

KIC 008362170

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})
008362170-01	OBS	No	374.497069	259.480183	2719.7	41.041	10.9	15.0	0.80	5459	7.94	0.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008362170-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS—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.

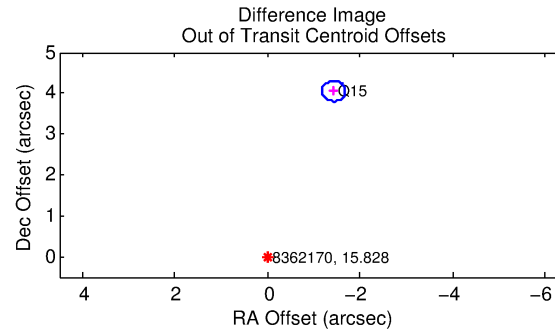
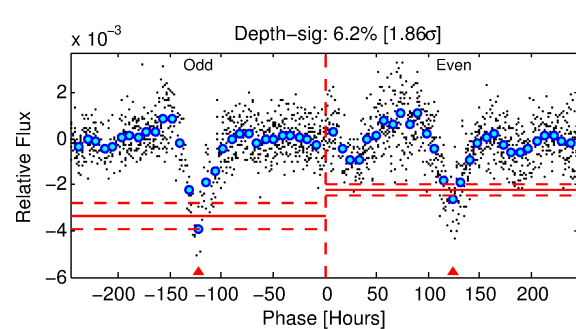
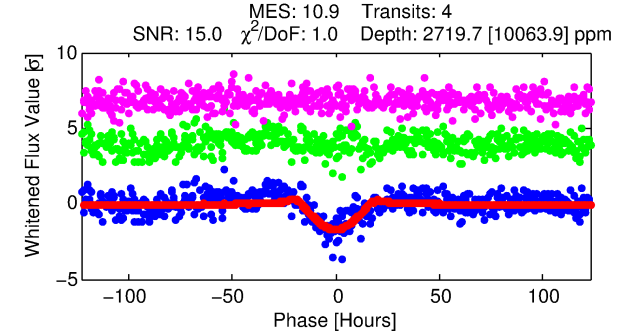
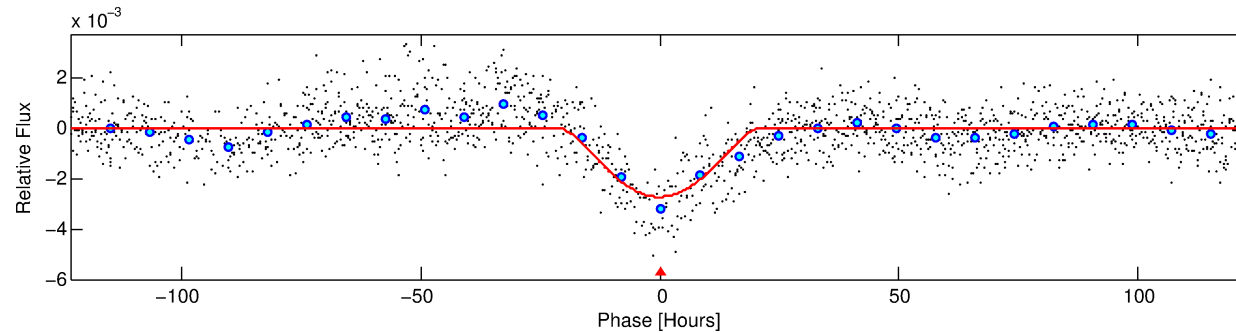
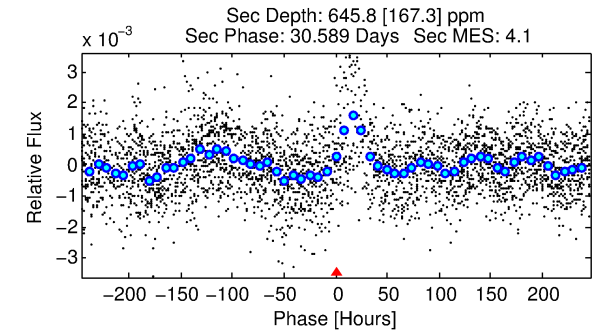
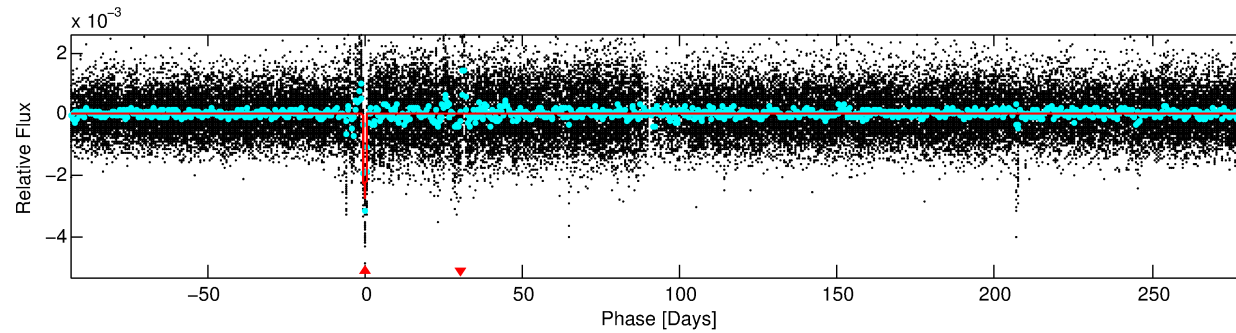
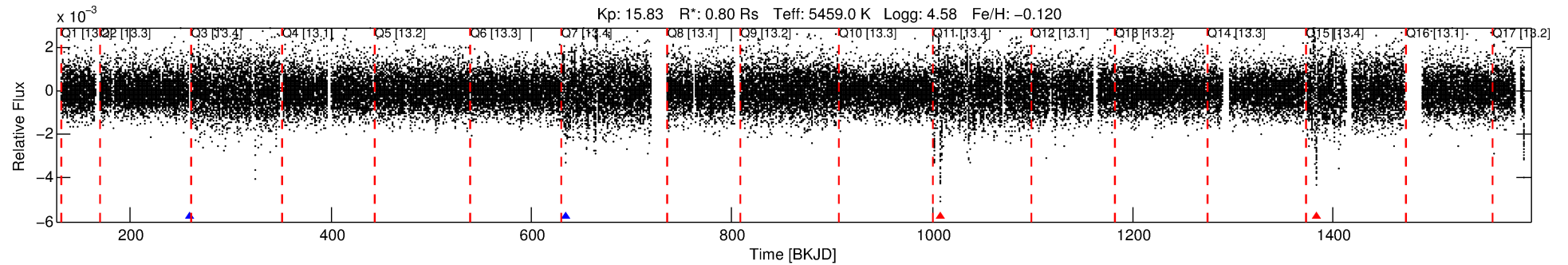
Ephemeris Match Information For 008362170-01

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
008362170-01	8362170	008296401-01	8296401	1:1	61.0	-1	15	15.63	15.82	0.70	Direct-PRF	1	1.55	1.27

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: 8362170 Candidate: 1 of 1 Period: 374.497 d



DV Fit Results:

Period = 374.49707 [0.03077] d
Epoch = 259.4802 [0.0664] BKJD
Rp/R* = 0.0912 [0.1637]
a/R* = 30.47 [10.74]
b = 1.00 [0.45]
Seff = 0.53 [0.14]
Teq = 217 [15] K
Rp = 7.94 [14.33] Re
a = 0.9772 [0.1642] AU
Ag = 5386.74 [19424.93] [0.28σ]
Teff = 2881 [2593] K [1.03σ]

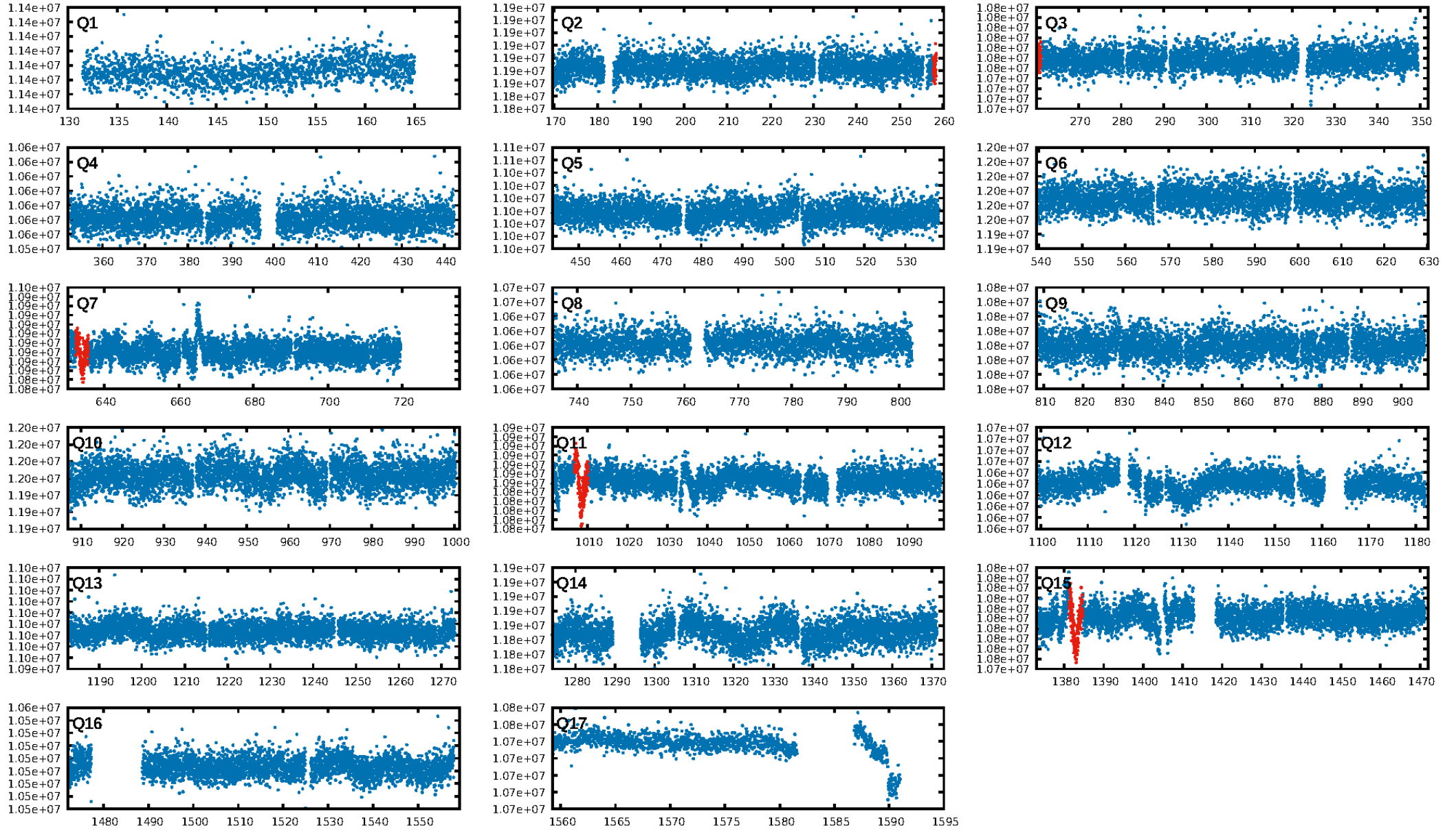
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 20.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.01e-19
RollingBand-fgt: 0.50 [2/4]
GhostDiagnostic-chr: 0.1722
Centroid-sig: 0.0%
Centroid-so: 12.007 arcsec [10.29σ]
OotOffset-rm: 4.297 arcsec [51.23σ]
KicOffset-rm: 4.440 arcsec [52.94σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [1/1]

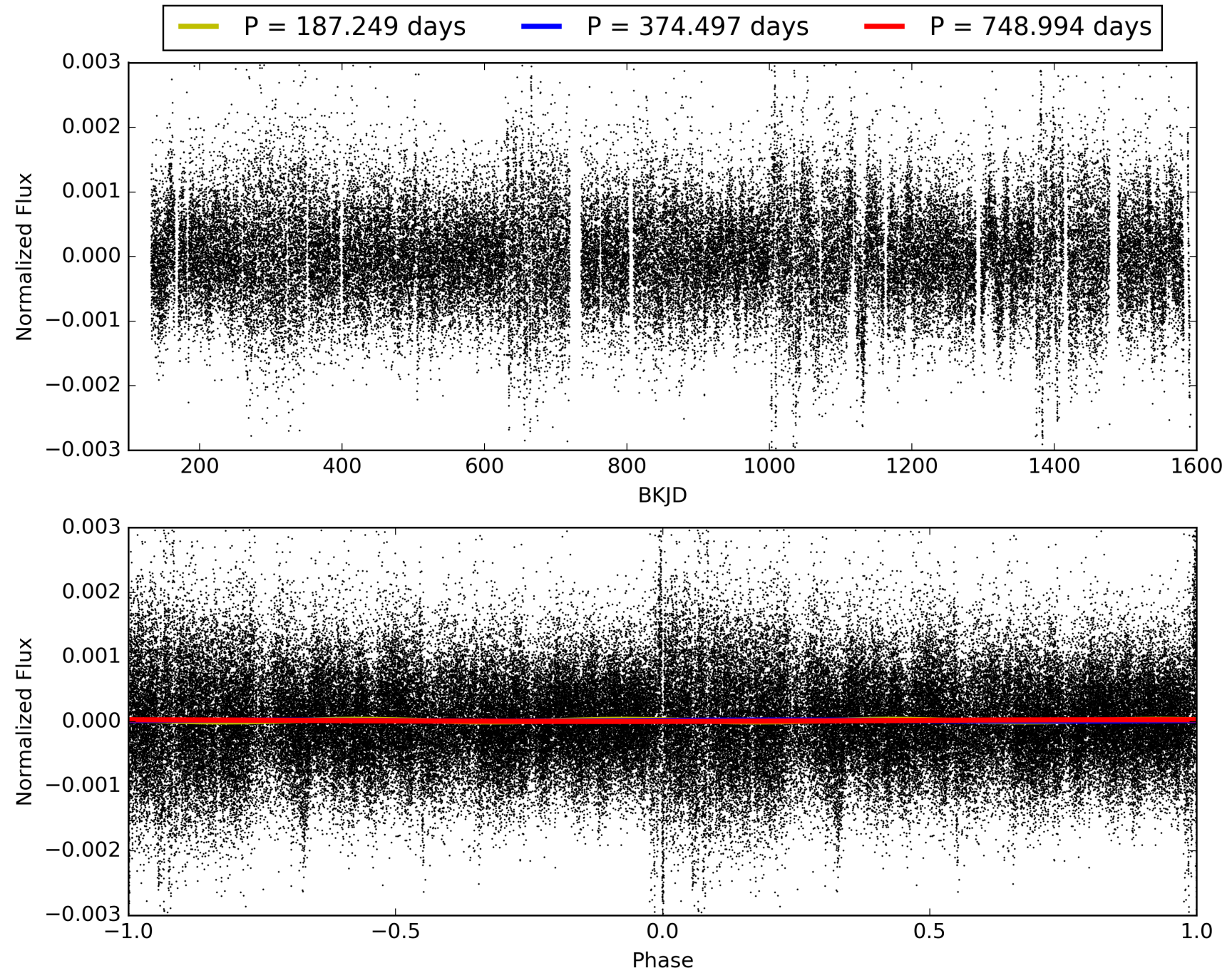
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:38:58 Z

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

TCE 008362170-01, PDC Light Curves

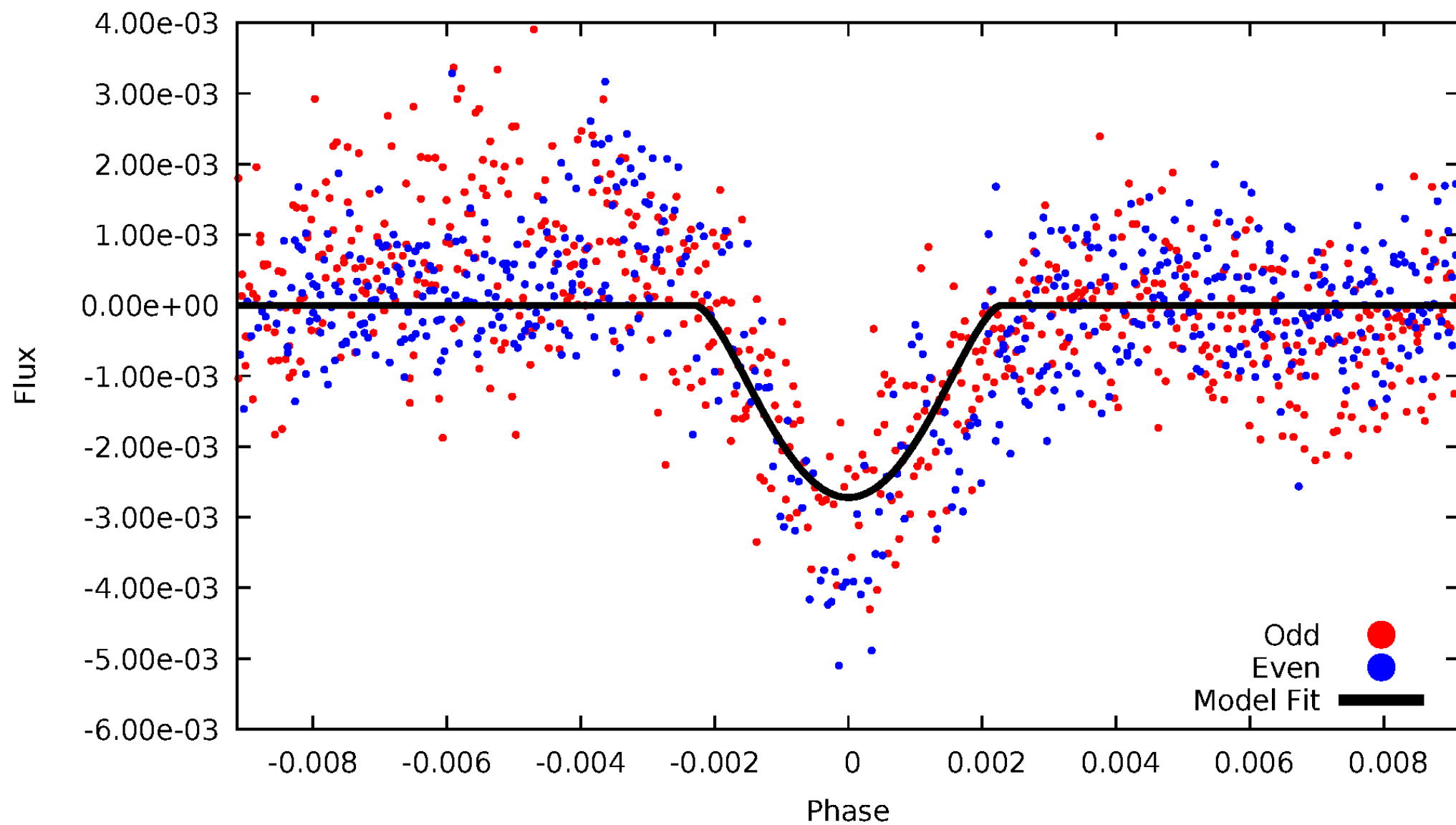


TCE 008362170-01



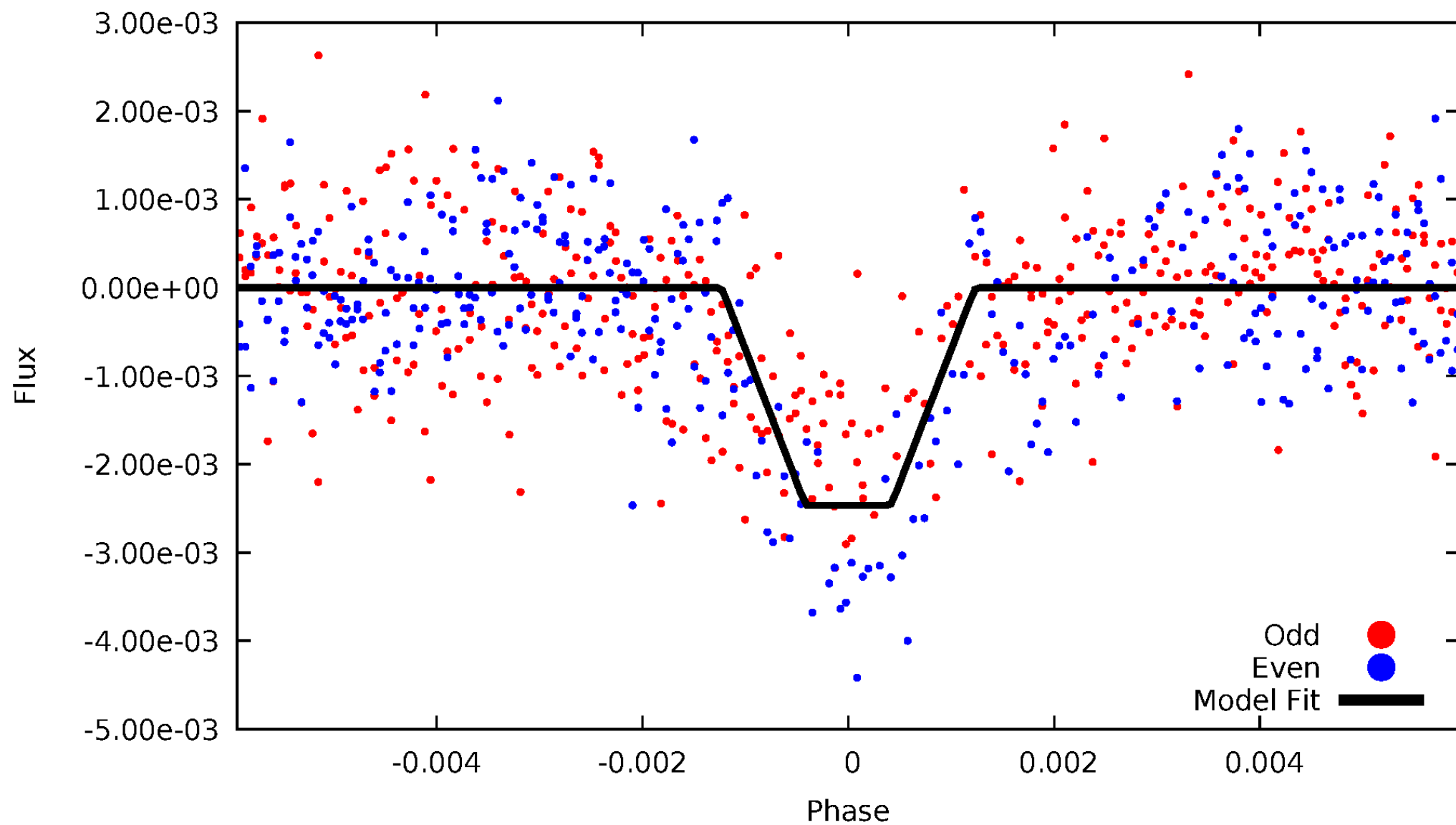
DV Odd/Even

TCE 008362170-01



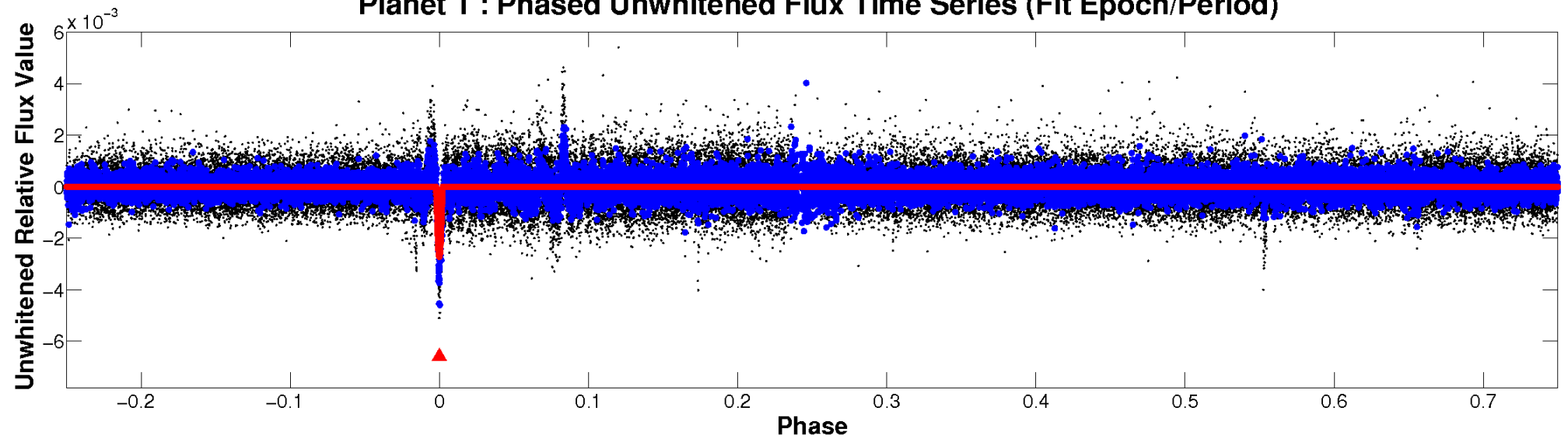
ALT Odd/Even

TCE 008362170-01

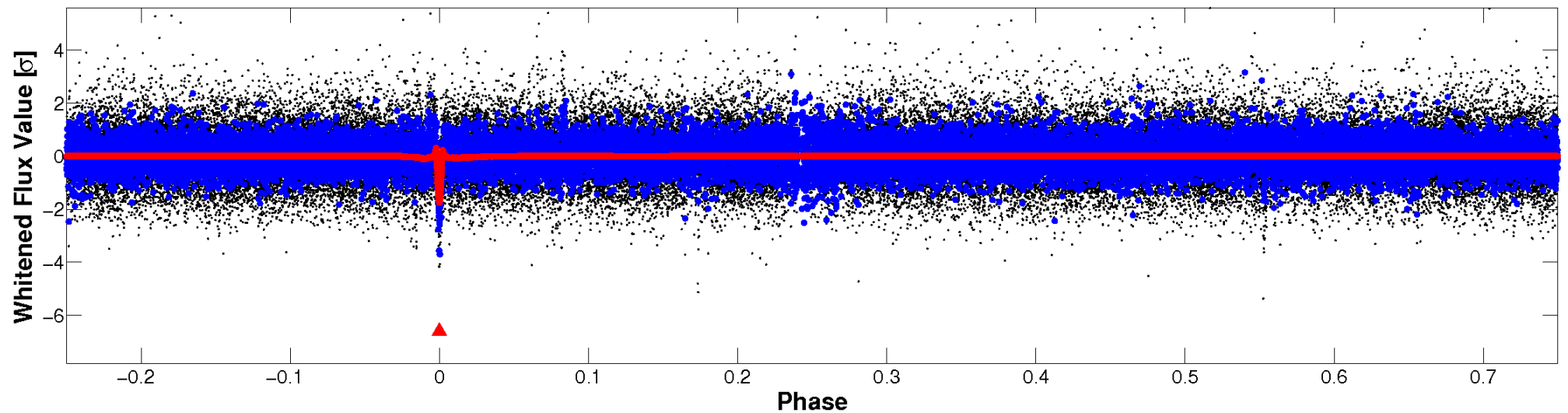


Non-Whitened Vs. Whitened Light Curve

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

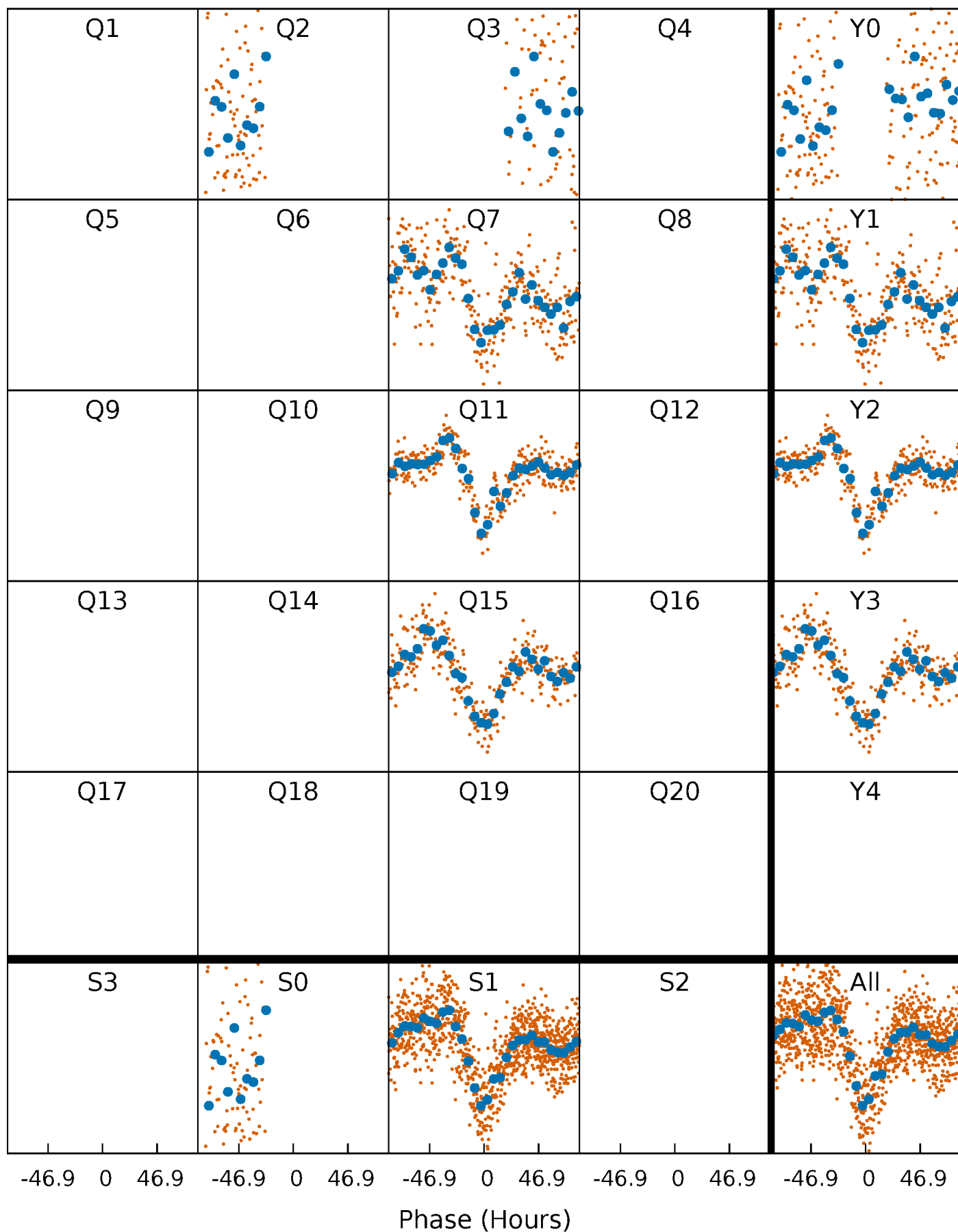


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



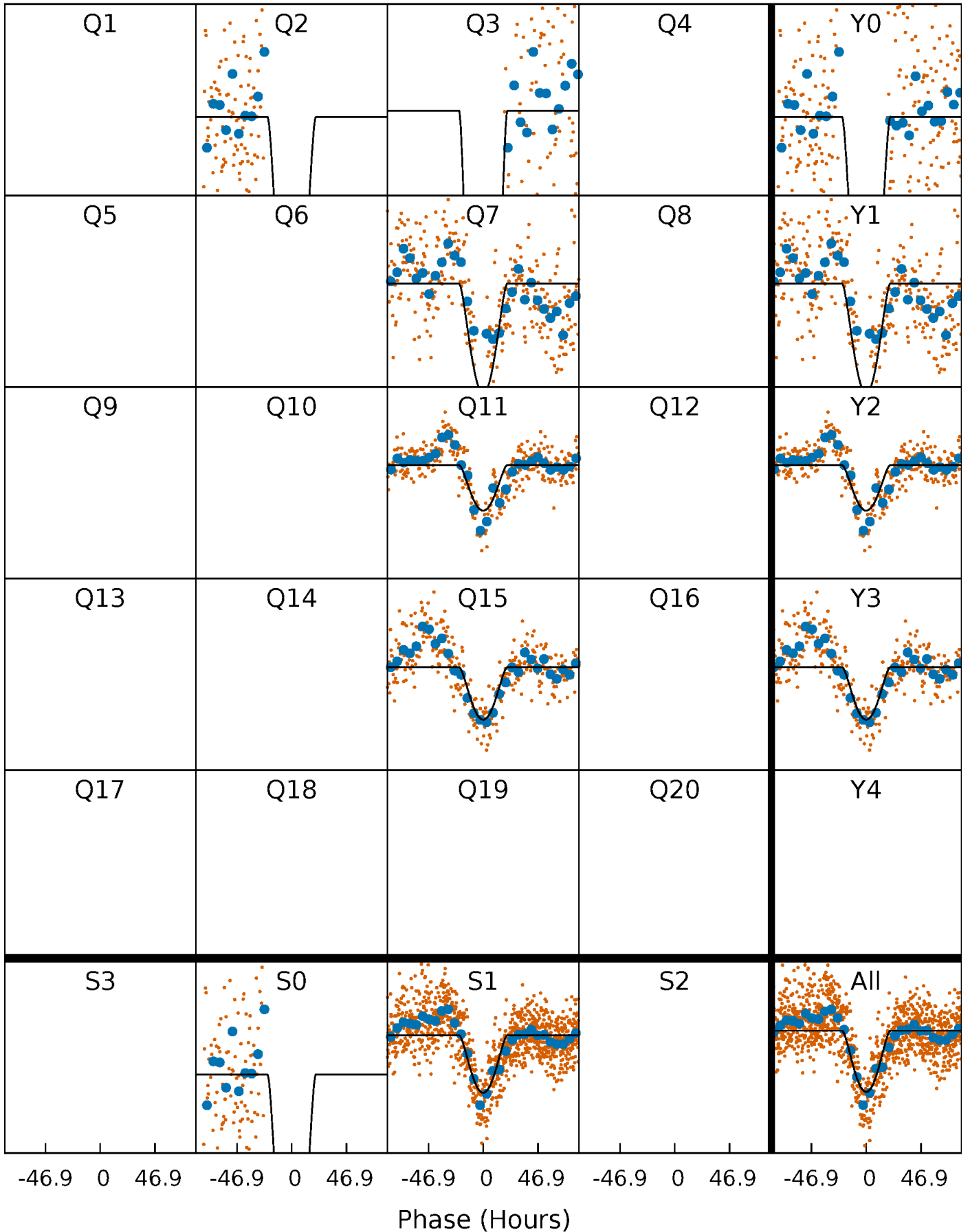
PDC Quarter-Phased Transit Curves

TCE 008362170-01 P=374.497069 Days $T_0=259.480183$ (BKJD)



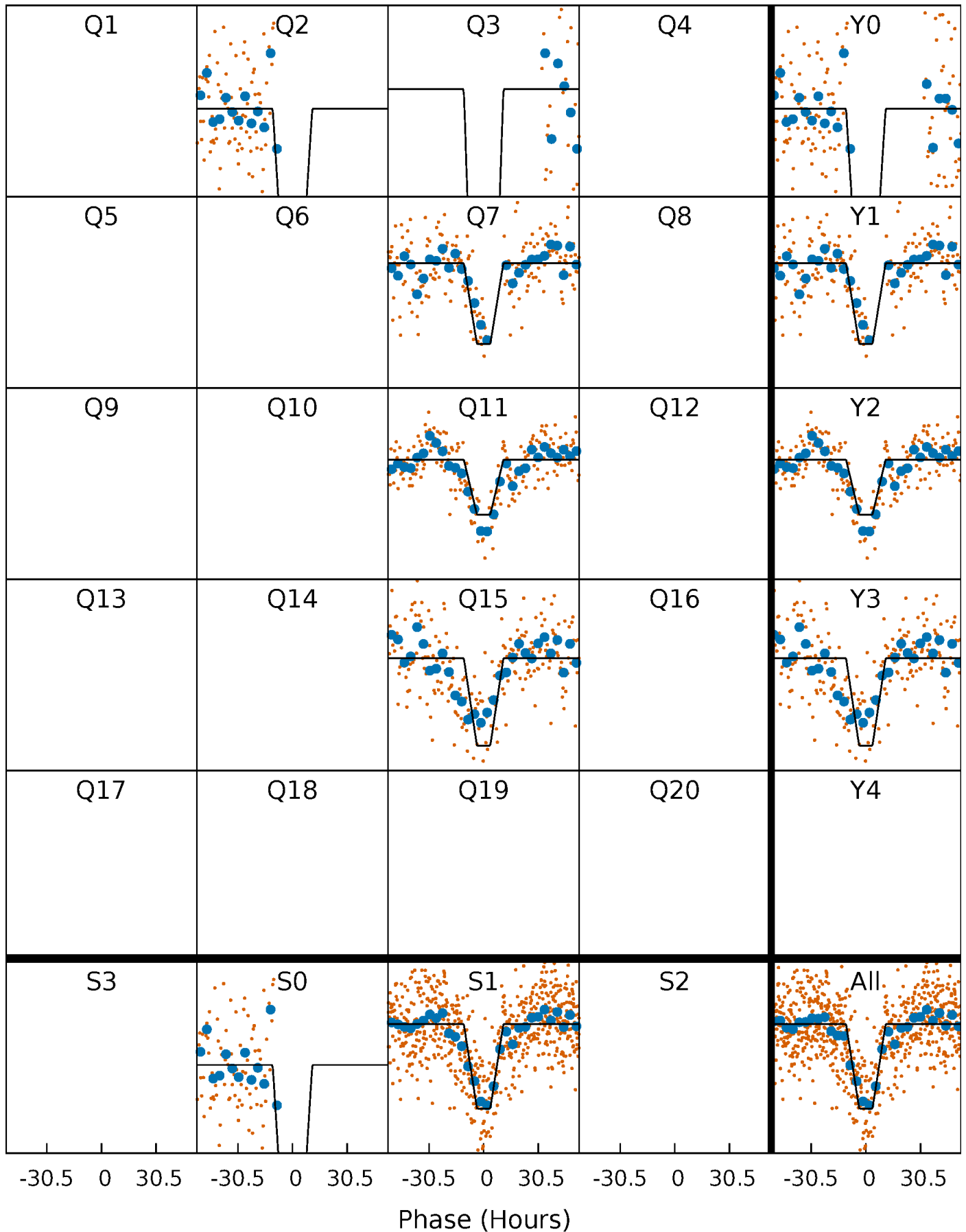
DV Quarter-Phased Transit Curves

TCE 008362170-01 P=374.497069 Days $T_0=259.480183$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

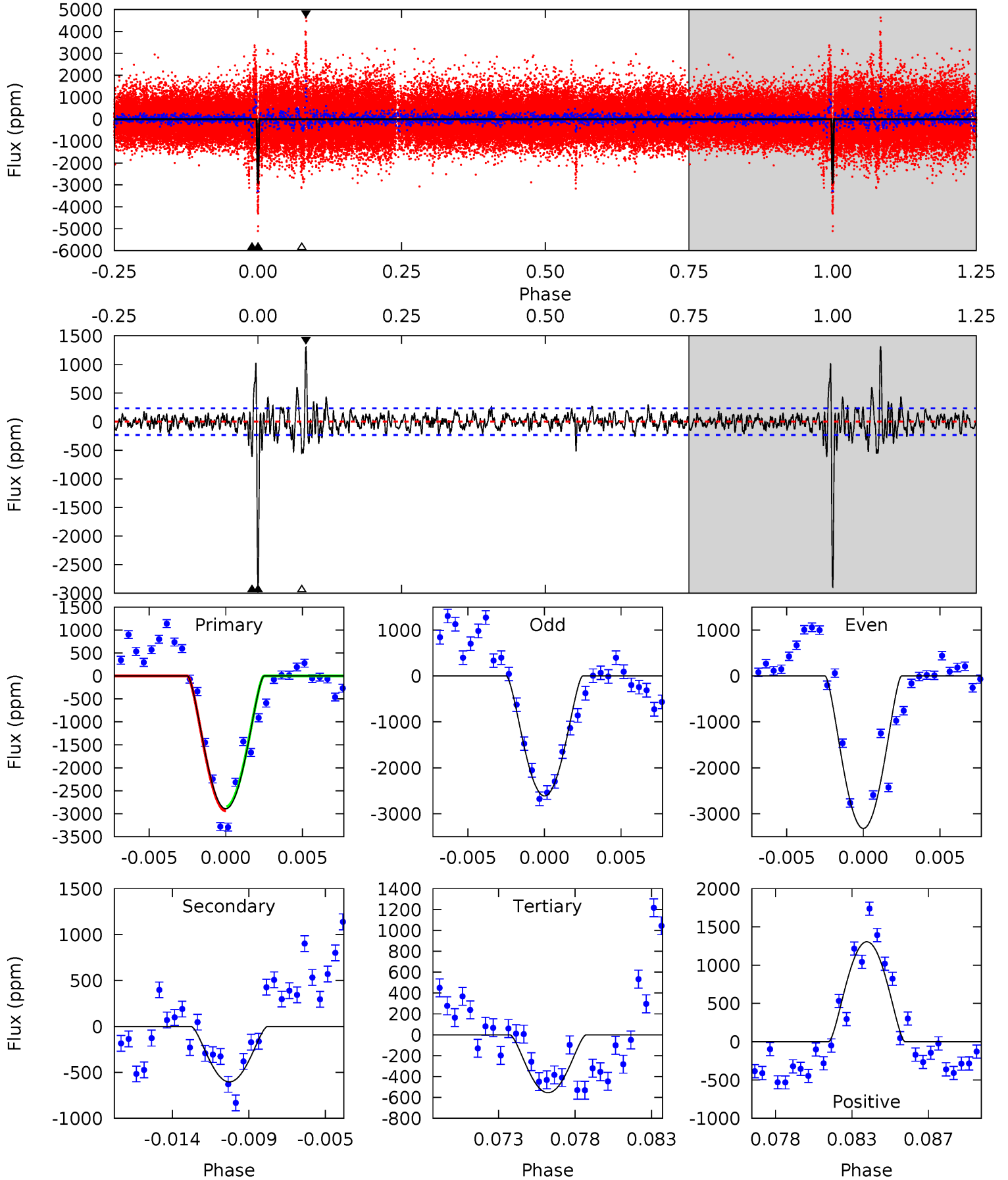
TCE 008362170-01 P=374.751490 Days $T_0=258.886084$ (BKJD)



DV Model-Shift Uniqueness Test

008362170-01, P = 374.497069 Days, E = 259.480183 Days

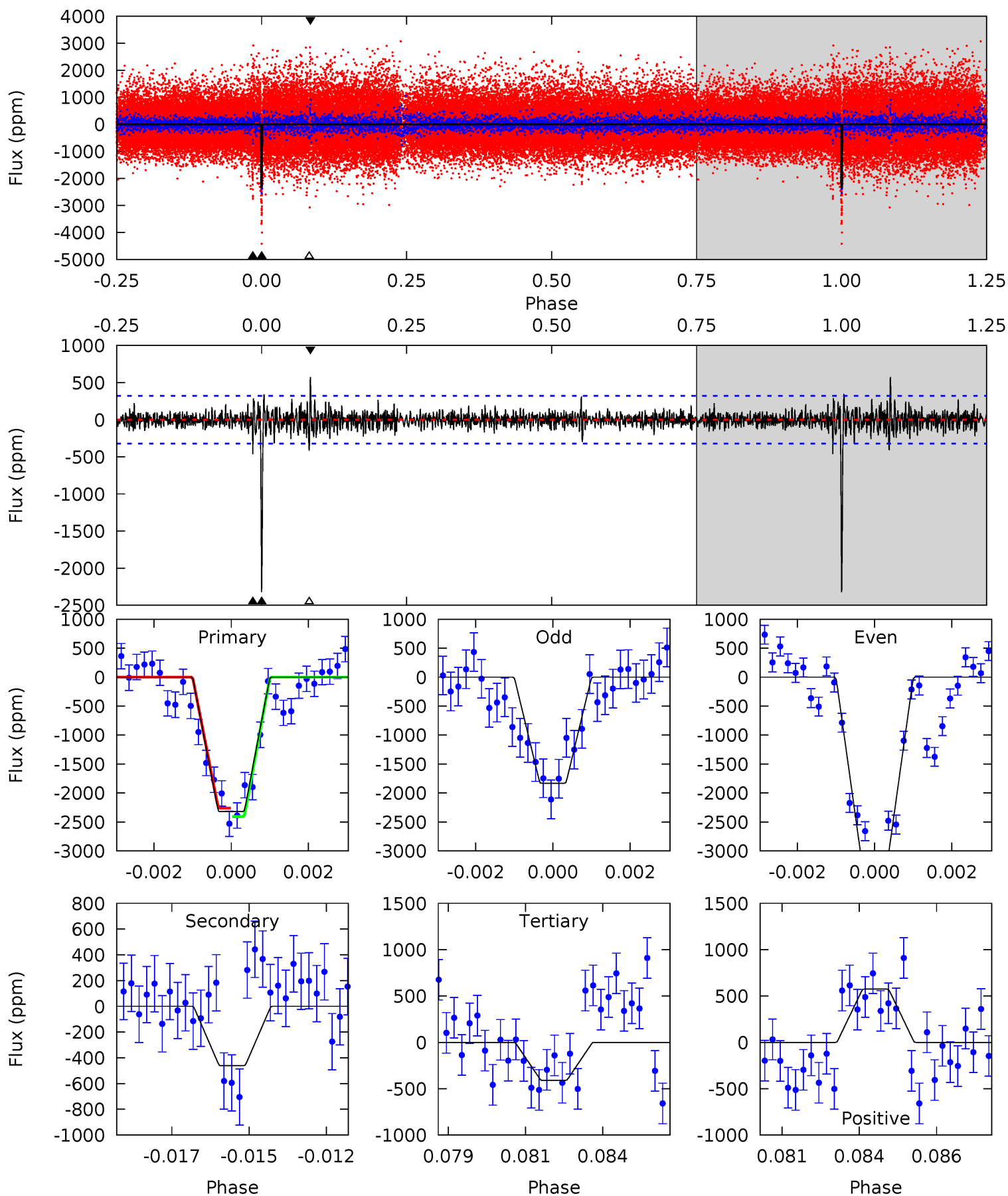
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.2	13.4	12.3	29.0	5.17	2.83	3.04	51.8	35.2	1.08	-15.6	7.59	-0.03	0.31	0.98



Alt Model-Shift Uniqueness Test

008362170-01, P = 374.751490 Days, E = 258.886084 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.1	7.57	6.73	9.43	5.29	3.03	1.26	31.4	28.7	0.85	-1.86	10.7	0.83	0.20	1.16



Stellar Parameters For KIC 008362170

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5459^{+164}_{-164}	$4.583^{+0.032}_{-0.128}$	$-0.120^{+0.300}_{-0.300}$	$0.797^{+0.163}_{-0.070}$	$0.893^{+0.073}_{-0.101}$	$2.489^{+0.428}_{-0.939}$
	+3%/-3%	+1%/-3%	+250%/-250%	+20%/-9%	+8%/-11%	+17%/-38%
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 008362170-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-604 ± 45	$14.23^{+11.53}_{-9.81}$	310^{+14}_{-12}	2874^{+1206}_{-424}	1600^{+13905}_{-1130}
Alt.	-461 ± 61	$12.32^{+10.65}_{-8.69}$	309^{+16}_{-12}	2876^{+1353}_{-440}	1620^{+15716}_{-1198}

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 $A_{obs} \gg 1.0$

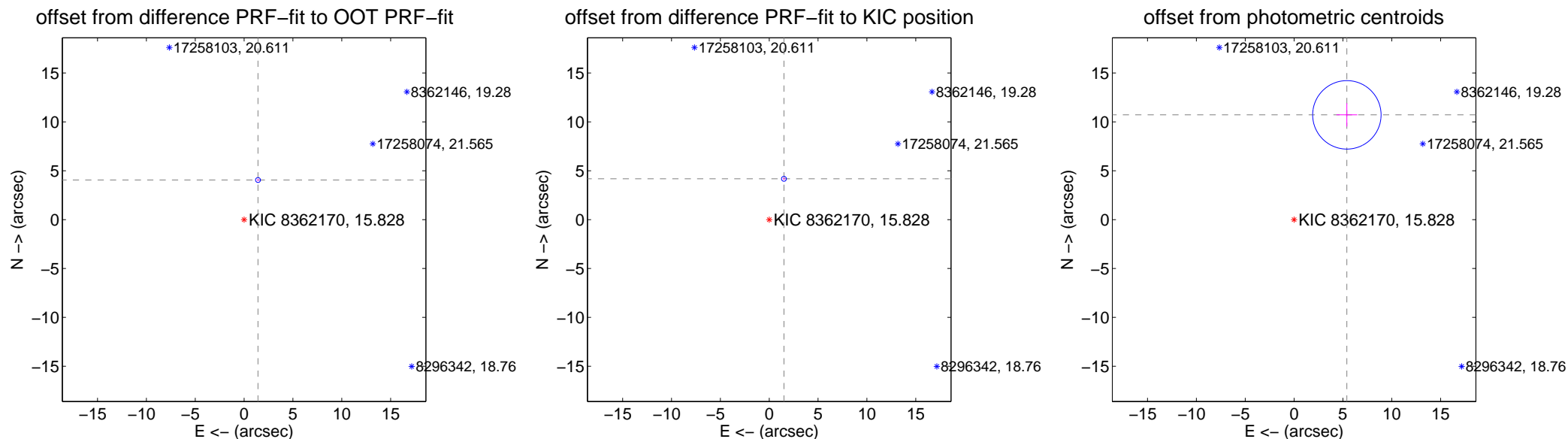
DV Centroid Data

Supplemental centroid analysis for 008362170-01. Kepler magnitude: 15.83. Transit SNR 15.03

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.297 \pm 0.084	51.23	-1.426 \pm 0.084	4.054 \pm 0.084
PRF-fit source offset from KIC position	4.440 \pm 0.084	52.94	-1.507 \pm 0.084	4.177 \pm 0.084
photometric centroid source offset	12.01 \pm 1.17	10.29	-5.41 \pm 1.07	10.72 \pm 1.19



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.



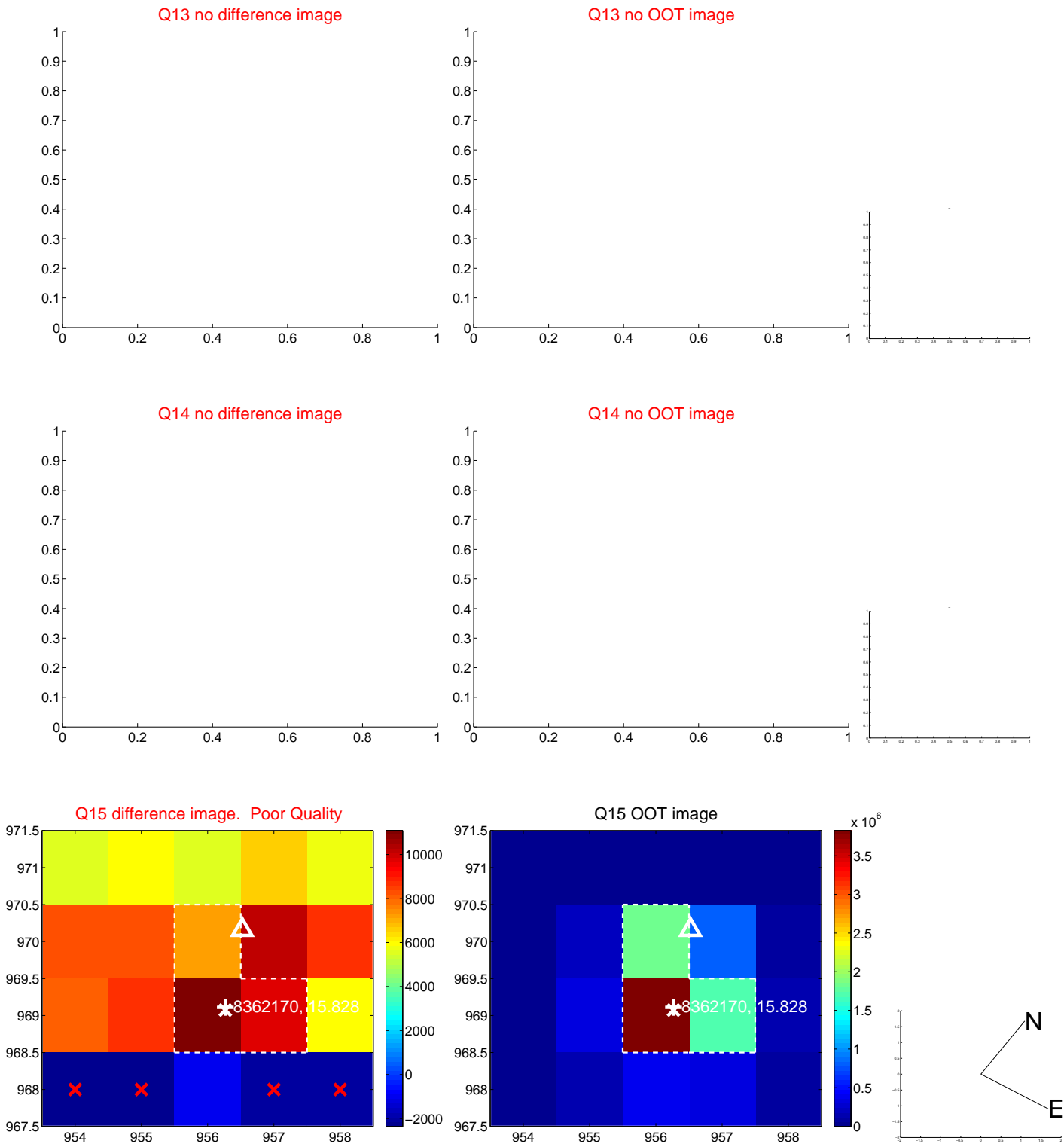
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



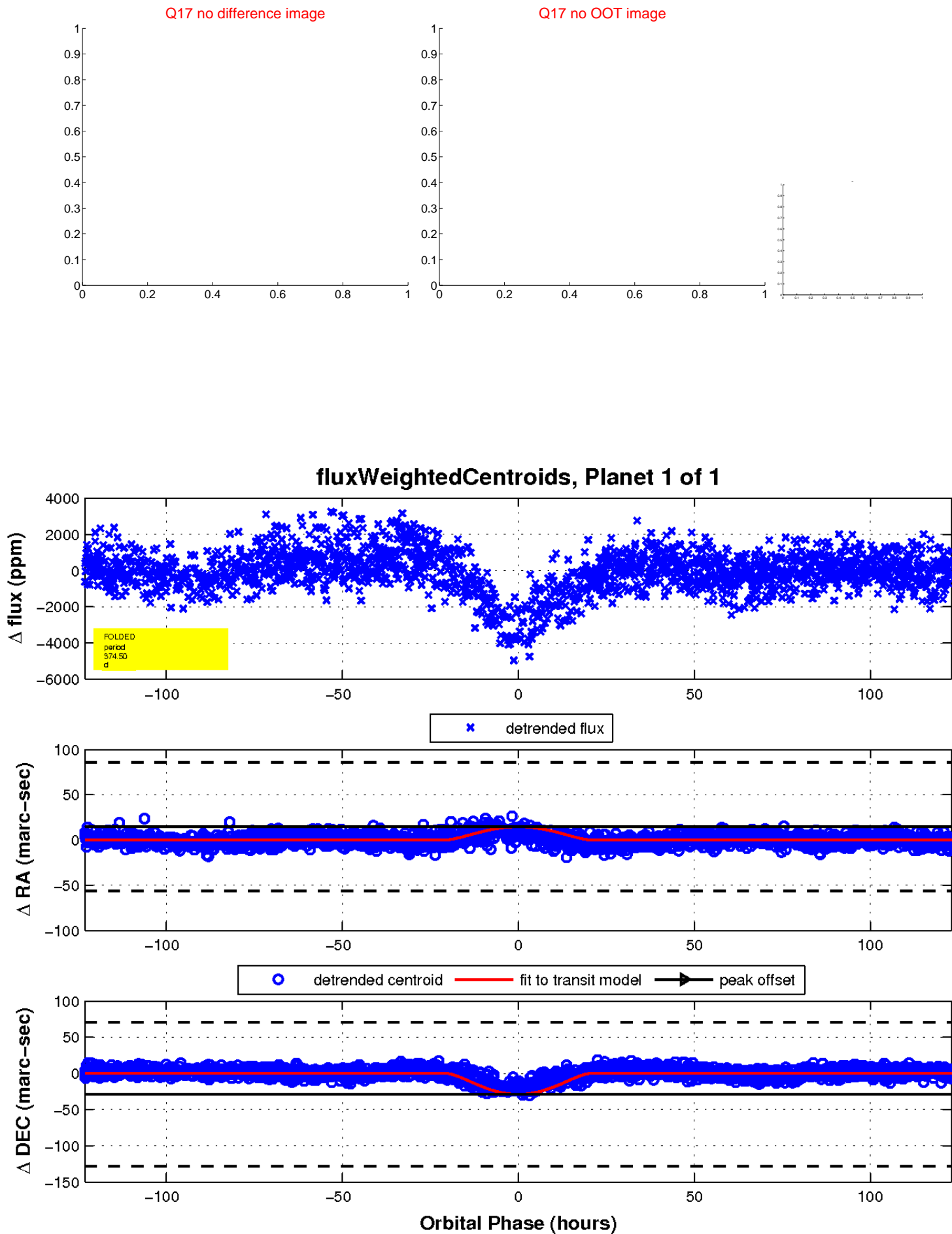
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

