

# KIC 005093851

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005093851-01	OBS	No	344.529476	244.728062	232.4	3.376	8.5	7.0	0.56	4071	0.96	0.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005093851-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

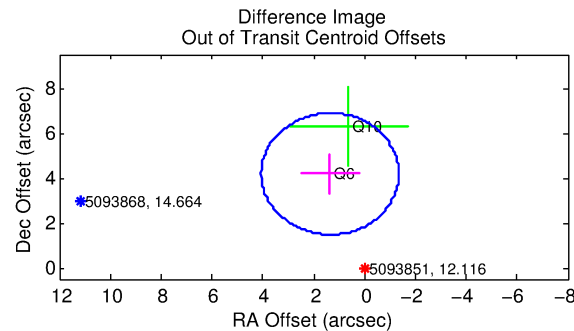
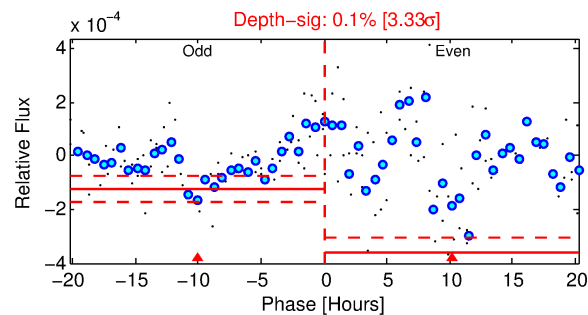
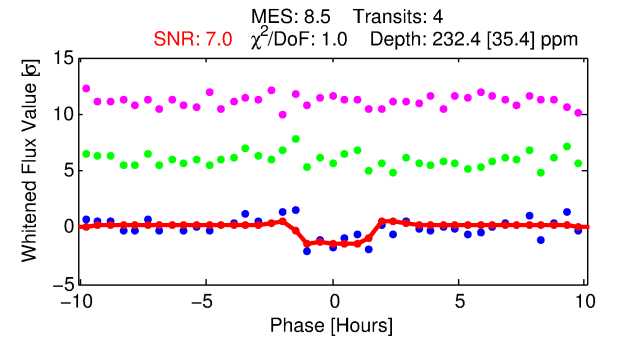
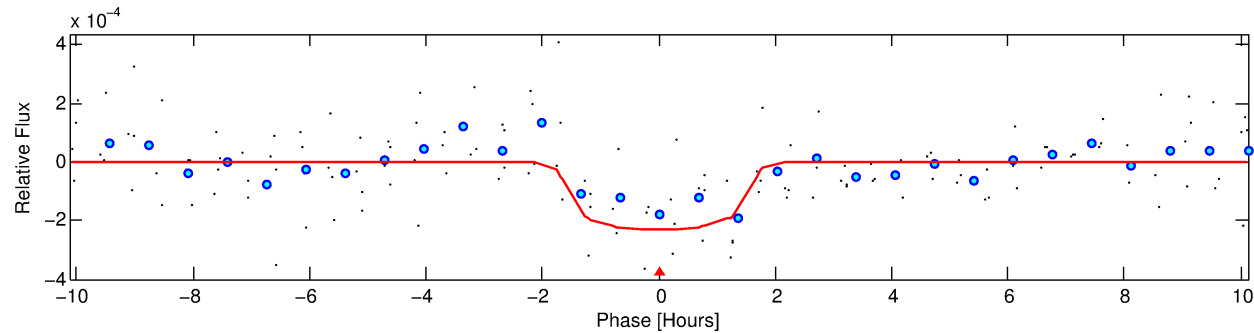
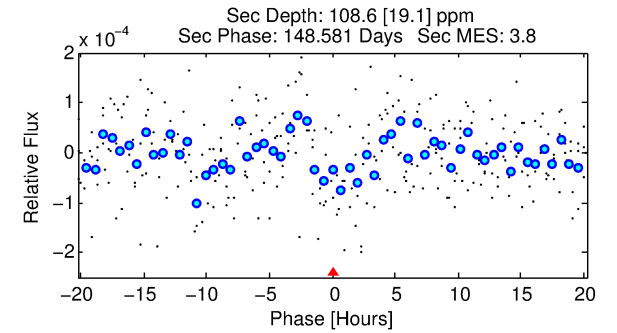
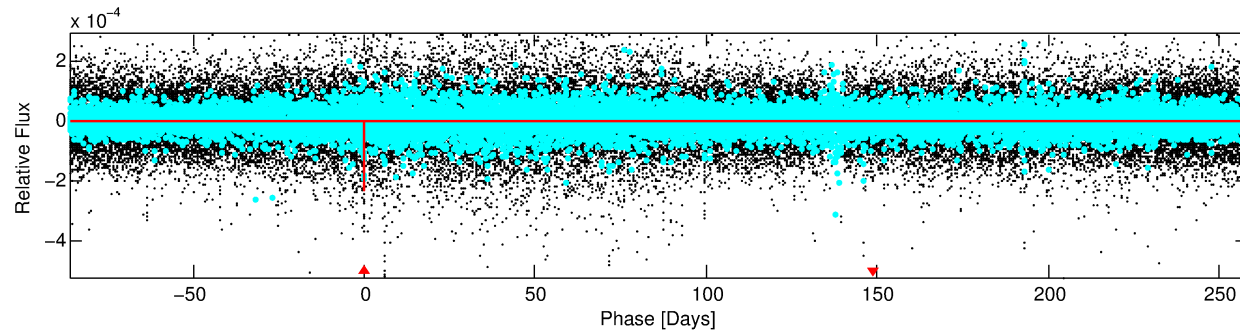
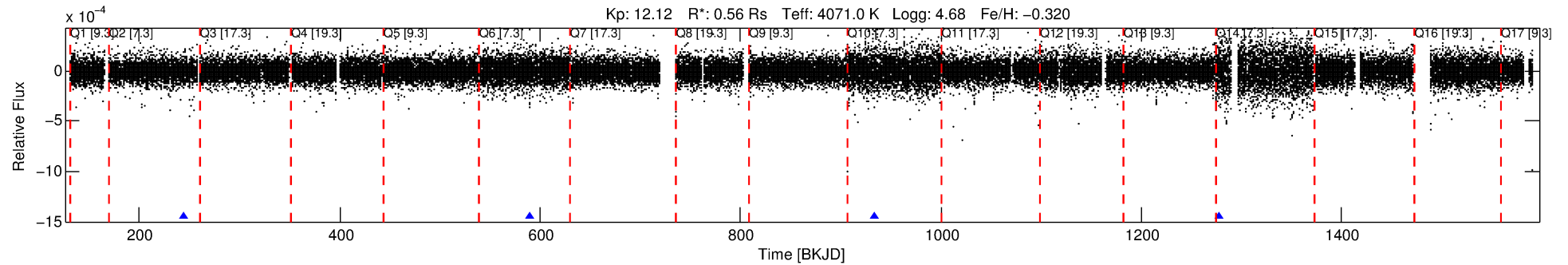
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005093851-01

No Significant Match Found

# DV One-Page Summary

KIC: 5093851 Candidate: 1 of 1 Period: 344.529 d



## DV Fit Results:

Period = 344.52948 [0.00429] d  
Epoch = 244.7281 [0.0065] BKJD  
Rp/R\* = 0.0158 [0.0255]  
a/R\* = 455.62 [3308.50]  
b = 0.83 [2.74]  
Seff = 0.12 [0.01]  
Teq = 151 [4] K  
Rp = 0.96 [1.55] Re  
a = 0.7875 [0.0446] AU  
Ag = 39854.83 [128524.41] [0.31σ]  
Teffp = 3302 [2662] K [1.18σ]

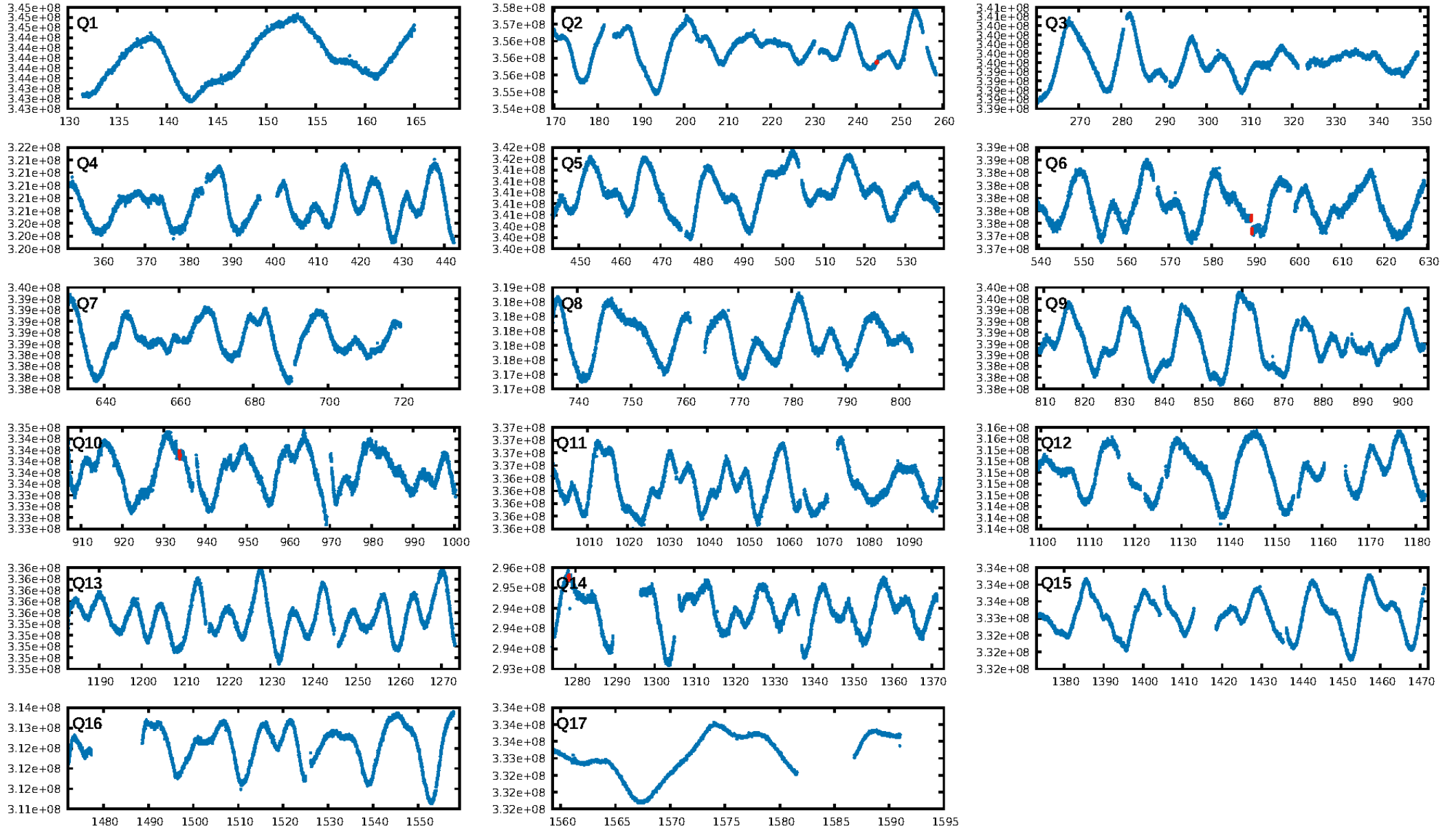
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.0%  
ModelChiSquareGof-sig: 80.8%  
Bootstrap-pfa: 1.97e-10  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.678  
Centroid-sig: 0.0%  
Centroid-so: 3.313 arcsec [3.63σ]  
OotOffset-rm: 4.393 arcsec [4.87σ]  
KicOffset-rm: 3.515 arcsec [3.90σ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

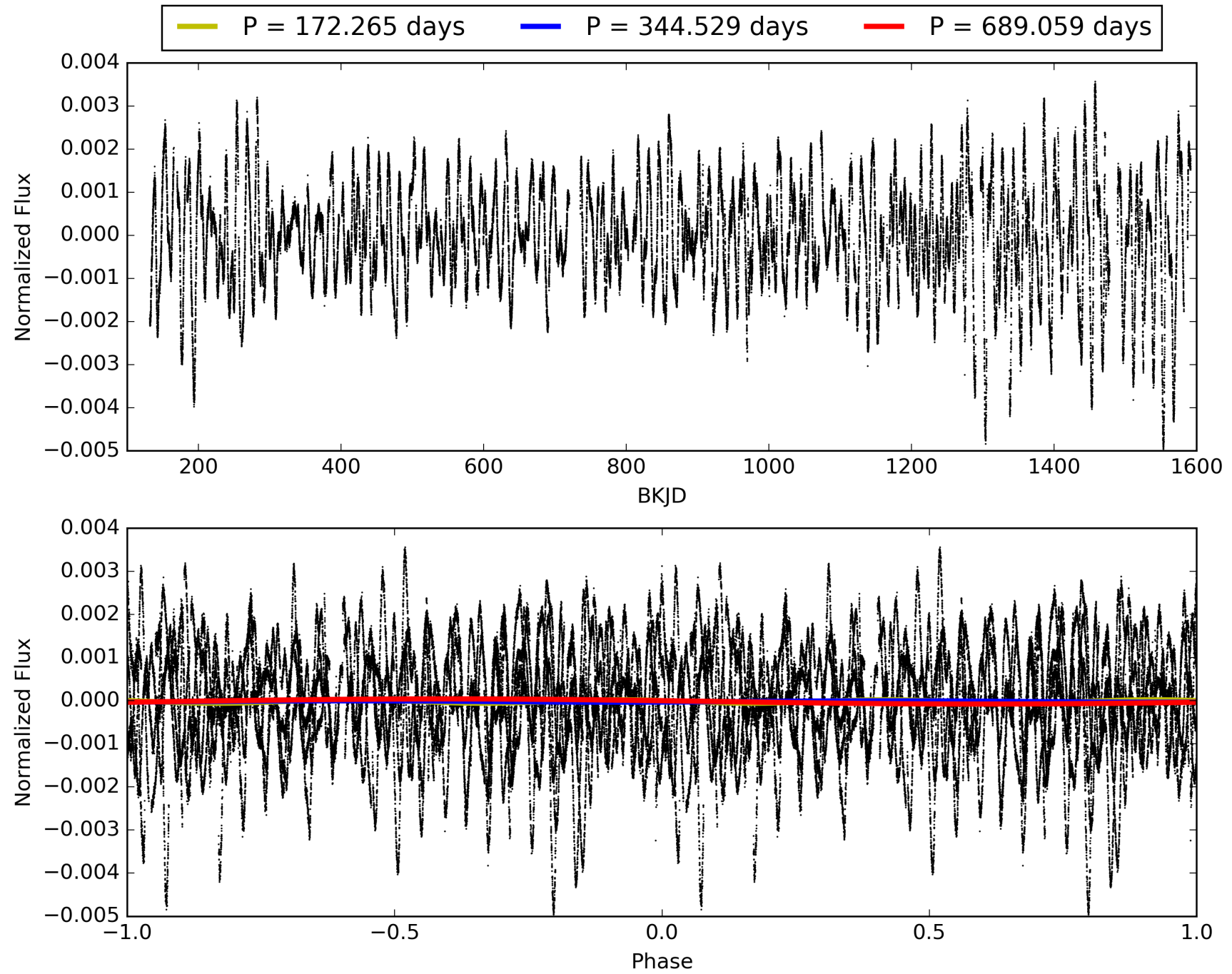
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:11:18 Z

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

# TCE 005093851-01, PDC Light Curves

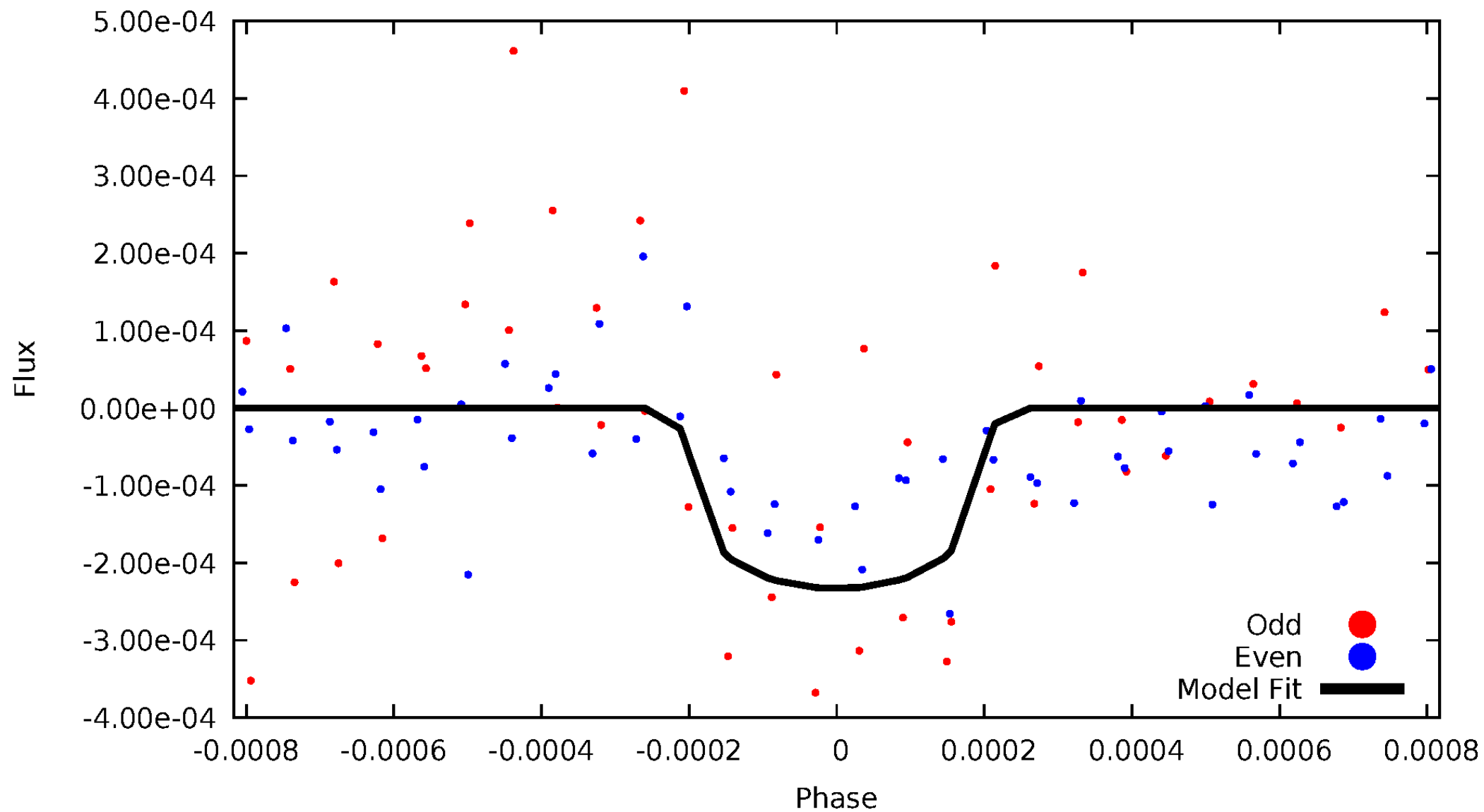


TCE 005093851-01



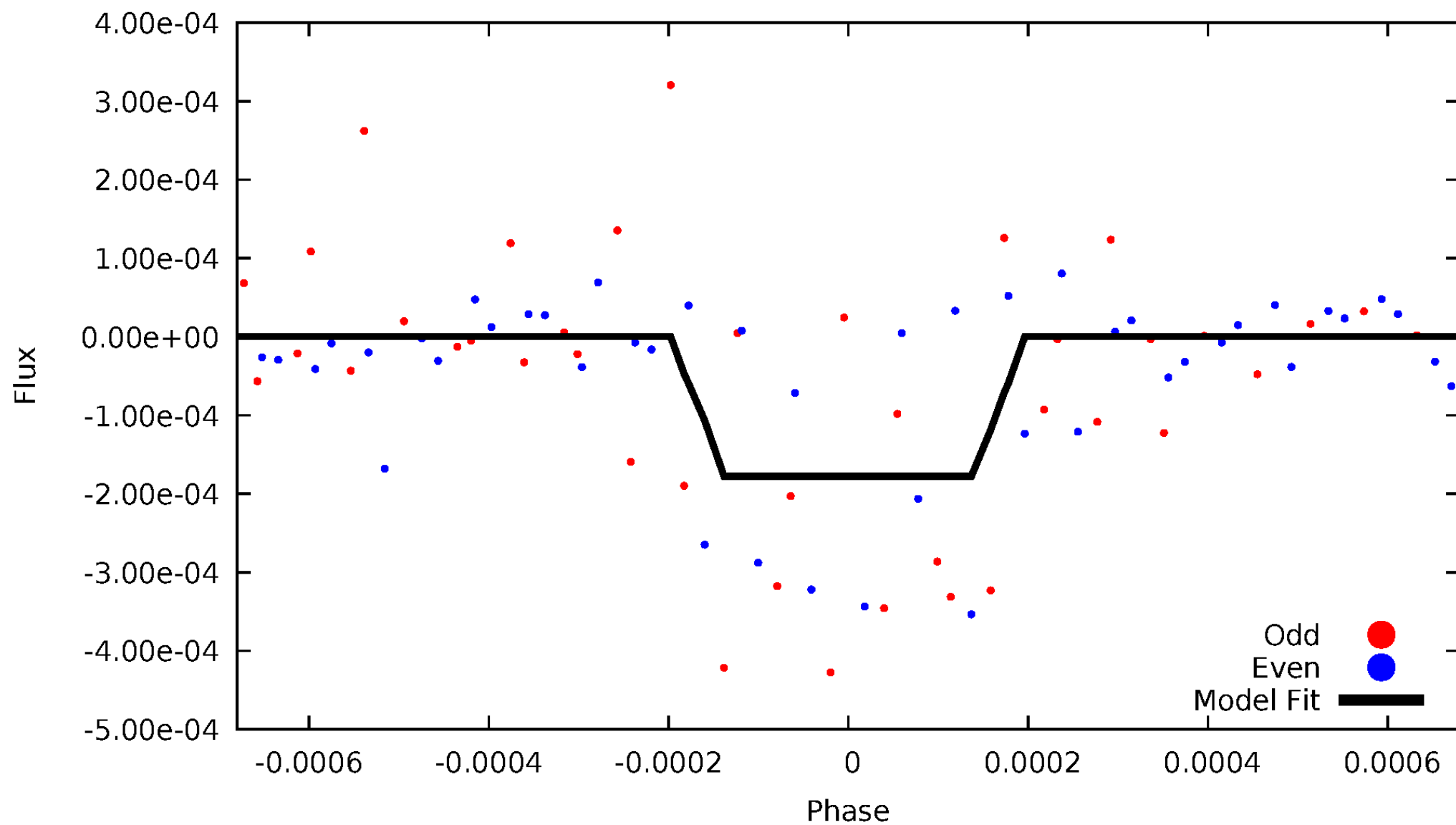
# DV Odd/Even

TCE 005093851-01



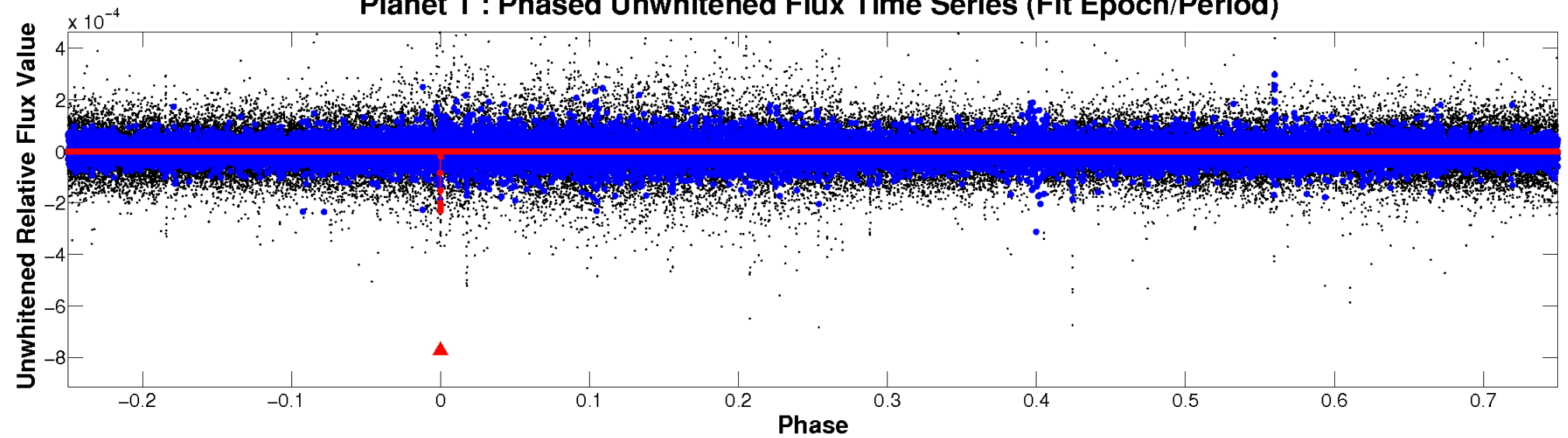
# ALT Odd/Even

TCE 005093851-01

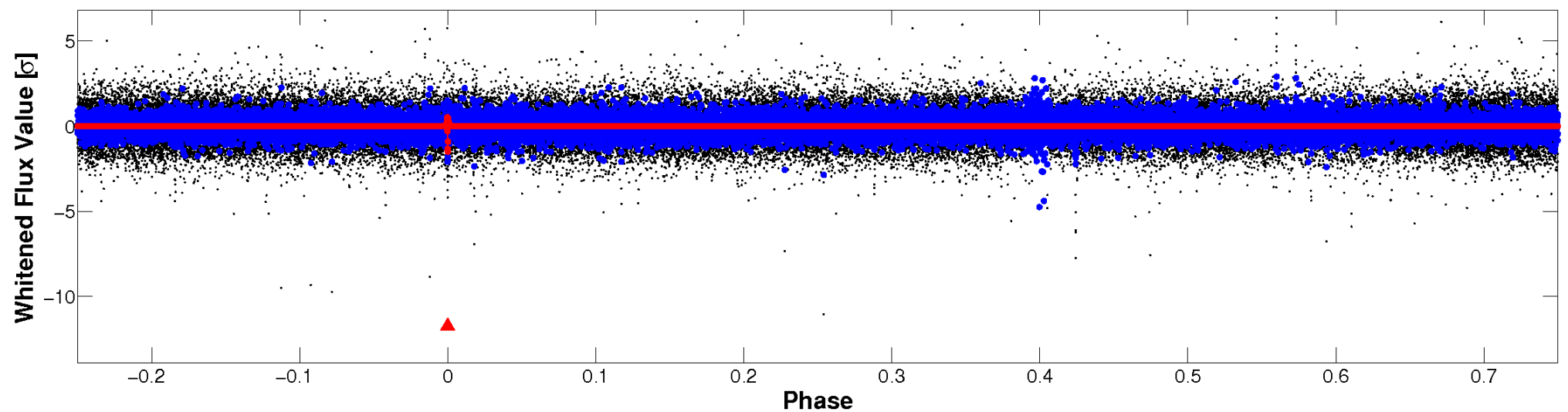


# Non-Whitened Vs. Whitened Light Curve

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

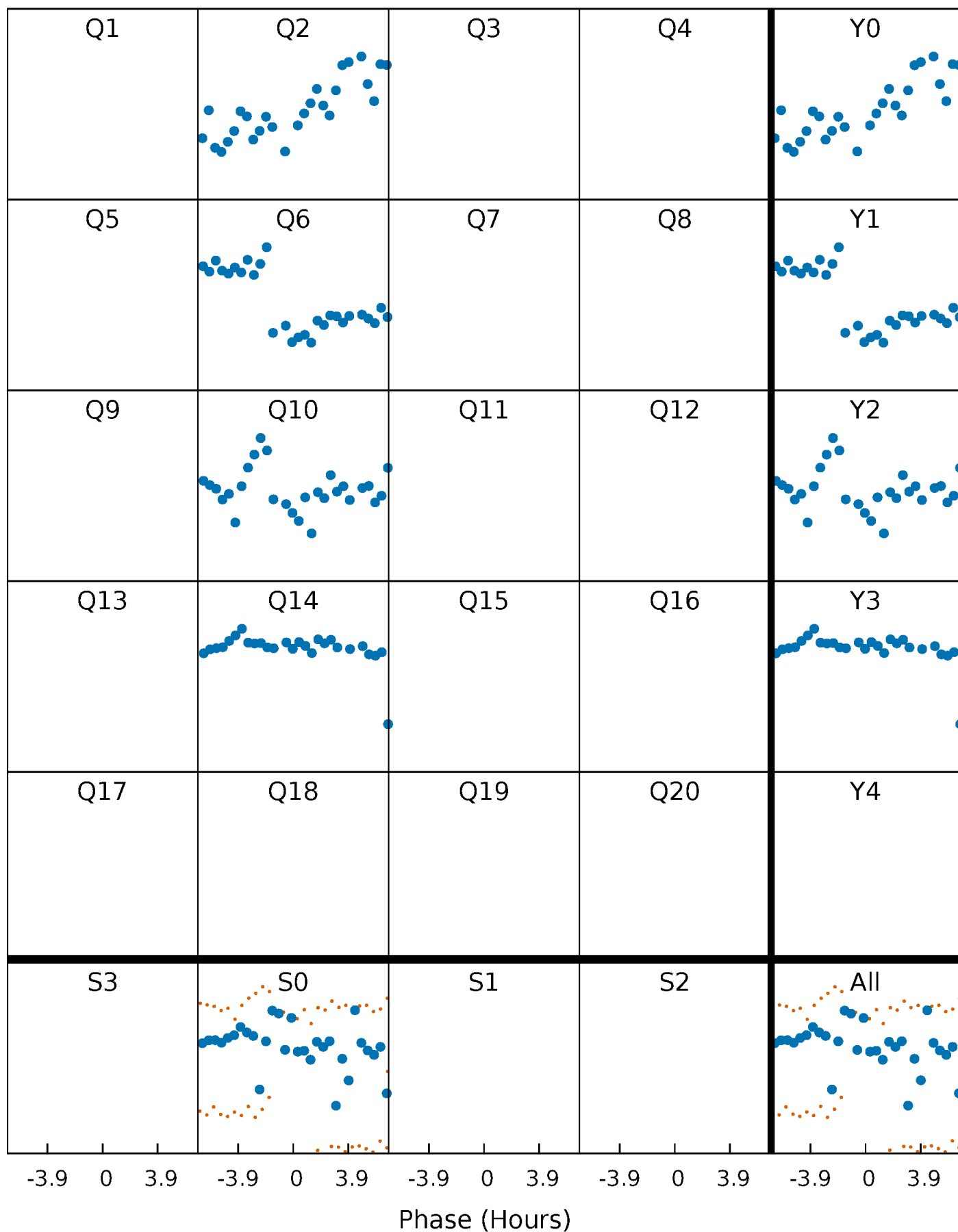


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

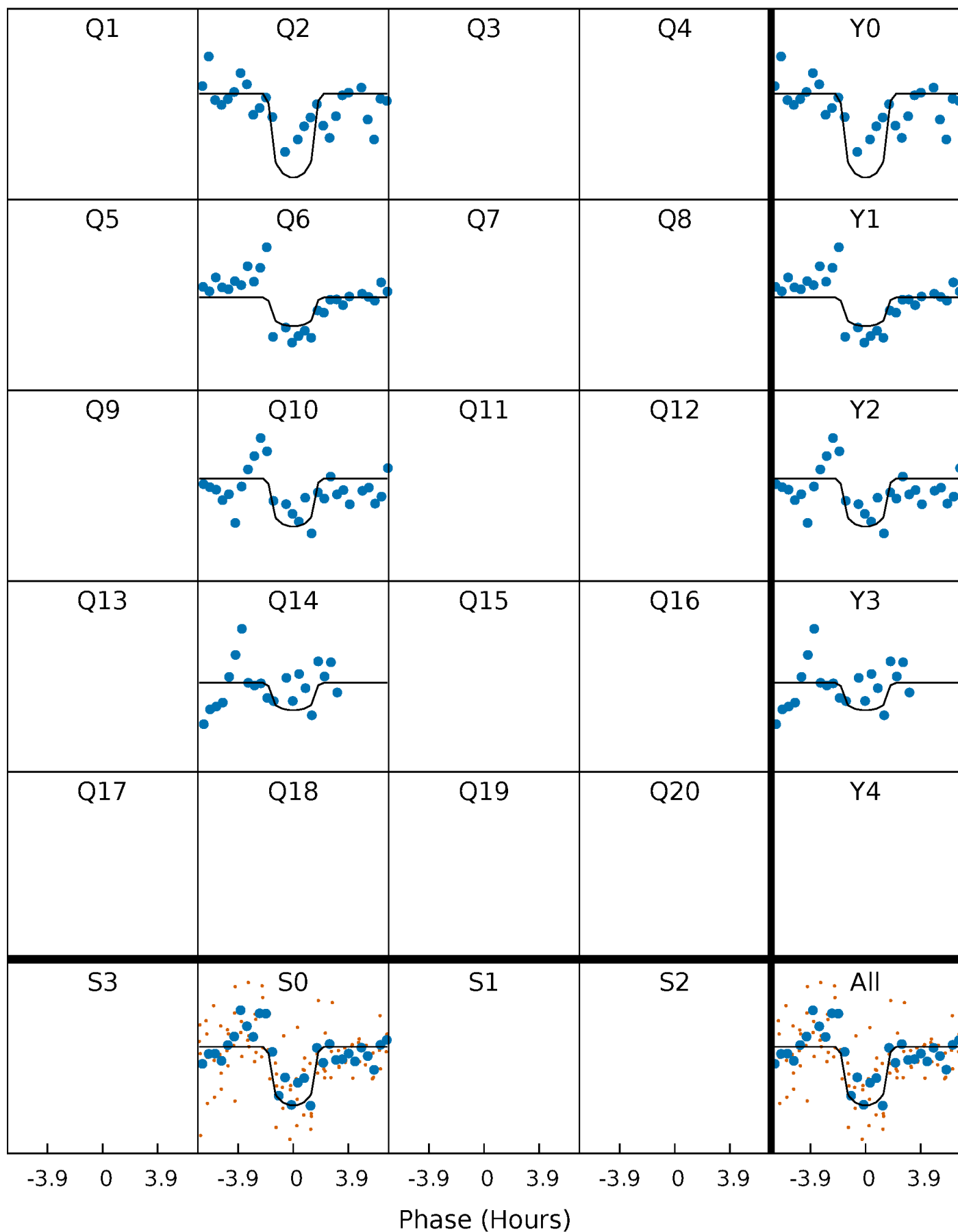
TCE 005093851-01 P=344.529476 Days  $T_0=244.728062$  (BKJD)





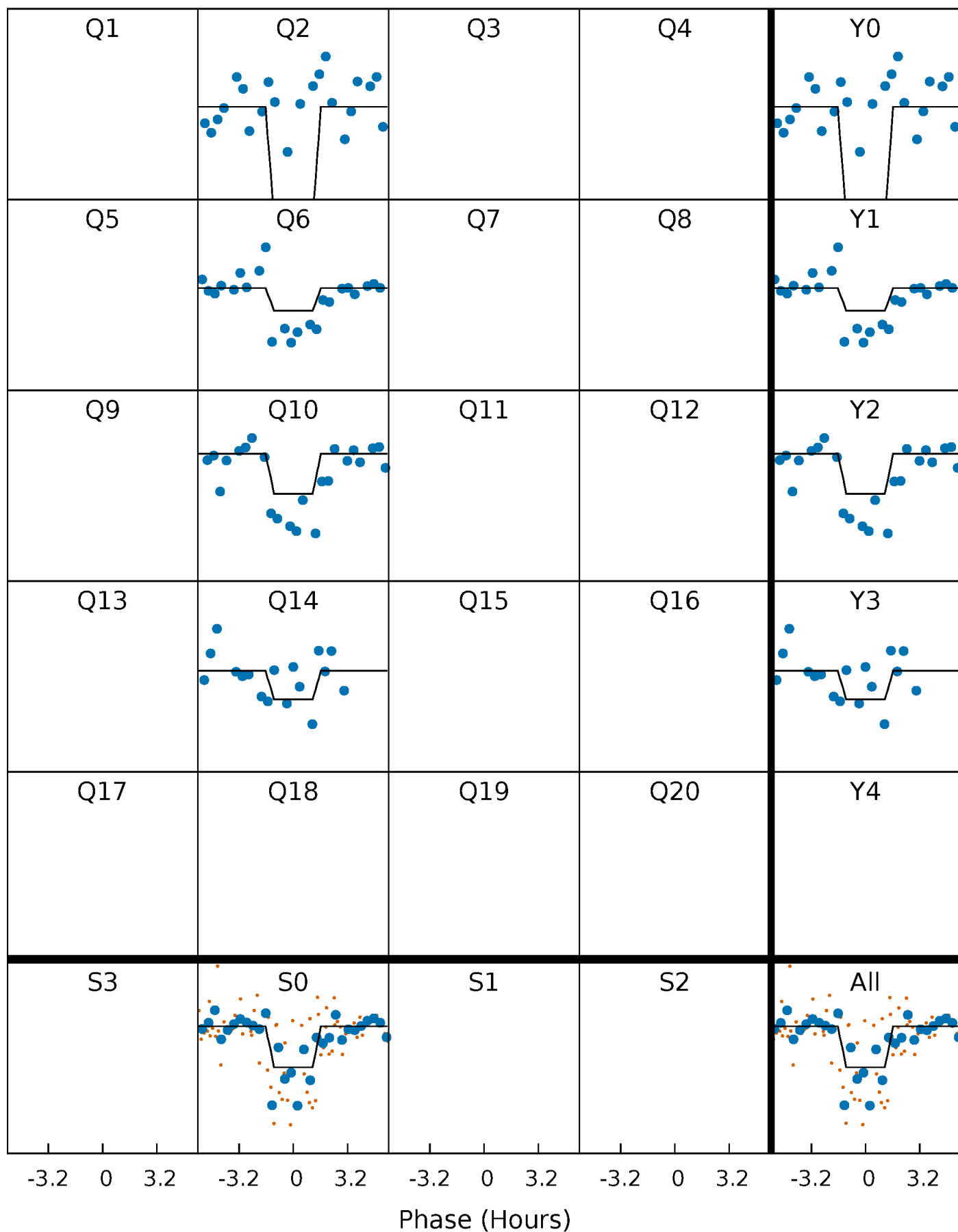
# DV Quarter-Phased Transit Curves

TCE 005093851-01 P=344.529476 Days  $T_0=244.728062$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

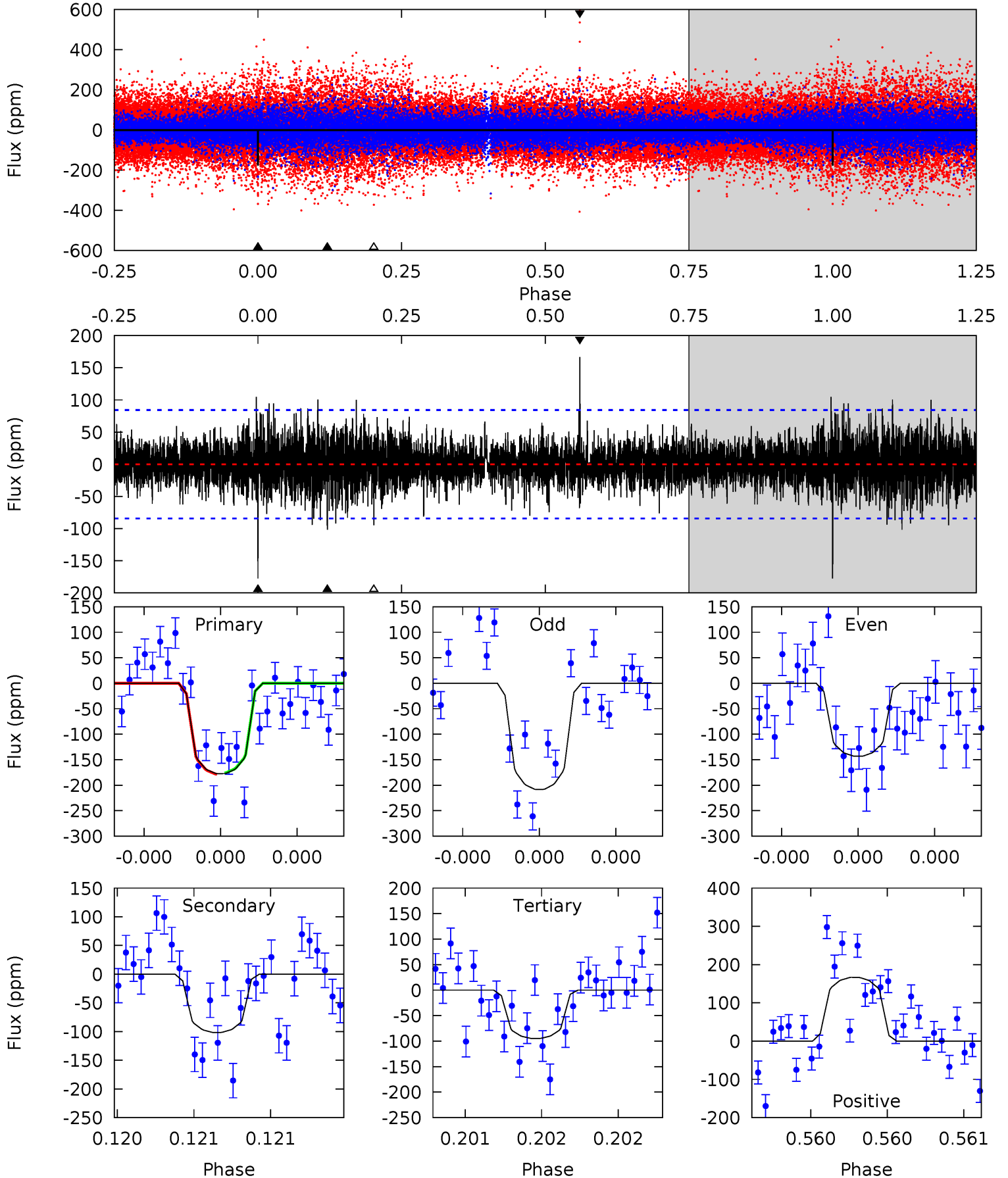
TCE 005093851-01 P=344.538182 Days  $T_0=244.716238$  (BKJD)



# DV Model-Shift Uniqueness Test

005093851-01, P = 344.529476 Days, E = 244.728062 Days

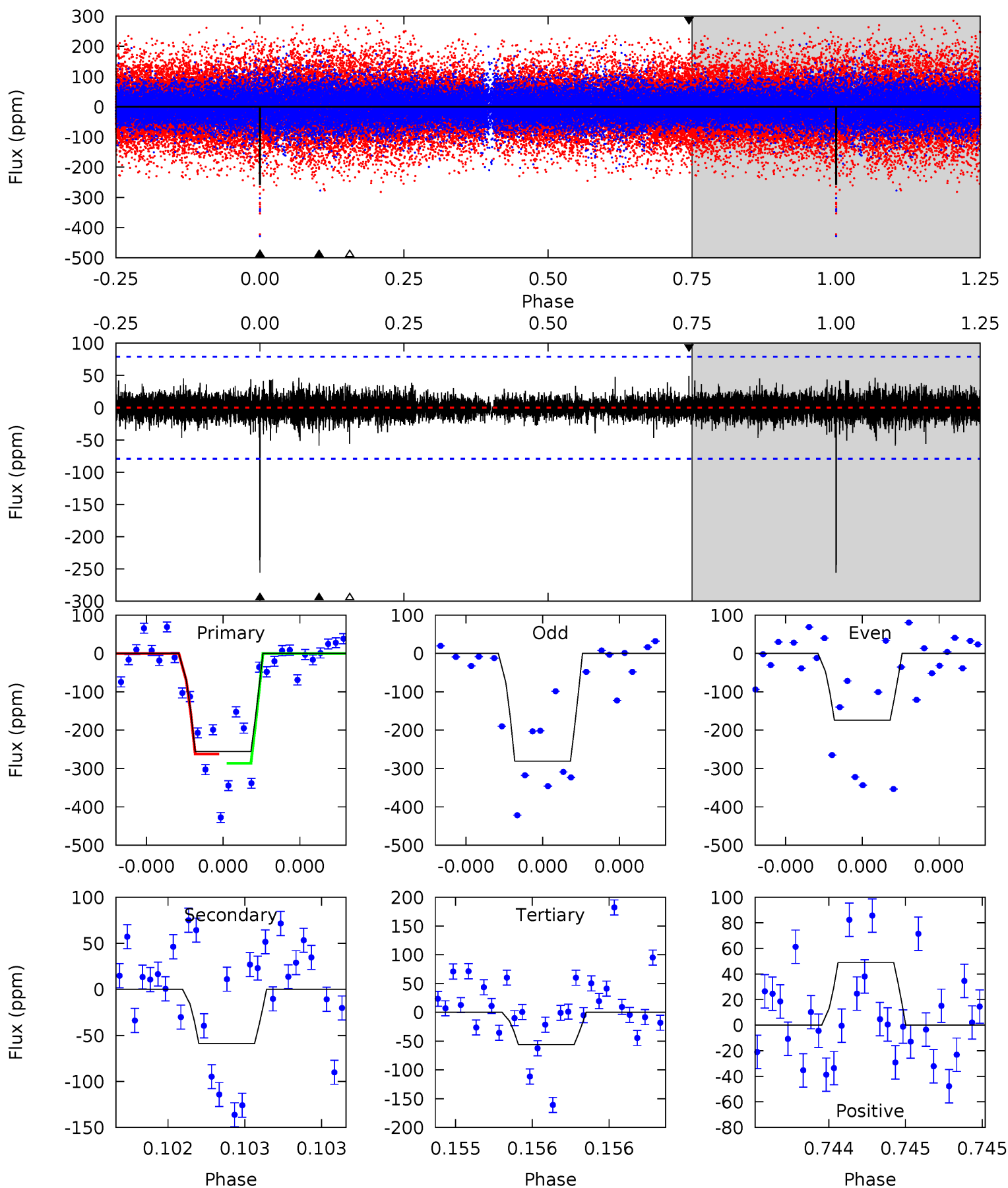
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	6.73	6.28	11.0	5.58	3.49	1.51	5.47	0.71	0.45	-4.31	2.16	1.21	0.48	0.09



# Alt Model-Shift Uniqueness Test

005093851-01, P = 344.538182 Days, E = 244.716238 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
18.2	4.19	3.99	3.49	5.62	3.55	0.73	14.2	14.7	0.20	0.70	3.95	0.93	0.16	0



### Stellar Parameters For KIC 005093851

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4071^{+81}_{-81}$	$4.684^{+0.042}_{-0.015}$	$-0.320^{+0.150}_{-0.150}$	$0.558^{+0.025}_{-0.039}$	$0.549^{+0.034}_{-0.027}$	$4.448^{+0.792}_{-0.324}$
	+2%/-2%	+1%/-0%	+47%/-47%	+4%/-7%	+6%/-5%	+18%/-7%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005093851-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-102 \pm 15$	$1.49^{+1.35}_{-1.00}$	$210^{+5}_{-5}$	$3056^{+1377}_{-491}$	$15593^{+136918}_{-11499}$
Alt.	$-59 \pm 14$	$1.39^{+1.38}_{-0.90}$	$210^{+5}_{-5}$	$2889^{+1116}_{-471}$	$10518^{+74275}_{-7932}$

$T_{max}$  = 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

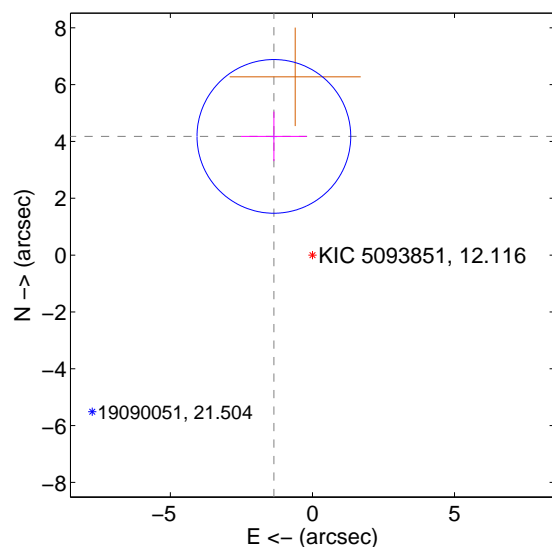
Supplemental centroid analysis for 005093851-01. Kepler magnitude: 12.12. Transit SNR 6.95

There are 1 quarters with good PRF difference image offsets

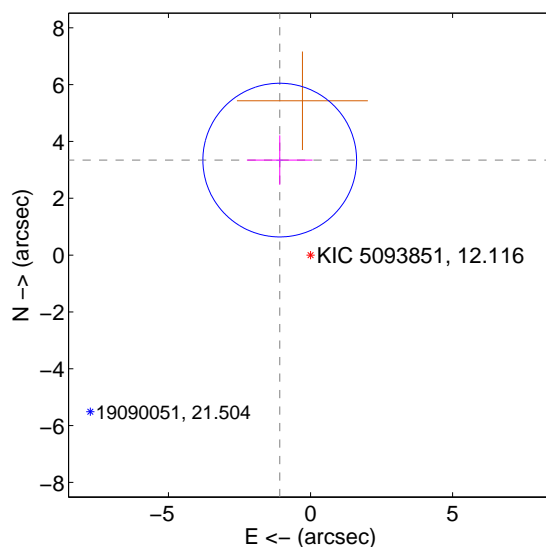
The direct PRF centroid is offset from the target star catalog position by about 0.90 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.393 \pm 0.902$	4.87	$1.357 \pm 1.156$	$4.178 \pm 0.870$
PRF-fit source offset from KIC position	$3.515 \pm 0.901$	3.90	$1.084 \pm 1.156$	$3.344 \pm 0.870$
photometric centroid source offset	$3.31 \pm 0.91$	3.63	$3.31 \pm 0.91$	$0.23 \pm 0.73$

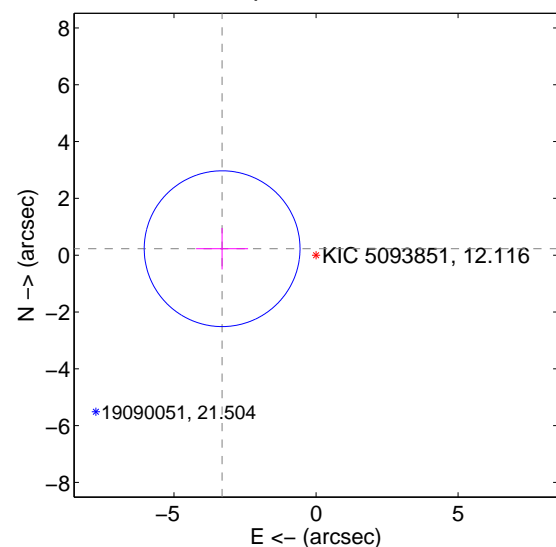
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

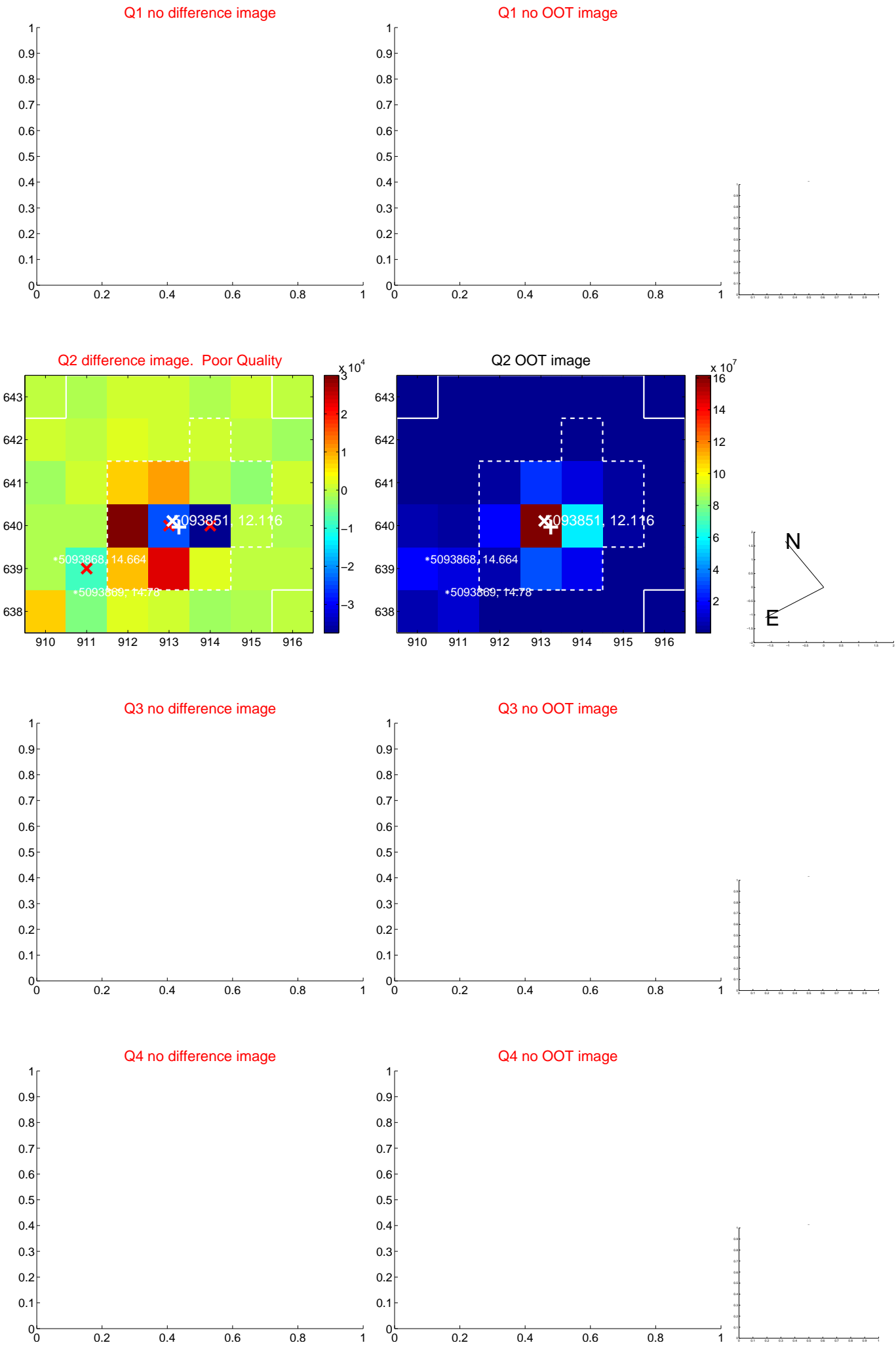


offset from photometric centroids



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- $\sigma$  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.

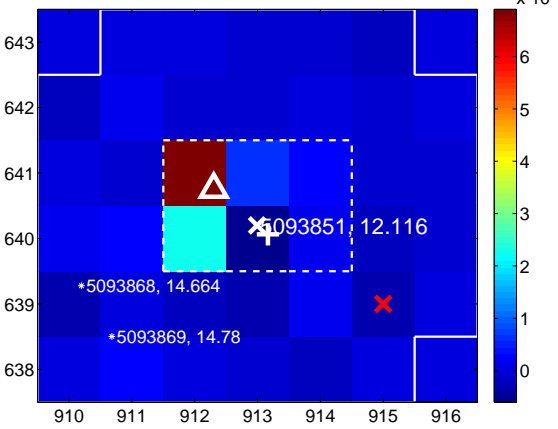
Q5 no difference image



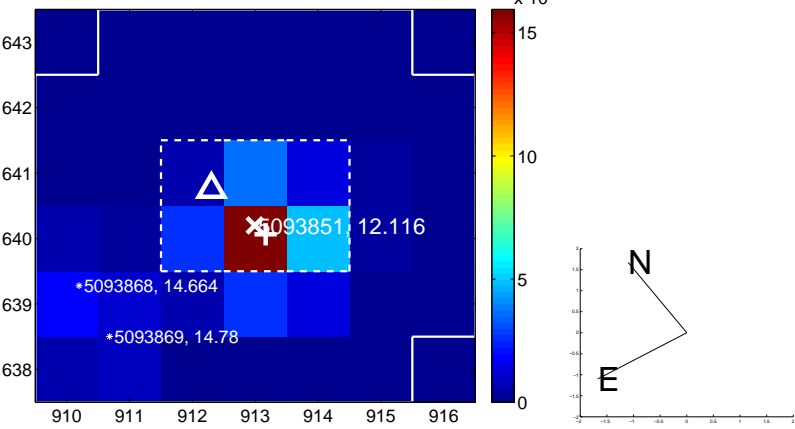
Q5 no OOT image



Q6 difference image



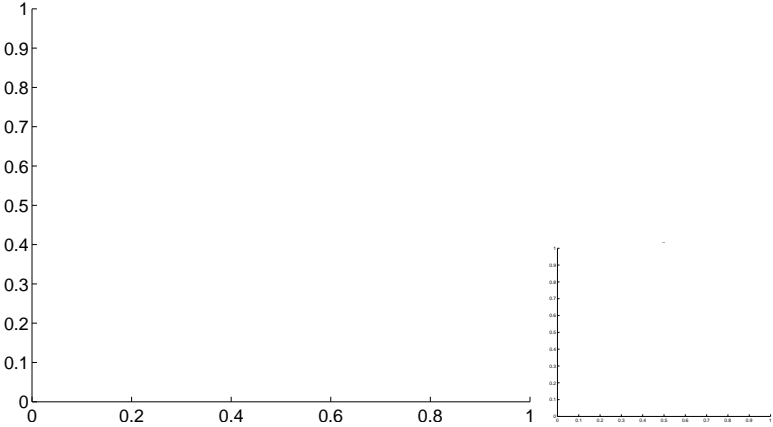
Q6 OOT image



Q7 no difference image



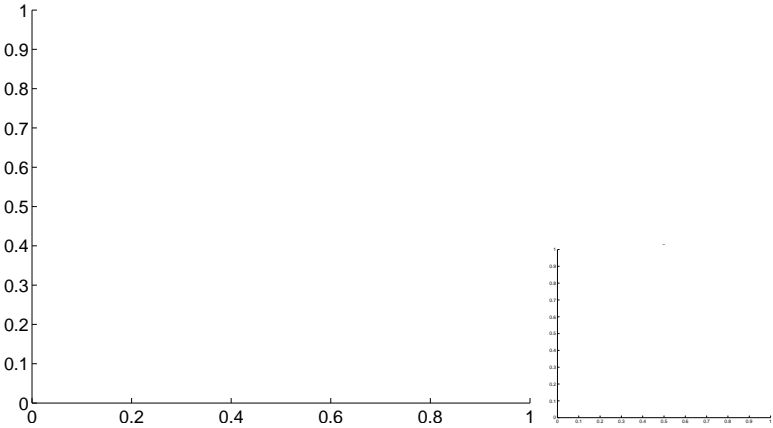
Q7 no OOT image



Q8 no difference image

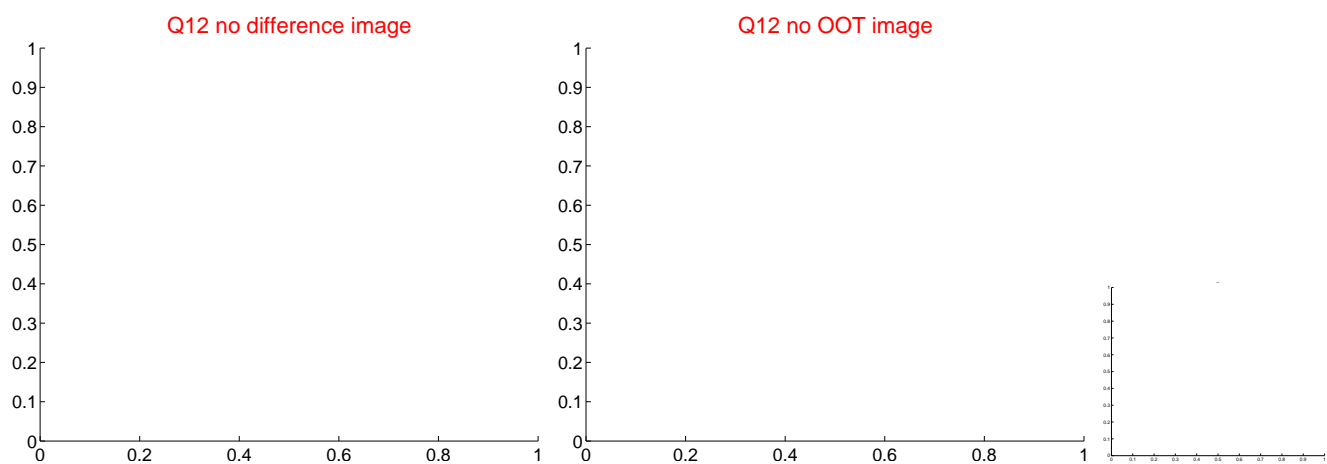
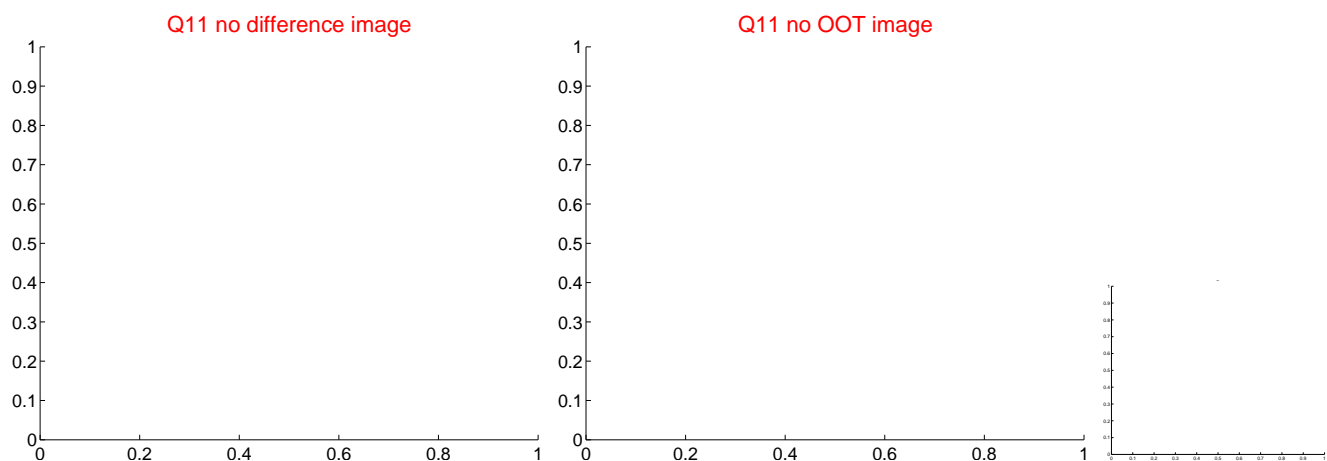
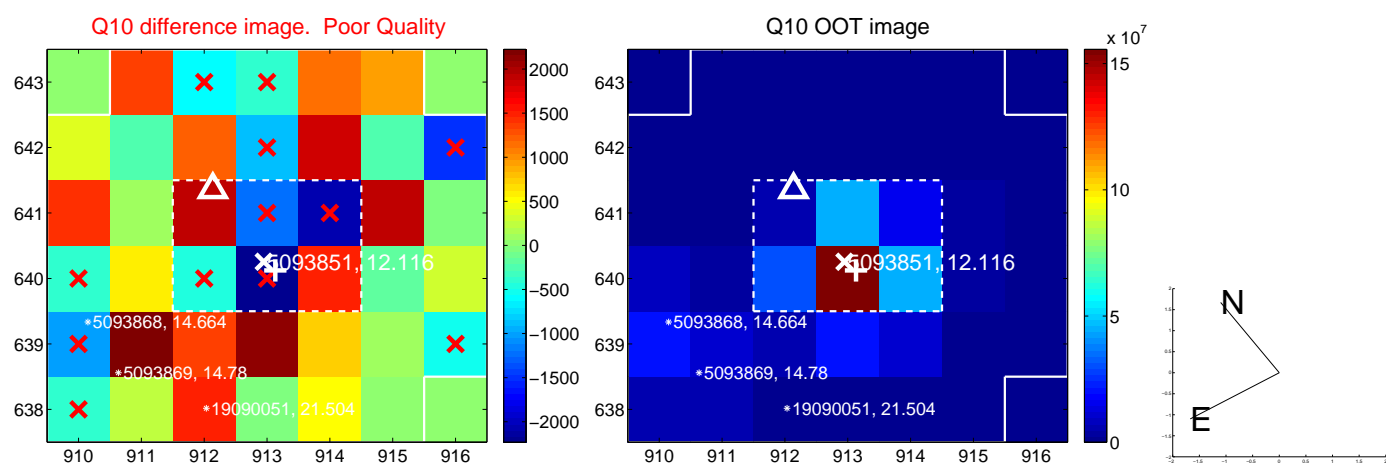
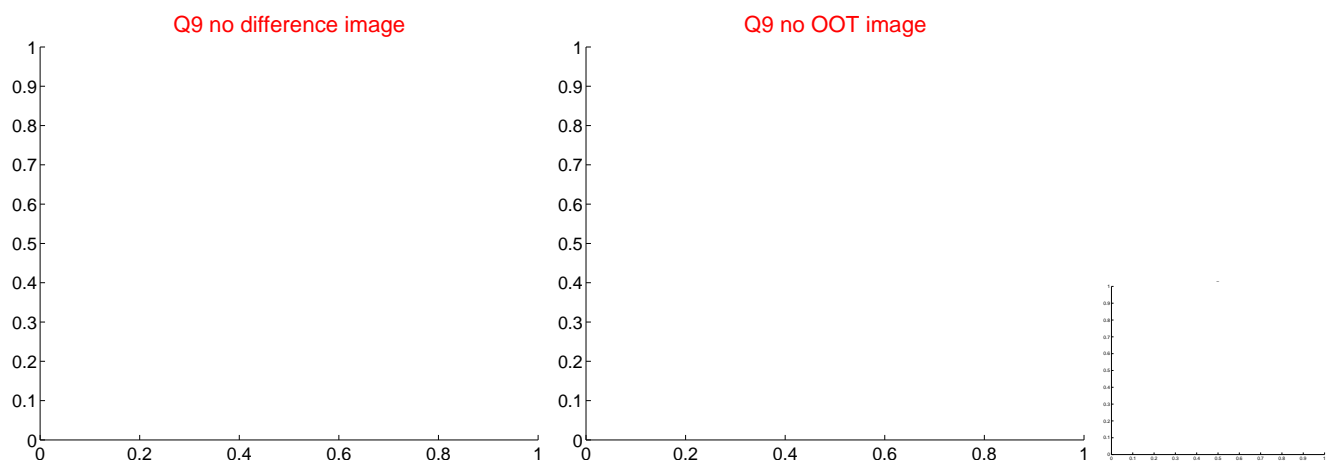


Q8 no OOT image





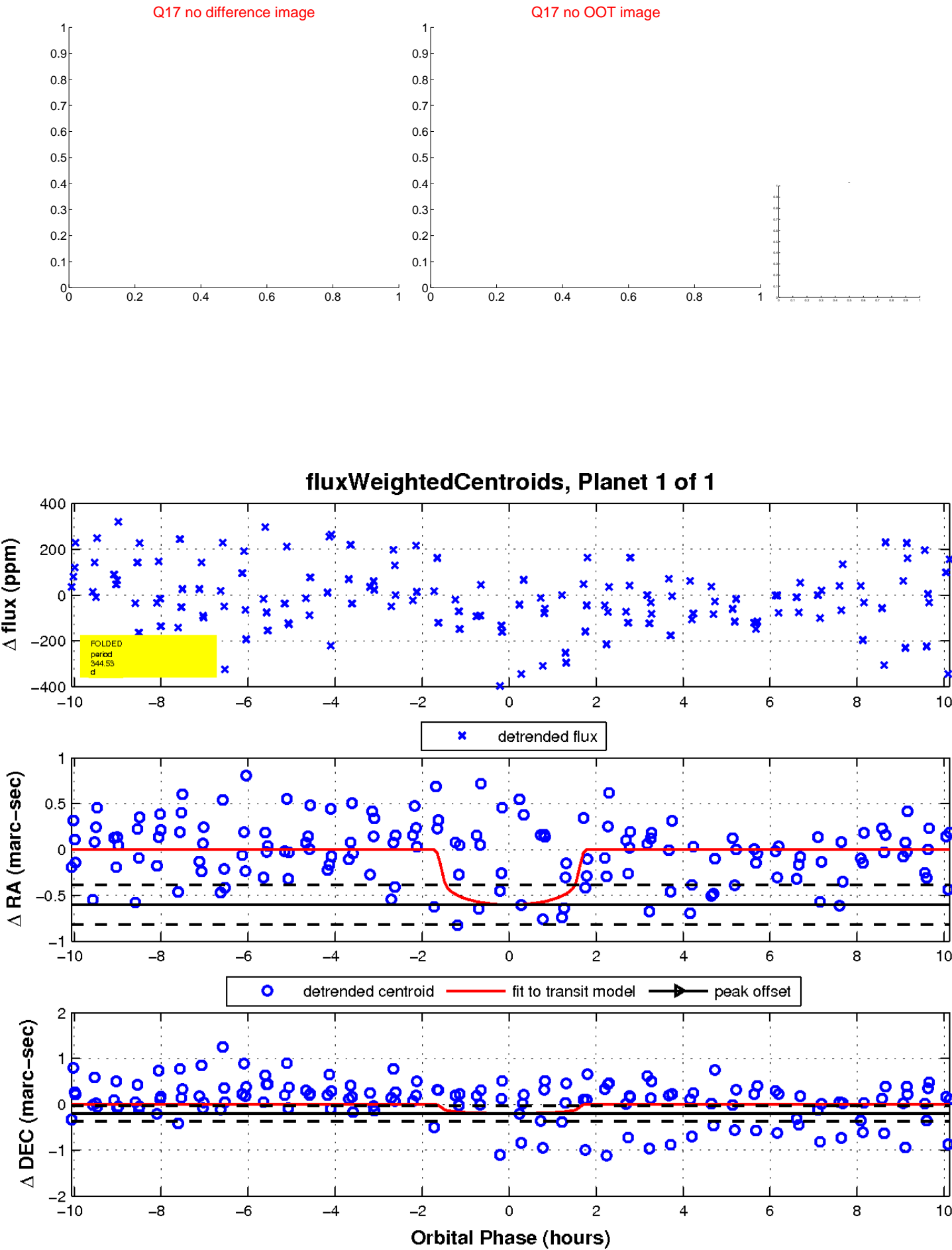
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

