

# KIC 010064019

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010064019-01	OBS	No	464.372785	192.422463	145.8	4.150	8.7	6.6	1.12	6331	1.51	1.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010064019-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_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.

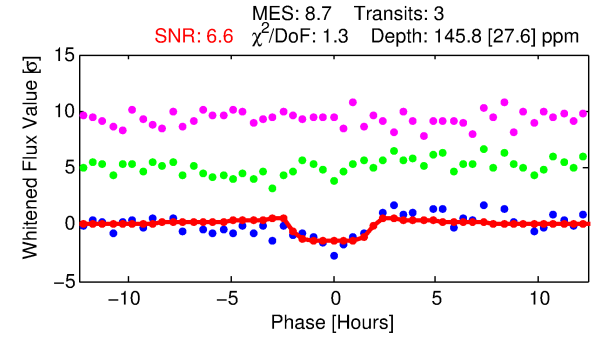
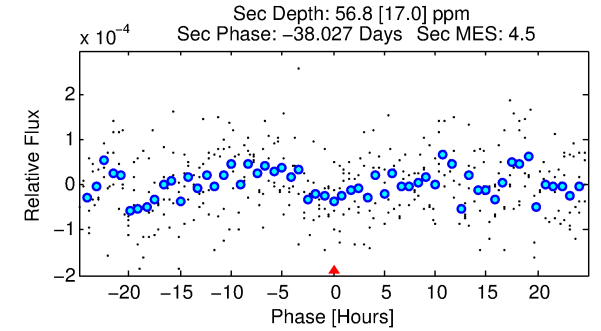
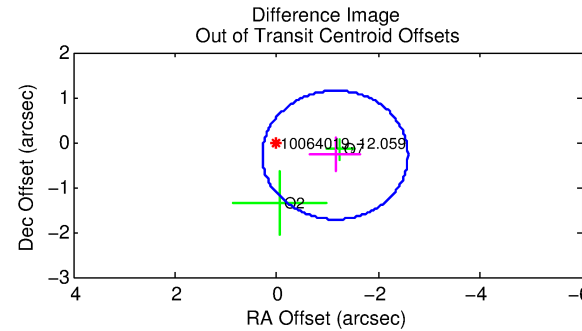
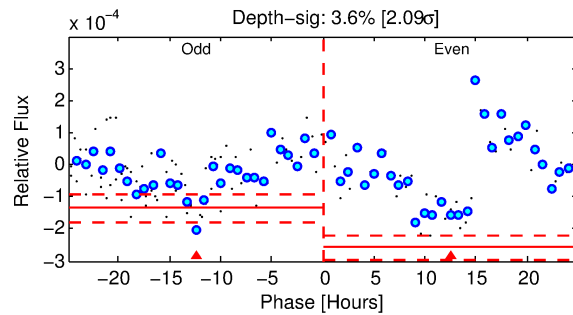
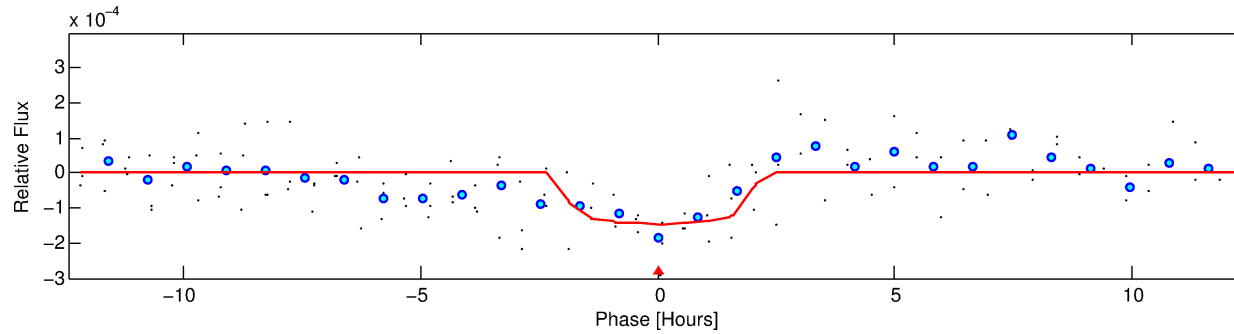
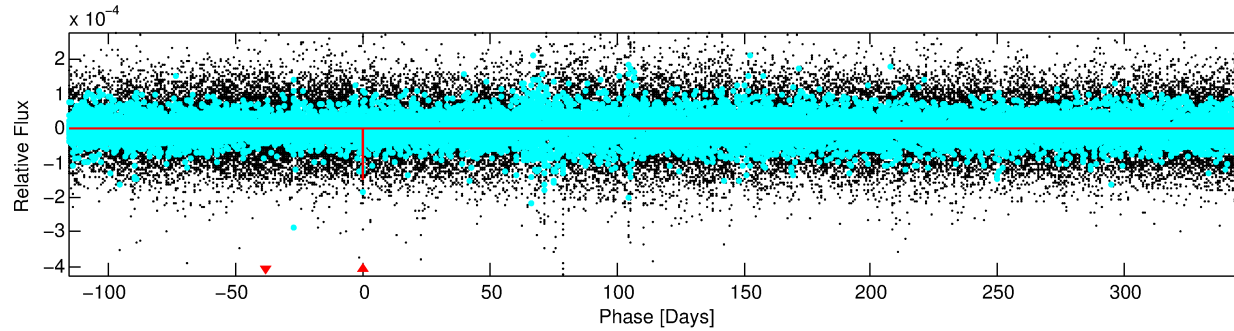
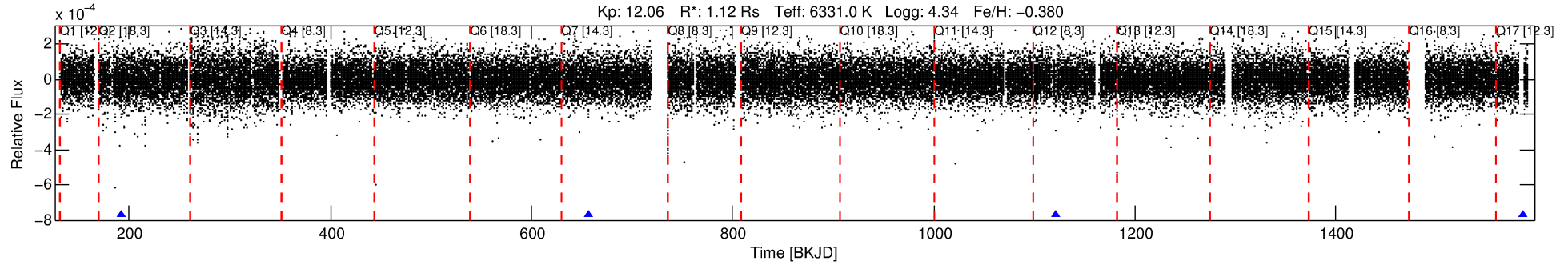
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010064019-01

No Significant Match Found

# DV One-Page Summary

KIC: 10064019 Candidate: 1 of 1 Period: 464.373 d



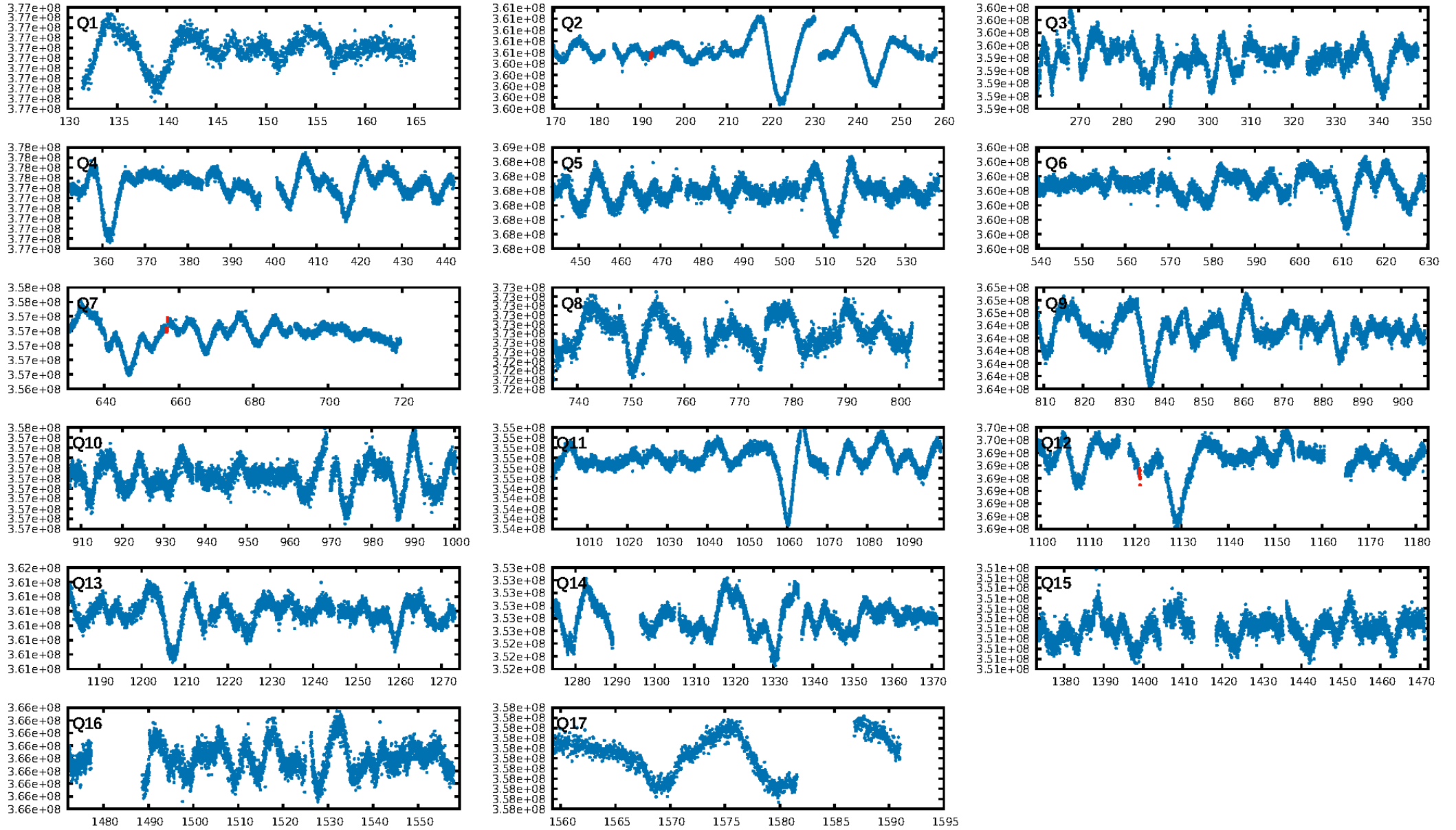
## DV Fit Results:

Period = 464.37279 [0.00806] d  
Epoch = 192.4225 [0.0108] BKJD  
Rp/R\* = 0.0124 [0.0312]  
a/R\* = 492.26 [6938.14]  
b = 0.83 [5.23]  
Seff = 1.31 [0.37]  
Teq = 273 [19] K  
Rp = 1.51 [3.82] Re  
a = 1.1710 [0.2040] AU  
Ag = 18717.13 [94430.50] [0.20 $\sigma$ ]  
Teff = 4935 [6219] K [0.75 $\sigma$ ]

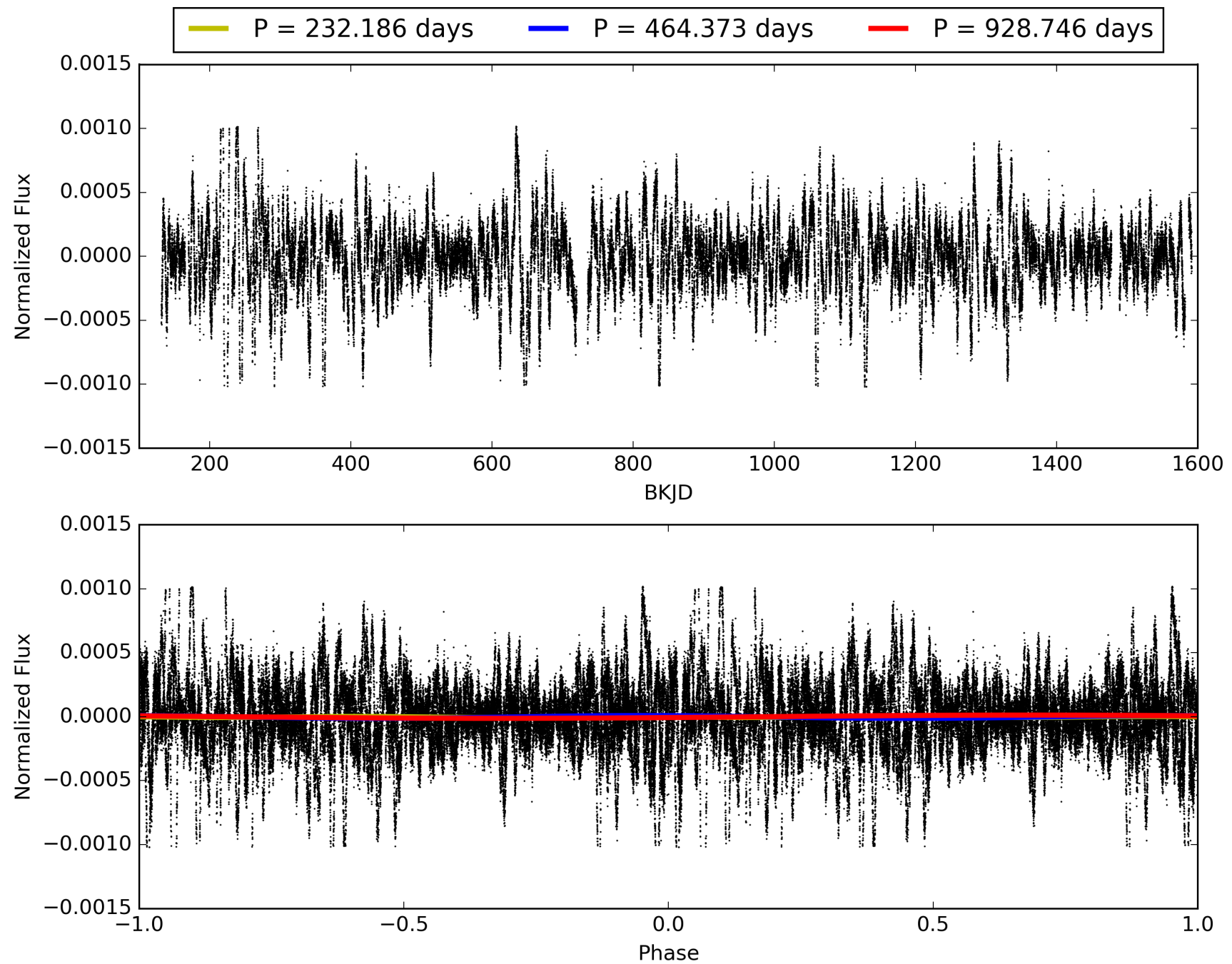
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 30.8%  
ModelChiSquareGof-sig: 81.5%  
Bootstrap-pfa: 6.14e-15  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -5.974  
Centroid-sig: 68.5%  
Centroid-so: 0.489 arcsec [0.40 $\sigma$ ]  
OotOffset-rm: 1.185 arcsec [2.48 $\sigma$ ]  
KicOffset-rm: 0.910 arcsec [1.89 $\sigma$ ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

# TCE 010064019-01, PDC Light Curves

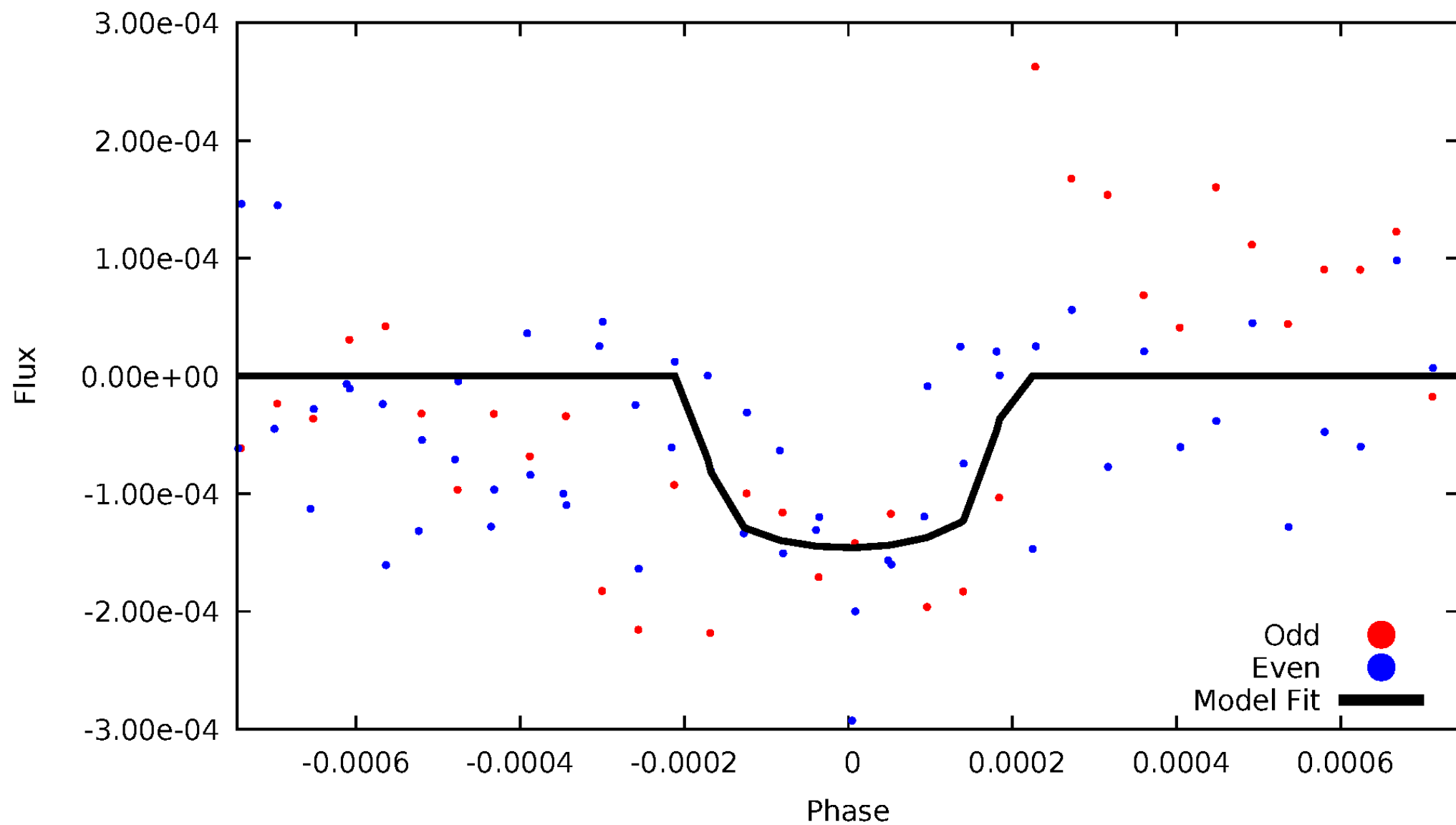


# TCE 010064019-01



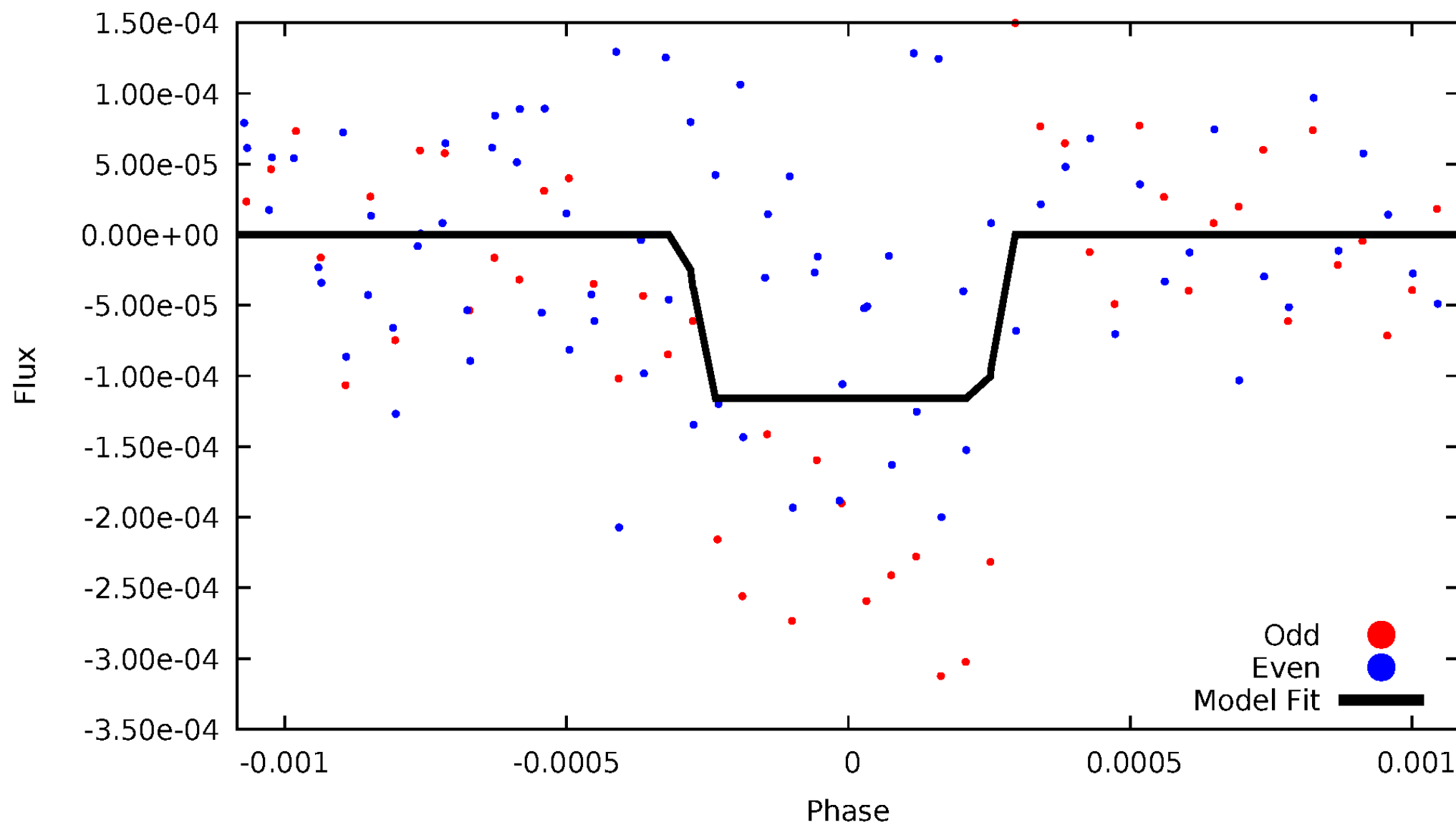
# DV Odd/Even

TCE 010064019-01



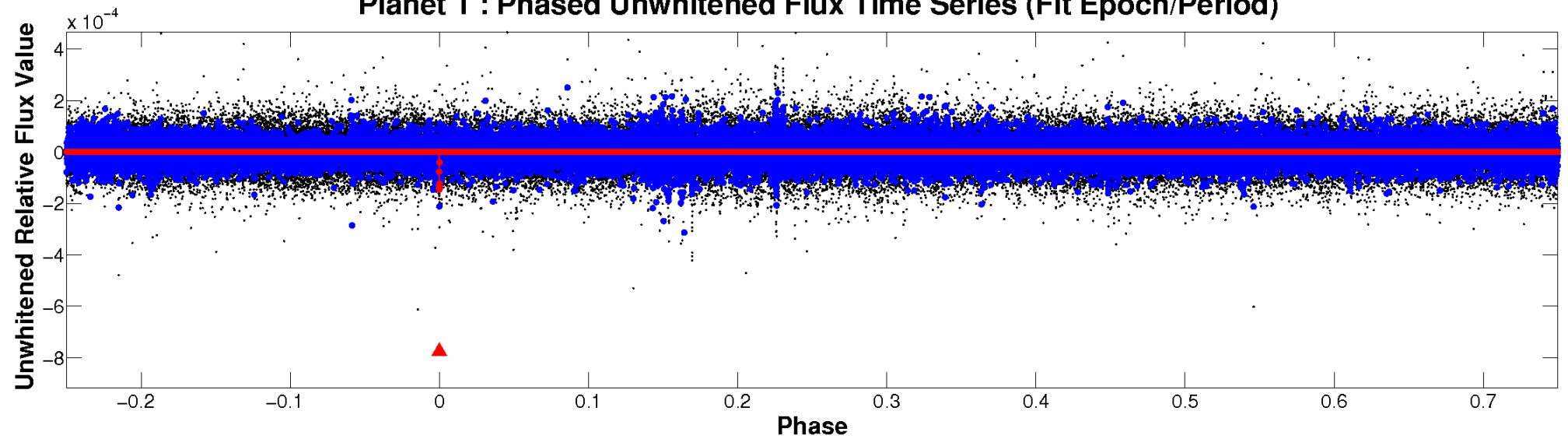
# ALT Odd/Even

TCE 010064019-01

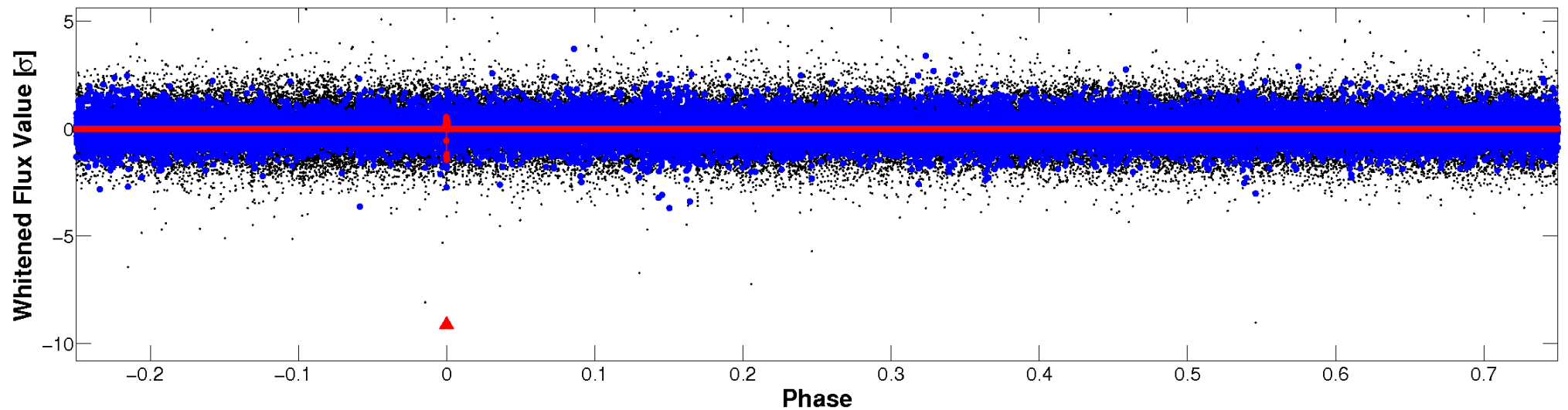


# Non-Whitened Vs. Whitened Light Curve

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

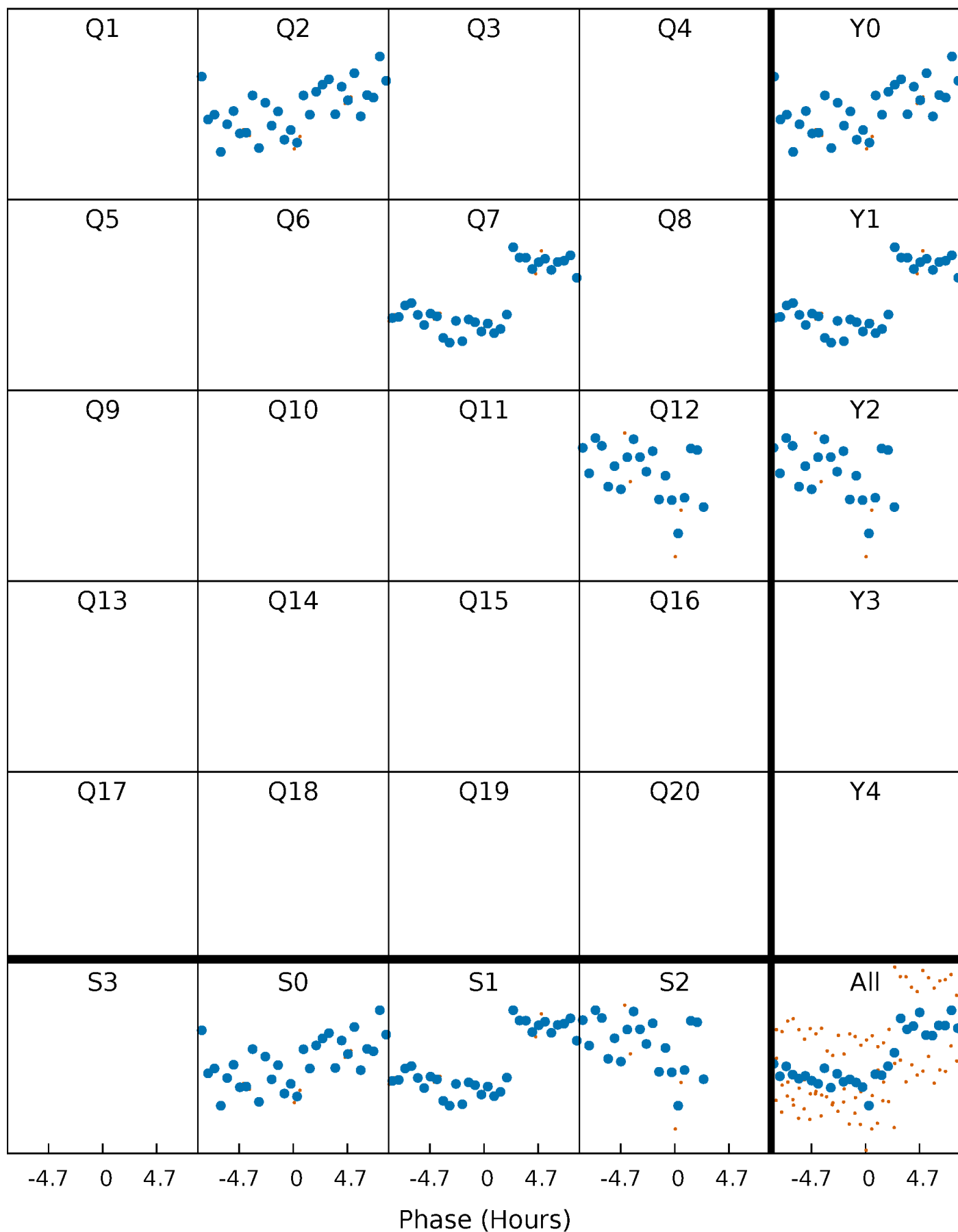


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 010064019-01 P=464.372785 Days  $T_0=192.422463$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 010064019-01 P=464.372785 Days  $T_0=192.422463$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

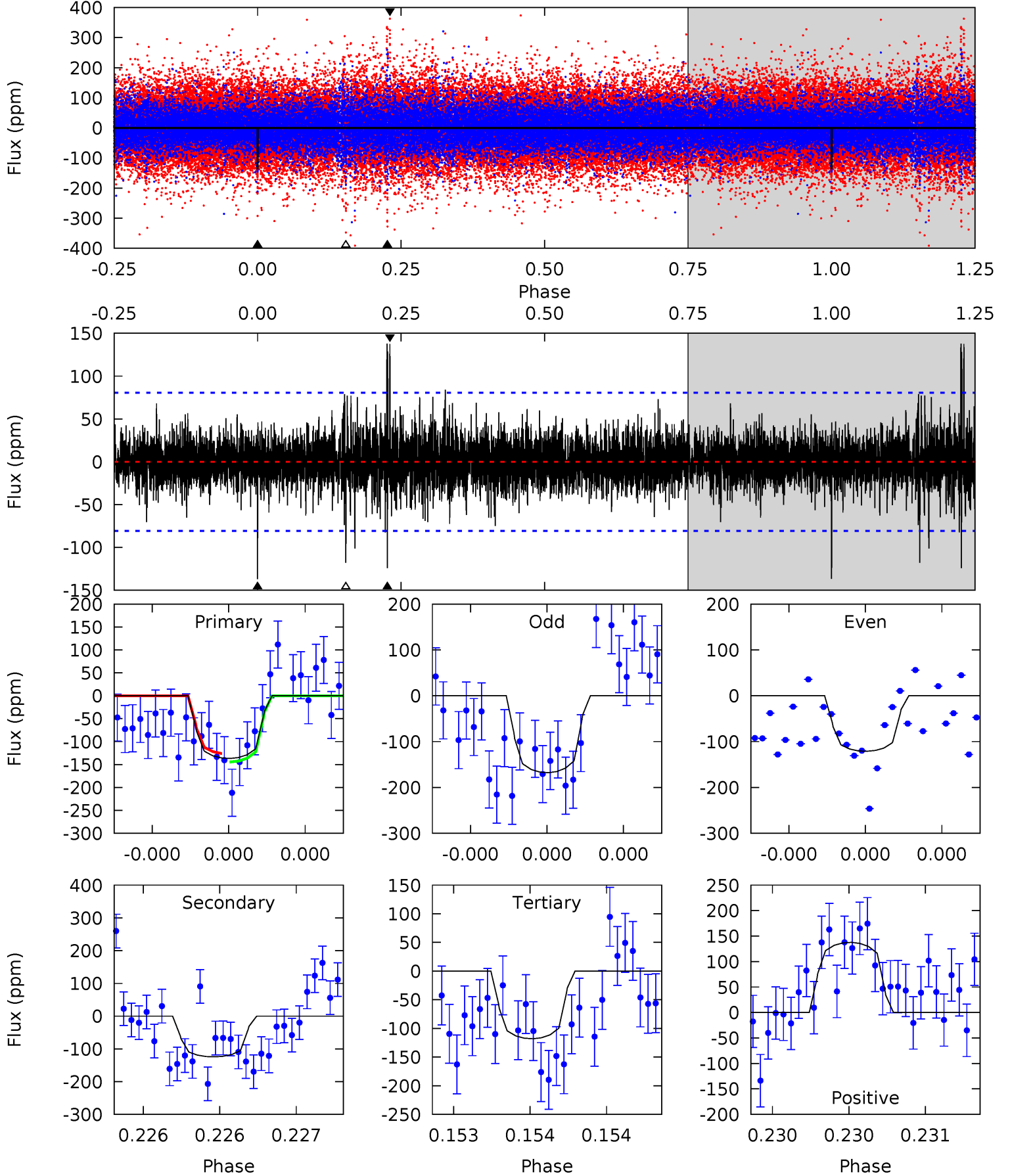
TCE 010064019-01 P=464.413952 Days  $T_0=192.349610$  (BKJD)



# DV Model-Shift Uniqueness Test

010064019-01, P = 464.372785 Days, E = 192.422463 Days

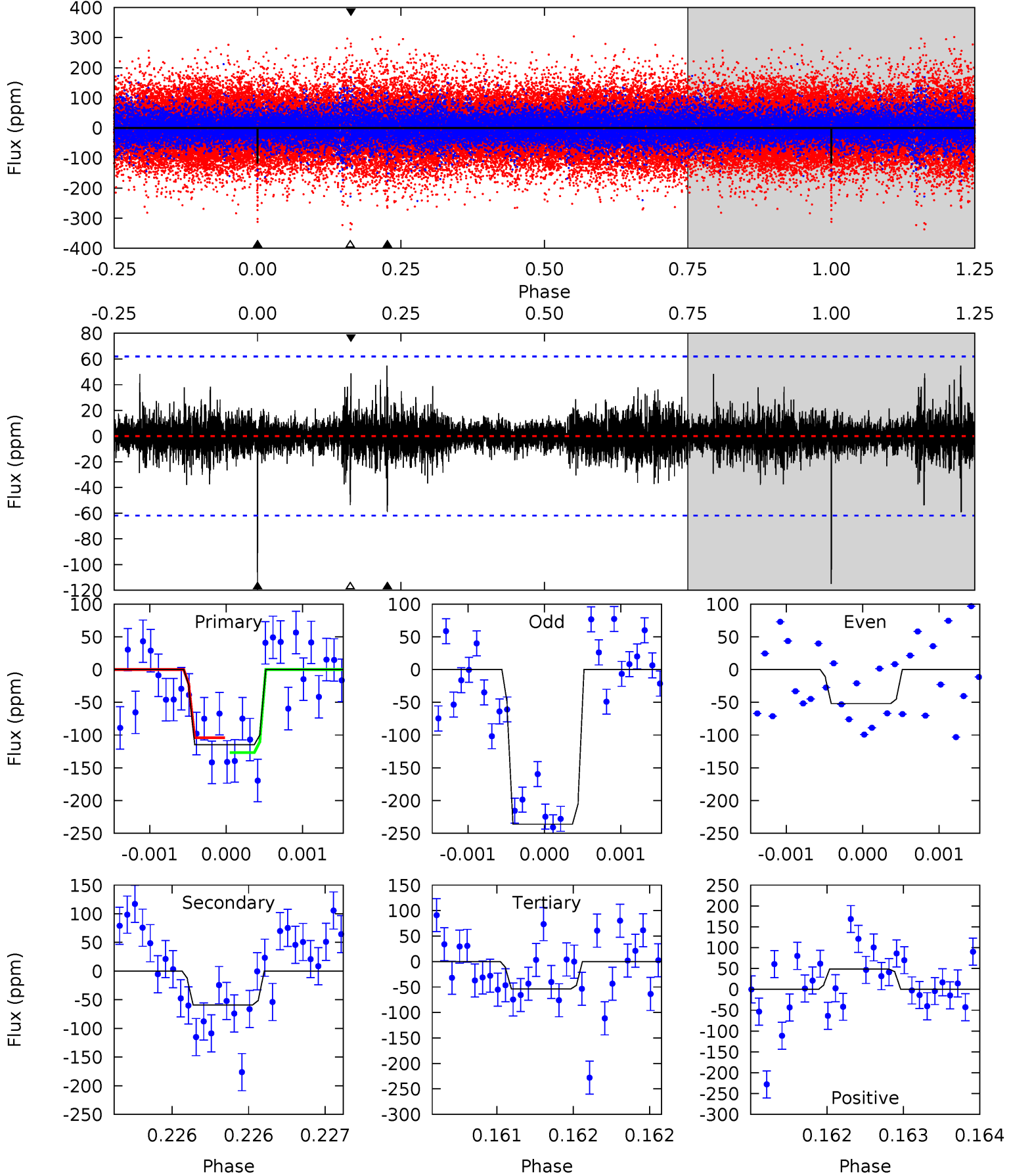
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.52	8.65	8.22	9.58	5.61	3.54	1.39	1.31	-0.06	0.43	-0.93	1.56	1.08	0.50	0.64



# Alt Model-Shift Uniqueness Test

010064019-01, P = 464.413952 Days, E = 192.349610 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
10.3	5.29	4.82	4.37	5.55	3.44	0.79	5.47	5.93	0.47	0.93	7.82	1.02	0.32	1.01



### Stellar Parameters For KIC 010064019

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6331^{+157}_{-189}$	$4.338^{+0.112}_{-0.138}$	$-0.380^{+0.300}_{-0.300}$	$1.118^{+0.232}_{-0.155}$	$0.993^{+0.135}_{-0.110}$	$1.000^{+0.501}_{-0.392}$
	+2%/-3%	+3%/-3%	+79%/-79%	+21%/-14%	+14%/-11%	+50%/-39%
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 010064019-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-124 \pm 14$	$3.05^{+3.13}_{-1.99}$	$382^{+21}_{-18}$	$4413^{+2862}_{-969}$	$9711^{+72738}_{-7296}$
Alt.	$-59 \pm 11$	$3.11^{+3.41}_{-2.05}$	$382^{+21}_{-20}$	$3862^{+2164}_{-809}$	$4592^{+35643}_{-3535}$

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

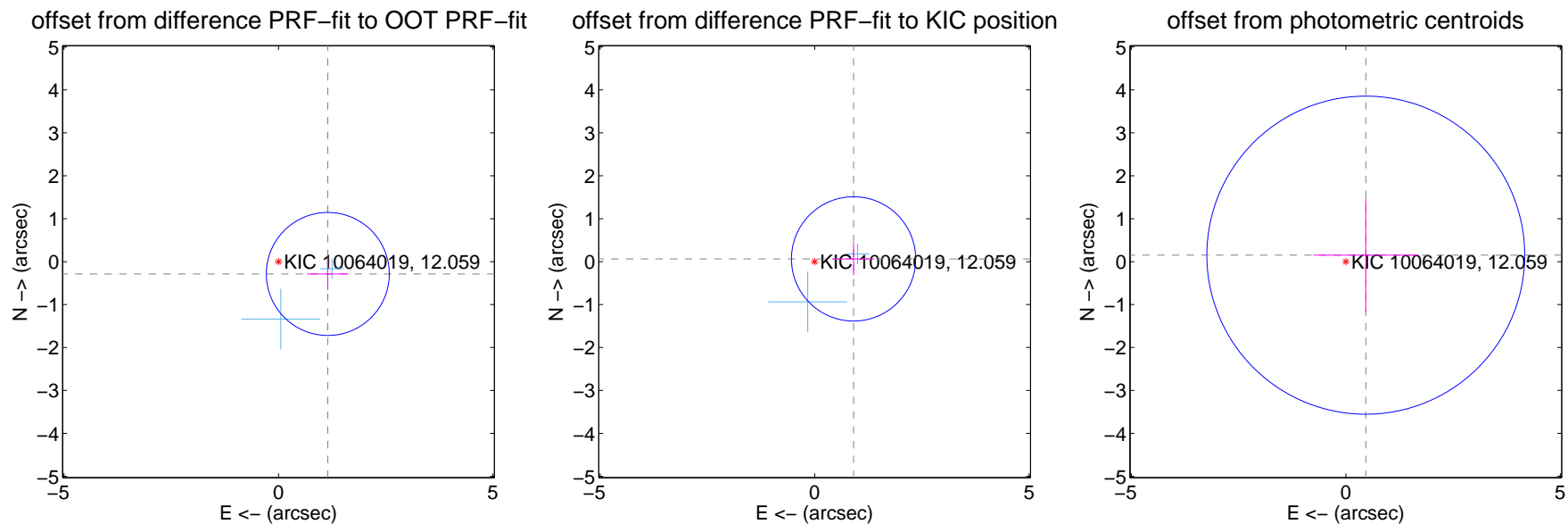
## DV Centroid Data

Supplemental centroid analysis for 010064019-01. Kepler magnitude: 12.06. Transit SNR 6.62

There are 2 quarters with good PRF difference image offsets

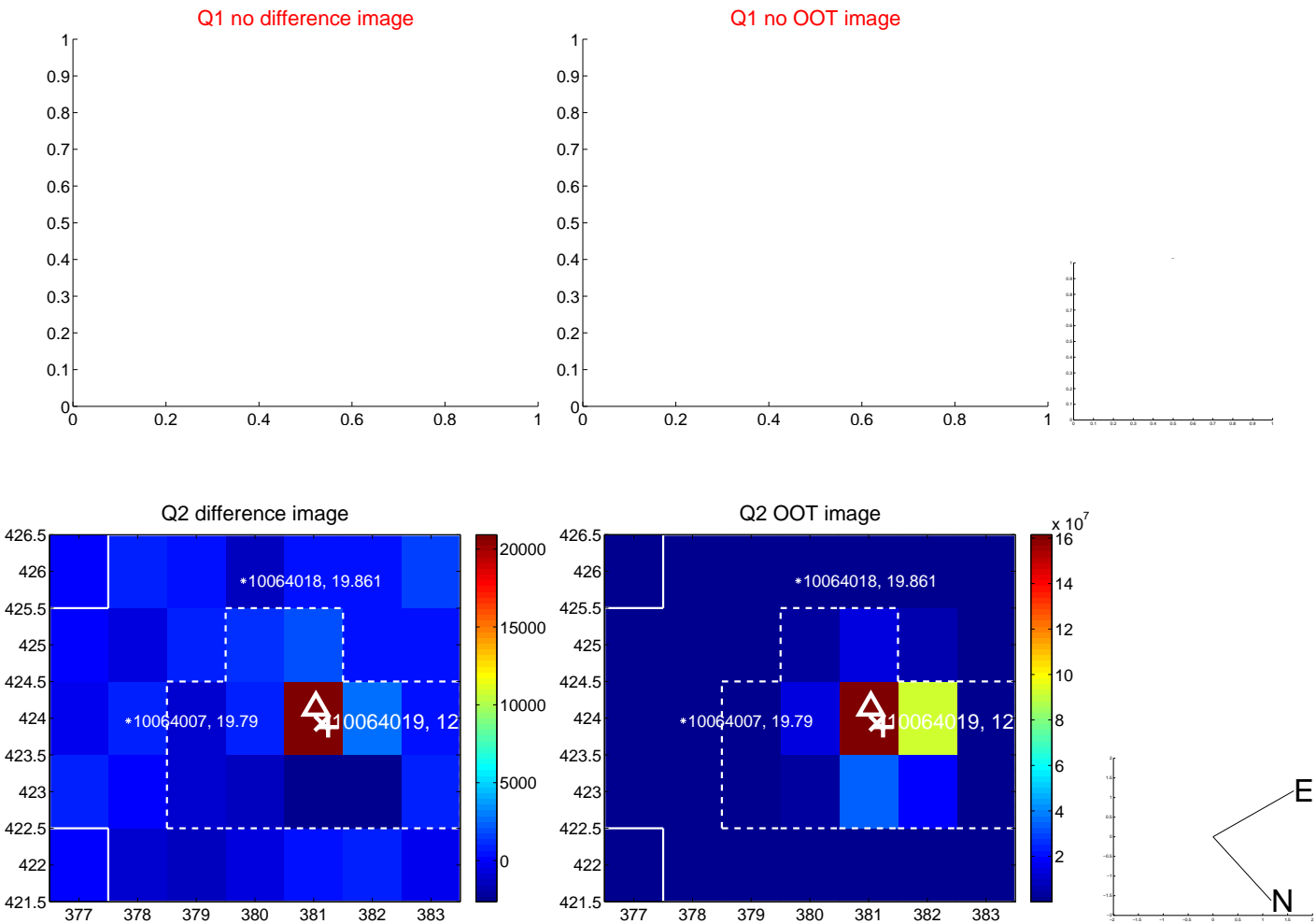
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.185 \pm 0.478$	2.48	$-1.150 \pm 0.483$	$-0.287 \pm 0.380$
PRF-fit source offset from KIC position	$0.910 \pm 0.483$	1.89	$-0.908 \pm 0.483$	$0.064 \pm 0.380$
photometric centroid source offset	$0.49 \pm 1.23$	0.40	$-0.47 \pm 1.22$	$0.15 \pm 1.33$



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.

Q5 no difference image



Q5 no OOT image



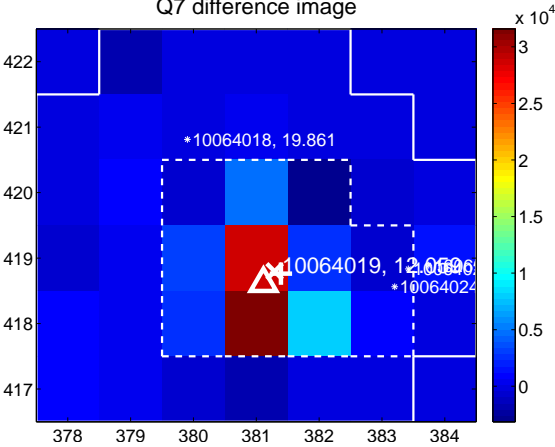
Q6 no difference image



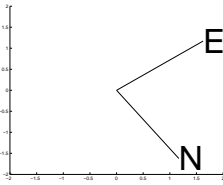
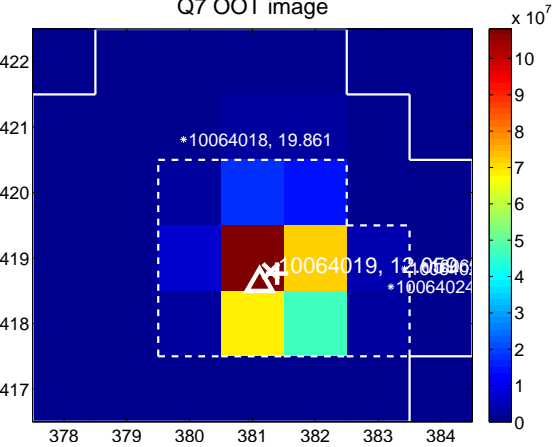
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image





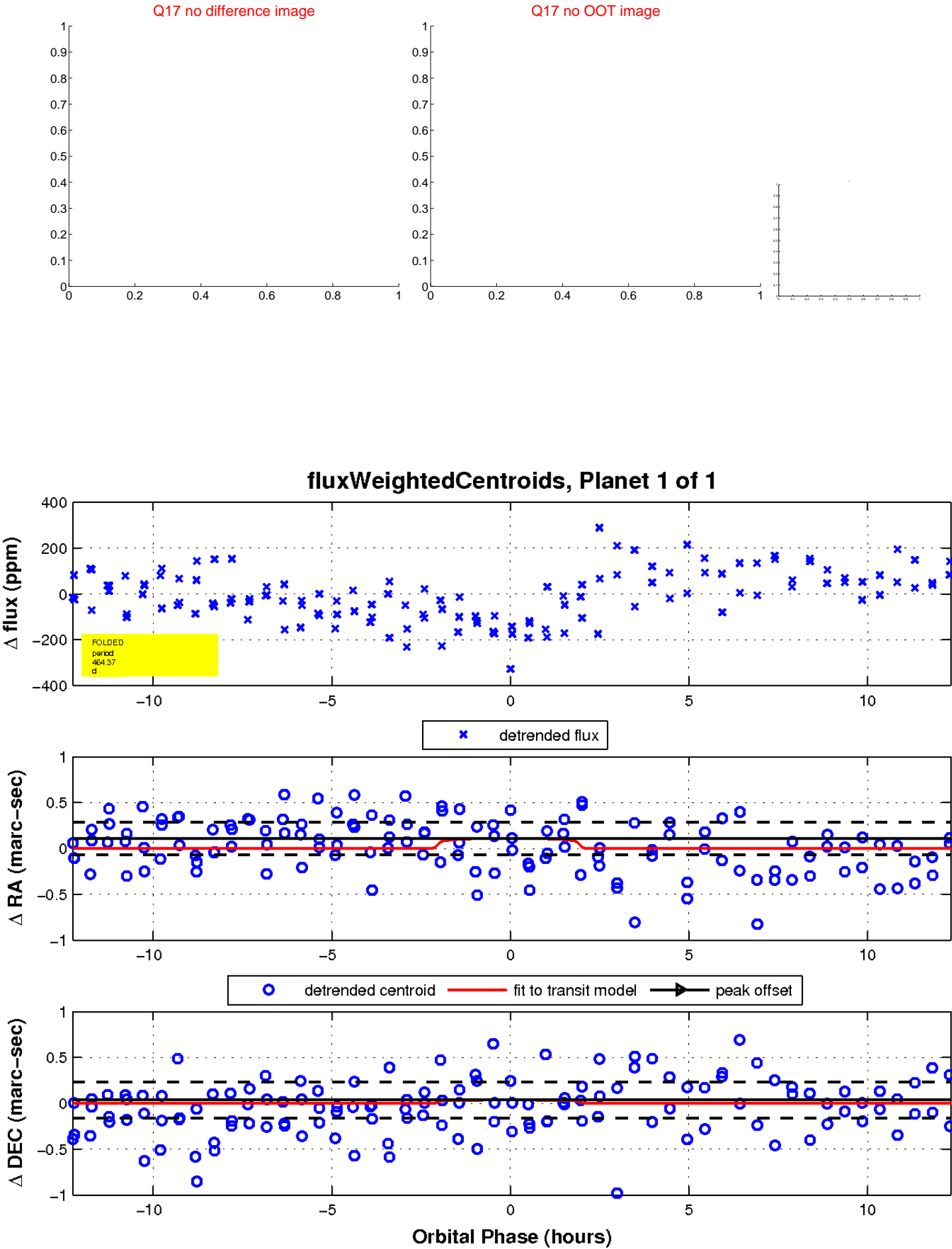
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

