

# KIC 009273647

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009273647-01	OBS	No	1.074913	131.620087	6.3	1.715	11.0	11.6	2.16	7046	0.63	19845.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009273647-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT SATURATED

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

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

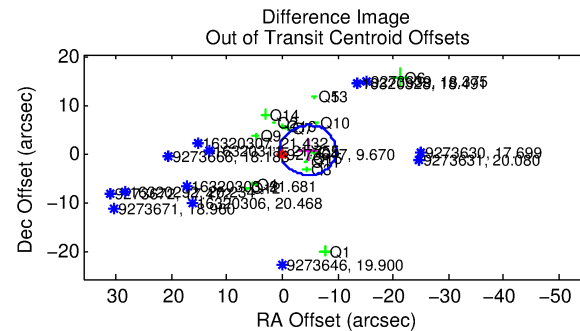
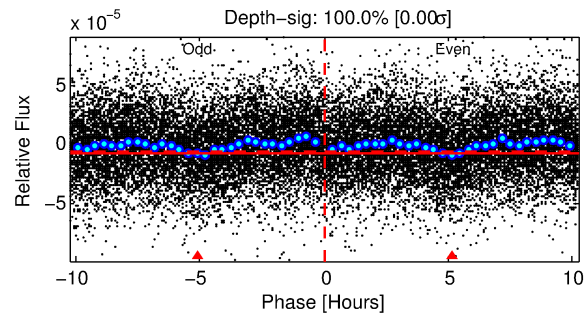
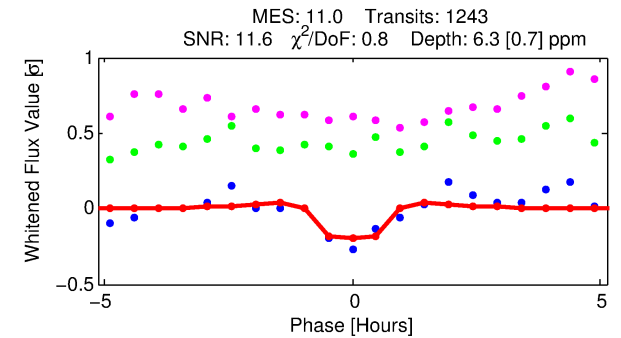
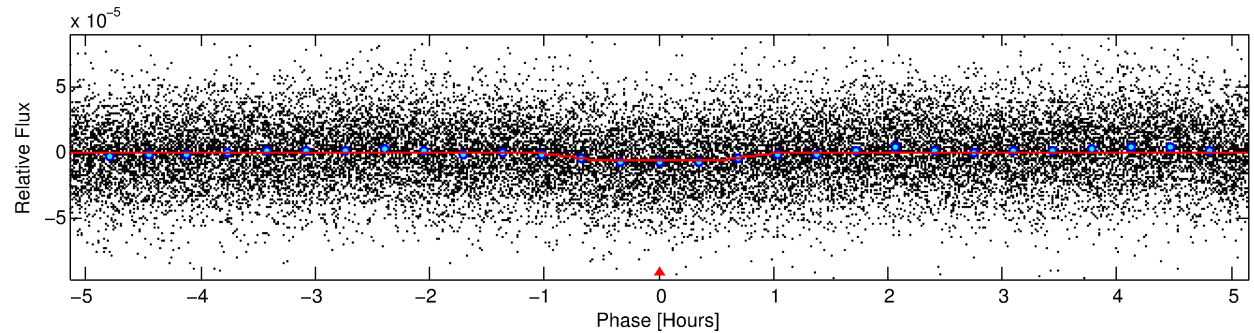
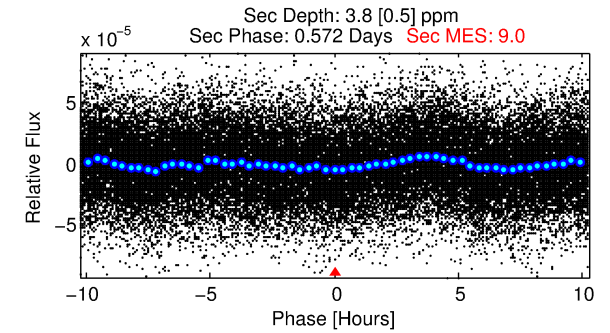
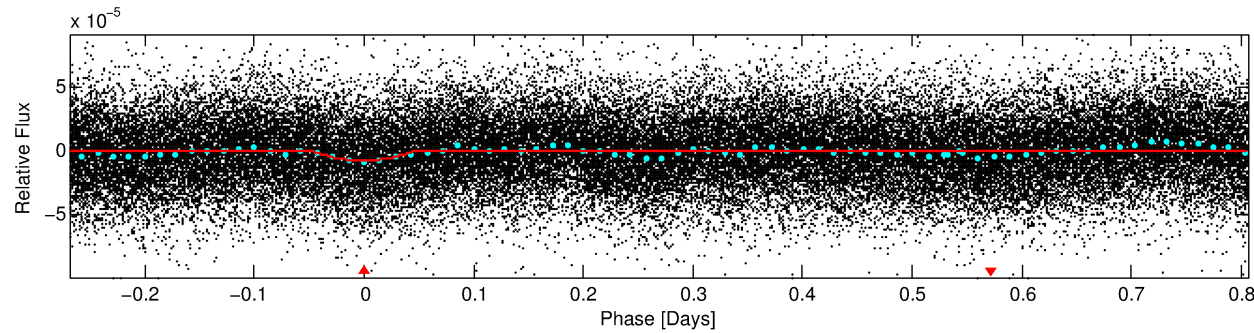
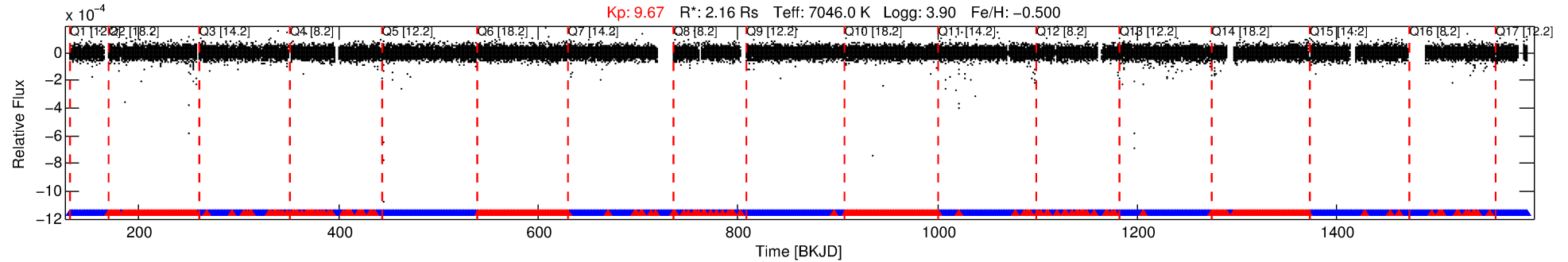
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009273647-01

No Significant Match Found

# DV One-Page Summary

KIC: 9273647 Candidate: 1 of 1 Period: 1.075 d



## DV Fit Results:

Period = 1.07491 [0.00001] d  
Epoch = 131.6201 [0.0018] BKJD  
Rp/R\* = 0.0027 [0.0002]  
a/R\* = 2.31 [0.83]  
b = 0.90 [0.09]  
Seff = 19845.94 [13083.79]  
Teq = 3027 [499] K  
Rp = 0.63 [0.27] Re  
a = 0.0228 [0.0091] AU  
Ag = 2.70 [1.82] [0.93σ]  
Teffp = 6000 [407] K [4.62σ]

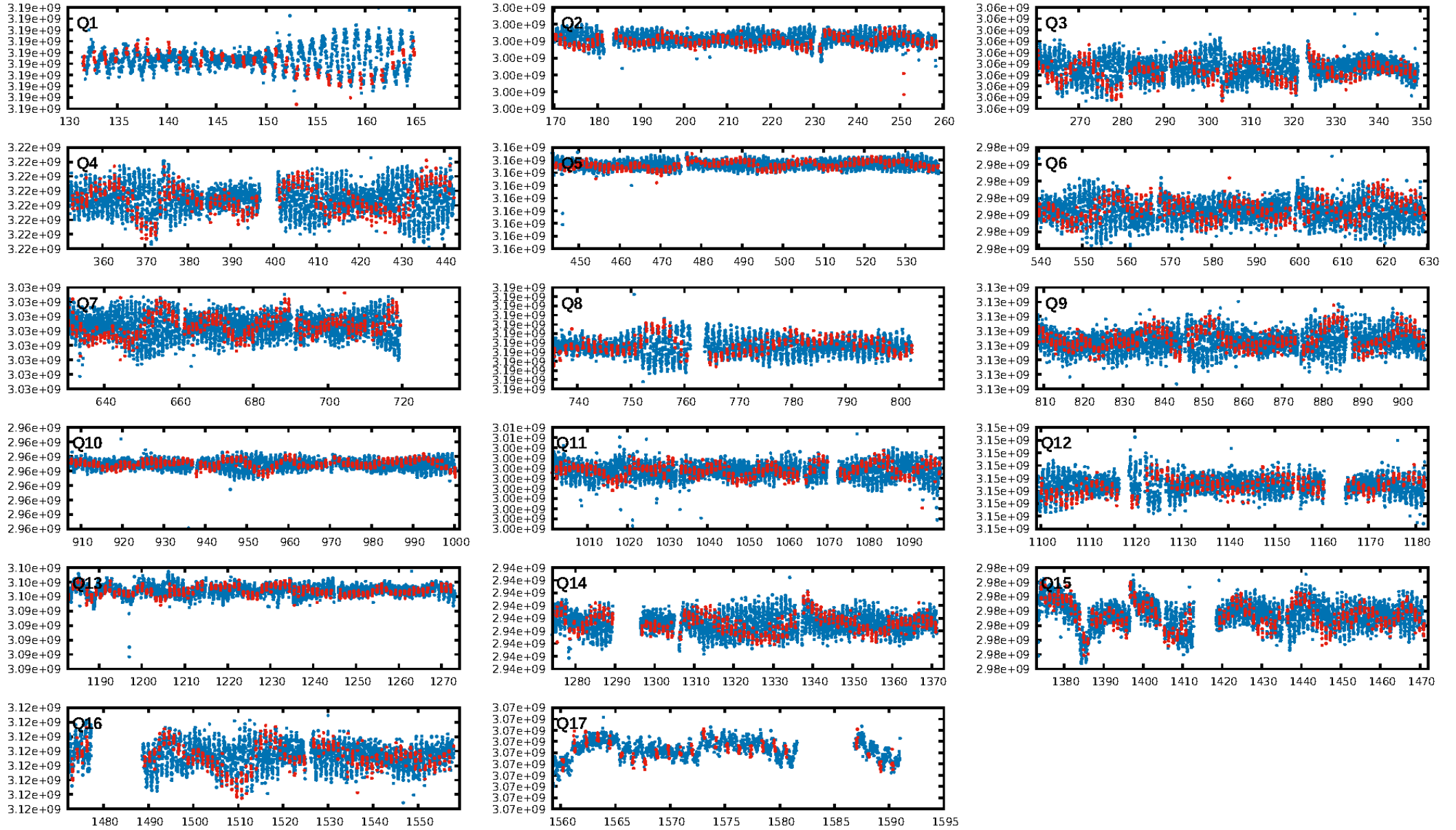
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.52e-26  
RollingBand-fgt: 0.62 [739/1187]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.2%  
Centroid-so: 2.767 arcsec [1.71σ]  
OotOffset-rm: 4.715 arcsec [2.78σ]  
KicOffset-rm: 2.801 arcsec [1.70σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.06 [1/16]  
DiffImageOverlap-fno: 1.00 [17/17]

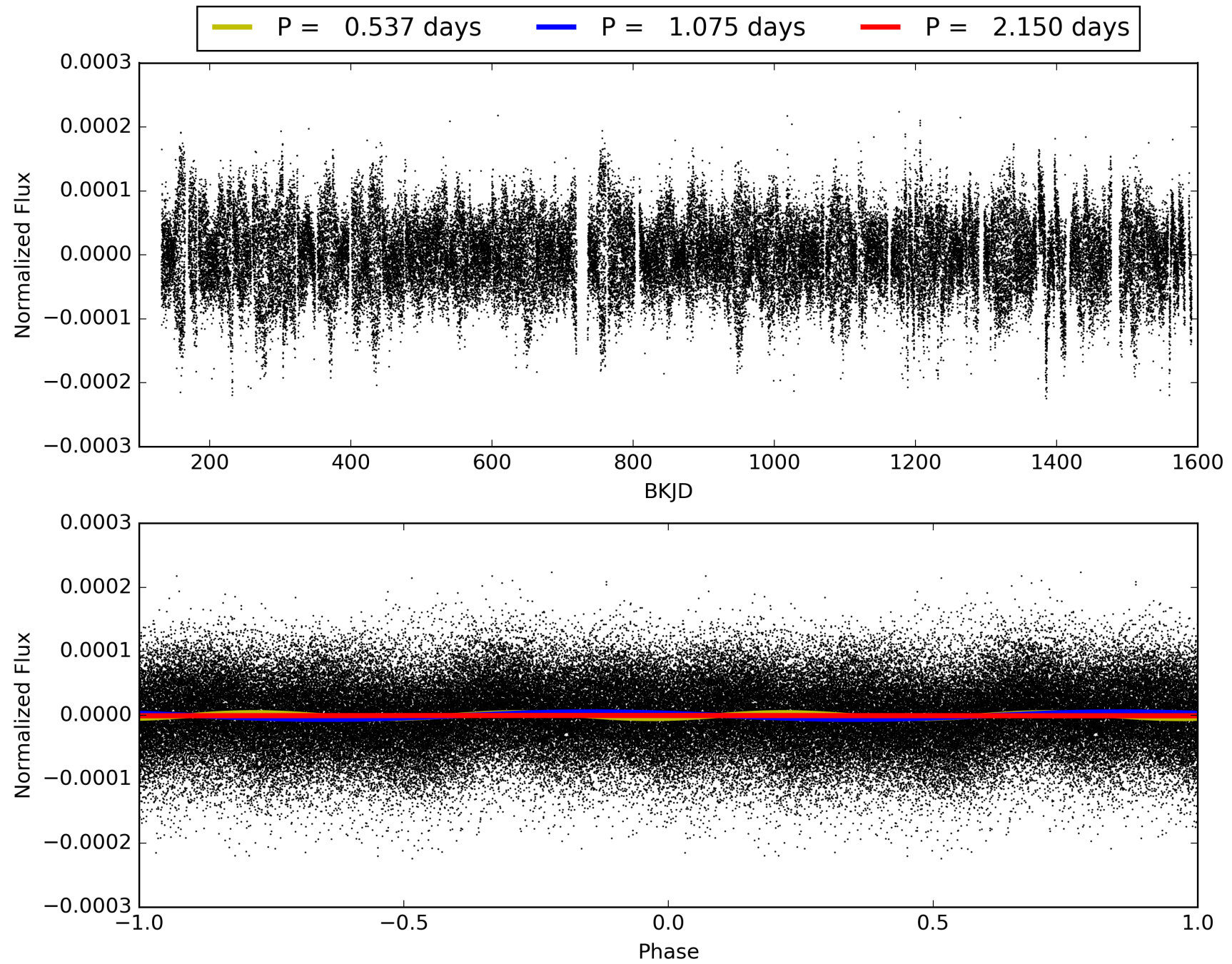
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:24:30 Z

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

# TCE 009273647-01, PDC Light Curves

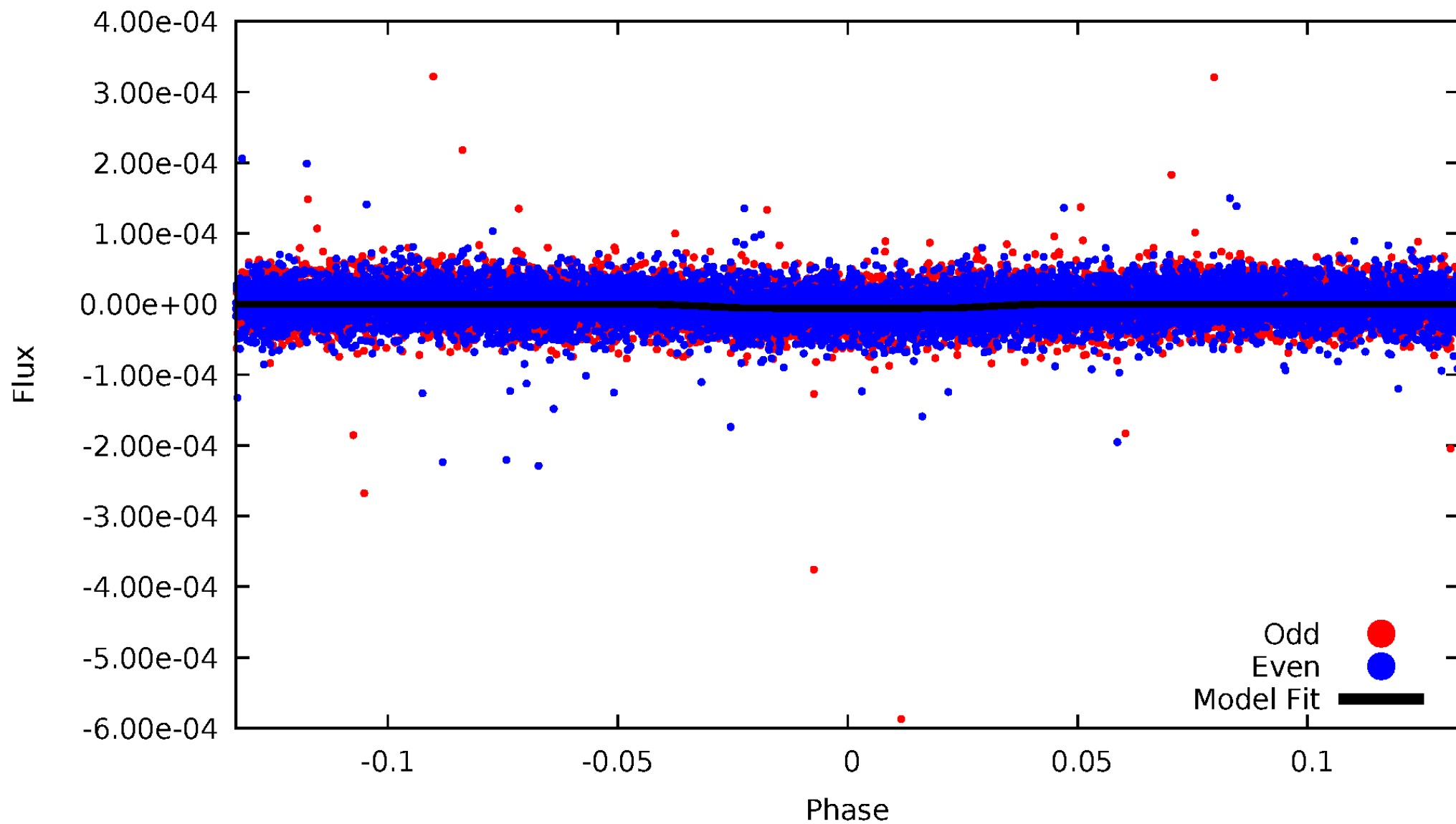


TCE 009273647-01



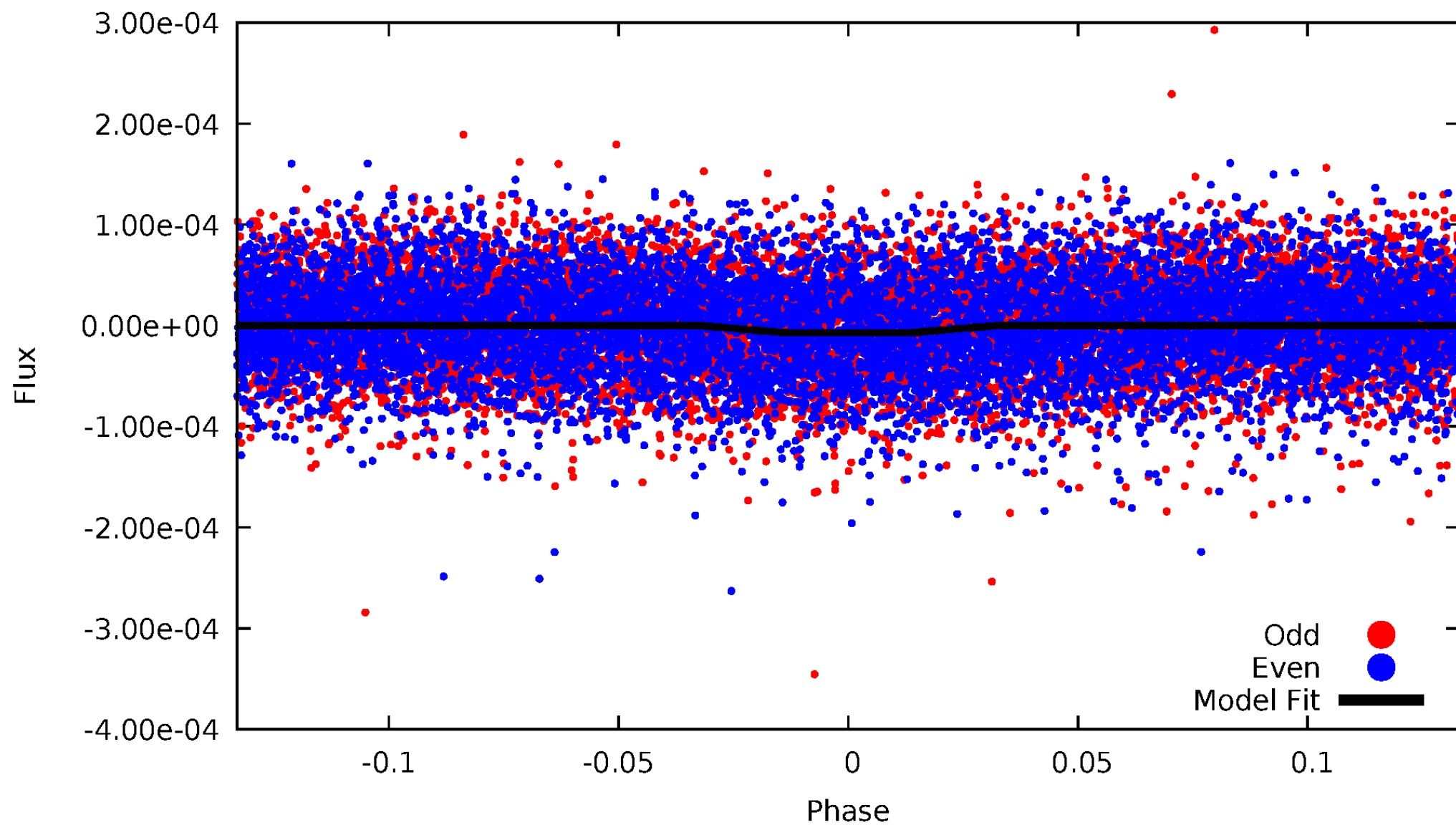
# DV Odd/Even

TCE 009273647-01



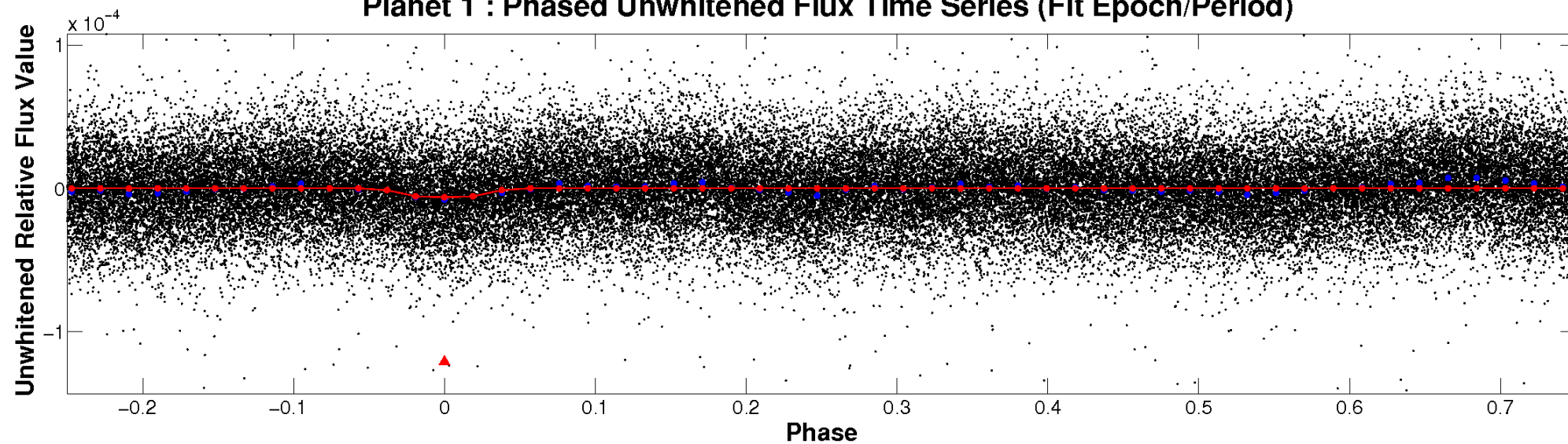
# ALT Odd/Even

TCE 009273647-01

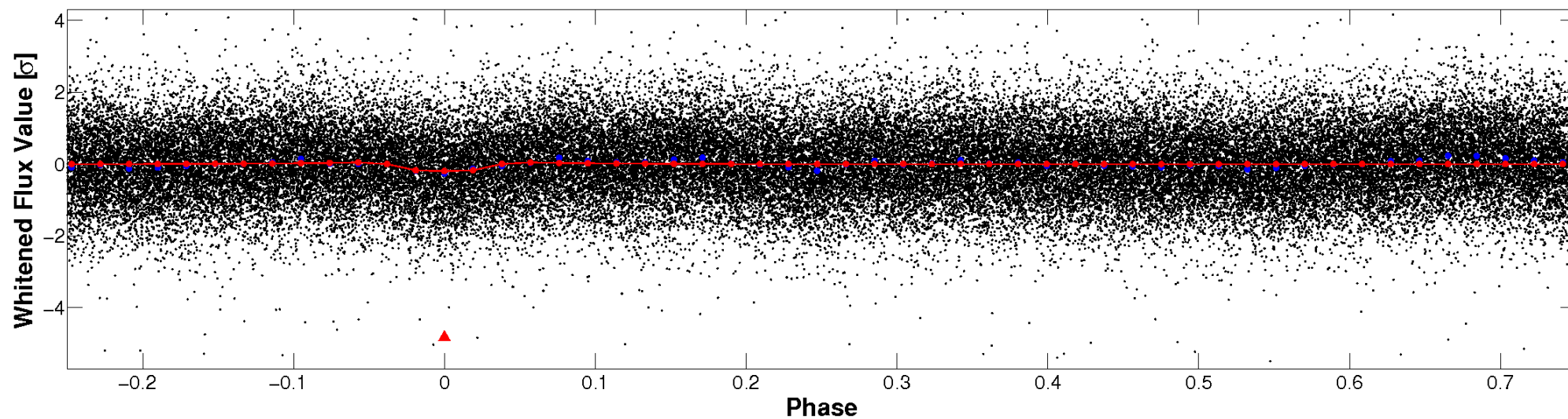


# Non-Whitened Vs. Whitened Light Curve

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

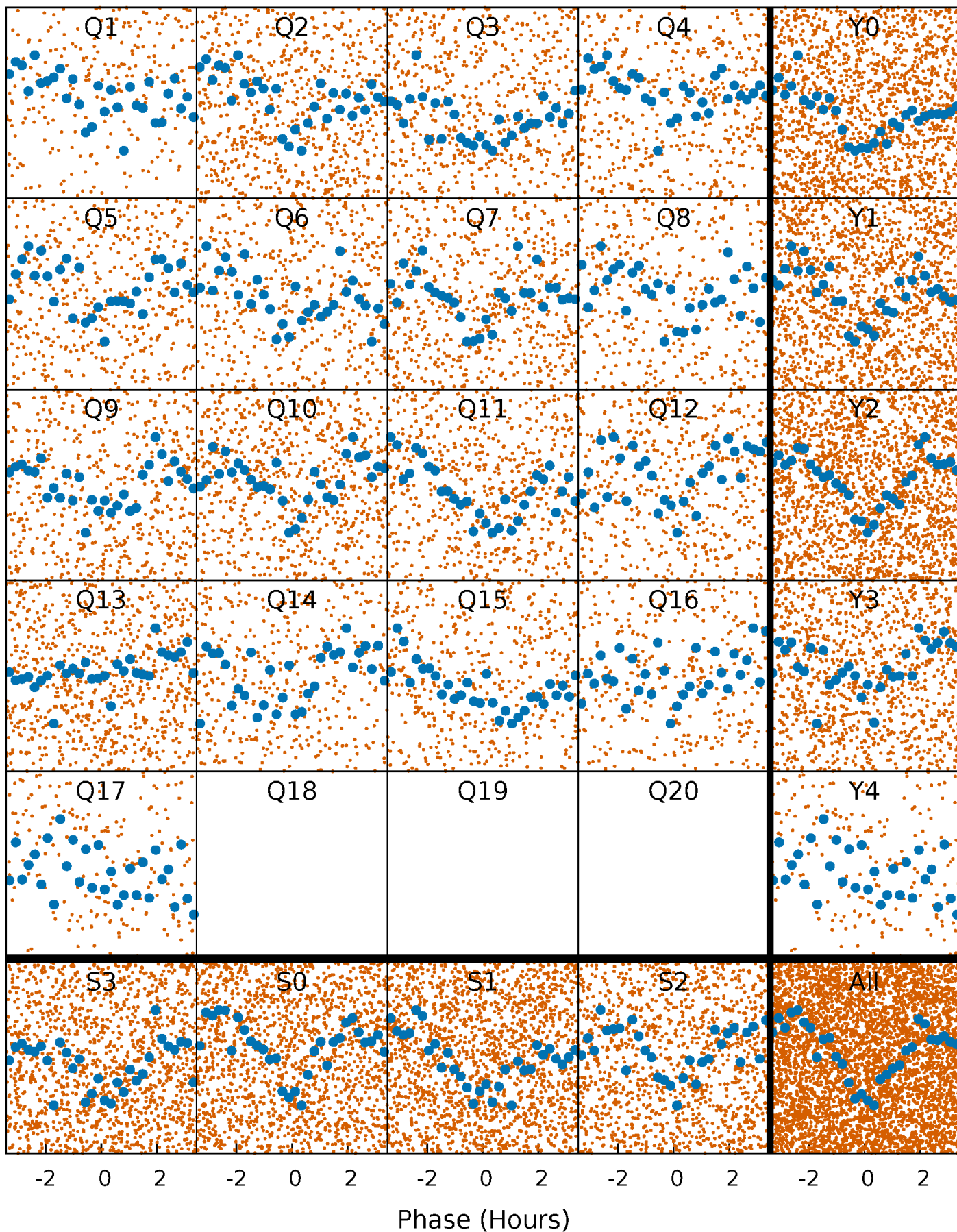


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



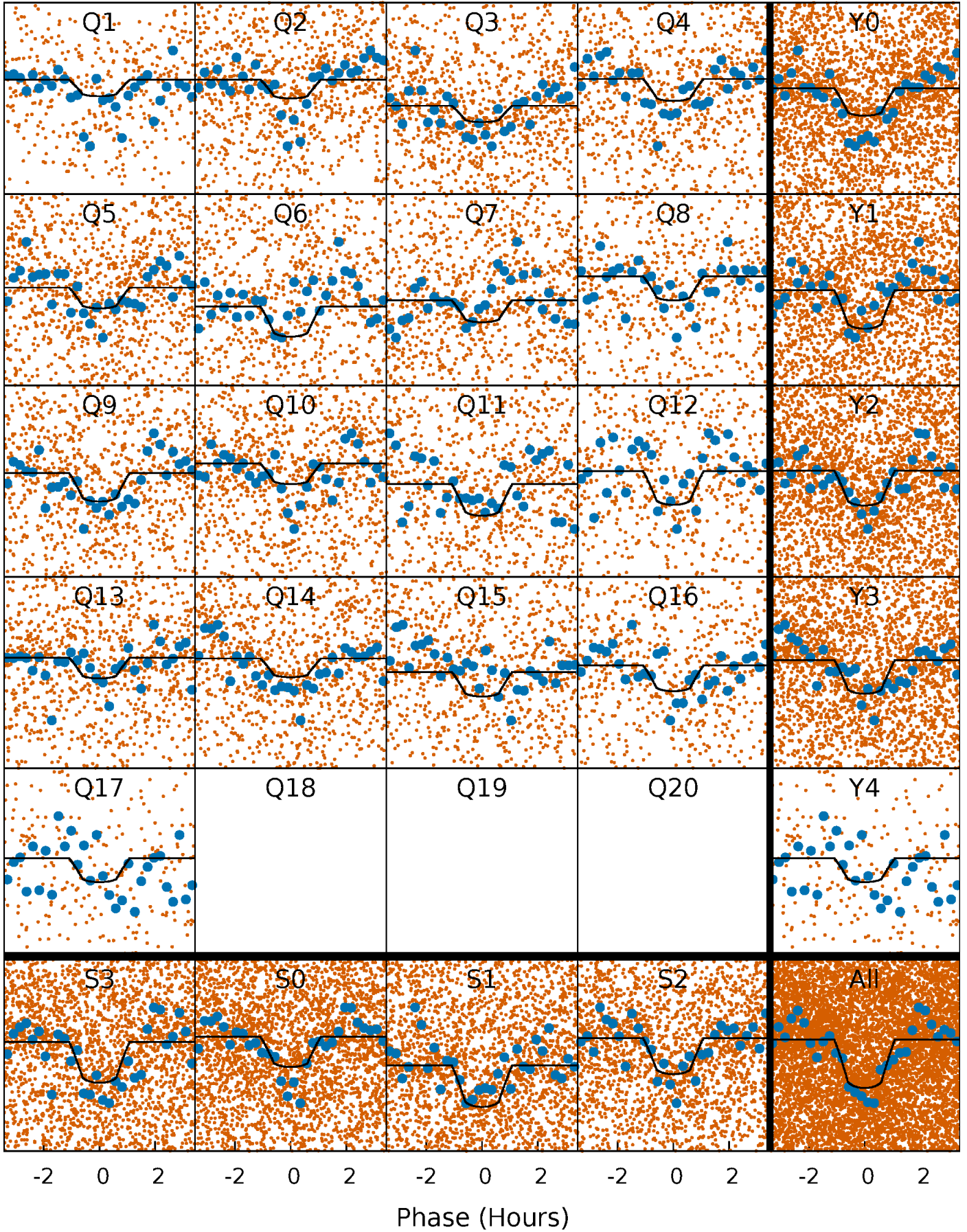
# PDC Quarter-Phased Transit Curves

TCE 009273647-01 P= 1.074913 Days  $T_0=131.620087$  (BKJD)



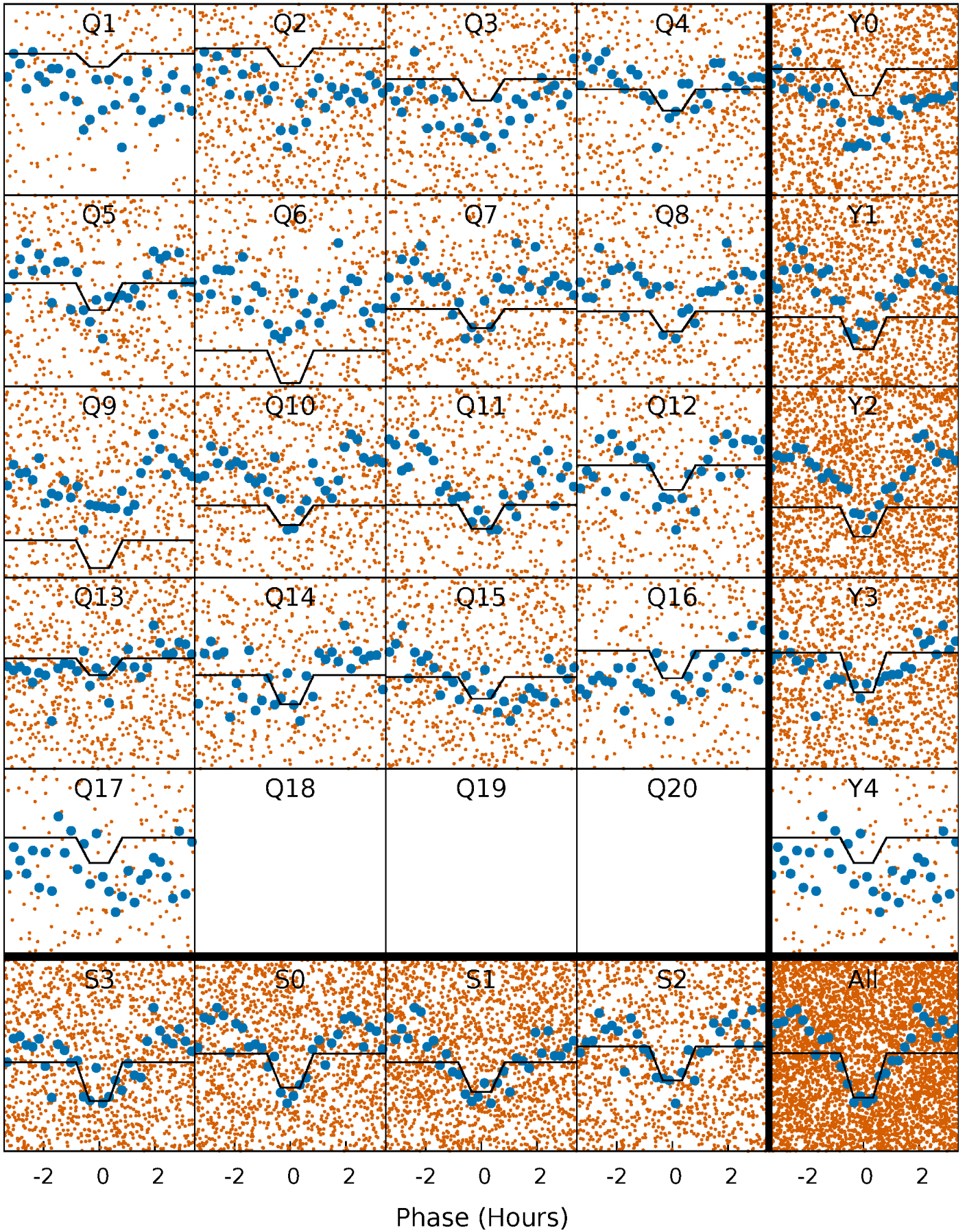
# DV Quarter-Phased Transit Curves

TCE 009273647-01 P= 1.074913 Days  $T_0=131.620087$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

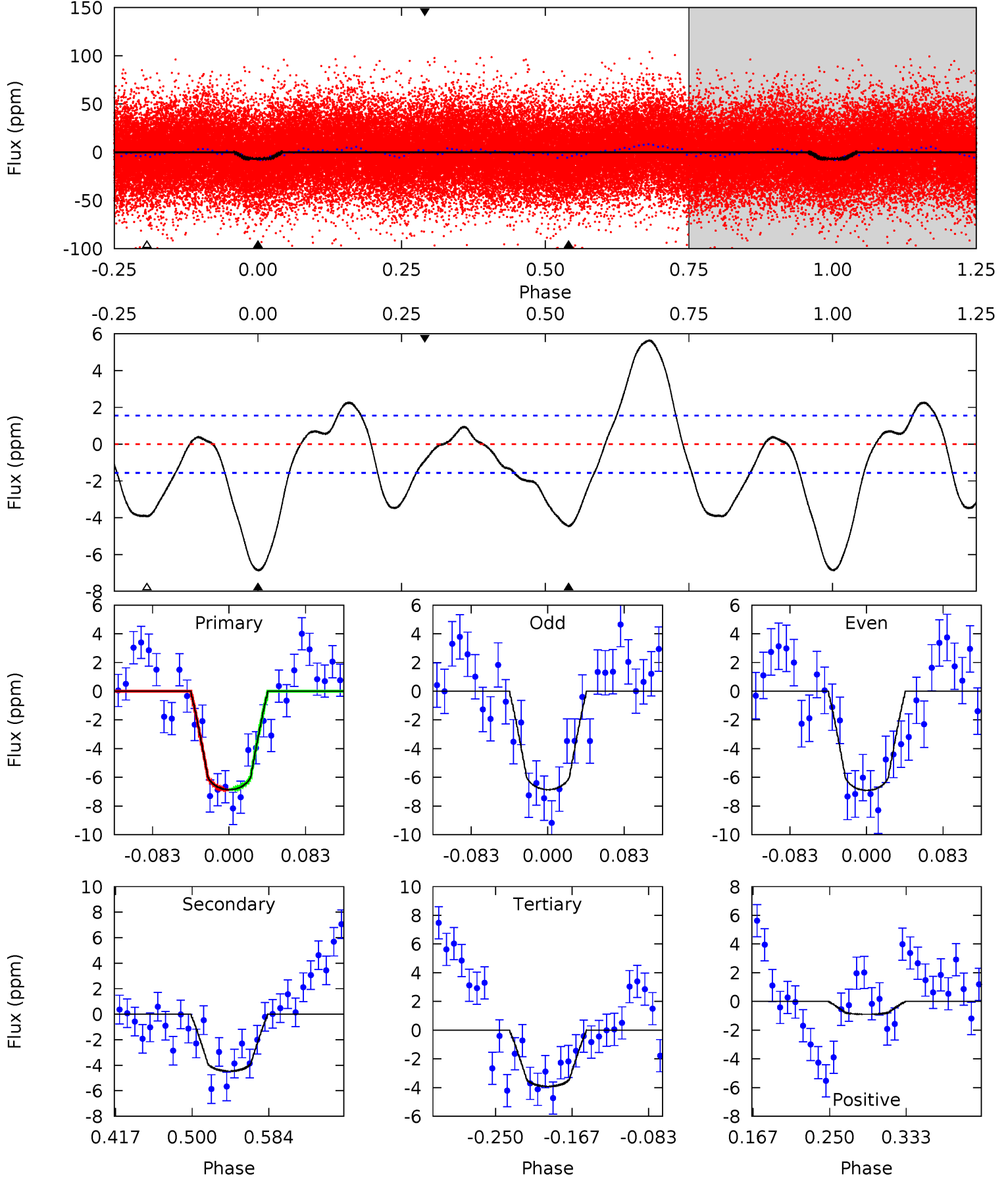
TCE 009273647-01 P= 1.074913 Days  $T_0=131.620087$  (BKJD)



# DV Model-Shift Uniqueness Test

009273647-01, P = 1.074913 Days, E = 130.545174 Days

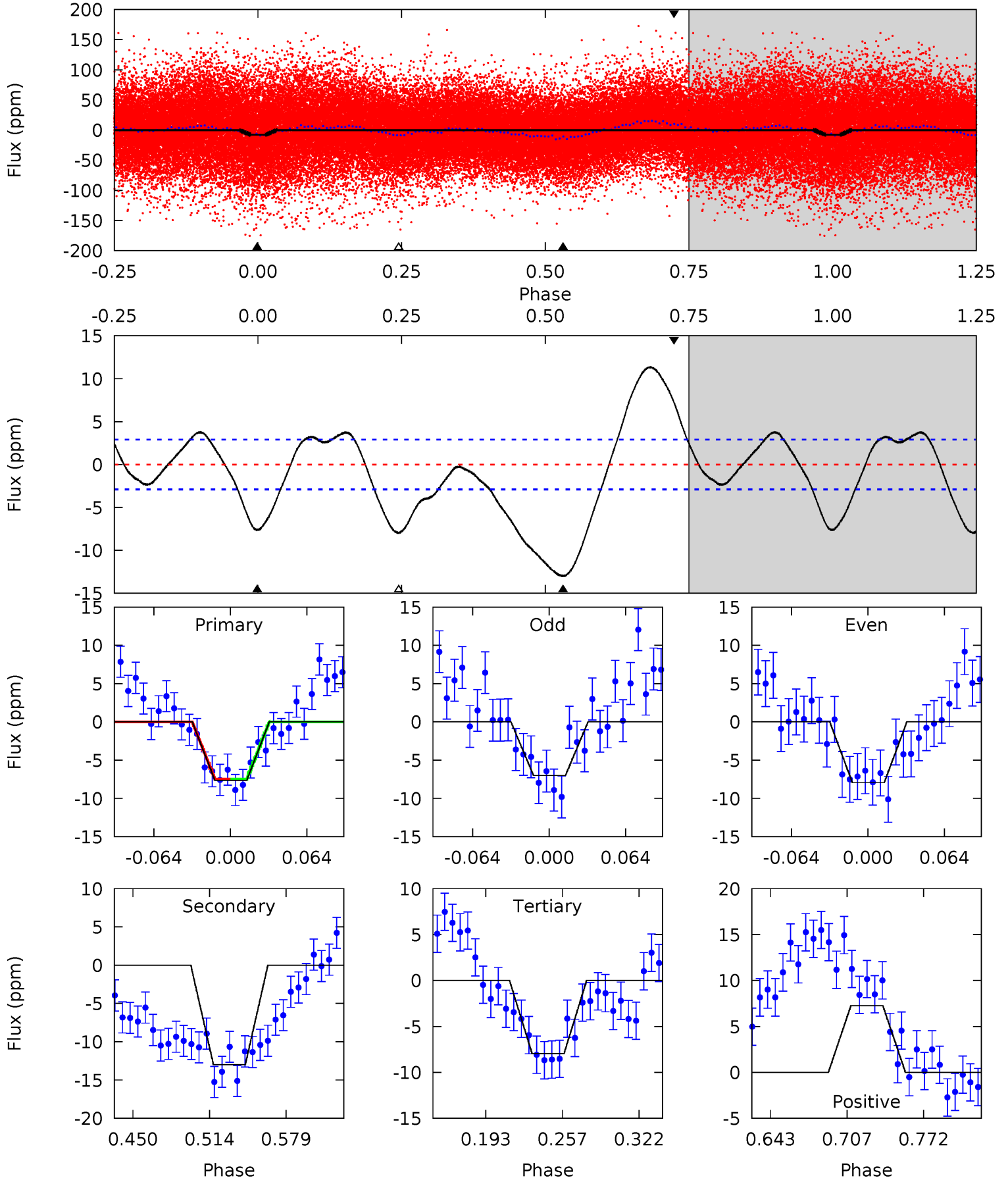
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	13.2	11.6	-2.65	4.60	1.73	7.20	8.69	22.9	1.60	15.8	0.08	1.00	0.45	0.06



# Alt Model-Shift Uniqueness Test

009273647-01, P = 1.074913 Days, E = 130.545174 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
12.3	20.9	12.8	11.6	4.66	1.85	7.72	-0.53	0.62	8.07	9.21	0.75	1.13	0.47	0.03



### Stellar Parameters For KIC 009273647

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7046^{+216}_{-288}$	$3.905^{+0.375}_{-0.125}$	$-0.500^{+0.250}_{-0.300}$	$2.164^{+0.483}_{-0.898}$	$1.372^{+0.190}_{-0.285}$	$0.191^{+0.603}_{-0.073}$
	+3%/-4%	+10%/-3%	+50%/-60%	+22%/-41%	+14%/-21%	+316%/-38%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009273647-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 0$	$0.60^{+0.12}_{-0.13}$	$4099^{+335}_{-426}$	$6067^{+374}_{-384}$	$3.592^{+2.131}_{-1.046}$
Alt.	$-13 \pm 1$	$0.60^{+0.12}_{-0.15}$	$4119^{+315}_{-494}$	$8266^{+663}_{-554}$	$10^{+7}_{-3}$

$T_{\text{max}}$  = 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

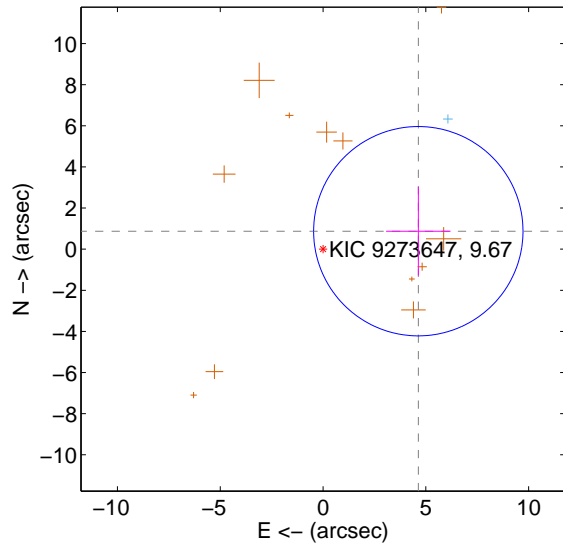
Supplemental centroid analysis for 009273647-01. **Kepler magnitude: 9.67.** Transit SNR 11.57

**There are 1 quarters with good PRF difference image offsets**

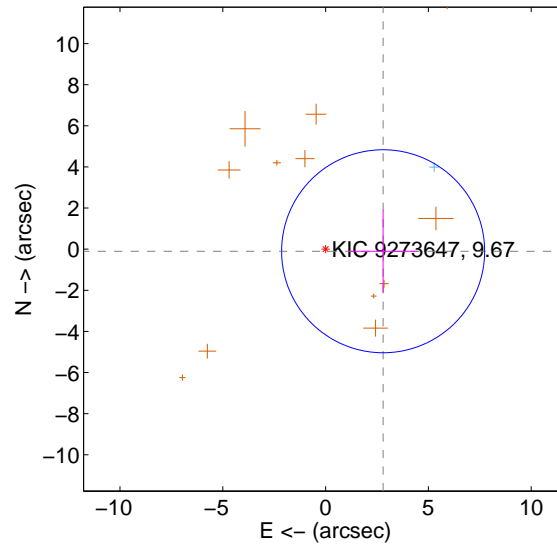
The direct PRF centroid is offset from the target star catalog position by about 1.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.715 \pm 1.697$	2.78	$-4.634 \pm 1.568$	$0.874 \pm 2.156$
PRF-fit source offset from KIC position	$2.801 \pm 1.646$	1.70	$-2.799 \pm 1.671$	$-0.101 \pm 2.012$
photometric centroid source offset	$2.77 \pm 1.61$	1.71	$-0.63 \pm 1.38$	$2.69 \pm 1.63$

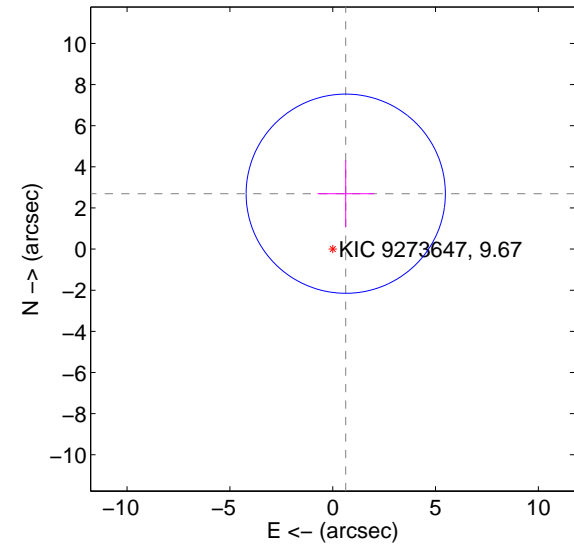
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

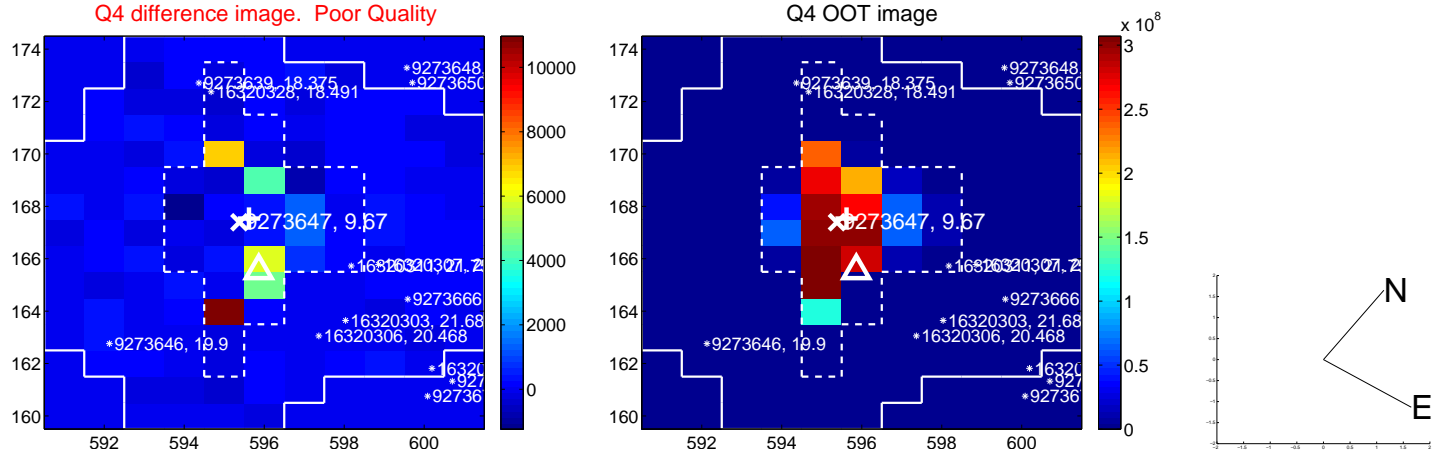
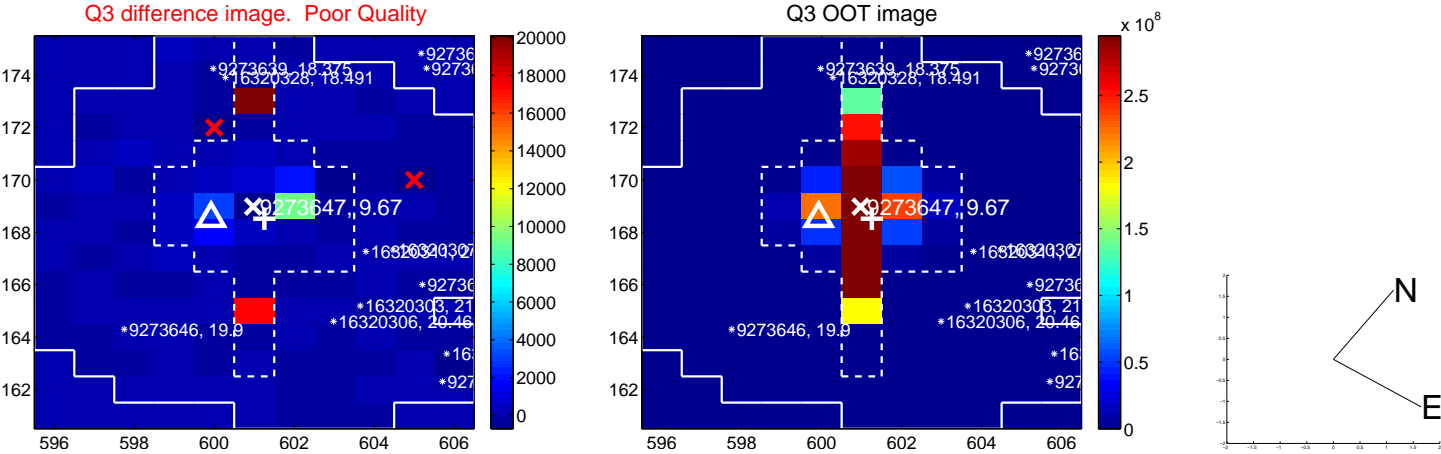
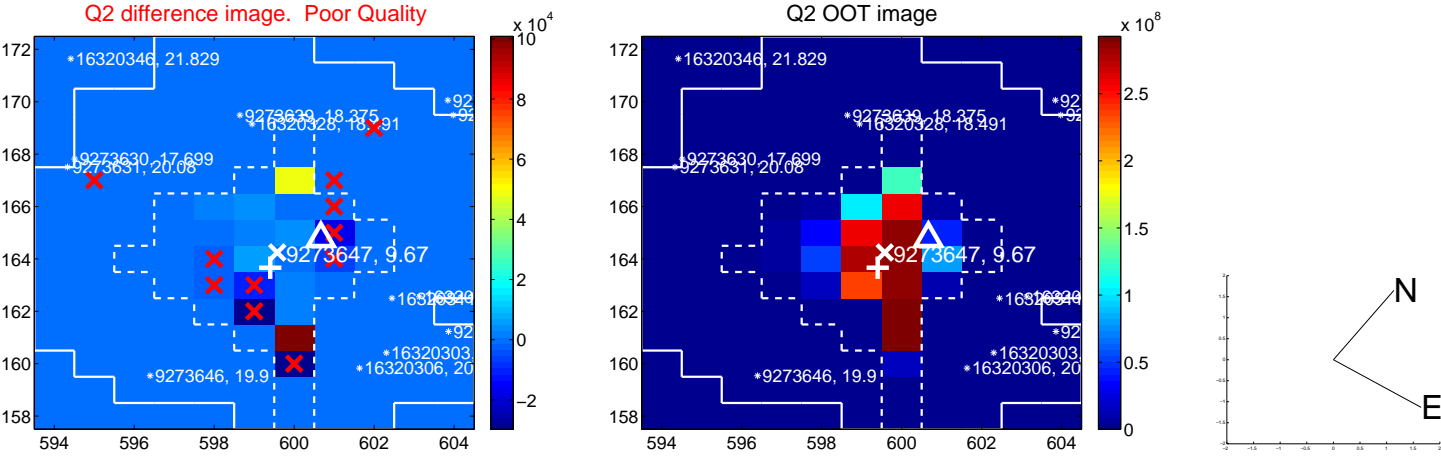
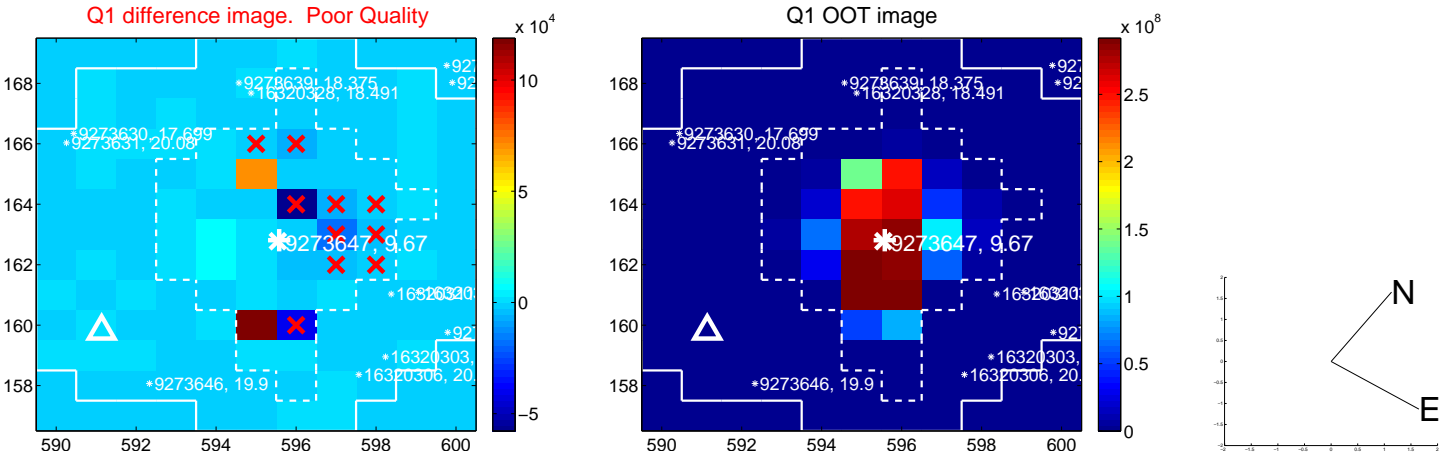


offset from photometric centroids

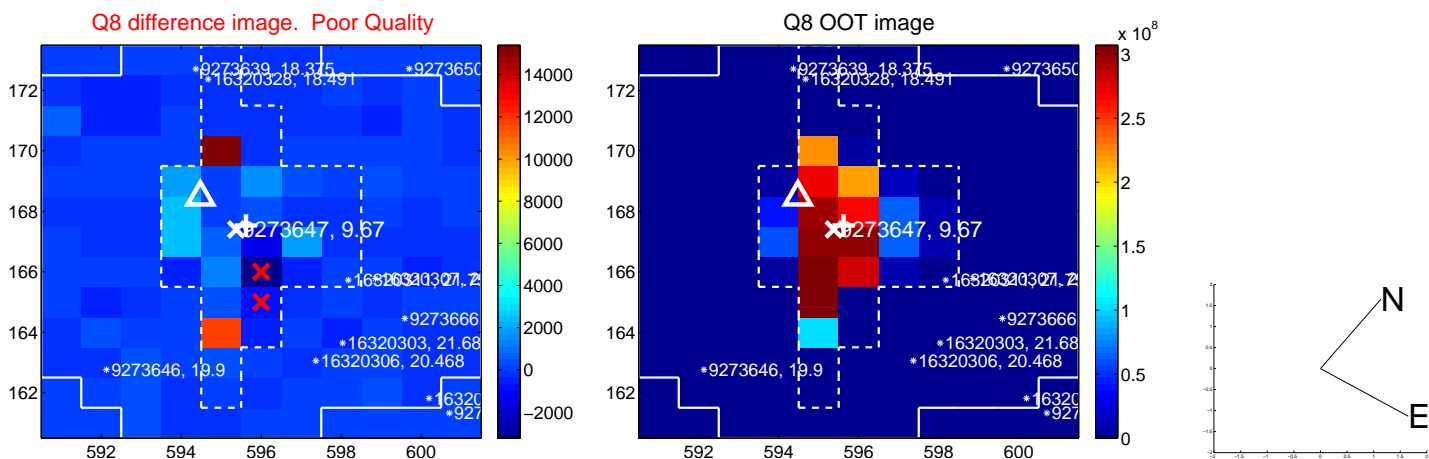
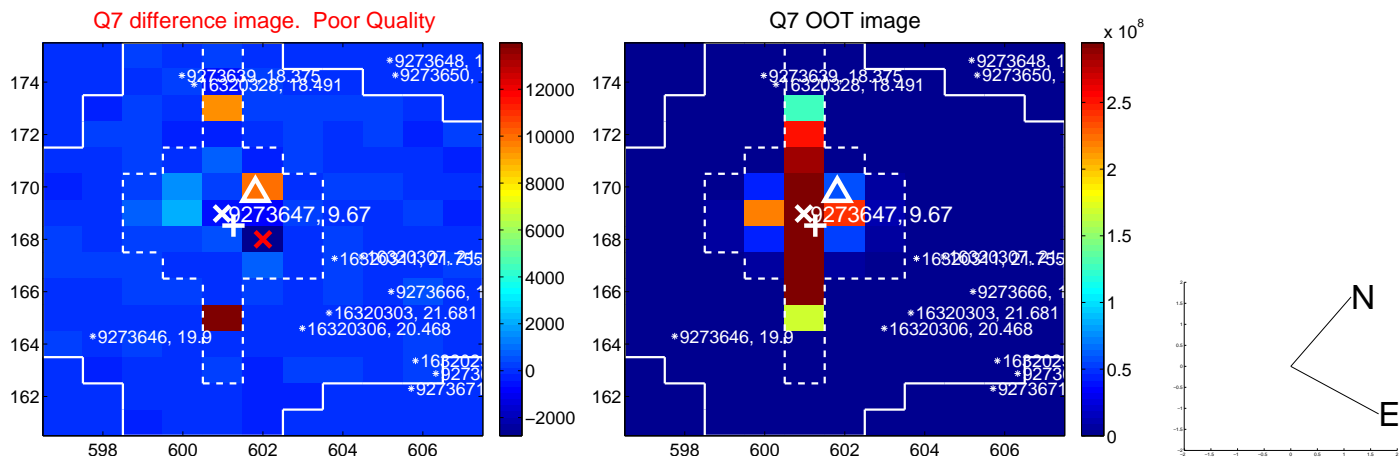
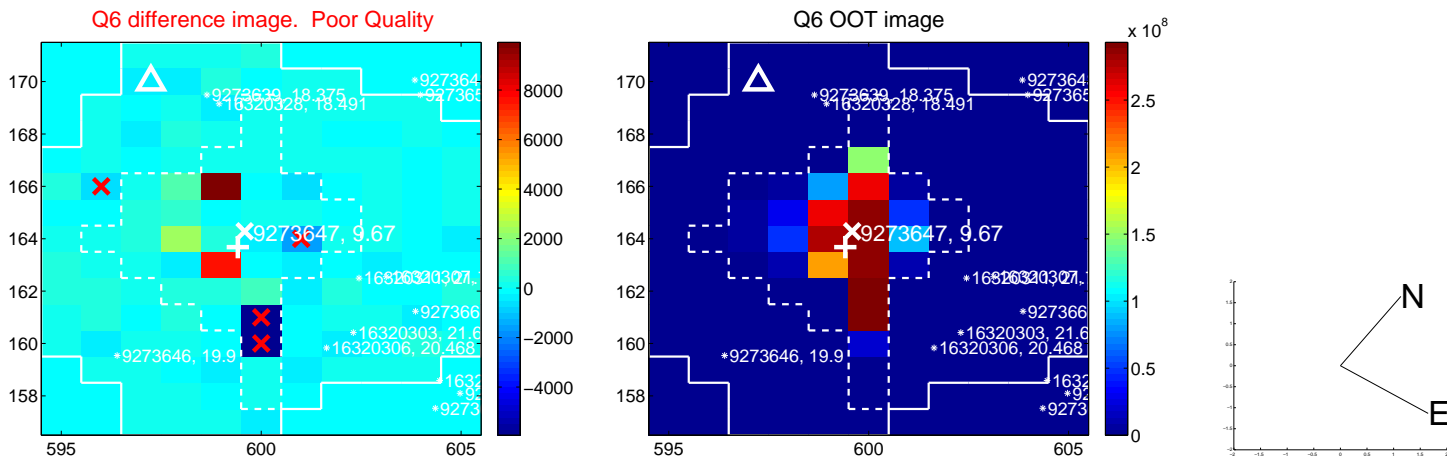
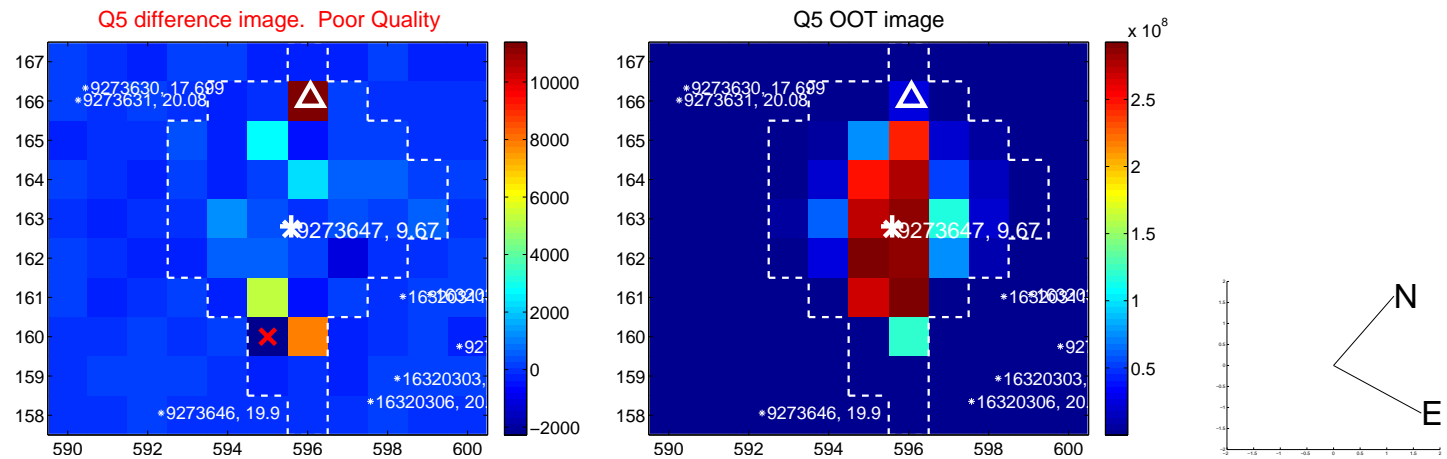


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

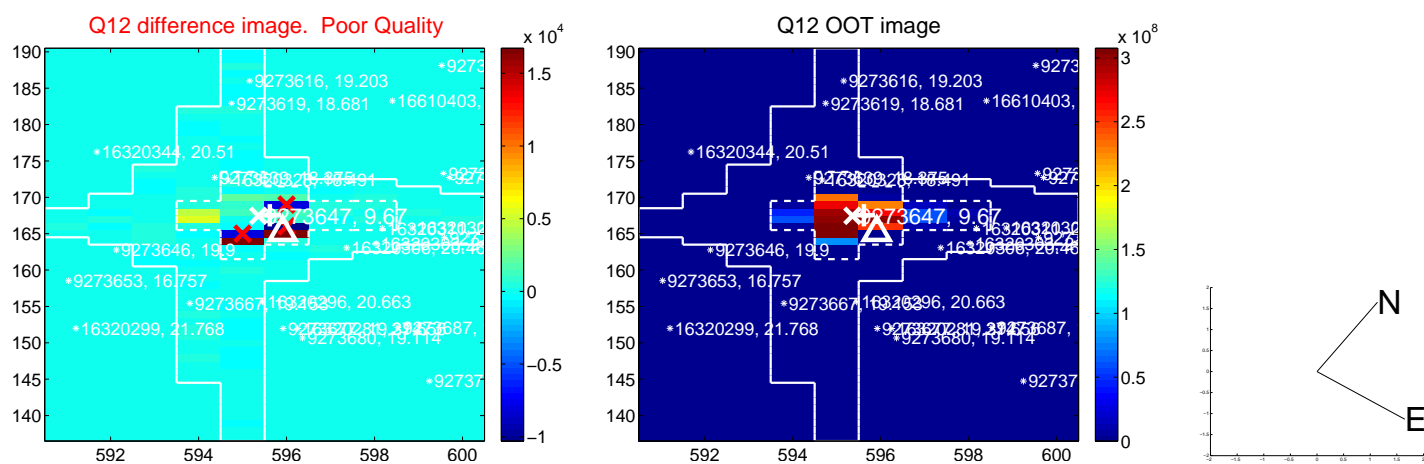
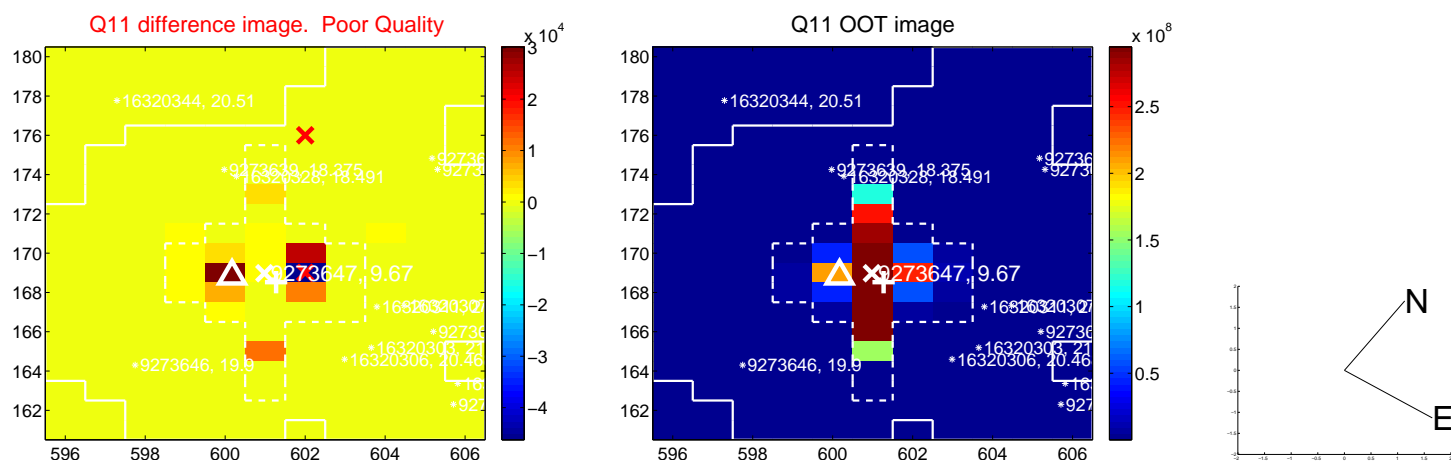
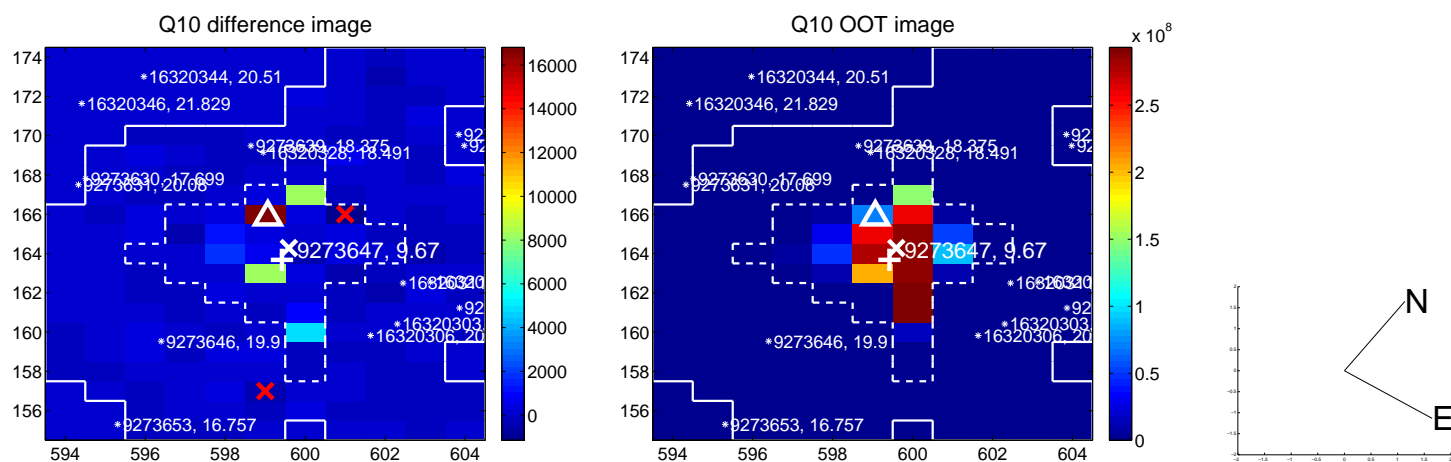
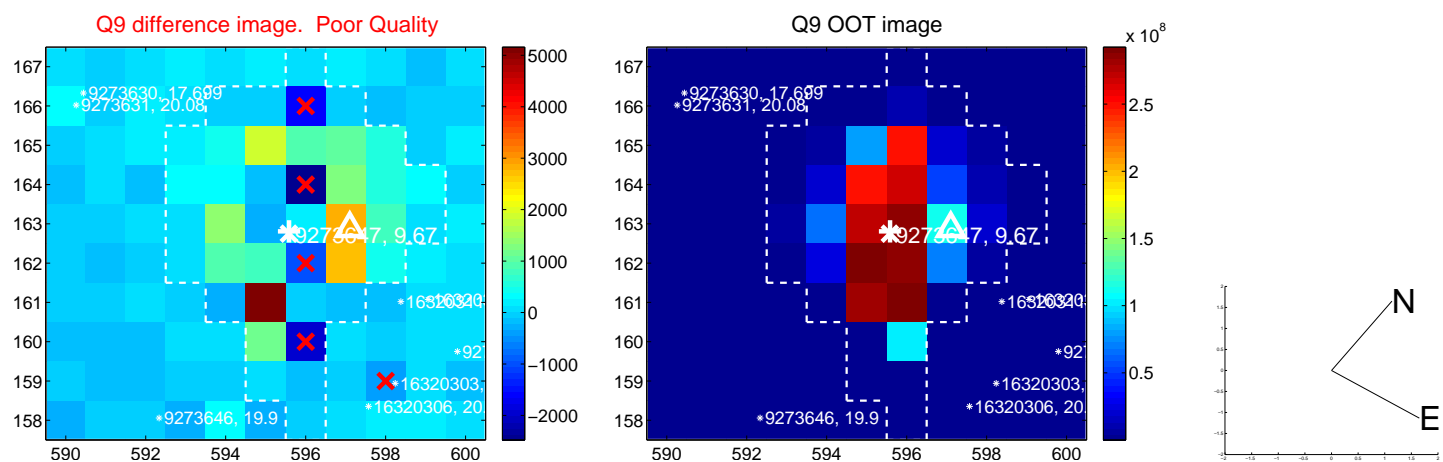
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



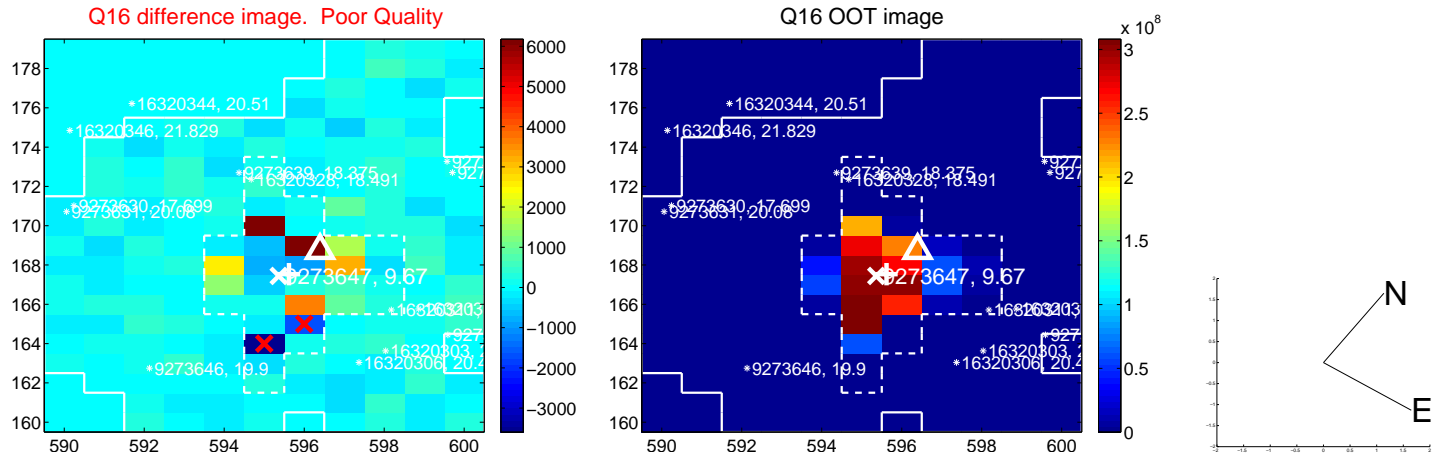
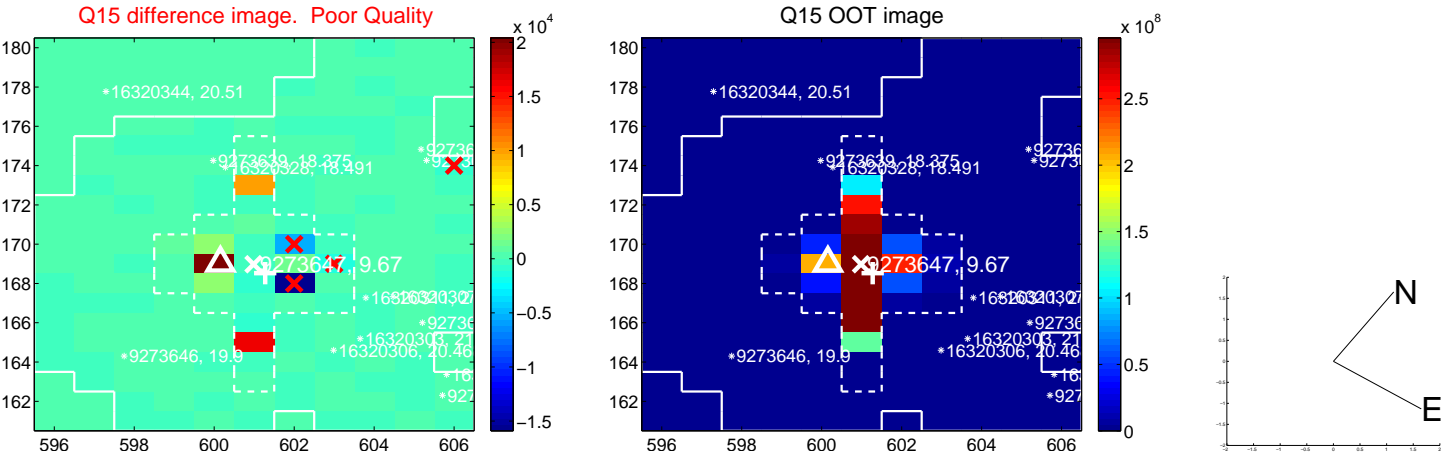
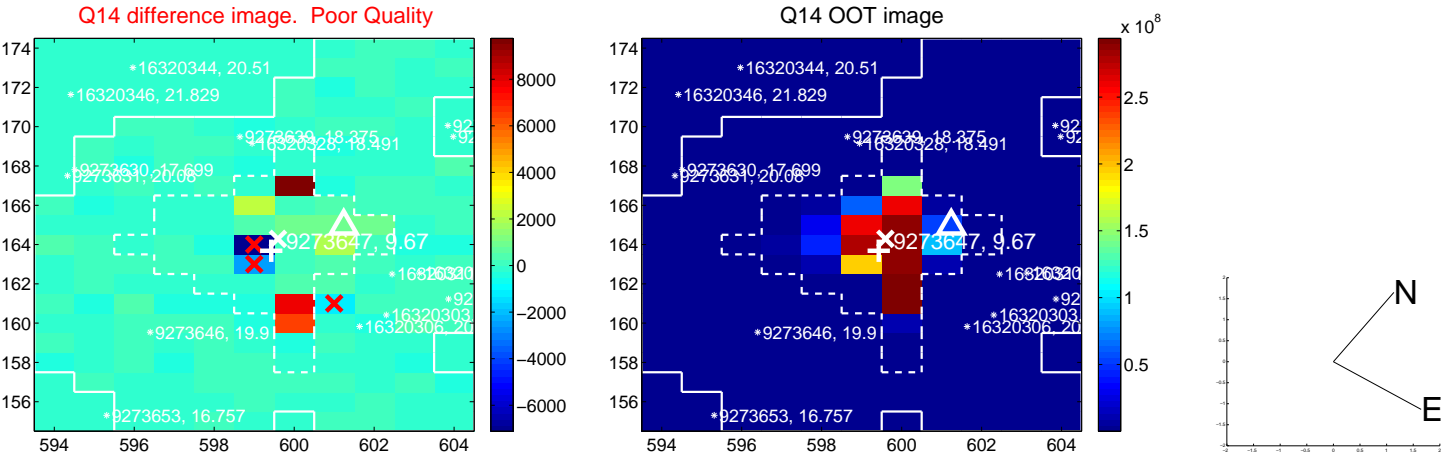
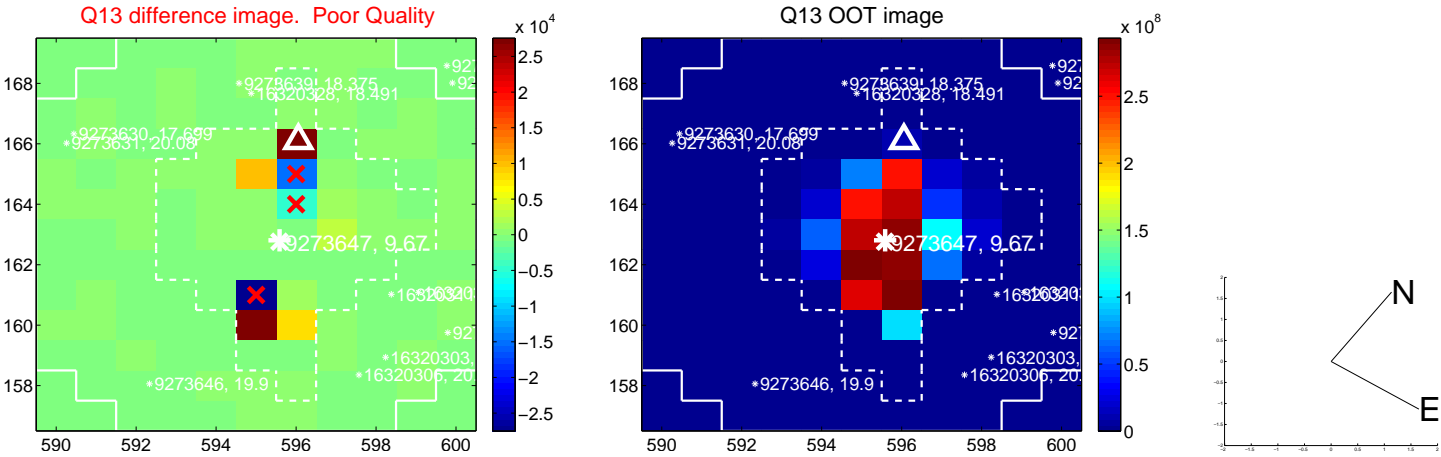
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



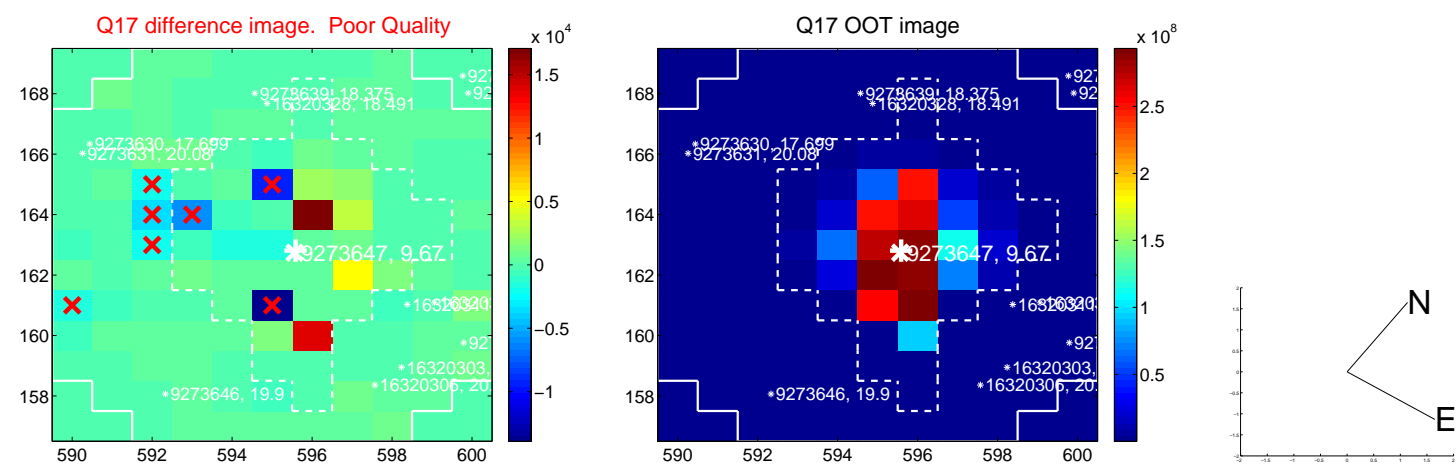
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



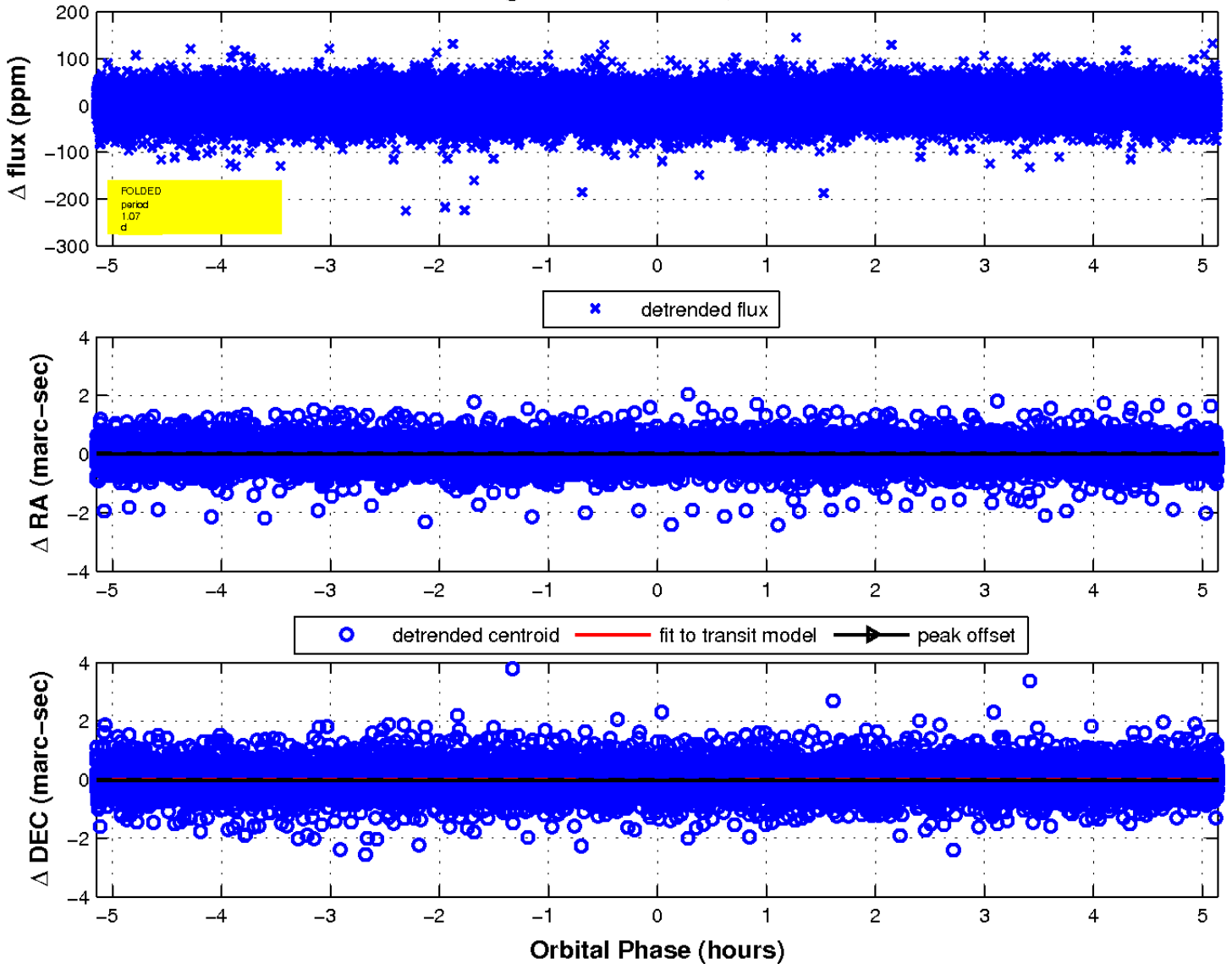
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

