

# KIC 009591728

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009591728-01	OBS	5695.01	11.035703	137.286098	144634.1	5.622	1696.4	1301.0	1.23	6201	69.19	228.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009591728-01	OBS	FP	0.00	0	1	0	0	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.

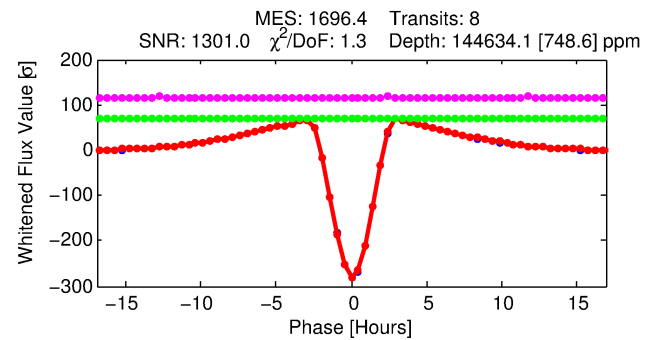
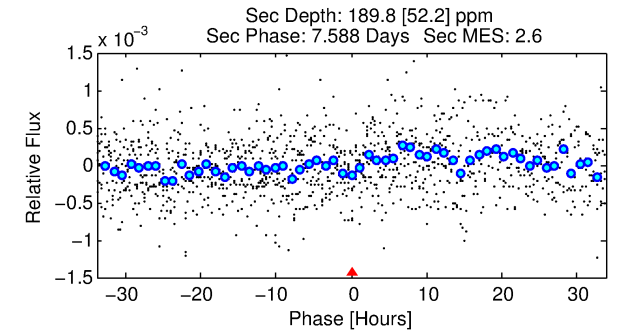
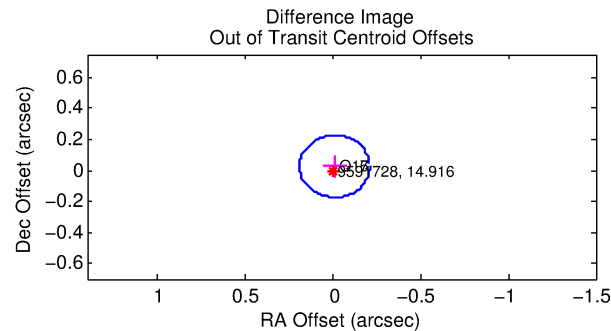
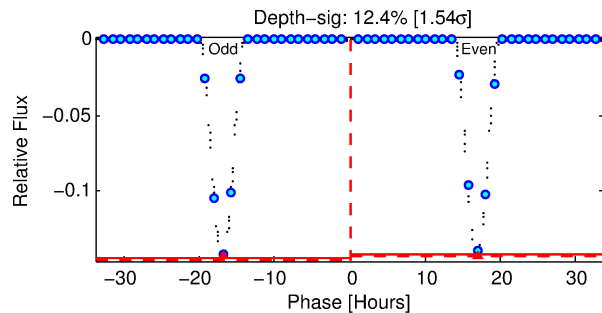
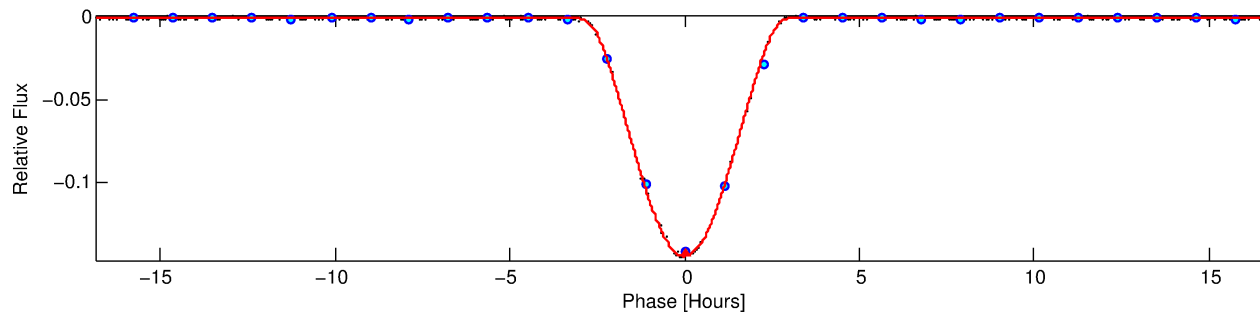
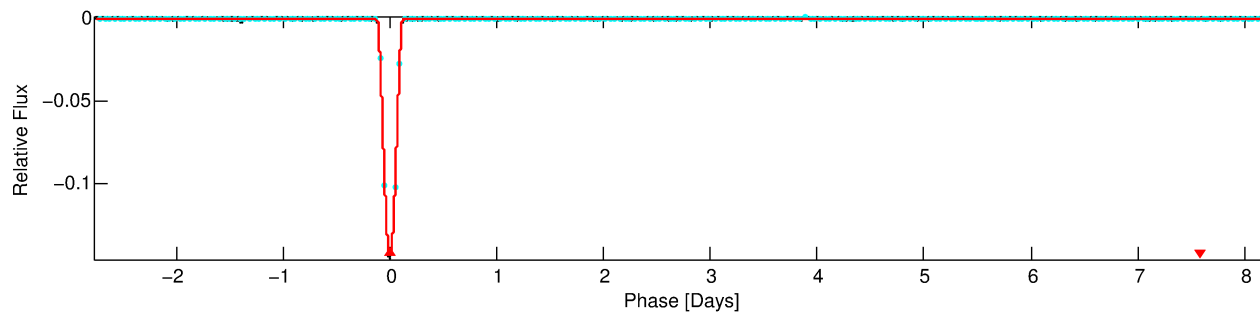
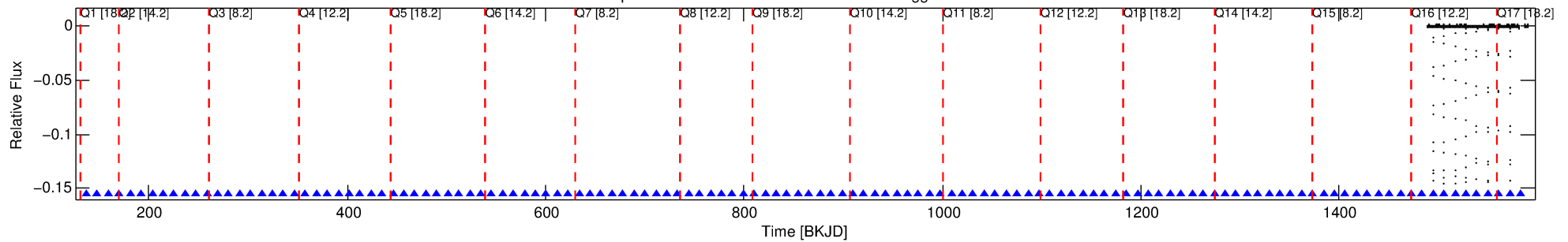
## Ephemeris Match Information For 009591728-01

No Significant Match Found

# DV One-Page Summary

KIC: 9591728 Candidate: 1 of 1 Period: 11.036 d  
KOI: K05695.01 Corr: 0.998

Kp: 14.92 R\*: 1.23 Rs Teff: 6201.0 K Logg: 4.21 Fe/H: -0.580



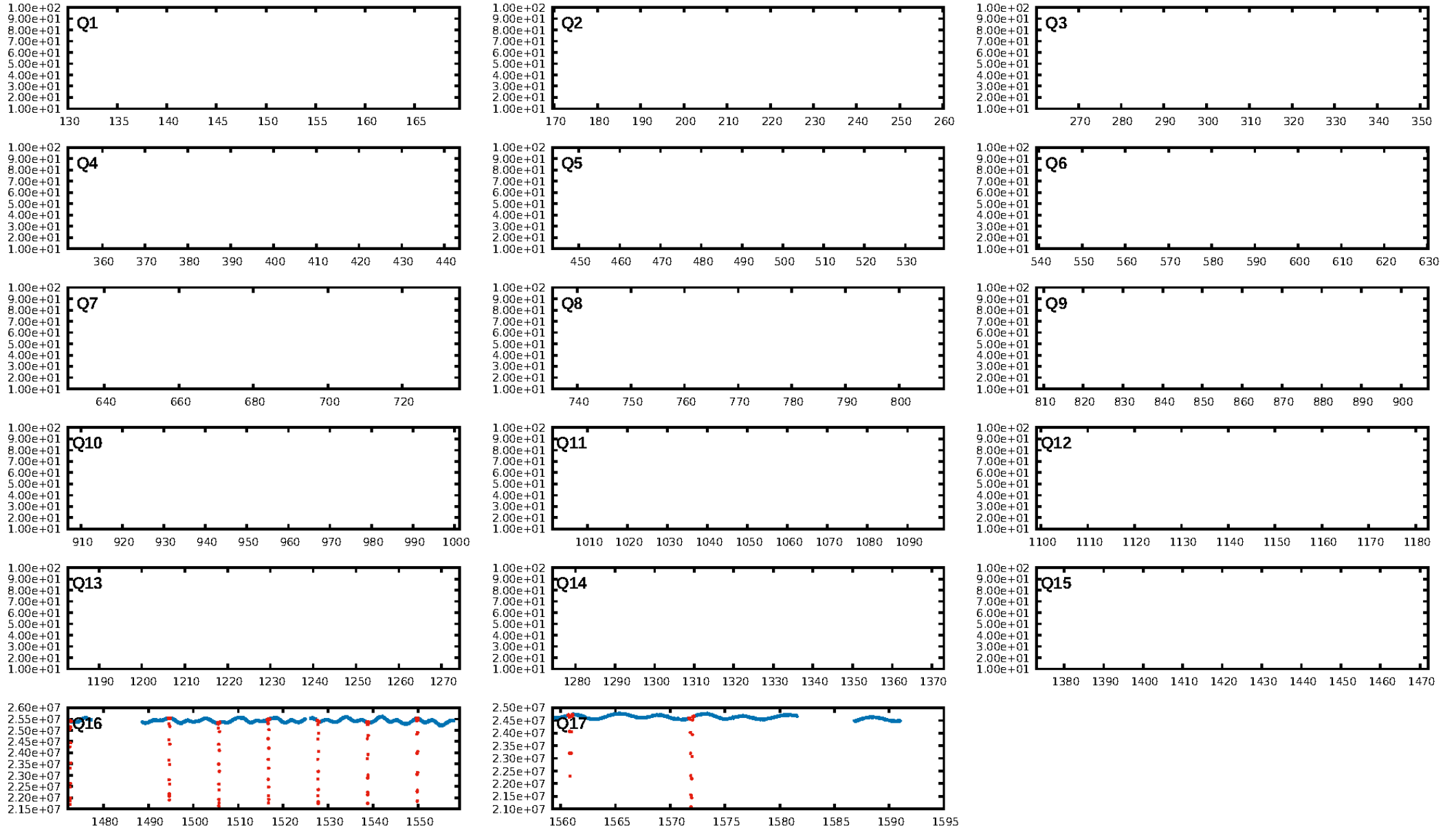
## DV Fit Results:

Period = 11.03570 [0.00001] d  
Epoch = 137.2861 [0.0007] BKJD  
Rp/R\* = 0.5155 [0.2382]  
a/R\* = 18.32 [0.76]  
b = 0.90 [0.34]  
Seff = 228.18 [105.77]  
Teq = 991 [115] K  
Rp = 69.19 [37.85] Re  
a = 0.0937 [0.0261] AU  
Ag = 0.19 [0.20] [-3.98σ]  
Teffp = 1014 [247] K [0.08σ]

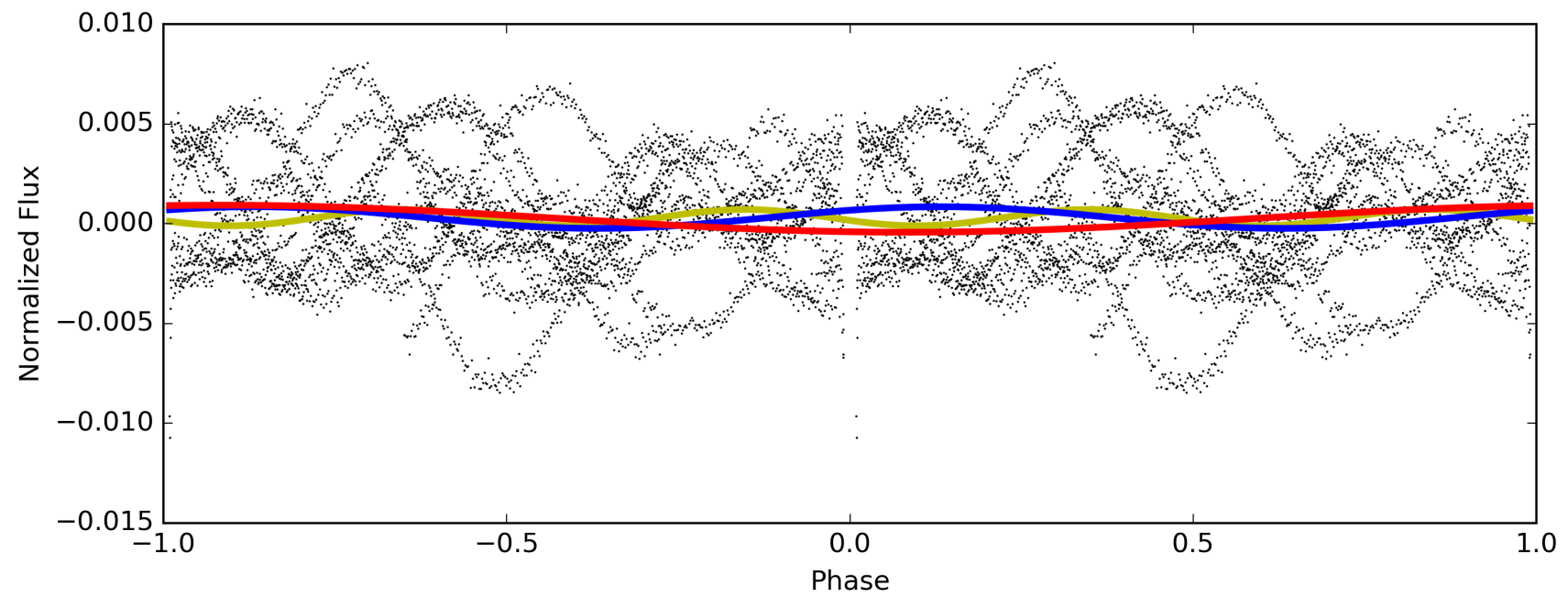
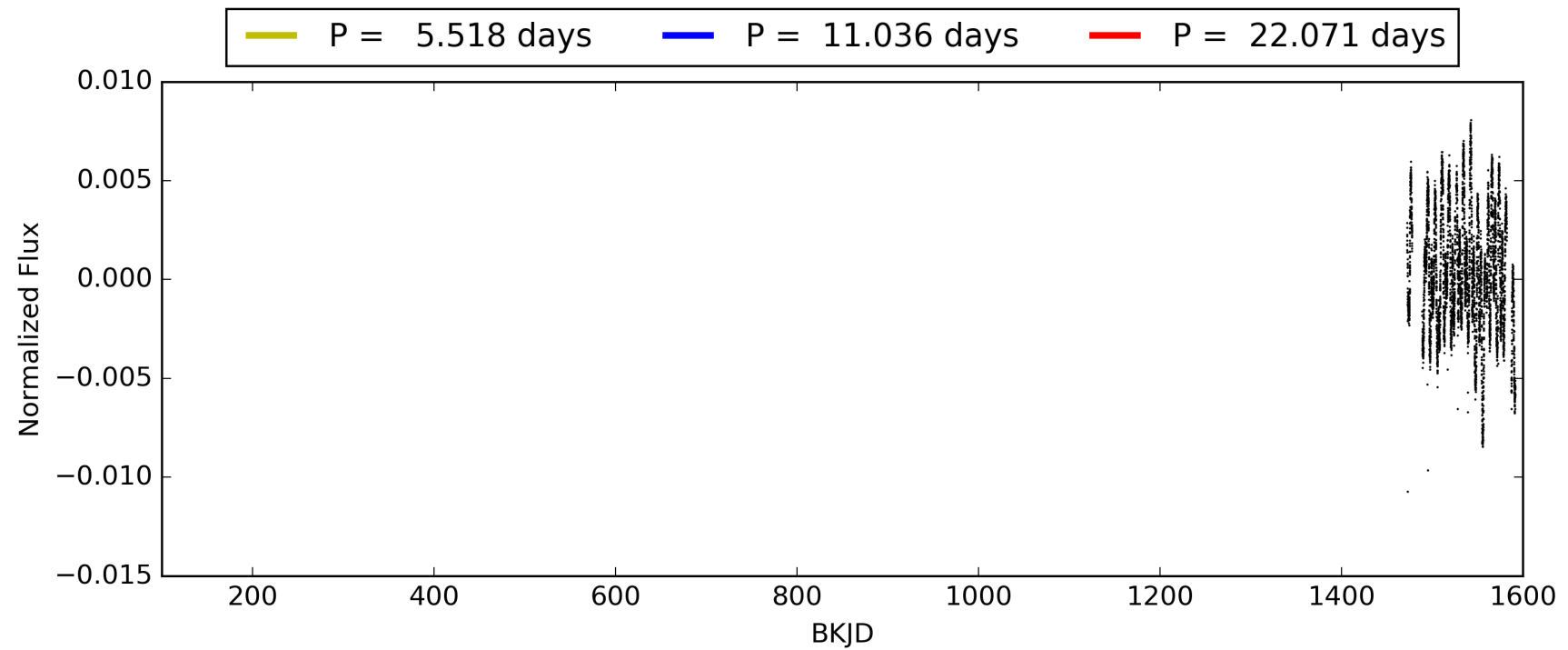
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.0%  
ModelChiSquareGof-sig: 87.9%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 2.583  
Centroid-sig: 0.0%  
Centroid-so: 0.268 arcsec [44.92σ]  
OotOffset-rm: 0.029 arcsec [0.43σ]  
KicOffset-rm: 0.189 arcsec [2.83σ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

# TCE 009591728-01, PDC Light Curves

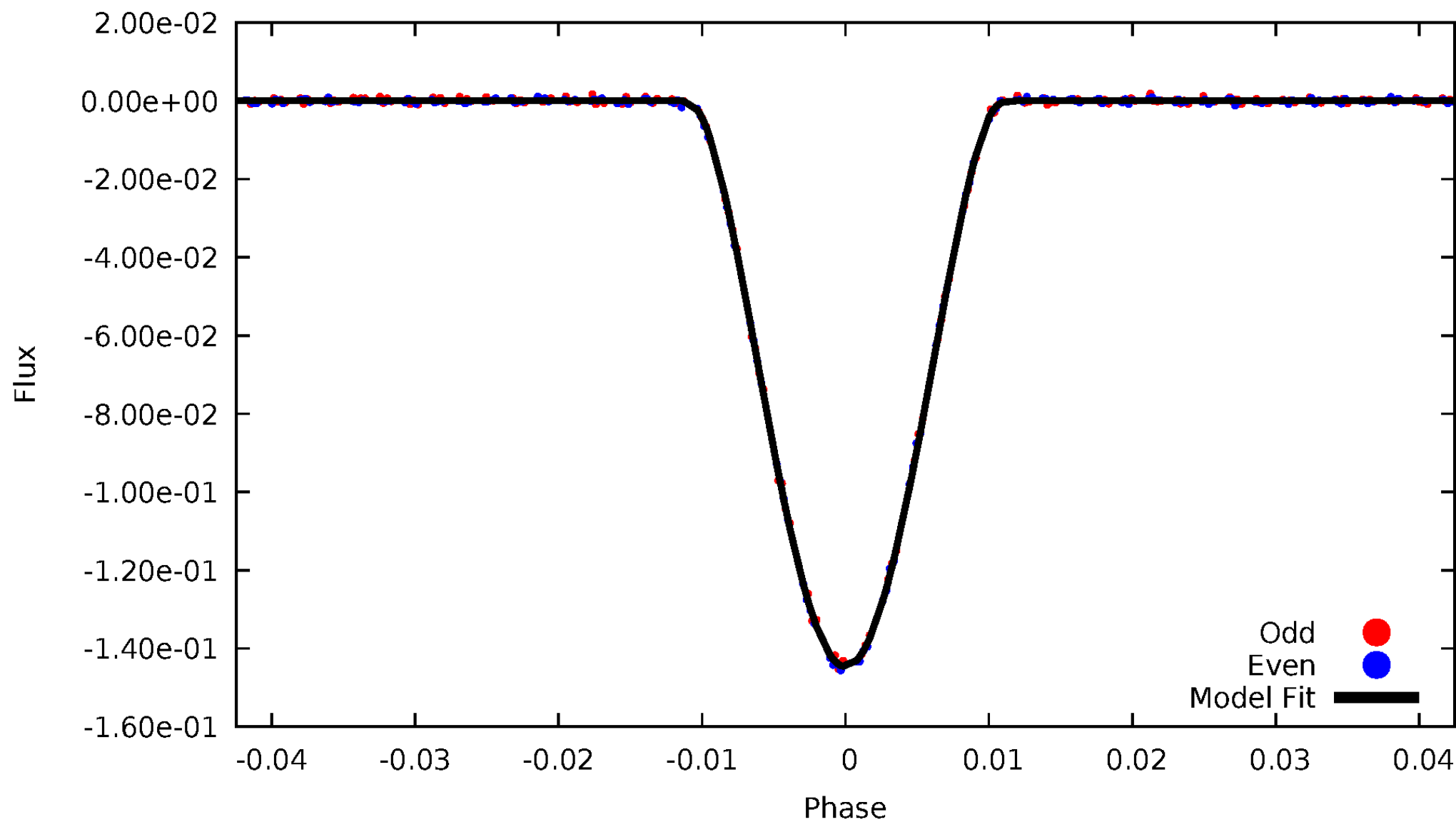


TCE 009591728-01



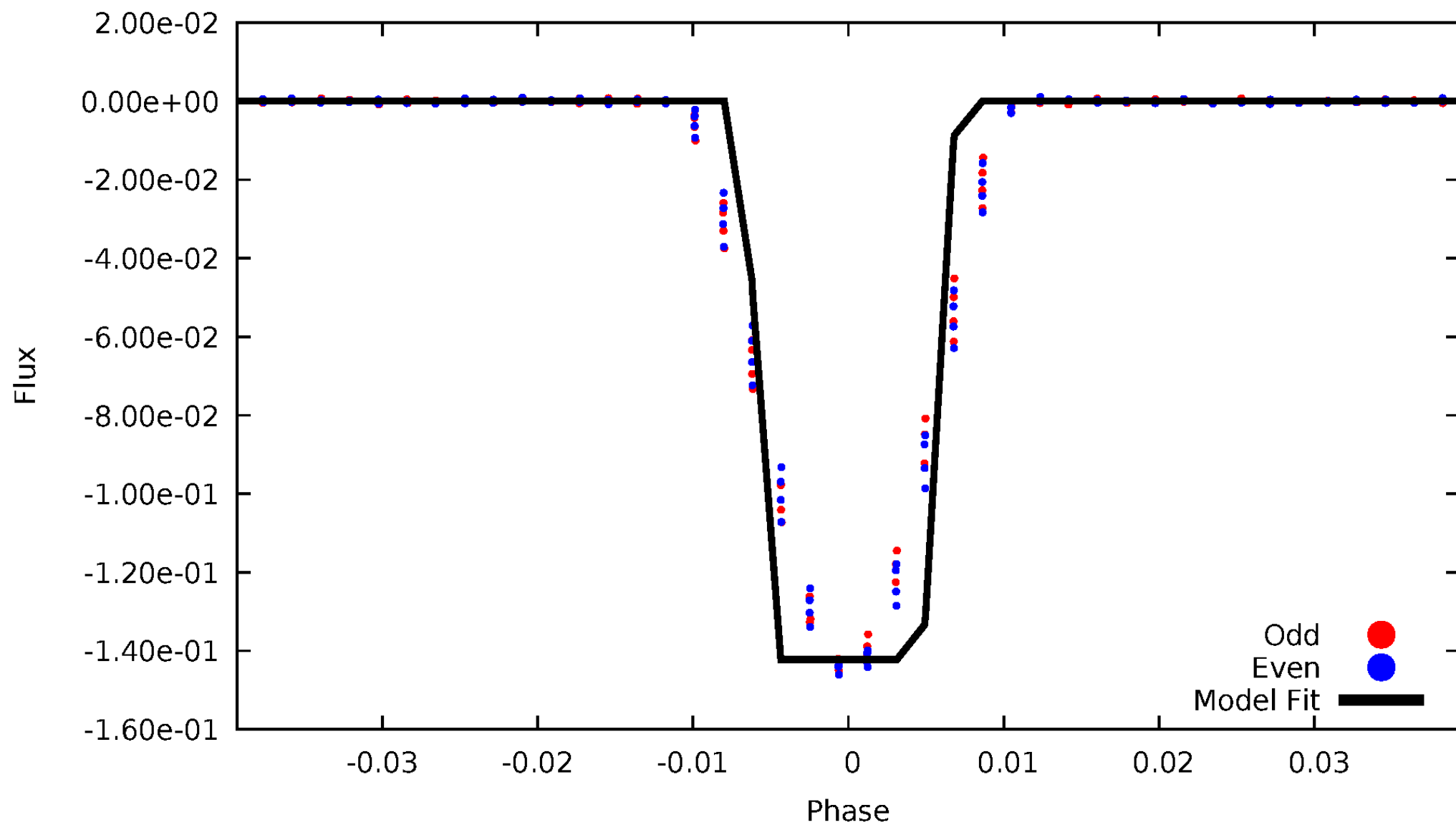
# DV Odd/Even

TCE 009591728-01



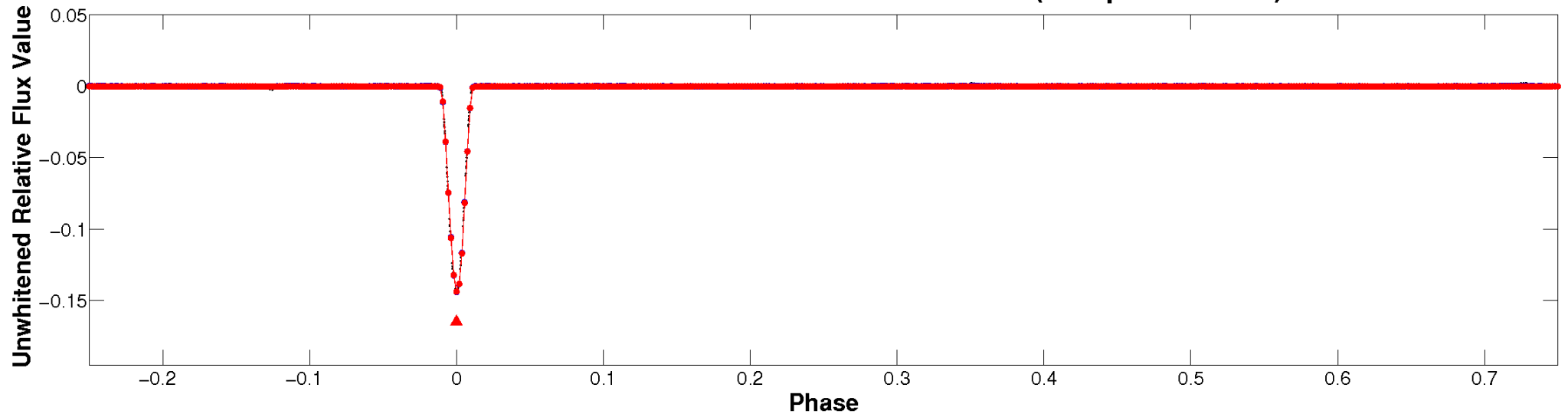
# ALT Odd/Even

TCE 009591728-01

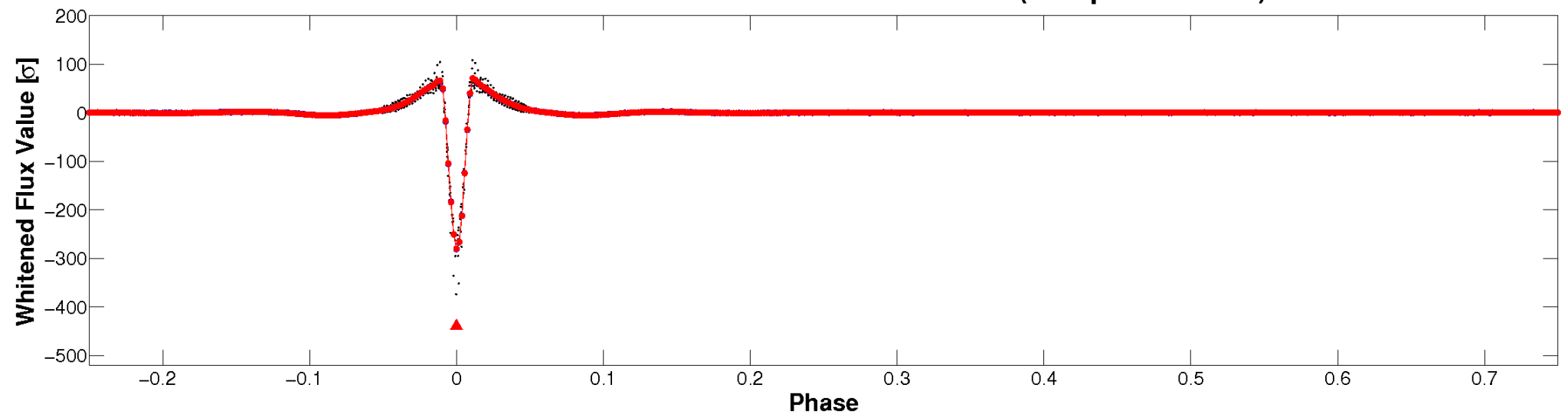


# Non-Whitened Vs. Whitened Light Curve

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

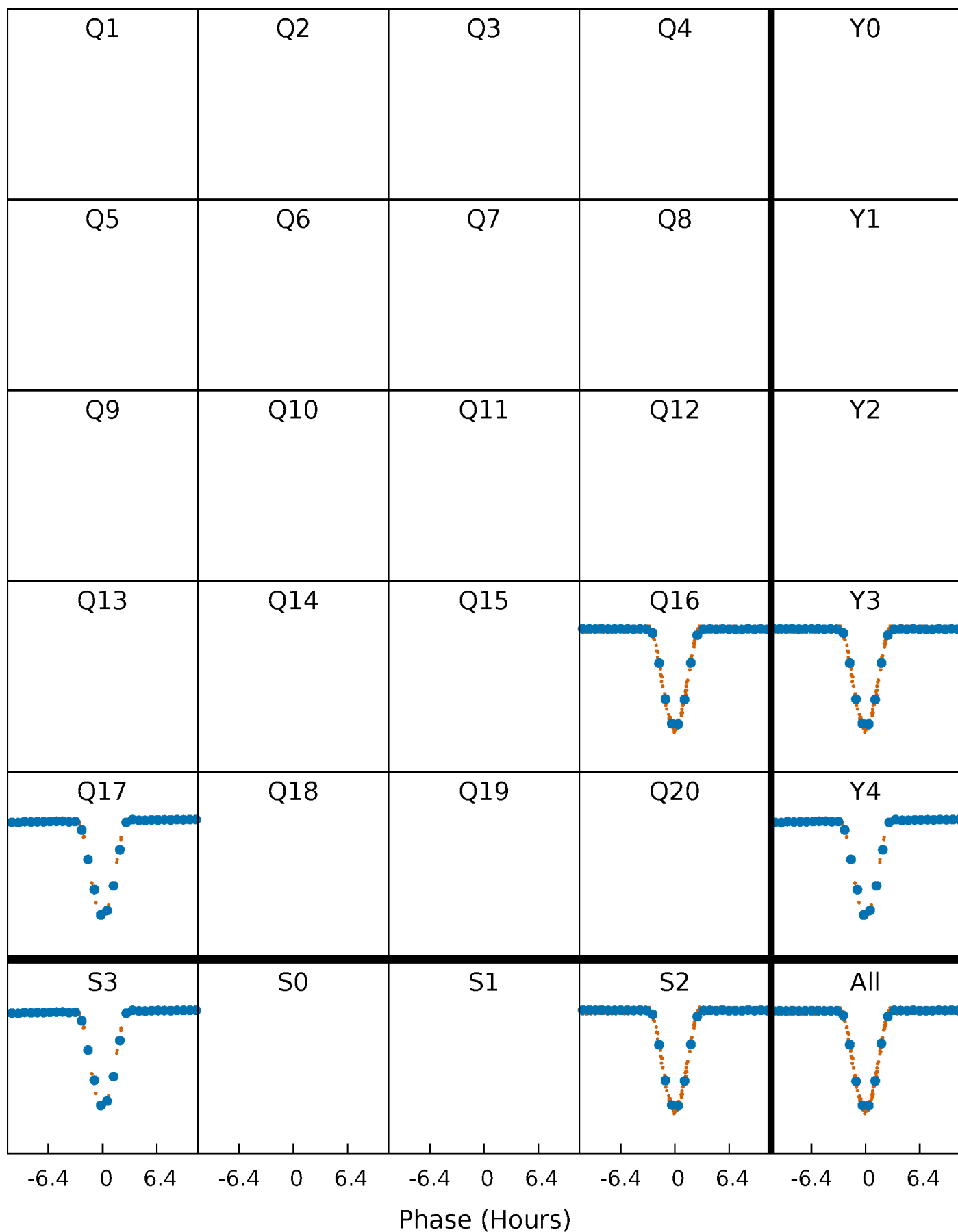


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

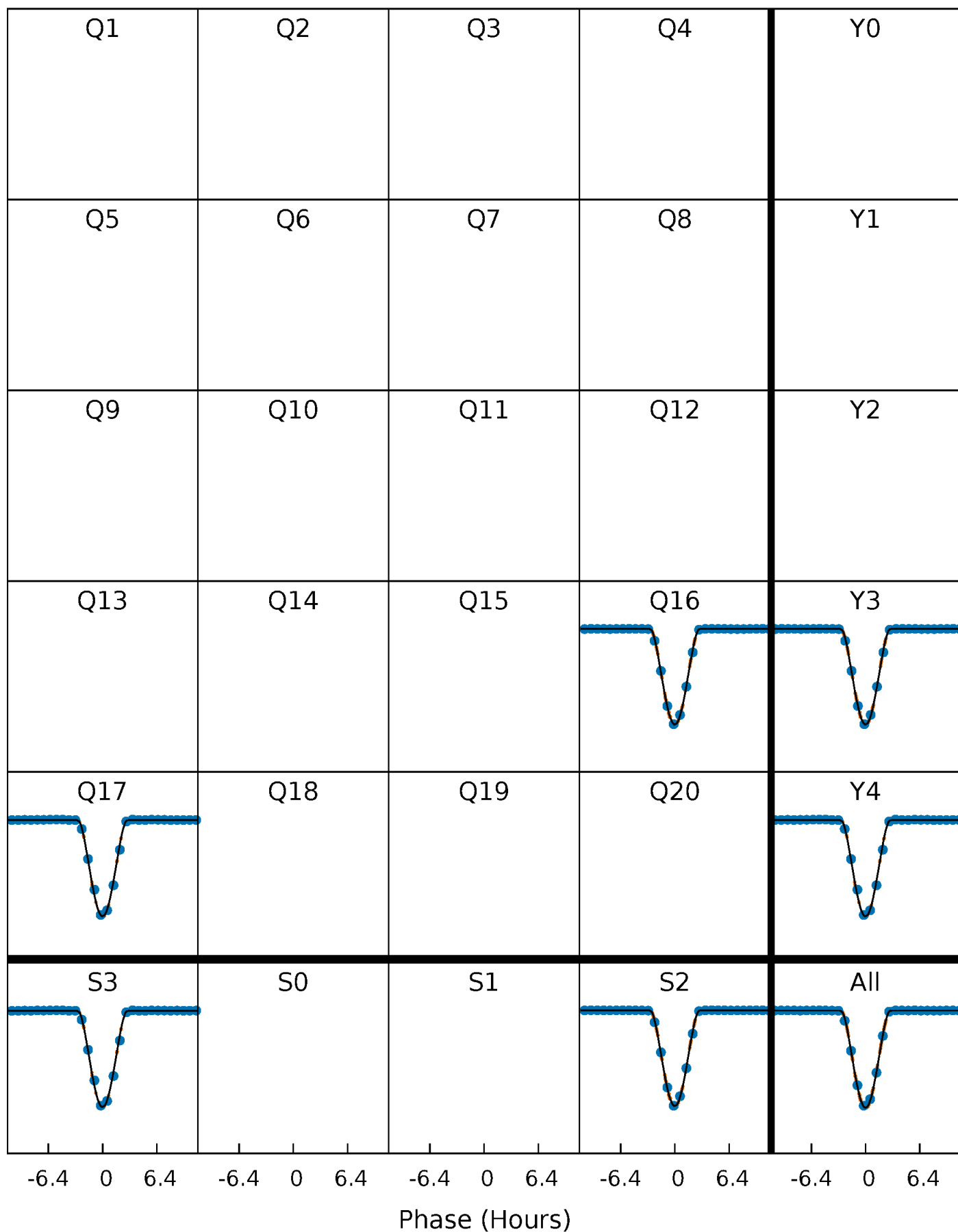
TCE 009591728-01 P= 11.035703 Days  $T_0=137.286098$  (BKJD)





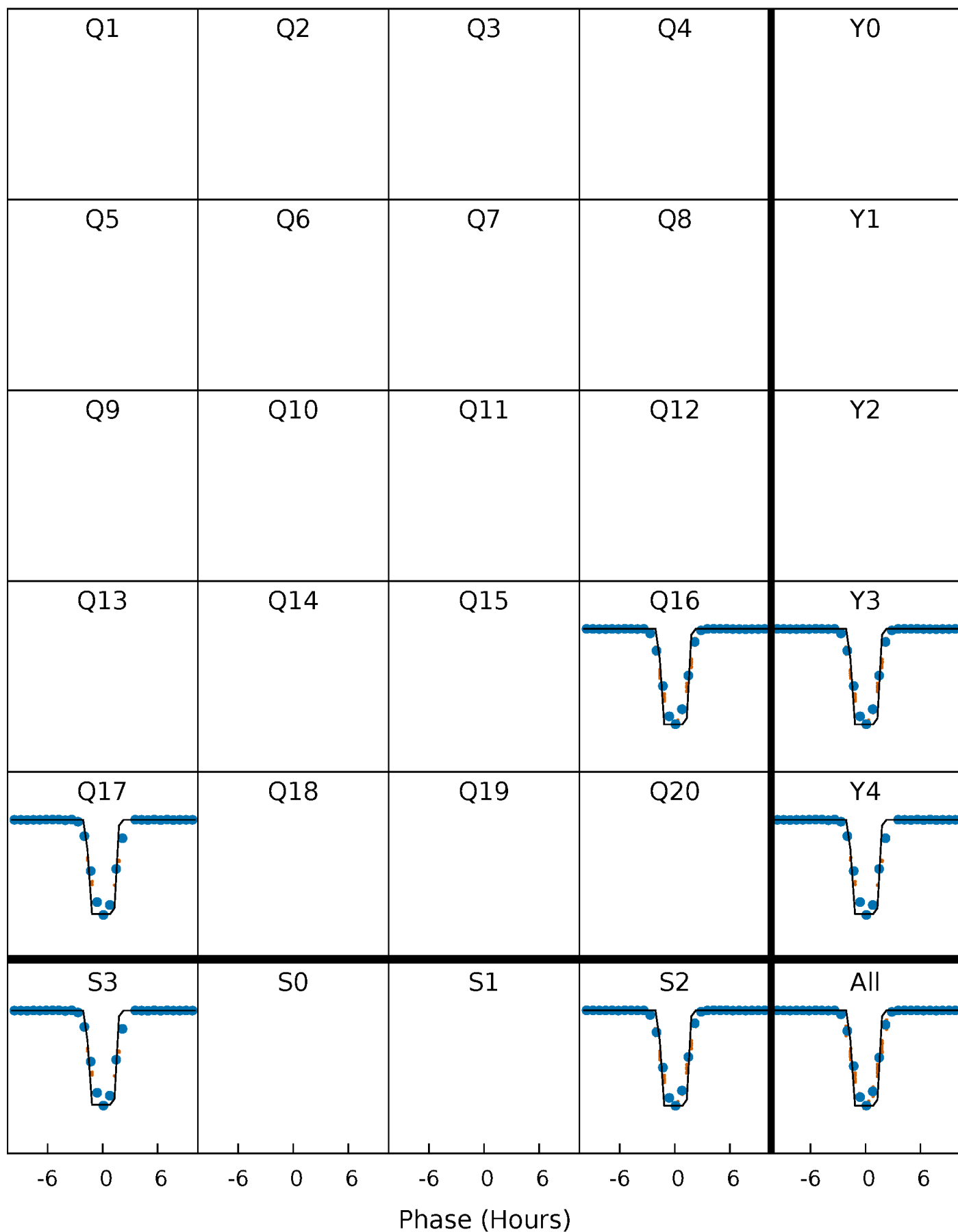
# DV Quarter-Phased Transit Curves

TCE 009591728-01 P= 11.035703 Days  $T_0=137.286098$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

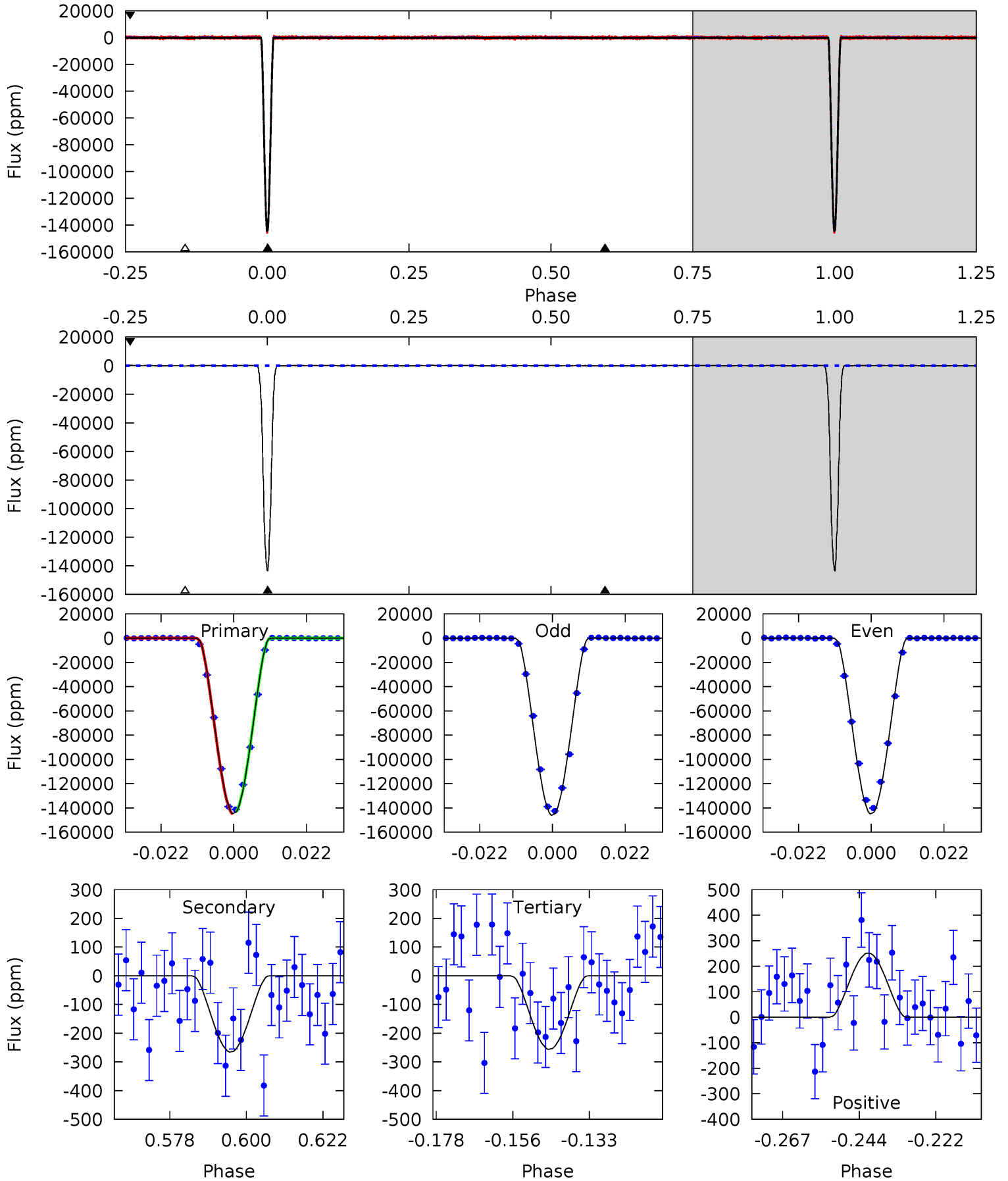
TCE 009591728-01 P= 11.034299 Days  $T_0=137.463511$  (BKJD)



# DV Model-Shift Uniqueness Test

009591728-01, P = 11.035703 Days, E = 137.286098 Days

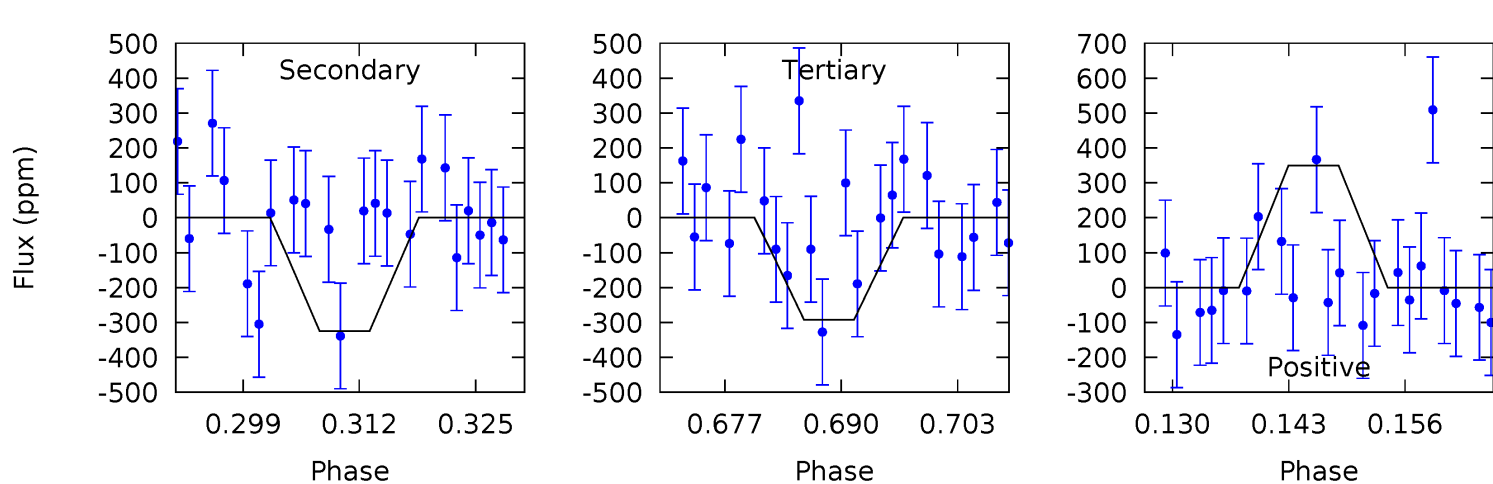
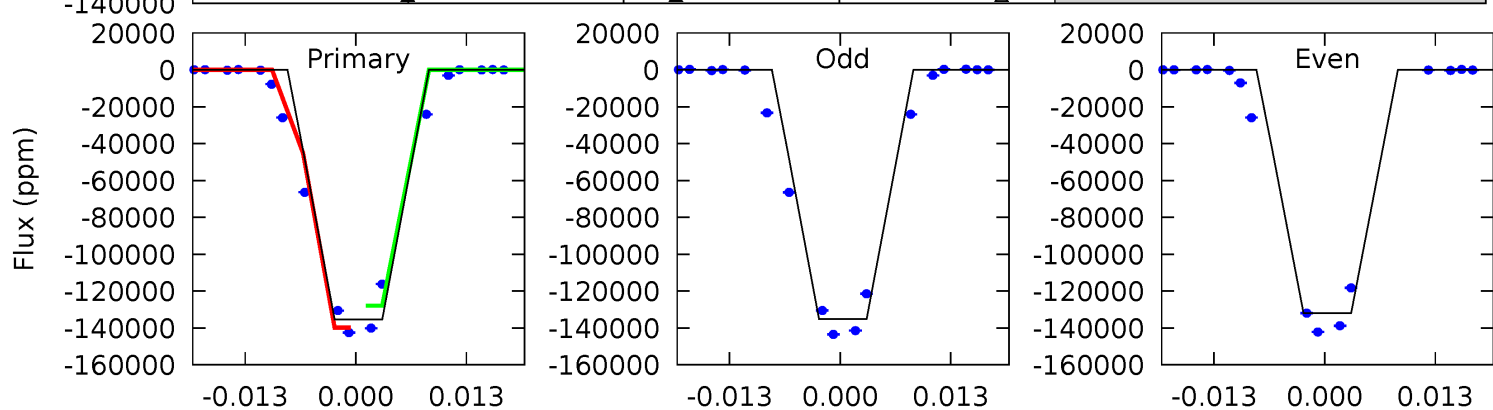
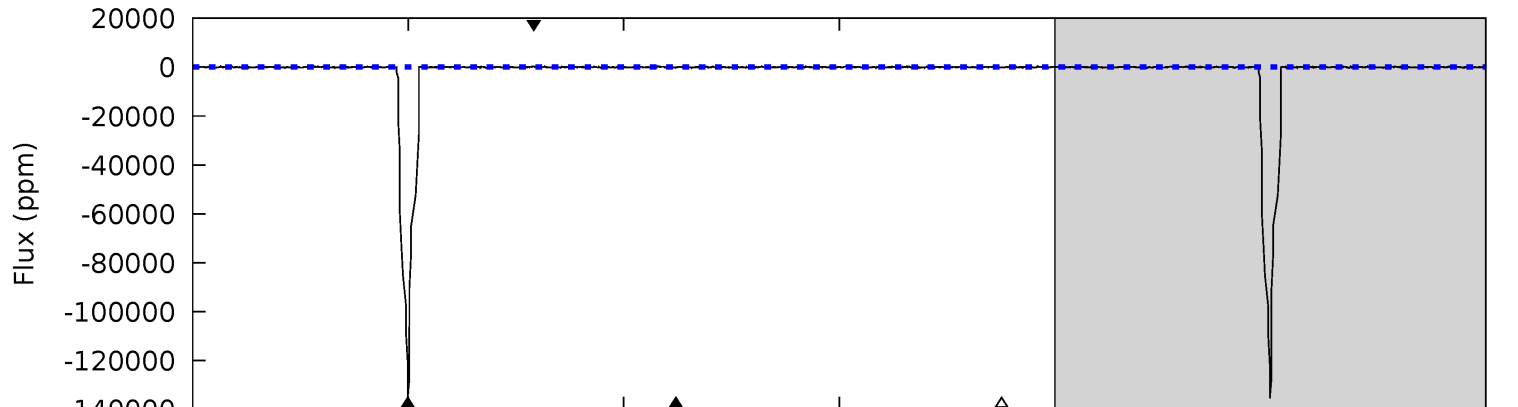
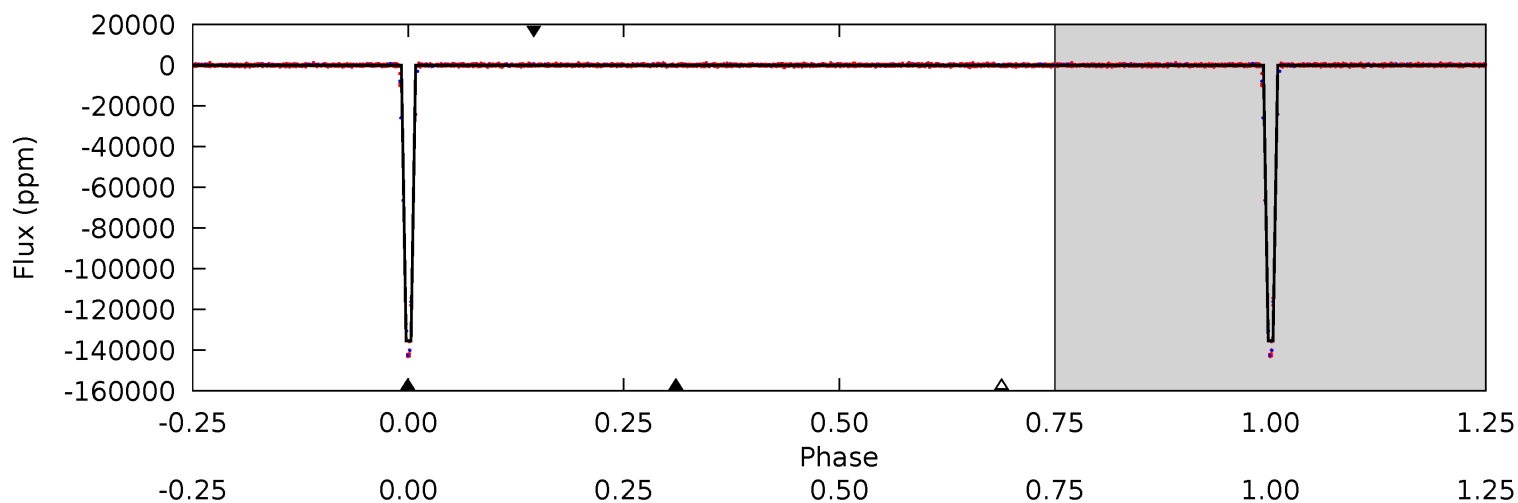
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3370	6.19	5.96	5.86	4.87	2.29	2.15	3364	3364	0.22	0.32	13.6	1.00	0.00	0



# Alt Model-Shift Uniqueness Test

009591728-01, P = 11.034299 Days, E = 137.463511 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
1342	3.22	2.89	3.46	4.98	2.48	1.05	1339	1338	0.32	-0.25	19.8	0.99	0.00	46.9



### Stellar Parameters For KIC 009591728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6201^{+197}_{-219}$	$4.213^{+0.258}_{-0.172}$	$-0.580^{+0.300}_{-0.300}$	$1.230^{+0.328}_{-0.360}$	$0.900^{+0.128}_{-0.093}$	$0.682^{+1.073}_{-0.321}$
	+3%/-4%	+6%/-4%	+52%/-52%	+27%/-29%	+14%/-10%	+157%/-47%
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 009591728-01 / KOI 5695.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-263 \pm 43$	$68.05^{+37.65}_{-33.28}$	$1373^{+113}_{-119}$	$-1564^{+3875}_{-456}$	$0.283^{+0.765}_{-0.166}$
Alt.	$-324 \pm 101$	$51.52^{+34.76}_{-27.22}$	$1376^{+105}_{-112}$	$2077^{+582}_{-3971}$	$0.573^{+2.053}_{-0.373}$

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

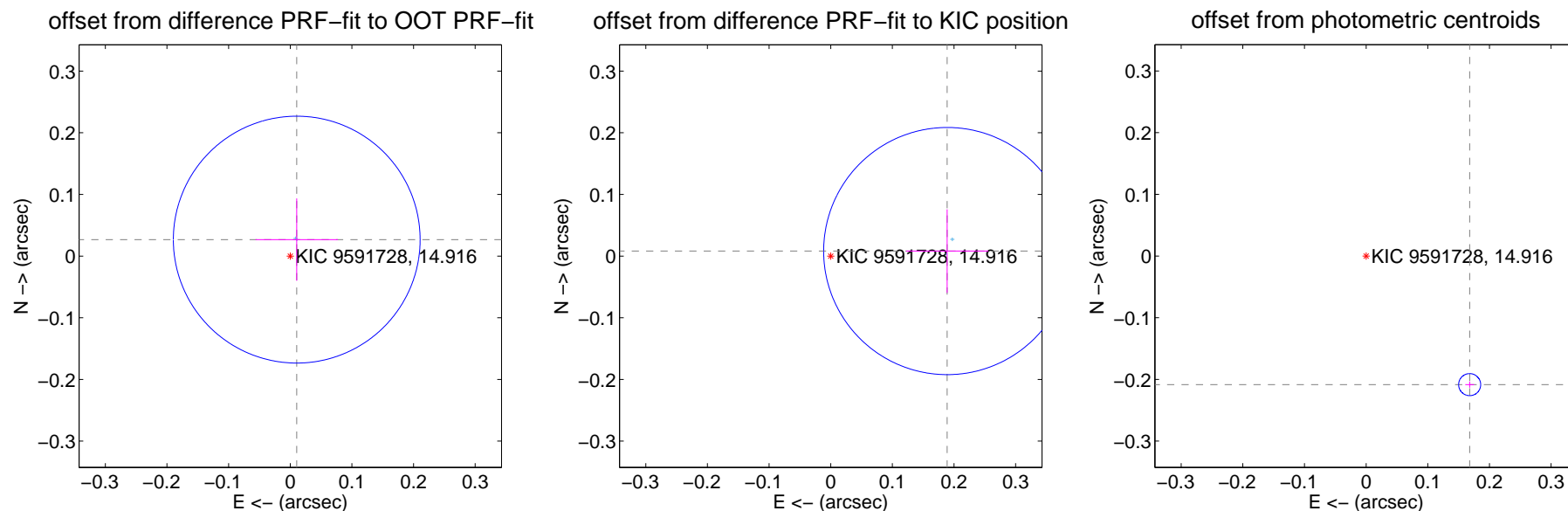
## DV Centroid Data

Supplemental centroid analysis for 009591728-01. Kepler magnitude: 14.92. Transit SNR 1301.01

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.029 \pm 0.067$	0.43	$-0.011 \pm 0.067$	$0.027 \pm 0.067$
PRF-fit source offset from KIC position	$0.189 \pm 0.067$	2.83	$-0.189 \pm 0.067$	$0.008 \pm 0.068$
photometric centroid source offset	$0.27 \pm 0.01$	44.92	$-0.17 \pm 0.01$	$-0.21 \pm 0.01$



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.

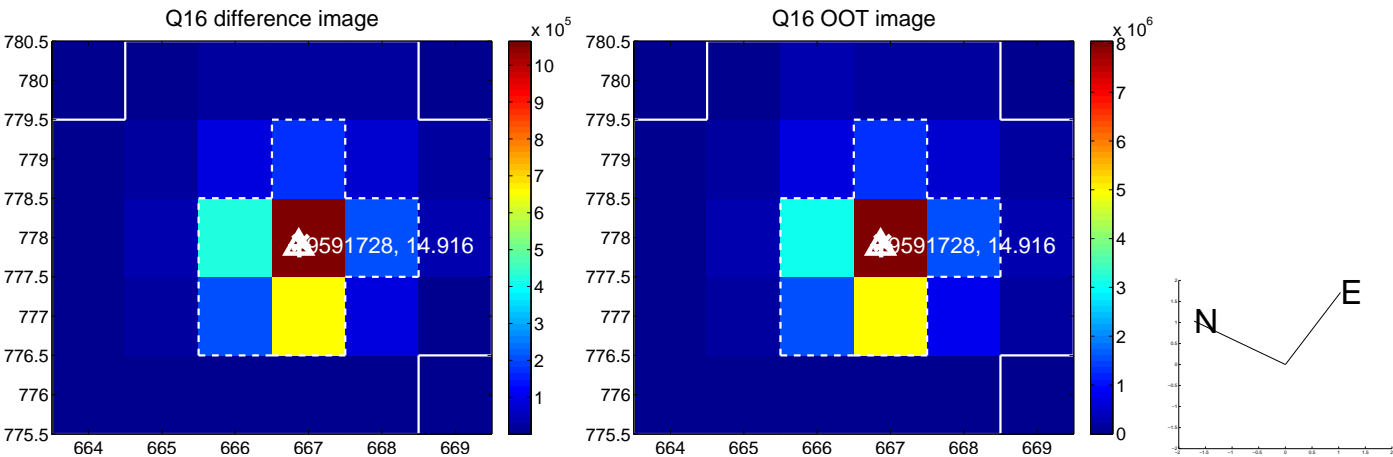




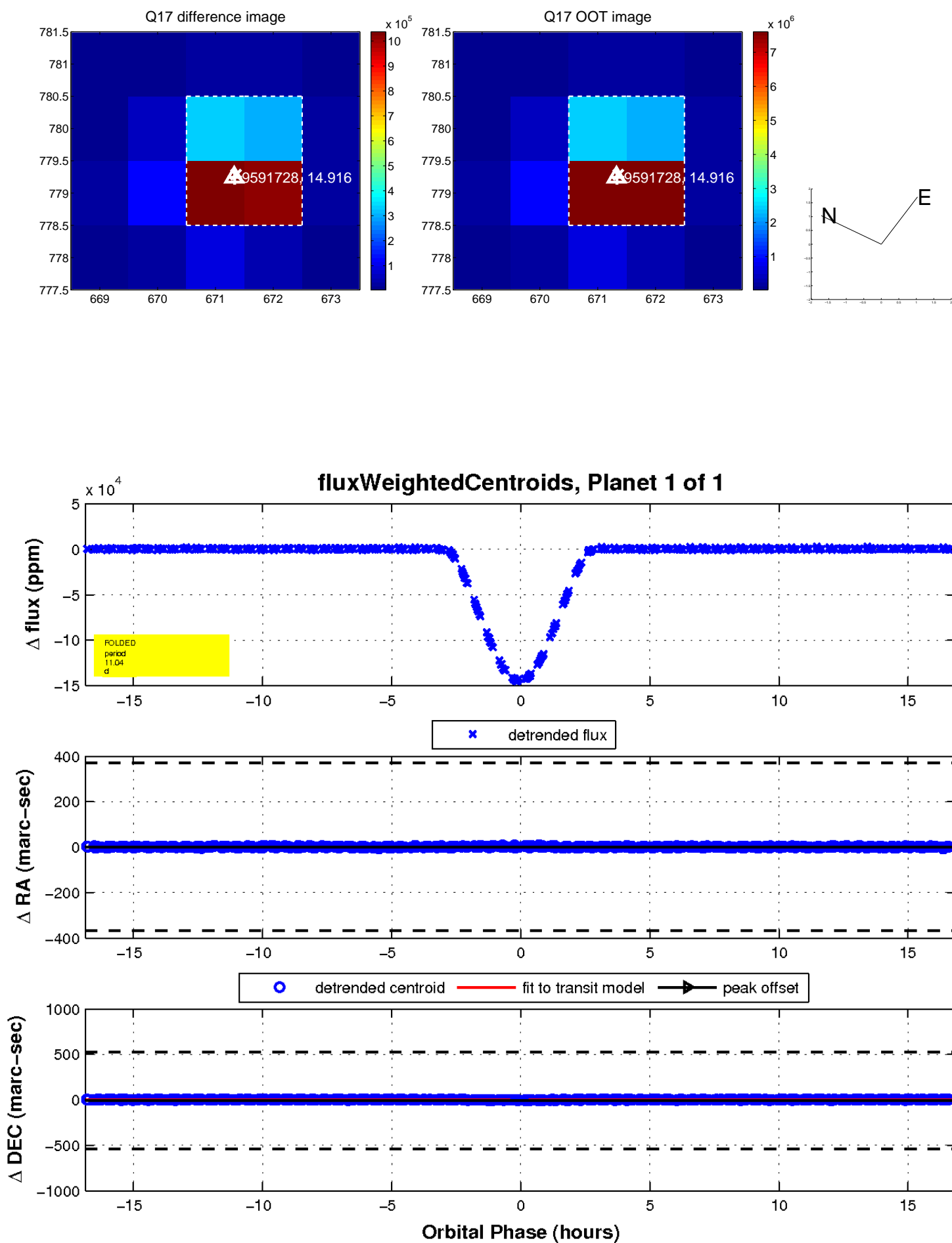
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

