

# KIC 008431006

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008431006-01	OBS	No	1.328632	132.721142	0.0	10.462	11.6	0.0	2.00	7358	0.01	13434.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008431006-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV

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

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

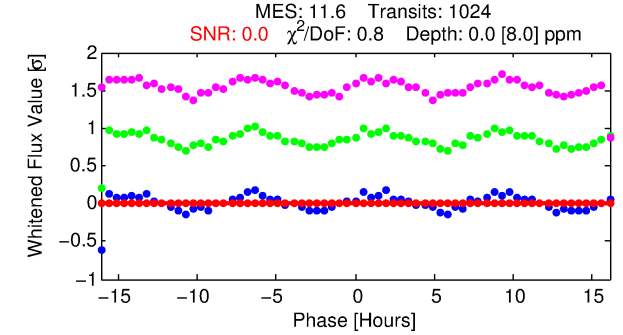
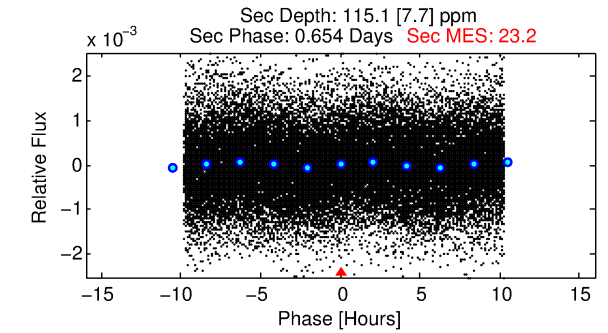
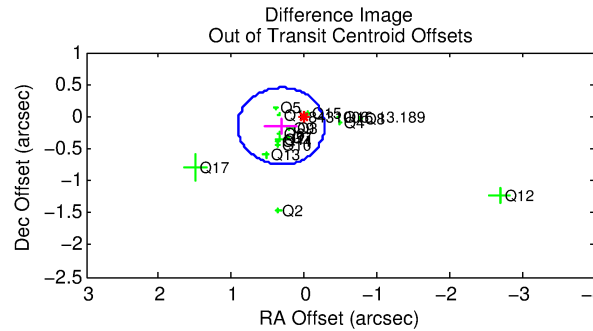
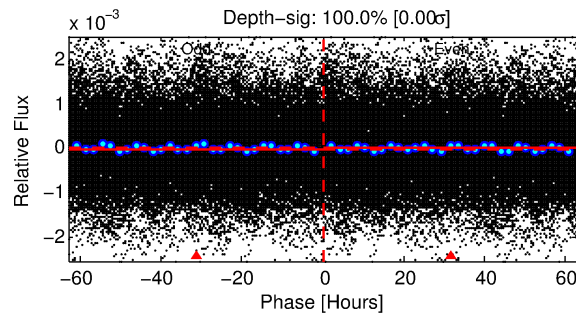
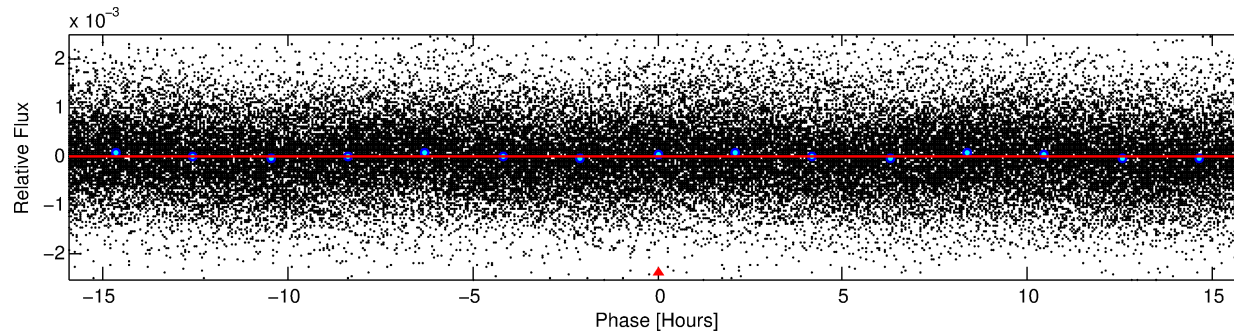
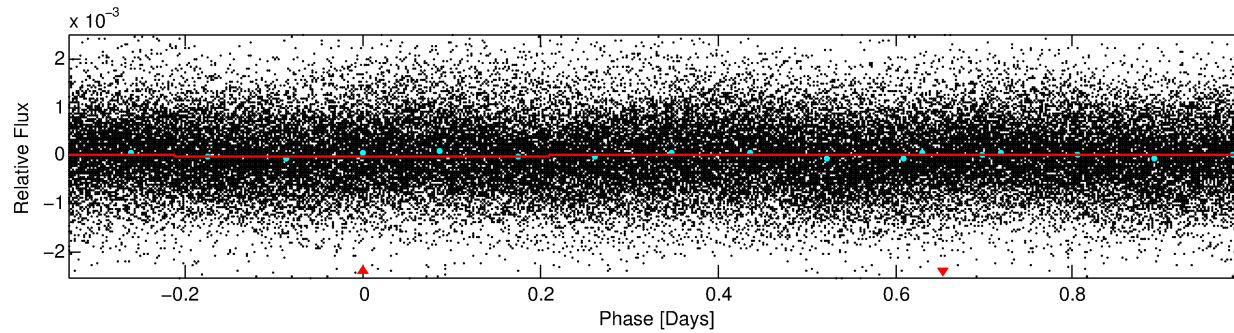
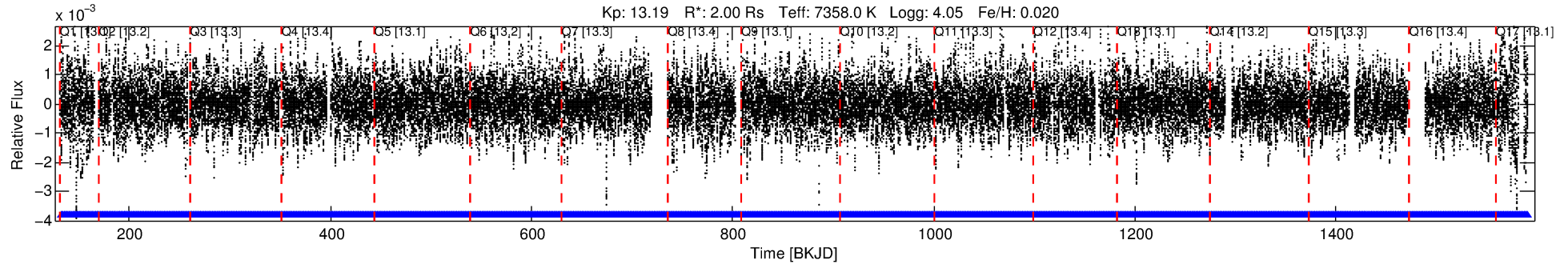
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008431006-01

No Significant Match Found

# DV One-Page Summary

KIC: 8431006 Candidate: 1 of 1 Period: 1.329 d



## DV Fit Results:

Period = 1.32863 [0.25628] d  
Epoch = 132.7211 [43.0476] BKJD  
Rp/R\* = 0.0000 [0.0727]  
a/R\* = 1.16 [702.64]  
b = 0.16 [13710.32]  
Seff = 13434.61 [5977.48]  
Teq = 2745 [305] K  
Rp = 0.01 [15.88] Re  
a = 0.0280 [0.0071] AU  
Ag = 423656.01 [1243366374.57] [0.00σ]  
Teff = 108287 [79455254] K [0.00σ]

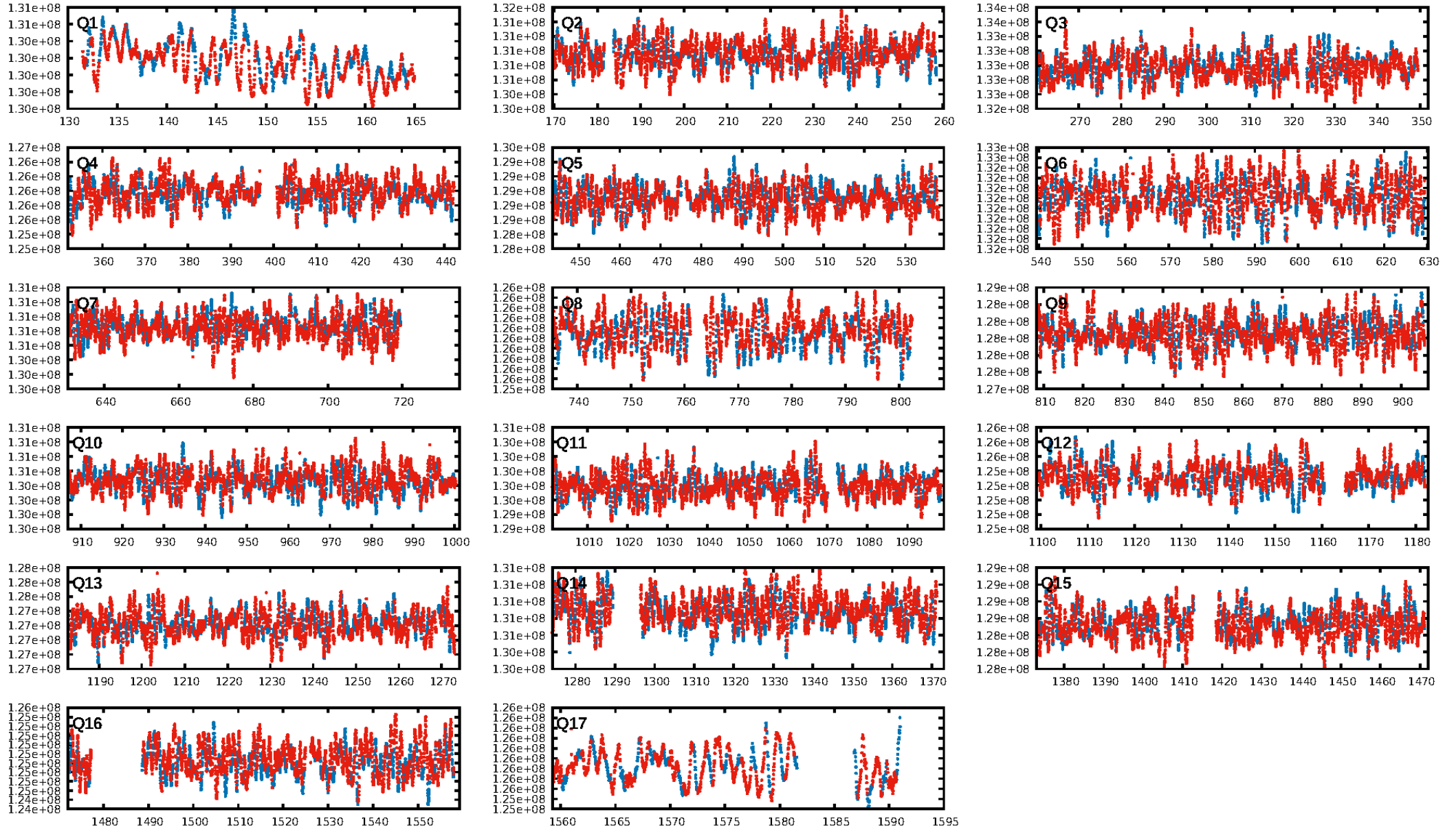
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [978/978]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.351 arcsec [1.76σ]  
KicOffset-rm: 0.197 arcsec [1.08σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:05:22 Z

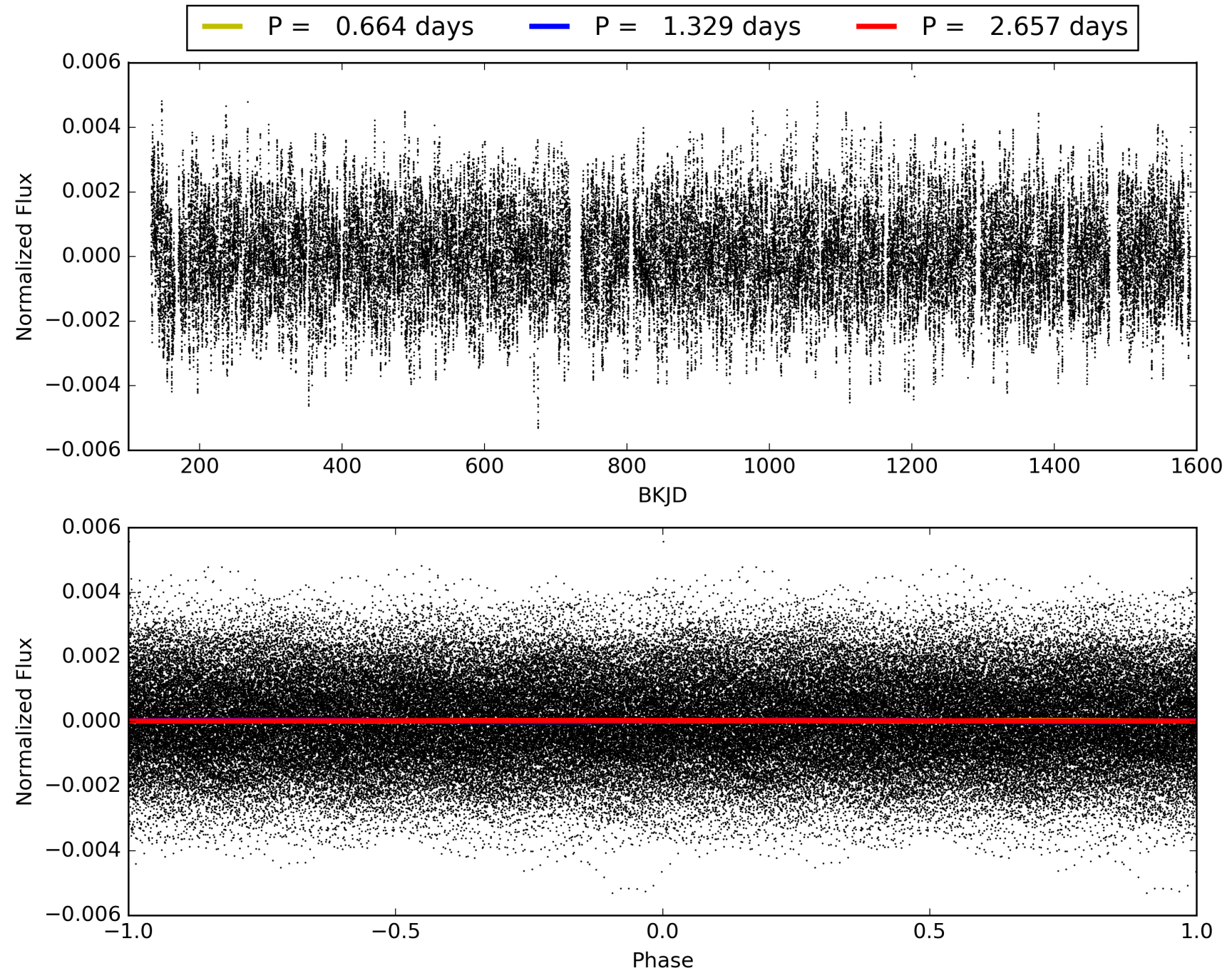
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008431006-01, PDC Light Curves



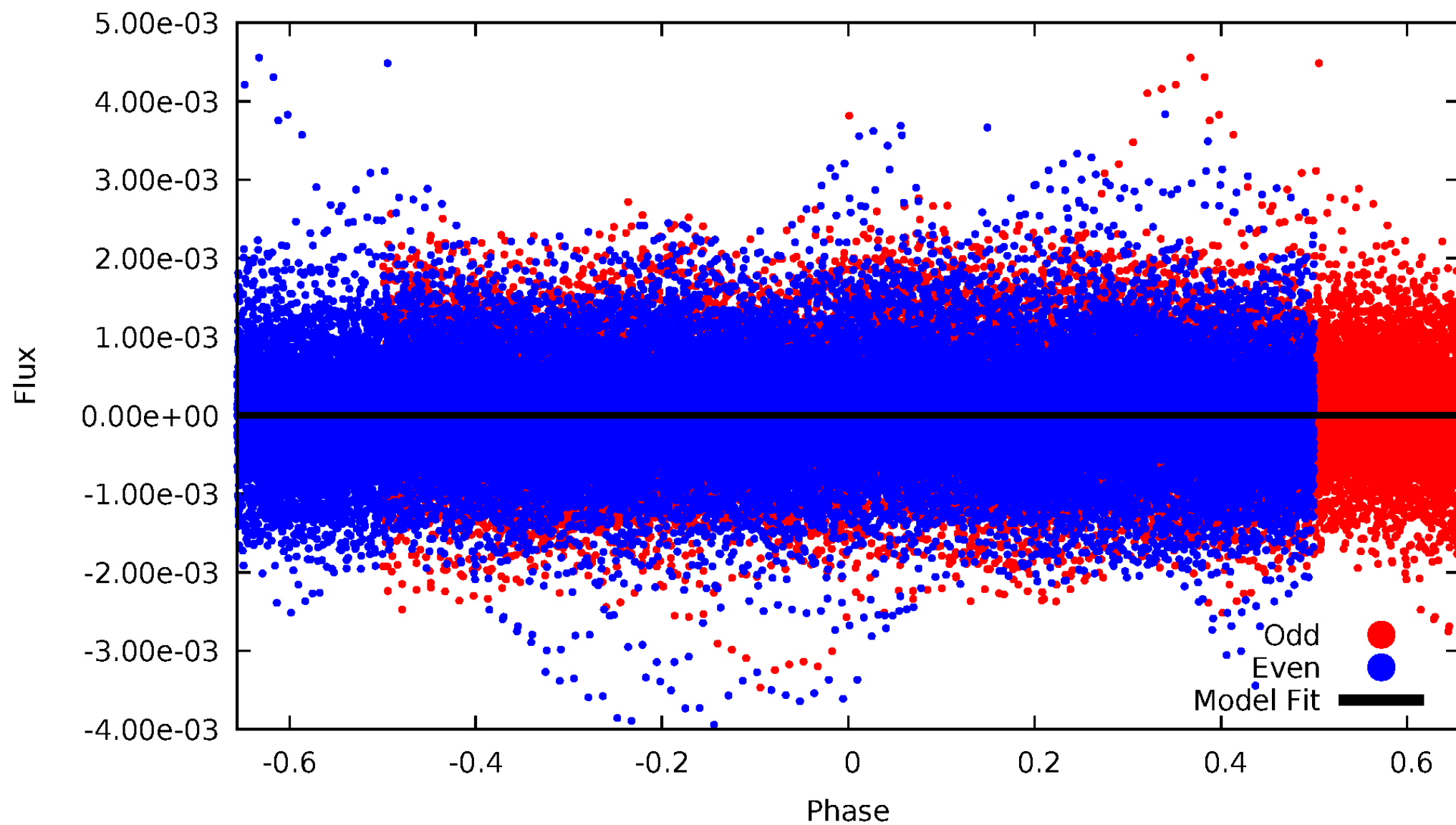


# TCE 008431006-01



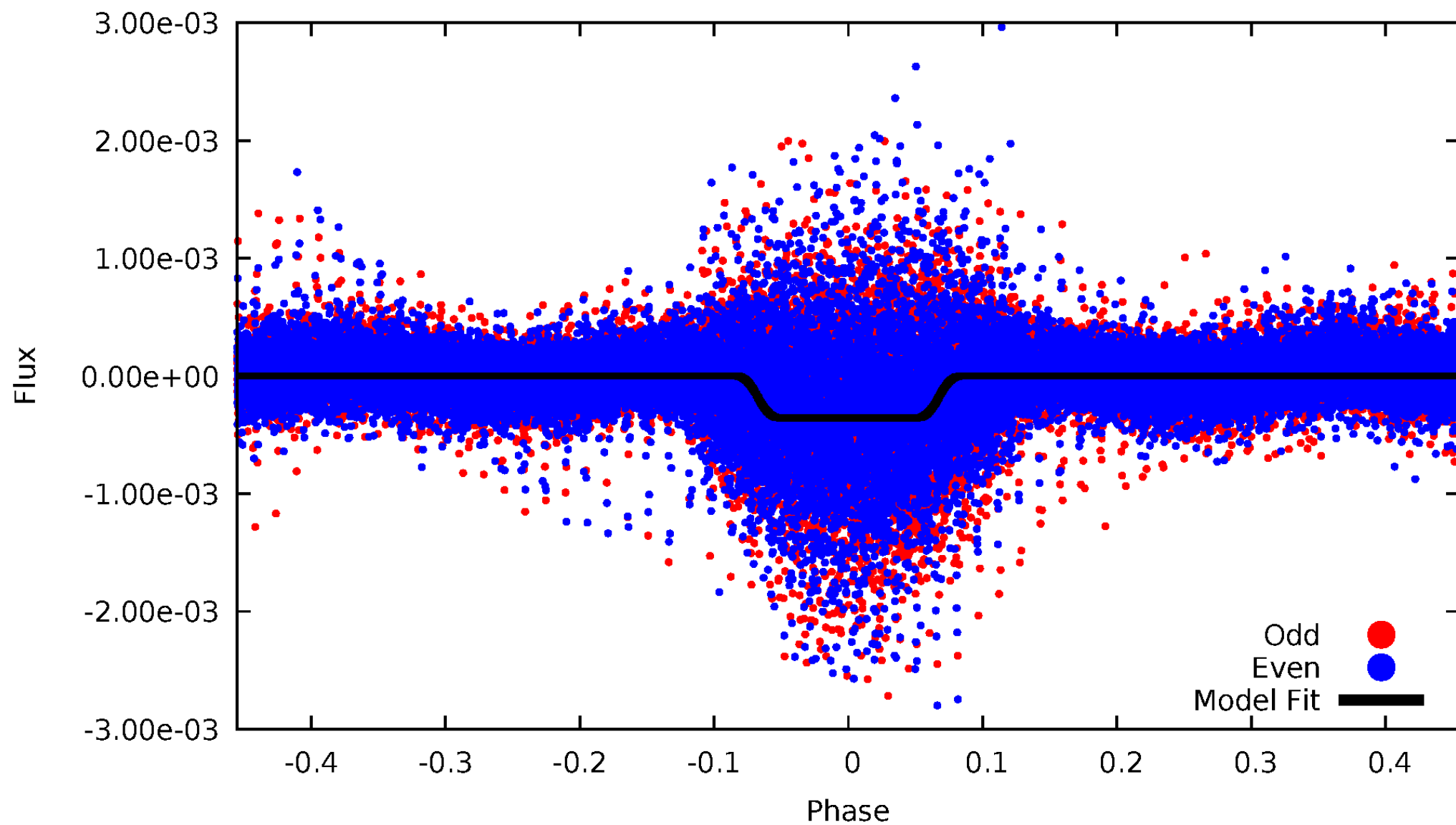
# DV Odd/Even

TCE 008431006-01



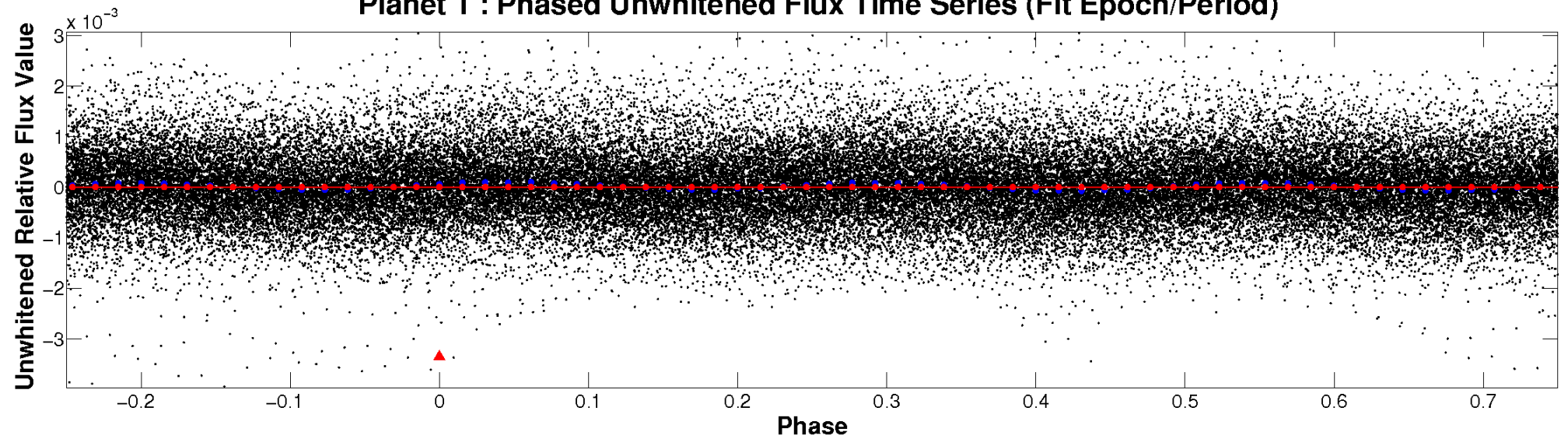
# ALT Odd/Even

TCE 008431006-01

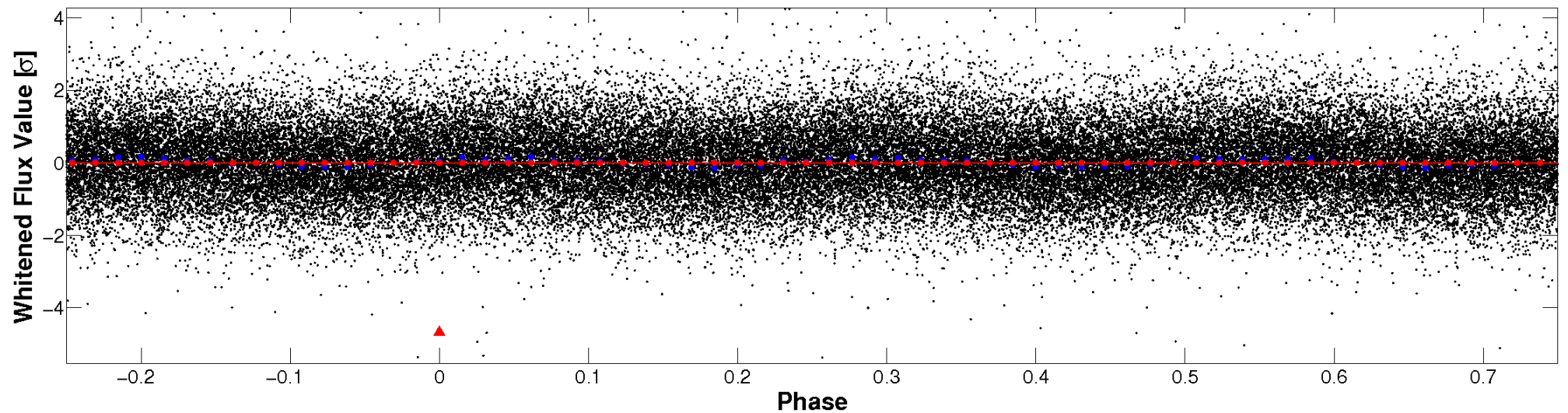


# Non-Whitened Vs. Whitened Light Curve

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



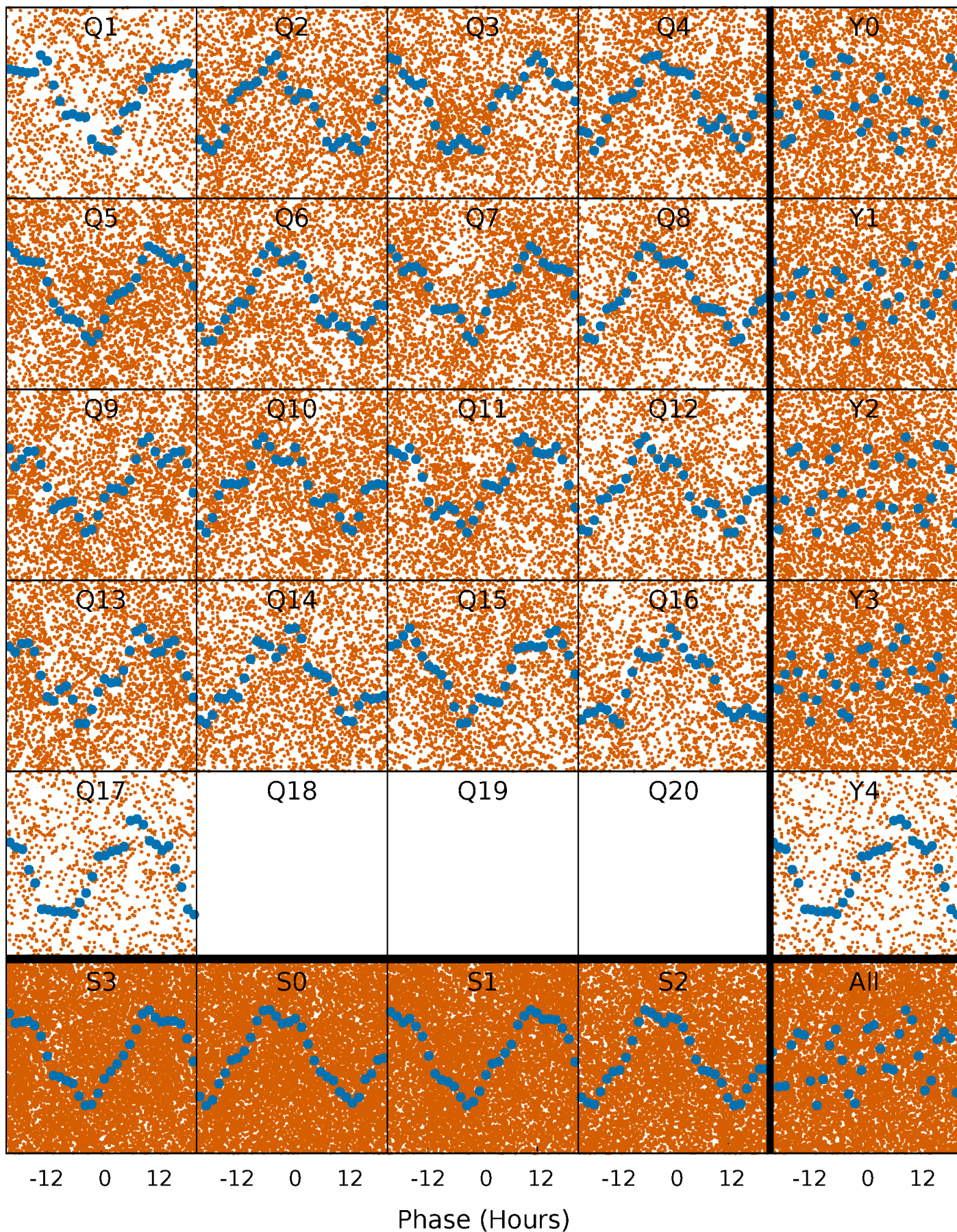
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

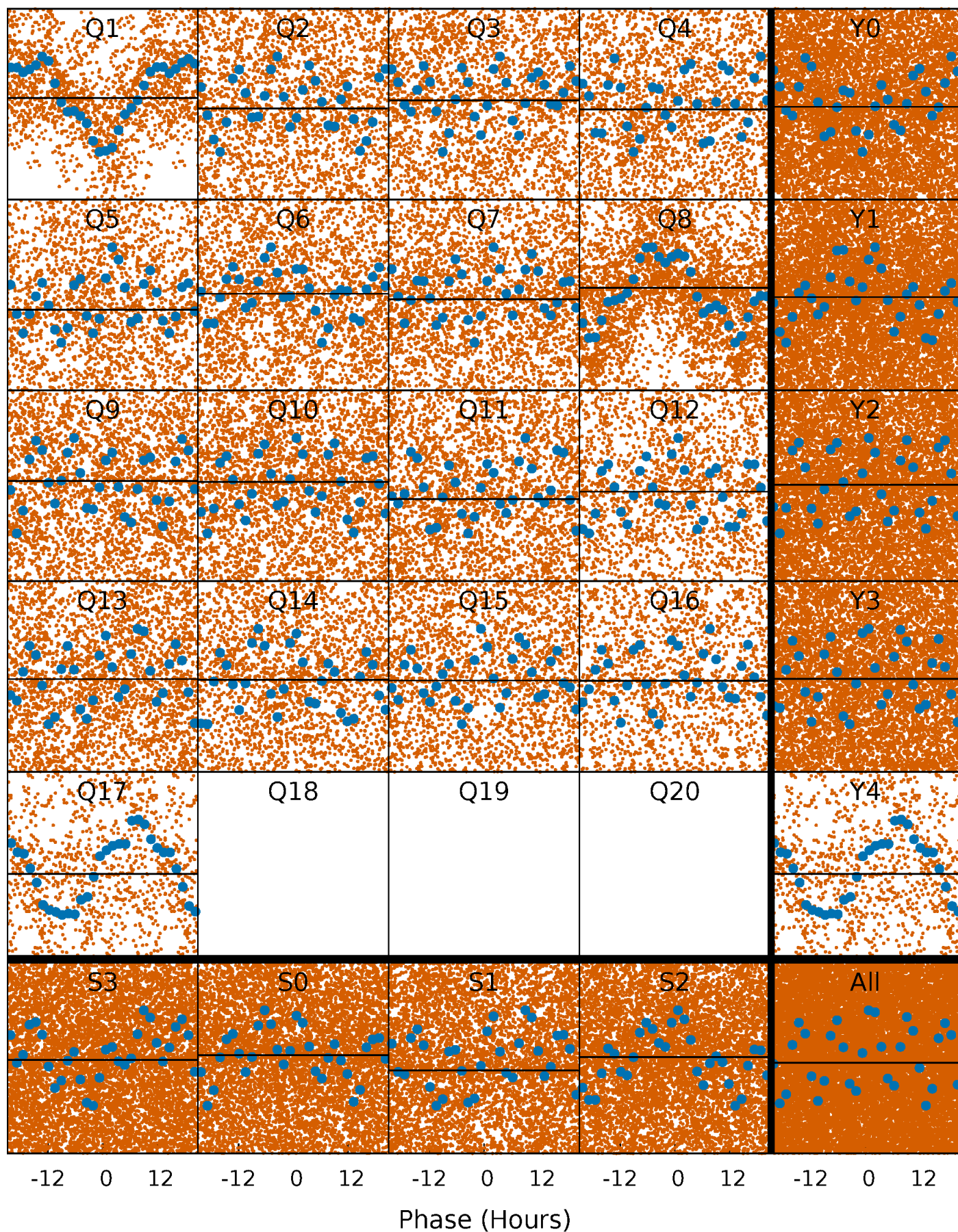
TCE 008431006-01 P= 1.328632 Days  $T_0=132.721142$  (BKJD)





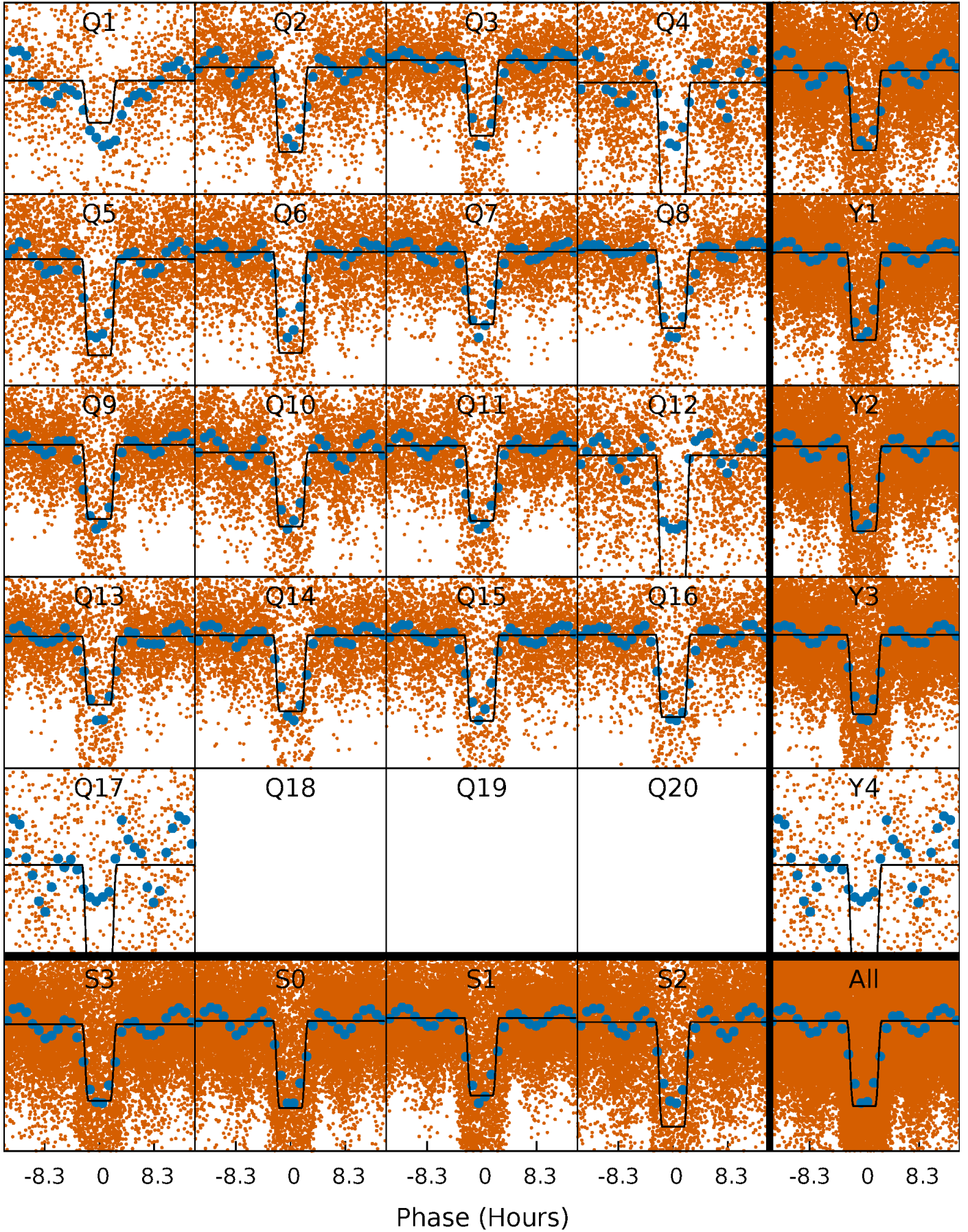
# DV Quarter-Phased Transit Curves

TCE 008431006-01 P= 1.328632 Days  $T_0=132.721142$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008431006-01 P= 1.328467 Days  $T_0=132.708894$  (BKJD)

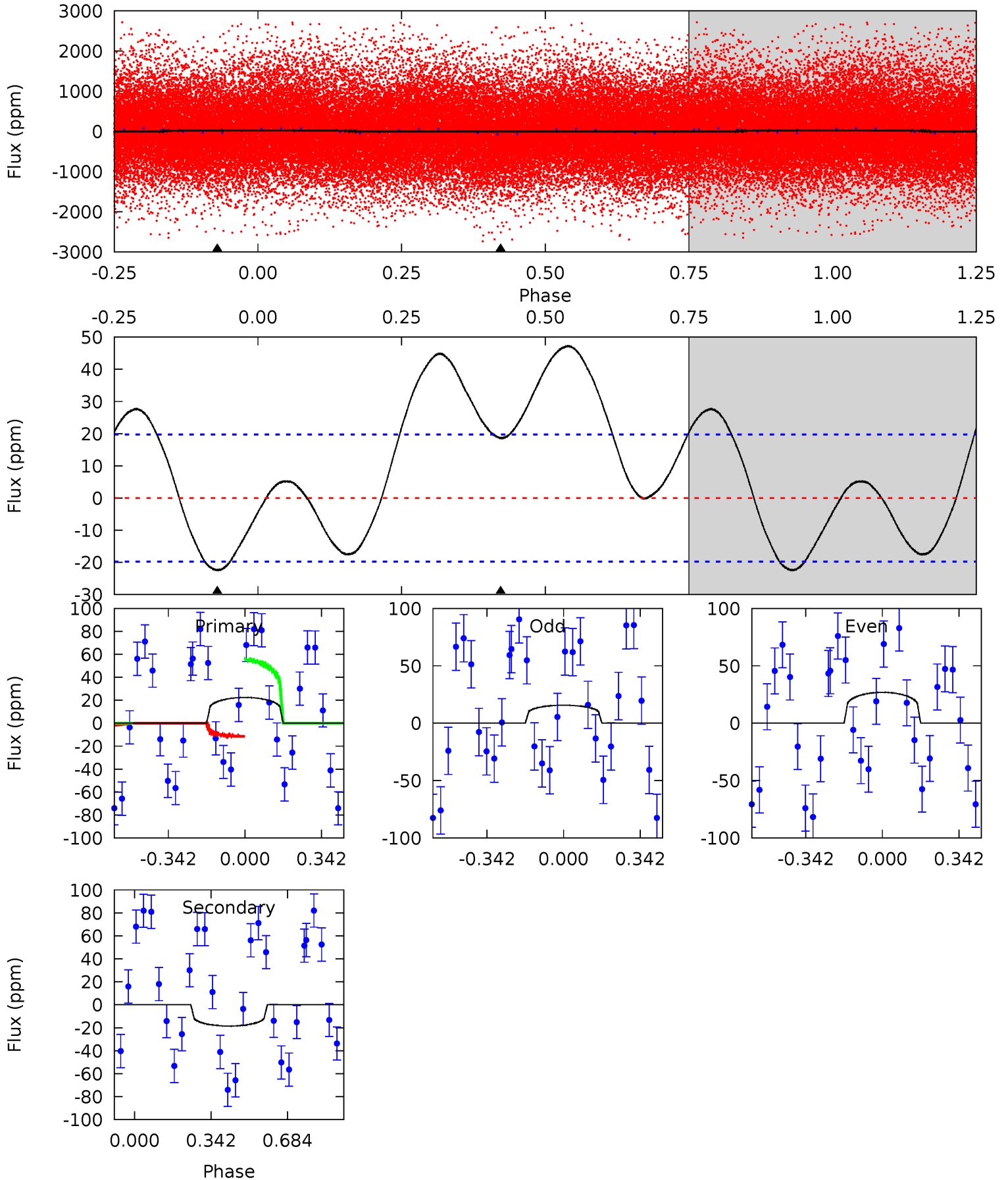




# DV Model-Shift Uniqueness Test

008431006-01, P = 1.328632 Days, E = 131.392510 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
4.88	-4.04	0	0	4.30	0.95	1.81	4.88	4.88	-4.04	-4.04	1.20	3.86	0.68	4.65

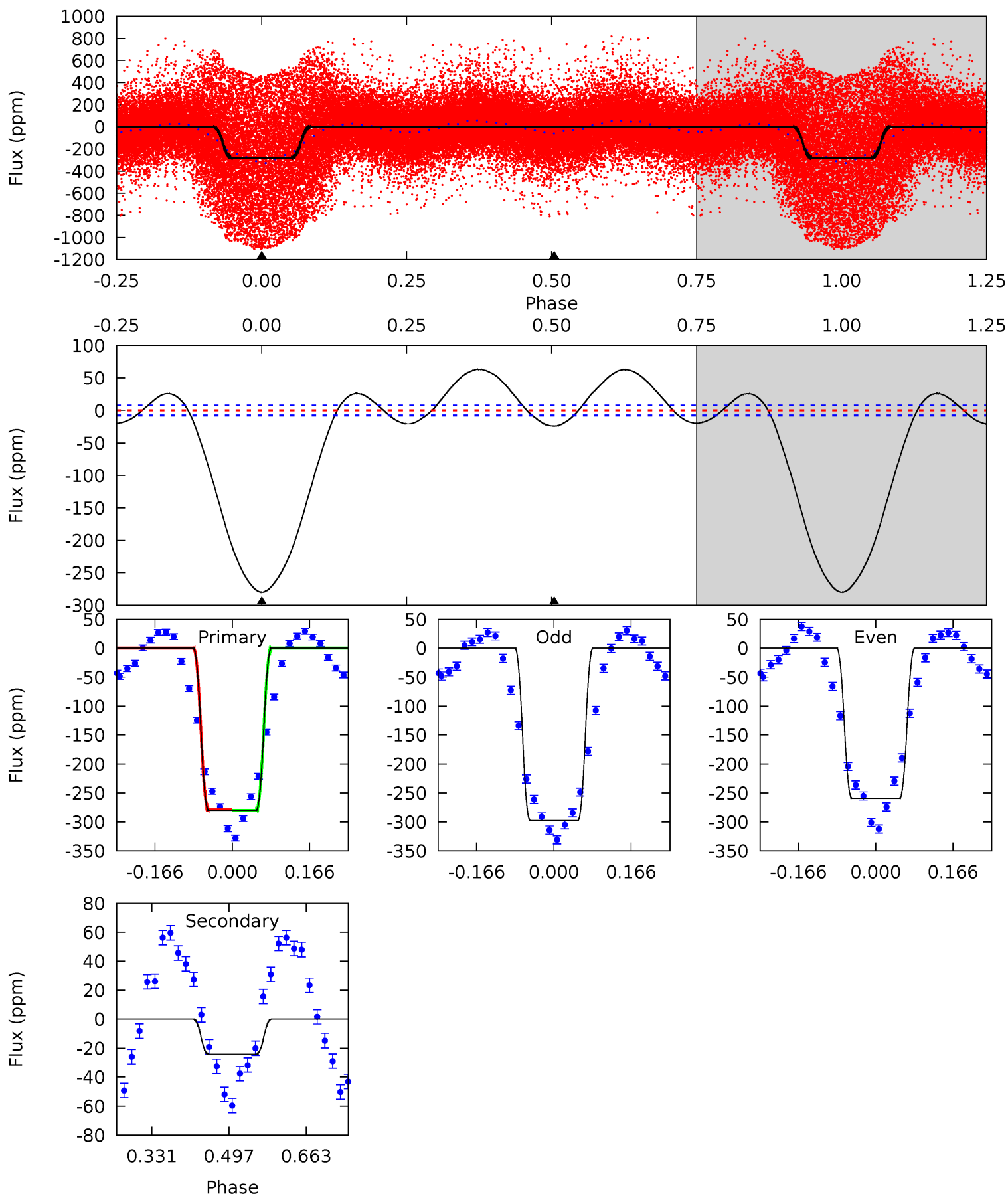




# Alt Model-Shift Uniqueness Test

008431006-01, P = 1.328467 Days, E = 131.380427 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
160.5	13.8	0	0	4.46	1.39	10.5	160.5	160.5	13.8	13.8	10.8	1.08	0.18	0.34



### Stellar Parameters For KIC 008431006

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7358^{+228}_{-330}$	$4.054^{+0.170}_{-0.170}$	$0.020^{+0.200}_{-0.350}$	$2.001^{+0.533}_{-0.480}$	$1.653^{+0.199}_{-0.273}$	$0.291^{+0.277}_{-0.144}$
	+3%/-4%	+4%/-4%	+1000%/-1750%	+27%/-24%	+12%/-17%	+95%/-49%
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 008431006-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$19 \pm 5$	$10.70^{+12.11}_{-7.44}$	$3818^{+465}_{-343}$	$-3796^{+307}_{-653}$	$-0.066^{+0.053}_{-0.639}$
Alt.	$-24 \pm 2$	$12.18^{+13.39}_{-8.68}$	$3864^{+401}_{-375}$	$-3350^{+7250}_{-342}$	$0.070^{+0.643}_{-0.055}$

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

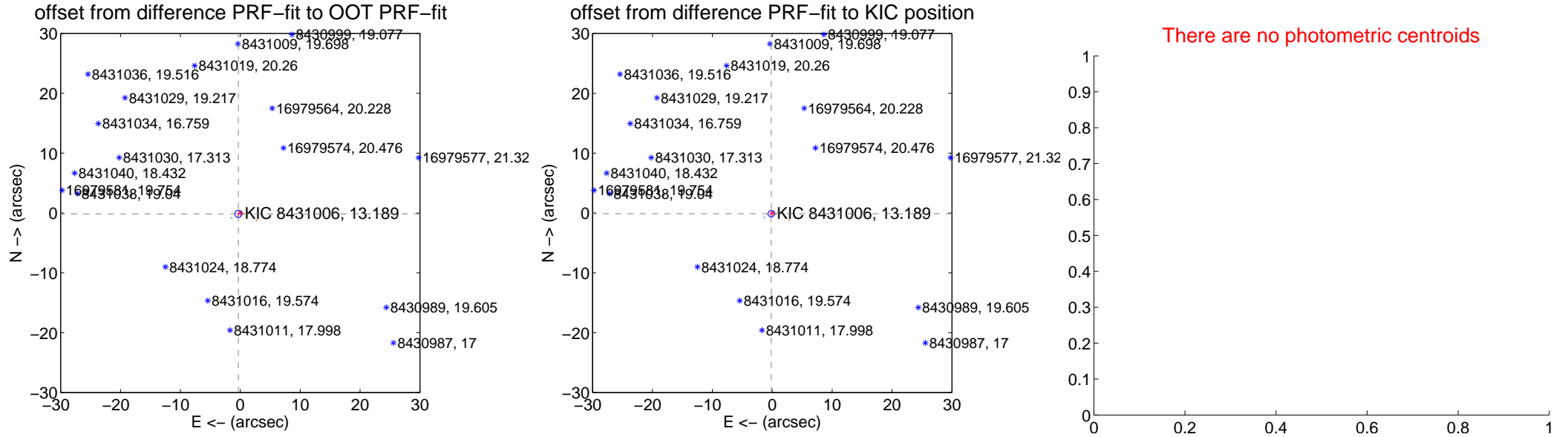
## DV Centroid Data

Supplemental centroid analysis for 008431006-01. Kepler magnitude: 13.19. Transit SNR 0.00

There are 9 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

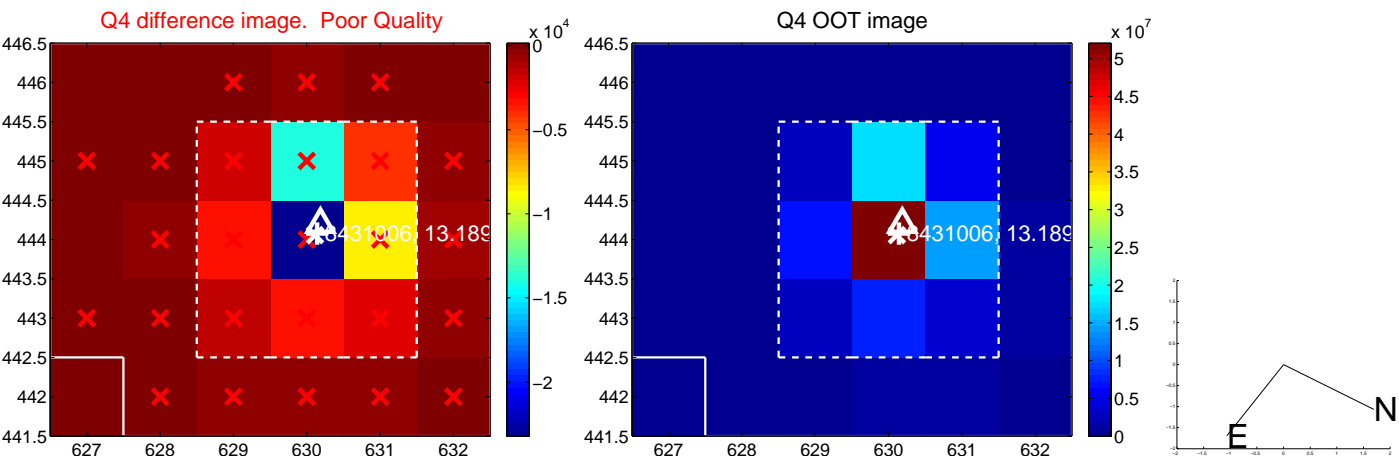
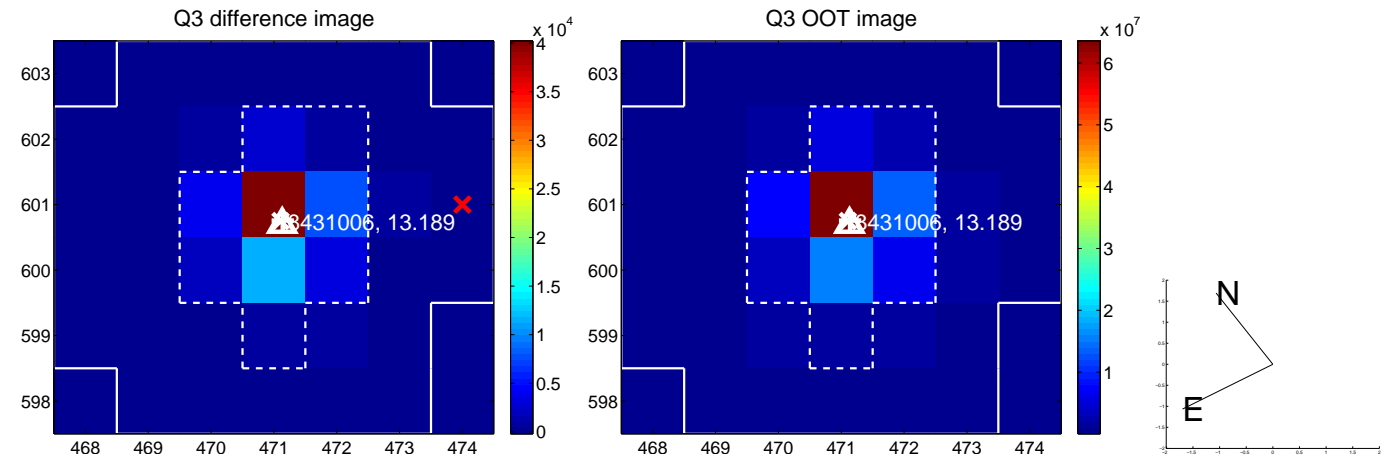
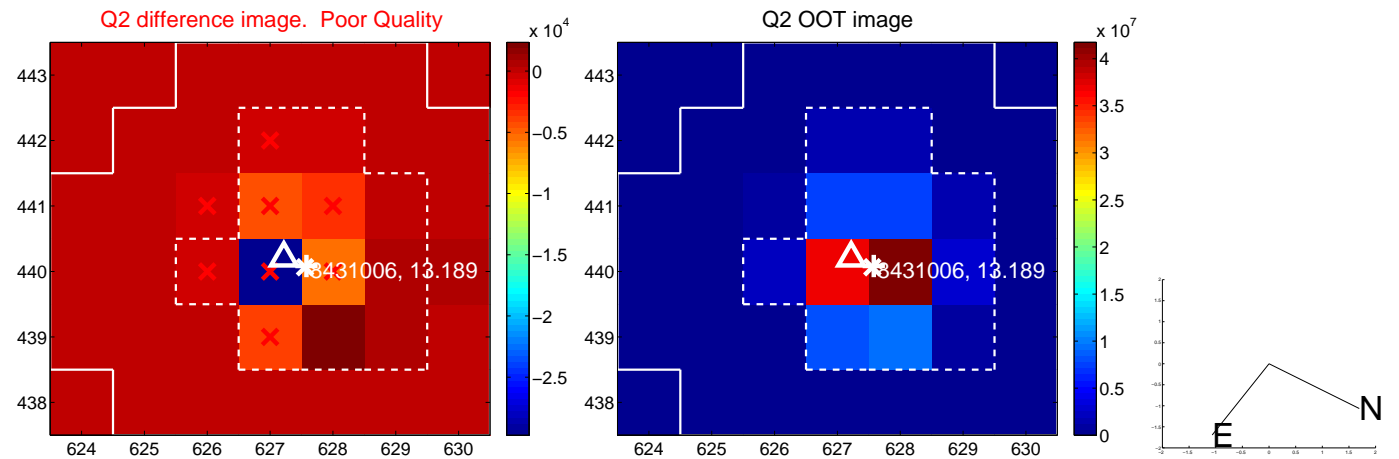
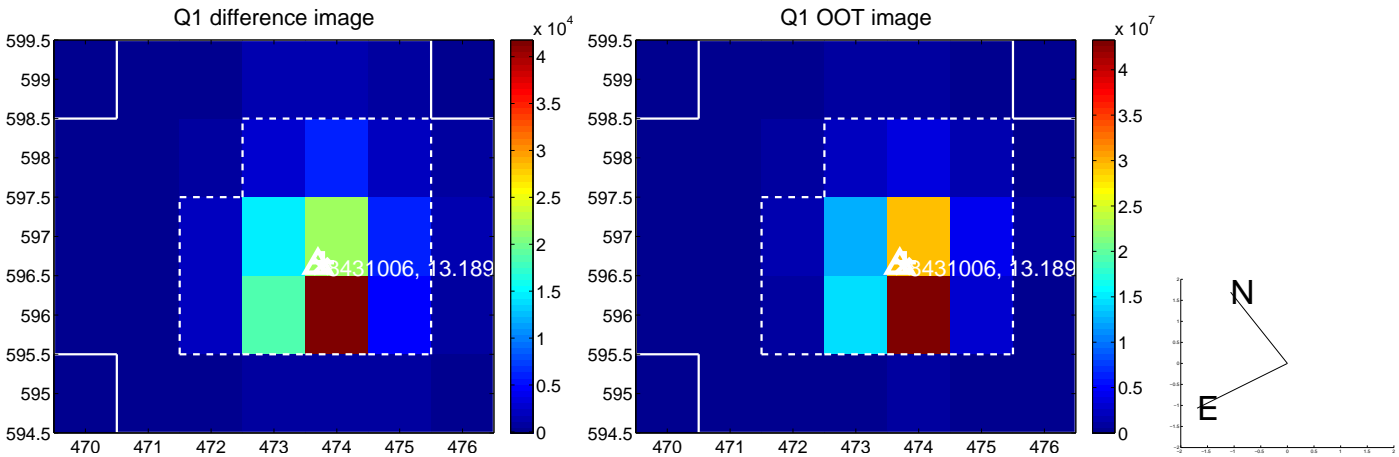
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.351 \pm 0.199$	1.76	$0.317 \pm 0.222$	$-0.150 \pm 0.125$
PRF-fit source offset from KIC position	$0.197 \pm 0.182$	1.08	$0.161 \pm 0.208$	$-0.114 \pm 0.129$
photometric centroid source offset	—	—	—	—



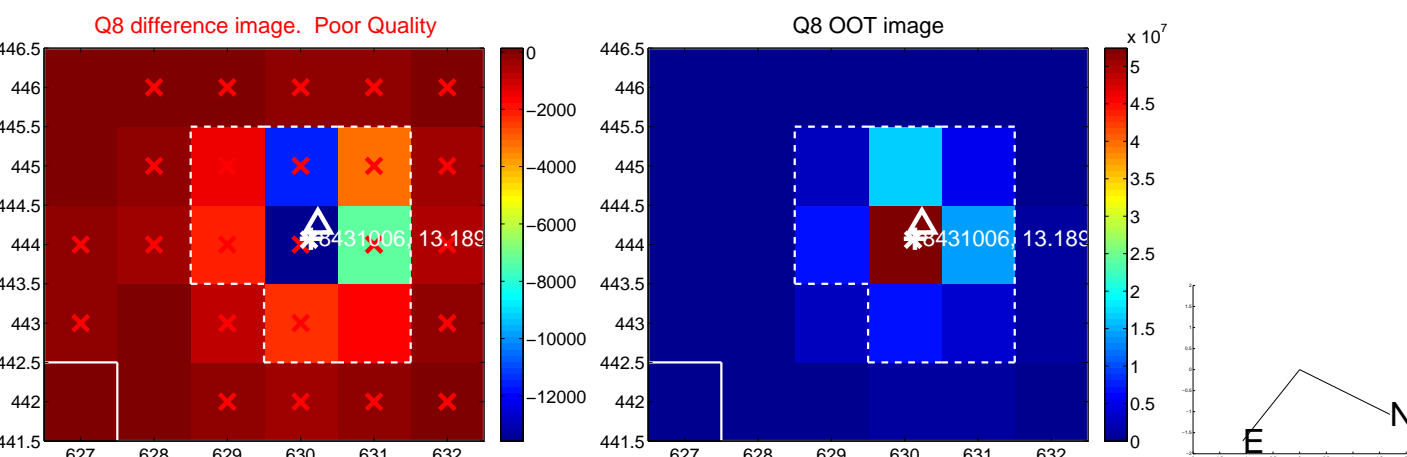
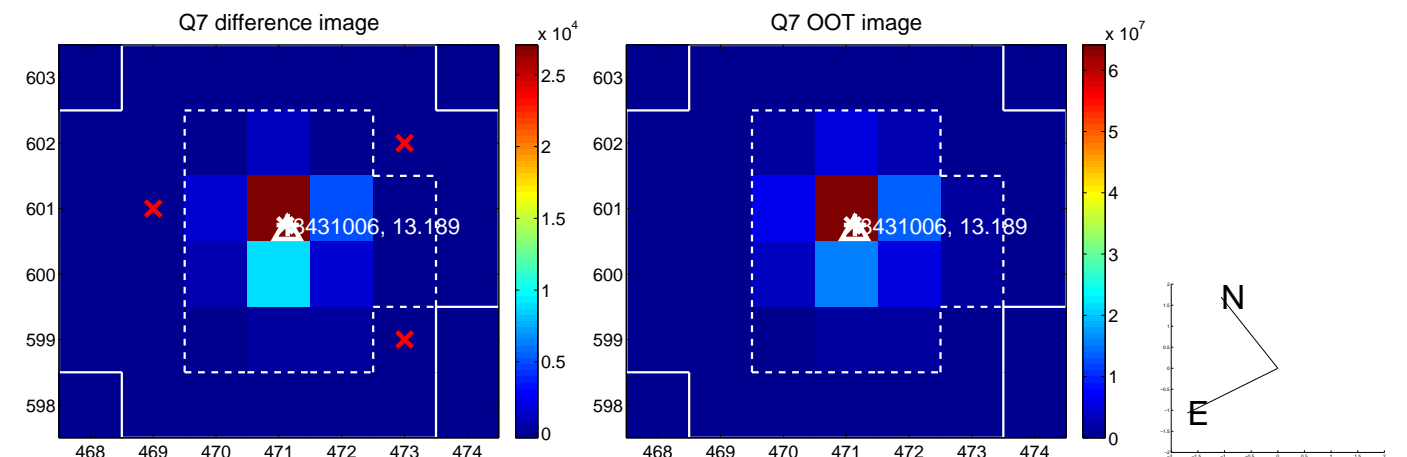
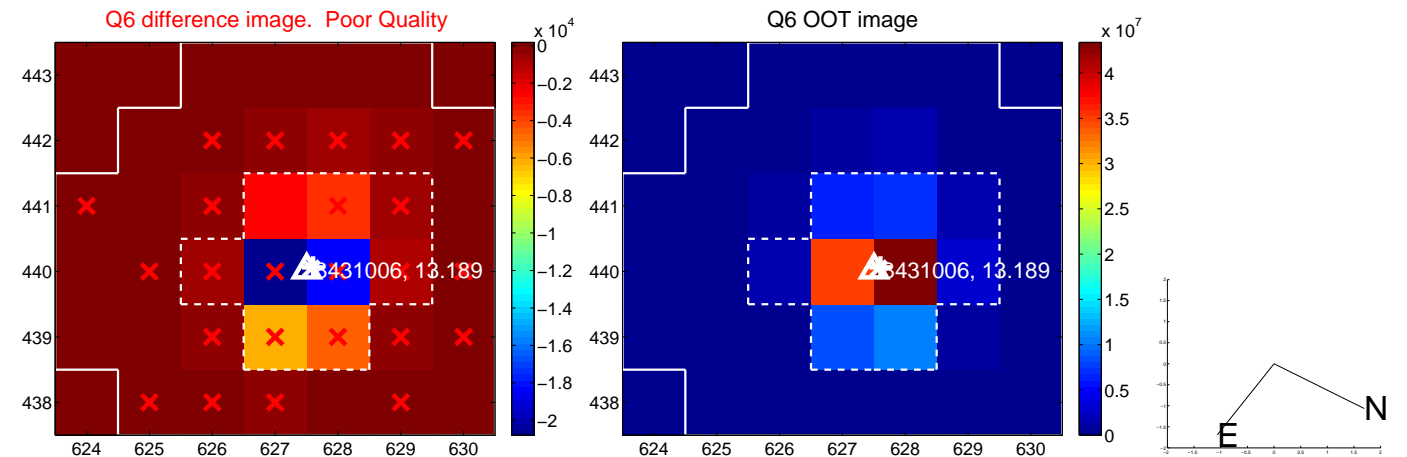
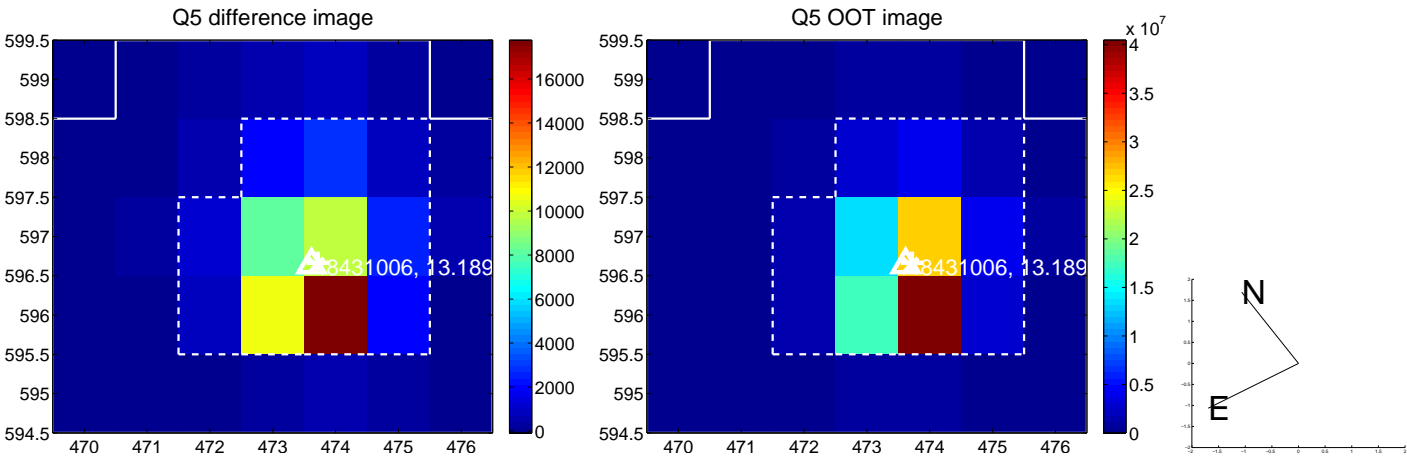
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



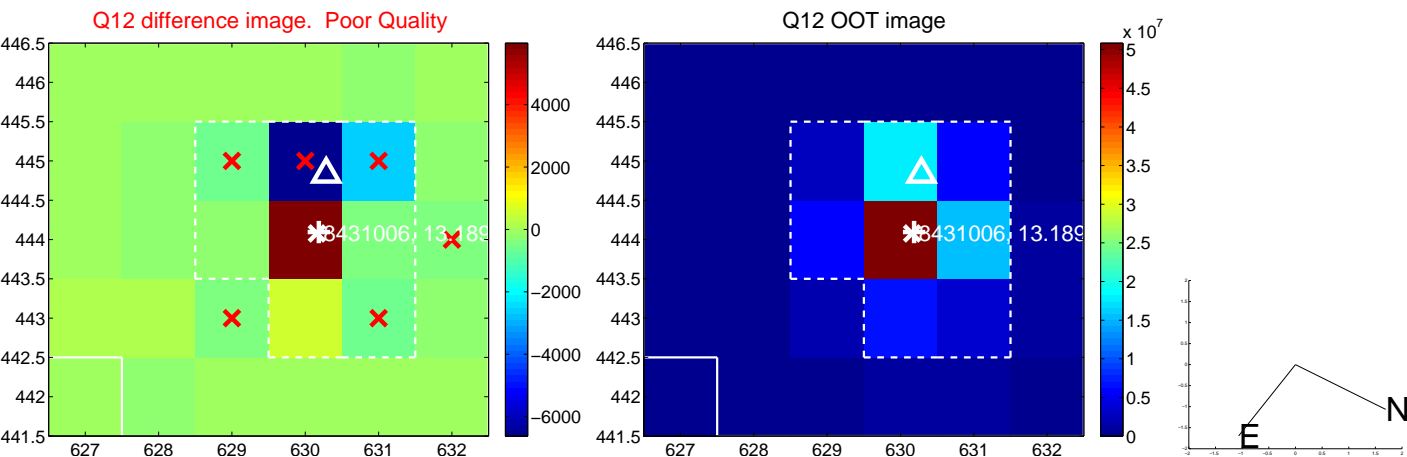
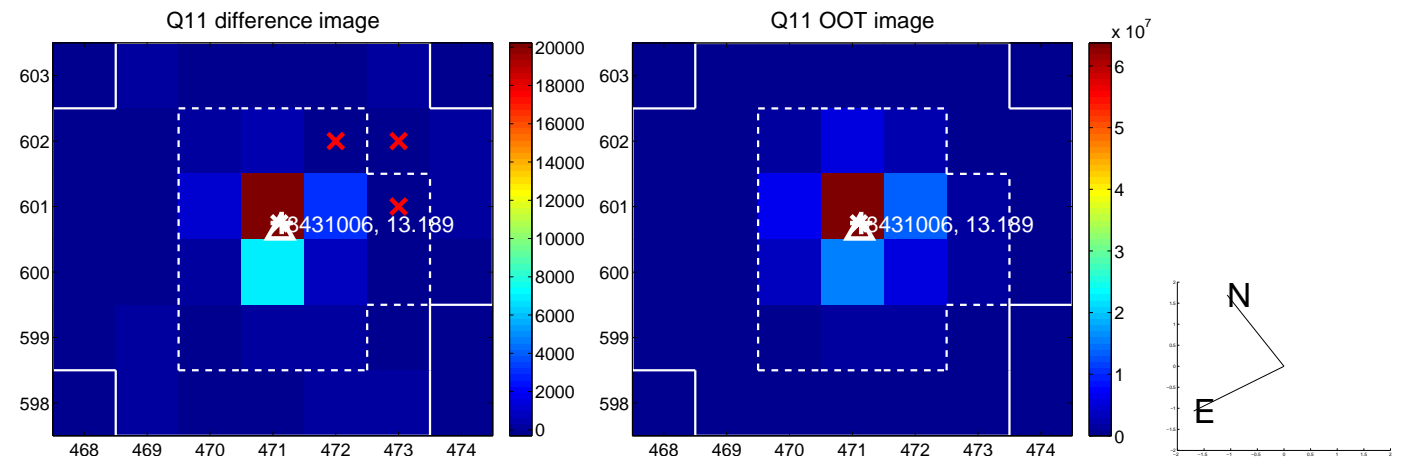
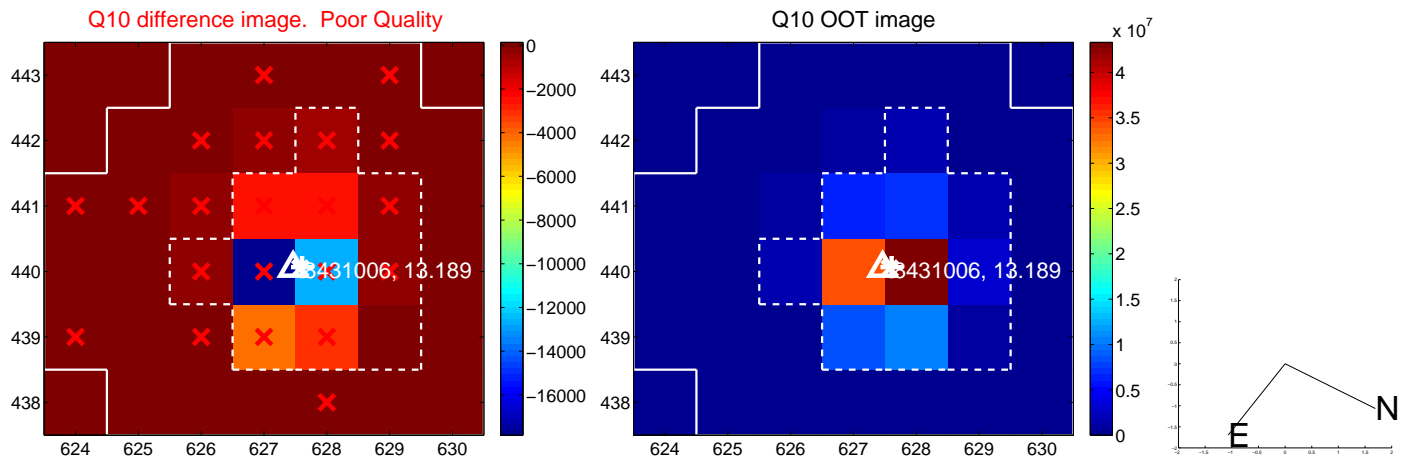
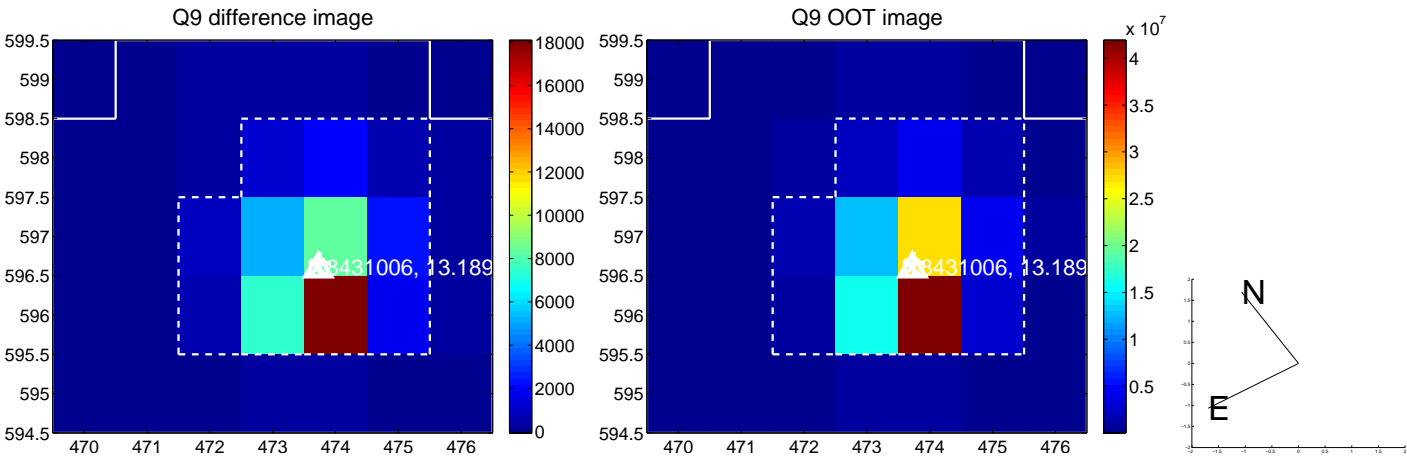
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

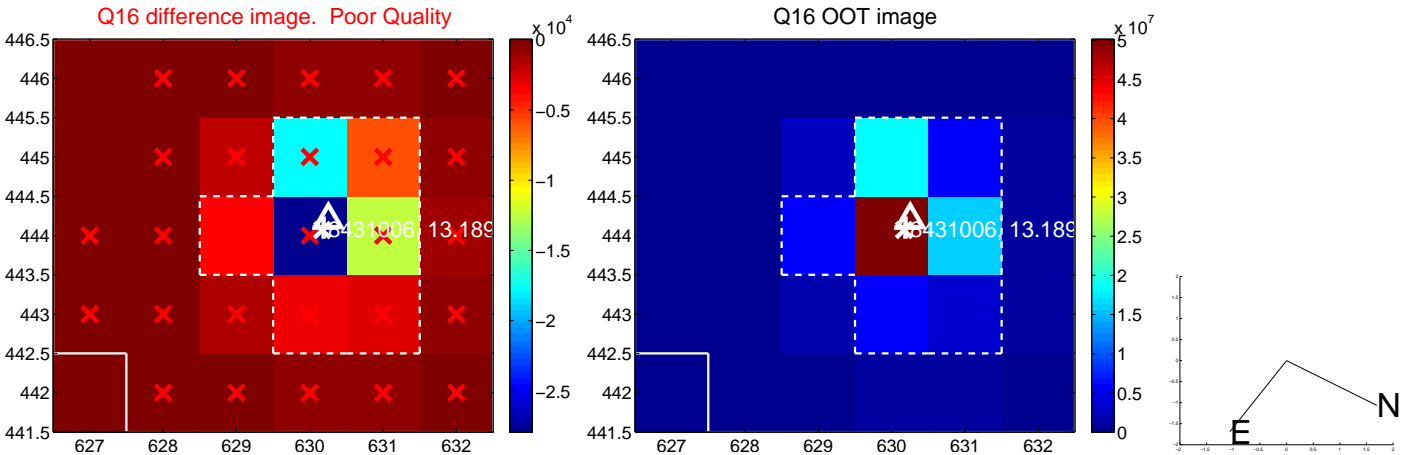
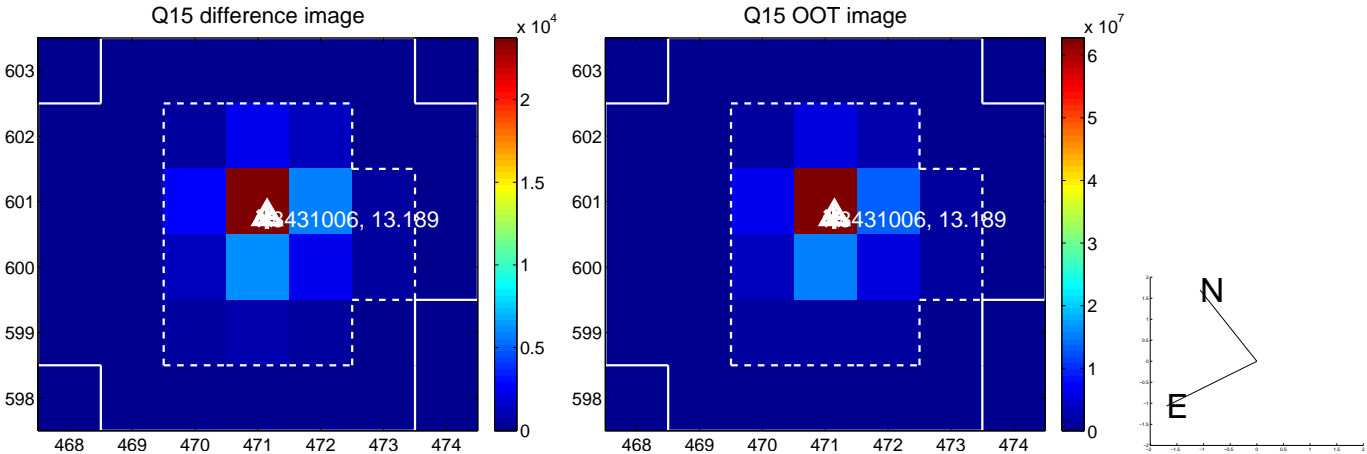
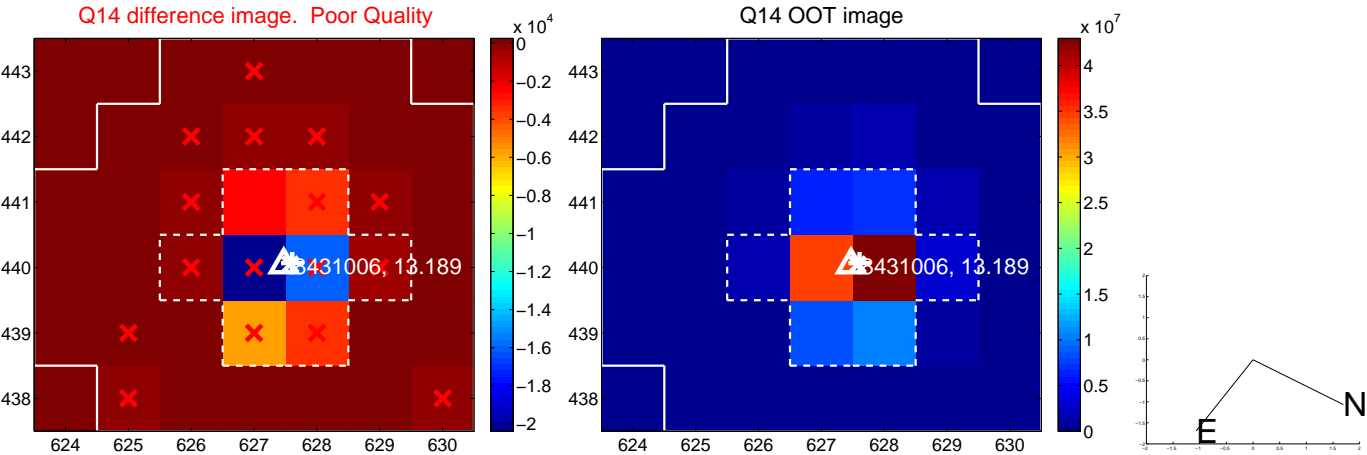
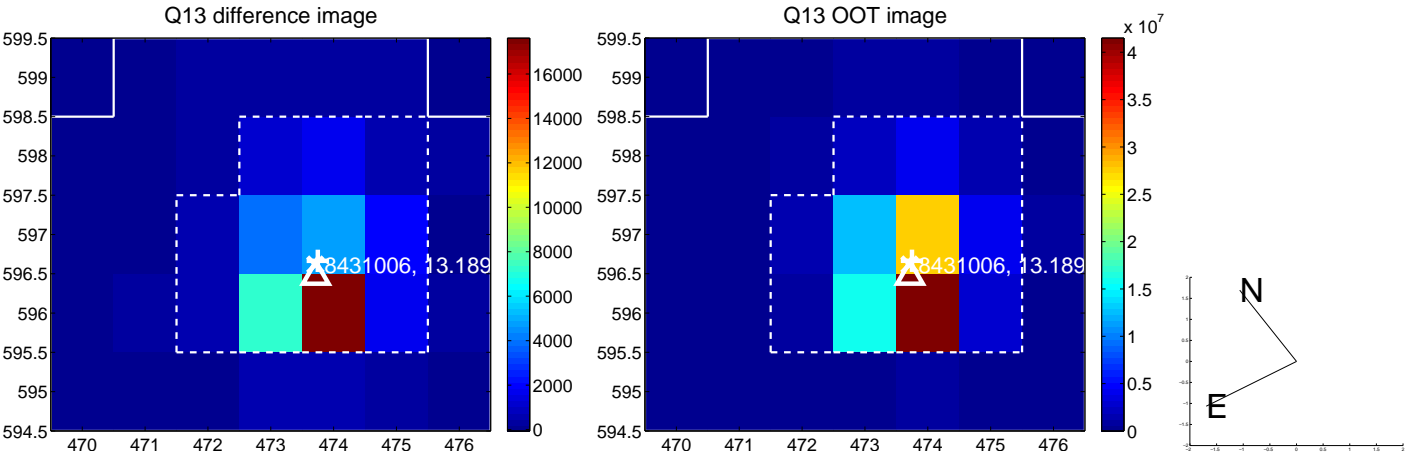


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

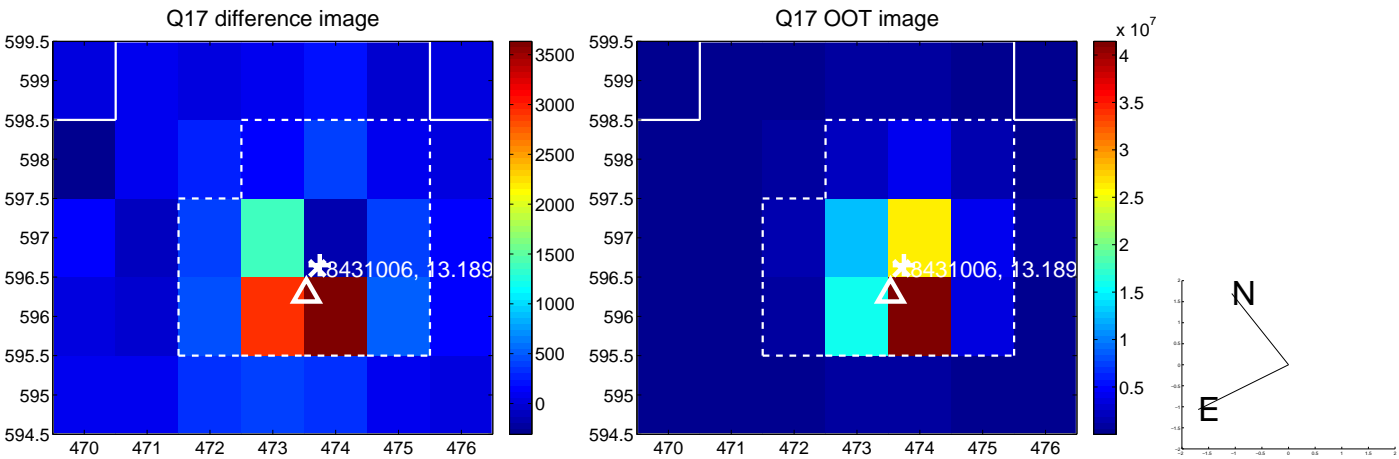




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination

