

# KIC 006037009

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006037009-01	OBS	No	290.228664	222.486681	1864.3	4.949	8.9	6.0	0.22	3274	0.98	0.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037009-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS—HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

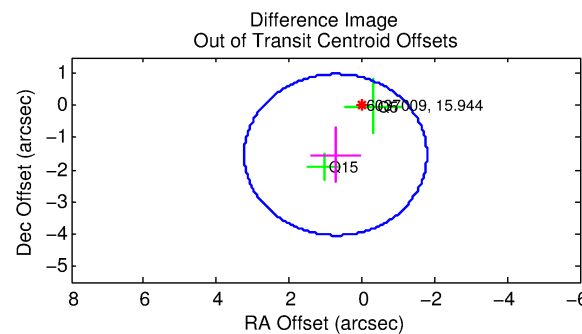
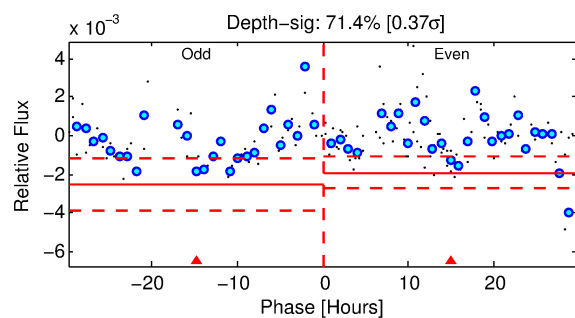
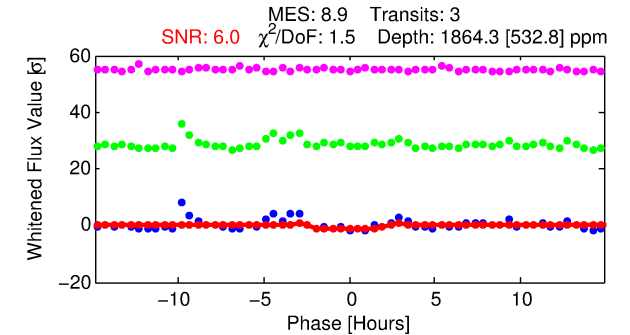
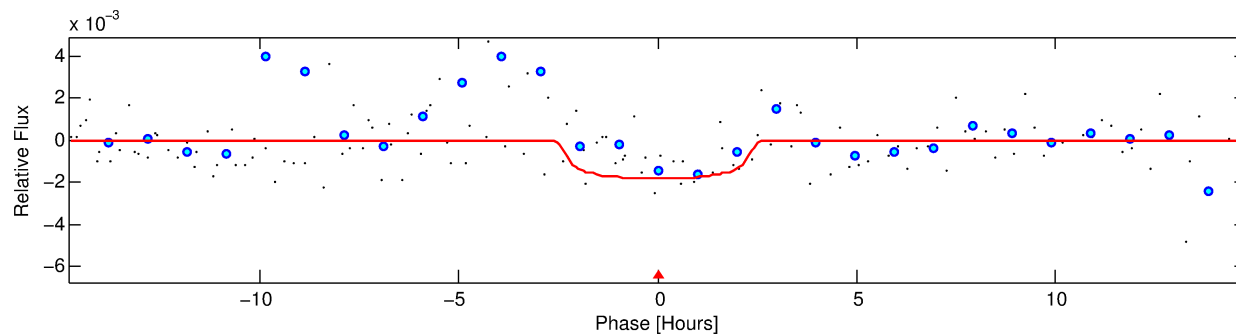
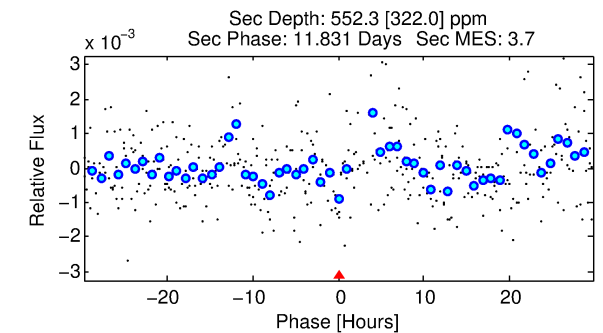
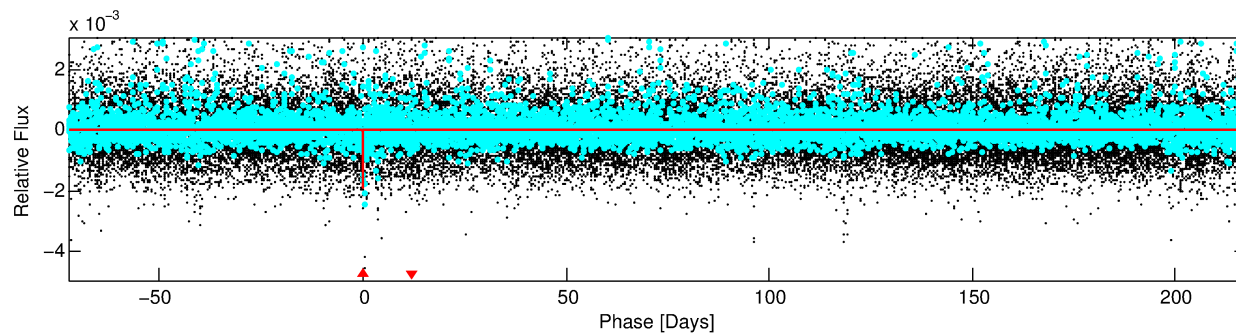
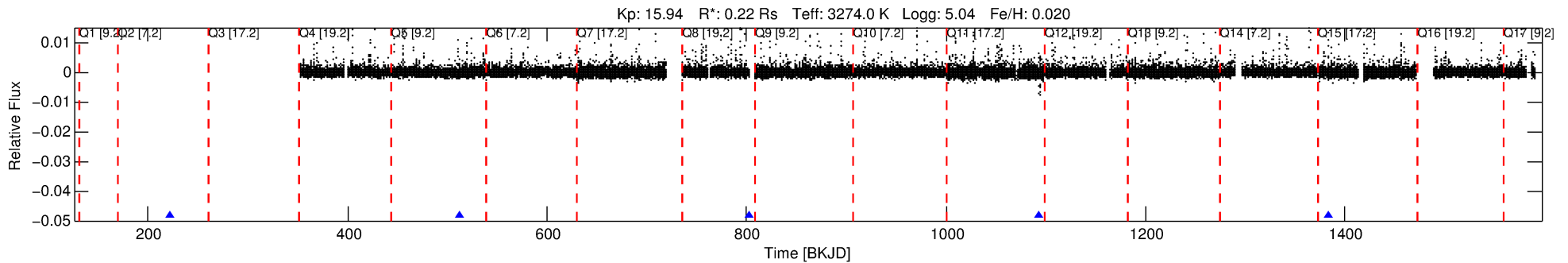
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006037009-01

No Significant Match Found

# DV One-Page Summary

KIC: 6037009 Candidate: 1 of 1 Period: 290.229 d



## DV Fit Results:

Period = 290.22866 [0.01259] d  
Epoch = 222.4867 [0.0367] BKJD  
Rp/R\* = 0.0401 [0.0955]  
a/R\* = 418.10 [4228.02]  
b = 0.46 [17.56]  
Seff = 0.02 [0.00]  
Teq = 96 [3] K  
Rp = 0.98 [2.34] Re  
a = 0.5039 [0.0509] AU  
Ag = 80394.52 [386048.65] [0.21σ]  
Teffp = 2507 [3009] K [0.80σ]

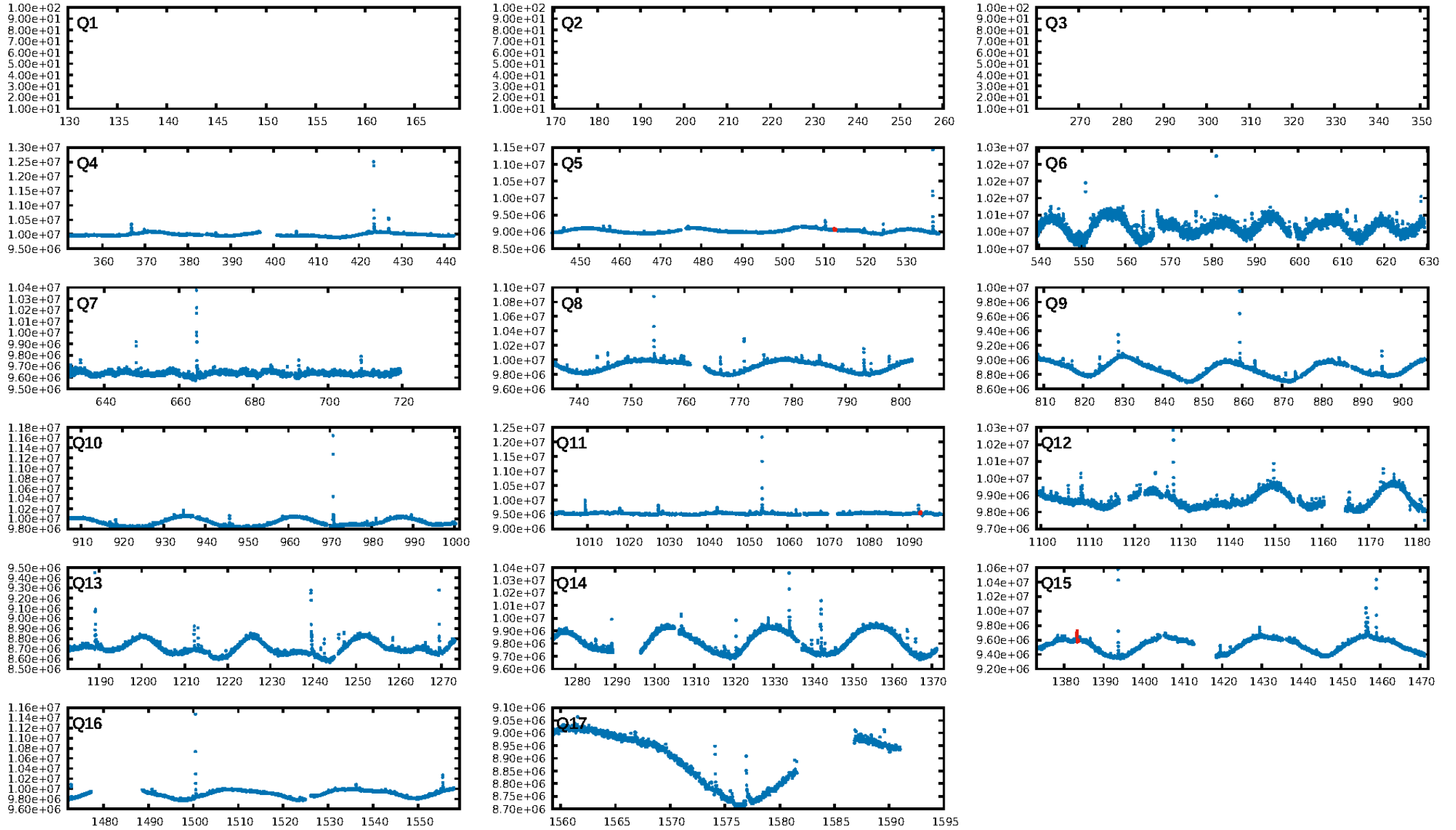
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 15.8%  
ModelChiSquareGof-sig: 84.7%  
Bootstrap-pfa: 3.49e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.2409  
Centroid-sig: 27.1%  
Centroid-so: 1.676 arcsec [1.02σ]  
OotOffset-rm: 1.696 arcsec [2.02σ]  
KicOffset-rm: 1.863 arcsec [2.24σ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

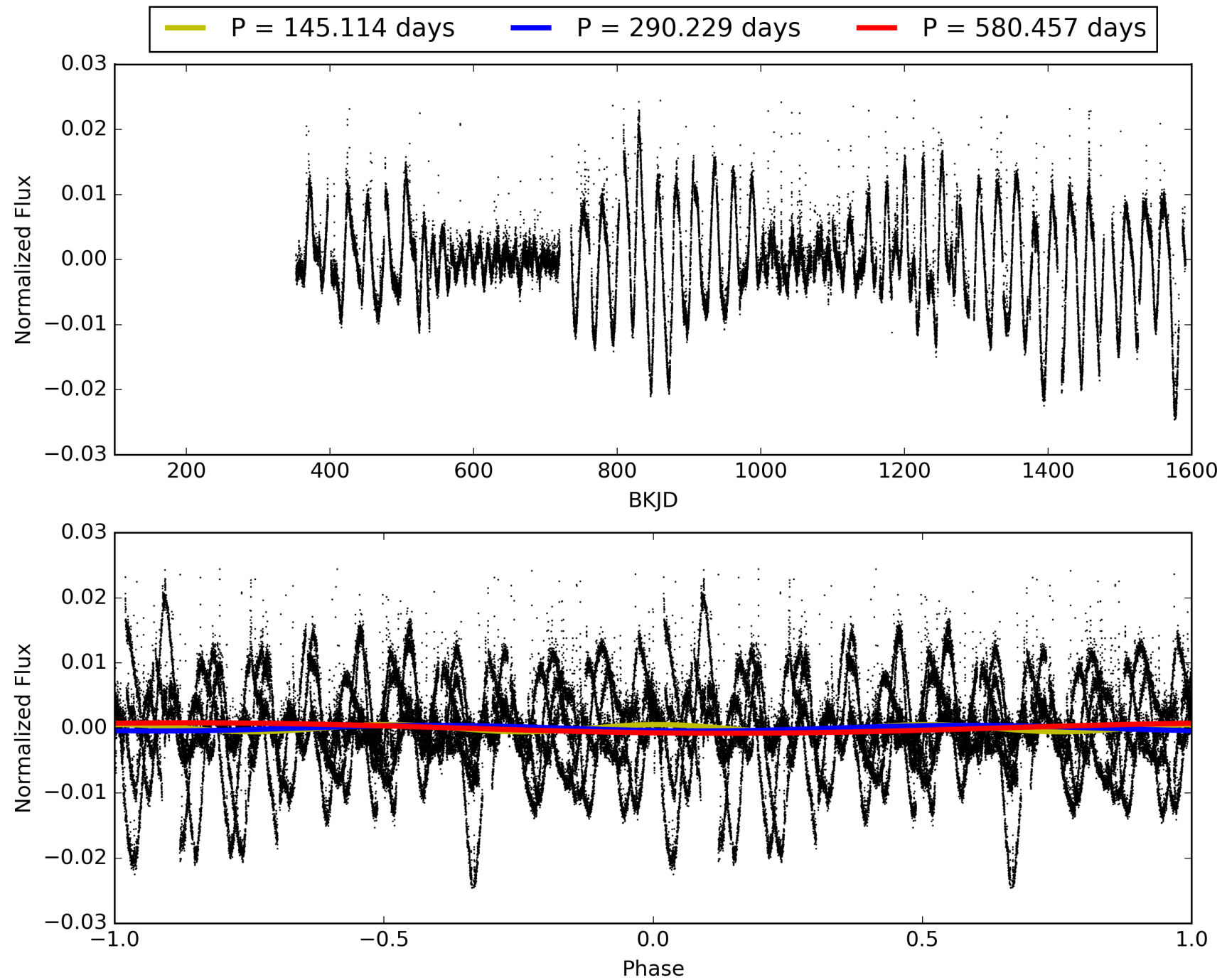
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:56:40 Z

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

# TCE 006037009-01, PDC Light Curves

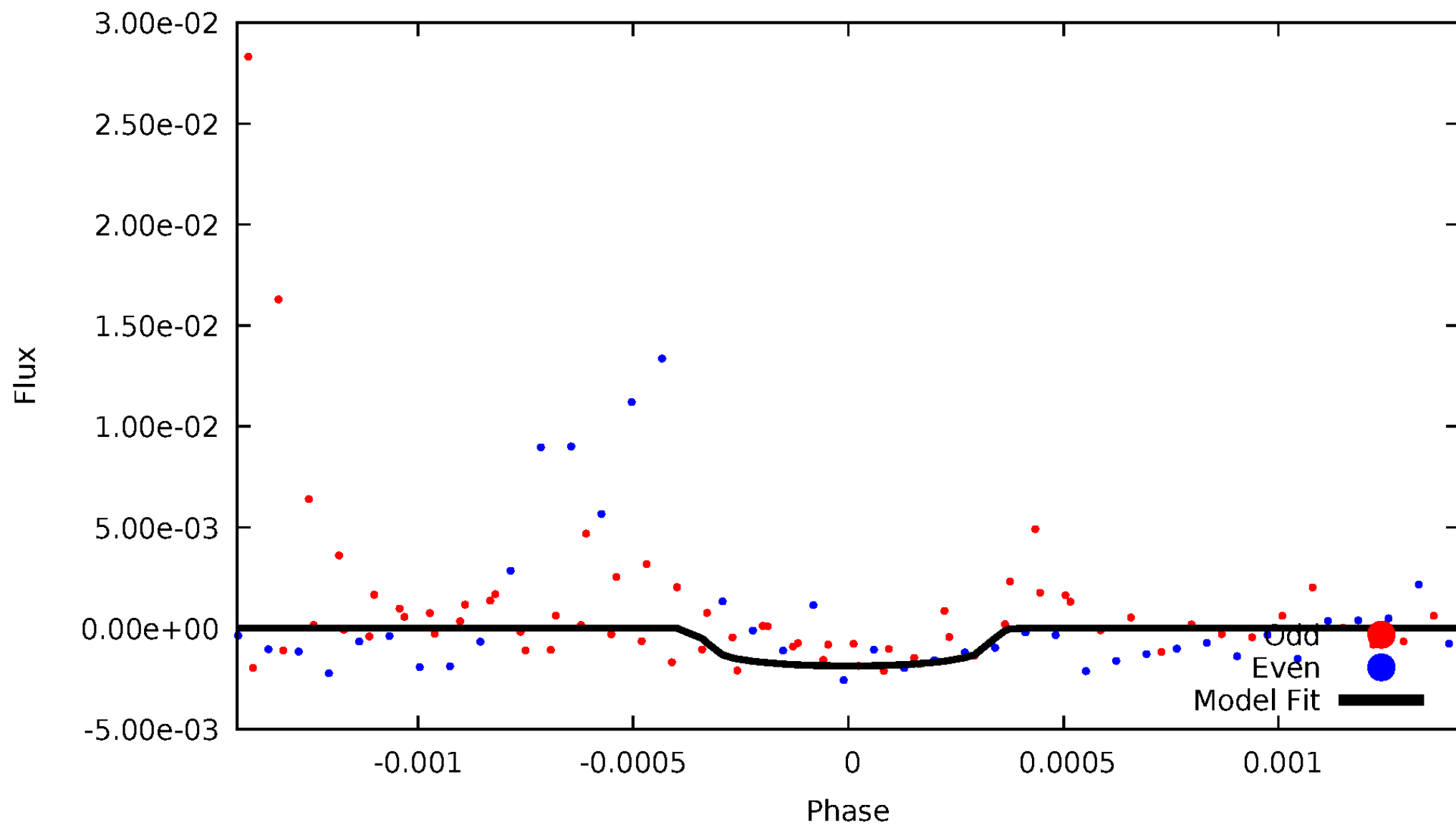


TCE 006037009-01



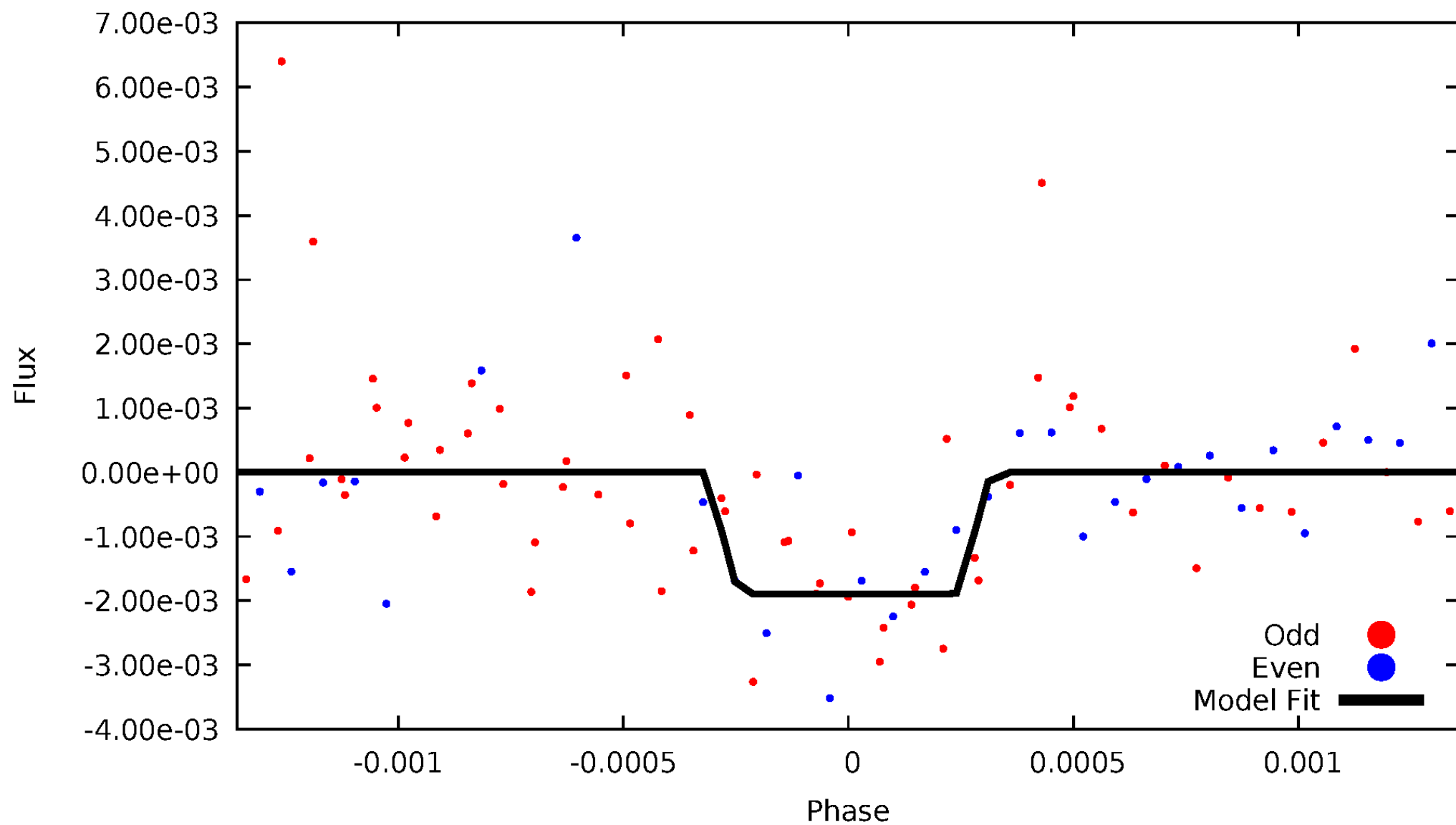
# DV Odd/Even

TCE 006037009-01



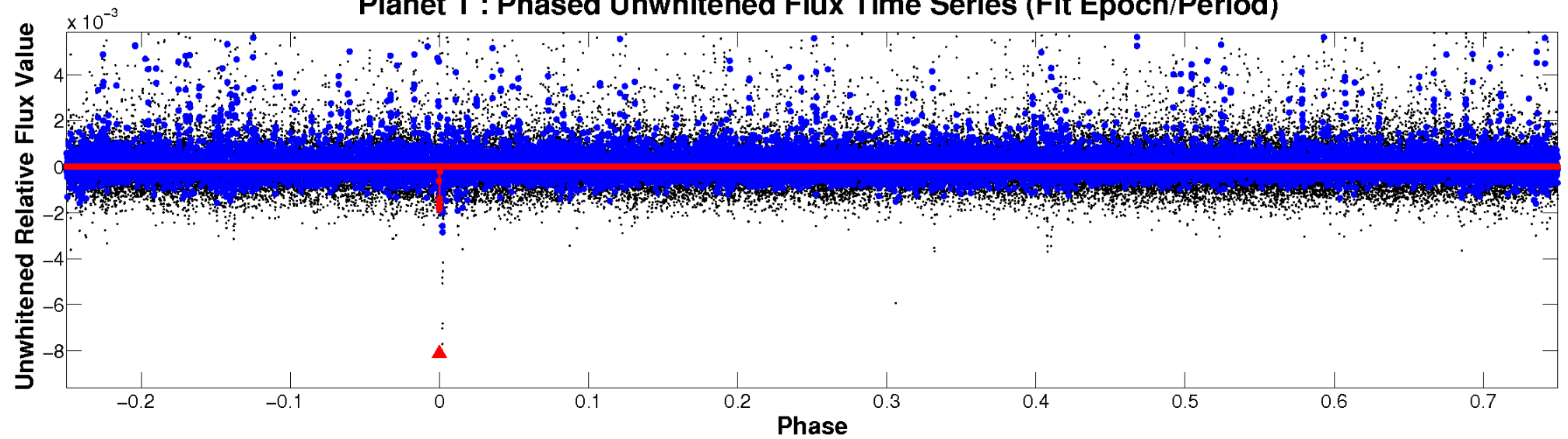
# ALT Odd/Even

TCE 006037009-01

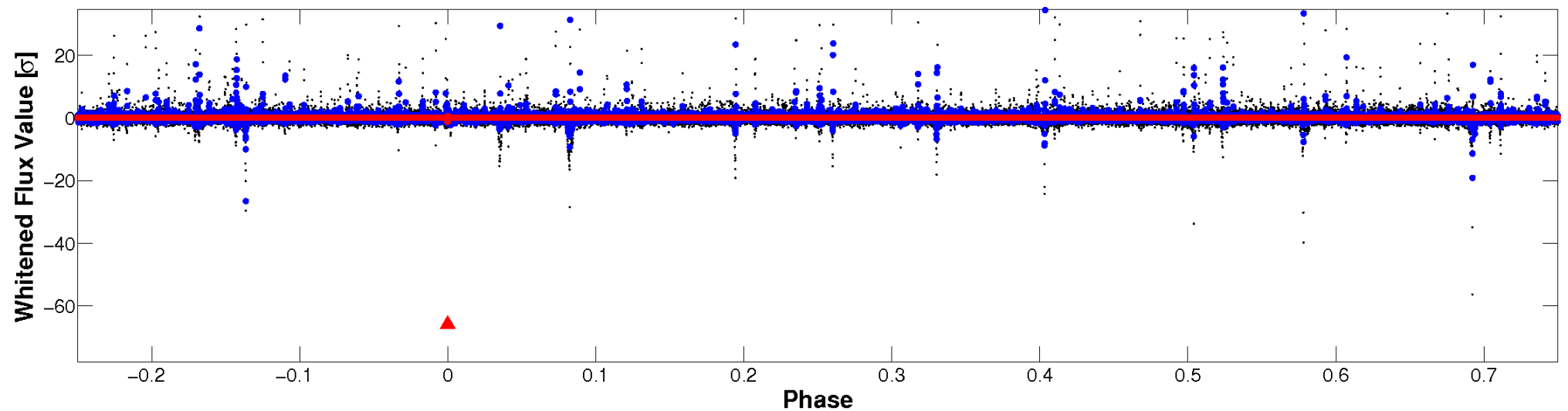


# Non-Whitened Vs. Whitened Light Curve

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

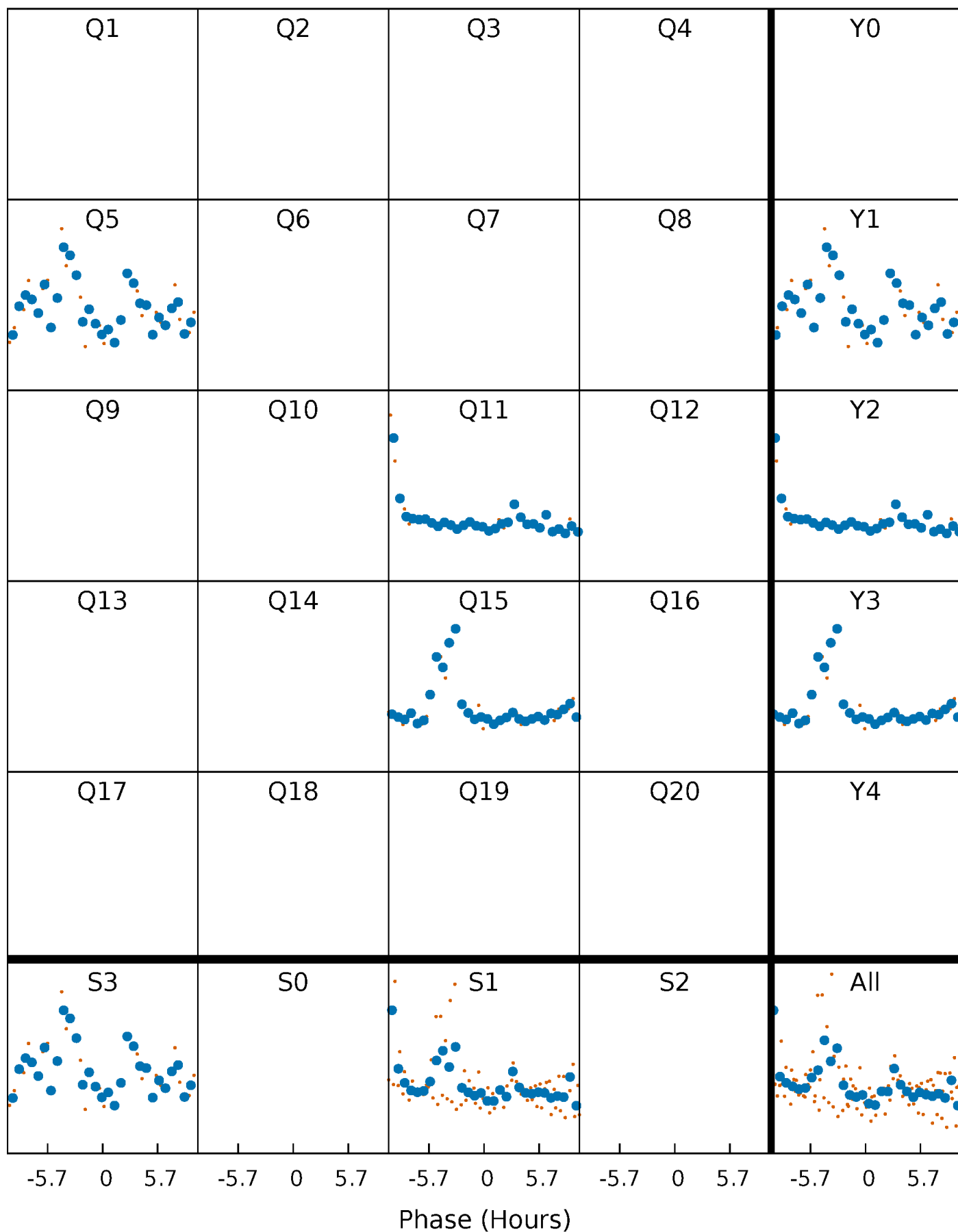


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

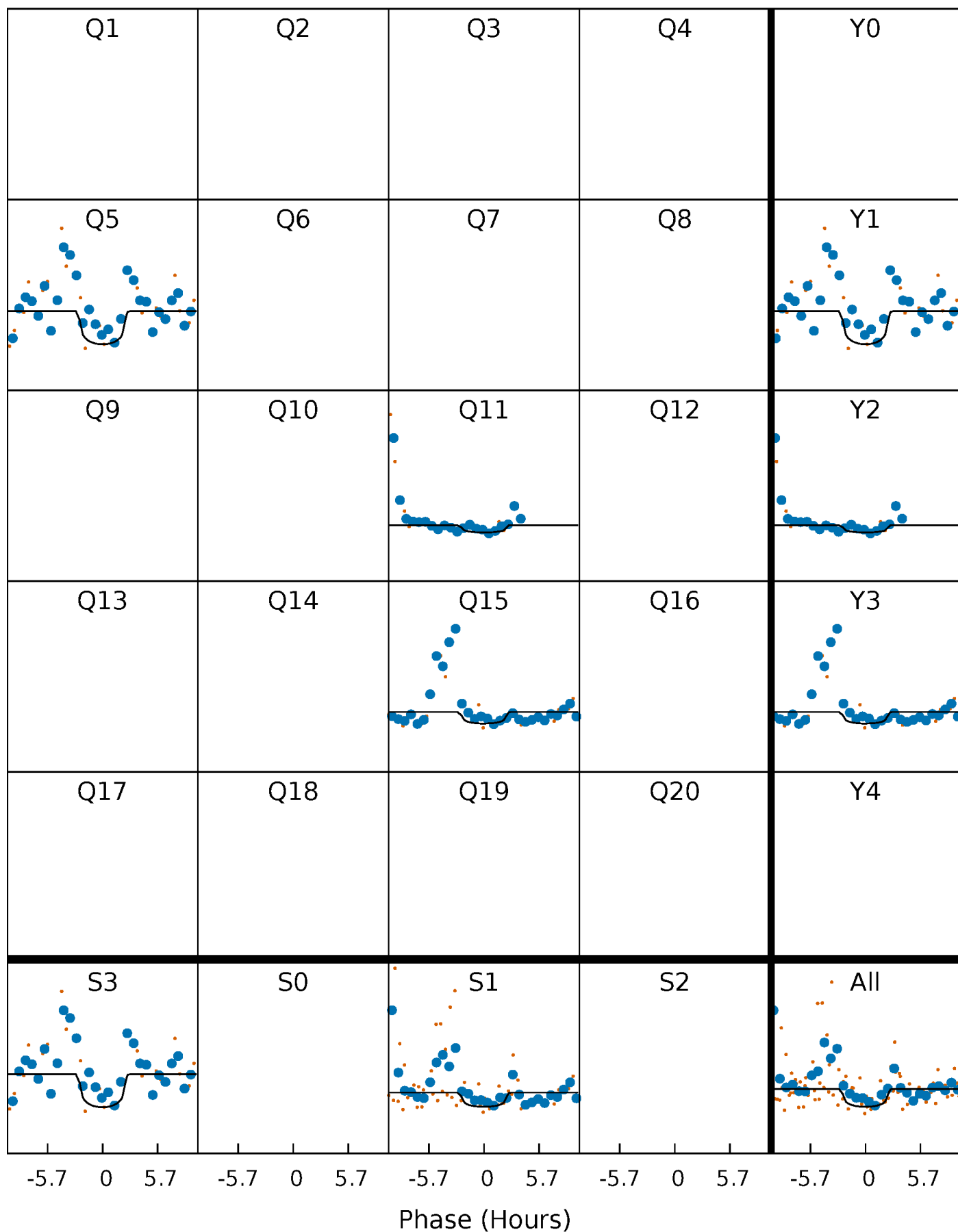
TCE 006037009-01   P=290.228664 Days    $T_0=222.486681$  (BKJD)





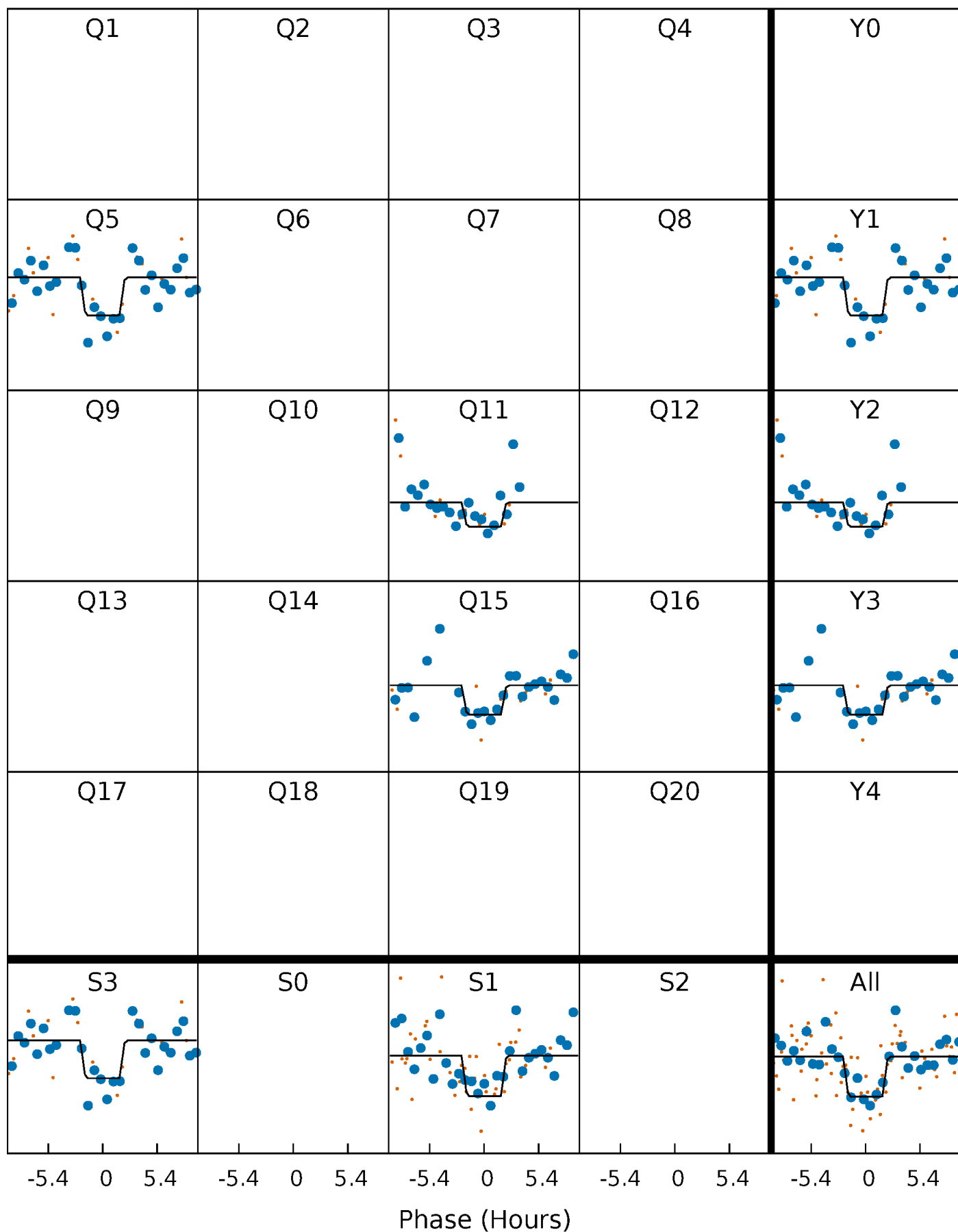
# DV Quarter-Phased Transit Curves

TCE 006037009-01     $P=290.228664$  Days     $T_0=222.486681$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

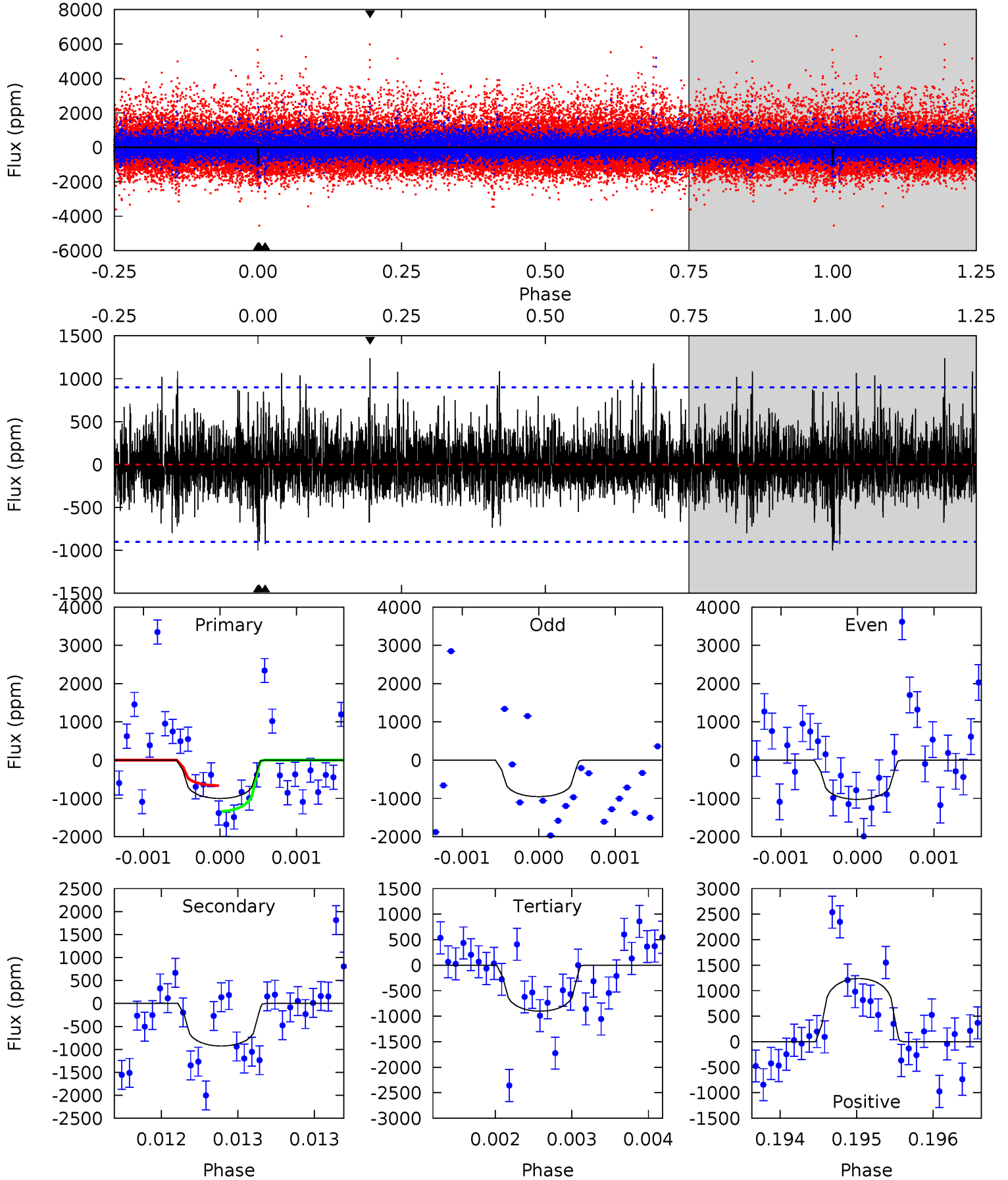
TCE 006037009-01 P=290.236055 Days  $T_0=222.465904$  (BKJD)



# DV Model-Shift Uniqueness Test

006037009-01,  $P = 290.228664$  Days,  $E = 222.486681$  Days

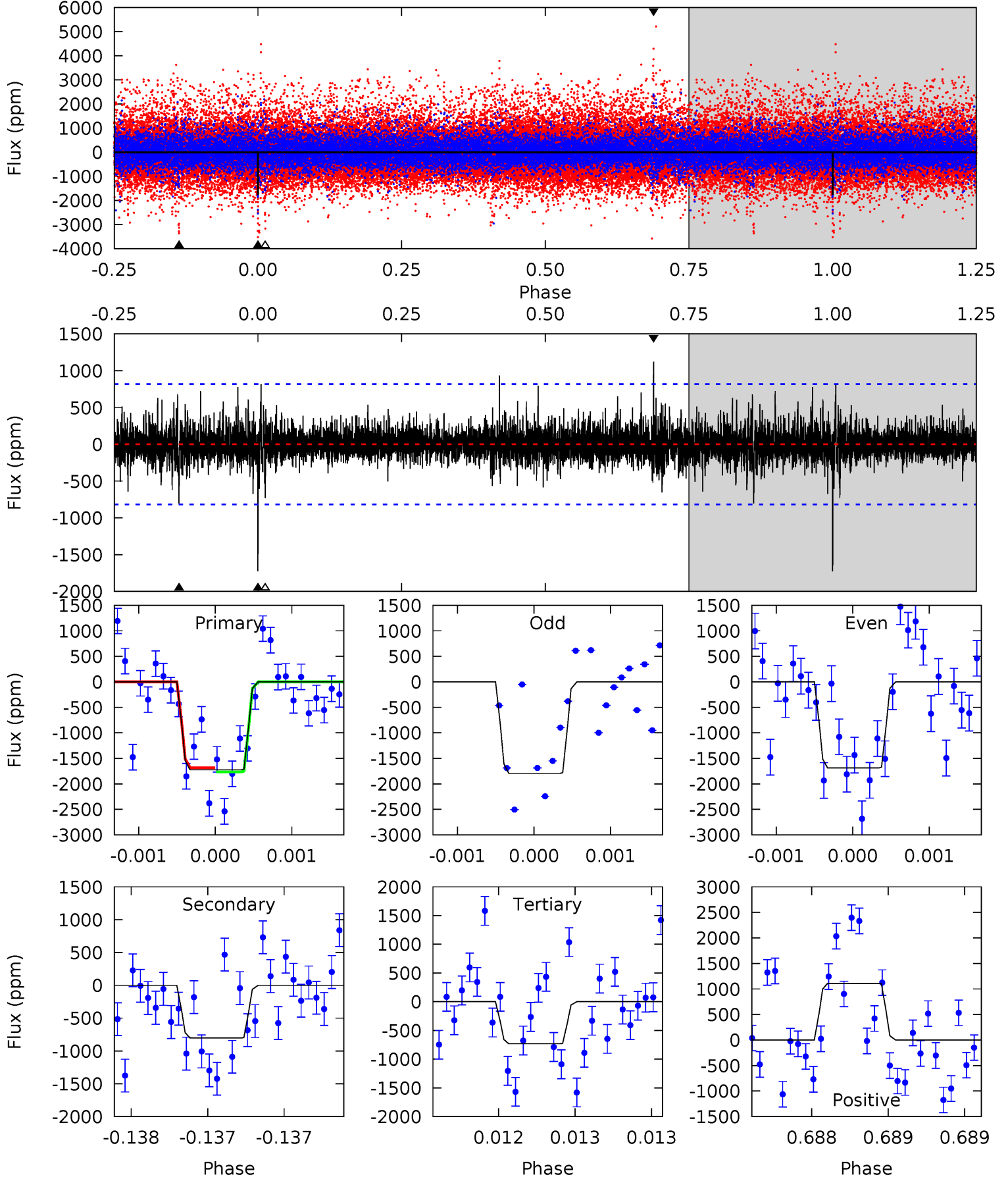
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.13	5.67	5.52	7.59	5.51	3.39	1.45	0.61	-1.46	0.15	-1.91	0.14	1.02	0.55	2.07



# Alt Model-Shift Uniqueness Test

006037009-01, P = 290.236055 Days, E = 222.465904 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
11.7	5.43	4.95	7.50	5.53	3.41	1.07	6.71	4.15	0.48	-2.08	0.34	0.96	0.39	0.28



### Stellar Parameters For KIC 006037009

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3274^{+42}_{-32}$	$5.044^{+0.044}_{-0.044}$	$0.020^{+0.100}_{-0.100}$	$0.224^{+0.032}_{-0.026}$	$0.202^{+0.042}_{-0.026}$	$25.440^{+6.603}_{-5.245}$
	+1%/-1%	+1%/-1%	+500%/-500%	+14%/-12%	+21%/-13%	+26%/-21%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 006037009-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-926 \pm 163$	$1.97^{+2.07}_{-1.35}$	$135^{+3}_{-3}$	$2520^{+955}_{-383}$	$33801^{+313507}_{-25862}$
Alt.	$-803 \pm 148$	$2.05^{+1.92}_{-1.39}$	$135^{+3}_{-3}$	$2449^{+867}_{-335}$	$27002^{+230747}_{-19687}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{\text{obs}}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

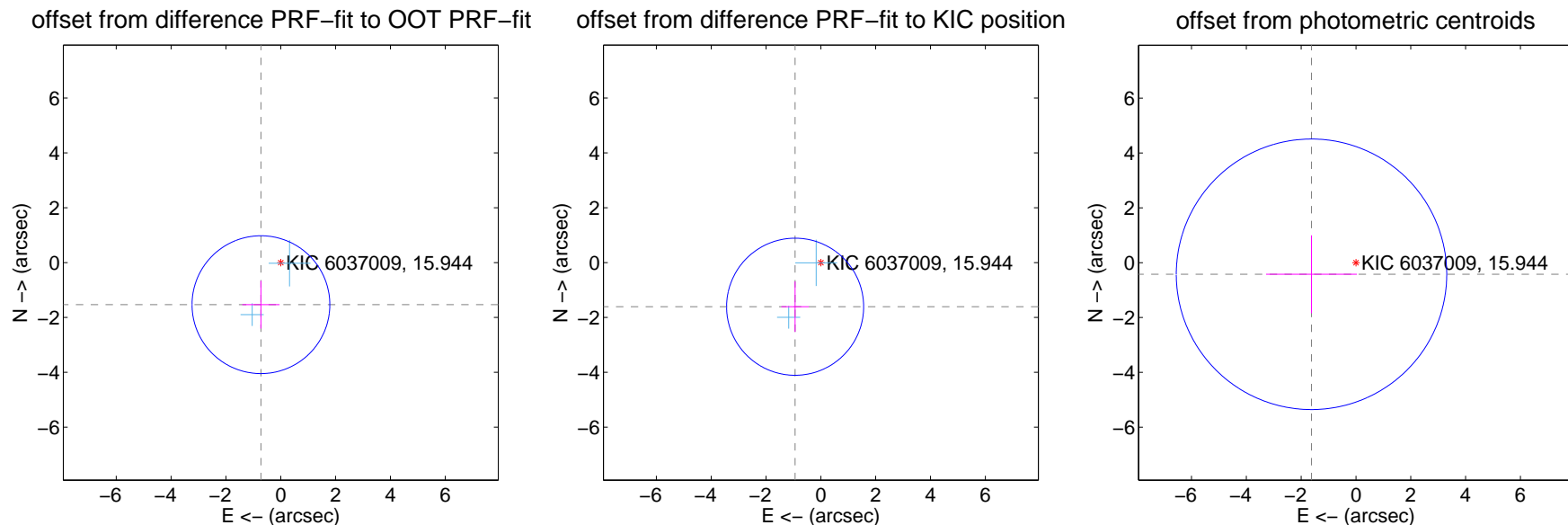
## DV Centroid Data

Supplemental centroid analysis for 006037009-01. Kepler magnitude: 15.94. Transit SNR 6.05

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.696 \pm 0.837$	2.02	$0.723 \pm 0.679$	$-1.534 \pm 0.869$
PRF-fit source offset from KIC position	$1.863 \pm 0.833$	2.24	$0.939 \pm 0.500$	$-1.609 \pm 0.919$
photometric centroid source offset	$1.68 \pm 1.64$	1.02	$1.62 \pm 1.66$	$-0.42 \pm 1.42$

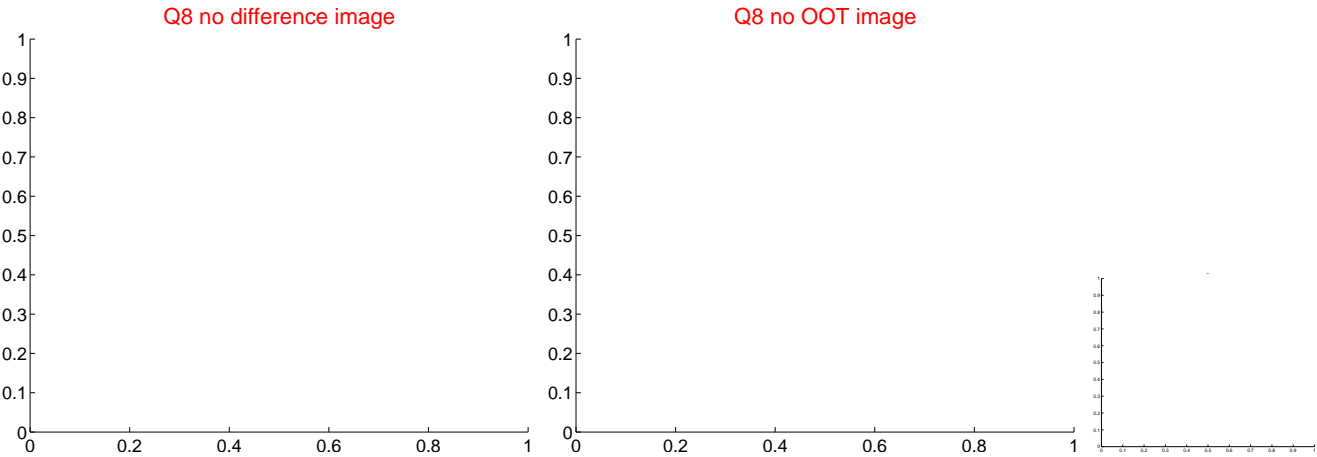
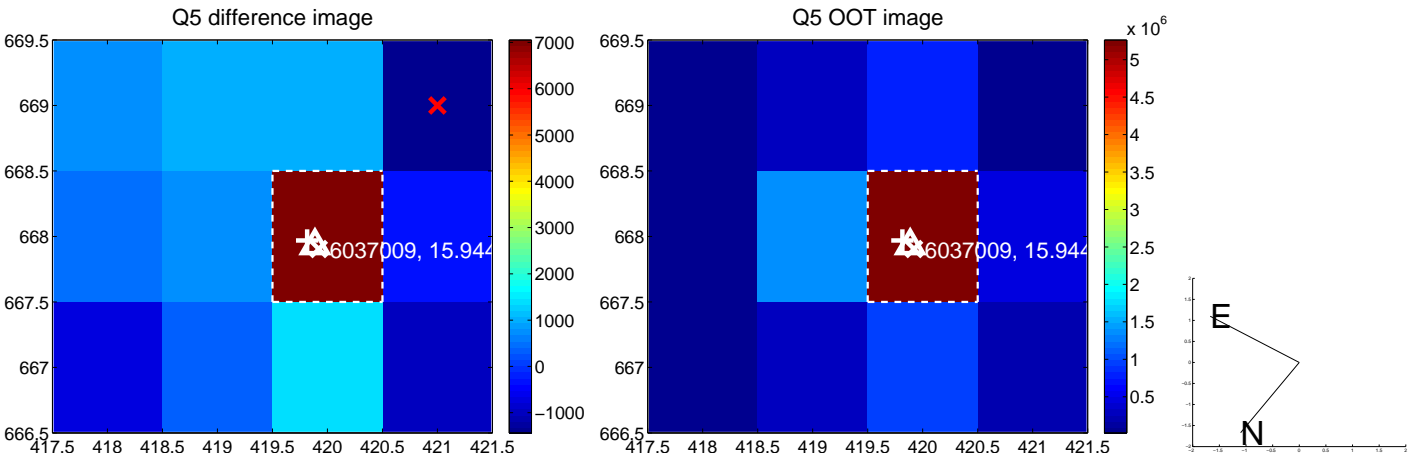


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

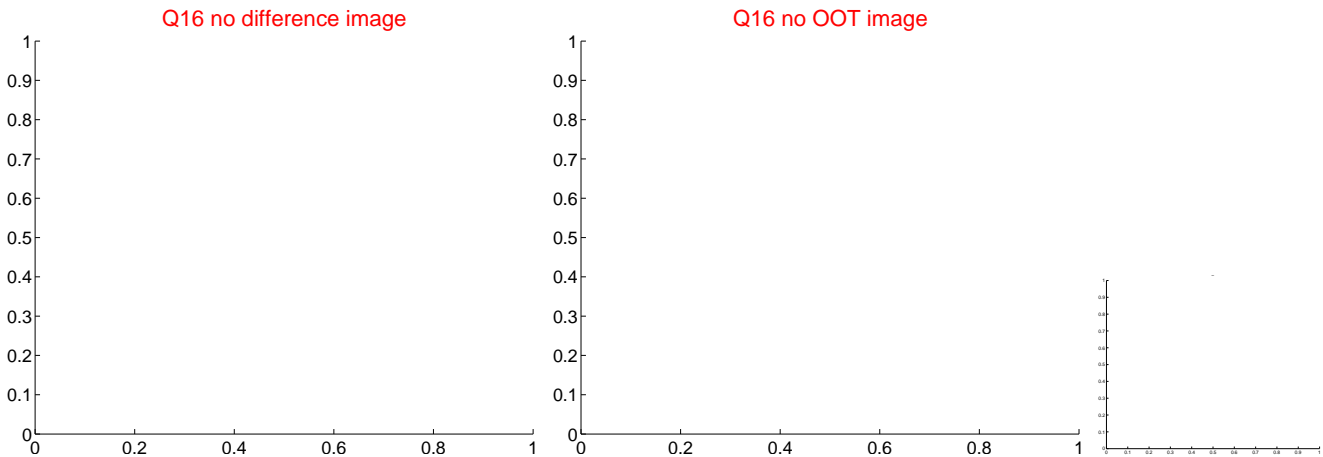
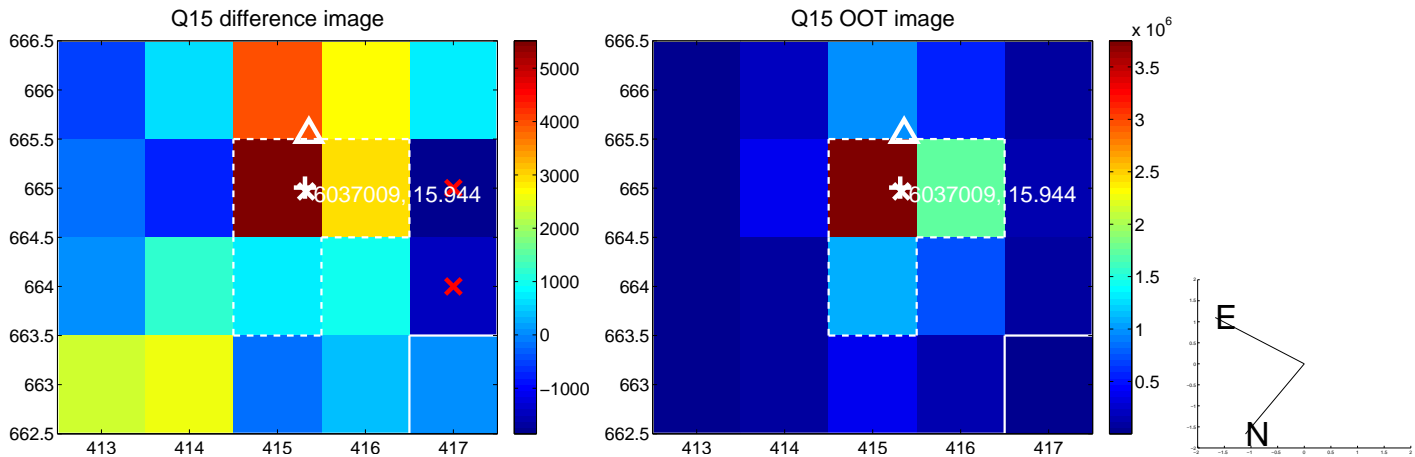
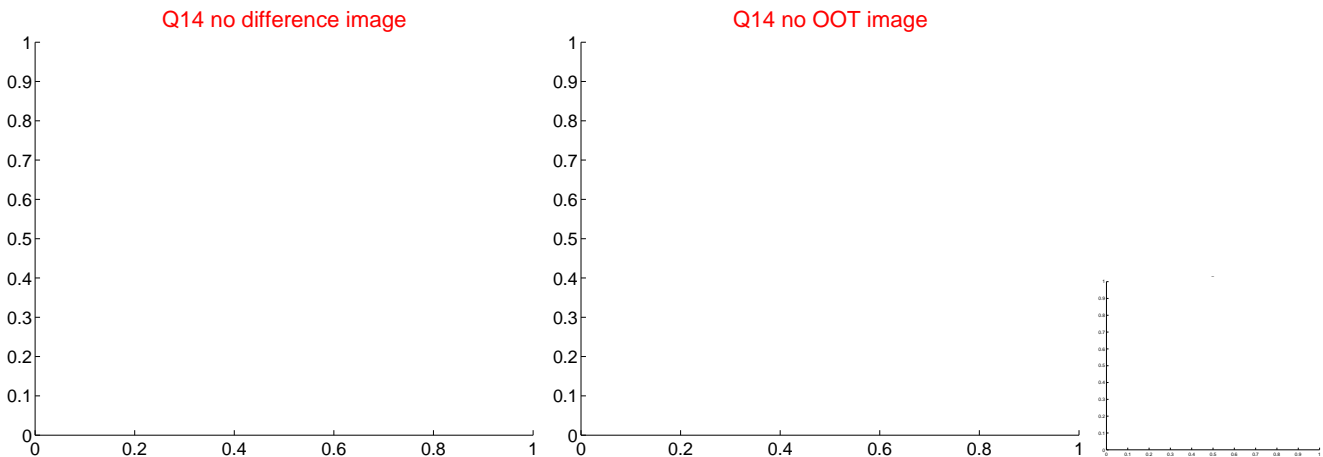




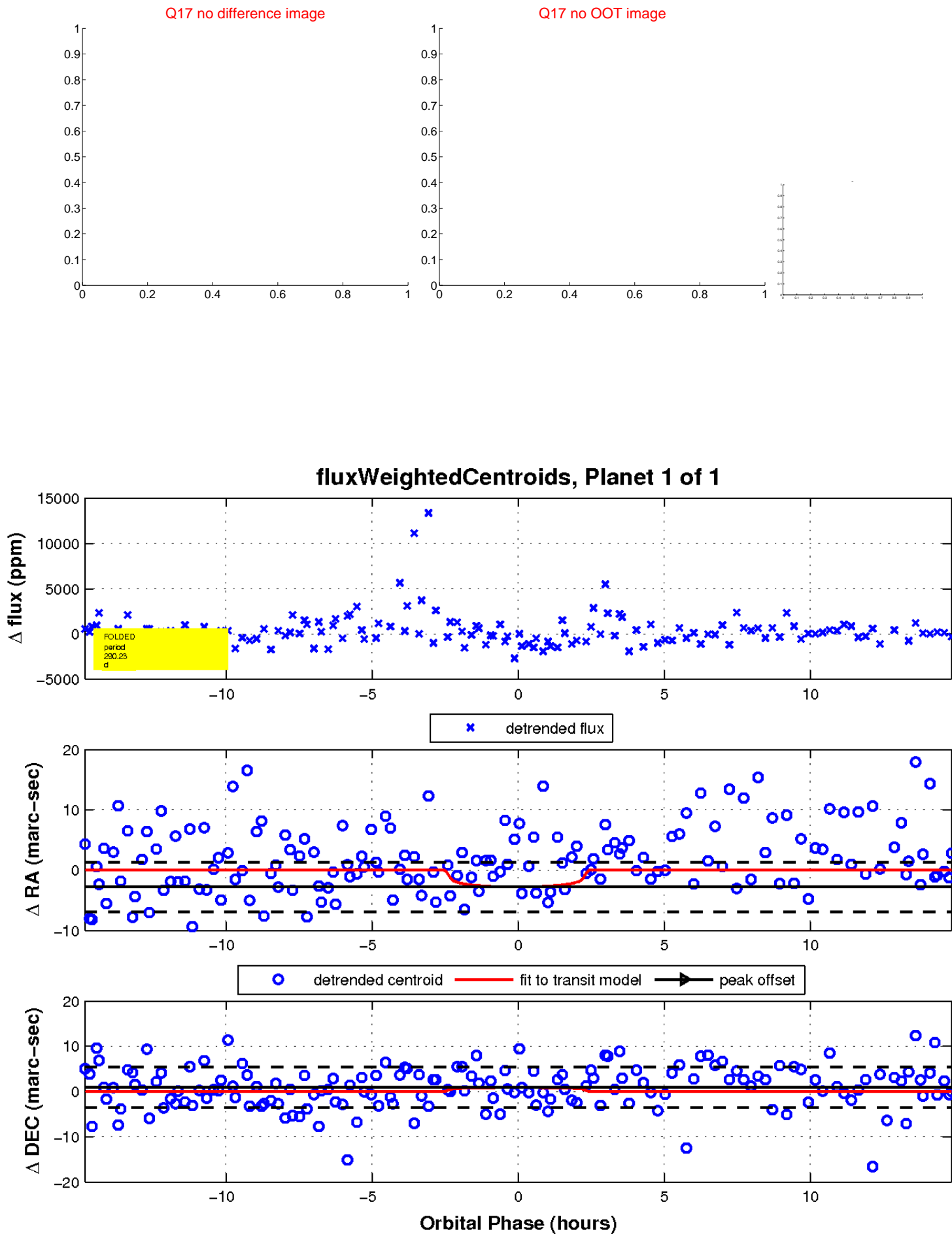
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

