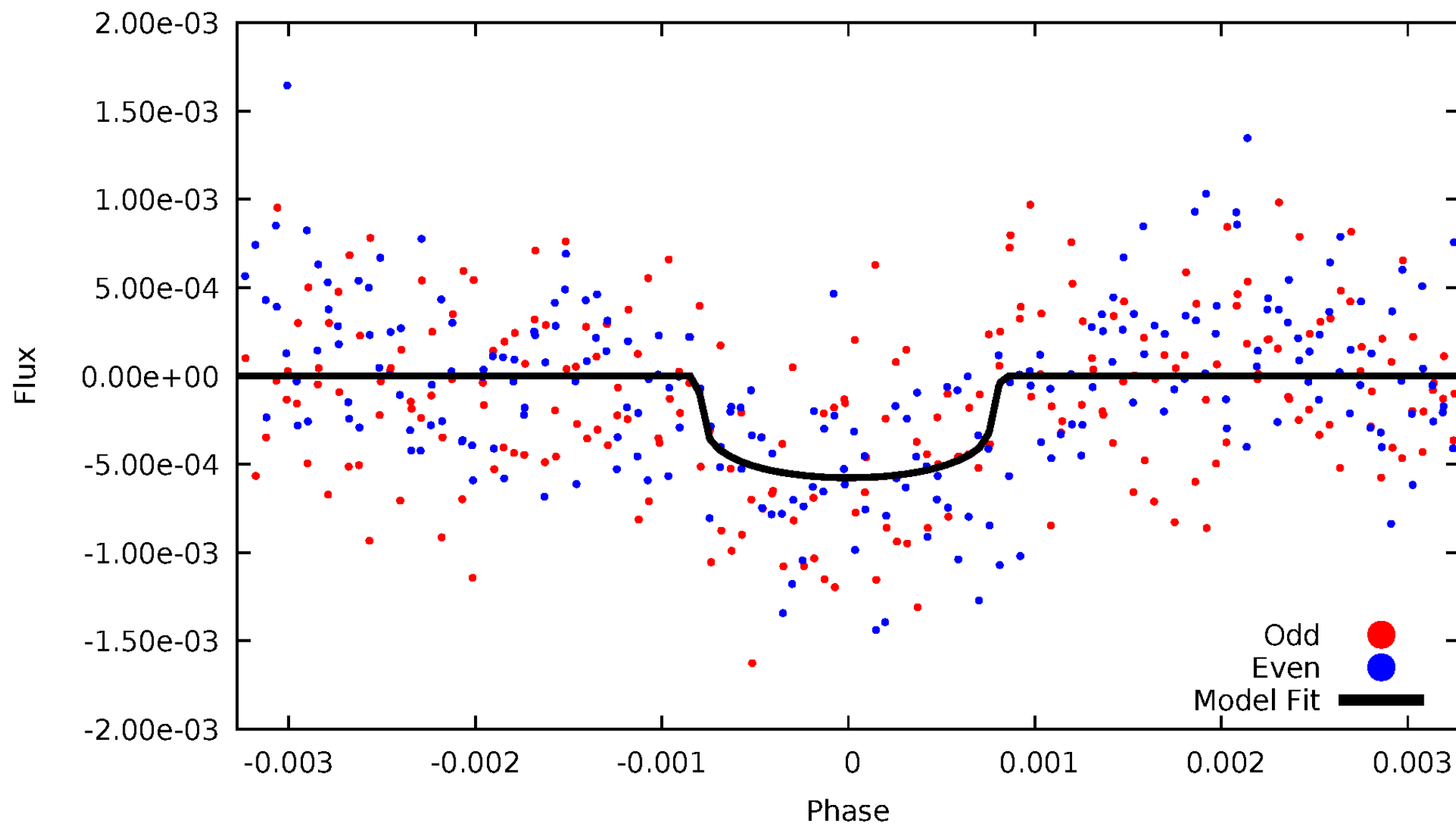


TCE 008804829-02



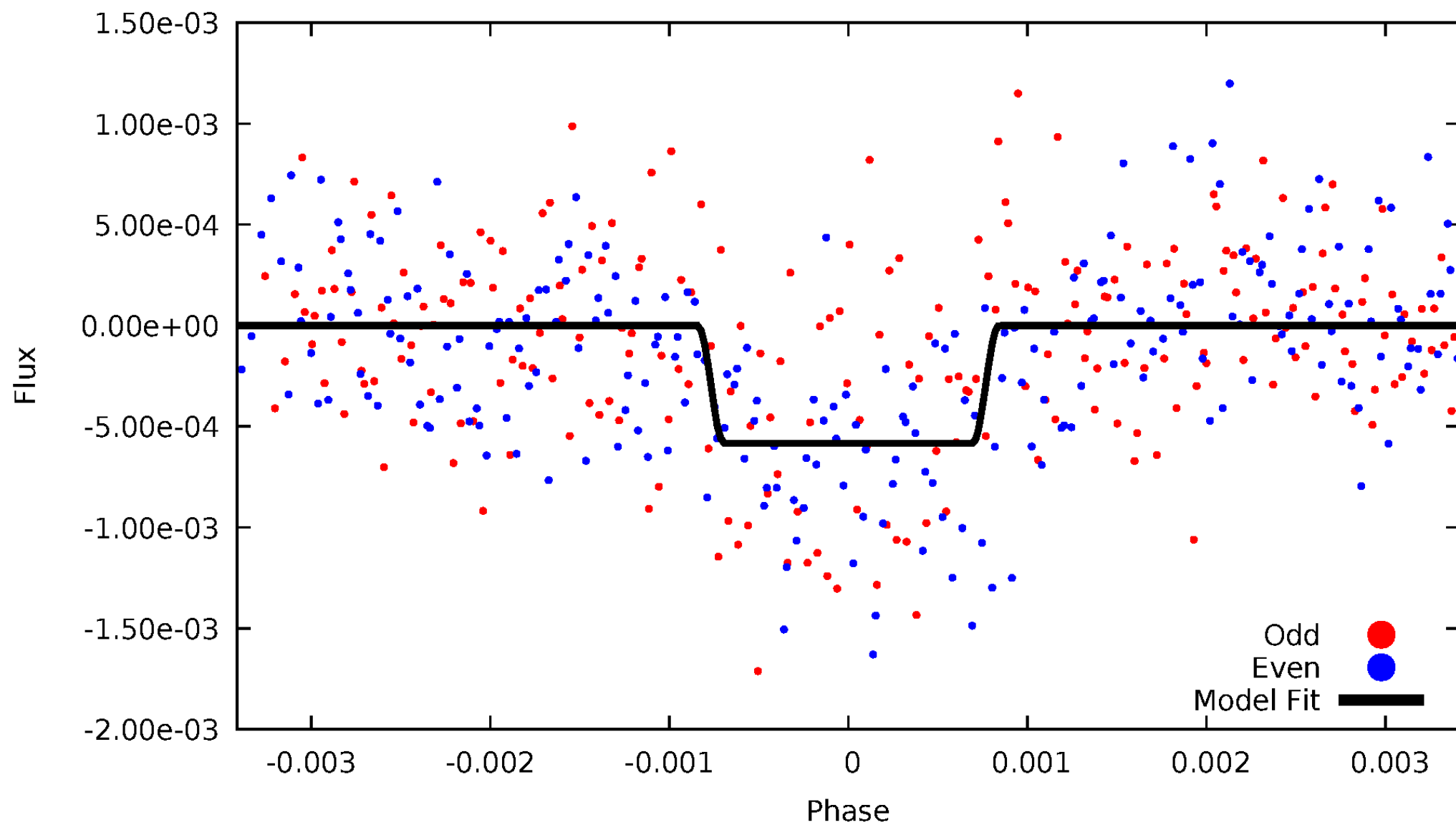
DV Odd/Even

TCE 008804829-02



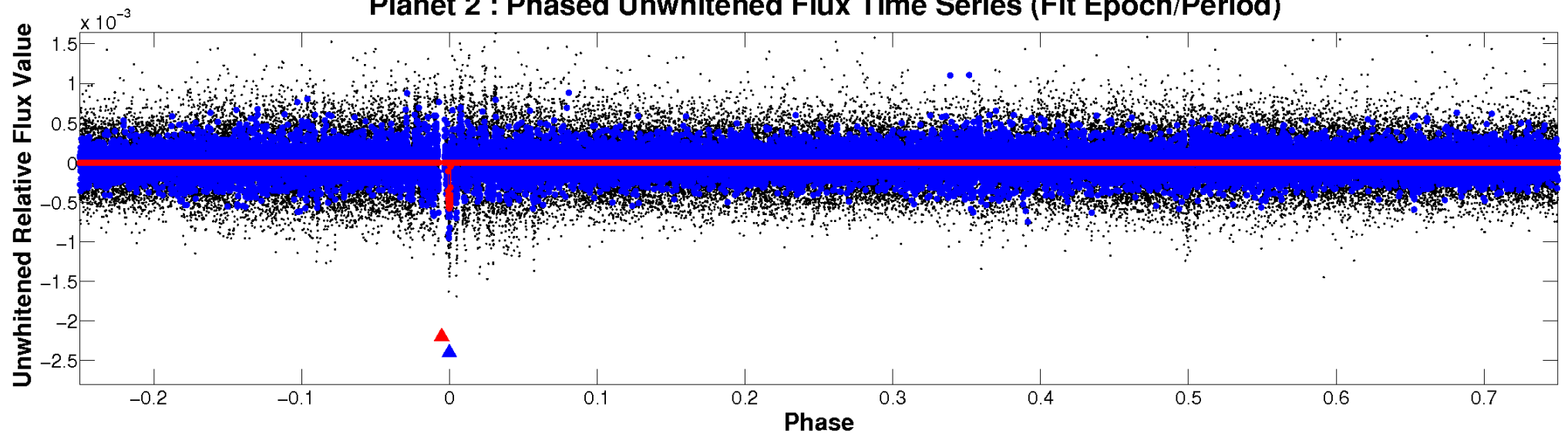
ALT Odd/Even

TCE 008804829-02

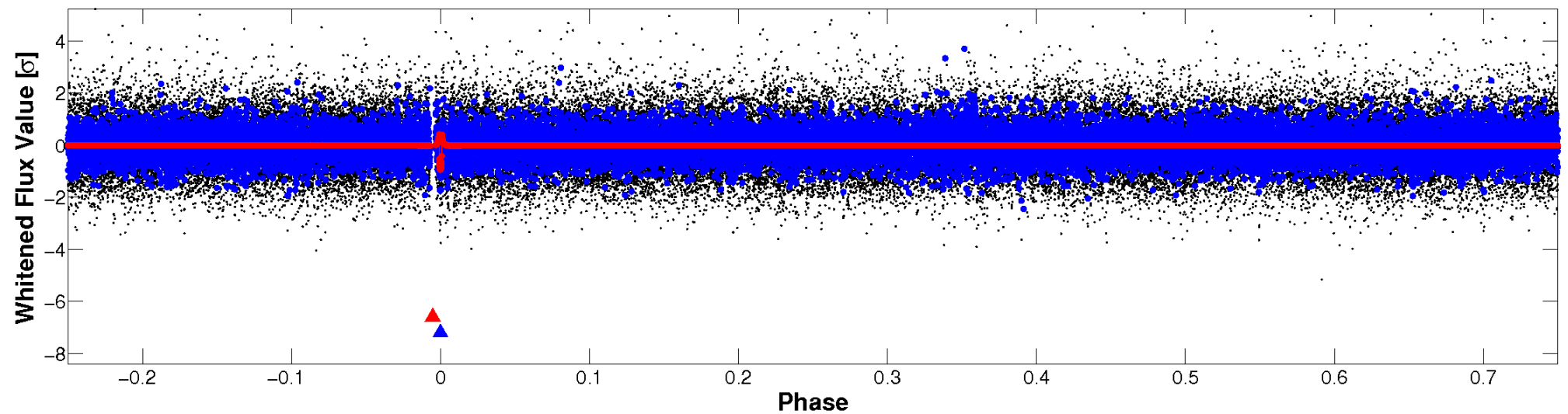


Non-Whitened Vs. Whitened Light Curve

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

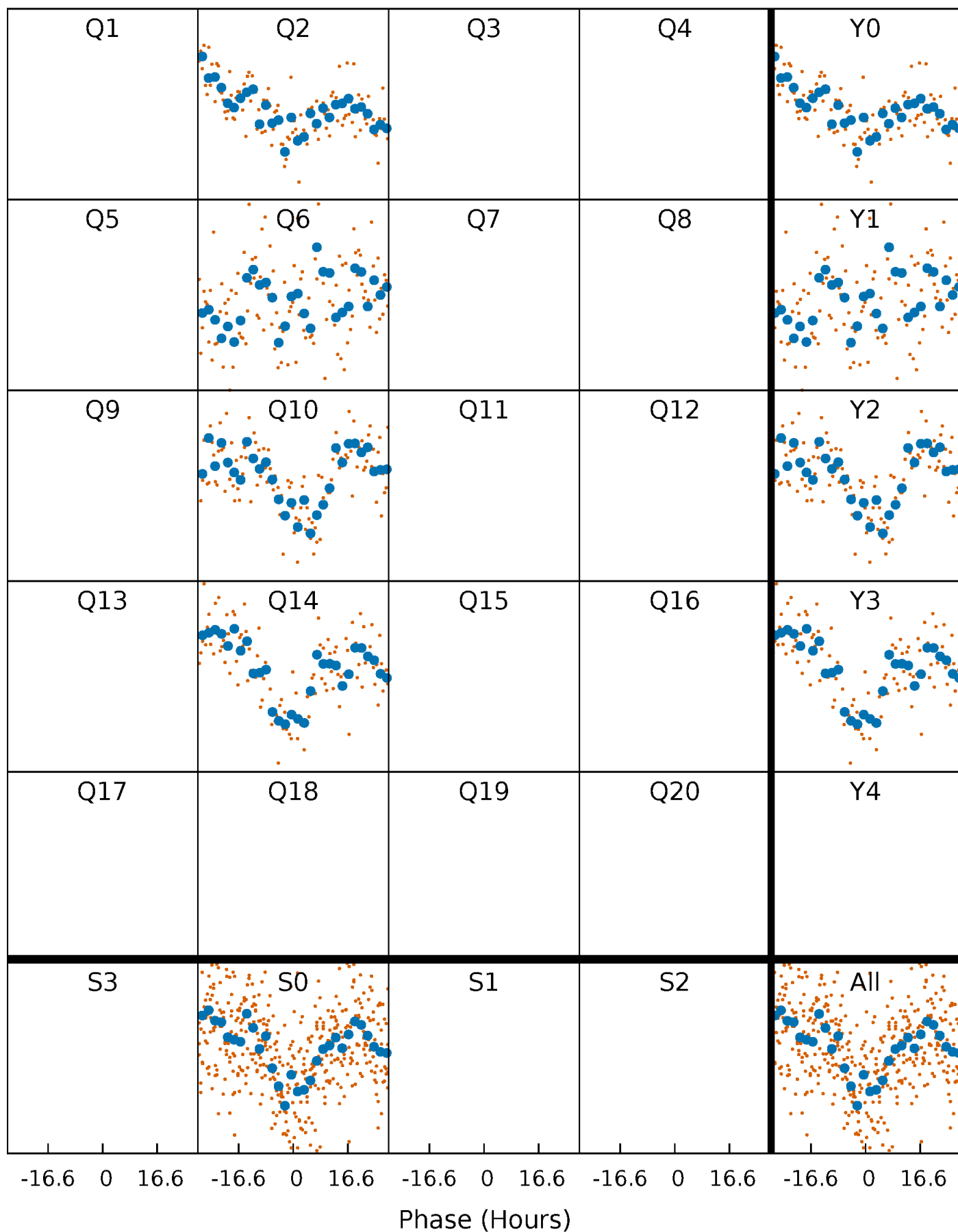


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



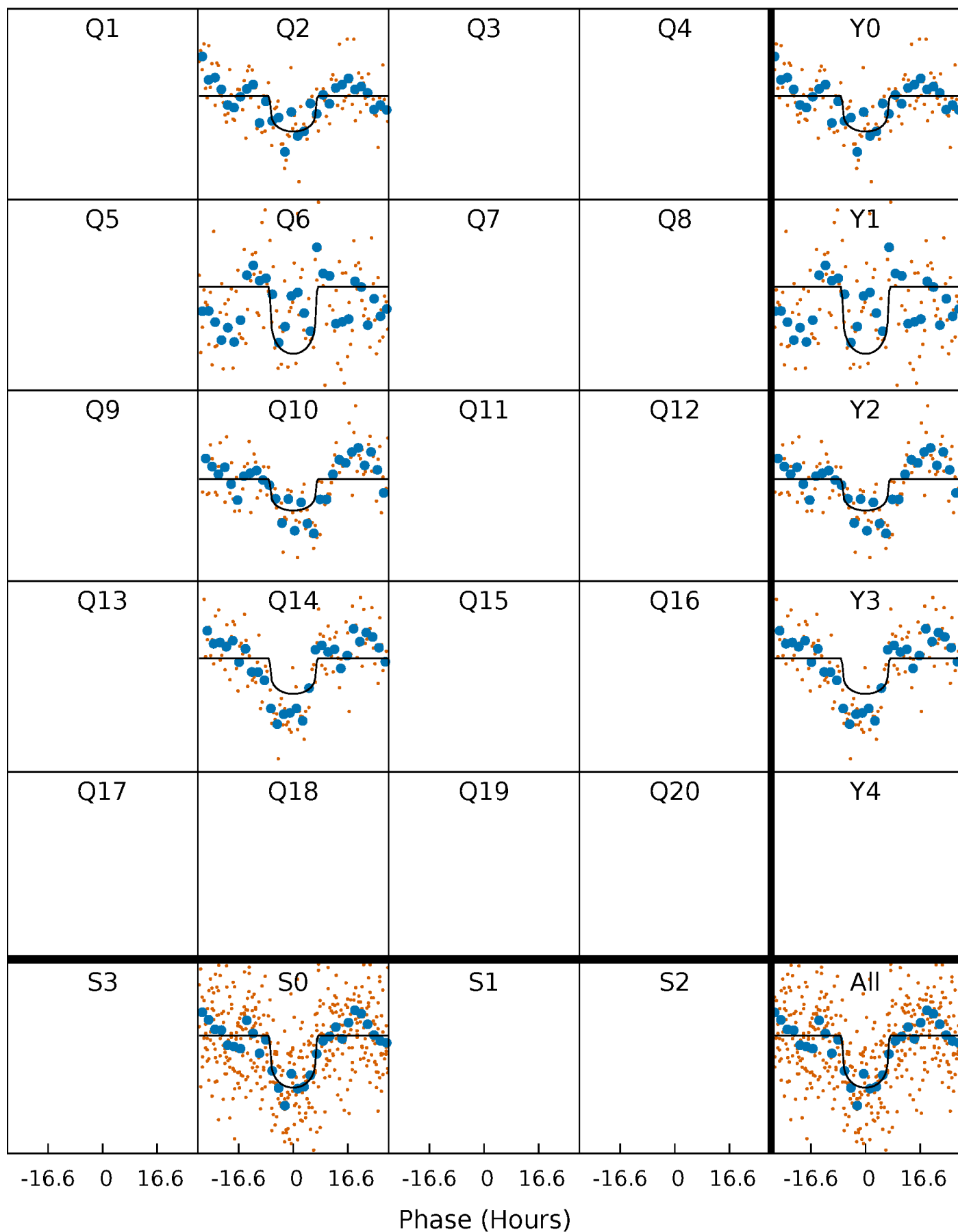
PDC Quarter-Phased Transit Curves

TCE 008804829-02 P=369.152529 Days $T_0=235.161820$ (BKJD)



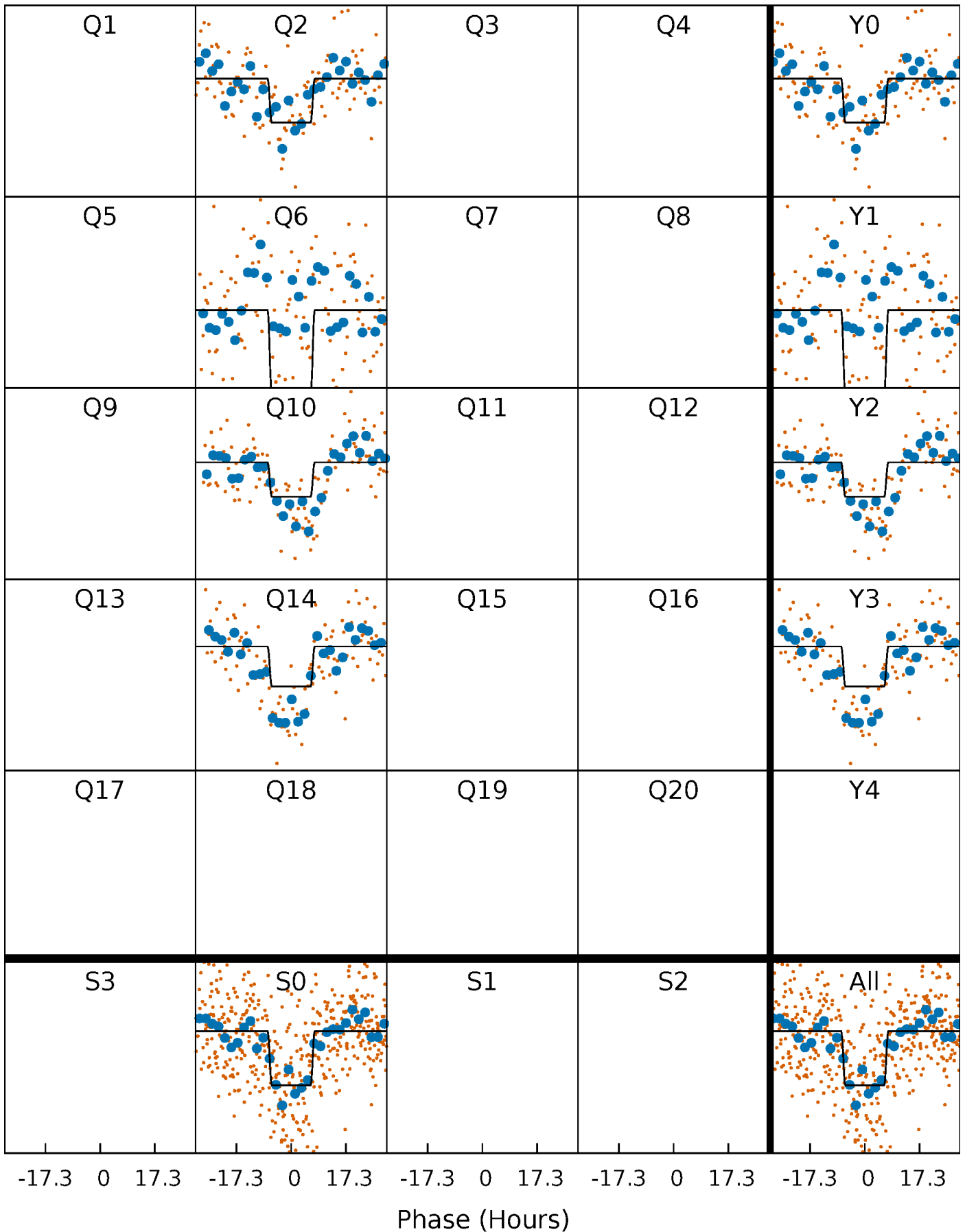
DV Quarter-Phased Transit Curves

TCE 008804829-02 P=369.152529 Days $T_0=235.161820$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

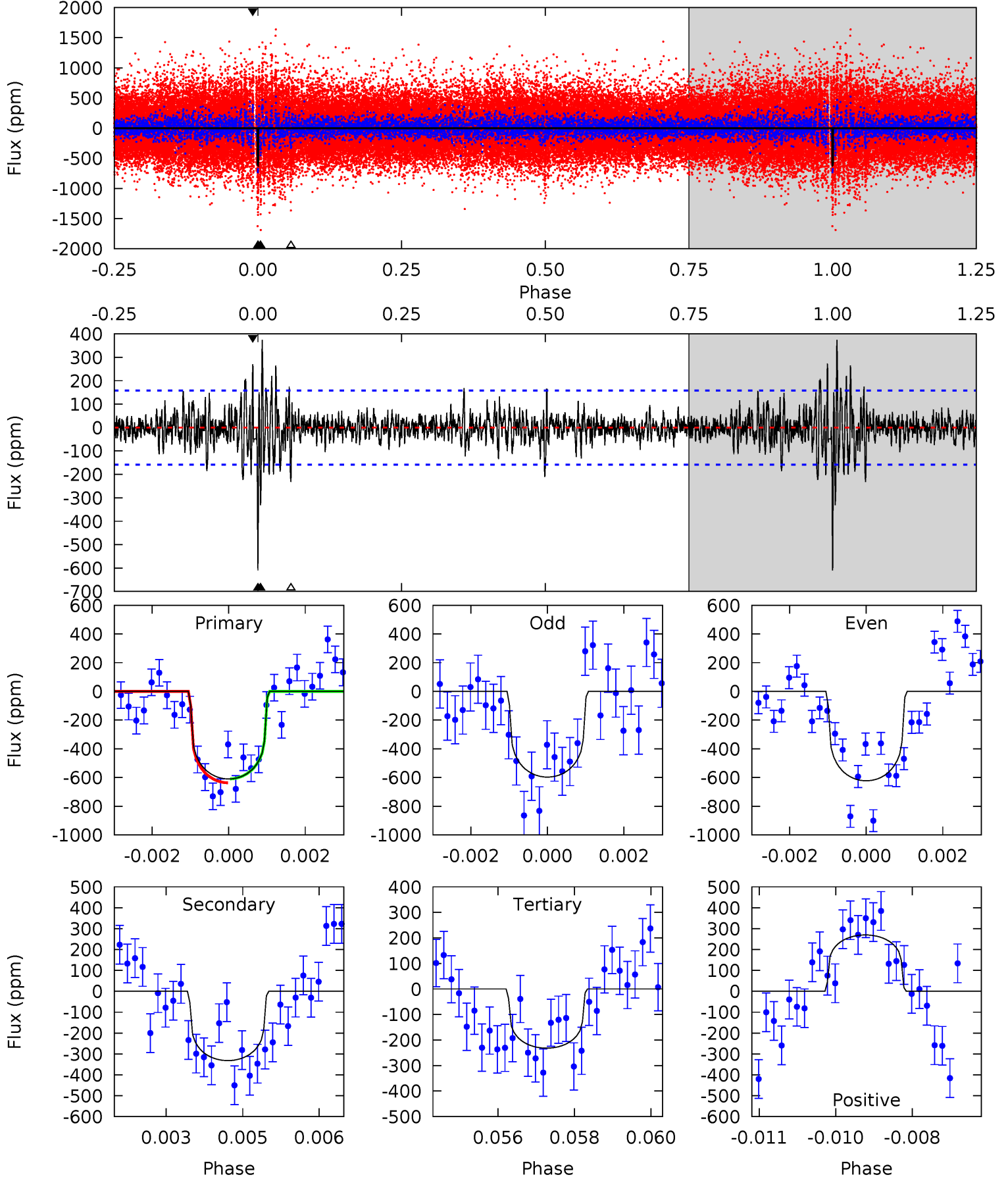
TCE 008804829-02 P=369.145884 Days $T_0=235.178191$ (BKJD)



DV Model-Shift Uniqueness Test

008804829-02, P = 369.152529 Days, E = 235.161820 Days

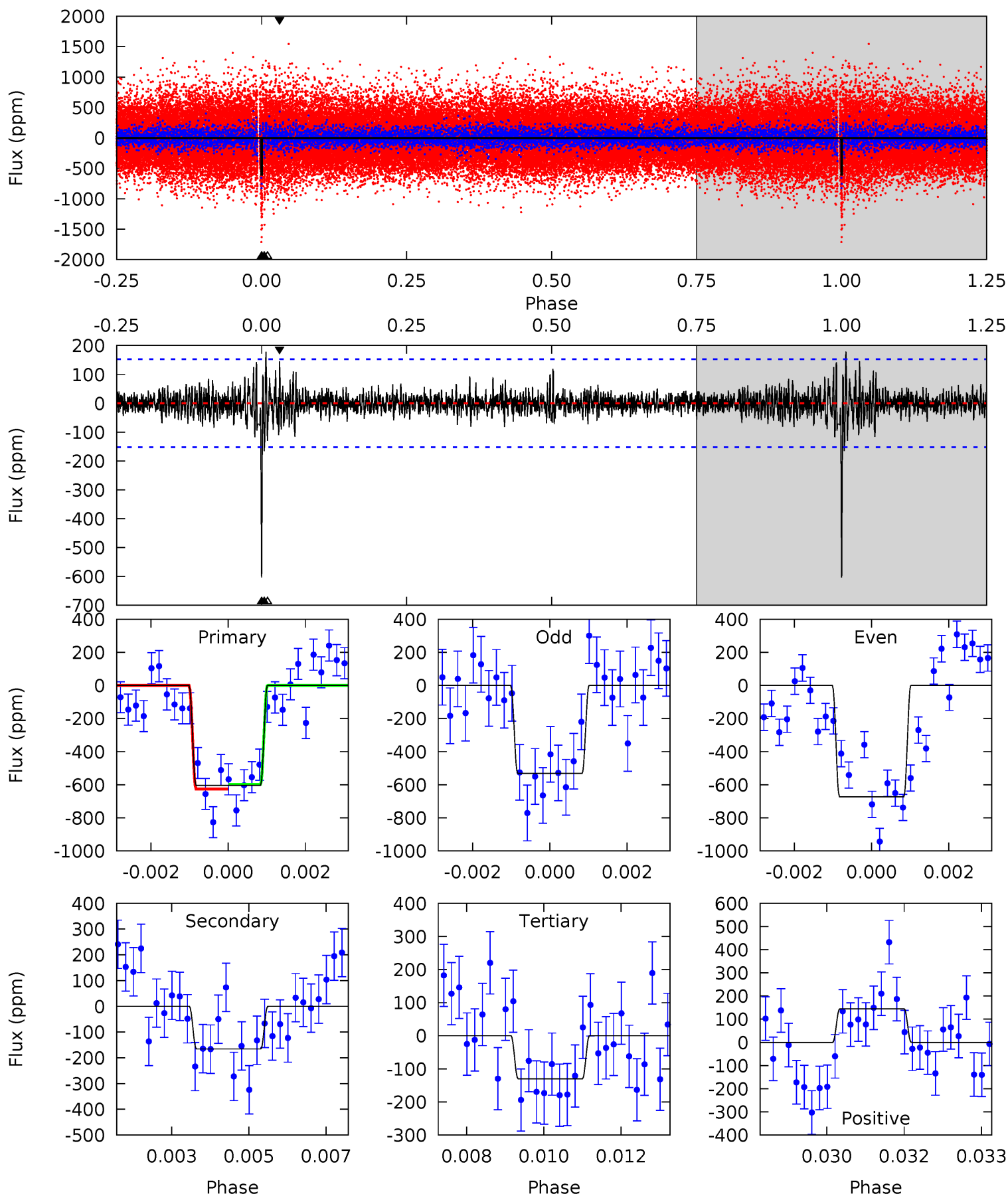
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.7 | 11.2 | 7.85 | 9.14 | 5.37 | 3.15 | 1.84 | 12.8 | 11.5 | 3.39 | 2.11 | 0.44 | 0.97 | 0.38 | 0.46 |



Alt Model-Shift Uniqueness Test

008804829-02, P = 369.145884 Days, E = 235.178191 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.2 | 5.82 | 4.57 | 5.10 | 5.36 | 3.15 | 1.00 | 16.7 | 16.1 | 1.25 | 0.72 | 2.48 | 0.87 | 0.23 | 0.48 |



Stellar Parameters For KIC 008804829

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5525^{+148}_{-165} | $4.603^{+0.037}_{-0.120}$ | $-0.360^{+0.350}_{-0.300}$ | $0.753^{+0.141}_{-0.060}$ | $0.843^{+0.080}_{-0.098}$ | $2.778^{+0.467}_{-1.035}$ |
| | +3%/-3% | +1%/-3% | +97%/-83% | +19%/-8% | +9%/-12% | +17%/-37% |
| 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 008804829-02 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -332 ± 30 | $2.00^{+0.67}_{-0.68}$ | 308^{+15}_{-12} | 4941^{+980}_{-523} | 41010^{+51463}_{-18069} |
| Alt. | -166 ± 28 | $2.04^{+0.70}_{-0.65}$ | 308^{+13}_{-12} | 4251^{+703}_{-421} | 19060^{+22315}_{-8303} |

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

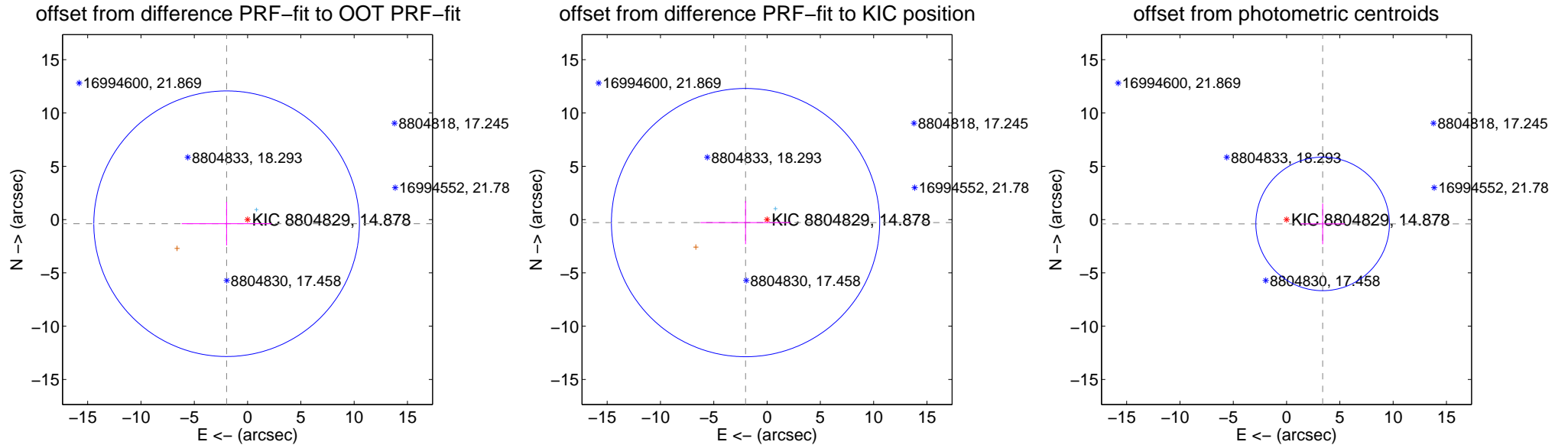
DV Centroid Data

Supplemental centroid analysis for 008804829-02. Kepler magnitude: 14.88. Transit SNR 9.11

There are 1 quarters with good PRF difference image offsets

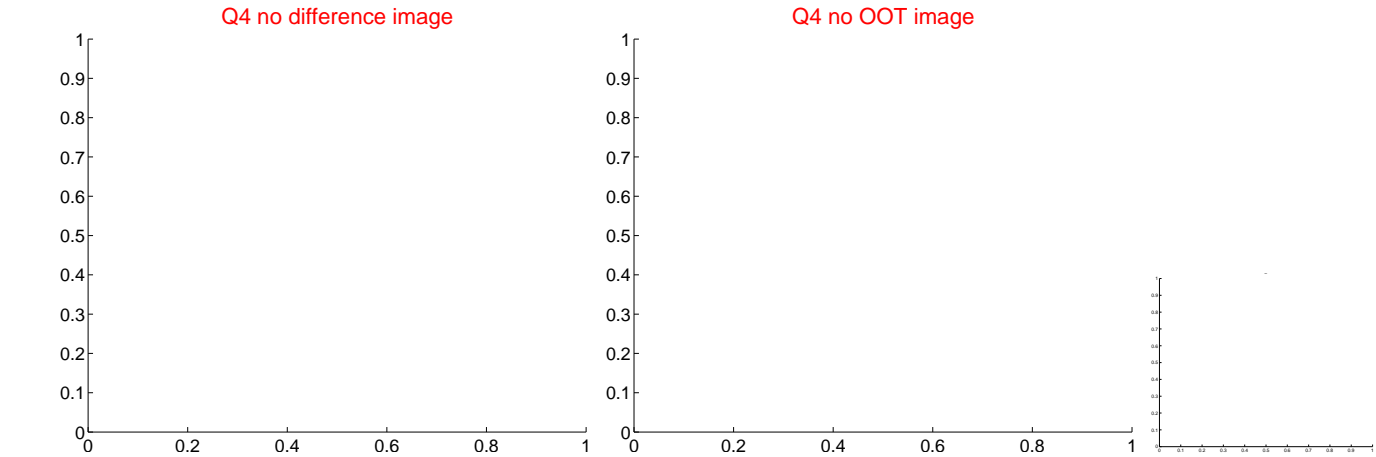
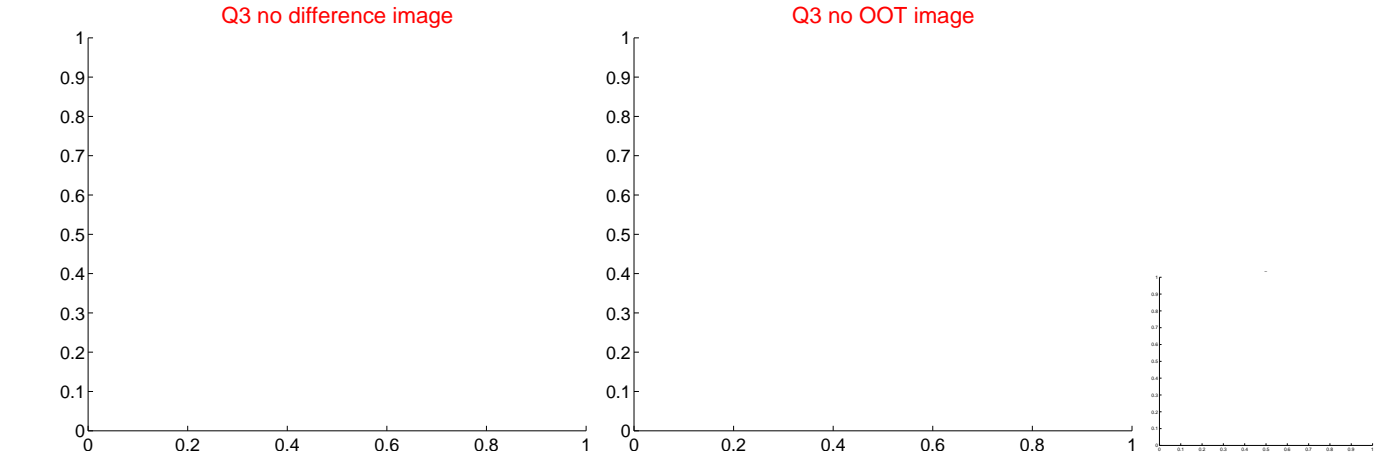
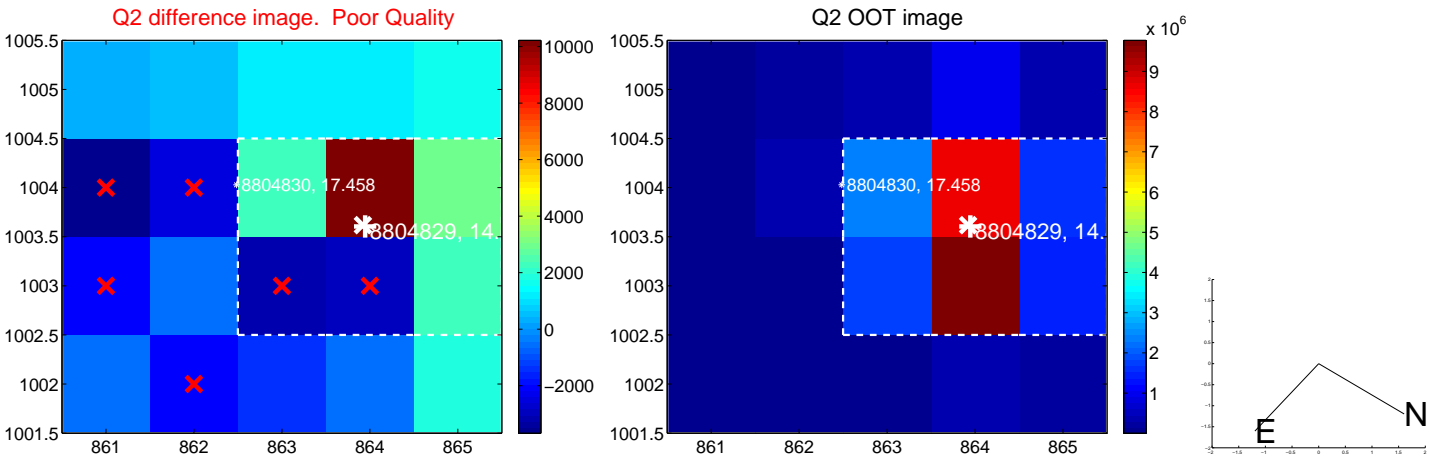
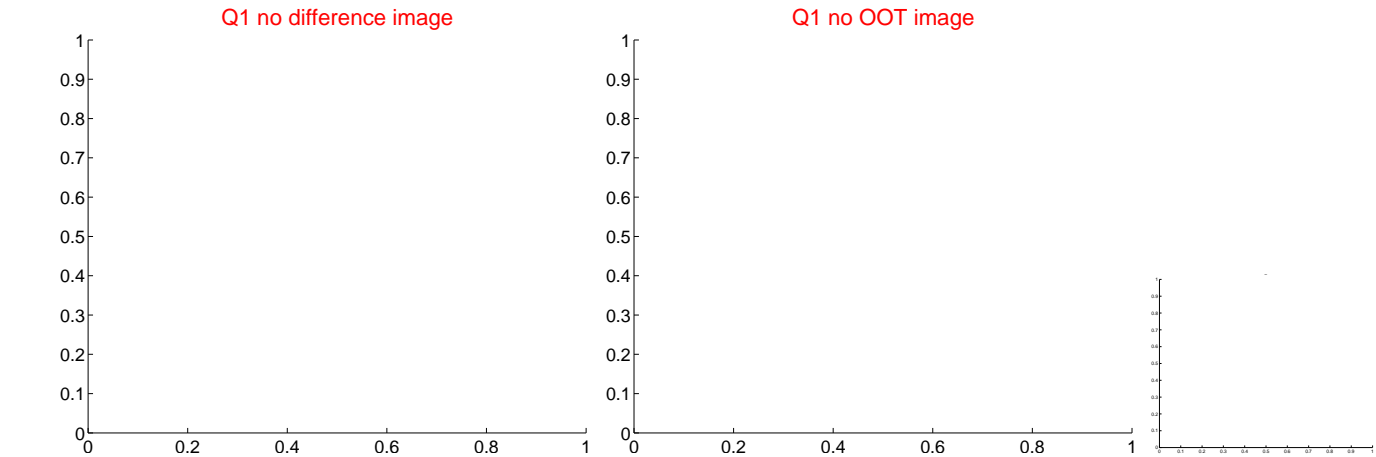
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 2.003 ± 4.152 | 0.48 | 1.966 ± 4.213 | -0.388 ± 2.041 |
| PRF-fit source offset from KIC position | 2.037 ± 4.194 | 0.49 | 2.018 ± 4.225 | -0.283 ± 2.026 |
| photometric centroid source offset | 3.41 ± 2.09 | 1.63 | -3.38 ± 2.09 | -0.40 ± 1.90 |



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.



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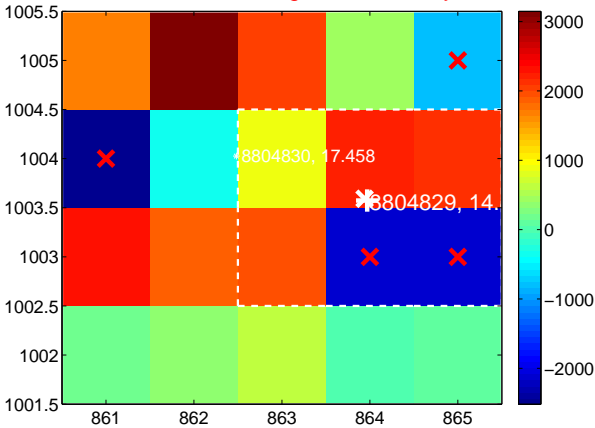
Q5 no difference image



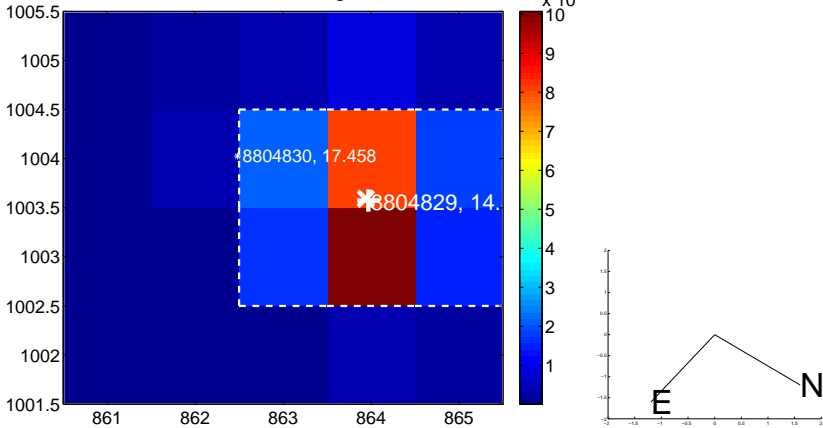
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



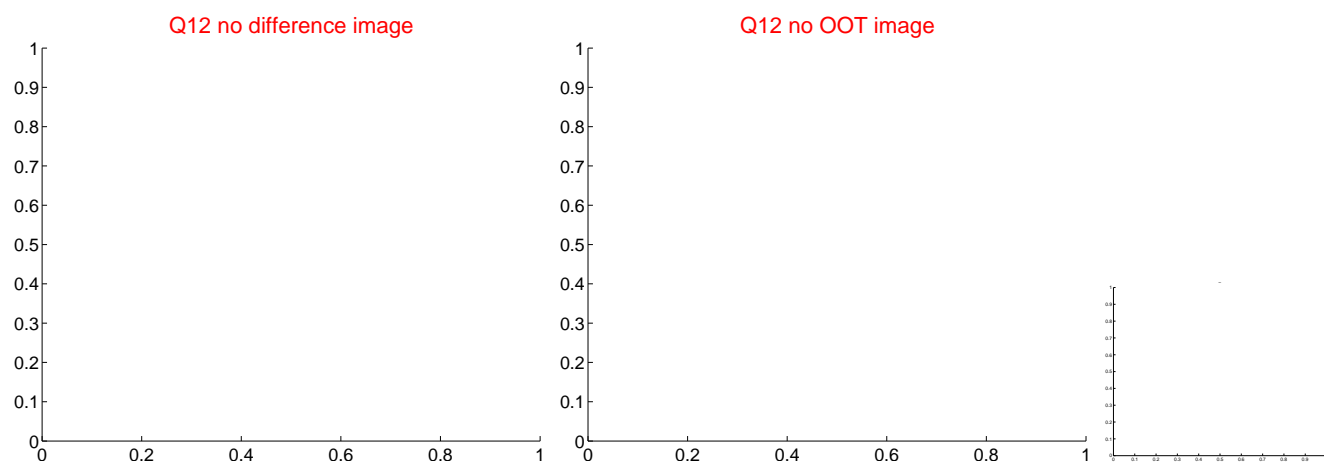
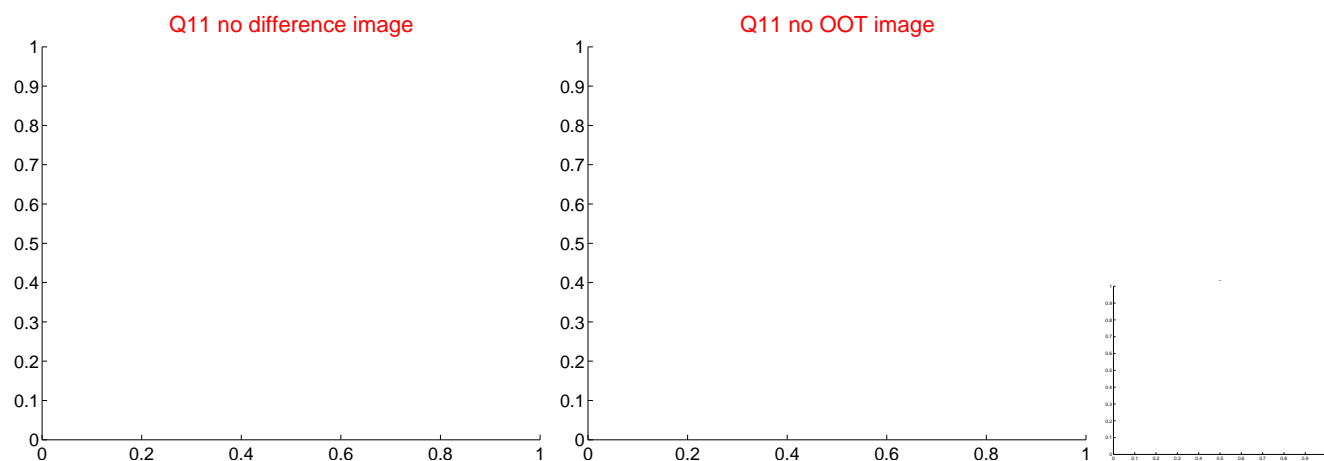
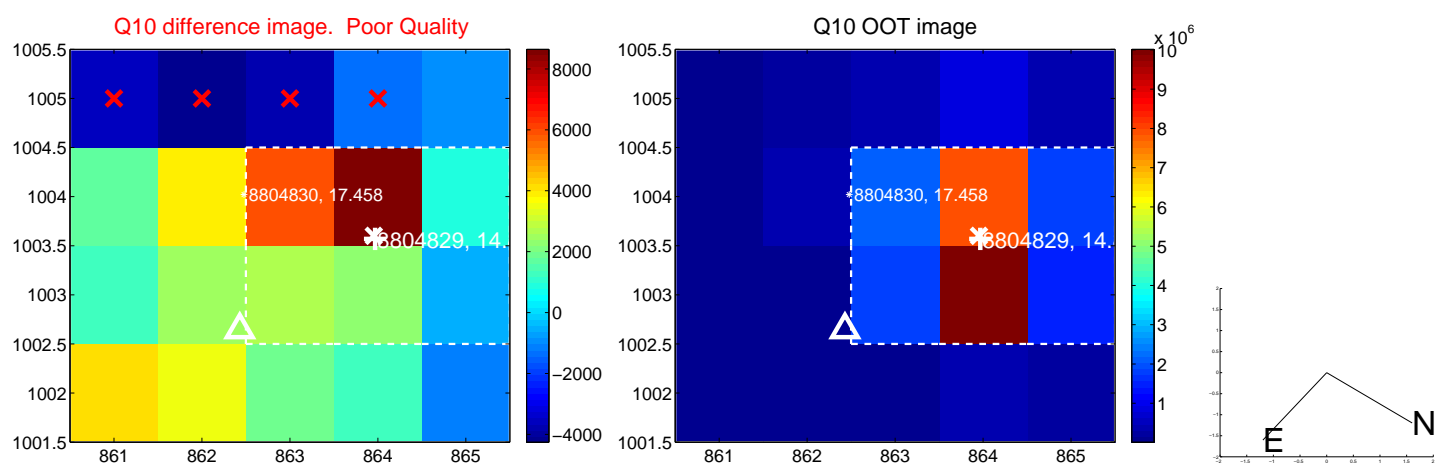
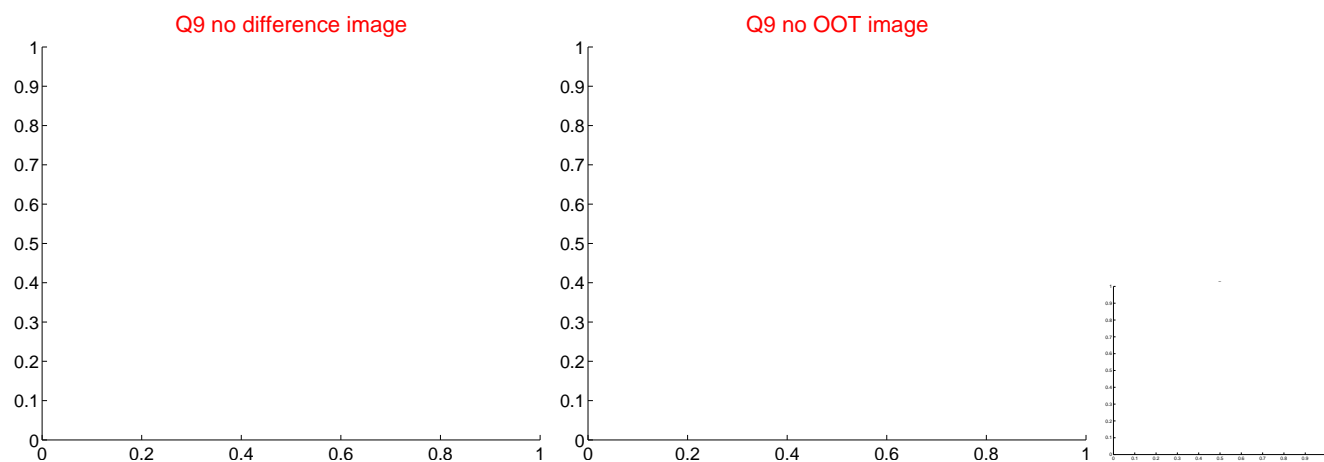
Q8 no difference image



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.

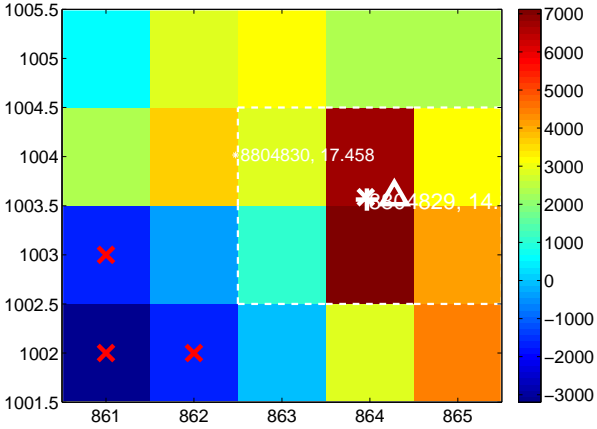
Q13 no difference image



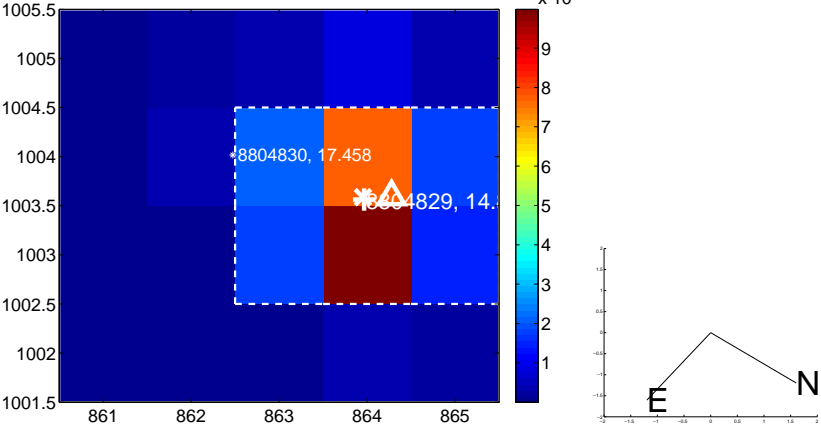
Q13 no OOT image



Q14 difference image



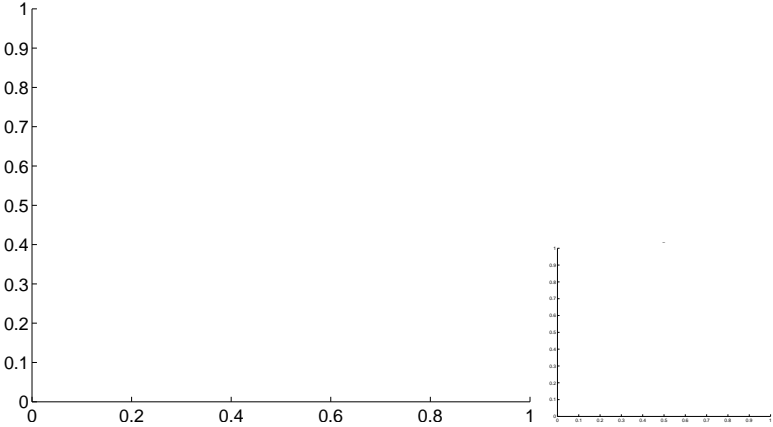
Q14 OOT image



Q15 no difference image



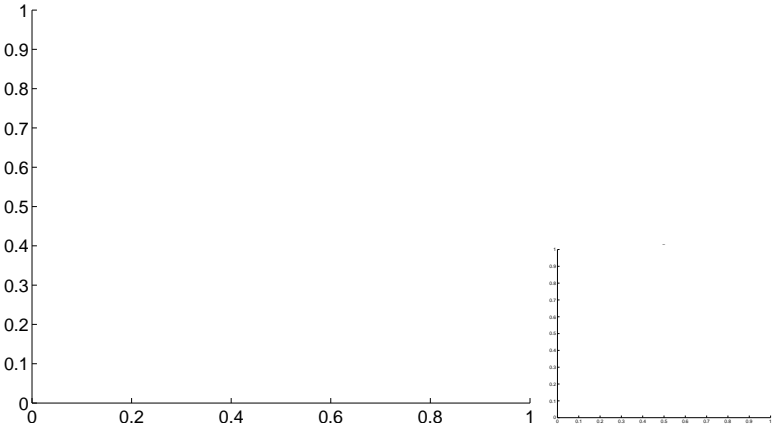
Q15 no OOT image



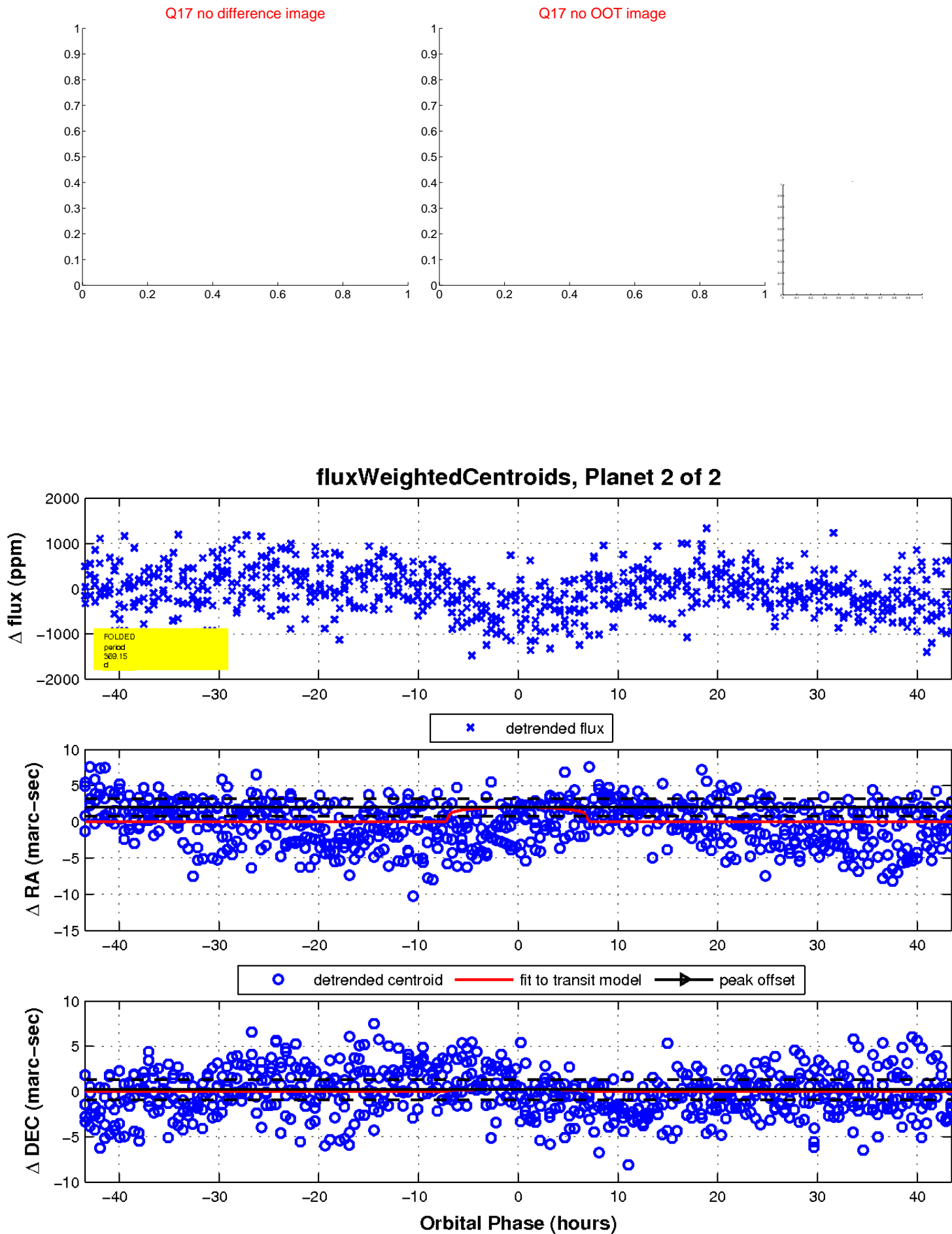
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

