

# KIC 008937663

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008937663-01	OBS	No	0.940759	132.233221	5.6	0.919	9.1	1.3	1.78	7414	0.44	18445.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008937663-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—HALO_GHOST

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

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

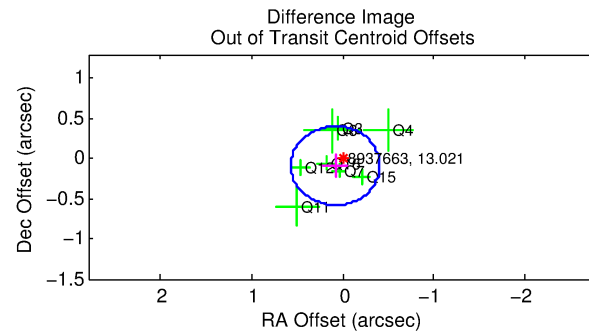
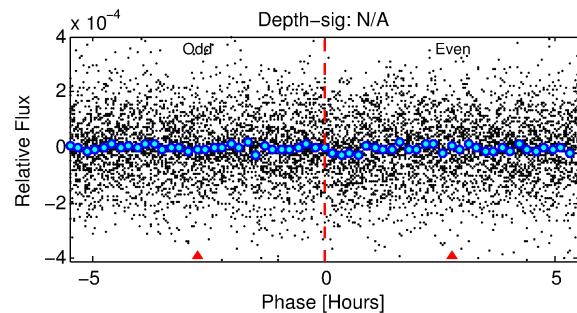
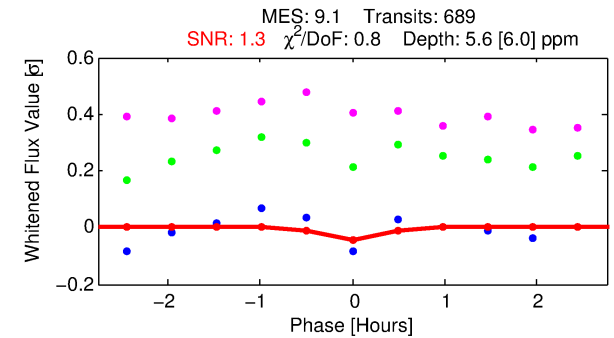
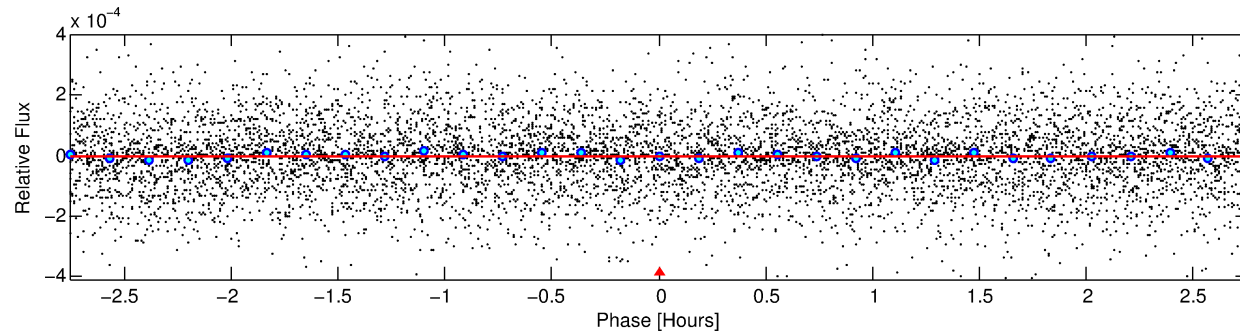
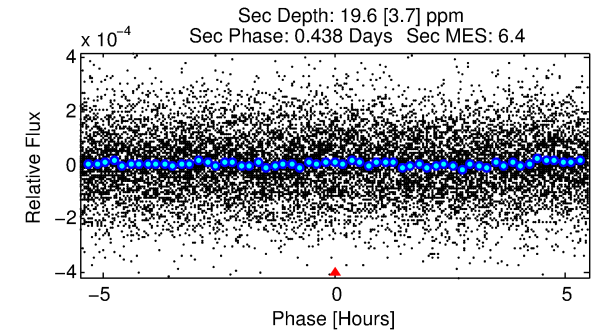
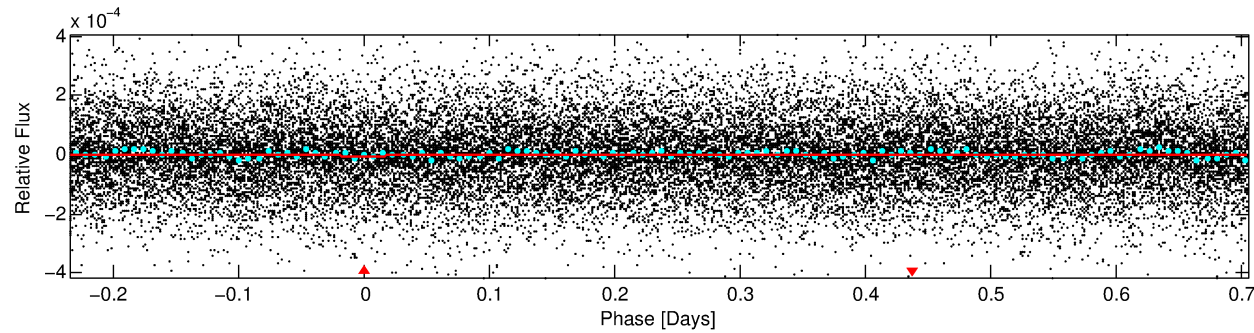
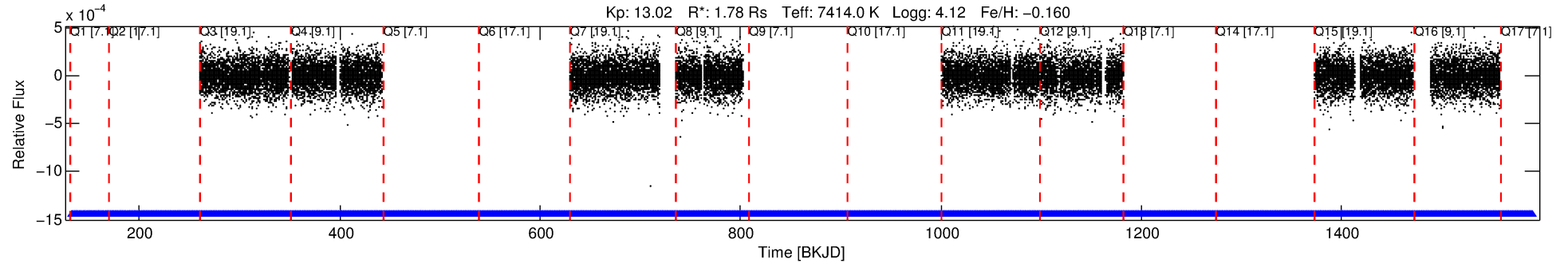
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008937663-01

No Significant Match Found

# DV One-Page Summary

KIC: 8937663 Candidate: 1 of 1 Period: 0.941 d



## DV Fit Results:

Period = 0.94076 [0.00008] d  
Epoch = 132.2332 [0.0117] BKJD  
Rp/R\* = 0.0023 [0.0023]  
a/R\* = 6.72 [31.01]  
b = 0.52 [6.56]  
Seff = 18445.95 [6712.79]  
Teq = 2972 [270] K  
Rp = 0.44 [0.46] Re  
a = 0.0216 [0.0050] AU  
Ag = 26.02 [53.16] [0.47σ]  
Teffp = 10377 [5251] K [1.41σ]

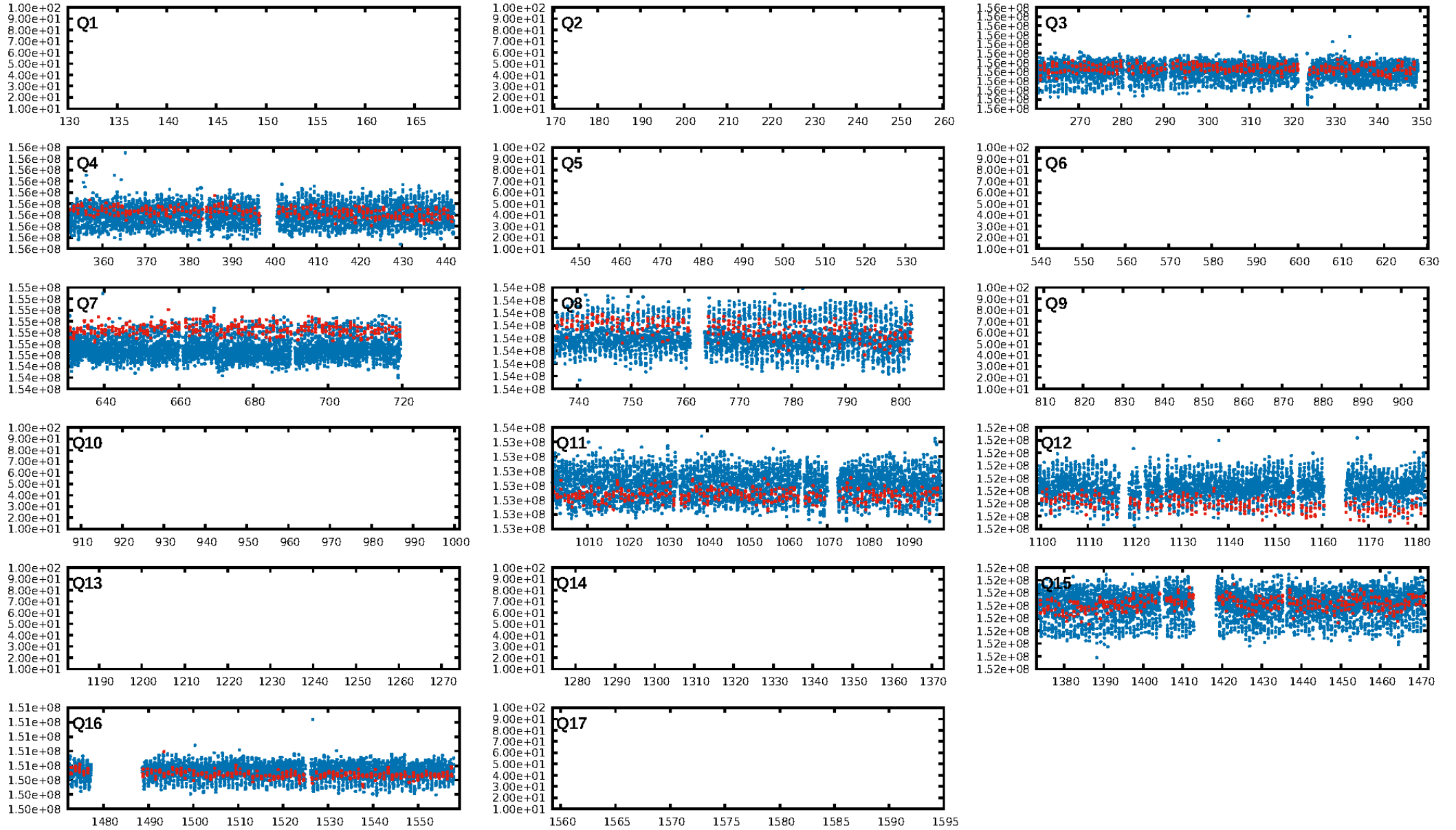
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.55e-19  
RollingBand-fgt: 1.00 [689/689]  
GhostDiagnostic-chr: -0.1874  
Centroid-sig: 7.1%  
Centroid-so: 8.371 arcsec [1.23σ]  
OotOffset-rm: 0.120 arcsec [0.73σ]  
OotOffset-st: 0/4/4/0 [8]  
KicOffset-rm: 0.230 arcsec [1.59σ]  
KicOffset-st: 0/4/4/0 [8]  
DiffImageQuality-fgm: 0.38 [3/8]  
DiffImageOverlap-fno: 1.00 [8/8]

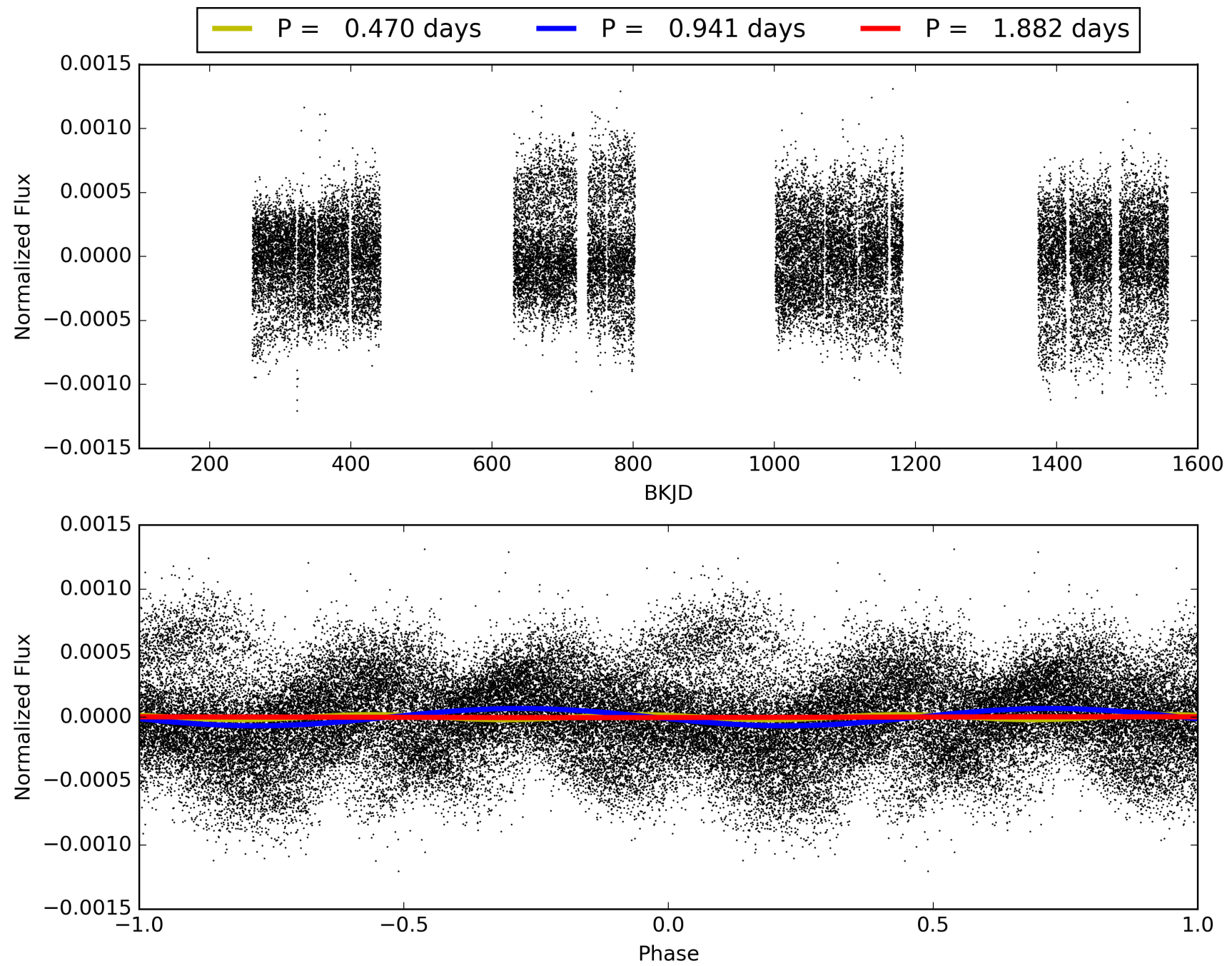
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:04:55 Z

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

# TCE 008937663-01, PDC Light Curves

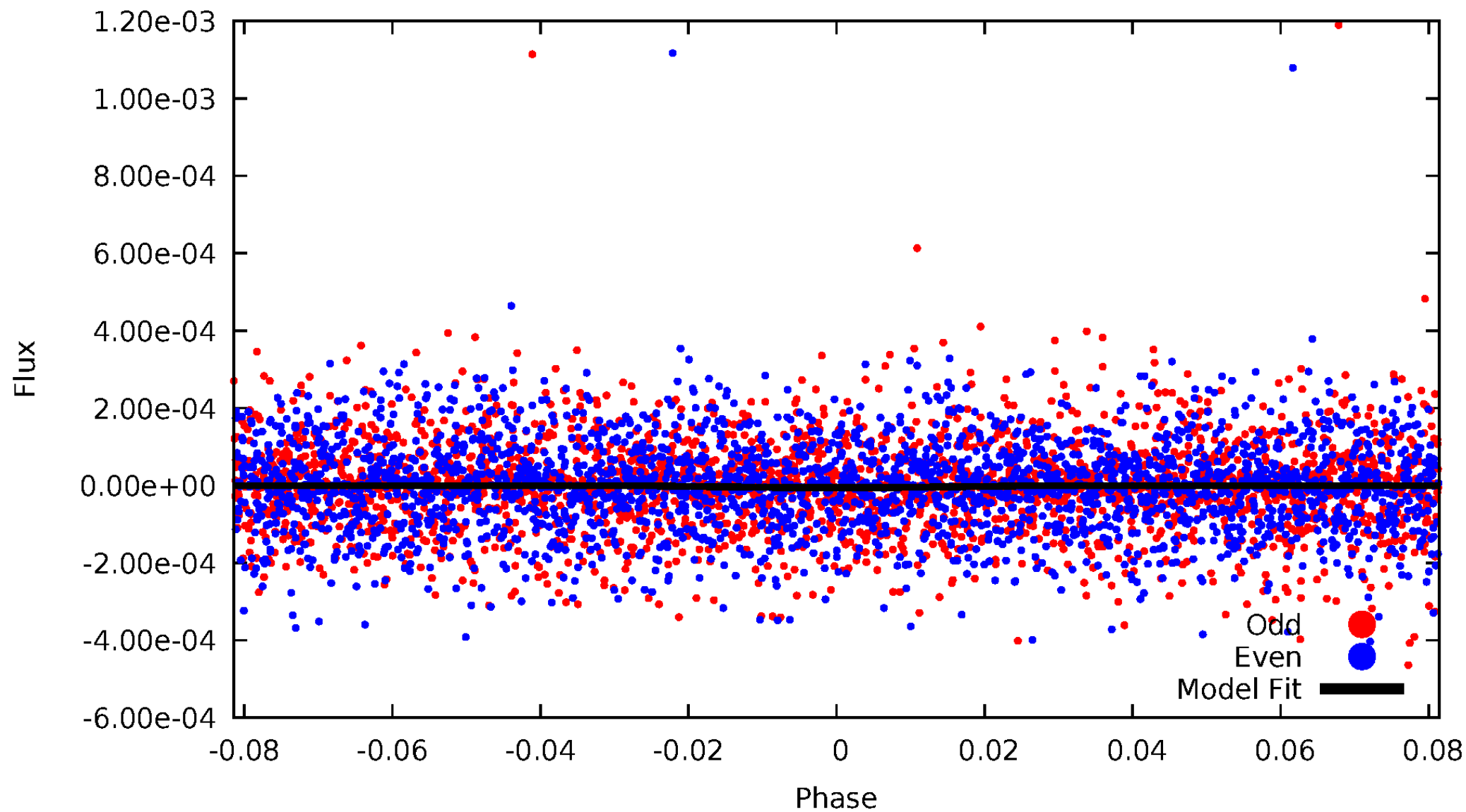


TCE 008937663-01



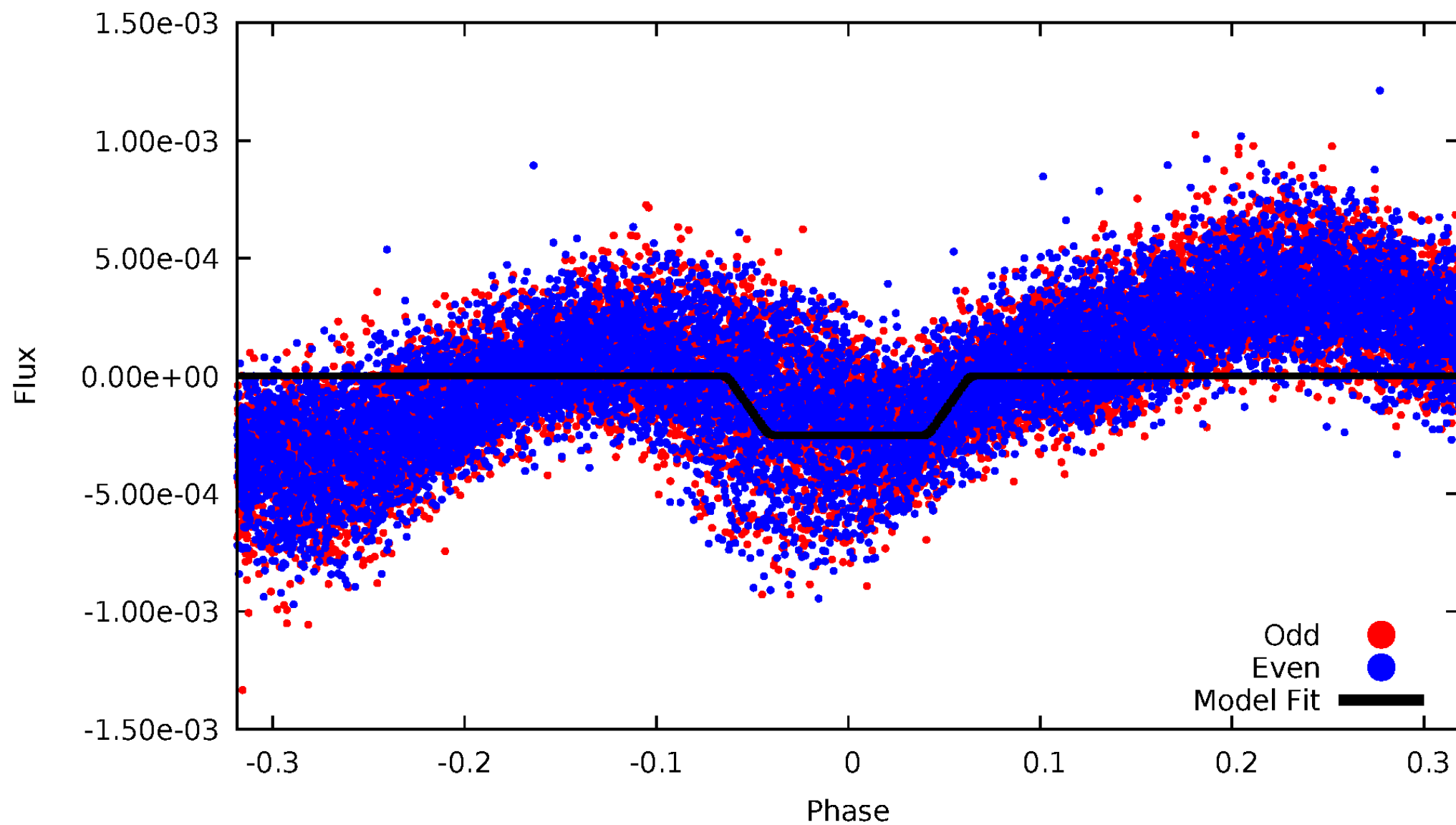
# DV Odd/Even

TCE 008937663-01



# ALT Odd/Even

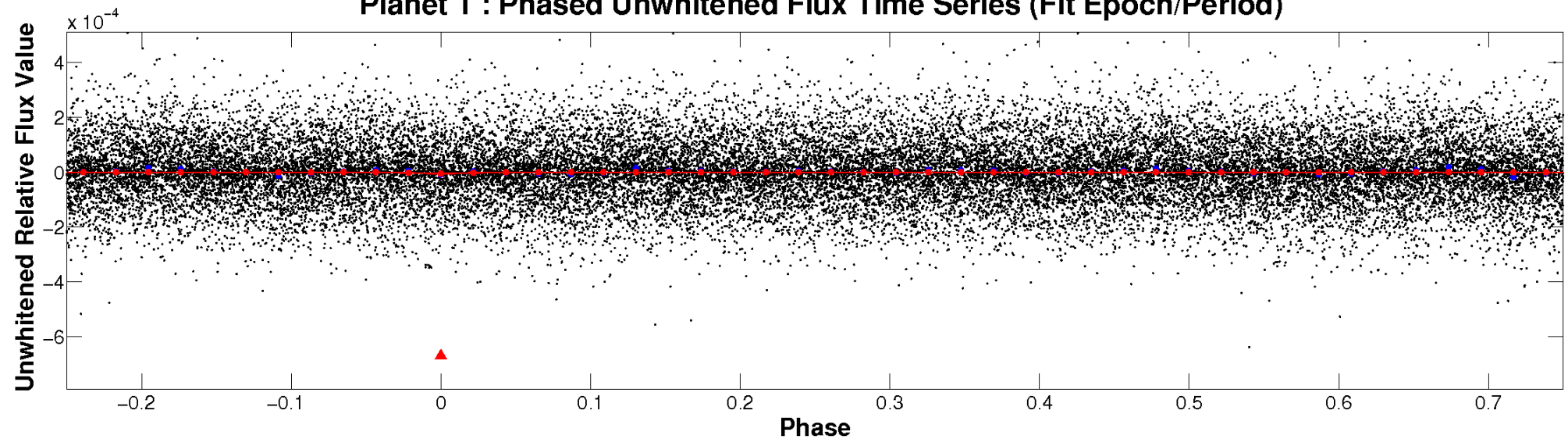
TCE 008937663-01



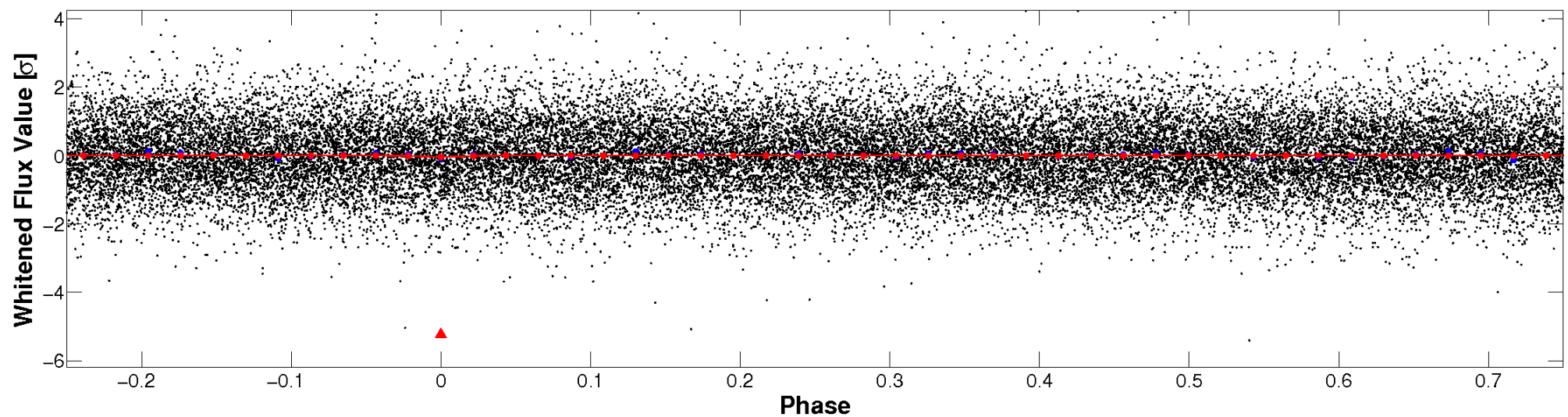


# Non-Whitened Vs. Whitened Light Curve

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

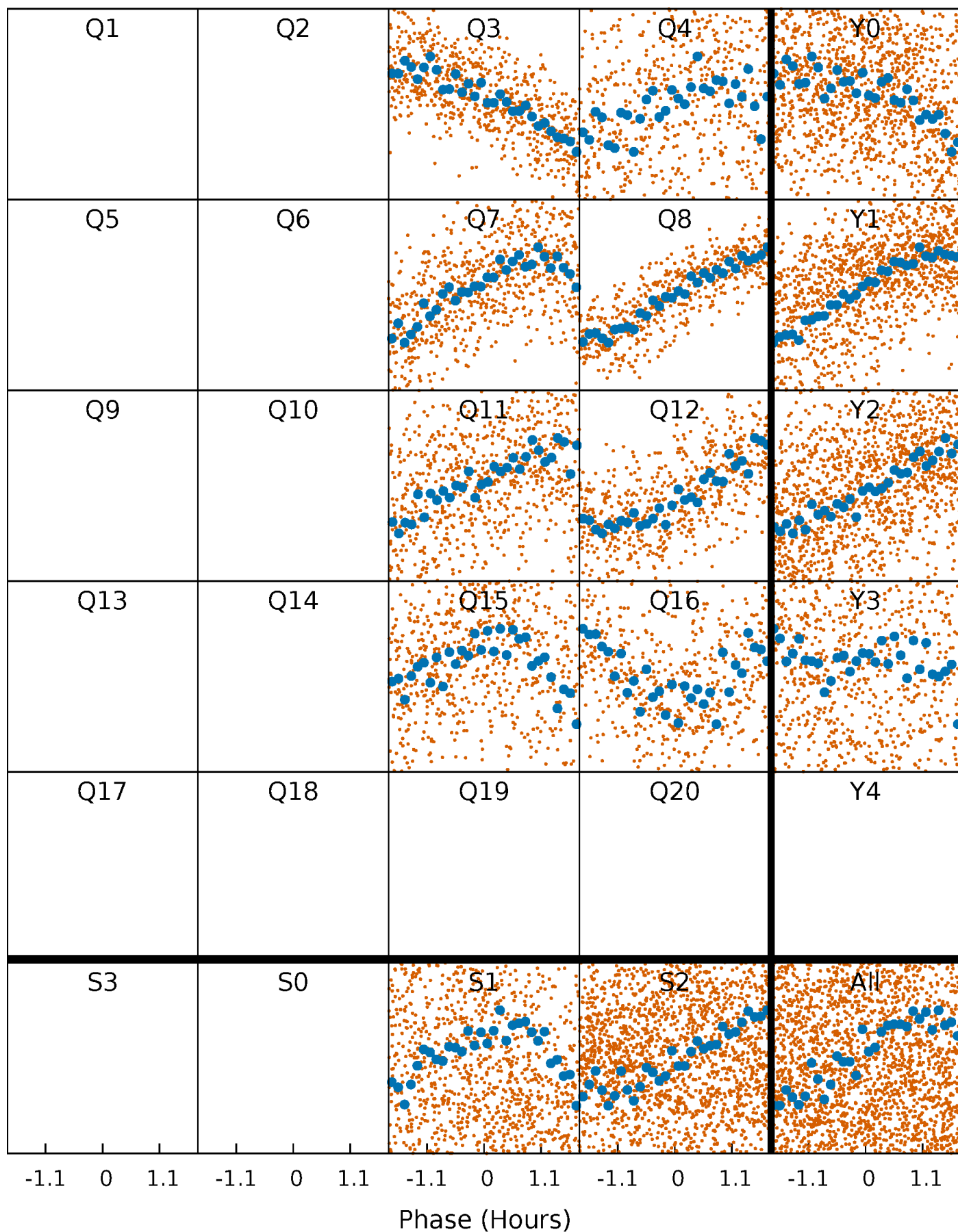


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

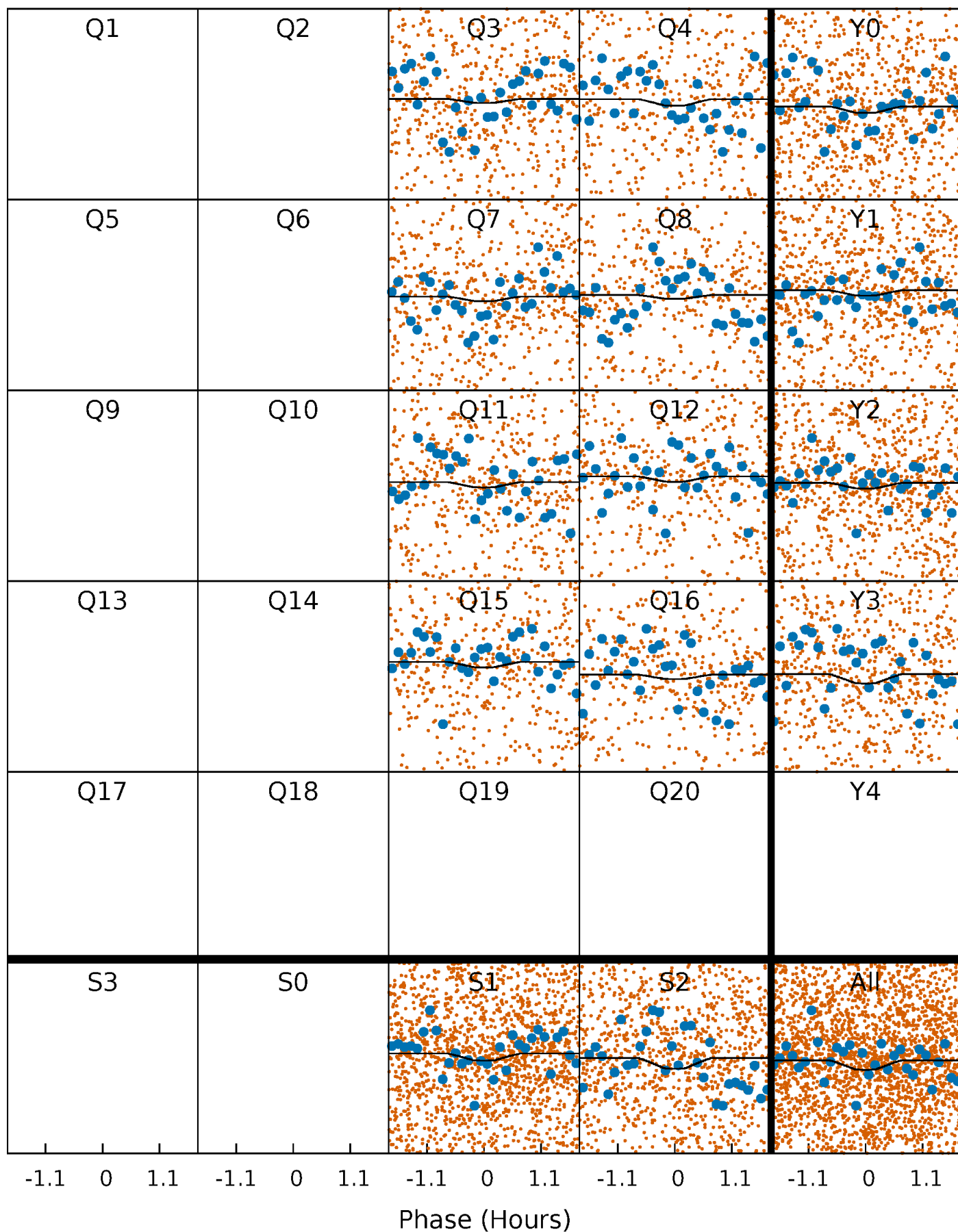
TCE 008937663-01 P= 0.940759 Days  $T_0=132.233221$  (BKJD)





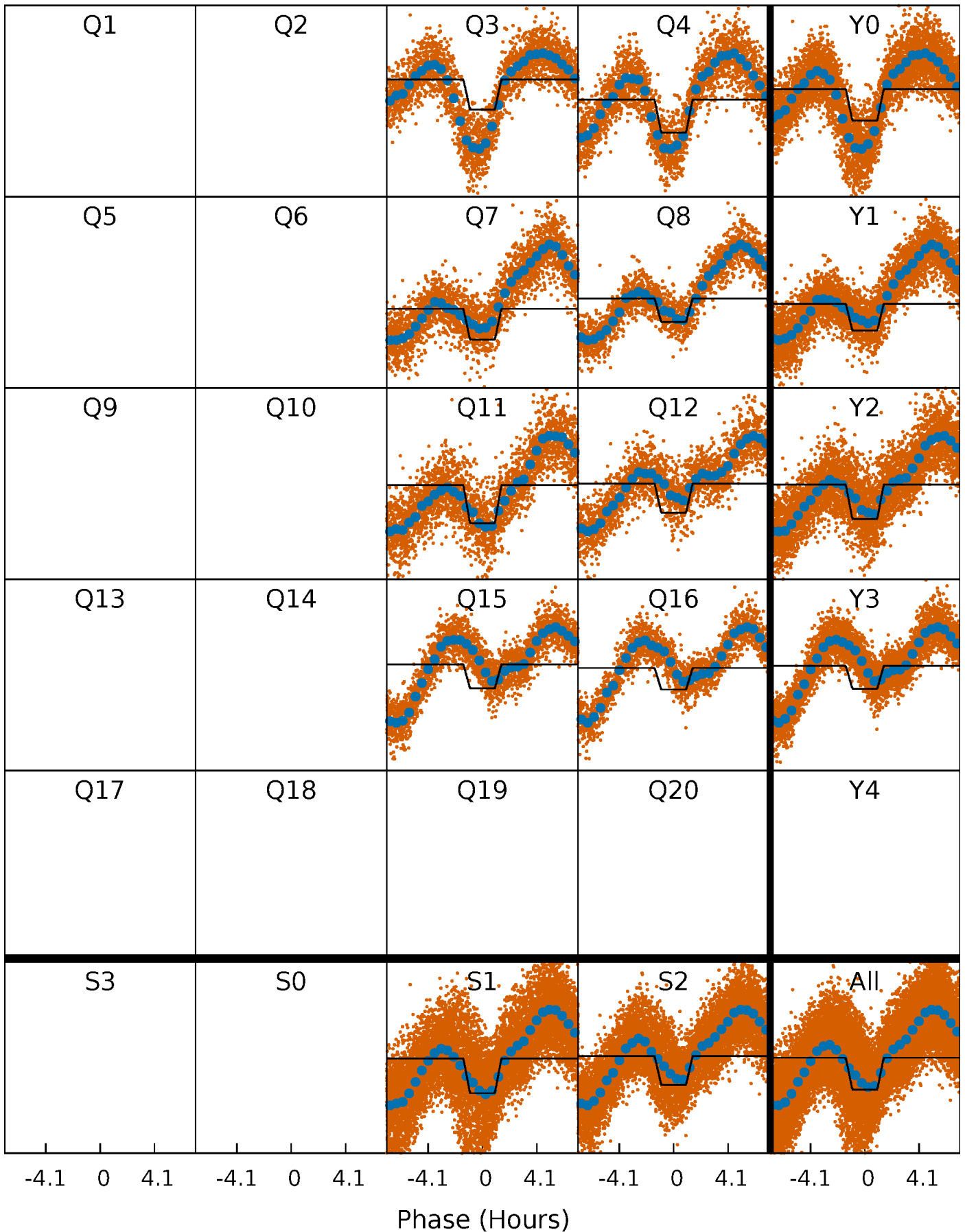
# DV Quarter-Phased Transit Curves

TCE 008937663-01   P= 0.940759 Days    $T_0=132.233221$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

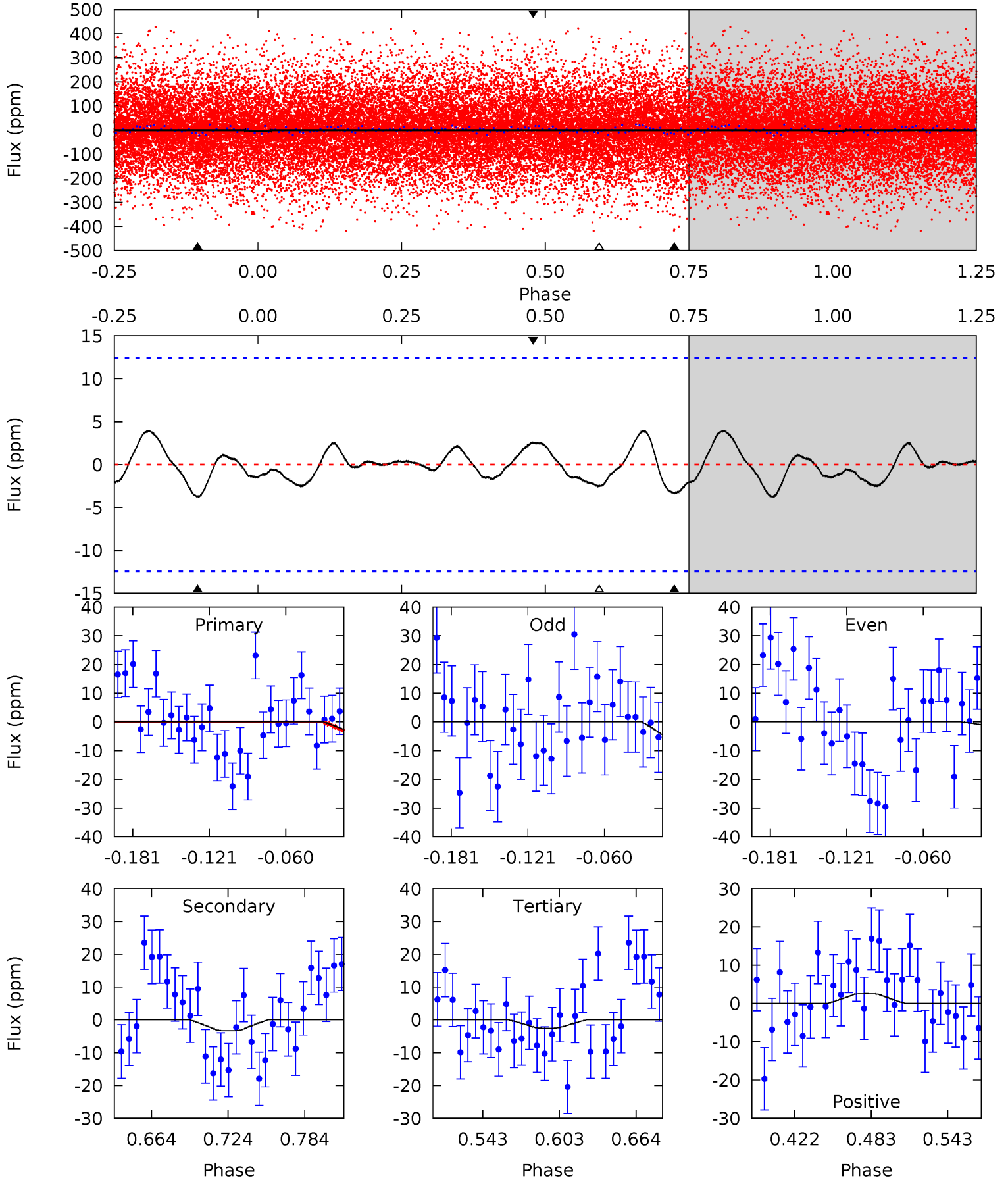
TCE 008937663-01 P= 0.941550 Days  $T_0=131.609442$  (BKJD)



# DV Model-Shift Uniqueness Test

008937663-01, P = 0.940759 Days, E = 132.233221 Days

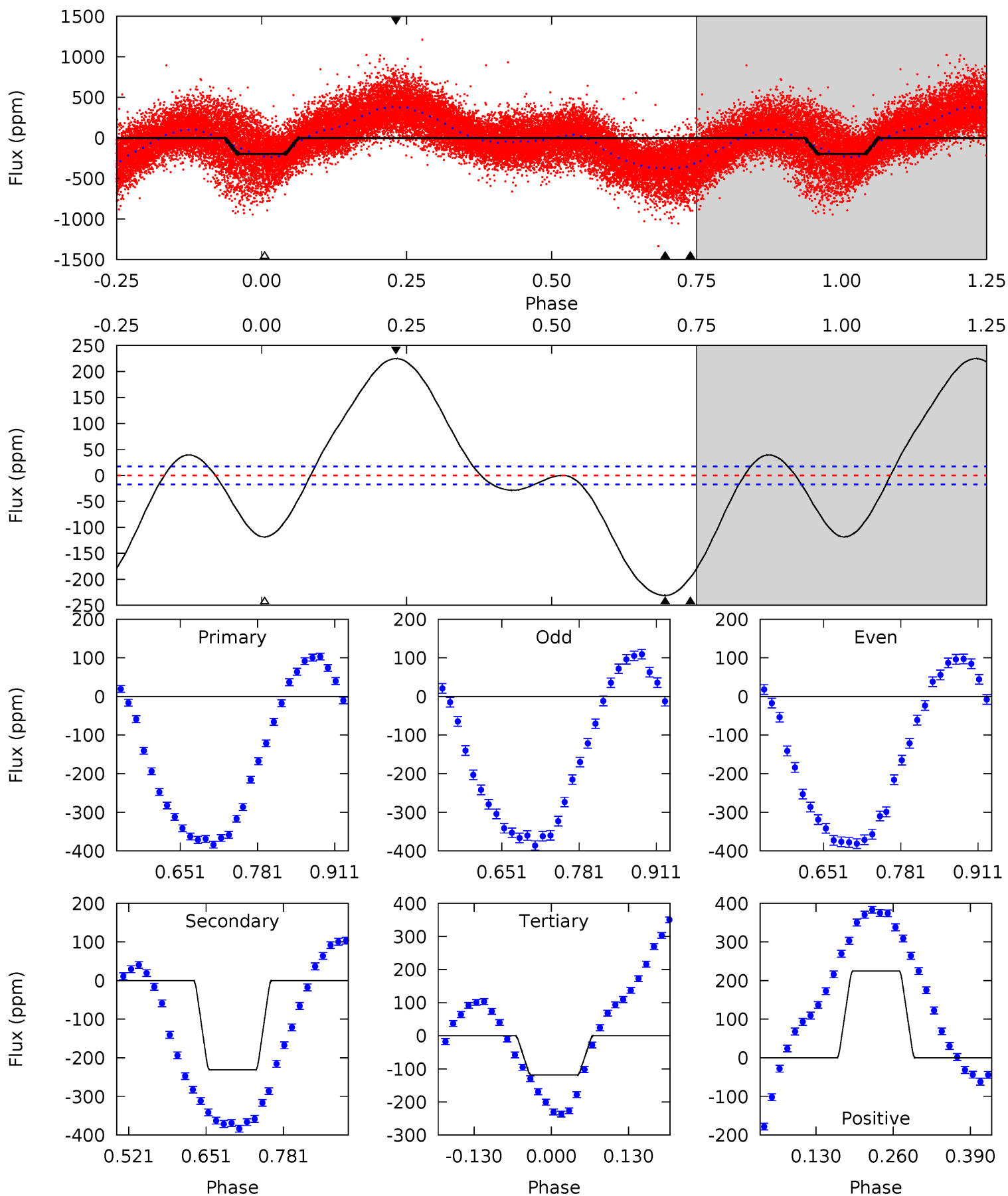
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.42	1.26	0.96	0.97	4.67	1.88	0.59	0.46	0.45	0.29	0.29	0.98	-1.73	0.51	0.18



# Alt Model-Shift Uniqueness Test

008937663-01, P = 0.941550 Days, E = 131.609442 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
51.2	60.2	30.9	58.6	4.51	1.51	25.7	20.3	-7.39	29.4	1.66	0.25	1.18	0.49	7.30



### Stellar Parameters For KIC 008937663

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7414^{+232}_{-310}$	$4.117^{+0.153}_{-0.170}$	$-0.160^{+0.250}_{-0.350}$	$1.783^{+0.510}_{-0.418}$	$1.514^{+0.220}_{-0.245}$	$0.376^{+0.297}_{-0.194}$
	+3%/-4%	+4%/-4%	+156%/-219%	+29%/-23%	+15%/-16%	+79%/-51%
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 008937663-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-3 \pm 3$	$0.53^{+0.43}_{-0.33}$	$4158^{+315}_{-293}$	$5663^{+4836}_{-2662}$	$2.649^{+17.232}_{-2.281}$
Alt.	$-231 \pm 4$	$3.08^{+0.67}_{-0.59}$	$4142^{+304}_{-287}$	$7108^{+803}_{-590}$	$6.243^{+3.172}_{-1.965}$

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



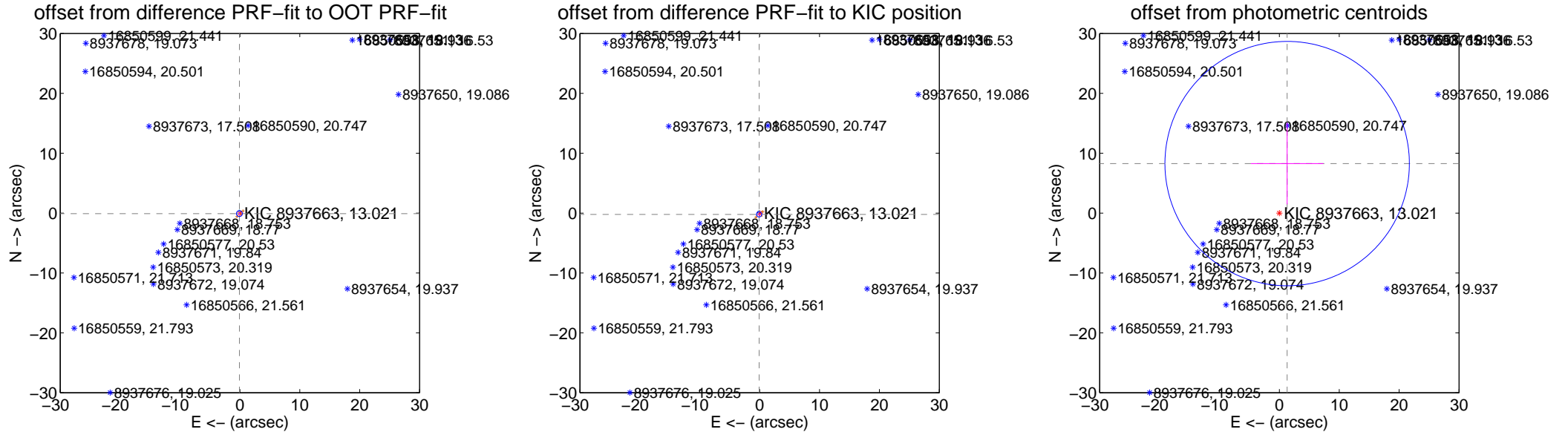
## DV Centroid Data

Supplemental centroid analysis for 008937663-01. Kepler magnitude: 13.02. Transit SNR 1.26

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.120 \pm 0.164$	0.73	$0.081 \pm 0.135$	$-0.088 \pm 0.137$
PRF-fit source offset from KIC position	$0.230 \pm 0.145$	1.59	$0.085 \pm 0.160$	$-0.214 \pm 0.124$
photometric centroid source offset	$8.37 \pm 6.80$	1.23	$-1.30 \pm 6.05$	$8.27 \pm 6.82$



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.

Q1 no difference image



Q1 no OOT image



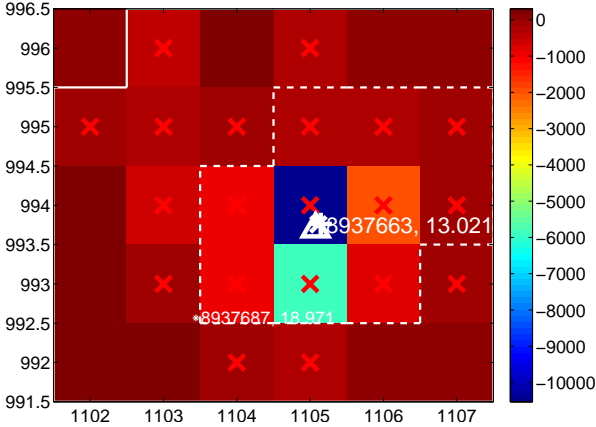
Q2 no difference image



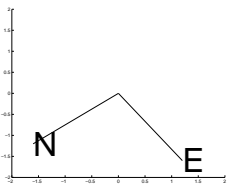
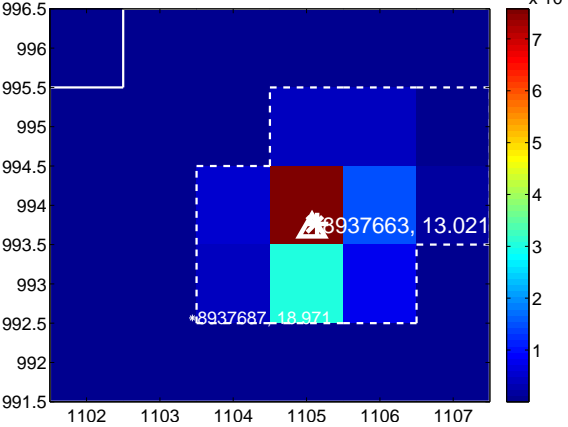
Q2 no OOT image



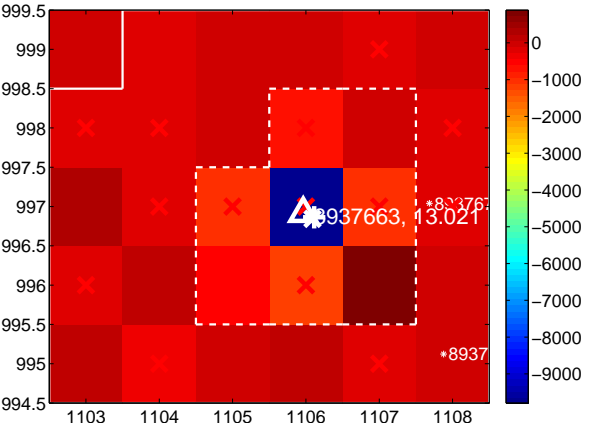
Q3 difference image. Poor Quality



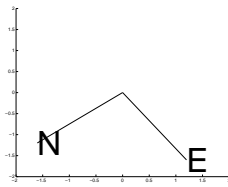
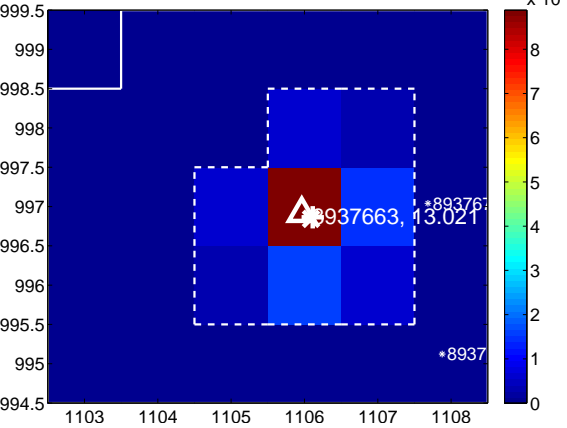
Q3 OOT image



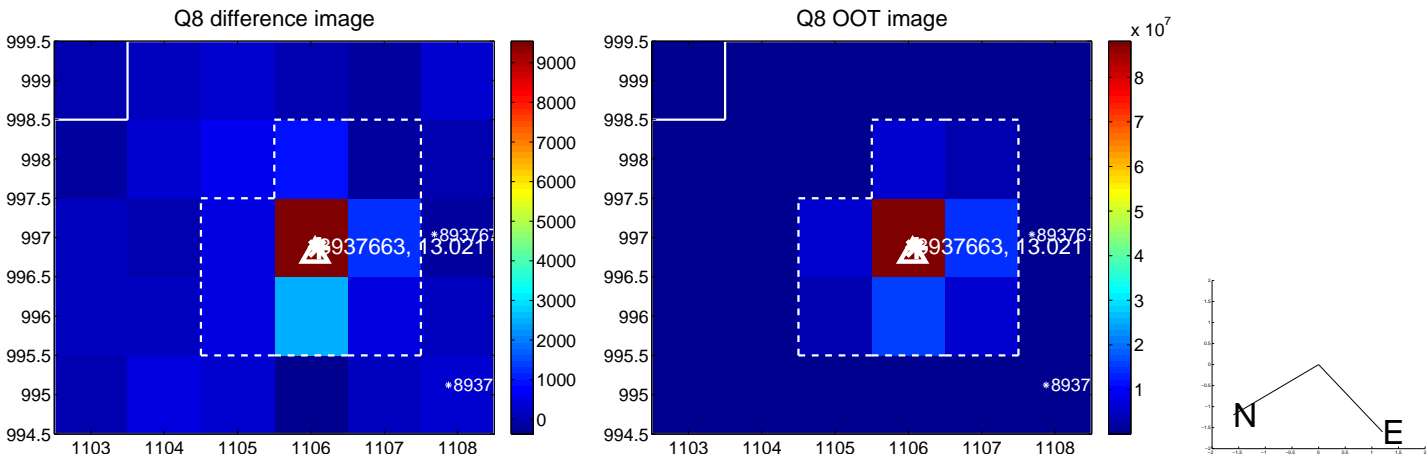
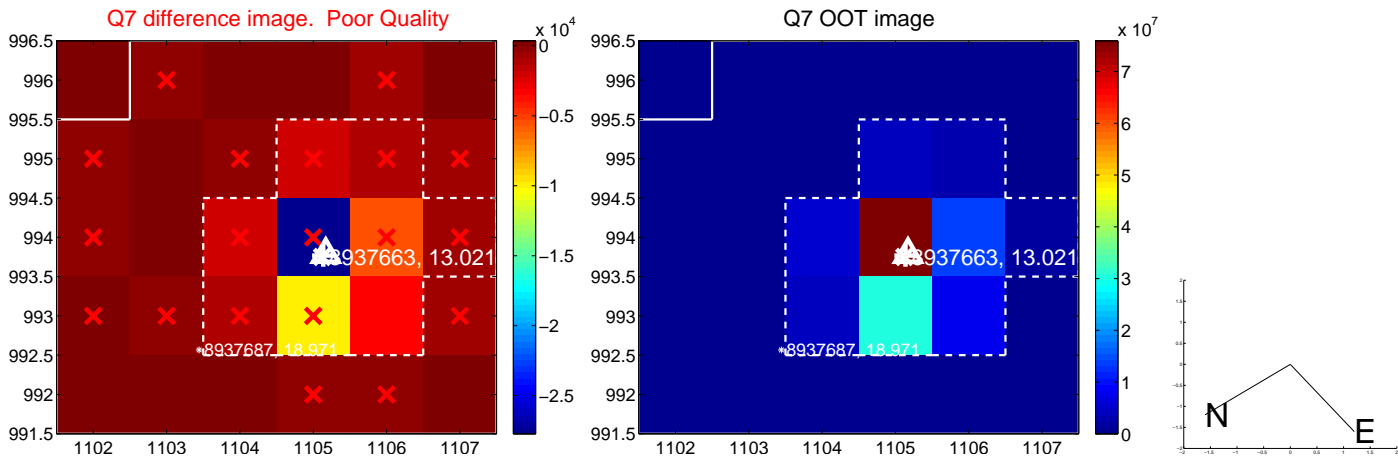
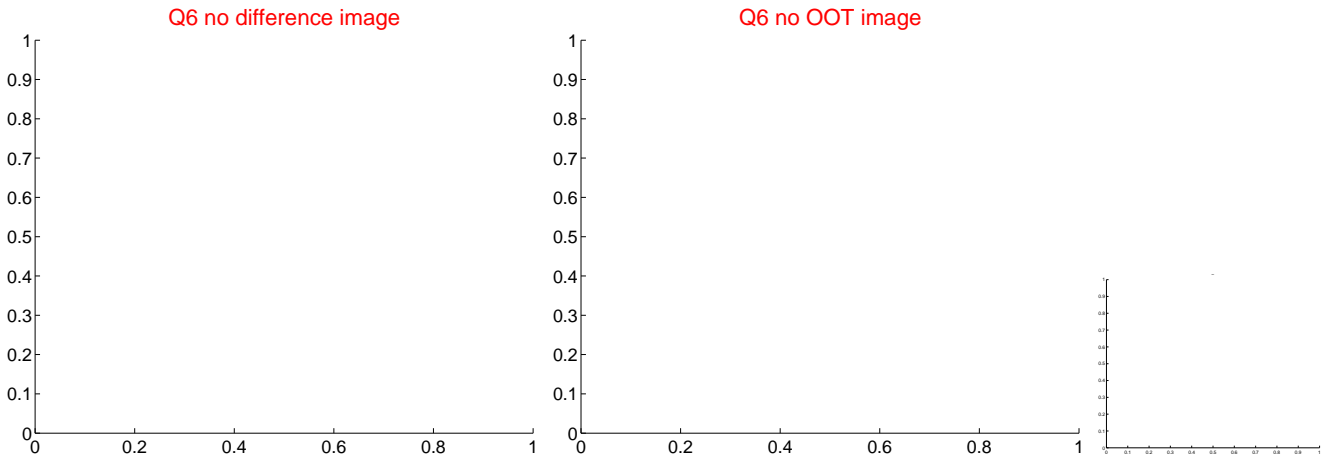
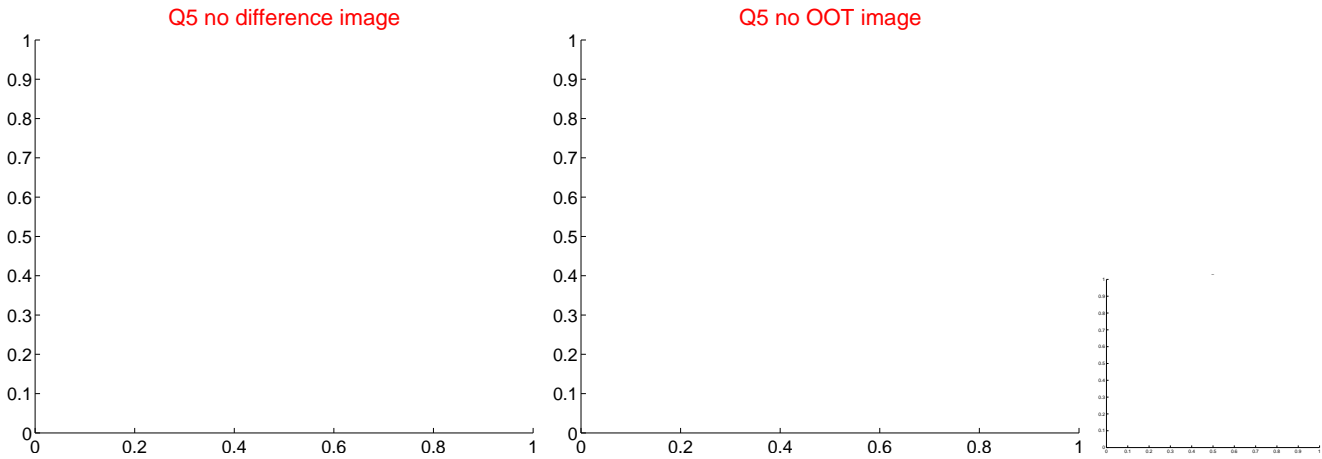
Q4 difference image. Poor Quality



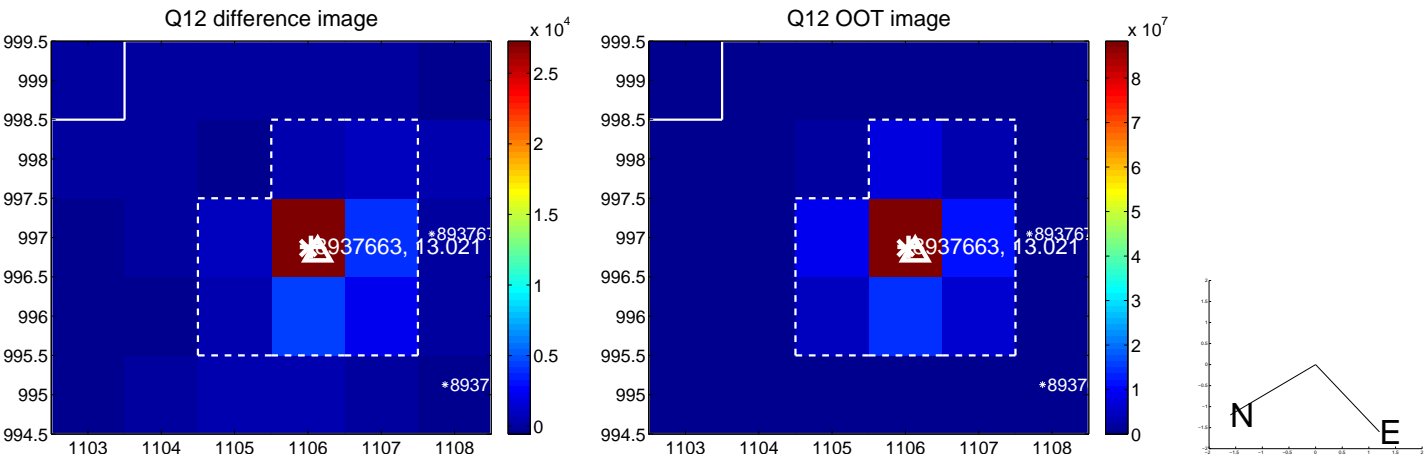
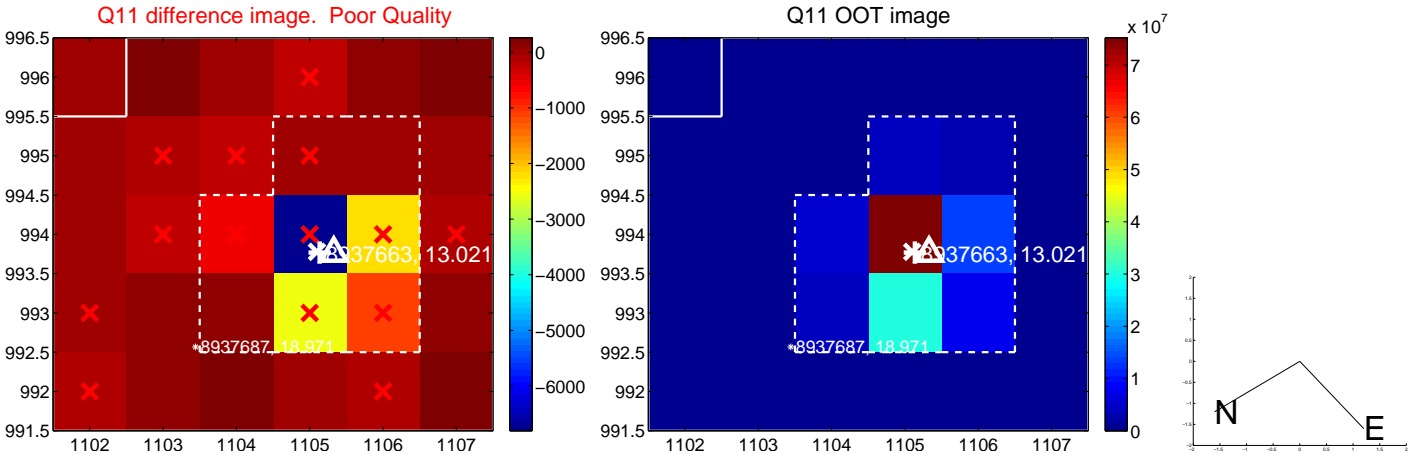
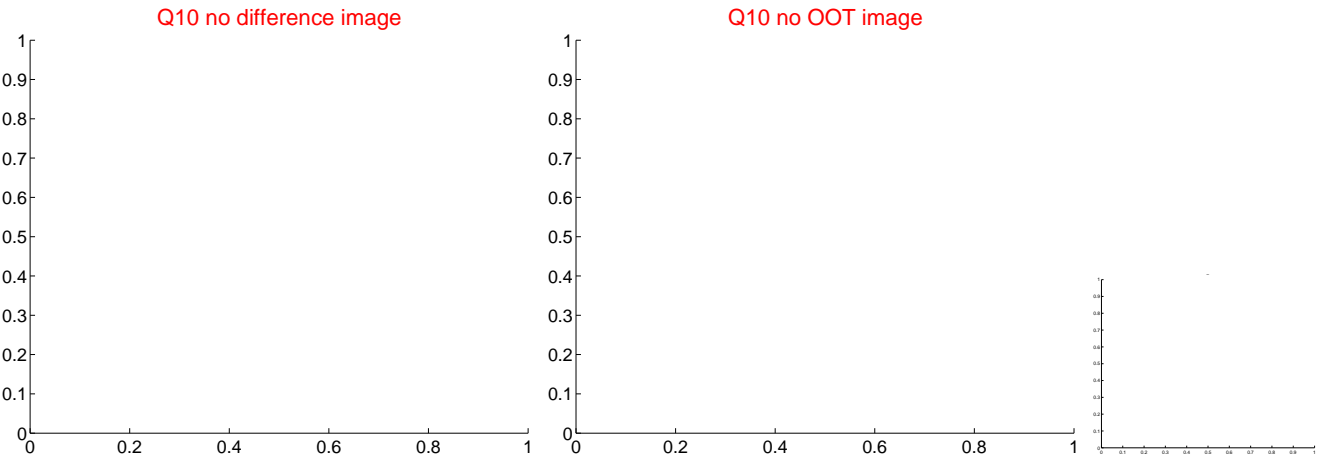
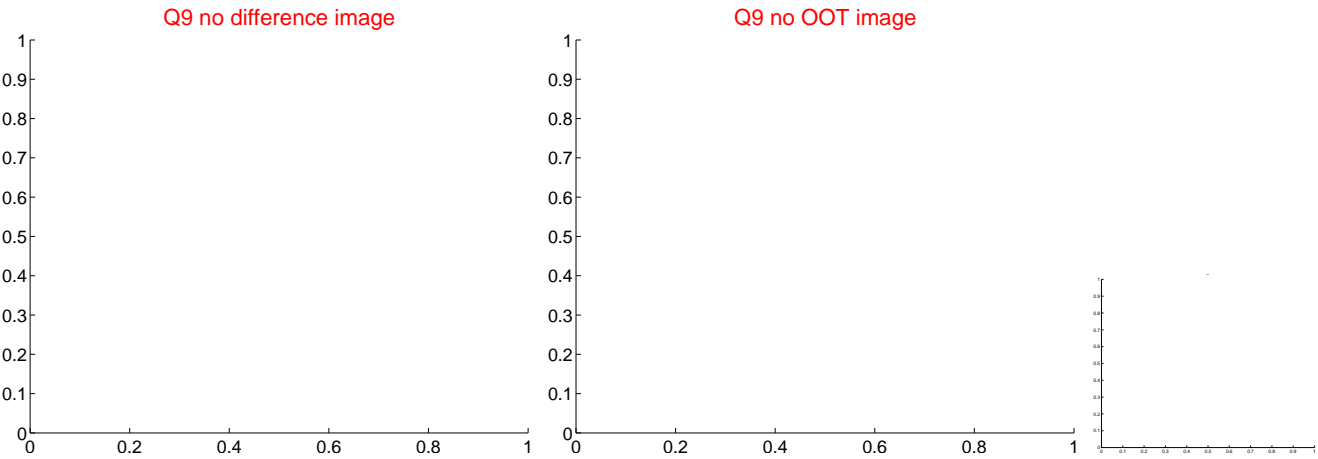
Q4 OOT image



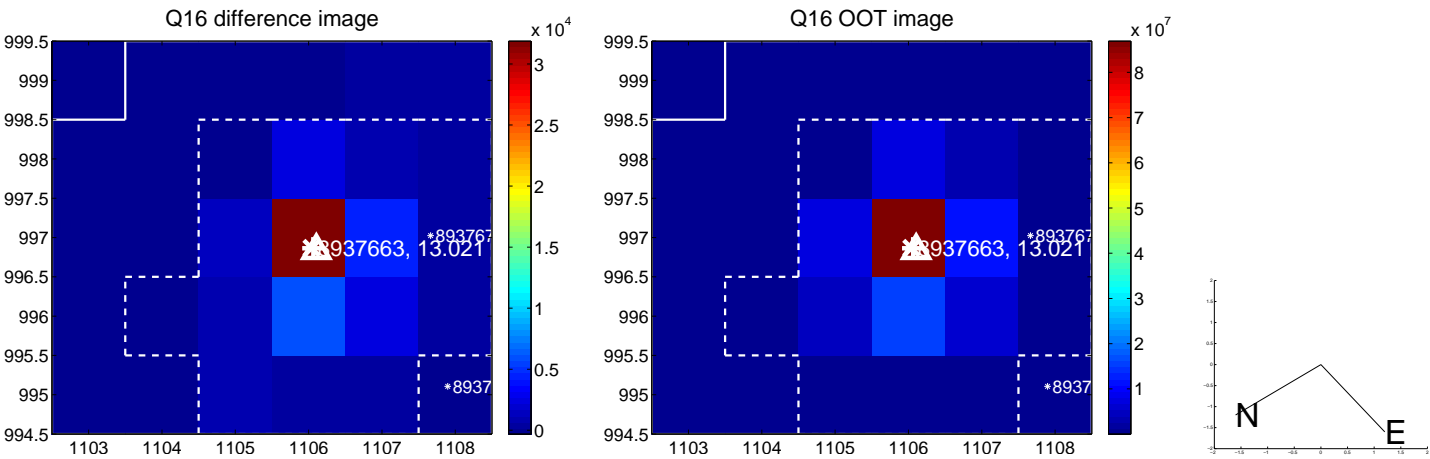
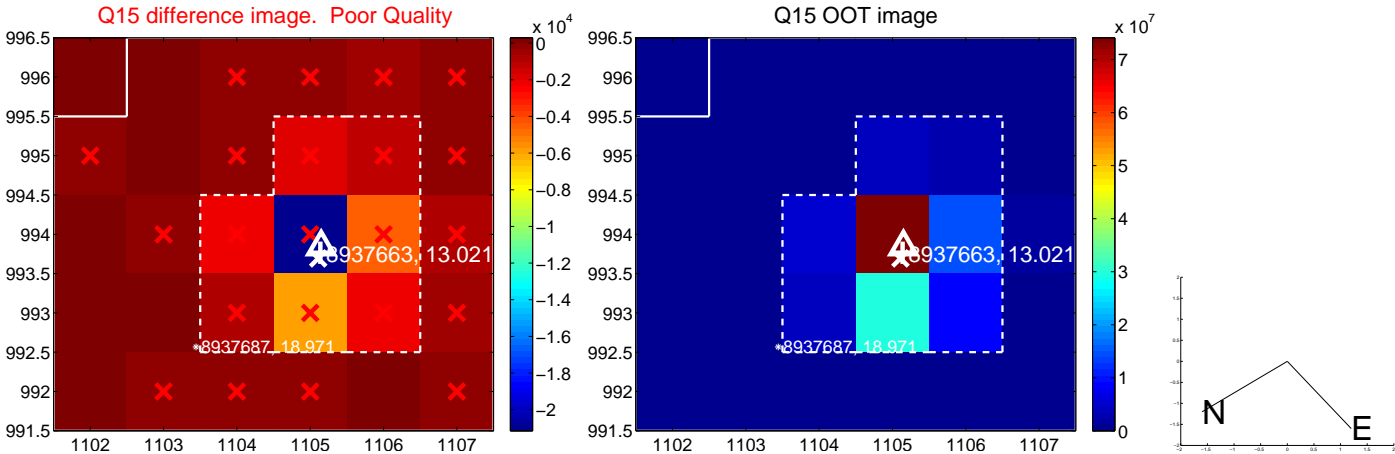
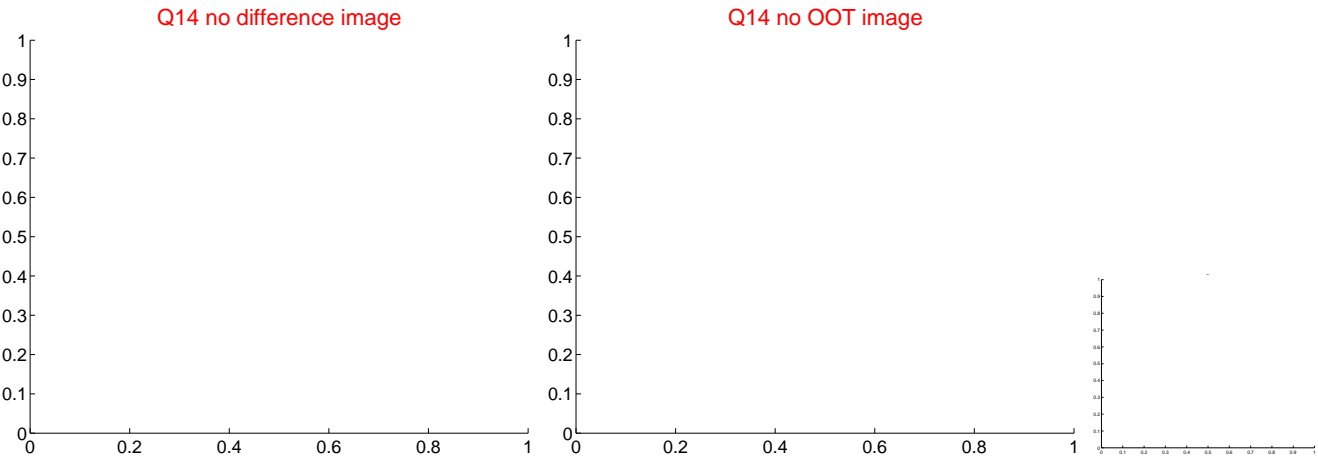
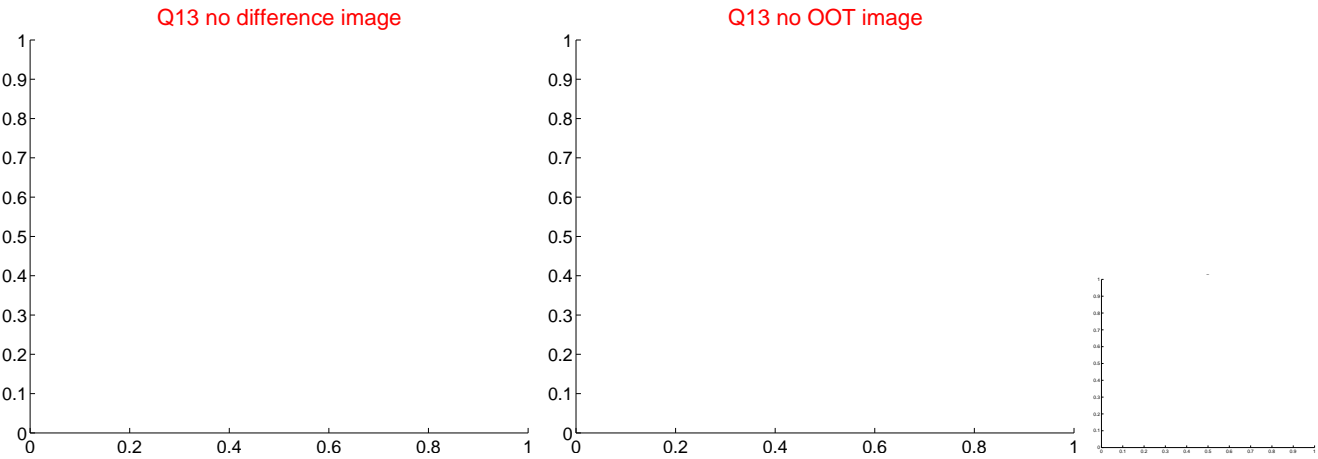
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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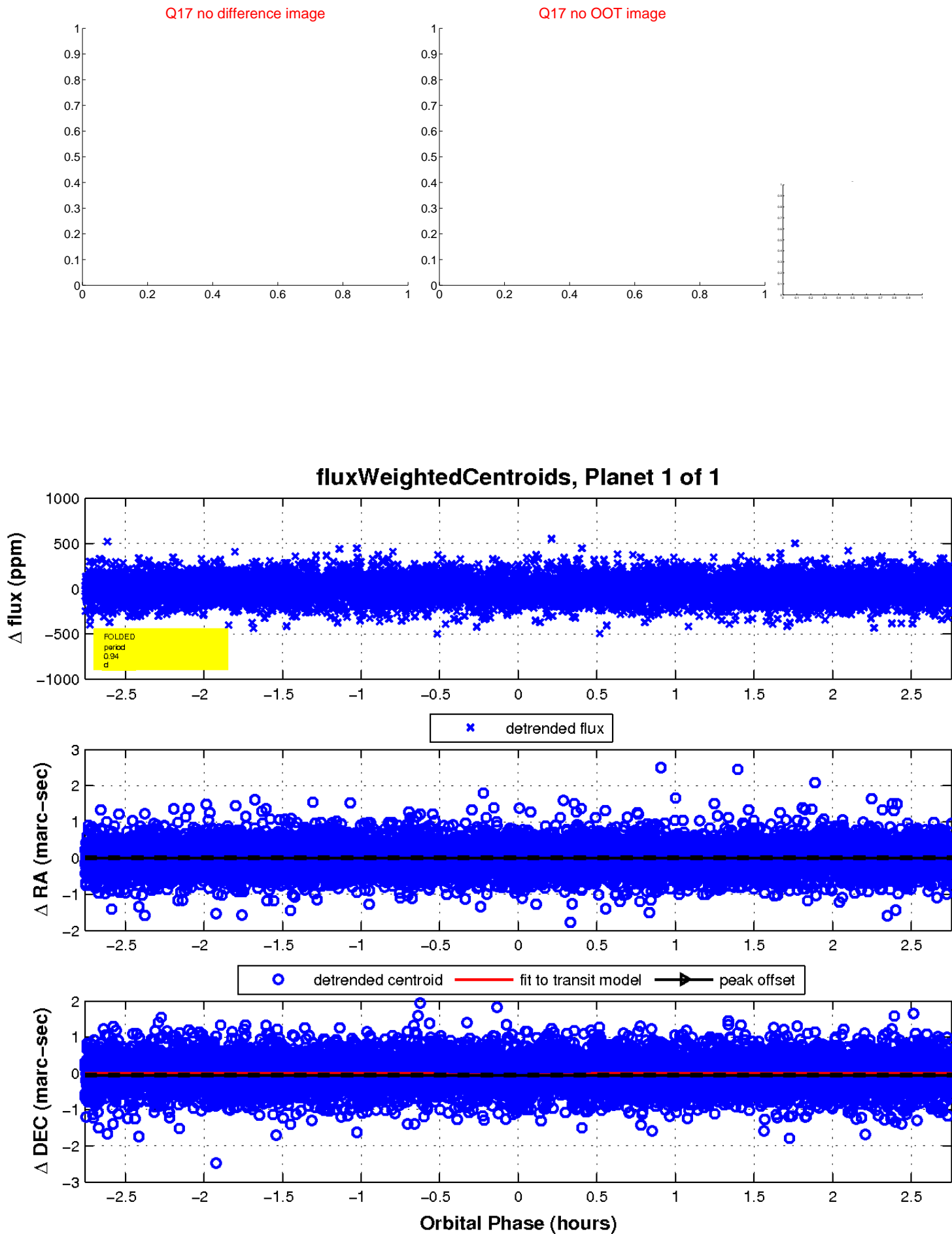


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



# UKIRT Image

Declination

