

# KIC 008938623

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008938623-01	OBS	No	321.890548	372.168348	740.5	10.456	7.7	7.7	0.82	5693	2.37	0.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008938623-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

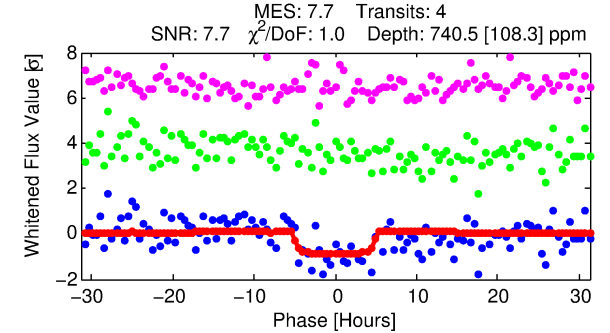
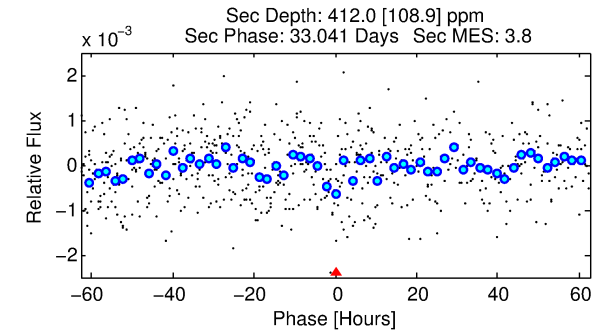
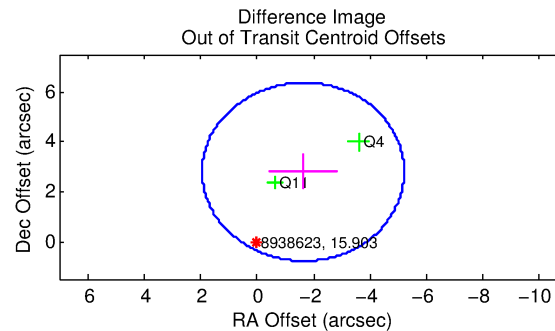
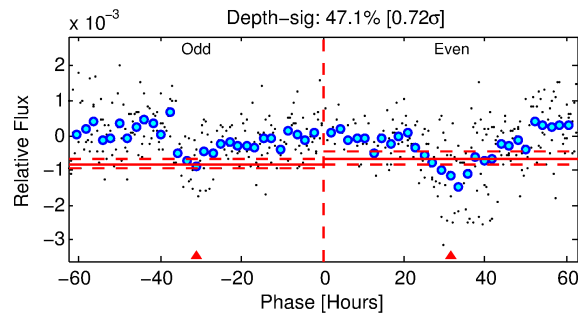
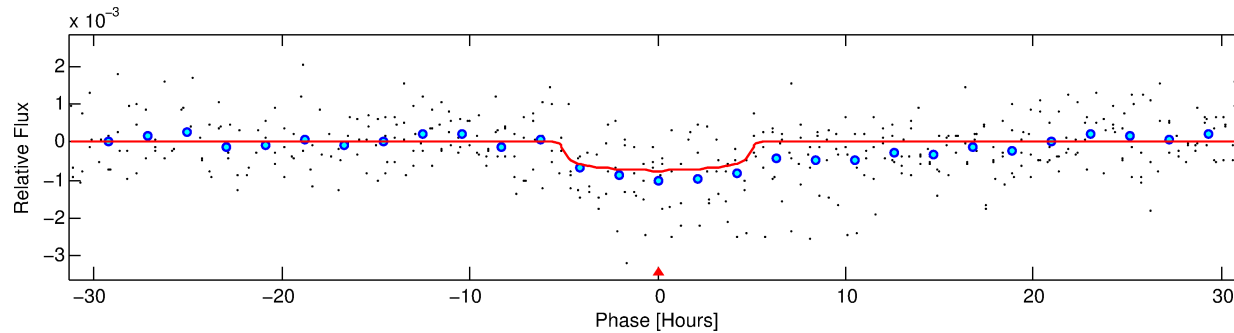
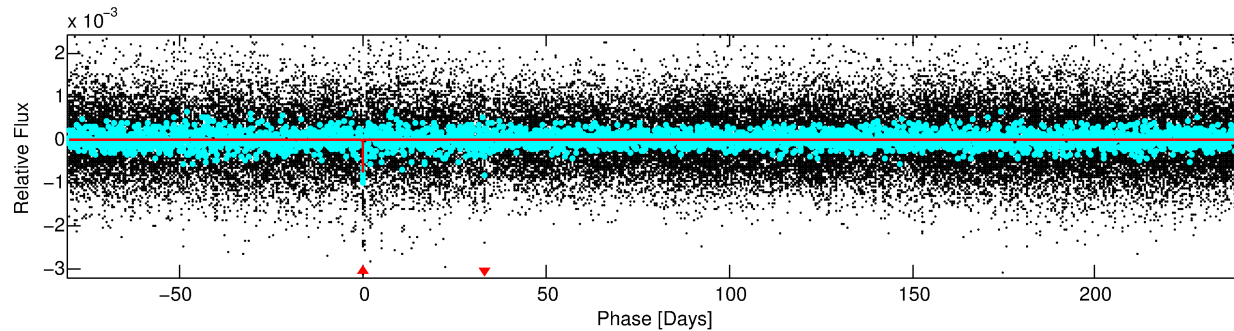
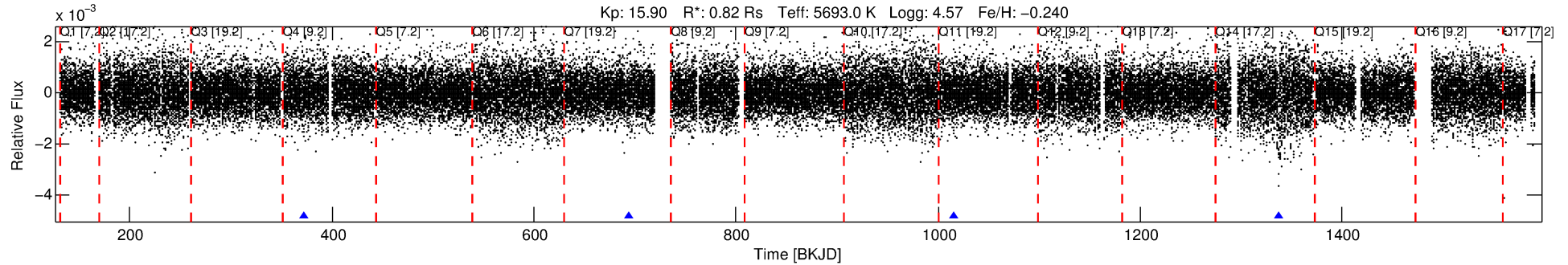
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008938623-01

No Significant Match Found

# DV One-Page Summary

KIC: 8938623 Candidate: 1 of 1 Period: 321.891 d



## DV Fit Results:

Period = 321.89055 [0.01361] d  
Epoch = 372.1683 [0.0233] BKJD  
Rp/R\* = 0.0266 [0.0112]  
a/R\* = 176.21 [321.37]  
b = 0.70 [1.33]  
Seff = 0.79 [0.25]  
Teq = 241 [19] K  
Rp = 2.37 [1.15] Re  
a = 0.8884 [0.1793] AU  
Ag = 31794.15 [29614.14] [1.07 $\sigma$ ]  
Teffp = 4969 [1107] K [4.27 $\sigma$ ]

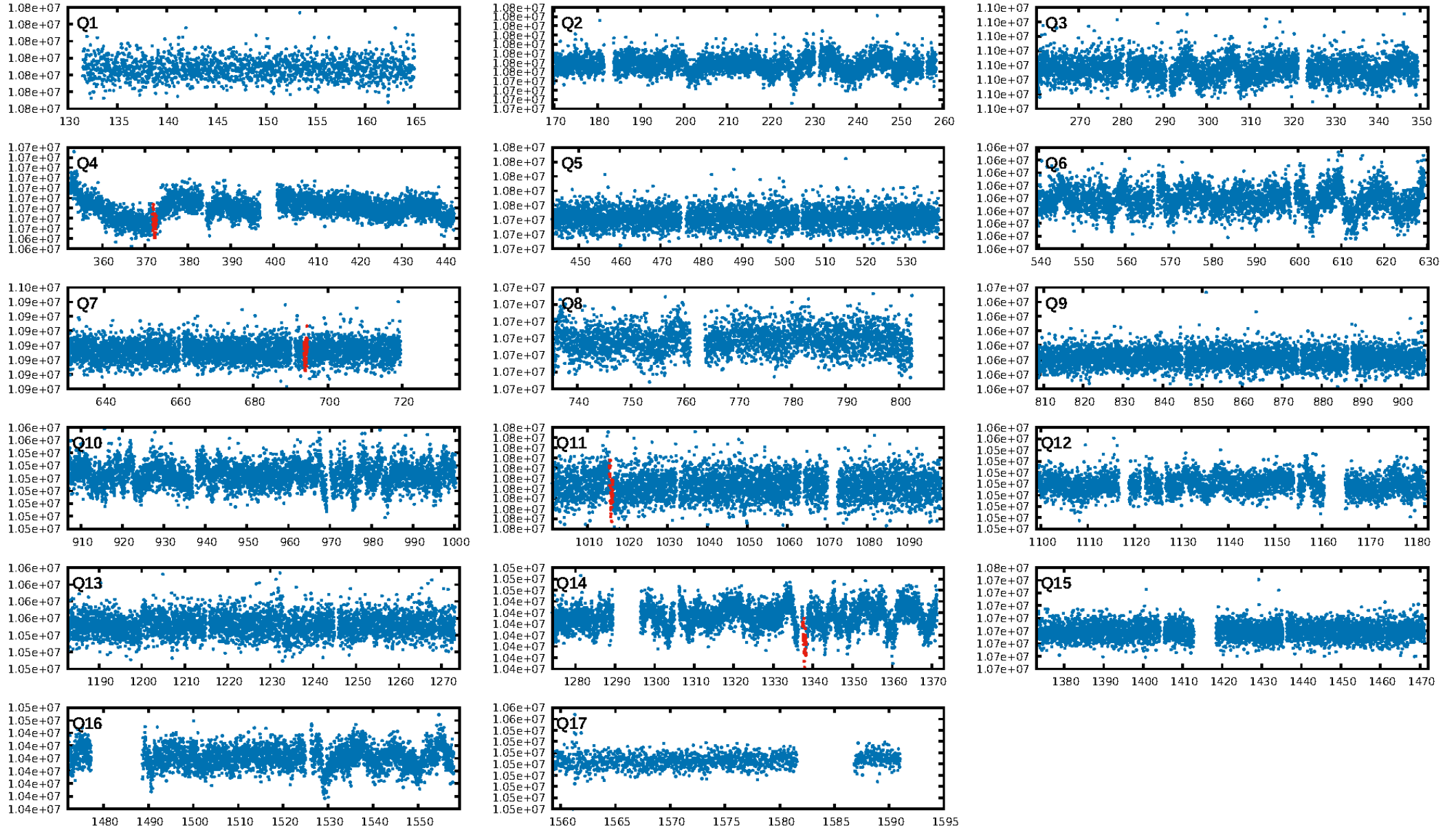
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.0%  
ModelChiSquareGof-sig: 98.2%  
**Bootstrap-pfa: 1.12e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -3.262  
Centroid-sig: 95.3%  
Centroid-so: 0.808 arcsec [0.41 $\sigma$ ]  
OotOffset-rm: 3.234 arcsec [2.72 $\sigma$ ]  
**KicOffset-rm: 3.289 arcsec [3.14 $\sigma$ ]**  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

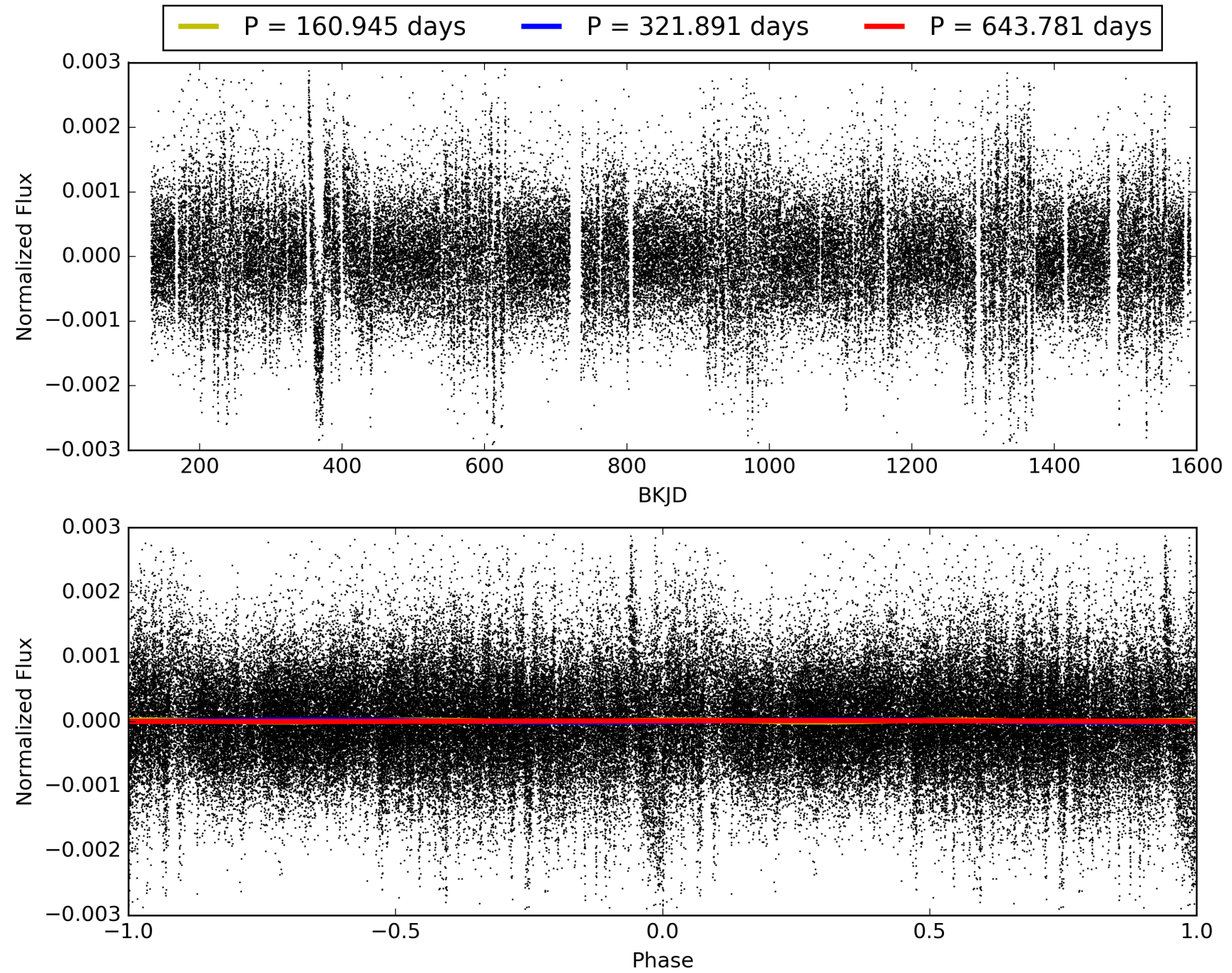
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:25:36 Z

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

# TCE 008938623-01, PDC Light Curves

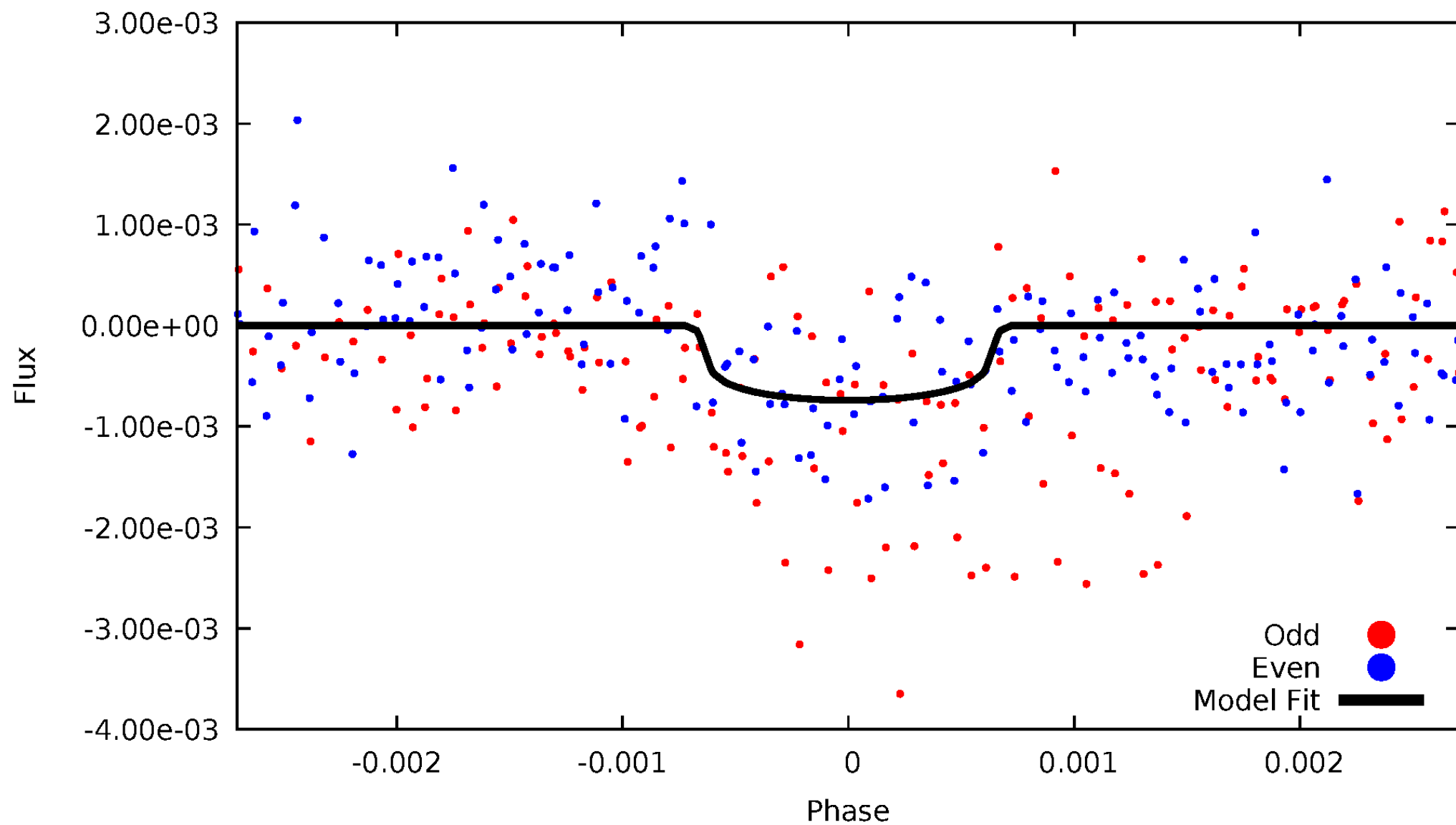


TCE 008938623-01



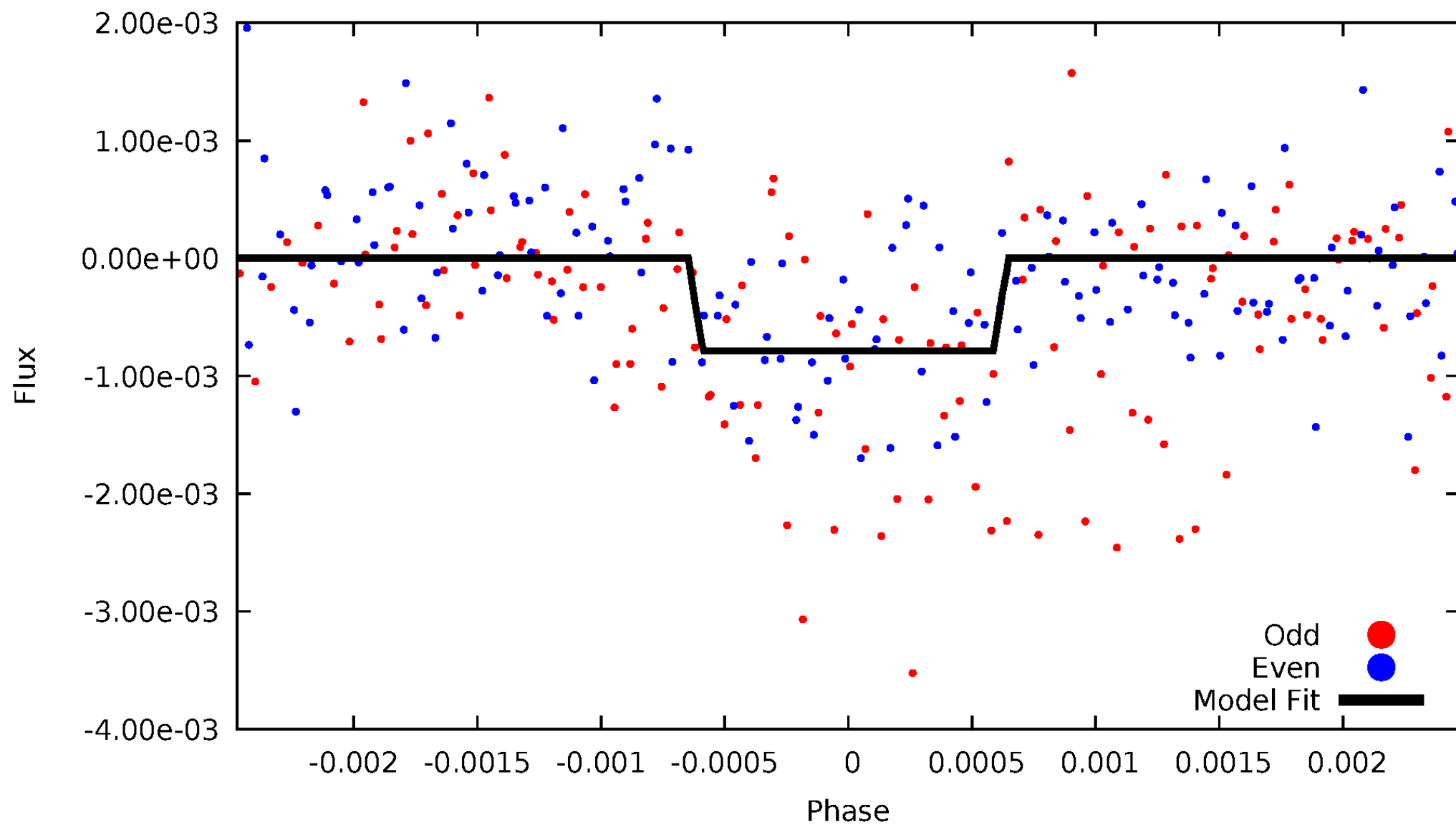
# DV Odd/Even

TCE 008938623-01



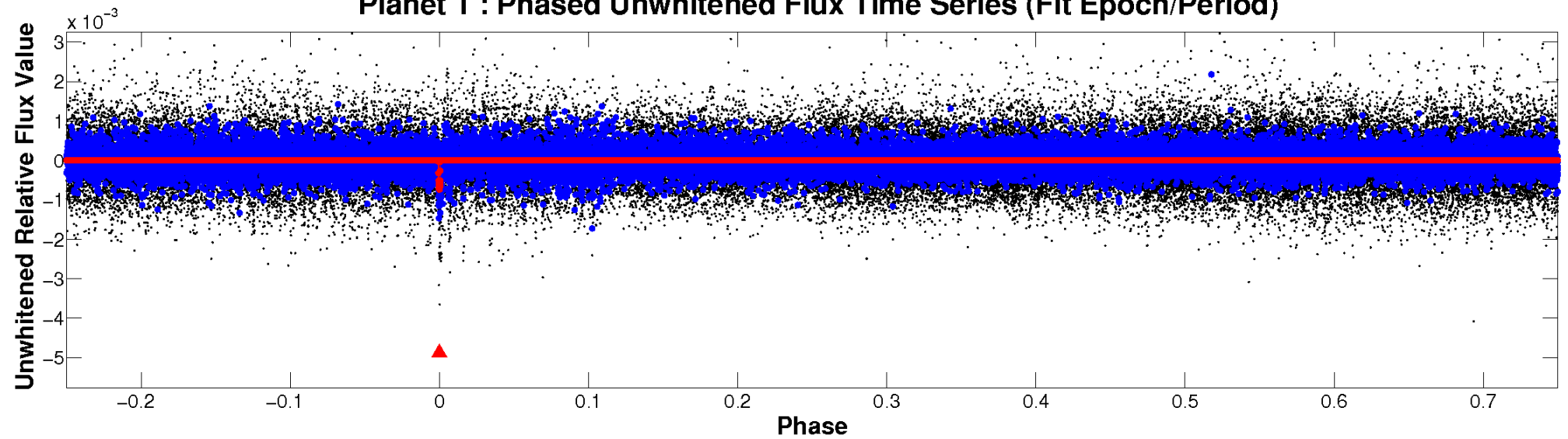
# ALT Odd/Even

TCE 008938623-01

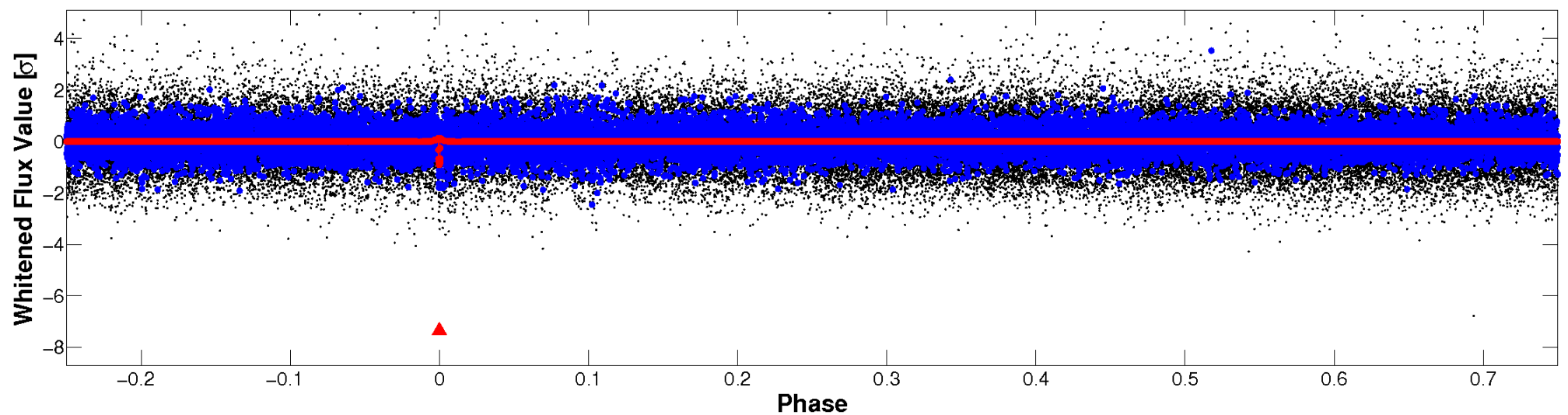


# Non-Whitened Vs. Whitened Light Curve

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

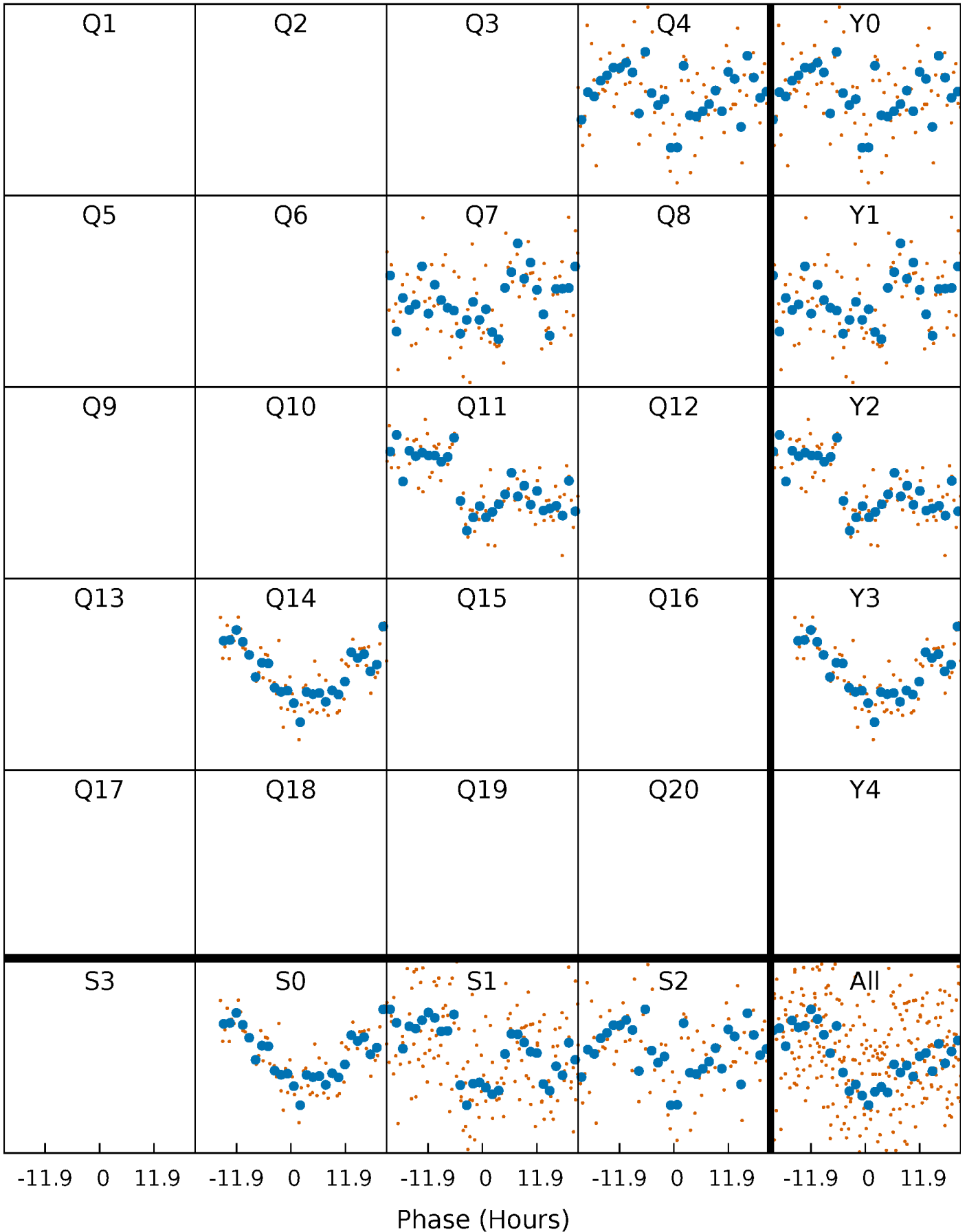


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 008938623-01 P=321.890548 Days  $T_0=372.168348$  (BKJD)



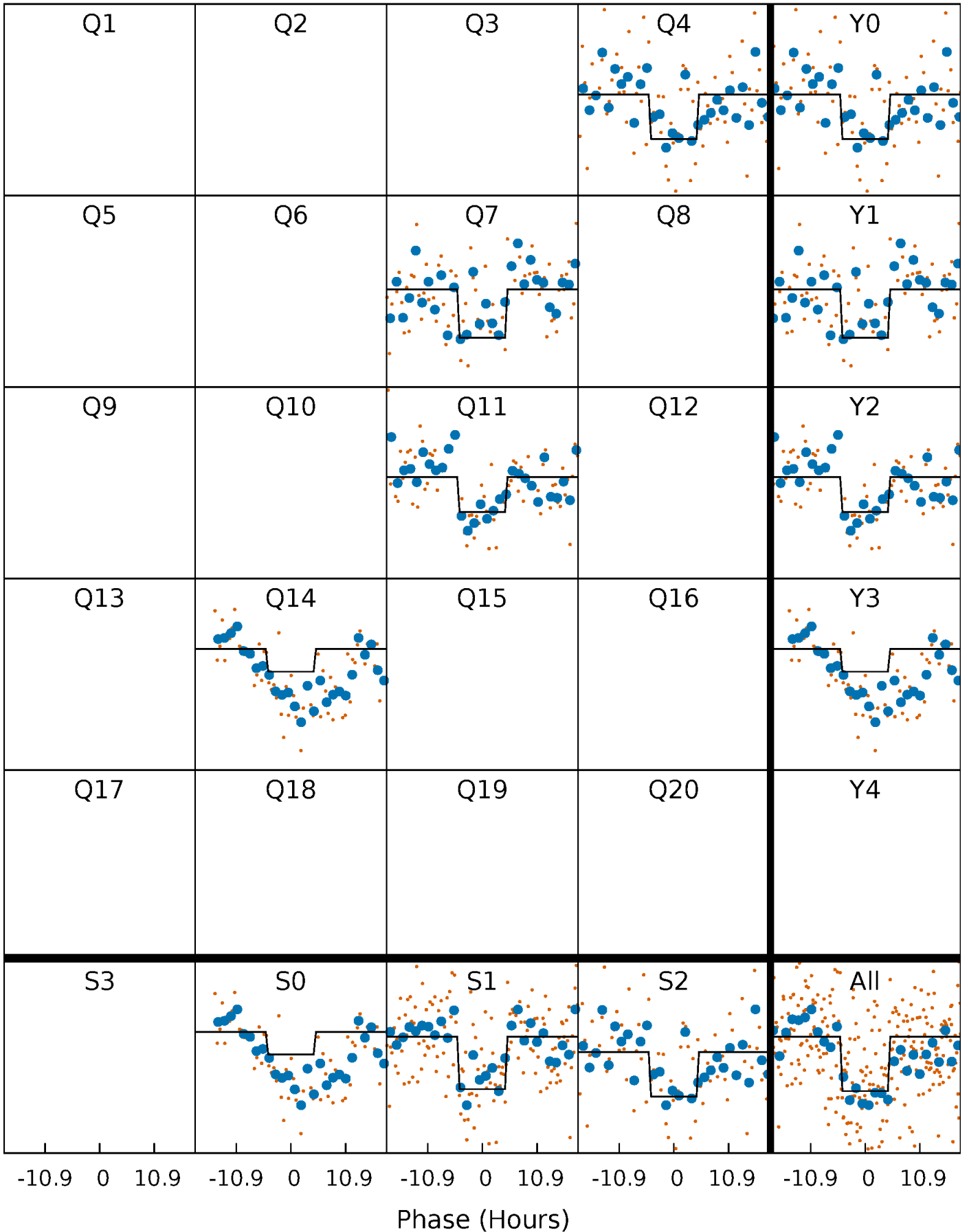
# DV Quarter-Phased Transit Curves

TCE 008938623-01 P=321.890548 Days  $T_0=372.168348$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

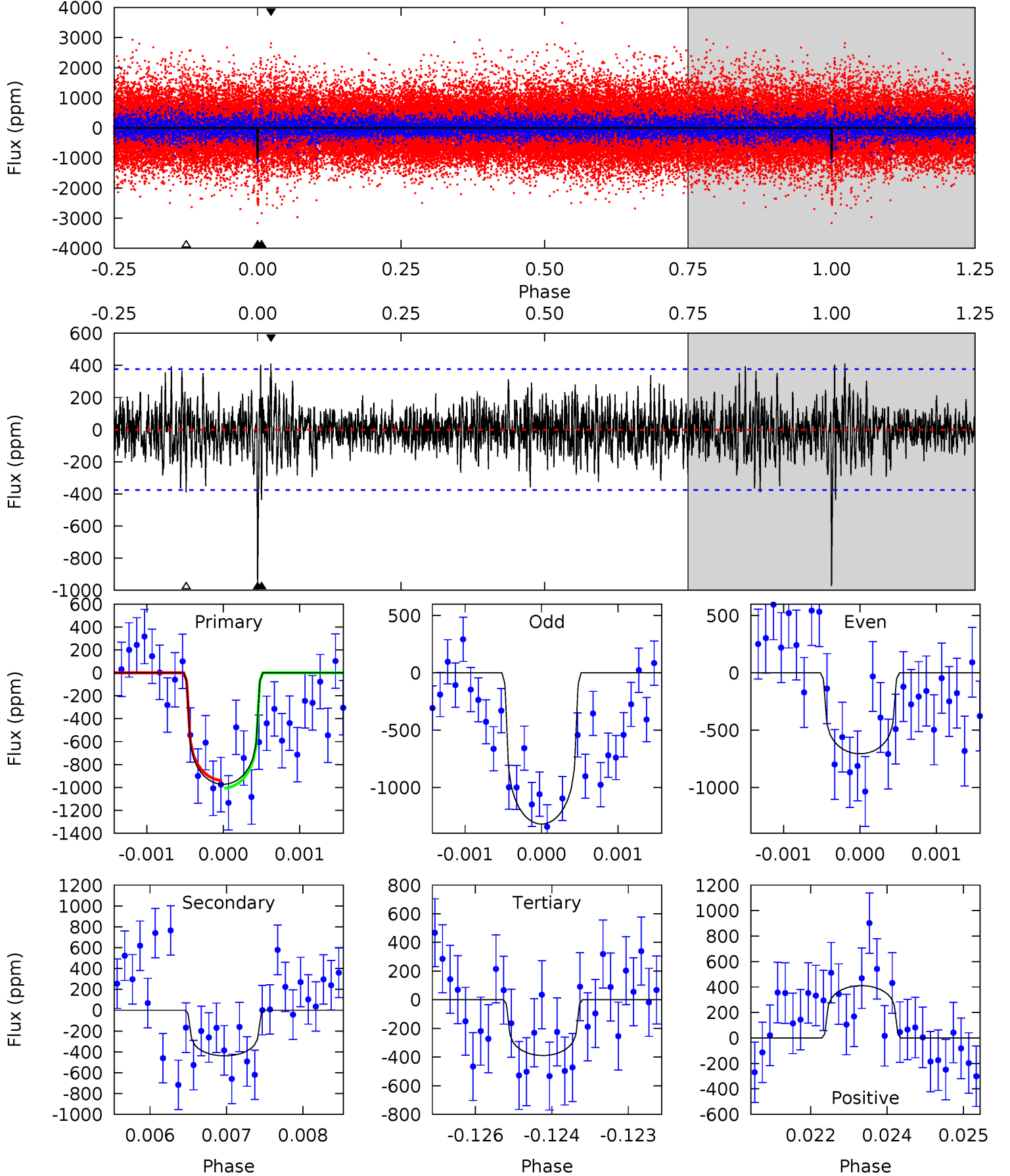
TCE 008938623-01 P=321.883060 Days  $T_0=372.180596$  (BKJD)



# DV Model-Shift Uniqueness Test

008938623-01,  $P = 321.890548$  Days,  $E = 50.277800$  Days

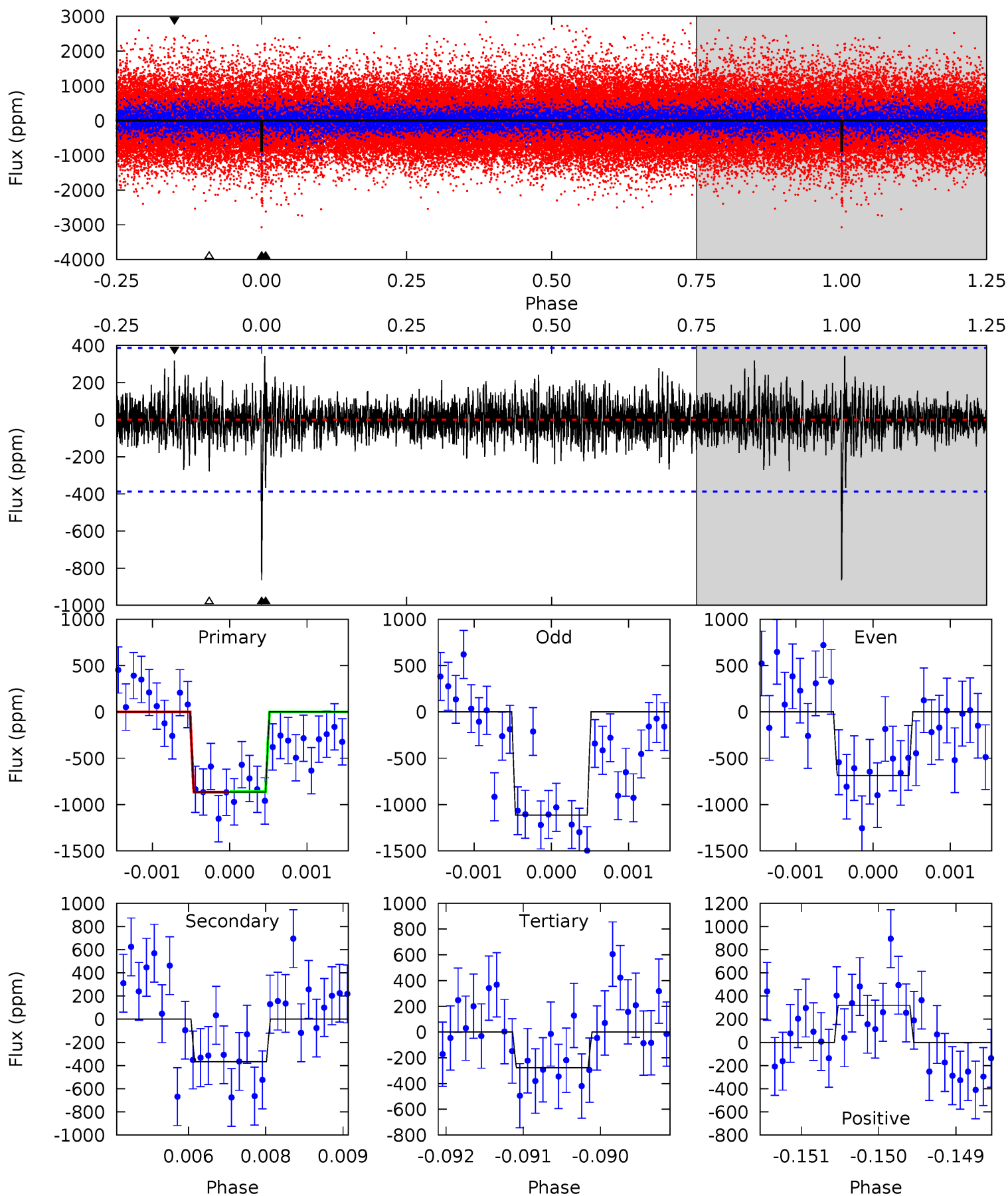
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	6.28	5.57	5.88	5.39	3.20	1.49	8.36	8.05	0.70	0.40	4.45	1.42	0.30	0.48



# Alt Model-Shift Uniqueness Test

008938623-01,  $P = 321.883060$  Days,  $E = 50.297536$  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
12.1	5.14	3.88	4.46	5.41	3.22	1.05	8.21	7.63	1.26	0.68	3.01	1.31	0.28	0.04



### Stellar Parameters For KIC 008938623

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5693^{+154}_{-154}$	$4.570^{+0.040}_{-0.160}$	$-0.240^{+0.300}_{-0.300}$	$0.816^{+0.196}_{-0.065}$	$0.911^{+0.089}_{-0.109}$	$2.357^{+0.380}_{-1.065}$
	+3%/-3%	+1%/-4%	+125%/-125%	+24%/-8%	+10%/-12%	+16%/-45%
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 008938623-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-438 \pm 70$	$2.46^{+1.10}_{-0.99}$	$342^{+18}_{-13}$	$5081^{+1556}_{-699}$	$30586^{+61404}_{-16114}$
Alt.	$-367 \pm 72$	$2.53^{+1.09}_{-0.96}$	$343^{+19}_{-13}$	$4857^{+1195}_{-633}$	$24434^{+41328}_{-13470}$

$T_{max}$  = 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

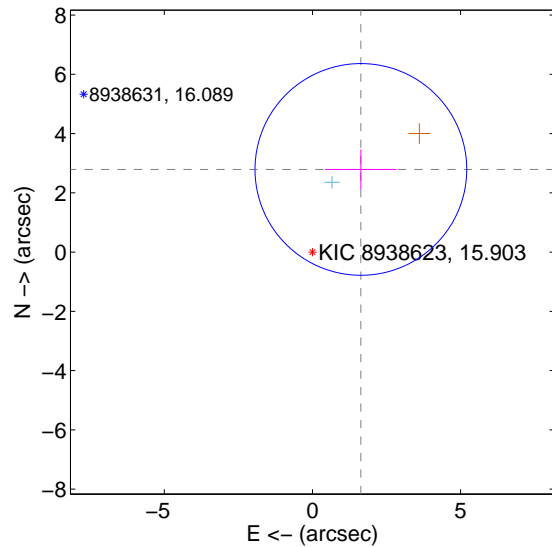
Supplemental centroid analysis for 008938623-01. Kepler magnitude: 15.90. Transit SNR 7.73

There are 1 quarters with good PRF difference image offsets

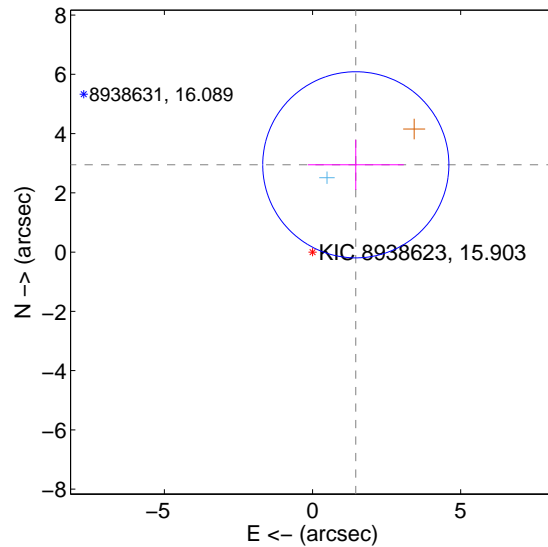
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.234 \pm 1.191$	2.72	$-1.635 \pm 1.207$	$2.791 \pm 0.676$
PRF-fit source offset from KIC position	<b><math>3.289 \pm 1.047</math></b>	<b>3.14</b>	$-1.461 \pm 1.619$	$2.946 \pm 0.849$
photometric centroid source offset	$0.81 \pm 1.99$	0.41	$0.47 \pm 2.08$	$0.66 \pm 1.95$

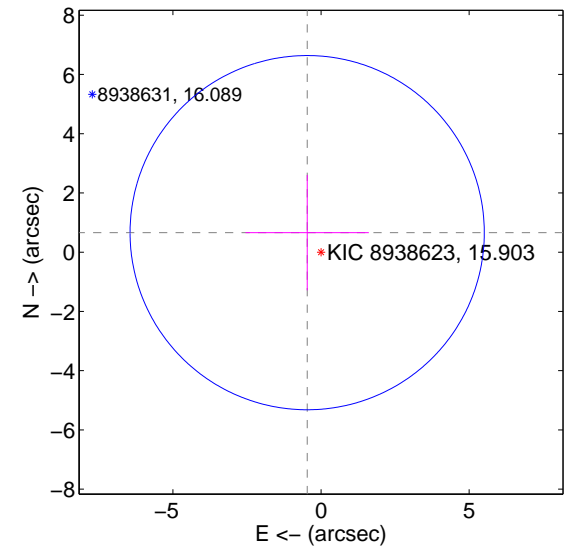
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

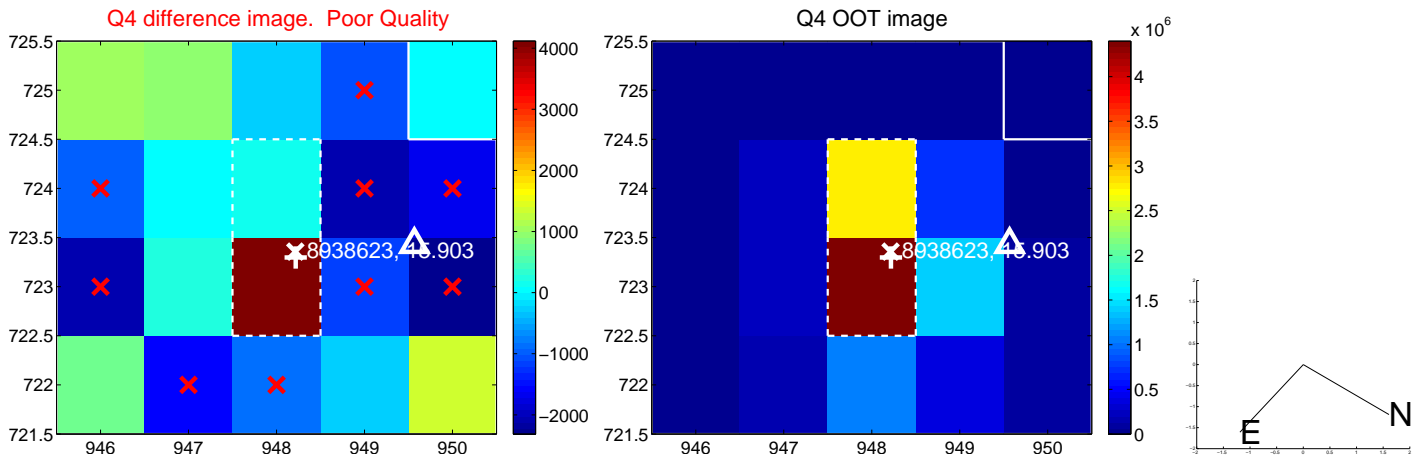
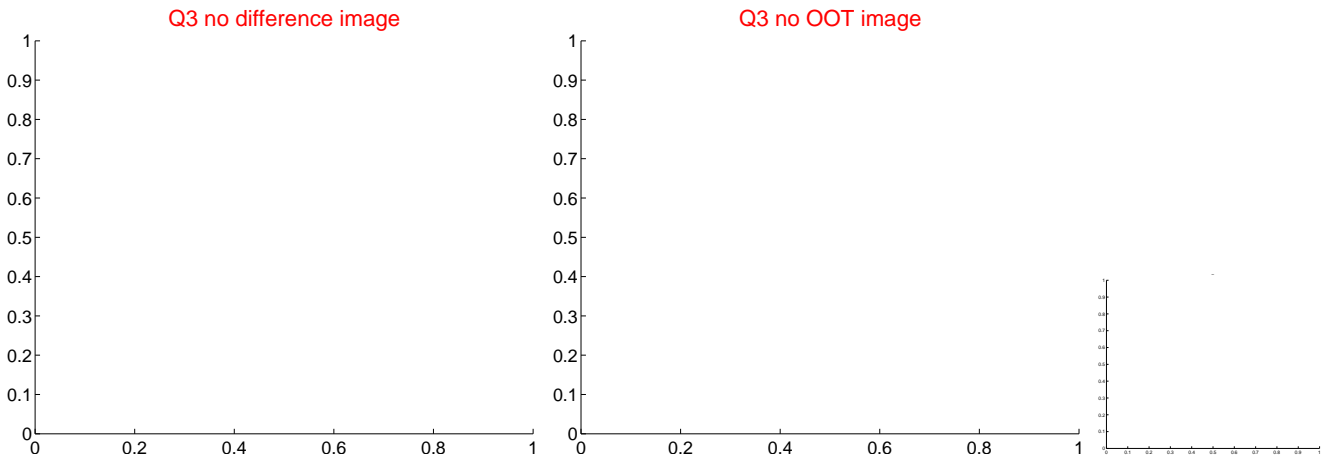
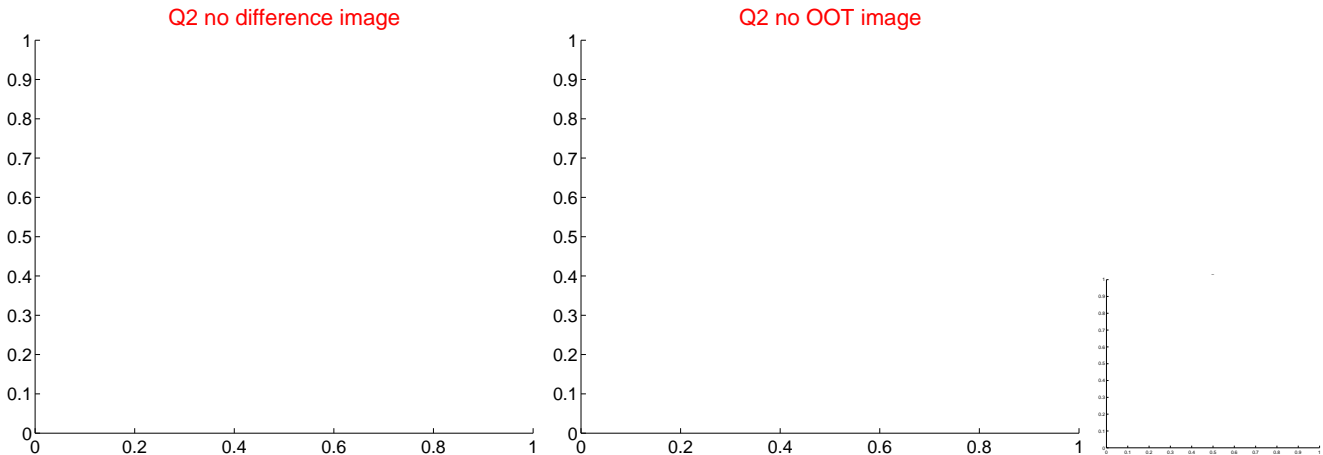
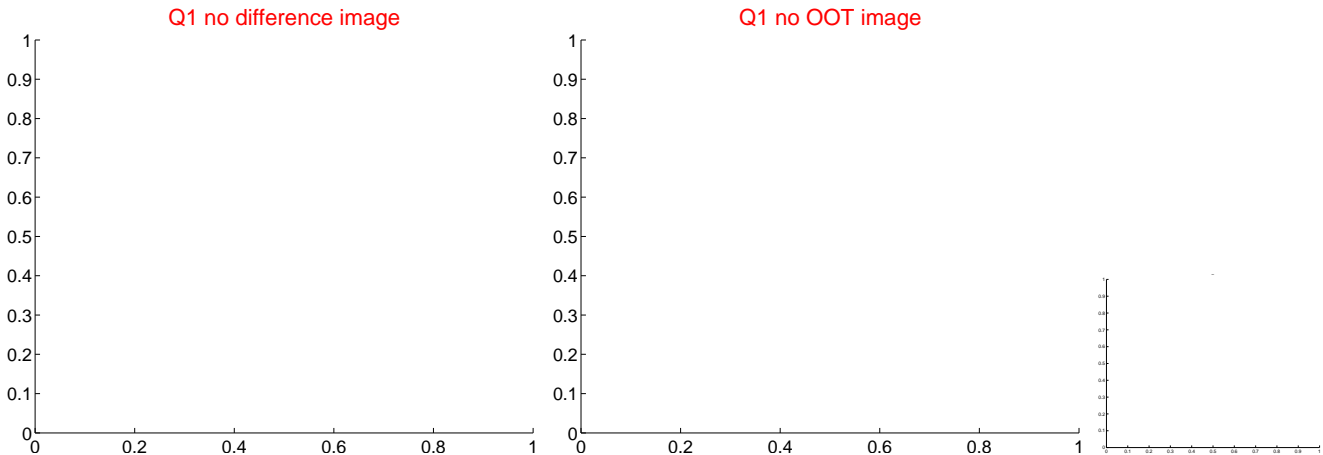


offset from photometric centroids

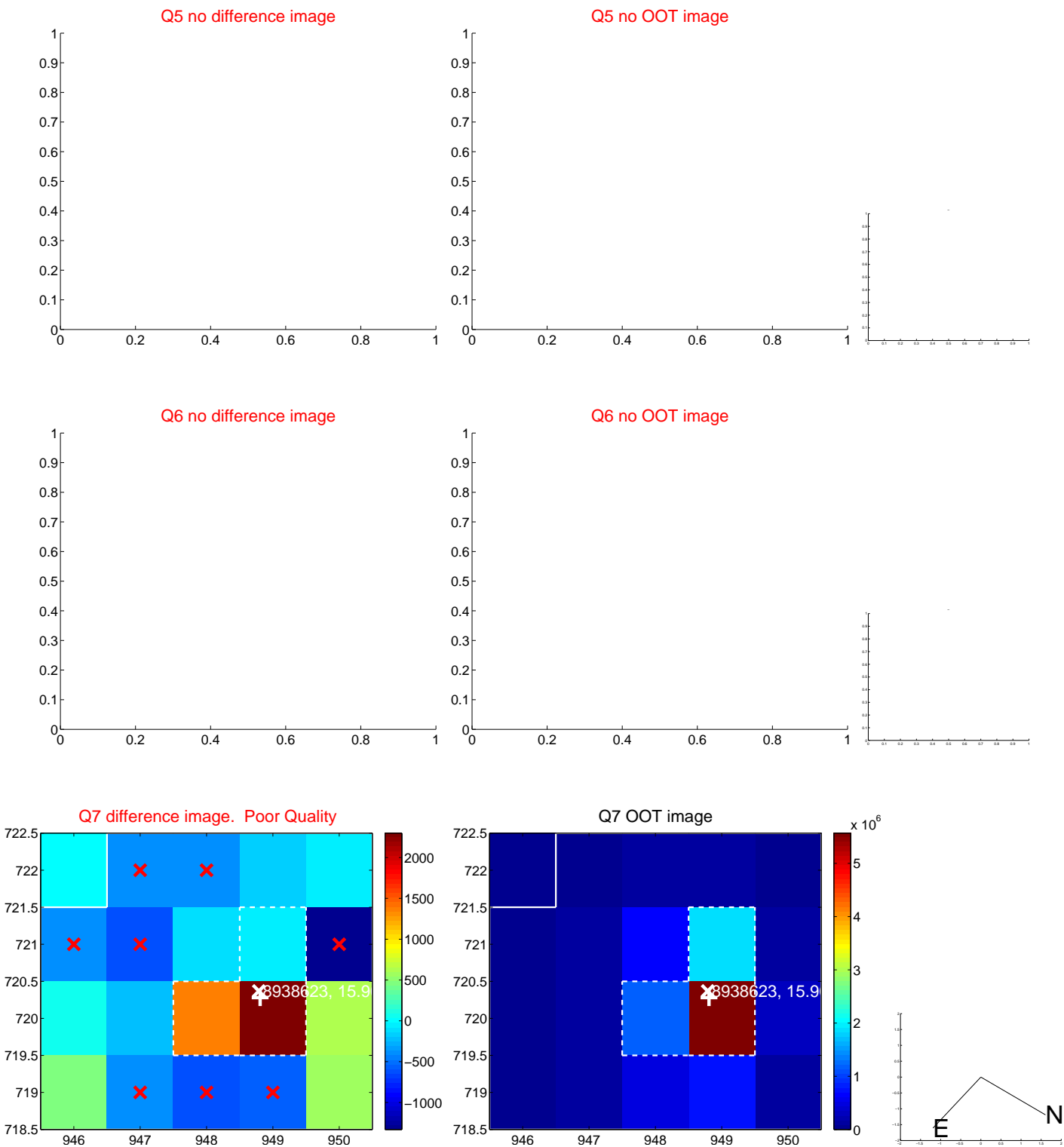


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

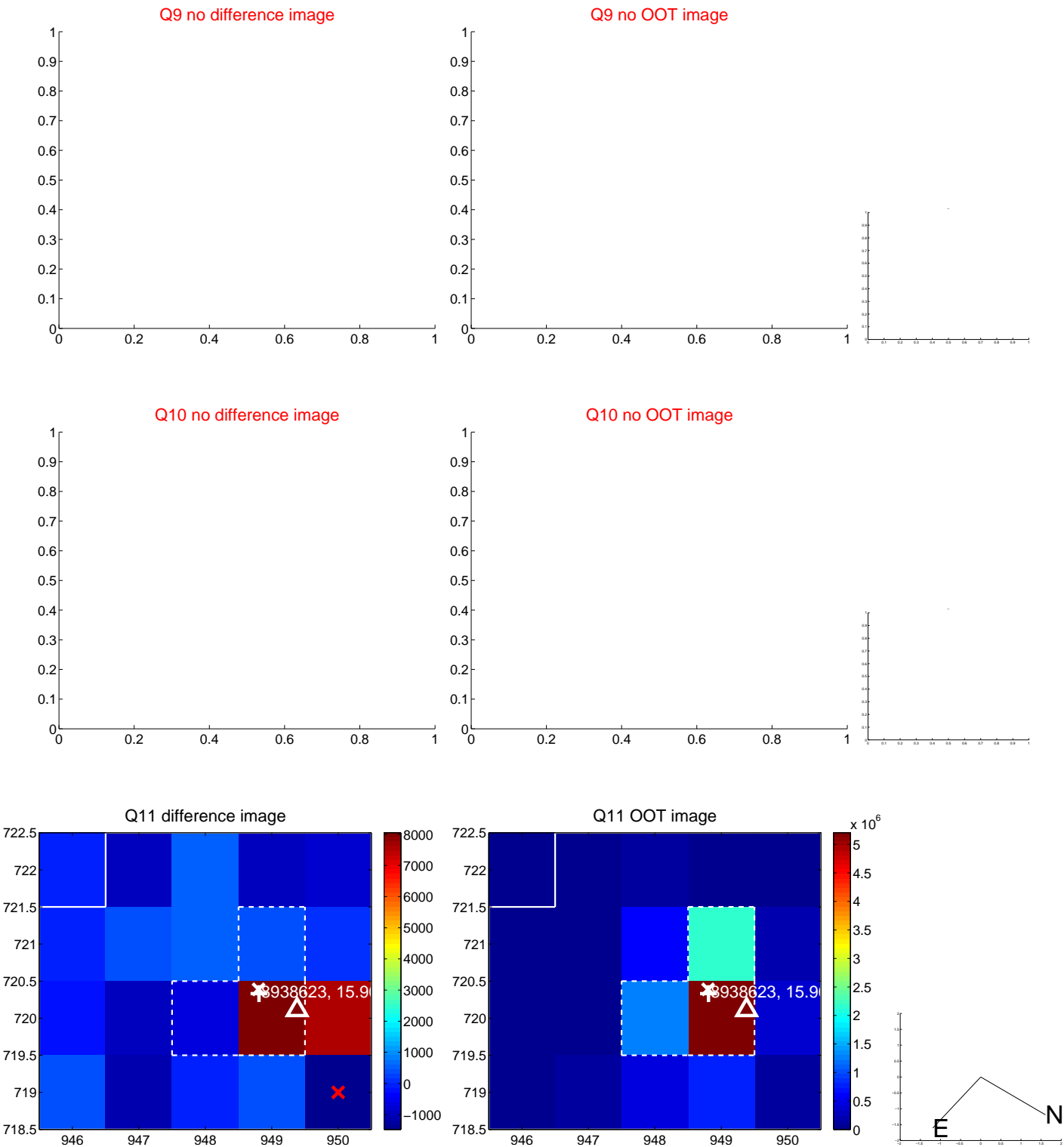
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



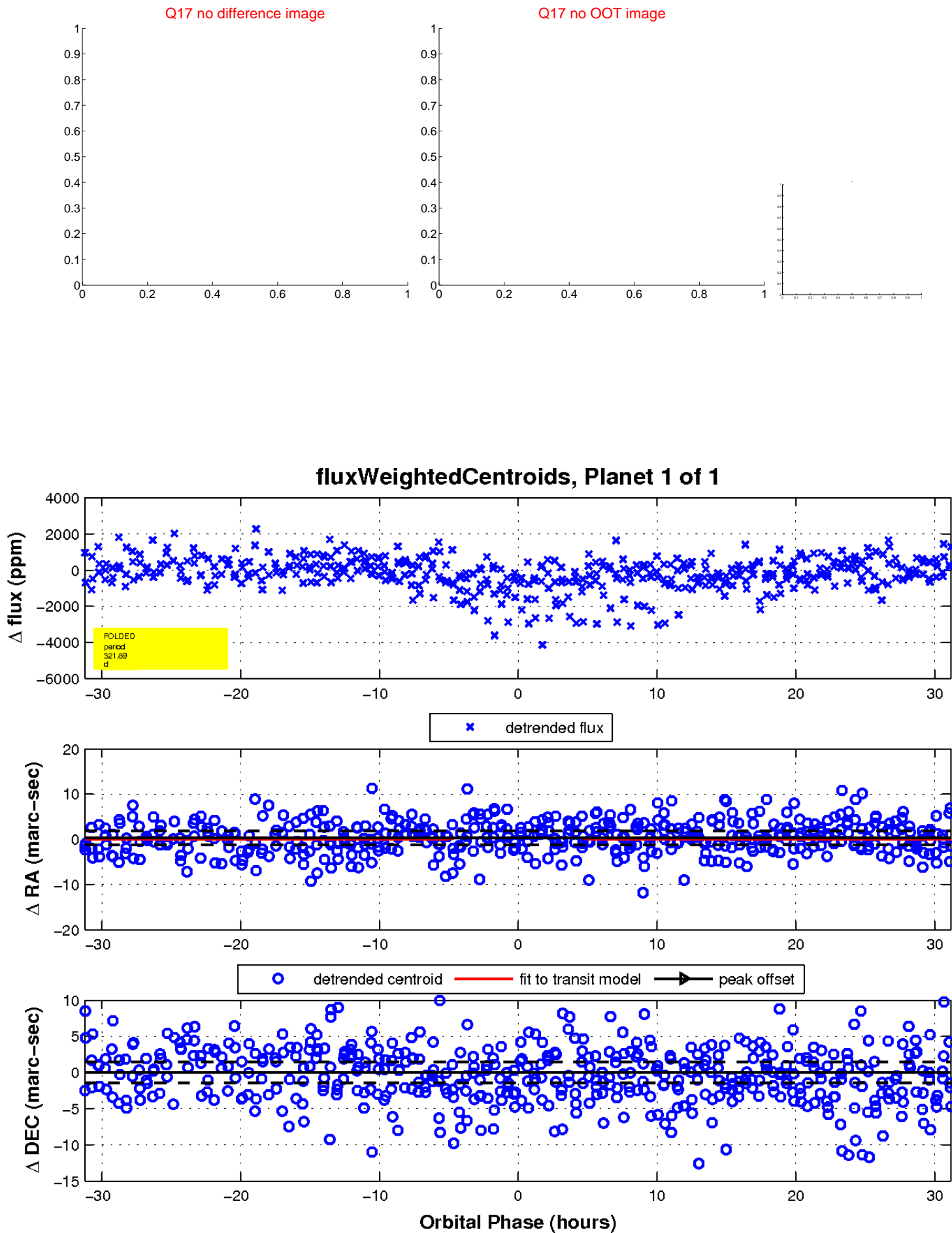
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

Longitude

