

# KIC 004760478

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
004760478-01	OBS	5084.01	287.377807	348.828611	4328.8	18.629	48.2	49.2	1.79	5548	11.59	3.57

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004760478-01	OBS	PC	0.99	0	0	0	0	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 004760478-01

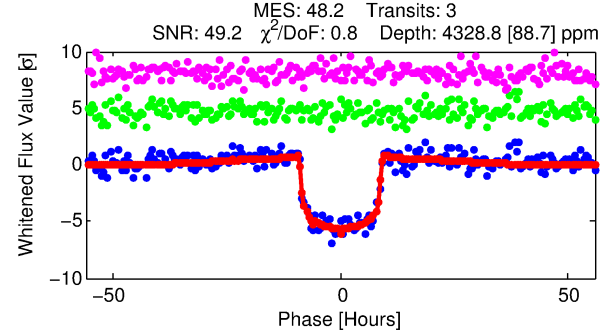
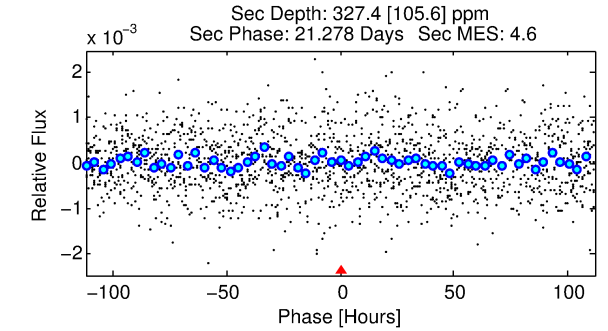
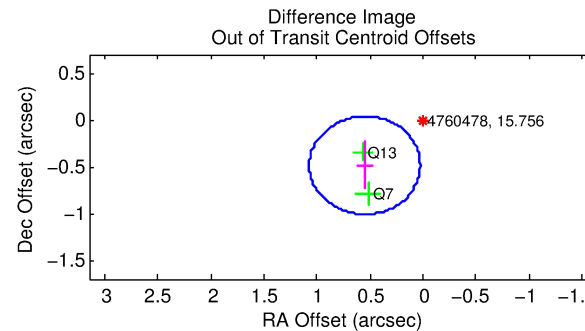
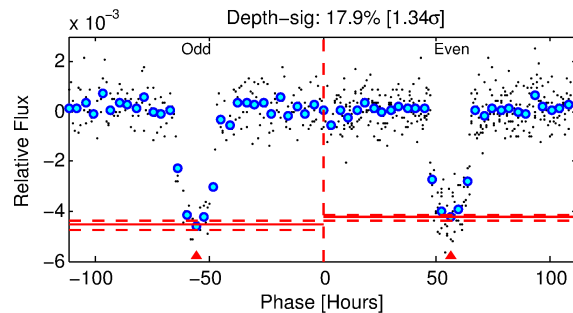
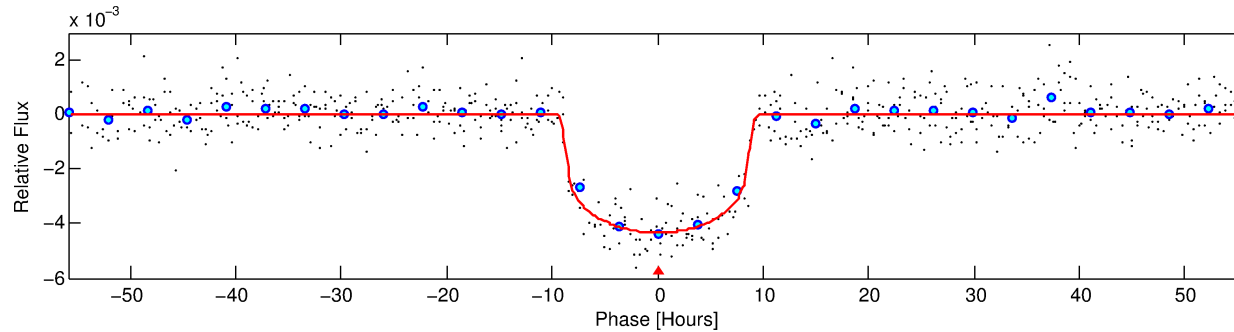
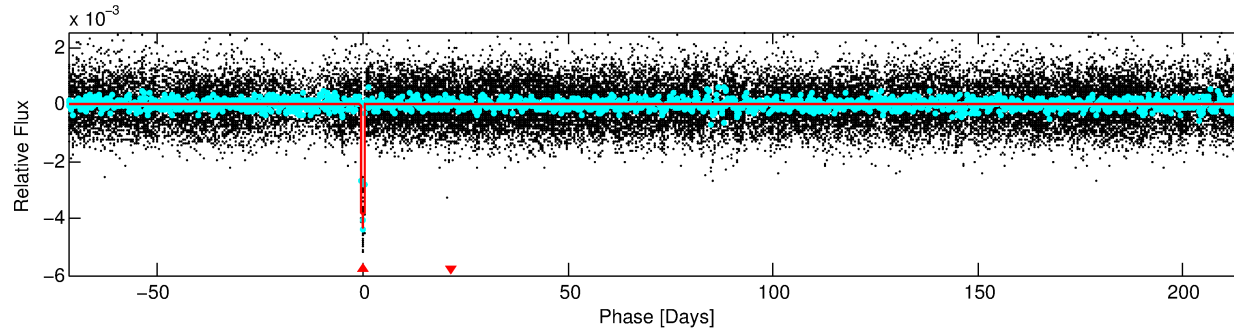
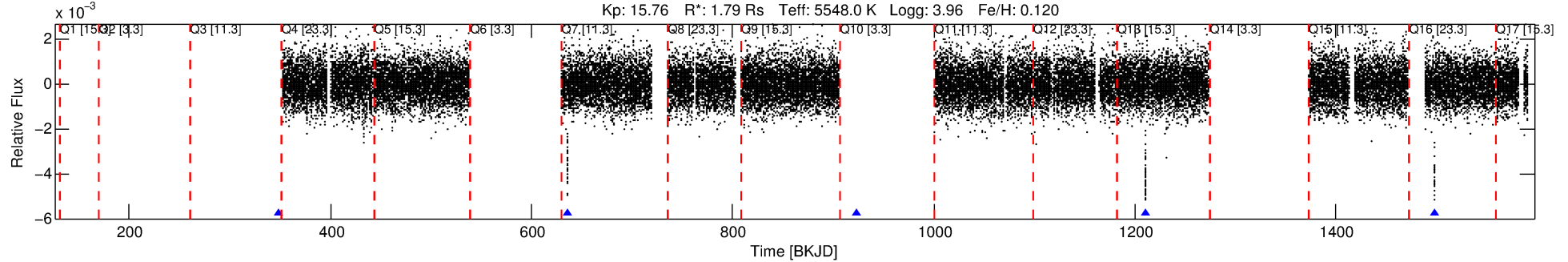
No Significant Match Found

# DV One-Page Summary

KIC: 4760478 Candidate: 1 of 1 Period: 287.378 d

KOI: K05084.01 Corr: 0.993

Kp: 15.76 R\*: 1.79 Rs Teff: 5548.0 K Logg: 3.96 Fe/H: 0.120



## DV Fit Results:

Period = 287.37781 [0.00247] d  
Epoch = 348.8286 [0.0070] BKJD  
Rp/R\* = 0.0592 [0.0039]  
a/R\* = 124.80 [32.50]  
b = 0.02 [11.84]  
Seff = 3.57 [1.37]  
Teq = 350 [34] K  
Rp = 11.59 [3.24] Re  
a = 0.8744 [0.2154] AU  
Ag = 1026.05 [528.66] [1.94σ]  
Teffp = 3067 [271] K [9.94σ]

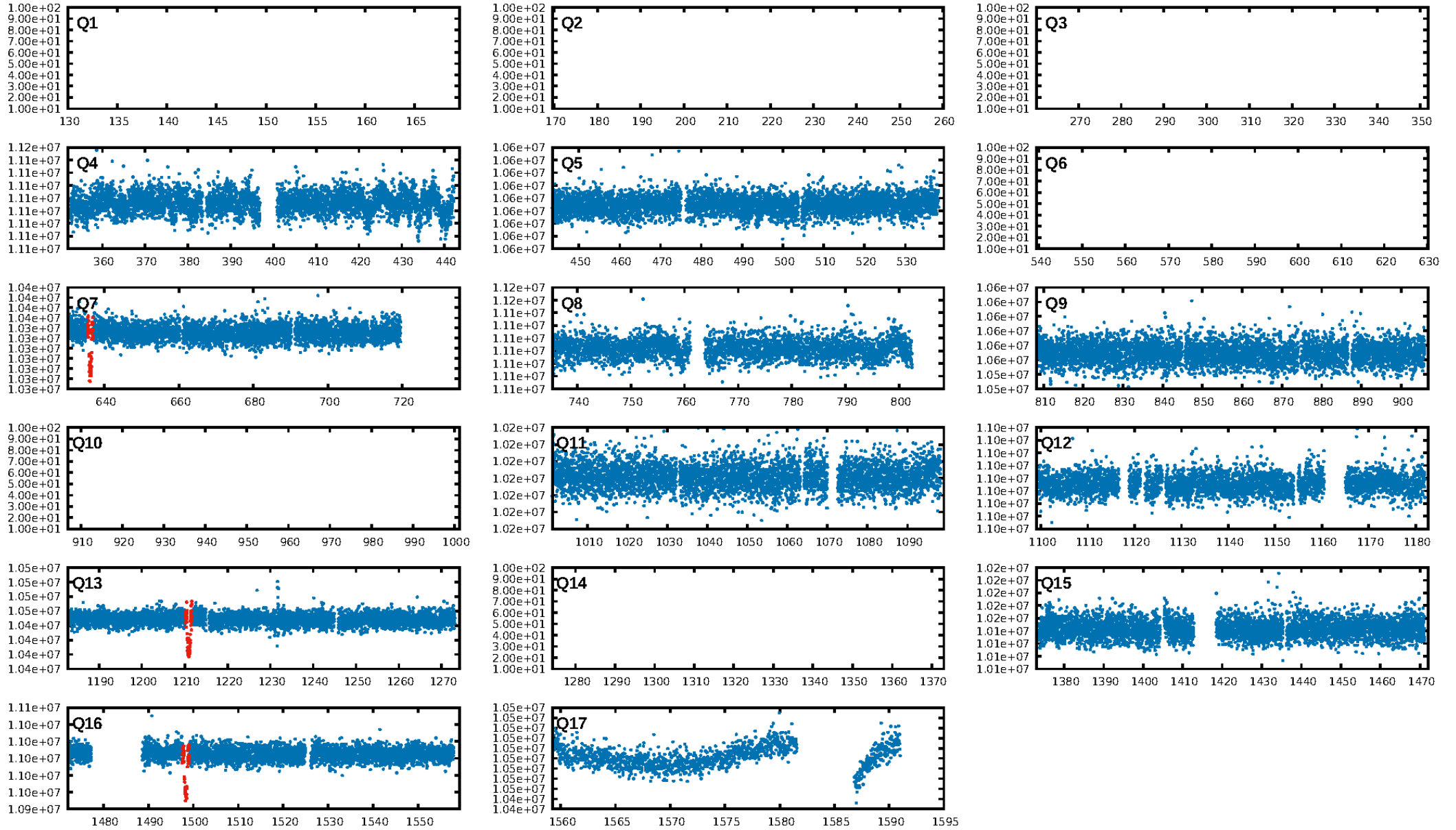
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 25.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 6.325  
Centroid-sig: 0.0%  
Centroid-so: 0.781 arcsec [4.05σ]  
OotOffset-rm: 0.733 arcsec [4.20σ]  
KicOffset-rm: 0.250 arcsec [1.84σ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

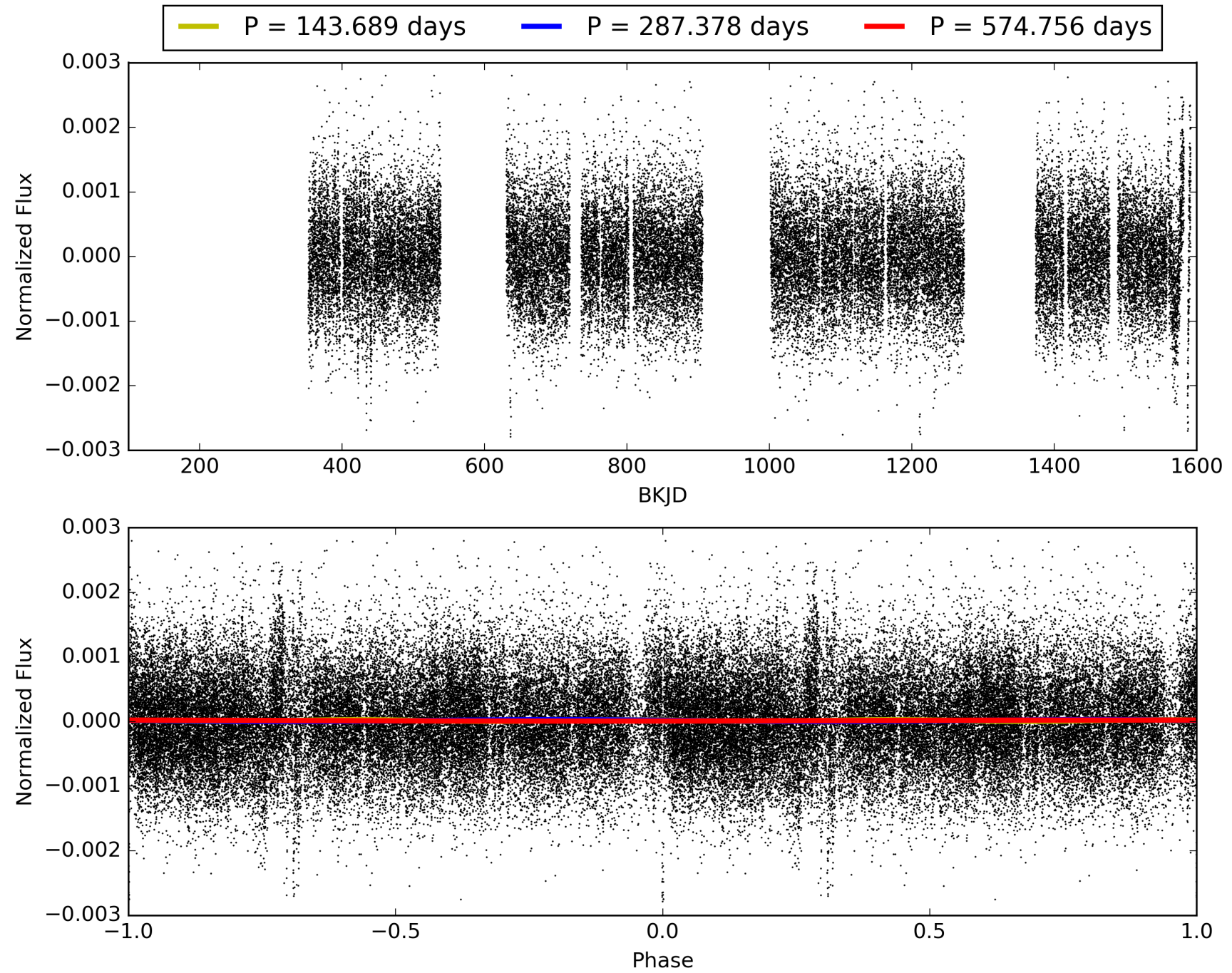
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:41:00 Z

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

# TCE 004760478-01, PDC Light Curves

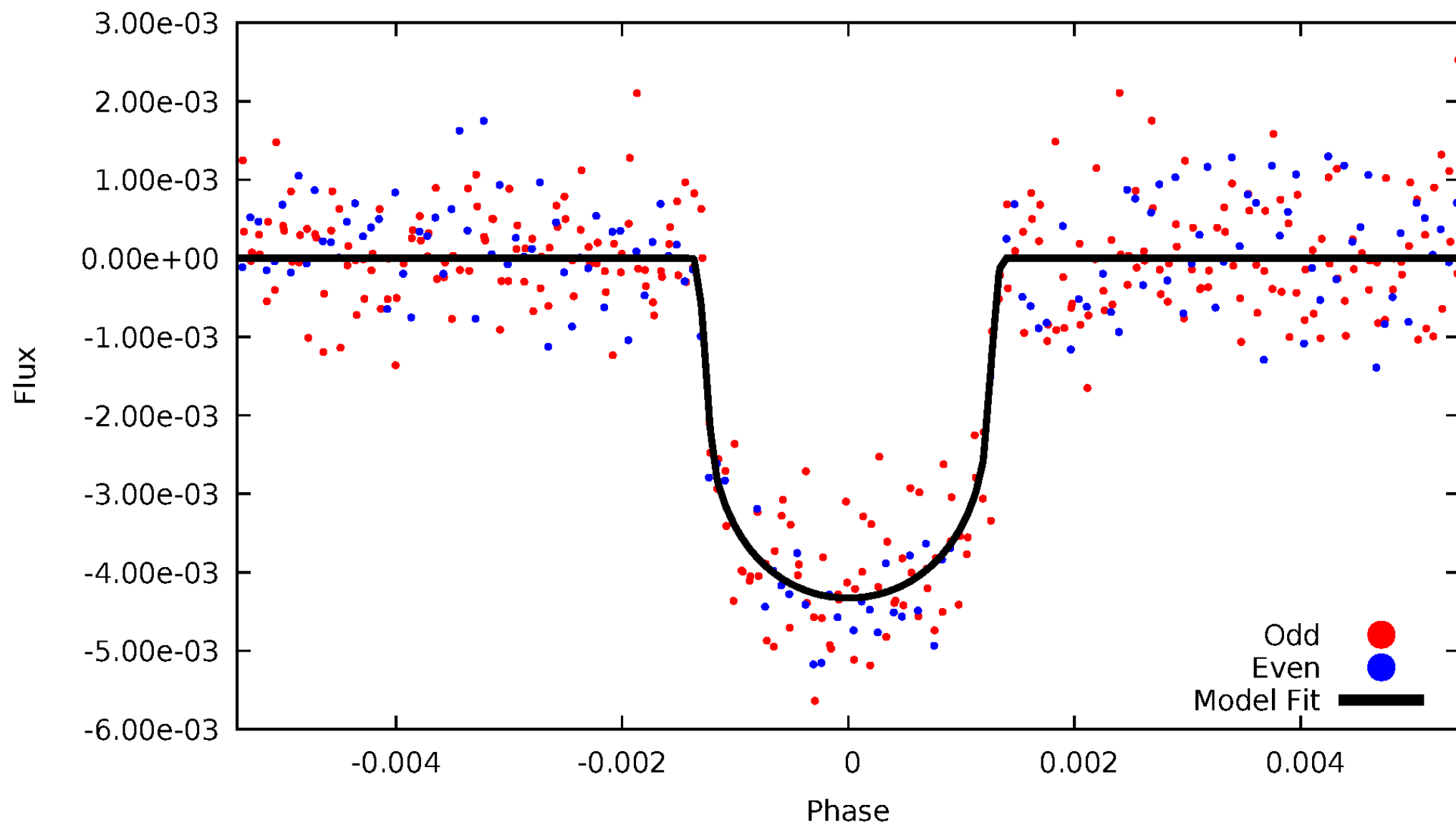


TCE 004760478-01



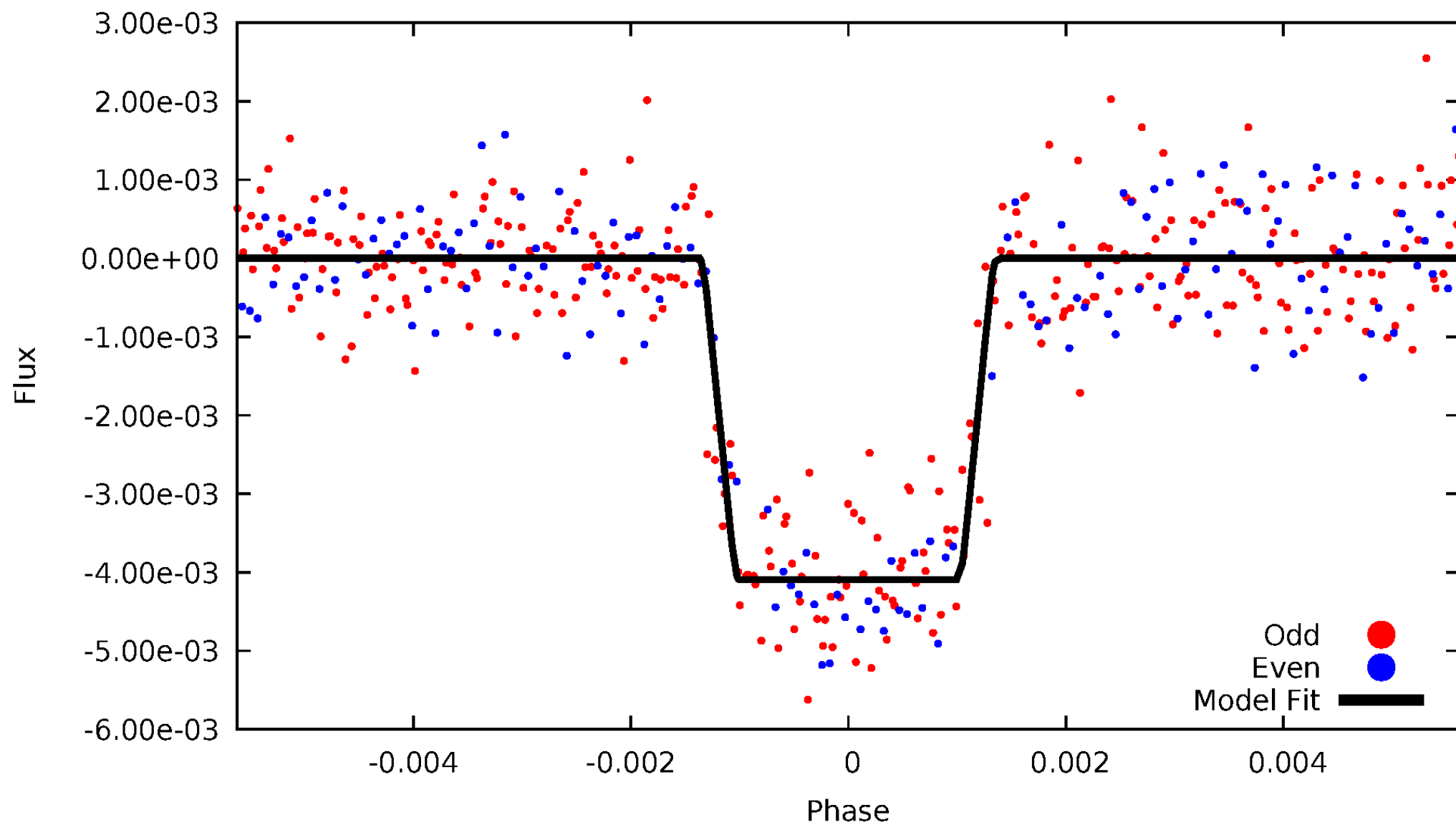
# DV Odd/Even

TCE 004760478-01



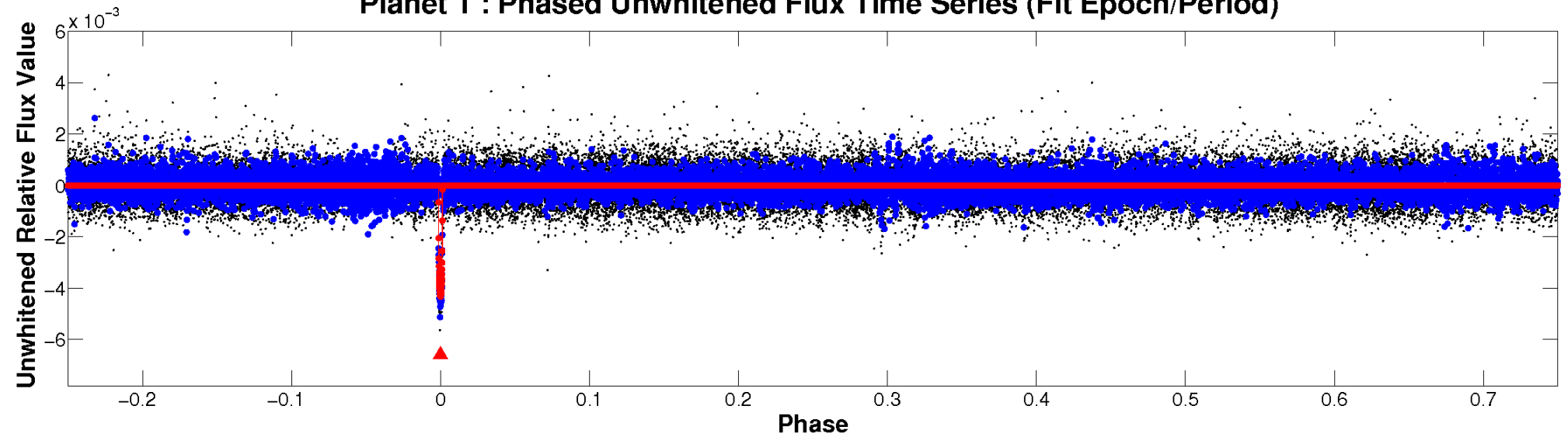
# ALT Odd/Even

TCE 004760478-01

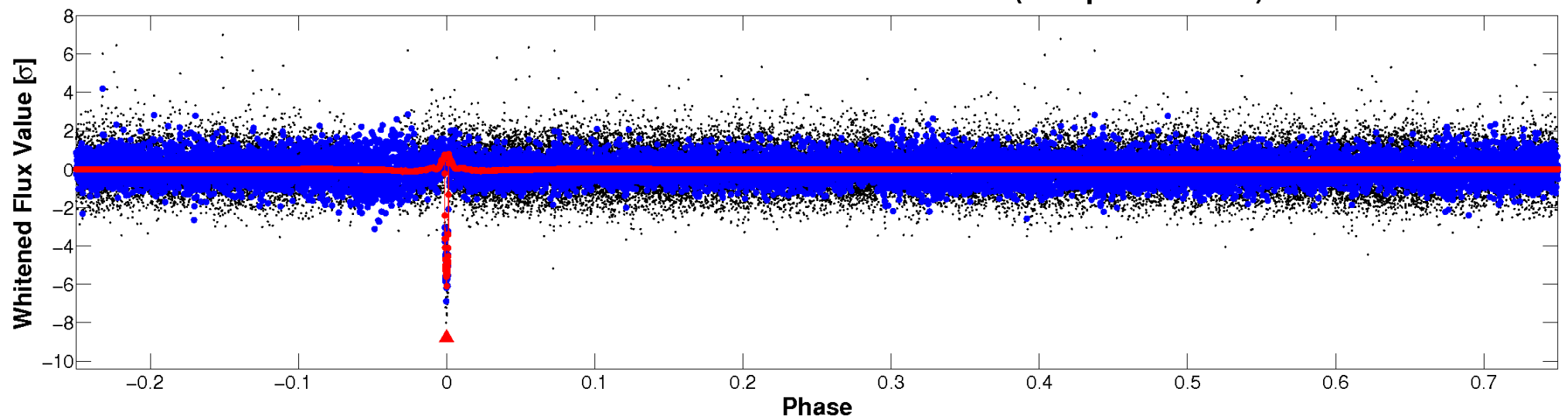


# Non-Whitened Vs. Whitened Light Curve

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

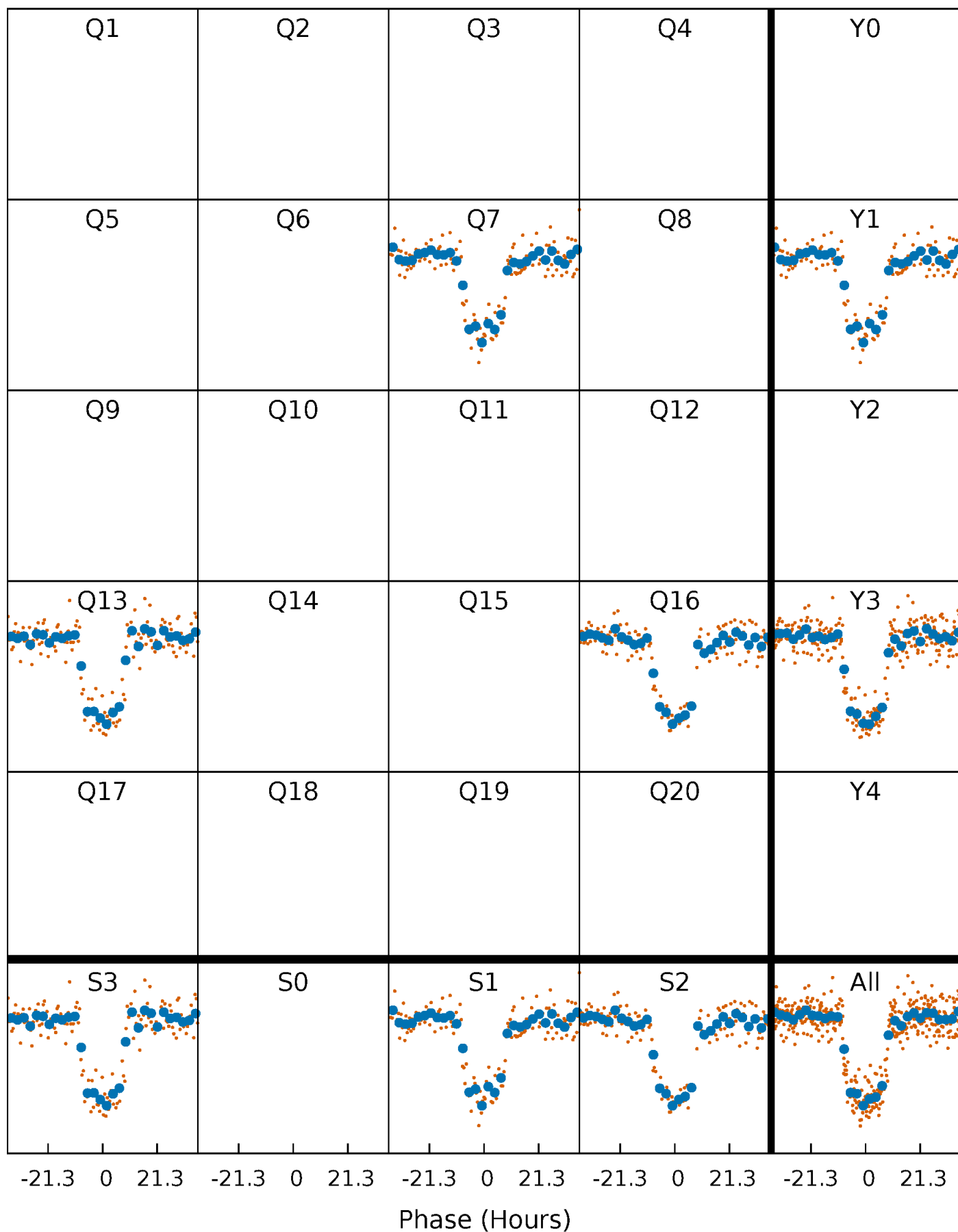


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

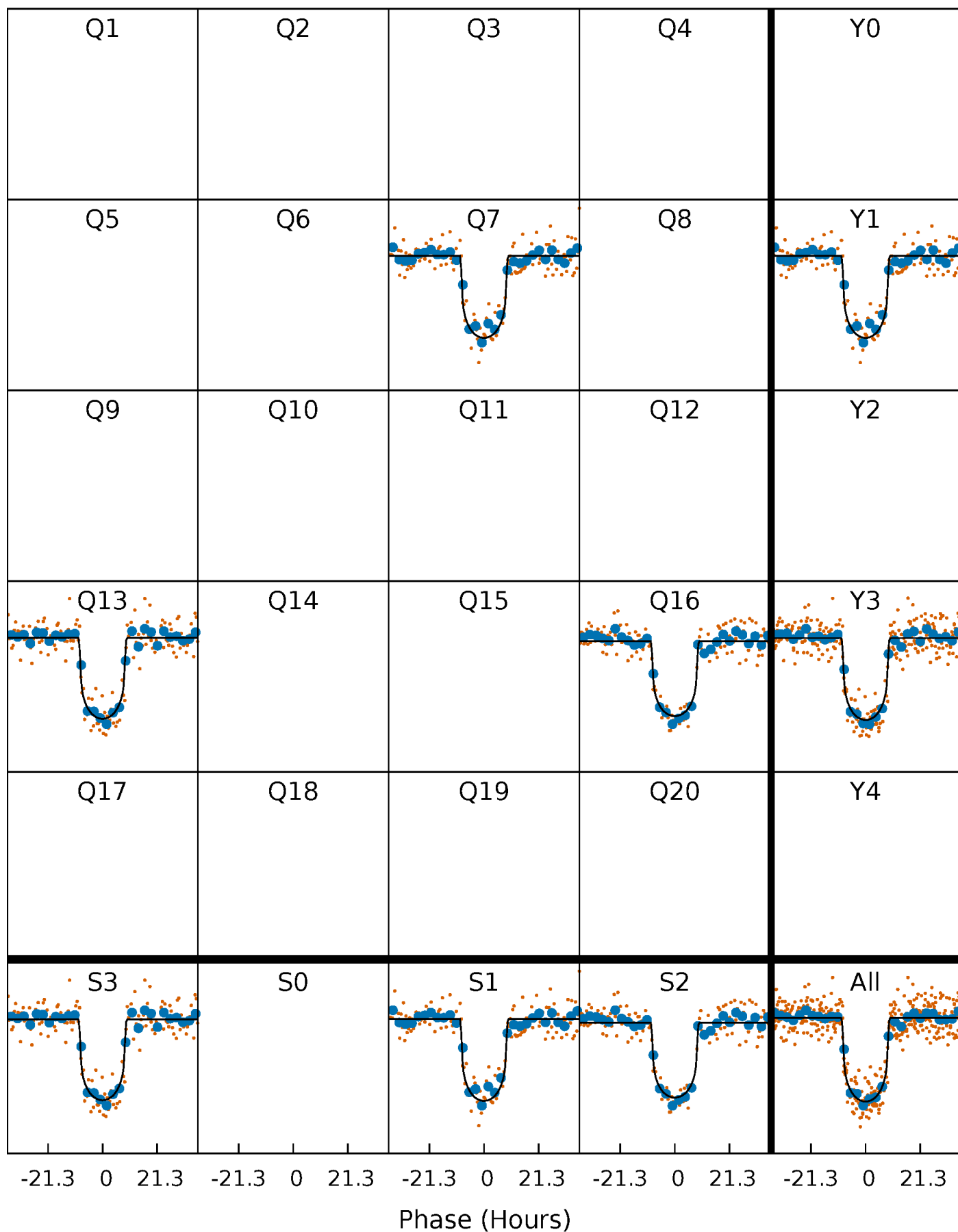
TCE 004760478-01 P=287.377807 Days  $T_0=348.828611$  (BKJD)





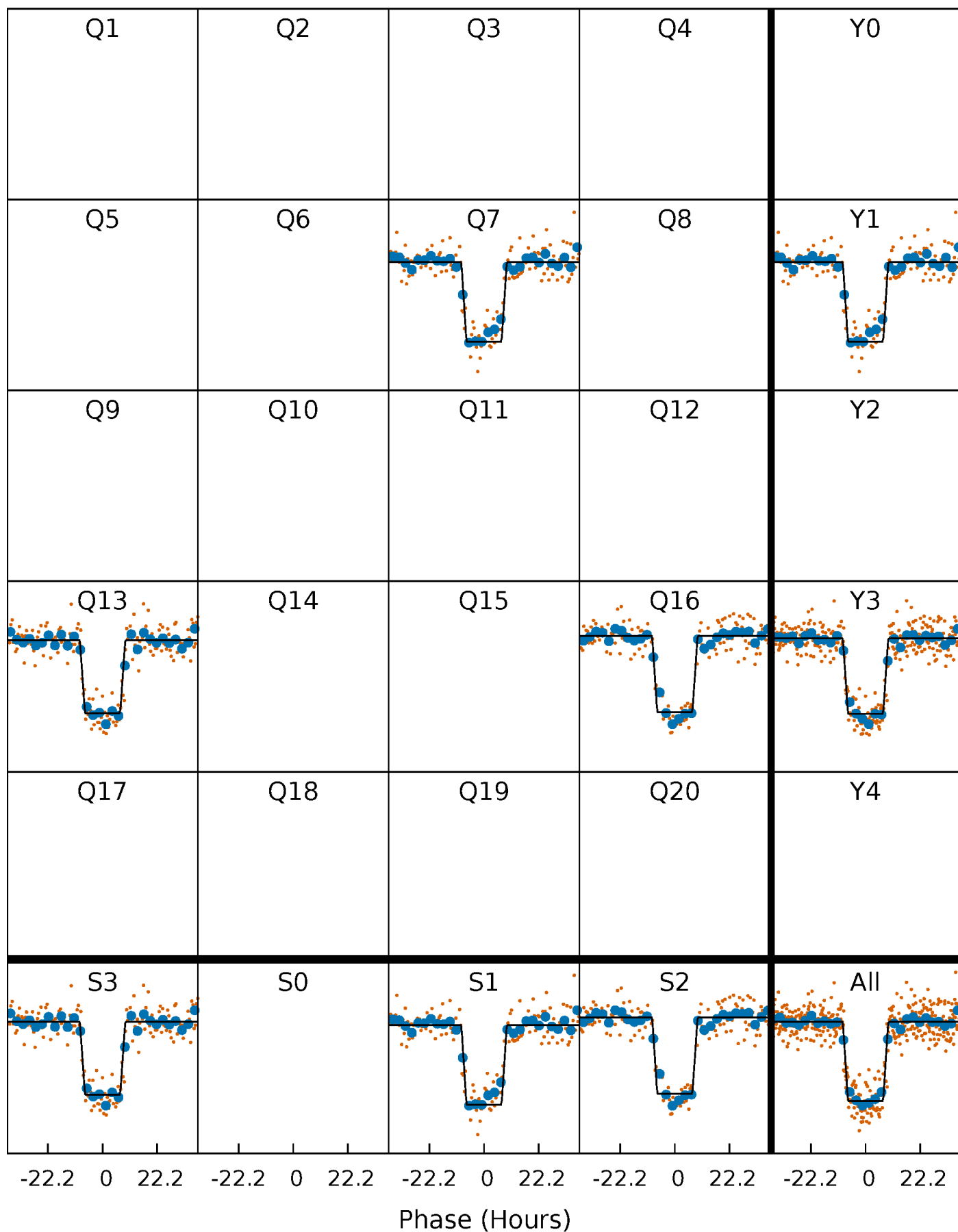
# DV Quarter-Phased Transit Curves

TCE 004760478-01 P=287.377807 Days  $T_0=348.828611$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

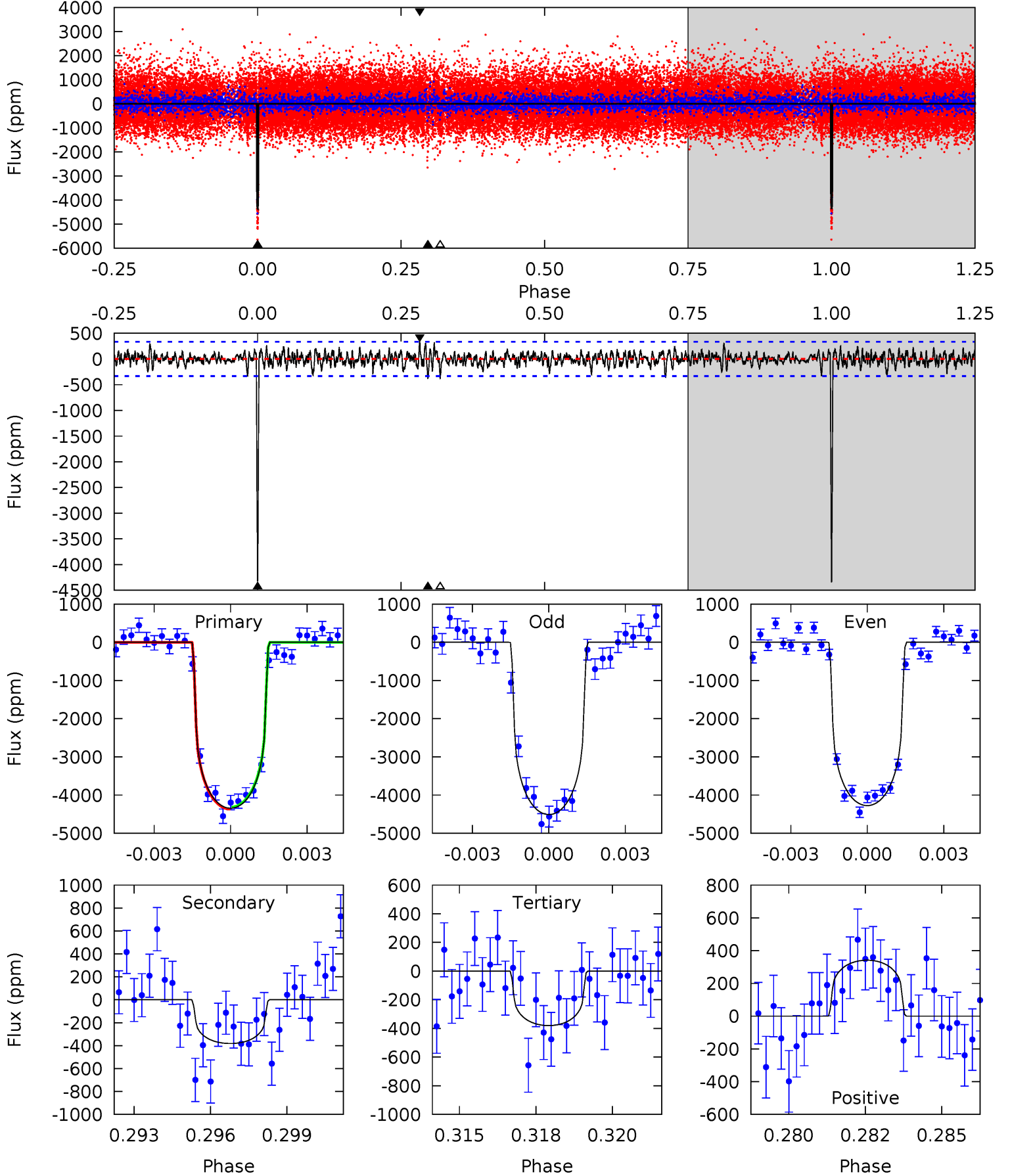
TCE 004760478-01 P=287.363966 Days  $T_0=348.864970$  (BKJD)



# DV Model-Shift Uniqueness Test

004760478-01,  $P = 287.377807$  Days,  $E = 348.828611$  Days

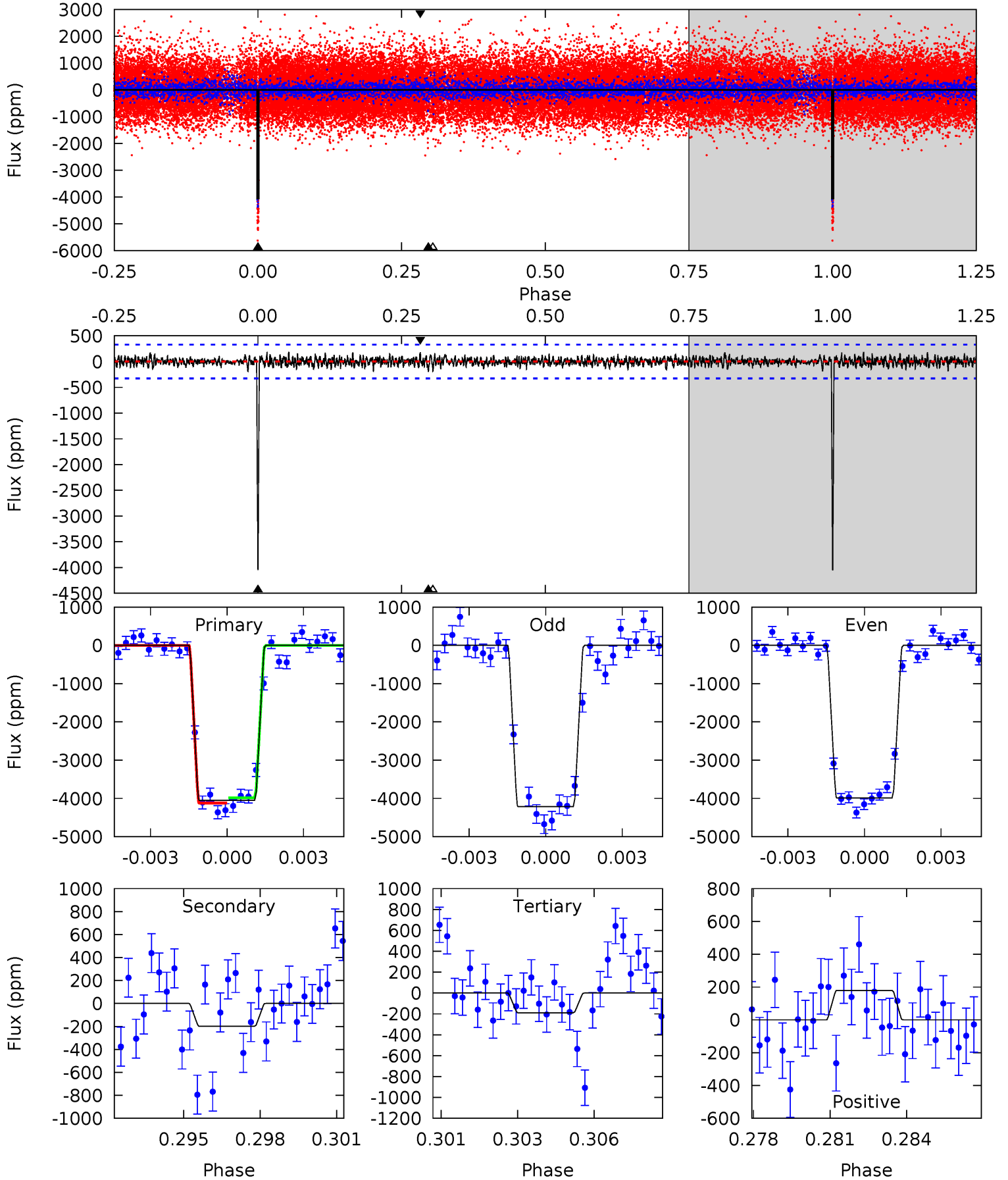
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.3	6.00	5.98	5.37	5.27	3.00	1.52	62.3	62.9	0.02	0.63	1.64	0.98	0.07	0.38



# Alt Model-Shift Uniqueness Test

004760478-01,  $P = 287.363966$  Days,  $E = 348.864970$  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
65.0	3.19	3.04	2.87	5.27	2.99	0.89	62.0	62.2	0.15	0.31	1.64	0.97	0.04	1.11



### Stellar Parameters For KIC 004760478

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5548^{+83}_{-72}$	$3.964^{+0.217}_{-0.093}$	$0.120^{+0.150}_{-0.100}$	$1.793^{+0.263}_{-0.488}$	$1.079^{+0.100}_{-0.138}$	$0.264^{+0.326}_{-0.077}$
	+1%/-1%	+5%/-2%	+125%/-83%	+15%/-27%	+9%/-13%	+124%/-29%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 004760478-01 / KOI 5084.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-382 \pm 64$	$11.27^{+1.43}_{-1.63}$	$485^{+23}_{-32}$	$3614^{+138}_{-129}$	$1260^{+494}_{-326}$
Alt.	$-199 \pm 62$	$12.31^{+1.48}_{-1.83}$	$486^{+22}_{-32}$	$3192^{+149}_{-191}$	$557^{+258}_{-208}$

$T_{max}$  = 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

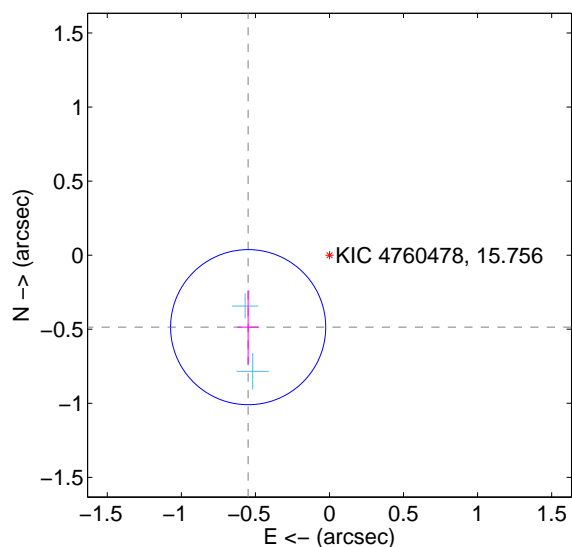
Supplemental centroid analysis for 004760478-01. Kepler magnitude: 15.76. Transit SNR 49.22

There are 2 quarters with good PRF difference image offsets

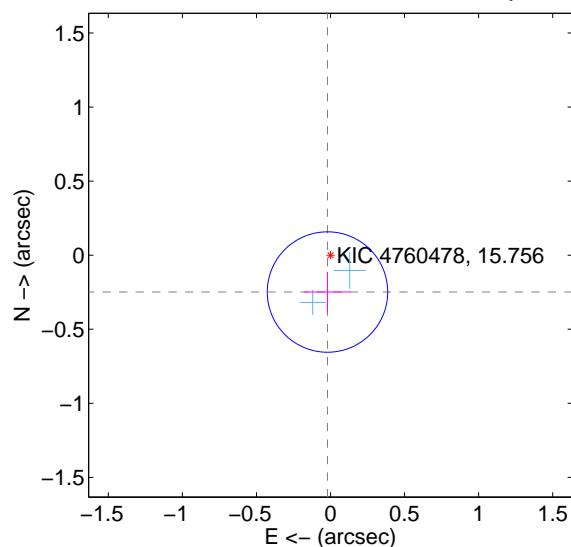
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.733 \pm 0.174$	4.20	$0.549 \pm 0.073$	$-0.486 \pm 0.250$
PRF-fit source offset from KIC position	$0.250 \pm 0.135$	1.84	$0.020 \pm 0.157$	$-0.249 \pm 0.135$
photometric centroid source offset	$0.78 \pm 0.19$	4.05	$-0.32 \pm 0.22$	$0.71 \pm 0.19$

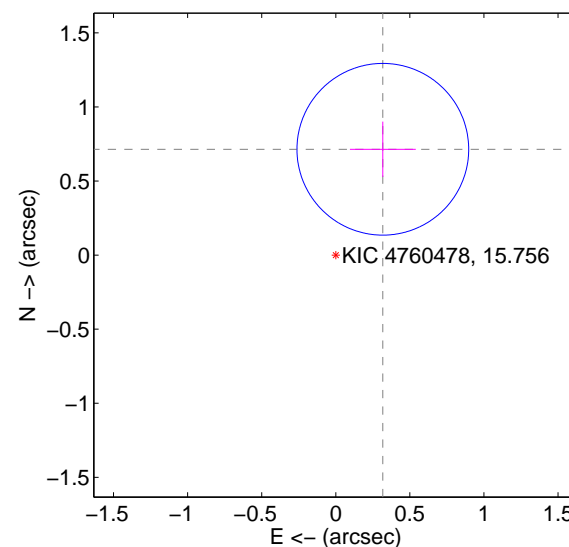
offset from difference PRF-fit to OOT PRF-fit



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.

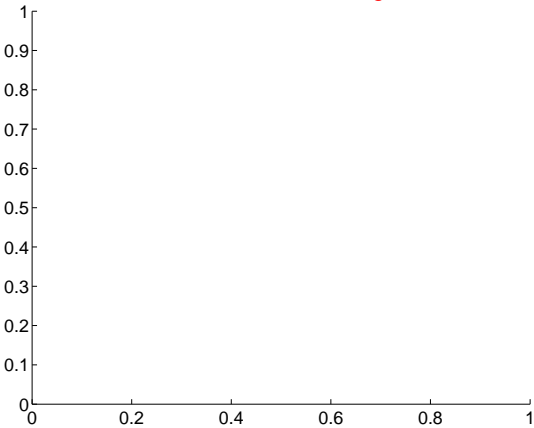
Q5 no difference image



Q5 no OOT image



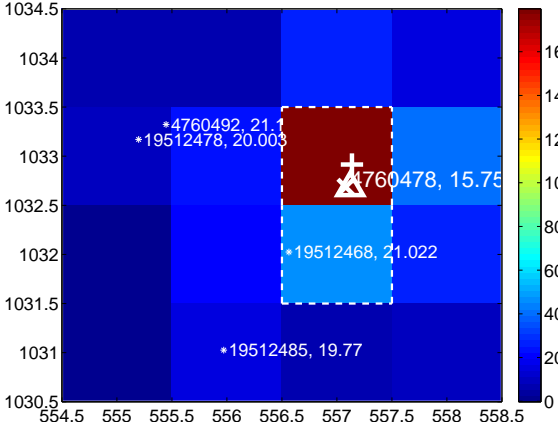
Q6 no difference image



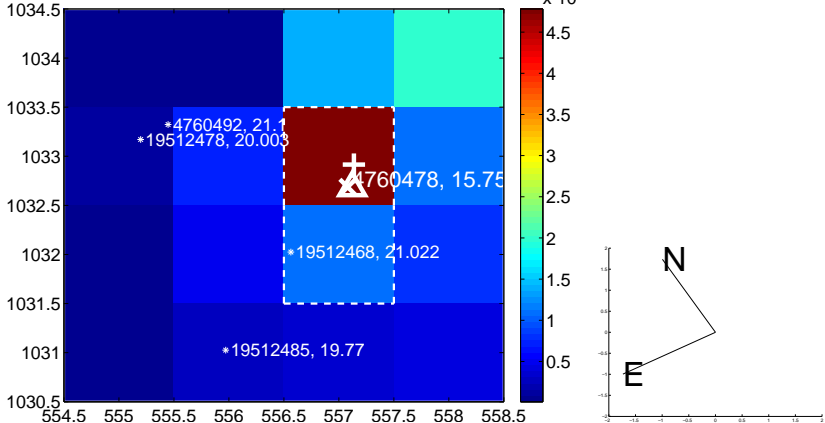
Q6 no OOT image



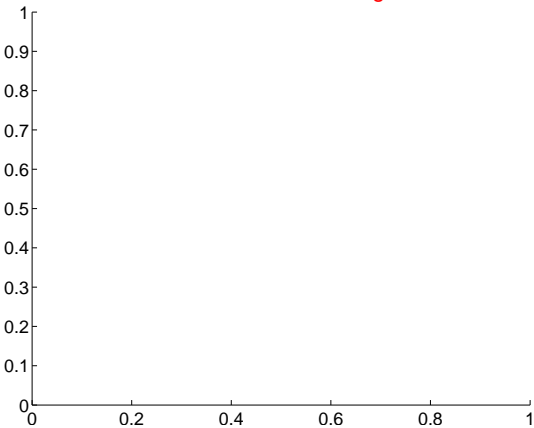
Q7 difference image



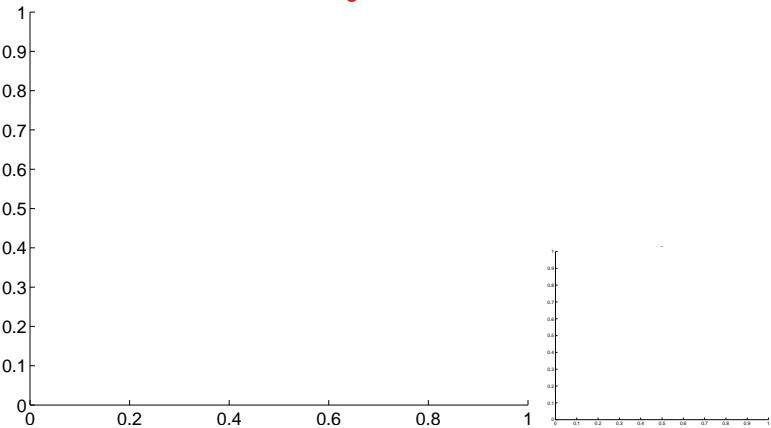
Q7 OOT image



Q8 no difference image



Q8 no OOT image

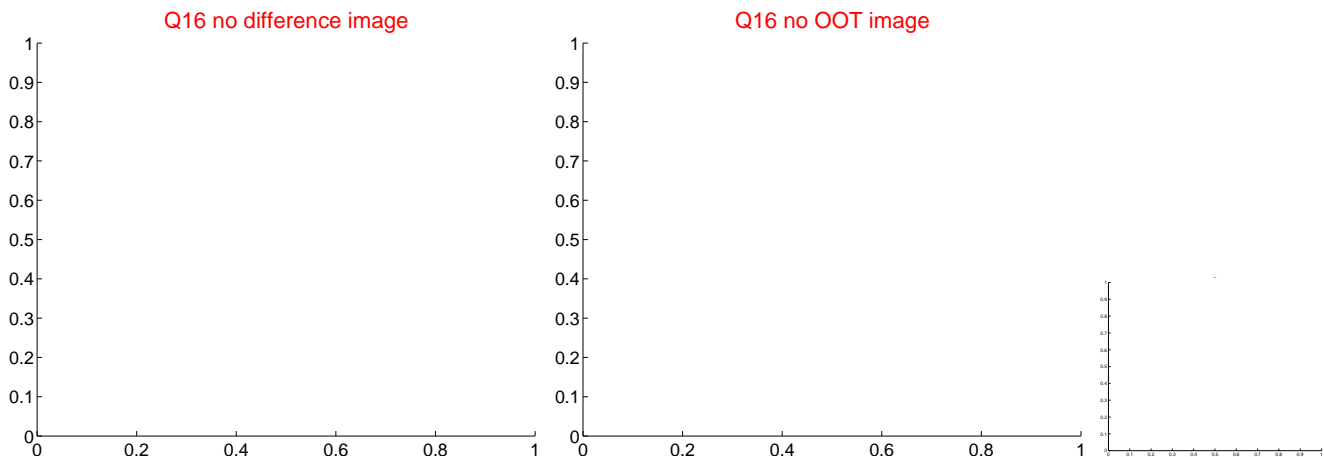
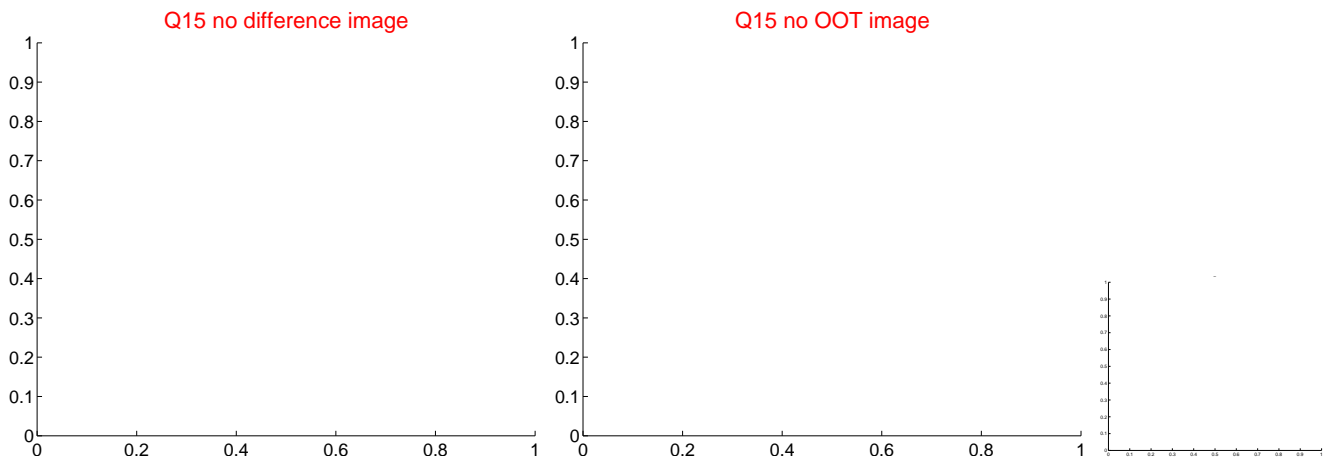
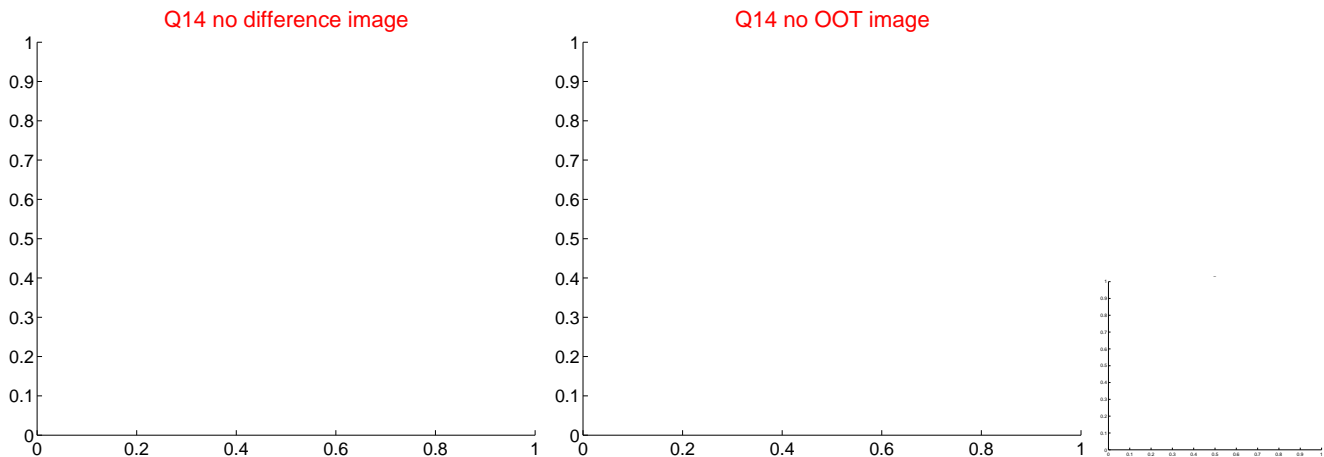
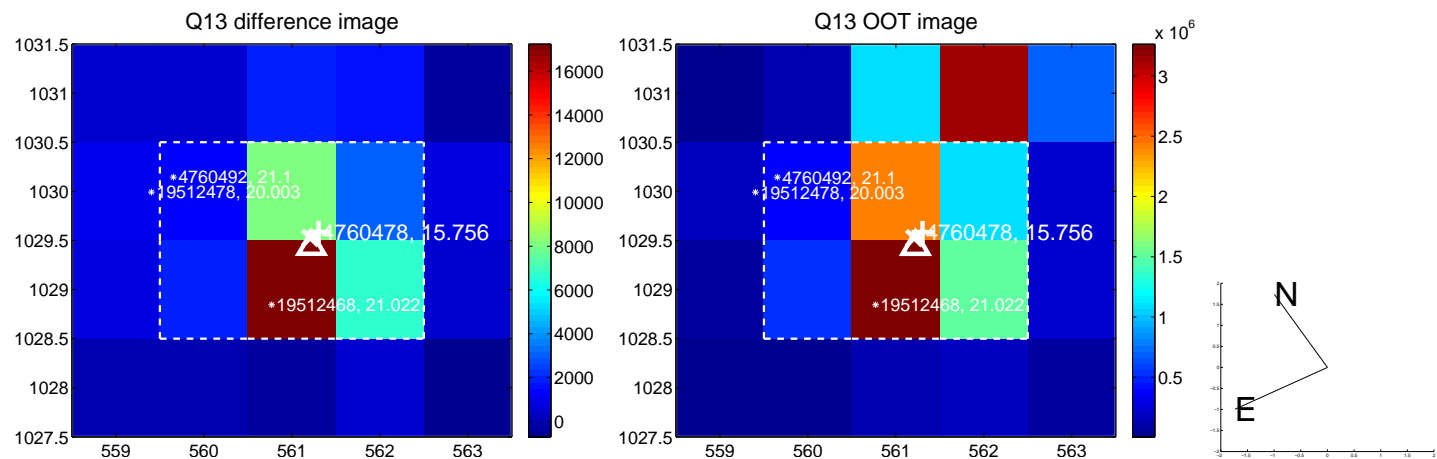




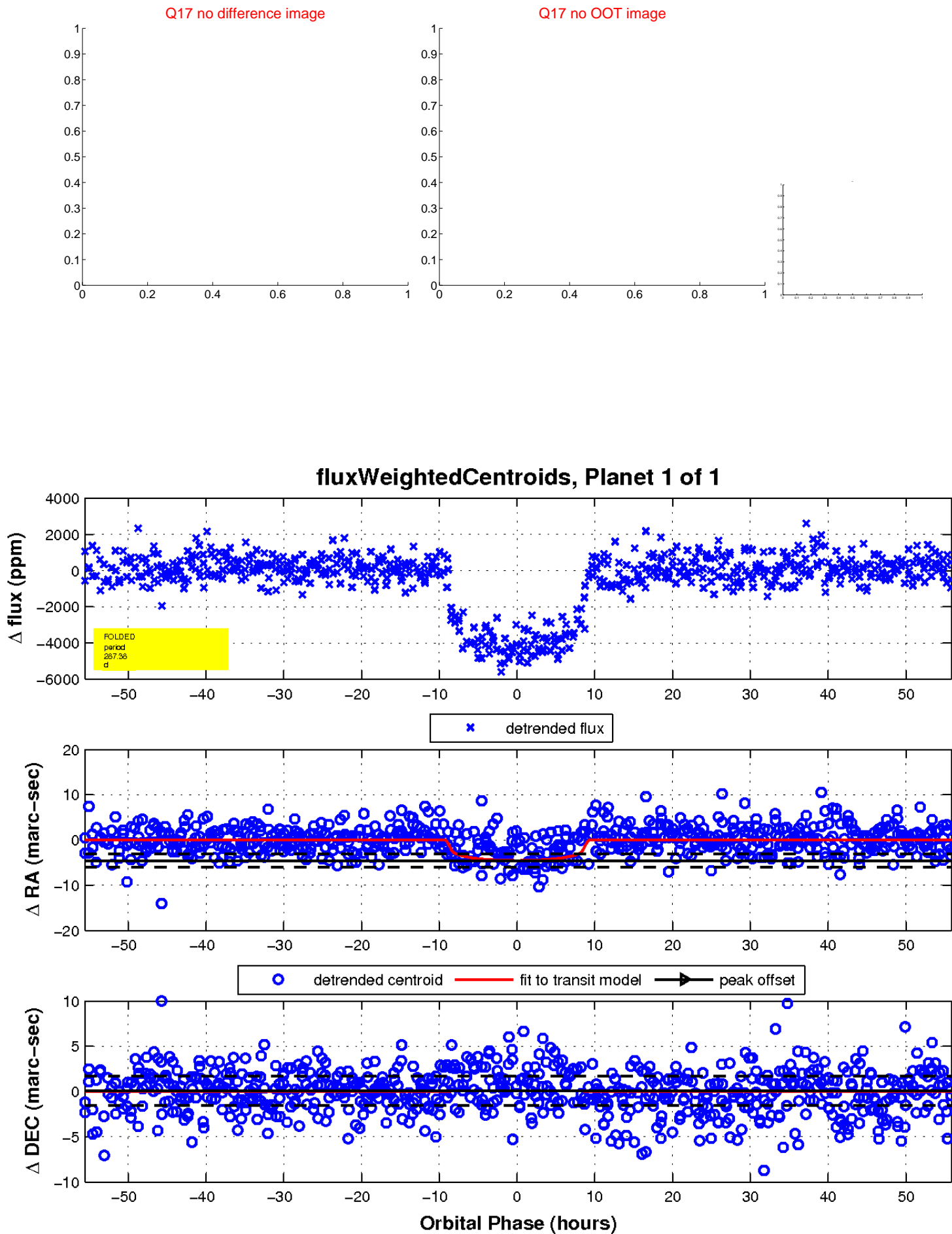
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

