

# KIC 008308601

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008308601-01	OBS	No	439.190016	522.298371	1029.1	4.335	10.6	8.6	1.14	6329	3.87	1.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008308601-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—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.

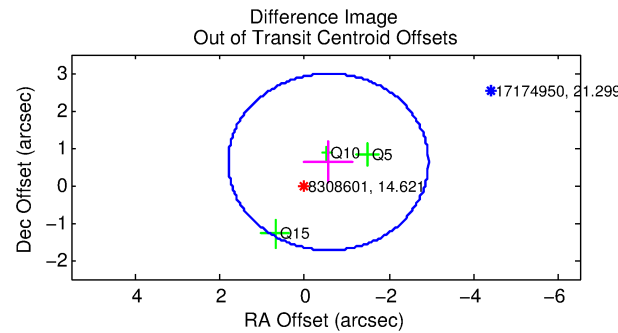
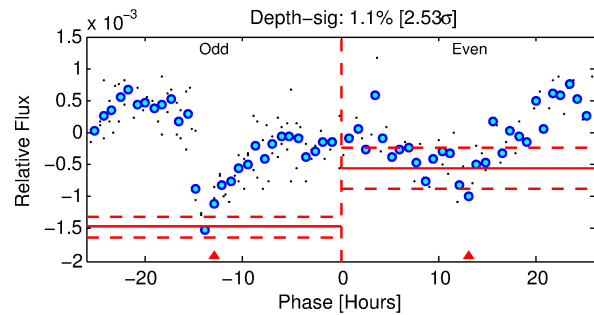
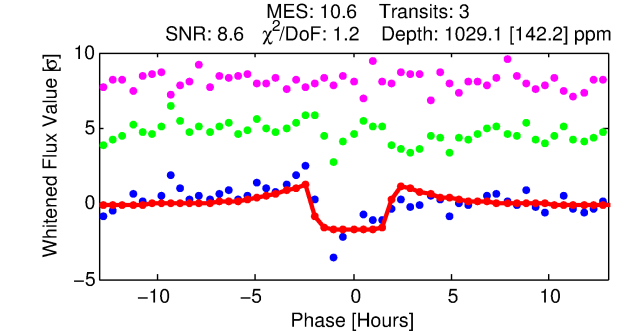
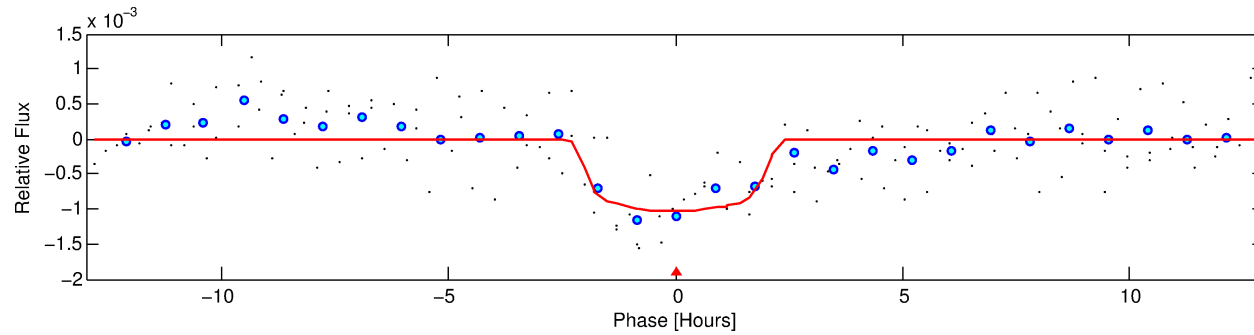
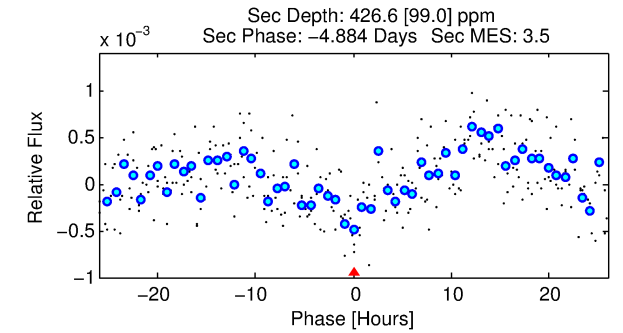
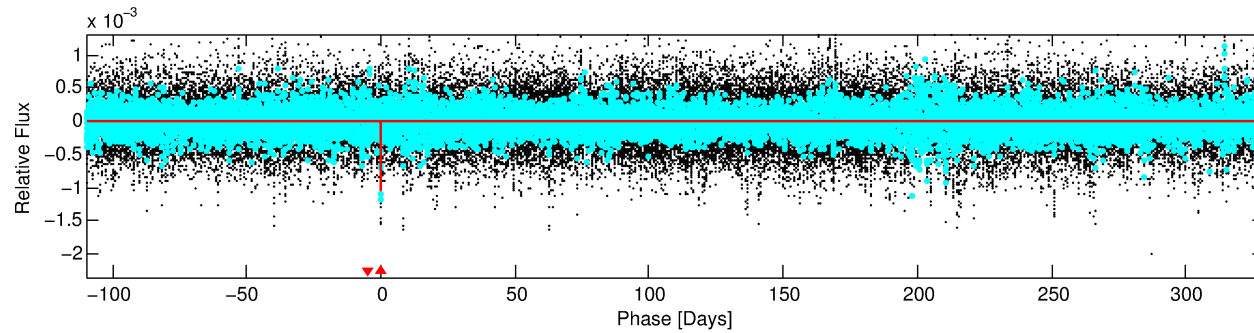
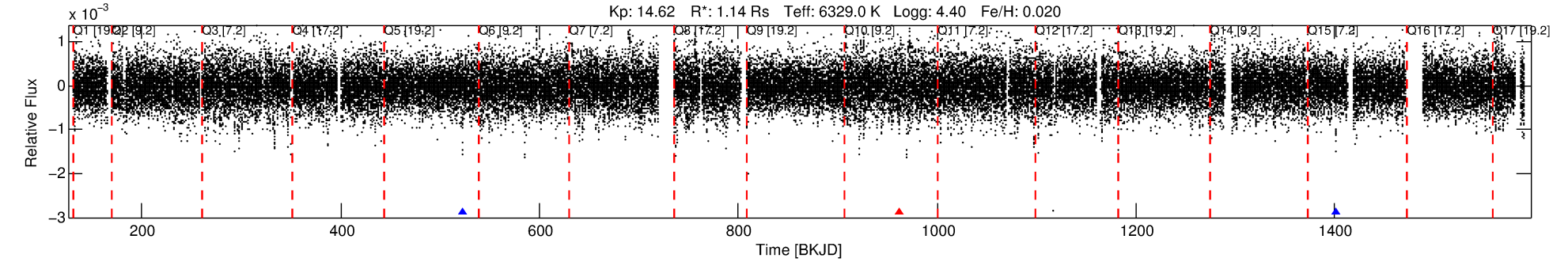
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008308601-01

No Significant Match Found

# DV One-Page Summary

KIC: 8308601 Candidate: 1 of 1 Period: 439.190 d



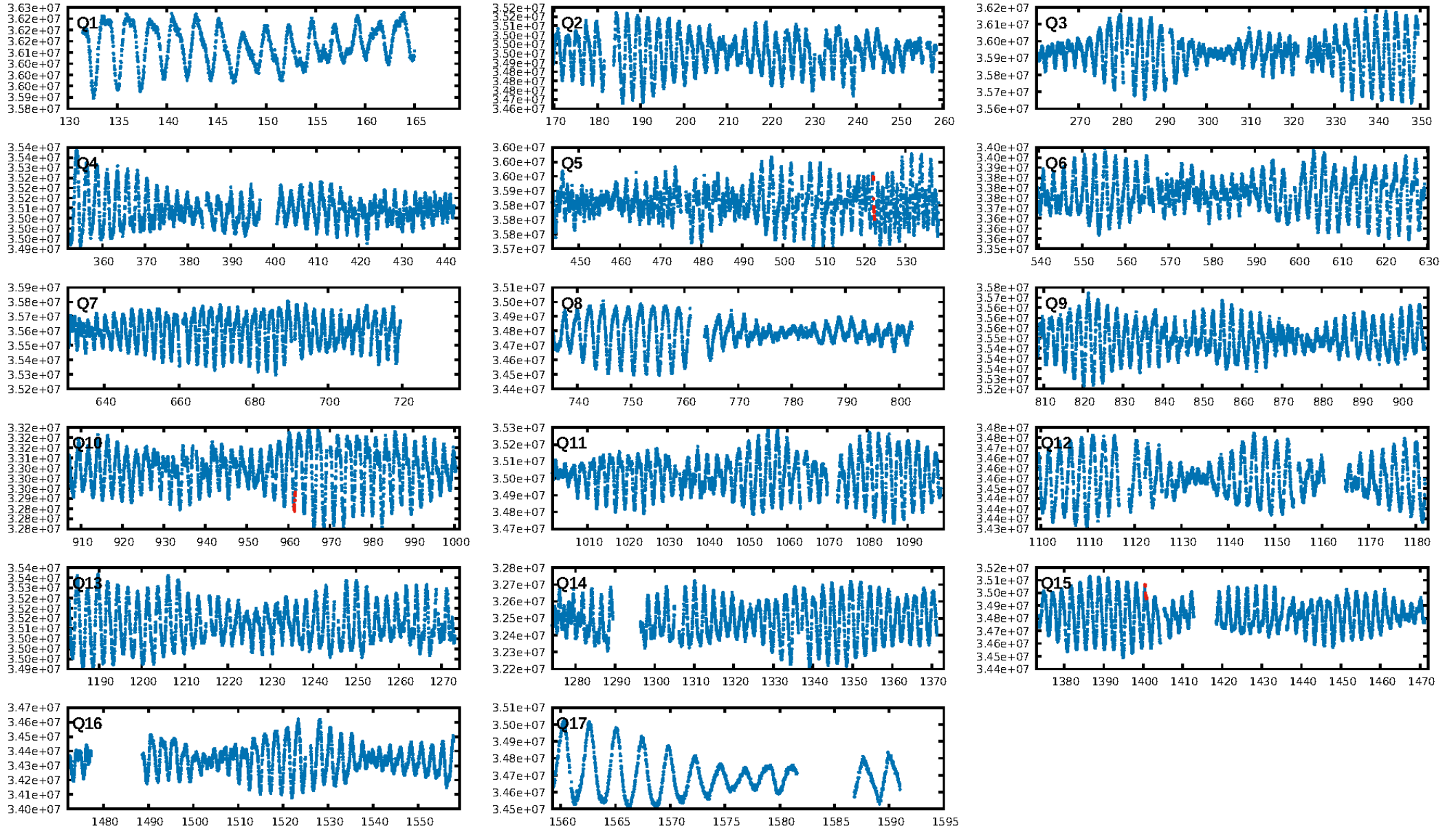
## DV Fit Results:

Period = 439.19002 [0.00484] d  
Epoch = 522.2984 [0.0064] BKJD  
Rp/R\* = 0.0311 [0.0149]  
a/R\* = 613.11 [1446.91]  
b = 0.66 [2.03]  
Seff = 1.30 [0.54]  
Teff = 273 [28] K  
Rp = 3.87 [2.27] Re  
a = 1.1946 [0.3329] AU  
Ag = 22396.32 [23764.68] [0.94 $\sigma$ ]  
Teffp = 5154 [1282] K [3.81 $\sigma$ ]

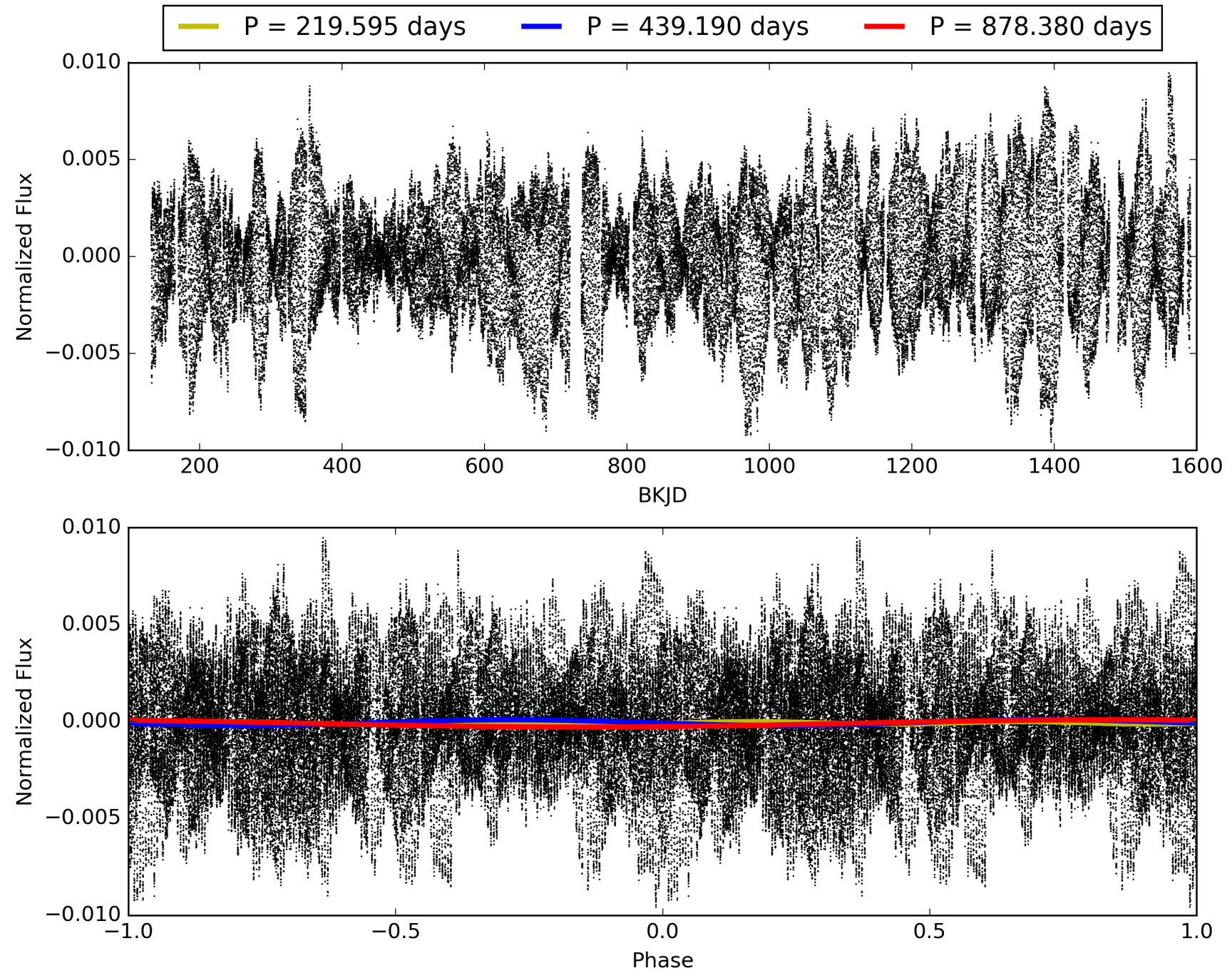
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.2%  
ModelChiSquareGof-sig: 63.1%  
Bootstrap-pfa: 1.03e-13  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: -21.86  
Centroid-sig: 38.3%  
Centroid-so: 0.862 arcsec [1.04 $\sigma$ ]  
OotOffset-rm: 0.845 arcsec [1.07 $\sigma$ ]  
KicOffset-rm: 0.835 arcsec [1.39 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 008308601-01, PDC Light Curves

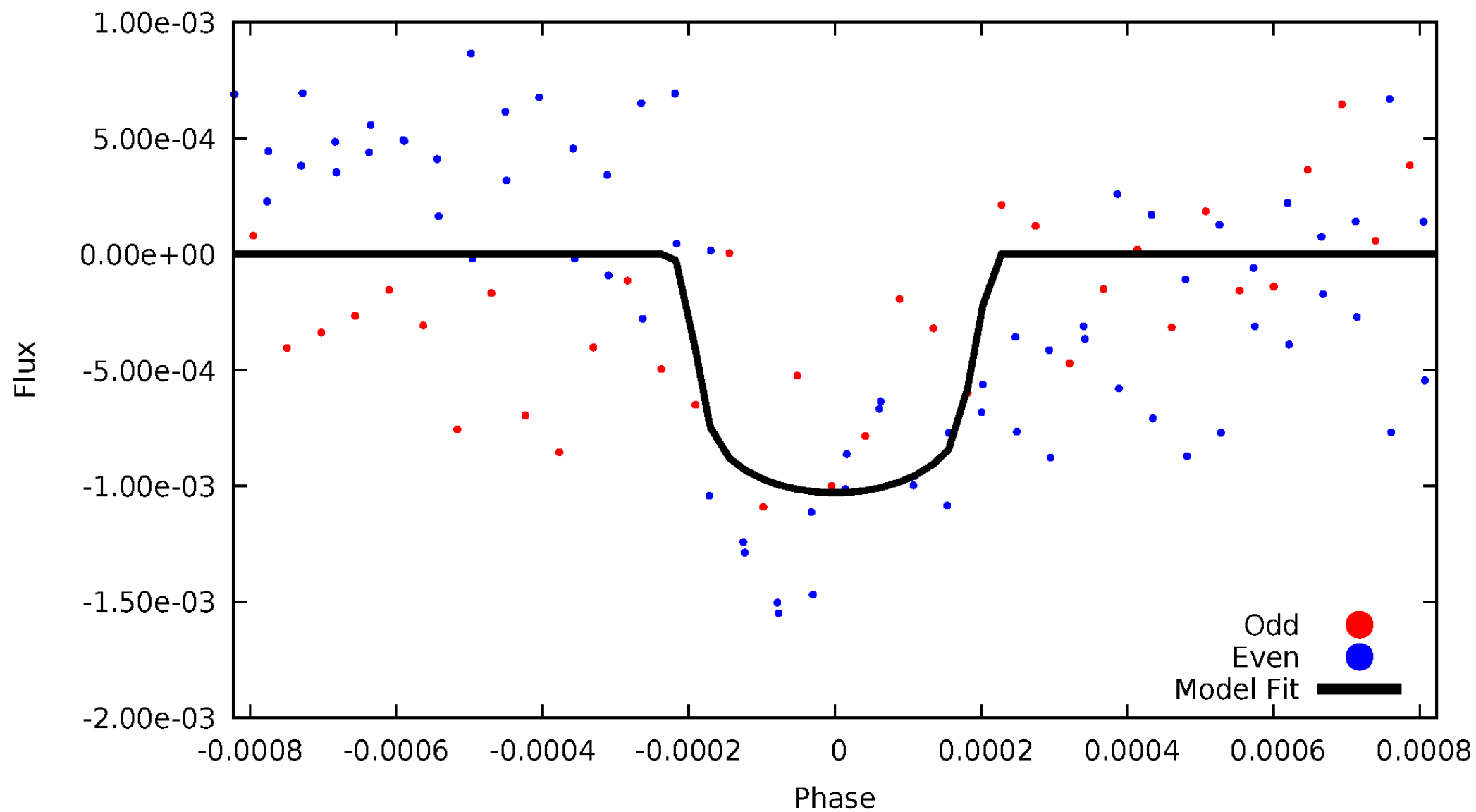


TCE 008308601-01



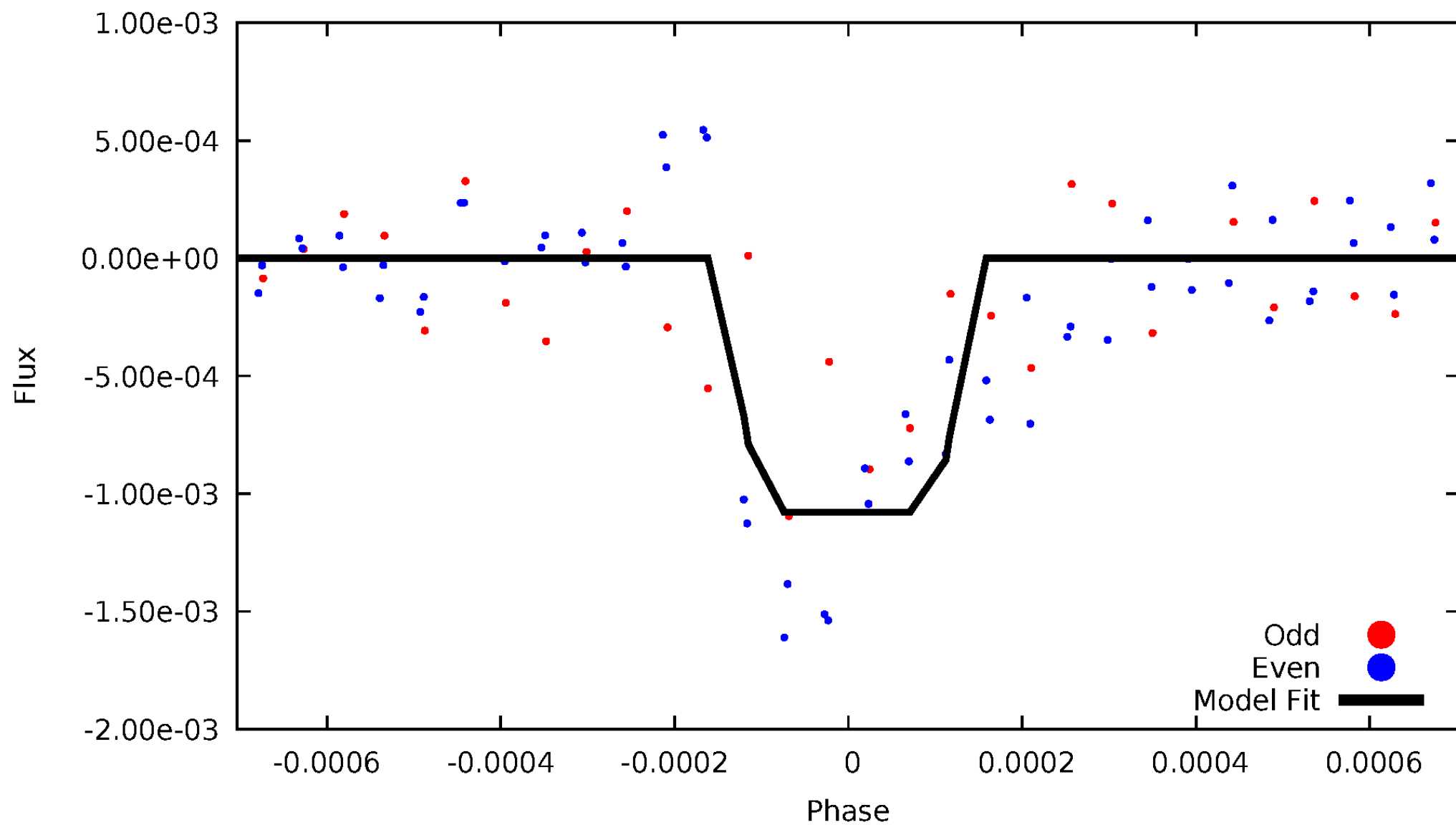
# DV Odd/Even

TCE 008308601-01



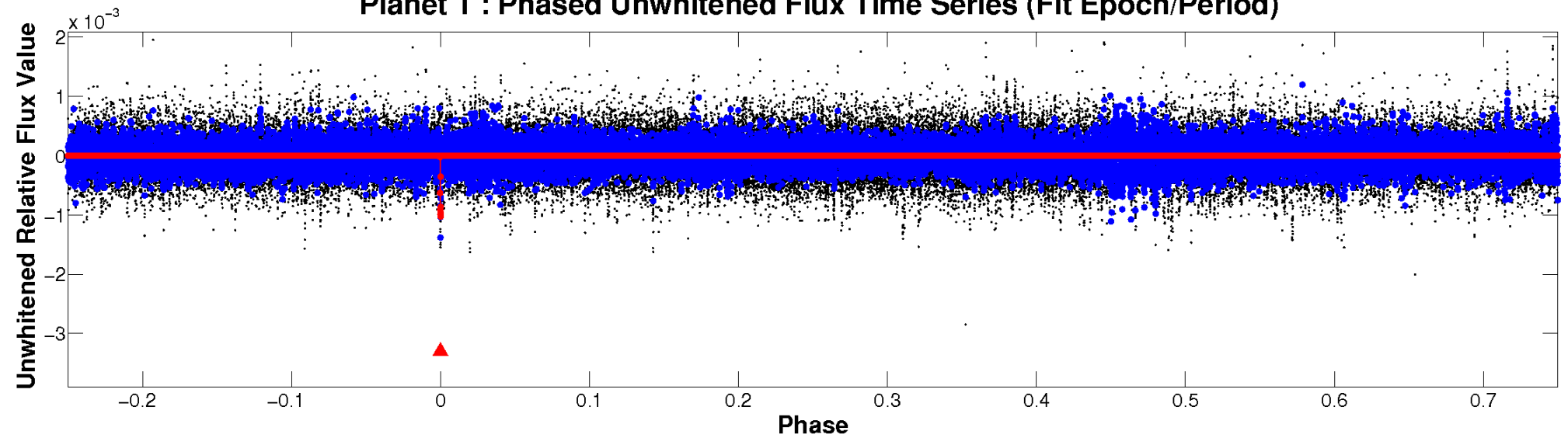
# ALT Odd/Even

TCE 008308601-01

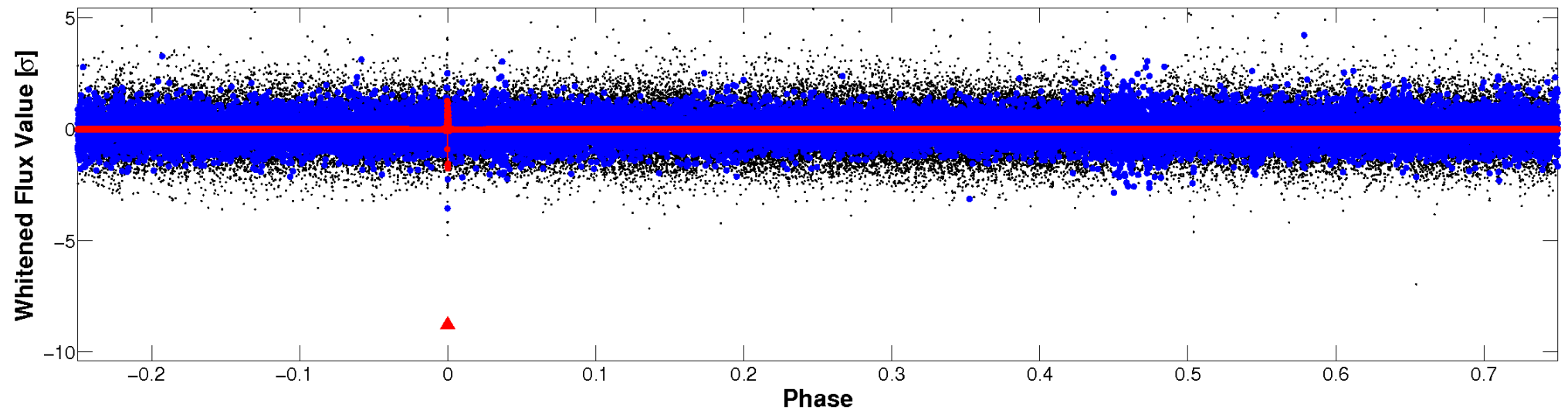


# Non-Whitened Vs. Whitened Light Curve

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

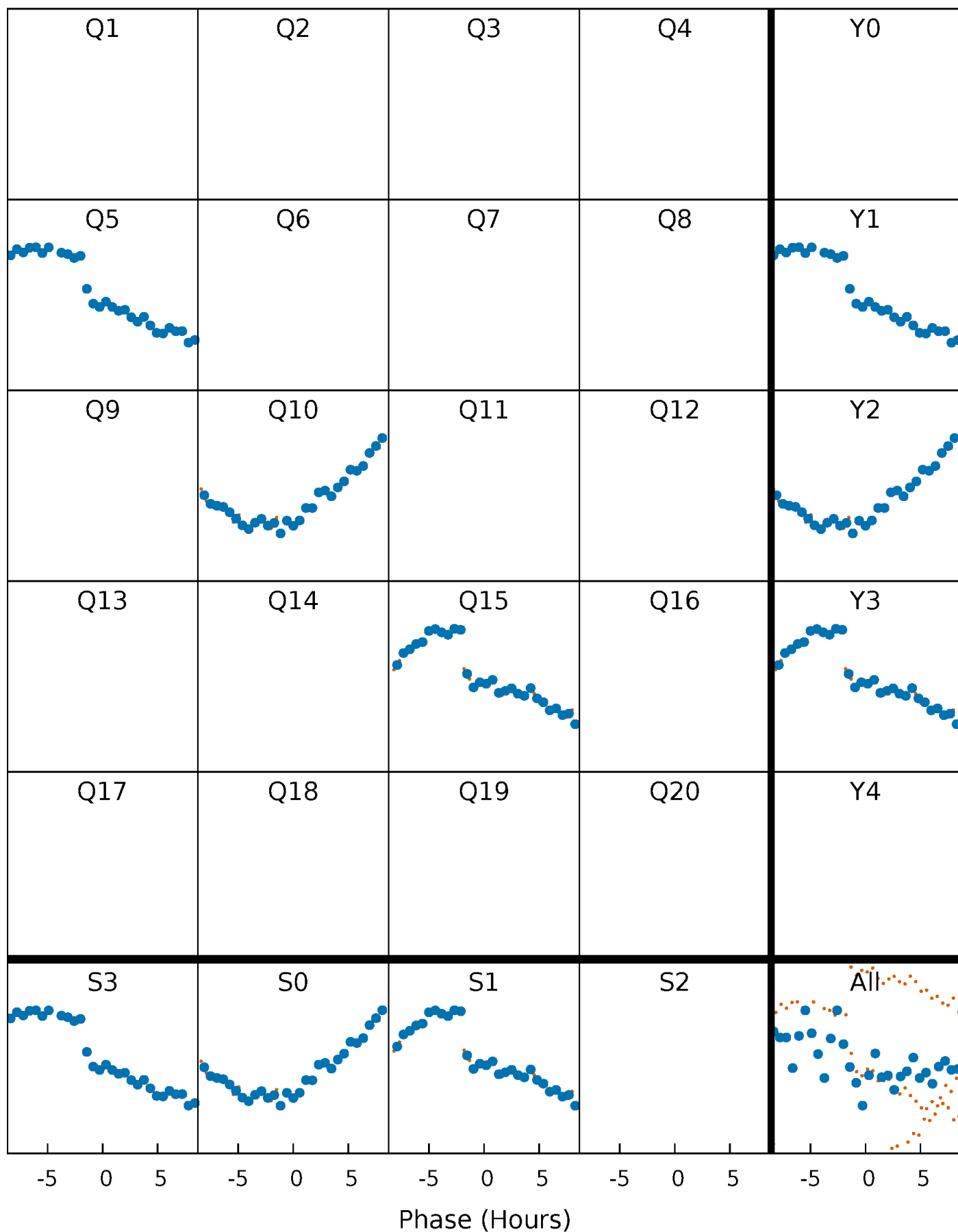


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



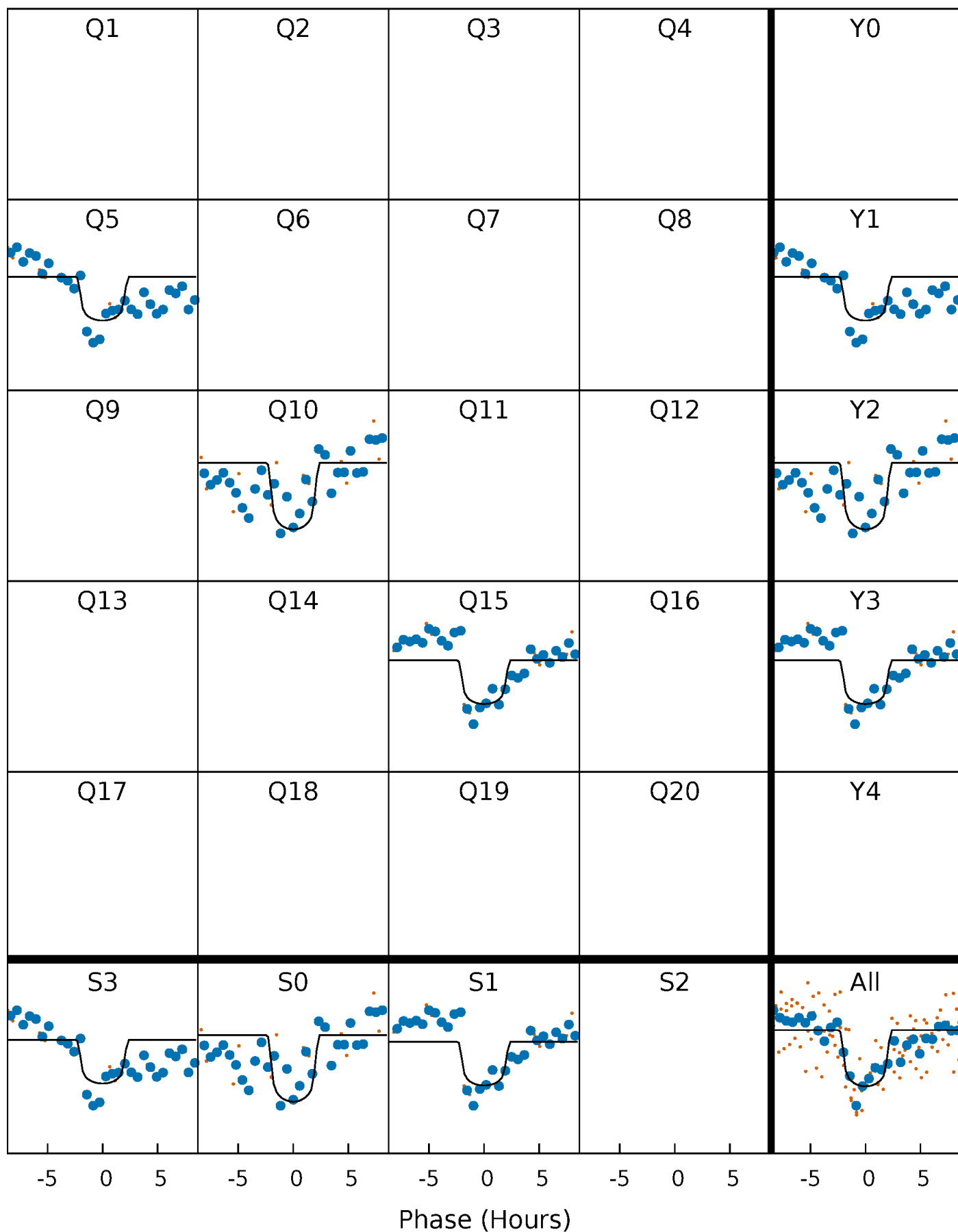
# PDC Quarter-Phased Transit Curves

TCE 008308601-01 P=439.190016 Days  $T_0=522.298371$  (BKJD)



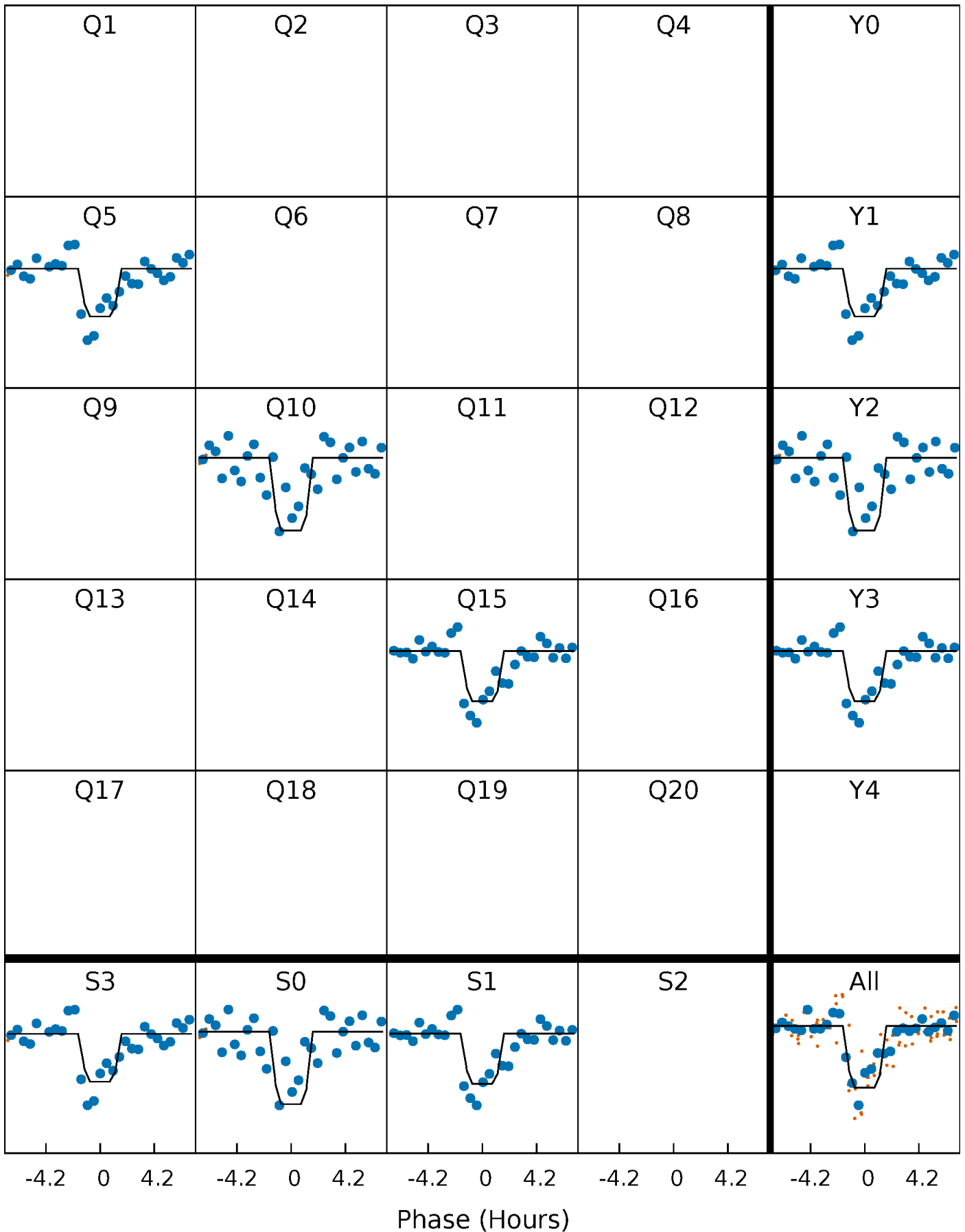
# DV Quarter-Phased Transit Curves

TCE 008308601-01 P=439.190016 Days  $T_0=522.298371$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

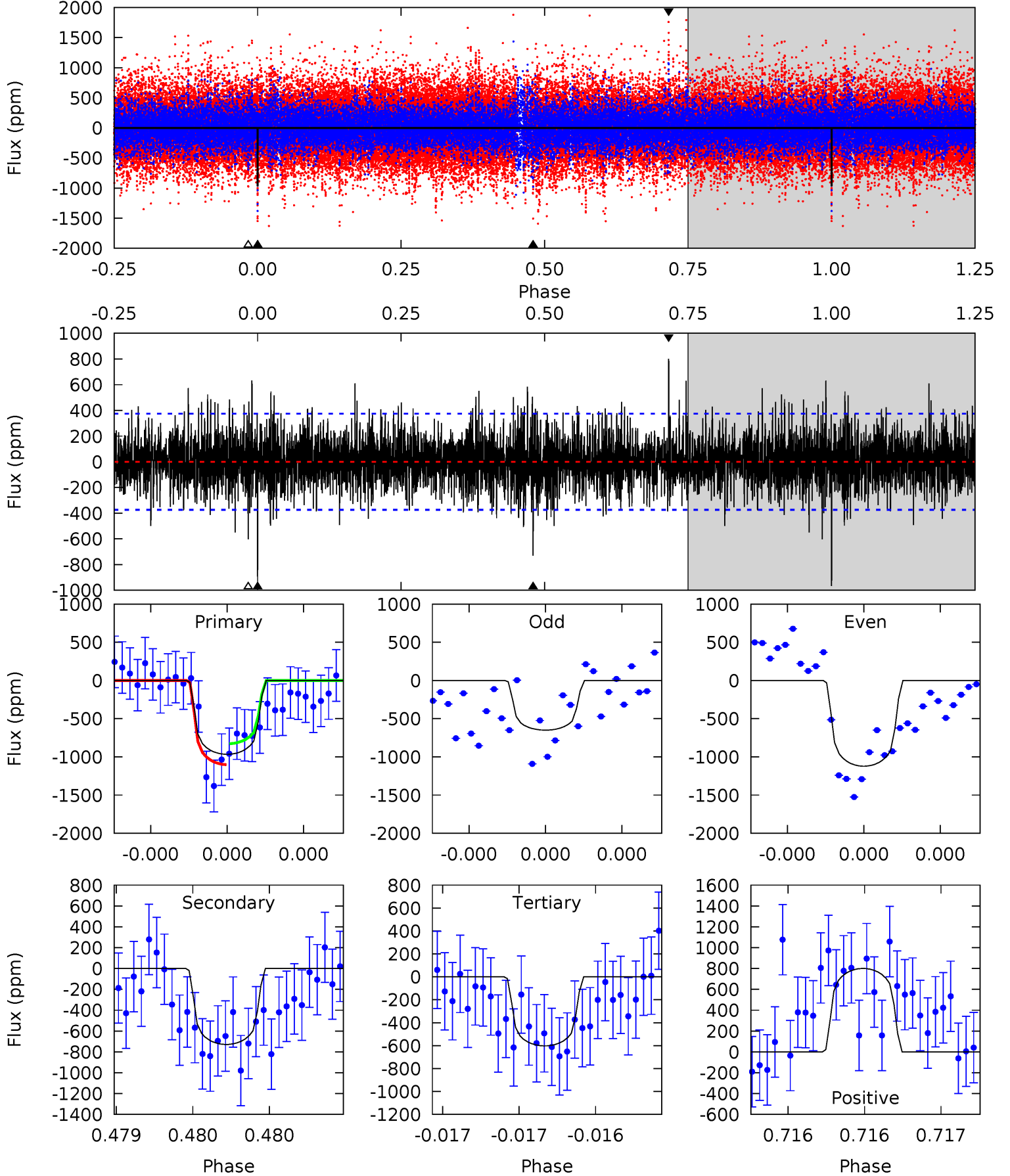
TCE 008308601-01 P=439.178505 Days  $T_0=522.297027$  (BKJD)



# DV Model-Shift Uniqueness Test

008308601-01, P = 439.190016 Days, E = 83.108355 Days

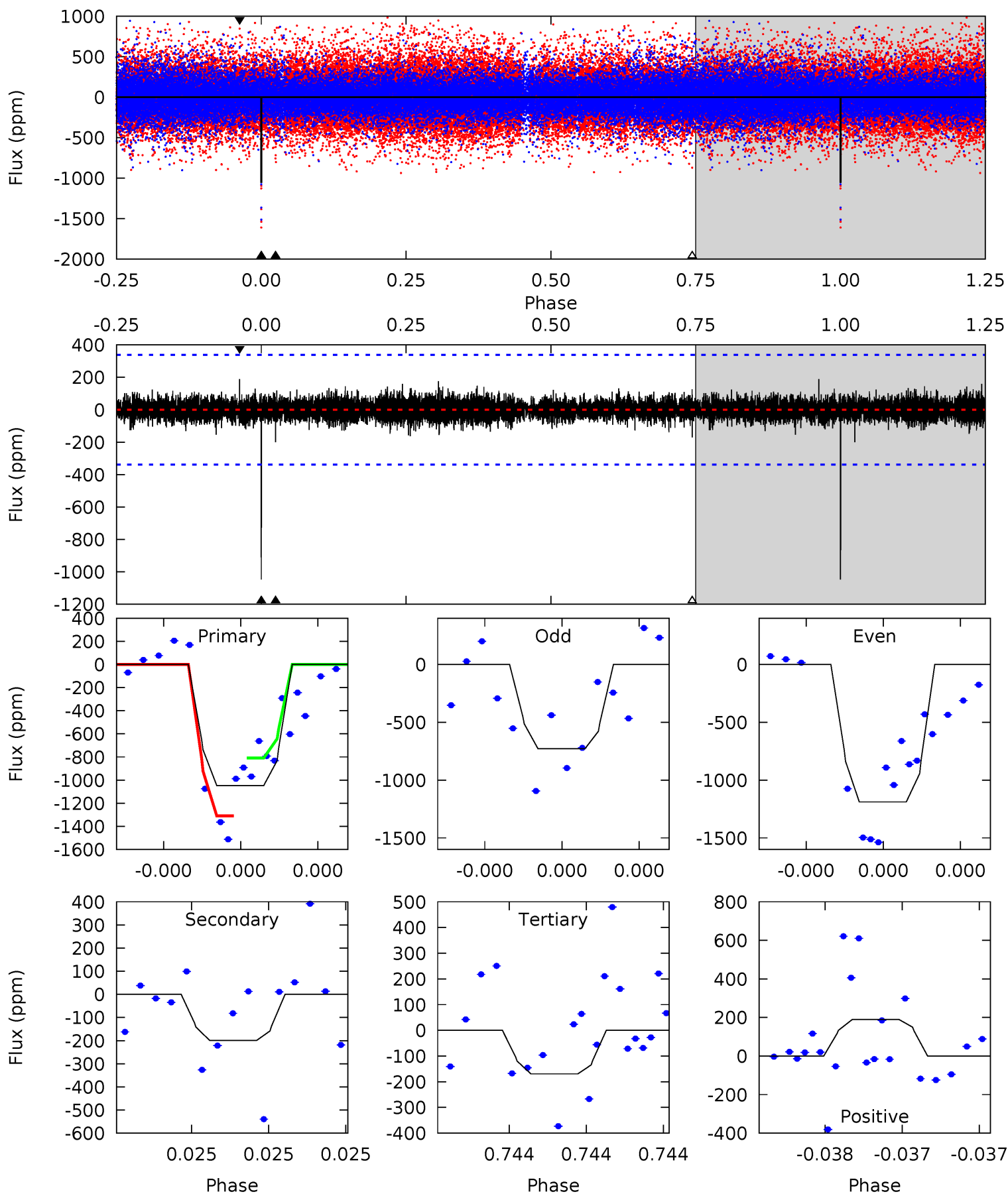
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	10.9	9.00	12.0	5.59	3.51	2.32	5.44	2.48	1.89	-1.07	3.27	0.91	0.45	2.05



# Alt Model-Shift Uniqueness Test

008308601-01, P = 439.178505 Days, E = 83.118522 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
17.6	3.36	2.85	3.18	5.70	3.67	0.62	14.8	14.4	0.51	0.18	3.42	0.85	0.15	4.21



### Stellar Parameters For KIC 008308601

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6329^{+174}_{-217}$	$4.397^{+0.056}_{-0.210}$	$0.020^{+0.250}_{-0.300}$	$1.138^{+0.388}_{-0.129}$	$1.178^{+0.169}_{-0.152}$	$1.125^{+0.332}_{-0.607}$
	+3%/-3%	+1%/-5%	+1250%/-1500%	+34%/-11%	+14%/-13%	+30%/-54%
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 008308601-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-729 \pm 67$	$4.14^{+2.04}_{-1.94}$	$387^{+28}_{-18}$	$5819^{+2304}_{-961}$	$33116^{+80354}_{-18072}$
Alt.	$-200 \pm 59$	$4.27^{+2.34}_{-1.93}$	$389^{+29}_{-19}$	$4353^{+1278}_{-638}$	$8346^{+19205}_{-5061}$

$T_{max}$  = 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

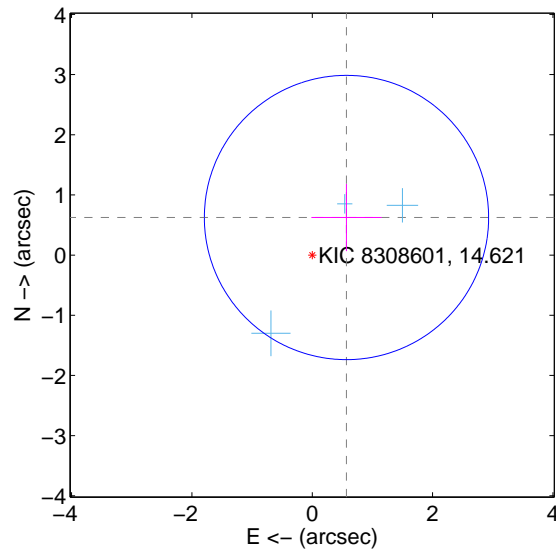
Supplemental centroid analysis for 008308601-01. Kepler magnitude: 14.62. Transit SNR 8.58

There are 3 quarters with good PRF difference image offsets

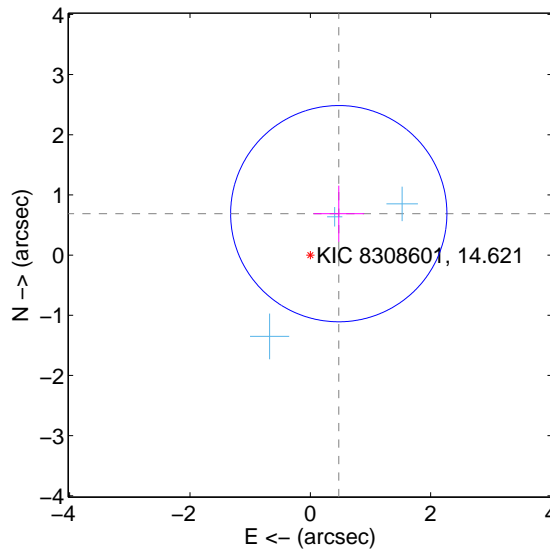
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.845 \pm 0.787$	1.07	$-0.569 \pm 0.584$	$0.625 \pm 0.559$
PRF-fit source offset from KIC position	$0.835 \pm 0.599$	1.39	$-0.473 \pm 0.421$	$0.688 \pm 0.467$
photometric centroid source offset	$0.86 \pm 0.83$	1.04	$0.75 \pm 0.79$	$-0.43 \pm 0.94$

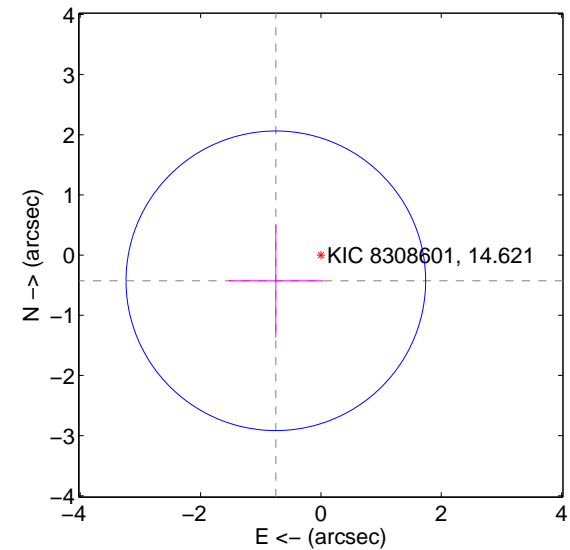
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

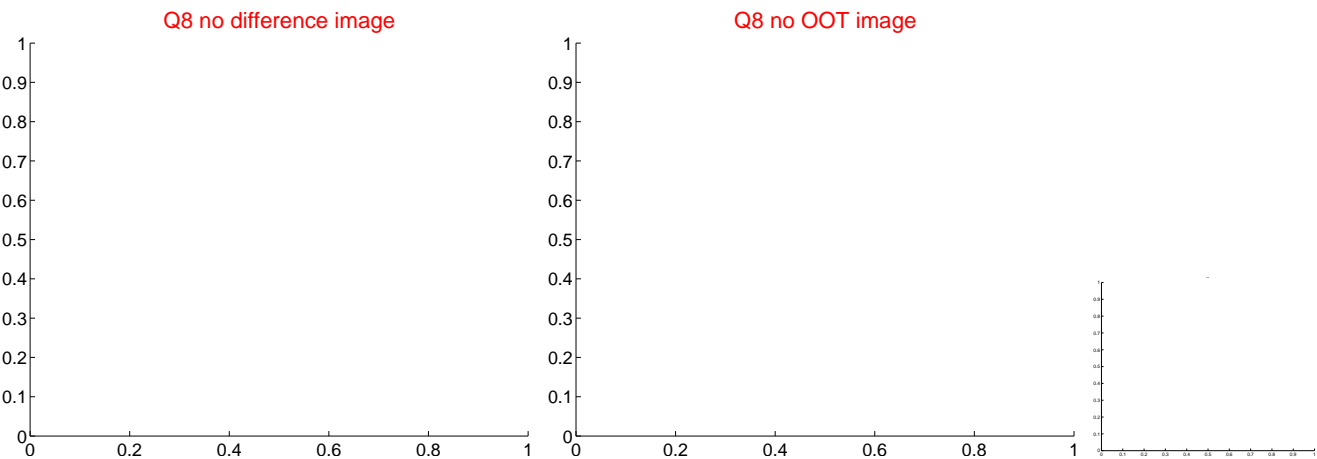
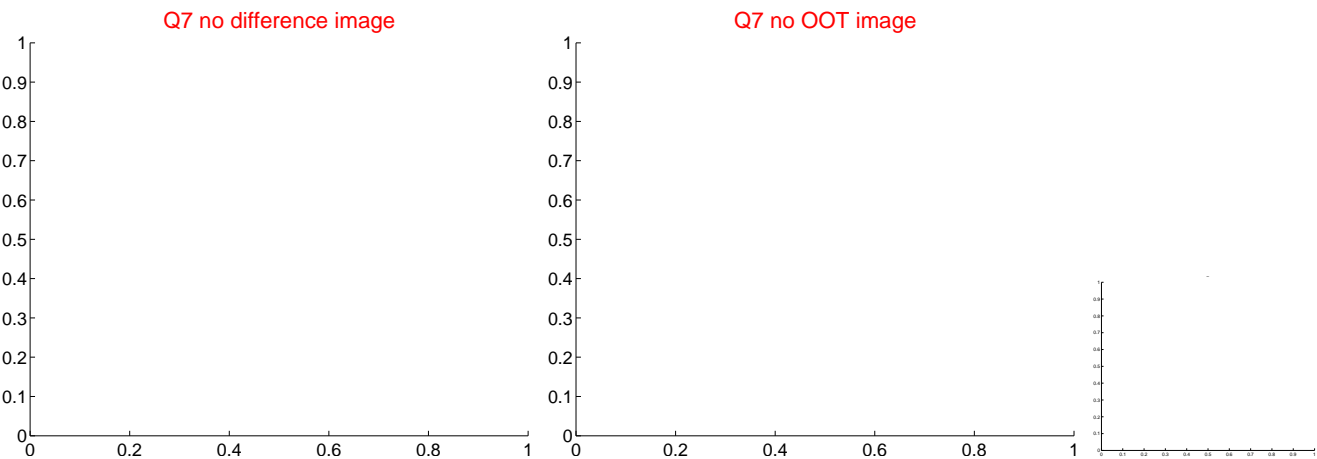
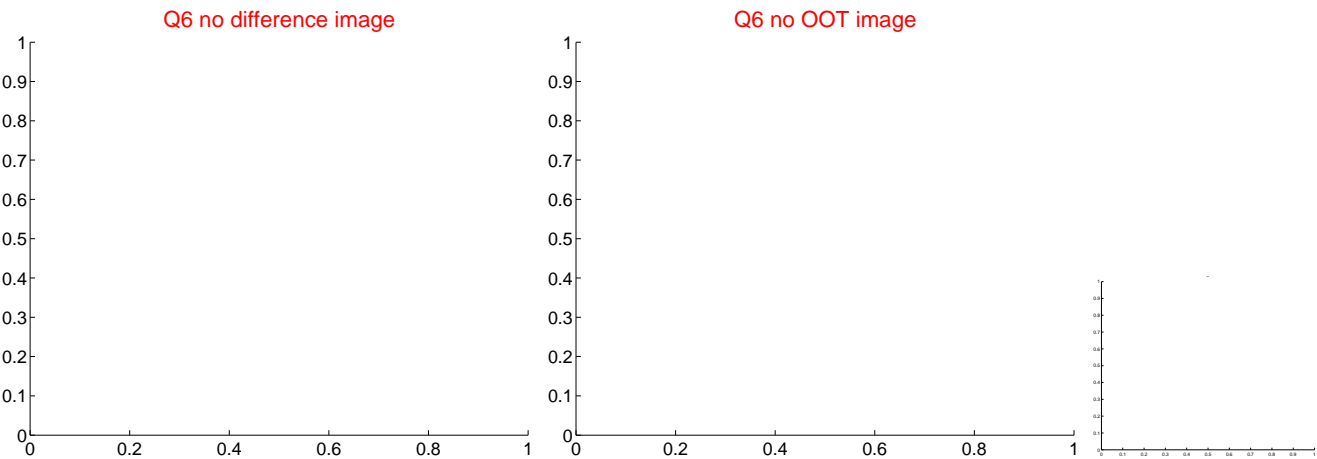
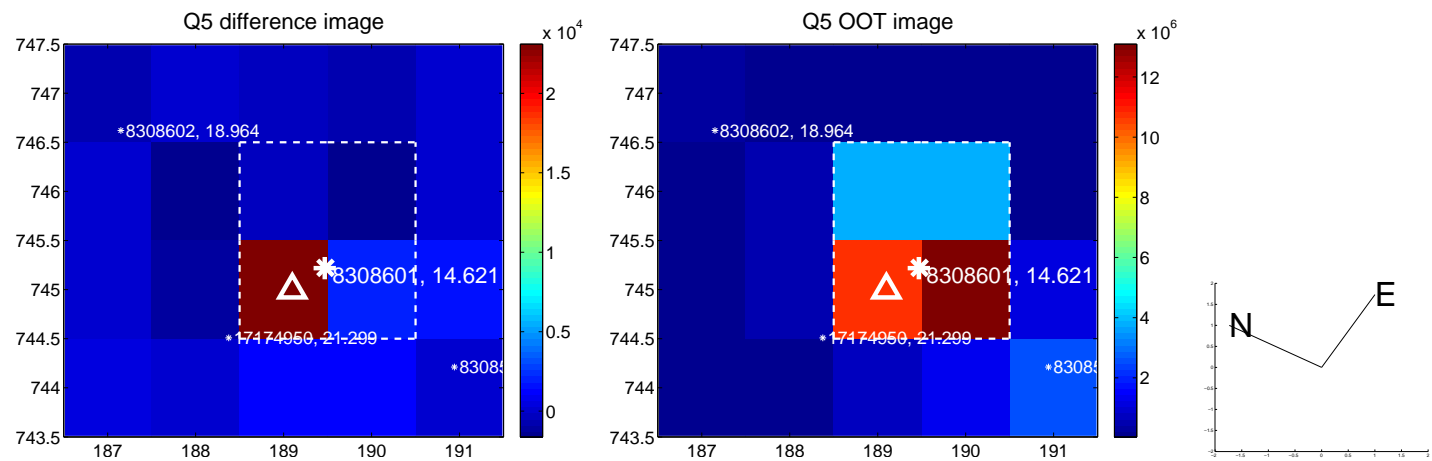


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

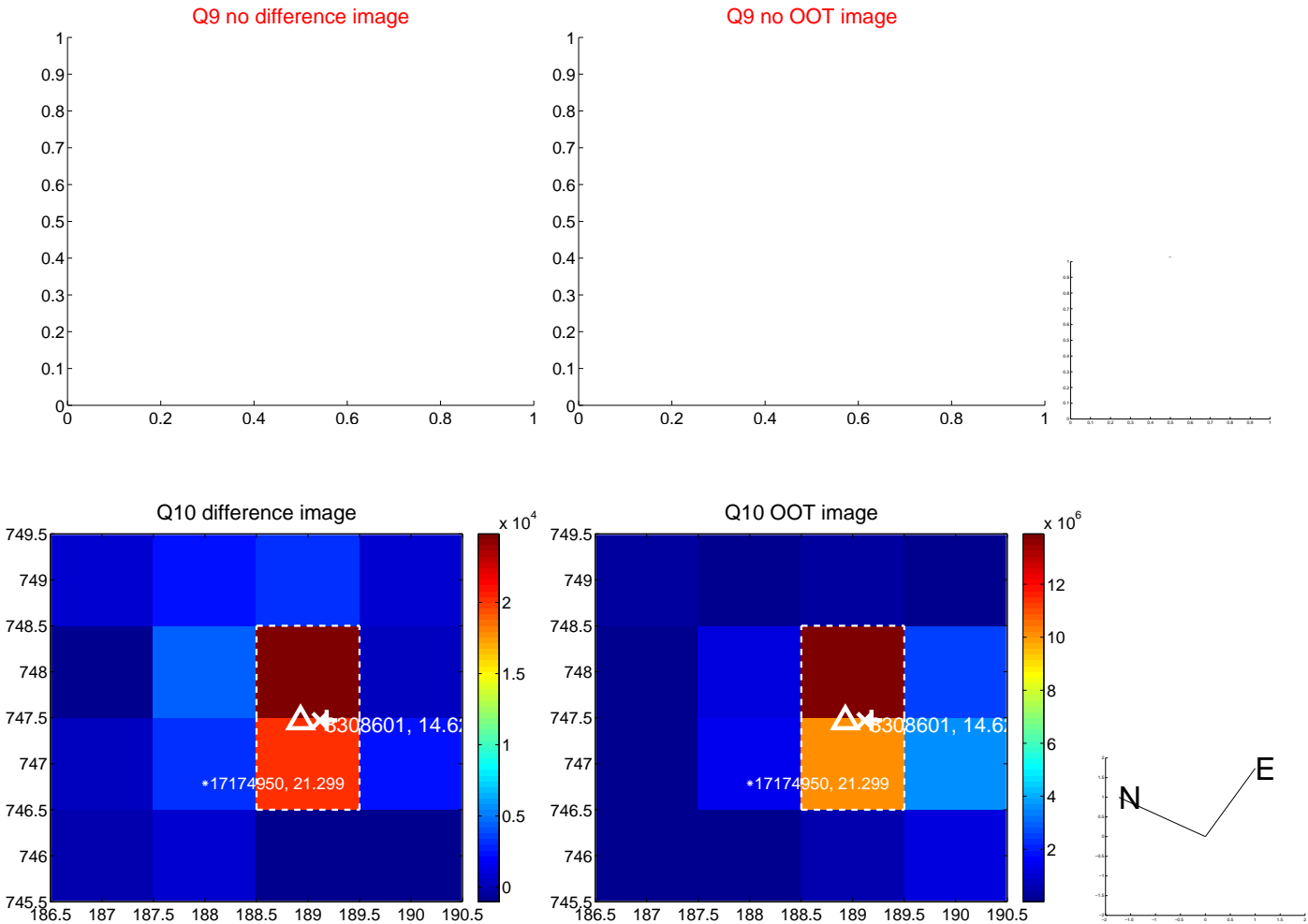
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



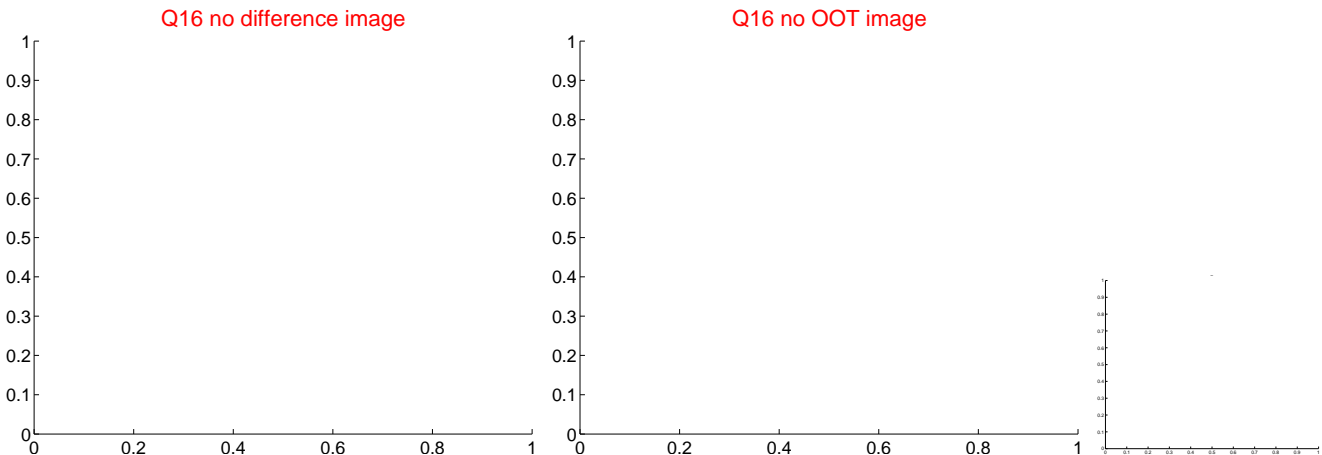
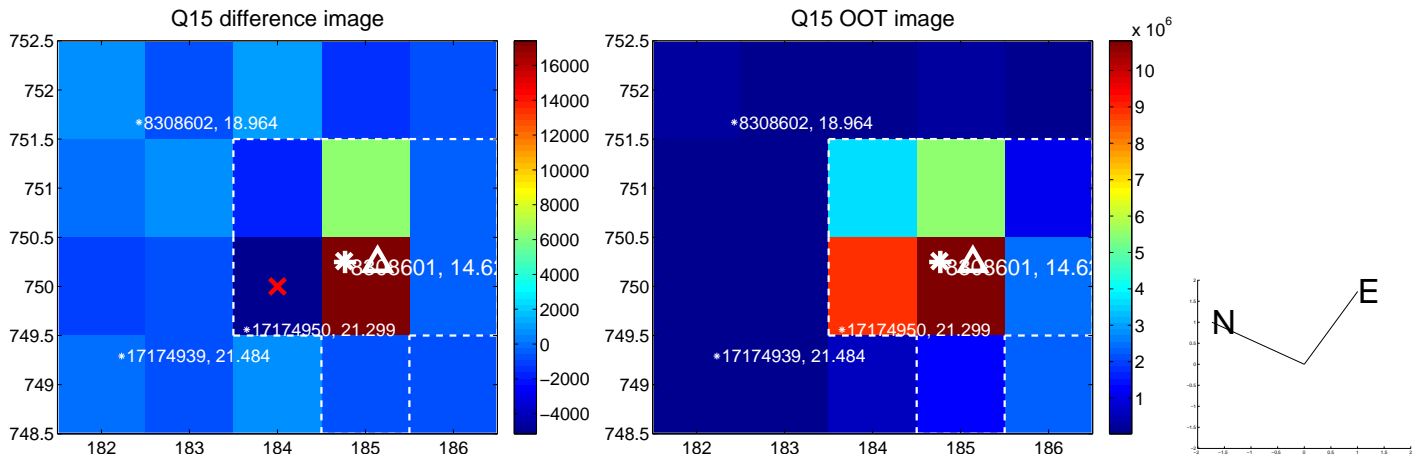
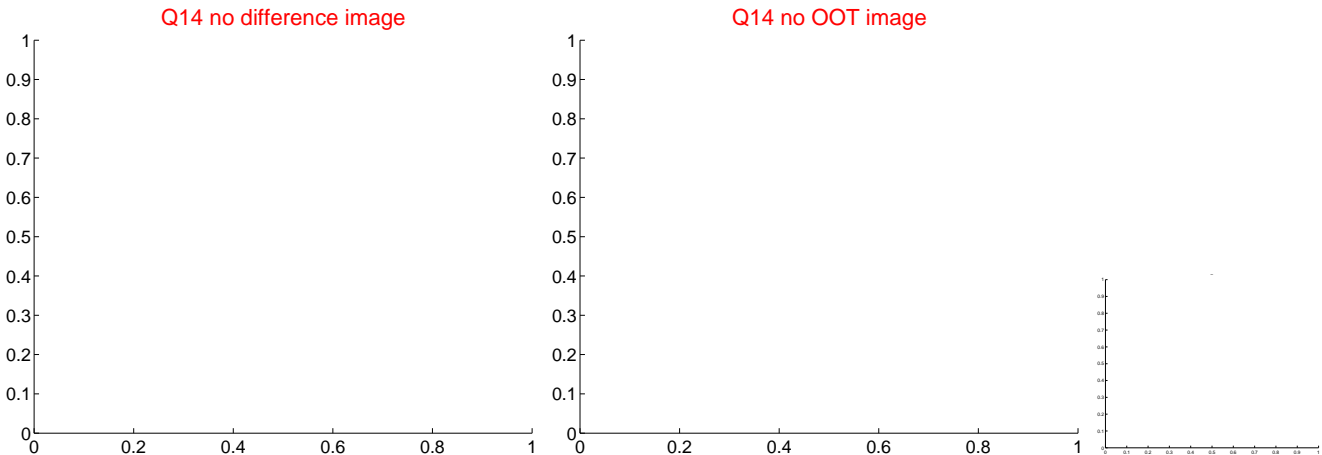
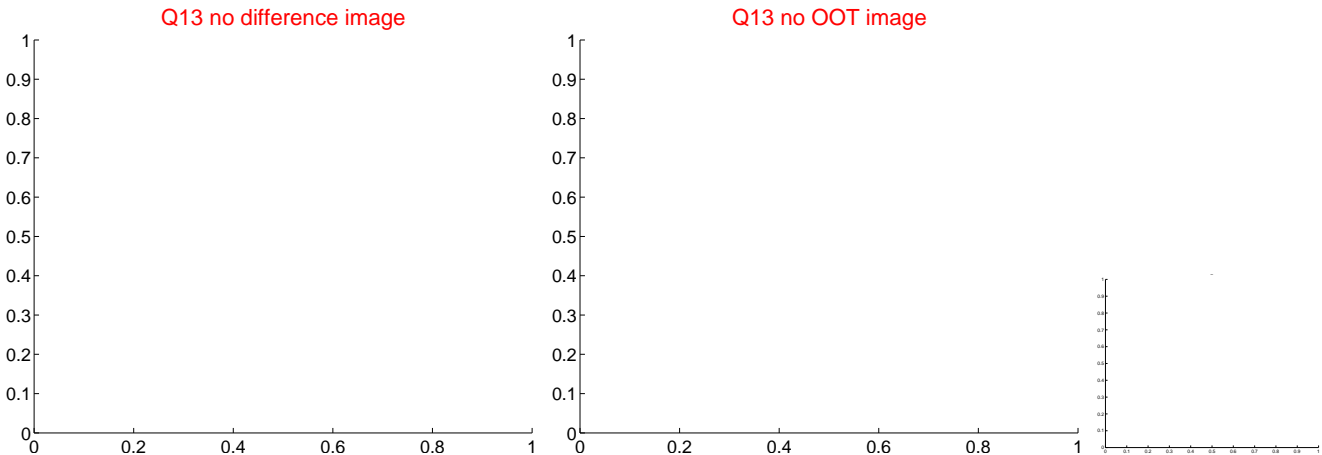
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



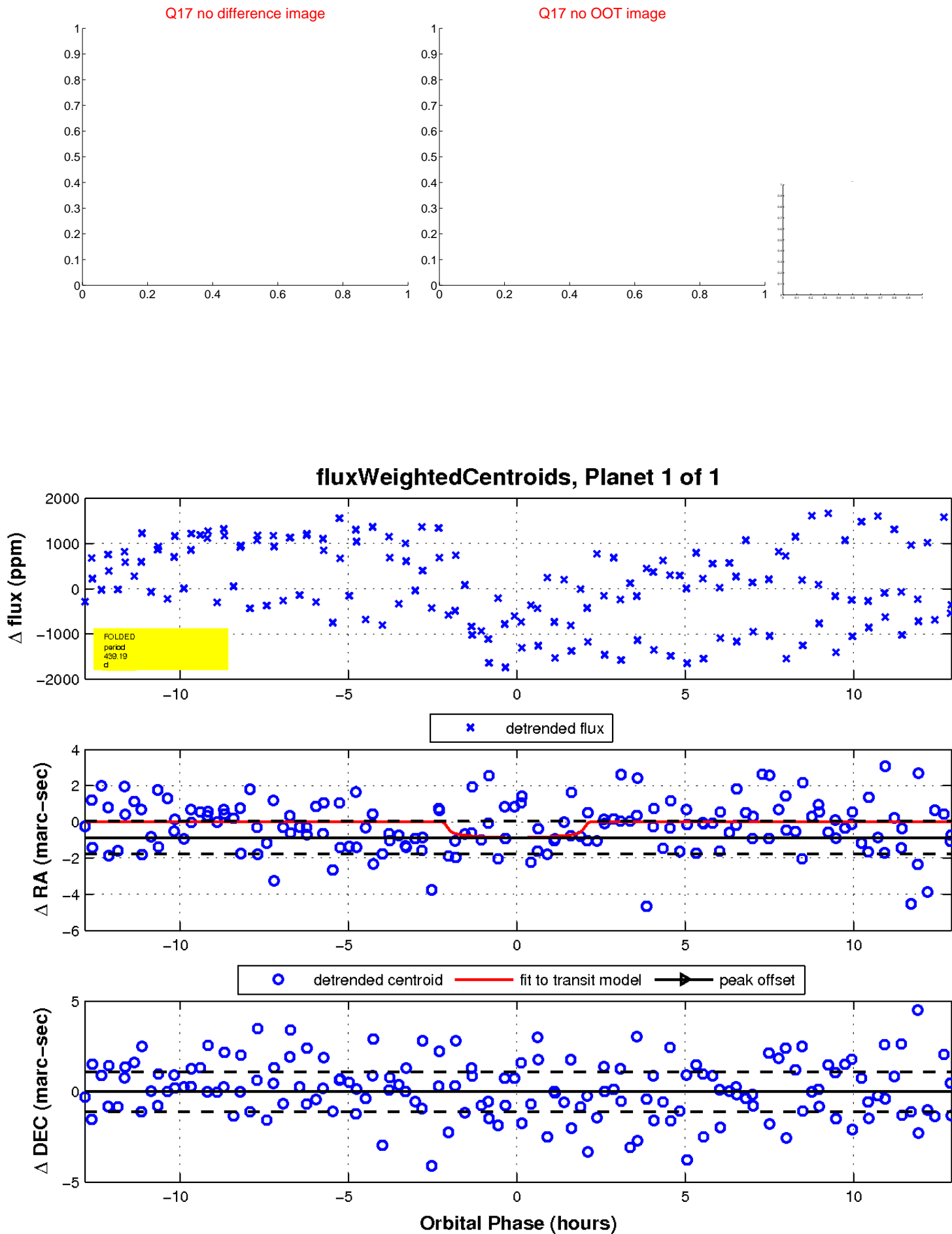
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

