

# KIC 004473083

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004473083-01	OBS	No	1.183254	131.790276	88.2	7.067	11.8	12.8	1.98	7693	2.50	17818.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004473083-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

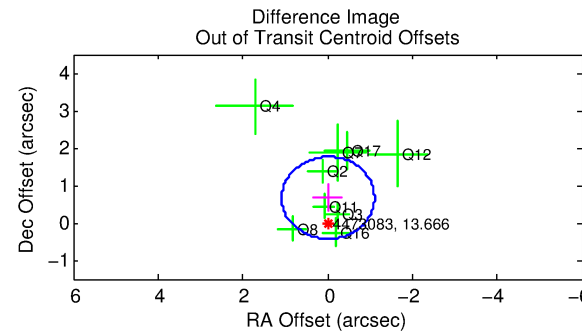
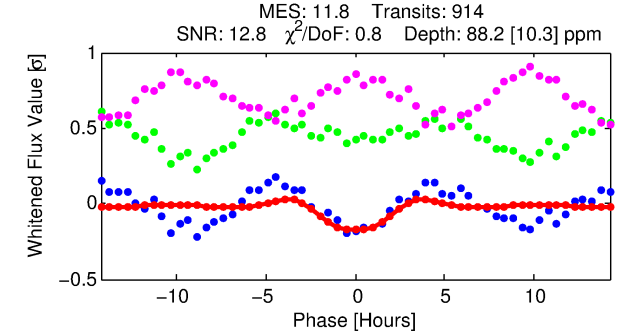
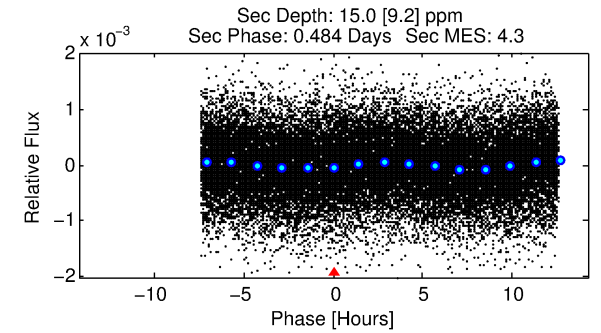
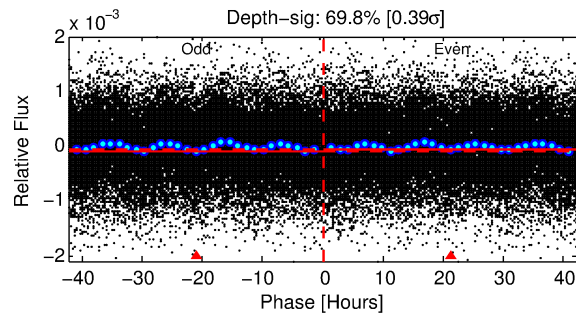
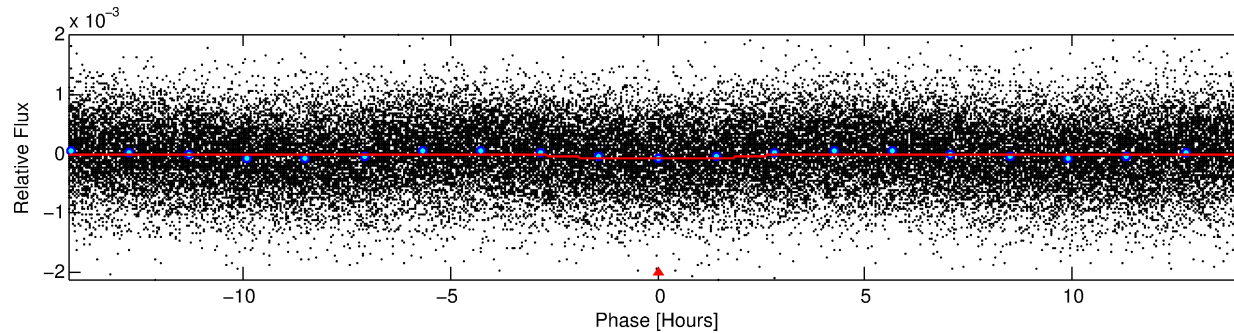
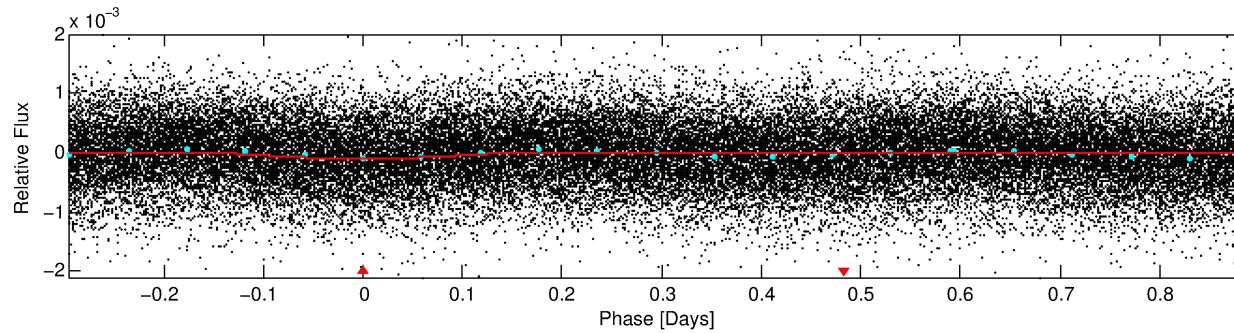
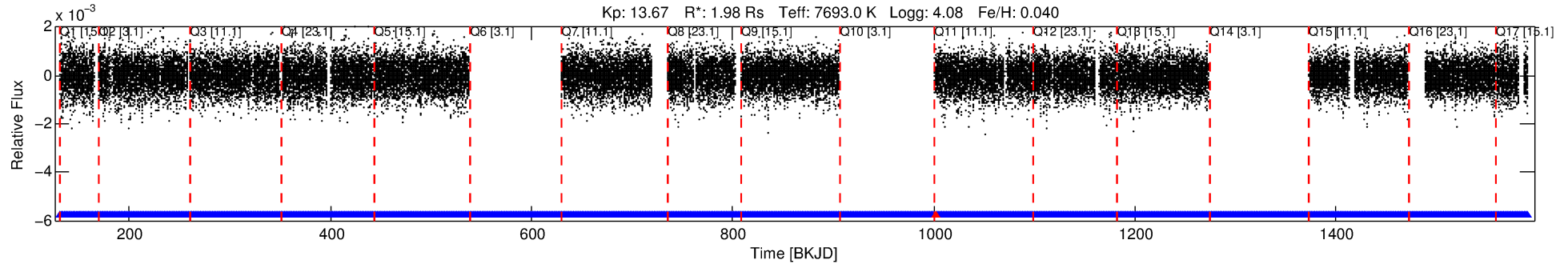
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004473083-01

No Significant Match Found

# DV One-Page Summary

KIC: 4473083 Candidate: 1 of 1 Period: 1.183 d



## DV Fit Results:

Period = 1.18325 [0.00001] d  
Epoch = 131.7903 [0.0068] BKJD  
Rp/R\* = 0.0115 [0.0008]  
a/R\* = 1.04 [0.01]  
b = 0.99 [0.00]  
Seff = 17818.35 [6323.92]  
Teq = 2946 [261] K  
Rp = 2.50 [0.67] Re  
a = 0.0263 [0.0057] AU  
Ag = 0.92 [0.64] [-0.13 $\sigma$ ]  
Teff = 4460 [723] K [1.97 $\sigma$ ]

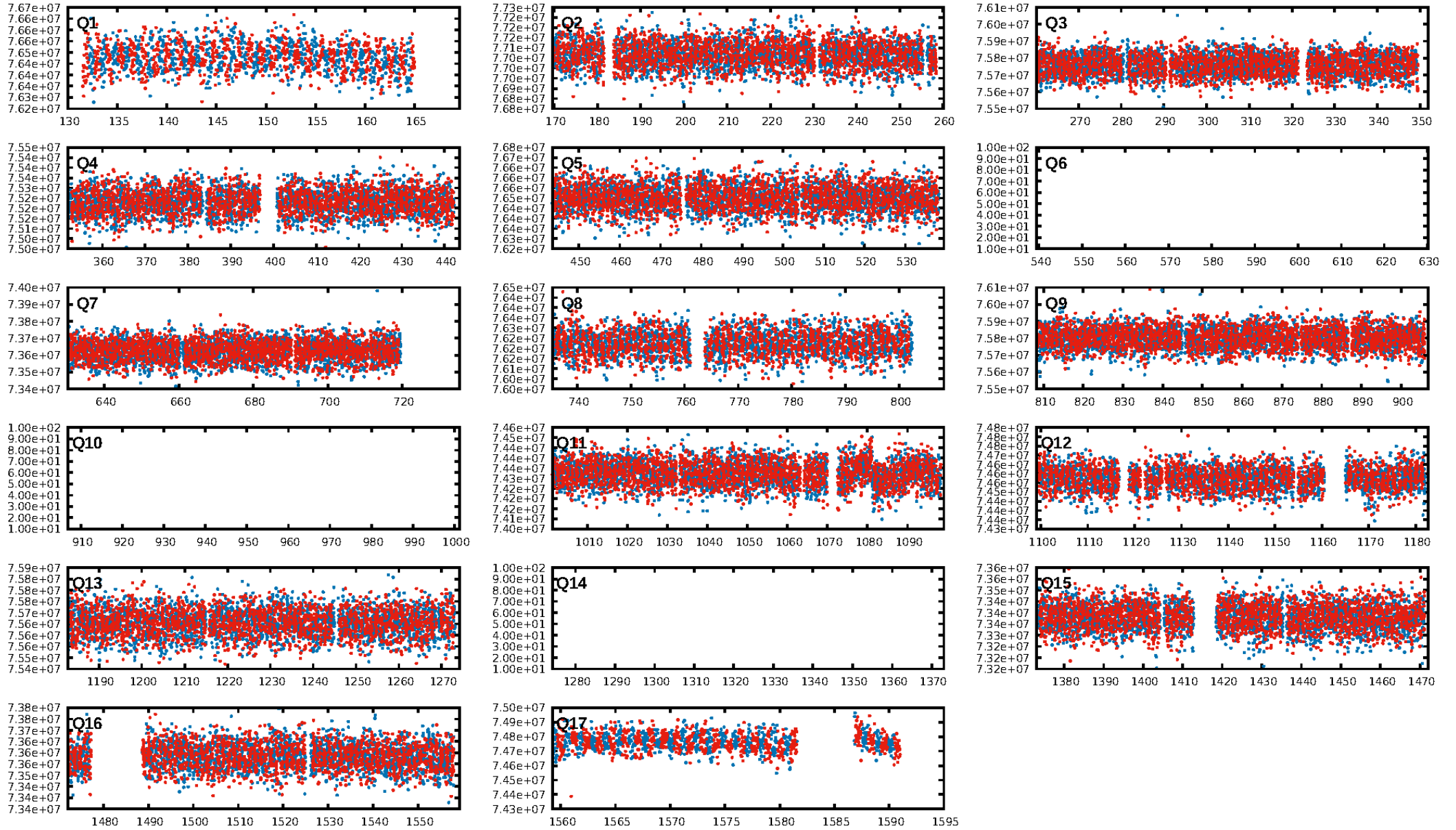
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.71e-20  
RollingBand-fgt: 1.00 [861/862]  
GhostDiagnostic-chr: 6.093  
Centroid-sig: 7.9%  
Centroid-so: 0.371 arcsec [1.18 $\sigma$ ]  
OotOffset-rm: 0.666 arcsec [1.82 $\sigma$ ]  
KicOffset-rm: 0.641 arcsec [1.66 $\sigma$ ]  
OotOffset-st: 1/3/4/1 [9]  
KicOffset-st: 1/3/4/1 [9]  
DiffImageQuality-fgm: 0.78 [7/9]  
DiffImageOverlap-fno: 1.00 [14/14]

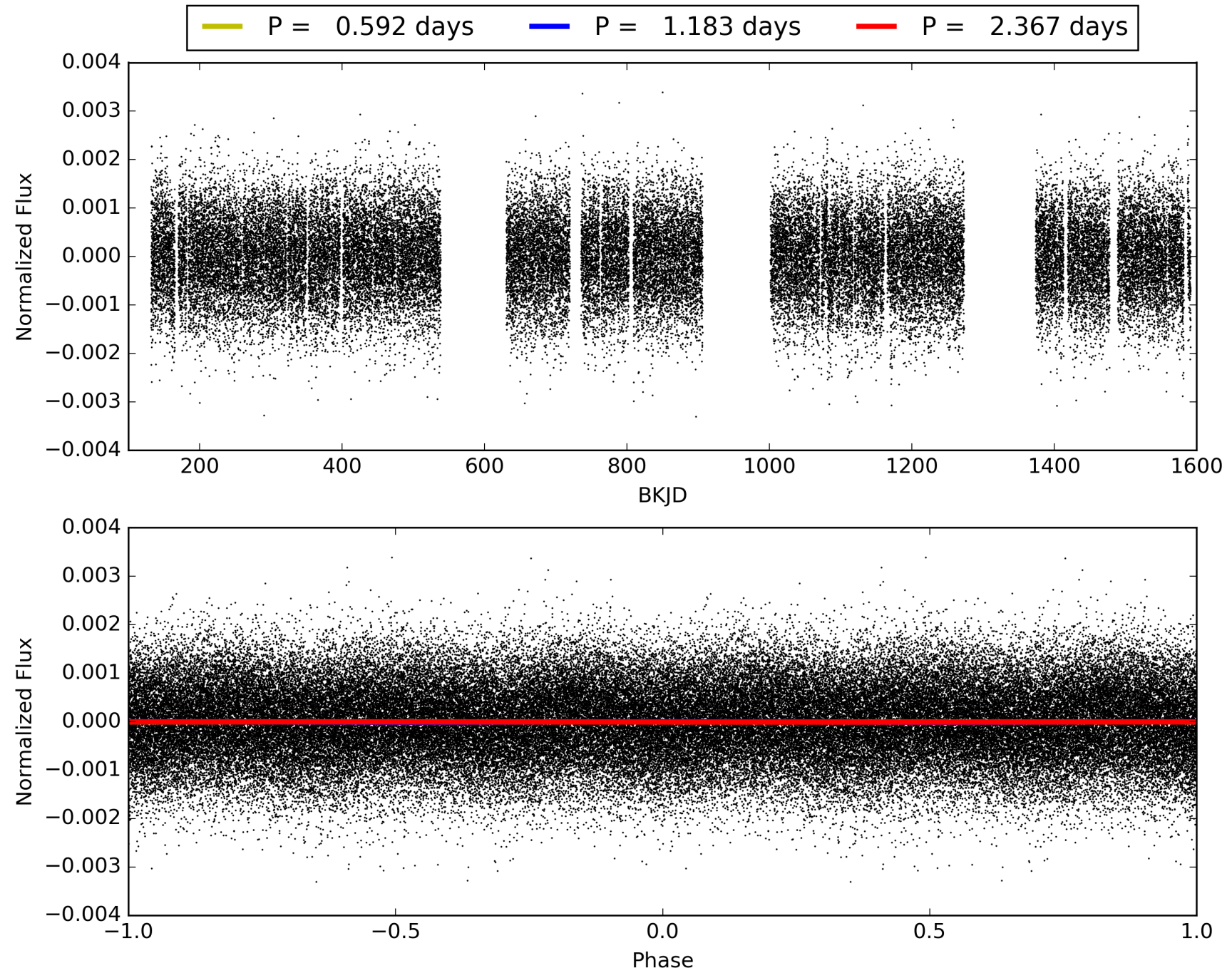
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:09:18 Z

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

# TCE 004473083-01, PDC Light Curves



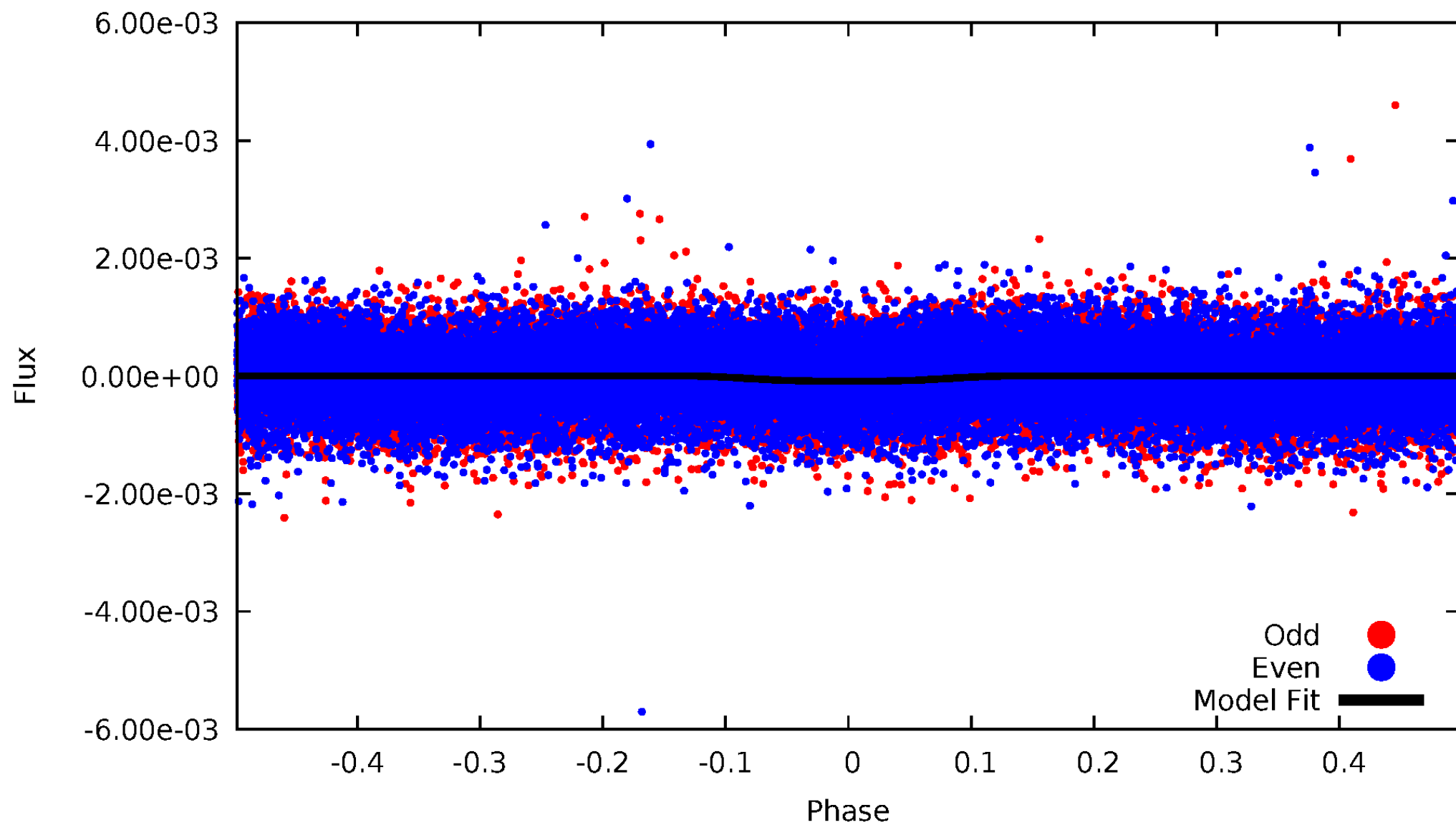
TCE 004473083-01





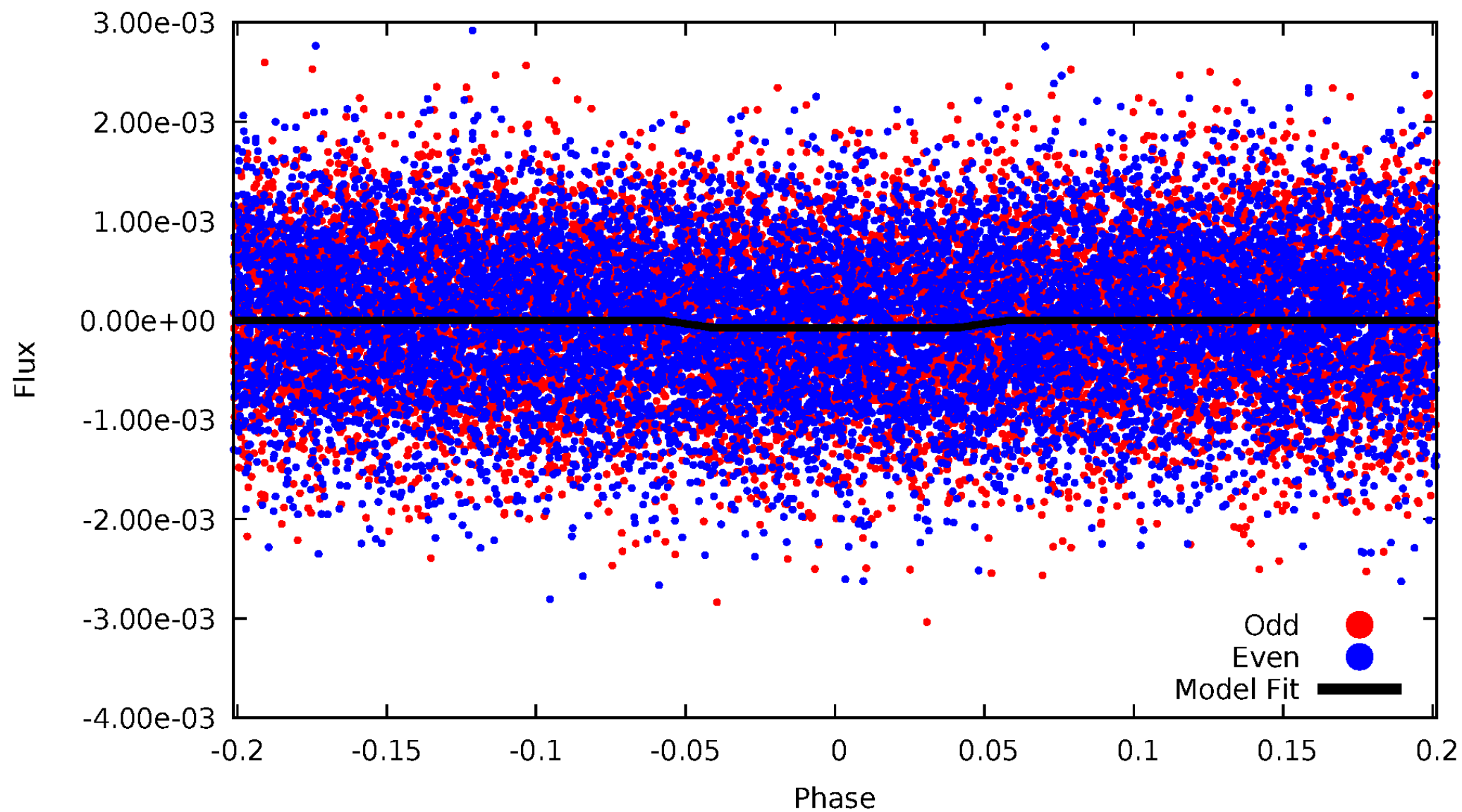
# DV Odd/Even

TCE 004473083-01



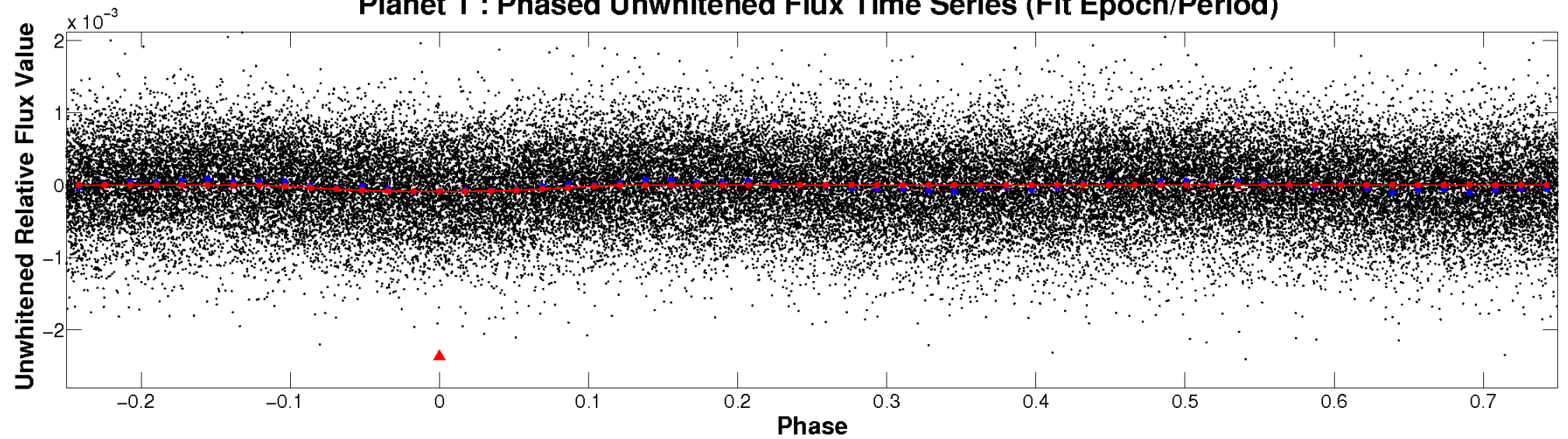
# ALT Odd/Even

TCE 004473083-01

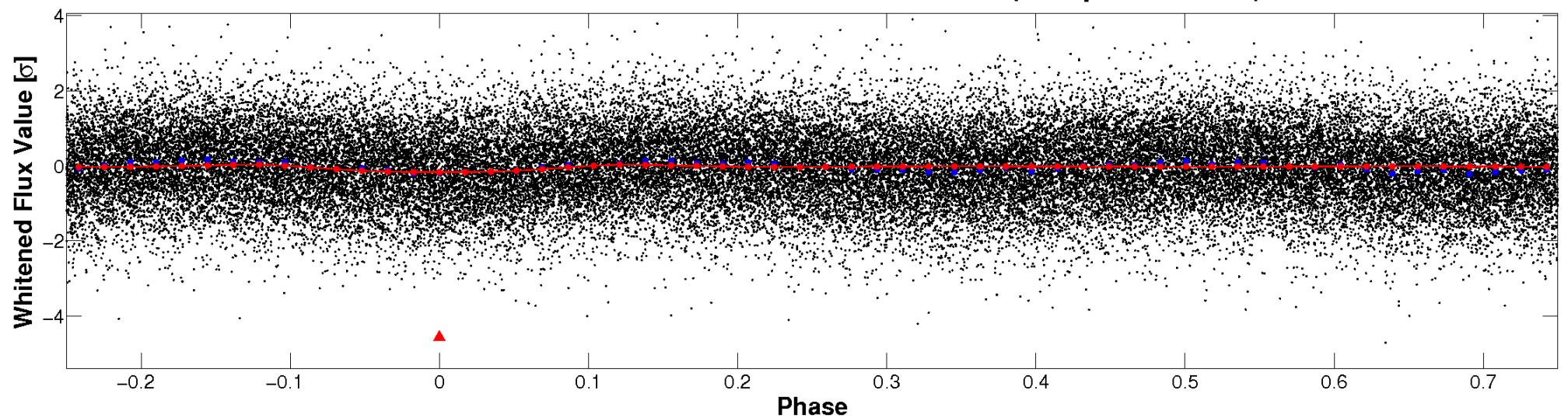


# Non-Whitened Vs. Whitened Light Curve

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

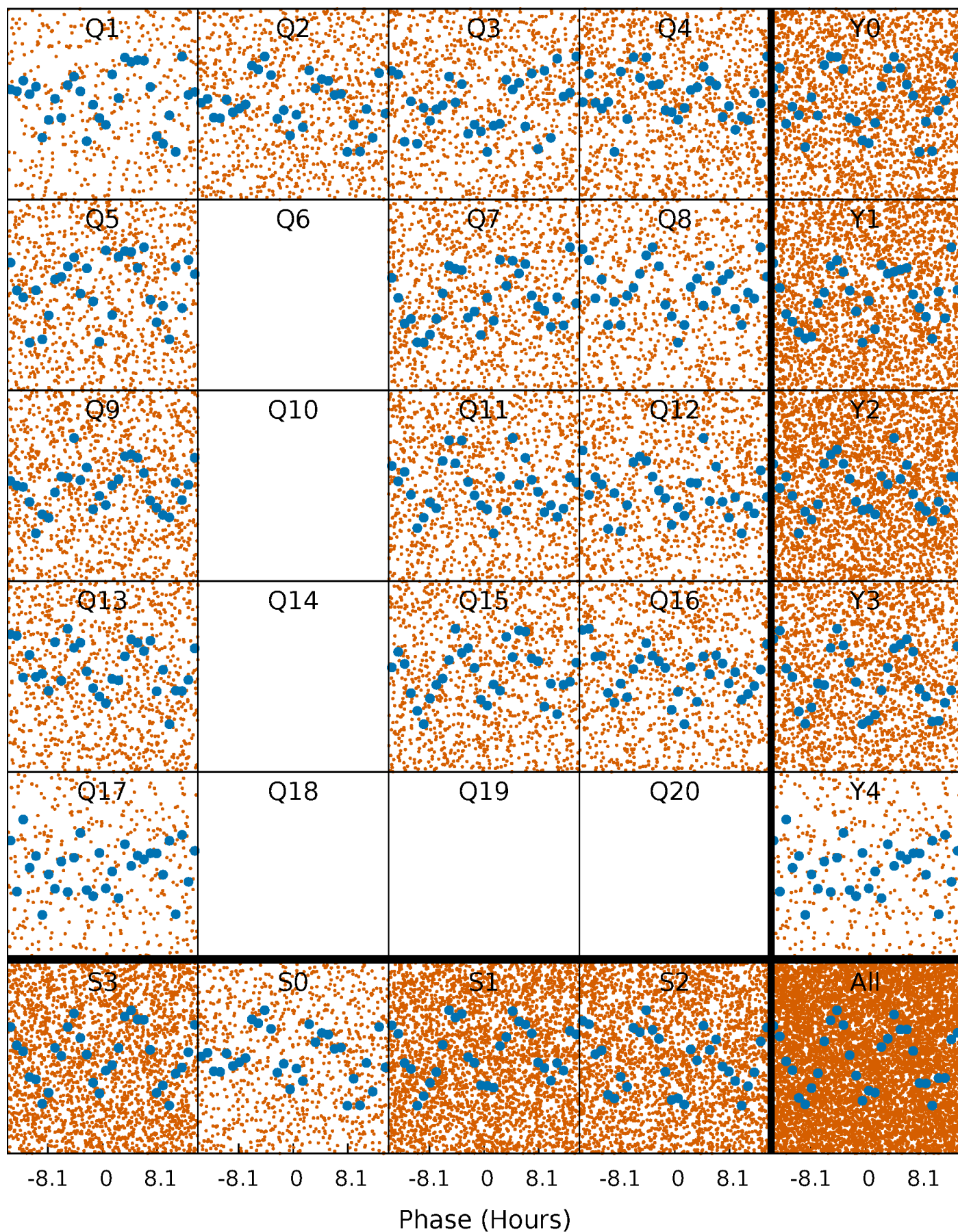


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

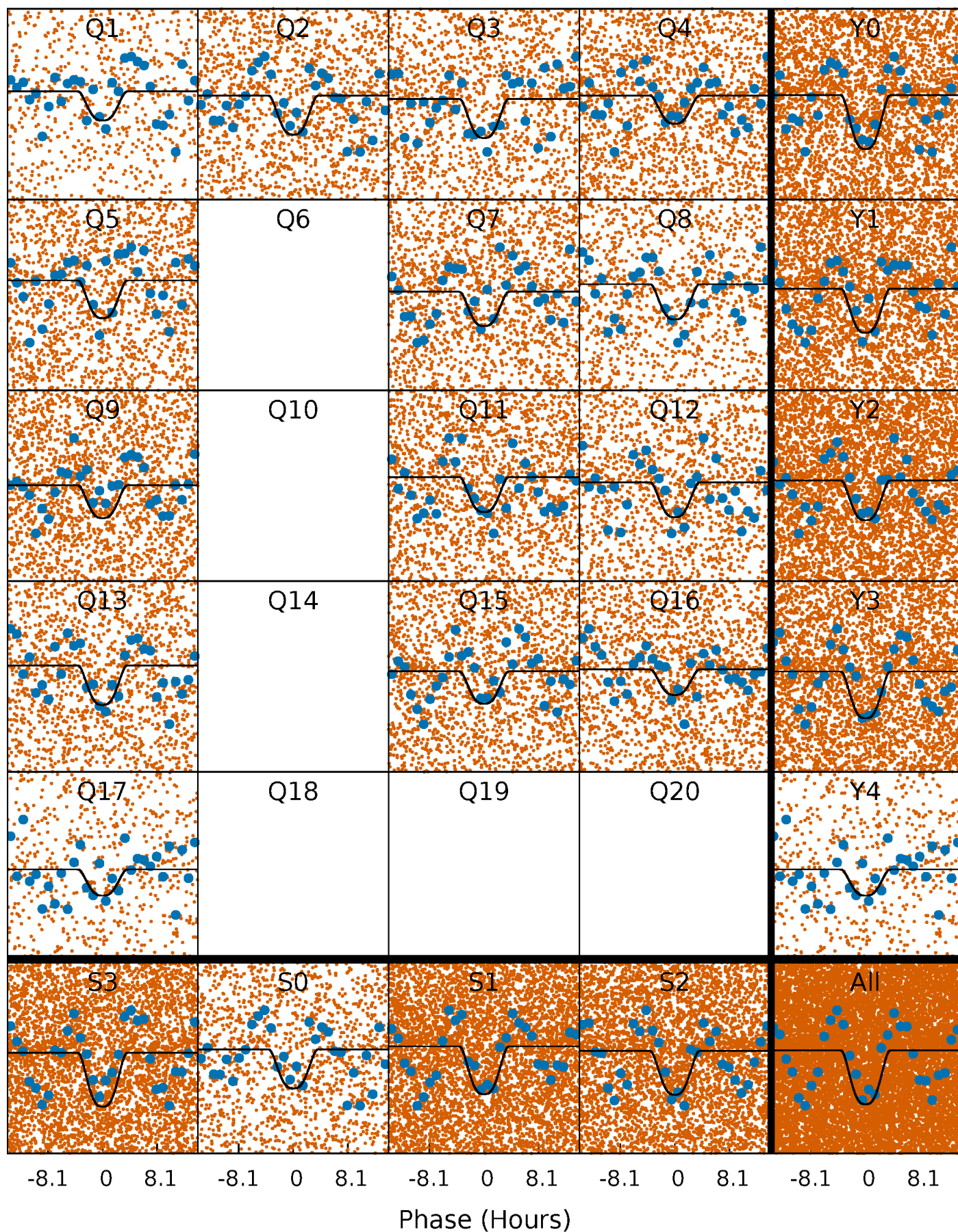
TCE 004473083-01 P= 1.183254 Days  $T_0=131.790276$  (BKJD)





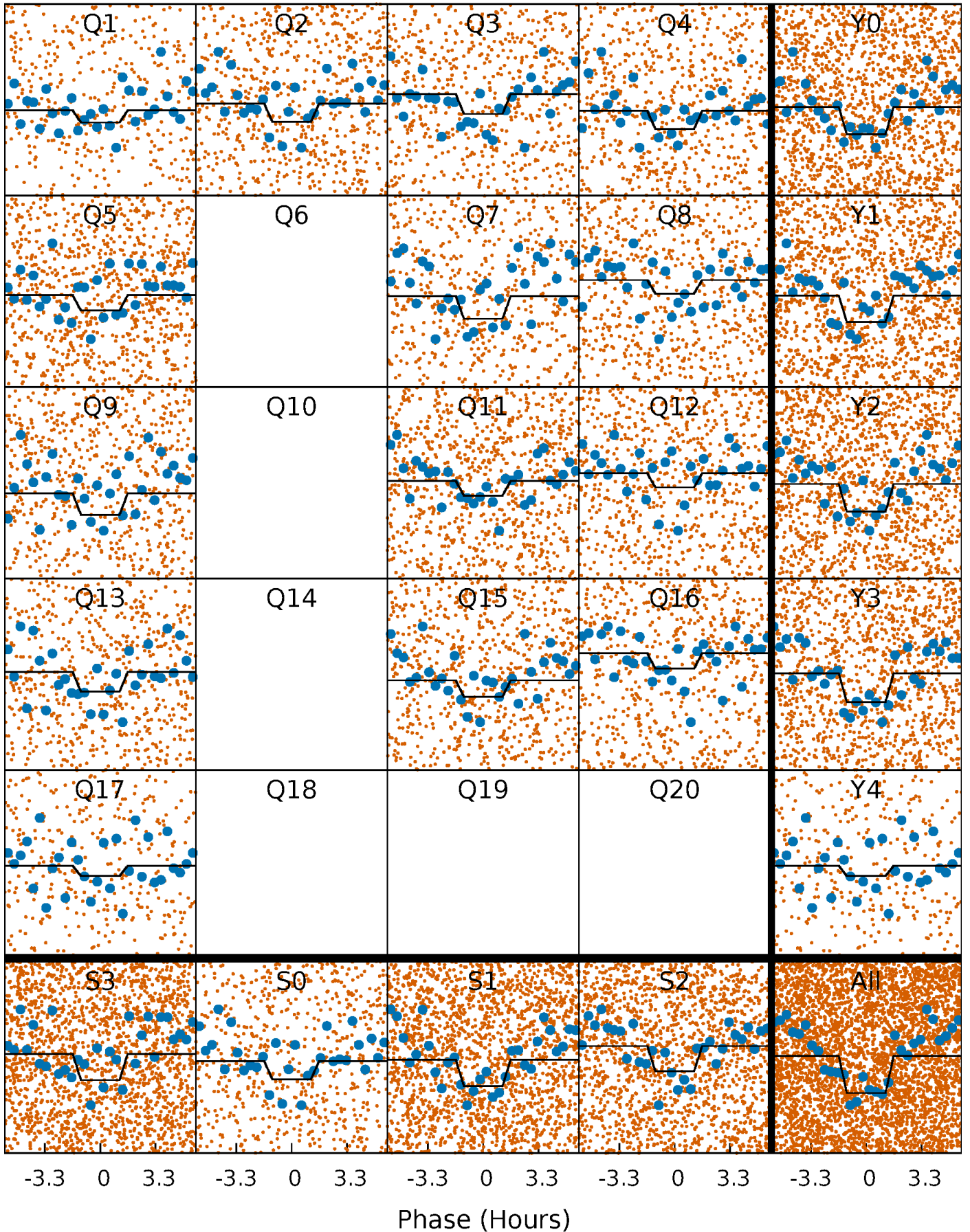
# DV Quarter-Phased Transit Curves

TCE 004473083-01 P= 1.183254 Days  $T_0=131.790276$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

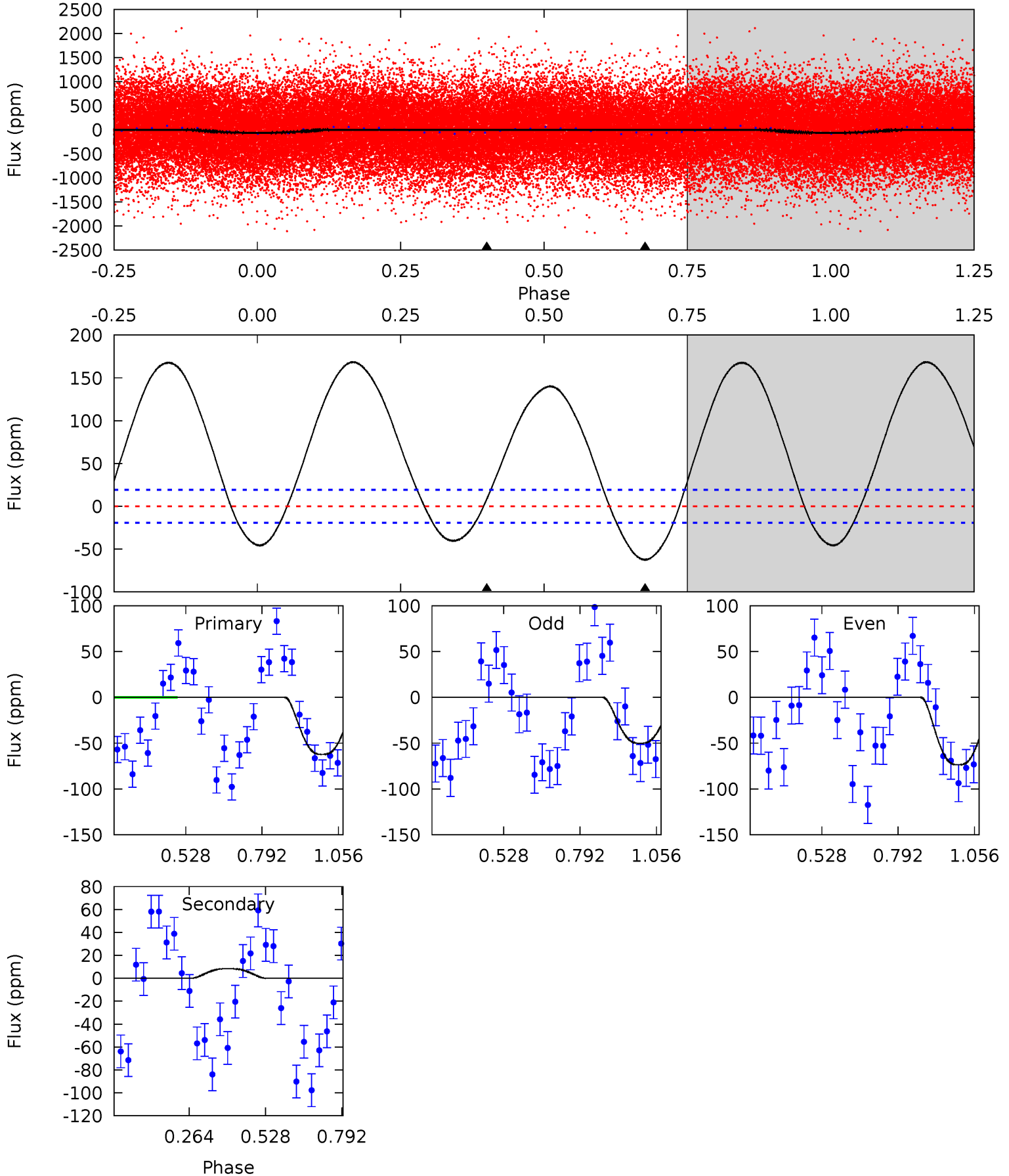
TCE 004473083-01 P= 1.183277 Days  $T_0=131.794988$  (BKJD)



# DV Model-Shift Uniqueness Test

004473083-01, P = 1.183254 Days, E = 130.607022 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
14.2	-1.90	0	0	4.36	1.12	13.9	14.2	14.2	-1.90	-1.90	2.70	1.07	0.73	0.20

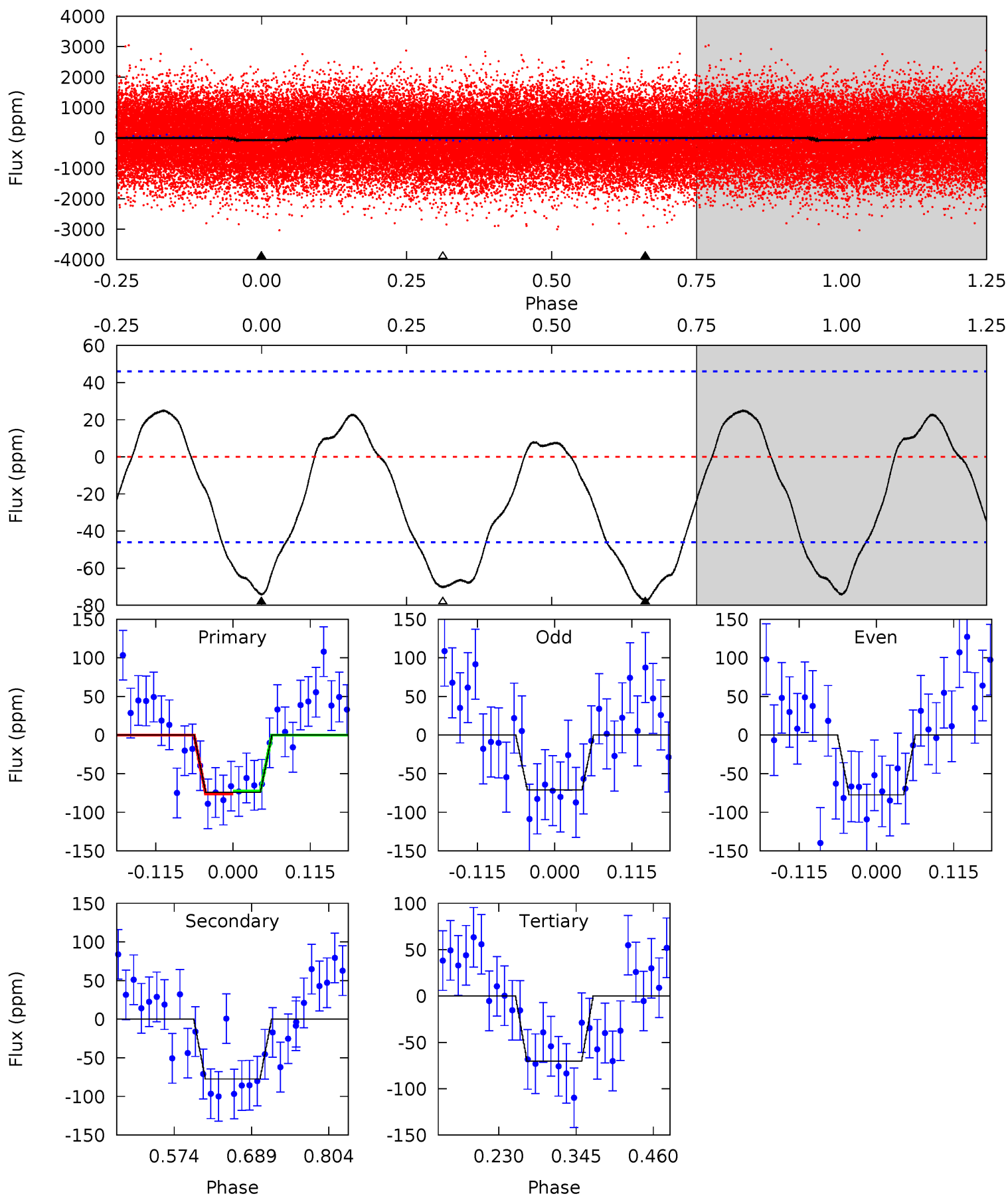




# Alt Model-Shift Uniqueness Test

004473083-01, P = 1.183277 Days, E = 130.611711 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
7.31	7.63	6.92	0	4.54	1.58	3.12	0.39	7.31	0.71	7.63	0.32	1.10	0.24	0.19





### Stellar Parameters For KIC 004473083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7693^{+214}_{-322}$	$4.083^{+0.139}_{-0.170}$	$0.040^{+0.150}_{-0.350}$	$1.984^{+0.514}_{-0.420}$	$1.737^{+0.194}_{-0.291}$	$0.313^{+0.253}_{-0.139}$
	+3%/-4%	+3%/-4%	+375%/-875%	+26%/-21%	+11%/-17%	+81%/-44%
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 004473083-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$8 \pm 4$	$2.52^{+0.41}_{-0.36}$	$4138^{+265}_{-253}$	$-4429^{+315}_{-309}$	$-0.482^{+0.263}_{-0.311}$
Alt.	$-77 \pm 10$	$1.89^{+0.33}_{-0.28}$	$4118^{+296}_{-270}$	$7604^{+663}_{-552}$	$8.126^{+3.060}_{-2.285}$

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

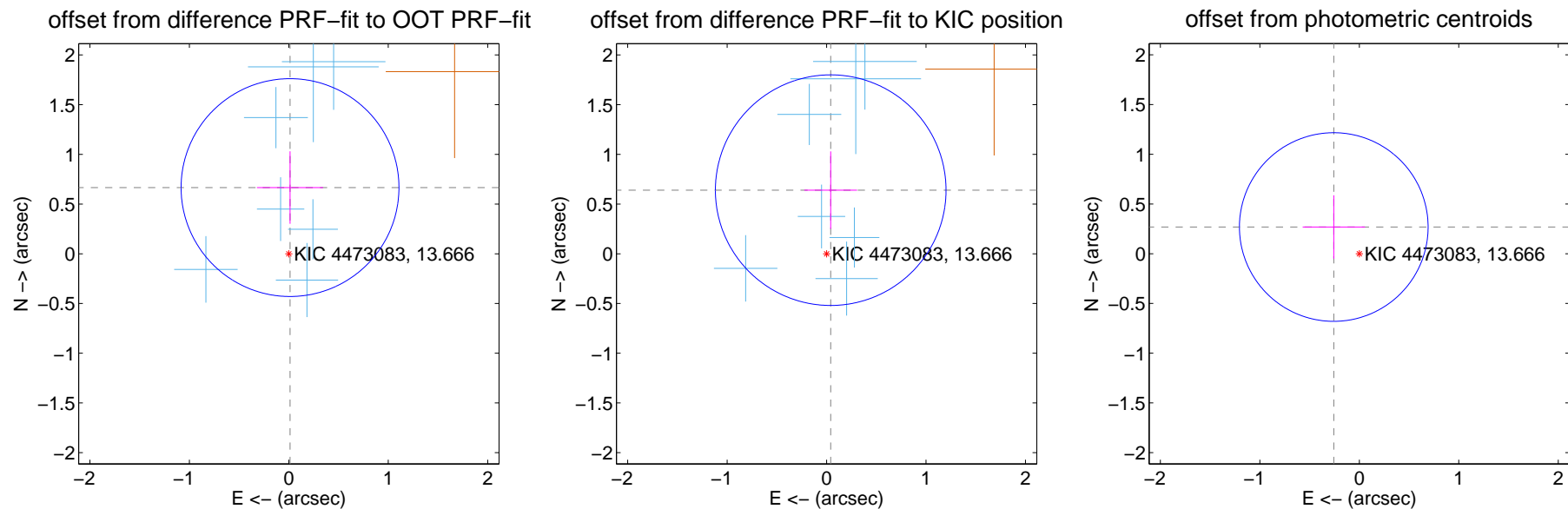
## DV Centroid Data

Supplemental centroid analysis for 004473083-01. Kepler magnitude: 13.67. Transit SNR 12.83

There are 7 quarters with good PRF difference image offsets

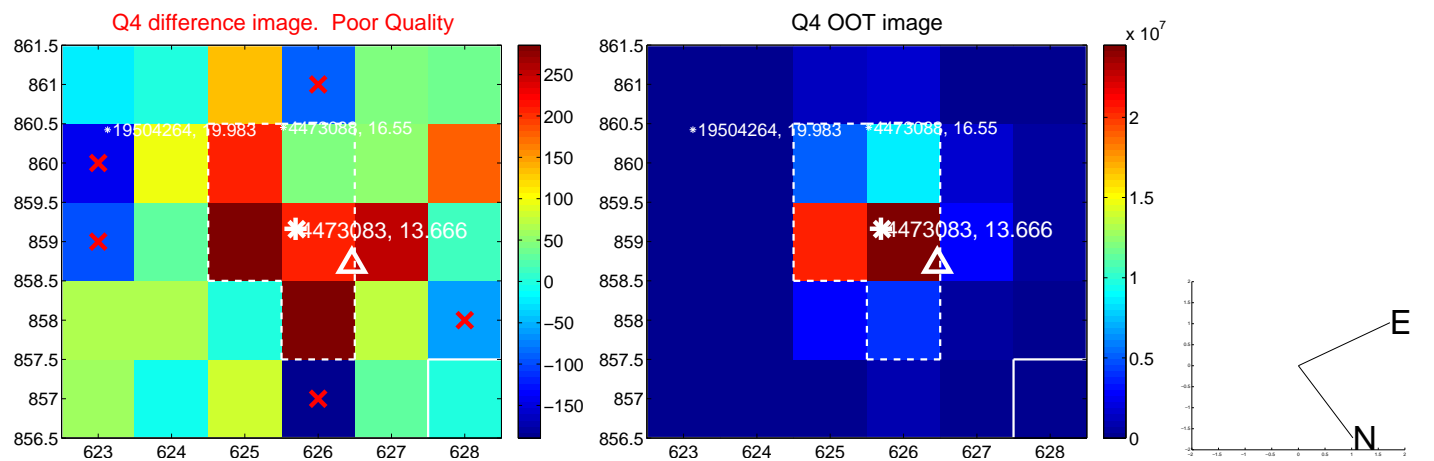
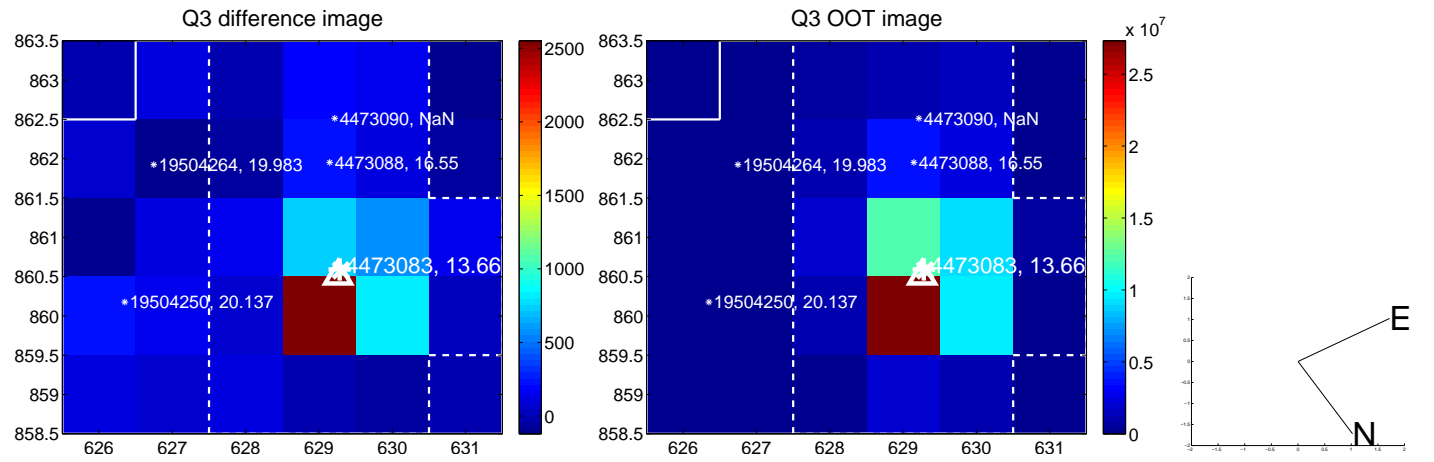
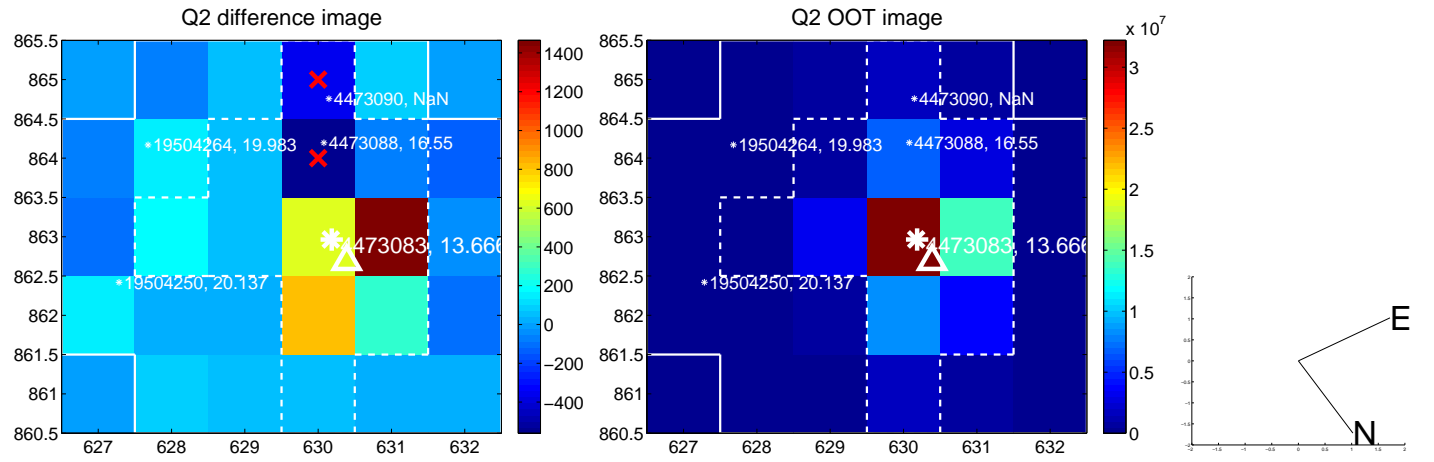
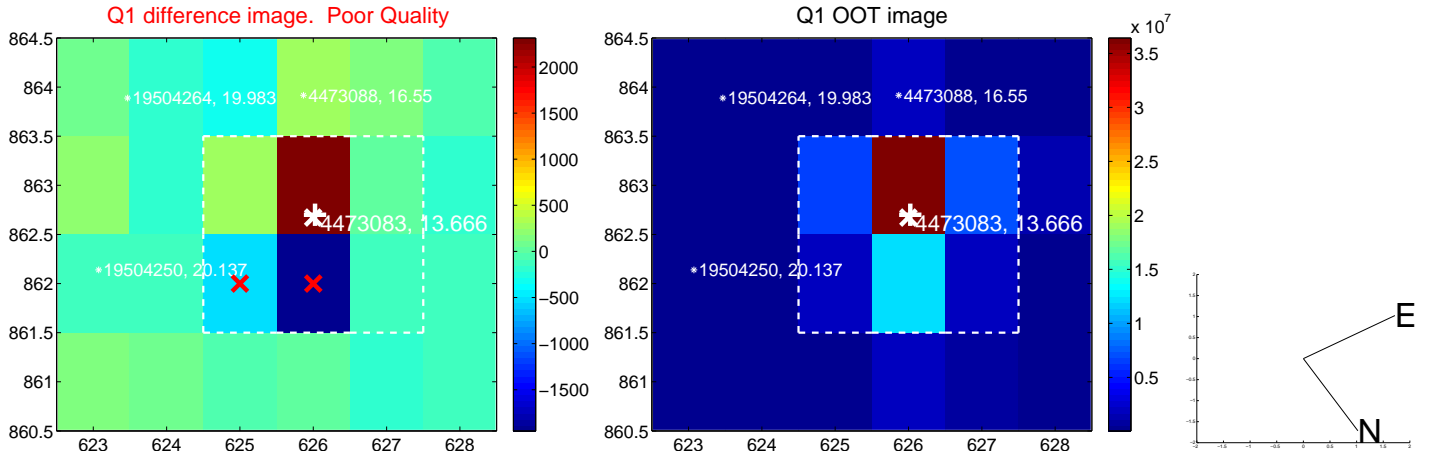
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.666 \pm 0.365$	1.82	$-0.012 \pm 0.333$	$0.666 \pm 0.364$
PRF-fit source offset from KIC position	$0.641 \pm 0.387$	1.66	$-0.042 \pm 0.265$	$0.640 \pm 0.390$
photometric centroid source offset	$0.37 \pm 0.32$	1.18	$0.26 \pm 0.31$	$0.27 \pm 0.32$

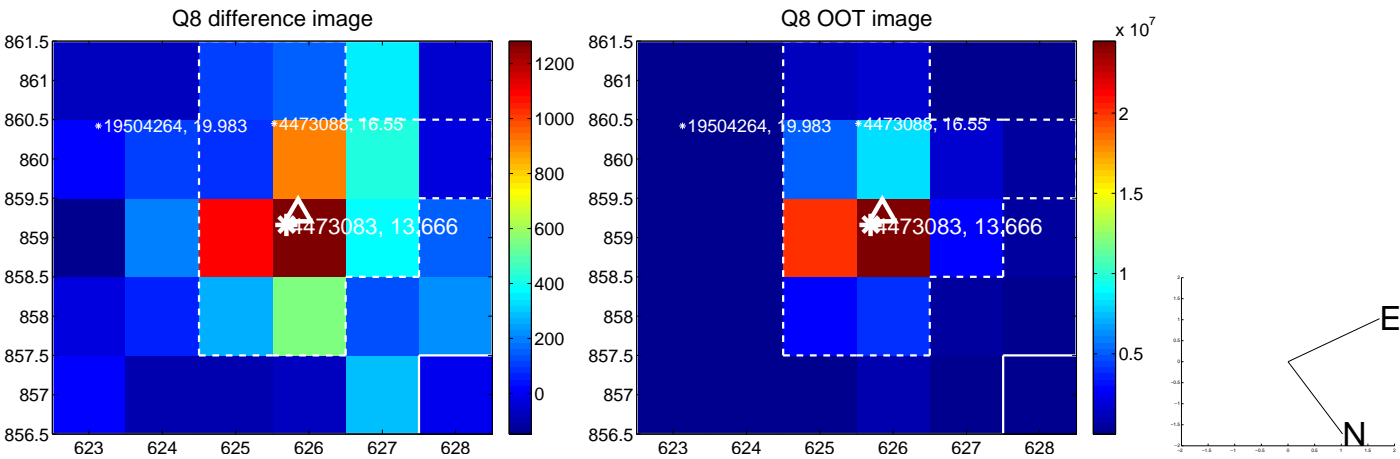
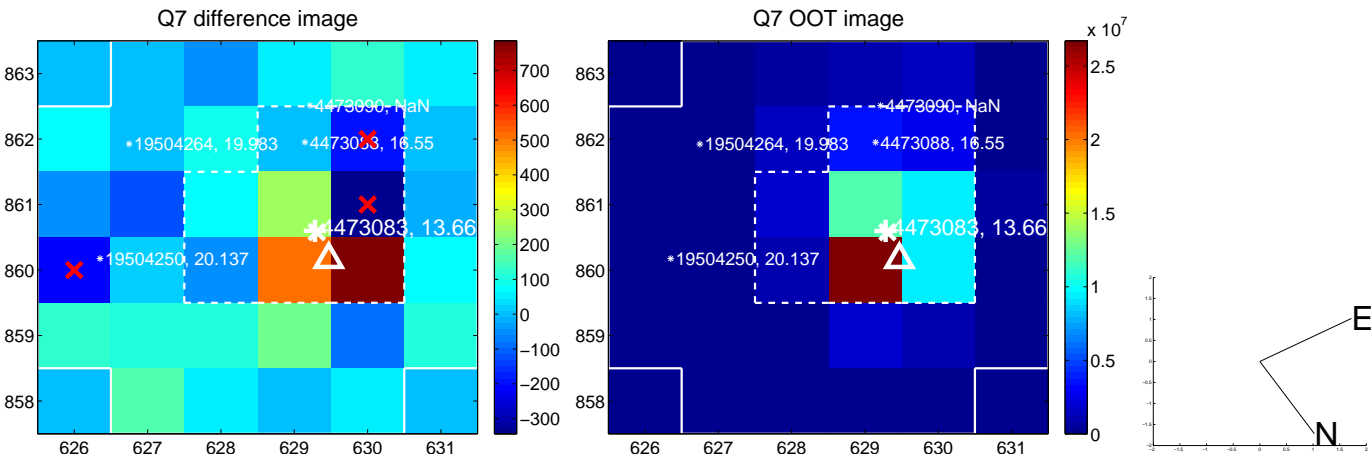
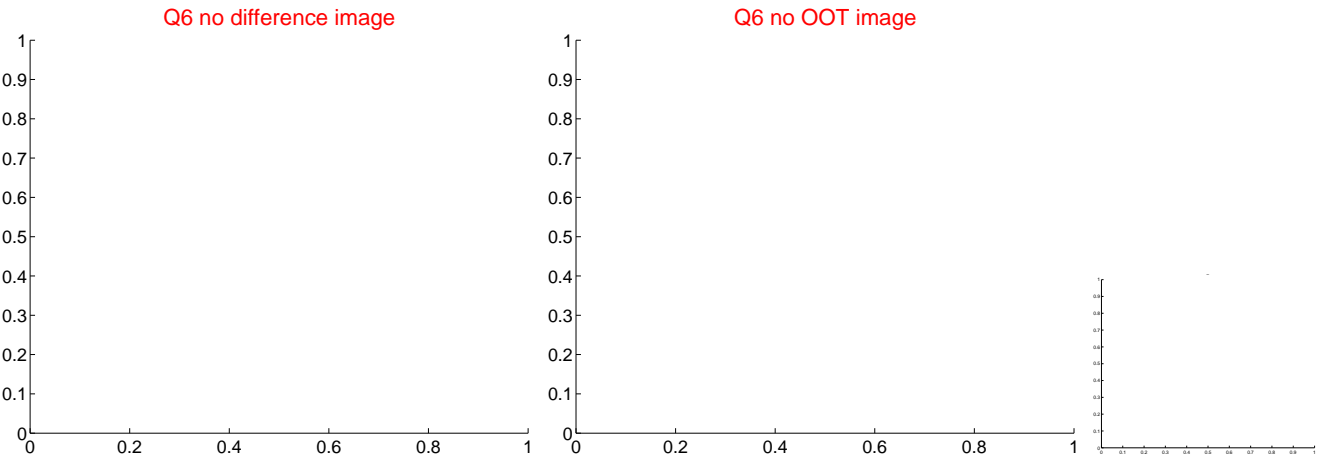
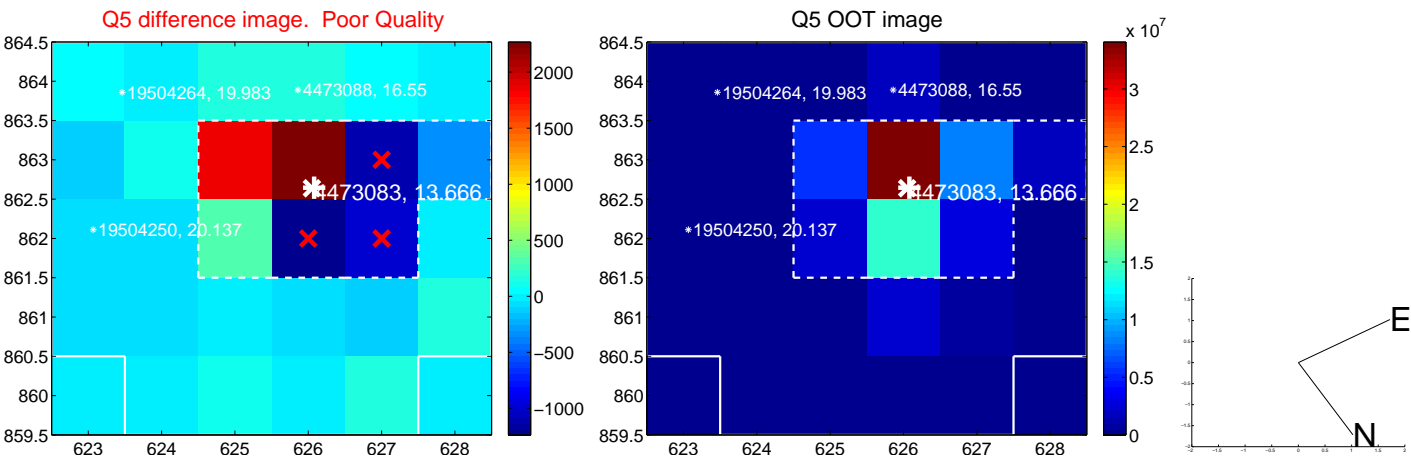


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

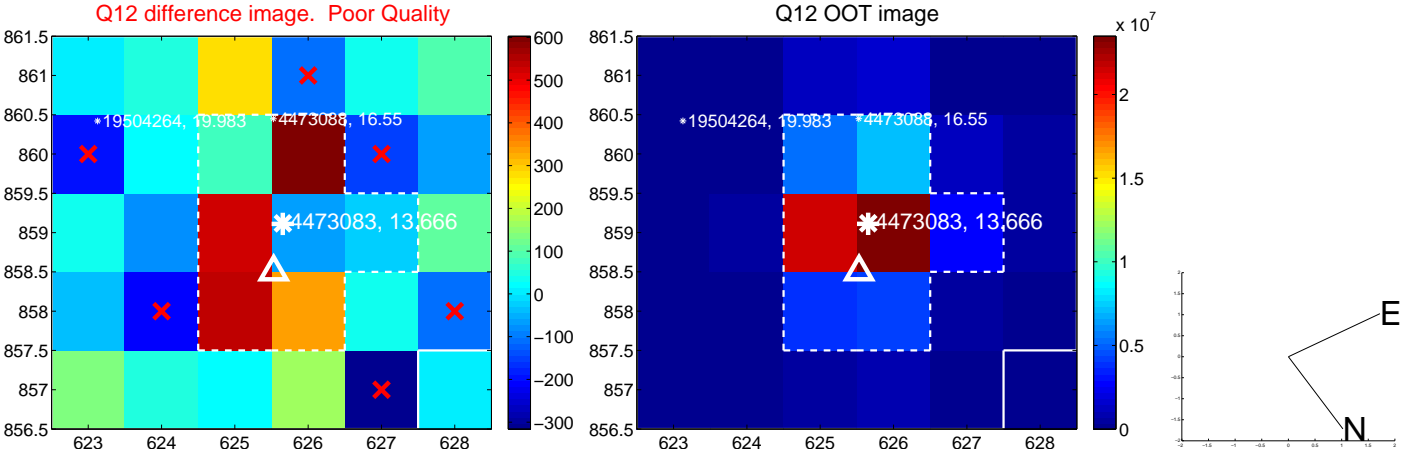
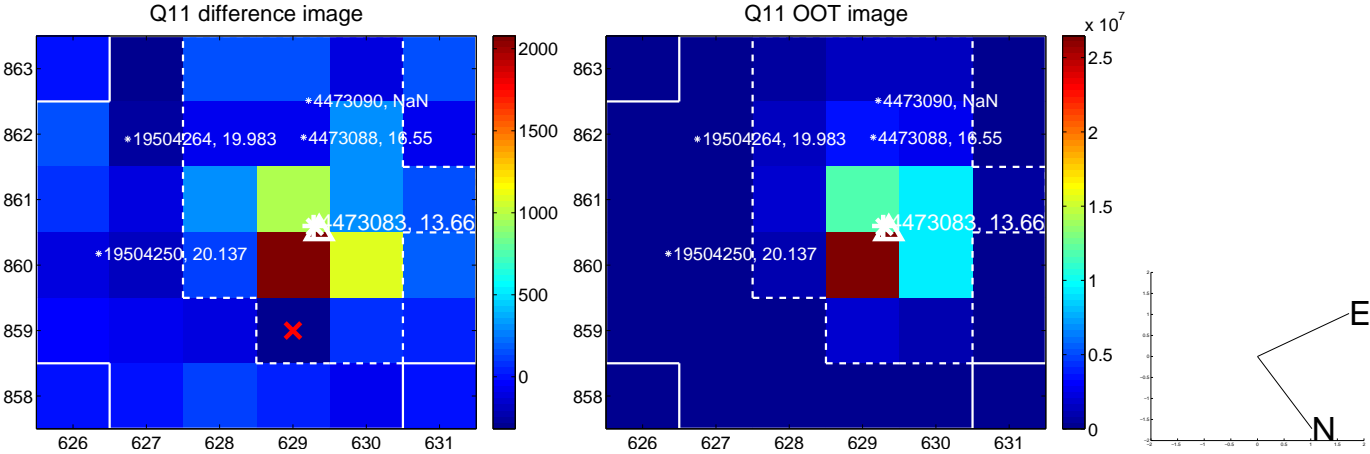
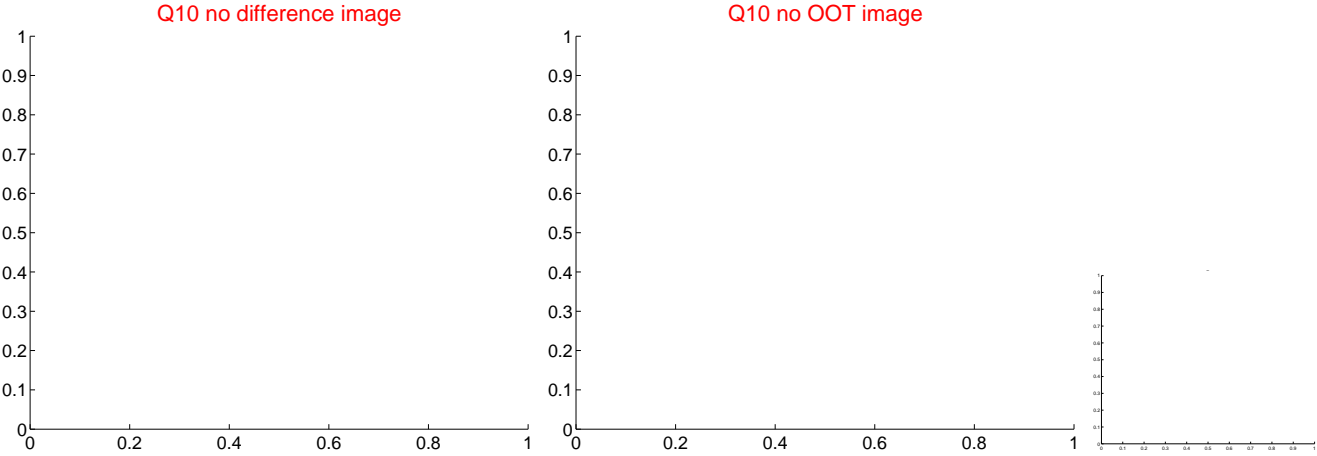
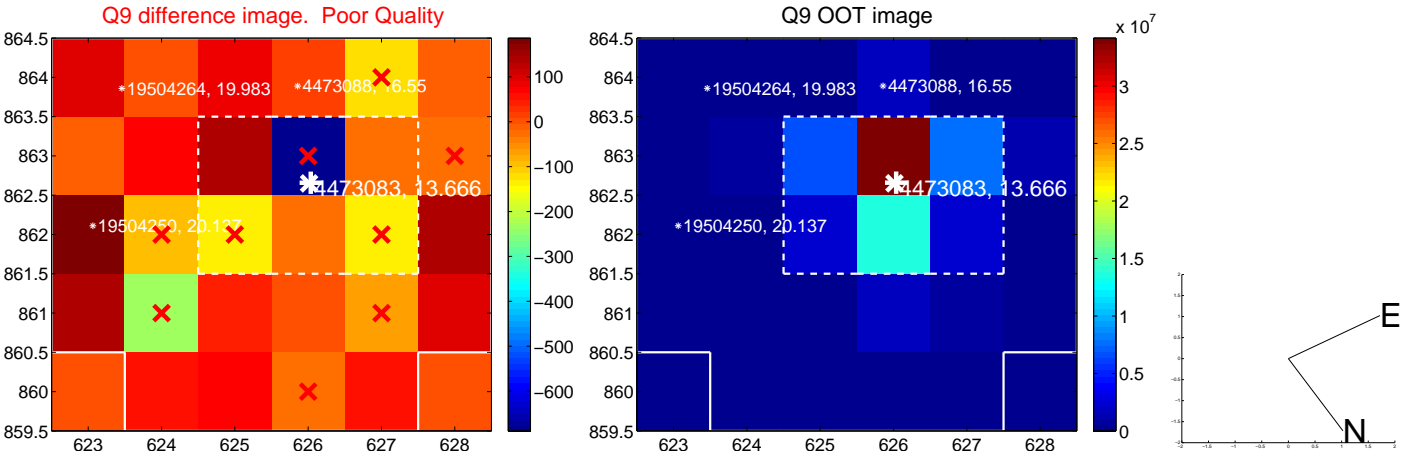


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

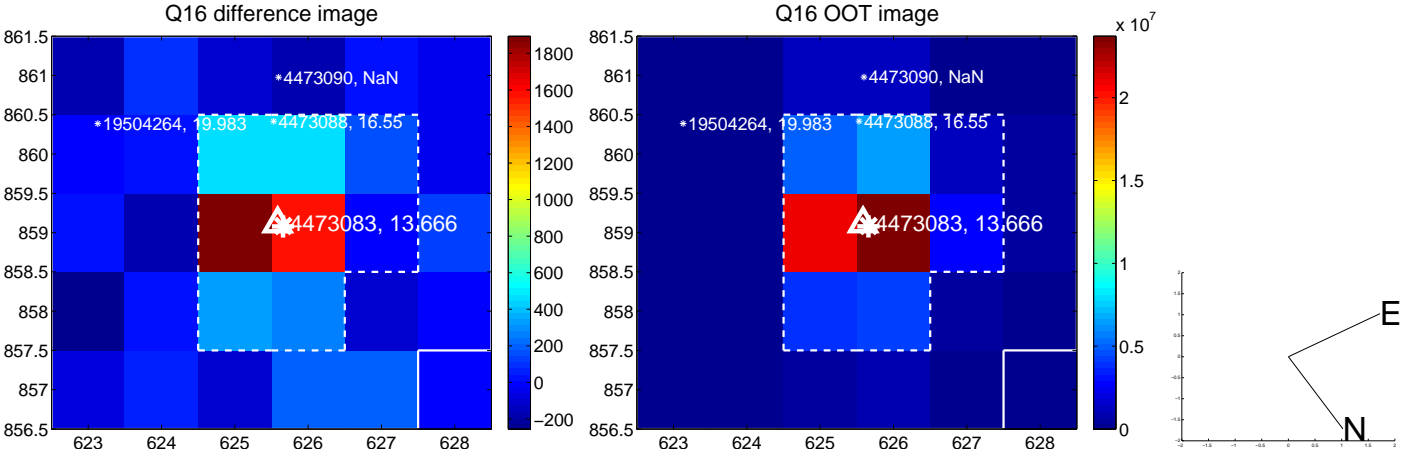
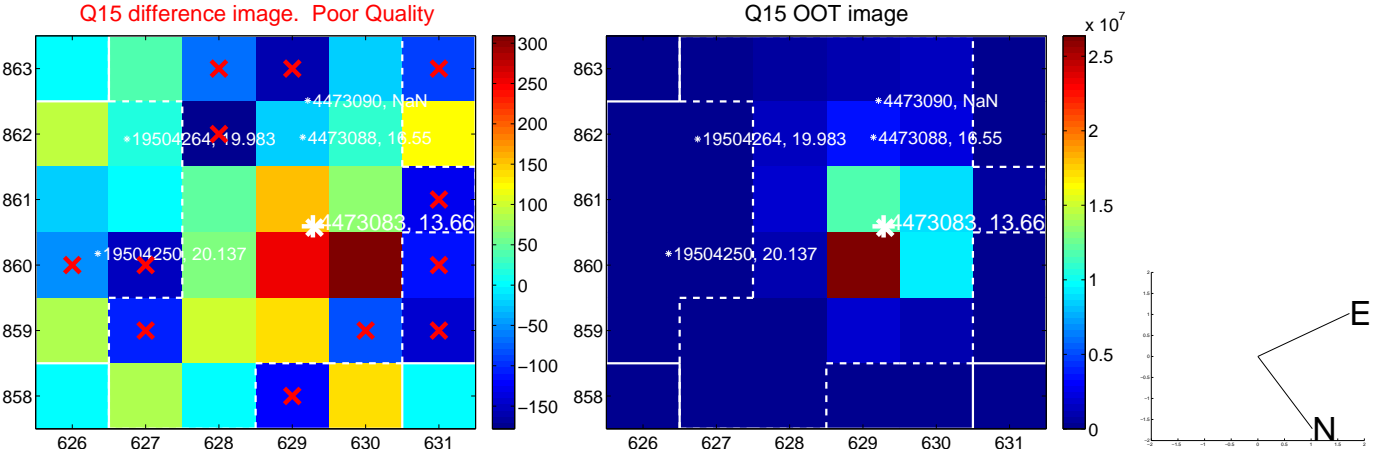
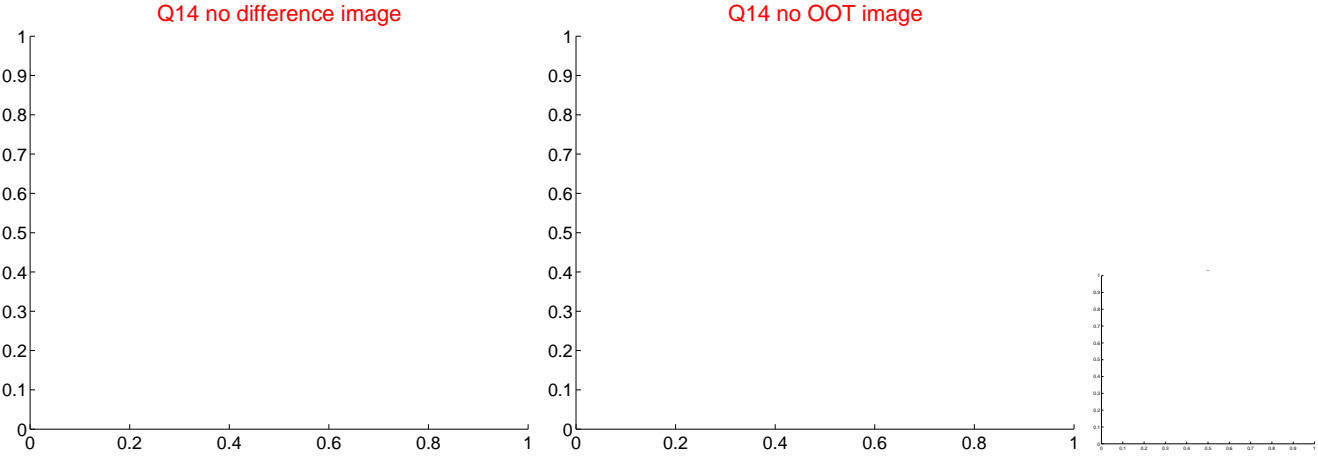
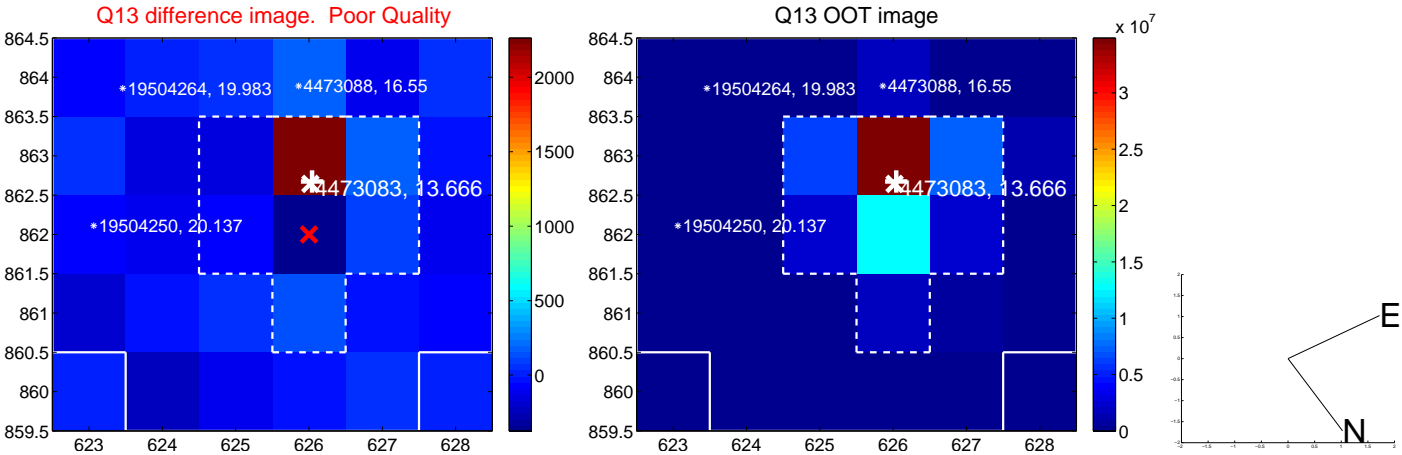




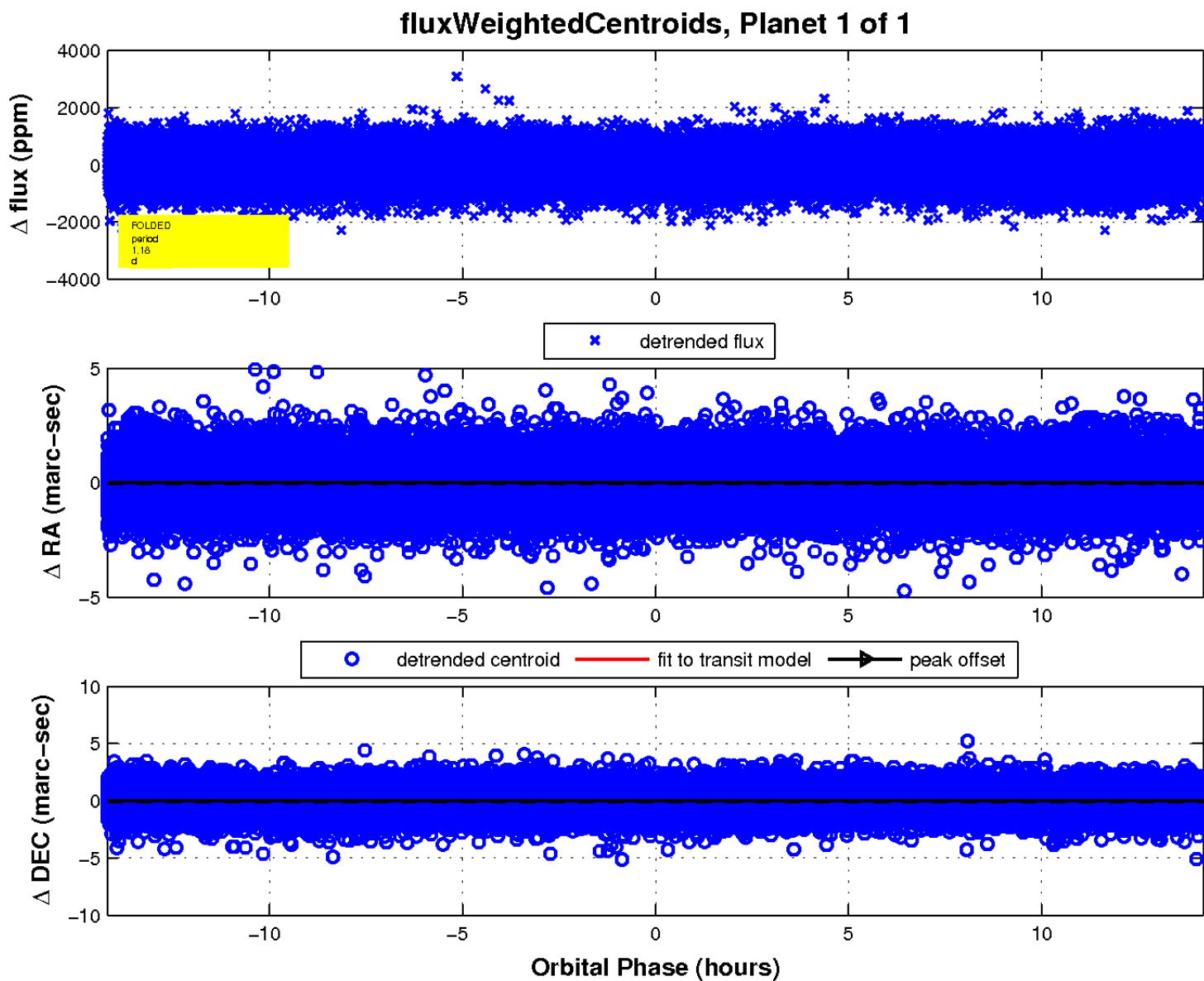
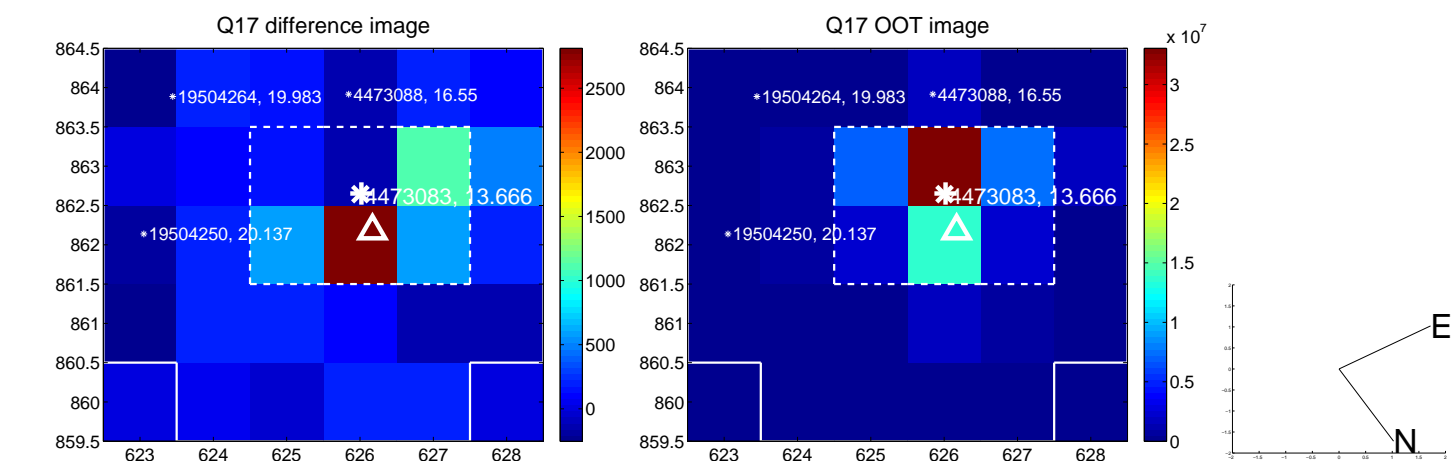
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

