

# KIC 008686595

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008686595-01	OBS	No	374.997902	136.078246	740.1	13.999	7.3	7.1	0.83	4838	2.25	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008686595-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

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

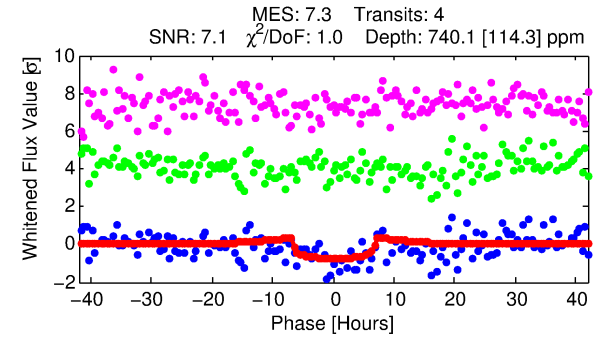
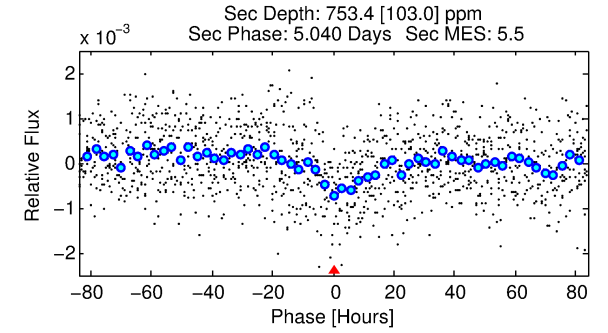
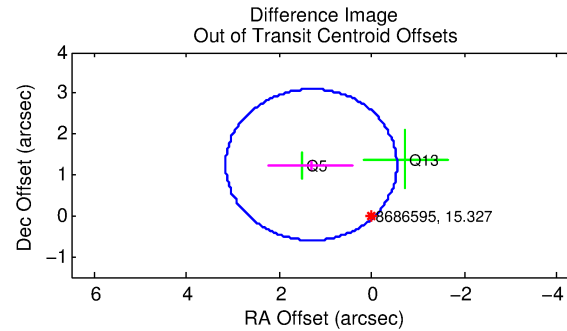
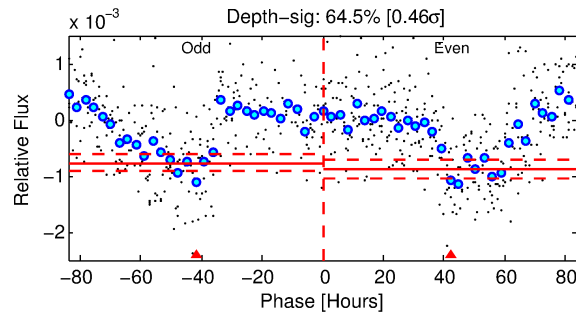
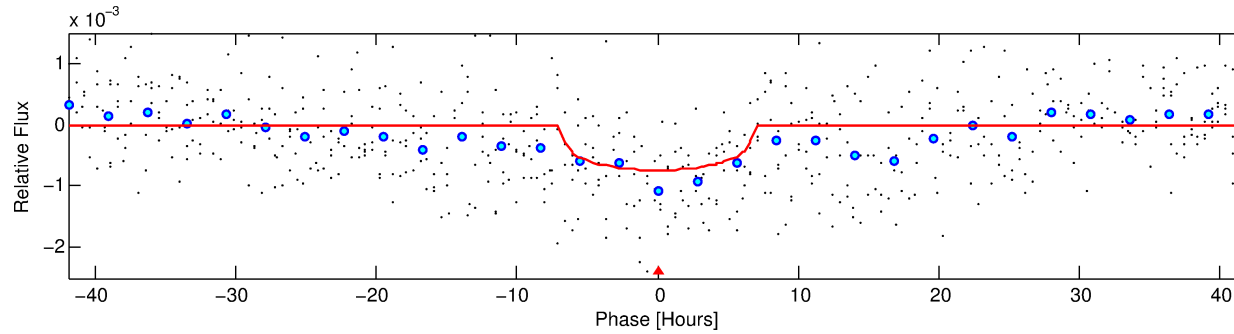
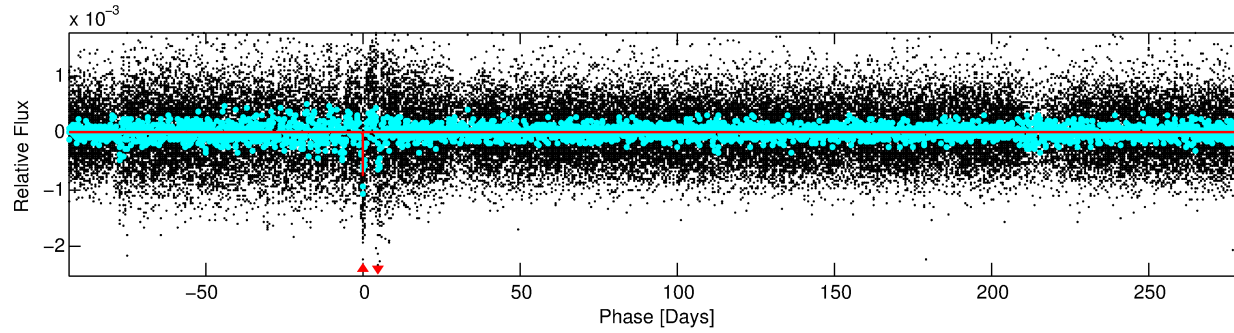
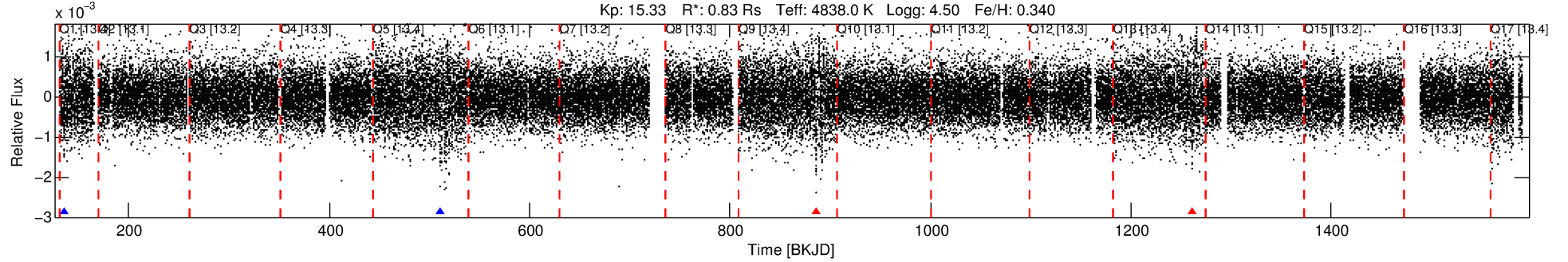
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008686595-01

No Significant Match Found

# DV One-Page Summary

KIC: 8686595 Candidate: 1 of 1 Period: 374.998 d



## DV Fit Results:

Period = 374.99790 [0.01141] d  
Epoch = 136.0782 [0.0204] BKJD  
Rp/R\* = 0.0249 [0.0195]  
a/R\* = 185.11 [456.47]  
b = 0.48 [3.96]  
Seff = 0.38 [0.10]  
Teq = 200 [13] K  
Rp = 2.25 [1.78] Re  
a = 0.9442 [0.1207] AU  
Ag = 72814.43 [115798.05] [0.63 $\sigma$ ]  
Teffp = 5076 [2003] K [2.43 $\sigma$ ]

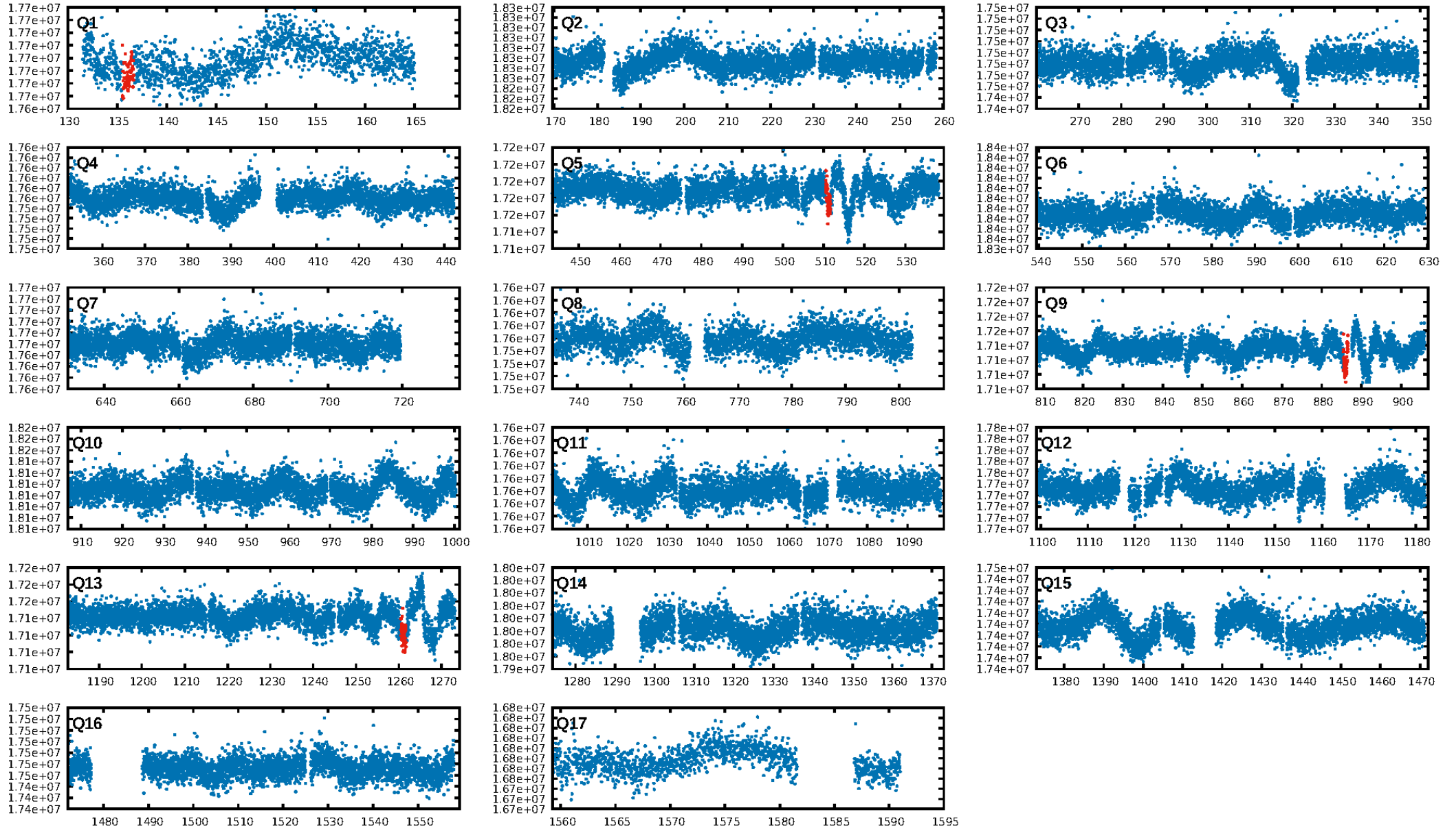
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.91e-10**  
**RollingBand-fgt: 0.33 [1/3]**  
GhostDiagnostic-chr: 1.119  
Centroid-sig: 0.4%  
Centroid-so: 3.472 arcsec [1.84 $\sigma$ ]  
OotOffset-rm: 1.807 arcsec [2.93 $\sigma$ ]  
**KicOffset-rm: 2.000 arcsec [3.88 $\sigma$ ]**  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

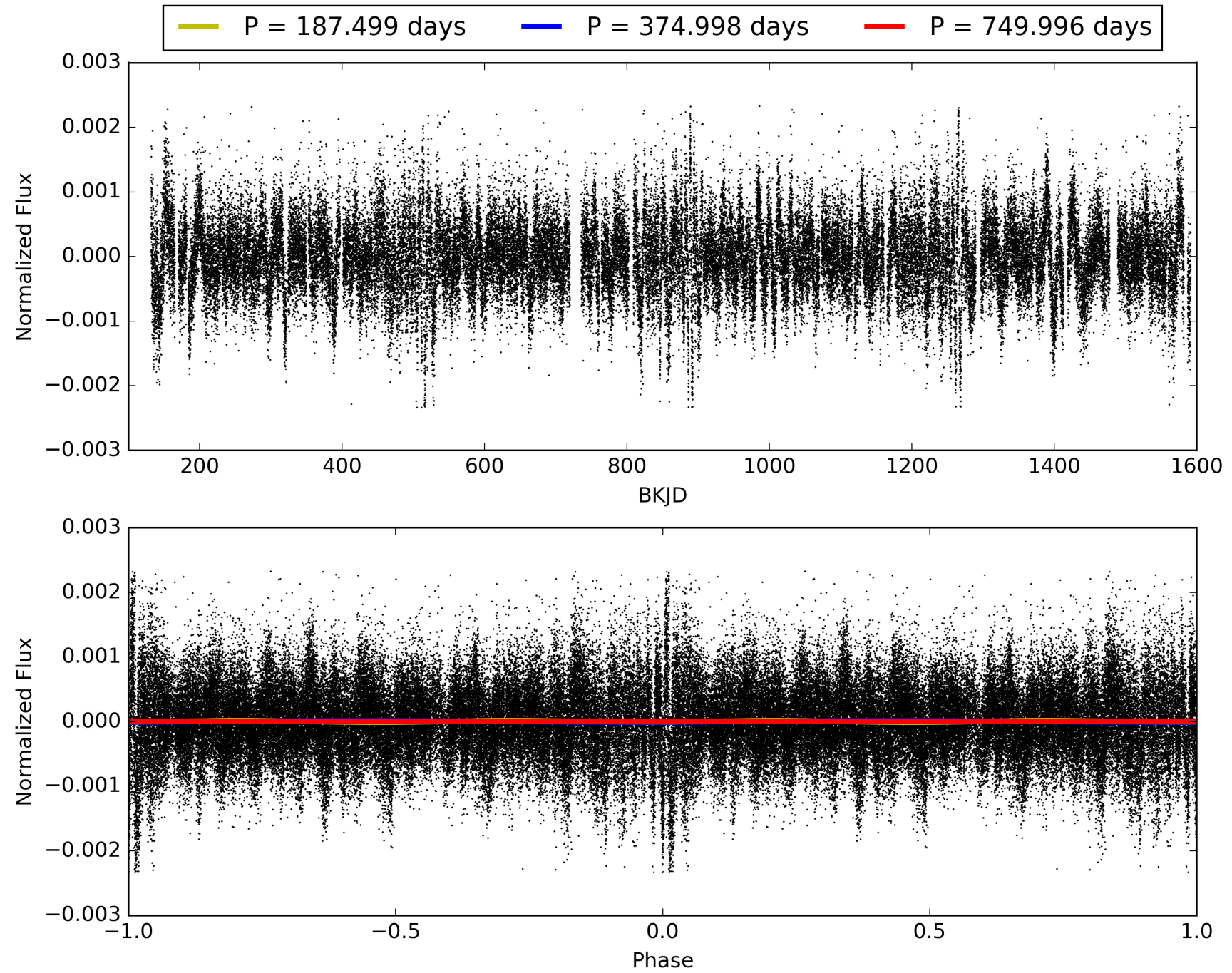
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:33:13 Z

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

# TCE 008686595-01, PDC Light Curves

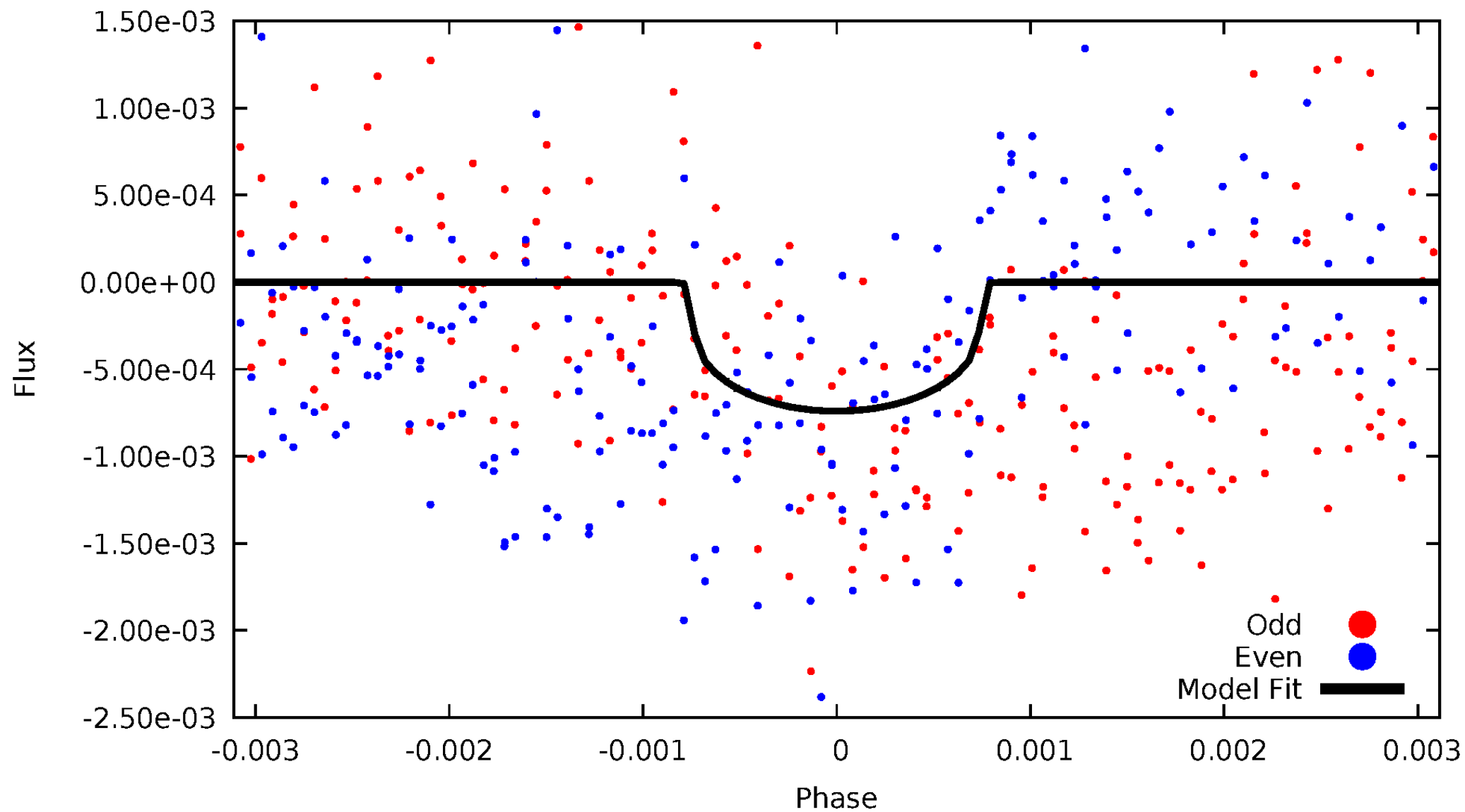


TCE 008686595-01



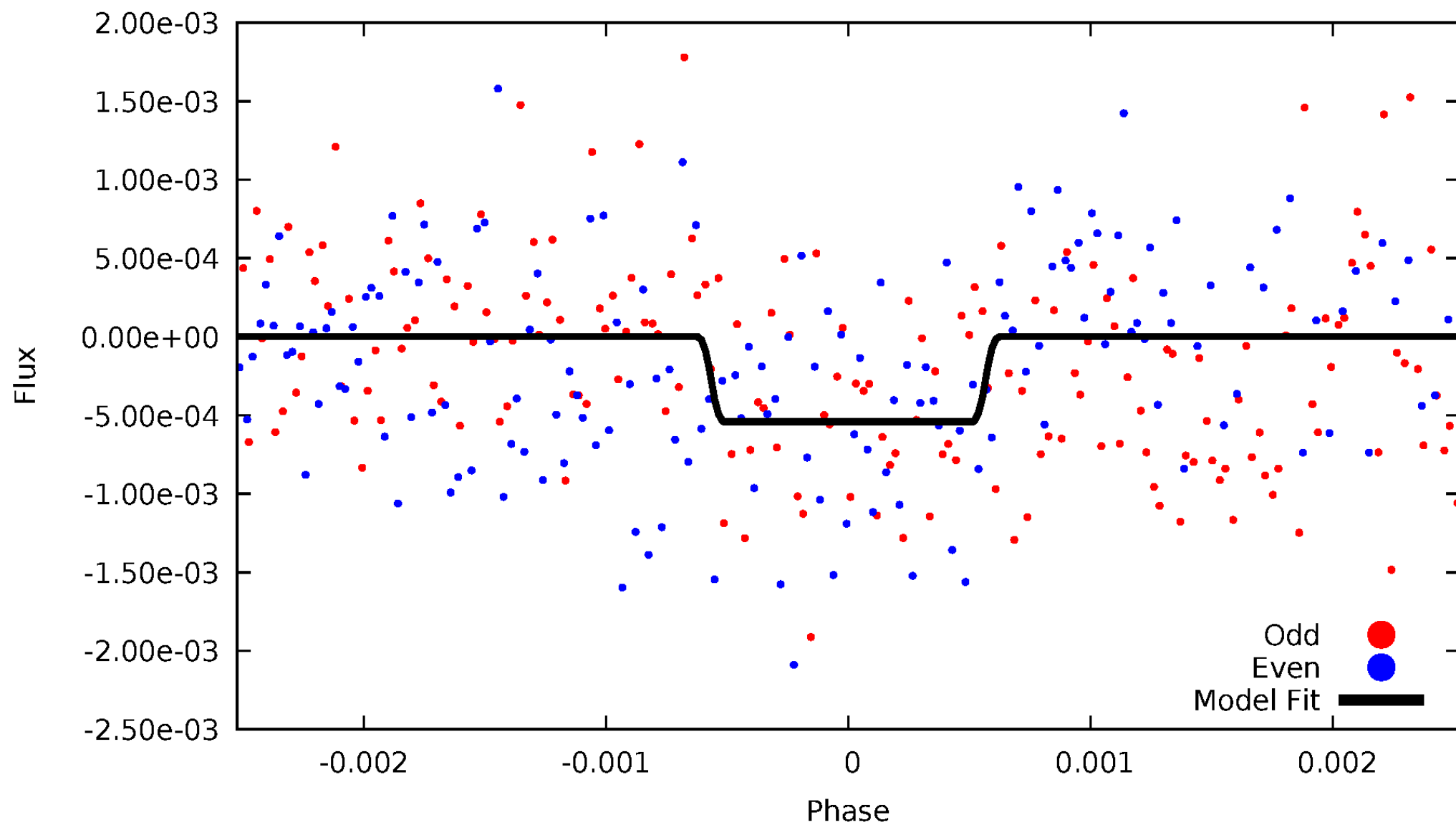
# DV Odd/Even

TCE 008686595-01



# ALT Odd/Even

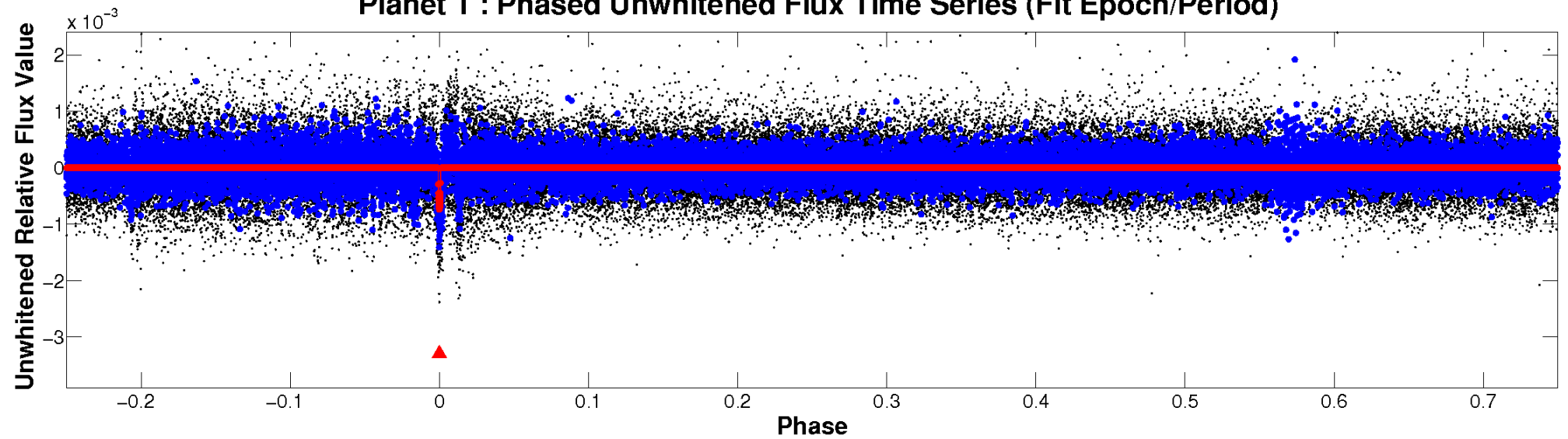
TCE 008686595-01



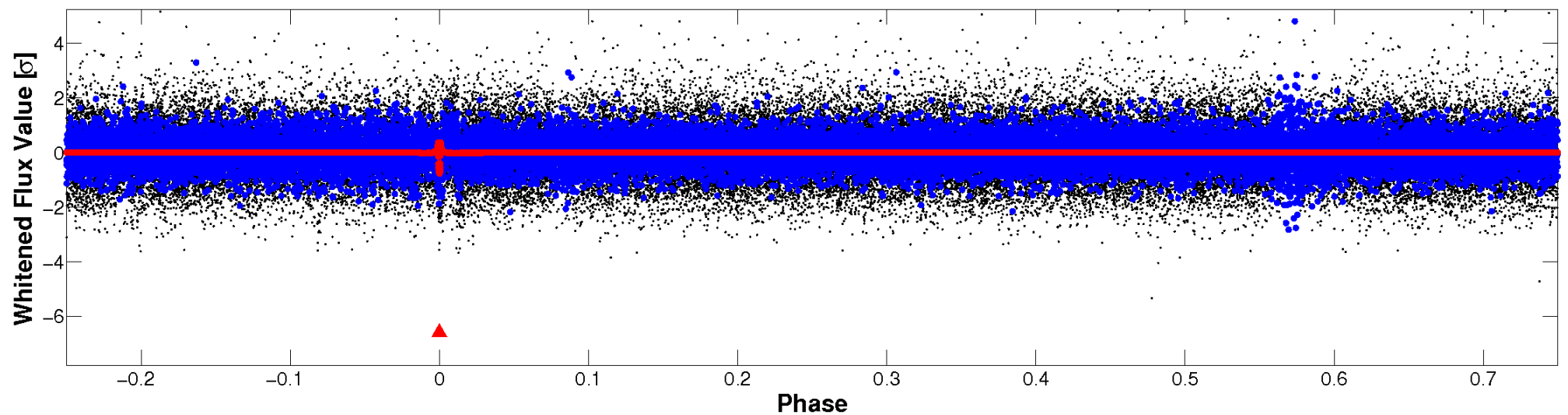


# Non-Whitened Vs. Whitened Light Curve

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

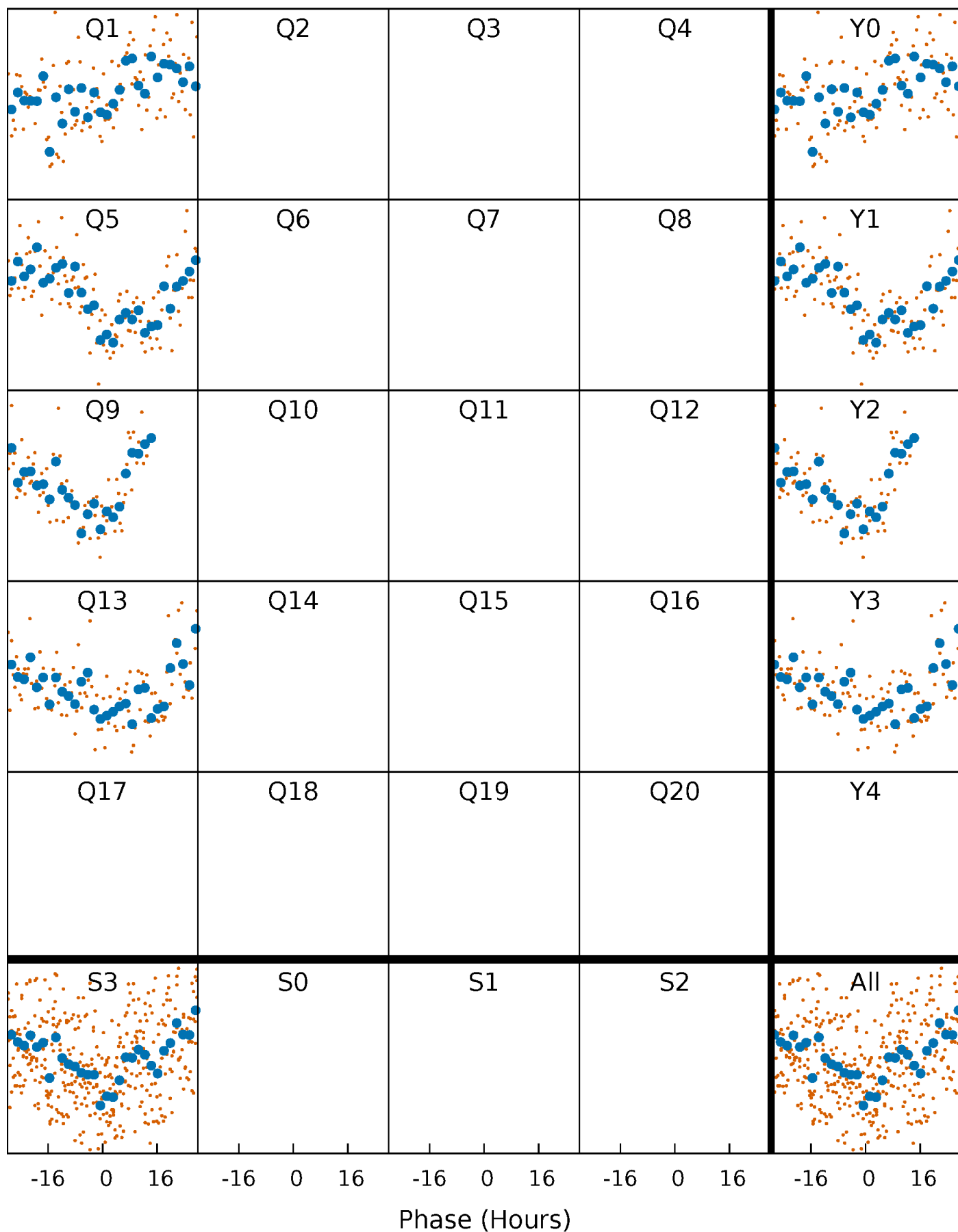


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

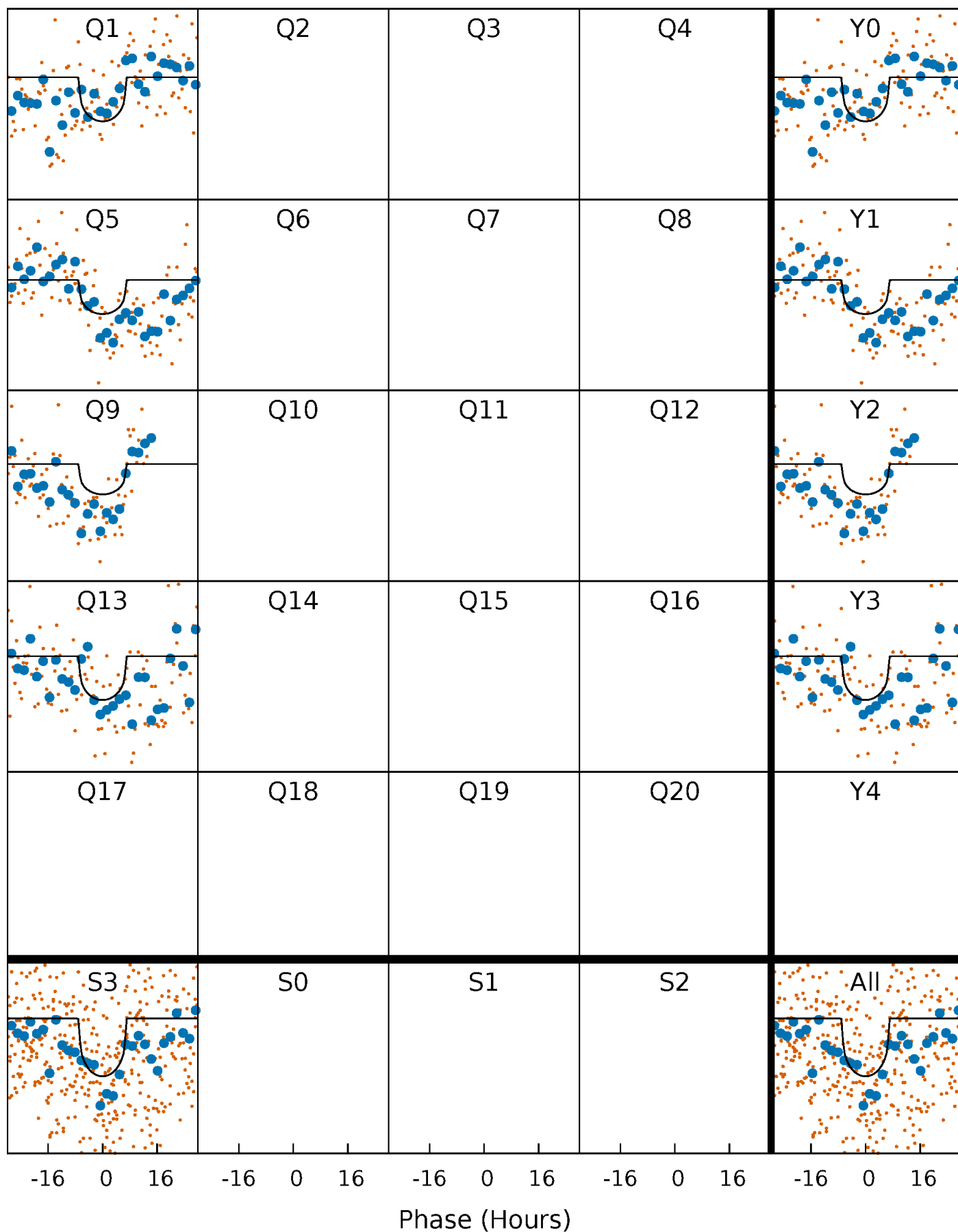
TCE 008686595-01 P=374.997902 Days  $T_0=136.078246$  (BKJD)





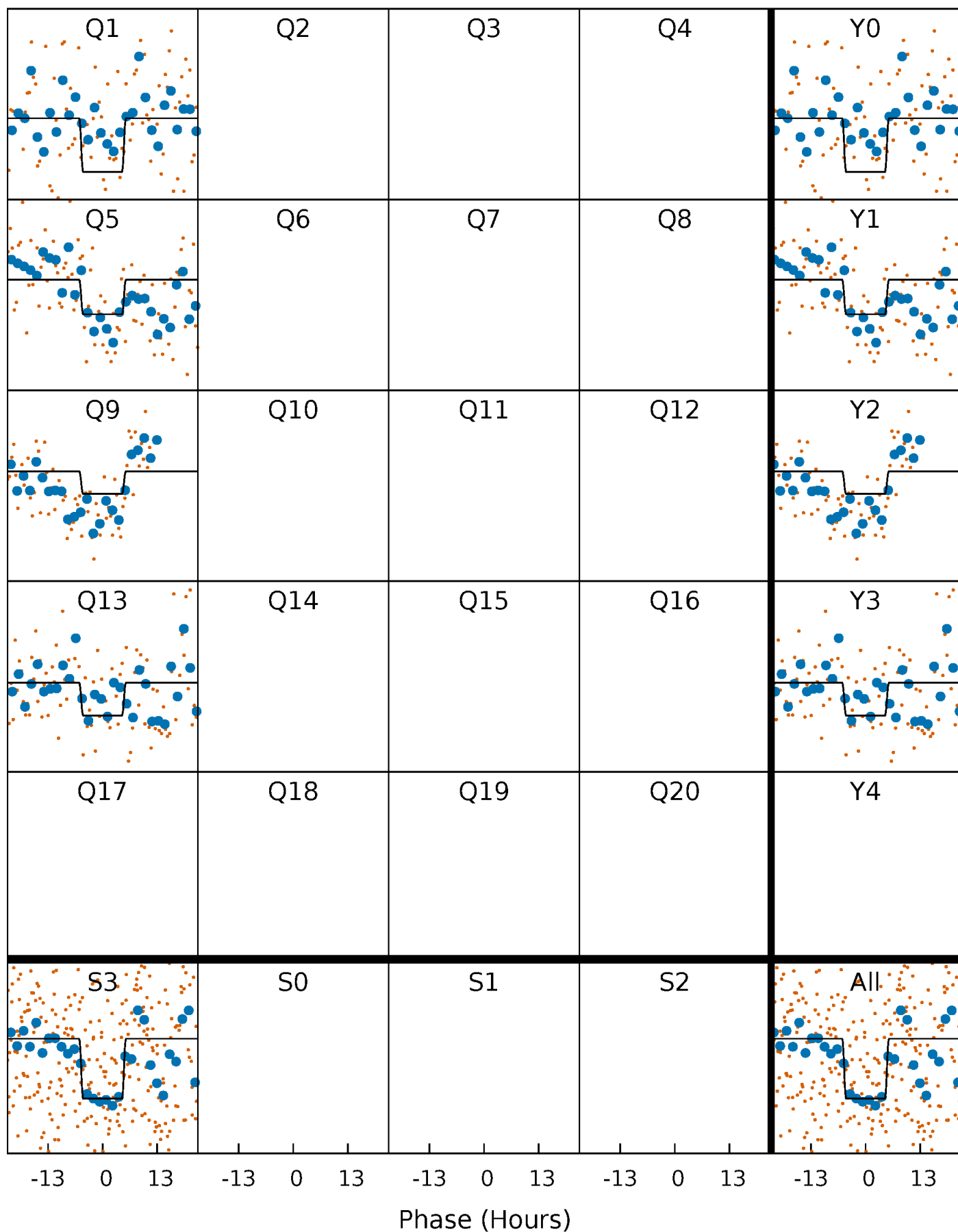
# DV Quarter-Phased Transit Curves

TCE 008686595-01     $P=374.997902$  Days     $T_0=136.078246$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

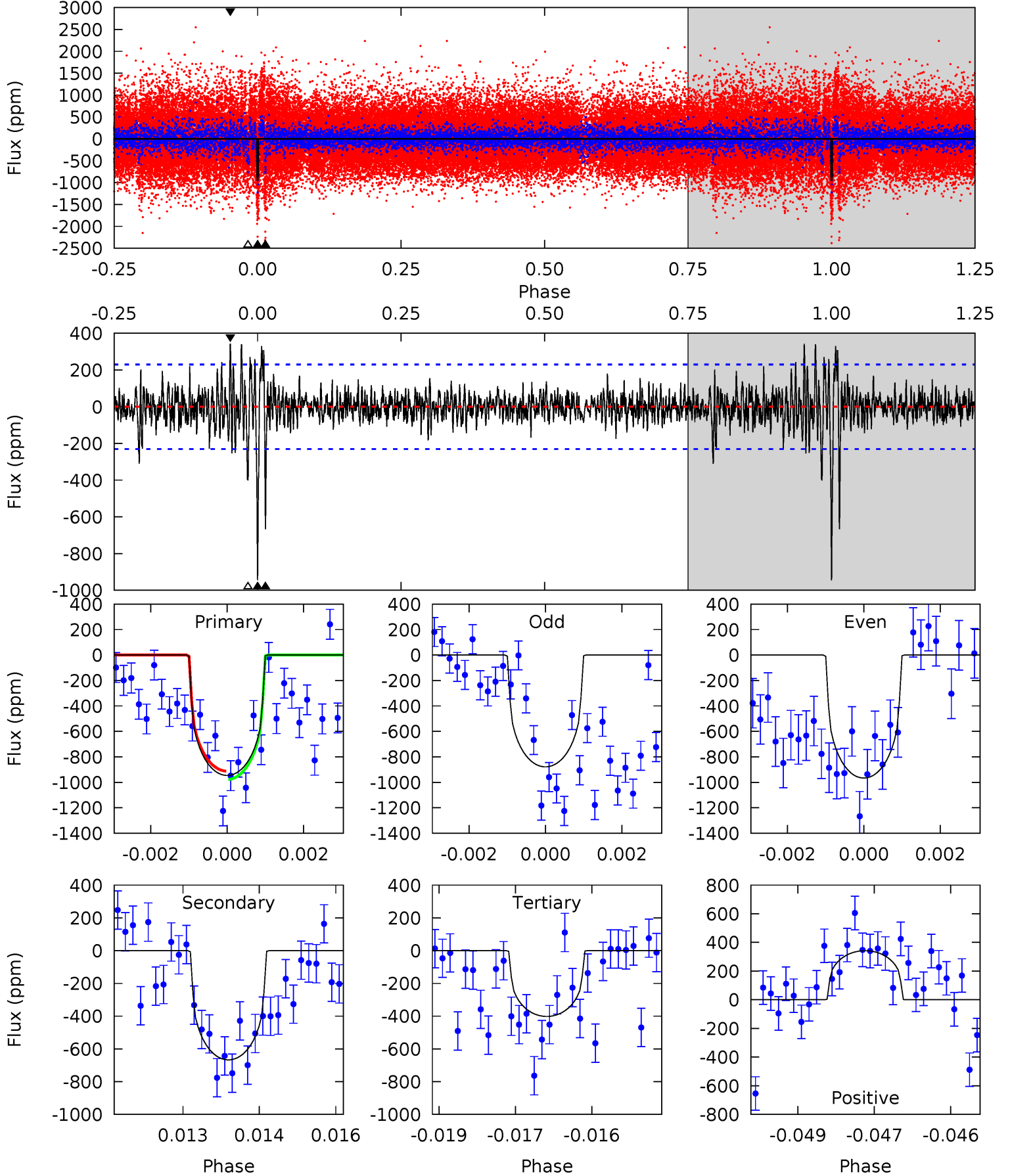
TCE 008686595-01 P=375.044371 Days  $T_0=136.039521$  (BKJD)



# DV Model-Shift Uniqueness Test

008686595-01,  $P = 374.997902$  Days,  $E = 136.078246$  Days

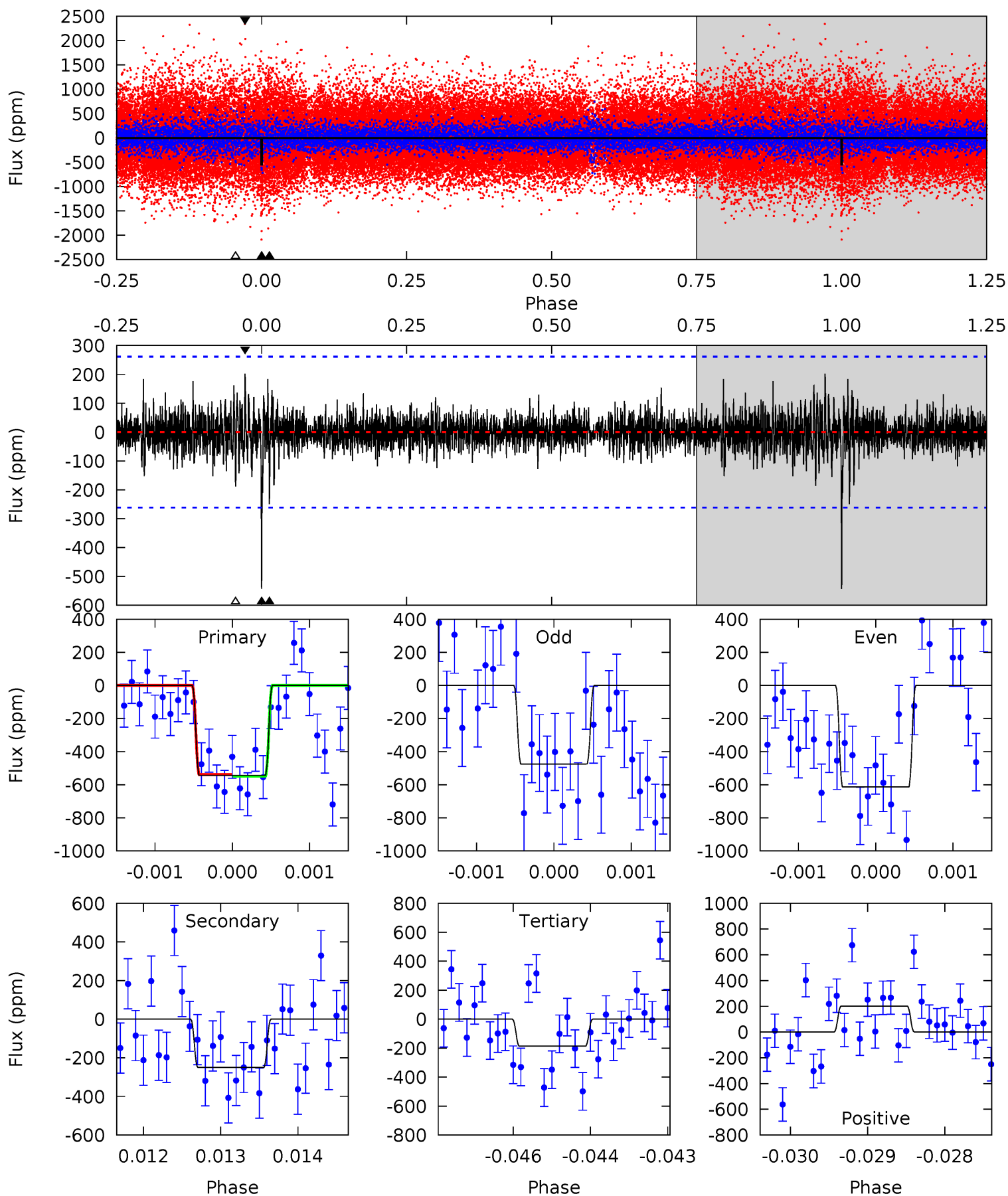
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	15.5	9.37	7.98	5.37	3.16	1.65	12.7	14.1	6.18	7.57	1.03	1.06	0.27	0.76



# Alt Model-Shift Uniqueness Test

008686595-01,  $P = 375.044371$  Days,  $E = 136.039521$  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
11.3	5.17	3.87	4.18	5.42	3.24	0.86	7.40	7.09	1.30	0.99	1.45	1.16	0.27	0.10



### Stellar Parameters For KIC 008686595

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4838^{+144}_{-144}$	$4.504^{+0.090}_{-0.142}$	$0.340^{+0.100}_{-0.300}$	$0.828^{+0.062}_{-0.083}$	$0.799^{+0.051}_{-0.051}$	$1.981^{+0.702}_{-0.442}$
	+3%/-3%	+2%/-3%	+29%/-88%	+7%/-10%	+6%/-6%	+35%/-22%
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 008686595-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-667 \pm 43$	$2.46^{+1.71}_{-1.45}$	$281^{+11}_{-12}$	$4776^{+2586}_{-850}$	$53877^{+285485}_{-34923}$
Alt.	$-249 \pm 48$	$2.38^{+1.66}_{-1.41}$	$281^{+13}_{-12}$	$4011^{+1802}_{-687}$	$21408^{+117133}_{-14578}$

$T_{\text{max}}$  = 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

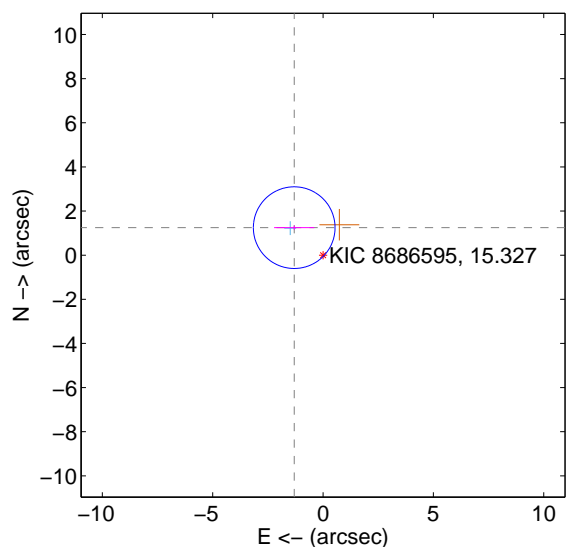
Supplemental centroid analysis for 008686595-01. Kepler magnitude: 15.33. Transit SNR 7.15

There are 1 quarters with good PRF difference image offsets

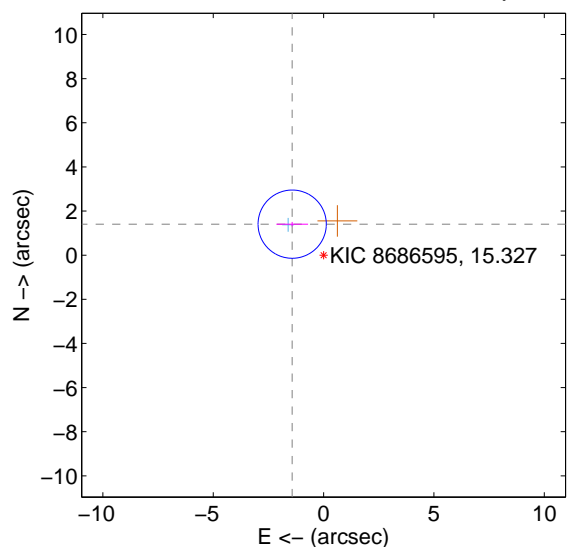
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.807 \pm 0.617$	2.93	$1.306 \pm 0.912$	$1.248 \pm 0.092$
PRF-fit source offset from KIC position	$2.000 \pm 0.515$	3.88	$1.423 \pm 0.718$	$1.406 \pm 0.101$
photometric centroid source offset	$3.47 \pm 1.89$	1.84	$-2.29 \pm 1.68$	$-2.61 \pm 2.03$

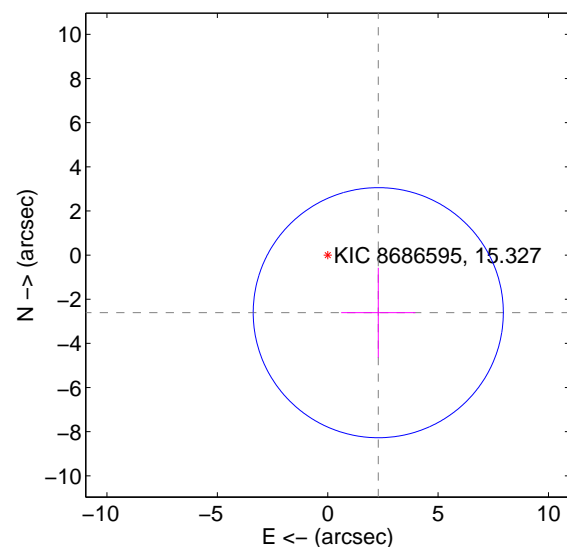
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

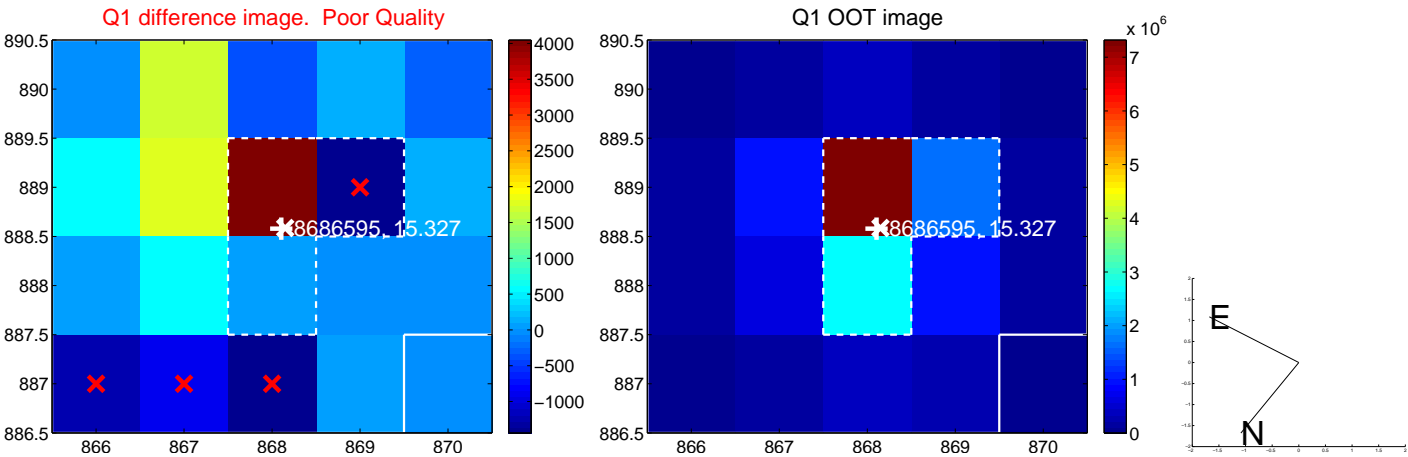


offset from photometric centroids



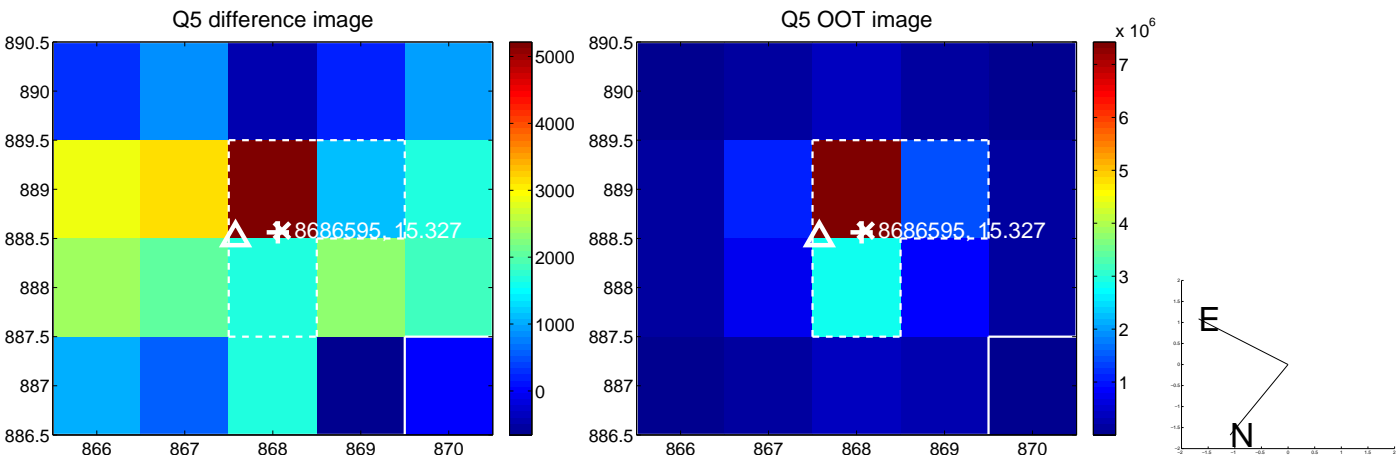
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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





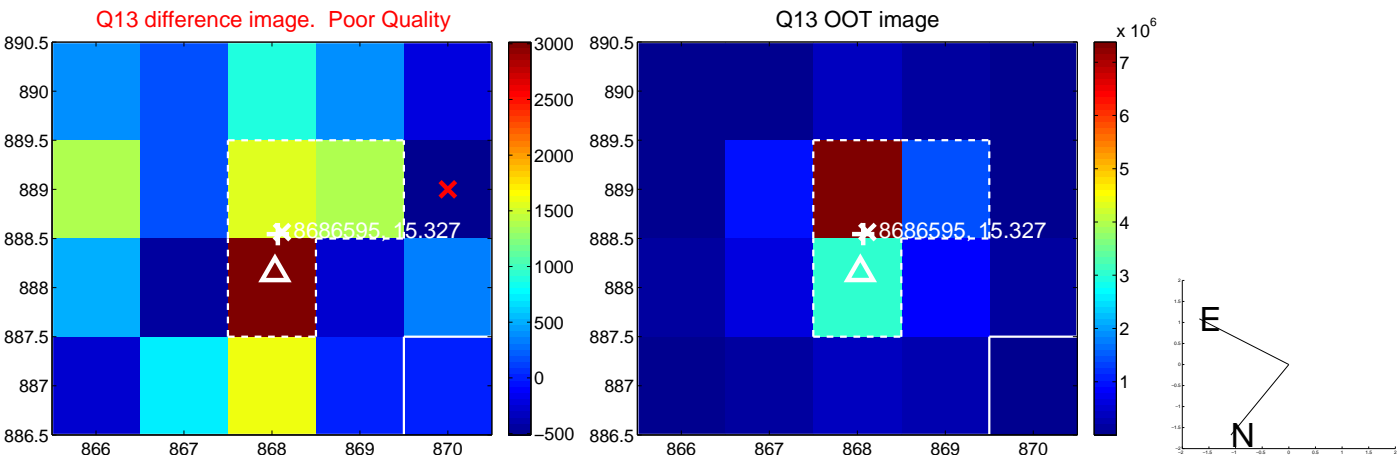
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



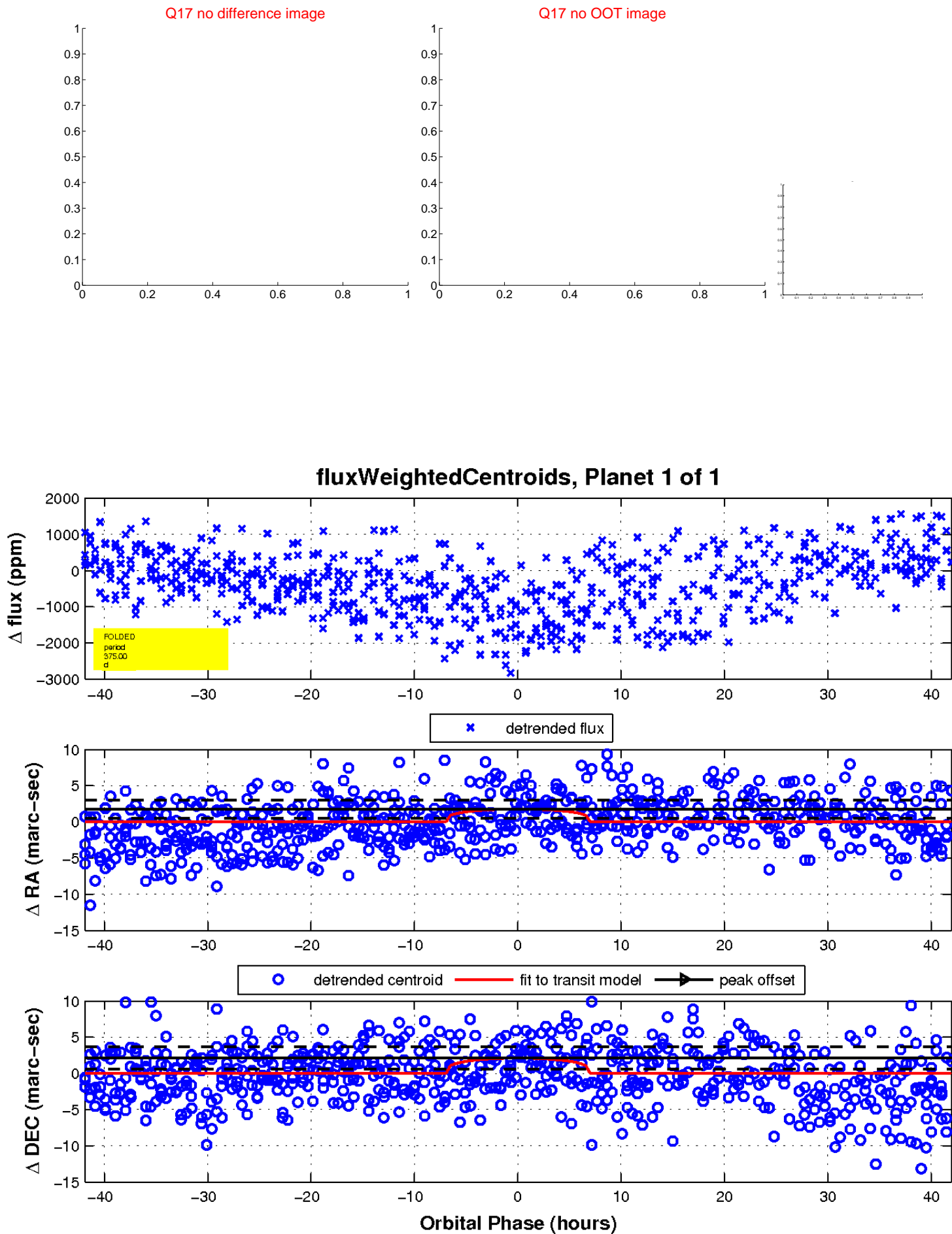
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

