

# KIC 008108639

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008108639-01	OBS	No	367.013571	238.560104	455.8	14.240	7.9	7.4	0.81	5844	1.76	0.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008108639-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

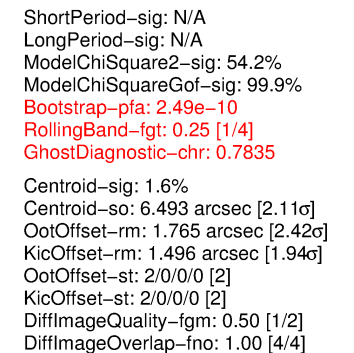
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

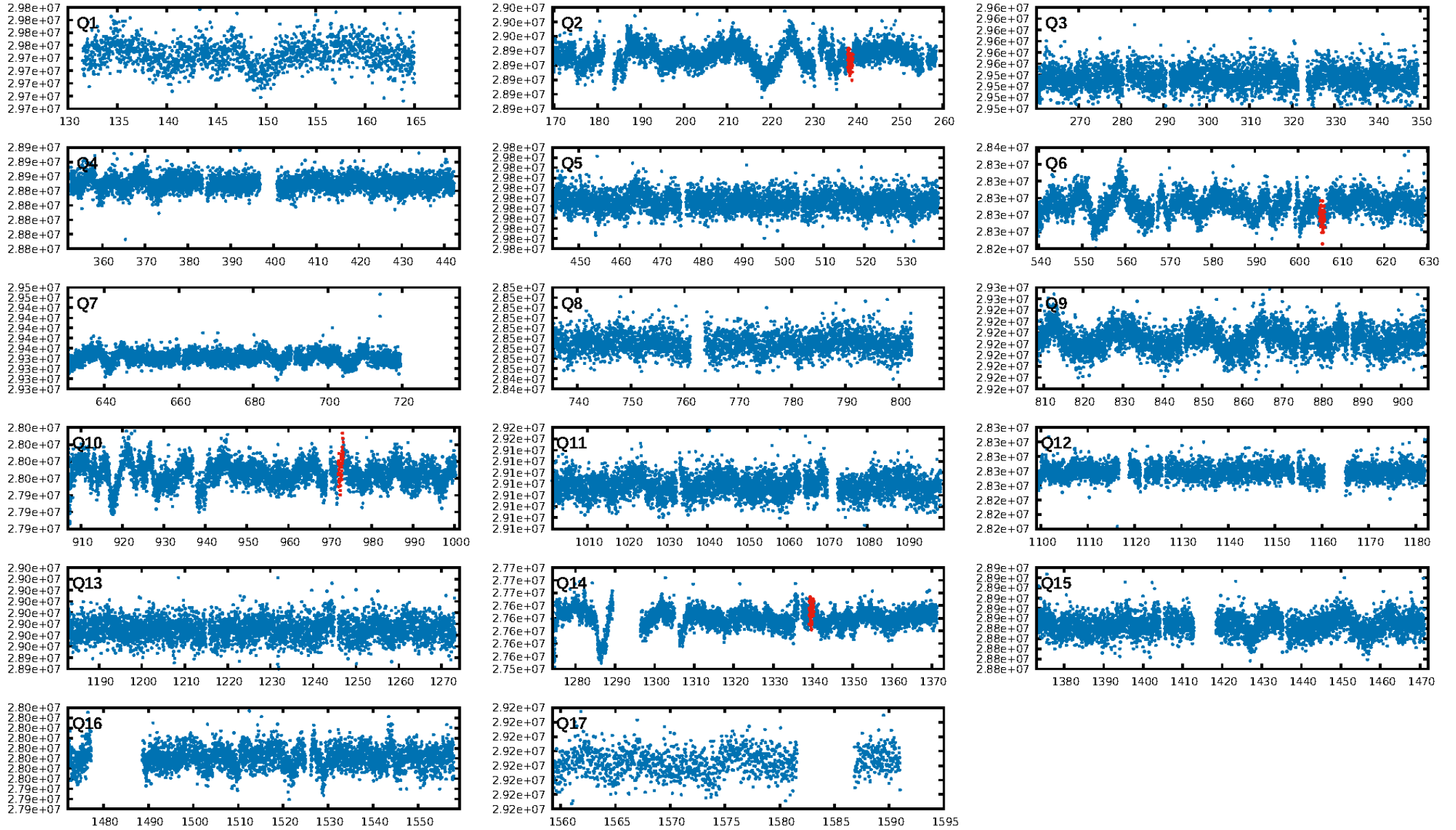
## Ephemeris Match Information For 008108639-01

No Significant Match Found

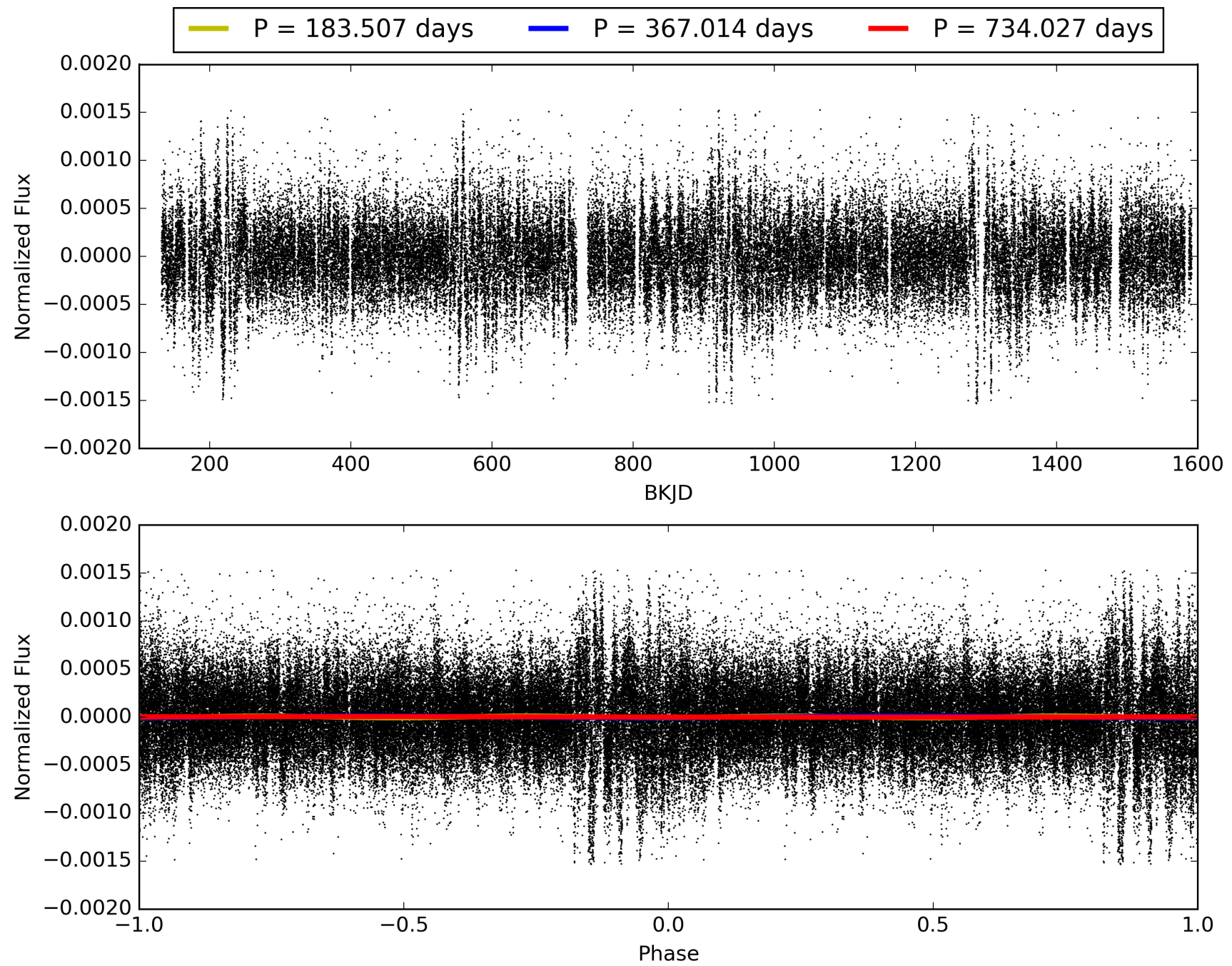
KIC: 8108639    Candidate: 1 of 1    Period: 367.014 d



# TCE 008108639-01, PDC Light Curves

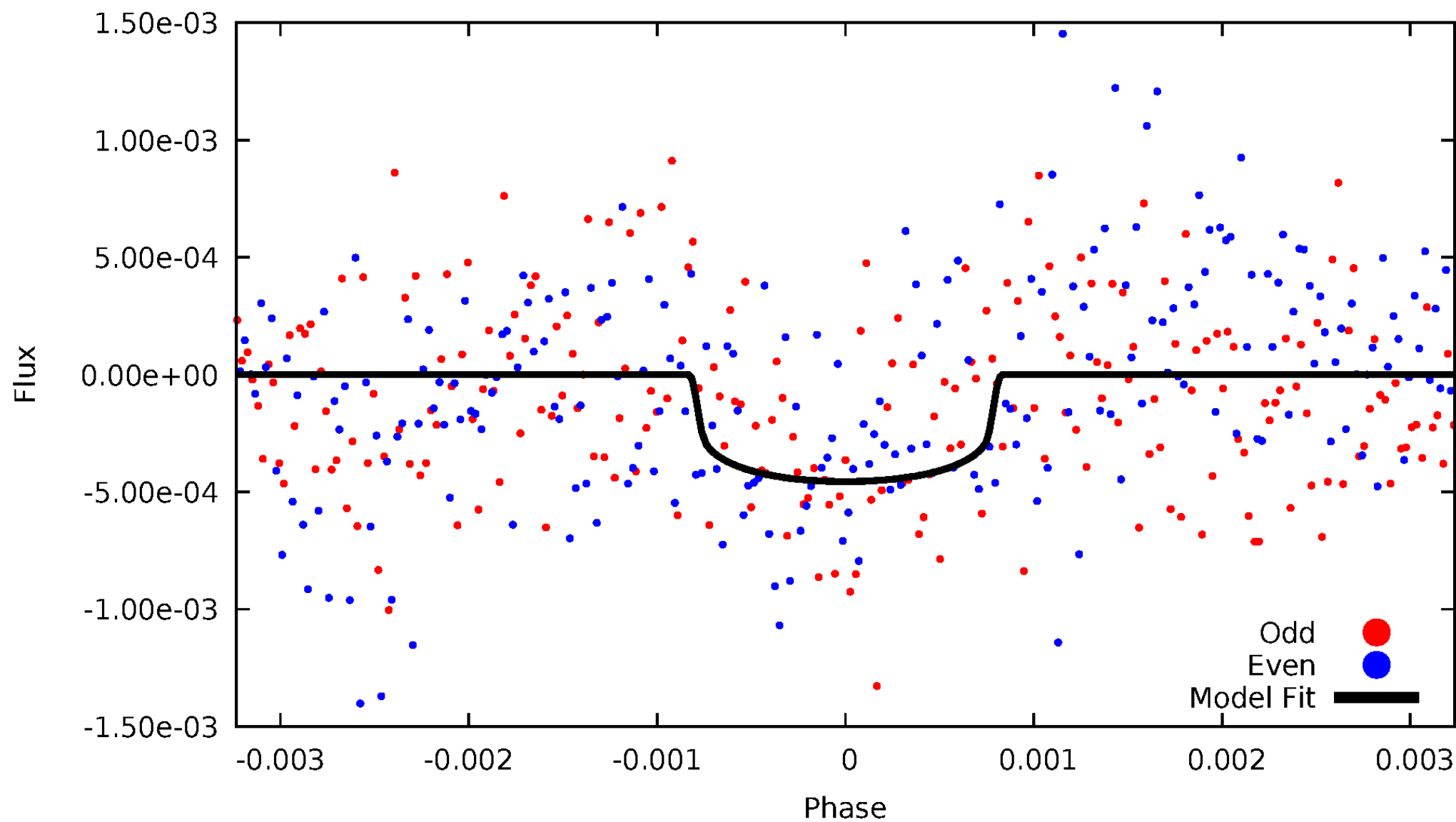


# TCE 008108639-01



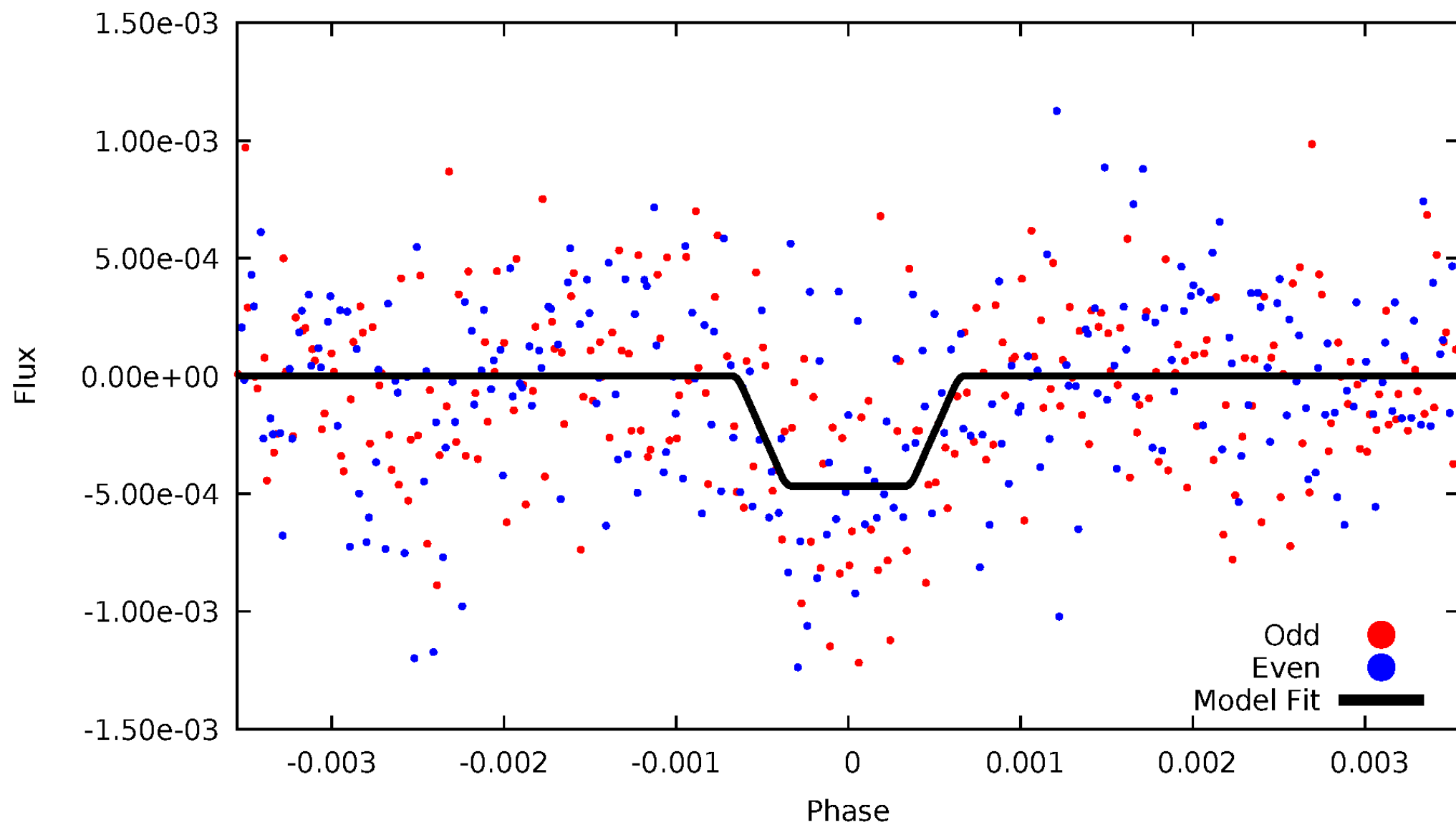
# DV Odd/Even

TCE 008108639-01



# ALT Odd/Even

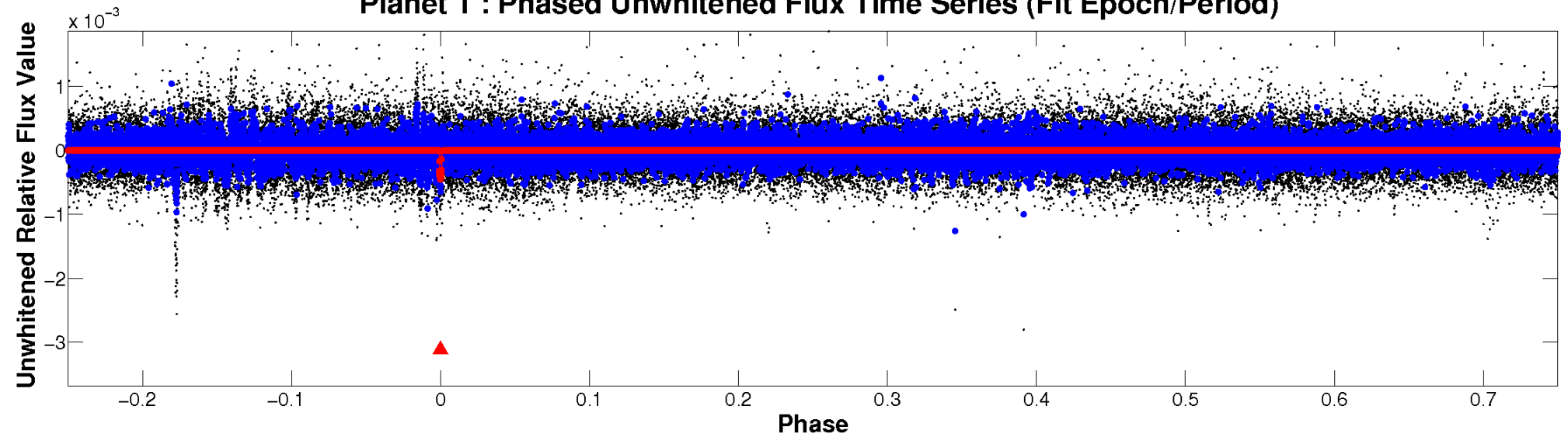
TCE 008108639-01



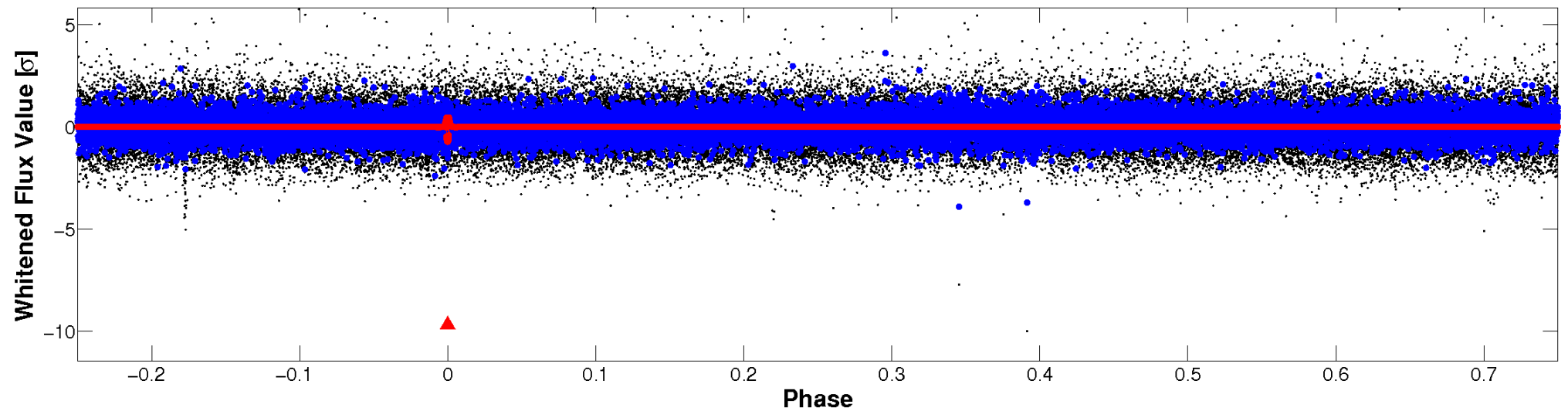


# Non-Whitened Vs. Whitened Light Curve

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

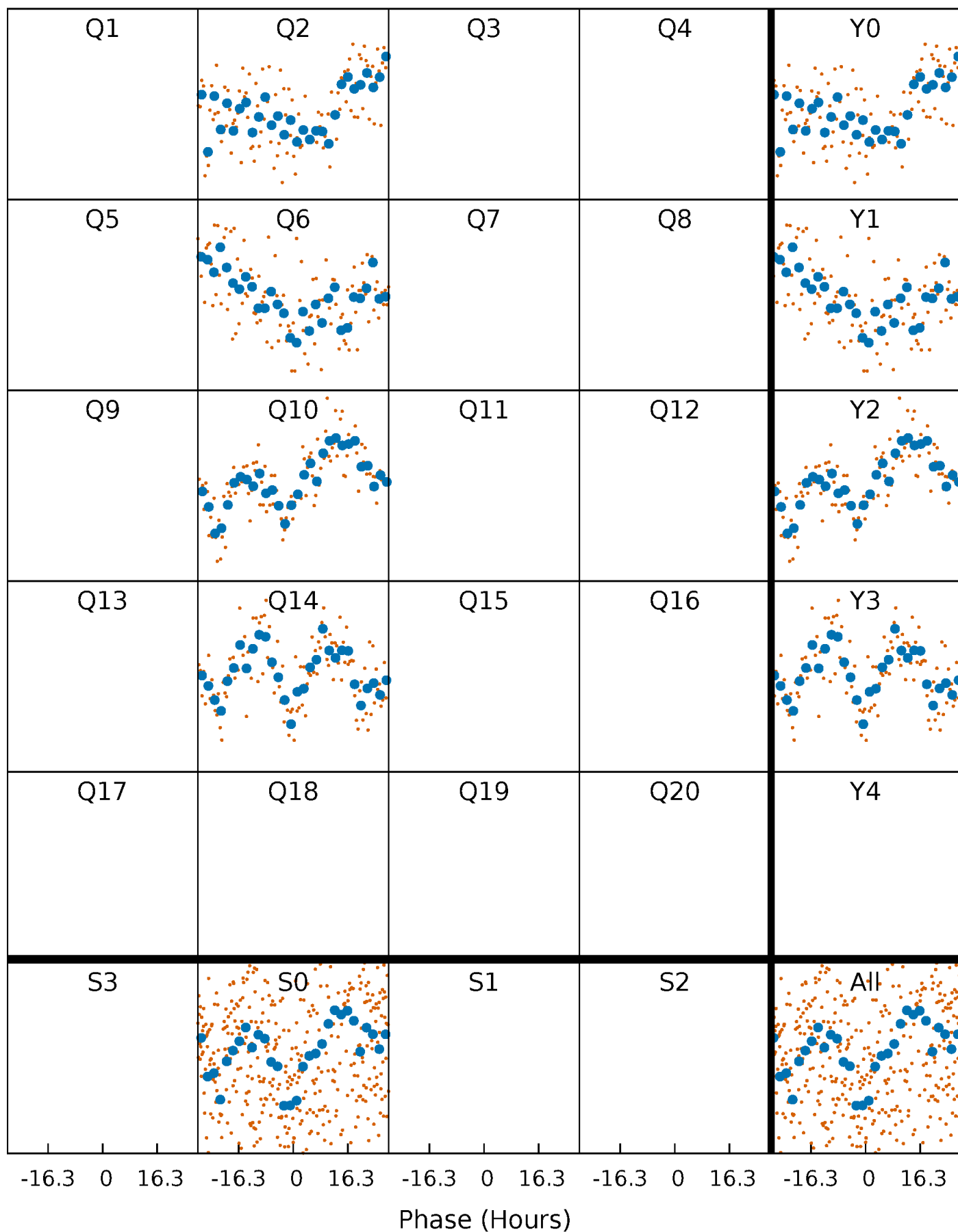


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

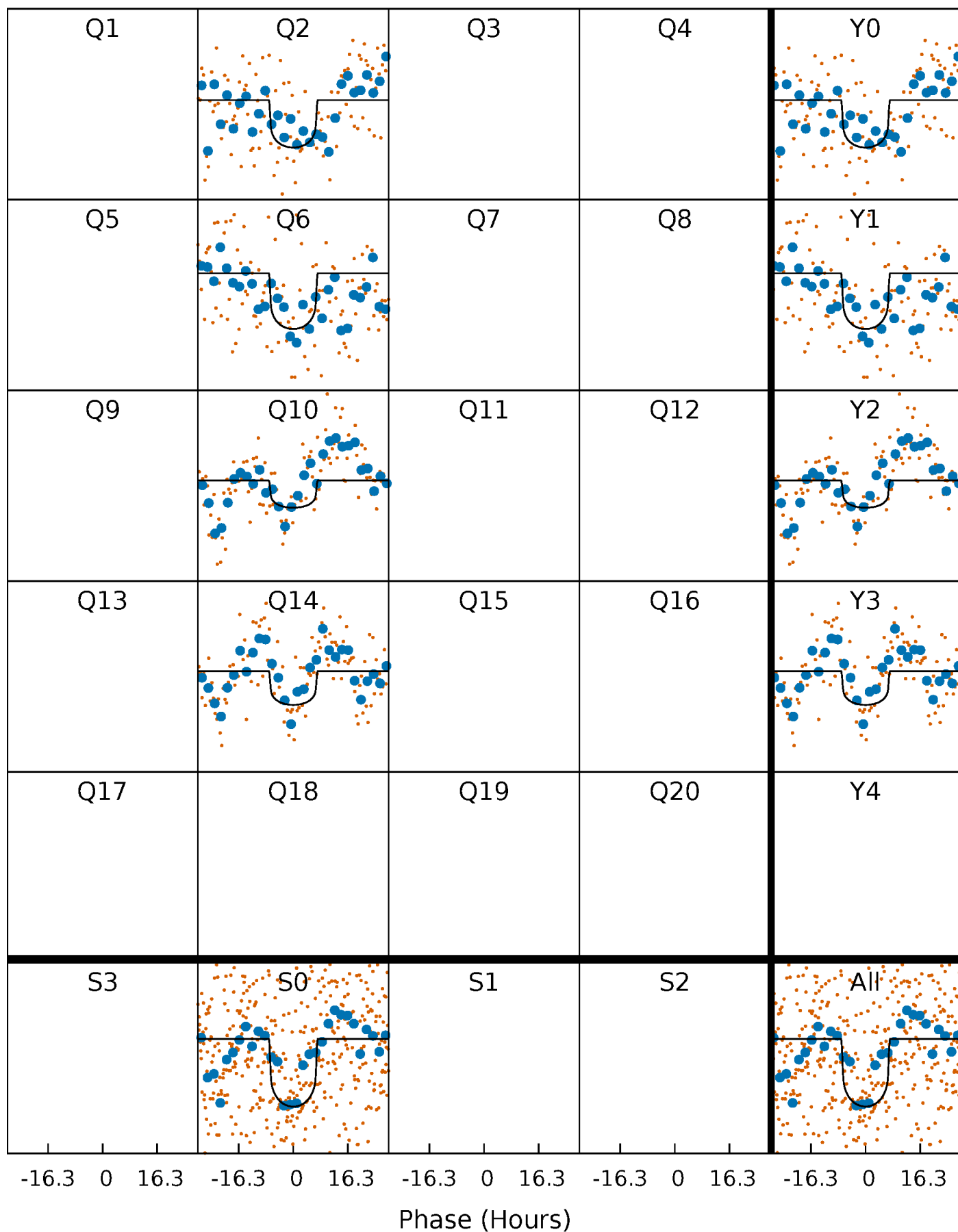
TCE 008108639-01 P=367.013571 Days  $T_0=238.560104$  (BKJD)





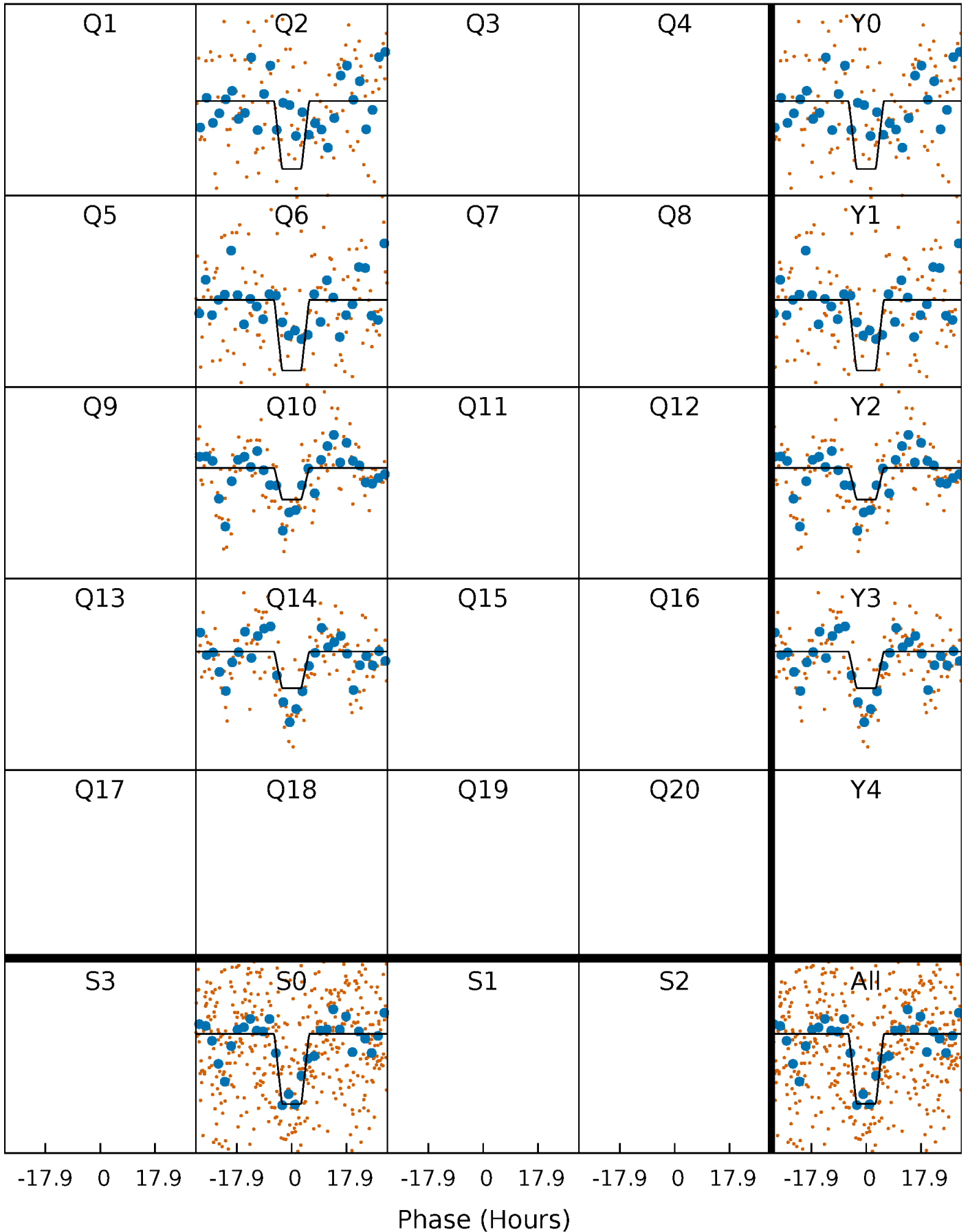
# DV Quarter-Phased Transit Curves

TCE 008108639-01 P=367.013571 Days  $T_0=238.560104$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

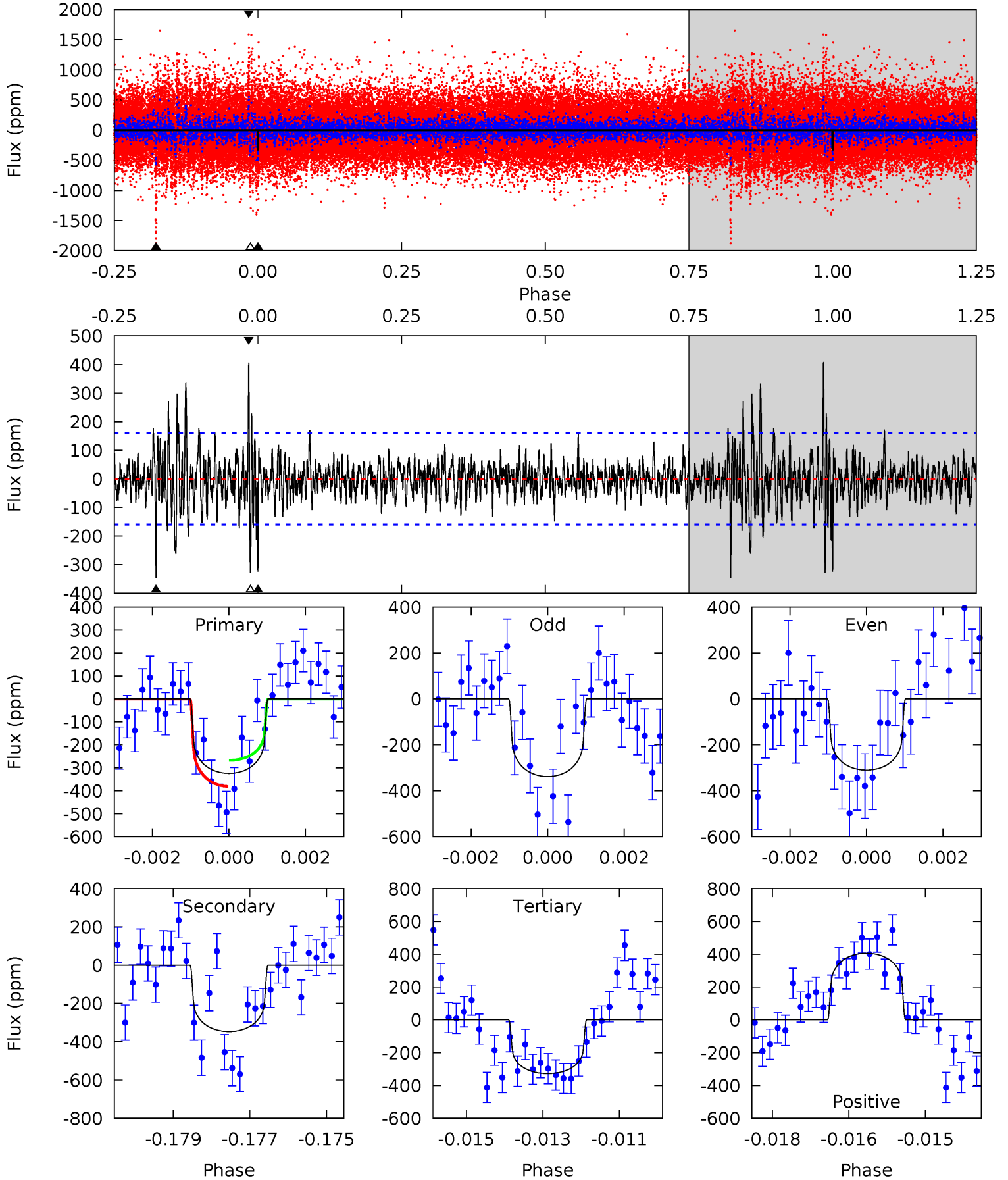
TCE 008108639-01 P=367.020794 Days  $T_0=238.525176$  (BKJD)



# DV Model-Shift Uniqueness Test

008108639-01, P = 367.013571 Days, E = 238.560104 Days

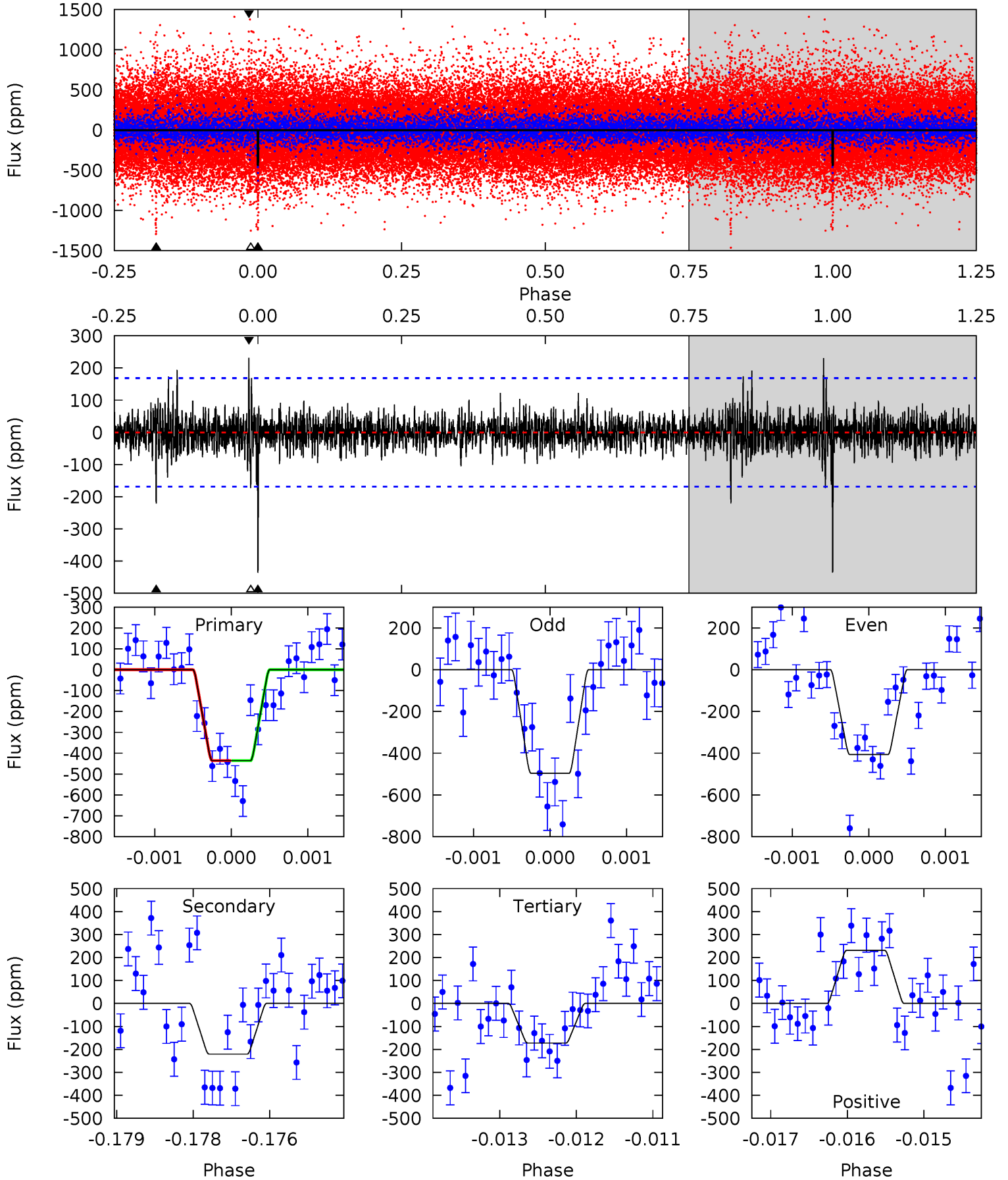
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	11.6	11.0	13.6	5.36	3.15	2.03	-0.11	-2.75	0.65	-1.99	0.47	1.04	0.54	1.91



# Alt Model-Shift Uniqueness Test

008108639-01, P = 367.020794 Days, E = 238.525176 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
14.0	7.06	5.53	7.40	5.40	3.21	1.16	8.43	6.56	1.53	-0.34	1.43	1.00	0.35	0.01



### Stellar Parameters For KIC 008108639

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5844^{+158}_{-175}$	$4.570^{+0.034}_{-0.184}$	$-0.400^{+0.300}_{-0.300}$	$0.810^{+0.223}_{-0.060}$	$0.891^{+0.090}_{-0.099}$	$2.361^{+0.439}_{-1.168}$
	+3%/-3%	+1%/-4%	+75%/-75%	+28%/-7%	+10%/-11%	+19%/-49%
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 008108639-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-347 \pm 30$	$2.22^{+1.75}_{-1.43}$	$338^{+22}_{-15}$	$5173^{+3962}_{-984}$	$35177^{+237438}_{-24277}$
Alt.	$-220 \pm 31$	$2.28^{+1.68}_{-1.32}$	$336^{+24}_{-14}$	$4678^{+2222}_{-870}$	$21649^{+91455}_{-14544}$

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

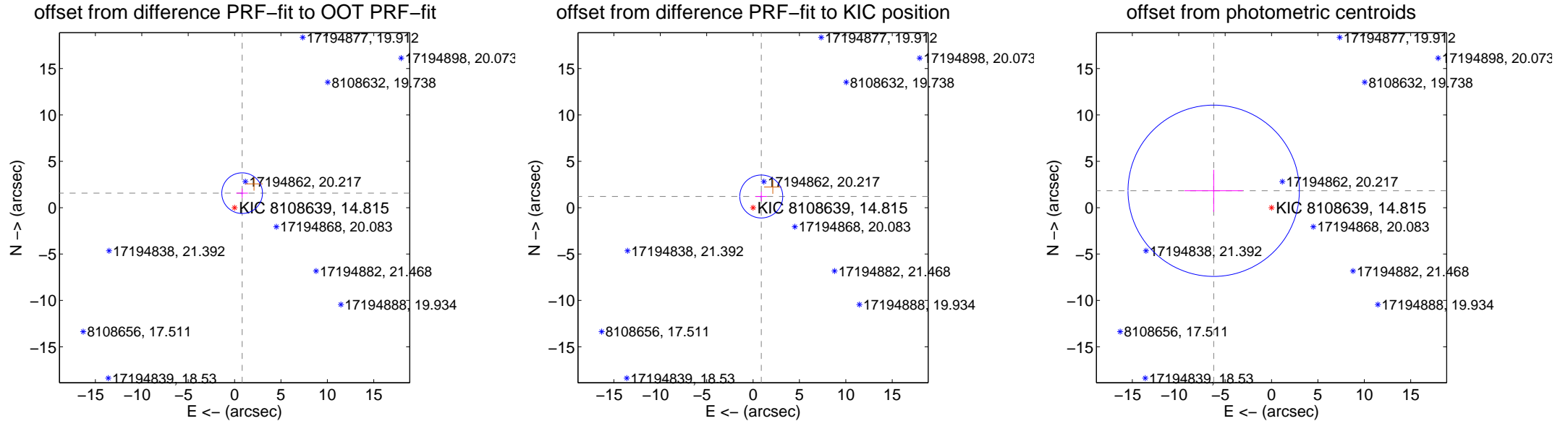
## DV Centroid Data

Supplemental centroid analysis for 008108639-01. Kepler magnitude: 14.81. Transit SNR 7.42

There are 1 quarters with good PRF difference image offsets

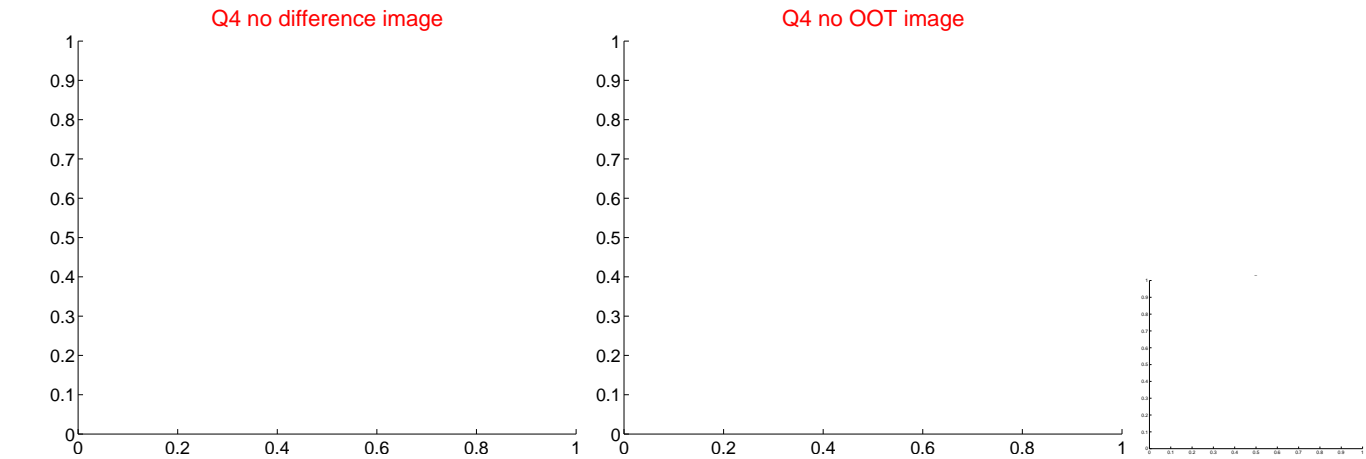
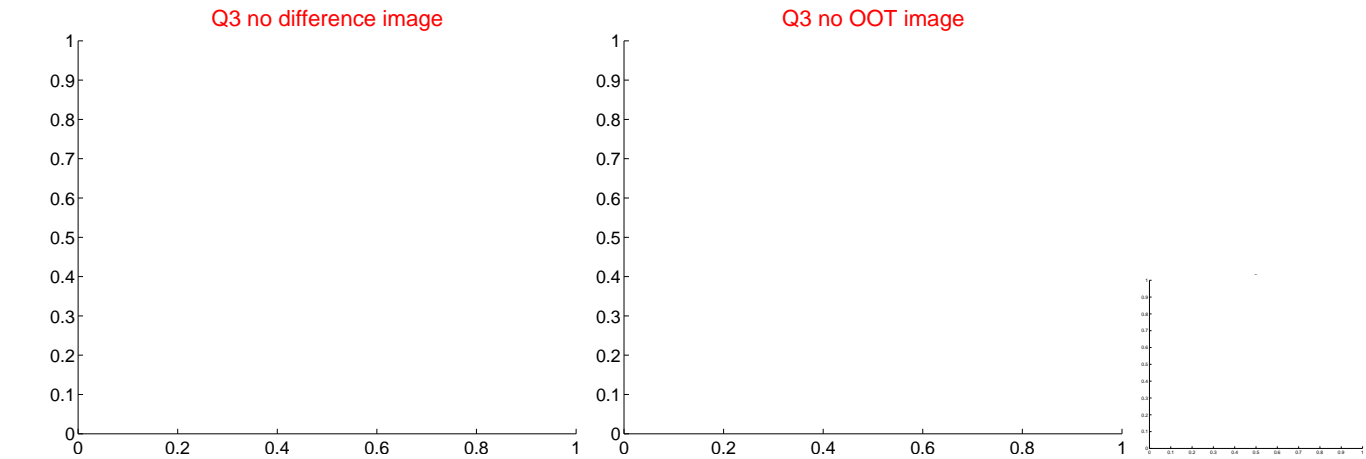
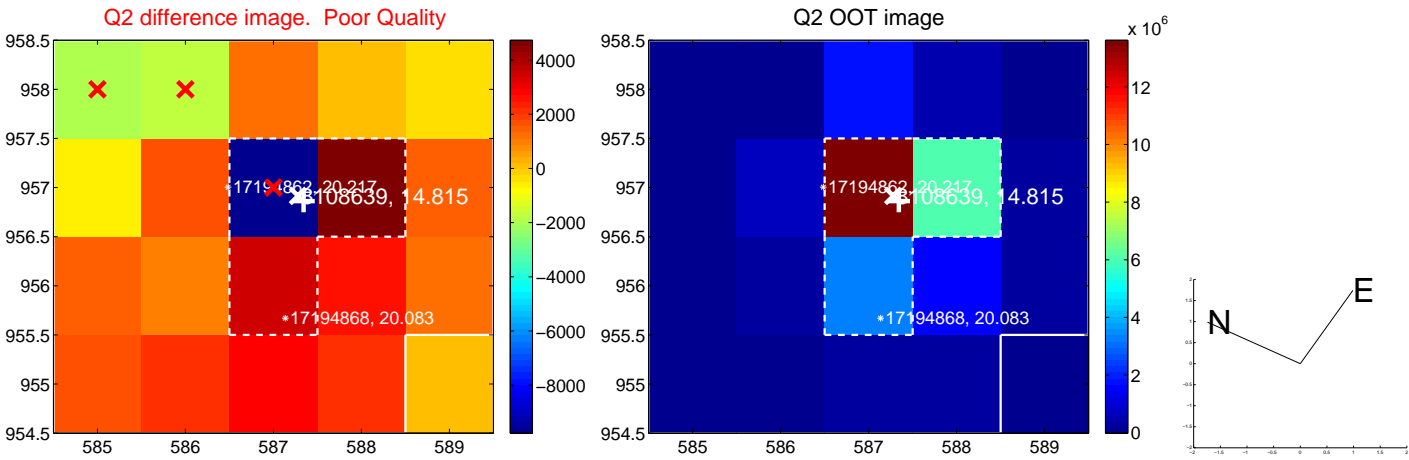
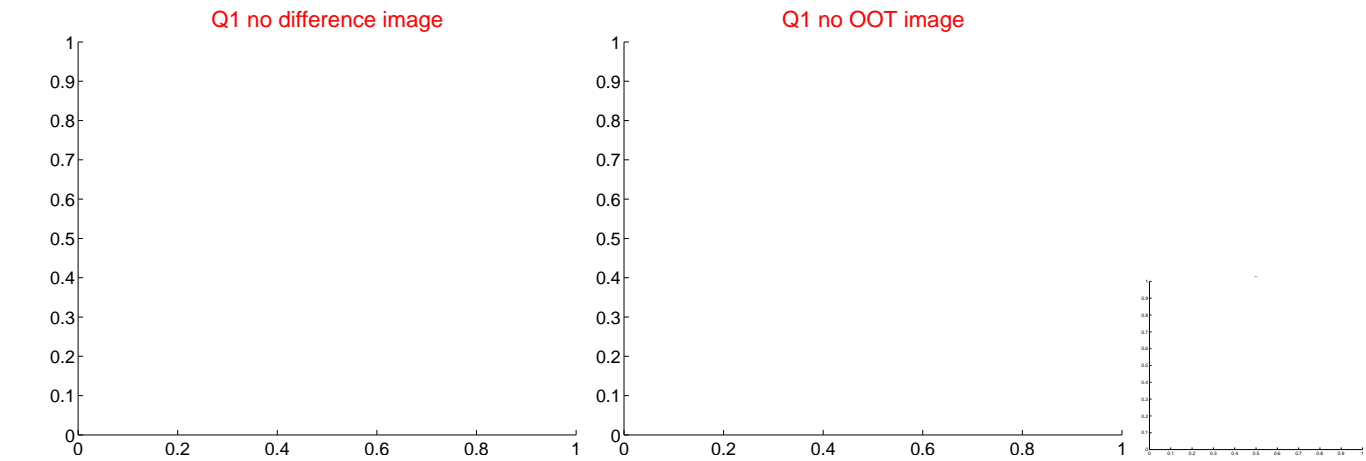
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.765 \pm 0.731$	2.42	$-0.814 \pm 0.628$	$1.566 \pm 0.500$
PRF-fit source offset from KIC position	$1.496 \pm 0.772$	1.94	$-0.884 \pm 0.615$	$1.206 \pm 0.510$
photometric centroid source offset	$6.49 \pm 3.08$	2.11	$6.23 \pm 3.14$	$1.82 \pm 2.27$



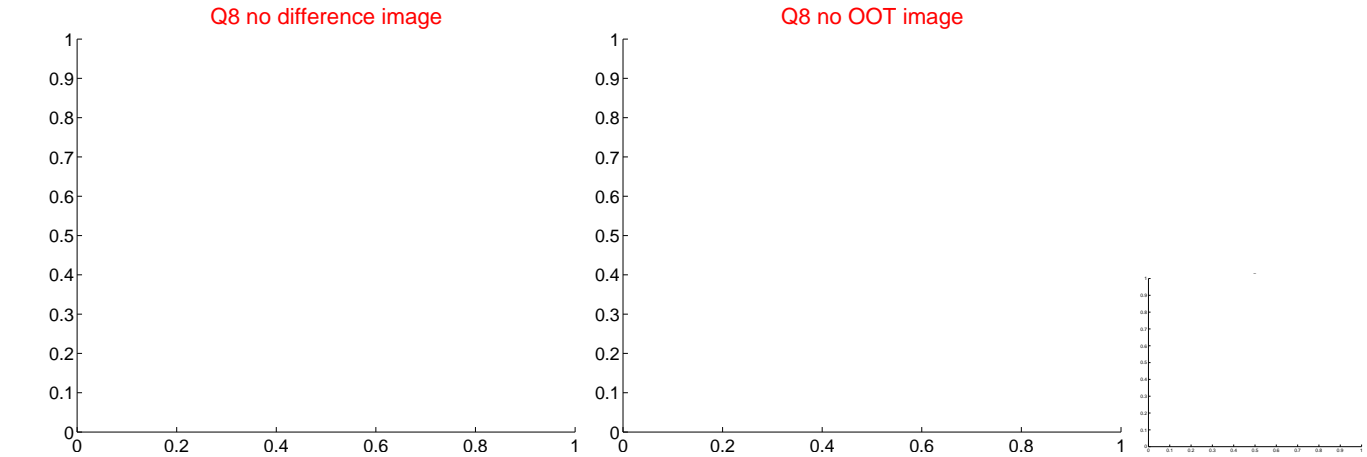
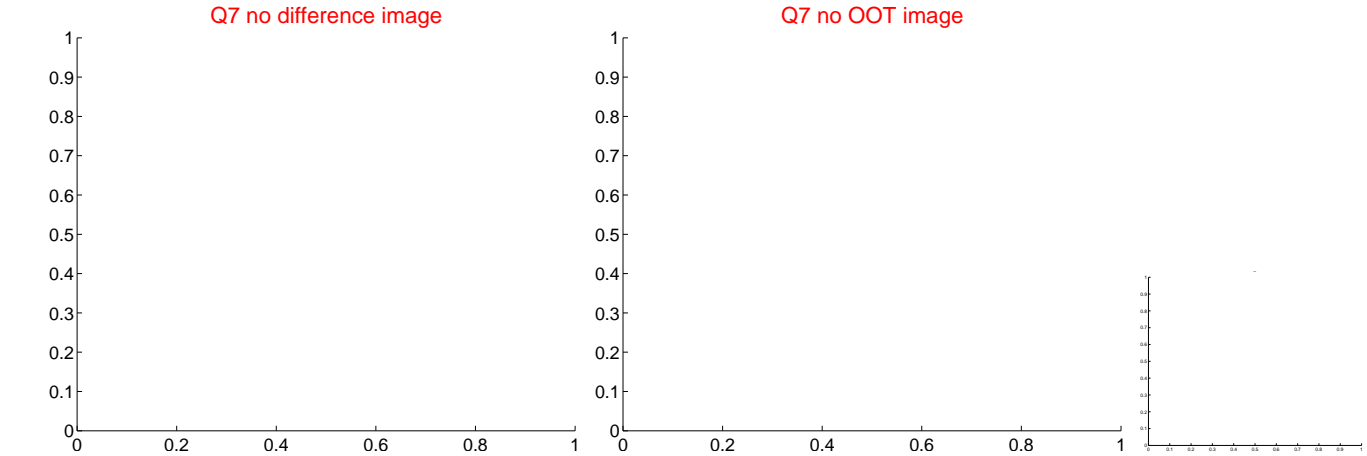
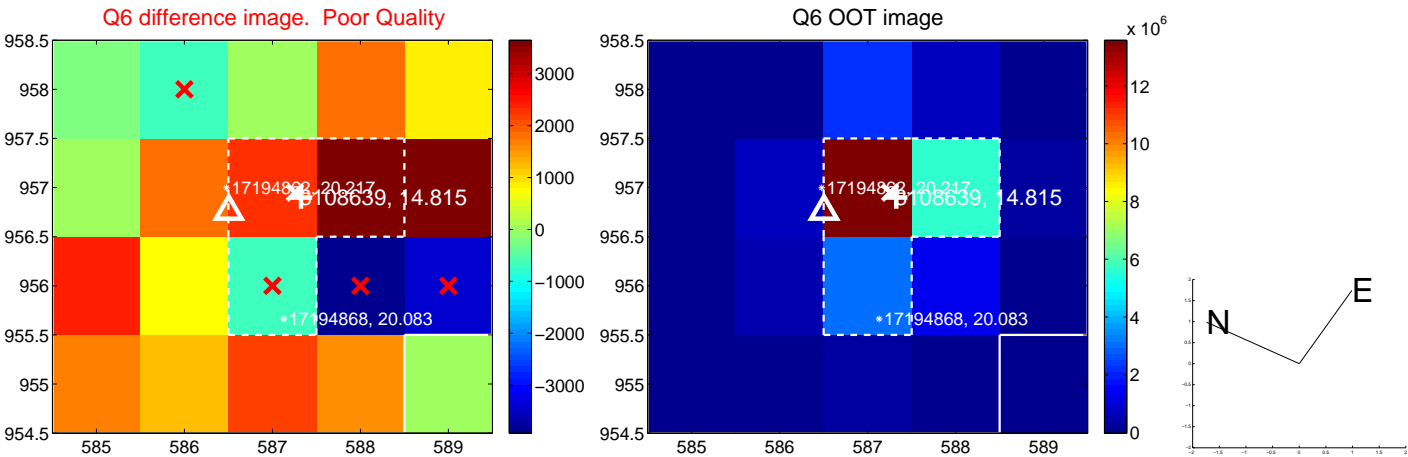
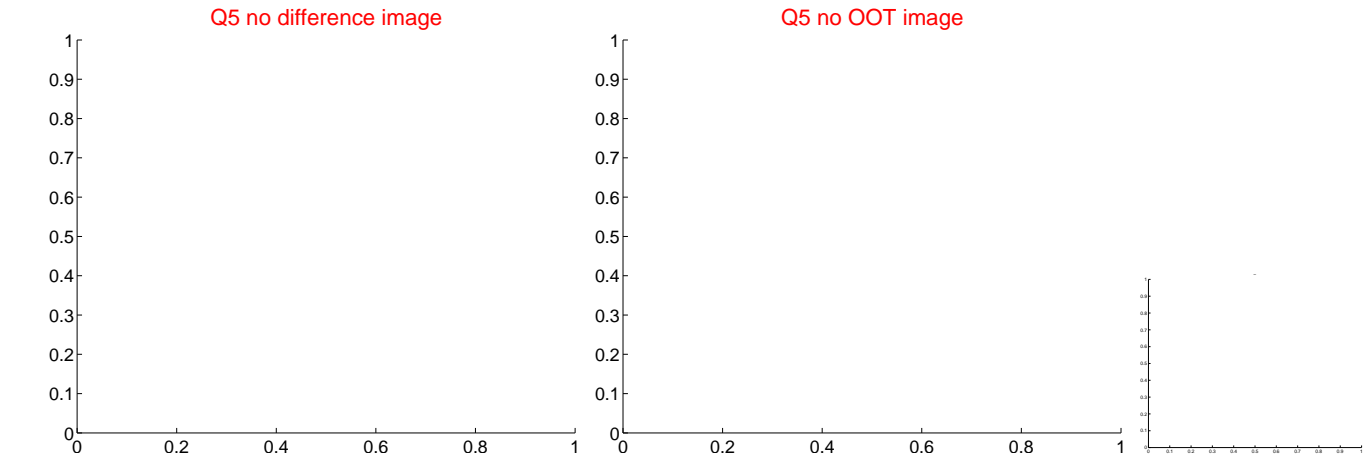
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

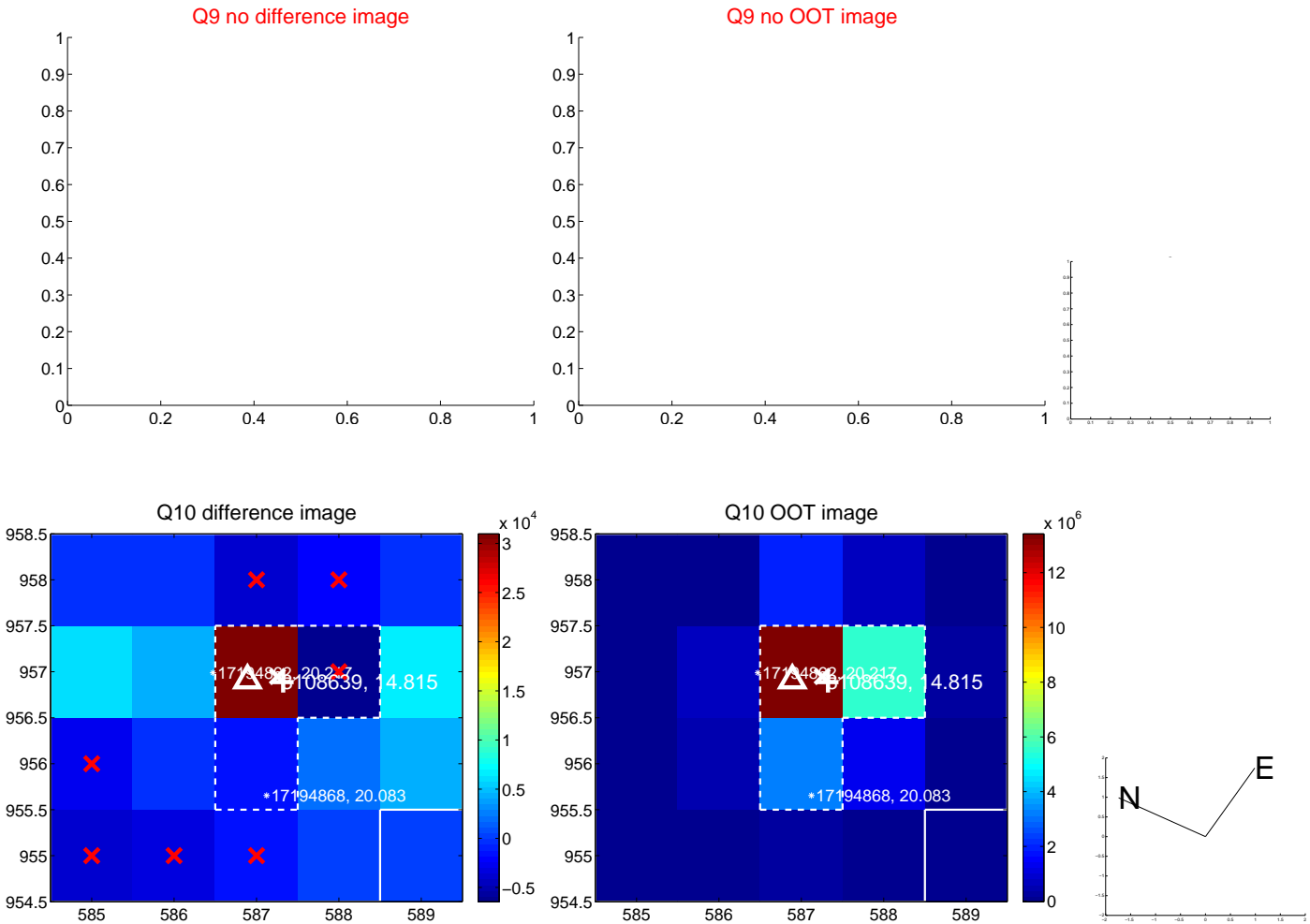




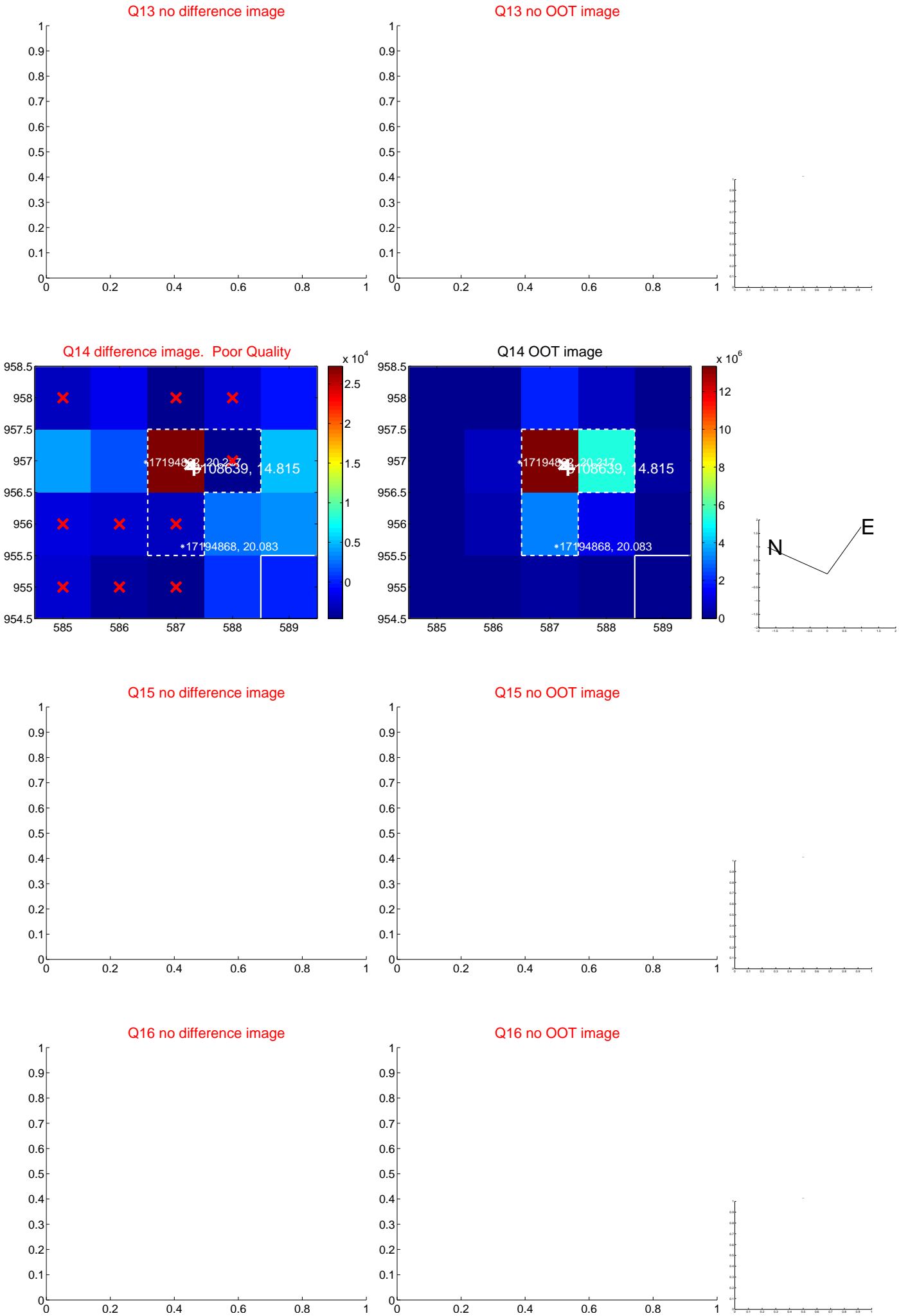
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



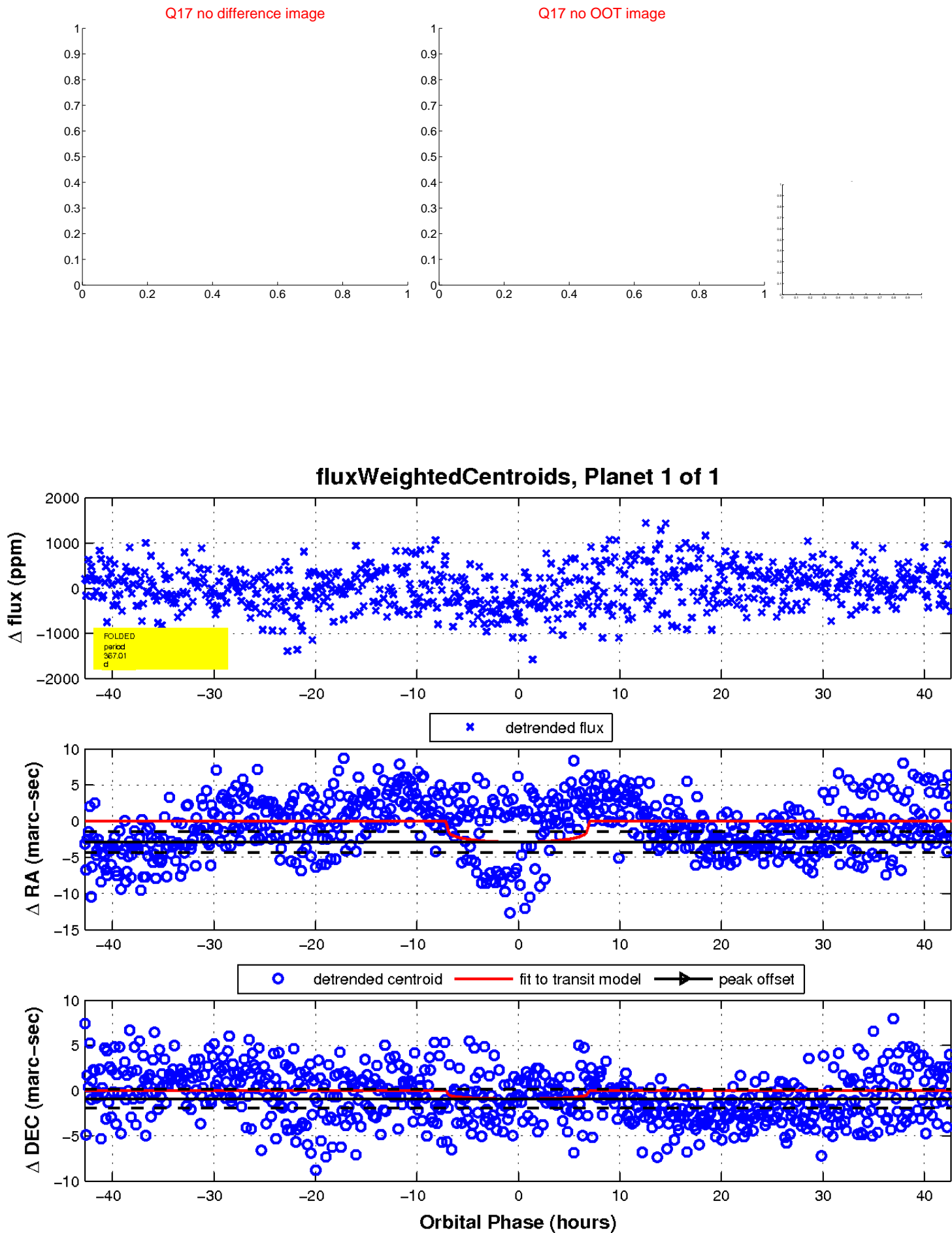
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

