

# KIC 012217319

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012217319-01	OBS	No	426.965923	358.224401	632.5	9.542	8.0	7.5	0.77	5620	2.25	0.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012217319-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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.

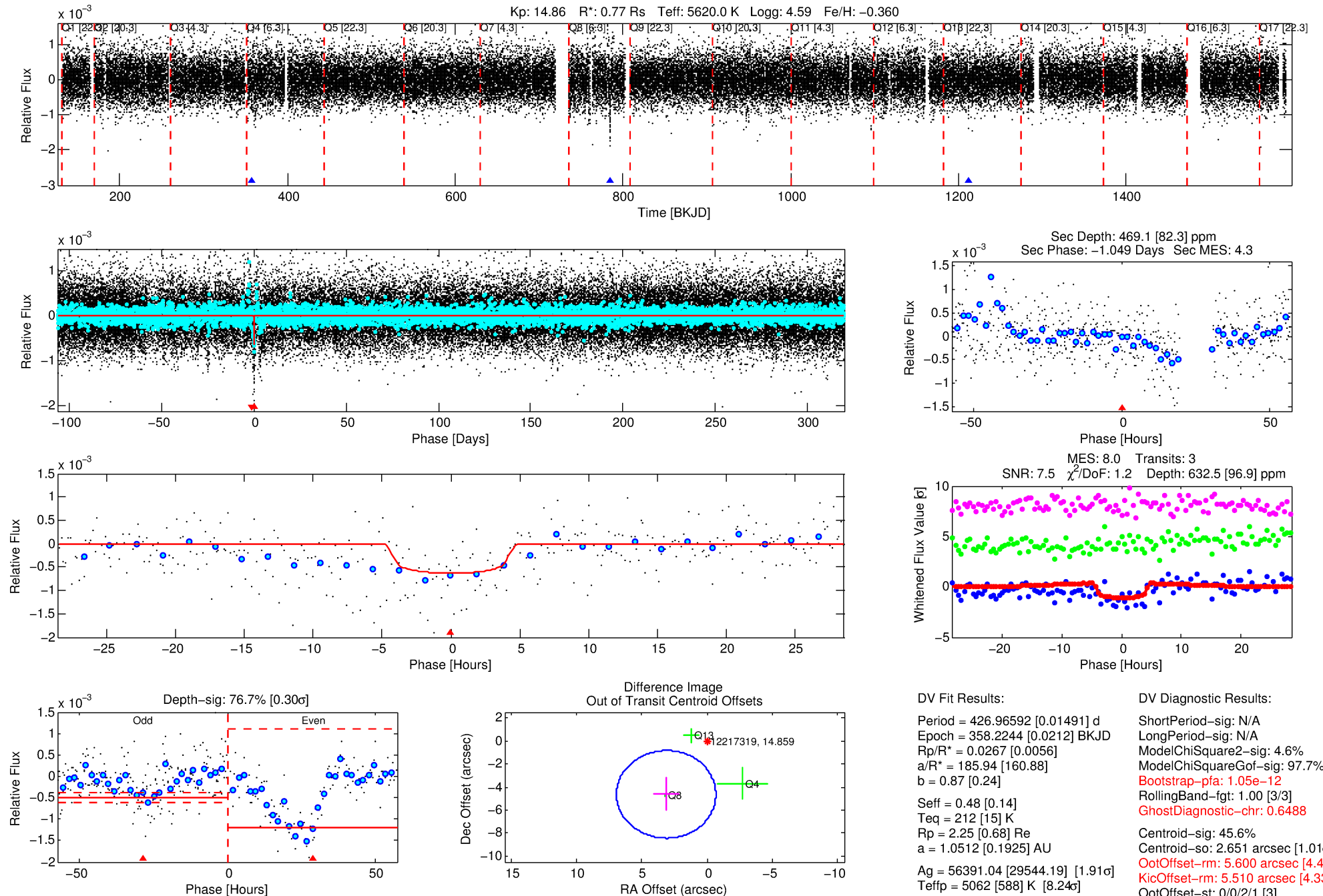
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012217319-01

No Significant Match Found

# DV One-Page Summary

KIC: 12217319 Candidate: 1 of 1 Period: 426.966 d



## DV Fit Results:

Period = 426.96592 [0.01491] d  
Epoch = 358.2244 [0.0212] BKJD  
Rp/R\* = 0.0267 [0.0056]  
a/R\* = 185.94 [160.88]  
b = 0.87 [0.24]  
Seff = 0.48 [0.14]  
Teff = 212 [15] K  
Rp = 2.25 [0.68] Re  
a = 1.0512 [0.1925] AU  
Ag = 56391.04 [29544.19] [1.91 $\sigma$ ]  
Teffp = 5062 [588] K [8.24 $\sigma$ ]

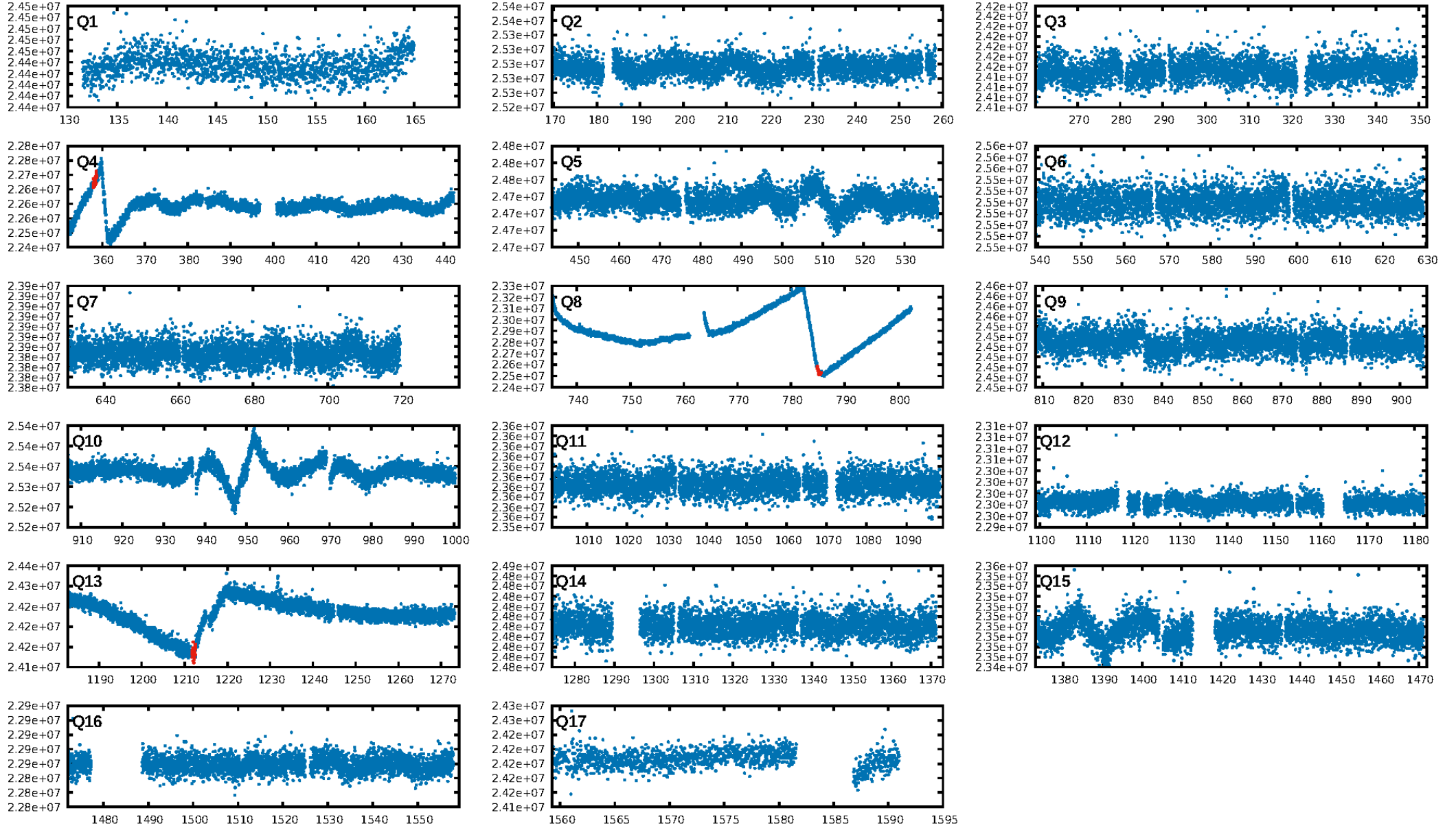
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.6%  
ModelChiSquareGof-sig: 97.7%  
**Bootstrap-pfa: 1.05e-12**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.6488**  
Centroid-sig: 45.6%  
Centroid-so: 2.651 arcsec [1.01 $\sigma$ ]  
**OotOffset-rm: 5.600 arcsec [4.42 $\sigma$ ]**  
**KicOffset-rm: 5.510 arcsec [4.33 $\sigma$ ]**  
OotOffset-st: 0/0/2/1 [3]  
KicOffset-st: 0/0/2/1 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 1.00 [3/3]

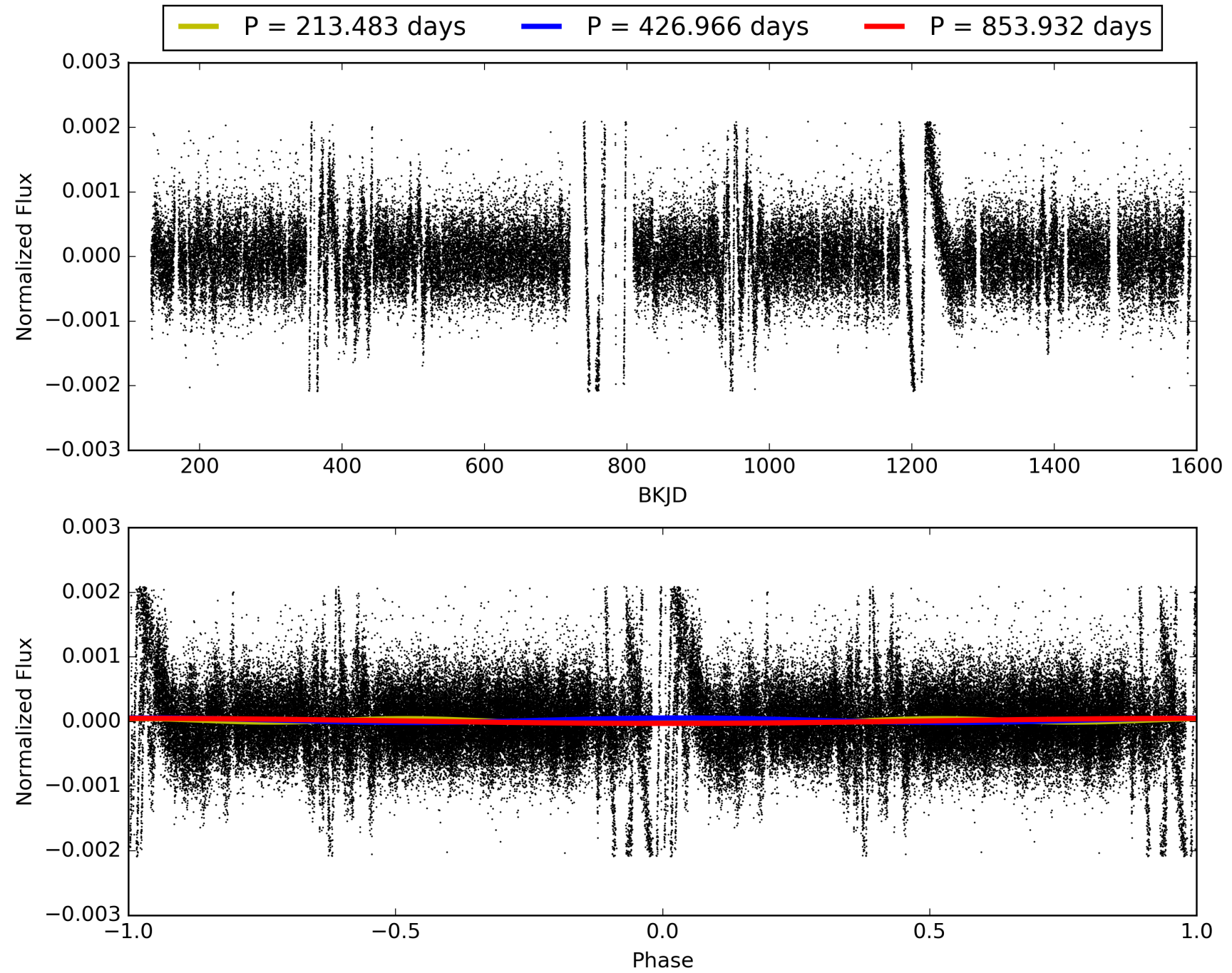
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:00:37 Z

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

# TCE 012217319-01, PDC Light Curves

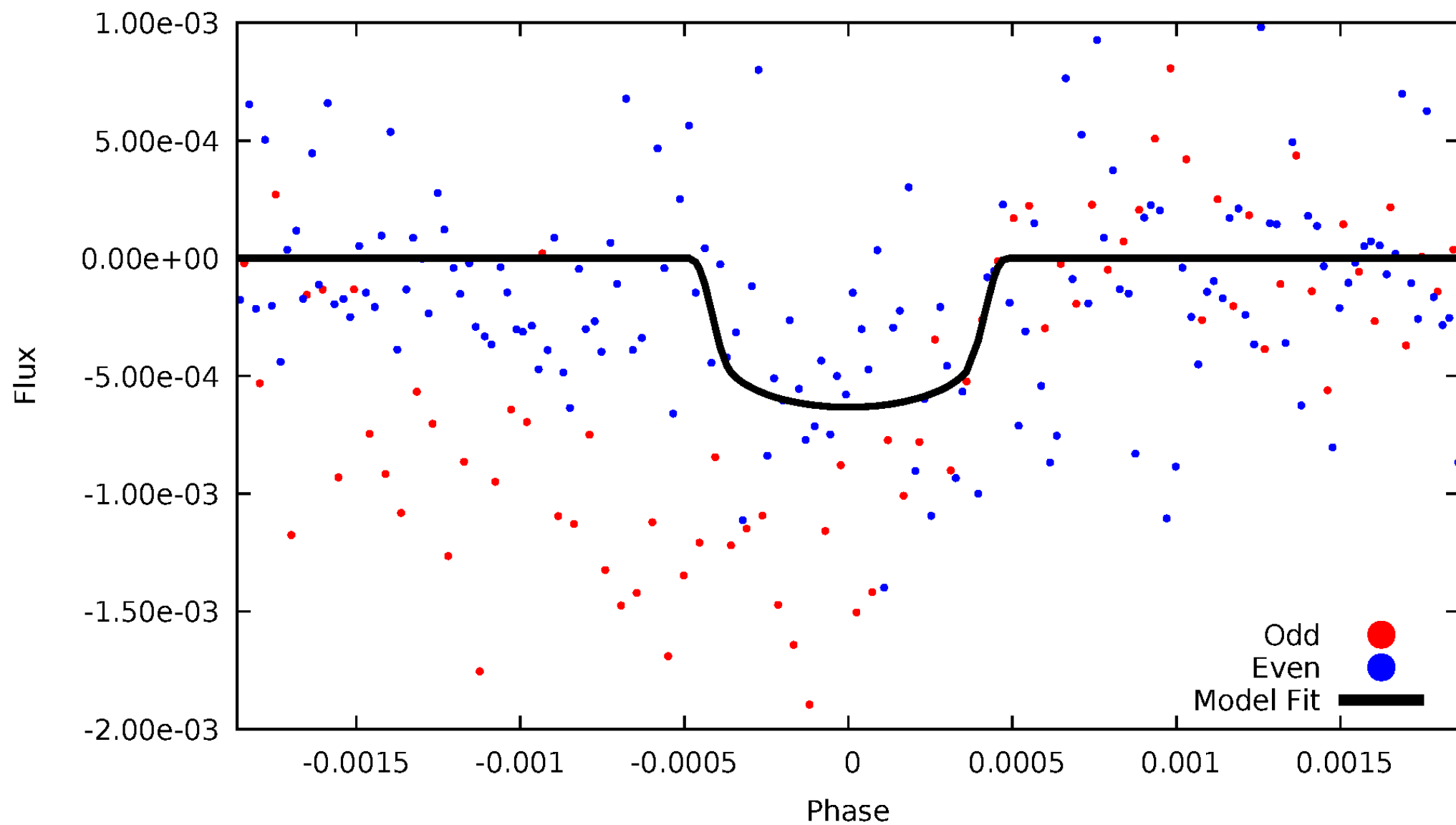


TCE 012217319-01



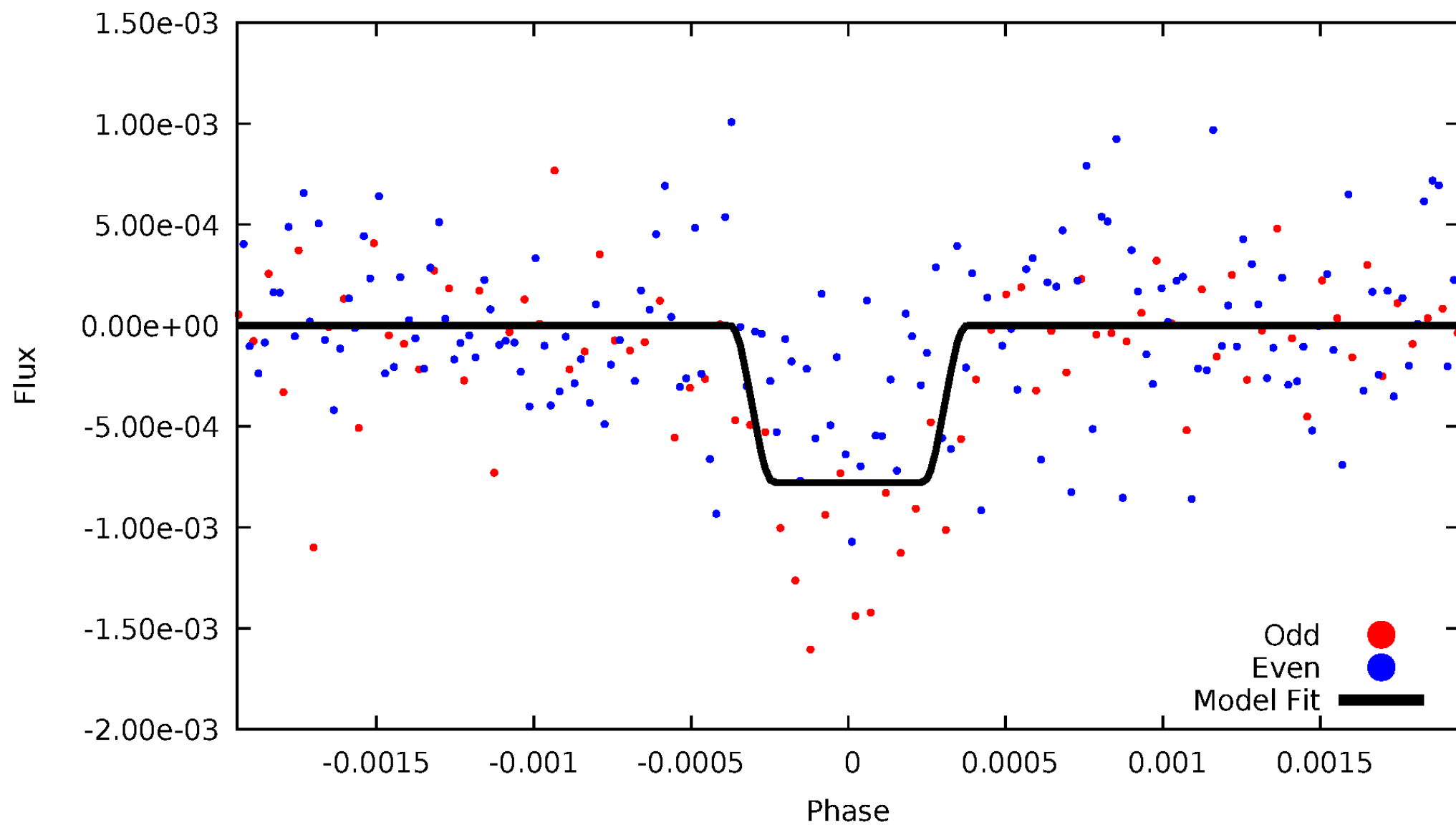
# DV Odd/Even

TCE 012217319-01



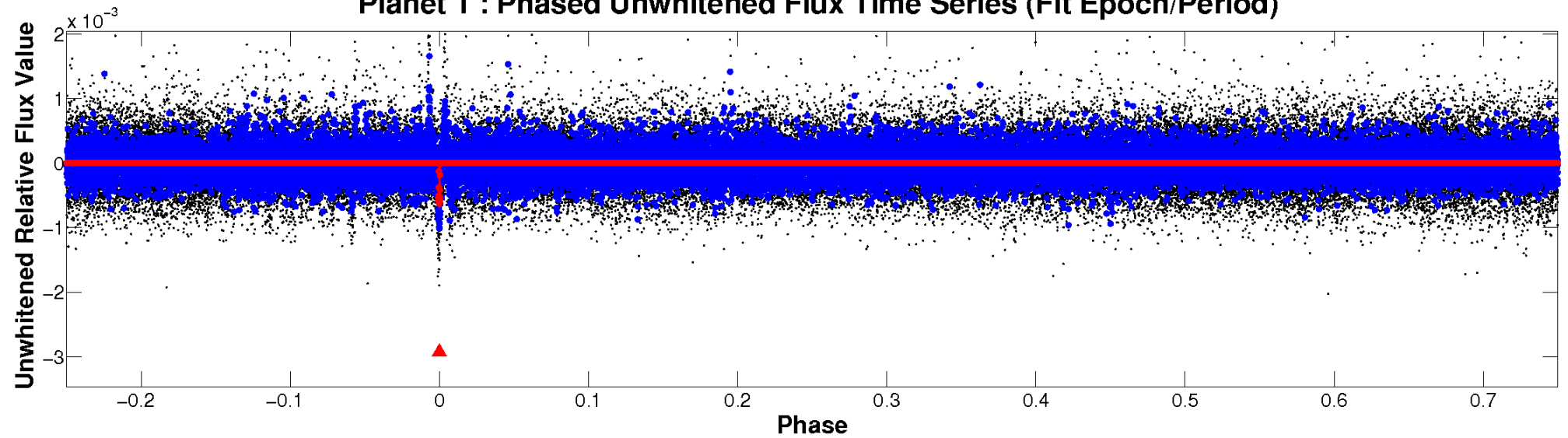
# ALT Odd/Even

TCE 012217319-01

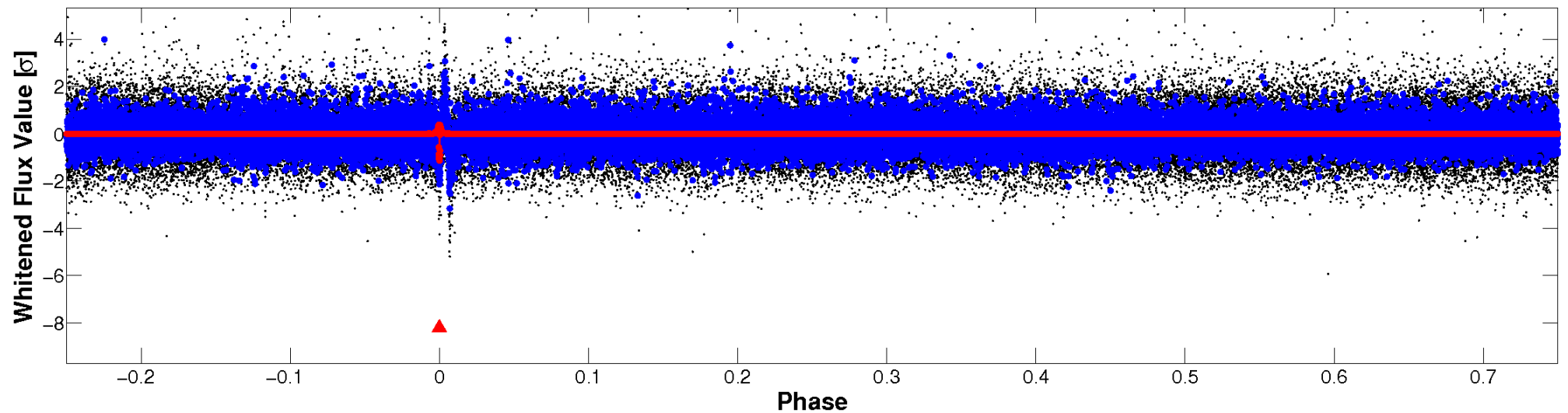


# Non-Whitened Vs. Whitened Light Curve

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

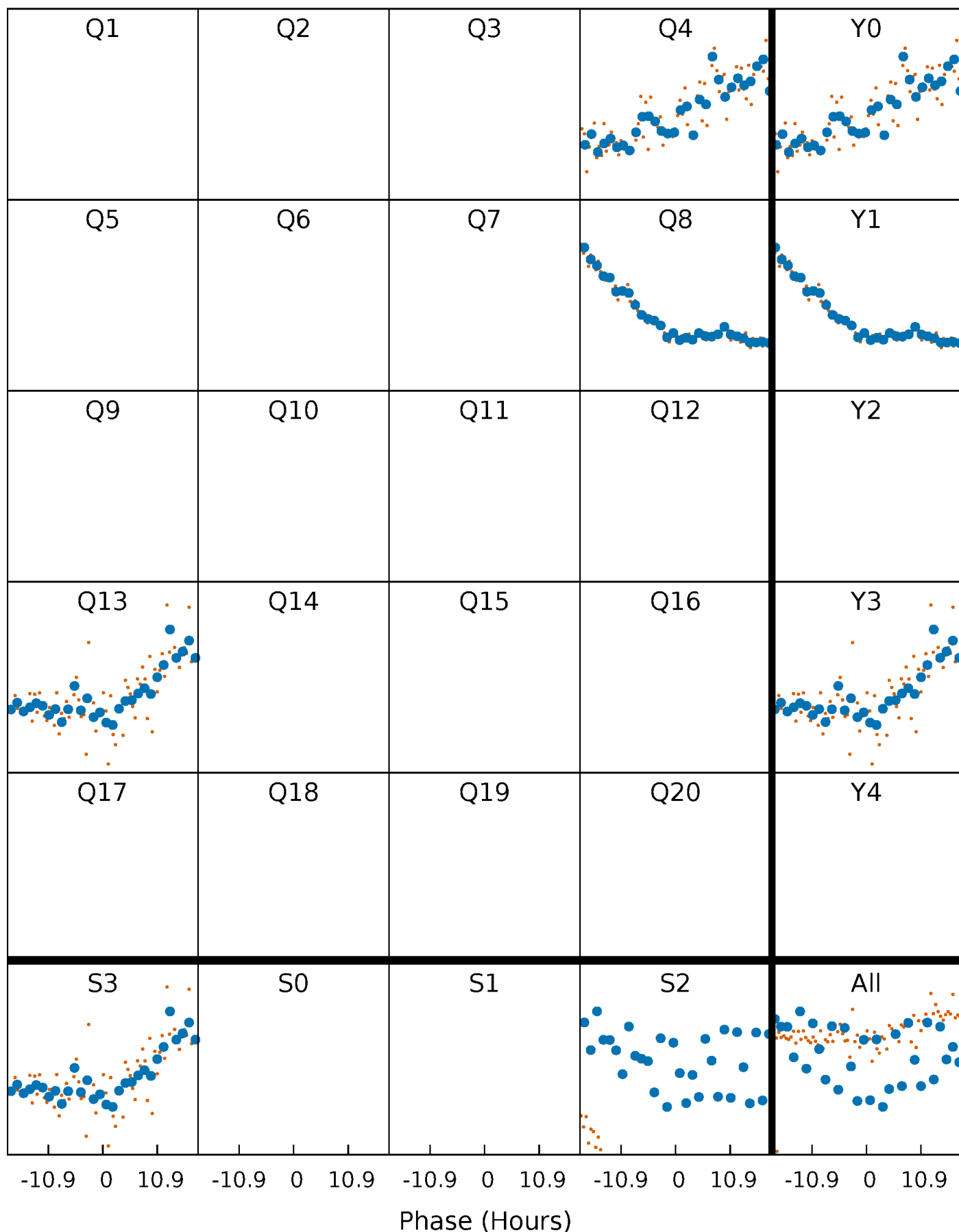


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

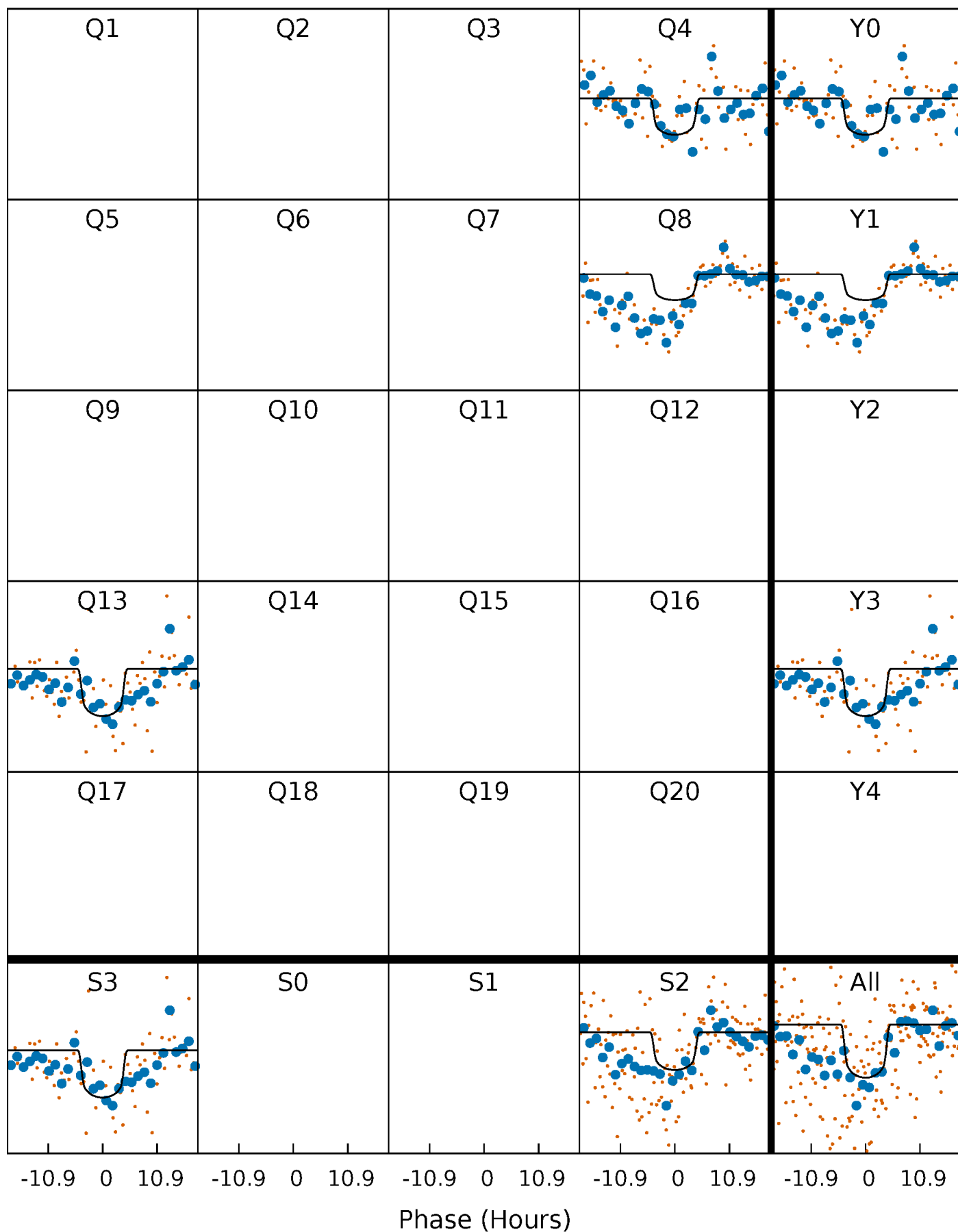
TCE 012217319-01 P=426.965923 Days  $T_0=358.224401$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 012217319-01 P=426.965923 Days  $T_0=358.224401$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

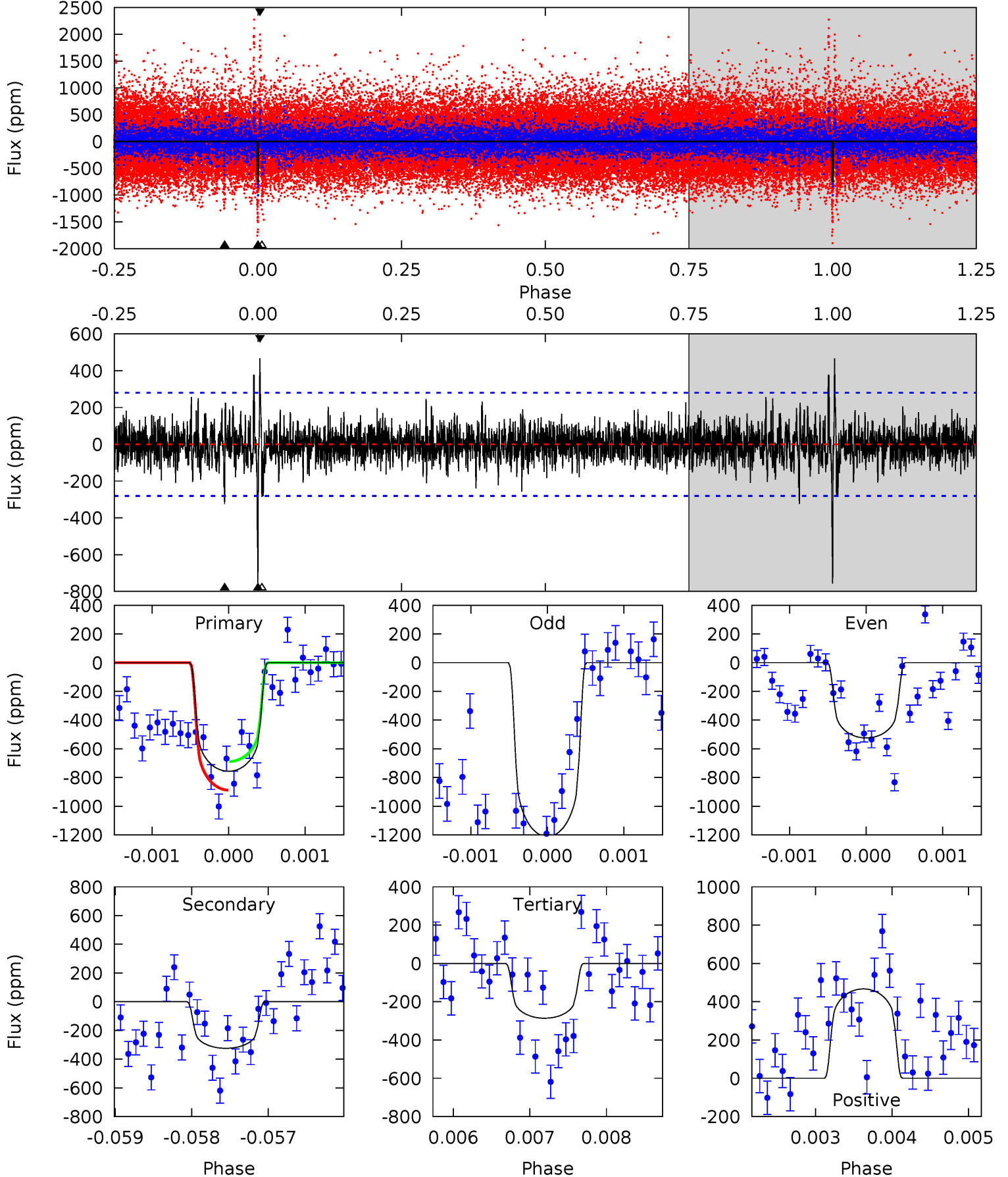
TCE 012217319-01 P=427.006914 Days  $T_0=358.184226$  (BKJD)



# DV Model-Shift Uniqueness Test

012217319-01, P = 426.965923 Days, E = 358.224401 Days

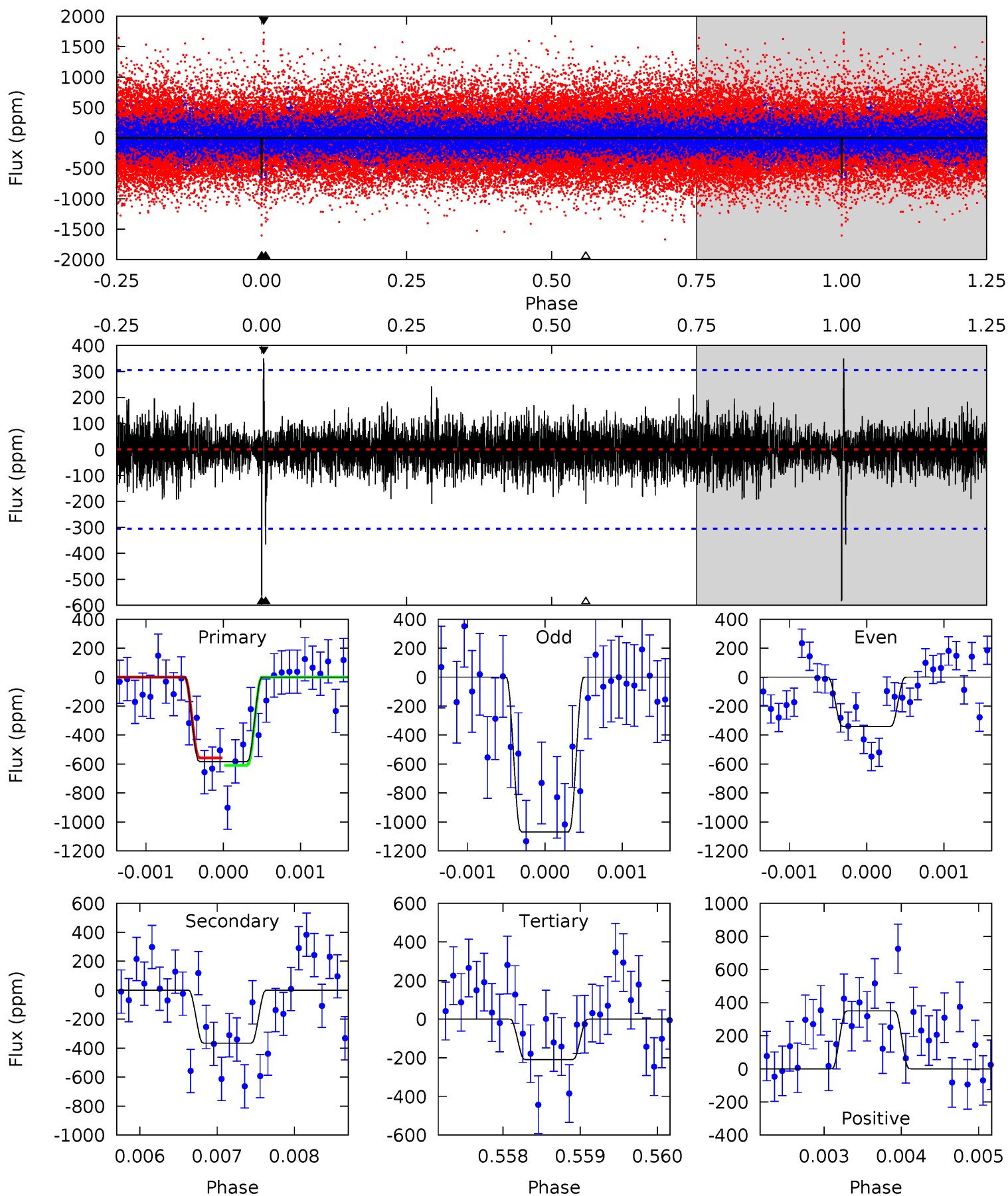
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	6.32	5.57	9.09	5.46	3.30	1.36	9.16	5.64	0.75	-2.77	6.30	1.25	0.38	1.92



# Alt Model-Shift Uniqueness Test

012217319-01, P = 427.006914 Days, E = 358.184226 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
10.5	6.59	3.77	6.32	5.50	3.37	1.01	6.75	4.21	2.82	0.28	6.18	1.56	0.38	0.47



### Stellar Parameters For KIC 012217319

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5620^{+152}_{-152}$	$4.592^{+0.036}_{-0.144}$	$-0.360^{+0.300}_{-0.300}$	$0.772^{+0.169}_{-0.061}$	$0.863^{+0.088}_{-0.097}$	$2.643^{+0.413}_{-1.170}$
	+3%/-3%	+1%/-3%	+83%/-83%	+22%/-8%	+10%/-11%	+16%/-44%
Source	PHO1	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 012217319-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-324 \pm 51$	$2.35^{+0.54}_{-0.50}$	$303^{+17}_{-12}$	$4754^{+509}_{-395}$	$35722^{+23496}_{-13508}$
Alt.	$-366 \pm 55$	$2.46^{+0.54}_{-0.52}$	$302^{+16}_{-12}$	$4765^{+492}_{-389}$	$36809^{+23692}_{-12998}$

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

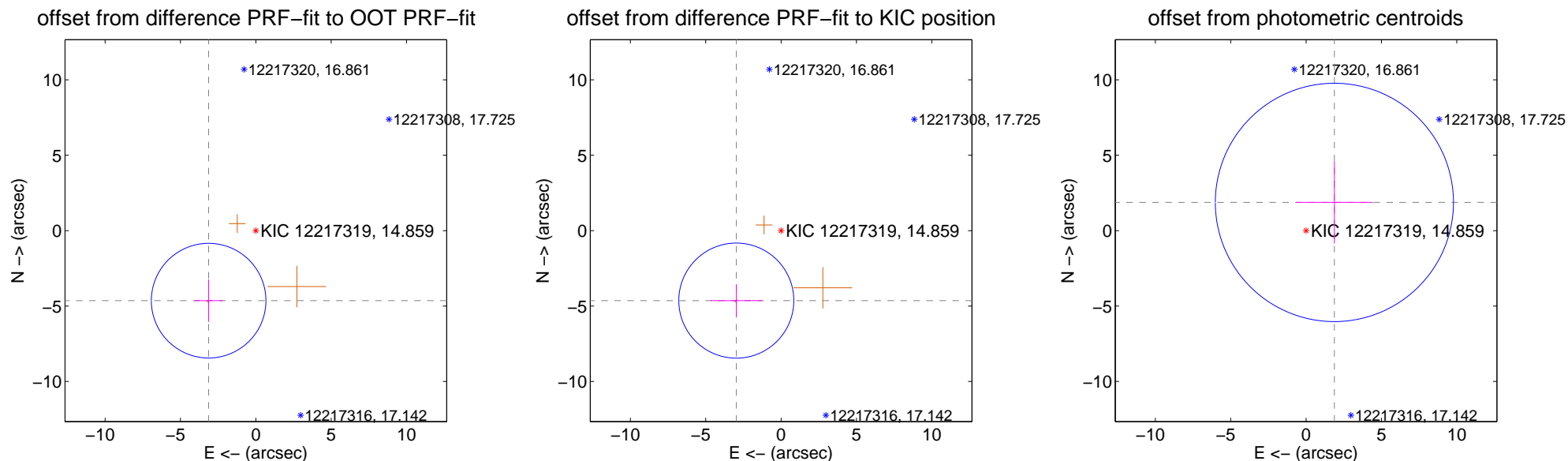
## DV Centroid Data

Supplemental centroid analysis for 012217319-01. Kepler magnitude: 14.86. Transit SNR 7.48

There are 0 quarters with good PRF difference image offsets

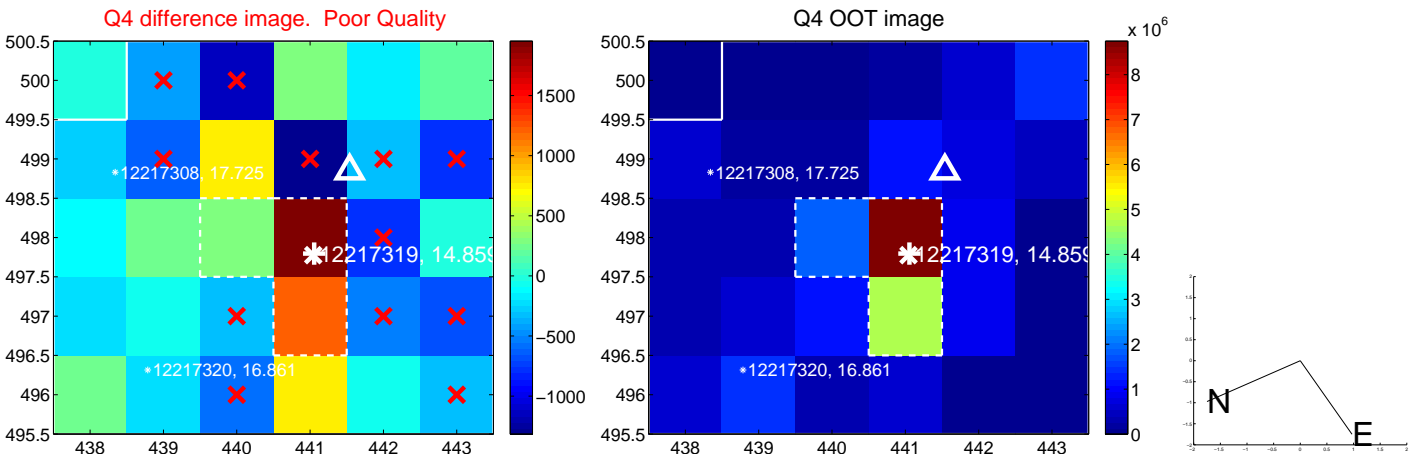
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.600 \pm 1.267$	4.42	$3.131 \pm 0.956$	$-4.643 \pm 1.409$
PRF-fit source offset from KIC position	$5.510 \pm 1.272$	4.33	$2.972 \pm 1.705$	$-4.639 \pm 1.085$
photometric centroid source offset	$2.65 \pm 2.63$	1.01	$-1.88 \pm 2.54$	$1.87 \pm 2.72$

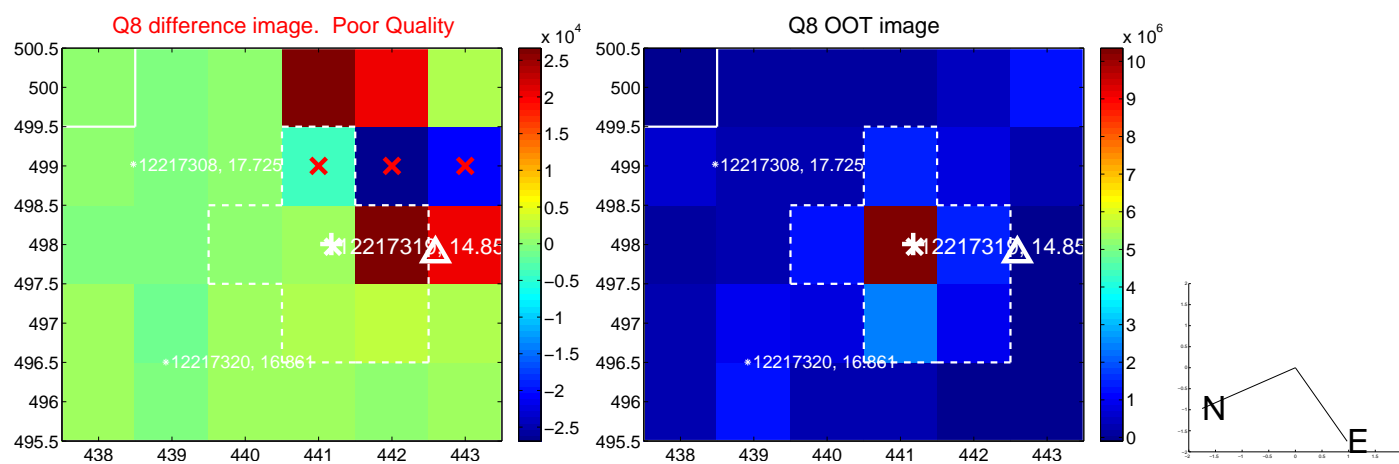
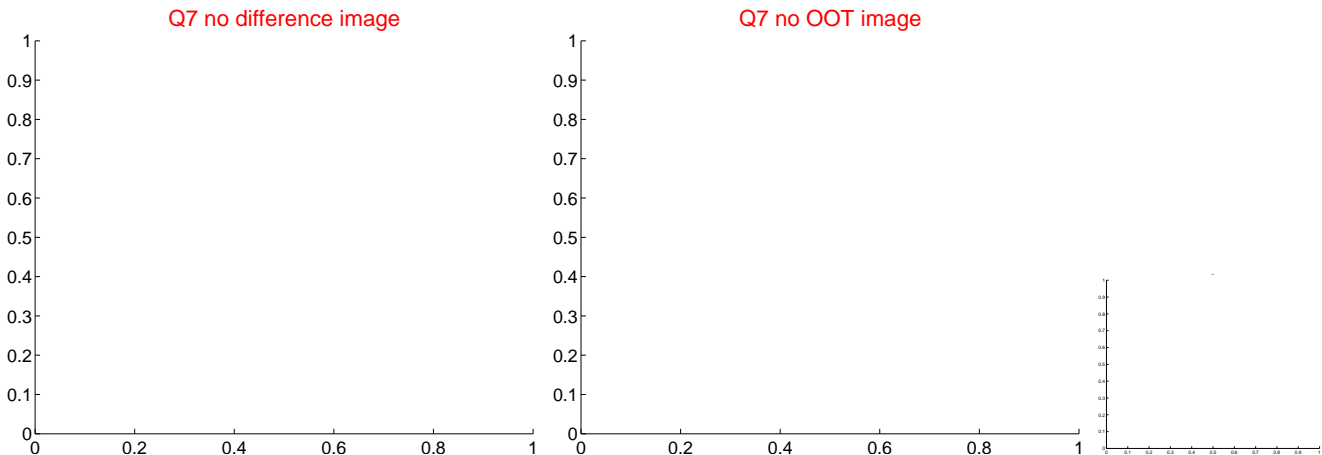
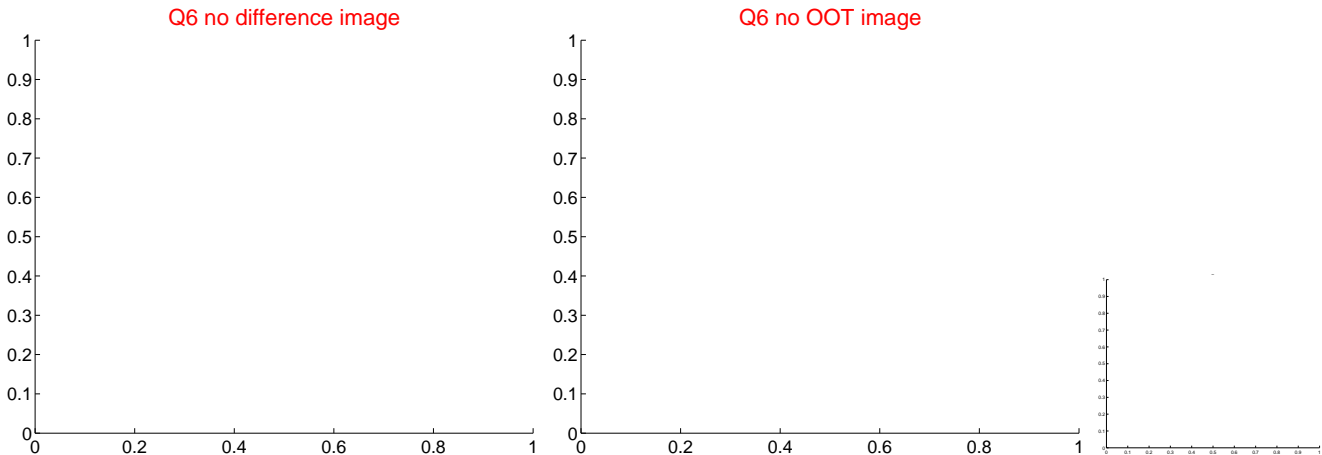
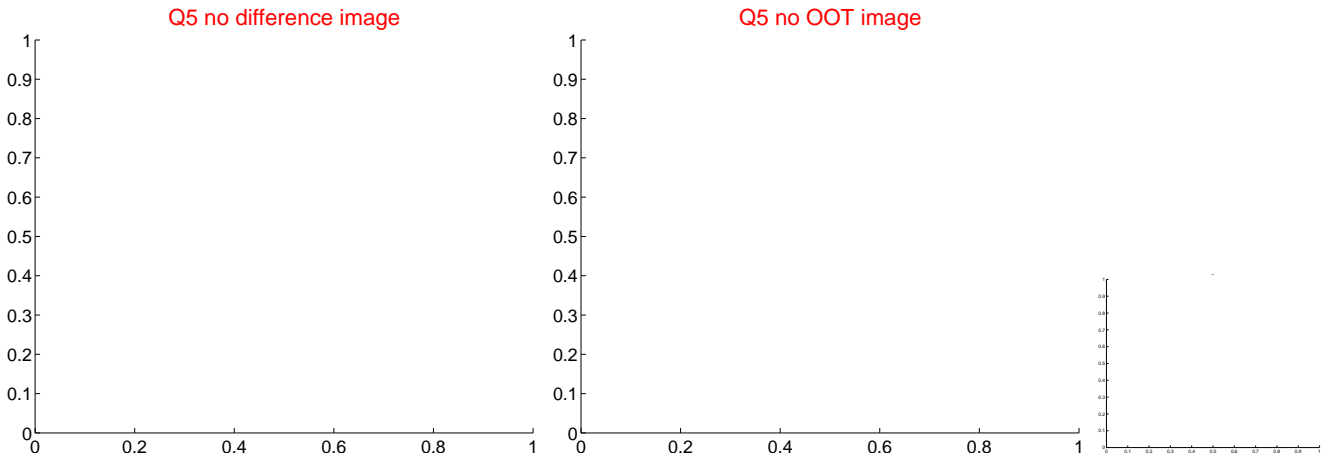


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

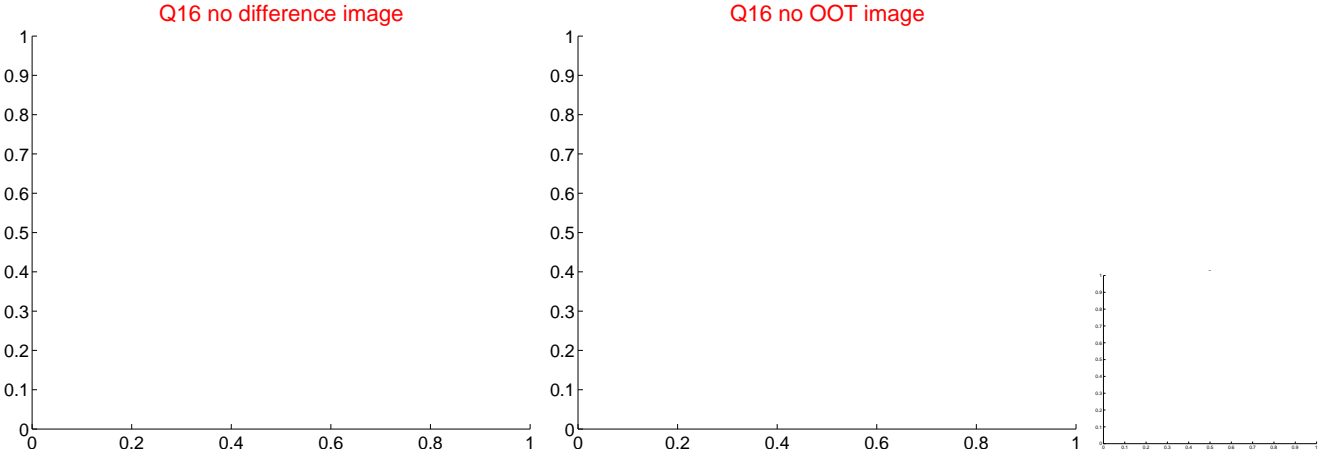
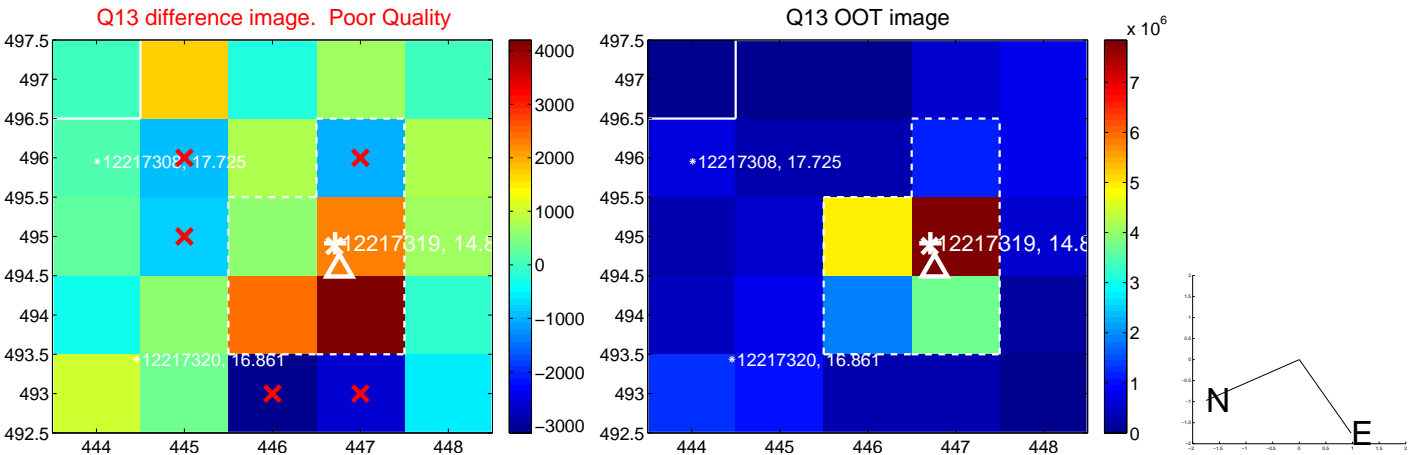




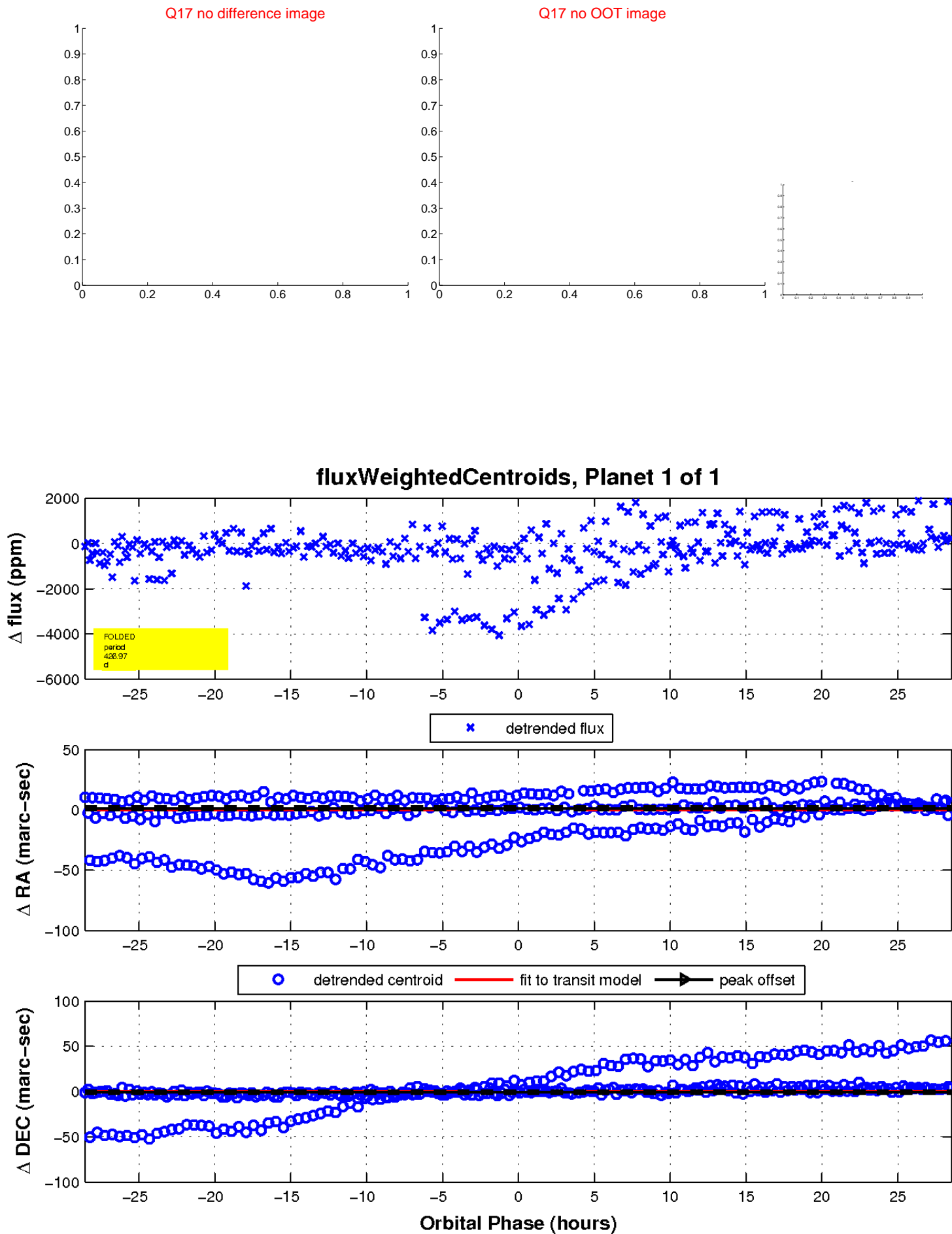
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: 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

