

# KIC 010471204

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010471204-01	OBS	8018.01	0.933719	131.535784	45.2	4.233	8.4	7.3	0.88	5734	0.71	2186.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010471204-01	OBS	FP	0.00	0	0	1	1	HALO_GHOST—EPHEM_MATCH

**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.

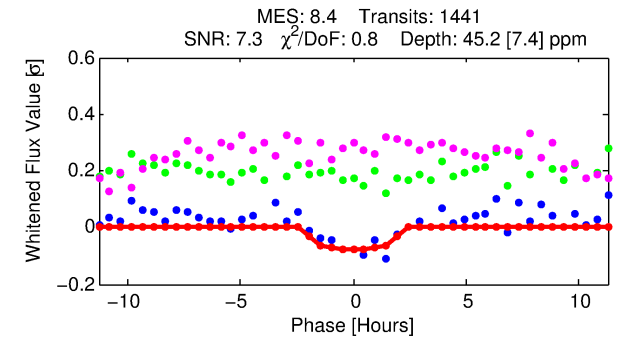
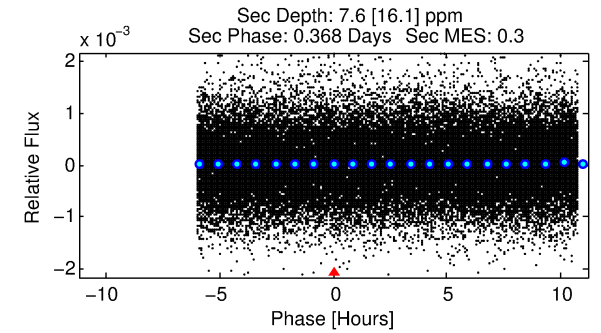
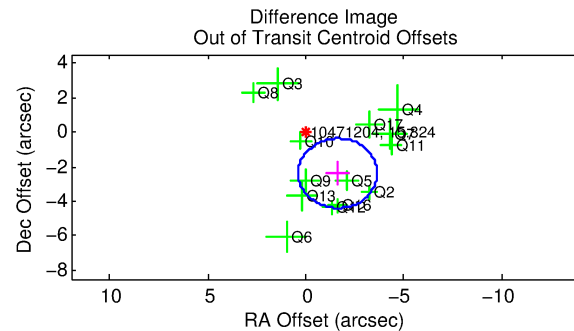
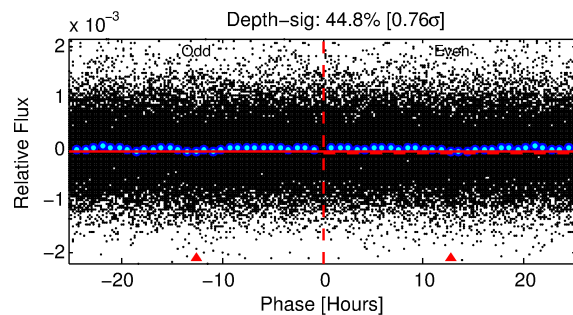
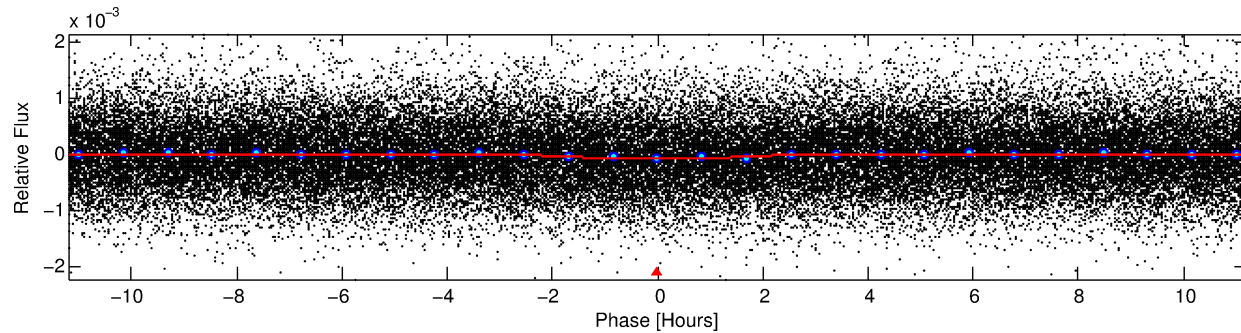
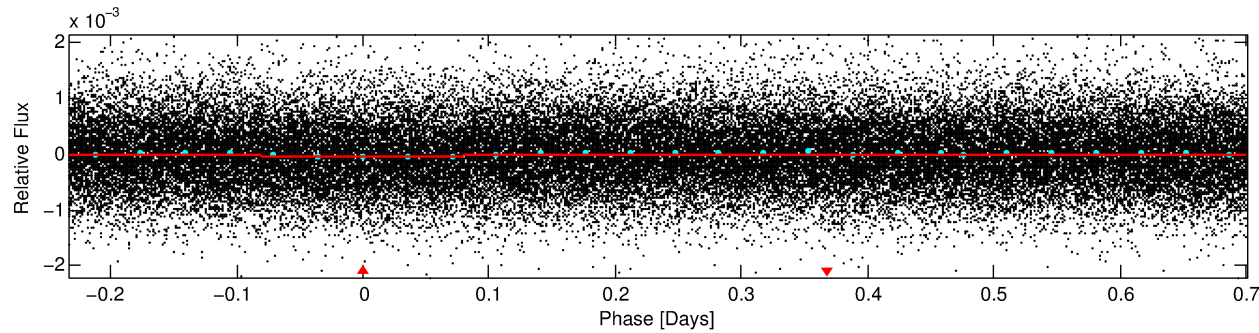
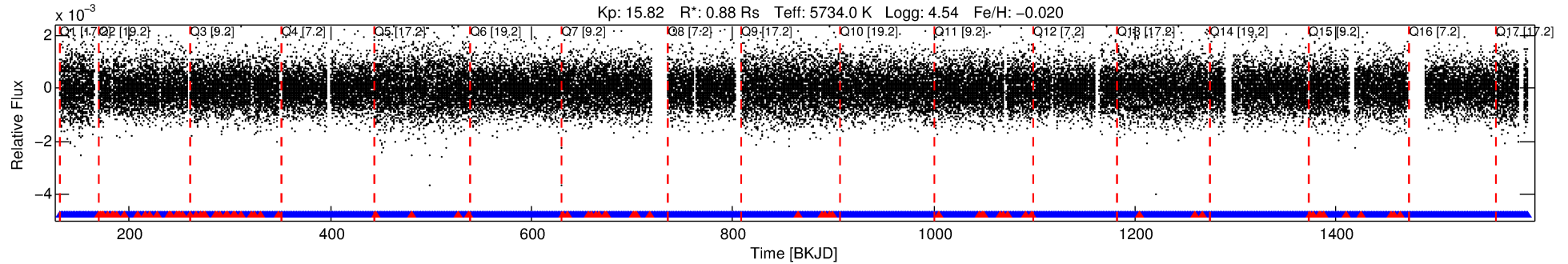
## Ephemeris Match Information For 010471204-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010471204-01	10471204	7613.01	10471174	1:1	52.8	-13	-1	15.98	15.82	2.22	Direct-PRF	1	4.19	4.96

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10471204 Candidate: 1 of 1 Period: 0.934 d



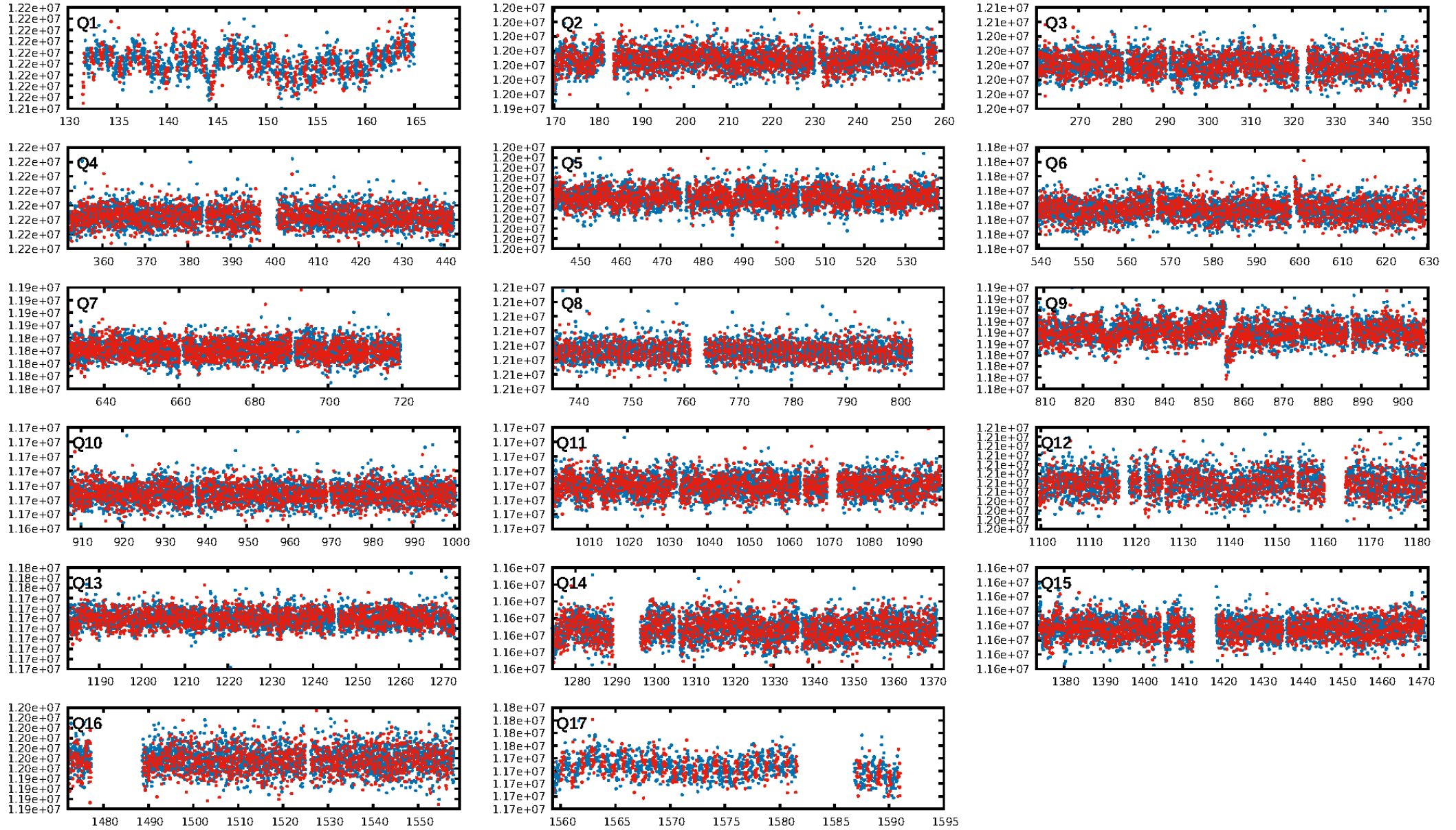
## DV Fit Results:

Period = 0.93372 [0.00002] d  
Epoch = 131.5358 [0.0070] BKJD  
Rp/R\* = 0.0073 [0.0069]  
a/R\* = 1.21 [1.75]  
b = 0.90 [0.99]  
Seff = 2186.47 [783.96]  
Teq = 1744 [156] K  
Rp = 0.71 [0.69] Re  
a = 0.0186 [0.0043] AU  
Ag = 2.91 [8.27] [0.23 $\sigma$ ]  
Teffp = 3521 [2485] K [0.71 $\sigma$ ]

## DV Diagnostic Results:

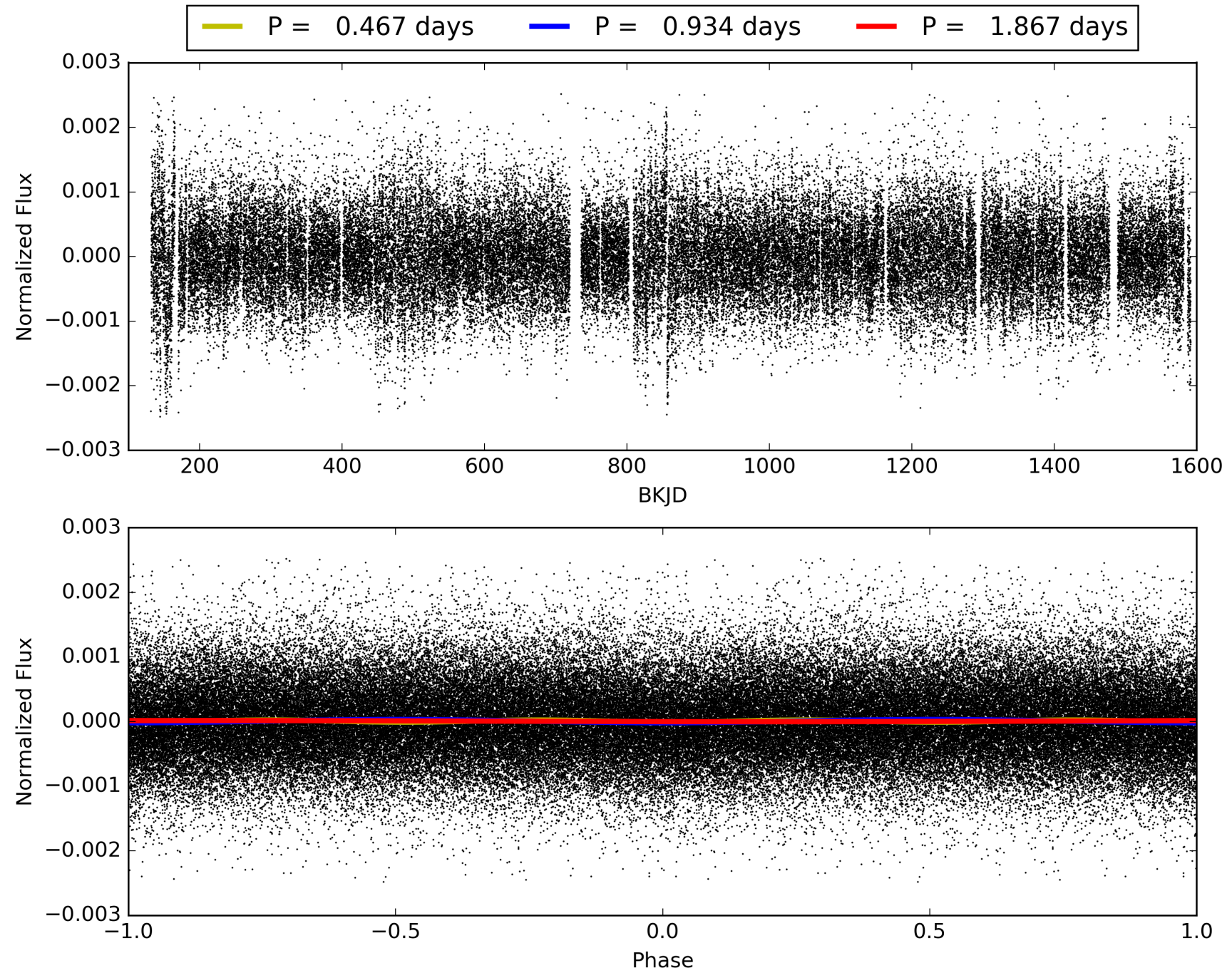
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.03e-18  
RollingBand-fgt: 0.94 [1289/1375]  
**GhostDiagnostic-chr: 0.08207**  
Centroid-sig: 65.0%  
Centroid-so: 1.608 arcsec [0.70 $\sigma$ ]  
**OotOffset-rm: 2.881 arcsec [4.29 $\sigma$ ]**  
**KicOffset-rm: 2.979 arcsec [4.47 $\sigma$ ]**  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010471204-01, PDC Light Curves



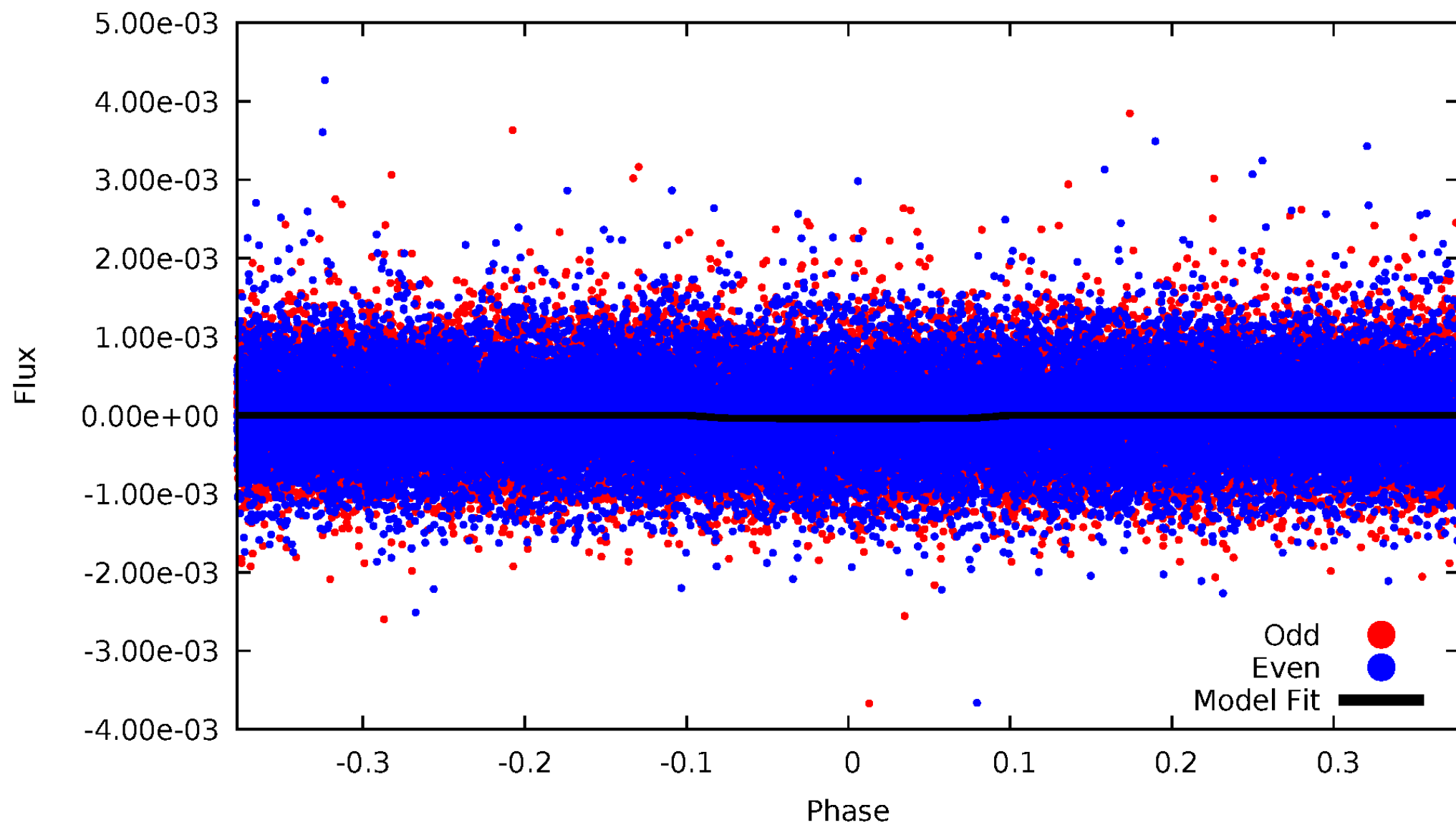


TCE 010471204-01



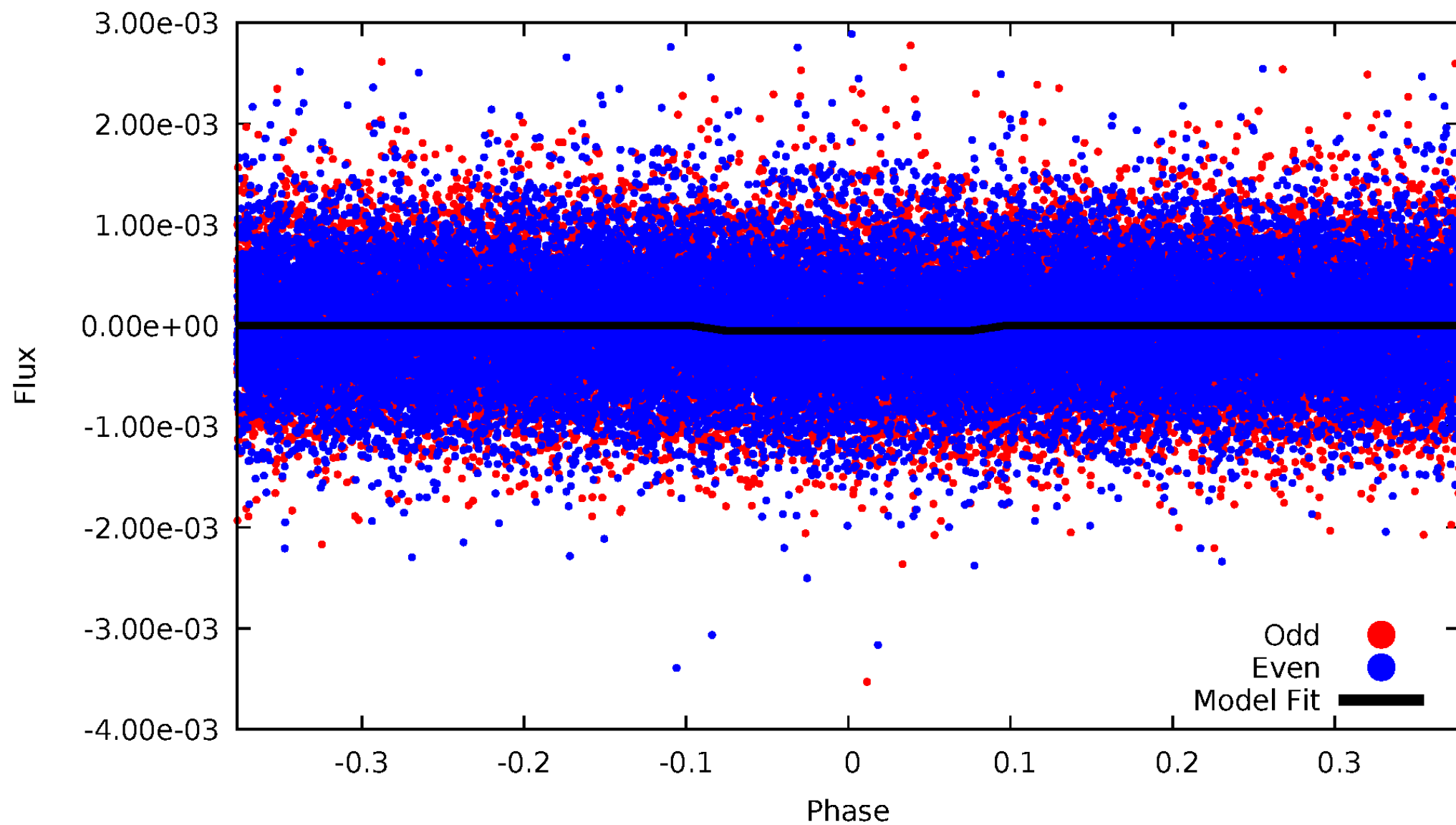
# DV Odd/Even

TCE 010471204-01



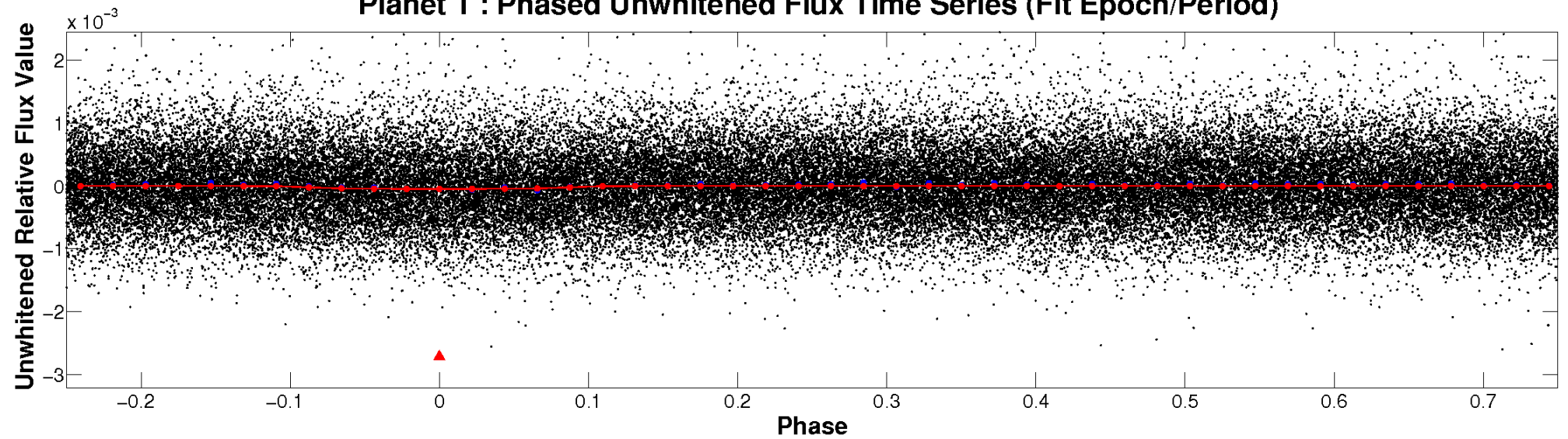
# ALT Odd/Even

TCE 010471204-01

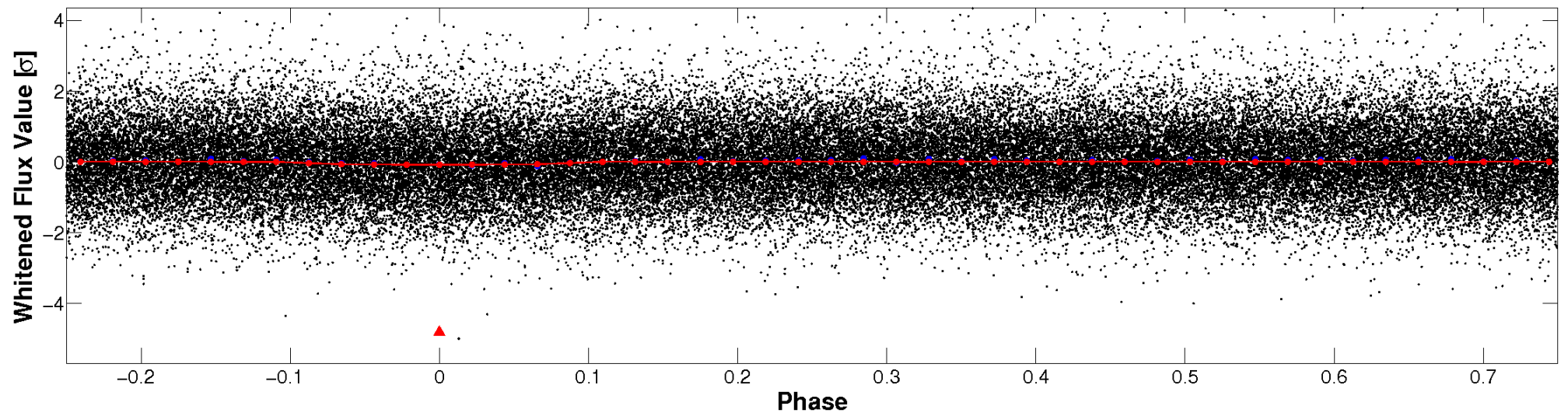


# Non-Whitened Vs. Whitened Light Curve

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



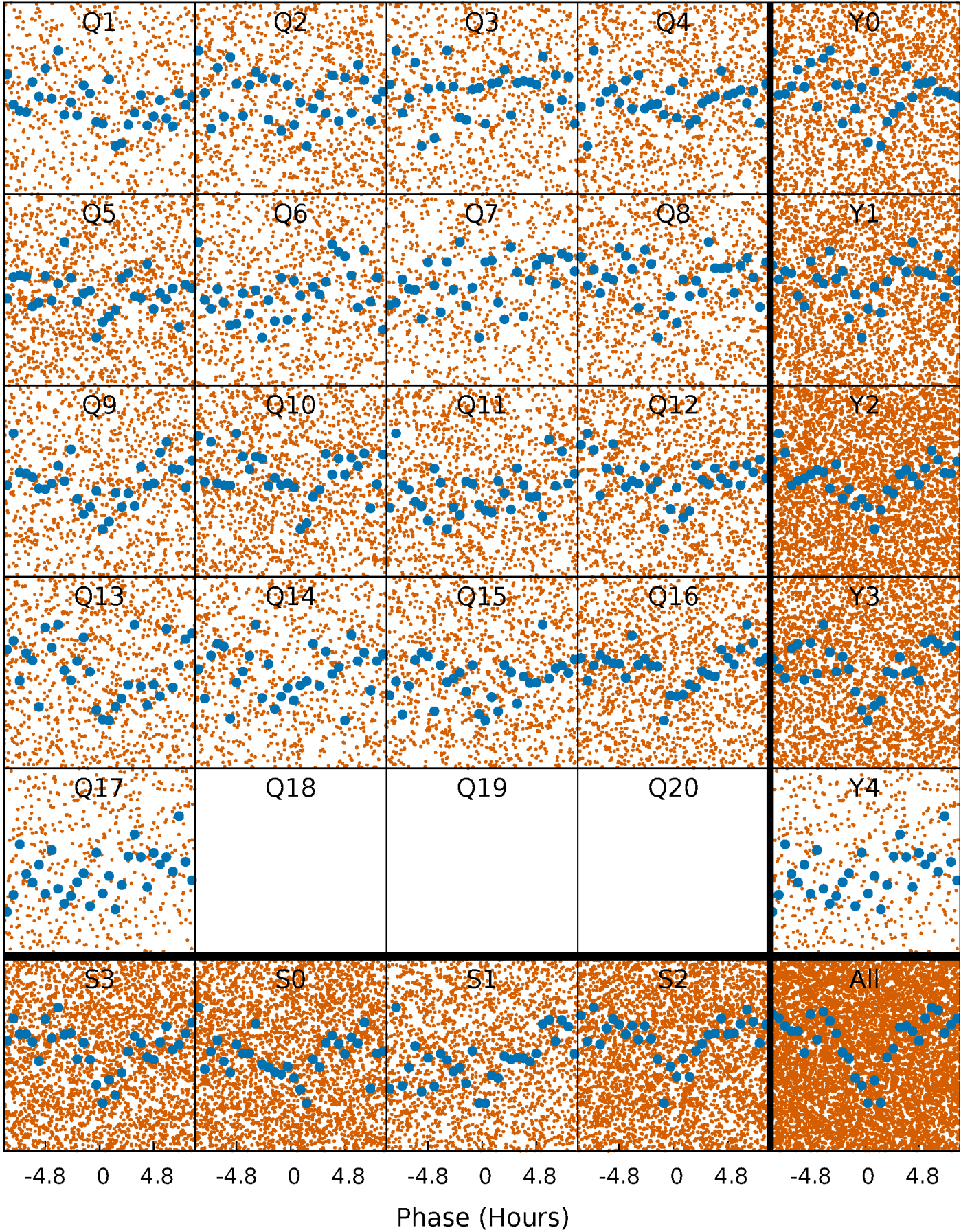
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

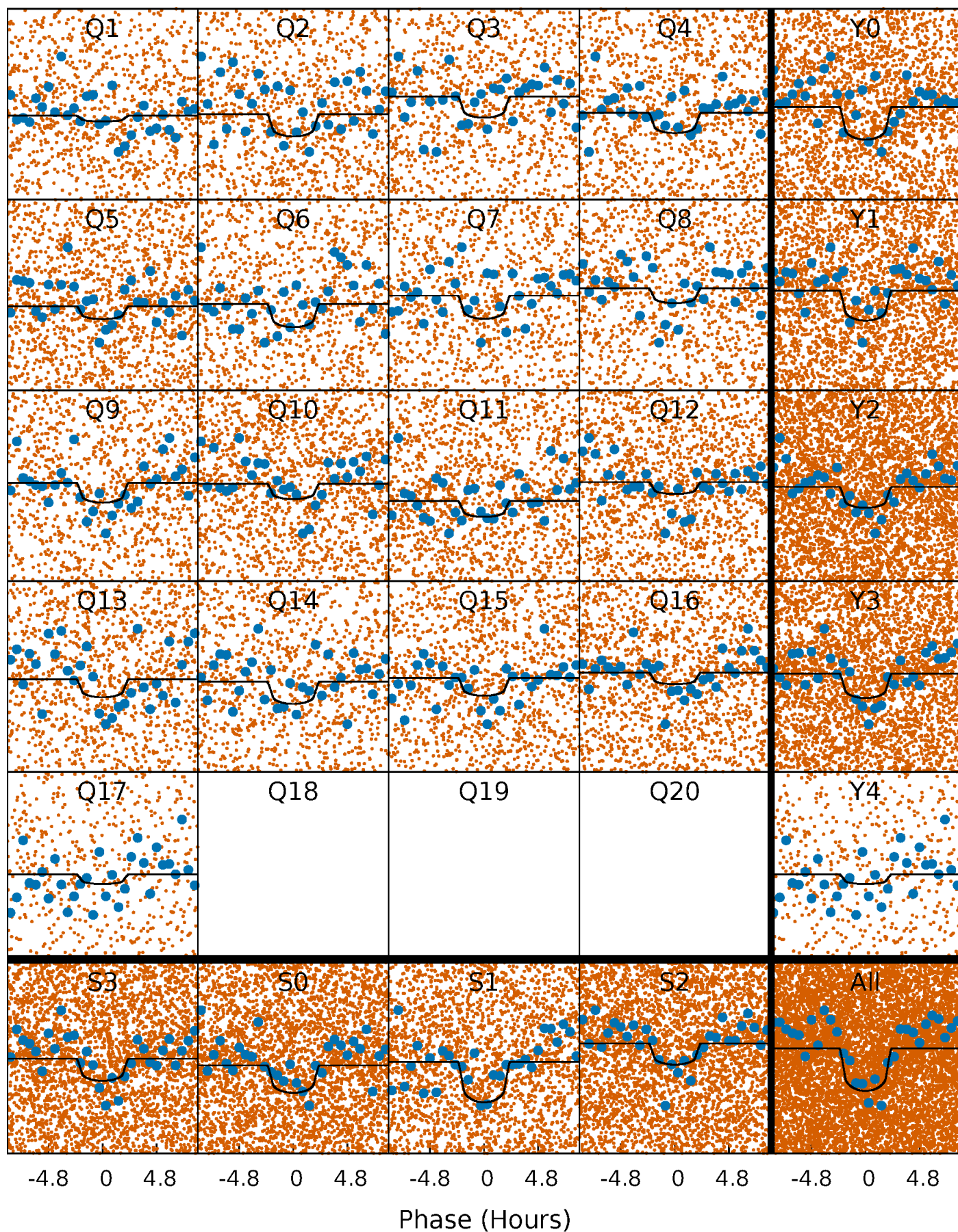
TCE 010471204-01 P= 0.933719 Days  $T_0=131.535784$  (BKJD)





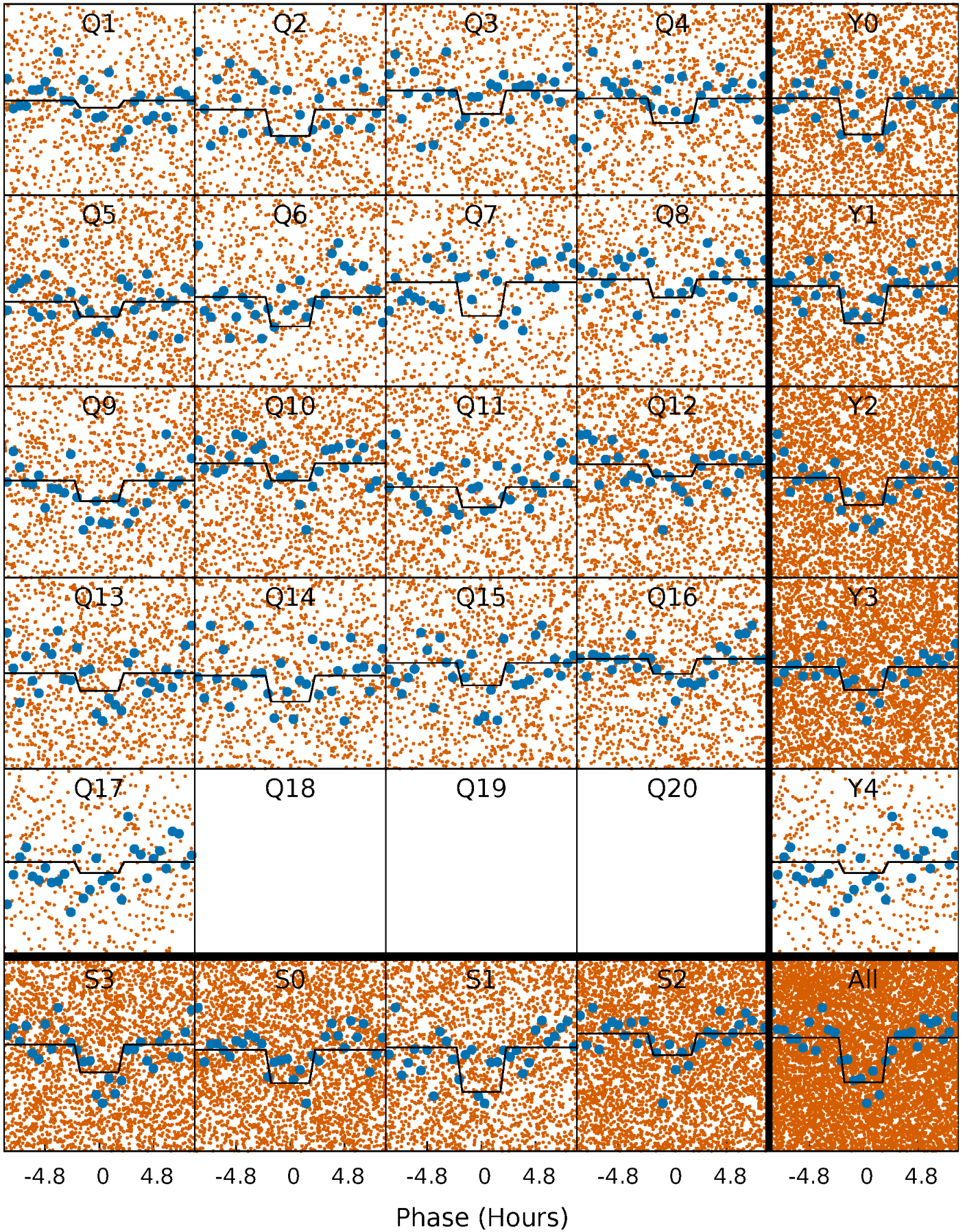
# DV Quarter-Phased Transit Curves

TCE 010471204-01 P= 0.933719 Days  $T_0=131.535784$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010471204-01 P= 0.933722 Days  $T_0=131.535855$  (BKJD)

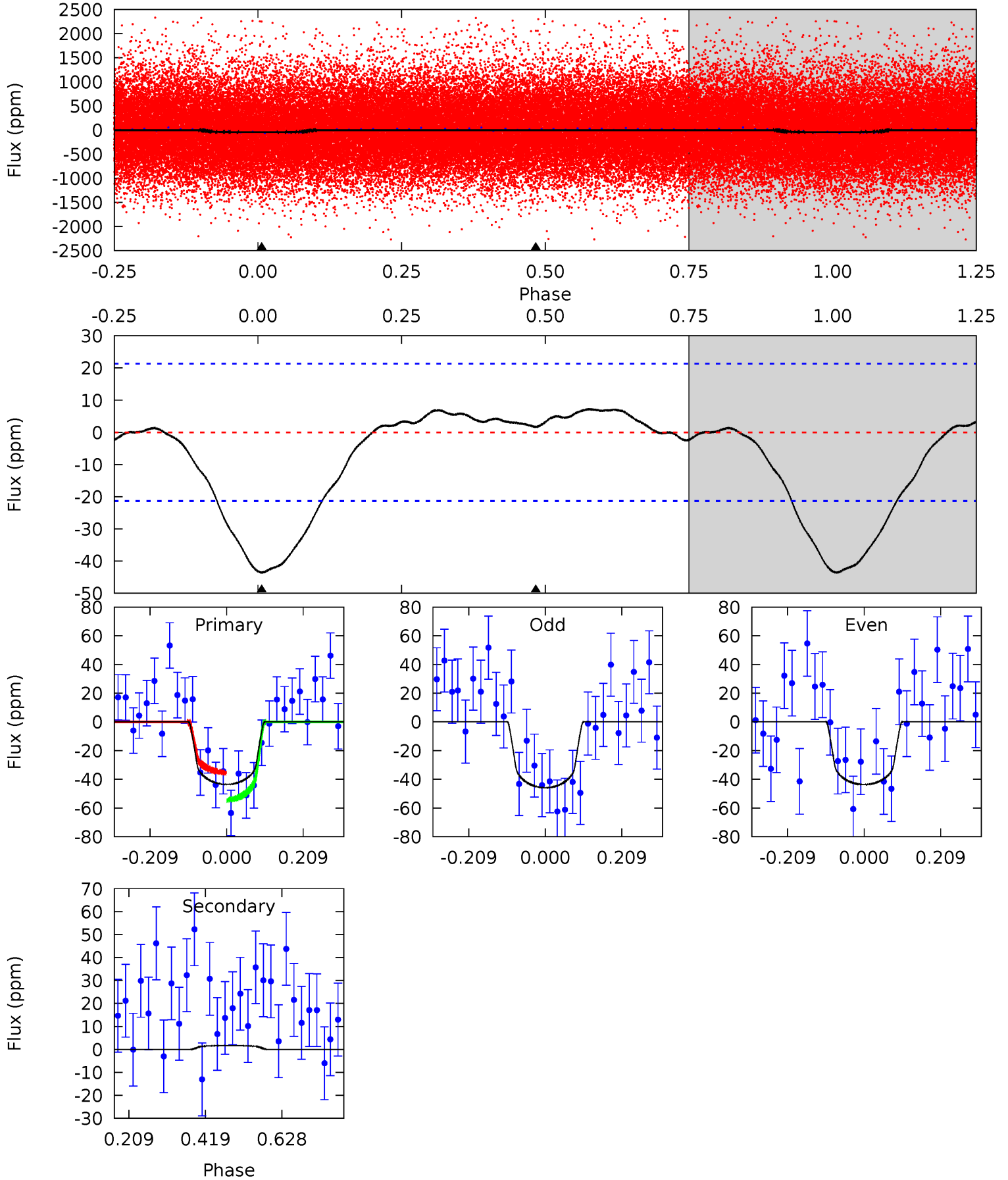




# DV Model-Shift Uniqueness Test

010471204-01, P = 0.933719 Days, E = 130.602065 Days

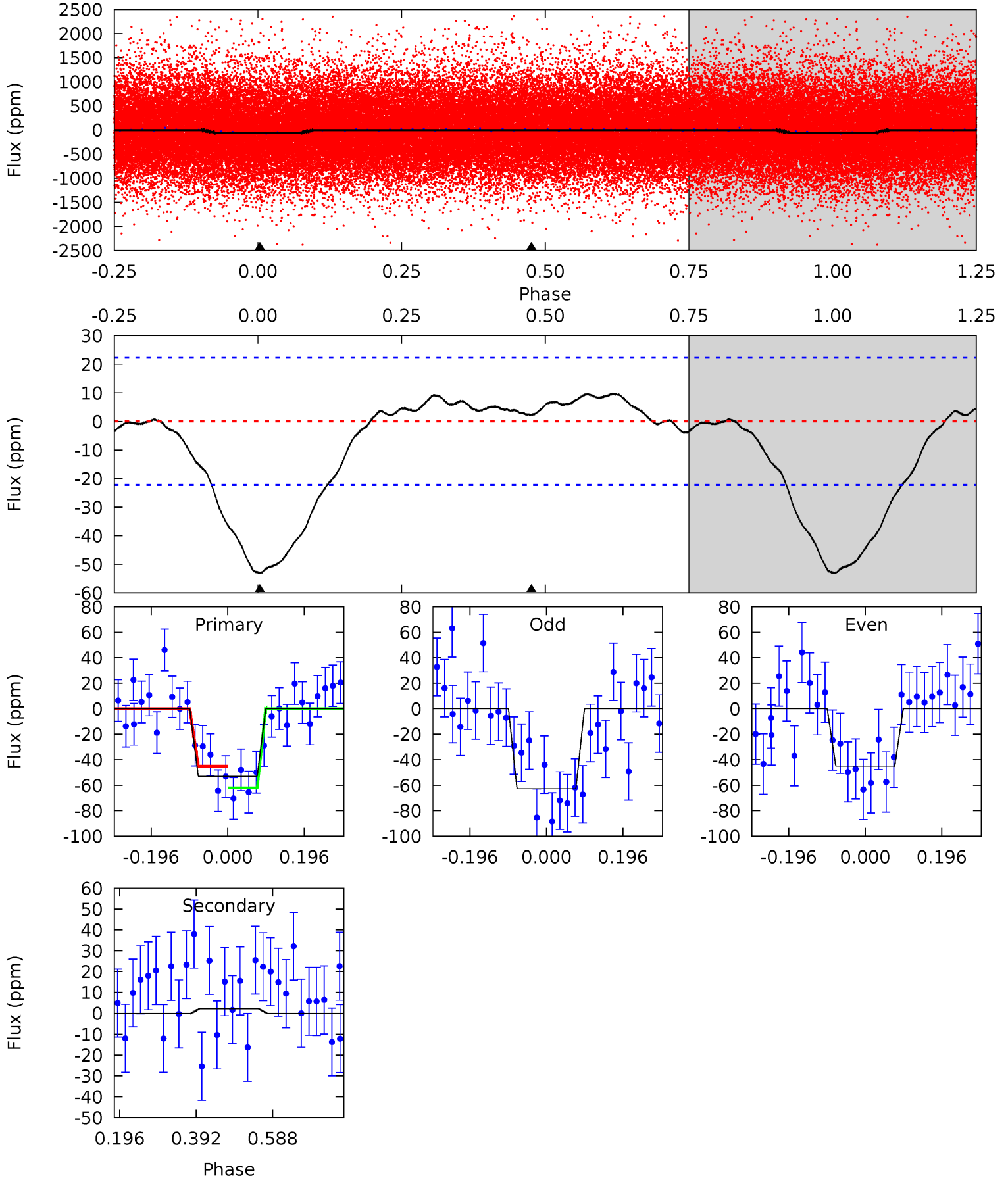
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.00	-0.34	0	0	4.41	1.26	0.37	9.00	9.00	-0.34	-0.34	0.23	1.11	0.14	1.98



# Alt Model-Shift Uniqueness Test

010471204-01, P = 0.933722 Days, E = 130.602133 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
10.5	-0.44	0	0	4.42	1.29	0.48	10.5	10.5	-0.44	-0.44	1.75	0.89	0.15	1.69





### Stellar Parameters For KIC 010471204

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5734^{+156}_{-173}$	$4.538^{+0.034}_{-0.184}$	$-0.020^{+0.300}_{-0.300}$	$0.883^{+0.245}_{-0.077}$	$0.982^{+0.102}_{-0.125}$	$2.009^{+0.373}_{-0.992}$
	+3%/-3%	+1%/-4%	+1500%/-1500%	+28%/-9%	+10%/-13%	+19%/-49%
Source	PHO1	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 010471204-01 / KOI 8018.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$2\pm 5$	$0.86^{+0.68}_{-0.56}$	$2499^{+147}_{-113}$	$-3053^{+6038}_{-1201}$	$-0.252^{+1.085}_{-3.397}$
Alt.	$2\pm 5$	$0.86^{+0.65}_{-0.55}$	$2494^{+170}_{-113}$	$-3143^{+6066}_{-1032}$	$-0.373^{+1.037}_{-3.138}$

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

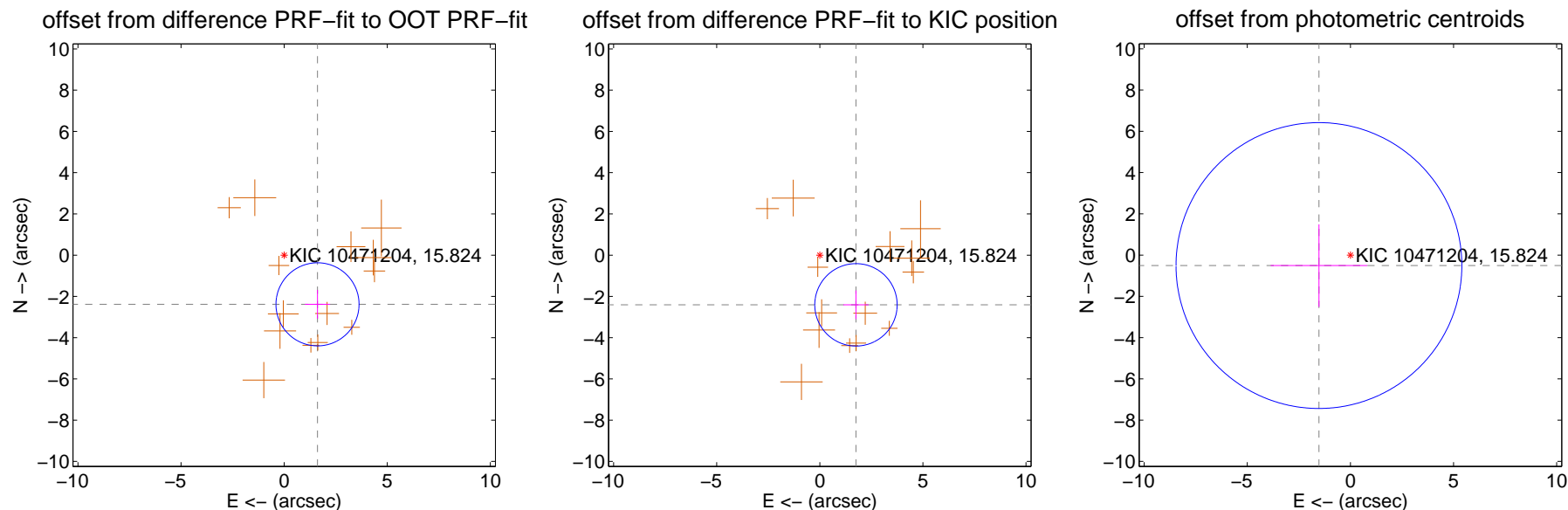
## DV Centroid Data

Supplemental centroid analysis for 010471204-01. Kepler magnitude: 15.82. Transit SNR 7.29

There are 0 quarters with good PRF difference image offsets

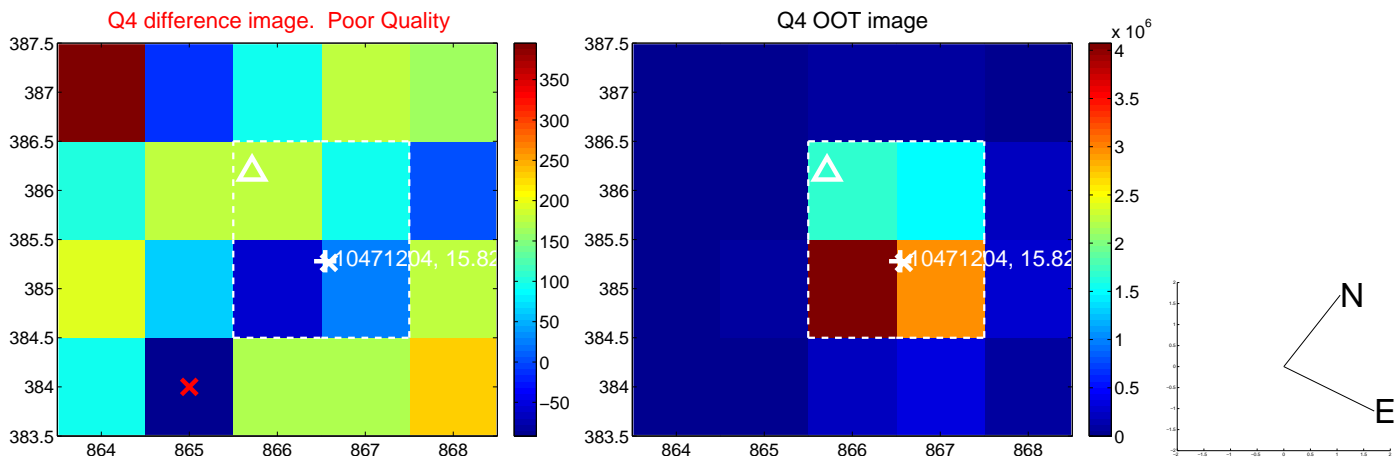
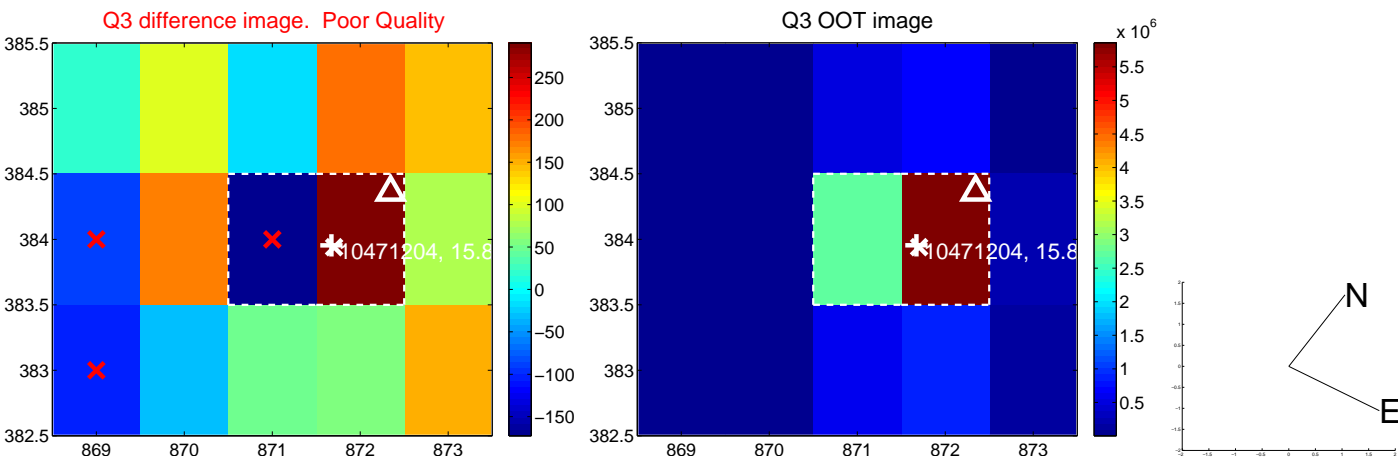
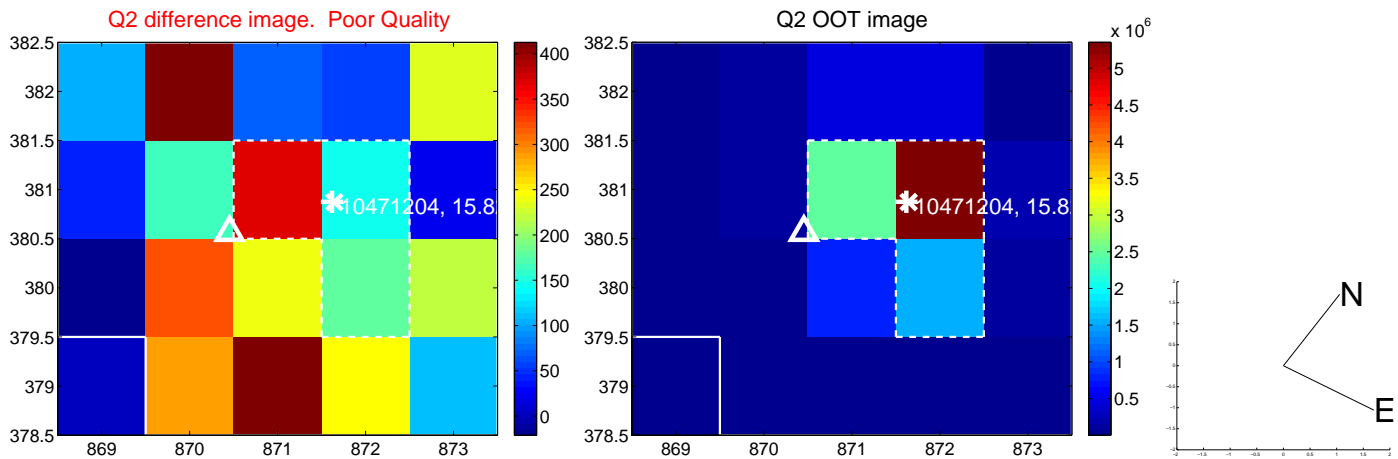
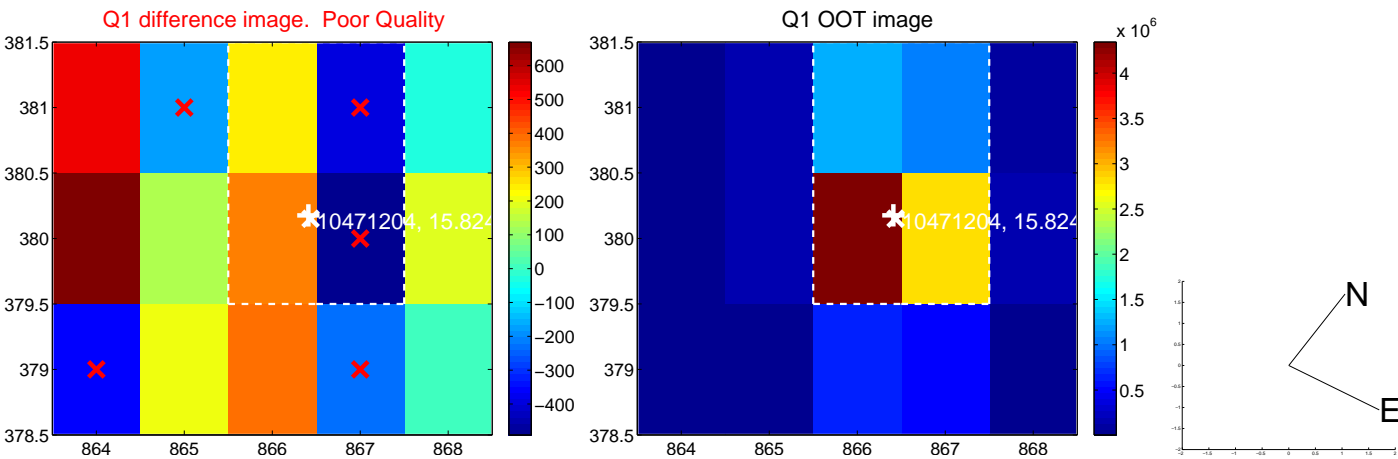
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.881 \pm 0.671$	4.29	$-1.618 \pm 0.612$	$-2.384 \pm 0.697$
PRF-fit source offset from KIC position	$2.979 \pm 0.666$	4.47	$-1.753 \pm 0.611$	$-2.409 \pm 0.693$
photometric centroid source offset	$1.61 \pm 2.31$	0.70	$1.53 \pm 2.34$	$-0.51 \pm 2.00$

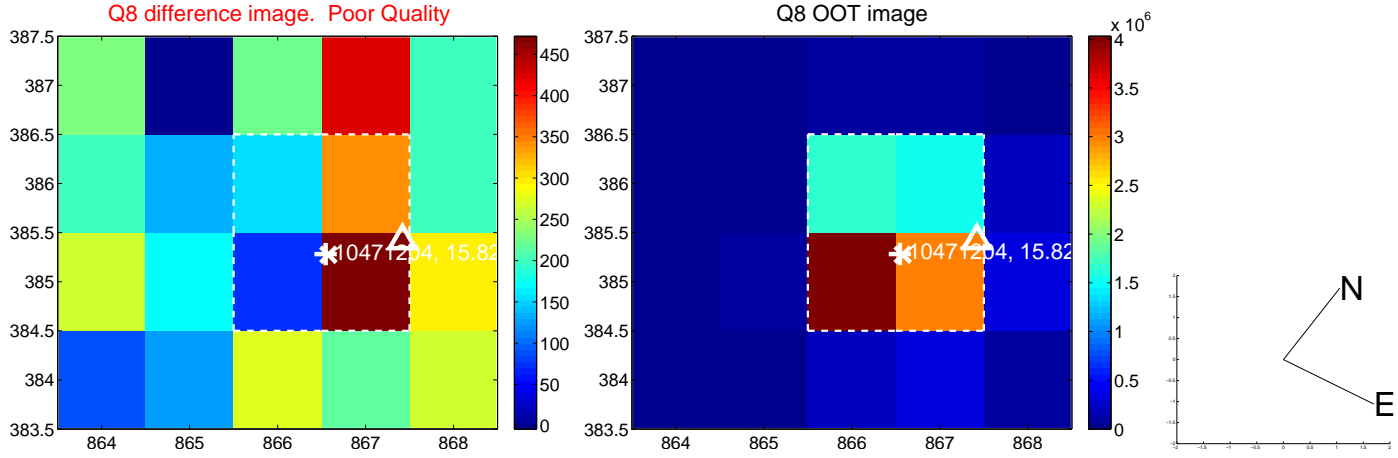
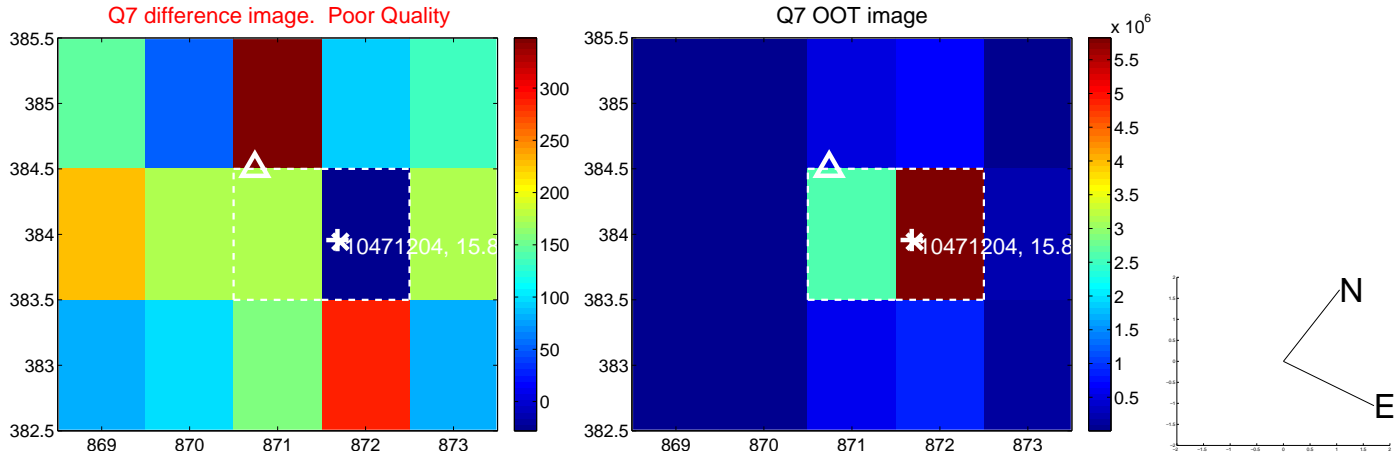
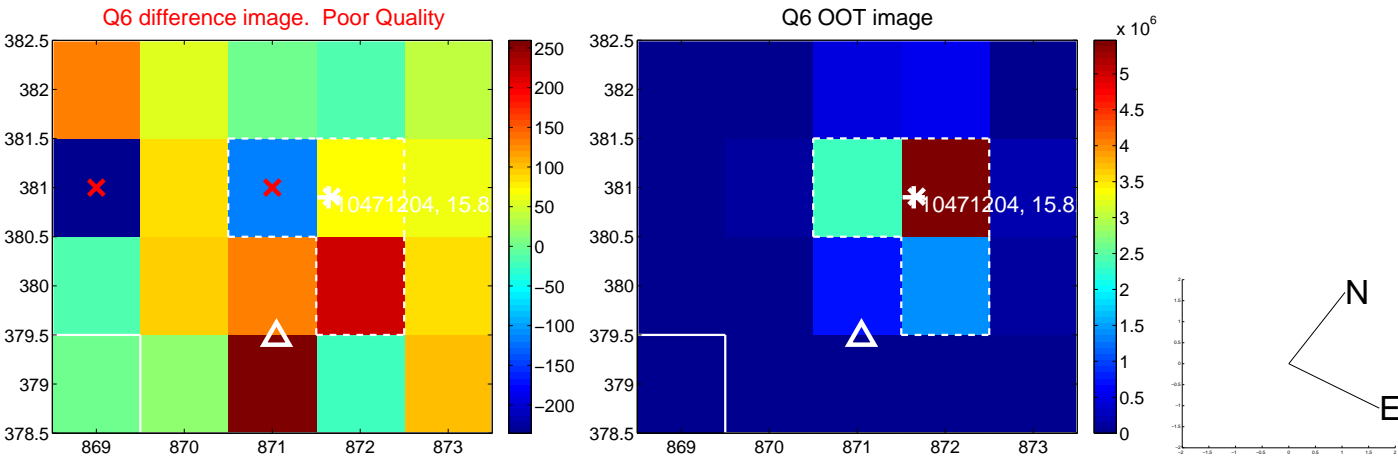
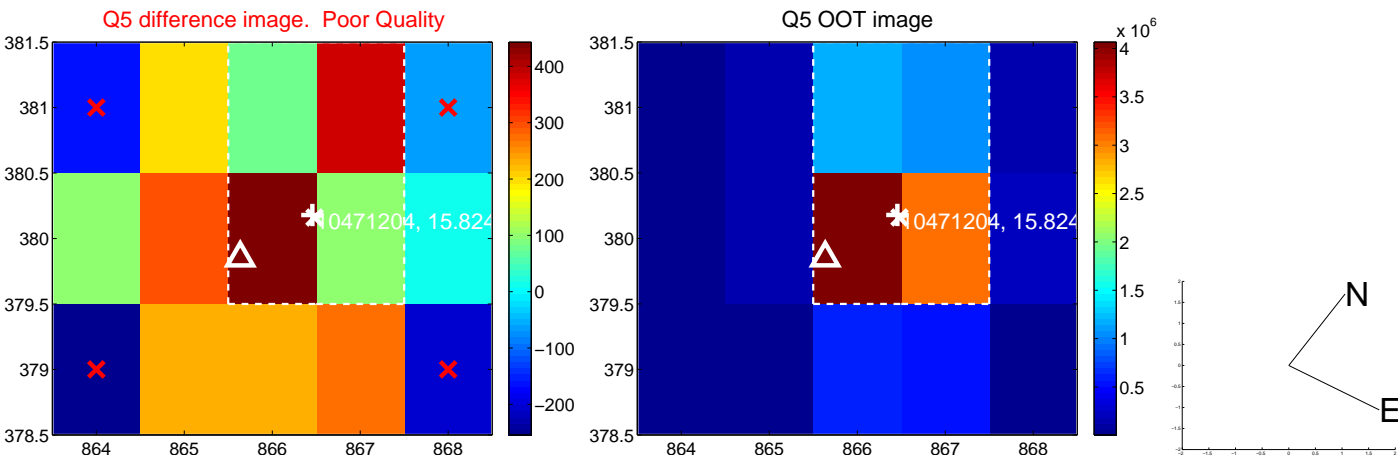


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

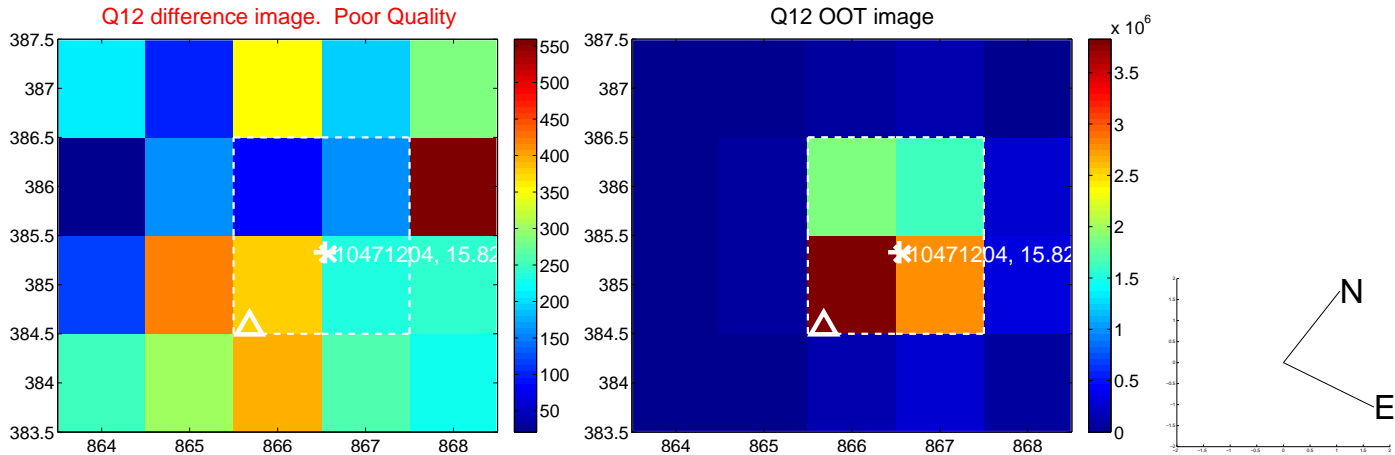
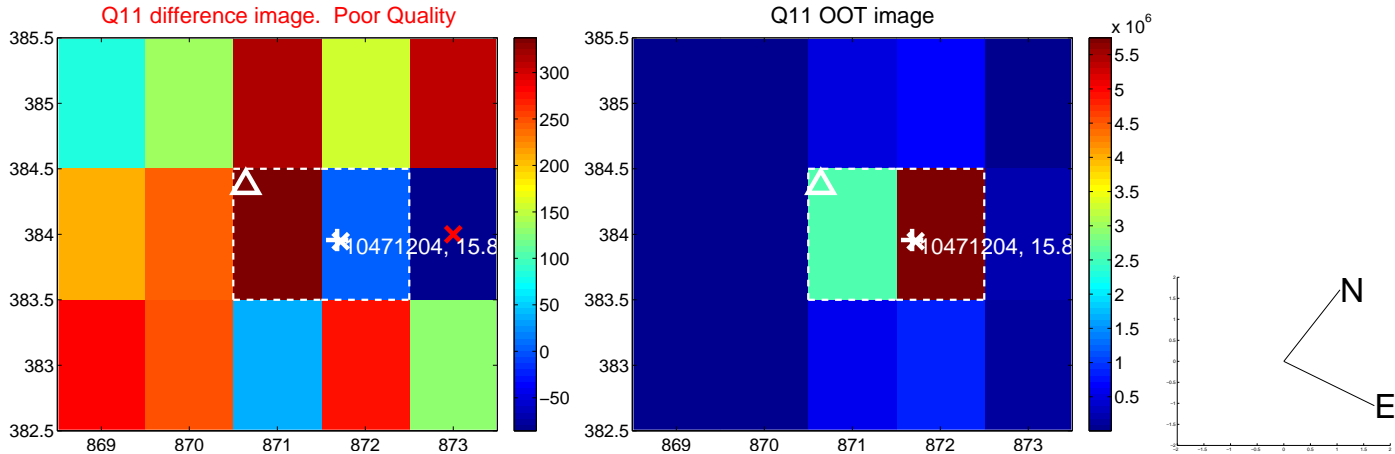
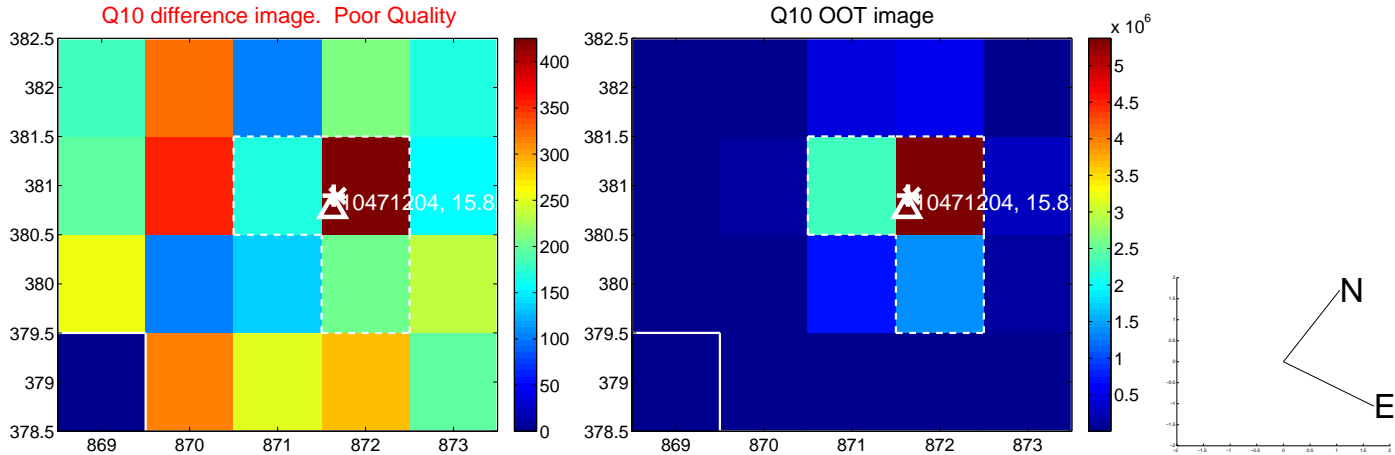
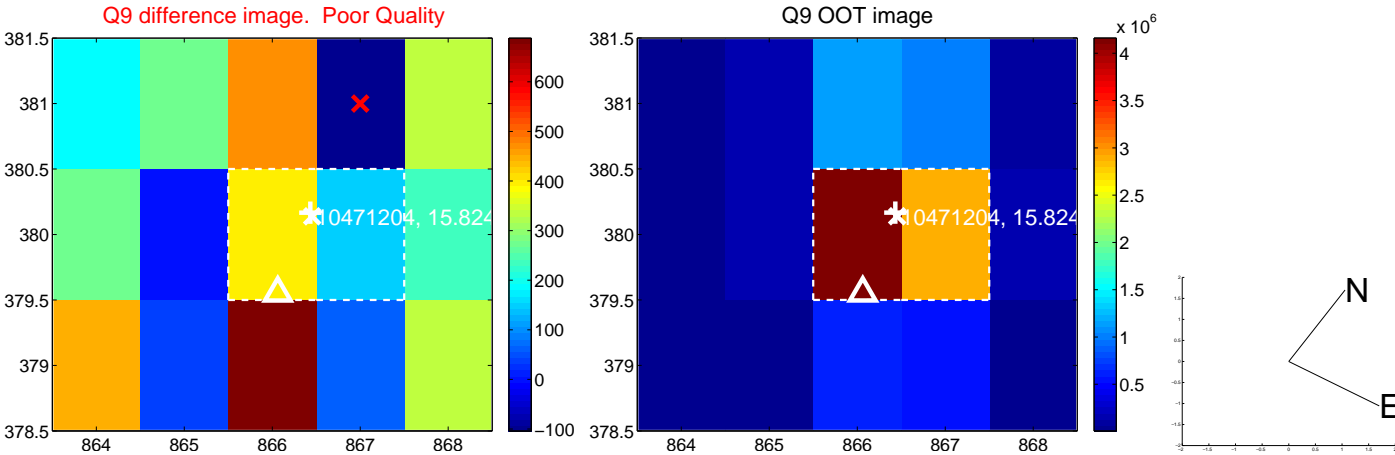


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

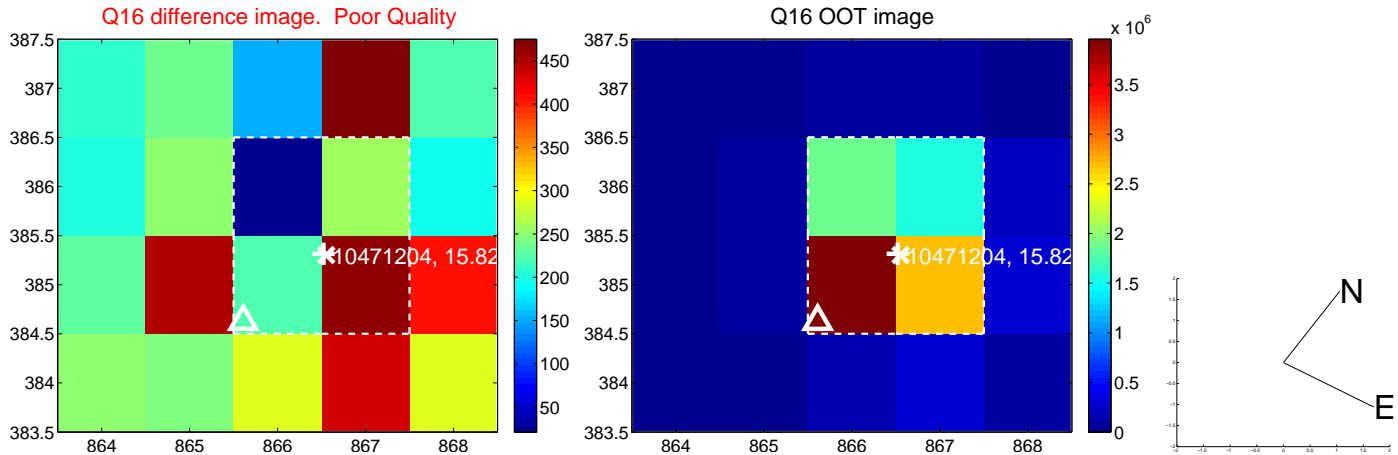
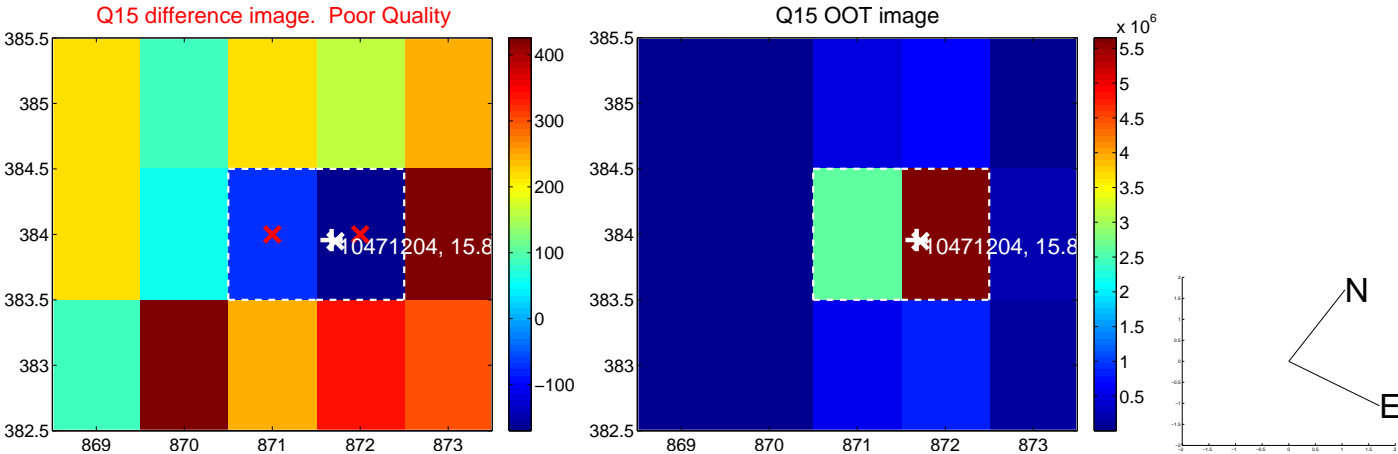
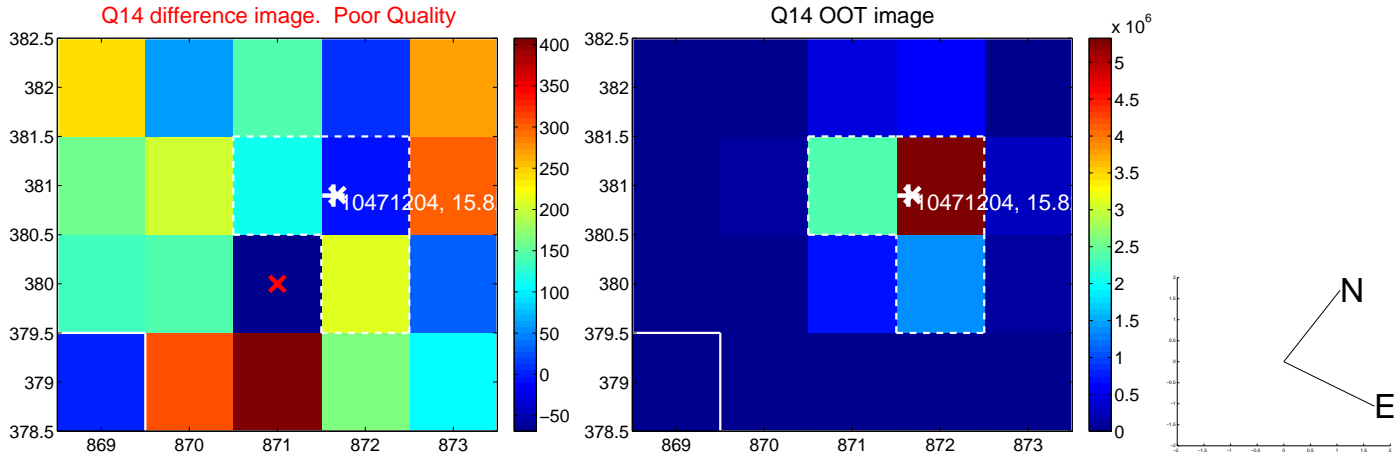
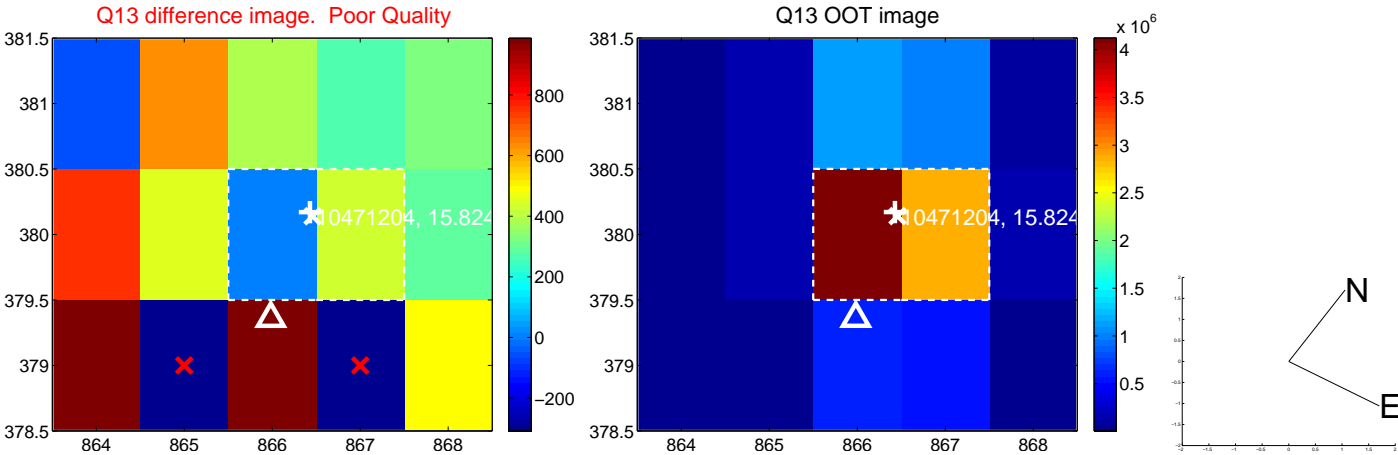




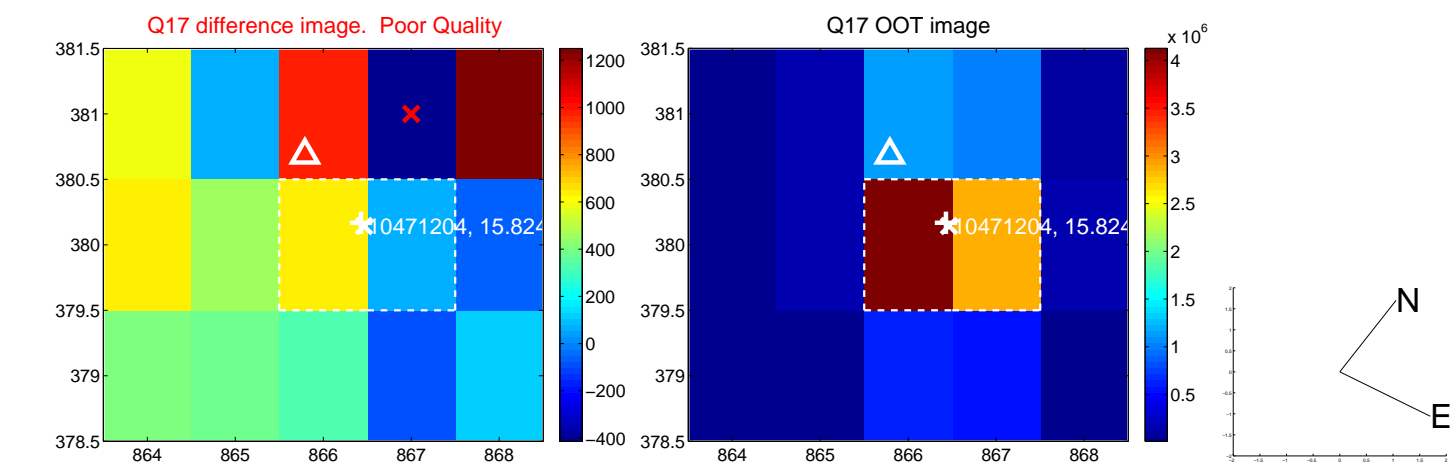
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



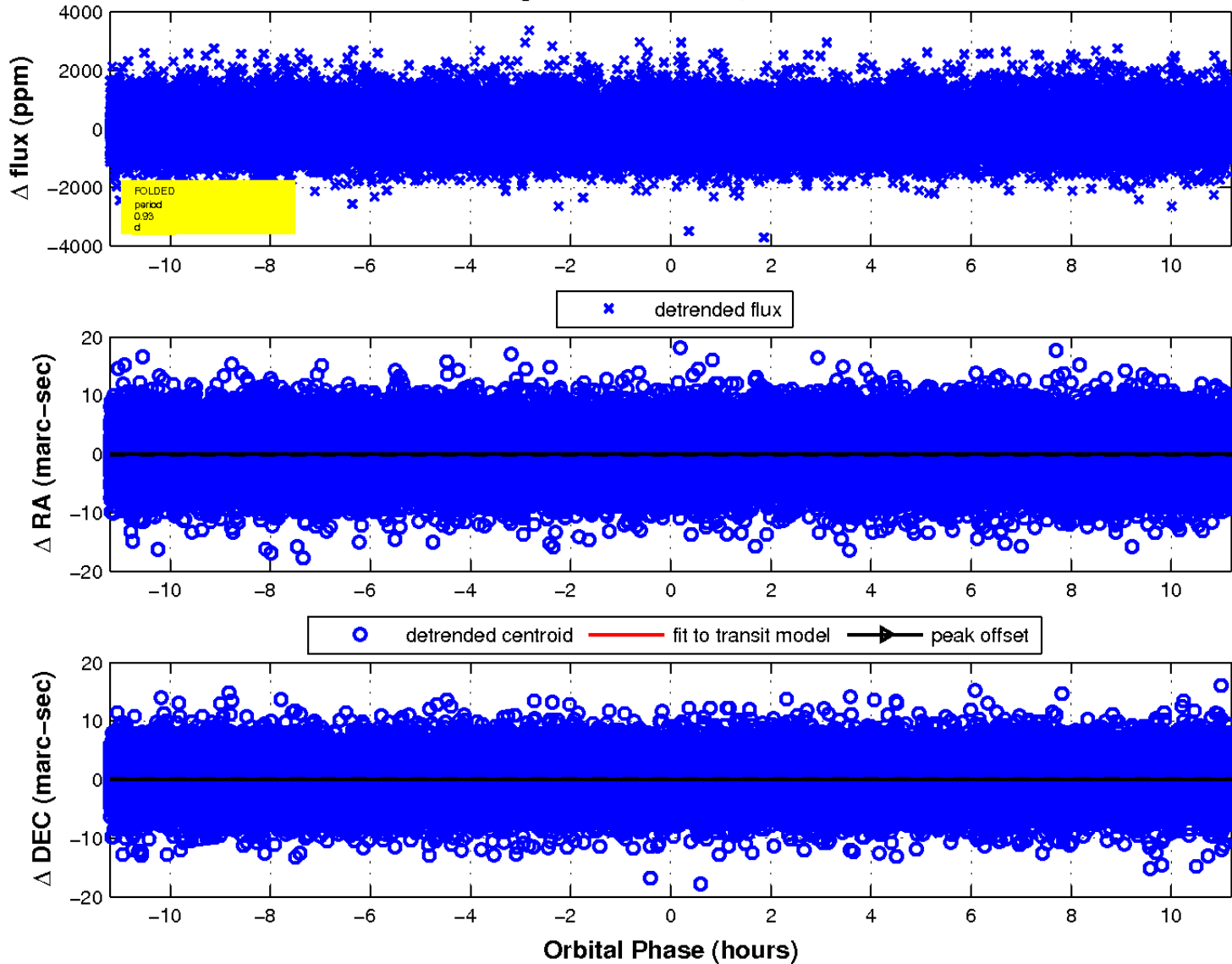
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

