

# KIC 004843037

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004843037-01	OBS	No	0.981305	132.423614	28.3	8.485	10.6	5.0	3.57	6851	2.03	46741.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004843037-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET

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

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

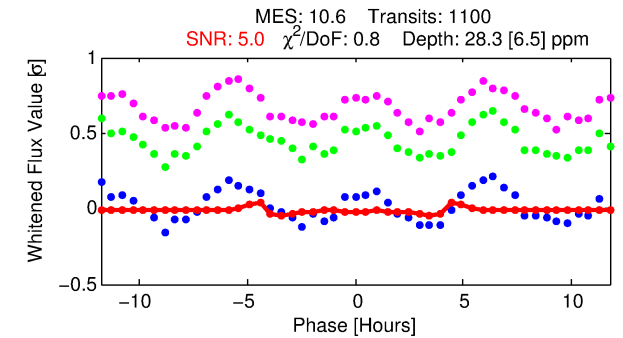
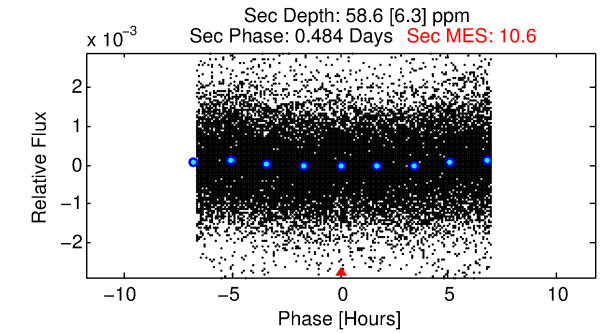
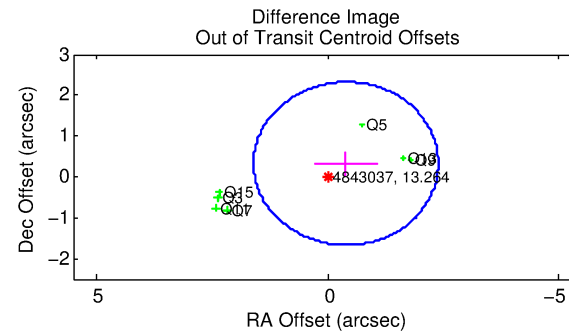
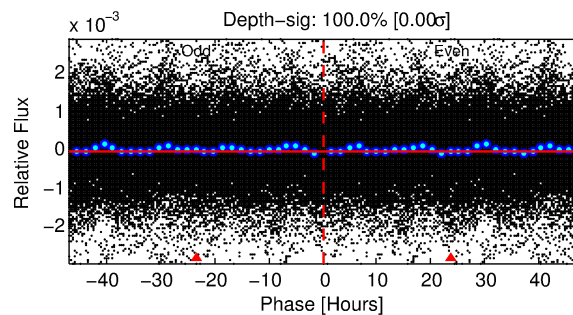
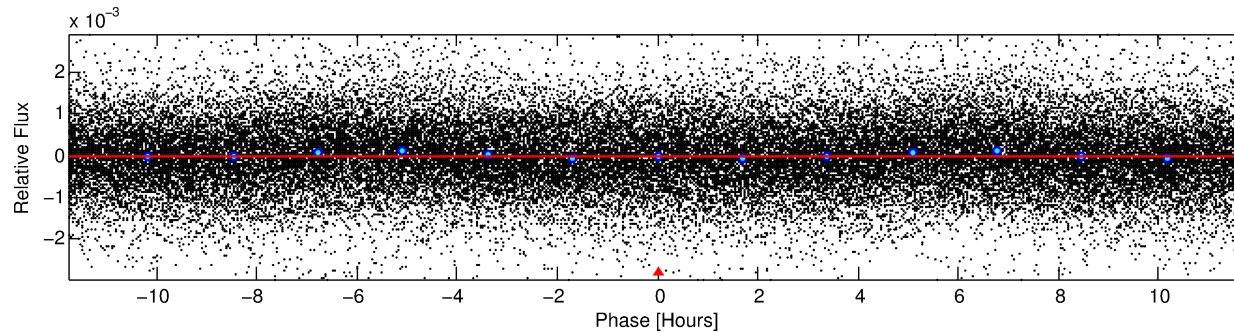
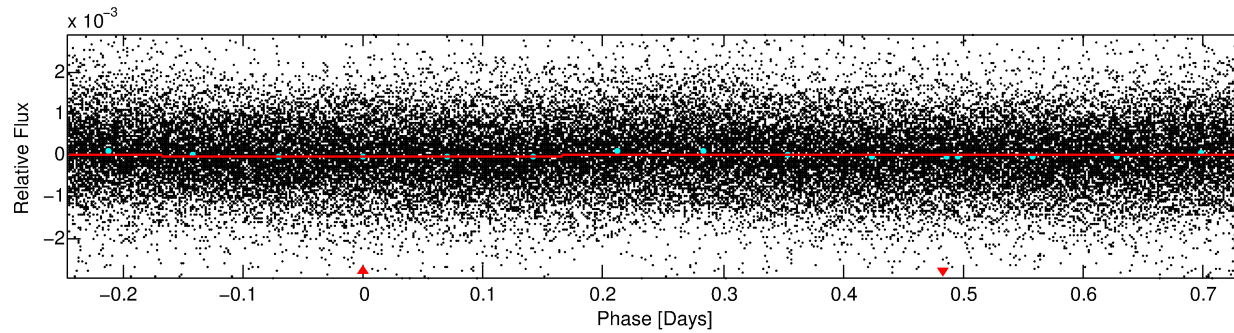
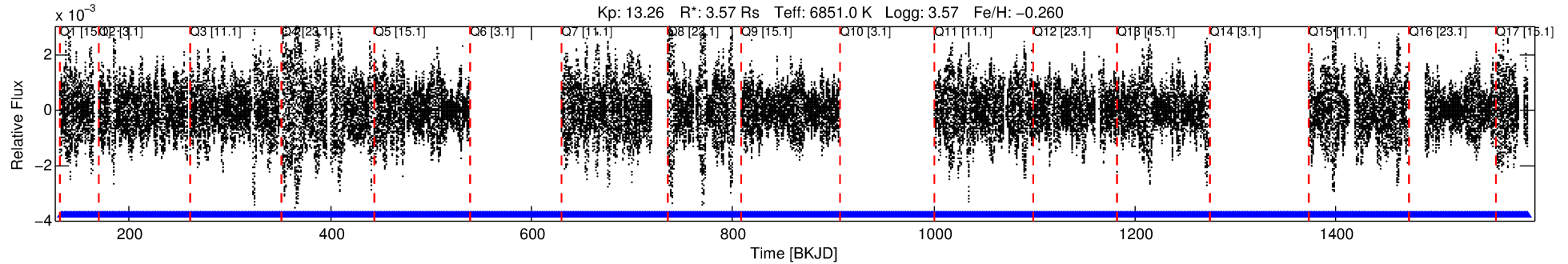
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004843037-01

No Significant Match Found

# DV One-Page Summary

KIC: 4843037 Candidate: 1 of 1 Period: 0.981 d



## DV Fit Results:

Period = 0.98131 [0.00002] d  
Epoch = 132.4236 [0.0040] BKJD  
Rp/R\* = 0.0052 [0.0034]  
a/R\* = 1.06 [0.46]  
b = 0.70 [2.86]  
Seff = 46741.93 [27835.36]  
Teq = 3749 [558] K  
Rp = 2.03 [1.54] Re  
a = 0.0232 [0.0085] AU  
Ag = 4.19 [5.99] [0.53σ]  
Teffp = 8295 [2724] K [1.63σ]

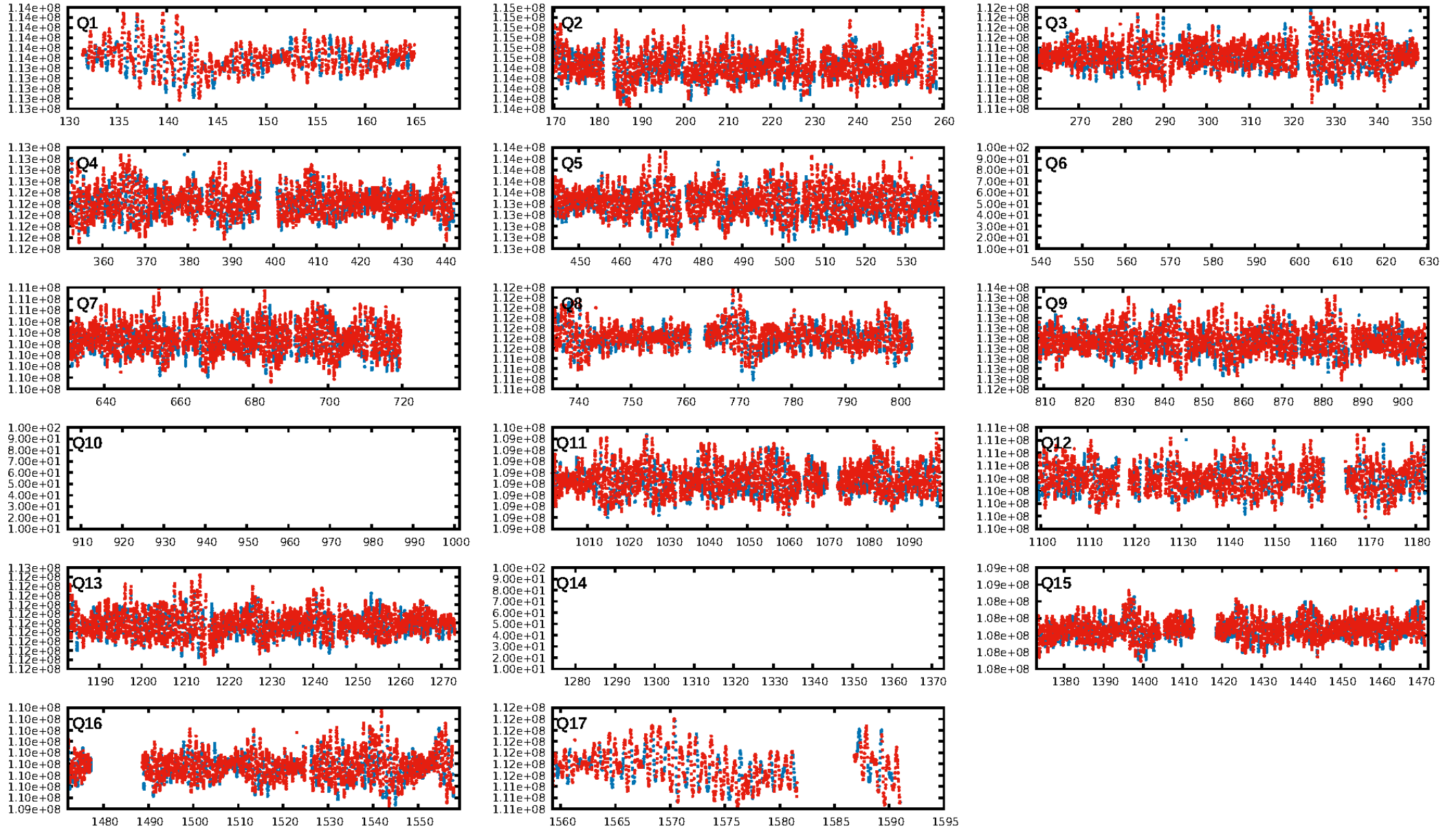
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1037/1037]  
GhostDiagnostic-chr: 1.038  
Centroid-sig: 46.9%  
Centroid-so: 0.373 arcsec [0.66σ]  
OotOffset-rm: 0.515 arcsec [0.77σ]  
OotOffset-st: 0/4/0/3 [7]  
KicOffset-rm: 0.416 arcsec [0.57σ]  
KicOffset-st: 0/4/0/3 [7]  
DiffImageQuality-fgm: 1.00 [7/7]  
DiffImageOverlap-fno: 1.00 [14/14]

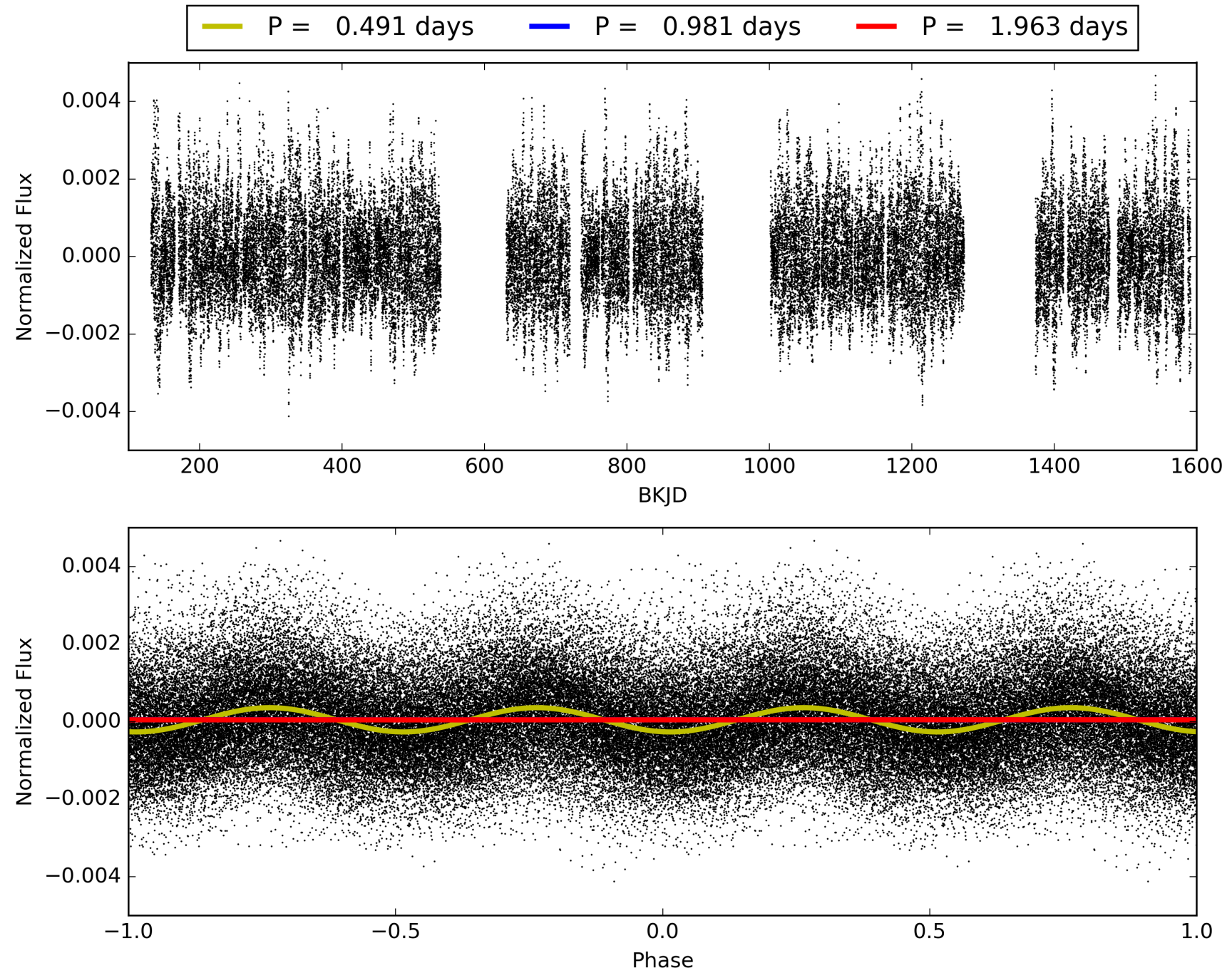
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:50:00 Z

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

# TCE 004843037-01, PDC Light Curves



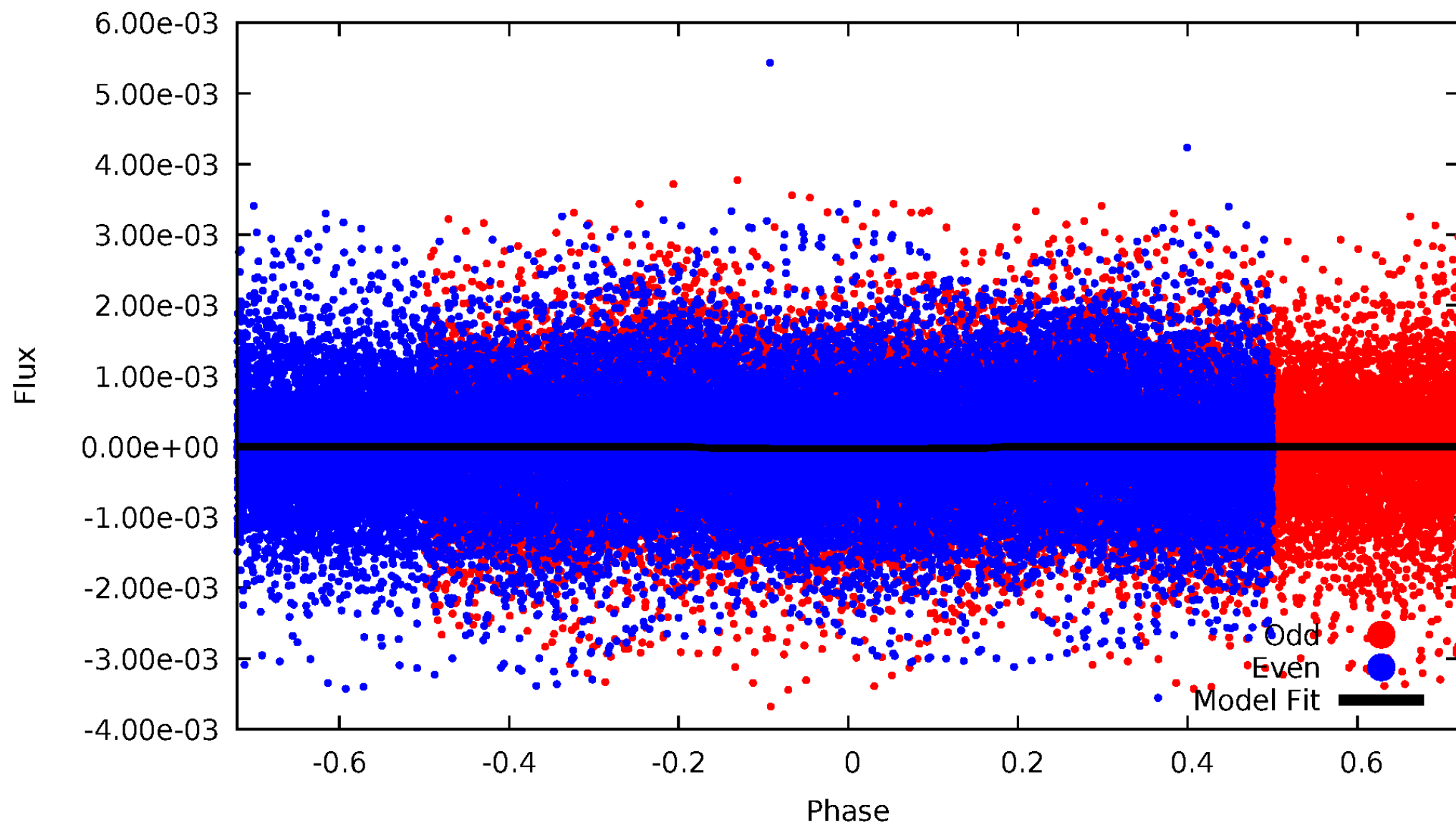
TCE 004843037-01





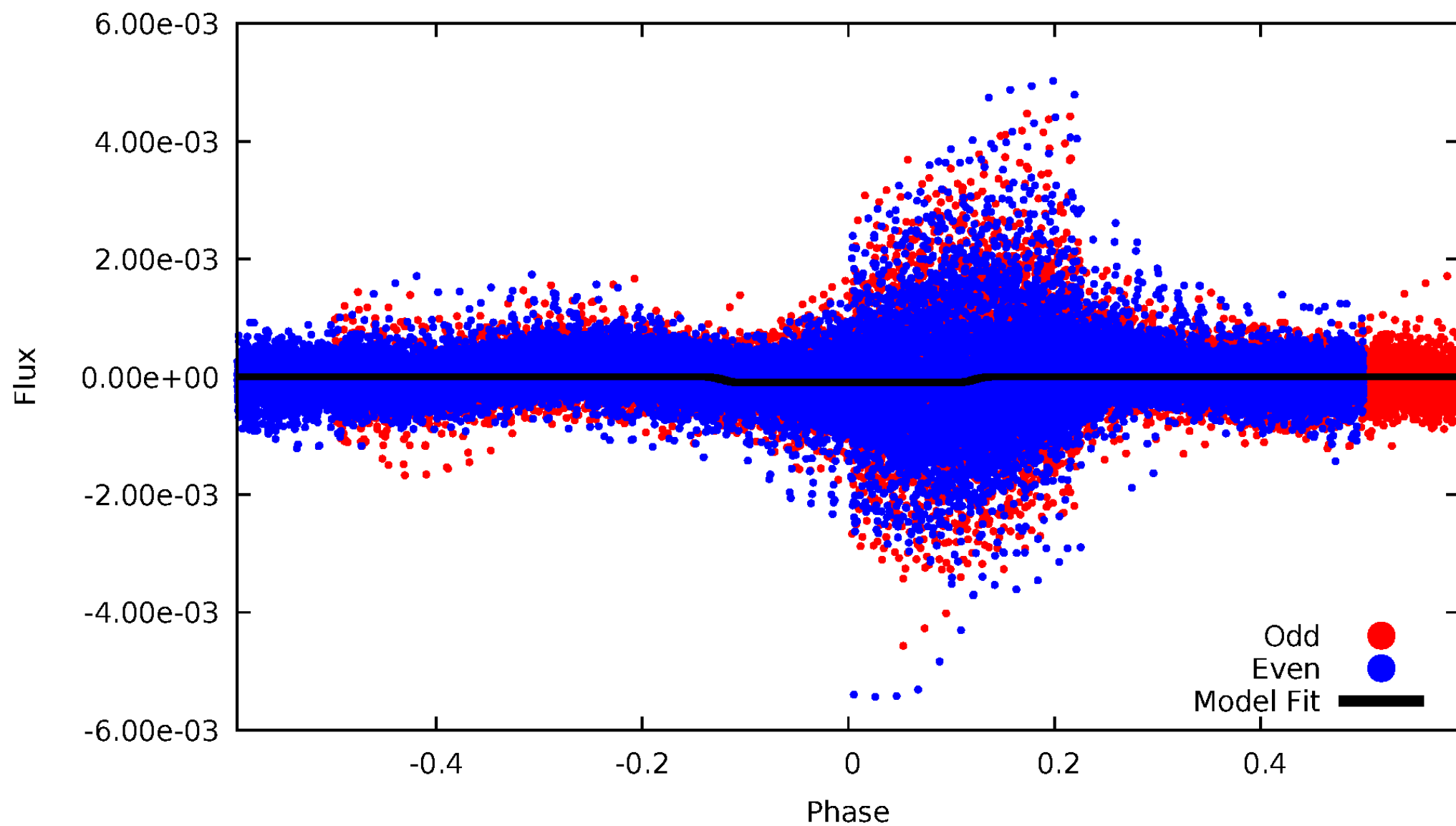
# DV Odd/Even

TCE 004843037-01



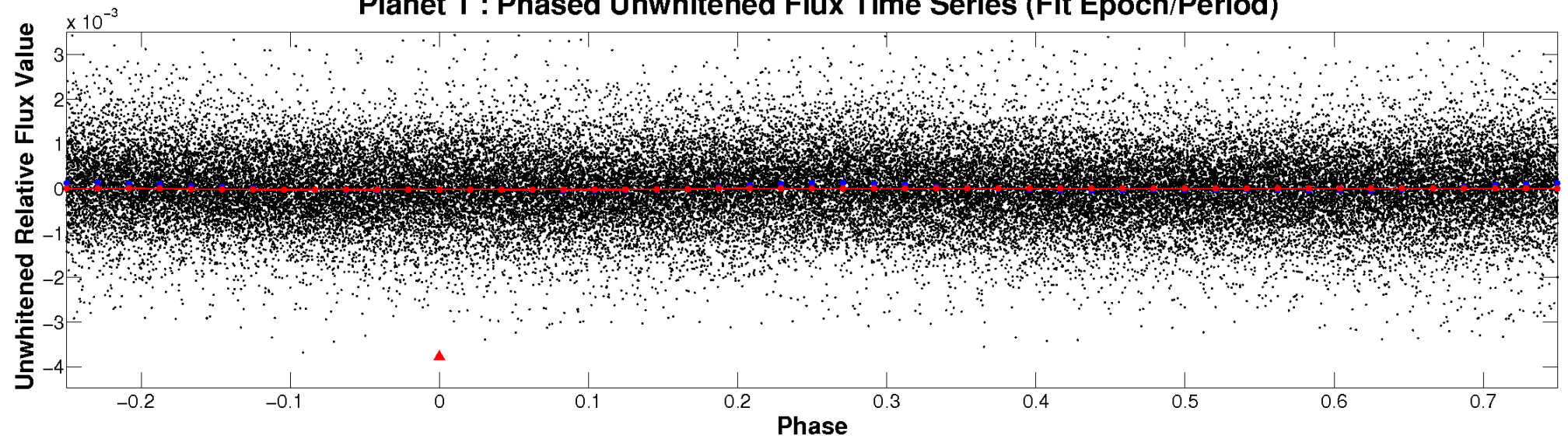
# ALT Odd/Even

TCE 004843037-01

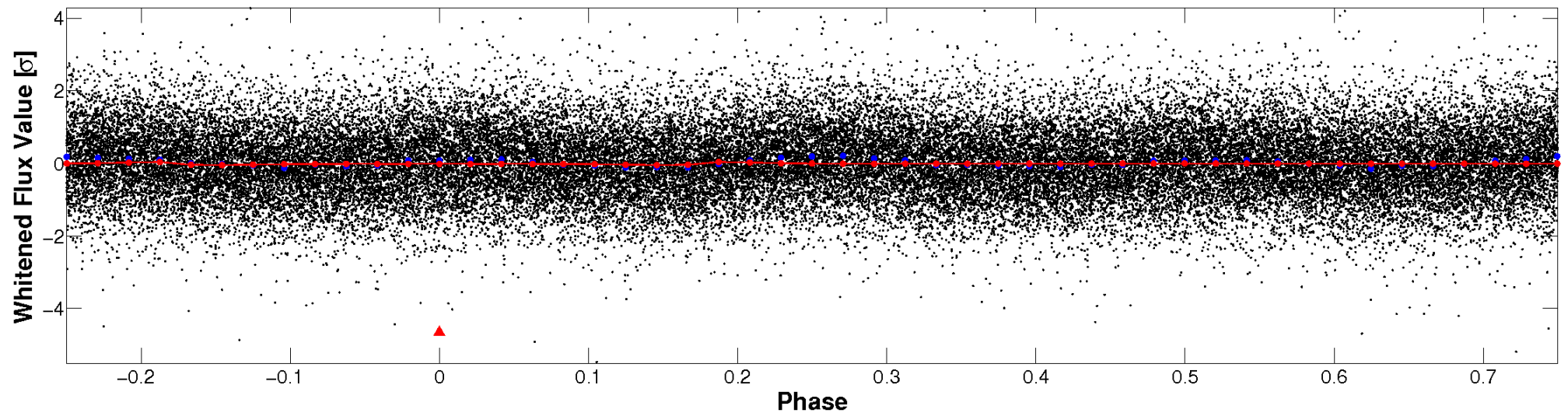


# Non-Whitened Vs. Whitened Light Curve

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

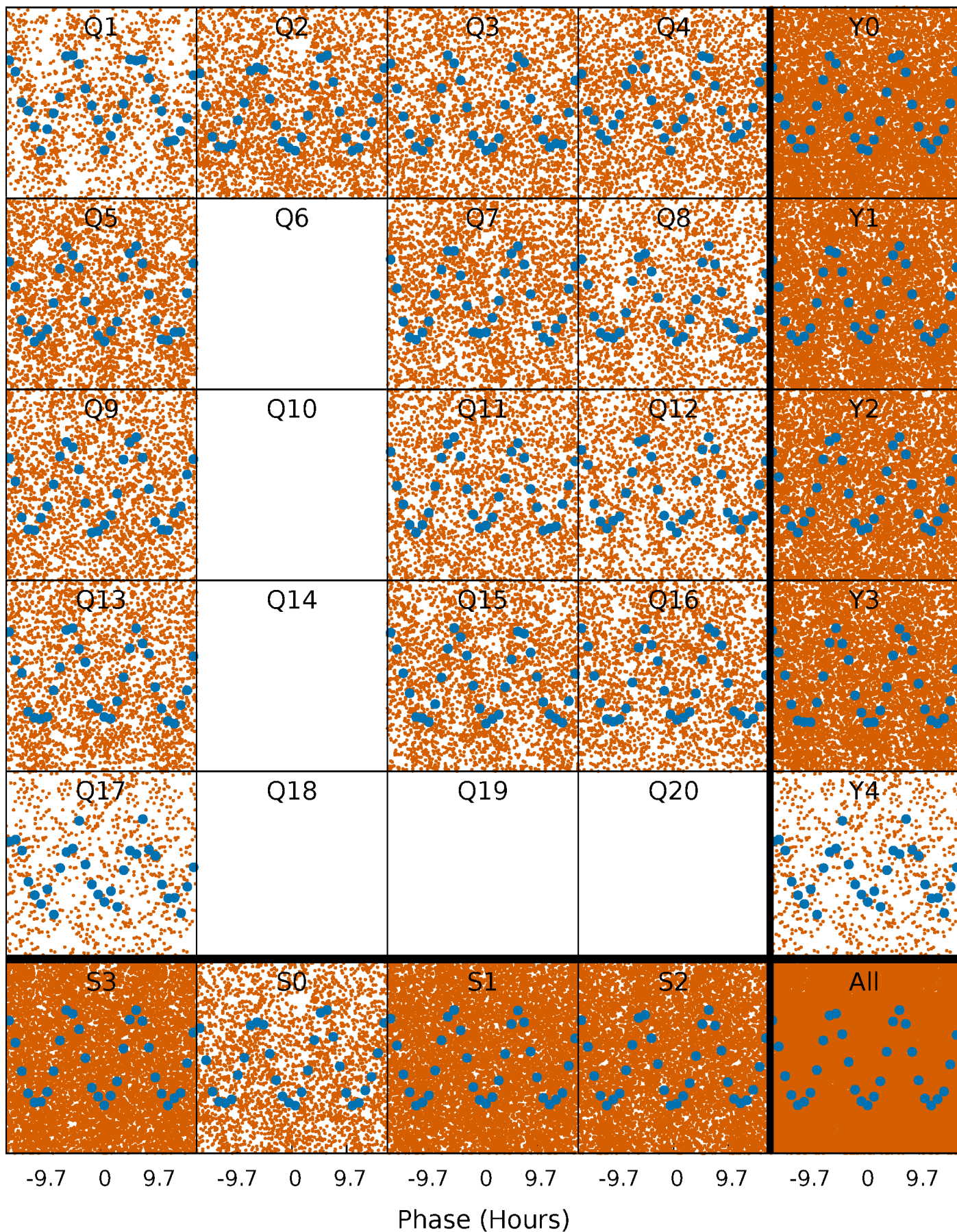


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

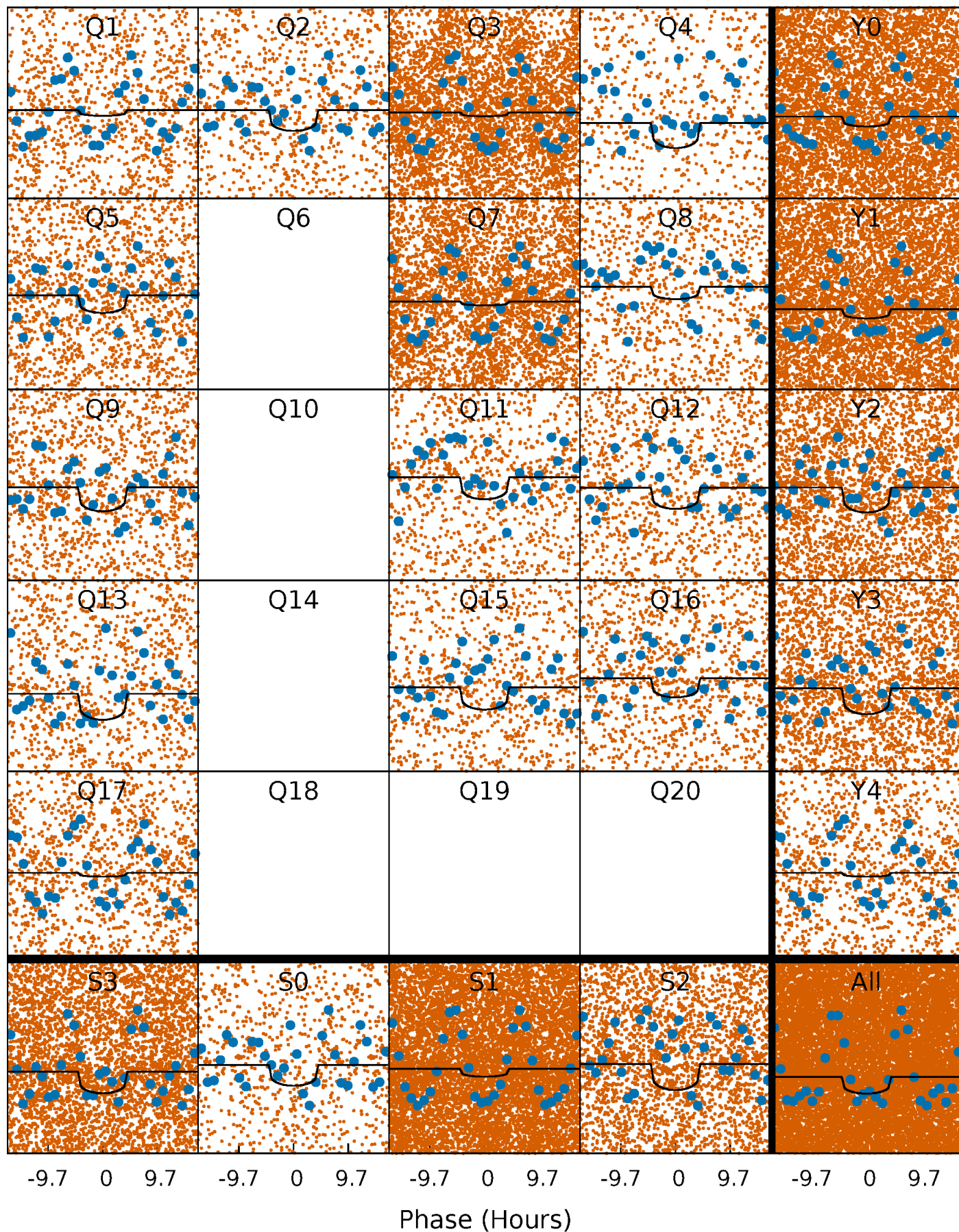
TCE 004843037-01 P= 0.981305 Days  $T_0=132.423614$  (BKJD)





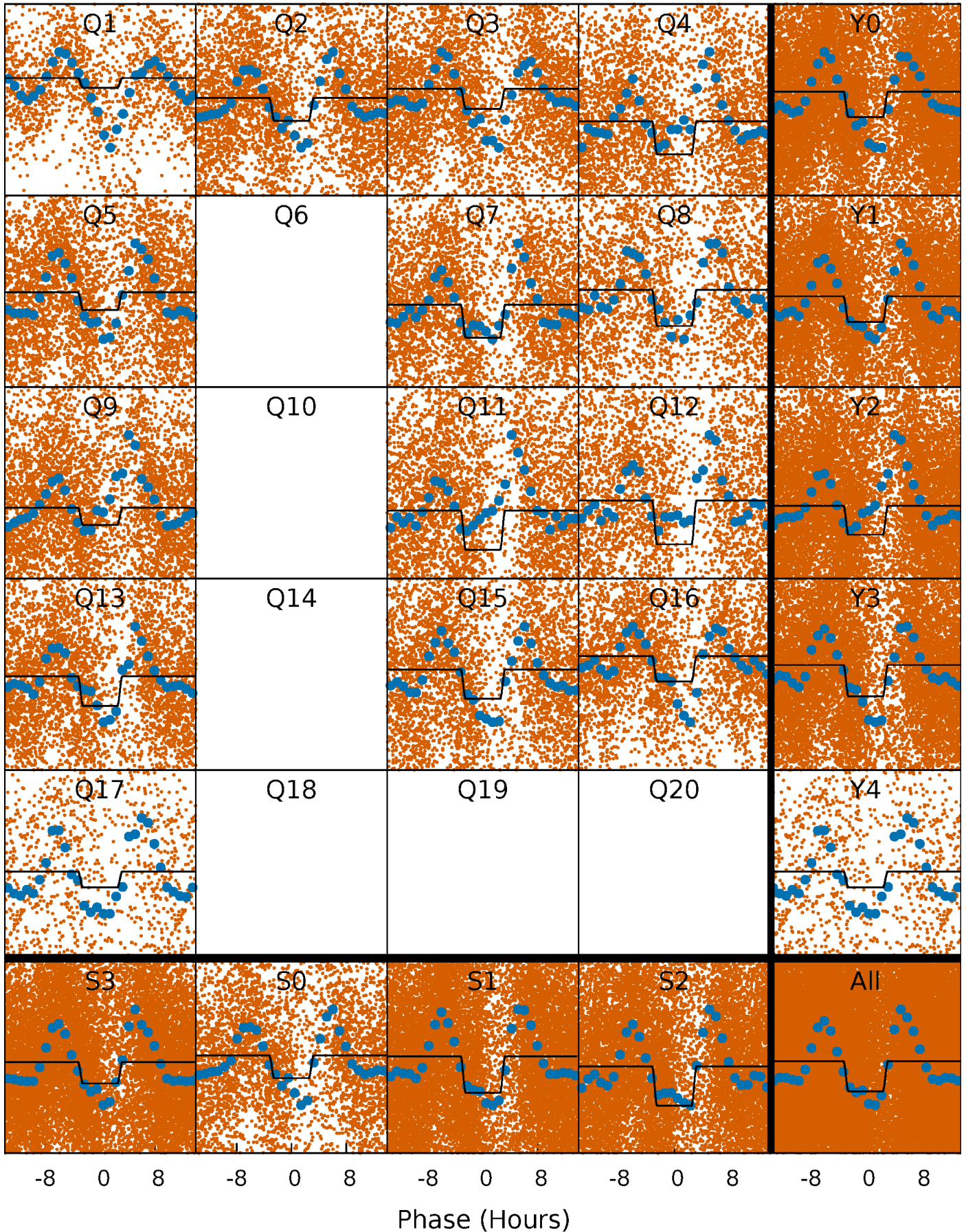
# DV Quarter-Phased Transit Curves

TCE 004843037-01 P= 0.981305 Days  $T_0=132.423614$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004843037-01 P= 0.981343 Days  $T_0=132.422313$  (BKJD)

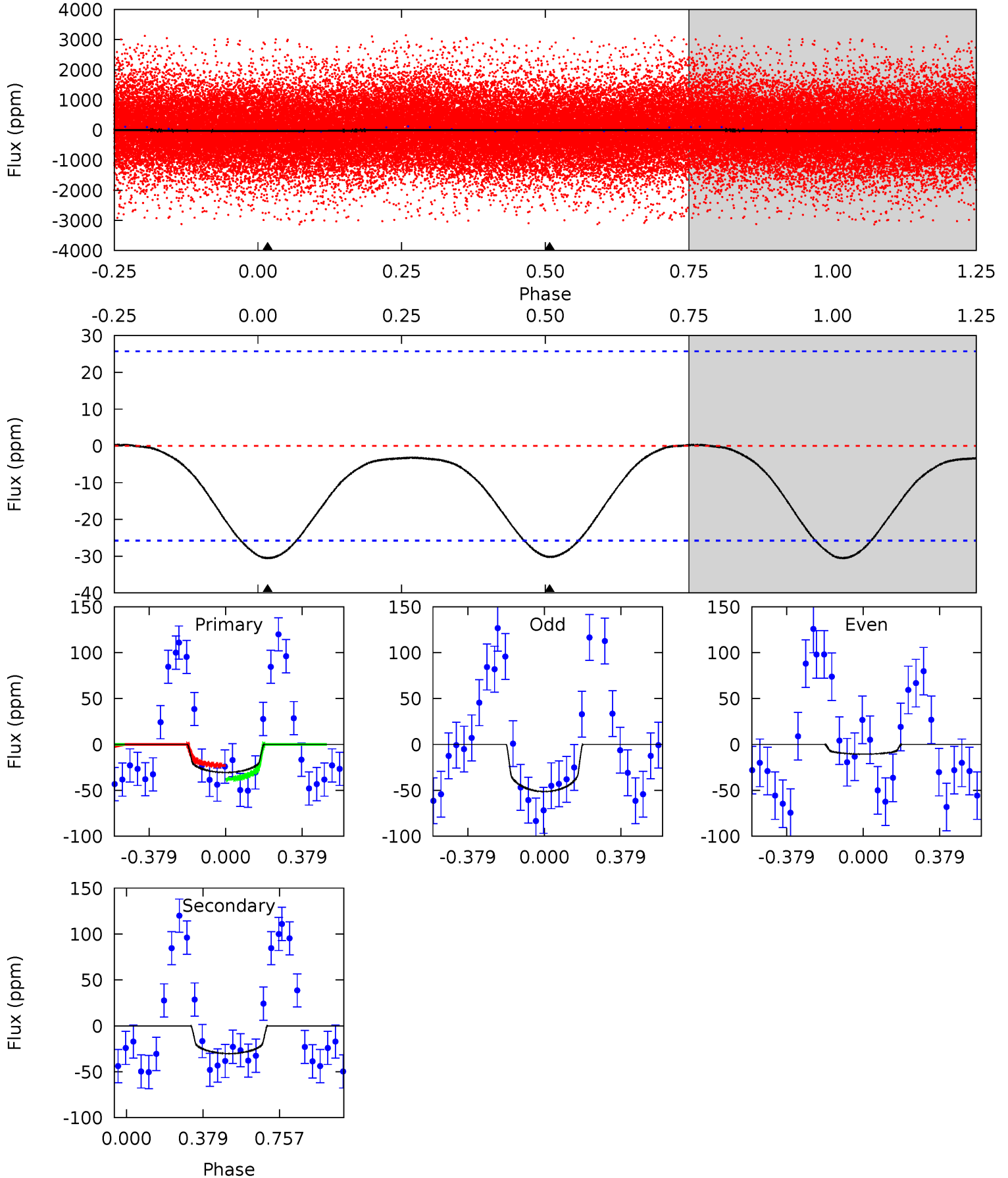




# DV Model-Shift Uniqueness Test

004843037-01, P = 0.981305 Days, E = 131.442309 Days

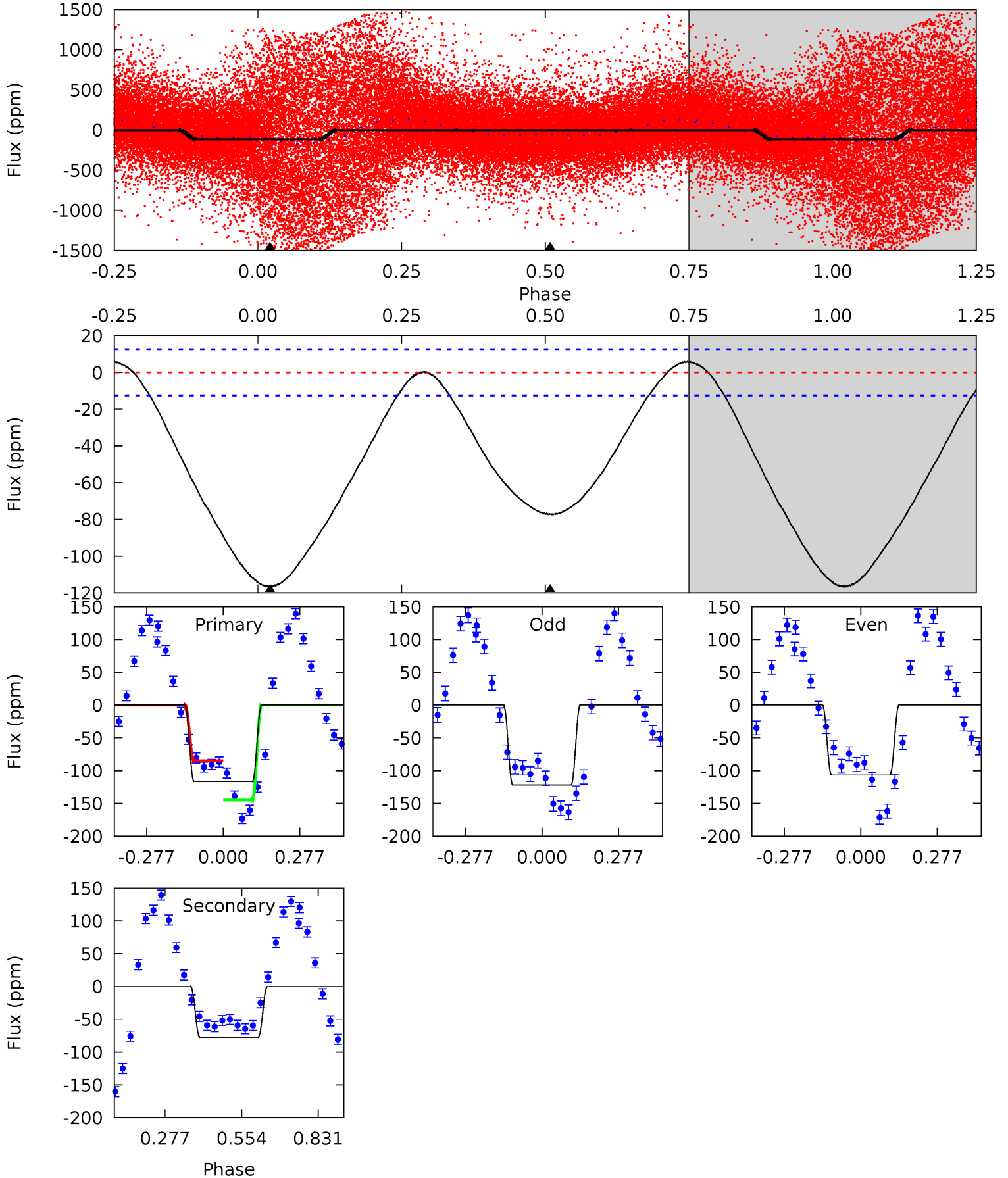
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.07	5.02	0	0	4.28	0.88	0.28	5.07	5.07	5.02	5.02	3.49	1.14	0.01	1.28



# Alt Model-Shift Uniqueness Test

004843037-01, P = 0.981343 Days, E = 131.440970 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
40.3	26.7	0	0	4.35	1.09	1.65	40.3	40.3	26.7	26.7	2.66	1.17	0.05	9.65





### Stellar Parameters For KIC 004843037

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6851^{+185}_{-246}$	$3.570^{+0.336}_{-0.084}$	$-0.260^{+0.300}_{-0.250}$	$3.567^{+0.349}_{-1.395}$	$1.723^{+0.169}_{-0.366}$	$0.053^{+0.136}_{-0.011}$
	+3%/-4%	+9%/-2%	+115%/-96%	+10%/-39%	+10%/-21%	+254%/-20%
Source	PHO1	FLK73	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 004843037-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-30 \pm 6$	$1.99^{+1.26}_{-1.10}$	$5121^{+288}_{-443}$	$6505^{+4927}_{-1670}$	$2.213^{+9.292}_{-1.424}$
Alt.	$-77 \pm 3$	$3.38^{+1.48}_{-1.19}$	$5126^{+304}_{-480}$	$6216^{+2070}_{-1076}$	$1.945^{+2.638}_{-1.003}$

$T_{max}$  = 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

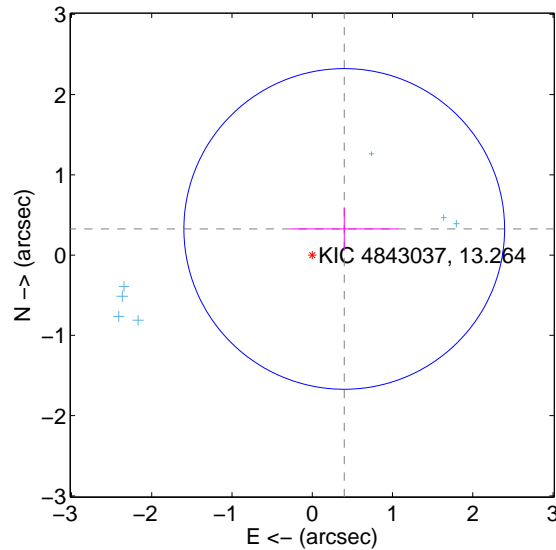
Supplemental centroid analysis for 004843037-01. Kepler magnitude: 13.26. Transit SNR 4.95

There are 7 quarters with good PRF difference image offsets

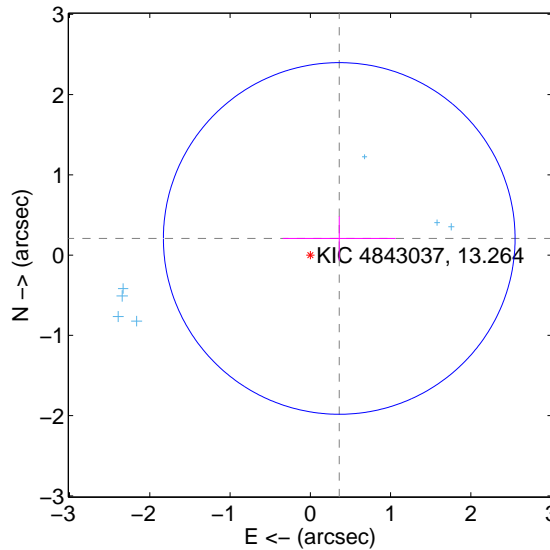
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.515 \pm 0.666$	0.77	$-0.399 \pm 0.673$	$0.326 \pm 0.270$
PRF-fit source offset from KIC position	$0.416 \pm 0.730$	0.57	$-0.360 \pm 0.704$	$0.207 \pm 0.275$
photometric centroid source offset	$0.37 \pm 0.56$	0.66	$-0.29 \pm 0.52$	$0.23 \pm 0.63$

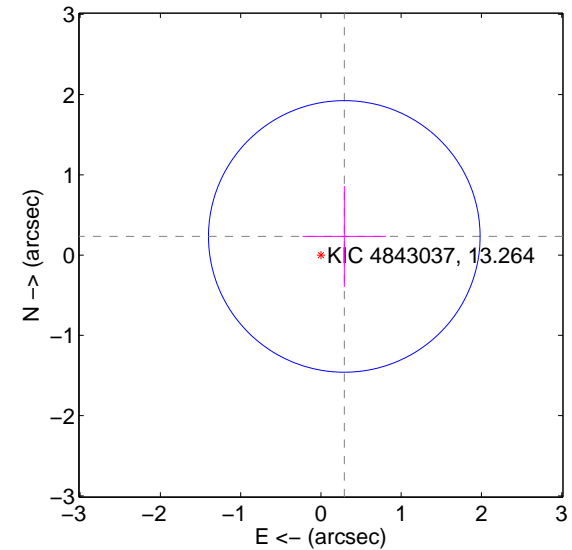
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

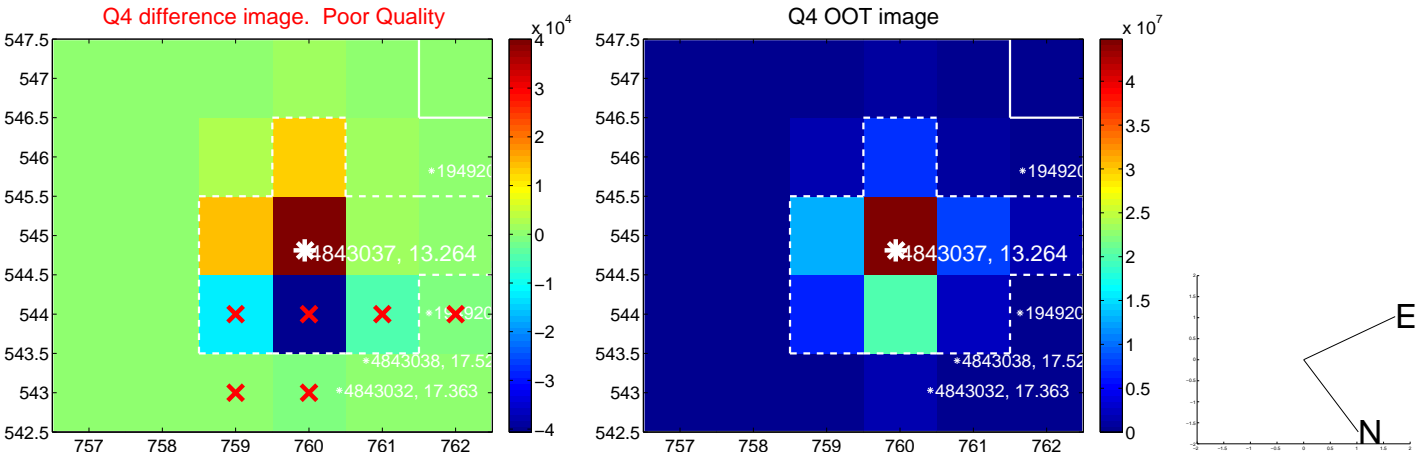
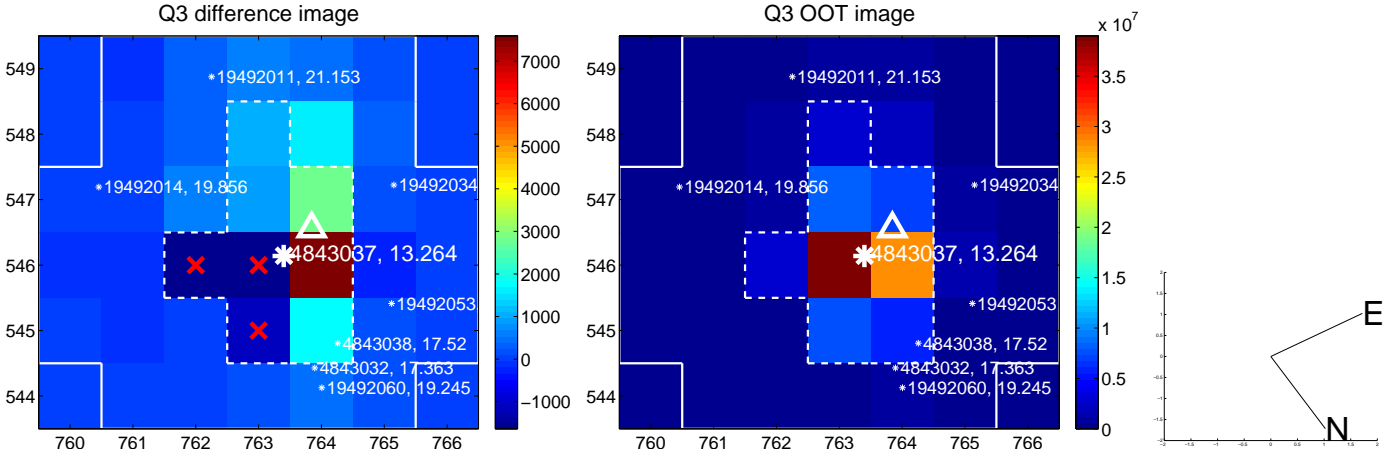
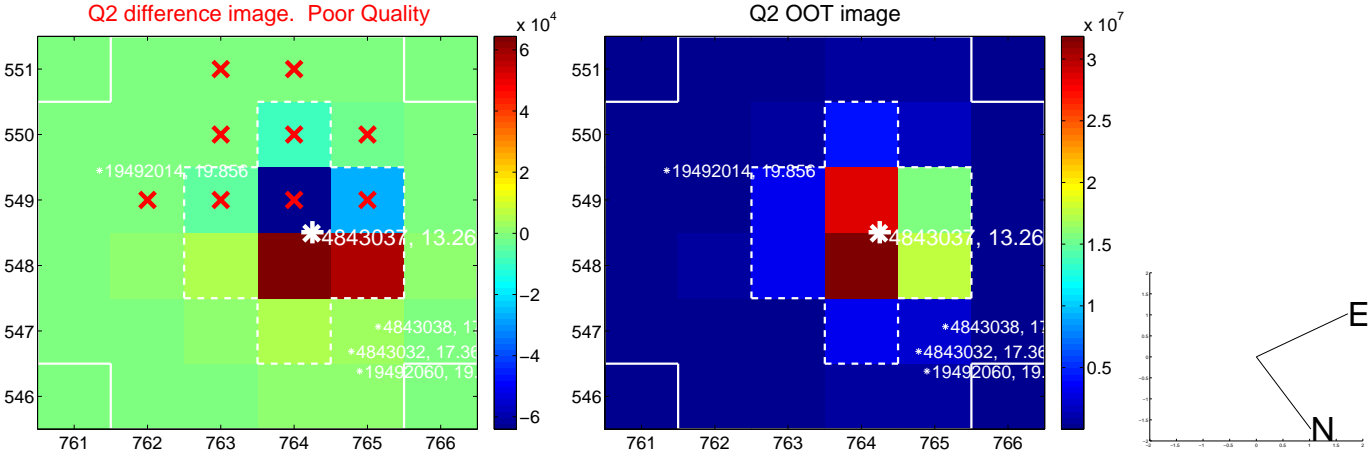
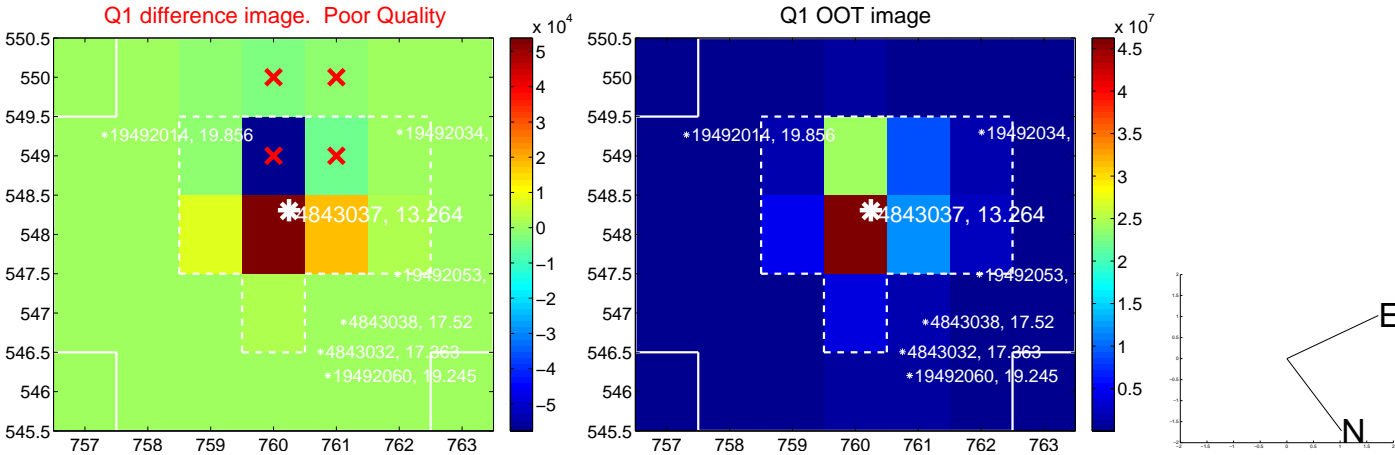


offset from photometric centroids

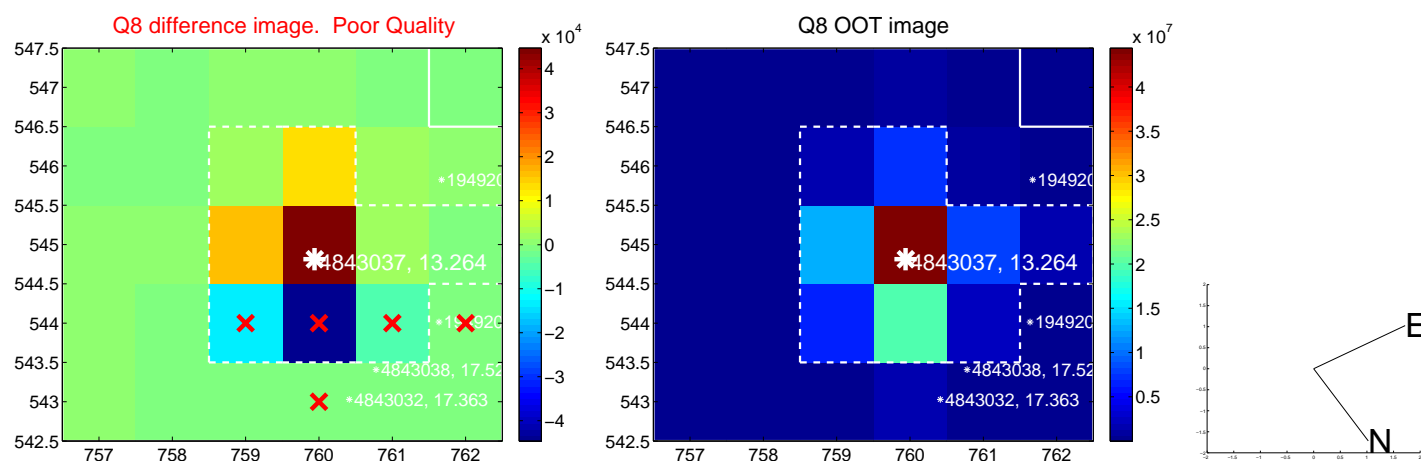
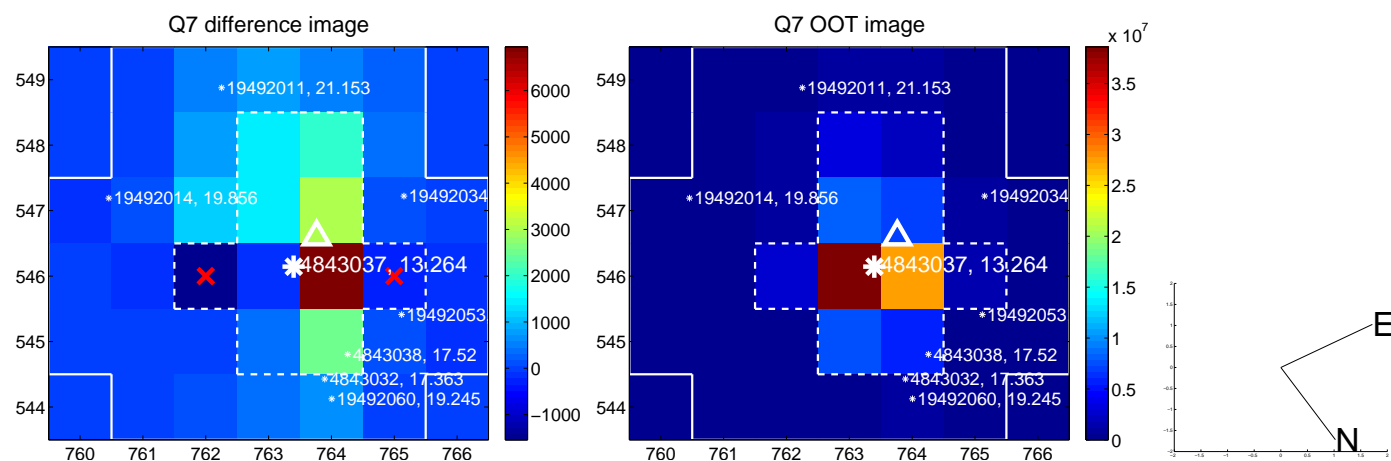
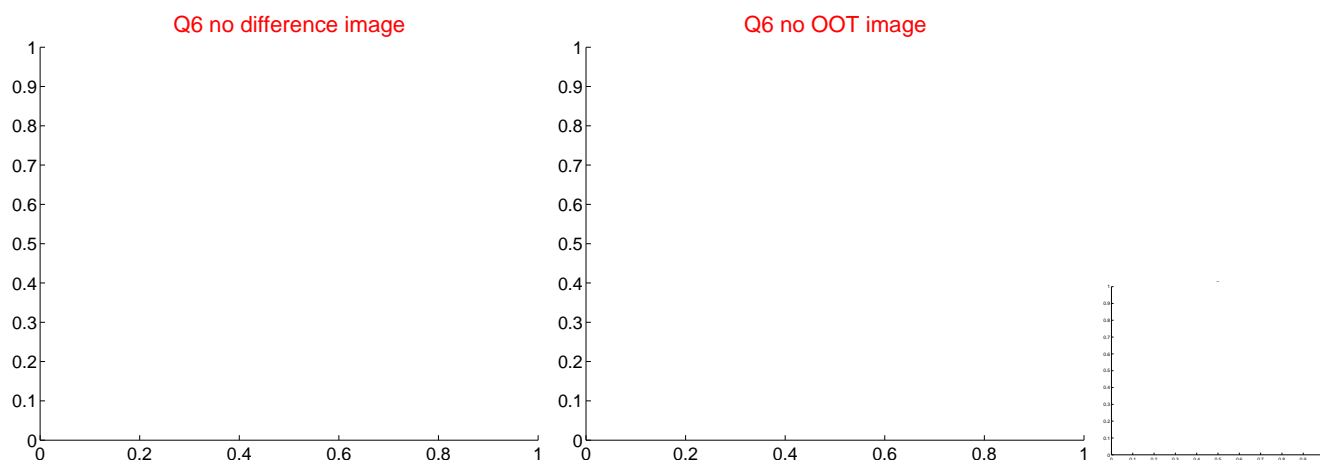
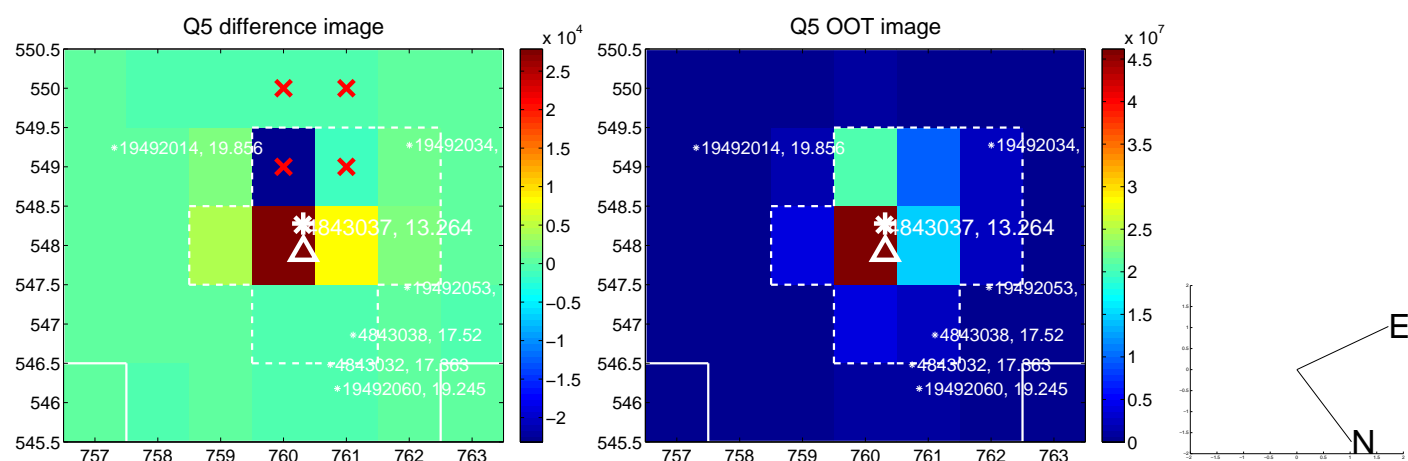


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

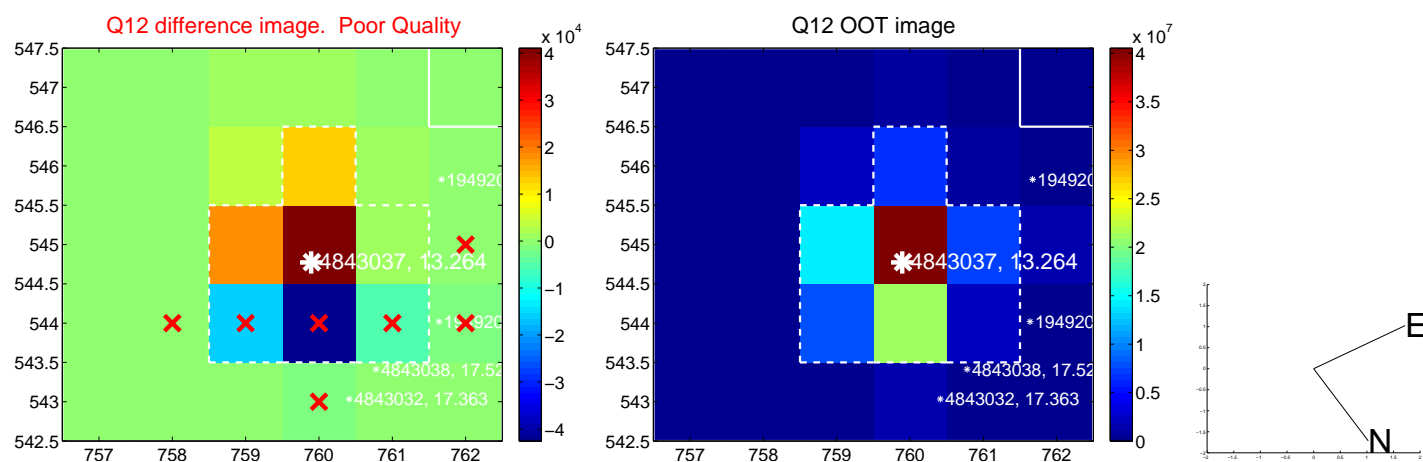
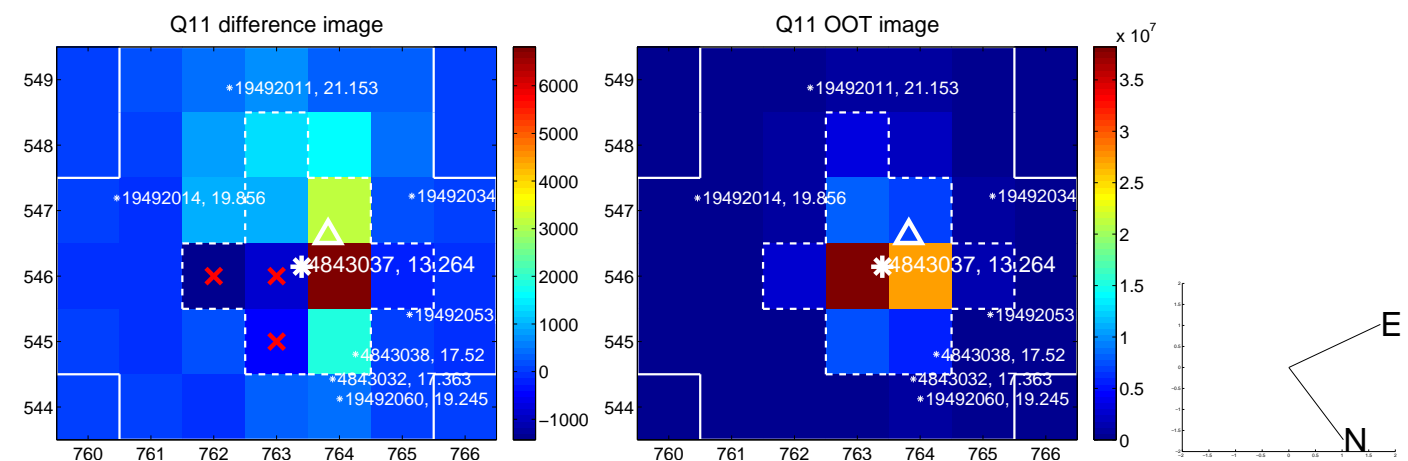
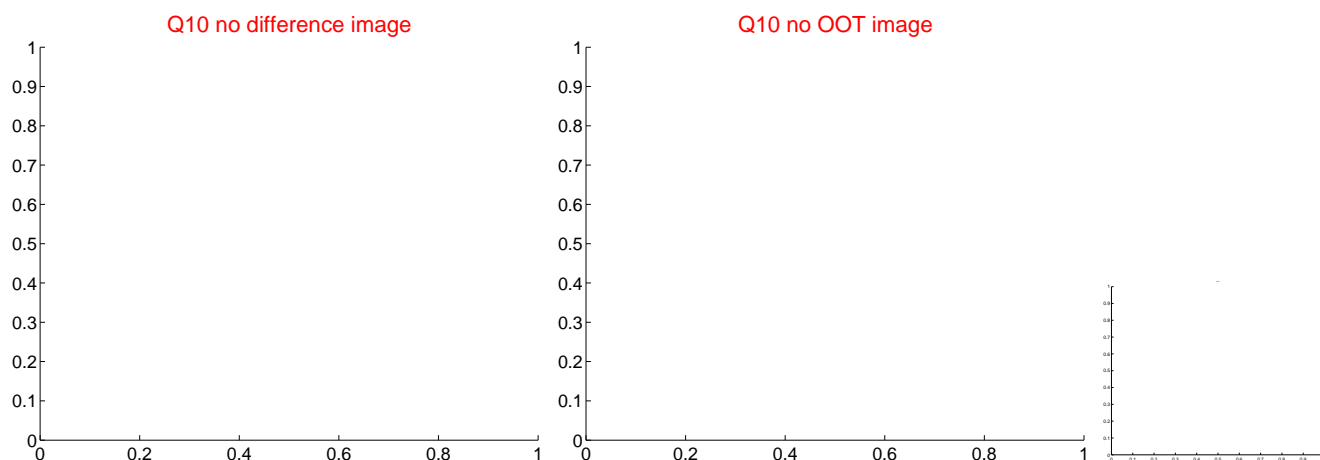
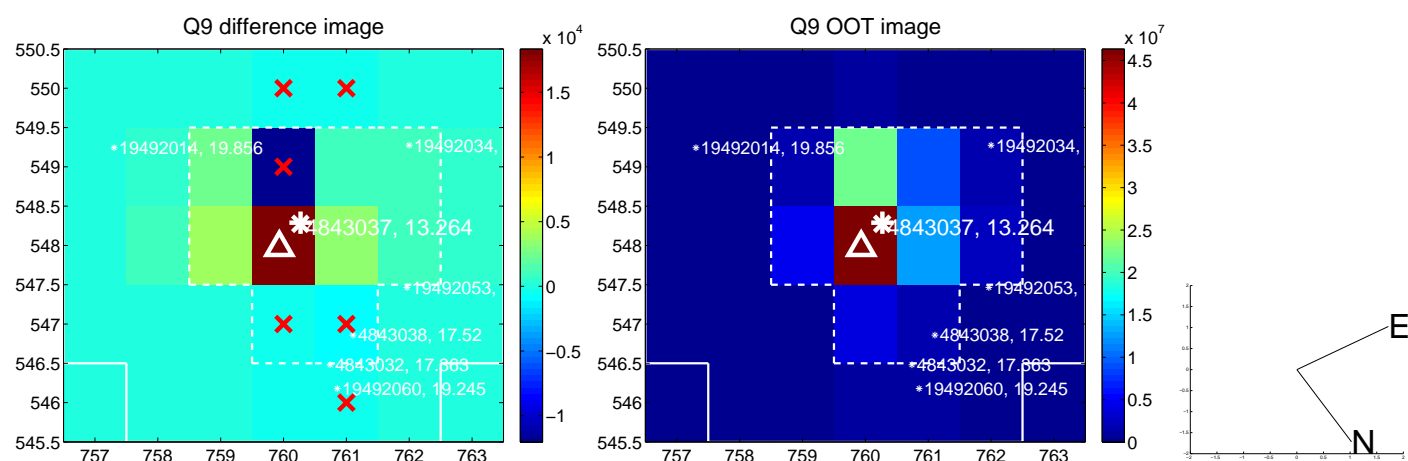


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

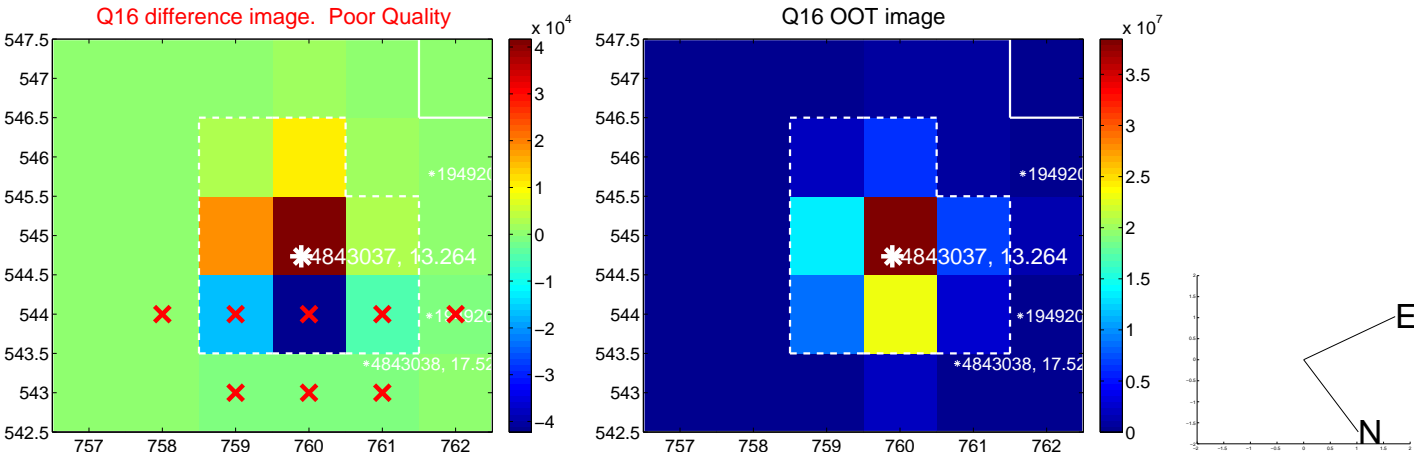
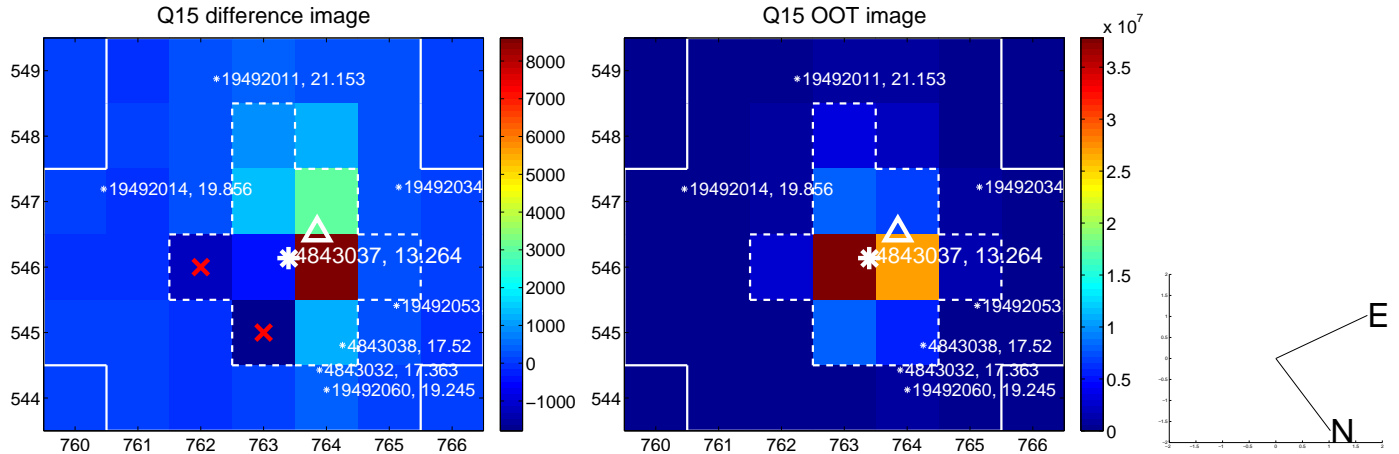
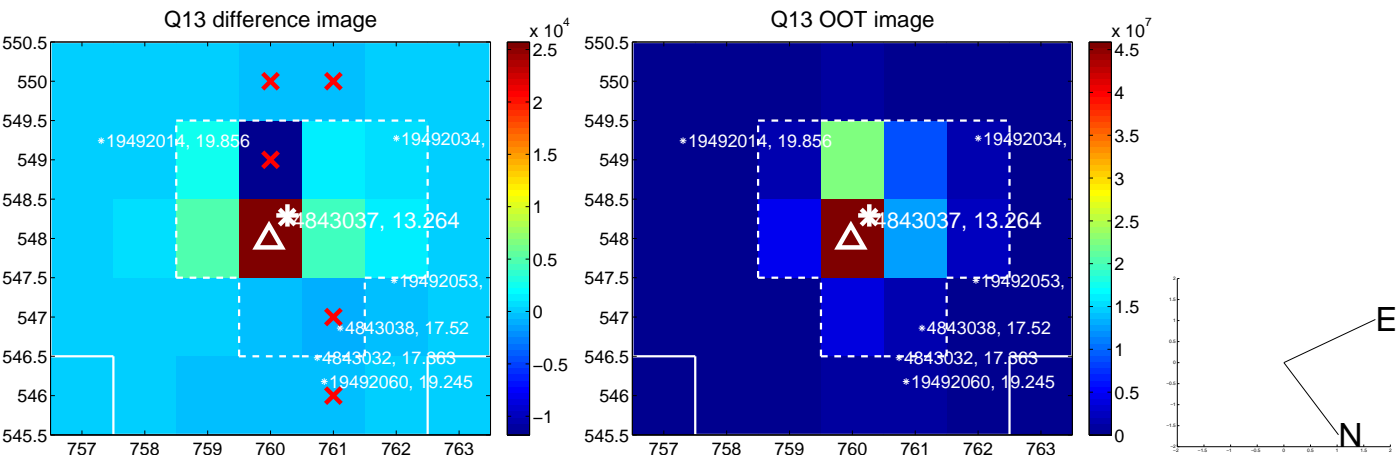




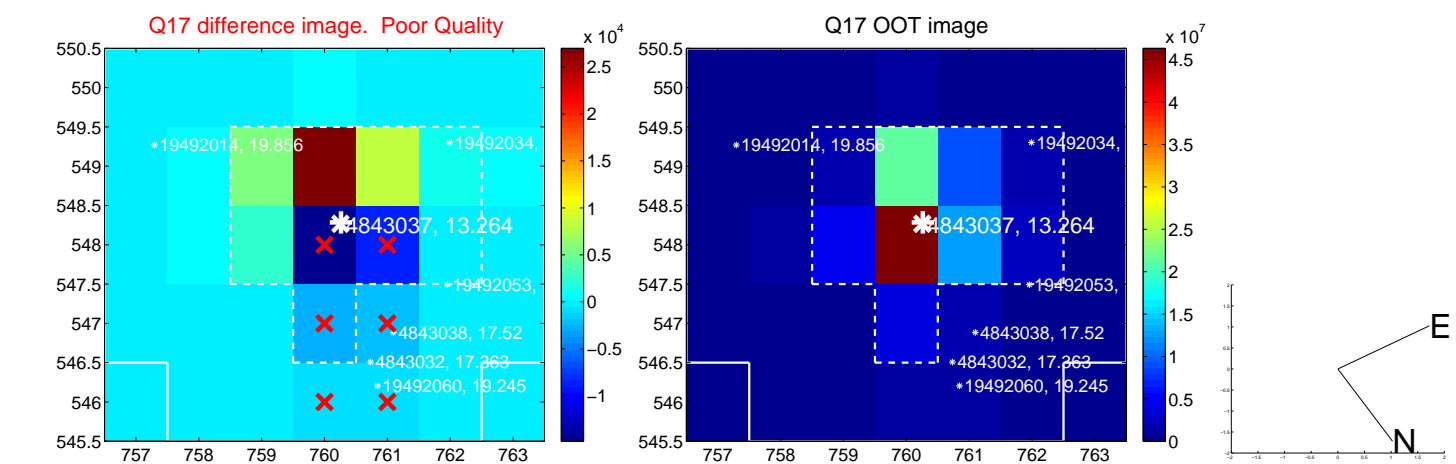
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



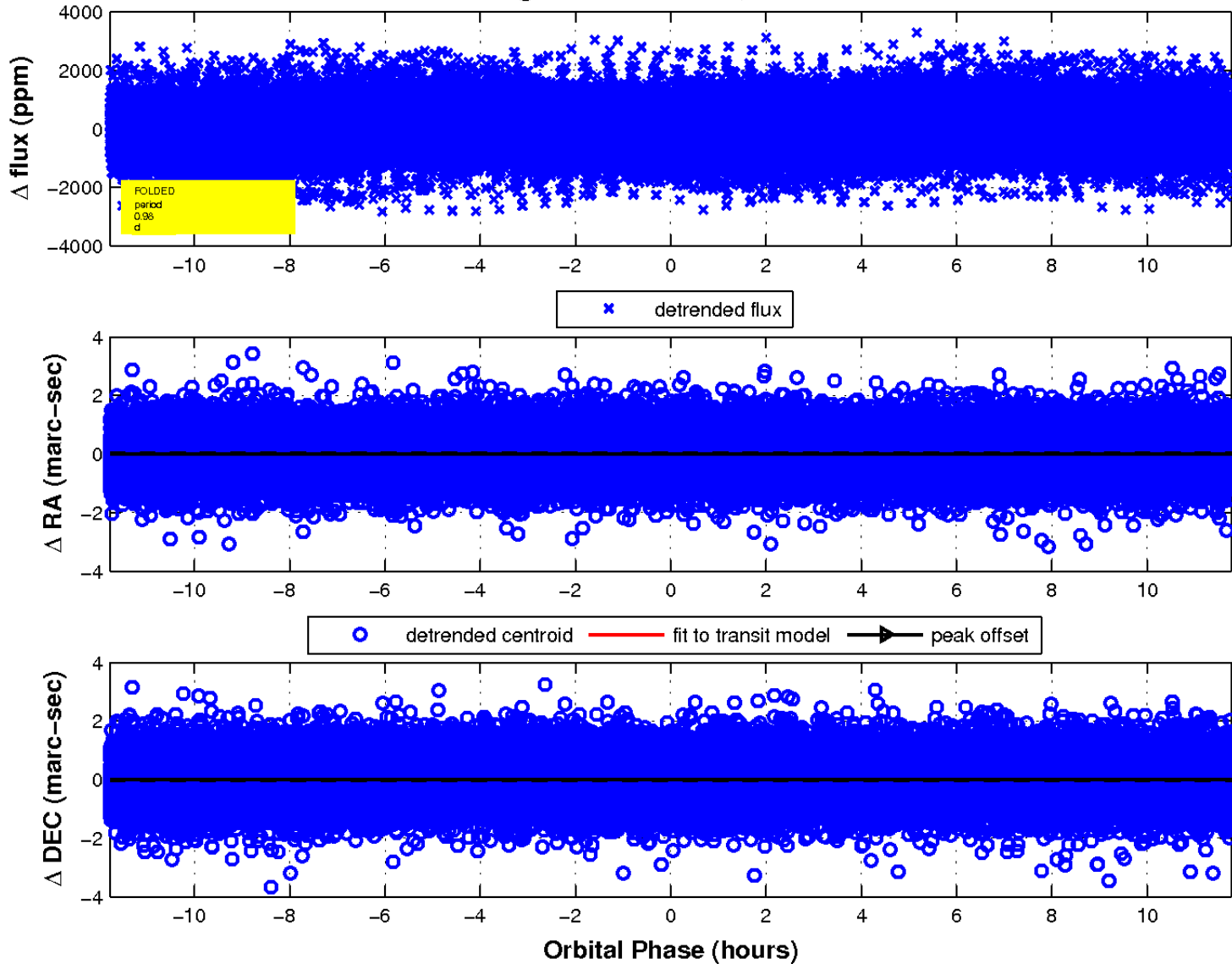
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

