

KIC 002438062

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})
002438062-01	OBS	6271.01	2.443014	131.973494	14148.4	4.048	104.9	89.5	1.00	5780	16.10	793.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002438062-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—CENT_KIC_POS—HALO_GHOST—EPHEM_MATCH

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 002438062-01

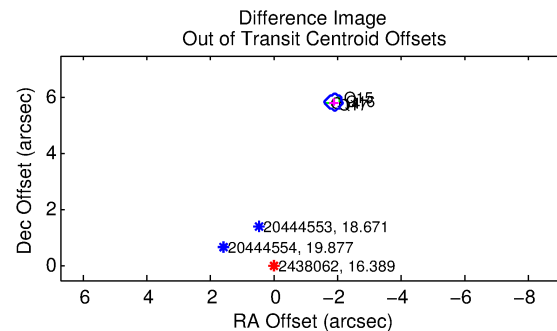
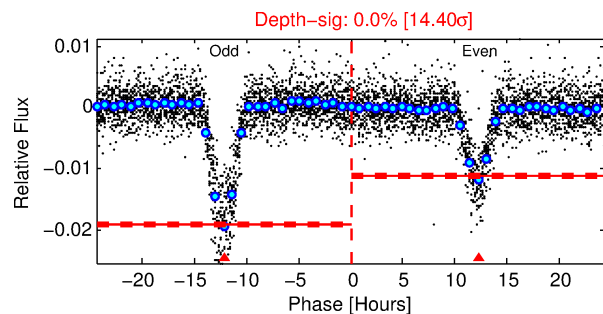
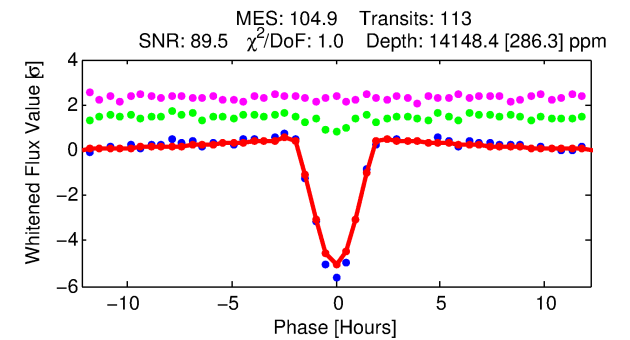
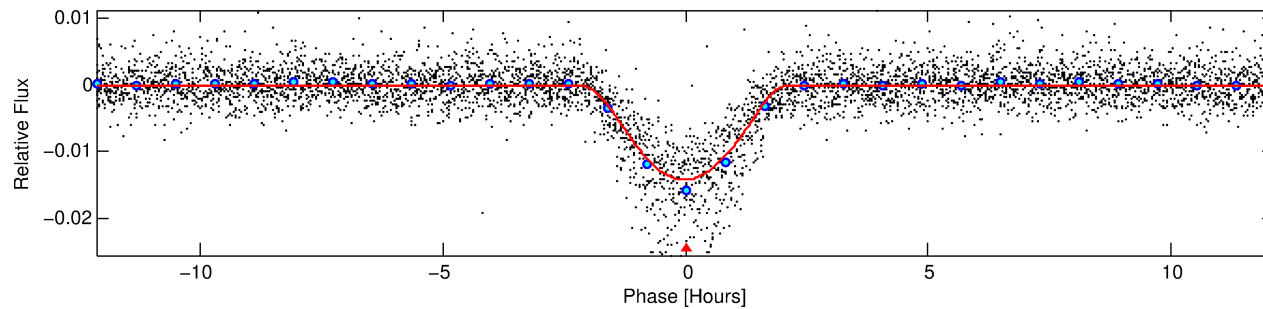
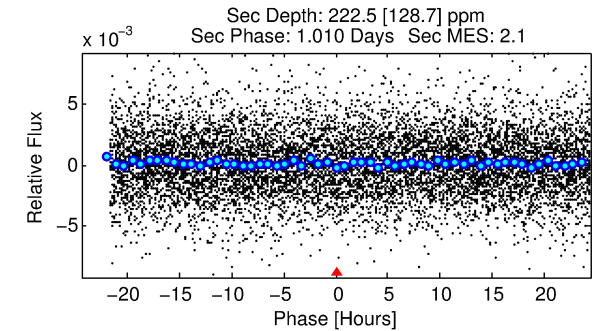
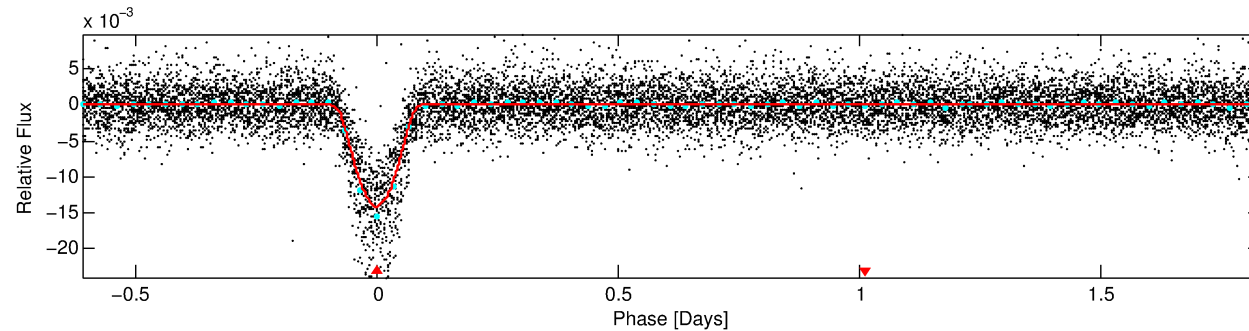
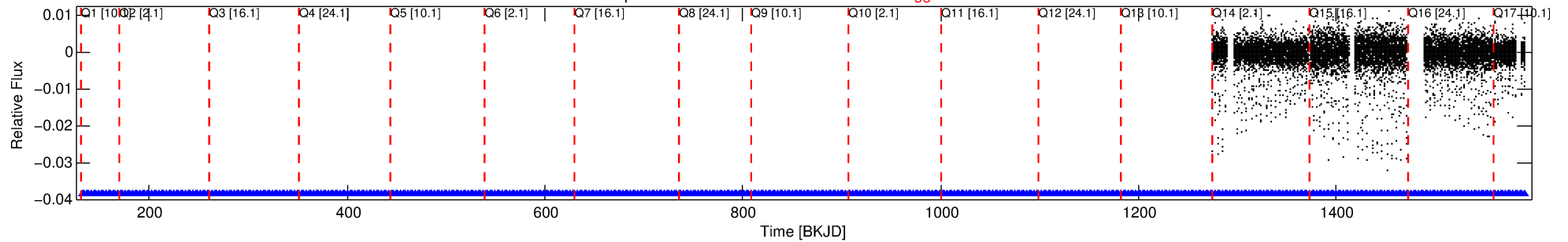
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
002438062-01	2438062	6270.01	2438061	1:1	3.5	-1	1	0.00	16.39	2.66	Direct-PRF	0	1.94	2.00

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 2438062 Candidate: 1 of 1 Period: 2.443 d
KOI: K06271.01 Corr: 0.915

Kp: 16.39 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



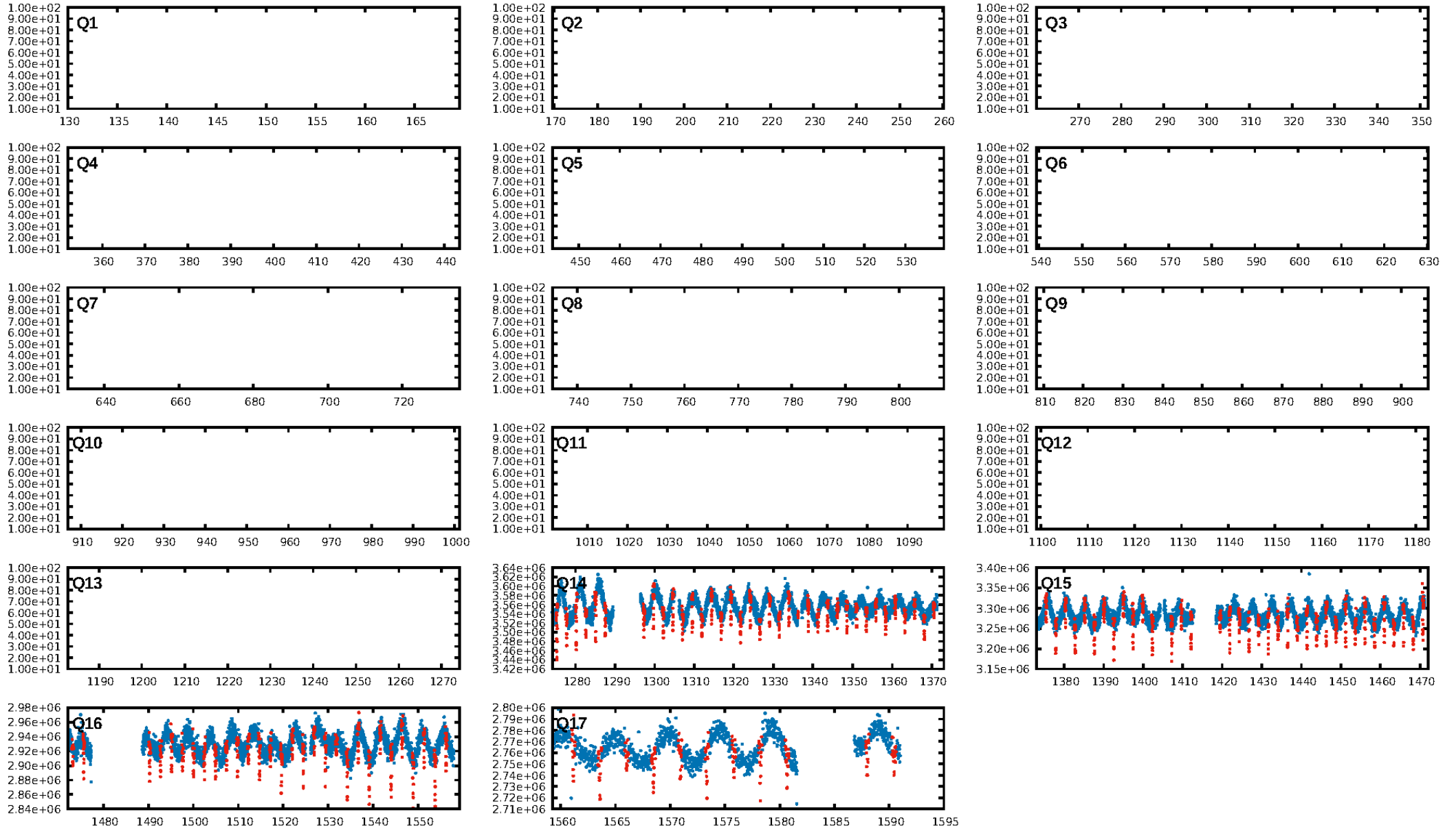
DV Fit Results:

Period = 2.44301 [0.00000] d
Epoch = 131.9735 [0.0009] BKJD
Rp/R* = 0.1475 [0.0222]
a/R* = 3.30 [0.14]
b = 0.92 [0.04]
Seff = 793.18 [0.00]
Teq = 1353 [0] K
Rp = 16.10 [2.42] Re
a = 0.0355 [0.0000] AU
Ag = 0.60 [0.39] [-1.04σ]
Teffp = 1838 [300] K [1.62σ]

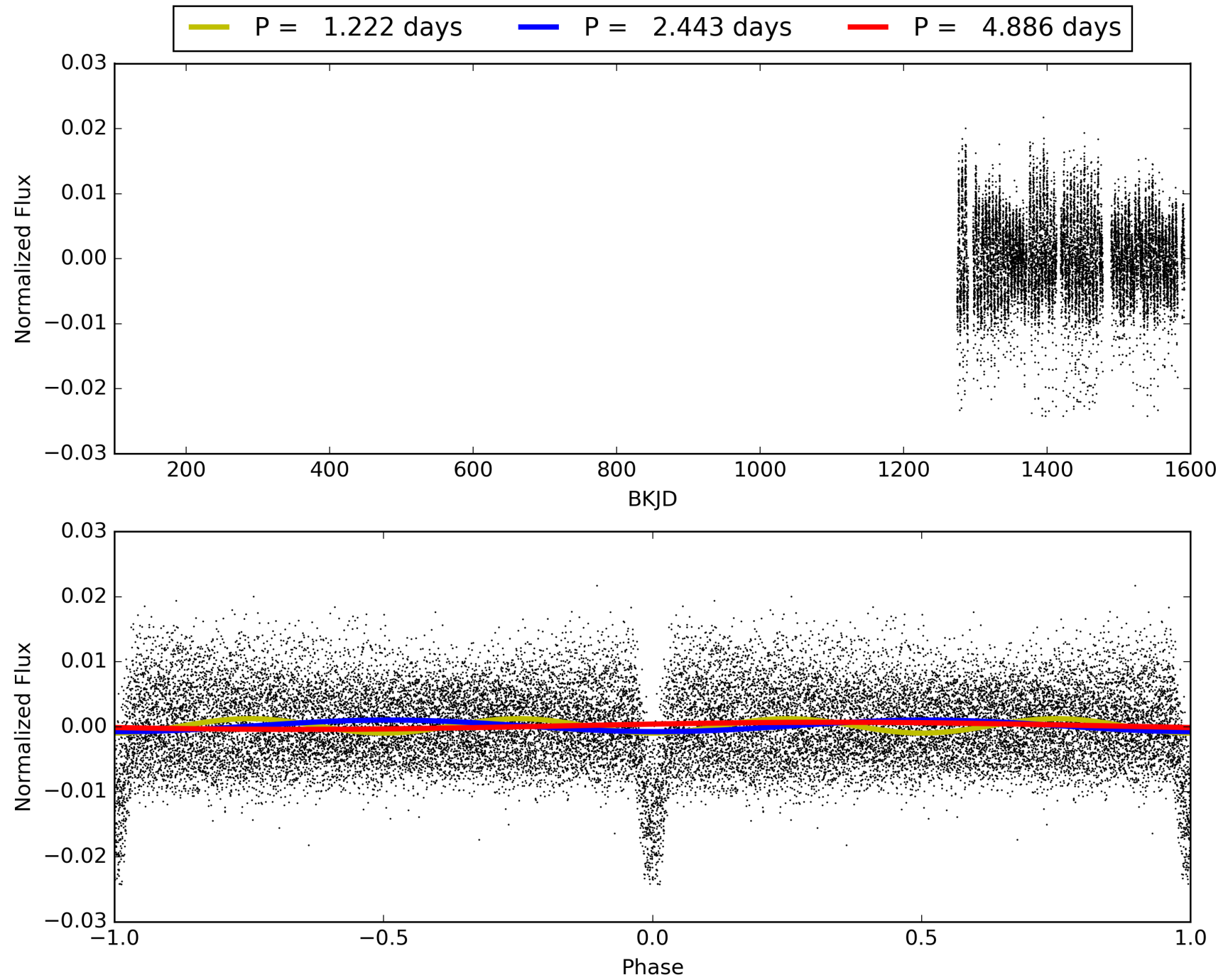
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [102/102]
GhostDiagnostic-chr: 0.02878
Centroid-sig: 0.0%
Centroid-so: 2.838 arcsec [138.08σ]
OotOffset-rm: 6.119 arcsec [66.81σ]
KicOffset-rm: 3.396 arcsec [29.85σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 002438062-01, PDC Light Curves

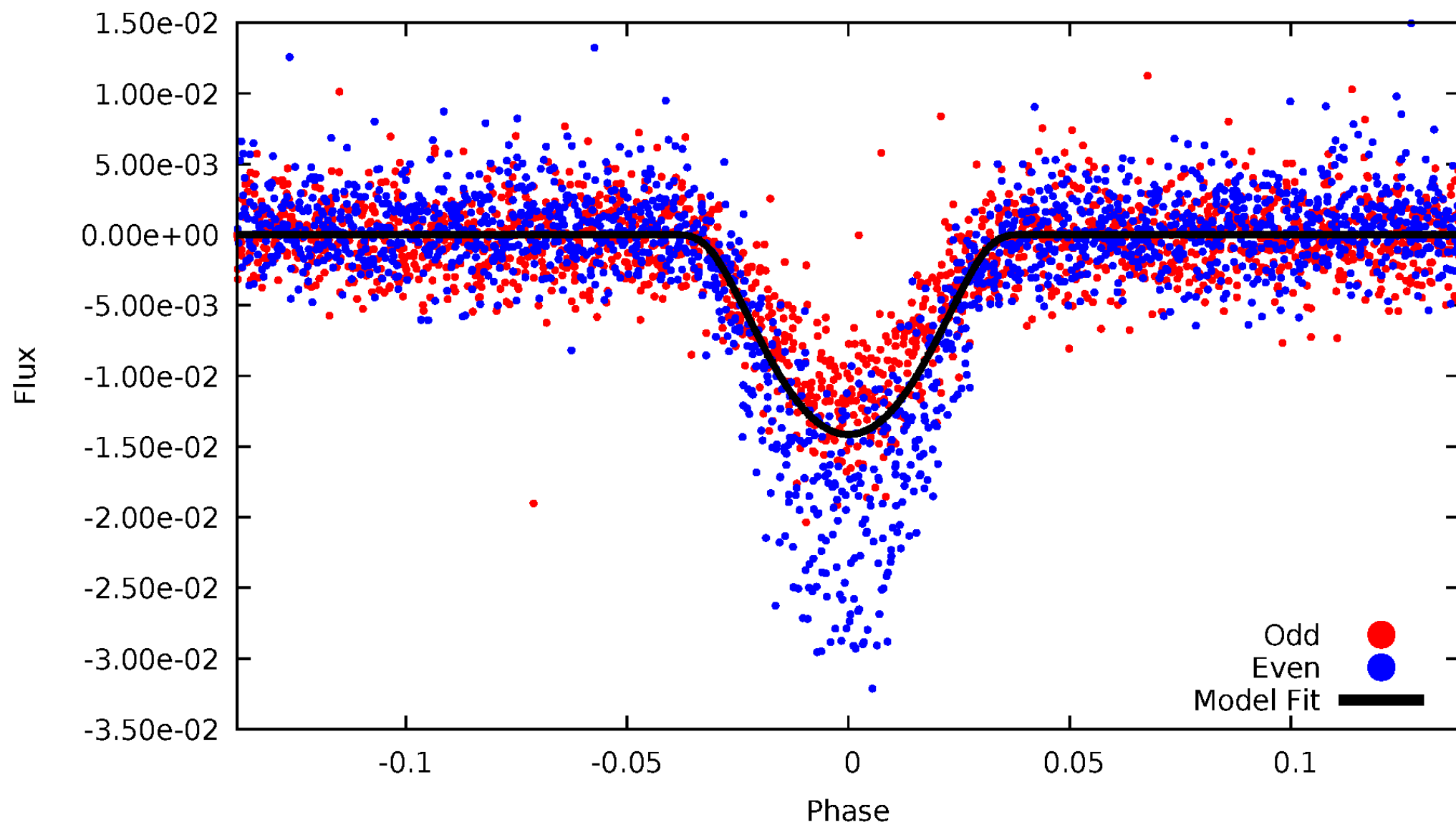


TCE 002438062-01



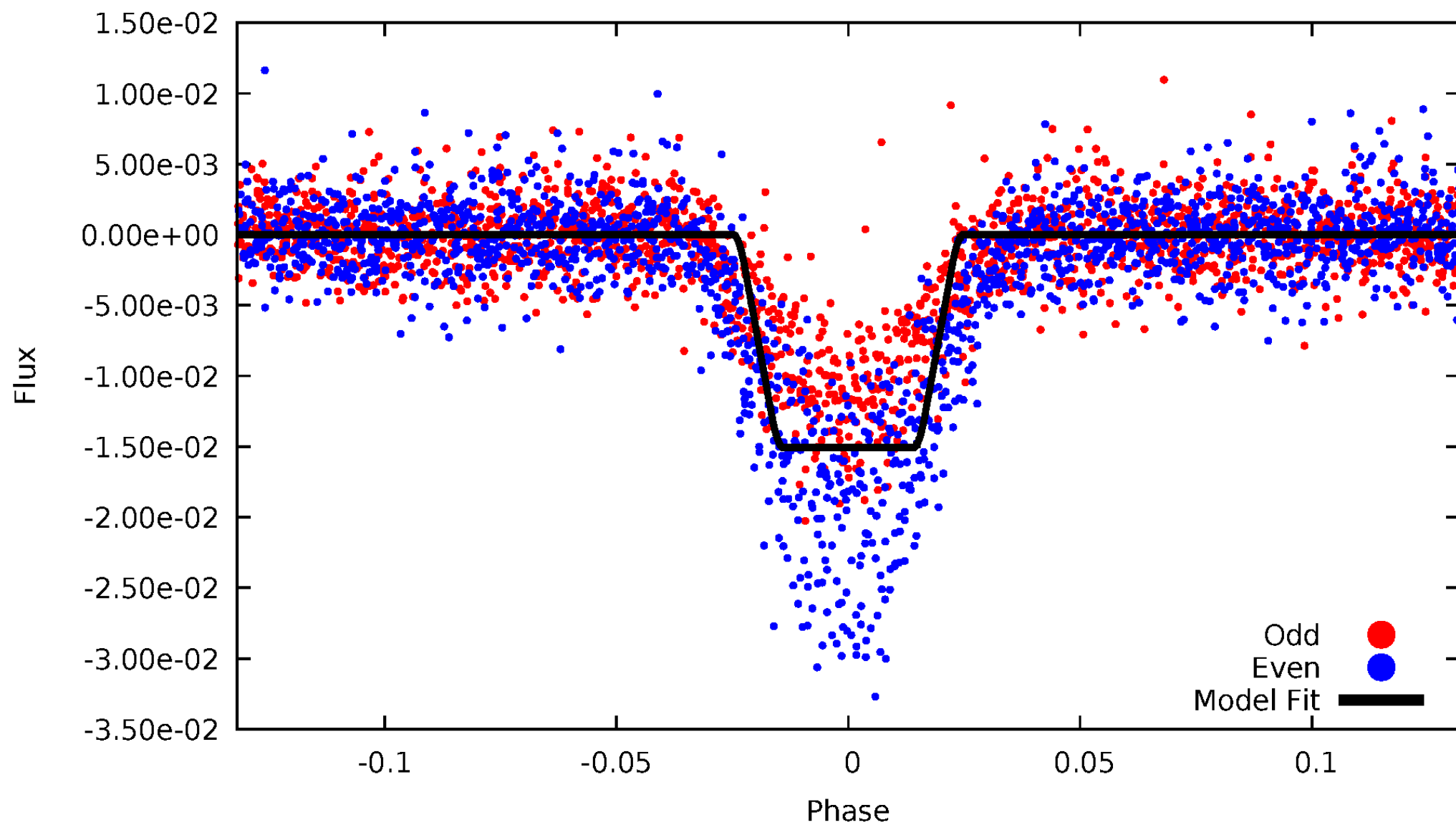
DV Odd/Even

TCE 002438062-01



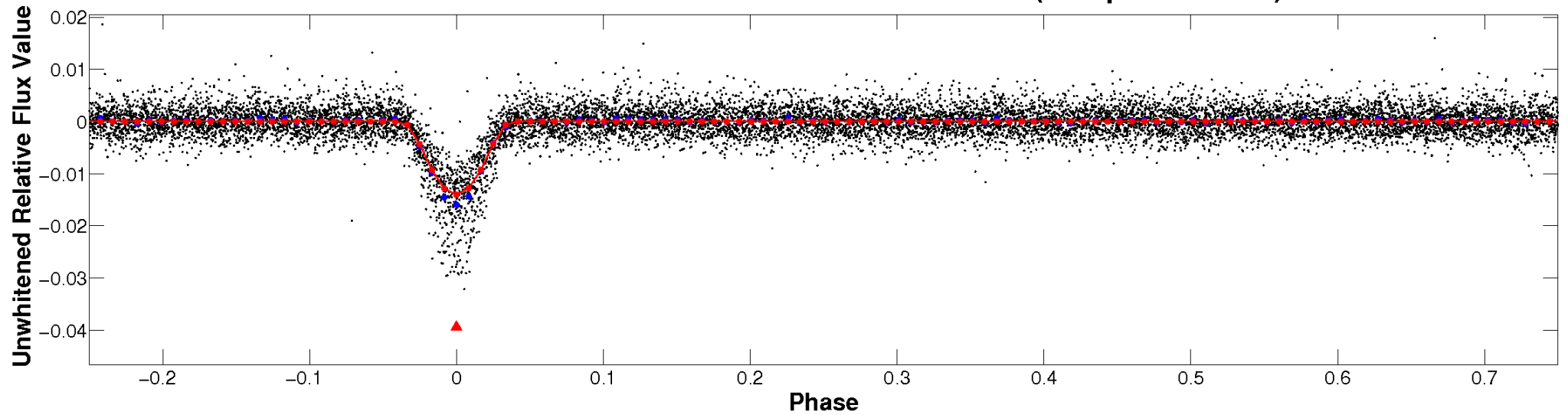
ALT Odd/Even

TCE 002438062-01

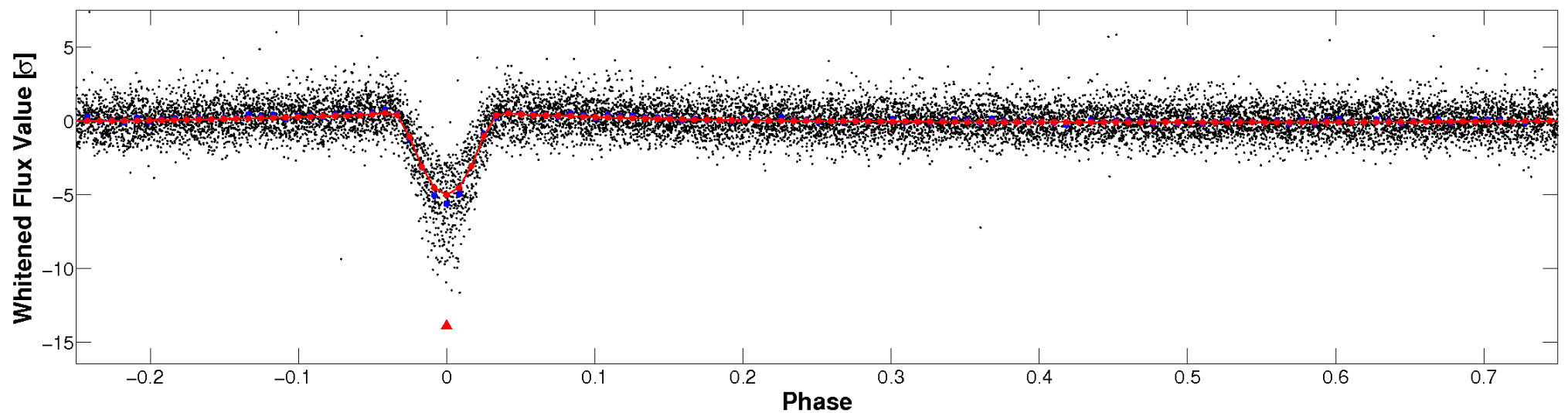


Non-Whitened Vs. Whitened Light Curve

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

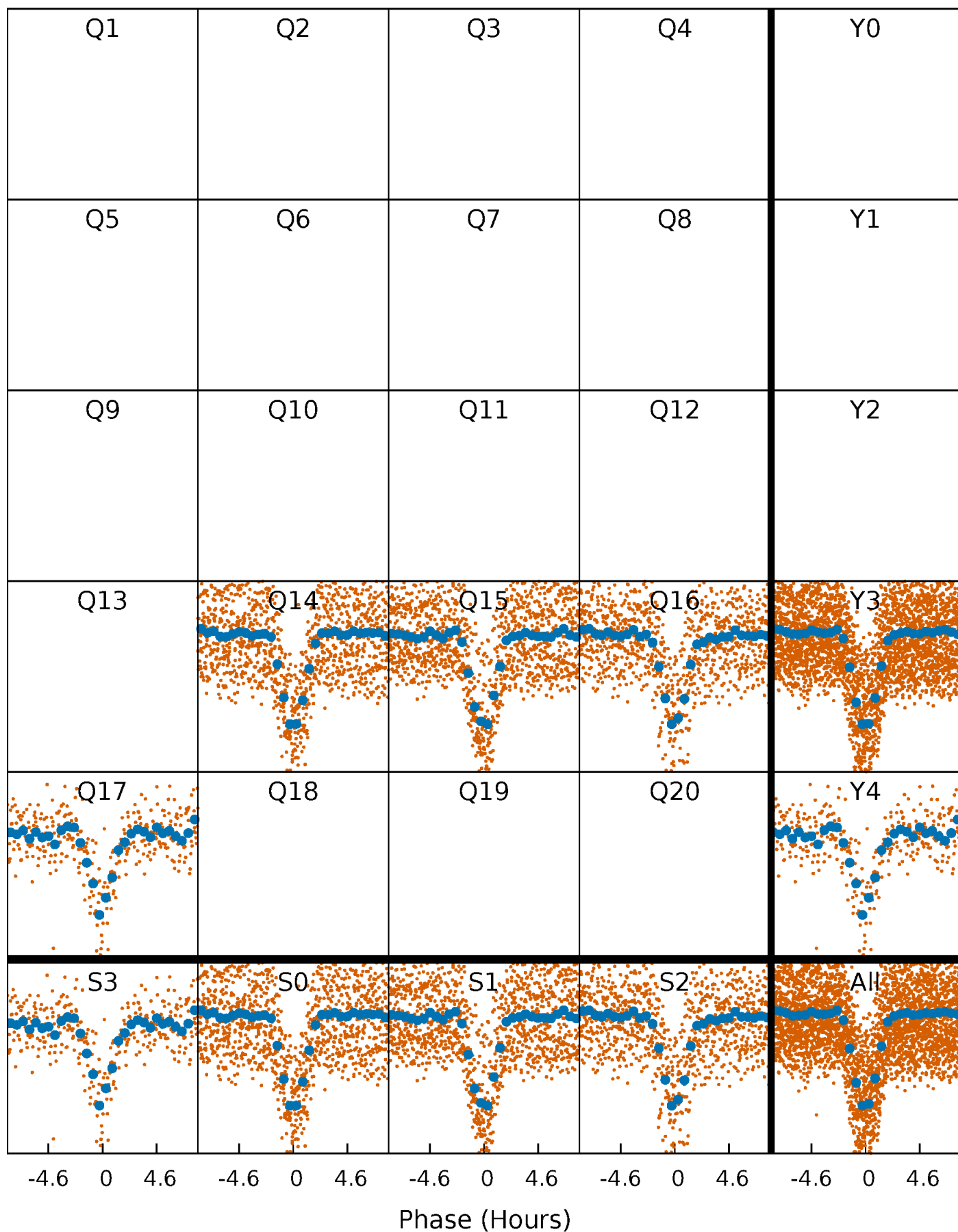


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



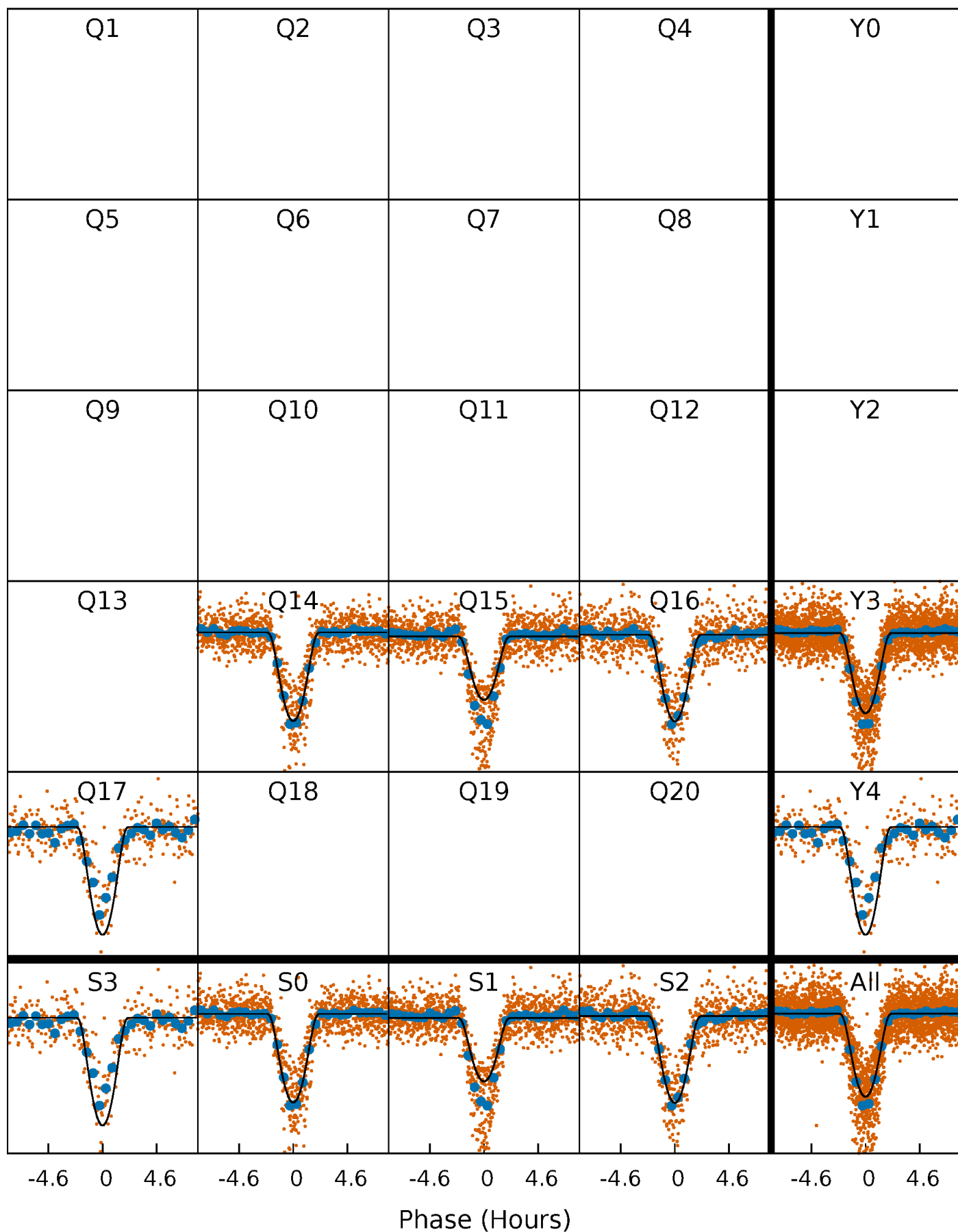
PDC Quarter-Phased Transit Curves

TCE 002438062-01 P= 2.443014 Days $T_0=131.973494$ (BKJD)



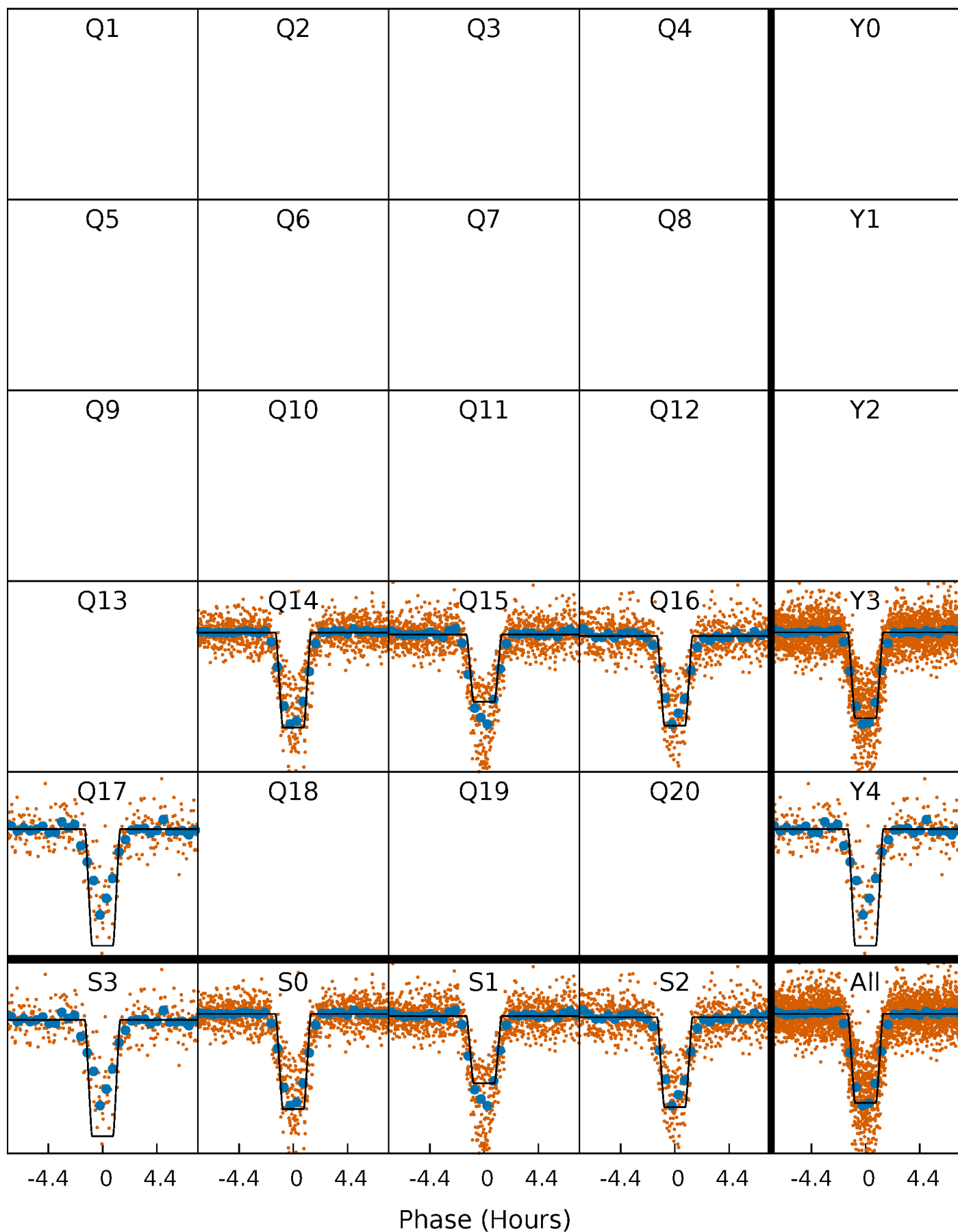
DV Quarter-Phased Transit Curves

TCE 002438062-01 P= 2.443014 Days $T_0=131.973494$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

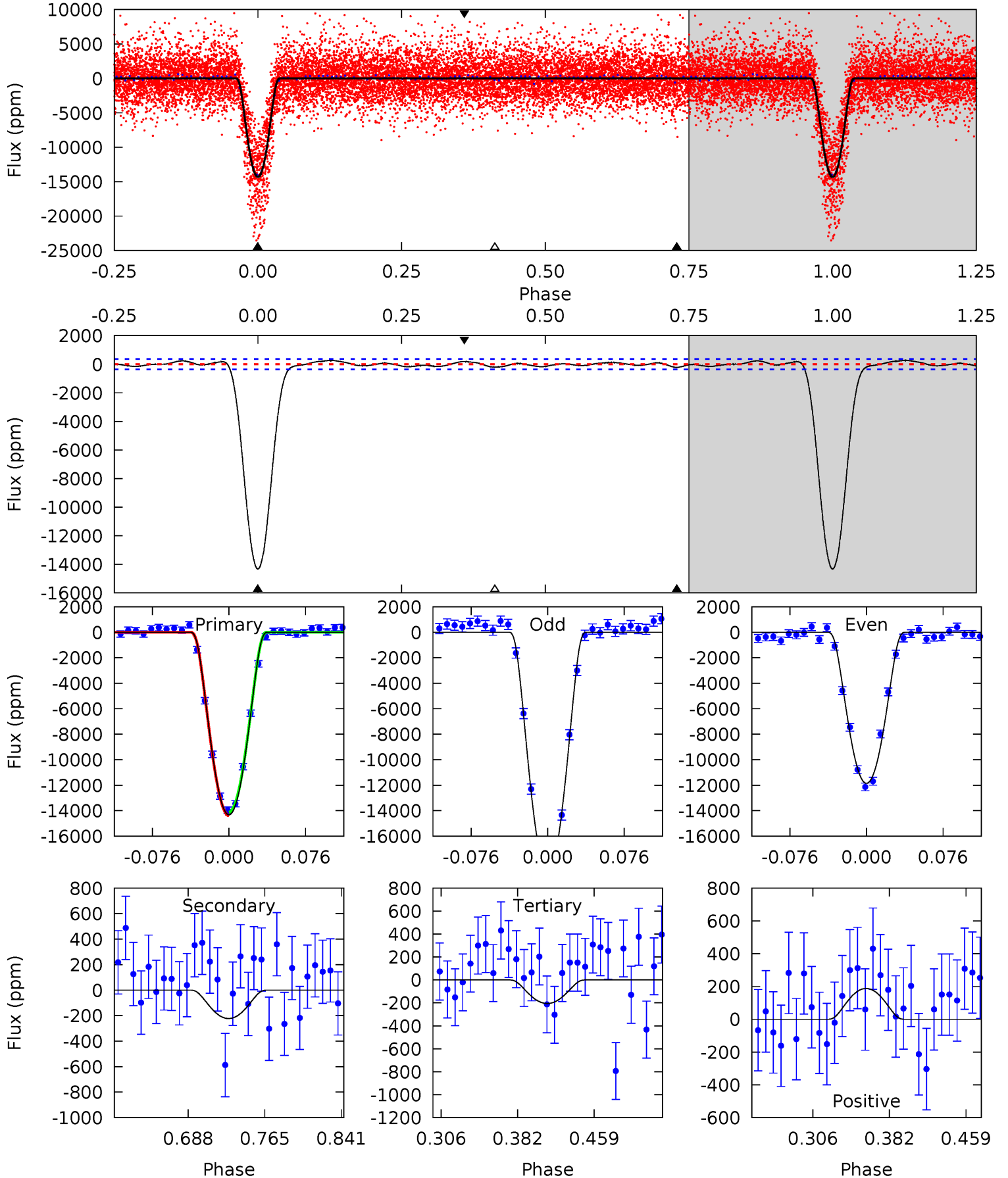
TCE 002438062-01 P= 2.442973 Days $T_0=131.994484$ (BKJD)



DV Model-Shift Uniqueness Test

002438062-01, P = 2.443014 Days, E = 131.973494 Days

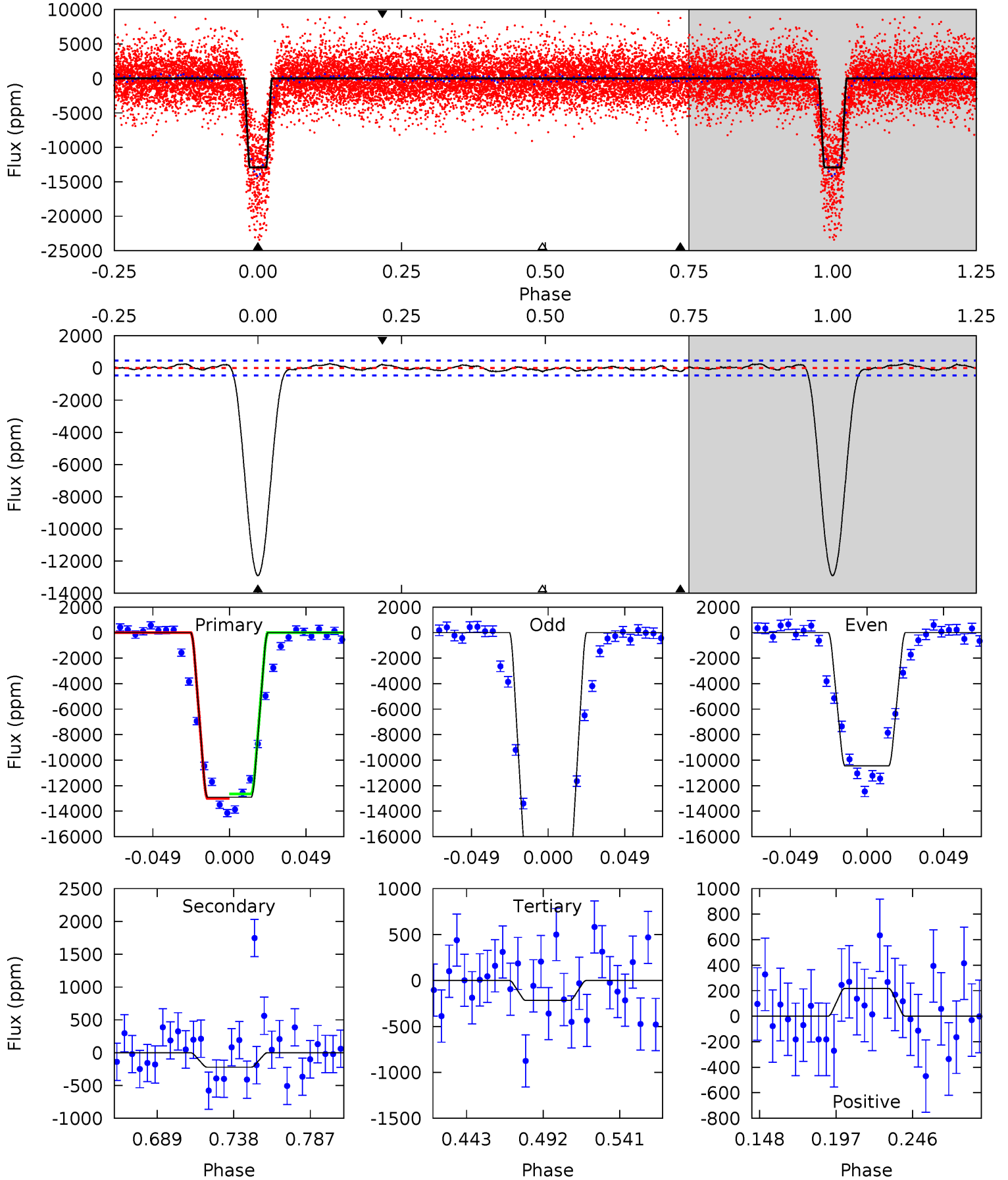
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
180.8	2.81	2.59	2.37	4.62	1.77	1.46	178.2	178.4	0.22	0.44	44.7	1.11	0.02	1.66



Alt Model-Shift Uniqueness Test

002438062-01, P = 2.442973 Days, E = 131.994484 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
131.0	2.25	2.21	2.21	4.71	1.97	1.15	128.8	128.8	0.04	0.04	36.6	1.12	0.02	1.67



Stellar Parameters For KIC 002438062

	$T_{\text{eff}}(K)$	$\log(g)$	[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 002438062-01 / KOI 6271.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-223 ± 79	$16.16^{+2.82}_{-2.87}$	1887^{+85}_{-83}	2388^{+278}_{-436}	$0.566^{+0.378}_{-0.223}$
Alt.	-222 ± 99	$13.18^{+2.85}_{-2.42}$	1892^{+85}_{-88}	2619^{+282}_{-388}	$0.861^{+0.638}_{-0.421}$

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

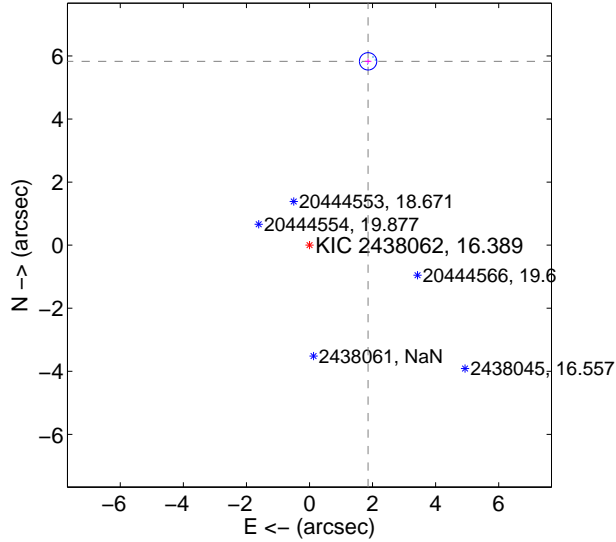
Supplemental centroid analysis for 002438062-01. Kepler magnitude: 16.39. Transit SNR 89.51

There are 4 quarters with good PRF difference image offsets

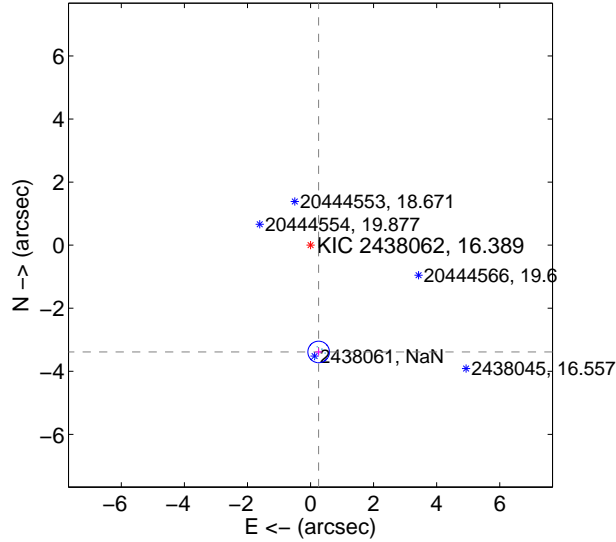
The OOT PRF centroid is offset from the target star catalog position by about 9.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.119 ± 0.092	66.81	-1.858 ± 0.104	5.830 ± 0.082
PRF-fit source offset from KIC position	3.396 ± 0.114	29.85	-0.257 ± 0.103	-3.386 ± 0.114
photometric centroid source offset	2.84 ± 0.02	138.08	0.31 ± 0.02	-2.82 ± 0.02

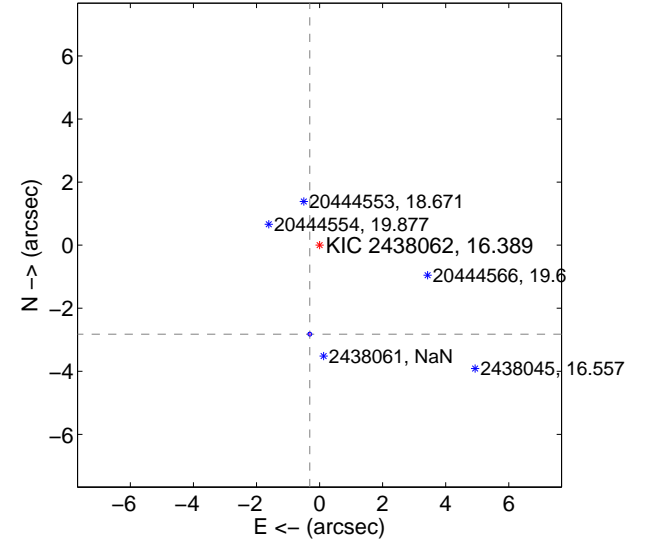
offset from difference PRF-fit to OOT PRF-fit



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.

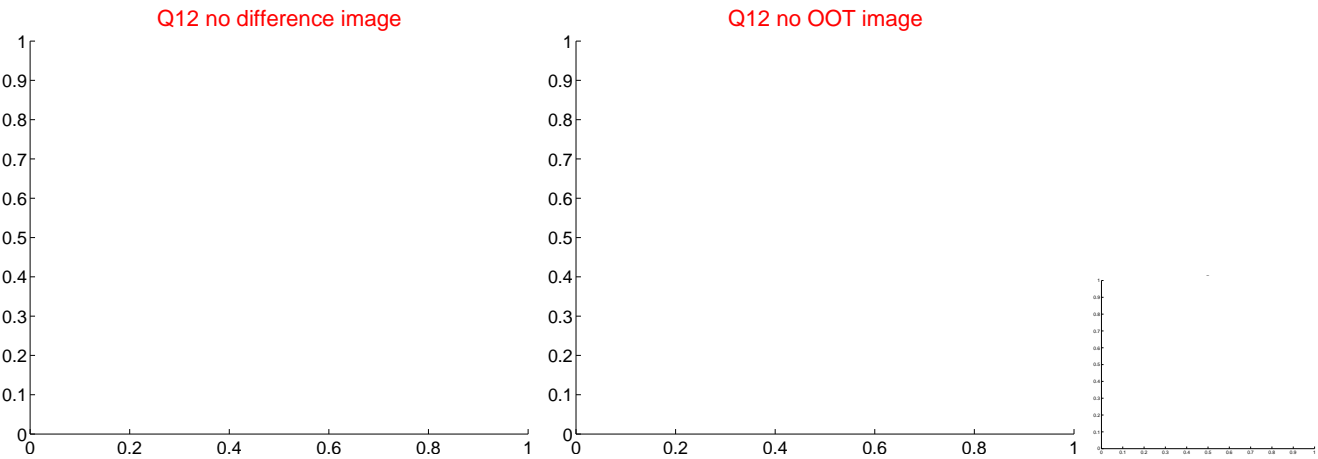
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



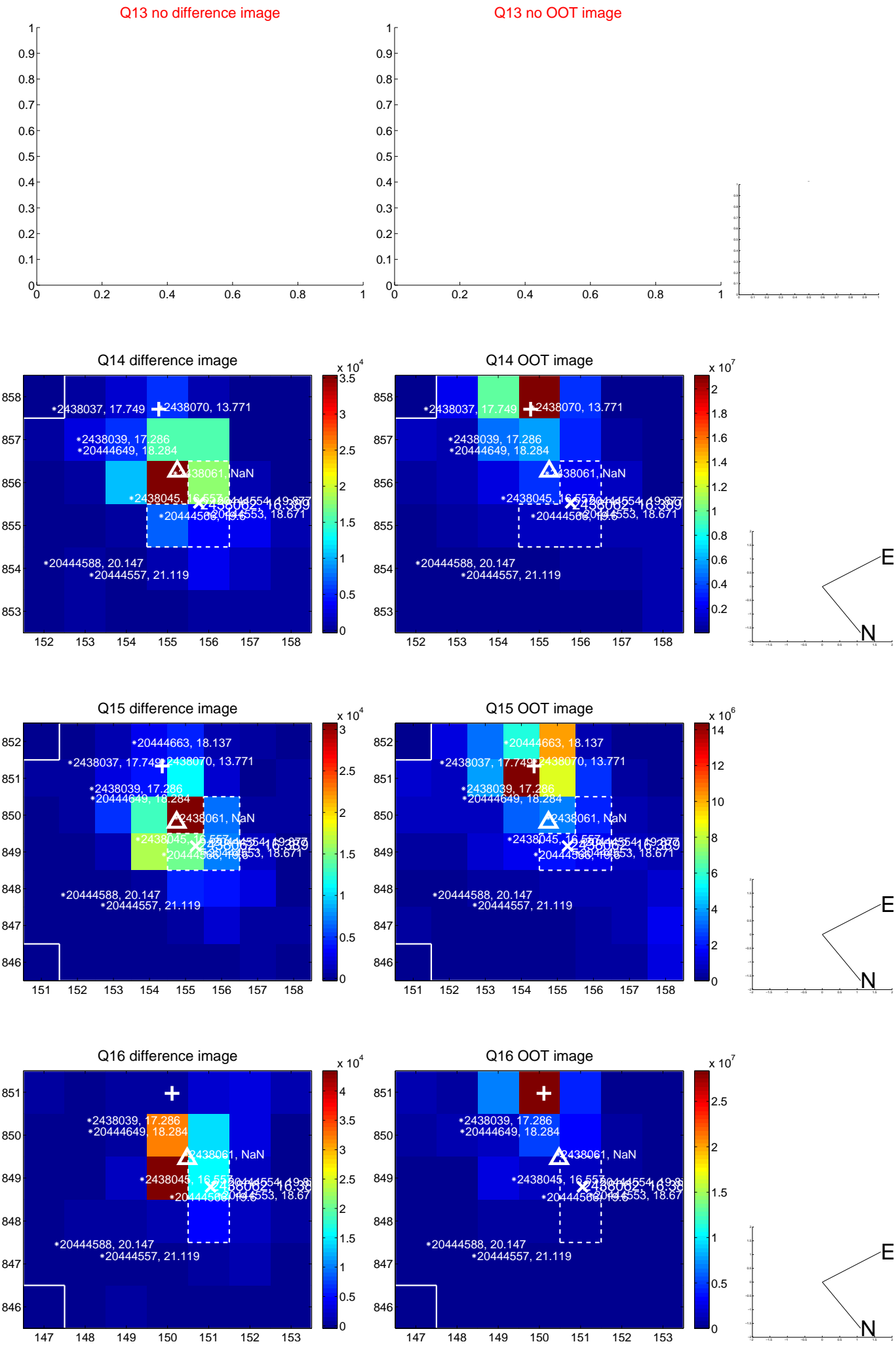
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



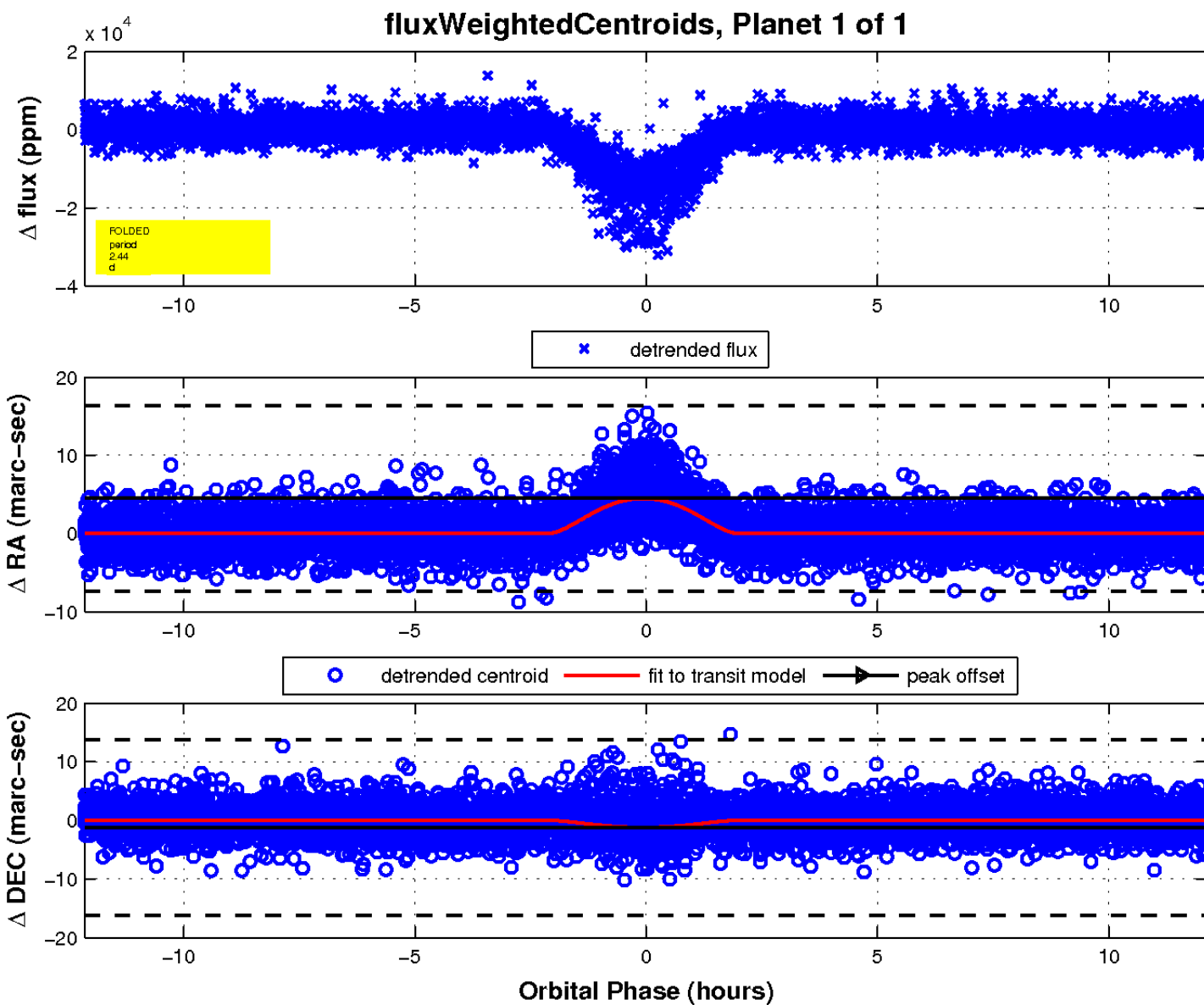
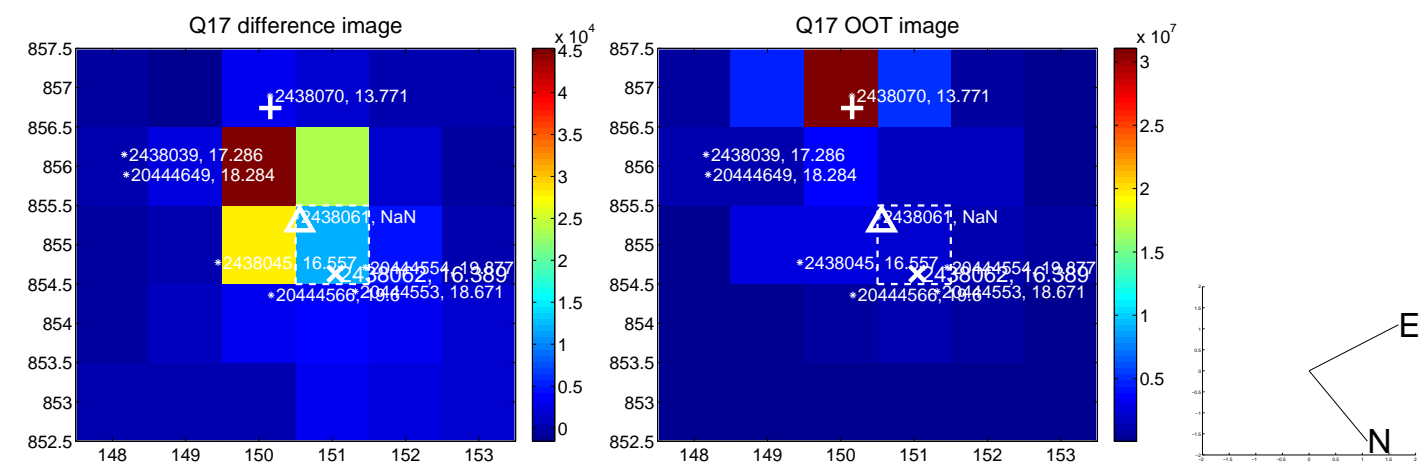
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

