

# KIC 010862354

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010862354-01	OBS	No	3.662879	134.323867	171.5	22.001	9.4	11.3	2.48	6784	4.23	4538.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010862354-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

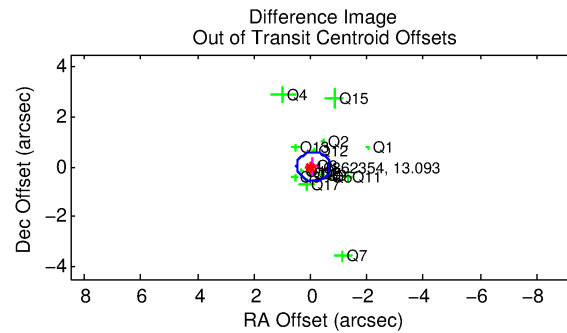
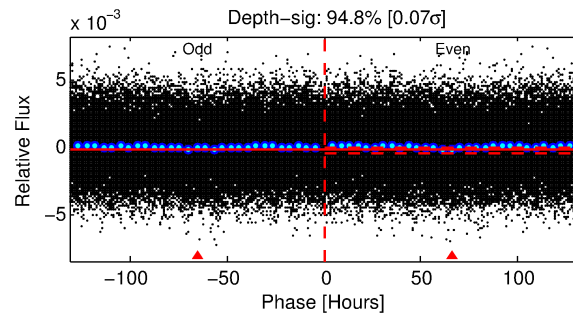
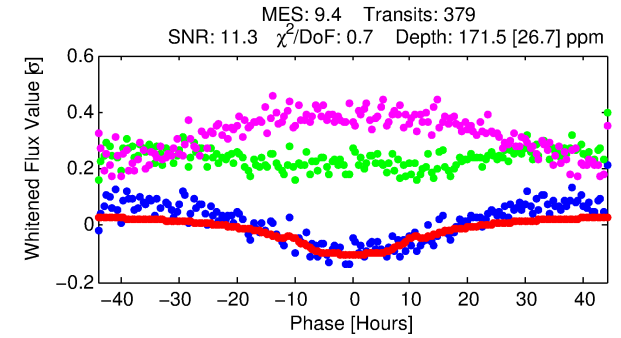
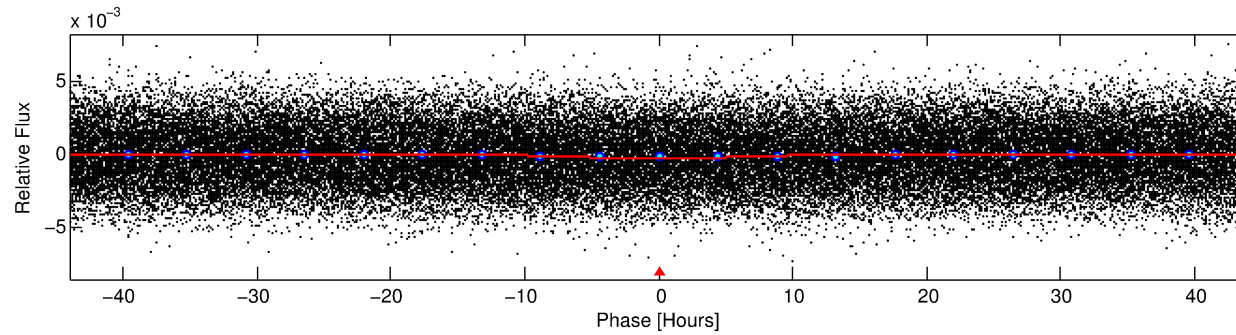
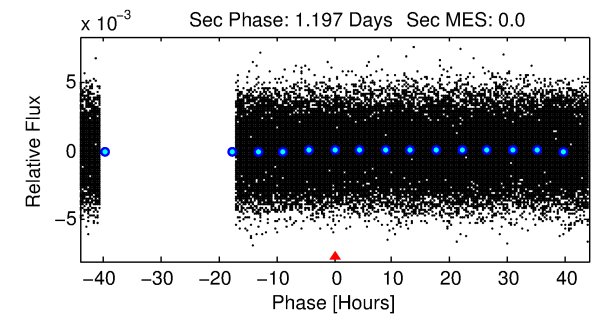
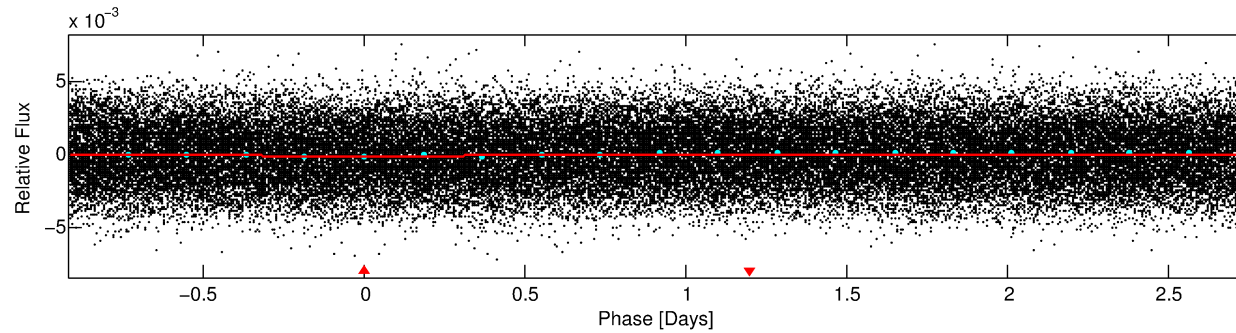
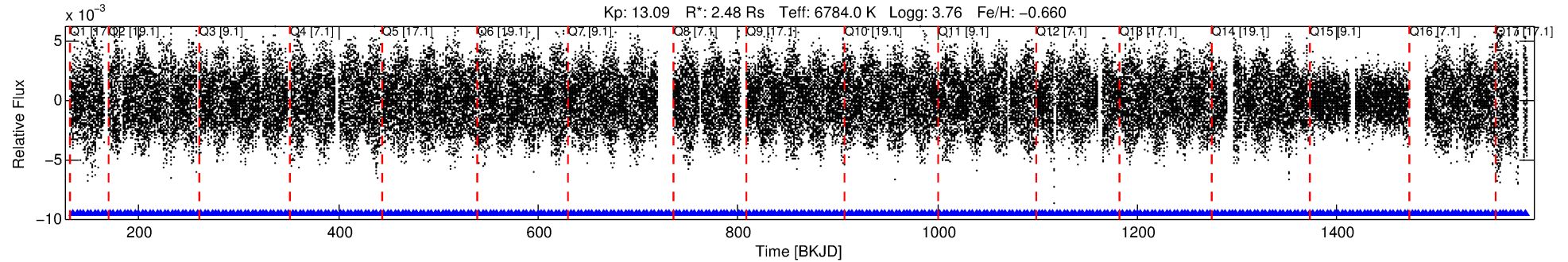
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010862354-01

No Significant Match Found

# DV One-Page Summary

KIC: 10862354 Candidate: 1 of 1 Period: 3.663 d



## DV Fit Results:

Period = 3.66288 [0.00026] d  
Epoch = 134.3239 [0.0595] BKJD  
Rp/R\* = 0.0156 [0.0015]  
a/R\* = 1.05 [0.02]  
b = 0.98 [0.01]  
Seff = 4538.81 [4277.46]  
Teff = 2093 [493] K  
Rp = 4.23 [2.26] Re  
a = 0.0508 [0.0282] AU  
Ag = N/A  
Teffp = N/A

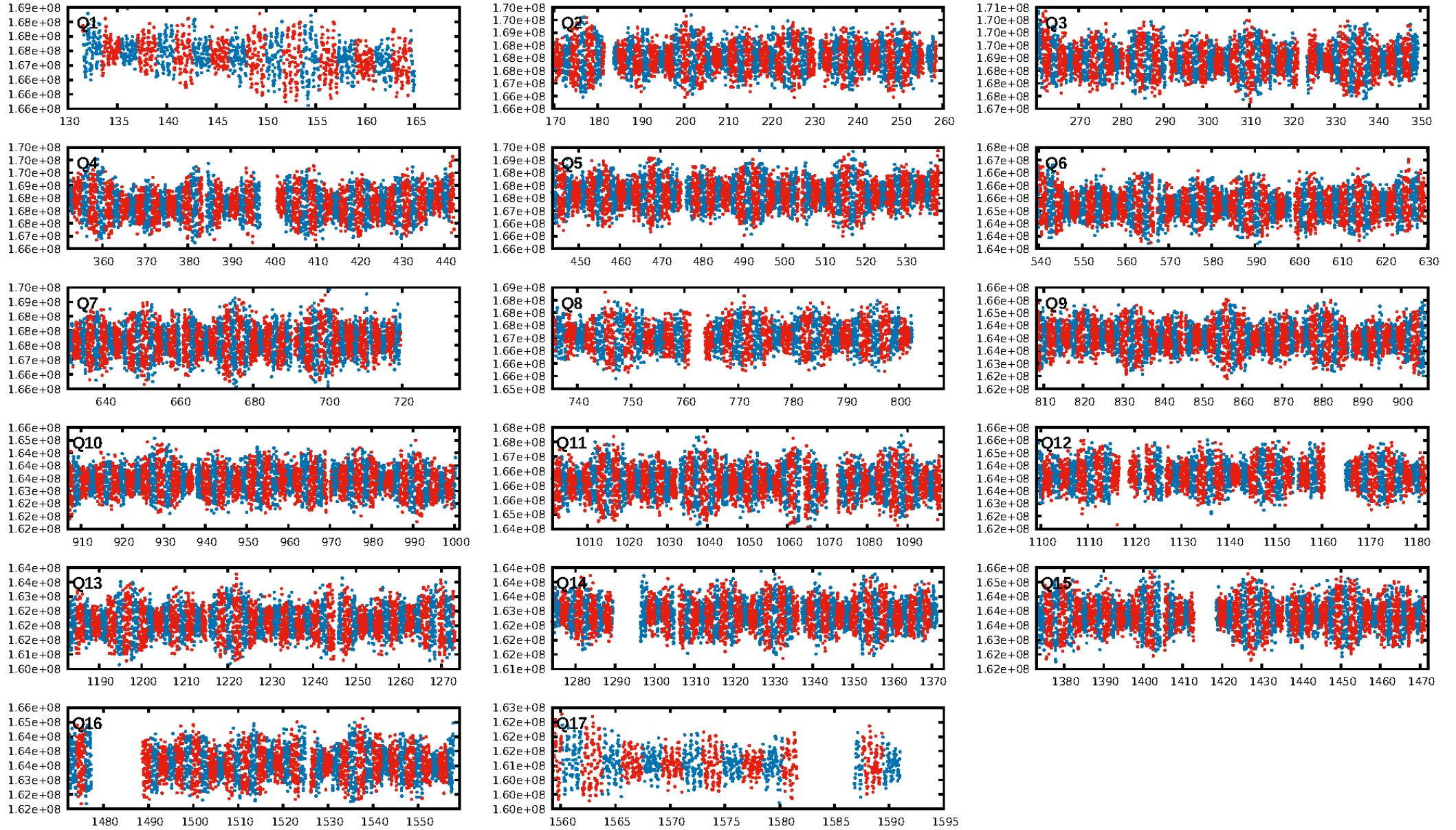
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.08e-31  
RollingBand-fgt: 1.00 [362/362]  
GhostDiagnostic-chr: 1.98  
Centroid-sig: 49.1%  
Centroid-so: 0.095 arcsec [1.15σ]  
OotOffset-rm: 0.096 arcsec [0.49σ]  
KicOffset-rm: 0.107 arcsec [0.51σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:19:50 Z

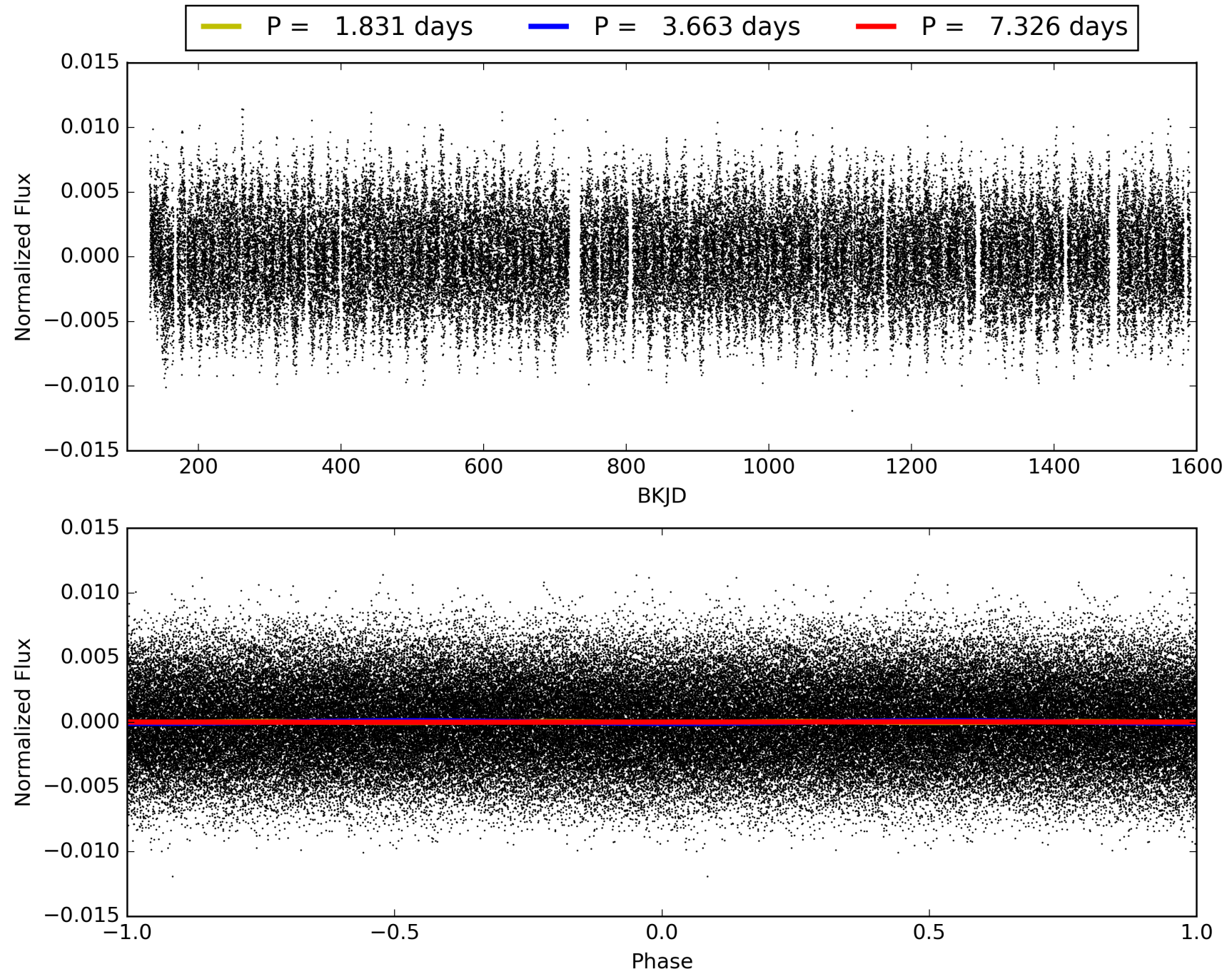
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010862354-01, PDC Light Curves



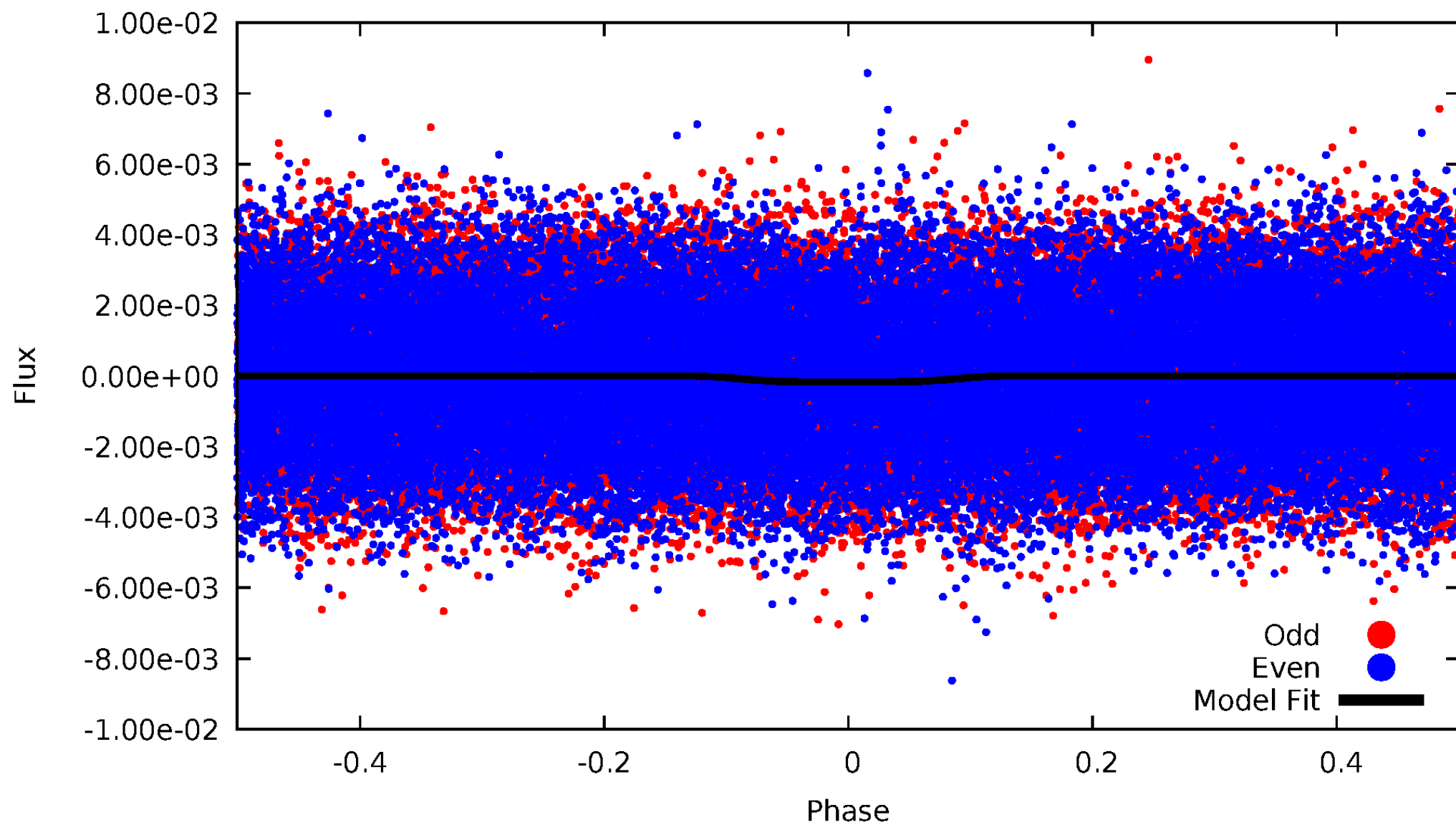


TCE 010862354-01



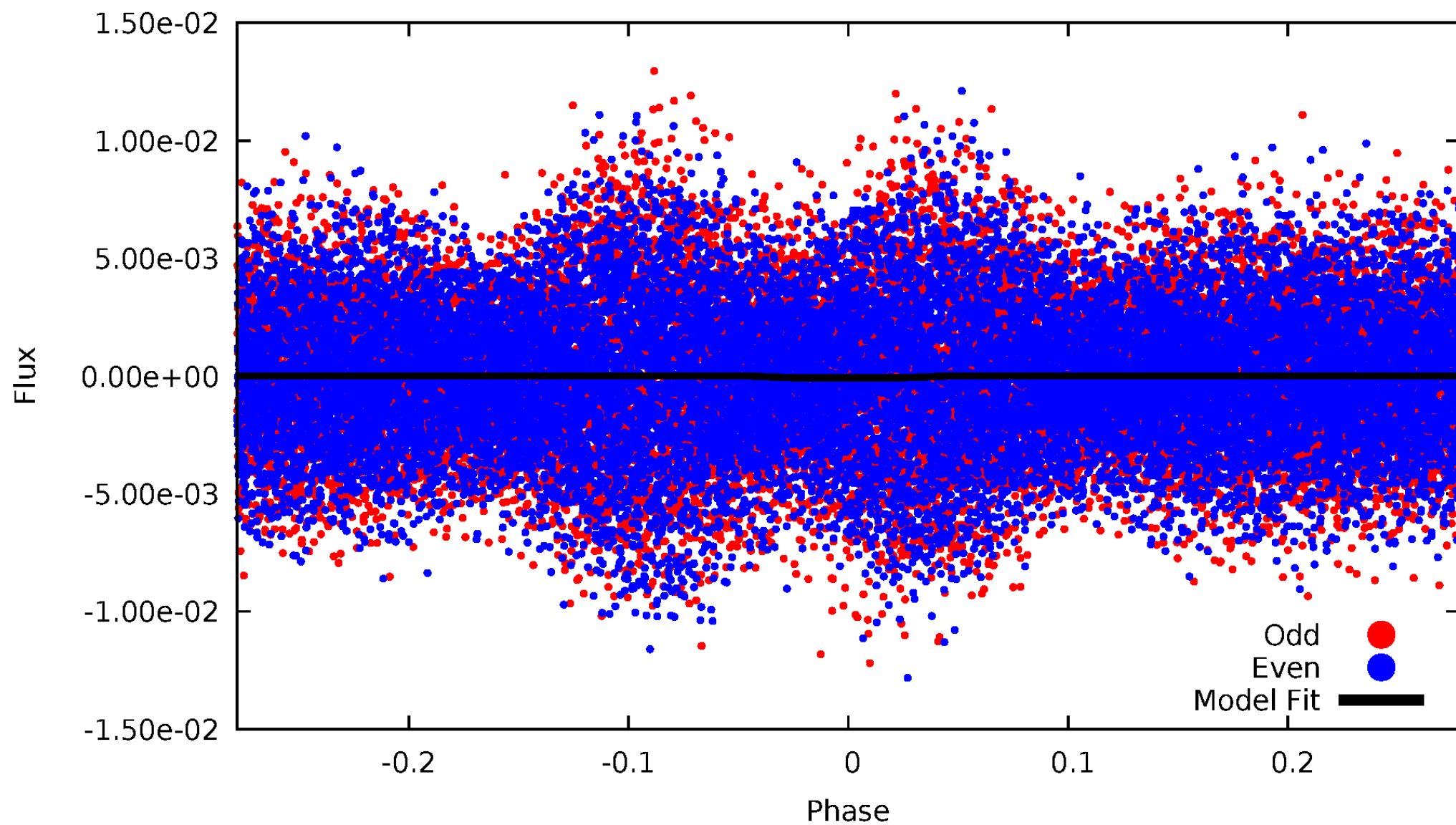
# DV Odd/Even

TCE 010862354-01



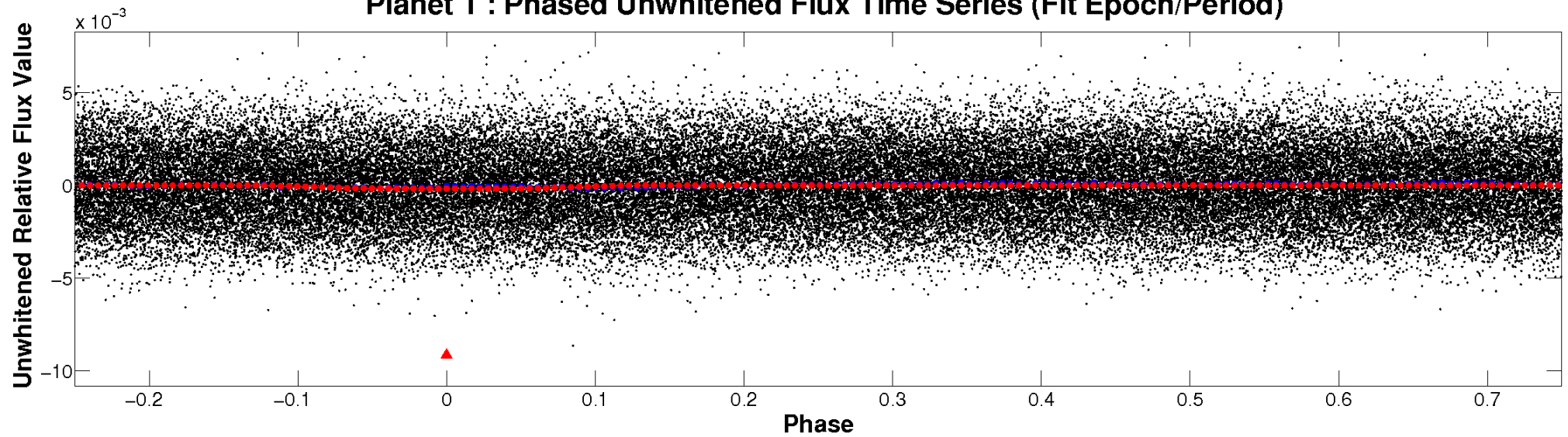
# ALT Odd/Even

TCE 010862354-01

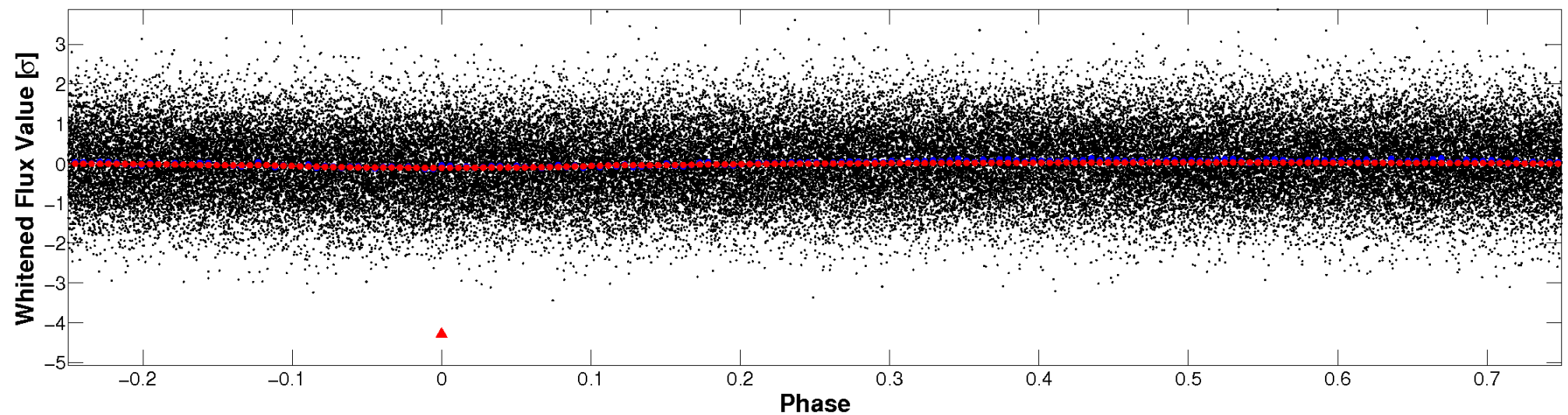


# Non-Whitened Vs. Whitened Light Curve

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



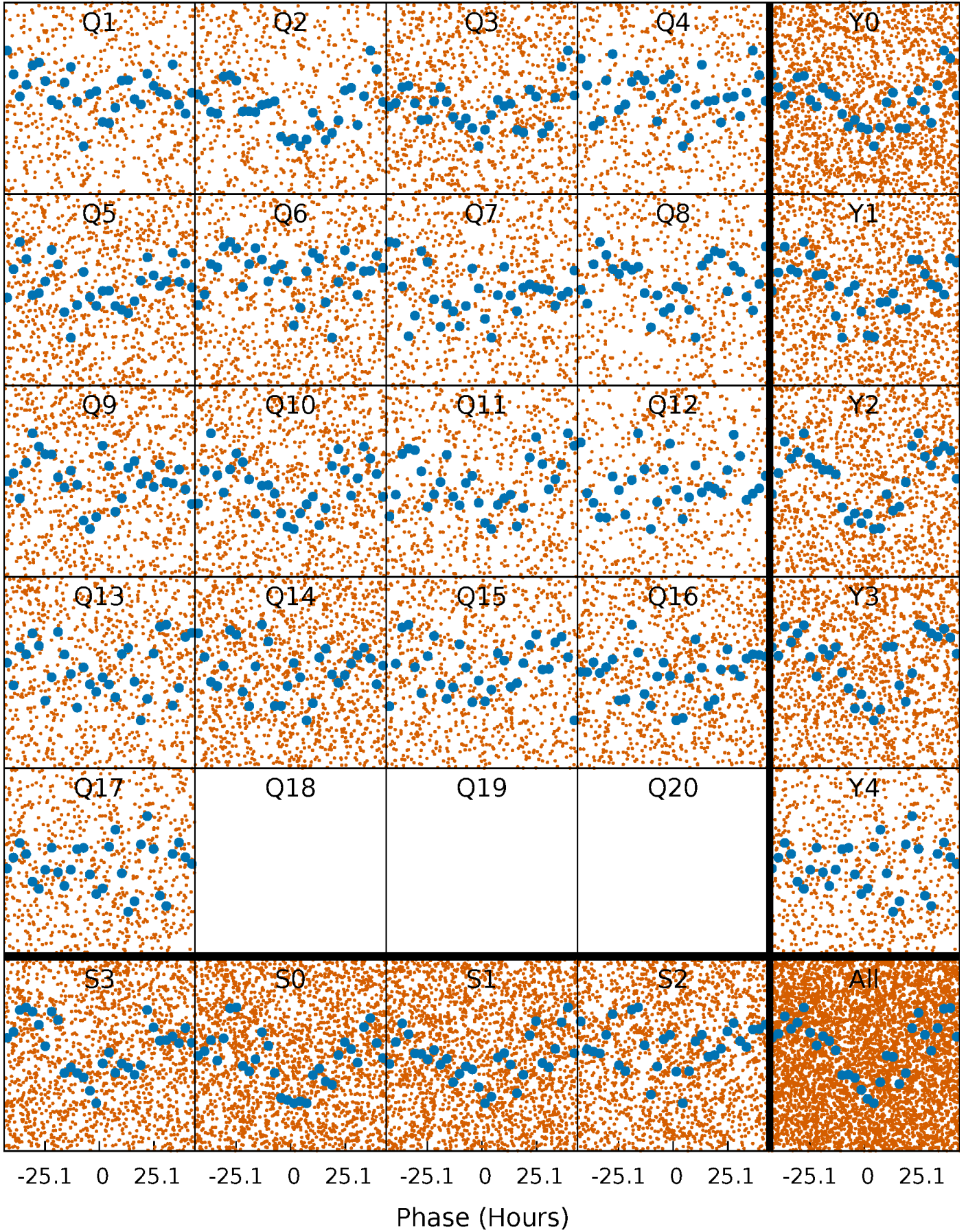
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

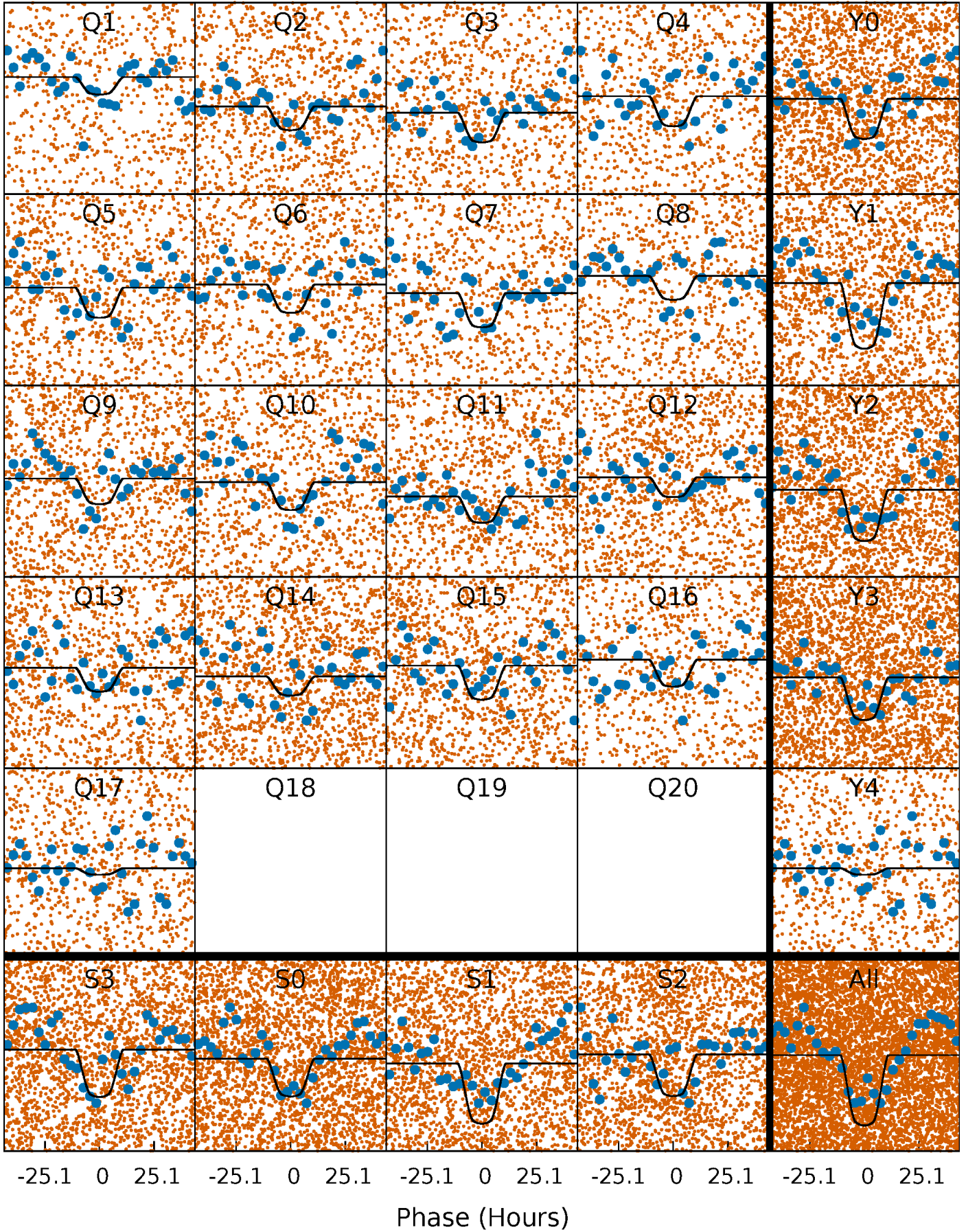
TCE 010862354-01   P= 3.662879 Days    $T_0=134.323867$  (BKJD)





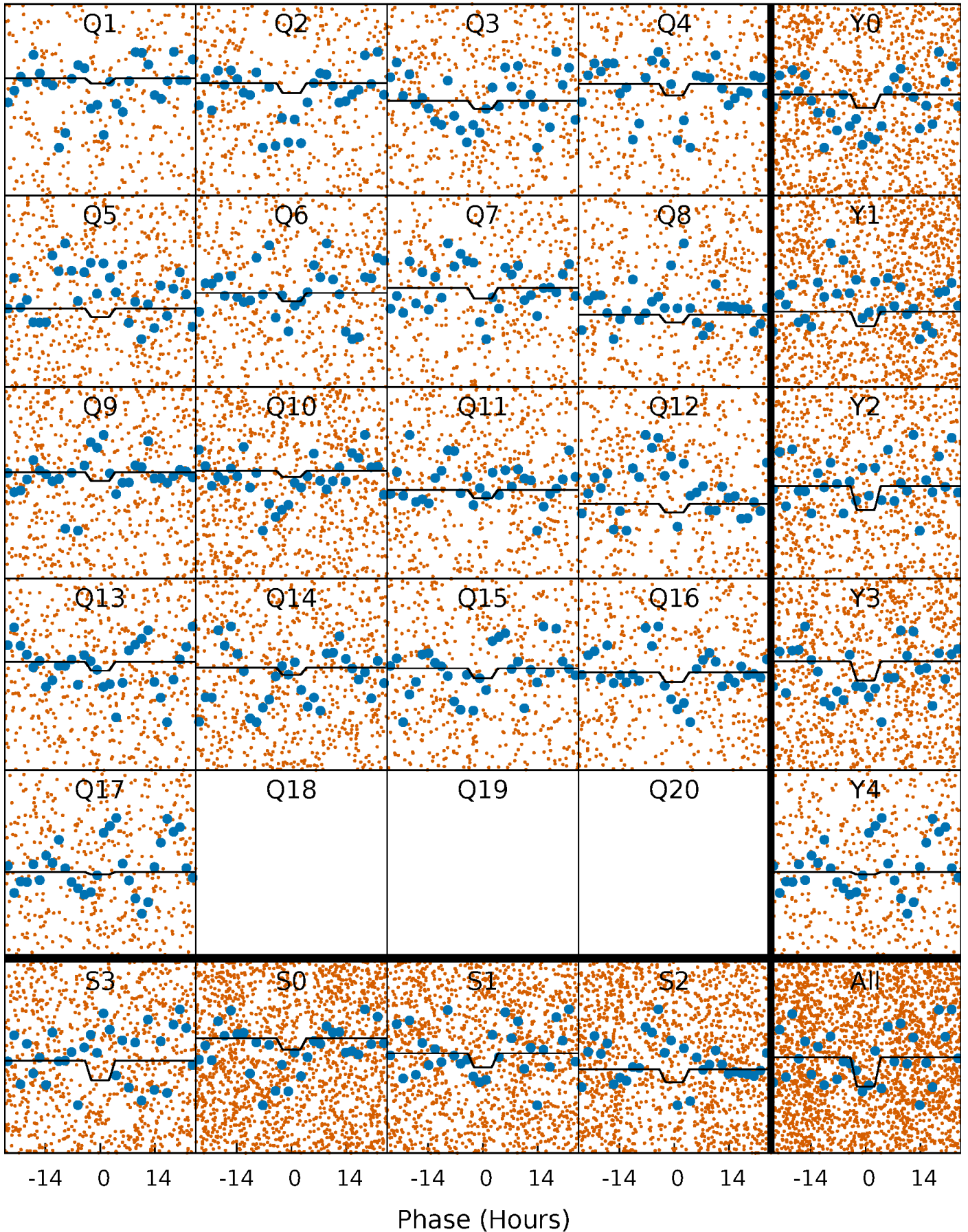
# DV Quarter-Phased Transit Curves

TCE 010862354-01 P= 3.662879 Days  $T_0=134.323867$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

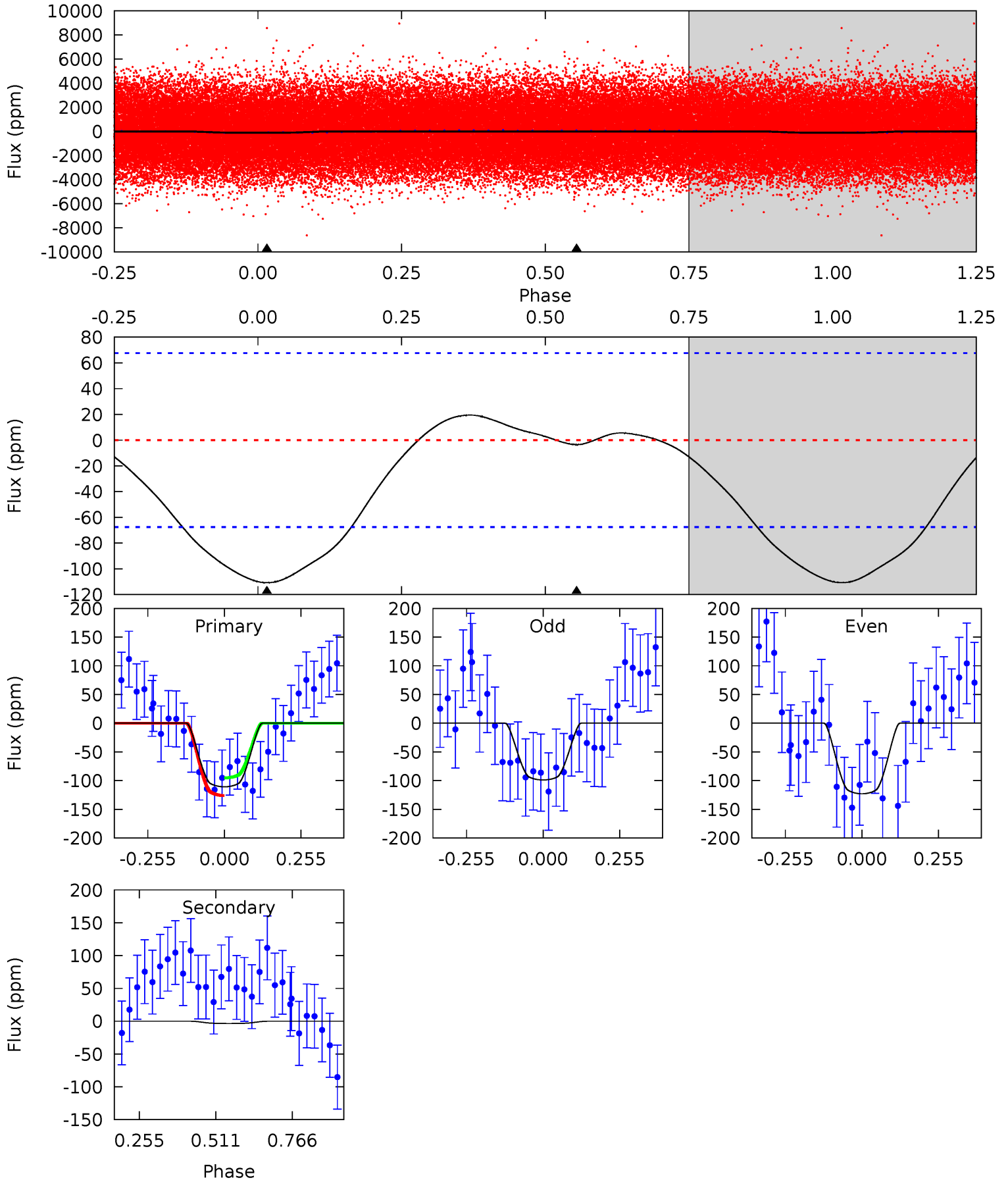
TCE 010862354-01 P= 3.662959 Days  $T_0=134.436569$  (BKJD)



# DV Model-Shift Uniqueness Test

010862354-01, P = 3.662879 Days, E = 130.660988 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
7.16	0.23	0	0	4.36	1.14	0.84	7.16	7.16	0.23	0.23	0.79	1.60	0.15	1.01

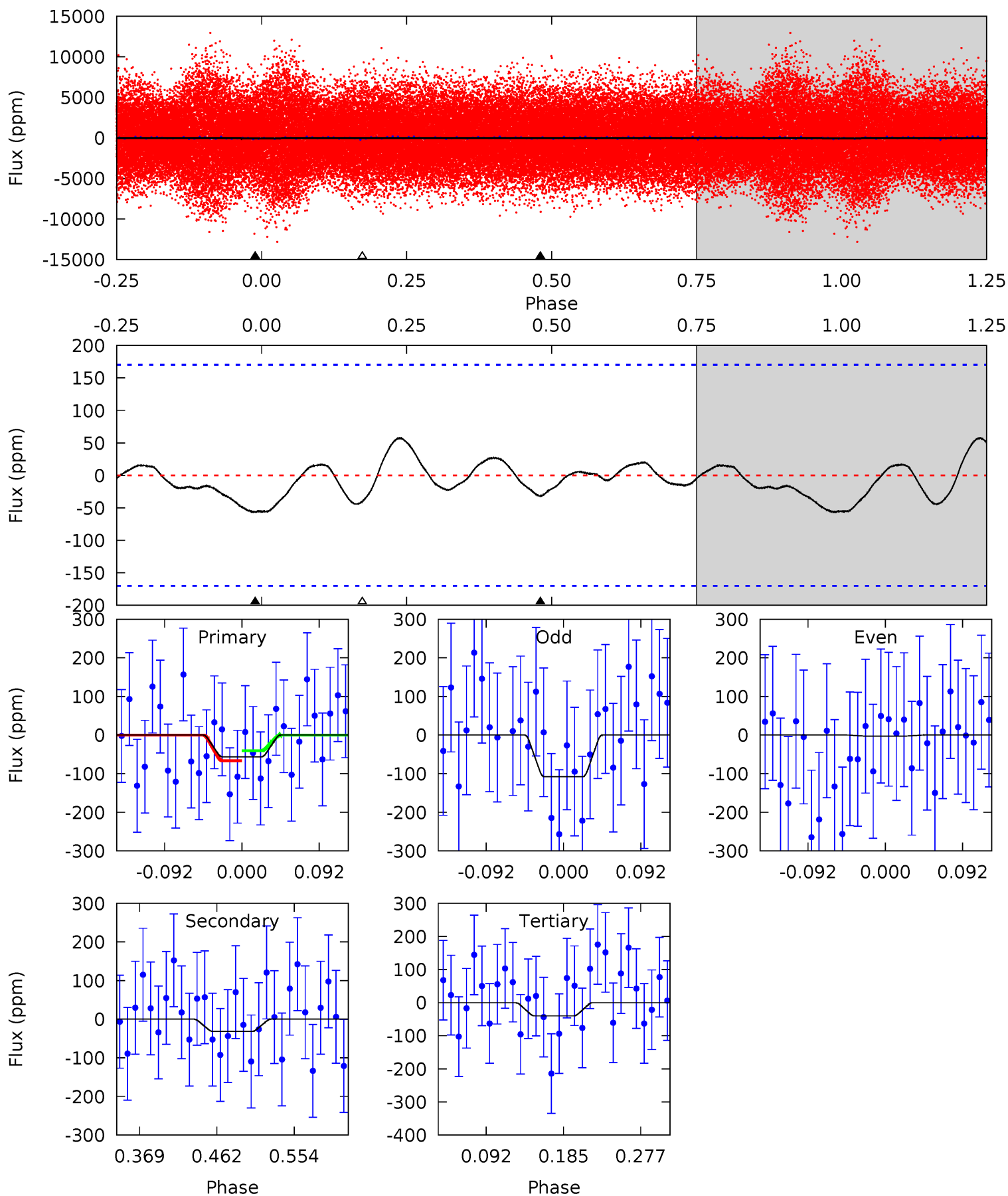




# Alt Model-Shift Uniqueness Test

010862354-01, P = 3.662959 Days, E = 130.773610 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
1.52	0.85	1.08	0	4.58	1.68	0.58	0.44	1.52	-0.23	0.85	1.36	2.36	0.50	0.32





### Stellar Parameters For KIC 010862354

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6784^{+214}_{-262}$	$3.762^{+0.561}_{-0.132}$	$-0.660^{+0.300}_{-0.300}$	$2.482^{+0.522}_{-1.304}$	$1.297^{+0.170}_{-0.292}$	$0.120^{+0.767}_{-0.049}$
	+3%/-4%	+15%/-4%	+45%/-45%	+21%/-53%	+13%/-23%	+641%/-41%
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 010862354-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-4 \pm 15$	$3.99^{+0.87}_{-1.05}$	$2849^{+235}_{-380}$	$2190^{+1597}_{-5923}$	$0.327^{+1.508}_{-1.365}$
Alt.	$-32 \pm 37$	$2.16^{+0.62}_{-0.65}$	$2836^{+240}_{-429}$	$5220^{+1372}_{-9301}$	$7.976^{+16.849}_{-9.839}$

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

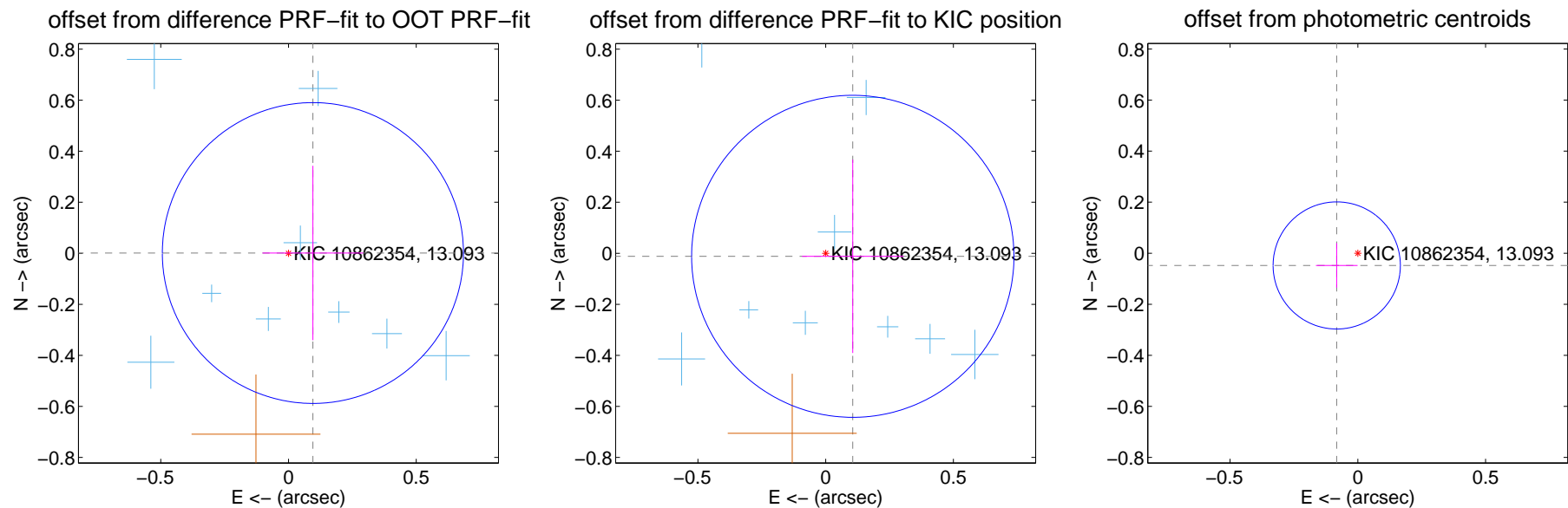
## DV Centroid Data

Supplemental centroid analysis for 010862354-01. Kepler magnitude: 13.09. Transit SNR 11.34

There are 14 quarters with good PRF difference image offsets

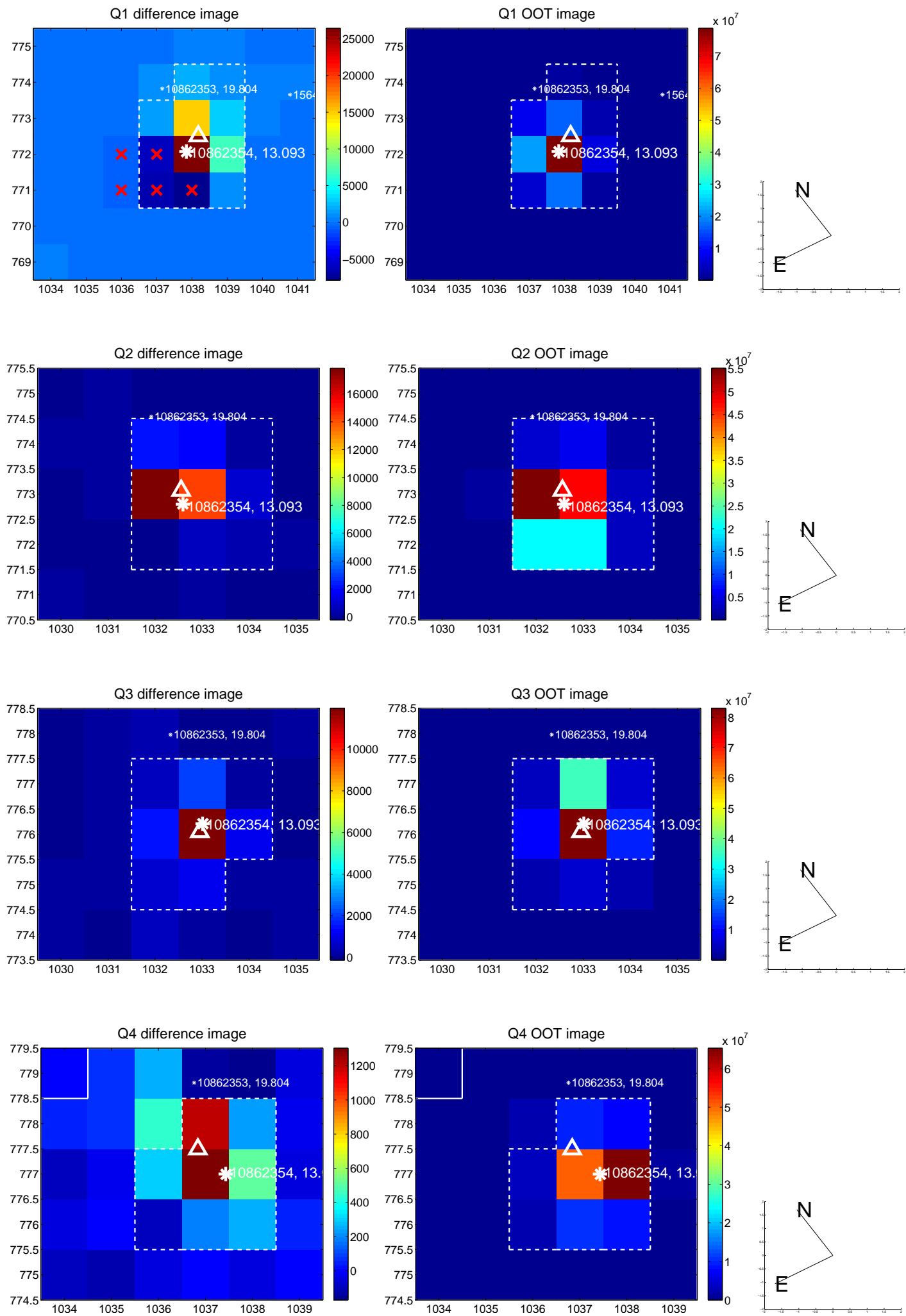
The direct PRF centroid is offset from the target star catalog position by about 0.00 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.096 \pm 0.196$	0.49	$-0.096 \pm 0.197$	$0.001 \pm 0.342$
PRF-fit source offset from KIC position	$0.107 \pm 0.210$	0.51	$-0.106 \pm 0.199$	$-0.012 \pm 0.379$
photometric centroid source offset	$0.10 \pm 0.08$	1.15	$0.08 \pm 0.08$	$-0.05 \pm 0.09$

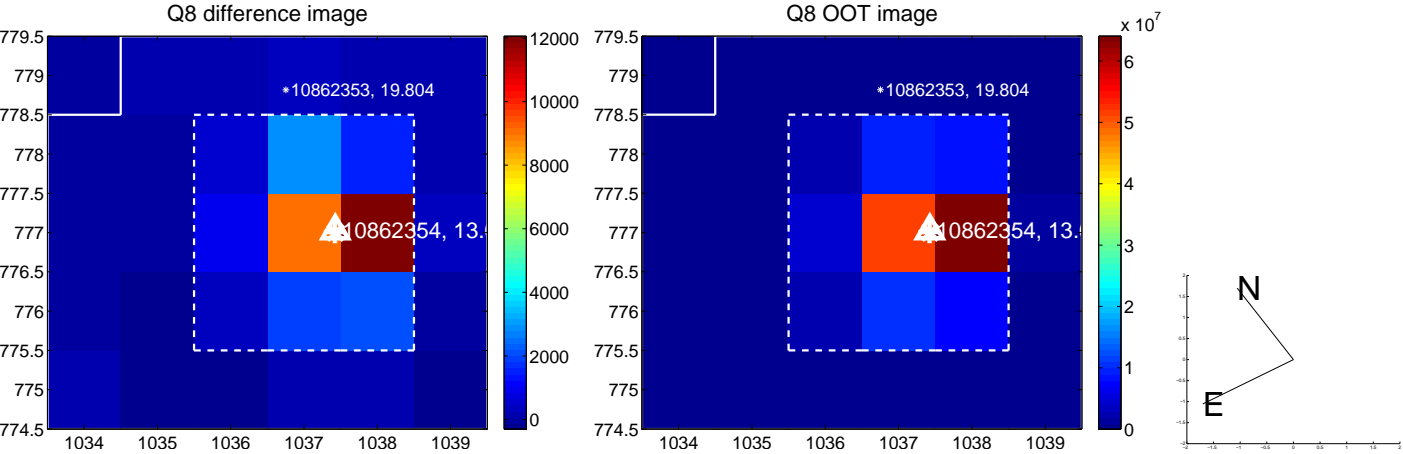
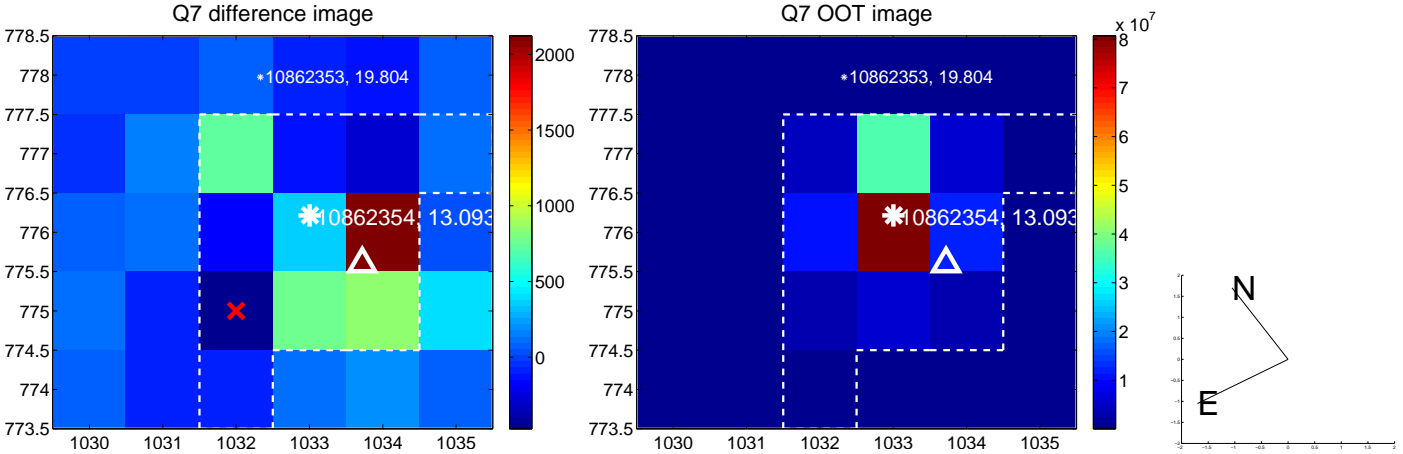
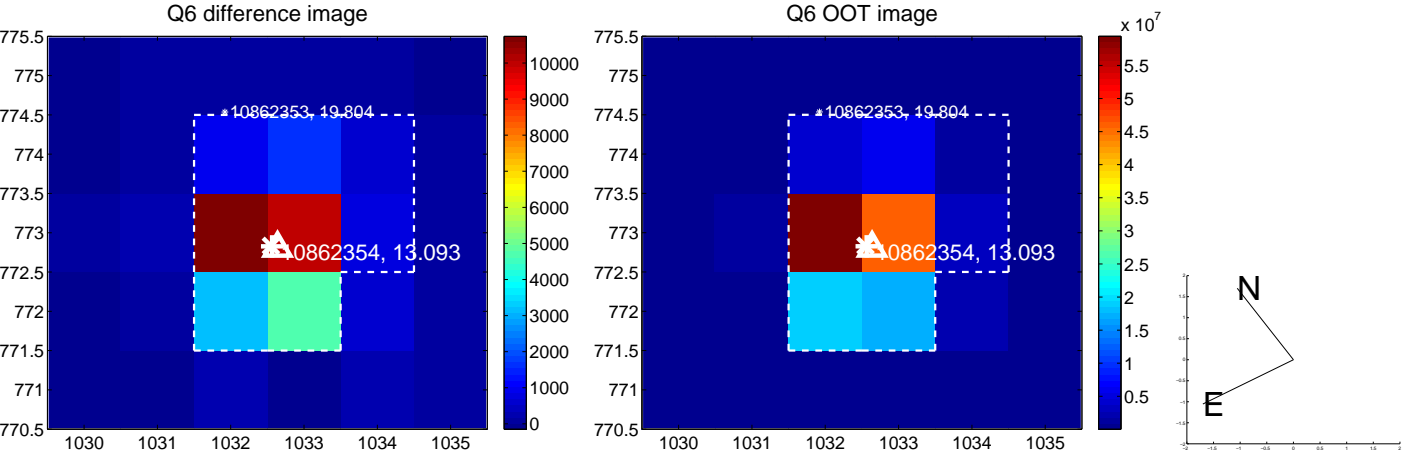
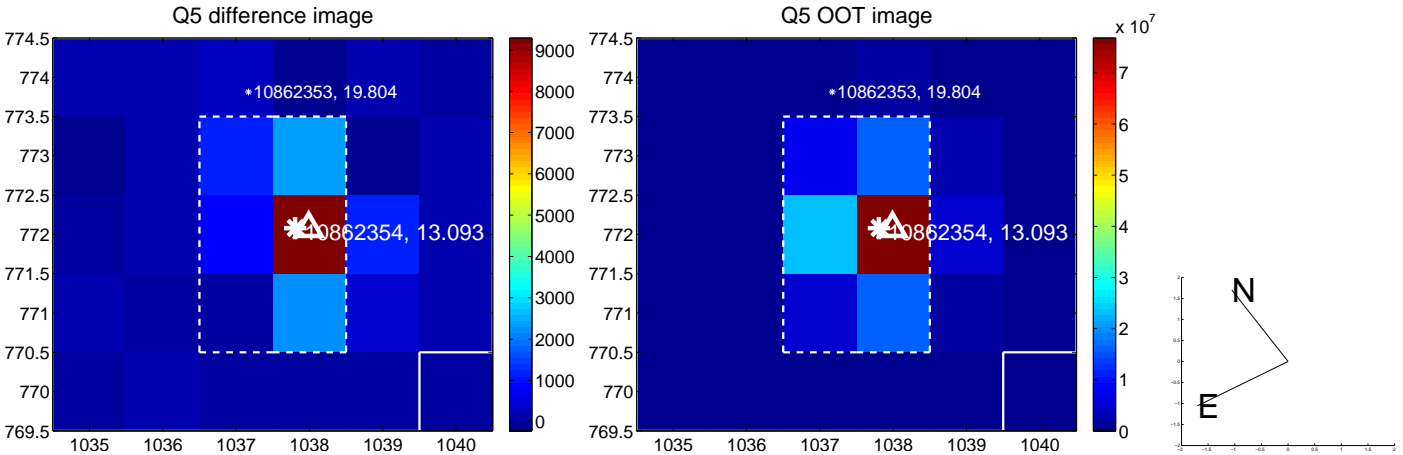


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

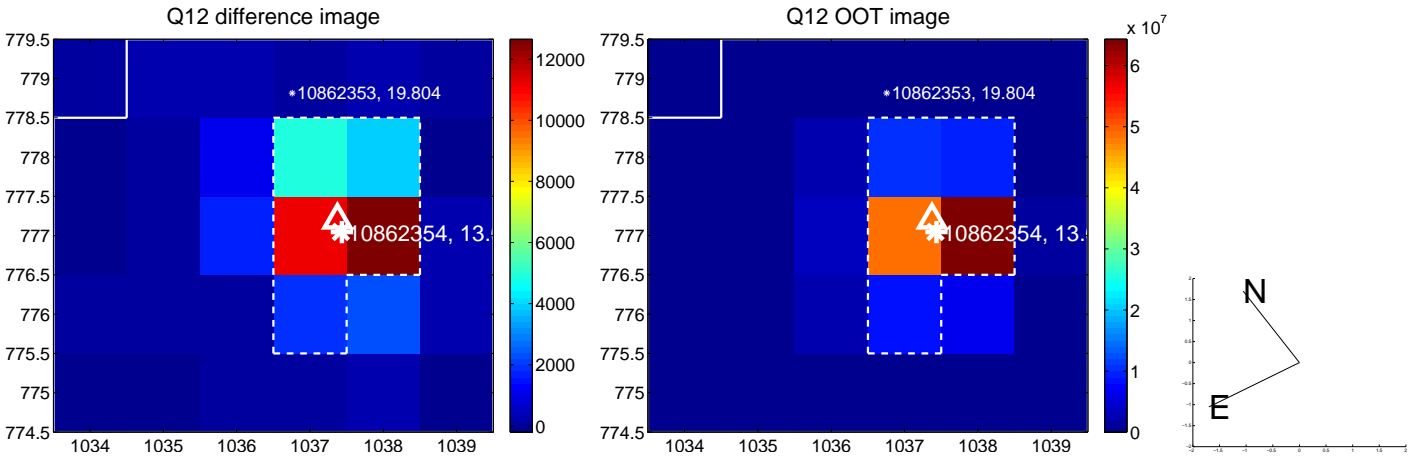
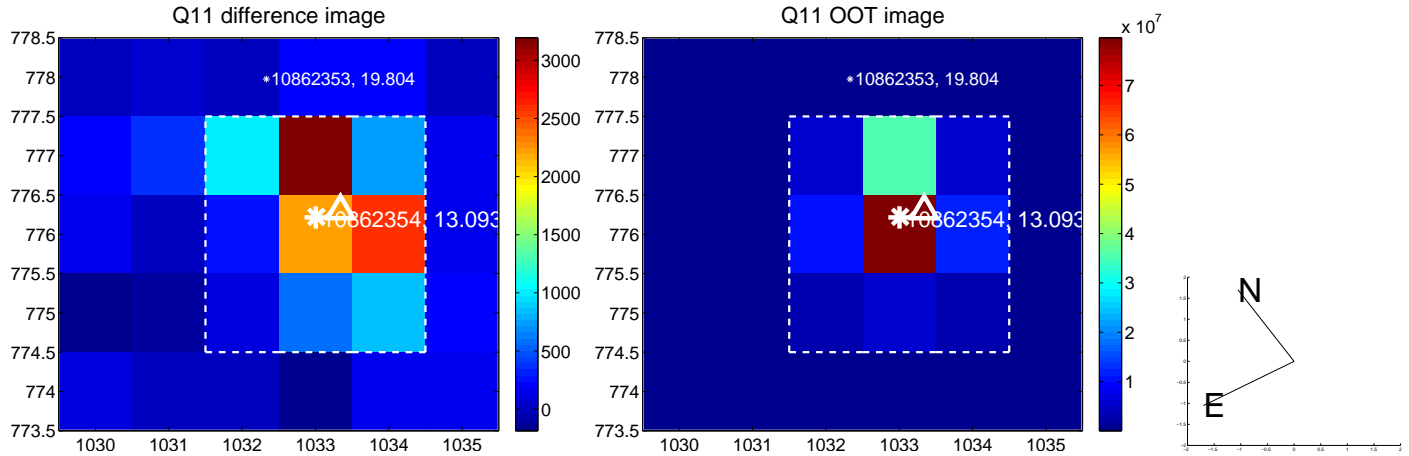
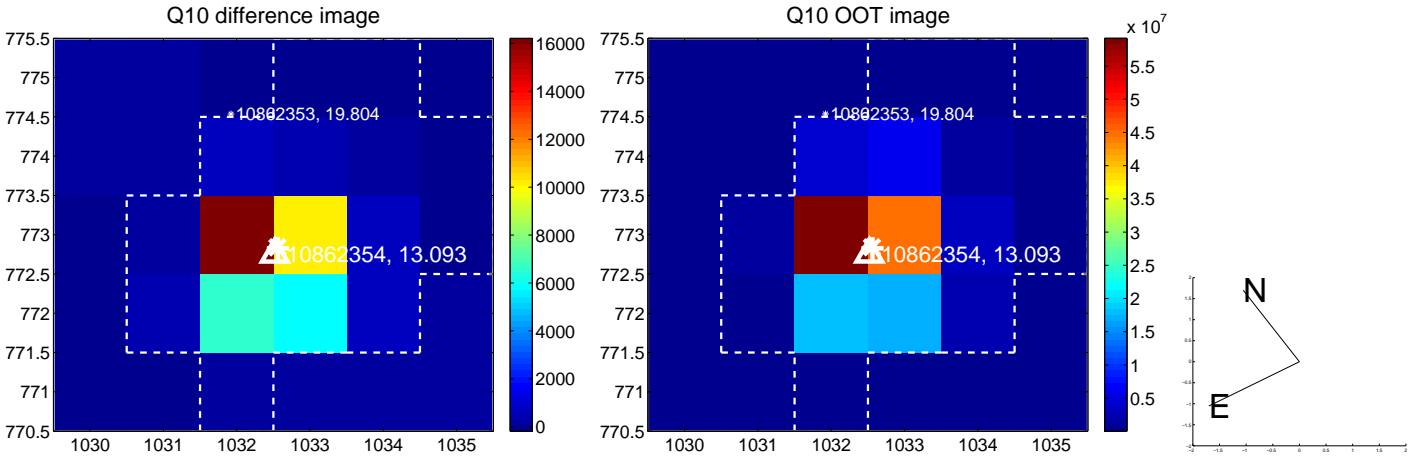
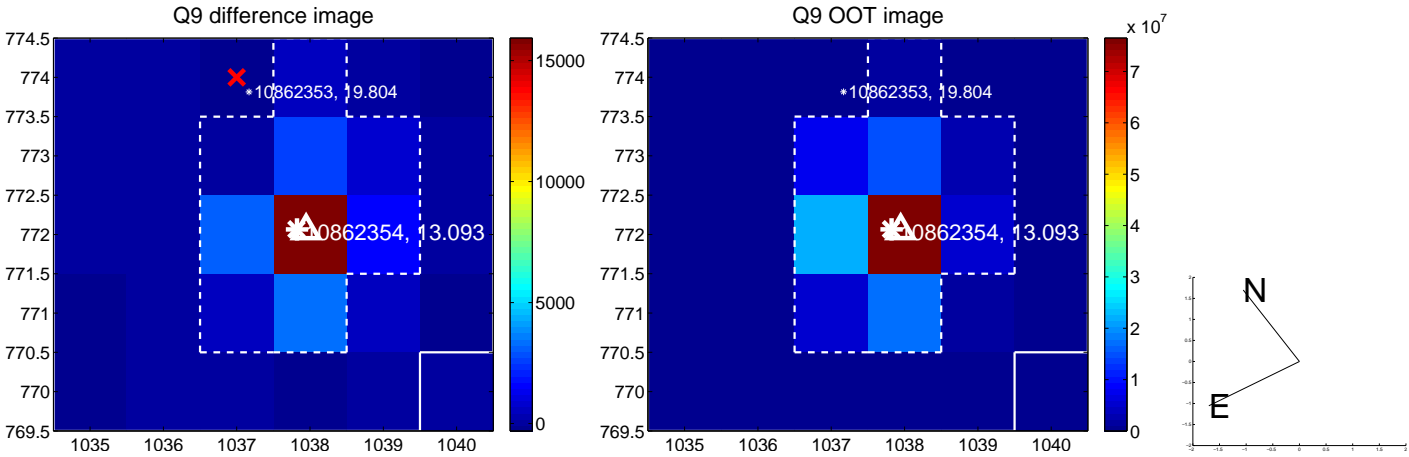


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

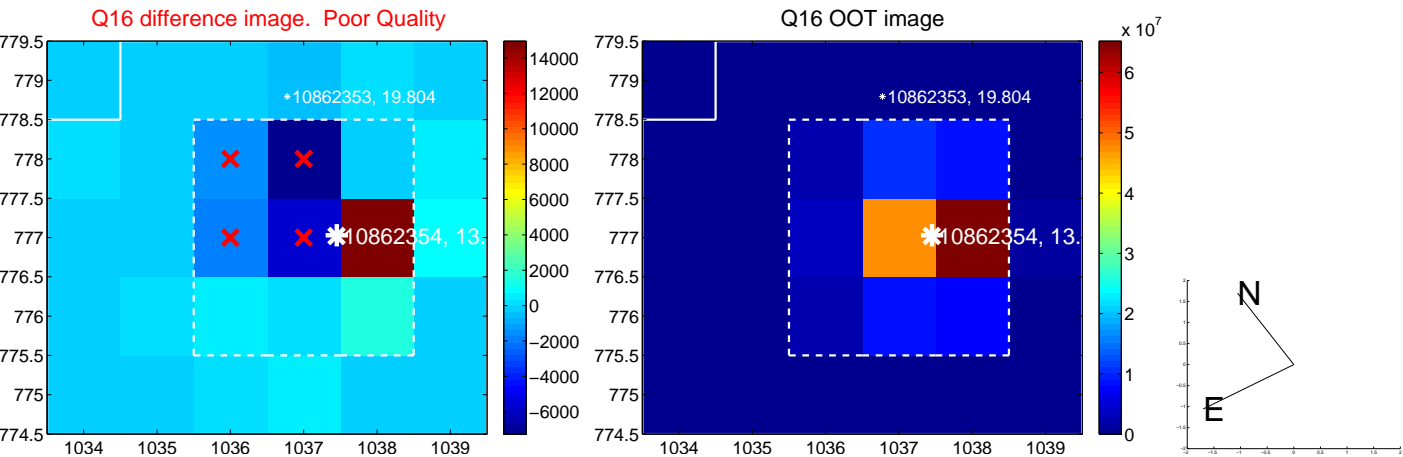
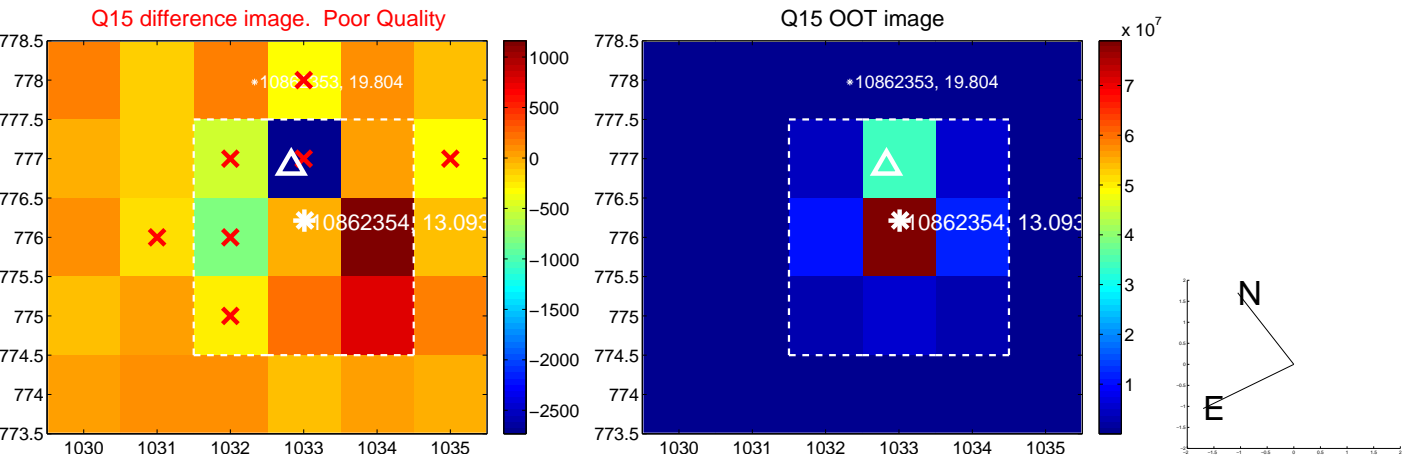
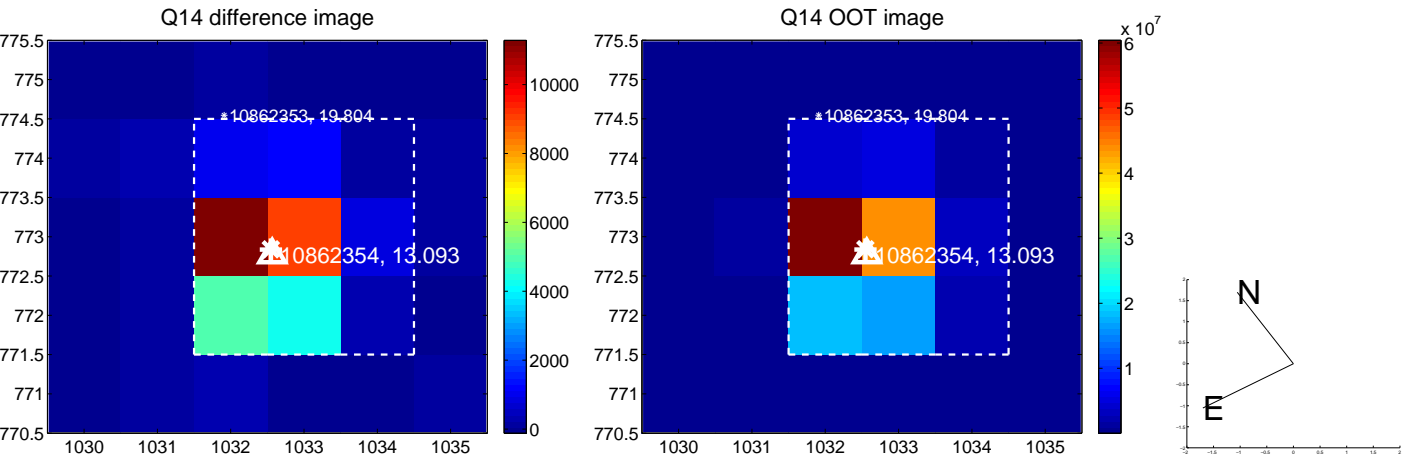
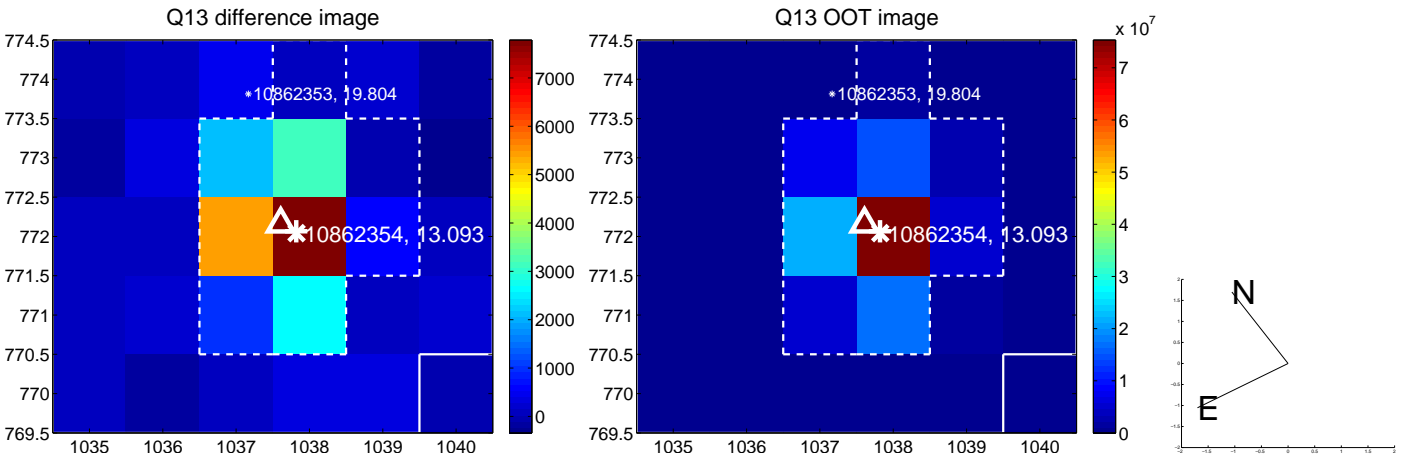




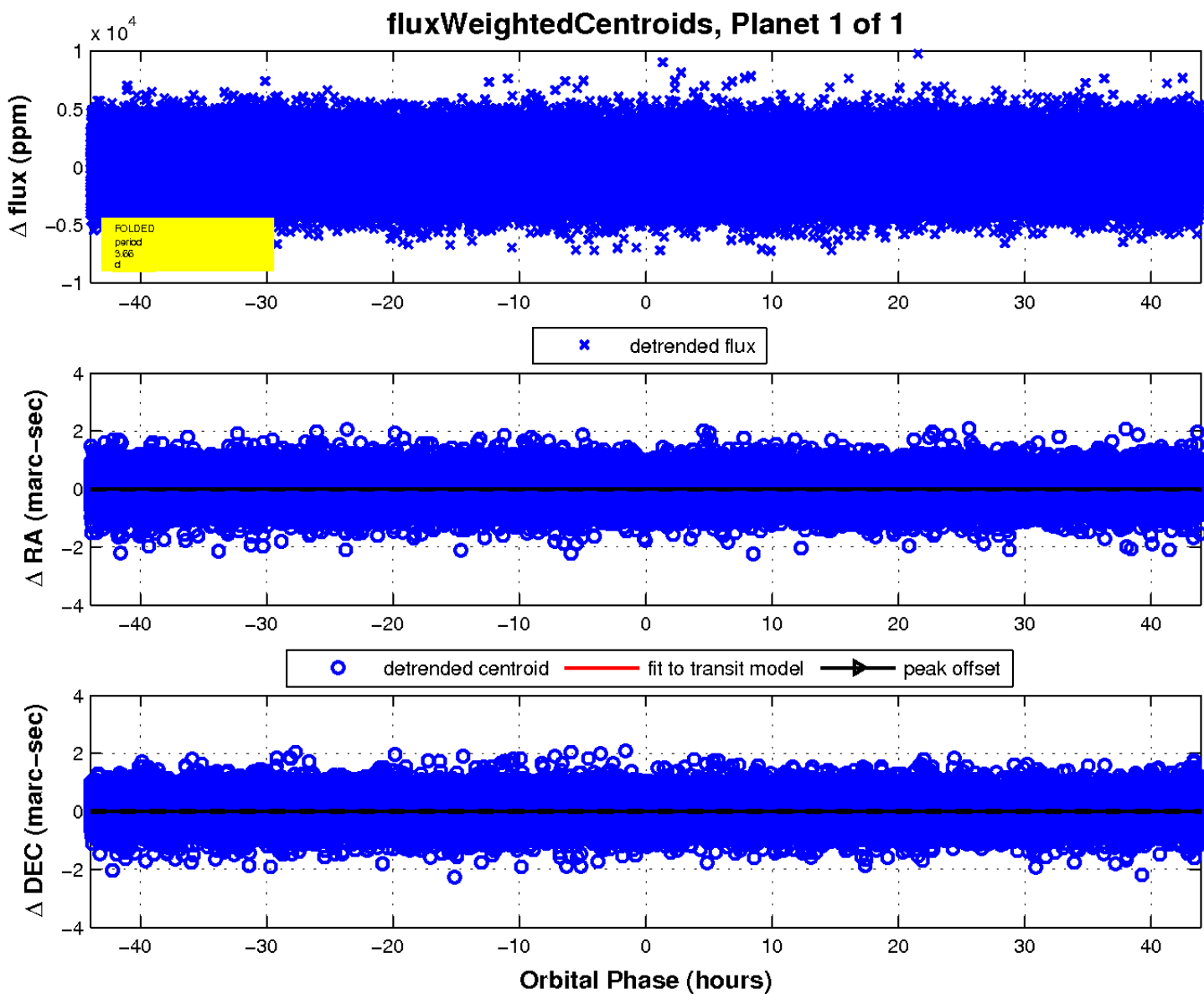
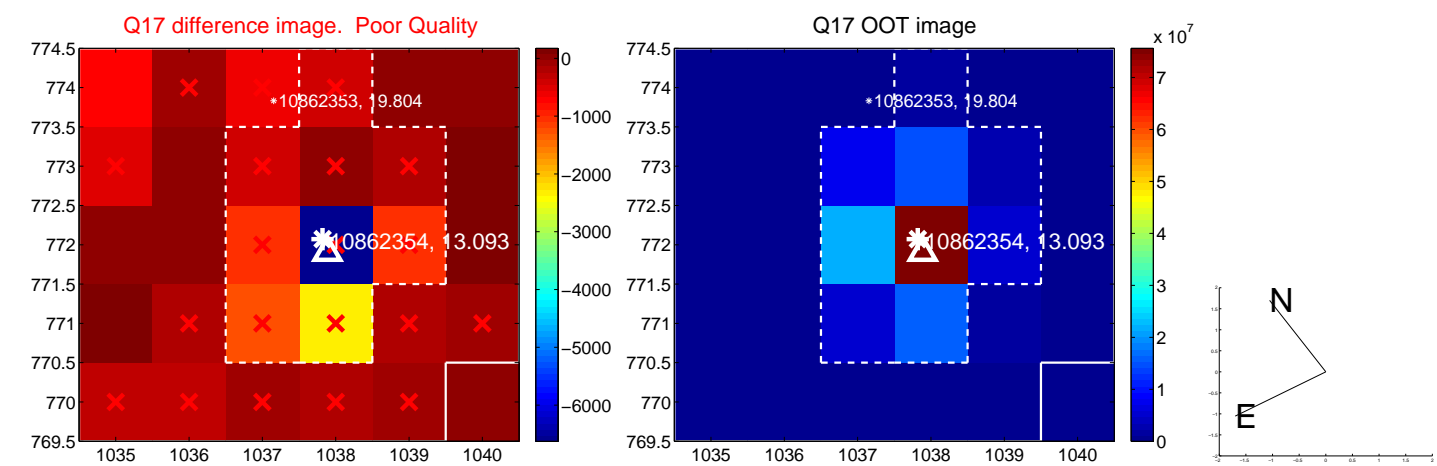
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

