

# KIC 004454219

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004454219-01	OBS	6416.01	1.225733	131.662705	95825.1	2.232	366.6	294.4	1.00	5780	48.62	1989.50

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004454219-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—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 004454219-01

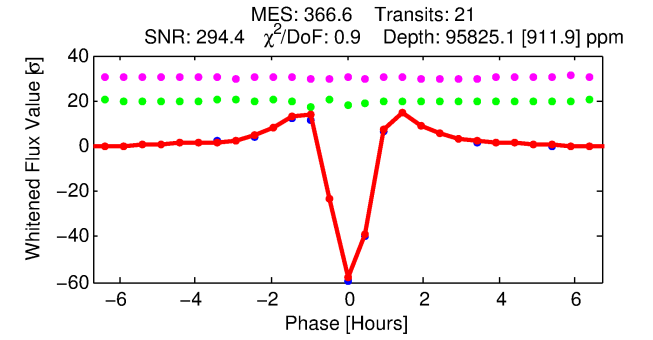
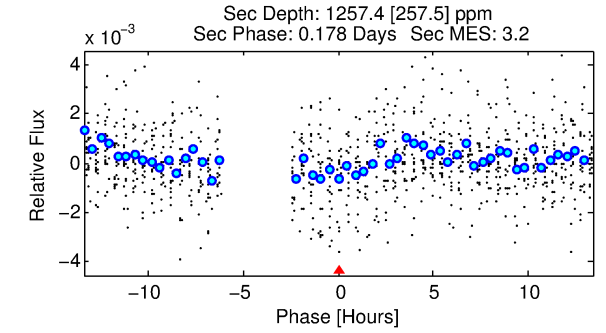
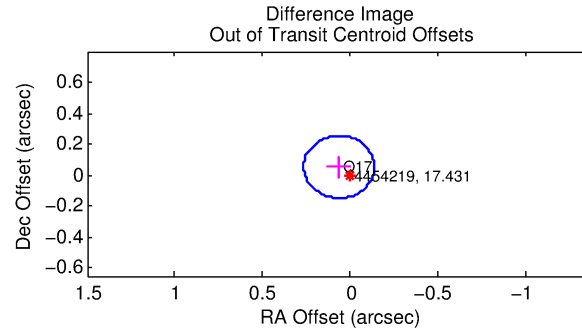
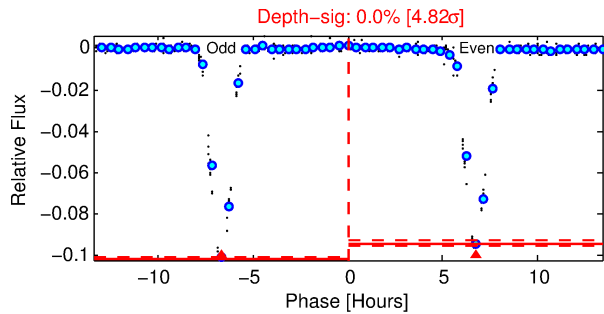
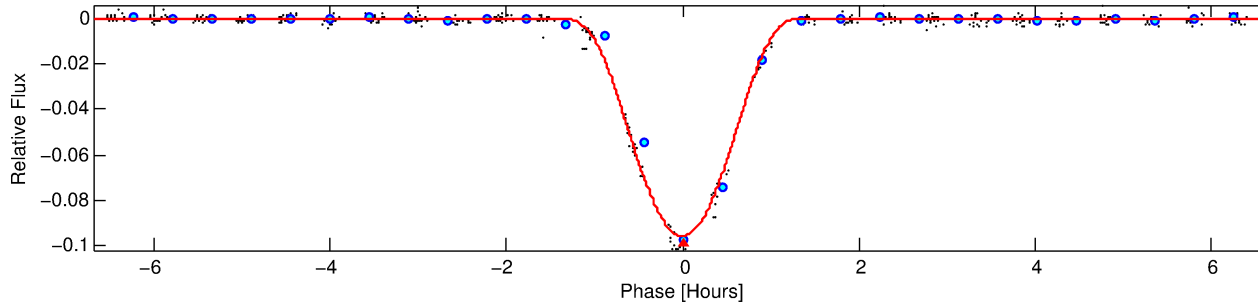
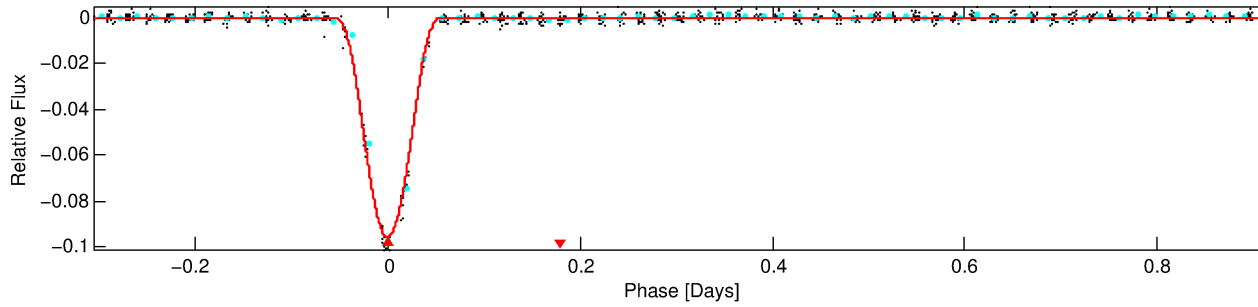
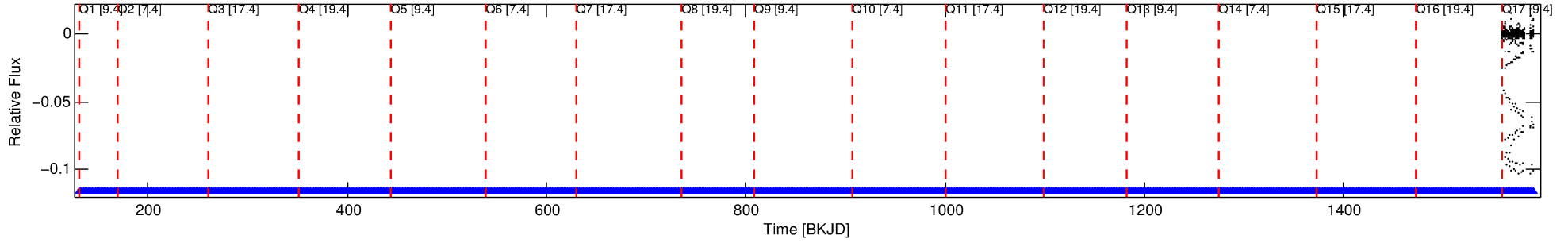
No Significant Match Found

# DV One-Page Summary

KIC: 4454219 Candidate: 1 of 1 Period: 1.226 d

KOI: K06416 Corr: No Ephemeris Match

Kp: 17.43 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



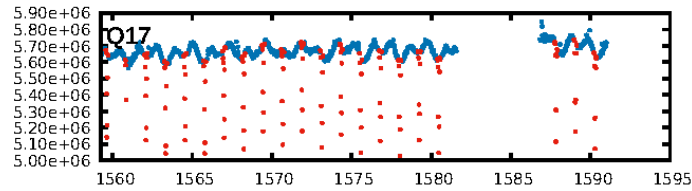
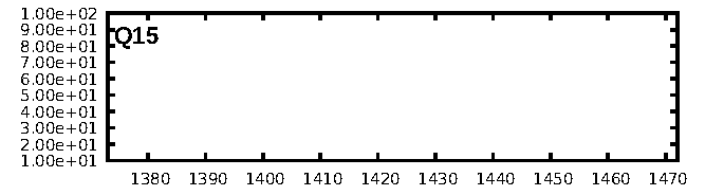
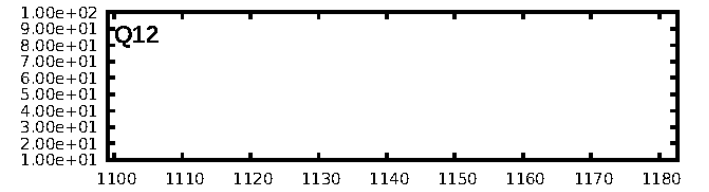
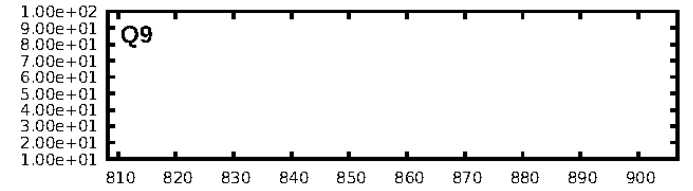
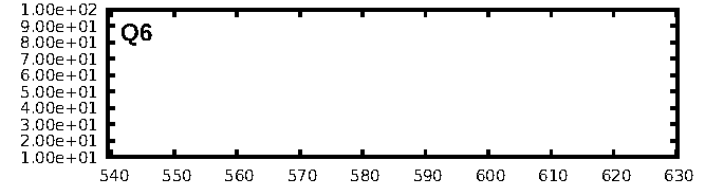
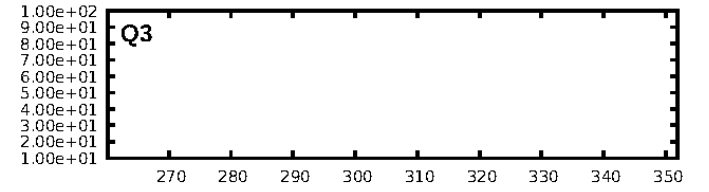
## DV Fit Results:

Period = 1.22573 [0.00000] d  
Epoch = 131.6627 [0.0001] BKJD  
Rp/R\* = 0.4456 [0.2508]  
a/R\* = 4.75 [0.18]  
b = 0.94 [0.35]  
Seff = 1989.50 [0.00]  
Teq = 1703 [0] K  
Rp = 48.63 [27.36] Re  
a = 0.0224 [0.0000] AU  
Ag = 0.15 [0.17] [-5.07σ]  
Teffp = 1630 [466] K [-0.16σ]

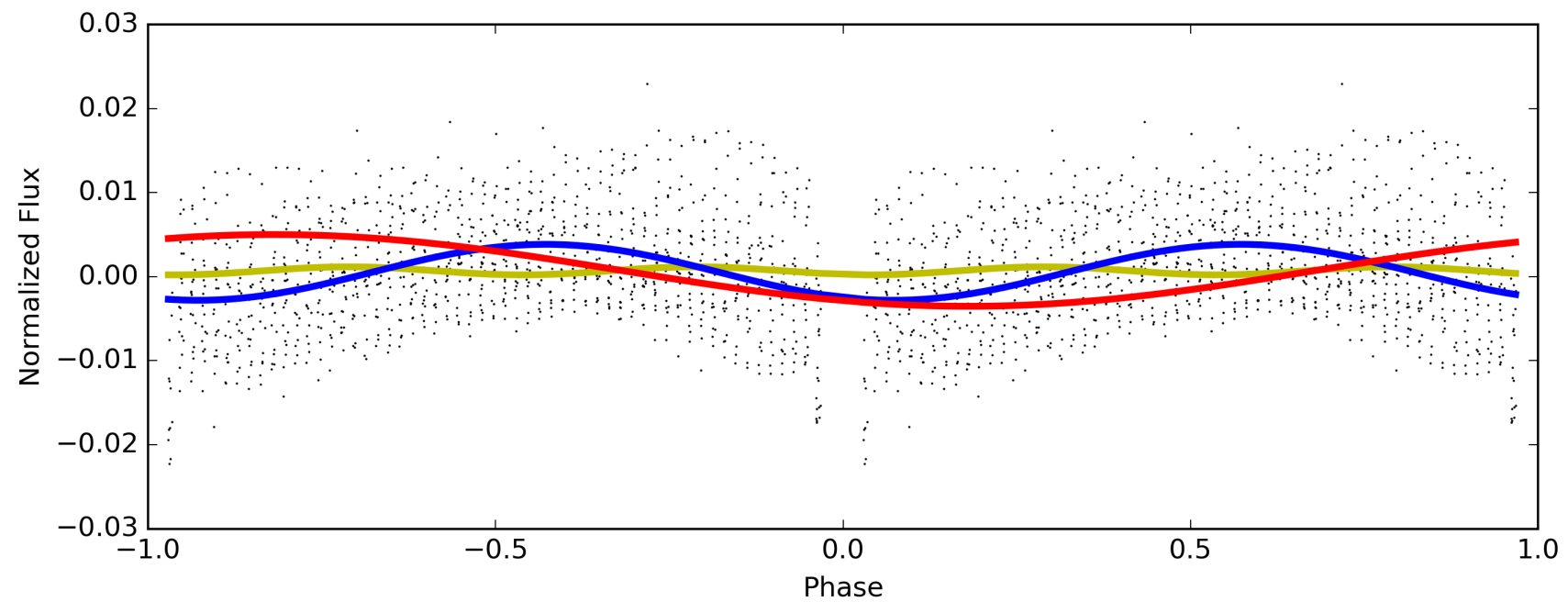
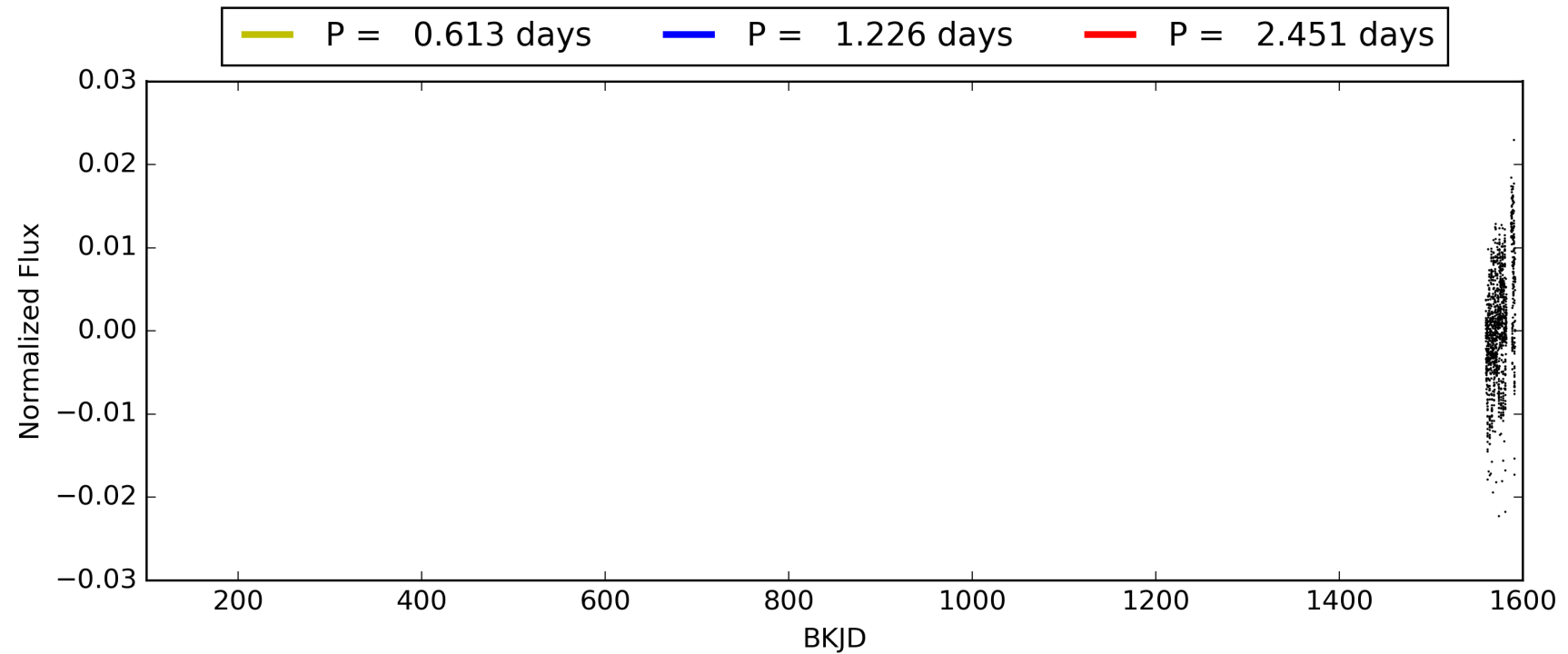
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: N/A  
GhostDiagnostic-chr: 1.481  
Centroid-sig: 0.0%  
Centroid-so: 0.449 arcsec [19.21σ]  
OotOffset-rm: 0.085 arcsec [1.26σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-rm: 0.344 arcsec [5.12σ]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [1/1]

# TCE 004454219-01, PDC Light Curves

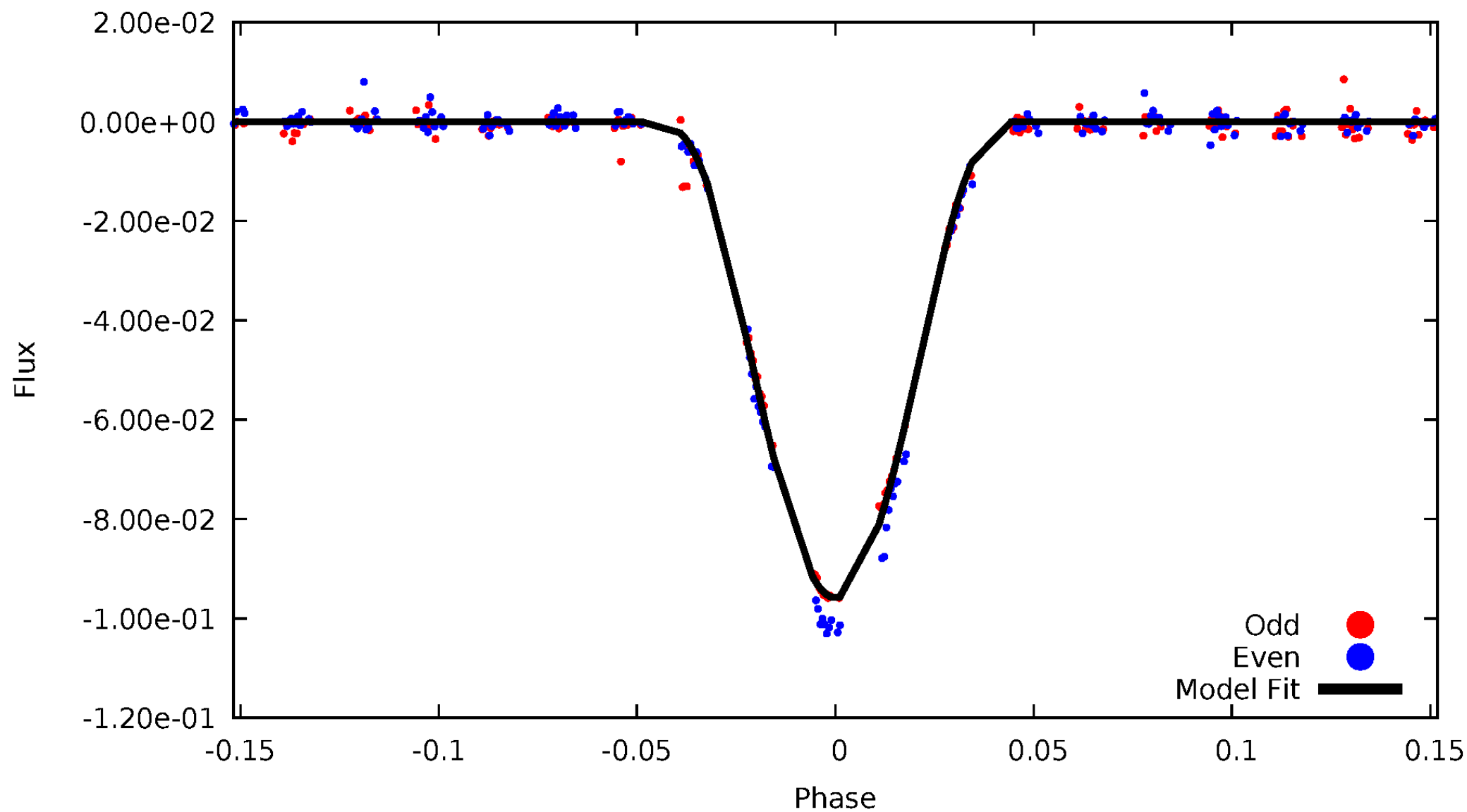


TCE 004454219-01



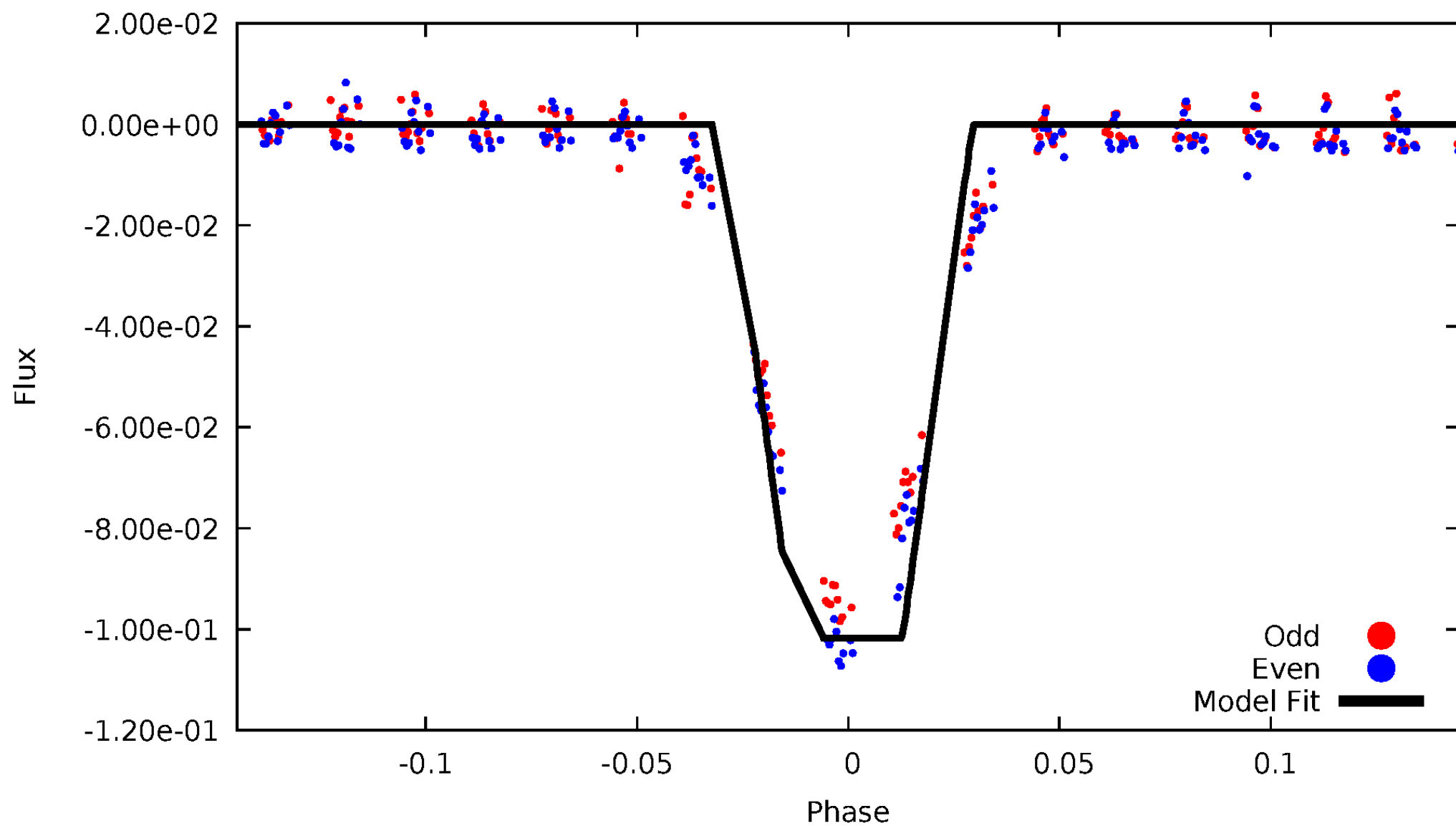
# DV Odd/Even

TCE 004454219-01



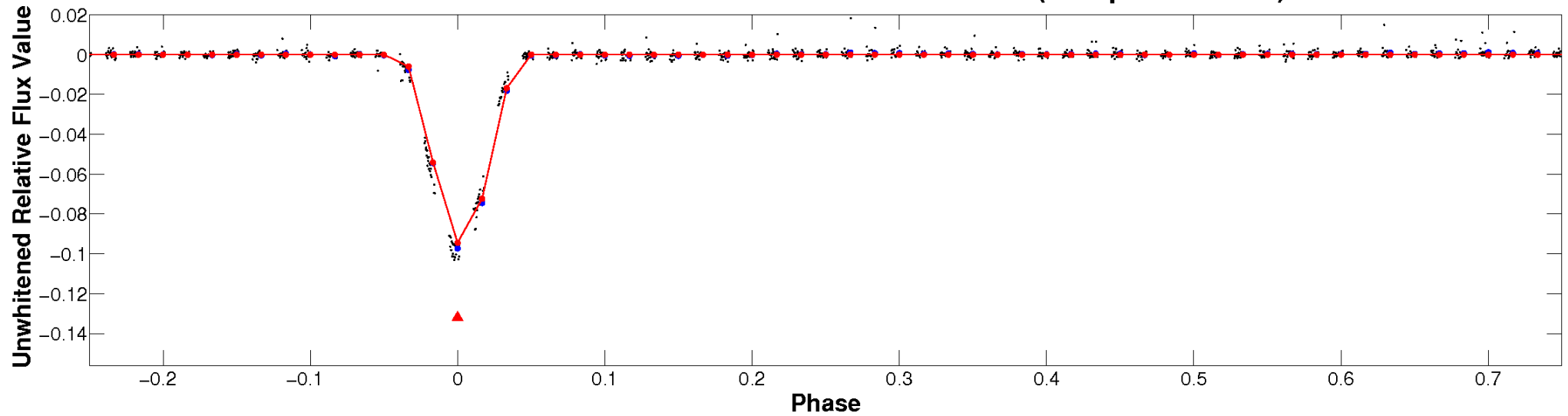
# ALT Odd/Even

TCE 004454219-01

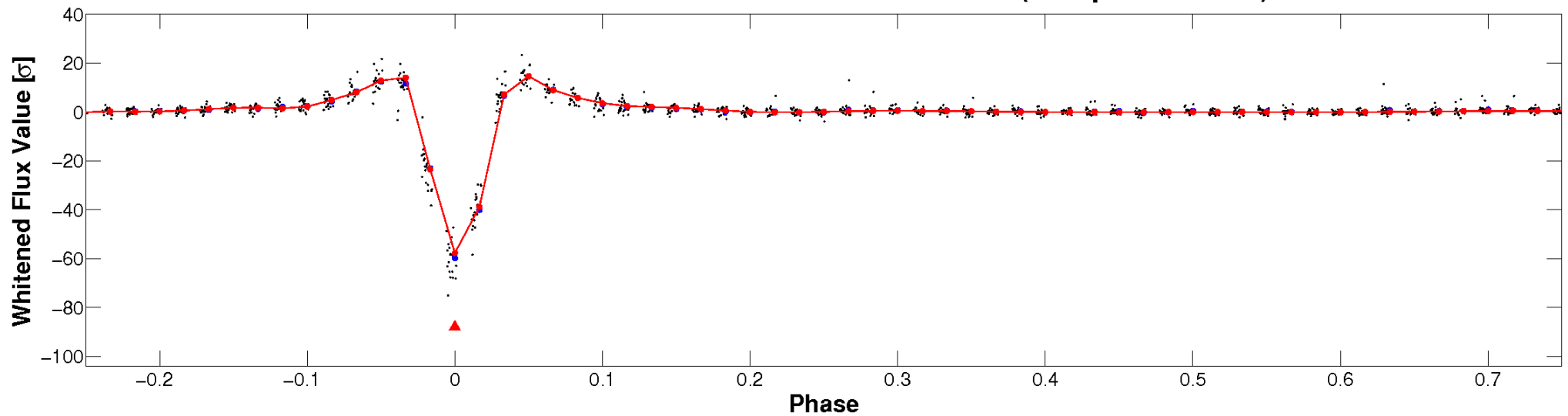


# Non-Whitened Vs. Whitened Light Curve

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

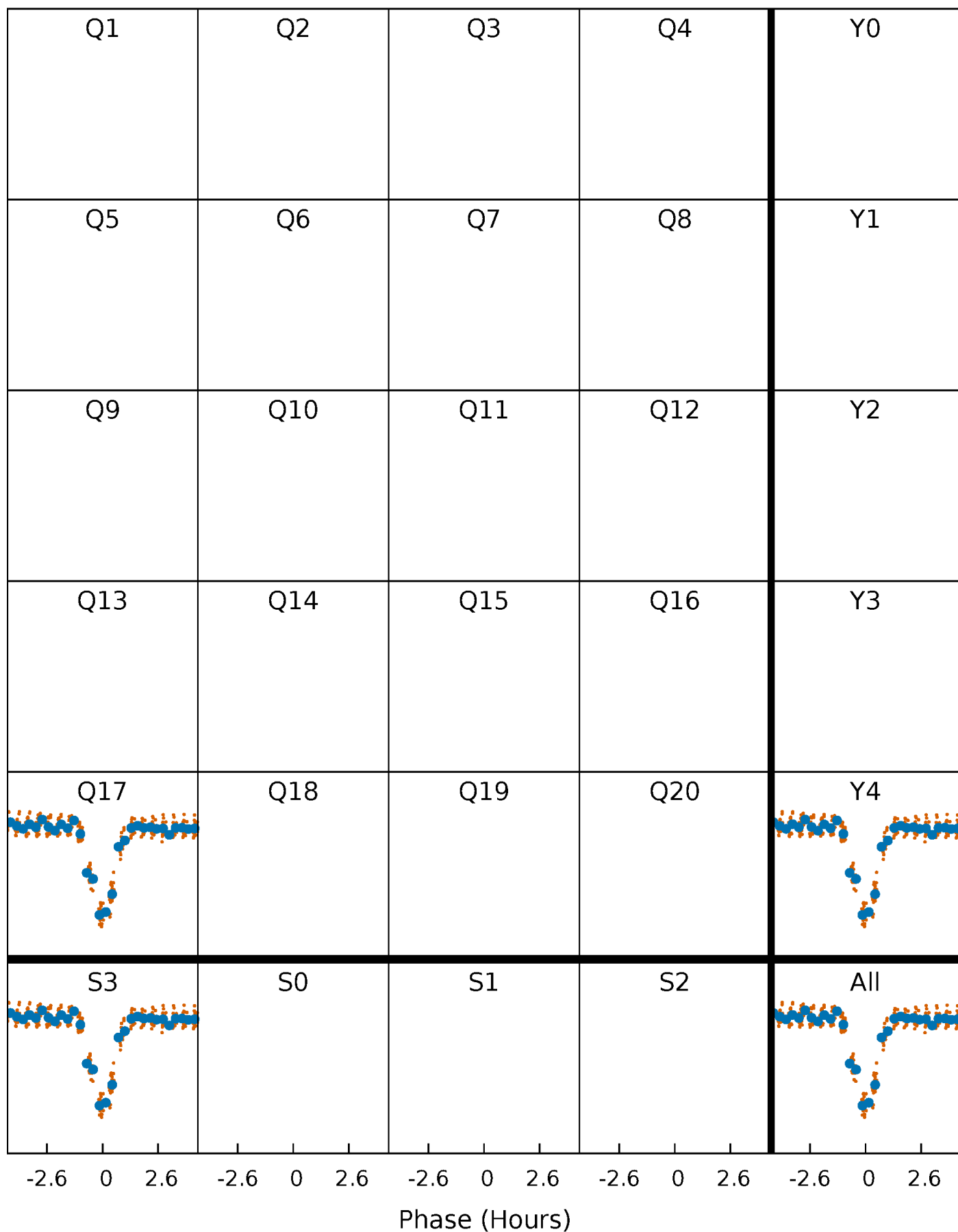


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

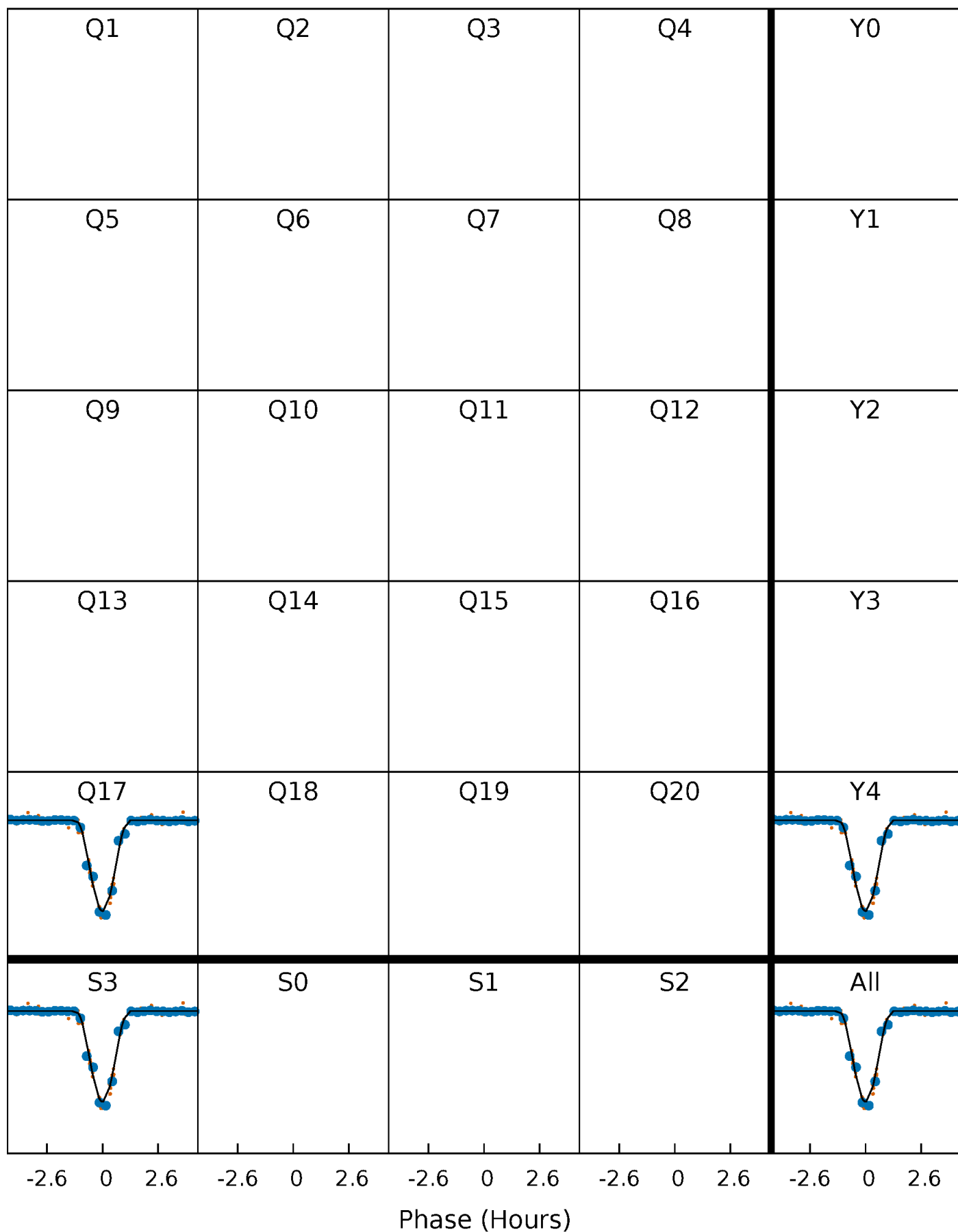
TCE 004454219-01 P= 1.225733 Days  $T_0=131.662705$  (BKJD)





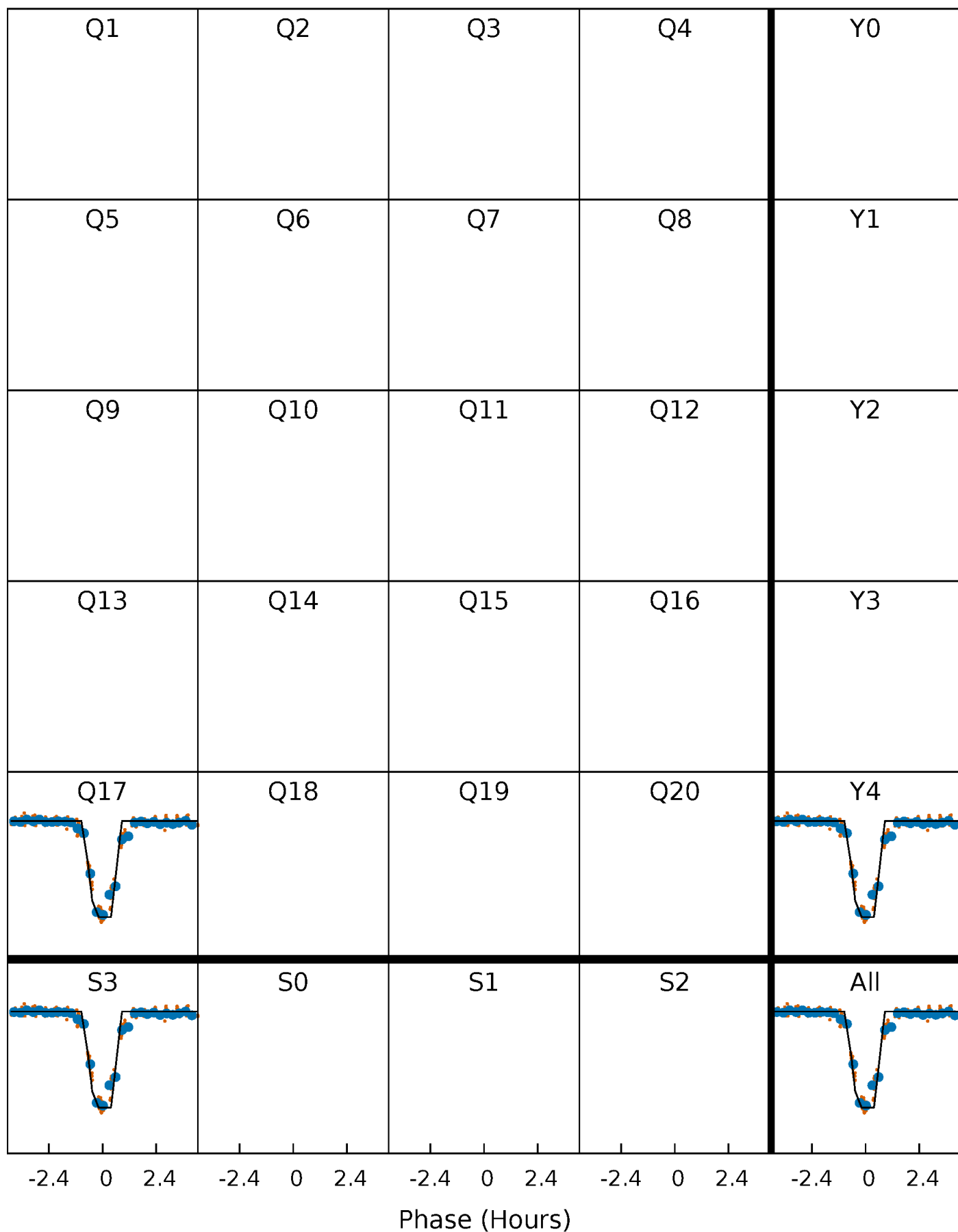
# DV Quarter-Phased Transit Curves

TCE 004454219-01   P= 1.225733 Days    $T_0=131.662705$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

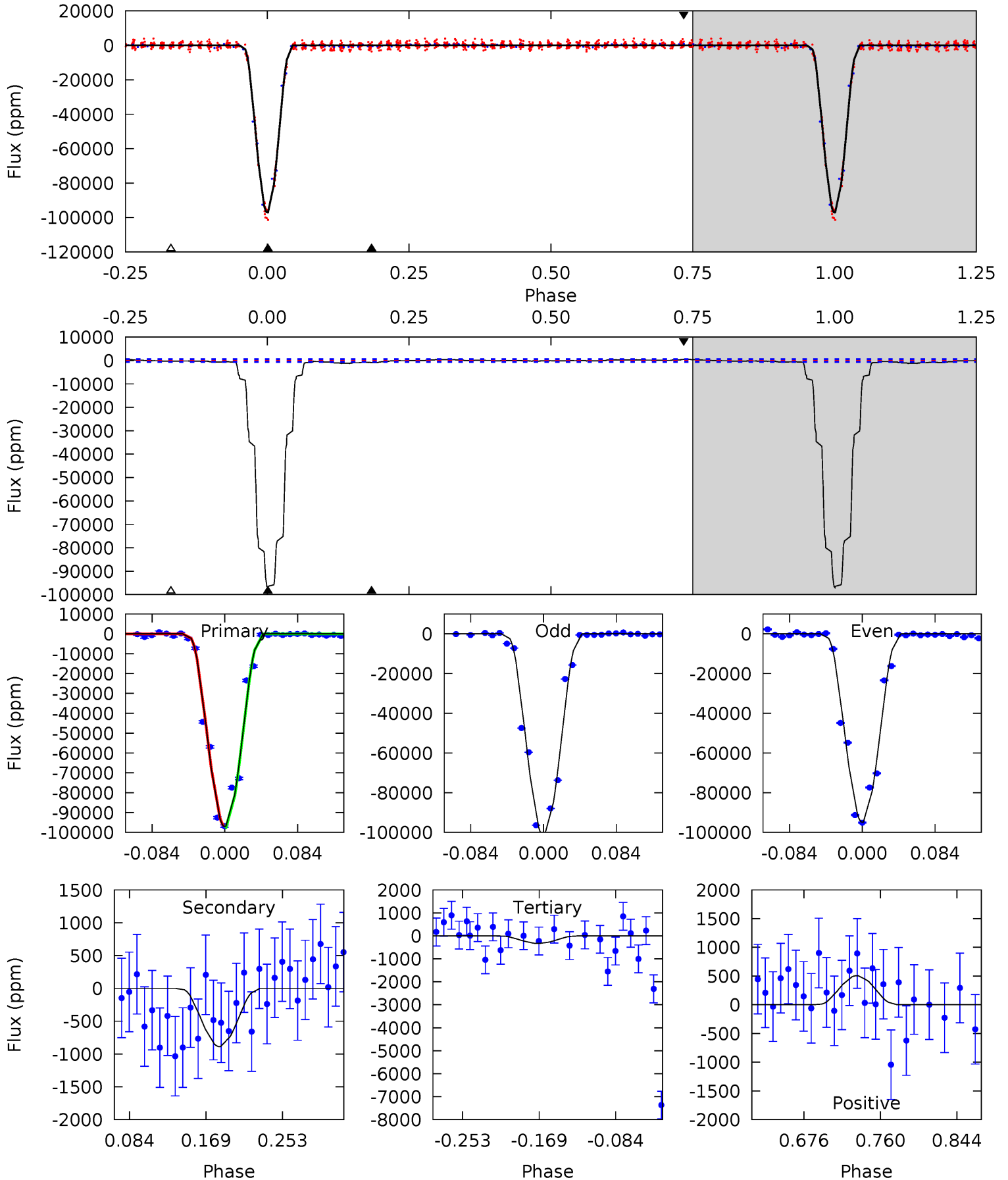
TCE 004454219-01 P= 1.225732 Days  $T_0=131.664182$  (BKJD)



# DV Model-Shift Uniqueness Test

004454219-01, P = 1.225733 Days, E = 131.662705 Days

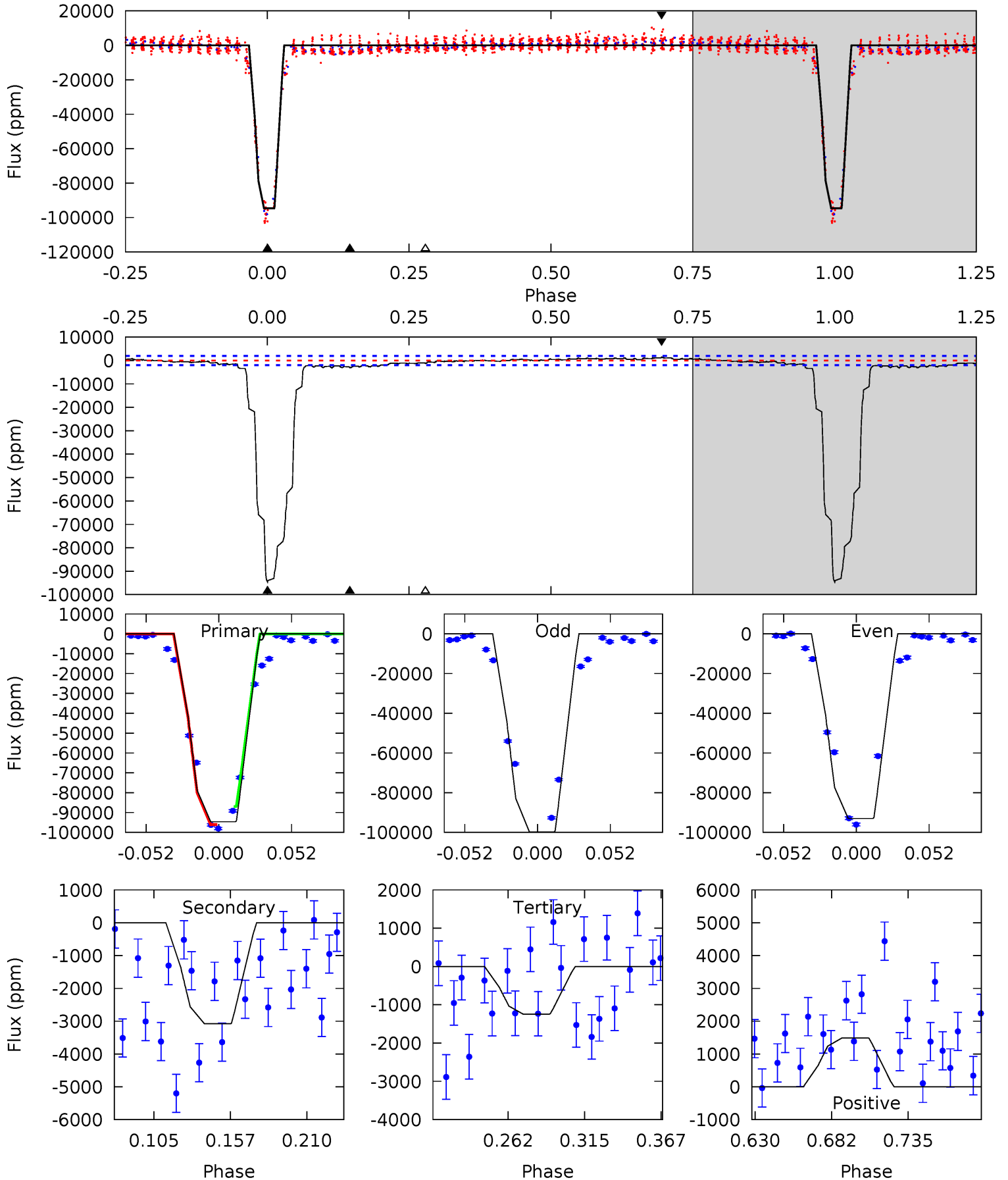
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
747.4	6.83	2.53	3.91	4.60	1.73	1.98	744.8	743.5	4.29	2.92	28.3	1.02	0.01	4.30



# Alt Model-Shift Uniqueness Test

004454219-01, P = 1.225732 Days, E = 131.664182 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
227.9	7.41	2.99	3.58	4.70	1.94	2.88	224.9	224.3	4.41	3.82	7.89	1.01	0.02	9.51



### Stellar Parameters For KIC 004454219

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 004454219-01 / KOI 6416.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-886 \pm 130$	$48.18^{+28.60}_{-23.66}$	$2379^{+111}_{-106}$	$-2561^{+4901}_{-128}$	$0.105^{+0.292}_{-0.066}$
Alt.	$-3076 \pm 415$	$39.78^{+27.16}_{-22.79}$	$2375^{+122}_{-111}$	$2631^{+1098}_{-5054}$	$0.535^{+2.358}_{-0.353}$

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

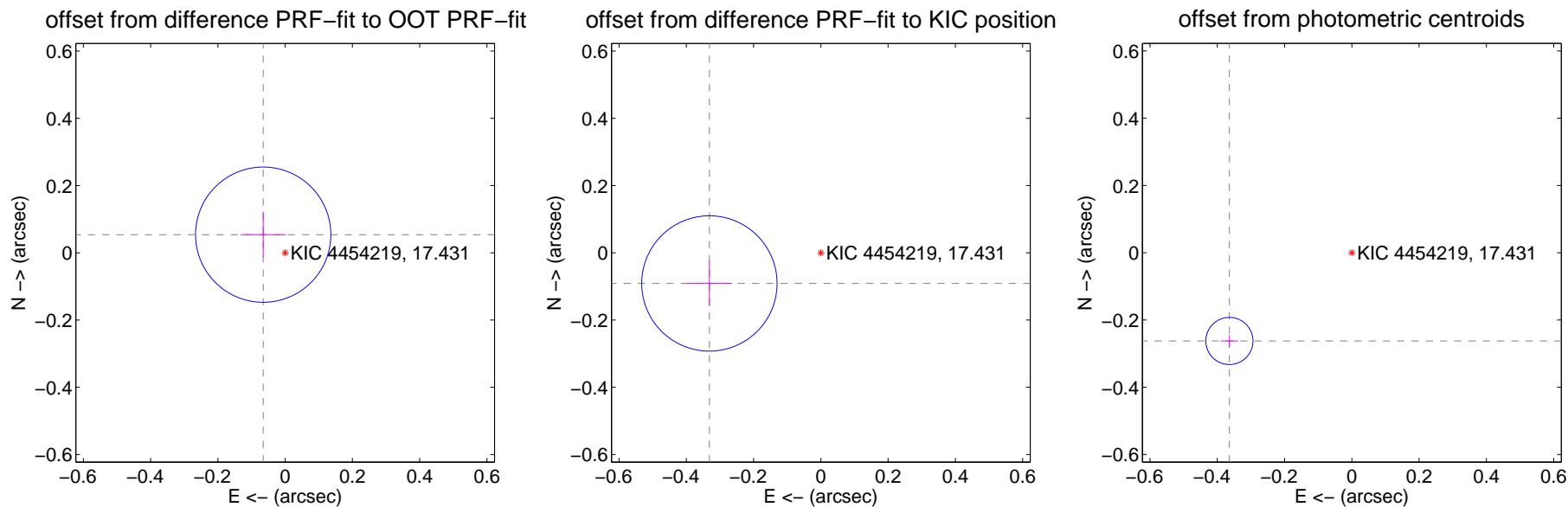
## DV Centroid Data

Supplemental centroid analysis for 004454219-01. Kepler magnitude: 17.43. Transit SNR 294.38

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.085 \pm 0.067$	1.26	$0.065 \pm 0.067$	$0.054 \pm 0.067$
PRF-fit source offset from KIC position	$0.344 \pm 0.067$	5.12	$0.331 \pm 0.067$	$-0.091 \pm 0.067$
photometric centroid source offset	$0.45 \pm 0.02$	19.21	$0.36 \pm 0.03$	$-0.26 \pm 0.02$



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.





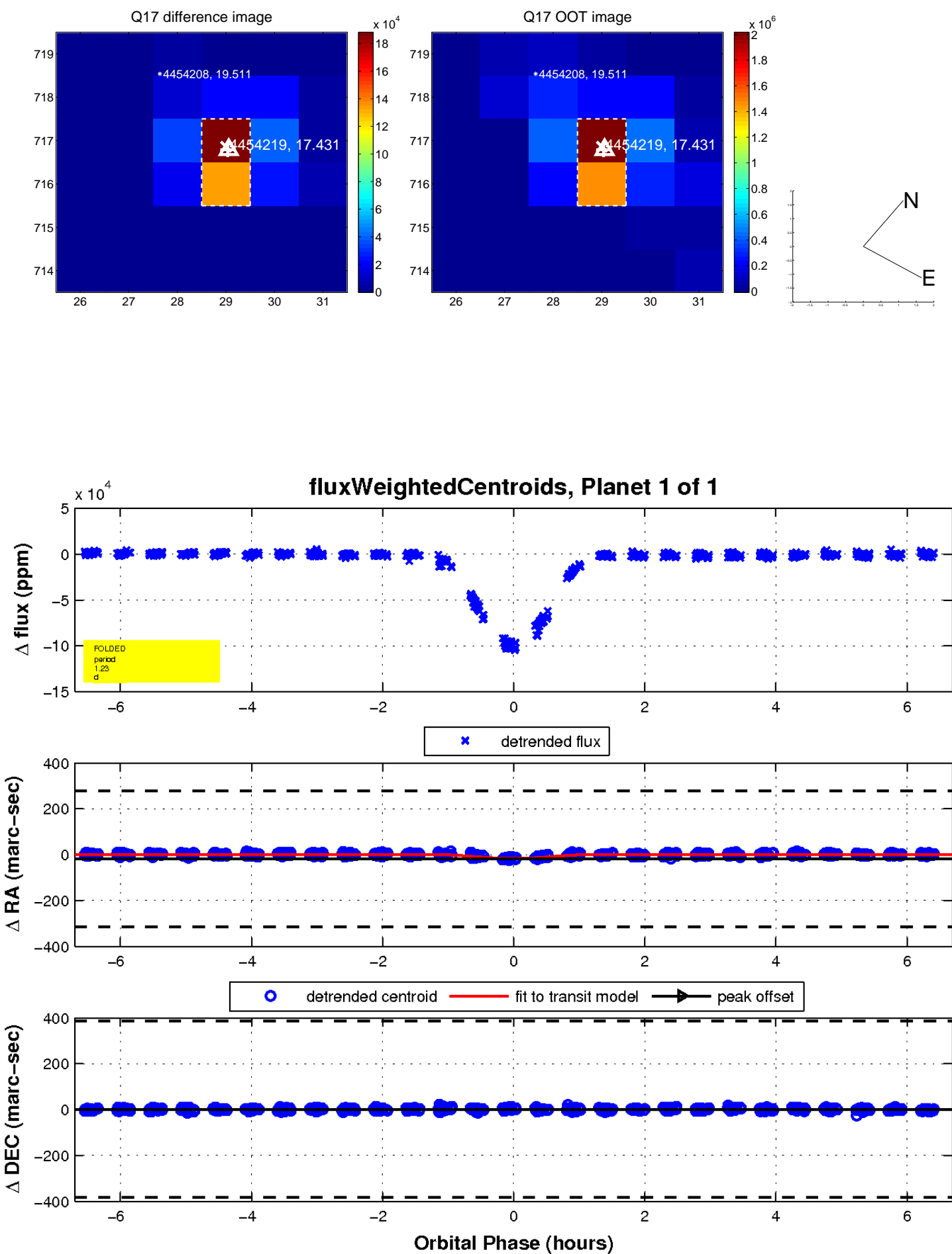
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

