

# KIC 008375651

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008375651-01	OBS	No	367.183463	174.052432	1515.0	19.244	9.4	8.9	0.89	5855	4.14	0.84

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008375651-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS—HALO_GHOST

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

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

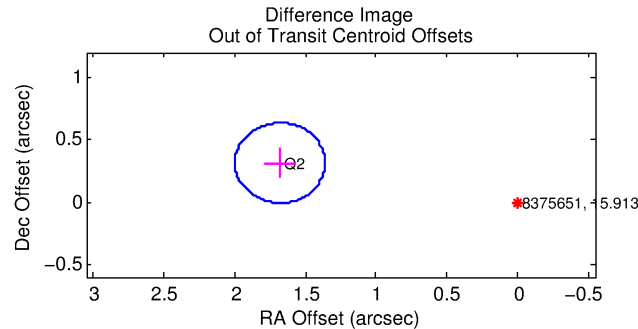
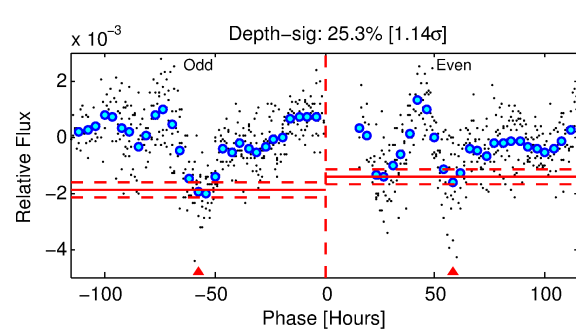
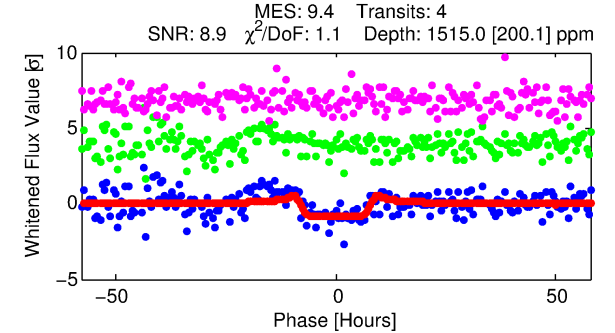
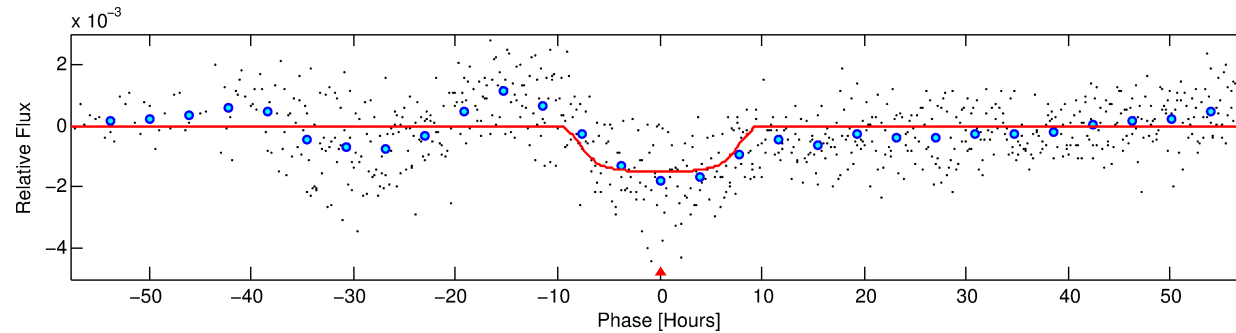
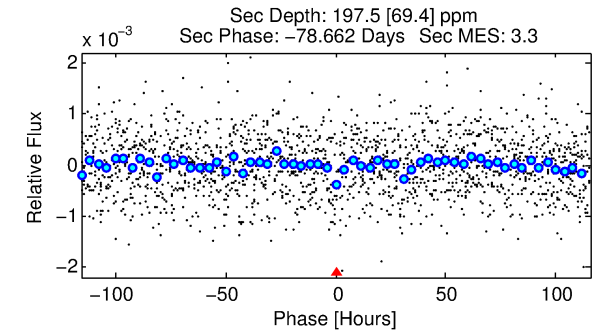
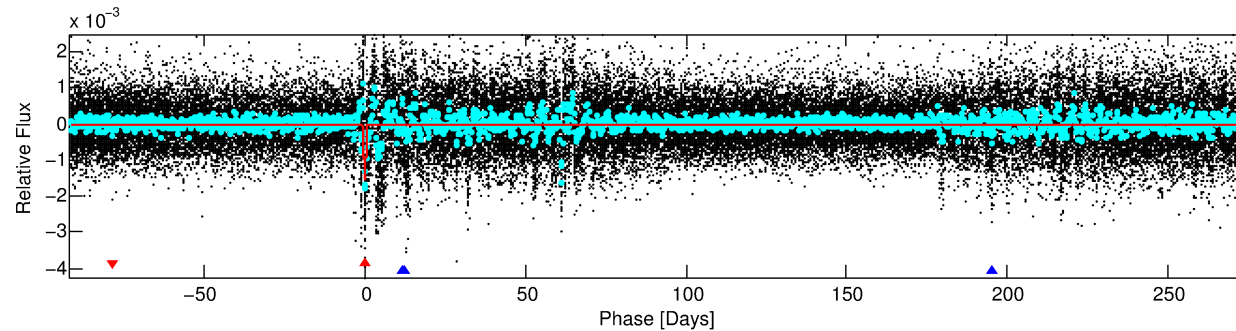
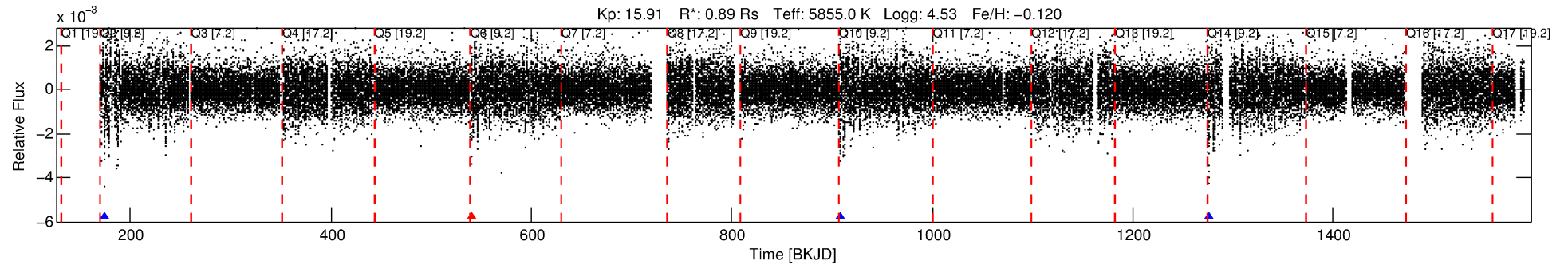
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008375651-01

No Significant Match Found

# DV One-Page Summary

KIC: 8375651 Candidate: 1 of 2 Period: 367.183 d



## DV Fit Results:

Period = 367.18346 [0.01442] d  
Epoch = 174.0524 [0.0258] BKJD  
Rp/R\* = 0.0425 [0.0036]  
a/R\* = 75.62 [15.05]  
b = 0.90 [0.04]  
Seff = 0.84 [0.35]  
Teq = 244 [25] K  
Rp = 4.14 [1.32] Re  
a = 0.9981 [0.2618] AU  
Ag = 6302.94 [3460.11] [1.82σ]  
Teffp = 3368 [349] K [8.92σ]

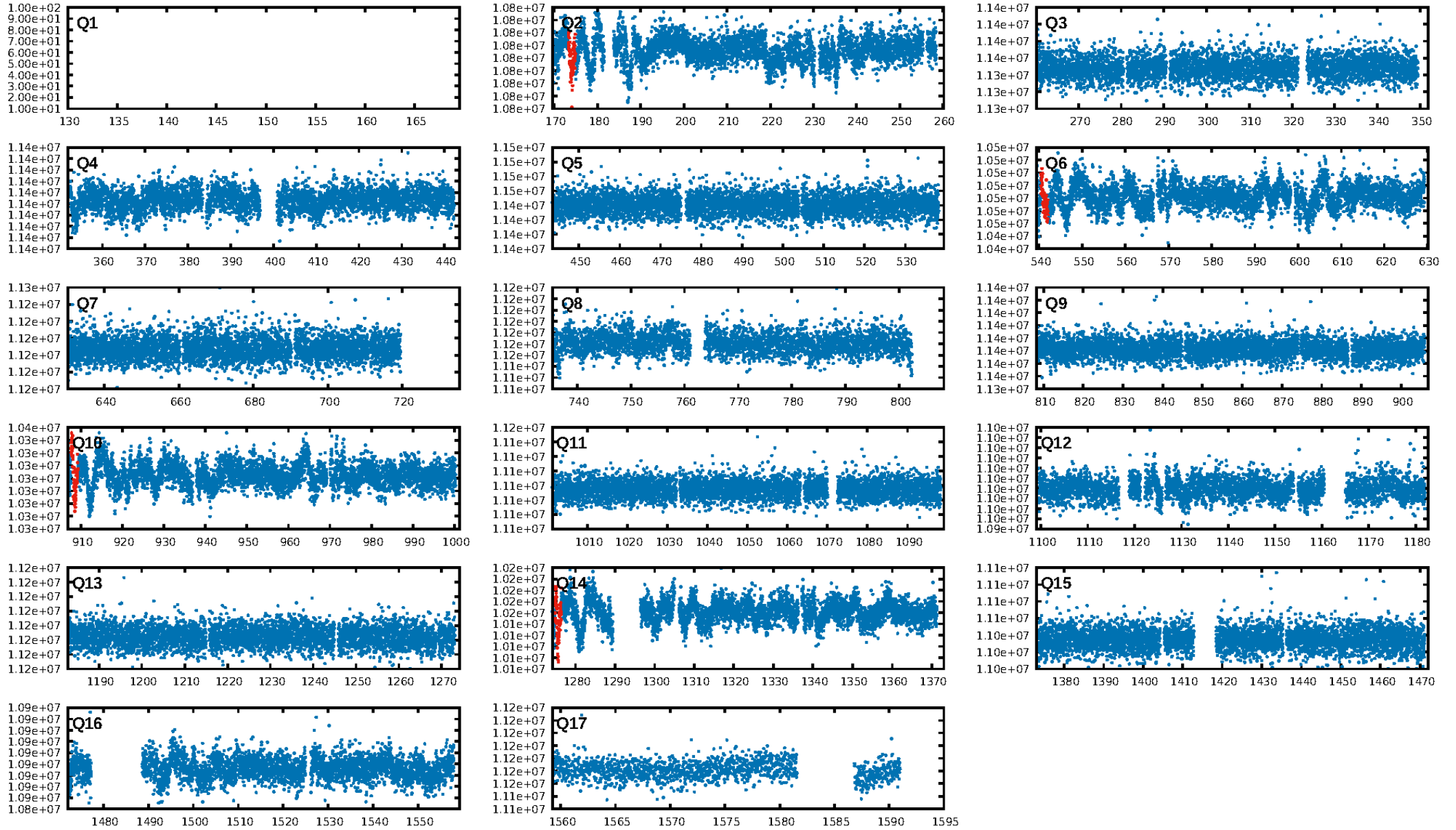
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [196.53σ]  
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGoF-sig: 99.4%  
Bootstrap-pfa: 2.64e-11  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 0.07588  
Centroid-sig: 2.5%  
Centroid-so: 3.110 arcsec [1.88σ]  
OotOffset-rm: 1.710 arcsec [16.04σ]  
KicOffset-rm: 1.642 arcsec [15.38σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [1/1]

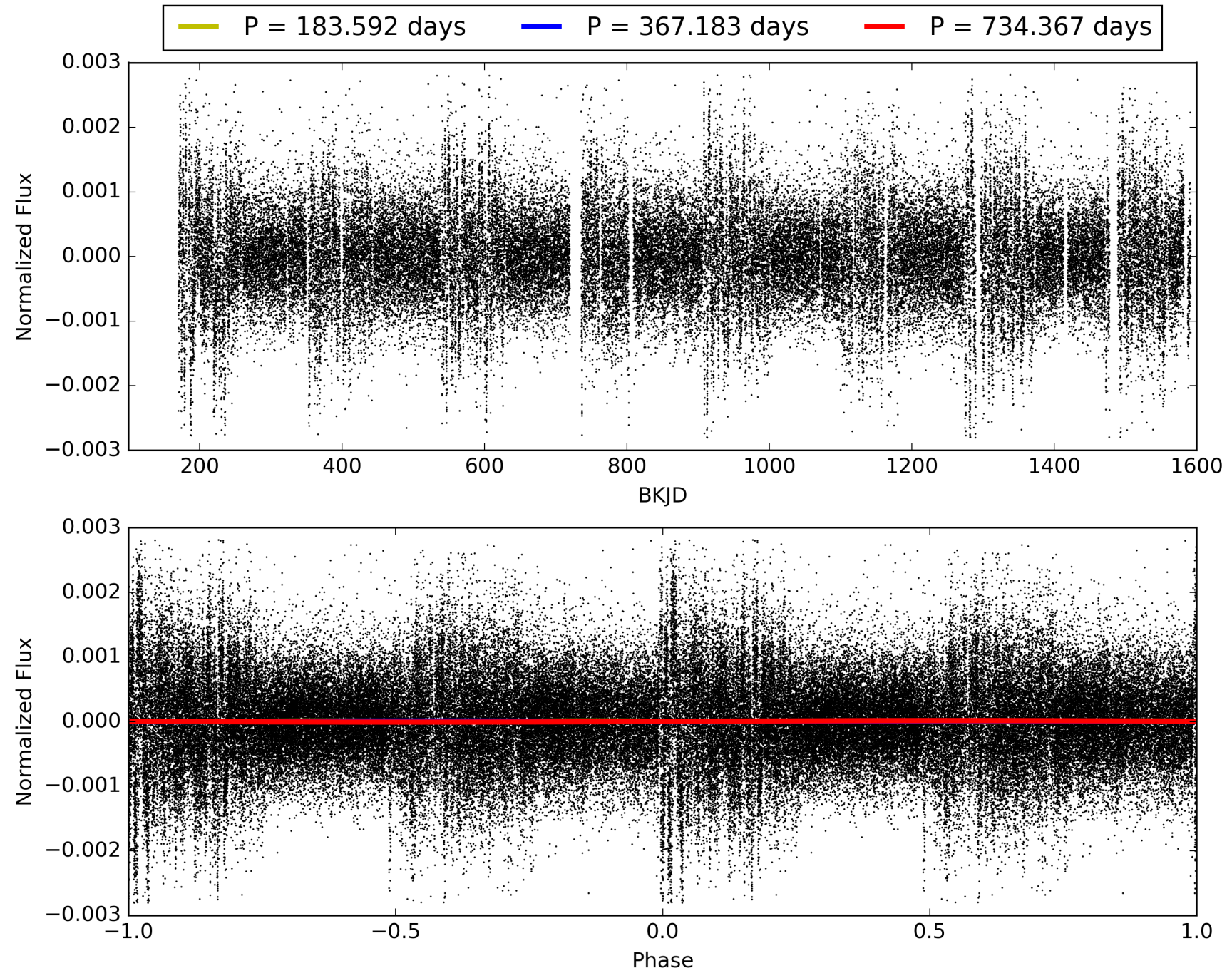
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:57:10 Z

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

# TCE 008375651-01, PDC Light Curves

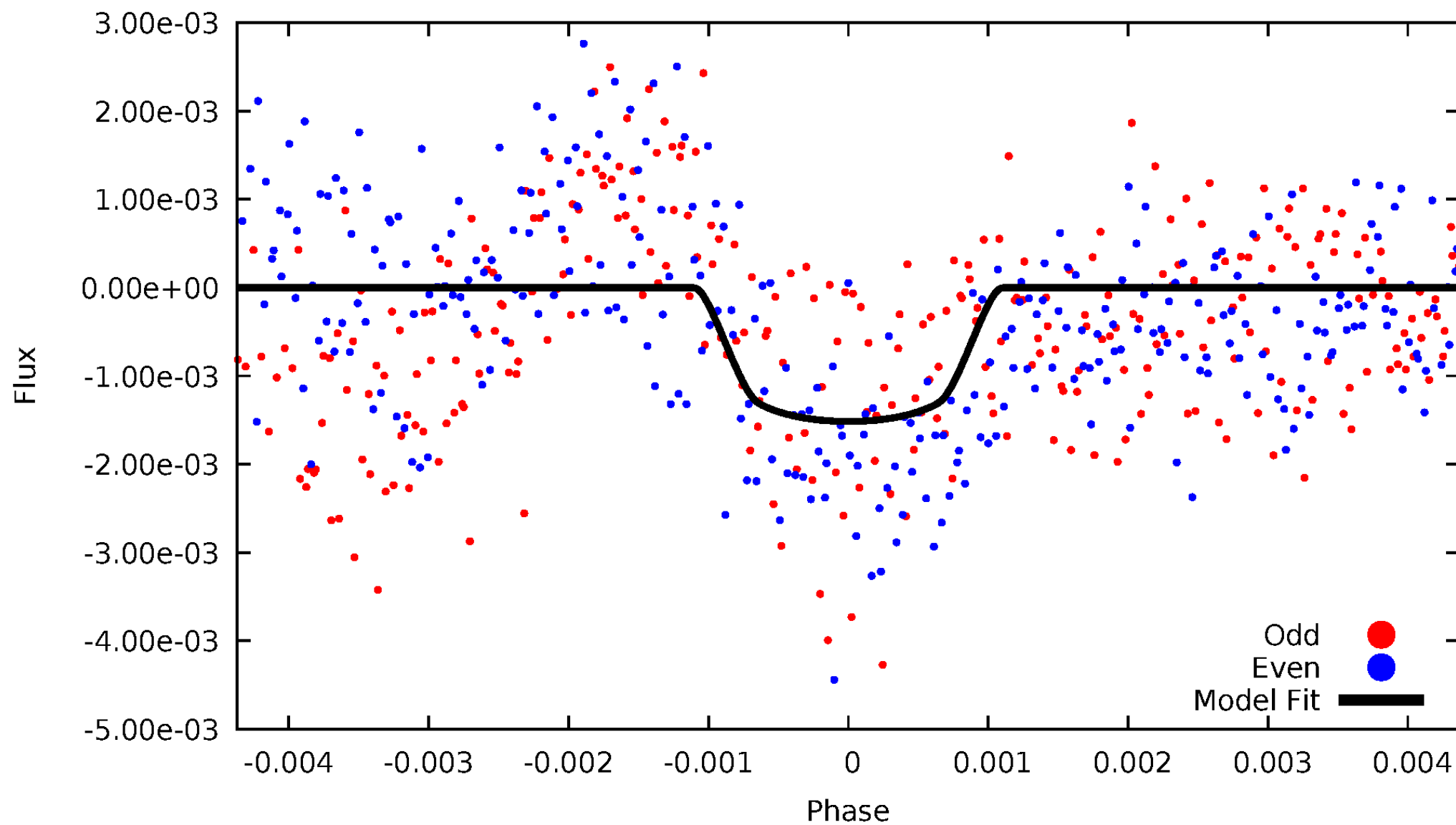


TCE 008375651-01



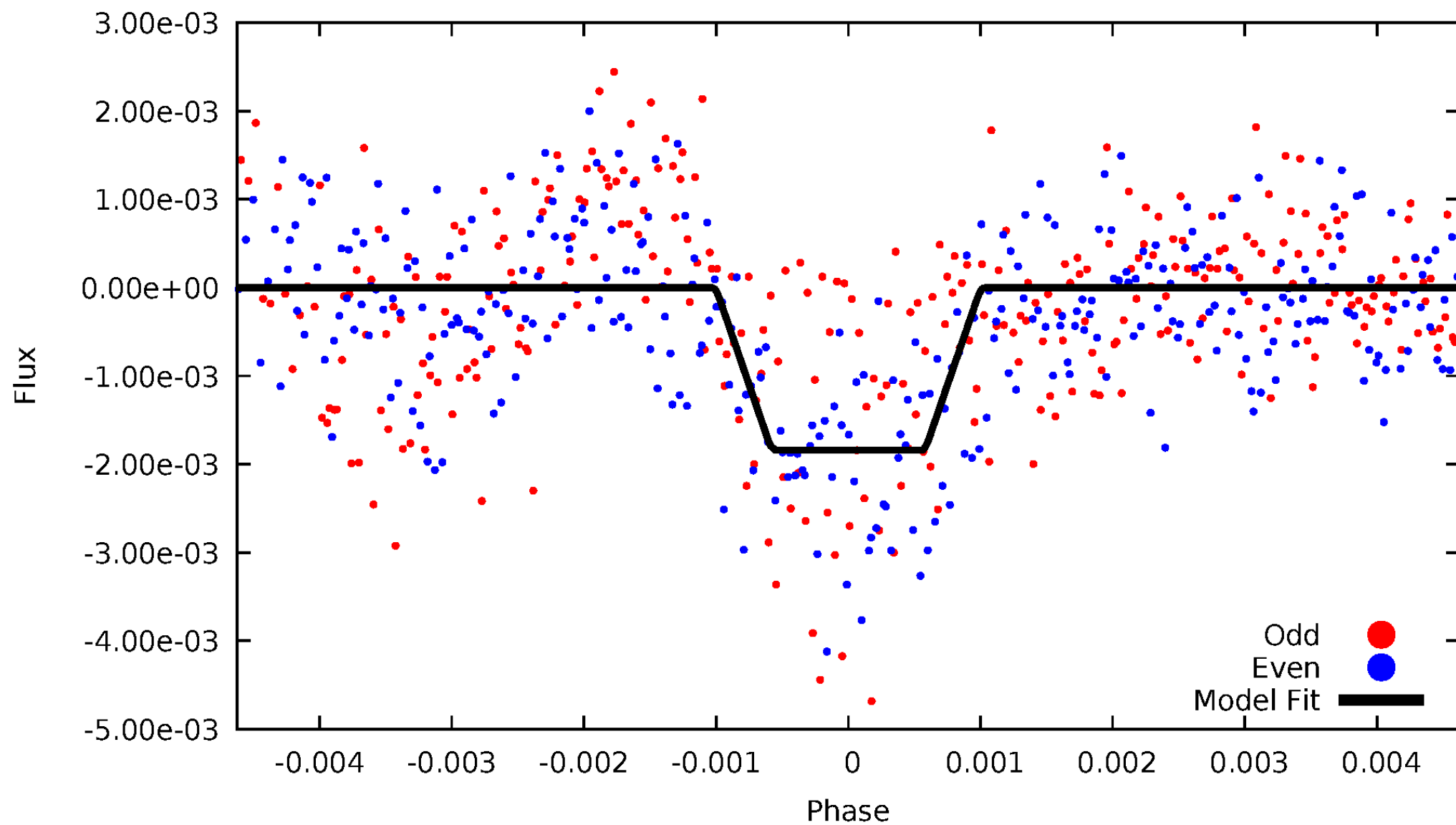
# DV Odd/Even

TCE 008375651-01



# ALT Odd/Even

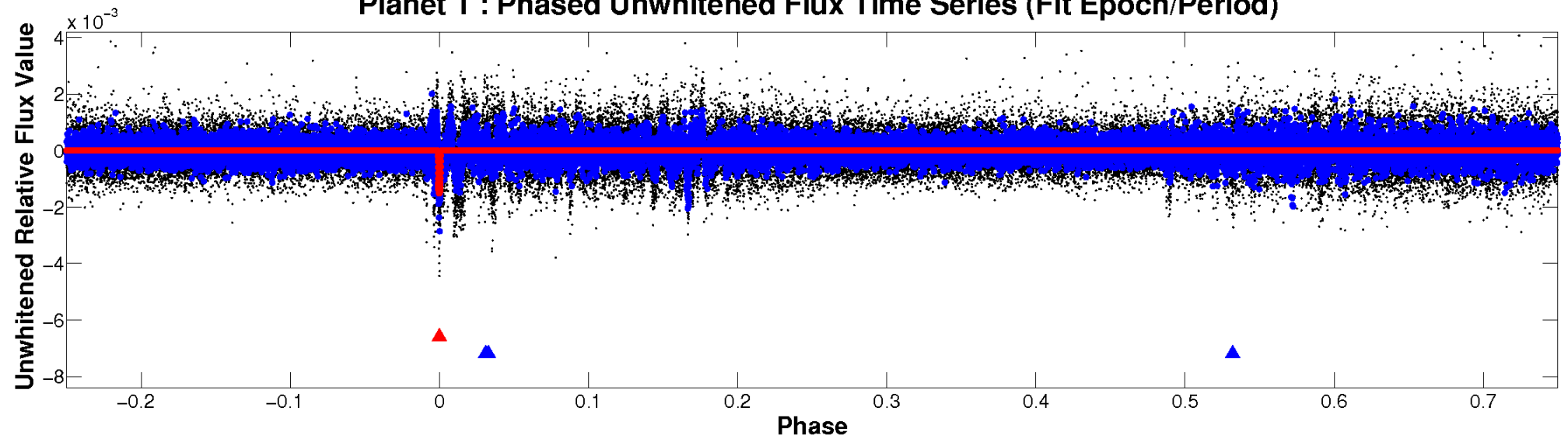
TCE 008375651-01



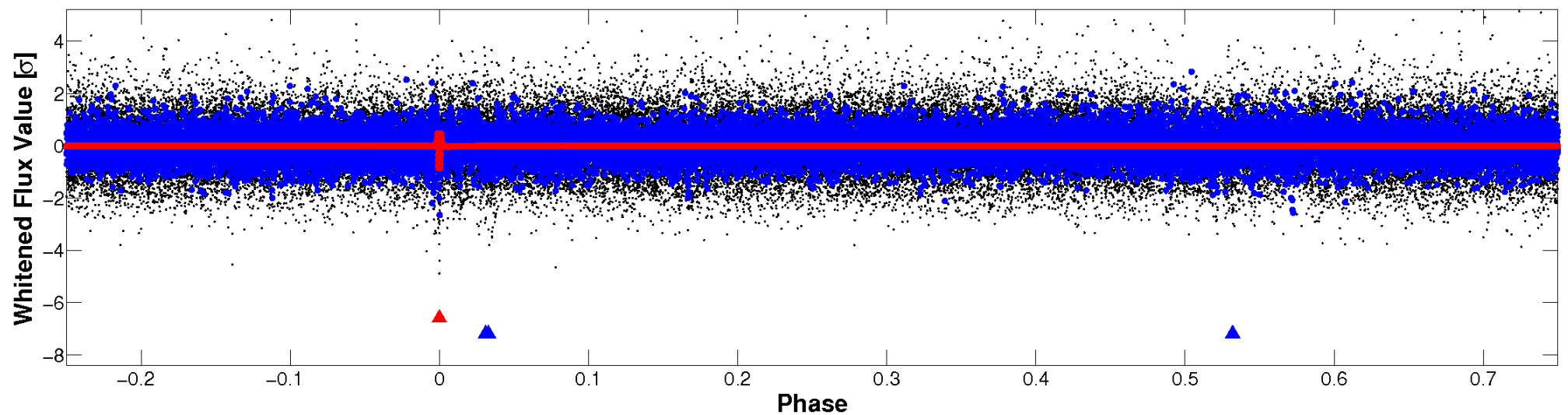


# Non-Whitened Vs. Whitened Light Curve

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 008375651-01 P=367.183463 Days  $T_0=174.052432$  (BKJD)





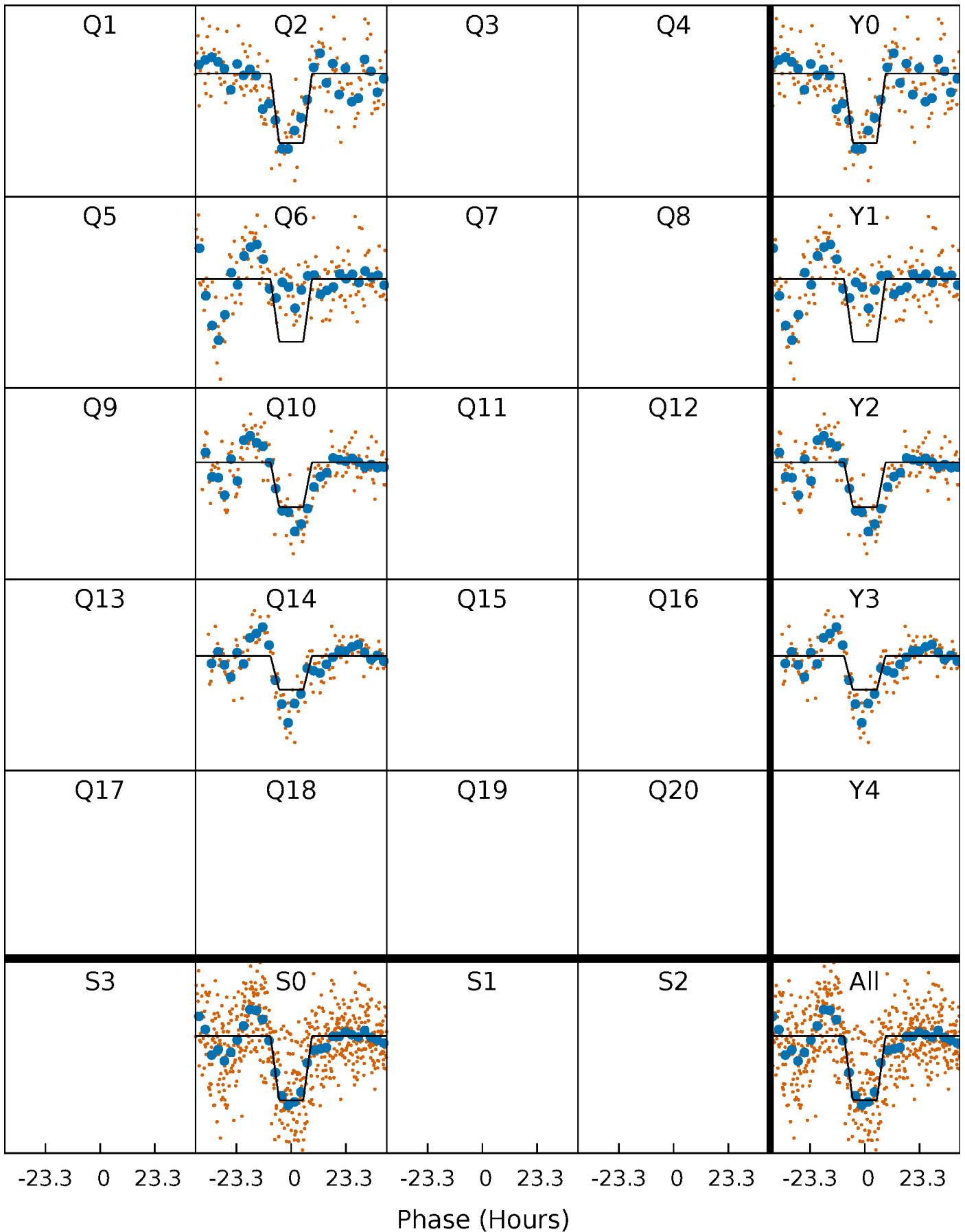
# DV Quarter-Phased Transit Curves

TCE 008375651-01 P=367.183463 Days  $T_0=174.052432$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

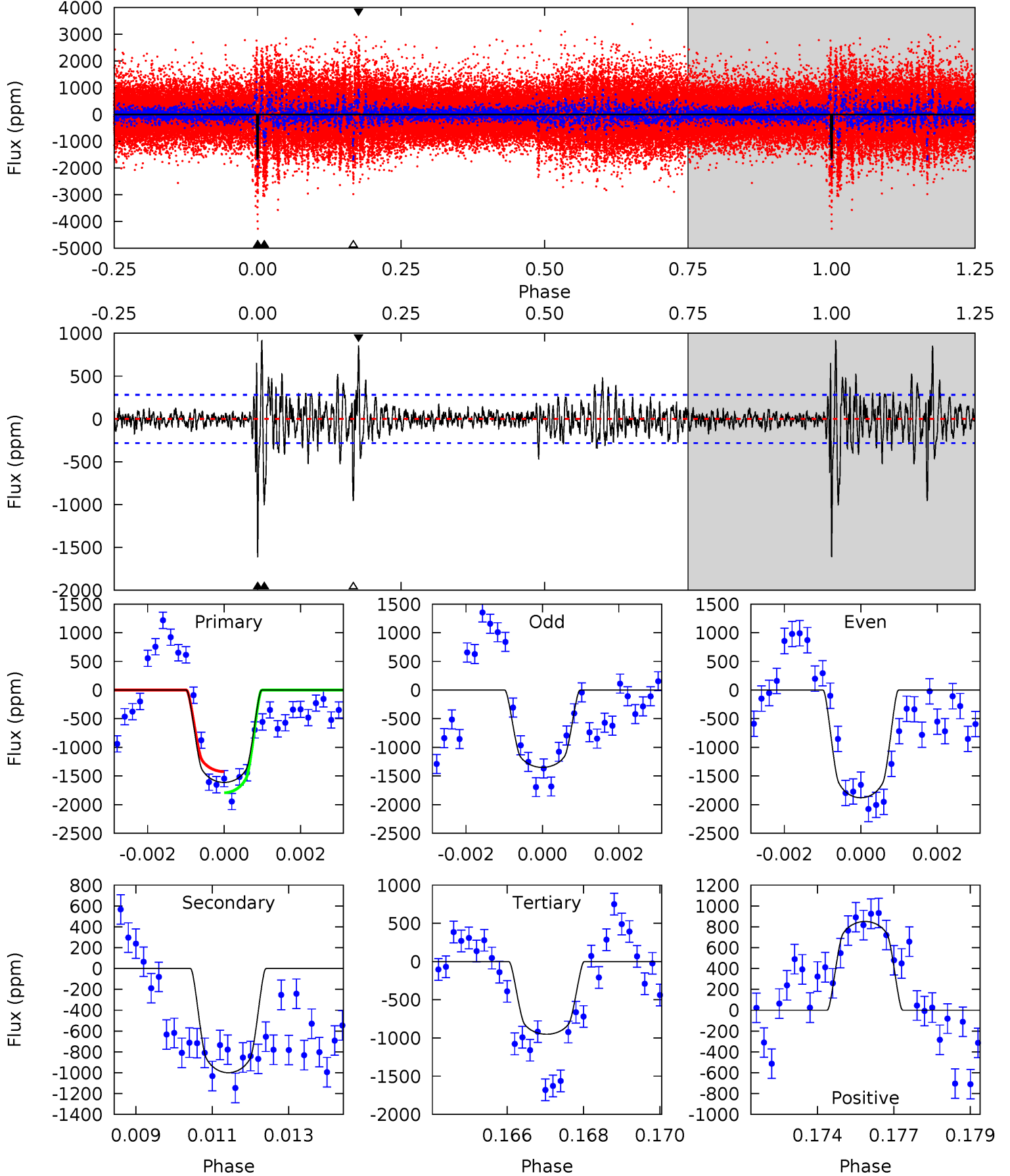
TCE 008375651-01 P=367.184262 Days  $T_0=174.075113$  (BKJD)



# DV Model-Shift Uniqueness Test

008375651-01, P = 367.183463 Days, E = 174.052432 Days

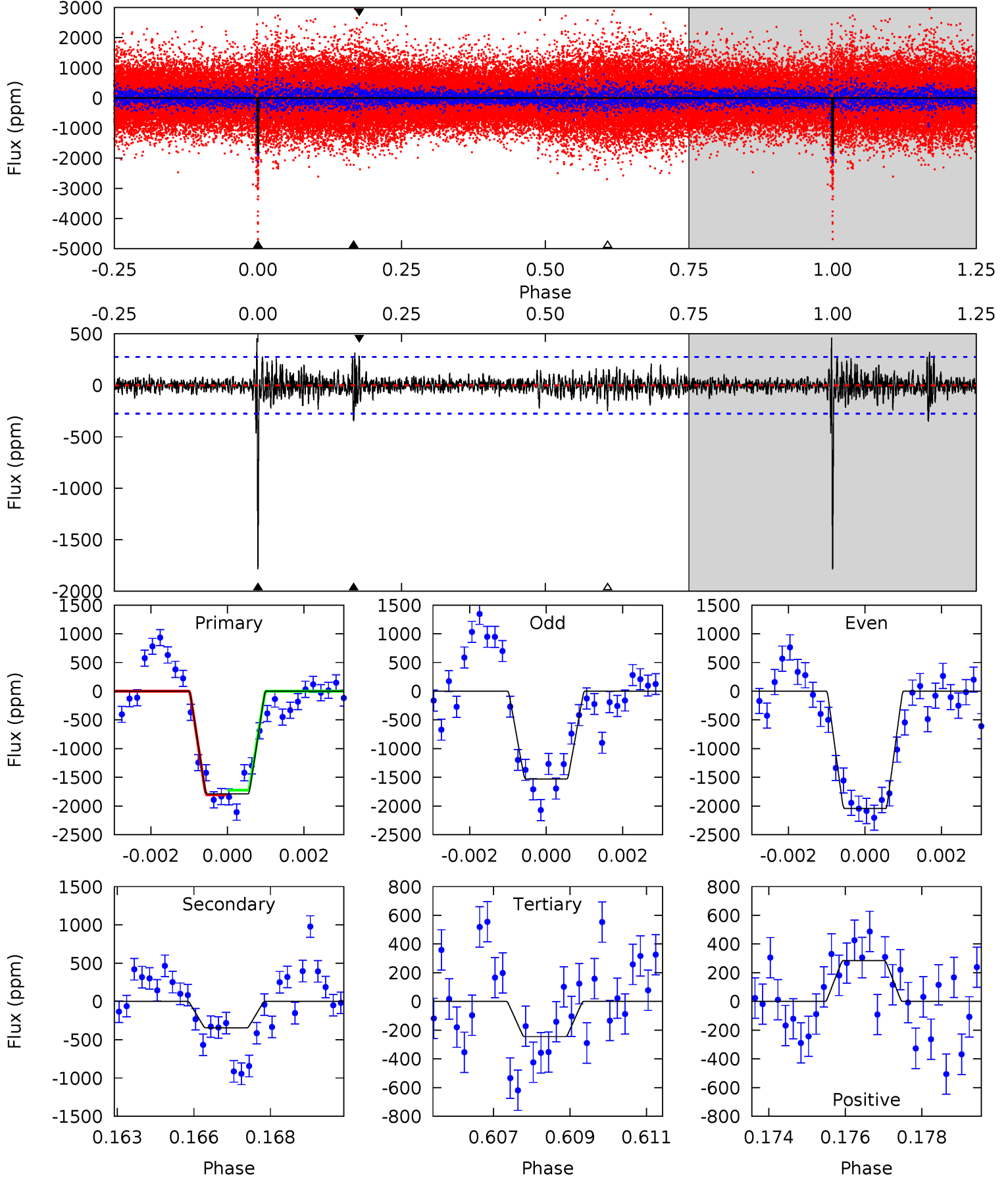
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.4	18.8	17.9	16.0	5.31	3.06	2.80	12.4	14.3	0.91	2.80	5.02	0.85	0.36	3.46



# Alt Model-Shift Uniqueness Test

008375651-01, P = 367.184262 Days, E = 174.075113 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
34.5	6.67	4.74	5.50	5.32	3.08	1.19	29.8	29.0	1.93	1.17	5.03	0.87	0.20	0.75



### Stellar Parameters For KIC 008375651

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5855^{+164}_{-205}$	$4.528^{+0.050}_{-0.213}$	$-0.120^{+0.300}_{-0.300}$	$0.894^{+0.275}_{-0.092}$	$0.982^{+0.120}_{-0.120}$	$1.938^{+0.396}_{-1.010}$
	+3%/-4%	+1%/-5%	+250%/-250%	+31%/-10%	+12%/-12%	+20%/-52%
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 008375651-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1000 \pm 53$	$4.29^{+0.74}_{-0.51}$	$349^{+24}_{-18}$	$5113^{+253}_{-232}$	$29070^{+8316}_{-7290}$
Alt.	$-345 \pm 52$	$4.36^{+0.78}_{-0.51}$	$350^{+25}_{-18}$	$4111^{+215}_{-185}$	$9468^{+3306}_{-2670}$

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

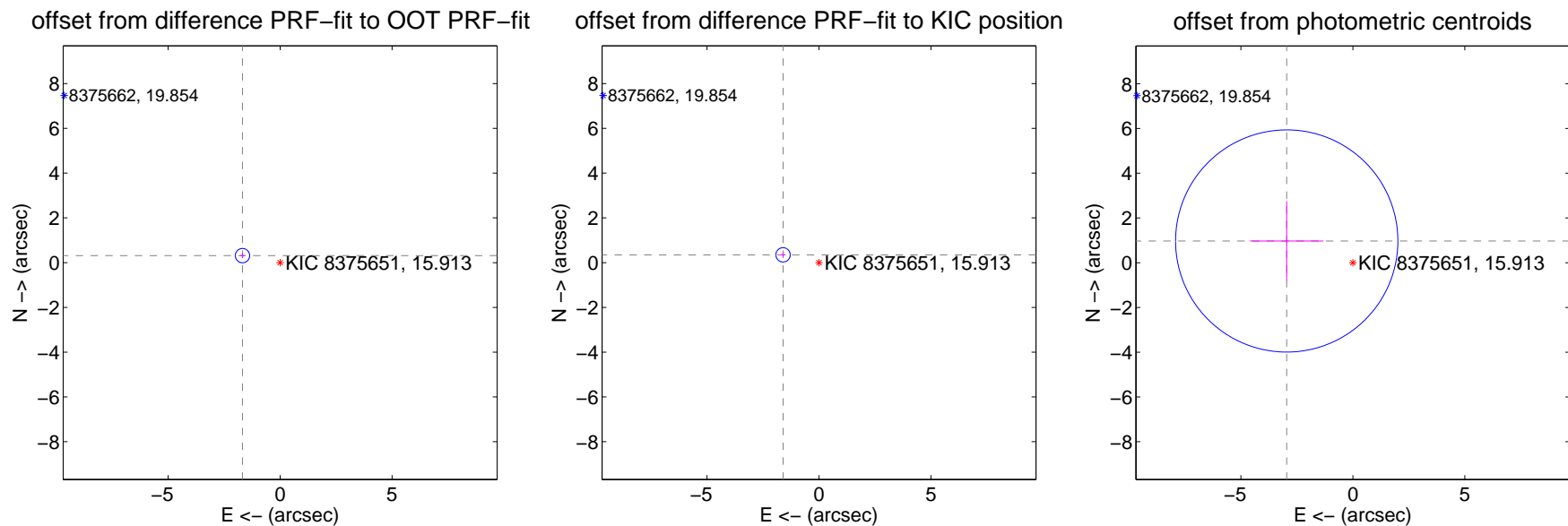
## DV Centroid Data

Supplemental centroid analysis for 008375651-01. Kepler magnitude: 15.91. Transit SNR 8.90

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.710 \pm 0.107$	16.04	$1.681 \pm 0.106$	$0.314 \pm 0.118$
PRF-fit source offset from KIC position	$1.642 \pm 0.107$	15.38	$1.605 \pm 0.106$	$0.348 \pm 0.118$
photometric centroid source offset	$3.11 \pm 1.66$	1.88	$2.95 \pm 1.64$	$0.97 \pm 1.77$



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.

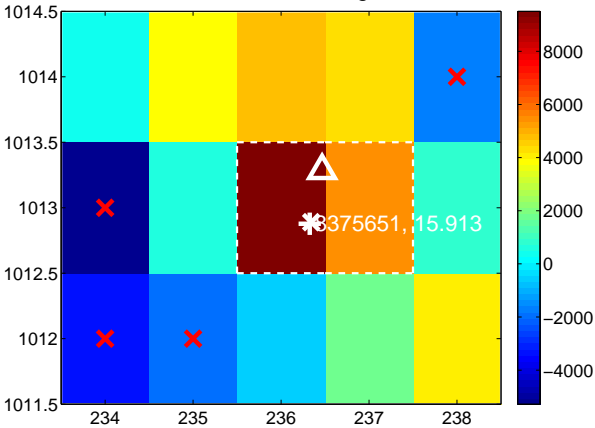
Q1 no difference image



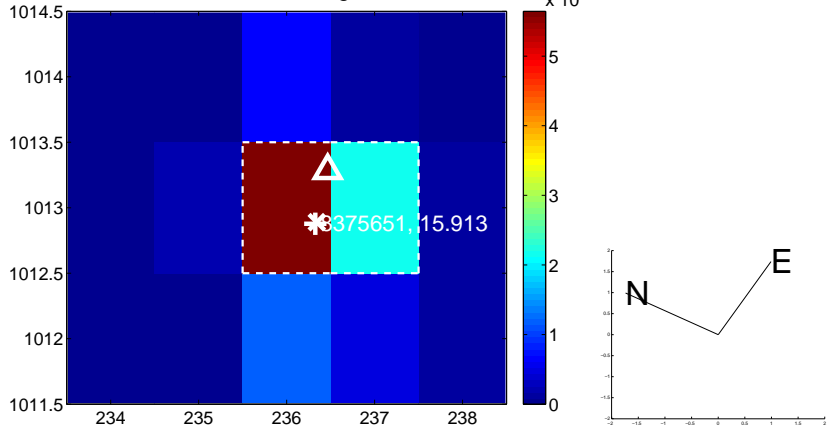
Q1 no OOT image



Q2 difference image



Q2 OOT image



Q3 no difference image



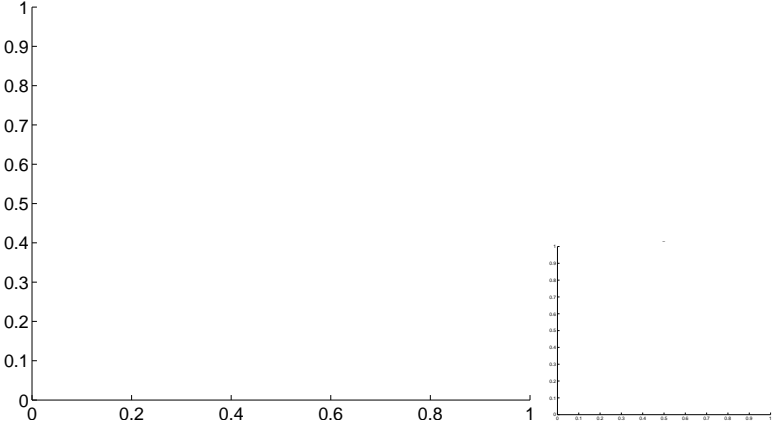
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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



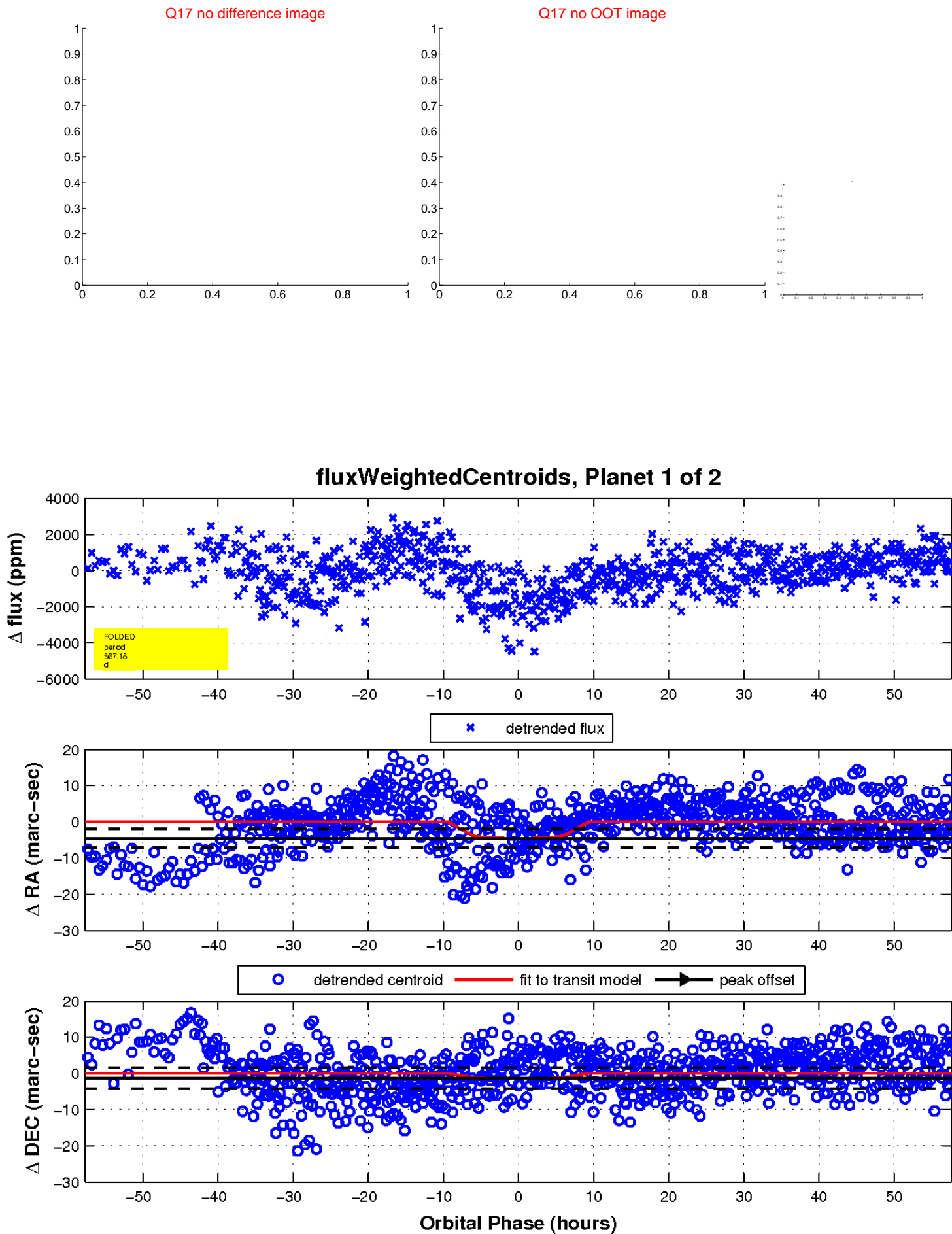
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

