

# KIC 009394920

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009394920-01	OBS	7168.01	1.383777	132.831356	90.7	1.250	8.3	7.7	4.70	11269	5.16	233893.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009394920-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—MOD_NONUNIQ_ALT—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.

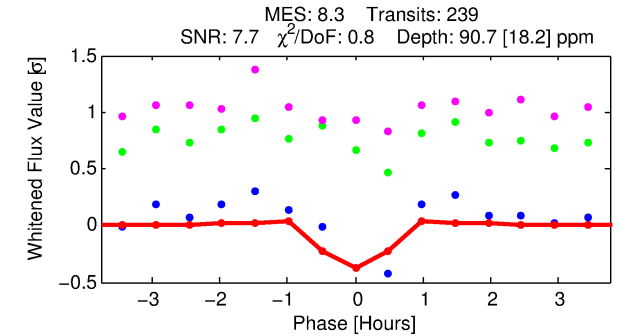
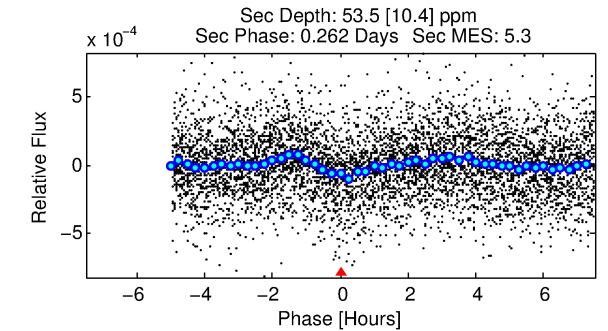
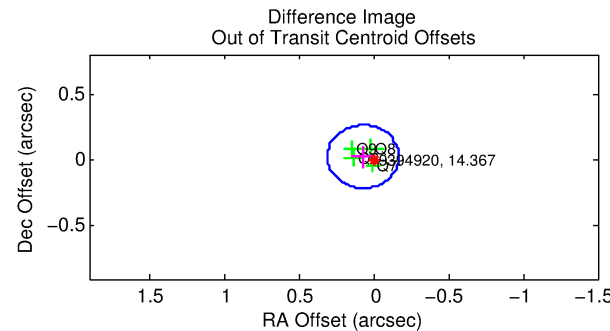
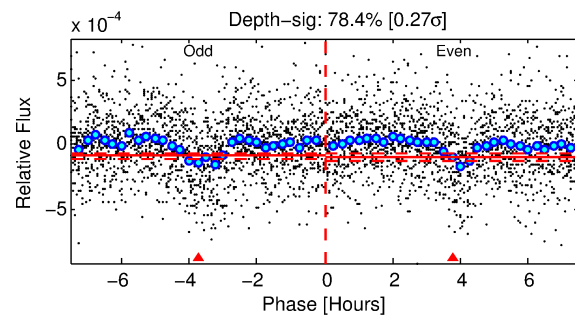
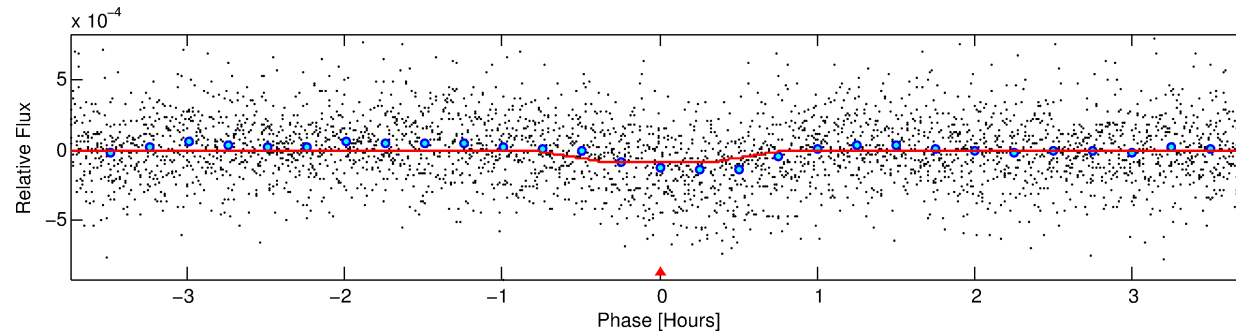
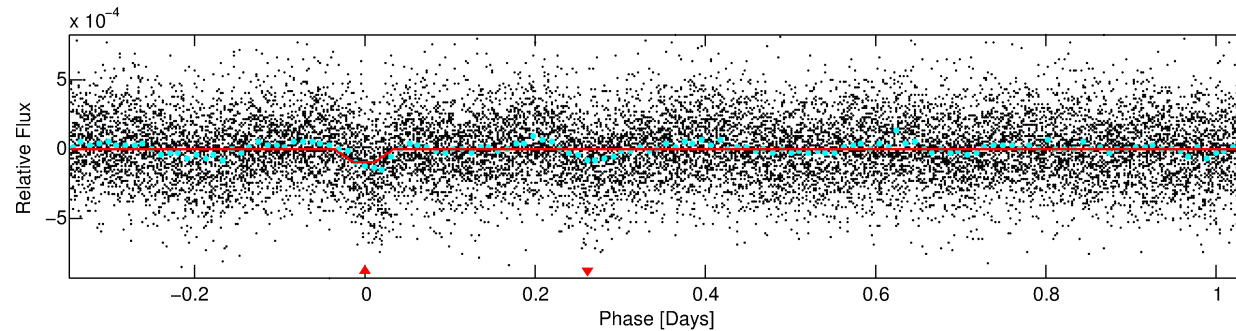
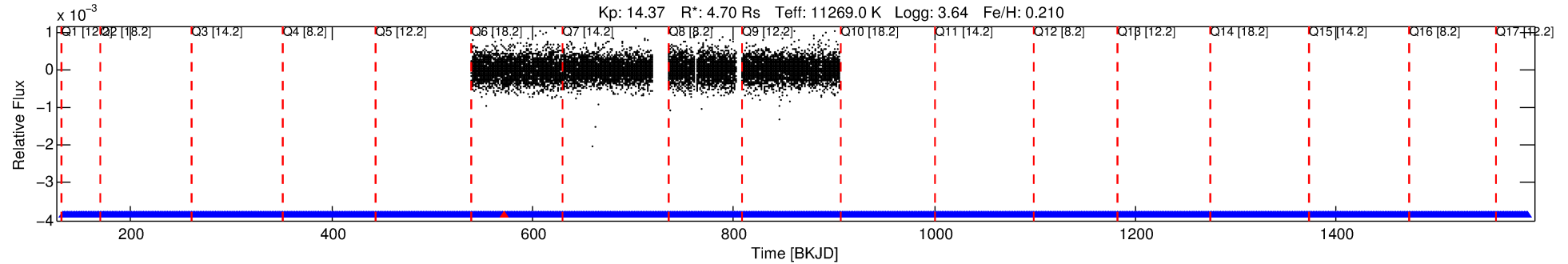
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009394920-01

No Significant Match Found

# DV One-Page Summary

KIC: 9394920 Candidate: 1 of 1 Period: 1.384 d  
KOI: K07168 Corr: No Ephemeris Match



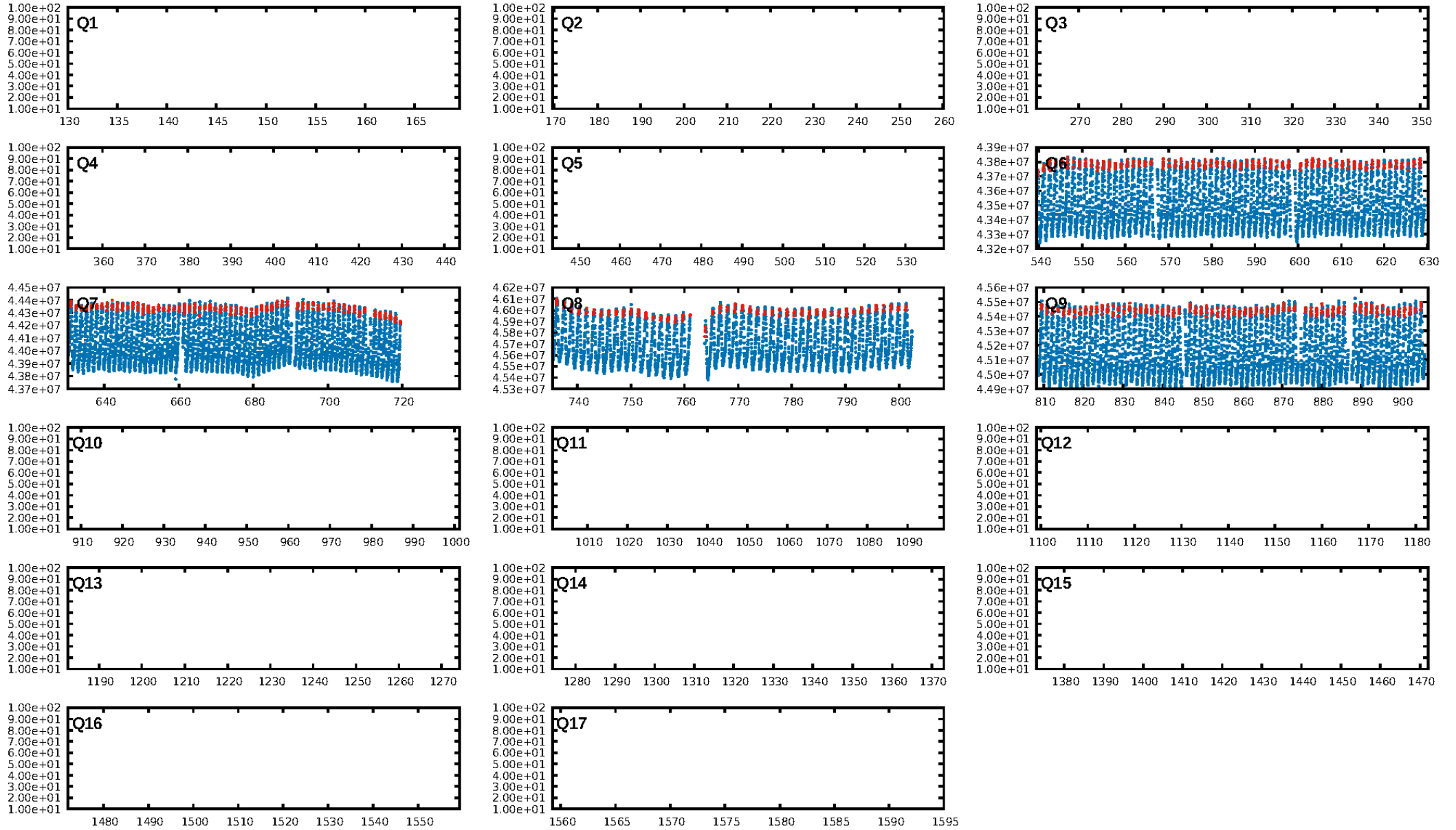
## DV Fit Results:

Period = 1.38378 [0.00001] d  
Epoch = 132.8314 [0.0026] BKJD  
Rp/R\* = 0.0101 [0.0043]  
a/R\* = 3.78 [12.75]  
b = 0.91 [0.67]  
Seff = 233893.32 [228963.54]  
Teq = 5608 [1372] K  
Rp = 5.16 [3.47] Re  
a = 0.0369 [0.0183] AU  
Ag = 1.51 [1.77] [0.29 $\sigma$ ]  
Teffp = 9608 [2518] K [1.40 $\sigma$ ]

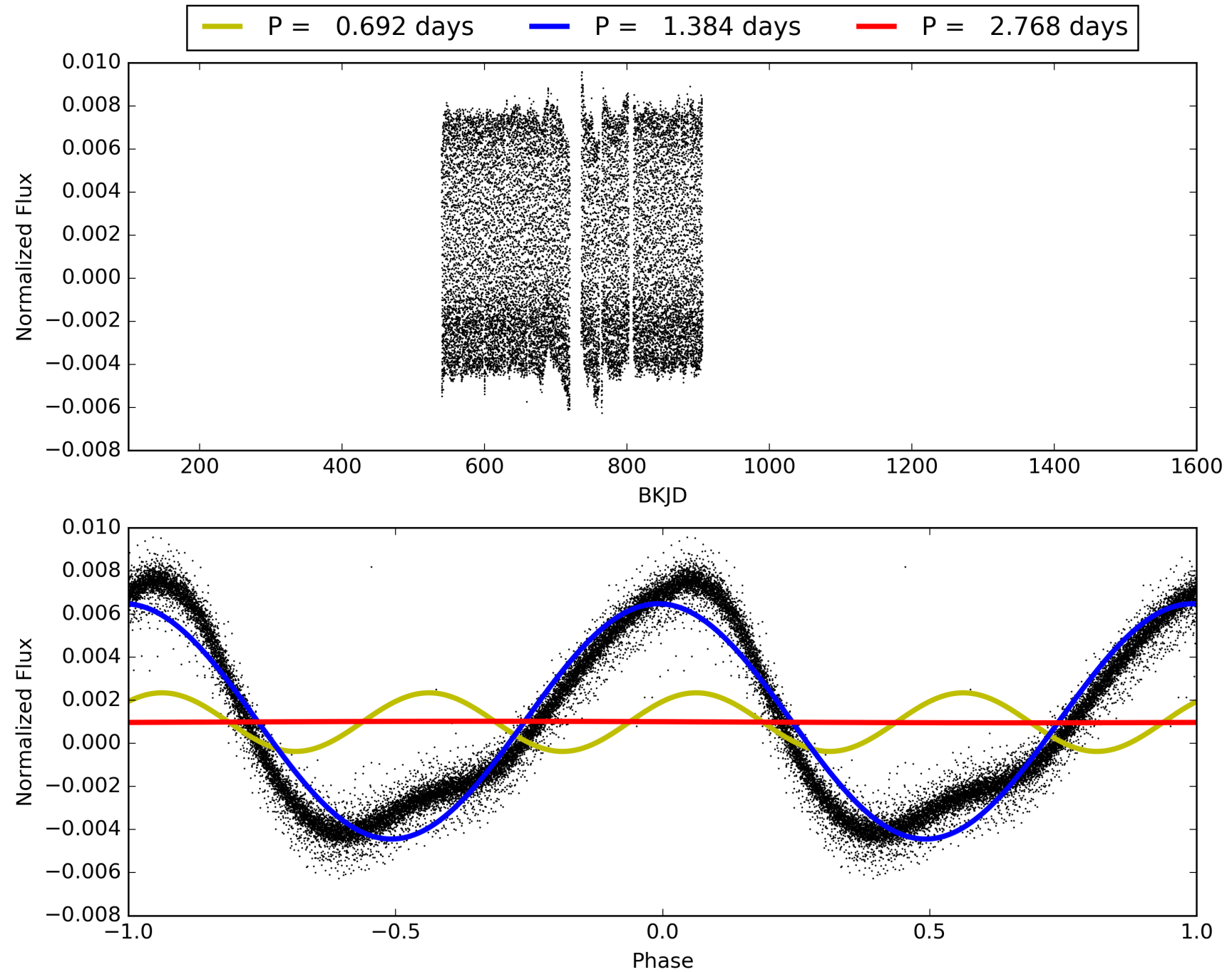
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.32e-15  
RollingBand-fgt: 1.00 [238/239]  
**GhostDiagnostic-chr: 0.4989**  
Centroid-sig: 7.8%  
Centroid-so: 2.340 arcsec [1.48 $\sigma$ ]  
OotOffset-rm: 0.075 arcsec [0.94 $\sigma$ ]  
KicOffset-rm: 0.218 arcsec [2.10 $\sigma$ ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 1.00 [4/4]

# TCE 009394920-01, PDC Light Curves

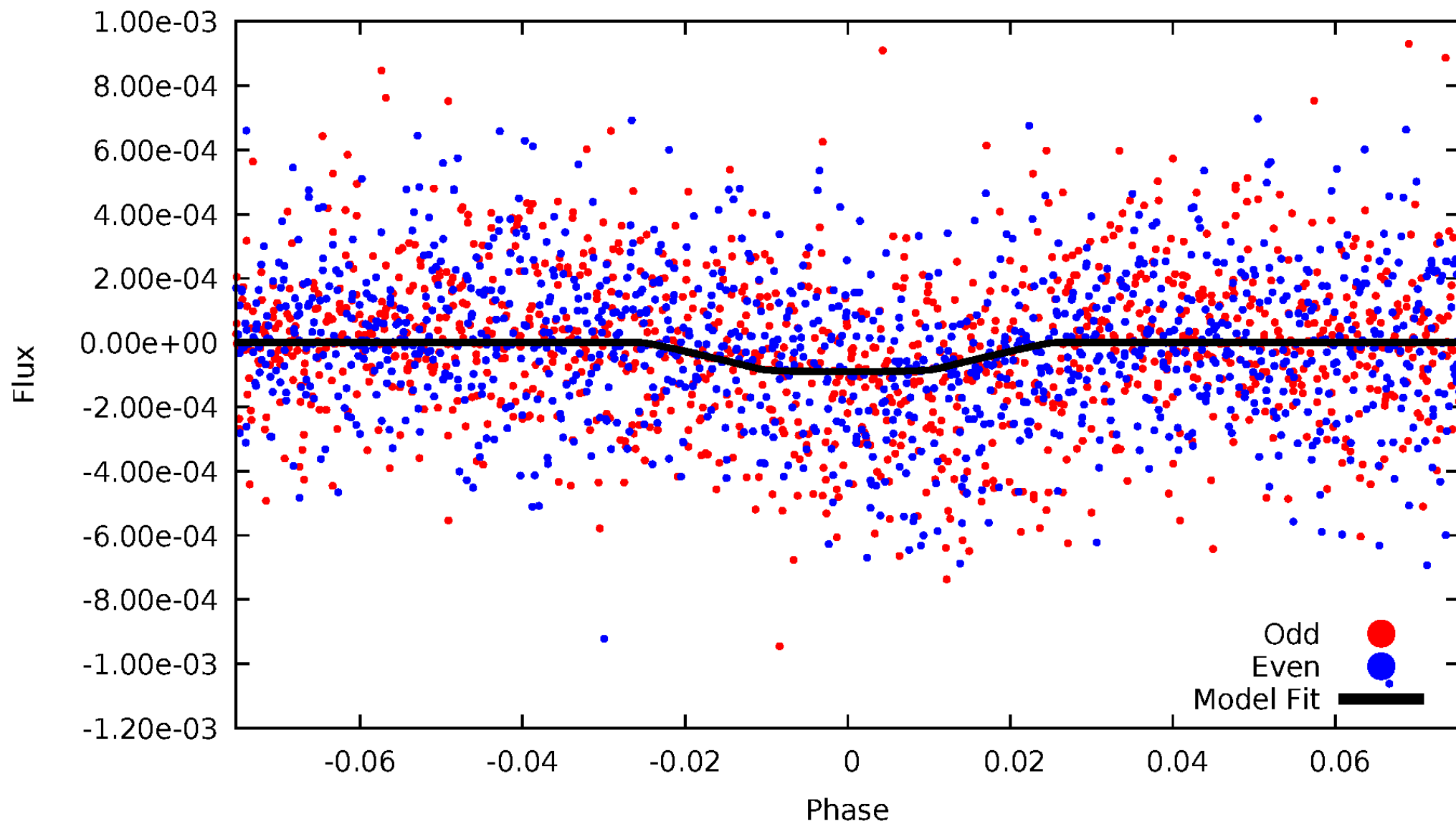


TCE 009394920-01



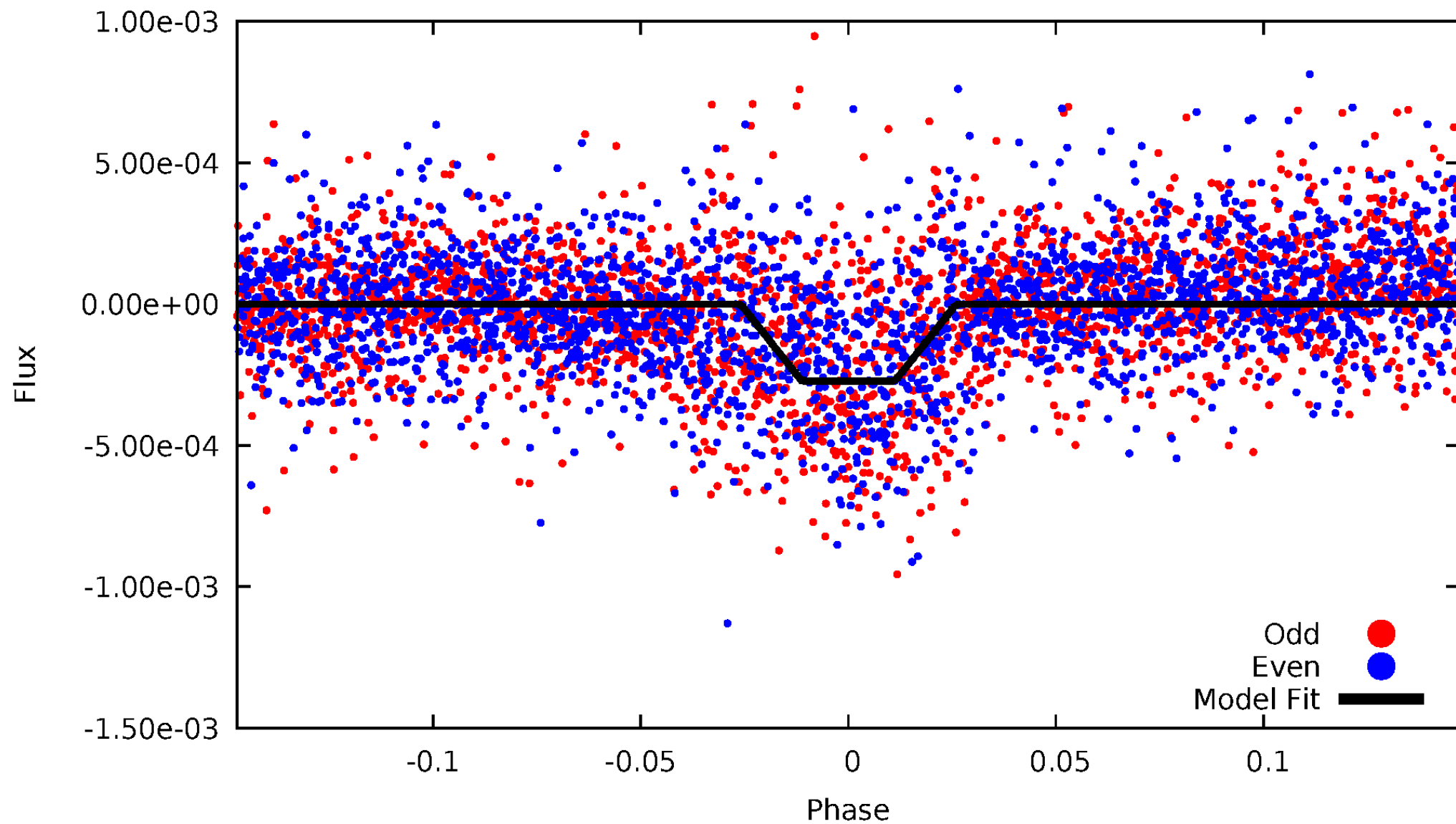
# DV Odd/Even

TCE 009394920-01



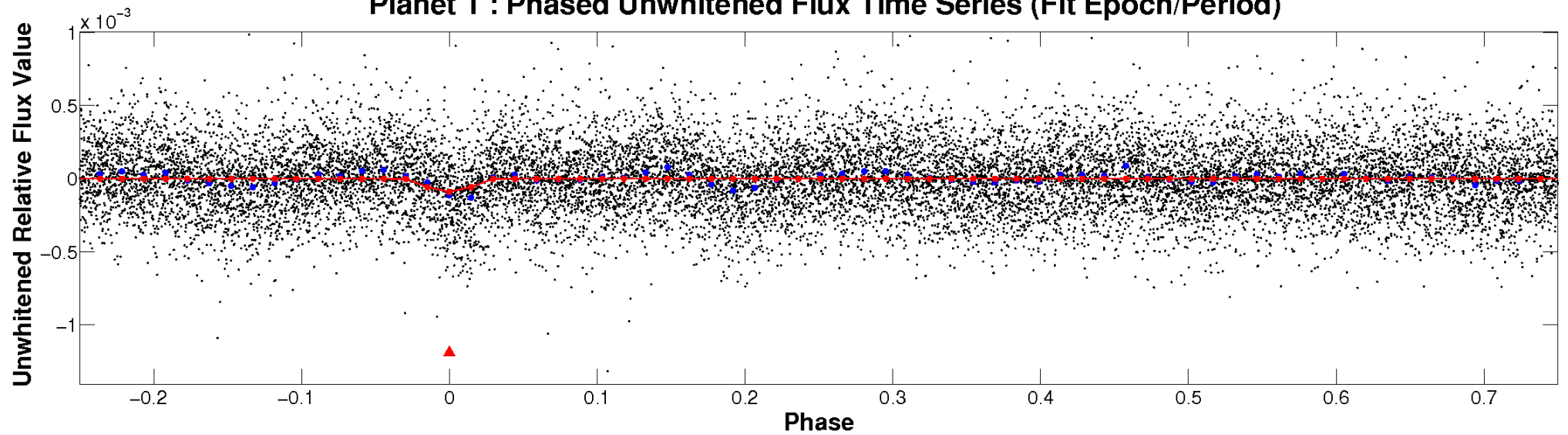
# ALT Odd/Even

TCE 009394920-01

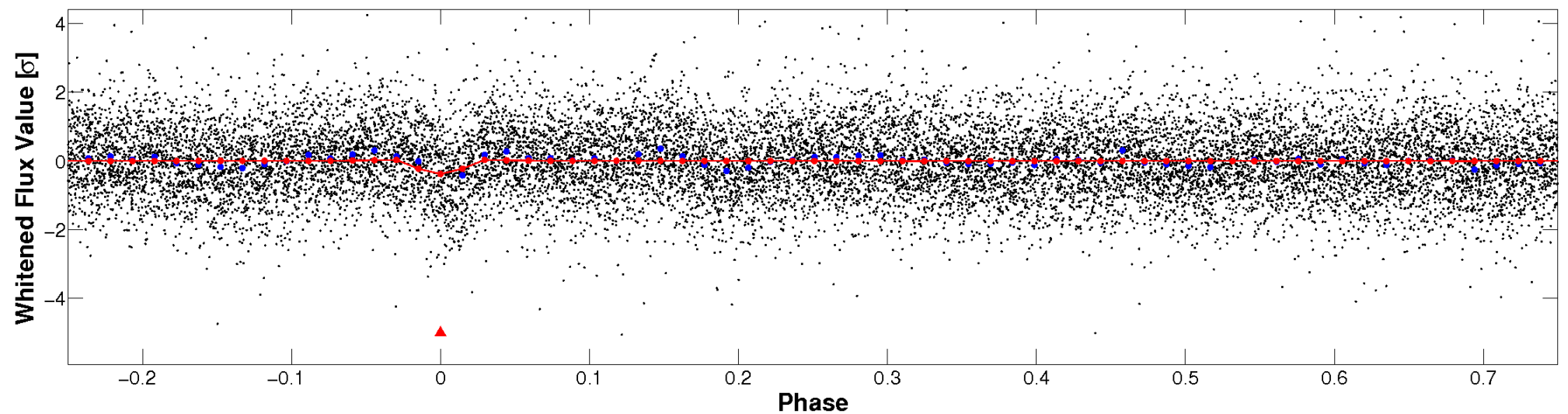


# Non-Whitened Vs. Whitened Light Curve

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



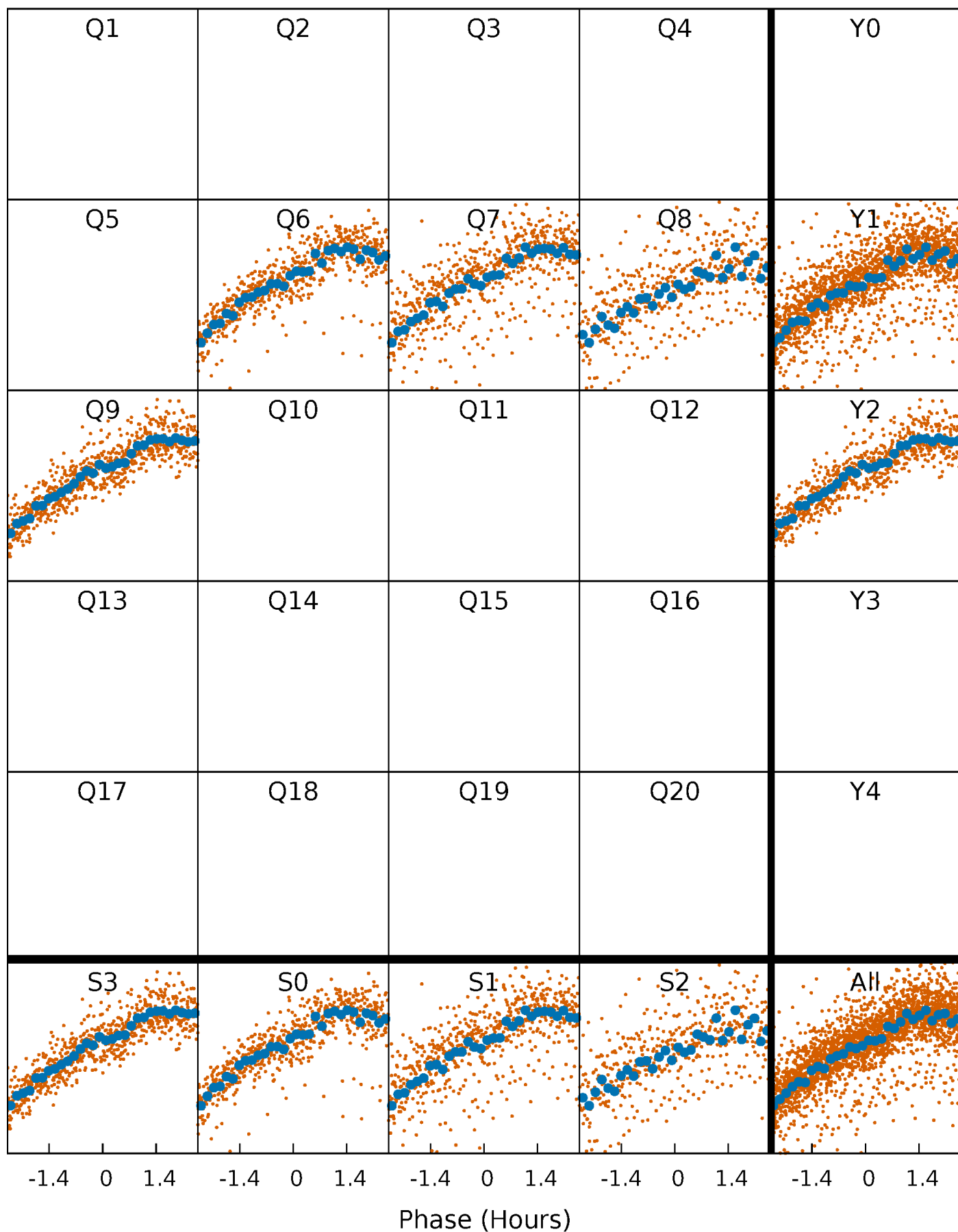
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

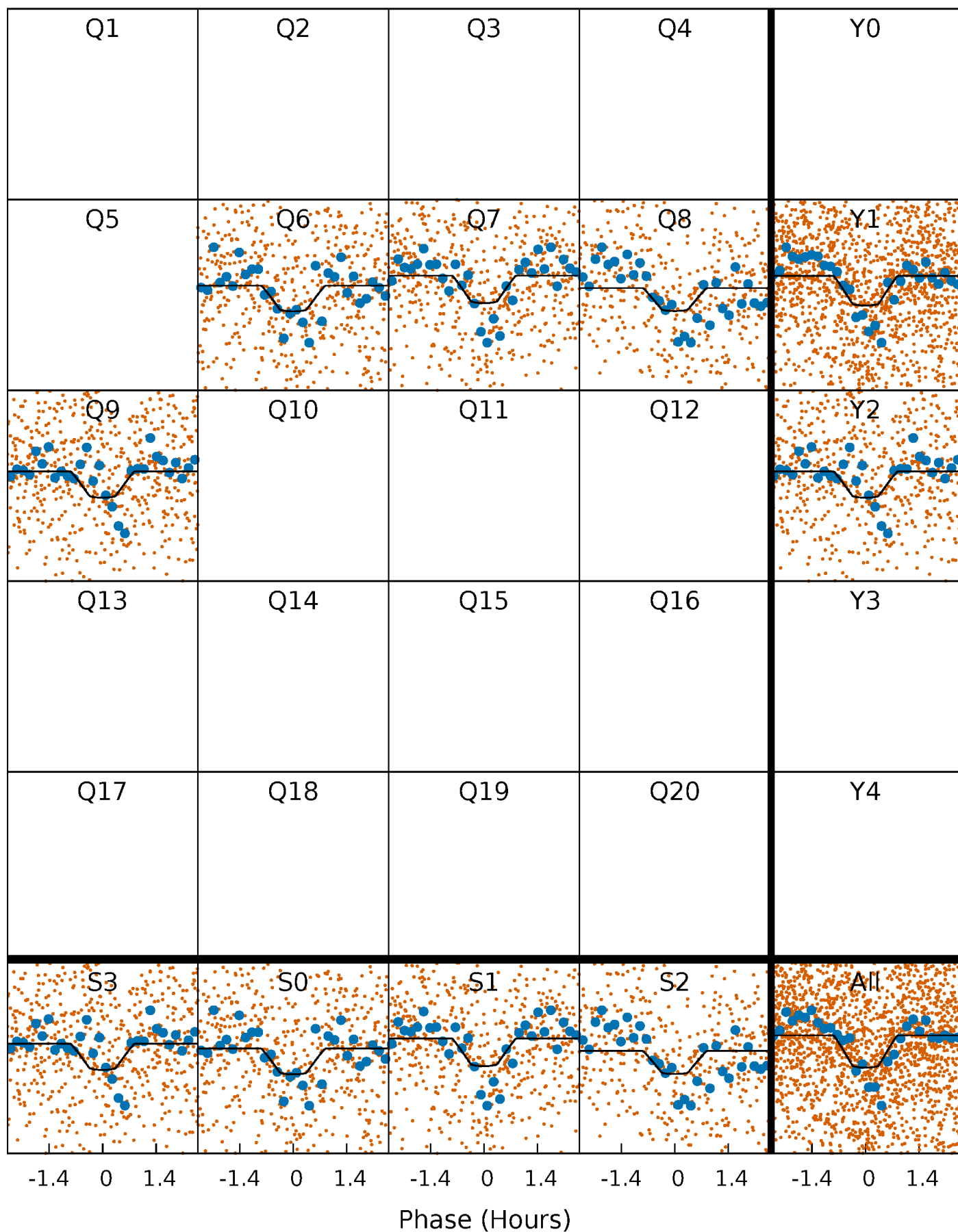
TCE 009394920-01   P= 1.383777 Days    $T_0=132.831356$  (BKJD)





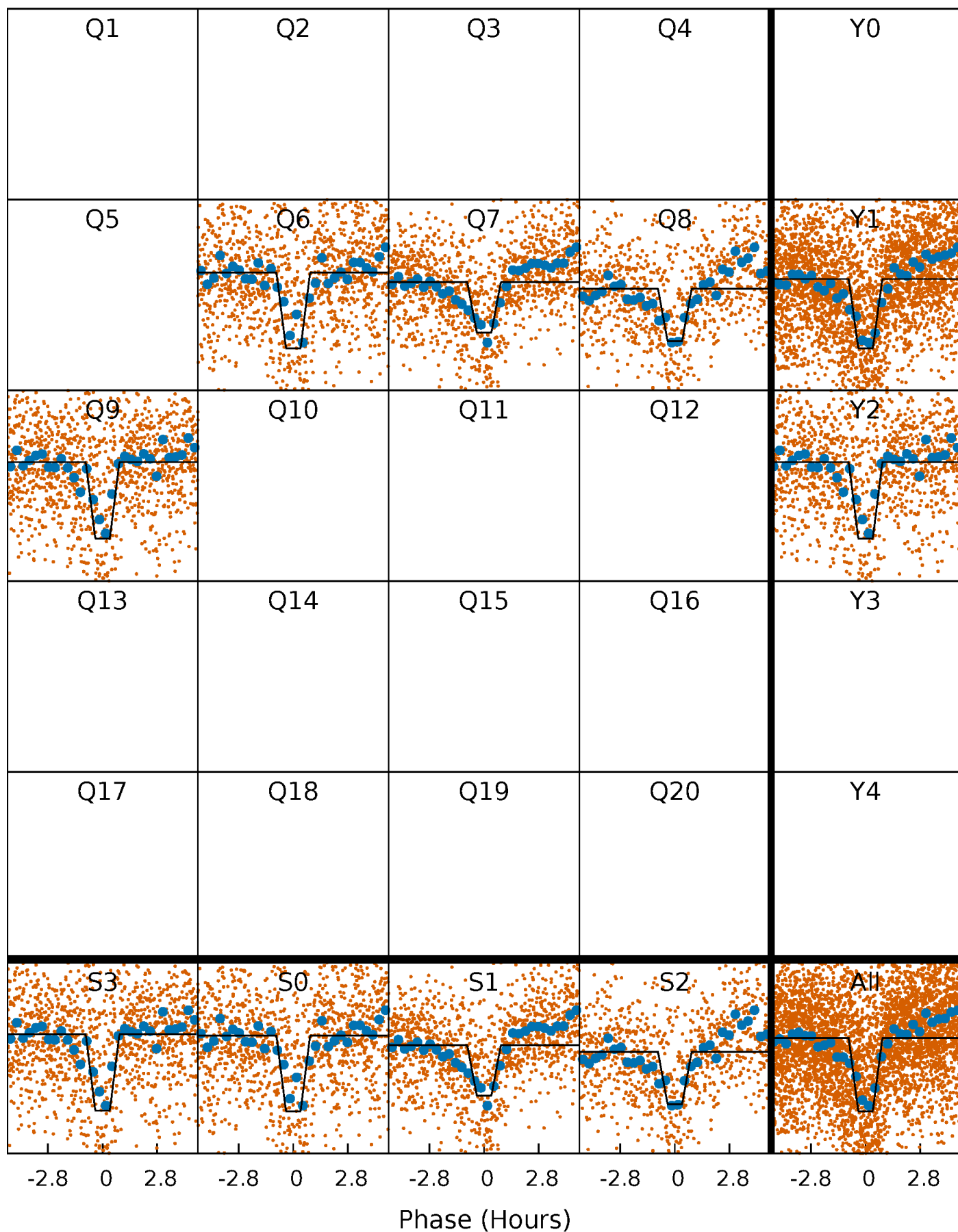
# DV Quarter-Phased Transit Curves

TCE 009394920-01   P= 1.383777 Days    $T_0=132.831356$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

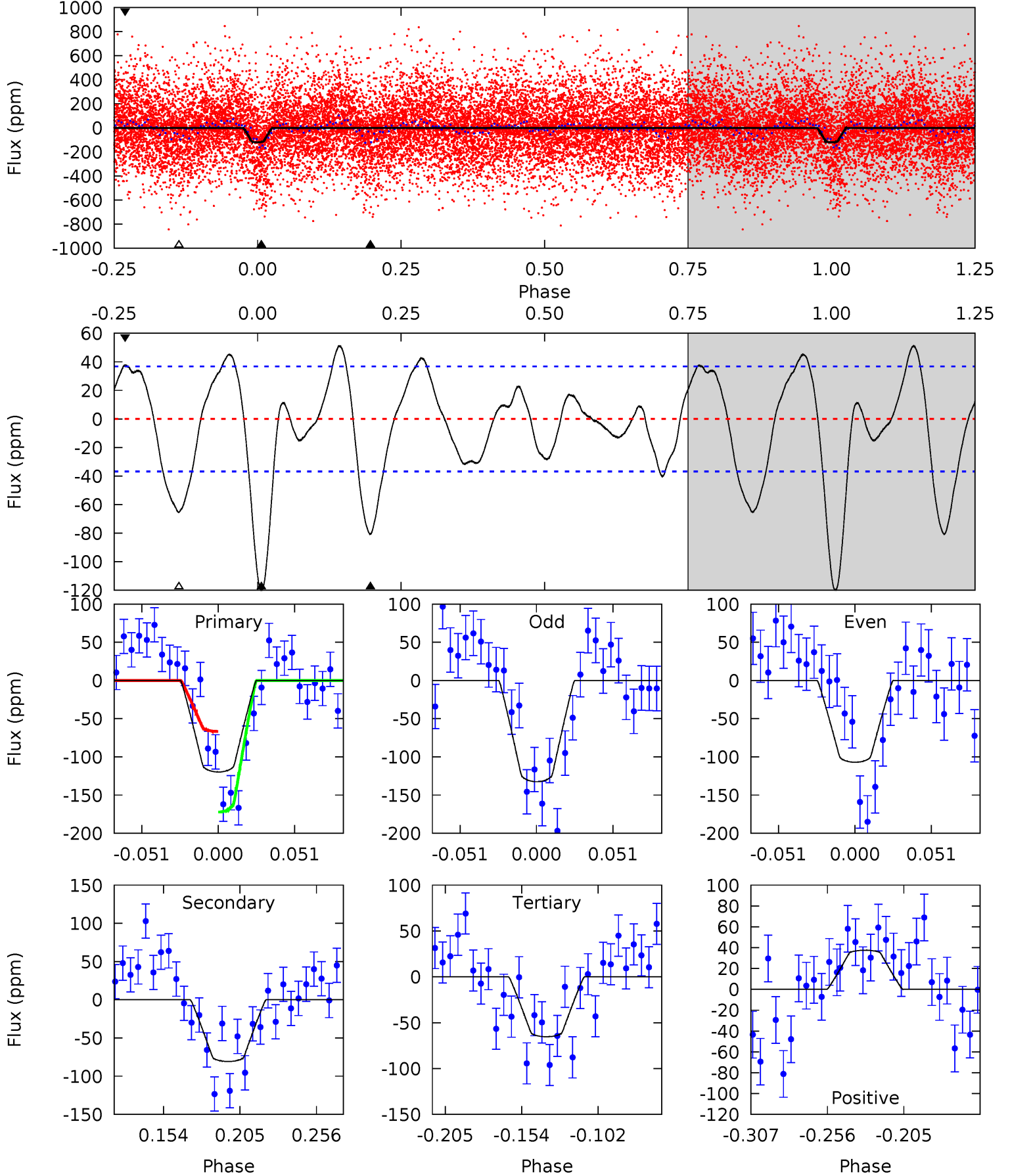
TCE 009394920-01   P= 1.383896 Days    $T_0=132.784460$  (BKJD)



# DV Model-Shift Uniqueness Test

009394920-01, P = 1.383777 Days, E = 132.831356 Days

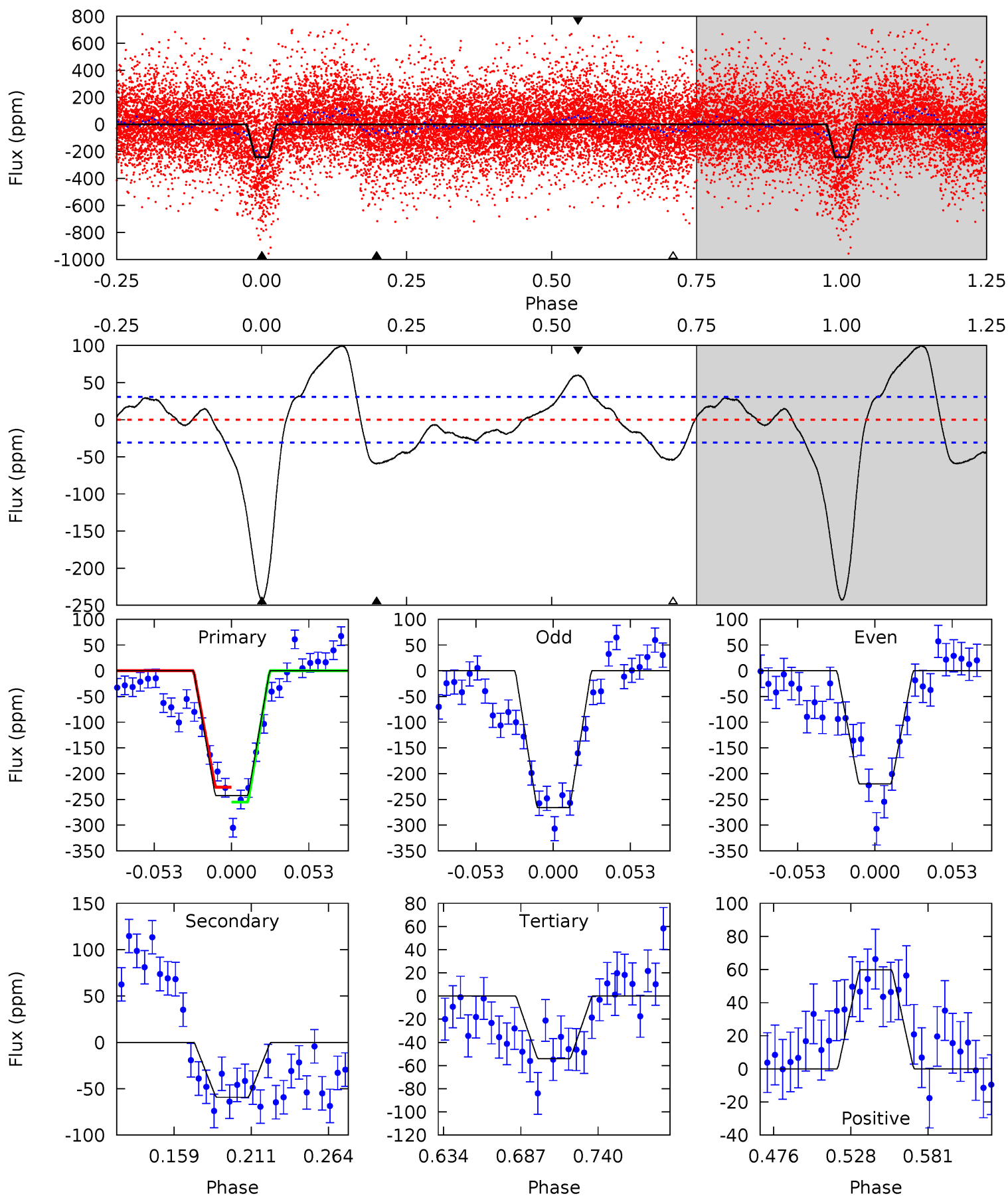
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	10.3	8.36	4.80	4.70	1.95	3.28	6.97	10.5	1.98	5.55	1.64	0.96	0.30	6.81



# Alt Model-Shift Uniqueness Test

009394920-01, P = 1.383896 Days, E = 132.784460 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
37.0	9.02	8.26	9.12	4.70	1.94	5.30	28.7	27.9	0.77	-0.10	3.52	0.91	0.29	2.19



### Stellar Parameters For KIC 009394920

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$11269^{+704}_{-1644}$	$3.639^{+0.459}_{-0.081}$	$0.210^{+0.150}_{-0.700}$	$4.699^{+0.433}_{-2.455}$	$3.504^{+0.070}_{-1.113}$	$0.048^{+0.235}_{-0.013}$
	+6%/-15%	+13%/-2%	+71%/-333%	+9%/-52%	+2%/-32%	+494%/-27%
Source	KIC0	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 009394920-01 / KOI 7168.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-81 \pm 8$	$4.56^{+2.42}_{-2.04}$	$7398^{+929}_{-1255}$	$9434^{+6734}_{-2282}$	$2.862^{+6.467}_{-1.670}$
Alt.	$-59 \pm 7$	$7.62^{+2.66}_{-2.51}$	$7394^{+899}_{-1215}$	$5765^{+1470}_{-1385}$	$0.726^{+0.832}_{-0.316}$

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

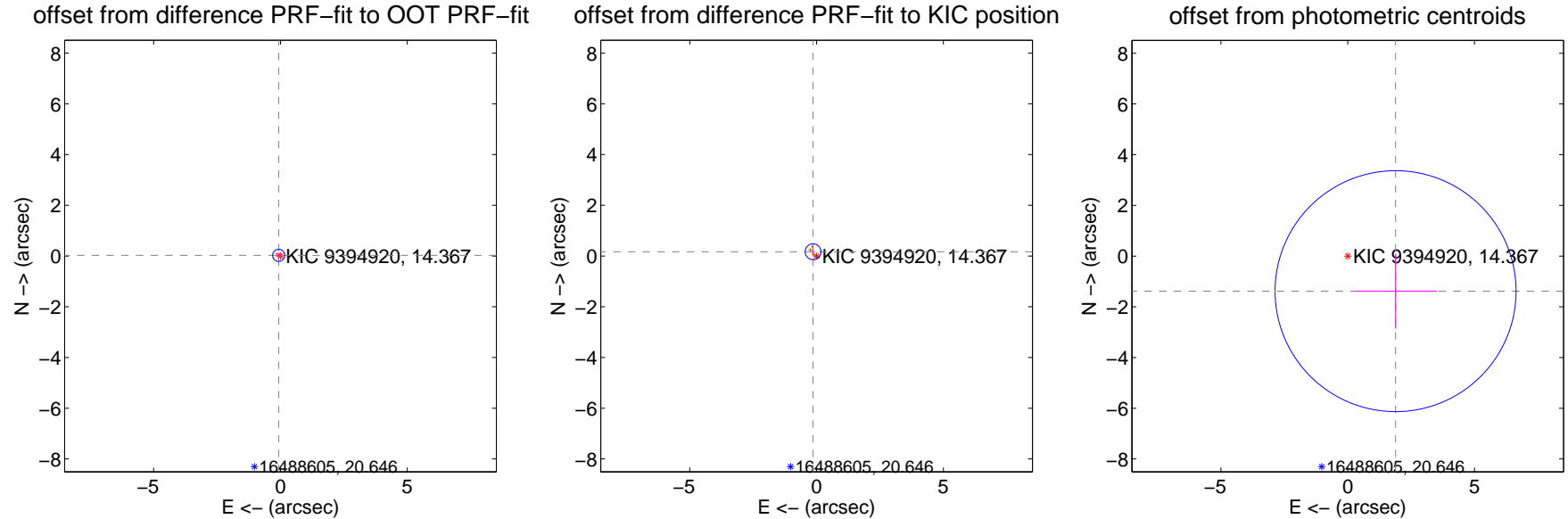
## DV Centroid Data

Supplemental centroid analysis for 009394920-01. Kepler magnitude: 14.37. Transit SNR 7.73

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.080$	0.94	$0.070 \pm 0.080$	$0.026 \pm 0.077$
PRF-fit source offset from KIC position	$0.218 \pm 0.104$	2.10	$0.139 \pm 0.075$	$0.168 \pm 0.120$
photometric centroid source offset	$2.34 \pm 1.58$	1.48	$-1.89 \pm 1.64$	$-1.38 \pm 1.48$



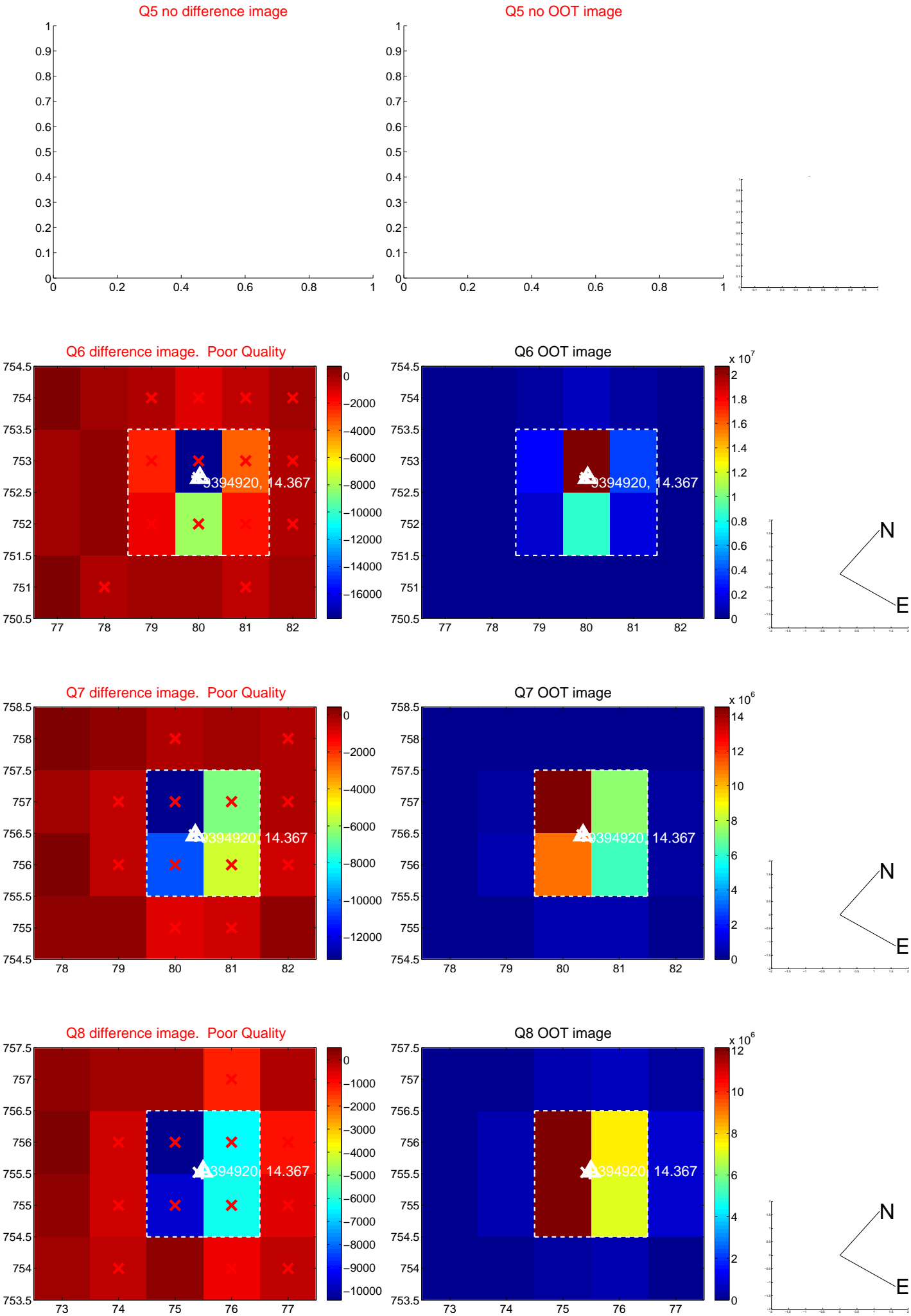
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

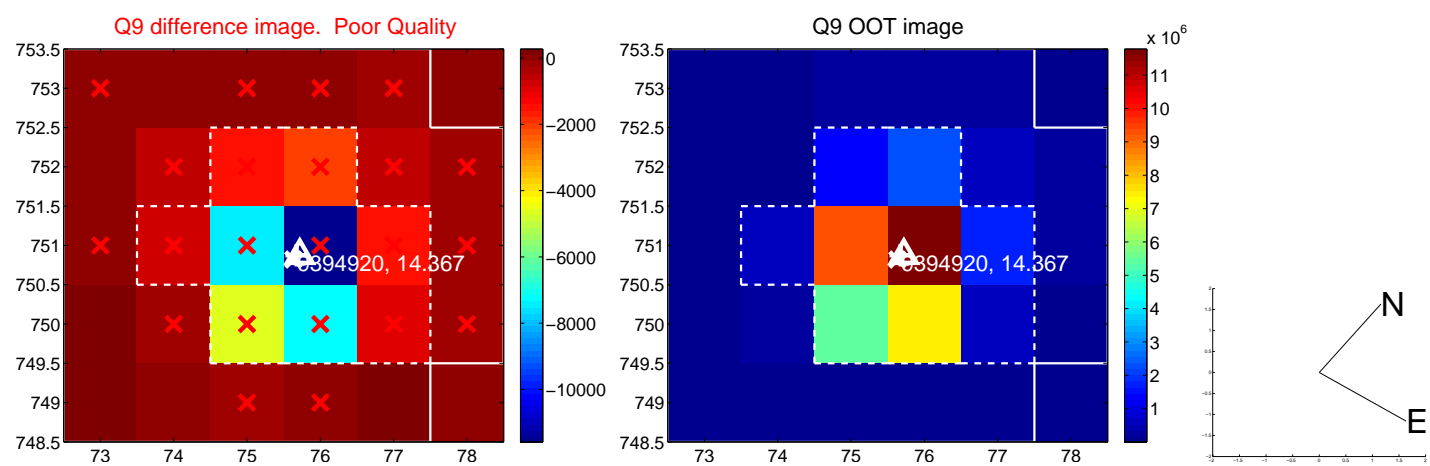




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



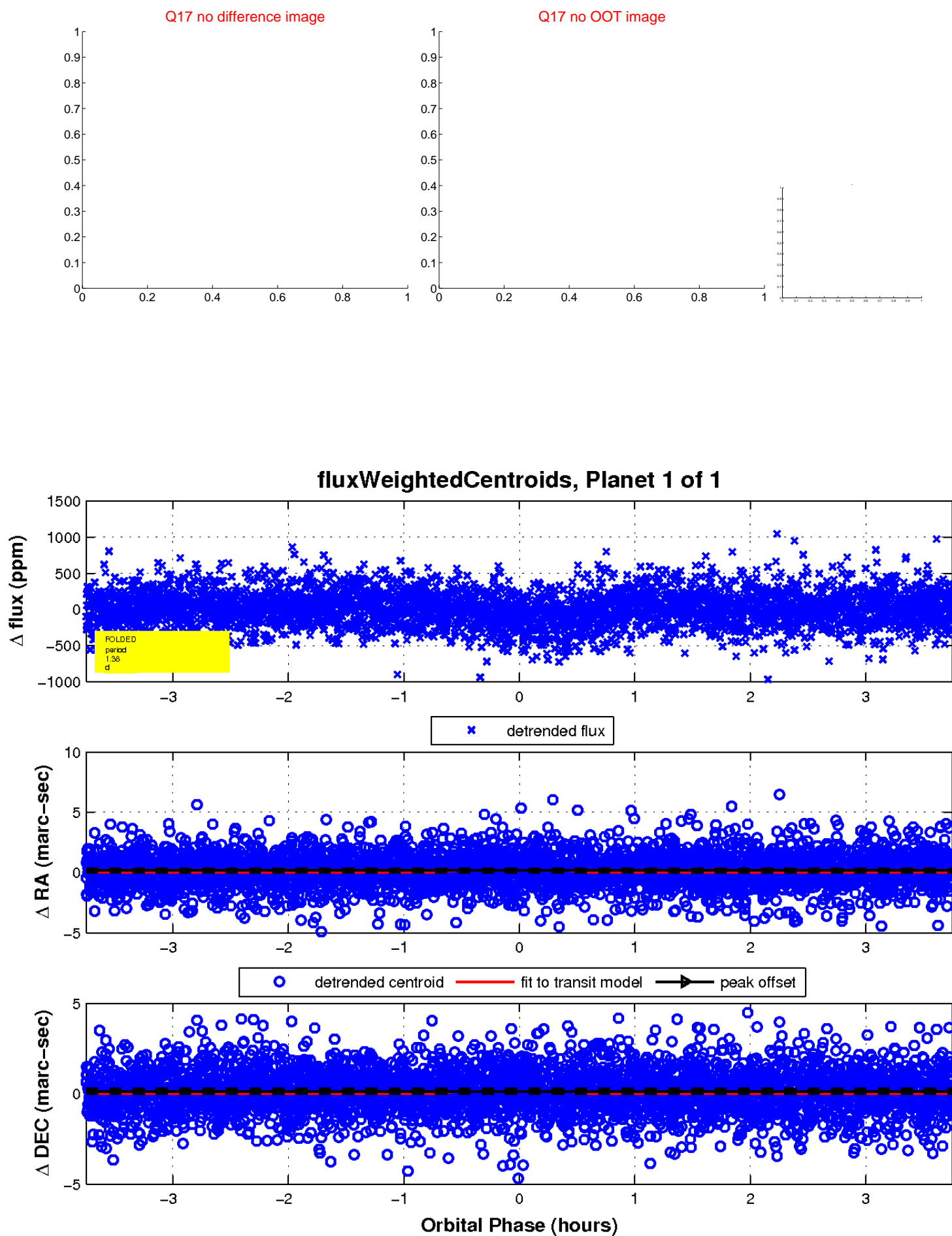
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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.



UKIRT Image

Declination

