

KIC 008937019

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})
008937019-01	OBS	3754.01	5.663616	133.890064	162964.1	1.561	247.7	213.3	1.00	5780	58.44	258.51
008937019-02	OBS	No	5.663573	131.993440	67125.8	2.015	148.5	113.0	1.00	5780	37.45	258.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008937019-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
008937019-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

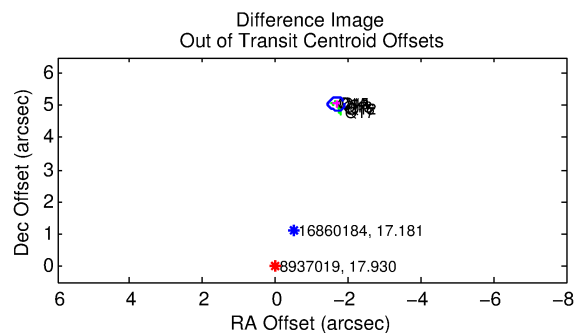
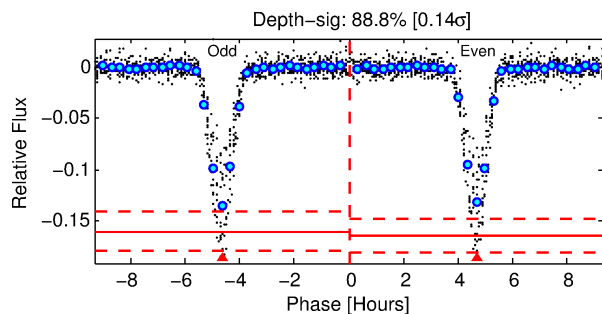
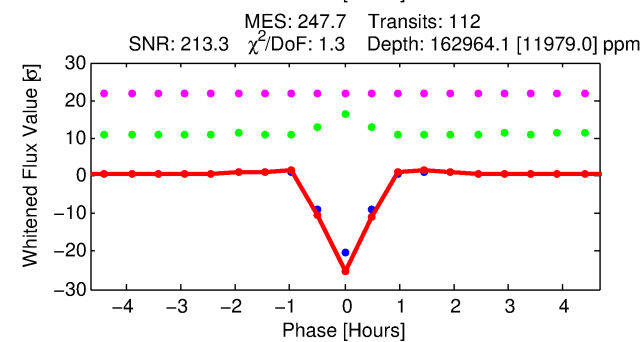
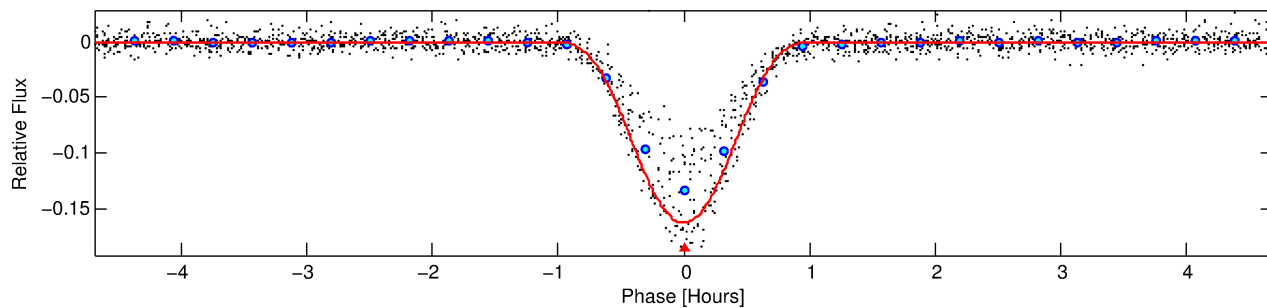
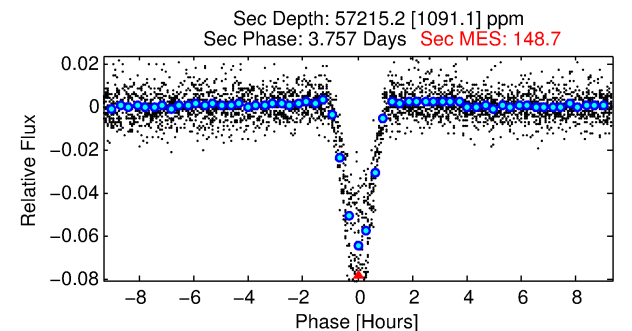
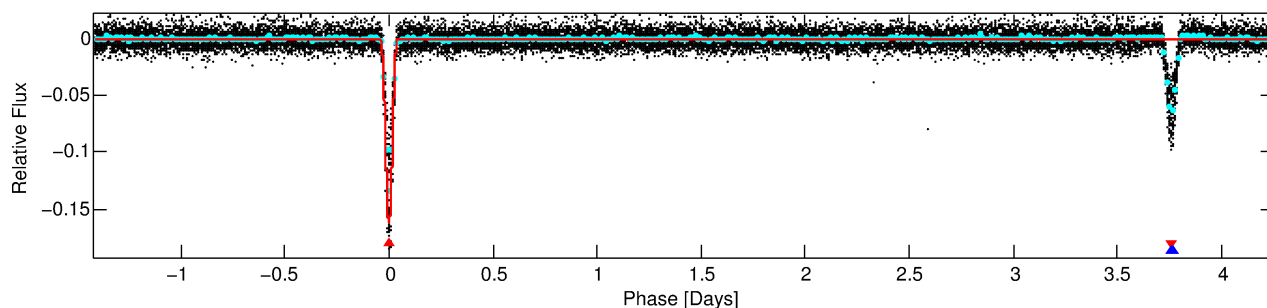
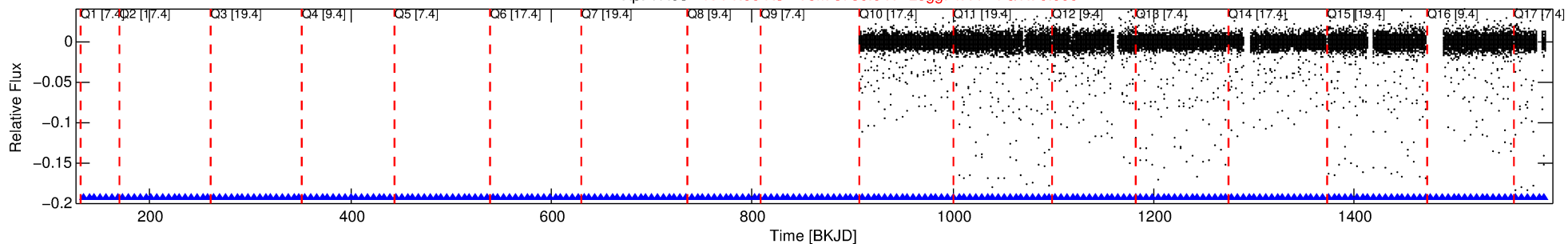
Ephemeris Match Information For 008937019-01

No Significant Match Found

DV One-Page Summary

KIC: 8937019 Candidate: 1 of 2 Period: 5.664 d
KOI: K03754.01 Corr: 0.984

Kp: 17.93 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



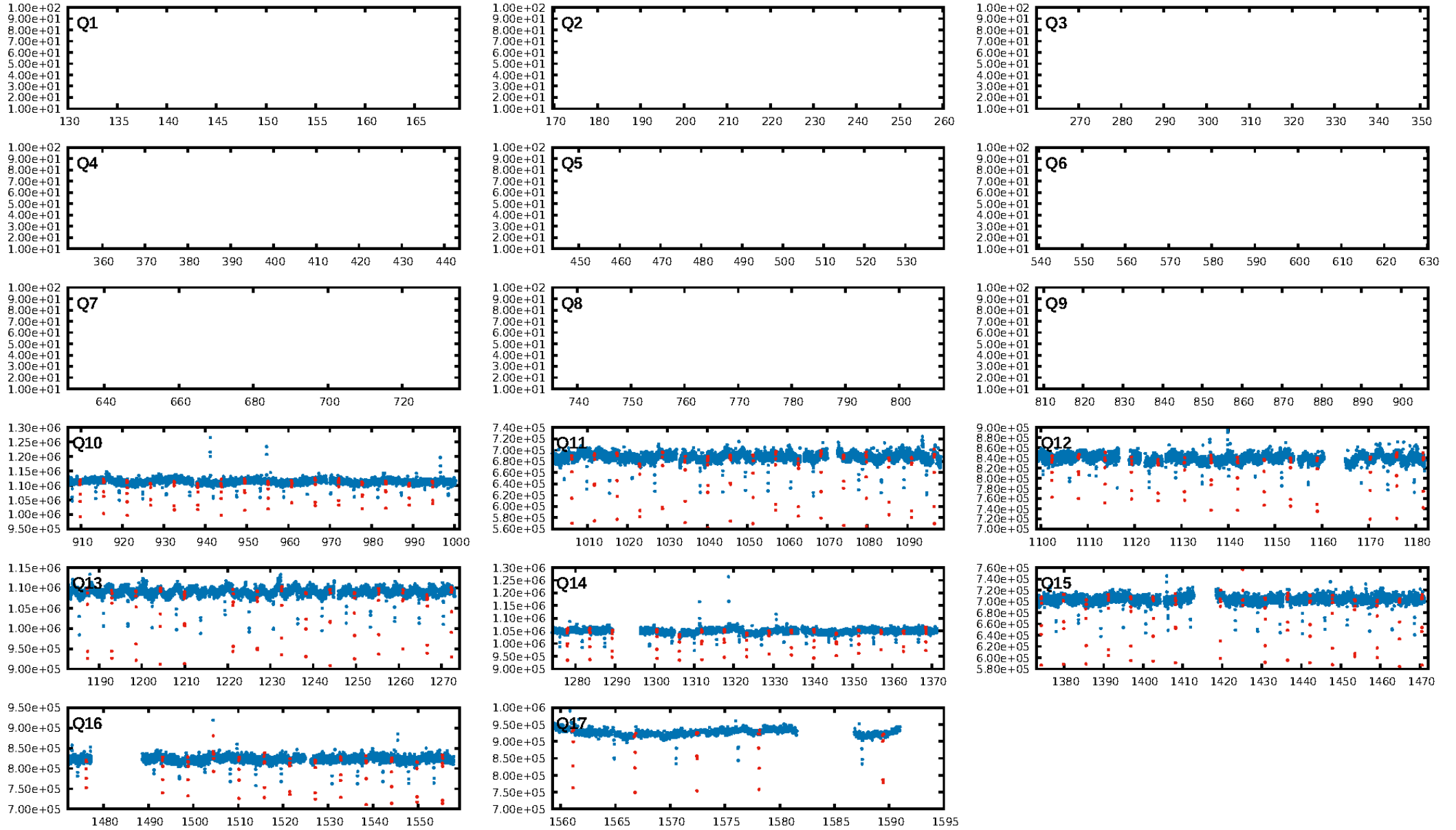
DV Fit Results:

Period = 5.66362 [0.00000] d
Epoch = 133.8901 [0.0002] BKJD
Rp/R* = 0.5356 [3.6856]
a/R* = 35.51 [25.95]
b = 0.85 [5.39]
Seff = 258.51 [0.00]
Teq = 1022 [0] K
Rp = 58.44 [402.19] Re
a = 0.0622 [0.0000] AU
Ag = 35.65 [490.62] [0.07σ]
Teffp = 3863 [13291] K [0.21σ]

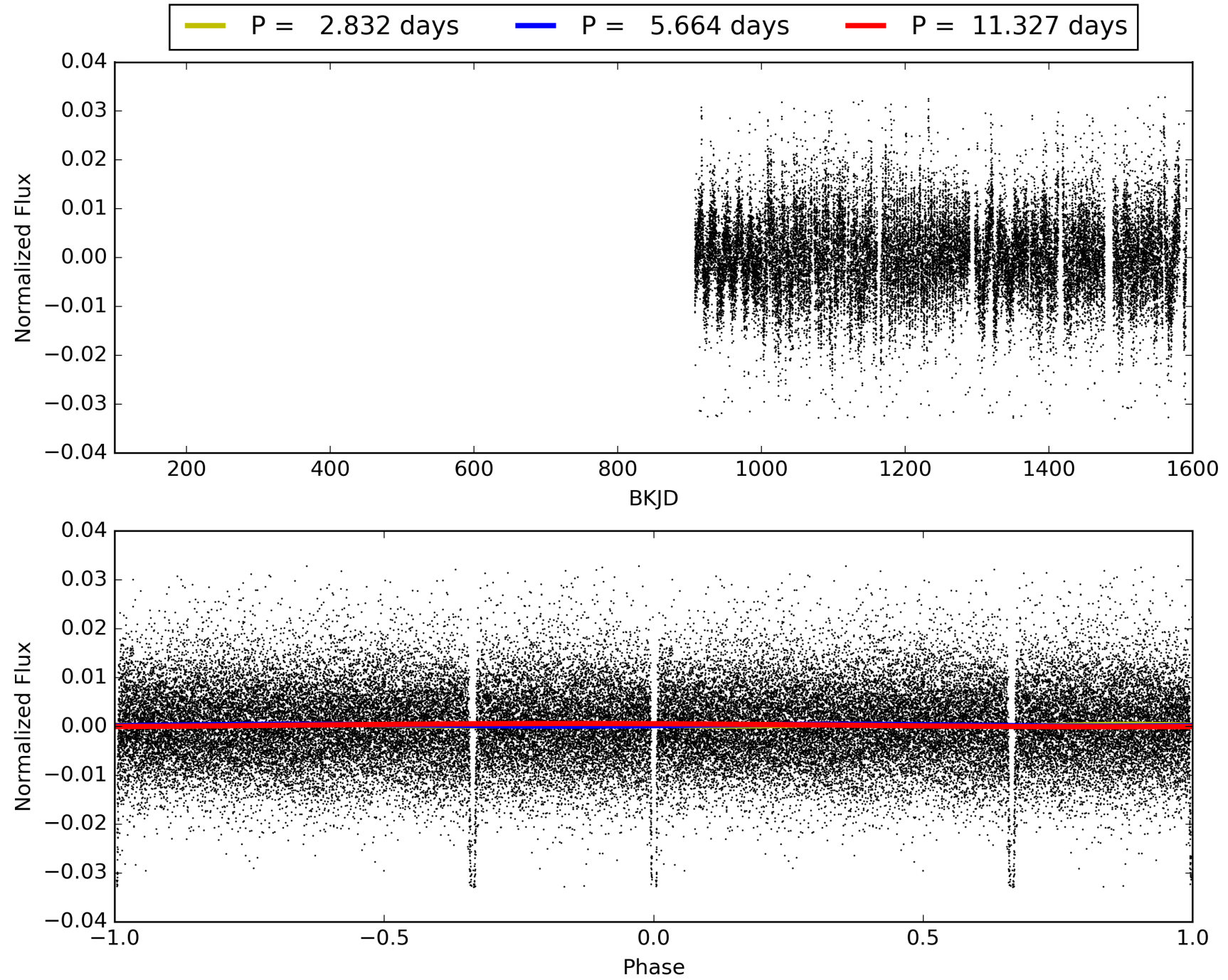
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [107/107]
GhostDiagnostic-chr: 0.6481
Centroid-sig: 0.0%
Centroid-so: 3.318 arcsec [1056.54σ]
OotOffset-rm: 5.325 arcsec [73.74σ]
KicOffset-rm: 1.207 arcsec [16.43σ]
OotOffset-st: 2/2/2/2 [8]
KicOffset-st: 2/2/2/2 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 008937019-01, PDC Light Curves

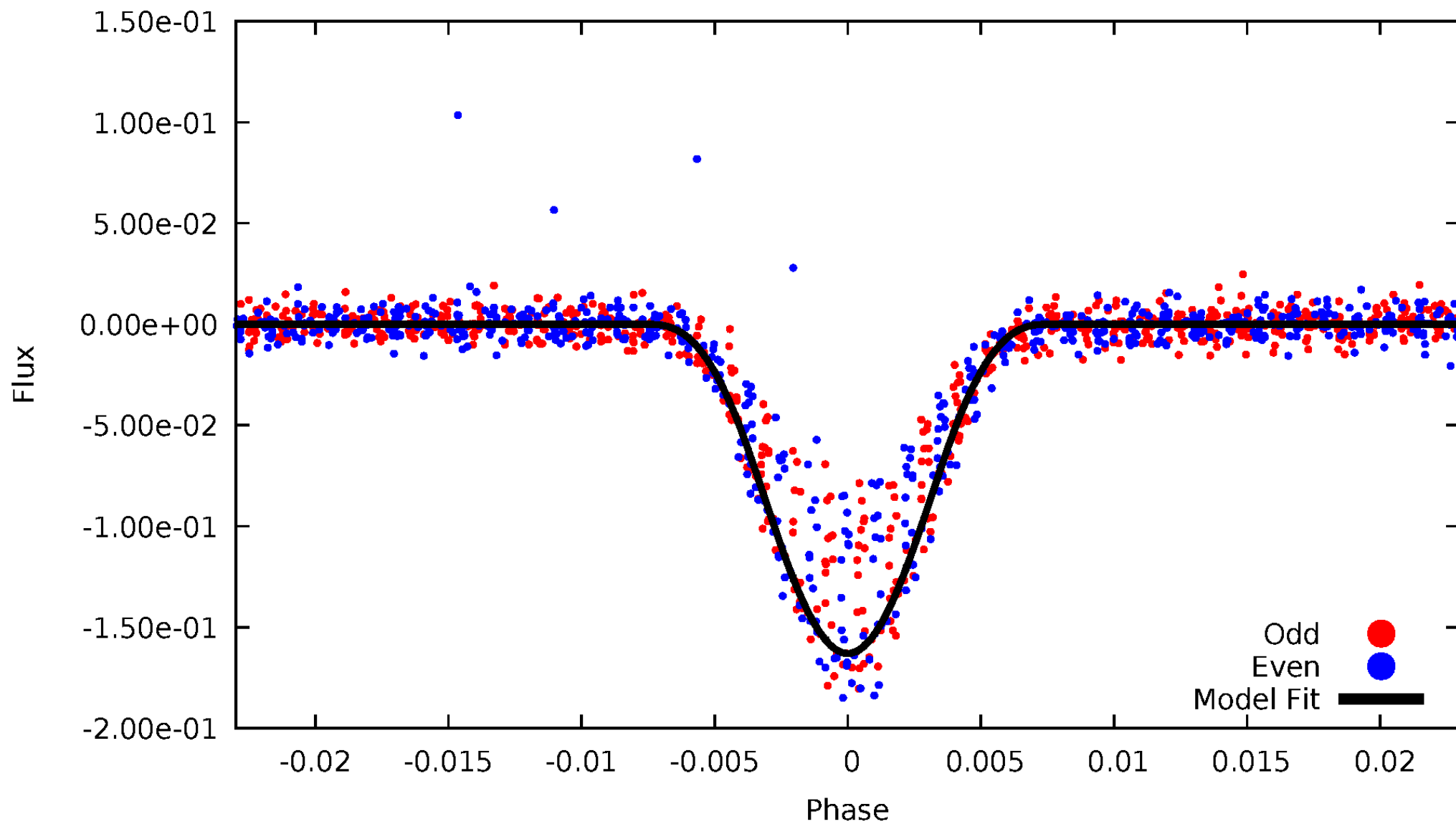


TCE 008937019-01



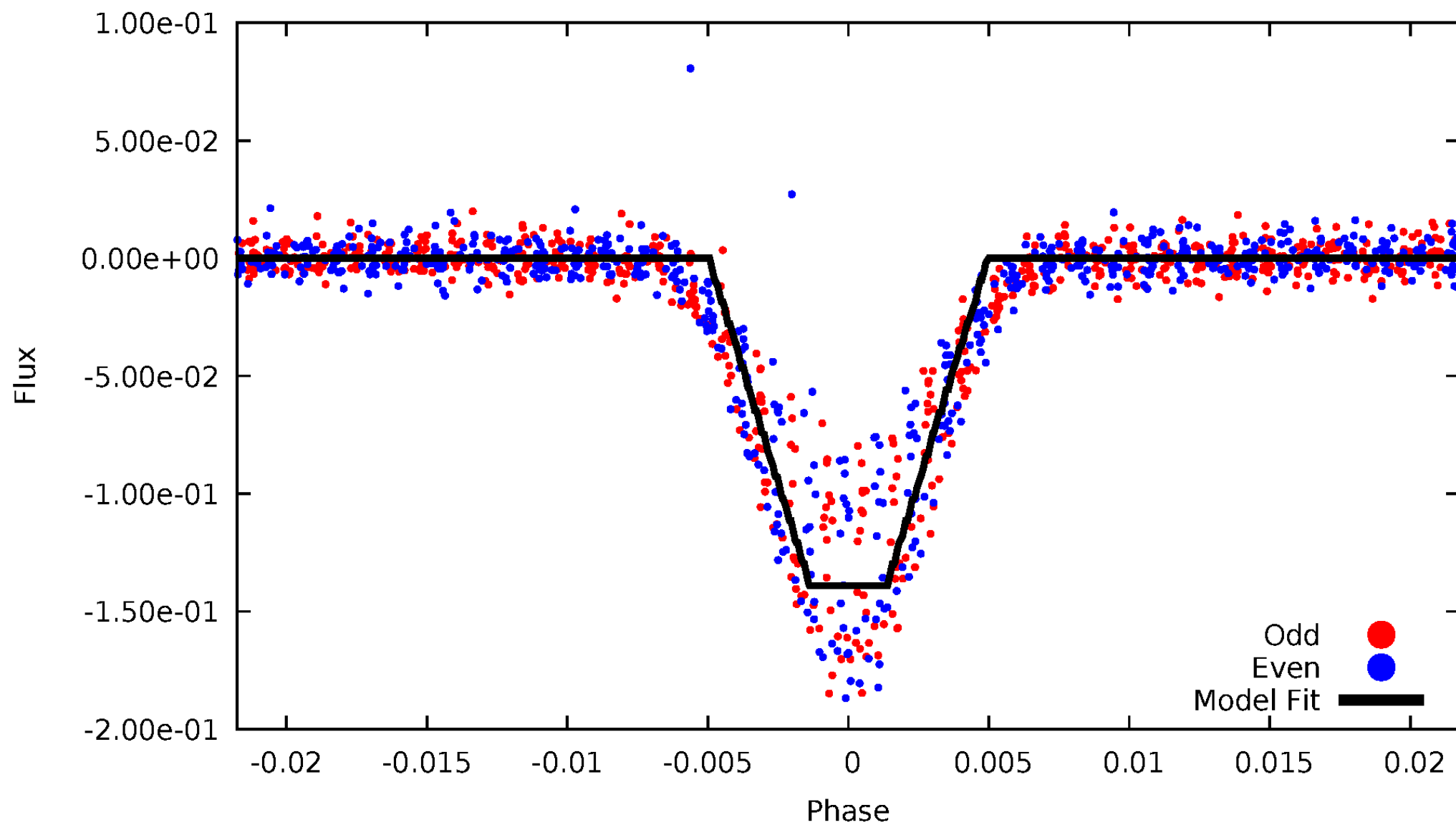
DV Odd/Even

TCE 008937019-01



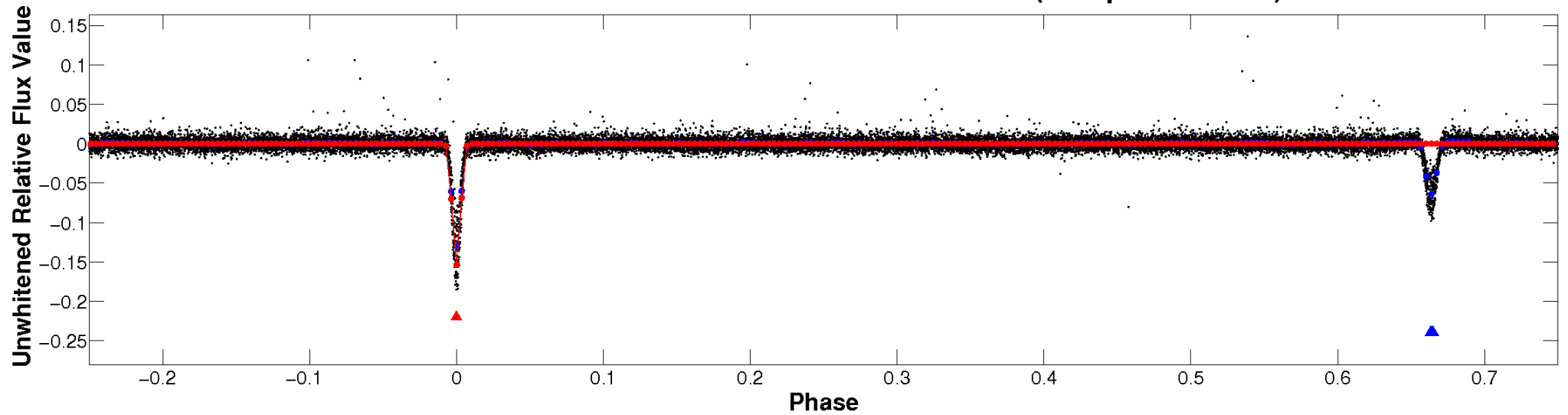
ALT Odd/Even

TCE 008937019-01

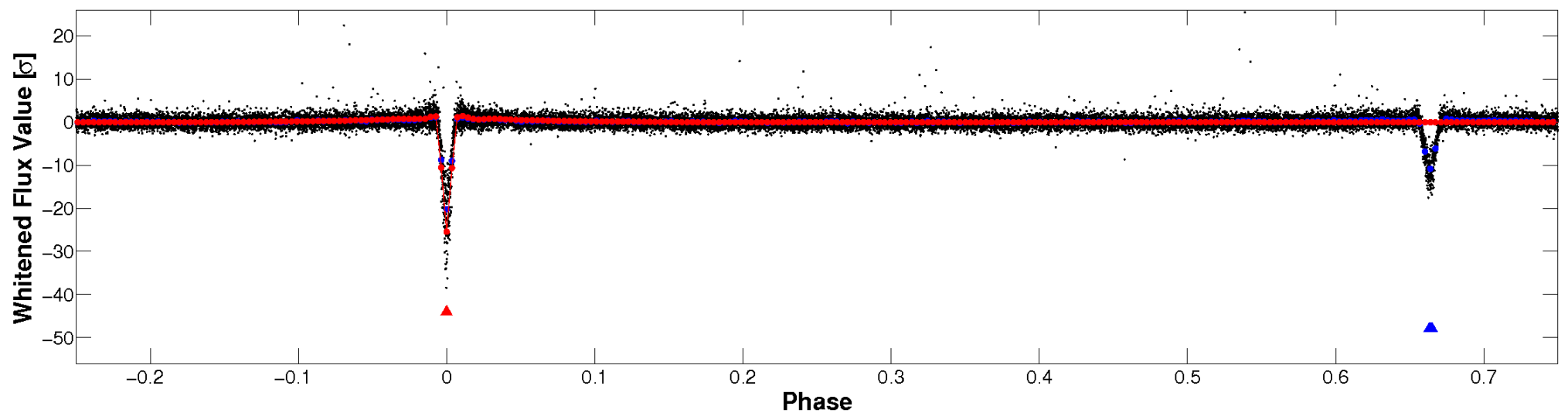


Non-Whitened Vs. Whitened Light Curve

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

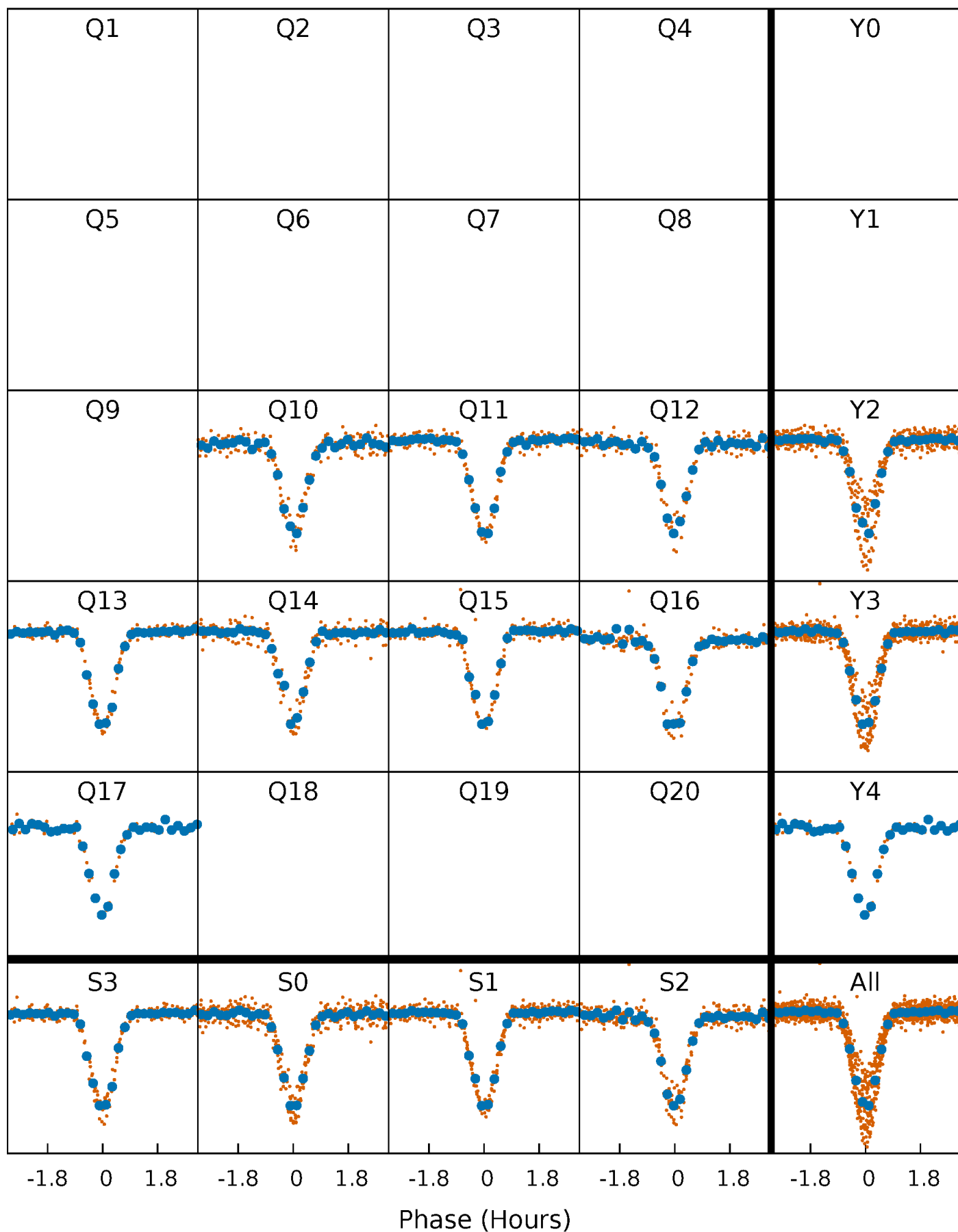


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



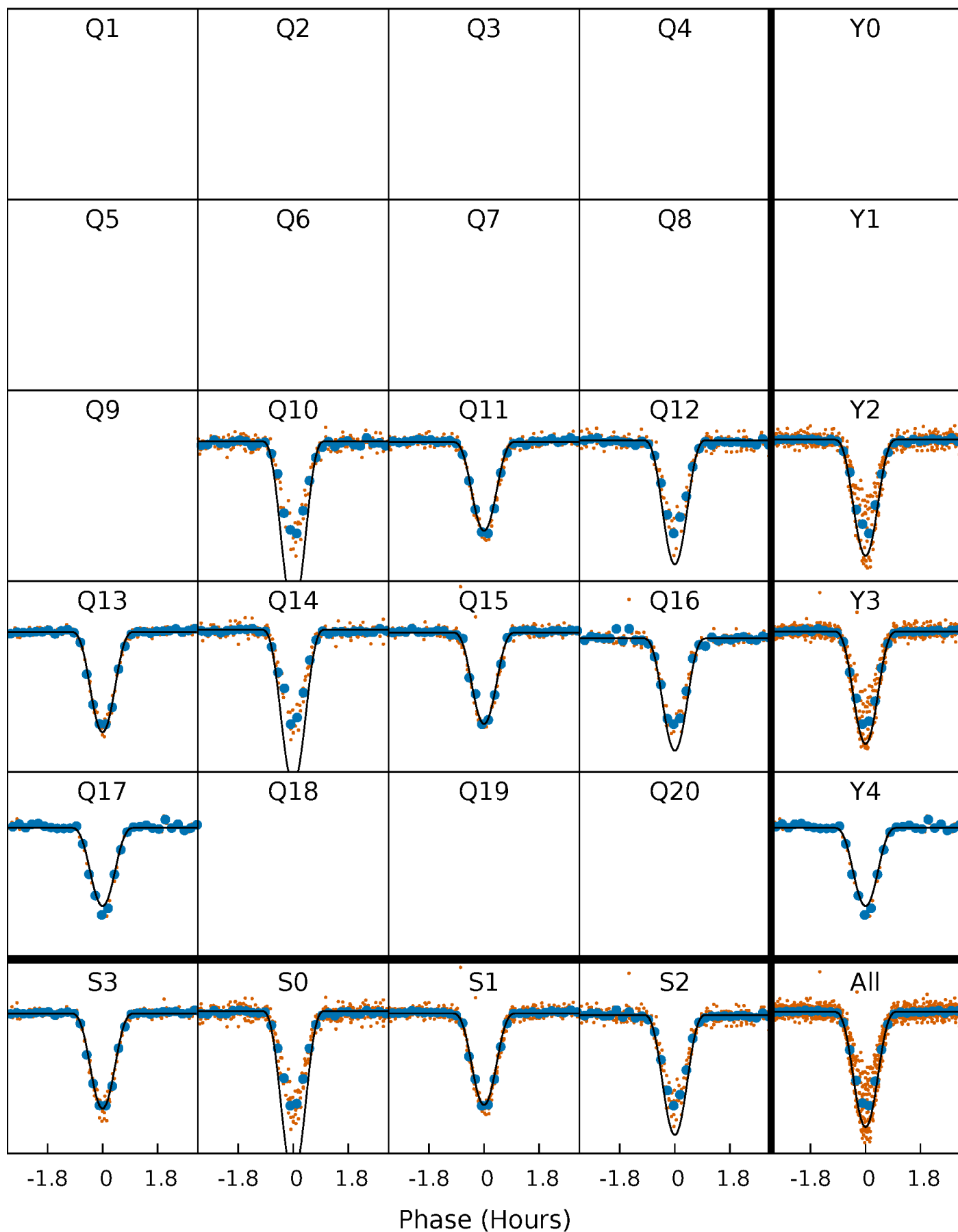
PDC Quarter-Phased Transit Curves

TCE 008937019-01 P= 5.663616 Days $T_0=133.890064$ (BKJD)



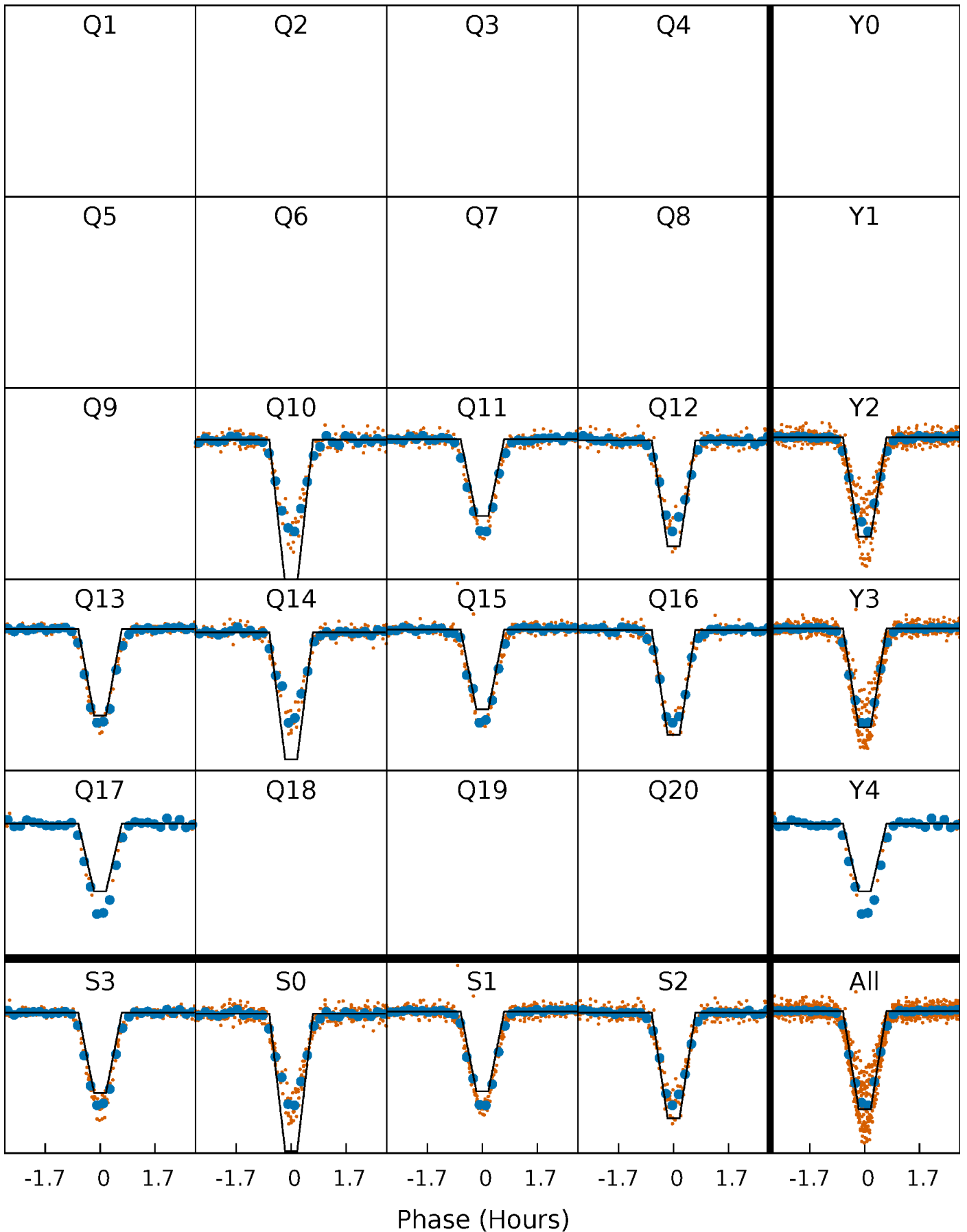
DV Quarter-Phased Transit Curves

TCE 008937019-01 P= 5.663616 Days $T_0=133.890064$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

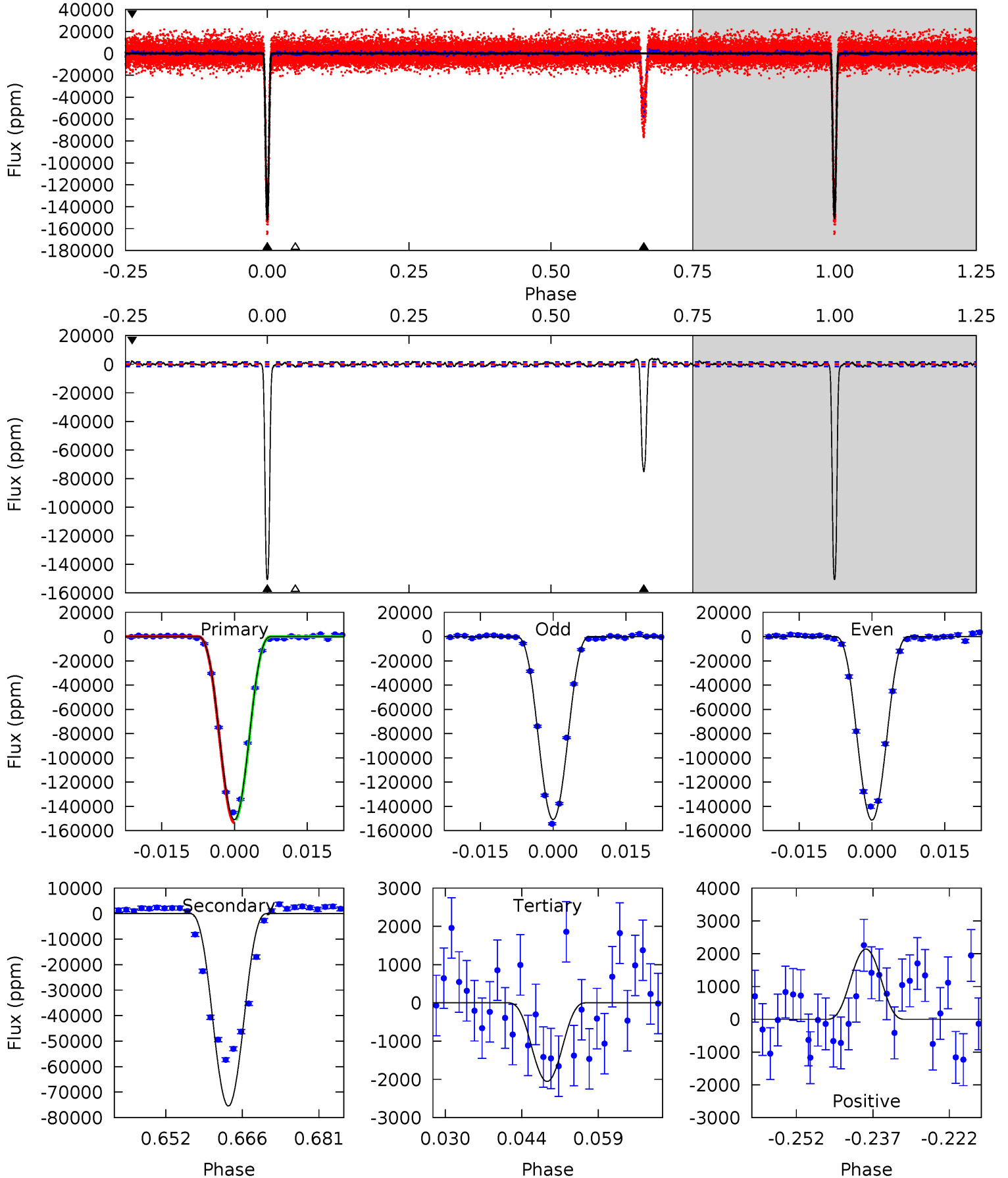
TCE 008937019-01 P= 5.663606 Days $T_0=133.891990$ (BKJD)



DV Model-Shift Uniqueness Test

008937019-01, P = 5.663616 Days, E = 133.890064 Days

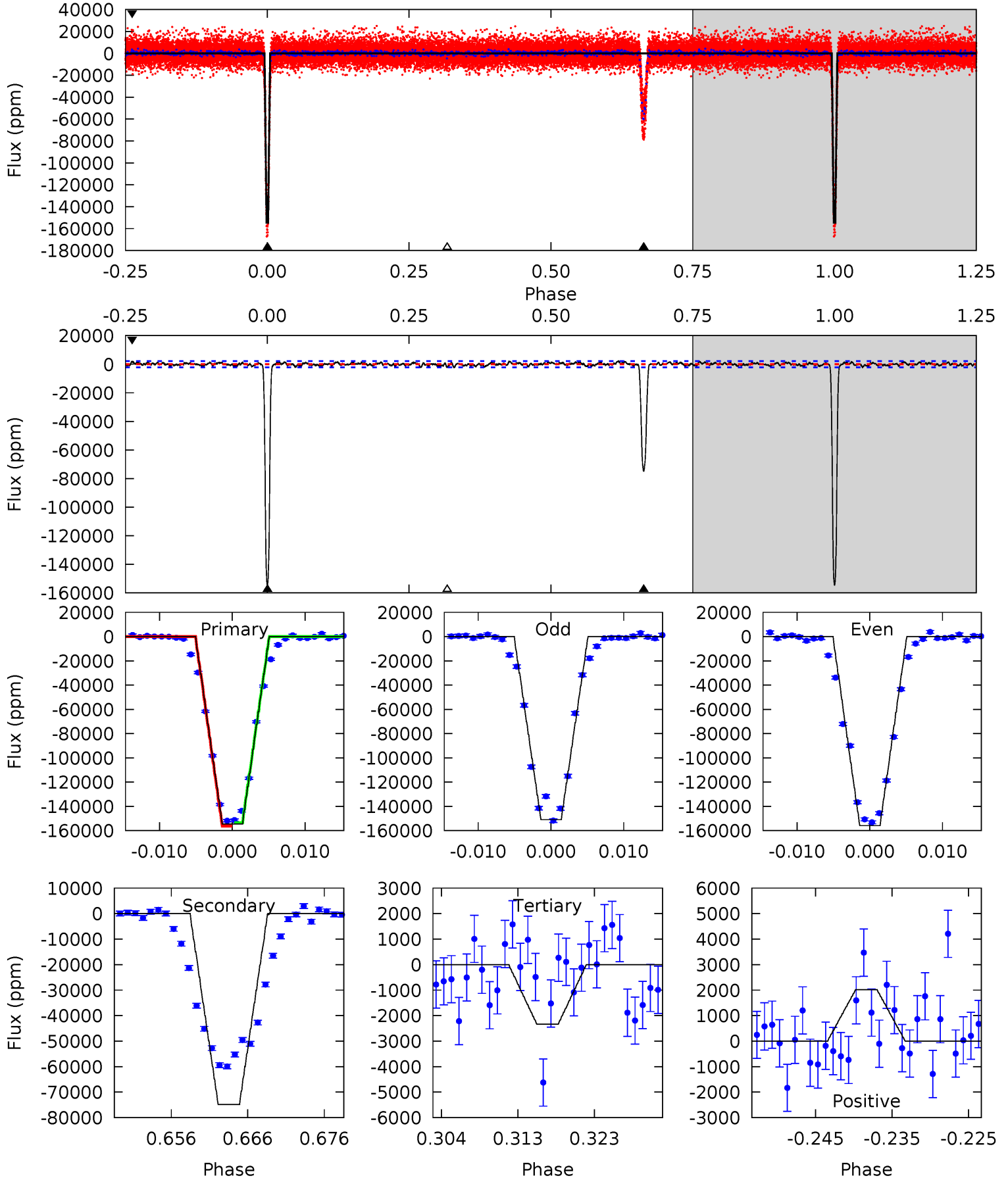
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
473.0	236.3	6.43	6.71	4.95	2.44	2.65	466.6	466.3	229.9	229.6	0.72	0.94	0.02	0



Alt Model-Shift Uniqueness Test

008937019-01, P = 5.663606 Days, E = 133.891990 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
353.1	171.1	5.35	4.62	5.03	2.58	1.67	347.8	348.5	165.7	166.4	5.59	0.93	0.01	2.53



Stellar Parameters For KIC 008937019

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 008937019-01 / KOI 3754.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-75203 ± 318	$302.00^{+314.52}_{-204.27}$	1429^{+71}_{-67}	2600^{+1046}_{-620}	$1.914^{+16.478}_{-1.470}$
Alt.	-74839 ± 437	$296.46^{+308.07}_{-213.76}$	1434^{+72}_{-66}	2625^{+1292}_{-609}	$1.970^{+23.333}_{-1.499}$

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

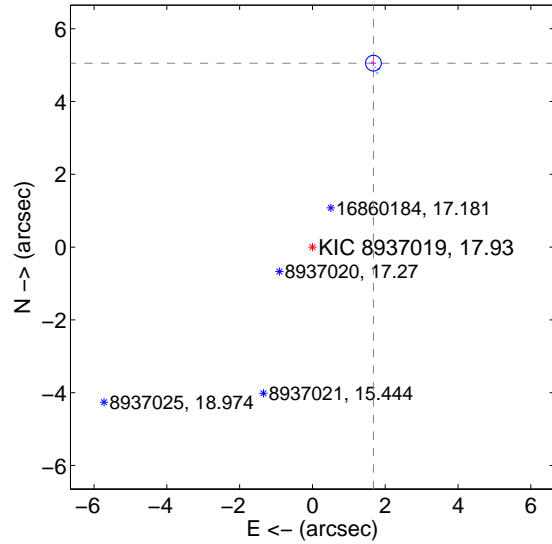
Supplemental centroid analysis for 008937019-01. Kepler magnitude: 17.93. Transit SNR 213.28

There are 8 quarters with good PRF difference image offsets

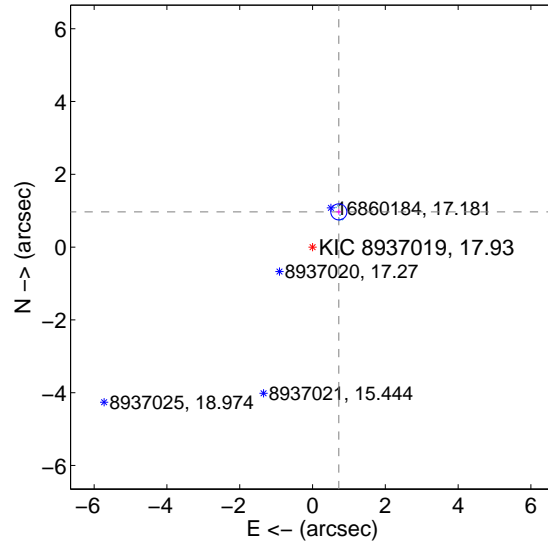
The OOT PRF centroid is offset from the target star catalog position by about 4.17 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.325 ± 0.072	73.74	-1.676 ± 0.073	5.054 ± 0.076
PRF-fit source offset from KIC position	1.207 ± 0.073	16.43	-0.722 ± 0.069	0.967 ± 0.076
photometric centroid source offset	3.32 ± 0.00	1056.54	0.57 ± 0.00	-3.27 ± 0.00

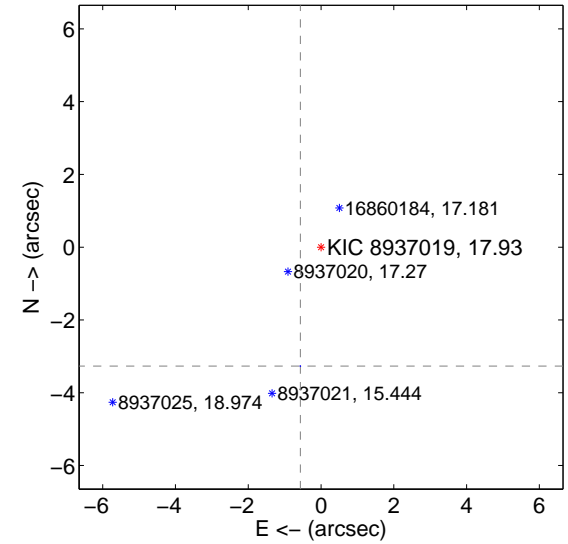
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

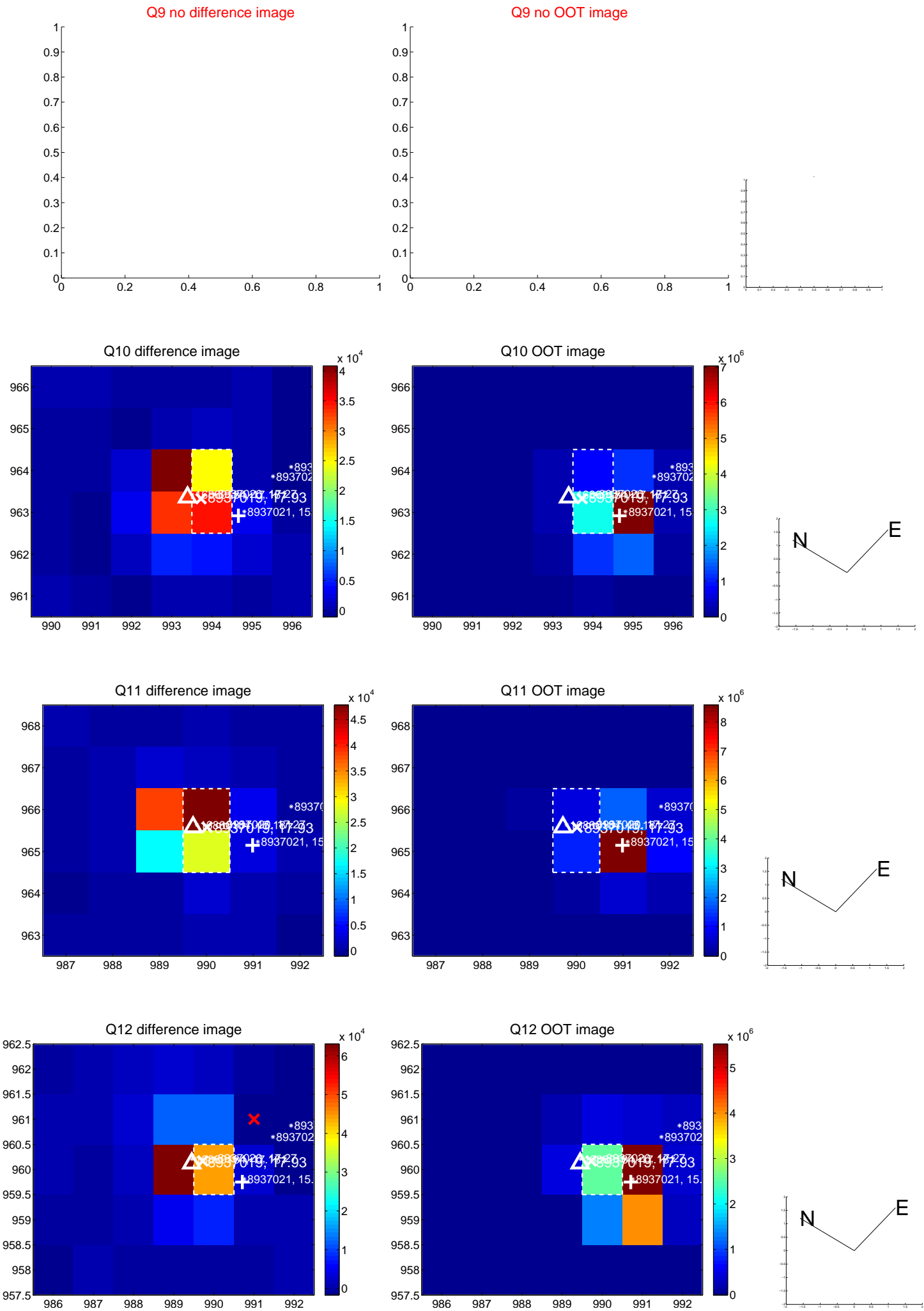
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



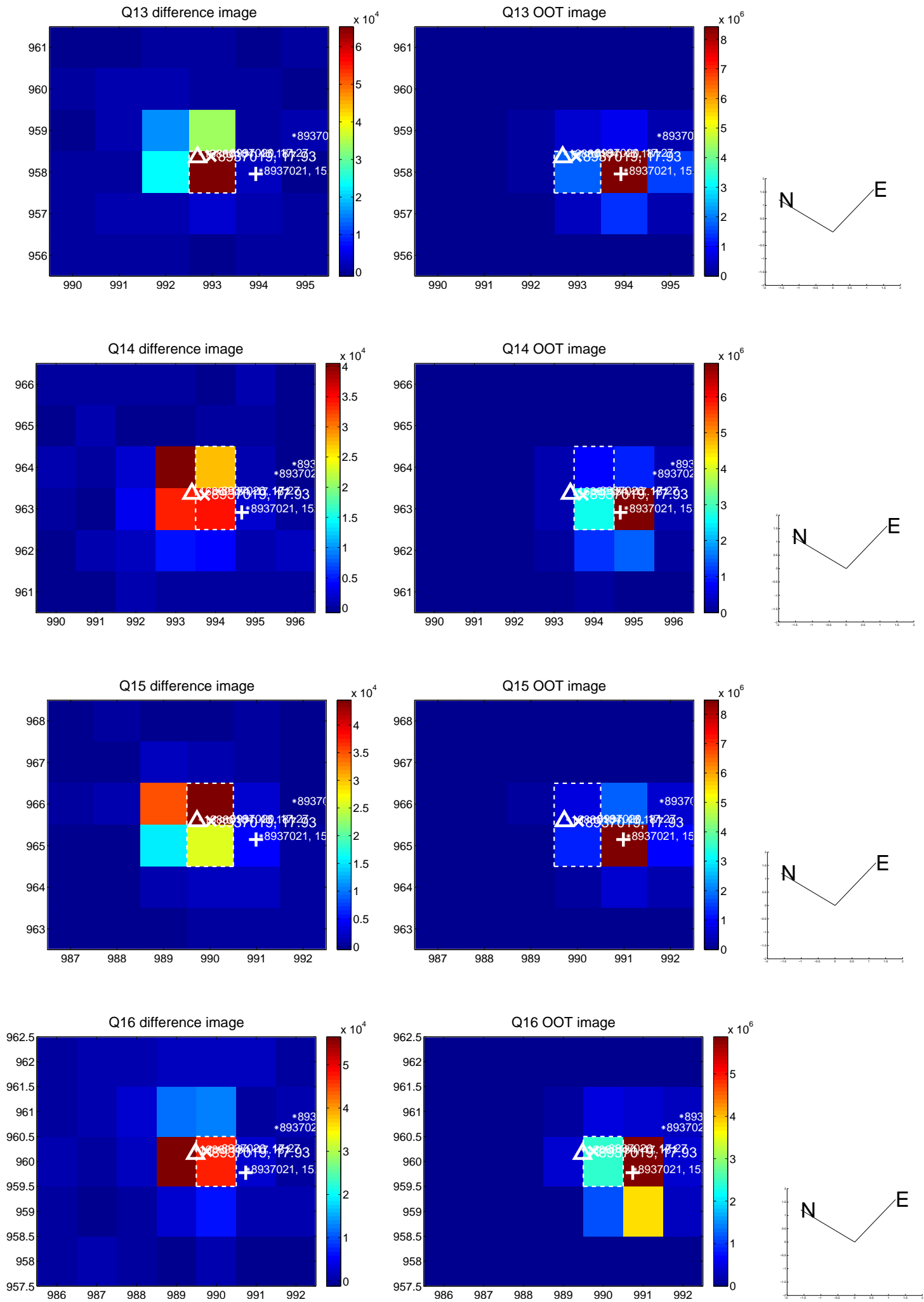
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



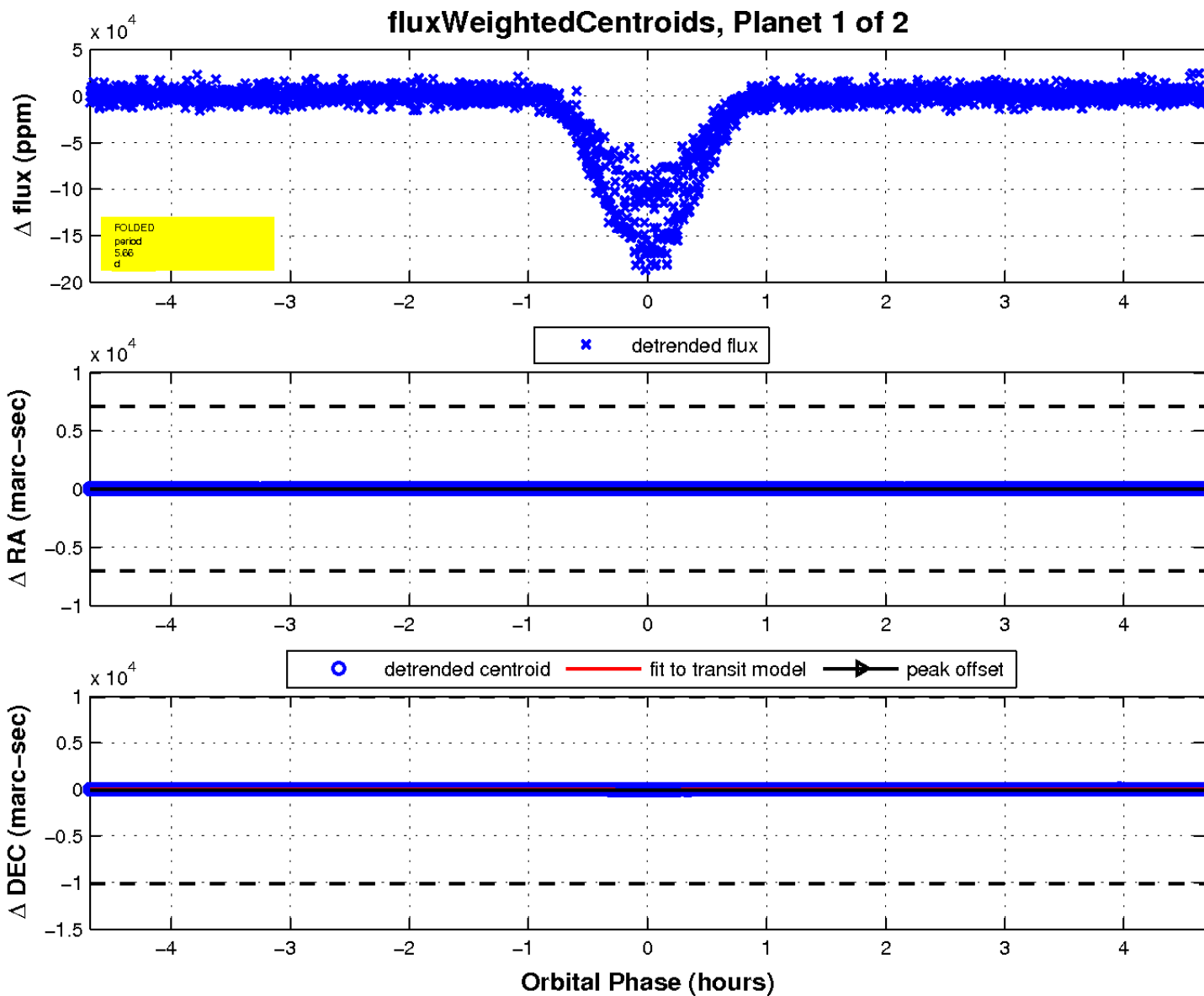
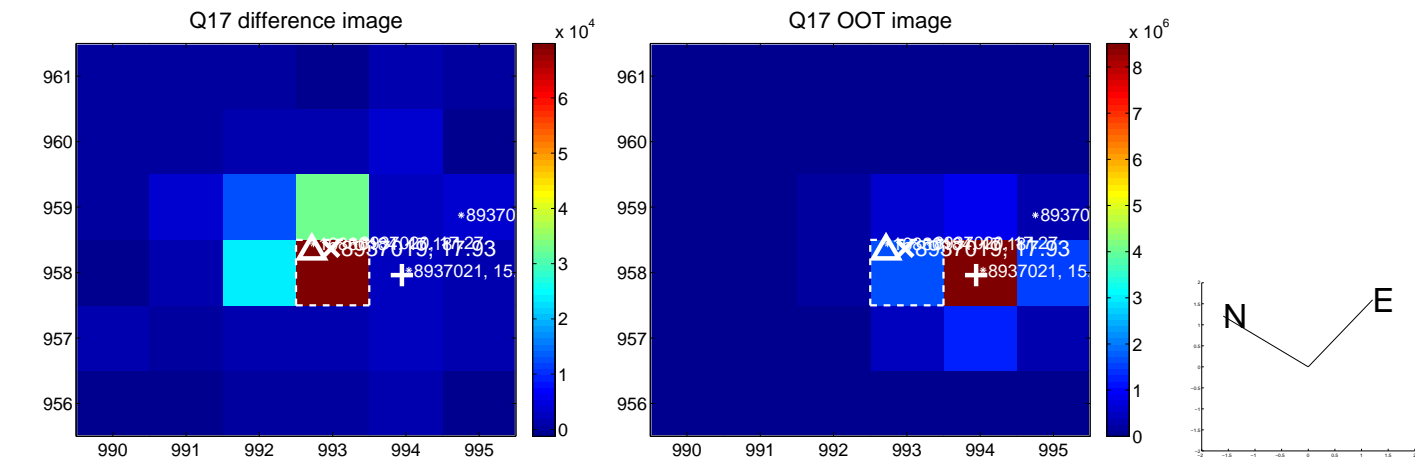
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

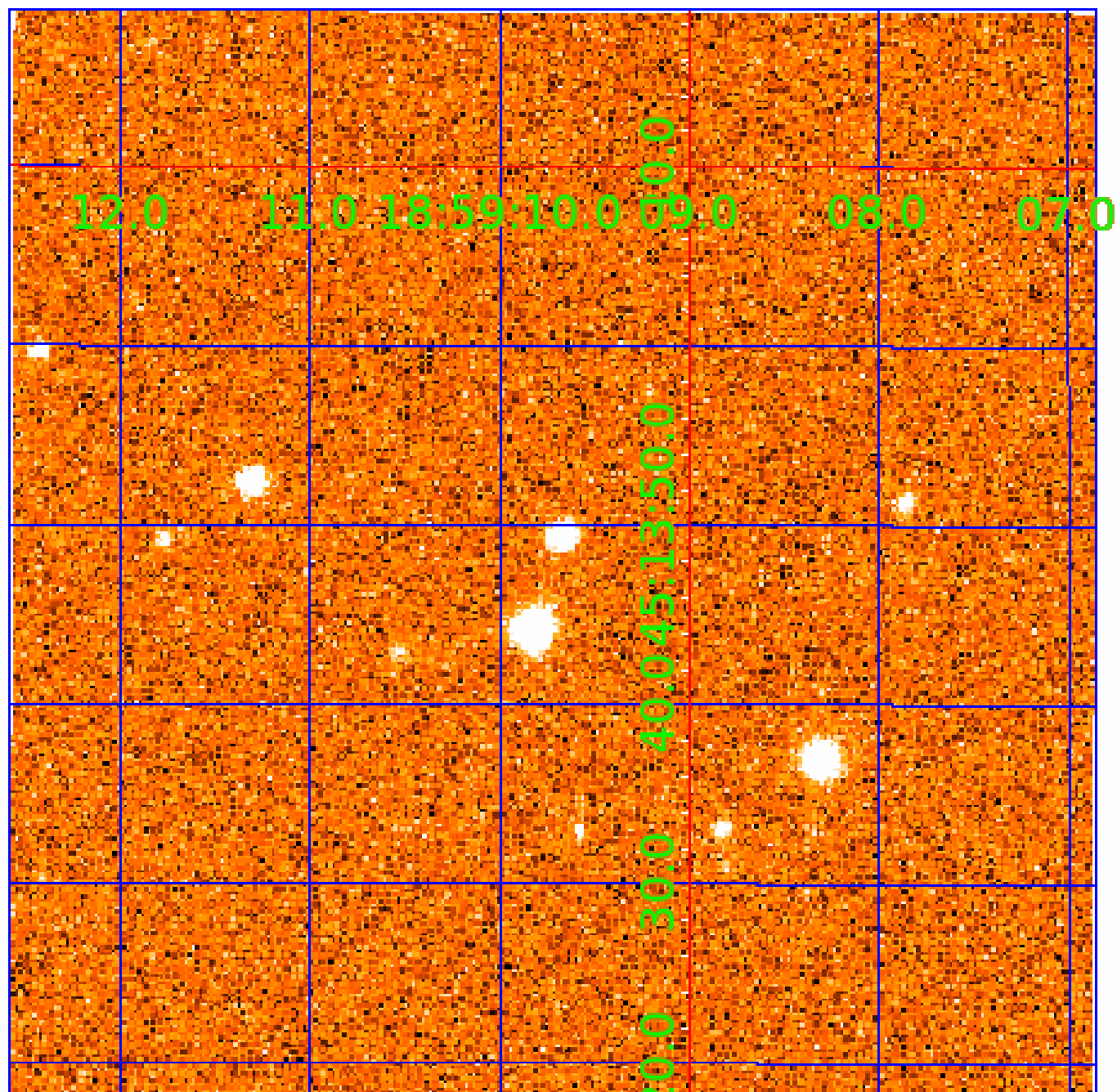


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008937019

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})
008937019-01	OBS	3754.01	5.663616	133.890064	162964.1	1.561	247.7	213.3	1.00	5780	58.44	258.51
008937019-02	OBS	No	5.663573	131.993440	67125.8	2.015	148.5	113.0	1.00	5780	37.45	258.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008937019-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
008937019-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

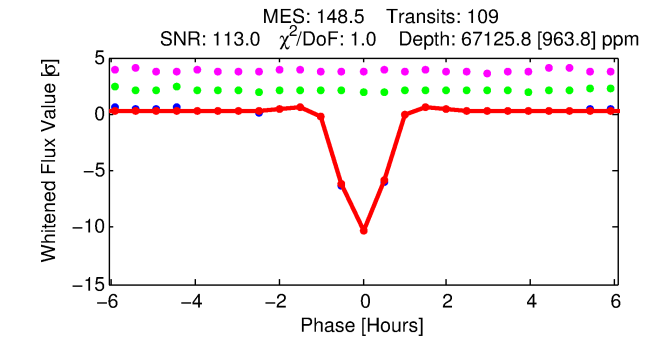
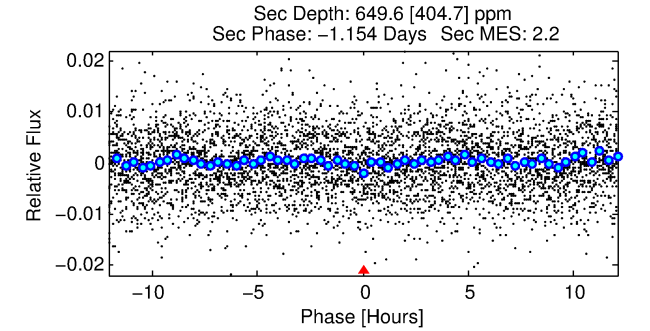
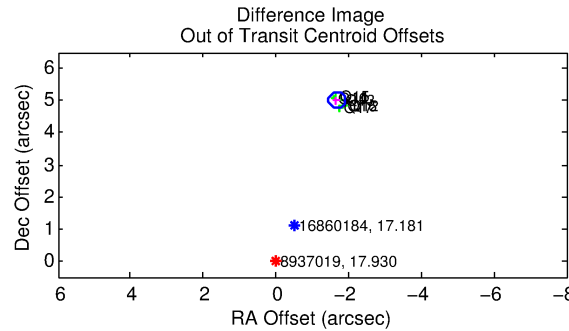
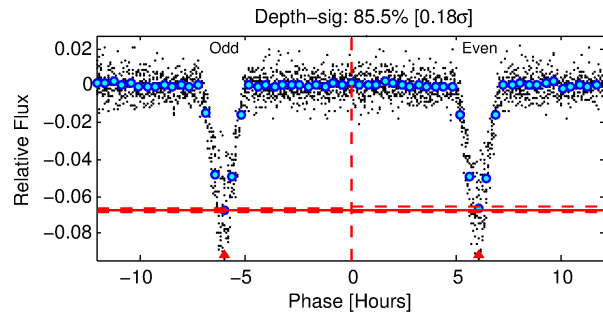
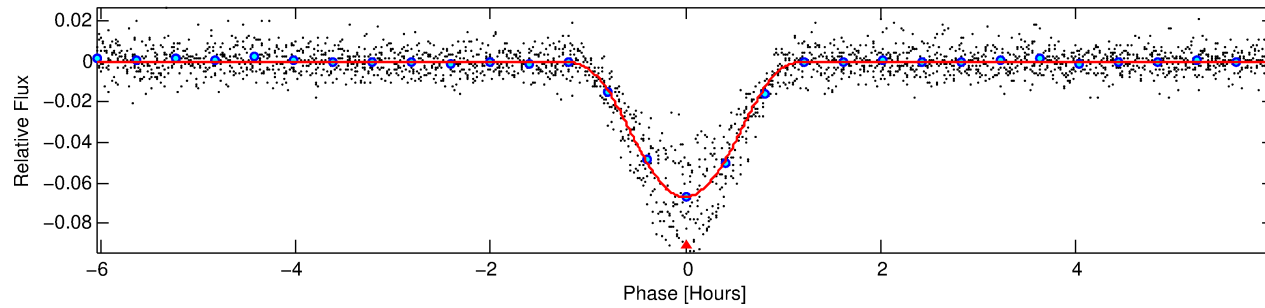
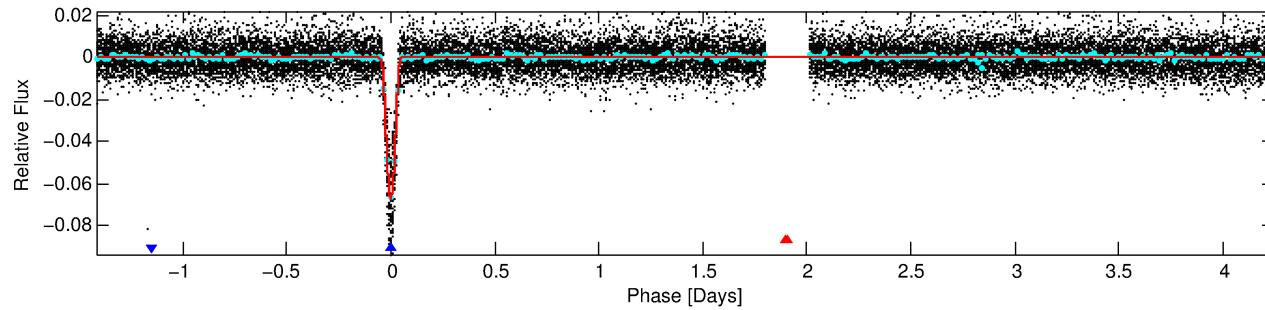
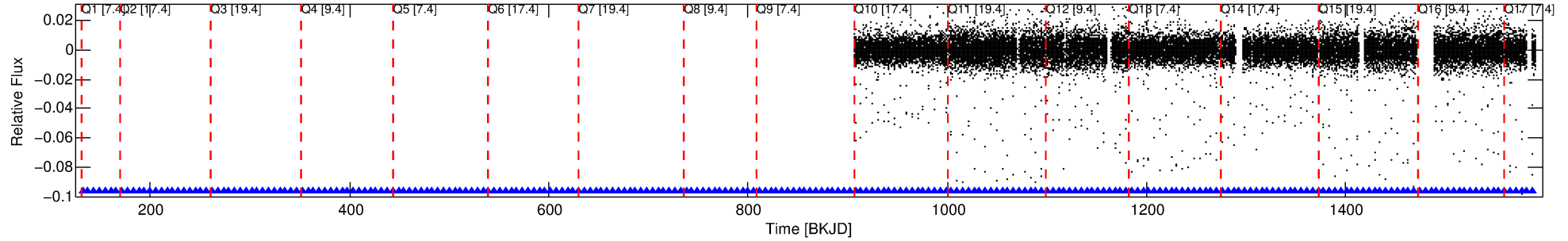
Ephemeris Match Information For 008937019-02

No Significant Match Found

DV One-Page Summary

KIC: 8937019 Candidate: 2 of 2 Period: 5.664 d
KOI: K03754 Corr: No Ephemeris Match

Kp: 17.93 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



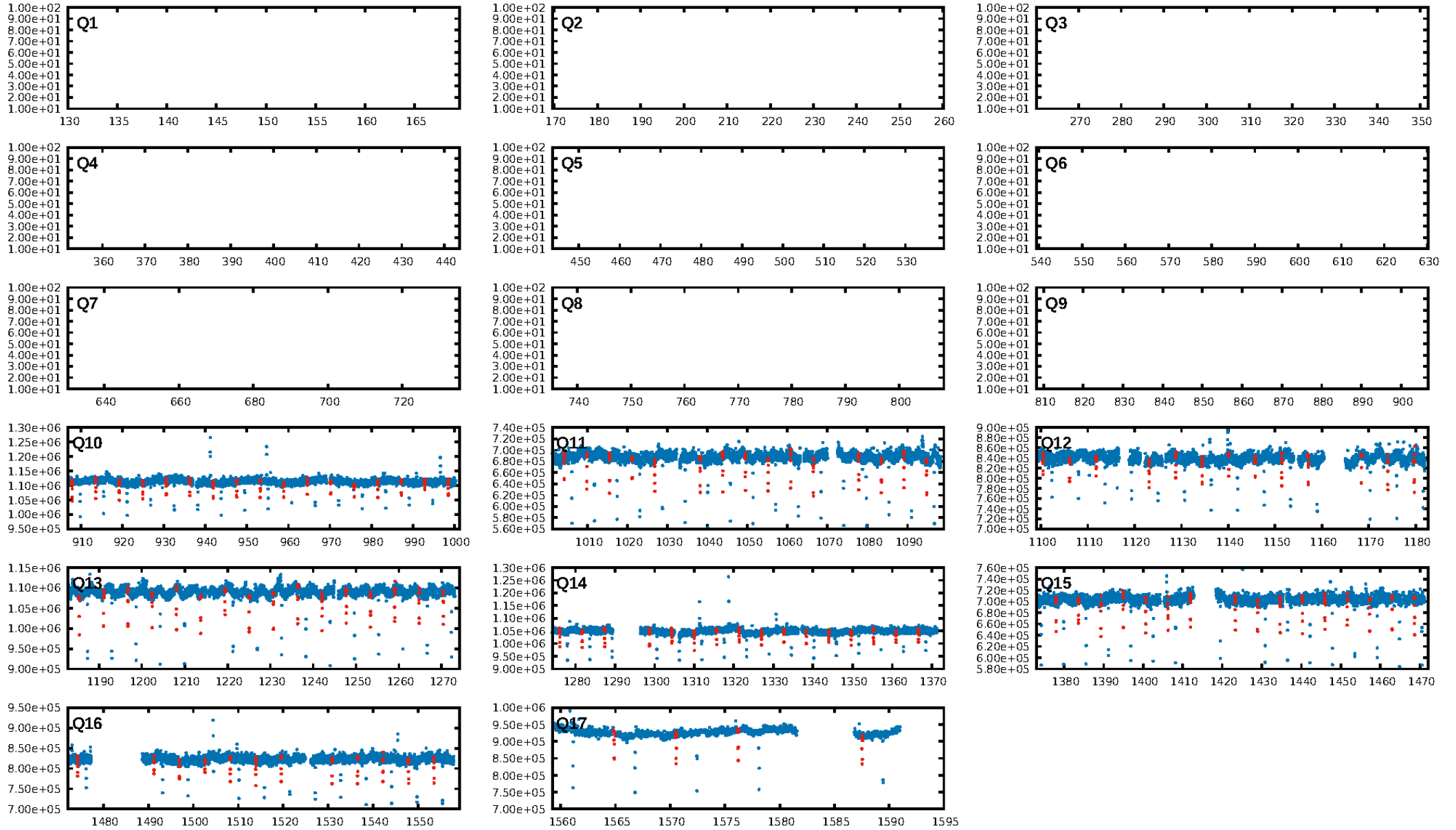
DV Fit Results:

Period = 5.66357 [0.00000] d
Epoch = 131.9934 [0.0005] BKJD
Rp/R* = 0.3432 [0.1942]
a/R* = 21.44 [0.72]
b = 0.90 [0.30]
Seff = 258.51 [0.00]
Teq = 1022 [0] K
Rp = 37.45 [21.19] Re
a = 0.0622 [0.0000] AU
Ag = 0.99 [1.27] [-0.01σ]
Teffp = 1575 [509] K [1.09σ]

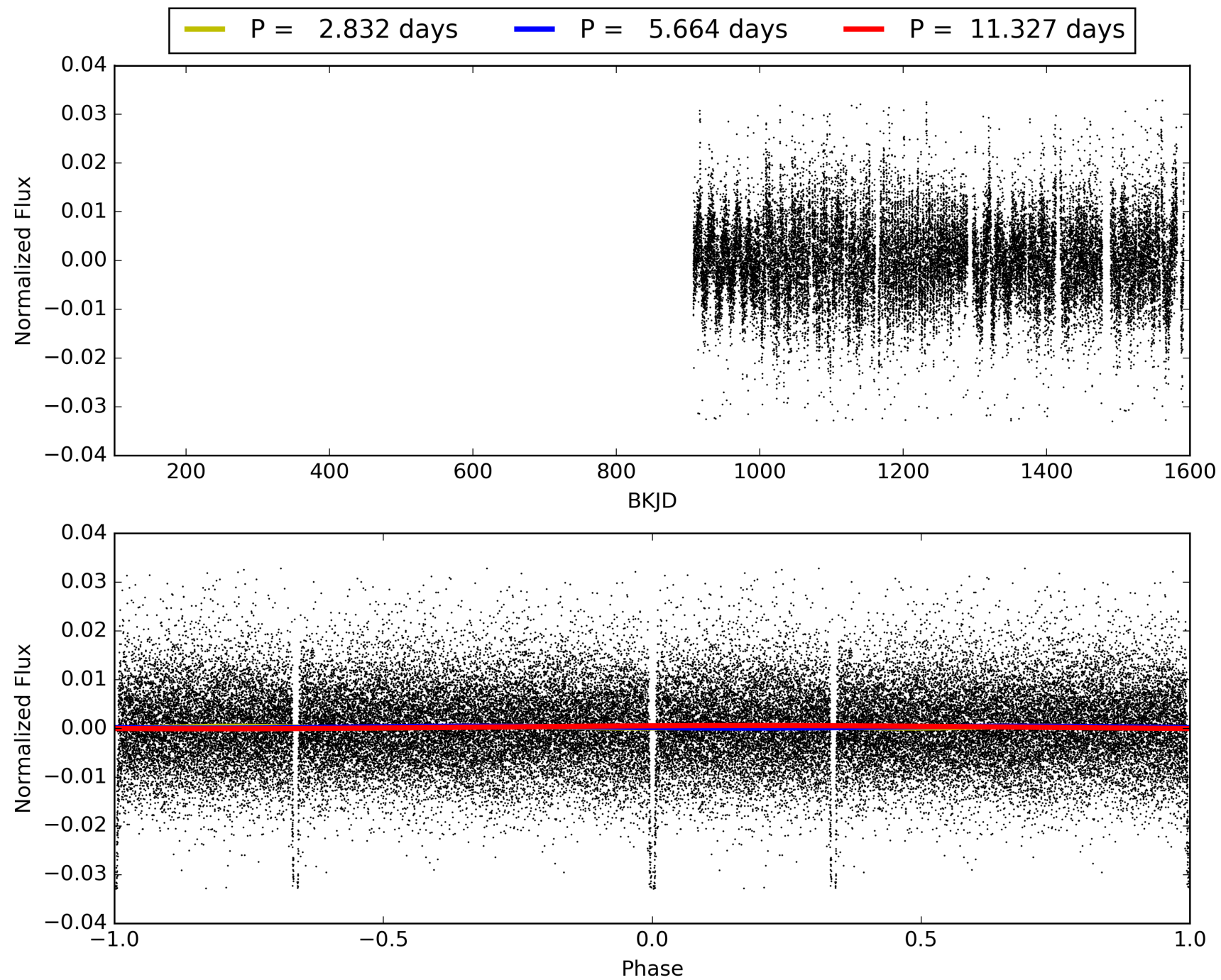
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [104/104]
GhostDiagnostic-chr: 0.7034
Centroid-sig: 0.0%
Centroid-so: 3.259 arcsec [479.17σ]
OotOffset-rm: 5.281 arcsec [65.41σ]
KicOffset-rm: 1.256 arcsec [16.33σ]
OotOffset-st: 2/2/2 [8]
KicOffset-st: 2/2/2 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 008937019-02, PDC Light Curves

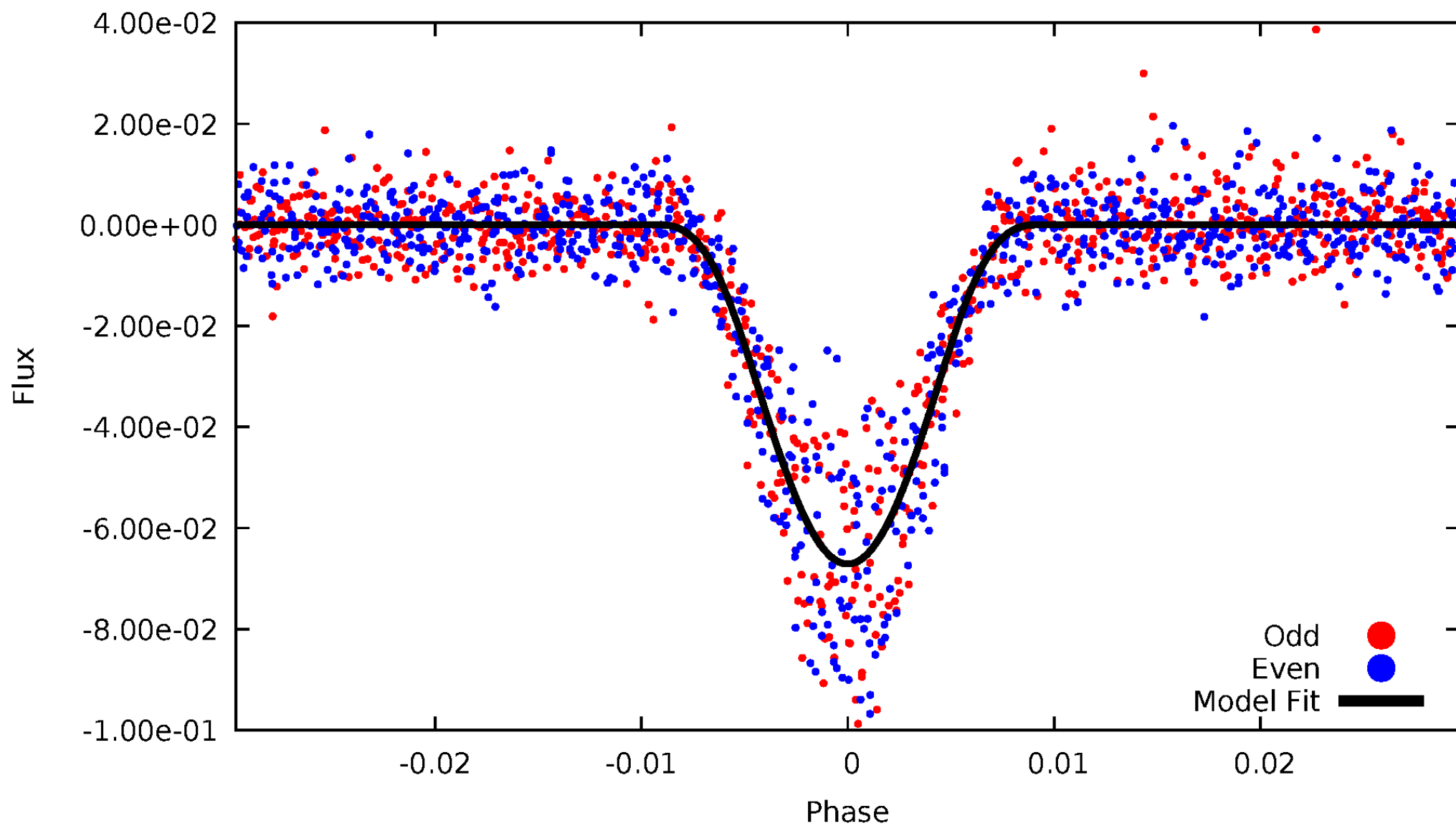


TCE 008937019-02



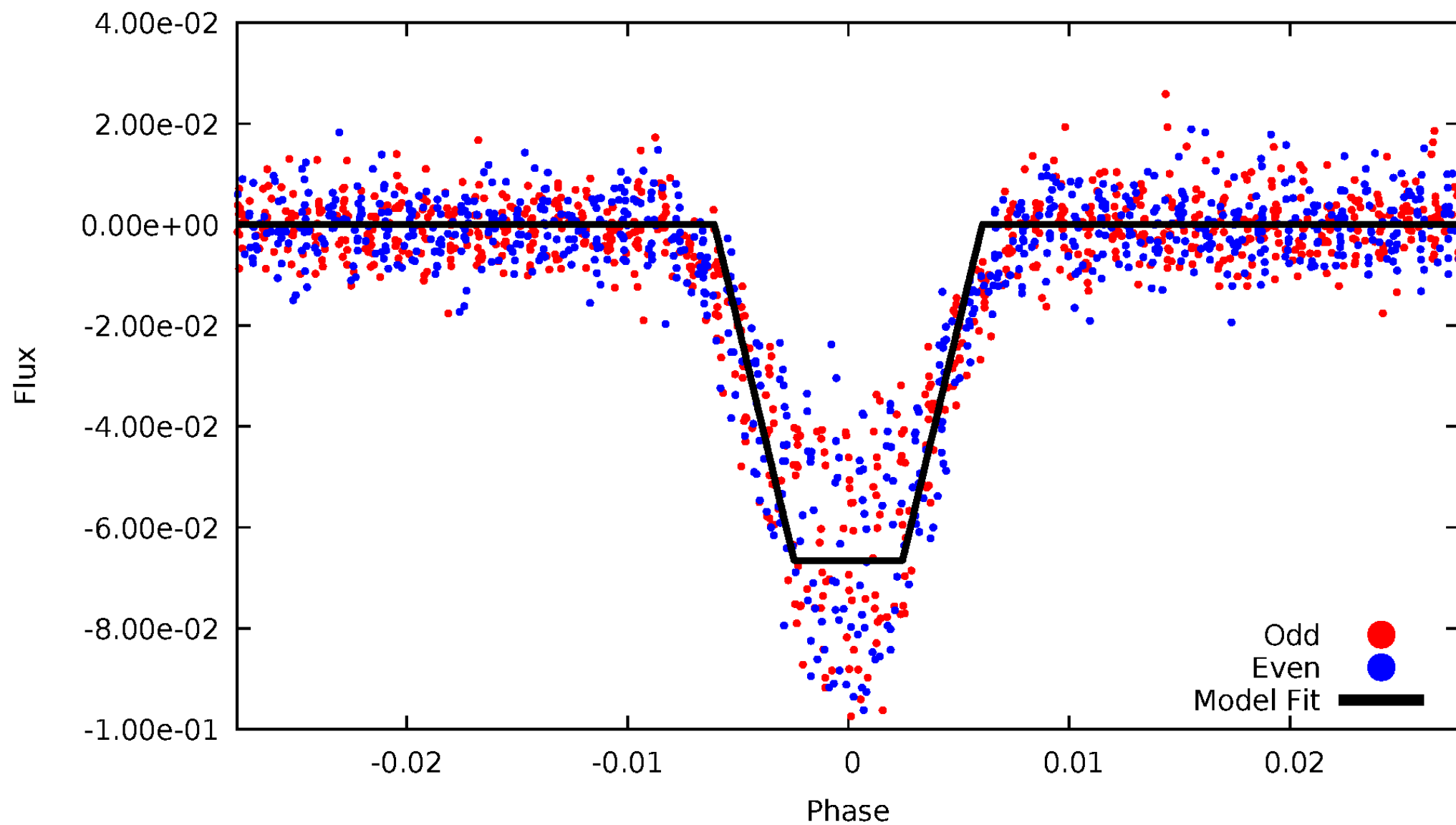
DV Odd/Even

TCE 008937019-02



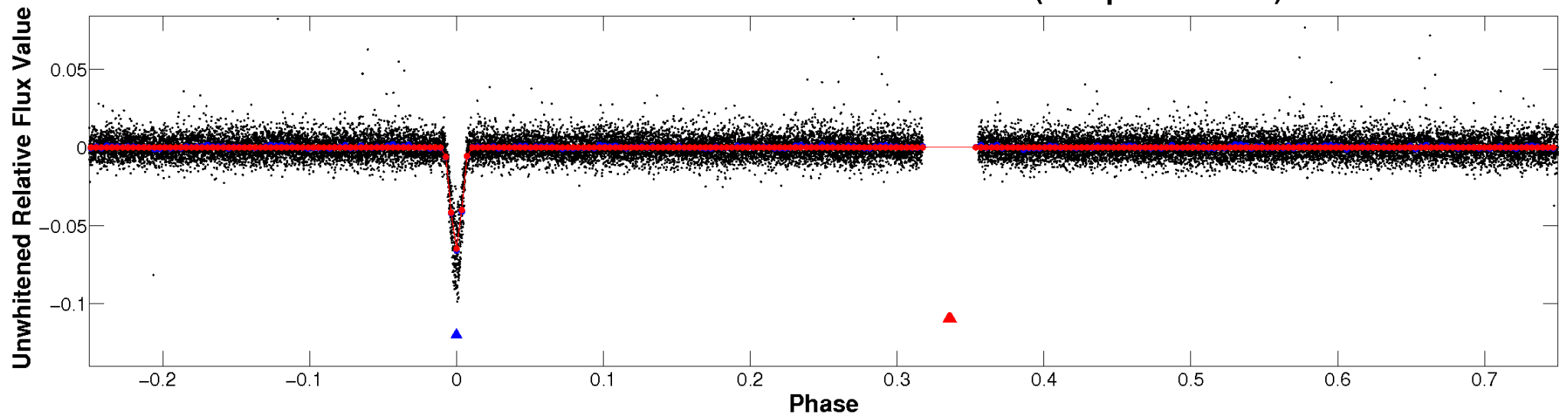
ALT Odd/Even

TCE 008937019-02

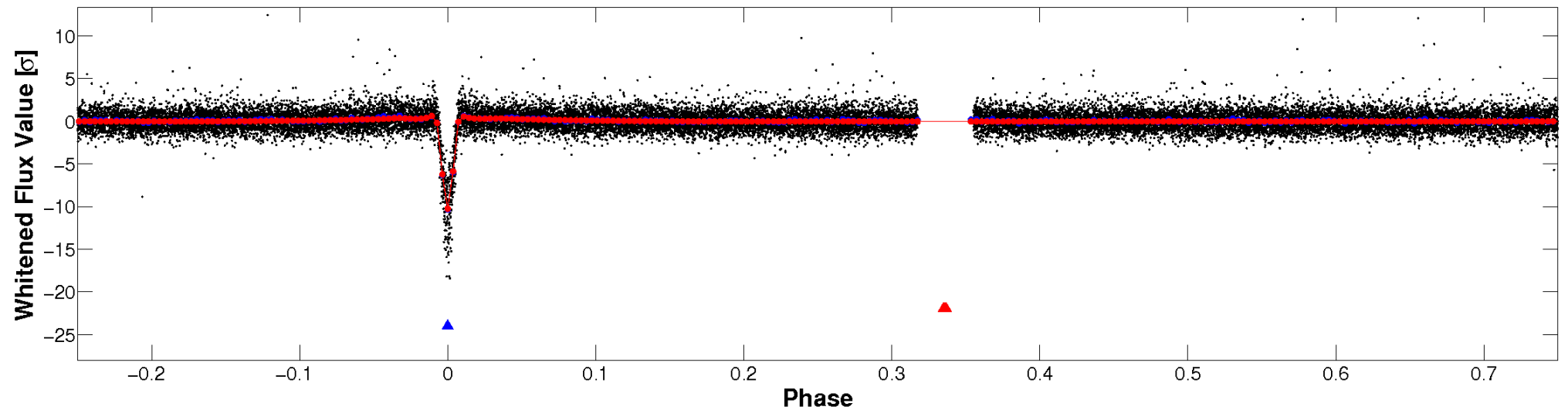


Non-Whitened Vs. Whitened Light Curve

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

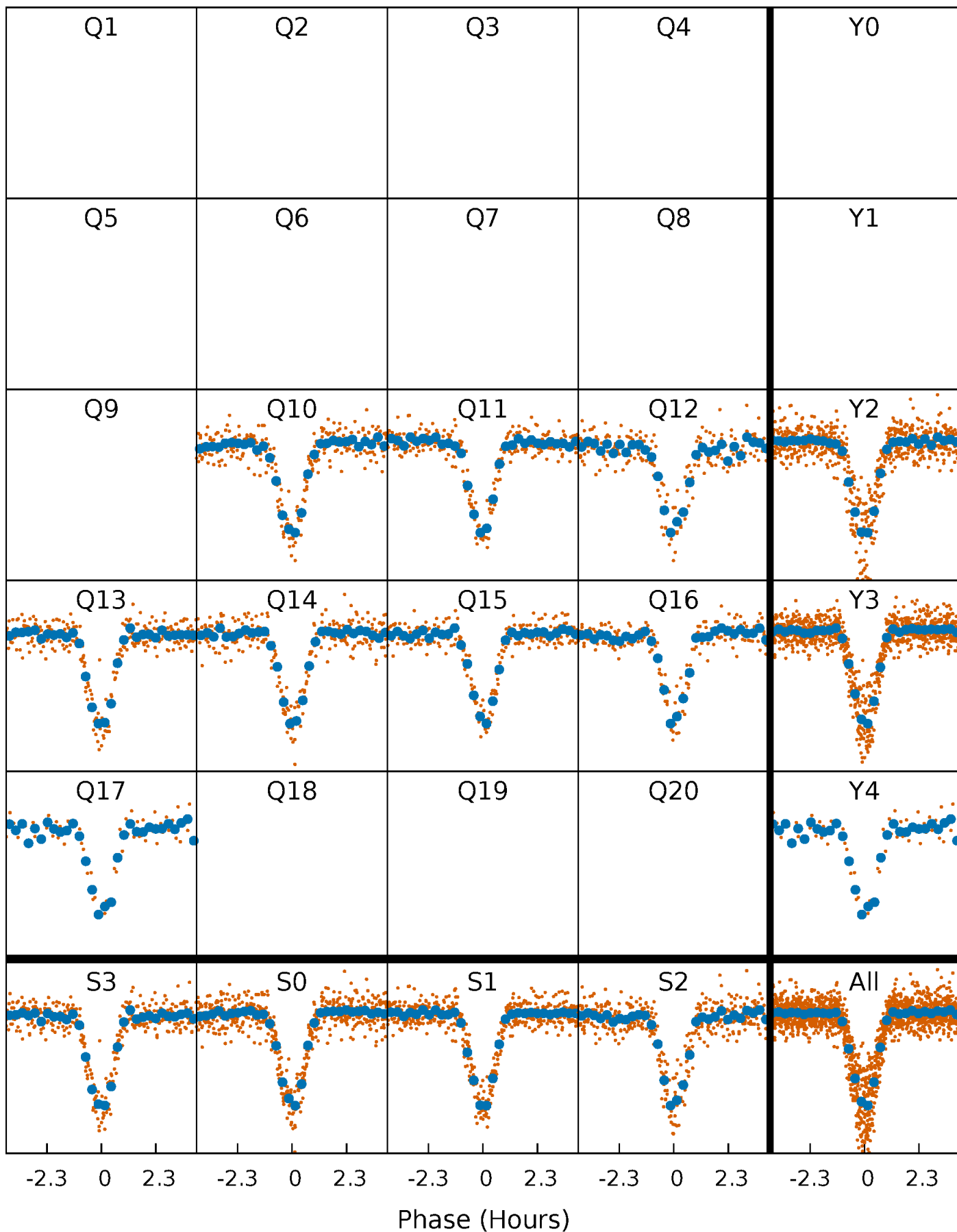


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



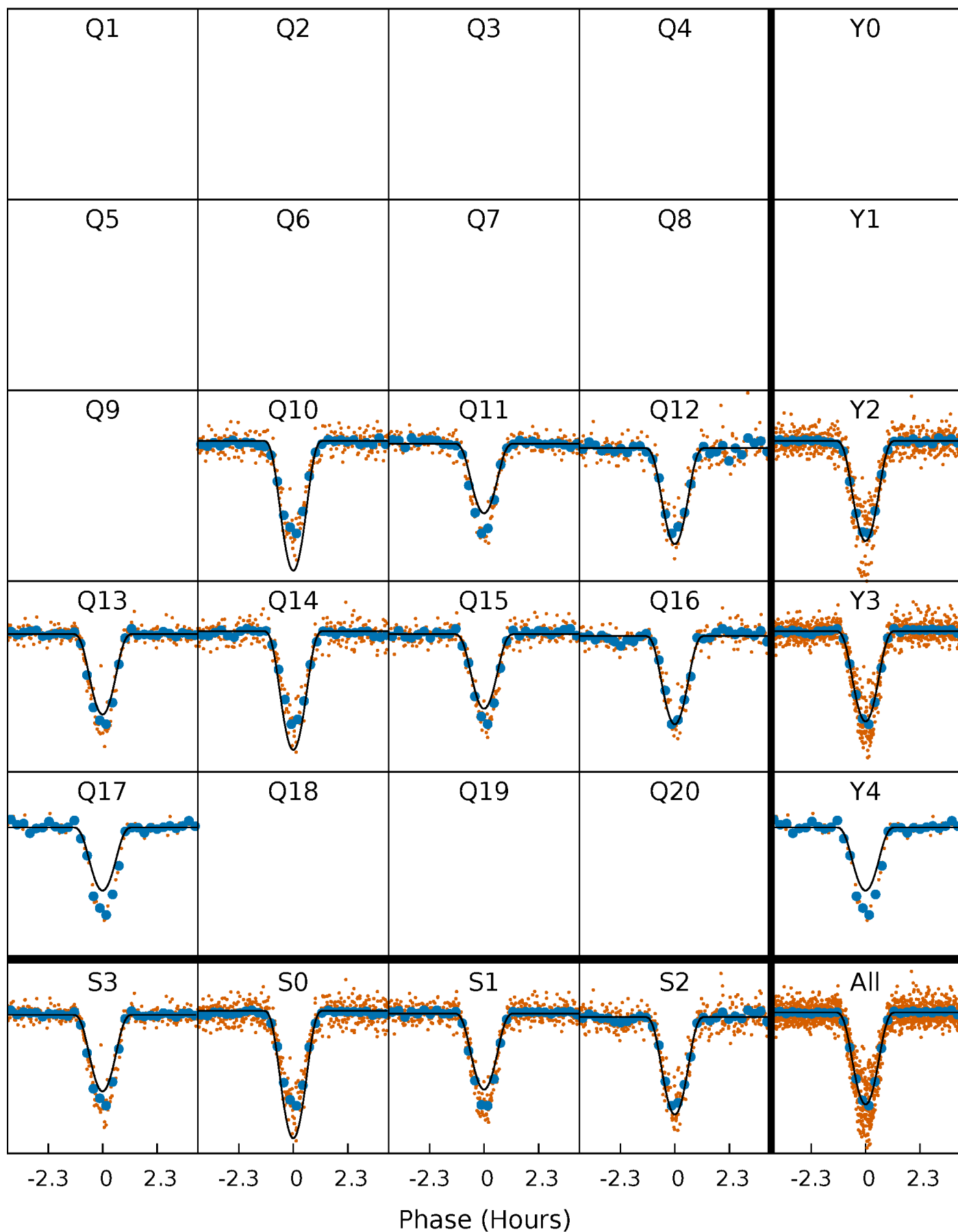
PDC Quarter-Phased Transit Curves

TCE 008937019-02 $P = 5.663573$ Days $T_0 = 131.993440$ (BKJD)



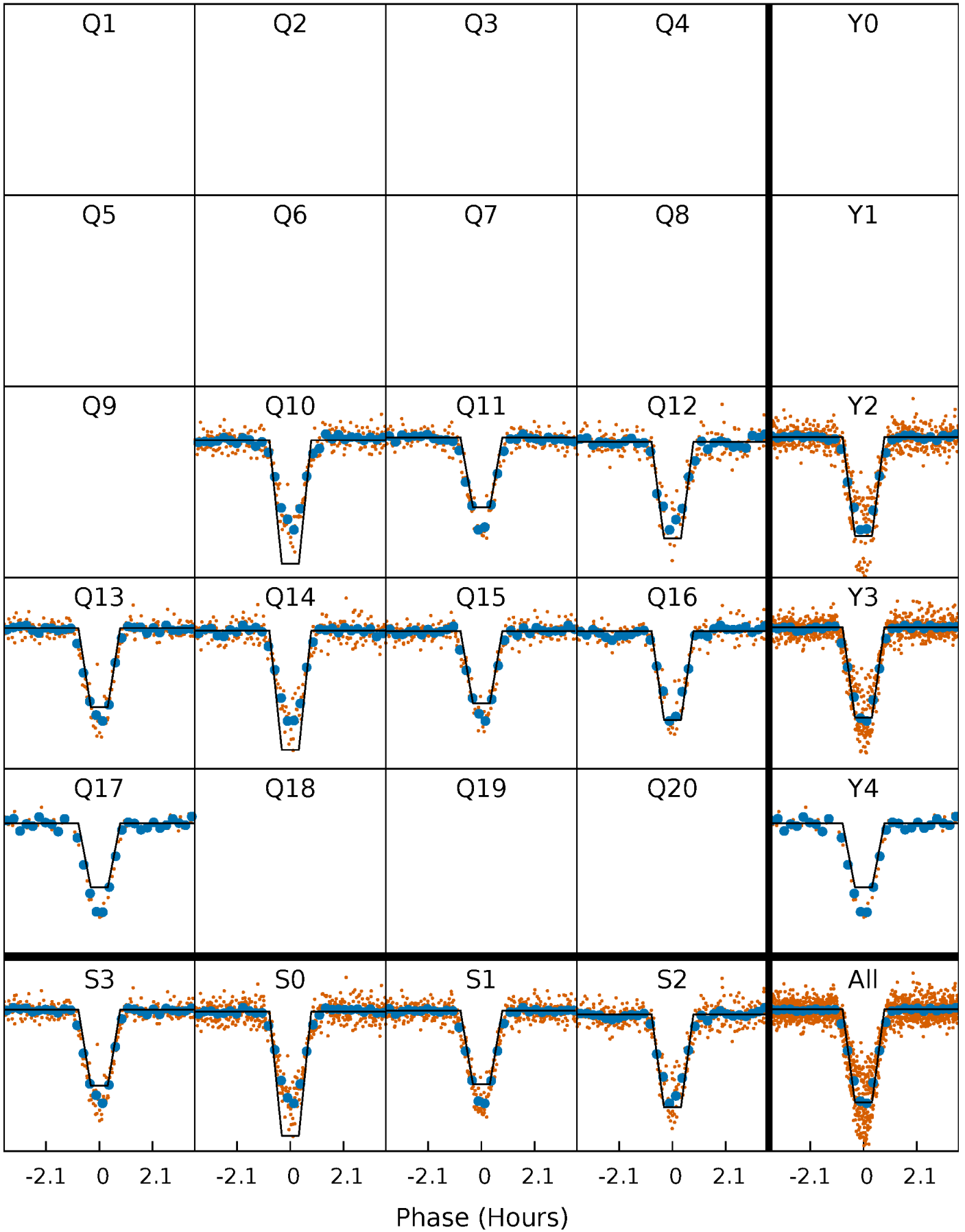
DV Quarter-Phased Transit Curves

TCE 008937019-02 P= 5.663573 Days $T_0=131.993440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

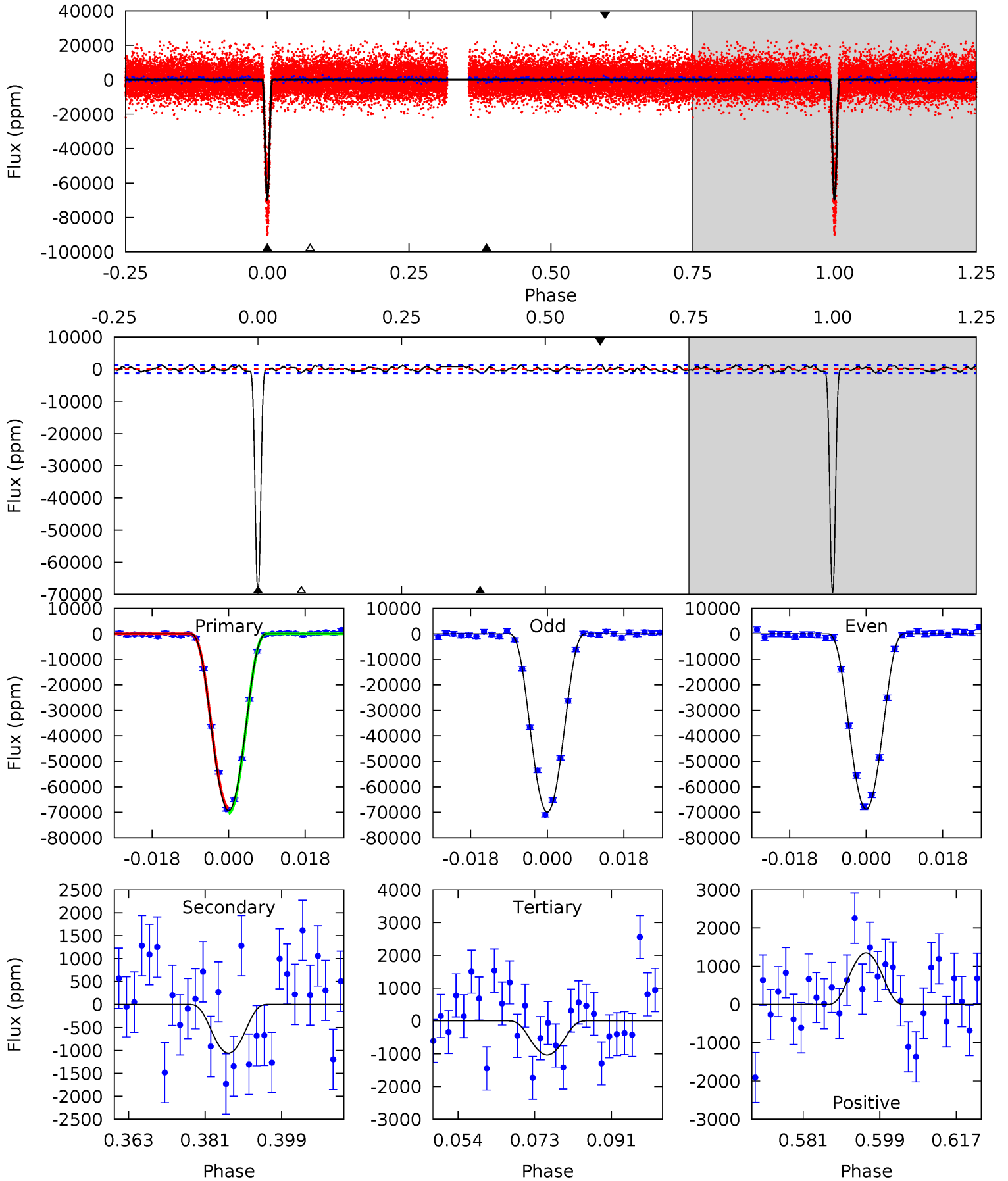
TCE 008937019-02 P= 5.663606 Days $T_0=131.987109$ (BKJD)



DV Model-Shift Uniqueness Test

008937019-02, P = 5.663573 Days, E = 131.993440 Days

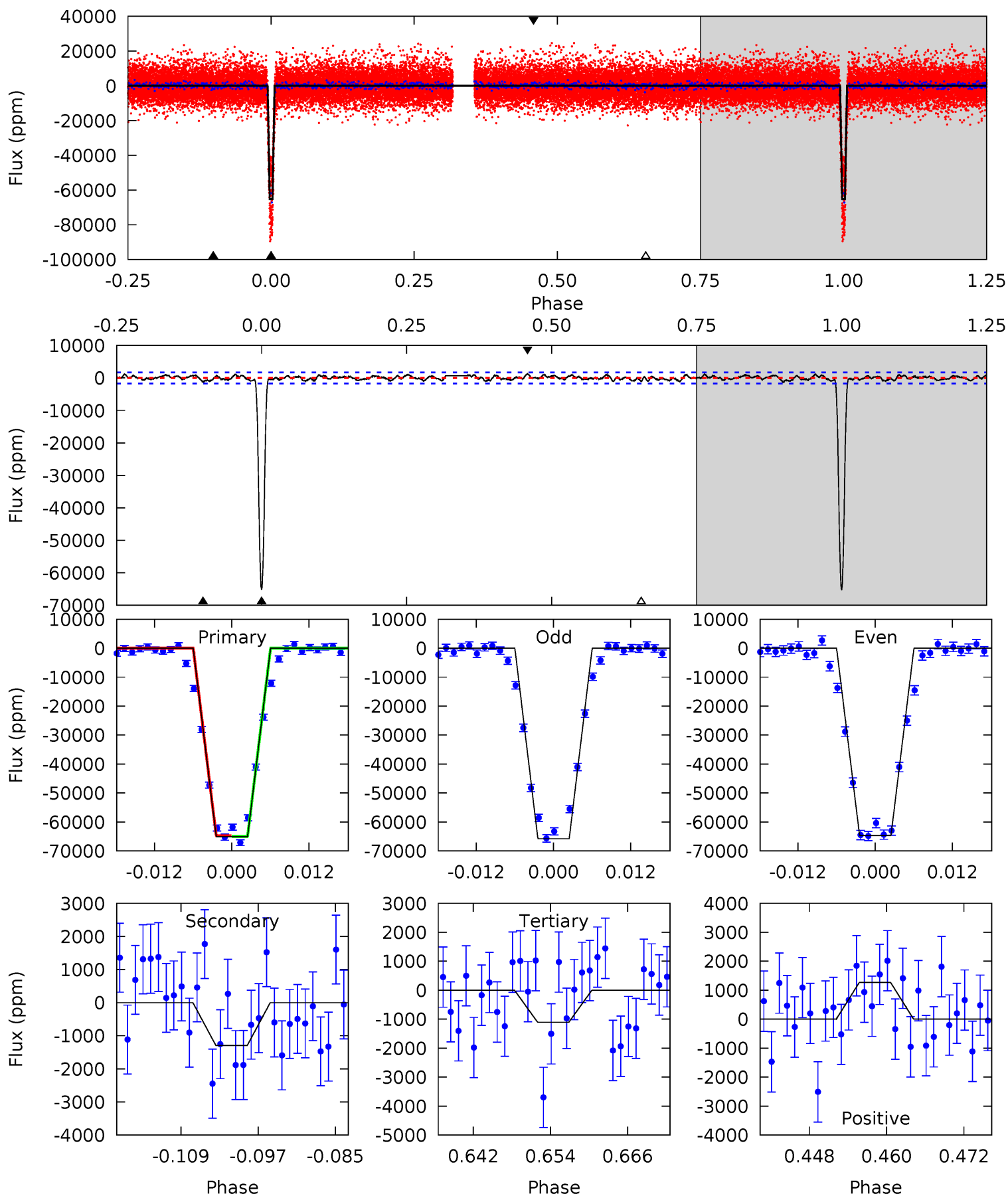
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
262.9	4.02	3.94	5.11	4.91	2.36	1.93	258.9	257.7	0.08	-1.10	2.20	0.99	0.02	4.10



Alt Model-Shift Uniqueness Test

008937019-02, P = 5.663606 Days, E = 131.987109 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
189.9	3.78	3.21	3.70	4.99	2.51	1.42	186.7	186.2	0.56	0.08	1.55	0.97	0.02	0.38



Stellar Parameters For KIC 008937019

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 008937019-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1059 ± 264	$38.53^{+22.54}_{-19.32}$	1434^{+64}_{-71}	2511^{+564}_{-399}	$1.475^{+4.688}_{-0.897}$
Alt.	-1296 ± 343	$30.49^{+20.99}_{-17.18}$	1429^{+67}_{-65}	2753^{+825}_{-396}	$2.952^{+12.596}_{-1.961}$

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

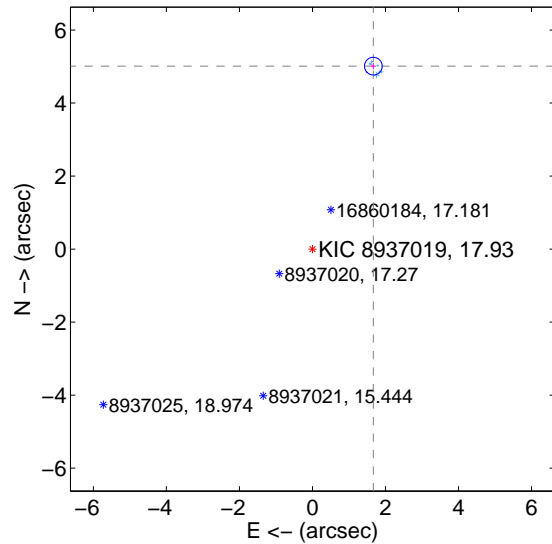
Supplemental centroid analysis for 008937019-02. Kepler magnitude: 17.93. Transit SNR 112.98

There are 8 quarters with good PRF difference image offsets

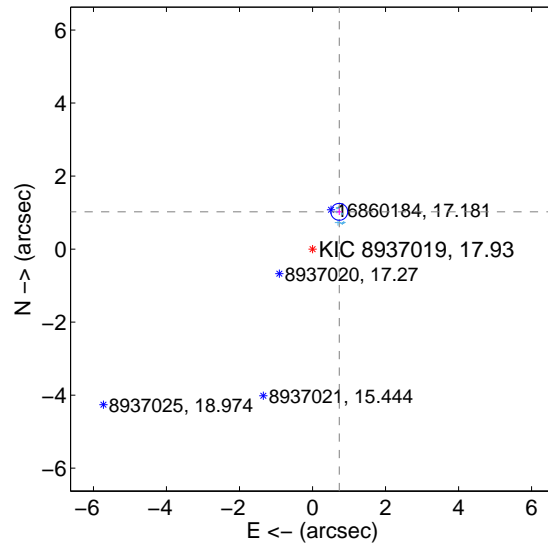
The OOT PRF centroid is offset from the target star catalog position by about 4.17 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.281 ± 0.081	65.41	-1.668 ± 0.078	5.011 ± 0.088
PRF-fit source offset from KIC position	1.256 ± 0.077	16.33	-0.732 ± 0.071	1.021 ± 0.089
photometric centroid source offset	3.26 ± 0.01	479.17	0.56 ± 0.00	-3.21 ± 0.01

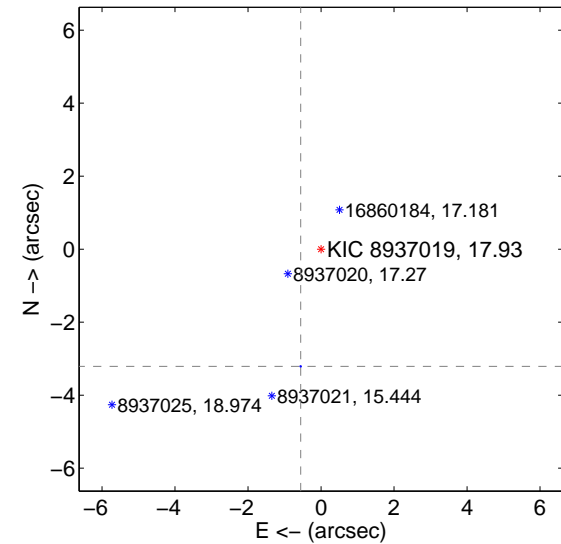
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

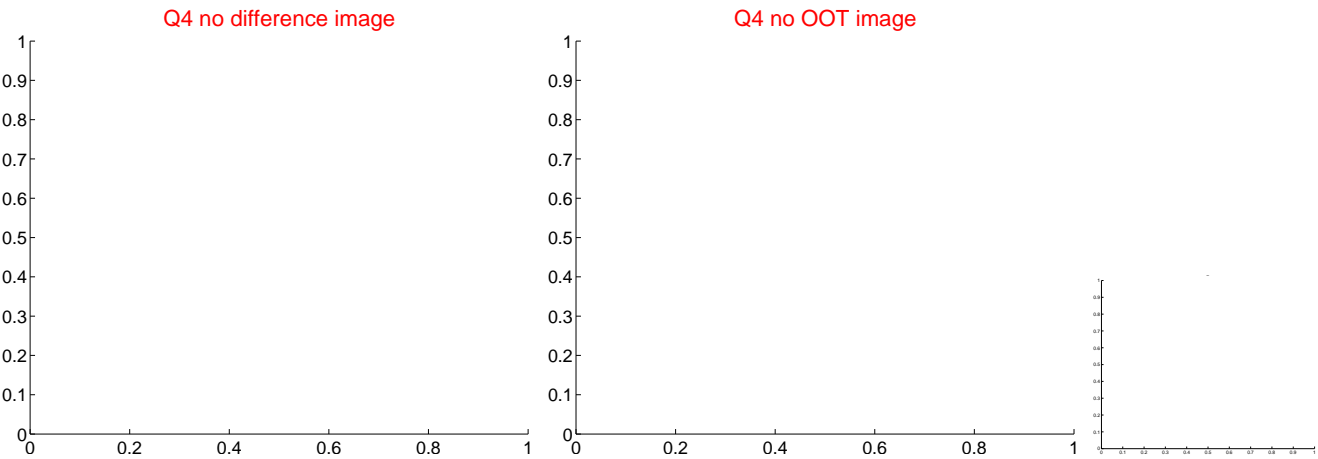
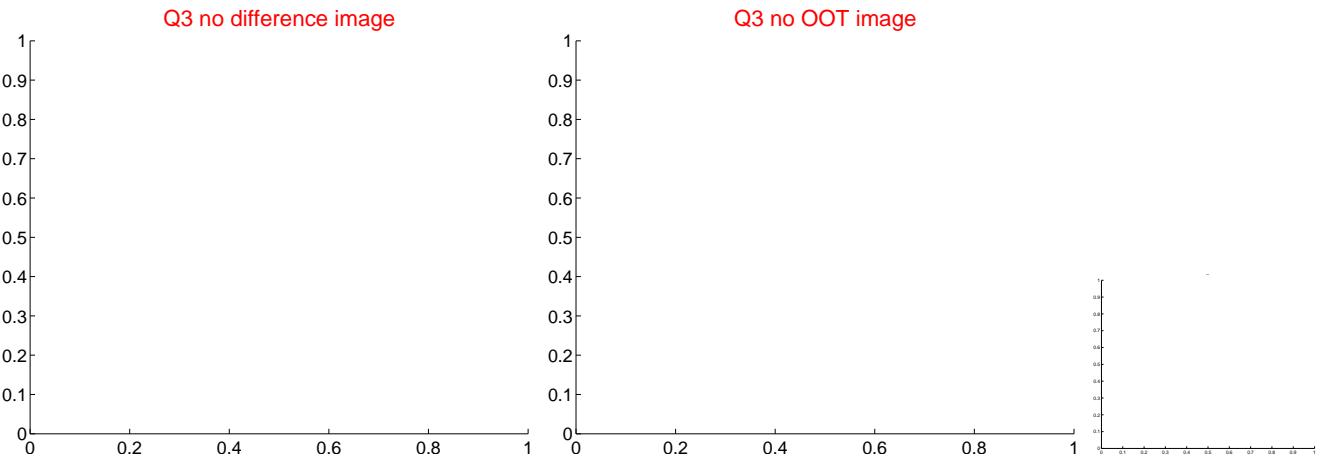
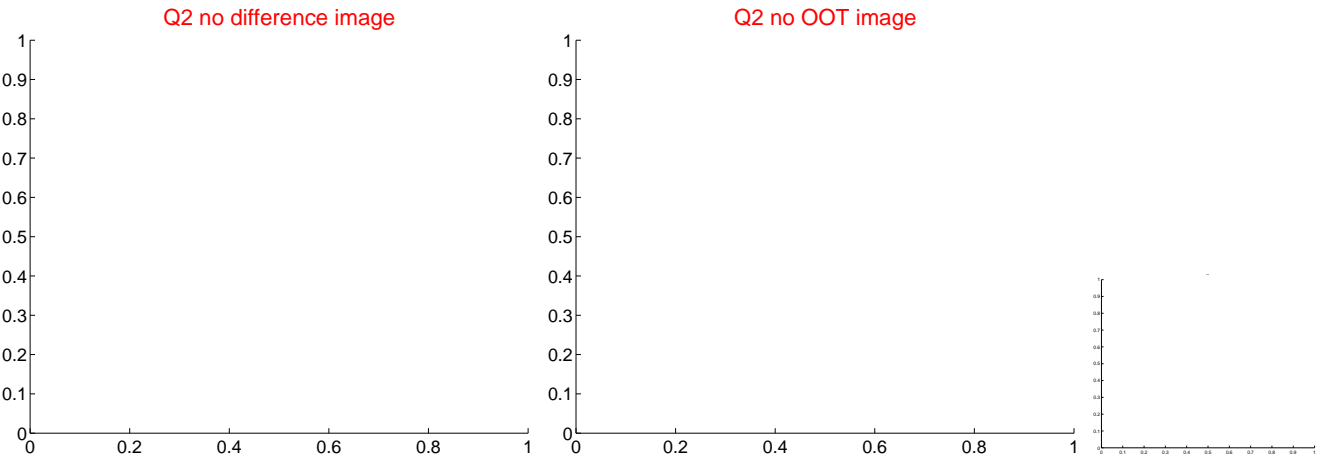
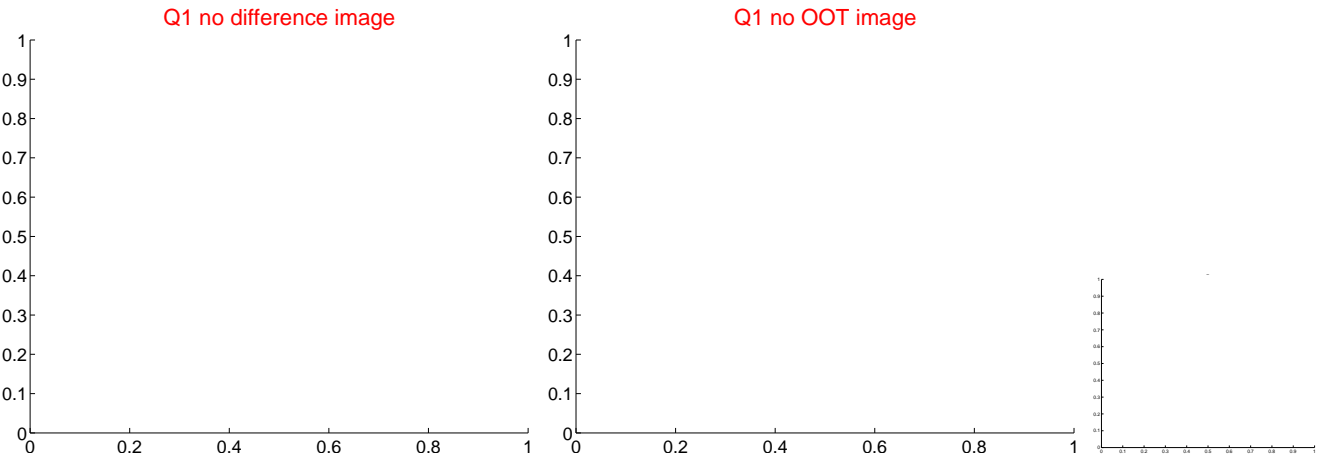


offset from photometric centroids

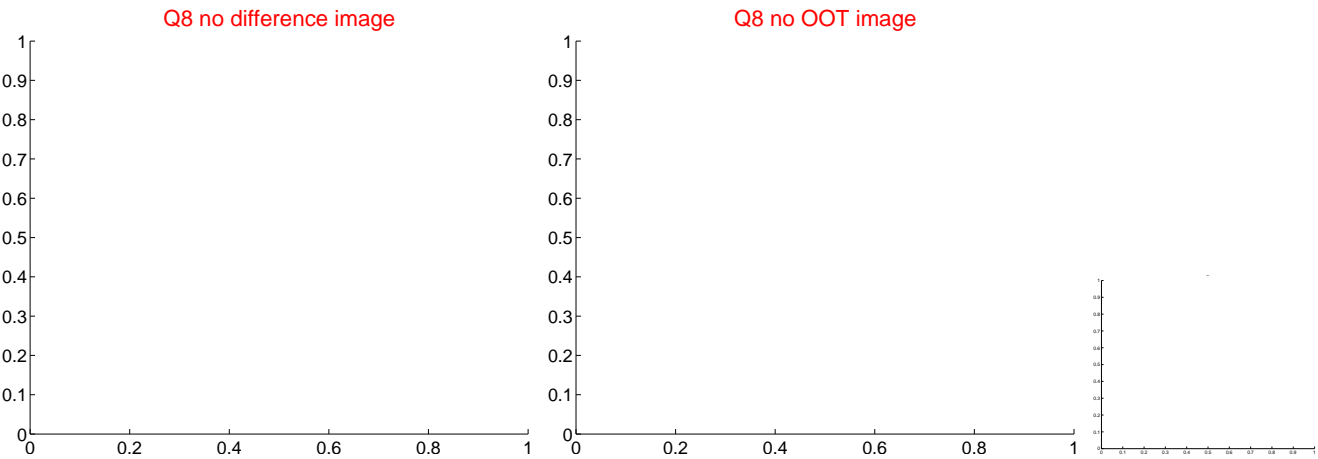
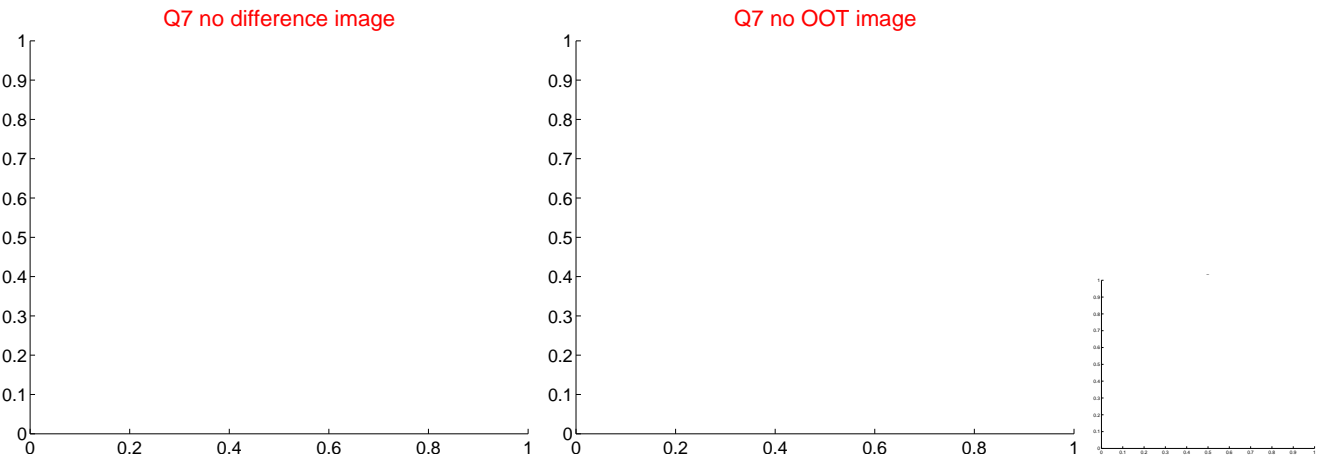
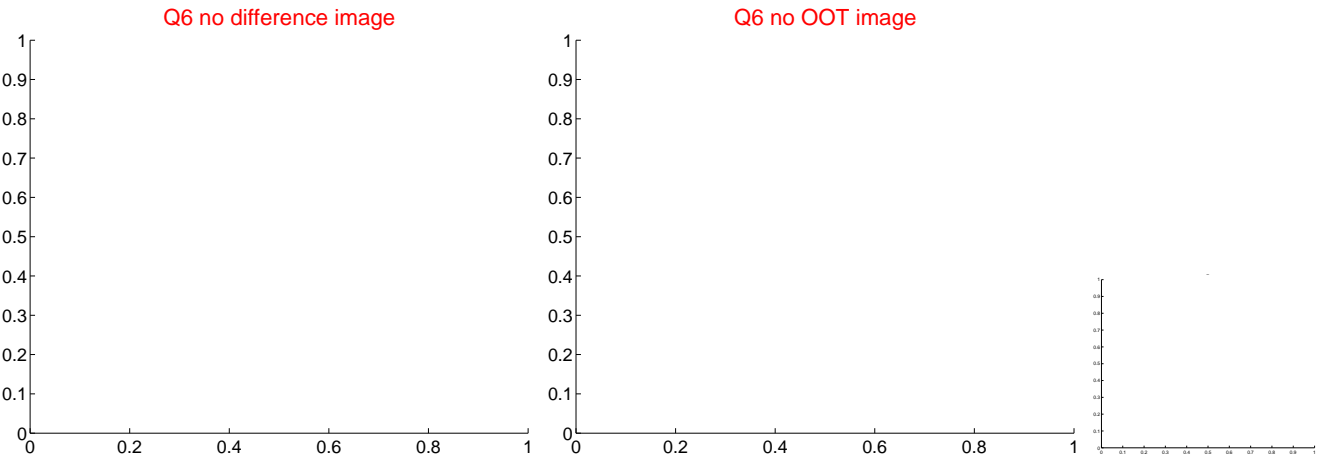
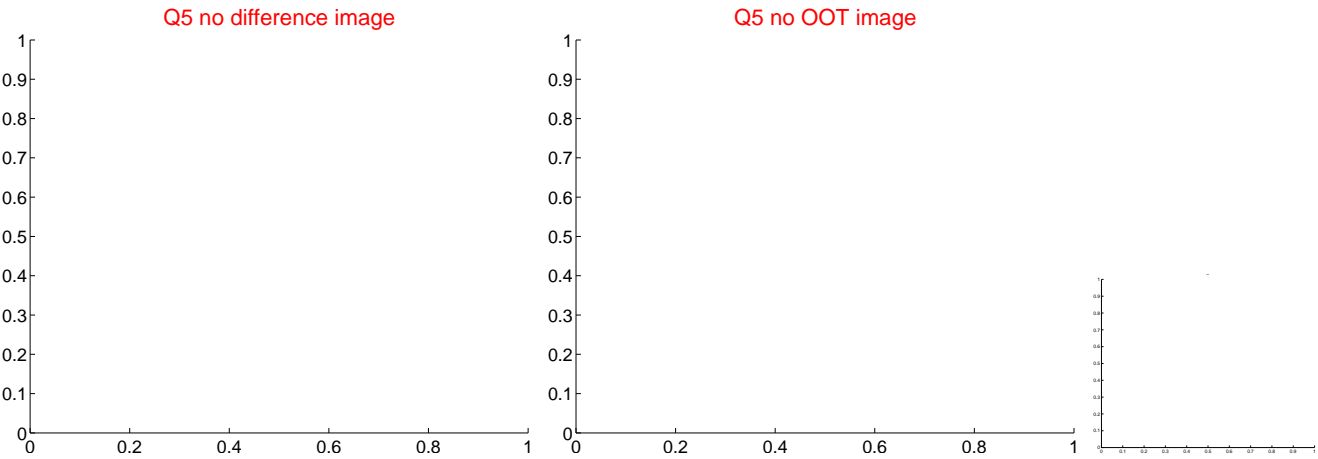


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

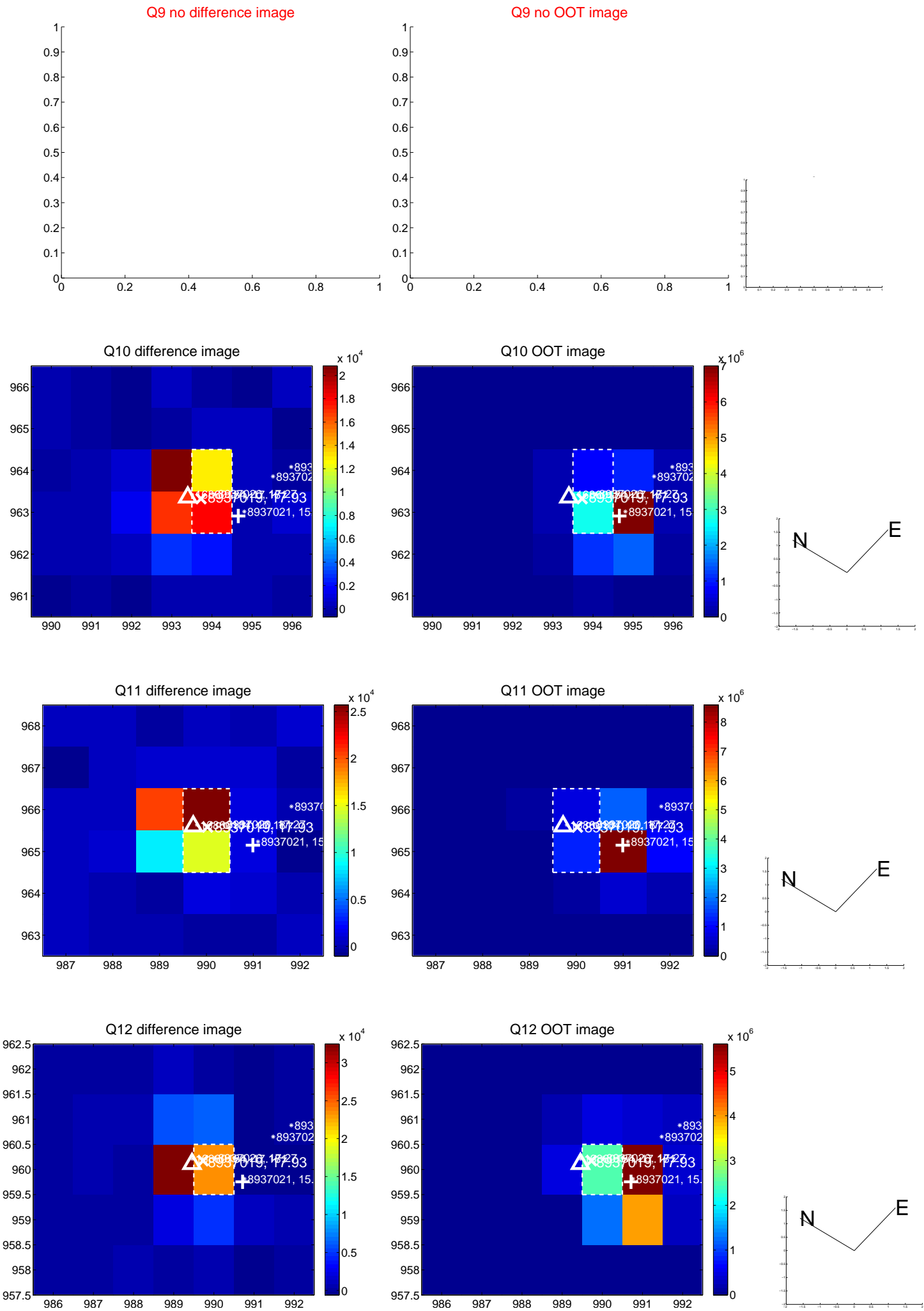
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



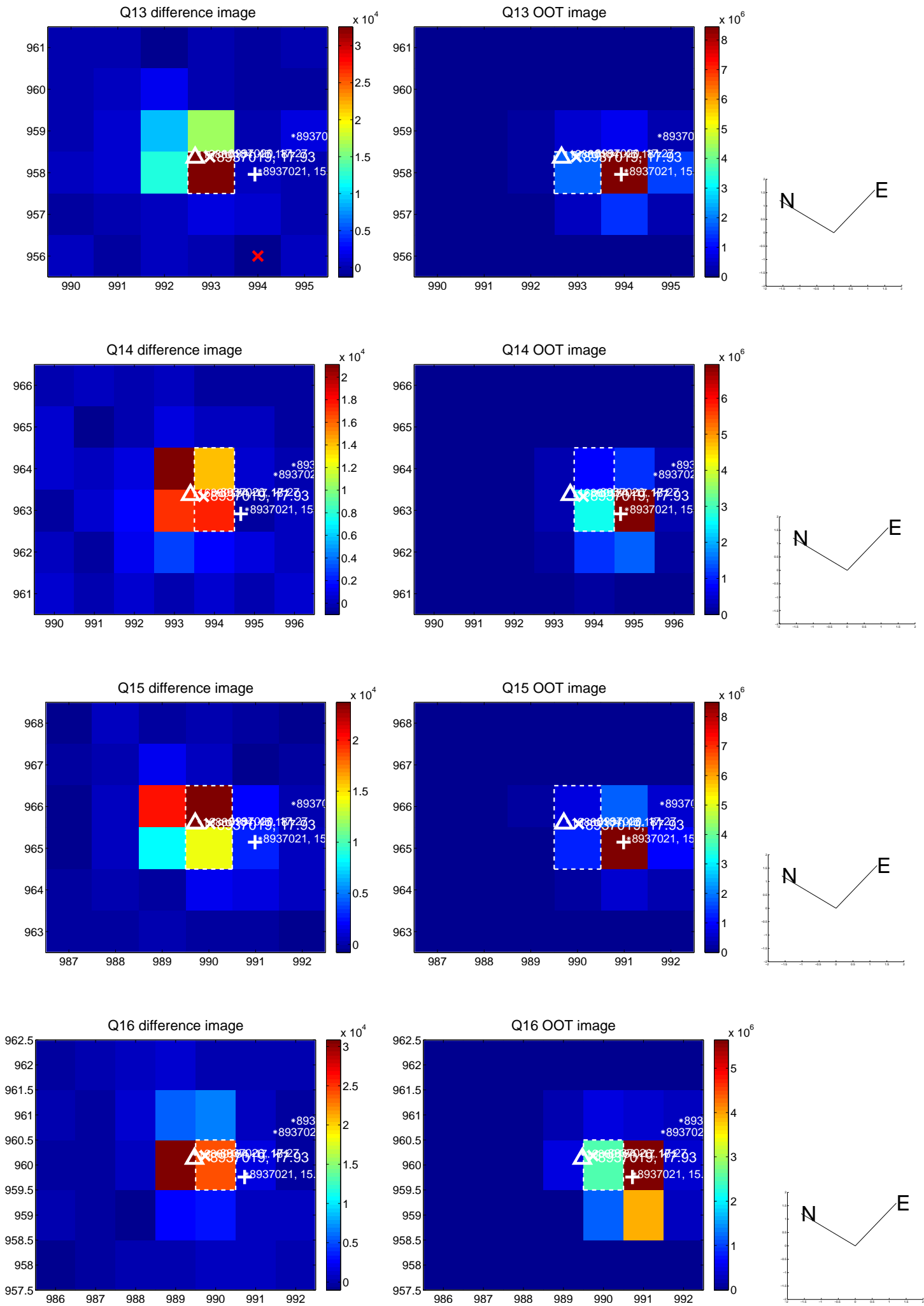
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



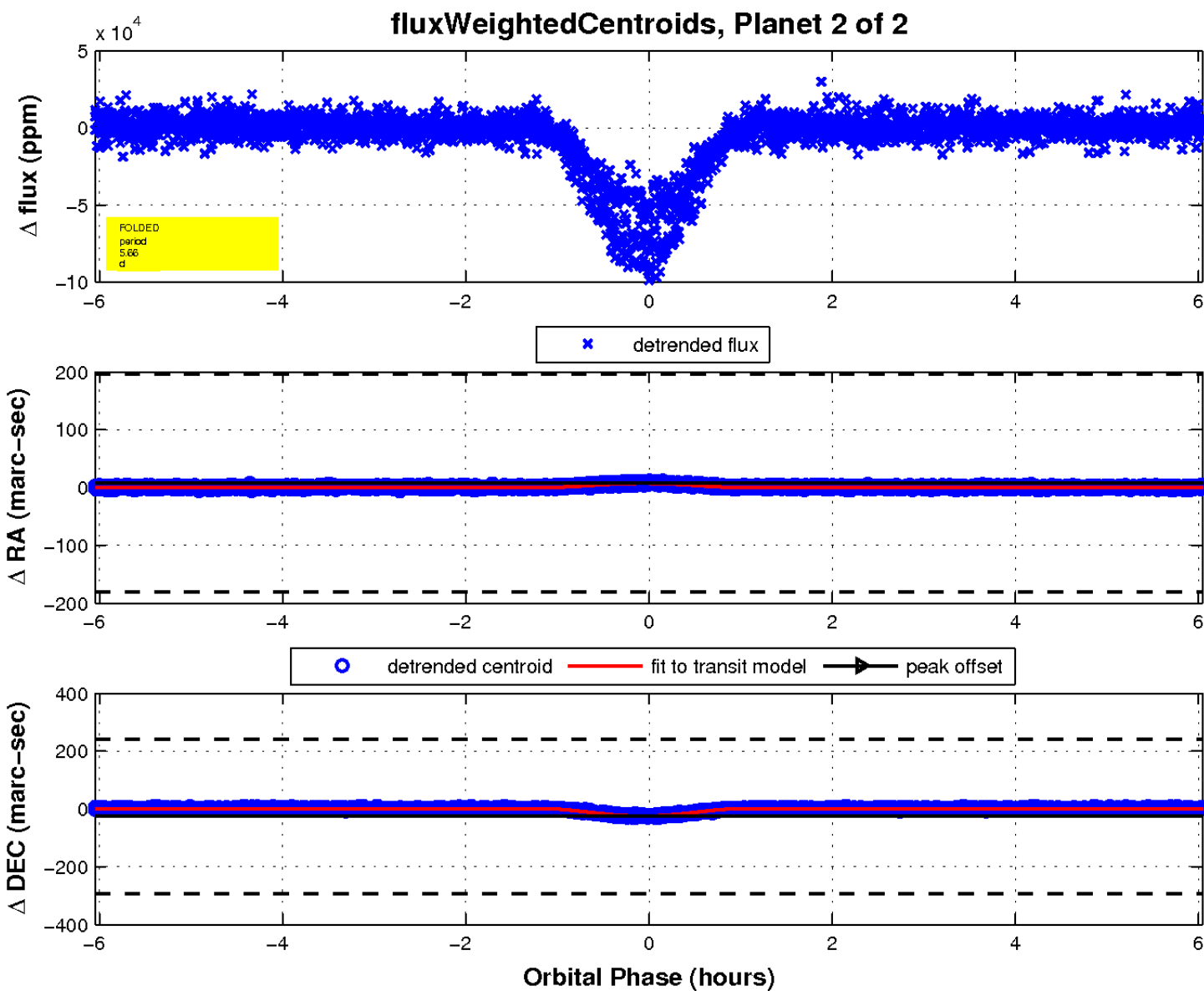
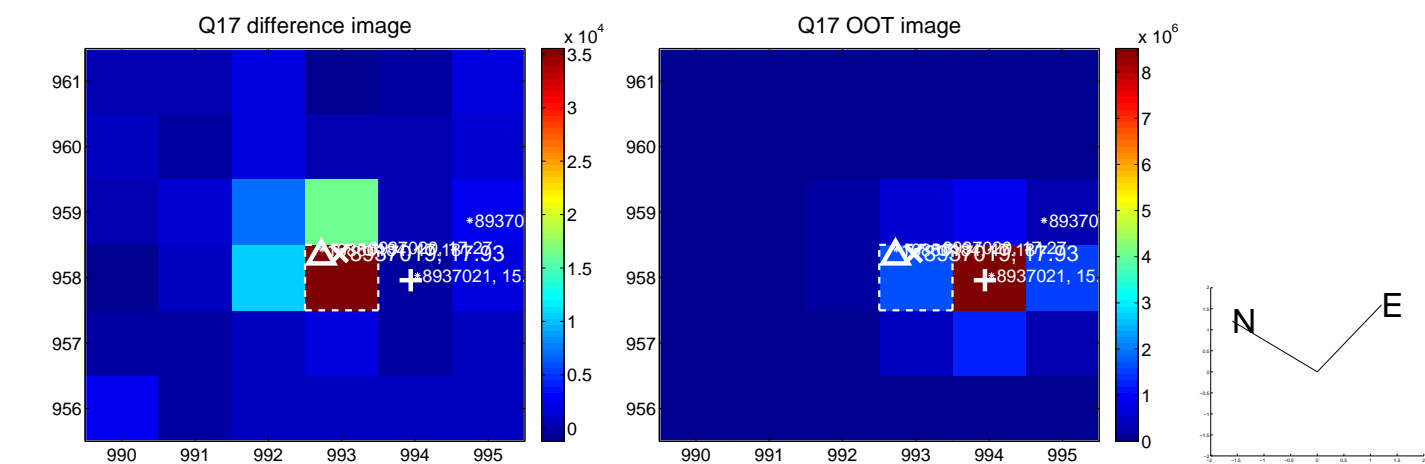
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

