

KIC 010360722

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})
010360722-01	OBS	4051.01	163.692288	238.766505	1142.9	7.152	15.8	18.3	0.84	4999	3.02	1.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010360722-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 010360722-01

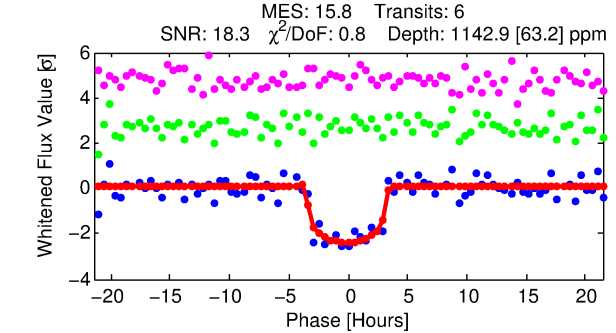
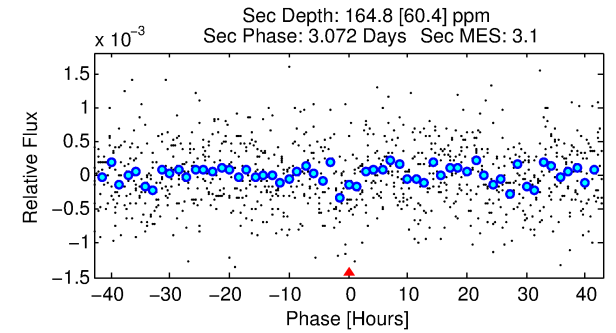
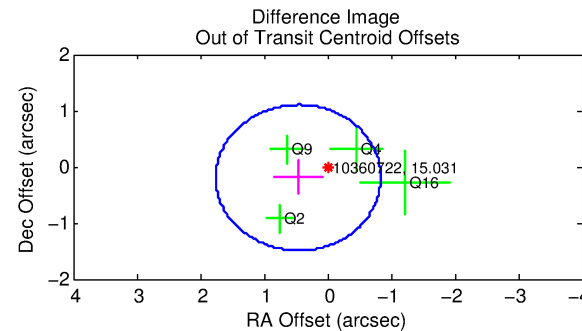
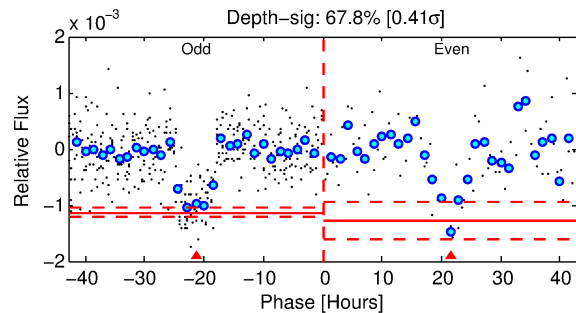
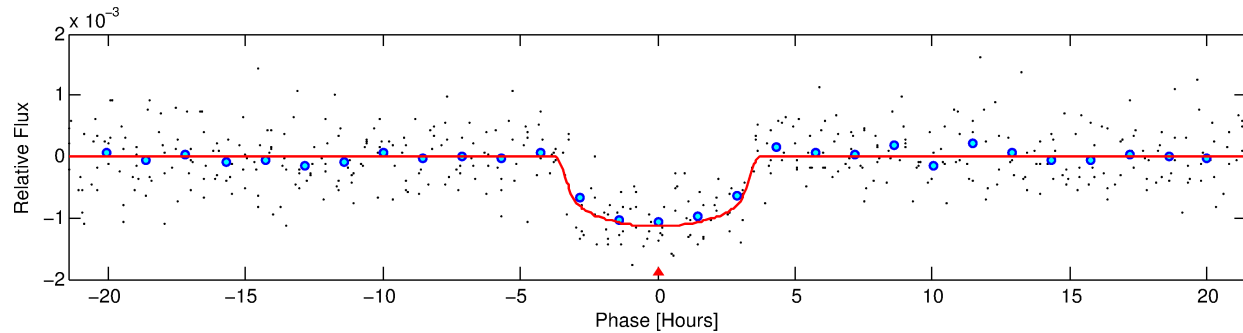
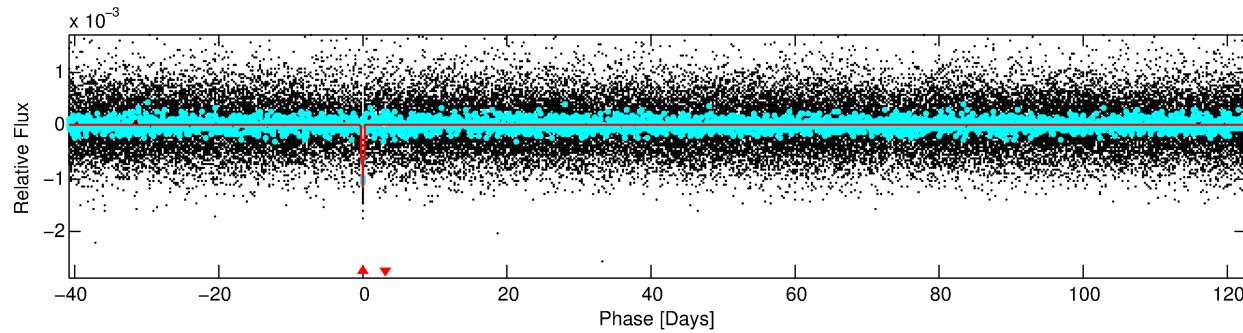
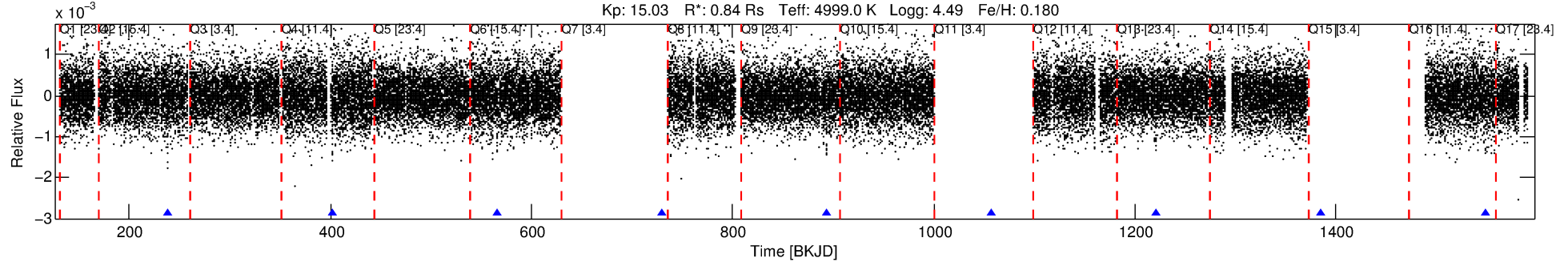
No Significant Match Found

DV One-Page Summary

KIC: 10360722 Candidate: 1 of 1 Period: 163.692 d

KOI: K04051.01 Corr: 0.979

Kp: 15.03 R*: 0.84 Rs Teff: 4999.0 K Logg: 4.49 Fe/H: 0.180



DV Fit Results:

Period = 163.69229 [0.00153] d
Epoch = 238.7665 [0.0063] BKJD
Rp/R* = 0.0328 [0.0110]
a/R* = 135.76 [154.58]
b = 0.68 [0.92]
Seff = 1.34 [0.19]
Teq = 275 [10] K
Rp = 3.02 [1.04] Re
a = 0.5440 [0.0426] AU
Ag = 2947.82 [2289.89] [1.29σ]
Teffp = 3128 [601] K [4.75σ]

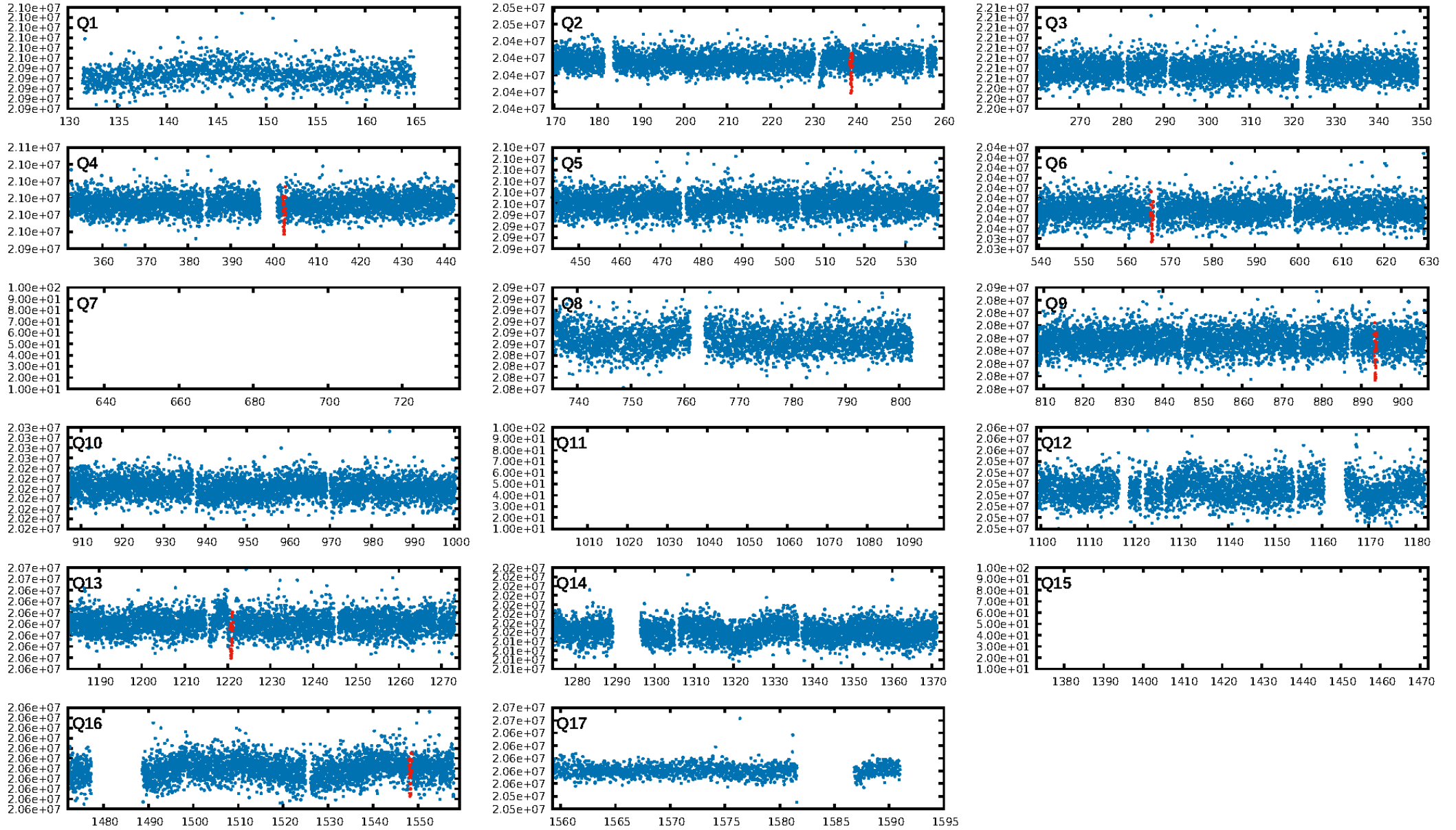
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 33.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.64e-50
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 3.209
Centroid-sig: 0.5%
Centroid-so: 1.857 arcsec [2.14σ]
OotOffset-rm: 0.501 arcsec [1.16σ]
KicOffset-rm: 0.517 arcsec [1.09σ]
OotOffset-st: 1/0/2/1 [4]
KicOffset-st: 1/0/2/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

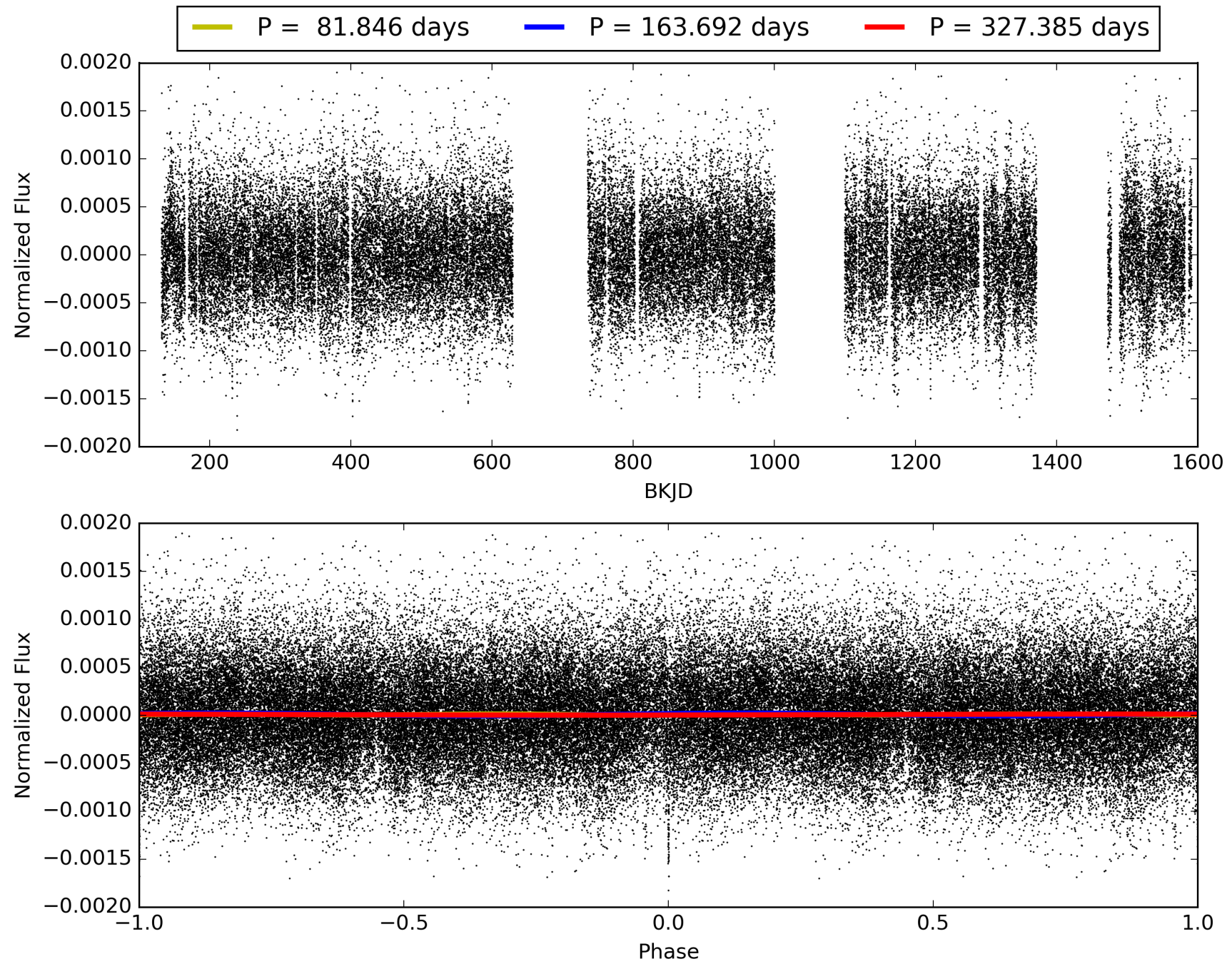
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:10:29 Z

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

TCE 010360722-01, PDC Light Curves

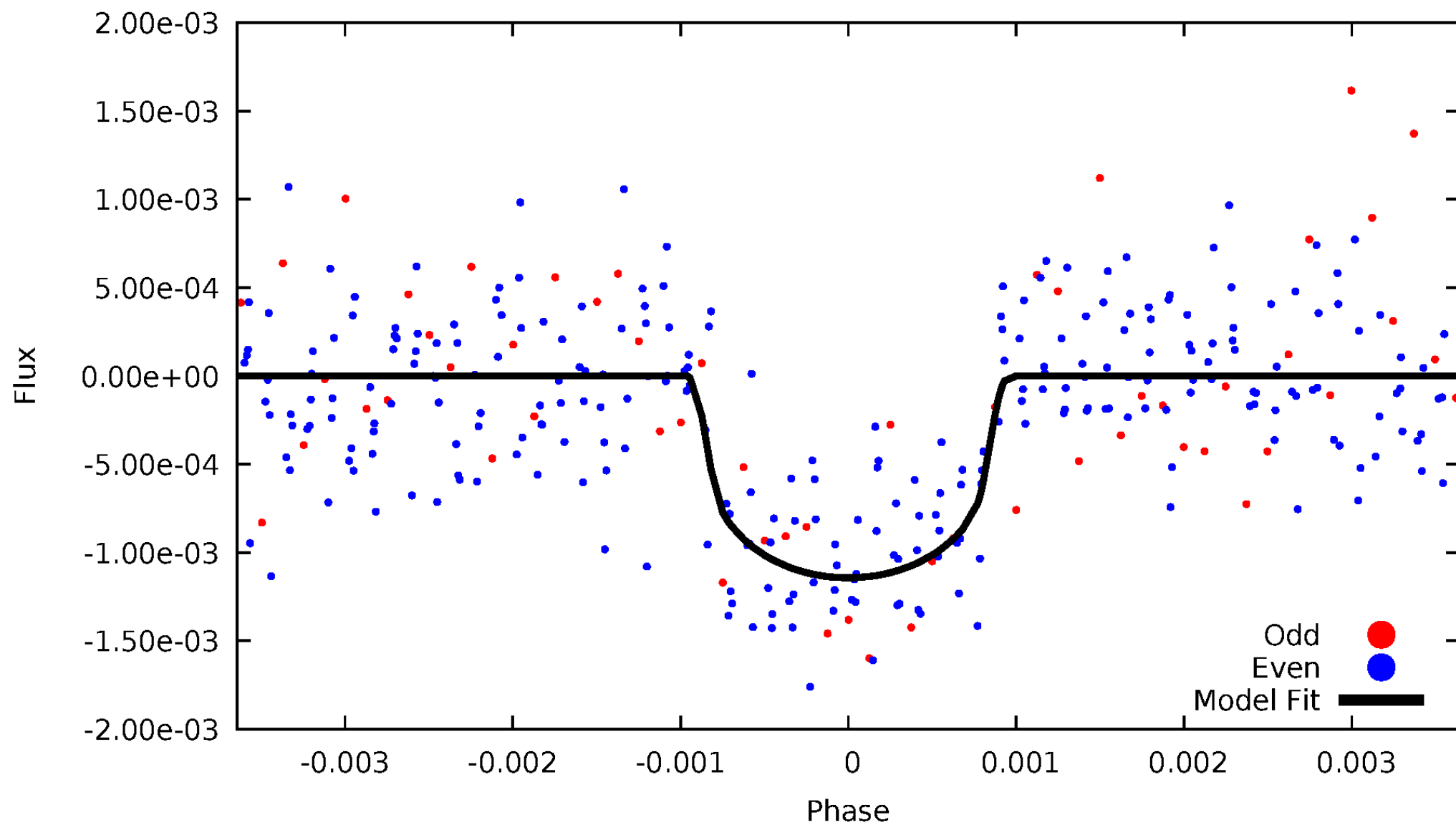


TCE 010360722-01



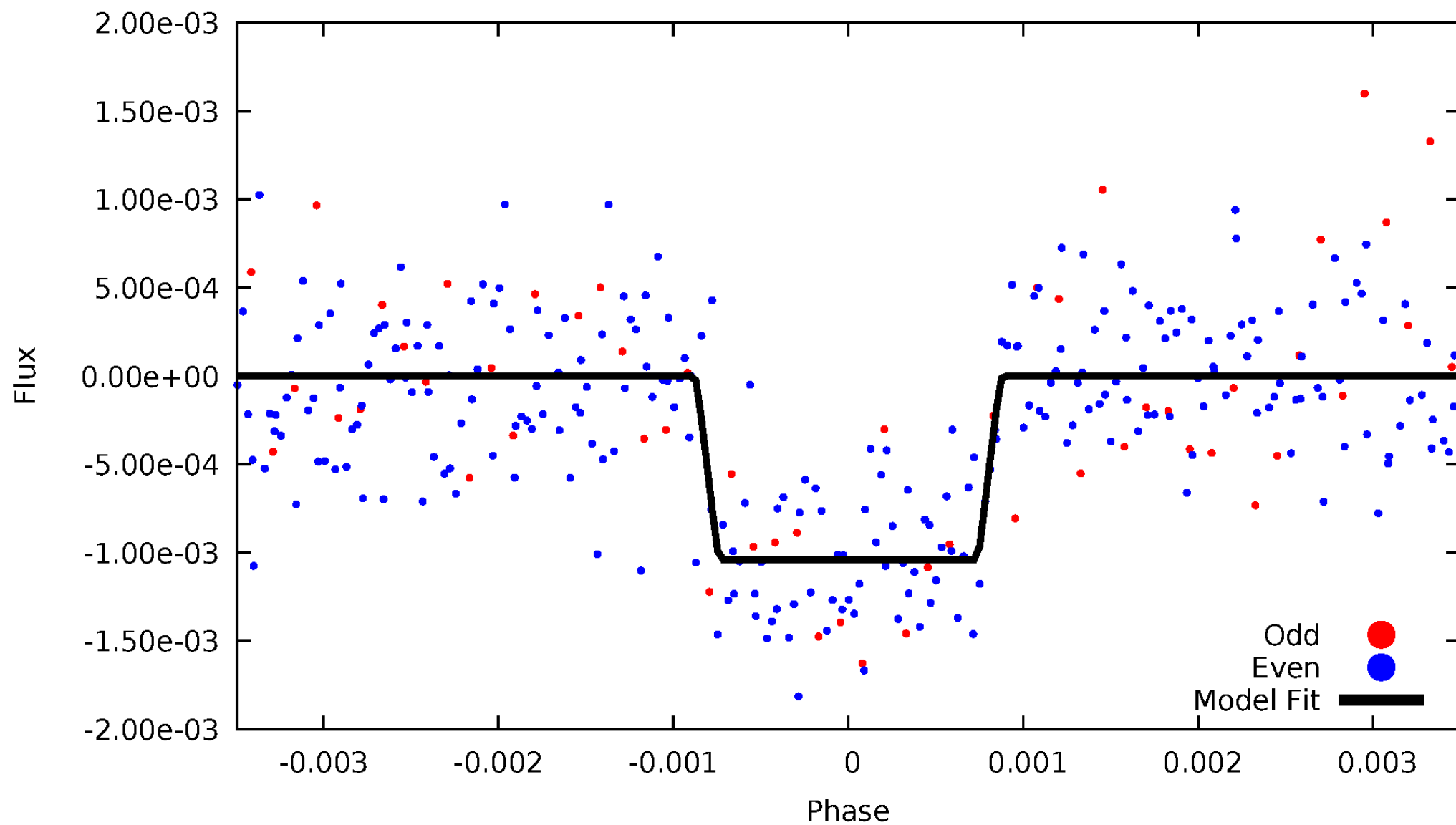
DV Odd/Even

TCE 010360722-01



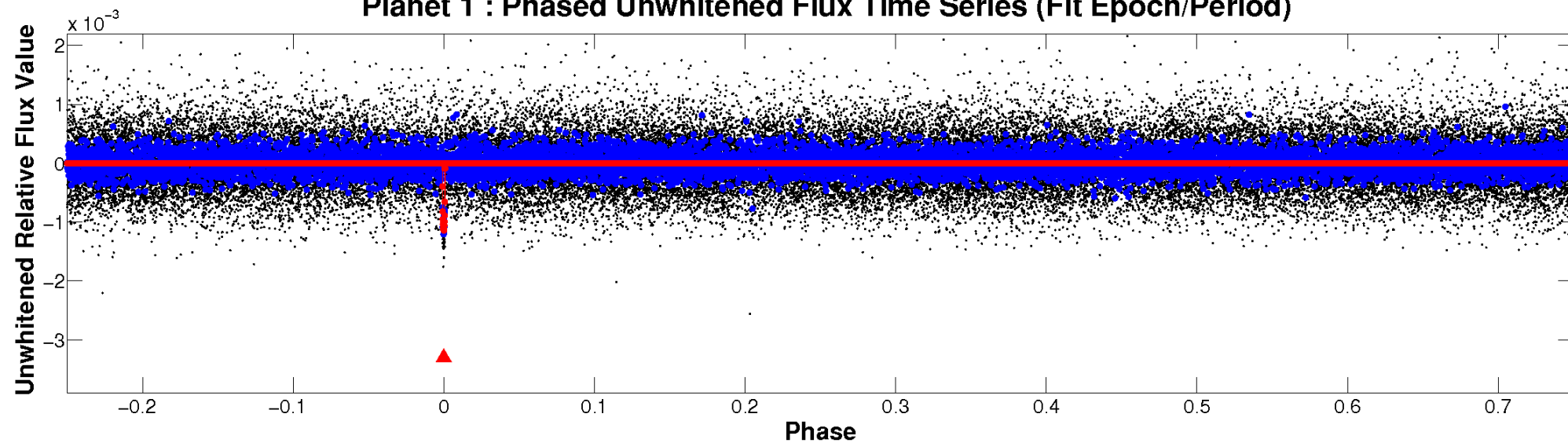
ALT Odd/Even

TCE 010360722-01

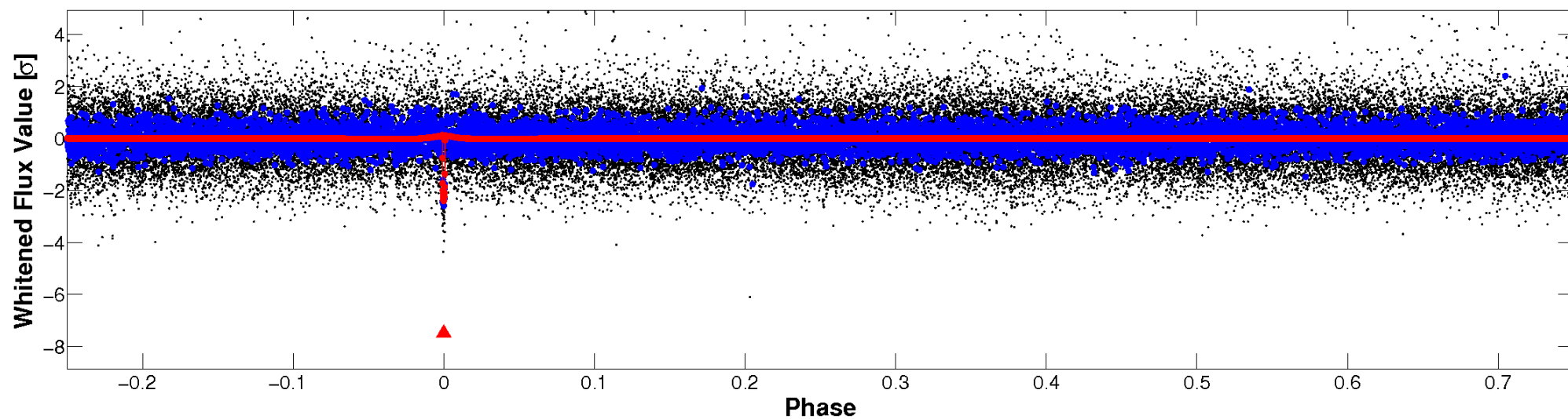


Non-Whitened Vs. Whitened Light Curve

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

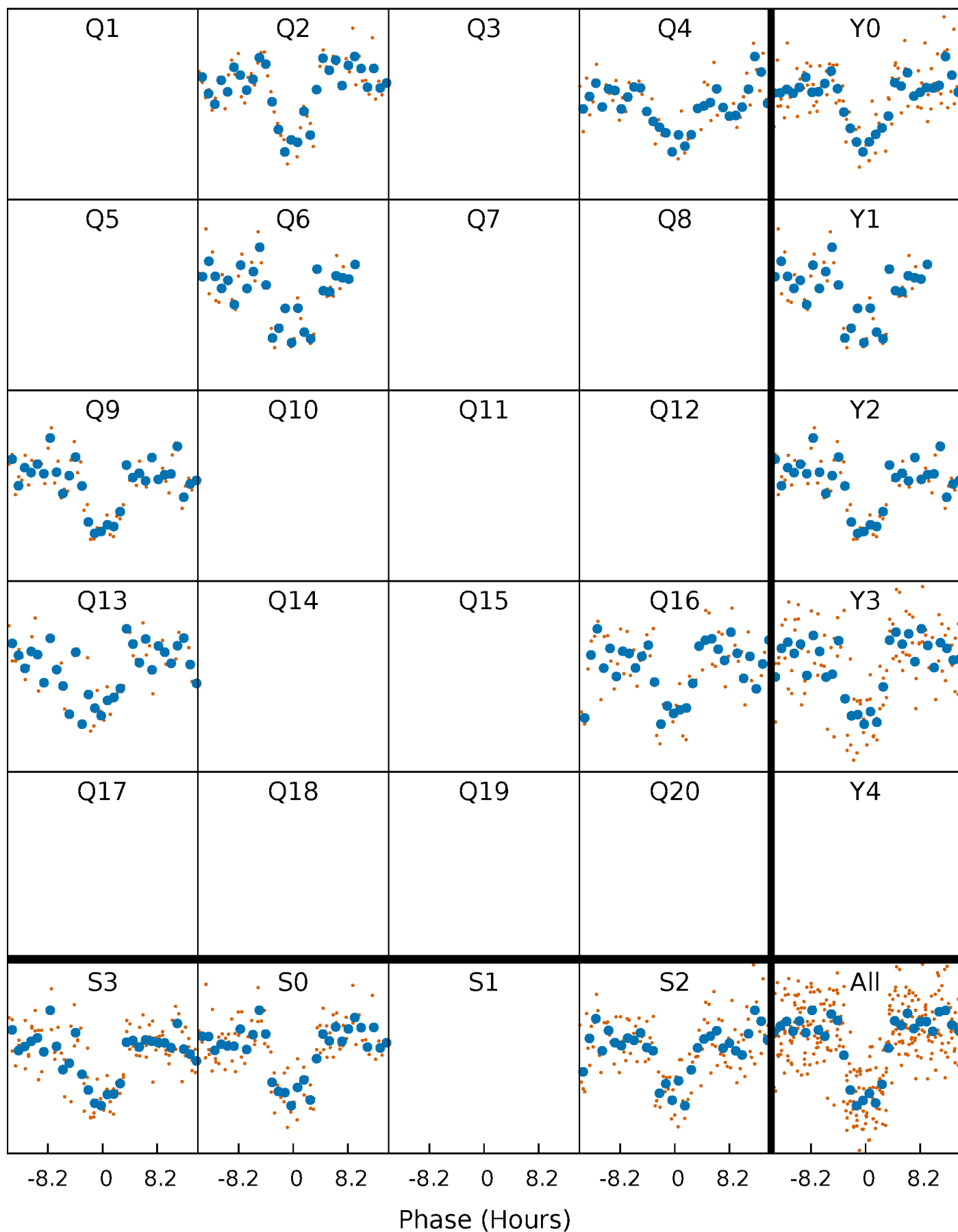


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



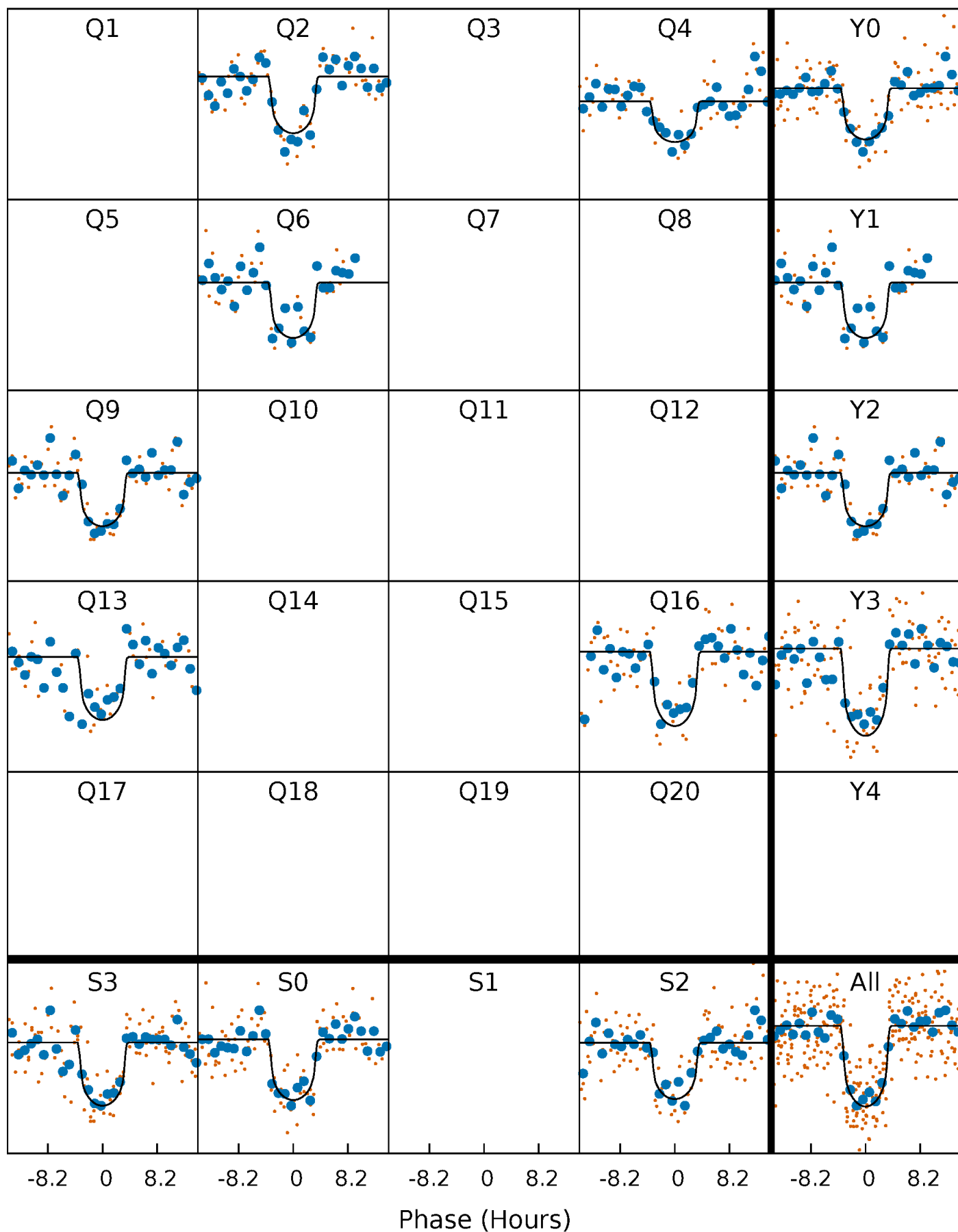
PDC Quarter-Phased Transit Curves

TCE 010360722-01 P=163.692288 Days $T_0=238.766505$ (BKJD)



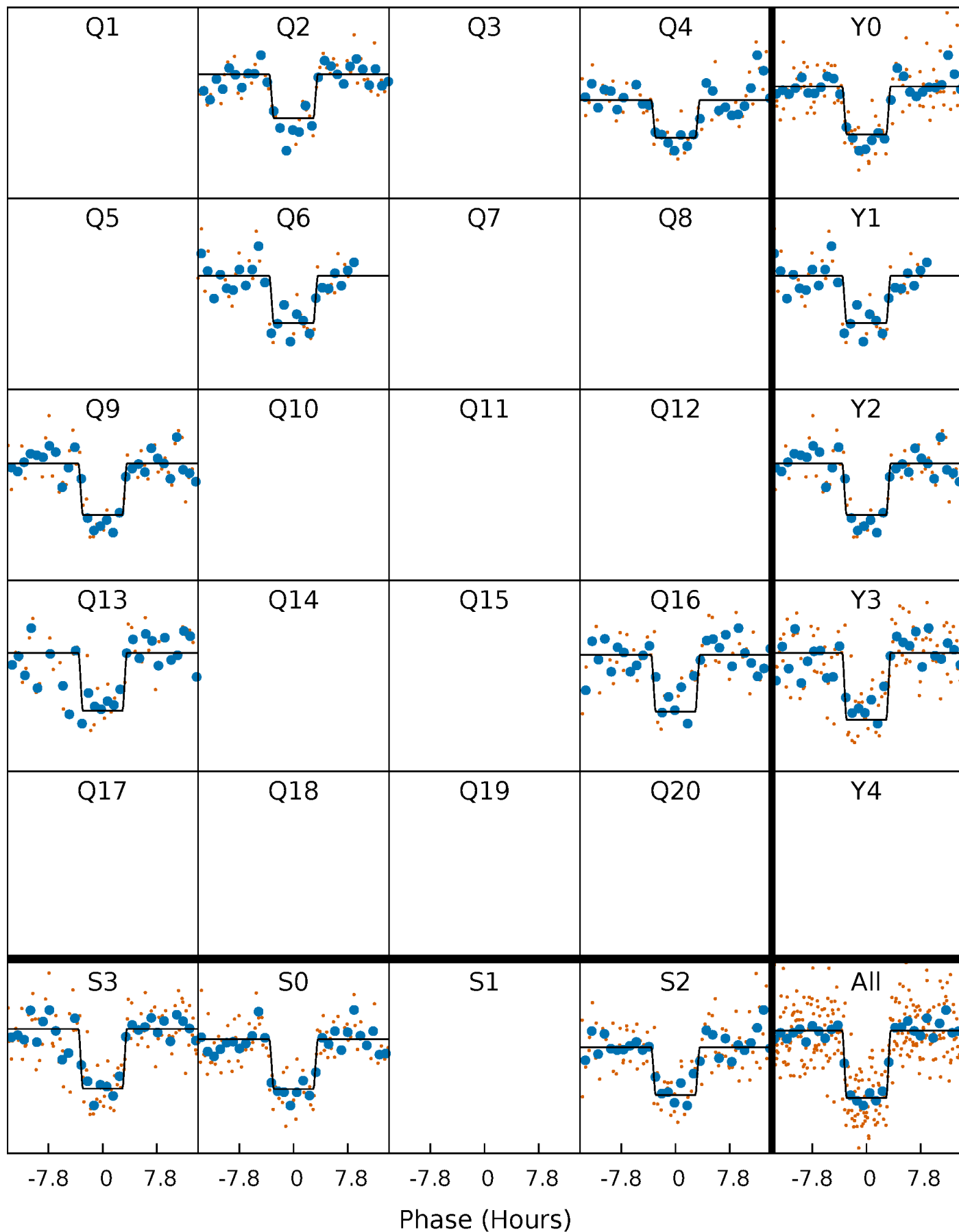
DV Quarter-Phased Transit Curves

TCE 010360722-01 P=163.692288 Days $T_0=238.766505$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

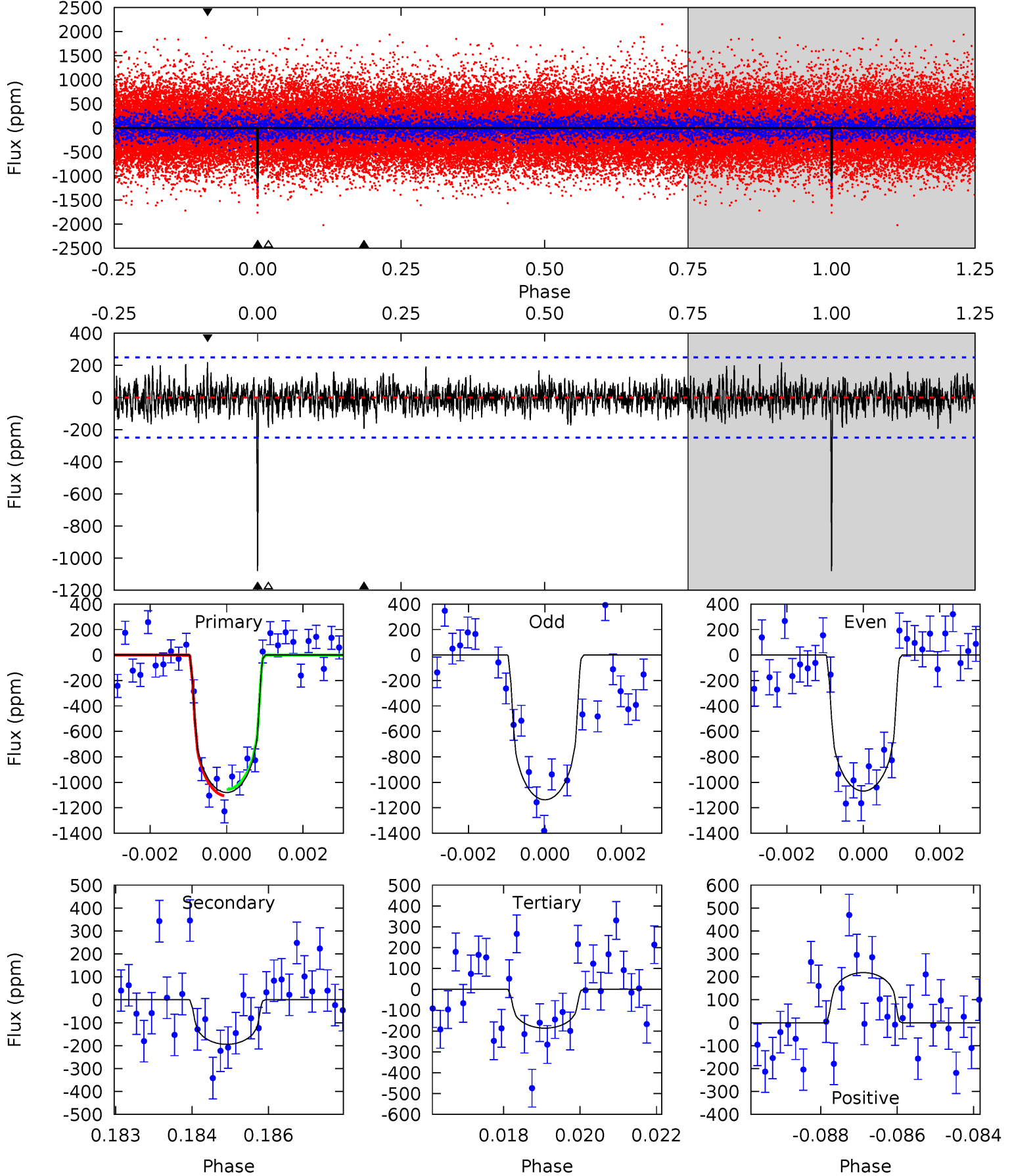
TCE 010360722-01 P=163.690313 Days $T_0=238.775837$ (BKJD)



DV Model-Shift Uniqueness Test

010360722-01, $P = 163.692288$ Days, $E = 75.074217$ Days

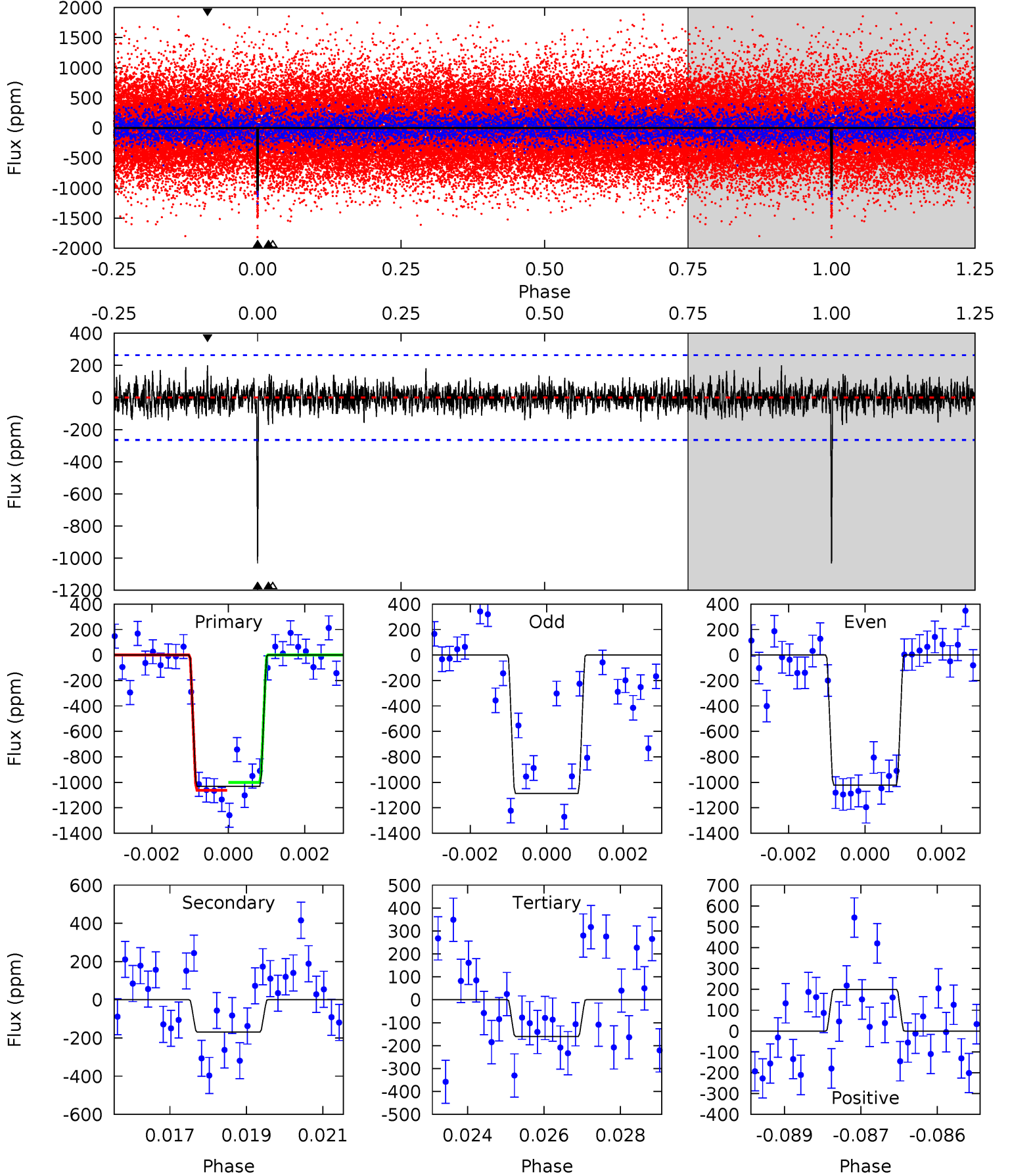
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	4.15	3.97	4.66	5.33	3.10	1.20	19.1	18.4	0.18	-0.51	0.52	1.00	0.17	0.53



Alt Model-Shift Uniqueness Test

010360722-01, $P = 163.690313$ Days, $E = 75.085524$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	3.43	3.24	4.05	5.35	3.13	0.97	17.7	16.9	0.19	-0.61	0.47	0.97	0.16	0.63



Stellar Parameters For KIC 010360722

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4999^{+79}_{-79}	$4.490^{+0.077}_{-0.028}$	$0.180^{+0.150}_{-0.150}$	$0.843^{+0.035}_{-0.065}$	$0.800^{+0.048}_{-0.028}$	$1.883^{+0.552}_{-0.184}$
	+2%/-2%	+2%/-1%	+83%/-83%	+4%/-8%	+6%/-3%	+29%/-10%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010360722-01 / KOI 4051.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-195 ± 47	$2.99^{+1.00}_{-0.95}$	381^{+8}_{-10}	3623^{+558}_{-359}	3505^{+4486}_{-1657}
Alt.	-169 ± 49	$2.94^{+1.09}_{-1.05}$	382^{+8}_{-10}	3567^{+621}_{-368}	3202^{+4827}_{-1676}

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 $A_{obs} \gg 1.0$

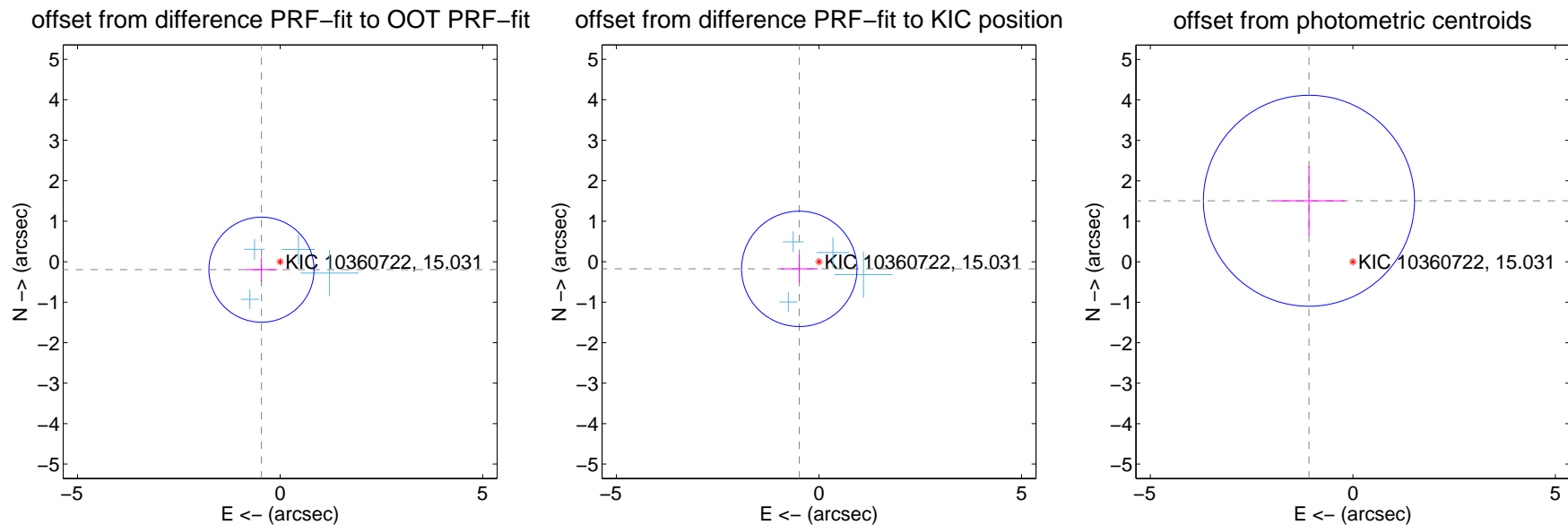
DV Centroid Data

Supplemental centroid analysis for 010360722-01. Kepler magnitude: 15.03. Transit SNR 18.29

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.501 ± 0.433	1.16	0.460 ± 0.387	-0.197 ± 0.299
PRF-fit source offset from KIC position	0.517 ± 0.475	1.09	0.486 ± 0.457	-0.177 ± 0.343
photometric centroid source offset	1.86 ± 0.87	2.14	1.08 ± 0.89	1.51 ± 0.86



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.

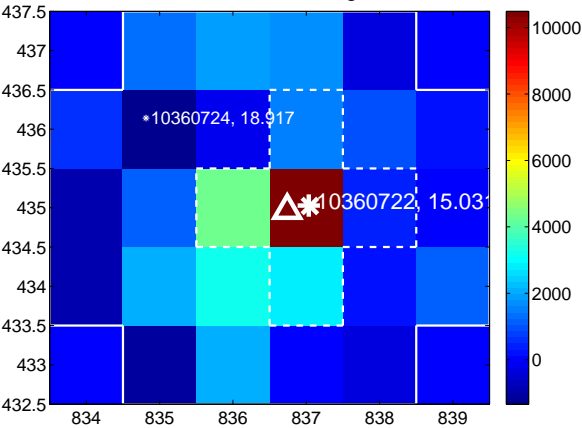
Q1 no difference image



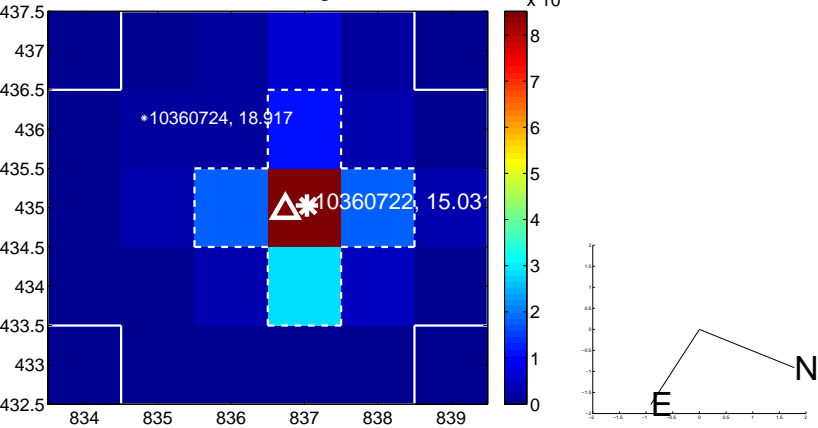
Q1 no OOT image



Q2 difference image



Q2 OOT image



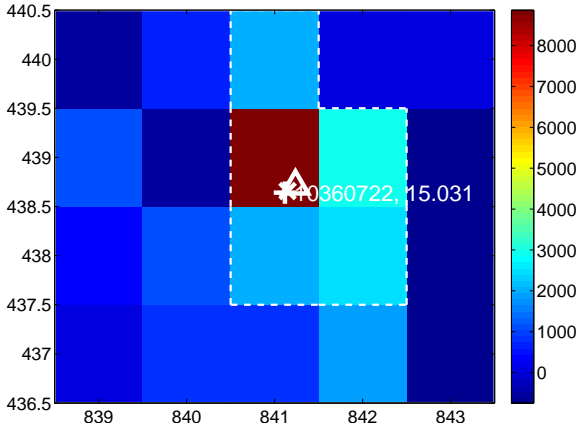
Q3 no difference image



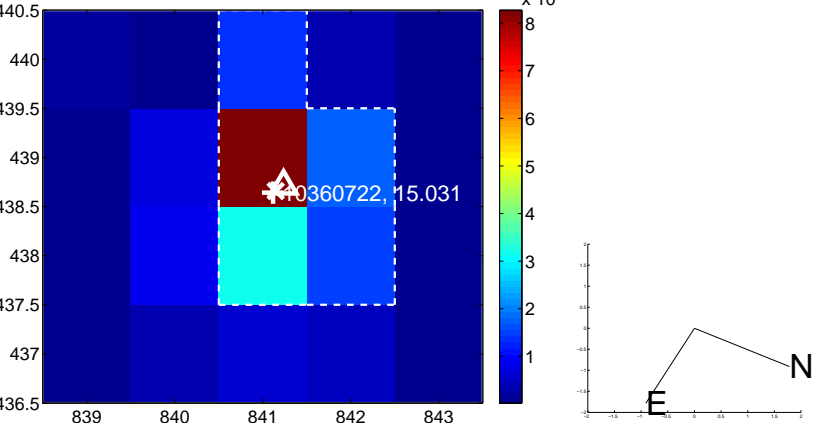
Q3 no OOT image



Q4 difference image



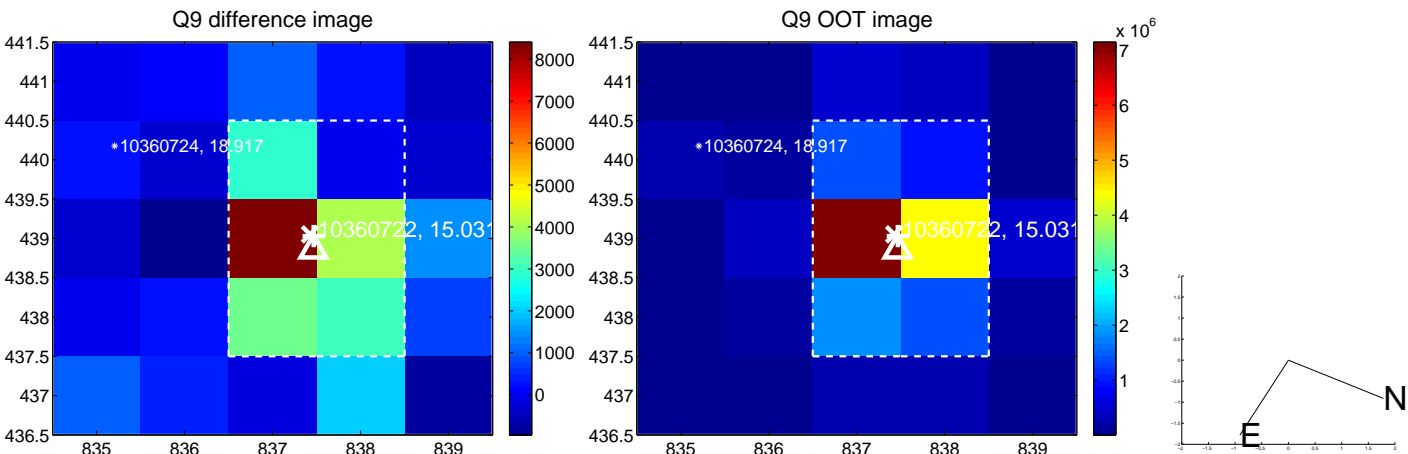
Q4 OOT image



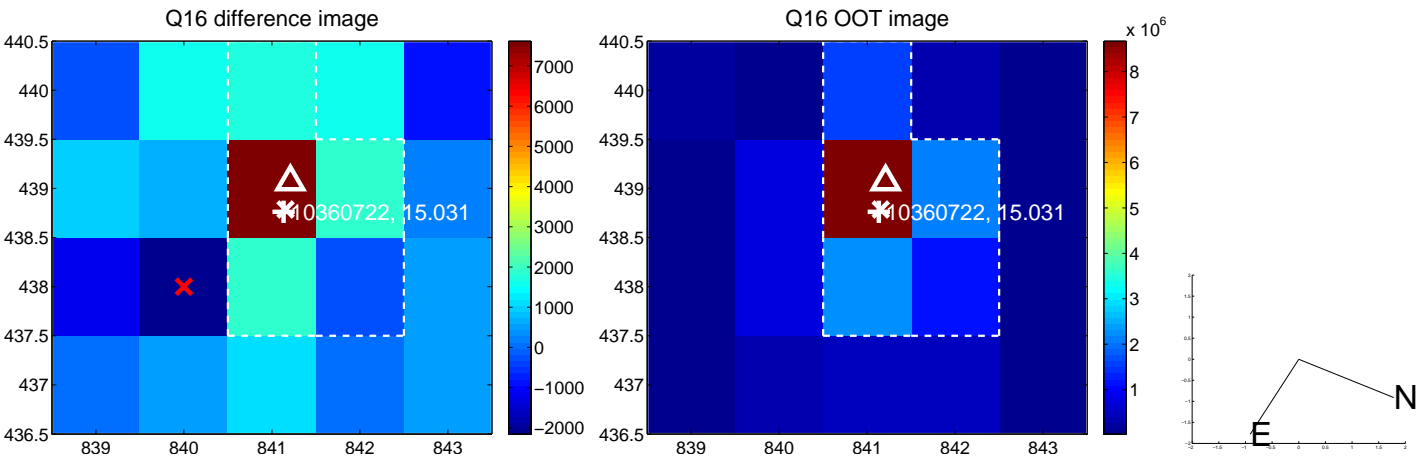
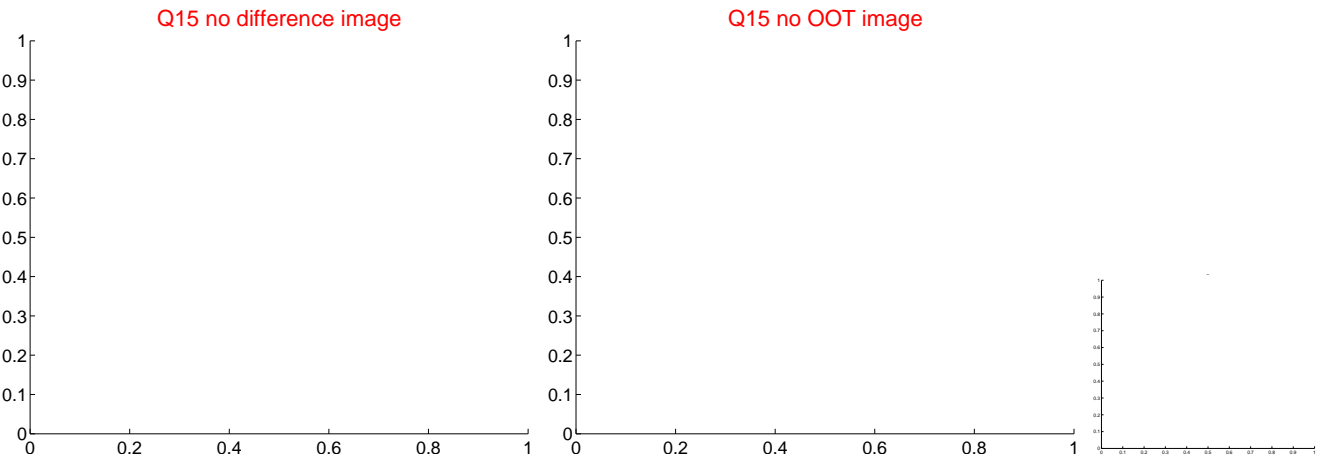
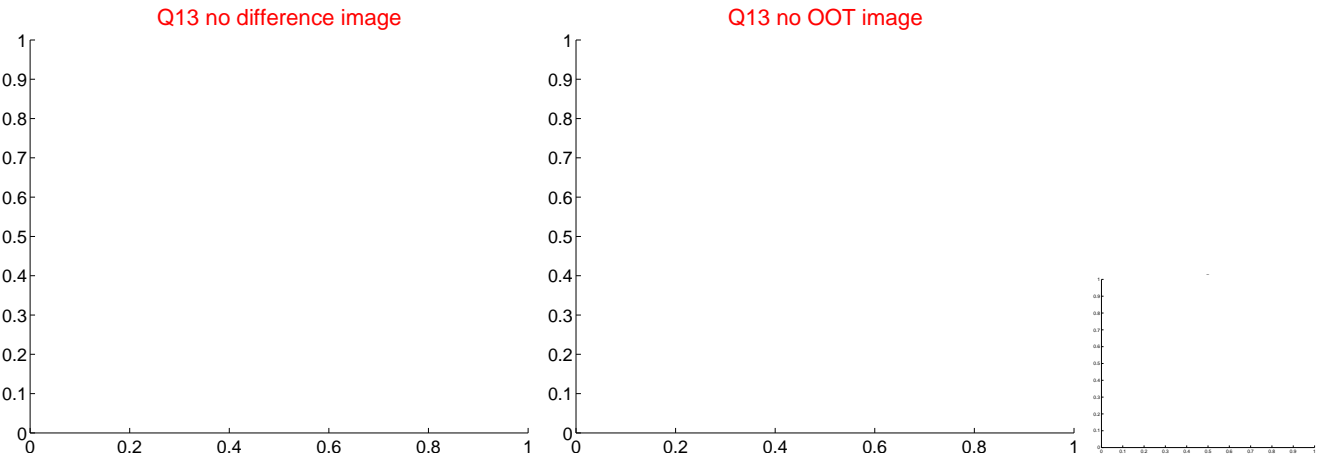
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



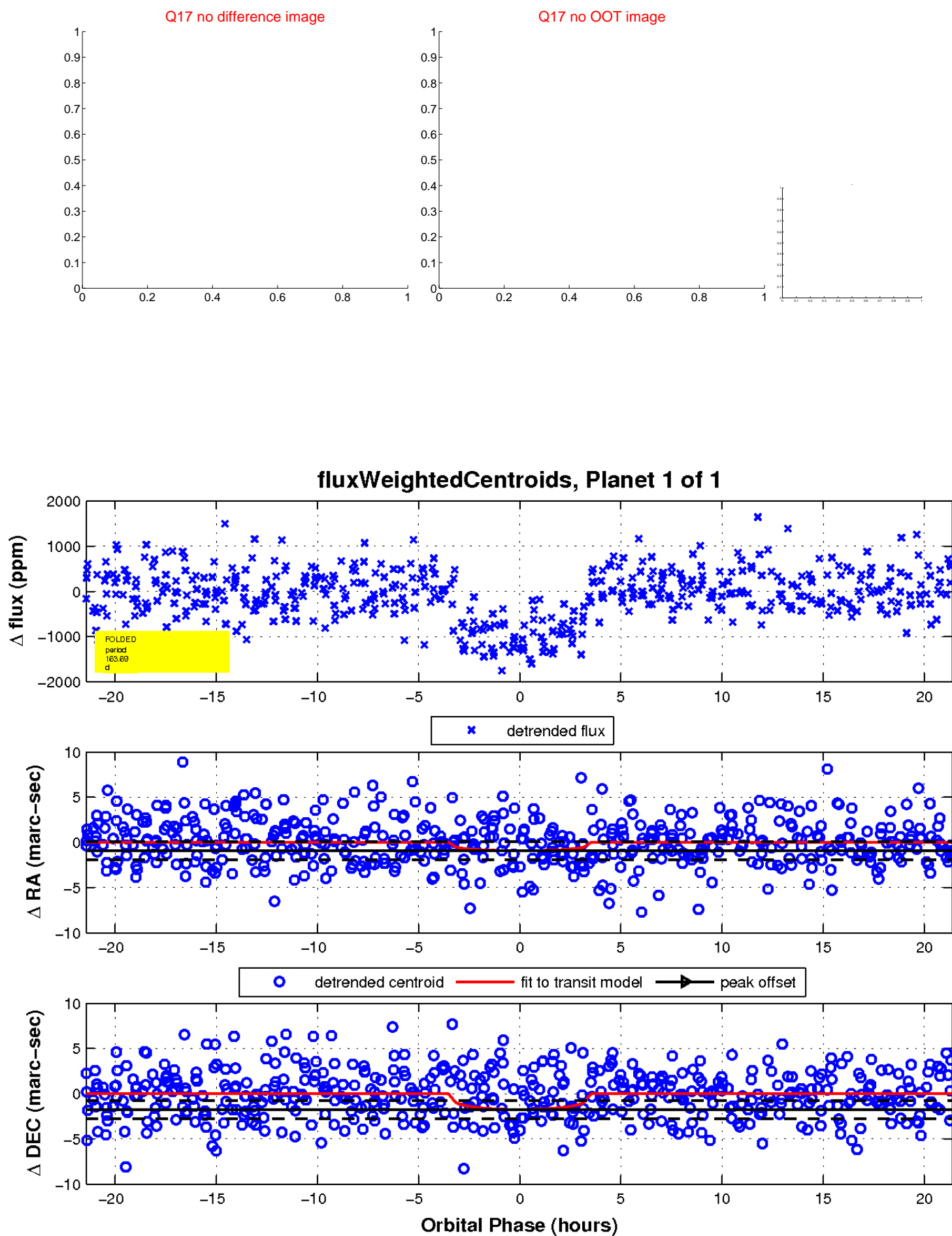
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

