

KIC 008228620

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})
008228620-01	OBS	No	374.104425	259.826977	1138.7	54.625	10.1	14.4	0.76	5178	5.14	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008228620-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

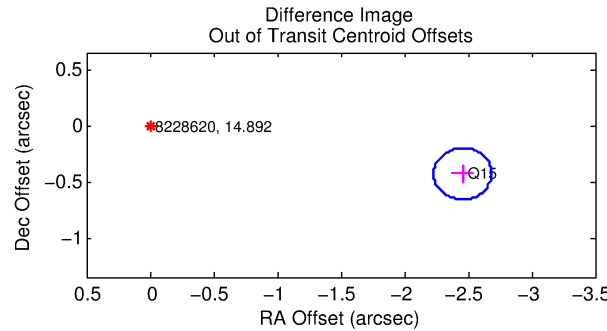
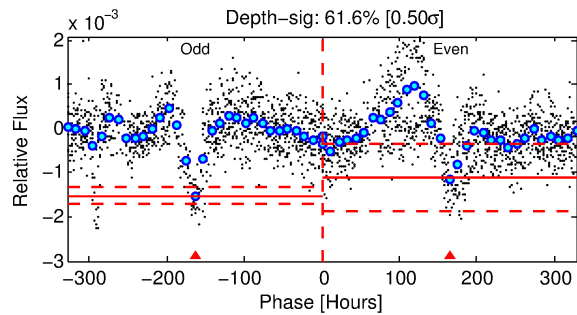
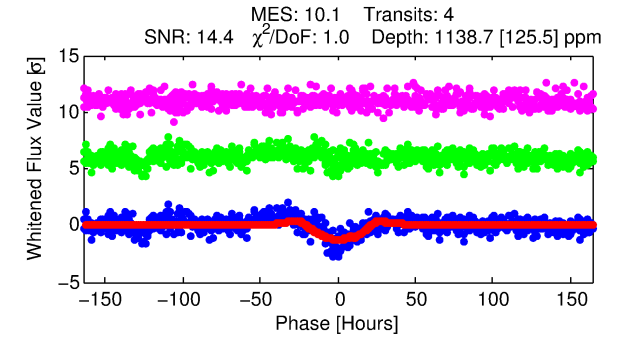
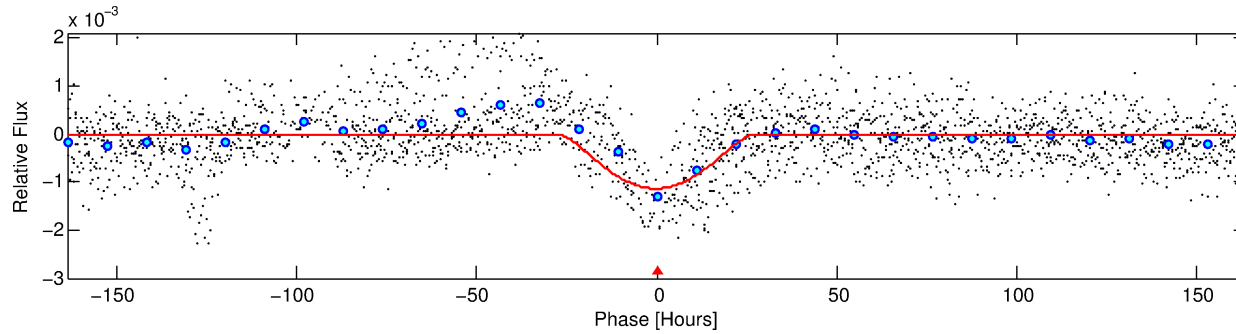
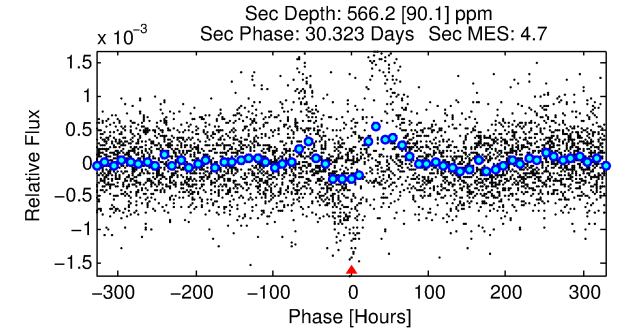
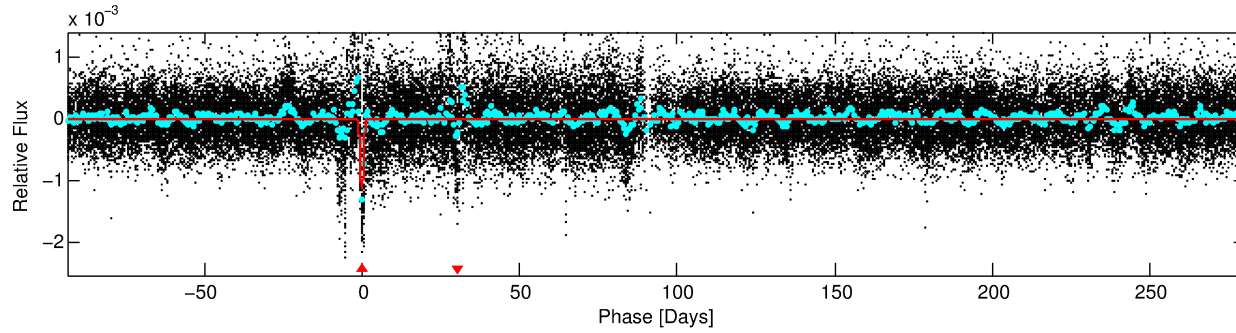
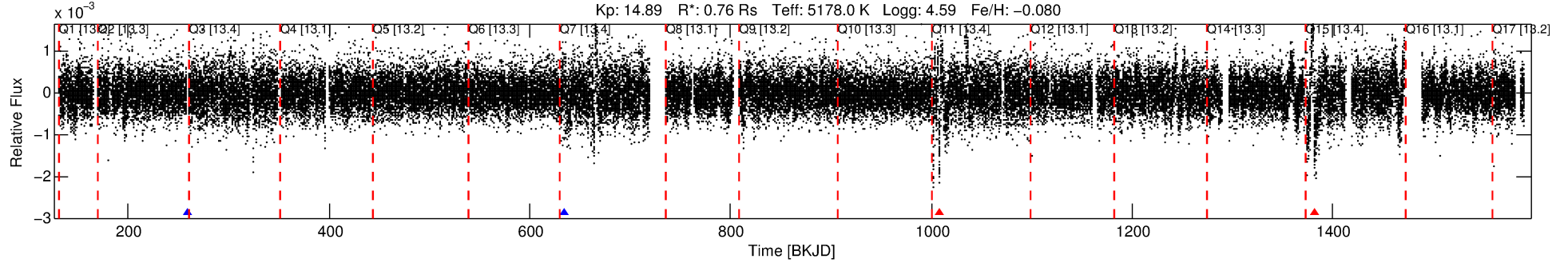
Ephemeris Match Information For 008228620-01

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
008228620-01	8228620	008228624-01	8228624	1:1	63.6	8	14	14.89	14.89	0.47	Direct-PRF	1	1.49	1.21

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: 8228620 Candidate: 1 of 1 Period: 374.104 d



DV Fit Results:

Period = 374.10442 [0.03213] d
Epoch = 259.8270 [0.0643] BKJD
Rp/R* = 0.0617 [0.1090]
a/R* = 18.73 [7.32]
b = 1.00 [0.15]
Seff = 0.42 [0.08]
Teq = 205 [10] K
Rp = 5.14 [9.11] Re
a = 0.9515 [0.1080] AU
Ag = 10662.69 [37753.73] [0.28σ]
Teff = 3216 [2845] K [1.06σ]

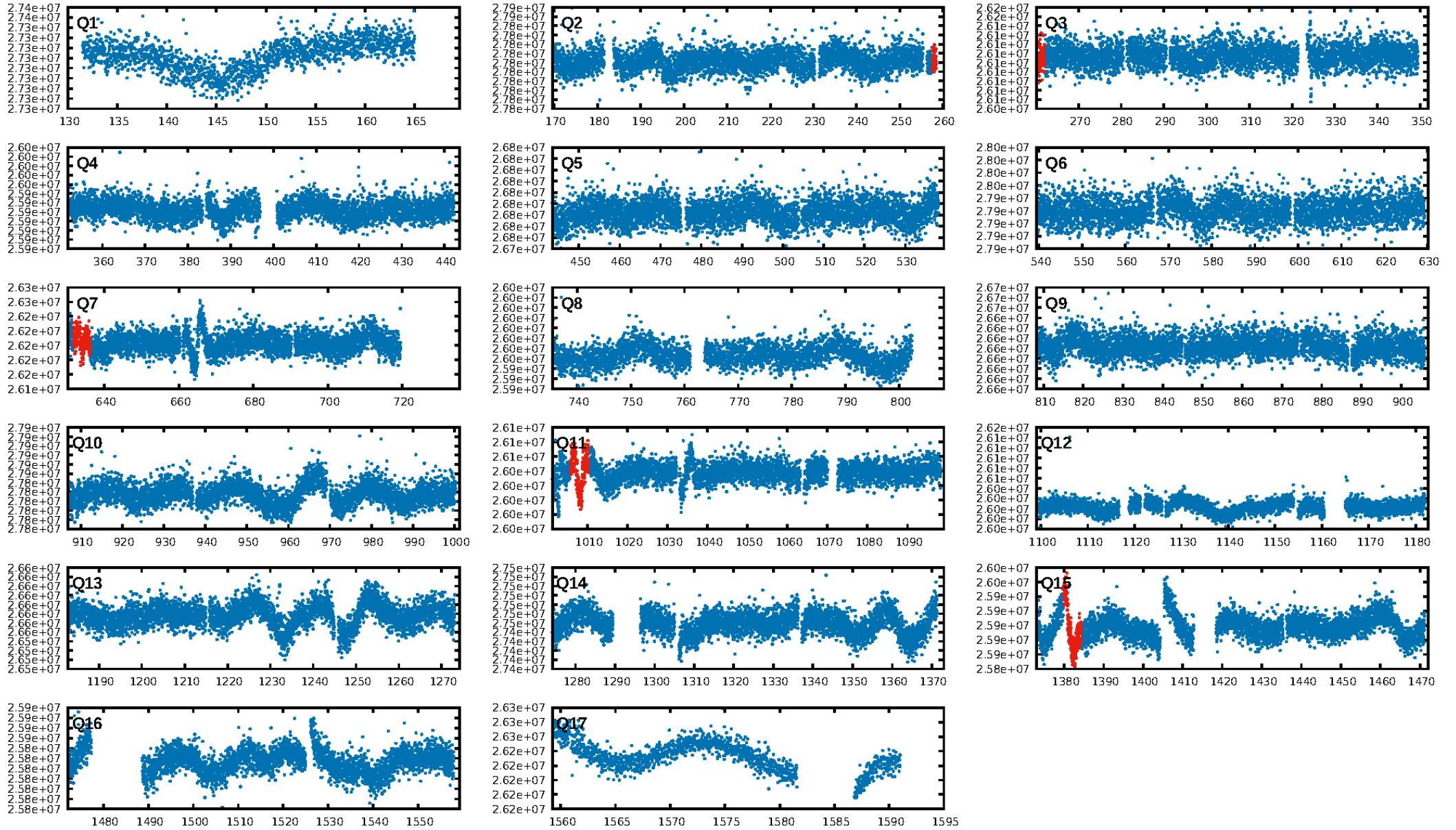
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.04e-15
RollingBand-fgt: 0.50 [2/4]
GhostDiagnostic-chr: 0.1611
Centroid-sig: 0.2%
Centroid-so: 2.241 arcsec [2.11σ]
OotOffset-rm: 2.493 arcsec [32.78σ]
KicOffset-rm: 2.721 arcsec [35.77σ]
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]

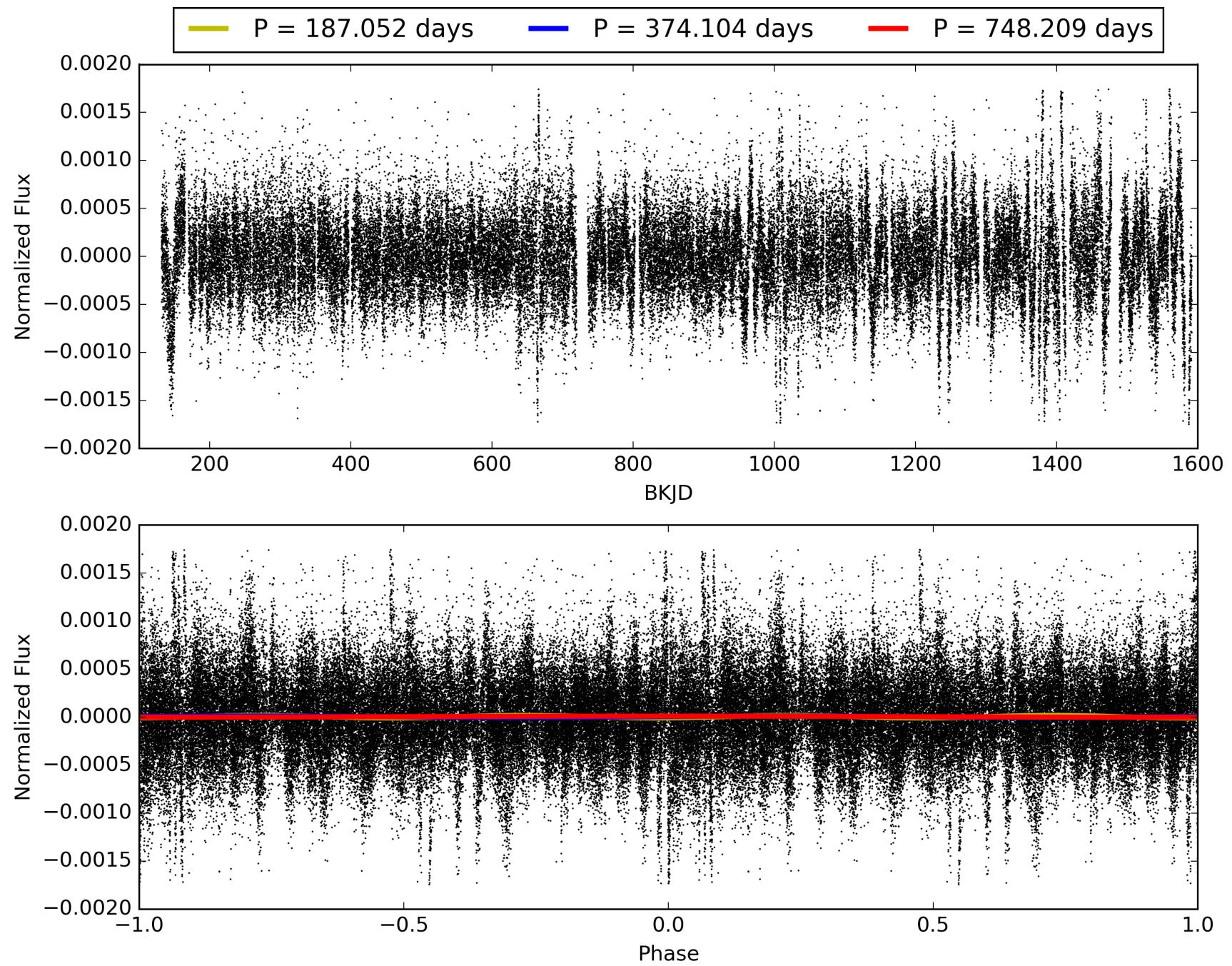
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:53:13 Z

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

TCE 008228620-01, PDC Light Curves

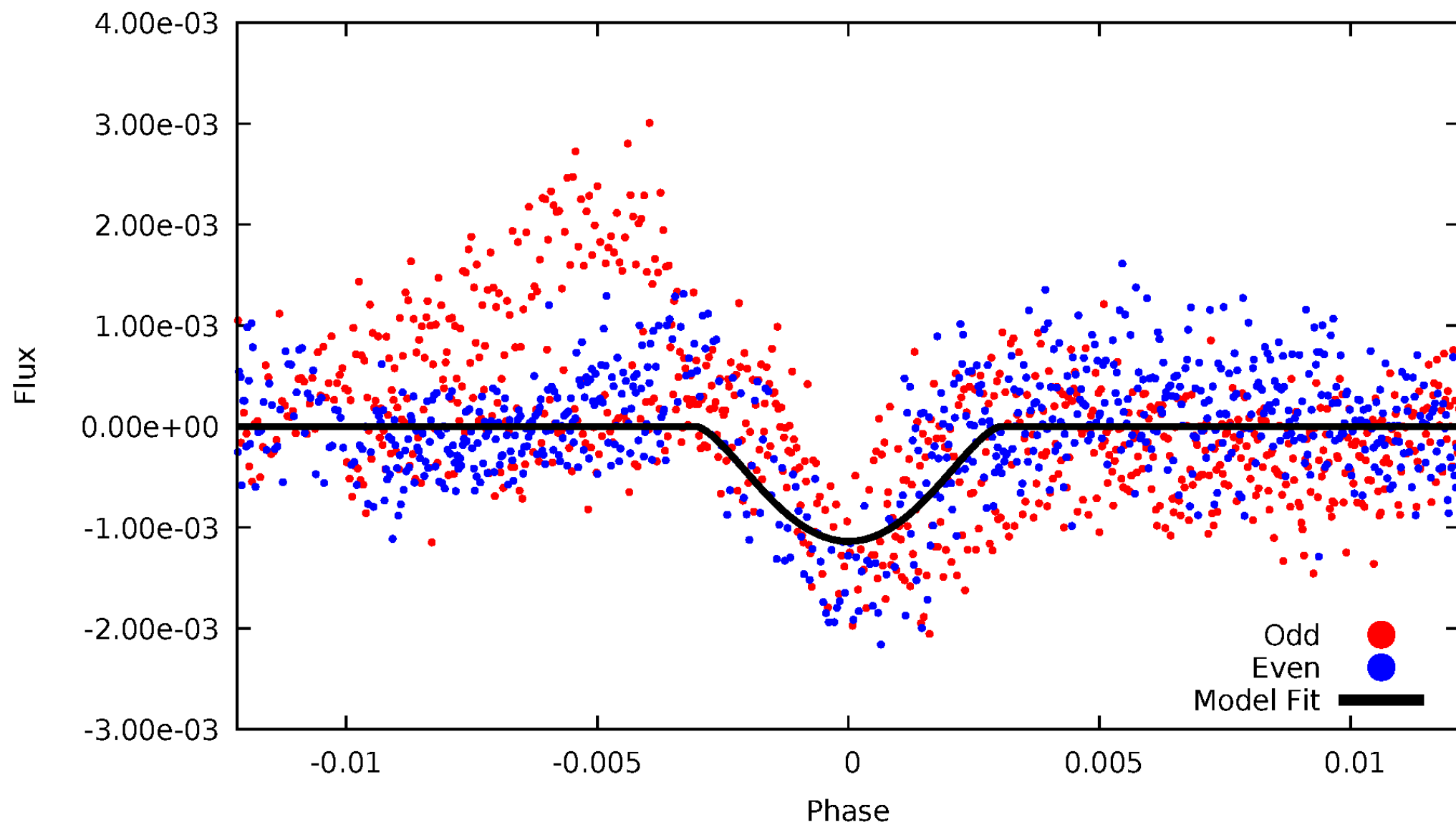


TCE 008228620-01



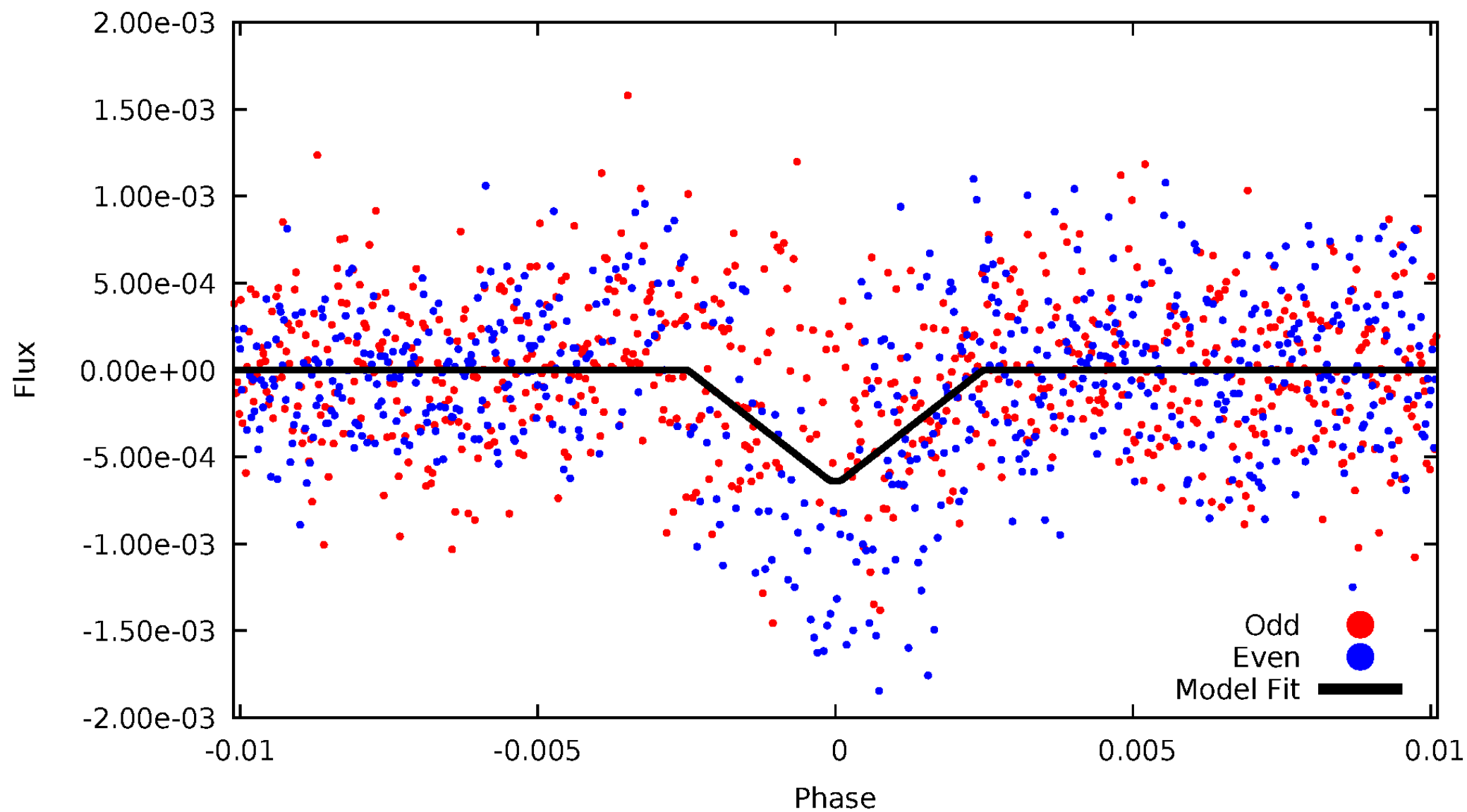
DV Odd/Even

TCE 008228620-01



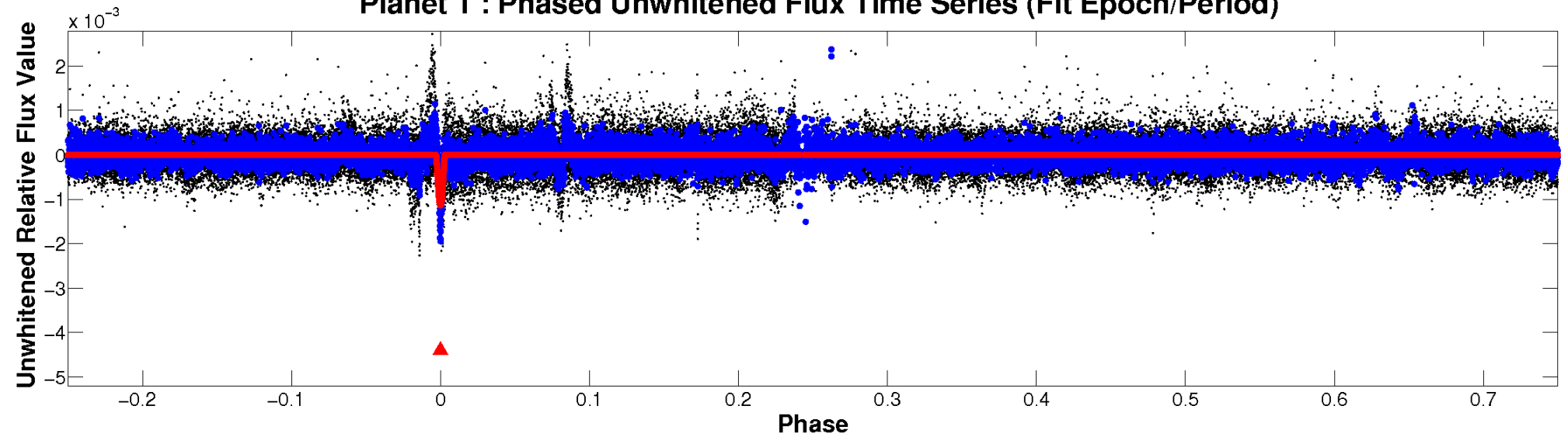
ALT Odd/Even

TCE 008228620-01

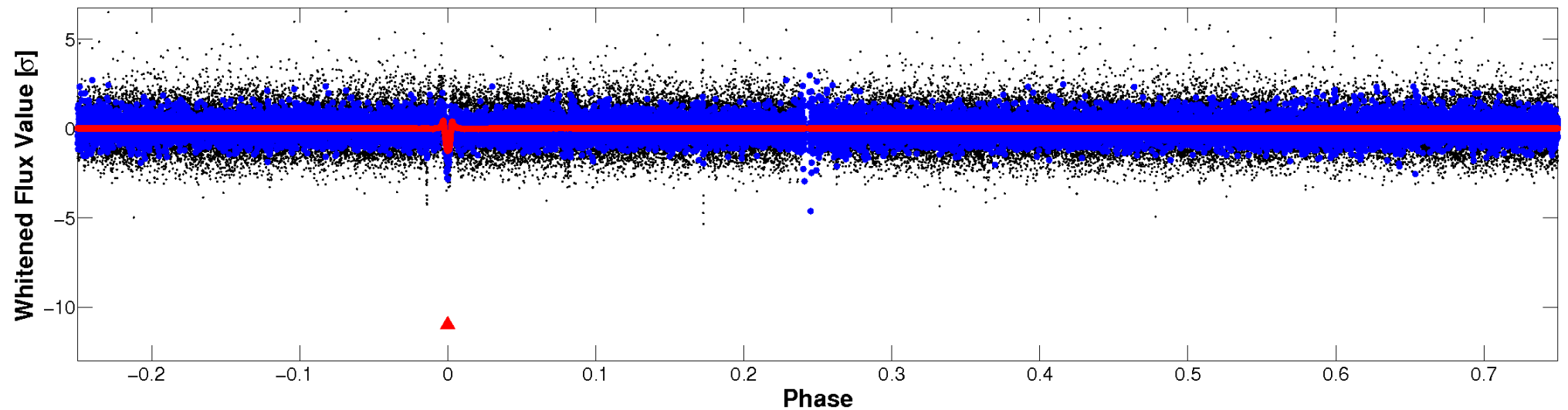


Non-Whitened Vs. Whitened Light Curve

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

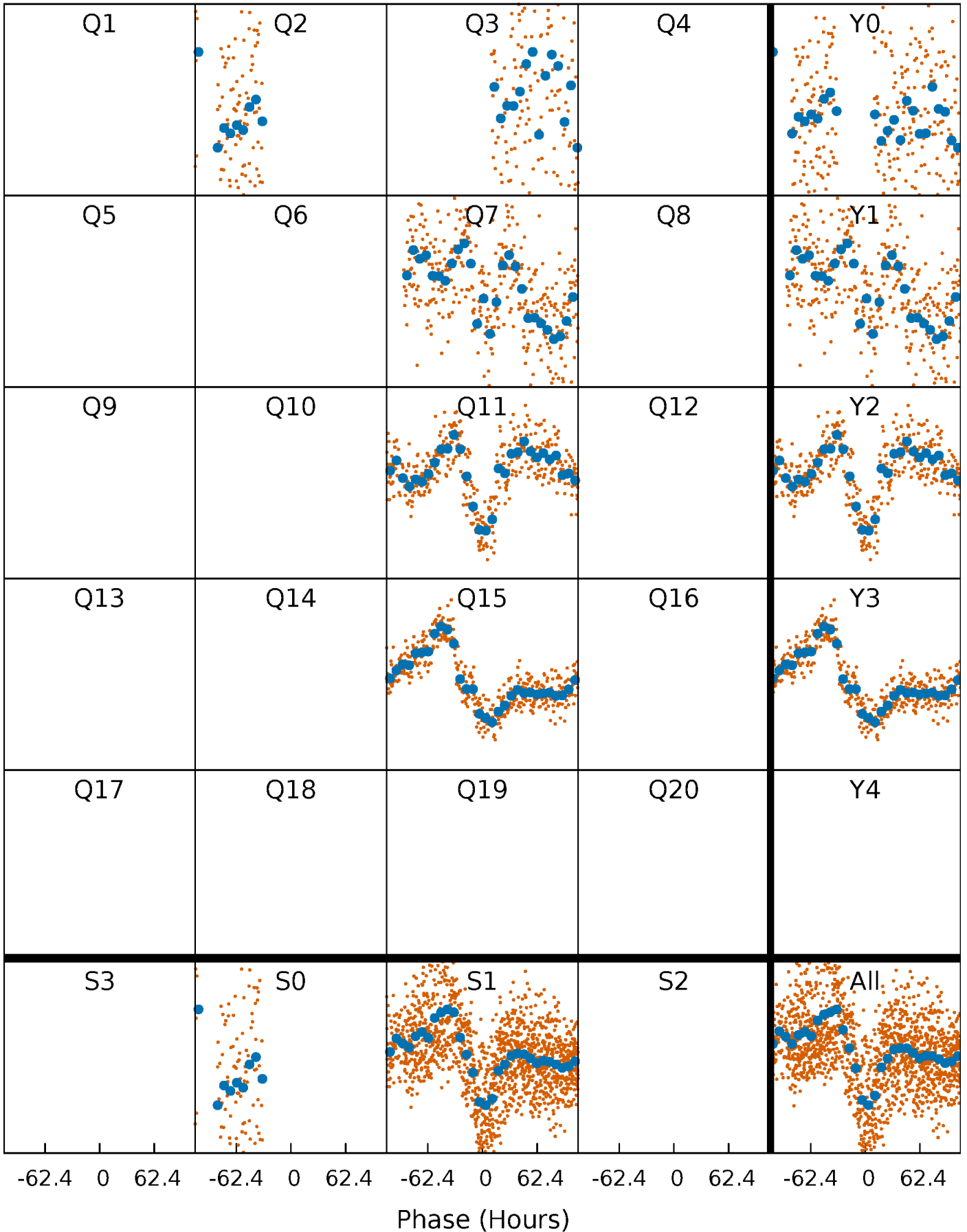


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



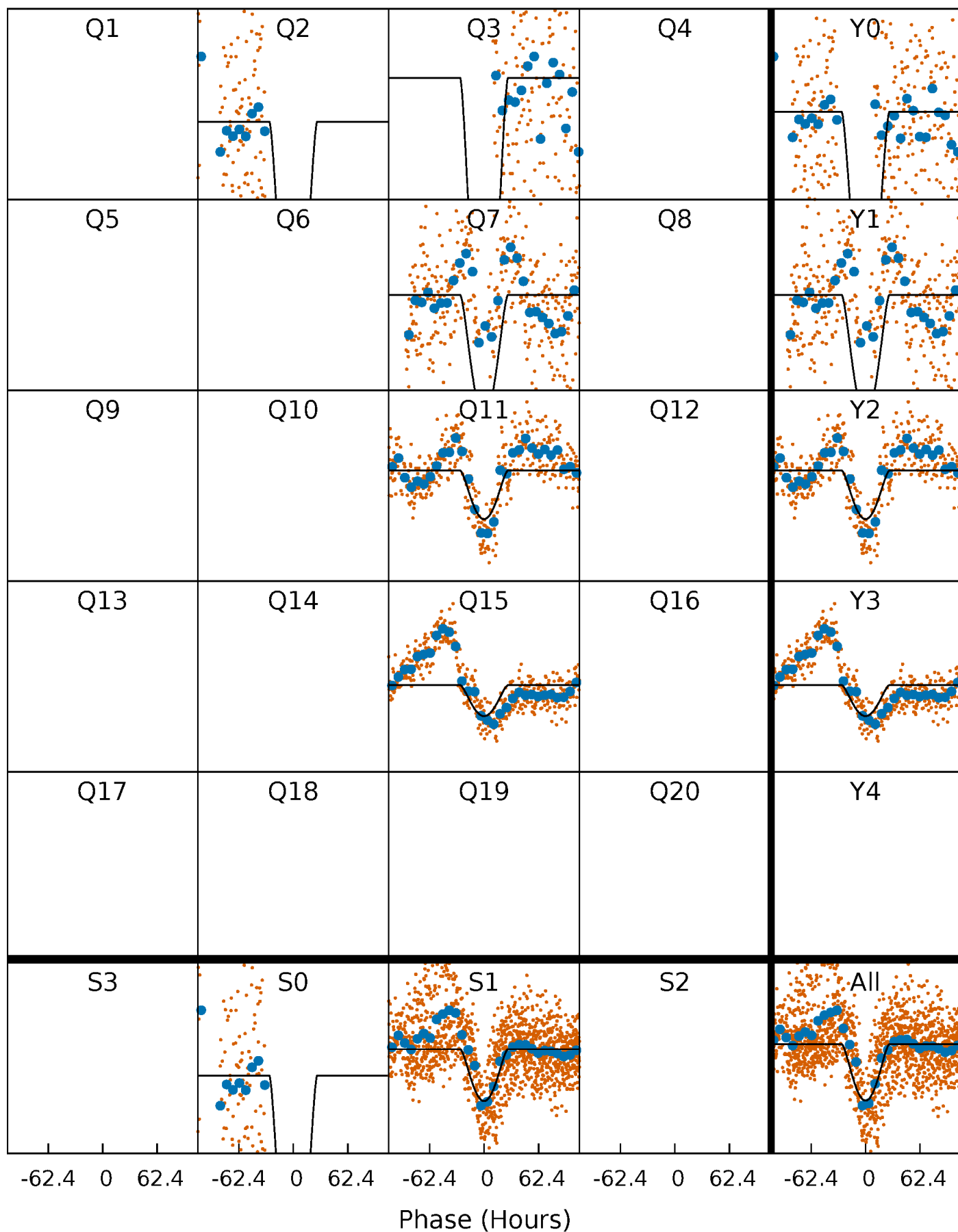
PDC Quarter-Phased Transit Curves

TCE 008228620-01 P=374.104425 Days $T_0=259.826977$ (BKJD)



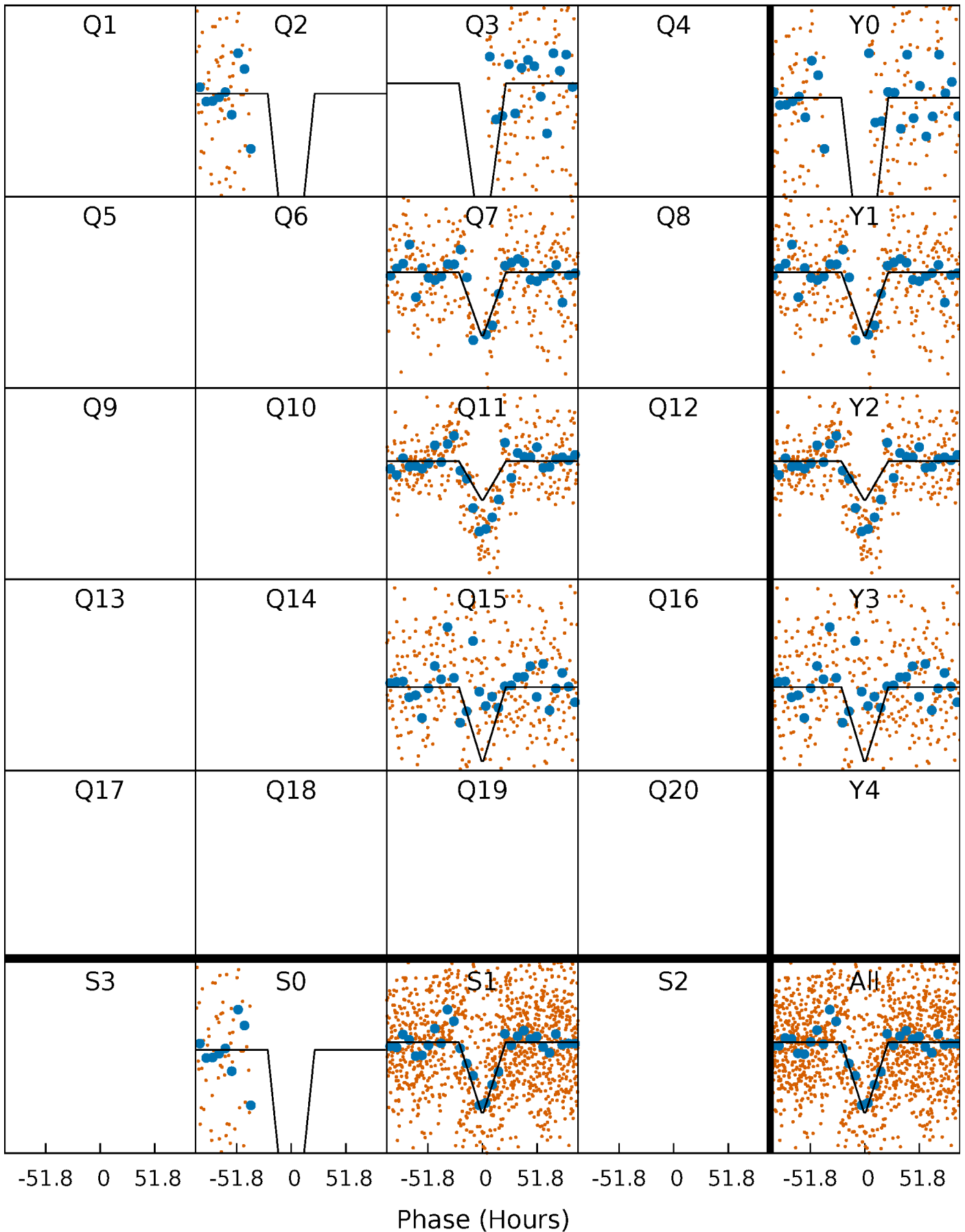
DV Quarter-Phased Transit Curves

TCE 008228620-01 P=374.104425 Days $T_0=259.826977$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

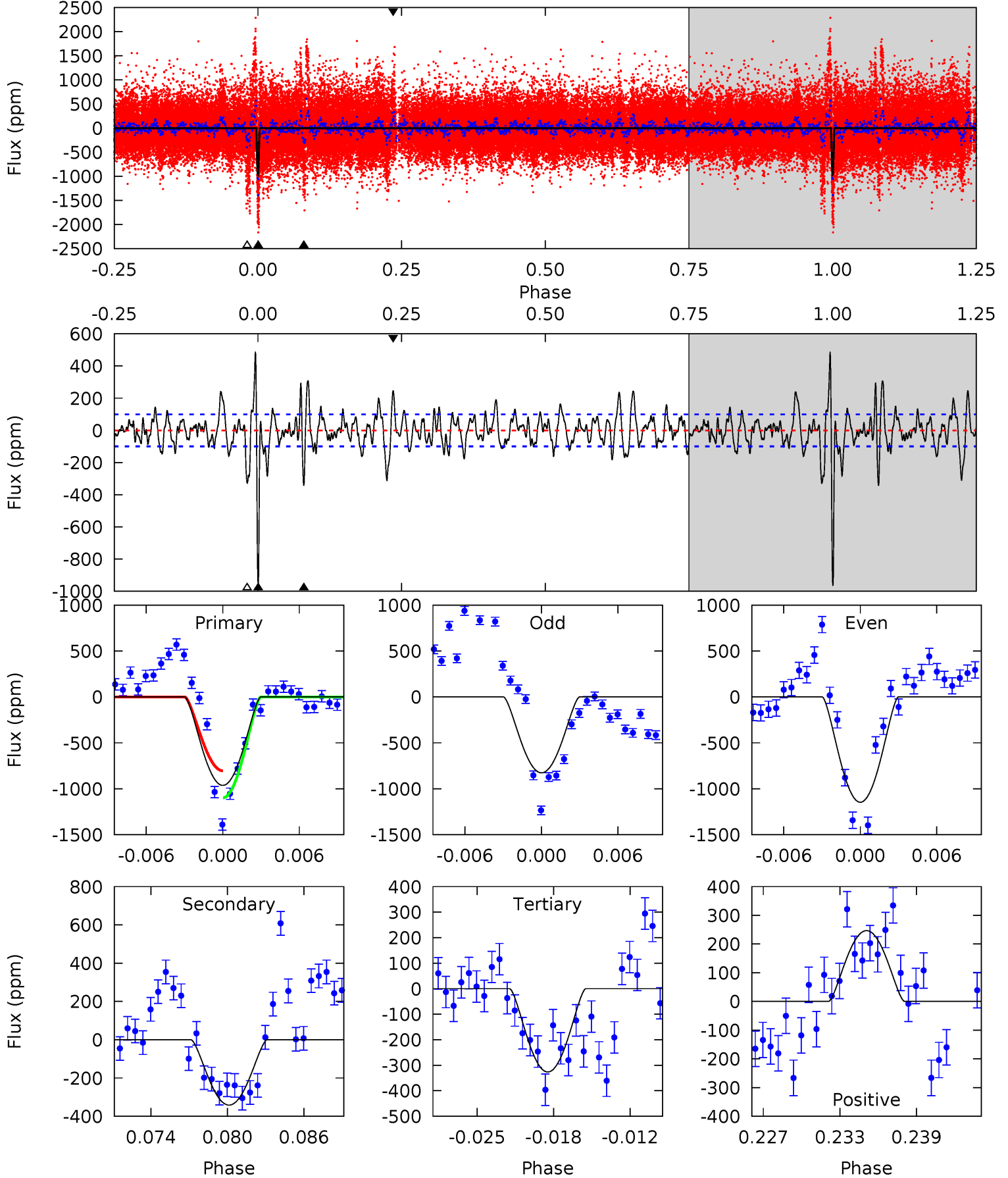
TCE 008228620-01 P=373.961393 Days $T_0=260.080676$ (BKJD)



DV Model-Shift Uniqueness Test

008228620-01, P = 374.104425 Days, E = 259.826977 Days

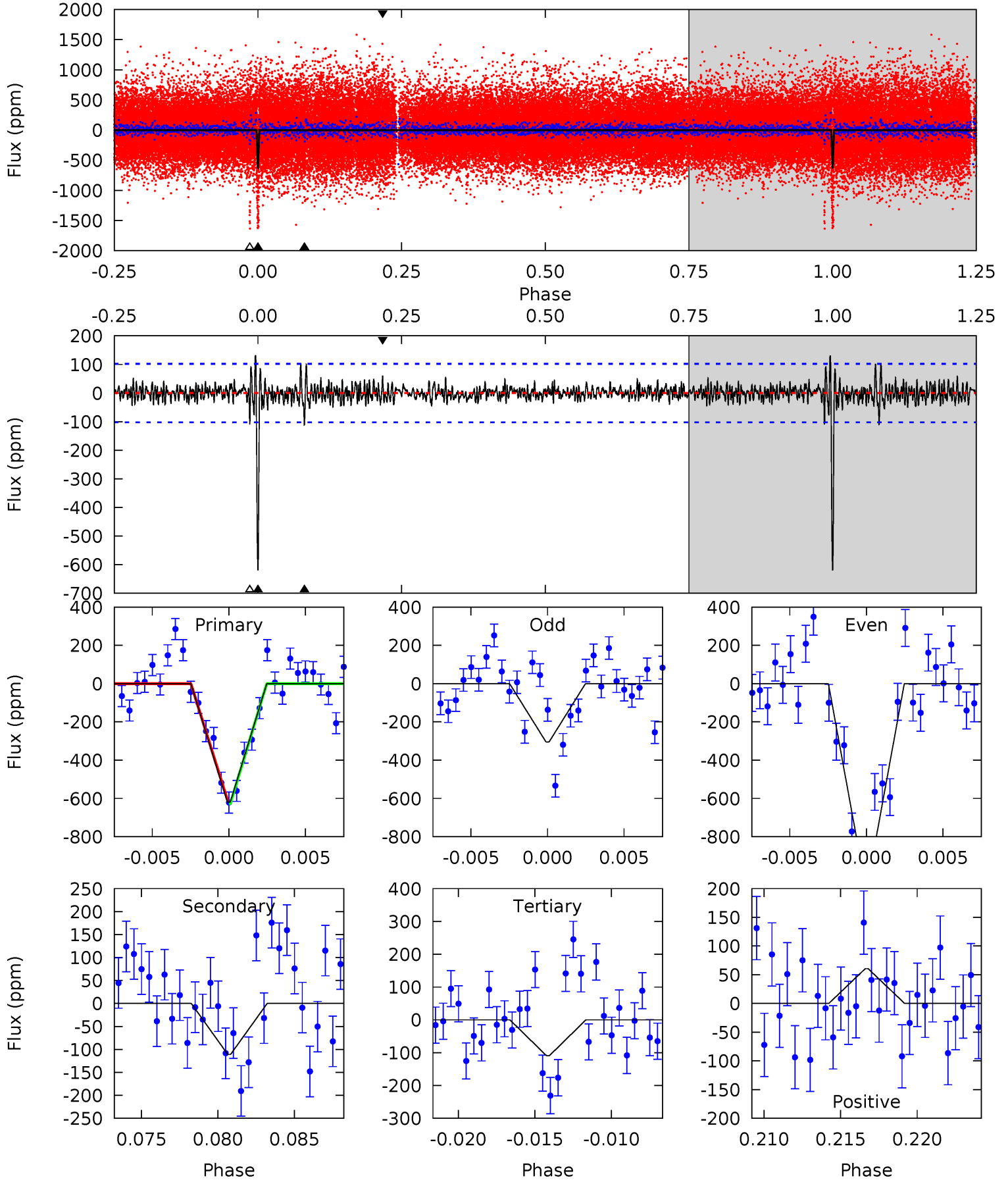
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.6	17.6	16.8	12.7	5.12	2.74	4.47	32.8	36.9	0.78	4.87	8.05	1.00	0.34	7.50



Alt Model-Shift Uniqueness Test

008228620-01, P = 373.961393 Days, E = 260.080676 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.2	5.59	5.51	3.06	5.16	2.81	0.98	25.7	28.2	0.08	2.53	18.5	1.29	0.17	0.52



Stellar Parameters For KIC 008228620

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5178^{+154}_{-154}	$4.586^{+0.036}_{-0.084}$	$-0.080^{+0.300}_{-0.300}$	$0.764^{+0.107}_{-0.066}$	$0.822^{+0.074}_{-0.082}$	$2.602^{+0.479}_{-0.701}$
	+3%/-3%	+1%/-2%	+375%/-375%	+14%/-9%	+9%/-10%	+18%/-27%
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 008228620-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-341 ± 19	$8.74^{+7.56}_{-5.77}$	288^{+12}_{-10}	2879^{+1154}_{-422}	2236^{+17014}_{-1595}
Alt.	-111 ± 20	$6.79^{+7.69}_{-4.85}$	289^{+12}_{-10}	2644^{+1240}_{-420}	1145^{+12935}_{-878}

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

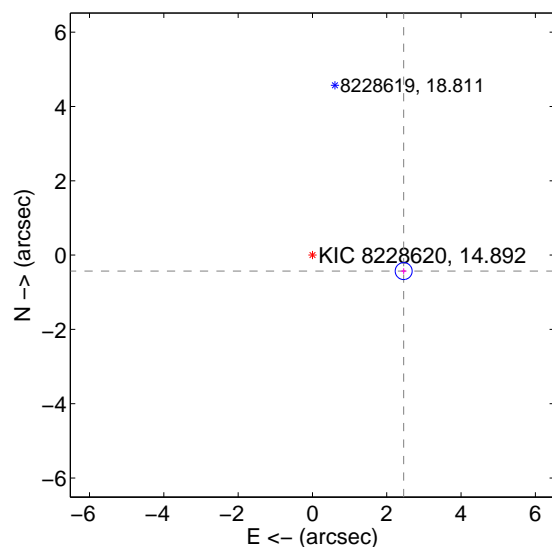
Supplemental centroid analysis for 008228620-01. Kepler magnitude: 14.89. Transit SNR 14.40

There are 0 quarters with good PRF difference image offsets

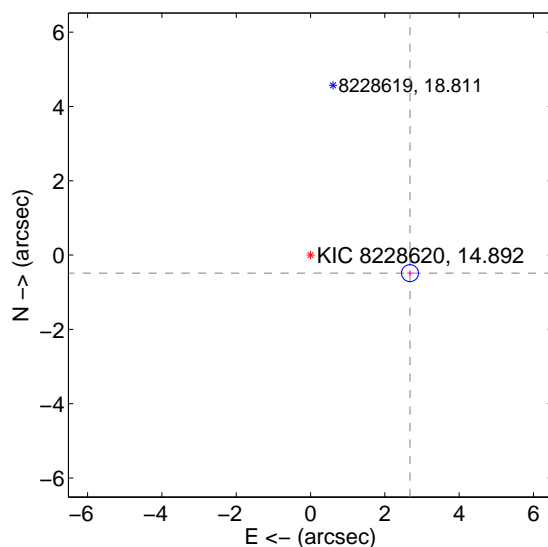
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.493 ± 0.076	32.78	-2.456 ± 0.076	-0.430 ± 0.079
PRF-fit source offset from KIC position	2.721 ± 0.076	35.77	-2.678 ± 0.076	-0.485 ± 0.079
photometric centroid source offset	2.24 ± 1.06	2.11	-1.63 ± 1.09	-1.54 ± 1.04

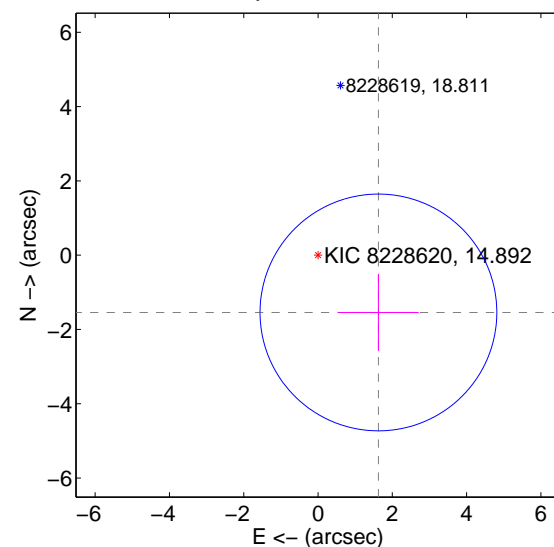
offset from difference PRF-fit to OOT PRF-fit



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.



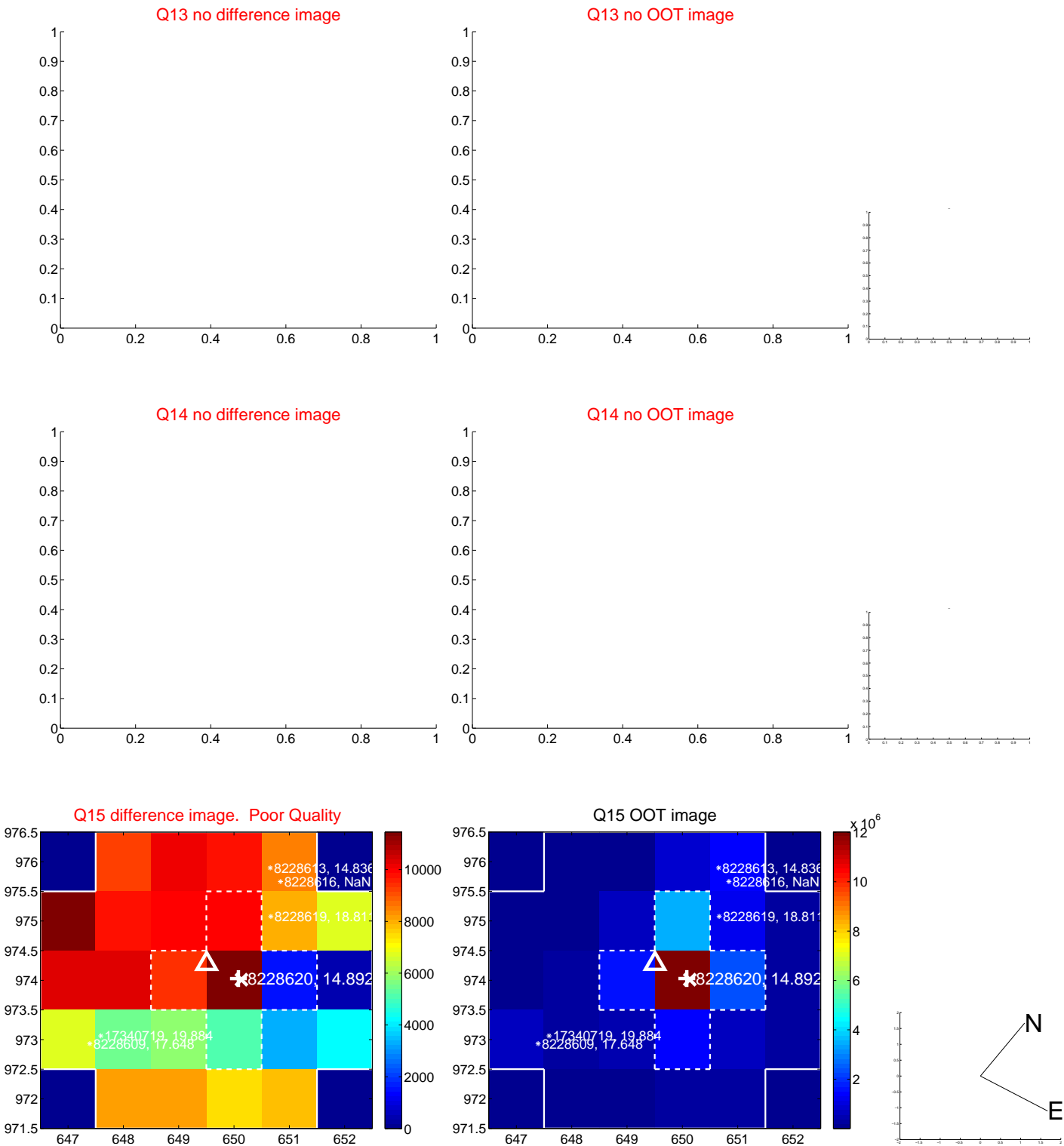
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



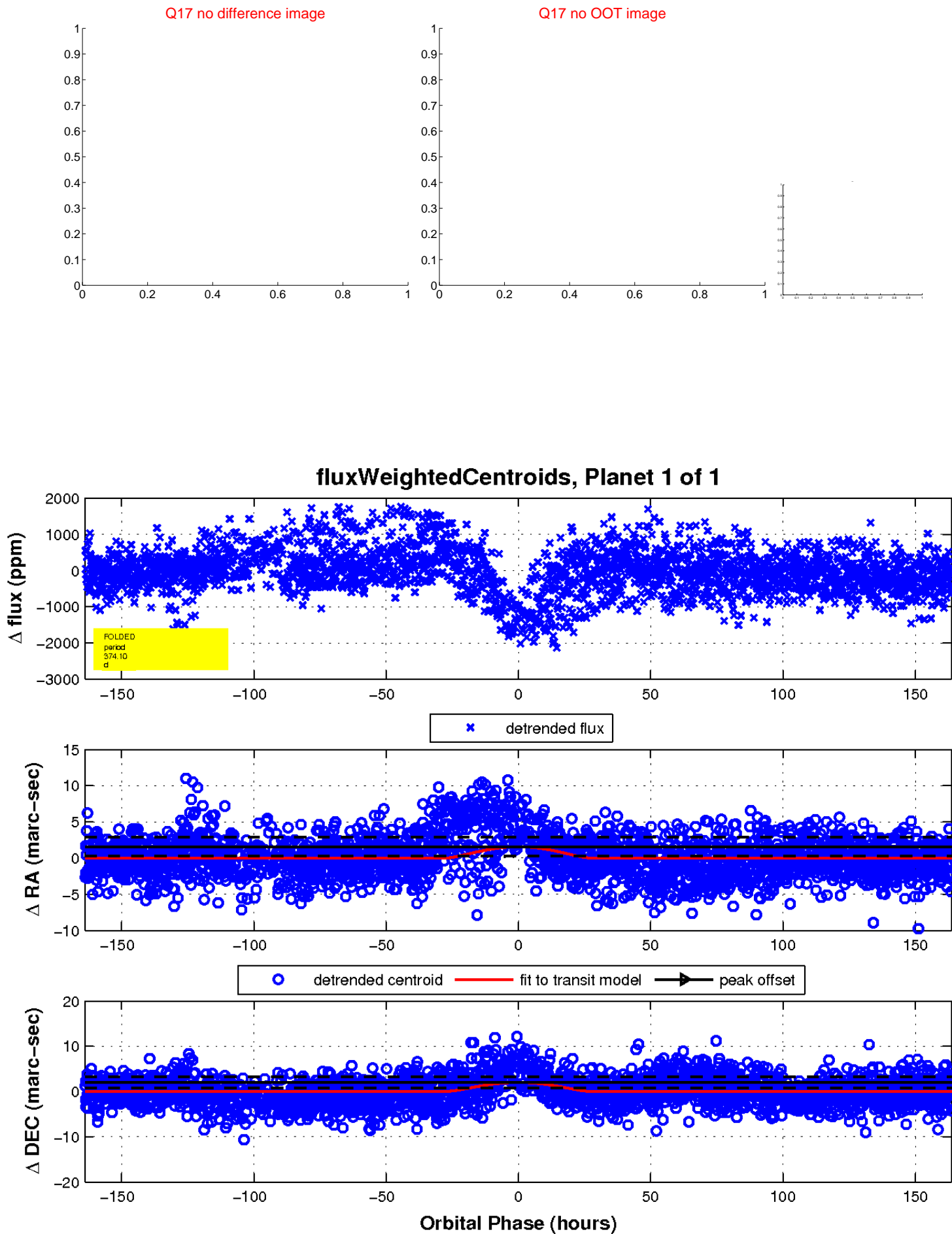
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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

