

# KIC 009776794

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009776794-01	OBS	4363.01	18.222085	133.959964	2311.3	2.116	12.9	15.9	0.96	5162	7.25	35.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009776794-01	OBS	PC	1.00	0	0	0	0	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 009776794-01

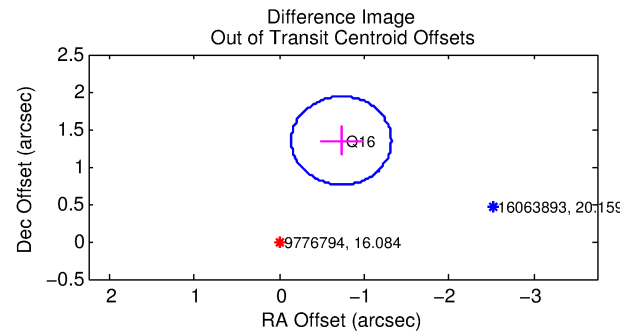
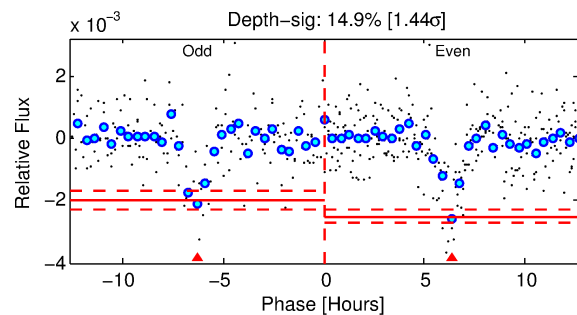
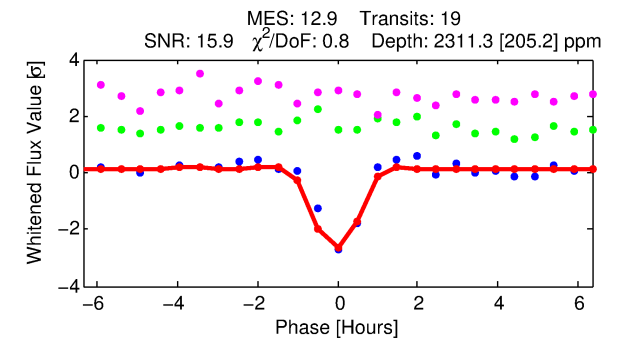
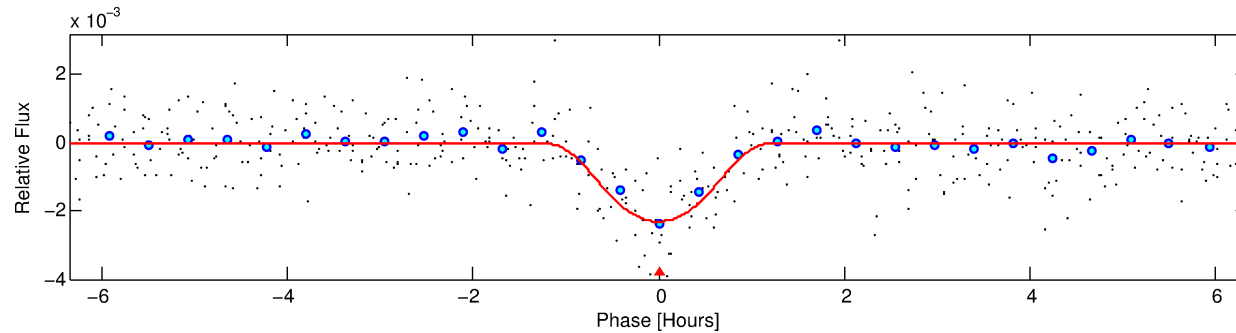
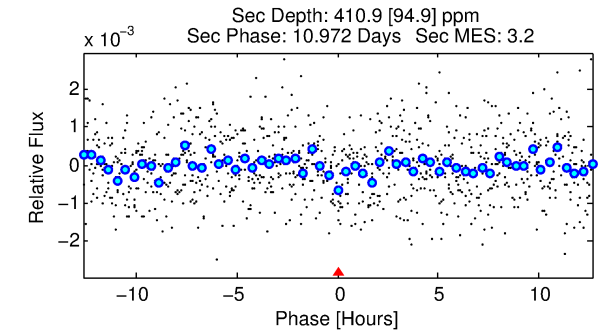
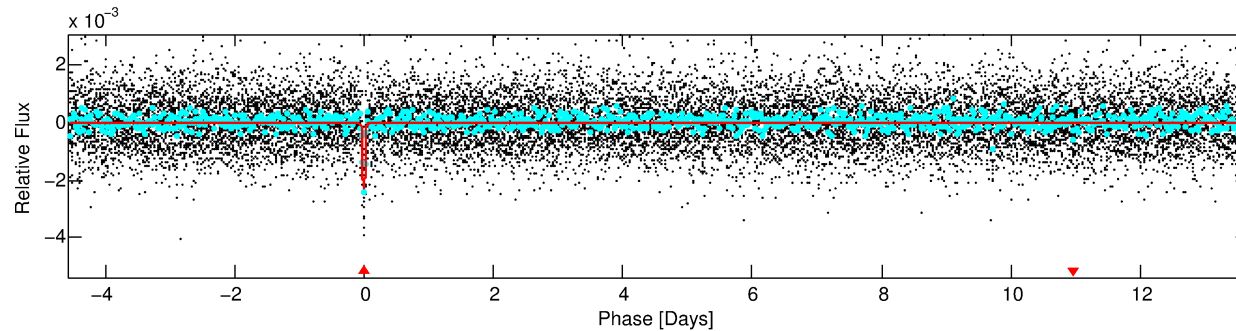
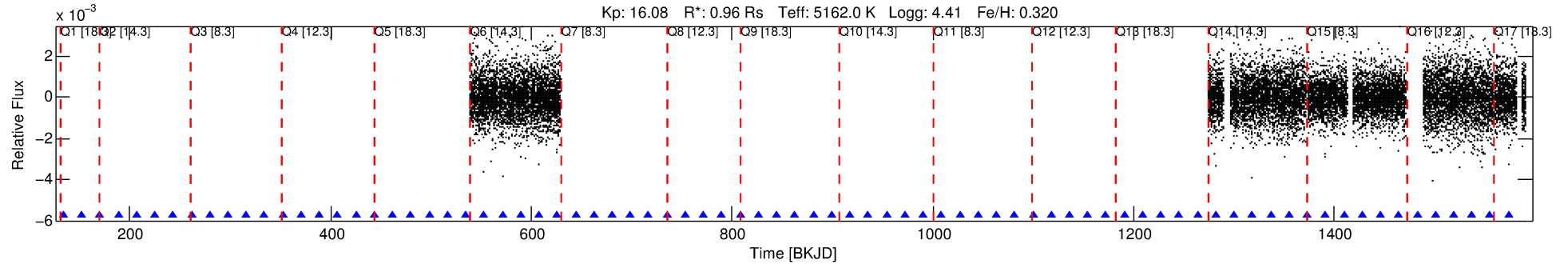
No Significant Match Found

# DV One-Page Summary

KIC: 9776794 Candidate: 1 of 1 Period: 18.222 d

KOI: K04363.01 Corr: 0.979

Kp: 16.08 R\*: 0.96 Rs Teff: 5162.0 K Logg: 4.41 Fe/H: 0.320



## DV Fit Results:

Period = 18.22209 [0.00008] d  
Epoch = 133.9600 [0.0049] BKJD  
Rp/R\* = 0.0694 [0.1035]  
a/R\* = 29.54 [15.08]  
b = 0.97 [0.19]  
Seff = 35.07 [15.72]  
Teq = 621 [70] K  
Rp = 7.25 [11.00] Re  
a = 0.1290 [0.0339] AU  
Ag = 71.58 [216.50] [0.33σ]  
Teffp = 2791 [2091] K [1.04σ]

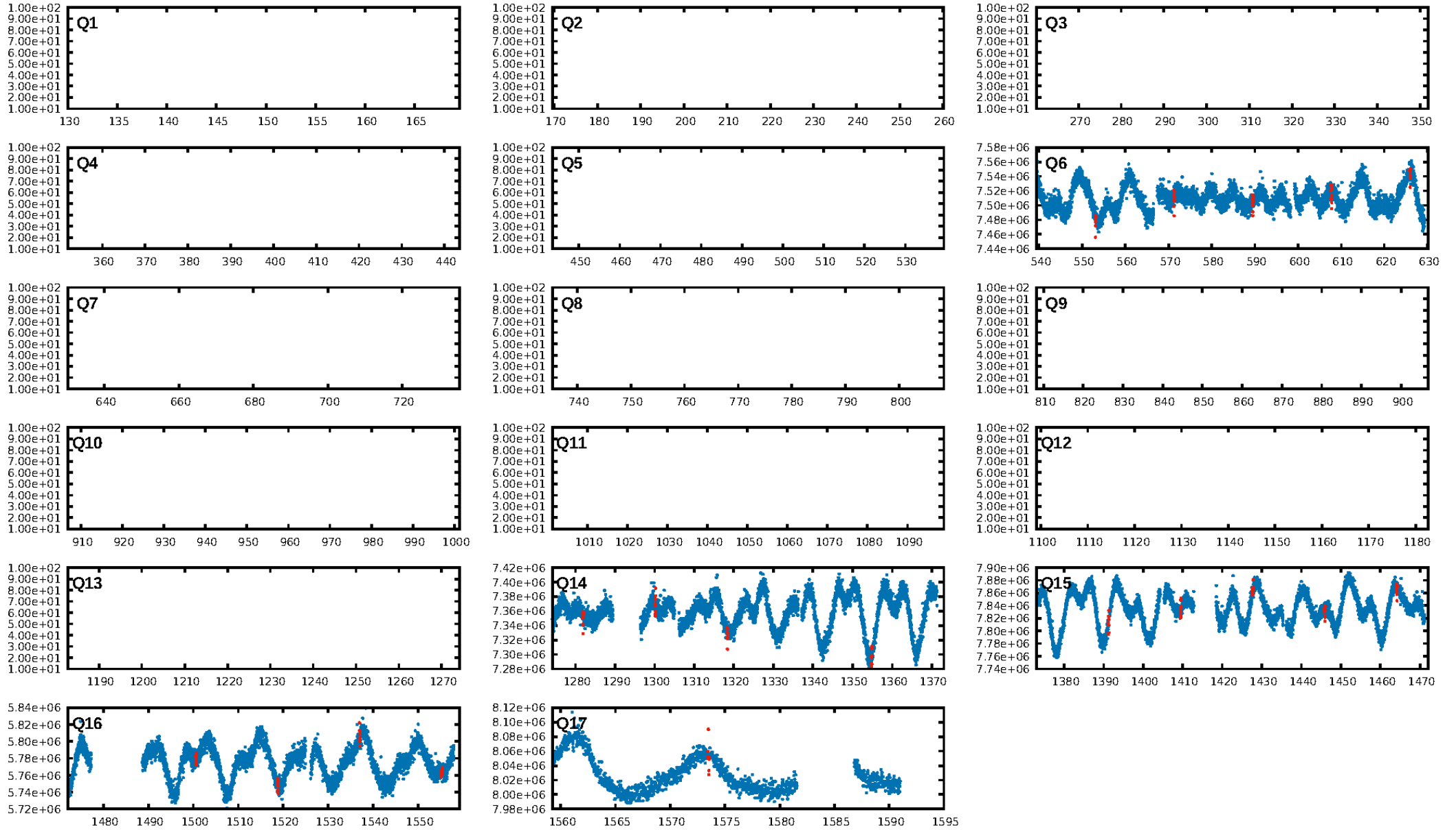
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 39.6%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 3.53e-37  
RollingBand-fgt: 1.00 [18/18]  
GhostDiagnostic-chr: -0.8708  
Centroid-sig: 0.0%  
Centroid-so: 3.021 arcsec [16.15σ]  
OotOffset-rm: 1.534 arcsec [7.80σ]  
KicOffset-rm: 2.534 arcsec [10.86σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [5/5]

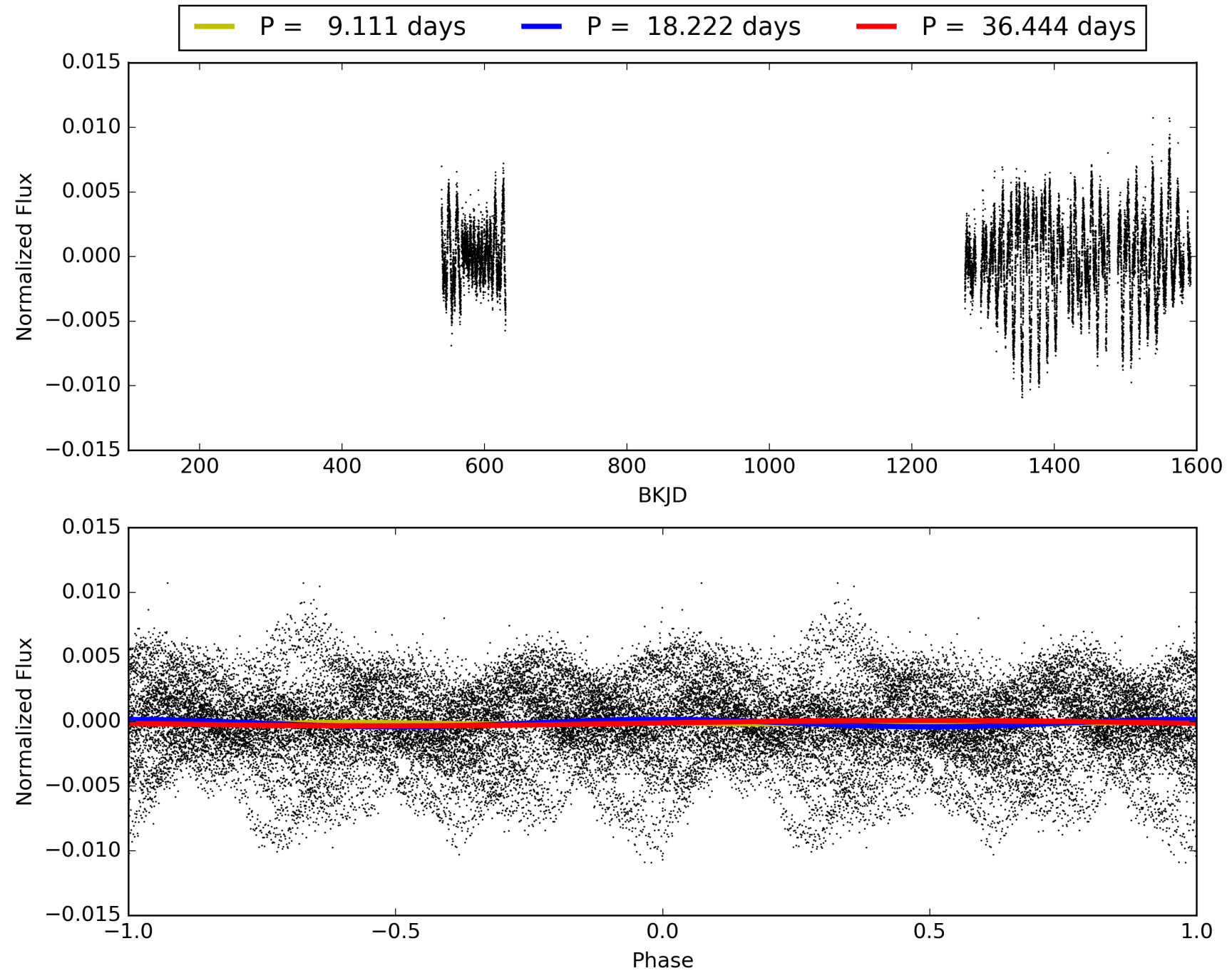
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:11:46 Z

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

# TCE 009776794-01, PDC Light Curves

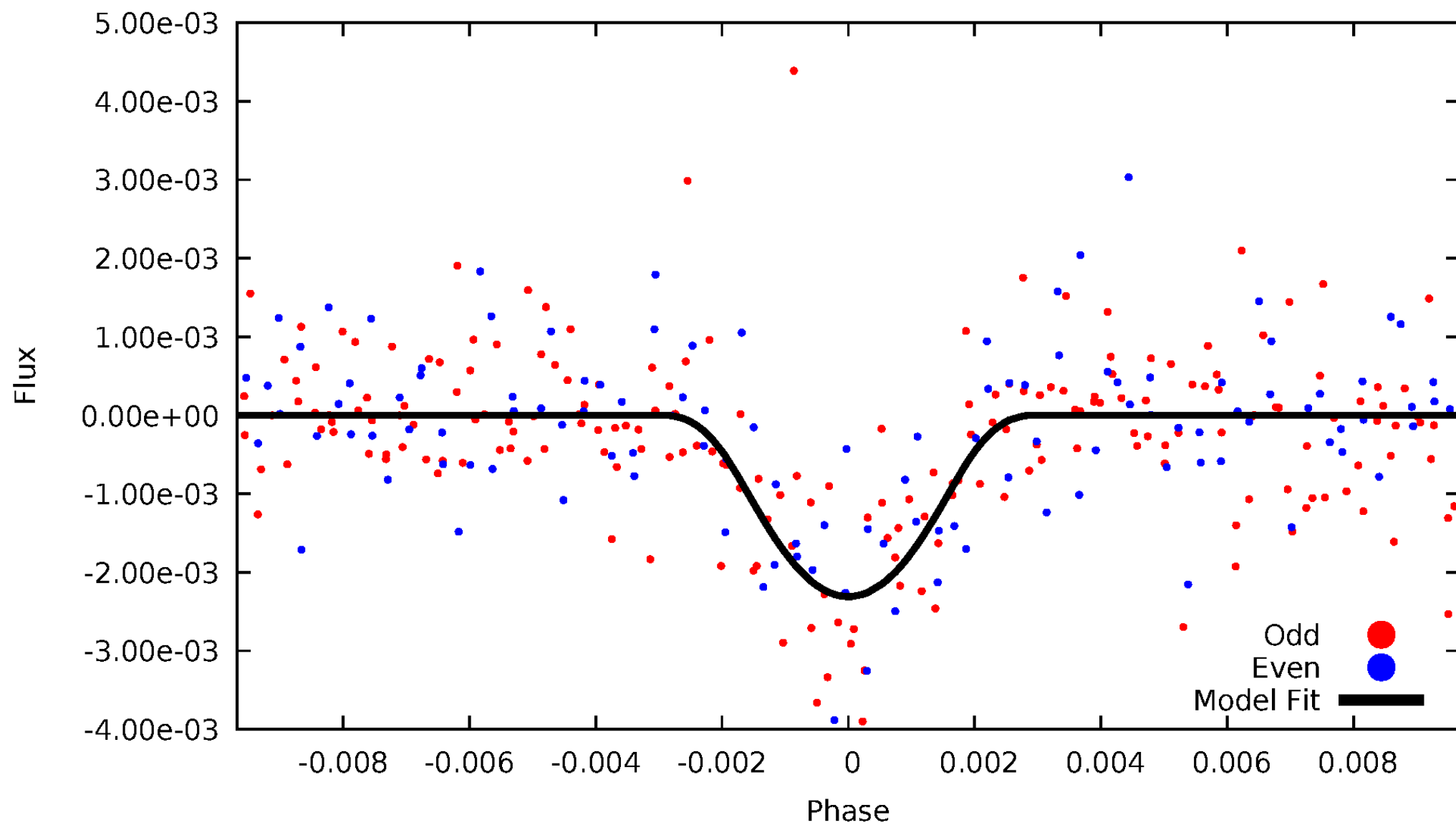


TCE 009776794-01



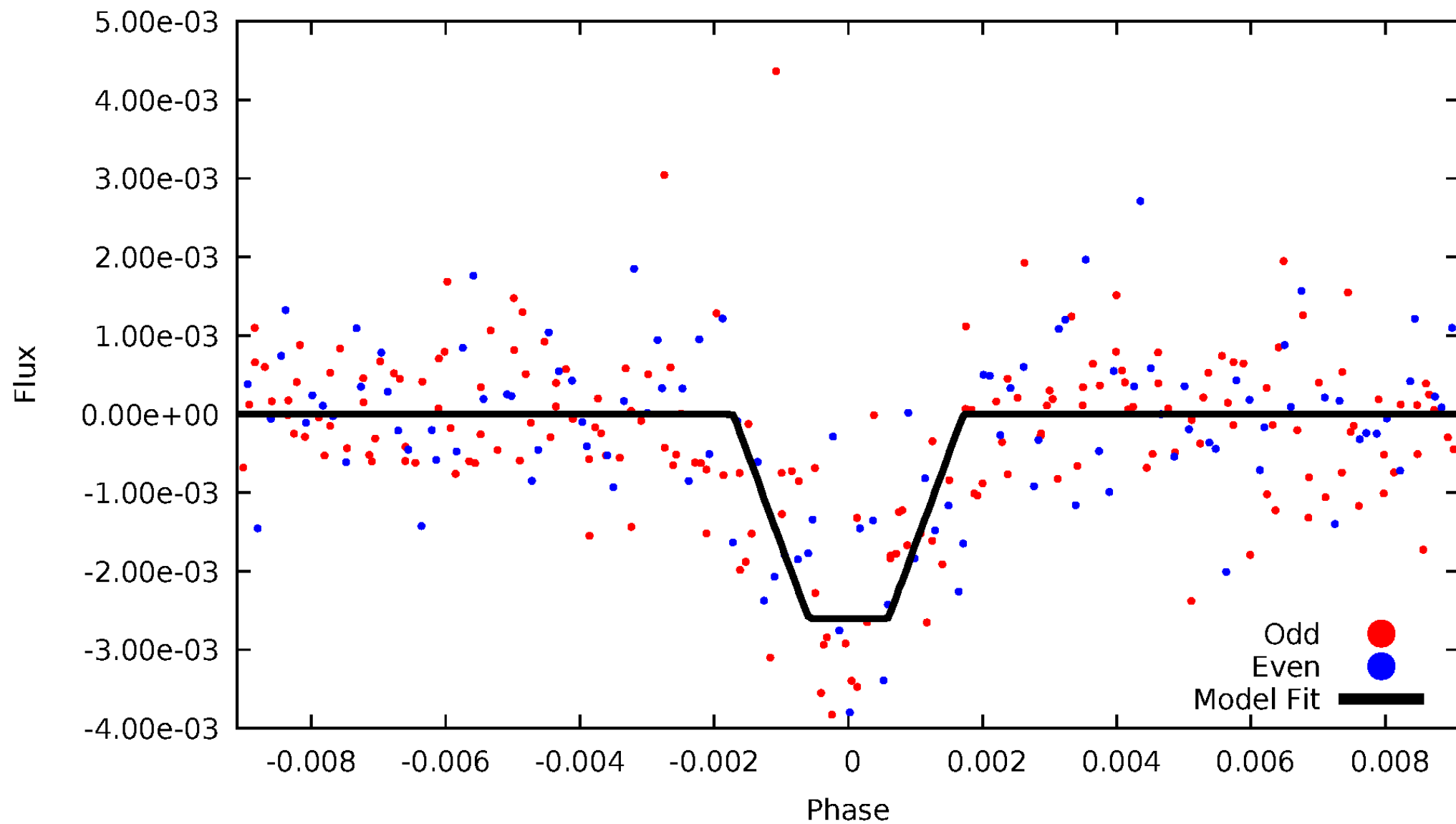
# DV Odd/Even

TCE 009776794-01



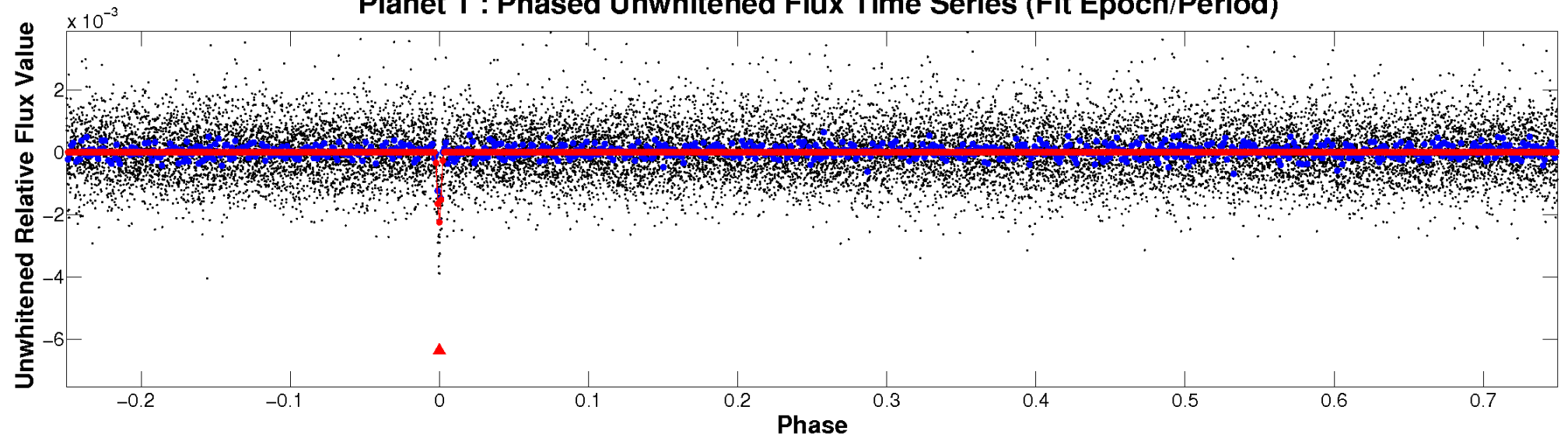
# ALT Odd/Even

TCE 009776794-01

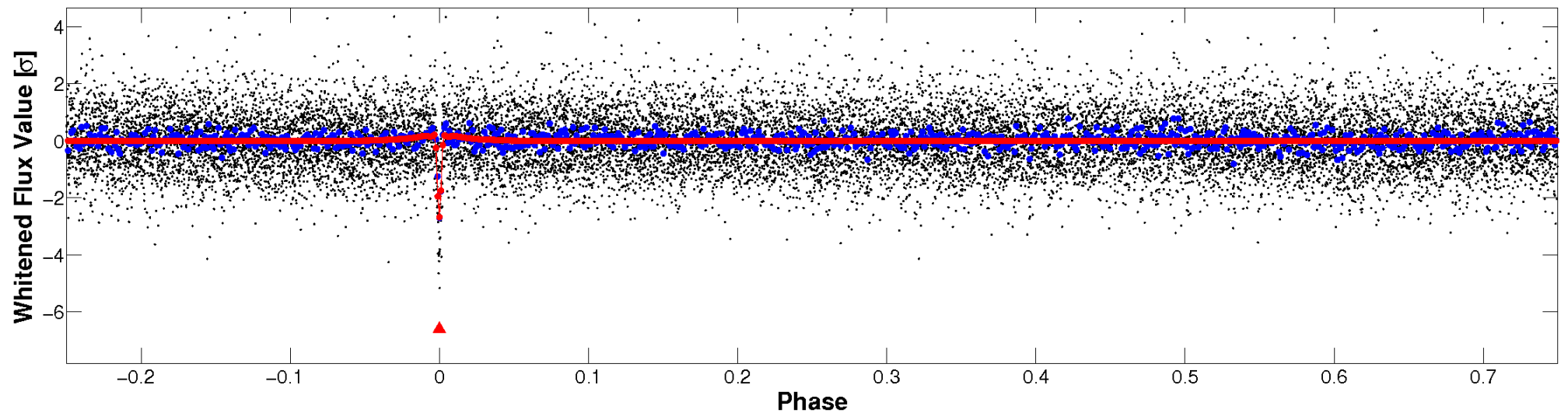


# Non-Whitened Vs. Whitened Light Curve

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

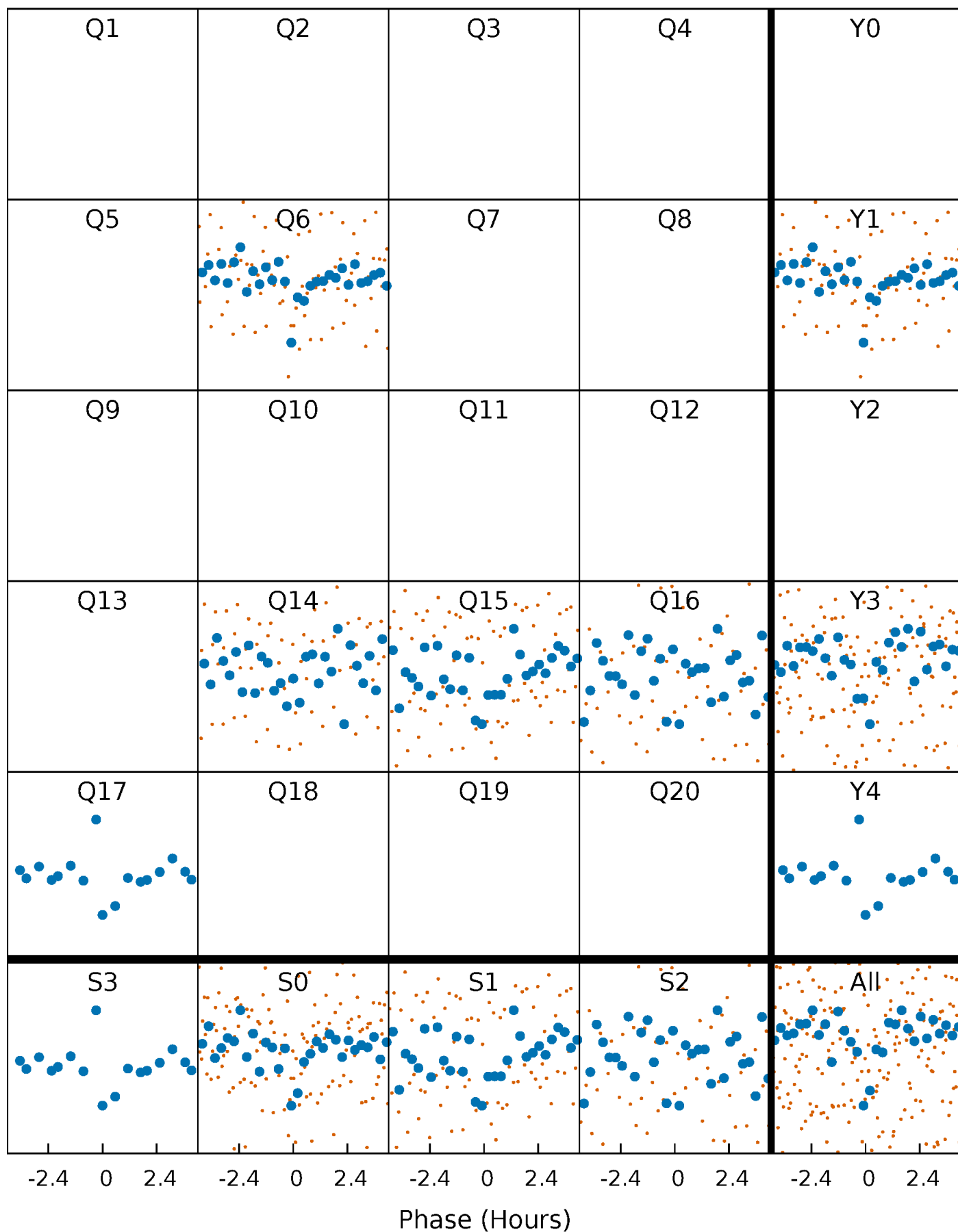


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

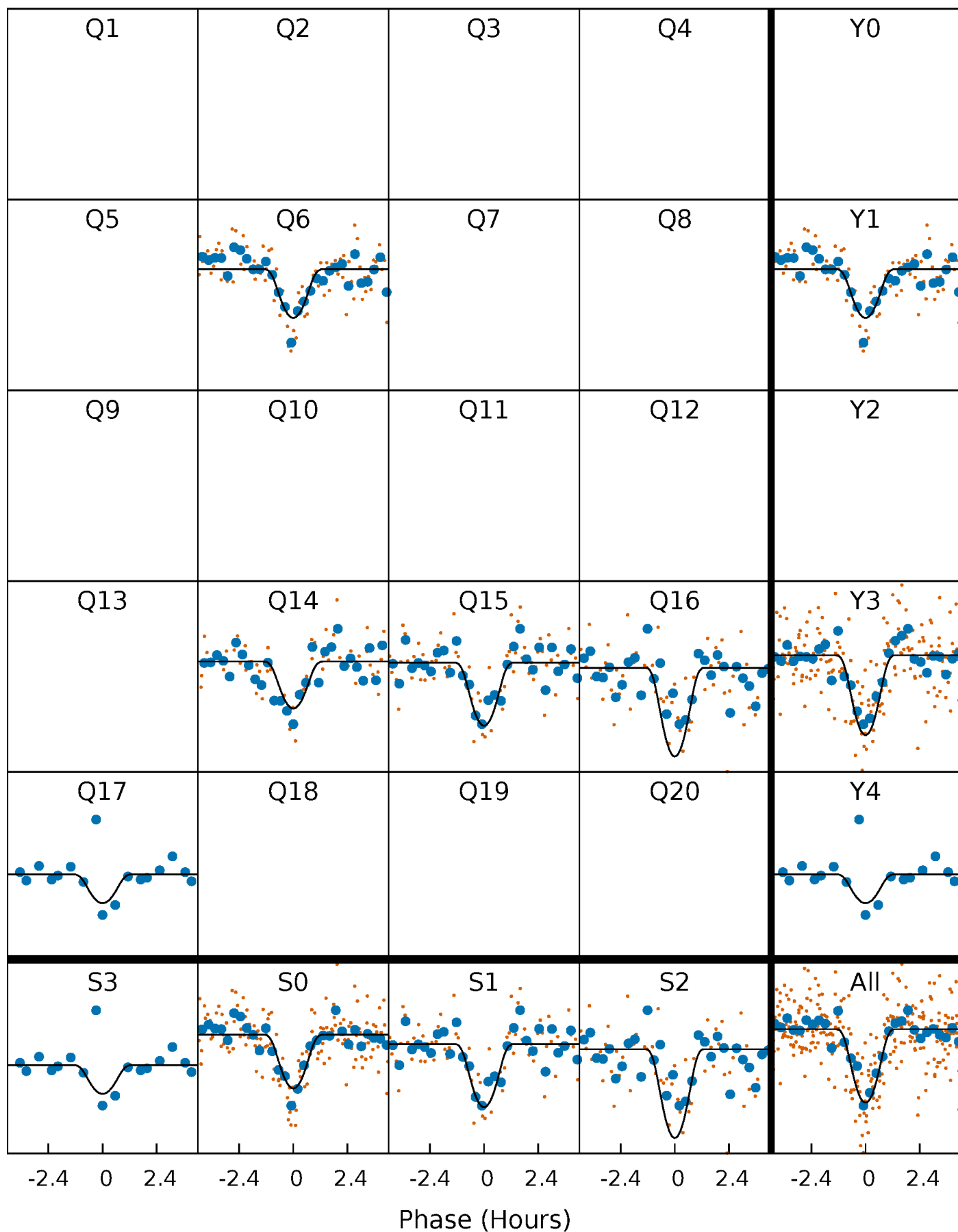
TCE 009776794-01 P= 18.222085 Days  $T_0=133.959964$  (BKJD)





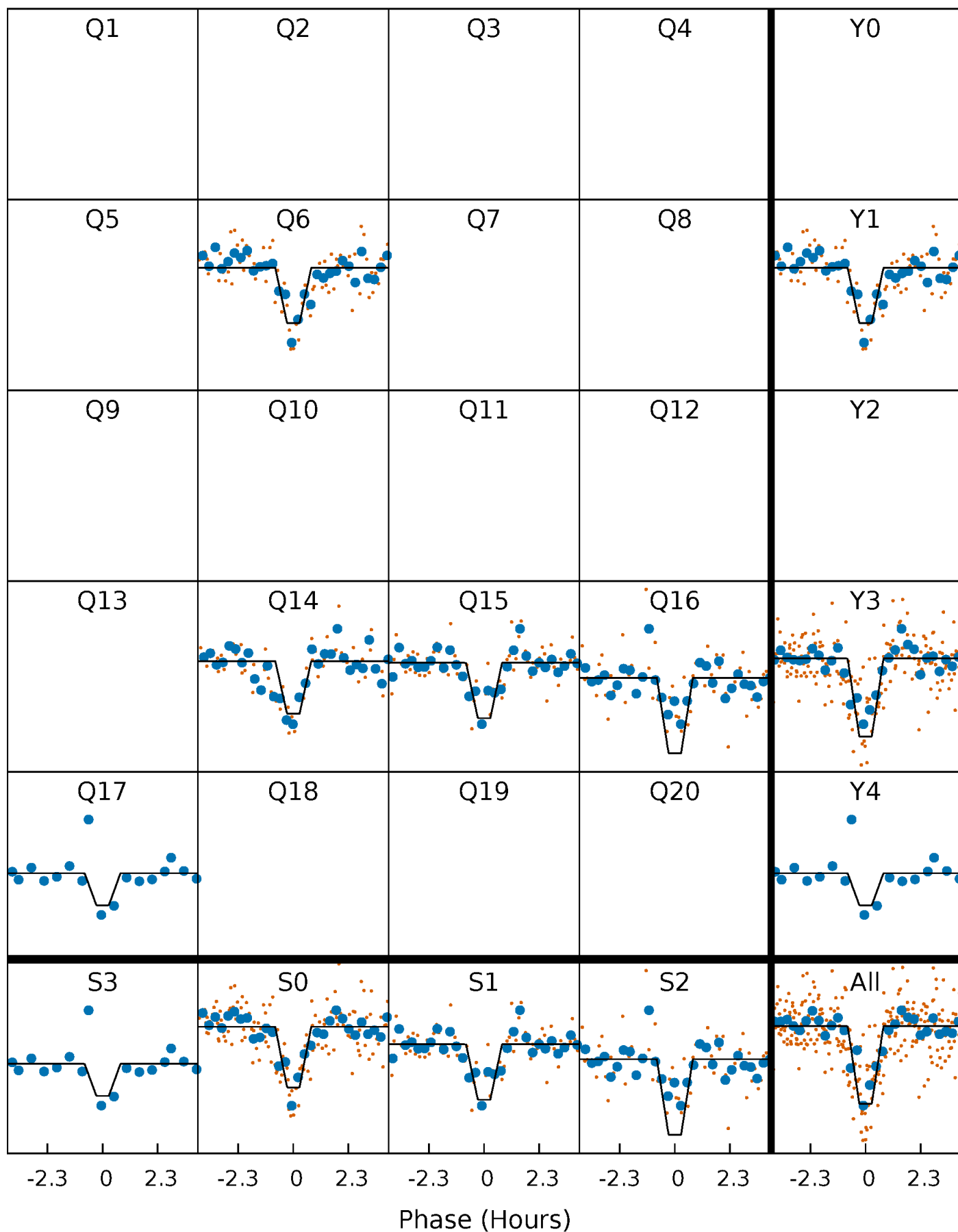
# DV Quarter-Phased Transit Curves

TCE 009776794-01 P= 18.222085 Days  $T_0=133.959964$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

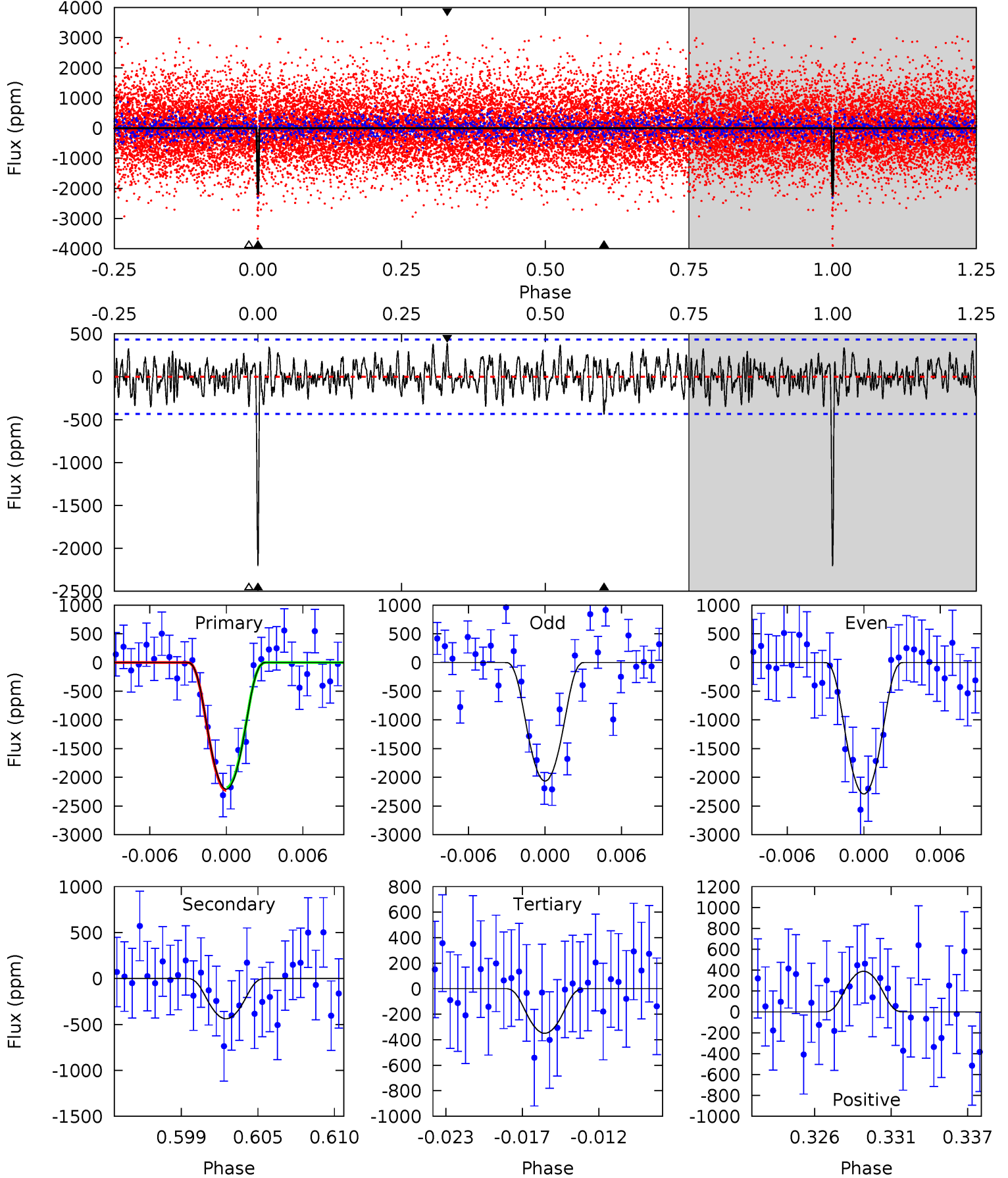
TCE 009776794-01 P= 18.222236 Days  $T_0=133.951857$  (BKJD)



# DV Model-Shift Uniqueness Test

009776794-01, P = 18.222085 Days, E = 133.959964 Days

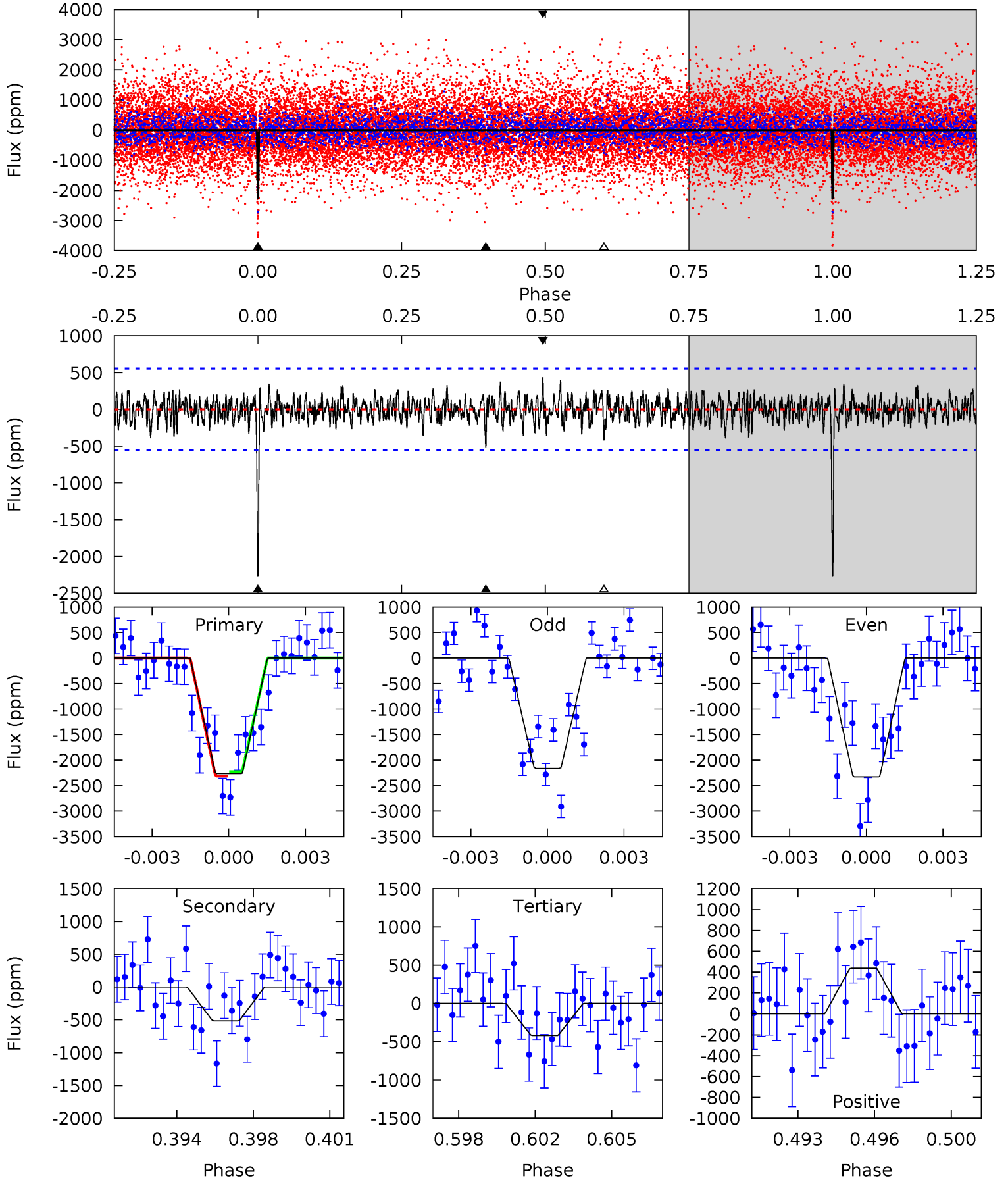
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.1	5.19	4.14	4.61	5.13	2.76	1.58	22.0	21.5	1.05	0.58	1.31	0.93	0.15	0.26



# Alt Model-Shift Uniqueness Test

009776794-01, P = 18.222236 Days, E = 133.951857 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
21.4	4.86	3.96	4.14	5.23	2.93	1.22	17.4	17.3	0.90	0.72	0.78	0.98	0.16	0.41



### Stellar Parameters For KIC 009776794

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5162^{+181}_{-181}$	$4.411^{+0.144}_{-0.252}$	$0.320^{+0.150}_{-0.300}$	$0.958^{+0.255}_{-0.157}$	$0.862^{+0.073}_{-0.060}$	$1.380^{+0.902}_{-0.736}$
	+4%/-4%	+3%/-6%	+47%/-94%	+27%/-16%	+8%/-7%	+65%/-53%
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 009776794-01 / KOI 4363.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-438 \pm 84$	$11.69^{+10.01}_{-7.78}$	$881^{+73}_{-58}$	$2953^{+1227}_{-454}$	$29^{+238}_{-21}$
Alt.	$-514 \pm 106$	$10.53^{+9.31}_{-6.96}$	$878^{+72}_{-57}$	$3075^{+1421}_{-494}$	$42^{+360}_{-31}$

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

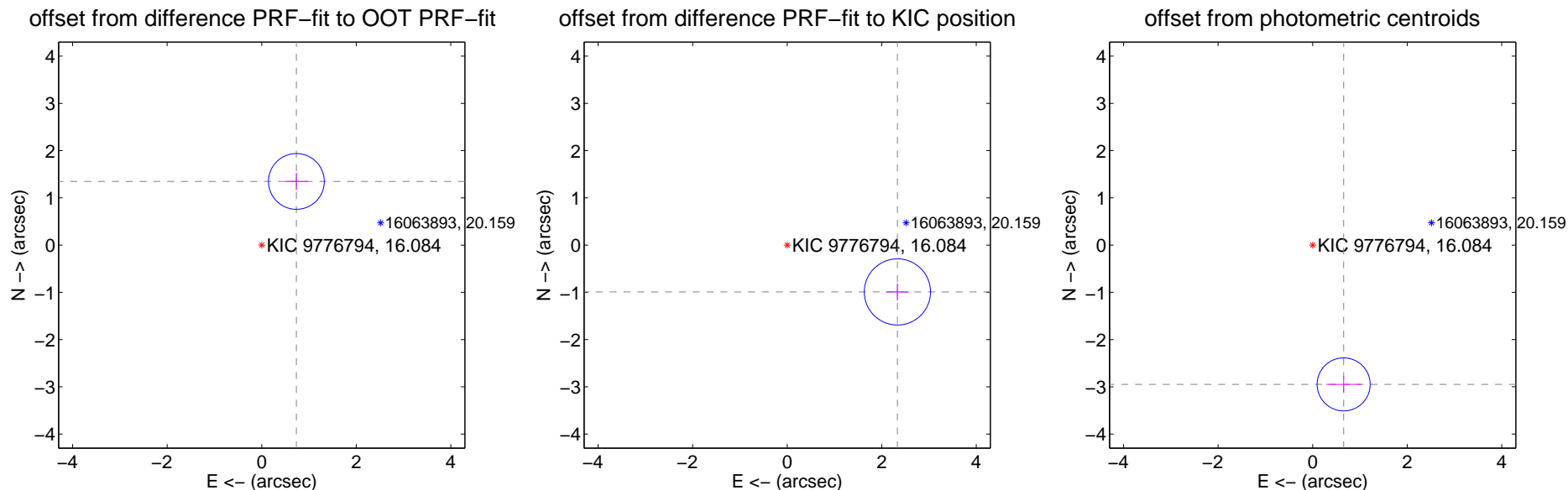
## DV Centroid Data

Supplemental centroid analysis for 009776794-01. Kepler magnitude: 16.08. Transit SNR 15.94

There are 1 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.83 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.534 \pm 0.197$	7.80	$-0.734 \pm 0.242$	$1.348 \pm 0.181$
PRF-fit source offset from KIC position	$2.534 \pm 0.233$	10.86	$-2.332 \pm 0.242$	$-0.992 \pm 0.181$
photometric centroid source offset	$3.02 \pm 0.19$	16.15	$-0.66 \pm 0.37$	$-2.95 \pm 0.17$

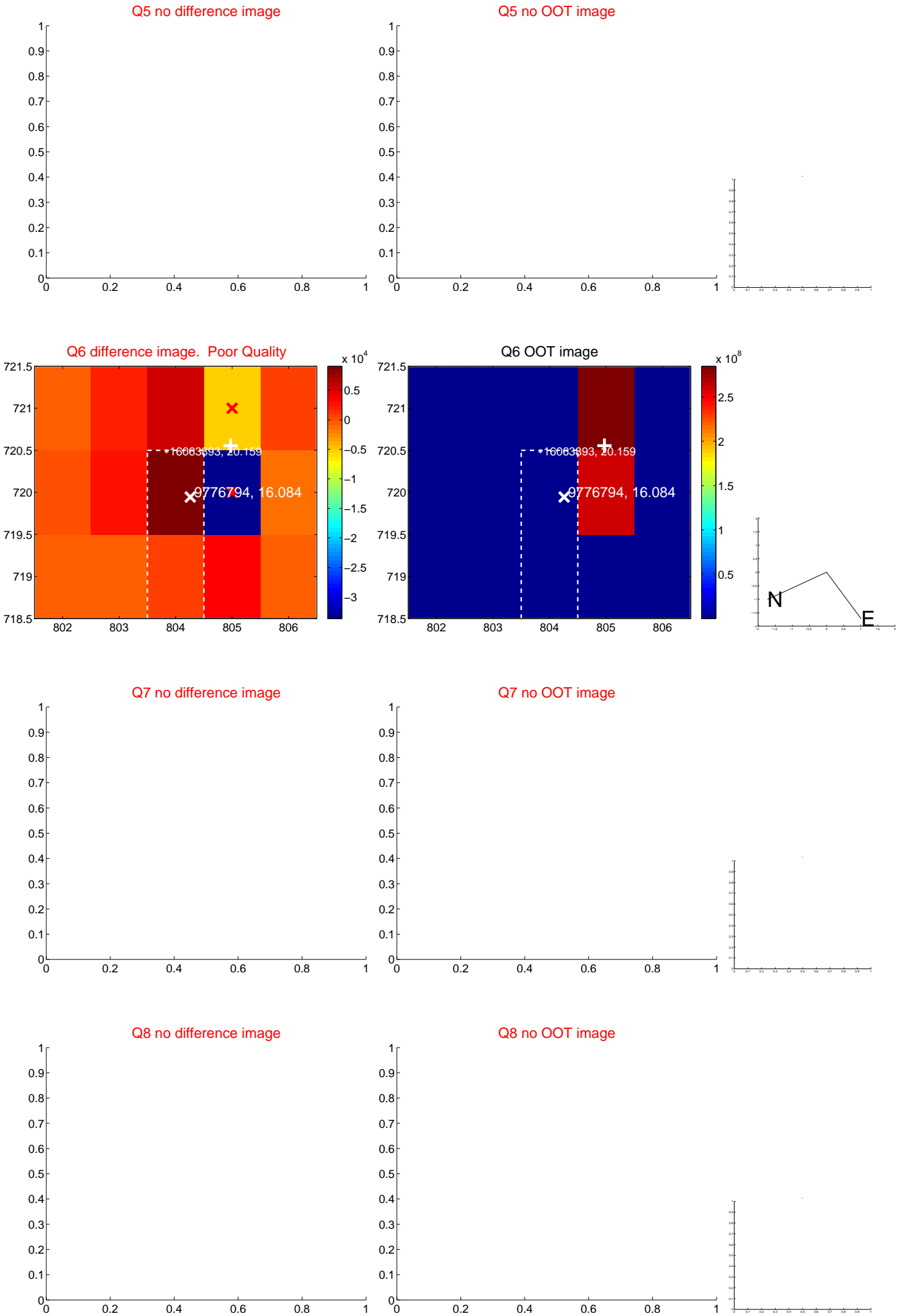


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

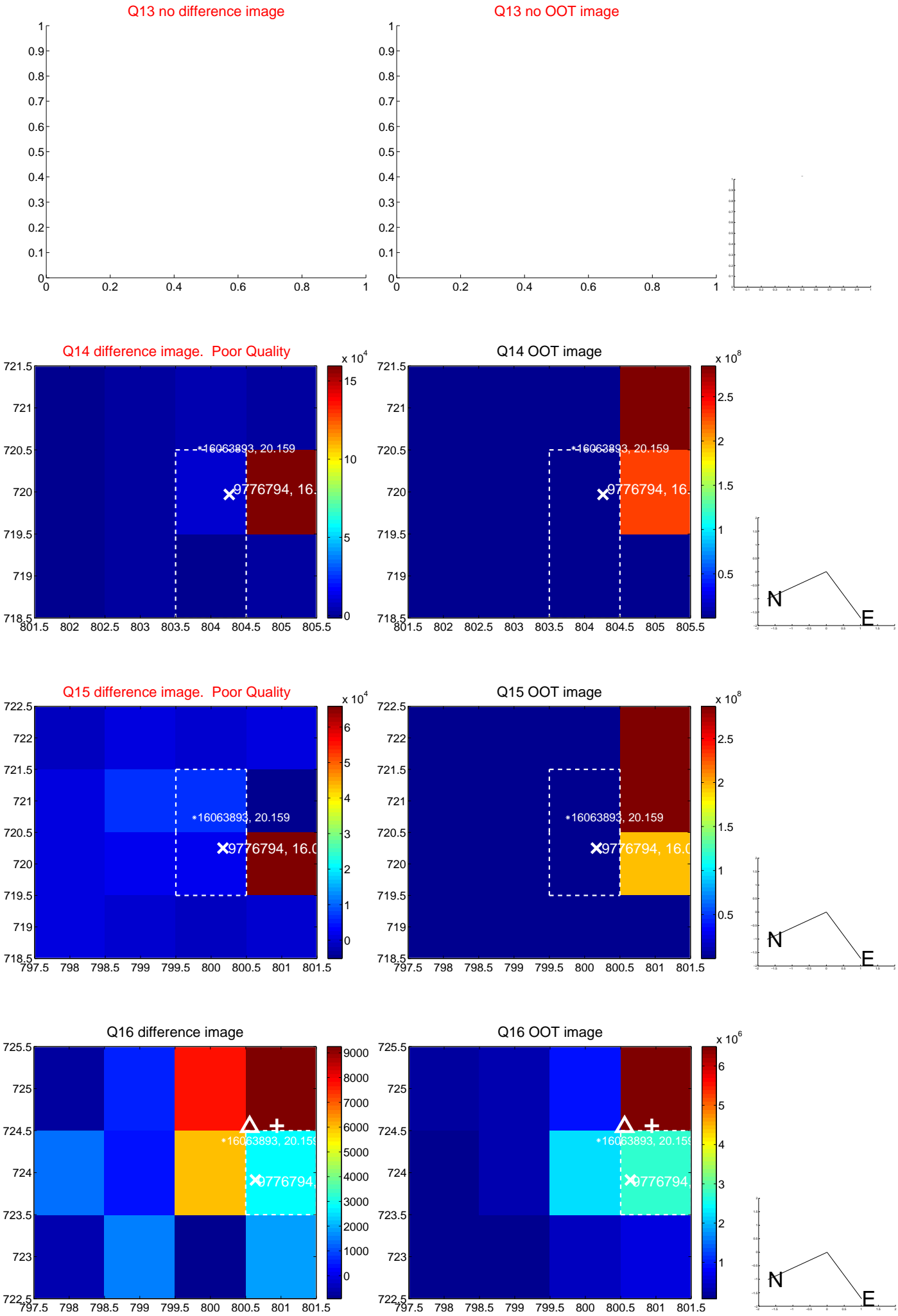




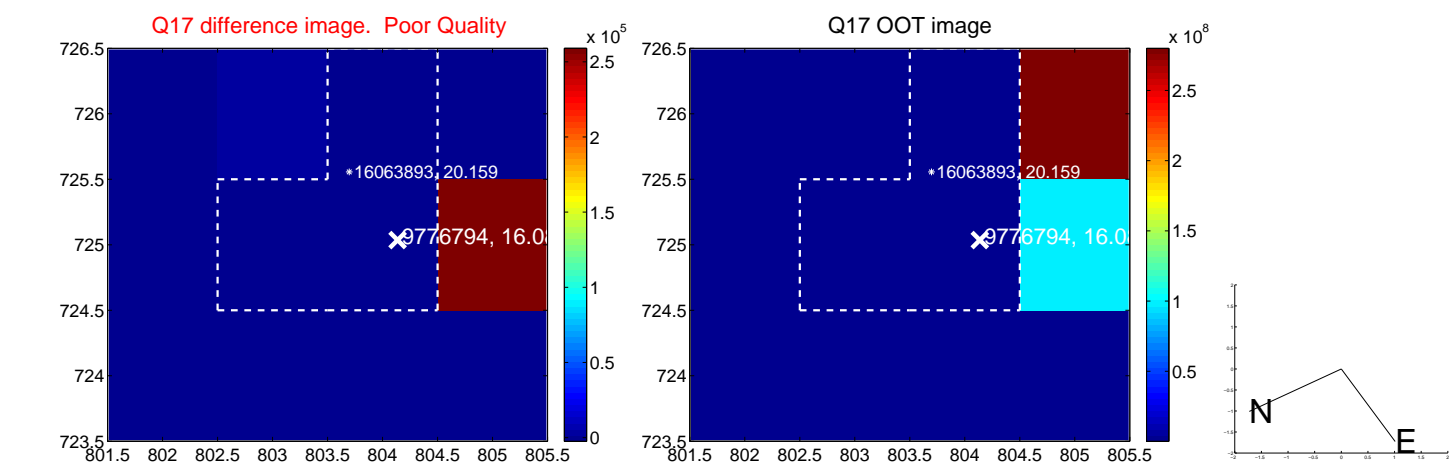
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



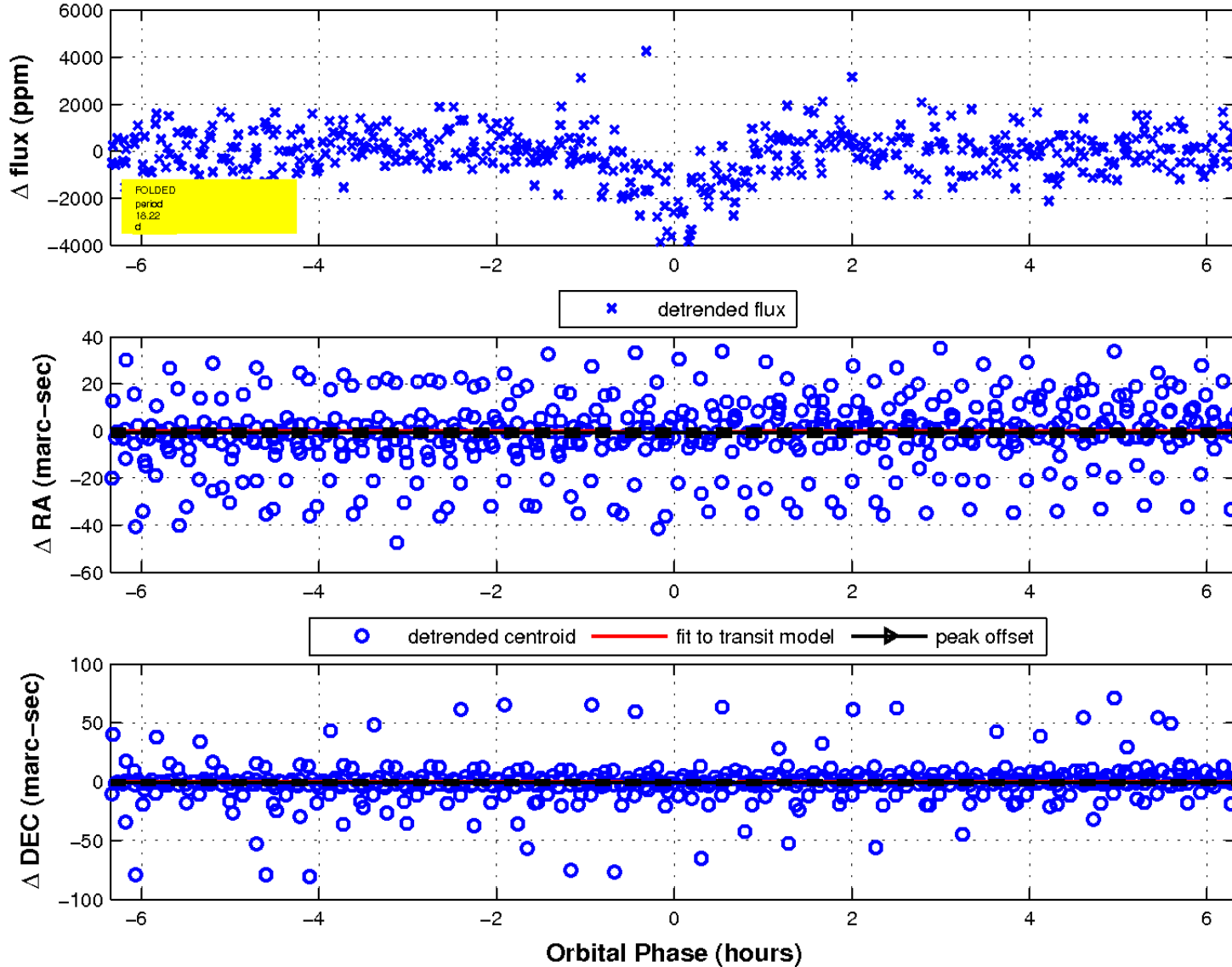
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

