

# KIC 007204872

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007204872-01	OBS	No	367.437677	173.012351	633.8	25.939	10.1	11.2	1.03	6258	3.36	1.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007204872-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_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.

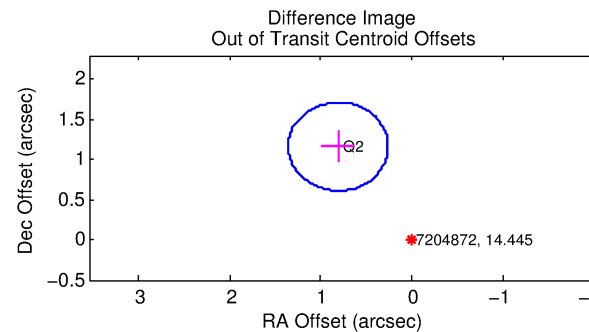
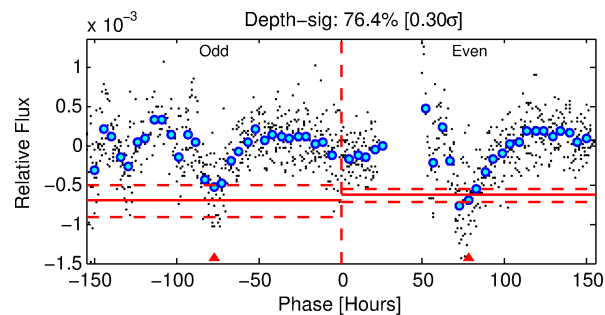
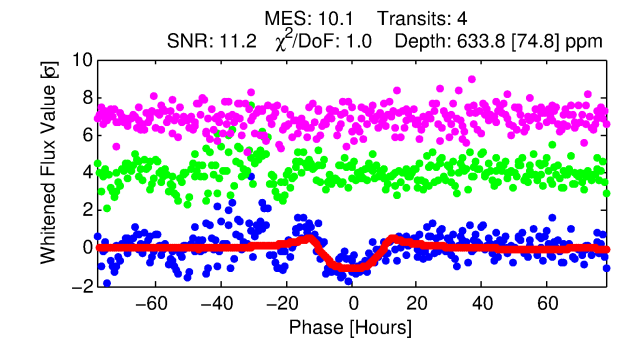
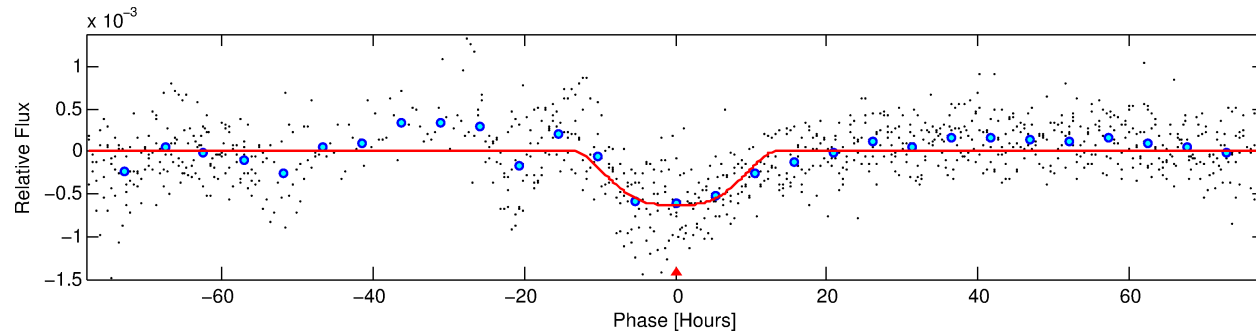
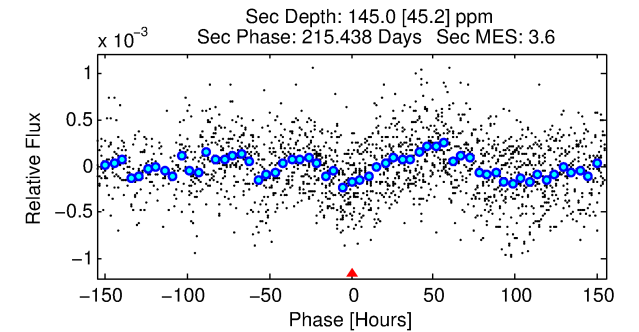
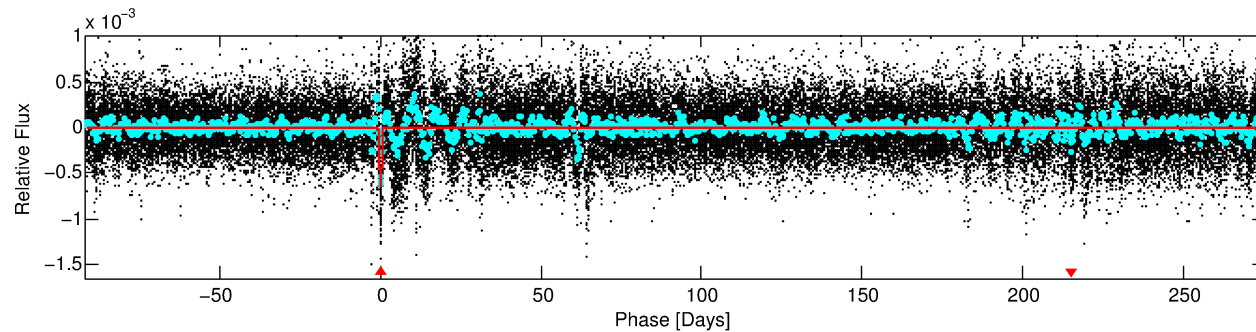
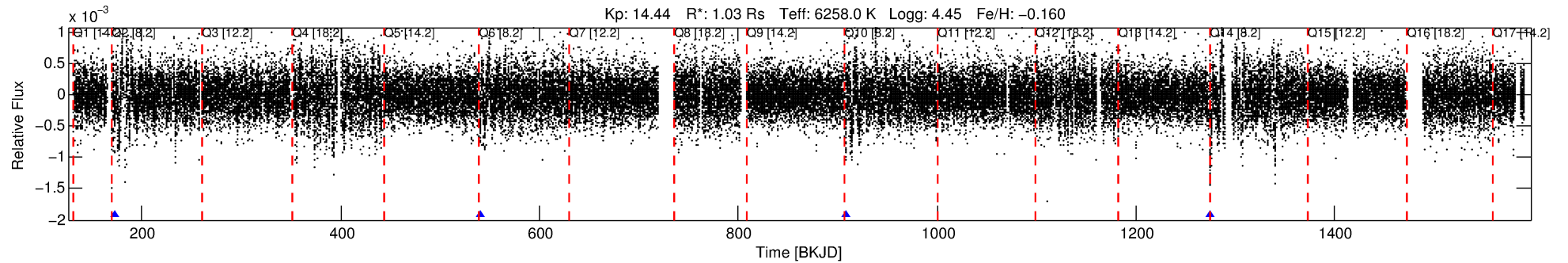
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007204872-01

No Significant Match Found

# DV One-Page Summary

KIC: 7204872 Candidate: 1 of 1 Period: 367.438 d



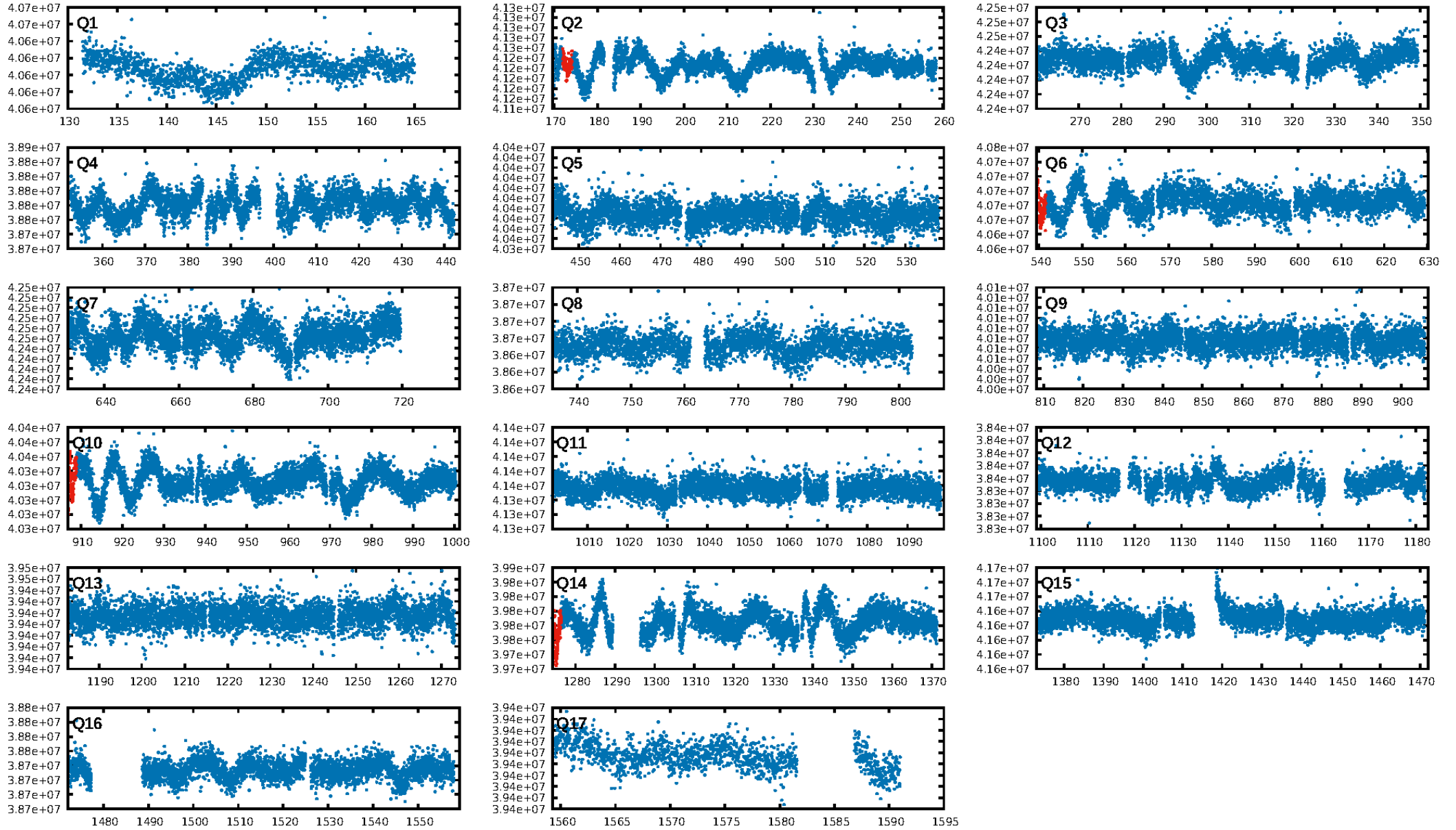
## DV Fit Results:

Period = 367.43768 [0.01898] d  
Epoch = 173.0124 [0.0342] BKJD  
Rp/R\* = 0.0299 [0.0023]  
a/R\* = 38.15 [4.34]  
b = 0.97 [0.01]  
Seff = 1.37 [0.51]  
Teff = 276 [26] K  
Rp = 3.36 [1.03] Re  
a = 1.0335 [0.2526] AU  
Ag = 7535.02 [3707.39] [2.03 $\sigma$ ]  
Teffp = 3972 [368] K [10.02 $\sigma$ ]

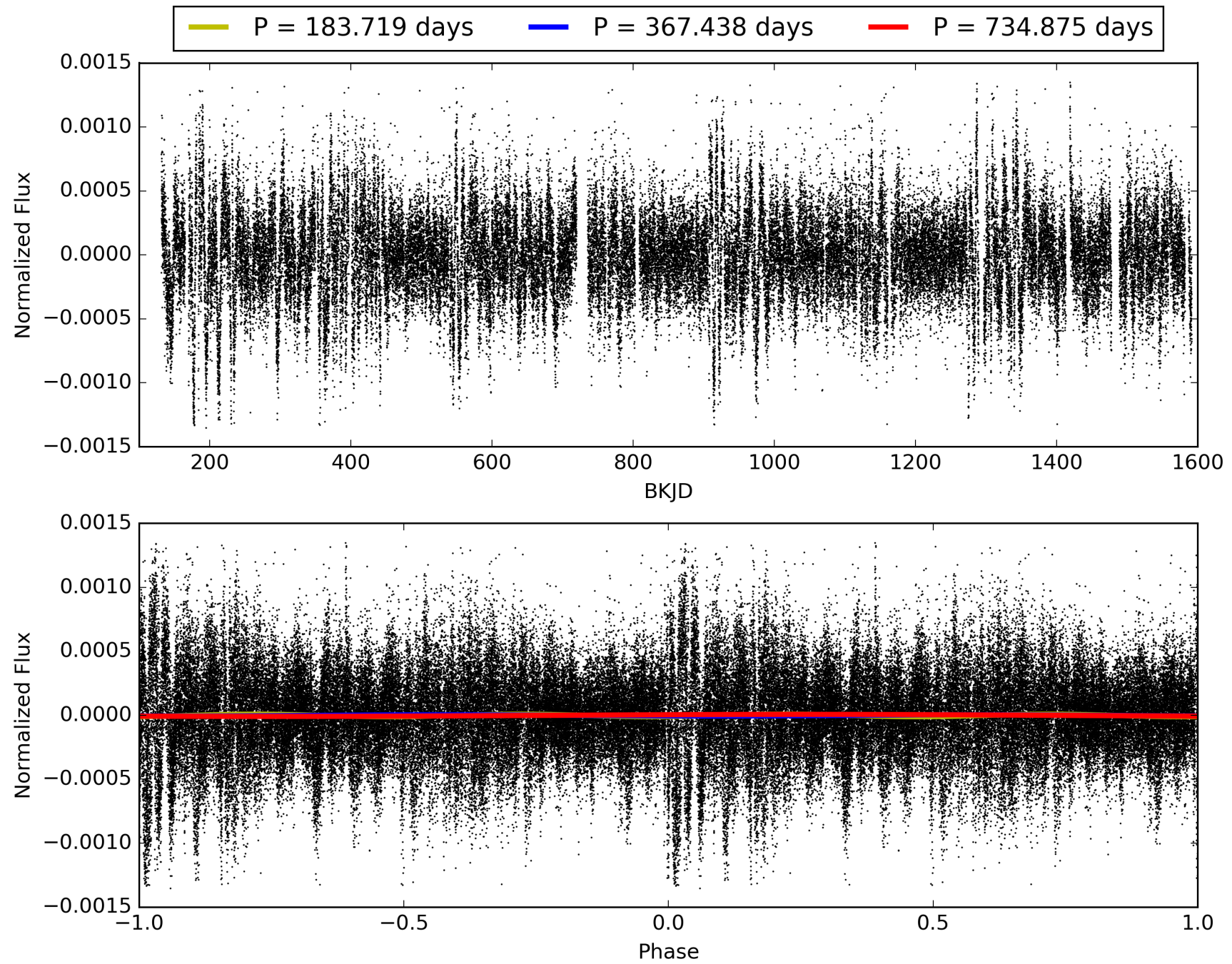
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.10e-13  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -4.245  
Centroid-sig: 39.2%  
Centroid-so: 0.617 arcsec [0.92 $\sigma$ ]  
OotOffset-rm: 1.416 arcsec [7.72 $\sigma$ ]  
KicOffset-rm: 1.282 arcsec [7.03 $\sigma$ ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [1/1]

# TCE 007204872-01, PDC Light Curves

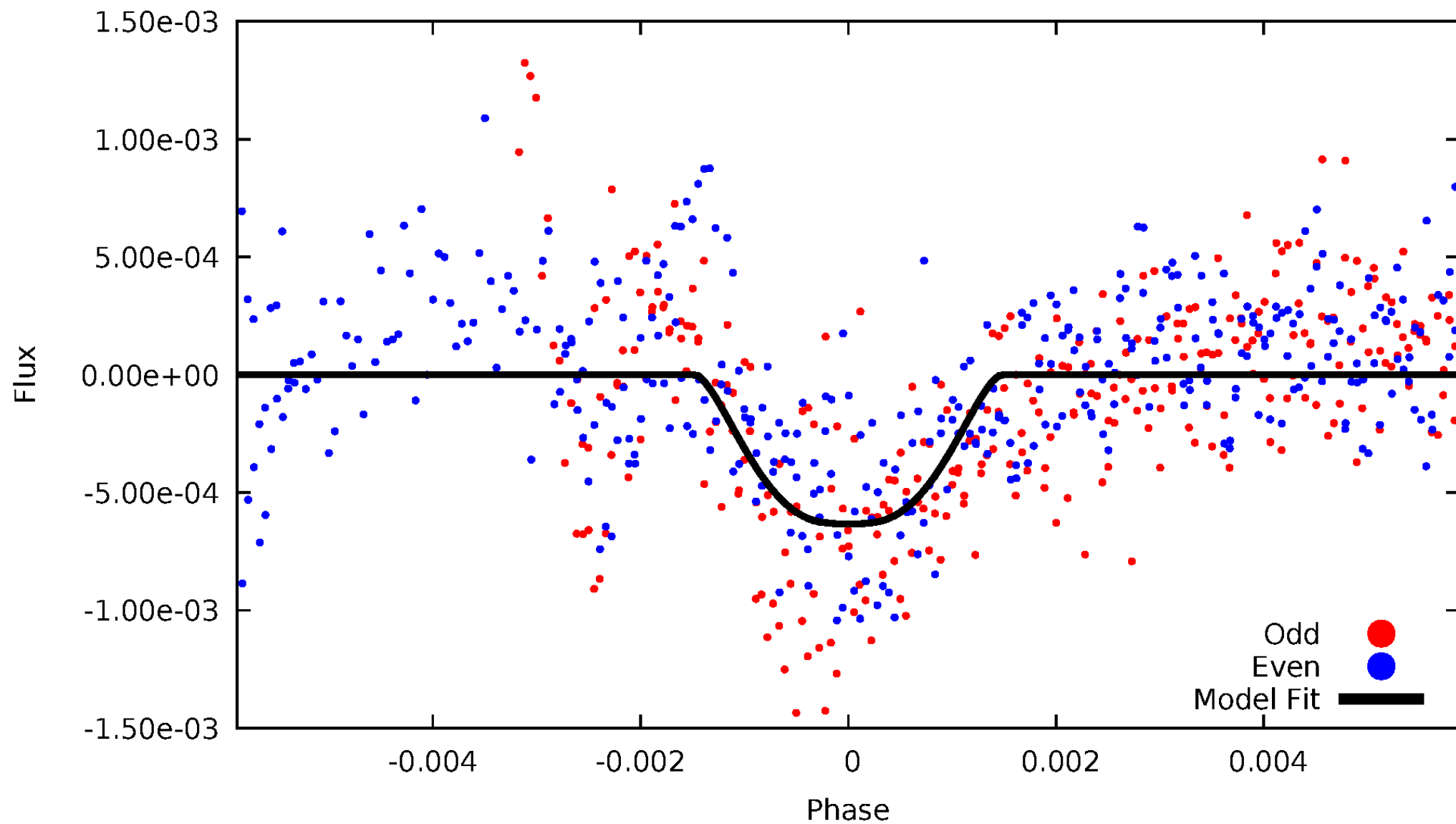


# TCE 007204872-01



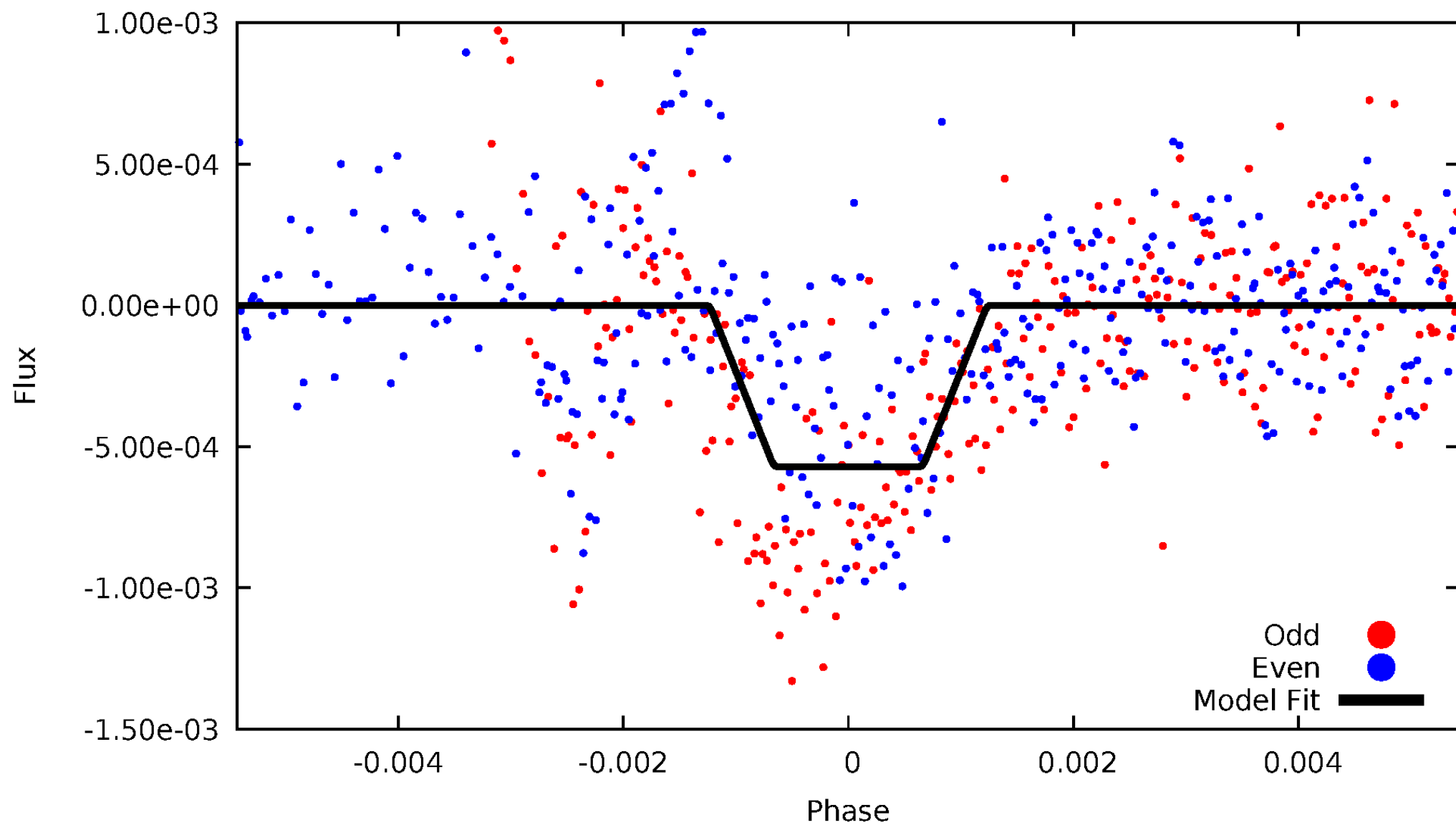
# DV Odd/Even

TCE 007204872-01



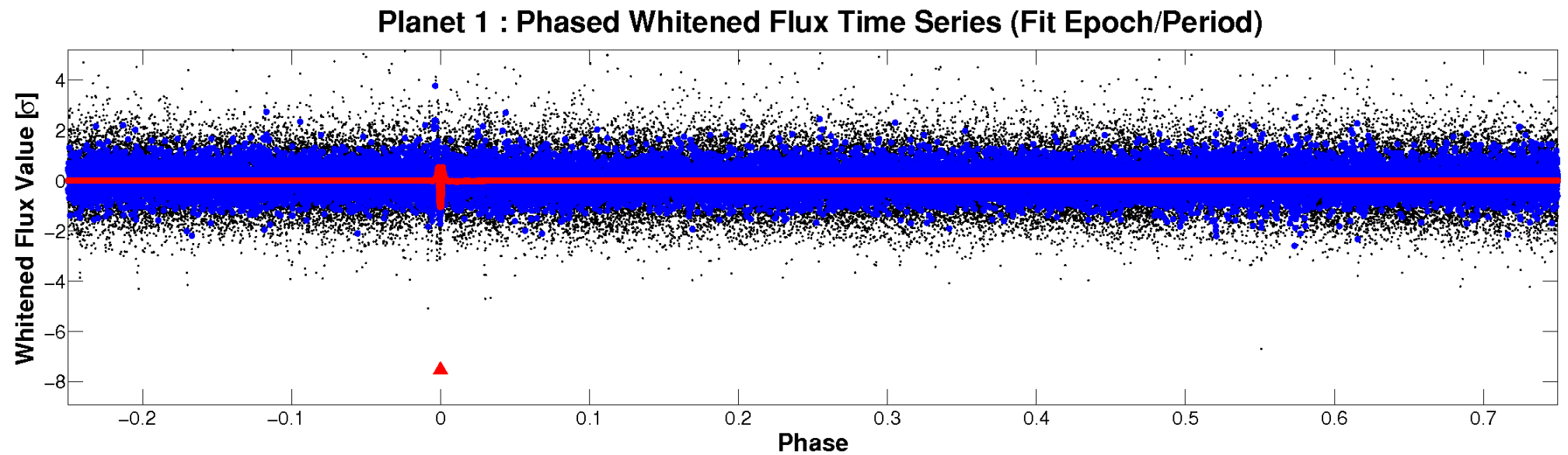
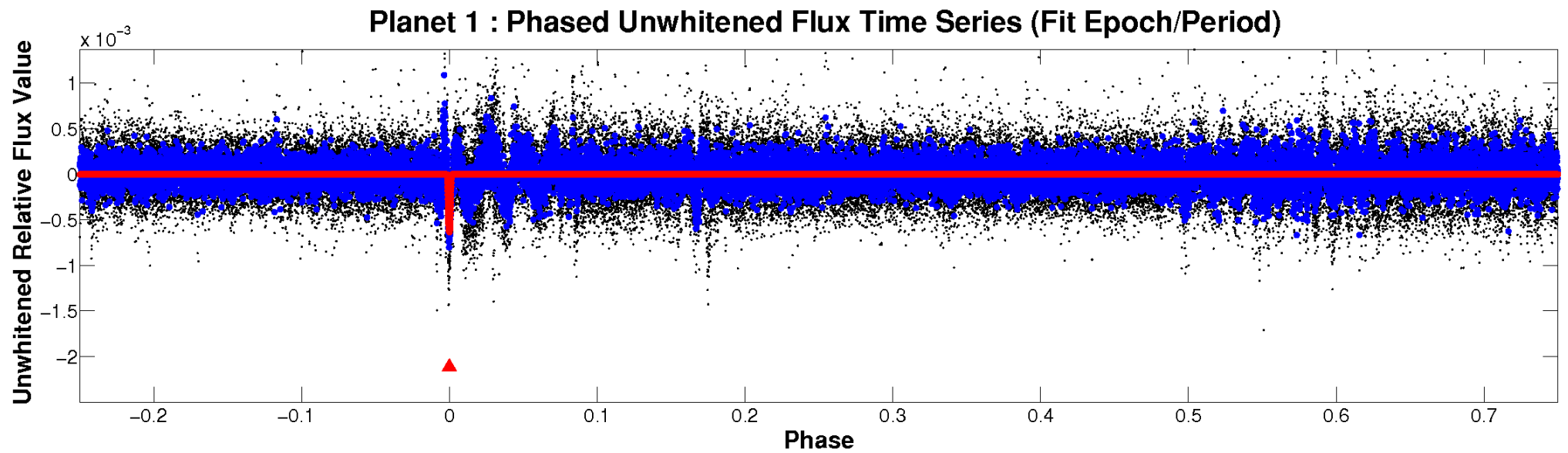
# ALT Odd/Even

TCE 007204872-01



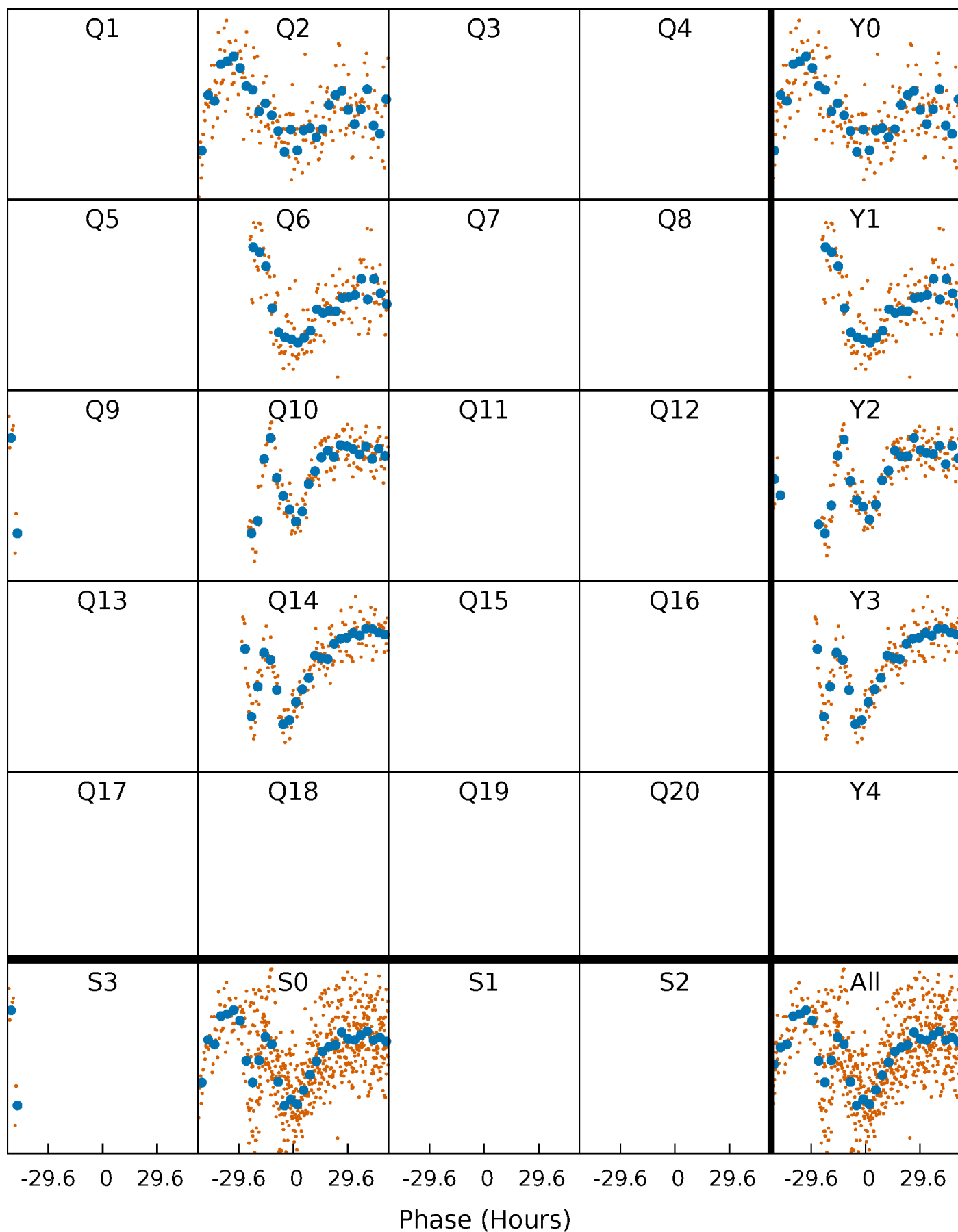


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

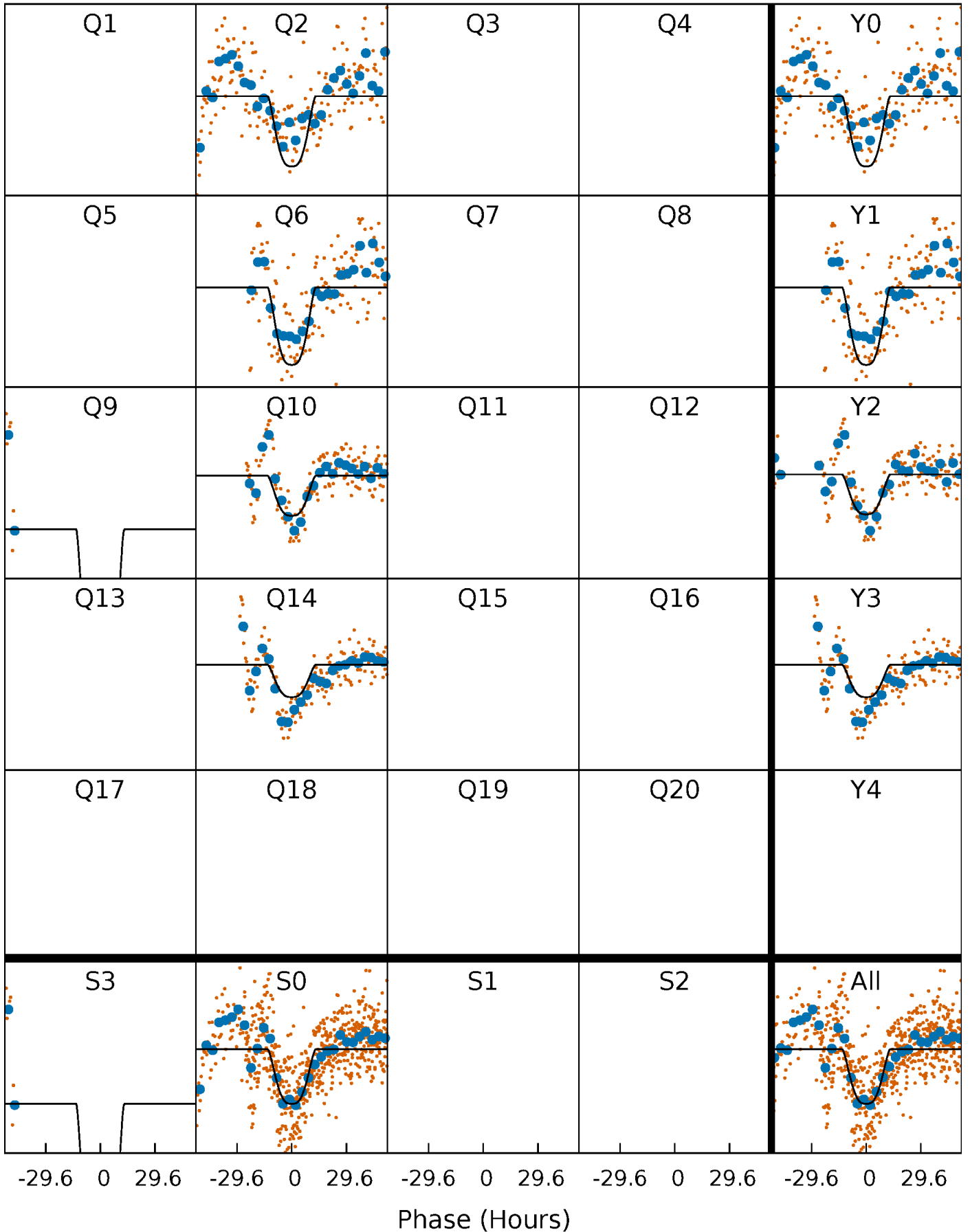
TCE 007204872-01 P=367.437677 Days  $T_0=173.012350$  (BKJD)





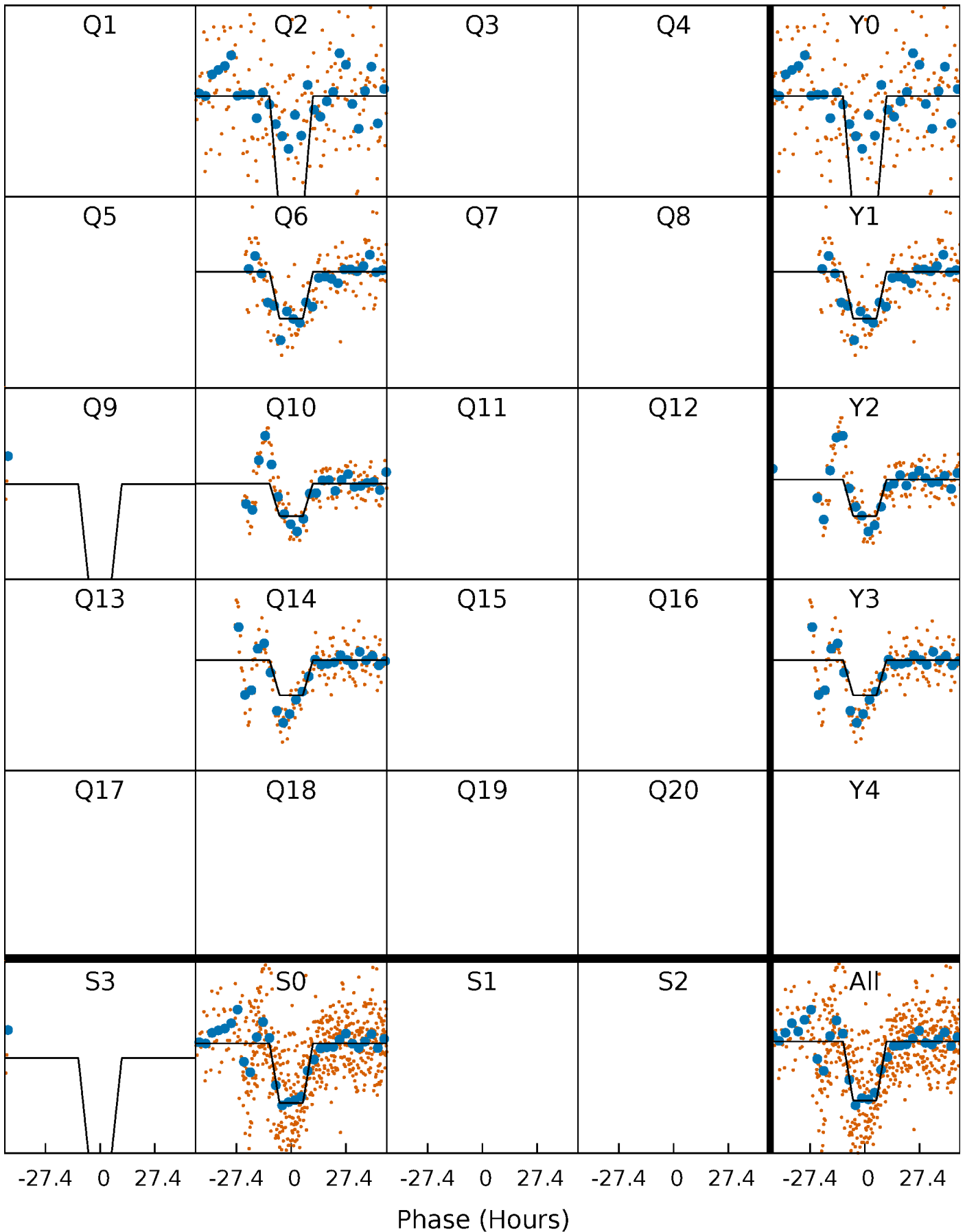
# DV Quarter-Phased Transit Curves

TCE 007204872-01 P=367.437677 Days  $T_0=173.012350$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

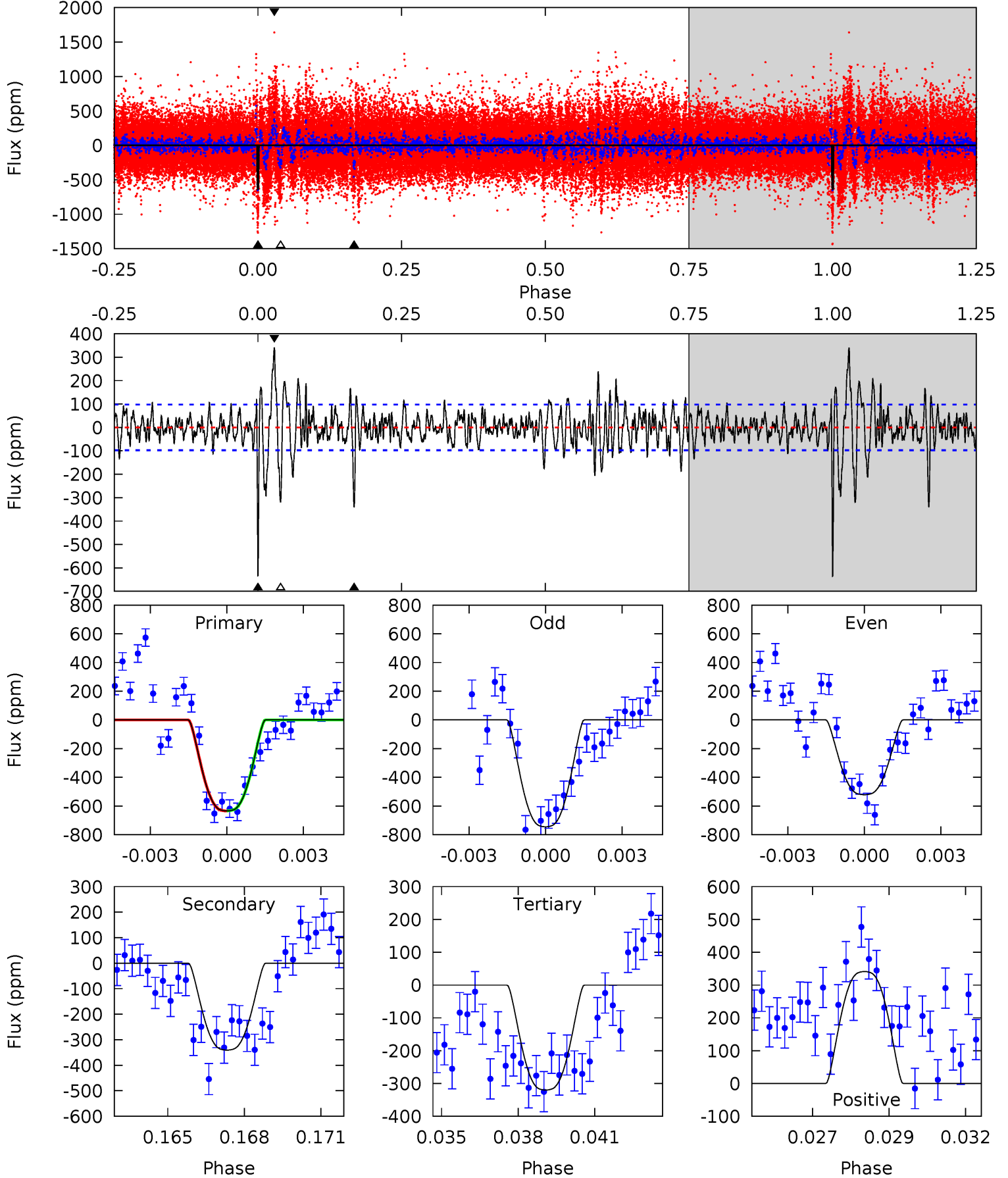
TCE 007204872-01 P=367.449898 Days  $T_0=172.975178$  (BKJD)



# DV Model-Shift Uniqueness Test

007204872-01, P = 367.437677 Days, E = 173.012350 Days

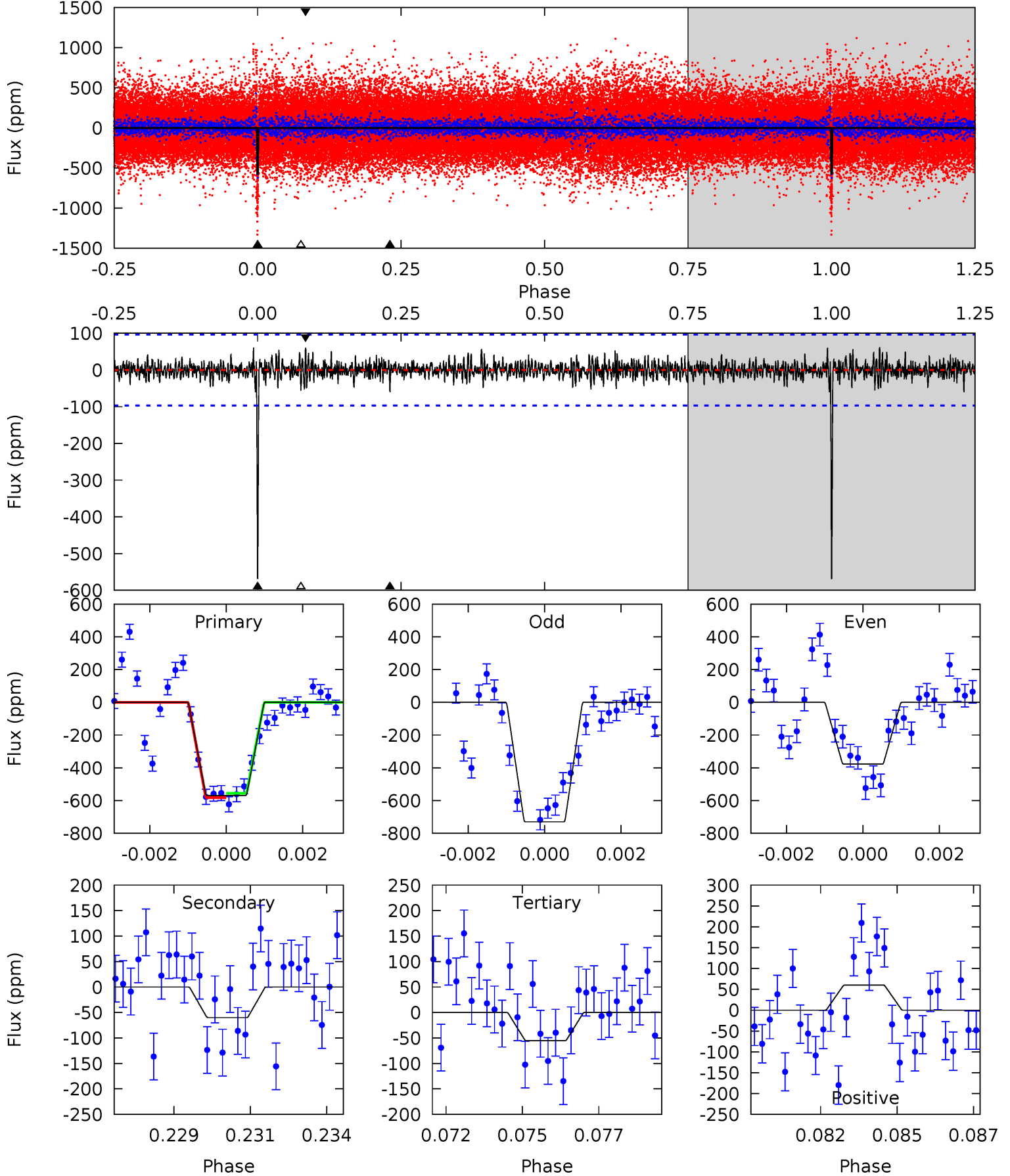
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.1	18.3	17.2	18.4	5.26	2.97	3.76	16.9	15.8	1.11	-0.03	6.03	1.12	0.35	0.03



# Alt Model-Shift Uniqueness Test

007204872-01, P = 367.449898 Days, E = 172.975178 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
31.2	3.28	3.03	3.29	5.29	3.02	0.88	28.1	27.9	0.25	-0.01	9.72	0.89	0.10	0.71



### Stellar Parameters For KIC 007204872

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6258^{+169}_{-206}$	$4.449^{+0.062}_{-0.188}$	$-0.160^{+0.250}_{-0.350}$	$1.031^{+0.305}_{-0.122}$	$1.087^{+0.144}_{-0.144}$	$1.398^{+0.376}_{-0.716}$
	+3%/-3%	+1%/-4%	+156%/-219%	+30%/-12%	+13%/-13%	+27%/-51%
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 007204872-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-341 \pm 19$	$3.48^{+0.55}_{-0.41}$	$391^{+29}_{-19}$	$4980^{+236}_{-205}$	$16152^{+4400}_{-3891}$
Alt.	$-60 \pm 18$	$2.77^{+0.44}_{-0.35}$	$391^{+26}_{-20}$	$3895^{+259}_{-260}$	$4399^{+1973}_{-1597}$

$T_{\text{max}}$  = 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

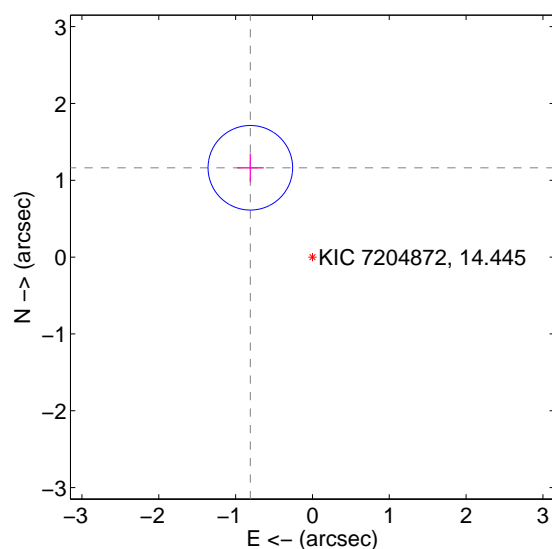
Supplemental centroid analysis for 007204872-01. Kepler magnitude: 14.45. Transit SNR 11.23

There are 0 quarters with good PRF difference image offsets

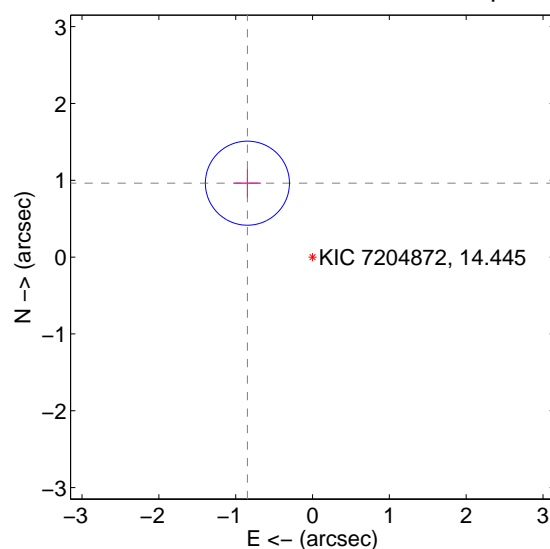
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.416 \pm 0.183$	7.72	$0.808 \pm 0.177$	$1.163 \pm 0.187$
PRF-fit source offset from KIC position	$1.282 \pm 0.182$	7.03	$0.848 \pm 0.177$	$0.962 \pm 0.187$
photometric centroid source offset	$0.62 \pm 0.67$	0.92	$-0.60 \pm 0.66$	$-0.13 \pm 0.77$

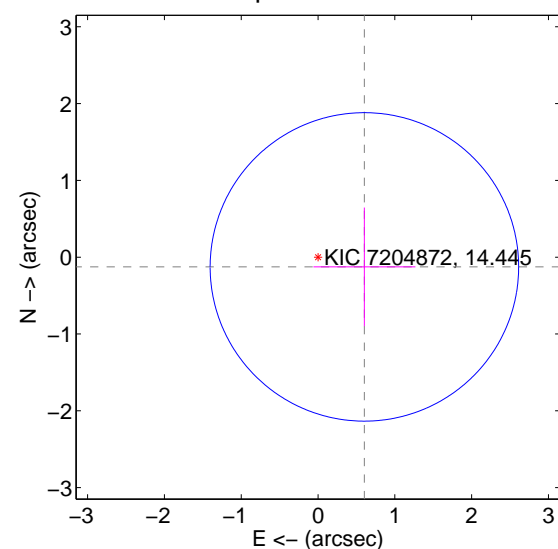
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



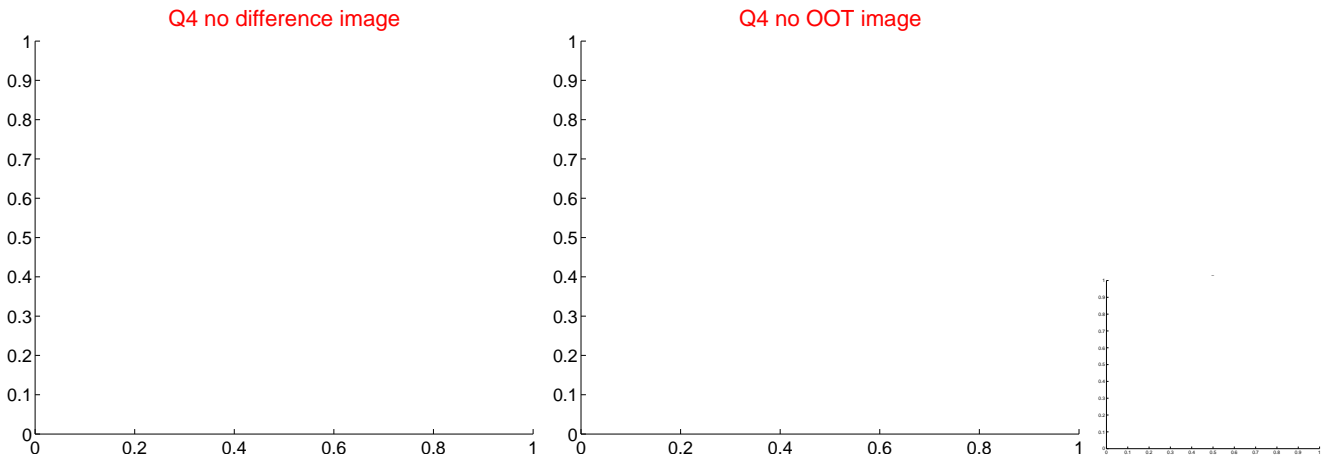
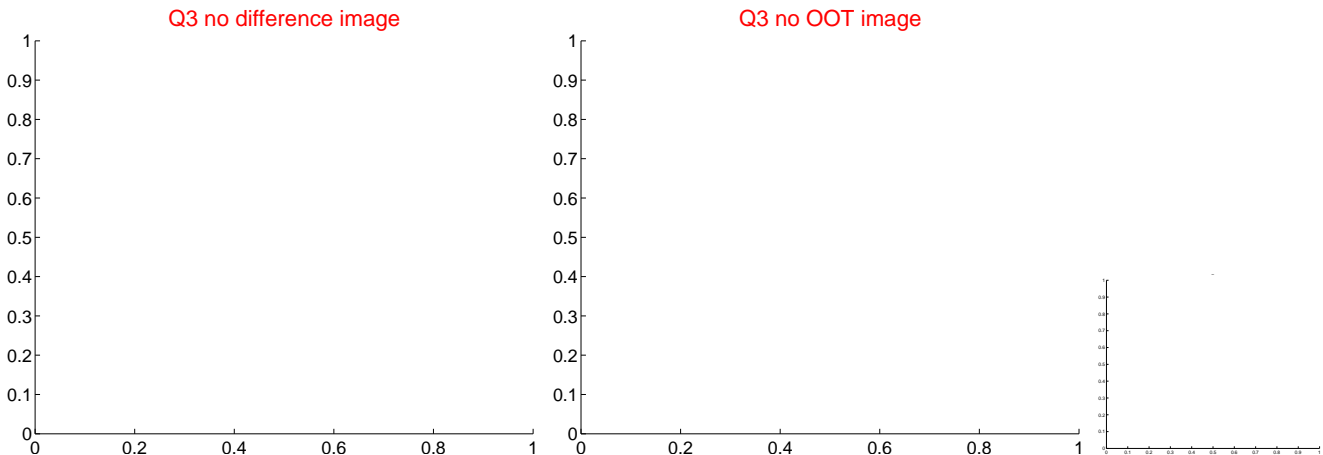
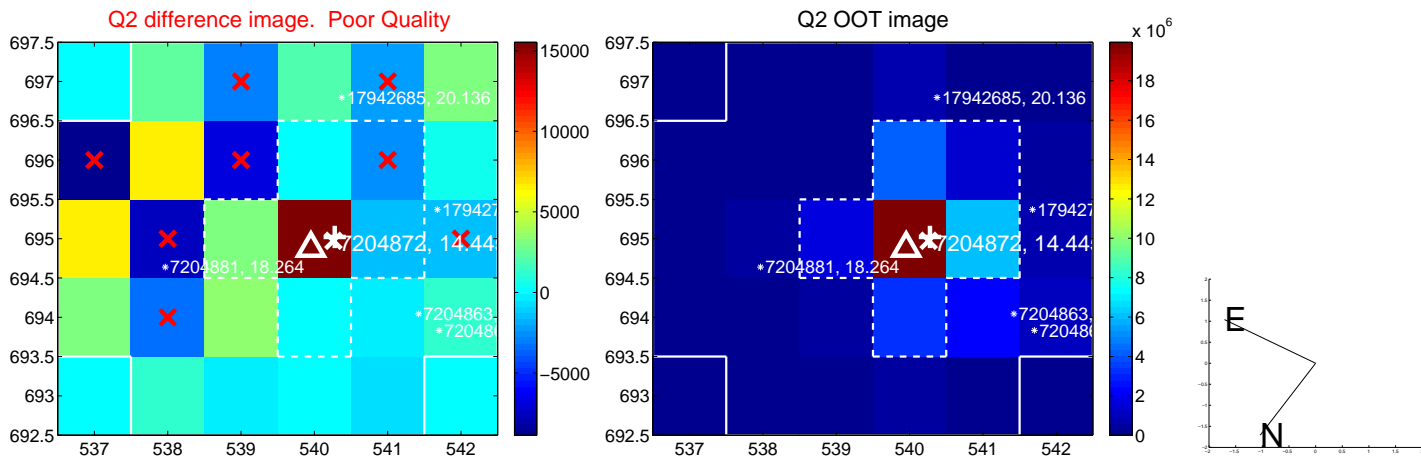
offset from photometric centroids



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.



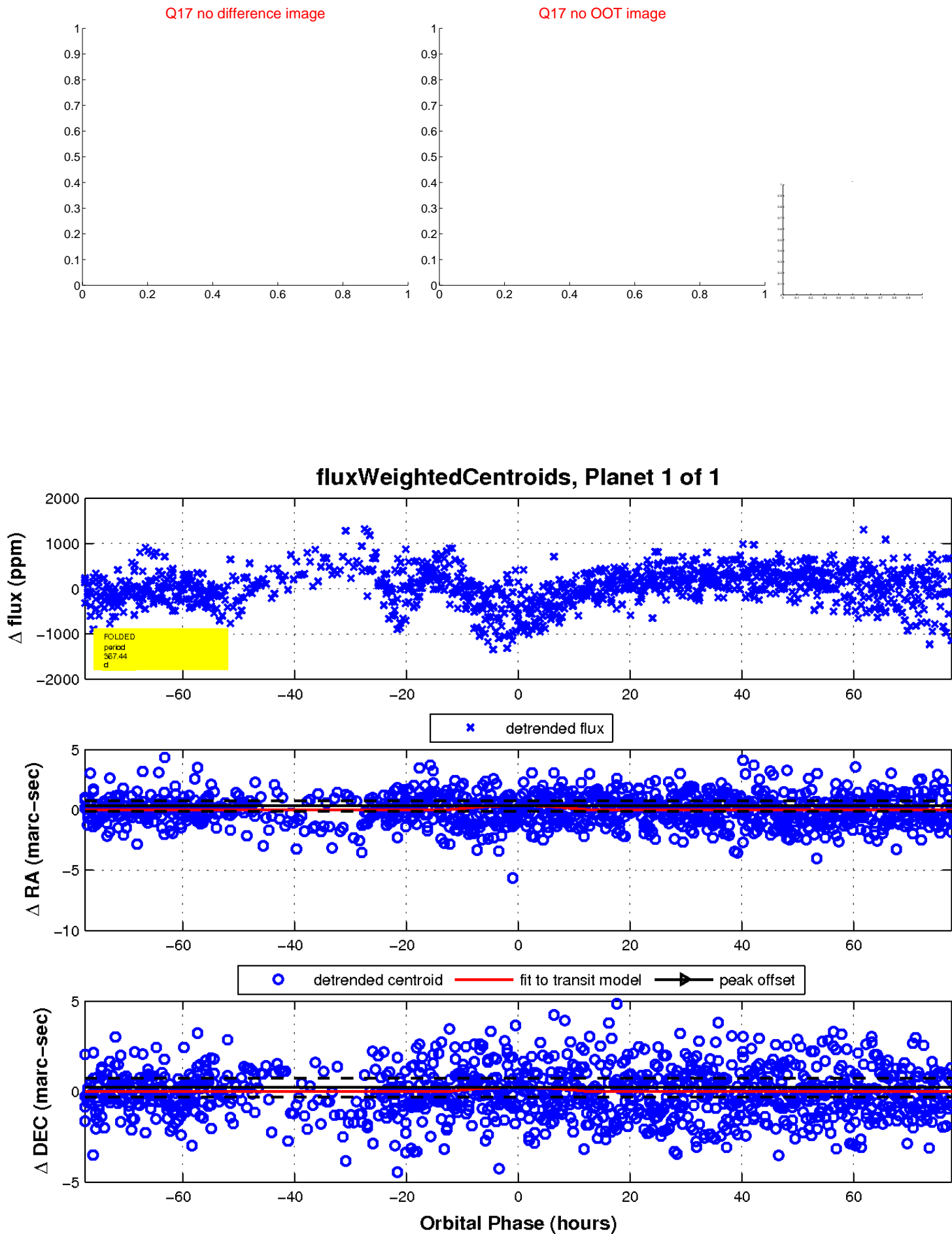
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

