

# KIC 009596064

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009596064-01	OBS	7197.01	1.741447	132.011562	315.8	2.045	9.7	9.8	0.76	5238	1.65	549.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009596064-01	OBS	PC	1.00	0	0	0	0	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 009596064-01

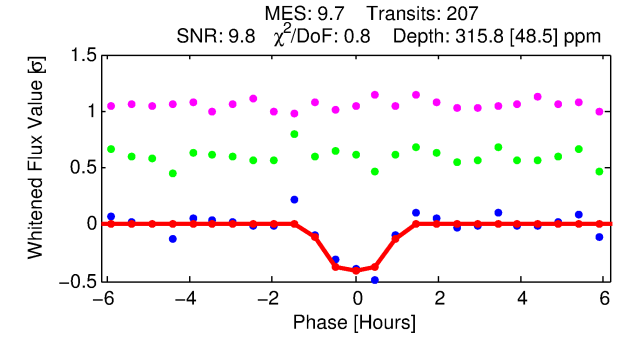
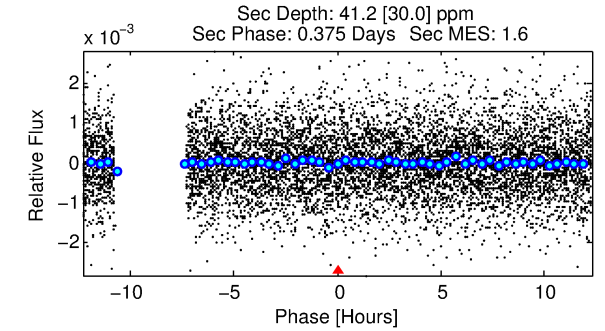
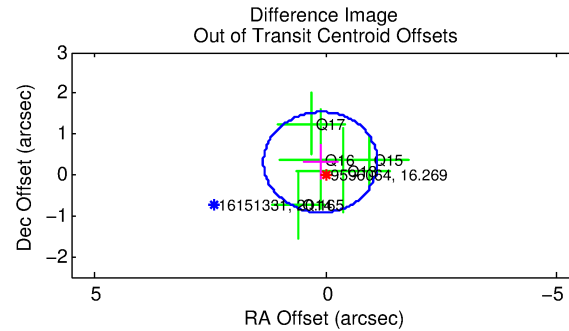
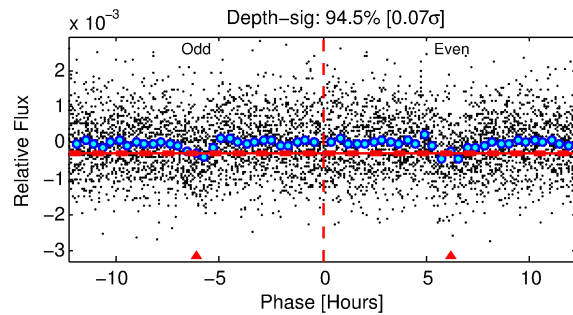
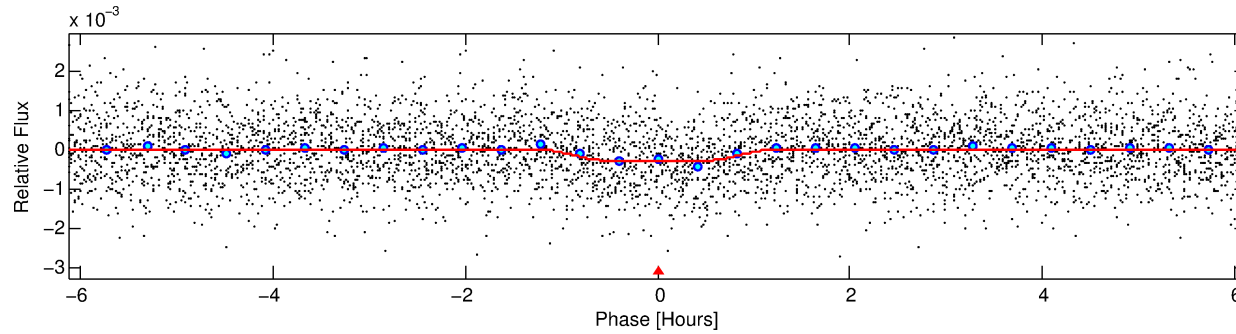
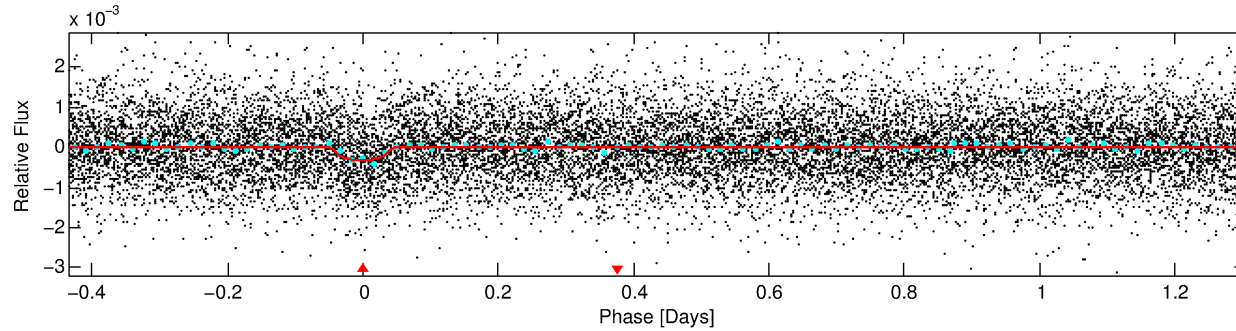
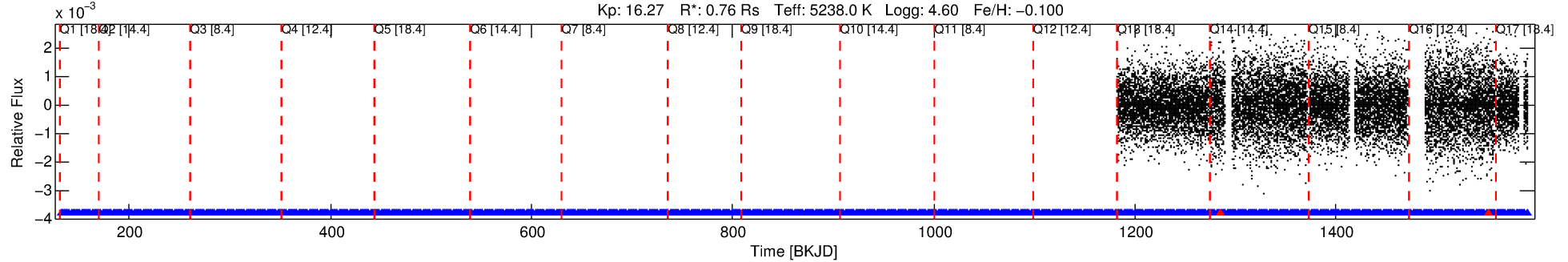
No Significant Match Found

# DV One-Page Summary

KIC: 9596064 Candidate: 1 of 1 Period: 1.741 d

KOI: K07197.01 Corr: 0.911

Kp: 16.27 R\*: 0.76 Rs Teff: 5238.0 K Logg: 4.60 Fe/H: -0.100



## DV Fit Results:

Period = 1.74145 [0.00001] d  
Epoch = 132.0116 [0.0030] BKJD  
Rp/R\* = 0.0198 [0.0134]  
a/R\* = 3.19 [8.19]  
b = 0.91 [0.58]  
Seff = 549.21 [124.59]  
Teq = 1234 [70] K  
Rp = 1.65 [1.15] Re  
a = 0.0268 [0.0033] AU  
Ag = 5.93 [9.19] [0.54σ]  
Teffp = 2979 [1150] K [1.51σ]

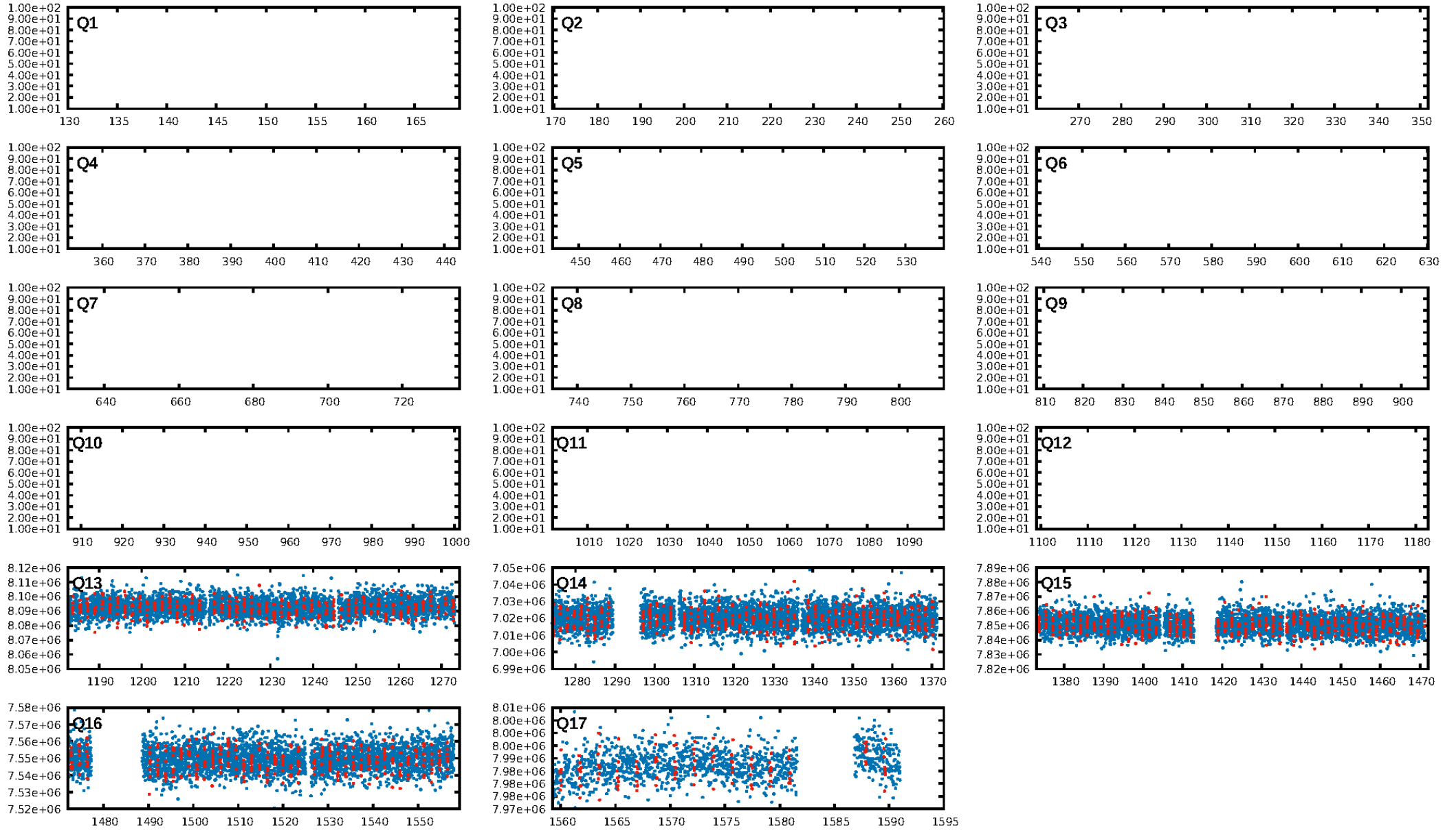
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.03e-23  
RollingBand-fgt: 0.99 [190/192]  
GhostDiagnostic-chr: 4.11  
Centroid-sig: 17.2%  
Centroid-so: 1.605 arcsec [1.35σ]  
OotOffset-rm: 0.326 arcsec [0.79σ]  
OotOffset-st: 1/1/1/2 [5]  
KicOffset-rm: 0.481 arcsec [1.16σ]  
KicOffset-st: 1/1/1/2 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [5/5]

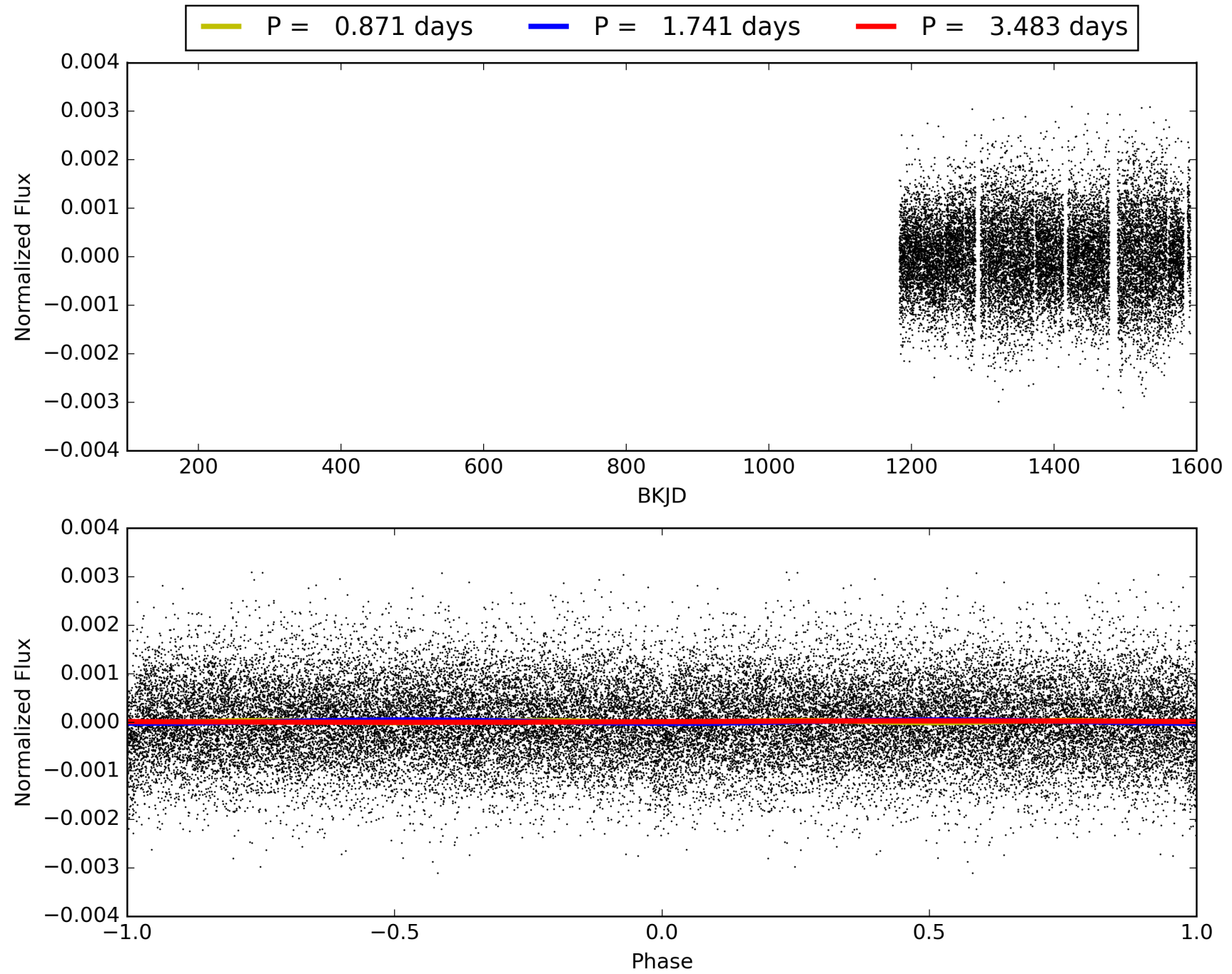
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:45:46 Z

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

# TCE 009596064-01, PDC Light Curves

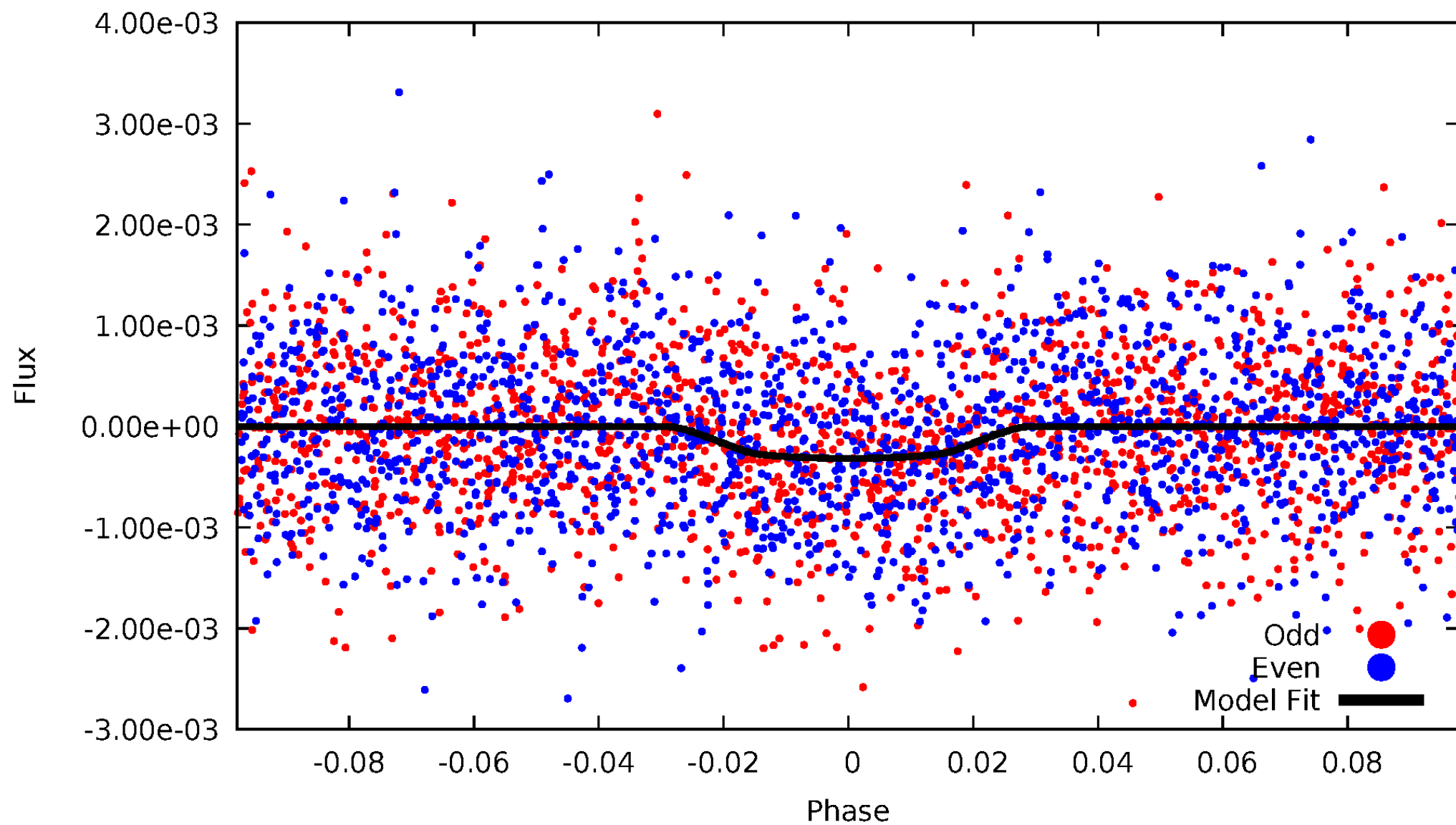


TCE 009596064-01



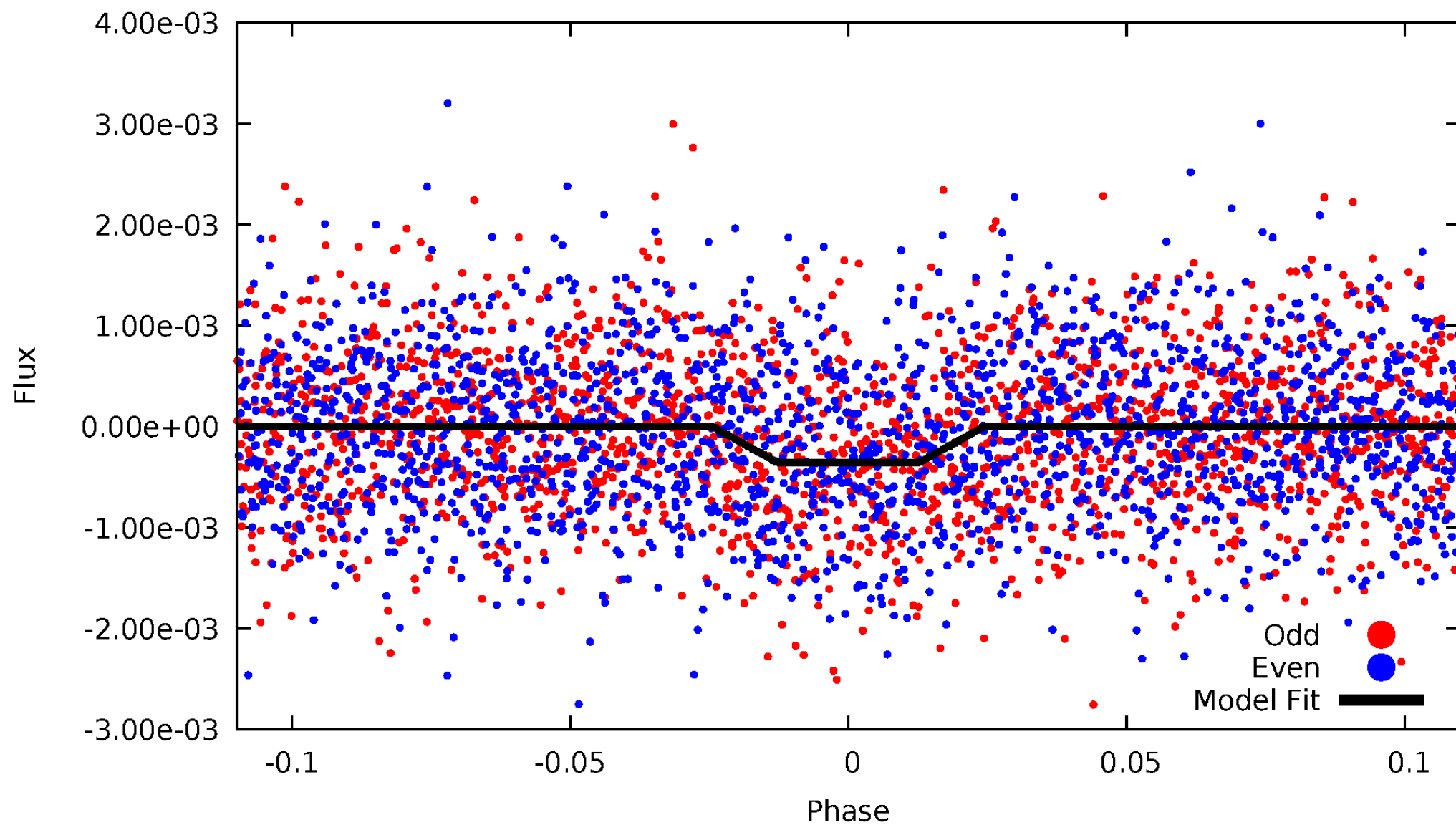
# DV Odd/Even

TCE 009596064-01



# ALT Odd/Even

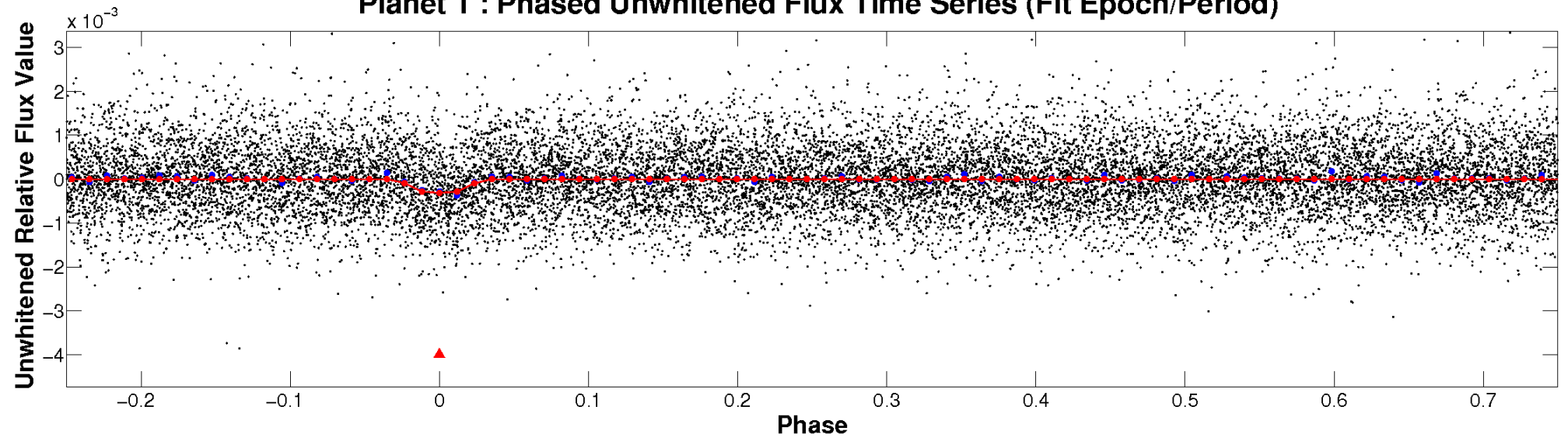
TCE 009596064-01



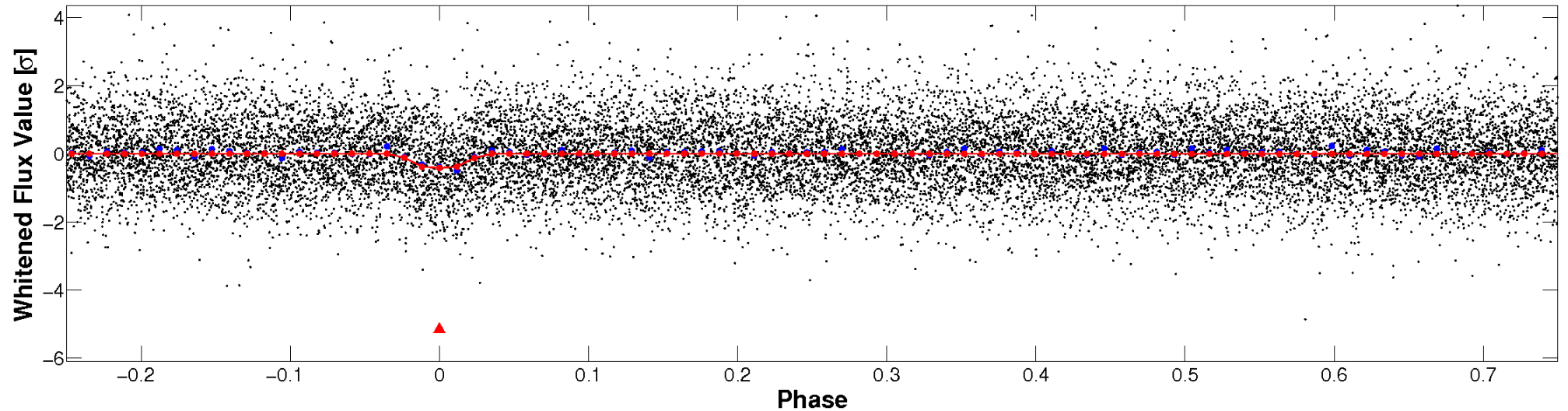


# Non-Whitened Vs. Whitened Light Curve

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

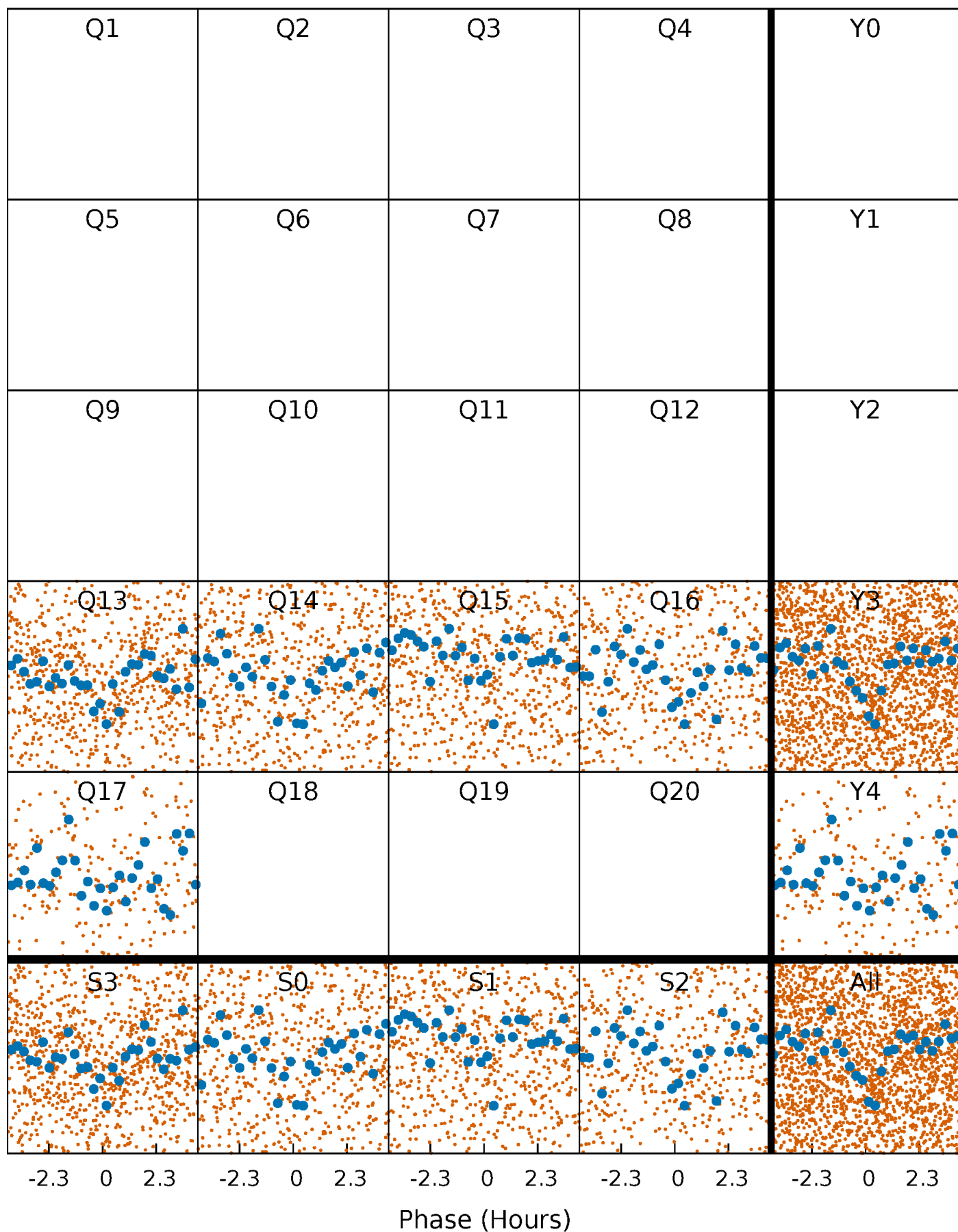


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

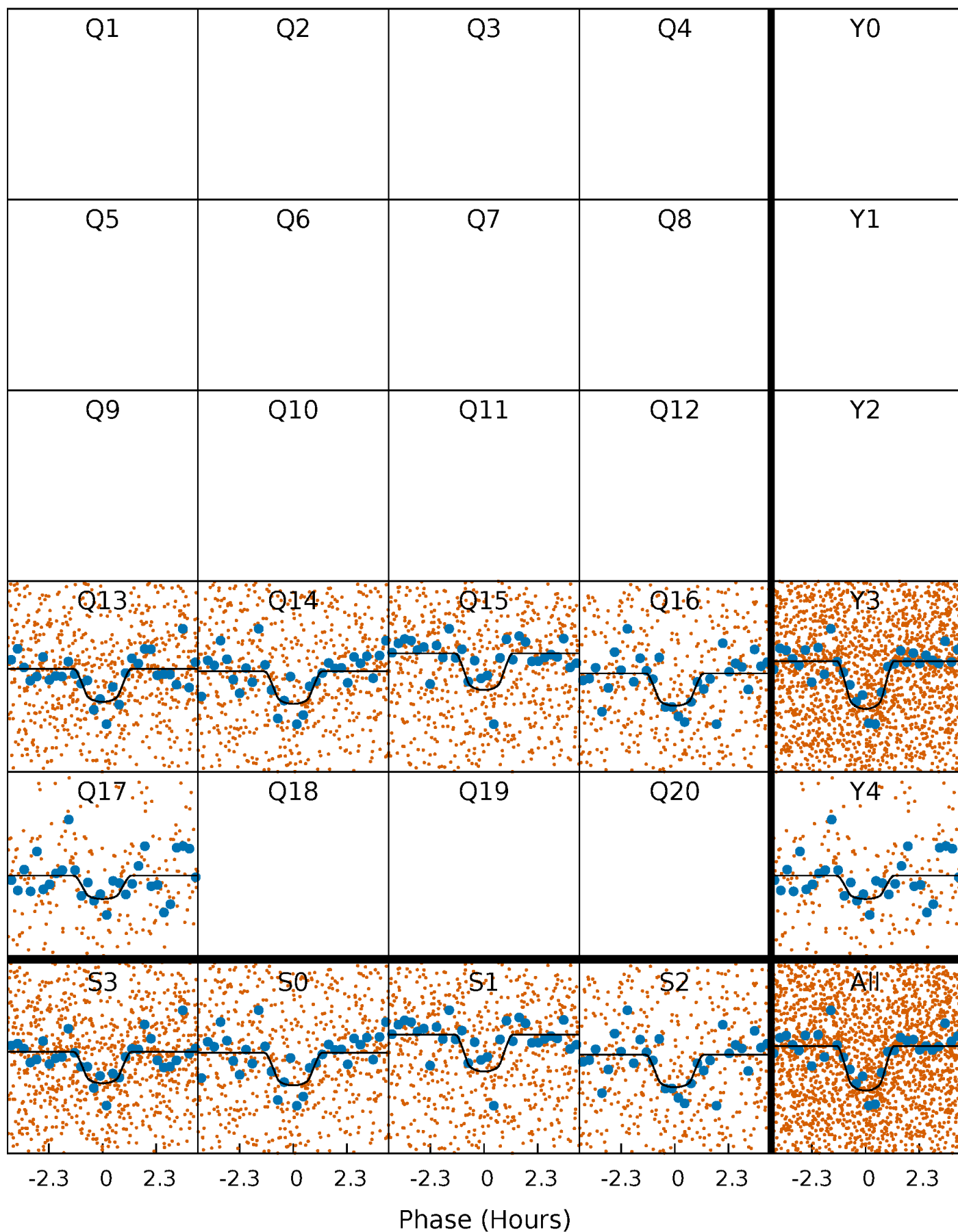
TCE 009596064-01 P= 1.741447 Days  $T_0=132.011562$  (BKJD)





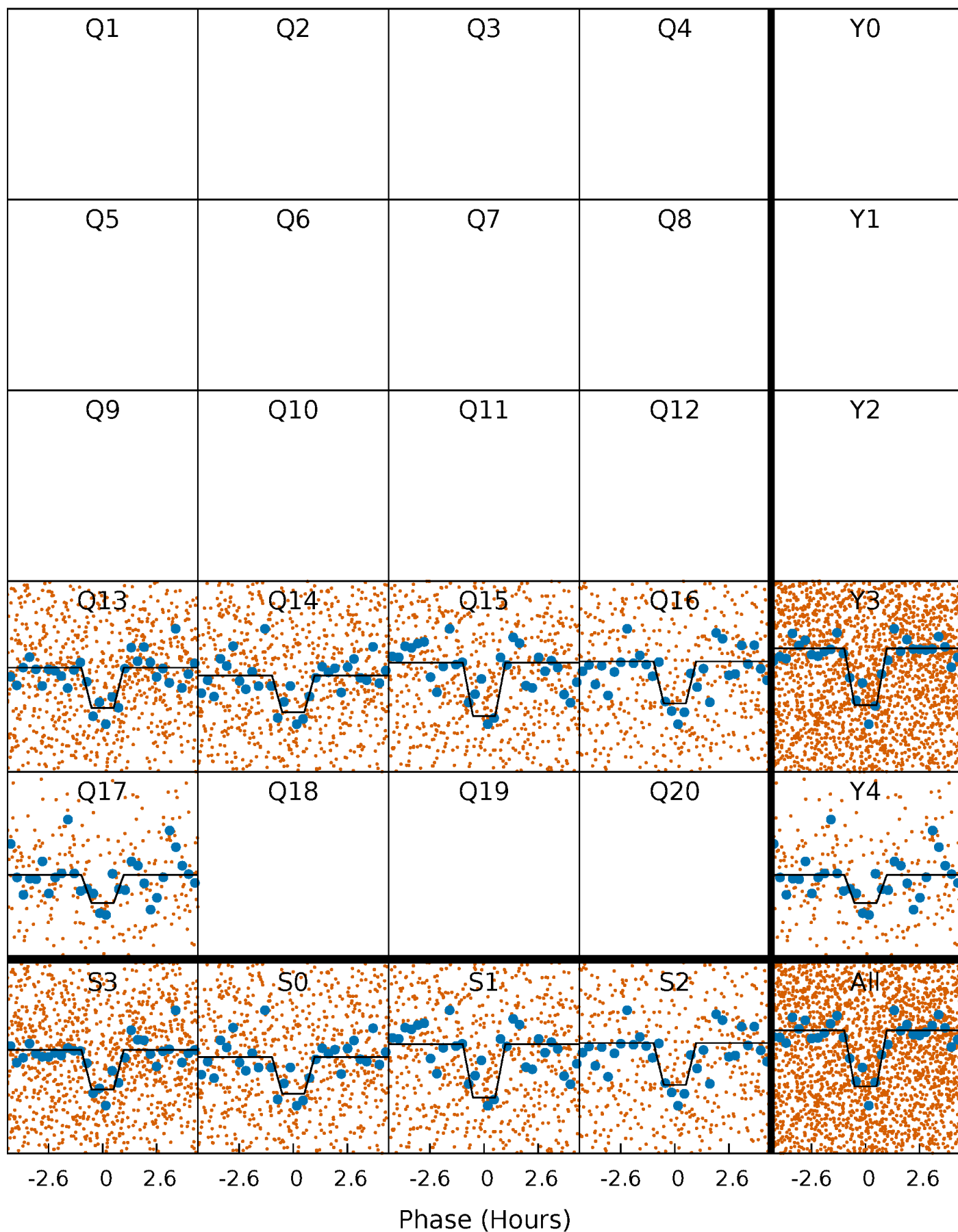
# DV Quarter-Phased Transit Curves

TCE 009596064-01   P= 1.741447 Days    $T_0=132.011562$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

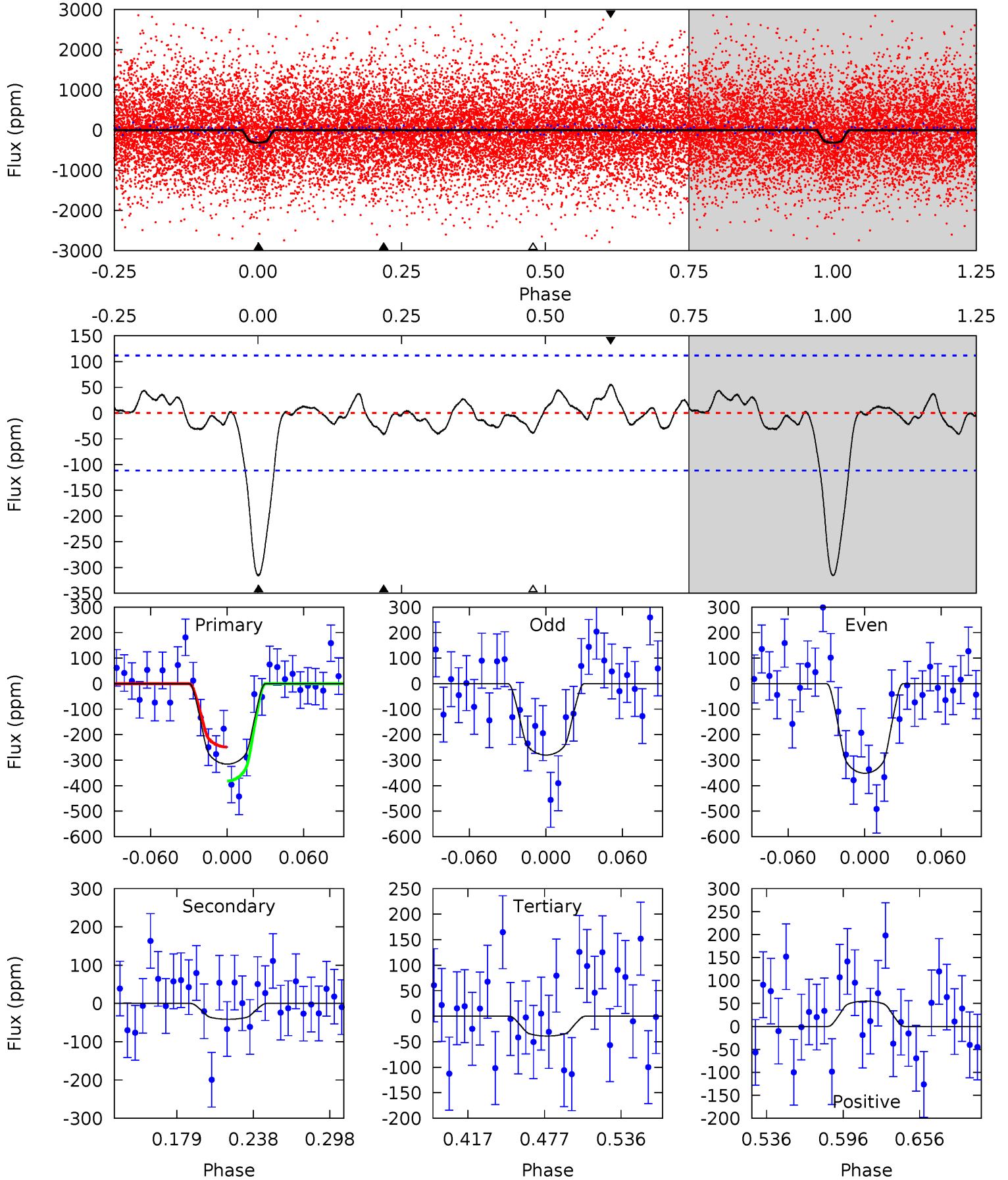
TCE 009596064-01   P= 1.741499 Days    $T_0=131.977624$  (BKJD)



# DV Model-Shift Uniqueness Test

009596064-01, P = 1.741447 Days, E = 132.011562 Days

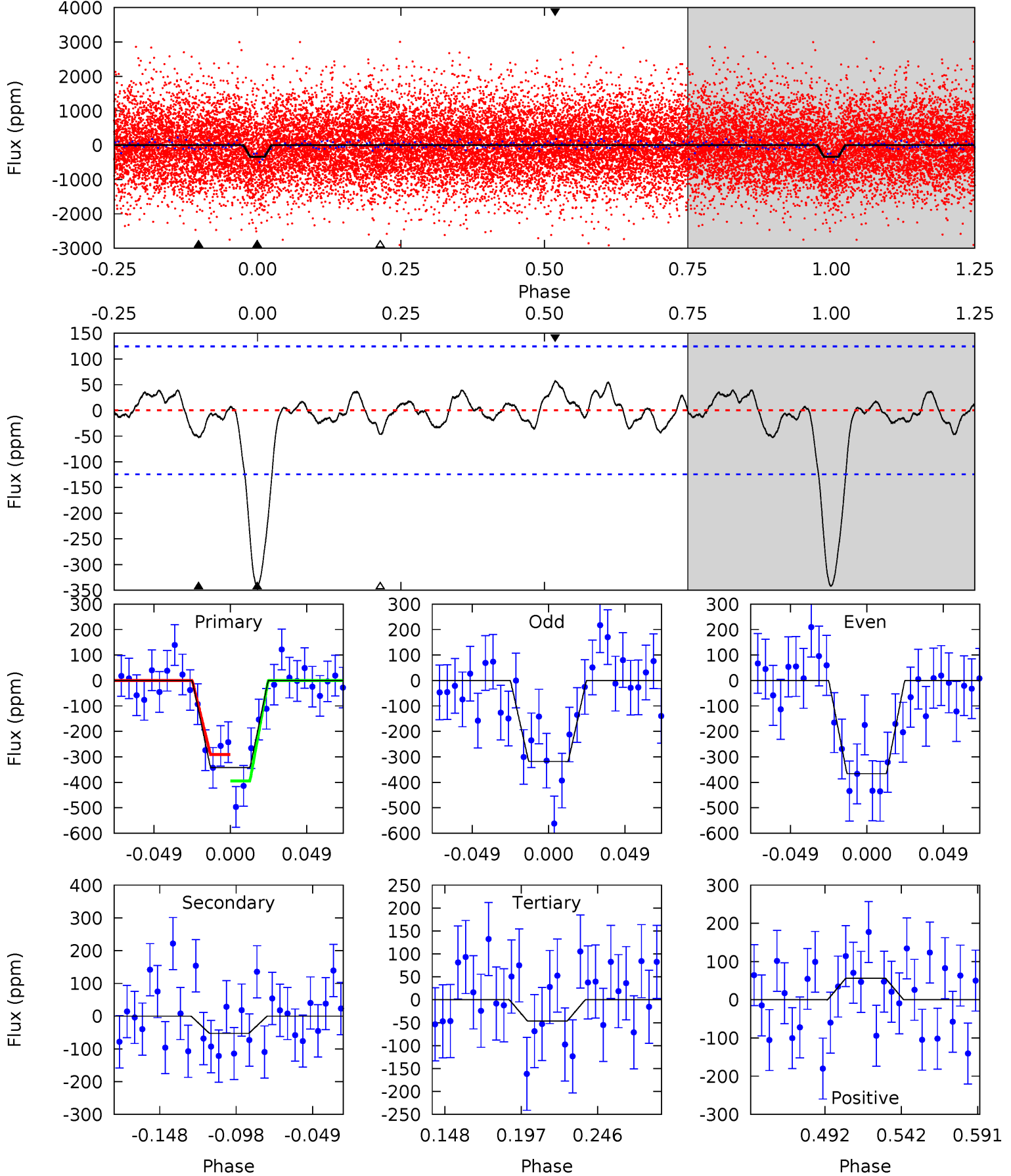
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	1.72	1.62	2.30	4.67	1.88	0.91	11.6	10.9	0.10	-0.58	1.49	0.99	0.15	2.79



# Alt Model-Shift Uniqueness Test

009596064-01, P = 1.741499 Days, E = 131.977624 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
12.9	1.99	1.77	2.15	4.71	1.97	0.84	11.2	10.8	0.22	-0.16	0.91	0.98	0.14	1.96



### Stellar Parameters For KIC 009596064

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5238^{+184}_{-184}$	$4.598^{+0.032}_{-0.097}$	$-0.100^{+0.300}_{-0.300}$	$0.764^{+0.112}_{-0.066}$	$0.854^{+0.069}_{-0.095}$	$2.693^{+0.460}_{-0.827}$
	+4%/-4%	+1%/-2%	+300%/-300%	+15%/-9%	+8%/-11%	+17%/-31%
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 009596064-01 / KOI 7197.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-41 \pm 24$	$1.79^{+1.22}_{-0.98}$	$1751^{+75}_{-77}$	$3293^{+1165}_{-634}$	$4.531^{+20.781}_{-3.271}$
Alt.	$-52 \pm 26$	$1.68^{+1.23}_{-0.94}$	$1747^{+82}_{-72}$	$3524^{+1257}_{-654}$	$7.031^{+26.101}_{-5.110}$

$T_{\text{max}}$  = 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

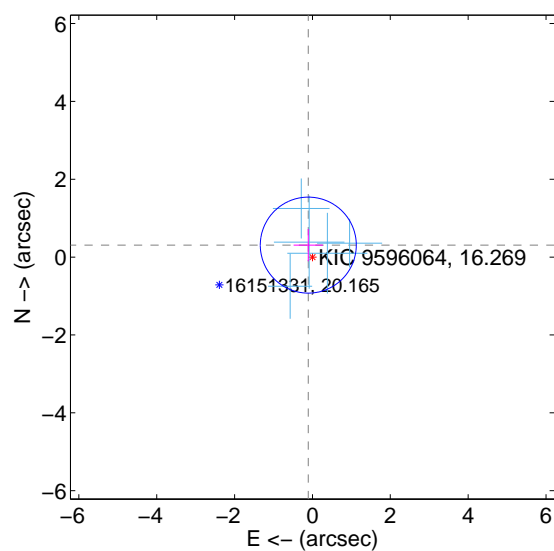
Supplemental centroid analysis for 009596064-01. Kepler magnitude: 16.27. Transit SNR 9.82

There are 5 quarters with good PRF difference image offsets

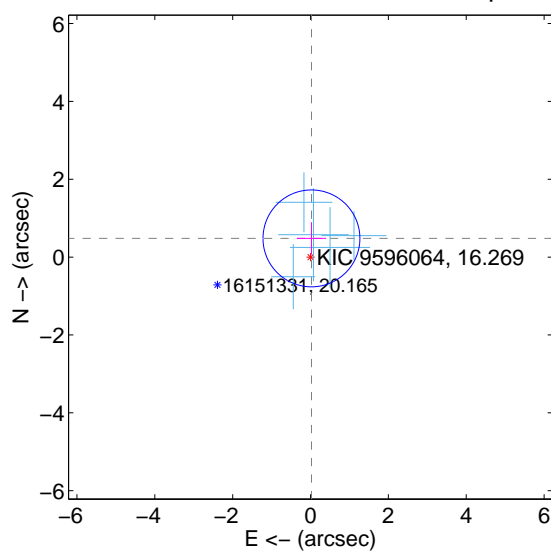
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.326 \pm 0.411$	0.79	$0.106 \pm 0.376$	$0.308 \pm 0.415$
PRF-fit source offset from KIC position	$0.481 \pm 0.415$	1.16	$-0.024 \pm 0.376$	$0.481 \pm 0.415$
photometric centroid source offset	$1.60 \pm 1.19$	1.35	$-1.24 \pm 1.11$	$-1.02 \pm 1.30$

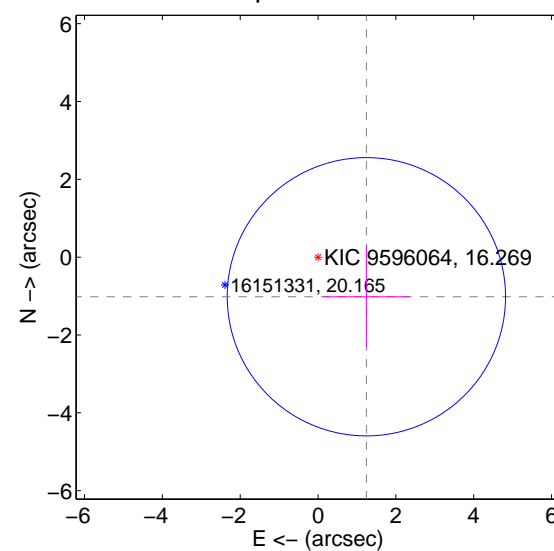
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



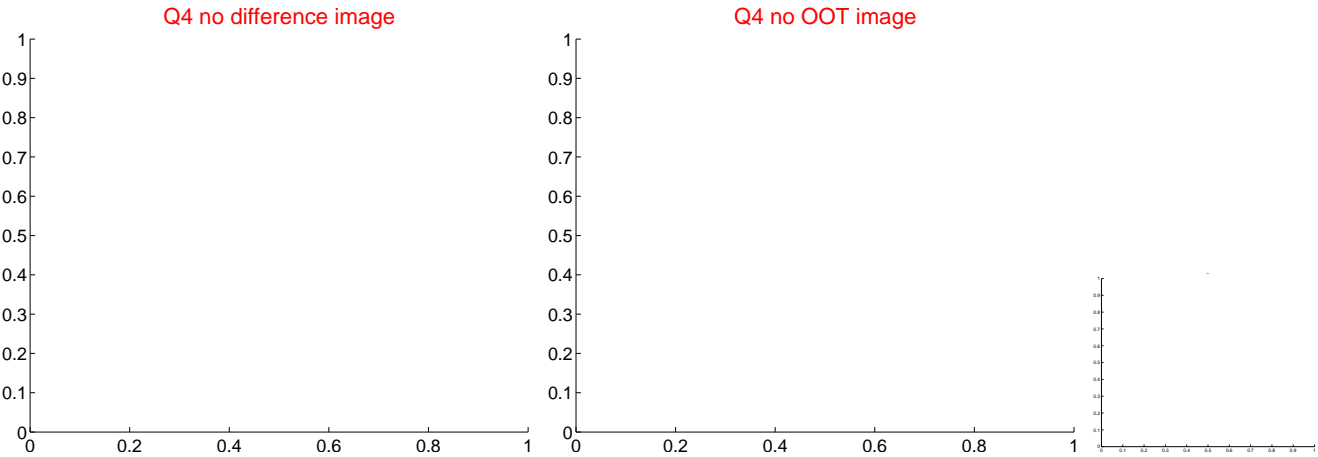
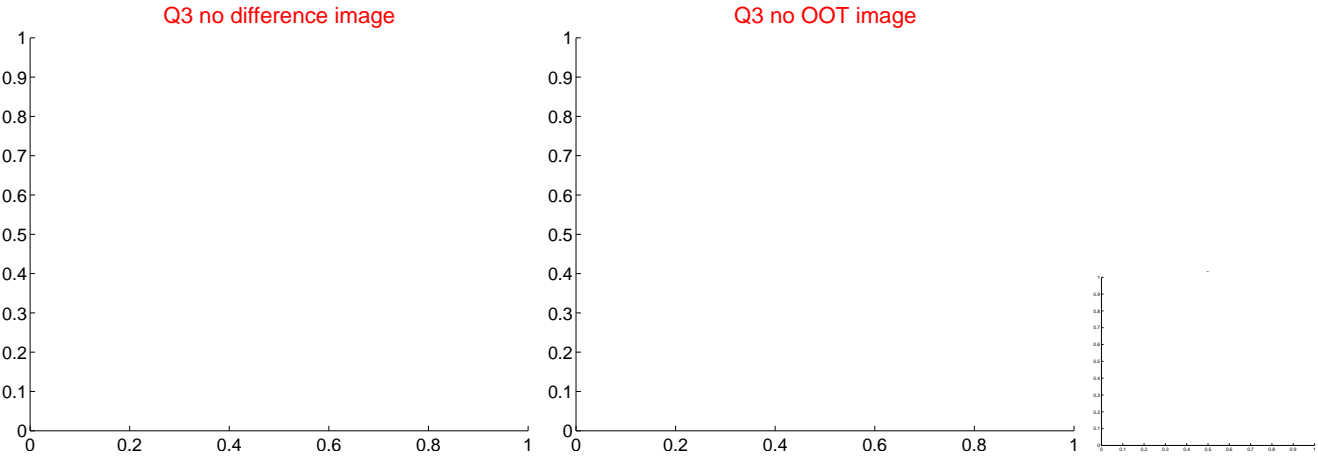
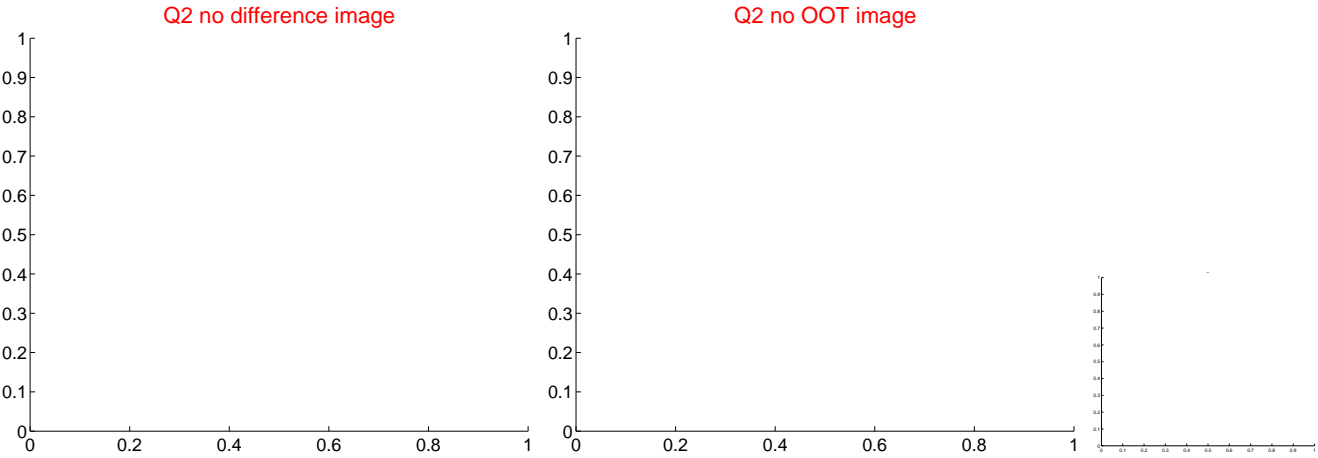
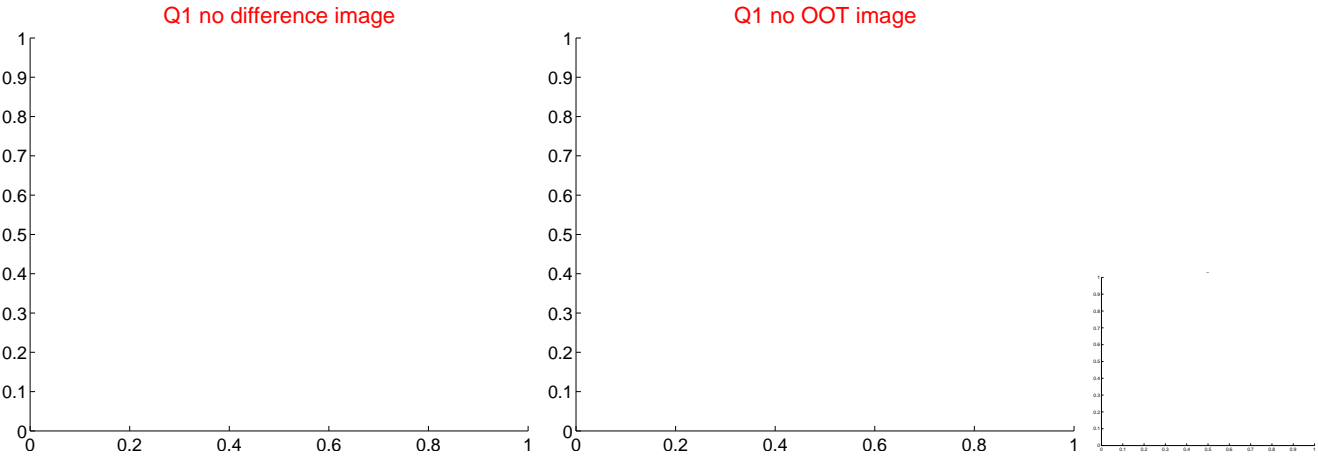
offset from photometric centroids



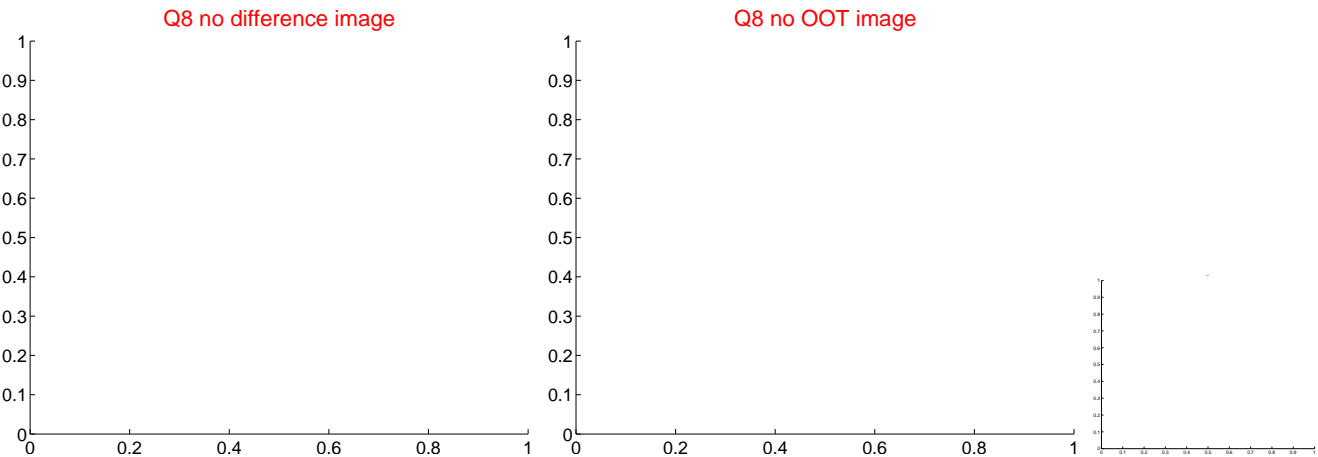
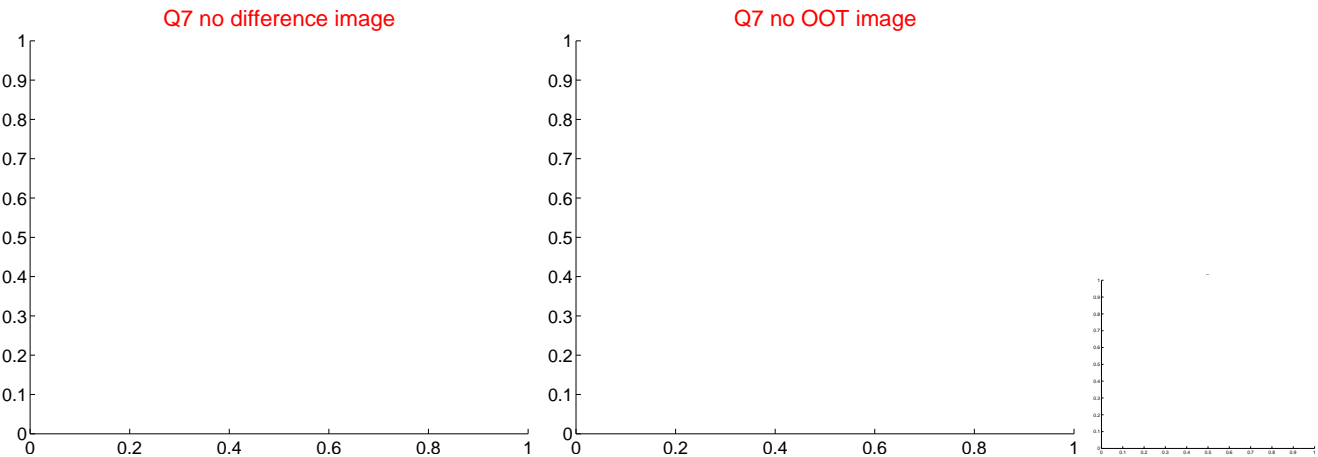
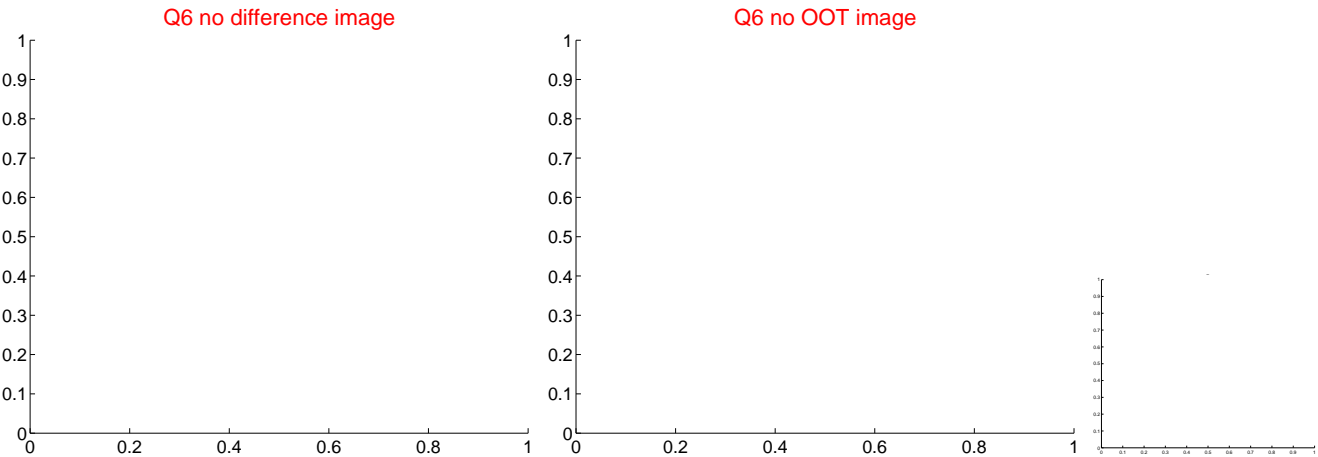
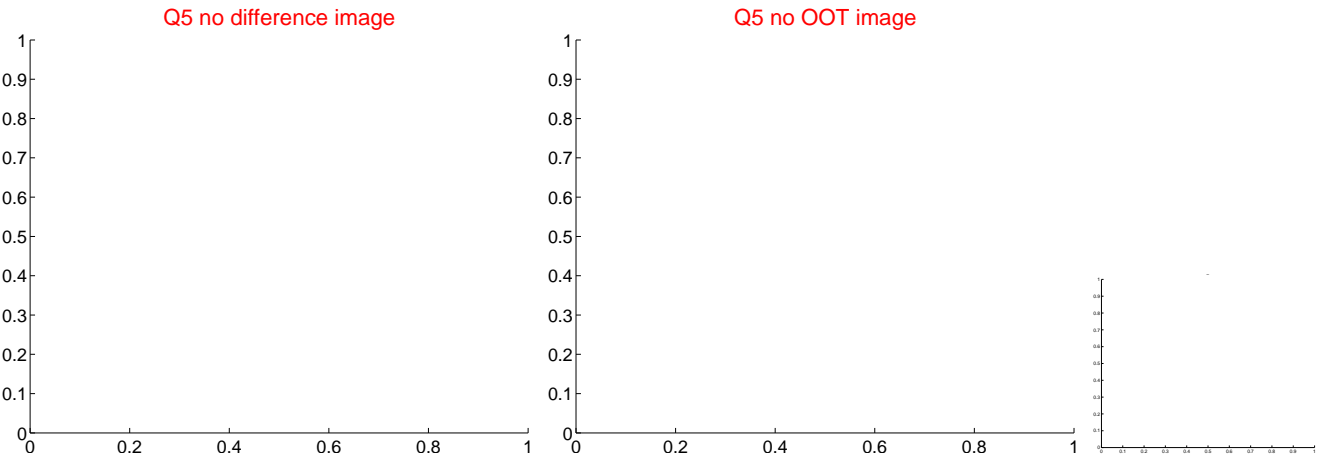
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



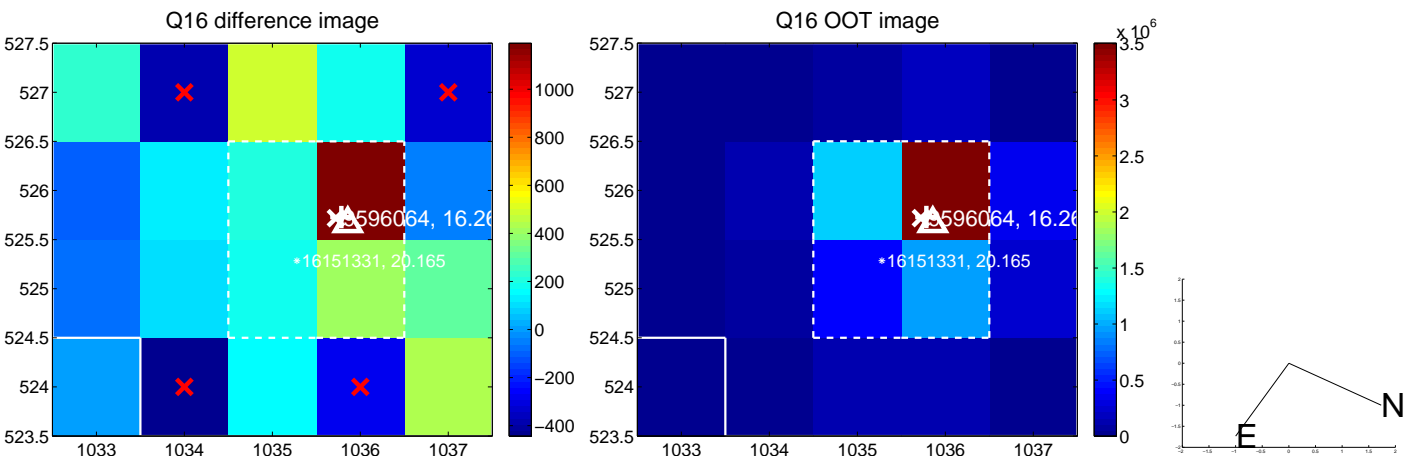
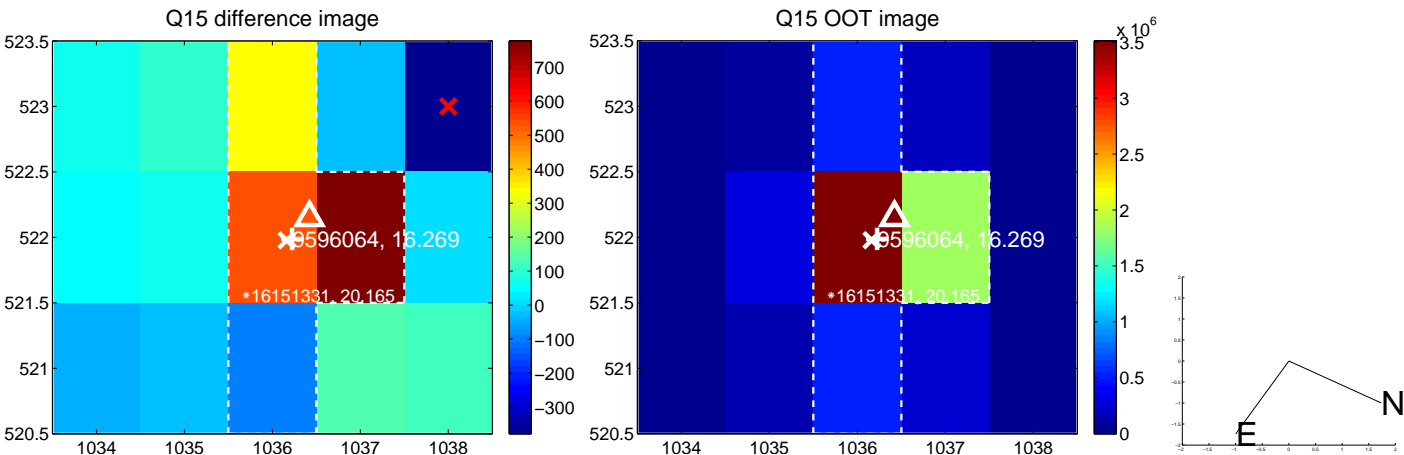
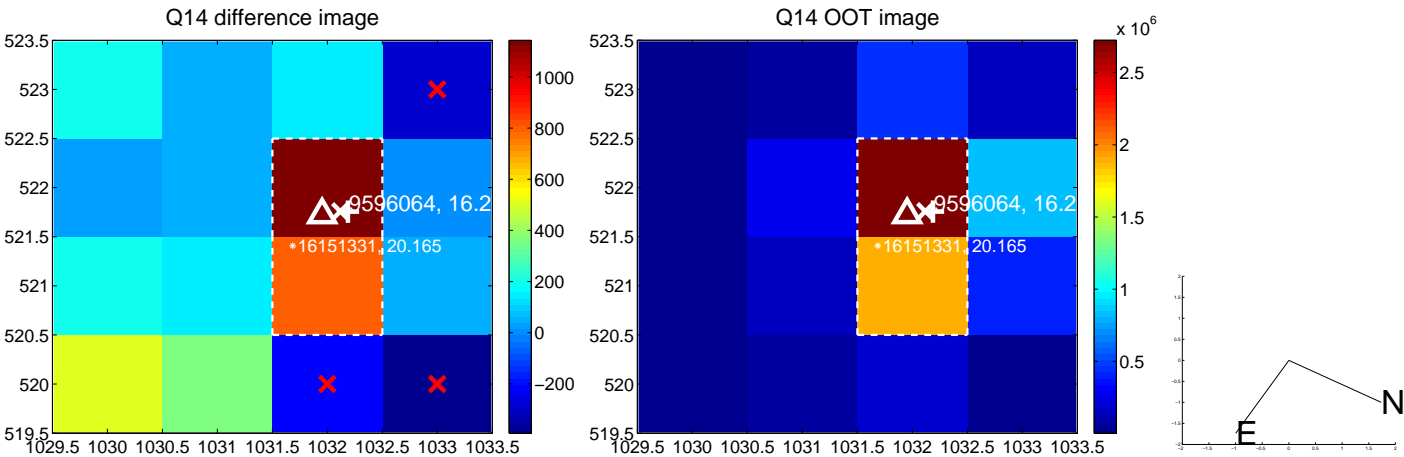
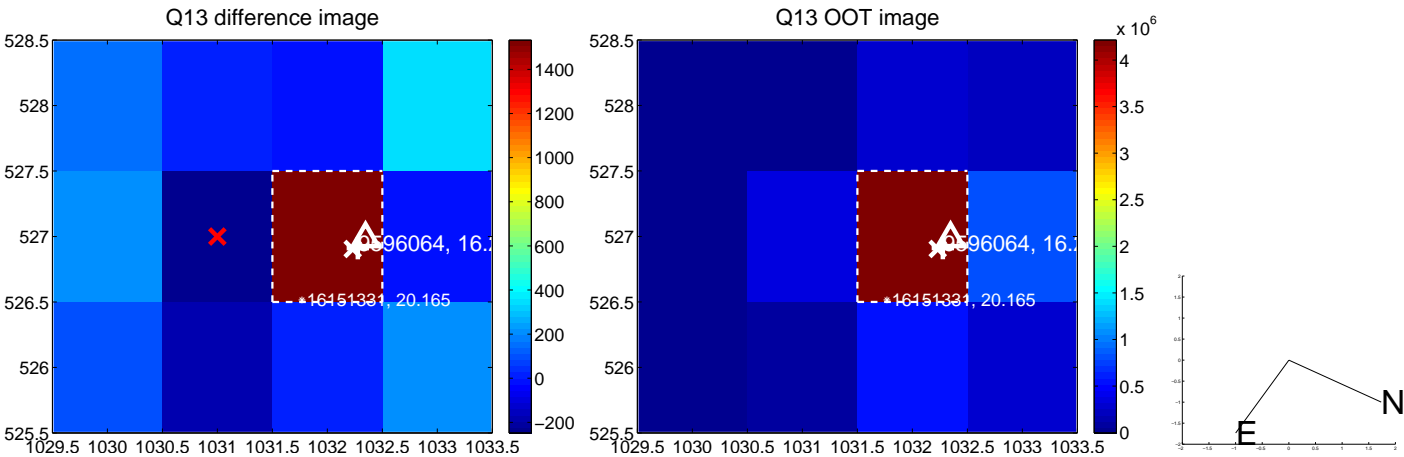
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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





UKIRT Image

