

# KIC 008873873

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008873873-01	OBS	8174.01	295.028017	314.254209	64.1	10.524	7.4	5.5	0.76	5332	0.72	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008873873-01	OBS	PC	0.67	0	0	0	0	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.

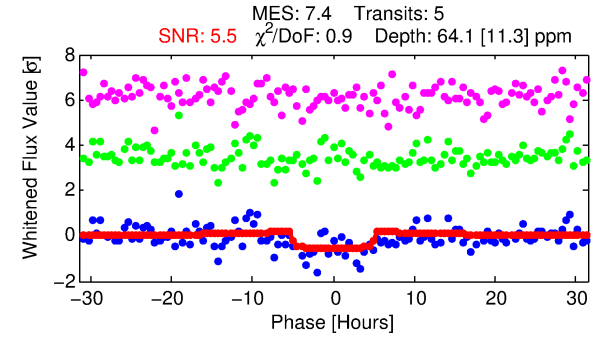
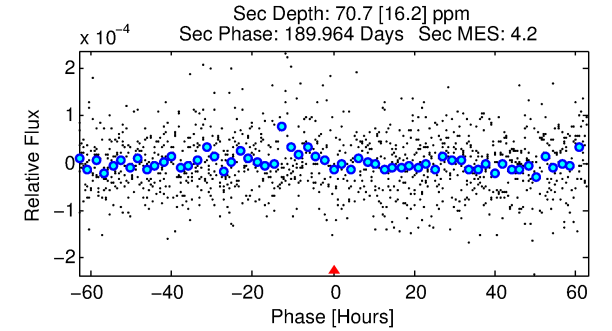
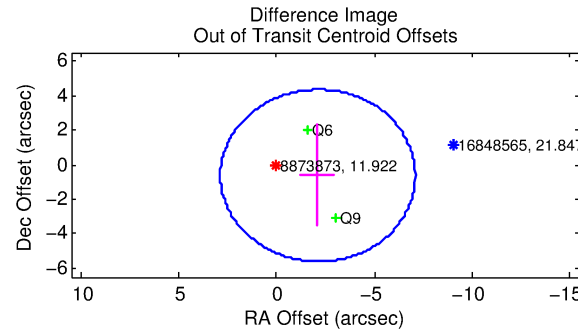
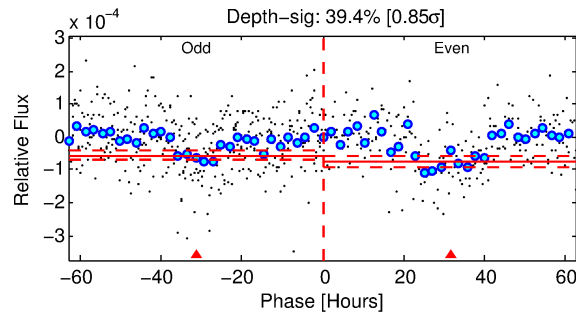
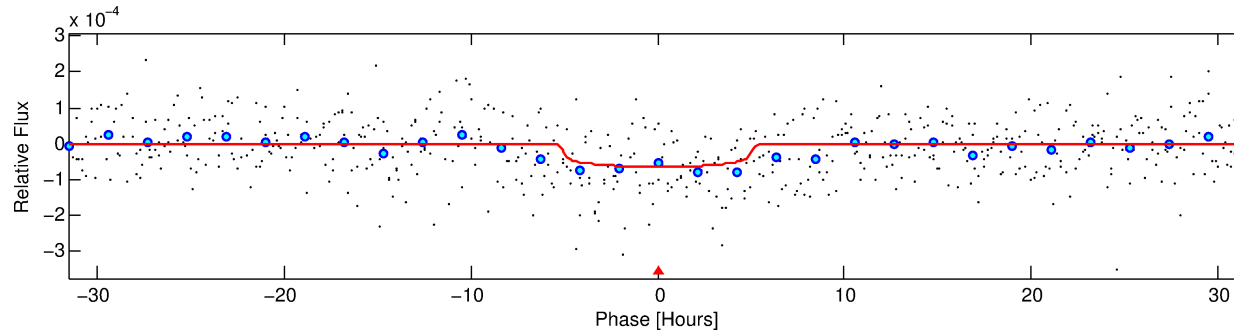
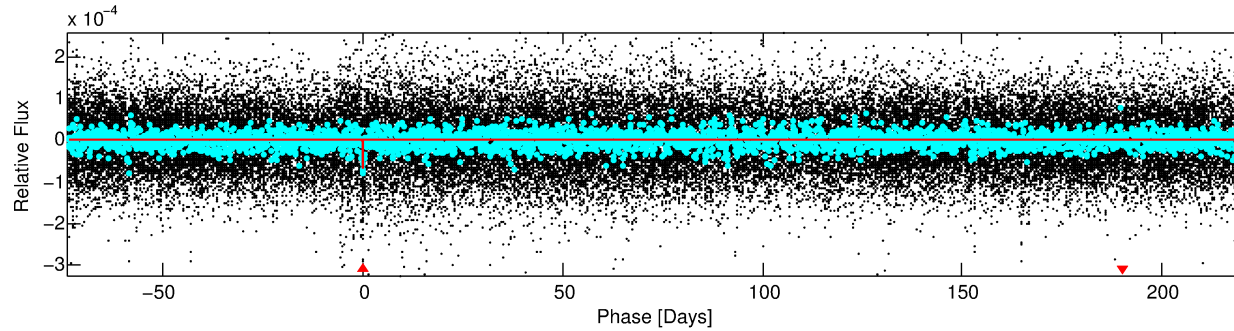
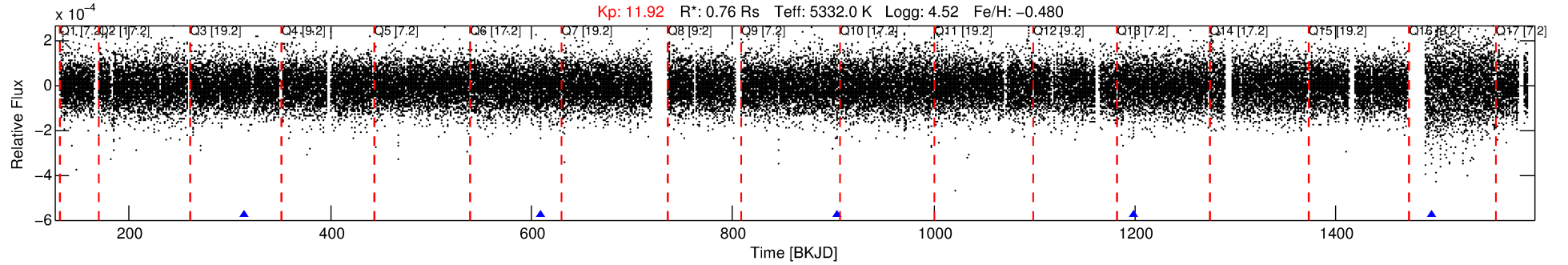
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008873873-01

No Significant Match Found

# DV One-Page Summary

KIC: 8873873 Candidate: 1 of 1 Period: 295.028 d



## DV Fit Results:

Period = 295.02802 [0.00919] d  
Epoch = 314.2542 [0.0194] BKJD  
Rp/R\* = 0.0086 [0.0044]  
a/R\* = 103.56 [229.13]  
b = 0.89 [0.55]  
Seff = 0.70 [0.14]  
Teq = 234 [12] K  
Rp = 0.72 [0.37] Re  
a = 0.7731 [0.0823] AU  
Ag = 45025.21 [47123.41] [0.96 $\sigma$ ]  
Teffp = 5260 [1368] K [3.67 $\sigma$ ]

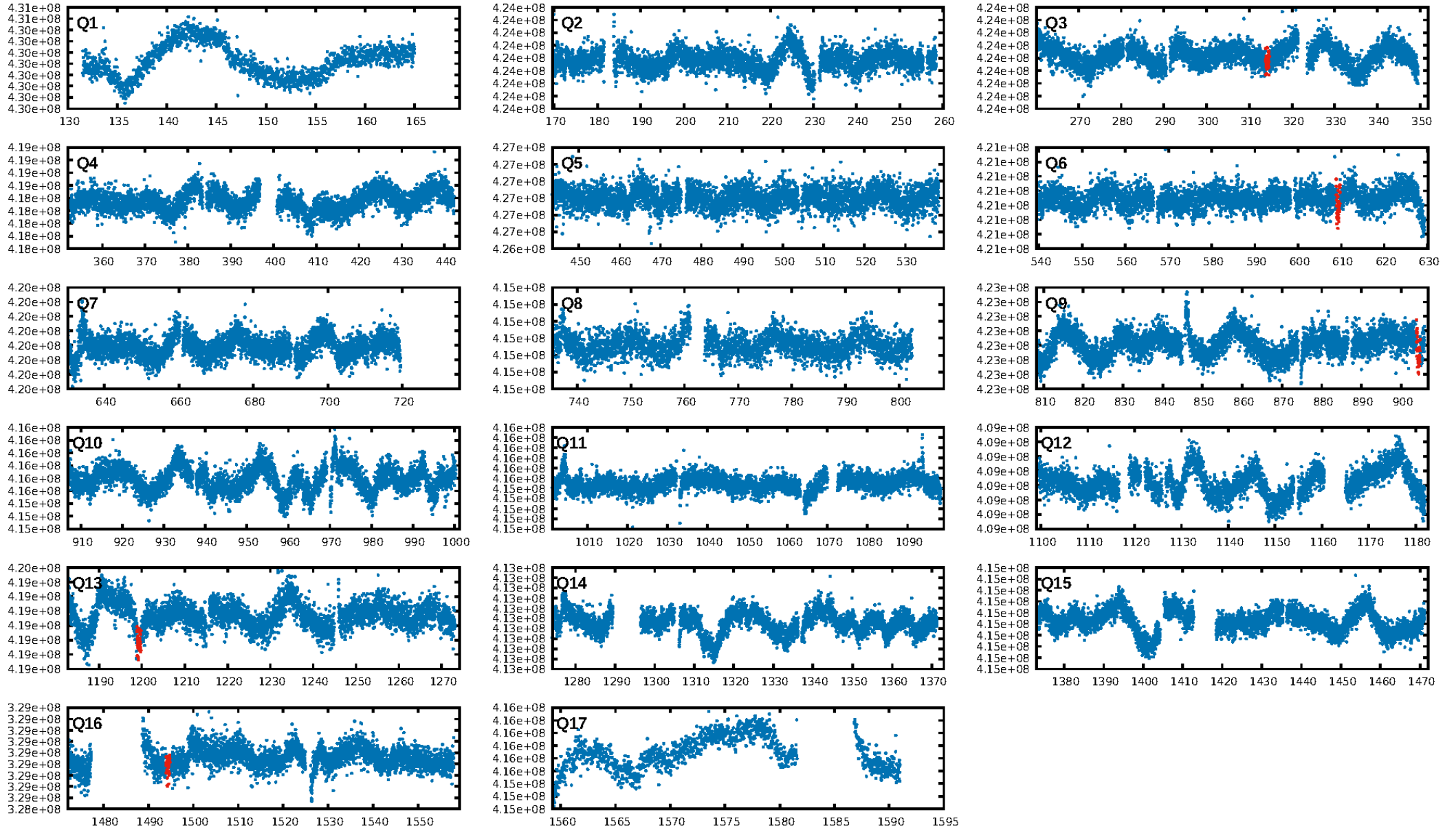
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 9.1%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 1.03e-09  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 2.11  
Centroid-sig: 52.3%  
Centroid-so: 2.103 arcsec [1.26 $\sigma$ ]  
OotOffset-rm: 2.203 arcsec [1.33 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 2.758 arcsec [1.19 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [4/4]

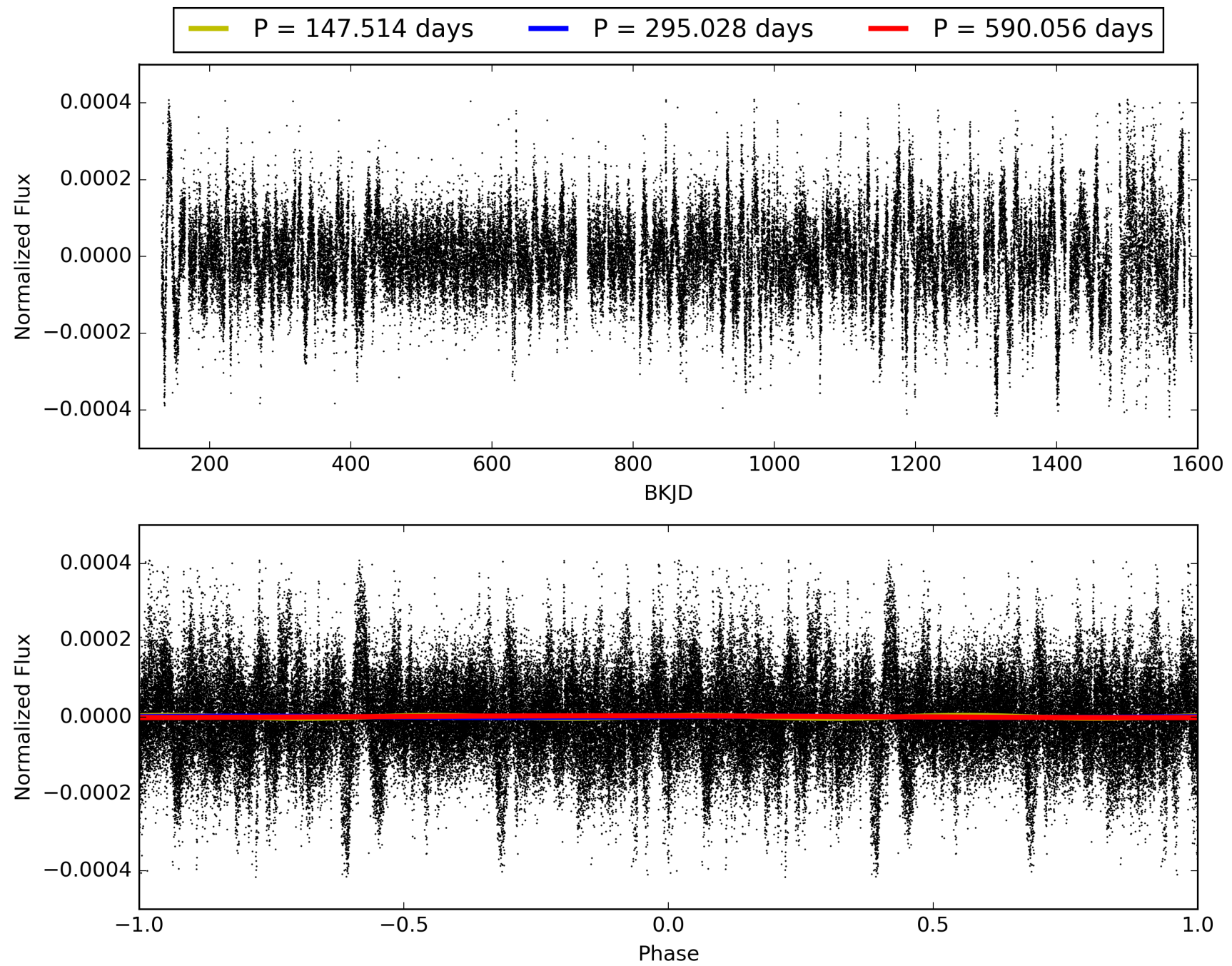
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:48:50 Z

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

# TCE 008873873-01, PDC Light Curves

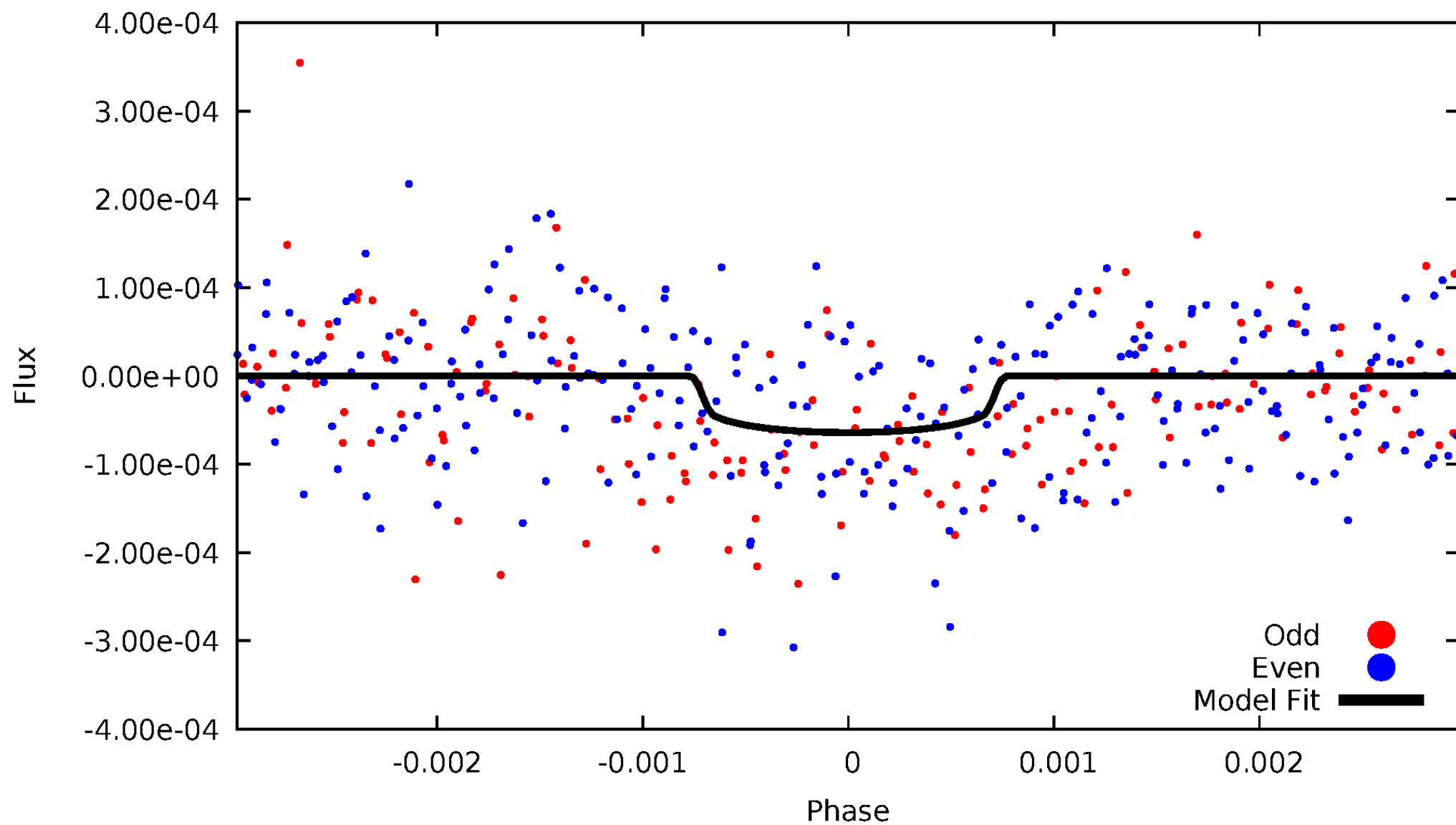


TCE 008873873-01



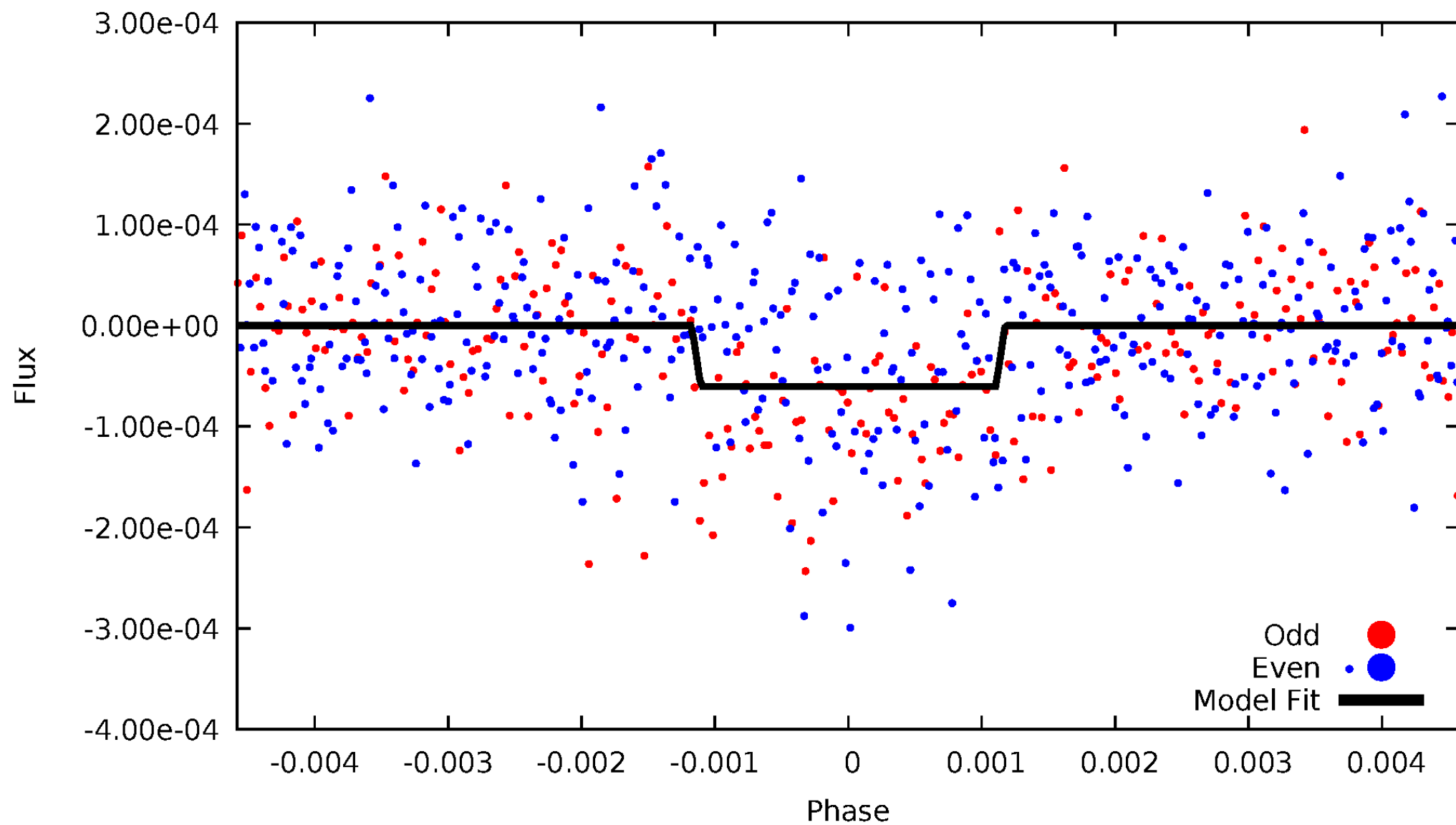
# DV Odd/Even

TCE 008873873-01



# ALT Odd/Even

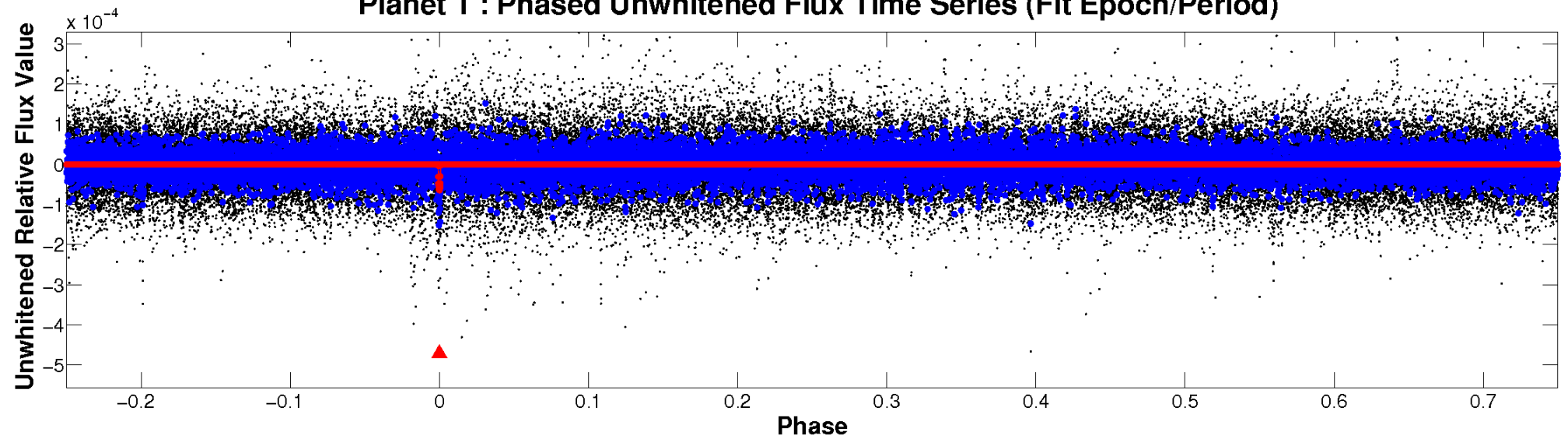
TCE 008873873-01



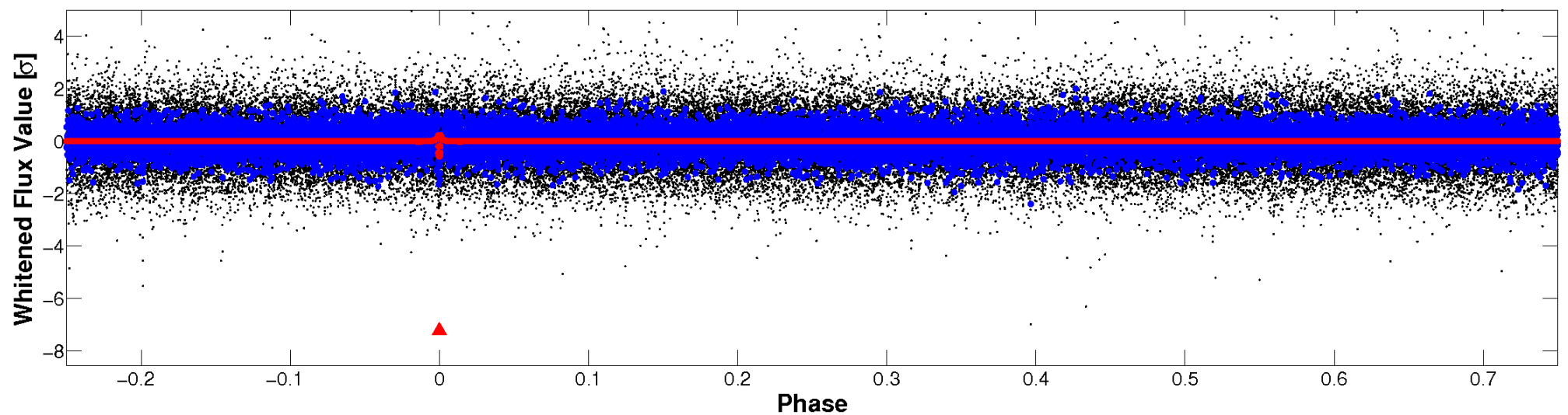


# Non-Whitened Vs. Whitened Light Curve

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

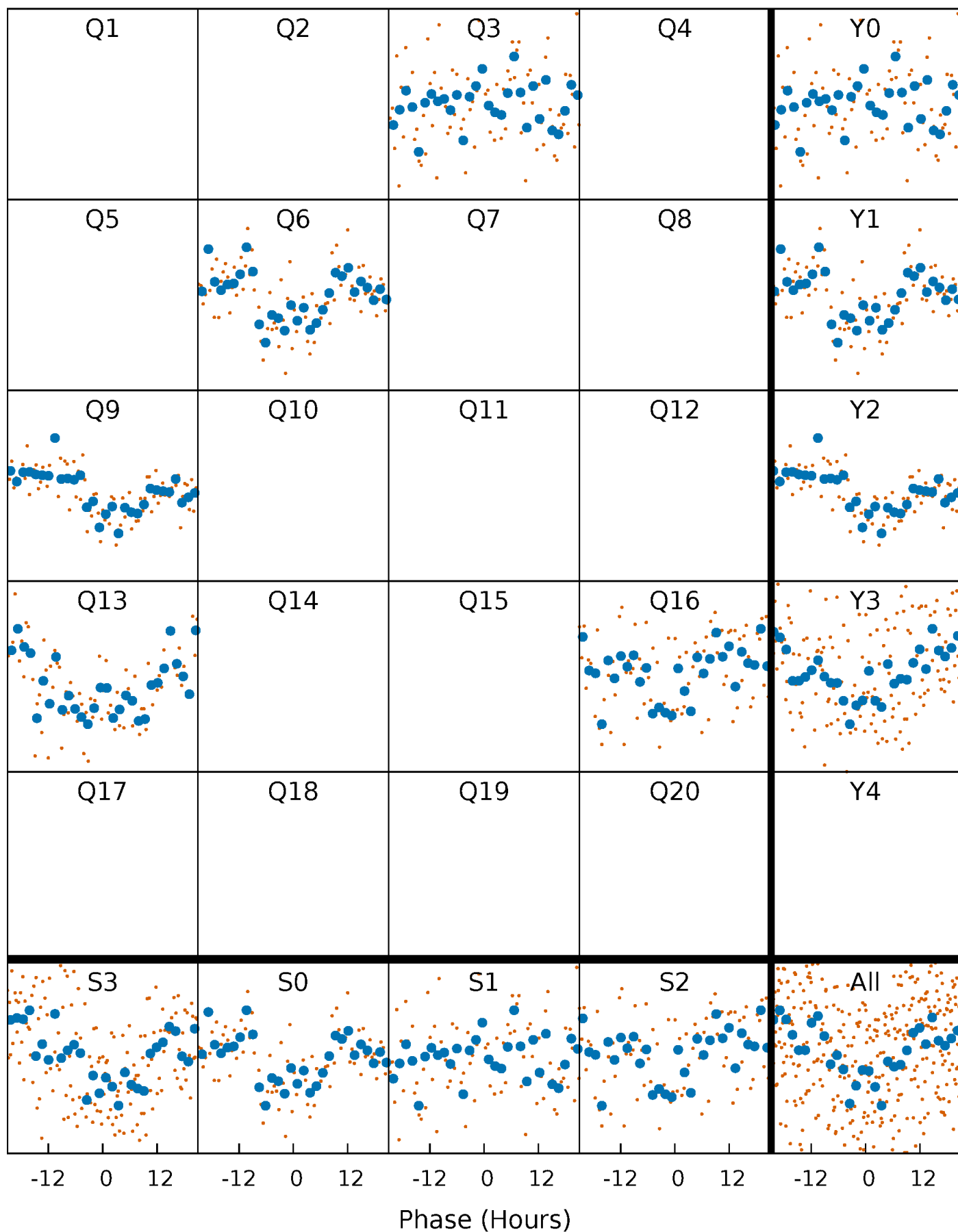


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

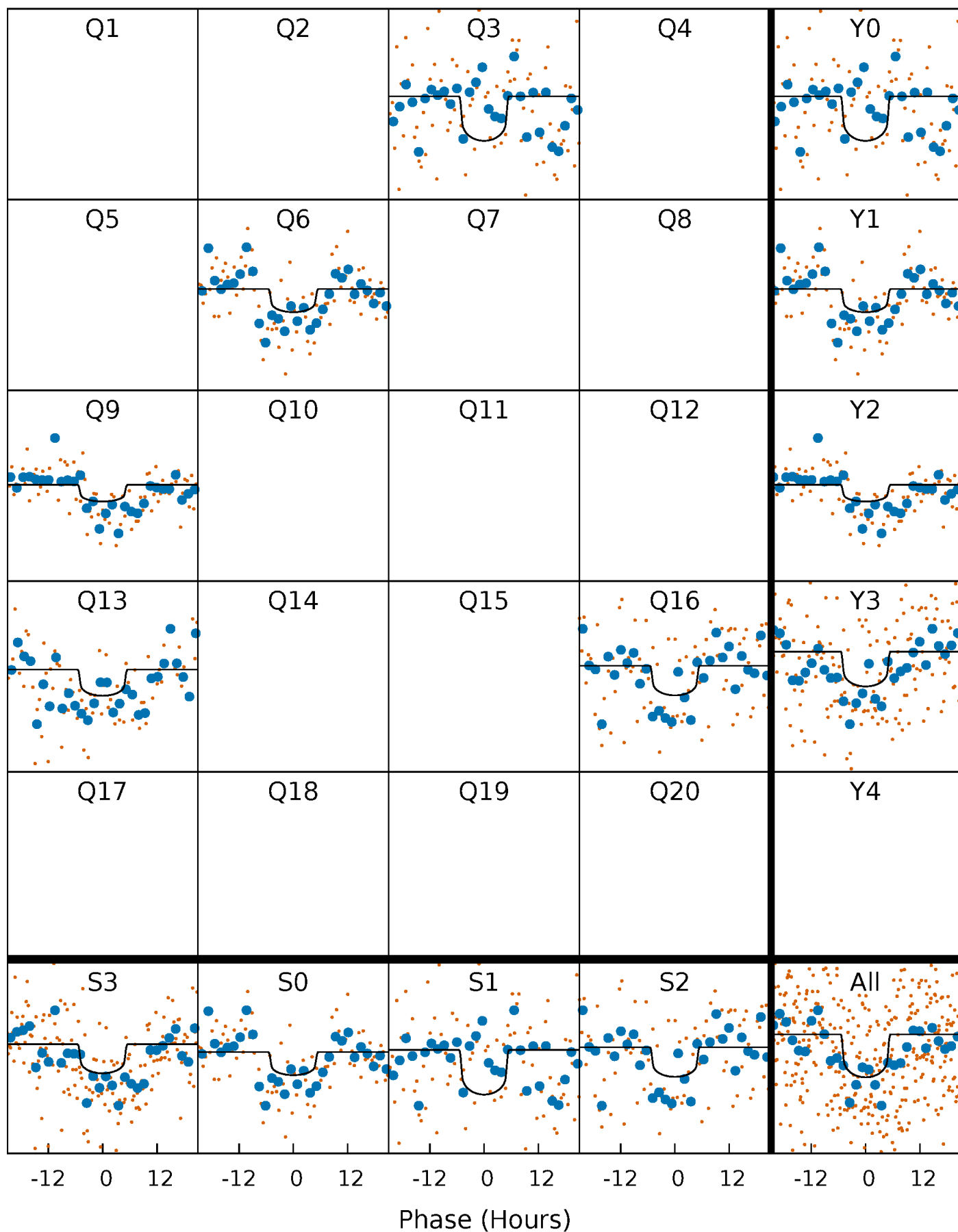
TCE 008873873-01 P=295.028017 Days  $T_0=314.254209$  (BKJD)





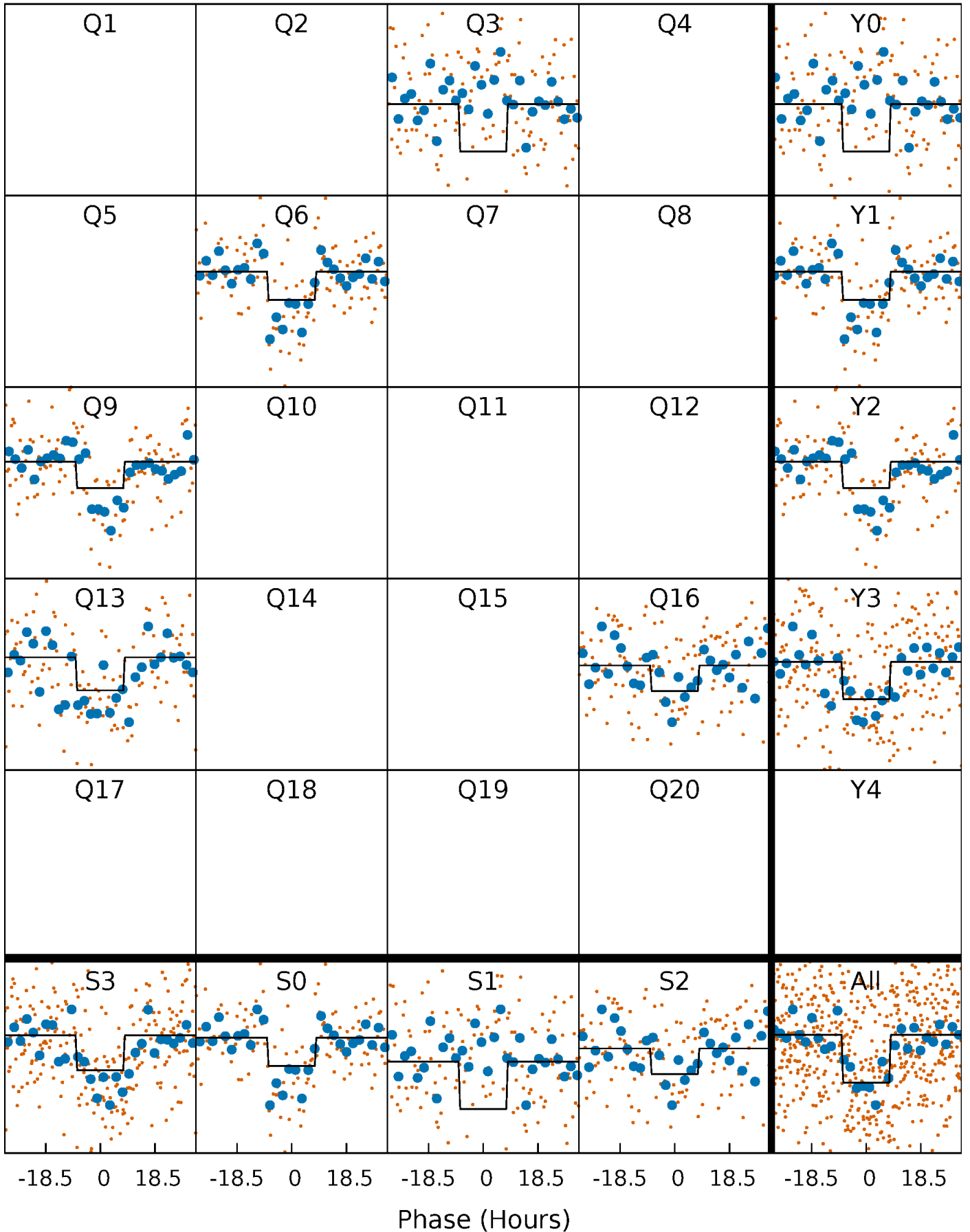
# DV Quarter-Phased Transit Curves

TCE 008873873-01   P=295.028017 Days    $T_0=314.254209$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

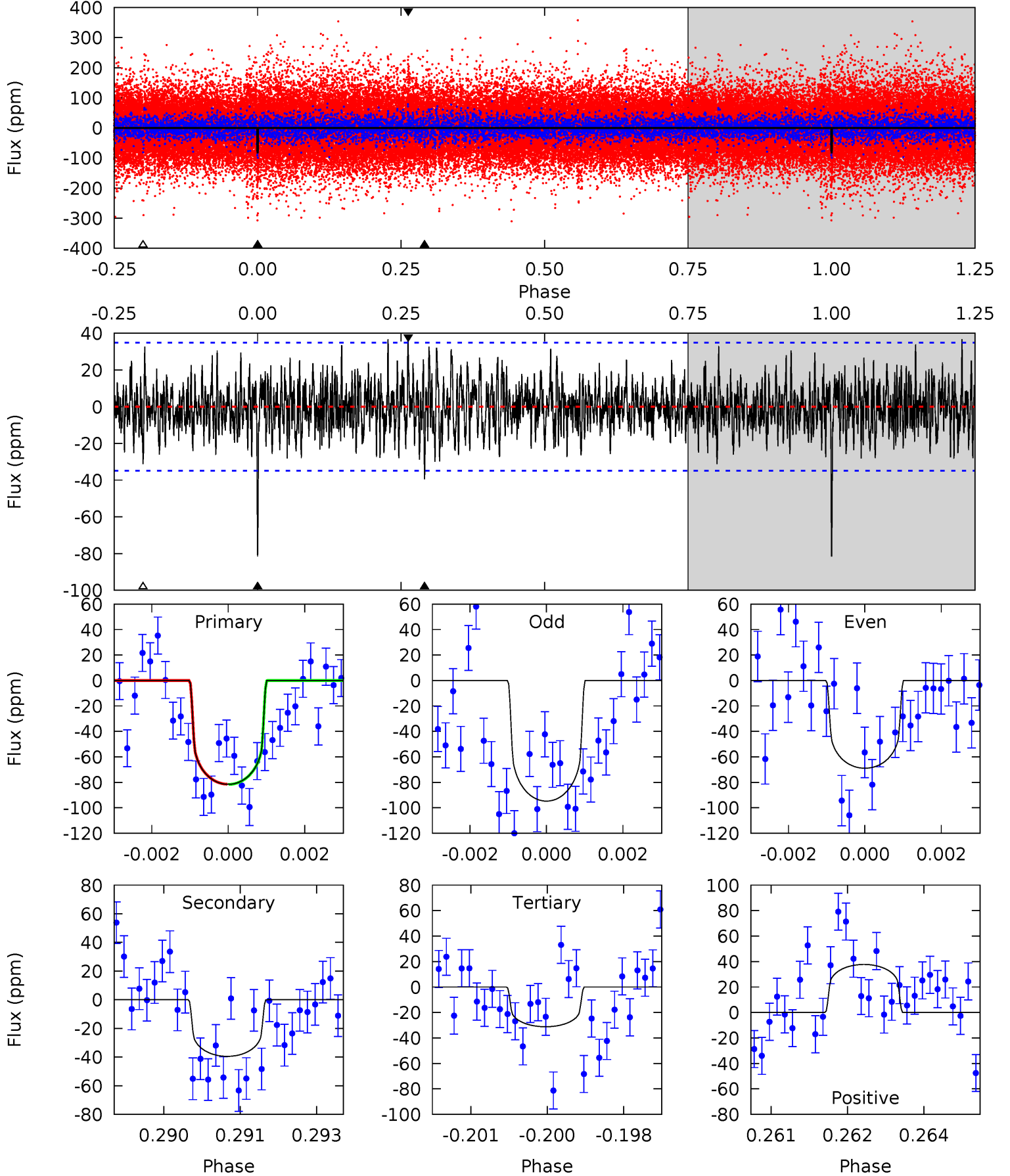
TCE 008873873-01 P=294.992495 Days  $T_0=314.312825$  (BKJD)



# DV Model-Shift Uniqueness Test

008873873-01, P = 295.028017 Days, E = 19.226192 Days

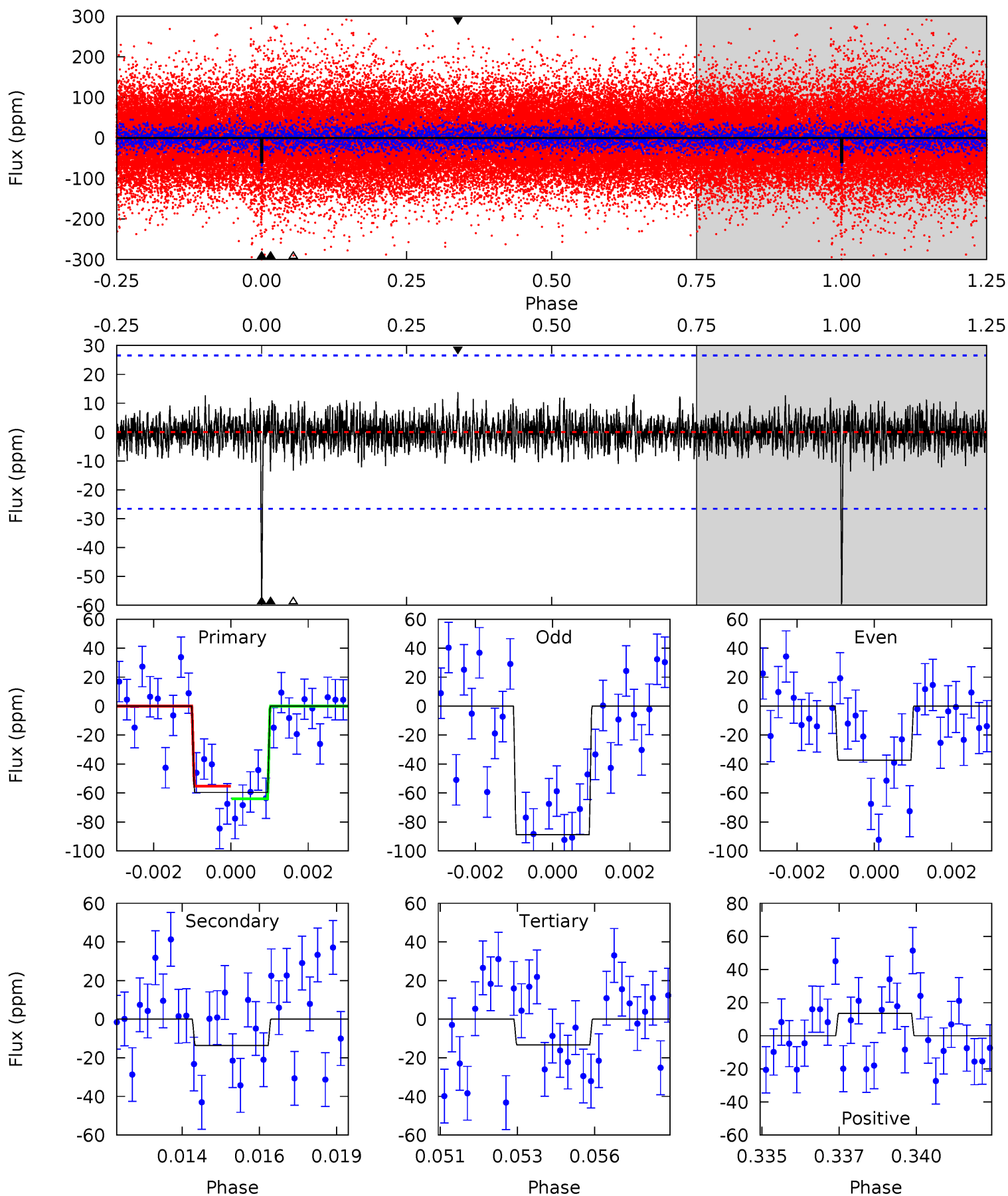
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	6.09	4.81	5.82	5.38	3.17	1.66	7.77	6.76	1.28	0.28	1.97	0.87	0.32	0.02



# Alt Model-Shift Uniqueness Test

008873873-01,  $P = 294.992495$  Days,  $E = 19.320330$  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
11.9	2.72	2.66	2.70	5.30	3.05	0.77	9.22	9.18	0.06	0.02	5.05	0.71	0.19	0.87



### Stellar Parameters For KIC 008873873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5332^{+160}_{-144}$	$4.524^{+0.097}_{-0.060}$	$-0.480^{+0.350}_{-0.250}$	$0.762^{+0.087}_{-0.087}$	$0.708^{+0.099}_{-0.038}$	$2.254^{+0.929}_{-0.463}$
	+3%/-3%	+2%/-1%	+73%/-52%	+11%/-11%	+14%/-5%	+41%/-21%
Source	PHO1	FLK73	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 008873873-01 / KOI 8174.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-39 \pm 6$	$0.71^{+0.37}_{-0.35}$	$325^{+14}_{-13}$	$4698^{+1616}_{-689}$	$26040^{+73982}_{-14665}$
Alt.	$-14 \pm 5$	$0.68^{+0.35}_{-0.35}$	$325^{+13}_{-13}$	$3880^{+1326}_{-573}$	$9454^{+32645}_{-5945}$

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

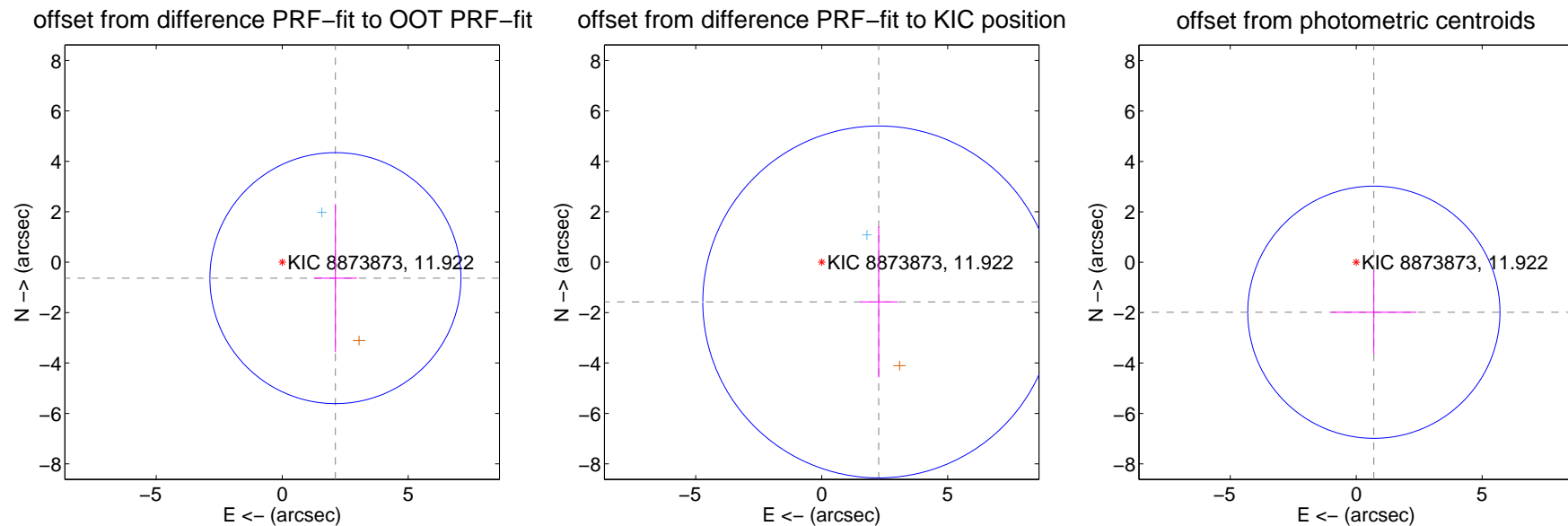
## DV Centroid Data

Supplemental centroid analysis for 008873873-01. **Kepler magnitude: 11.92.** Transit SNR 5.54

**There are 1 quarters with good PRF difference image offsets**

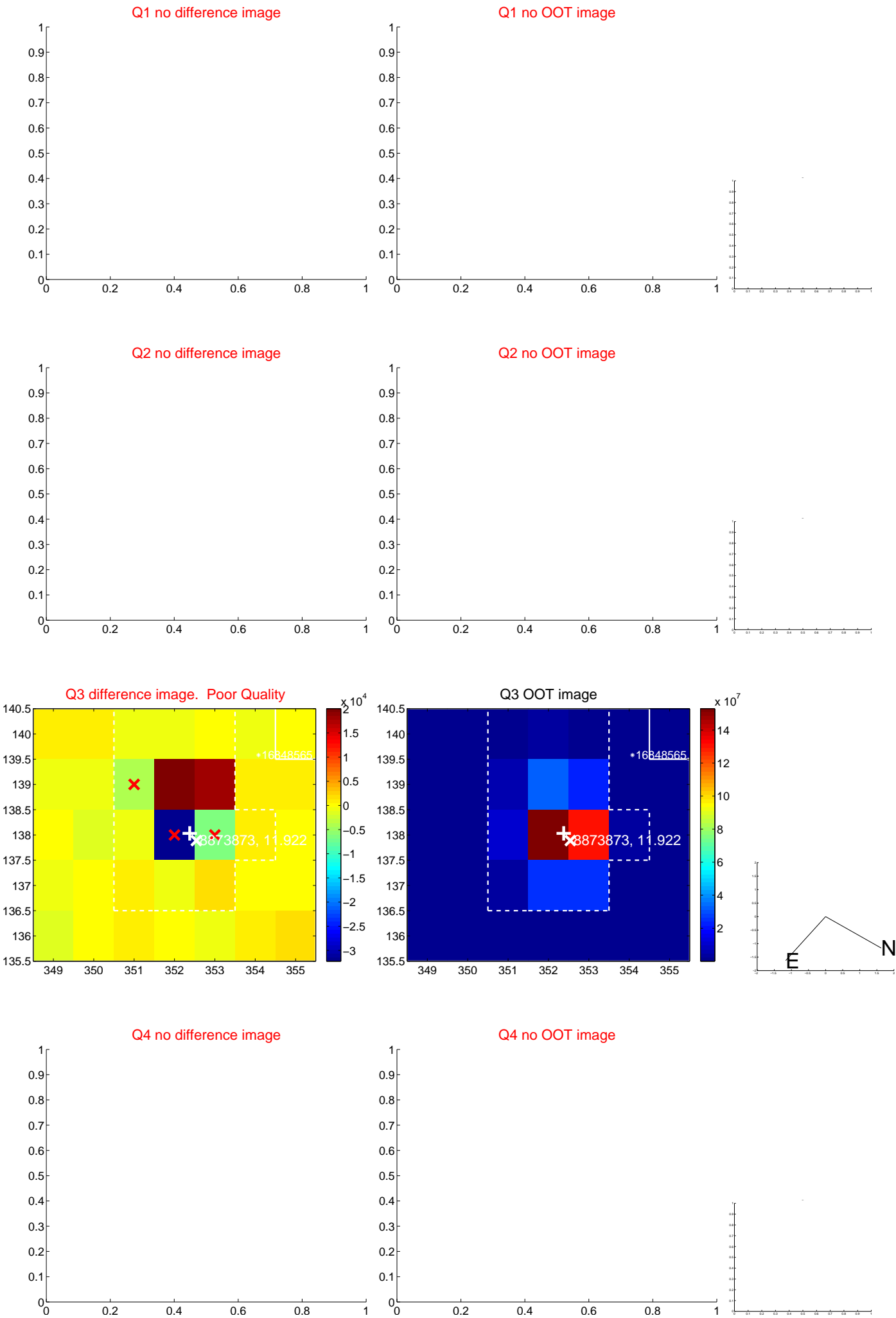
The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.203 \pm 1.660$	1.33	$-2.110 \pm 0.854$	$-0.632 \pm 2.937$
PRF-fit source offset from KIC position	$2.758 \pm 2.327$	1.19	$-2.263 \pm 0.751$	$-1.577 \pm 2.995$
photometric centroid source offset	$2.10 \pm 1.67$	1.26	$-0.70 \pm 1.69$	$-1.98 \pm 1.67$



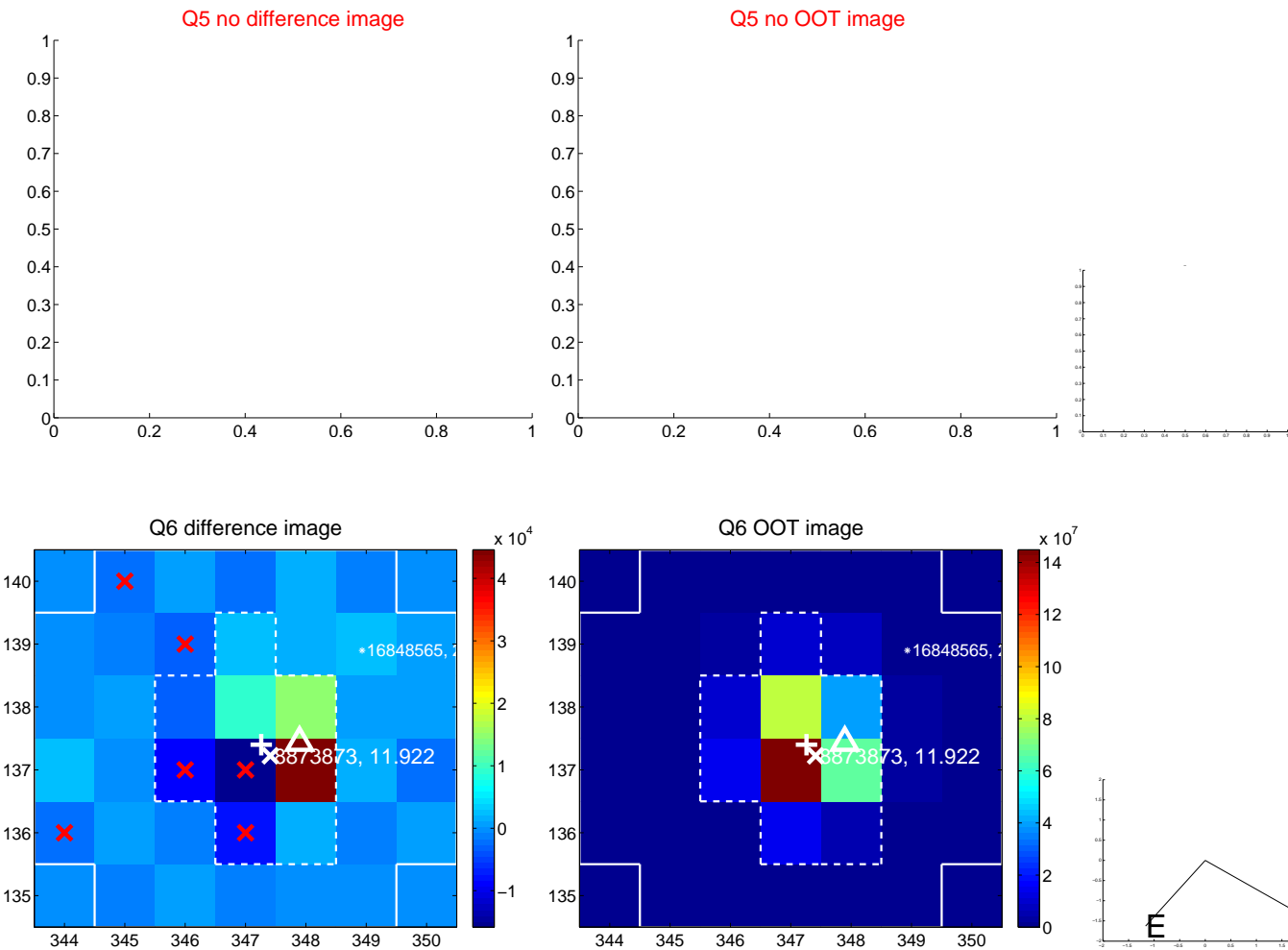
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

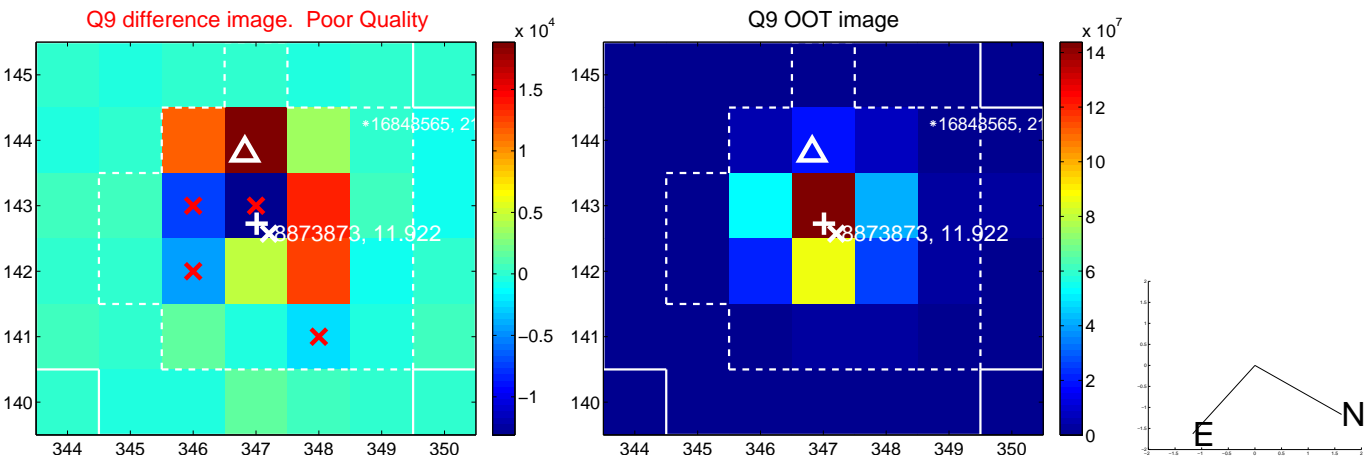




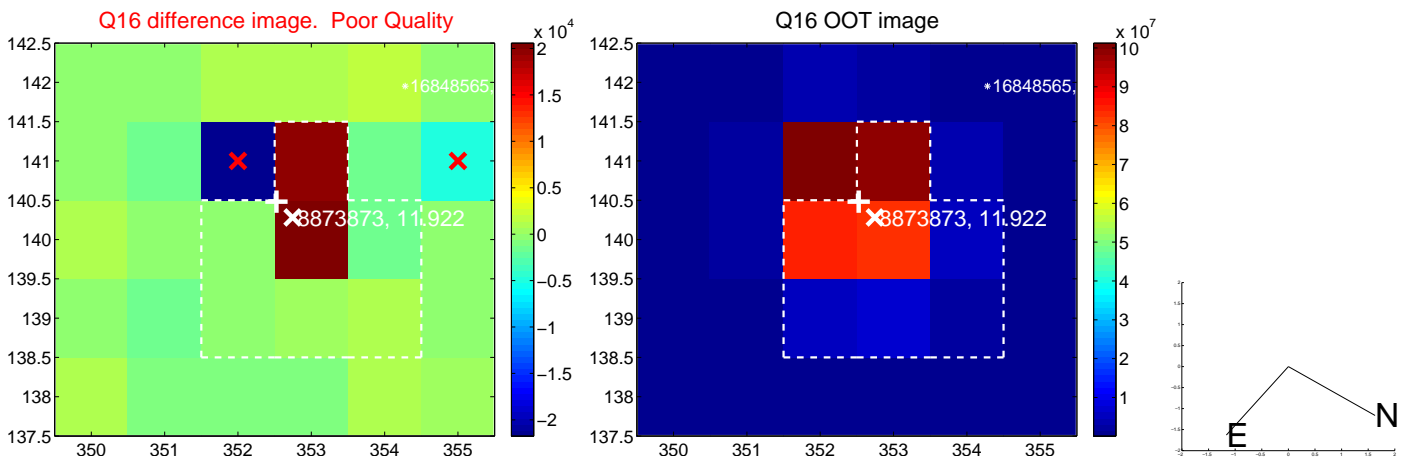
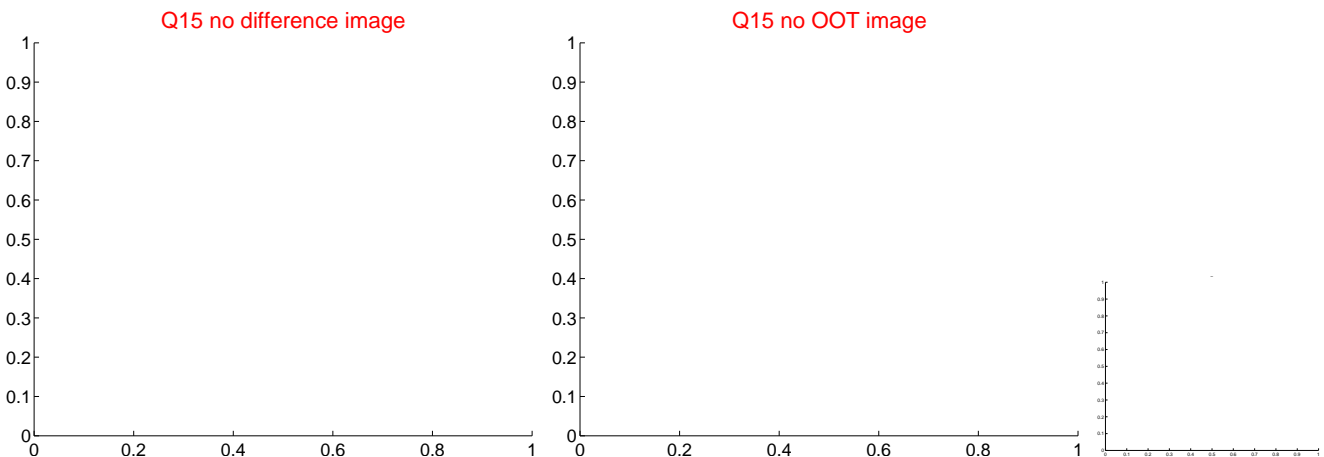
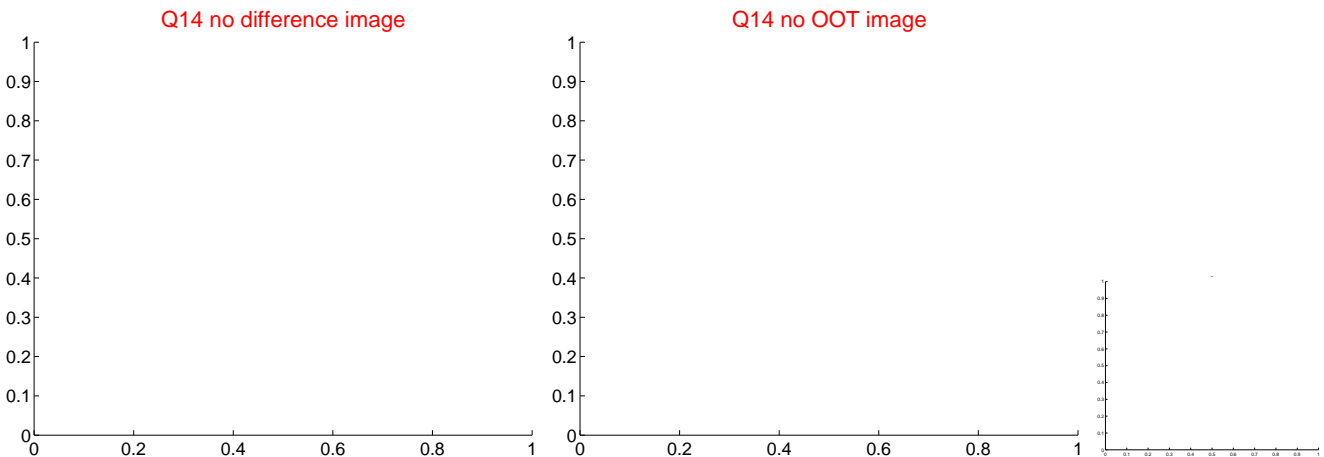
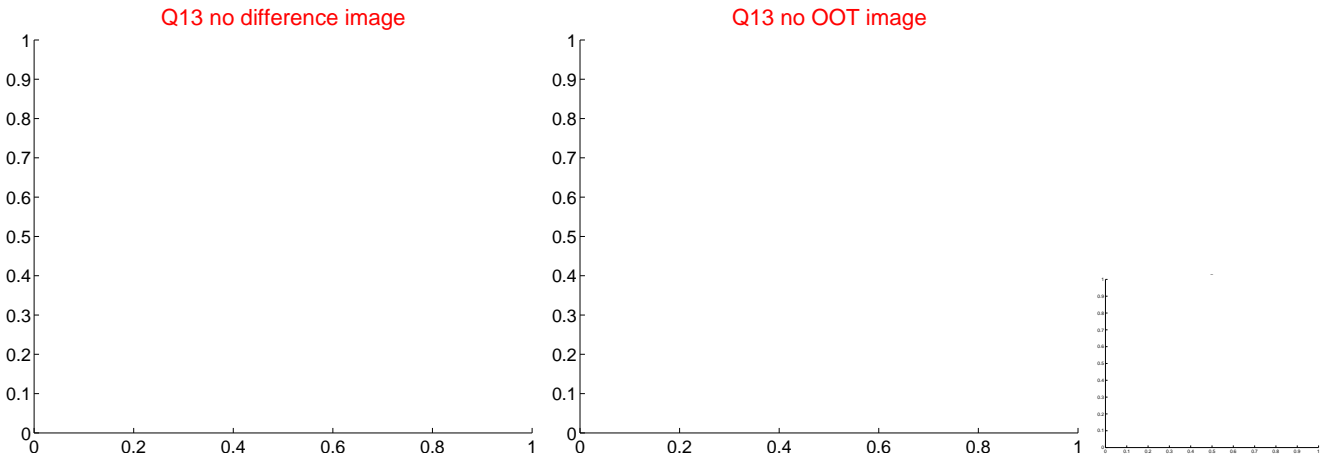
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



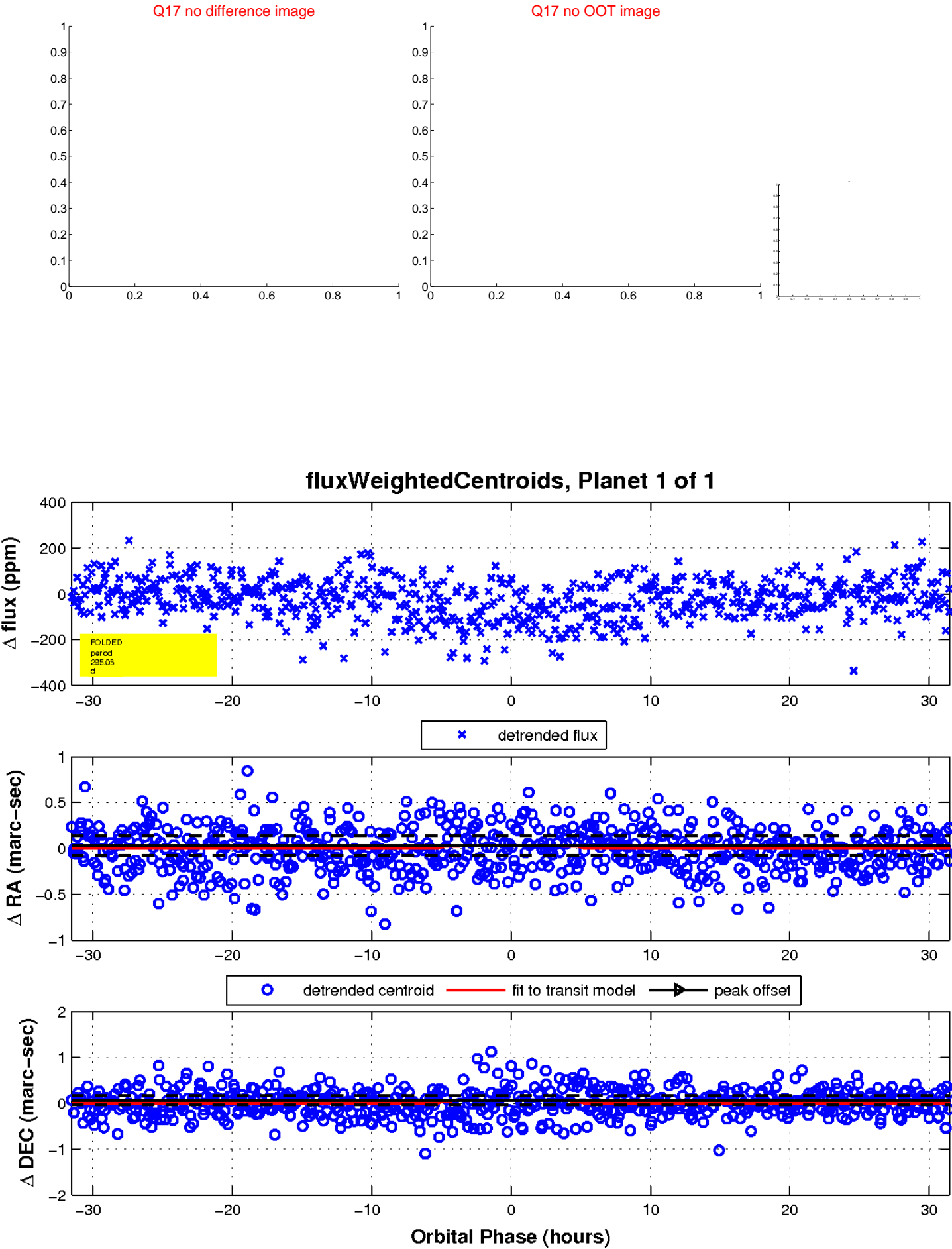
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

