

KIC 008738115

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})
008738115-01	OBS	7083.01	37.594037	168.579114	29711.2	8.811	742.5	631.3	0.92	5941	27.30	22.24
008738115-02	OBS	No	37.594029	139.289642	13444.6	2.882	239.2	221.9	0.92	5941	18.04	22.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008738115-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008738115-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

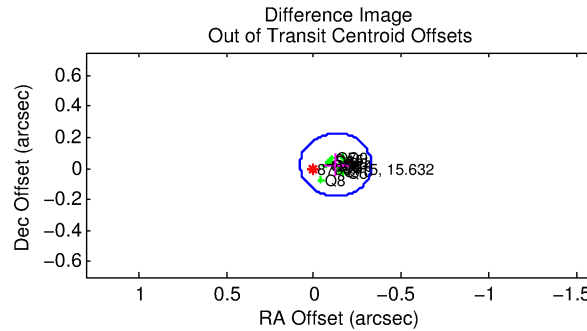
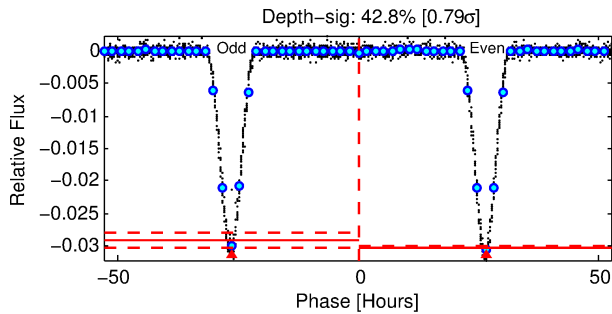
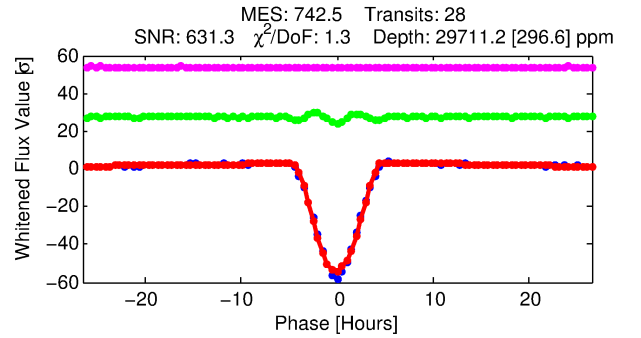
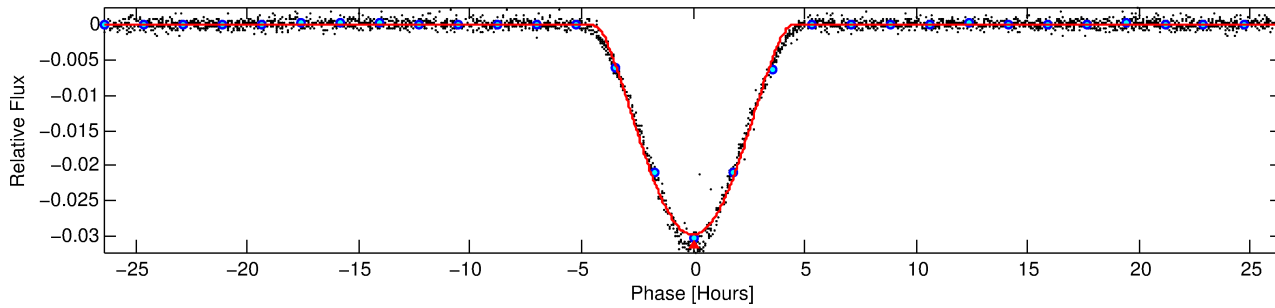
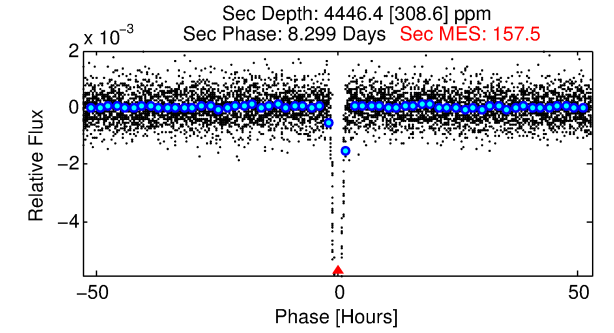
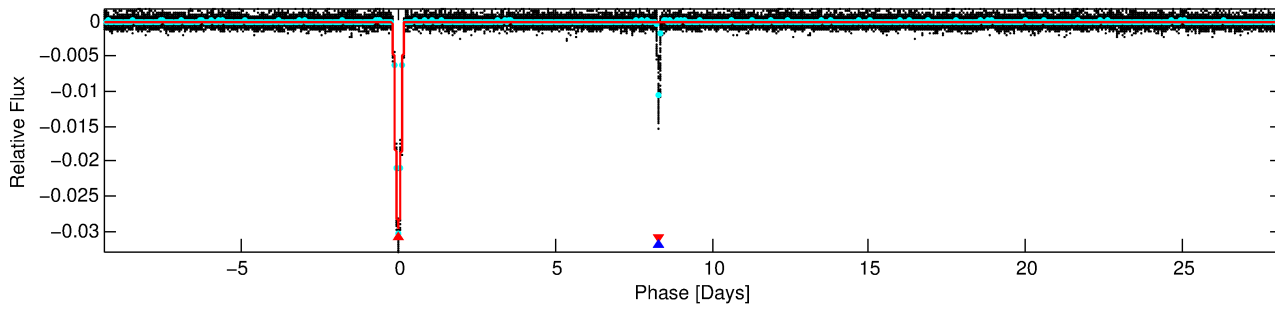
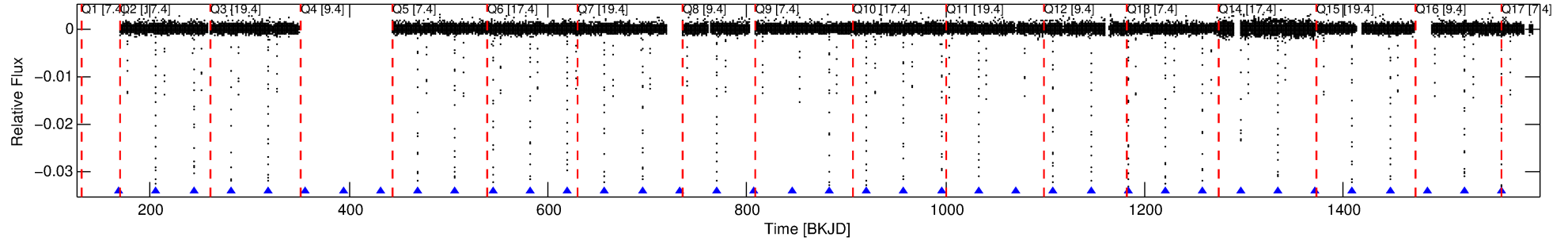
Ephemeris Match Information For 008738115-01

No Significant Match Found

DV One-Page Summary

KIC: 8738115 Candidate: 1 of 2 Period: 37.594 d
KOI: K07083.01 Corr: 1.000

Kp: 15.63 R*: 0.92 Rs Teff: 5941.0 K Logg: 4.43 Fe/H: -0.600



DV Fit Results:

Period = 37.59404 [0.00002] d
Epoch = 168.5791 [0.0004] BKJD
Rp/R* = 0.2728 [0.0364]
a/R* = 25.70 [0.23]
b = 1.00 [0.05]
Seff = 22.24 [7.42]
Teq = 554 [46] K
Rp = 27.30 [7.78] Re
a = 0.2054 [0.0438] AU
Ag = 138.57 [57.64] [2.39σ]
Teff = 2937 [220] K [10.58σ]

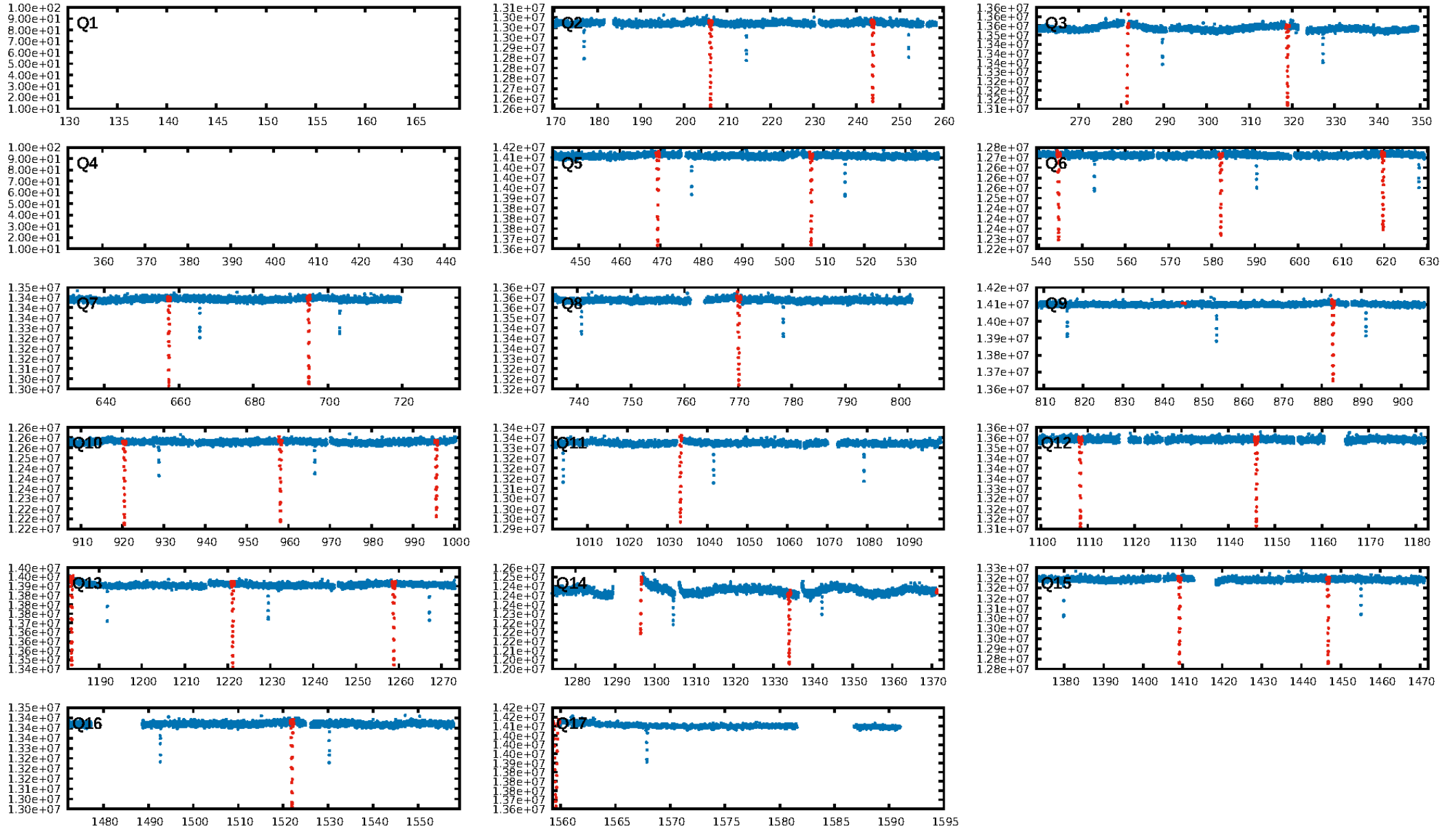
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [27/27]
GhostDiagnostic-chr: 4.111
Centroid-sig: 0.0%
Centroid-so: 0.349 arcsec [21.63σ]
OotOffset-rm: 0.127 arcsec [1.88σ]
KicOffset-rm: 0.239 arcsec [3.33σ]
OotOffset-st: 4/3/3/3 [13]
KicOffset-st: 4/3/3/3 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

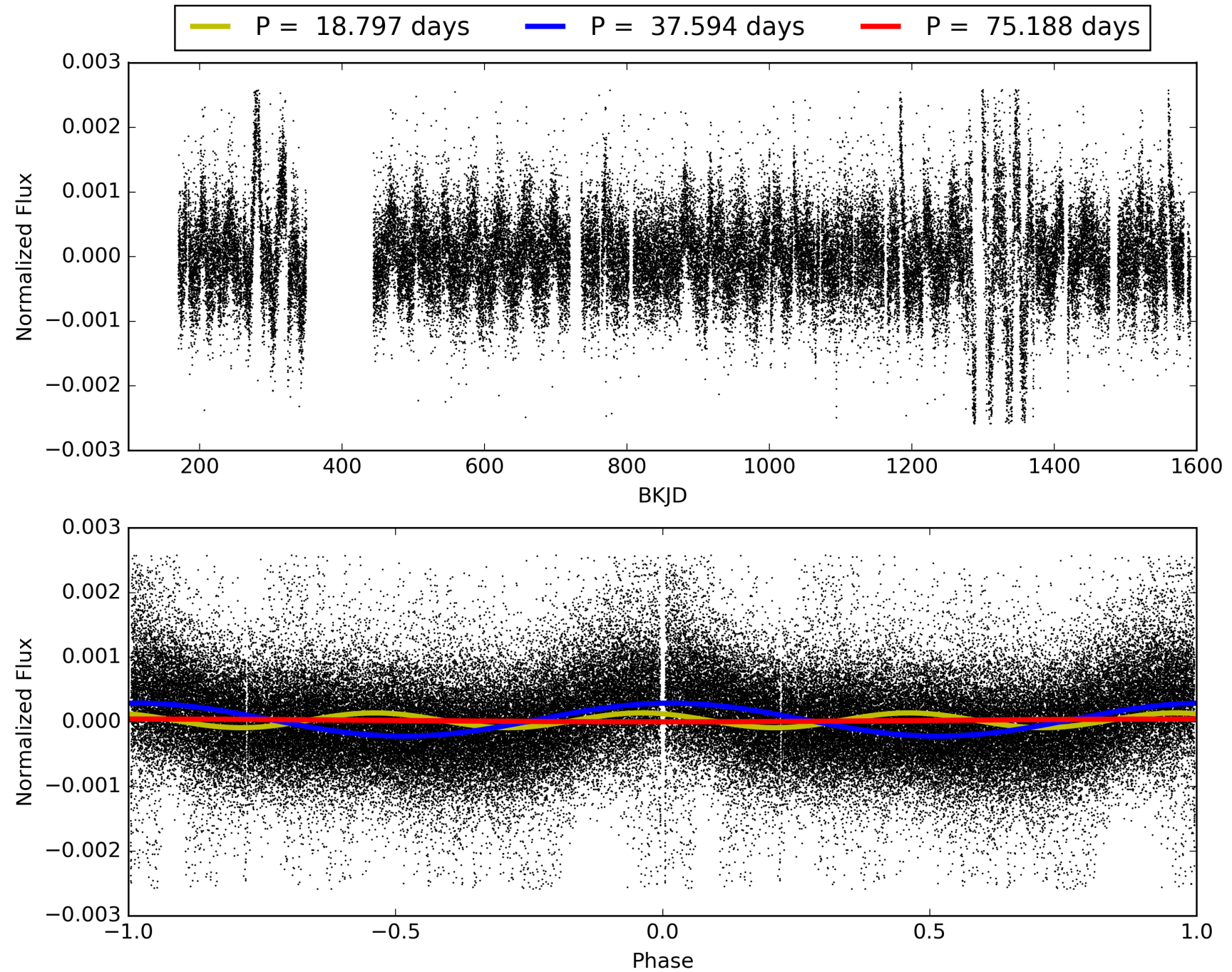
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:04:28 Z

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

TCE 008738115-01, PDC Light Curves

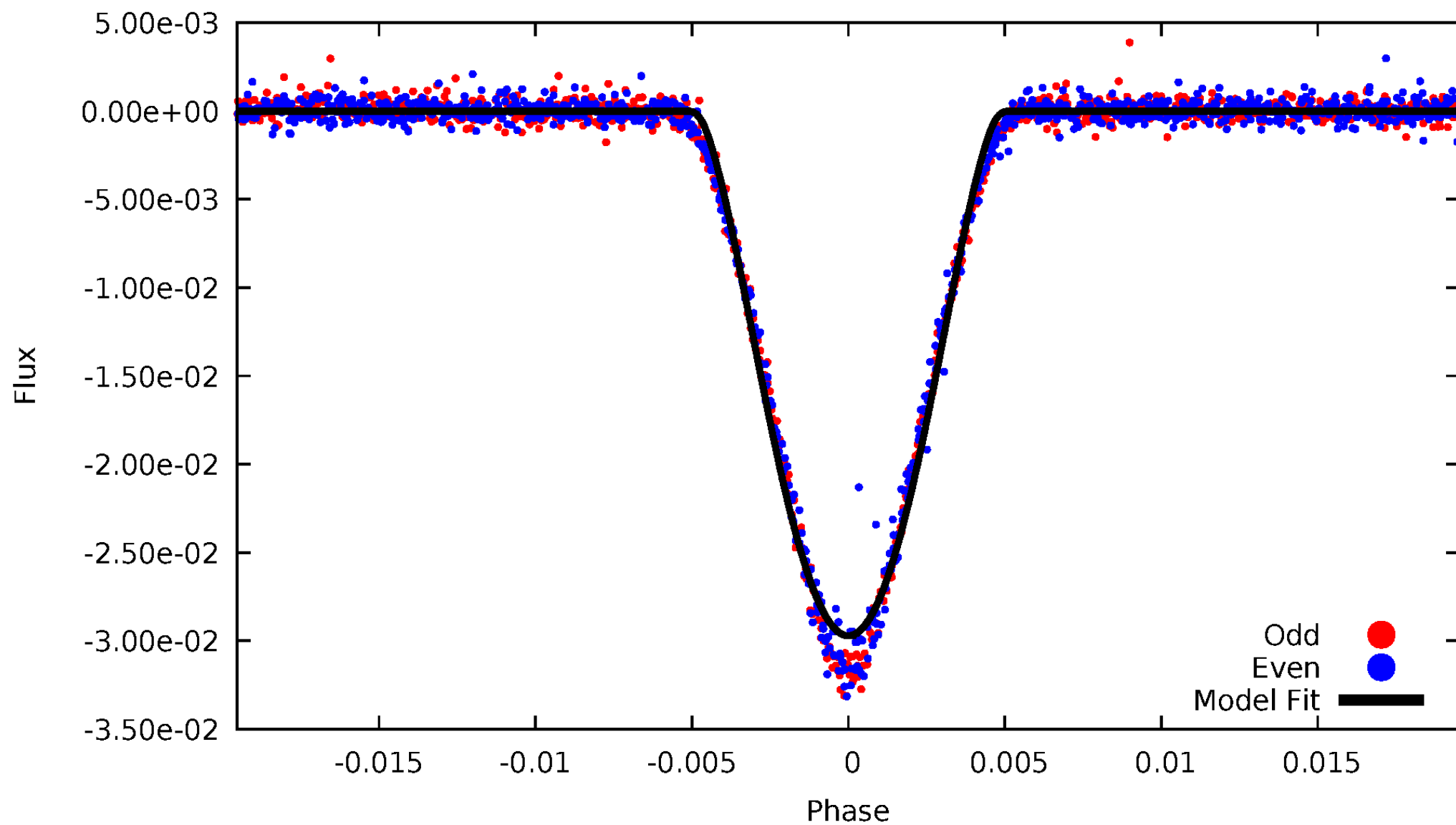


TCE 008738115-01



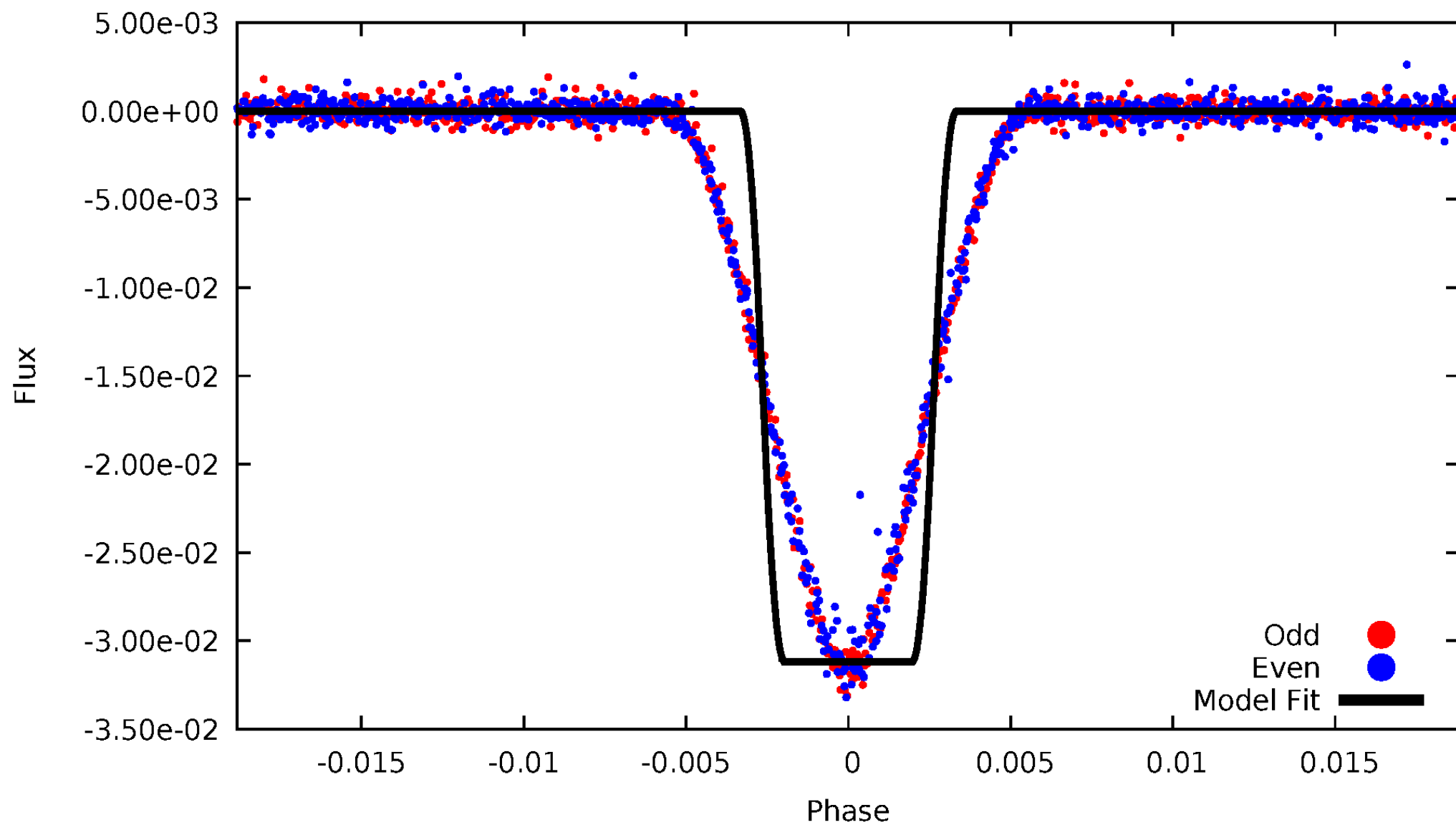
DV Odd/Even

TCE 008738115-01



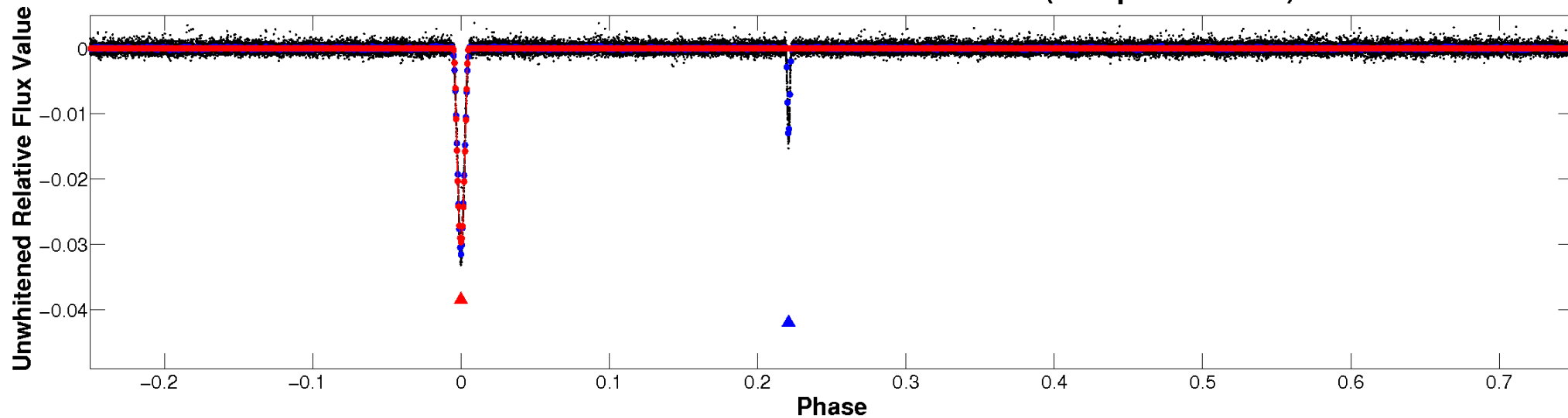
ALT Odd/Even

TCE 008738115-01

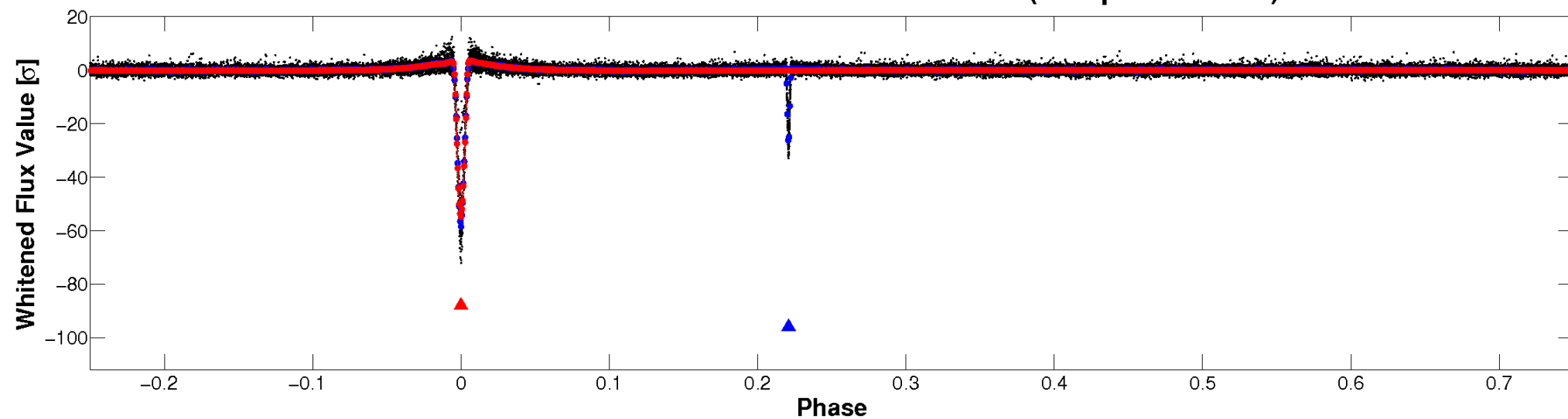


Non-Whitened Vs. Whitened Light Curve

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

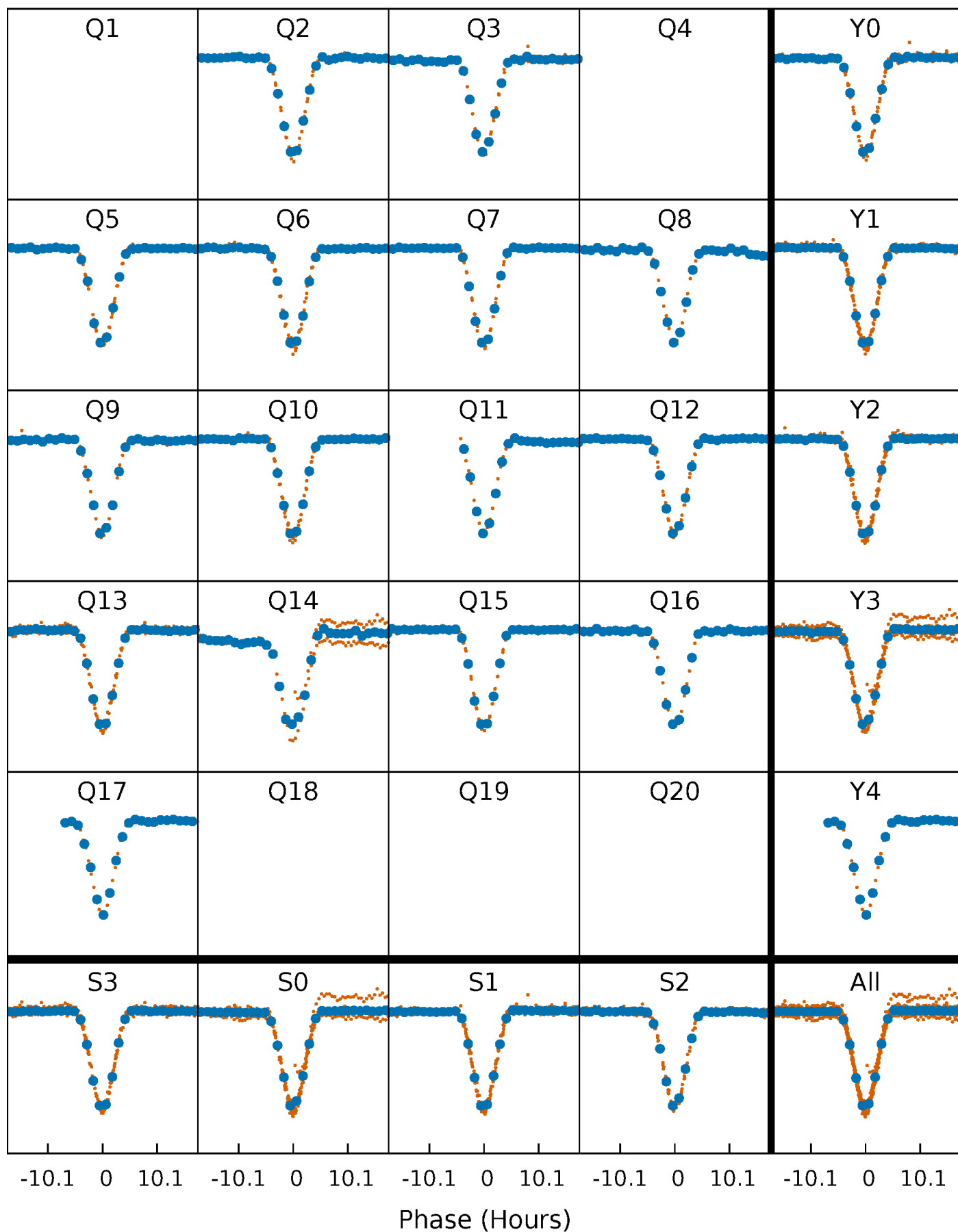


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



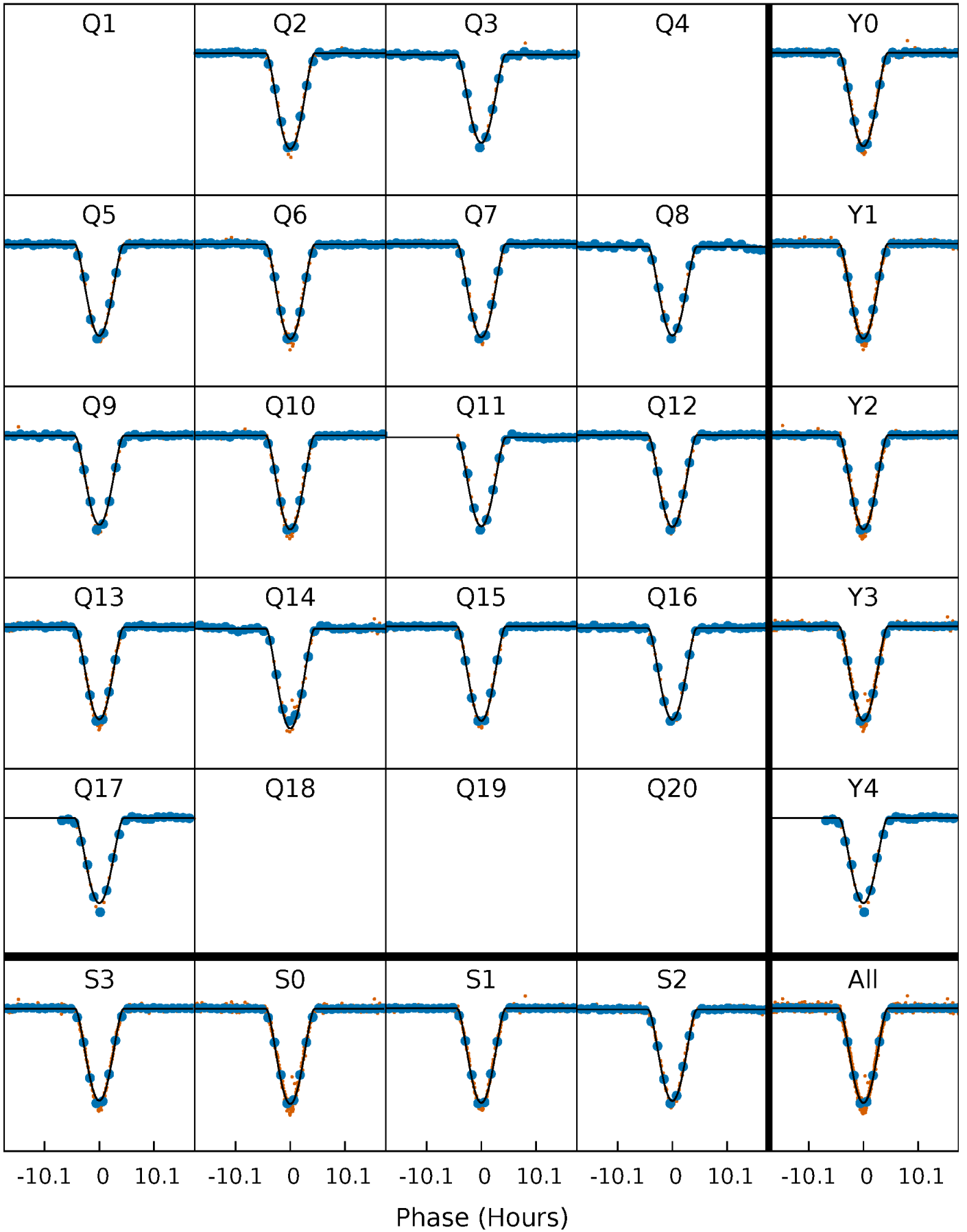
PDC Quarter-Phased Transit Curves

TCE 008738115-01 P= 37.594037 Days $T_0=168.579115$ (BKJD)



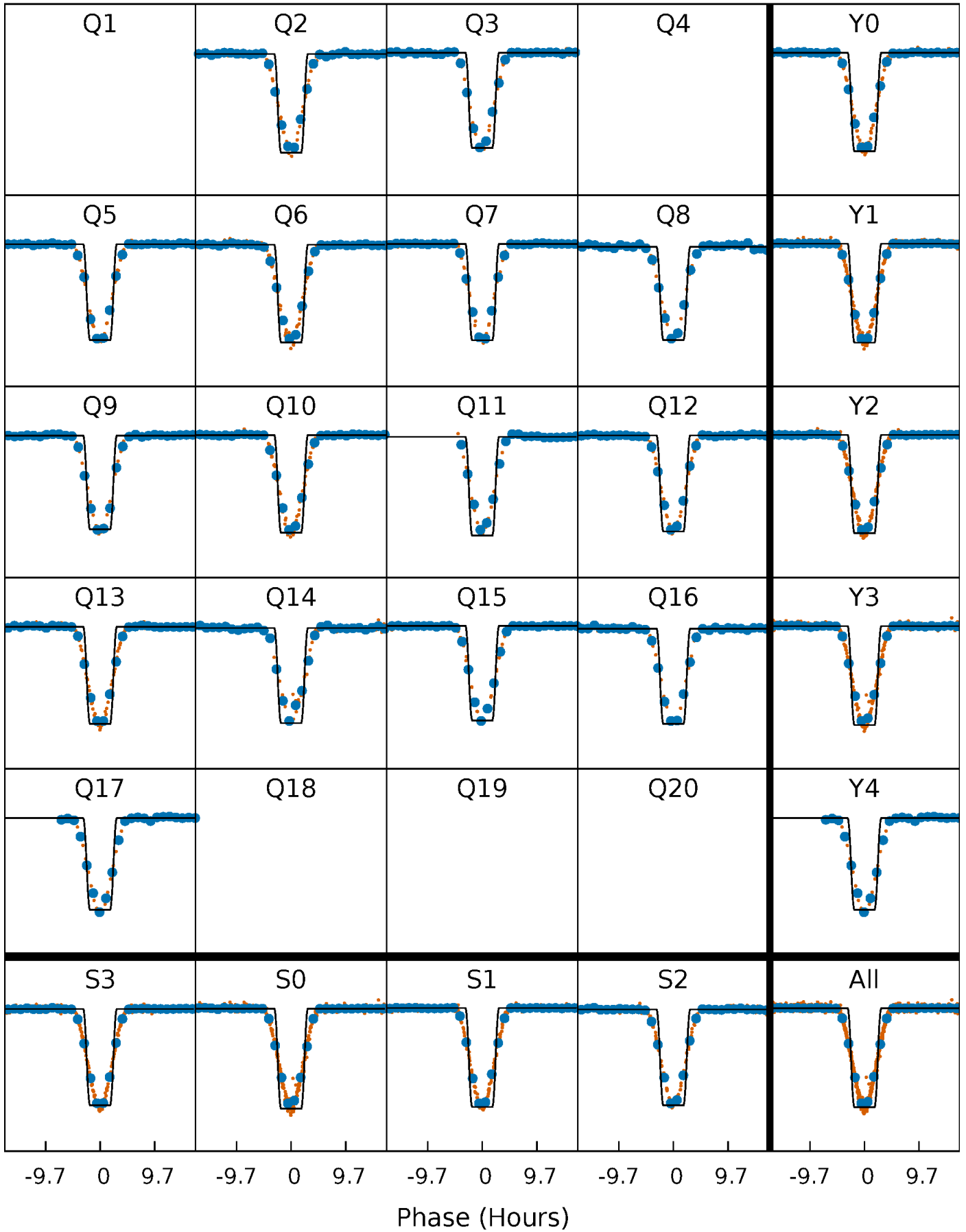
DV Quarter-Phased Transit Curves

TCE 008738115-01 P= 37.594037 Days $T_0=168.579115$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

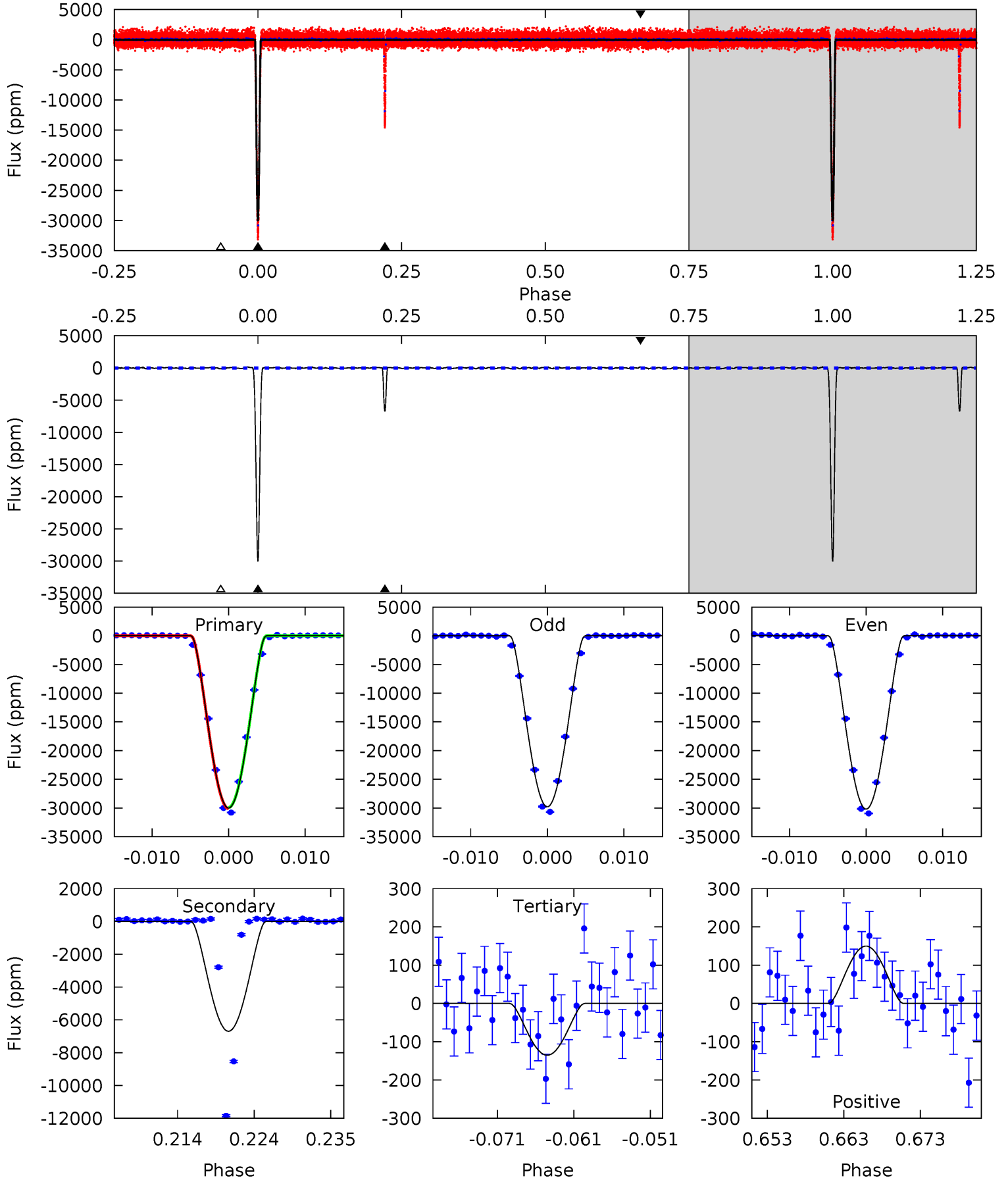
TCE 008738115-01 P= 37.593960 Days $T_0=168.580559$ (BKJD)



DV Model-Shift Uniqueness Test

008738115-01, P = 37.594037 Days, E = 168.579115 Days

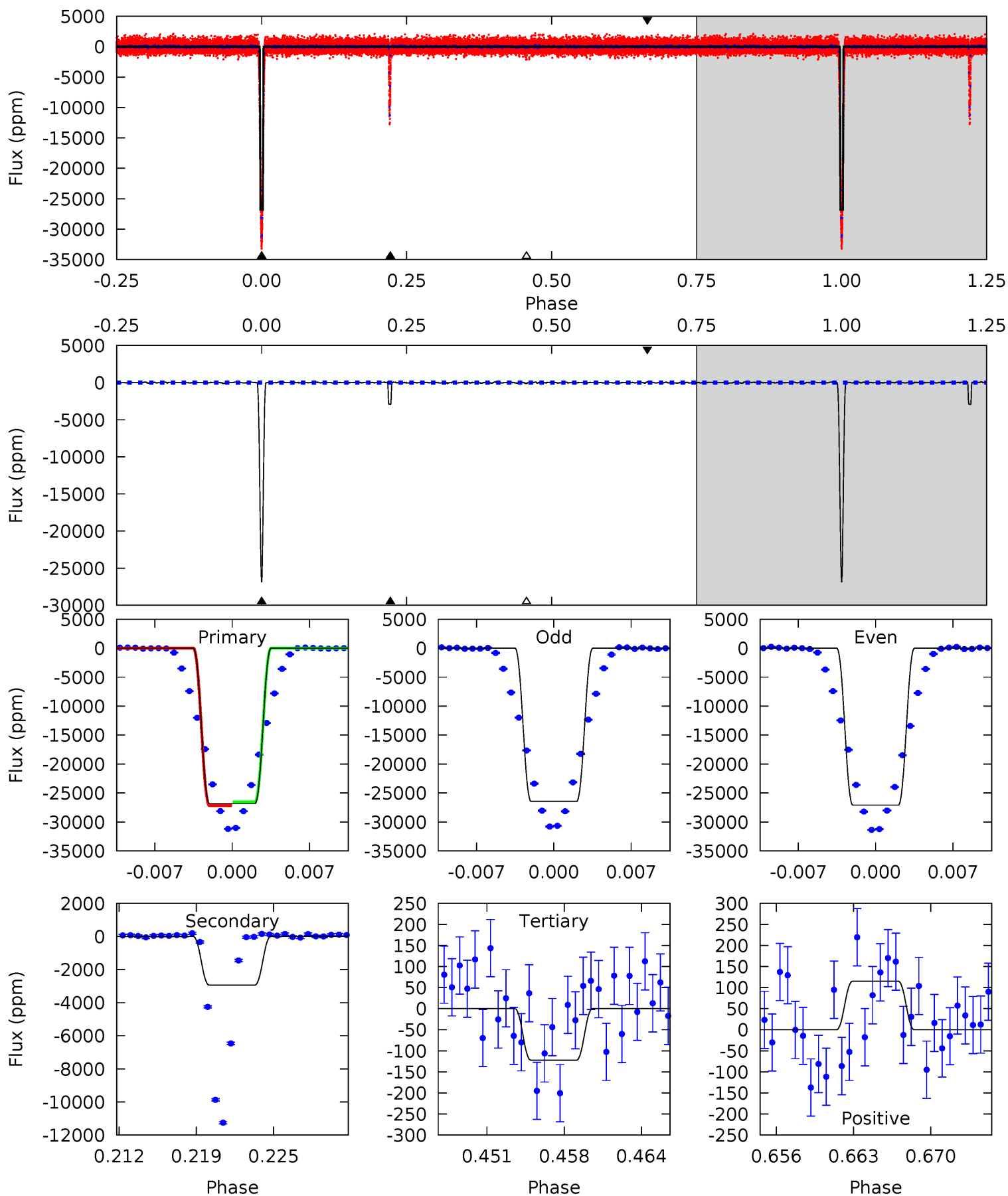
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1307	291.6	5.89	6.53	5.02	2.57	1.98	1301	1300	285.7	285.0	8.80	0.99	0.00	3.20



Alt Model-Shift Uniqueness Test

008738115-01, P = 37.593960 Days, E = 168.580559 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
935.4	102.6	4.26	4.01	5.10	2.71	1.30	931.2	931.4	98.3	98.6	11.2	0.99	0.00	9.57



Stellar Parameters For KIC 008738115

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5941^{+159}_{-177}	$4.426^{+0.124}_{-0.171}$	$-0.600^{+0.300}_{-0.300}$	$0.917^{+0.231}_{-0.142}$	$0.817^{+0.103}_{-0.063}$	$1.493^{+0.941}_{-0.665}$
	+3%/-3%	+3%/-4%	+50%/-50%	+25%/-15%	+13%/-8%	+63%/-45%
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 008738115-01 / KOI 7083.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6694 ± 23	$27.60^{+5.20}_{-4.26}$	775^{+50}_{-42}	3676^{+192}_{-176}	205^{+81}_{-57}
Alt.	-2942 ± 29	$17.86^{+4.54}_{-3.83}$	776^{+54}_{-43}	3708^{+287}_{-231}	215^{+137}_{-75}

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 $A_{obs} \gg 1.0$

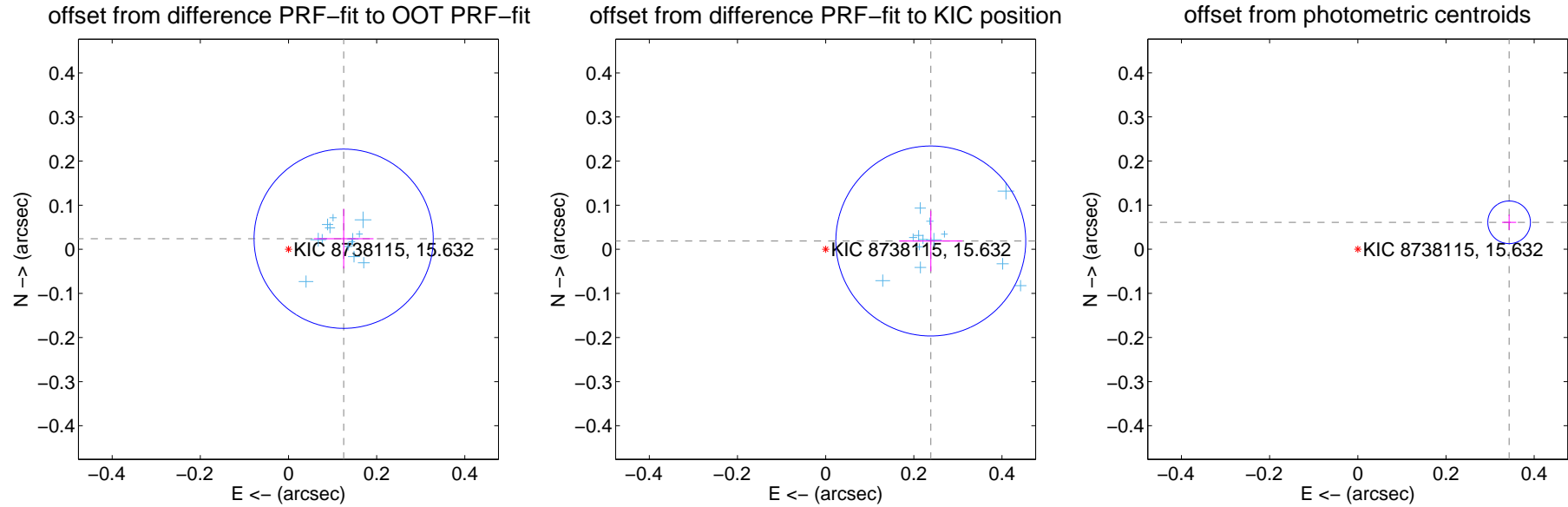
DV Centroid Data

Supplemental centroid analysis for 008738115-01. Kepler magnitude: 15.63. Transit SNR 631.32

There are 13 quarters with good PRF difference image offsets

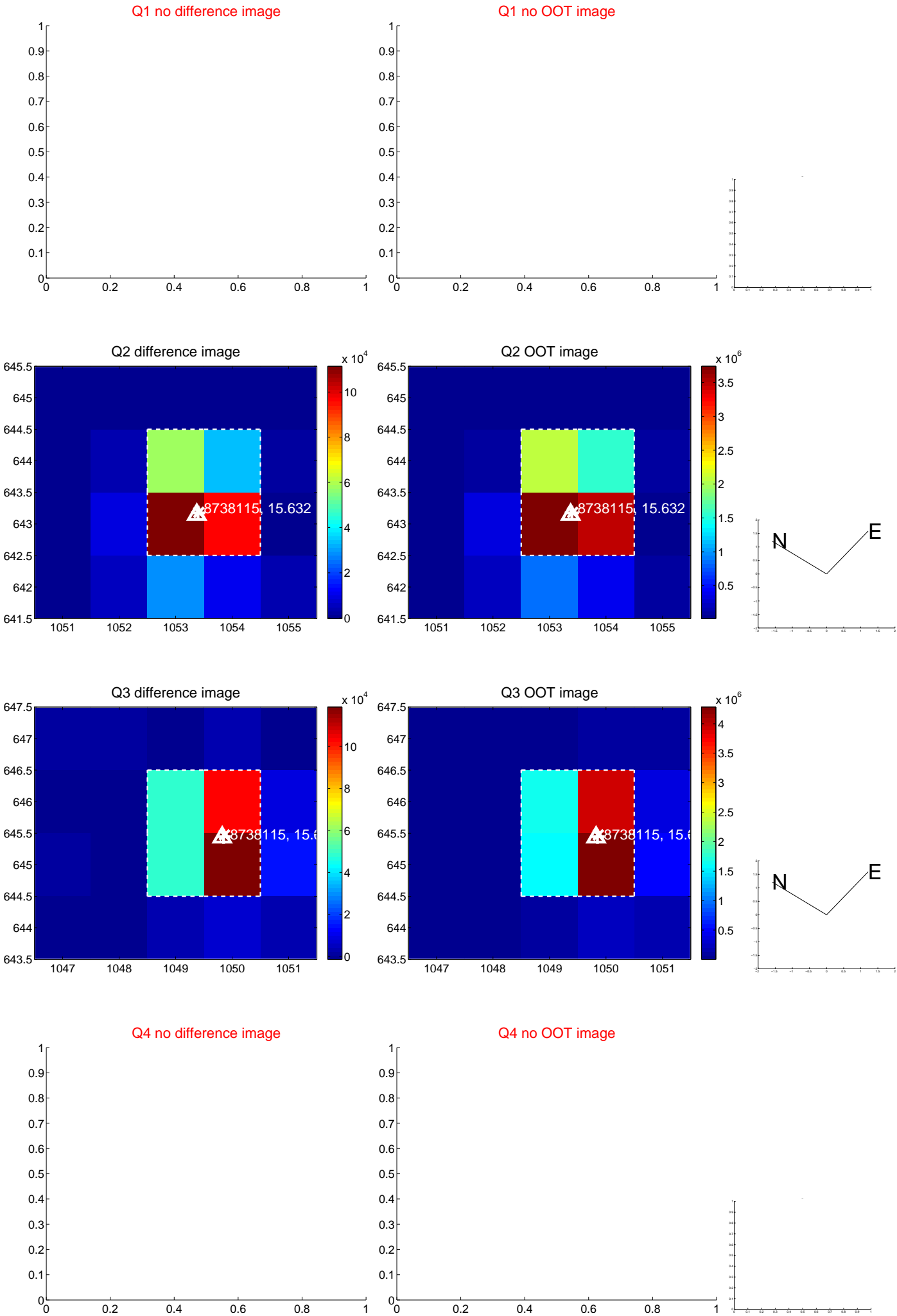
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.127 ± 0.068	1.88	-0.125 ± 0.068	0.024 ± 0.068
PRF-fit source offset from KIC position	0.239 ± 0.072	3.33	-0.238 ± 0.072	0.019 ± 0.069
photometric centroid source offset	0.35 ± 0.02	21.63	-0.34 ± 0.02	0.06 ± 0.02

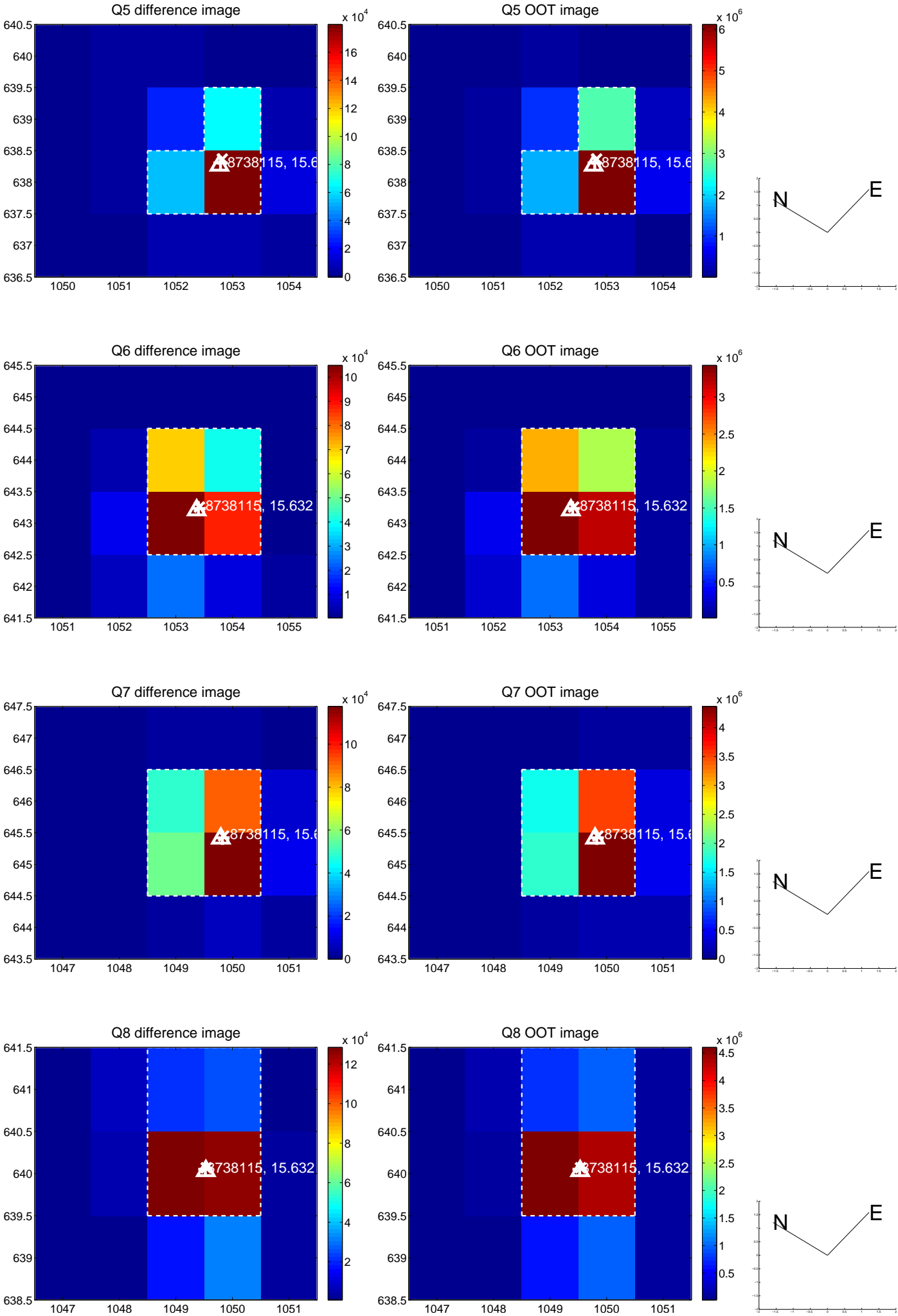


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

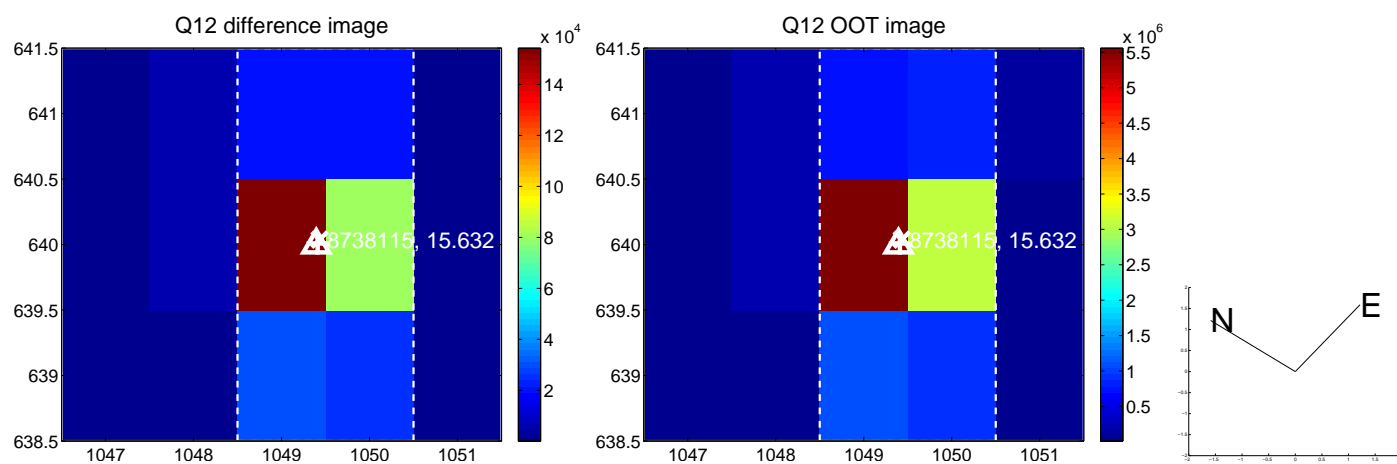
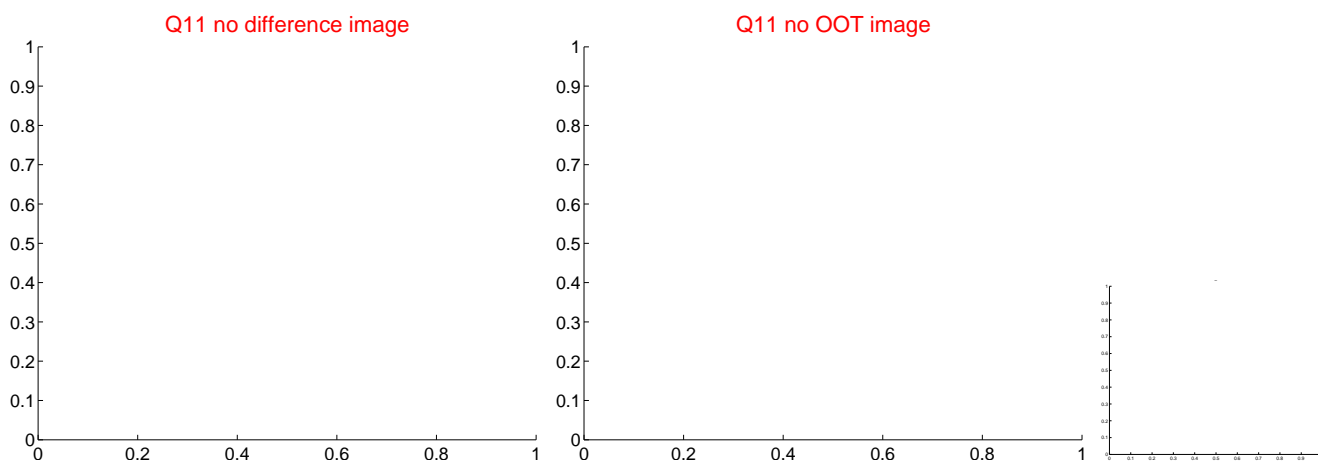
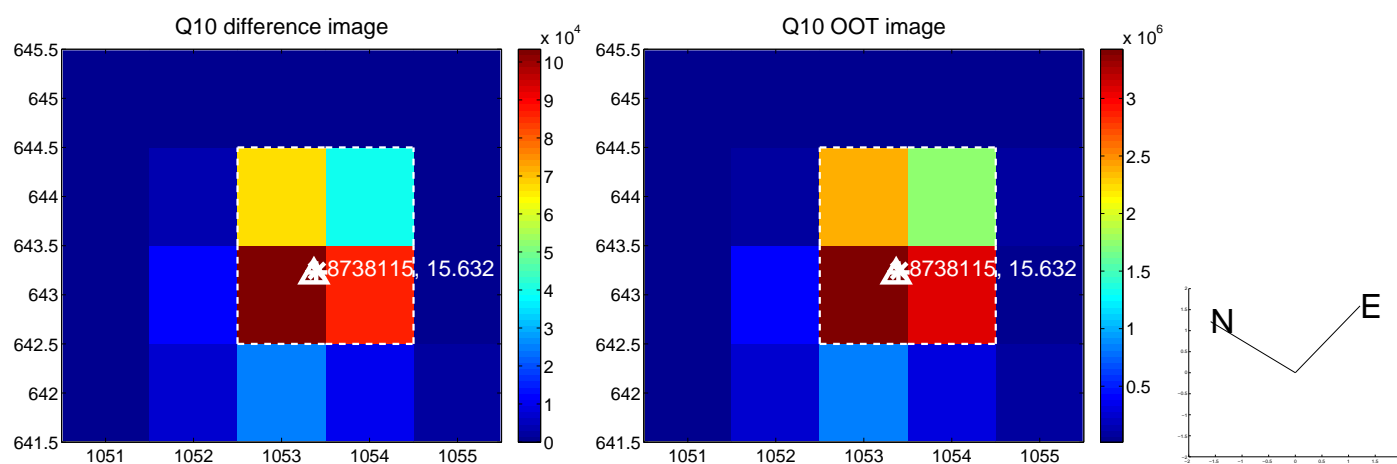
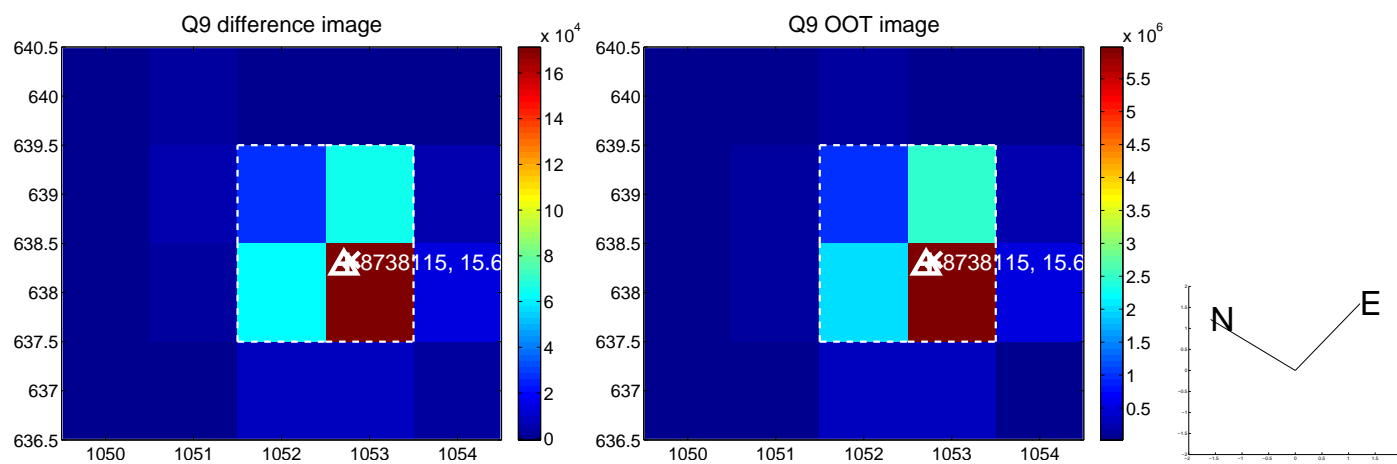
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



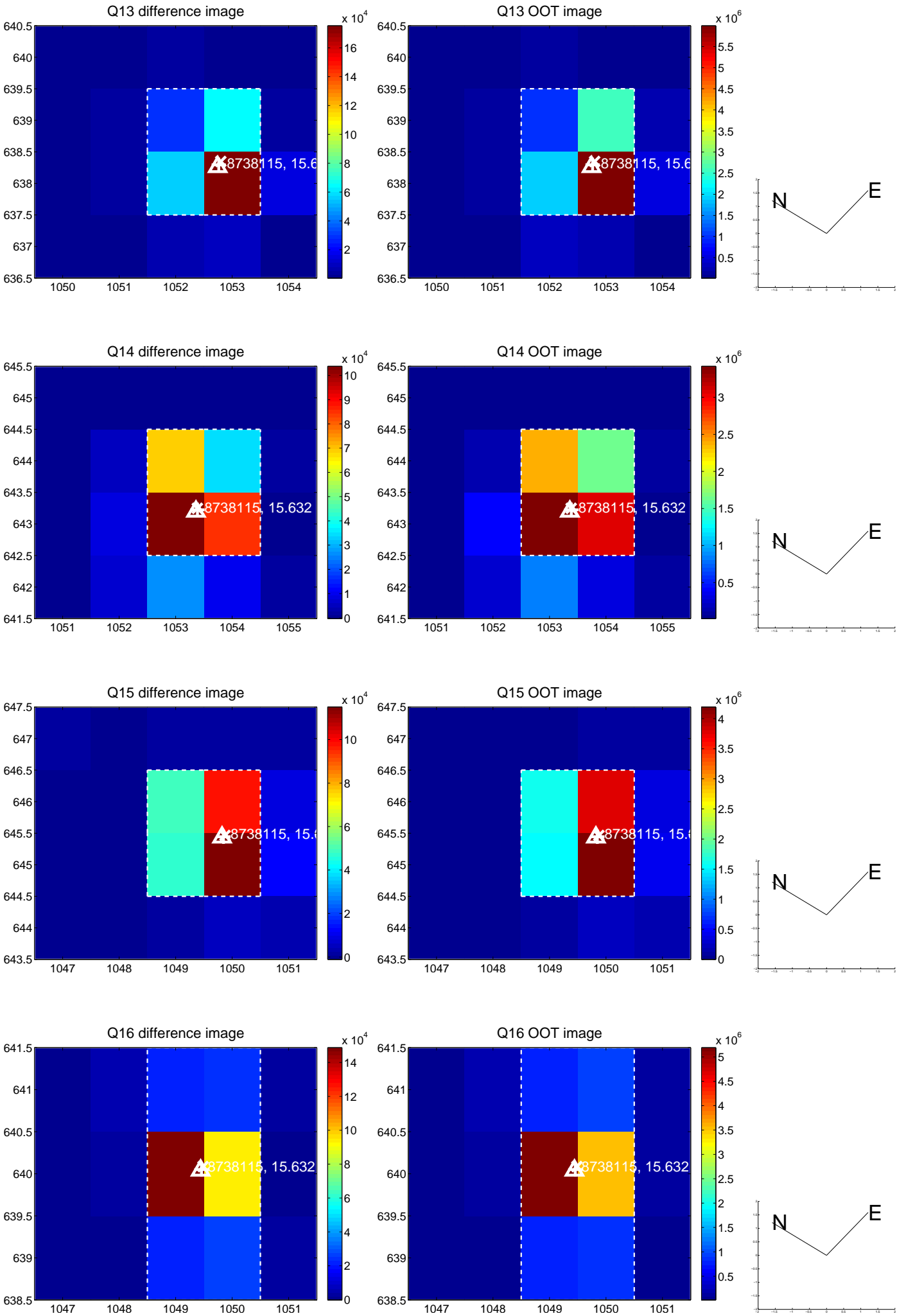
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



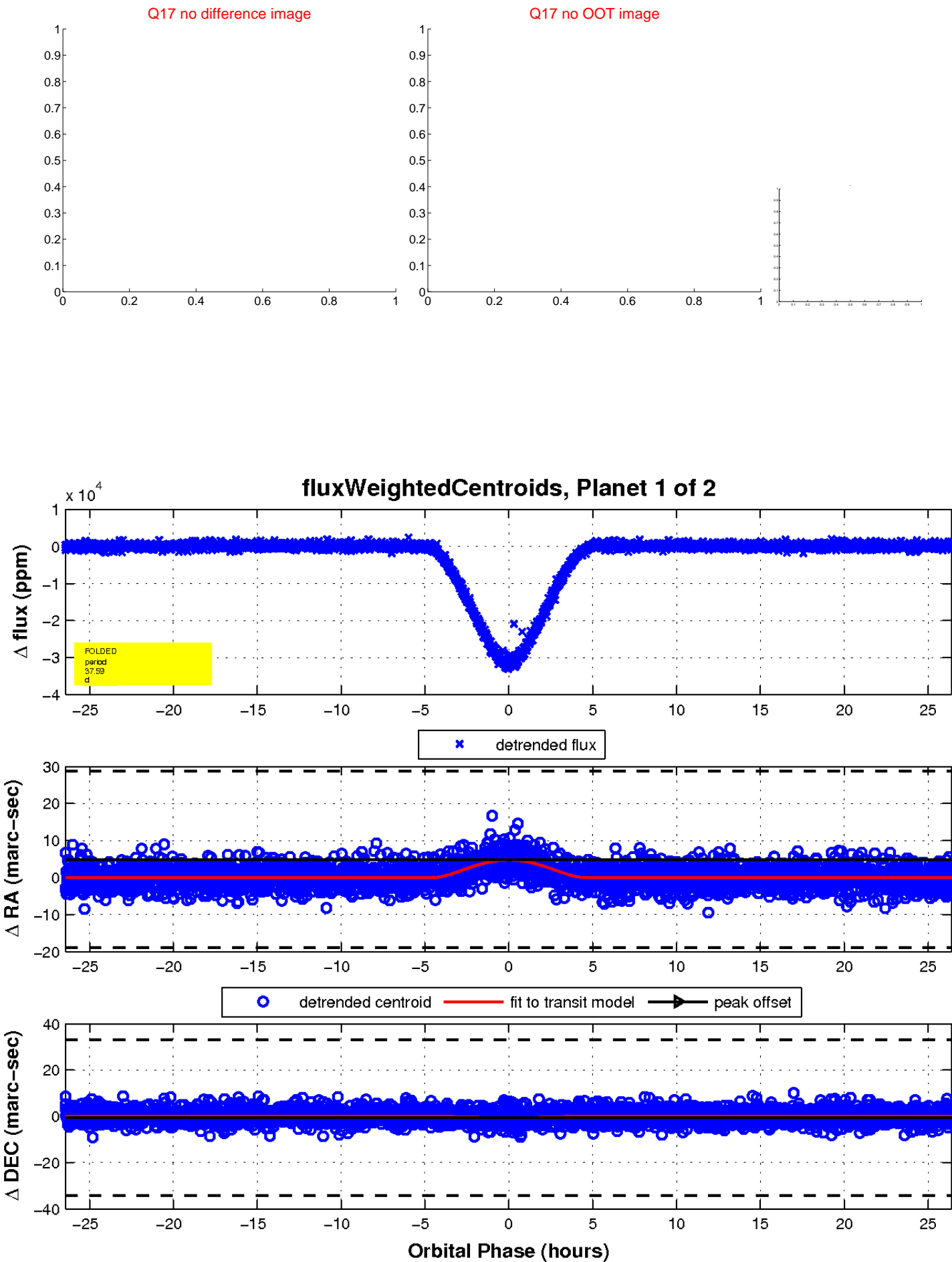
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



This figure is a false-color astronomical image, likely from the Sloan Digital Sky Survey, showing a dense field of stars. The stars appear as bright white and yellow points against a dark blue background. A grid of blue lines is overlaid on the image, representing a coordinate system. Green text labels are present: '8:57:50.0 49.0 48.0 47.0 46.0 45.0' is written horizontally across the top, and '6:20.0 30.0 40.0 50.0 44:58:00.0 10.0' is written vertically along the right side. The image is oriented with North at the top.

Declination

KIC 008738115

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})
008738115-01	OBS	7083.01	37.594037	168.579114	29711.2	8.811	742.5	631.3	0.92	5941	27.30	22.24
008738115-02	OBS	No	37.594029	139.289642	13444.6	2.882	239.2	221.9	0.92	5941	18.04	22.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008738115-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008738115-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

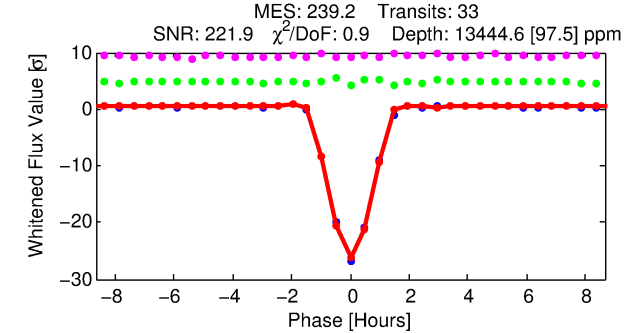
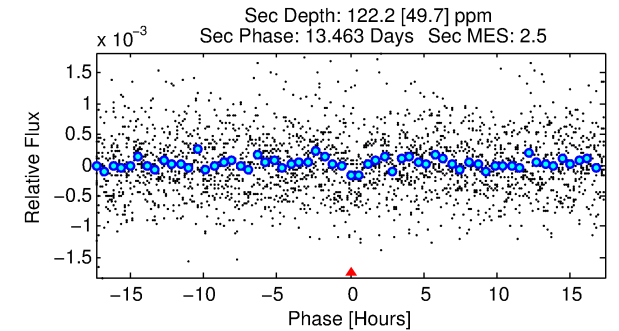
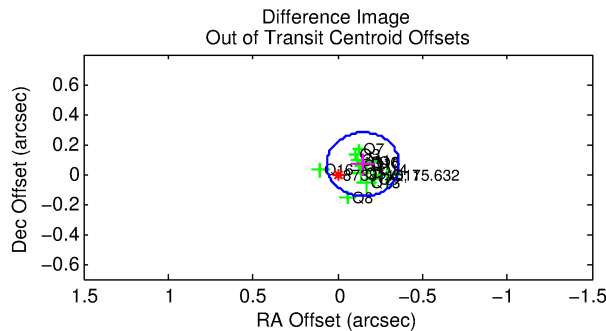
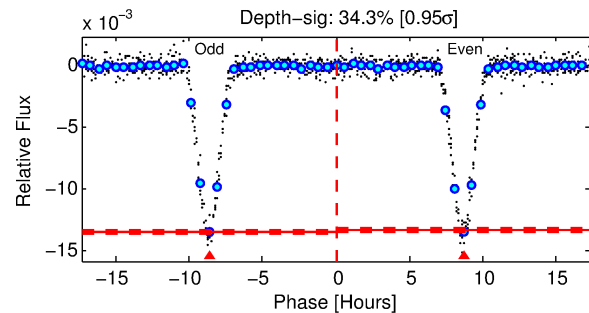
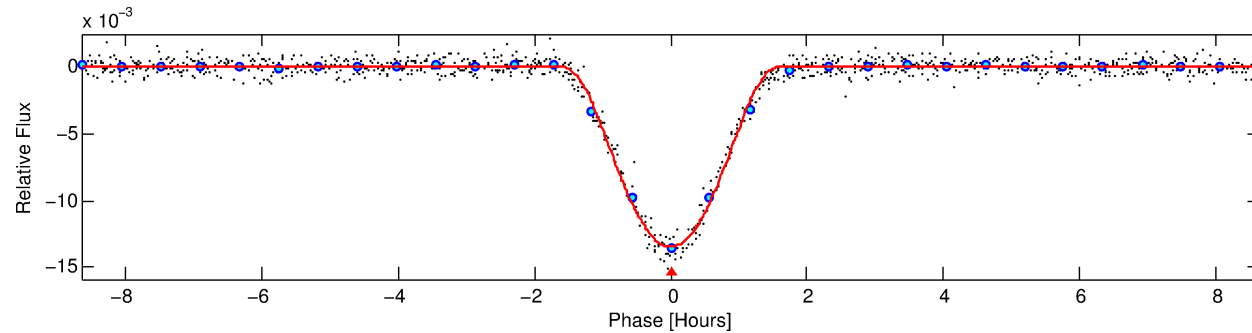
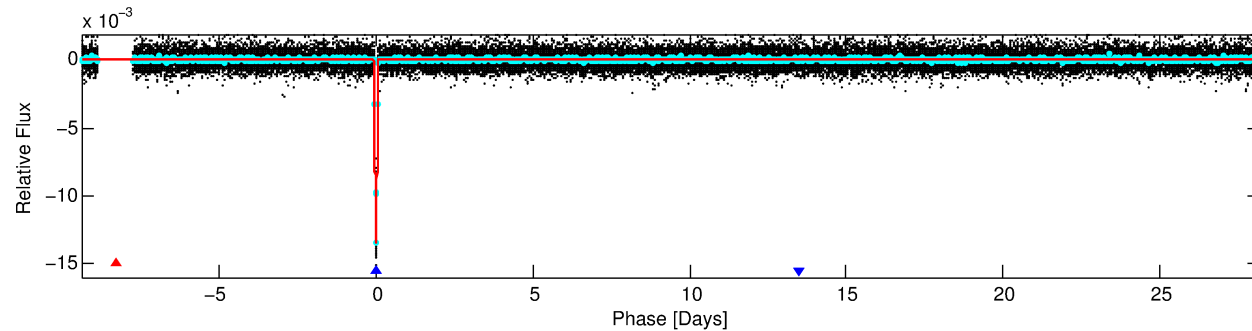
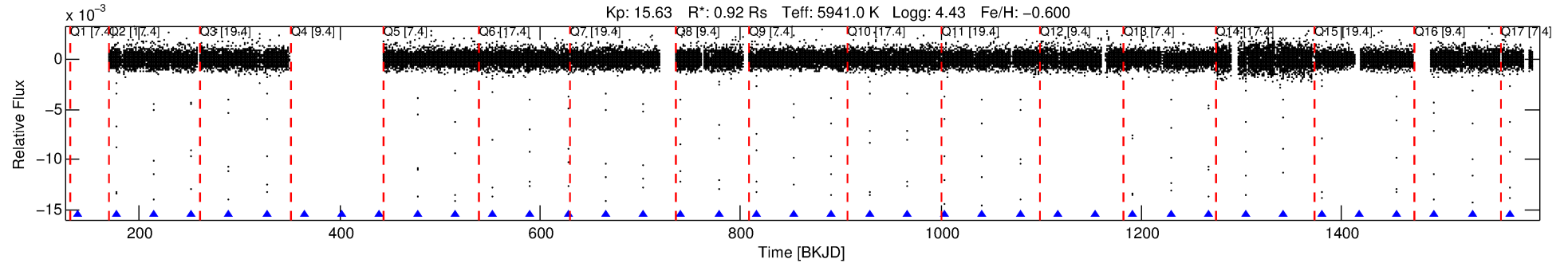
Ephemeris Match Information For 008738115-02

No Significant Match Found

DV One-Page Summary

KIC: 8738115 Candidate: 2 of 2 Period: 37.594 d

KOI: K07083 Corr: No Ephemeris Match



DV Fit Results:

Period = 37.59403 [0.00001] d
Epoch = 139.2896 [0.0003] BKJD
Rp/R* = 0.1803 [0.0478]
a/R* = 64.36 [2.52]
b = 0.99 [0.07]
Seff = 22.24 [7.42]
Teq = 554 [46] K
Rp = 18.04 [6.60] Re
a = 0.2054 [0.0438] AU
Ag = 8.71 [6.42] [1.20 σ]
Teffp = 1471 [250] K [3.61 σ]

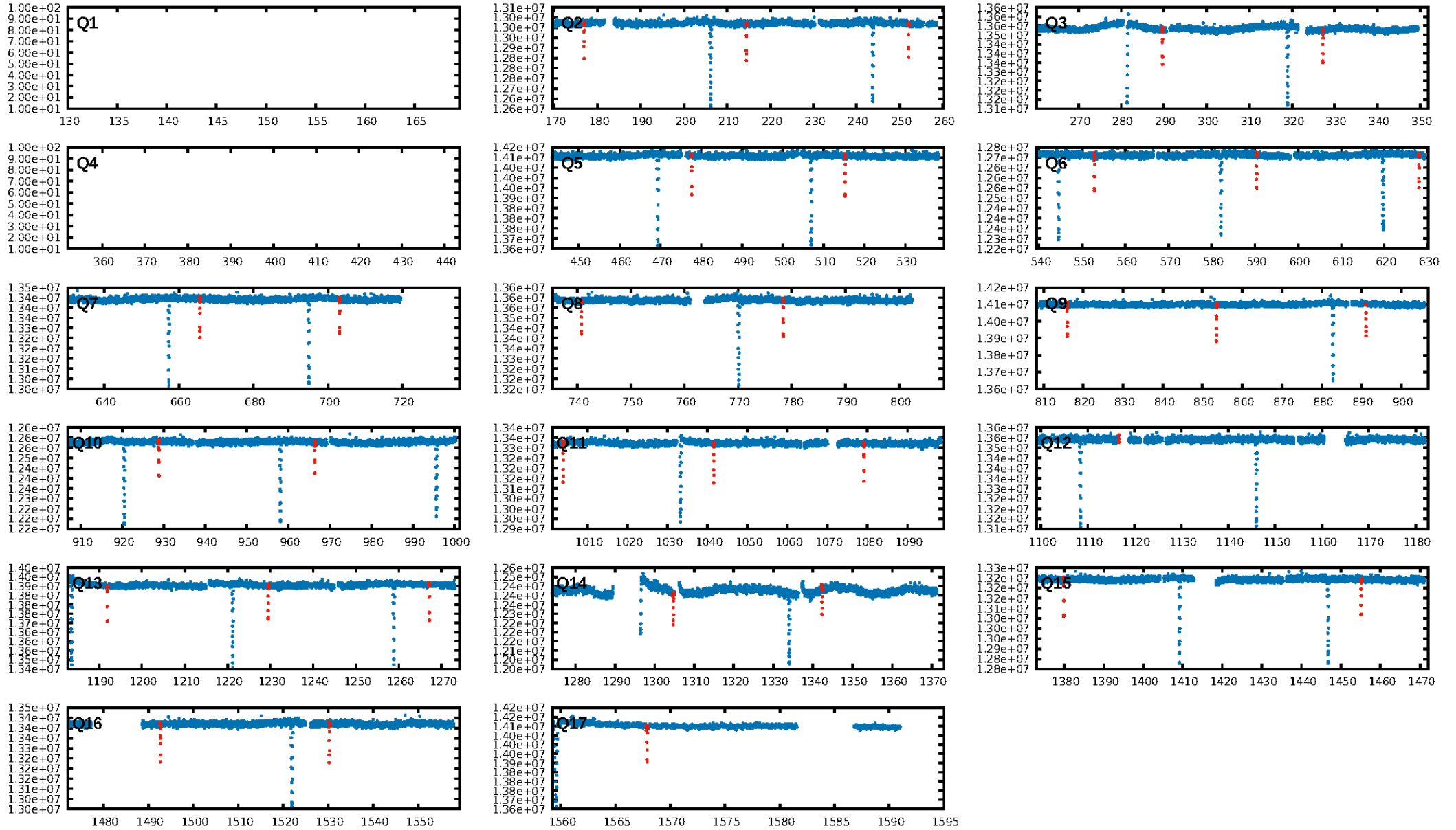
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 10.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [32/32]
GhostDiagnostic-chr: 4.611
Centroid-sig: 0.0%
Centroid-so: 0.427 arcsec [7.66 σ]
OotOffset-rm: 0.162 arcsec [2.28 σ]
KicOffset-rm: 0.274 arcsec [3.65 σ]
OotOffset-st: 4/4/2/4 [14]
KicOffset-st: 4/4/2/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

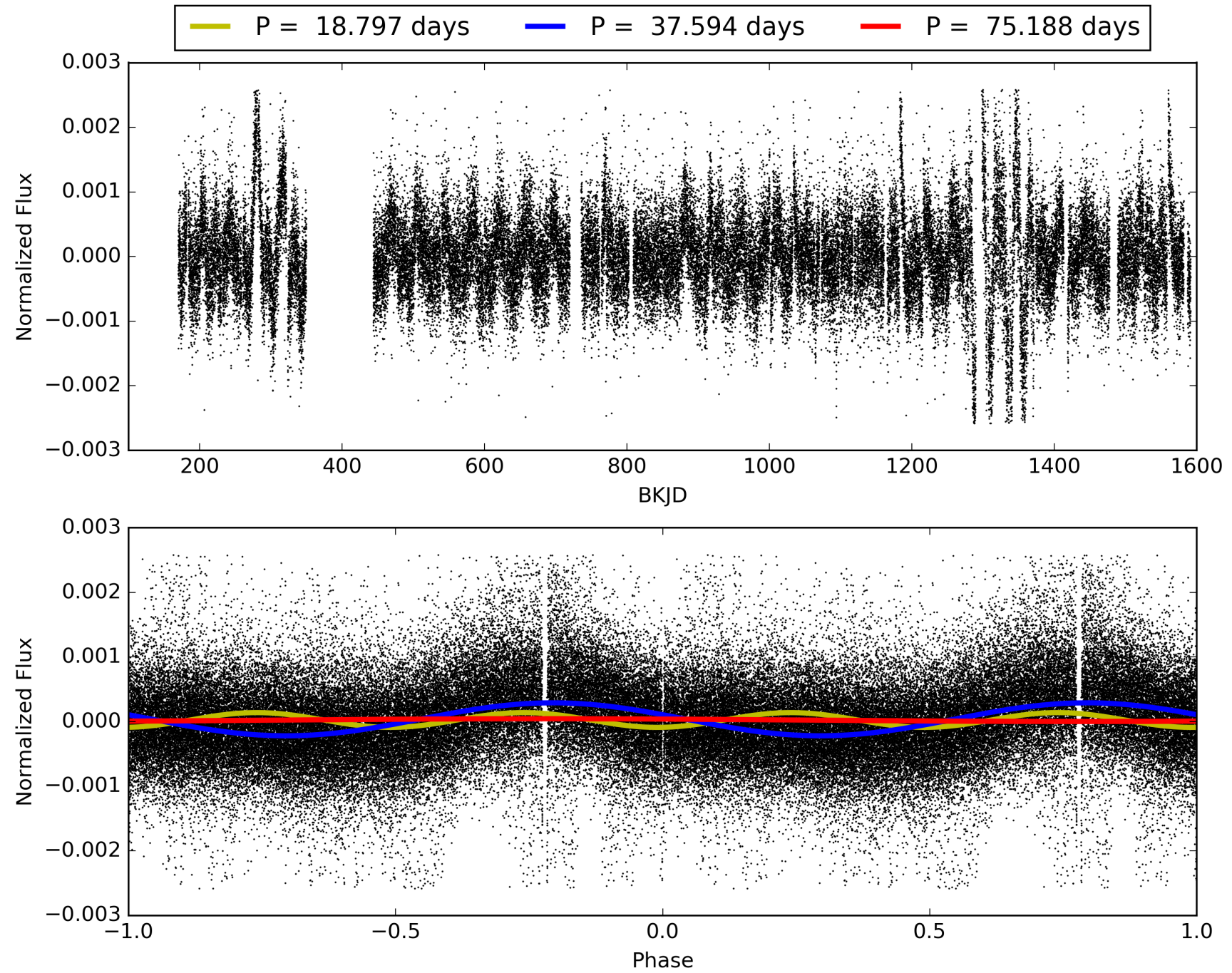
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:04:34 Z

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

TCE 008738115-02, PDC Light Curves

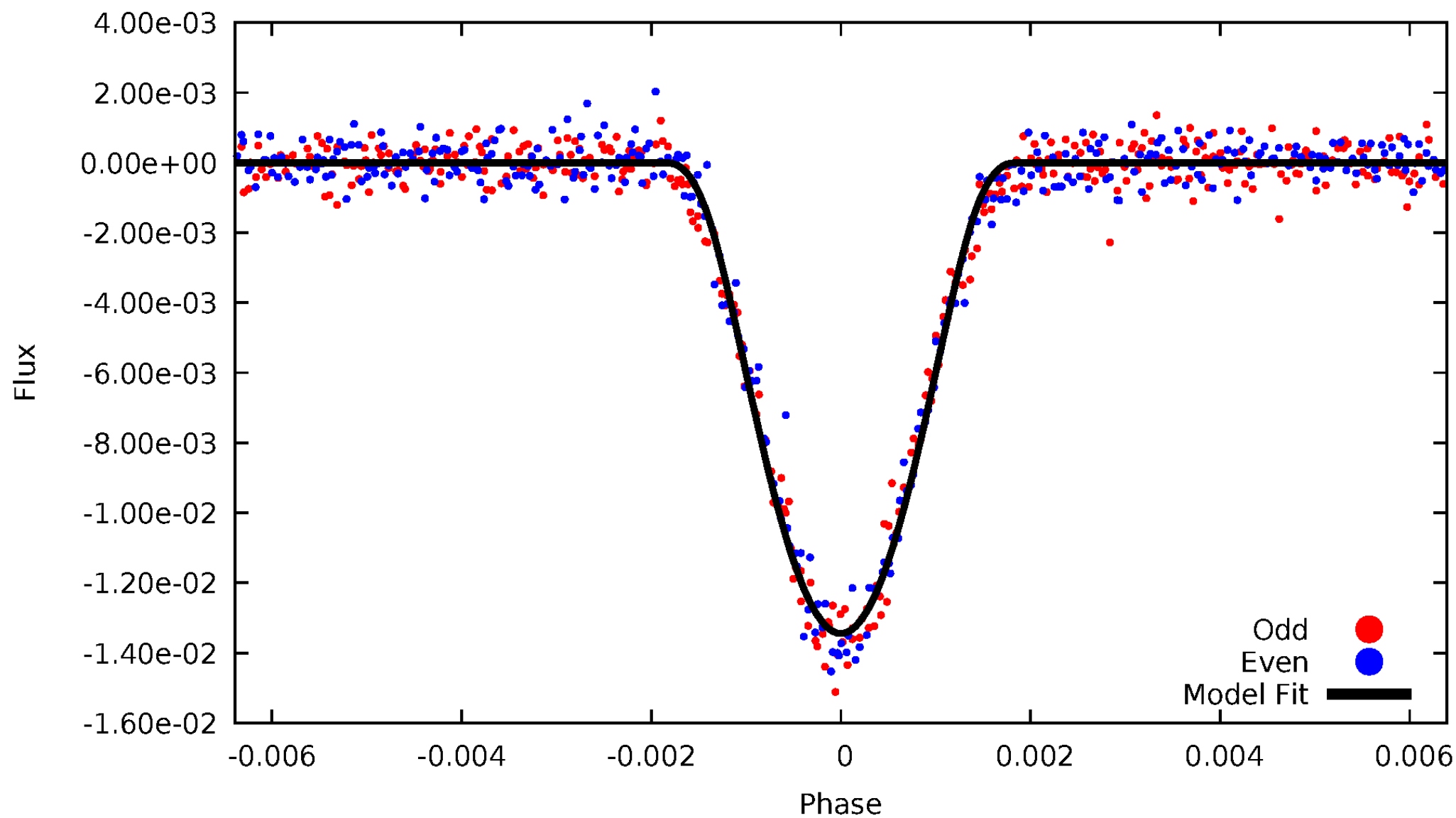


TCE 008738115-02



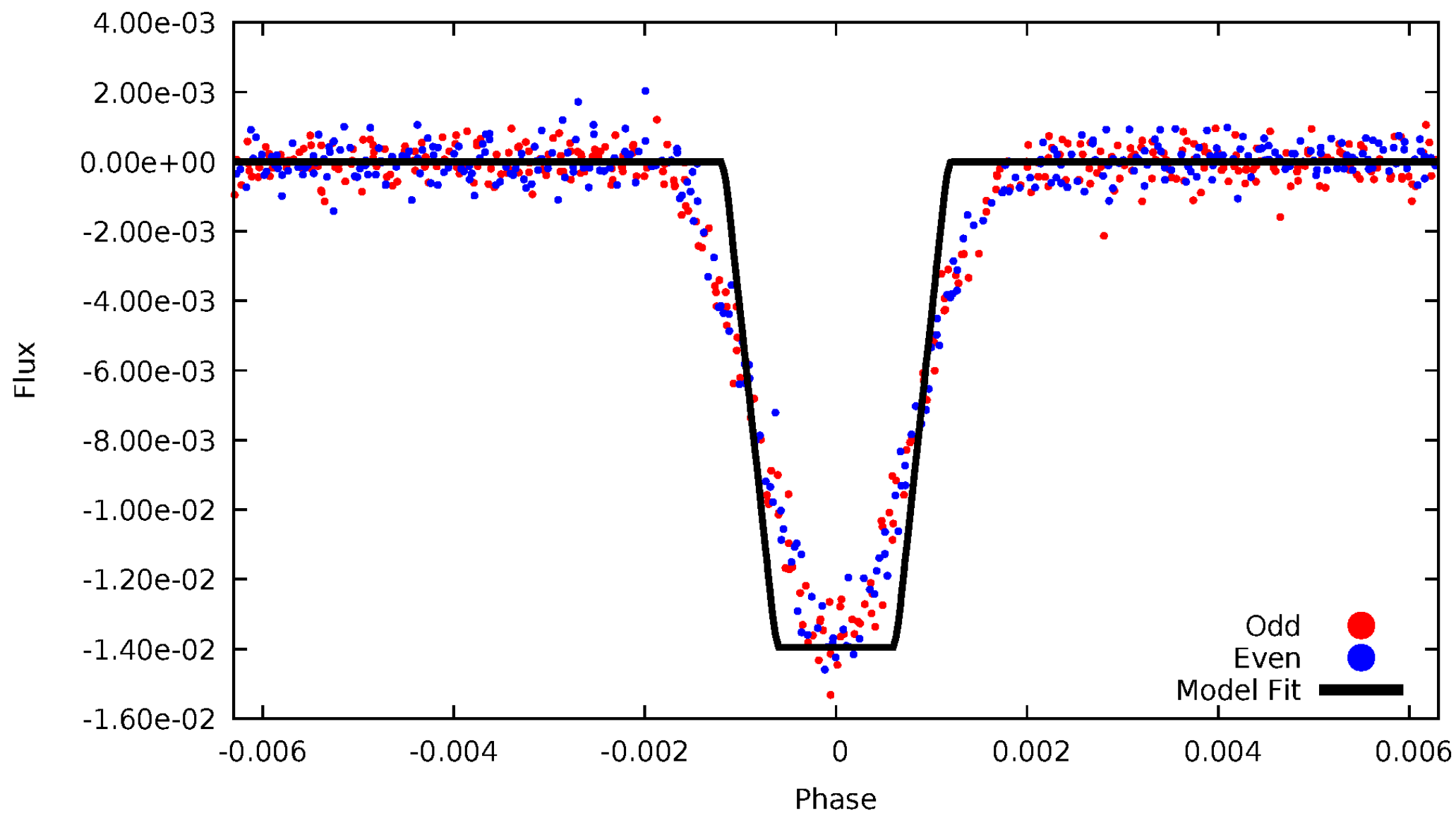
DV Odd/Even

TCE 008738115-02



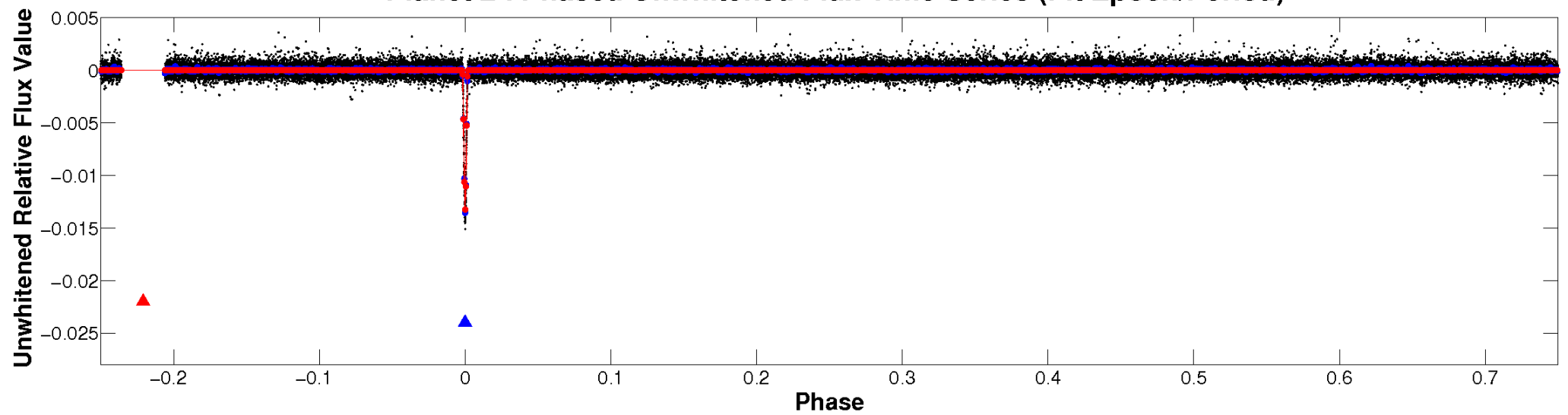
ALT Odd/Even

TCE 008738115-02

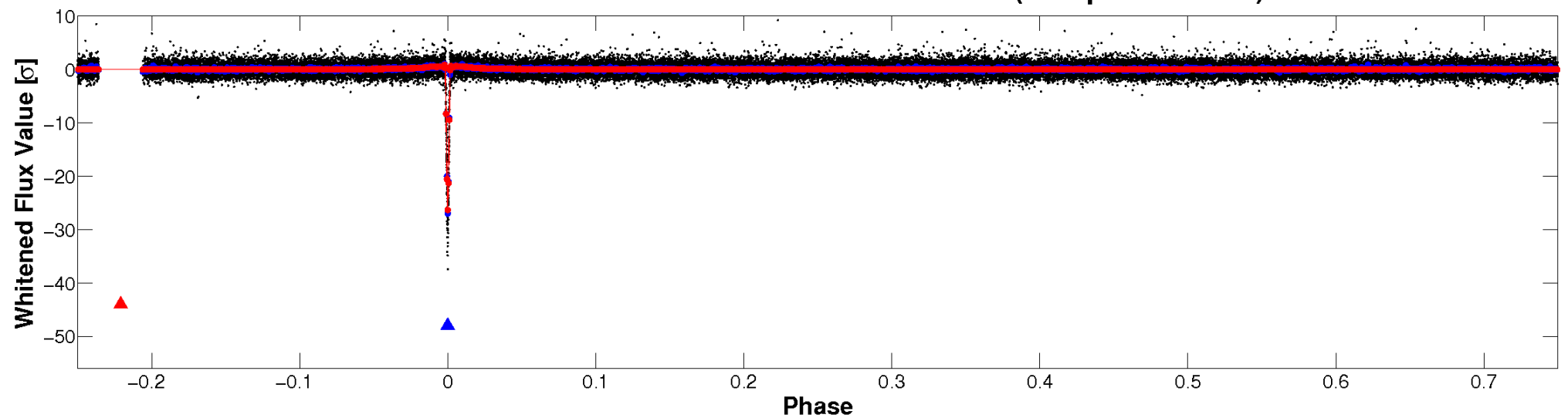


Non-Whitened Vs. Whitened Light Curve

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

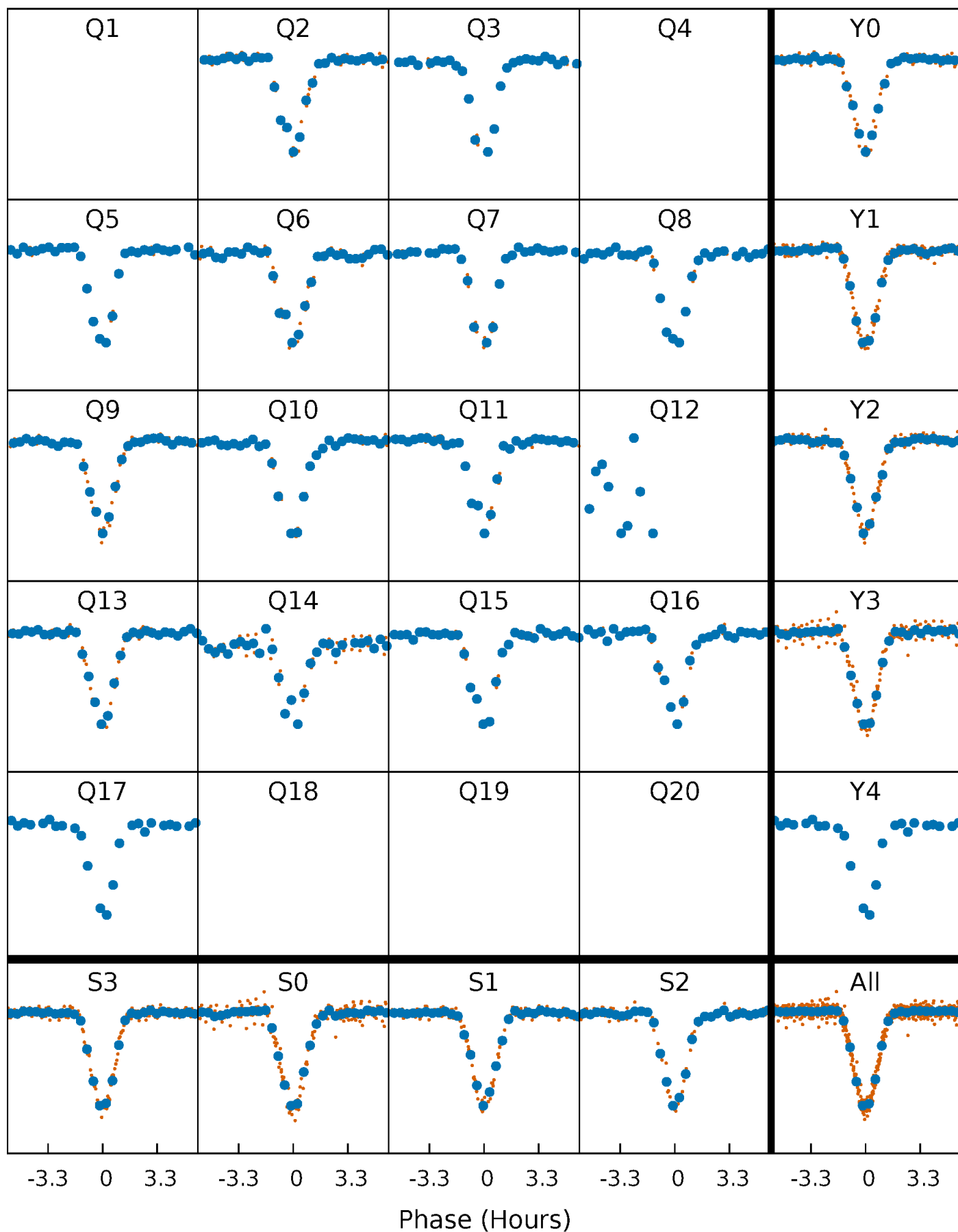


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



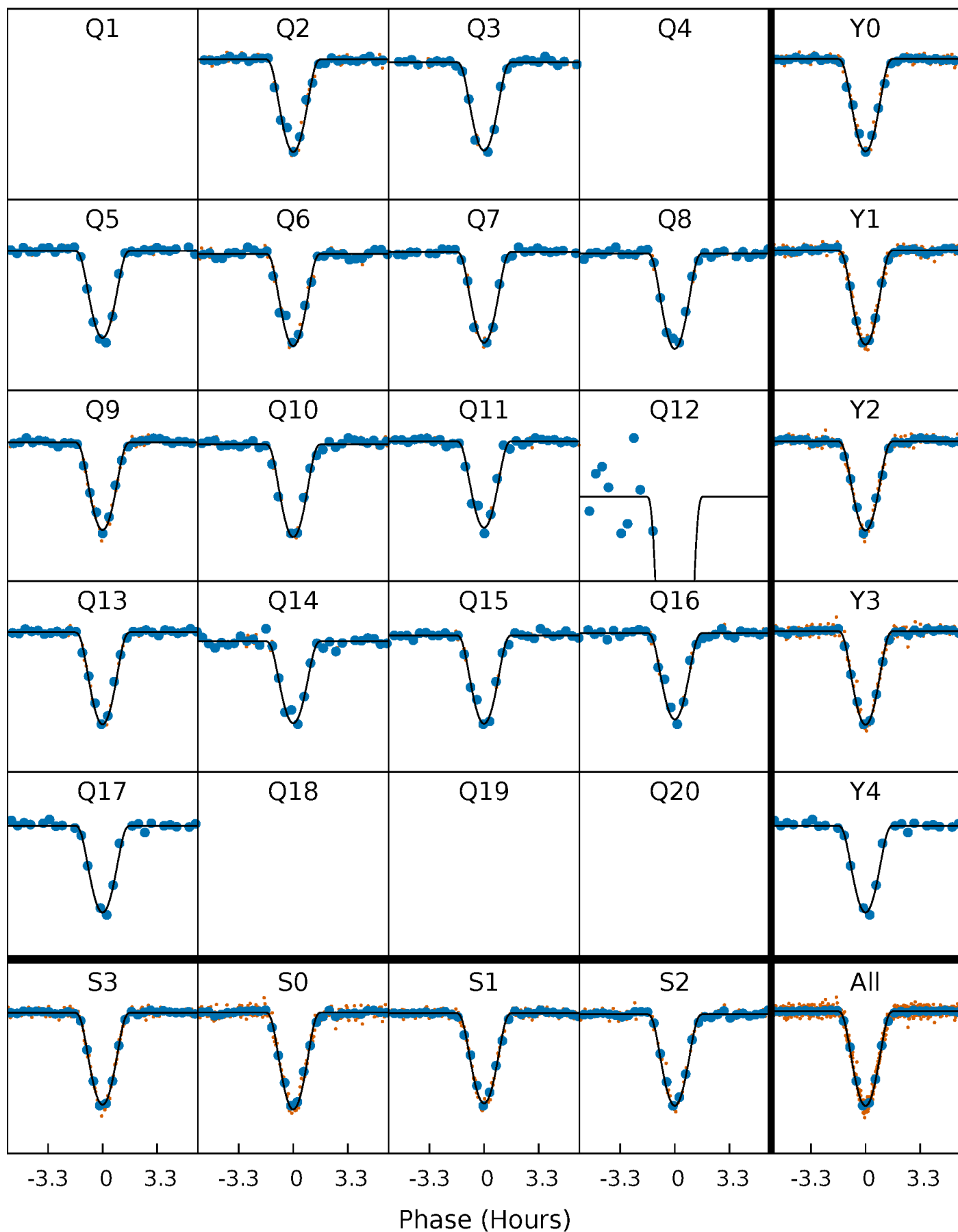
PDC Quarter-Phased Transit Curves

TCE 008738115-02 P= 37.594029 Days $T_0=139.289642$ (BKJD)



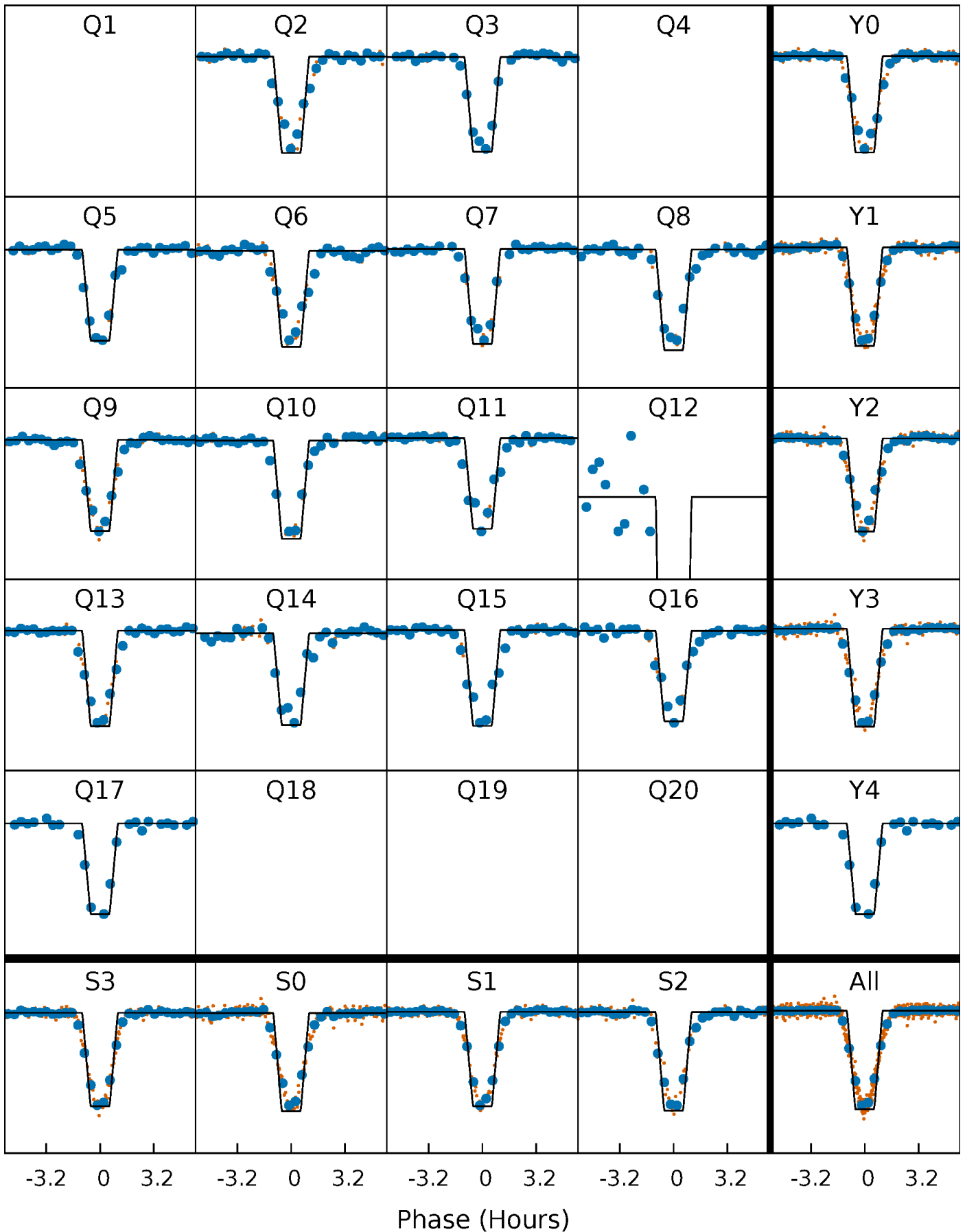
DV Quarter-Phased Transit Curves

TCE 008738115-02 P= 37.594029 Days $T_0=139.289642$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

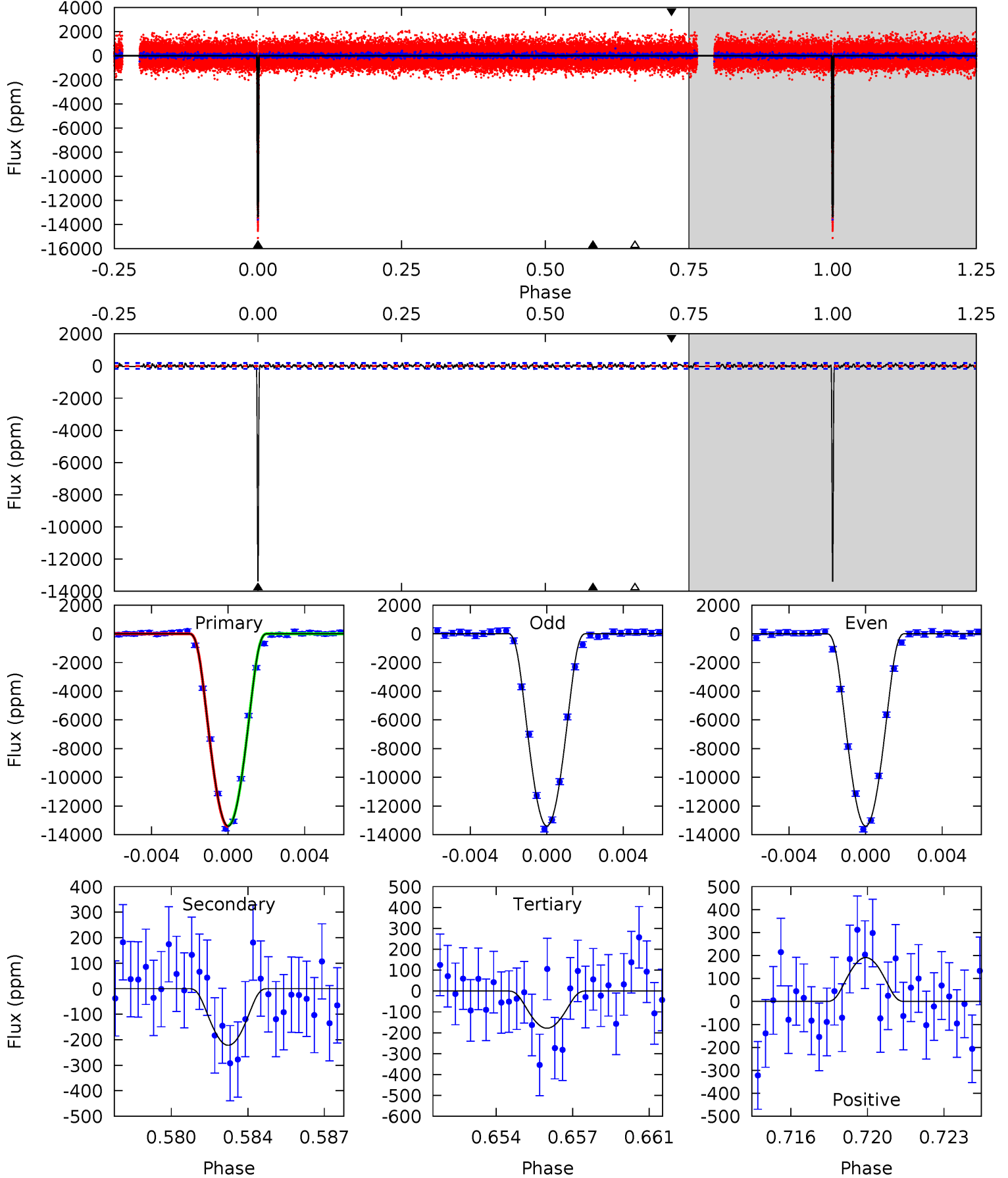
TCE 008738115-02 P= 37.594146 Days $T_0=139.287380$ (BKJD)



DV Model-Shift Uniqueness Test

008738115-02, P = 37.594029 Days, E = 139.289642 Days

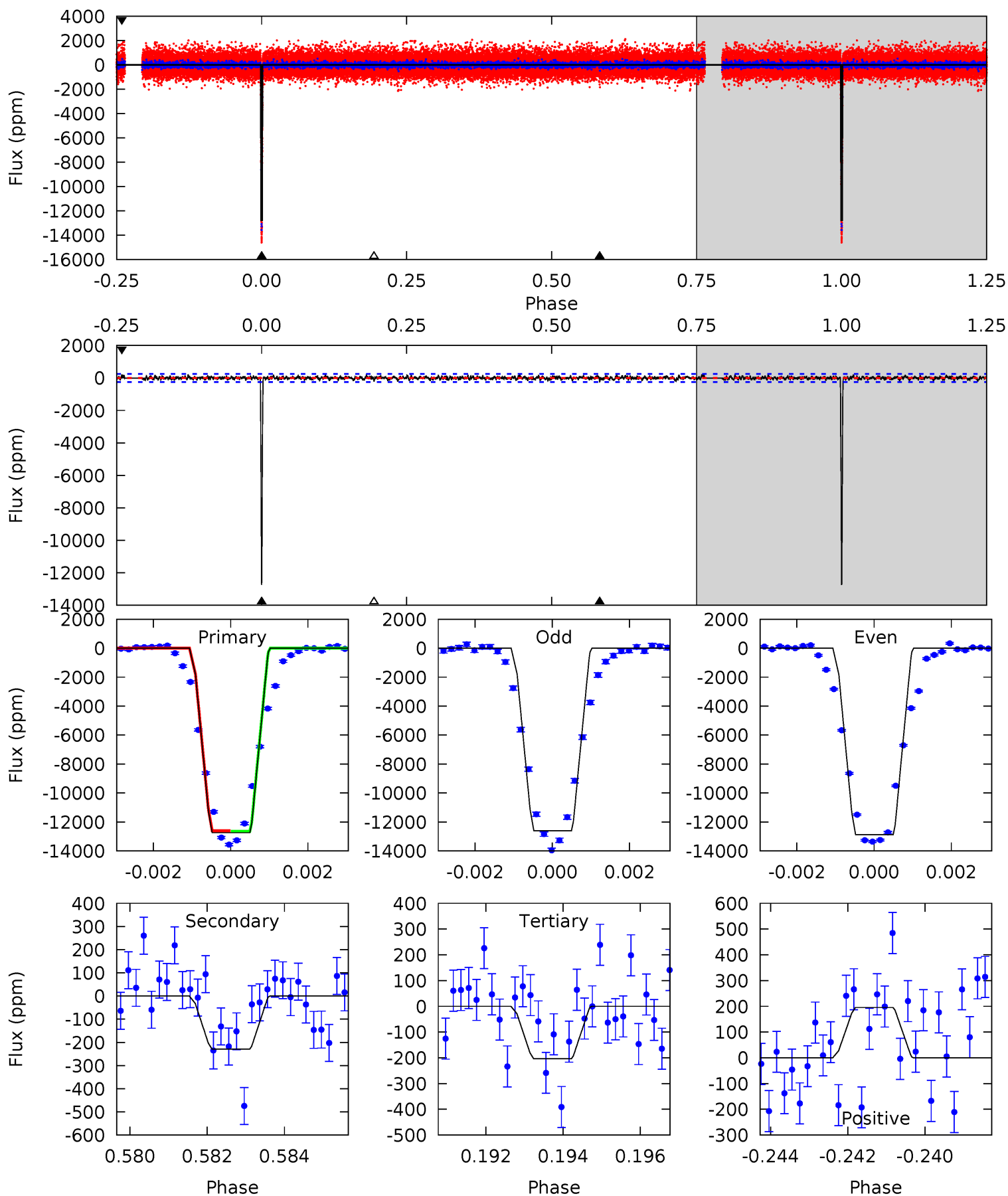
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
390.9	6.47	5.20	5.58	5.22	2.91	1.70	385.7	385.3	1.27	0.89	0.22	0.99	0.01	1.14



Alt Model-Shift Uniqueness Test

008738115-02, P = 37.594146 Days, E = 139.287380 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
271.9	4.90	4.35	4.17	5.29	3.04	1.27	267.6	267.8	0.55	0.73	2.86	0.99	0.02	0.48



Stellar Parameters For KIC 008738115

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5941^{+159}_{-177}	$4.426^{+0.124}_{-0.171}$	$-0.600^{+0.300}_{-0.300}$	$0.917^{+0.231}_{-0.142}$	$0.817^{+0.103}_{-0.063}$	$1.493^{+0.941}_{-0.665}$
	+3%/-3%	+3%/-4%	+50%/-50%	+25%/-15%	+13%/-8%	+63%/-45%
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 008738115-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-222 ± 34	$18.17^{+5.90}_{-4.86}$	775^{+51}_{-41}	2532^{+219}_{-153}	15^{+14}_{-7}
Alt.	-230 ± 47	$12.07^{+4.91}_{-4.85}$	774^{+55}_{-40}	2850^{+428}_{-265}	38^{+64}_{-21}

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

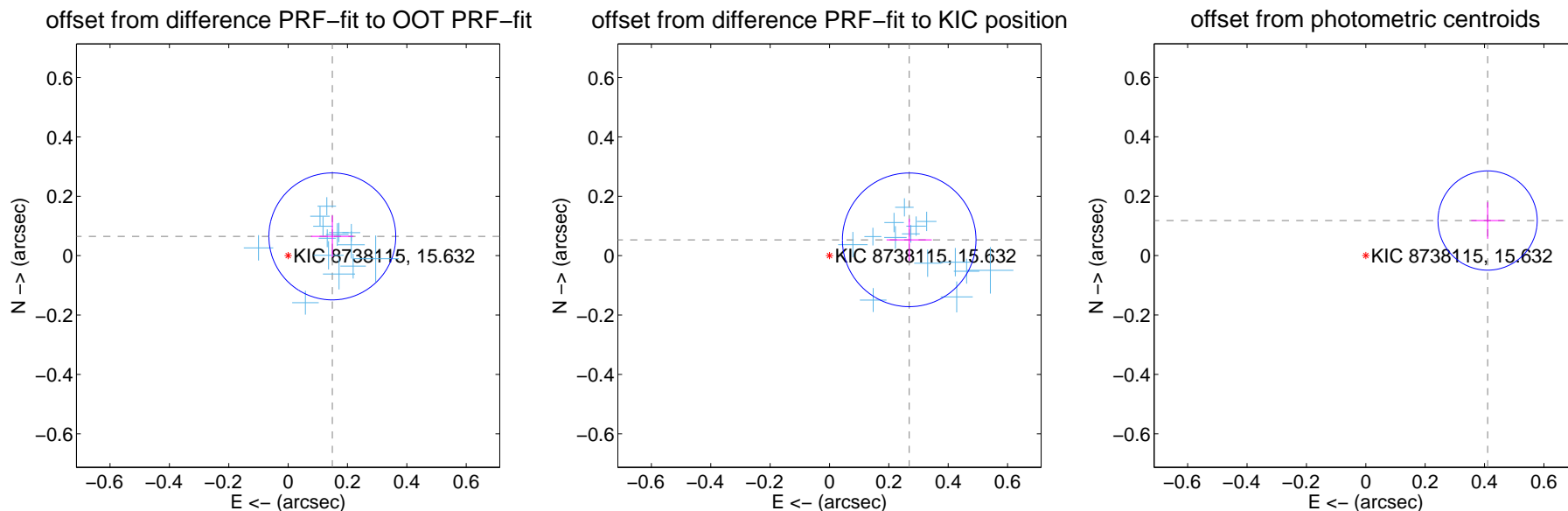
DV Centroid Data

Supplemental centroid analysis for 008738115-02. Kepler magnitude: 15.63. Transit SNR 221.88

There are 14 quarters with good PRF difference image offsets

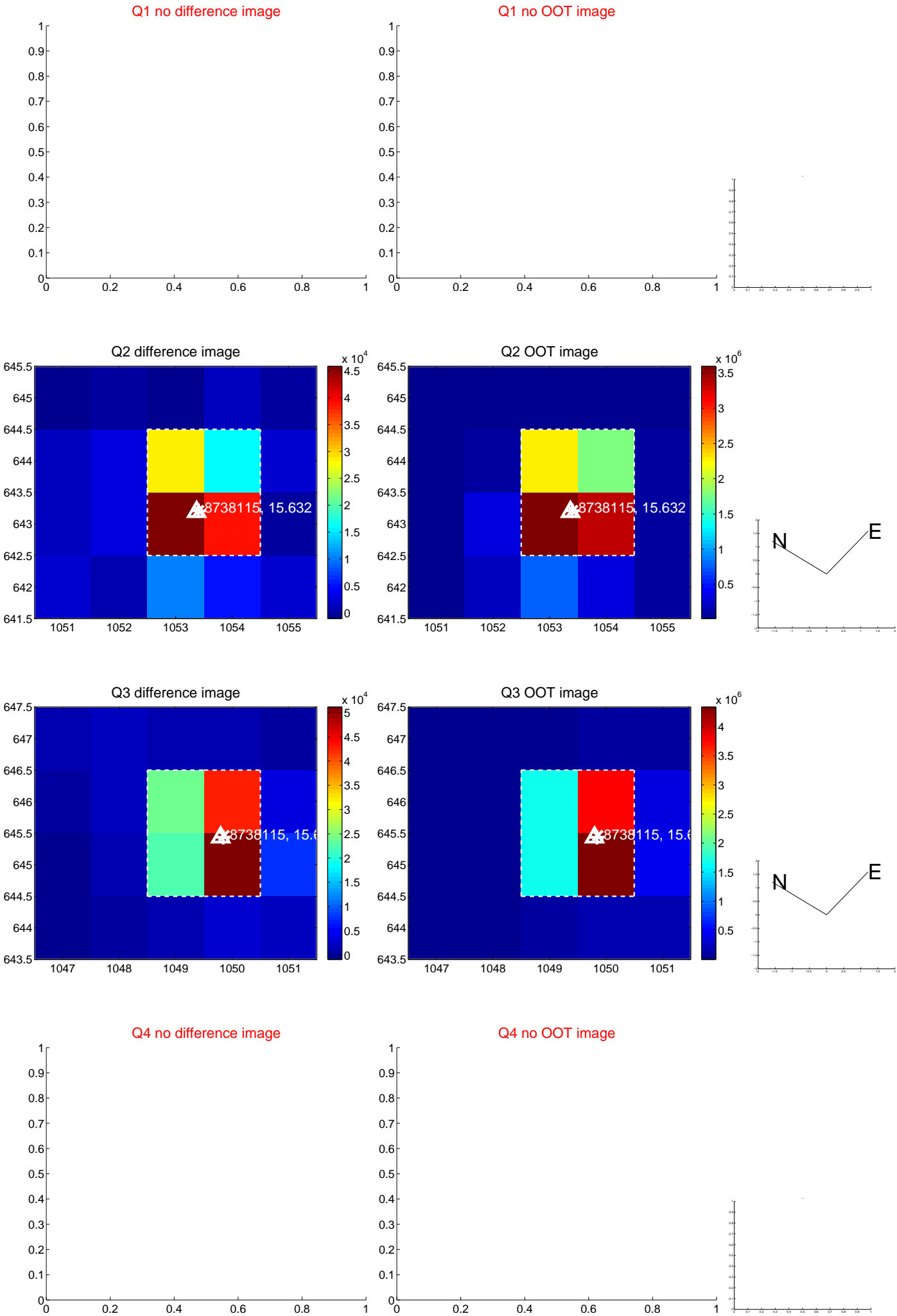
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.162 ± 0.071	2.28	-0.149 ± 0.072	0.065 ± 0.070
PRF-fit source offset from KIC position	0.274 ± 0.075	3.65	-0.269 ± 0.076	0.053 ± 0.071
photometric centroid source offset	0.43 ± 0.06	7.66	-0.41 ± 0.06	0.12 ± 0.06

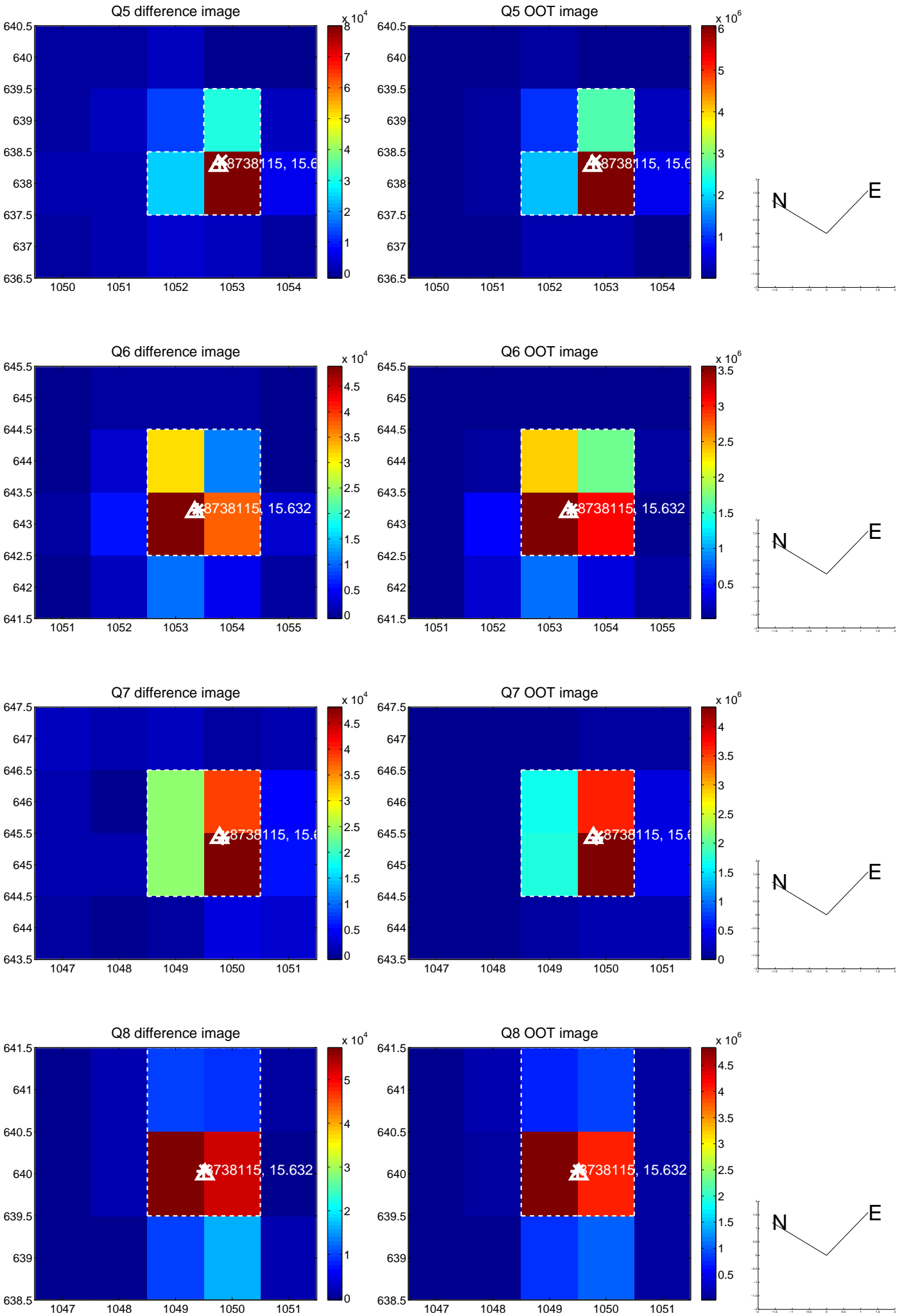


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

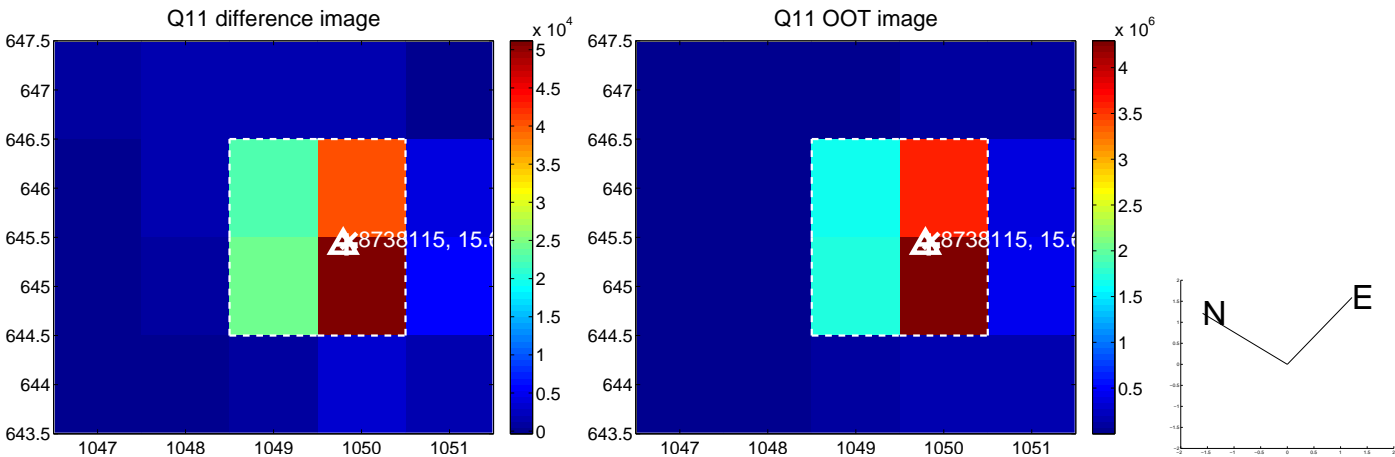
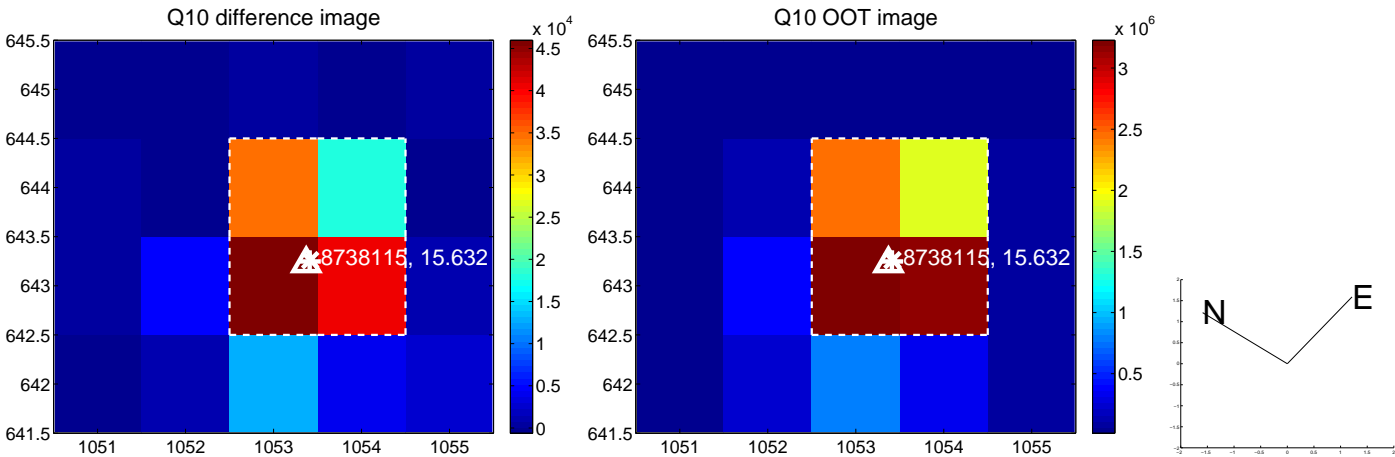
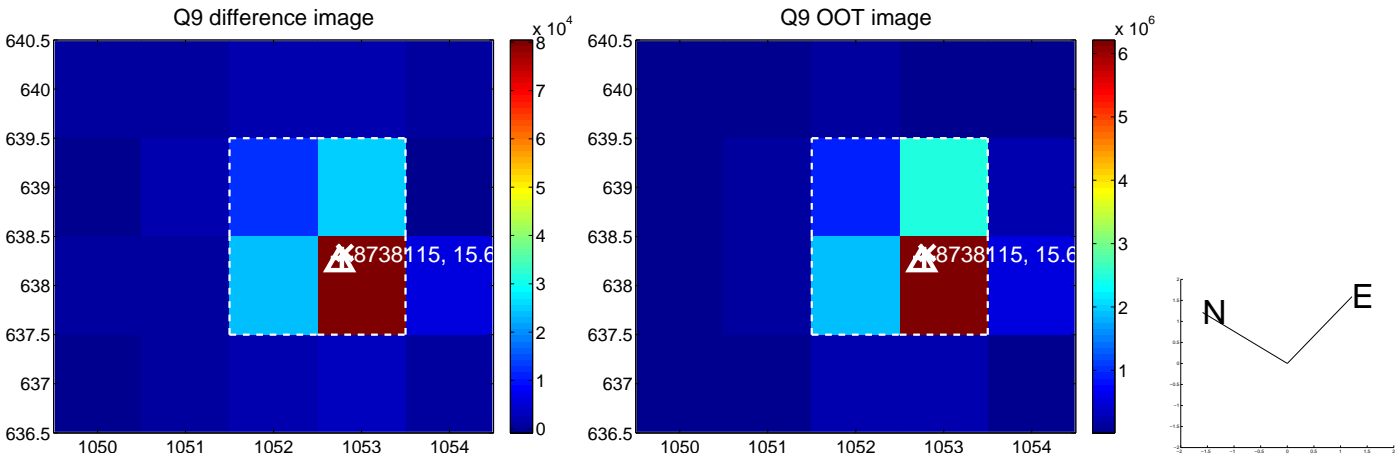
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



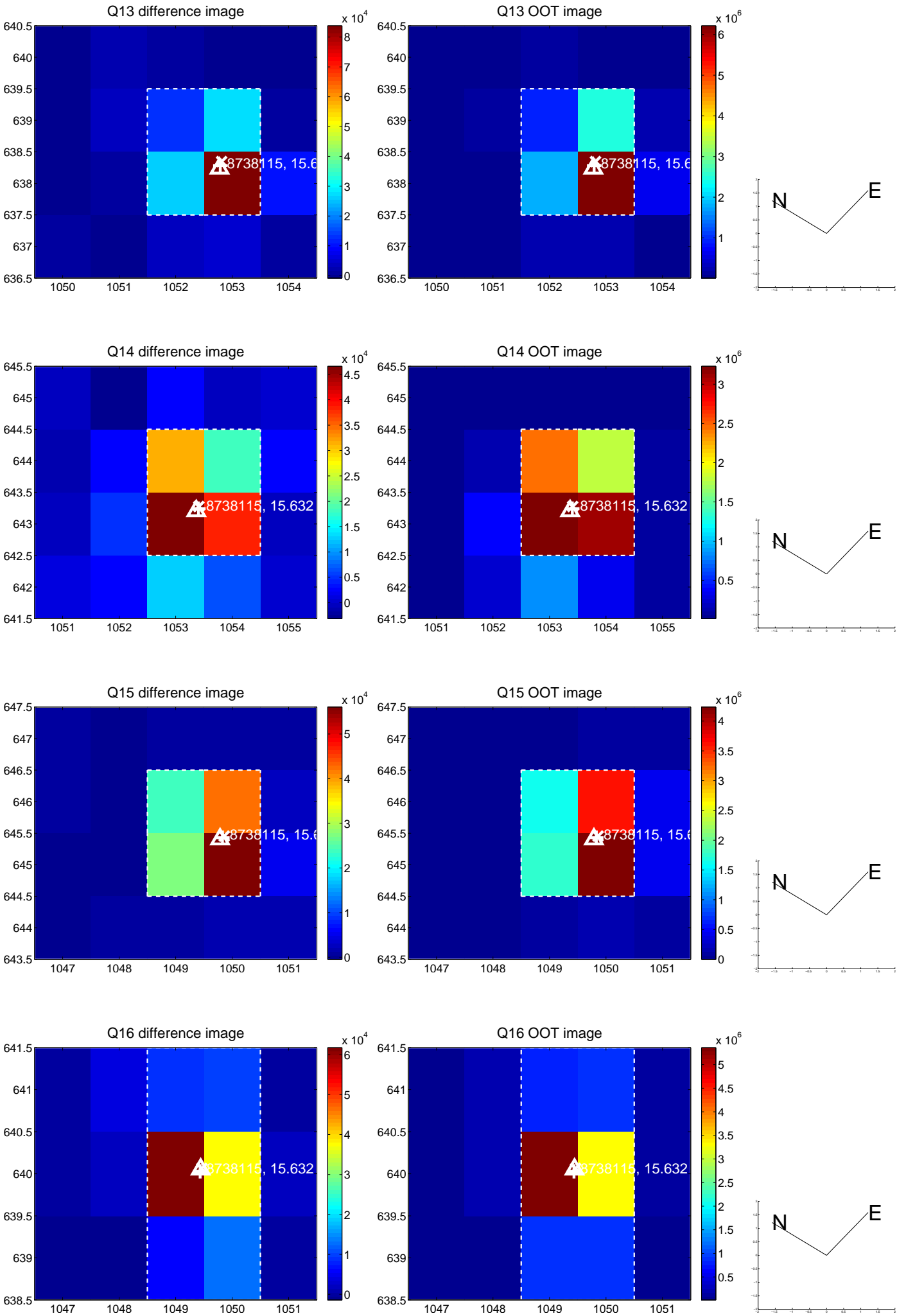
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



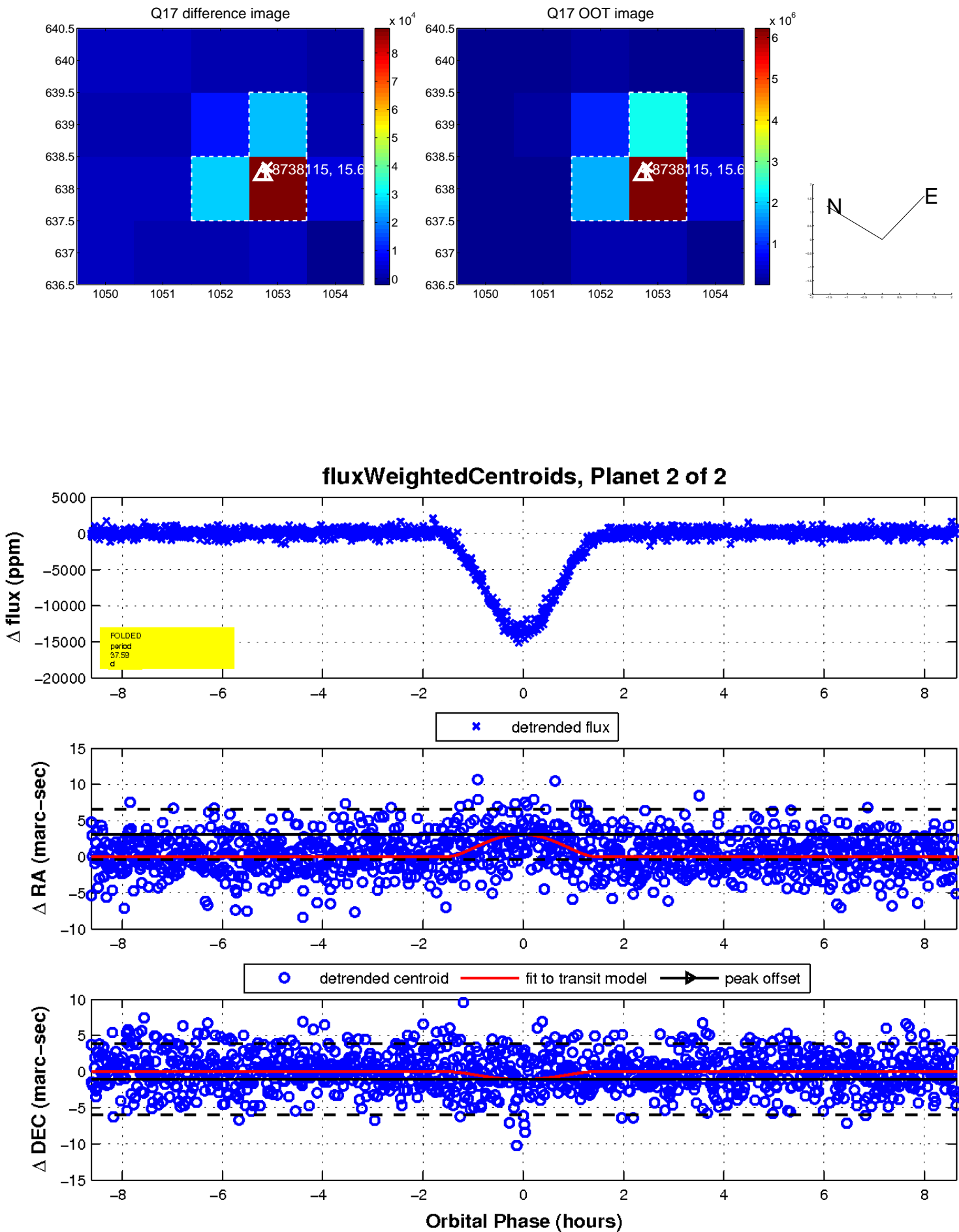
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8:57:50.0 49.0 48.0 47.0 46.0 45.0

6:20:0 30.0 40.0 50.0 44:58:00.0 10.0

Declination