

# KIC 002834637

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002834637-01	OBS	No	634.587415	187.963099	948.0	8.963	9.1	4.1	0.20	3236	0.63	0.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002834637-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

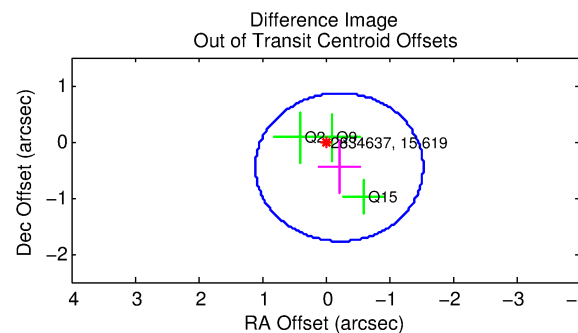
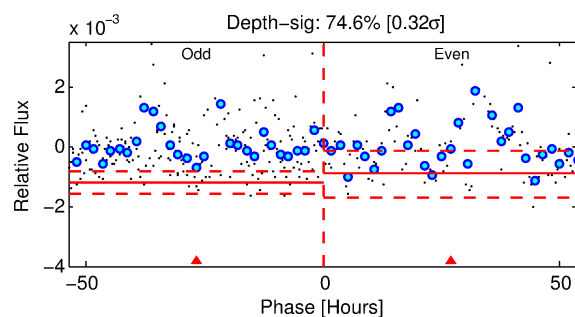
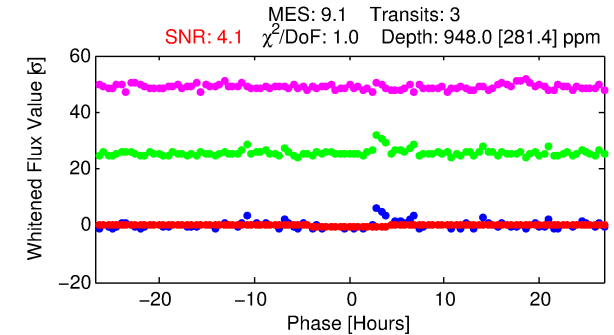
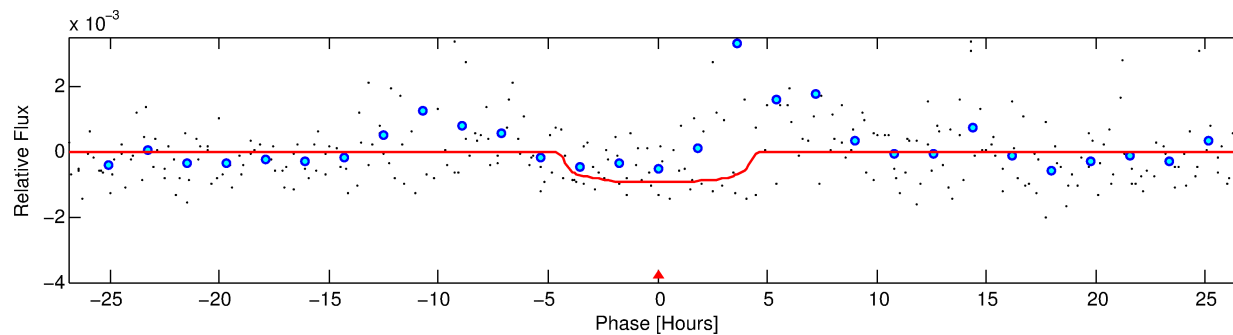
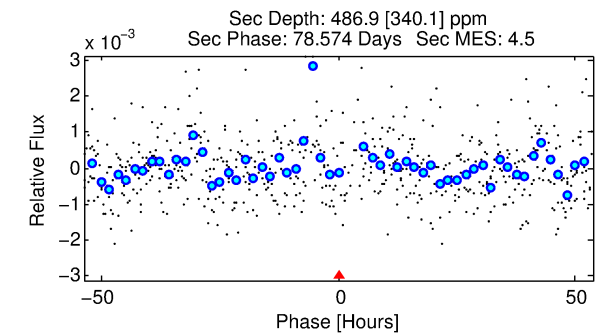
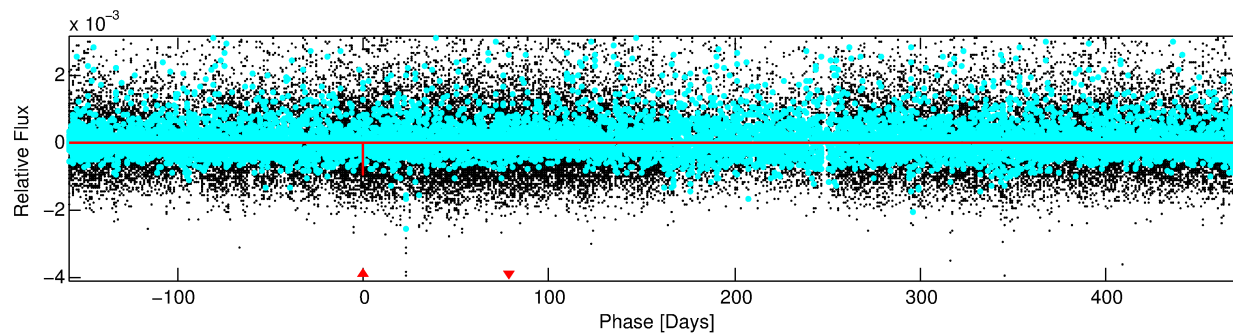
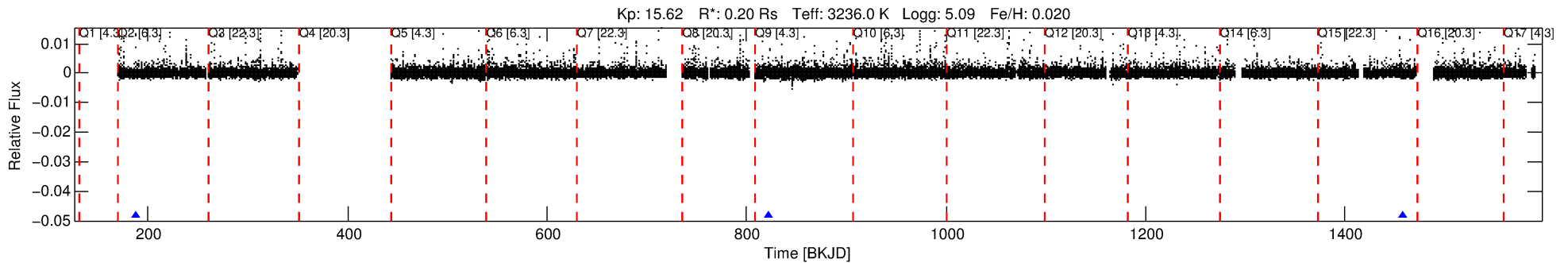
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002834637-01

No Significant Match Found

# DV One-Page Summary

KIC: 2834637 Candidate: 1 of 1 Period: 634.587 d



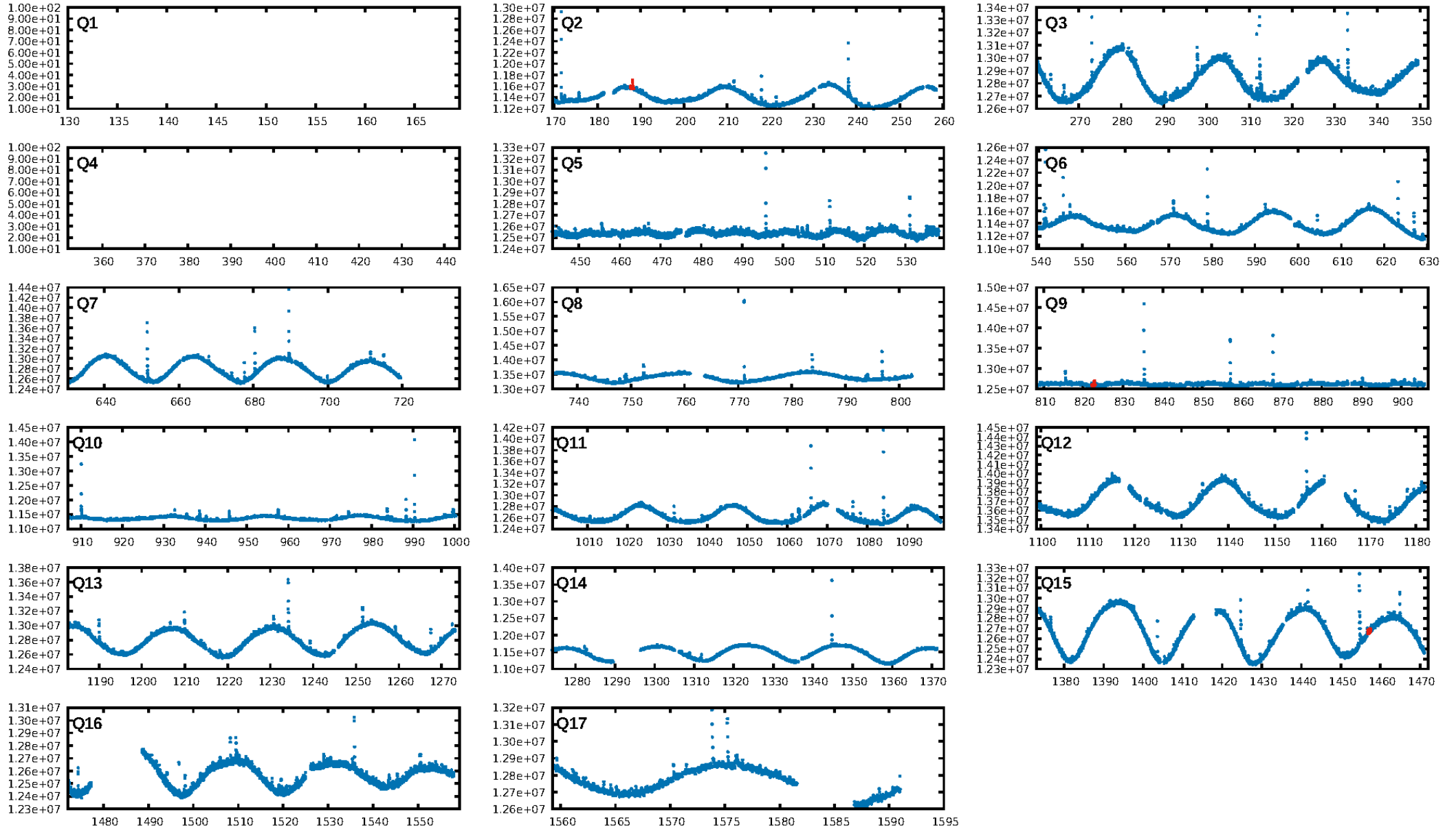
## DV Fit Results:

Period = 634.58741 [0.01832] d  
Epoch = 187.9631 [0.0210] BKJD  
Rp/R\* = 0.0294 [0.0290]  
a/R\* = 442.85 [1806.28]  
b = 0.62 [4.01]  
Seff = 0.01 [0.00]  
Teq = 70 [2] K  
Rp = 0.63 [0.63] Re  
a = 0.8045 [0.0867] AU  
Ag = 437740.16 [916630.47] [0.48σ]  
Teffp = 2802 [1465] K [1.86σ]

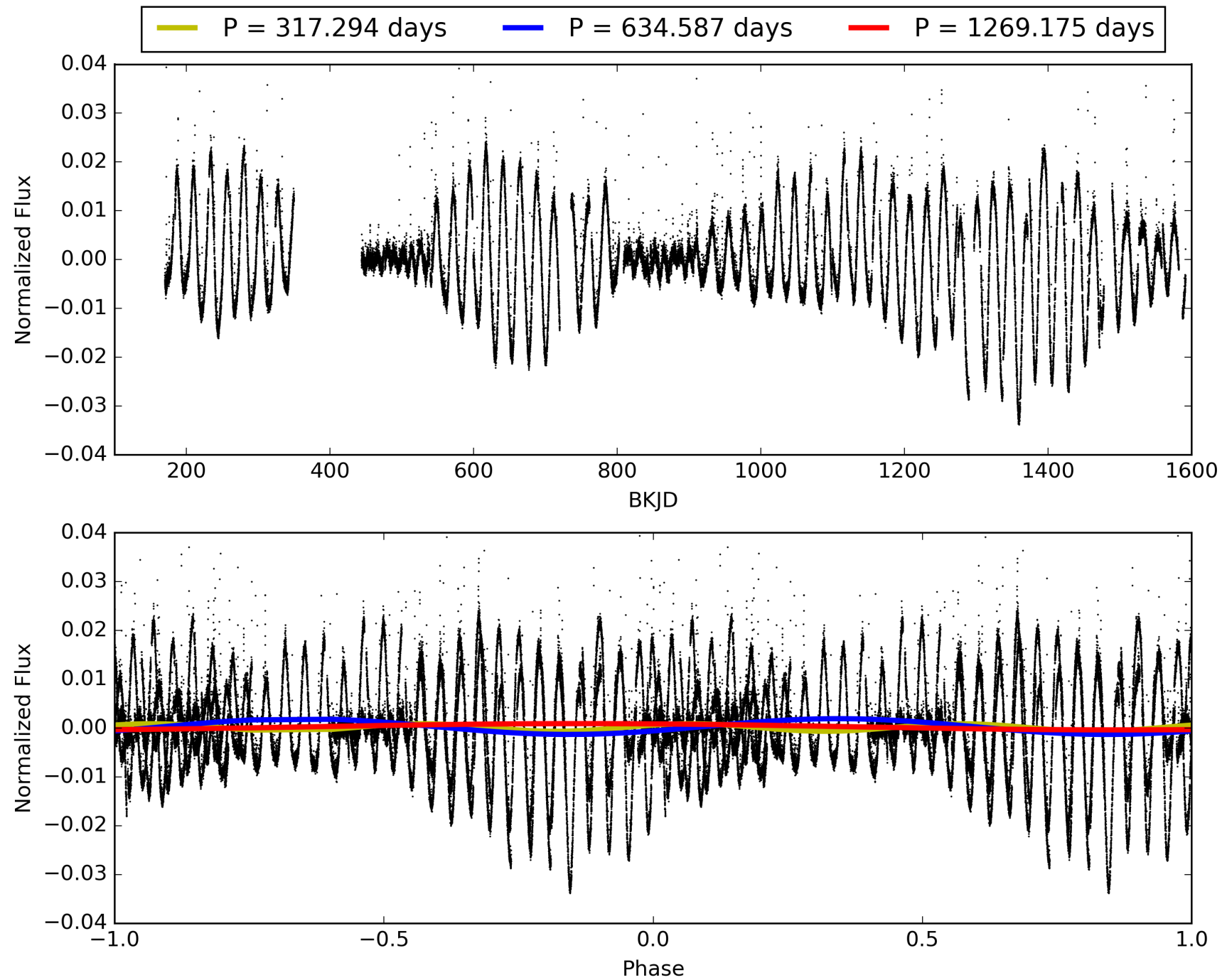
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 15.0%  
ModelChiSquareGof-sig: 98.7%  
**Bootstrap-pfa: 3.11e-11**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -1.241**  
Centroid-sig: 87.6%  
Centroid-so: 0.205 arcsec [0.12σ]  
OotOffset-rm: 0.504 arcsec [1.15σ]  
KicOffset-rm: 0.407 arcsec [1.05σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 002834637-01, PDC Light Curves

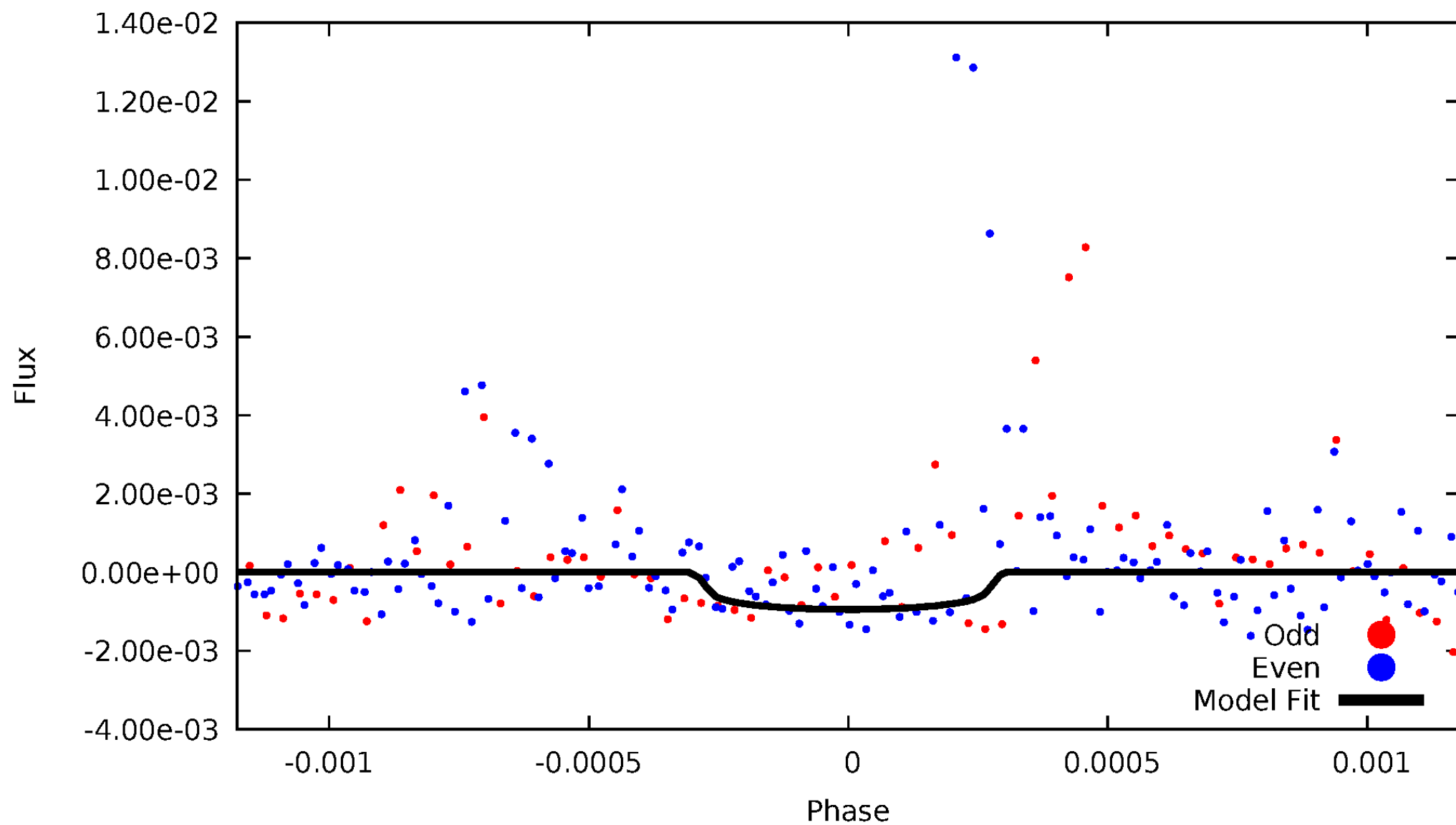


TCE 002834637-01



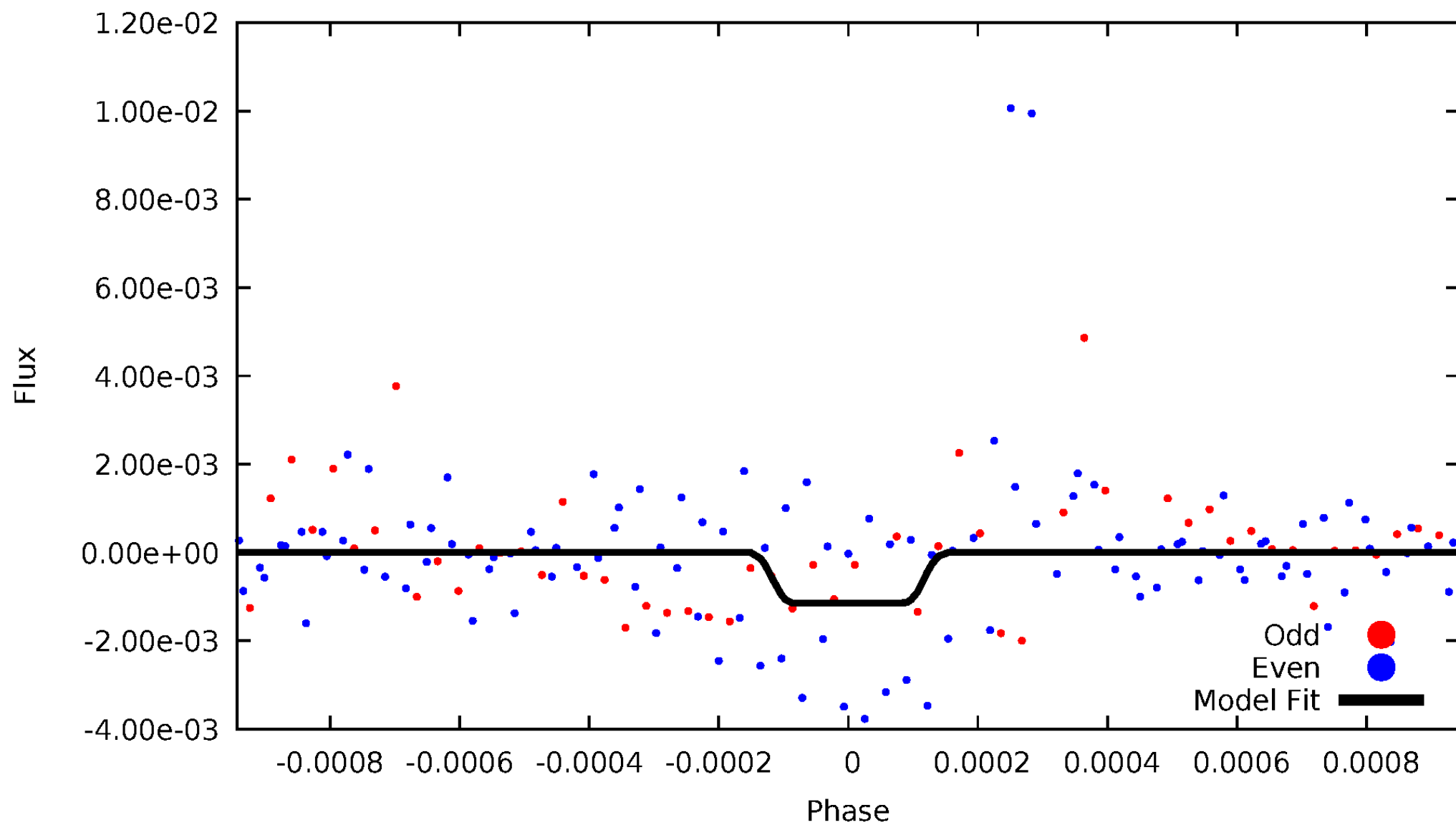
# DV Odd/Even

TCE 002834637-01



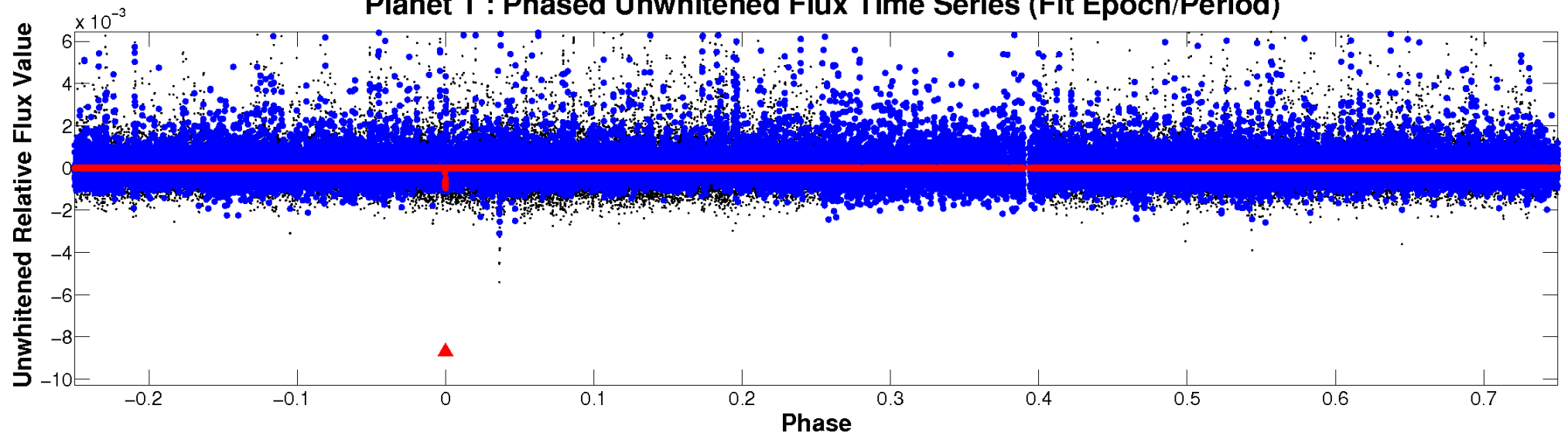
# ALT Odd/Even

TCE 002834637-01

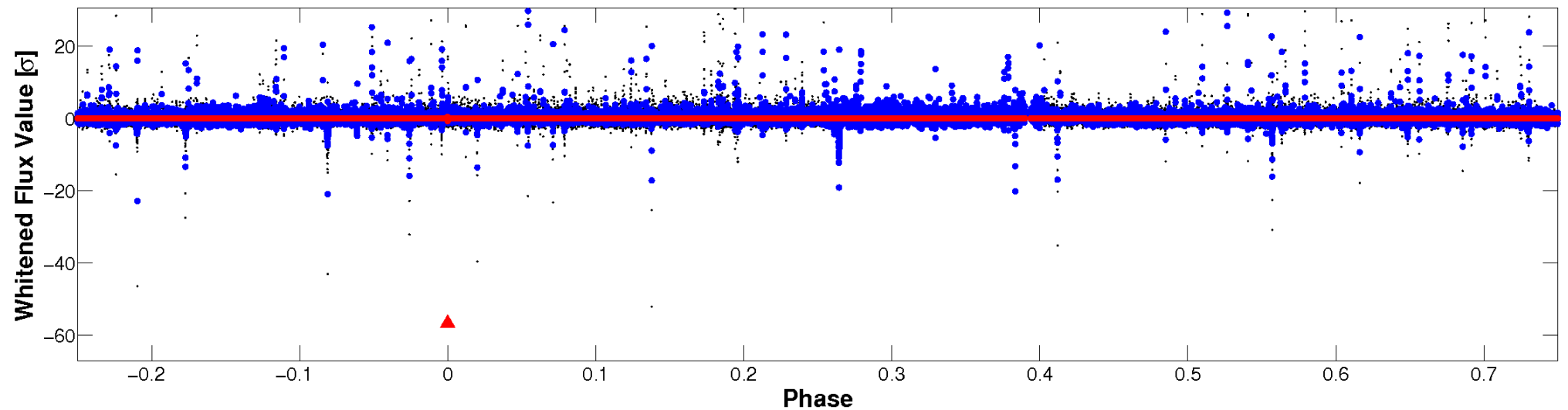


# Non-Whitened Vs. Whitened Light Curve

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

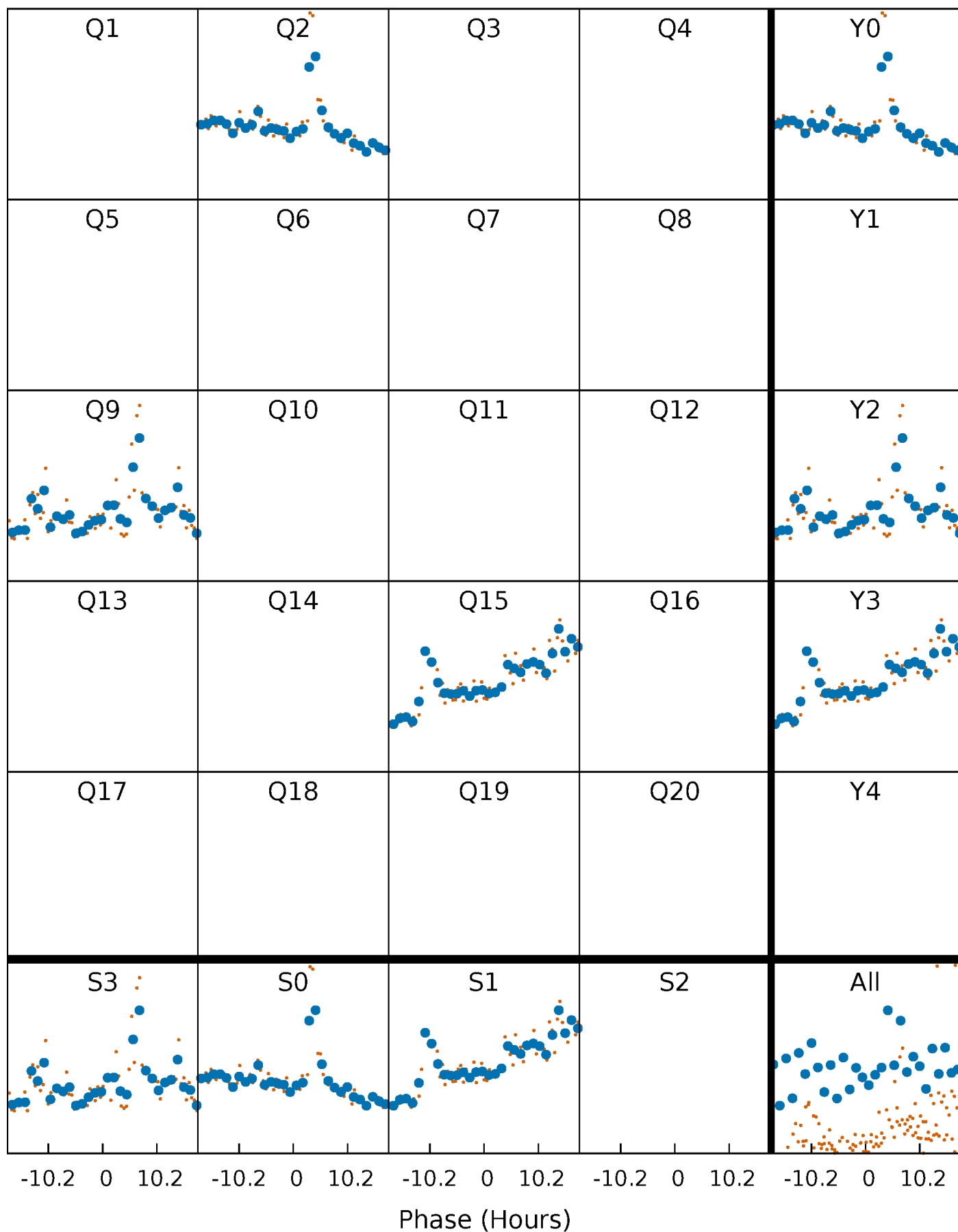


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

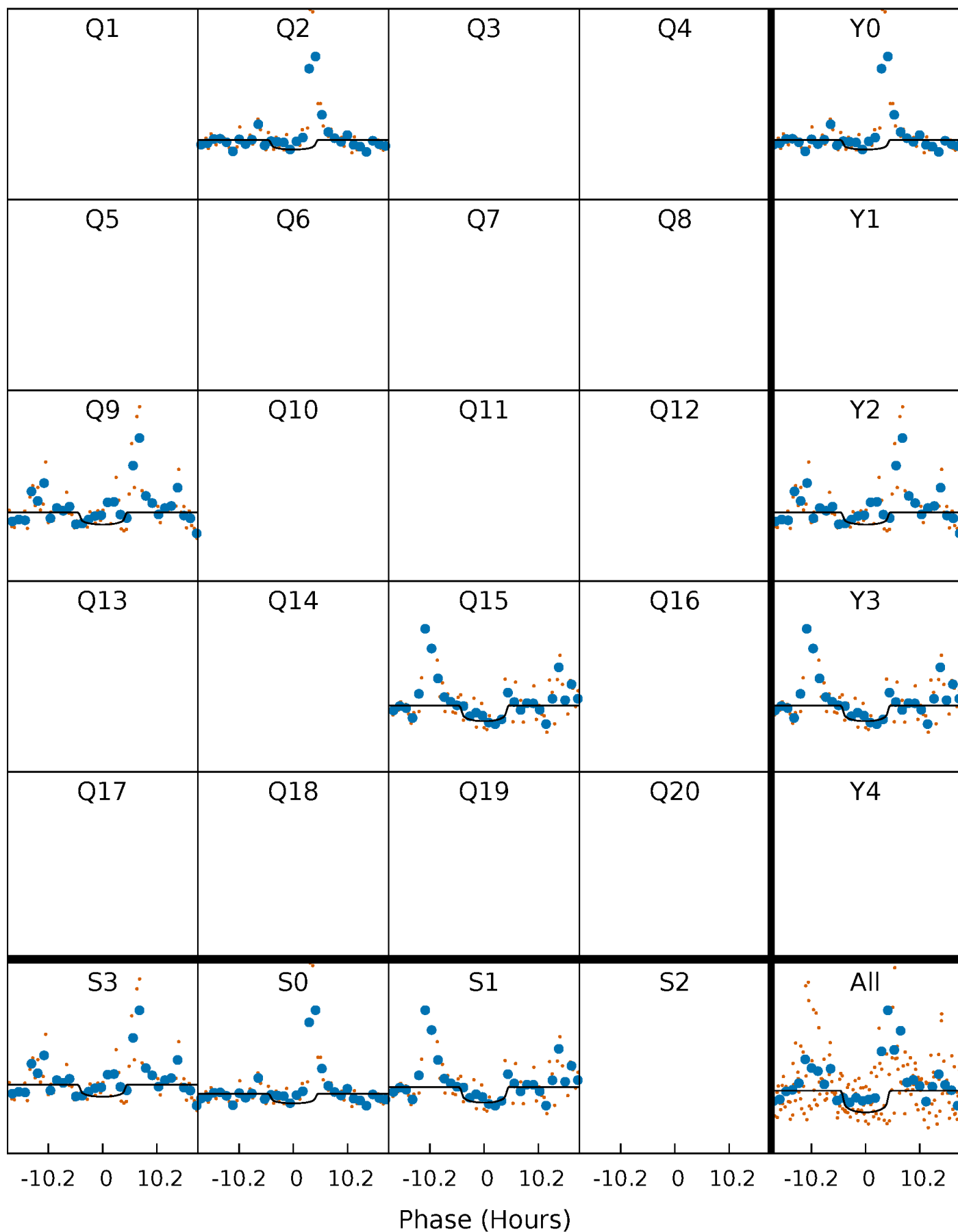
TCE 002834637-01 P=634.587415 Days  $T_0=187.963099$  (BKJD)





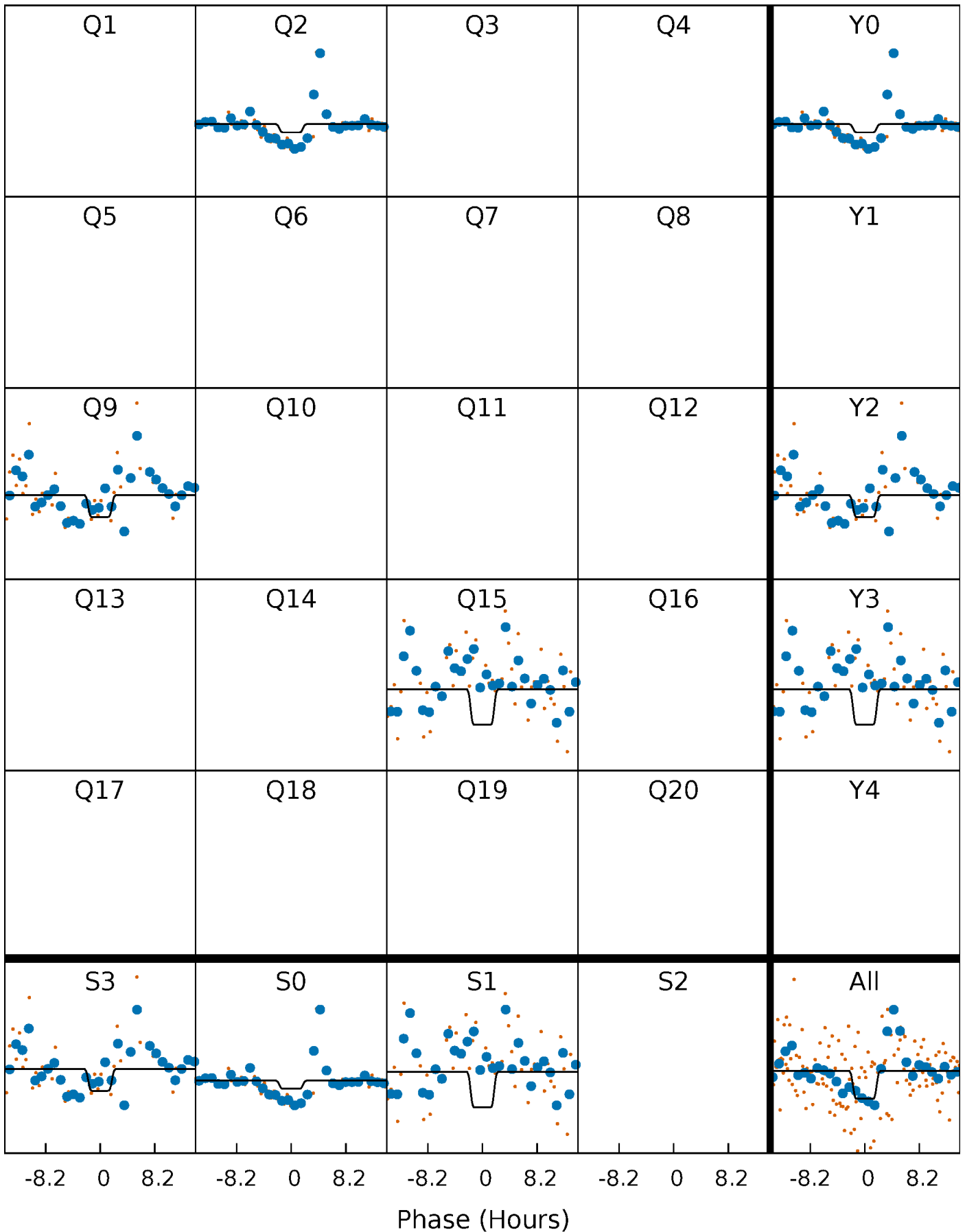
# DV Quarter-Phased Transit Curves

TCE 002834637-01 P=634.587415 Days  $T_0=187.963099$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

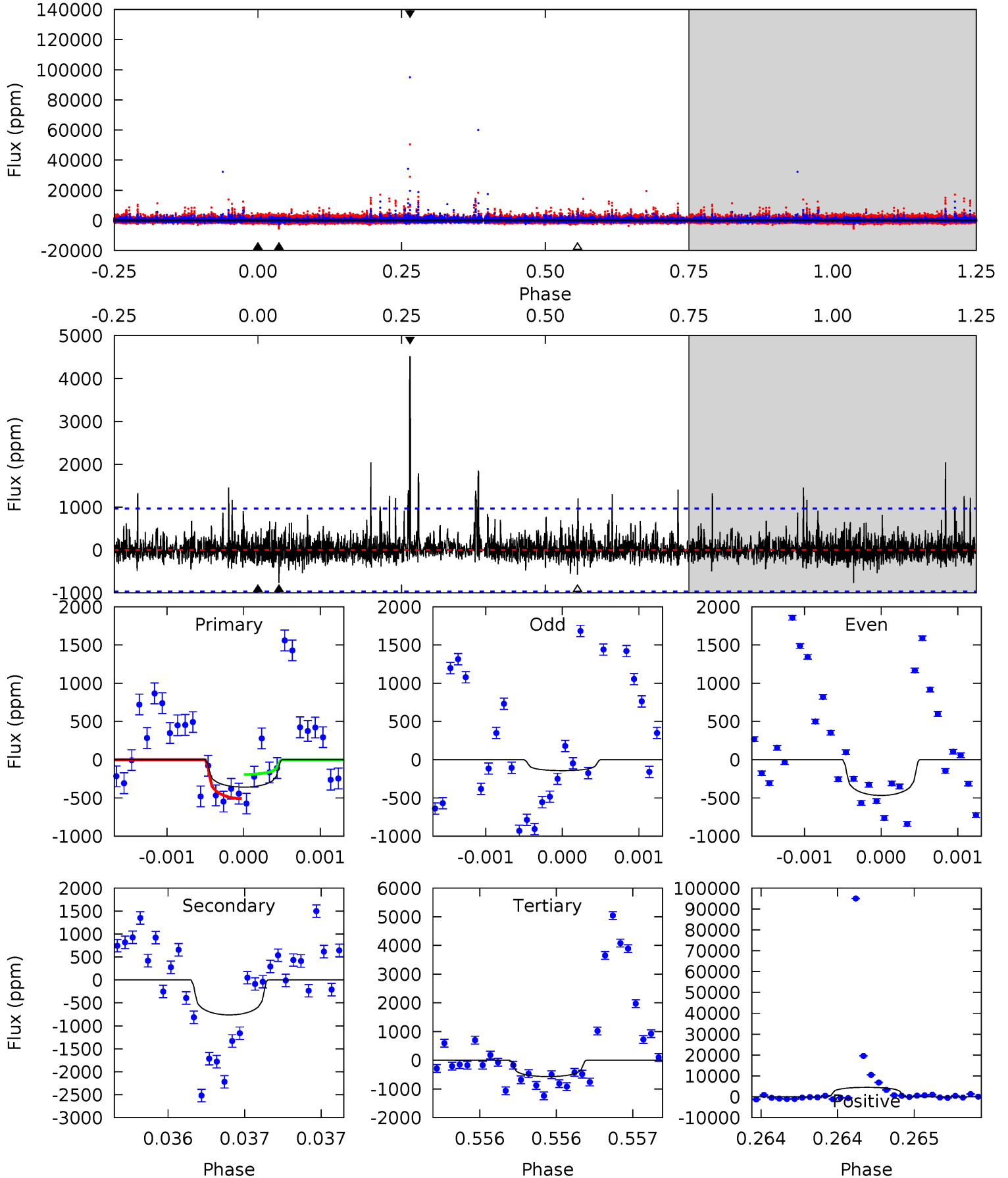
TCE 002834637-01 P=634.611884 Days  $T_0=187.936104$  (BKJD)



# DV Model-Shift Uniqueness Test

002834637-01, P = 634.587415 Days, E = 187.963099 Days

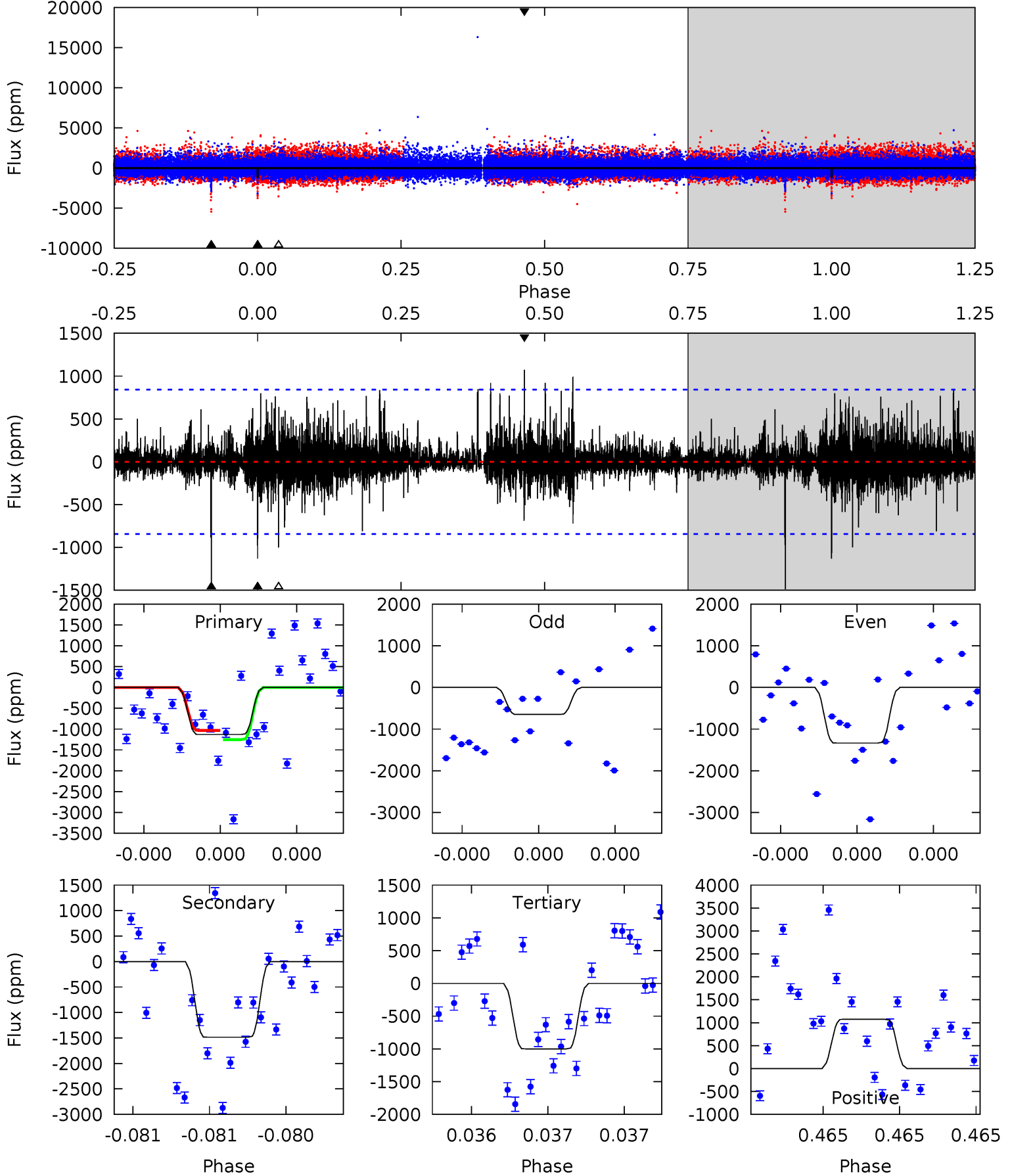
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.05	4.37	3.26	25.9	5.54	3.43	1.42	-1.21	-23.8	1.10	-21.5	0.46	-1.96	0.86	0.90



# Alt Model-Shift Uniqueness Test

002834637-01, P = 634.611884 Days, E = 187.936104 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
7.61	10.0	6.73	7.23	5.68	3.64	1.01	0.88	0.38	3.27	2.77	1.89	1.71	0.42	0.74



### Stellar Parameters For KIC 002834637

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3236^{+42}_{-25}$	$5.090^{+0.045}_{-0.045}$	$0.020^{+0.100}_{-0.100}$	$0.196^{+0.030}_{-0.022}$	$0.172^{+0.034}_{-0.022}$	$32.350^{+7.820}_{-6.909}$
	+1%/-1%	+1%/-1%	+500%/-500%	+15%/-11%	+20%/-13%	+24%/-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 002834637-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-763 \pm 175$	$0.75^{+0.55}_{-0.49}$	$99^{+3}_{-2}$	$3007^{+1173}_{-378}$	$475981^{+3202415}_{-312364}$
Alt.	$-1486 \pm 149$	$0.79^{+0.65}_{-0.48}$	$99^{+2}_{-2}$	$3292^{+1312}_{-499}$	$860269^{+5082220}_{-592752}$

$T_{max}$  = 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

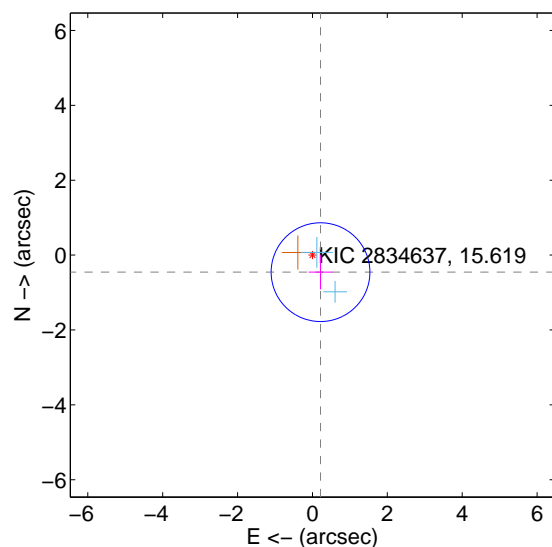
Supplemental centroid analysis for 002834637-01. Kepler magnitude: 15.62. Transit SNR 4.10

There are 2 quarters with good PRF difference image offsets

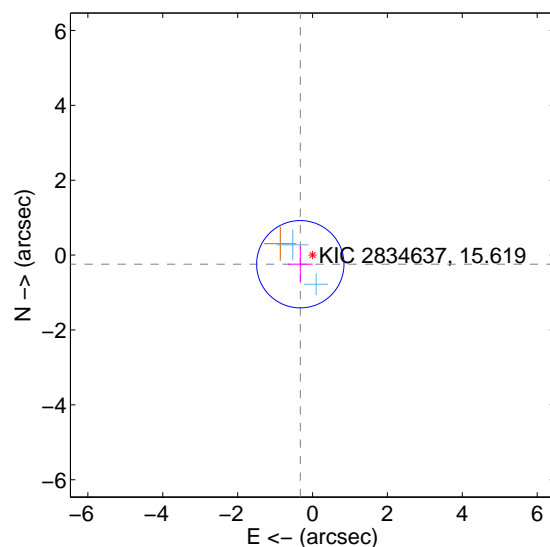
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.504 \pm 0.440$	1.15	$-0.216 \pm 0.322$	$-0.456 \pm 0.462$
PRF-fit source offset from KIC position	$0.407 \pm 0.389$	1.05	$0.326 \pm 0.331$	$-0.244 \pm 0.475$
photometric centroid source offset	$0.21 \pm 1.73$	0.12	$-0.20 \pm 1.73$	$-0.01 \pm 1.82$

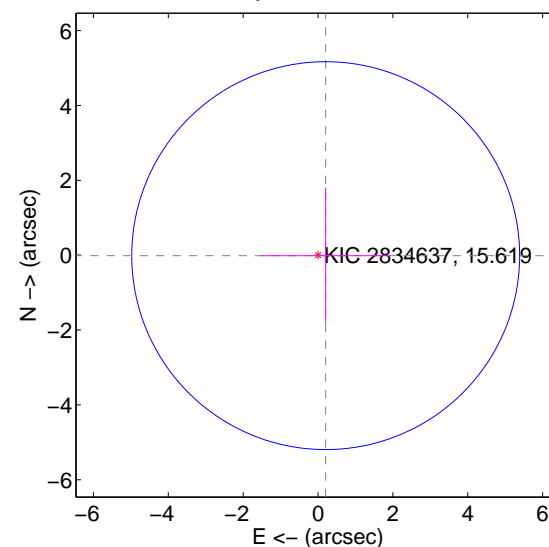
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

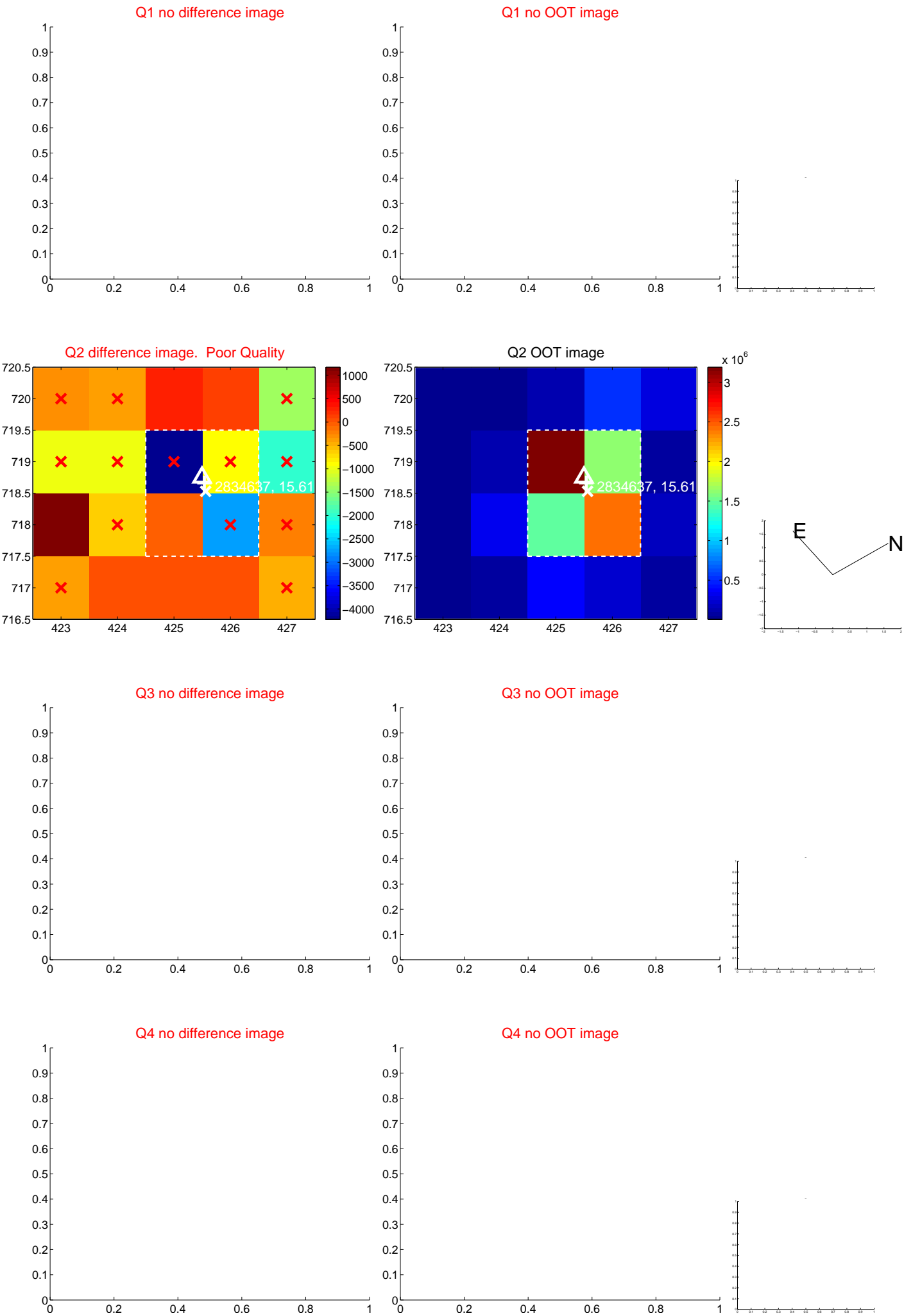


offset from photometric centroids



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

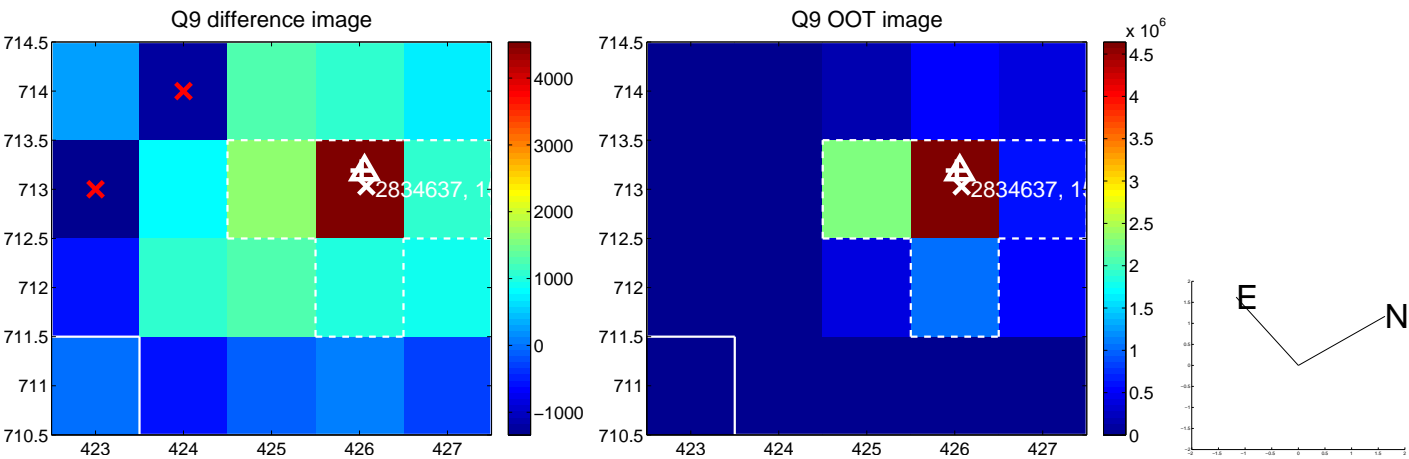


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

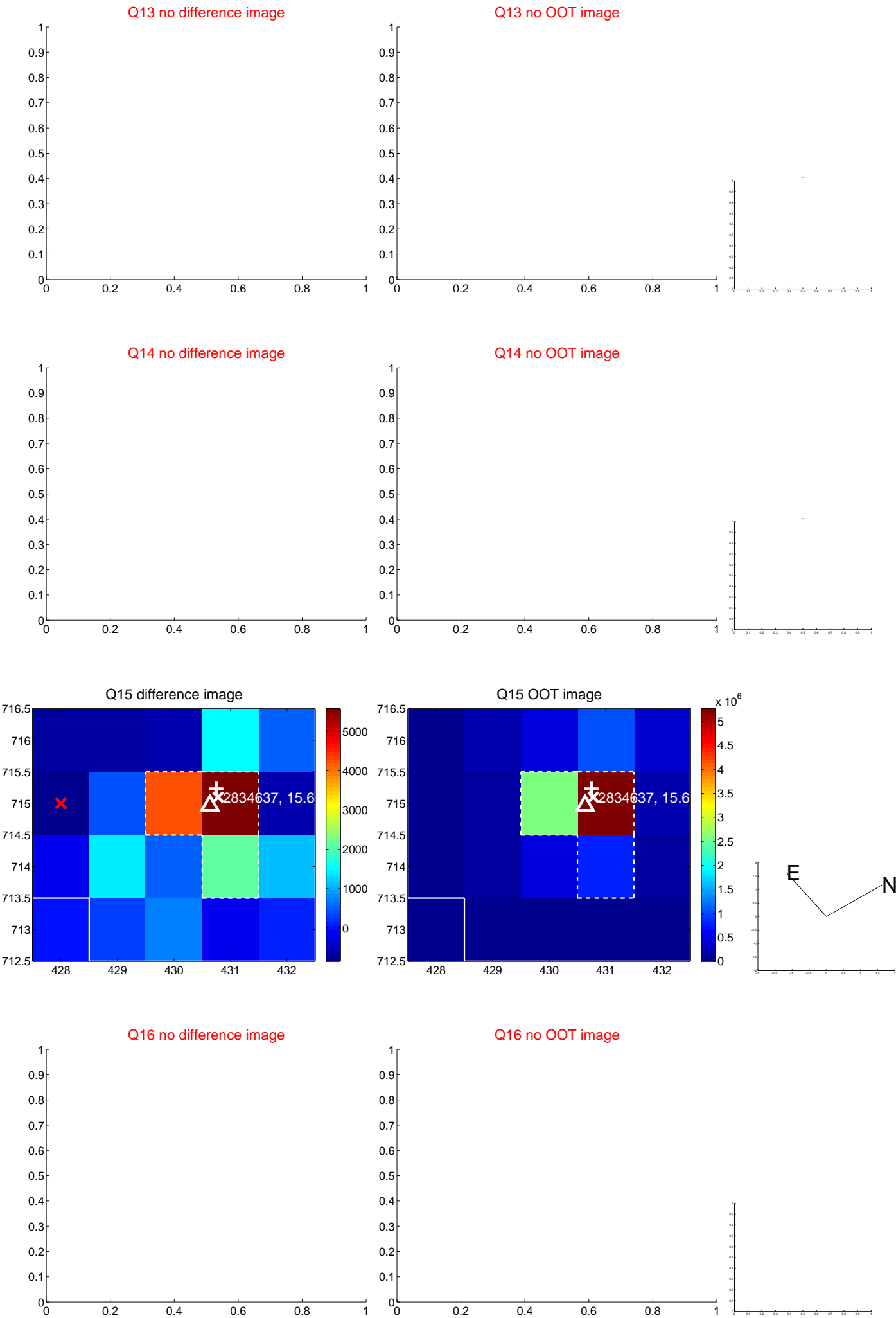




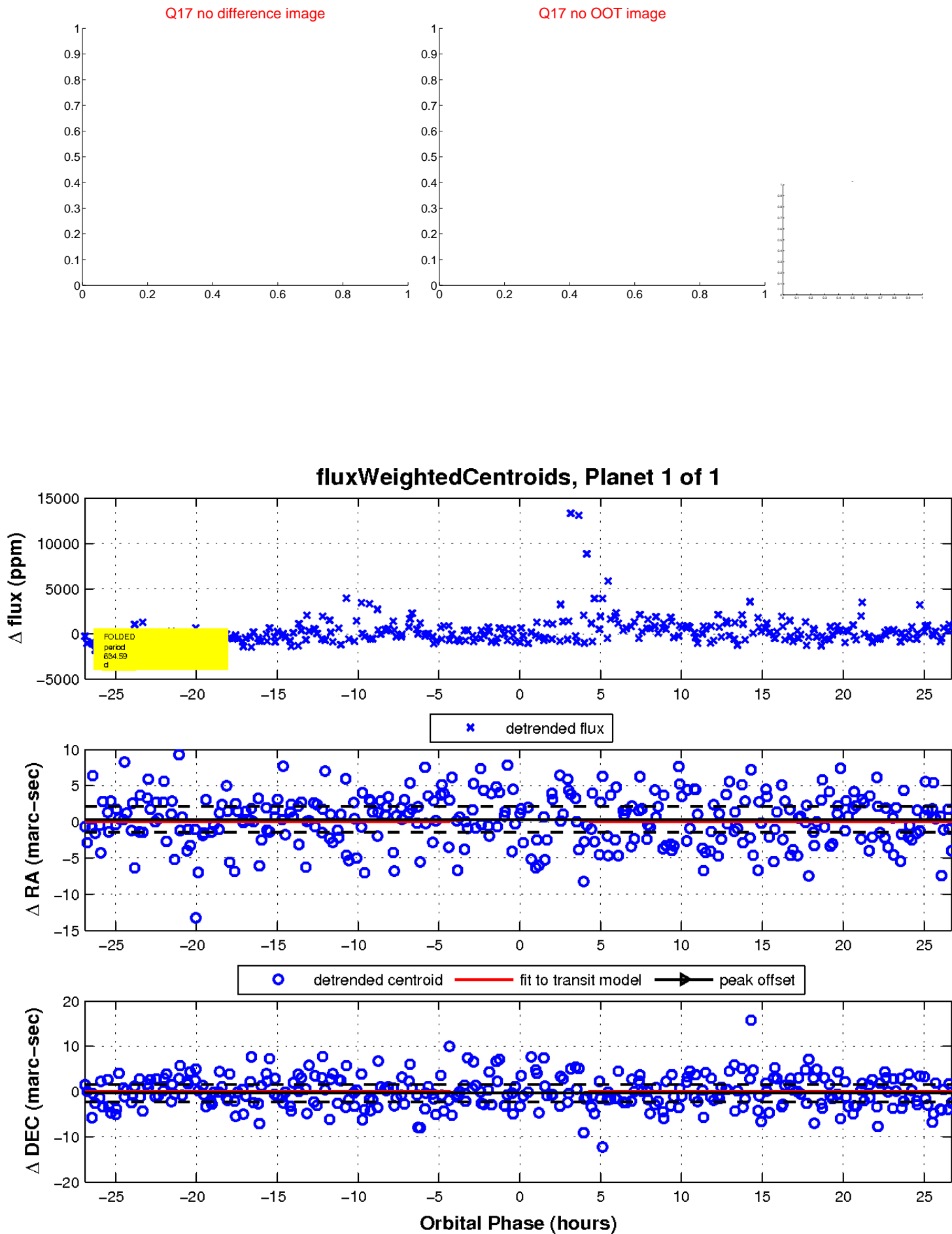
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

