

KIC 009096937

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})
009096937-01	OBS	No	438.659909	259.015444	418.5	14.798	10.6	10.6	0.66	5108	1.49	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009096937-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

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

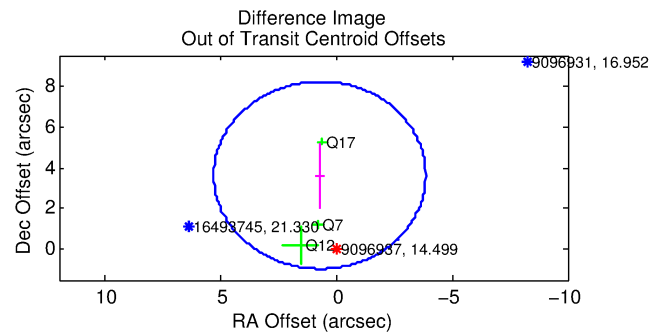
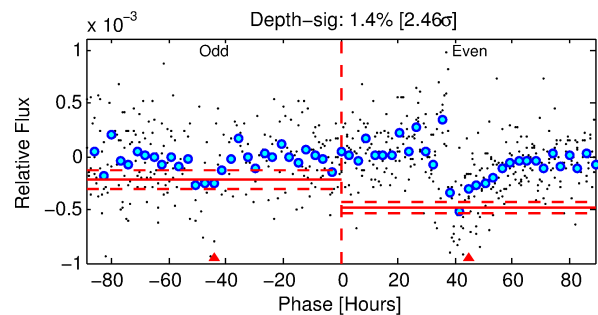
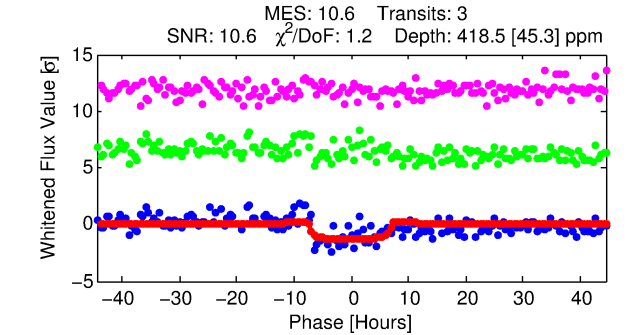
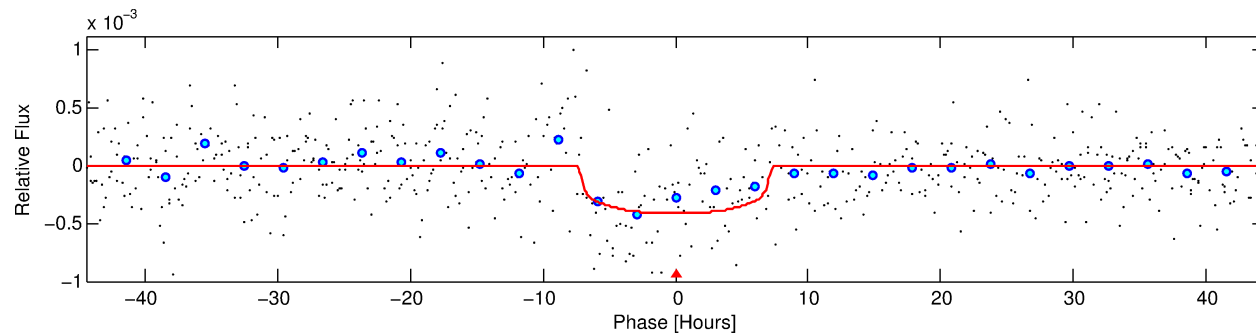
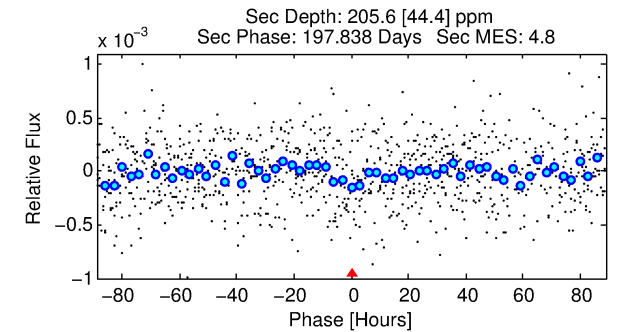
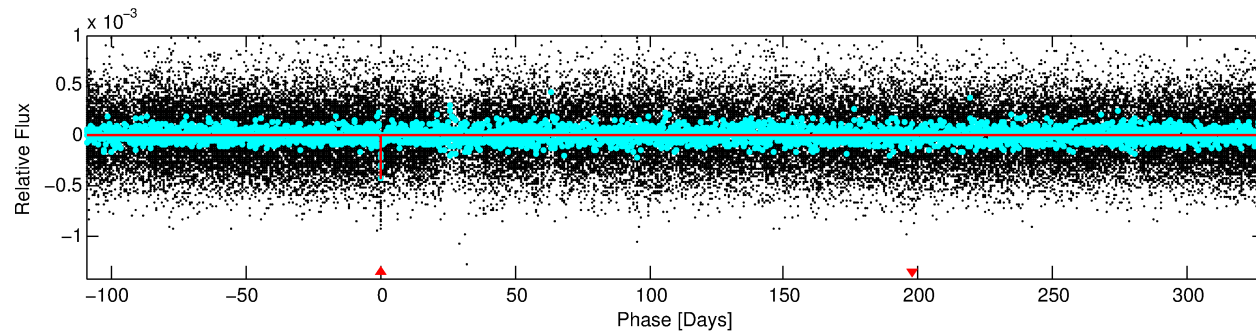
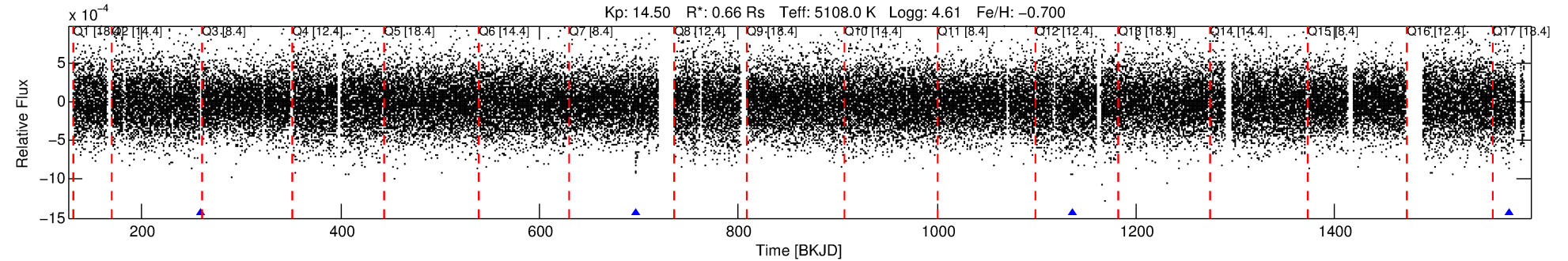
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009096937-01

No Significant Match Found

DV One-Page Summary

KIC: 9096937 Candidate: 1 of 1 Period: 438.660 d



DV Fit Results:

Period = 438.65991 [0.01447] d
Epoch = 259.0154 [0.0303] BKJD
Rp/R* = 0.0206 [0.0071]
a/R* = 150.86 [207.98]
b = 0.77 [0.73]
Seff = 0.28 [0.05]
Teq = 185 [8] K
Rp = 1.48 [0.54] Re
a = 0.9756 [0.0867] AU
Ag = 48834.72 [36080.90] [1.35 σ]
Teffp = 4263 [786] K [5.19 σ]

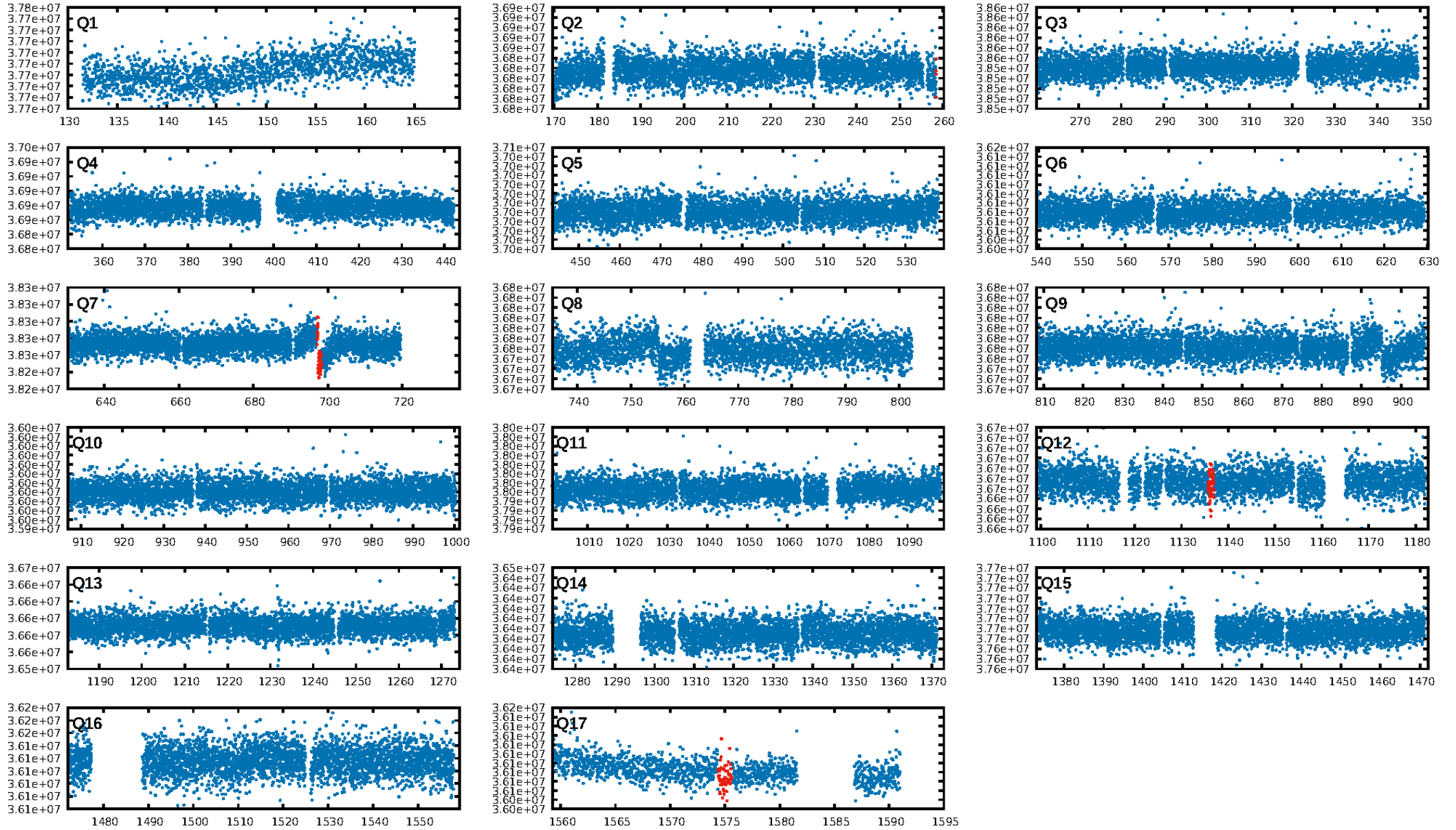
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 73.9%
Bootstrap-pfa: 2.20e-13
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.4279
Centroid-sig: 5.0%
Centroid-so: 1.666 arcsec [1.27 σ]
OotOffset-rm: 3.702 arcsec [2.42 σ]
KicOffset-rm: 3.711 arcsec [2.24 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

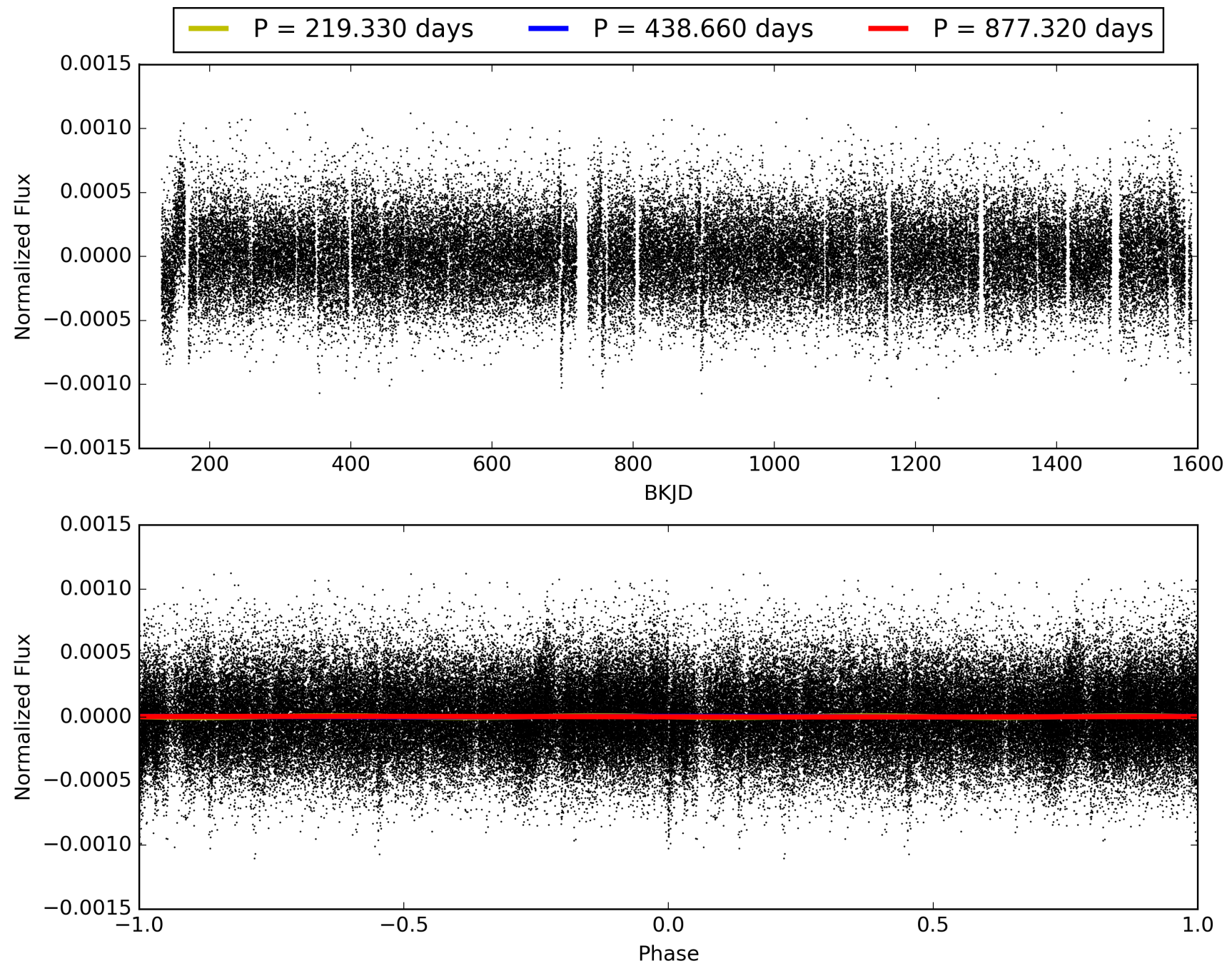
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:13:29 Z

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

TCE 009096937-01, PDC Light Curves

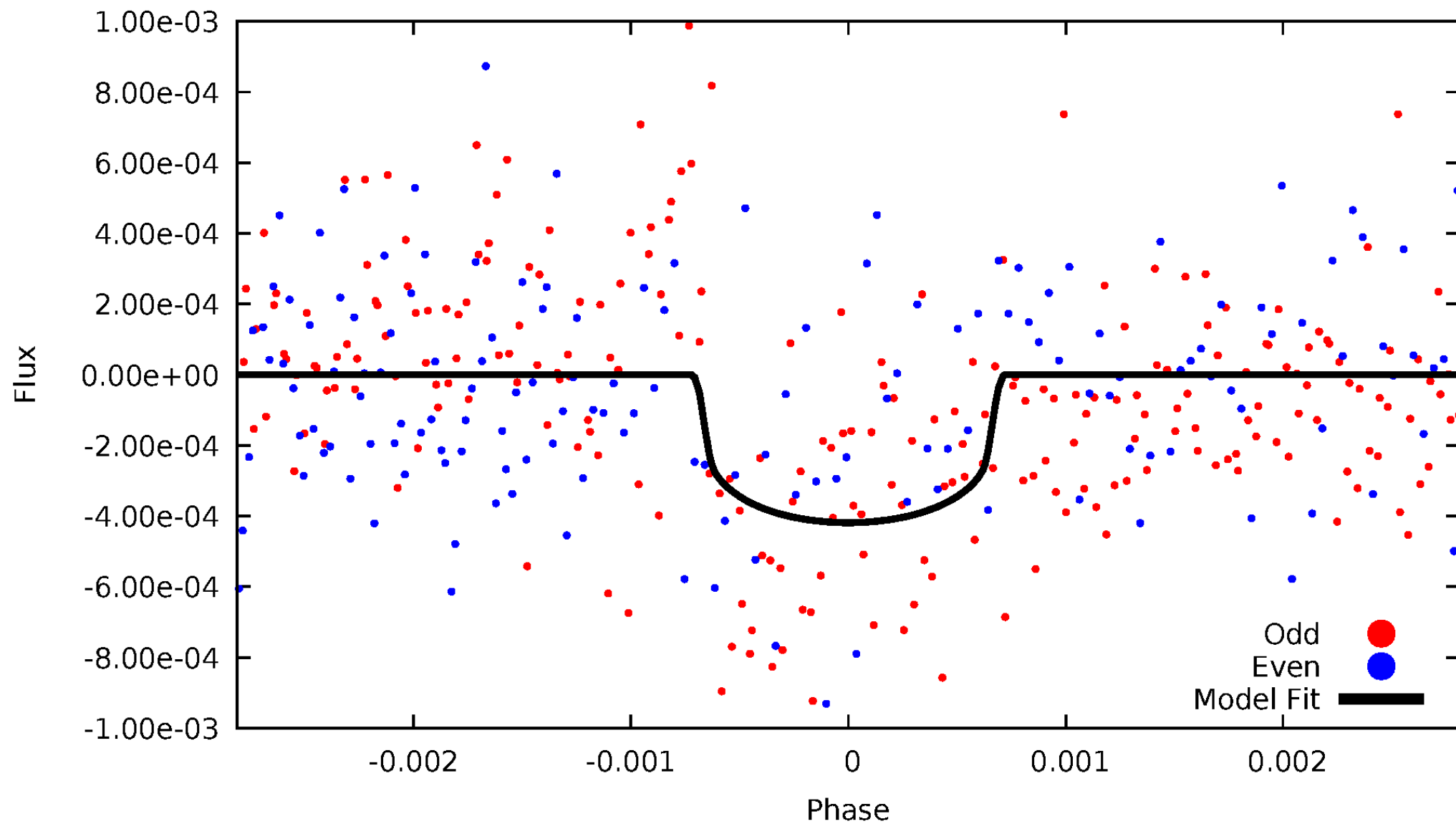


TCE 009096937-01



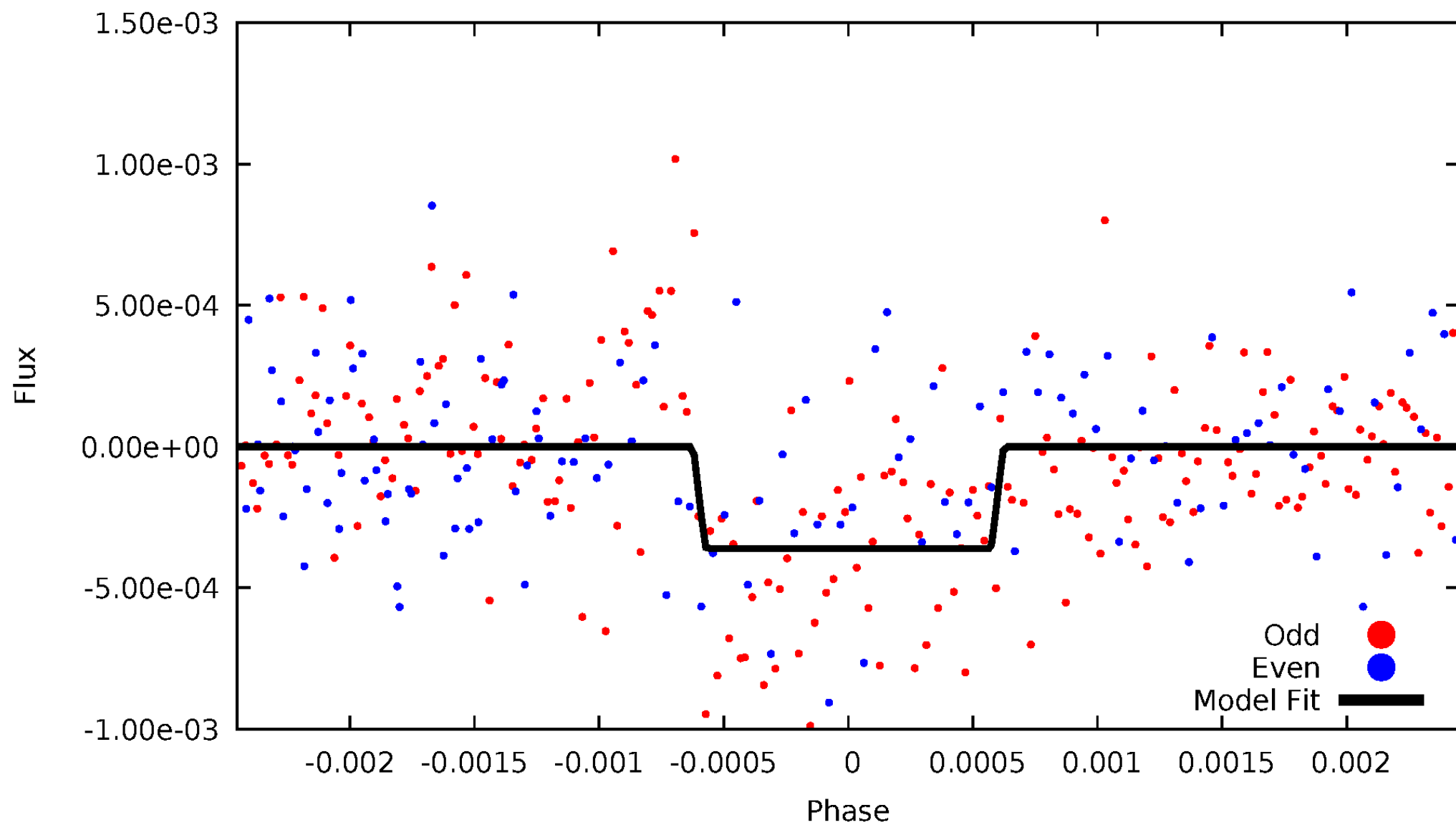
DV Odd/Even

TCE 009096937-01



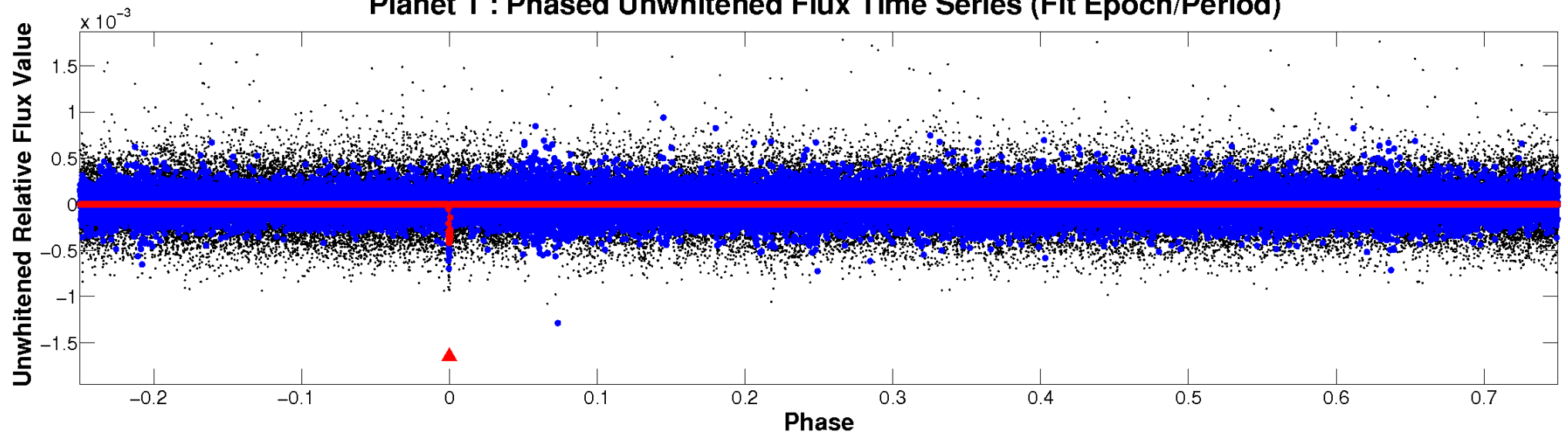
ALT Odd/Even

TCE 009096937-01

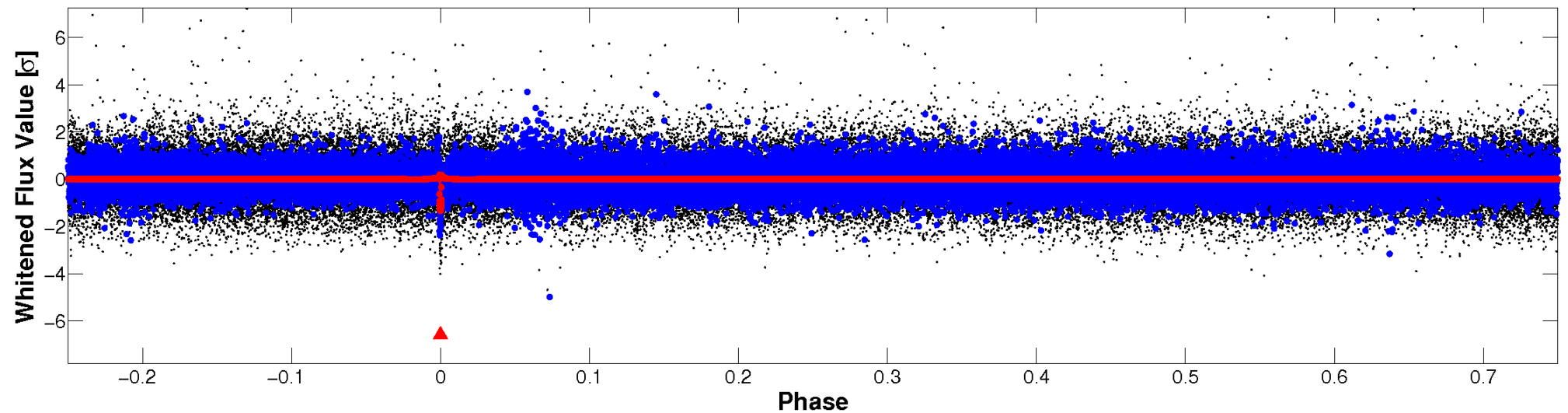


Non-Whitened Vs. Whitened Light Curve

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

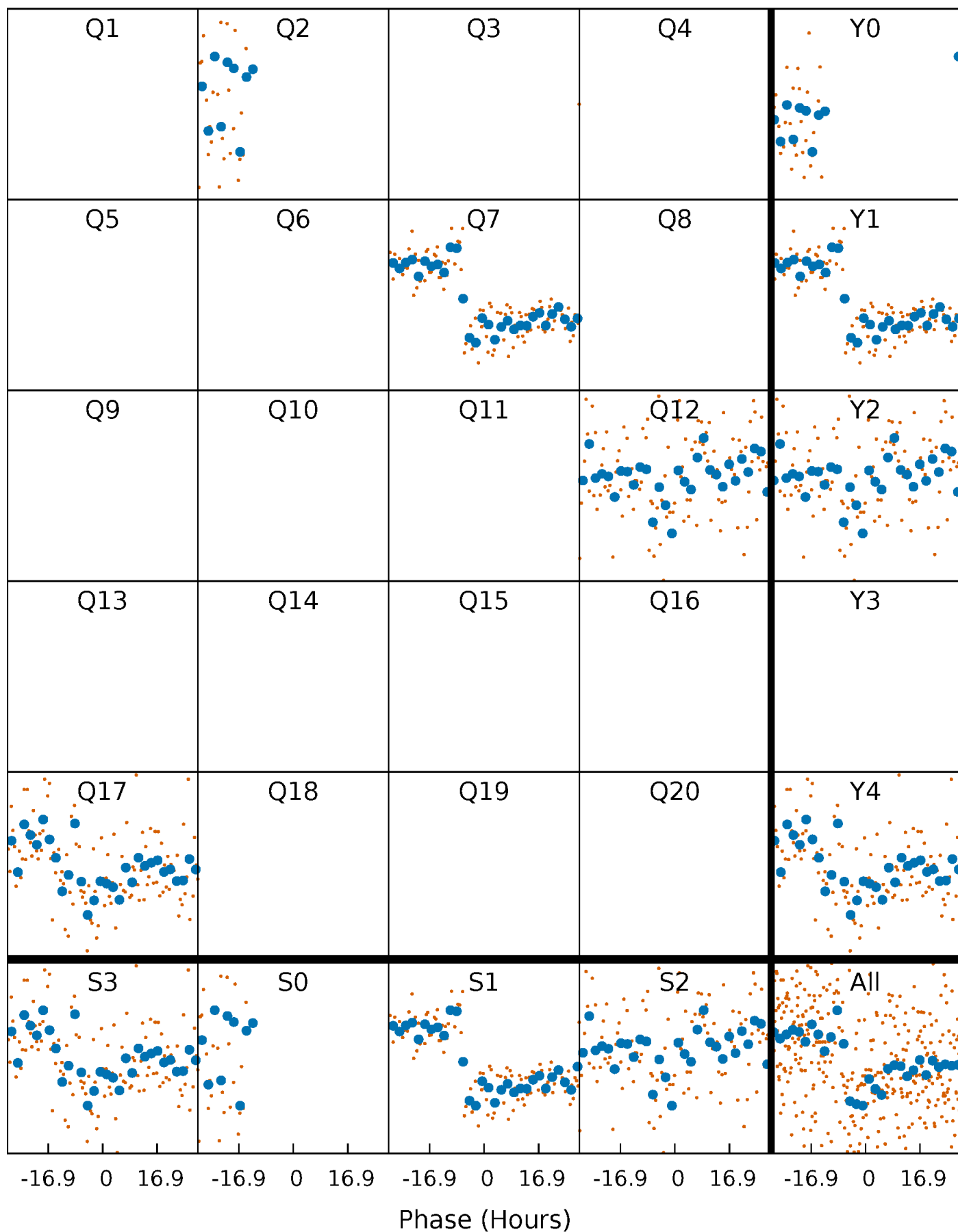


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



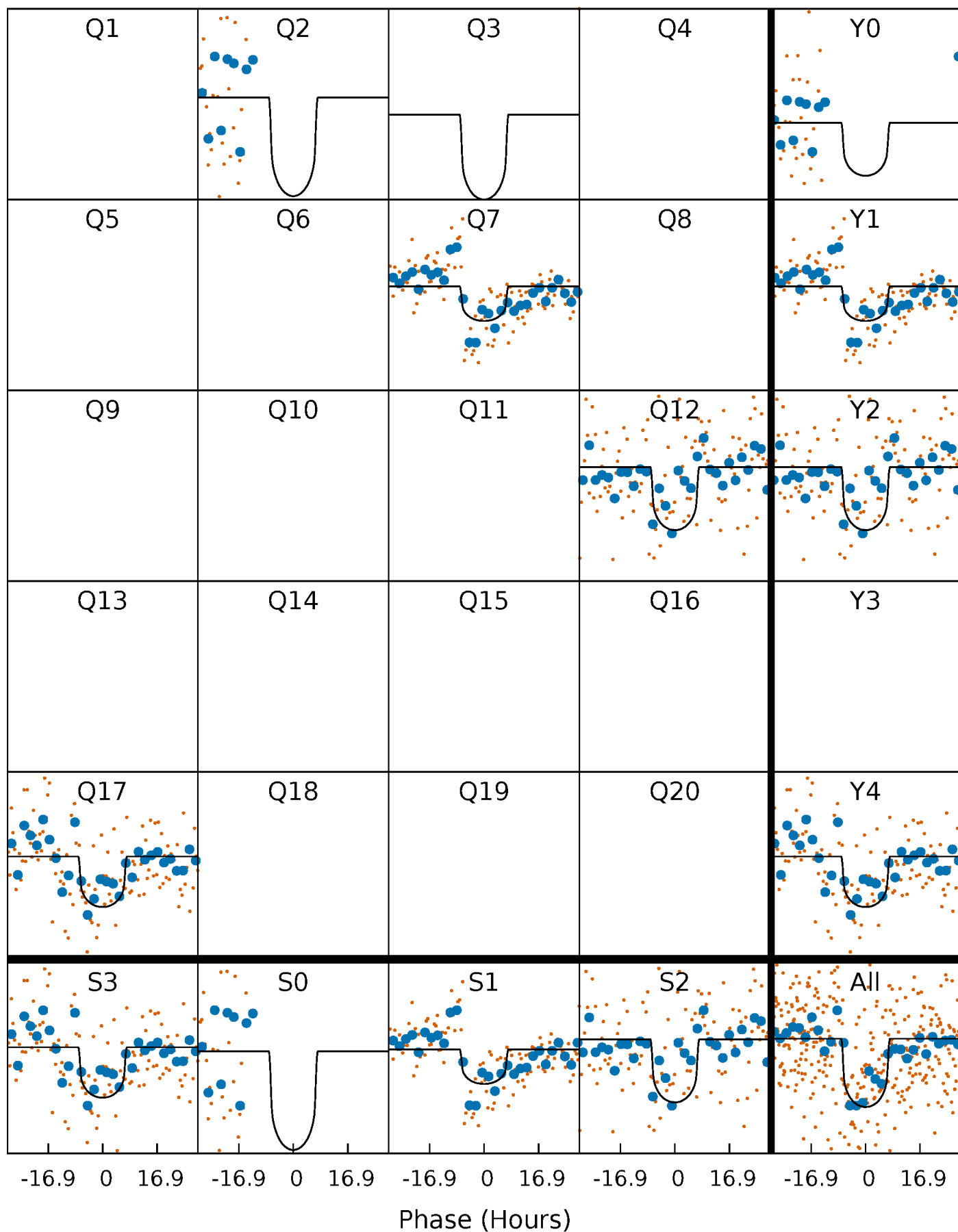
PDC Quarter-Phased Transit Curves

TCE 009096937-01 P=438.659909 Days $T_0=259.015444$ (BKJD)



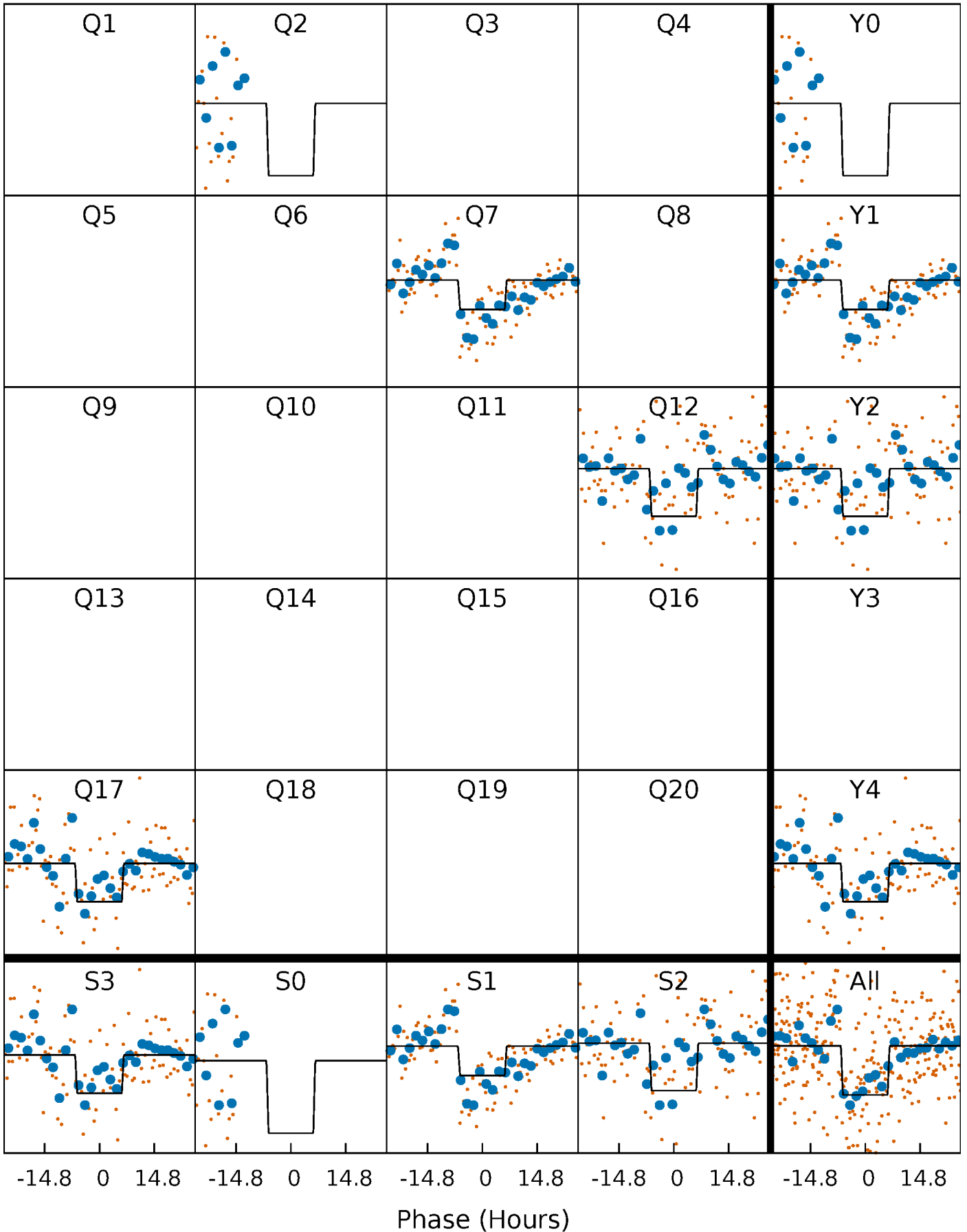
DV Quarter-Phased Transit Curves

TCE 009096937-01 P=438.659909 Days $T_0=259.015444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

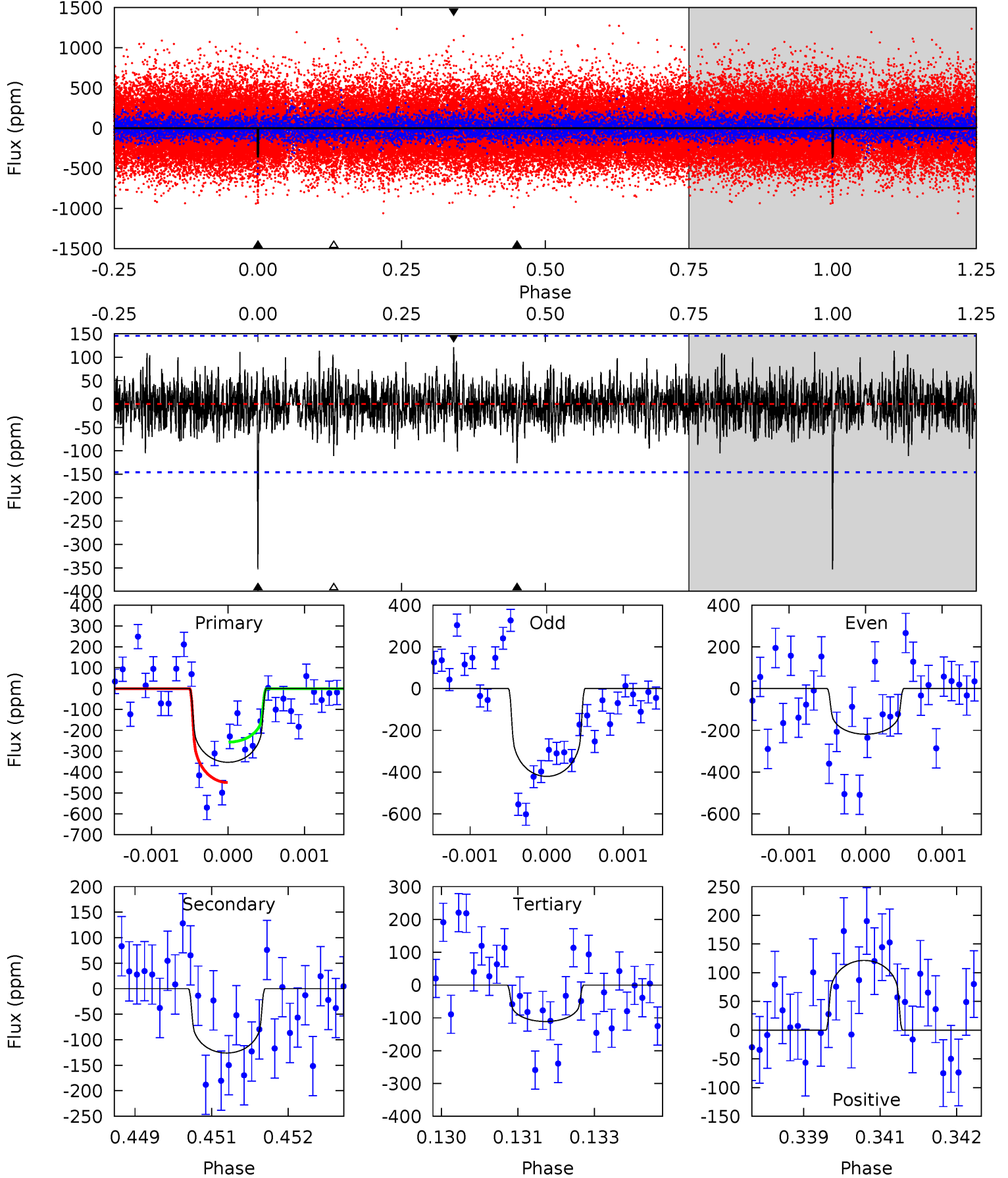
TCE 009096937-01 P=438.654044 Days $T_0=259.016565$ (BKJD)



DV Model-Shift Uniqueness Test

009096937-01, P = 438.659909 Days, E = 259.015444 Days

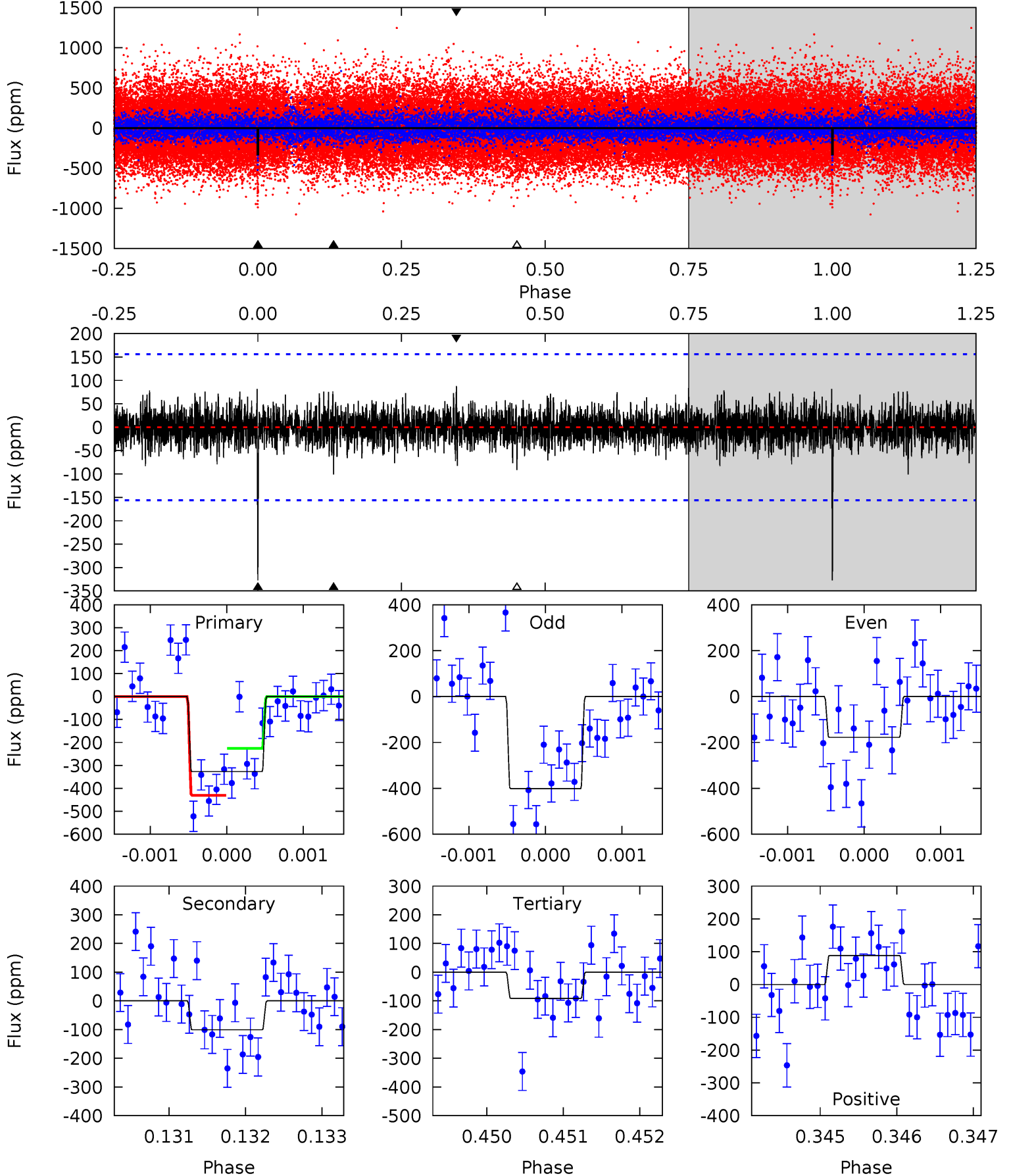
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	4.66	4.10	4.49	5.39	3.19	1.19	8.94	8.56	0.55	0.17	3.55	1.05	0.26	3.57



Alt Model-Shift Uniqueness Test

009096937-01, P = 438.654044 Days, E = 259.016565 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	3.49	3.16	3.06	5.42	3.23	0.82	8.17	8.28	0.33	0.43	3.66	1.24	0.21	3.54



Stellar Parameters For KIC 009096937

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5108^{+153}_{-153}	$4.606^{+0.072}_{-0.048}$	$-0.700^{+0.300}_{-0.300}$	$0.661^{+0.069}_{-0.057}$	$0.642^{+0.073}_{-0.031}$	$3.137^{+0.897}_{-0.582}$
	+3%/-3%	+2%/-1%	+43%/-43%	+10%/-9%	+11%/-5%	+29%/-19%
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 009096937-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-126 ± 27	$1.49^{+0.53}_{-0.50}$	257^{+10}_{-9}	4007^{+719}_{-423}	30273^{+38703}_{-14972}
Alt.	-101 ± 29	$1.35^{+0.57}_{-0.48}$	259^{+9}_{-10}	3988^{+774}_{-497}	28661^{+44687}_{-15476}

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

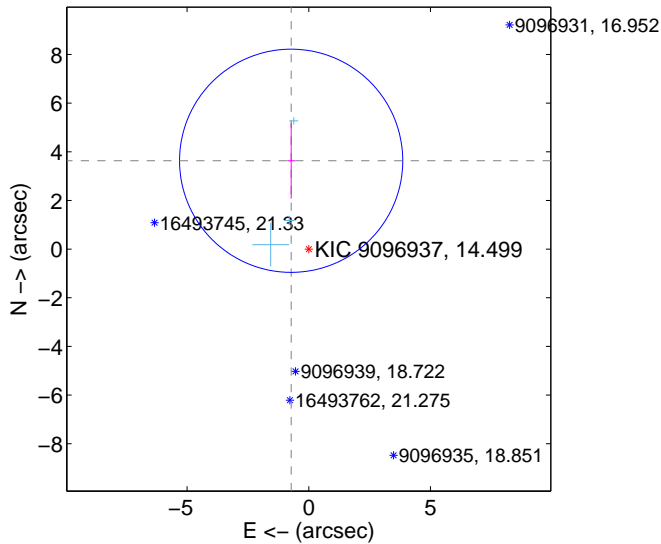
Supplemental centroid analysis for 009096937-01. Kepler magnitude: 14.50. Transit SNR 10.62

There are 3 quarters with good PRF difference image offsets

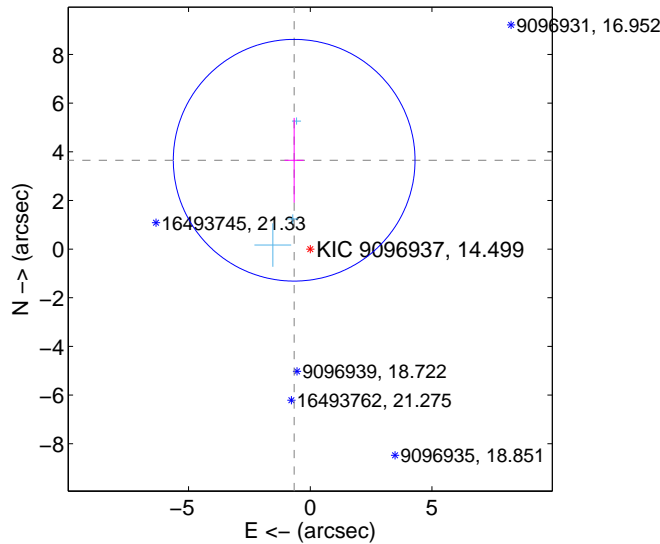
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.702 ± 1.529	2.42	0.723 ± 0.157	3.630 ± 1.559
PRF-fit source offset from KIC position	3.711 ± 1.656	2.24	0.661 ± 0.397	3.652 ± 1.741
photometric centroid source offset	1.67 ± 1.31	1.27	0.51 ± 1.02	1.59 ± 1.34

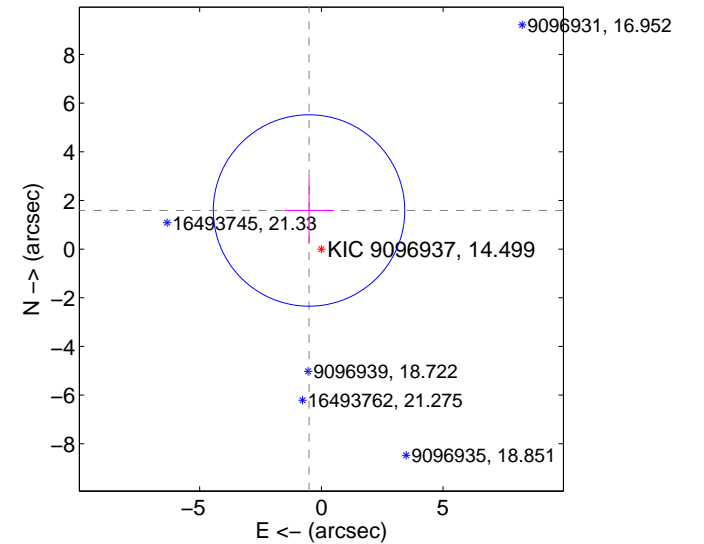
offset from difference PRF-fit to OOT PRF-fit



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.

Q5 no difference image



Q5 no OOT image



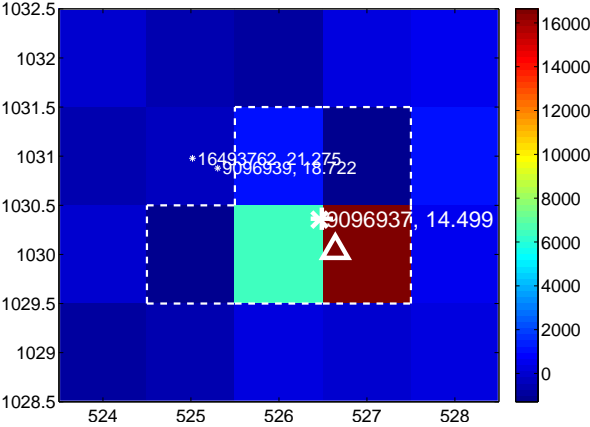
Q6 no difference image



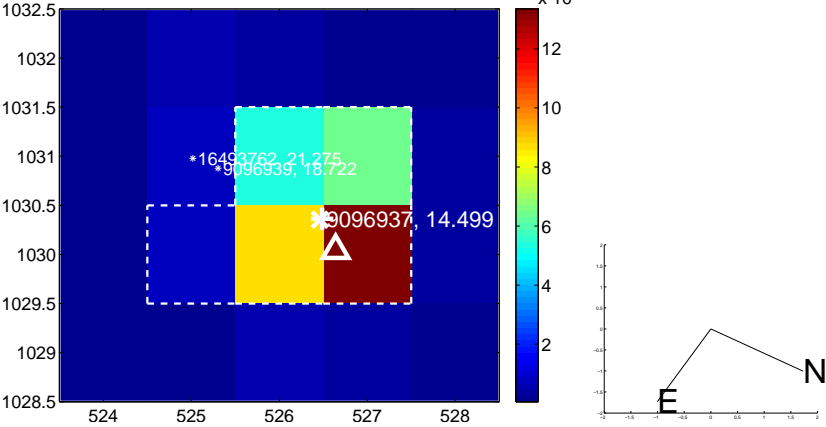
Q6 no OOT image



Q7 difference image



Q7 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.

Q9 no difference image



Q9 no OOT image



Q10 no difference image



Q10 no OOT image



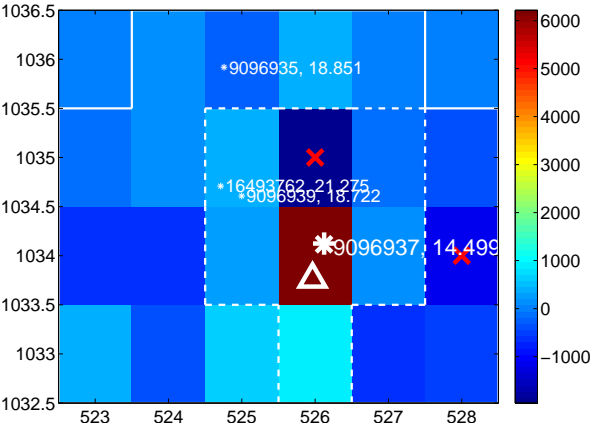
Q11 no difference image



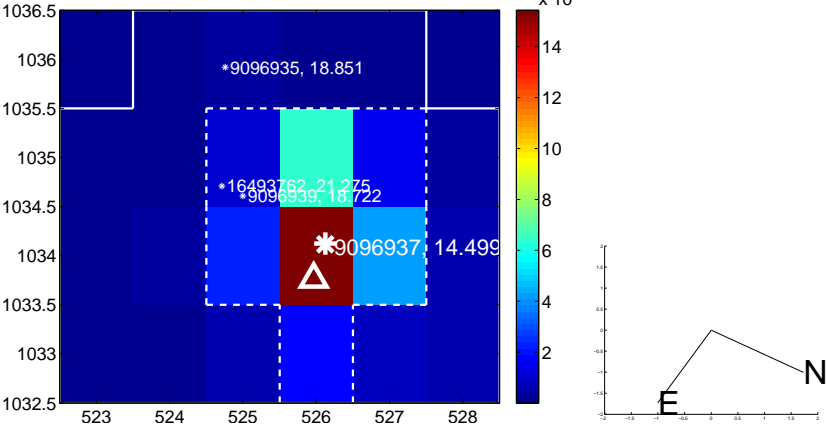
Q11 no OOT image



Q12 difference image



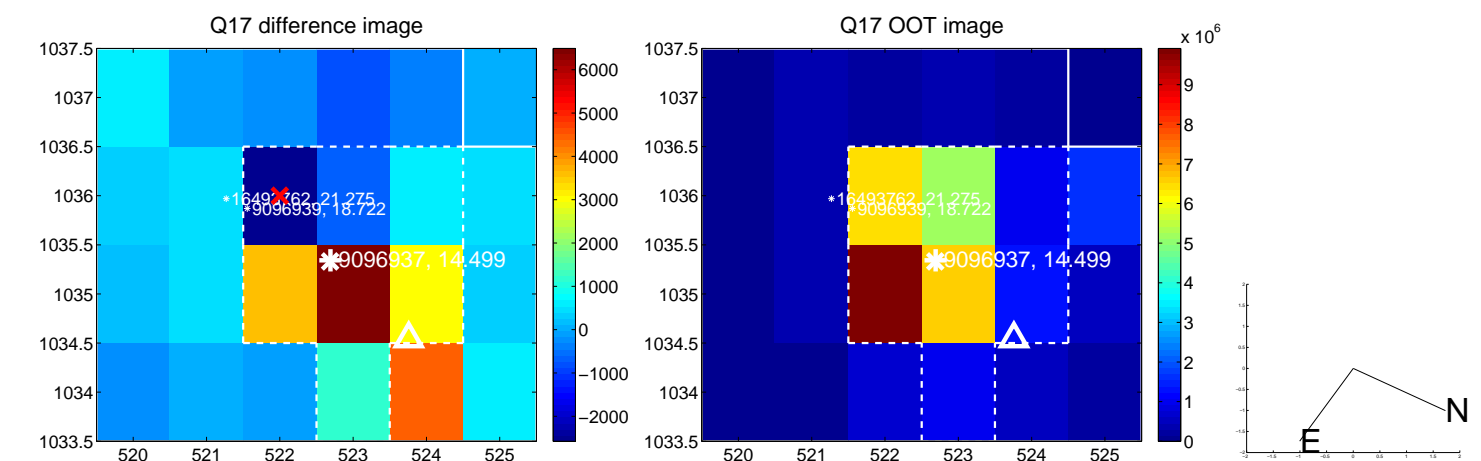
Q12 OOT image



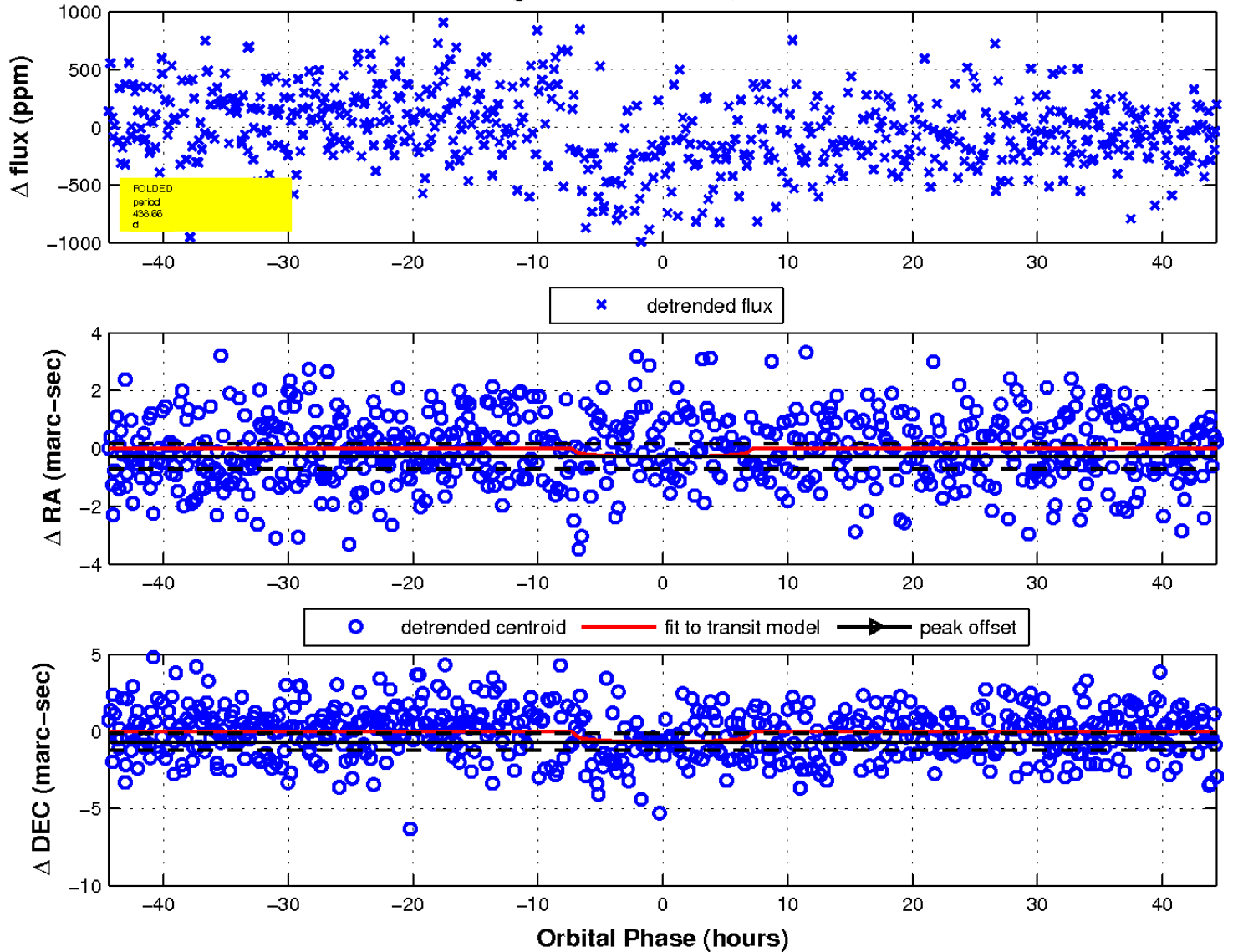
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

