

# KIC 008621586

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008621586-01	OBS	No	375.059013	138.793191	1956.4	57.729	13.3	20.3	0.80	5297	4.38	0.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008621586-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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.

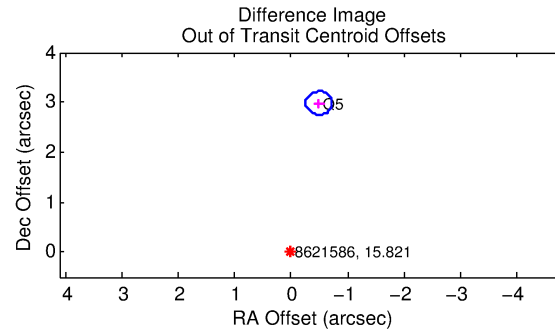
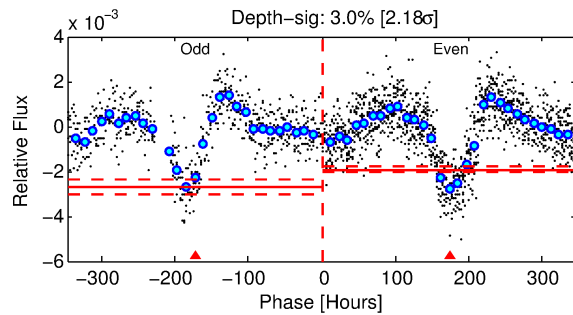
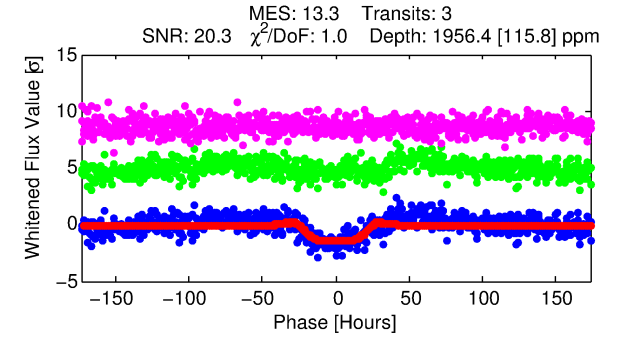
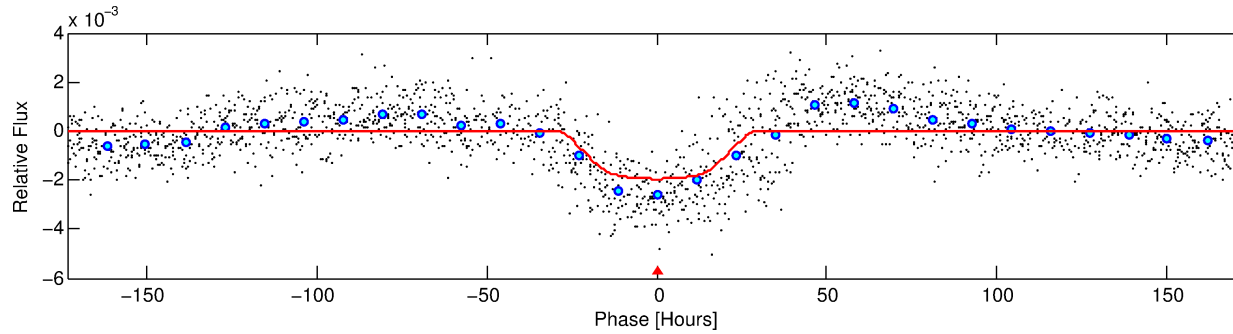
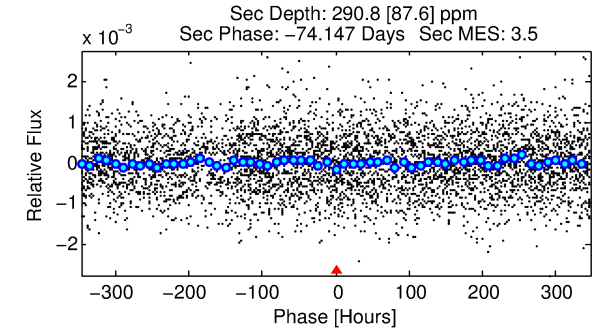
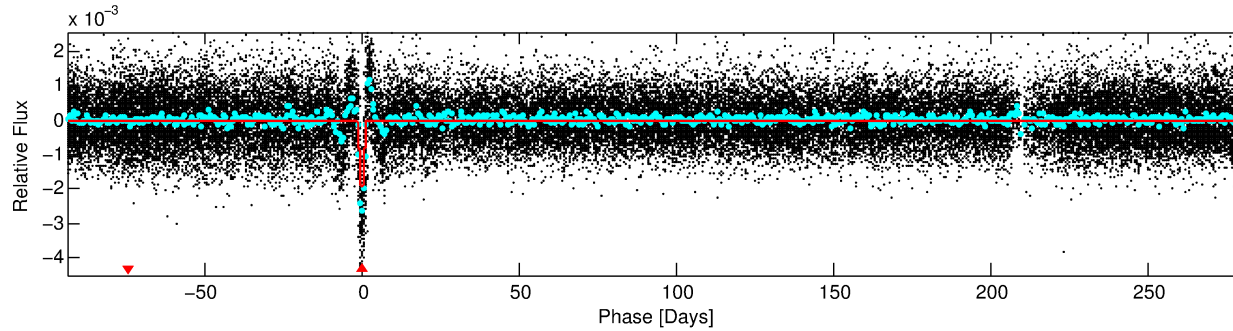
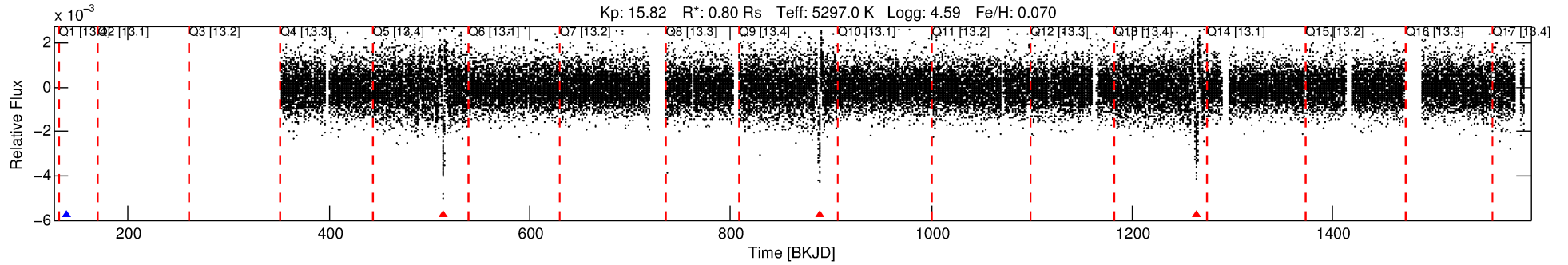
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008621586-01

No Significant Match Found

# DV One-Page Summary

KIC: 8621586 Candidate: 1 of 1 Period: 375.059 d



## DV Fit Results:

Period = 375.05901 [0.04031] d  
Epoch = 138.7932 [0.0878] BKJD  
Rp/R\* = 0.0505 [0.0023]  
a/R\* = 24.97 [2.52]  
b = 0.92 [0.02]  
Seff = 0.46 [0.13]  
Teq = 211 [14] K  
Rp = 4.38 [0.84] Re  
a = 0.9795 [0.1557] AU  
Ag = 7998.89 [3130.29] [2.56σ]  
Teff = 3078 [266] K [10.75σ]

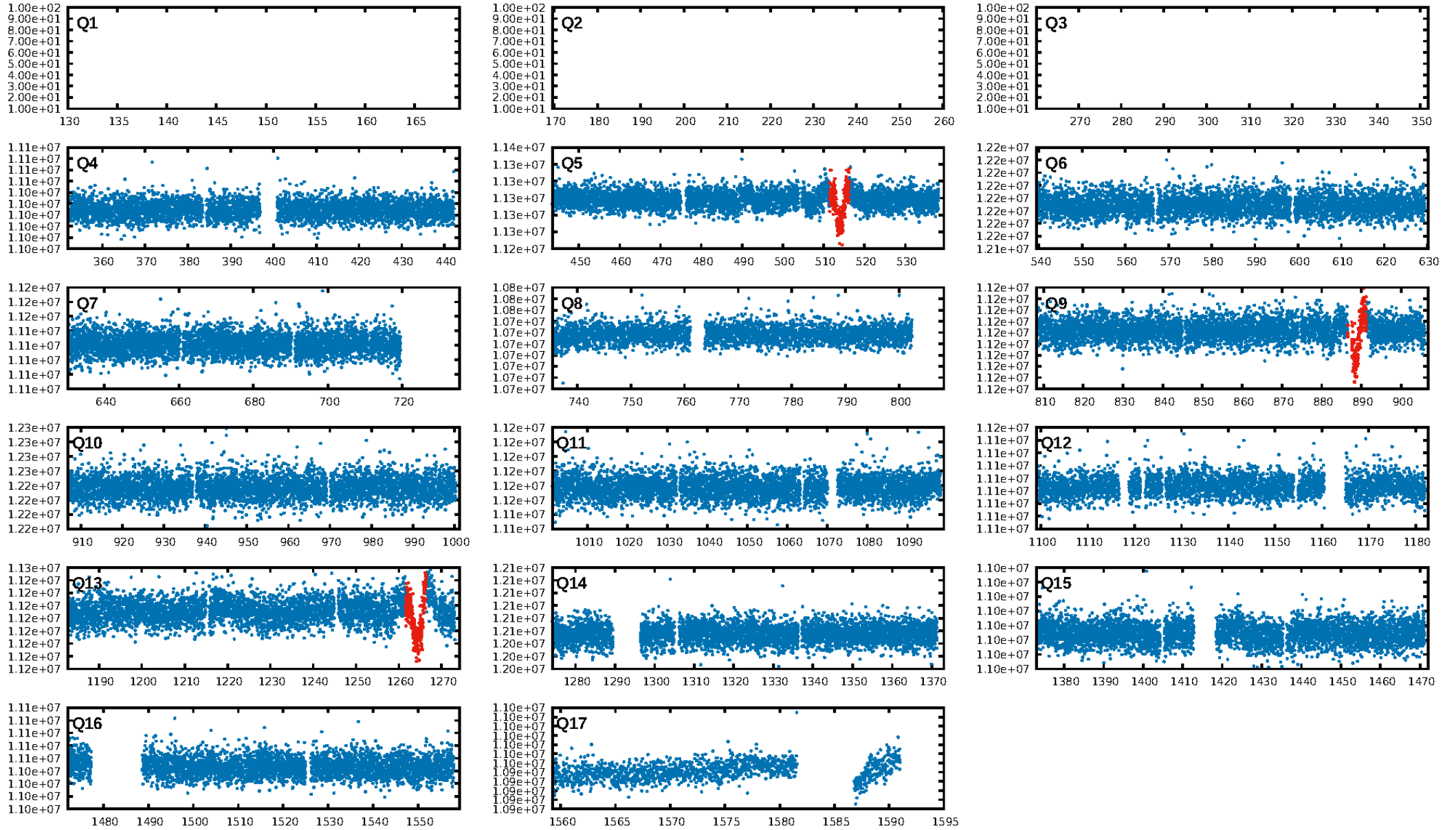
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 11.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.08e-43  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: -2.972  
Centroid-sig: 0.0%  
Centroid-so: 3.817 arcsec [4.34σ]  
OotOffset-rm: 3.023 arcsec [38.80σ]  
KicOffset-rm: 3.435 arcsec [43.83σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [1/1]

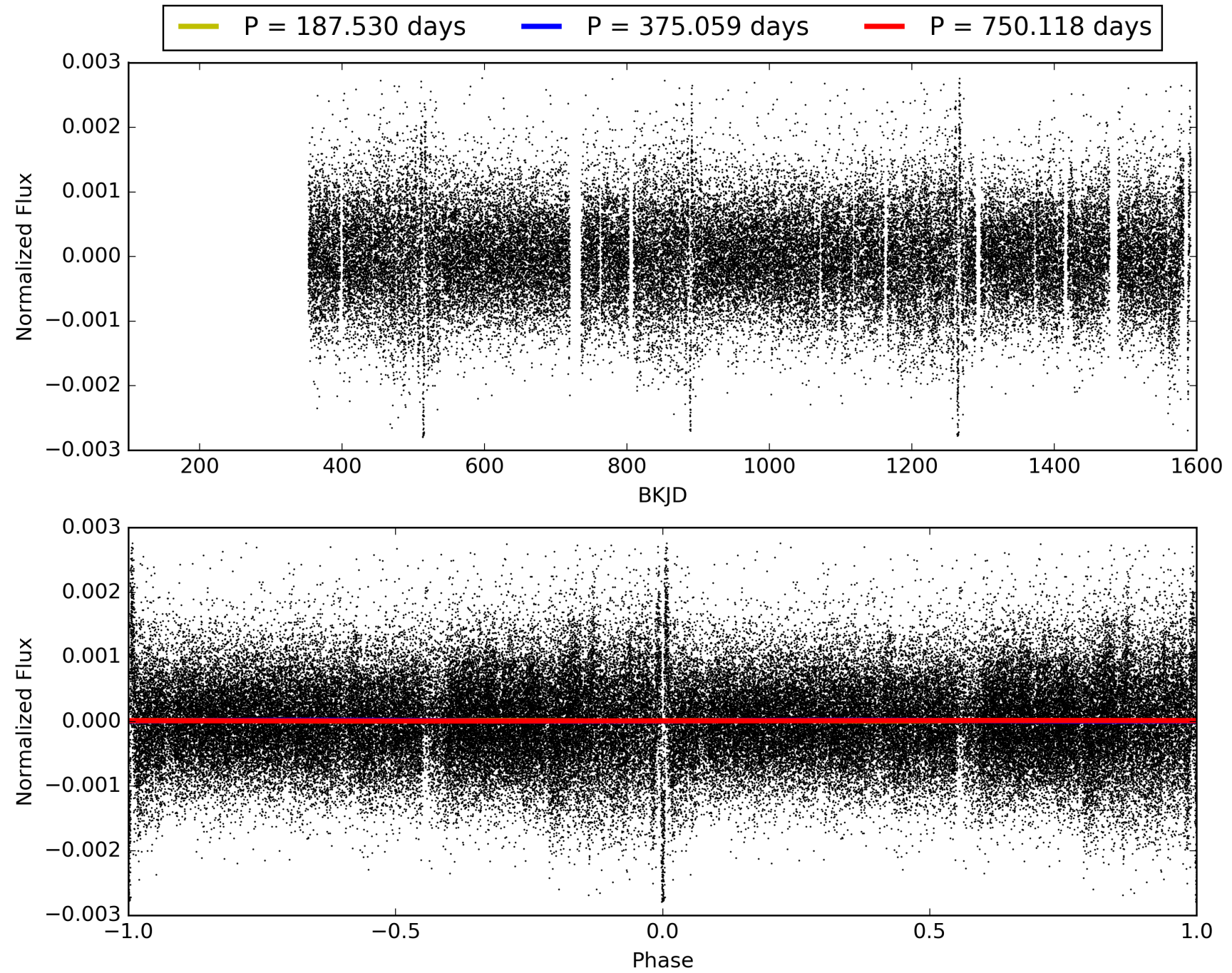
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:35:48 Z

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

# TCE 008621586-01, PDC Light Curves

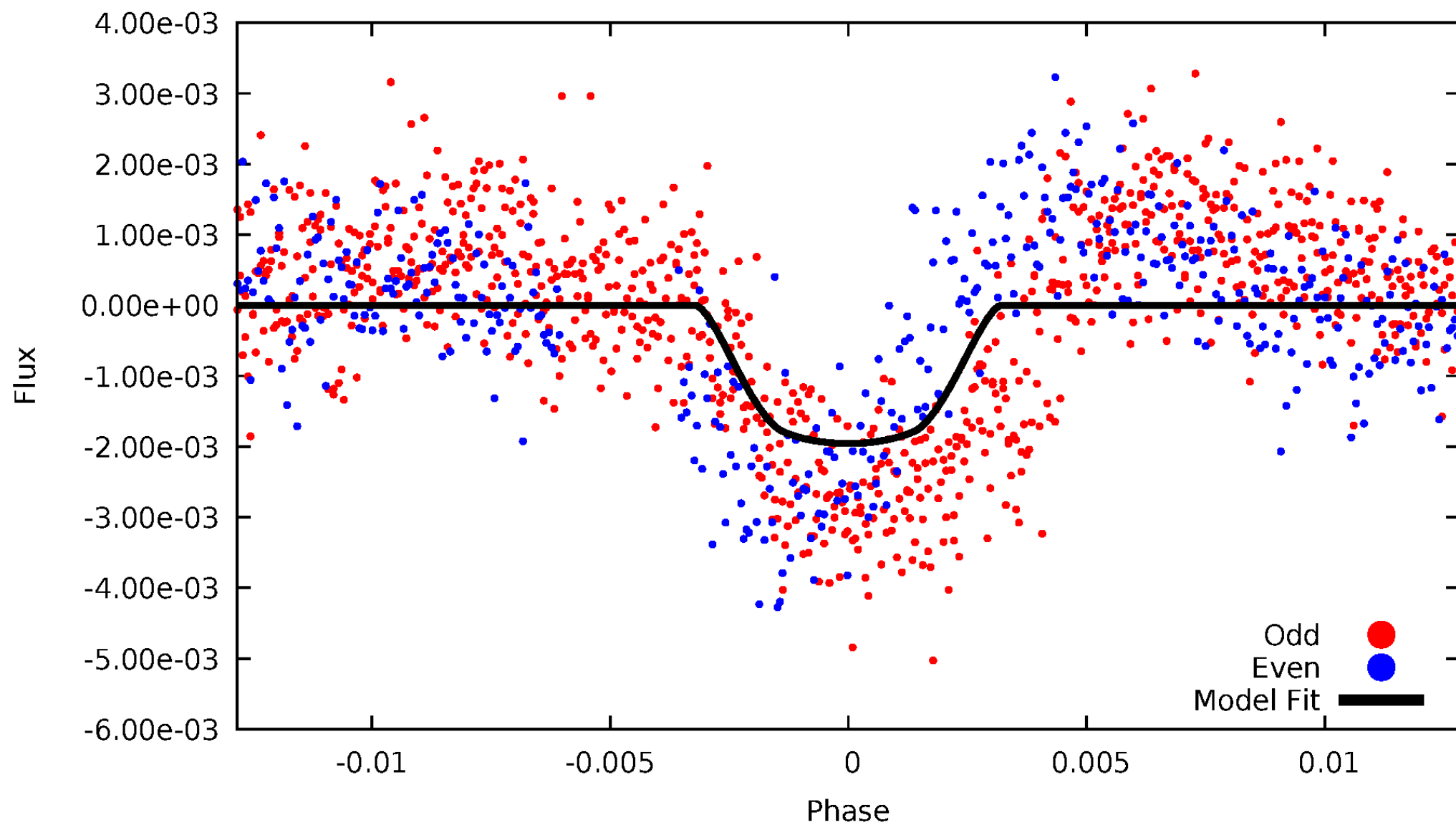


TCE 008621586-01



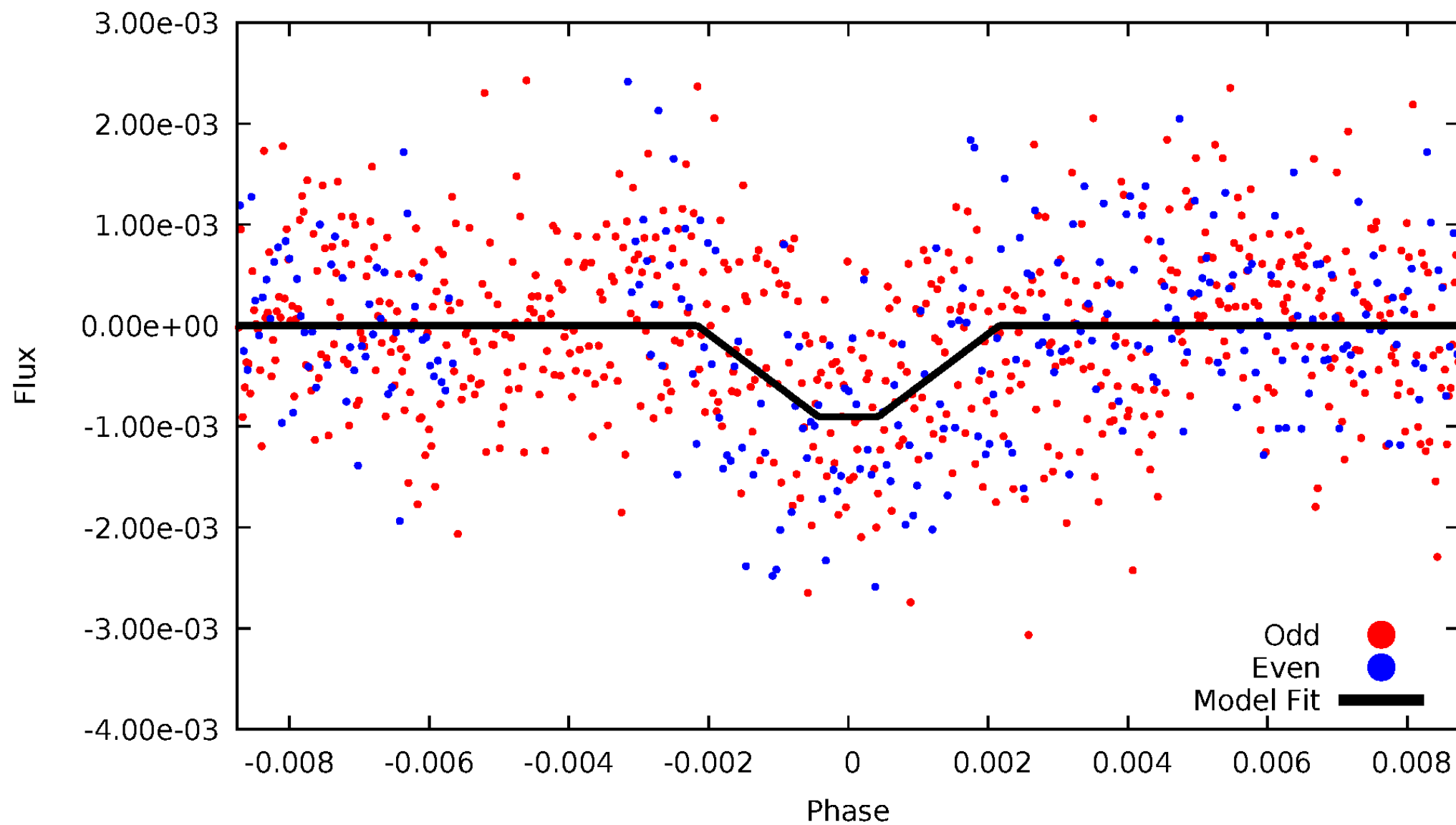
# DV Odd/Even

TCE 008621586-01



# ALT Odd/Even

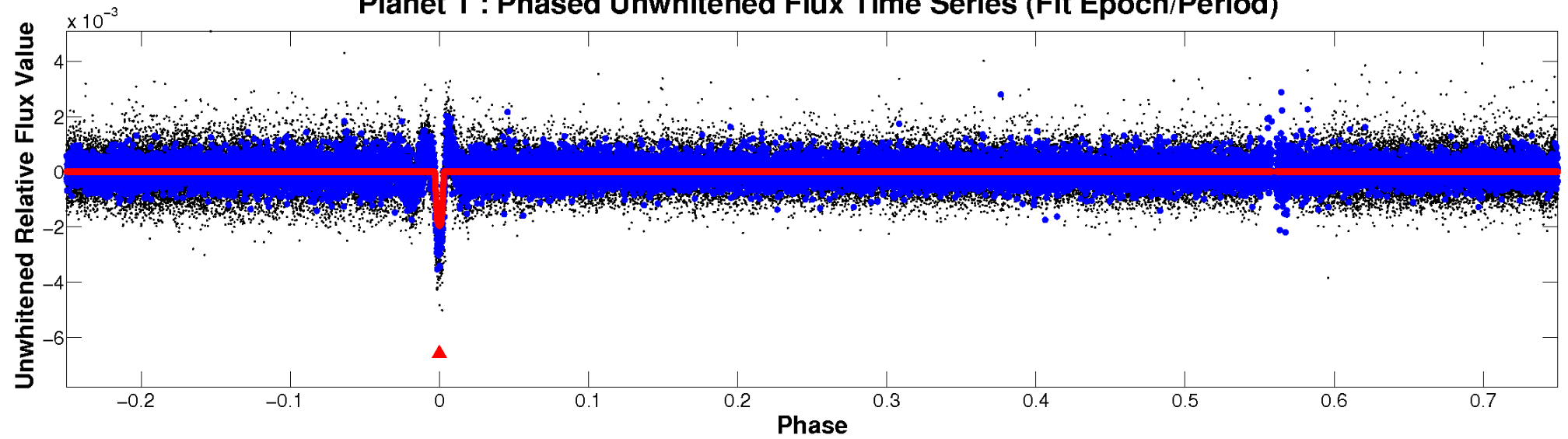
TCE 008621586-01



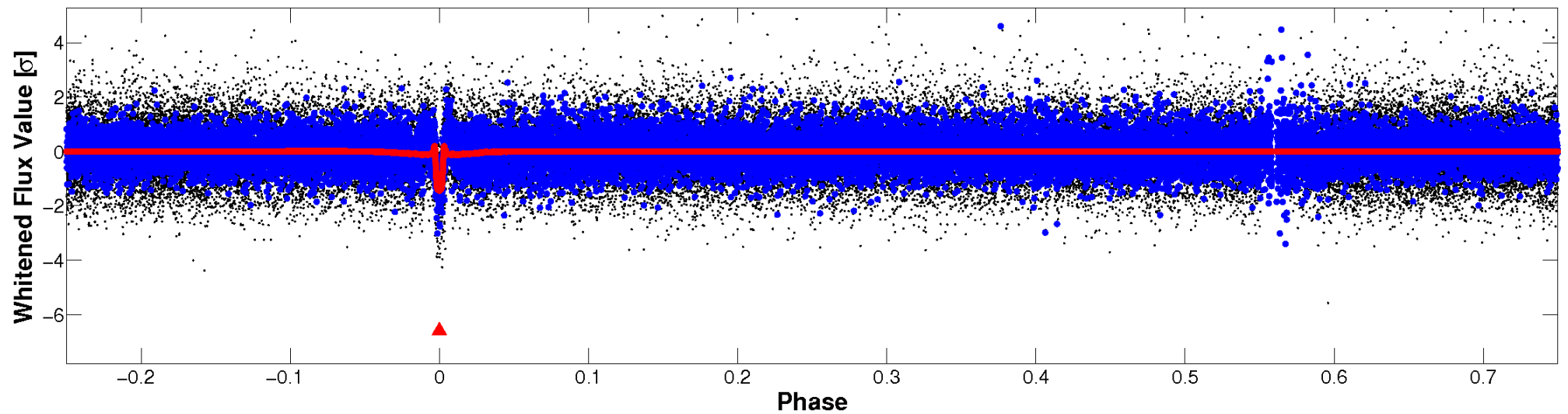


# Non-Whitened Vs. Whitened Light Curve

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

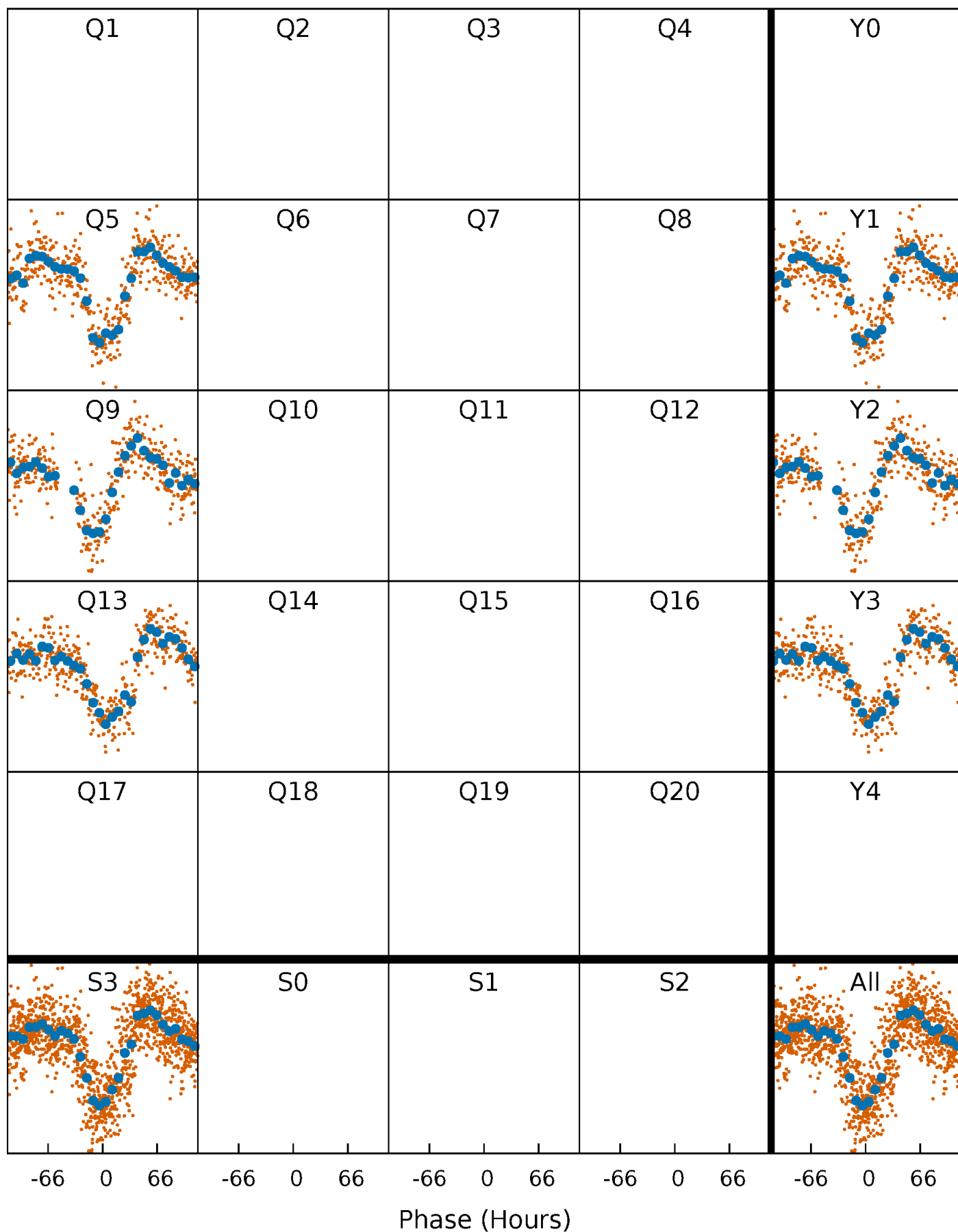


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

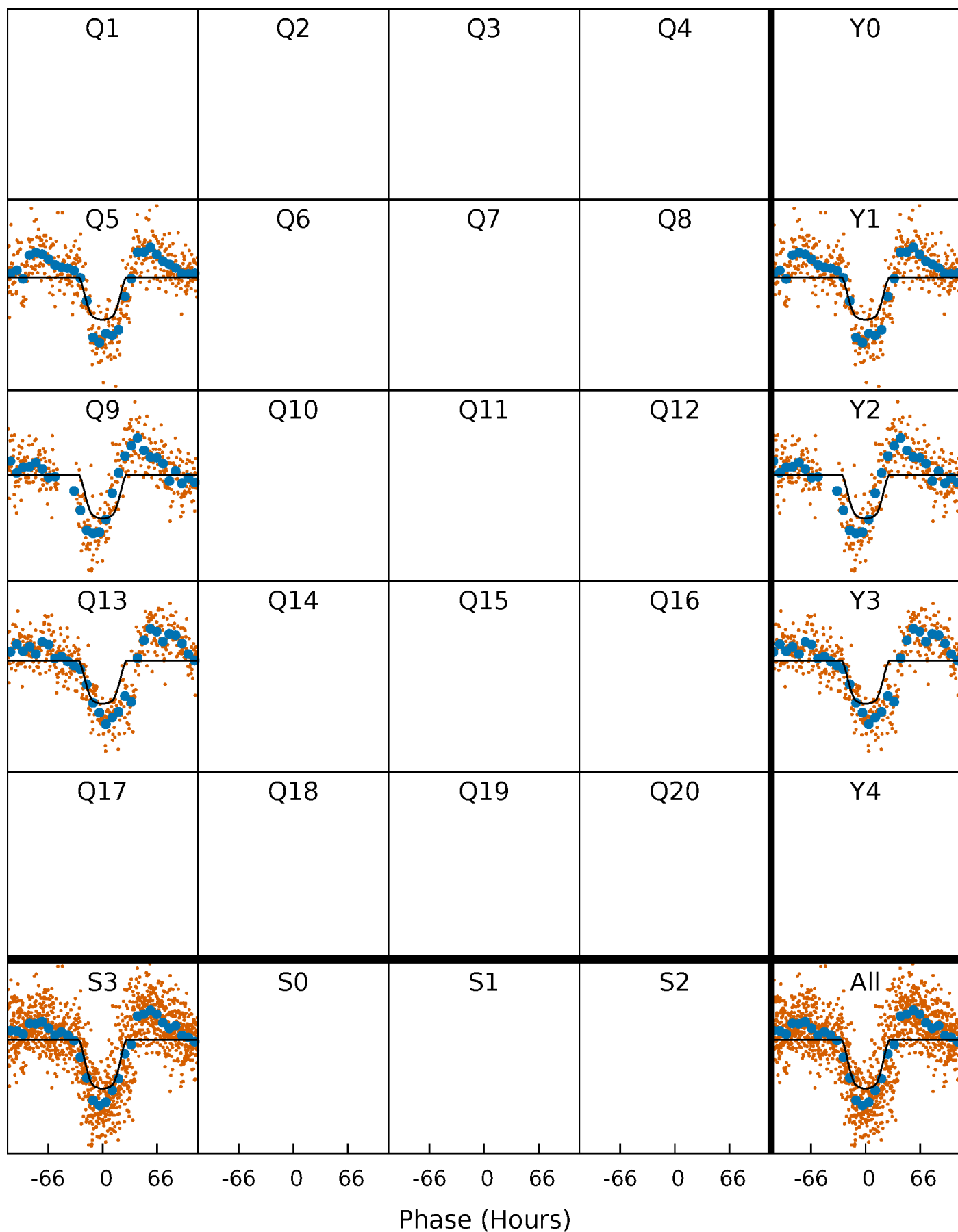
TCE 008621586-01 P=375.059013 Days  $T_0=138.793191$  (BKJD)





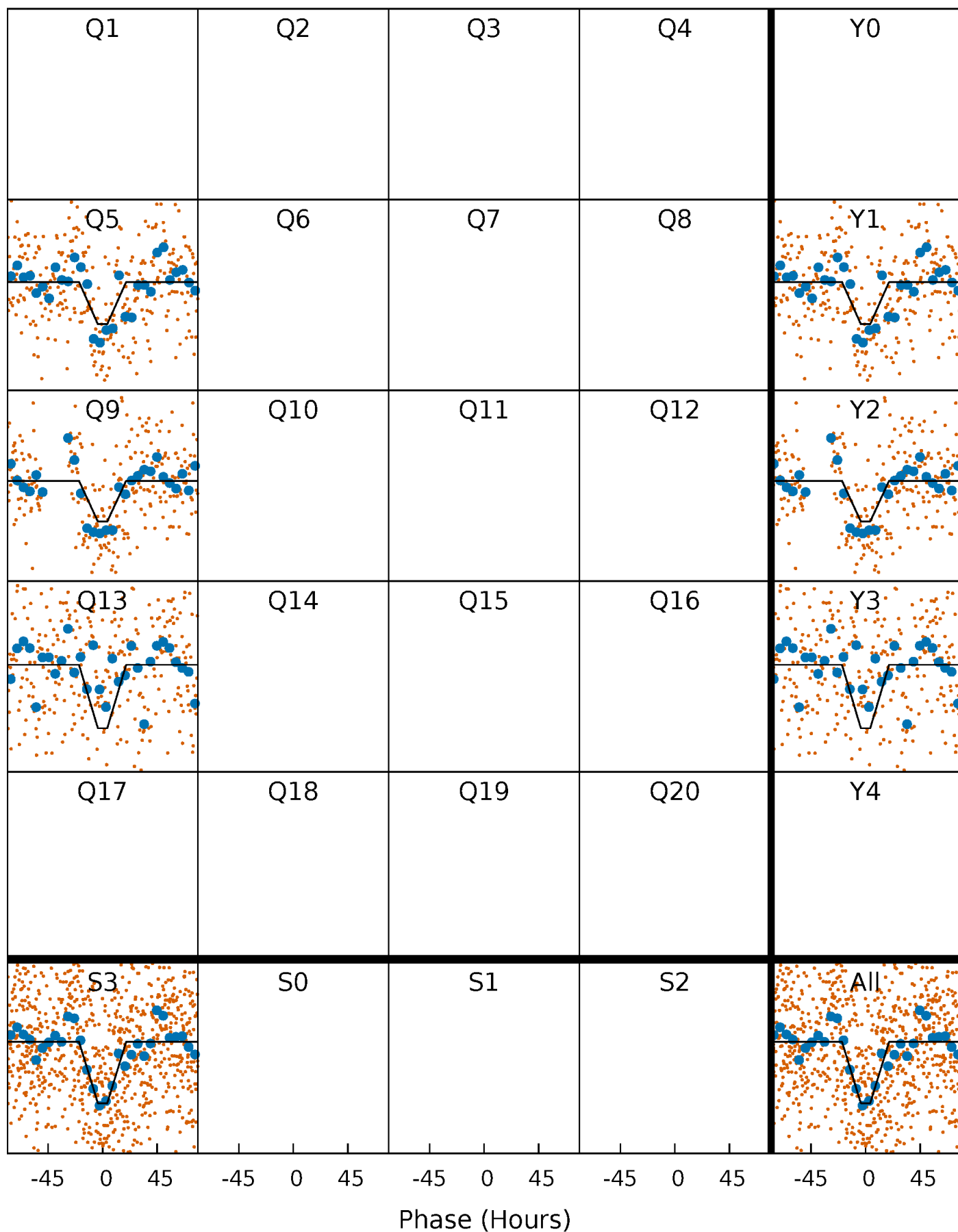
# DV Quarter-Phased Transit Curves

TCE 008621586-01 P=375.059013 Days  $T_0=138.793191$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

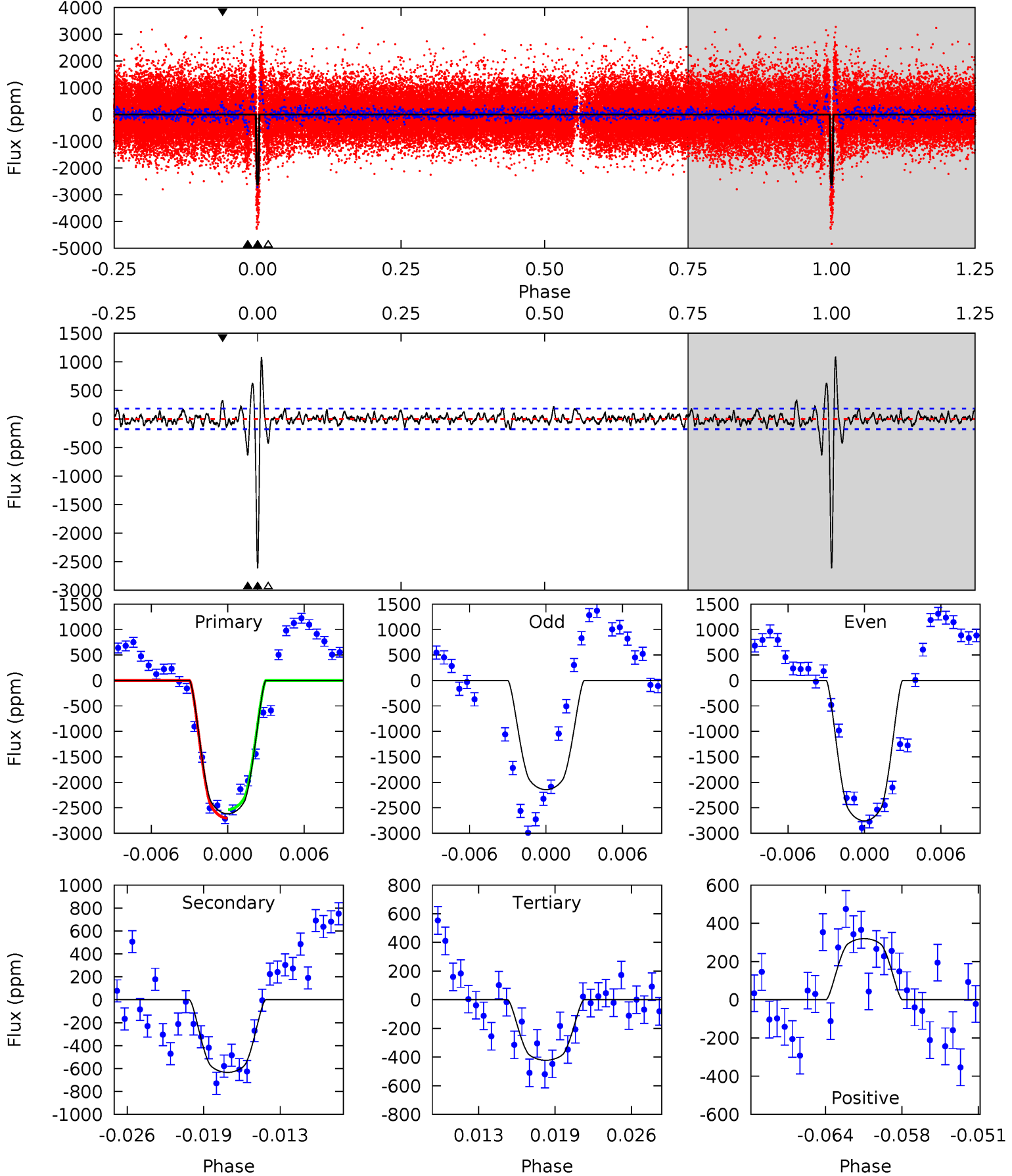
TCE 008621586-01 P=375.207840 Days  $T_0=138.344195$  (BKJD)



# DV Model-Shift Uniqueness Test

008621586-01,  $P = 375.059013$  Days,  $E = 138.793191$  Days

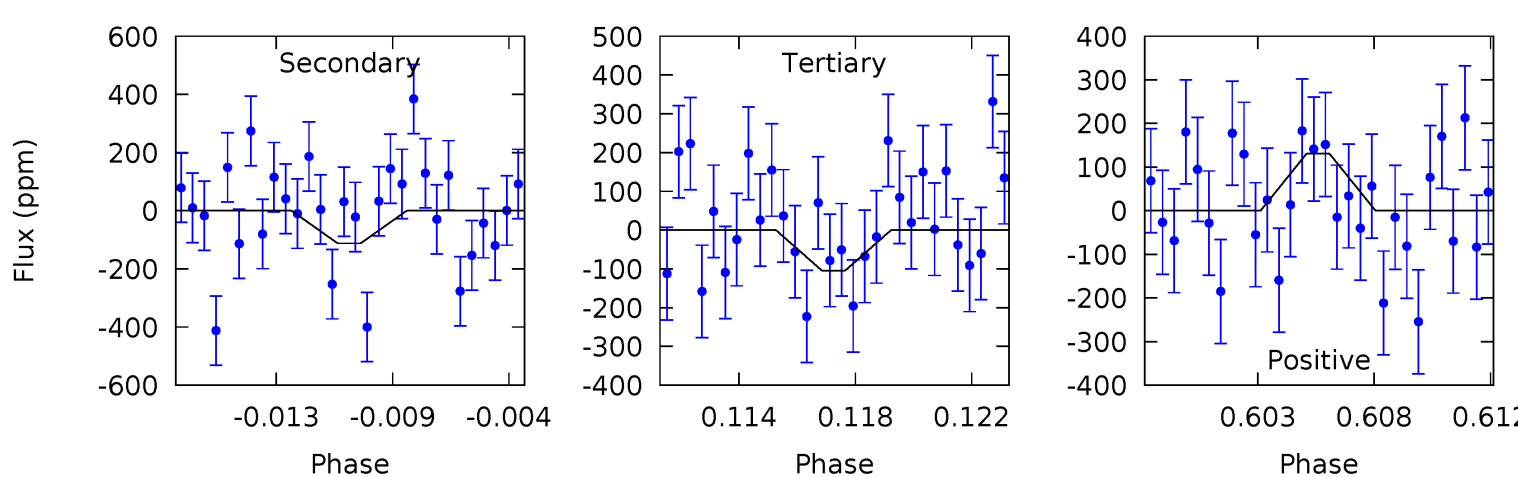
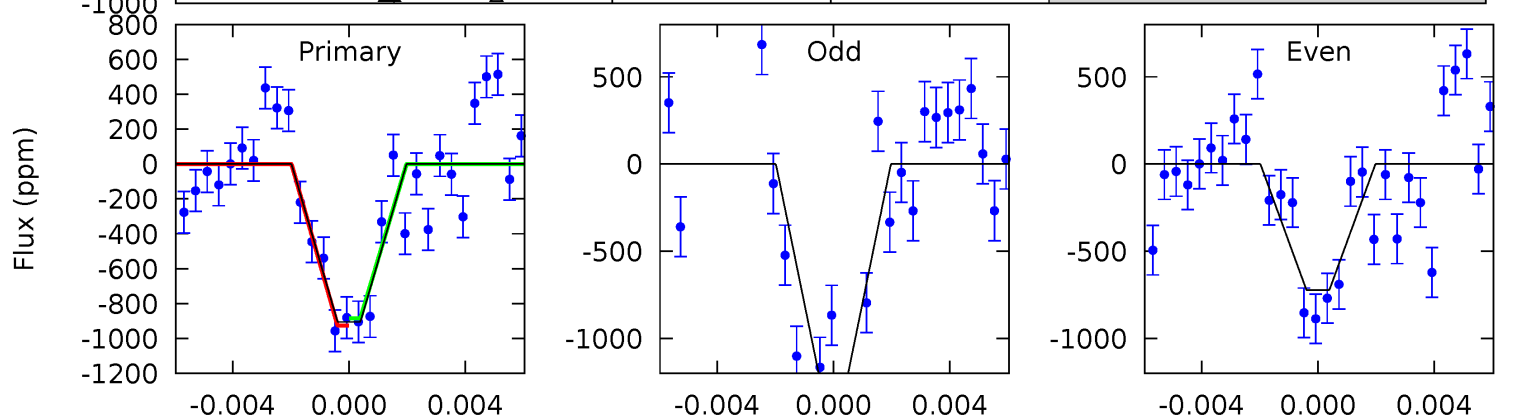
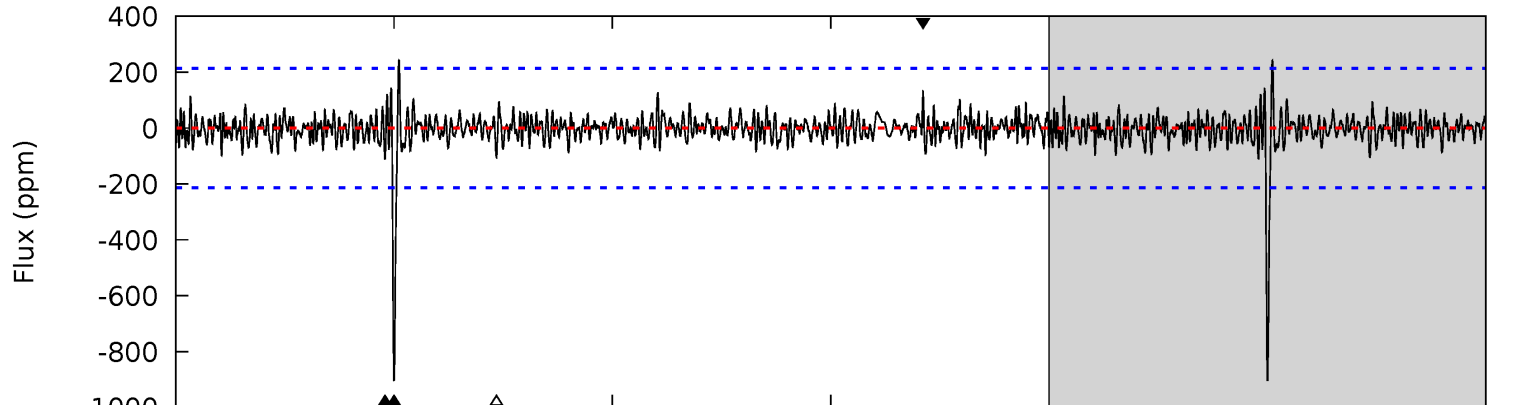
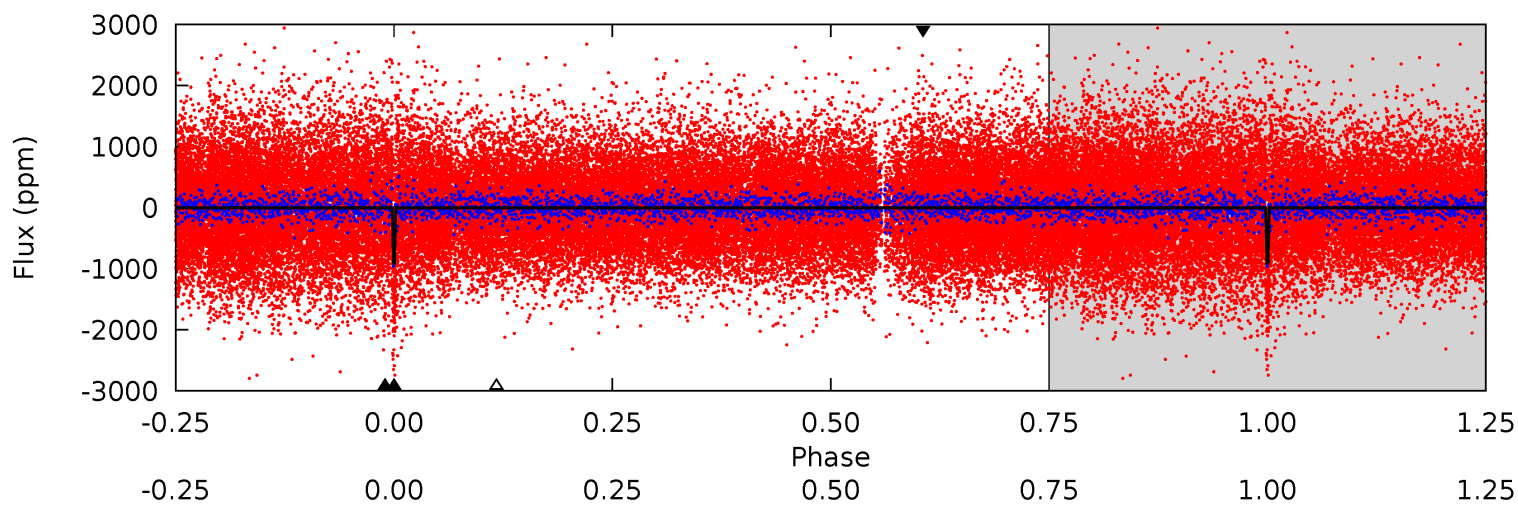
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
74.2	18.0	12.0	9.08	5.11	2.73	2.70	62.2	65.1	6.01	8.90	8.27	0.97	0.29	2.35



# Alt Model-Shift Uniqueness Test

008621586-01, P = 375.207840 Days, E = 138.344195 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
21.9	2.72	2.54	3.17	5.18	2.85	0.89	19.4	18.8	0.18	-0.45	6.48	0.78	0.21	0.50



### Stellar Parameters For KIC 008621586

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5297^{+175}_{-191}$	$4.587^{+0.024}_{-0.128}$	$0.070^{+0.300}_{-0.250}$	$0.795^{+0.149}_{-0.053}$	$0.905^{+0.066}_{-0.099}$	$2.536^{+0.403}_{-0.904}$
	+3%/-4%	+1%/-3%	+429%/-357%	+19%/-7%	+7%/-11%	+16%/-36%
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 008621586-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-634 \pm 35$	$4.54^{+0.44}_{-0.35}$	$301^{+15}_{-14}$	$4021^{+137}_{-132}$	$16185^{+2492}_{-2630}$
Alt.	$-112 \pm 41$	$2.71^{+0.33}_{-0.26}$	$300^{+14}_{-13}$	$3551^{+225}_{-281}$	$7654^{+3572}_{-3077}$

$T_{\text{max}}$  = 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

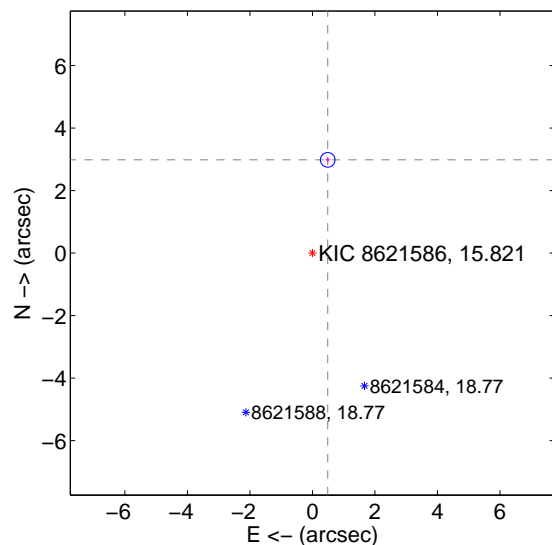
Supplemental centroid analysis for 008621586-01. Kepler magnitude: 15.82. Transit SNR 20.28

There are 0 quarters with good PRF difference image offsets

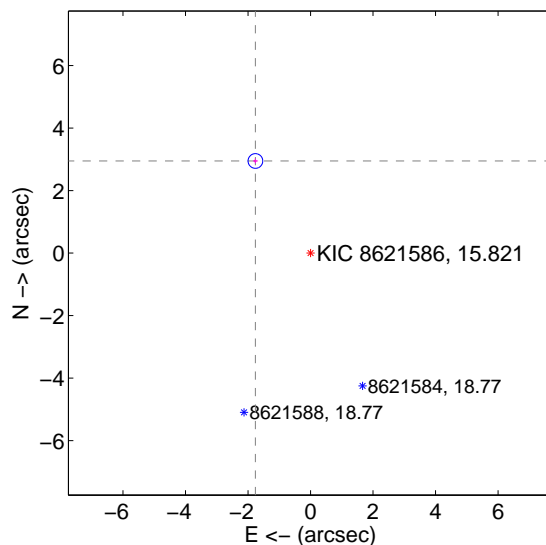
The OOT PRF centroid is offset from the target star catalog position by about 2.25 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.023 \pm 0.078$	38.80	$-0.489 \pm 0.080$	$2.984 \pm 0.078$
PRF-fit source offset from KIC position	$3.435 \pm 0.078$	43.83	$1.763 \pm 0.080$	$2.948 \pm 0.078$
photometric centroid source offset	$3.82 \pm 0.88$	4.34	$0.53 \pm 0.62$	$3.78 \pm 0.88$

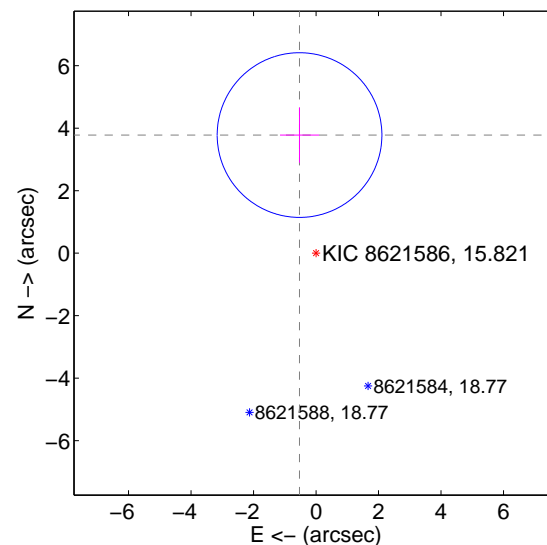
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



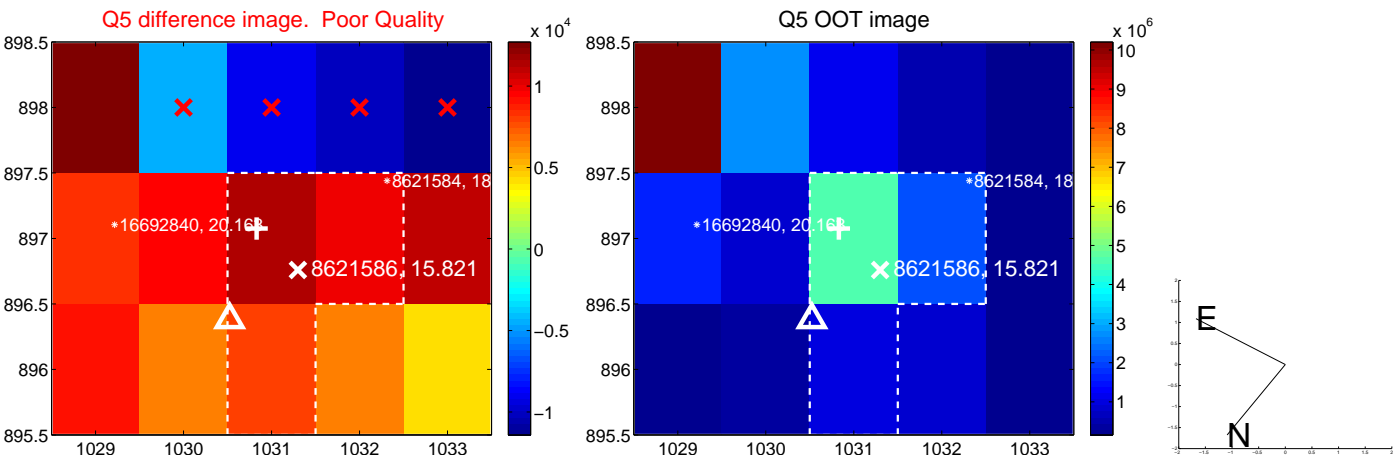
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



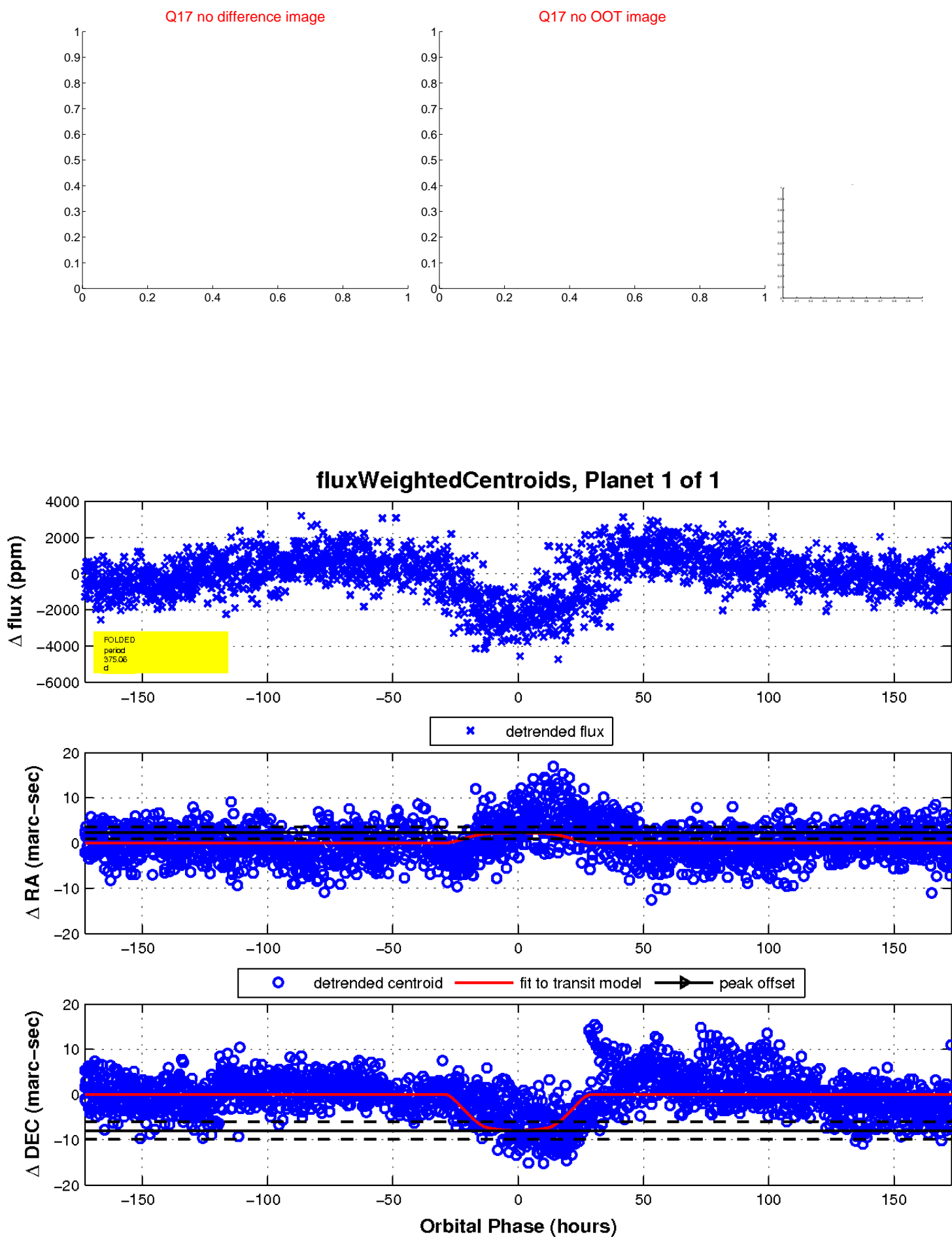
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

