

# KIC 008943141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008943141-02	OBS	No	370.529802	176.119996	1089.9	31.828	10.1	8.2	0.76	5731	2.96	0.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008943141-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

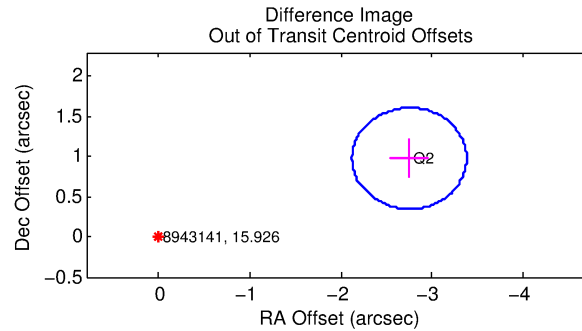
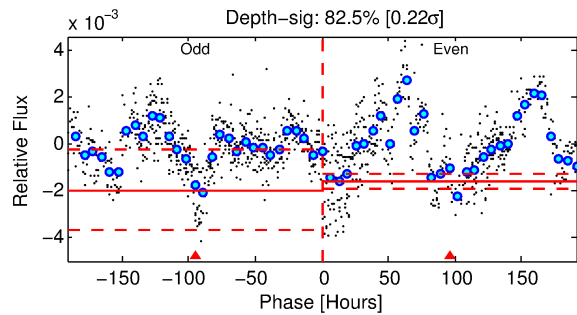
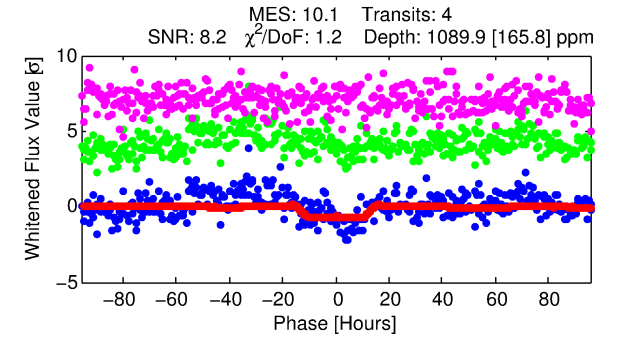
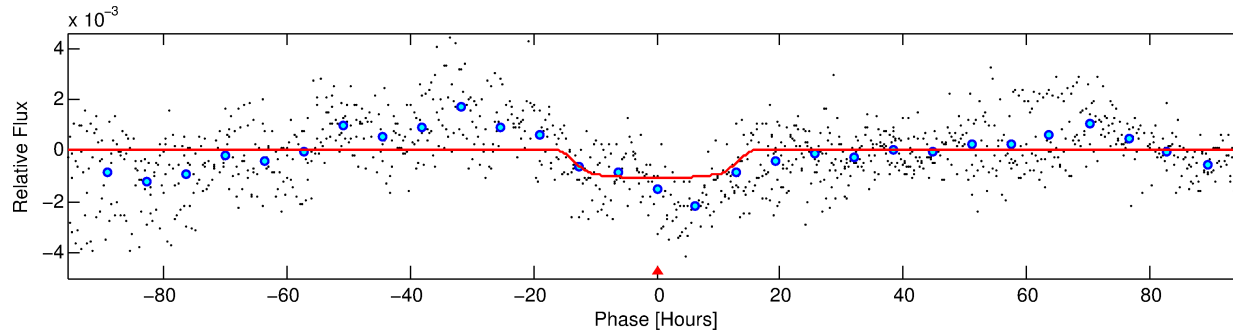
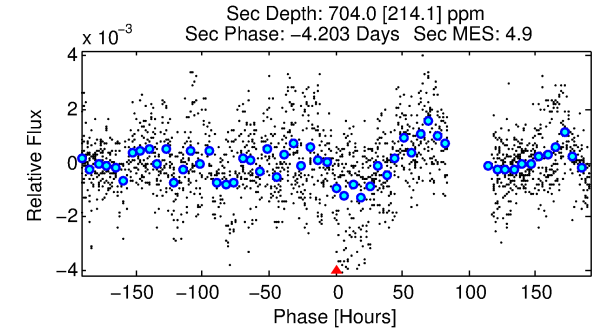
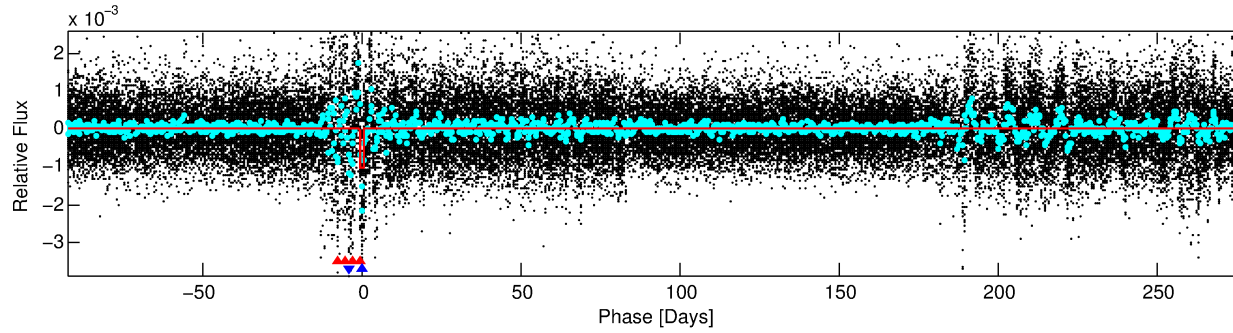
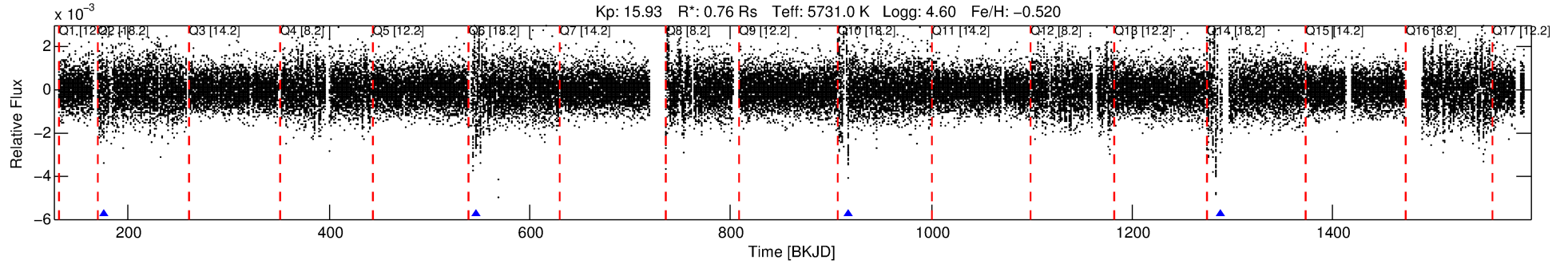
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008943141-02

No Significant Match Found

# DV One-Page Summary

KIC: 8943141 Candidate: 2 of 2 Period: 370.530 d



## DV Fit Results:

Period = 370.52980 [0.03806] d  
Epoch = 176.1200 [0.0602] BKJD  
Rp/R\* = 0.0358 [0.0039]  
a/R\* = 45.24 [14.78]  
b = 0.90 [0.07]  
Seff = 0.61 [0.17]  
Teq = 226 [15] K  
Rp = 2.96 [0.69] Re  
a = 0.9490 [0.1634] AU  
Ag = 39913.00 [17922.79] [2.23σ]  
Teff = 4931 [480] K [9.80σ]

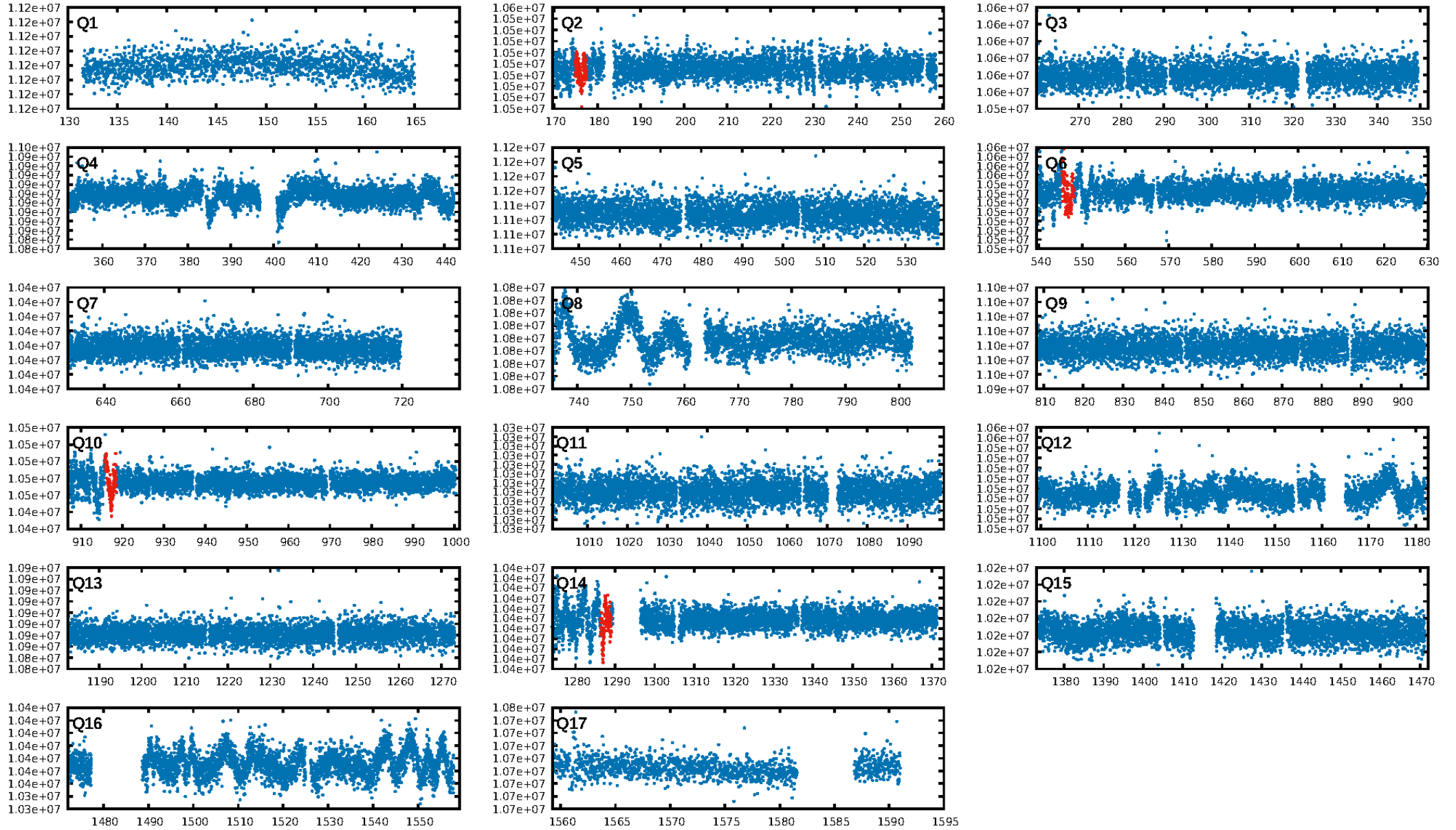
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 87.0% [1.51σ]  
ModelChiSquare2-sig: 22.0%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.03e-12**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -1.187  
Centroid-sig: 0.6%  
Centroid-so: 4.304 arcsec [2.00σ]  
**OotOffset-rm: 2.921 arcsec [13.91σ]**  
**KicOffset-rm: 2.868 arcsec [13.62σ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

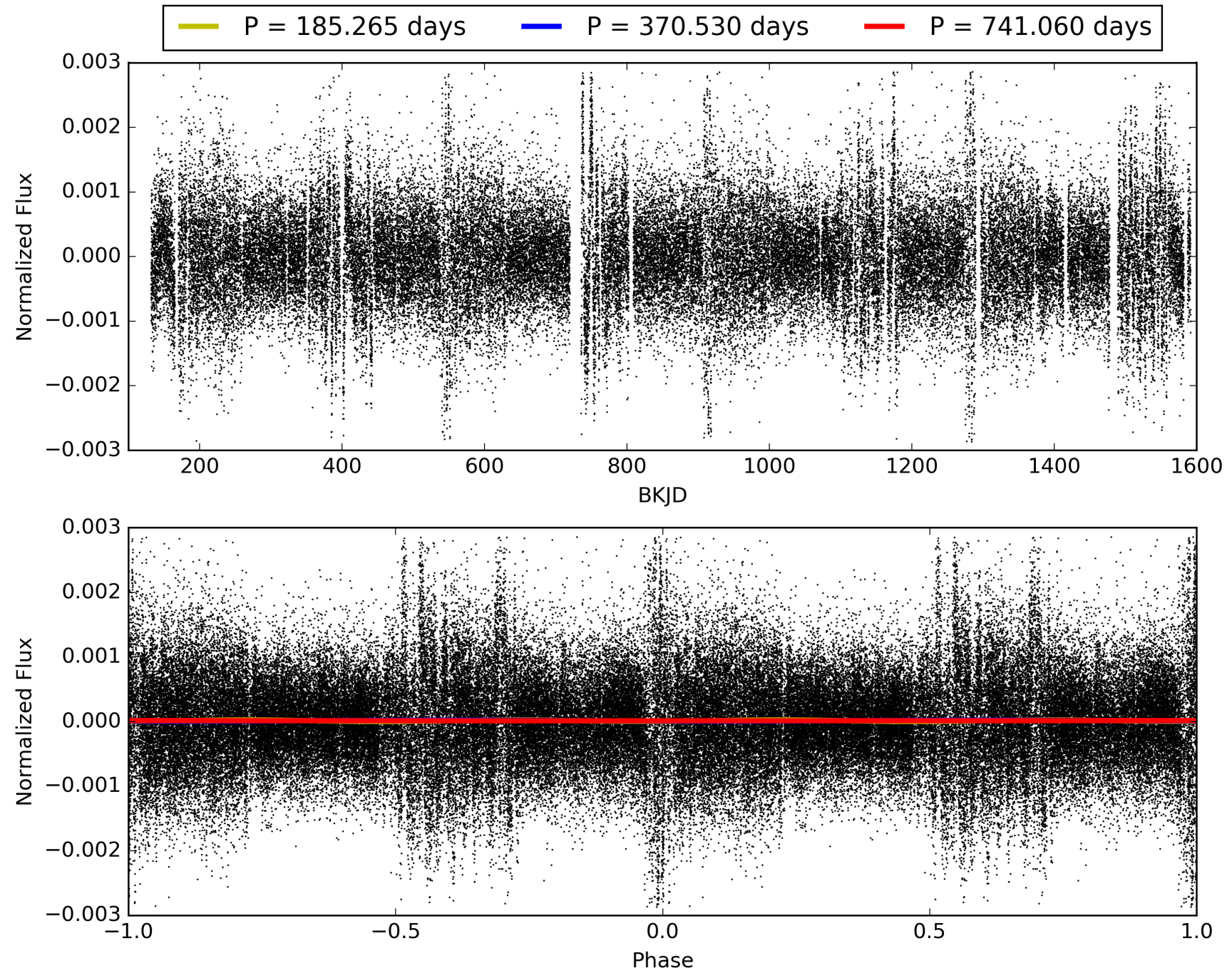
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:22:15 Z

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

# TCE 008943141-02, PDC Light Curves

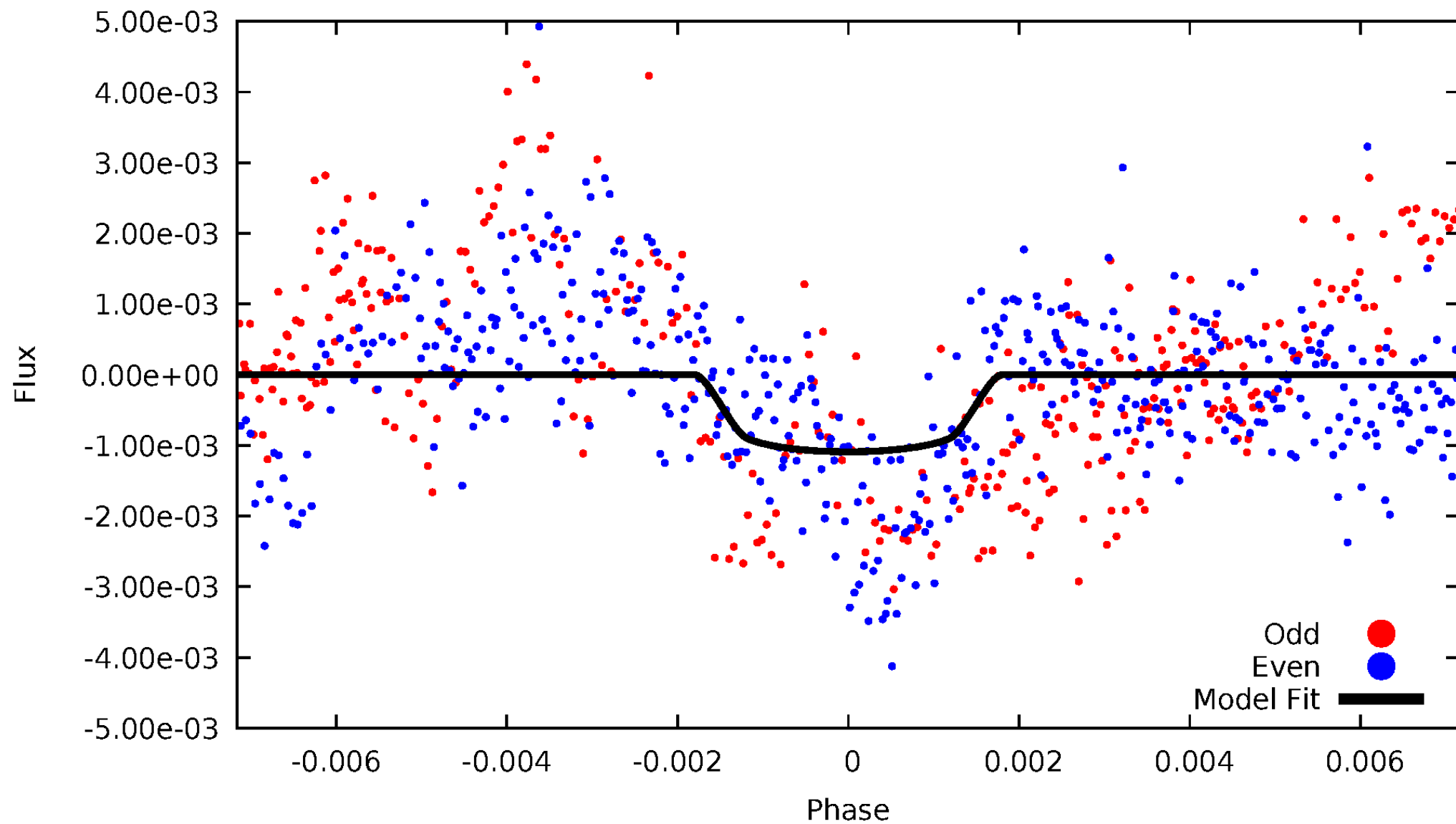


TCE 008943141-02



# DV Odd/Even

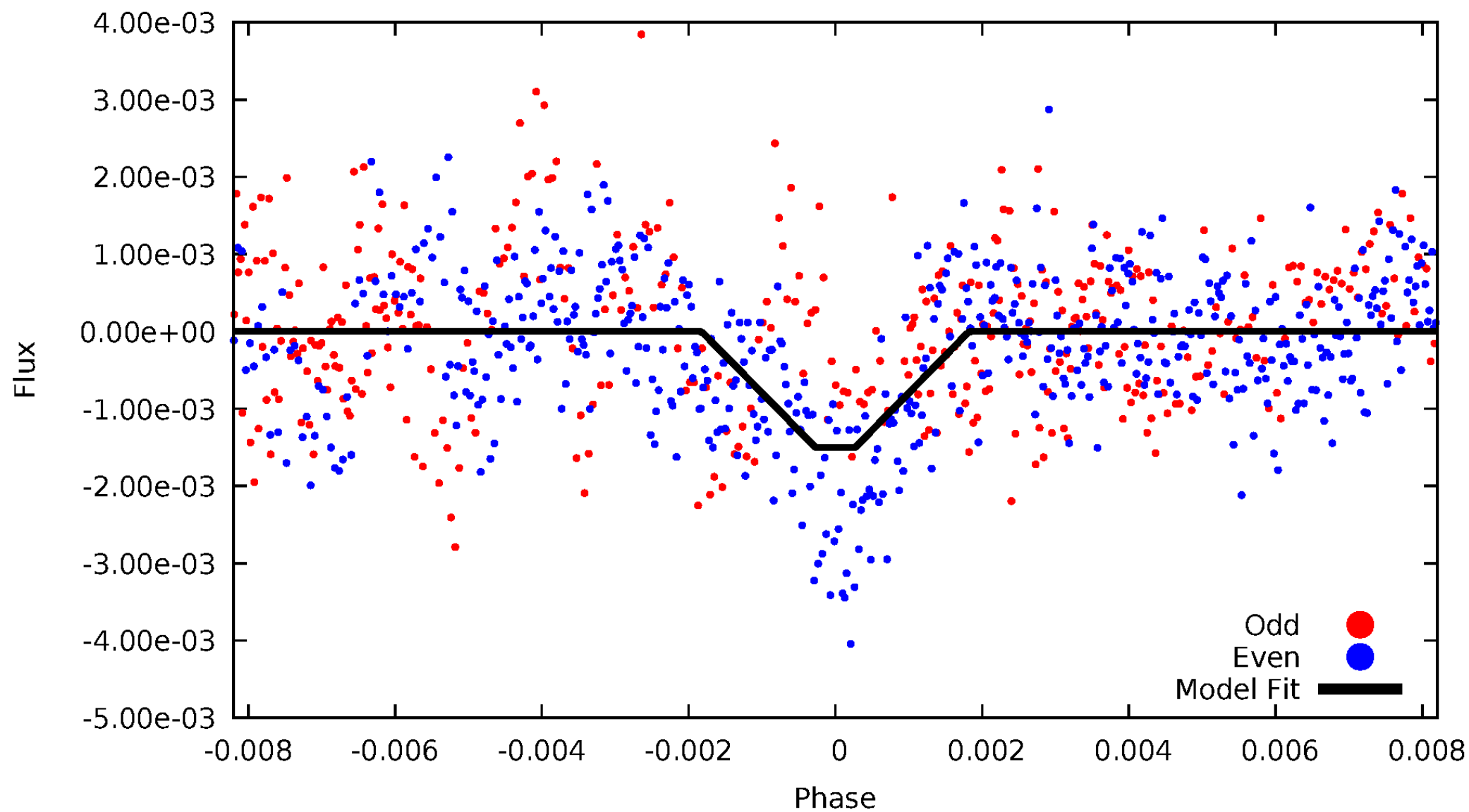
TCE 008943141-02





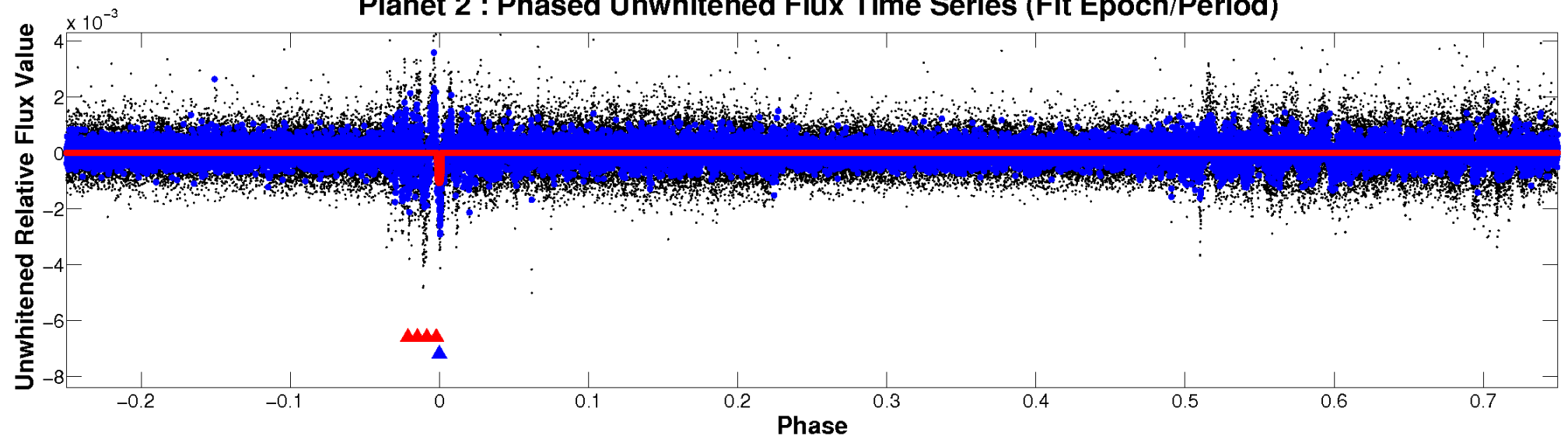
# ALT Odd/Even

TCE 008943141-02

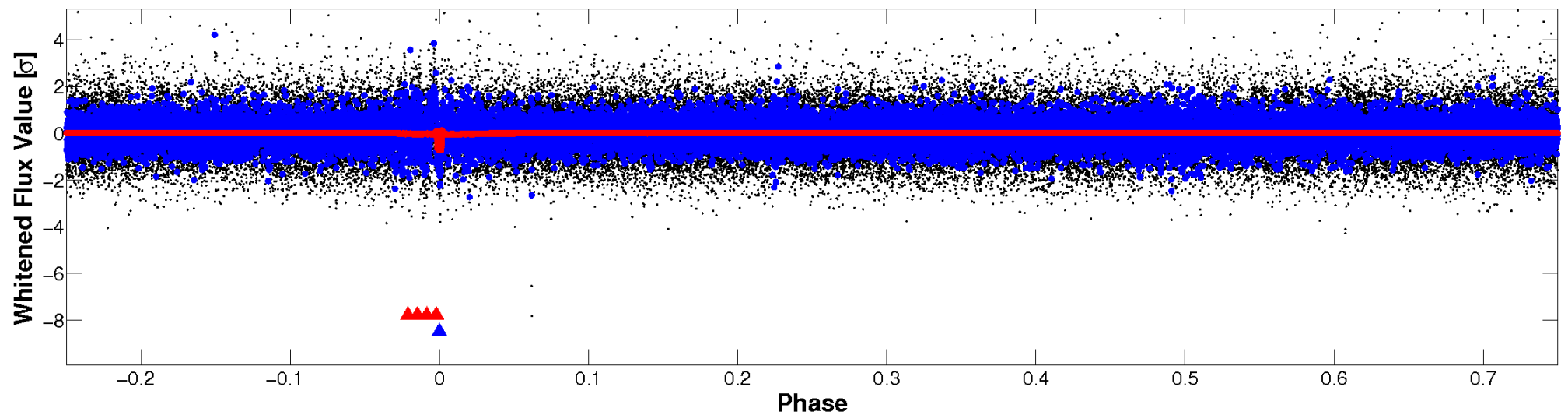


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

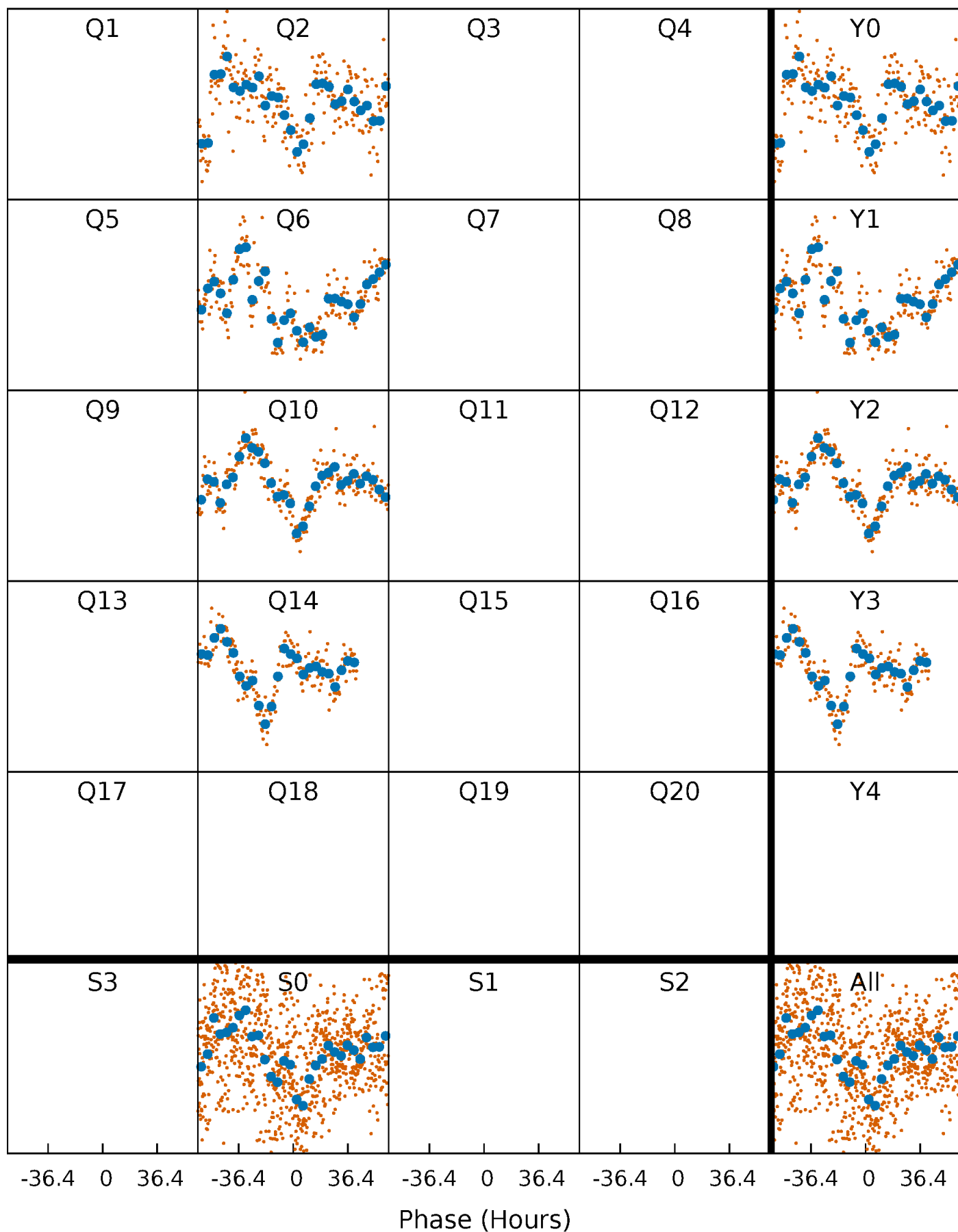


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

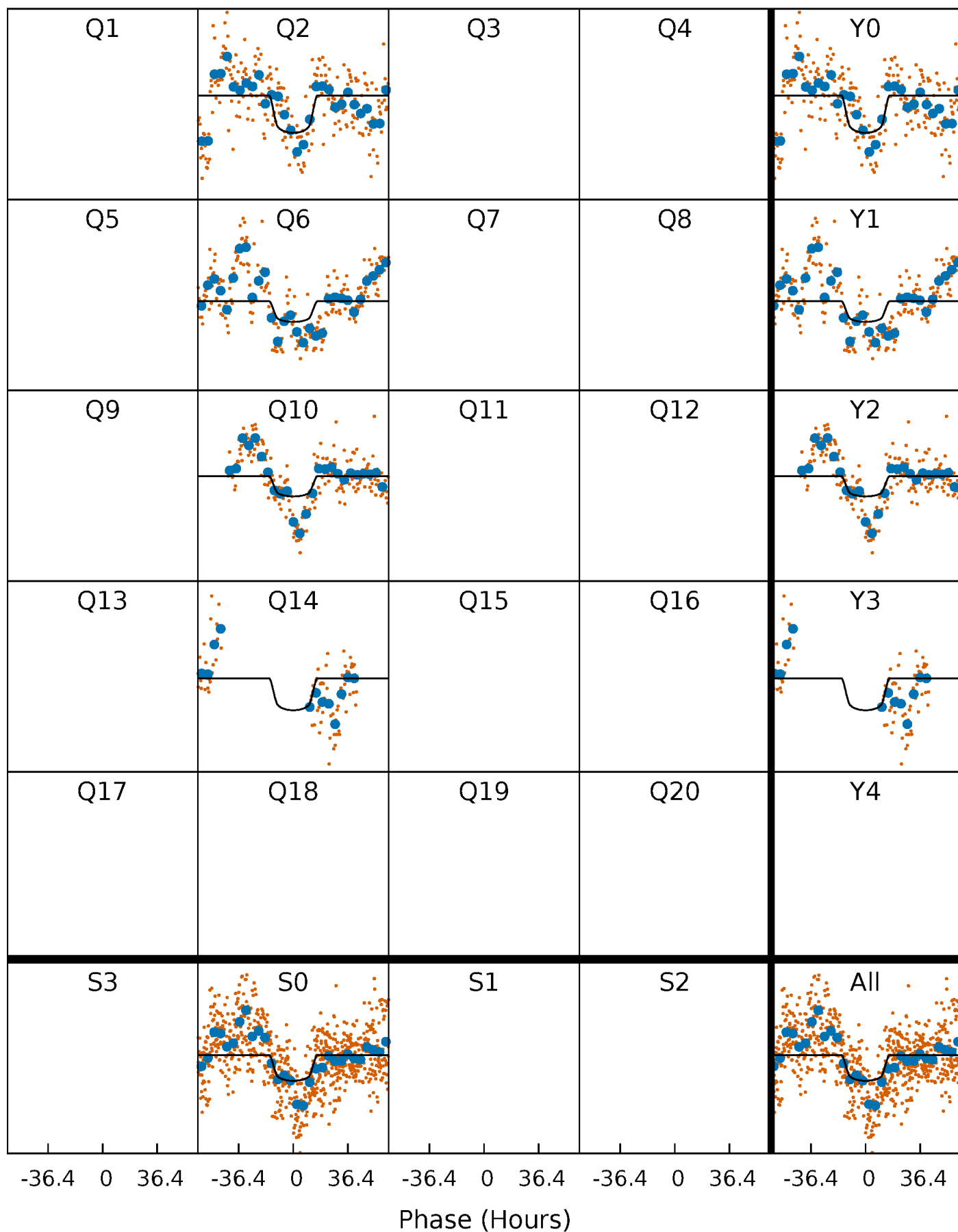
TCE 008943141-02 P=370.529802 Days  $T_0=176.119996$  (BKJD)





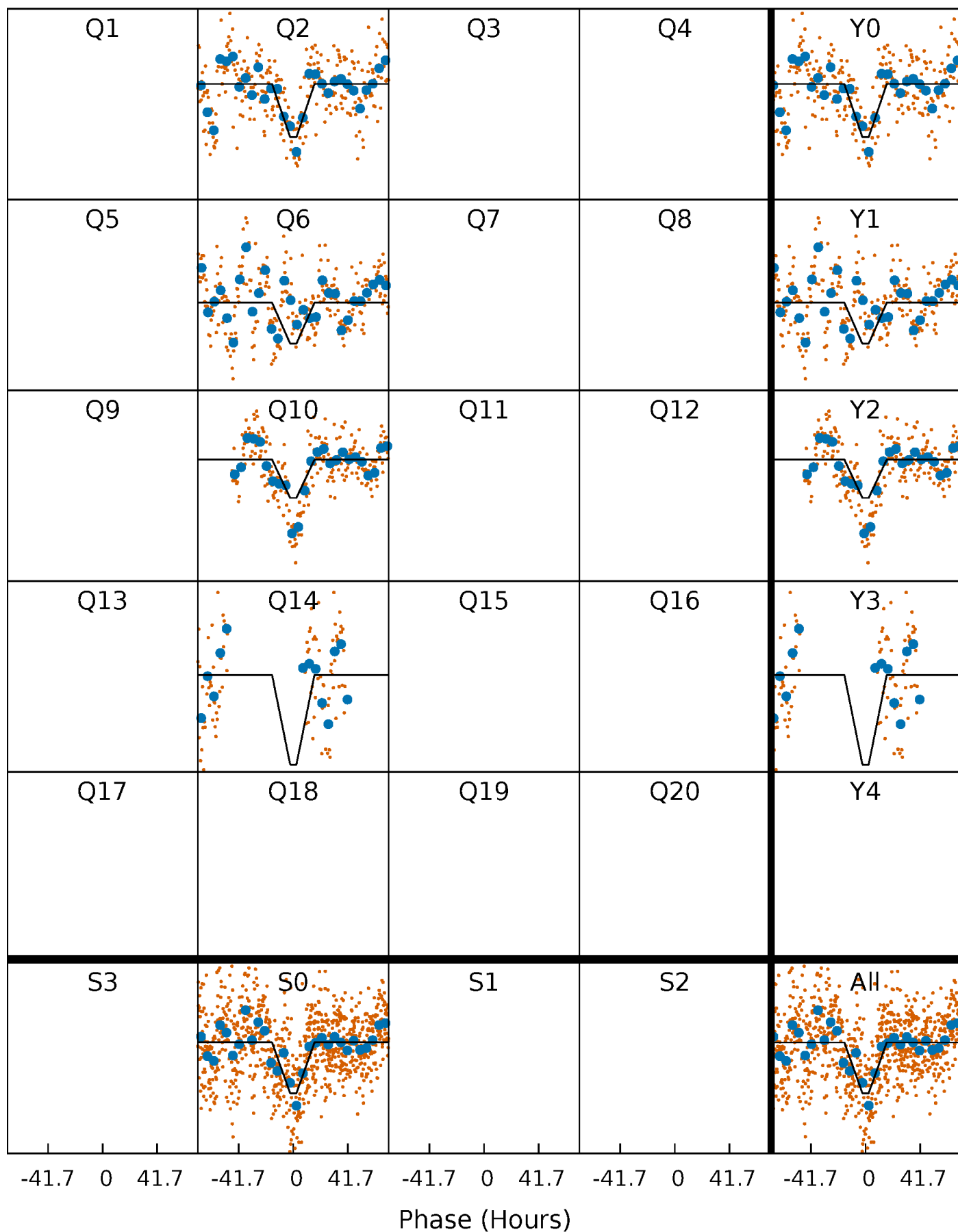
# DV Quarter-Phased Transit Curves

TCE 008943141-02 P=370.529802 Days  $T_0=176.119996$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

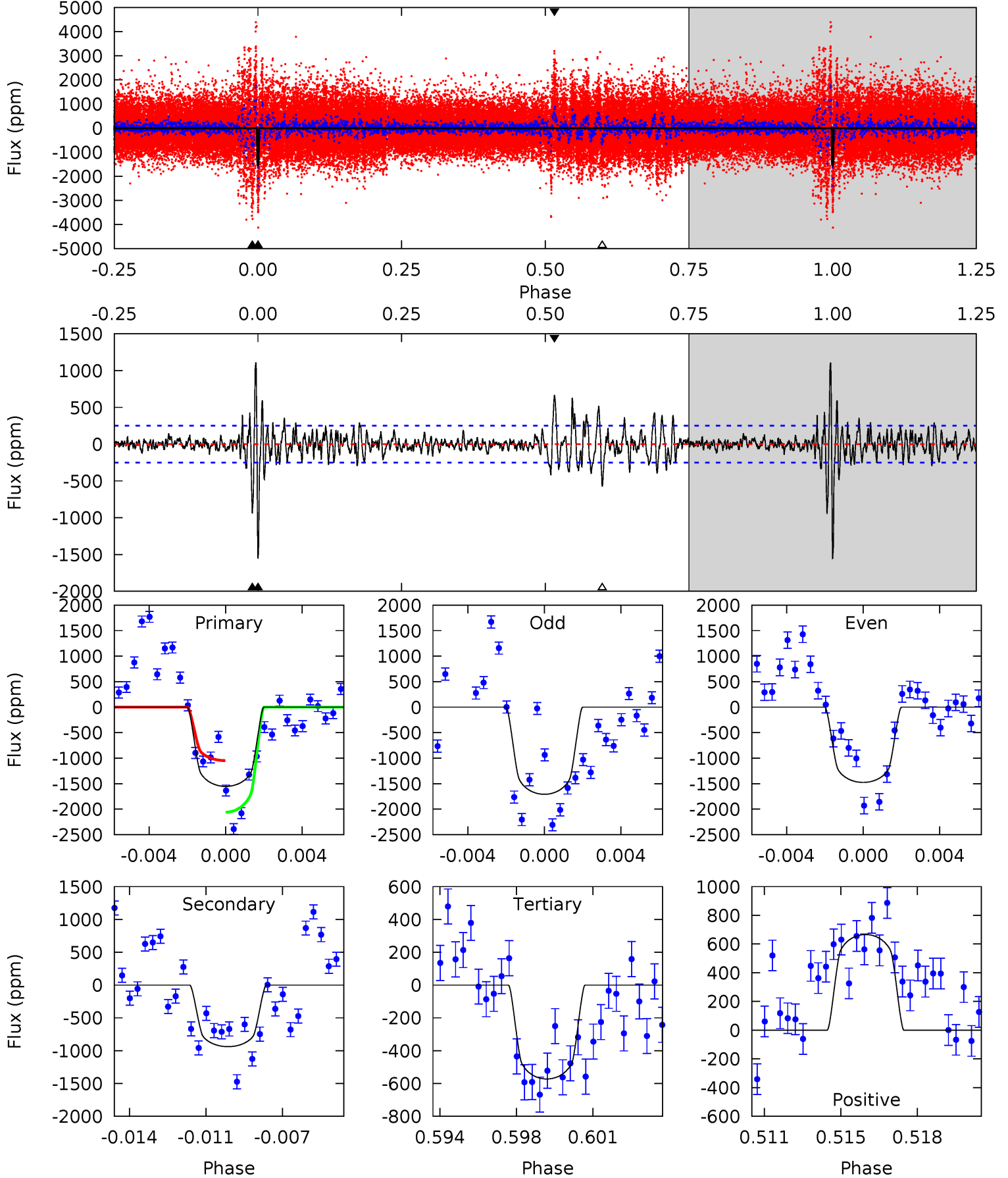
TCE 008943141-02 P=370.528555 Days  $T_0=176.235429$  (BKJD)



# DV Model-Shift Uniqueness Test

008943141-02, P = 370.529802 Days, E = 176.119996 Days

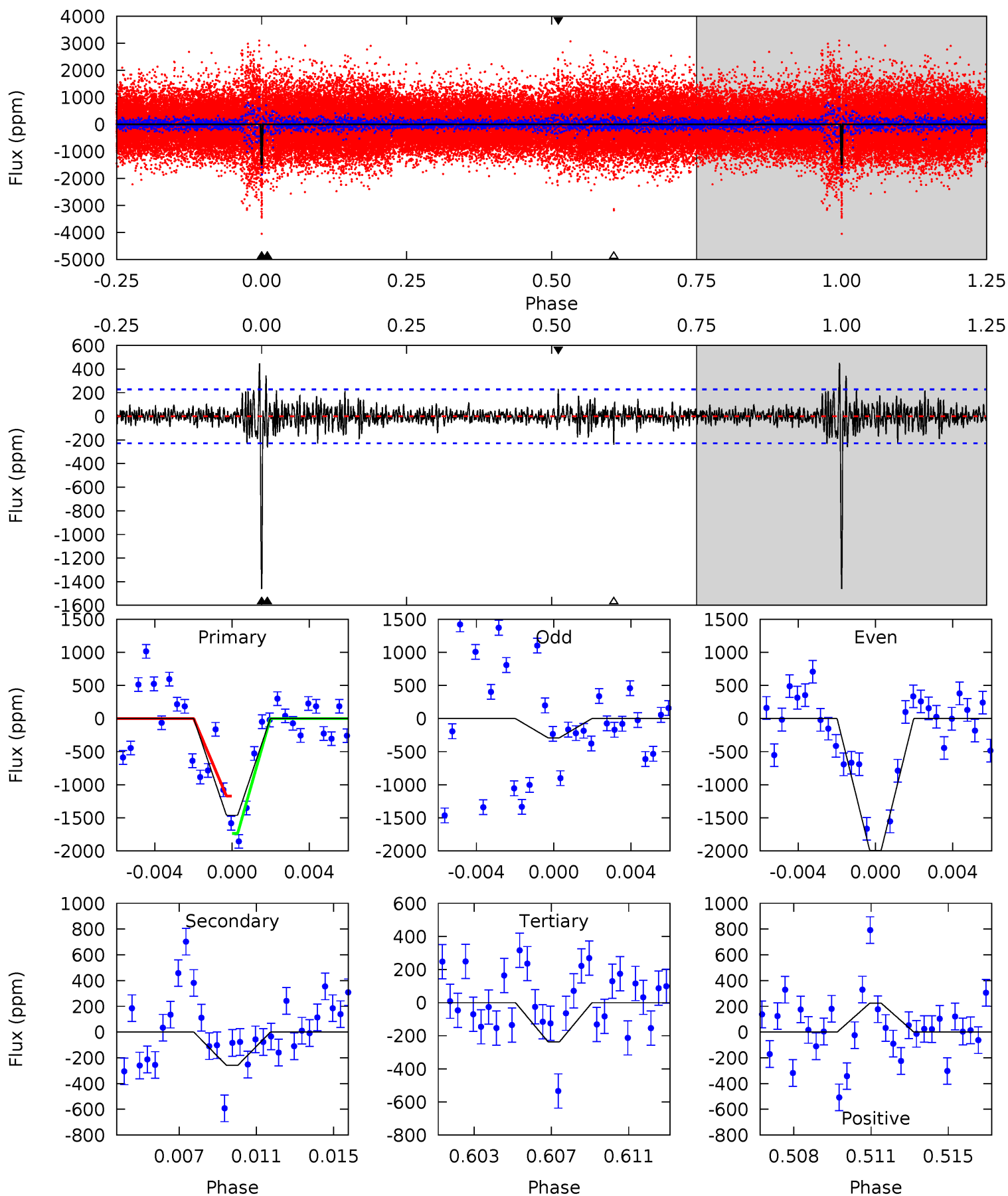
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.3	19.5	11.9	13.8	5.22	2.91	2.97	20.4	18.4	7.61	5.66	2.32	0.94	0.42	10.5



# Alt Model-Shift Uniqueness Test

008943141-02, P = 370.528555 Days, E = 176.235429 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
33.3	5.91	5.41	5.13	5.21	2.90	1.28	27.9	28.2	0.50	0.78	18.9	1.13	0.23	6.42



### Stellar Parameters For KIC 008943141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5731^{+155}_{-155}$	$4.600^{+0.036}_{-0.135}$	$-0.520^{+0.300}_{-0.300}$	$0.756^{+0.156}_{-0.052}$	$0.830^{+0.088}_{-0.079}$	$2.710^{+0.487}_{-1.056}$
	+3%/-3%	+1%/-3%	+58%/-58%	+21%/-7%	+11%/-10%	+18%/-39%
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 008943141-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-939±48	$3.04^{+0.43}_{-0.38}$	$319^{+18}_{-12}$	$5348^{+302}_{-284}$	$49977^{+14102}_{-11497}$
Alt.	-259±44	$3.30^{+0.47}_{-0.39}$	$321^{+16}_{-13}$	$4003^{+203}_{-202}$	$11453^{+4020}_{-2990}$

$T_{\text{max}}$  = 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

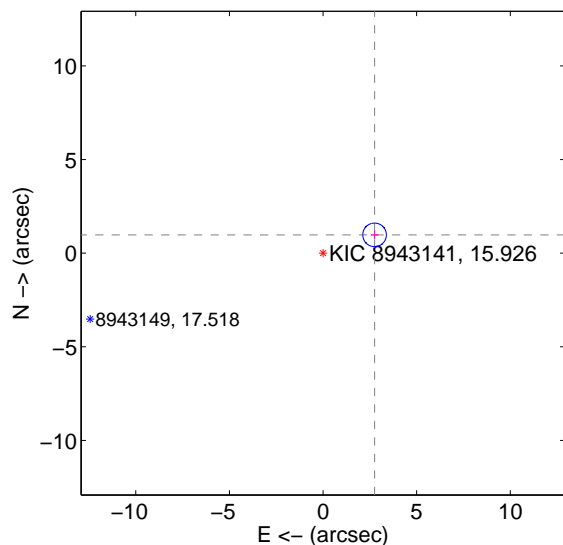
Supplemental centroid analysis for 008943141-02. Kepler magnitude: 15.93. Transit SNR 8.23

There are 0 quarters with good PRF difference image offsets

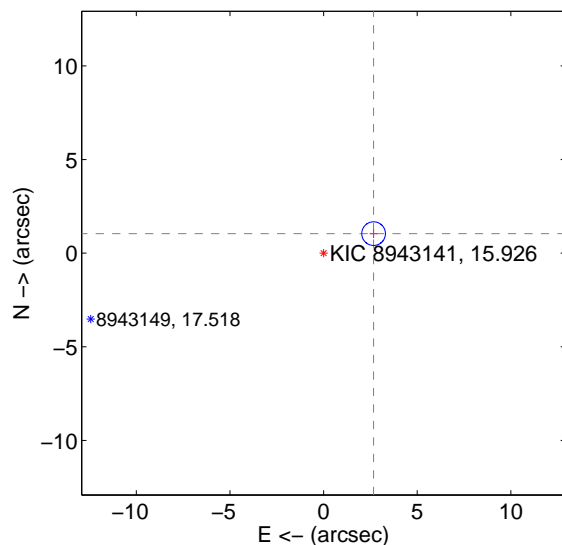
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.921 \pm 0.210$	13.91	$-2.753 \pm 0.207$	$0.978 \pm 0.233$
PRF-fit source offset from KIC position	$2.868 \pm 0.211$	13.62	$-2.672 \pm 0.207$	$1.044 \pm 0.233$
photometric centroid source offset	$4.30 \pm 2.16$	2.00	$-3.29 \pm 2.20$	$2.77 \pm 2.09$

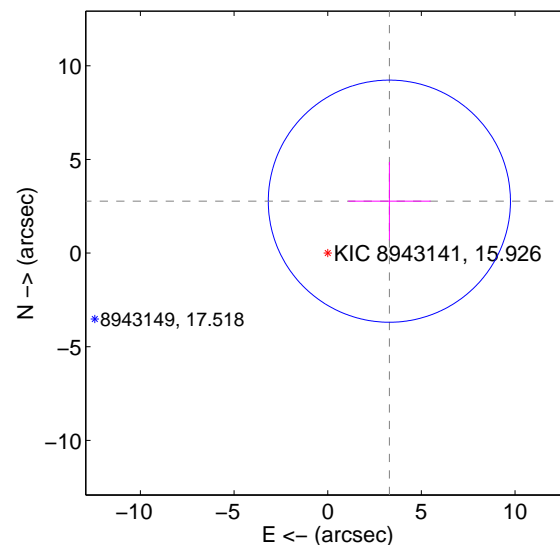
offset from difference PRF-fit to OOT PRF-fit



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.

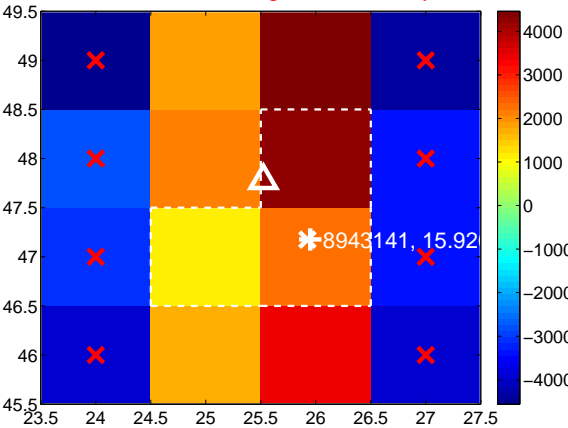
Q1 no difference image



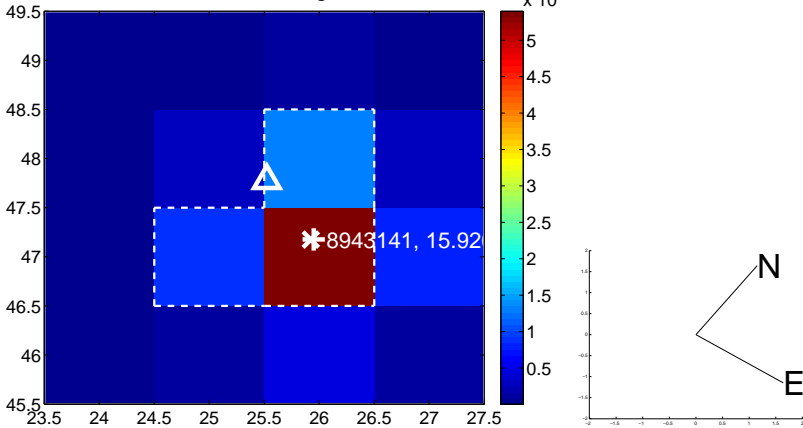
Q1 no OOT image



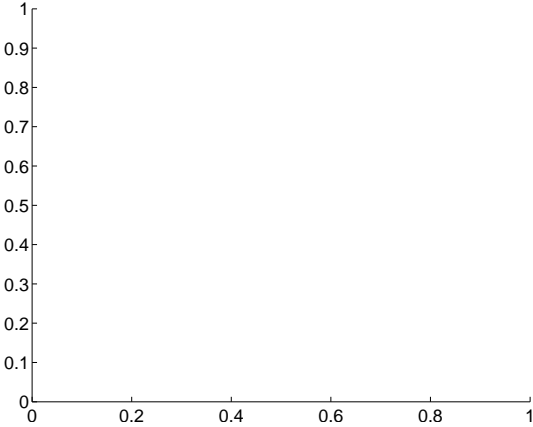
Q2 difference image. Poor Quality



Q2 OOT image



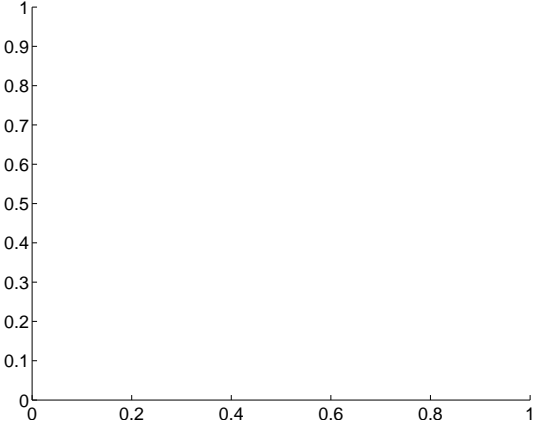
Q3 no difference image



Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

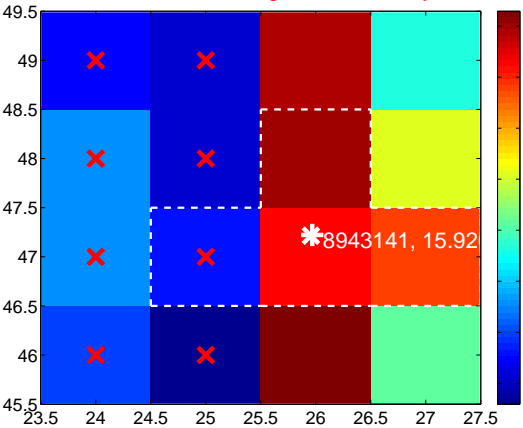
Q5 no difference image



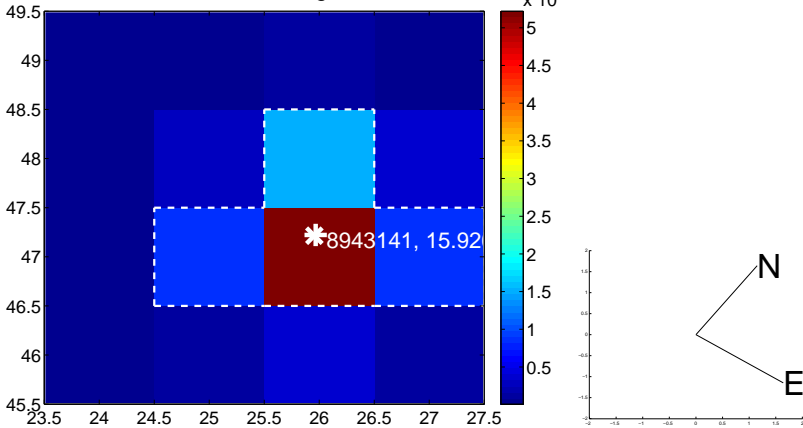
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no 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.

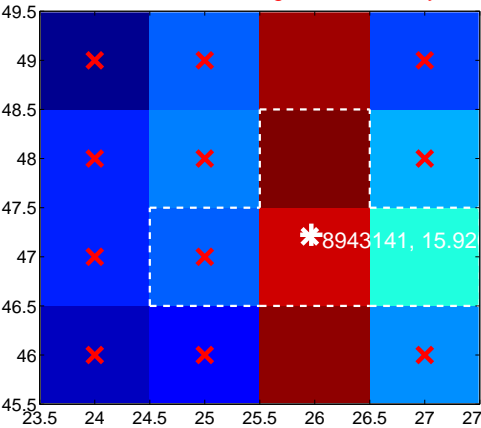
Q9 no difference image



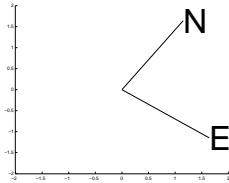
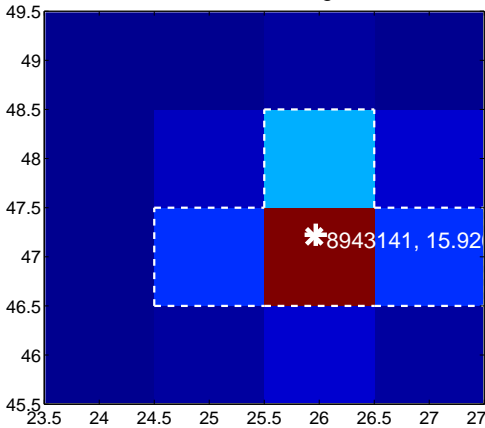
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



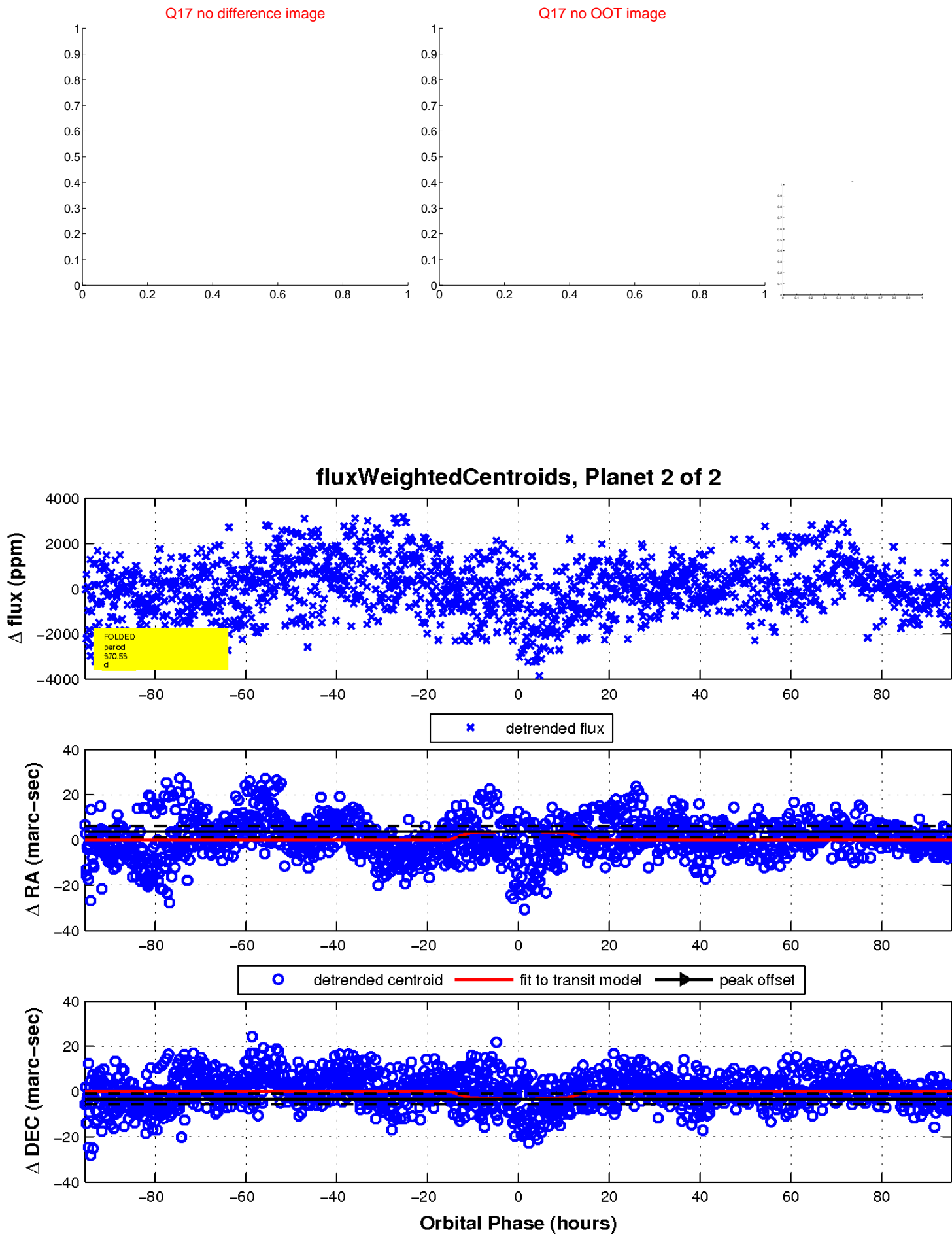
Q12 no OOT image



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.



# UKIRT Image

Declination

