

KIC 008362237

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})
008362237-01	OBS	No	369.986089	296.640310	1058.6	53.095	7.3	12.4	0.68	5373	2.74	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008362237-01	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS—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.

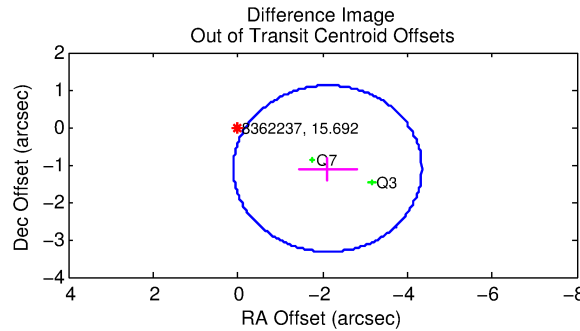
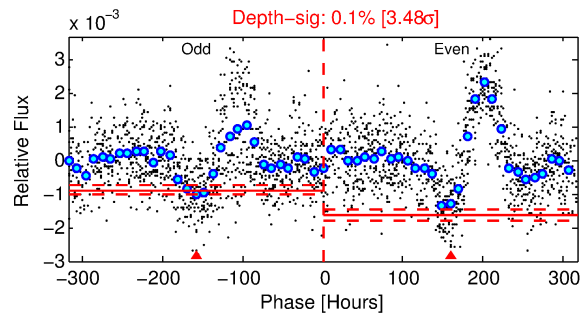
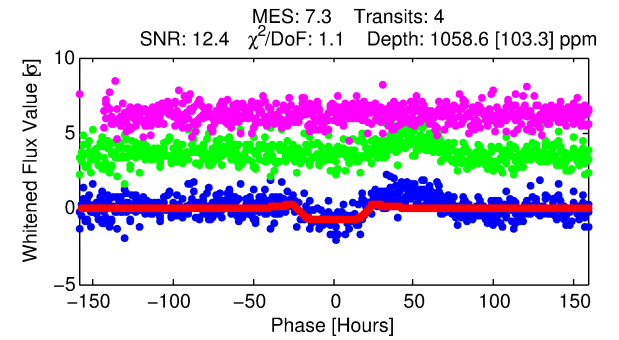
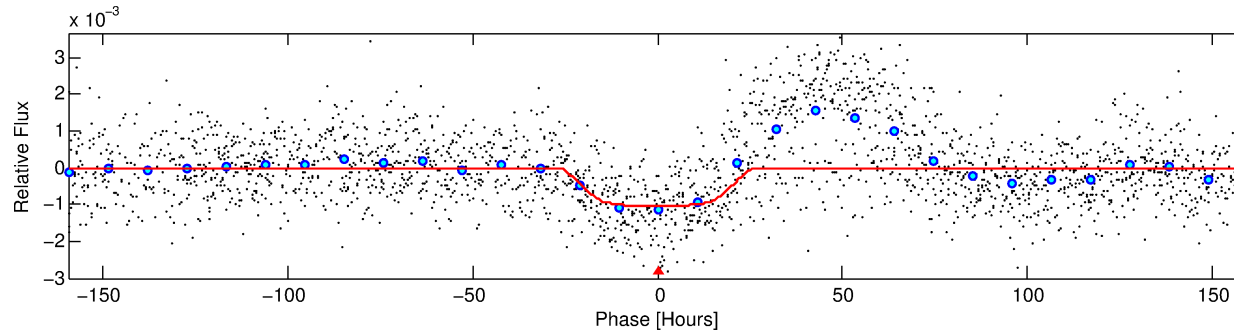
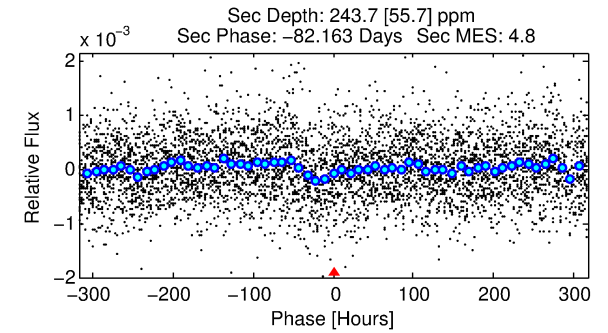
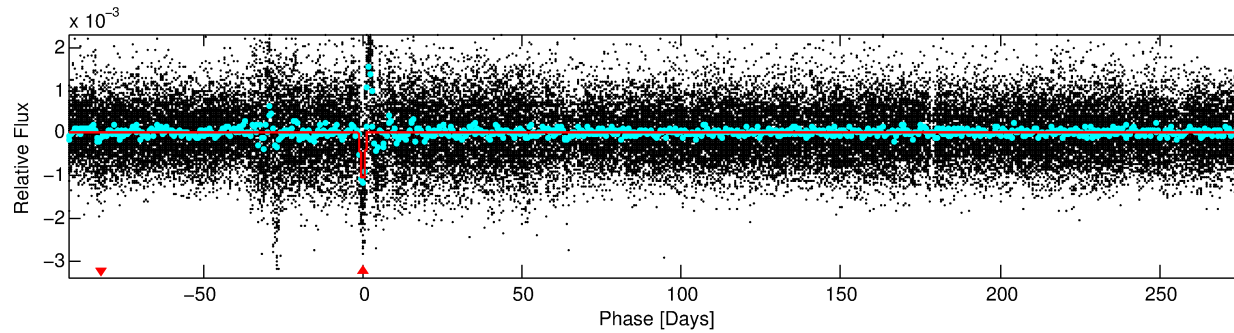
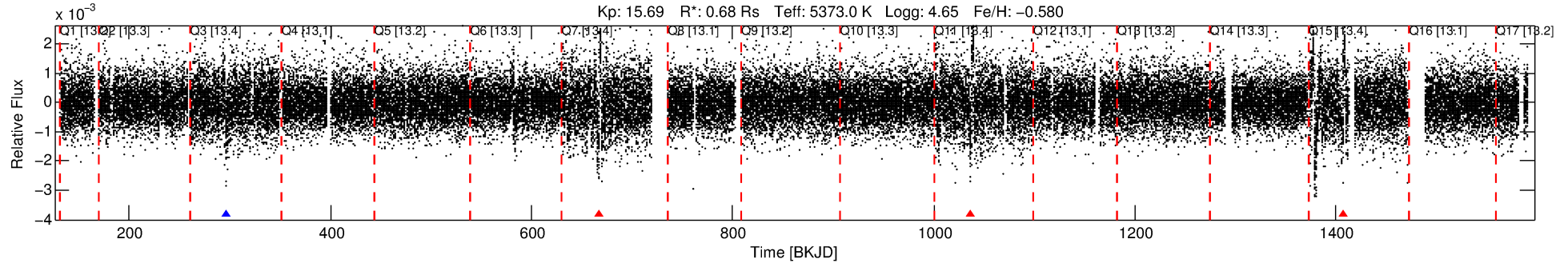
Ephemeris Match Information For 008362237-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (\prime)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008362237-01	8362237	008228228-01	8228228	1:1	1640.3	413	-5	15.67	15.69	1.67	Col-Anomaly	1	4.05	4.35

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: 8362237 Candidate: 1 of 1 Period: 369.986 d



DV Fit Results:

Period = 369.98609 [0.03427] d
Epoch = 296.6403 [0.0616] BKJD
Rp/R* = 0.0370 [0.0024]
a/R* = 24.33 [3.79]
b = 0.93 [0.02]
Seff = 0.41 [0.09]
Teq = 204 [11] K
Rp = 2.74 [0.45] Re
a = 0.9150 [0.1113] AU
Ag = 14962.89 [4705.17] [3.18σ]
Teffp = 3492 [253] K [12.99σ]

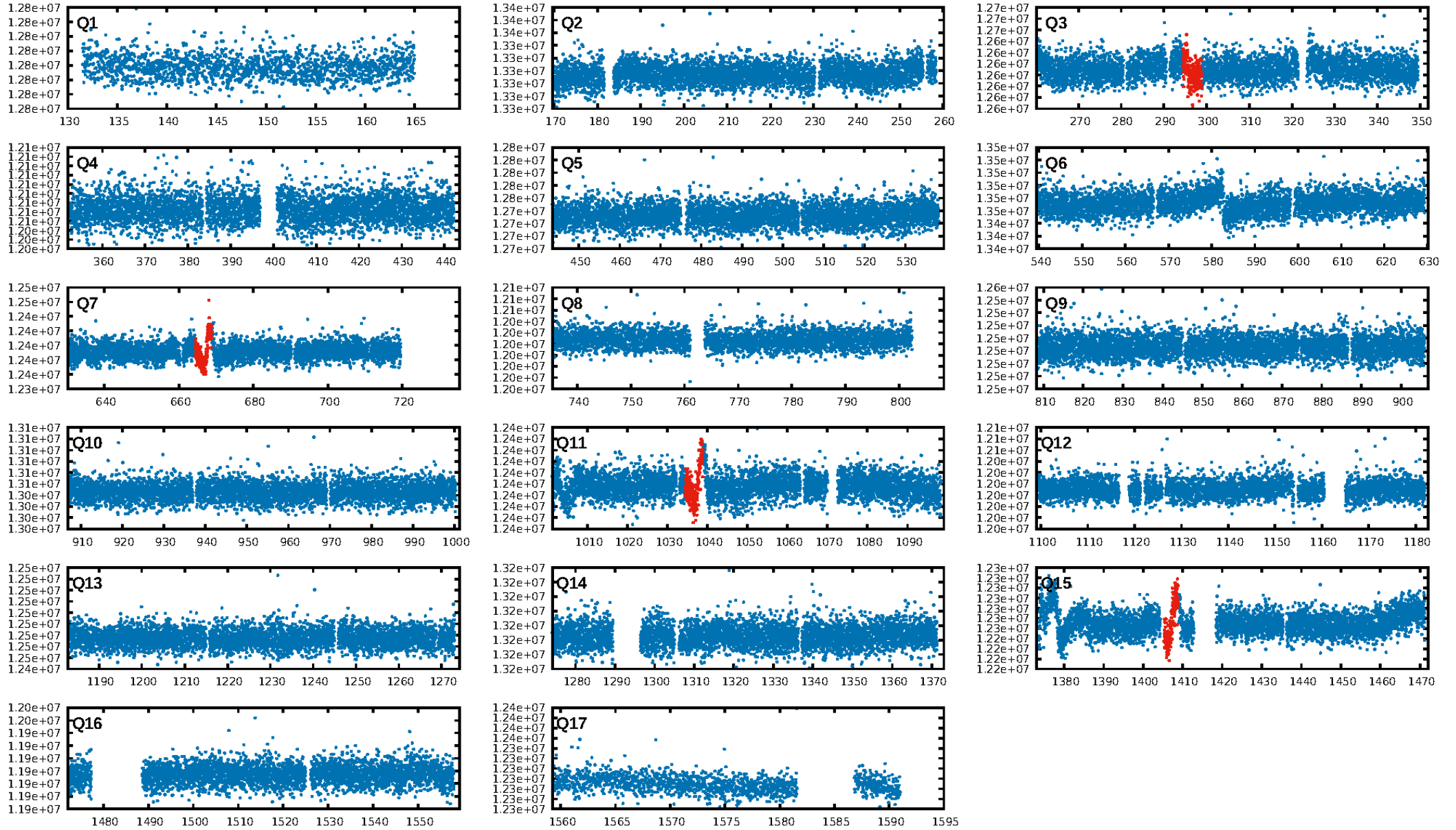
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.35e-11
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: 0.3037
Centroid-sig: 1.3%
Centroid-so: 2.514 arcsec [1.97σ]
OotOffset-rm: 2.393 arcsec [3.23σ]
KicOffset-rm: 2.173 arcsec [3.20σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

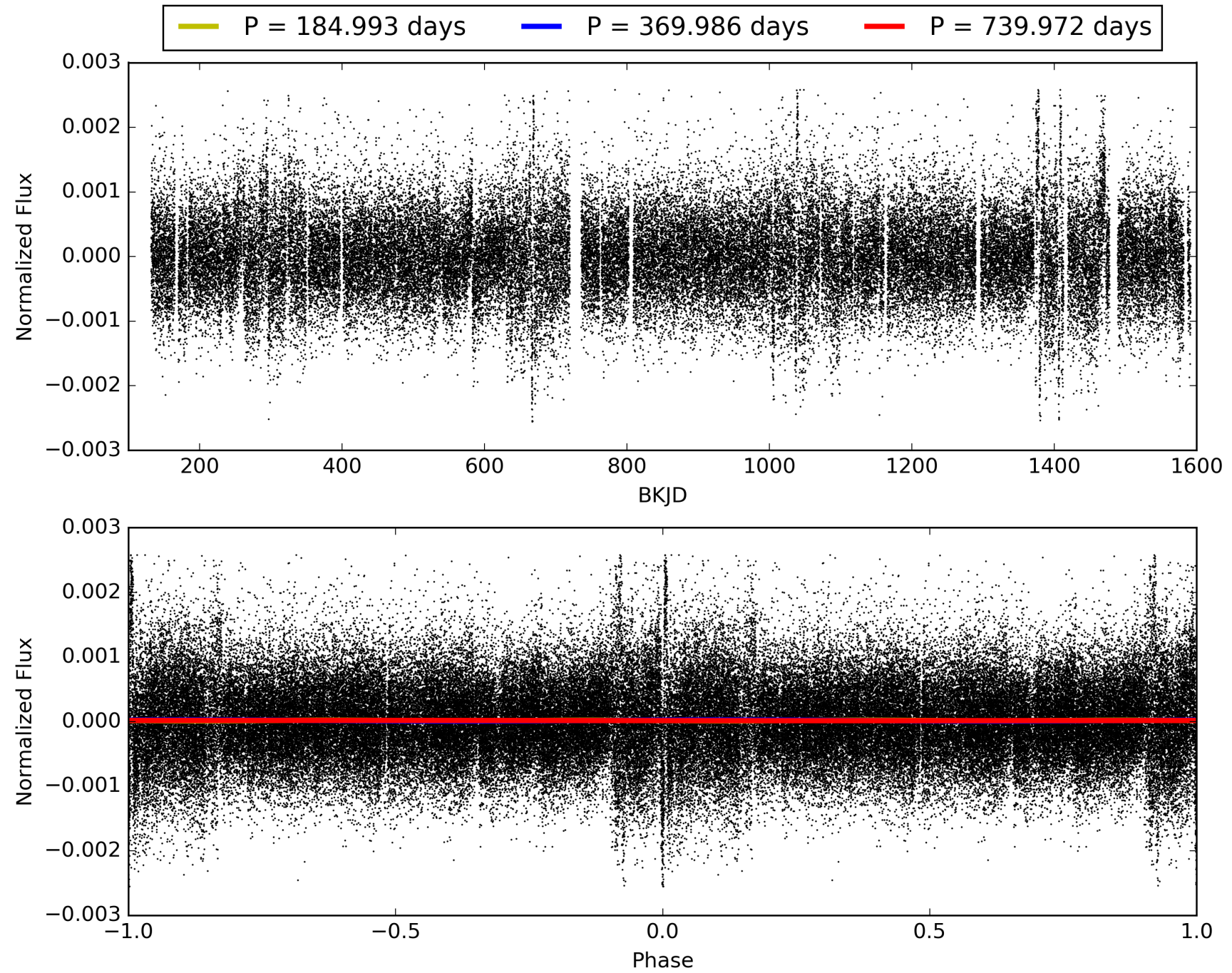
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:18:34 Z

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

TCE 008362237-01, PDC Light Curves

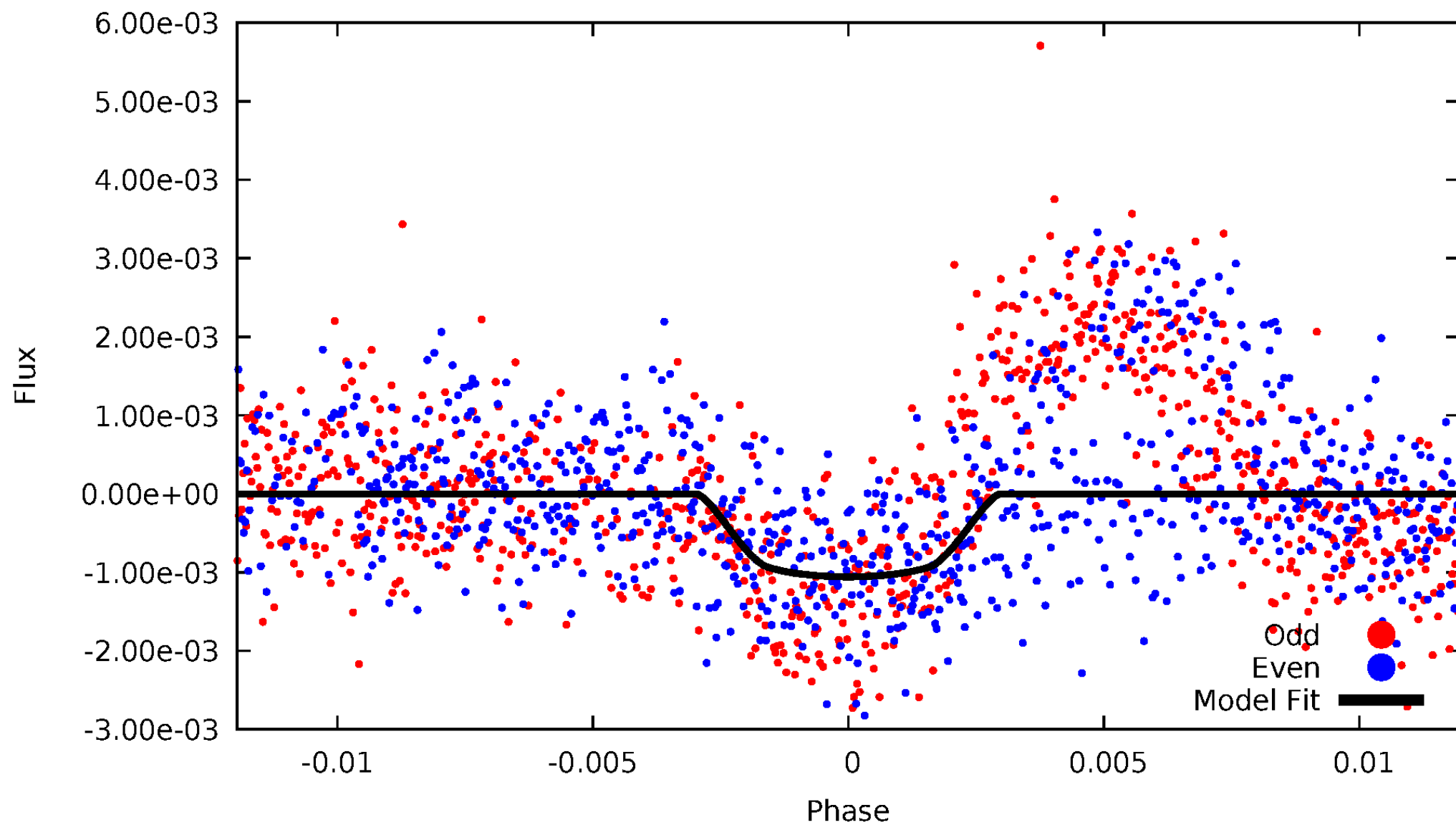


TCE 008362237-01



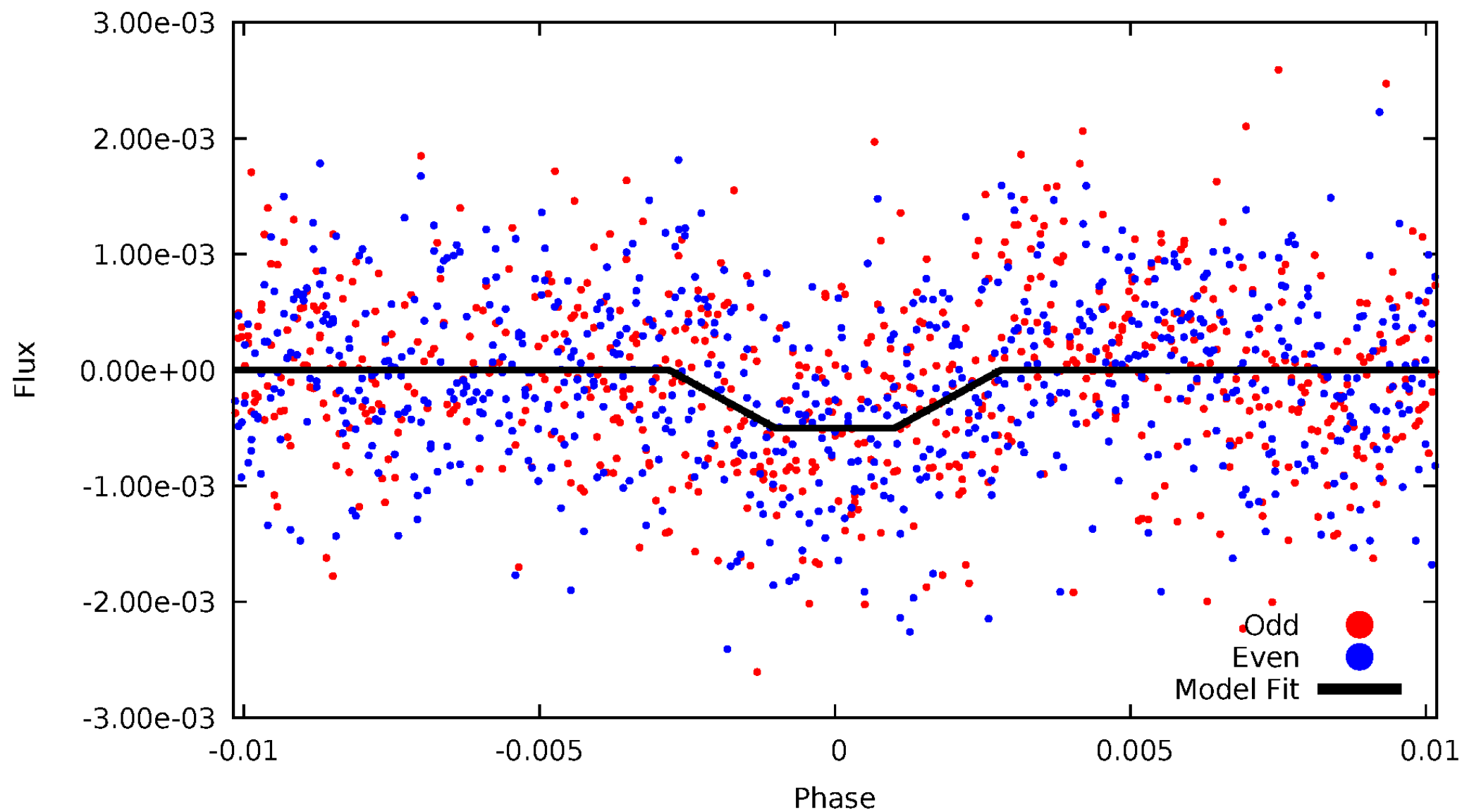
DV Odd/Even

TCE 008362237-01



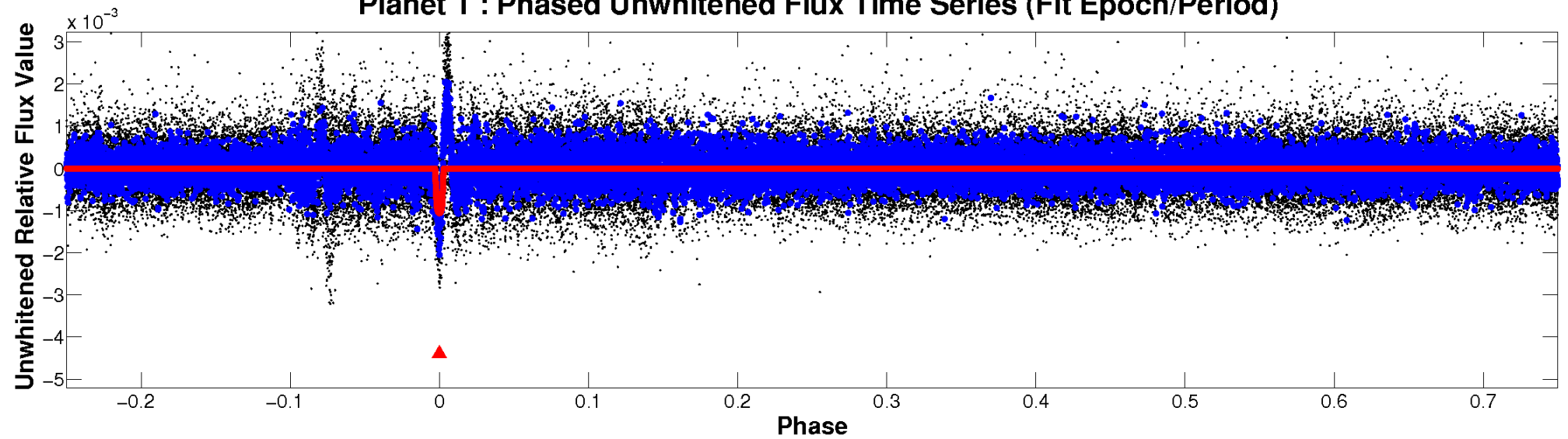
ALT Odd/Even

TCE 008362237-01

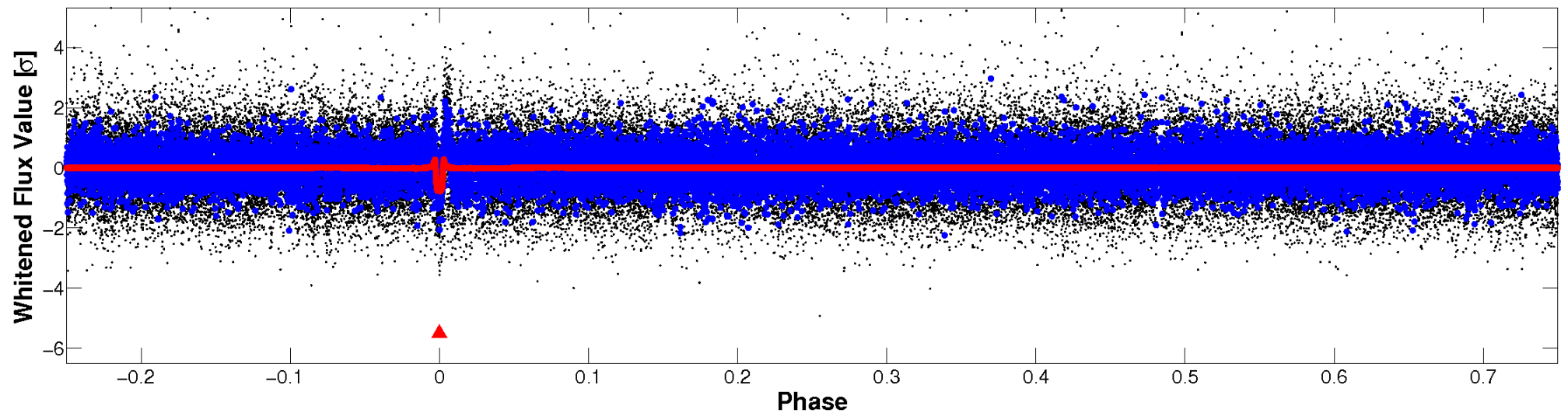


Non-Whitened Vs. Whitened Light Curve

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

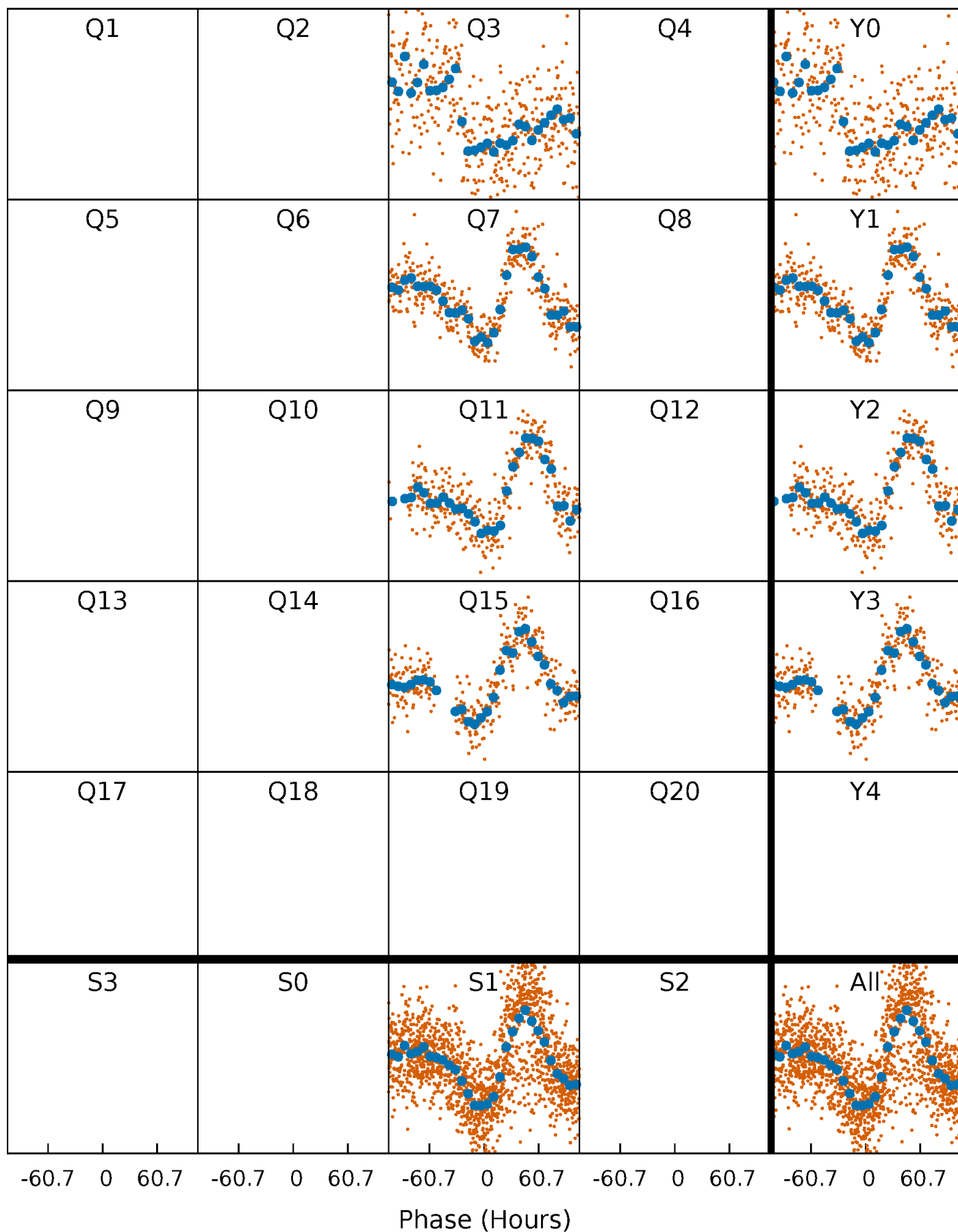


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



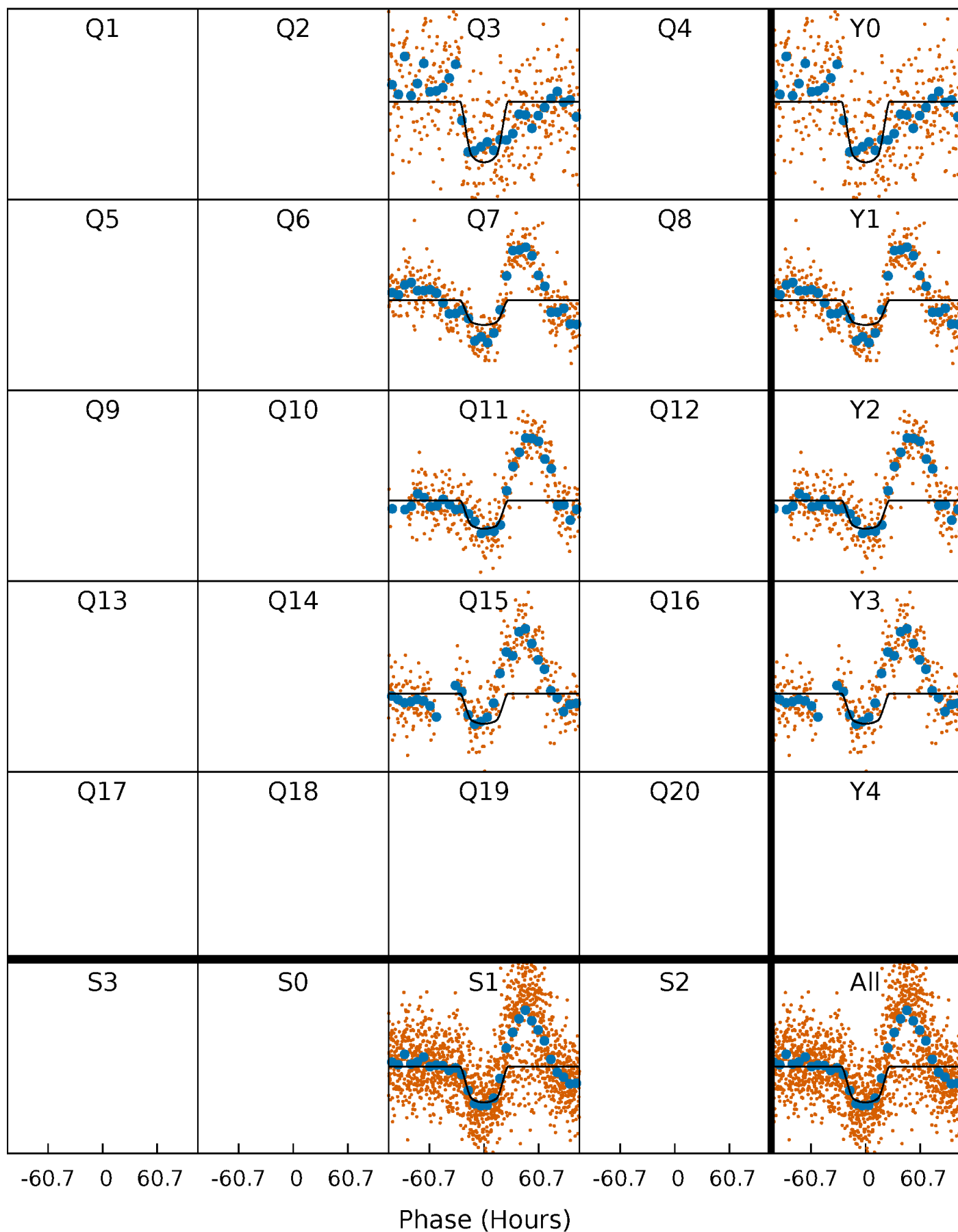
PDC Quarter-Phased Transit Curves

TCE 008362237-01 P=369.986089 Days $T_0=296.640310$ (BKJD)



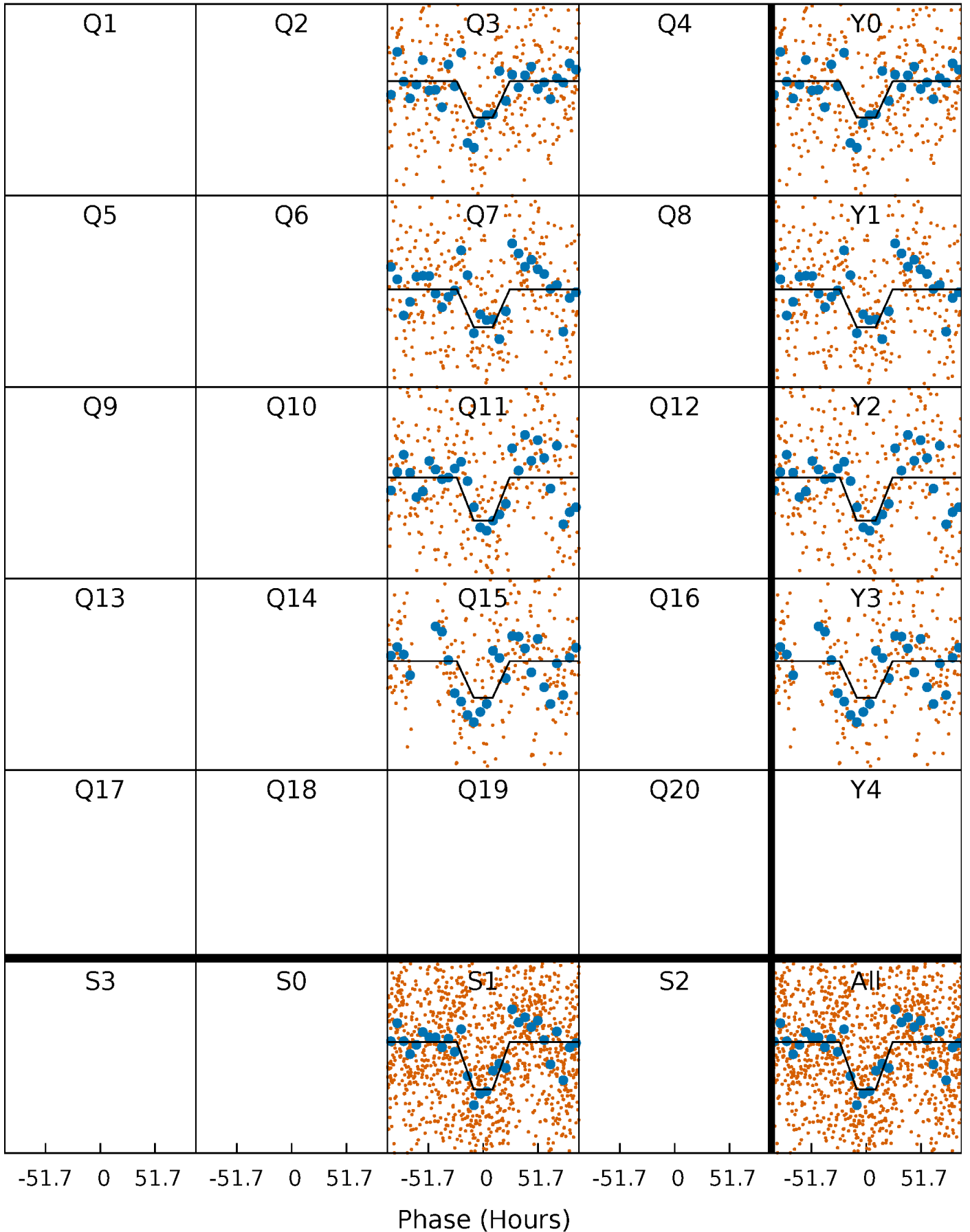
DV Quarter-Phased Transit Curves

TCE 008362237-01 $P=369.986089$ Days $T_0=296.640310$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

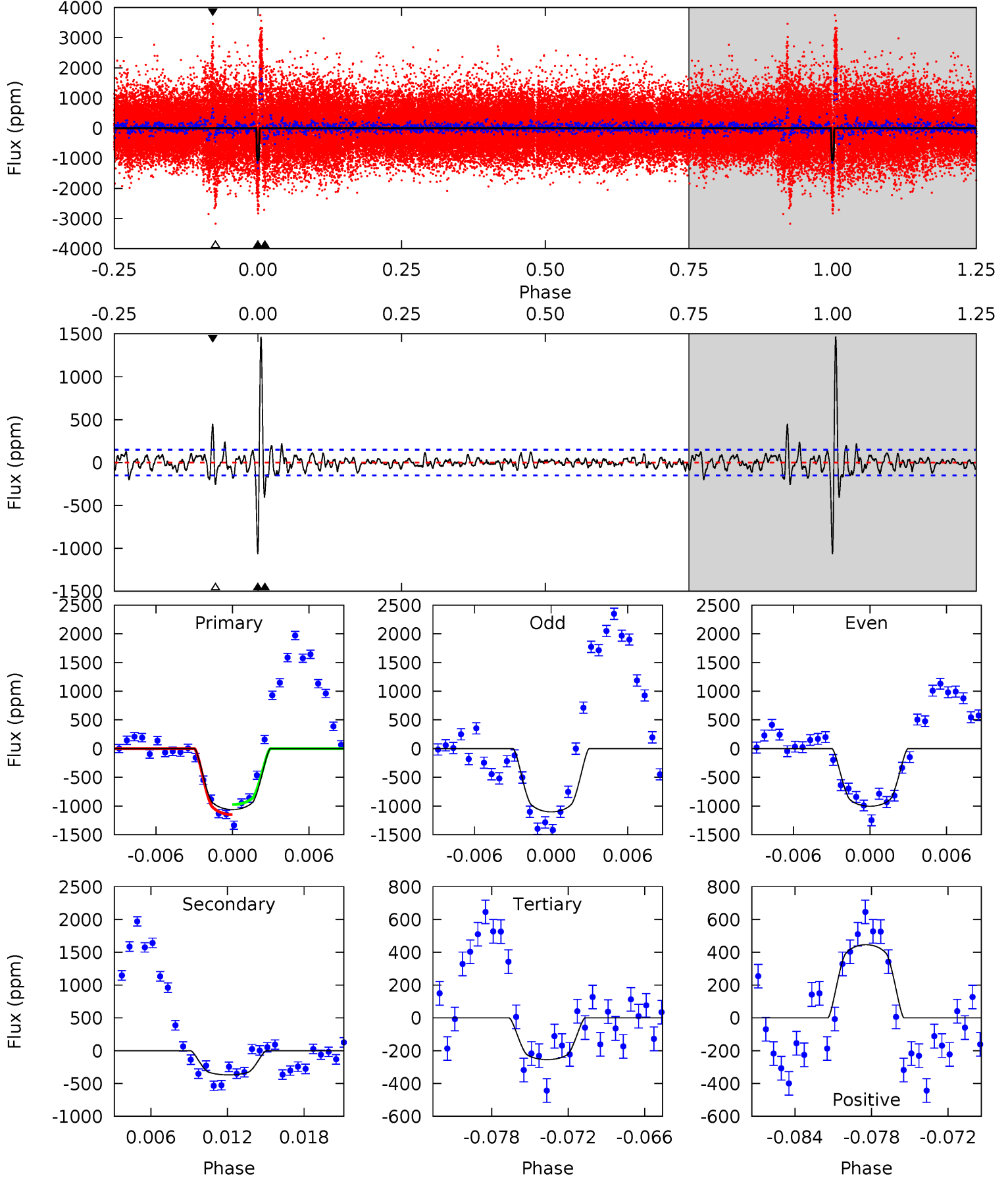
TCE 008362237-01 P=370.276541 Days $T_0=296.288782$ (BKJD)



DV Model-Shift Uniqueness Test

008362237-01, P = 369.986089 Days, E = 296.640310 Days

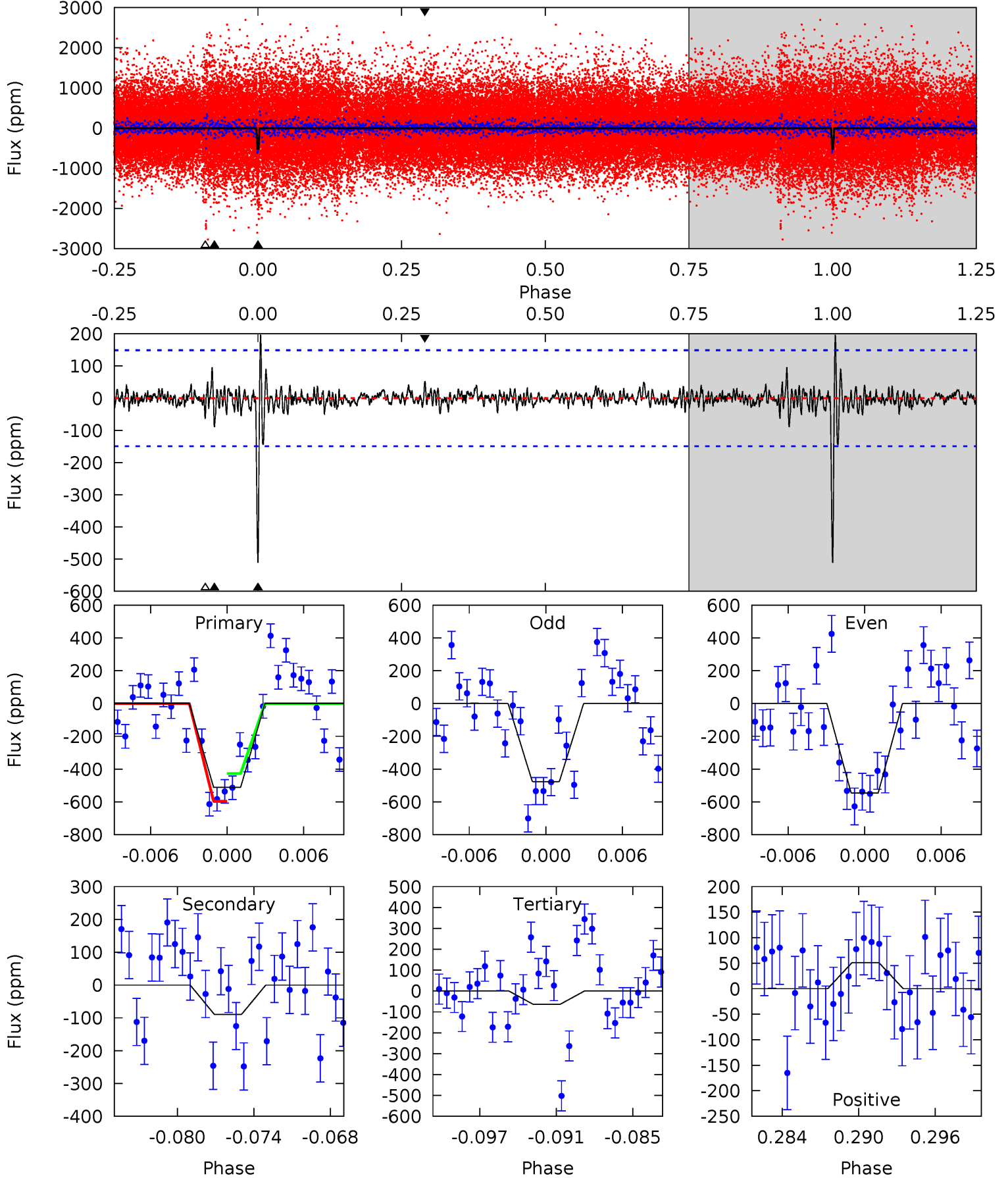
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.3	12.6	8.69	15.2	5.12	2.75	2.31	27.6	21.0	3.90	-2.64	1.68	1.05	0.58	2.98



Alt Model-Shift Uniqueness Test

008362237-01, P = 370.276541 Days, E = 296.288782 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	3.09	2.19	1.75	5.13	2.77	0.65	15.4	15.9	0.90	1.34	1.21	0.99	0.28	2.92



Stellar Parameters For KIC 008362237

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5373^{+160}_{-160}	$4.647^{+0.030}_{-0.090}$	$-0.580^{+0.300}_{-0.300}$	$0.679^{+0.102}_{-0.041}$	$0.758^{+0.072}_{-0.072}$	$3.418^{+0.439}_{-1.038}$
	+3%/-3%	+1%/-2%	+52%/-52%	+15%/-6%	+9%/-9%	+13%/-30%
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 008362237-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-369 ± 29	$2.80^{+0.28}_{-0.24}$	289^{+12}_{-11}	4128^{+158}_{-154}	21396^{+4390}_{-3725}
Alt.	-90 ± 29	$1.70^{+0.22}_{-0.21}$	290^{+11}_{-10}	3838^{+290}_{-277}	14361^{+6482}_{-5110}

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

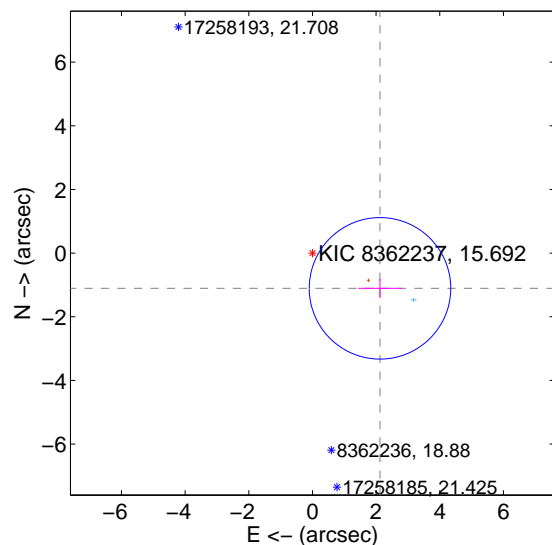
Supplemental centroid analysis for 008362237-01. Kepler magnitude: 15.69. Transit SNR 12.36

There are 1 quarters with good PRF difference image offsets

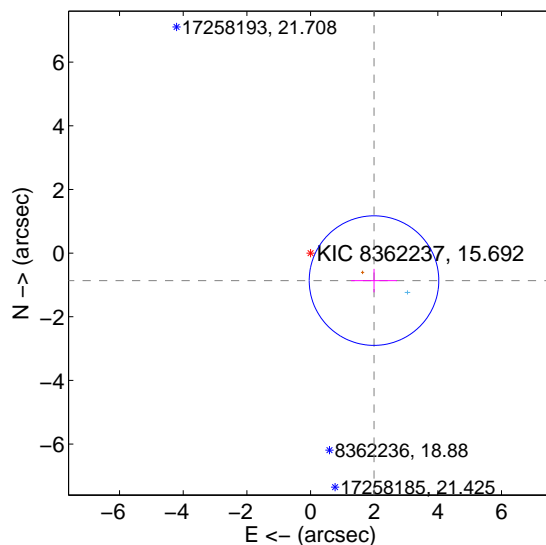
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.393 ± 0.741	3.23	-2.122 ± 0.682	-1.107 ± 0.302
PRF-fit source offset from KIC position	2.173 ± 0.678	3.20	-1.994 ± 0.722	-0.864 ± 0.367
photometric centroid source offset	2.51 ± 1.27	1.97	-2.25 ± 1.34	-1.12 ± 0.98

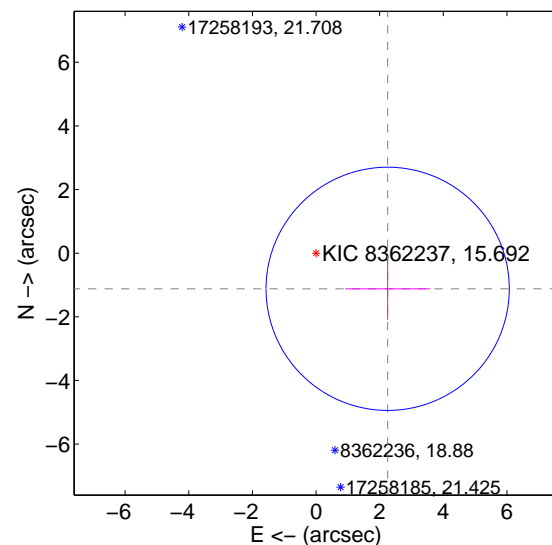
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



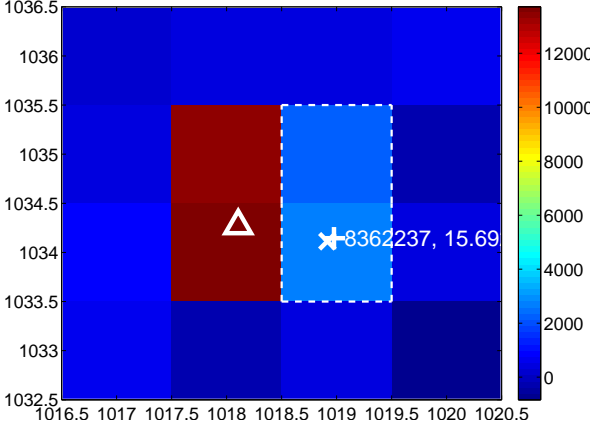
Q2 no difference image



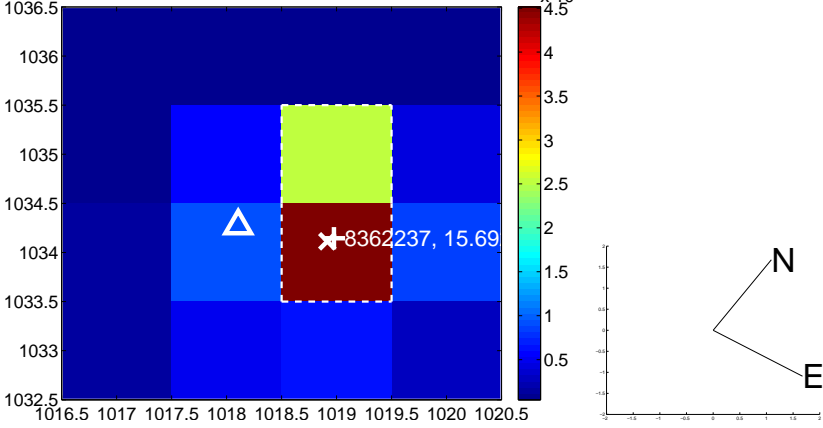
Q2 no OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



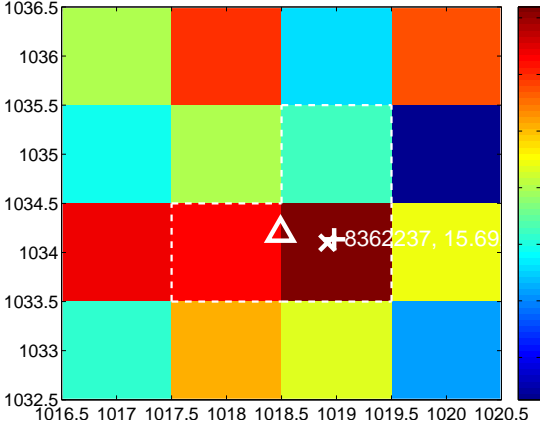
Q6 no difference image



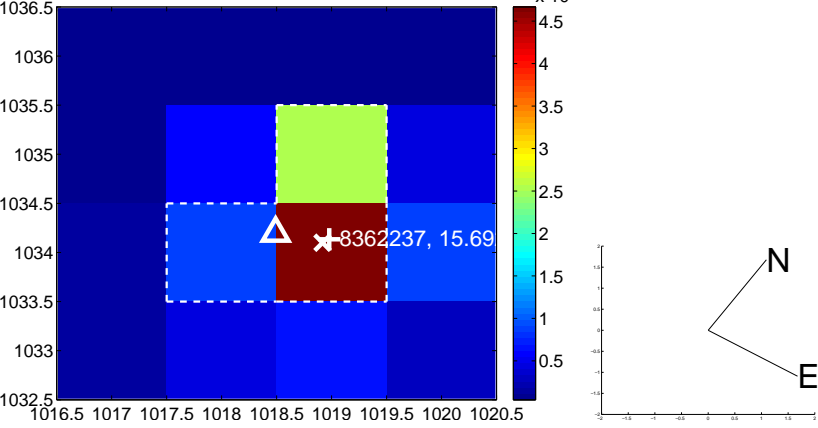
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



Q8 no OOT image



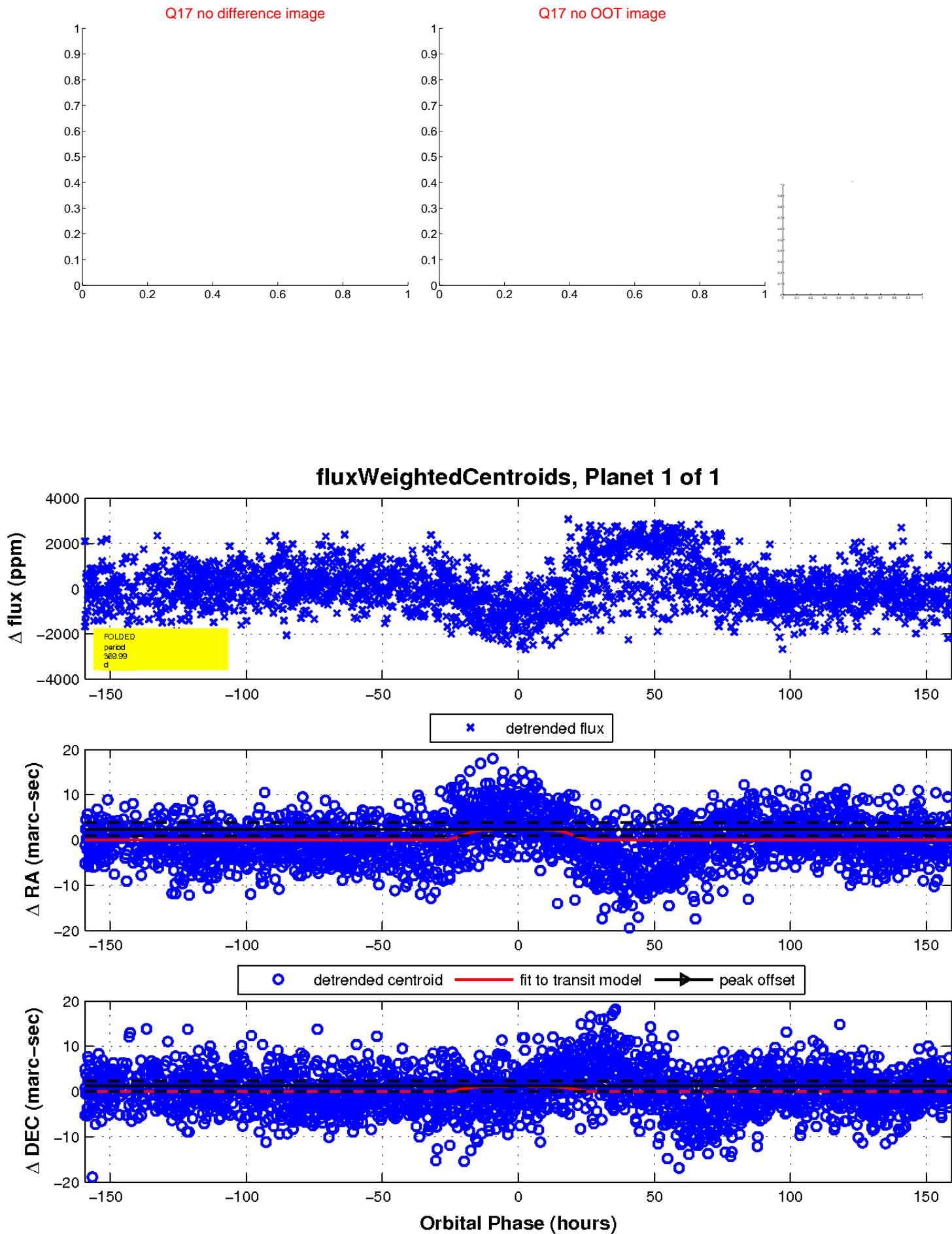
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

