

# KIC 008172108

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008172108-01	OBS	No	586.936024	325.700125	669.5	15.278	10.4	9.6	1.01	5938	2.67	0.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008172108-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_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.

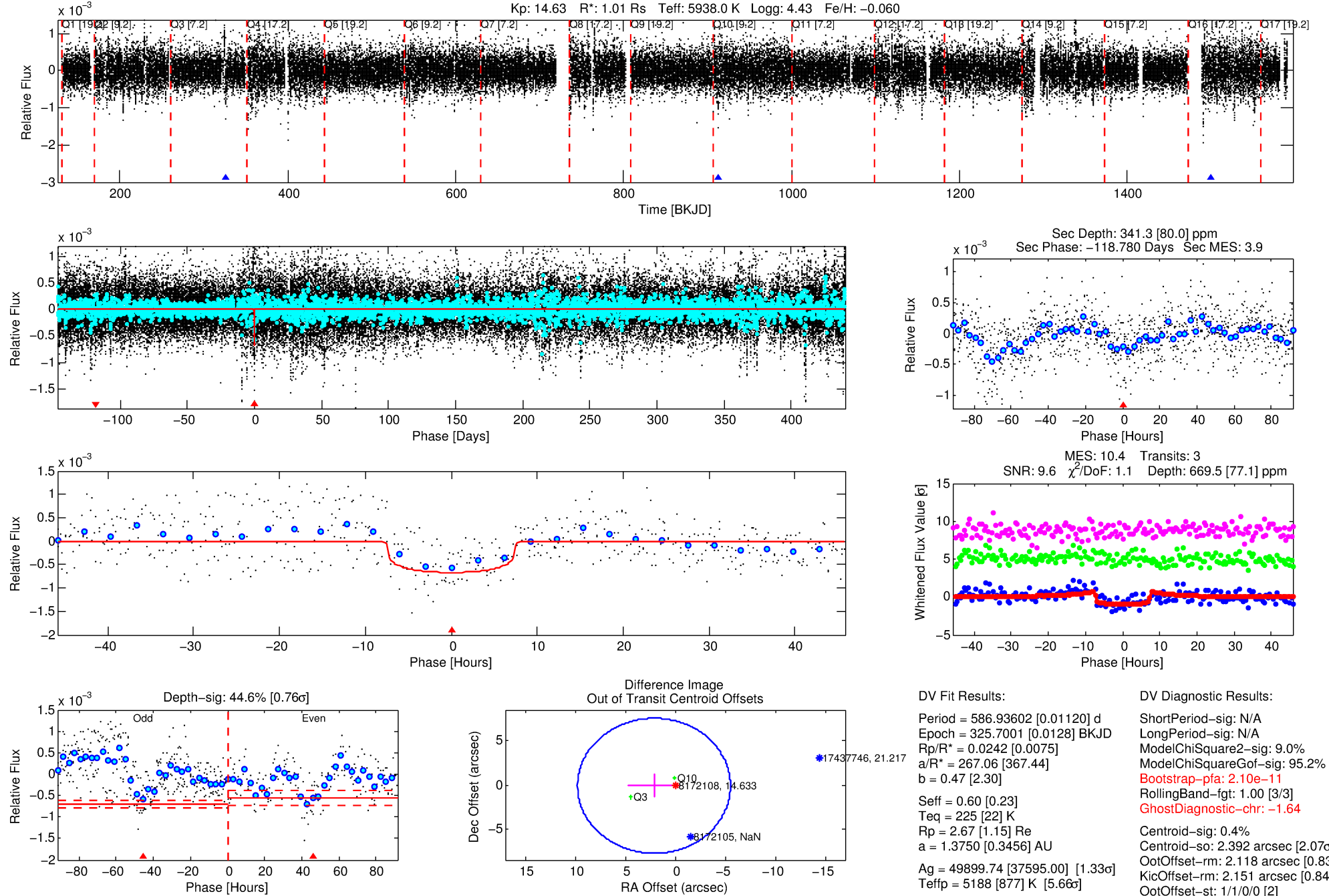
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008172108-01

No Significant Match Found

# DV One-Page Summary

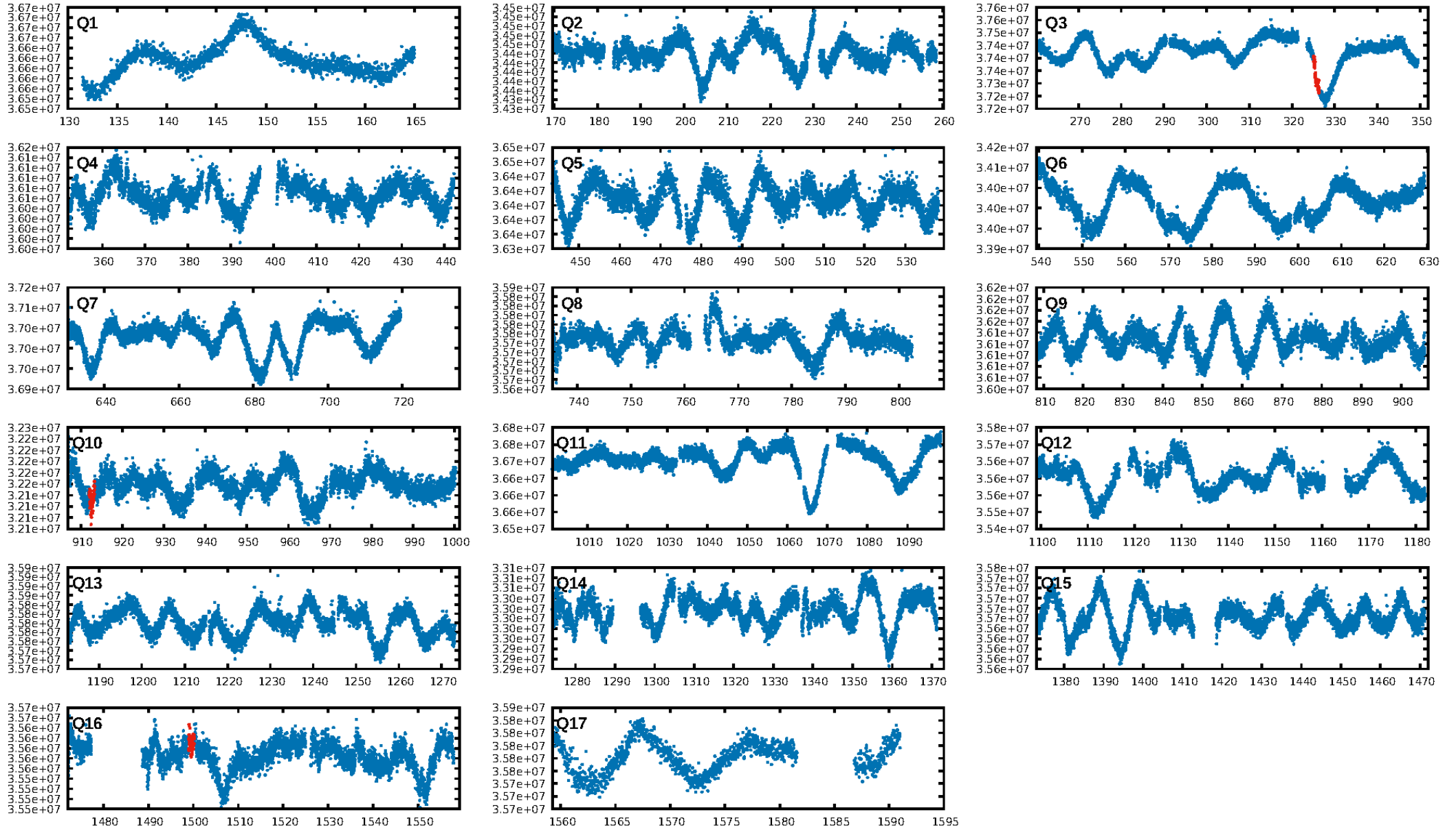
KIC: 8172108 Candidate: 1 of 1 Period: 586.936 d



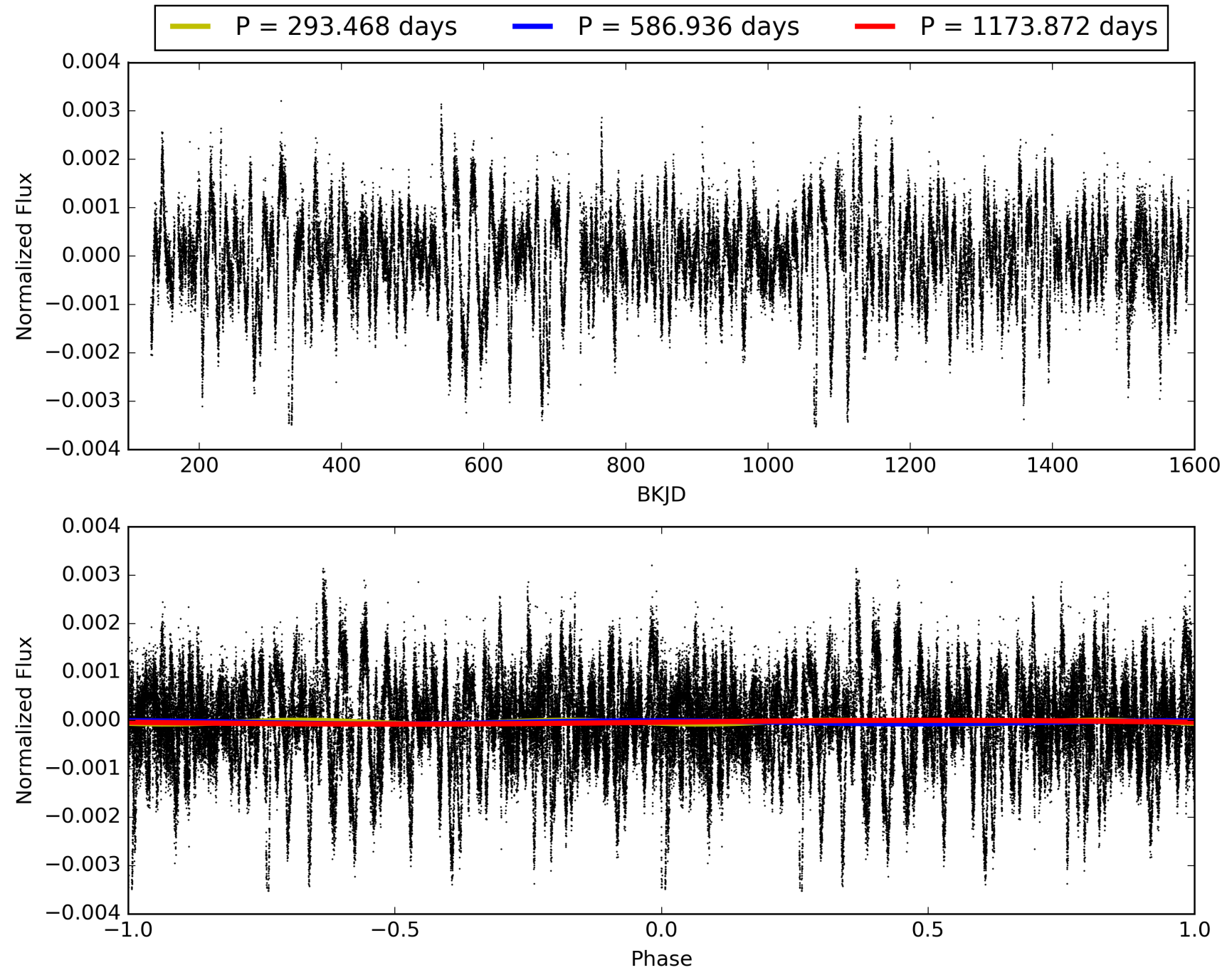
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:02:58 Z

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

# TCE 008172108-01, PDC Light Curves

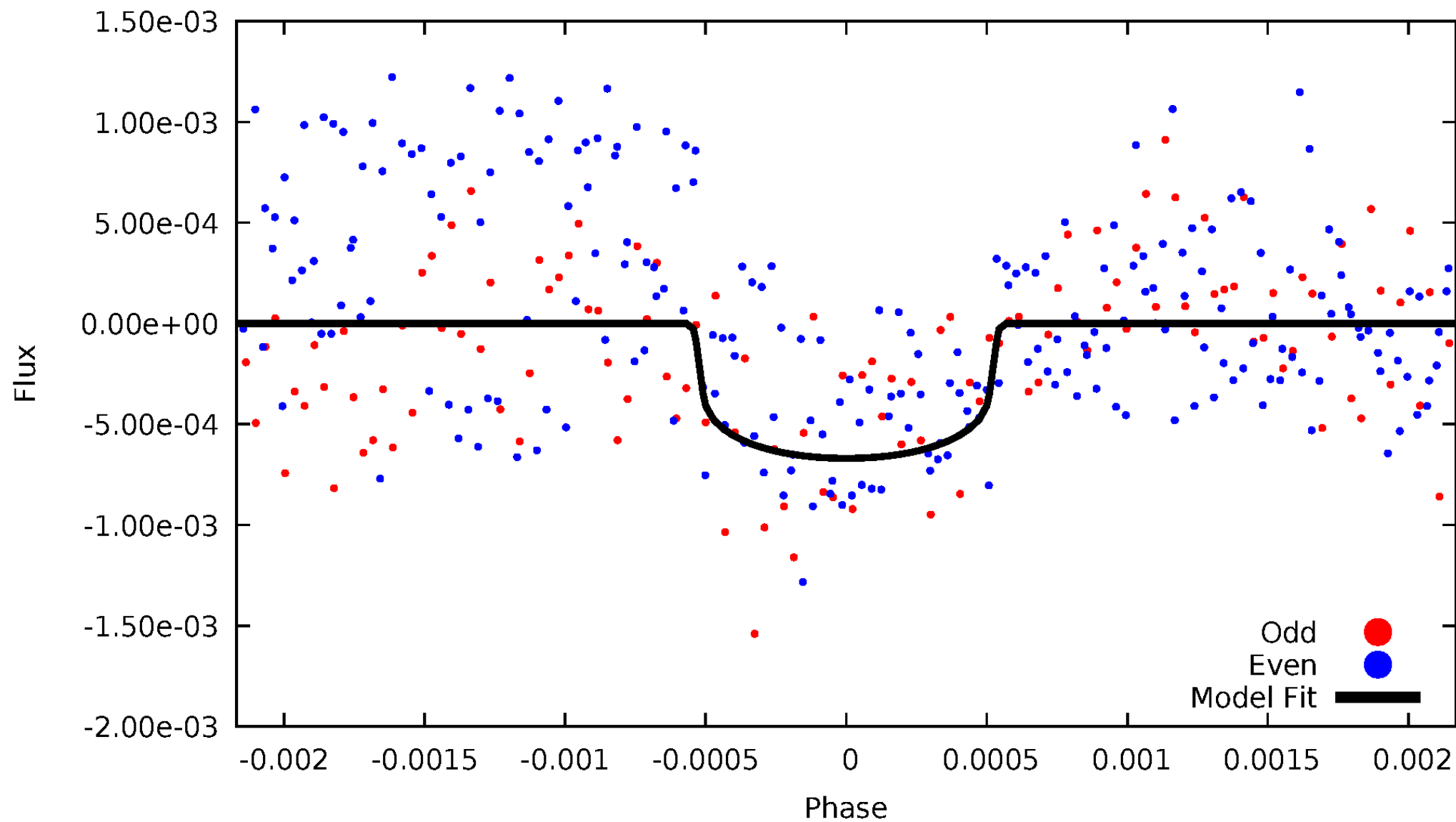


# TCE 008172108-01



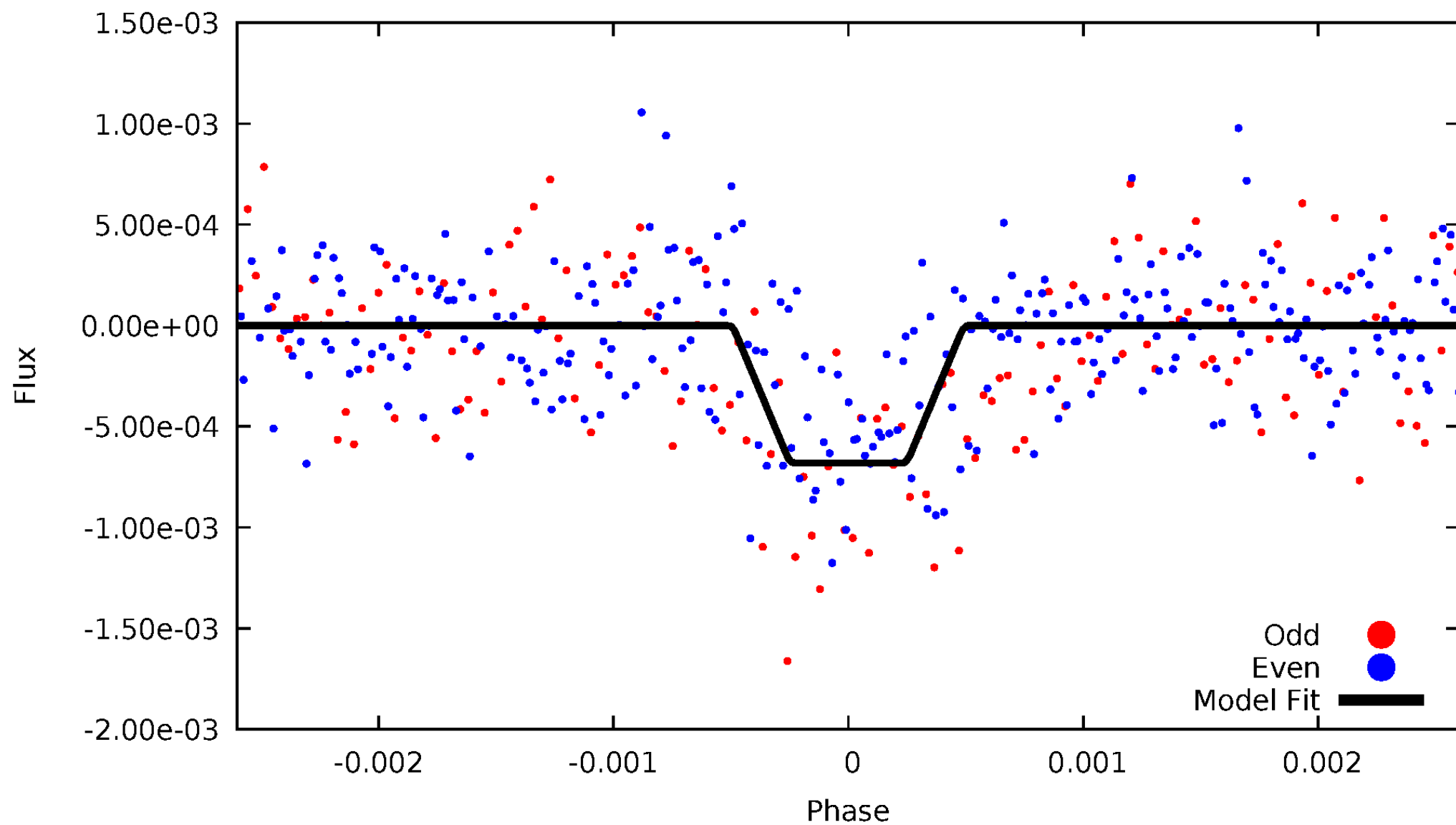
# DV Odd/Even

TCE 008172108-01



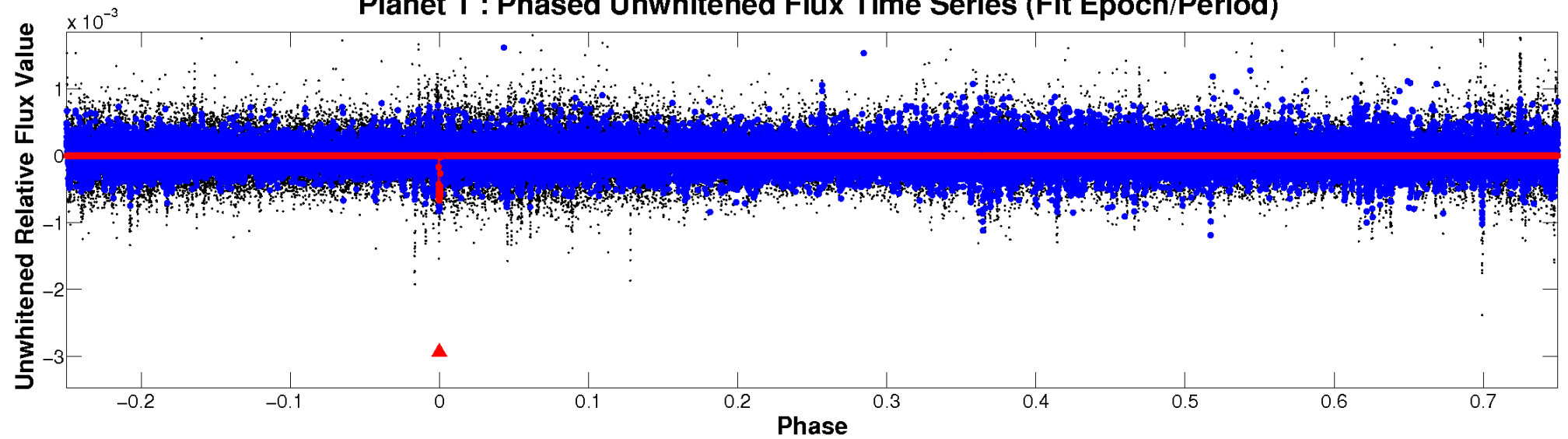
# ALT Odd/Even

TCE 008172108-01

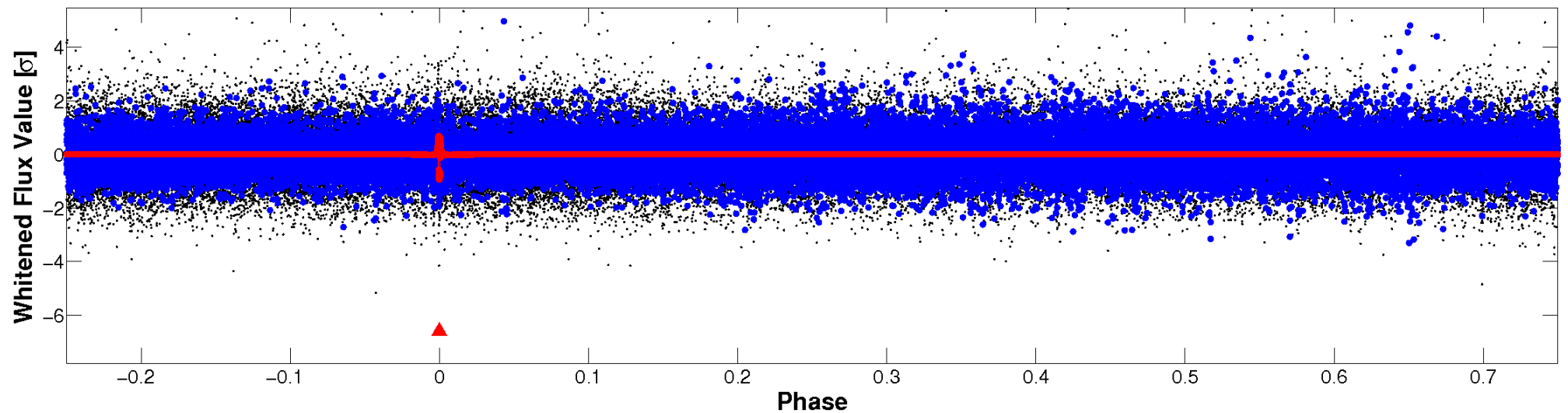


# Non-Whitened Vs. Whitened Light Curve

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

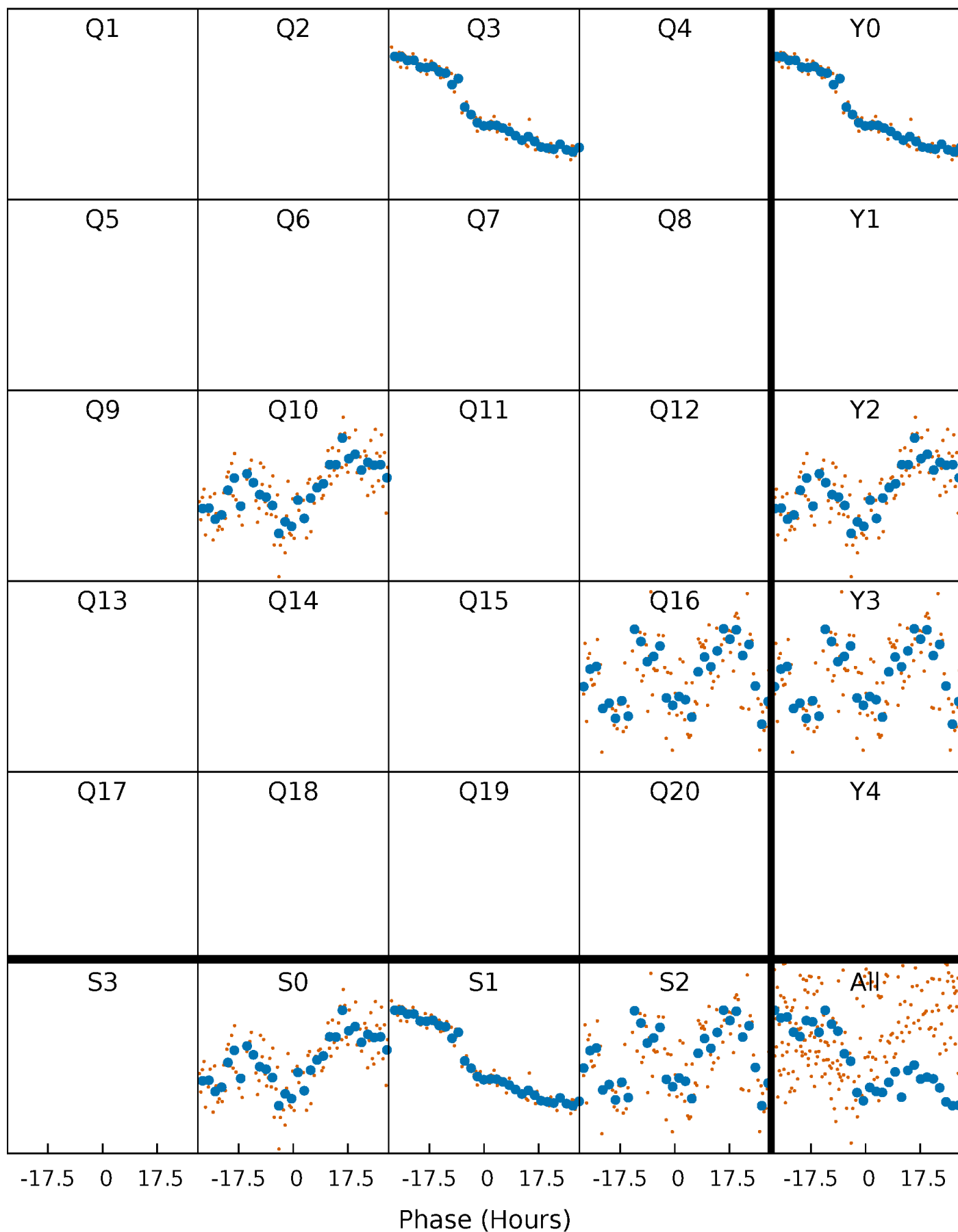


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

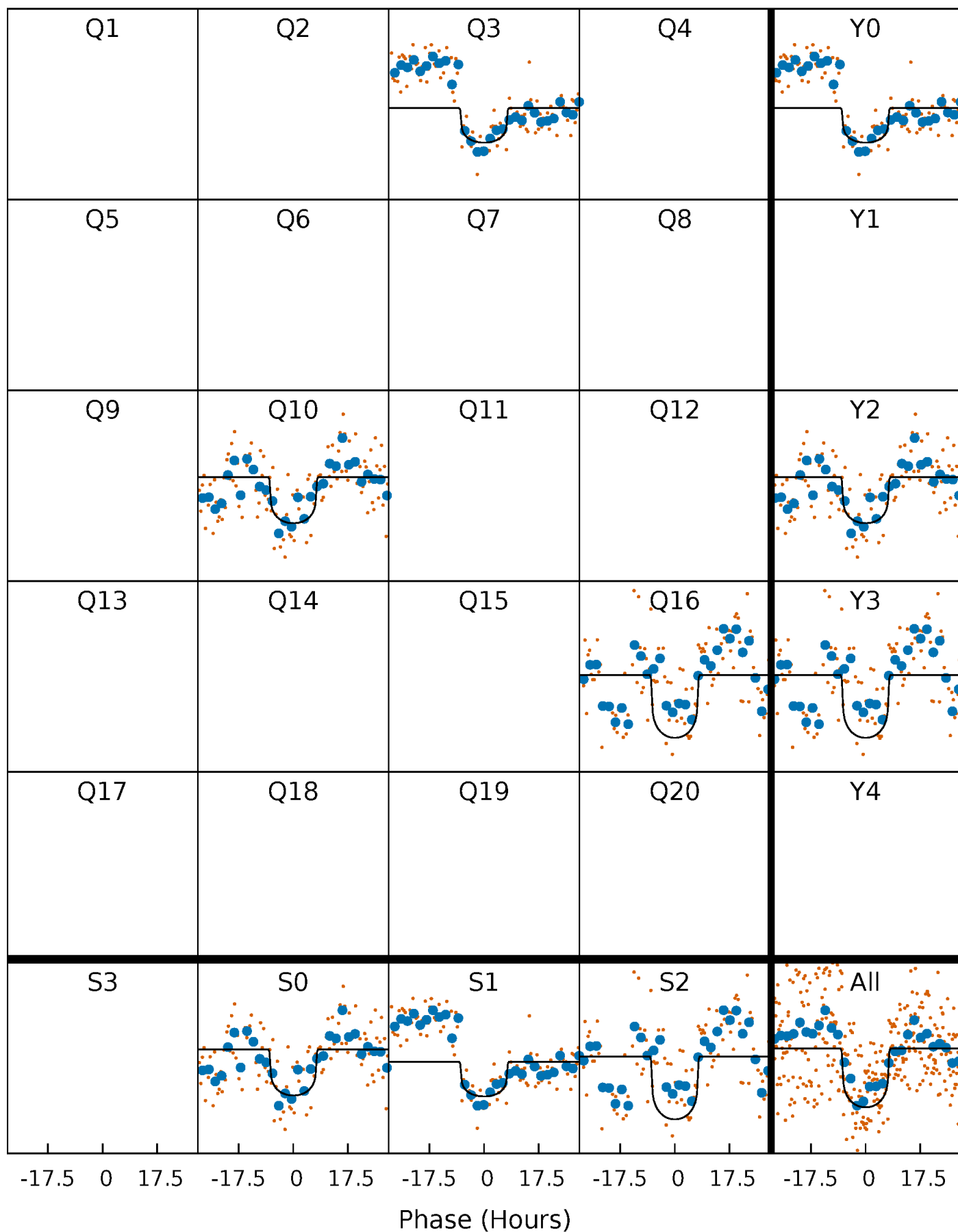
TCE 008172108-01 P=586.936024 Days  $T_0=325.700125$  (BKJD)





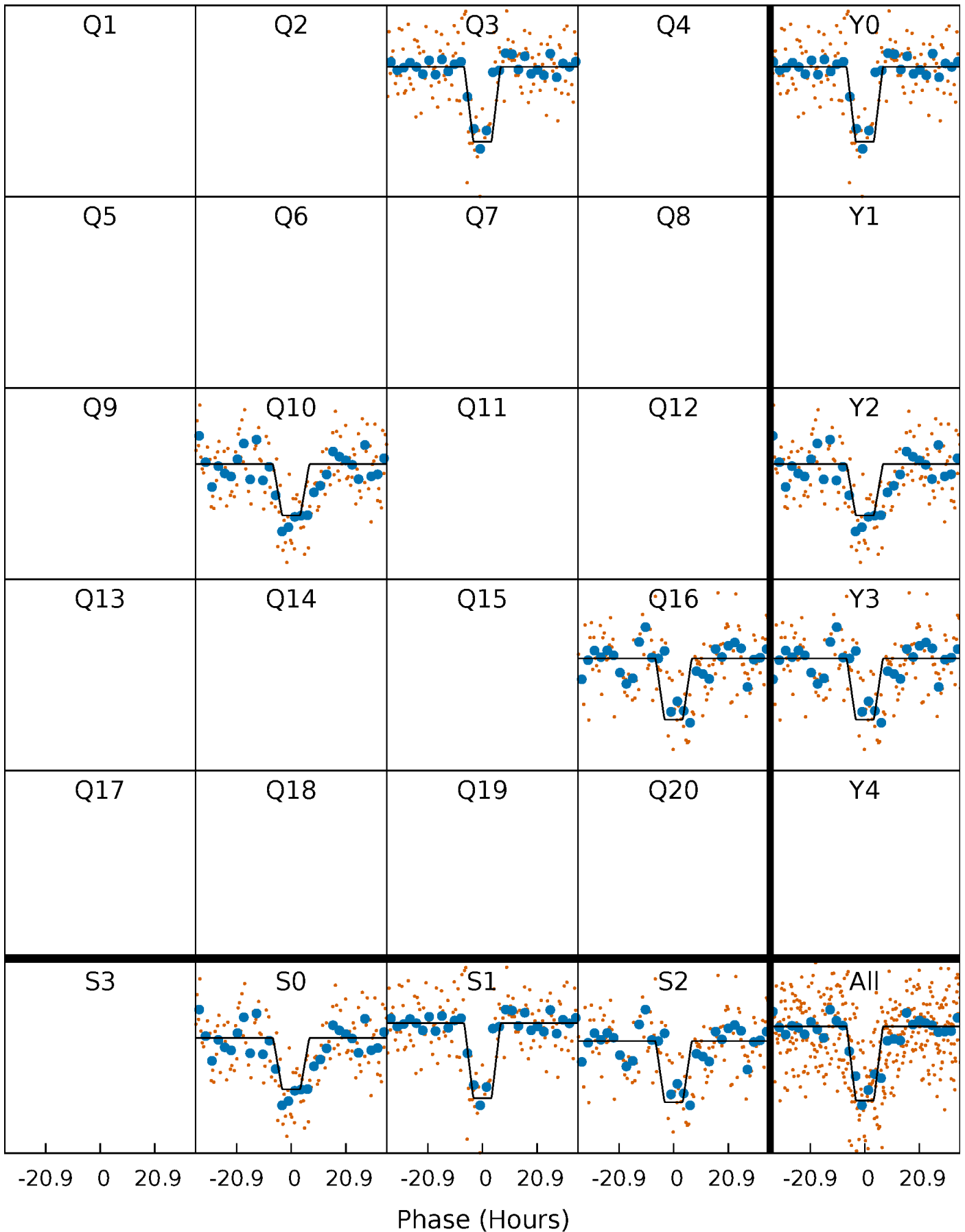
# DV Quarter-Phased Transit Curves

TCE 008172108-01 P=586.936024 Days  $T_0=325.700125$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

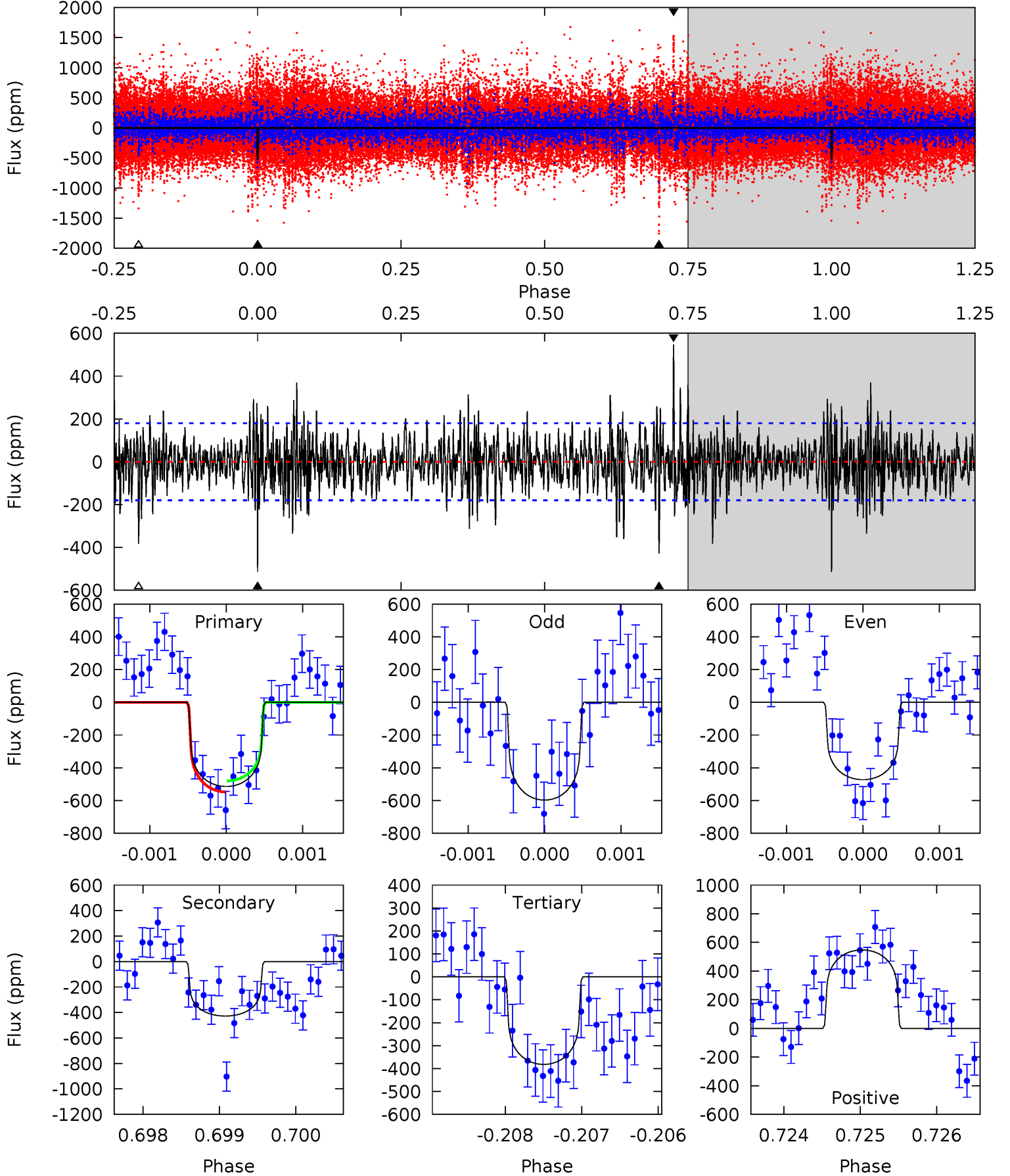
TCE 008172108-01     $P=586.947200$  Days     $T_0=325.650322$  (BKJD)



# DV Model-Shift Uniqueness Test

008172108-01, P = 586.936024 Days, E = 325.700125 Days

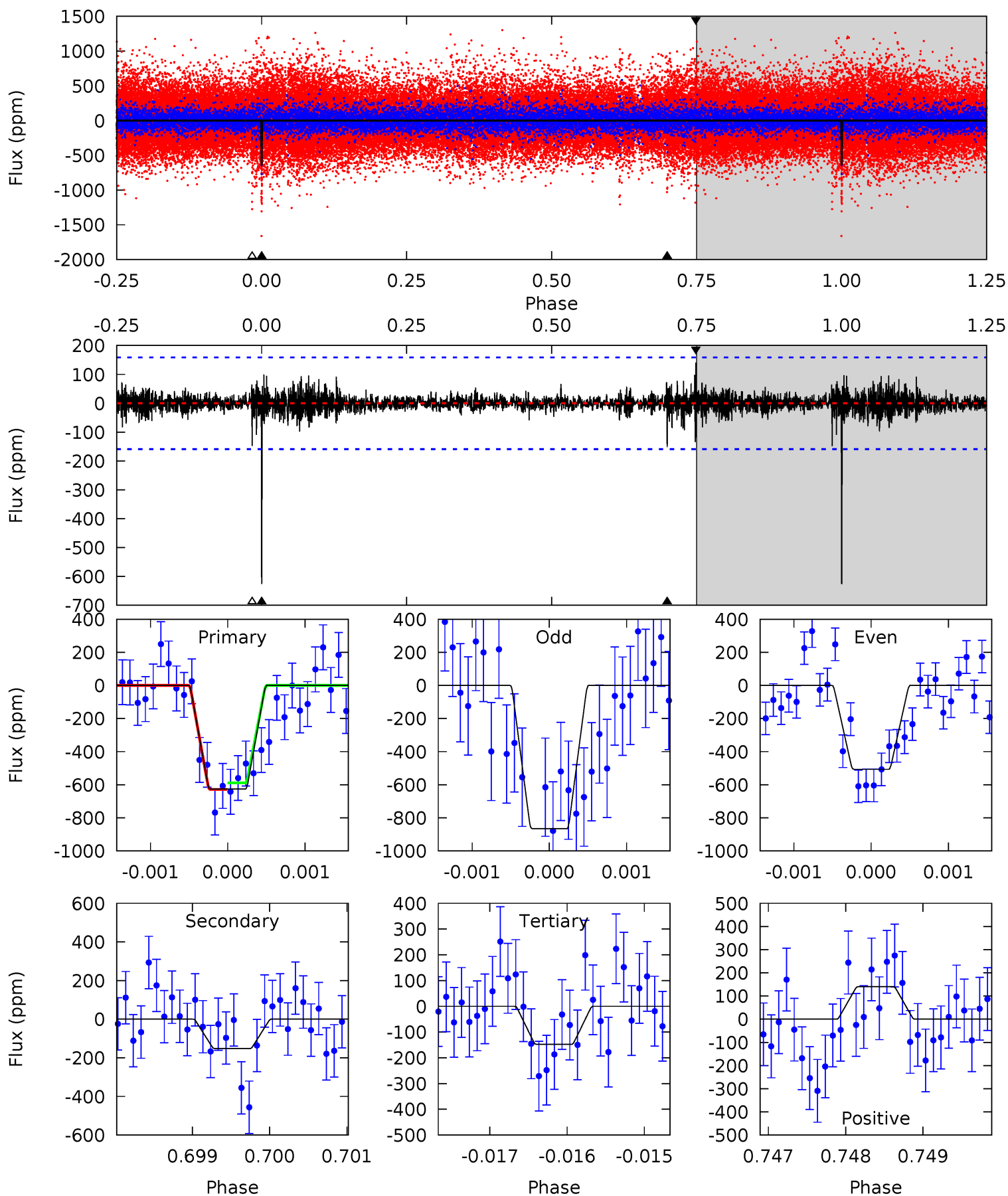
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	12.9	11.5	16.5	5.43	3.26	2.88	3.99	-1.01	1.39	-3.61	1.81	0.86	0.52	1.01



# Alt Model-Shift Uniqueness Test

008172108-01, P = 586.947200 Days, E = 325.650322 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
21.5	5.21	5.06	4.81	5.45	3.29	0.75	16.4	16.7	0.15	0.40	5.77	1.11	0.18	0.69



### Stellar Parameters For KIC 008172108

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5938^{+176}_{-211}$	$4.432^{+0.084}_{-0.196}$	$-0.060^{+0.250}_{-0.300}$	$1.010^{+0.305}_{-0.131}$	$1.006^{+0.138}_{-0.124}$	$1.375^{+0.514}_{-0.727}$
	+3%/-4%	+2%/-4%	+417%/-500%	+30%/-13%	+14%/-12%	+37%/-53%
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 008172108-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-428 \pm 33$	$2.77^{+0.96}_{-0.89}$	$317^{+24}_{-16}$	$5523^{+996}_{-652}$	$58036^{+61139}_{-26015}$
Alt.	$-152 \pm 29$	$2.98^{+1.00}_{-0.84}$	$319^{+23}_{-17}$	$4291^{+648}_{-409}$	$17612^{+17215}_{-8268}$

$T_{\text{max}}$  = 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

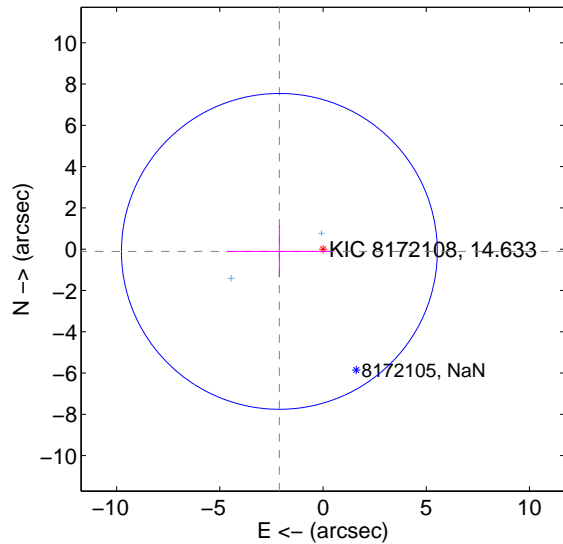
Supplemental centroid analysis for 008172108-01. Kepler magnitude: 14.63. Transit SNR 9.58

There are 2 quarters with good PRF difference image offsets

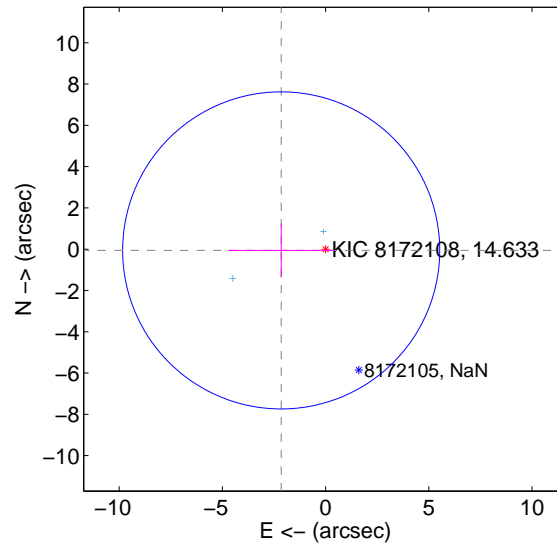
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.118 \pm 2.550$	0.83	$2.115 \pm 2.552$	$-0.107 \pm 1.251$
PRF-fit source offset from KIC position	$2.151 \pm 2.560$	0.84	$2.151 \pm 2.561$	$-0.059 \pm 1.306$
photometric centroid source offset	$2.39 \pm 1.15$	2.07	$1.48 \pm 1.15$	$-1.88 \pm 1.16$

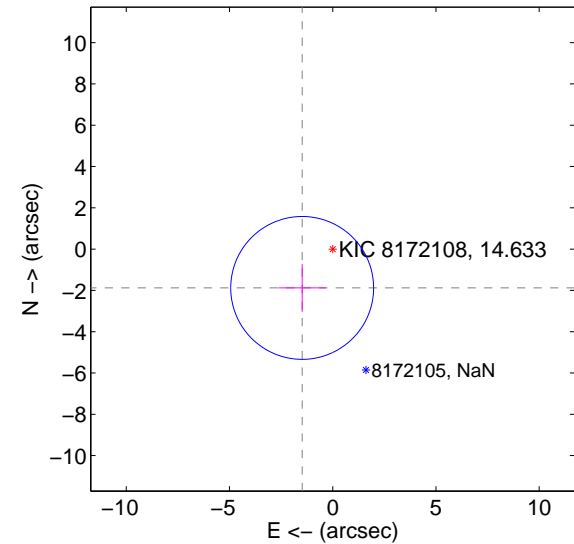
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

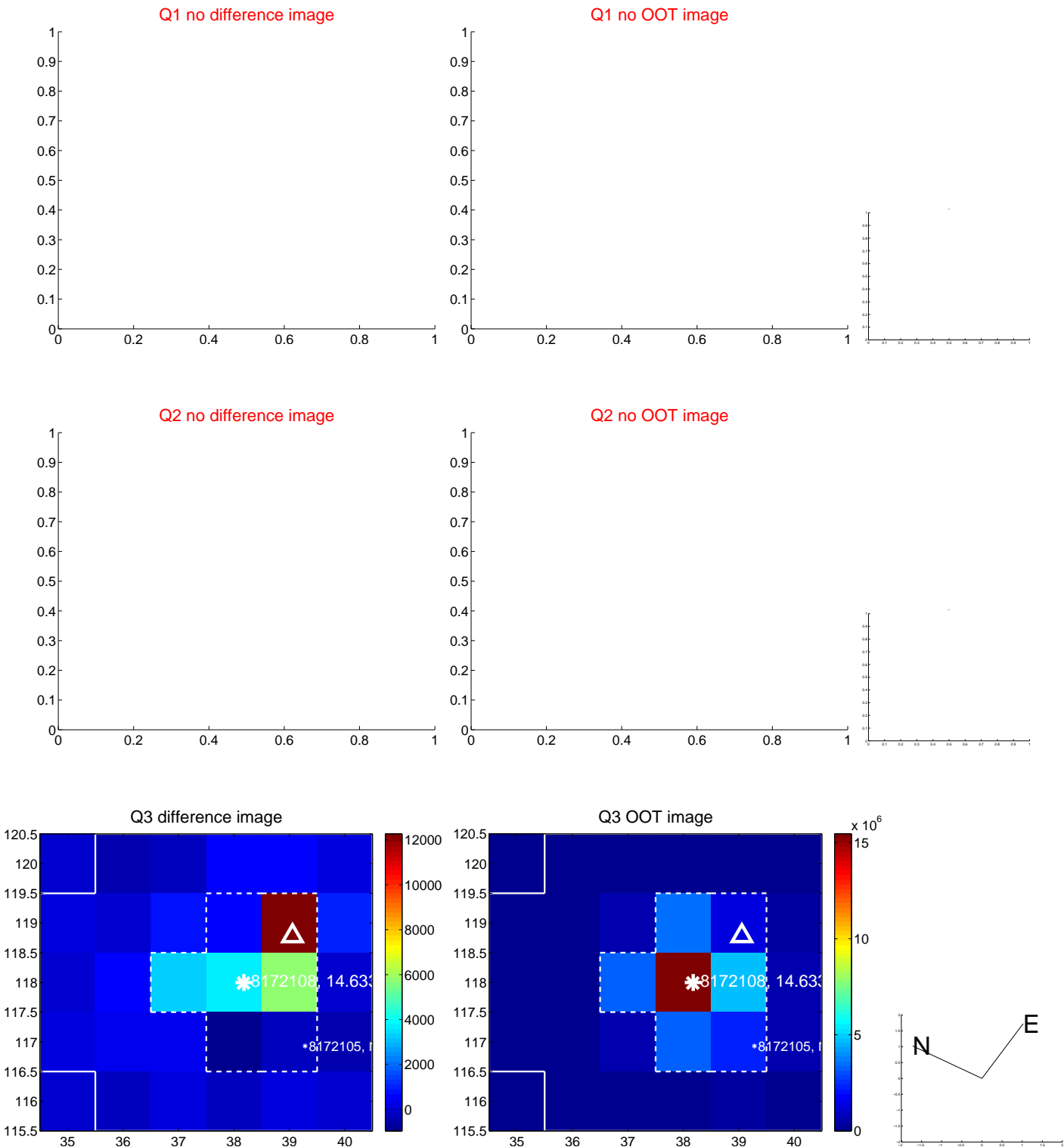


offset from photometric centroids



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.

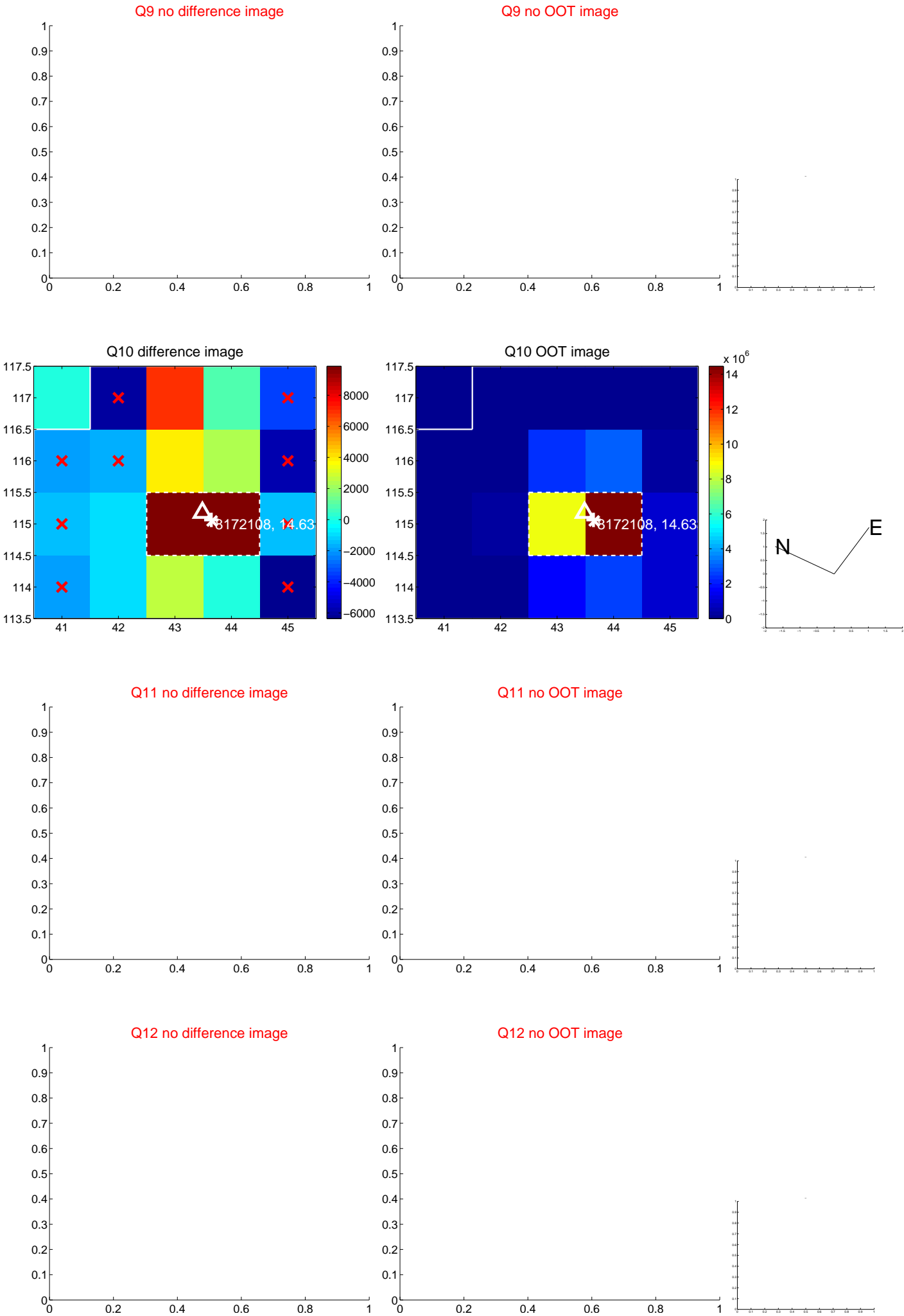


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





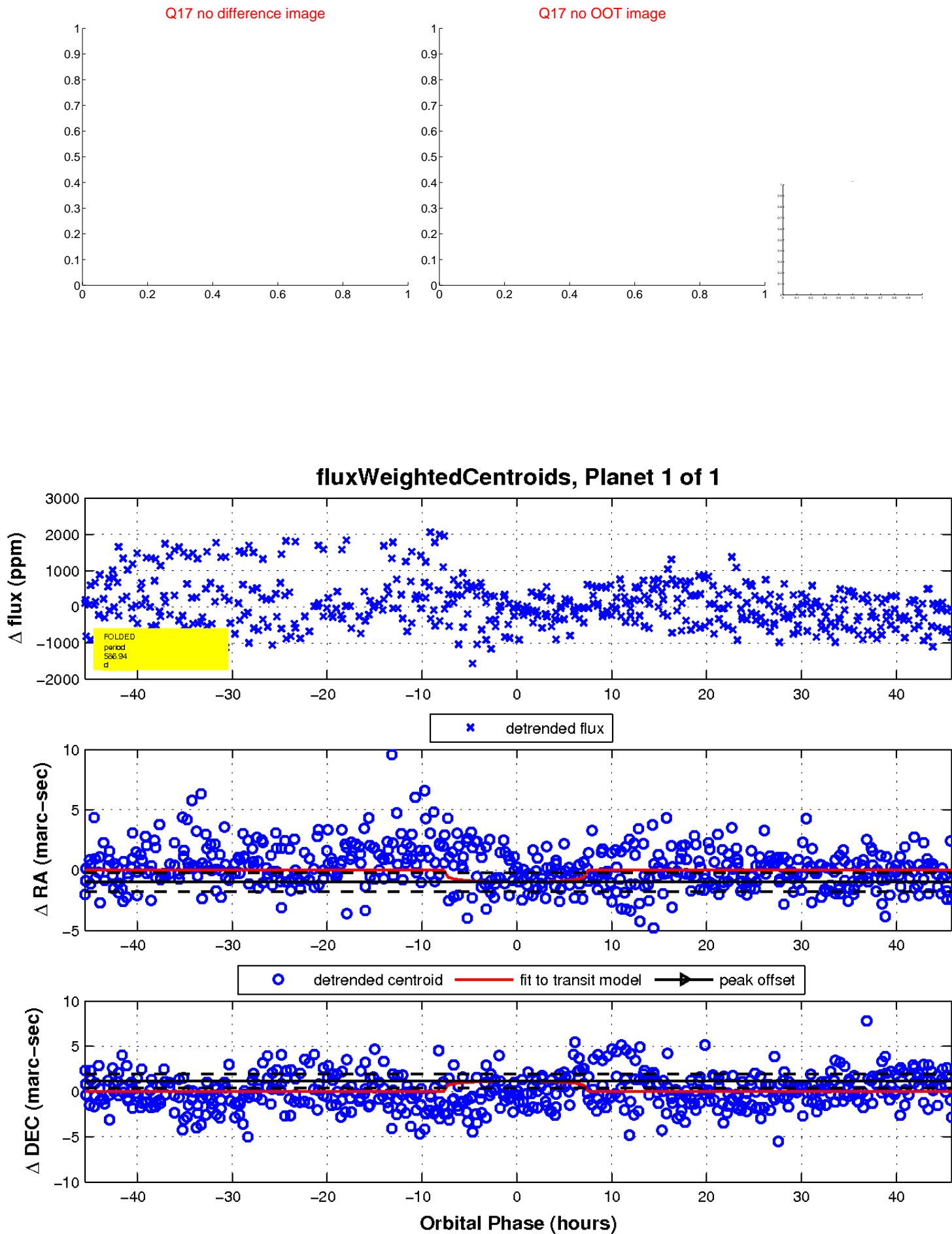
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

