

# KIC 009897809

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009897809-01	OBS	No	307.191710	318.658695	1157.7	3.392	8.9	6.8	9.50	4612	34.83	34.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009897809-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_ALT—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

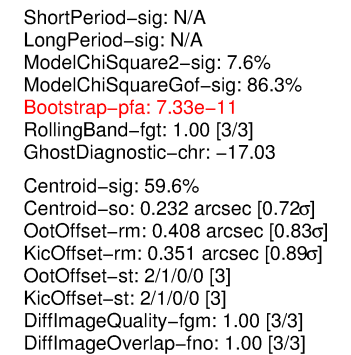
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

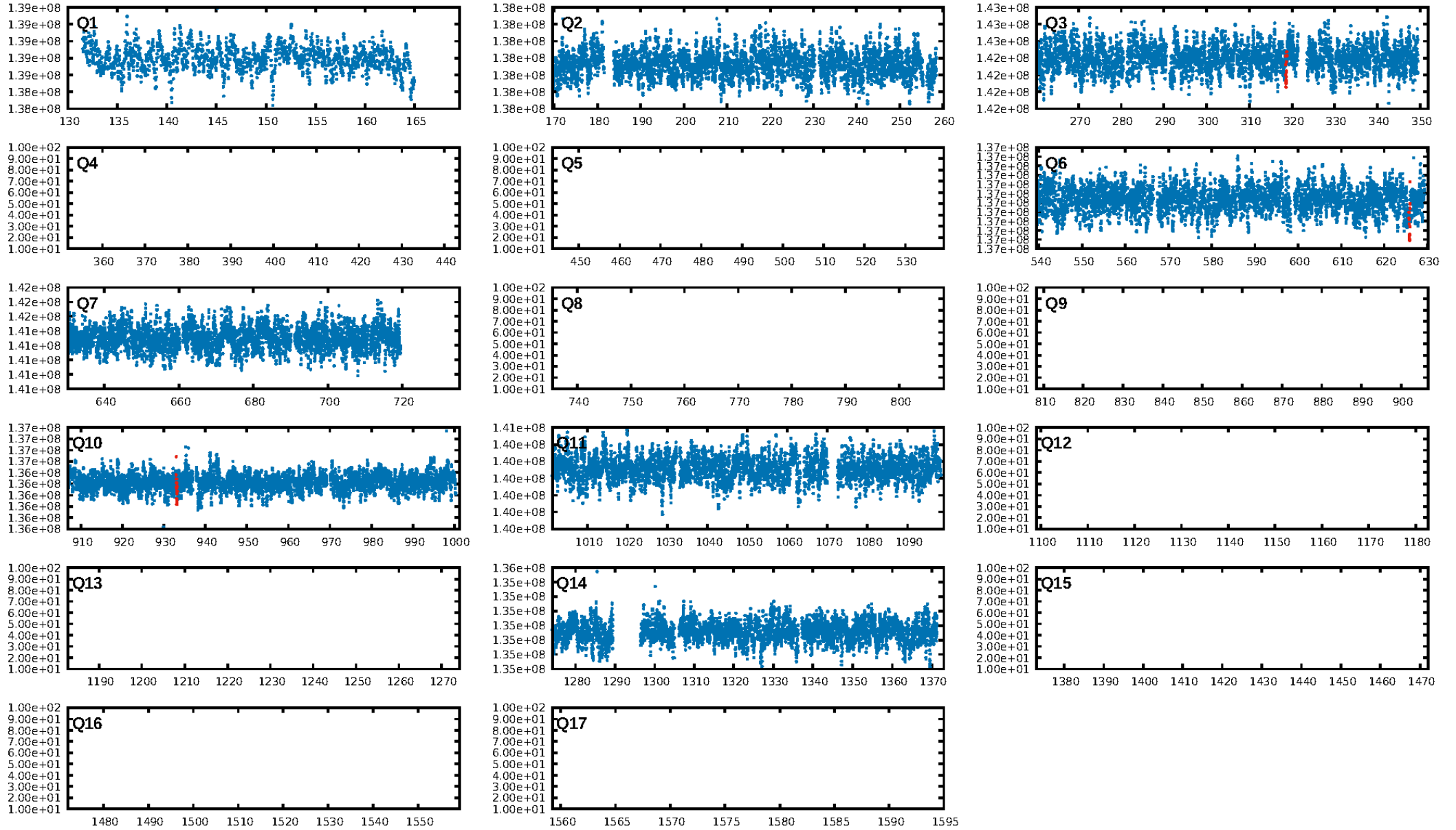
## Ephemeris Match Information For 009897809-01

No Significant Match Found

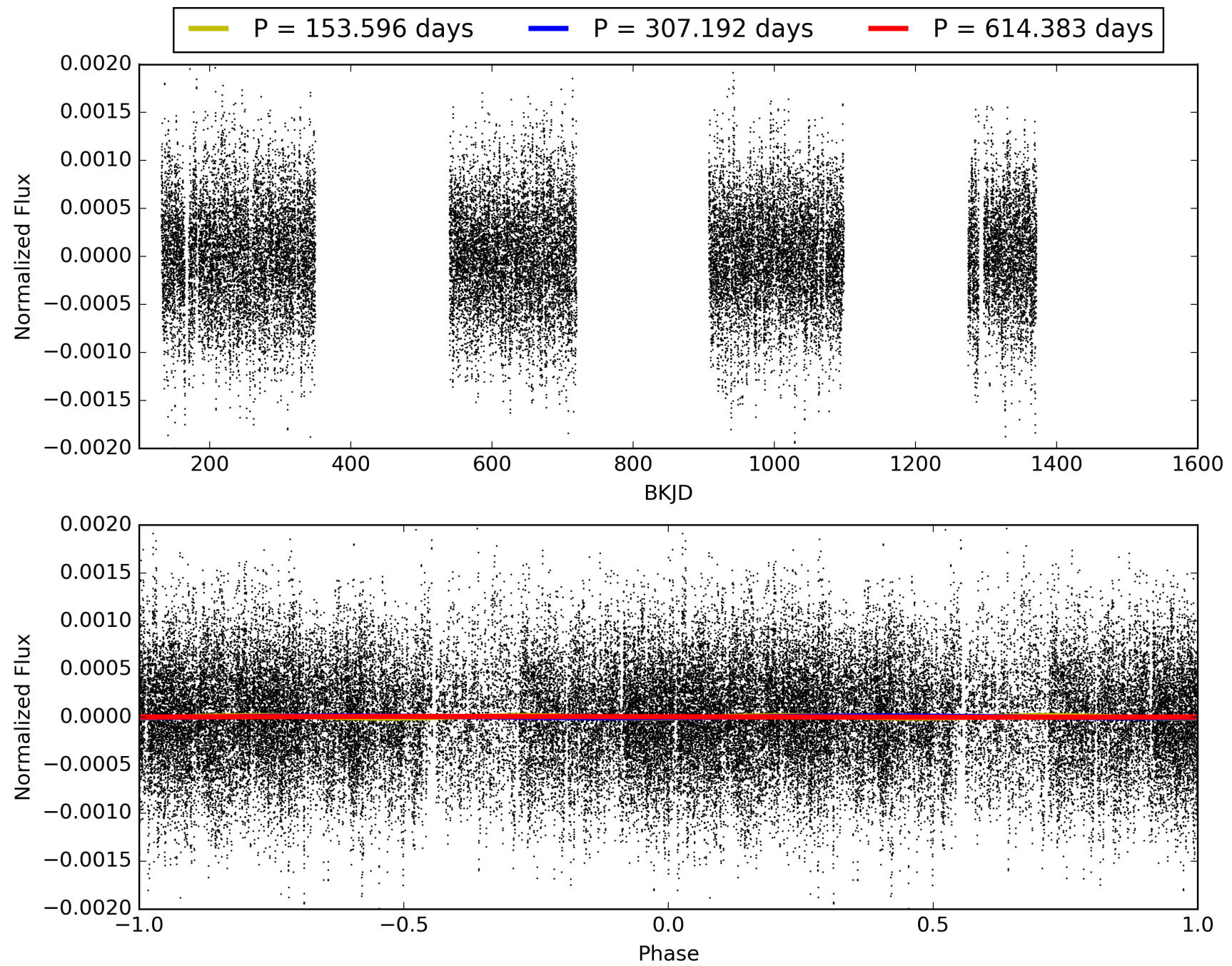
KIC: 9897809    Candidate: 1 of 1    Period: 307.192 d



# TCE 009897809-01, PDC Light Curves

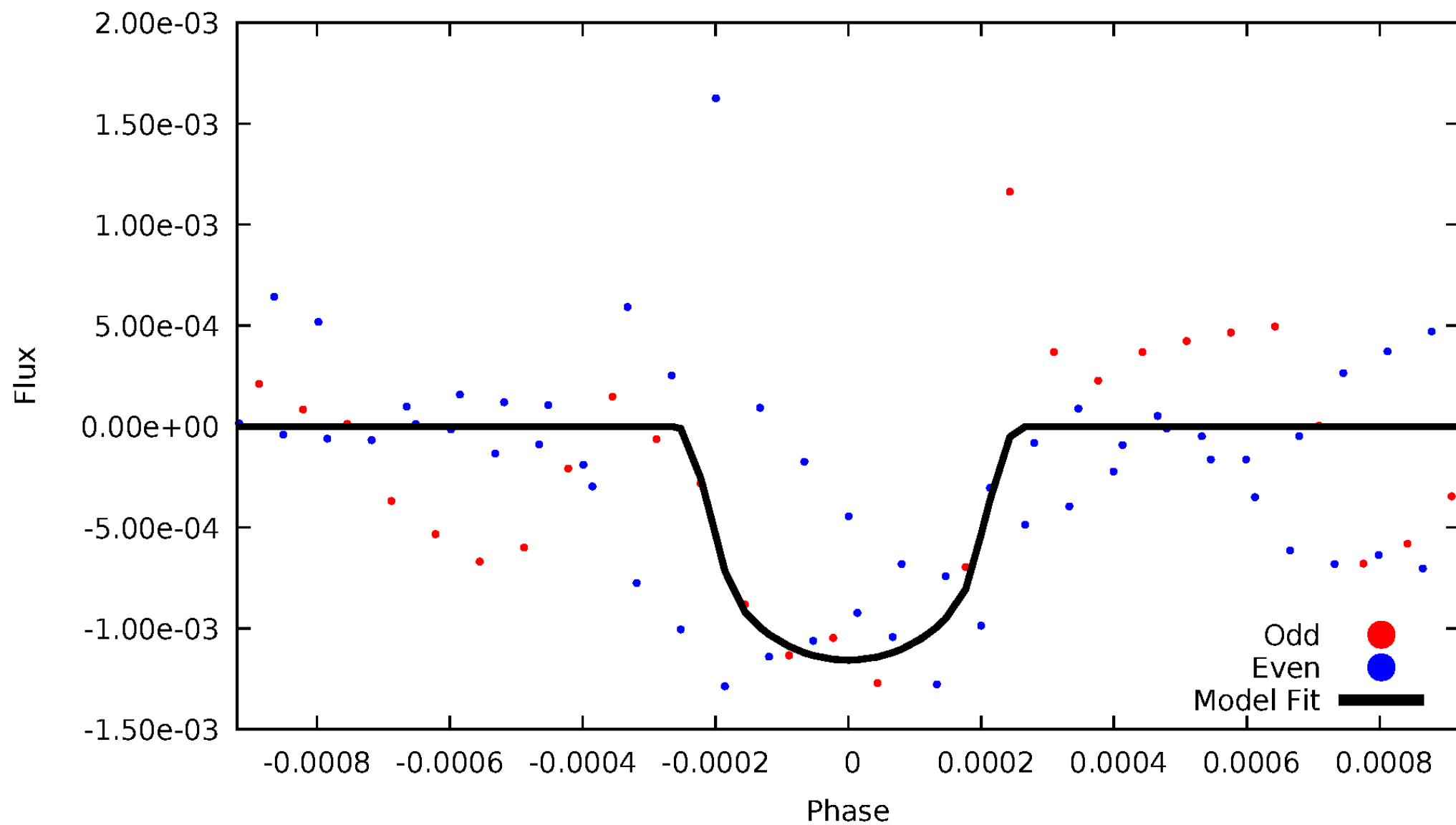


TCE 009897809-01



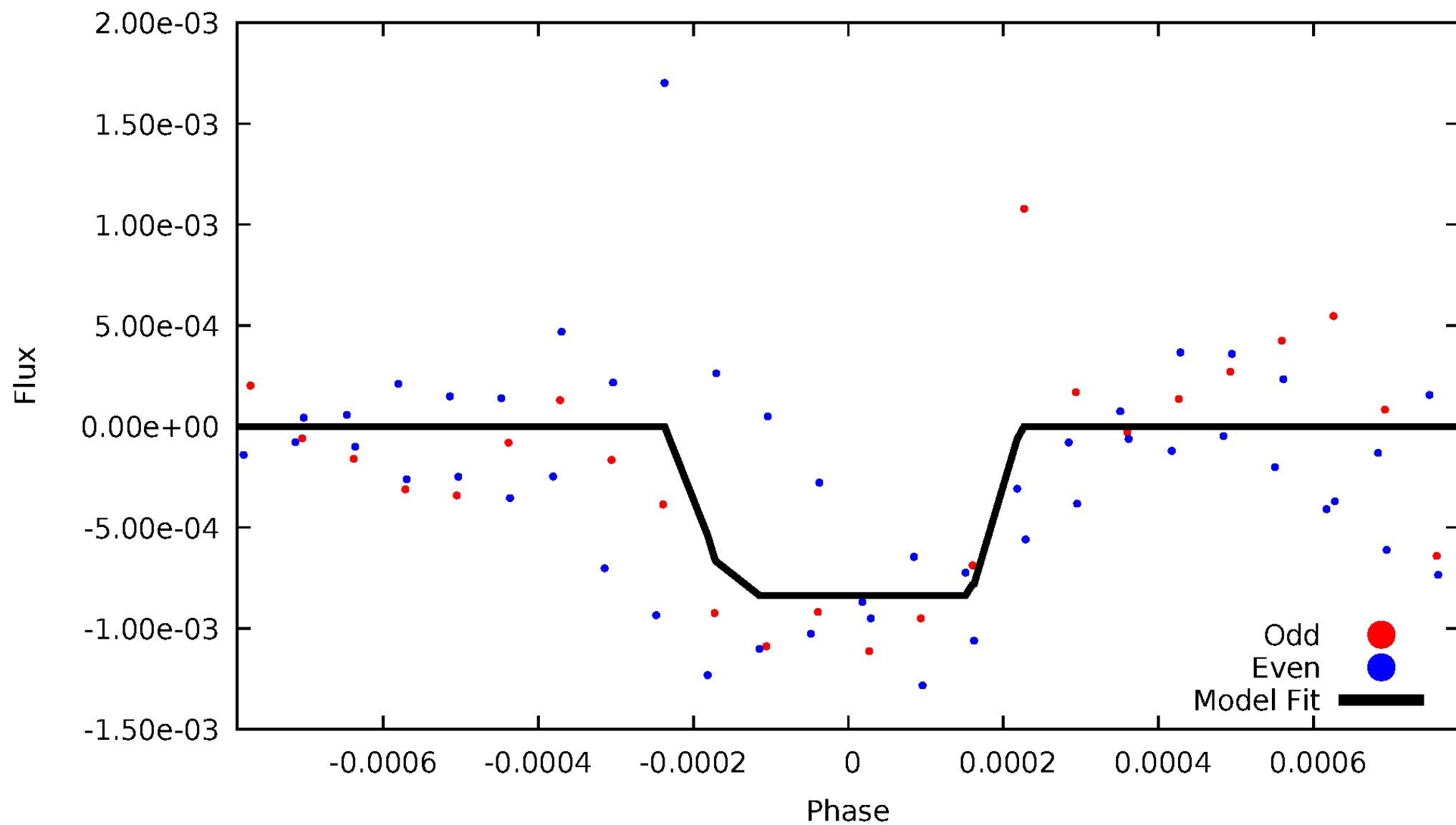
# DV Odd/Even

TCE 009897809-01



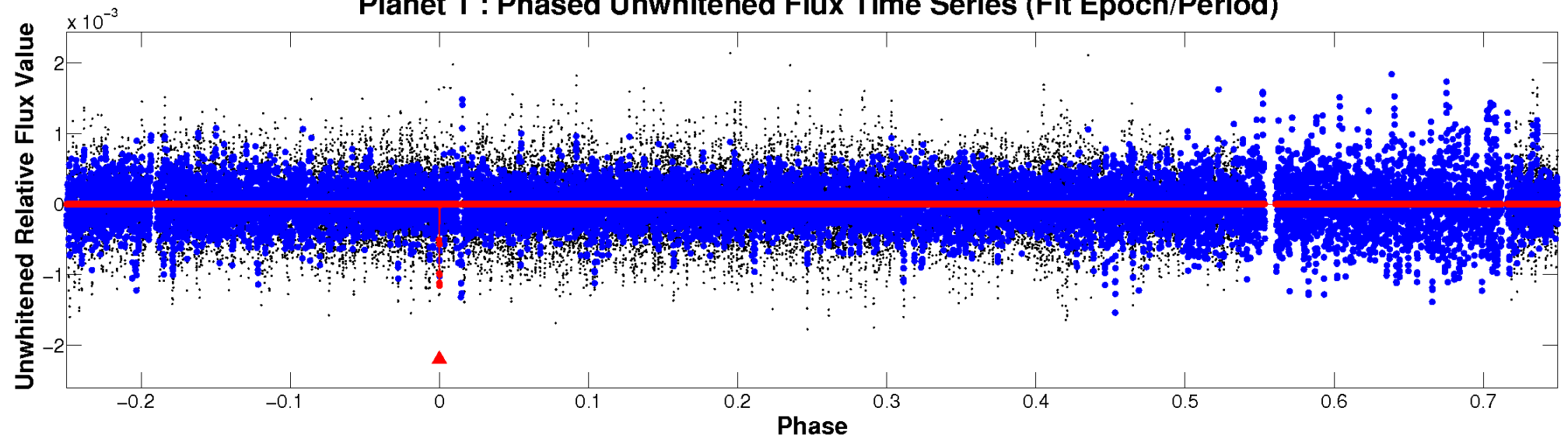
# ALT Odd/Even

TCE 009897809-01

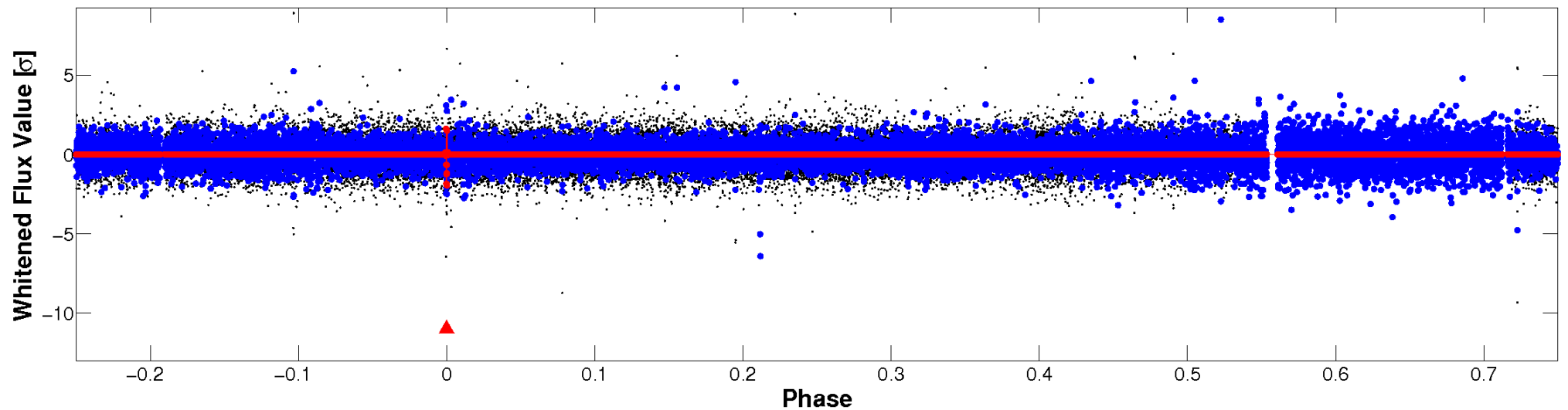


# Non-Whitened Vs. Whitened Light Curve

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

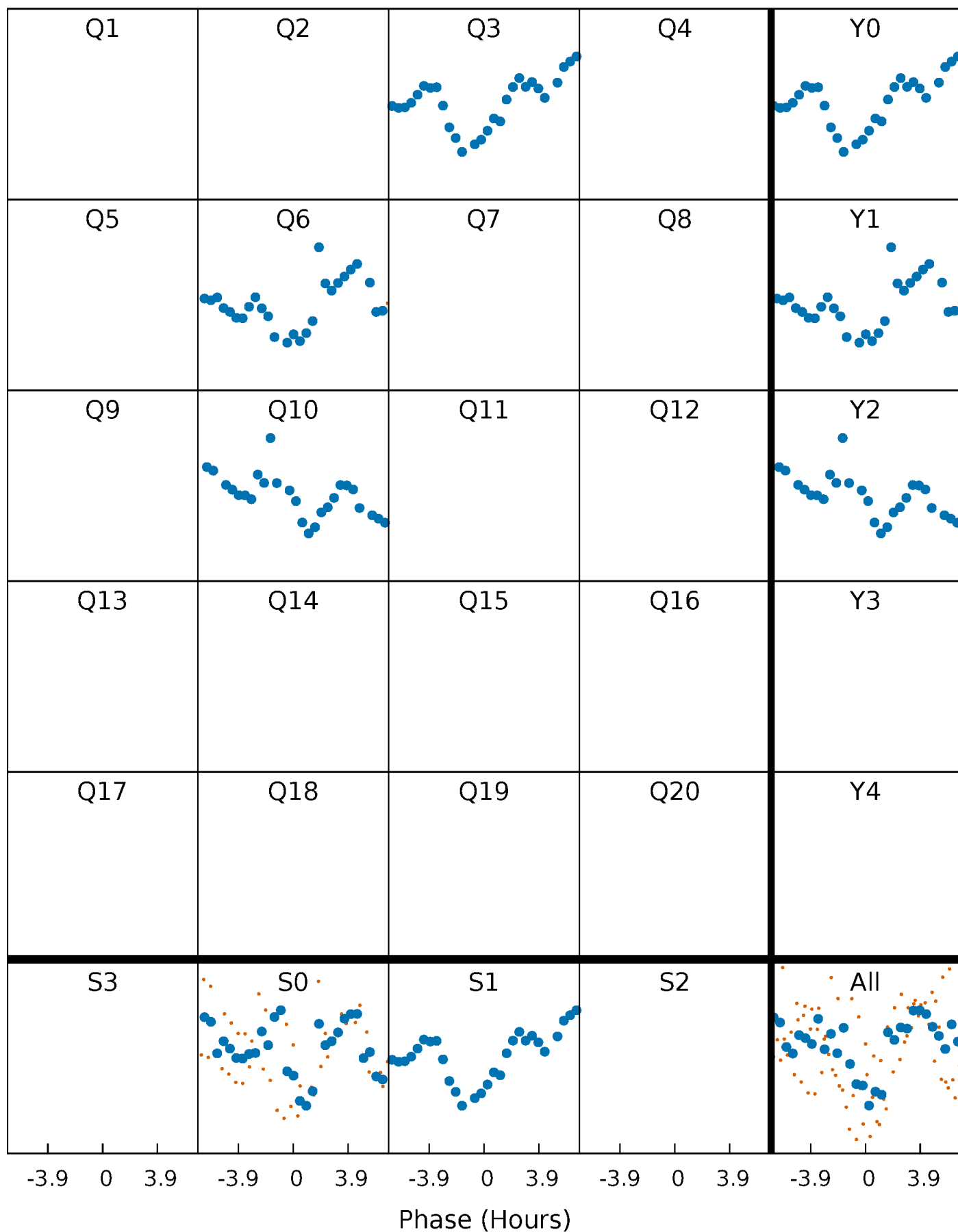


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

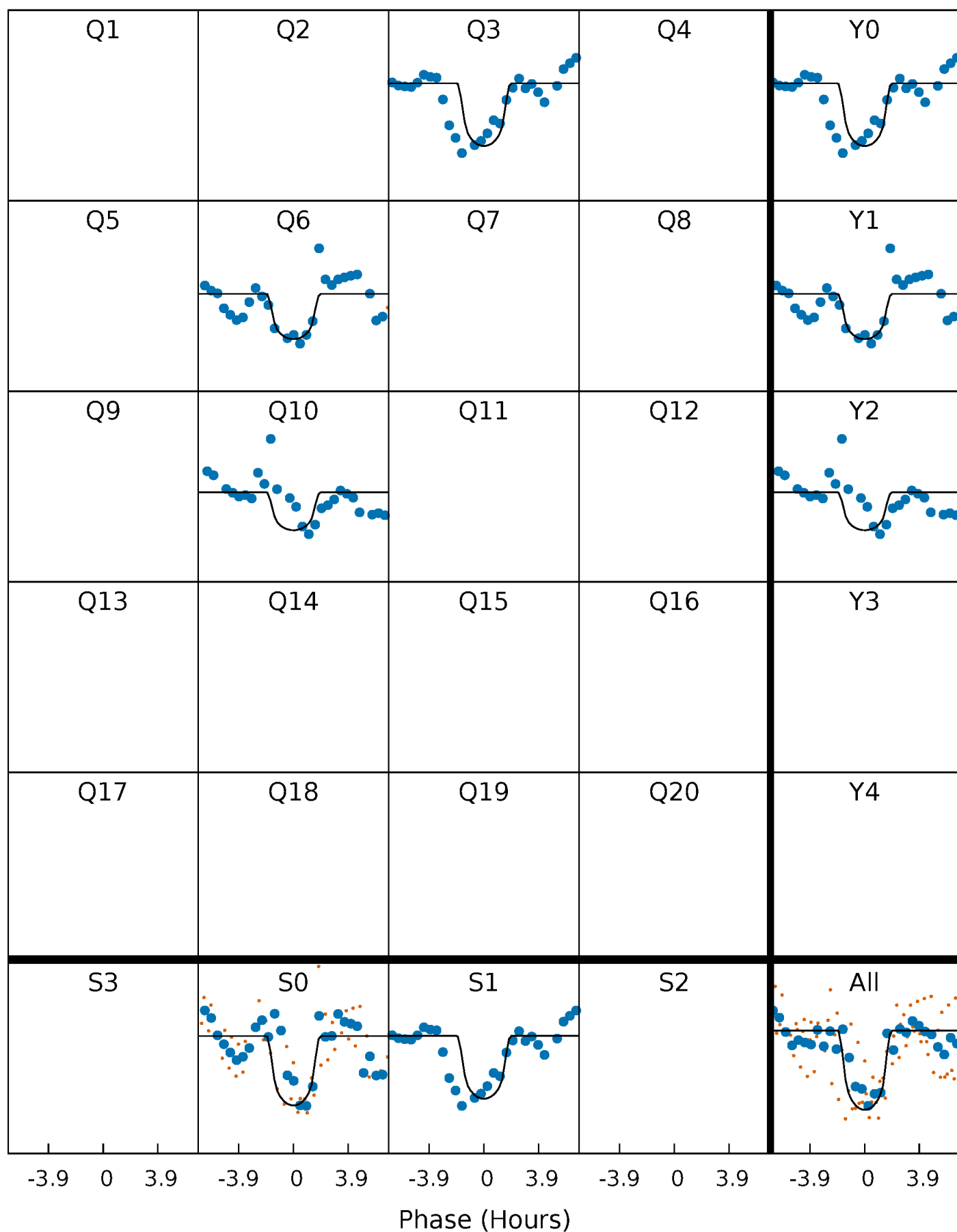
TCE 009897809-01 P=307.191710 Days  $T_0=318.658695$  (BKJD)





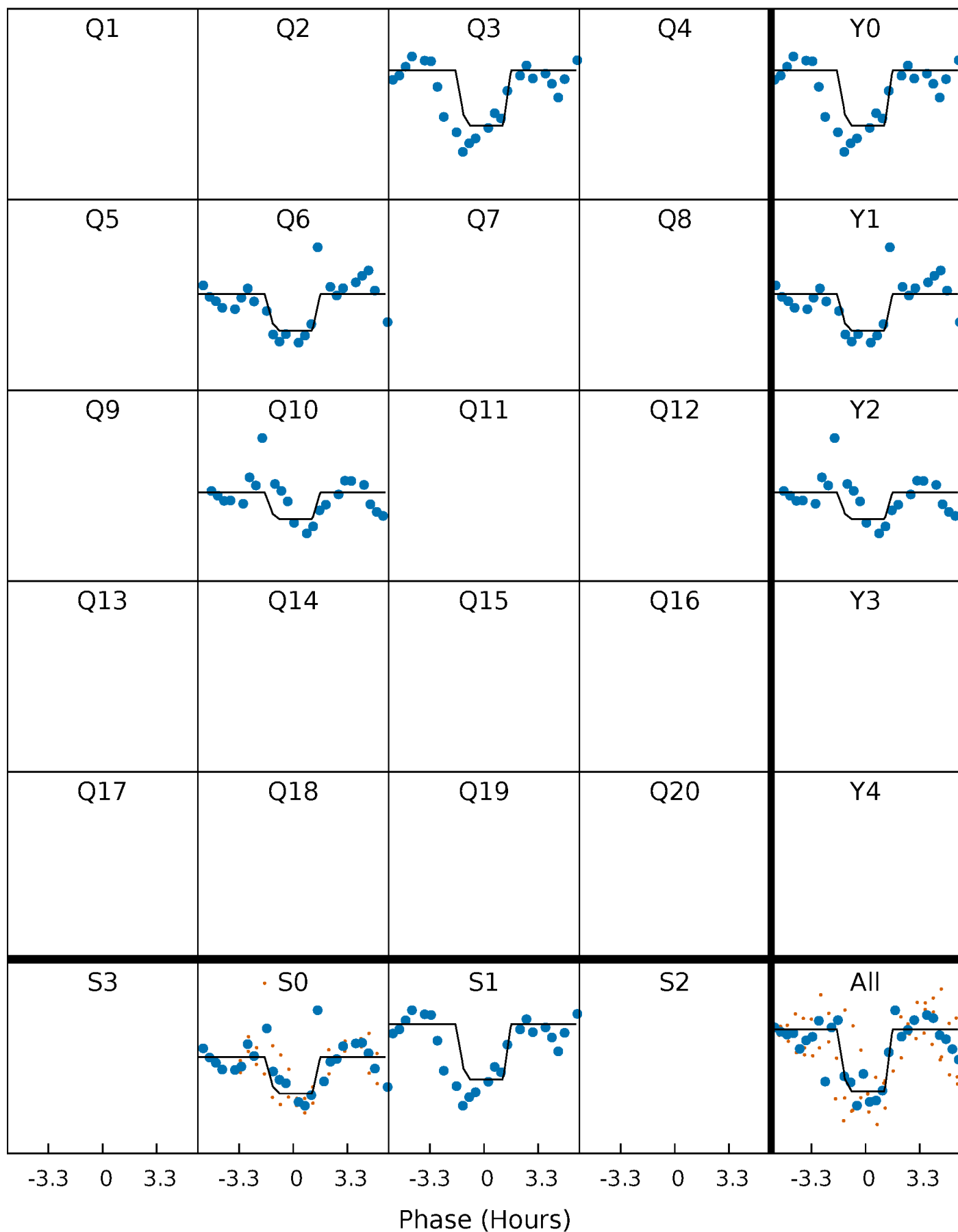
# DV Quarter-Phased Transit Curves

TCE 009897809-01 P=307.191710 Days  $T_0=318.658695$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

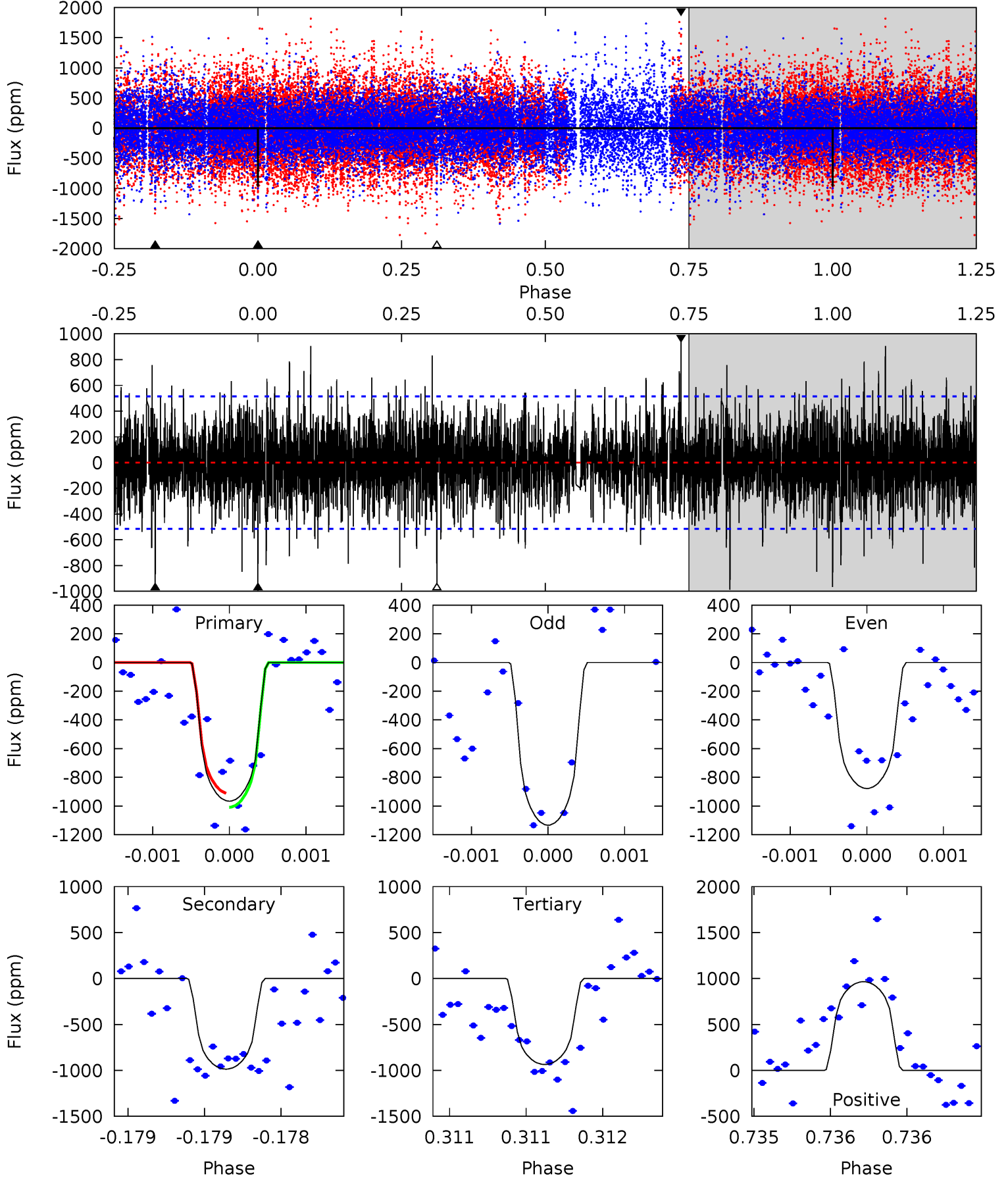
TCE 009897809-01 P=307.198173 Days  $T_0=318.657323$  (BKJD)



# DV Model-Shift Uniqueness Test

009897809-01, P = 307.191710 Days, E = 11.466985 Days

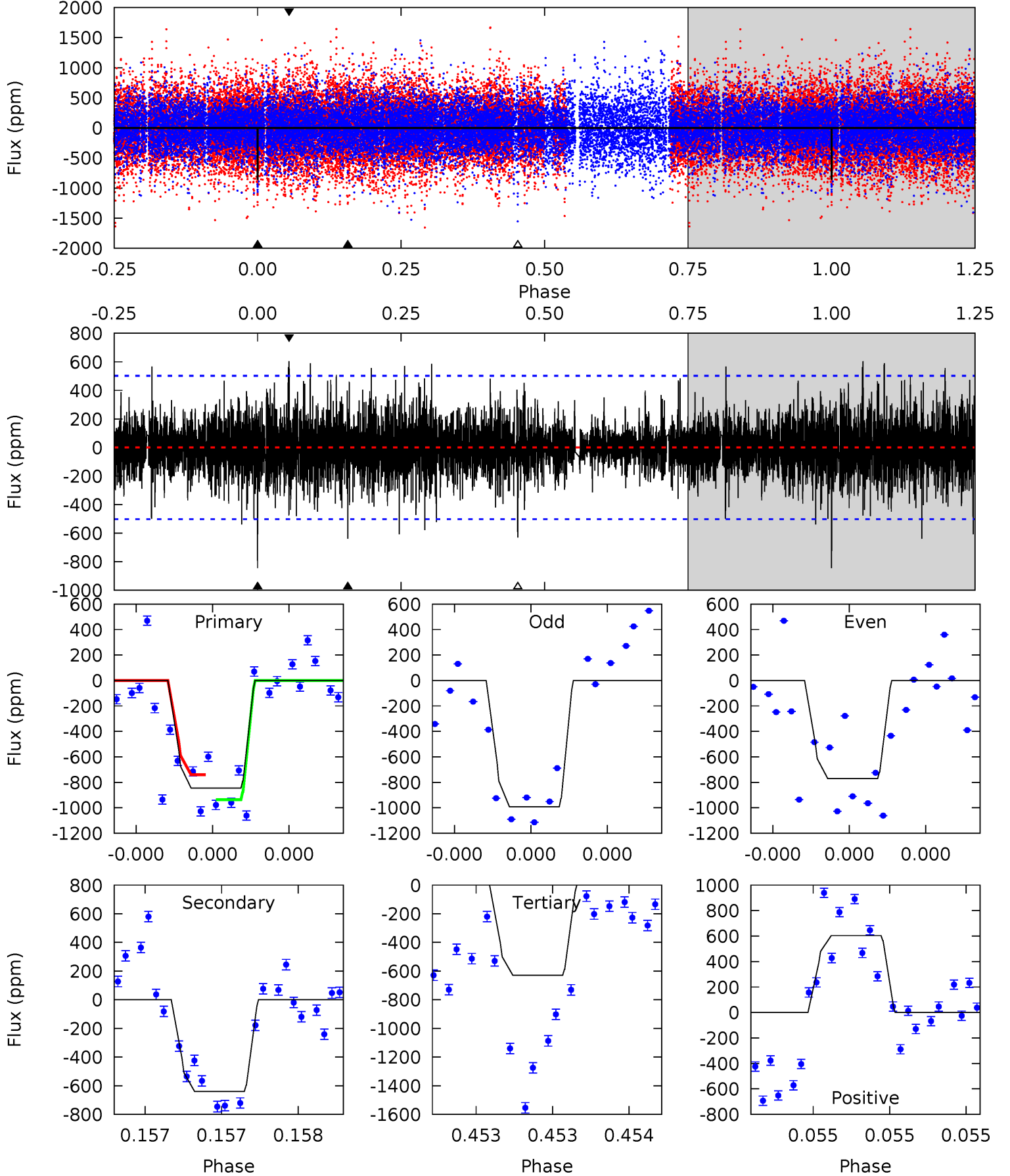
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	10.7	10.1	10.4	5.57	3.47	2.28	0.33	0.01	0.55	0.23	1.36	0.84	0.49	0.52



# Alt Model-Shift Uniqueness Test

009897809-01, P = 307.198173 Days, E = 11.459150 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
9.44	7.15	7.04	6.75	5.61	3.53	1.61	2.41	2.70	0.11	0.40	1.15	0.88	0.42	1.10



### Stellar Parameters For KIC 009897809

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4612^{+55}_{-82}$	$2.674^{+0.030}_{-0.033}$	$0.200^{+0.150}_{-0.150}$	$9.504^{+0.759}_{-1.409}$	$1.555^{+0.239}_{-0.411}$	$0.003^{+0.001}_{-0.000}$
	+1%/-2%	+1%/-1%	+75%/-75%	+8%/-15%	+15%/-26%	+20%/-11%
Source	SPE74	AST9	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 009897809-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-987 \pm 92$	$34.84^{+17.77}_{-16.09}$	$863^{+18}_{-20}$	$4487^{+1281}_{-626}$	$474^{+1095}_{-265}$
Alt.	$-640 \pm 89$	$31.77^{+15.53}_{-15.99}$	$863^{+19}_{-20}$	$4267^{+1428}_{-538}$	$367^{+1169}_{-201}$

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

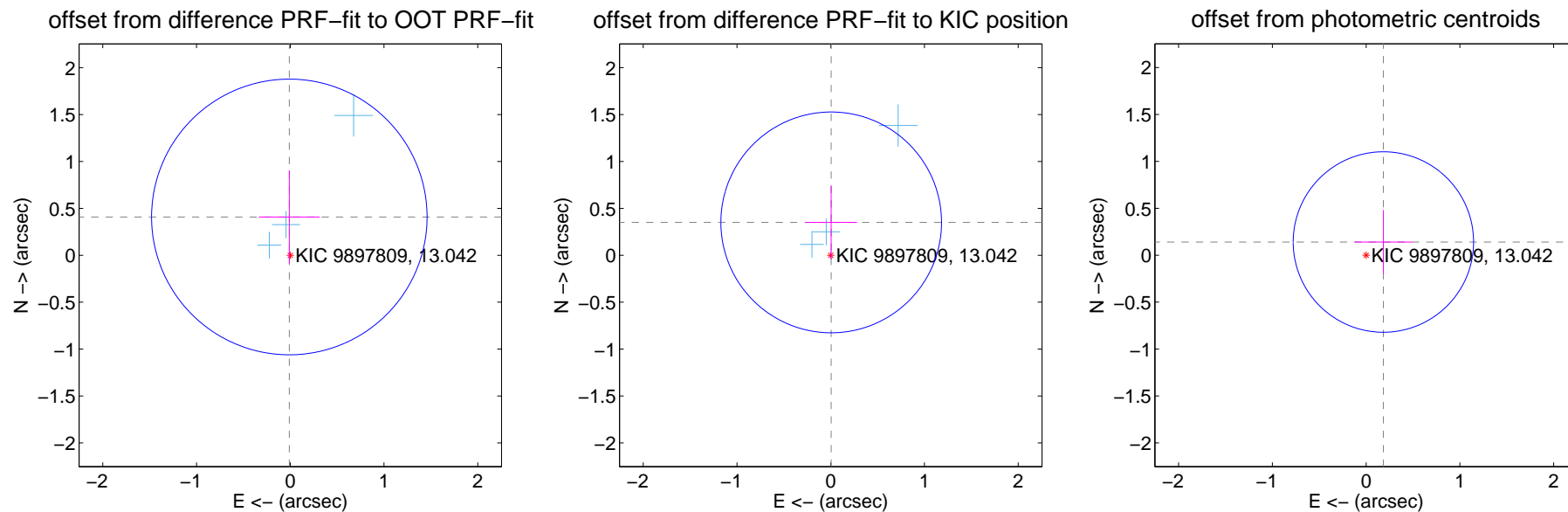
## DV Centroid Data

Supplemental centroid analysis for 009897809-01. Kepler magnitude: 13.04. Transit SNR 6.85

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.408 \pm 0.490$	0.83	$0.010 \pm 0.325$	$0.408 \pm 0.498$
PRF-fit source offset from KIC position	$0.351 \pm 0.392$	0.89	$-0.005 \pm 0.275$	$0.351 \pm 0.392$
photometric centroid source offset	$0.23 \pm 0.32$	0.72	$-0.18 \pm 0.31$	$0.14 \pm 0.34$



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.

Q1 no difference image



Q1 no OOT image



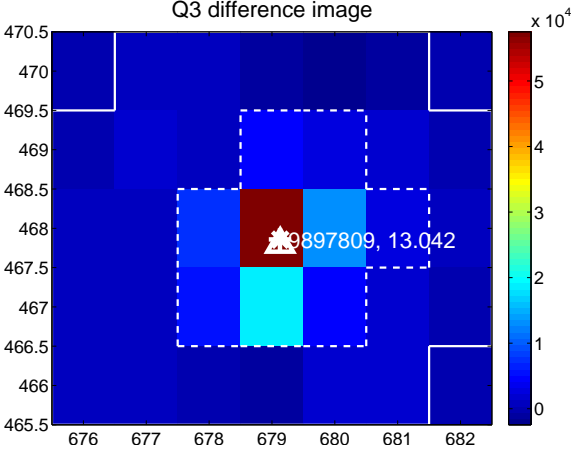
Q2 no difference image



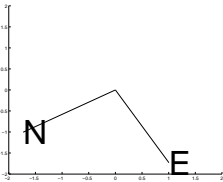
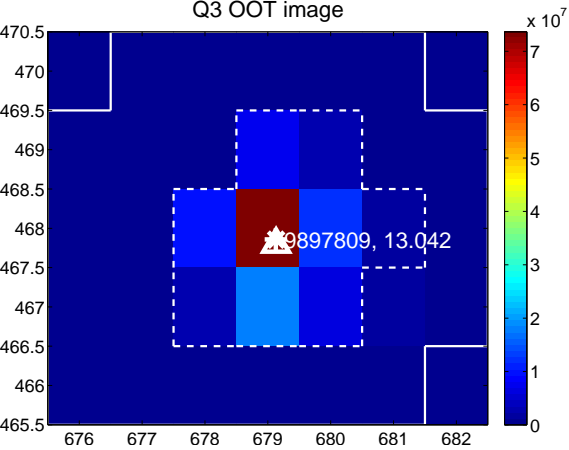
Q2 no OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

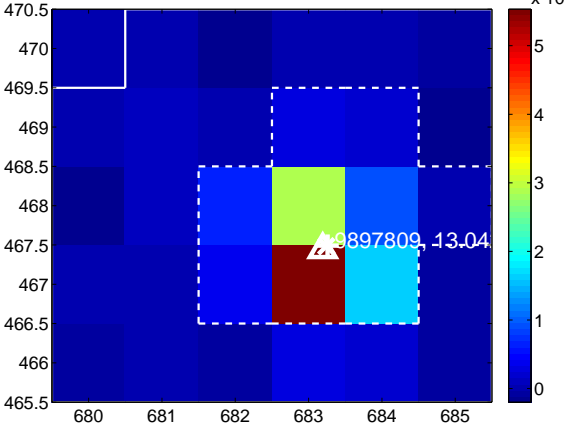
Q5 no difference image



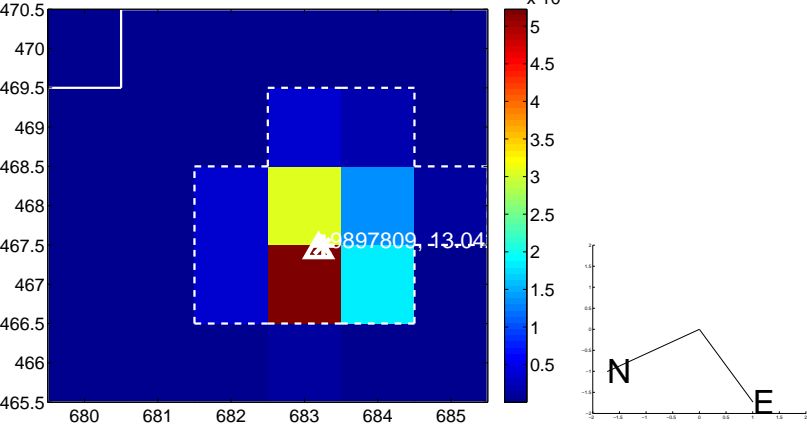
Q5 no OOT image



Q6 difference image



Q6 OOT image



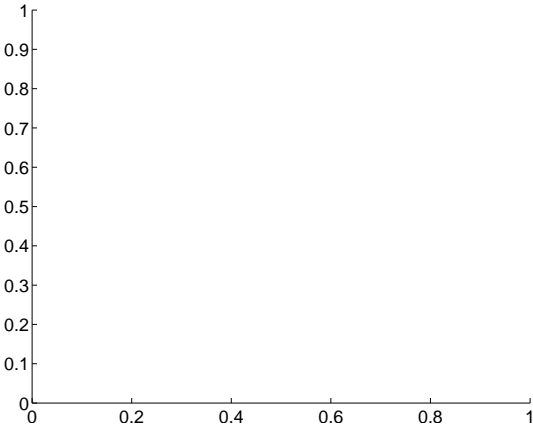
Q7 no difference image



Q7 no OOT image



Q8 no difference image

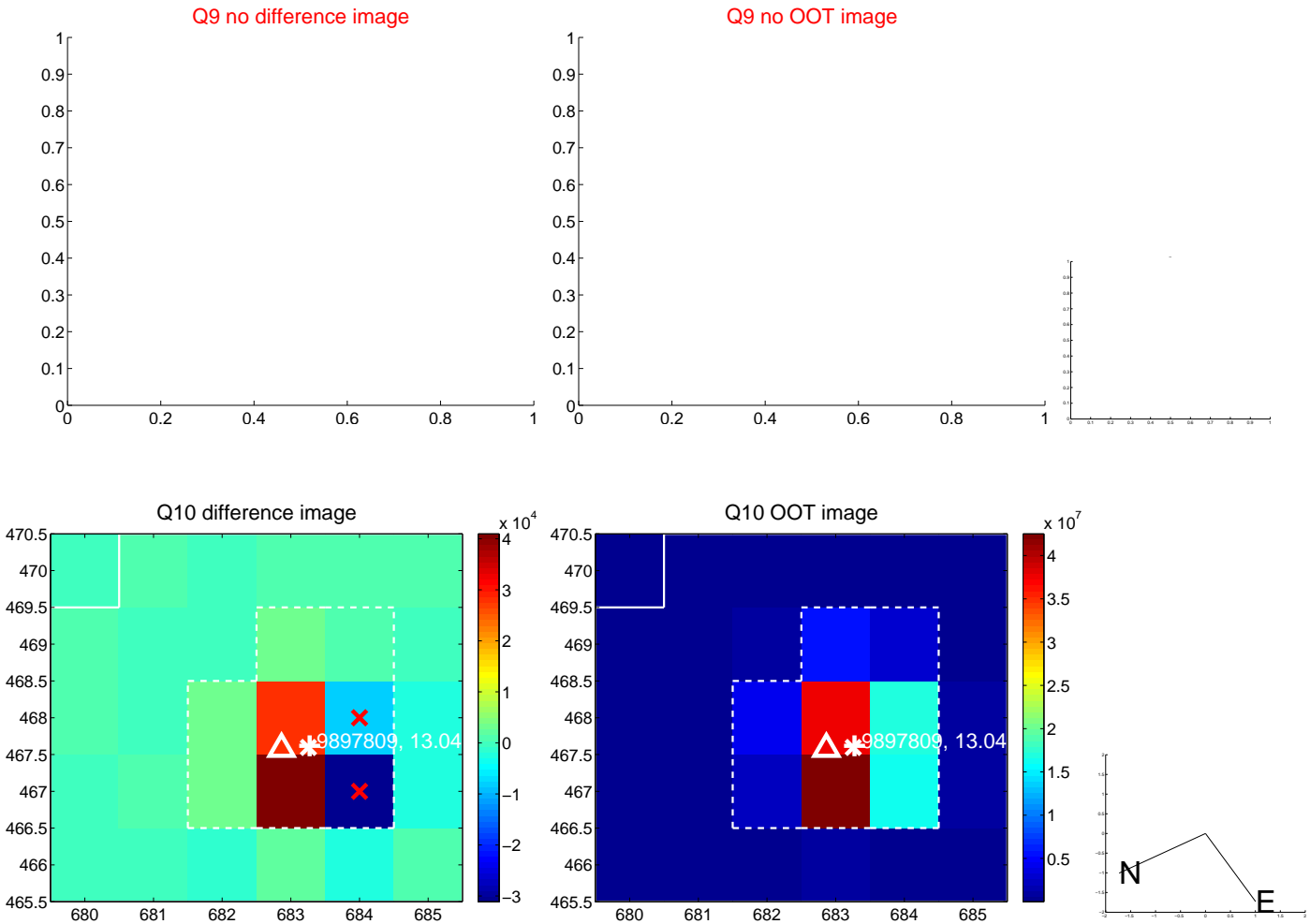


Q8 no OOT image





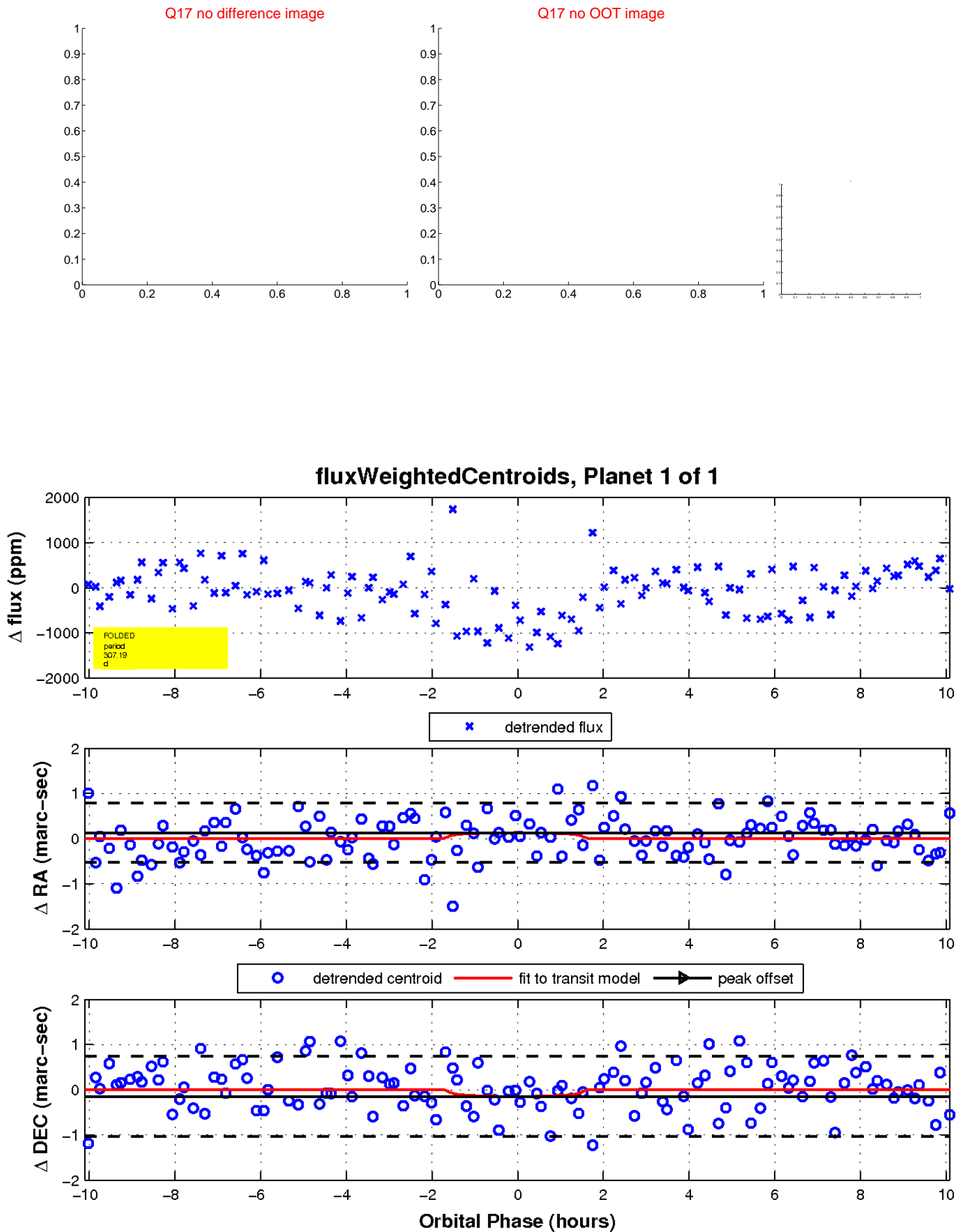
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

