

# KIC 001996399

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001996399-01	OBS	No	358.679868	485.159561	610.8	3.032	7.7	6.7	0.51	3770	1.56	0.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001996399-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

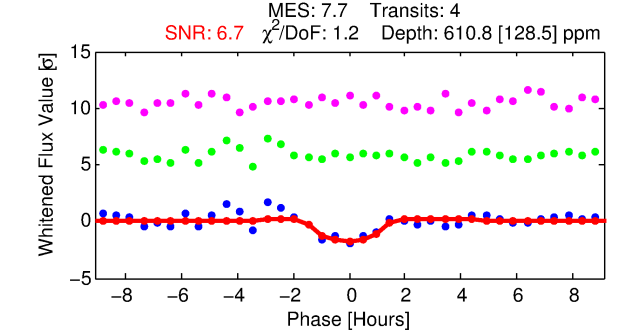
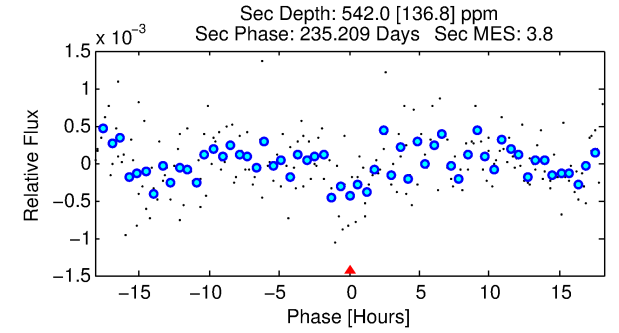
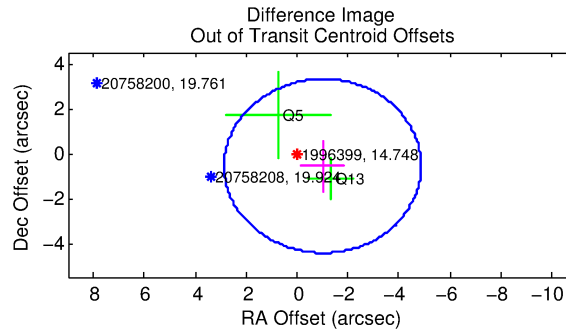
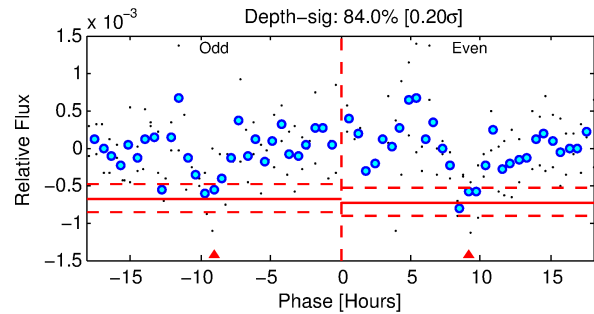
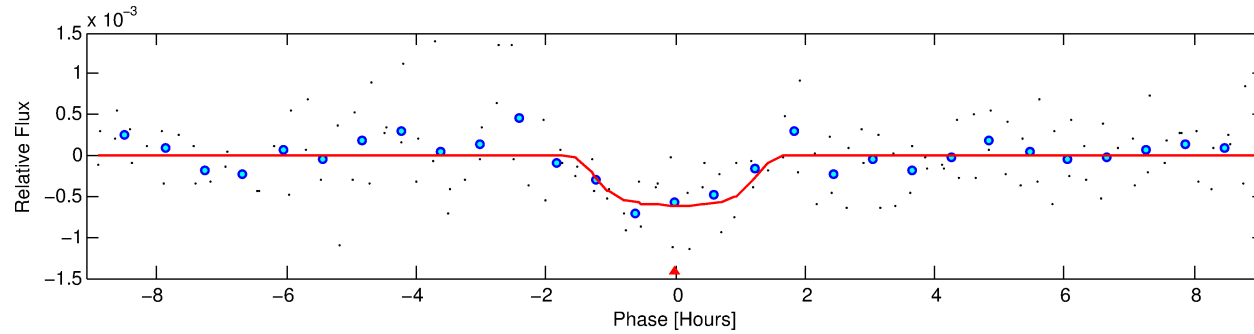
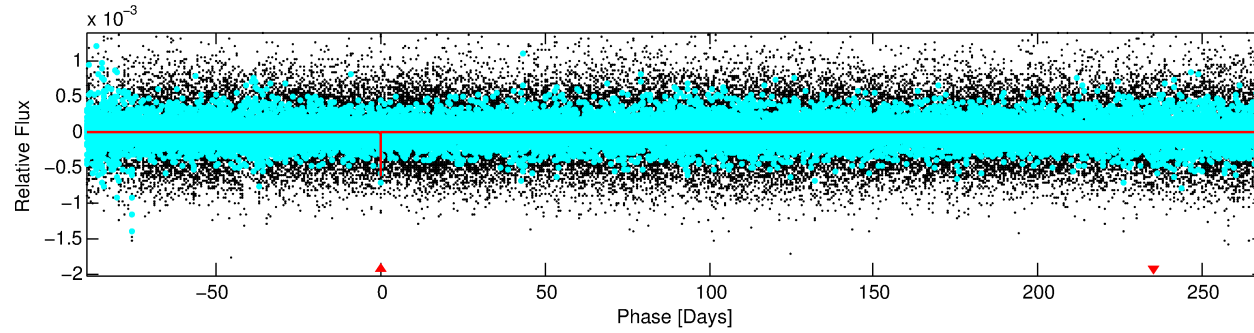
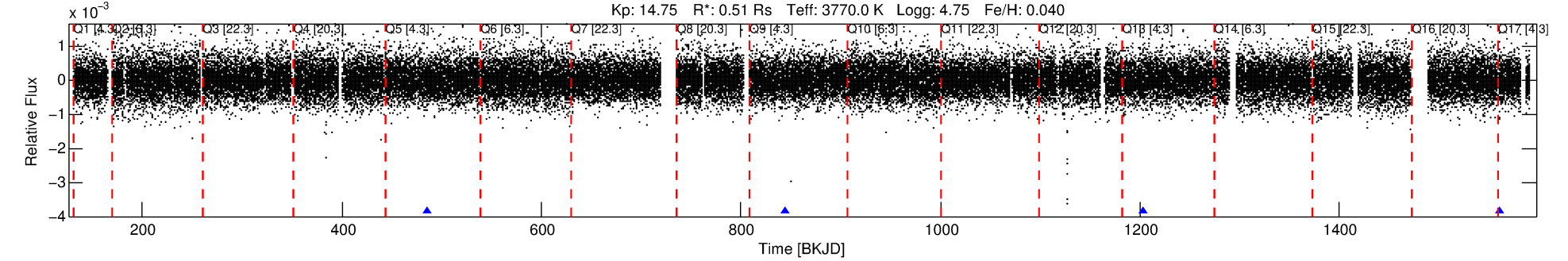
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001996399-01

No Significant Match Found

# DV One-Page Summary

KIC: 1996399 Candidate: 1 of 1 Period: 358.680 d  
KOI: K01026 Corr: No Ephemeris Match



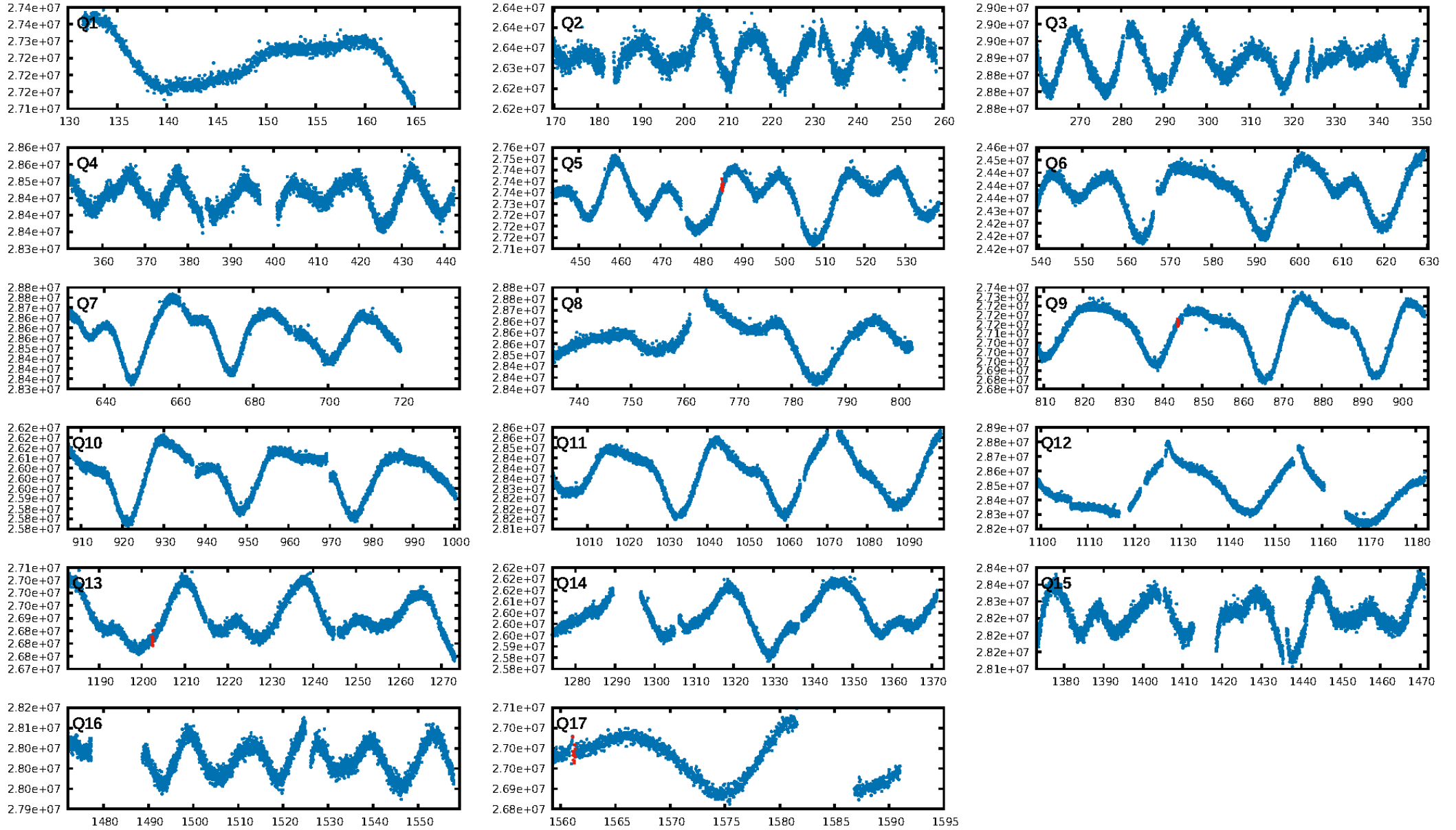
## DV Fit Results:

Period = 358.67987 [0.00592] d  
Epoch = 485.1596 [0.0103] BKJD  
Rp/R\* = 0.0279 [0.0119]  
a/R\* = 405.55 [686.94]  
b = 0.92 [0.27]  
Seff = 0.07 [0.01]  
Teq = 133 [3] K  
Rp = 1.56 [0.67] Re  
a = 0.8050 [0.0348] AU  
Ag = 79627.56 [71129.08] [1.12 $\sigma$ ]  
Teffp = 3442 [769] K [4.30 $\sigma$ ]

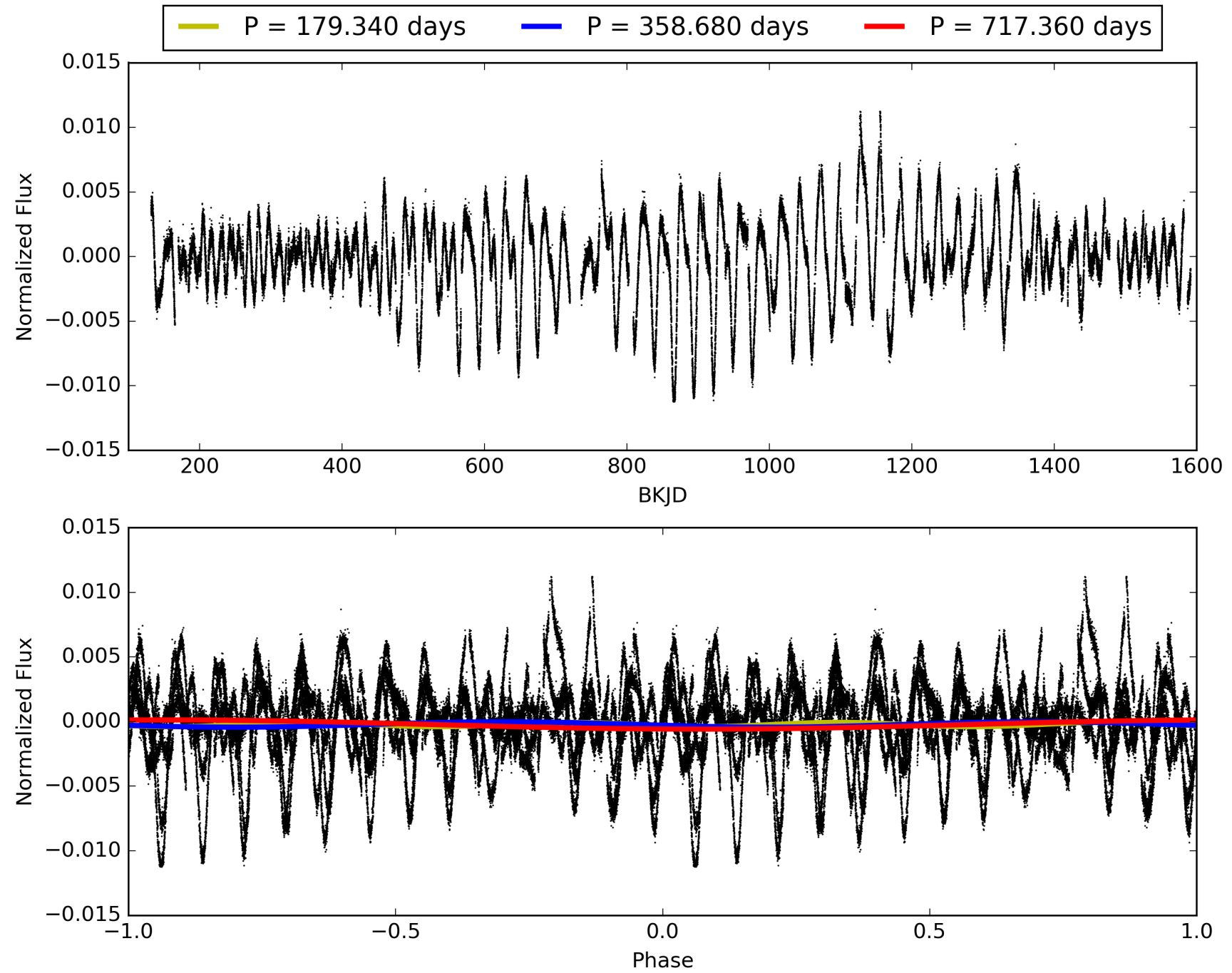
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 13.5%  
ModelChiSquareGof-sig: 92.4%  
**Bootstrap-pfa: 3.94e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.382  
Centroid-sig: 67.4%  
Centroid-so: 1.723 arcsec [0.82 $\sigma$ ]  
OotOffset-rm: 1.155 arcsec [0.90 $\sigma$ ]  
KicOffset-rm: 0.855 arcsec [0.77 $\sigma$ ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 001996399-01, PDC Light Curves

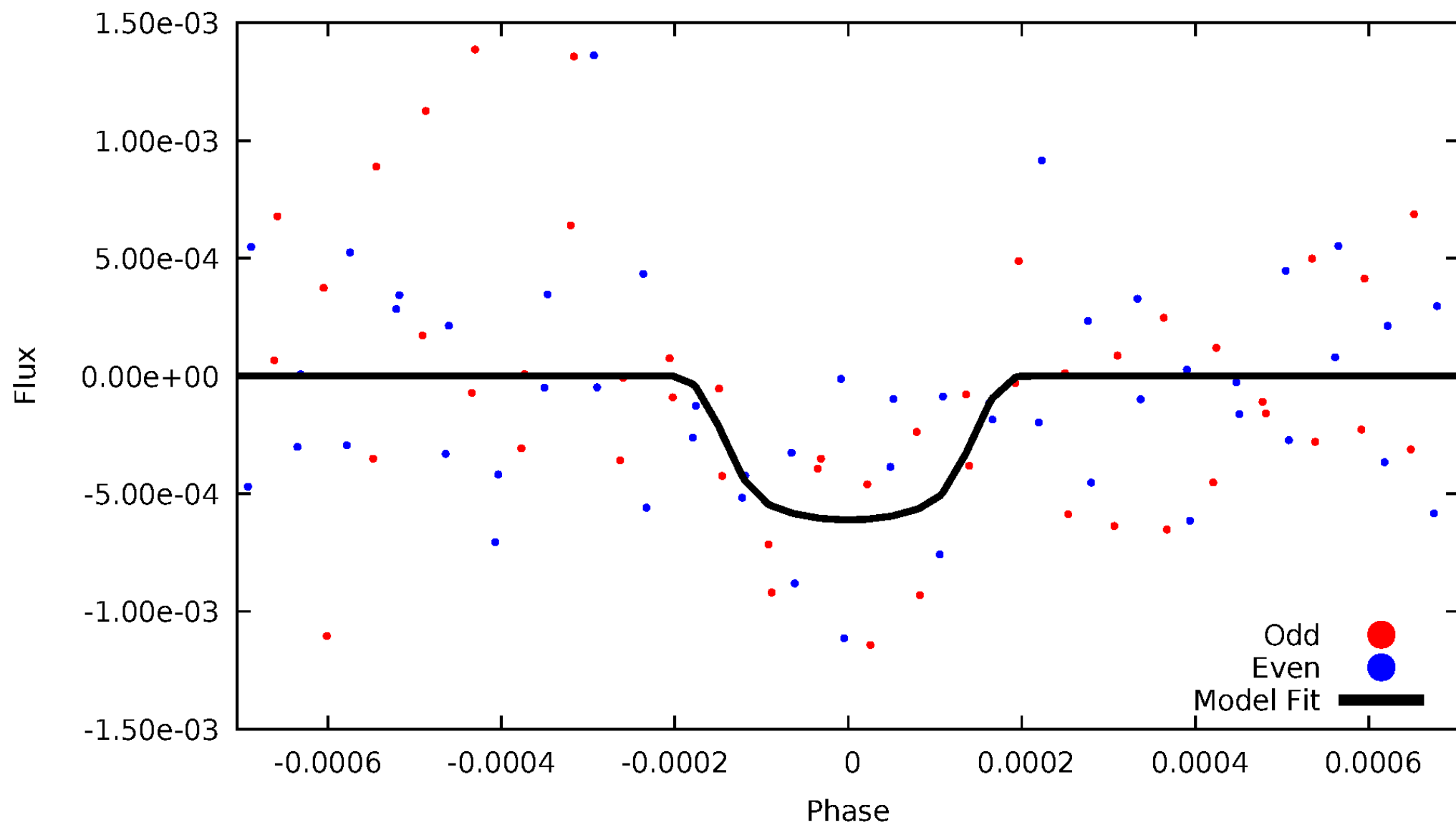


TCE 001996399-01



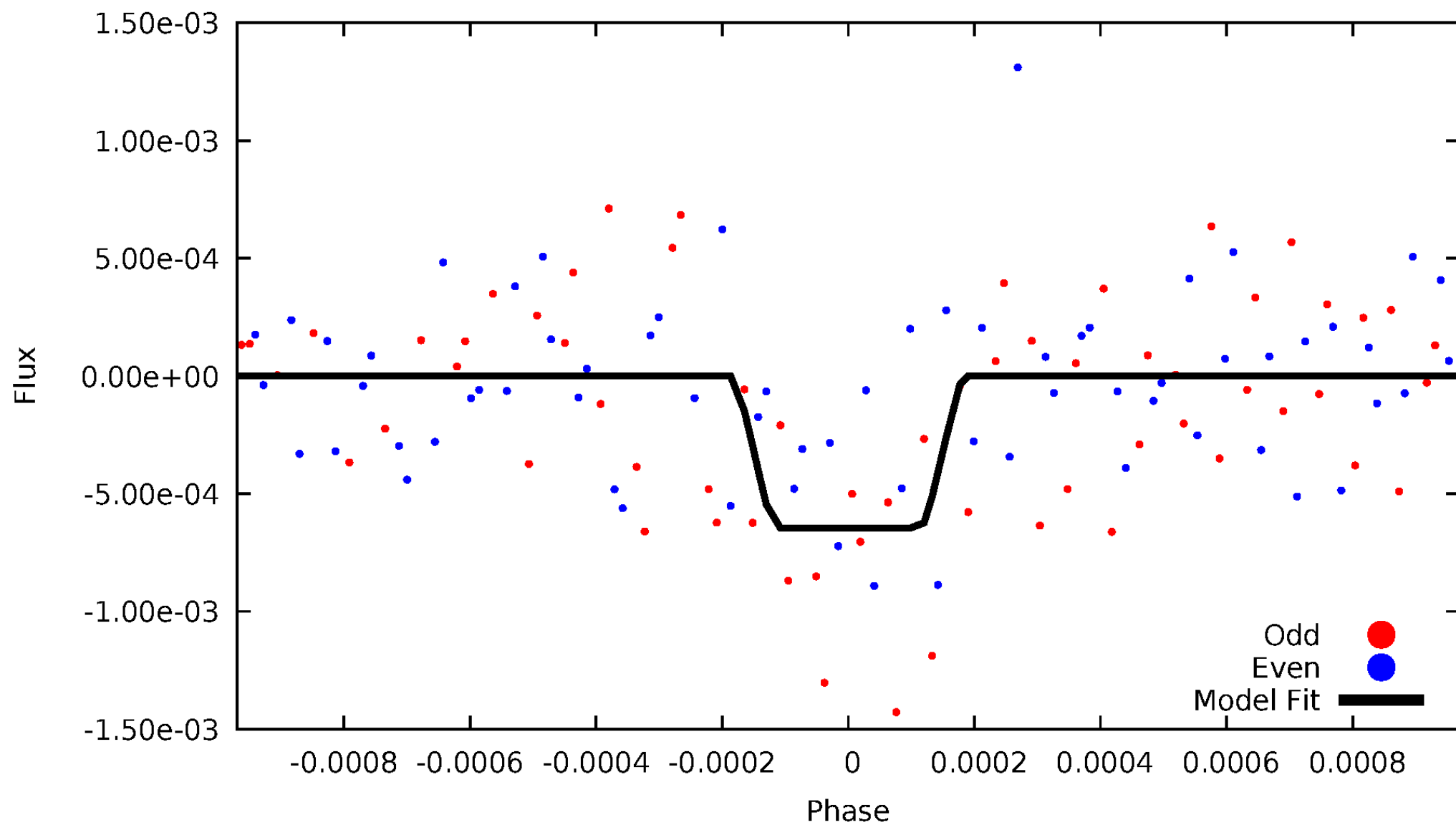
# DV Odd/Even

TCE 001996399-01



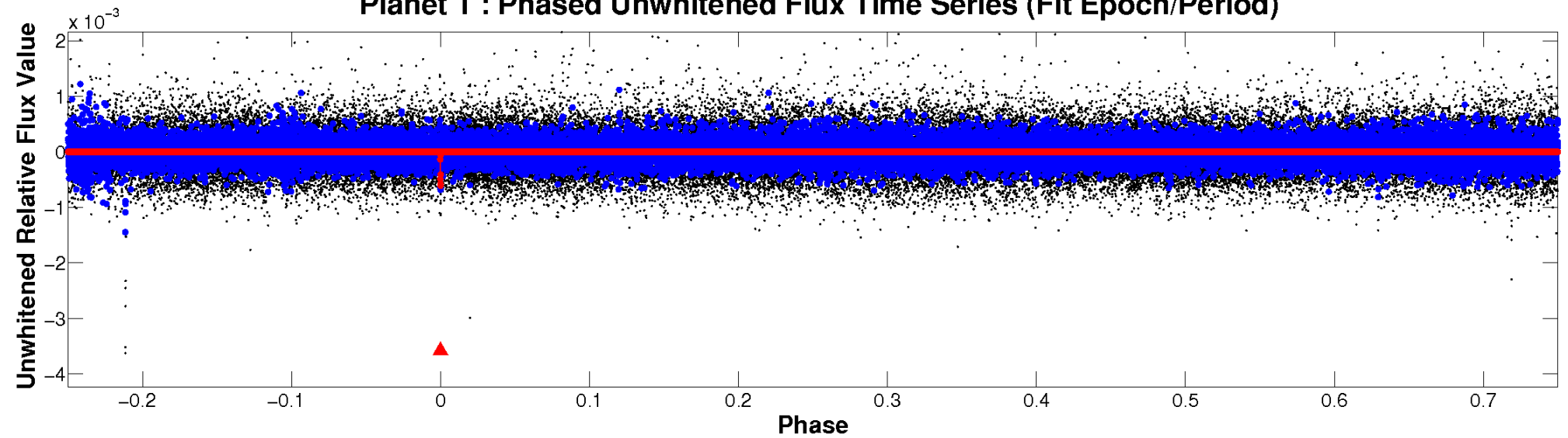
# ALT Odd/Even

TCE 001996399-01

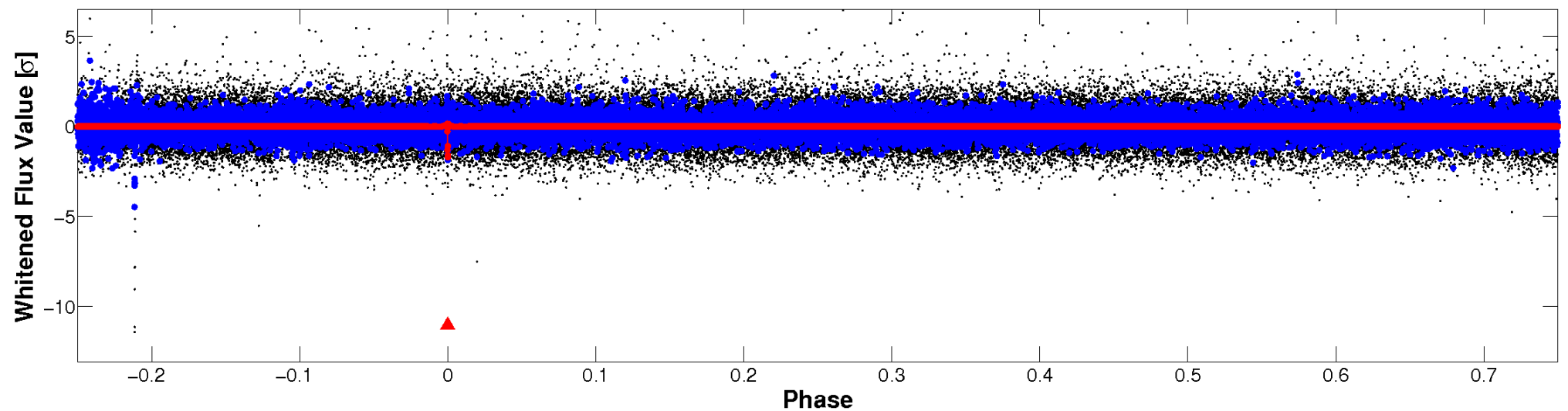


# Non-Whitened Vs. Whitened Light Curve

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

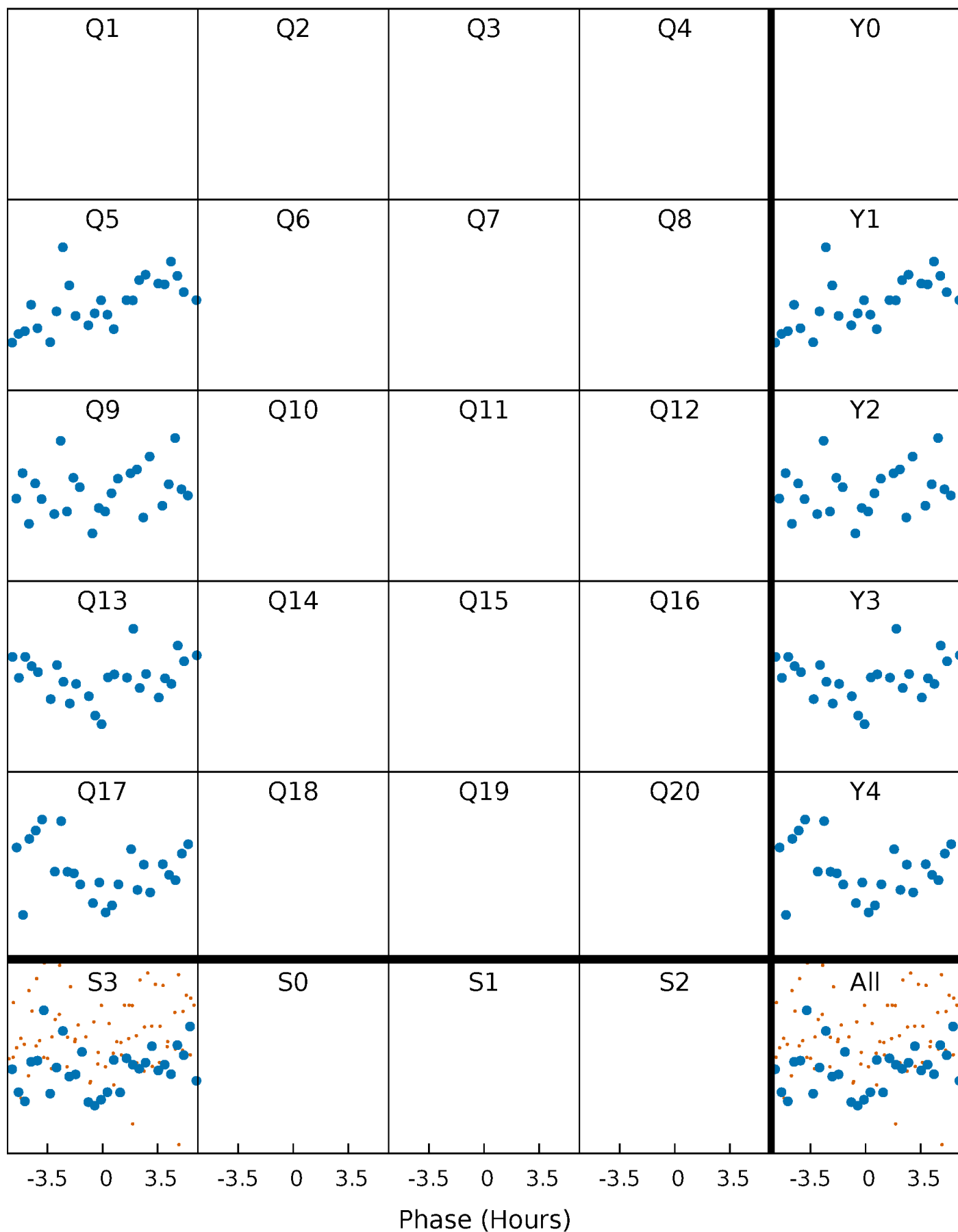


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 001996399-01     $P=358.679868$  Days     $T_0=485.159561$  (BKJD)





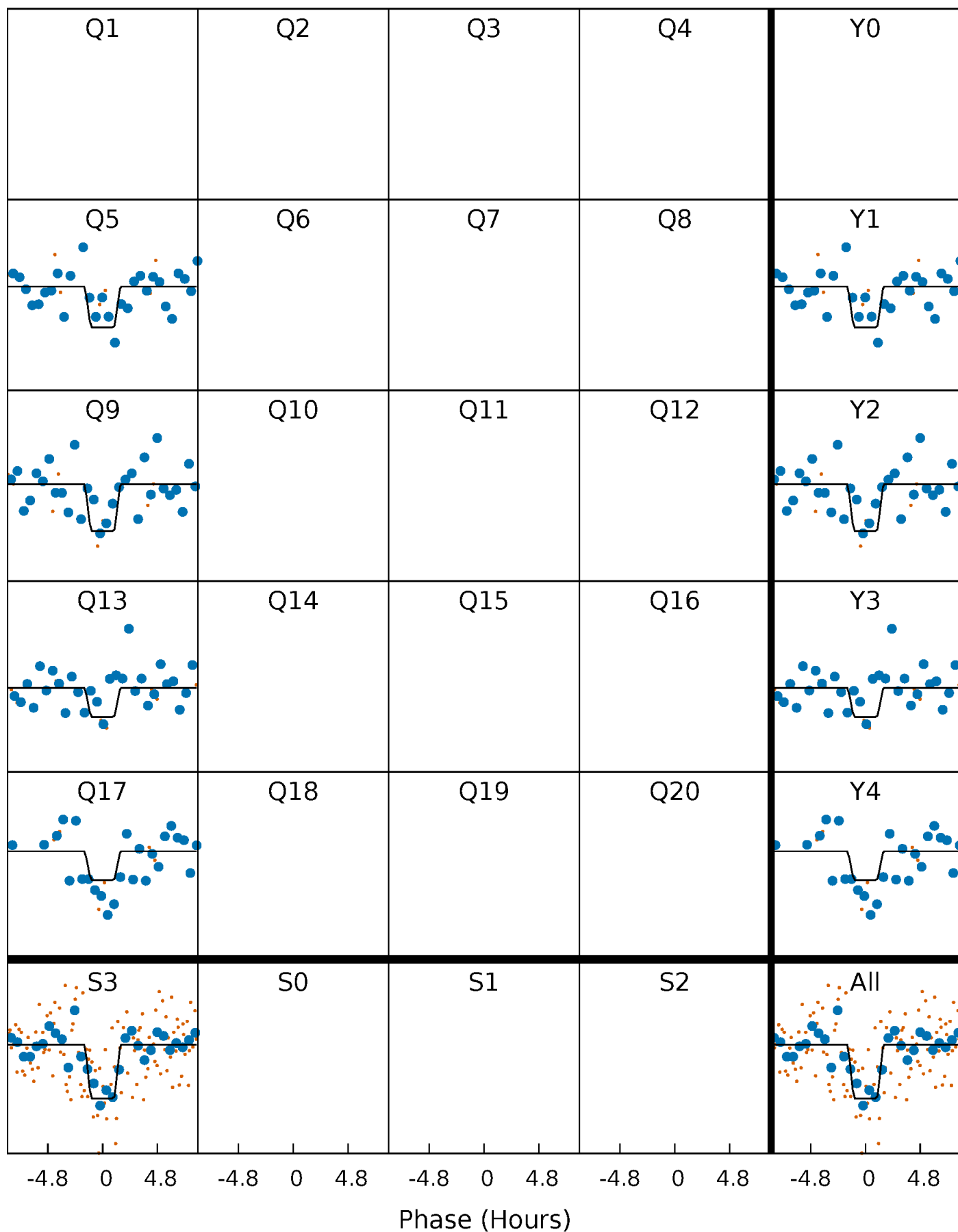
# DV Quarter-Phased Transit Curves

TCE 001996399-01   P=358.679868 Days    $T_0=485.159561$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

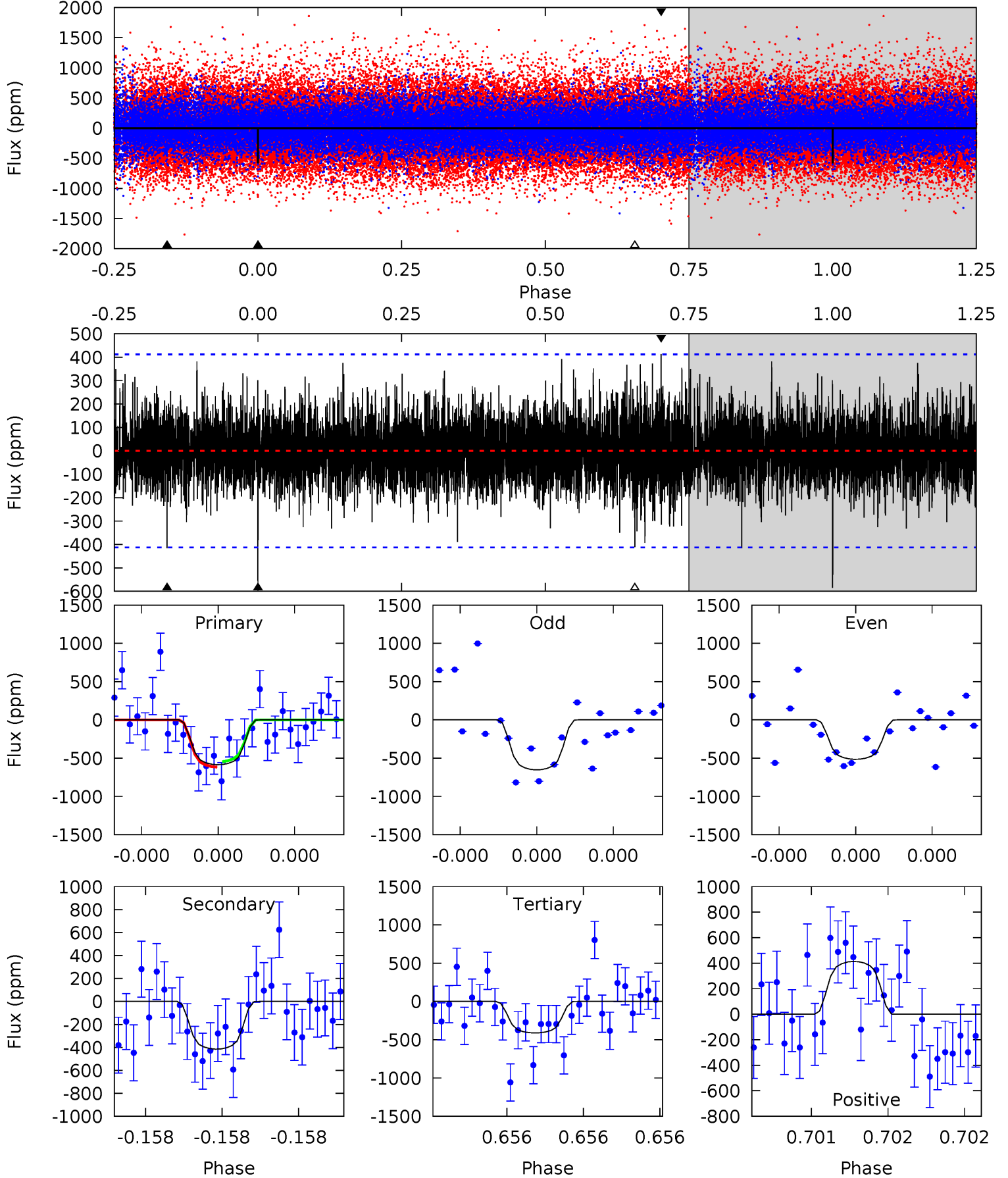
TCE 001996399-01     $P=358.678185$  Days     $T_0=485.146458$  (BKJD)



# DV Model-Shift Uniqueness Test

001996399-01, P = 358.679868 Days, E = 126.479693 Days

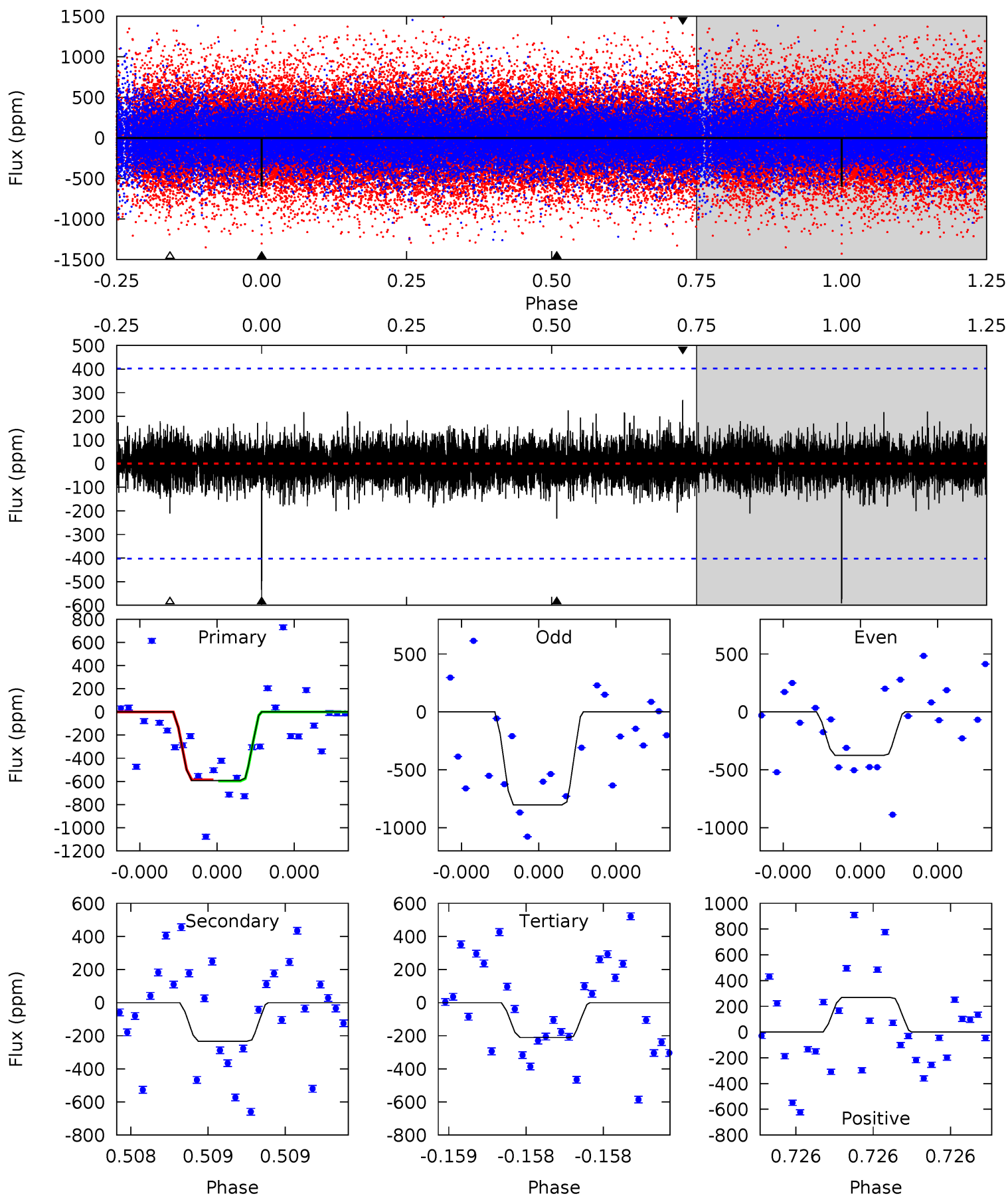
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.96	5.65	5.60	5.63	5.61	3.54	1.34	2.37	2.33	0.05	0.02	0.94	1.12	0.41	0.48



# Alt Model-Shift Uniqueness Test

001996399-01, P = 358.678185 Days, E = 126.468273 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
8.31	3.27	2.96	3.78	5.65	3.59	0.74	5.34	4.53	0.31	-0.50	3.00	1.34	0.31	0.07



### Stellar Parameters For KIC 001996399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3770^{+53}_{-60}$	$4.754^{+0.023}_{-0.030}$	$0.040^{+0.100}_{-0.100}$	$0.511^{+0.028}_{-0.028}$	$0.540^{+0.022}_{-0.033}$	$5.698^{+0.619}_{-0.616}$
	+1%/-2%	+0%/-1%	+250%/-250%	+5%/-5%	+4%/-6%	+11%/-11%
Source	SPE5	SPE5	SPE5	DSEP		

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

### Secondary Eclipse Parameters for KIC 001996399-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-415 \pm 73$	$1.56^{+0.63}_{-0.67}$	$186^{+3}_{-4}$	$3396^{+697}_{-329}$	$60793^{+122823}_{-30608}$
Alt.	$-233 \pm 71$	$1.44^{+0.70}_{-0.64}$	$185^{+3}_{-3}$	$3179^{+696}_{-360}$	$38751^{+91749}_{-22580}$

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

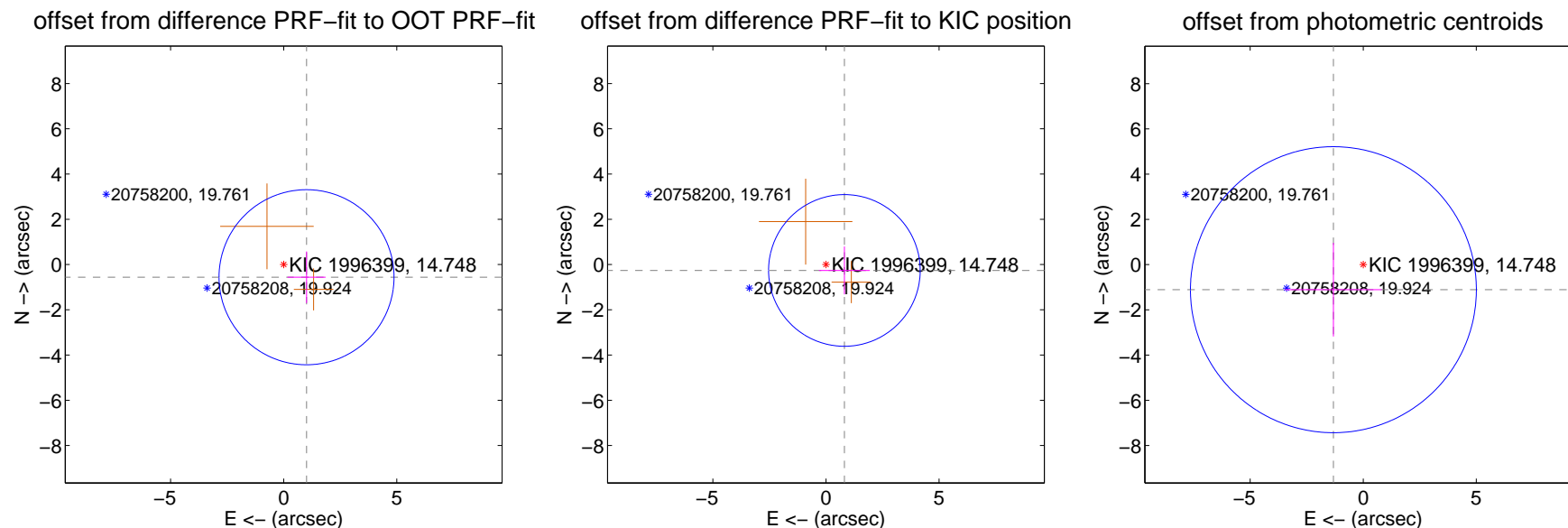
## DV Centroid Data

Supplemental centroid analysis for 001996399-01. Kepler magnitude: 14.75. Transit SNR 6.69

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.155 \pm 1.290$	0.90	$-1.010 \pm 0.844$	$-0.561 \pm 1.140$
PRF-fit source offset from KIC position	$0.855 \pm 1.117$	0.77	$-0.814 \pm 1.123$	$-0.261 \pm 1.059$
photometric centroid source offset	$1.72 \pm 2.11$	0.82	$1.32 \pm 2.13$	$-1.11 \pm 2.07$

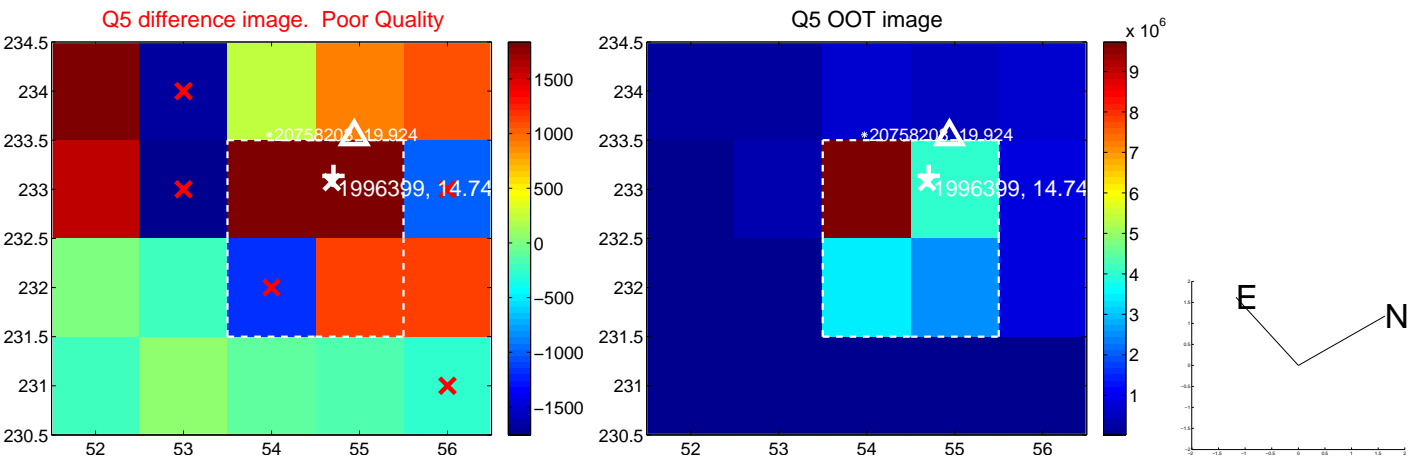


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000 are from the UKIRT catalog.

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

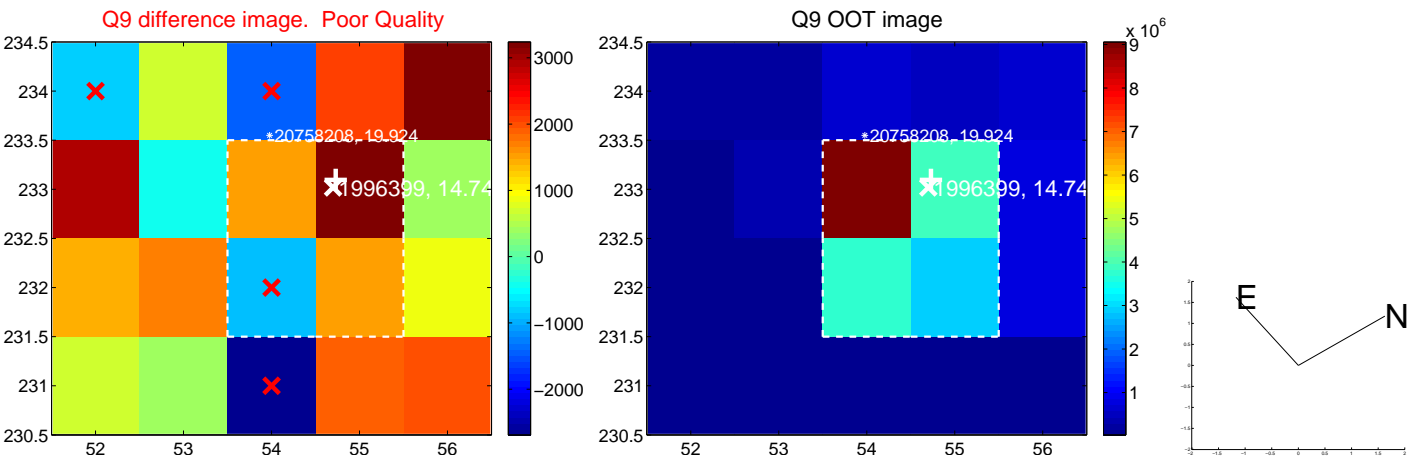


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

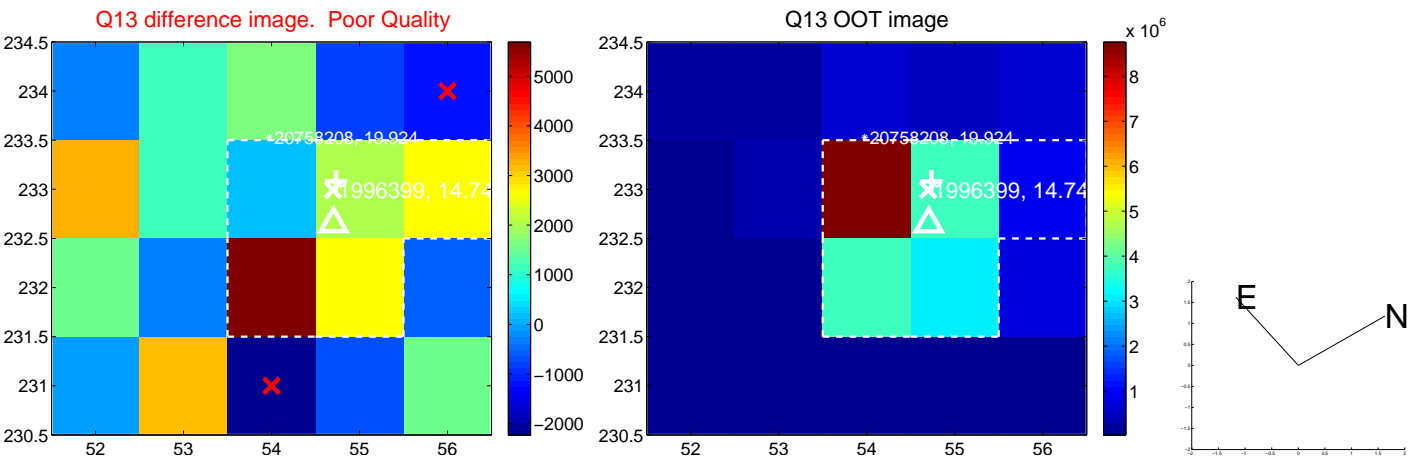




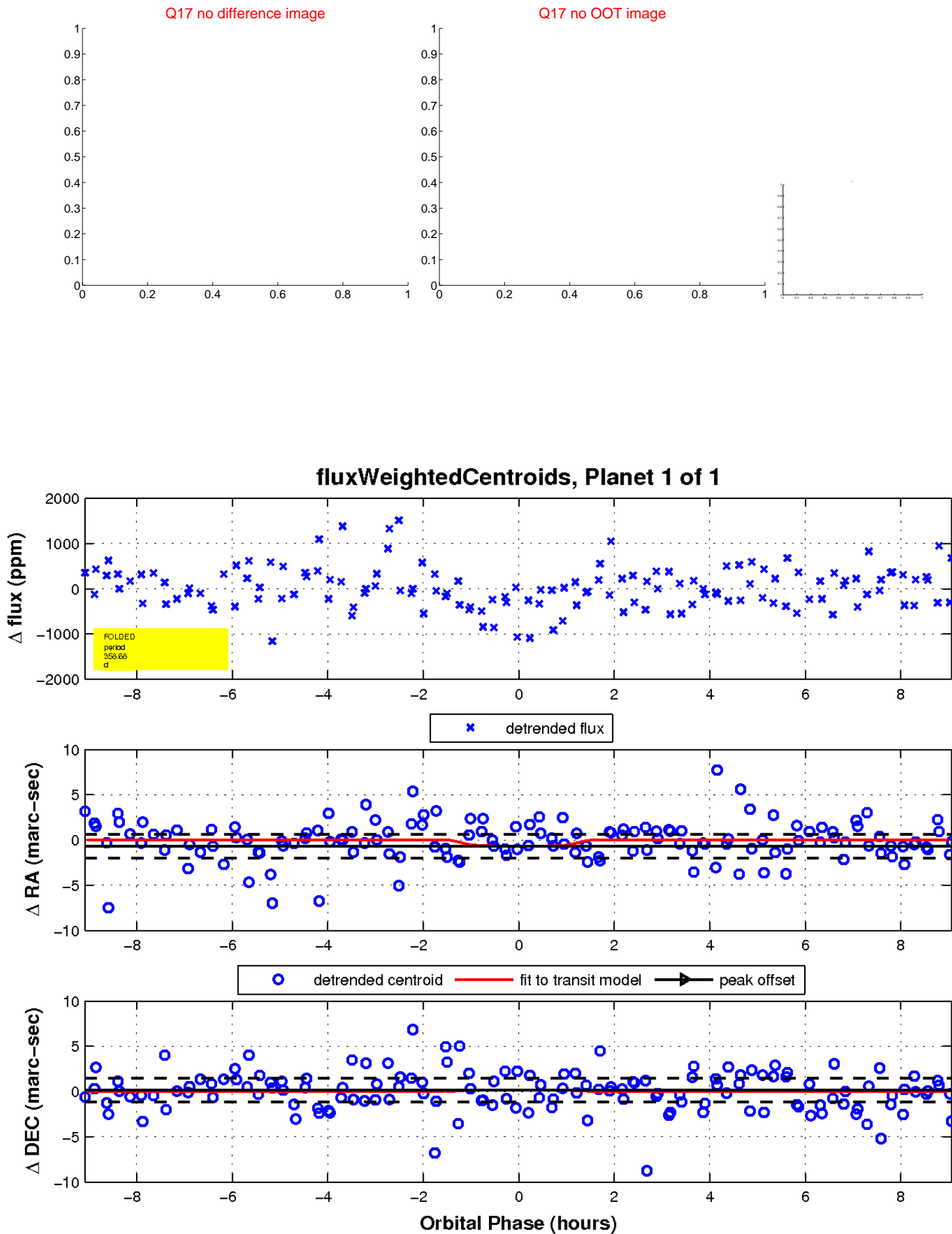
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image

Declination

