

# KIC 010960823

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010960823-01	OBS	No	503.703274	456.400353	2462.4	7.695	10.5	8.8	0.36	3554	1.82	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010960823-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

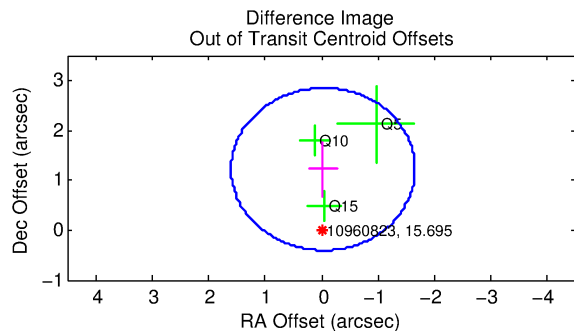
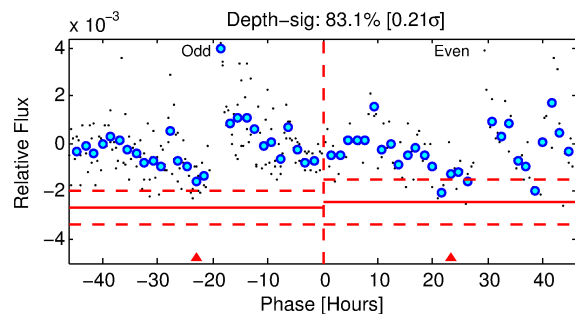
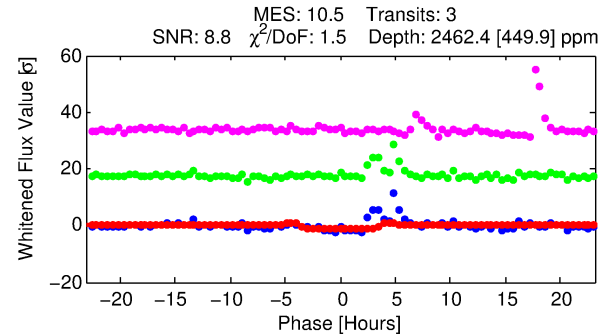
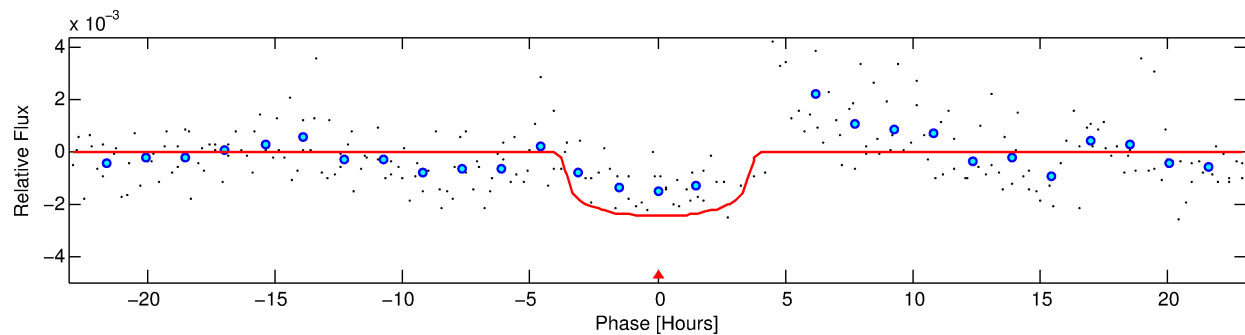
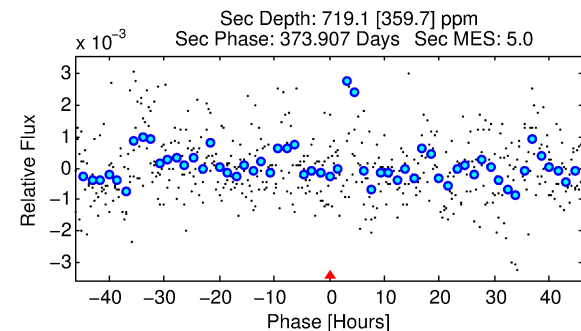
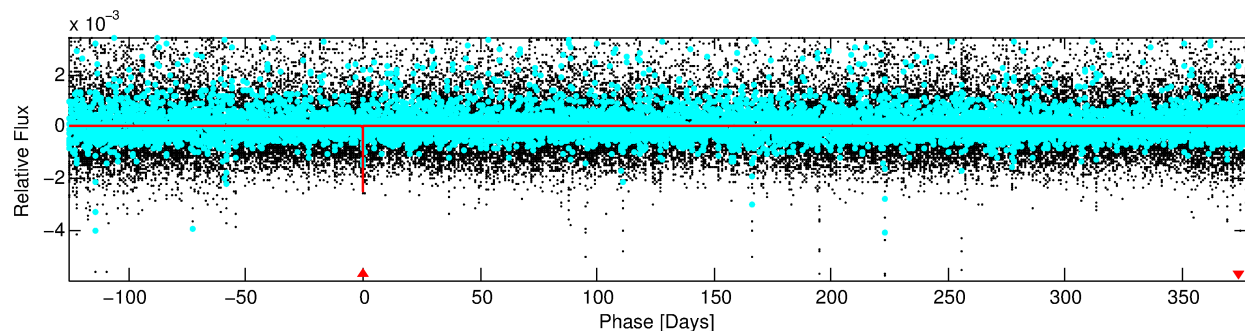
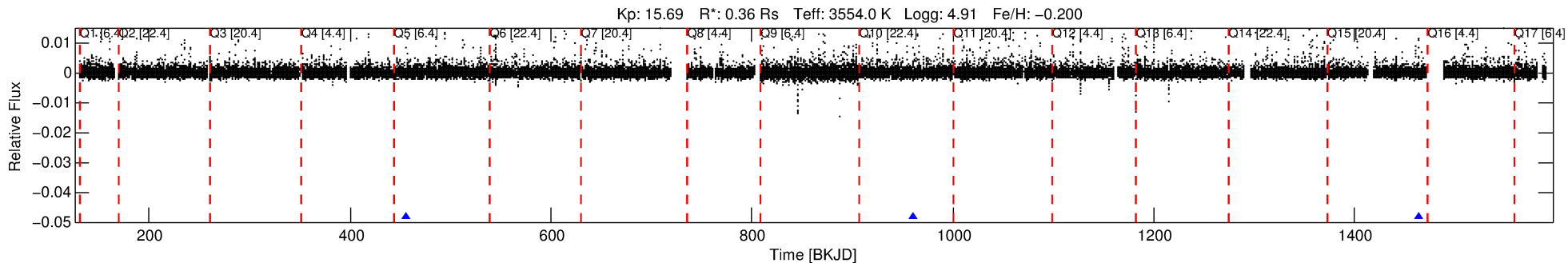
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010960823-01

No Significant Match Found

# DV One-Page Summary

KIC: 10960823 Candidate: 1 of 1 Period: 503.703 d



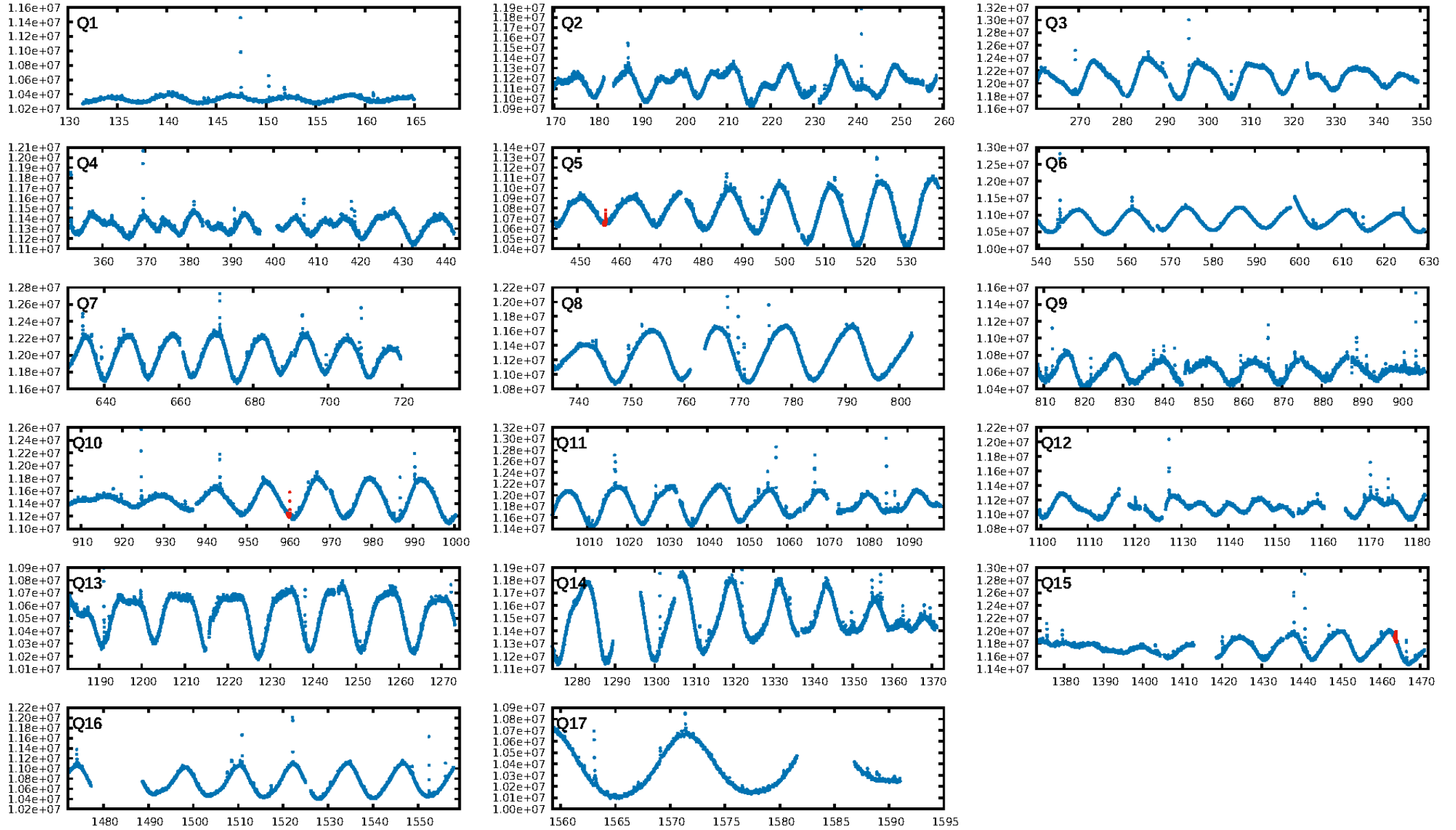
## DV Fit Results:

Period = 503.70327 [0.01076] d  
Epoch = 456.4004 [0.0152] BKJD  
Rp/R\* = 0.0464 [0.0228]  
a/R\* = 462.31 [988.99]  
b = 0.49 [3.34]  
Seff = 0.02 [0.00]  
Teq = 99 [3] K  
Rp = 1.82 [0.91] Re  
a = 0.8992 [0.0674] AU  
Ag = 96714.77 [107062.40] [0.90σ]  
Teffp = 2701 [746] K [3.49σ]

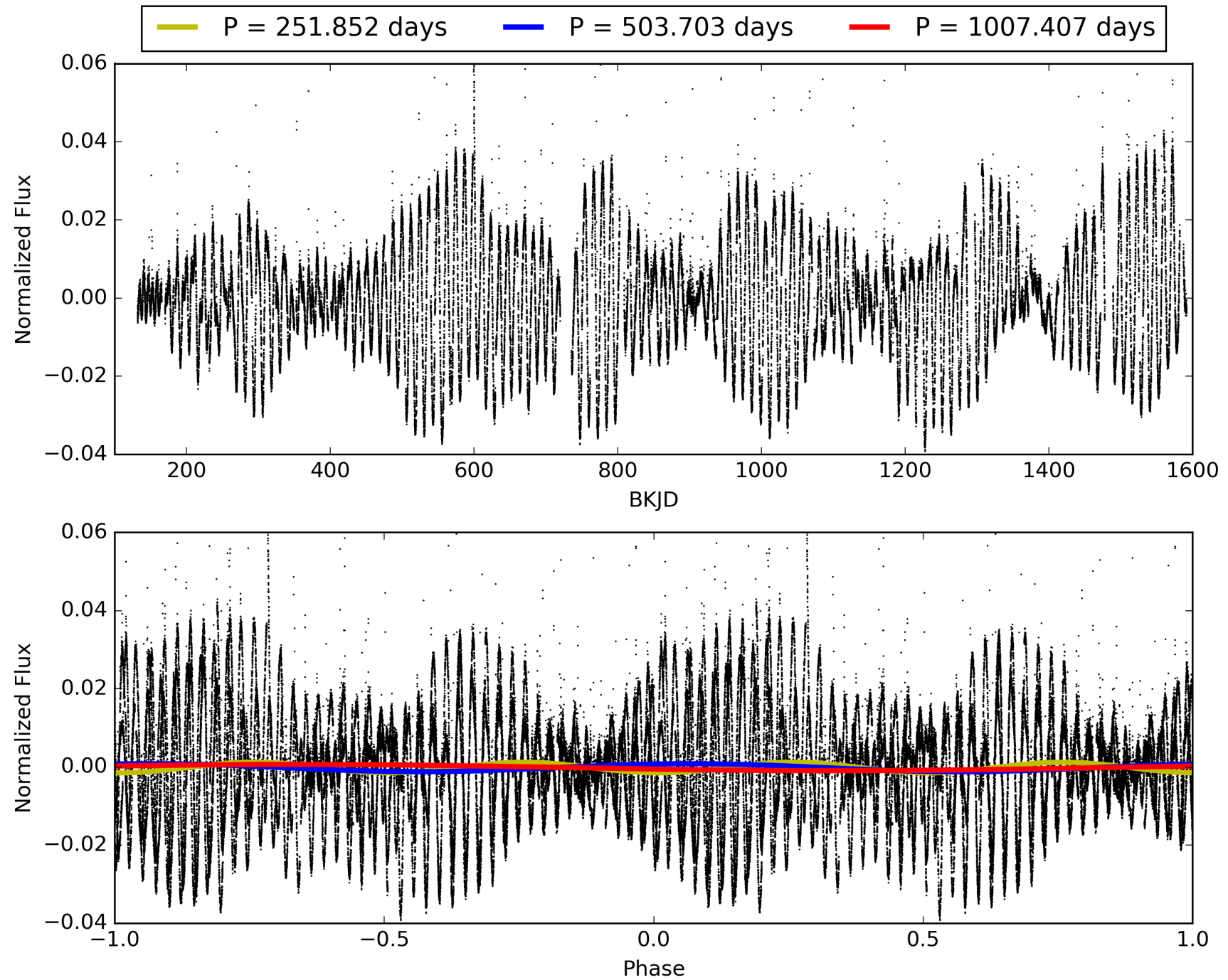
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.8%  
ModelChiSquareGof-sig: 89.6%  
**Bootstrap-pfa: 3.29e-09**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.565  
Centroid-sig: 14.2%  
Centroid-so: 0.799 arcsec [1.19σ]  
OotOffset-rm: 1.219 arcsec [2.25σ]  
KicOffset-rm: 0.732 arcsec [1.53σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 010960823-01, PDC Light Curves

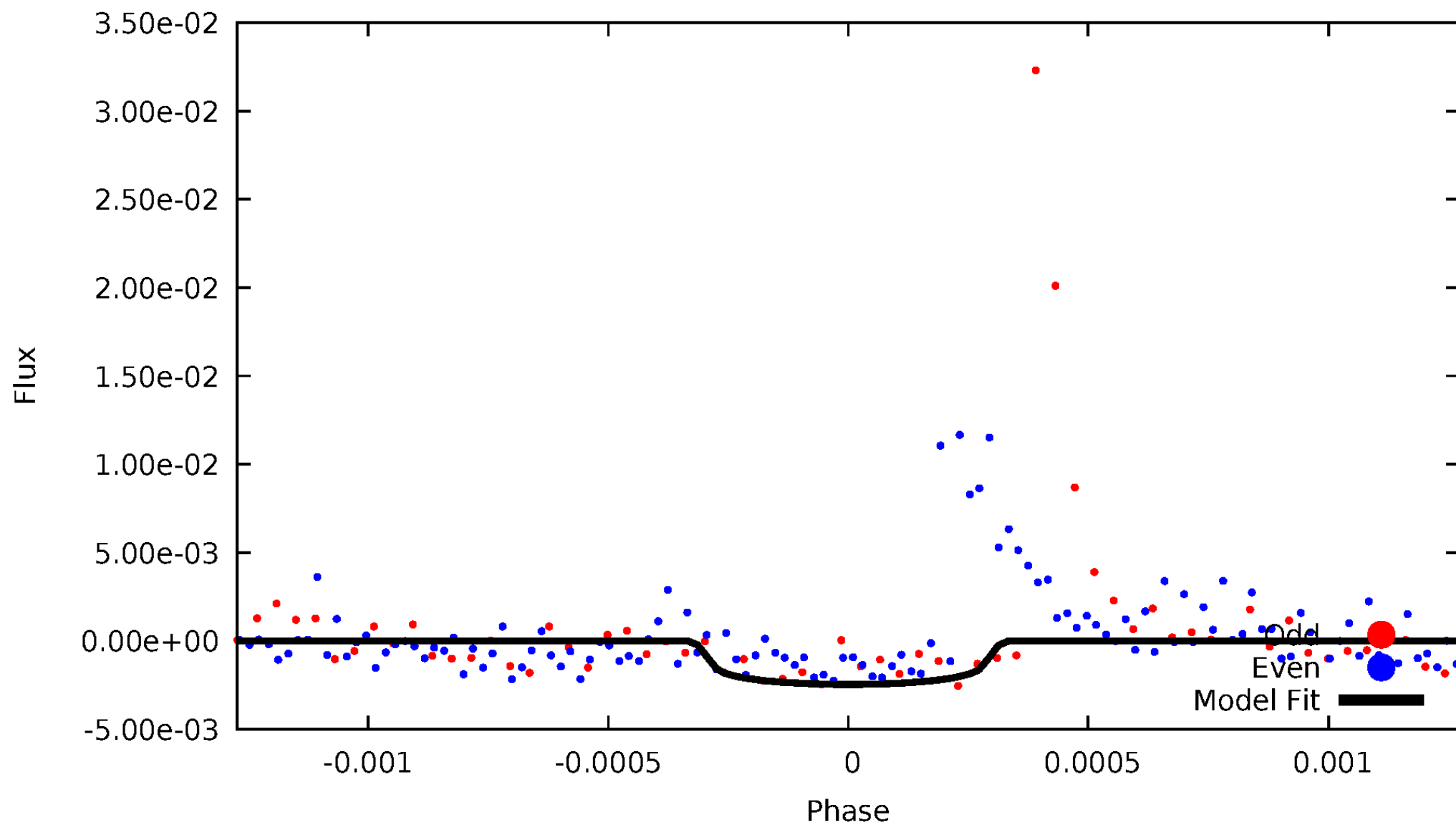


TCE 010960823-01



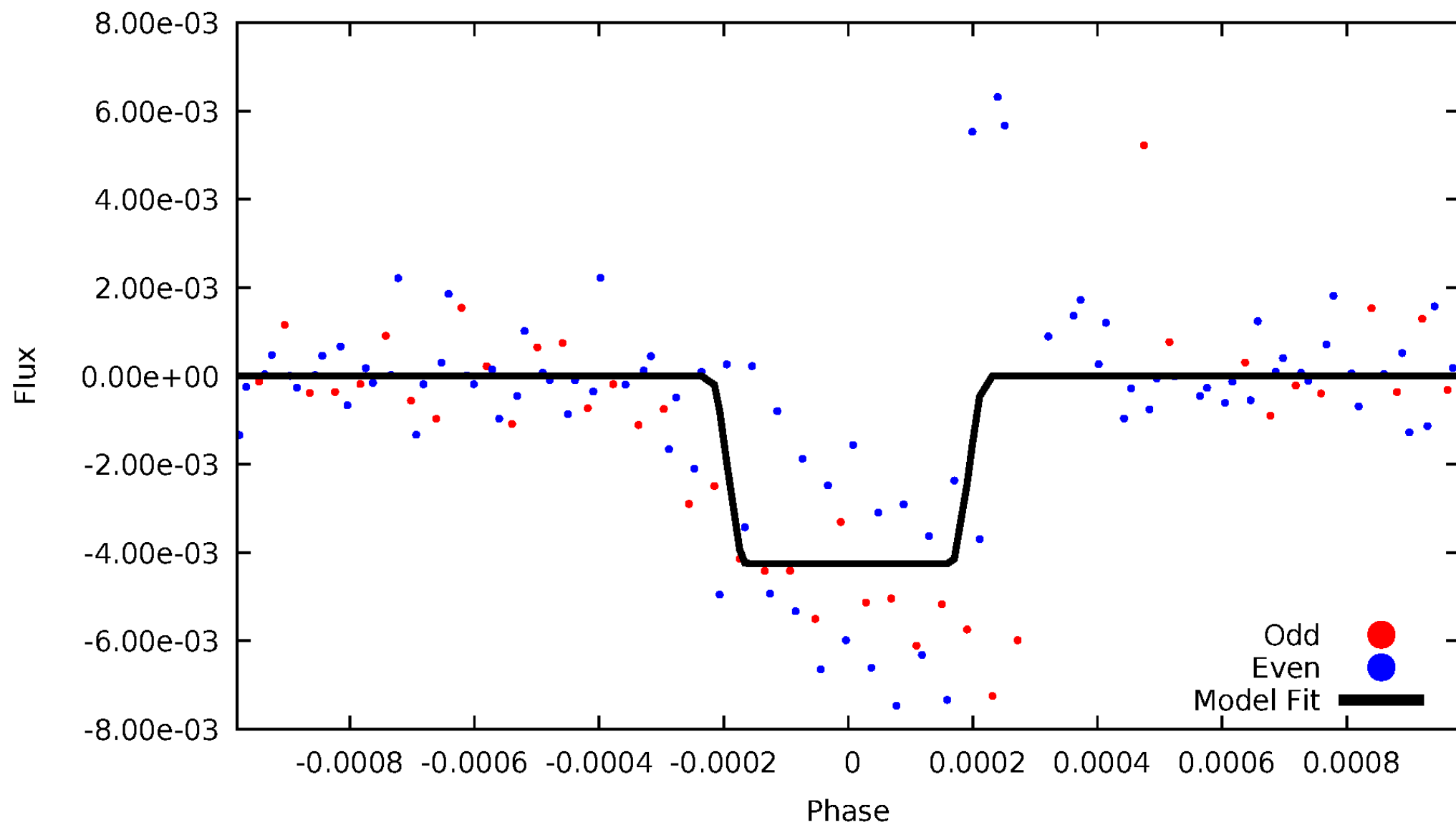
# DV Odd/Even

TCE 010960823-01



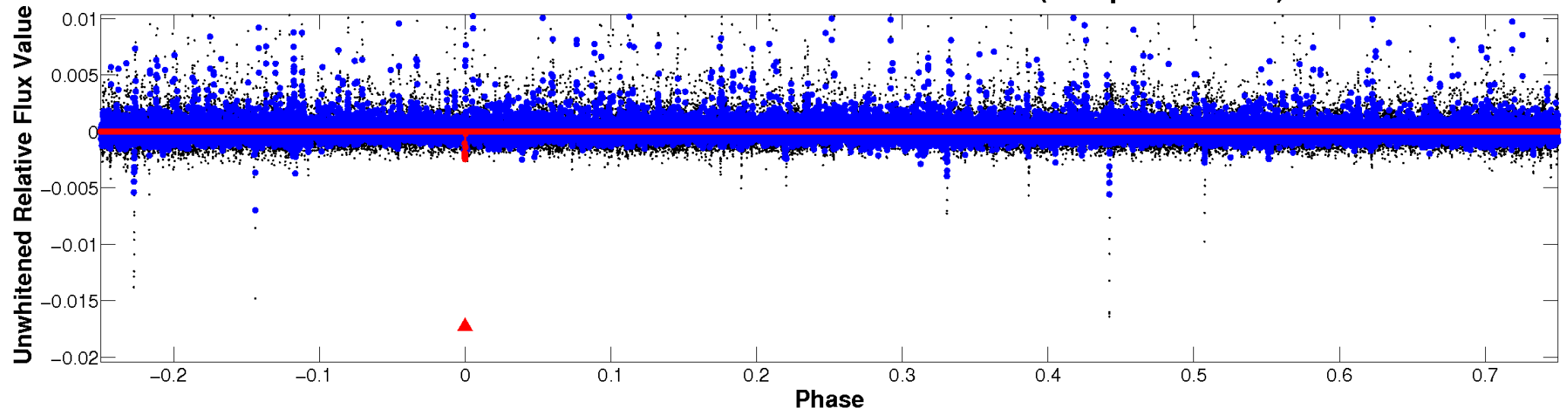
# ALT Odd/Even

TCE 010960823-01

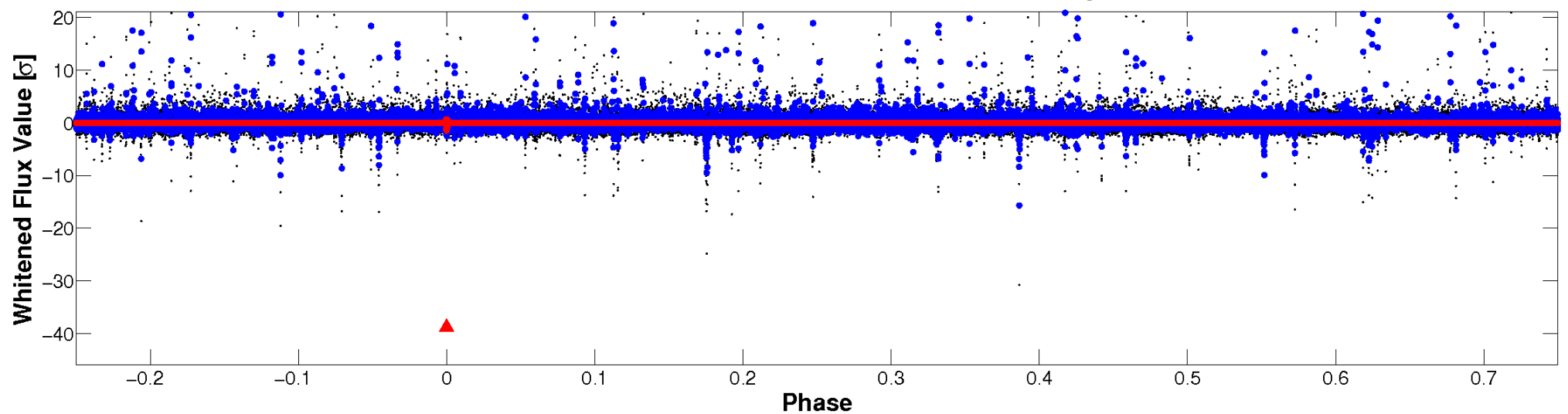


# Non-Whitened Vs. Whitened Light Curve

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

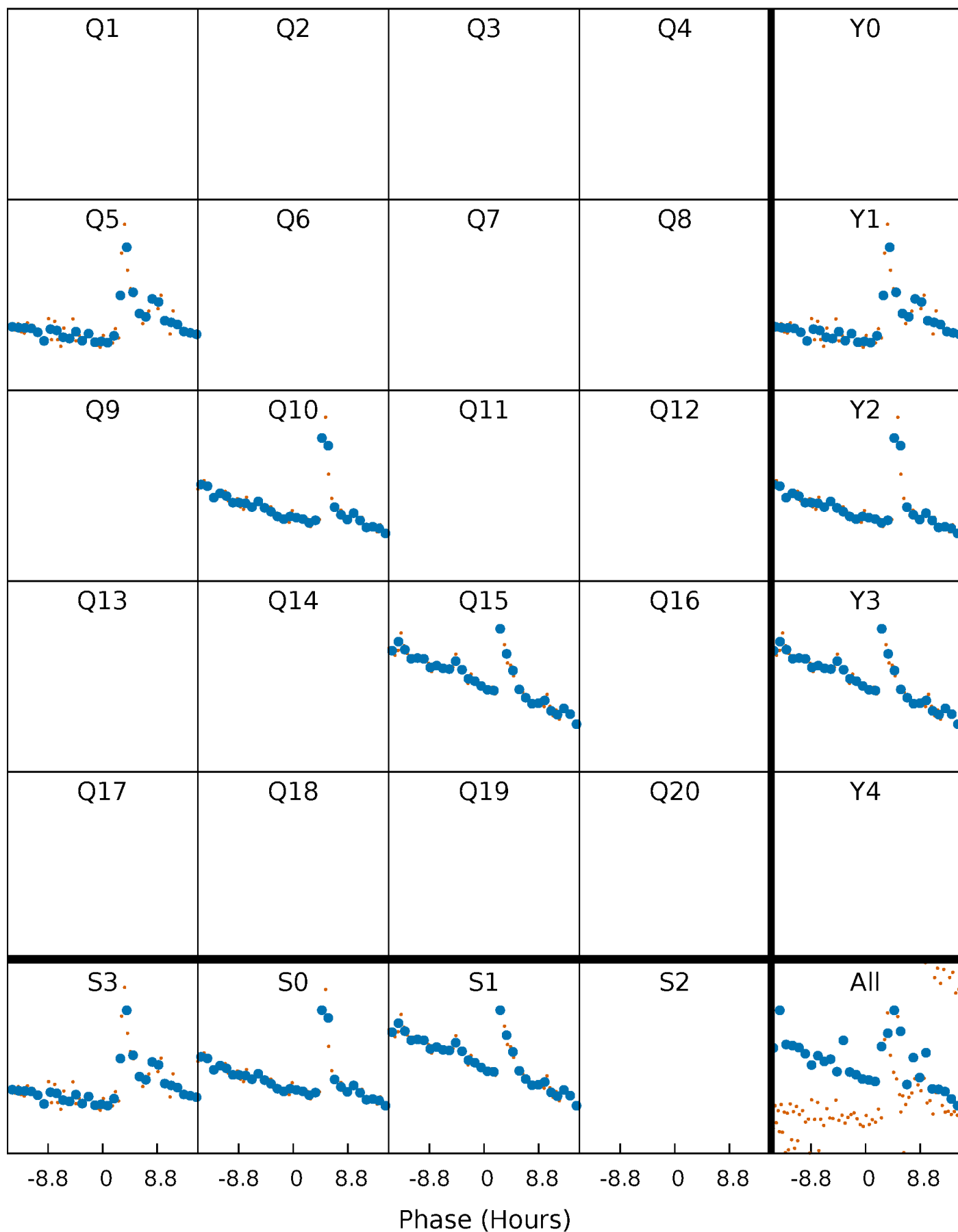


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

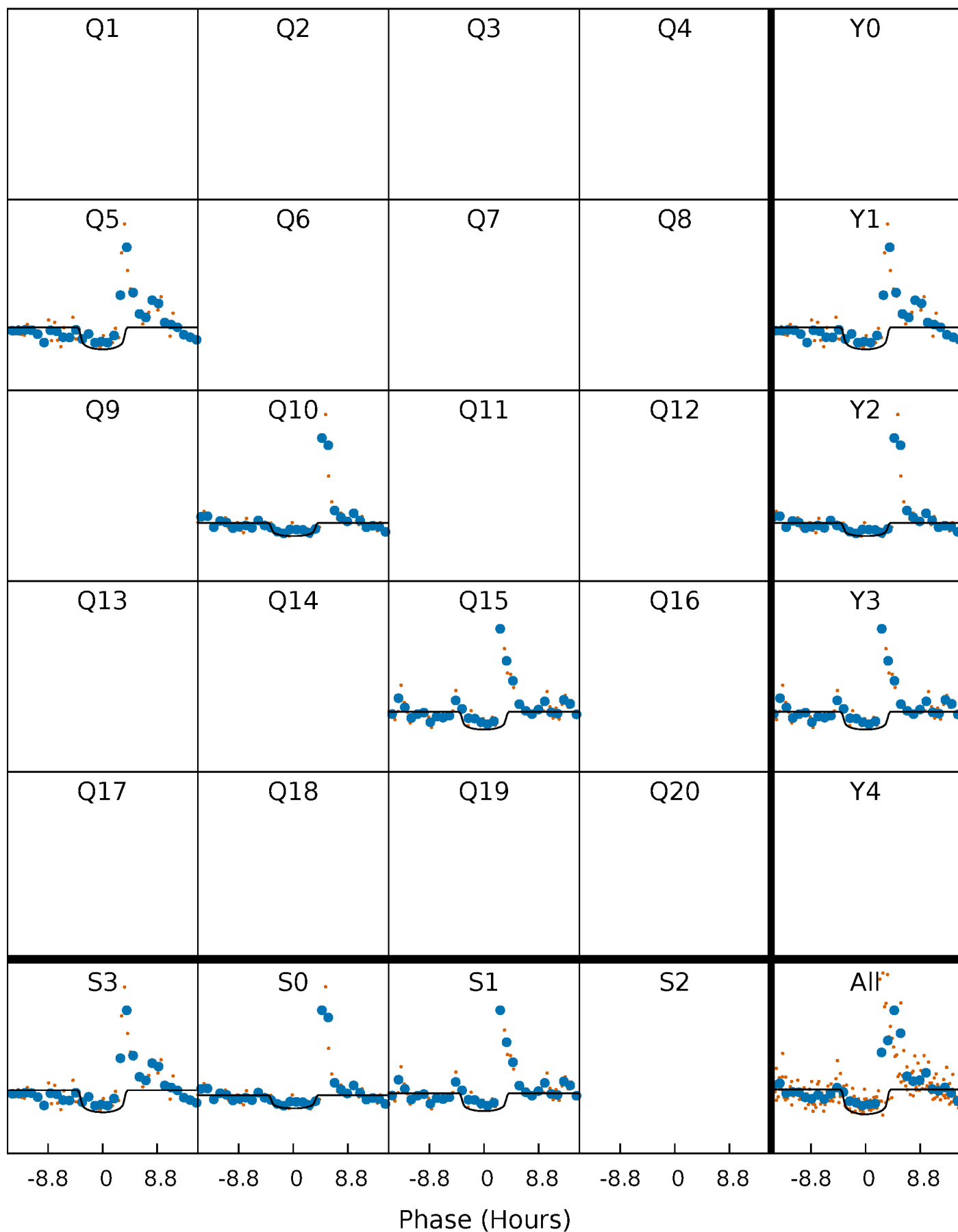
TCE 010960823-01 P=503.703275 Days  $T_0=456.400352$  (BKJD)





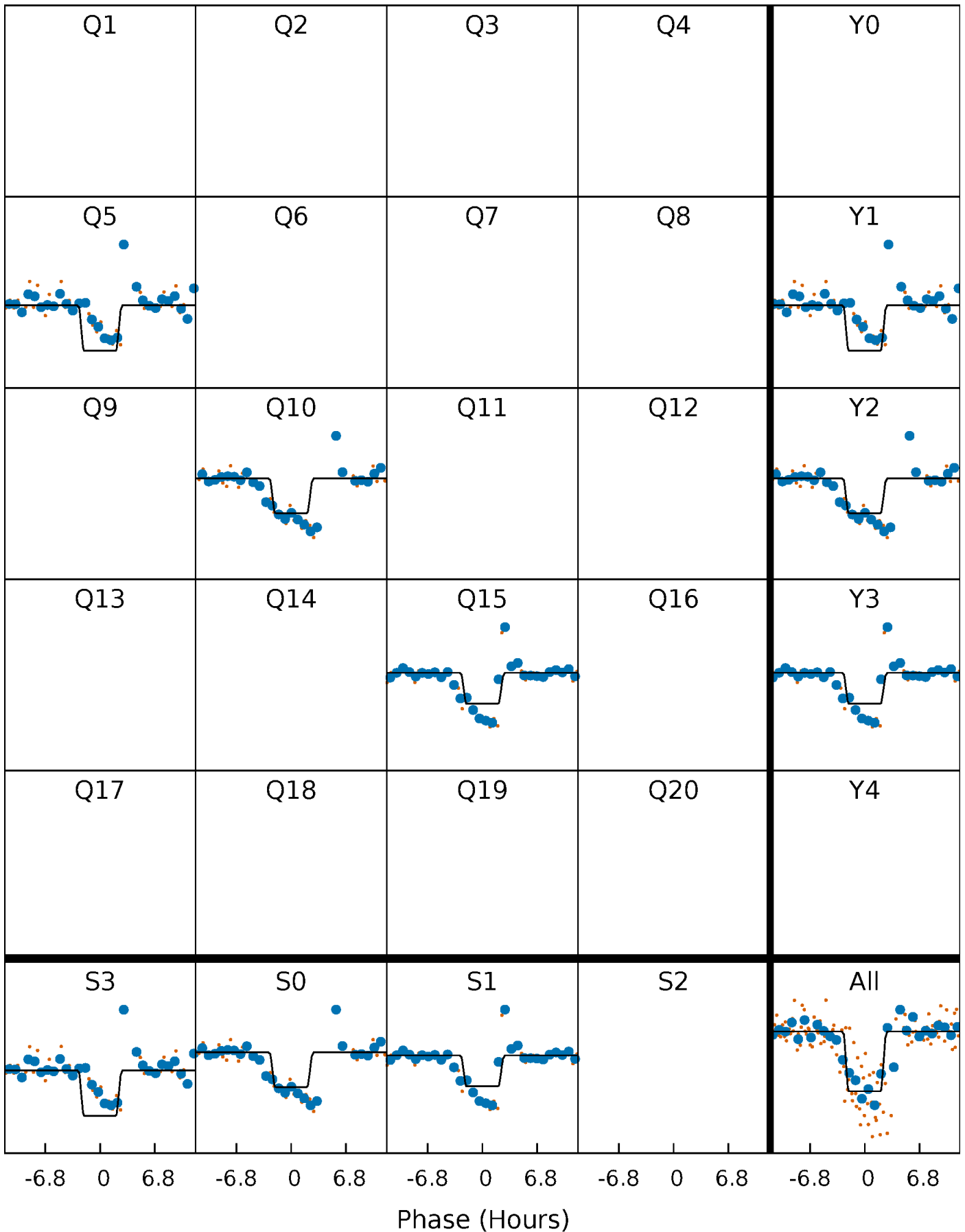
# DV Quarter-Phased Transit Curves

TCE 010960823-01 P=503.703275 Days  $T_0=456.400352$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

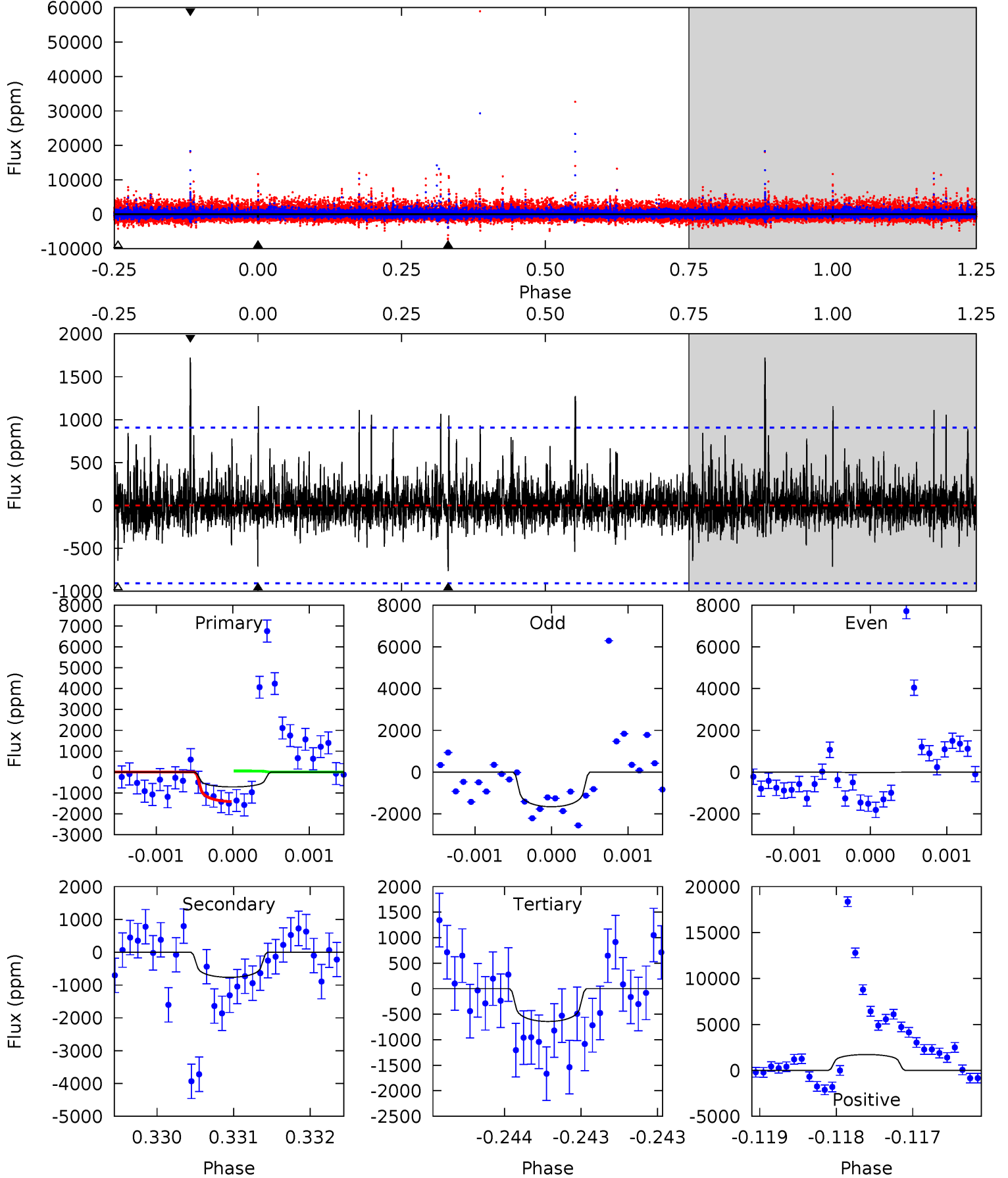
TCE 010960823-01 P=503.700876 Days  $T_0=456.401421$  (BKJD)



# DV Model-Shift Uniqueness Test

010960823-01, P = 503.703275 Days, E = 456.400352 Days

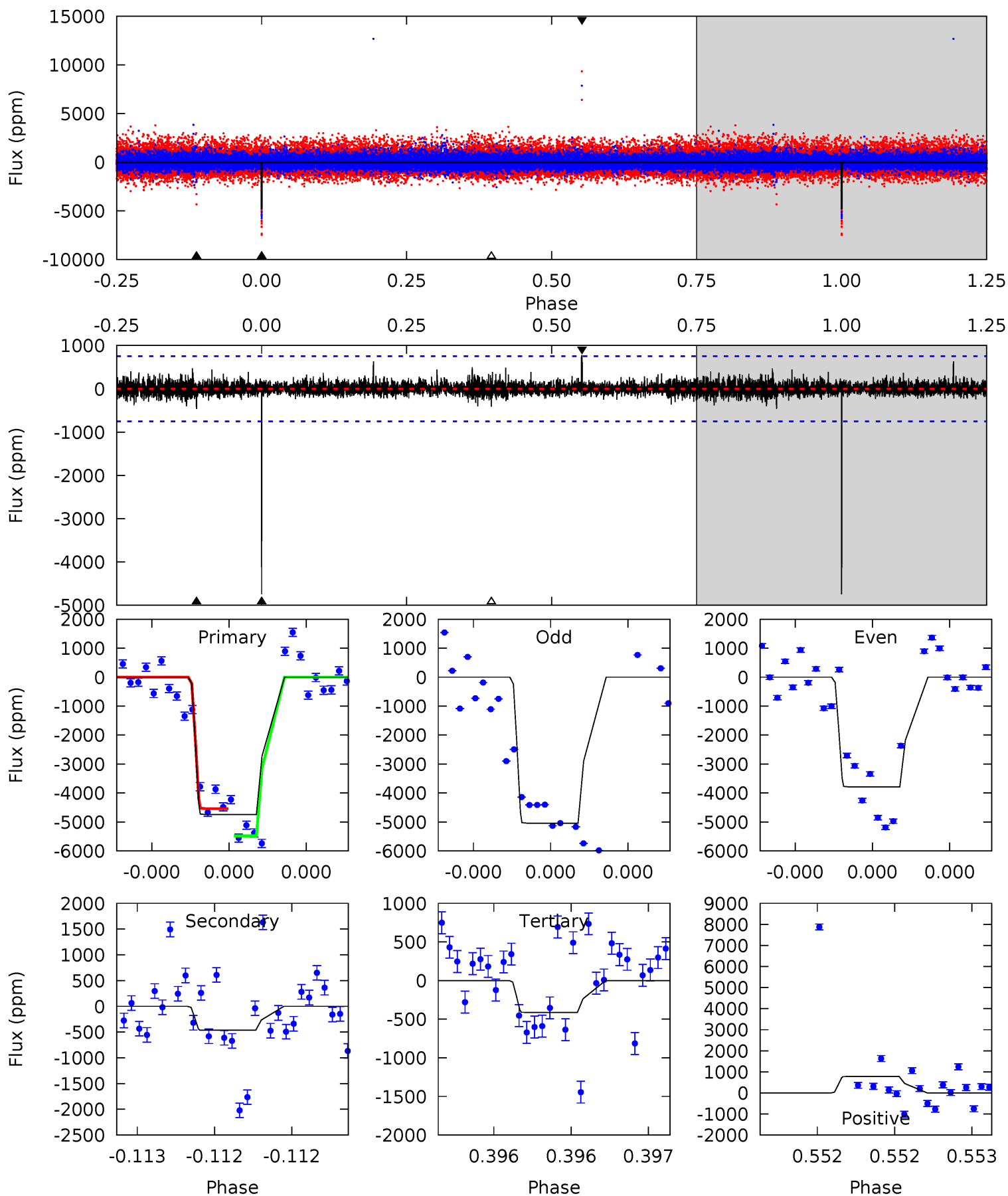
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.34	4.65	3.91	10.5	5.52	3.40	1.08	0.43	-6.15	0.74	-5.84	3.02	0.69	0.69	4.24



# Alt Model-Shift Uniqueness Test

010960823-01, P = 503.700876 Days, E = 456.401421 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.3	3.45	3.07	5.79	5.59	3.51	0.65	32.3	29.5	0.38	-2.34	4.29	0.85	0.14	3.38



### Stellar Parameters For KIC 010960823

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3554^{+48}_{-58}$	$4.910^{+0.032}_{-0.044}$	$-0.200^{+0.100}_{-0.100}$	$0.359^{+0.036}_{-0.036}$	$0.384^{+0.034}_{-0.050}$	$11.690^{+2.356}_{-1.960}$
	+1%/-2%	+1%/-1%	+50%/-50%	+10%/-10%	+9%/-13%	+20%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 010960823-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-764 \pm 164$	$1.82^{+0.86}_{-0.87}$	$139^{+3}_{-3}$	$3052^{+632}_{-334}$	$104399^{+257542}_{-58892}$
Alt.	$-464 \pm 134$	$2.52^{+0.93}_{-0.84}$	$139^{+3}_{-3}$	$2589^{+338}_{-216}$	$30716^{+46837}_{-15777}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = 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  $A_{\text{obs}} \gg 1.0$

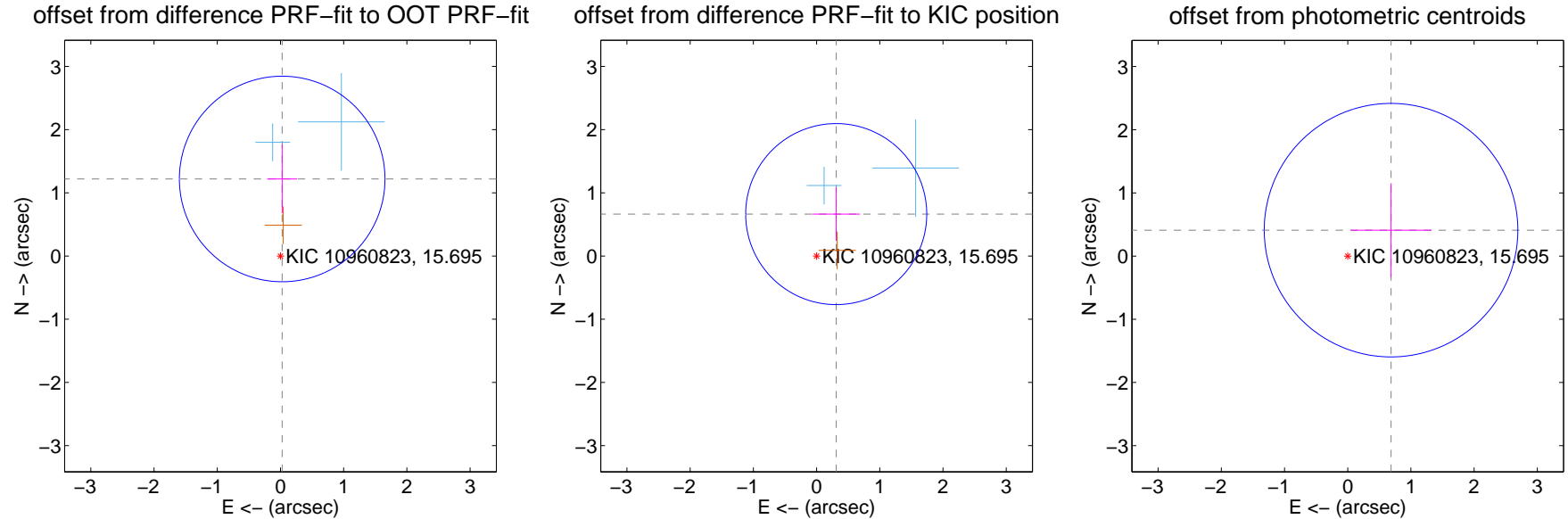
## DV Centroid Data

Supplemental centroid analysis for 010960823-01. Kepler magnitude: 15.70. Transit SNR 8.83

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.219 \pm 0.542$	2.25	$-0.027 \pm 0.238$	$1.219 \pm 0.542$
PRF-fit source offset from KIC position	$0.732 \pm 0.477$	1.53	$-0.310 \pm 0.377$	$0.663 \pm 0.422$
photometric centroid source offset	$0.80 \pm 0.67$	1.19	$-0.69 \pm 0.64$	$0.41 \pm 0.74$

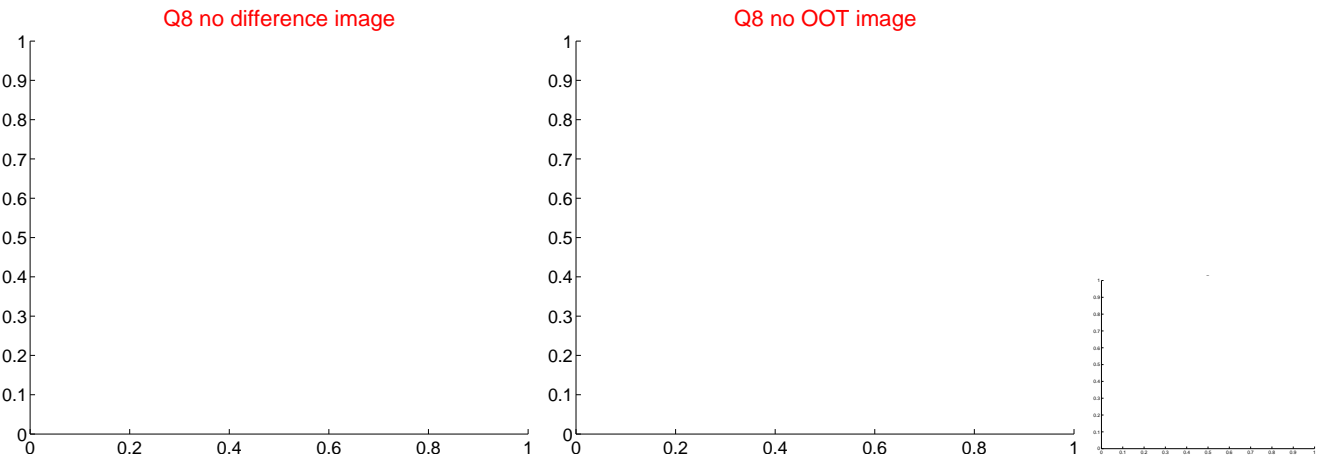
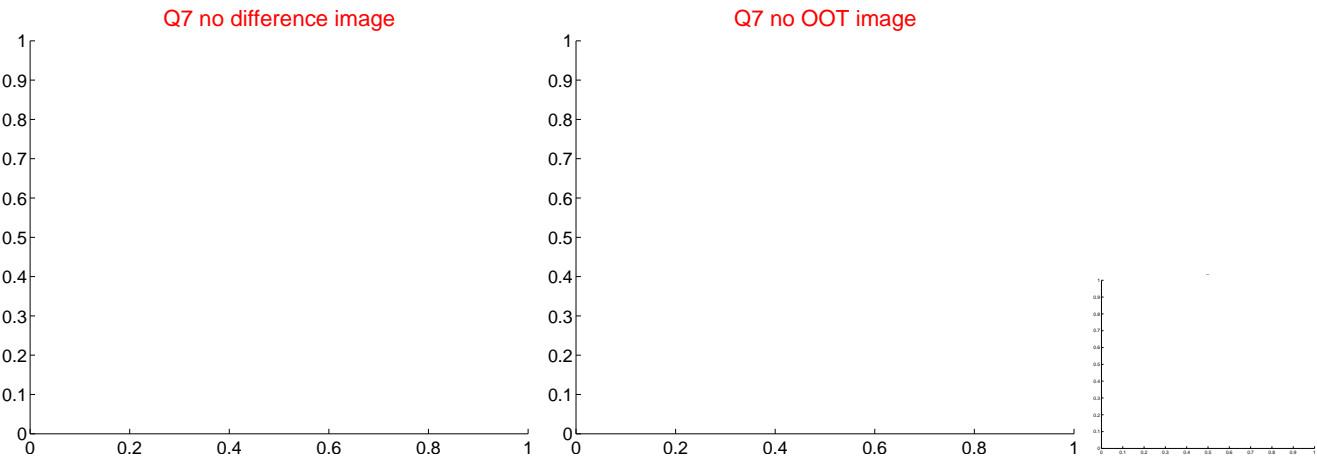
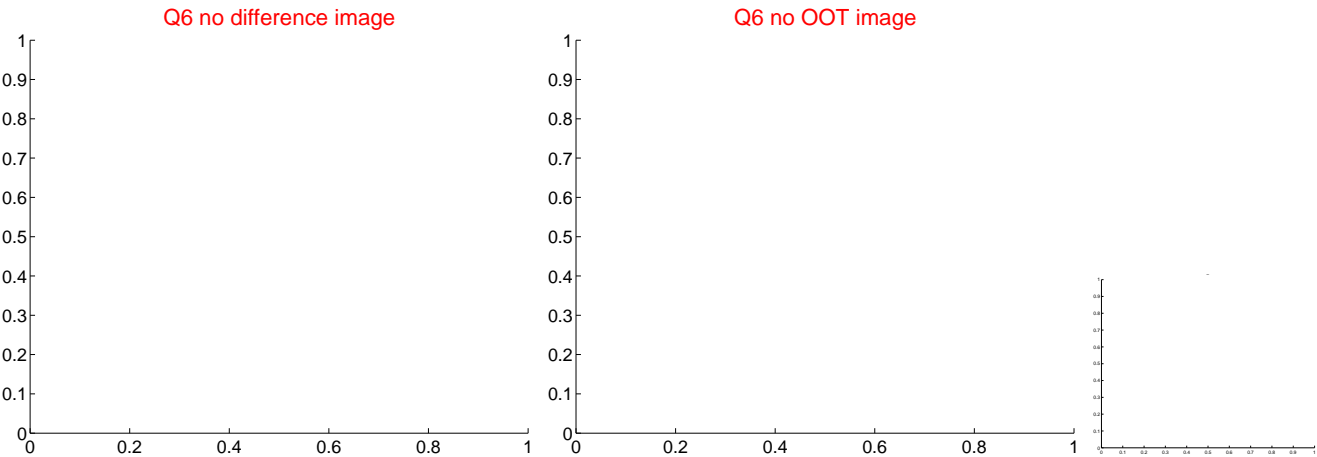
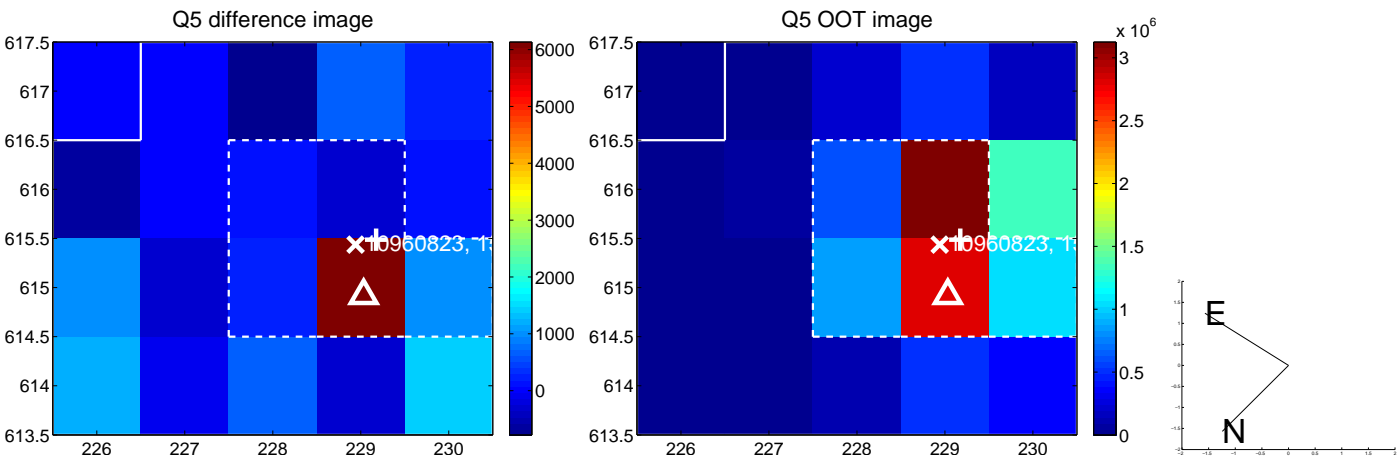


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

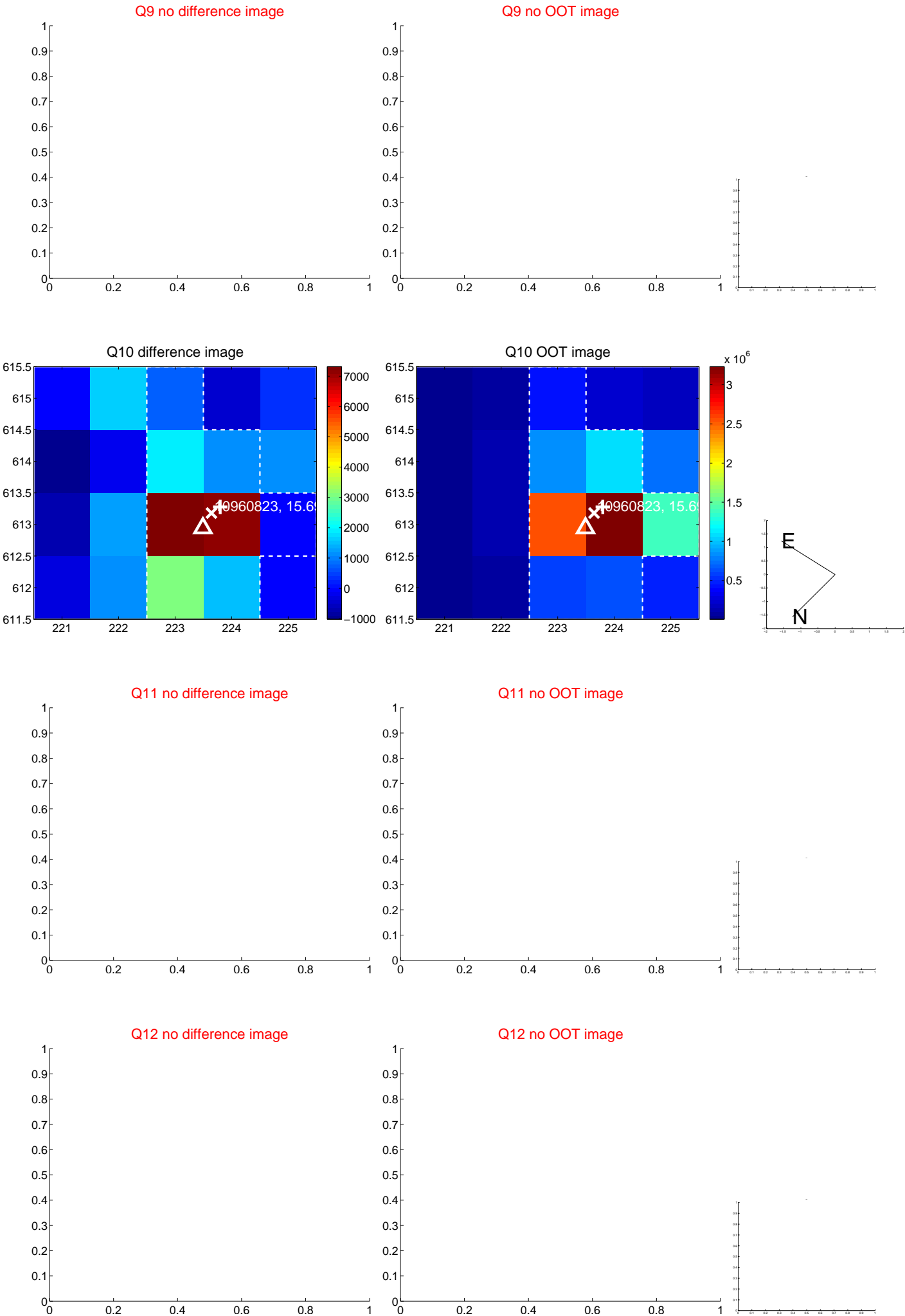


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

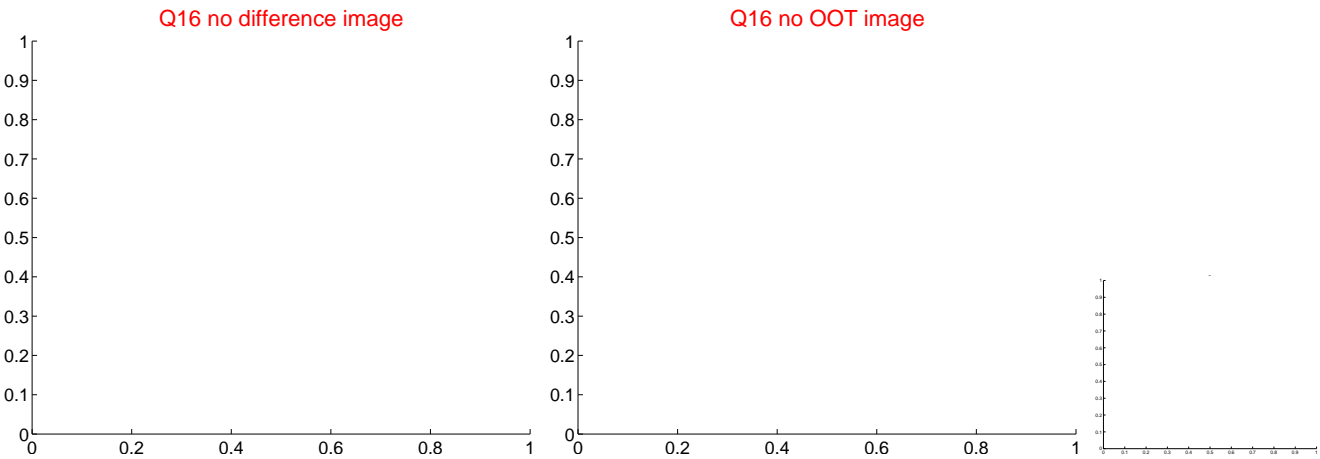
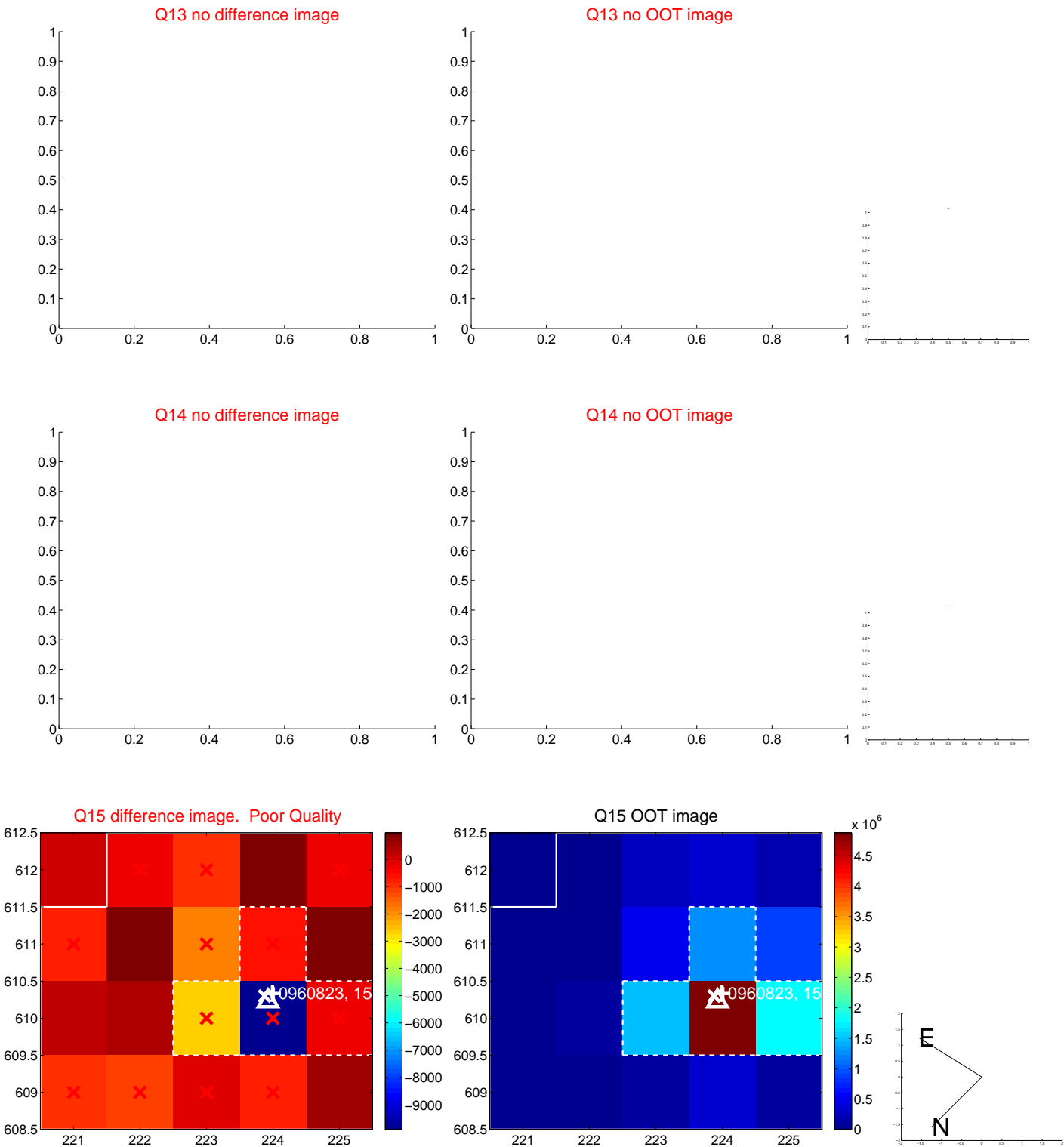




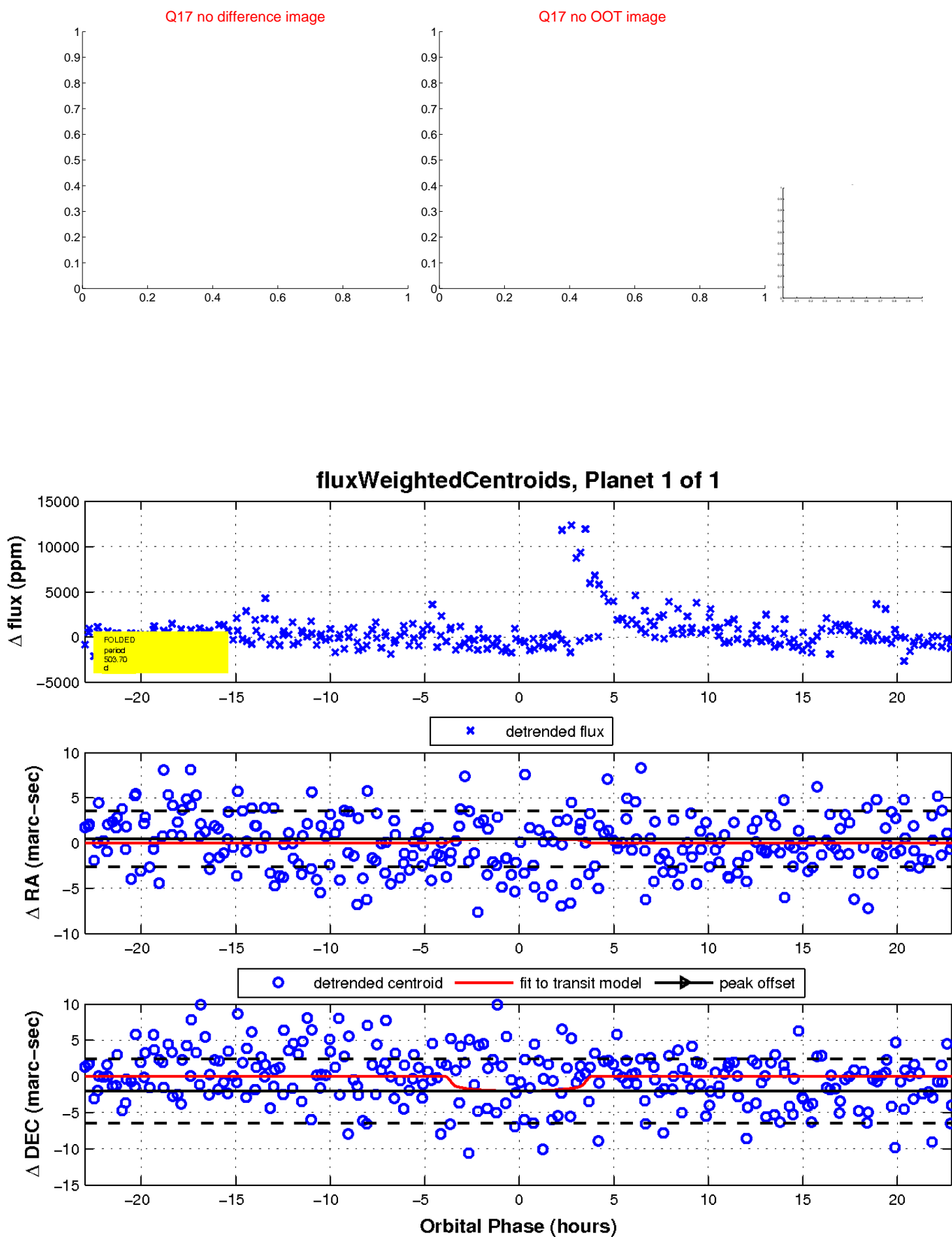
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



This plot does not exist for this TCE.