

# KIC 004661946

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004661946-01	OBS	No	383.431115	290.481580	1291.5	3.288	11.3	5.9	0.78	5214	2.75	0.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004661946-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—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.

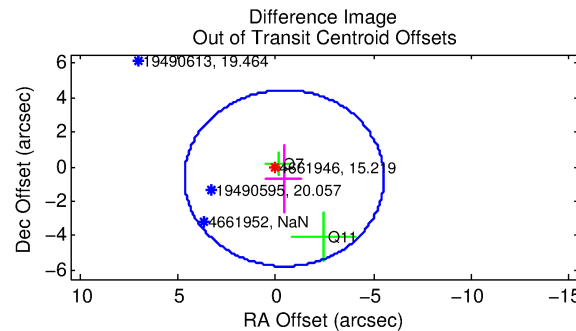
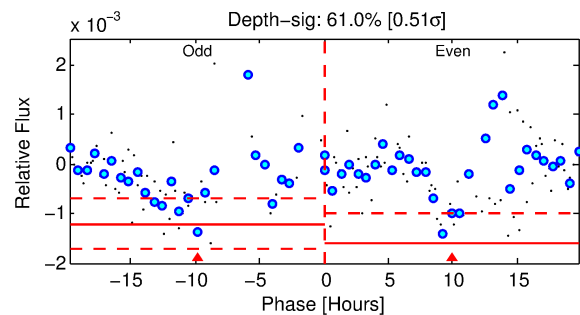
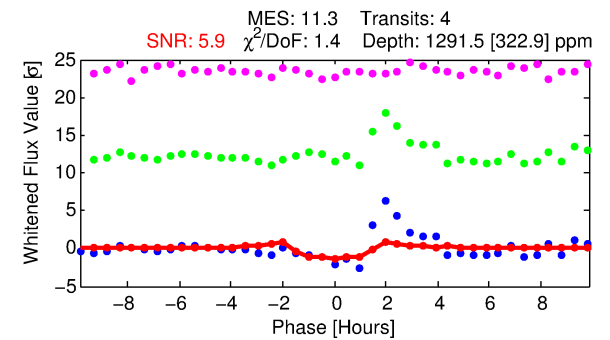
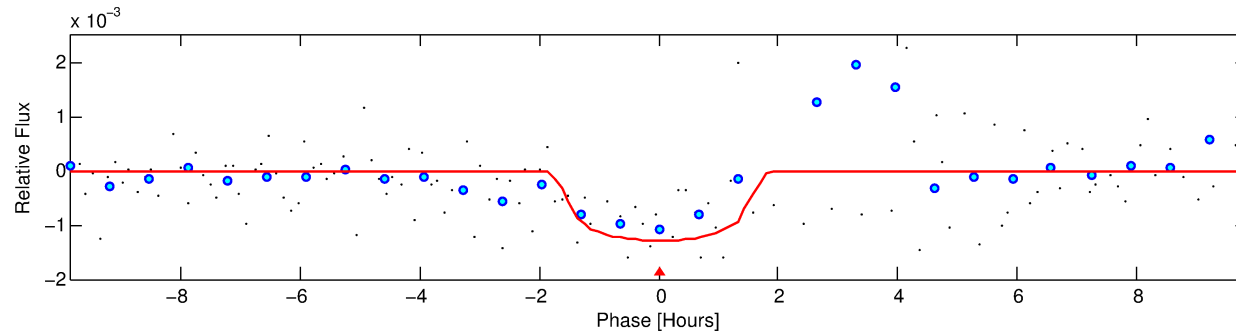
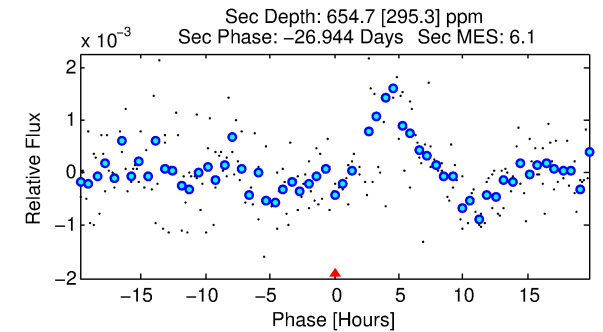
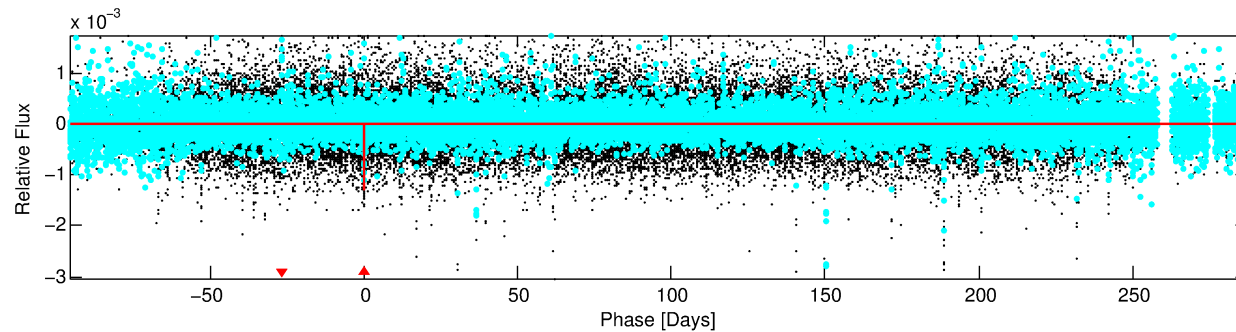
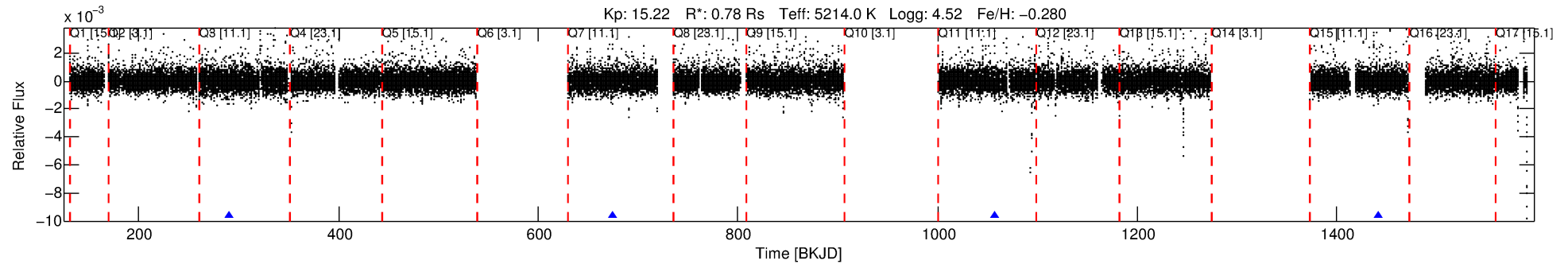
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004661946-01

No Significant Match Found

# DV One-Page Summary

KIC: 4661946 Candidate: 1 of 1 Period: 383.431 d



## DV Fit Results:

Period = 383.43112 [0.00597] d  
Epoch = 290.4816 [0.0097] BKJD  
Rp/R\* = 0.0322 [0.1069]  
a/R\* = 919.45 [11564.51]  
b = 0.02 [613.11]  
Seff = 0.47 [0.09]  
Teq = 211 [11] K  
Rp = 2.75 [9.14] Re  
a = 0.9318 [0.0946] AU  
Ag = 41305.69 [274860.37] [0.15 $\sigma$ ]  
Teffp = 4648 [7731] K [0.57 $\sigma$ ]

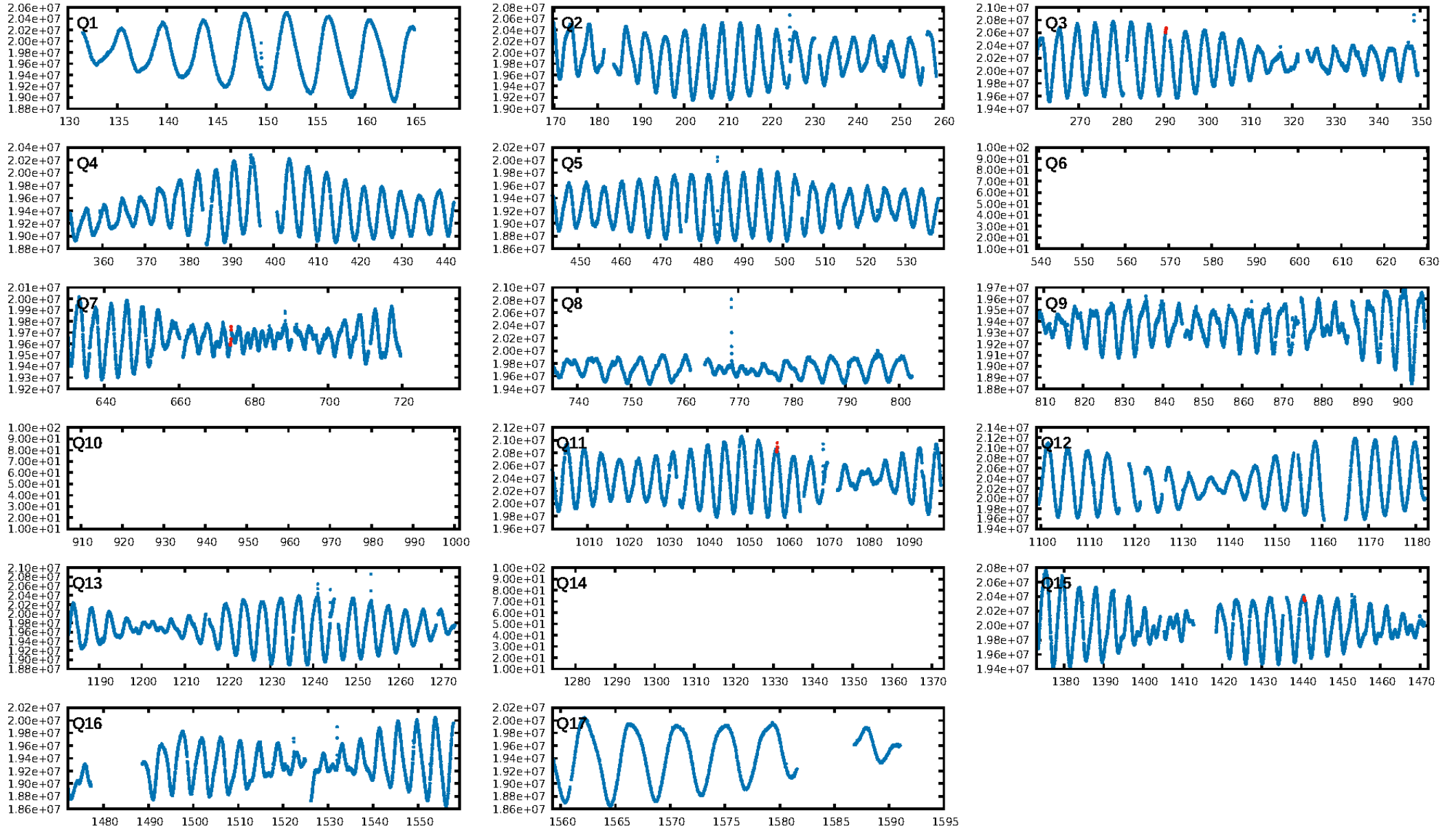
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 43.8%  
ModelChiSquareGof-sig: 54.8%  
**Bootstrap-pfa: 1.45e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.002  
Centroid-sig: 42.0%  
Centroid-so: 1.474 arcsec [0.93 $\sigma$ ]  
OotOffset-rm: 0.800 arcsec [0.47 $\sigma$ ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-rm: 0.888 arcsec [0.48 $\sigma$ ]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

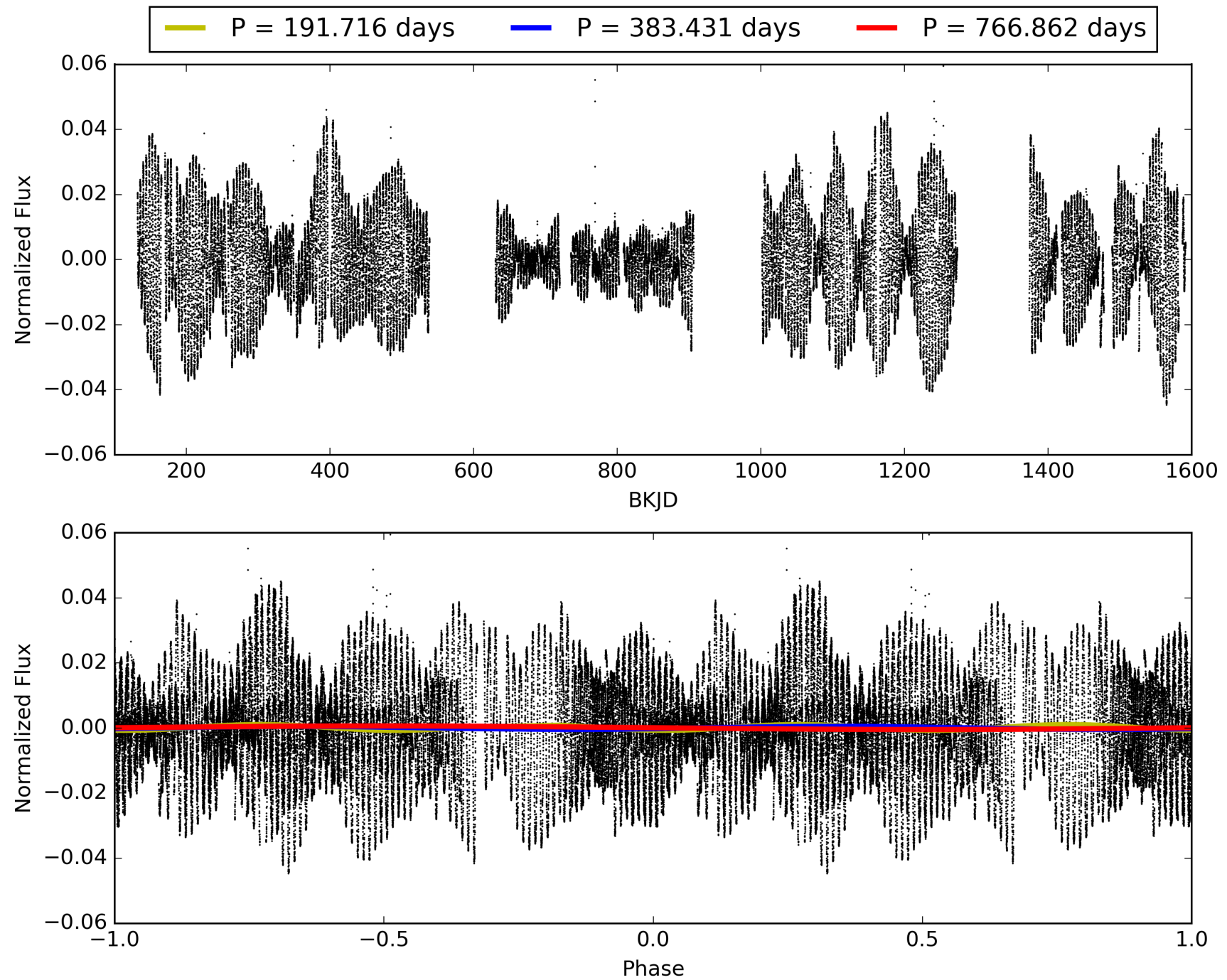
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:59:23 Z

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

# TCE 004661946-01, PDC Light Curves

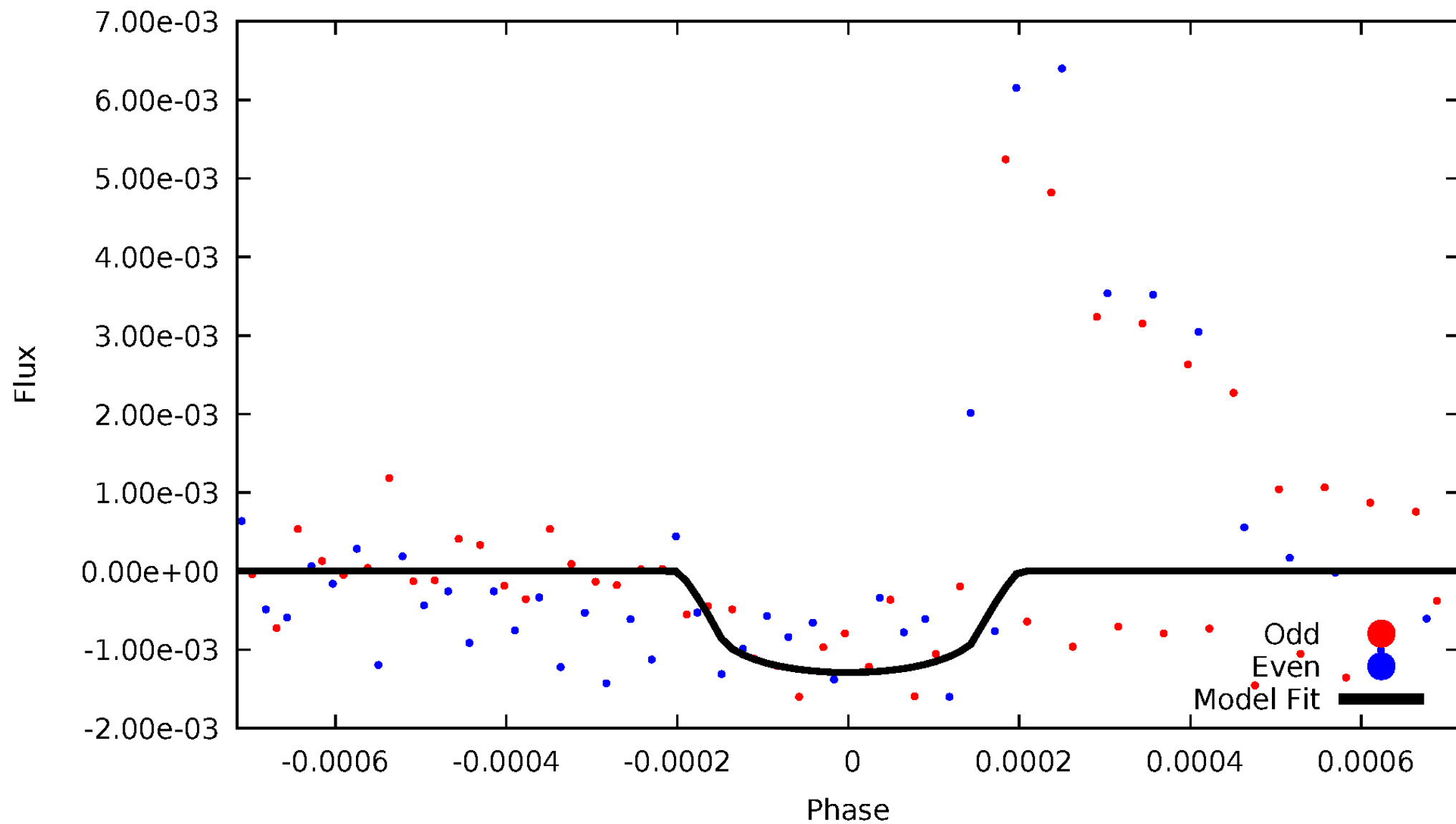


TCE 004661946-01



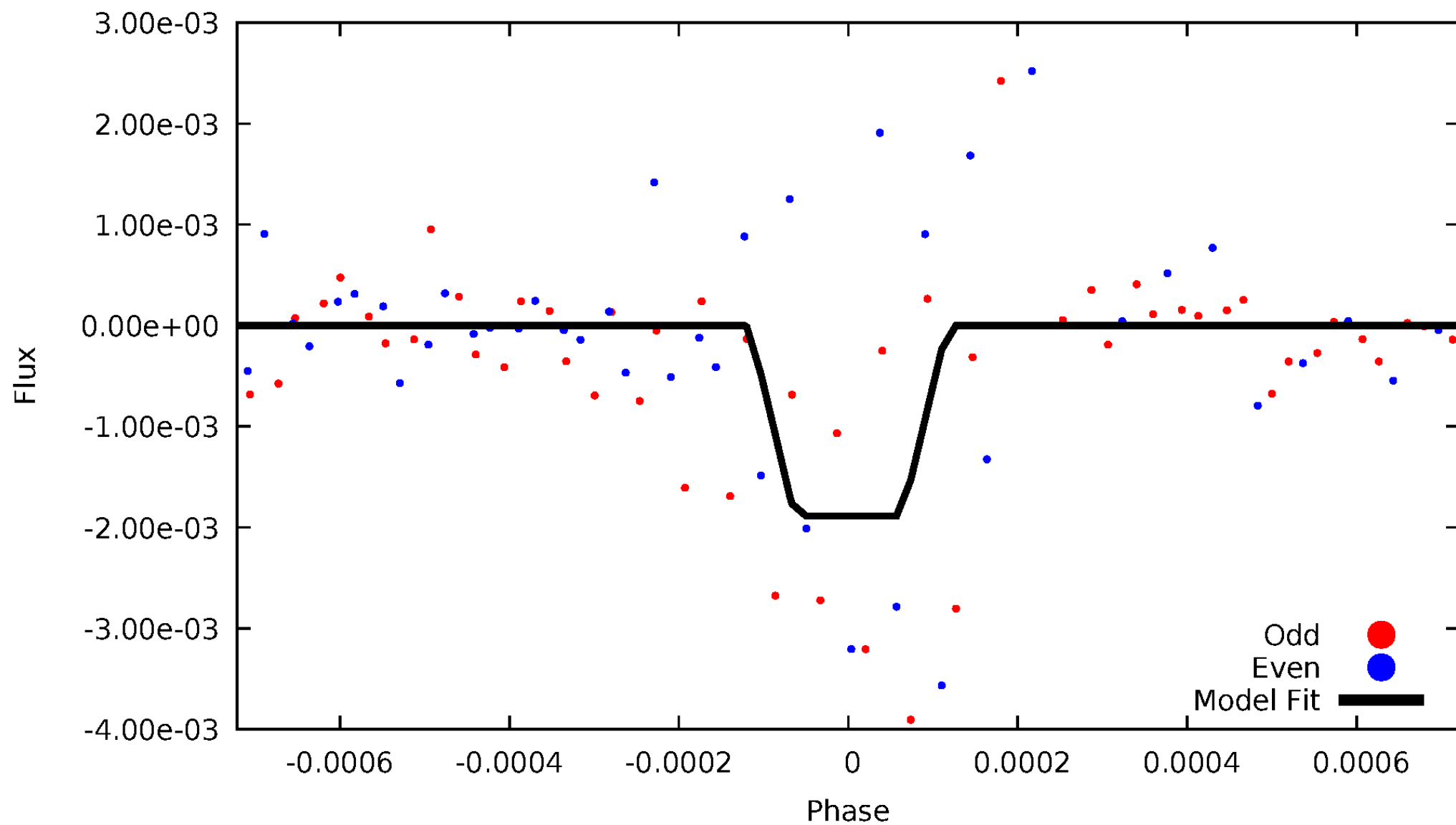
# DV Odd/Even

TCE 004661946-01



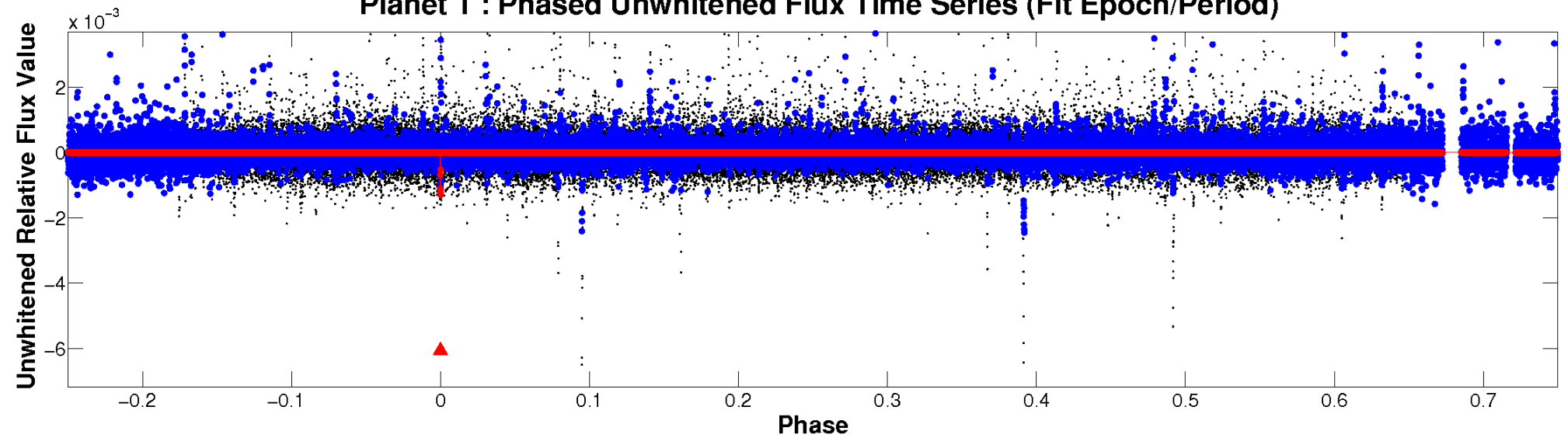
# ALT Odd/Even

TCE 004661946-01

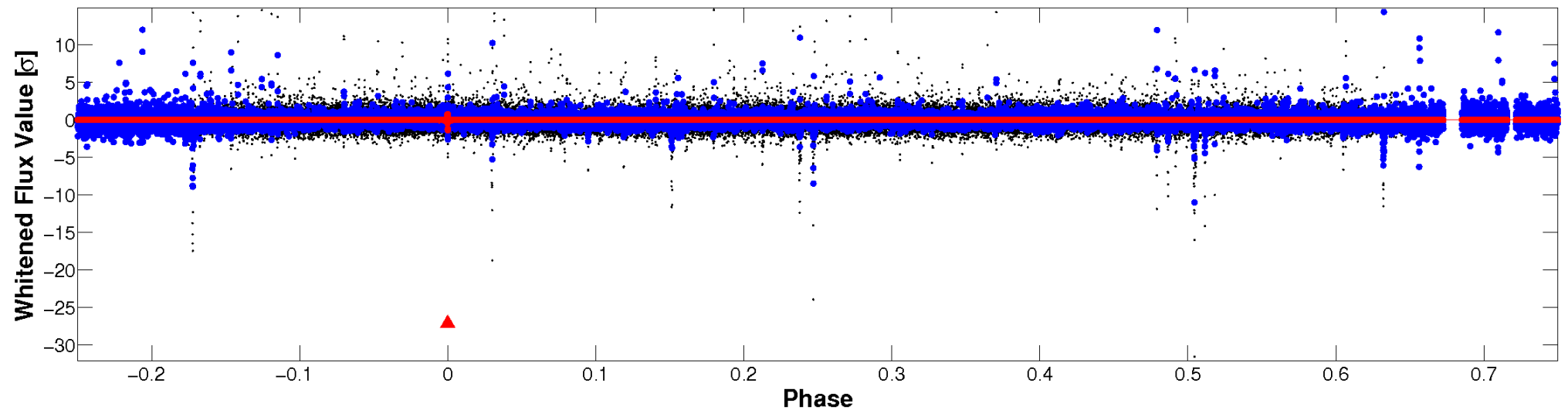


# Non-Whitened Vs. Whitened Light Curve

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

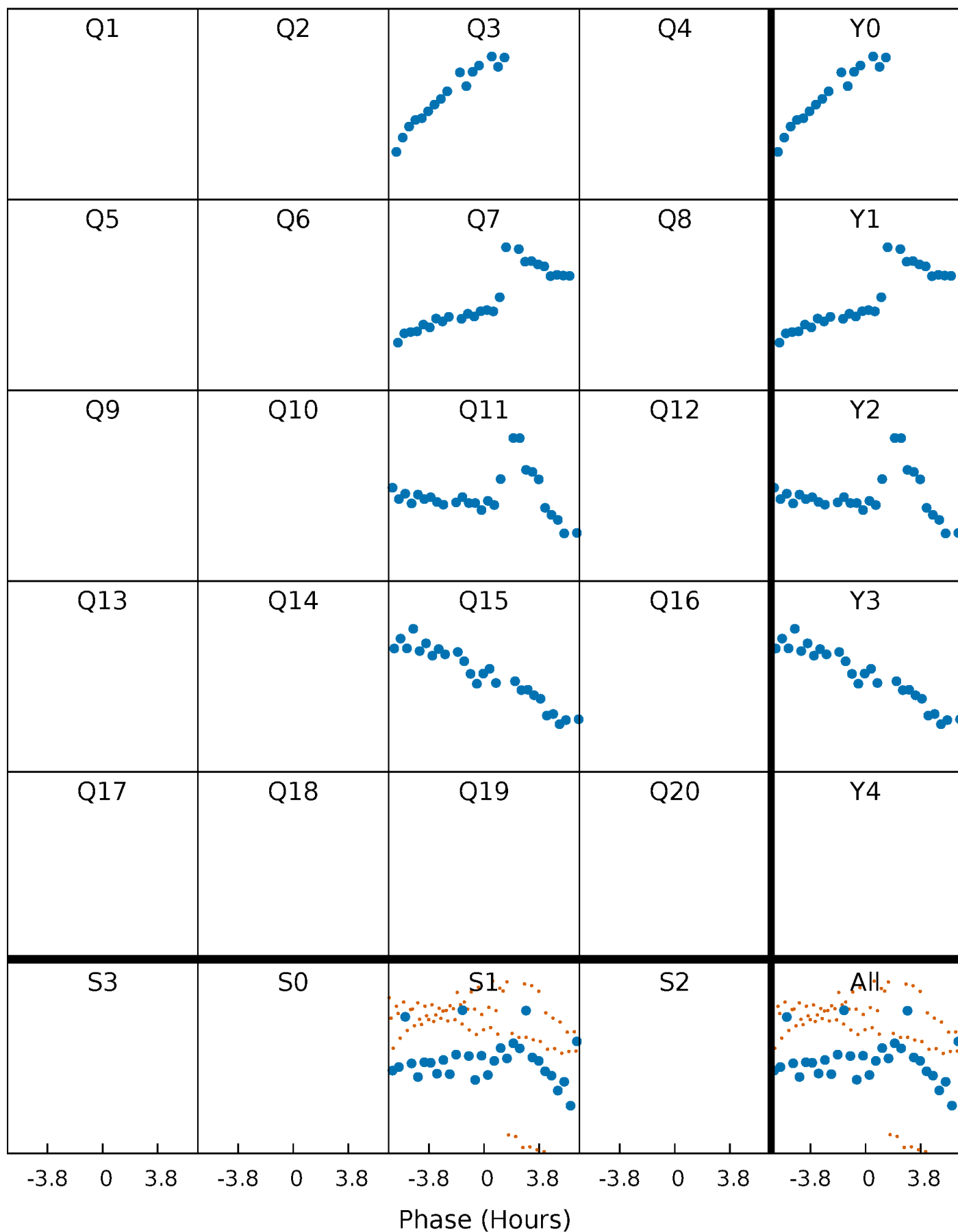


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

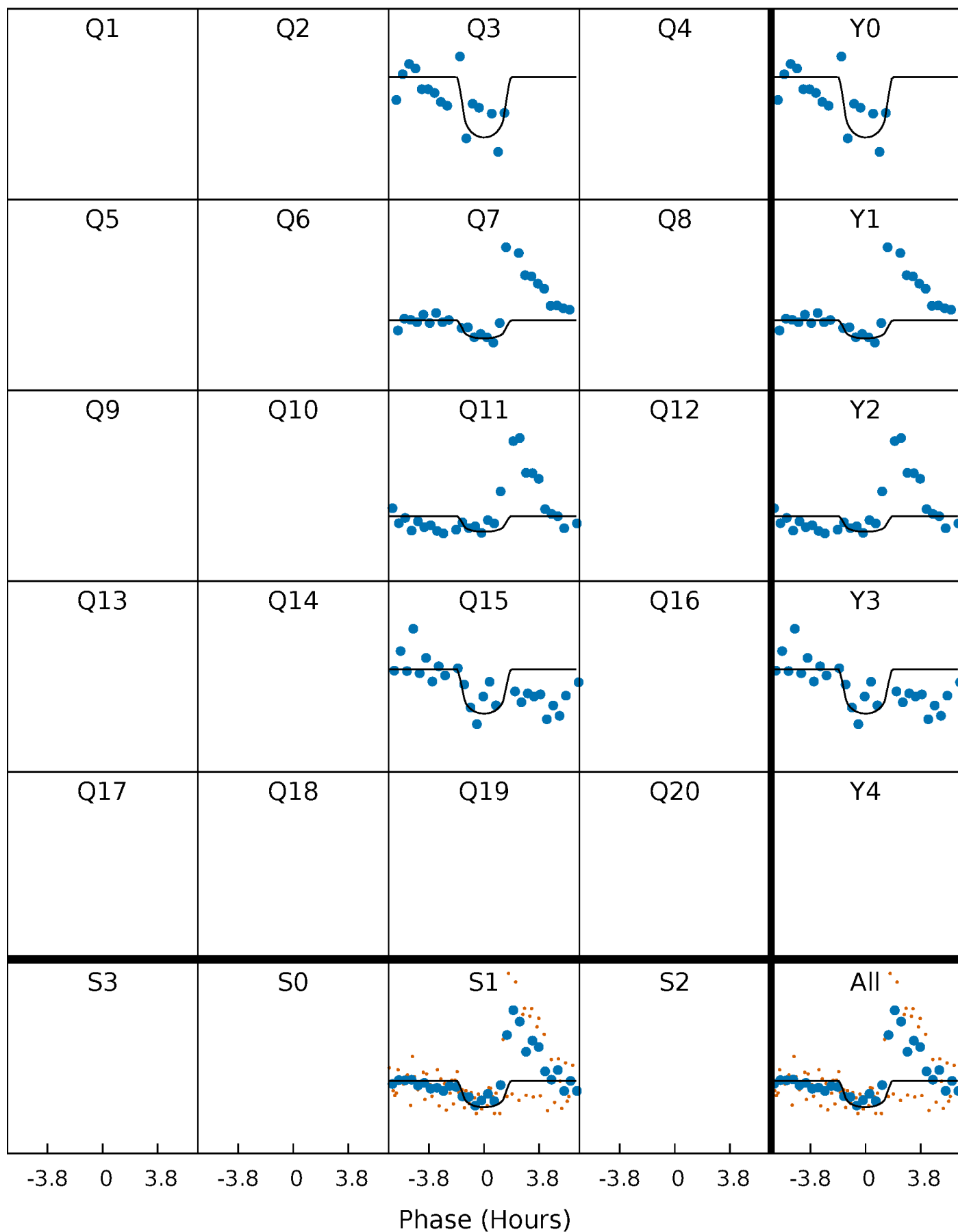
TCE 004661946-01 P=383.431115 Days  $T_0=290.481580$  (BKJD)





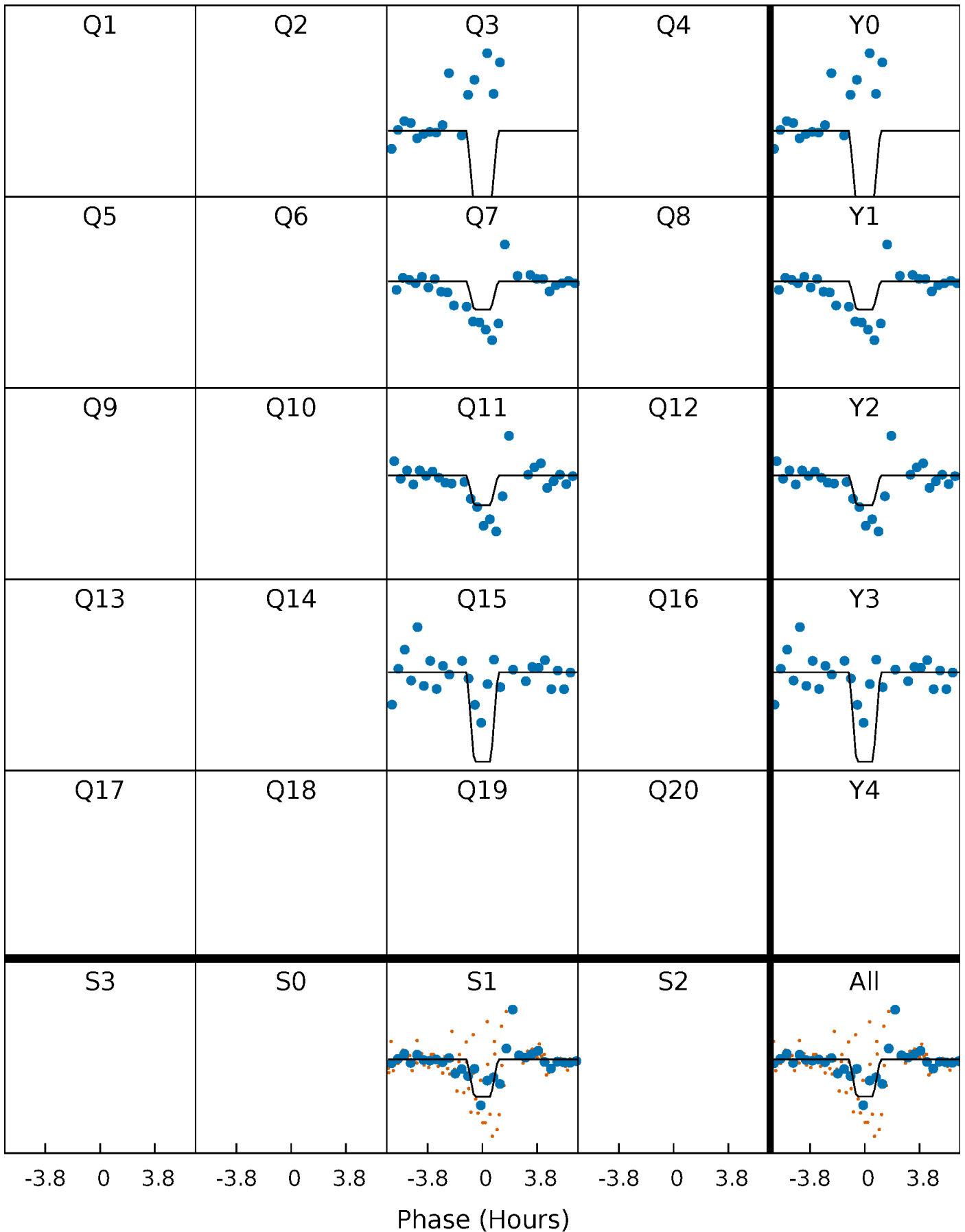
# DV Quarter-Phased Transit Curves

TCE 004661946-01 P=383.431115 Days  $T_0=290.481580$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

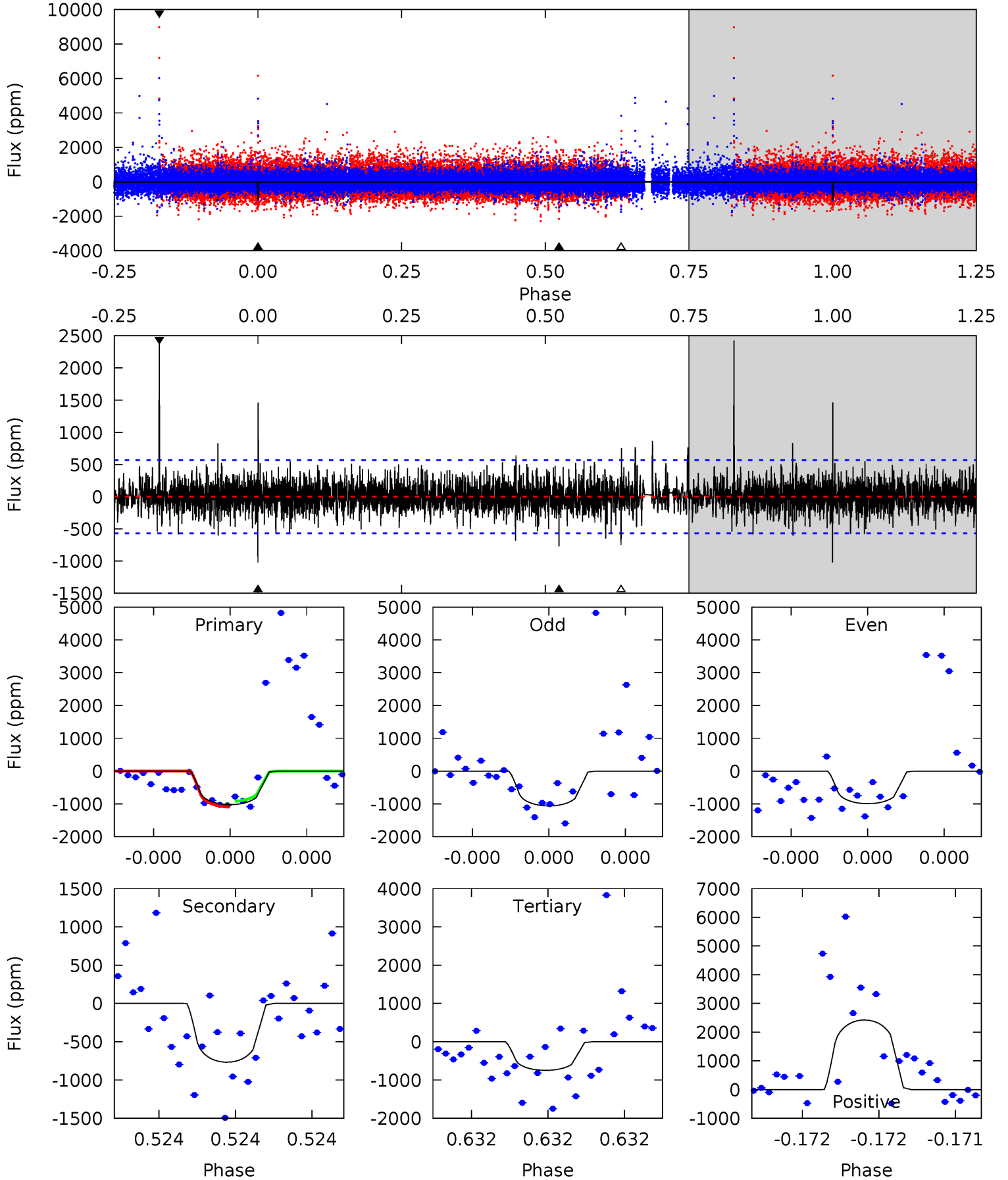
TCE 004661946-01 P=383.421941 Days  $T_0=290.492168$  (BKJD)



# DV Model-Shift Uniqueness Test

004661946-01, P = 383.431115 Days, E = 290.481580 Days

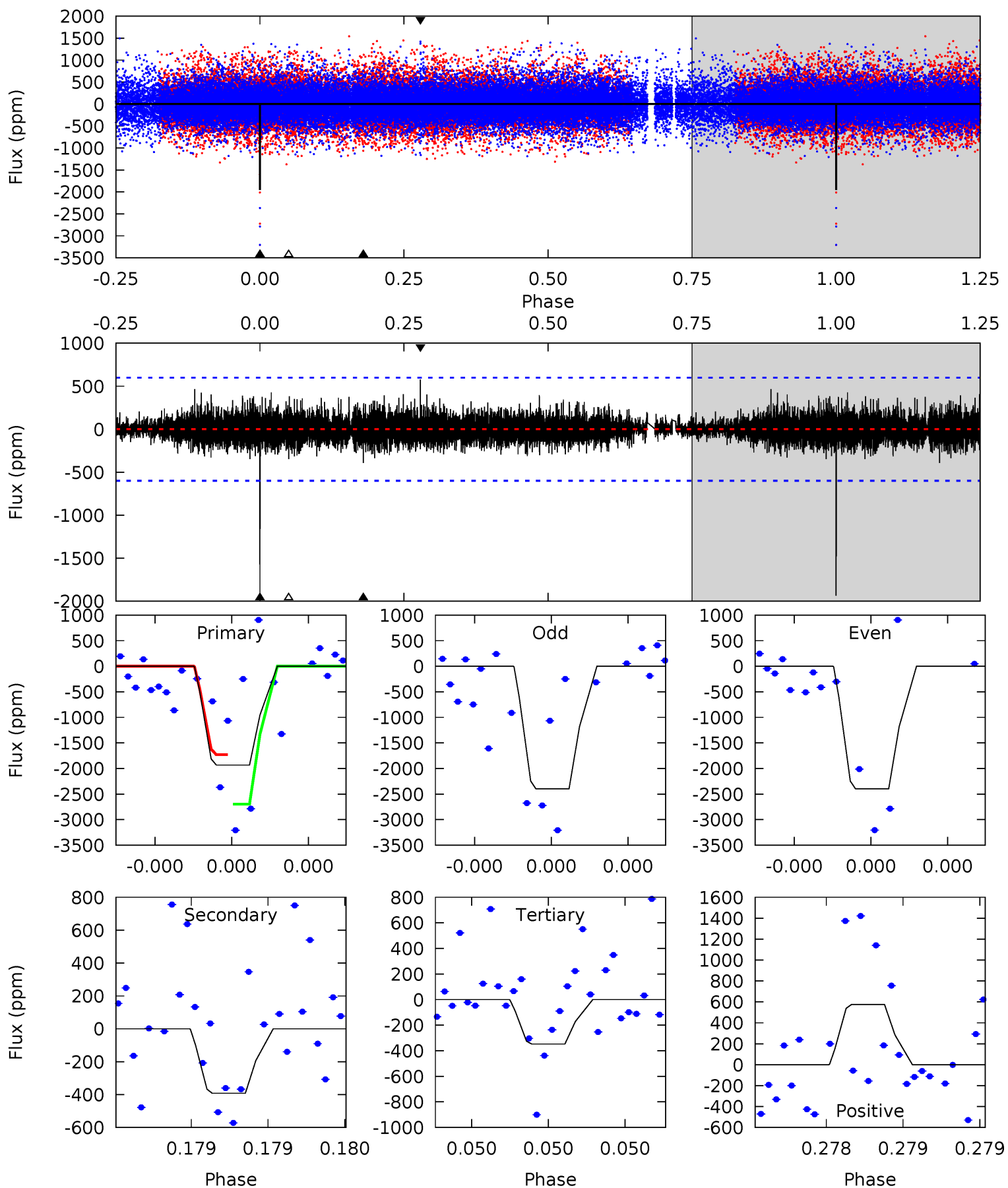
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	7.57	7.37	23.9	5.62	3.55	1.71	2.71	-13.8	0.20	-16.3	0.28	0.91	0.70	0.85



# Alt Model-Shift Uniqueness Test

004661946-01, P = 383.421941 Days, E = 290.492168 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
18.4	3.73	3.31	5.47	5.69	3.67	0.87	15.1	12.9	0.42	-1.74	0.01	0.77	0.23	4.36



### Stellar Parameters For KIC 004661946

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5214^{+169}_{-154}$	$4.516^{+0.088}_{-0.072}$	$-0.280^{+0.300}_{-0.300}$	$0.783^{+0.089}_{-0.089}$	$0.733^{+0.107}_{-0.050}$	$2.155^{+0.846}_{-0.512}$
	+3%/-3%	+2%/-2%	+107%/-107%	+11%/-11%	+15%/-7%	+39%/-24%
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 004661946-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-767 \pm 101$	$7.30^{+7.52}_{-5.09}$	$294^{+12}_{-12}$	$3445^{+1962}_{-620}$	$6949^{+68681}_{-5213}$
Alt.	$-392 \pm 105$	$8.14^{+6.96}_{-5.23}$	$294^{+13}_{-12}$	$3023^{+1181}_{-464}$	$2863^{+20241}_{-2039}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

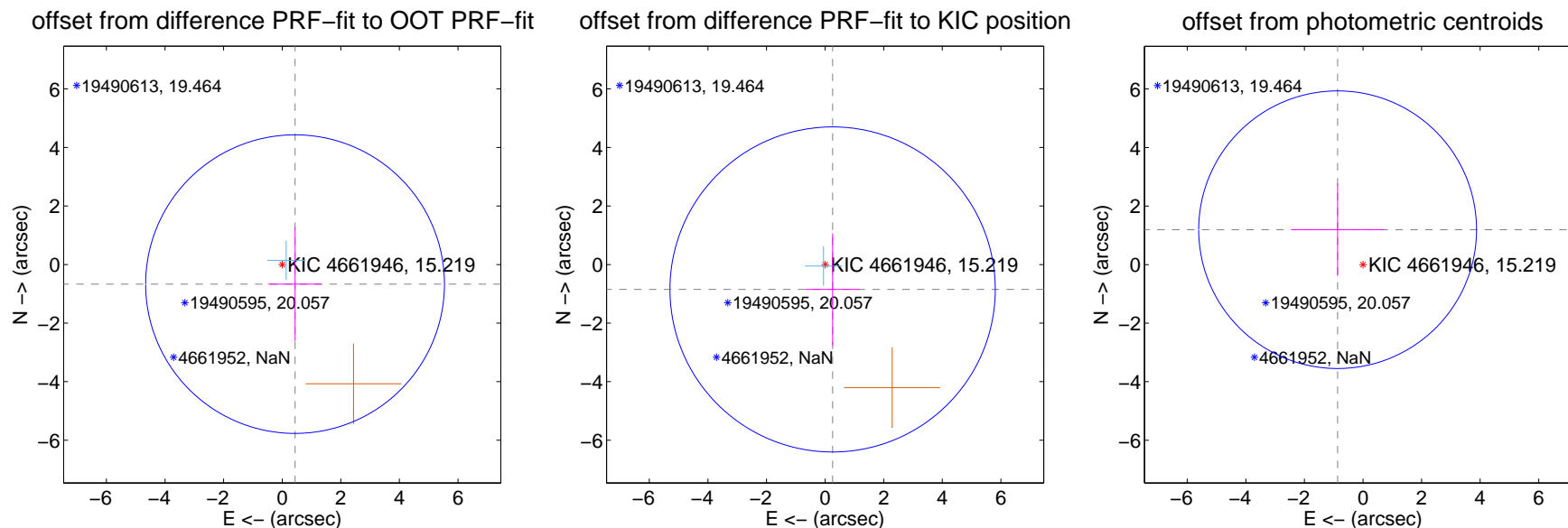
## DV Centroid Data

Supplemental centroid analysis for 004661946-01. Kepler magnitude: 15.22. Transit SNR 5.89

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.800 \pm 1.700$	0.47	$-0.438 \pm 0.912$	$-0.669 \pm 1.942$
PRF-fit source offset from KIC position	$0.888 \pm 1.850$	0.48	$-0.256 \pm 0.930$	$-0.851 \pm 1.912$
photometric centroid source offset	$1.47 \pm 1.58$	0.93	$0.87 \pm 1.59$	$1.19 \pm 1.58$



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



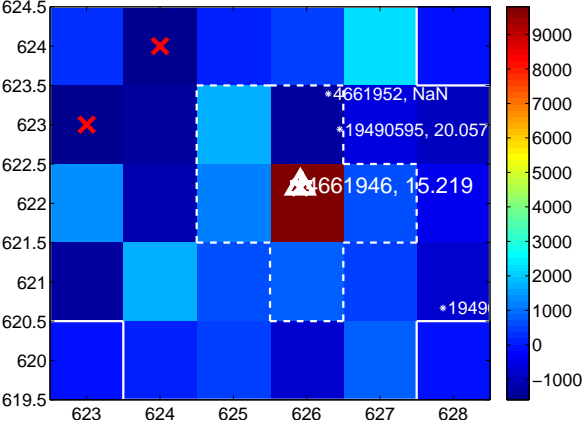
Q6 no difference image



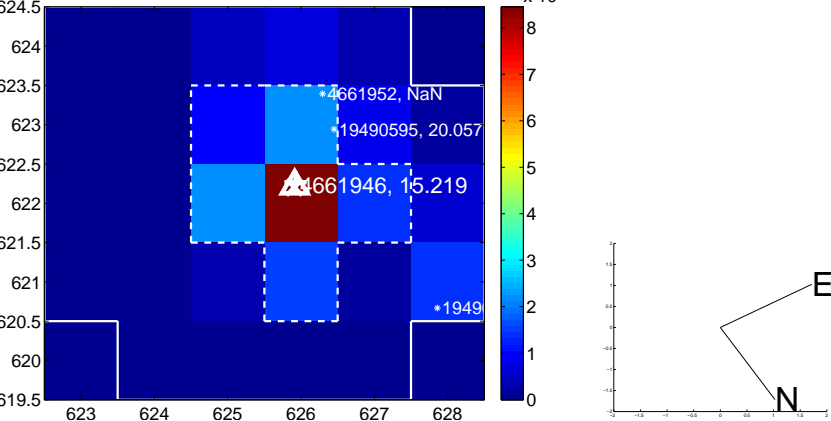
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image

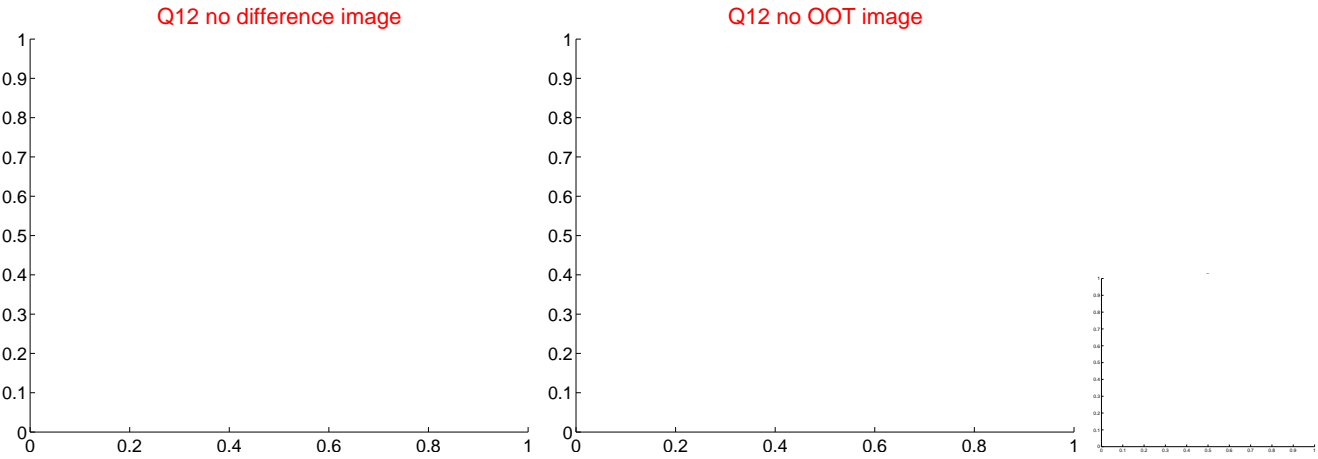
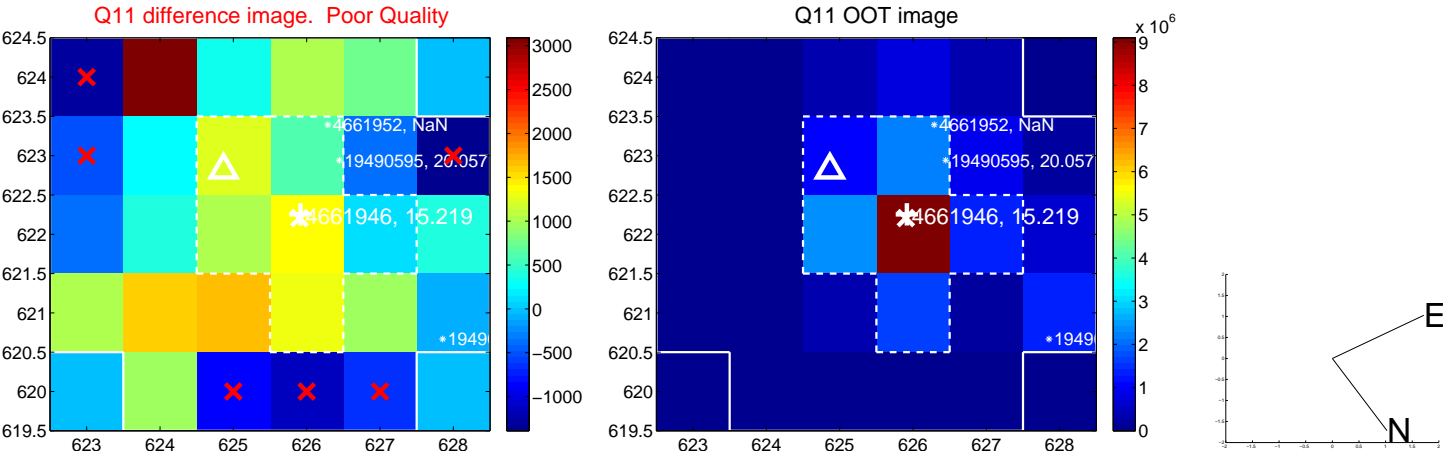


Q8 no OOT image





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



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

Q13 no difference image



Q13 no OOT image



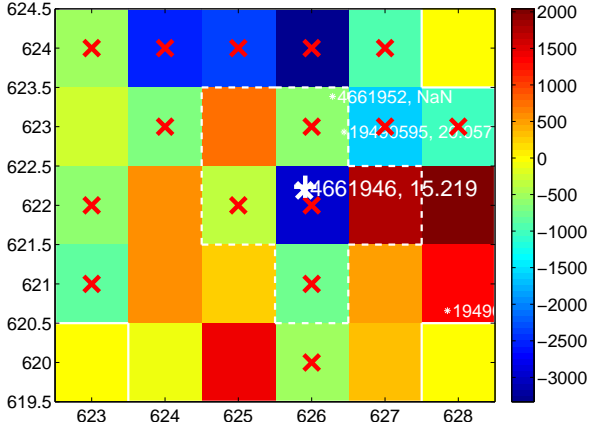
Q14 no difference image



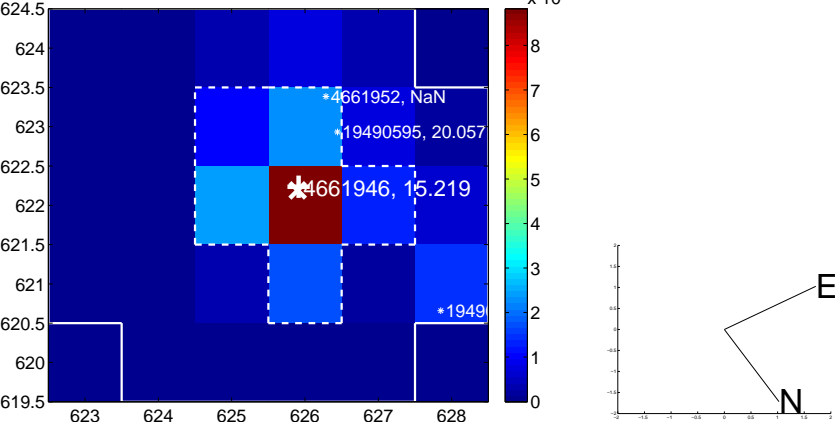
Q14 no OOT image



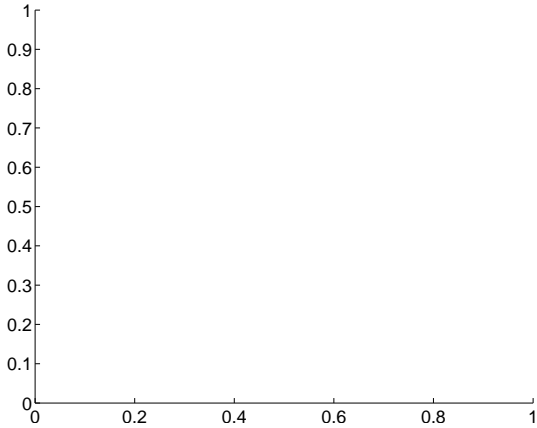
Q15 difference image. Poor Quality



Q15 OOT image



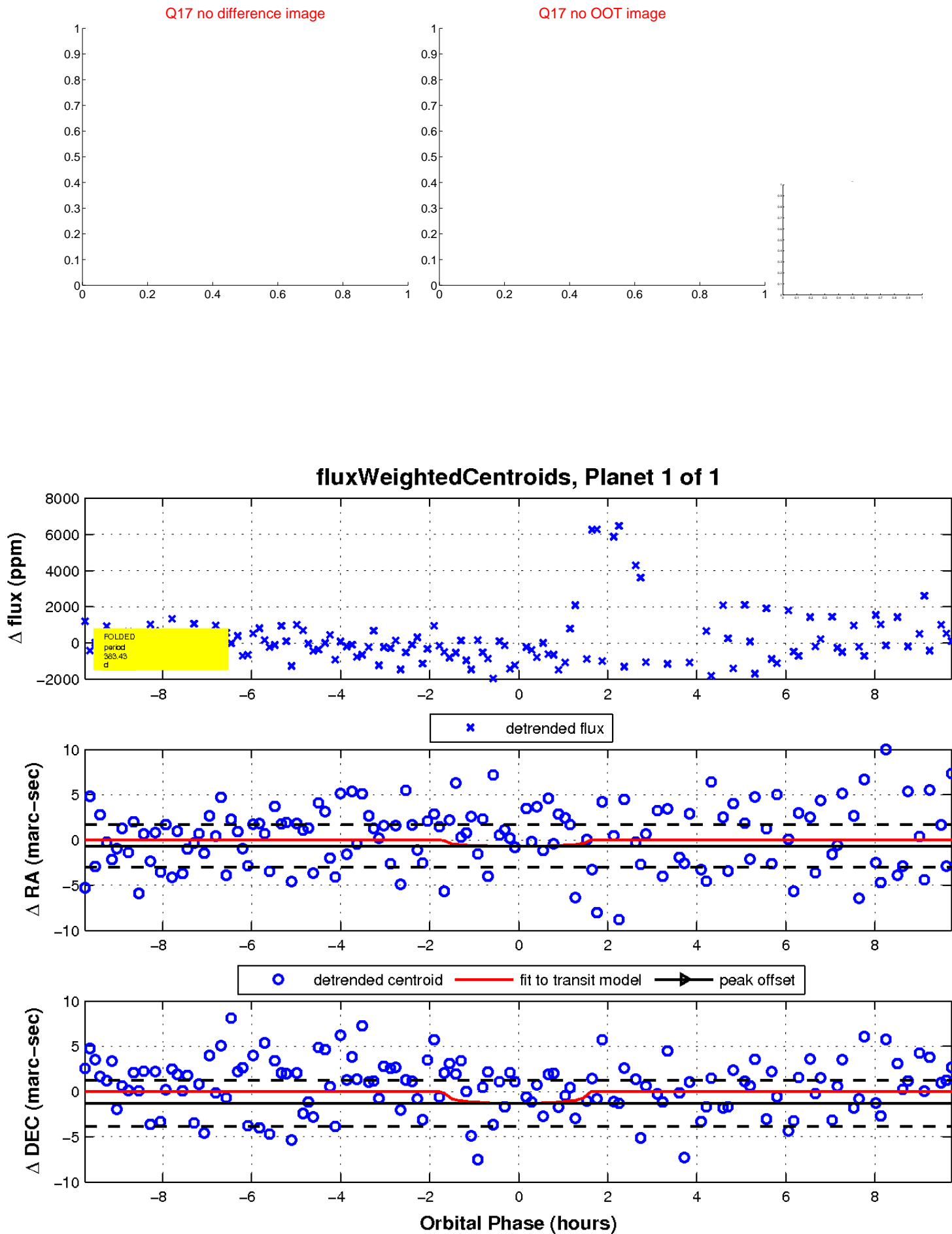
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

