

# KIC 009391717

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009391717-01	OBS	No	715.213253	138.866451	246.5	8.564	7.5	7.1	0.96	6153	1.67	0.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009391717-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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.

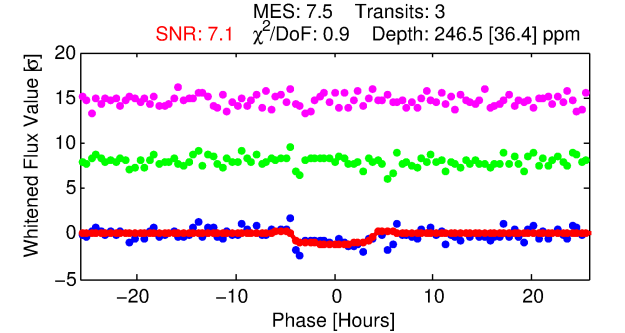
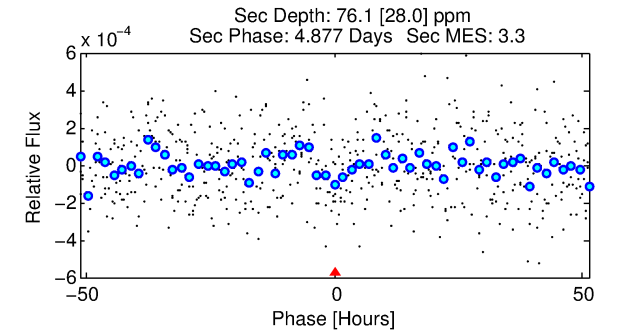
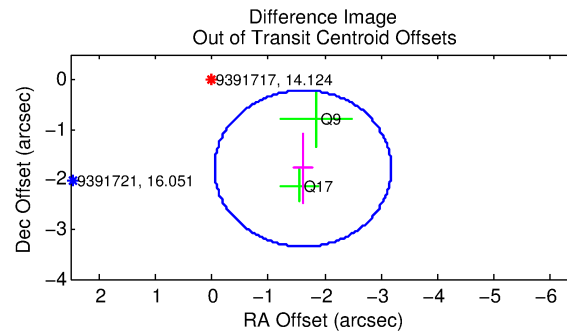
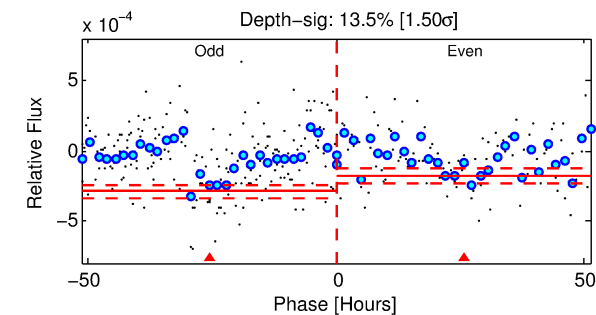
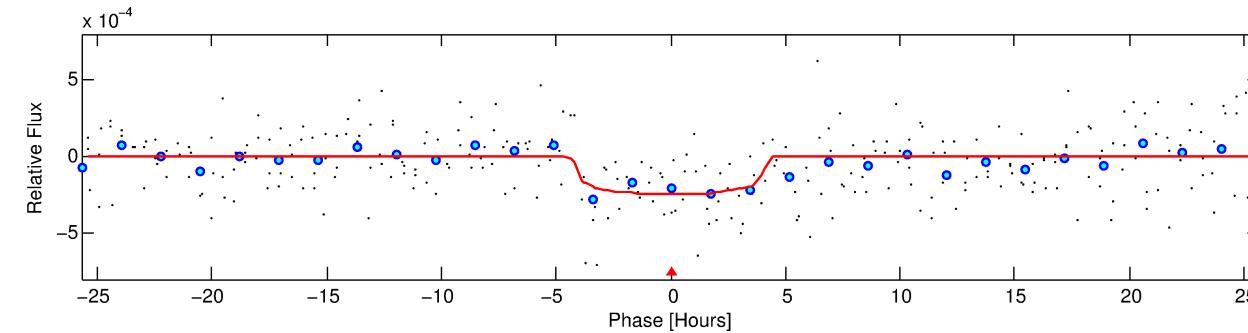
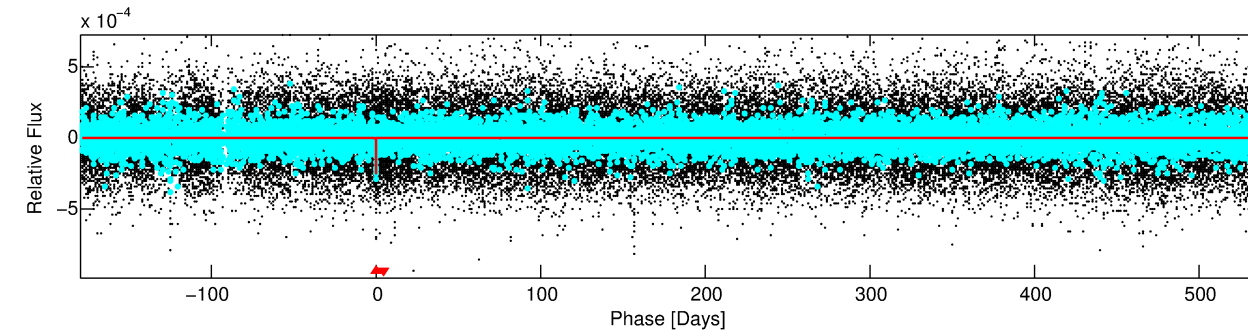
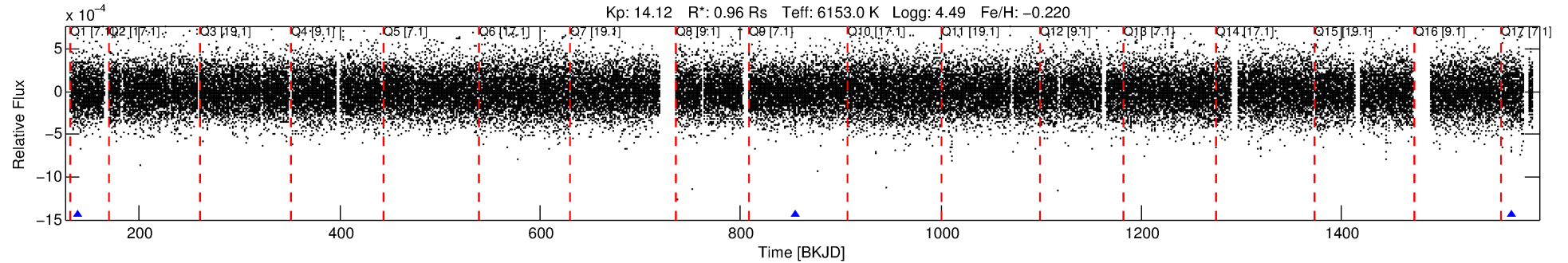
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009391717-01

No Significant Match Found

# DV One-Page Summary

KIC: 9391717 Candidate: 1 of 1 Period: 715.213 d



## DV Fit Results:

Period = 715.21325 [0.01348] d  
Epoch = 138.8665 [0.0177] BKJD  
Rp/R\* = 0.0159 [0.0100]  
a/R\* = 398.21 [1288.12]  
b = 0.80 [1.45]  
Seff = 0.47 [0.19]  
Teq = 212 [21] K  
Rp = 1.67 [1.18] Re  
a = 1.5841 [0.4205] AU  
Ag = 37605.67 [51377.88] [0.73 $\sigma$ ]  
Teffp = 4555 [1500] K [2.90 $\sigma$ ]

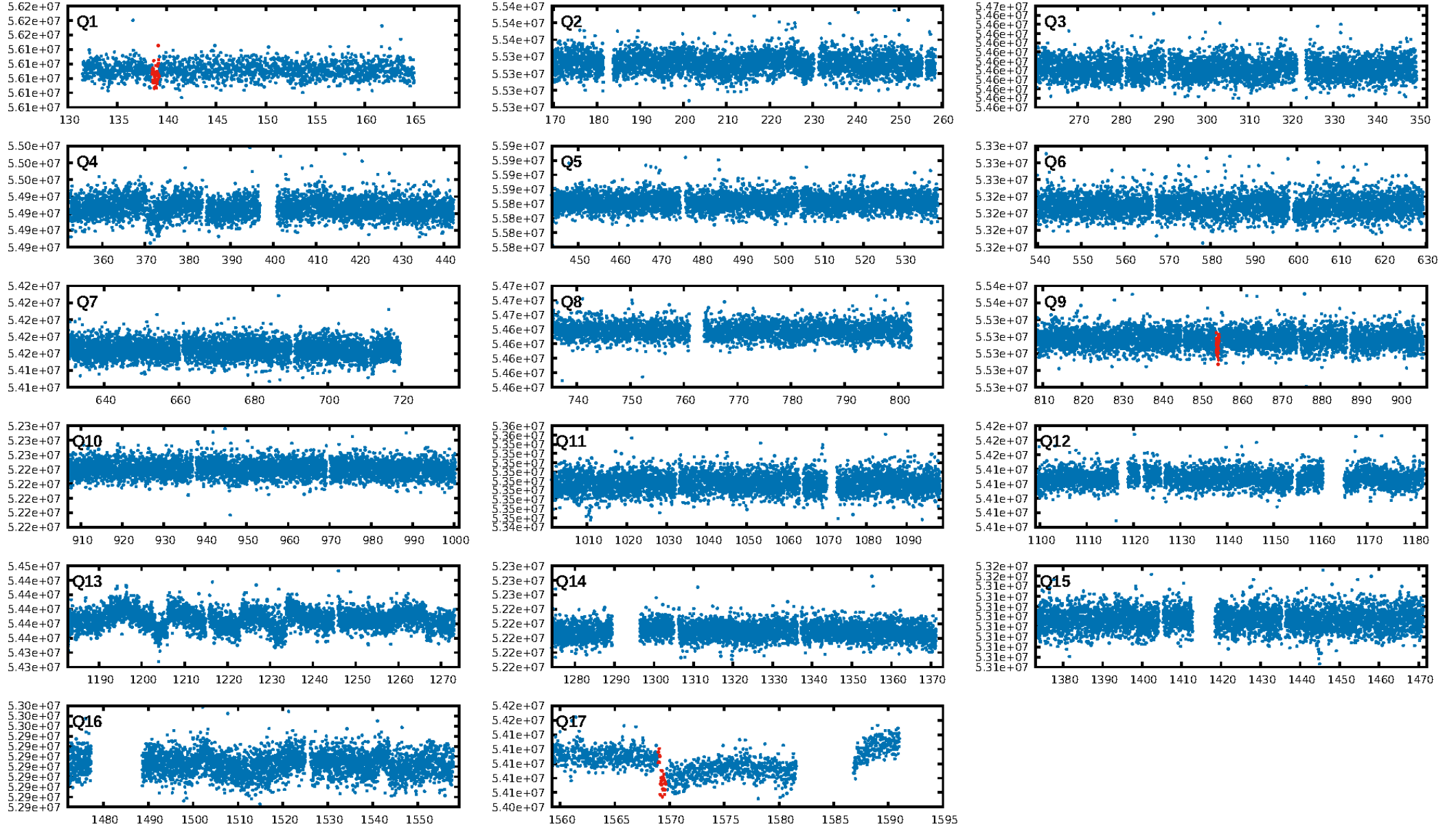
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 20.0%  
ModelChiSquareGof-sig: 99.3%  
**Bootstrap-pfa: 1.79e-12**  
RollingBand-fgt: 1.00 [1/1]  
GhostDiagnostic-chr: -0.8231  
Centroid-sig: 29.6%  
Centroid-so: 1.142 arcsec [0.92 $\sigma$ ]  
**OotOffset-rm: 2.408 arcsec [4.62 $\sigma$ ]**  
**KicOffset-rm: 2.251 arcsec [4.37 $\sigma$ ]**  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

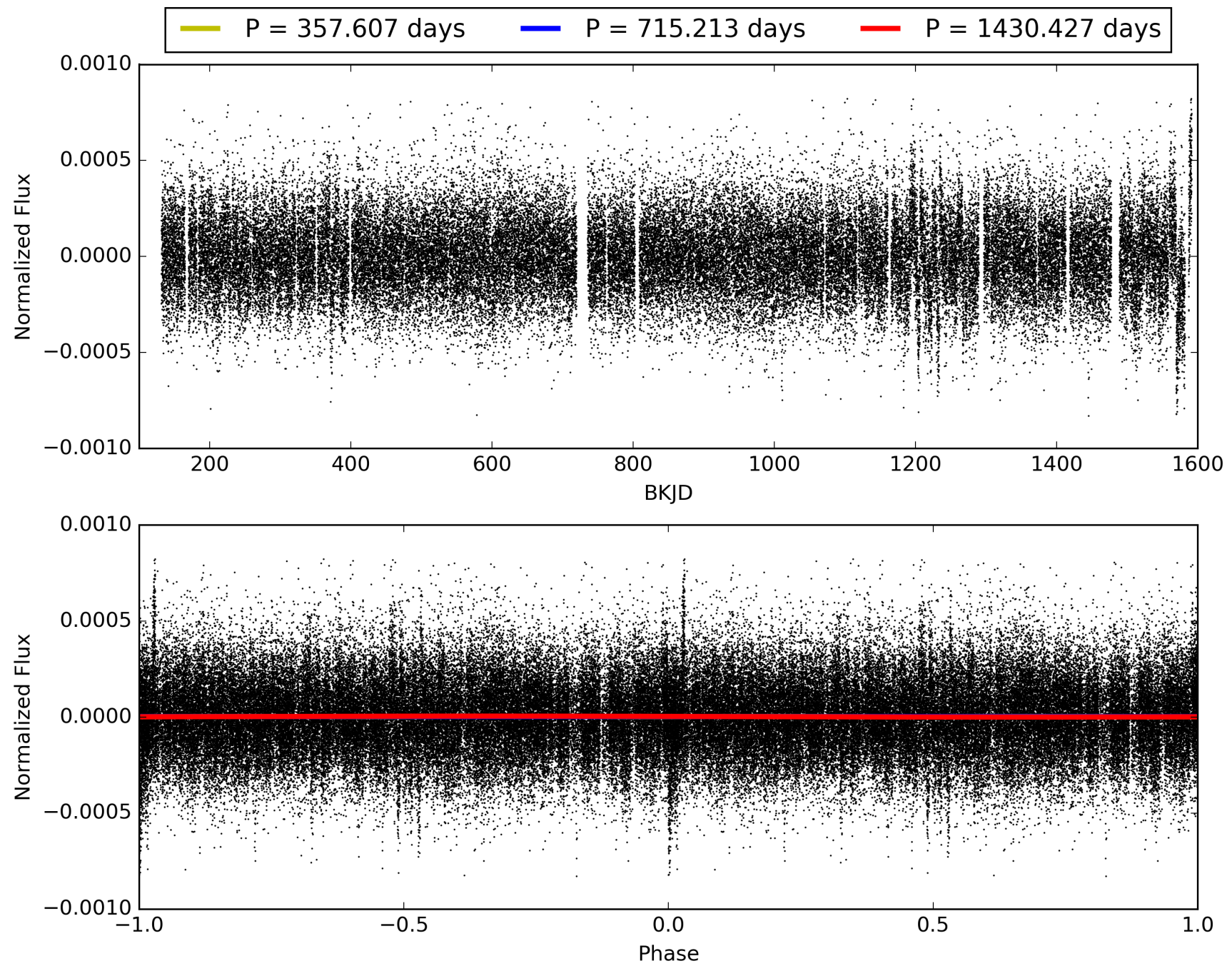
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:26:53 Z

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

# TCE 009391717-01, PDC Light Curves

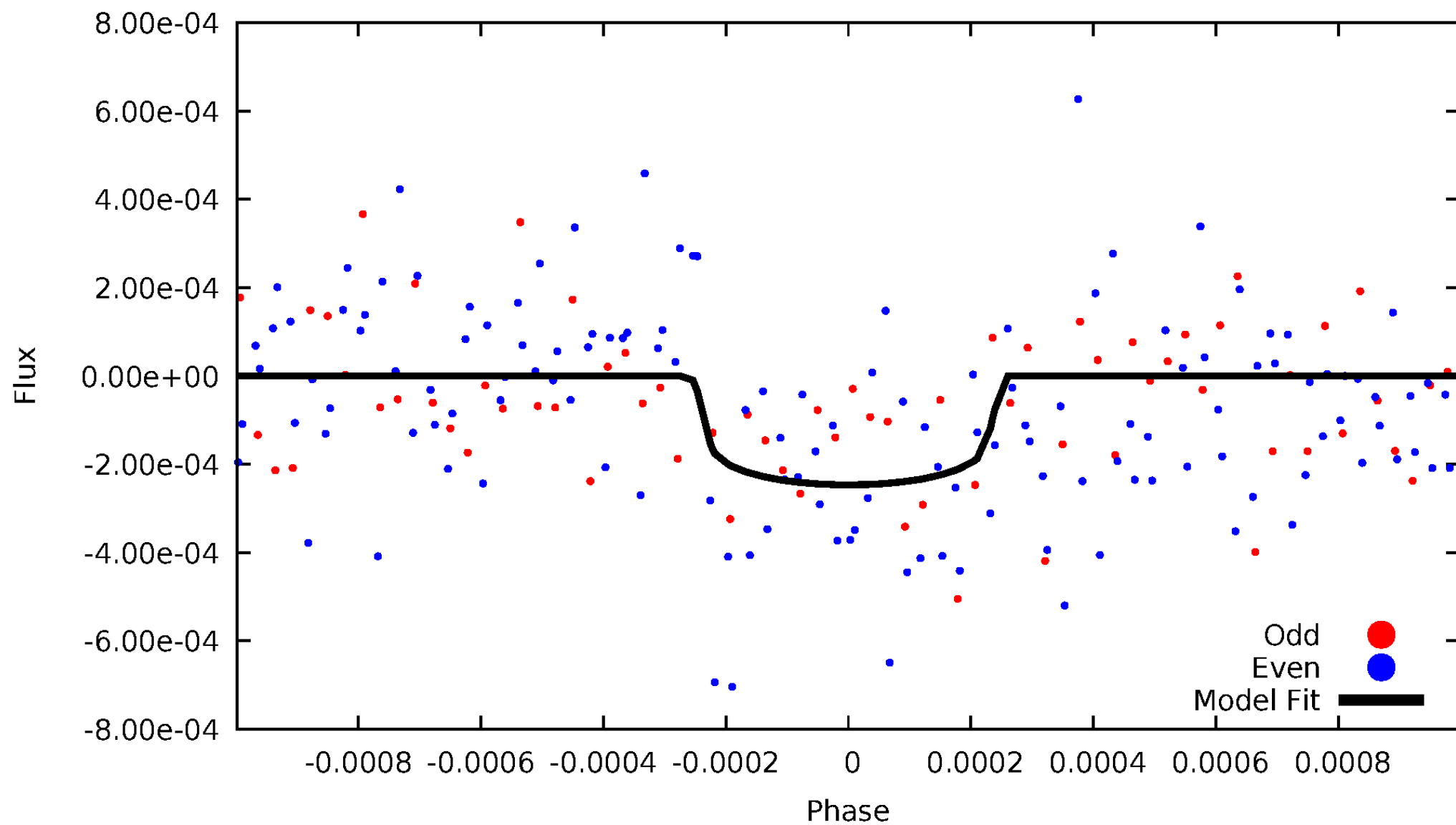


TCE 009391717-01



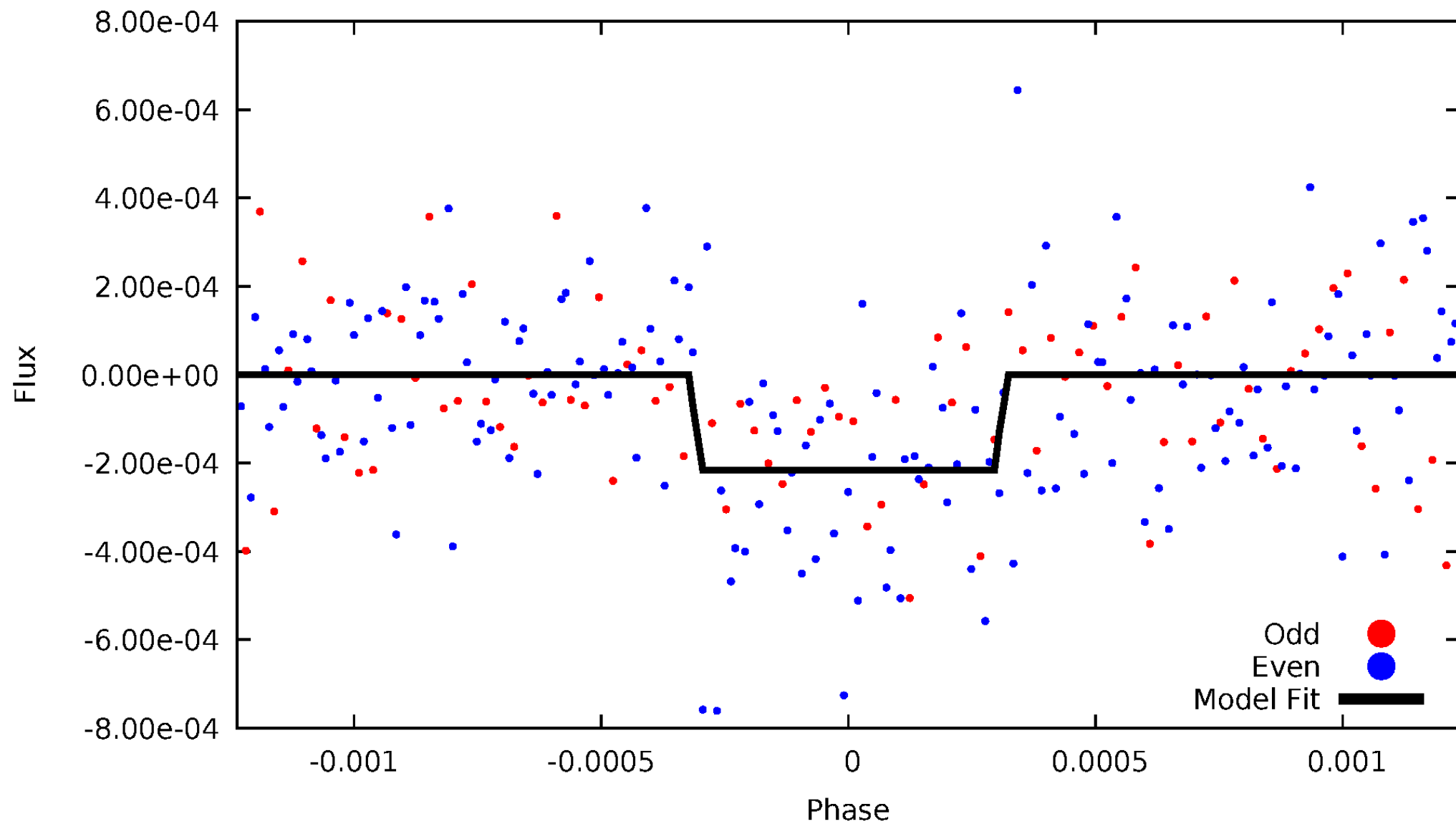
# DV Odd/Even

TCE 009391717-01



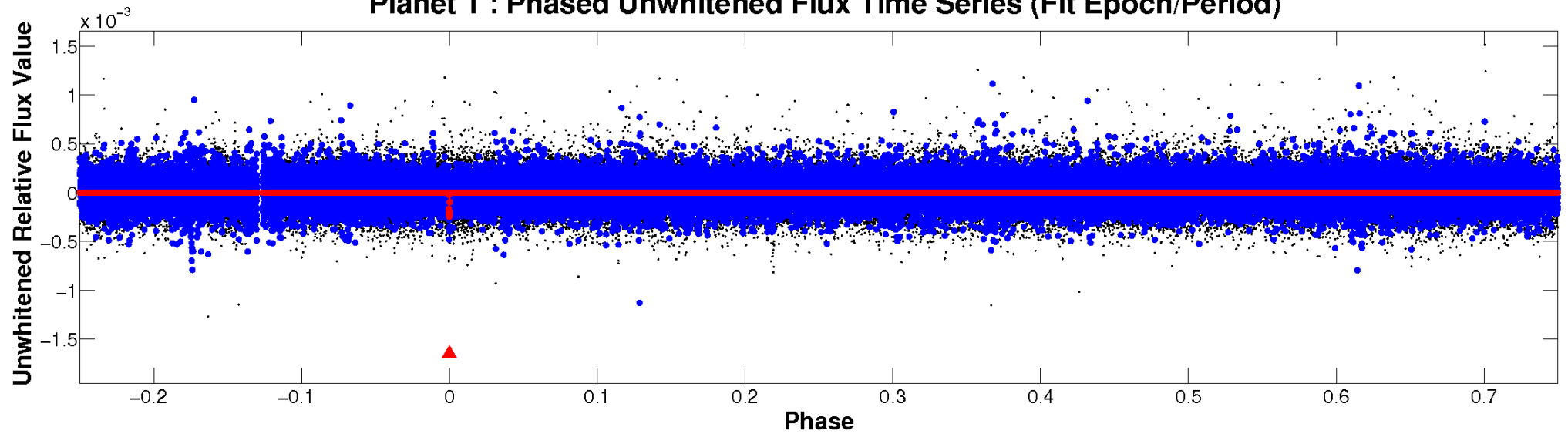
# ALT Odd/Even

TCE 009391717-01

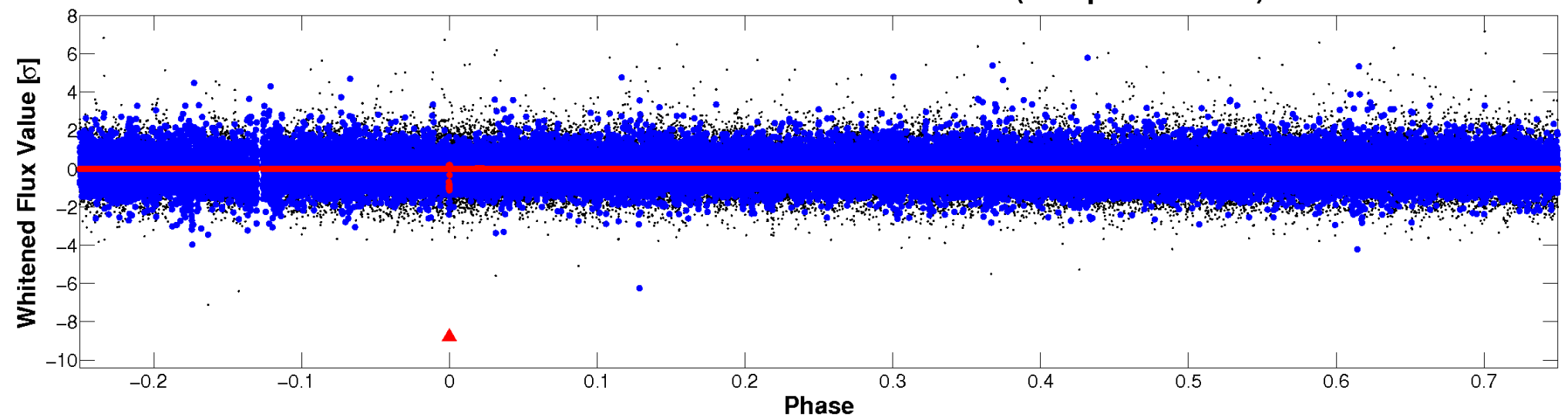


# Non-Whitened Vs. Whitened Light Curve

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



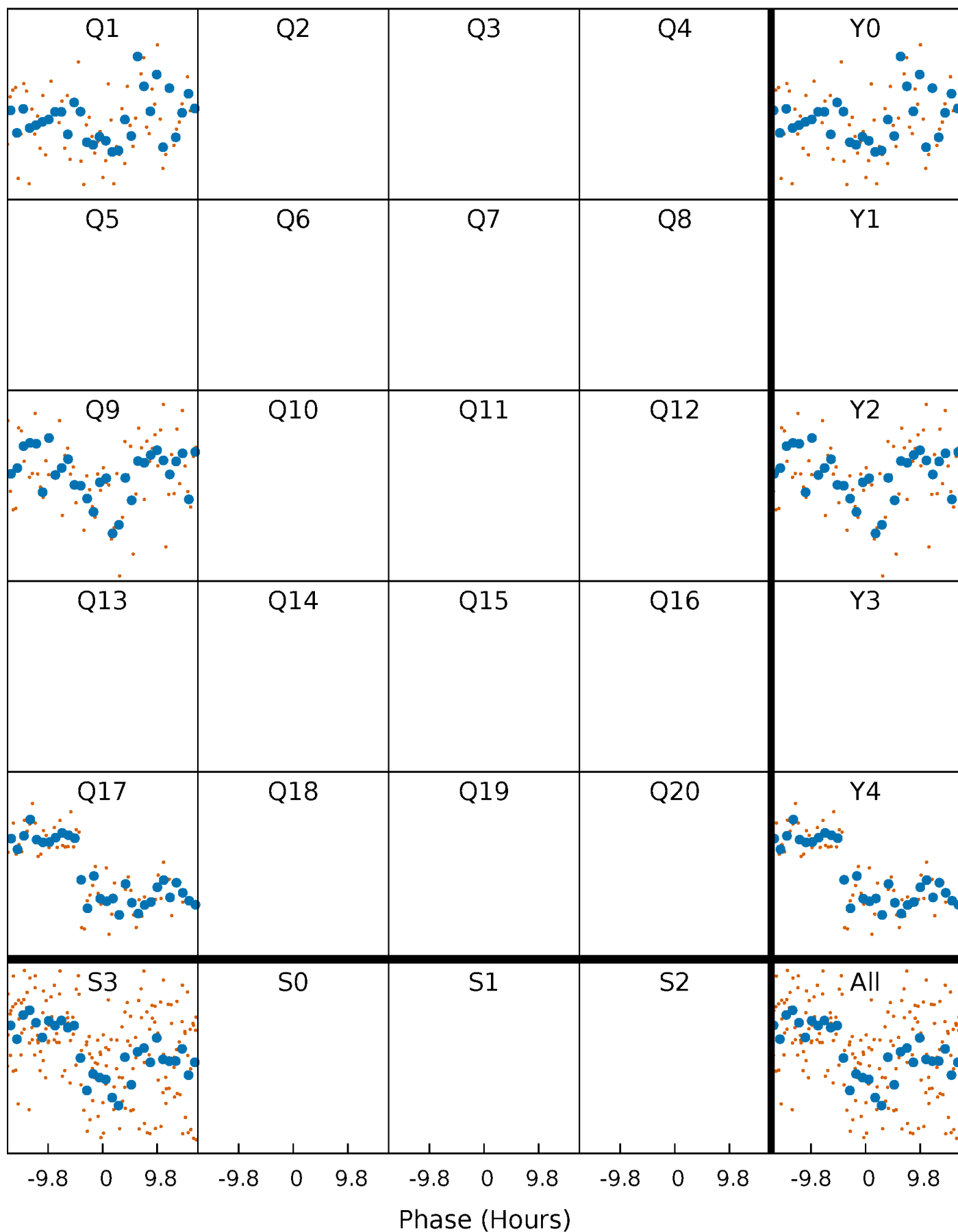
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

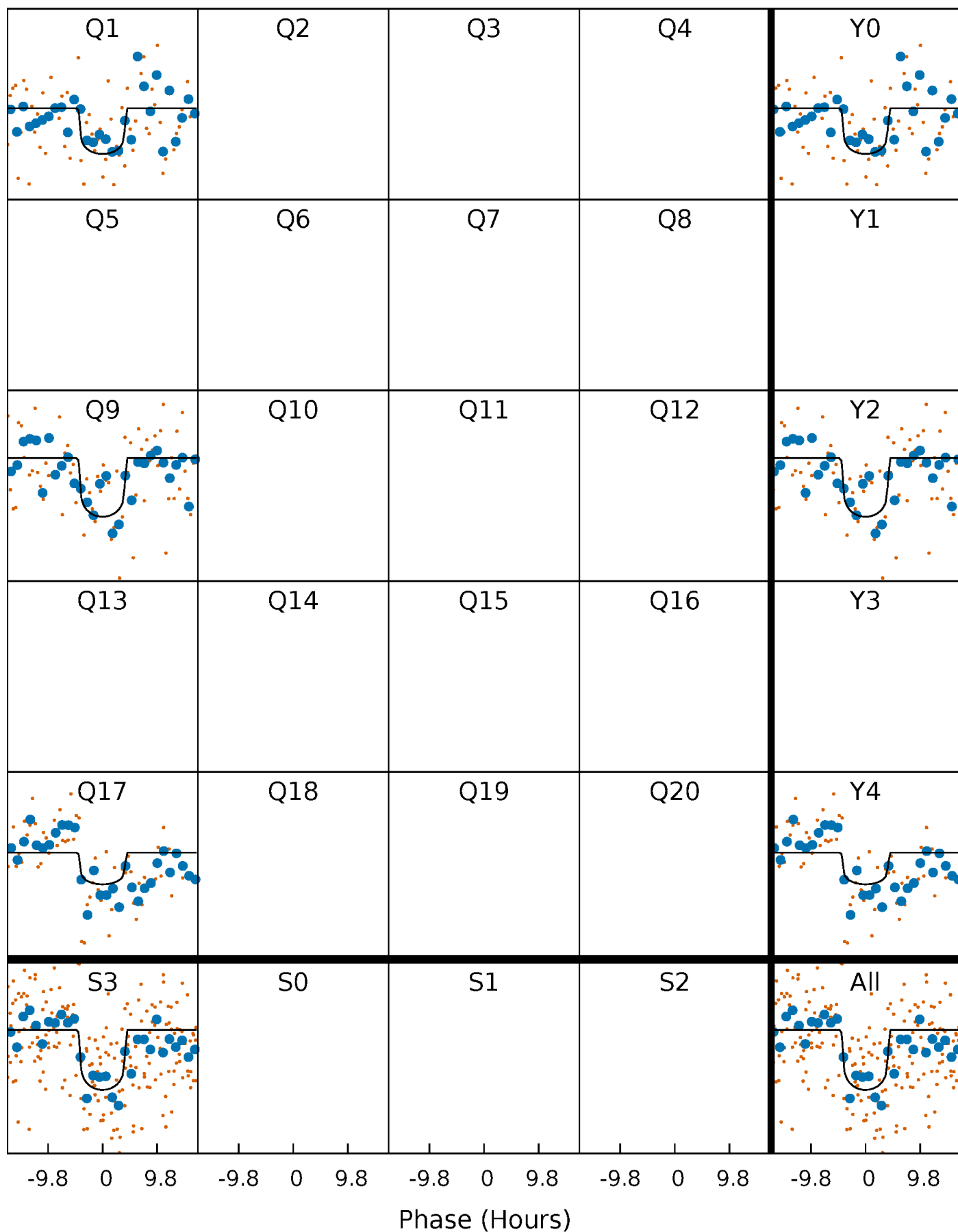
TCE 009391717-01 P=715.213253 Days  $T_0=138.866451$  (BKJD)





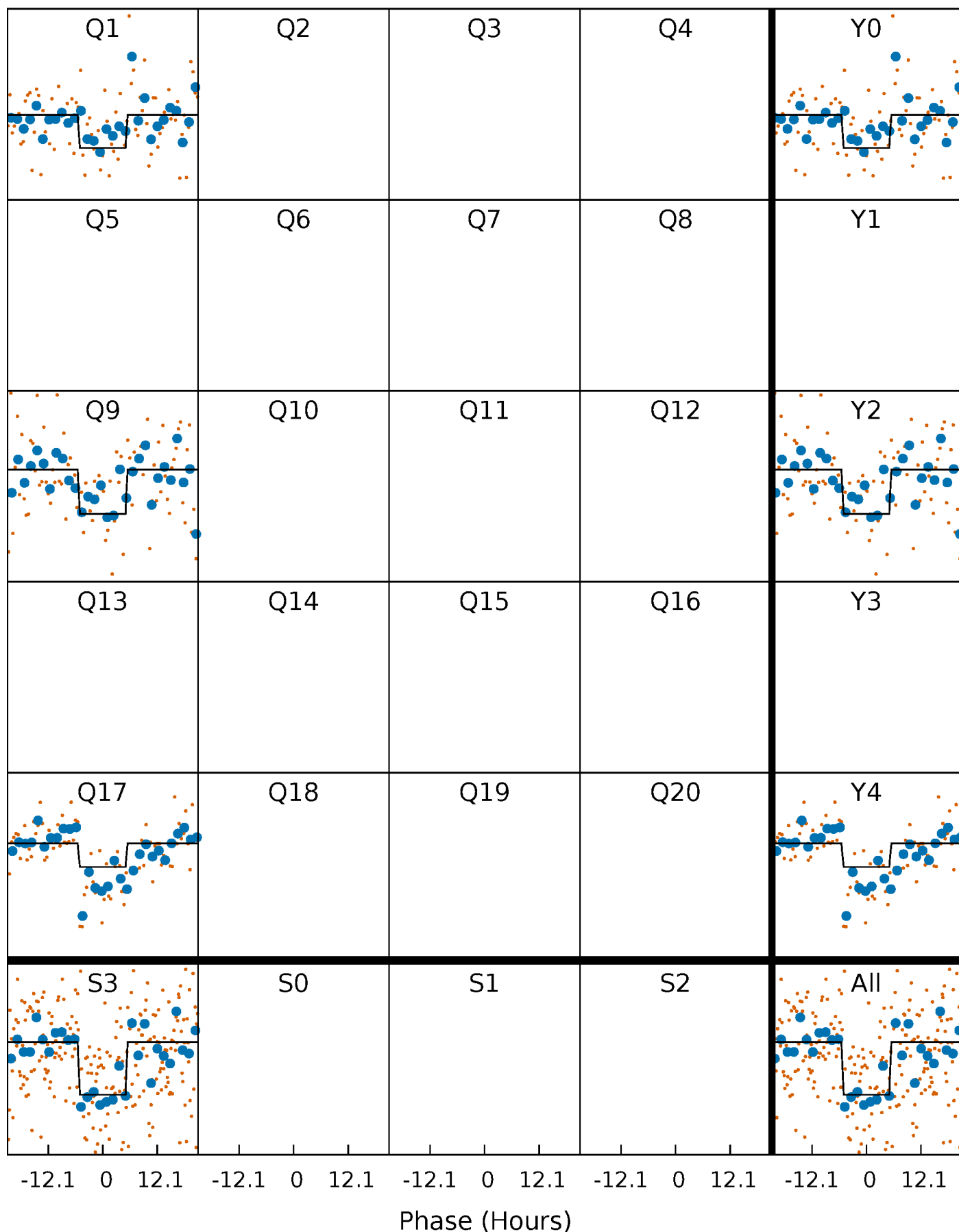
# DV Quarter-Phased Transit Curves

TCE 009391717-01   P=715.213253 Days    $T_0=138.866451$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

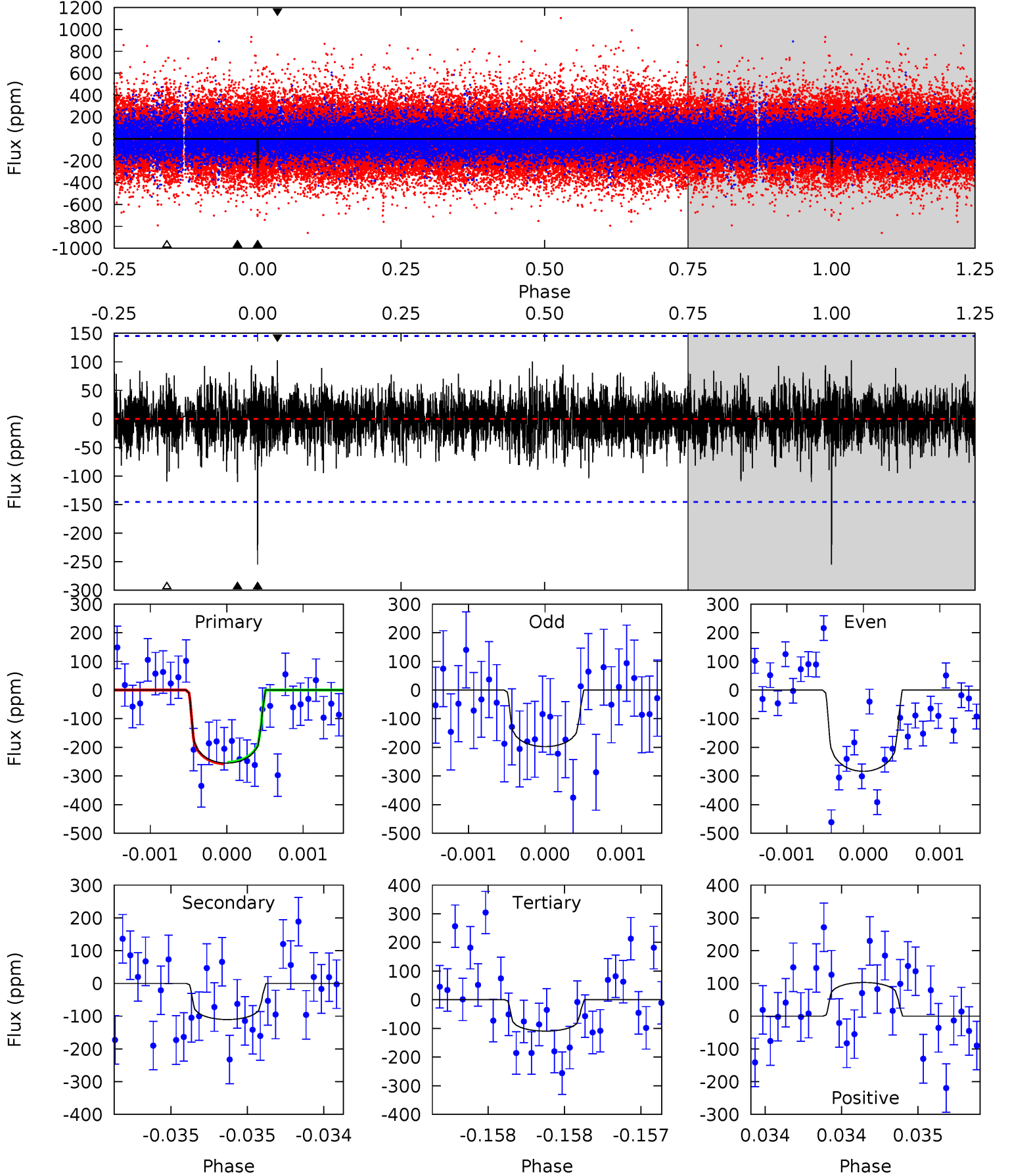
TCE 009391717-01 P=715.229089 Days  $T_0=138.889529$  (BKJD)



# DV Model-Shift Uniqueness Test

009391717-01, P = 715.213253 Days, E = 138.866451 Days

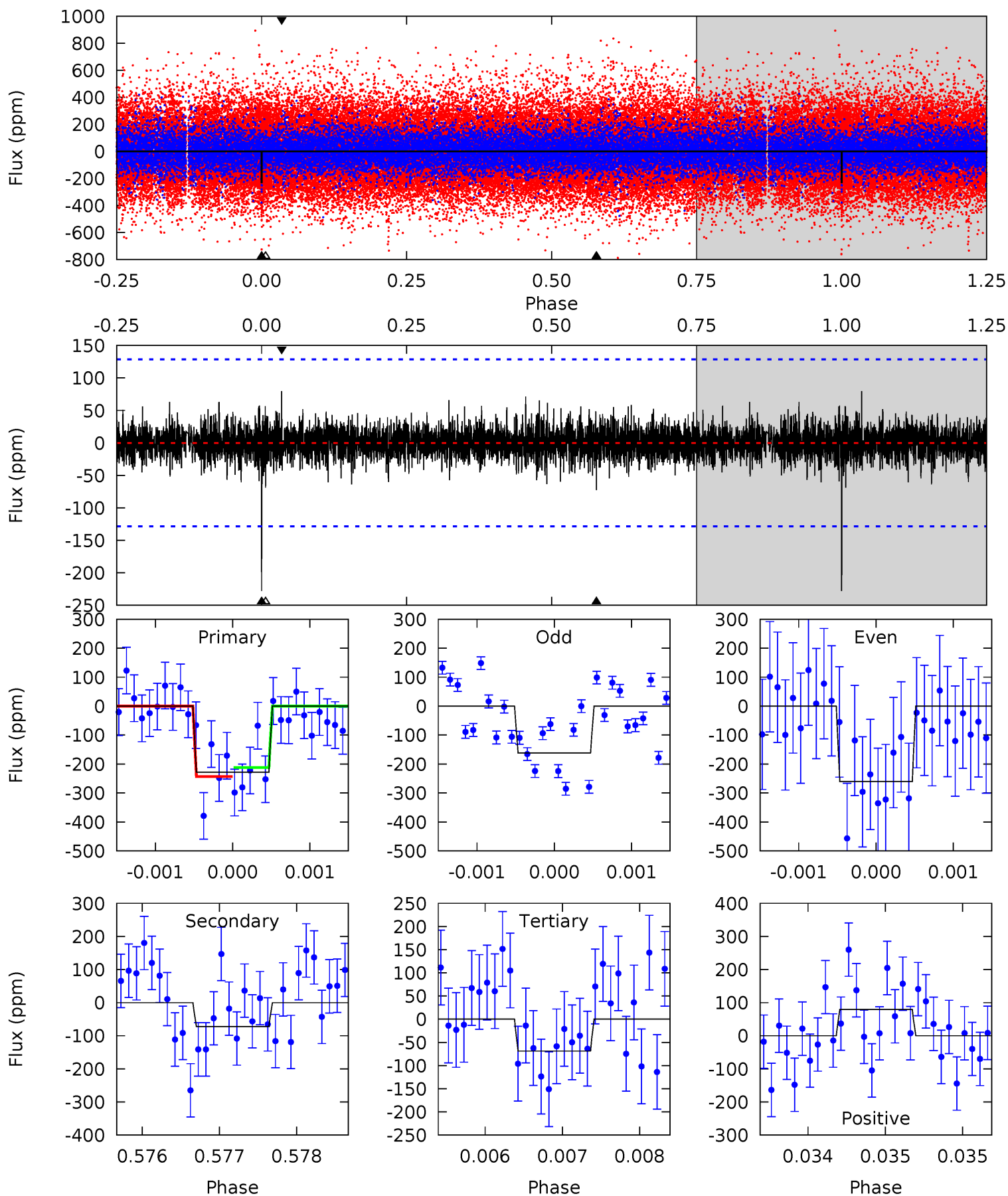
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.78	4.23	4.19	3.94	5.57	3.47	1.06	5.58	5.84	0.04	0.30	1.55	1.28	0.29	0.11



# Alt Model-Shift Uniqueness Test

009391717-01, P = 715.229089 Days, E = 138.889529 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
9.80	3.12	2.96	3.43	5.53	3.42	0.75	6.84	6.38	0.16	-0.31	2.00	1.41	0.26	0.68



### Stellar Parameters For KIC 009391717

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6153^{+168}_{-187}$	$4.487^{+0.052}_{-0.208}$	$-0.220^{+0.300}_{-0.300}$	$0.962^{+0.306}_{-0.102}$	$1.036^{+0.144}_{-0.130}$	$1.641^{+0.351}_{-0.886}$
	+3%/-3%	+1%/-5%	+136%/-136%	+32%/-11%	+14%/-13%	+21%/-54%
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 009391717-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-110 \pm 26$	$1.82^{+1.14}_{-0.98}$	$301^{+22}_{-14}$	$4953^{+2276}_{-855}$	$45582^{+157047}_{-29865}$
Alt.	$-72 \pm 23$	$1.73^{+1.13}_{-0.97}$	$303^{+22}_{-15}$	$4699^{+2182}_{-840}$	$32480^{+137211}_{-21587}$

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

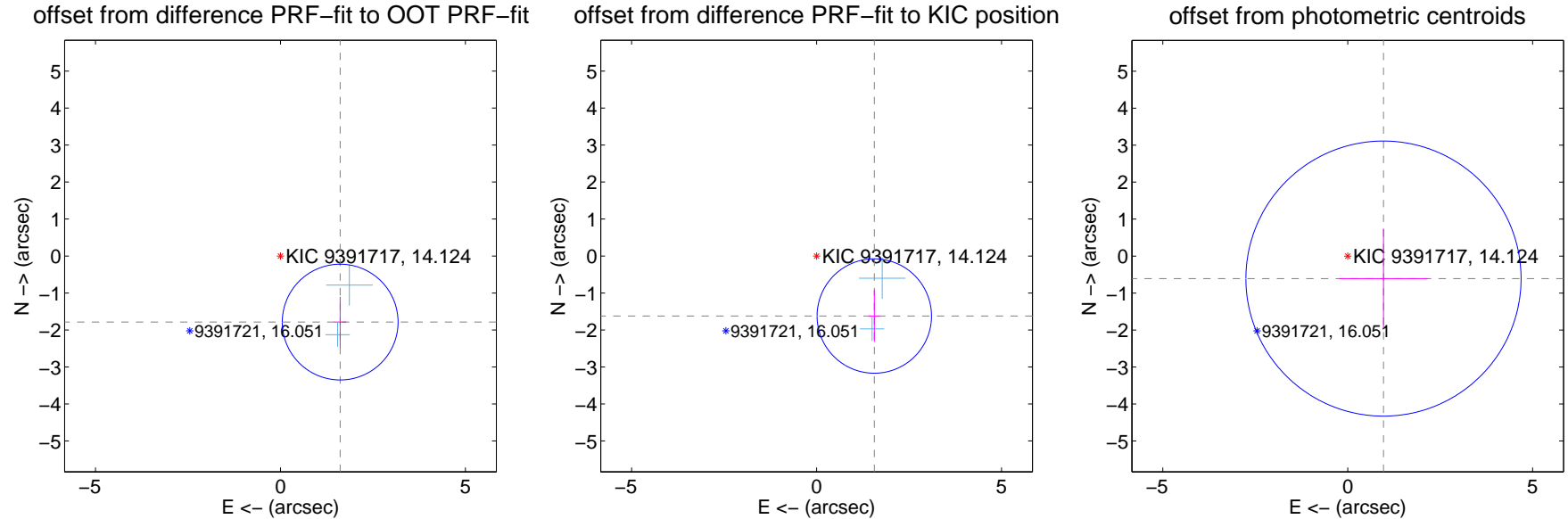
## DV Centroid Data

Supplemental centroid analysis for 009391717-01. Kepler magnitude: 14.12. Transit SNR 7.05

There are 2 quarters with good PRF difference image offsets

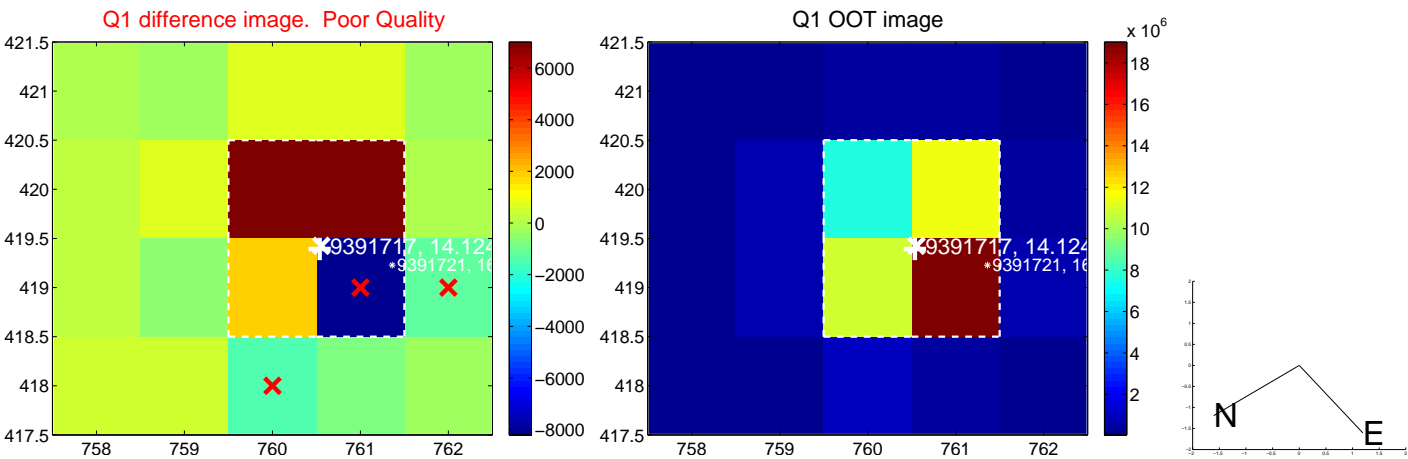
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.408 \pm 0.522$	4.62	$-1.614 \pm 0.167$	$-1.786 \pm 0.687$
PRF-fit source offset from KIC position	$2.251 \pm 0.516$	4.37	$-1.560 \pm 0.148$	$-1.622 \pm 0.701$
photometric centroid source offset	$1.14 \pm 1.24$	0.92	$-0.97 \pm 1.19$	$-0.61 \pm 1.35$



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.

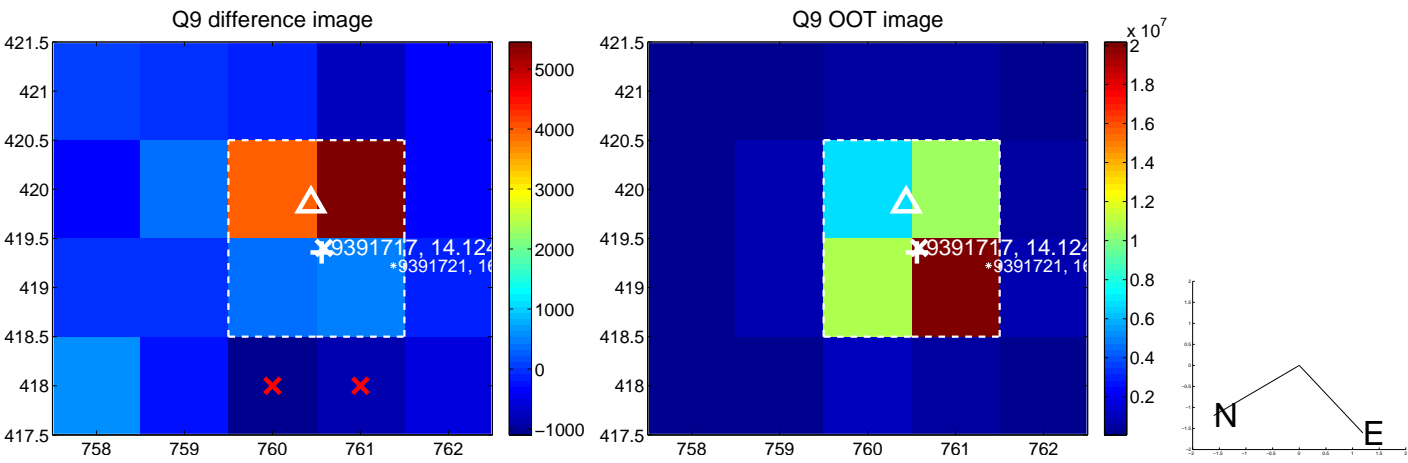




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



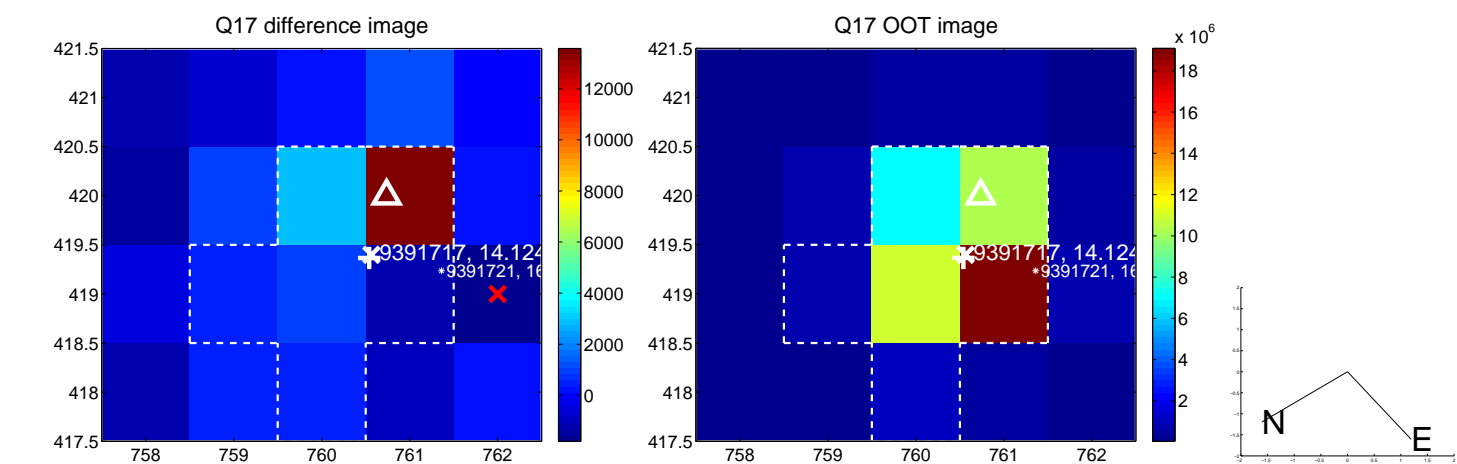
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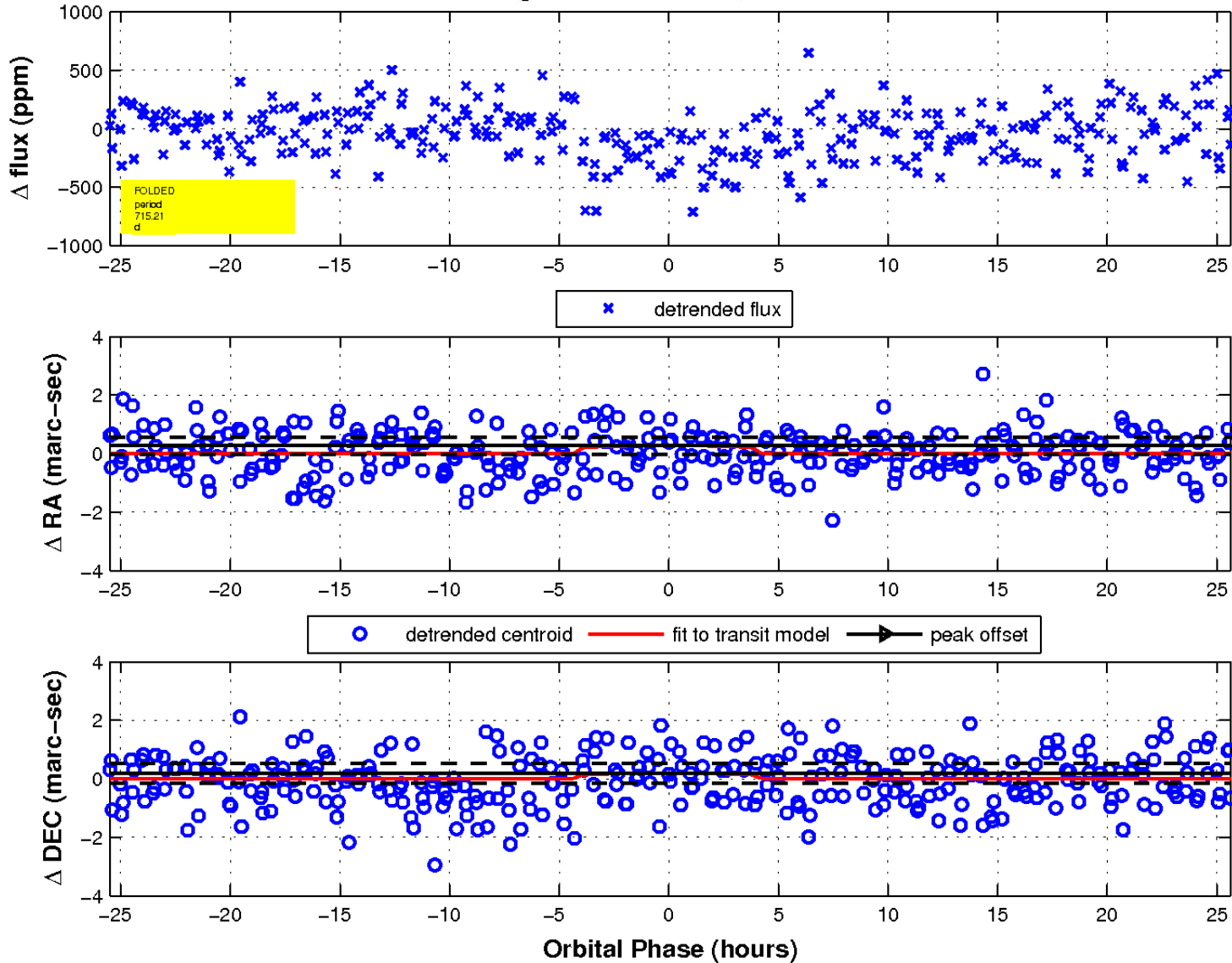
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

