

# KIC 009711202

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009711202-01	OBS	No	605.784291	245.520223	648.7	10.554	8.1	7.9	0.50	3818	1.31	0.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009711202-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—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.

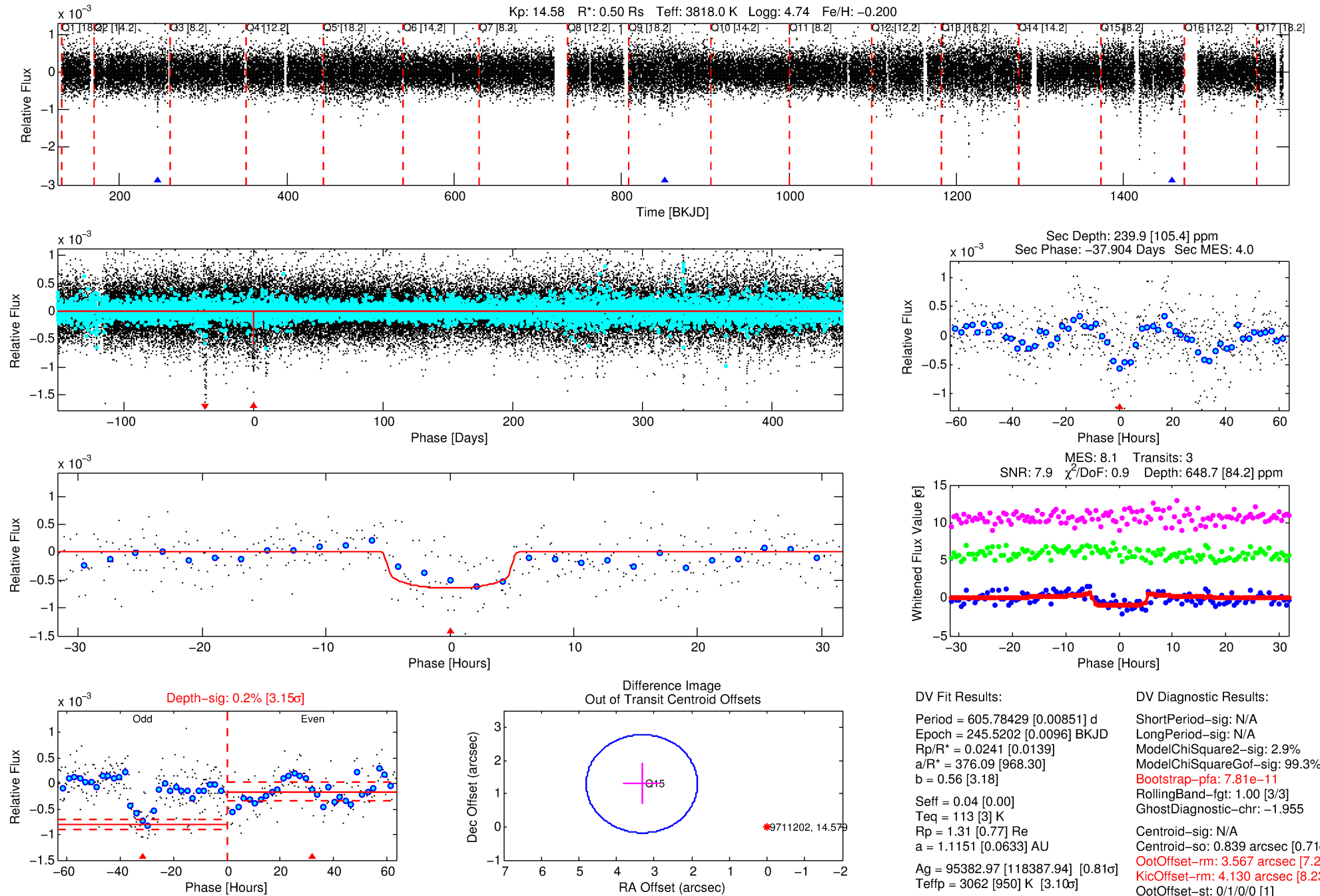
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009711202-01

No Significant Match Found

# DV One-Page Summary

KIC: 9711202 Candidate: 1 of 1 Period: 605.784 d



## DV Fit Results:

Period = 605.78429 [0.00851] d  
Epoch = 245.5202 [0.0096] BKJD  
Rp/R\* = 0.0241 [0.0139]  
a/R\* = 376.09 [968.30]  
b = 0.56 [3.18]  
Seff = 0.04 [0.00]  
Teq = 113 [3] K  
Rp = 1.31 [0.77] Re  
a = 1.1151 [0.0633] AU  
Ag = 95382.97 [118387.94] [0.81 $\sigma$ ]  
Teffp = 3062 [950] K [3.10 $\sigma$ ]

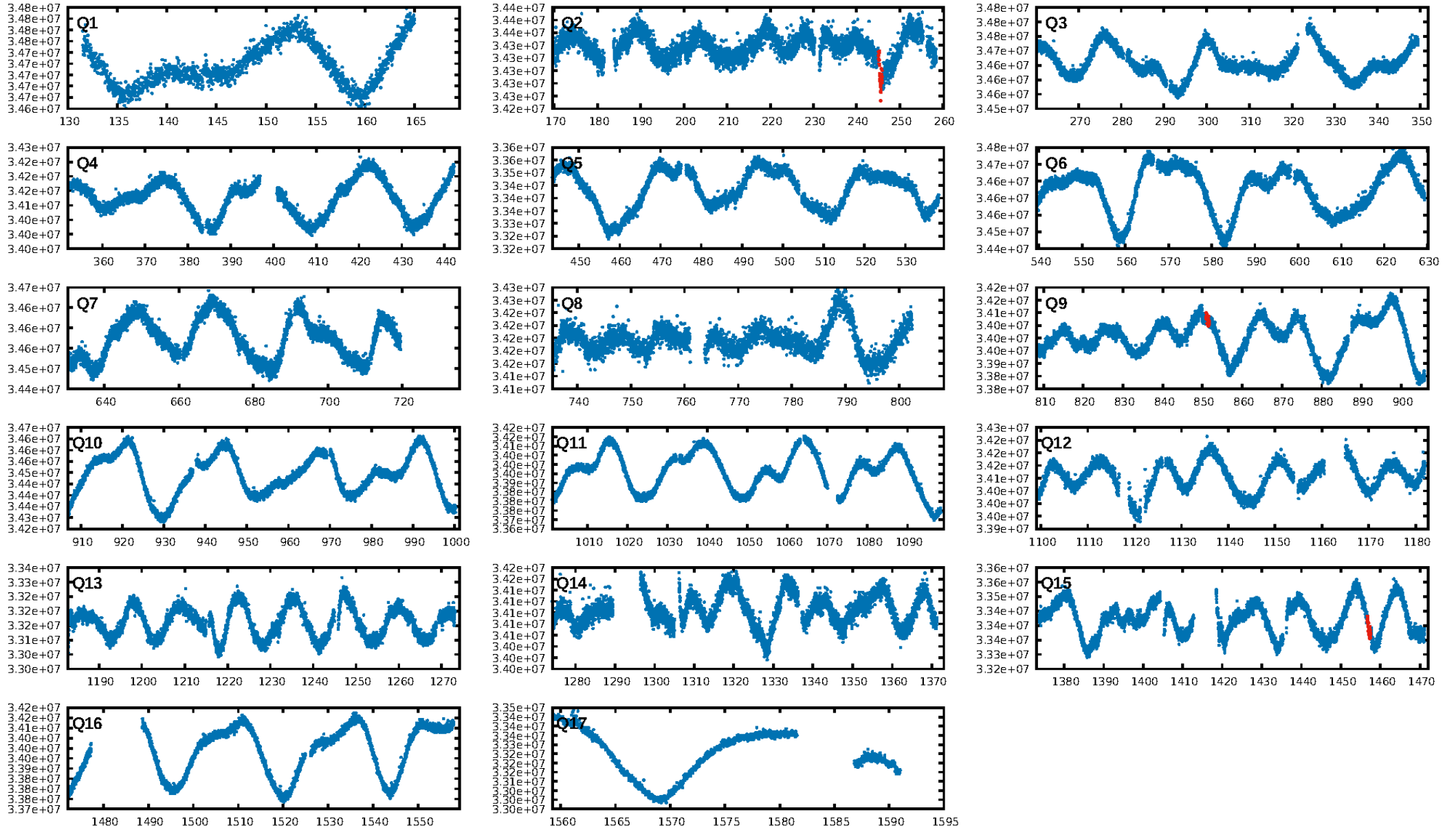
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.9%  
ModelChiSquareGof-sig: 99.3%  
**Bootstrap-pfa: 7.81e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.955  
Centroid-sig: N/A  
Centroid-so: 0.839 arcsec [0.71 $\sigma$ ]  
**OotOffset-rm: 3.567 arcsec [7.24 $\sigma$ ]**  
**KicOffset-rm: 4.130 arcsec [8.23 $\sigma$ ]**  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

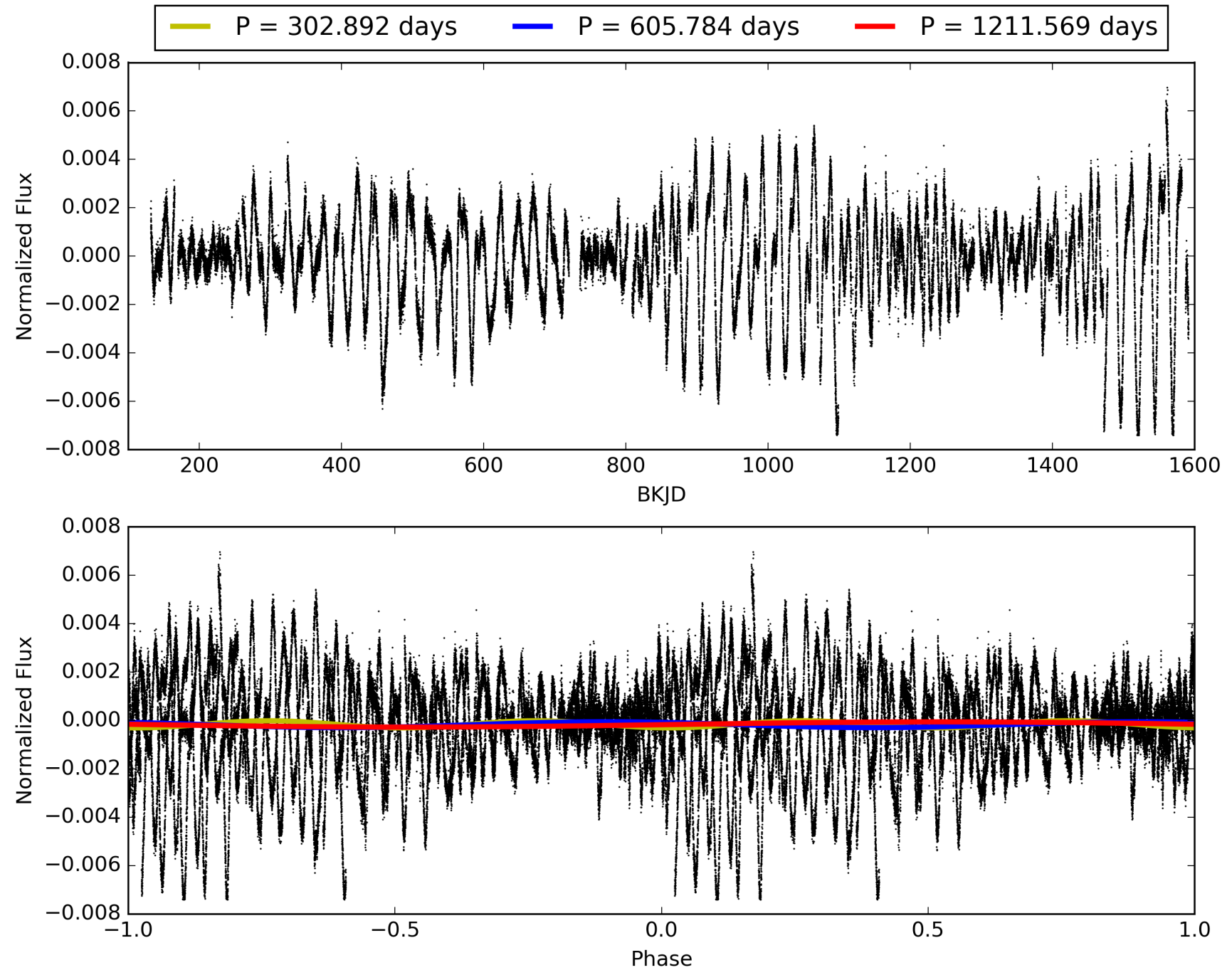
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:11:10 Z

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

# TCE 009711202-01, PDC Light Curves

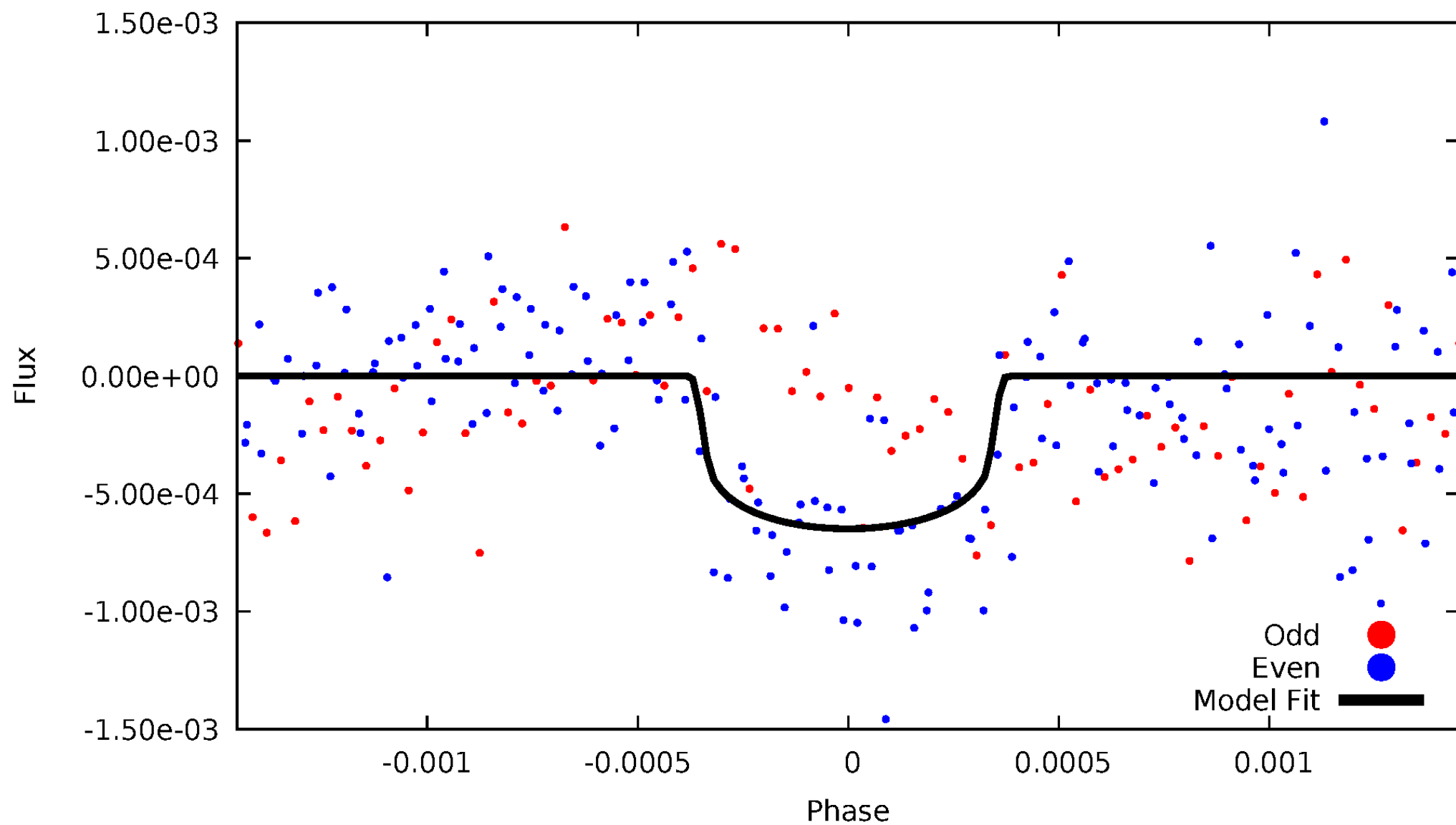


# TCE 009711202-01



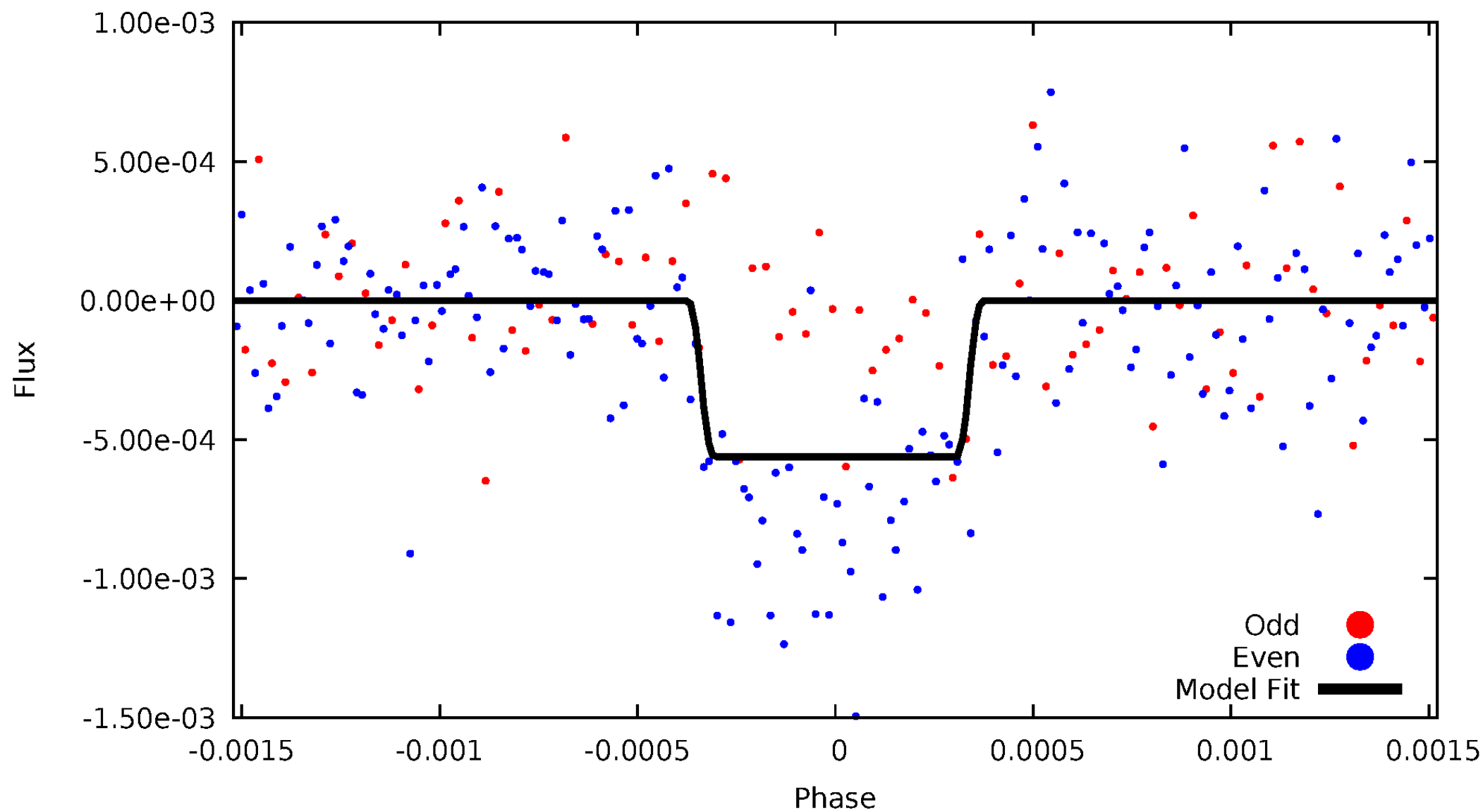
# DV Odd/Even

TCE 009711202-01



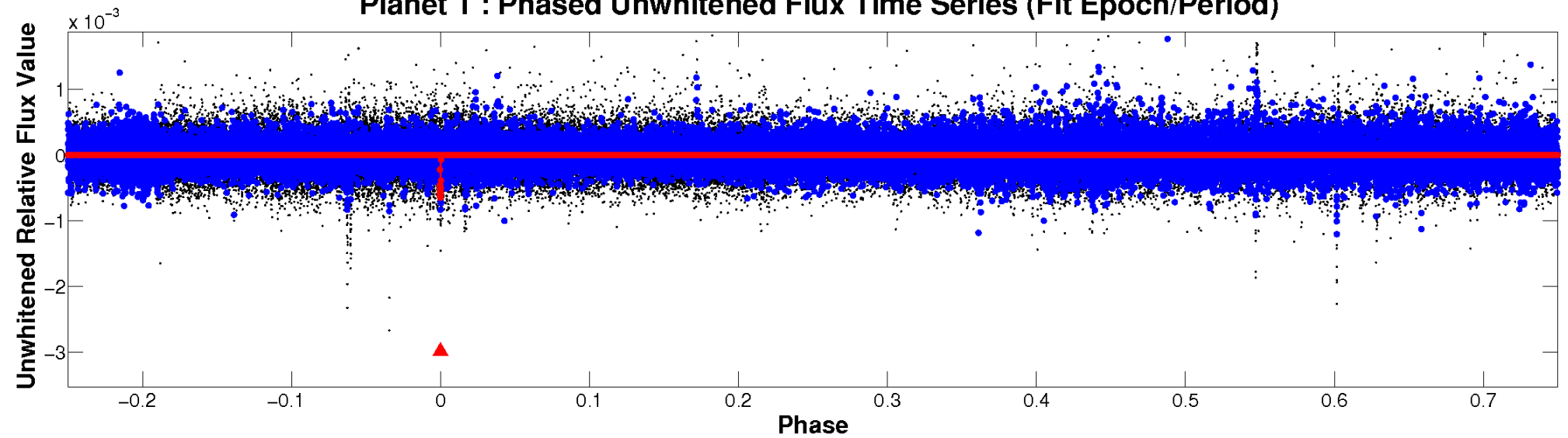
# ALT Odd/Even

TCE 009711202-01

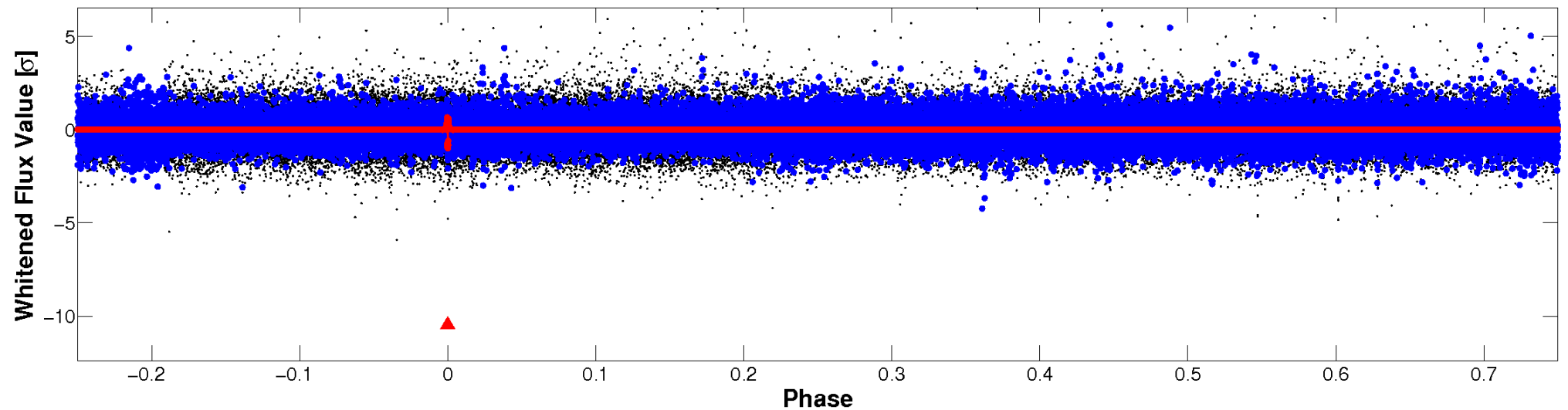


# Non-Whitened Vs. Whitened Light Curve

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

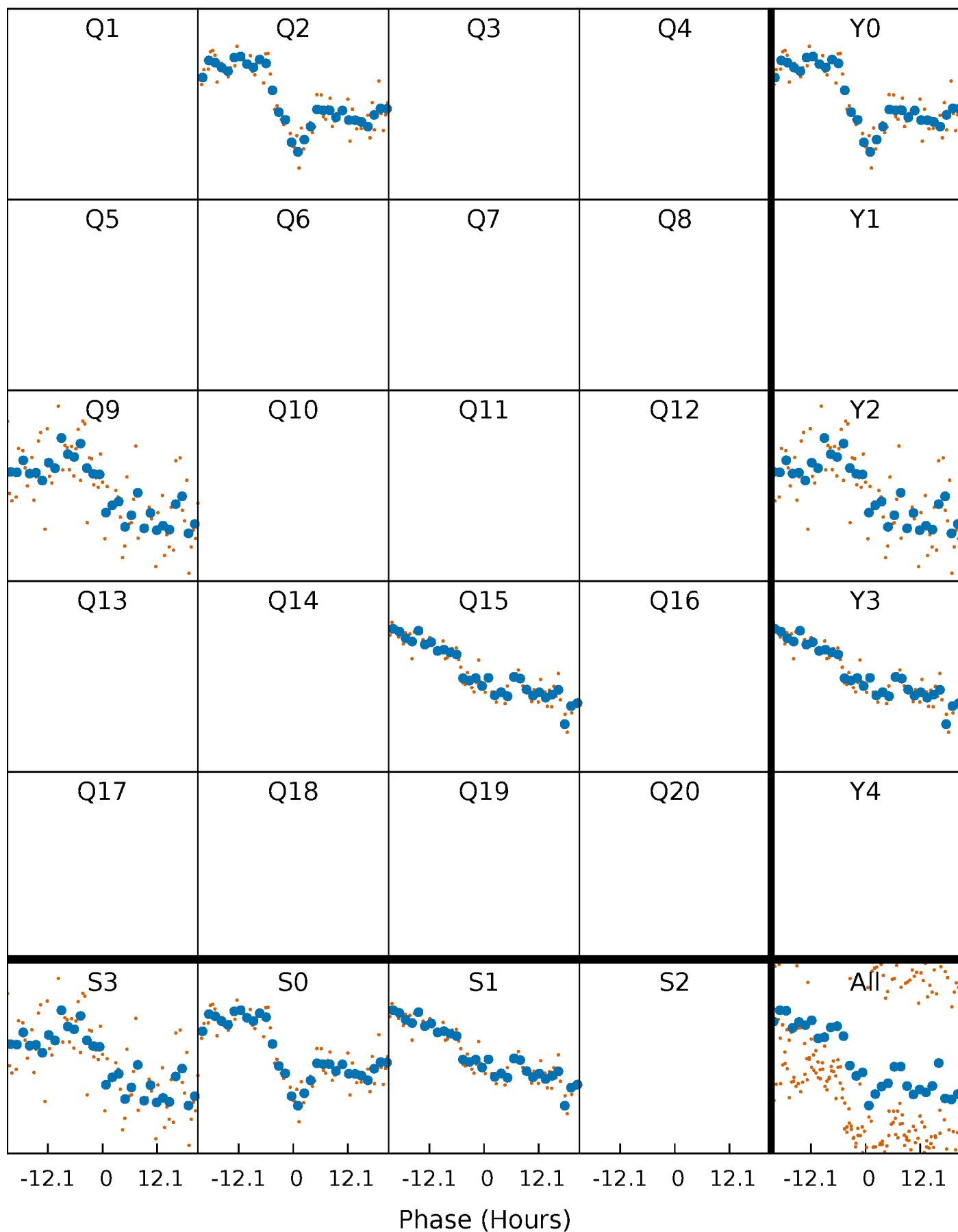


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

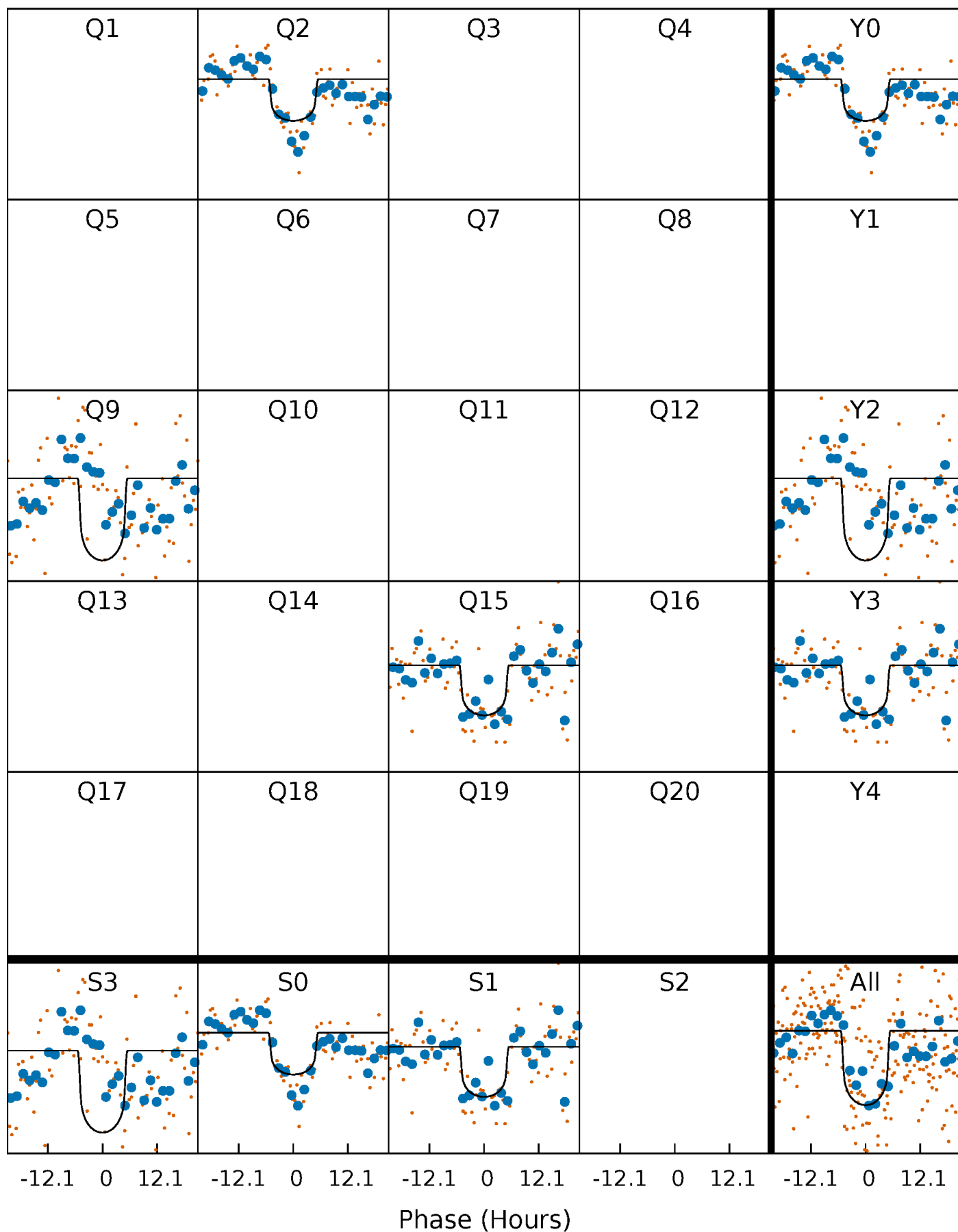
TCE 009711202-01 P=605.784291 Days  $T_0=245.520223$  (BKJD)





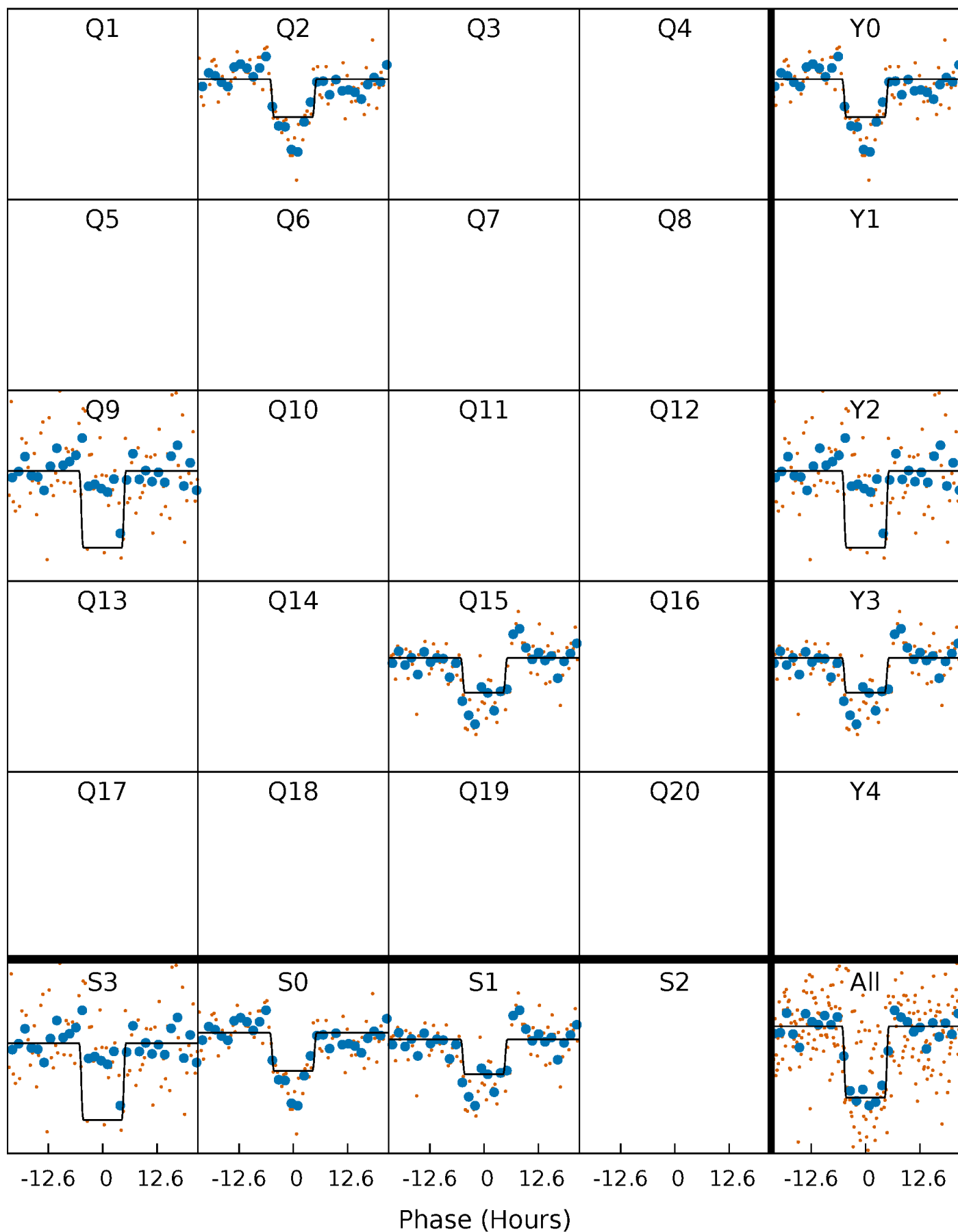
# DV Quarter-Phased Transit Curves

TCE 009711202-01 P=605.784291 Days  $T_0=245.520223$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

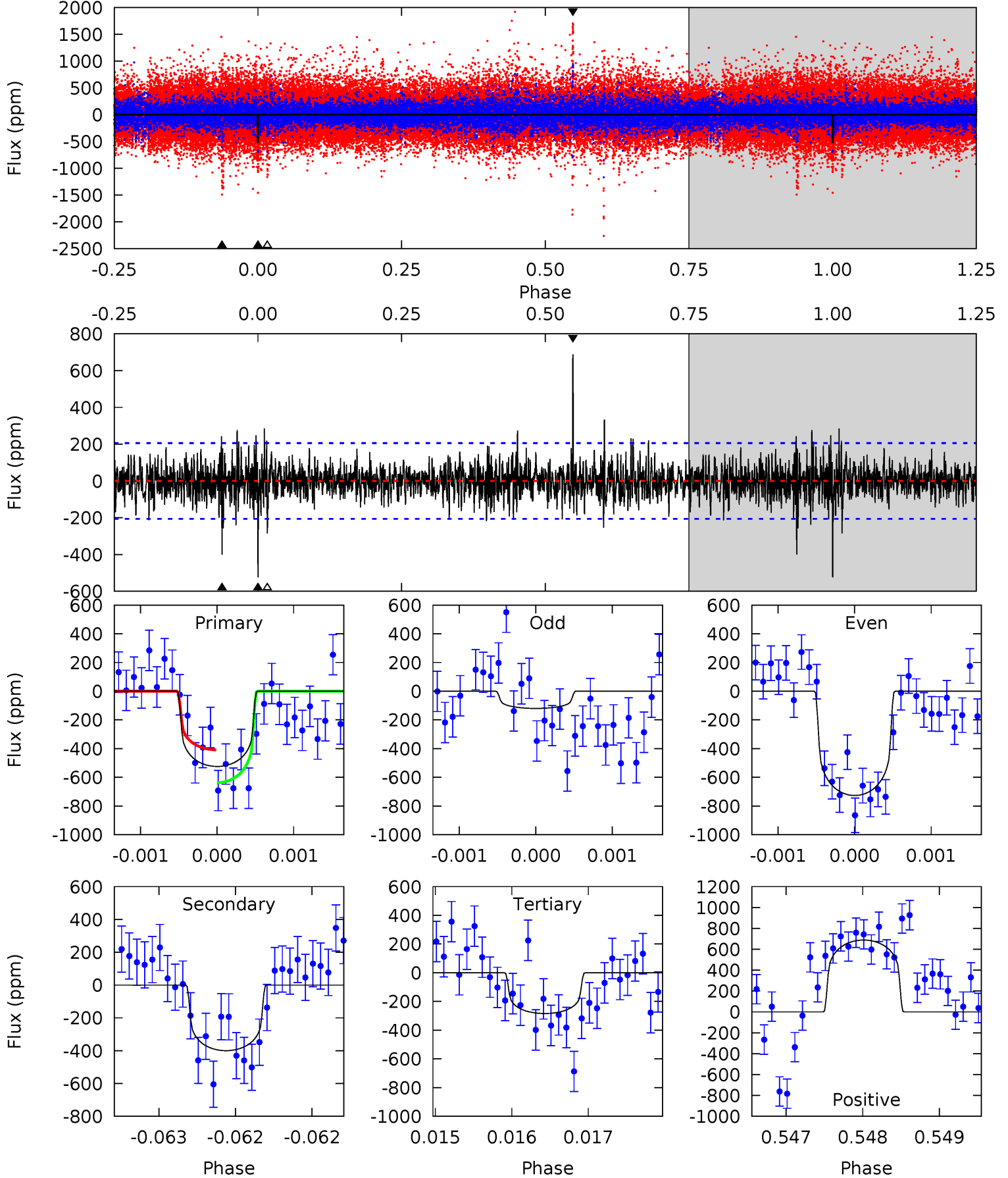
TCE 009711202-01 P=605.766509 Days  $T_0=245.542863$  (BKJD)



# DV Model-Shift Uniqueness Test

009711202-01, P = 605.784291 Days, E = 245.520223 Days

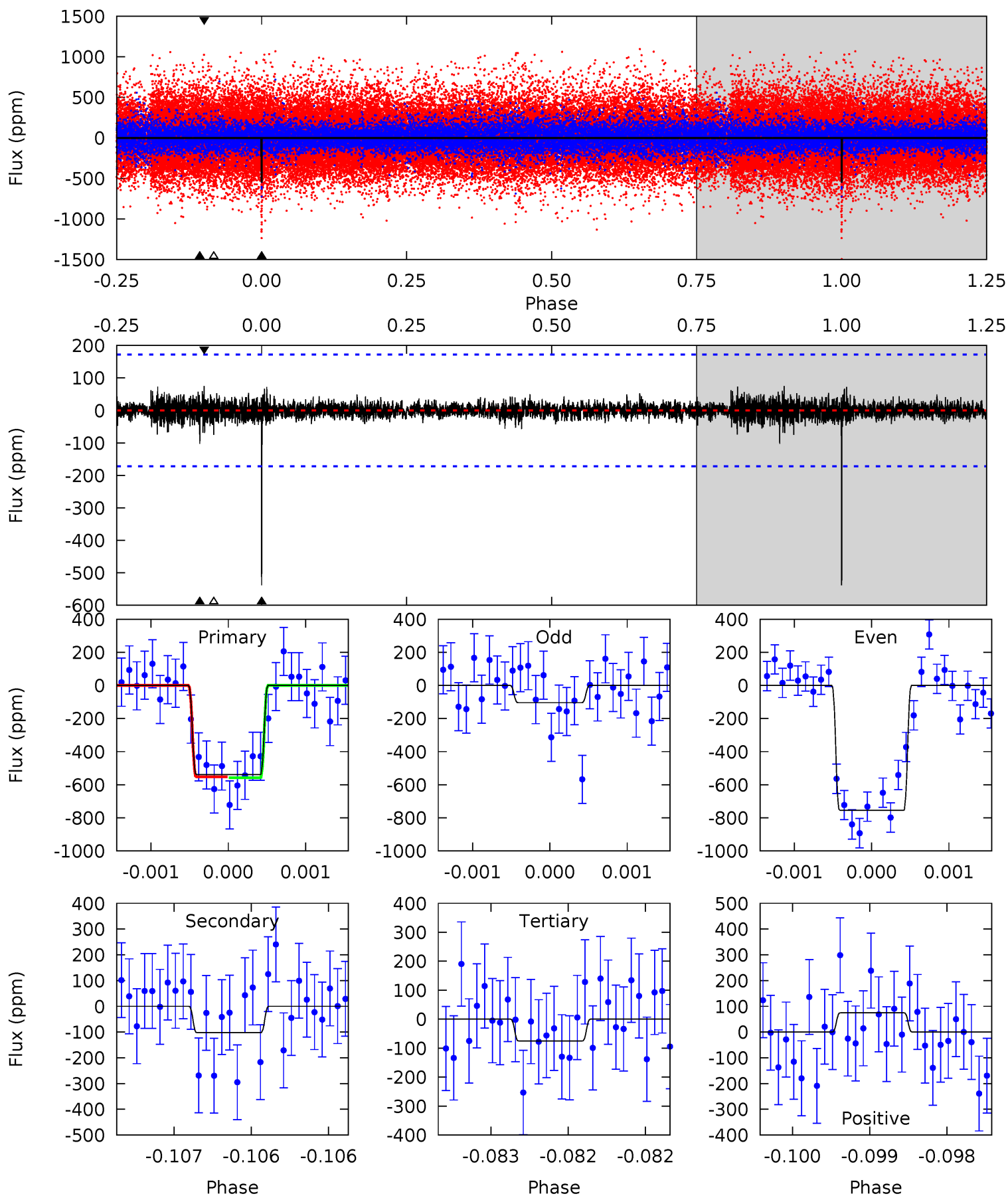
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	10.7	7.59	18.4	5.51	3.38	1.86	6.42	-4.38	3.10	-7.70	7.77	0.79	0.57	3.05



# Alt Model-Shift Uniqueness Test

009711202-01, P = 605.766509 Days, E = 245.542863 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
17.2	3.27	2.40	2.39	5.51	3.38	0.47	14.8	14.8	0.87	0.89	10.0	0.73	0.12	0.08



### Stellar Parameters For KIC 009711202

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3818^{+76}_{-76}$	$4.744^{+0.042}_{-0.024}$	$-0.200^{+0.100}_{-0.100}$	$0.499^{+0.028}_{-0.035}$	$0.504^{+0.031}_{-0.031}$	$5.704^{+1.024}_{-0.569}$
	+2%/-2%	+1%/-1%	+50%/-50%	+6%/-7%	+6%/-6%	+18%/-10%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 009711202-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-400 \pm 37$	$1.37^{+0.68}_{-0.69}$	$157^{+4}_{-4}$	$3558^{+1051}_{-445}$	$148815^{+483204}_{-84856}$
Alt.	$-102 \pm 31$	$1.32^{+0.71}_{-0.65}$	$157^{+4}_{-4}$	$2914^{+649}_{-343}$	$39812^{+115151}_{-24227}$

$T_{\text{max}}$  = 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

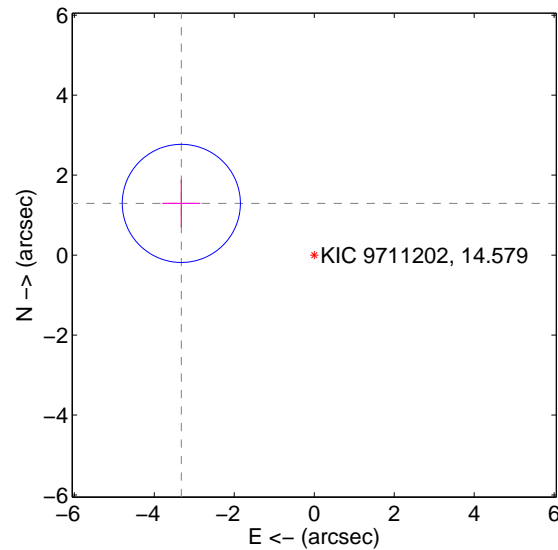
Supplemental centroid analysis for 009711202-01. Kepler magnitude: 14.58. Transit SNR 7.85

There are 0 quarters with good PRF difference image offsets

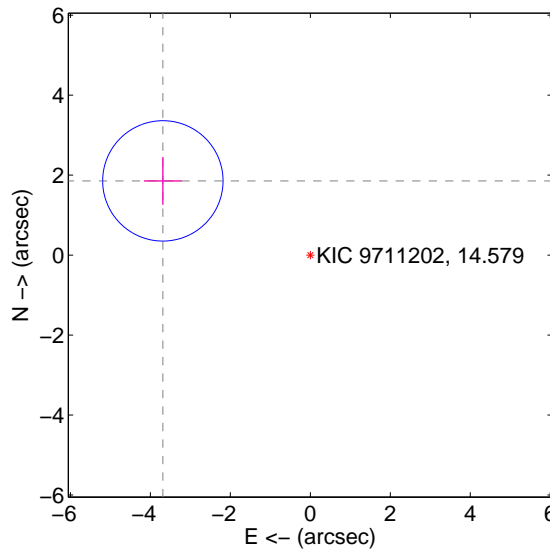
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.567 \pm 0.492$	7.24	$3.325 \pm 0.475$	$1.293 \pm 0.598$
PRF-fit source offset from KIC position	$4.130 \pm 0.502$	8.23	$3.689 \pm 0.475$	$1.856 \pm 0.598$
photometric centroid source offset	$0.84 \pm 1.19$	0.71	$0.67 \pm 1.16$	$0.51 \pm 1.22$

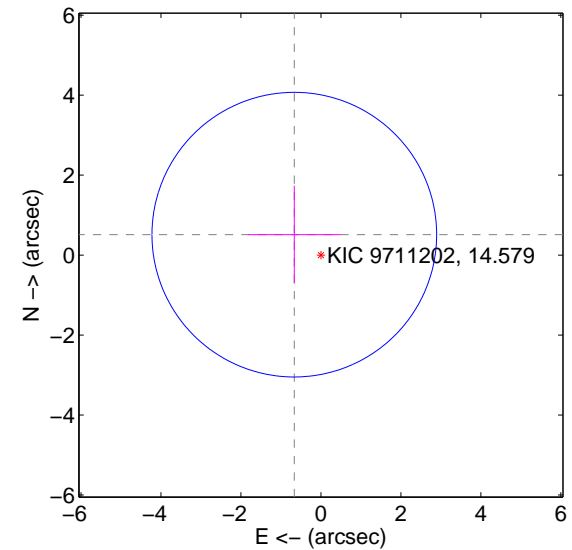
offset from difference PRF-fit to OOT PRF-fit



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.

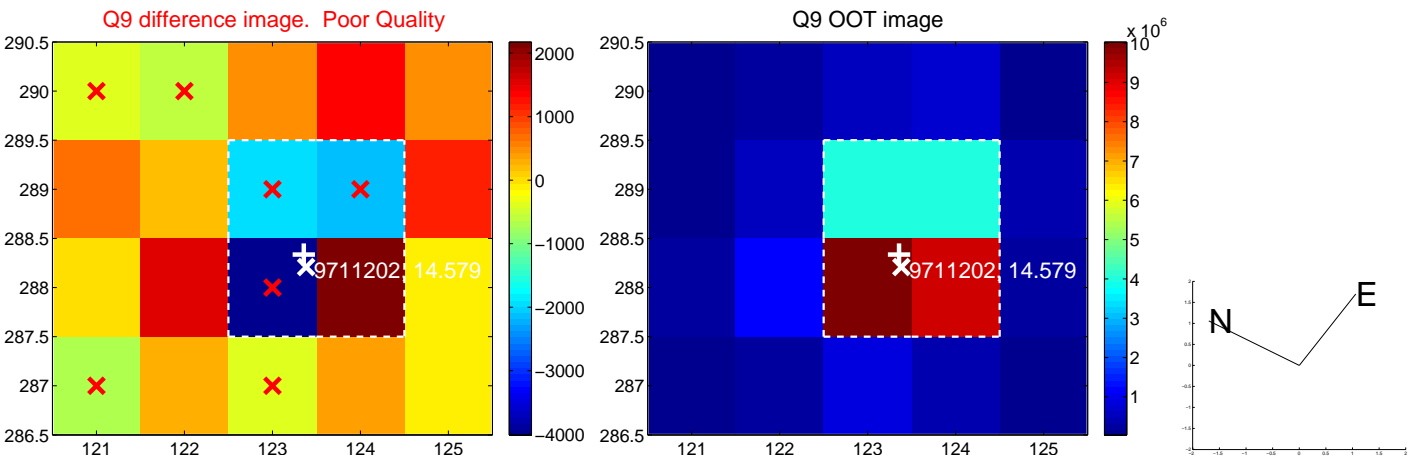


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q13 no difference image



Q13 no OOT image



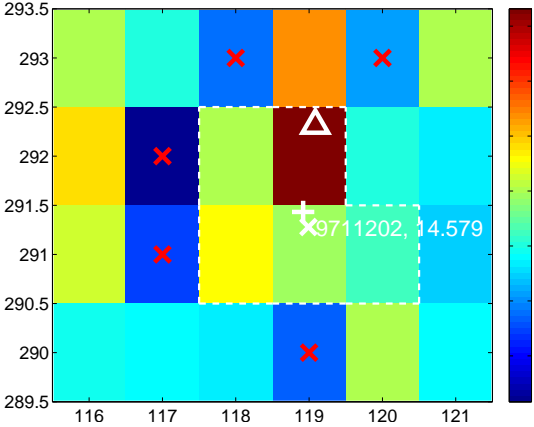
Q14 no difference image



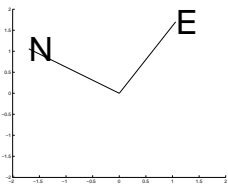
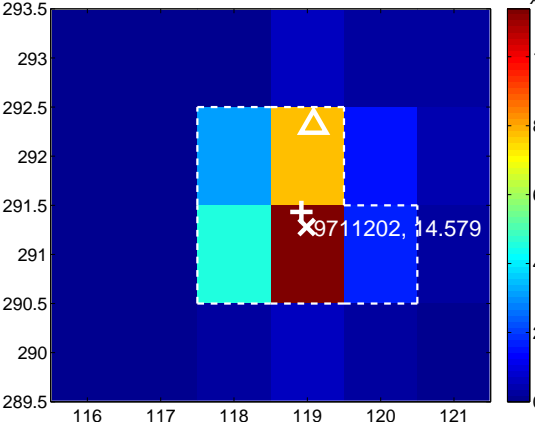
Q14 no OOT image



Q15 difference image. Poor Quality



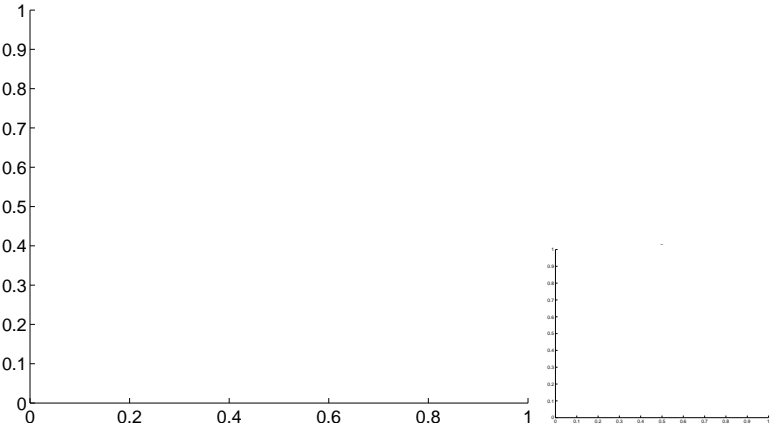
Q15 OOT image



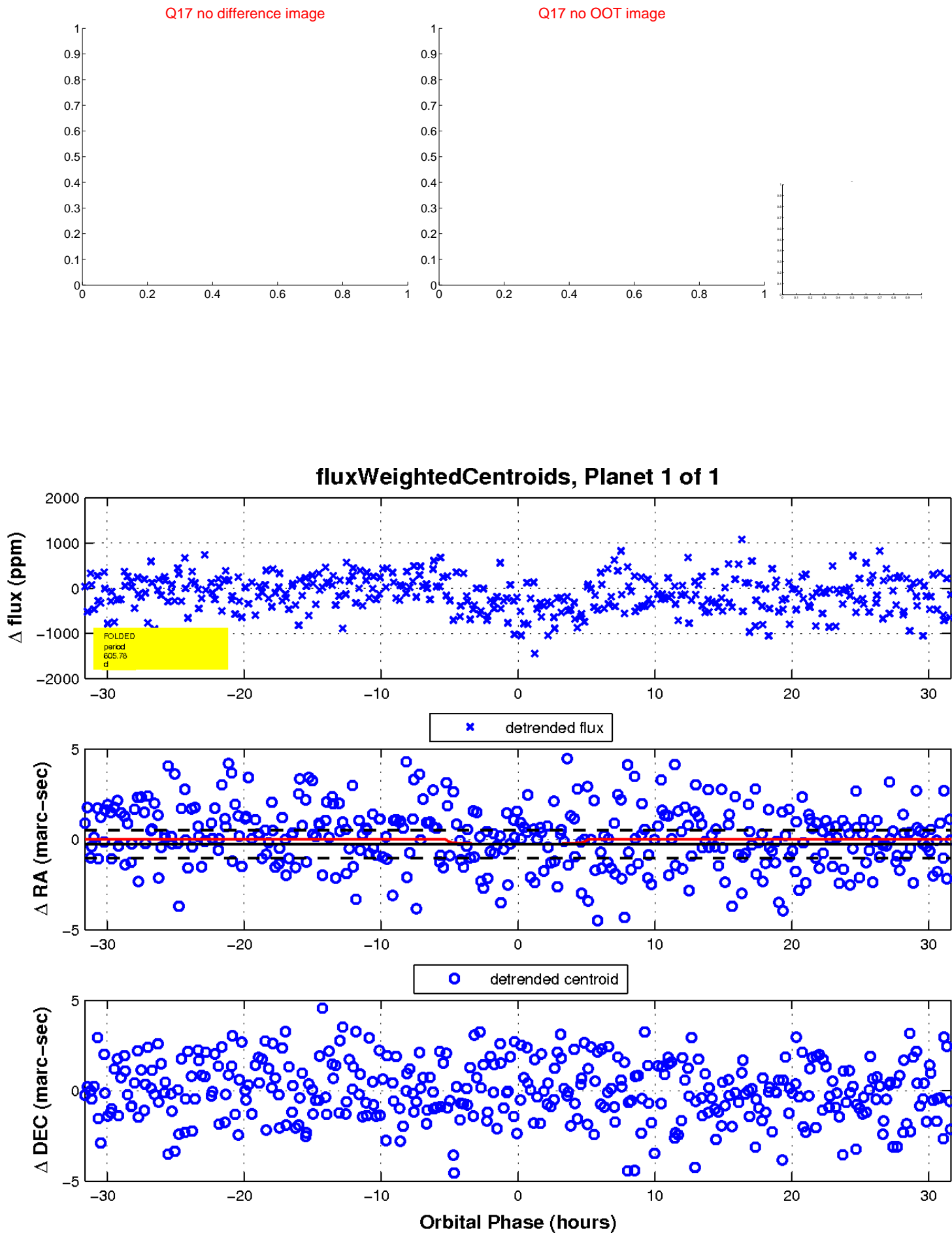
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

