

# KIC 006871394

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006871394-01	OBS	No	322.650173	298.852982	735.9	8.253	7.2	7.1	0.92	5410	2.61	0.88

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006871394-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

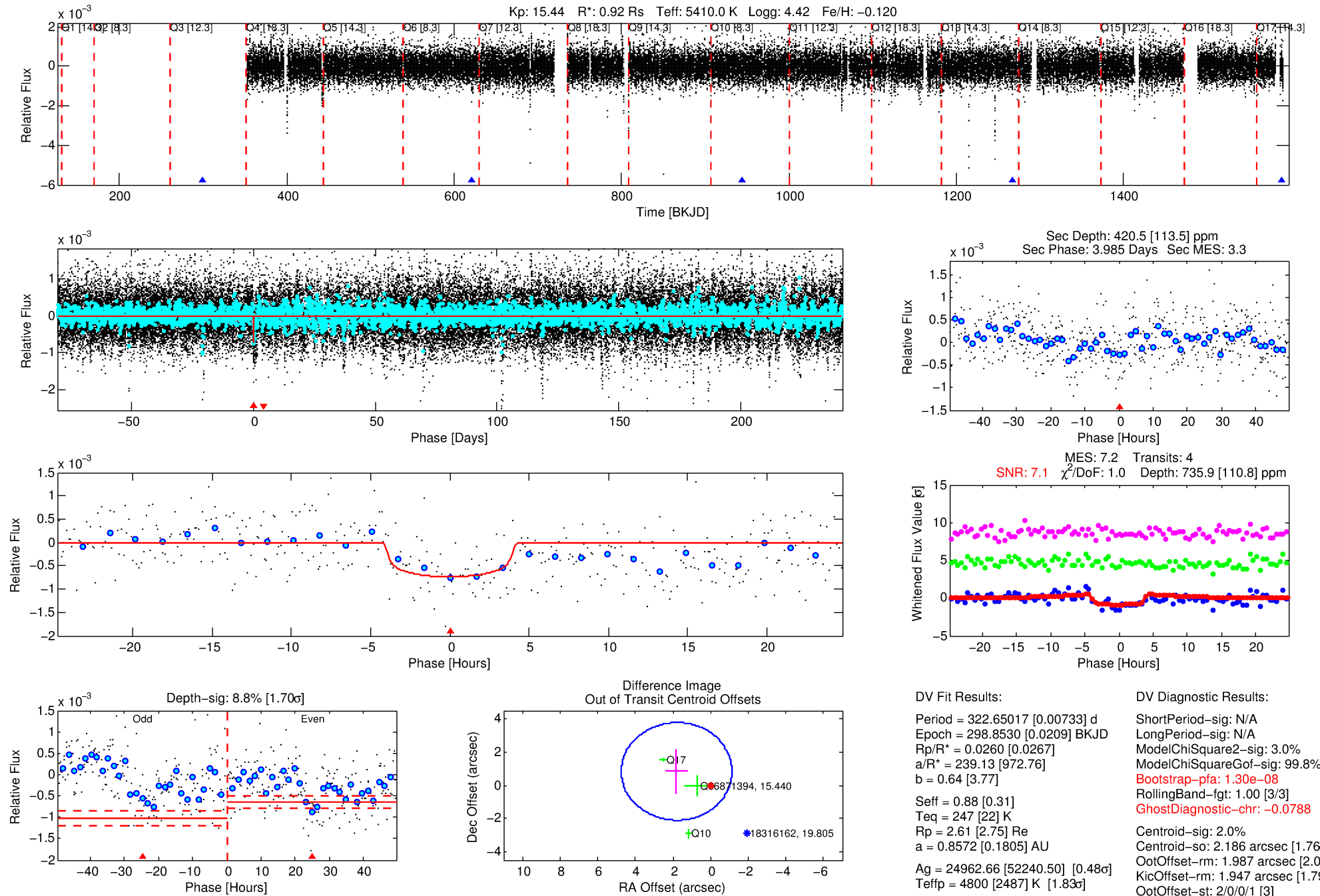
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006871394-01

No Significant Match Found

# DV One-Page Summary

KIC: 6871394 Candidate: 1 of 1 Period: 322.650 d



## DV Fit Results:

Period = 322.65017 [0.00733] d  
Epoch = 298.8530 [0.0209] BKJD  
Rp/R\* = 0.0260 [0.0267]  
a/R\* = 239.13 [972.76]  
b = 0.64 [3.77]  
Seff = 0.88 [0.31]  
Teff = 247 [22] K  
Rp = 2.61 [2.75] Re  
a = 0.8572 [0.1805] AU  
Ag = 24962.66 [52240.50] [0.48 $\sigma$ ]  
Teffp = 4800 [2487] K [1.83 $\sigma$ ]

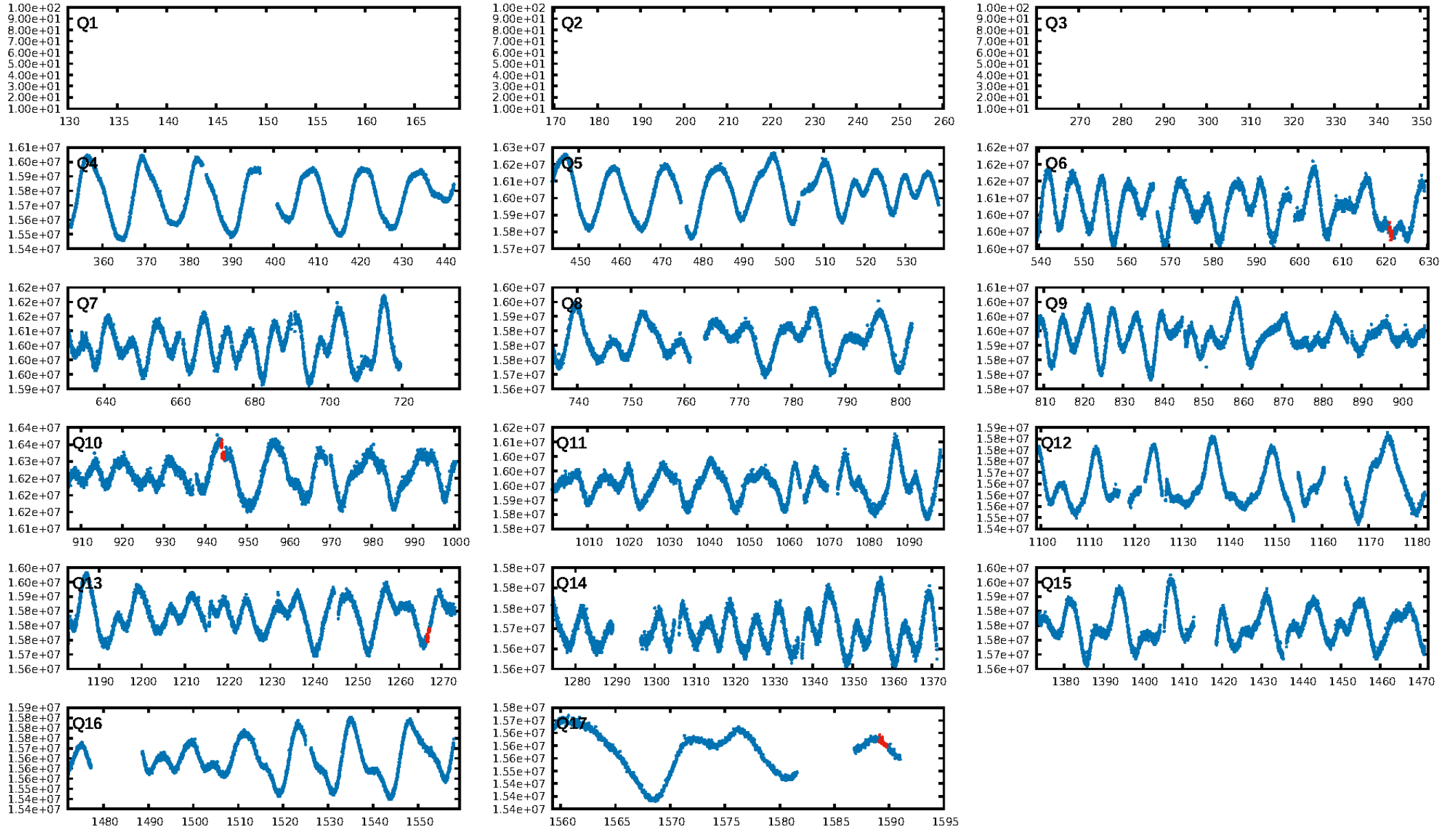
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.0%  
ModelChiSquareGof-sig: 99.8%  
**Bootstrap-pfa: 1.30e-08**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -0.0788**  
Centroid-sig: 2.0%  
Centroid-so: 2.186 arcsec [1.76 $\sigma$ ]  
OotOffset-rm: 1.987 arcsec [2.03 $\sigma$ ]  
KicOffset-rm: 1.947 arcsec [1.79 $\sigma$ ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

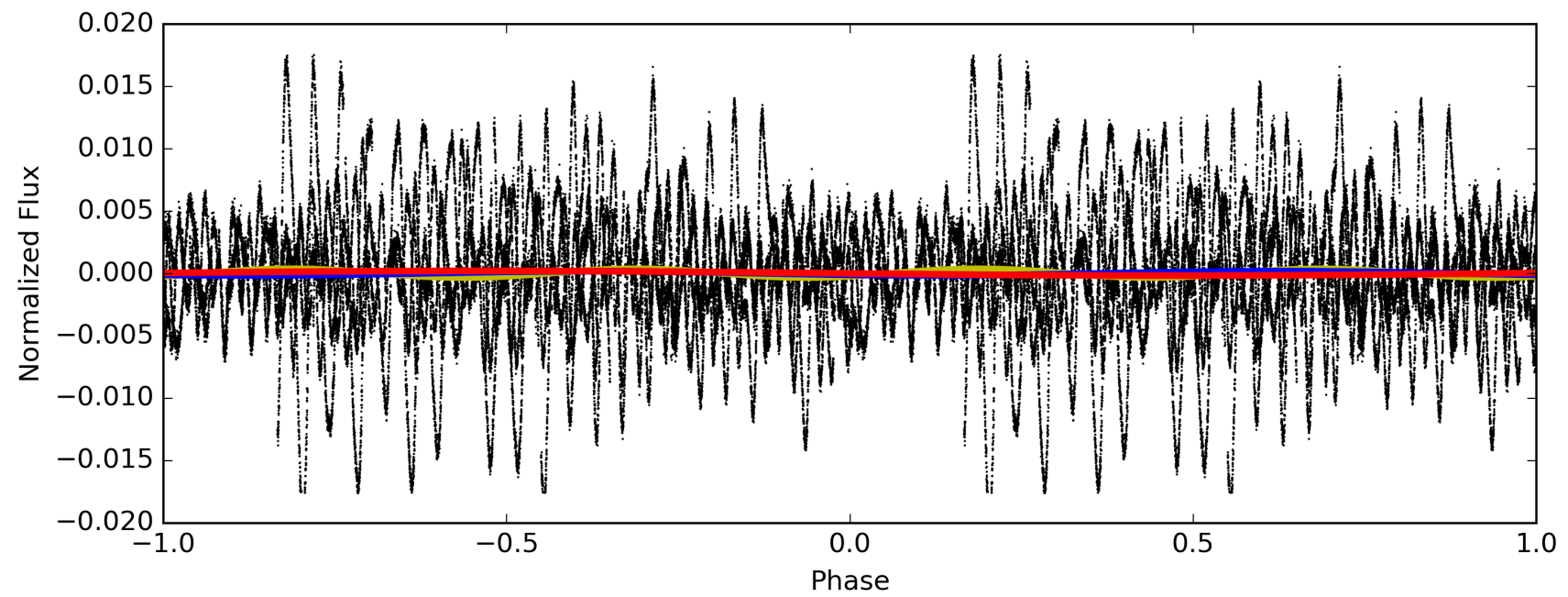
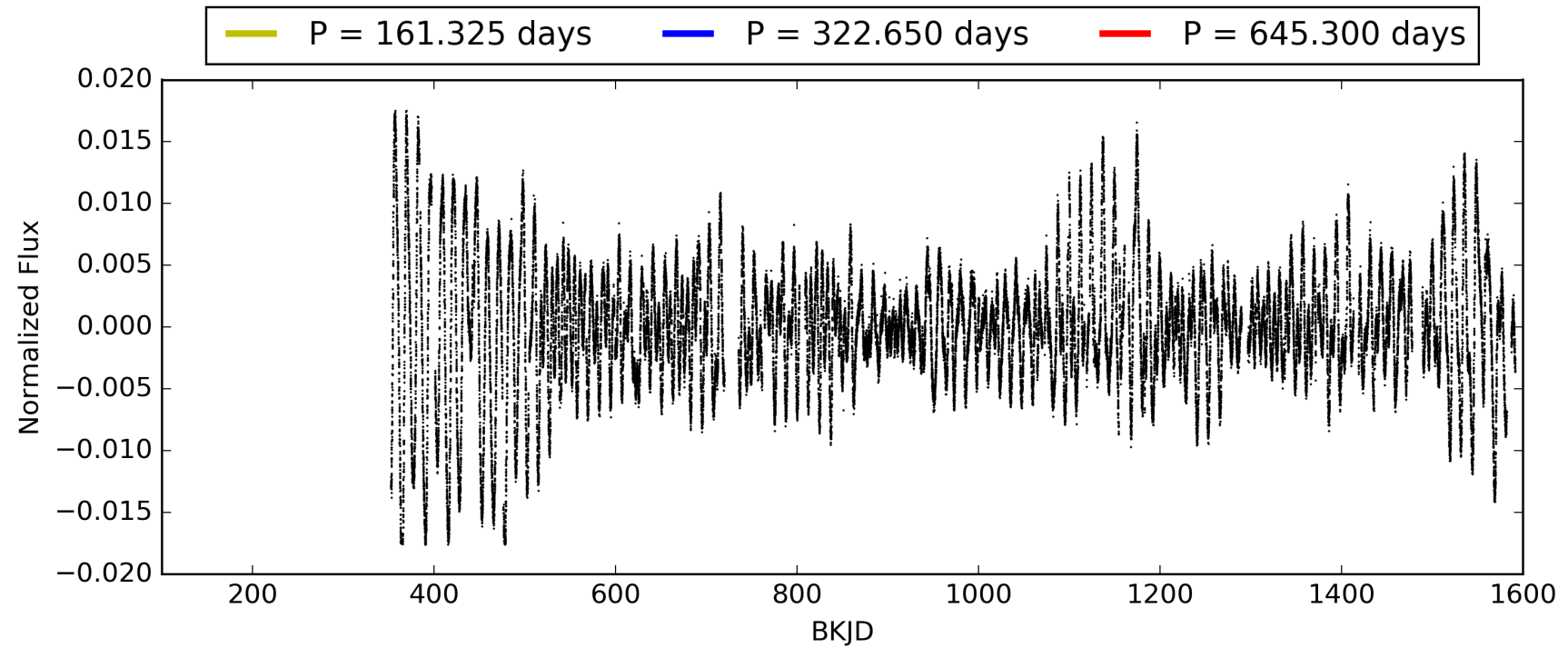
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:23:57 Z

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

# TCE 006871394-01, PDC Light Curves

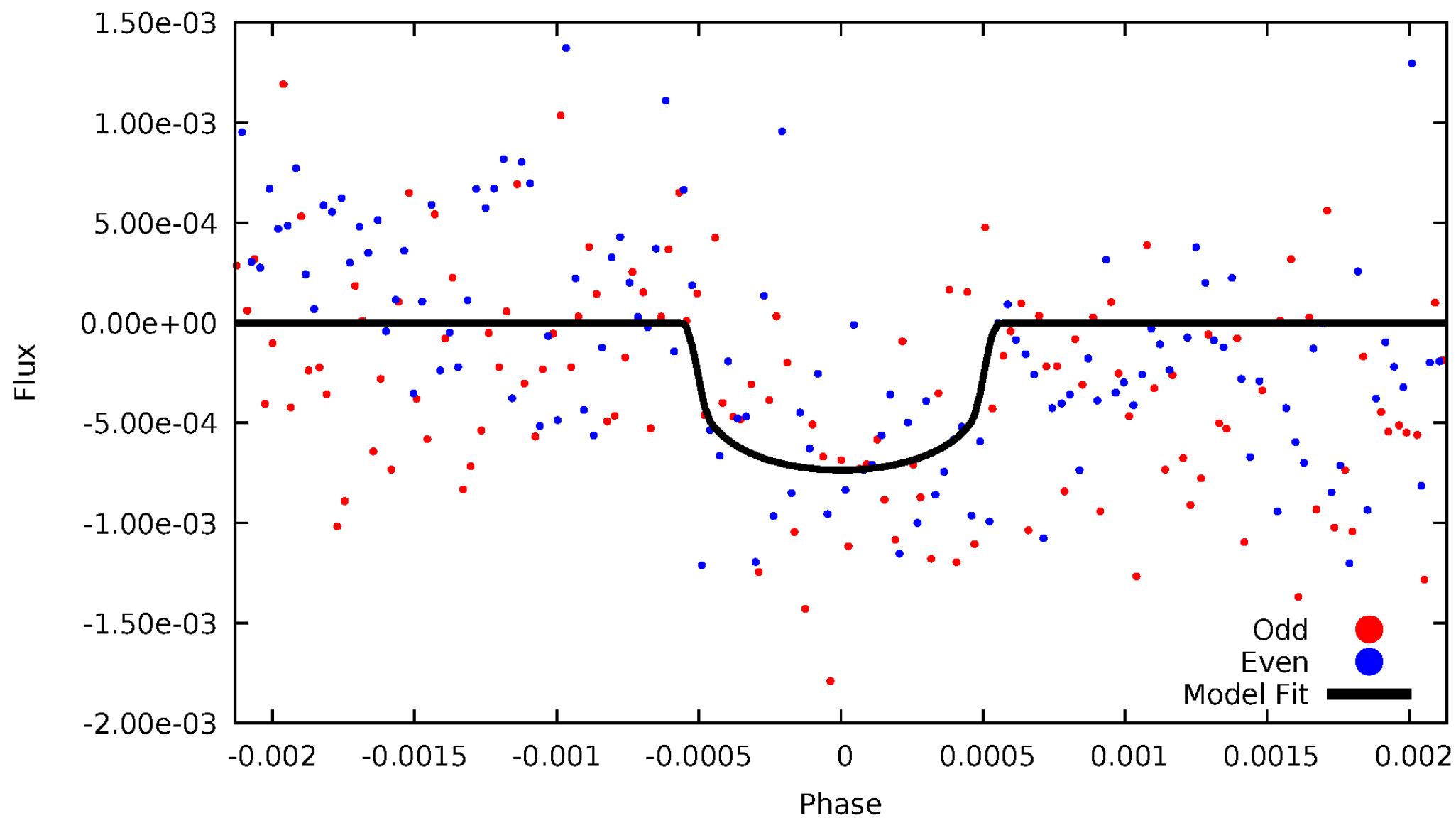


TCE 006871394-01



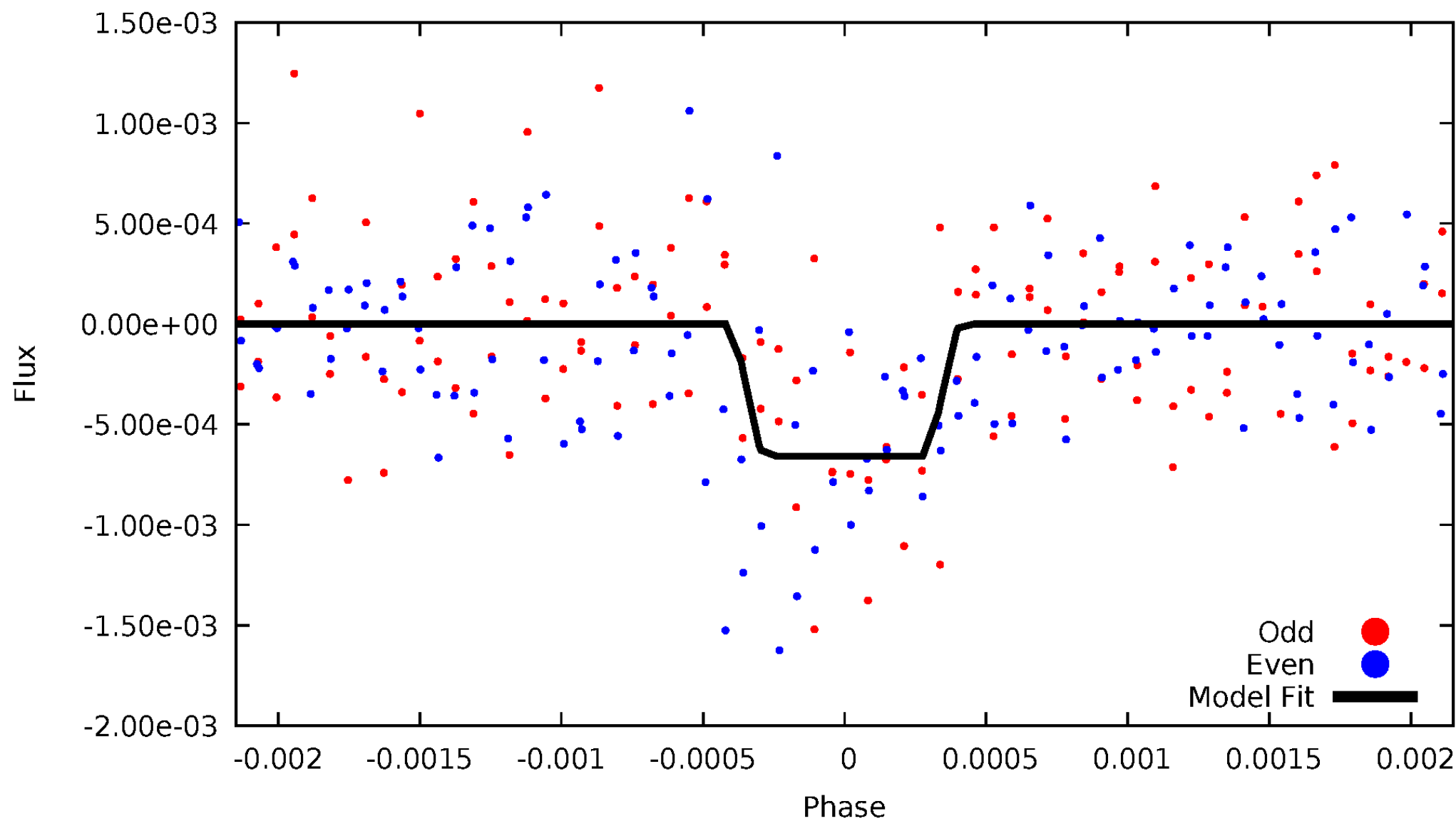
# DV Odd/Even

TCE 006871394-01



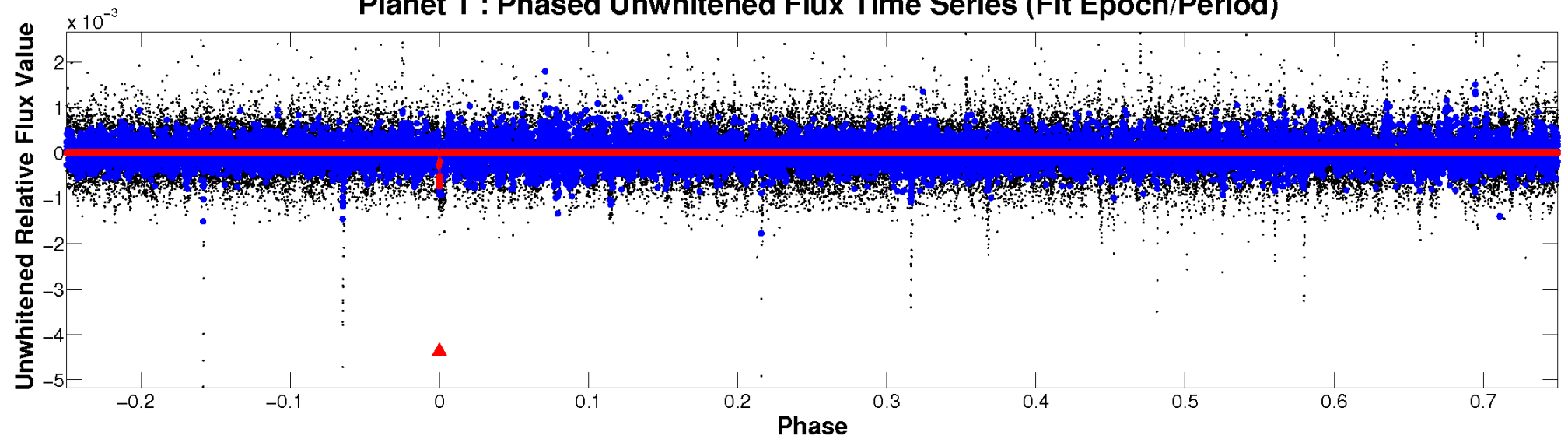
# ALT Odd/Even

TCE 006871394-01

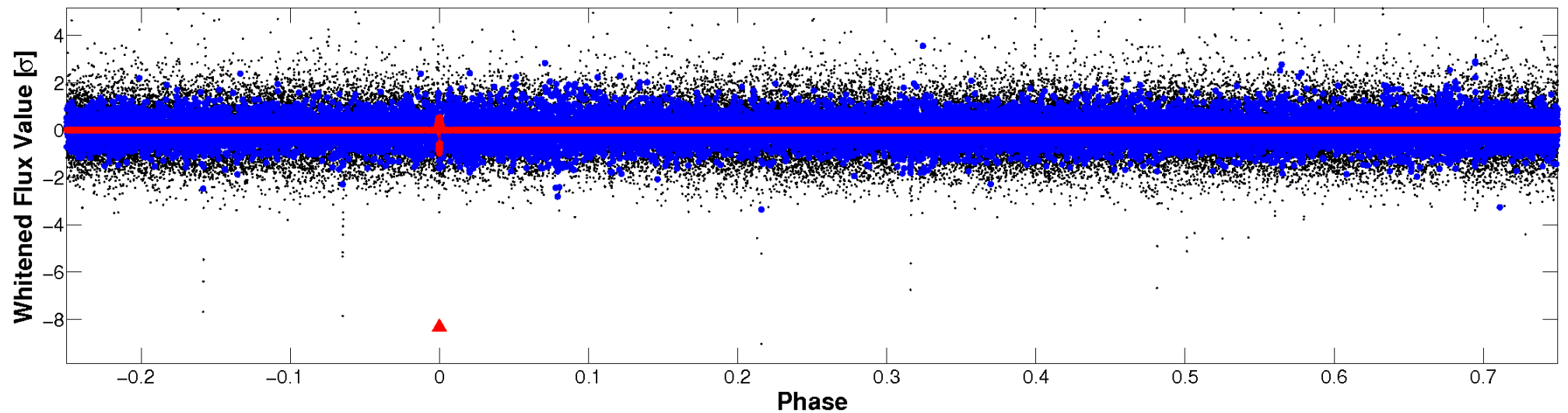


# Non-Whitened Vs. Whitened Light Curve

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

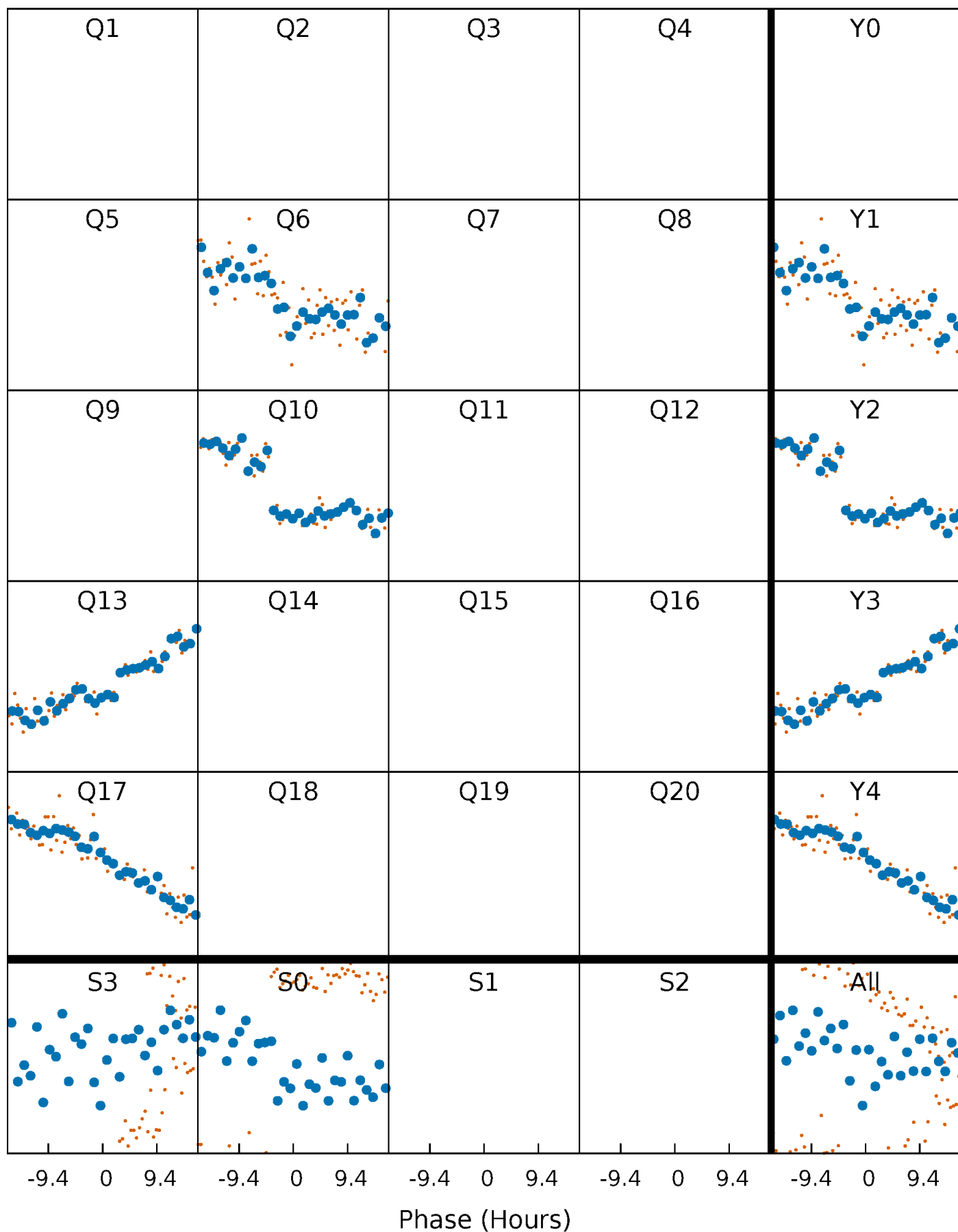


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

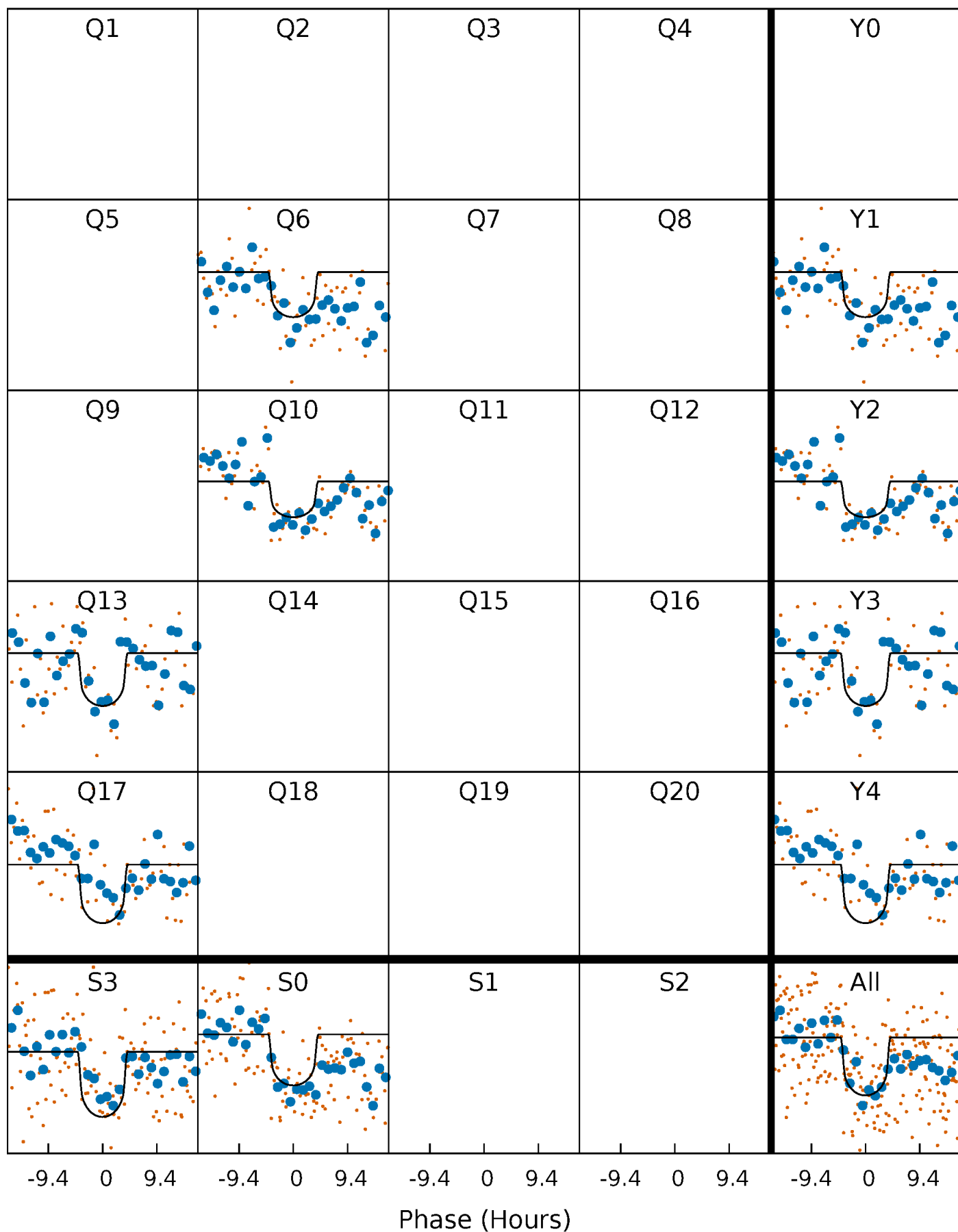
TCE 006871394-01 P=322.650172 Days  $T_0=298.852982$  (BKJD)





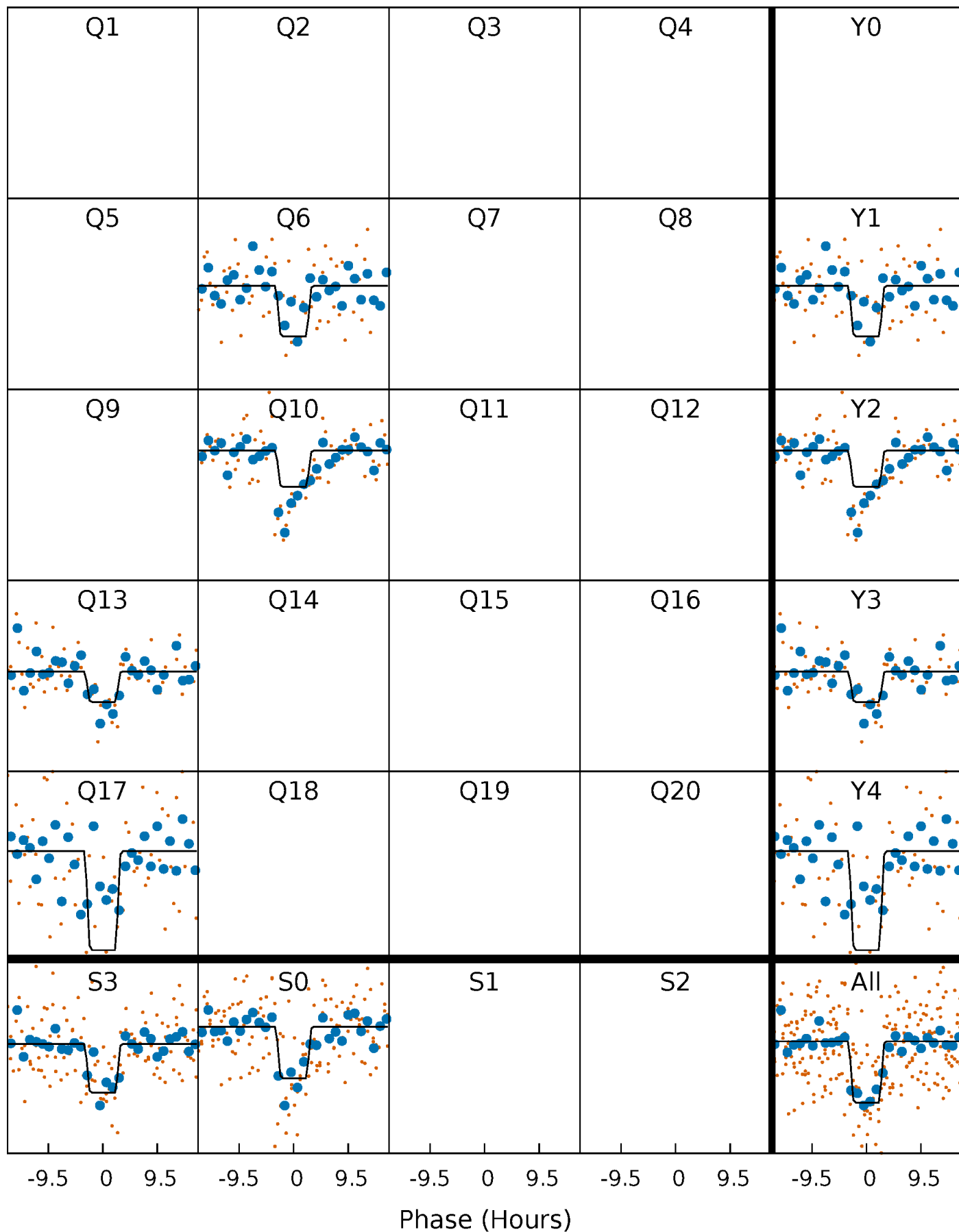
# DV Quarter-Phased Transit Curves

TCE 006871394-01 P=322.650172 Days  $T_0=298.852982$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

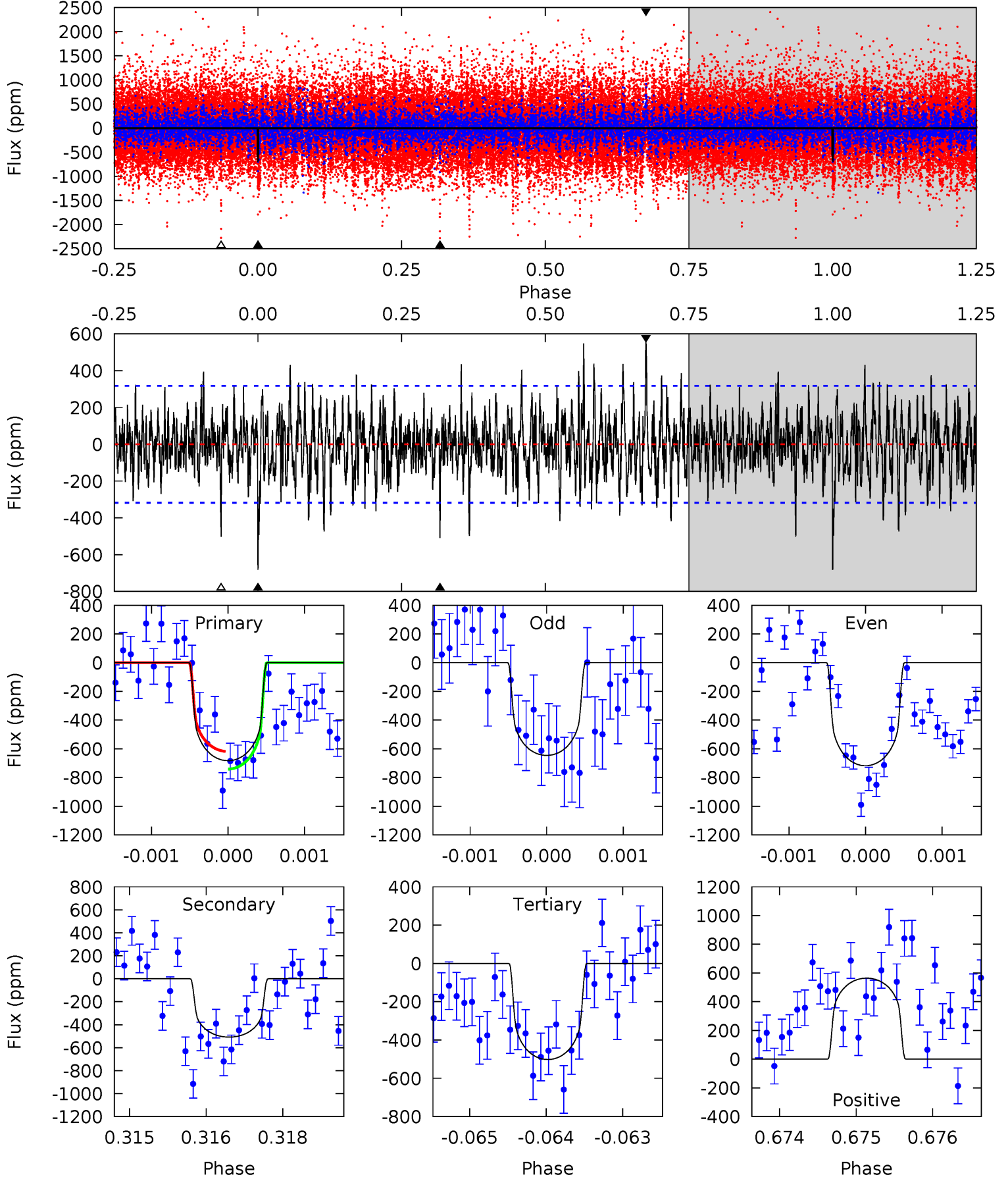
TCE 006871394-01 P=322.666346 Days  $T_0=298.798277$  (BKJD)



# DV Model-Shift Uniqueness Test

006871394-01, P = 322.650172 Days, E = 298.852982 Days

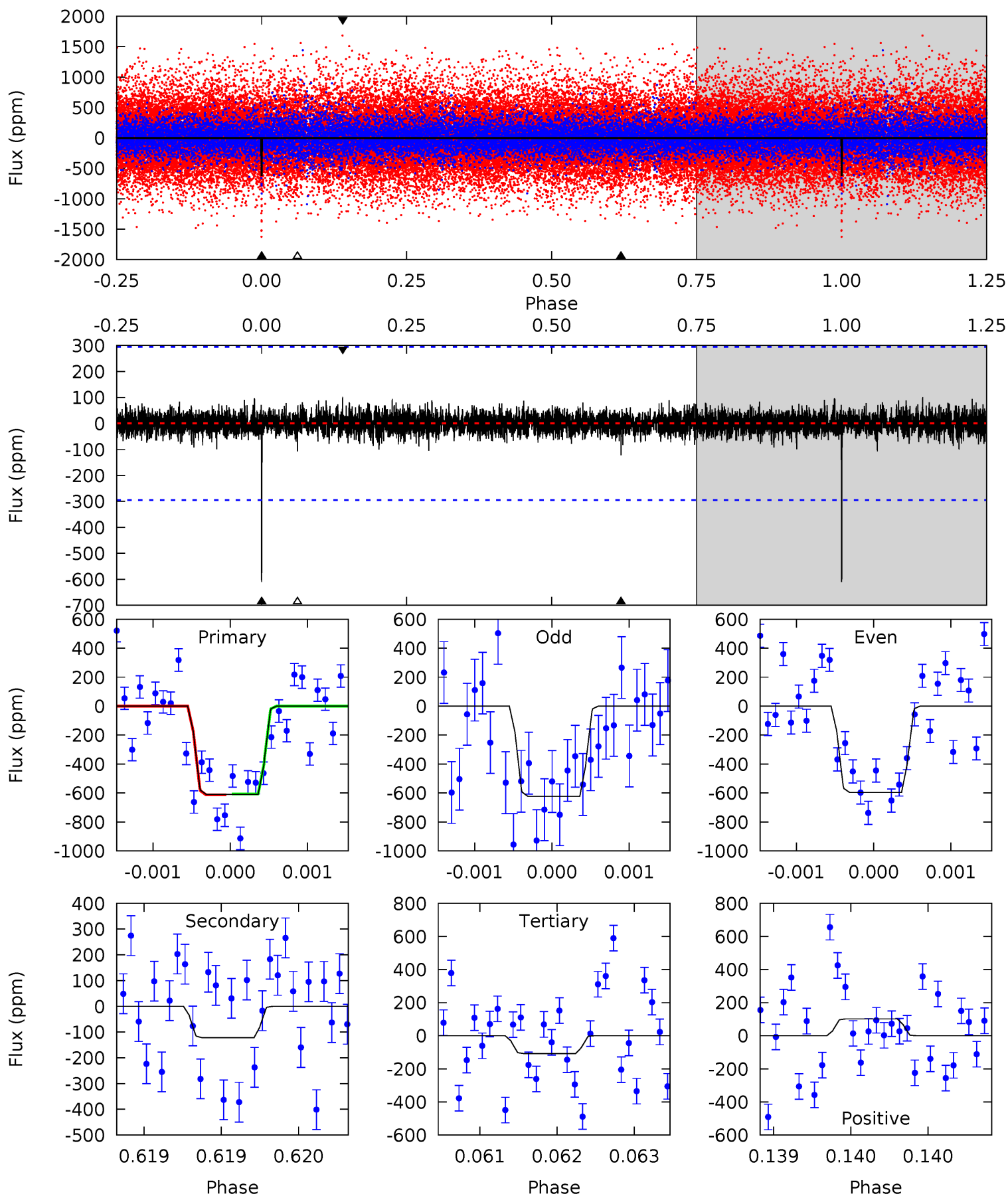
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	8.69	8.58	9.65	5.43	3.26	2.34	3.09	2.03	0.11	-0.96	0.61	0.94	0.45	1.05



# Alt Model-Shift Uniqueness Test

006871394-01, P = 322.666346 Days, E = 298.798277 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
11.4	2.27	2.00	1.89	5.50	3.37	0.47	9.36	9.46	0.27	0.38	0.25	1.01	0.14	0.06



### Stellar Parameters For KIC 006871394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5410^{+185}_{-185}$	$4.419^{+0.132}_{-0.182}$	$-0.120^{+0.300}_{-0.300}$	$0.918^{+0.217}_{-0.144}$	$0.807^{+0.115}_{-0.067}$	$1.470^{+0.974}_{-0.673}$
	+3%/-3%	+3%/-4%	+250%/-250%	+24%/-16%	+14%/-8%	+66%/-46%
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 006871394-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-508 \pm 58$	$3.26^{+2.45}_{-2.16}$	$346^{+25}_{-20}$	$4624^{+3087}_{-812}$	$19889^{+151109}_{-13408}$
Alt.	$-122 \pm 54$	$3.29^{+2.49}_{-2.12}$	$348^{+24}_{-22}$	$3573^{+1593}_{-618}$	$4330^{+29497}_{-3092}$

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

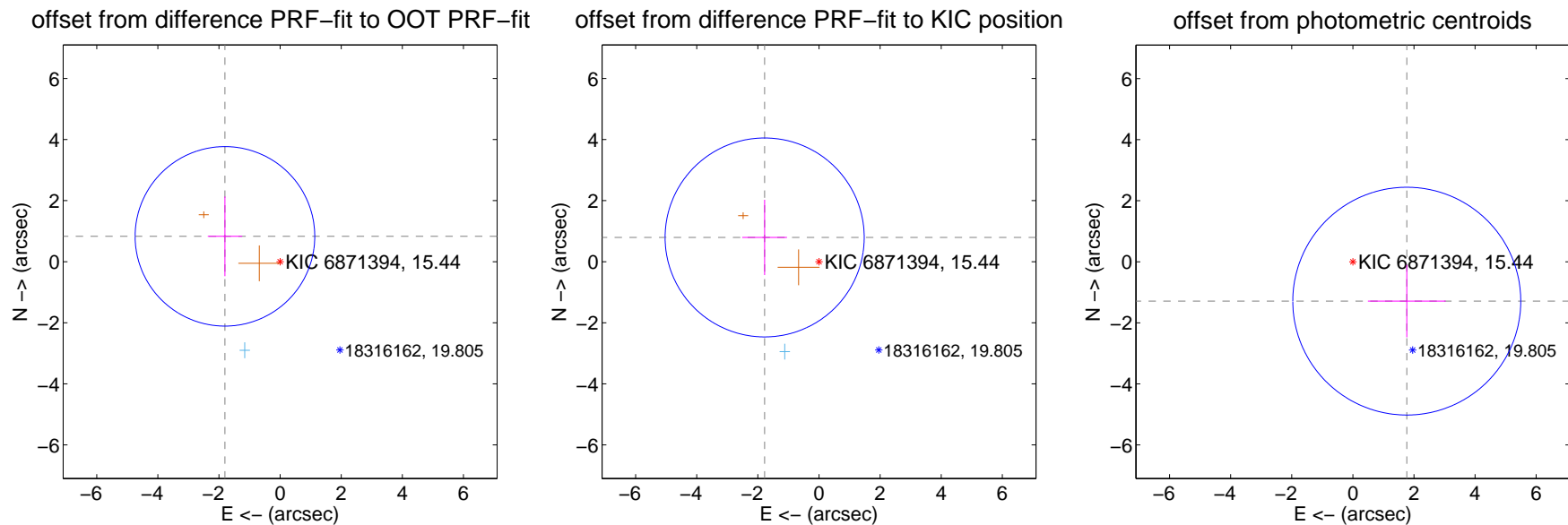
## DV Centroid Data

Supplemental centroid analysis for 006871394-01. Kepler magnitude: 15.44. Transit SNR 7.08

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.987 \pm 0.980$	2.03	$1.805 \pm 0.563$	$0.830 \pm 1.307$
PRF-fit source offset from KIC position	$1.947 \pm 1.086$	1.79	$1.778 \pm 0.732$	$0.794 \pm 1.234$
photometric centroid source offset	$2.19 \pm 1.24$	1.76	$-1.77 \pm 1.27$	$-1.29 \pm 1.19$

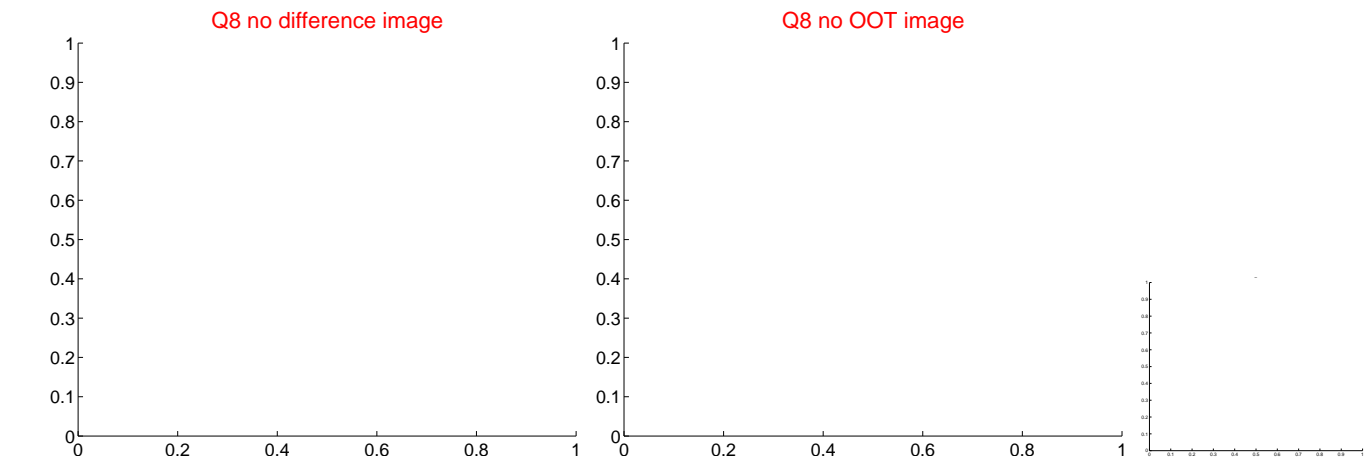
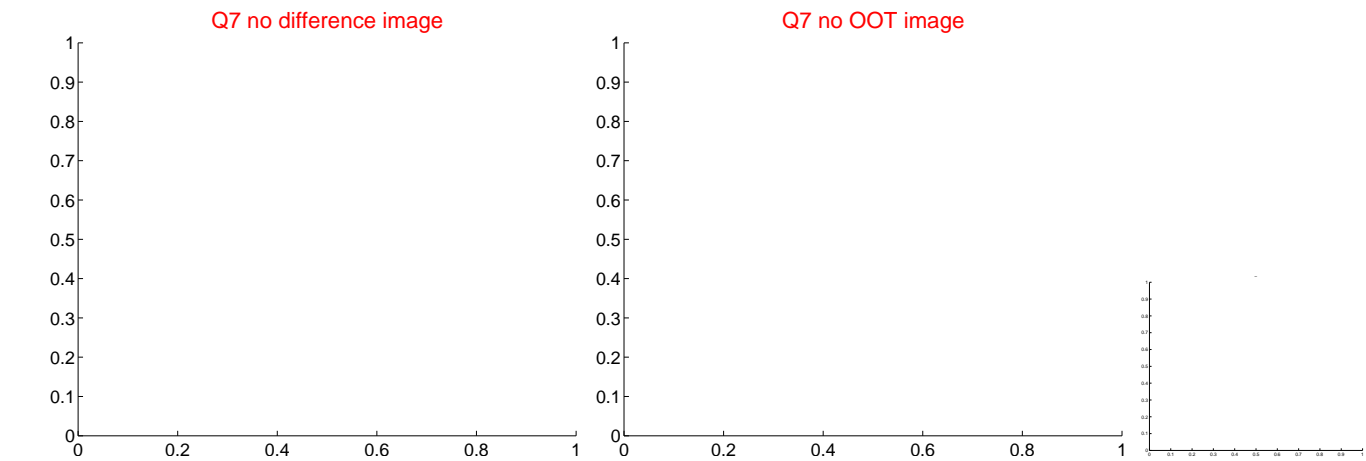
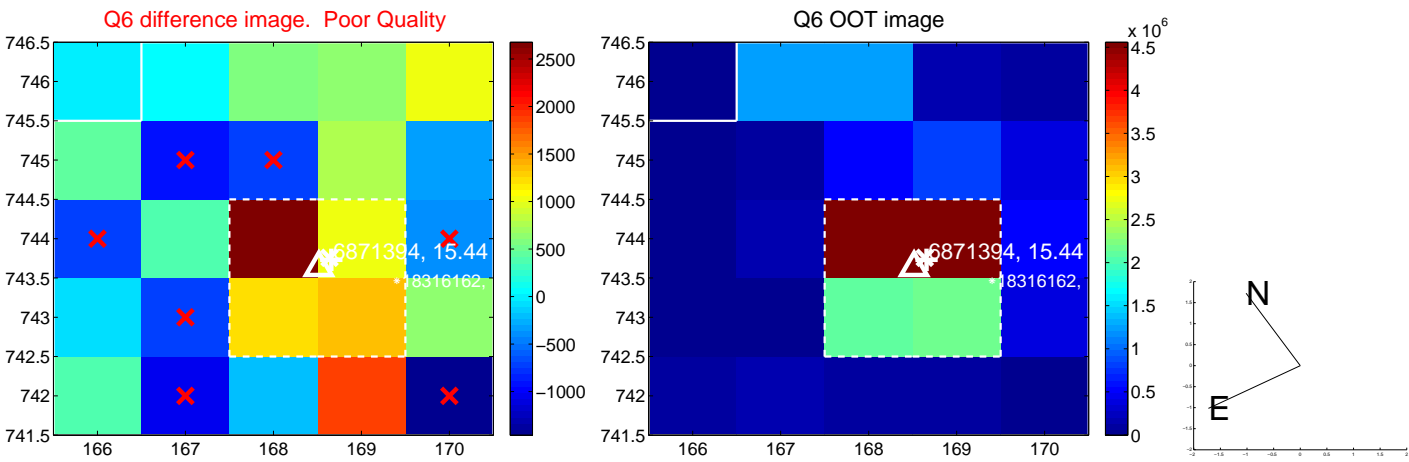
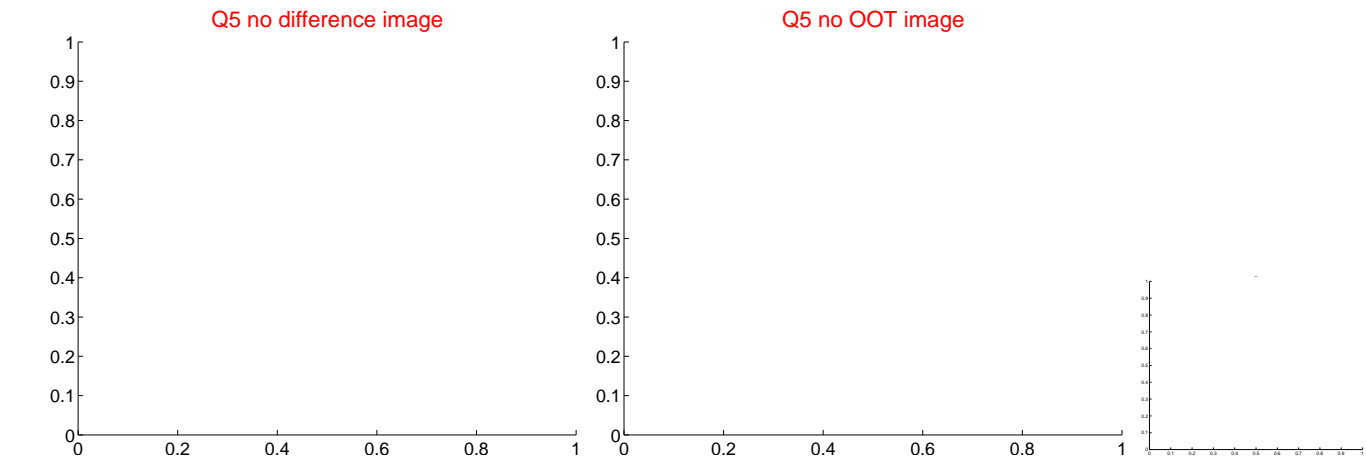


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



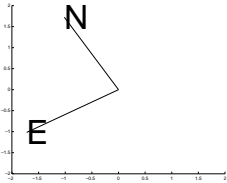
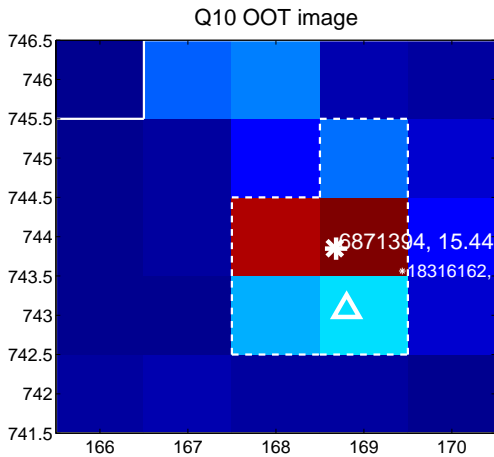
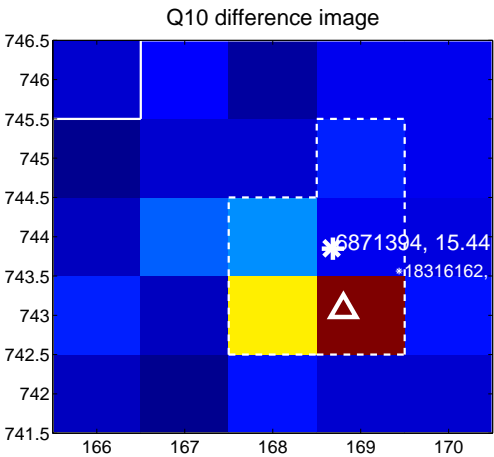


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

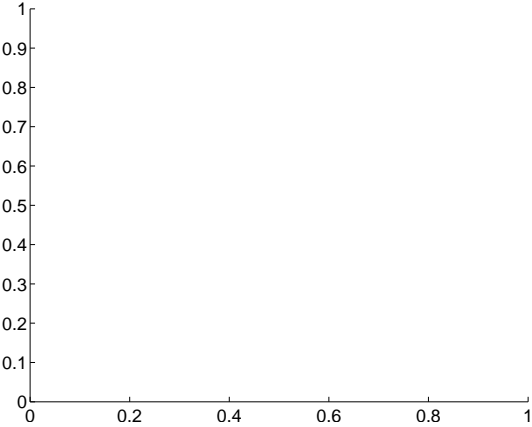
Q9 no difference image



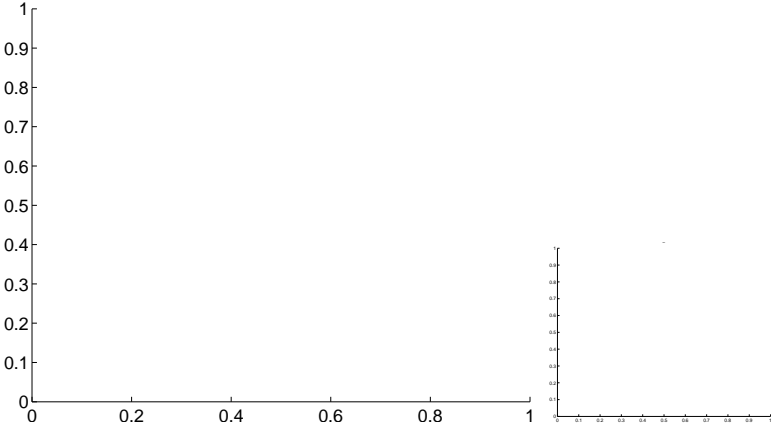
Q9 no OOT image



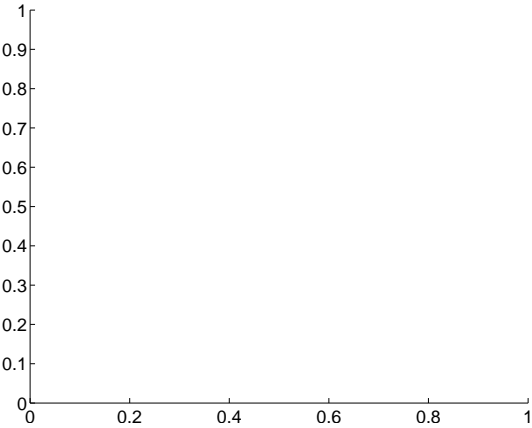
Q11 no difference image



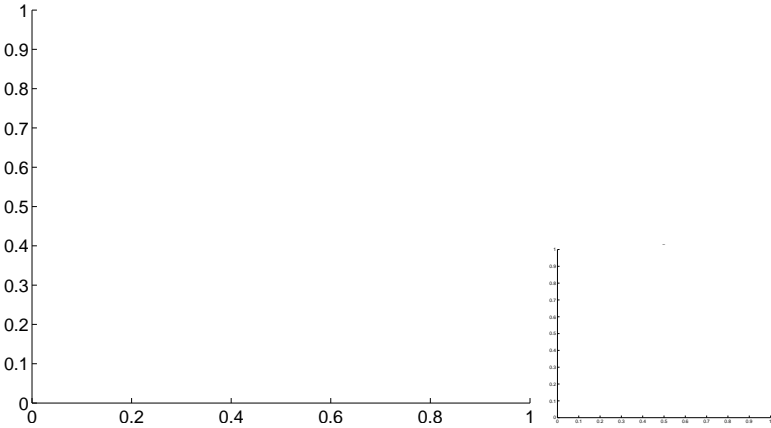
Q11 no OOT image



Q12 no difference image



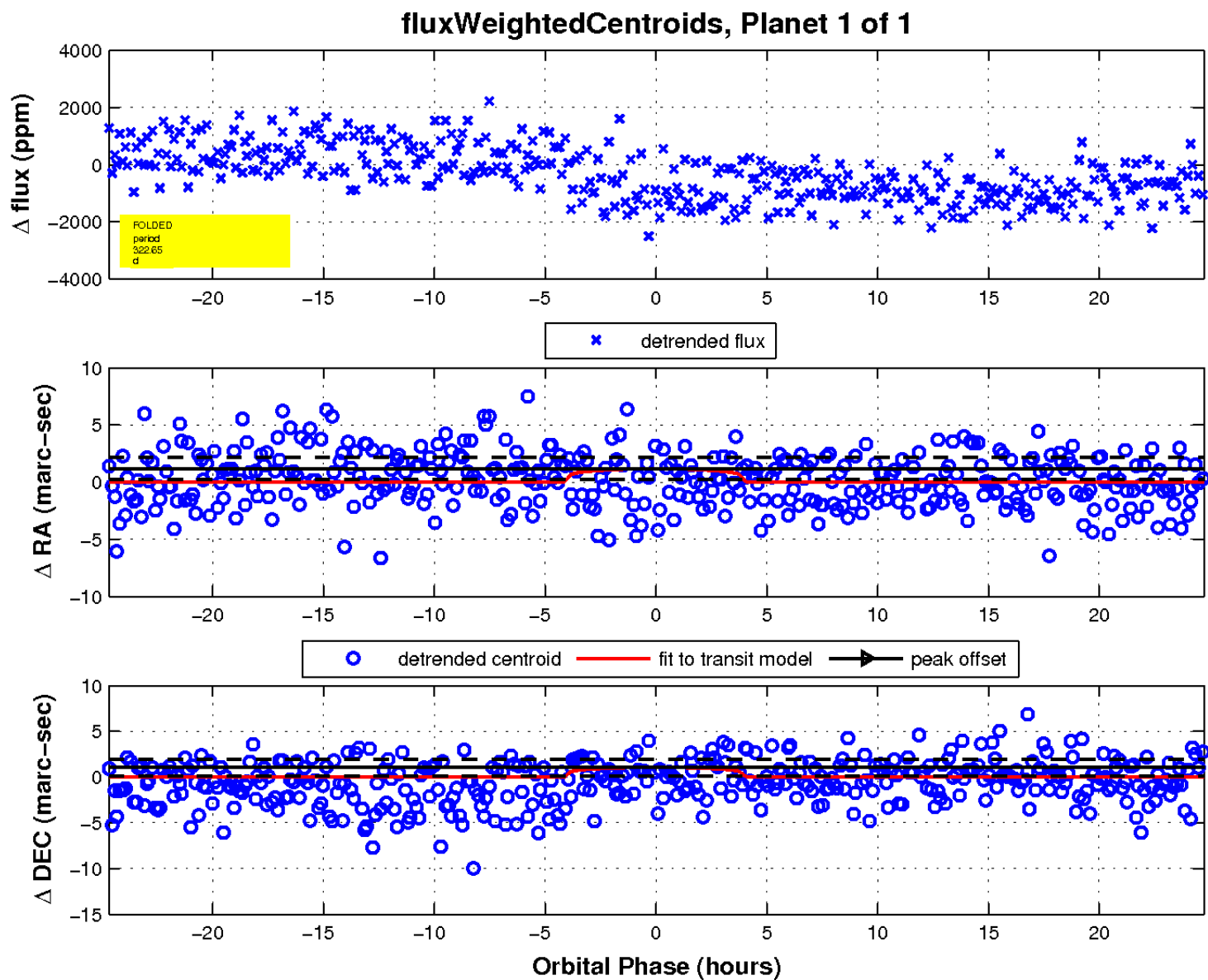
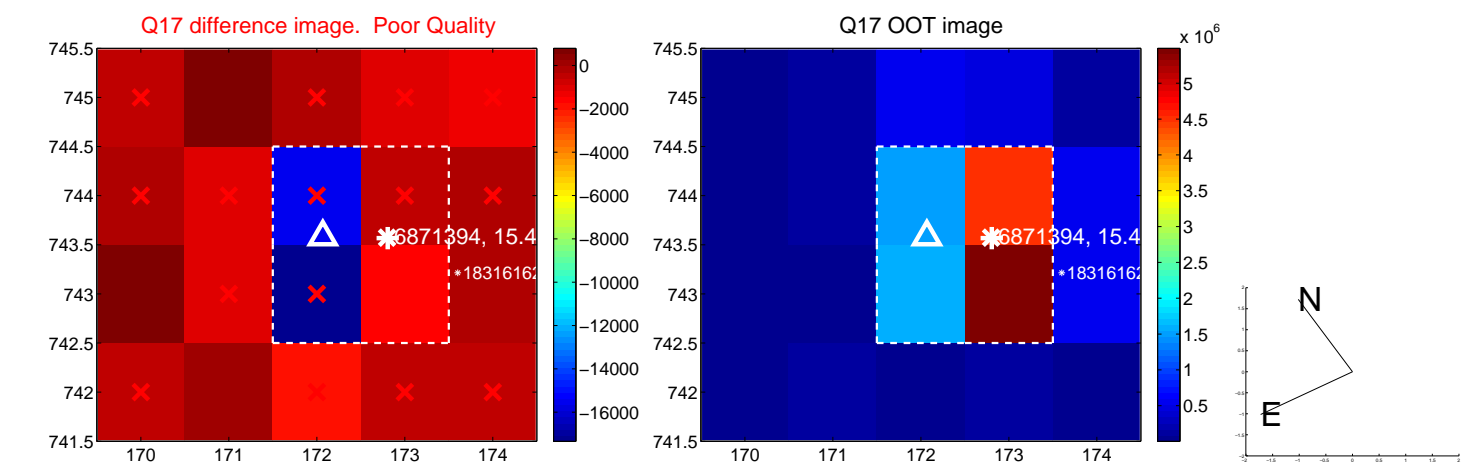
Q12 no OOT image



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

