

# KIC 006117156

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006117156-01	OBS	No	359.014476	165.644024	1466.2	30.210	8.6	9.7	1.08	6240	5.40	1.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006117156-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—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.

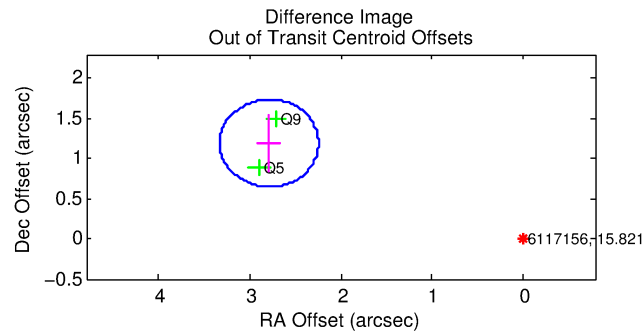
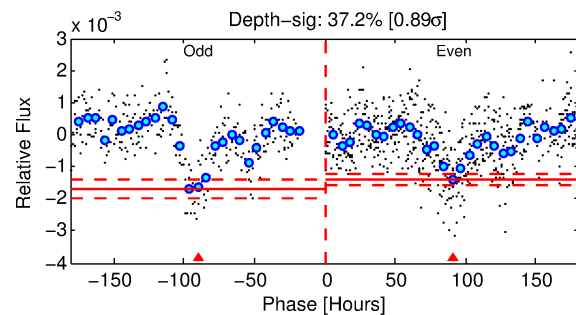
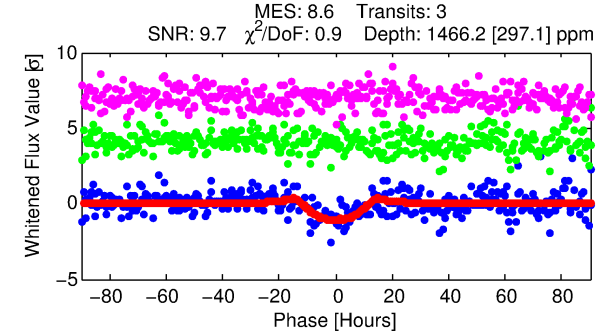
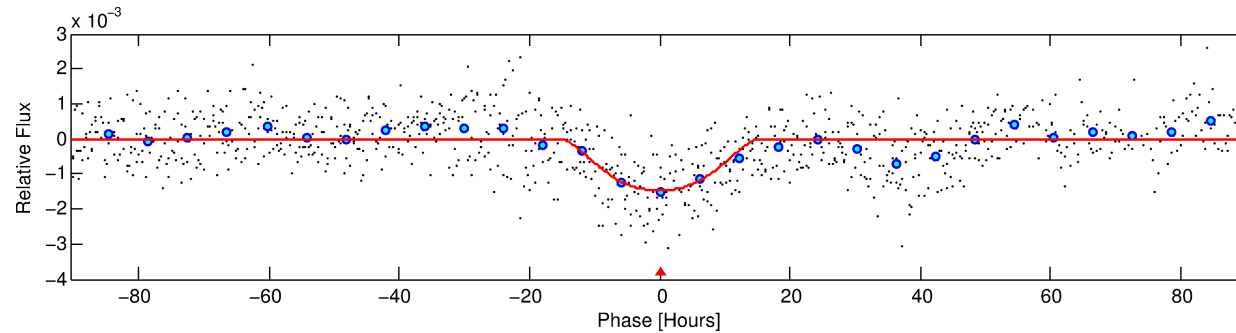
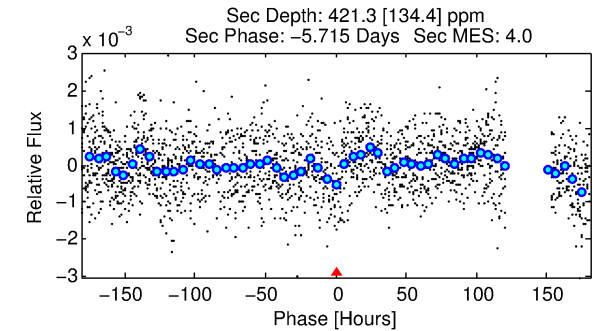
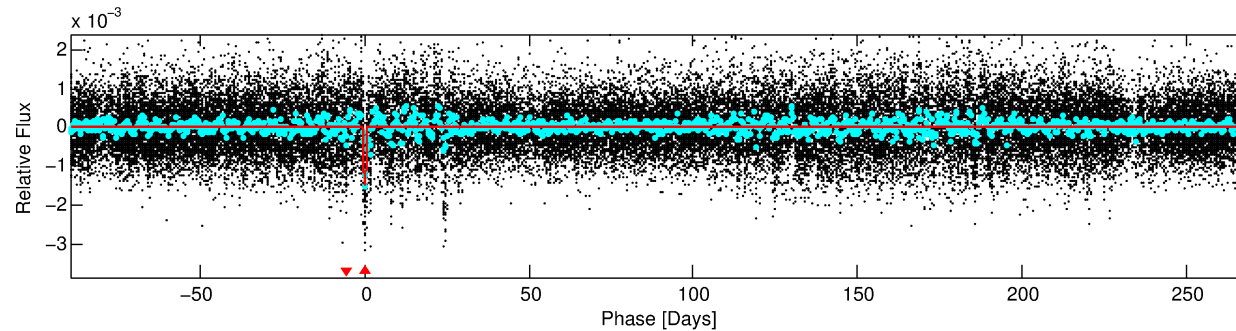
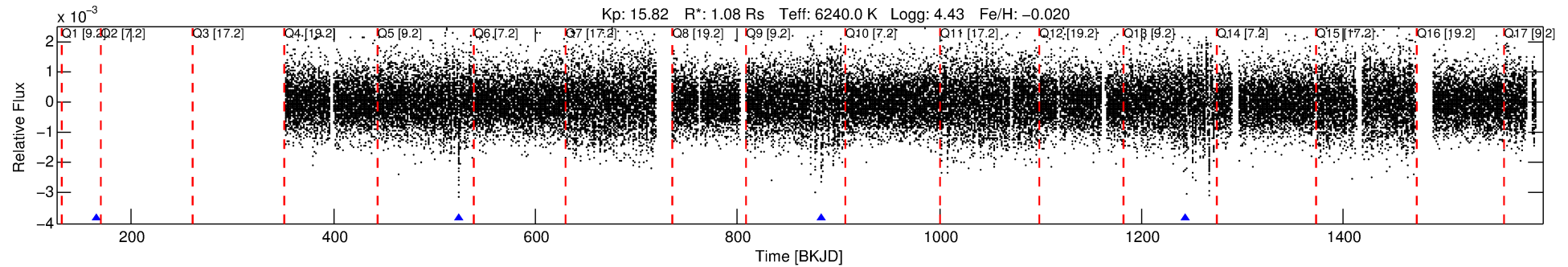
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006117156-01

No Significant Match Found

# DV One-Page Summary

KIC: 6117156 Candidate: 1 of 1 Period: 359.014 d



## DV Fit Results:

Period = 359.01448 [0.03611] d  
Epoch = 165.6440 [0.0754] BKJD  
Rp/R\* = 0.0459 [0.0121]  
a/R\* = 37.44 [7.07]  
b = 0.96 [0.03]  
Seff = 1.49 [0.61]  
Teq = 282 [29] K  
Rp = 5.40 [2.18] Re  
a = 1.0307 [0.2635] AU  
Ag = 8430.88 [6061.93] [1.39σ]  
Teff = 4173 [666] K [5.84σ]

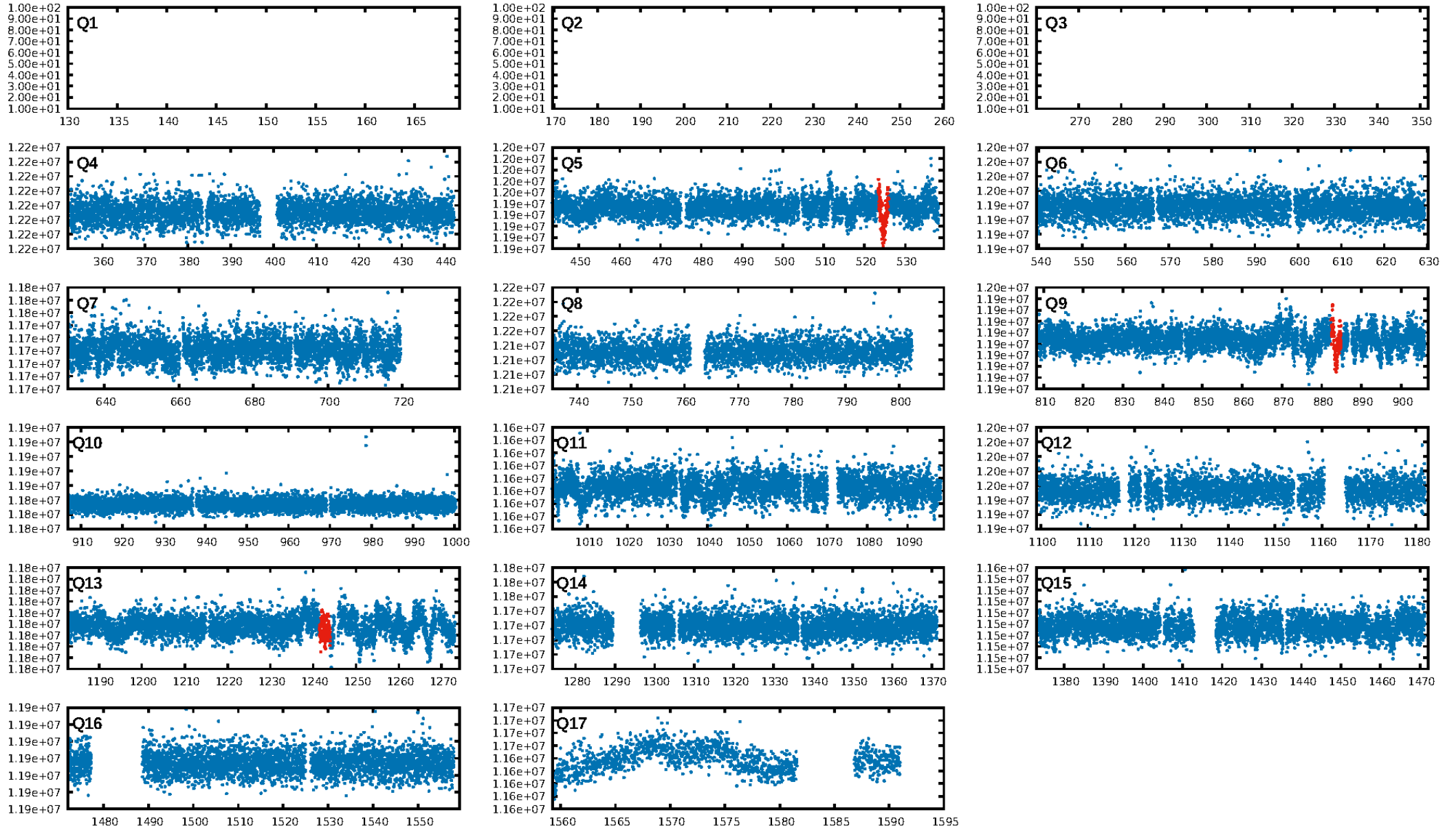
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.60e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.671  
Centroid-sig: 0.8%  
Centroid-so: 3.006 arcsec [1.62σ]  
**OotOffset-rm: 3.033 arcsec [16.70σ]**  
**KicOffset-rm: 2.943 arcsec [17.26σ]**  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

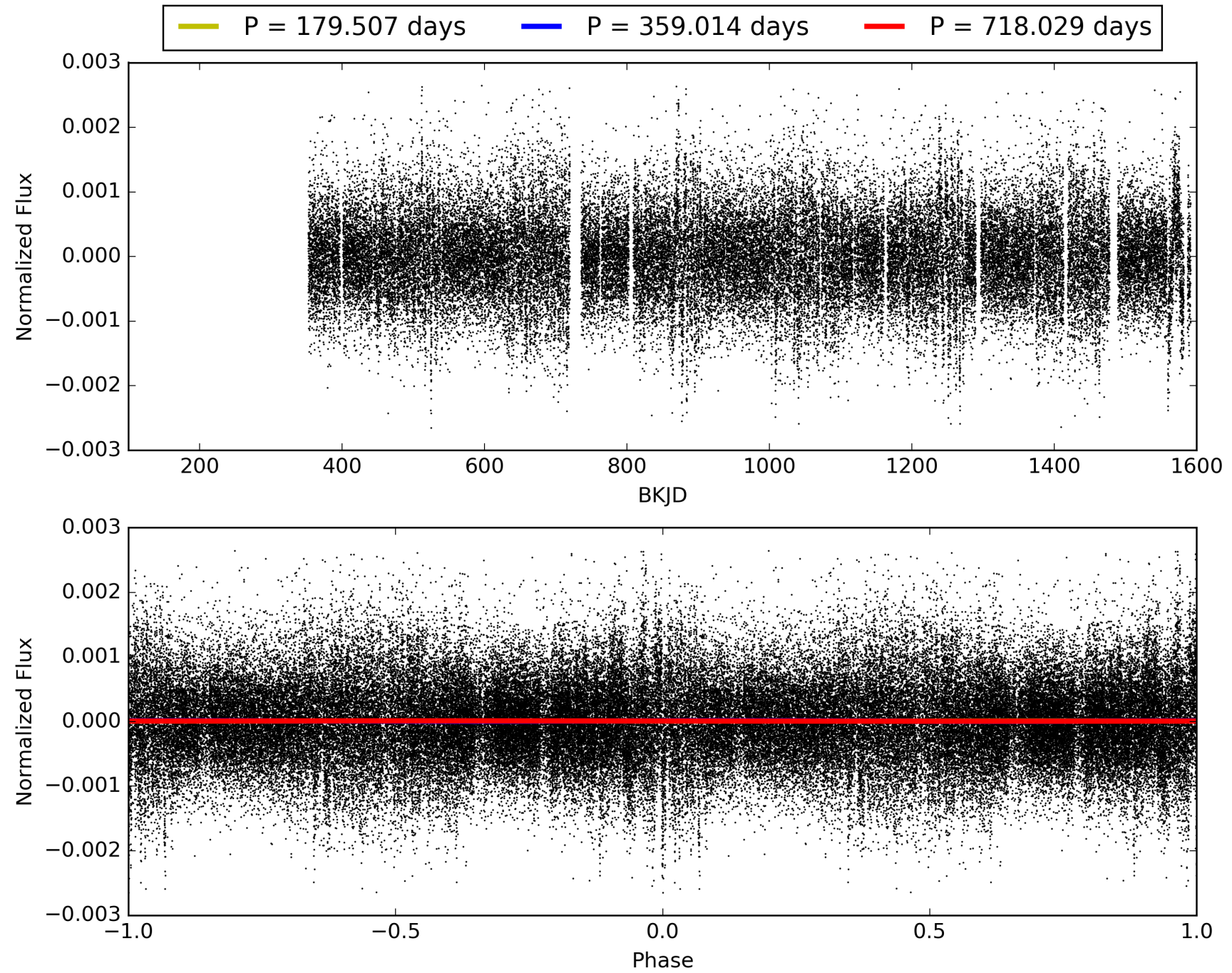
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:20:11 Z

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

# TCE 006117156-01, PDC Light Curves

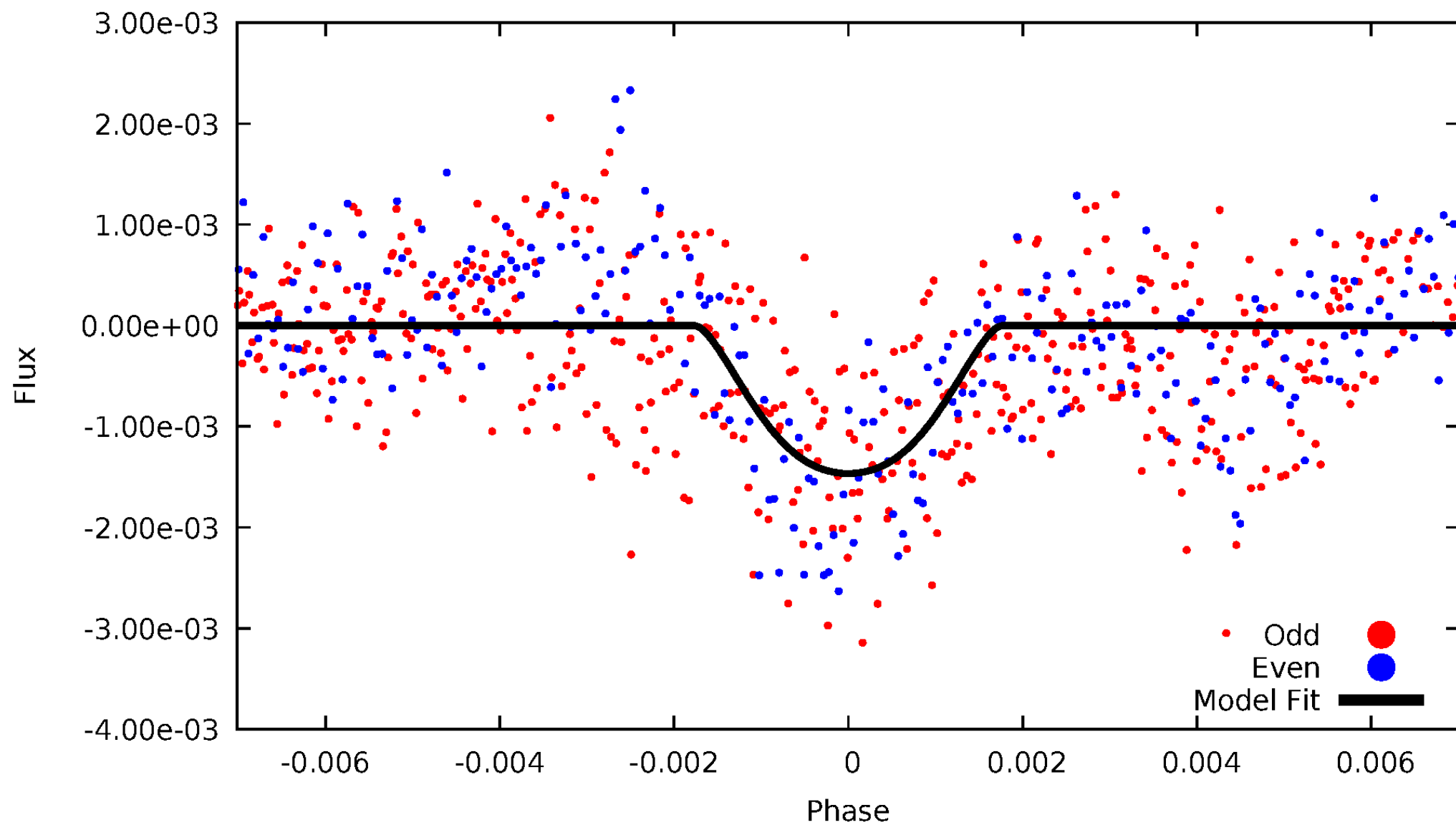


TCE 006117156-01



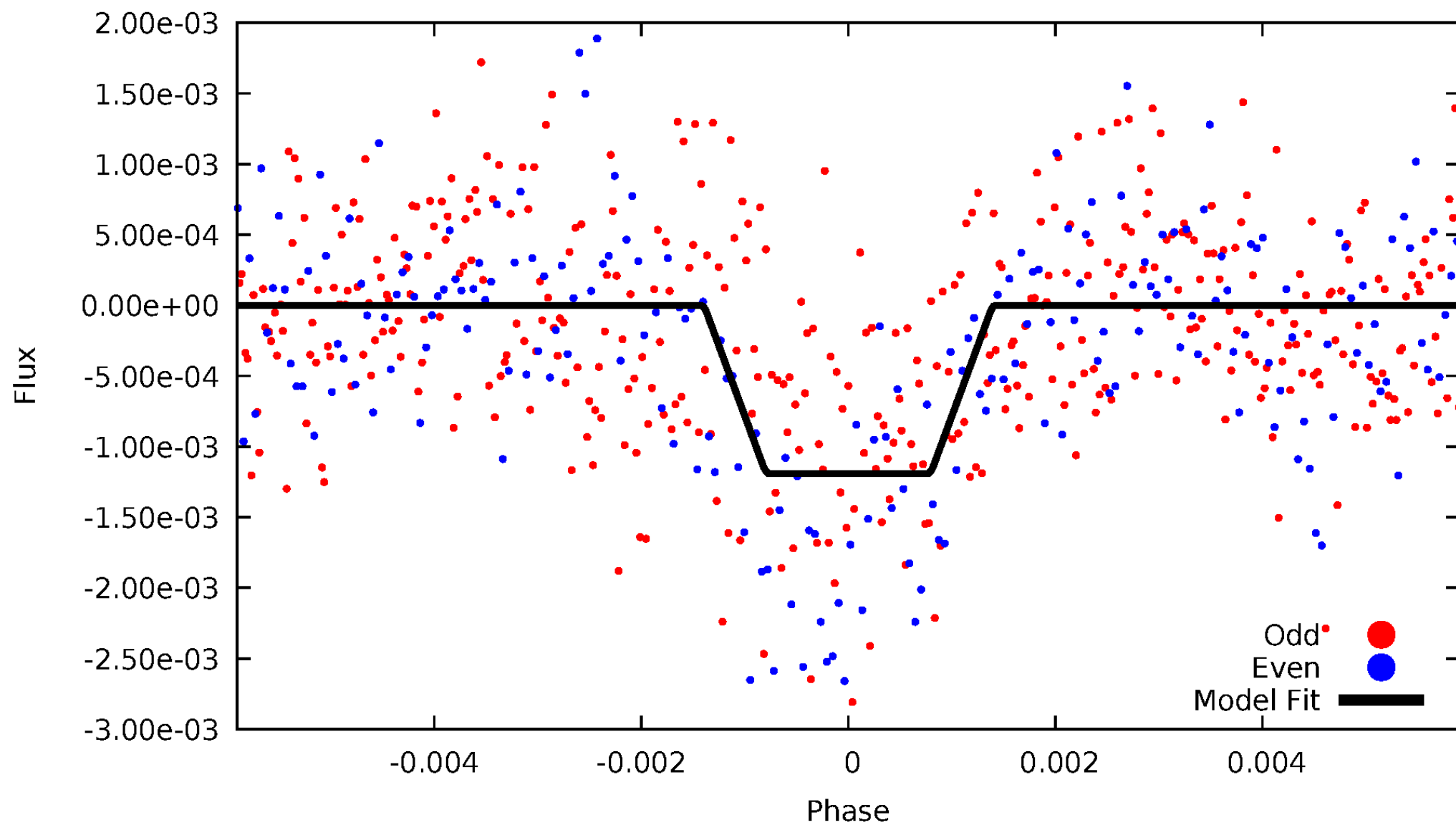
# DV Odd/Even

TCE 006117156-01



# ALT Odd/Even

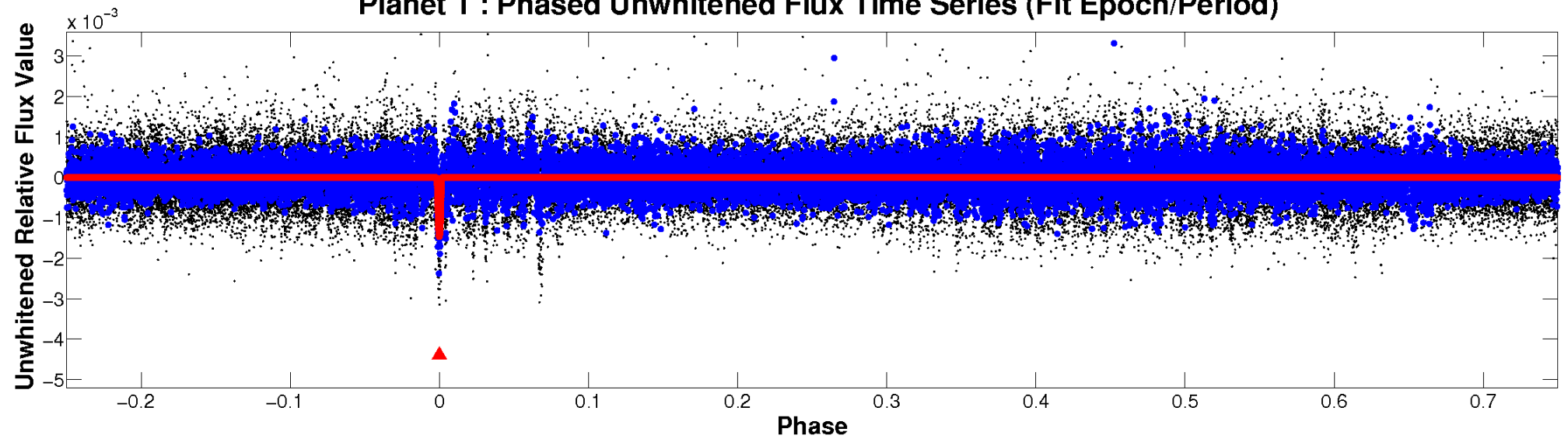
TCE 006117156-01



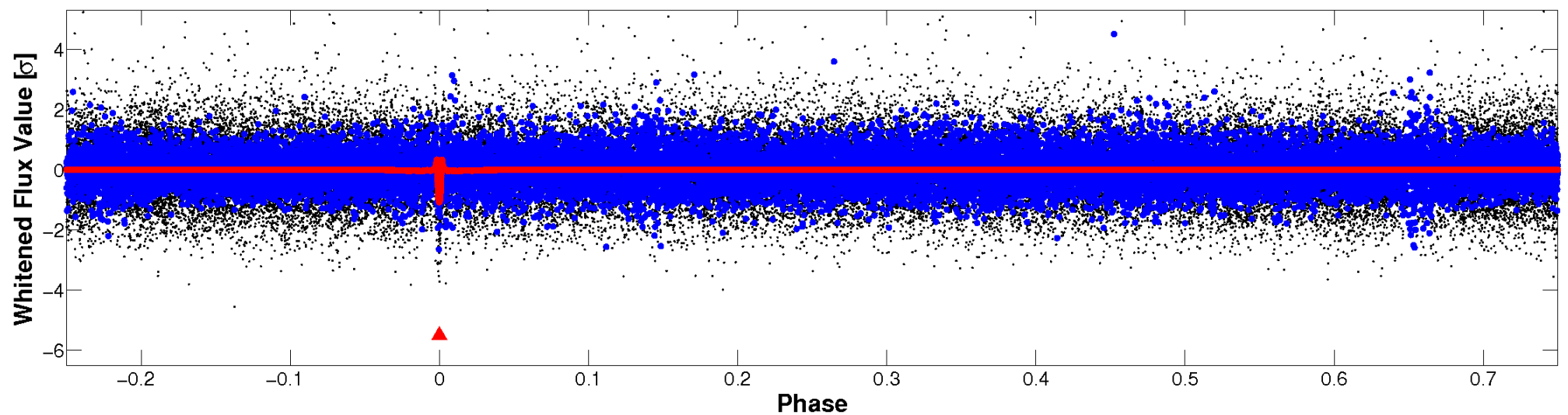


# Non-Whitened Vs. Whitened Light Curve

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

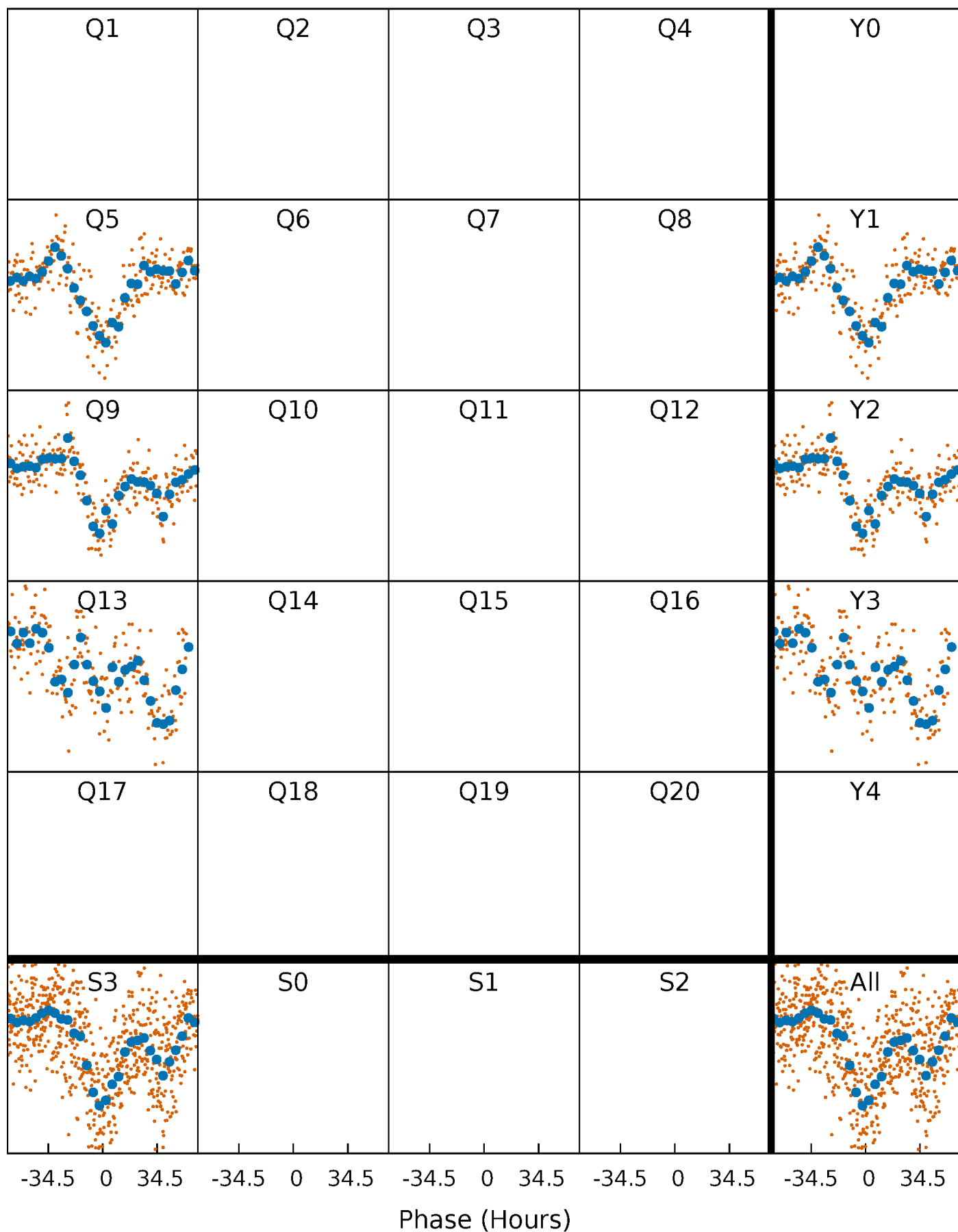


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

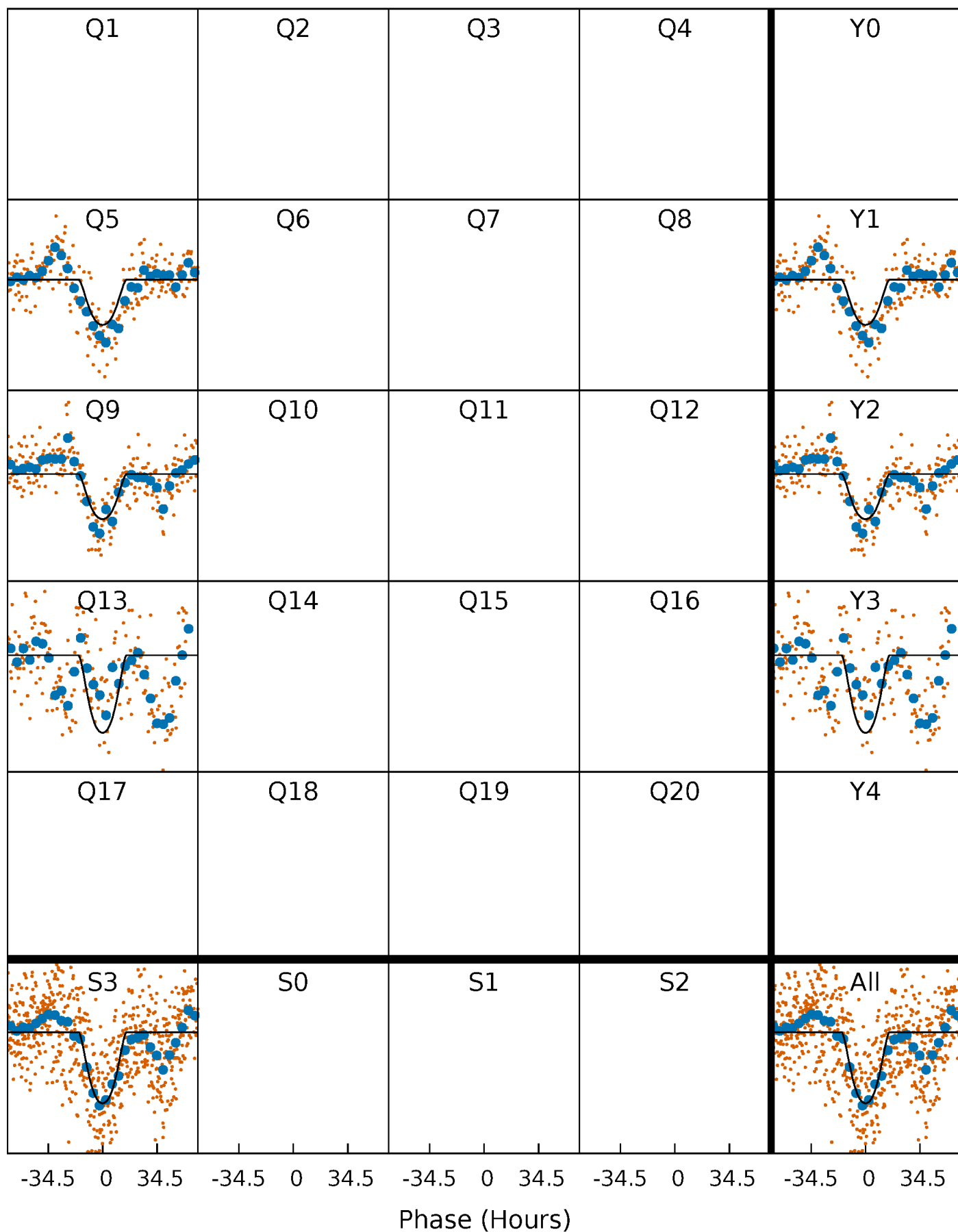
TCE 006117156-01 P=359.014476 Days  $T_0=165.644024$  (BKJD)





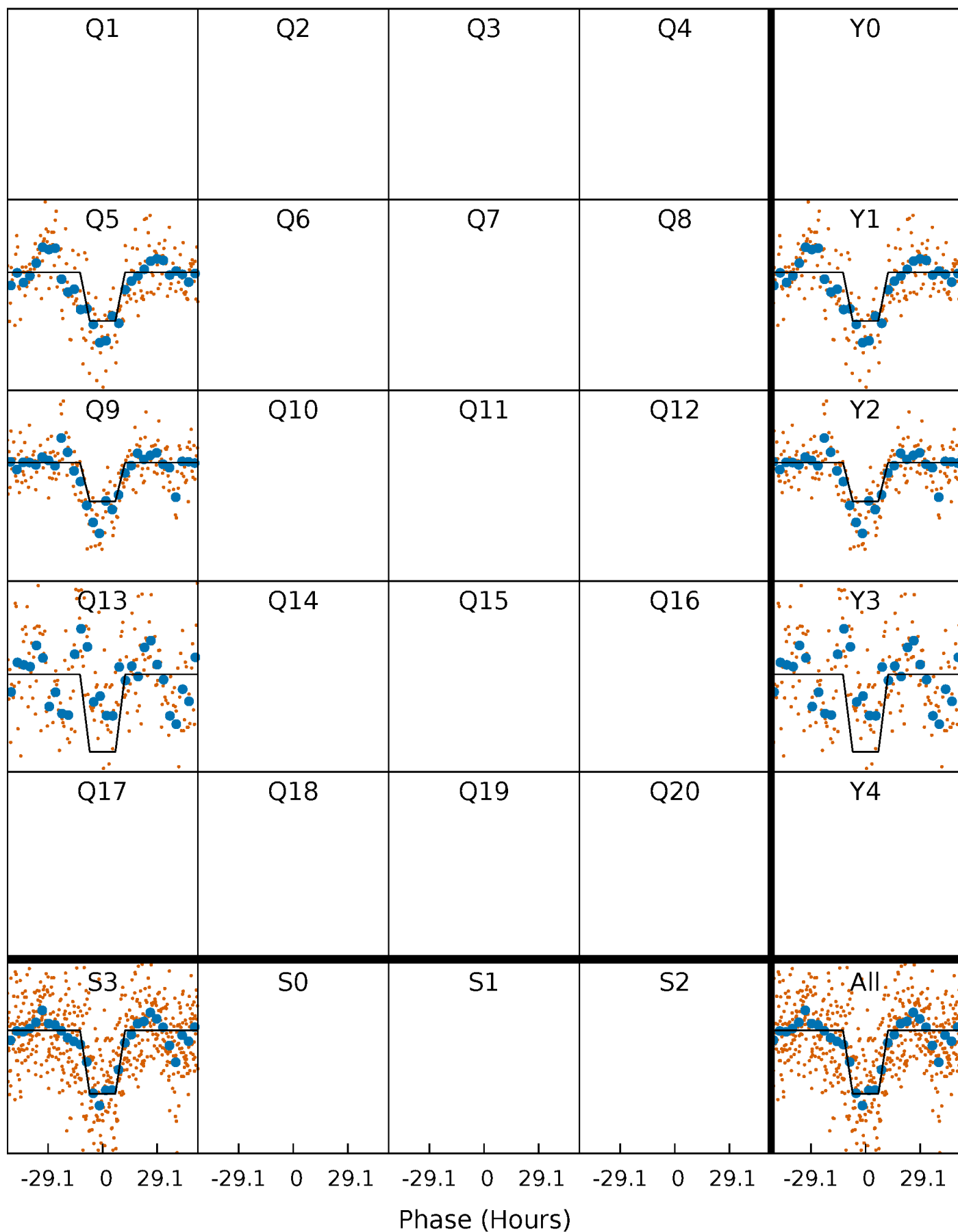
# DV Quarter-Phased Transit Curves

TCE 006117156-01 P=359.014476 Days  $T_0=165.644024$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

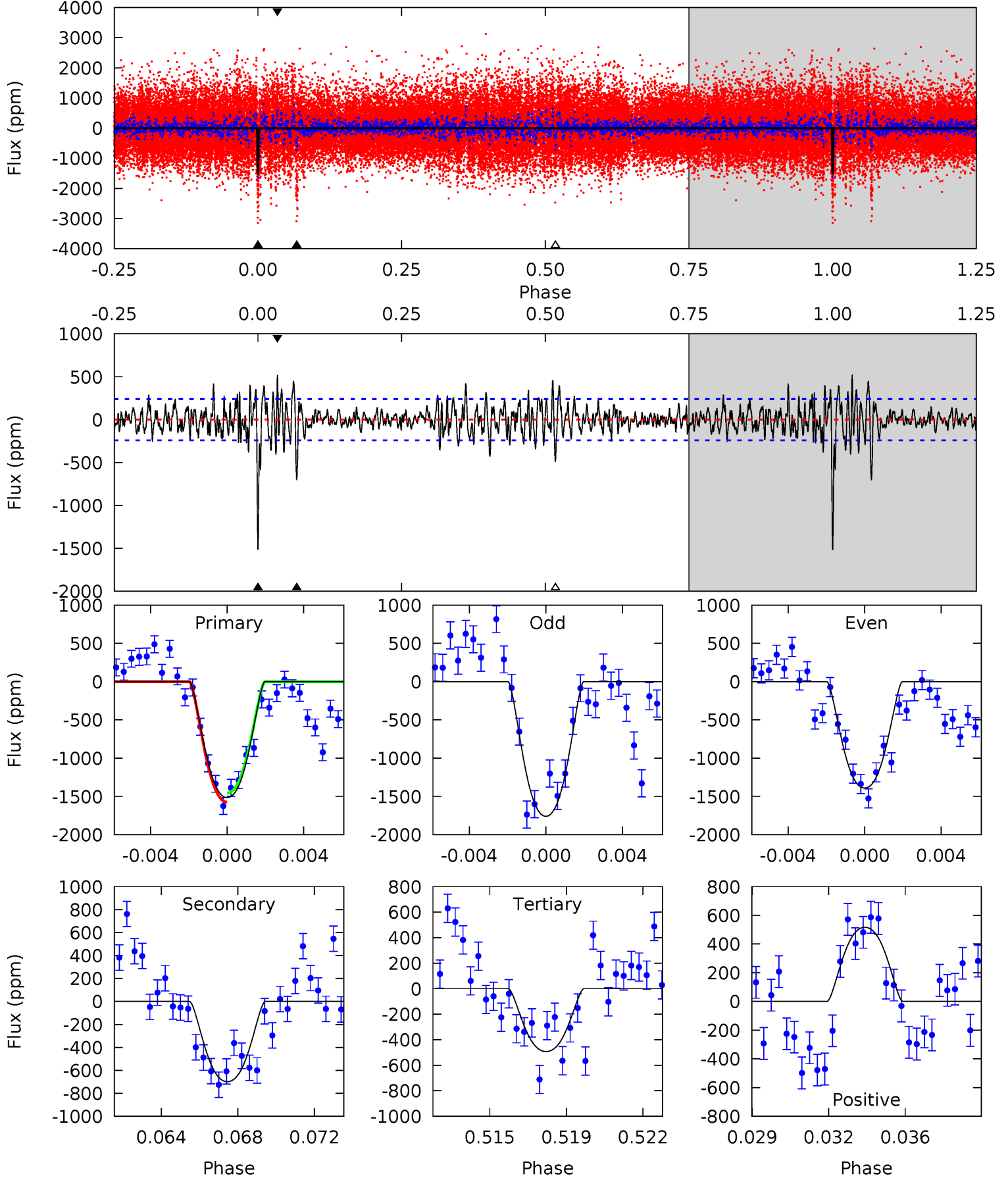
TCE 006117156-01 P=358.942726 Days  $T_0=165.760907$  (BKJD)



# DV Model-Shift Uniqueness Test

006117156-01, P = 359.014476 Days, E = 165.644024 Days

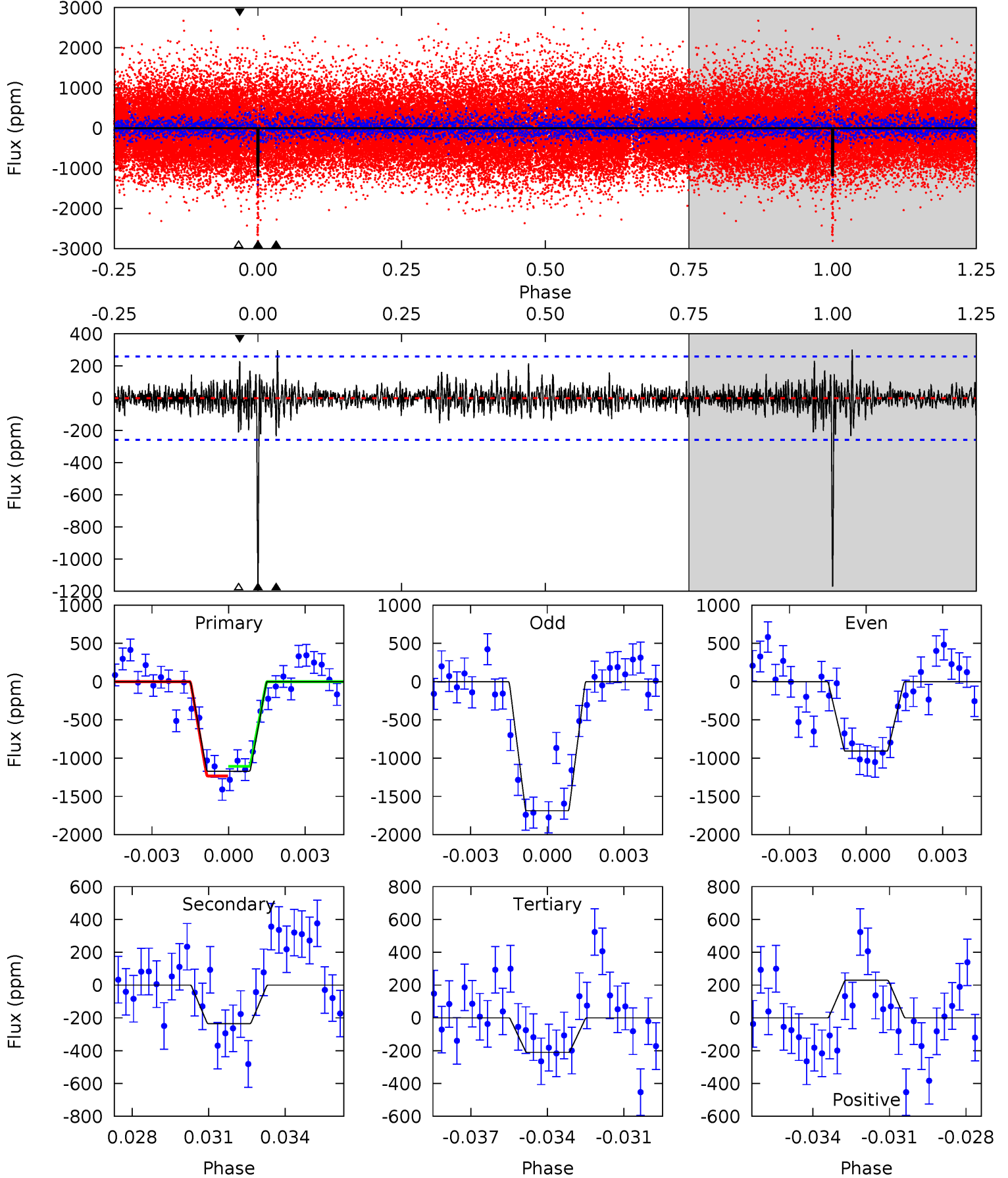
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.0	15.2	10.7	11.2	5.22	2.91	2.79	22.3	21.7	4.49	3.97	3.77	0.86	0.25	1.29



# Alt Model-Shift Uniqueness Test

006117156-01, P = 358.942726 Days, E = 165.760907 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
23.8	4.78	4.28	4.66	5.26	2.99	1.01	19.5	19.2	0.50	0.12	7.48	0.78	0.20	1.29



### Stellar Parameters For KIC 006117156

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6240^{+174}_{-261}$	$4.426^{+0.067}_{-0.202}$	$-0.020^{+0.250}_{-0.350}$	$1.079^{+0.329}_{-0.141}$	$1.135^{+0.157}_{-0.173}$	$1.271^{+0.445}_{-0.674}$
	+3%/-4%	+2%/-5%	+1250%/-1750%	+30%/-13%	+14%/-15%	+35%/-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 006117156-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-699 \pm 46$	$5.55^{+1.63}_{-1.51}$	$399^{+29}_{-22}$	$4838^{+688}_{-443}$	$12930^{+11370}_{-4958}$
Alt.	$-235 \pm 49$	$4.28^{+1.67}_{-1.56}$	$400^{+27}_{-22}$	$4328^{+859}_{-478}$	$7278^{+10865}_{-3579}$

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

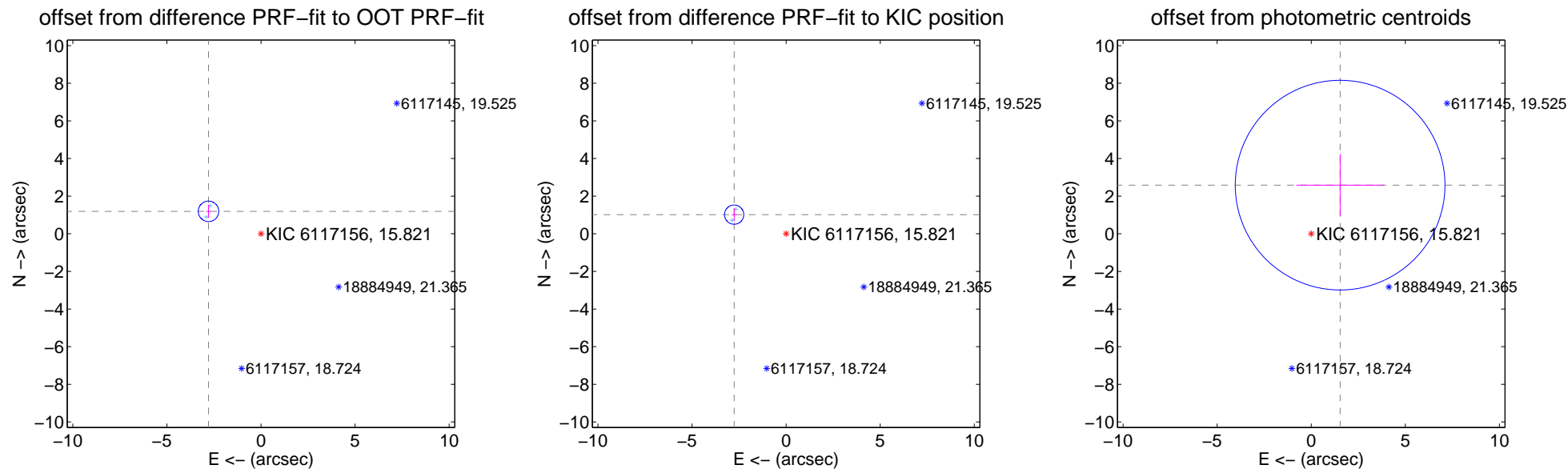
## DV Centroid Data

Supplemental centroid analysis for 006117156-01. Kepler magnitude: 15.82. Transit SNR 9.70

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.033 \pm 0.182$	16.70	$2.789 \pm 0.127$	$1.192 \pm 0.354$
PRF-fit source offset from KIC position	$2.943 \pm 0.171$	17.26	$2.762 \pm 0.128$	$1.018 \pm 0.349$
photometric centroid source offset	$3.01 \pm 1.86$	1.62	$-1.53 \pm 2.33$	$2.58 \pm 1.66$



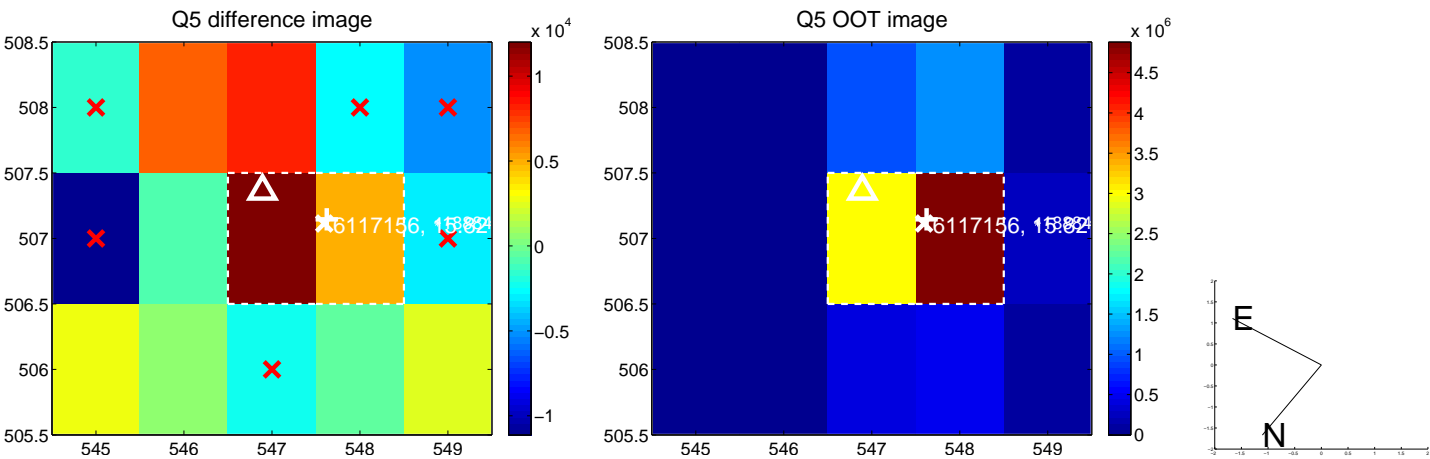
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



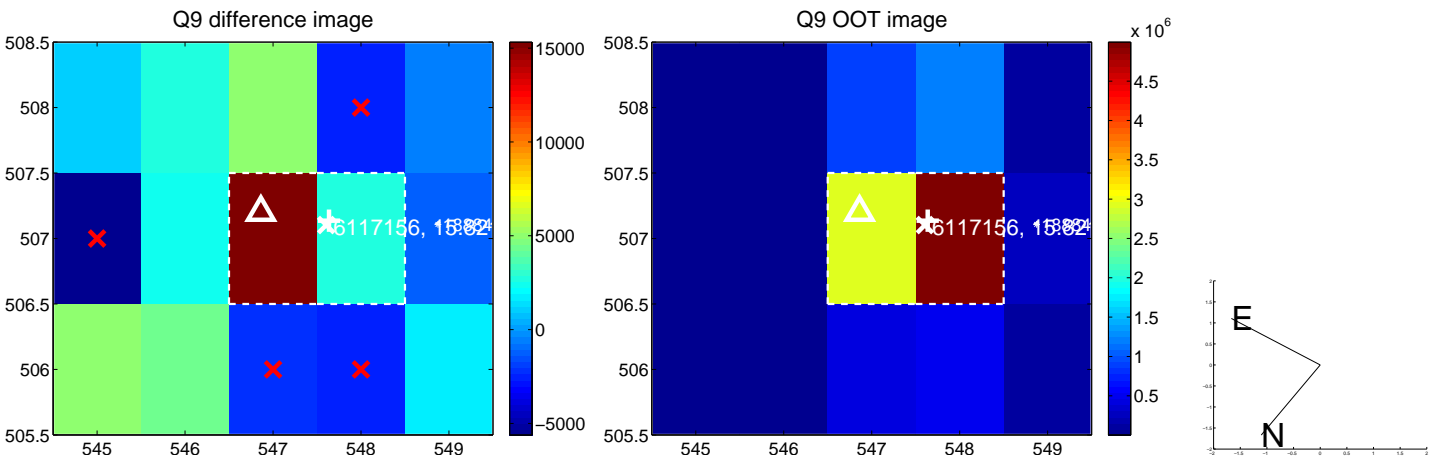
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



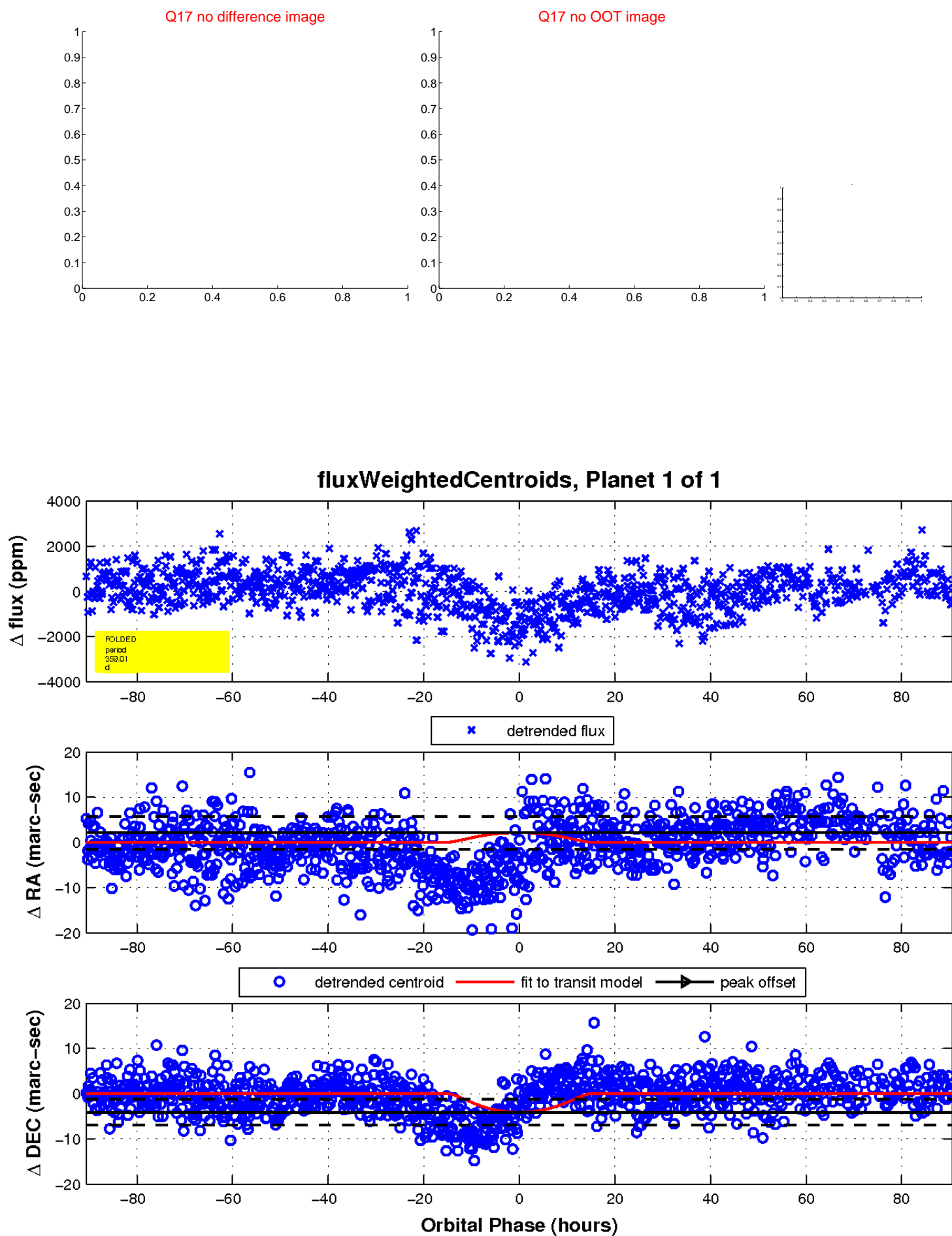
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

