

# KIC 008618632

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008618632-01	OBS	No	612.129872	240.209803	184.3	4.934	10.6	3.0	48.66	3982	73.48	177.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008618632-01	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—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.

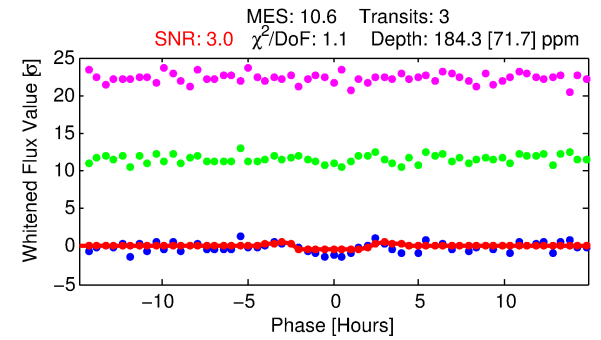
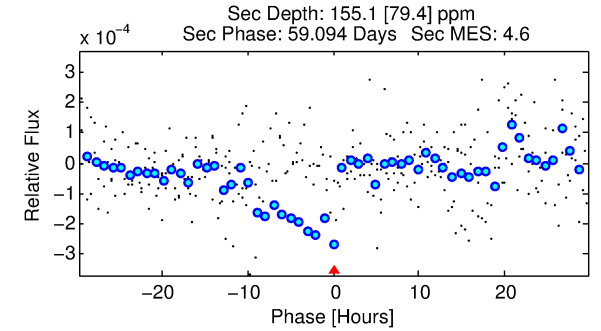
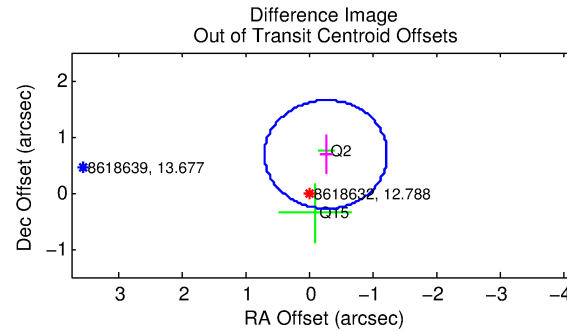
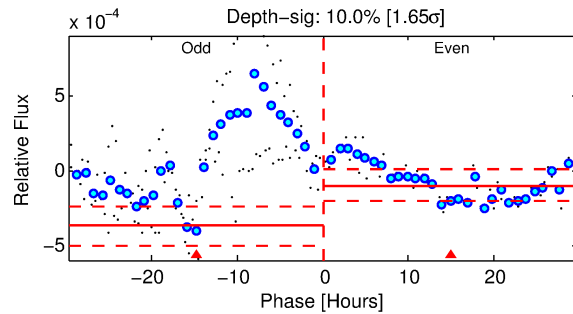
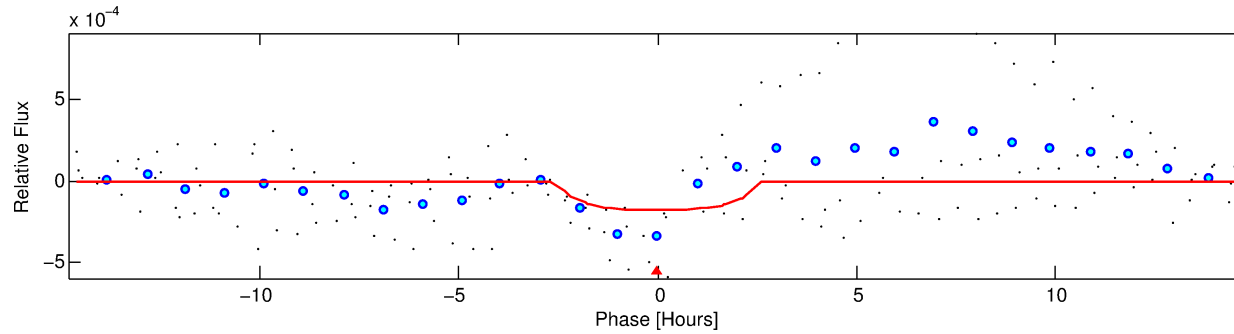
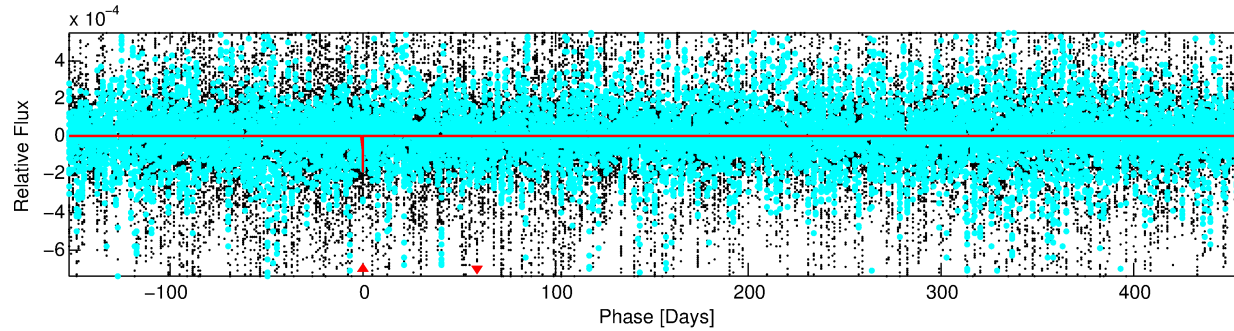
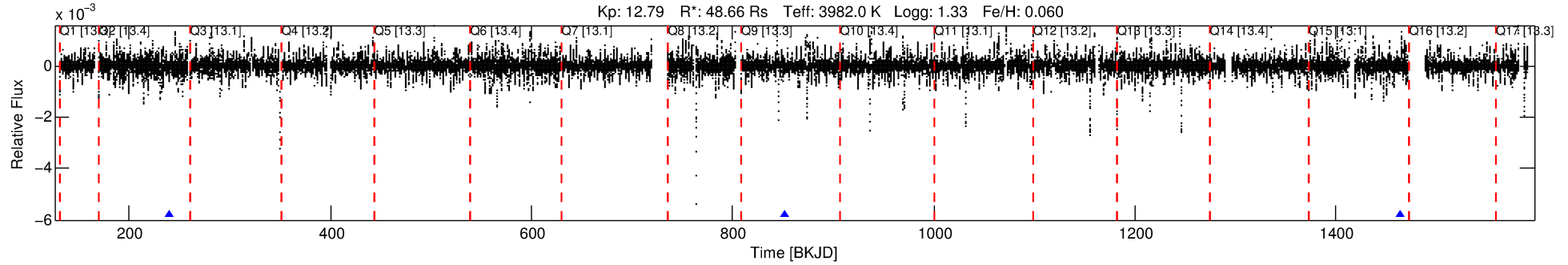
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008618632-01

No Significant Match Found

# DV One-Page Summary

KIC: 8618632 Candidate: 1 of 1 Period: 612.130 d



## DV Fit Results:

Period = 612.12987 [0.01222] d  
Epoch = 240.2098 [0.0160] BKJD  
Rp/R\* = 0.0138 [0.0197]  
a/R\* = 626.14 [2447.82]  
b = 0.77 [2.13]  
Seff = 177.14 [33.49]  
Teq = 930 [44] K  
Rp = 73.48 [105.57] Re  
a = 1.7354 [0.2551] AU  
Ag = 47.58 [137.52] [0.34 $\sigma$ ]  
Teffp = 3777 [2728] K [1.04 $\sigma$ ]

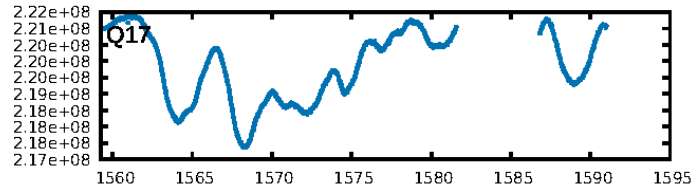
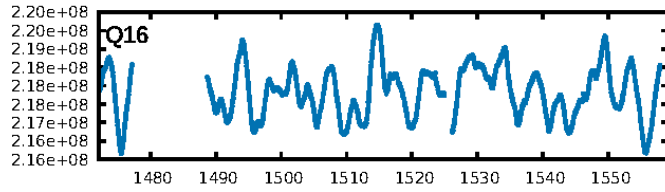
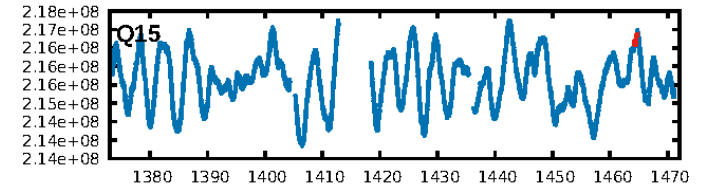
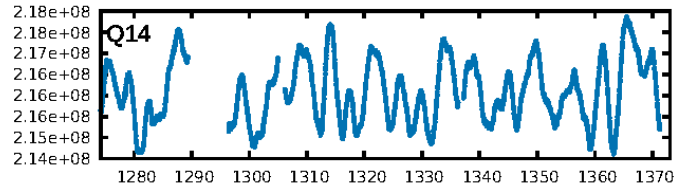
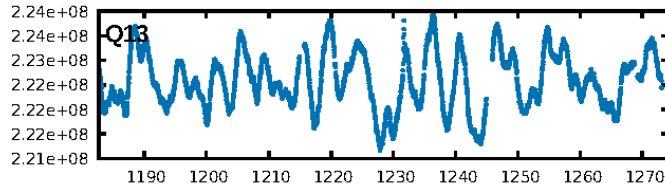
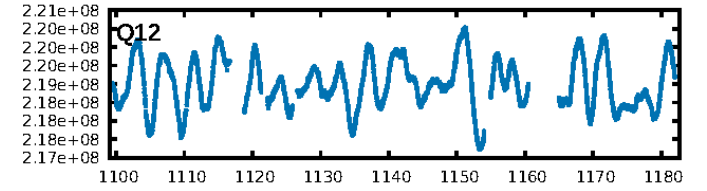
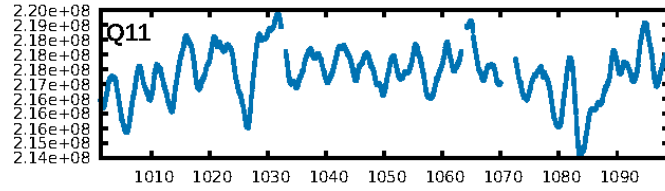
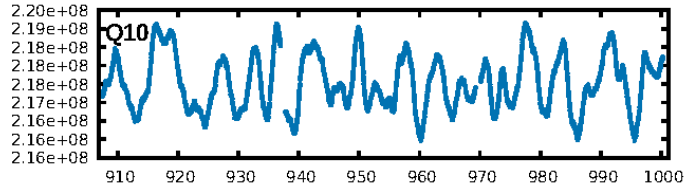
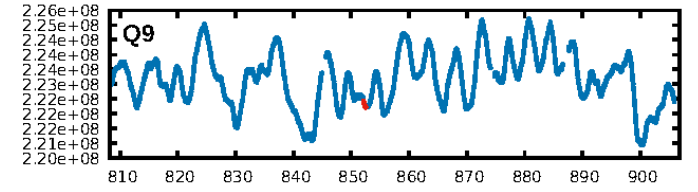
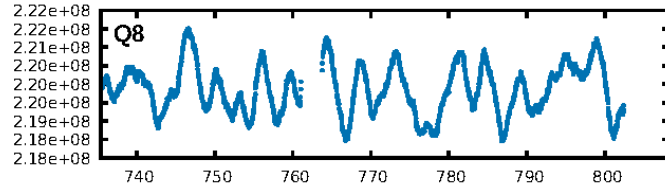
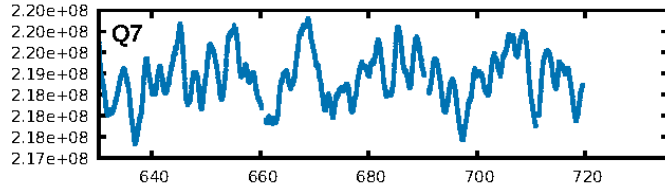
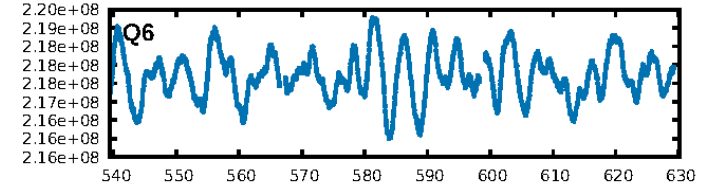
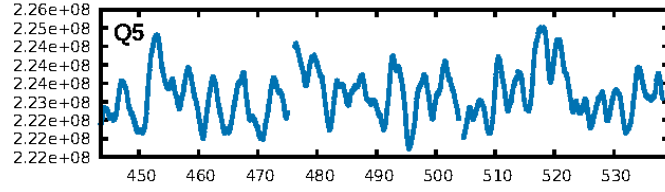
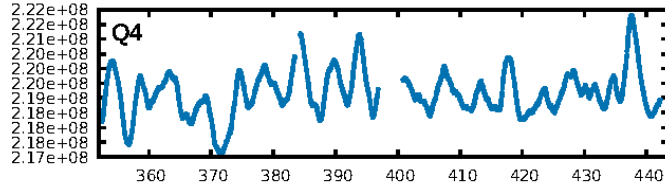
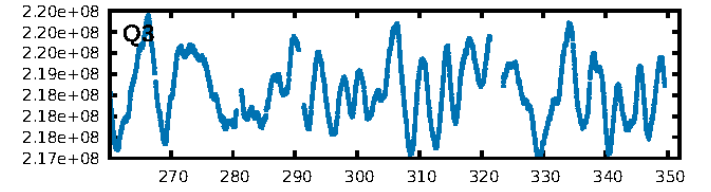
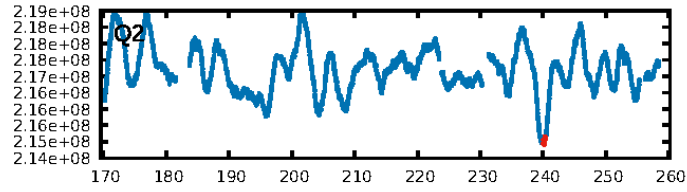
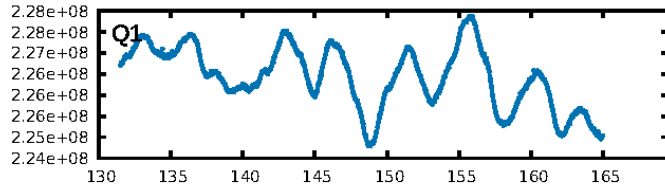
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 88.1%  
ModelChiSquareGof-sig: 95.6%  
Bootstrap-pfa: 9.64e-12  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -7.144  
Centroid-sig: 5.5%  
Centroid-so: 2.258 arcsec [1.35 $\sigma$ ]  
OotOffset-rm: 0.728 arcsec [2.27 $\sigma$ ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 0.810 arcsec [1.77 $\sigma$ ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

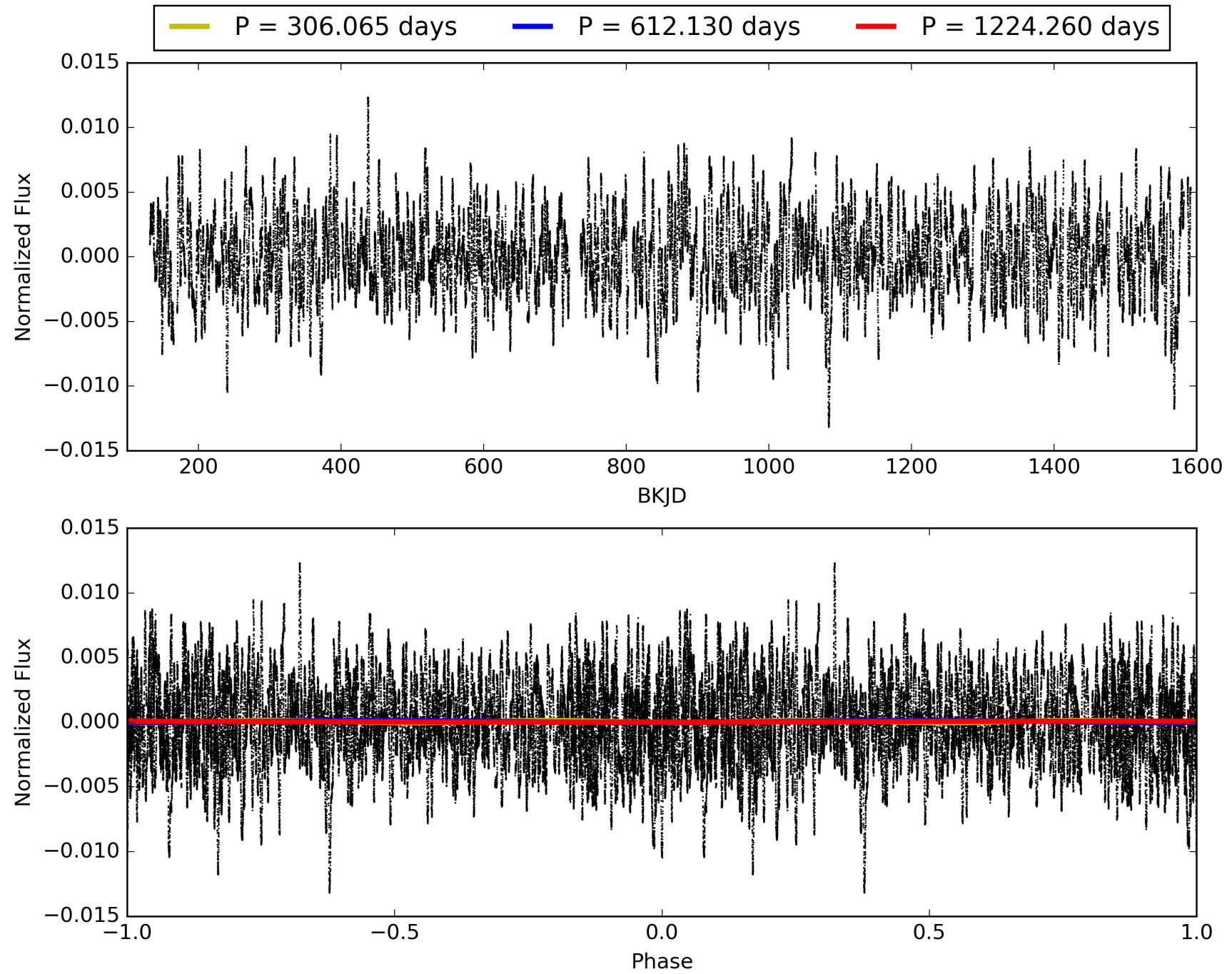
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:13:04 Z

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

# TCE 008618632-01, PDC Light Curves

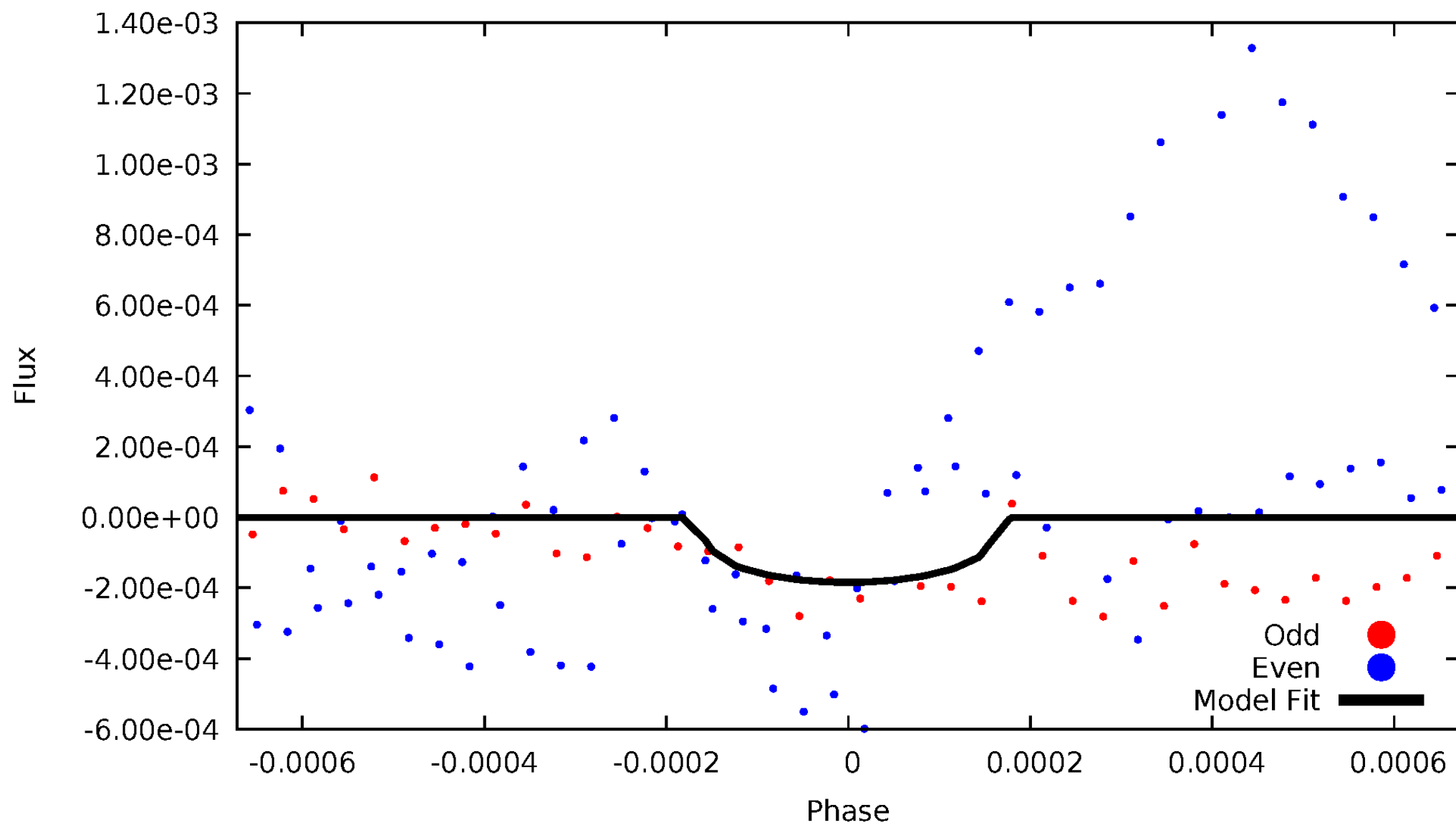


TCE 008618632-01



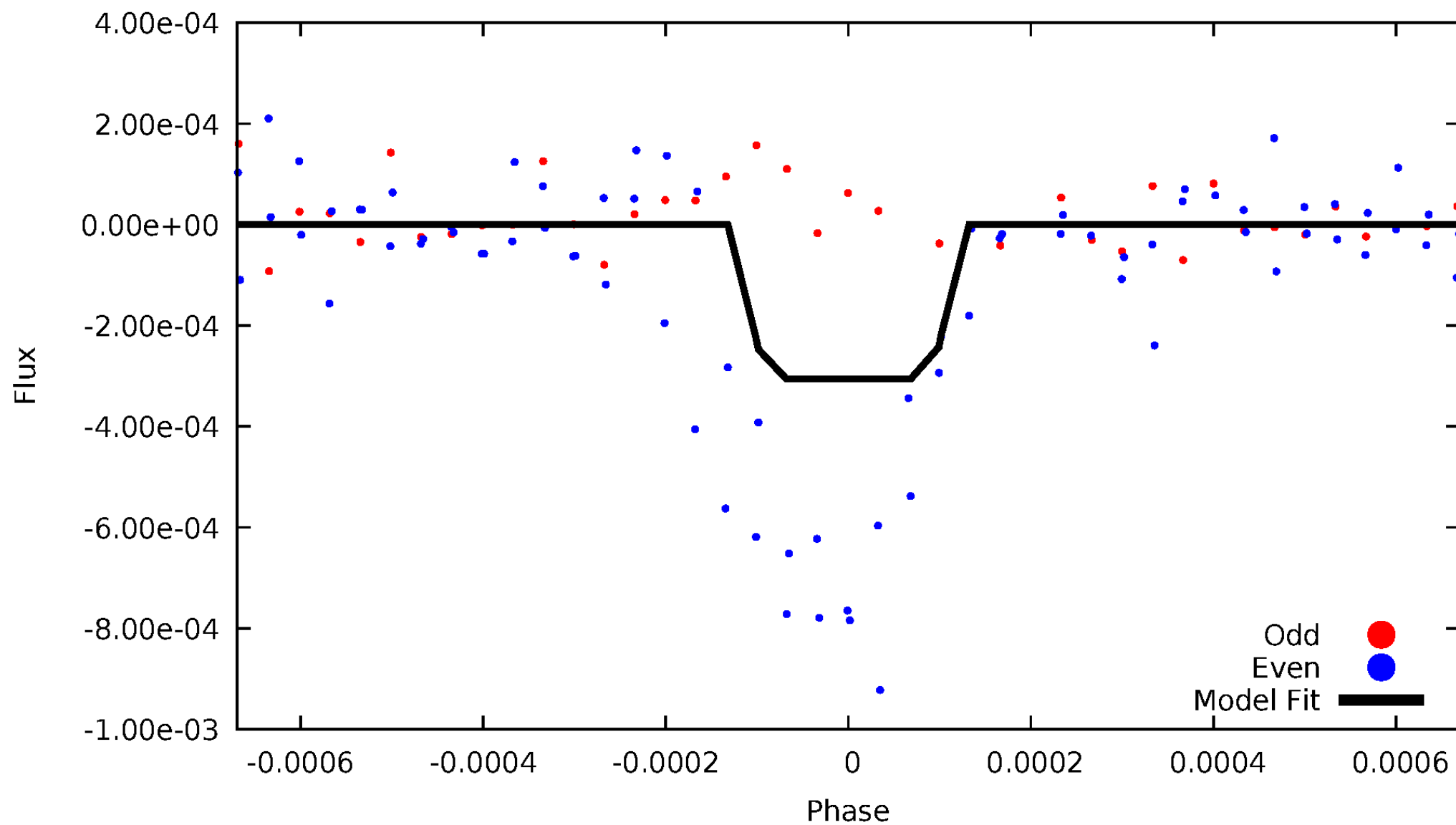
# DV Odd/Even

TCE 008618632-01



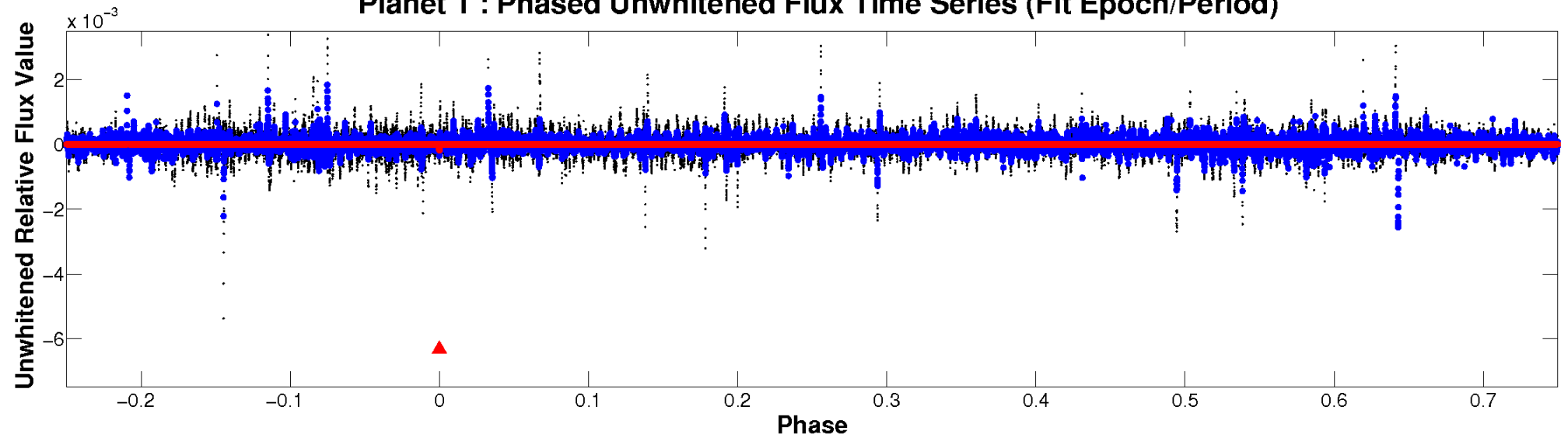
# ALT Odd/Even

TCE 008618632-01

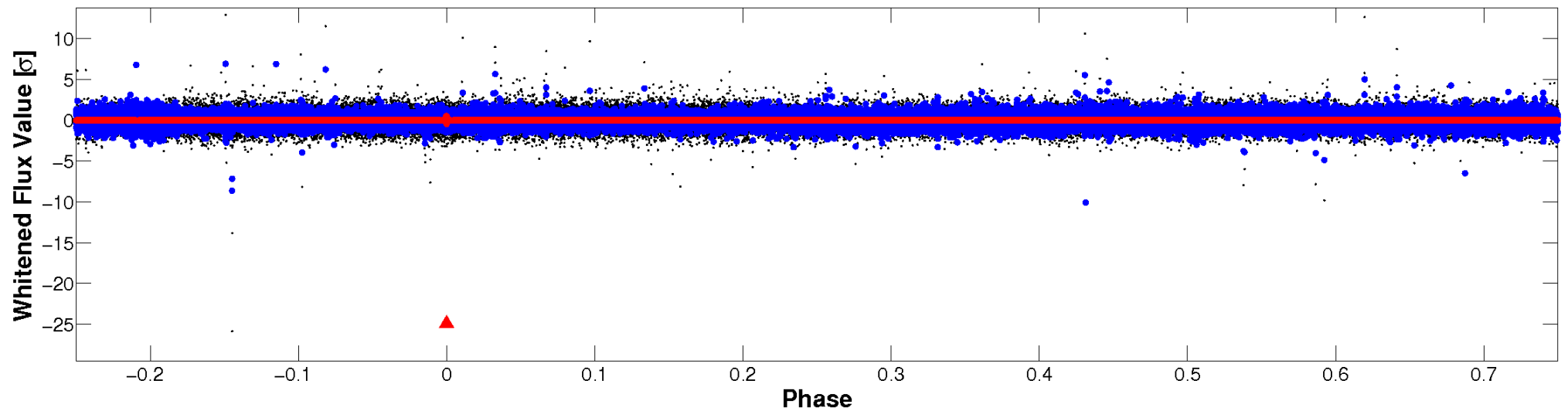


# Non-Whitened Vs. Whitened Light Curve

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

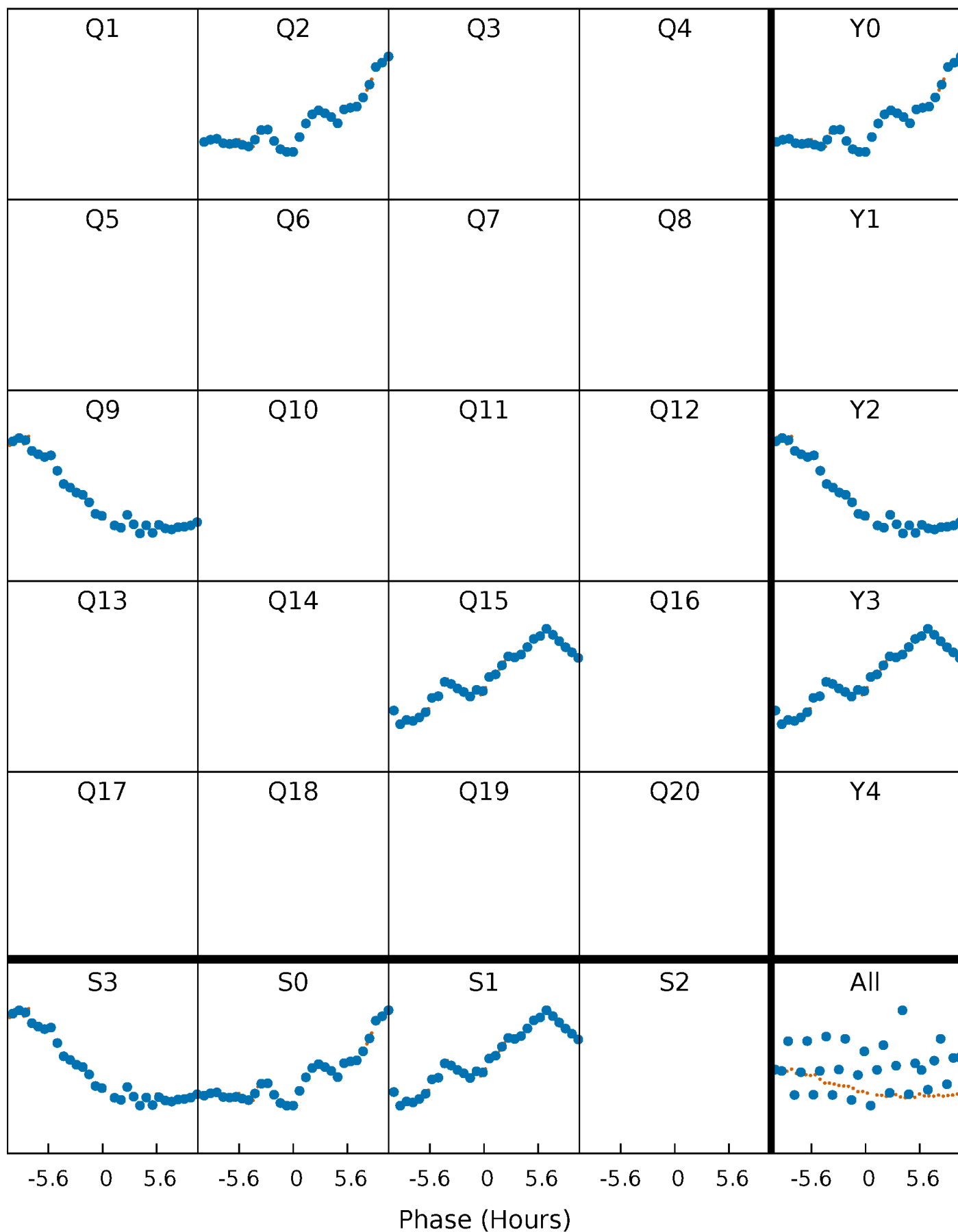


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

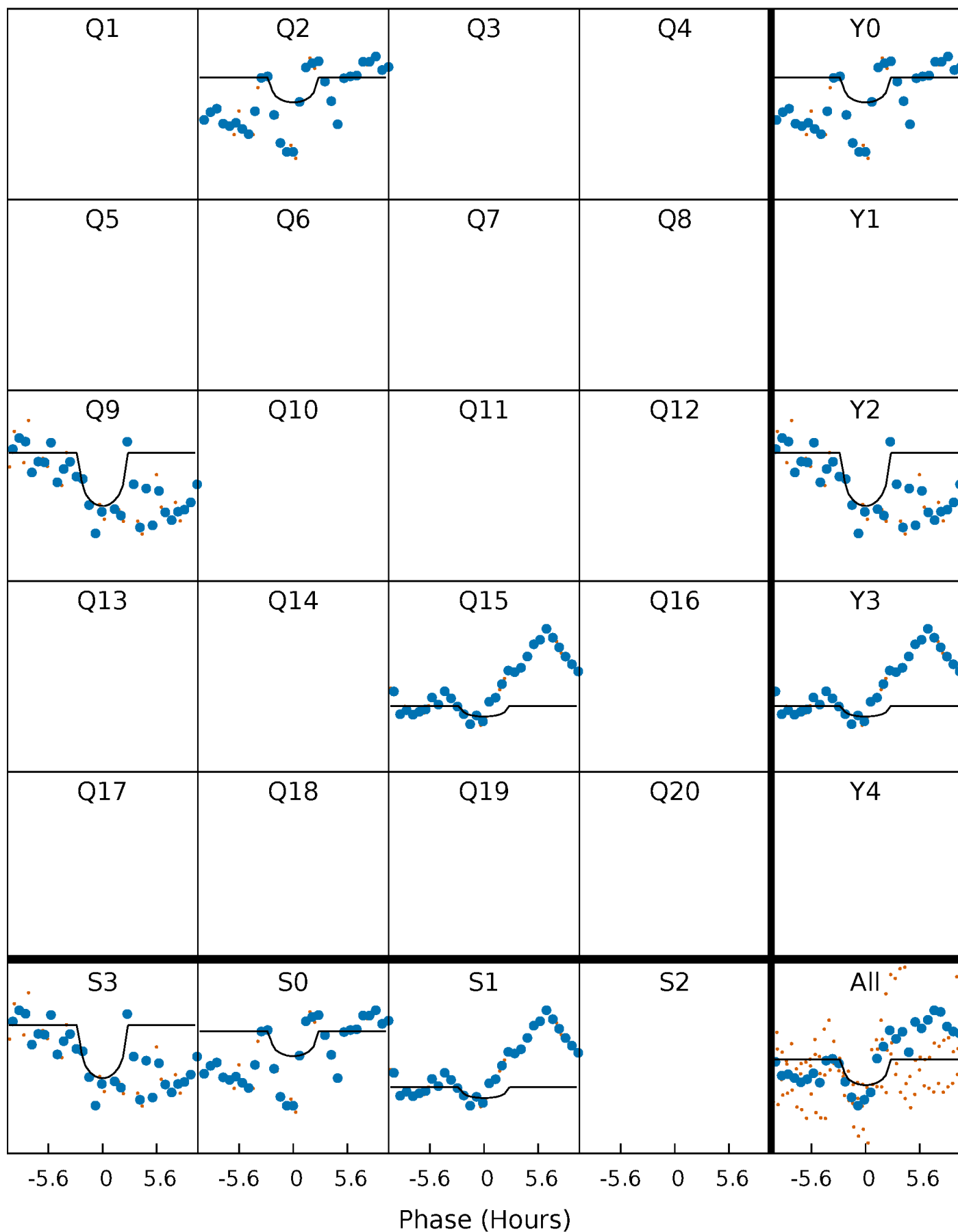
TCE 008618632-01 P=612.129872 Days  $T_0=240.209803$  (BKJD)





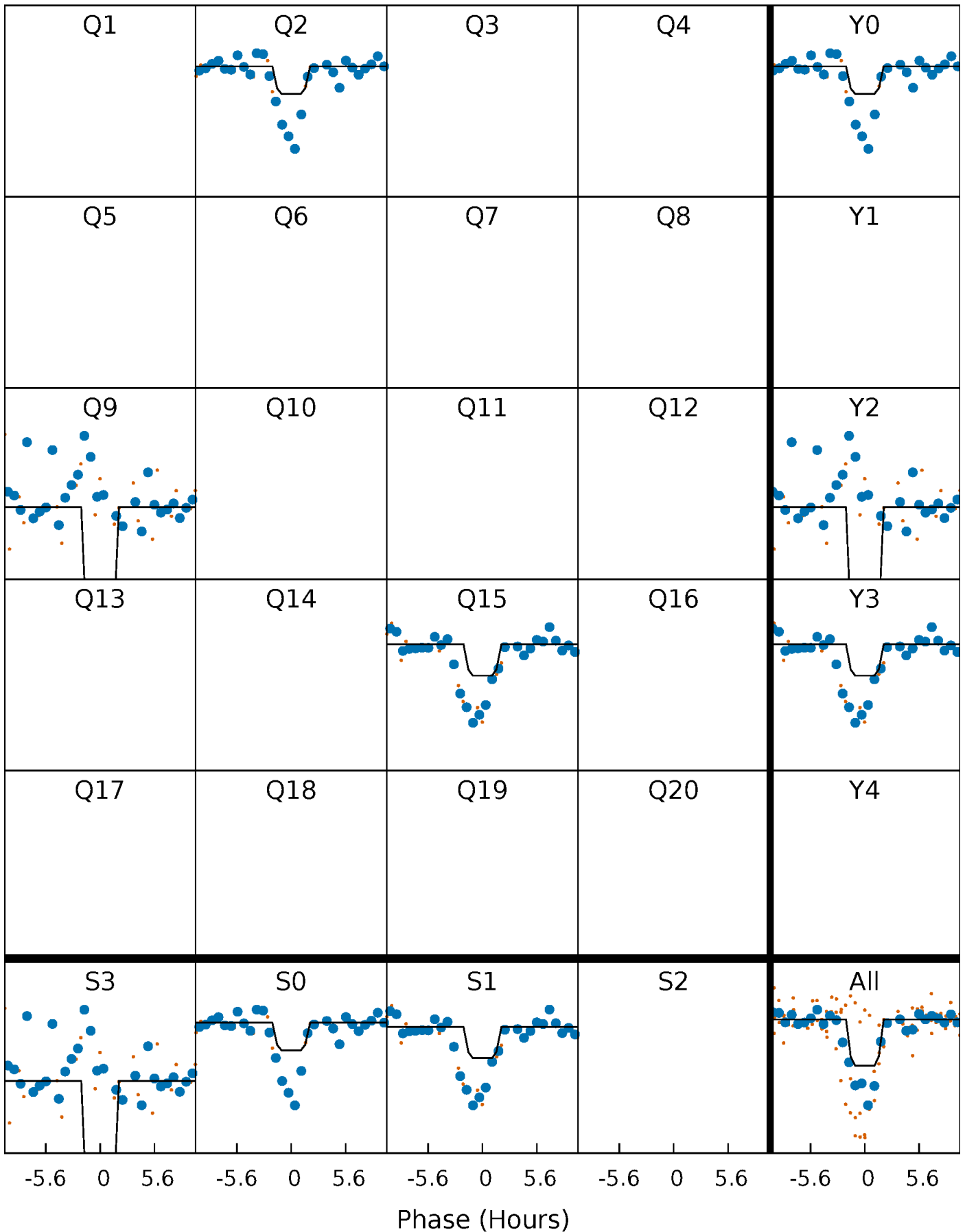
# DV Quarter-Phased Transit Curves

TCE 008618632-01 P=612.129872 Days  $T_0=240.209803$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

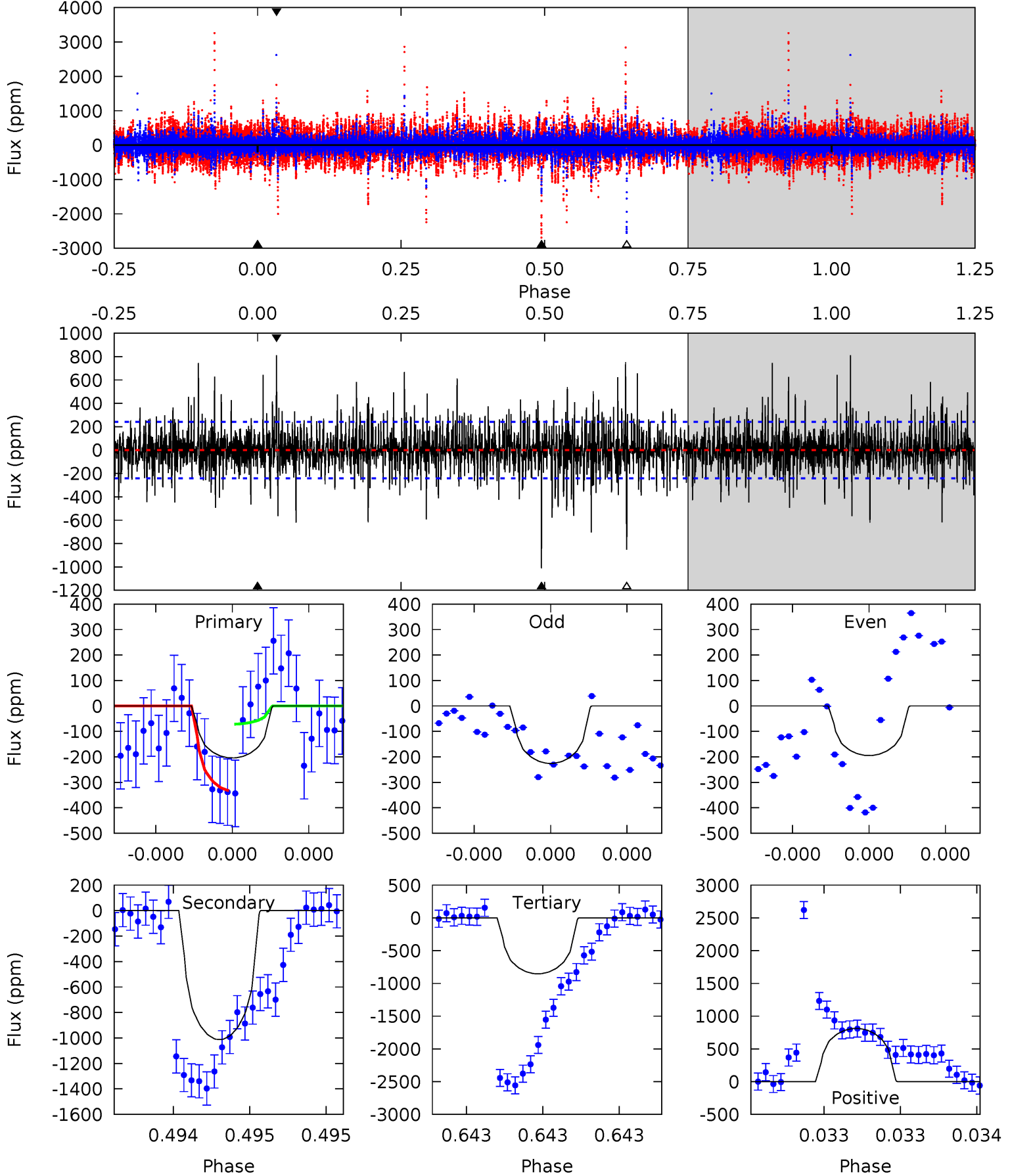
TCE 008618632-01 P=612.128157 Days  $T_0=240.199306$  (BKJD)



# DV Model-Shift Uniqueness Test

008618632-01, P = 612.129872 Days, E = 240.209803 Days

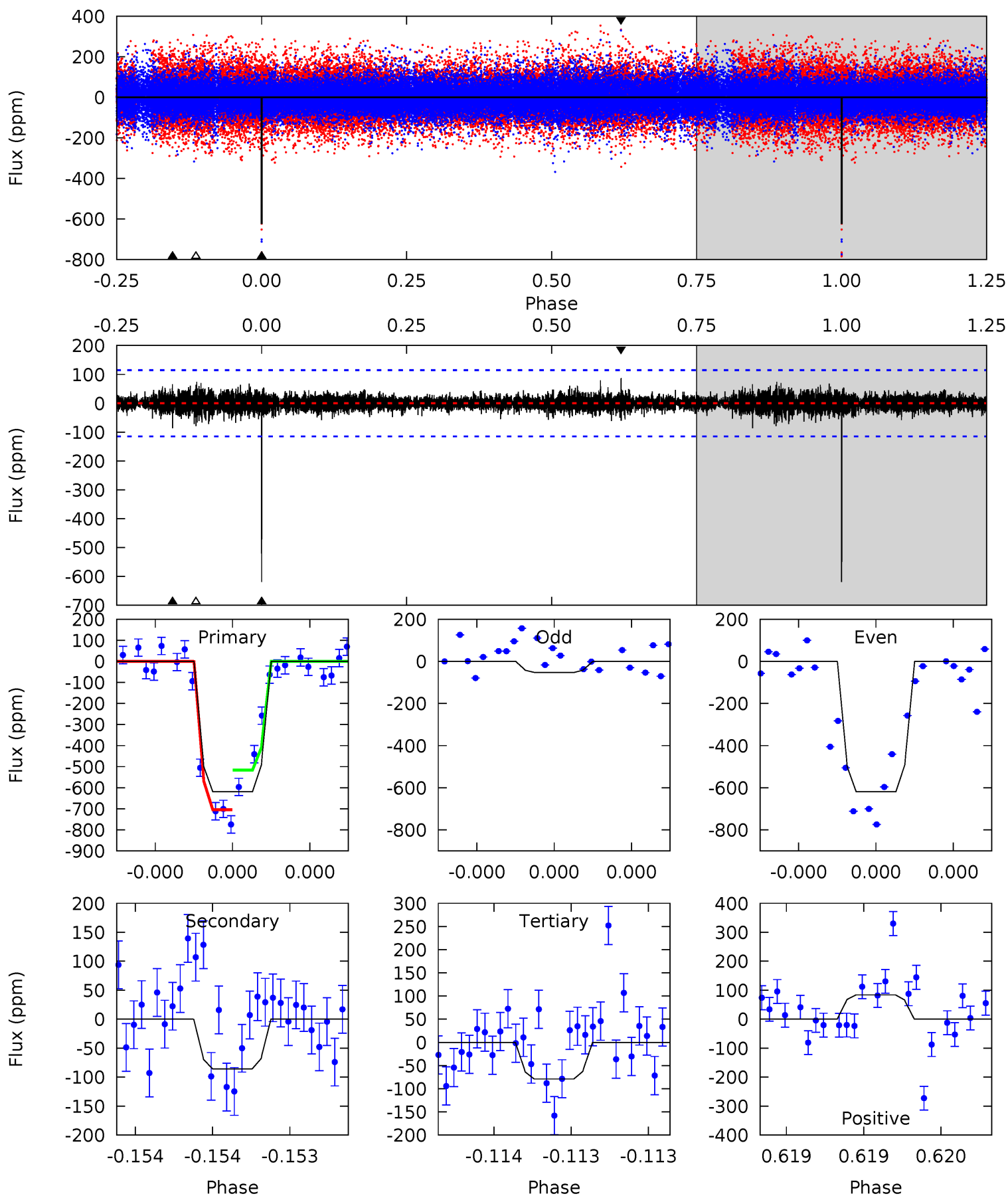
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.76	23.6	19.9	18.9	5.64	3.58	3.02	-15.1	-14.2	3.71	4.68	0.31	0.91	0.44	3.05



# Alt Model-Shift Uniqueness Test

008618632-01, P = 612.128157 Days, E = 240.199306 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
30.7	4.25	3.92	4.15	5.68	3.65	0.69	26.8	26.5	0.33	0.10	15.9	0.67	0.12	0



### Stellar Parameters For KIC 008618632

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3982^{+90}_{-110}$	$1.333^{+0.033}_{-0.030}$	$0.060^{+0.200}_{-0.250}$	$48.664^{+2.487}_{-10.571}$	$1.858^{+1.073}_{-0.660}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+2%/-2%	+333%/-417%	+5%/-22%	+58%/-36%	+32%/-10%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 008618632-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-1012 $\pm$ 43	$102.80^{+93.10}_{-68.11}$	$1295^{+39}_{-45}$	$4772^{+3686}_{-1002}$	$161^{+1182}_{-117}$
Alt.	-86 $\pm$ 20	$112.14^{+93.88}_{-69.39}$	$1292^{+39}_{-44}$	$3016^{+1119}_{-483}$	$11^{+64}_{-8}$

$T_{\text{max}}$  = 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

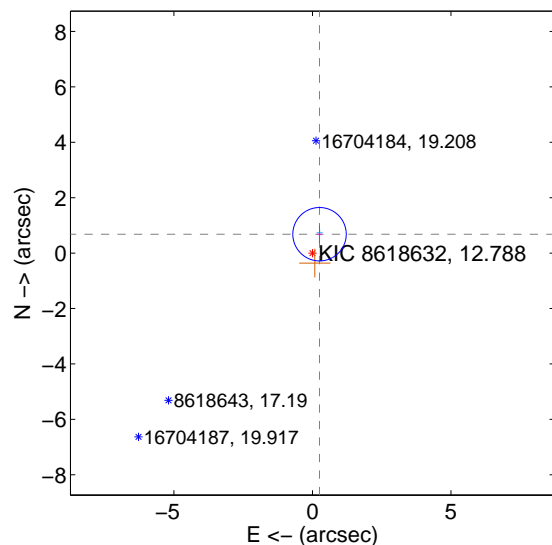
Supplemental centroid analysis for 008618632-01. Kepler magnitude: 12.79. Transit SNR 2.99

There are 1 quarters with good PRF difference image offsets

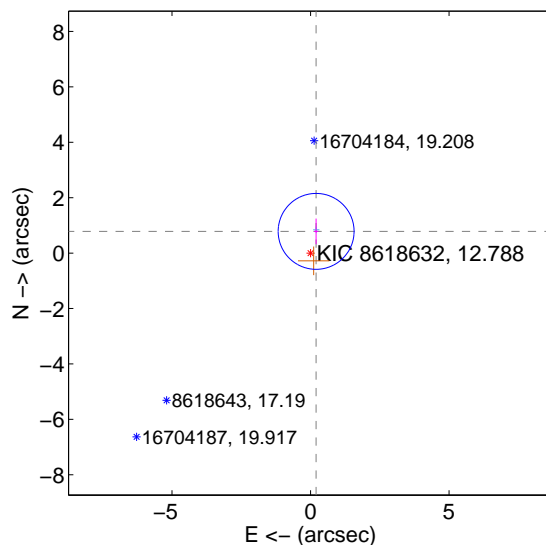
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.728 \pm 0.321$	2.27	$-0.256 \pm 0.084$	$0.682 \pm 0.324$
PRF-fit source offset from KIC position	$0.810 \pm 0.457$	1.77	$-0.202 \pm 0.076$	$0.784 \pm 0.462$
photometric centroid source offset	$2.26 \pm 1.67$	1.35	$-0.83 \pm 1.63$	$-2.10 \pm 1.68$

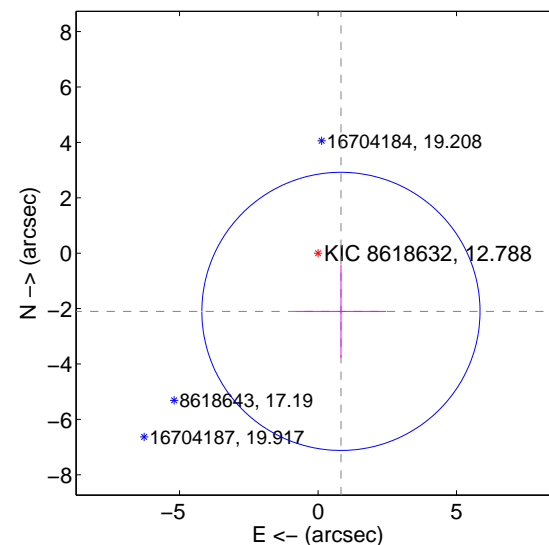
offset from difference PRF-fit to OOT PRF-fit



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.

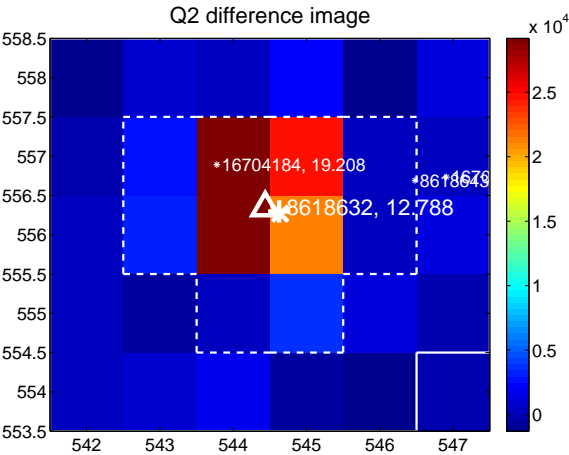
Q1 no difference image



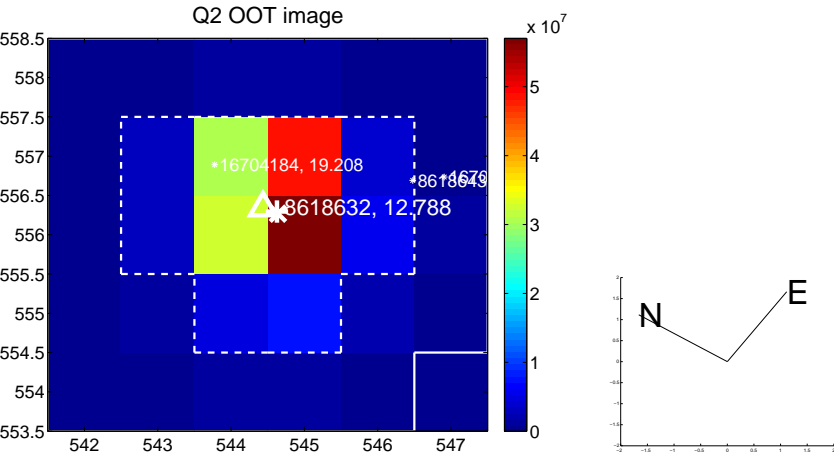
Q1 no OOT image



Q2 difference image



Q2 OOT image



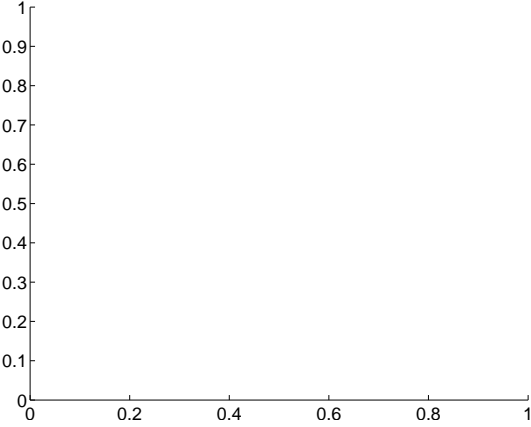
Q3 no difference image



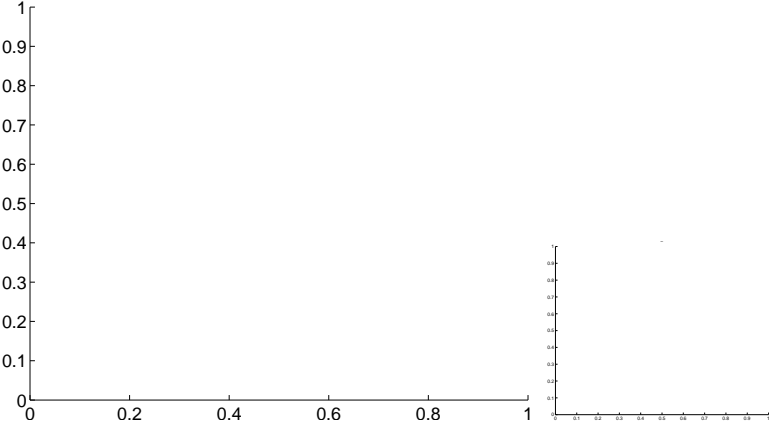
Q3 no OOT image



Q4 no difference image



Q4 no OOT image

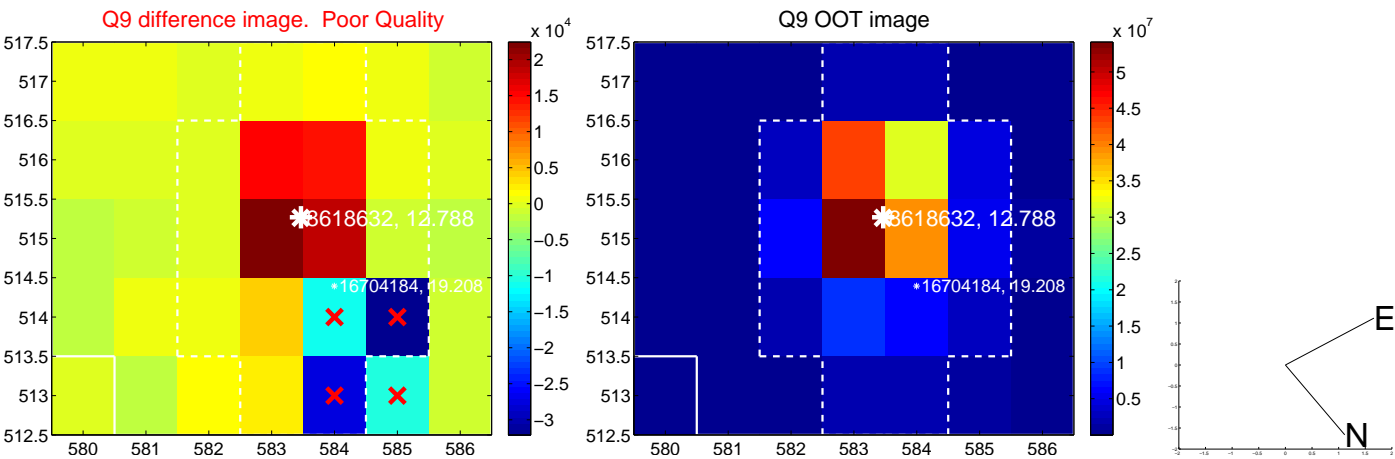


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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.

Q13 no difference image



Q13 no OOT image



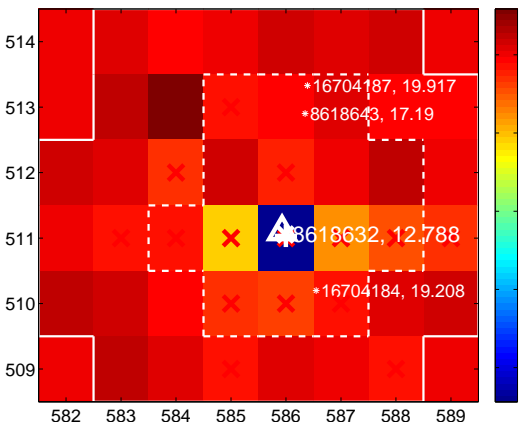
Q14 no difference image



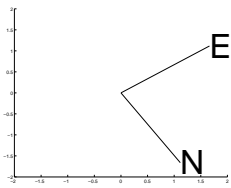
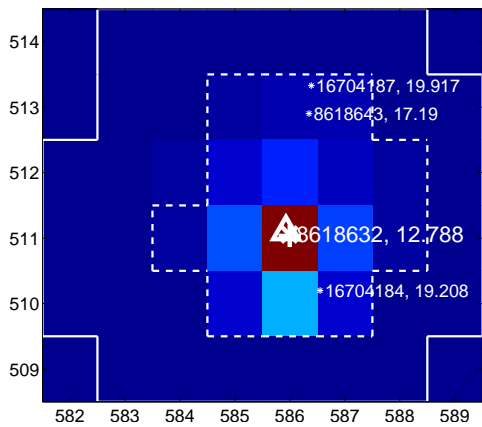
Q14 no OOT image



Q15 difference image. Poor Quality



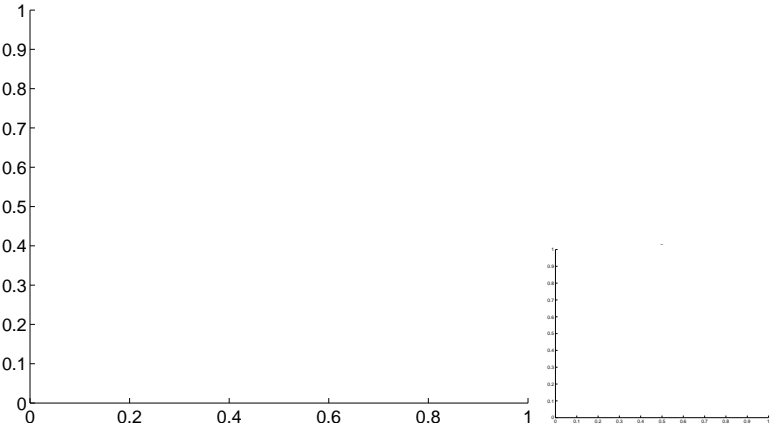
Q15 OOT image



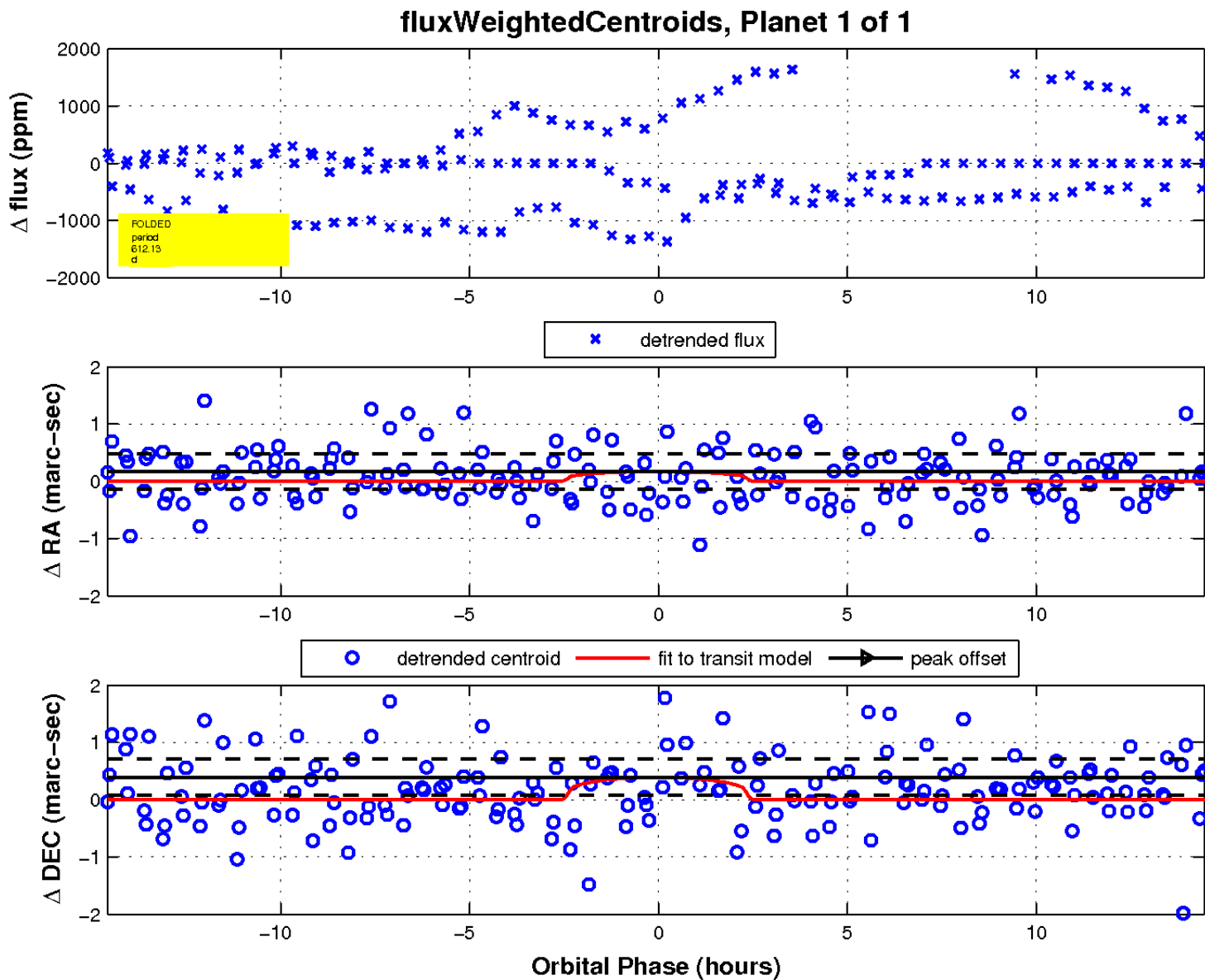
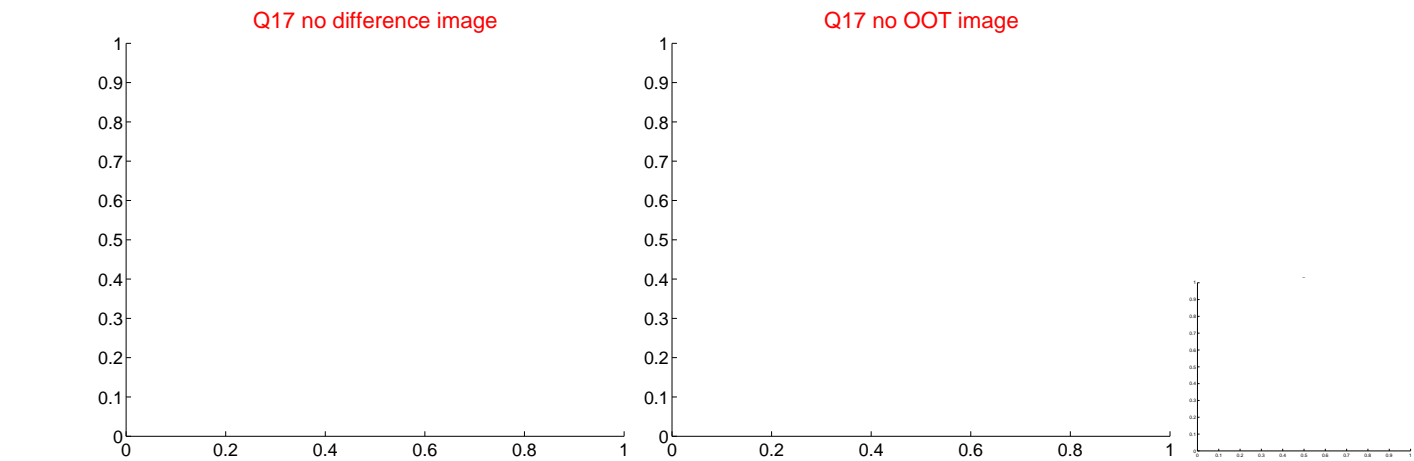
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

