

# KIC 004572083

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004572083-01	OBS	No	38.814195	134.000757	1753.9	4.855	7.8	6.2	1.36	6897	5.84	63.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004572083-01	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

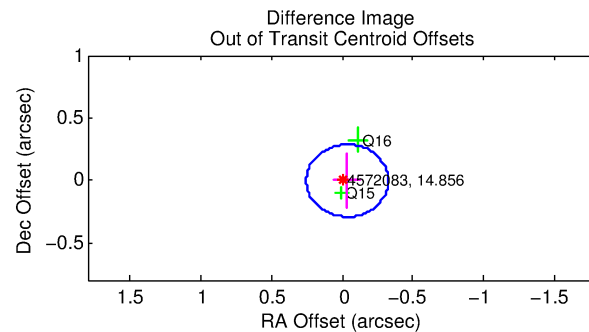
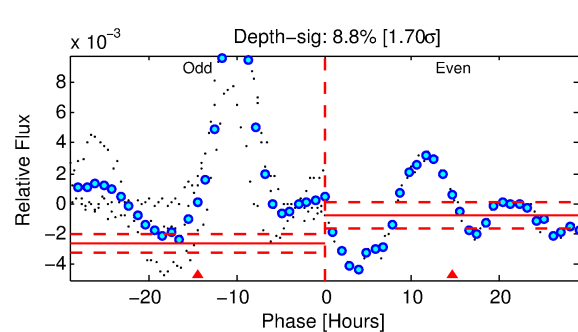
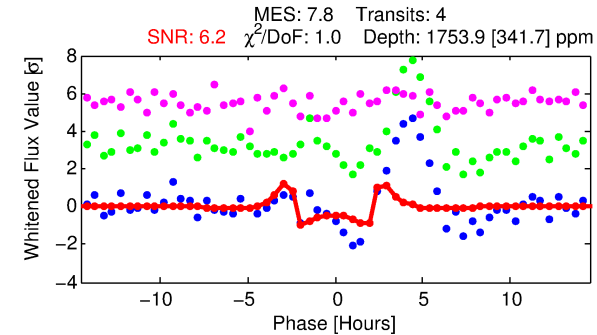
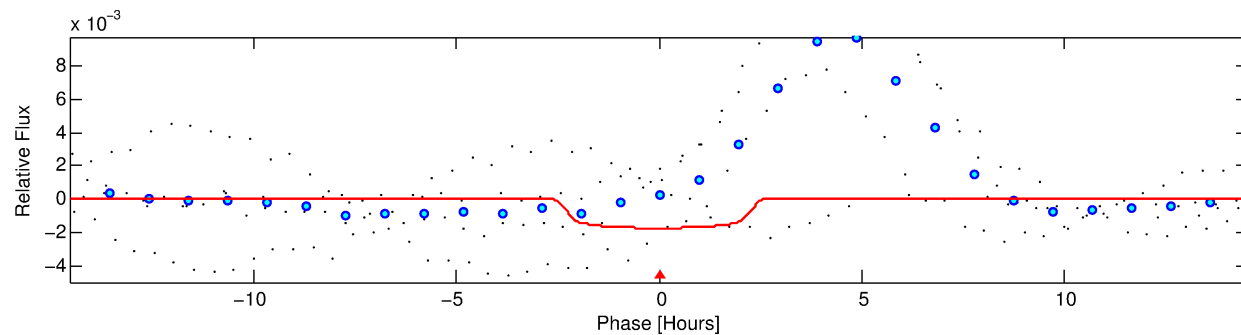
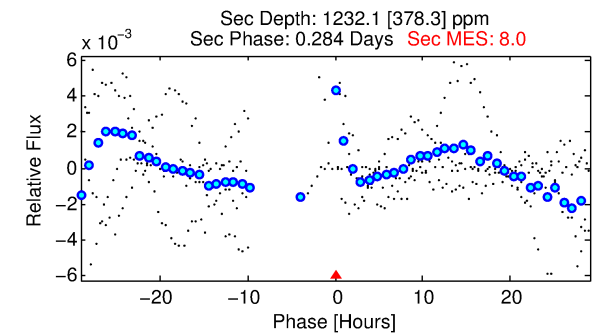
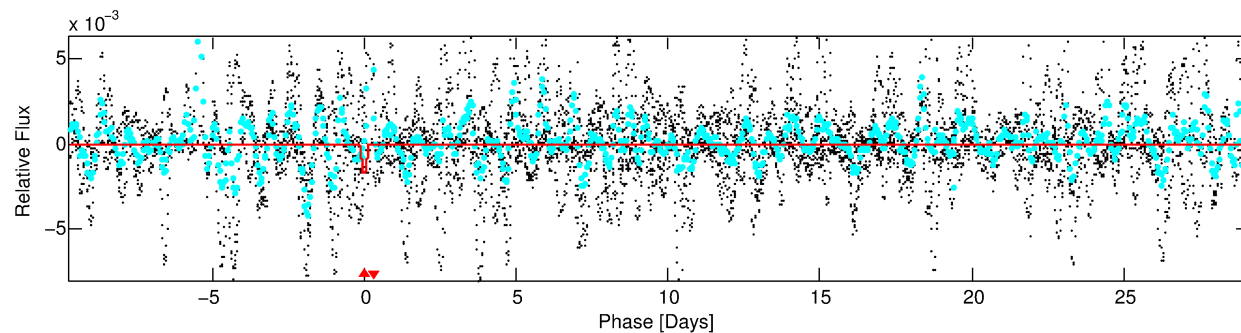
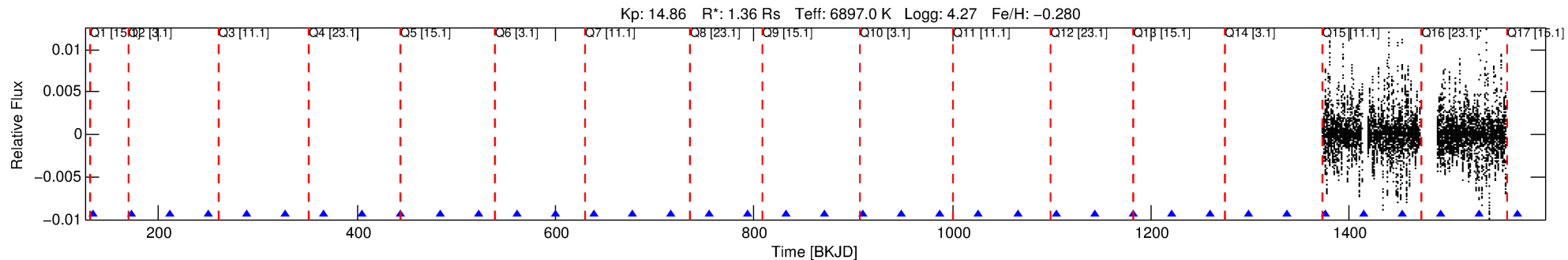
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004572083-01

No Significant Match Found

# DV One-Page Summary

KIC: 4572083 Candidate: 1 of 1 Period: 38.814 d



## DV Fit Results:

Period = 38.81420 [0.00203] d  
Epoch = 134.0008 [0.0699] BKJD  
Rp/R\* = 0.0394 [0.0221]  
a/R\* = 58.55 [183.04]  
b = 0.40 [6.57]  
Seff = 63.54 [26.21]  
Teq = 720 [74] K  
Rp = 5.84 [3.80] Re  
a = 0.2428 [0.0644] AU  
Ag = 1171.52 [1433.39] [0.82σ]  
**Teff = 6512 [1921] K [3.01σ]**

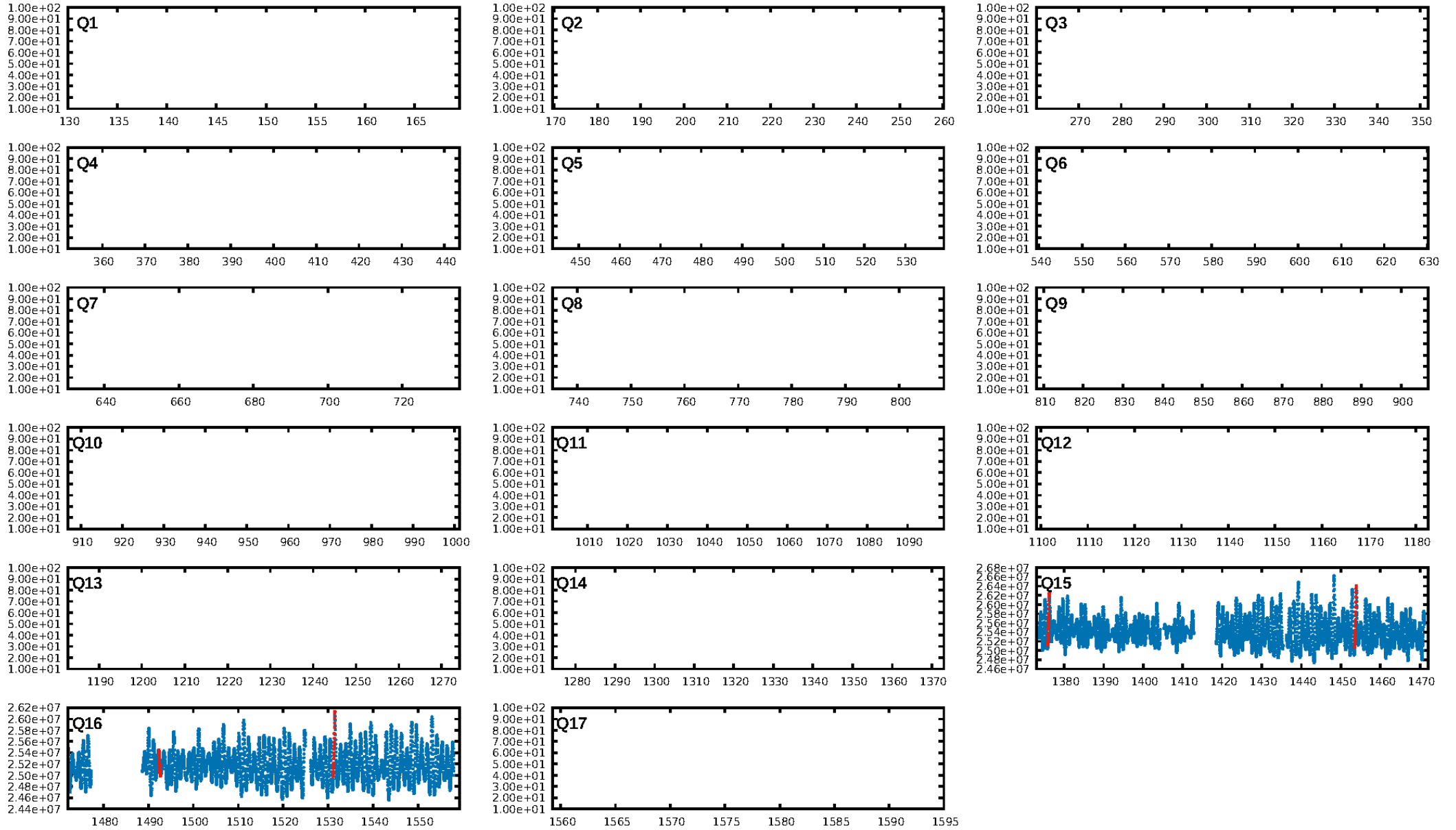
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 25.7%  
ModelChiSquareGof-sig: 87.2%  
Bootstrap-pfa: 9.27e-15  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.621  
Centroid-sig: 30.5%  
Centroid-so: 0.279 arcsec [0.56σ]  
OotOffset-rm: 0.036 arcsec [0.37σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-rm: 0.074 arcsec [0.51σ]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

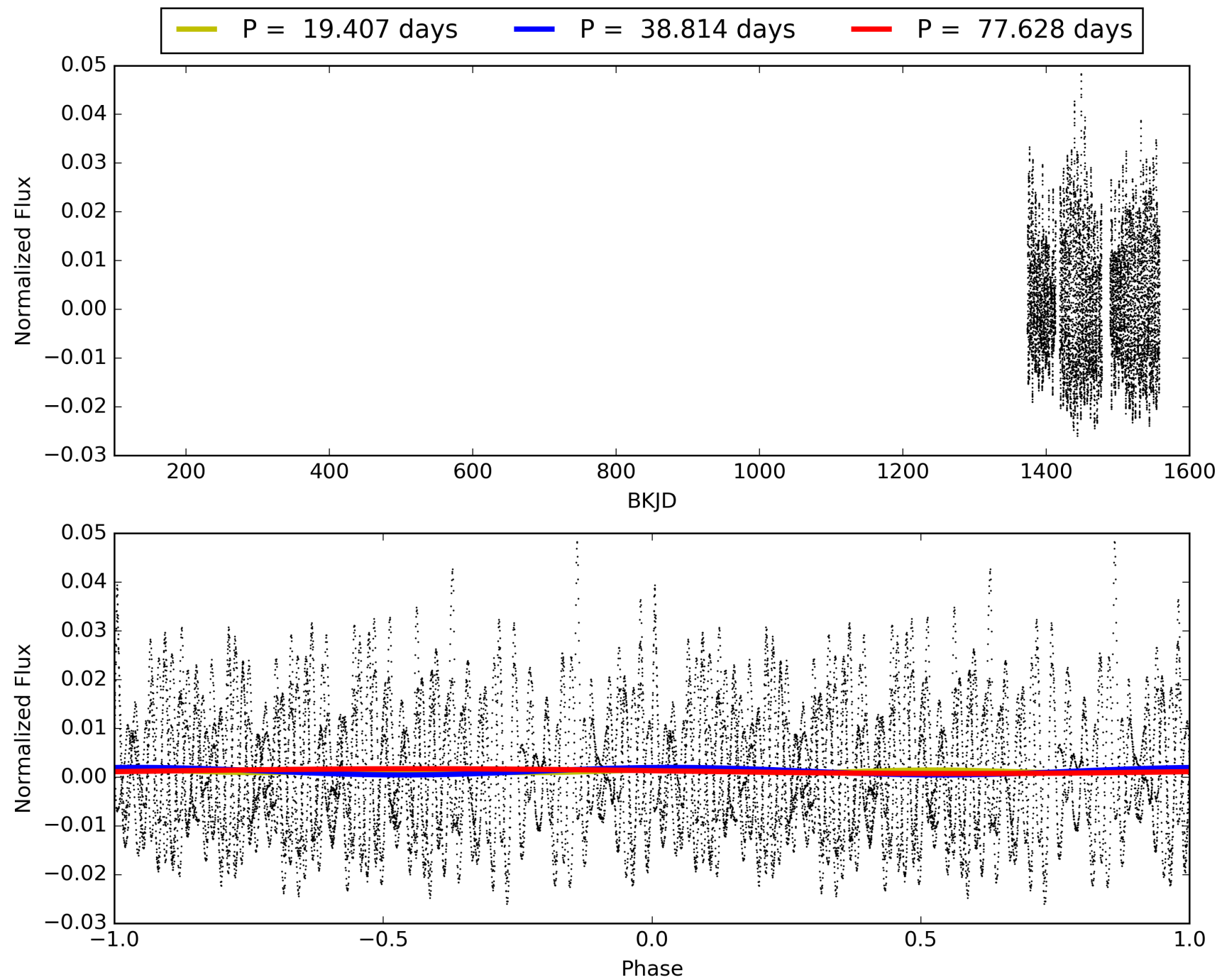
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:47:07 Z

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

# TCE 004572083-01, PDC Light Curves

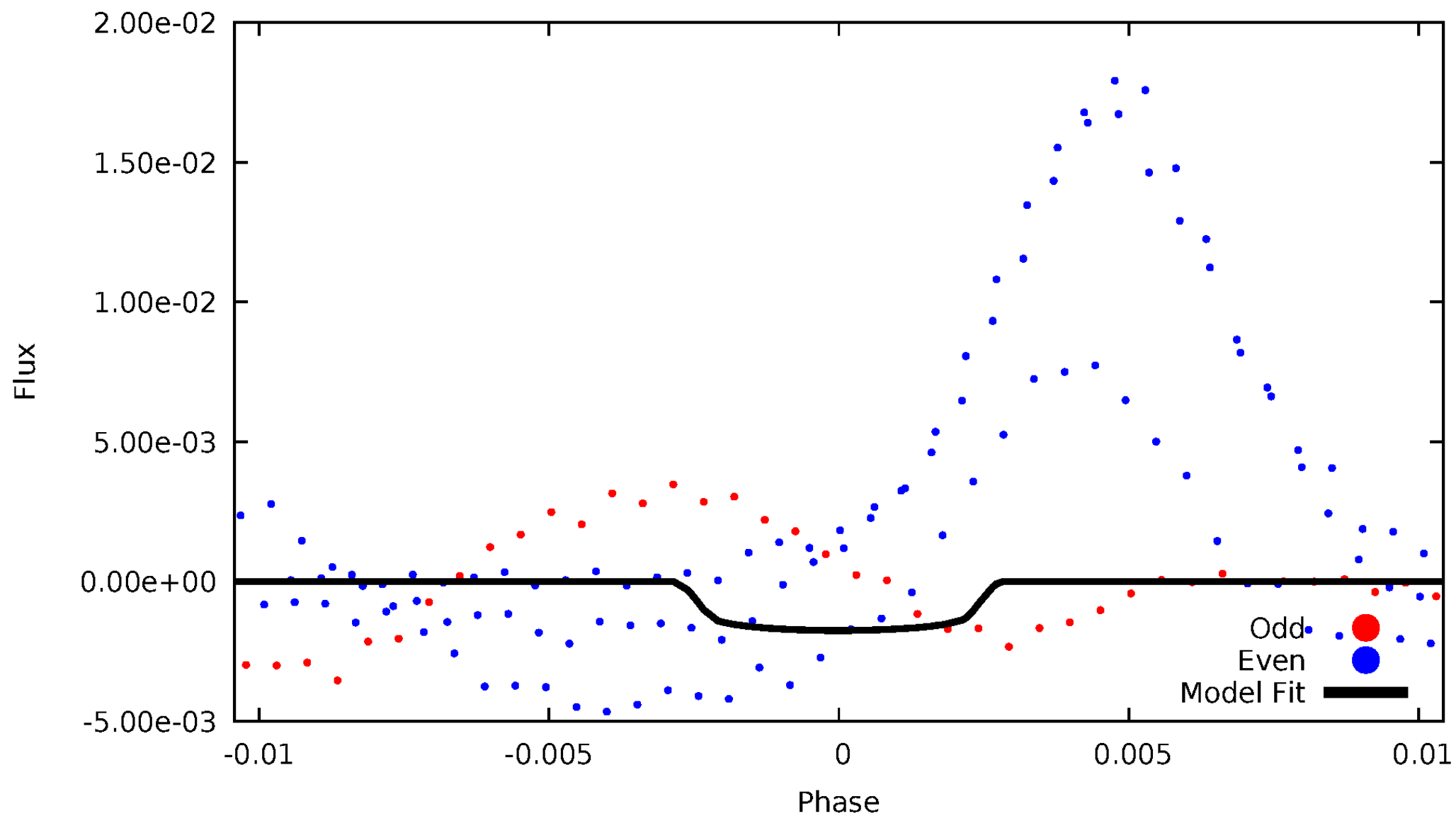


TCE 004572083-01



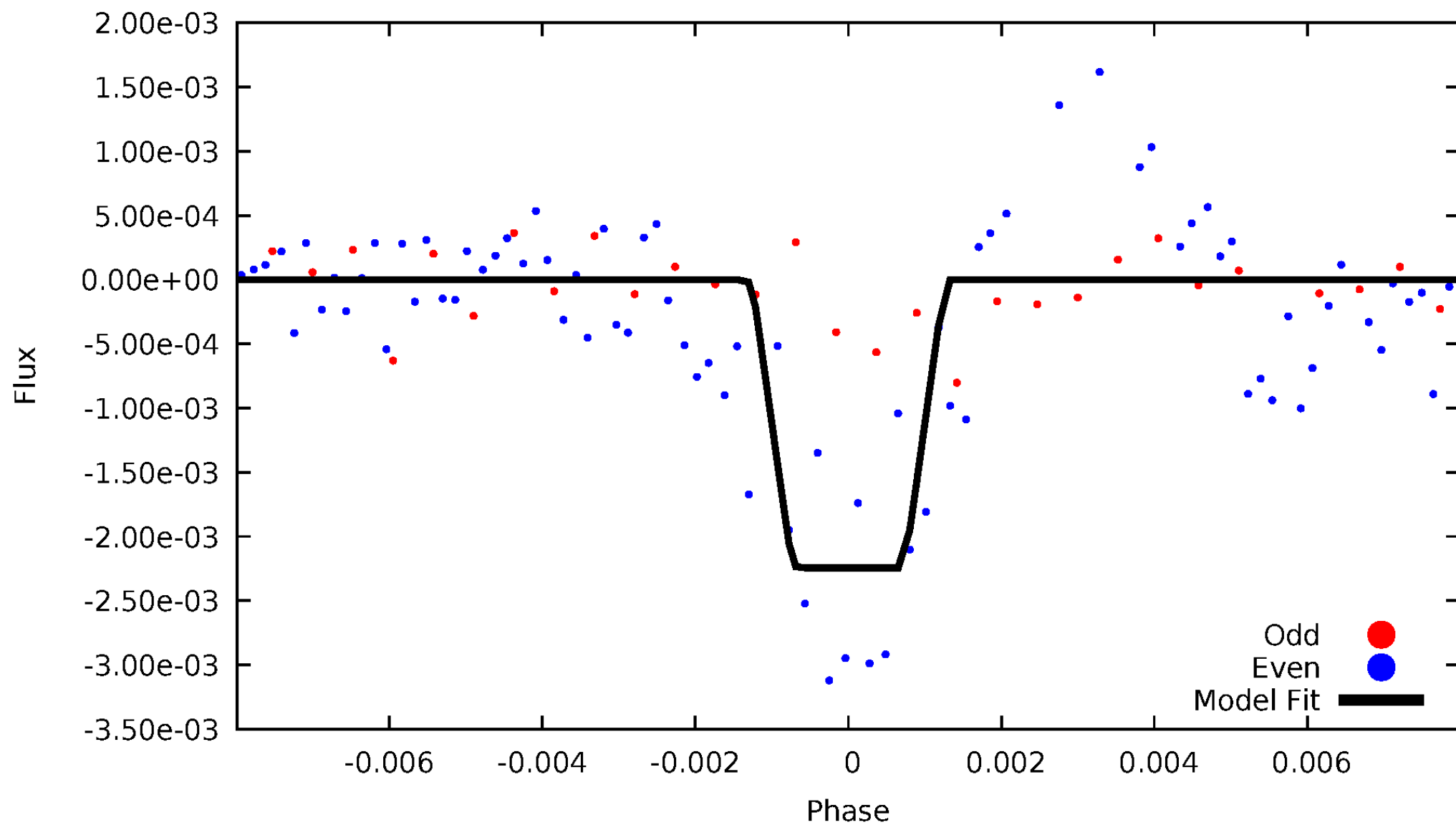
# DV Odd/Even

TCE 004572083-01



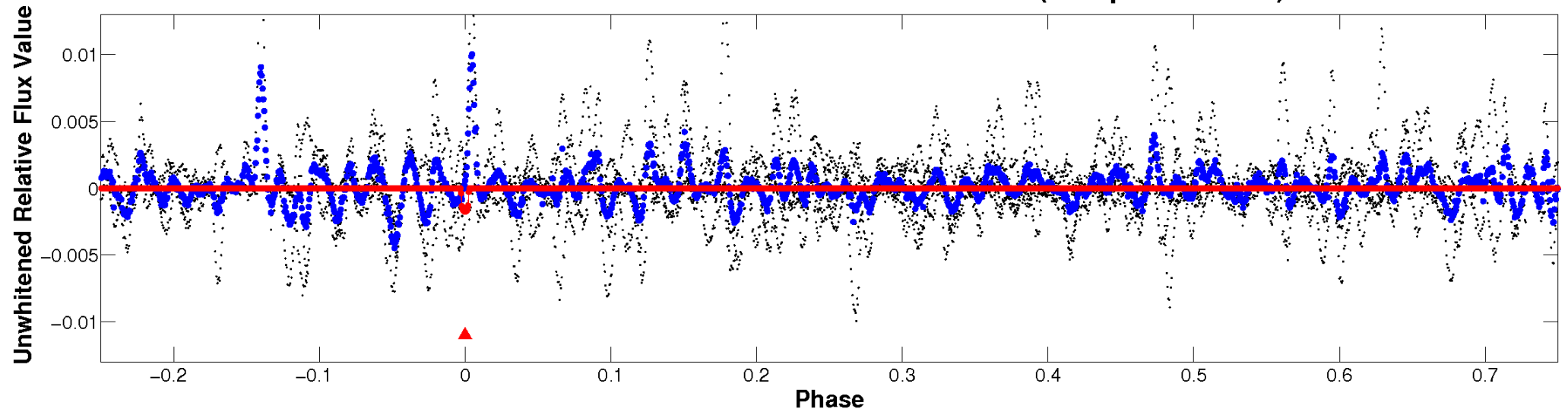
# ALT Odd/Even

TCE 004572083-01

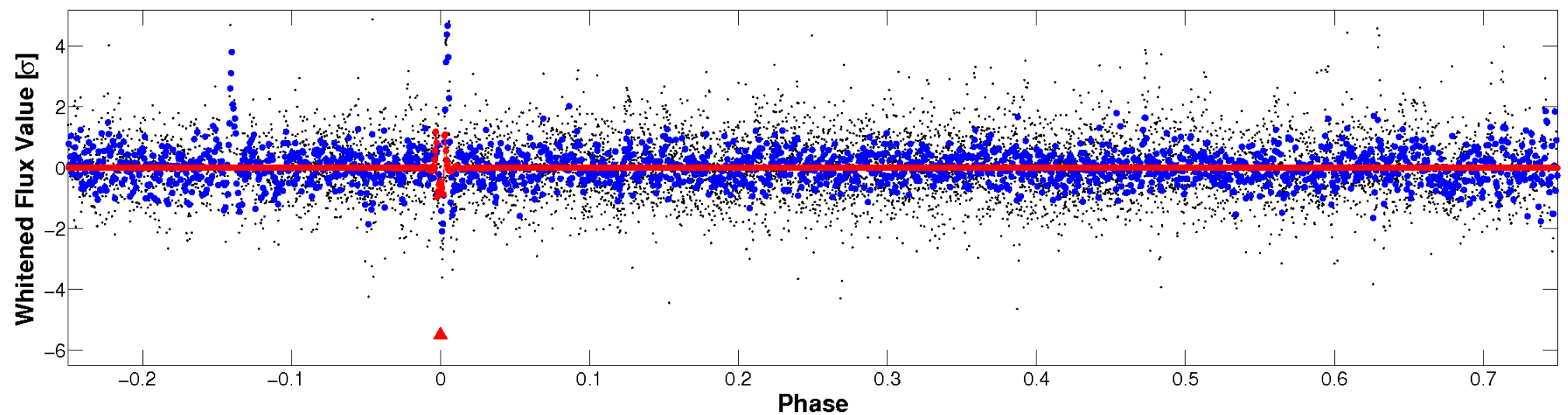


# Non-Whitened Vs. Whitened Light Curve

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

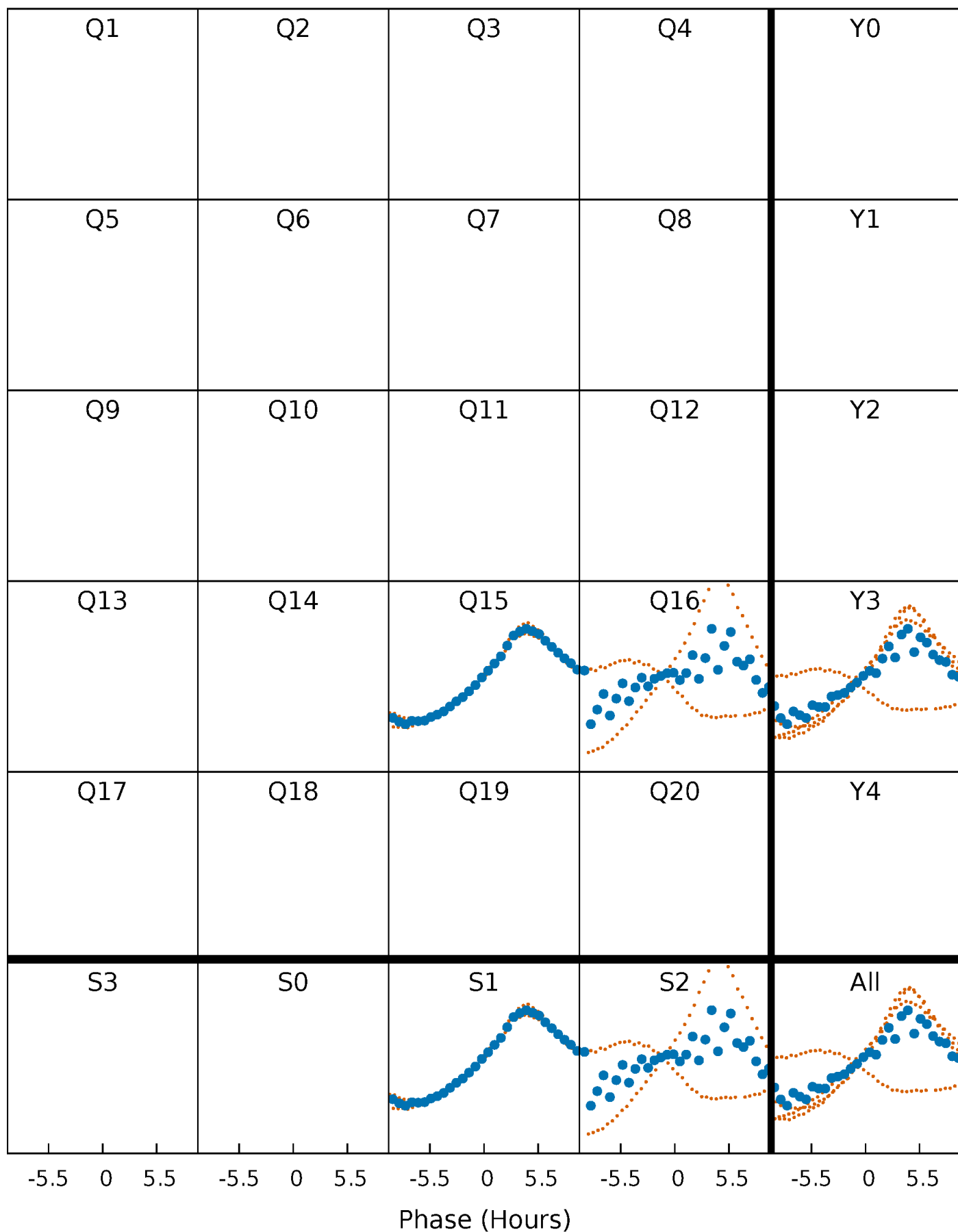


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

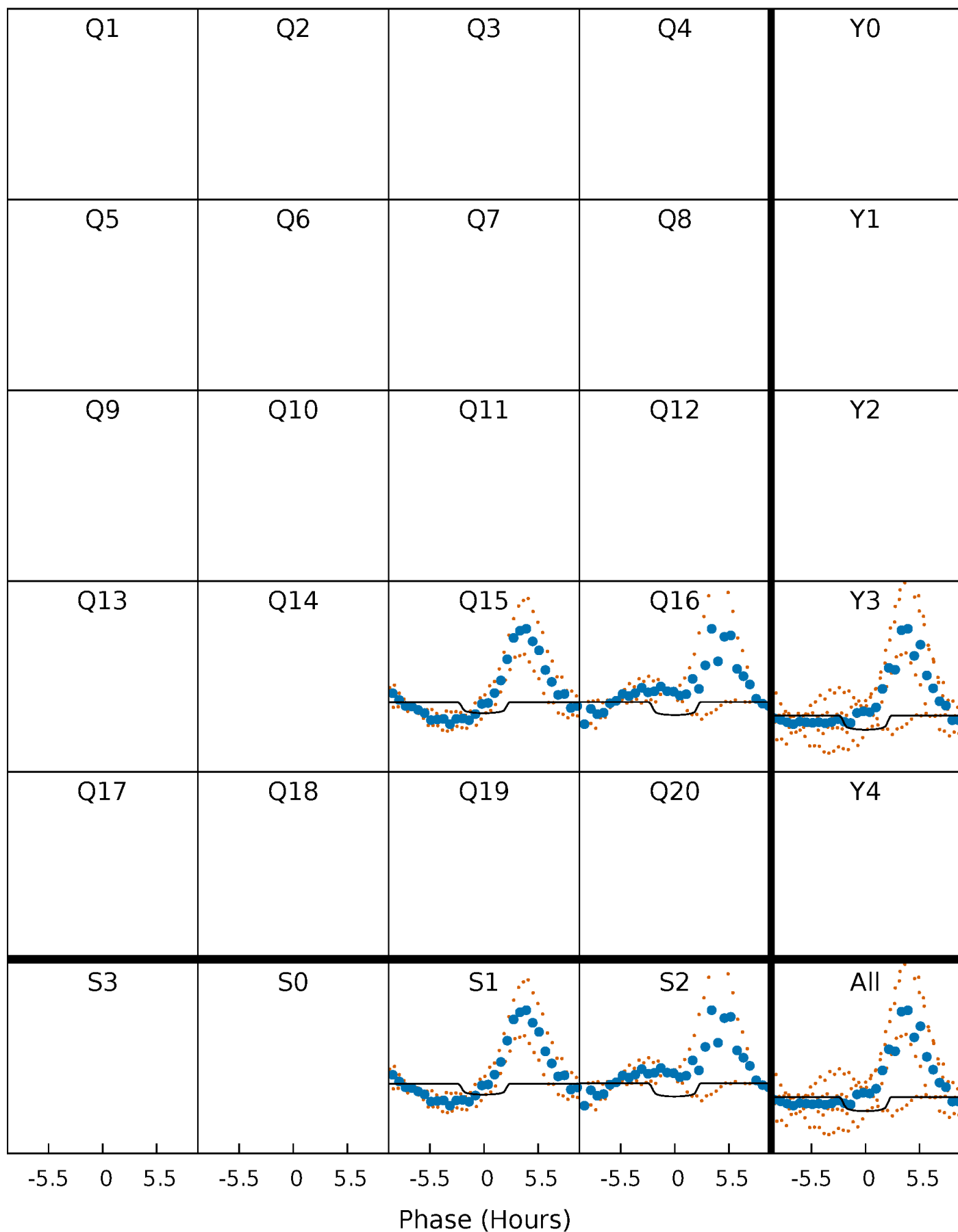
TCE 004572083-01 P= 38.814195 Days  $T_0=134.000757$  (BKJD)





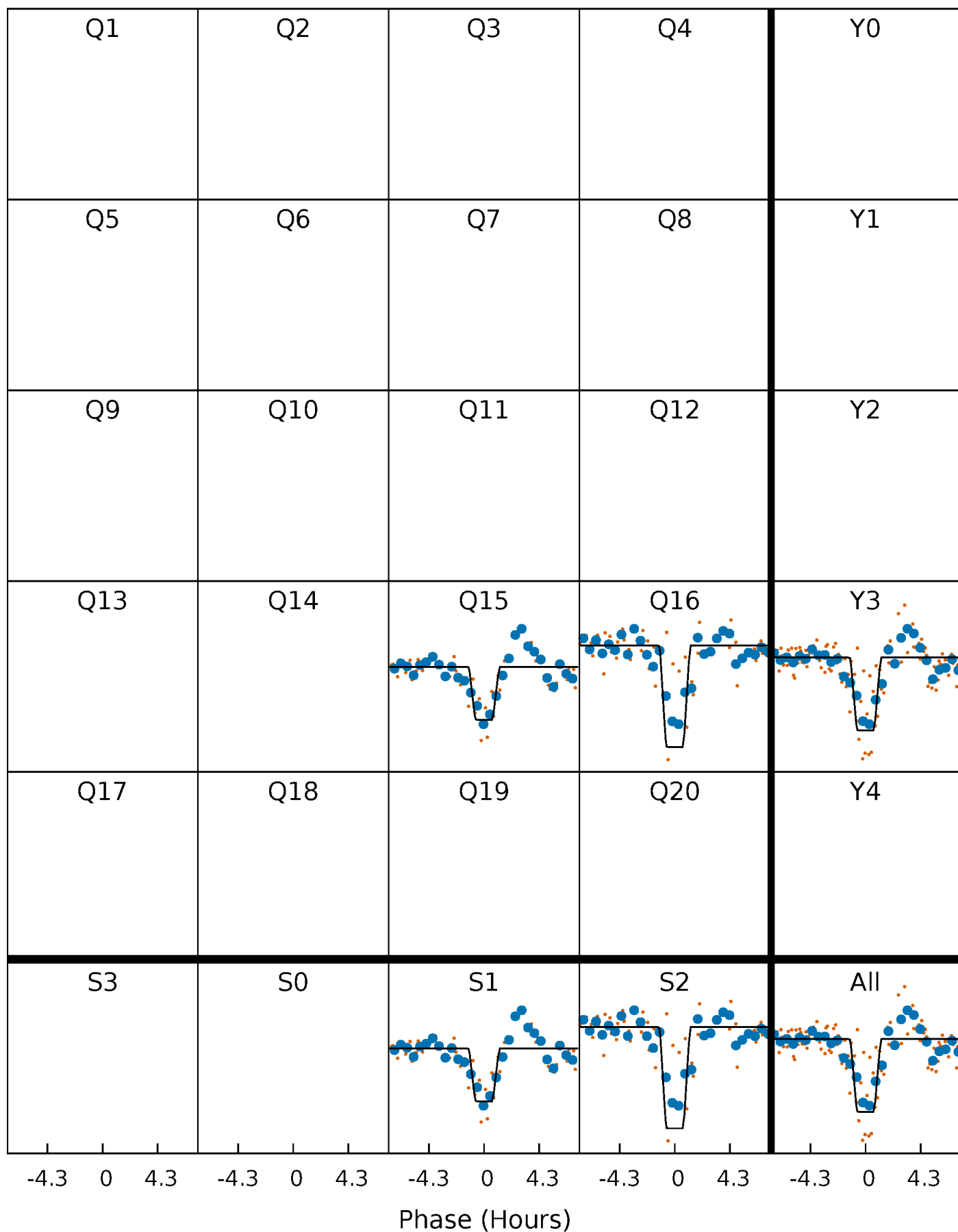
# DV Quarter-Phased Transit Curves

TCE 004572083-01 P= 38.814195 Days  $T_0=134.000757$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

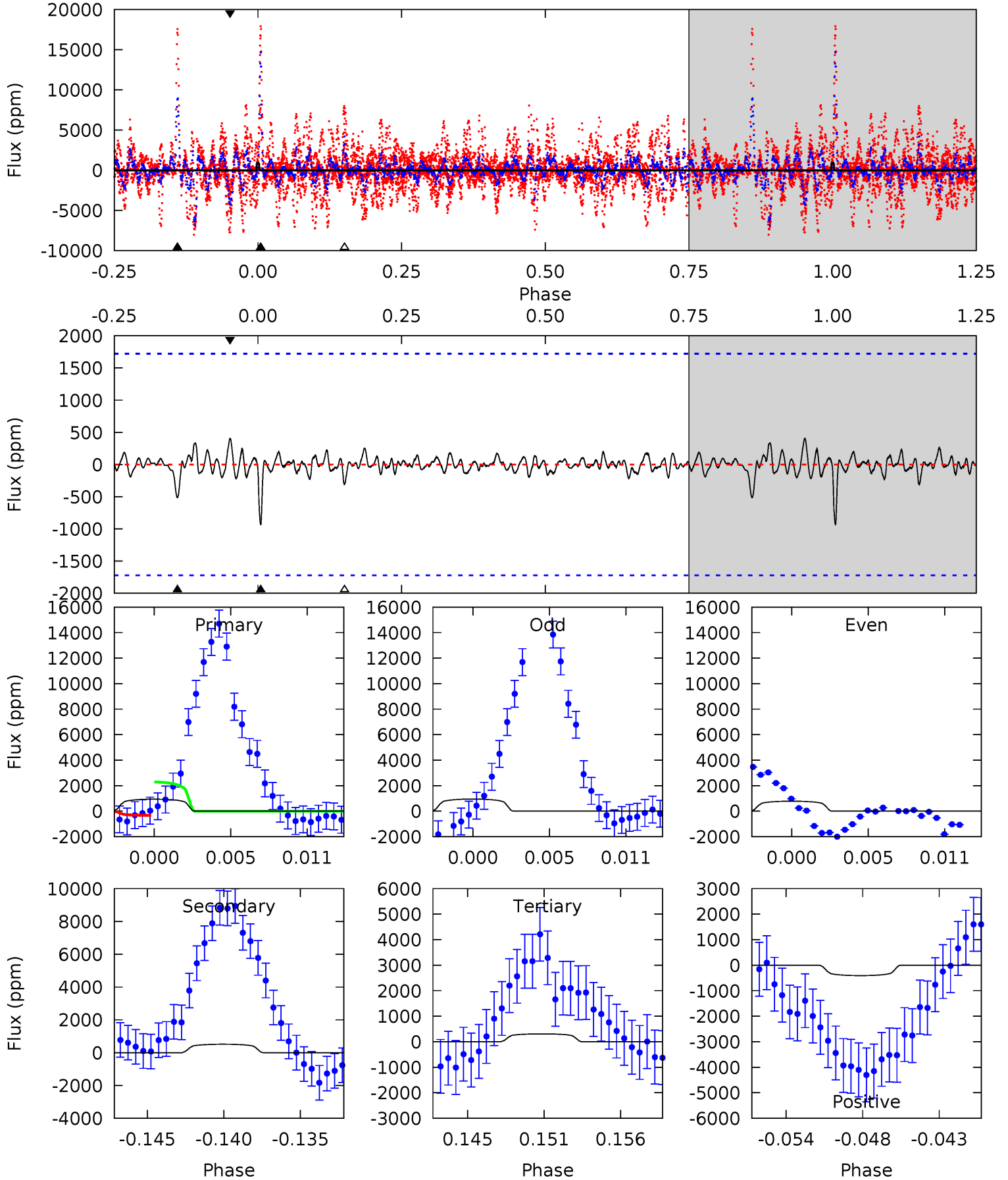
TCE 004572083-01 P= 38.819086 Days  $T_0=133.888379$  (BKJD)



# DV Model-Shift Uniqueness Test

004572083-01,  $P = 38.814195$  Days,  $E = 134.000757$  Days

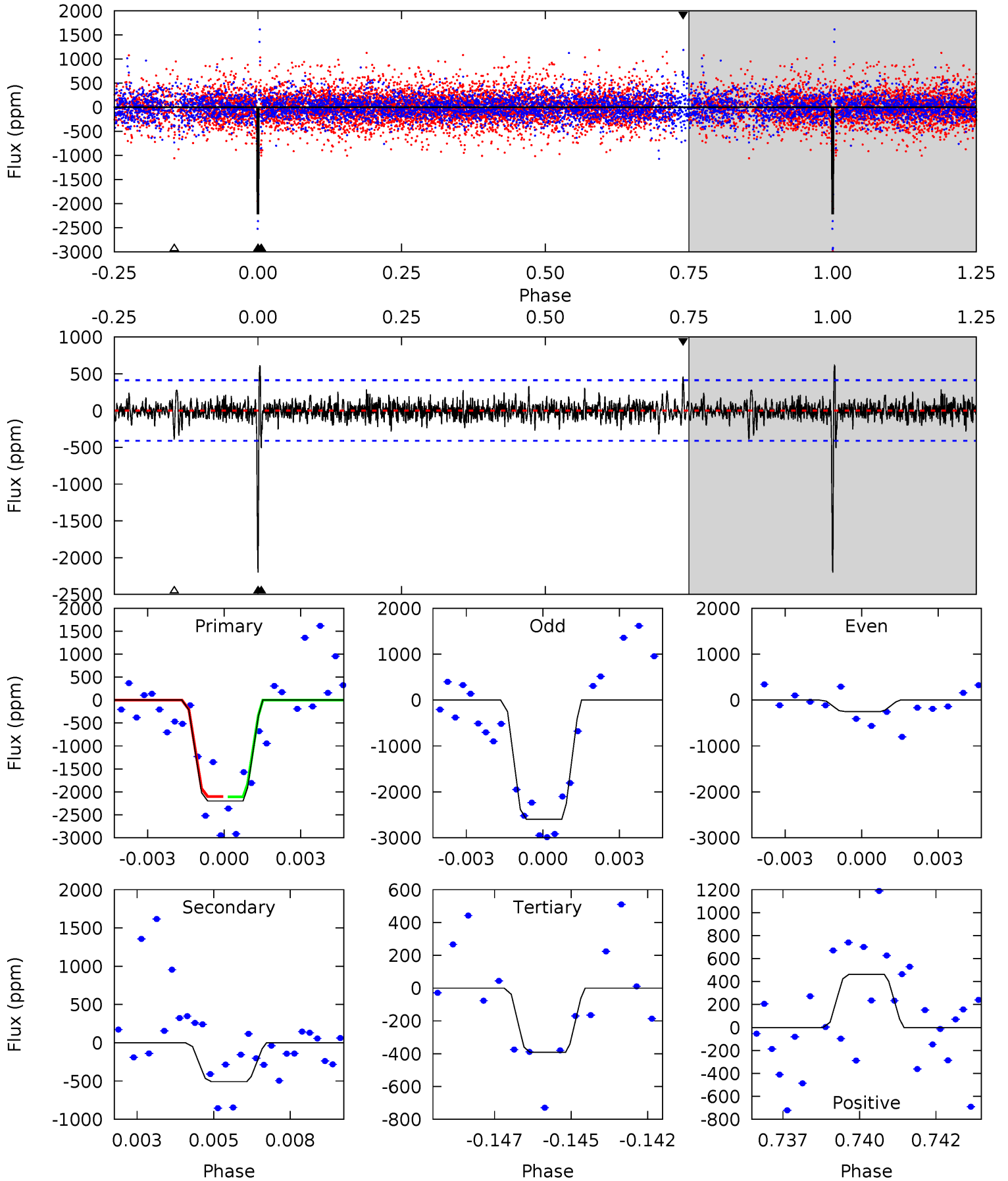
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.81	1.54	0.92	1.22	5.14	2.78	0.29	1.89	1.59	0.61	0.31	0.21	0.65	0.30	2.84



# Alt Model-Shift Uniqueness Test

004572083-01, P = 38.819086 Days, E = 133.888379 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
28.2	6.51	5.02	5.92	5.28	3.01	1.11	23.2	22.3	1.49	0.59	15.5	0.89	0.22	0.03



### Stellar Parameters For KIC 004572083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6897^{+216}_{-312}$	$4.274^{+0.105}_{-0.195}$	$-0.280^{+0.250}_{-0.350}$	$1.359^{+0.446}_{-0.223}$	$1.276^{+0.185}_{-0.203}$	$0.716^{+0.346}_{-0.368}$
	+3%/-5%	+2%/-5%	+89%/-125%	+33%/-16%	+14%/-16%	+48%/-51%
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 004572083-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-514 \pm 335$	$6.37^{+3.41}_{-3.30}$	$1010^{+84}_{-59}$	$5019^{+2095}_{-1085}$	$385^{+1303}_{-285}$
Alt.	$-508 \pm 78$	$7.17^{+3.67}_{-3.05}$	$1010^{+83}_{-68}$	$4808^{+1349}_{-687}$	$312^{+641}_{-174}$

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

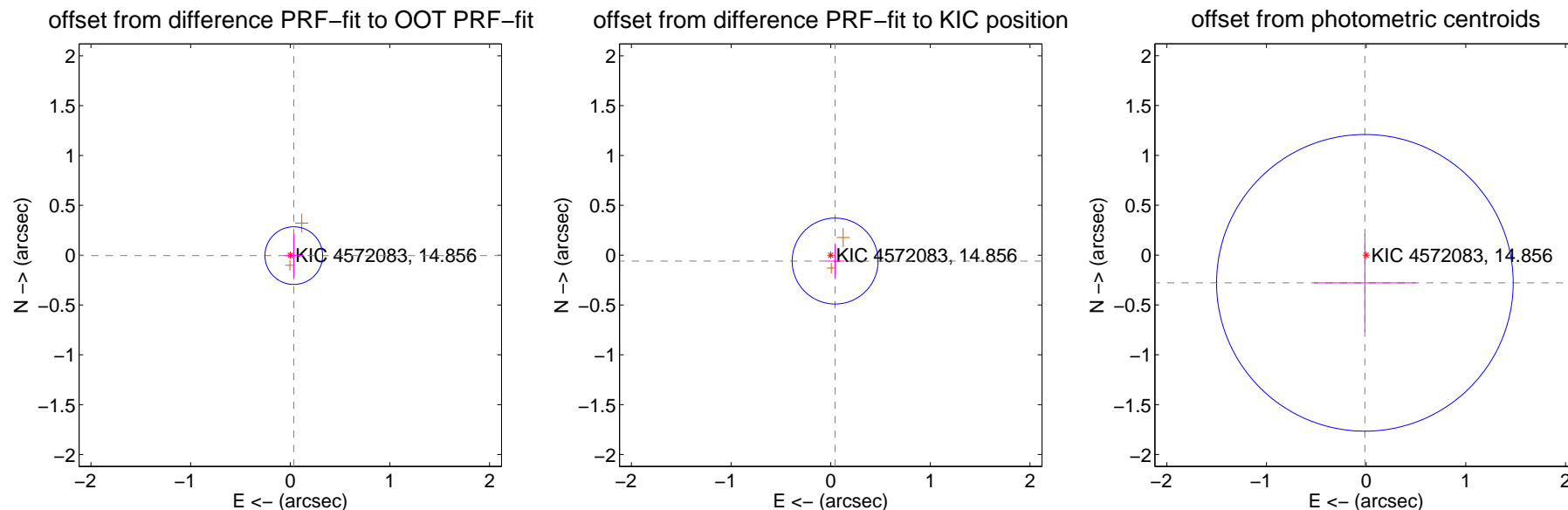
## DV Centroid Data

Supplemental centroid analysis for 004572083-01. Kepler magnitude: 14.86. Transit SNR 6.16

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.036 \pm 0.096$	0.37	$-0.035 \pm 0.093$	$-0.004 \pm 0.219$
PRF-fit source offset from KIC position	$0.074 \pm 0.144$	0.51	$-0.044 \pm 0.094$	$-0.059 \pm 0.165$
photometric centroid source offset	$0.28 \pm 0.50$	0.56	$0.01 \pm 0.51$	$-0.28 \pm 0.50$



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.

Q13 no difference image



Q13 no OOT image



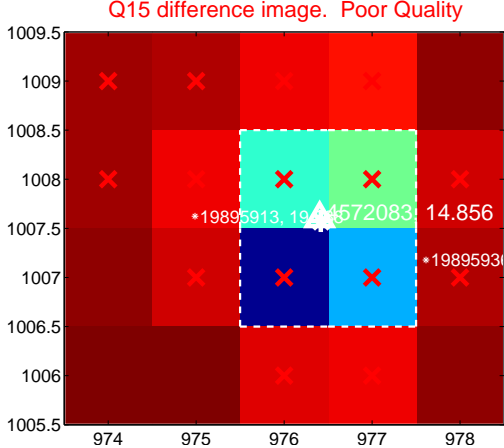
Q14 no difference image



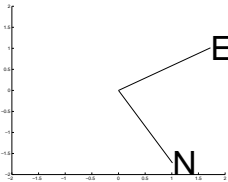
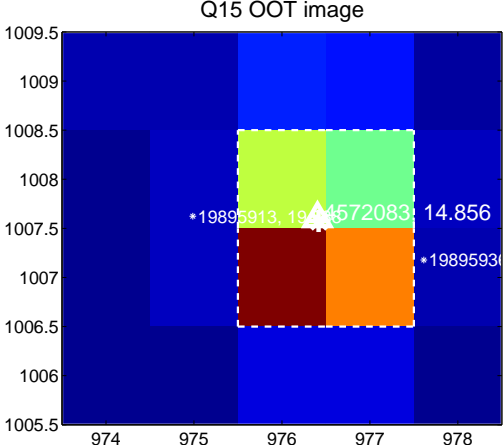
Q14 no OOT image



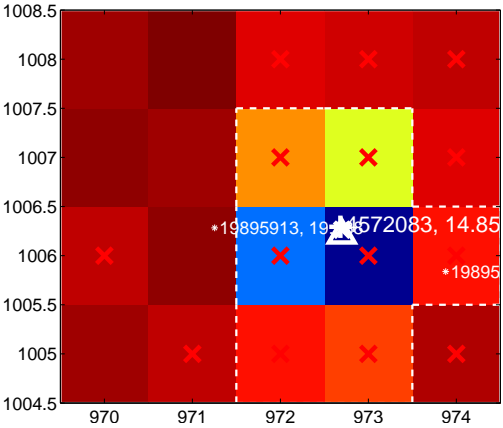
Q15 difference image. Poor Quality



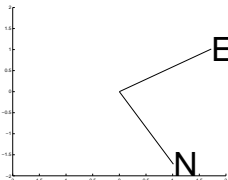
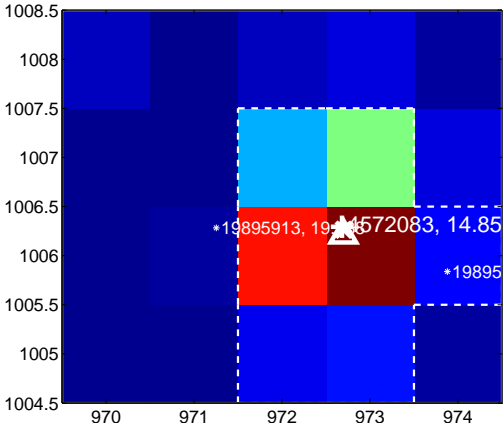
Q15 OOT image



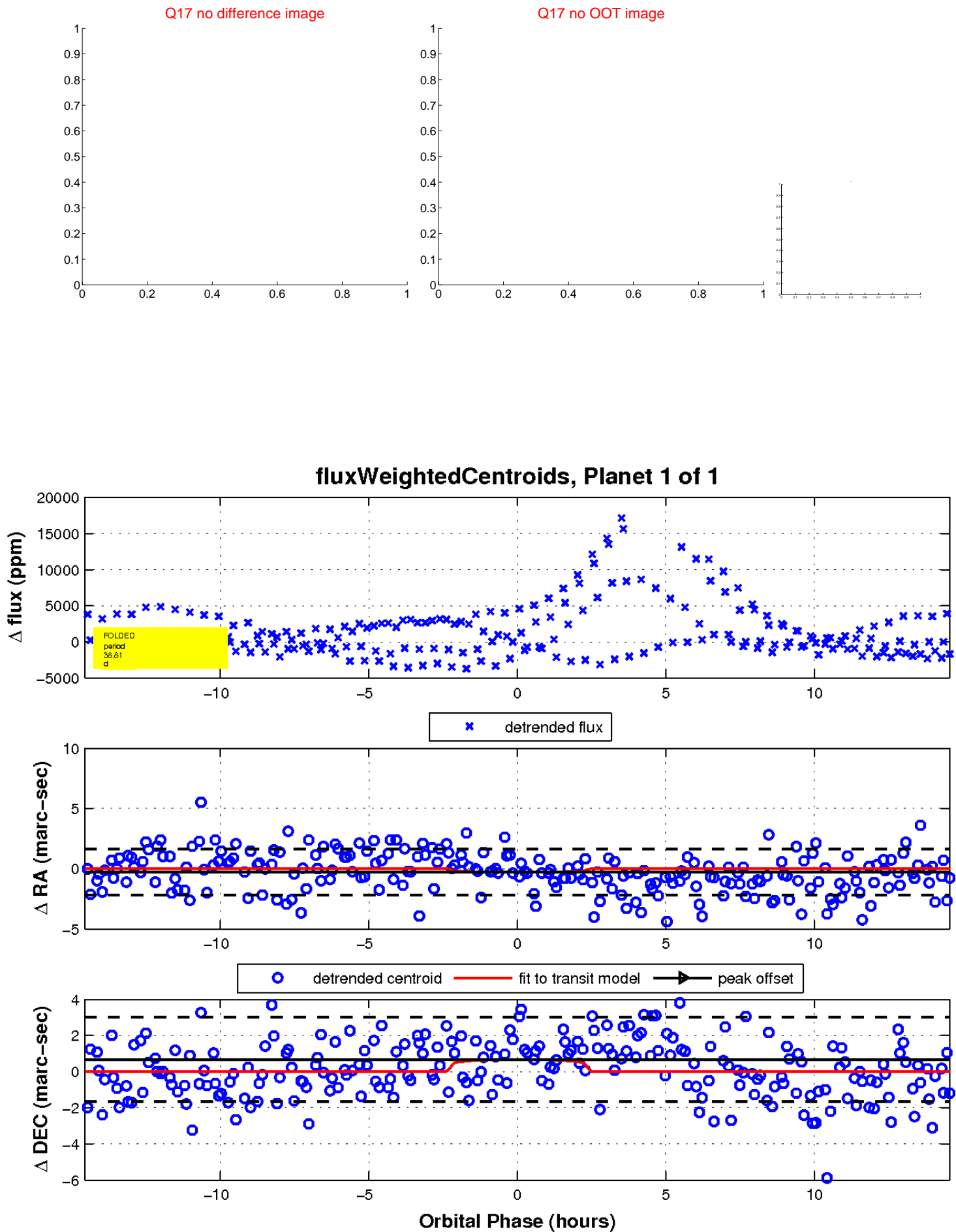
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

Declination

