

# KIC 010275074

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010275074-01	OBS	3606.01	2.181569	133.481951	84811.5	4.413	3068.1	2195.0	1.25	6584	51.99	2119.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010275074-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—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.

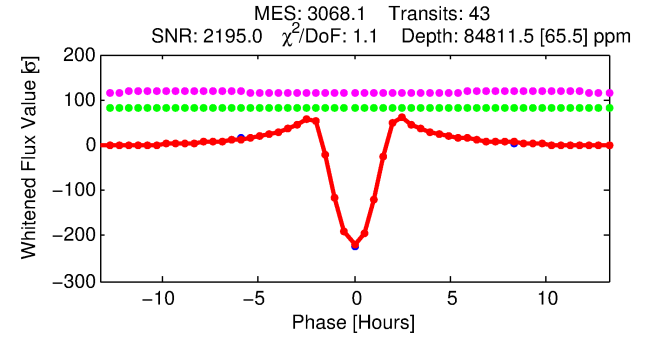
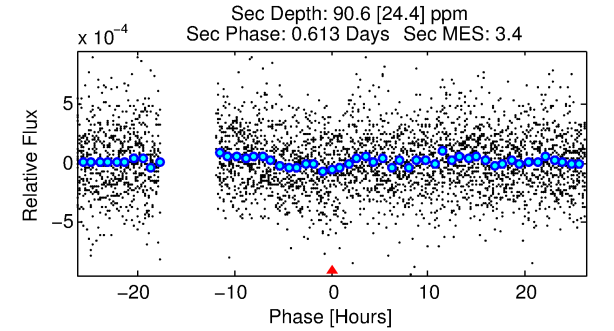
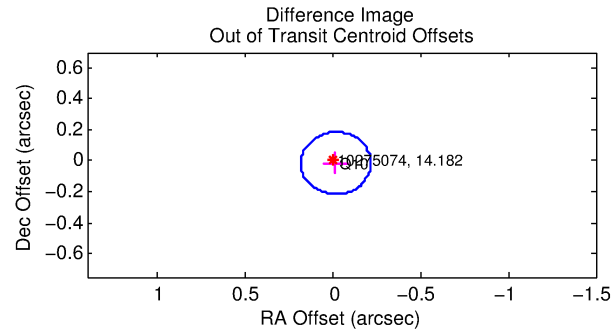
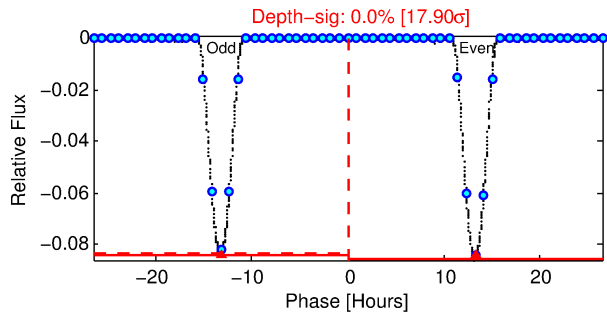
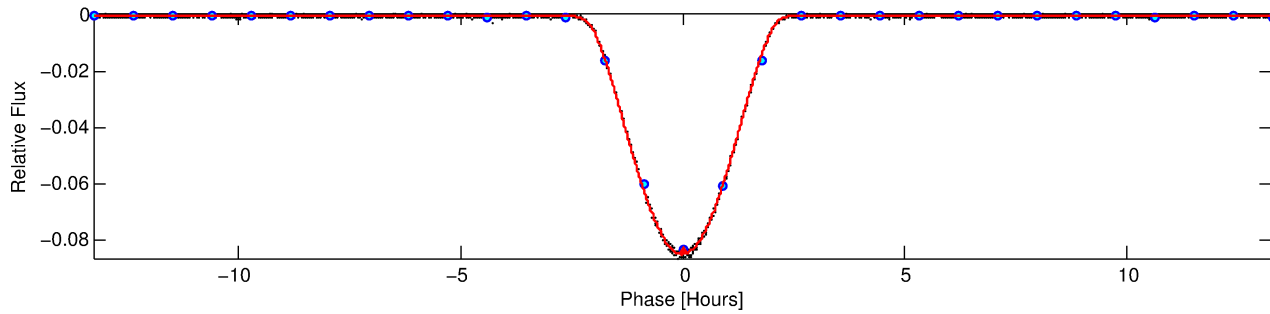
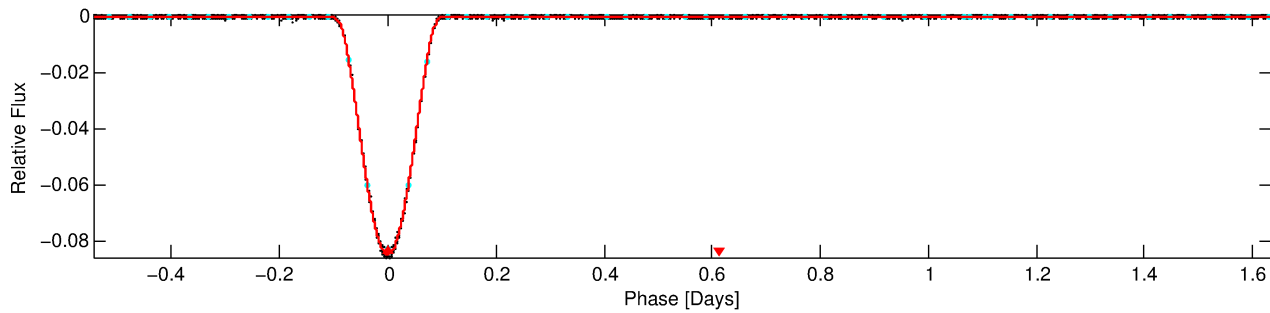
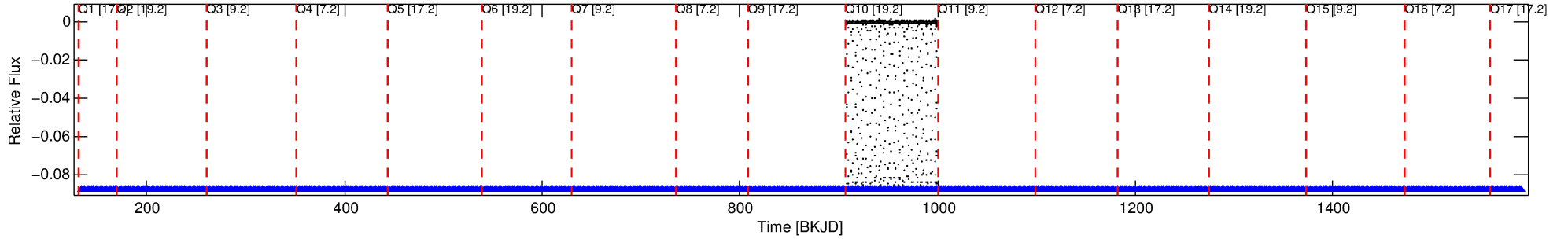
## Ephemeris Match Information For 010275074-01

No Significant Match Found

# DV One-Page Summary

KIC: 10275074 Candidate: 1 of 1 Period: 2.182 d  
KOI: K03606.01 Corr: 0.991

Kp: 14.18 R\*: 1.25 Rs Teff: 6584.0 K Logg: 4.33 Fe/H: -0.120



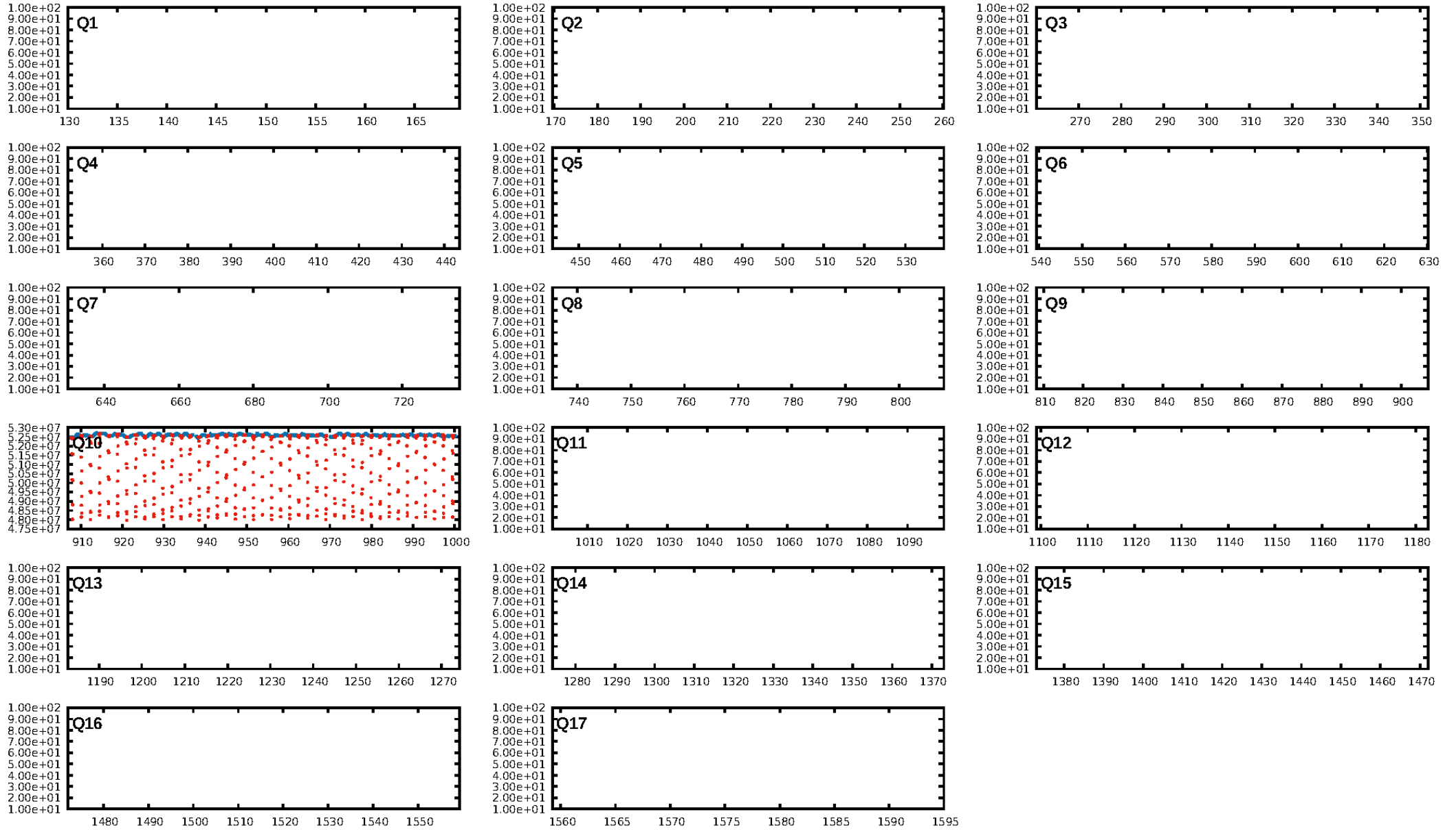
## DV Fit Results:

Period = 2.18157 [0.00000] d  
Epoch = 133.4820 [0.0001] BKJD  
Rp/R\* = 0.3824 [0.0070]  
a/R\* = 4.11 [0.00]  
b = 0.90 [0.01]  
Seff = 2119.21 [878.50]  
Teq = 1730 [179] K  
Rp = 51.99 [17.59] Re  
a = 0.0351 [0.0096] AU  
Ag = 0.02 [0.01] [-91.29σ]  
Teffp = 1039 [81] K [-3.51σ]

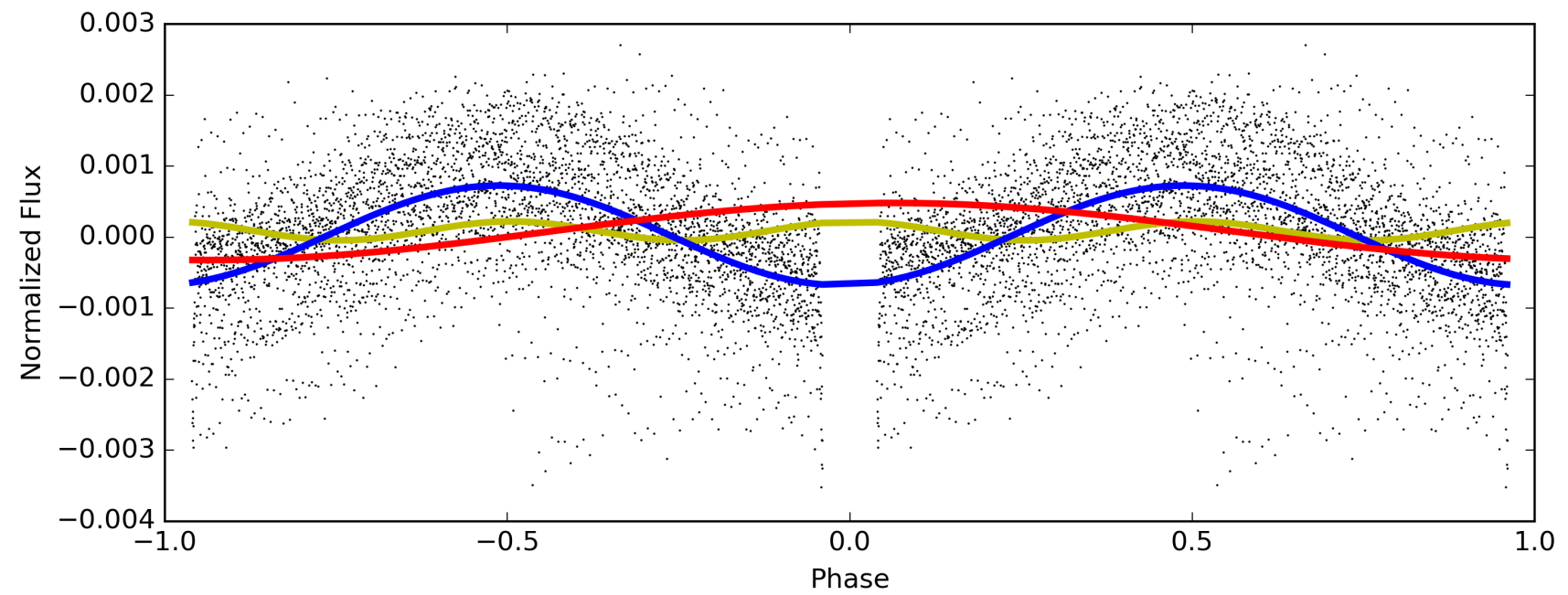
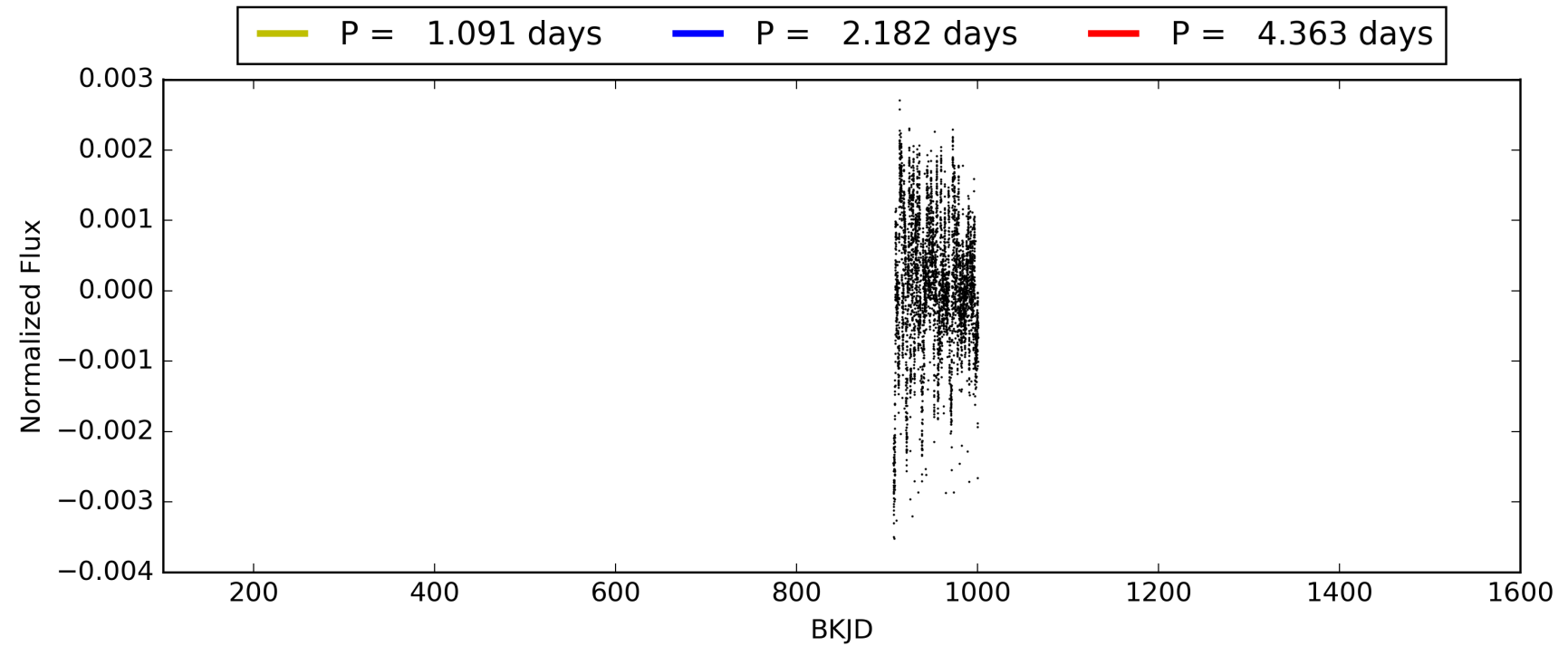
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 94.3%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [43/43]  
GhostDiagnostic-chr: 4.376  
Centroid-sig: 0.0%  
Centroid-so: 0.315 arcsec [87.26σ]  
OotOffset-rm: 0.022 arcsec [0.34σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-rm: 0.264 arcsec [3.96σ]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [1/1]

# TCE 010275074-01, PDC Light Curves

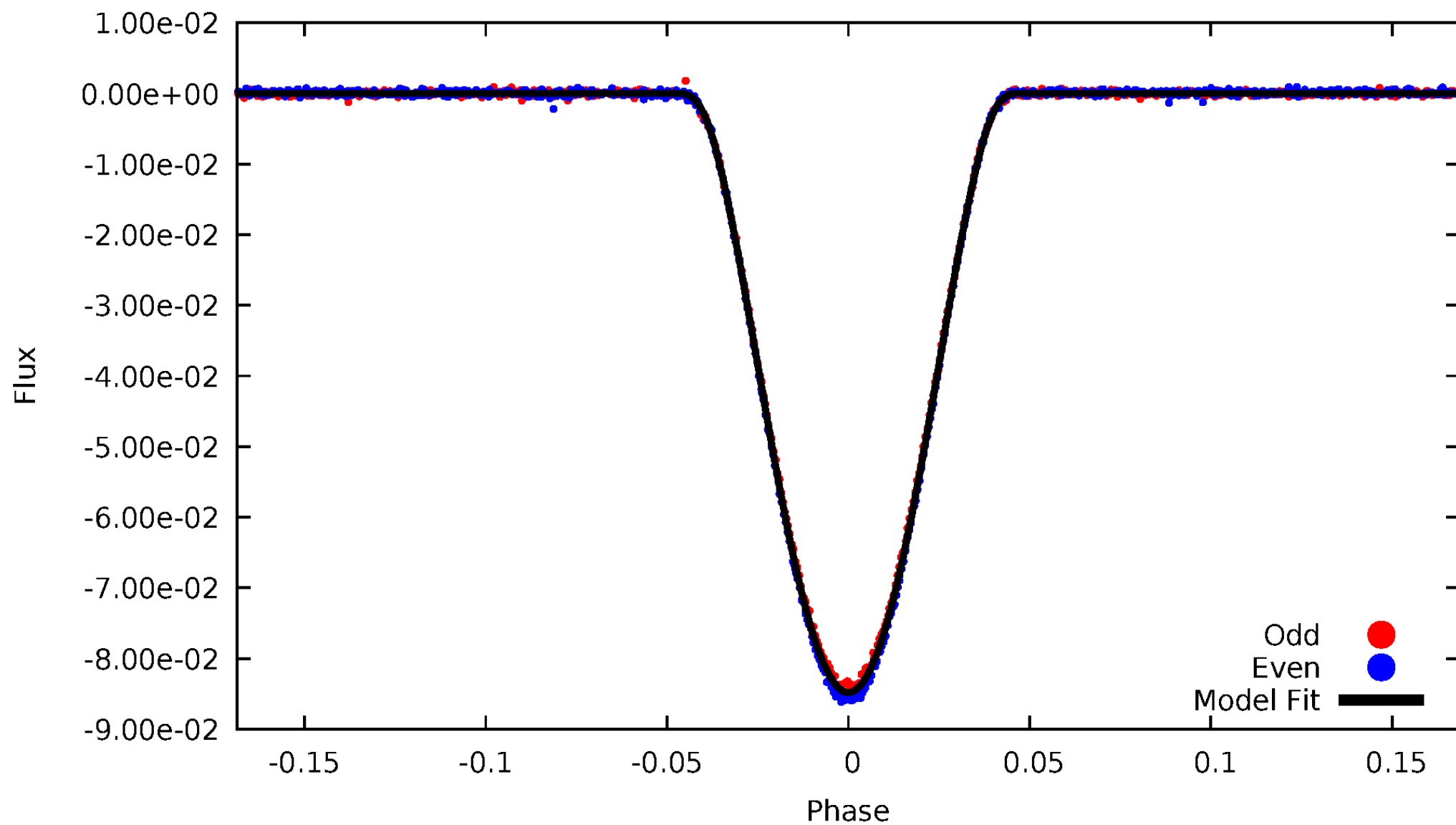


# TCE 010275074-01



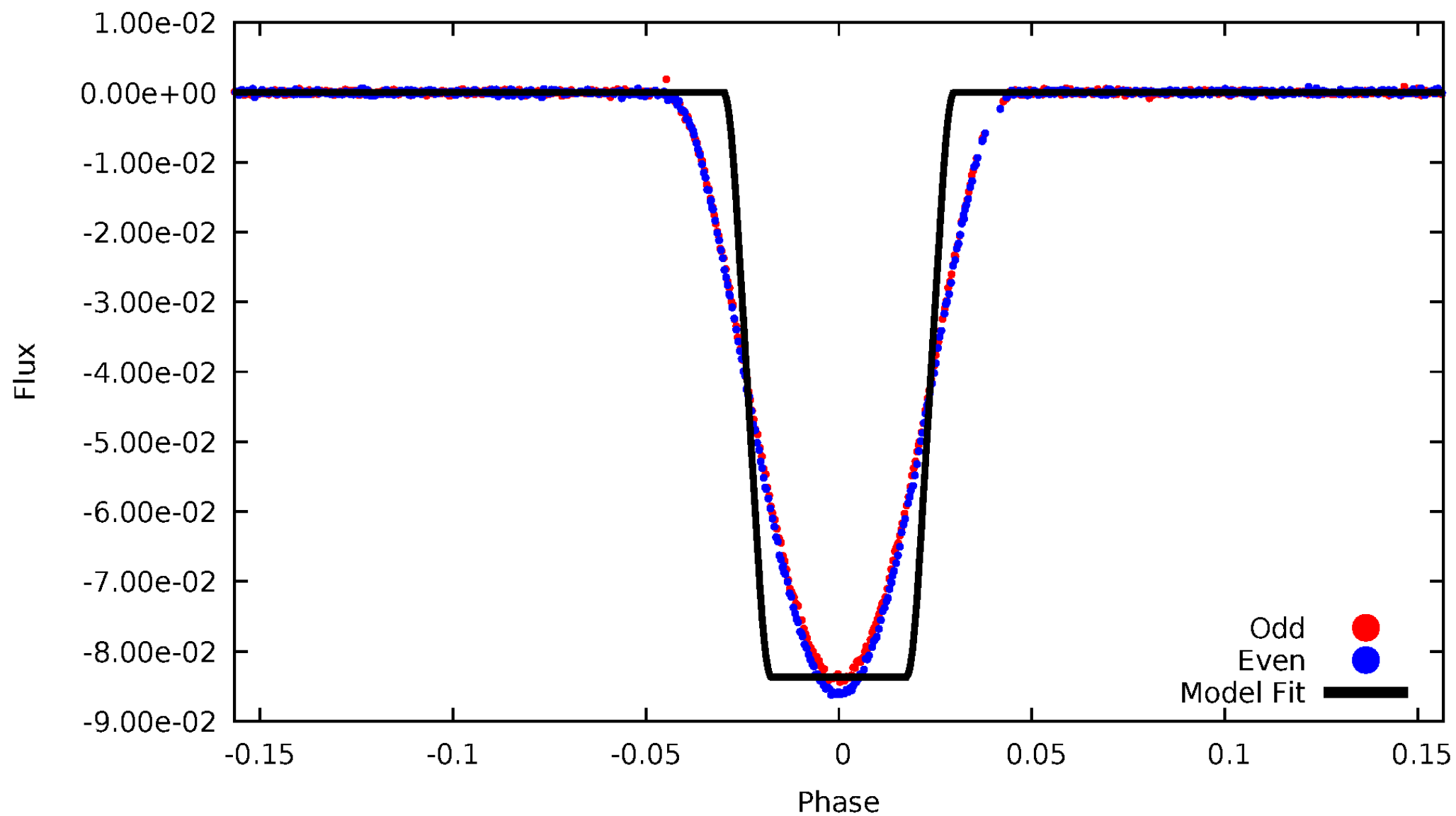
# DV Odd/Even

TCE 010275074-01



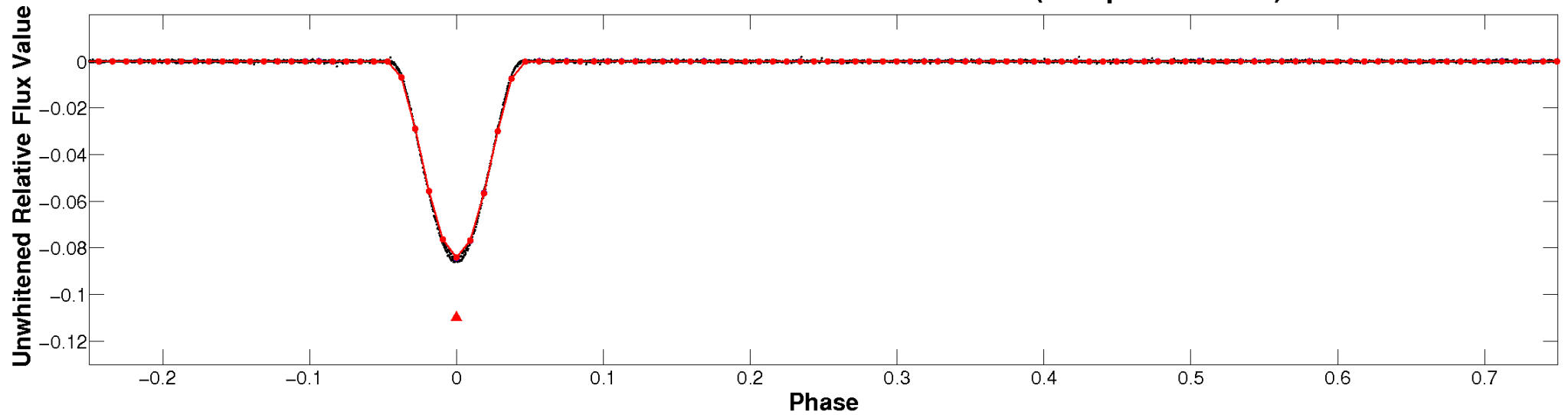
# ALT Odd/Even

TCE 010275074-01

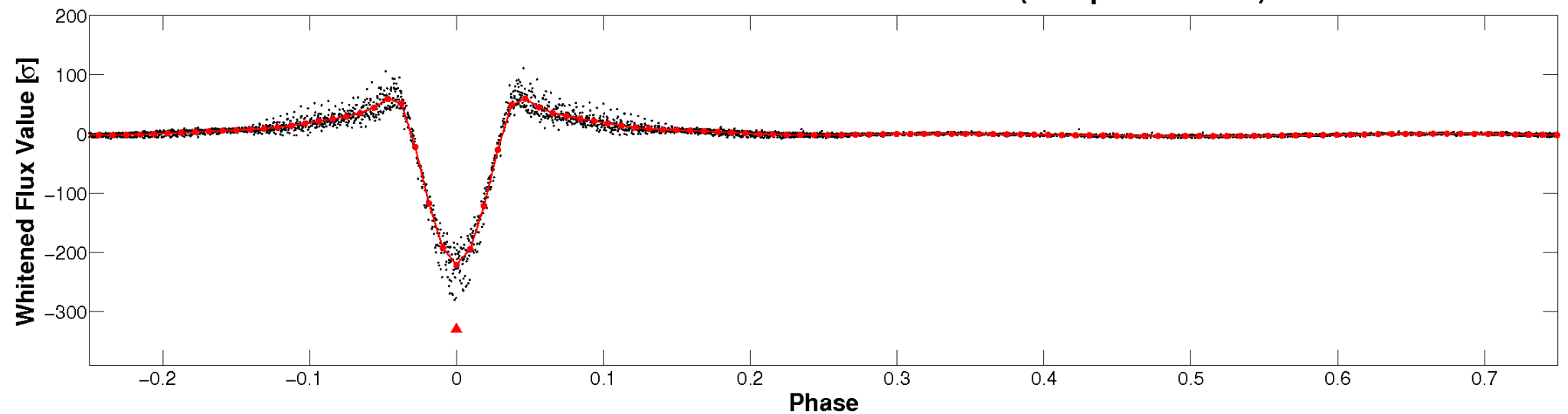


# Non-Whitened Vs. Whitened Light Curve

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

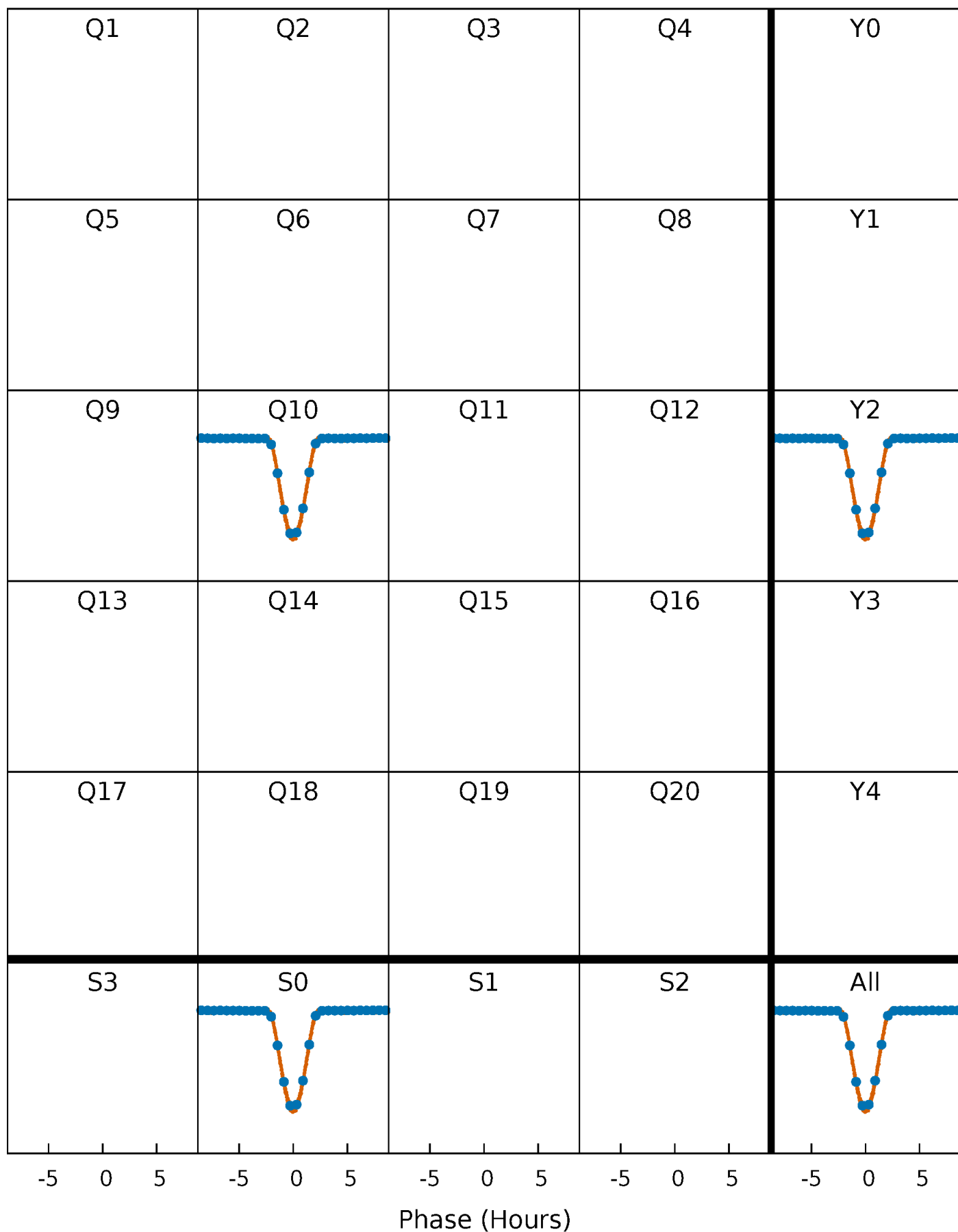


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

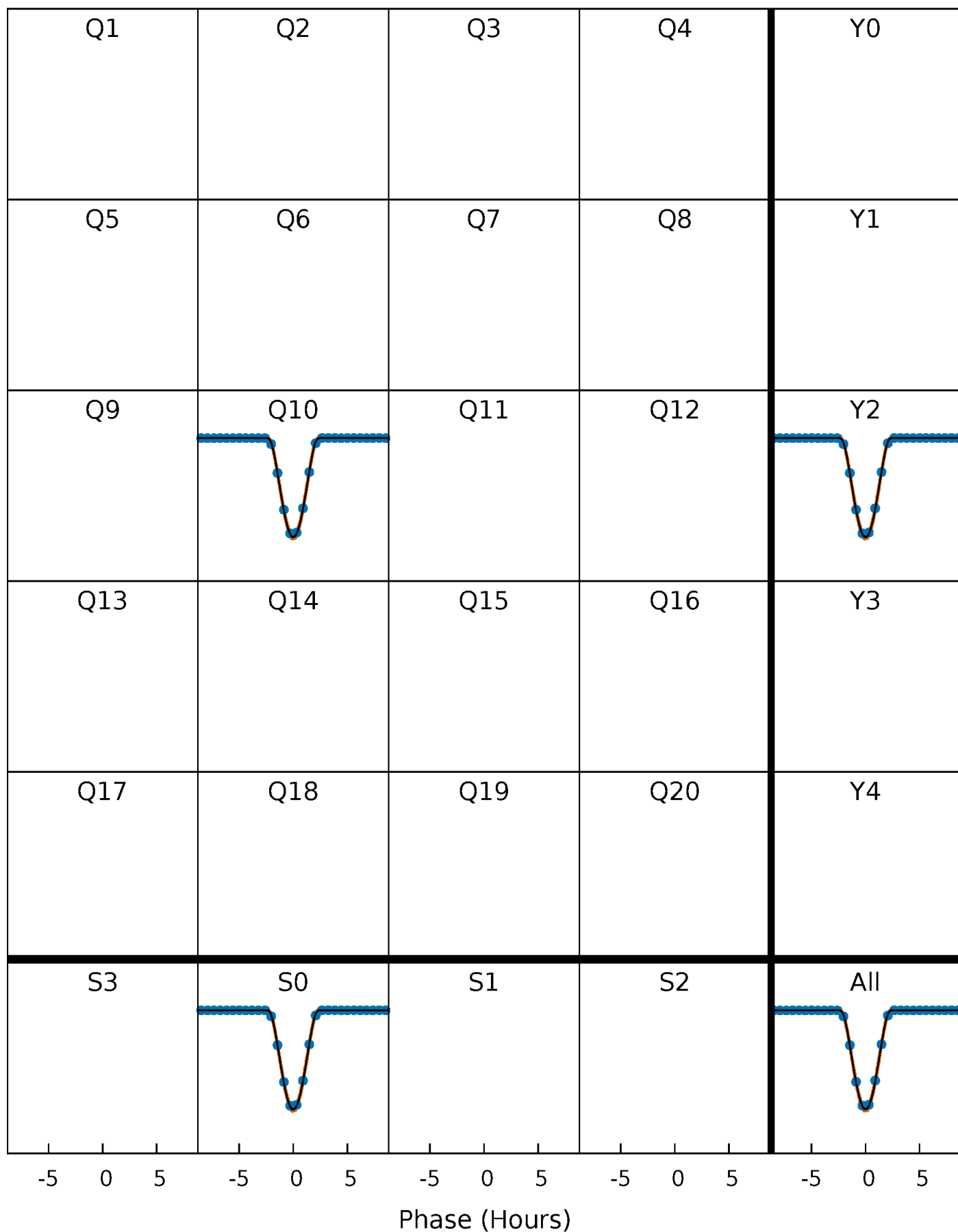
TCE 010275074-01 P= 2.181569 Days  $T_0=133.481952$  (BKJD)





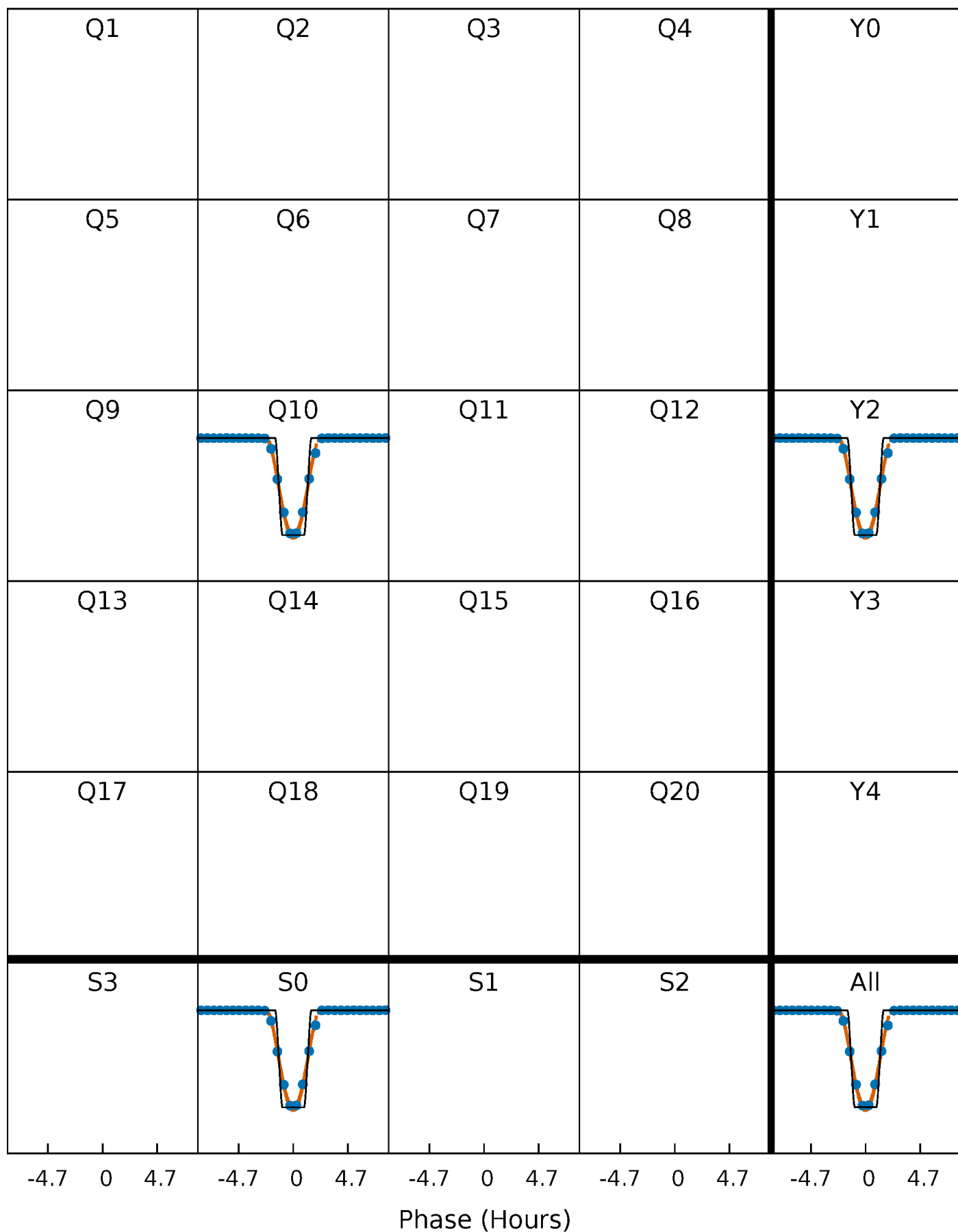
# DV Quarter-Phased Transit Curves

TCE 010275074-01   P= 2.181569 Days    $T_0=133.481952$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

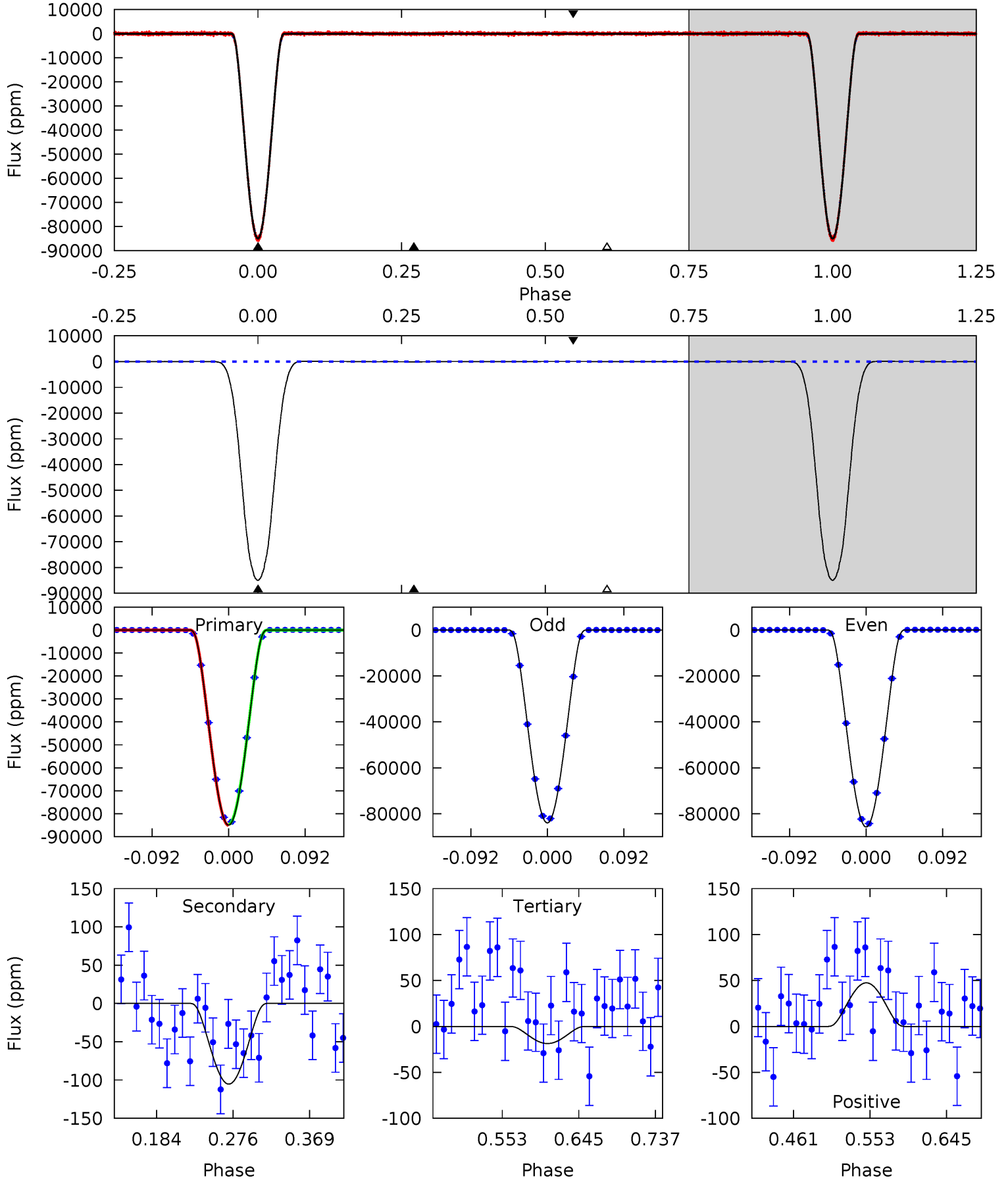
TCE 010275074-01   P= 2.181549 Days    $T_0=133.489143$  (BKJD)



# DV Model-Shift Uniqueness Test

010275074-01, P = 2.181569 Days, E = 133.481952 Days

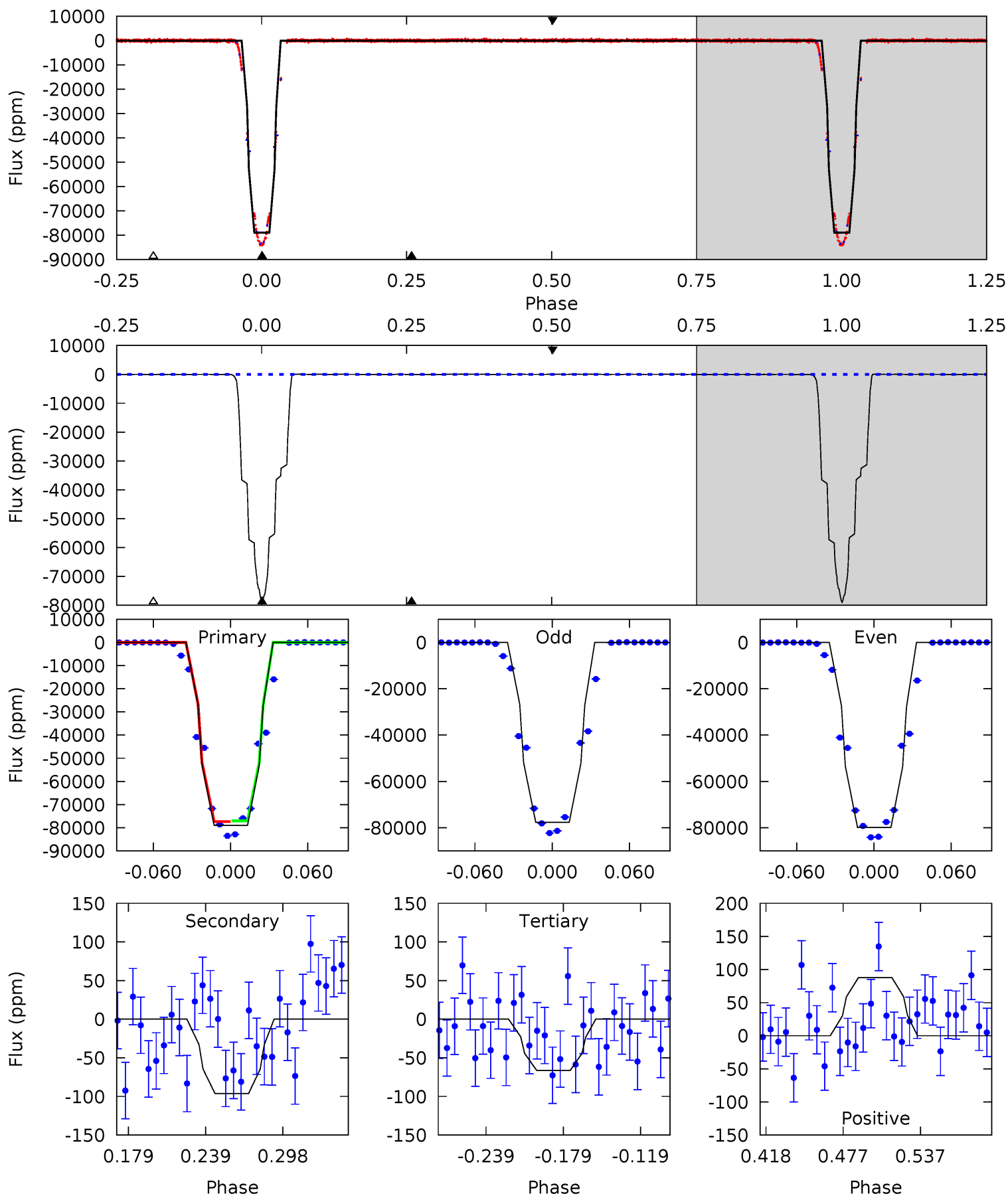
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6353	7.88	1.39	3.55	4.58	1.68	2.03	6352	6349	6.48	4.33	70.9	0.99	0.00	17.6



# Alt Model-Shift Uniqueness Test

010275074-01, P = 2.181549 Days, E = 133.489143 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
3221	3.93	2.71	3.58	4.67	1.88	1.32	3218	3217	1.22	0.35	52.5	1.00	0.00	5.85



### Stellar Parameters For KIC 010275074

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6584^{+162}_{-255}$	$4.331^{+0.087}_{-0.203}$	$-0.120^{+0.250}_{-0.300}$	$1.246^{+0.421}_{-0.180}$	$1.218^{+0.183}_{-0.183}$	$0.888^{+0.343}_{-0.475}$
	+2%/-4%	+2%/-5%	+208%/-250%	+34%/-14%	+15%/-15%	+39%/-54%
Source	KIC0	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 010275074-01 / KOI 3606.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-105 \pm 13$	$52.33^{+9.66}_{-4.78}$	$2439^{+185}_{-138}$	$-2728^{+87}_{-114}$	$0.025^{+0.006}_{-0.007}$
Alt.	$-96 \pm 25$	$39.69^{+7.14}_{-3.86}$	$2438^{+182}_{-141}$	$-2704^{+85}_{-121}$	$0.039^{+0.015}_{-0.012}$

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

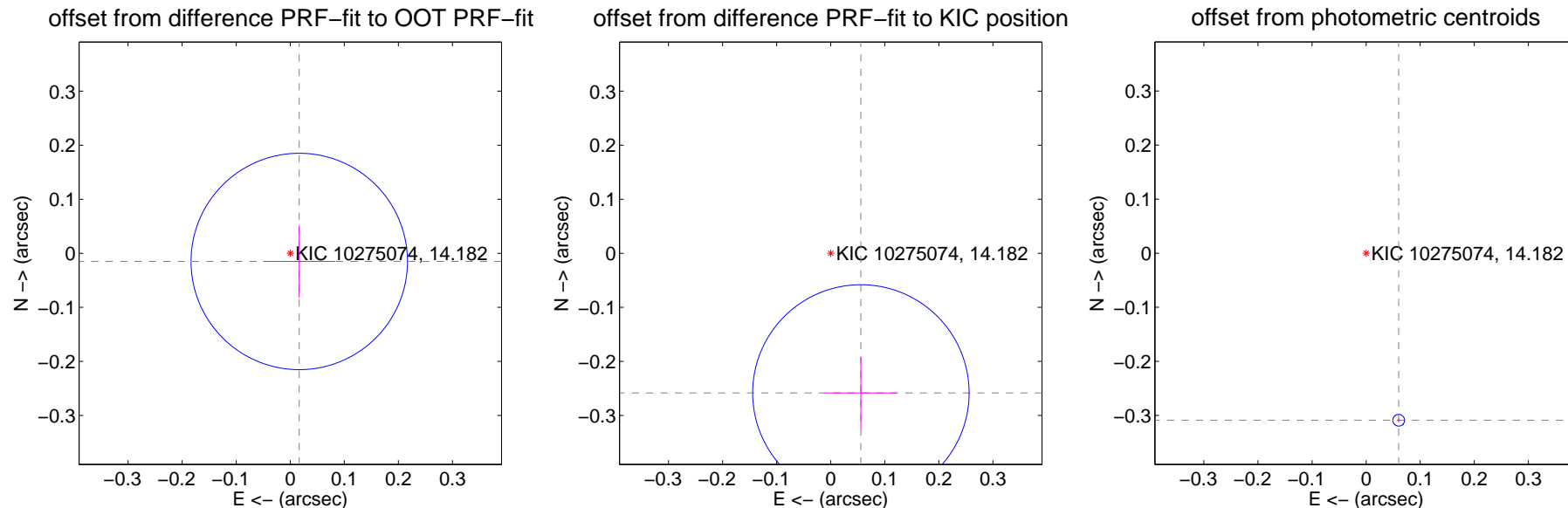
## DV Centroid Data

Supplemental centroid analysis for 010275074-01. Kepler magnitude: 14.18. Transit SNR 2194.95

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.022 \pm 0.067$	0.34	$-0.017 \pm 0.067$	$-0.015 \pm 0.067$
PRF-fit source offset from KIC position	$0.264 \pm 0.067$	3.96	$-0.056 \pm 0.067$	$-0.258 \pm 0.067$
photometric centroid source offset	$0.31 \pm 0.00$	87.26	$-0.06 \pm 0.00$	$-0.31 \pm 0.00$



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.



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

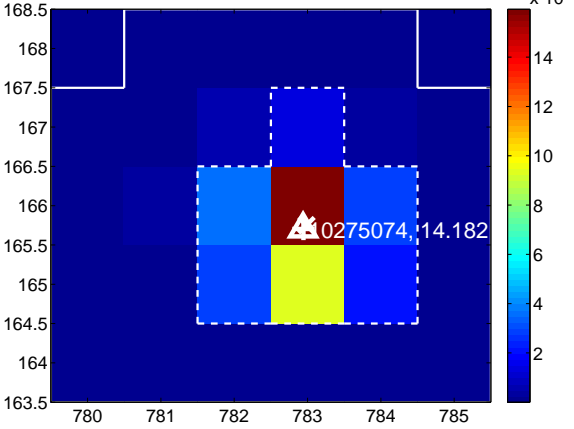
Q9 no difference image



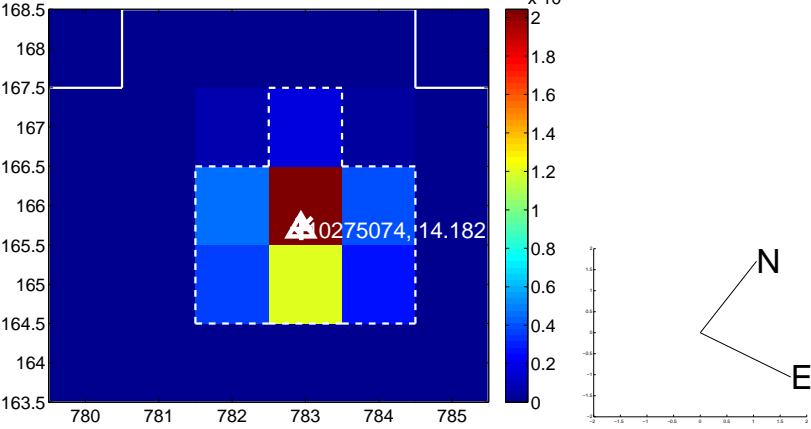
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



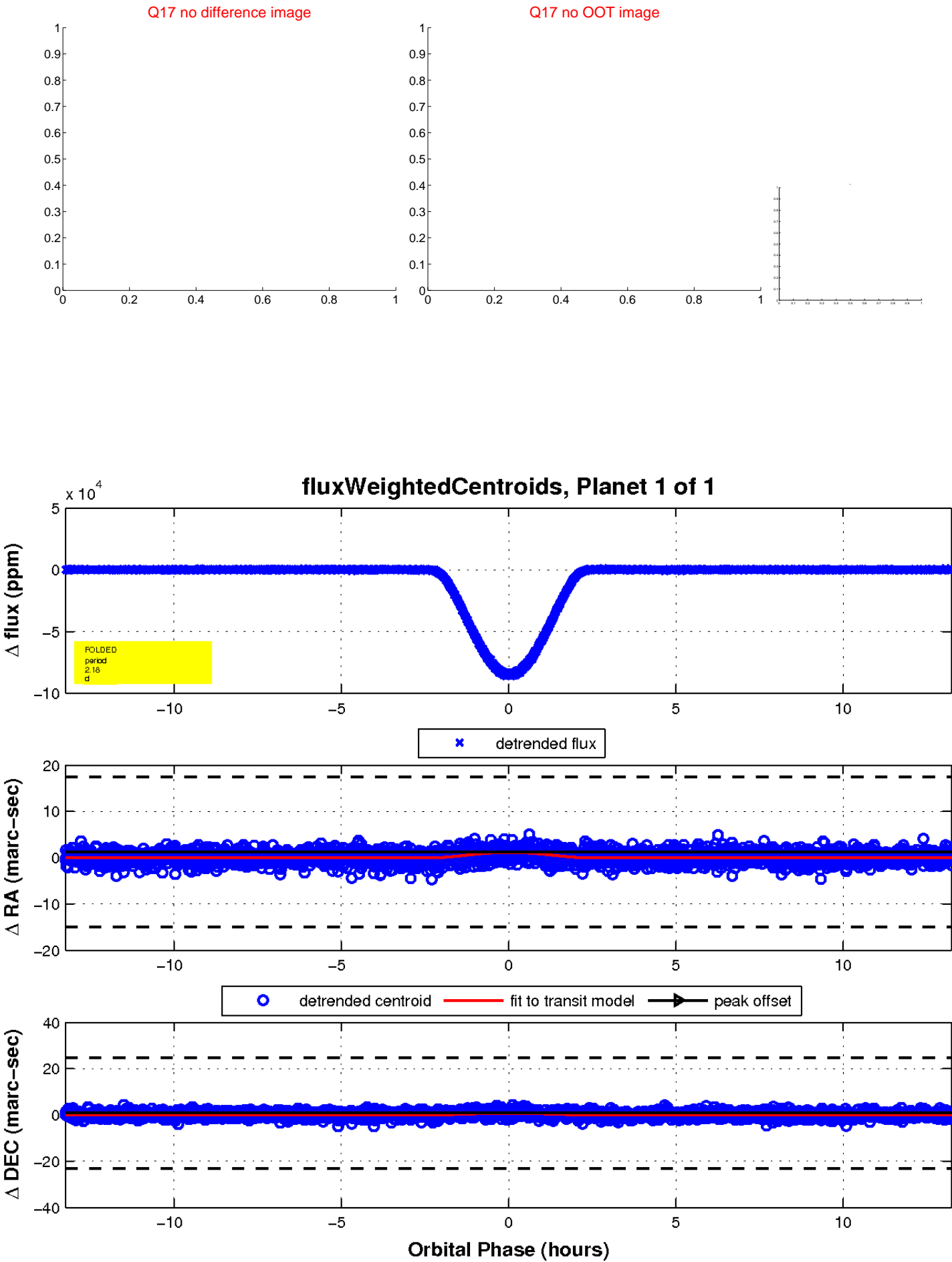
Q12 no OOT image



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.



UKIRT Image

Declination

