

# KIC 010963019

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010963019-01	OBS	No	326.228913	359.920168	532.0	3.582	7.3	7.3	0.78	5069	2.12	0.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010963019-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE--CENT_FEW_MEAS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

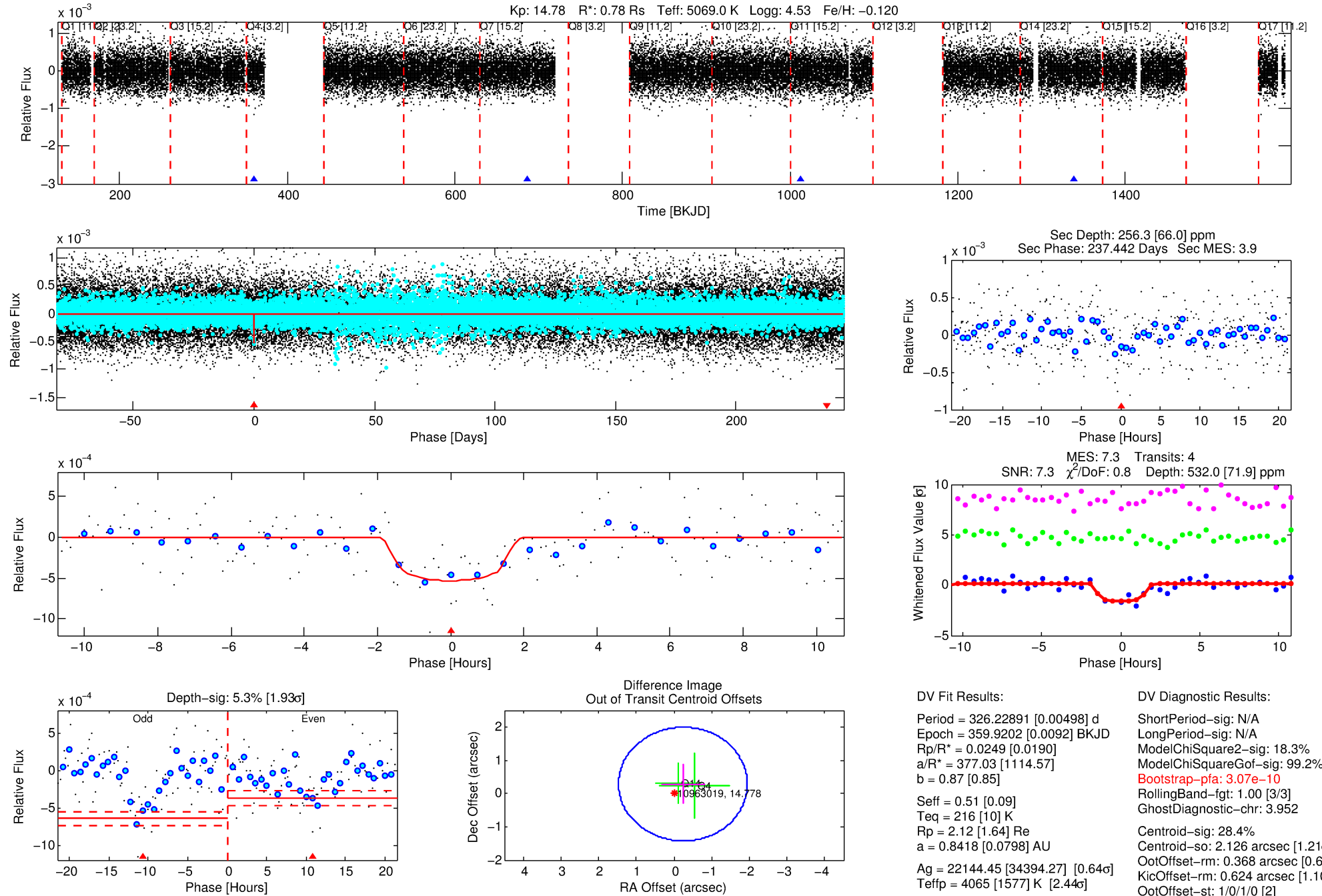
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010963019-01

No Significant Match Found

# DV One-Page Summary

KIC: 10963019 Candidate: 1 of 1 Period: 326.229 d



## DV Fit Results:

Period = 326.22891 [0.00498] d  
Epoch = 359.9202 [0.0092] BKJD  
Rp/R\* = 0.0249 [0.0190]  
a/R\* = 377.03 [1114.57]  
b = 0.87 [0.85]  
Seff = 0.51 [0.09]  
Teq = 216 [10] K  
Rp = 2.12 [1.64] Re  
a = 0.8418 [0.0798] AU  
Ag = 22144.45 [34394.27] [0.64 $\sigma$ ]  
Teffp = 4065 [1577] K [2.44 $\sigma$ ]

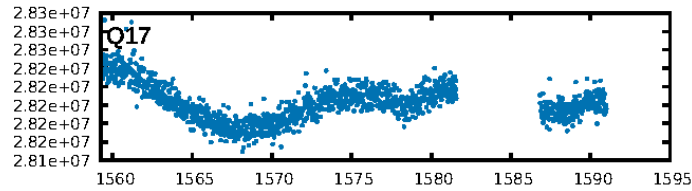
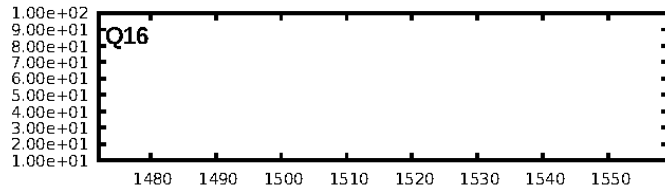
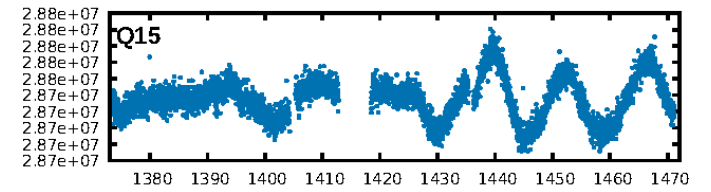
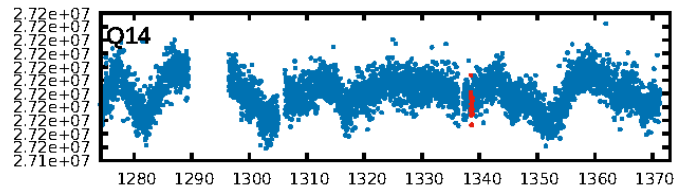
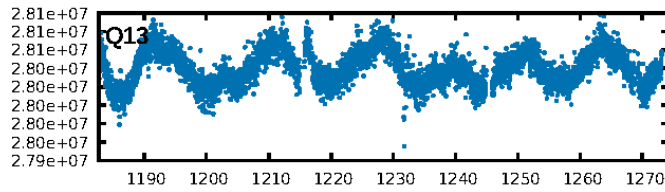
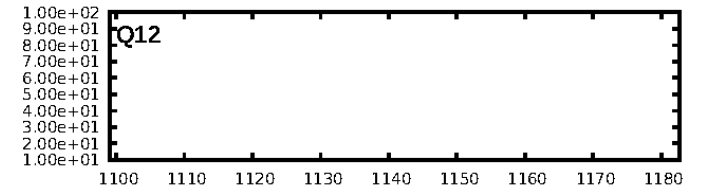
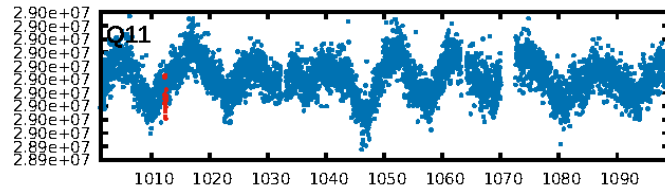
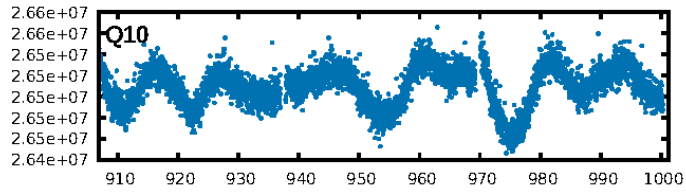
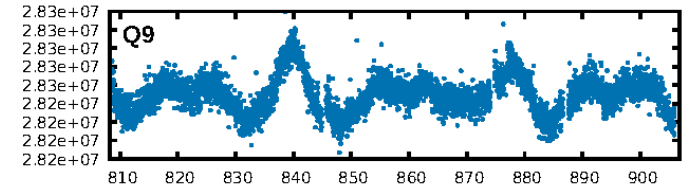
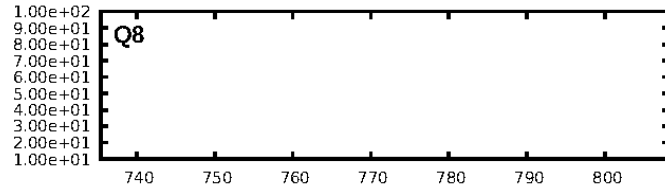
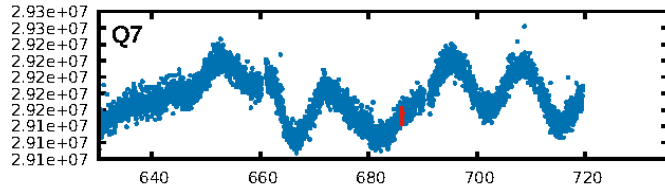
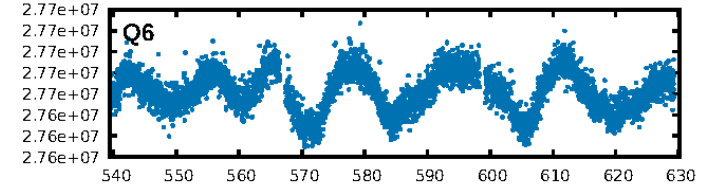
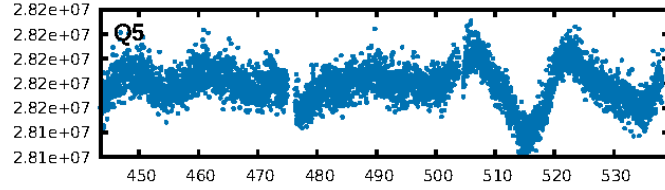
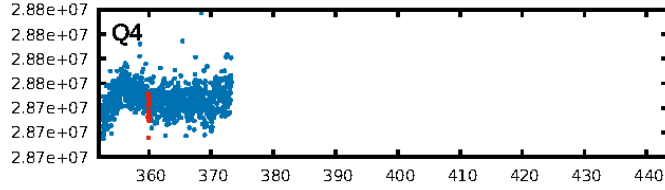
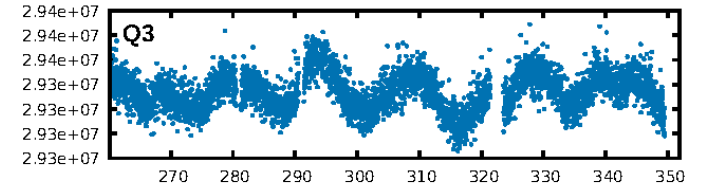
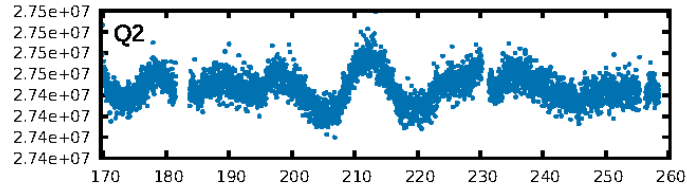
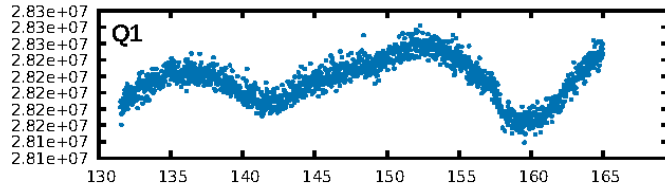
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 18.3%  
ModelChiSquareGof-sig: 99.2%  
**Bootstrap-pfa: 3.07e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.952  
Centroid-sig: 28.4%  
Centroid-so: 2.126 arcsec [1.21 $\sigma$ ]  
OotOffset-rm: 0.368 arcsec [0.65 $\sigma$ ]  
KicOffset-rm: 0.624 arcsec [1.10 $\sigma$ ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [4/4]

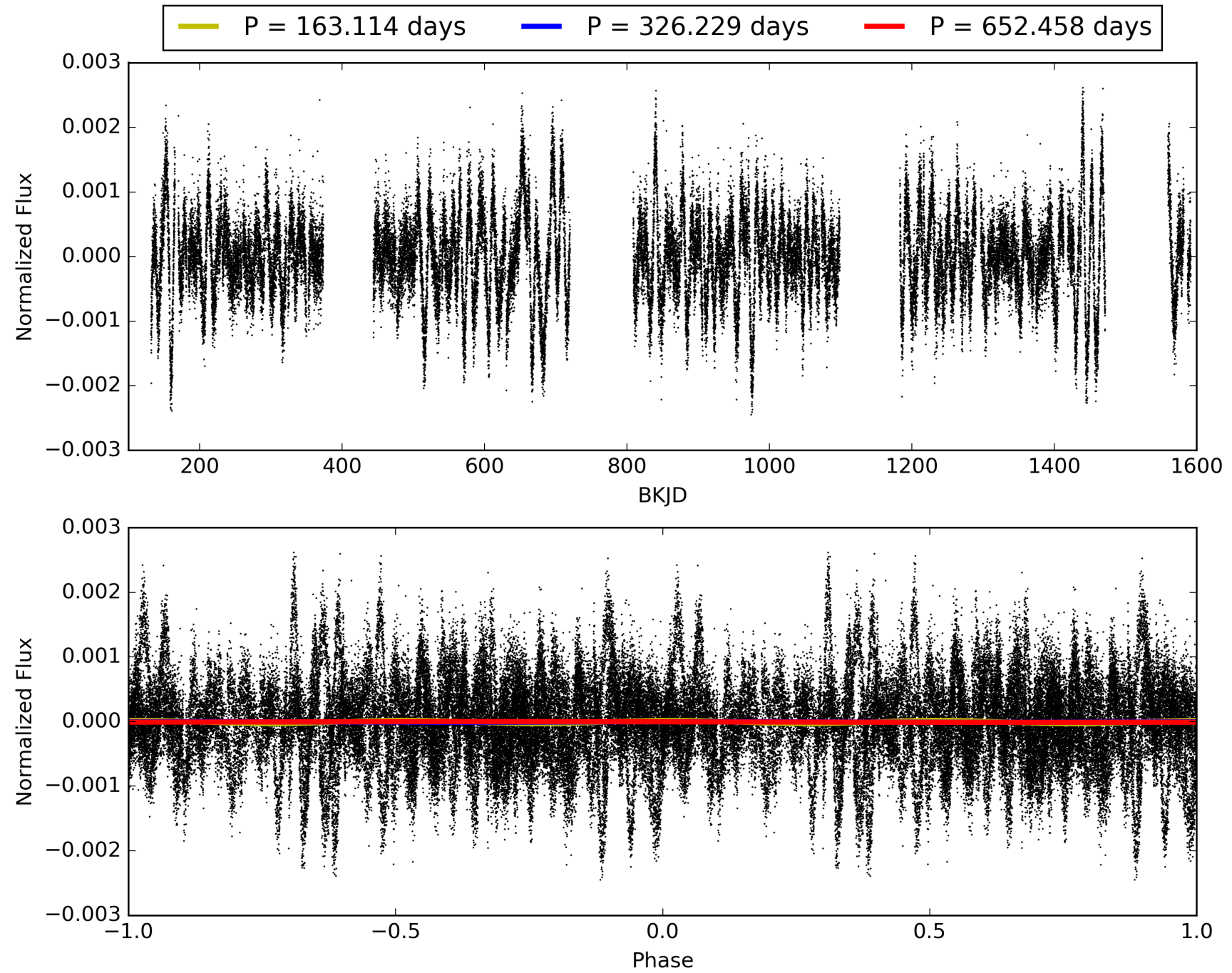
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:01:29 Z

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

# TCE 010963019-01, PDC Light Curves

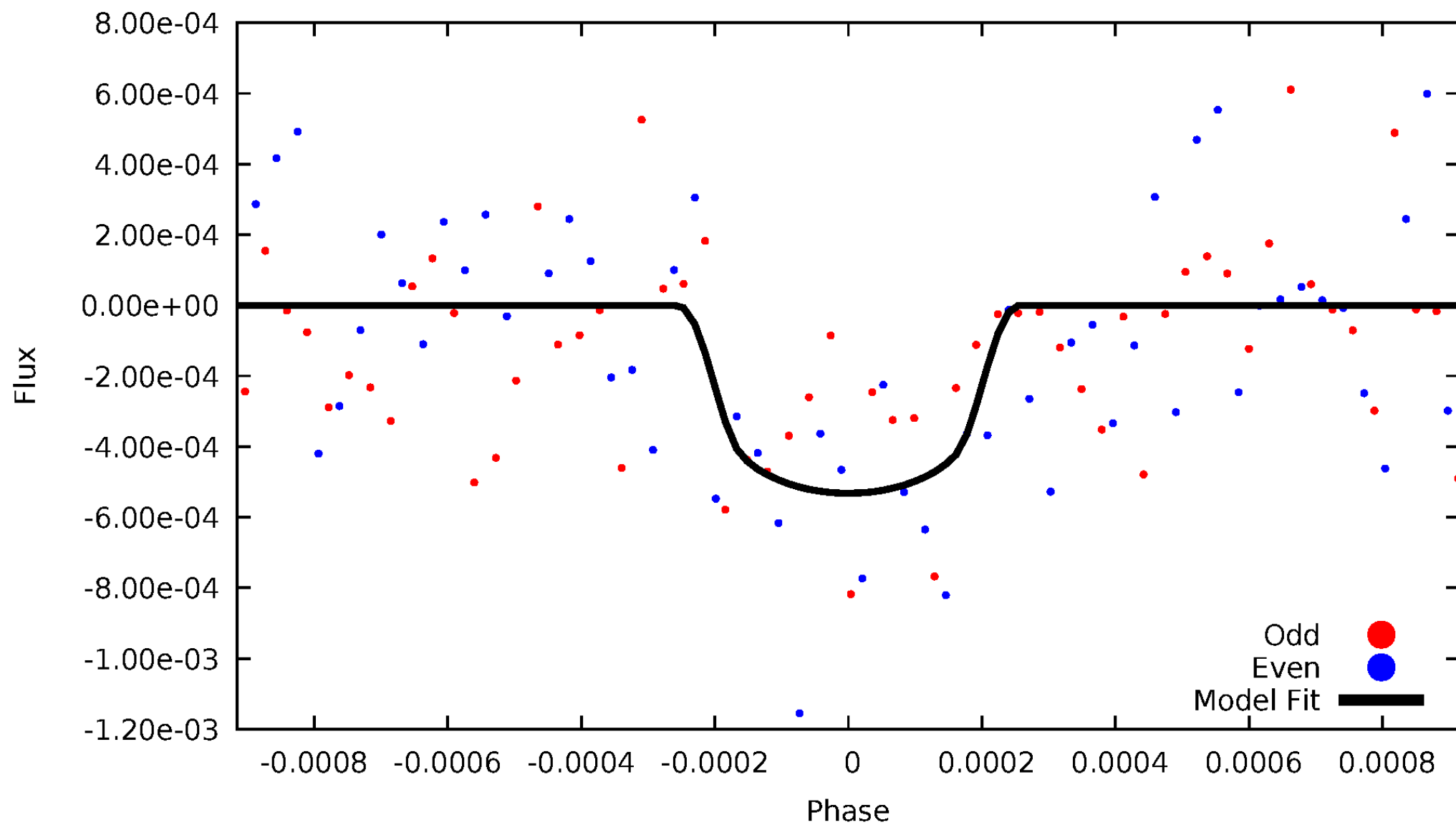


TCE 010963019-01



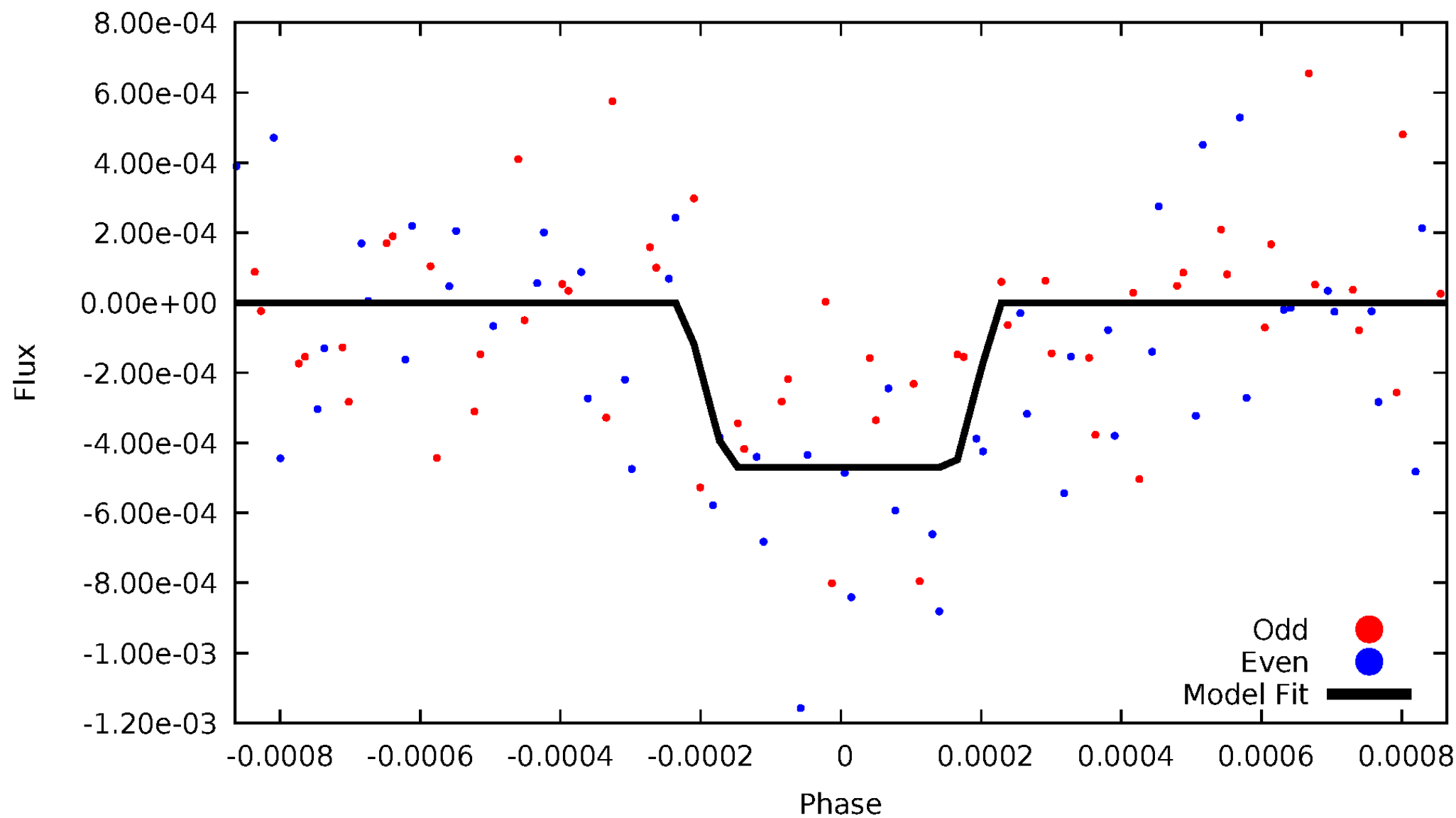
# DV Odd/Even

TCE 010963019-01



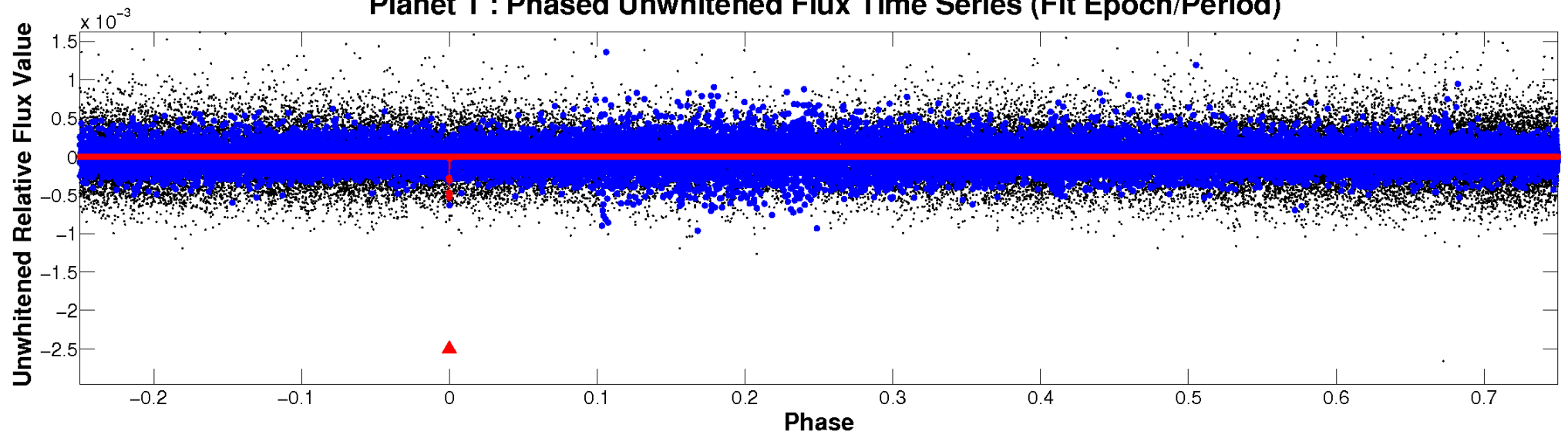
# ALT Odd/Even

TCE 010963019-01

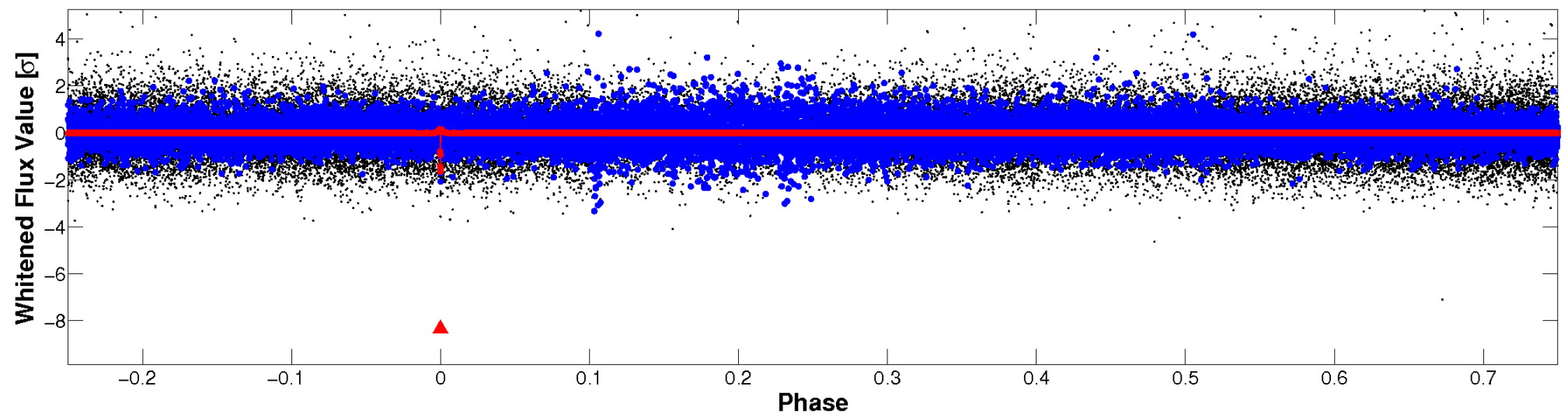


# Non-Whitened Vs. Whitened Light Curve

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

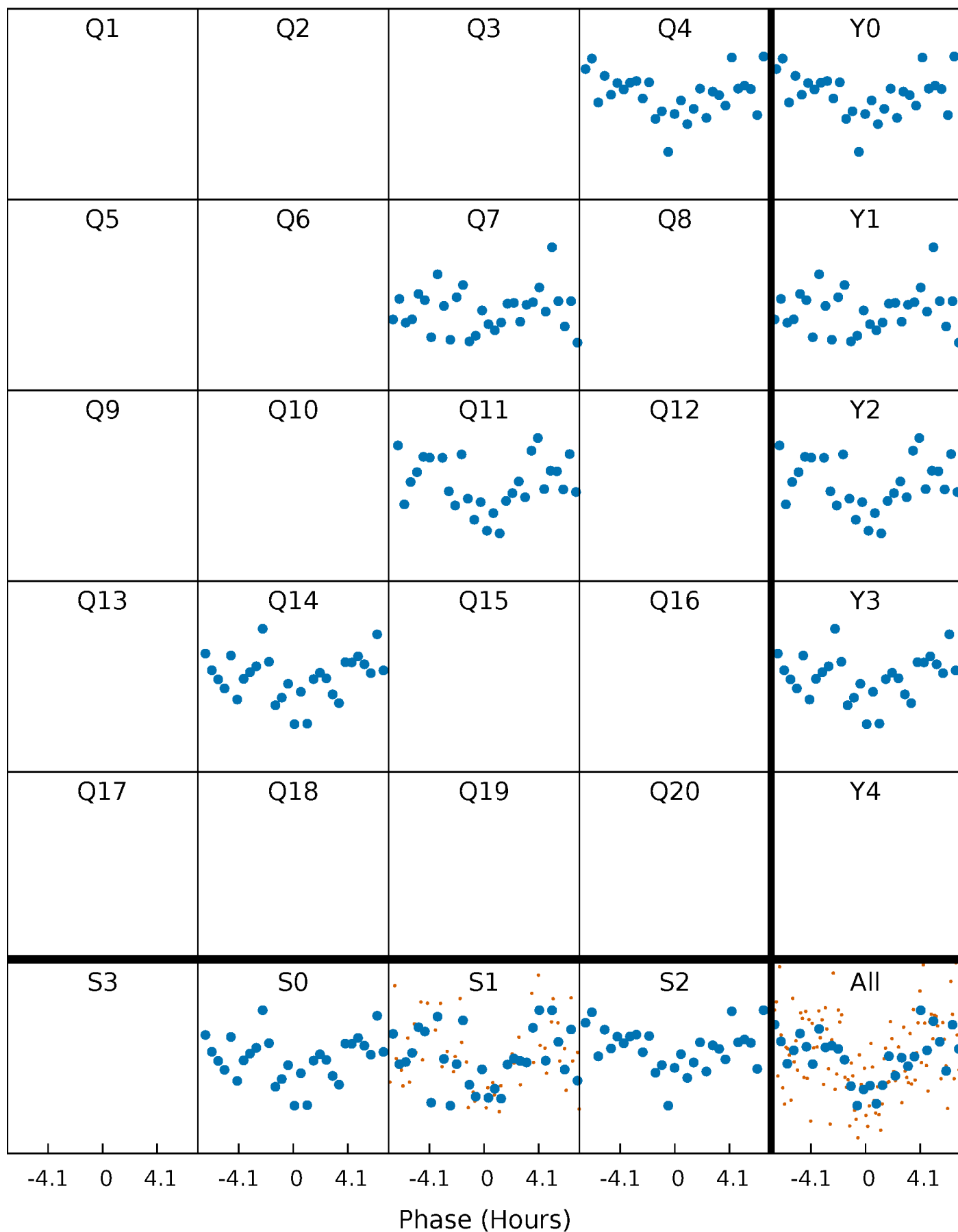


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

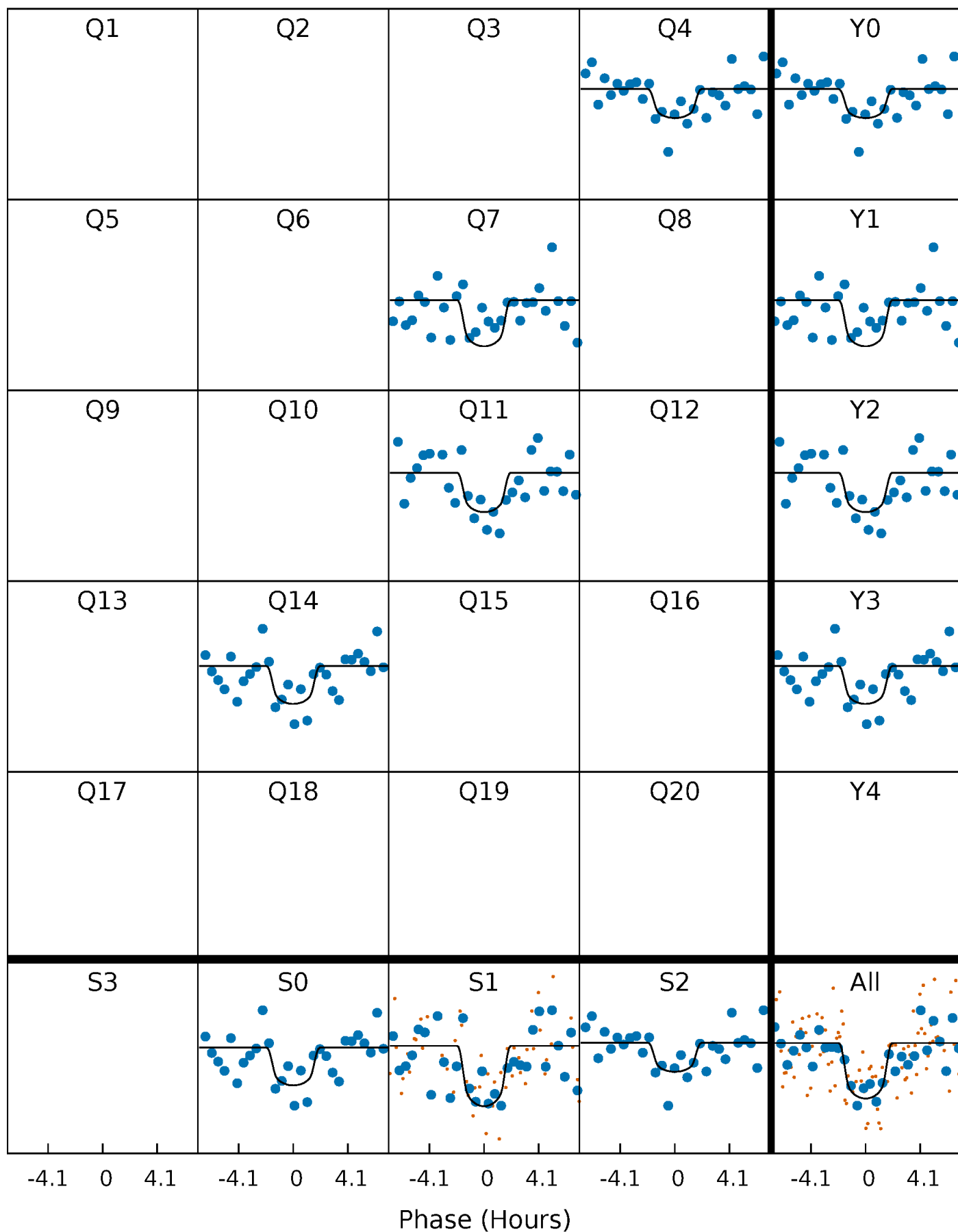
TCE 010963019-01 P=326.228913 Days  $T_0=359.920168$  (BKJD)





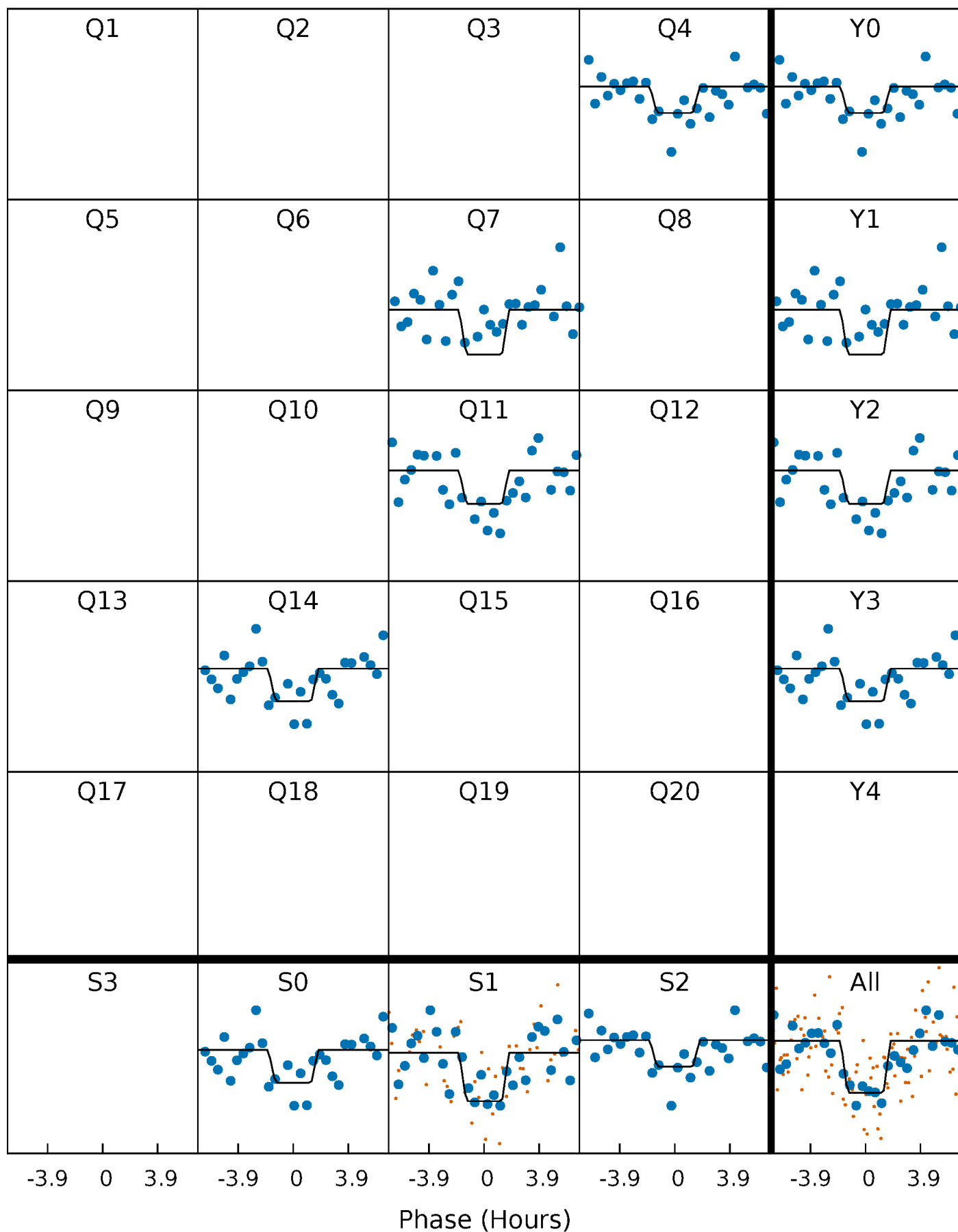
# DV Quarter-Phased Transit Curves

TCE 010963019-01 P=326.228913 Days  $T_0=359.920168$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

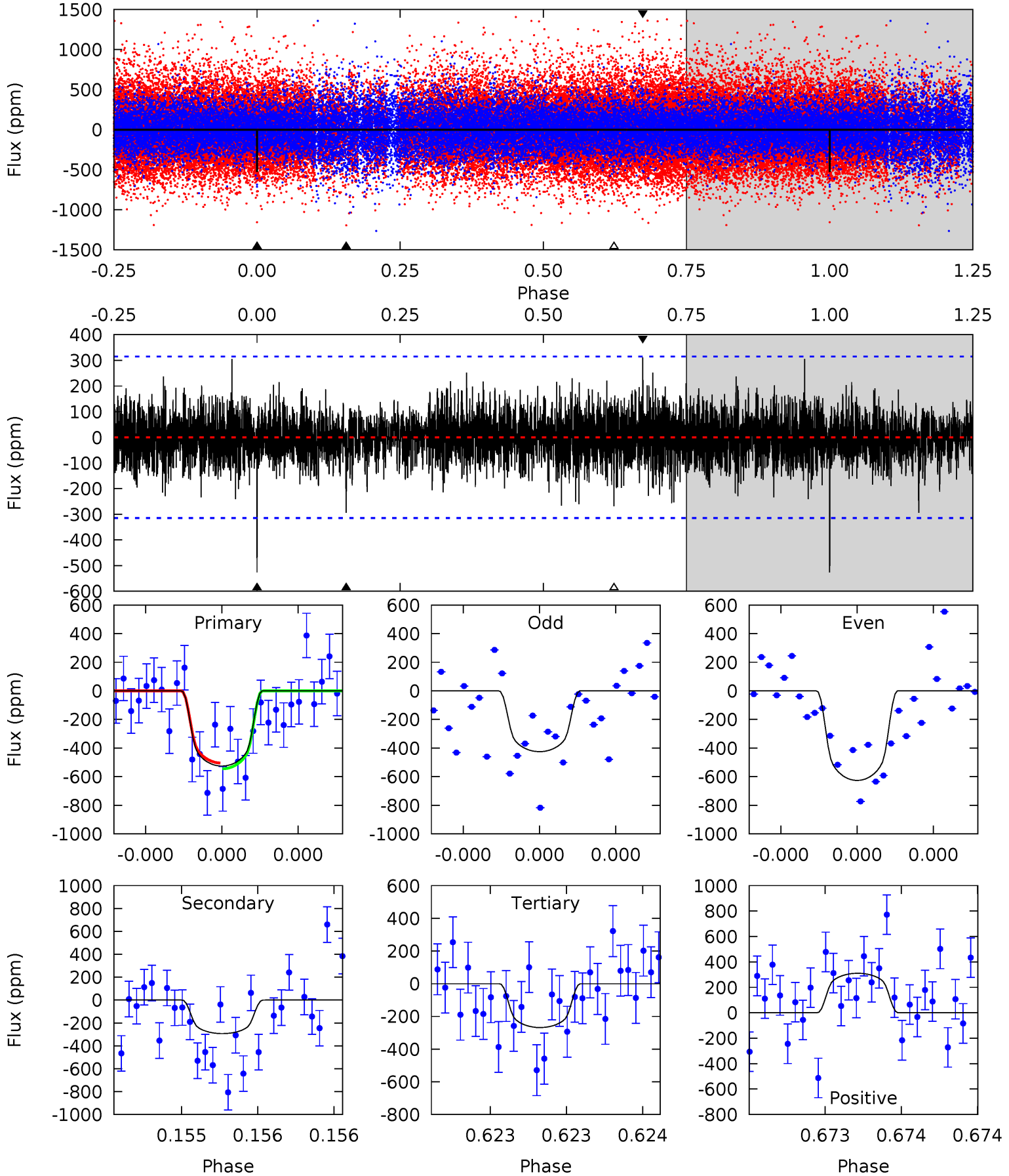
TCE 010963019-01 P=326.232404 Days  $T_0=359.915063$  (BKJD)



# DV Model-Shift Uniqueness Test

010963019-01, P = 326.228913 Days, E = 33.691255 Days

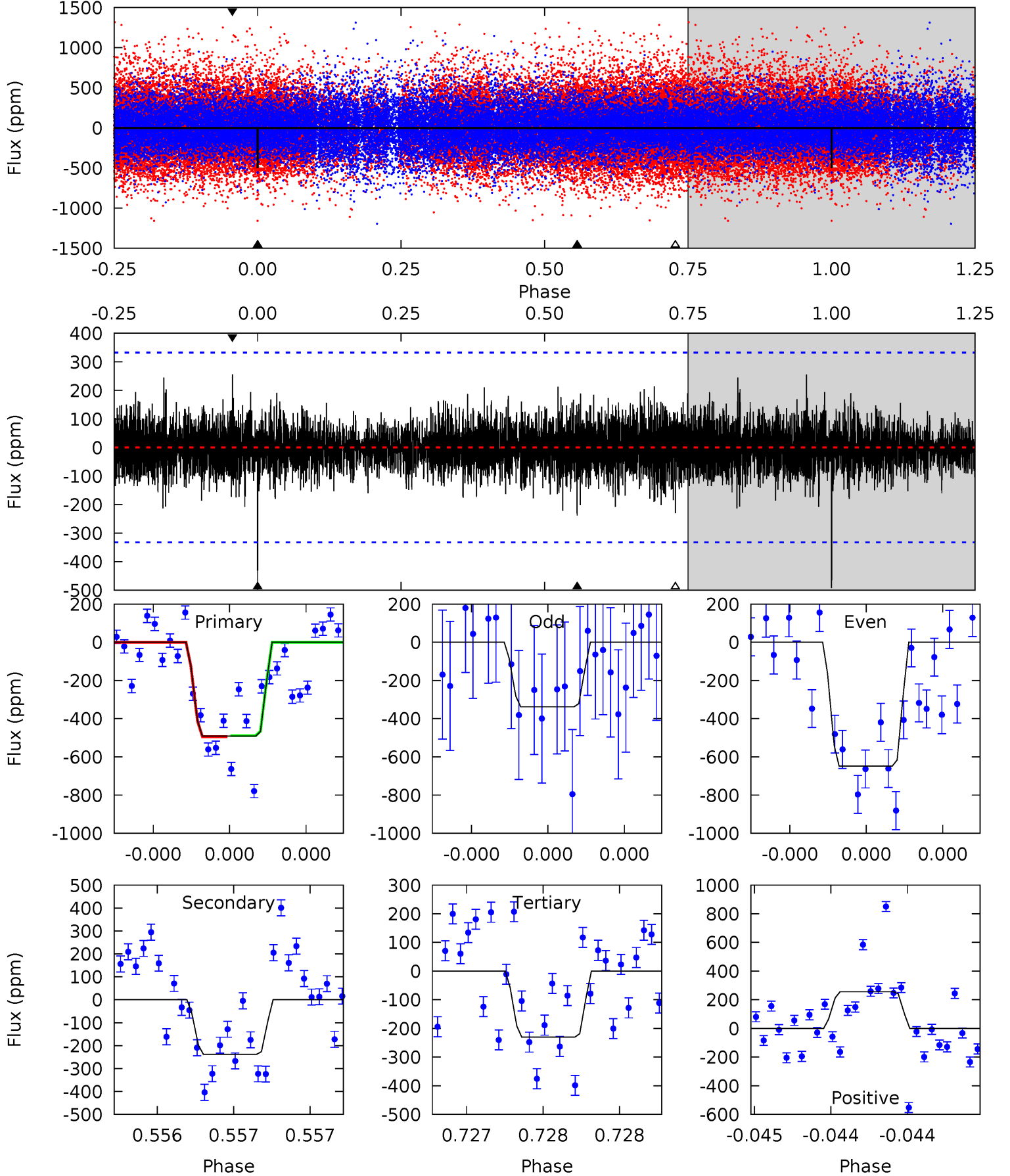
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.33	5.20	4.76	5.51	5.58	3.49	1.27	4.57	3.82	0.44	-0.31	1.78	0.88	0.37	0.36



# Alt Model-Shift Uniqueness Test

010963019-01, P = 326.232404 Days, E = 33.682659 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
8.29	4.01	3.87	4.31	5.61	3.53	1.01	4.41	3.98	0.14	-0.30	2.62	0.88	0.34	0.04



### Stellar Parameters For KIC 010963019

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5069^{+151}_{-151}$	$4.525^{+0.077}_{-0.056}$	$-0.120^{+0.300}_{-0.300}$	$0.782^{+0.071}_{-0.087}$	$0.748^{+0.095}_{-0.055}$	$2.202^{+0.773}_{-0.399}$
	+3%/-3%	+2%/-1%	+250%/-250%	+9%/-11%	+13%/-7%	+35%/-18%
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 010963019-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-293 \pm 56$	$2.27^{+1.48}_{-1.36}$	$300^{+11}_{-11}$	$4220^{+2109}_{-716}$	$21585^{+113867}_{-13987}$
Alt.	$-238 \pm 59$	$2.11^{+1.54}_{-1.23}$	$300^{+11}_{-13}$	$4211^{+1883}_{-747}$	$21393^{+101646}_{-14656}$

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

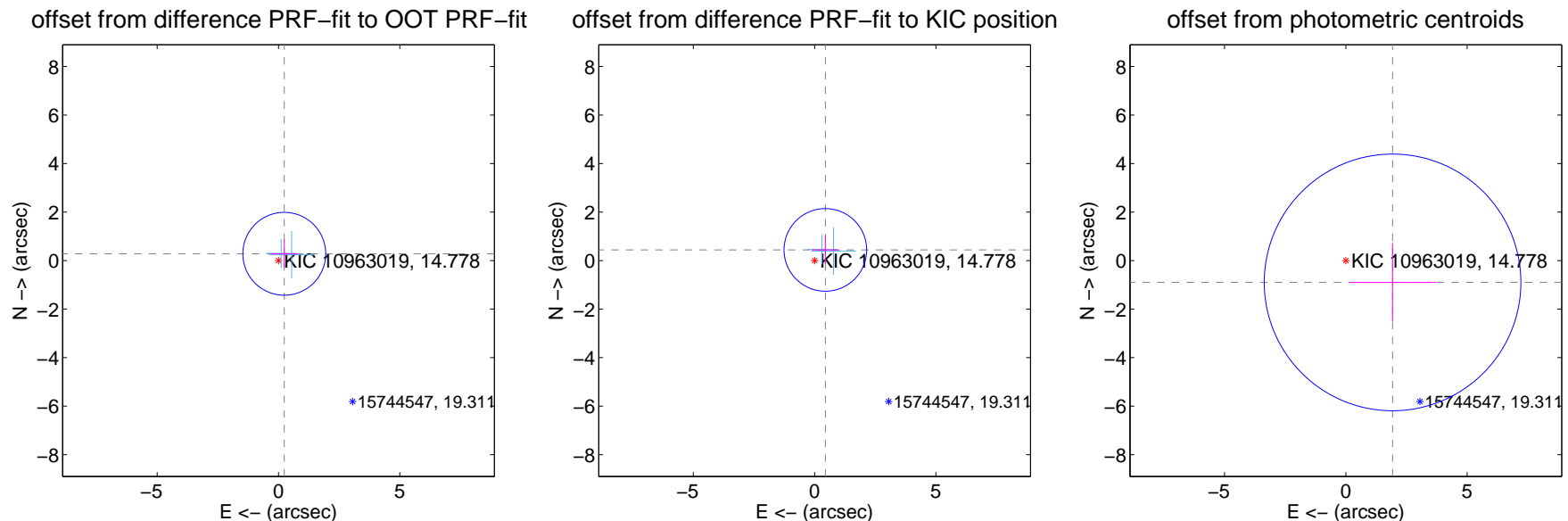
## DV Centroid Data

Supplemental centroid analysis for 010963019-01. Kepler magnitude: 14.78. Transit SNR 7.28

There are 2 quarters with good PRF difference image offsets

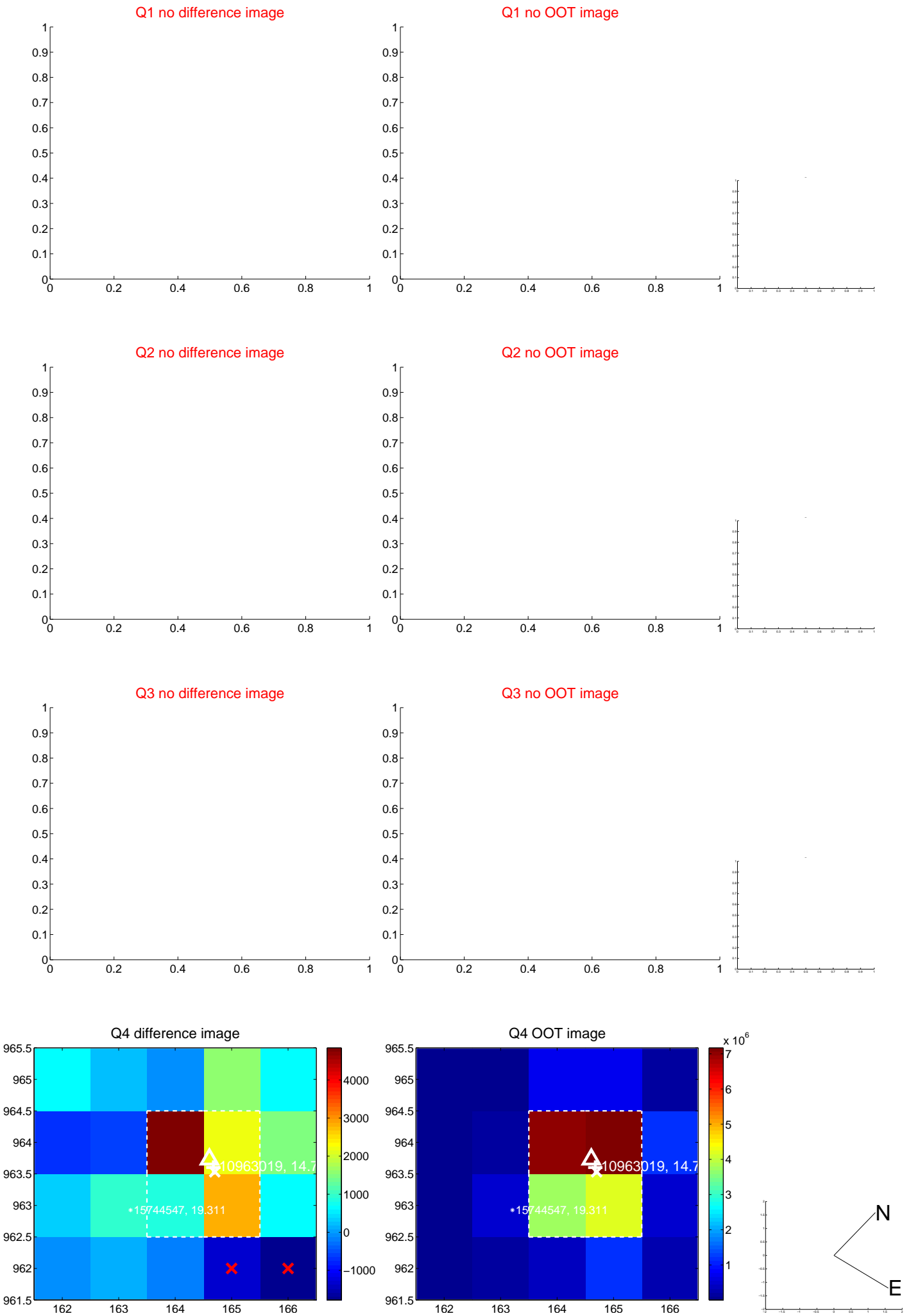
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.368 \pm 0.569$	0.65	$-0.238 \pm 0.558$	$0.280 \pm 0.578$
PRF-fit source offset from KIC position	$0.624 \pm 0.568$	1.10	$-0.442 \pm 0.558$	$0.440 \pm 0.578$
photometric centroid source offset	$2.13 \pm 1.76$	1.21	$-1.93 \pm 1.79$	$-0.90 \pm 1.62$

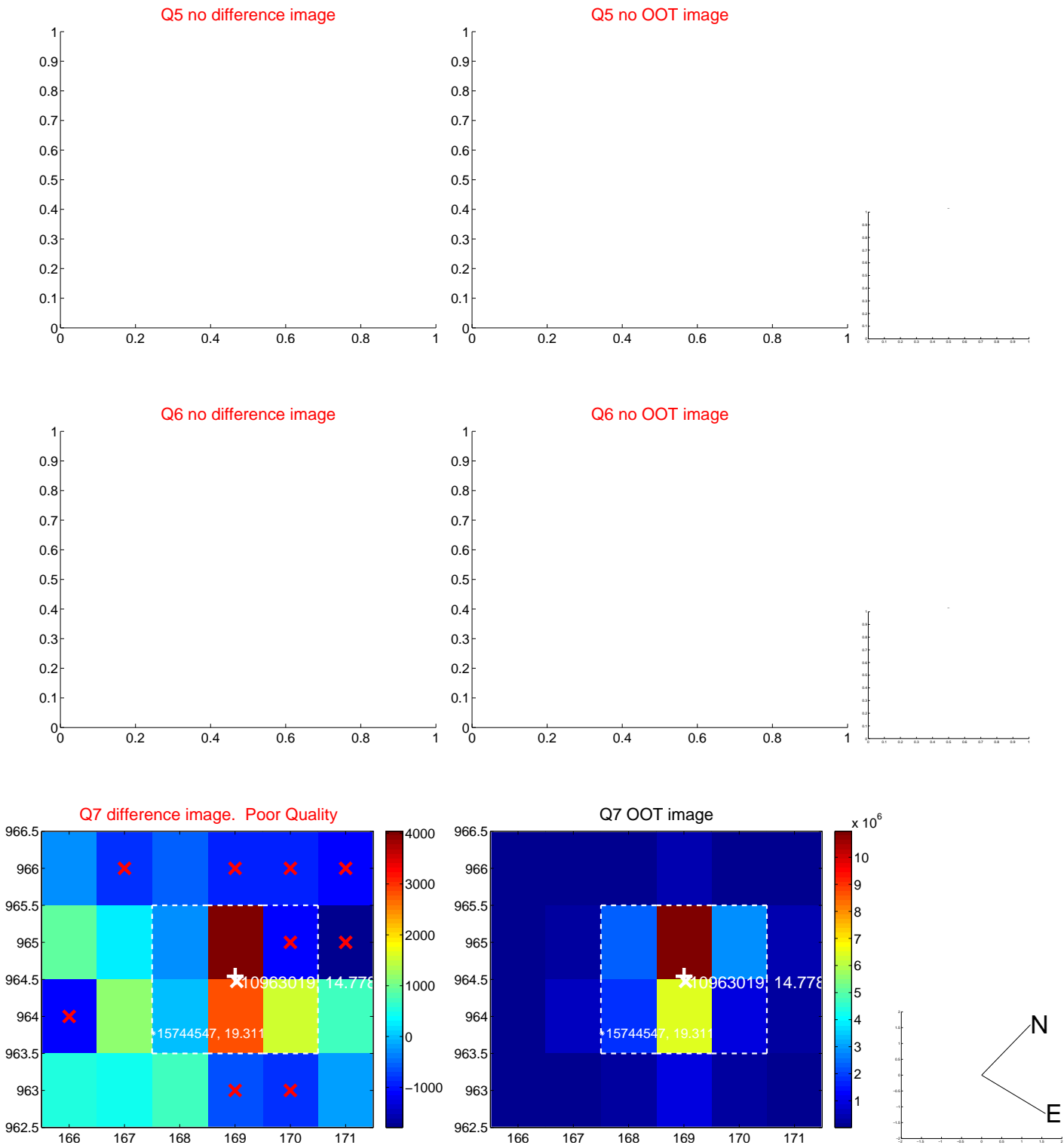


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

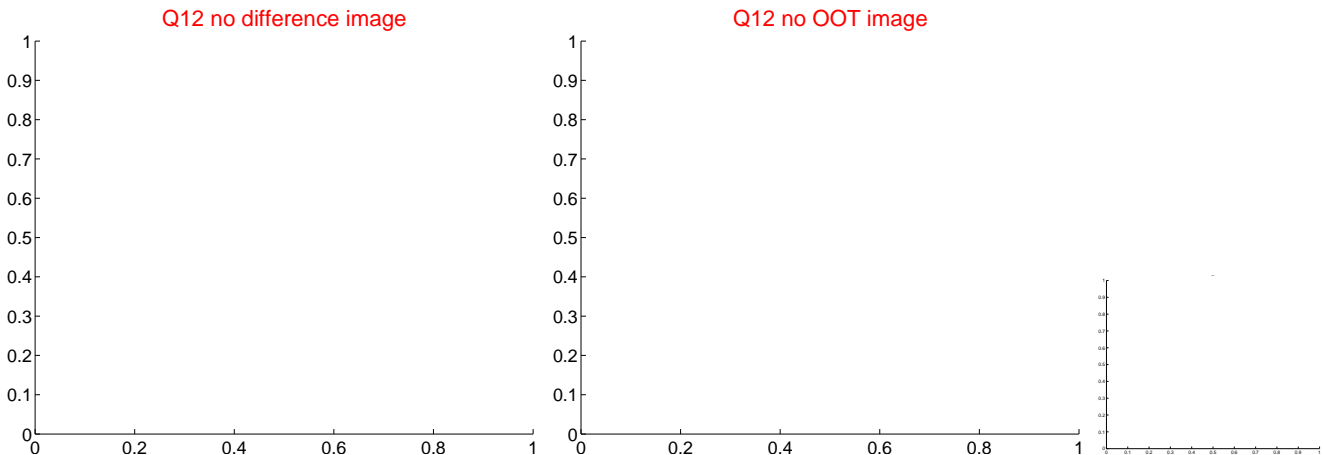
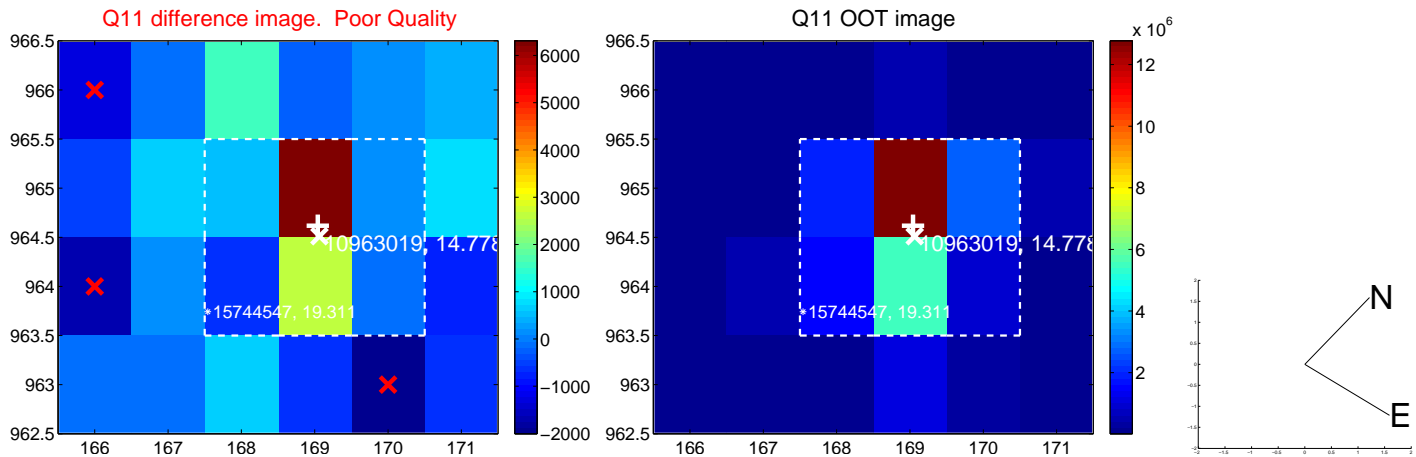
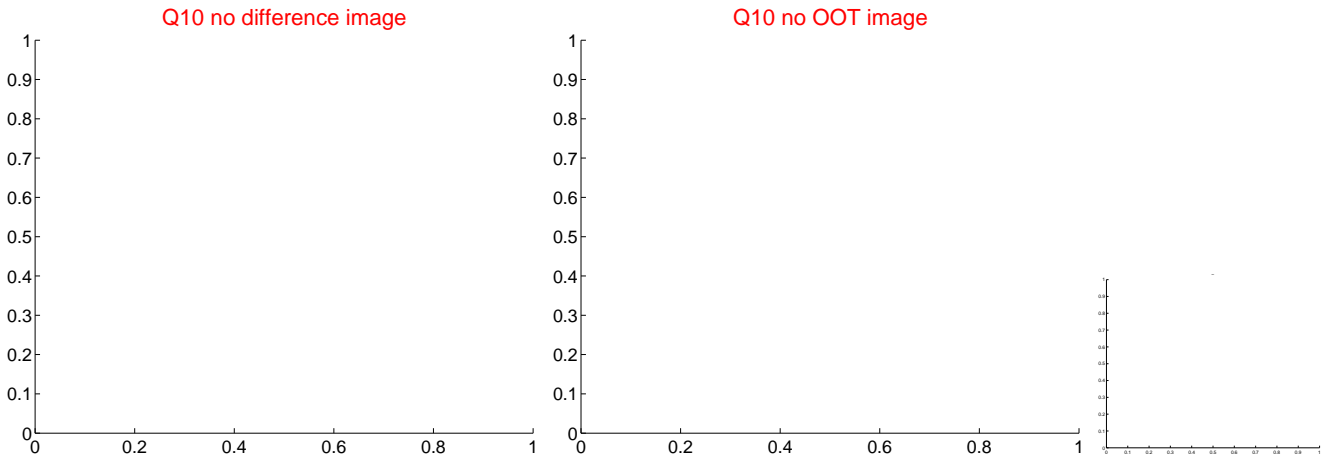
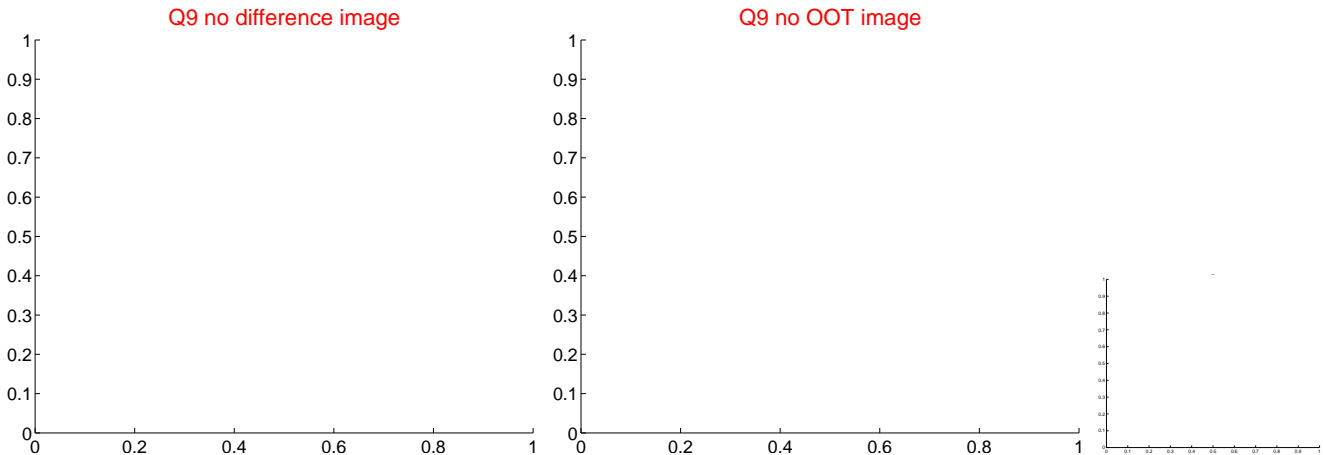


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

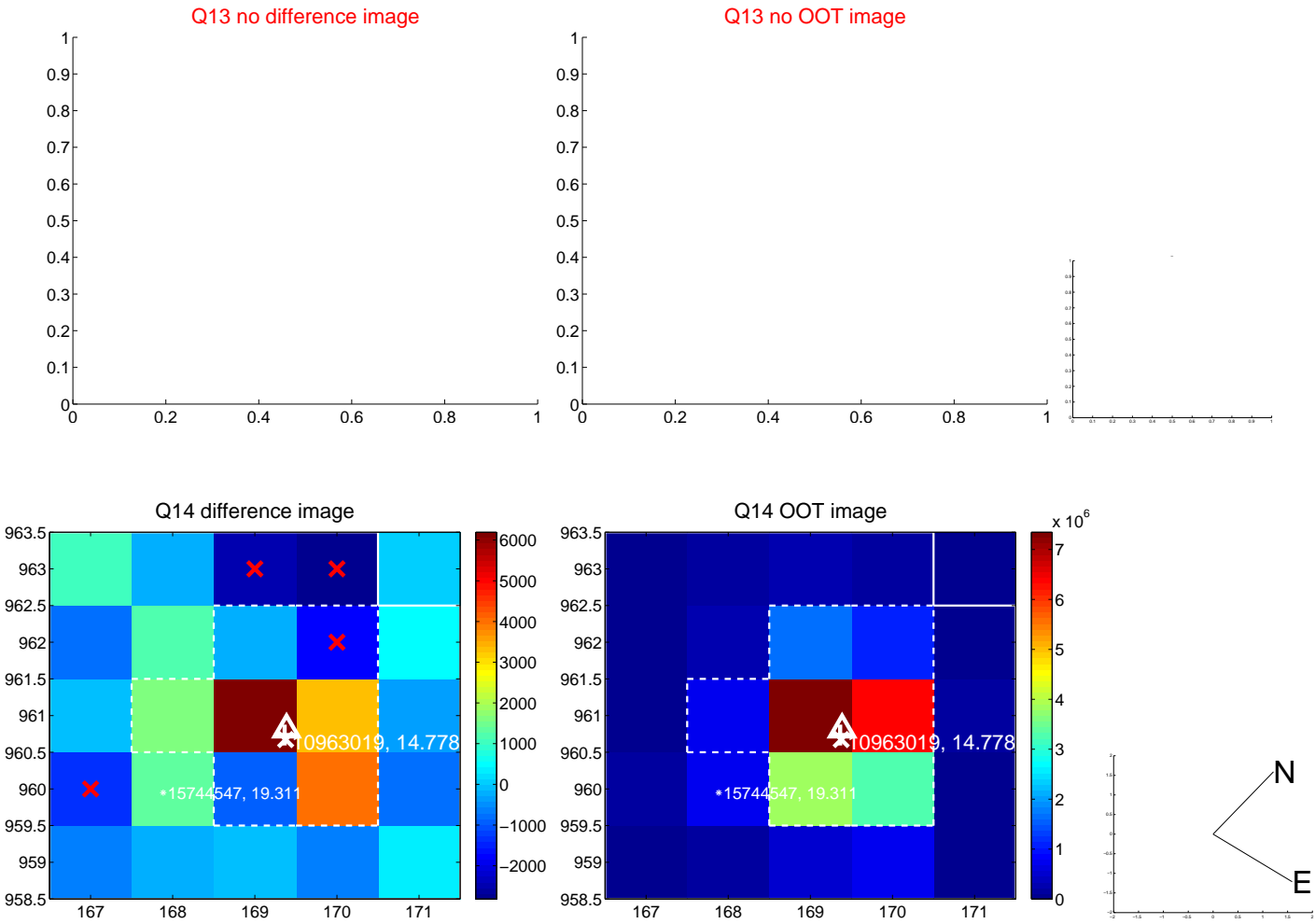




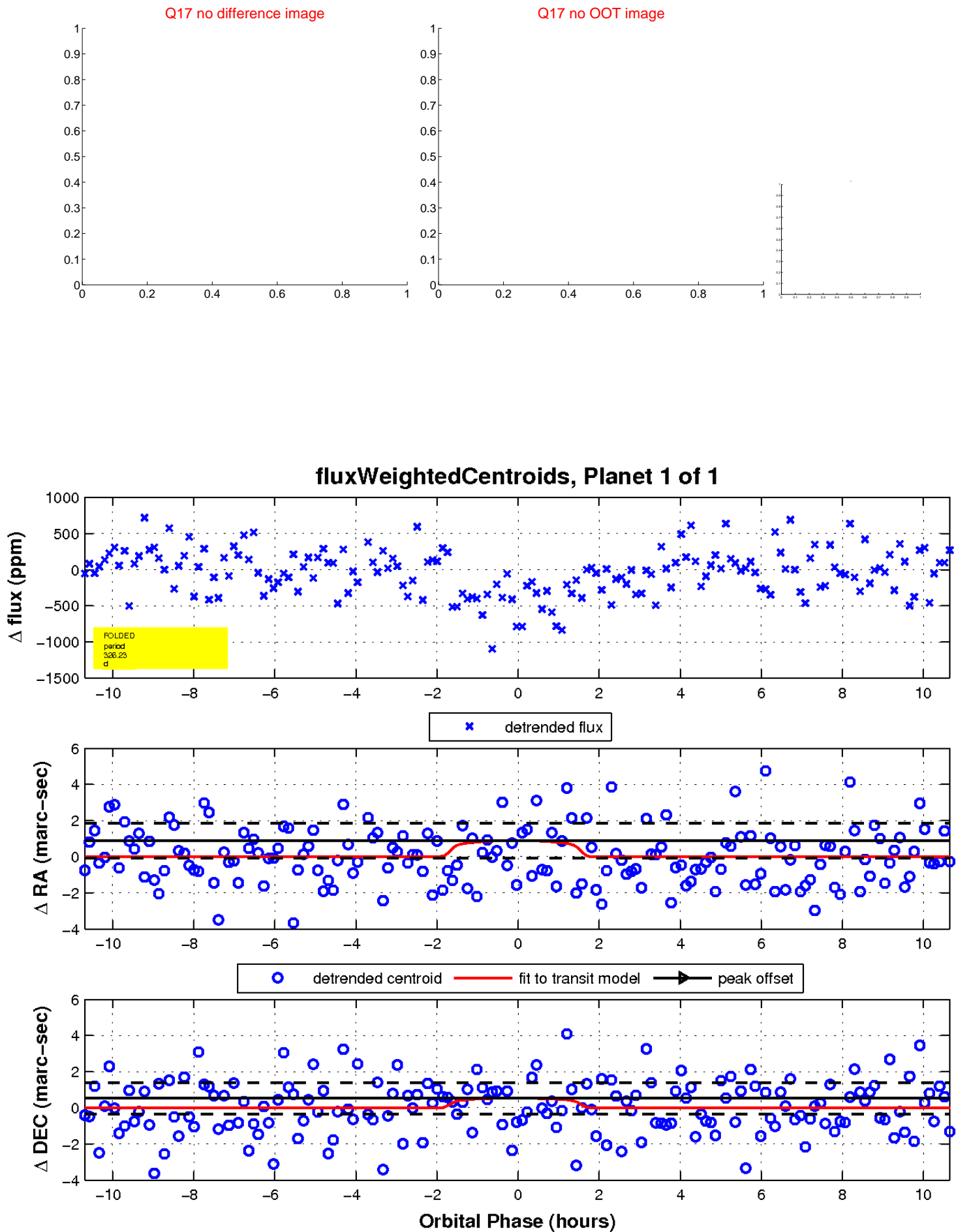
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



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



UKIRT Image

Declination

