

# KIC 005094011

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005094011-01	OBS	No	225.752691	275.792465	1105.7	8.634	14.7	2.7	0.65	5252	2.21	0.73

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005094011-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

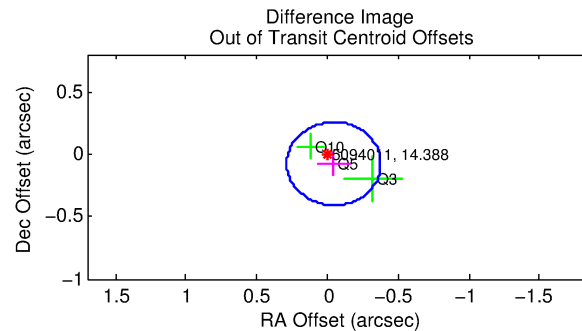
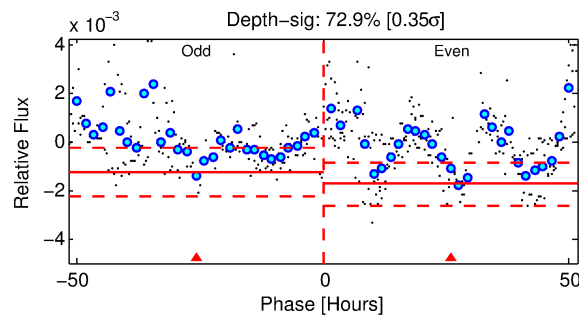
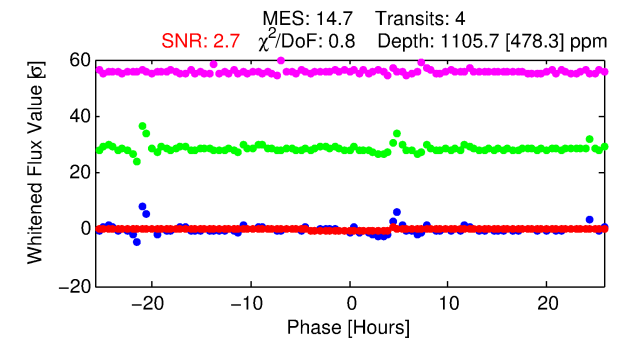
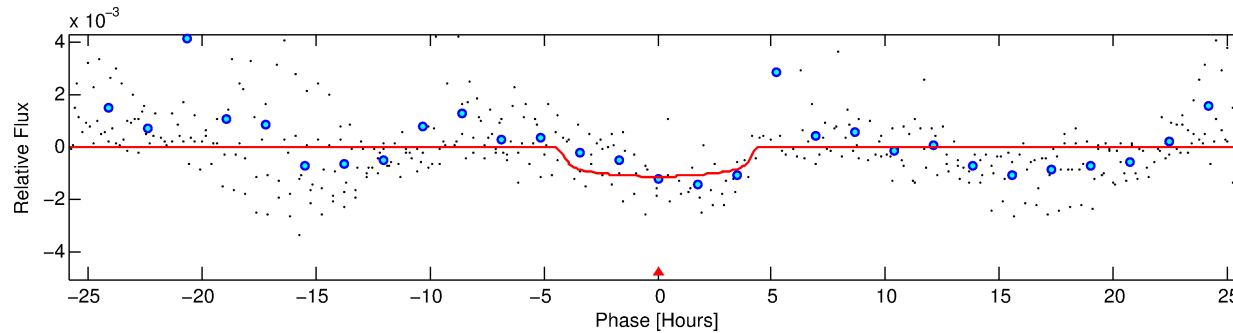
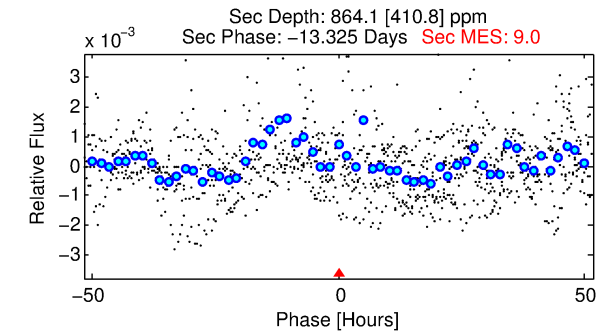
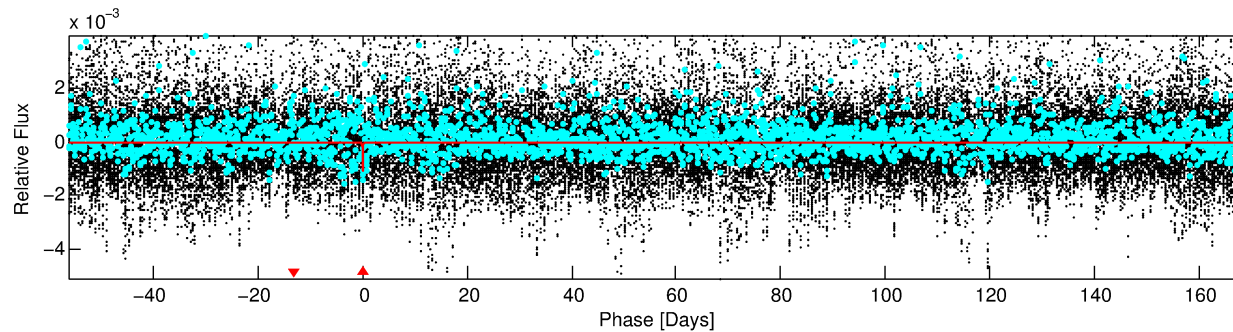
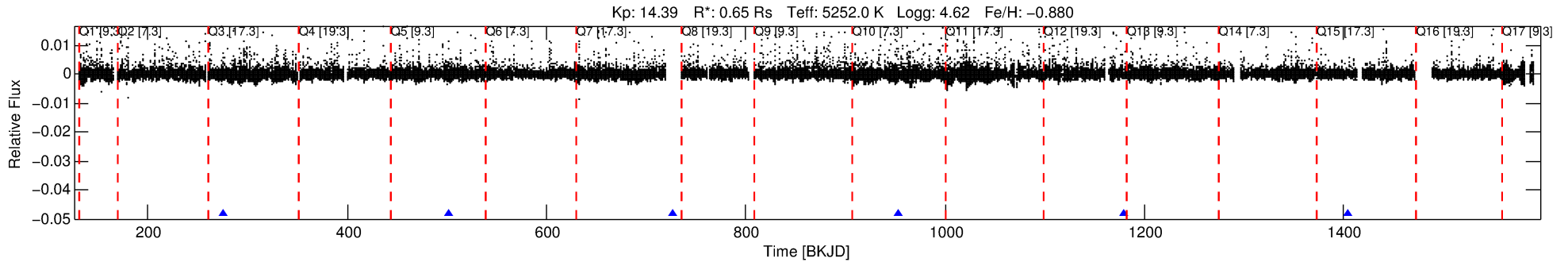
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005094011-01

No Significant Match Found

# DV One-Page Summary

KIC: 5094011 Candidate: 1 of 1 Period: 225.753 d



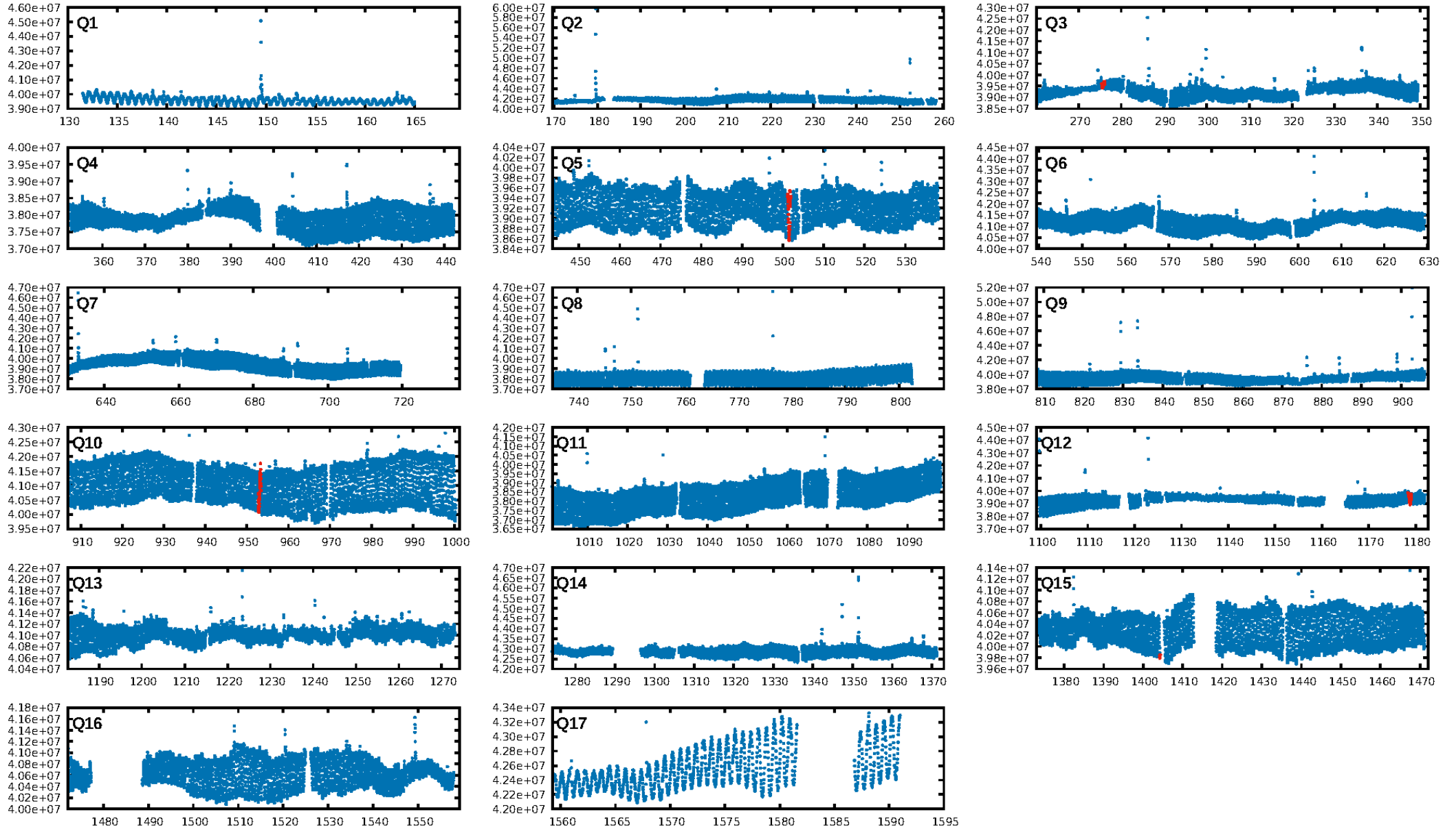
## DV Fit Results:

Period = 225.75269 [0.00578] d  
Epoch = 275.7925 [0.0159] BKJD  
Rp/R\* = 0.0313 [0.0195]  
a/R\* = 176.24 [394.65]  
b = 0.53 [3.01]  
Seff = 0.73 [0.12]  
Teq = 235 [10] K  
Rp = 2.21 [1.39] Re  
a = 0.6273 [0.0496] AU  
Ag = 38269.90 [51226.43] [0.75σ]  
Teffp = 5092 [1705] K [2.85σ]

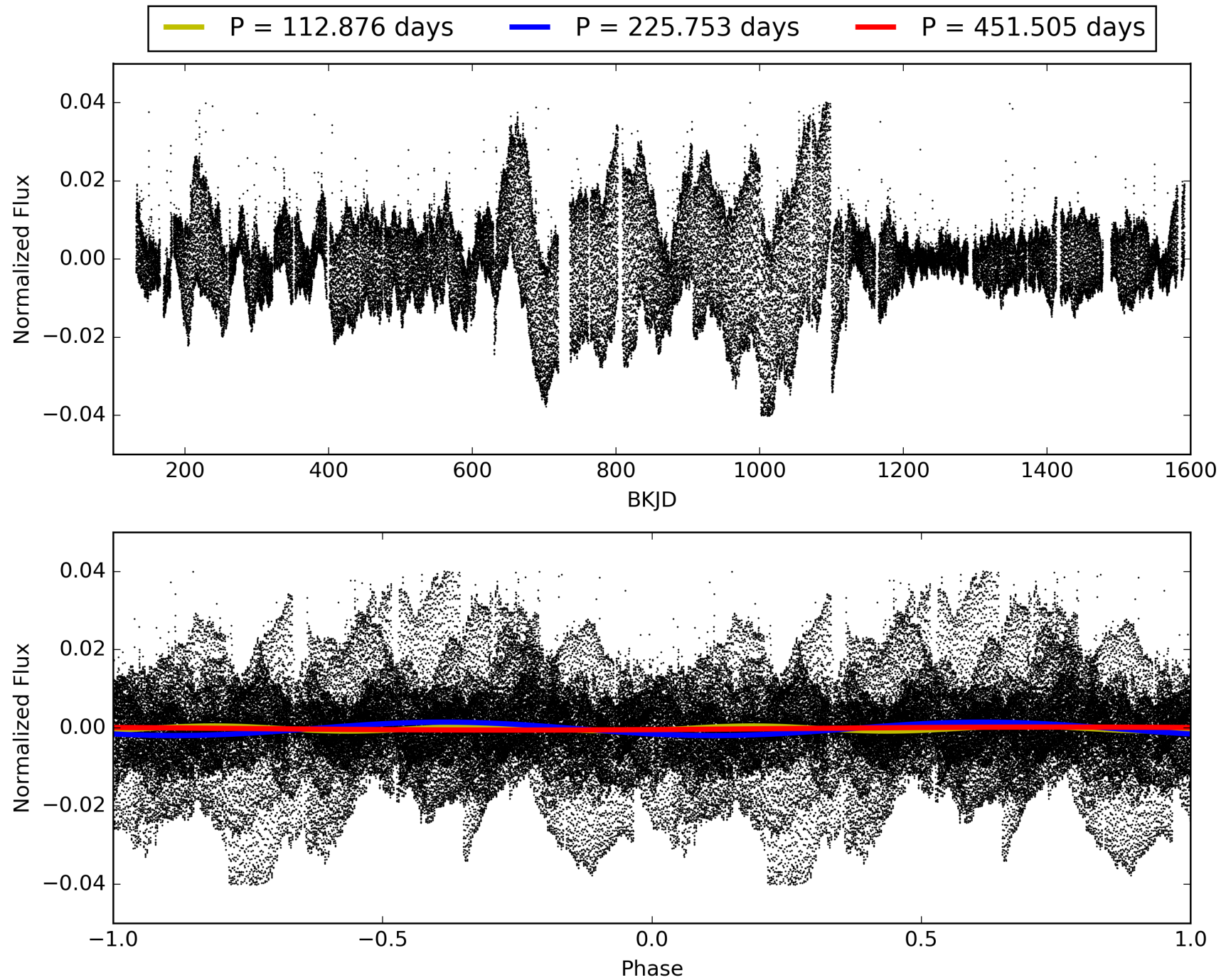
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 83.1%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.08e-10**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.807  
Centroid-sig: 51.3%  
Centroid-so: 0.213 arcsec [0.40σ]  
OotOffset-rm: 0.088 arcsec [0.80σ]  
KicOffset-rm: 0.177 arcsec [1.18σ]  
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 005094011-01, PDC Light Curves

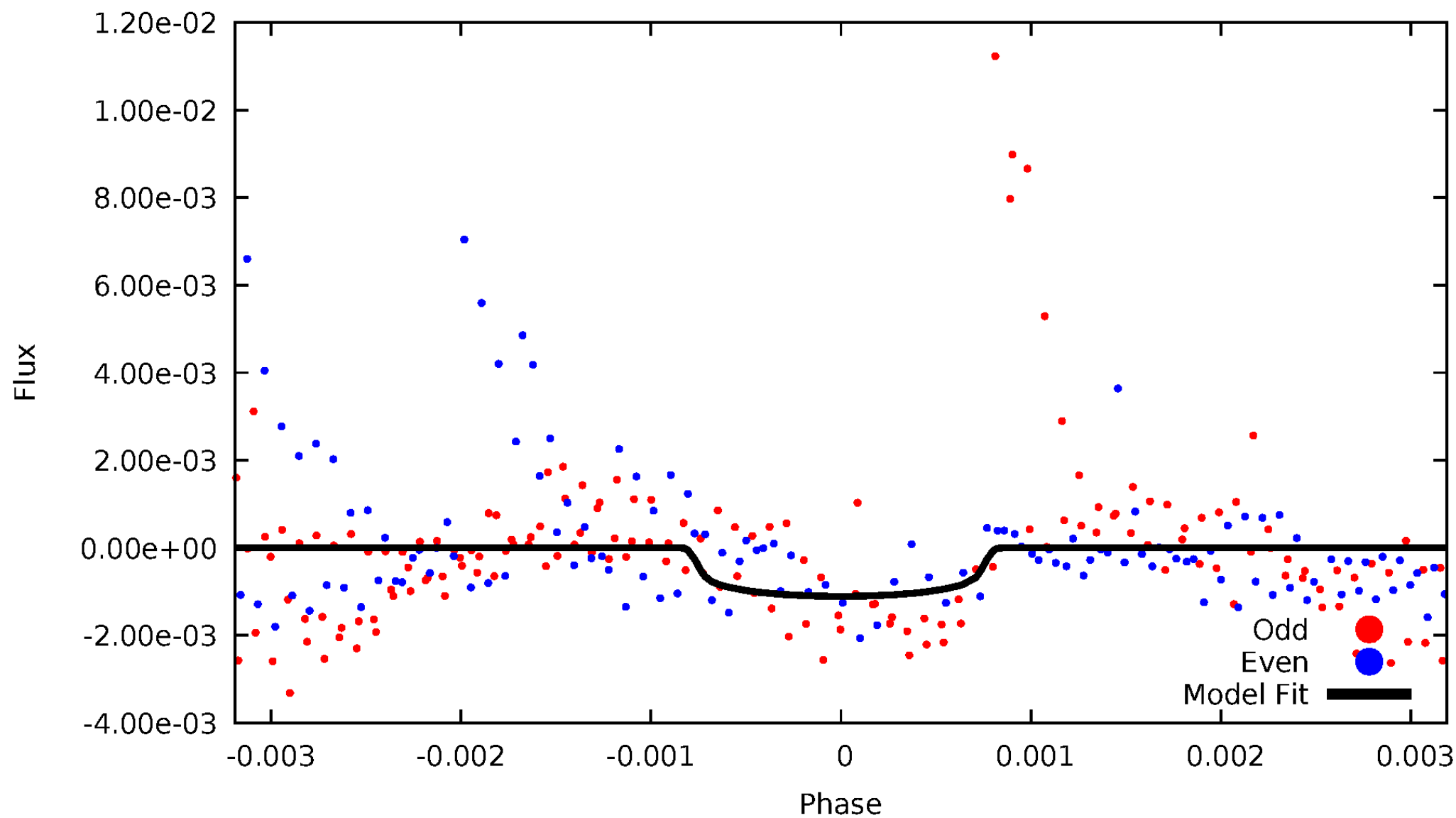


TCE 005094011-01



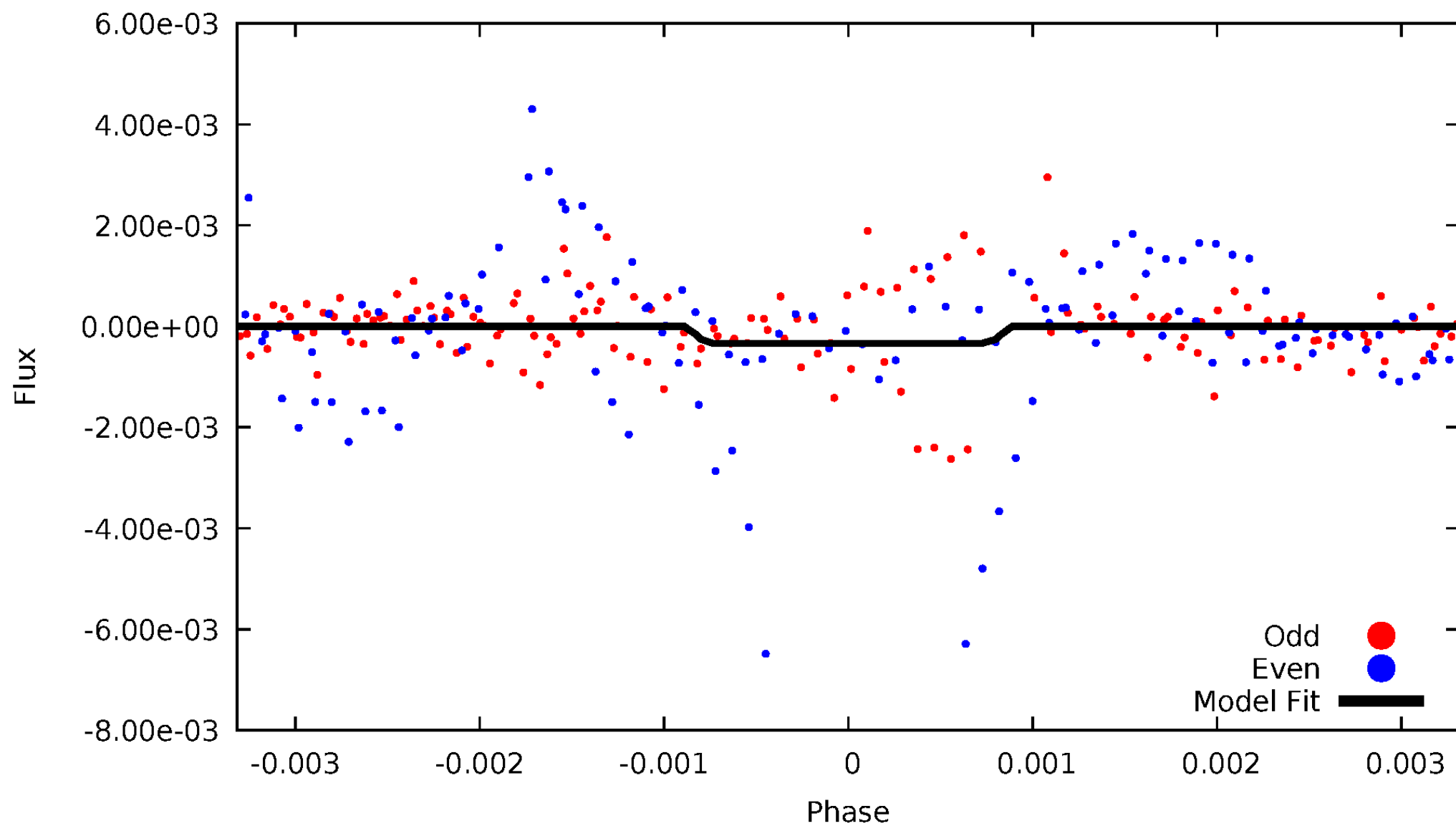
# DV Odd/Even

TCE 005094011-01

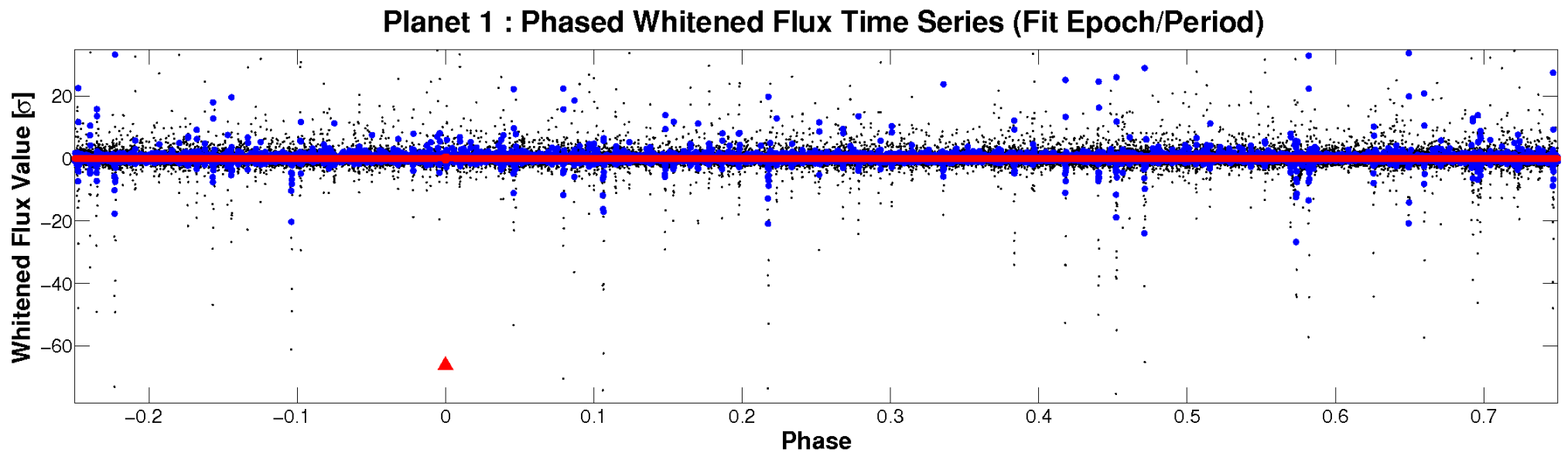
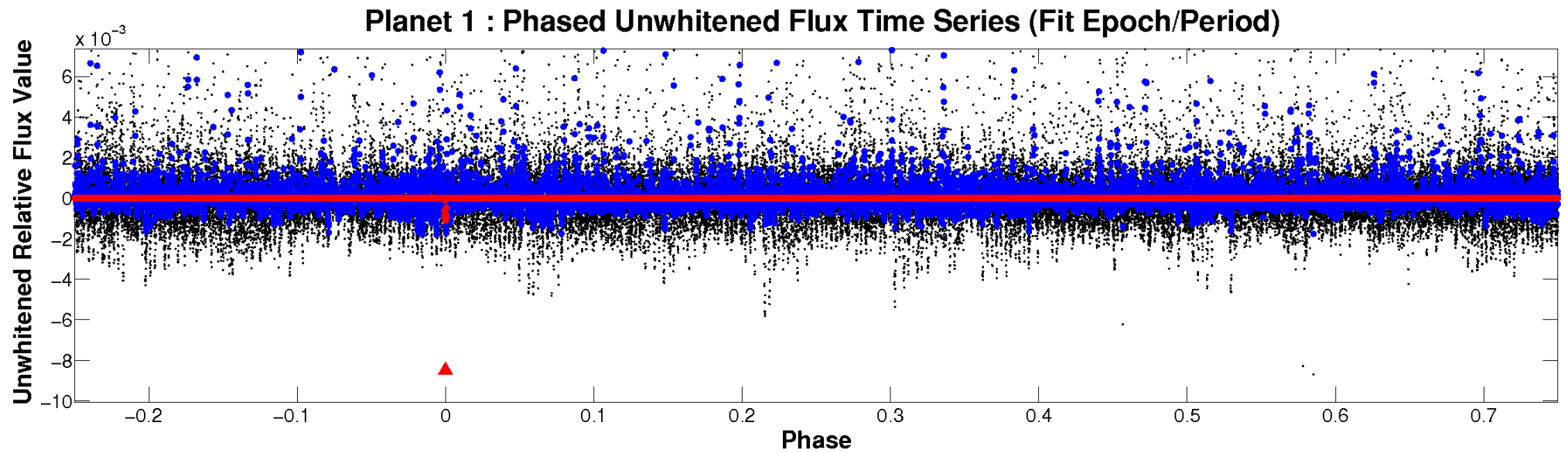


# ALT Odd/Even

TCE 005094011-01

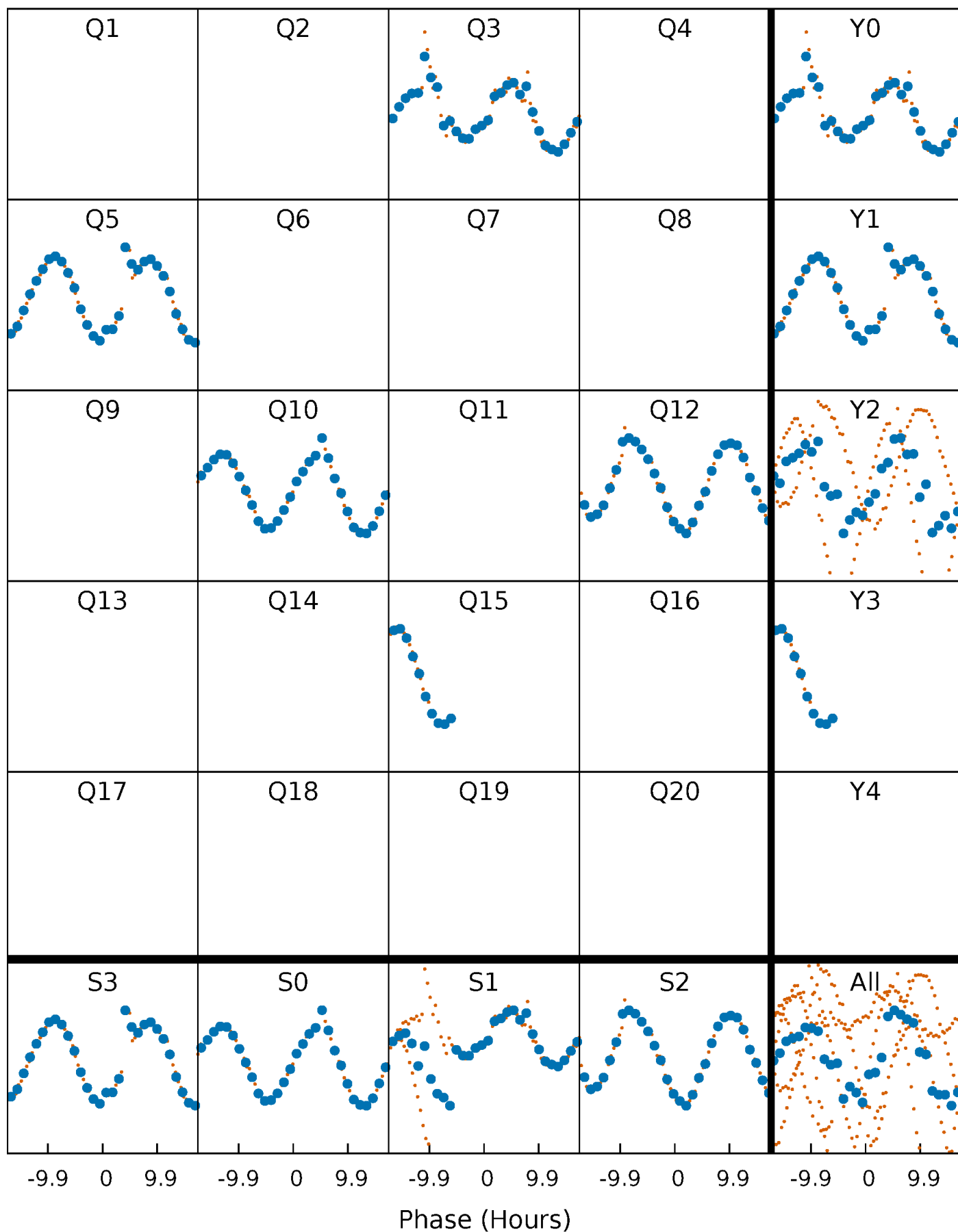


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

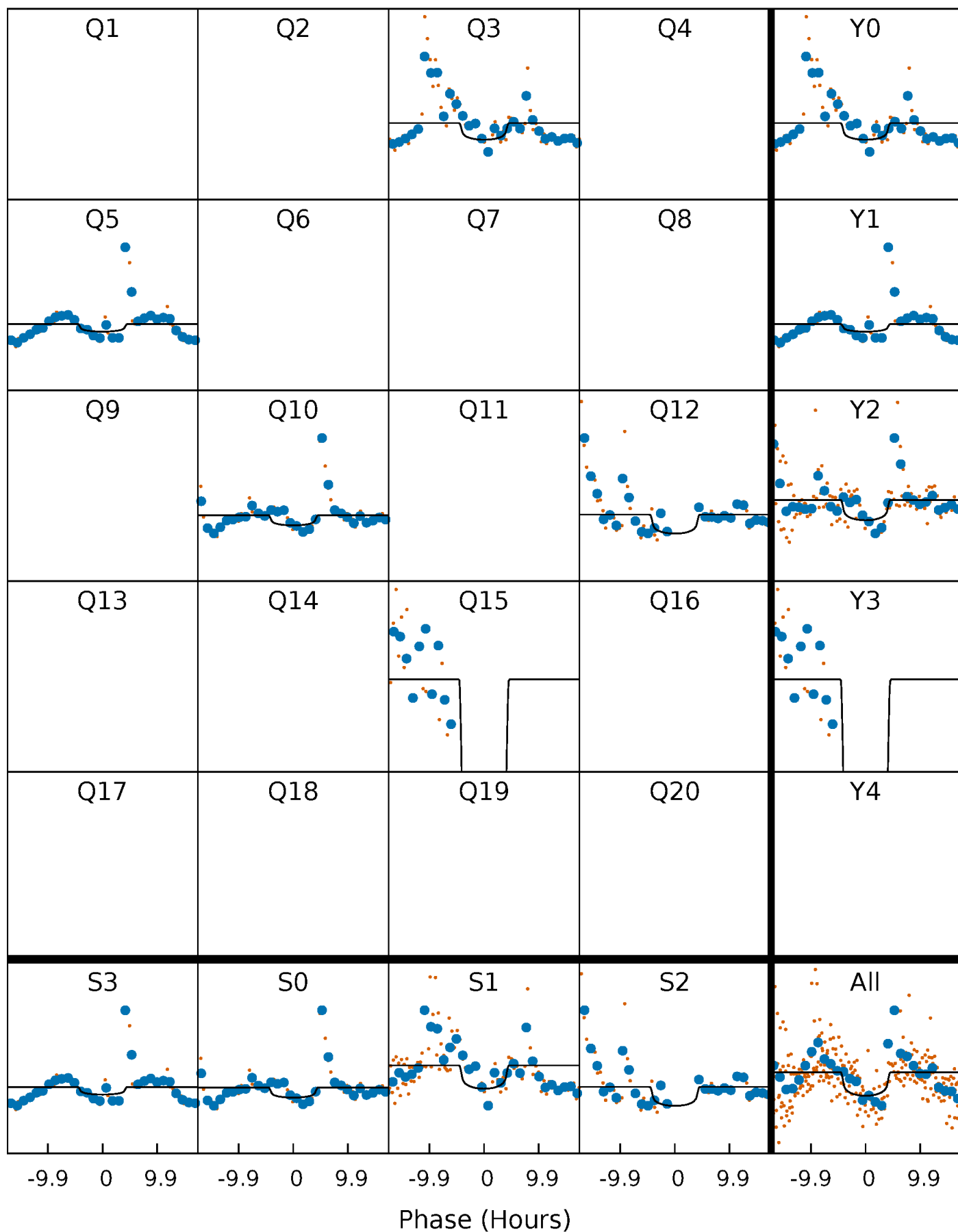
TCE 005094011-01   P=225.752691 Days    $T_0=275.792465$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 005094011-01     $P=225.752691$  Days     $T_0=275.792465$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

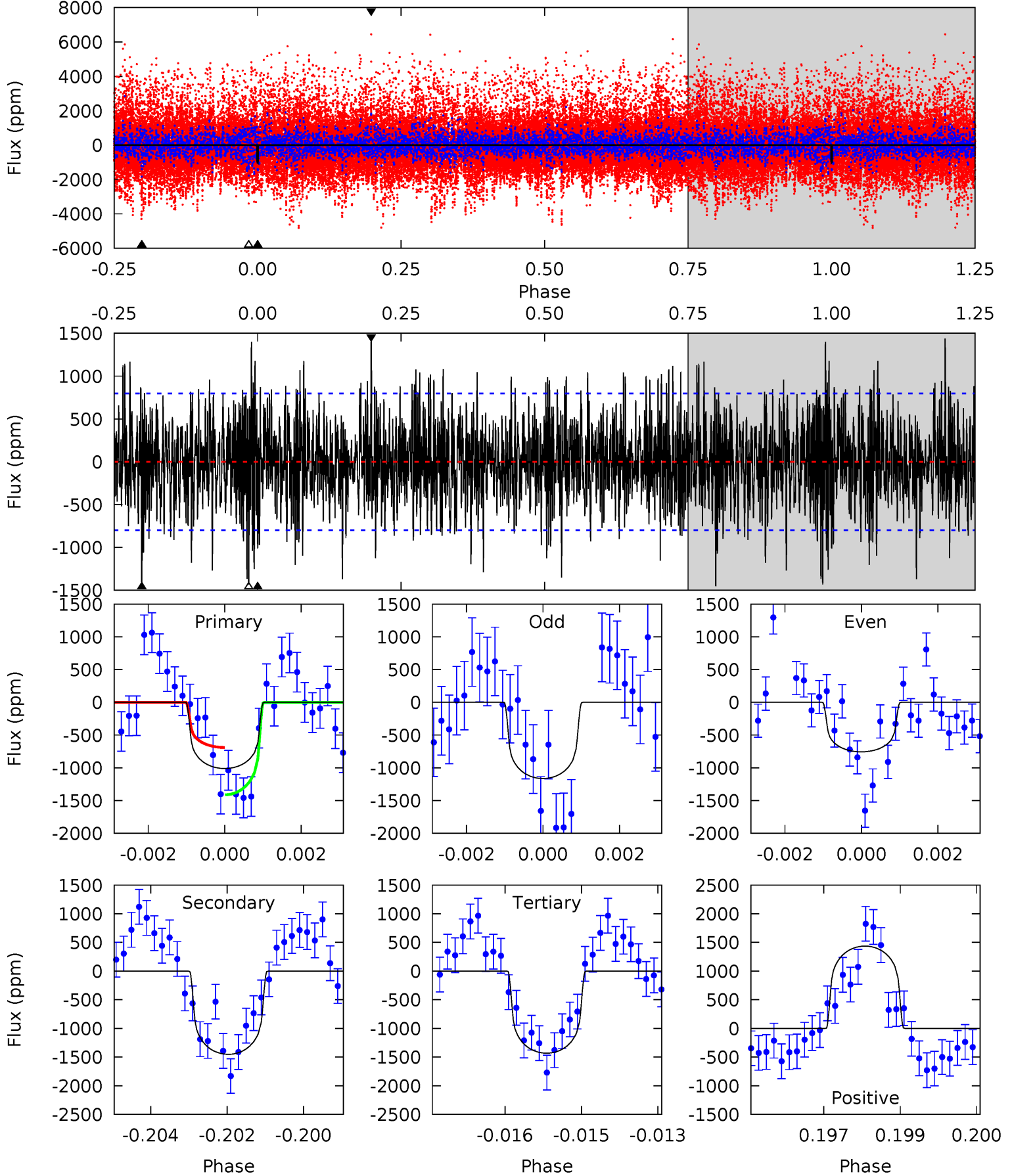
TCE 005094011-01     $P=225.763868$  Days     $T_0=275.777533$  (BKJD)



# DV Model-Shift Uniqueness Test

005094011-01,  $P = 225.752691$  Days,  $E = 50.039774$  Days

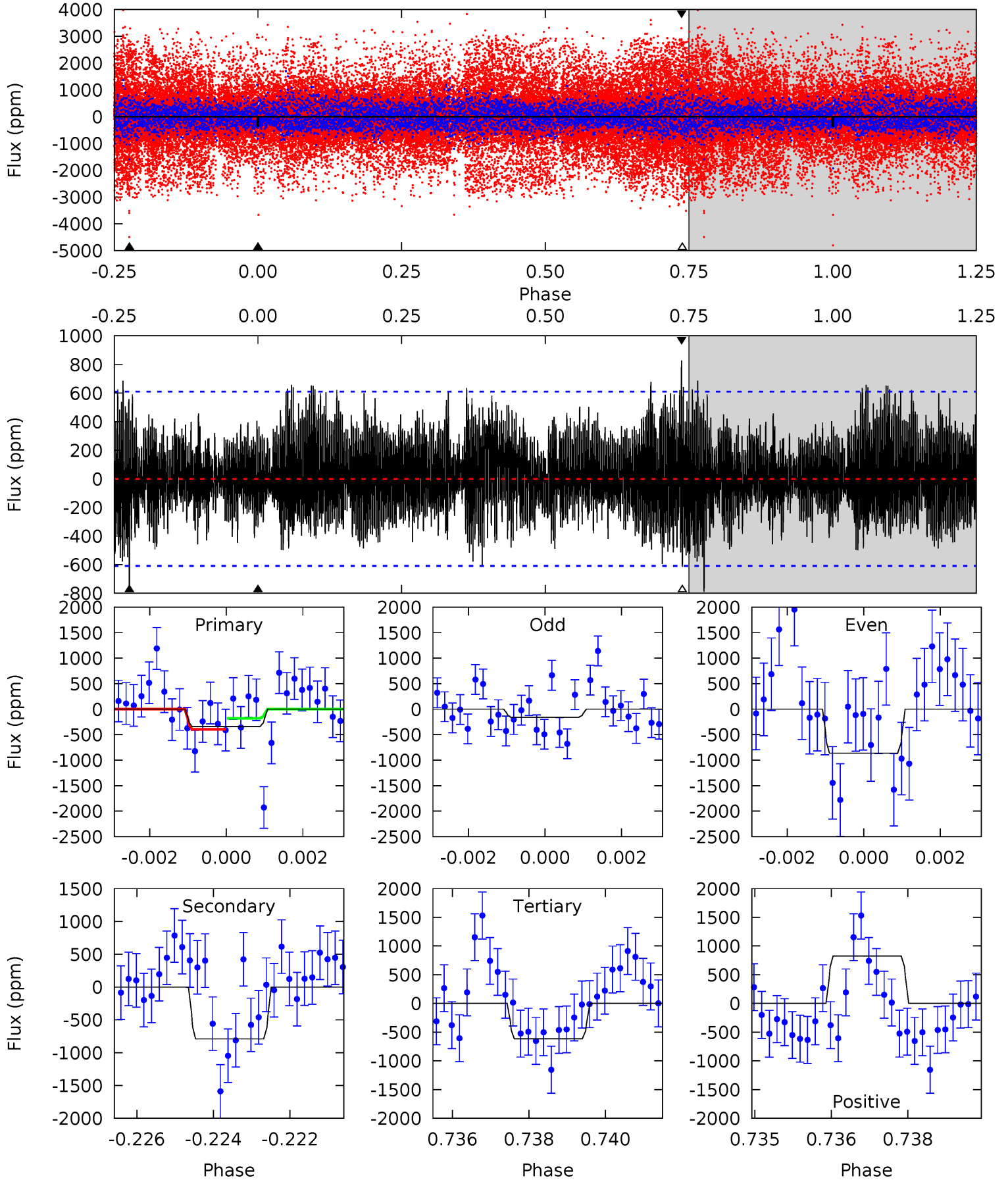
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.80	9.76	9.63	9.66	5.36	3.15	2.70	-2.83	-2.86	0.13	0.10	1.31	1.25	0.50	2.44



# Alt Model-Shift Uniqueness Test

005094011-01, P = 225.763868 Days, E = 50.013665 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
2.99	6.96	5.41	7.28	5.36	3.15	2.05	-2.42	-4.29	1.56	-0.31	2.81	2.45	0.51	0.97



### Stellar Parameters For KIC 005094011

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5252^{+157}_{-157}$	$4.625^{+0.061}_{-0.050}$	$-0.880^{+0.350}_{-0.300}$	$0.648^{+0.062}_{-0.051}$	$0.644^{+0.065}_{-0.028}$	$3.340^{+0.855}_{-0.569}$
	+3%/-3%	+1%/-1%	+40%/-34%	+10%/-8%	+10%/-4%	+26%/-17%
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 005094011-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1452 \pm 149$	$2.32^{+1.34}_{-1.21}$	$328^{+13}_{-13}$	$5628^{+2741}_{-1008}$	$58860^{+199751}_{-35387}$
Alt.	$-791 \pm 114$	$1.66^{+1.28}_{-1.08}$	$329^{+11}_{-12}$	$5730^{+4841}_{-1331}$	$63853^{+433737}_{-44371}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

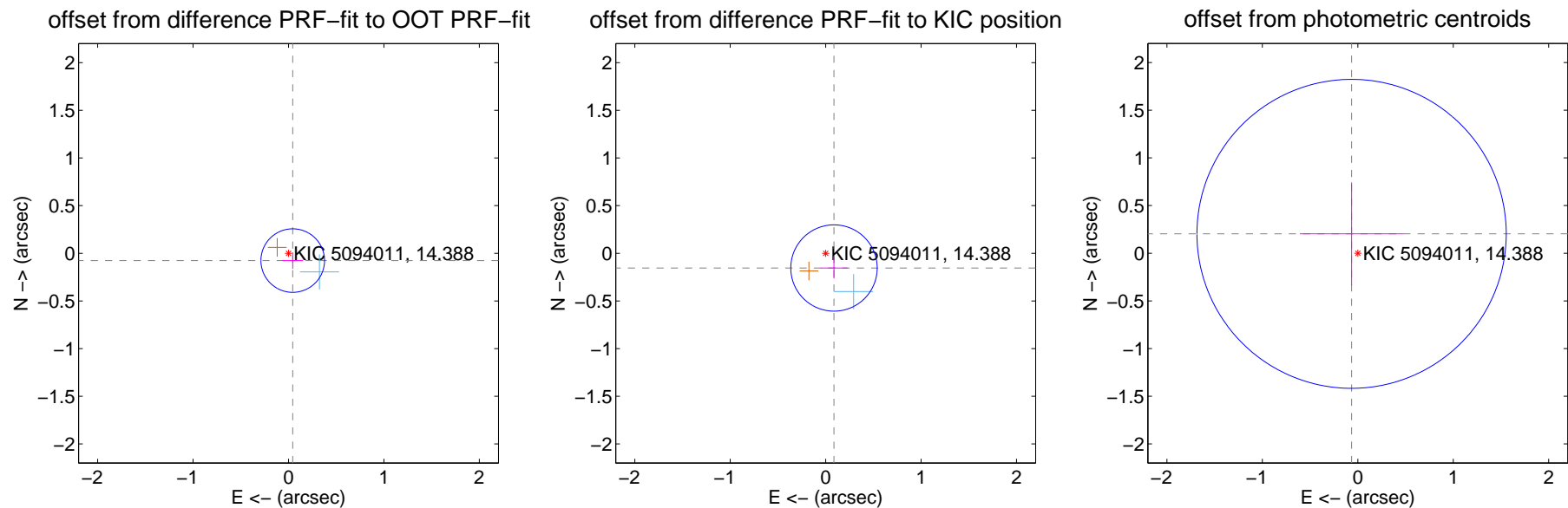
## DV Centroid Data

Supplemental centroid analysis for 005094011-01. Kepler magnitude: 14.39. Transit SNR 2.69

There are 2 quarters with good PRF difference image offsets

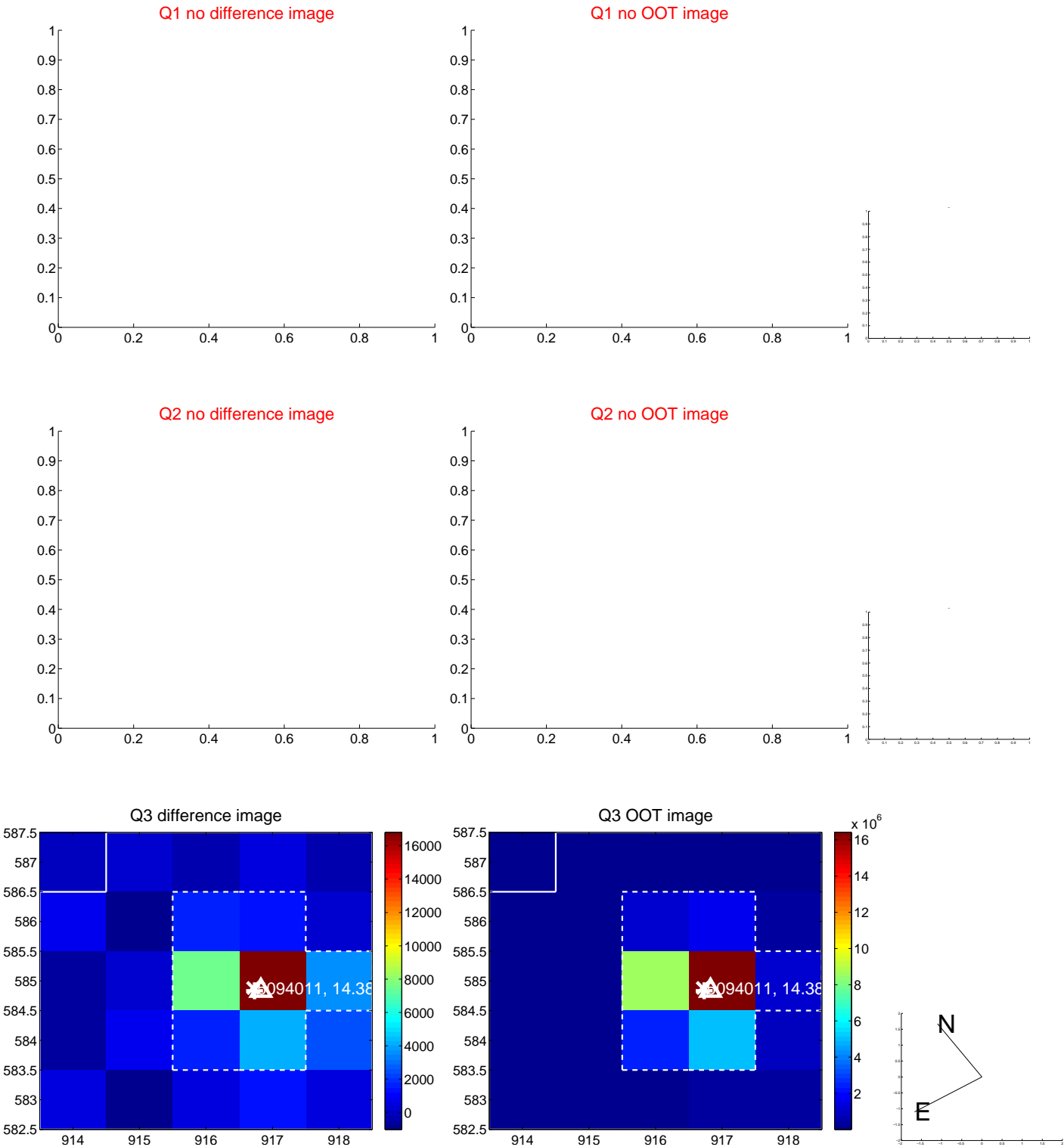
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.088 \pm 0.111$	0.80	$-0.044 \pm 0.109$	$-0.077 \pm 0.086$
PRF-fit source offset from KIC position	$0.177 \pm 0.151$	1.18	$-0.087 \pm 0.142$	$-0.154 \pm 0.110$
photometric centroid source offset	$0.21 \pm 0.54$	0.40	$0.07 \pm 0.54$	$0.20 \pm 0.54$

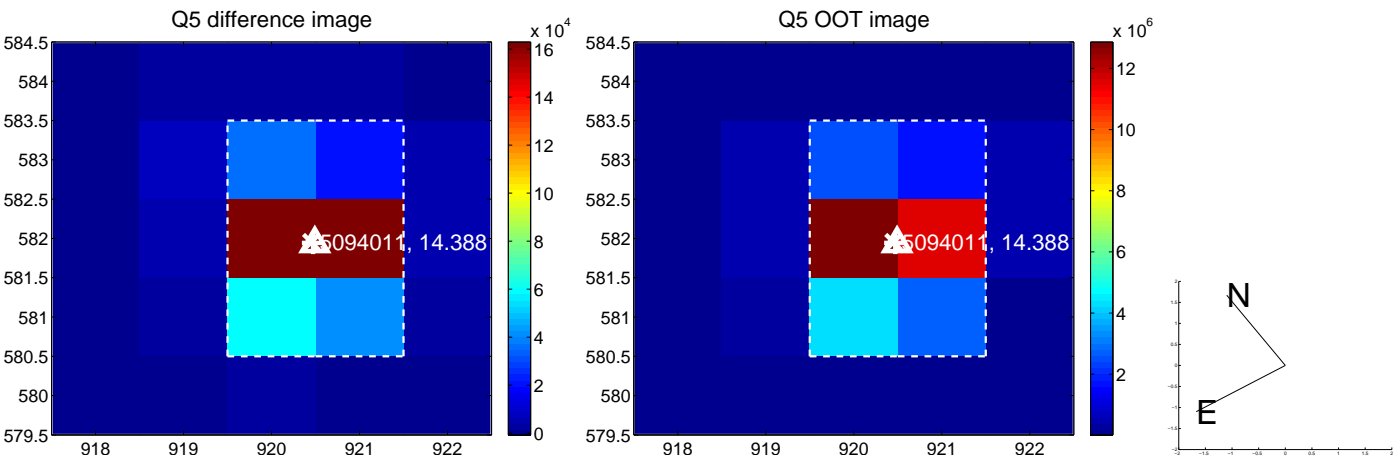


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

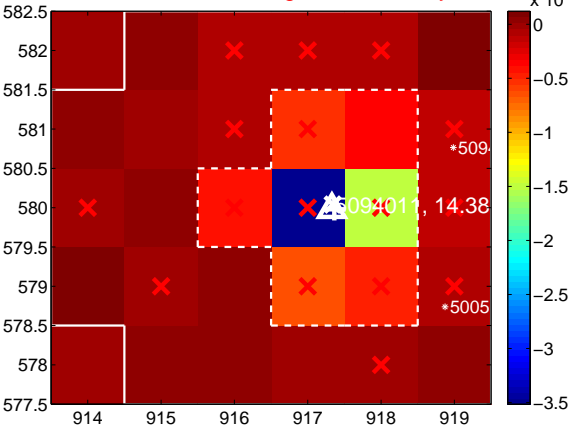
Q9 no difference image



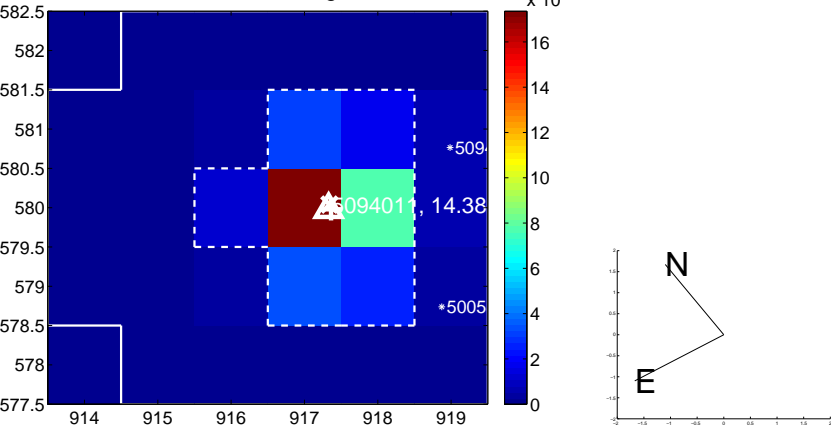
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



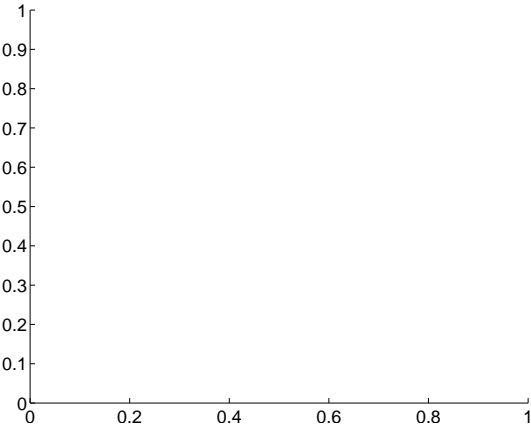
Q11 no difference image



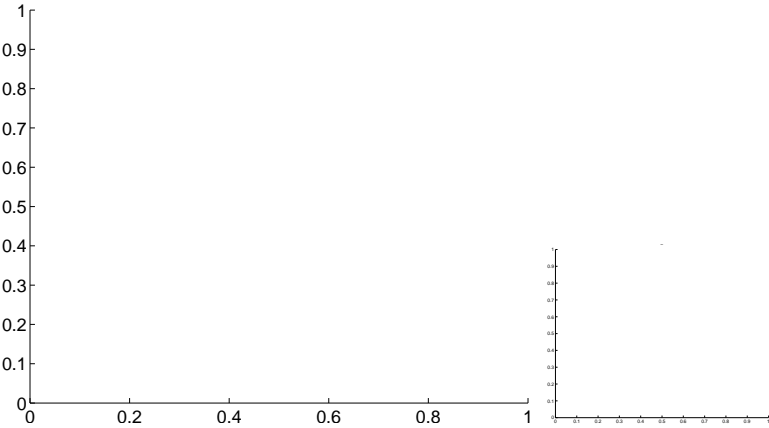
Q11 no OOT image



Q12 no difference image



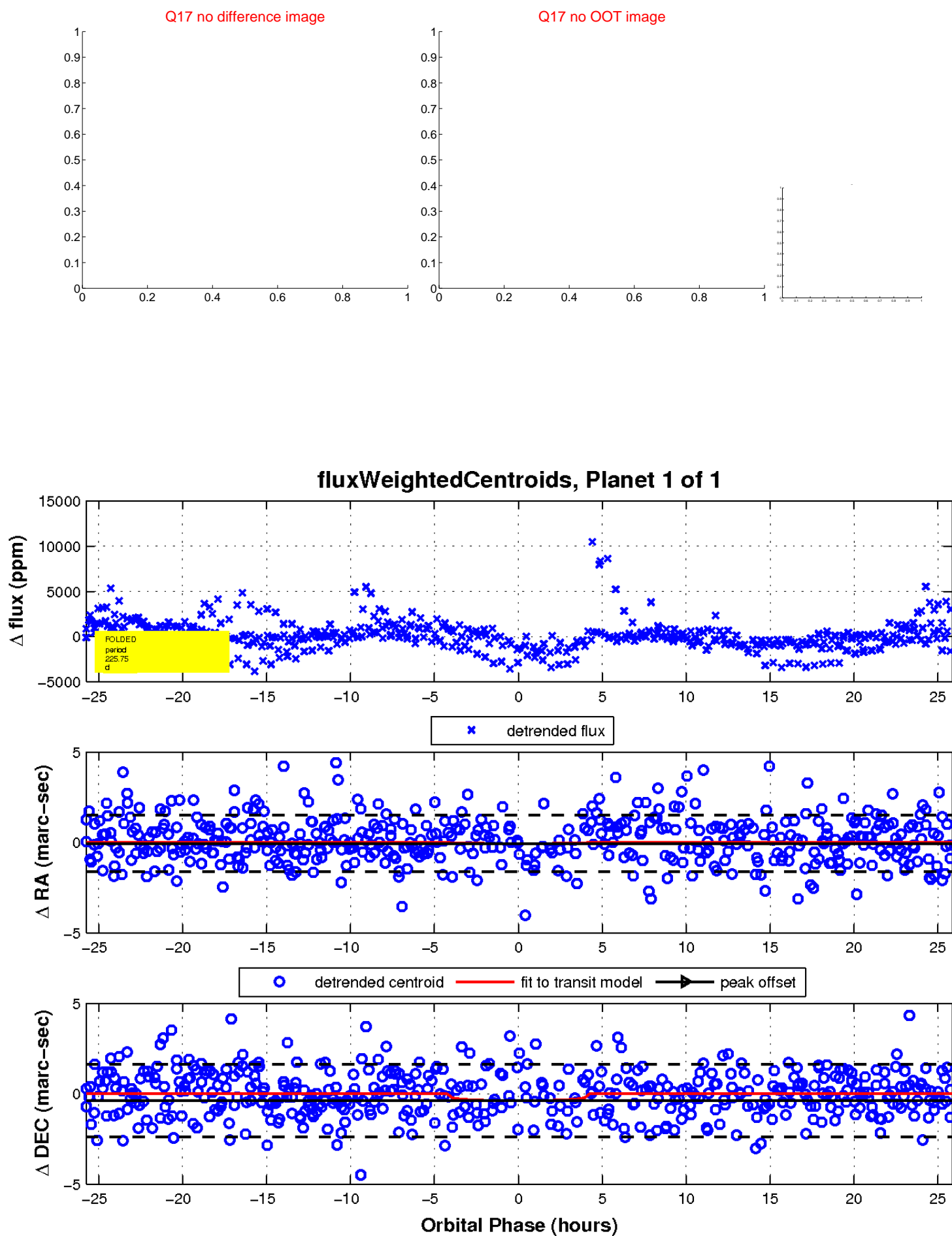
Q12 no OOT image



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.



UKIRT Image

Declination

