

# KIC 009094694

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009094694-01	OBS	No	0.616342	131.942535	7.3	1.687	7.8	1.6	1.66	7006	0.52	24570.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009094694-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

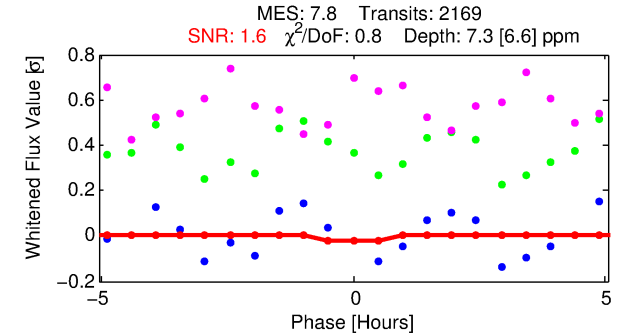
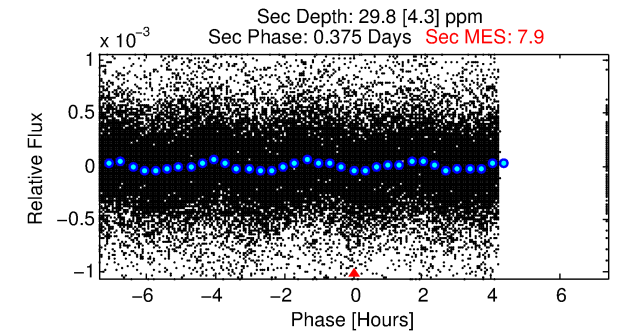
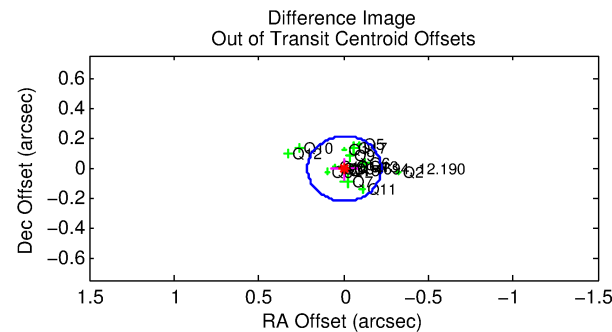
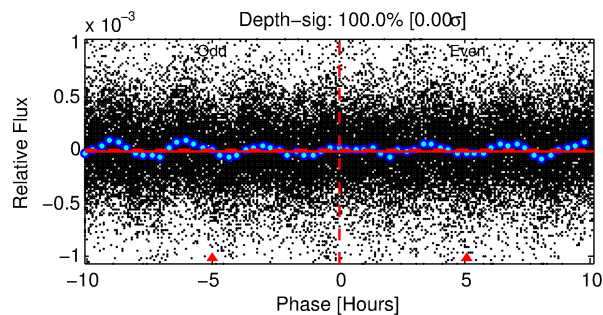
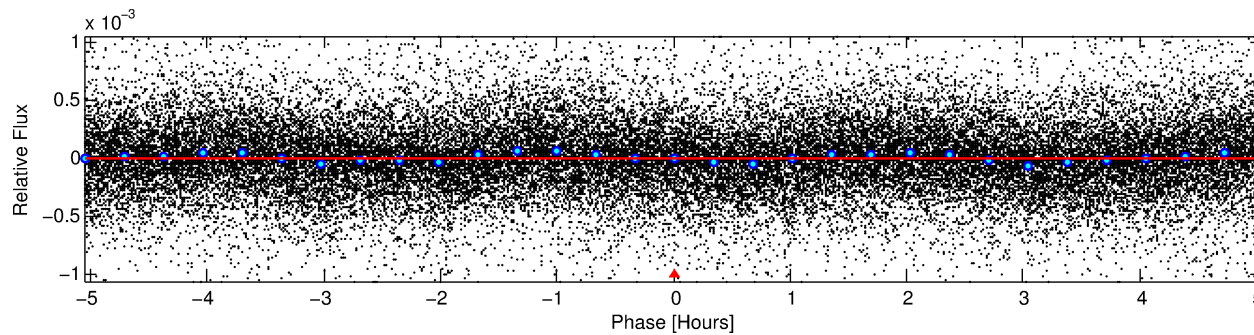
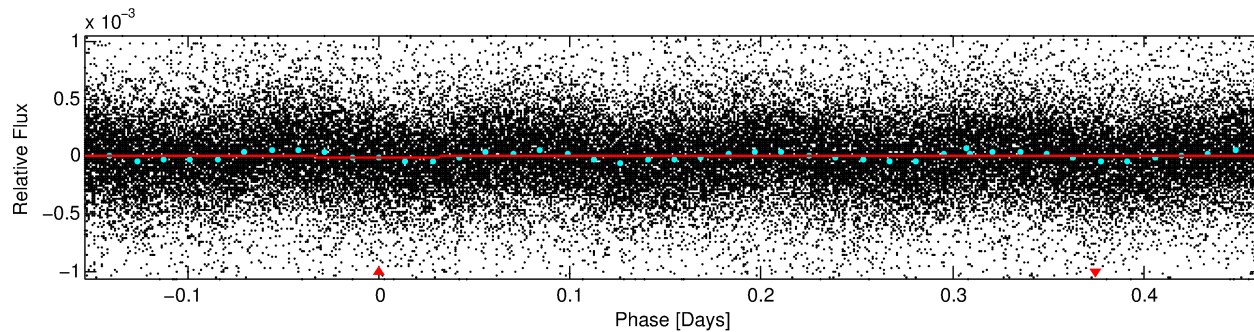
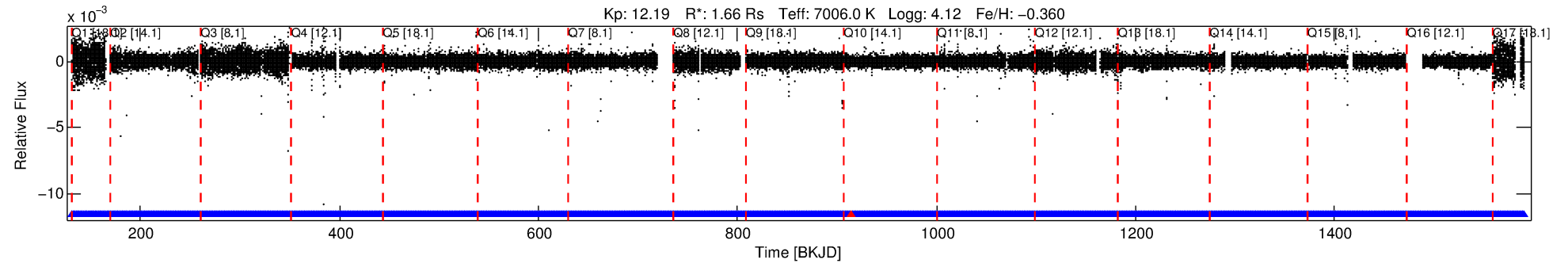
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009094694-01

No Significant Match Found

# DV One-Page Summary

KIC: 9094694 Candidate: 1 of 1 Period: 0.616 d



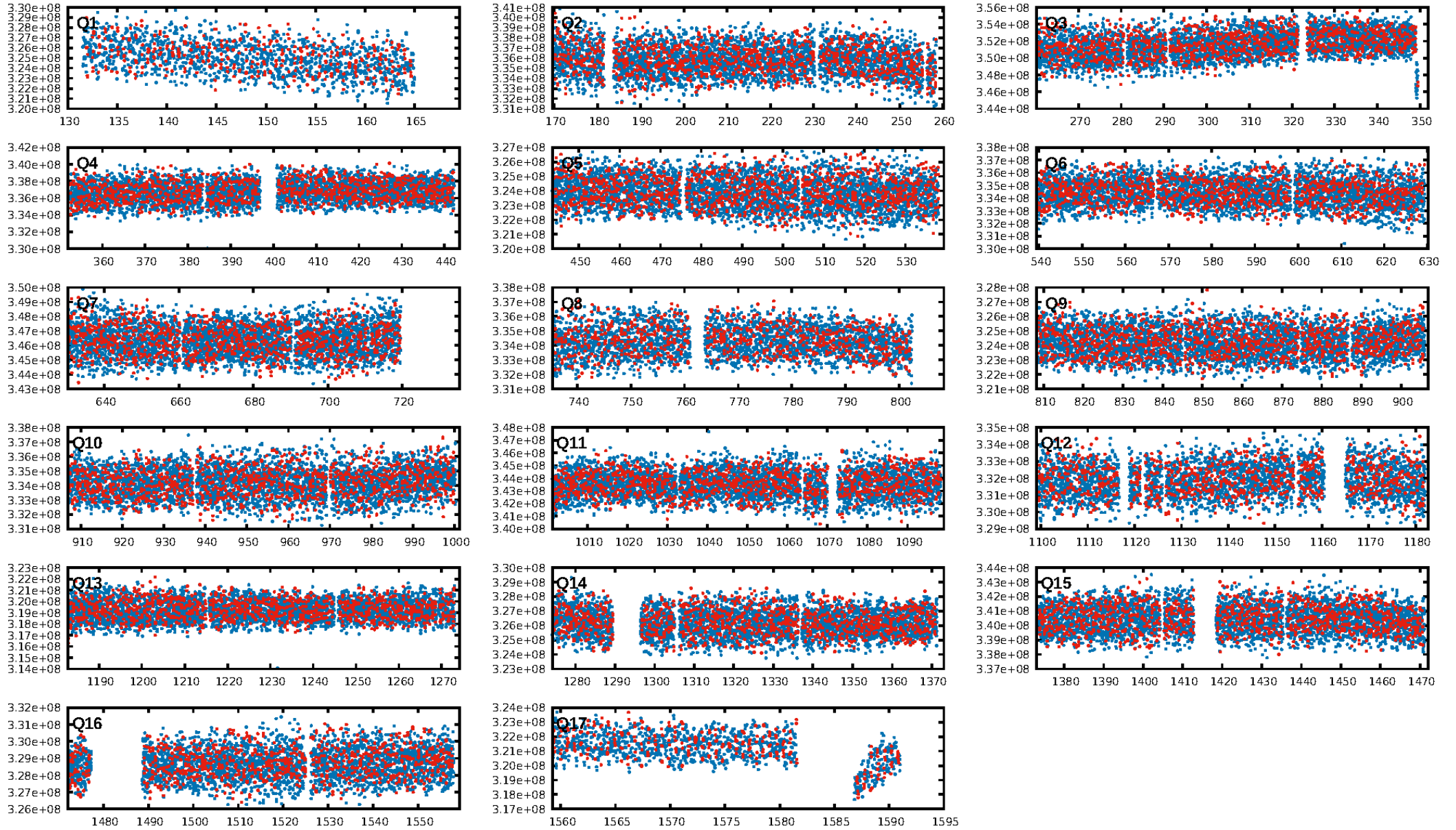
## DV Fit Results:

Period = 0.61634 [0.00007] d  
Epoch = 131.9425 [0.0112] BKJD  
Rp/R\* = 0.0029 [0.0019]  
a/R\* = 1.55 [2.84]  
b = 0.90 [0.67]  
Seff = 24570.74 [9785.46]  
Teq = 3192 [318] K  
Rp = 0.52 [0.38] Re  
a = 0.0156 [0.0039] AU  
Ag = 14.62 [20.40] [0.67σ]  
Teffp = 9651 [3265] K [1.97σ]

## DV Diagnostic Results:

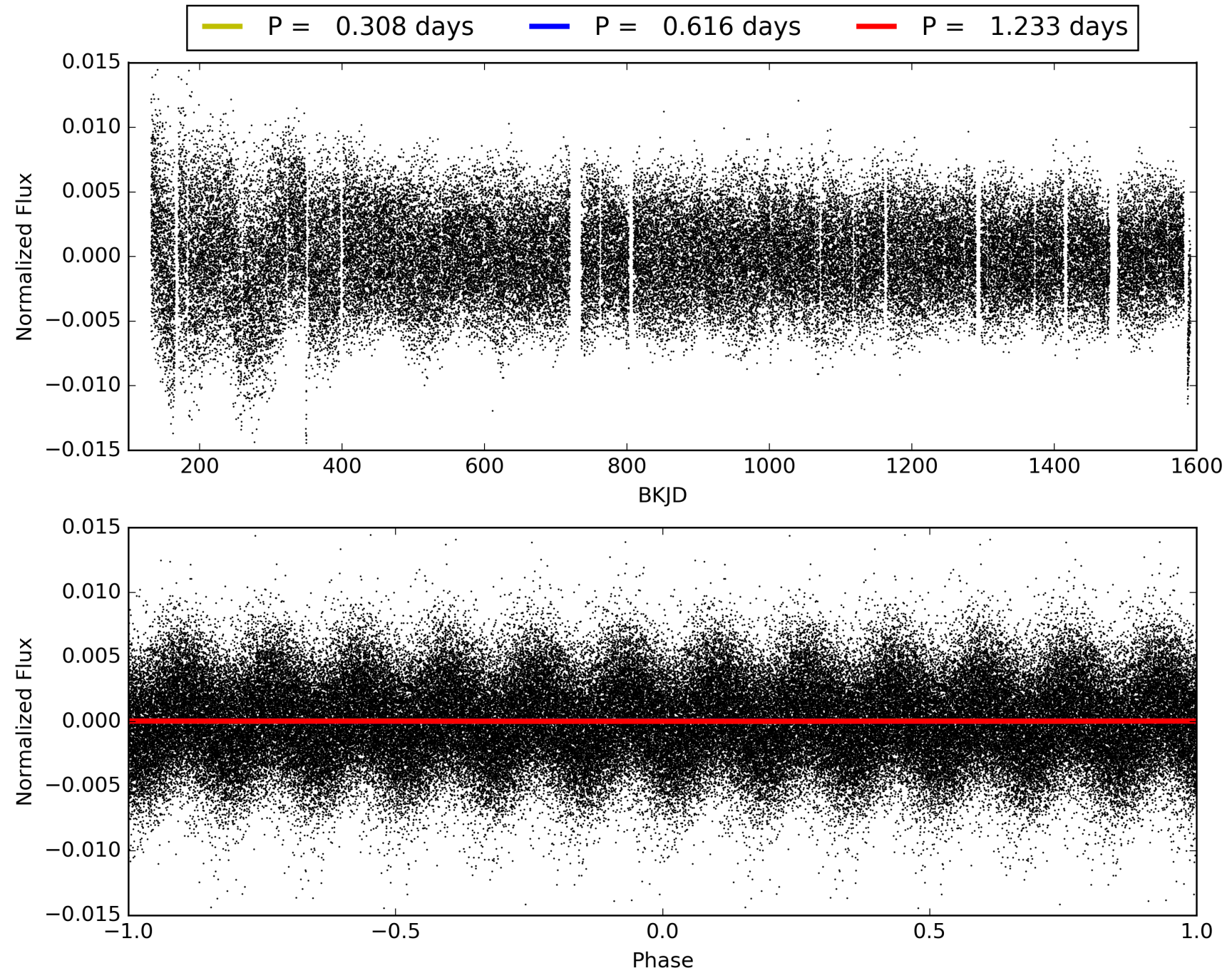
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.27e-13  
RollingBand-fgt: 1.00 [2070/2071]  
**GhostDiagnostic-chr: 0.1269**  
Centroid-sig: 42.0%  
Centroid-so: 1.154 arcsec [0.70σ]  
OotOffset-rm: 0.009 arcsec [0.12σ]  
KicOffset-rm: 0.095 arcsec [1.30σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009094694-01, PDC Light Curves



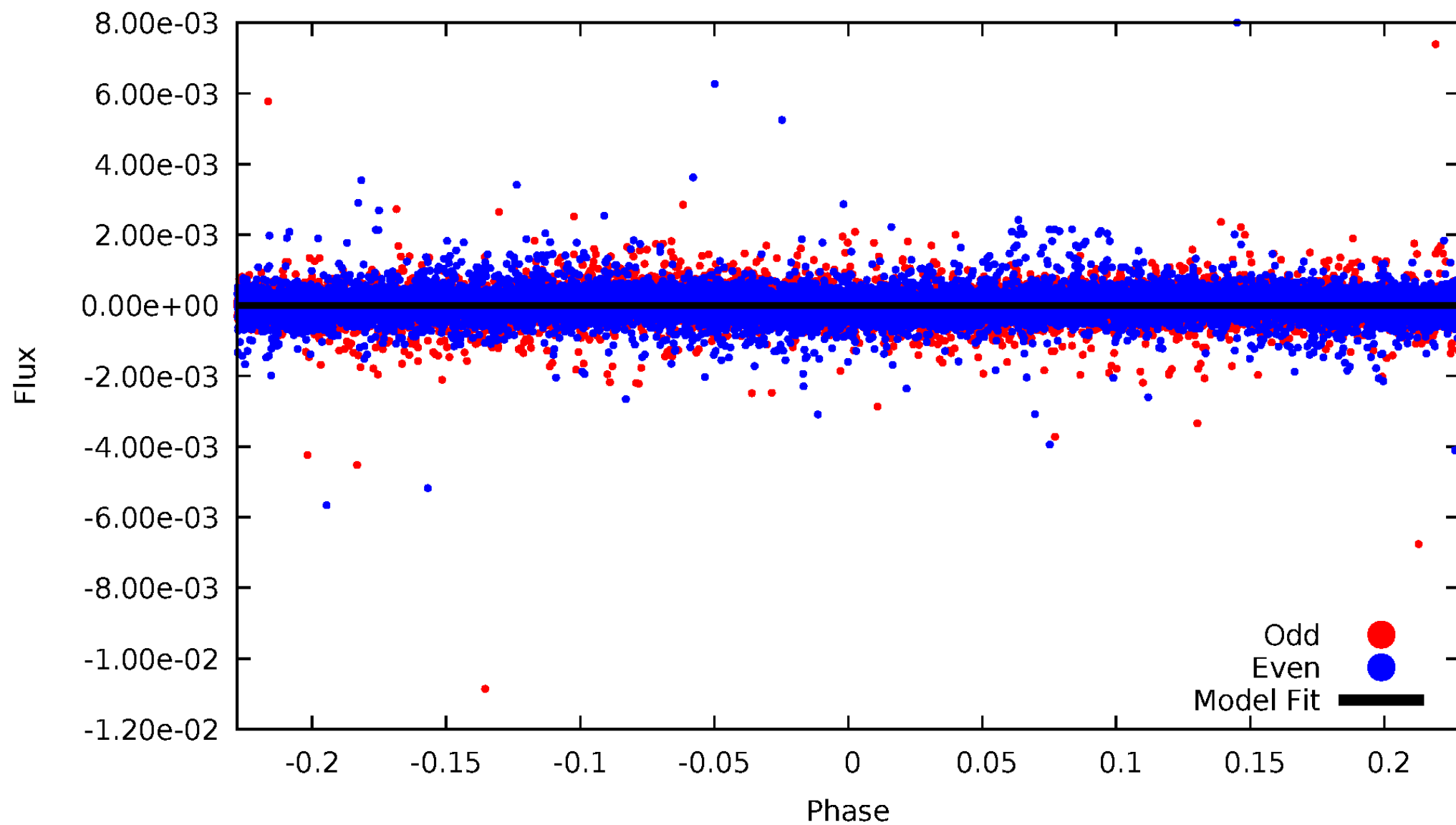


TCE 009094694-01



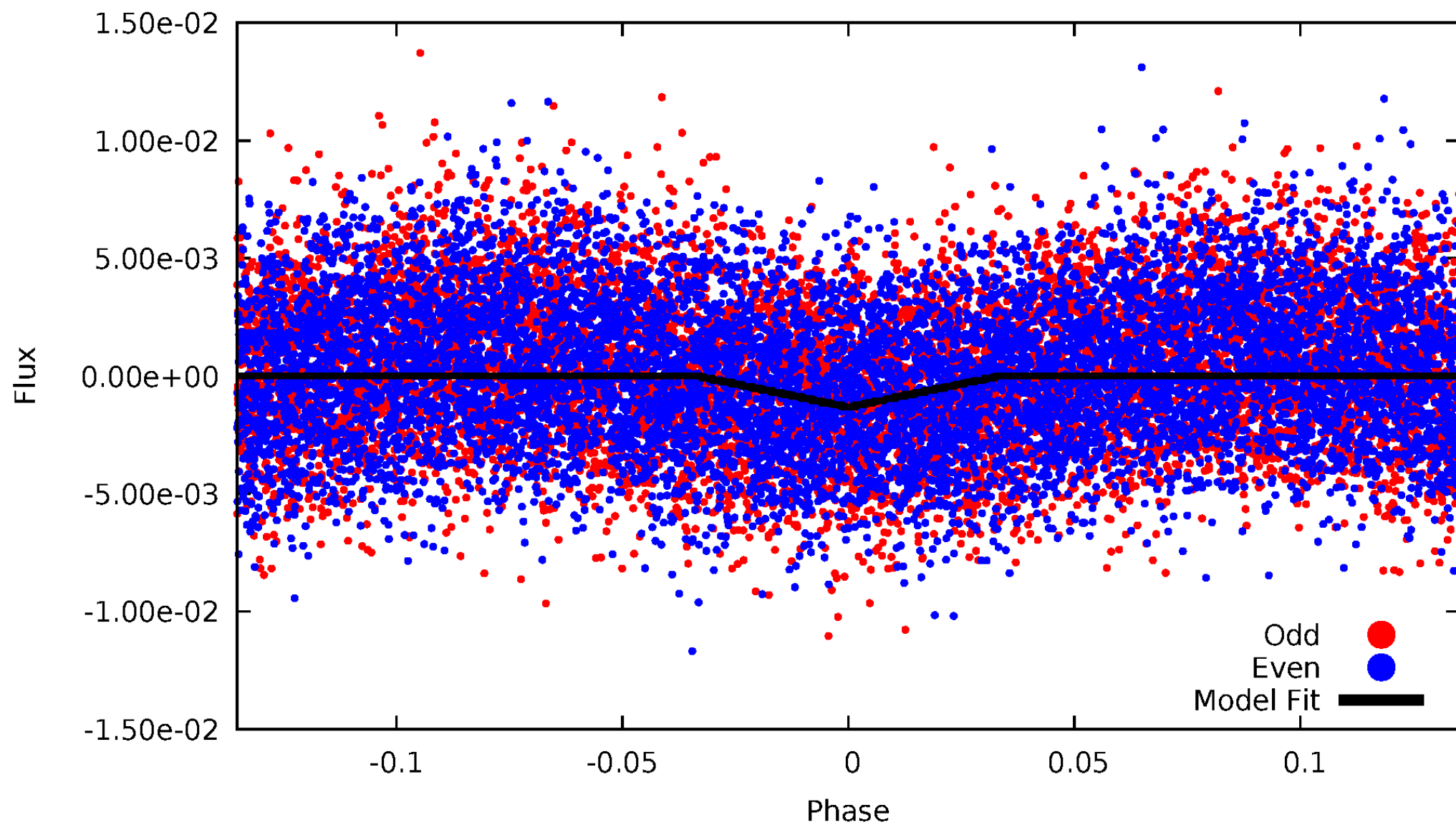
# DV Odd/Even

TCE 009094694-01



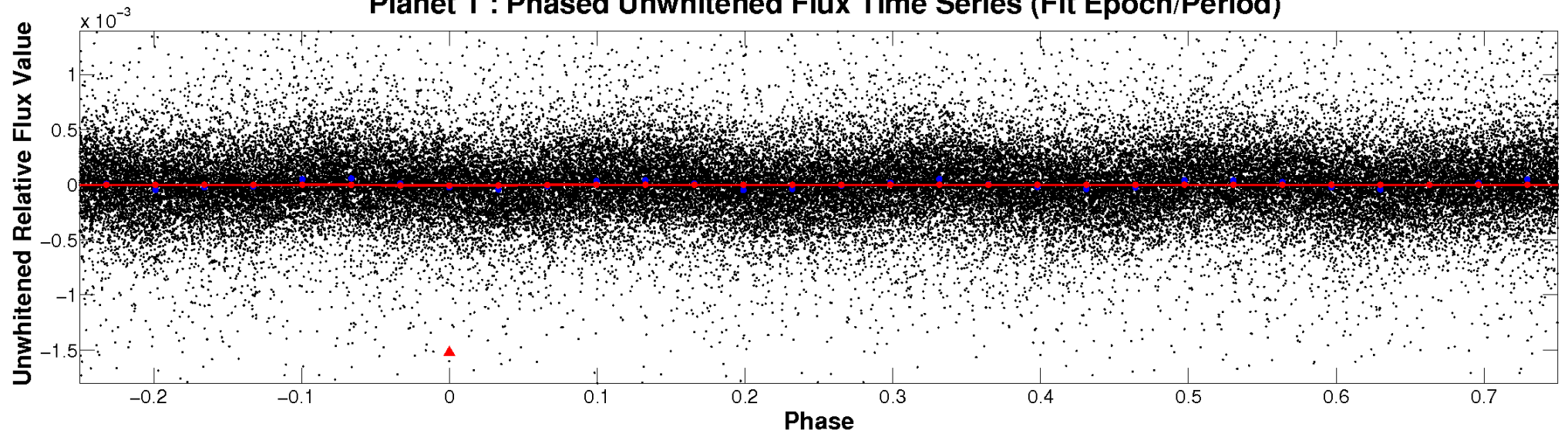
# ALT Odd/Even

TCE 009094694-01

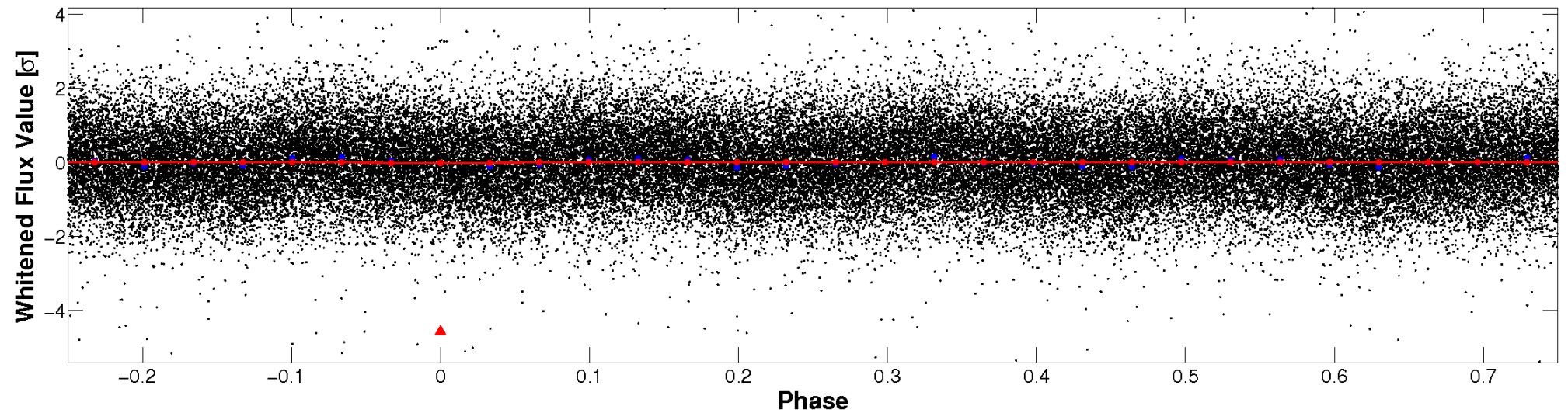


# Non-Whitened Vs. Whitened Light Curve

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



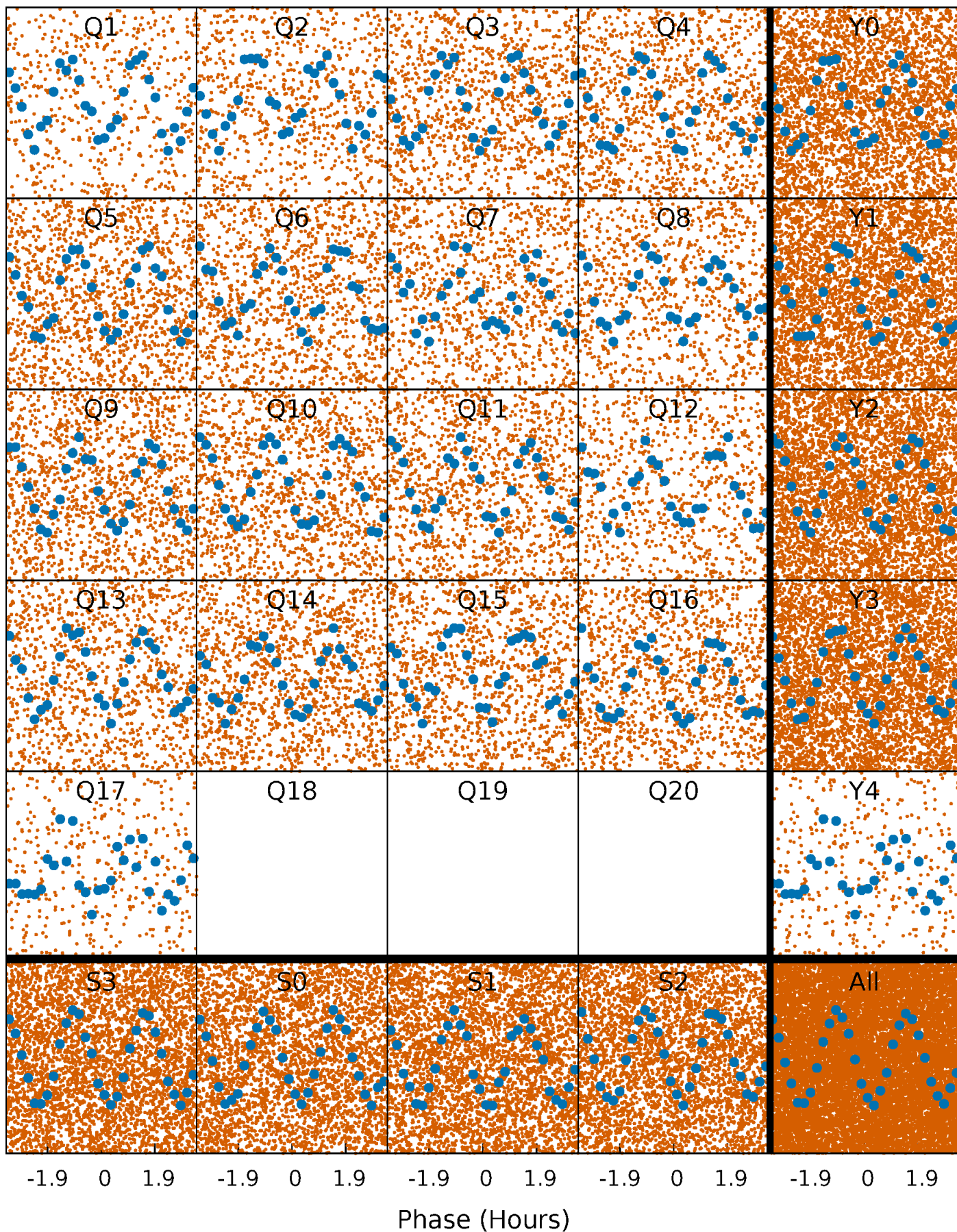
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

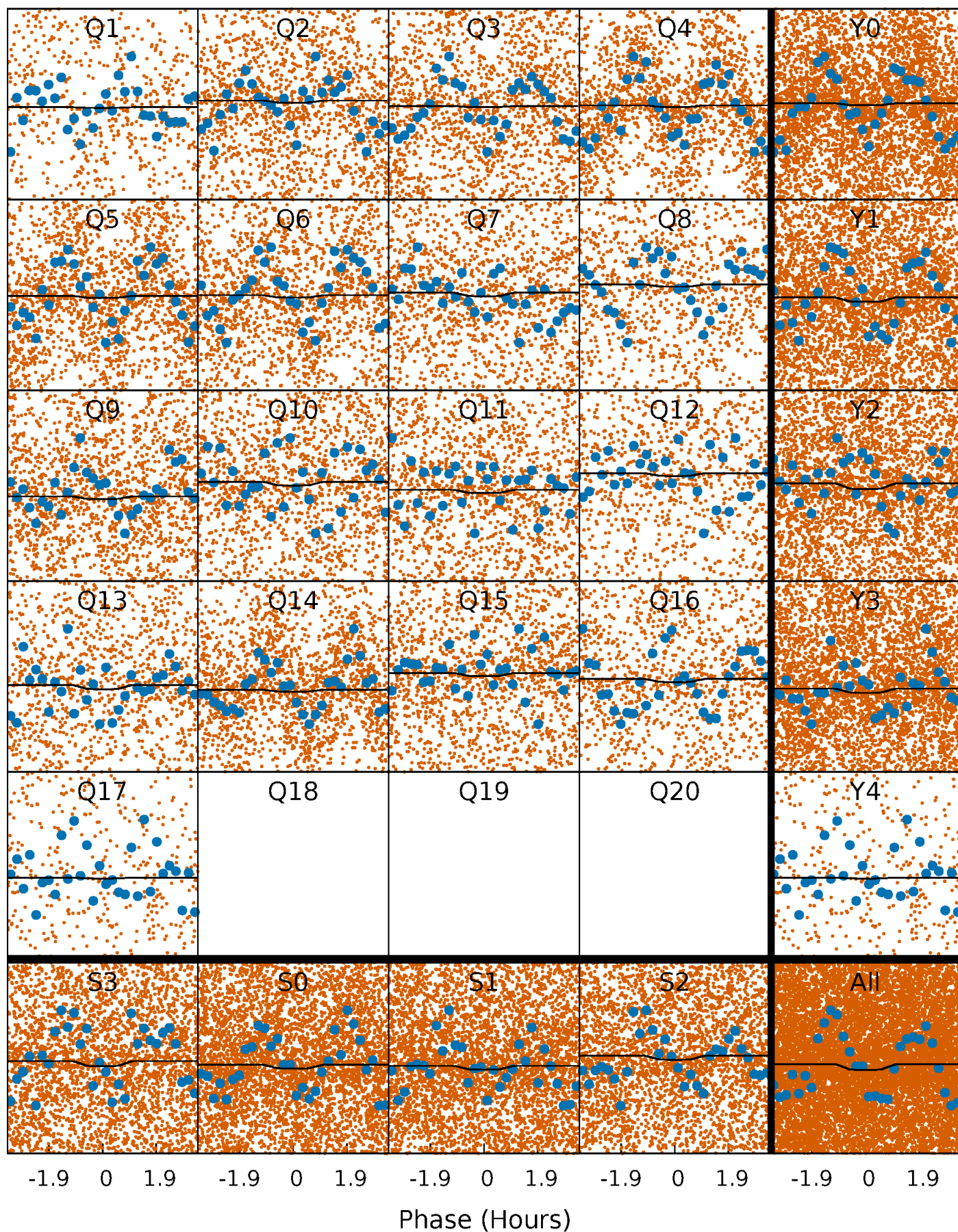
TCE 009094694-01 P= 0.616342 Days  $T_0=131.942535$  (BKJD)





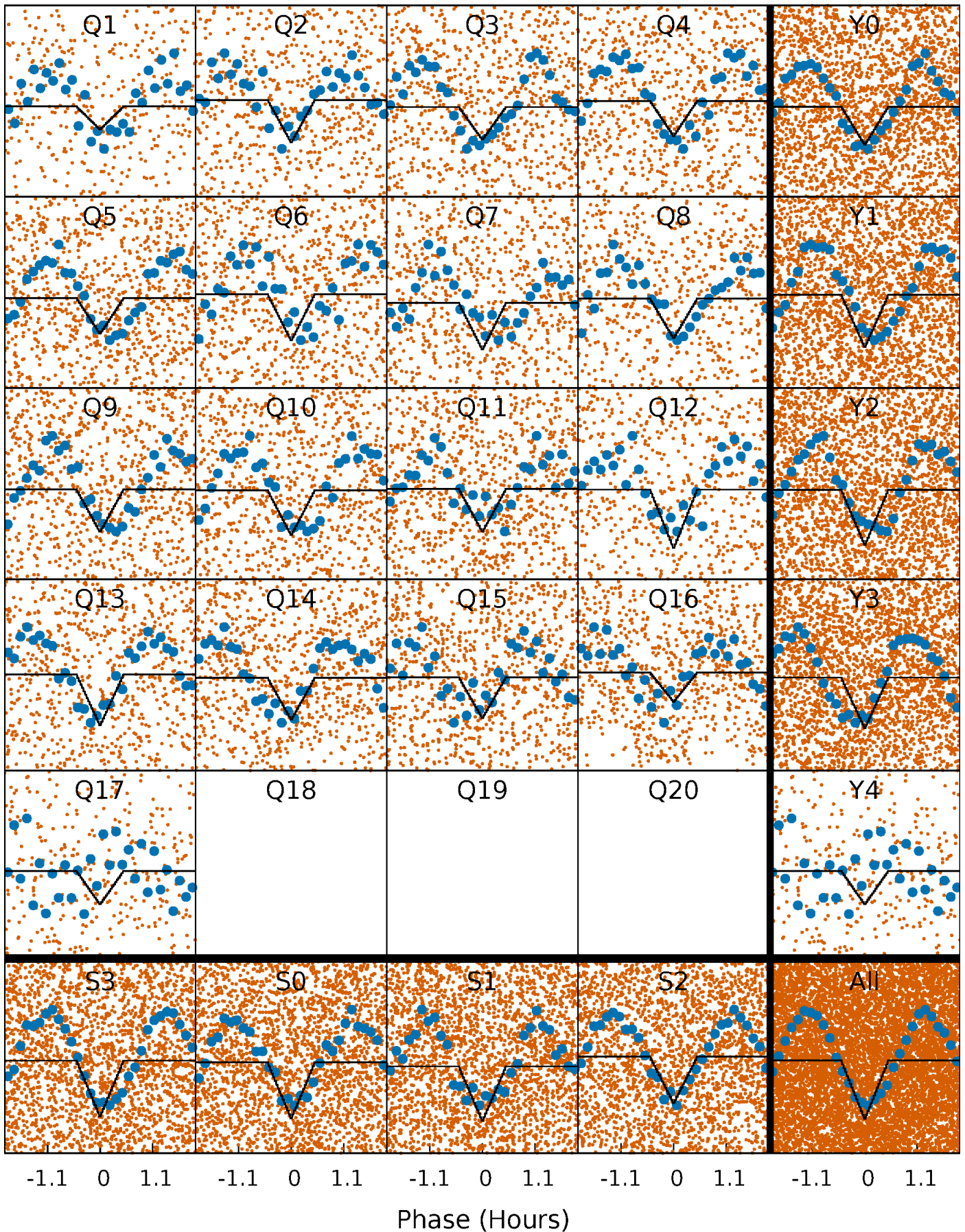
# DV Quarter-Phased Transit Curves

TCE 009094694-01   P= 0.616342 Days    $T_0=131.942535$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009094694-01 P= 0.616354 Days  $T_0=131.938823$  (BKJD)

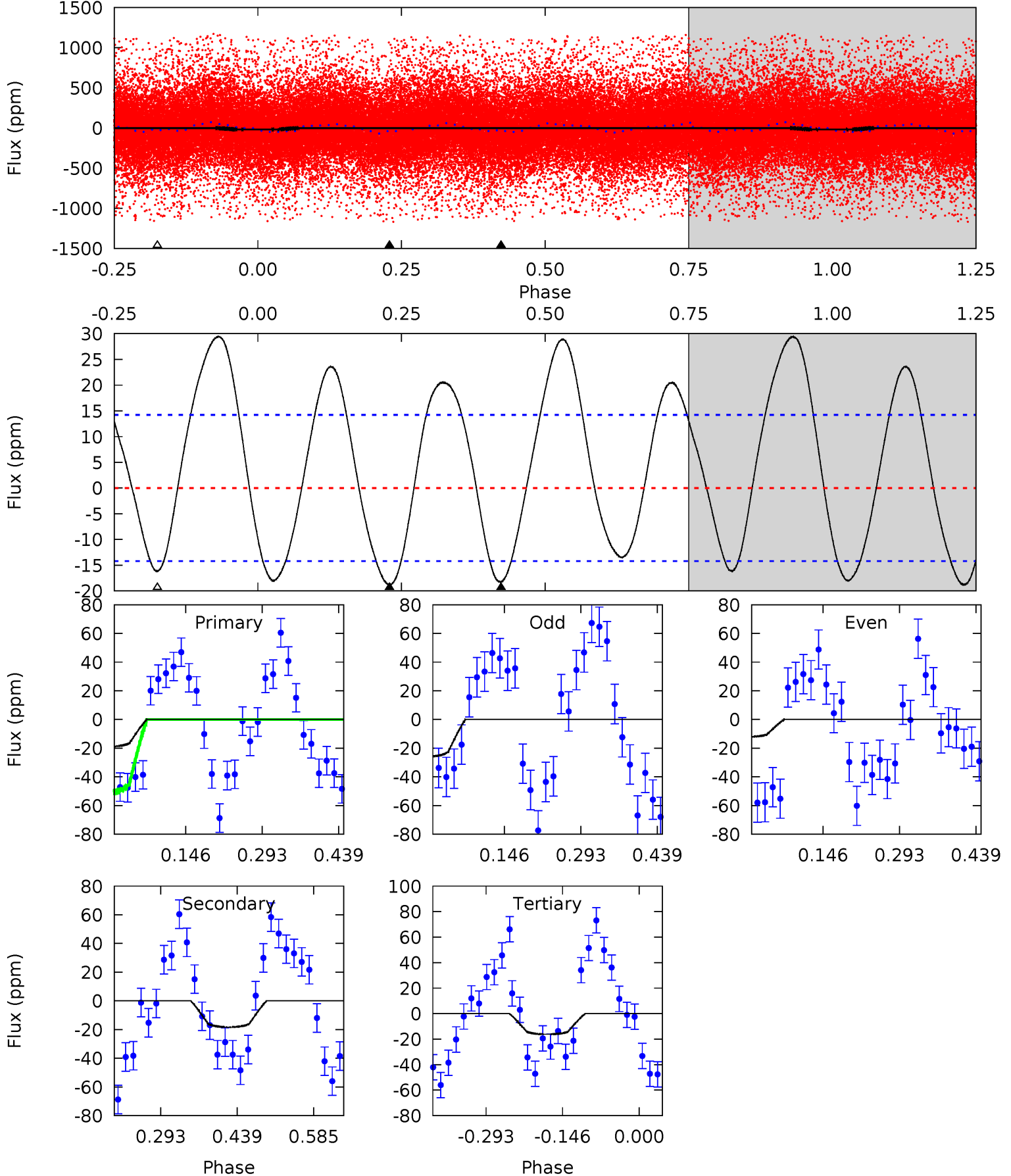




# DV Model-Shift Uniqueness Test

009094694-01, P = 0.616342 Days, E = 131.326193 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
5.95	5.78	5.11	0	4.48	1.45	4.52	0.83	5.95	0.66	5.78	2.20	0.84	0.61	6.11

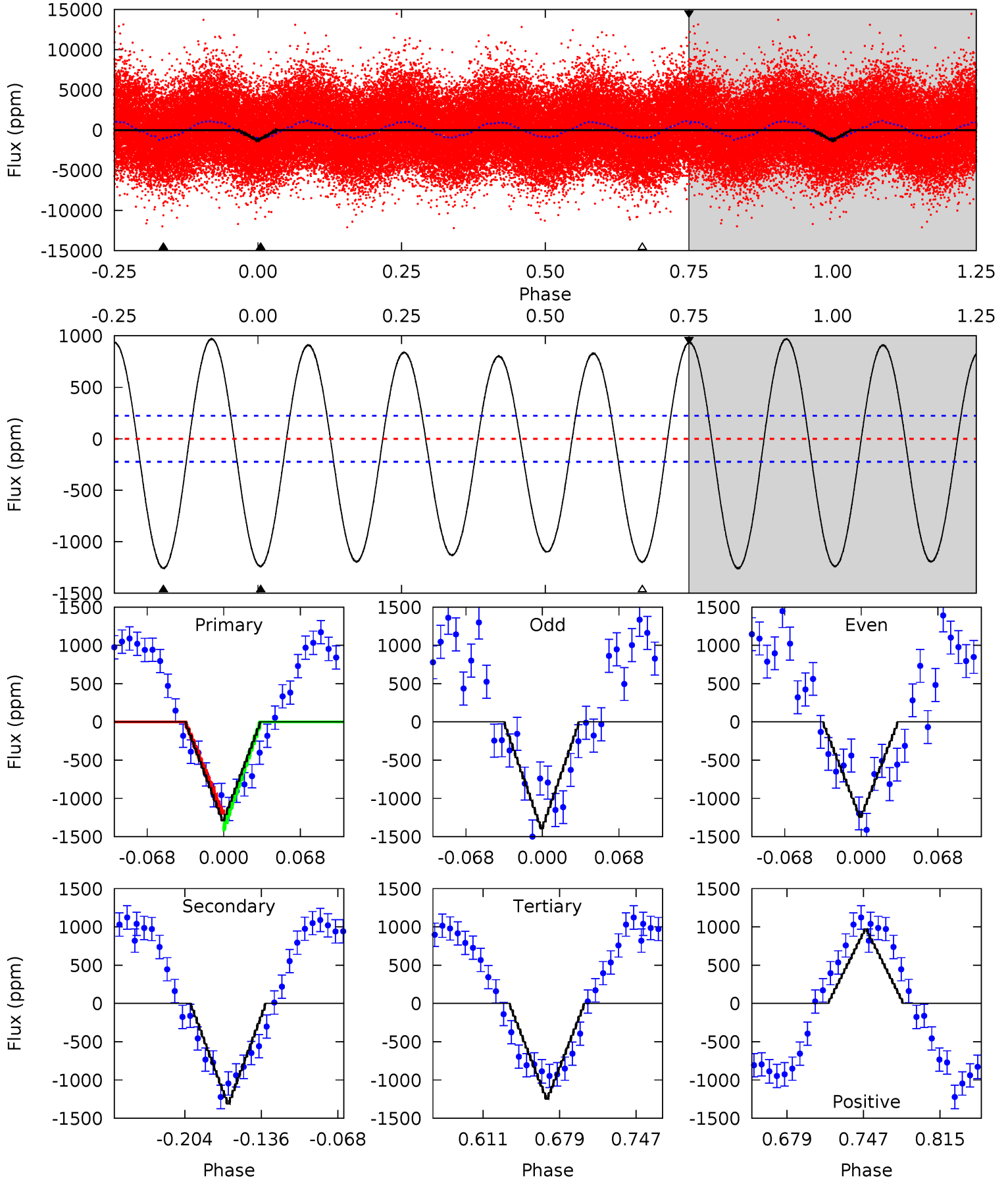




# Alt Model-Shift Uniqueness Test

009094694-01, P = 0.616354 Days, E = 131.322469 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
25.9	26.2	24.9	19.4	4.65	1.83	15.3	0.91	6.41	1.29	6.79	1.51	1.04	0.44	2.73



### Stellar Parameters For KIC 009094694

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7006^{+190}_{-253}$	$4.119^{+0.204}_{-0.167}$	$-0.360^{+0.300}_{-0.300}$	$1.660^{+0.496}_{-0.451}$	$1.324^{+0.203}_{-0.203}$	$0.408^{+0.423}_{-0.195}$
	+3%/-4%	+5%/-4%	+83%/-83%	+30%/-27%	+15%/-15%	+104%/-48%
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 009094694-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-18 \pm 3$	$0.56^{+0.35}_{-0.31}$	$4441^{+334}_{-342}$	$8121^{+7814}_{-1961}$	$7.486^{+30.937}_{-4.729}$
Alt.	$-1263 \pm 48$	$6.55^{+1.17}_{-0.92}$	$4466^{+334}_{-336}$	$6763^{+300}_{-320}$	$3.882^{+1.384}_{-1.020}$

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

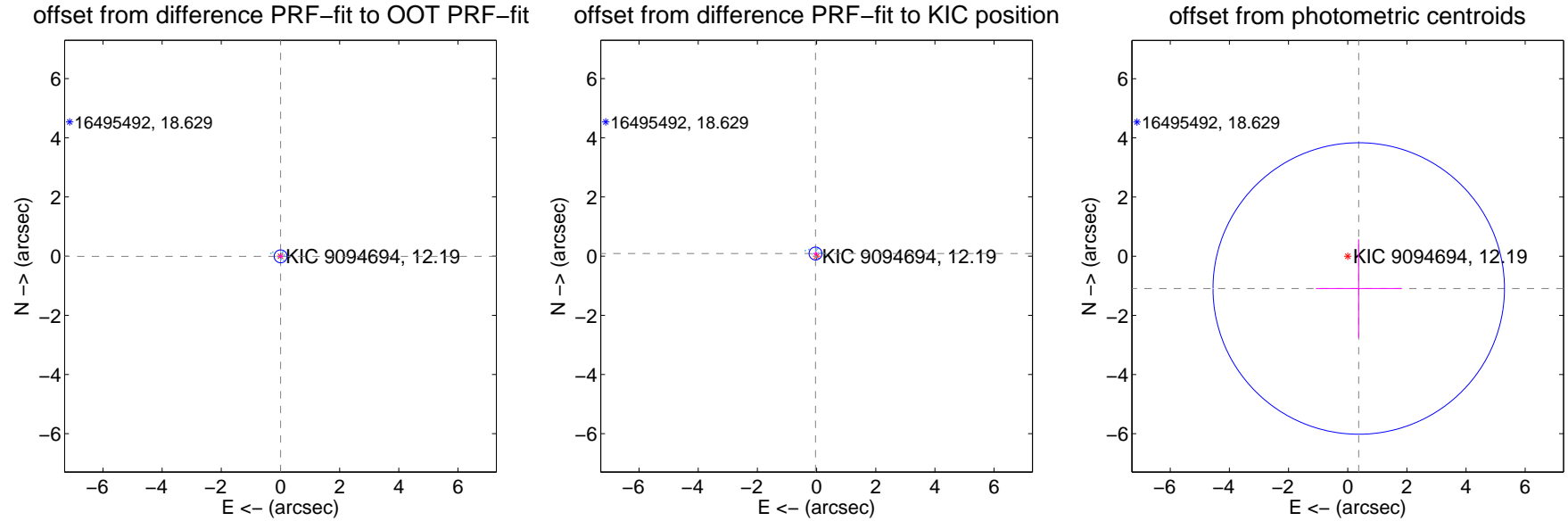
## DV Centroid Data

Supplemental centroid analysis for 009094694-01. Kepler magnitude: 12.19. Transit SNR 1.58

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

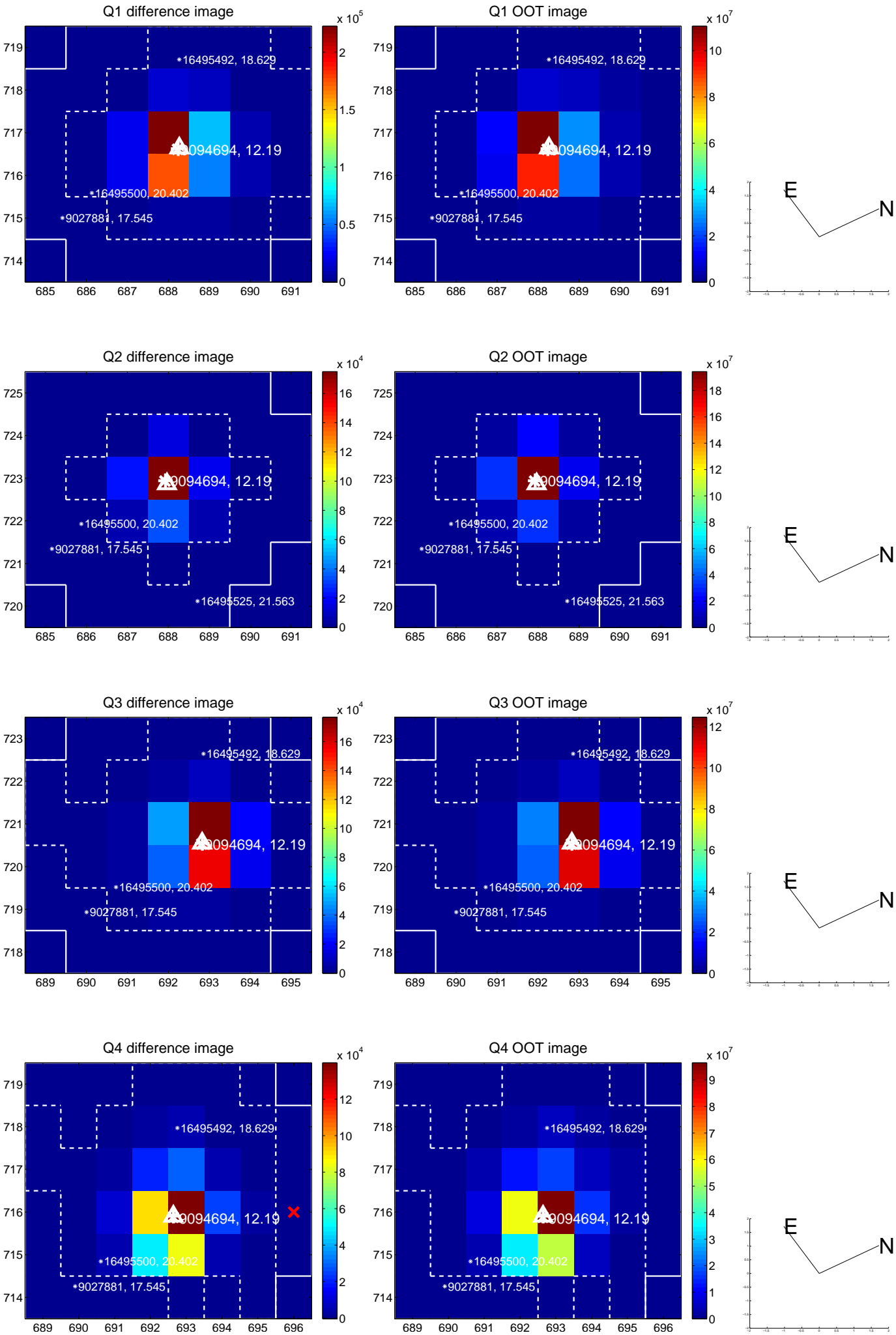
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.009 \pm 0.073$	0.12	$-0.005 \pm 0.075$	$-0.007 \pm 0.069$
PRF-fit source offset from KIC position	$0.095 \pm 0.073$	1.30	$0.035 \pm 0.077$	$0.088 \pm 0.070$
photometric centroid source offset	$1.15 \pm 1.64$	0.70	$-0.37 \pm 1.45$	$-1.09 \pm 1.66$



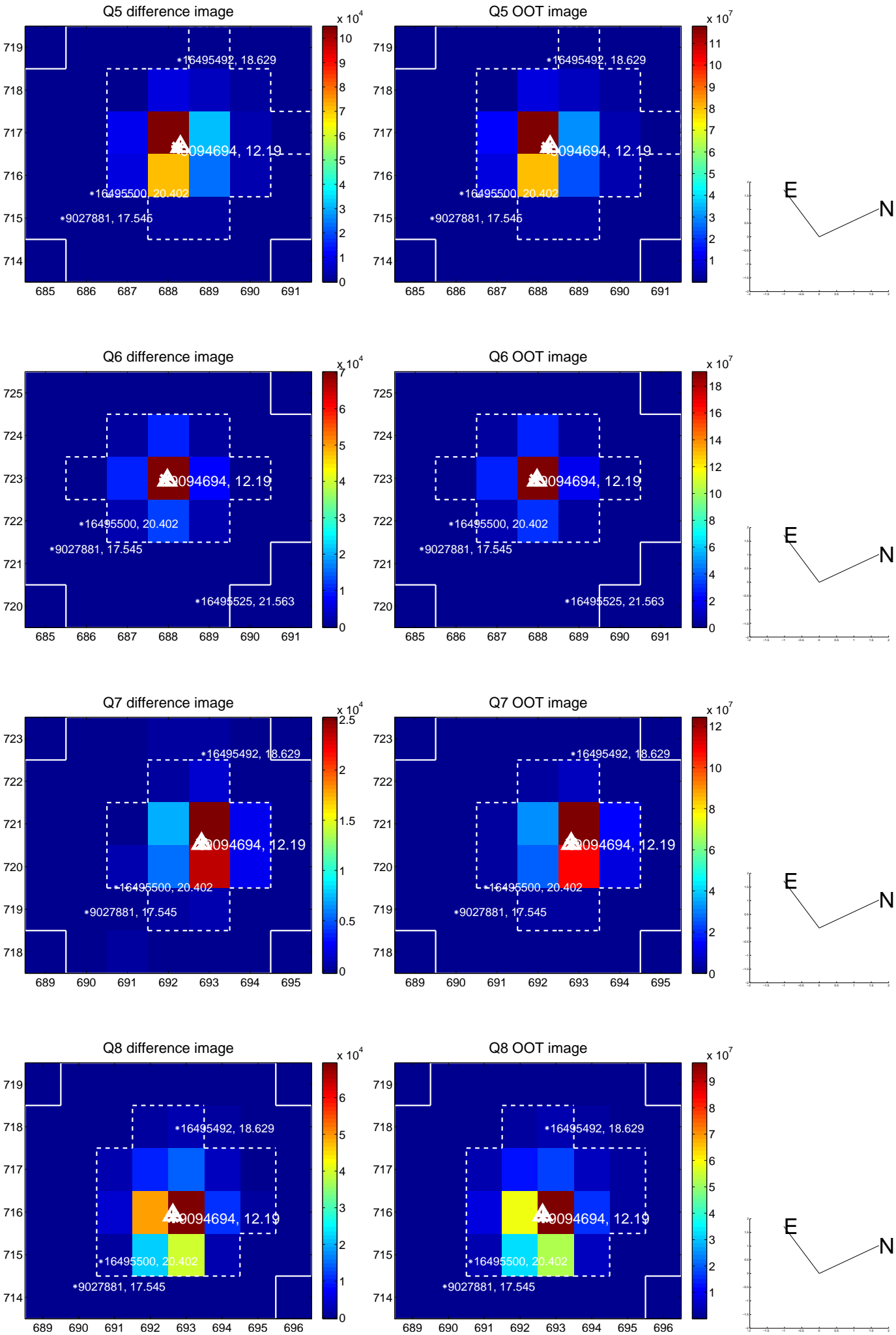
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



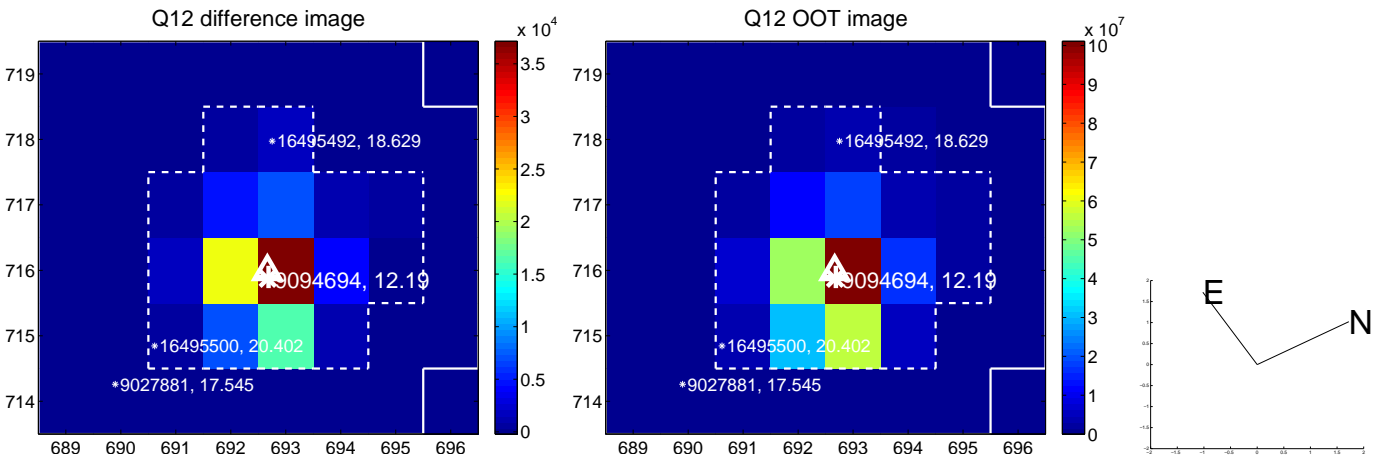
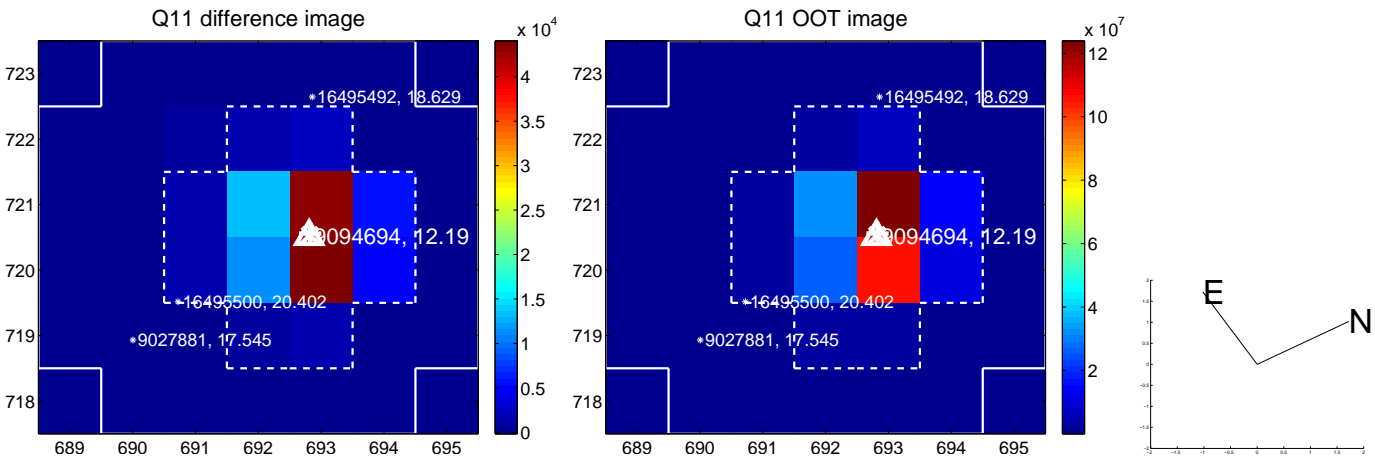
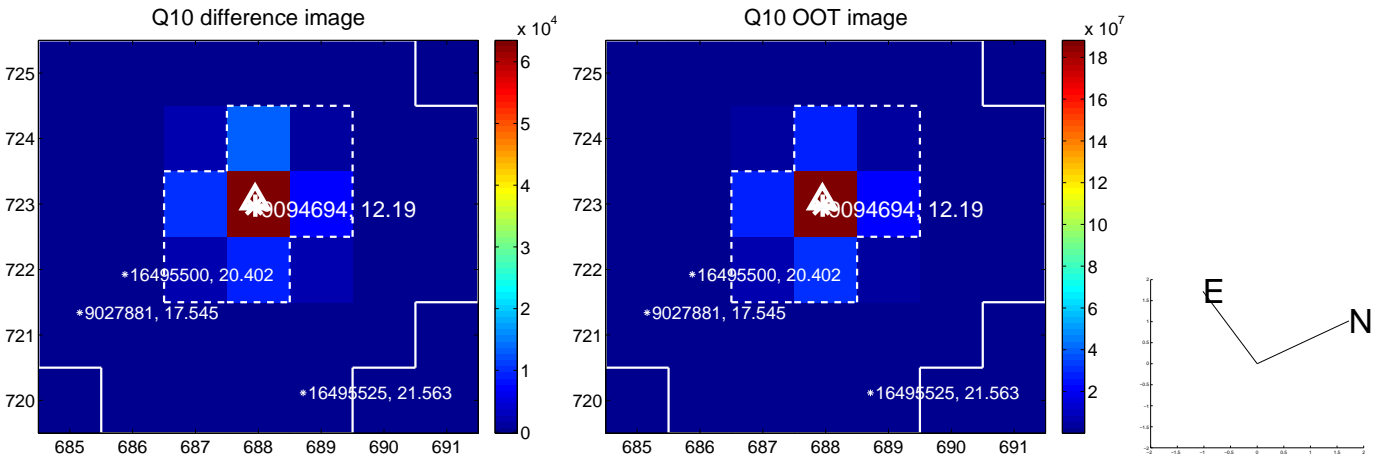
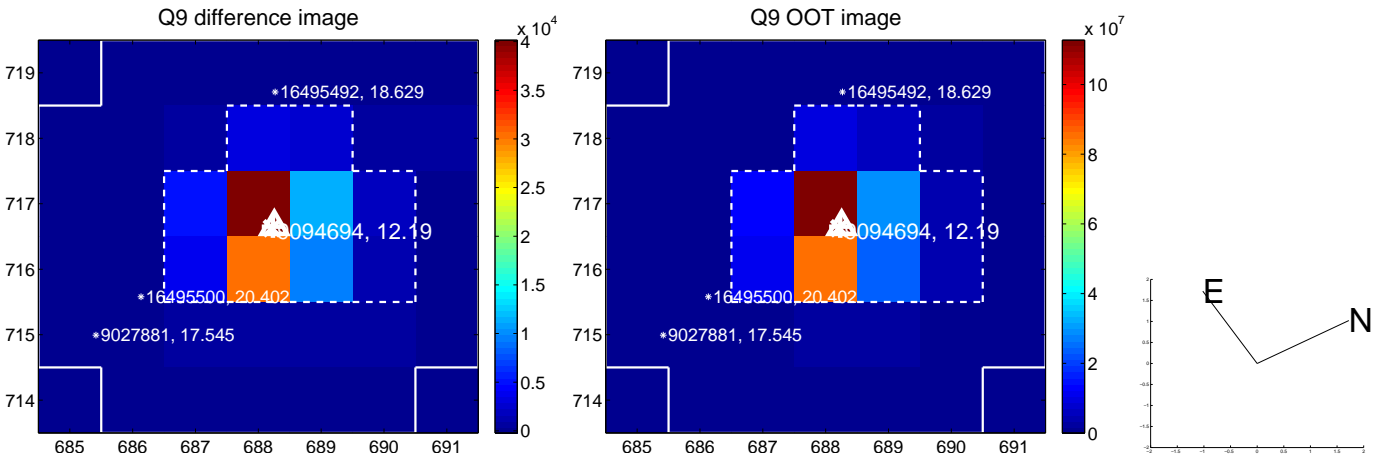
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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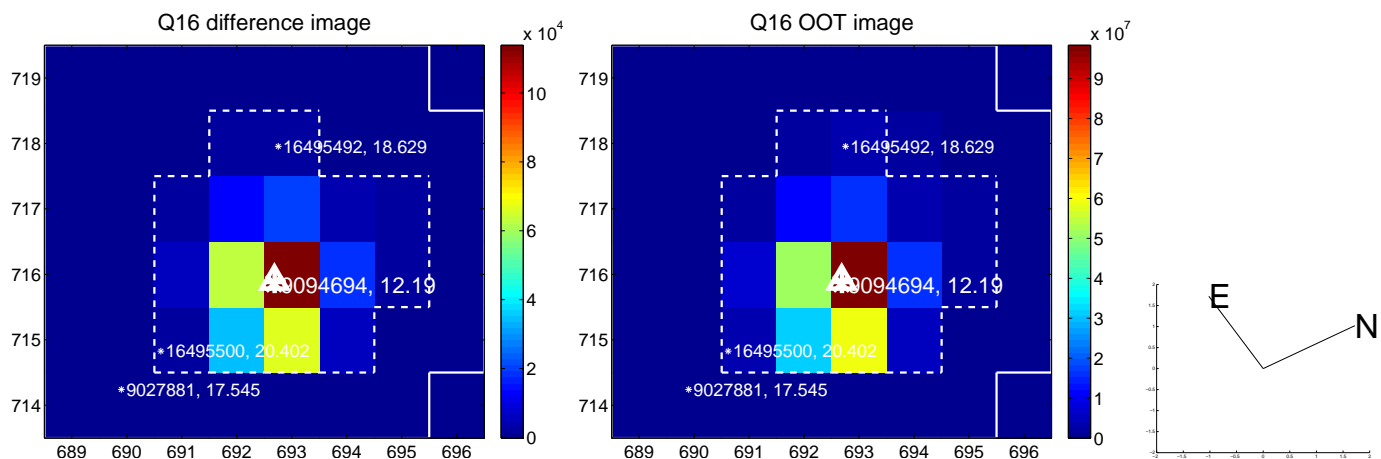
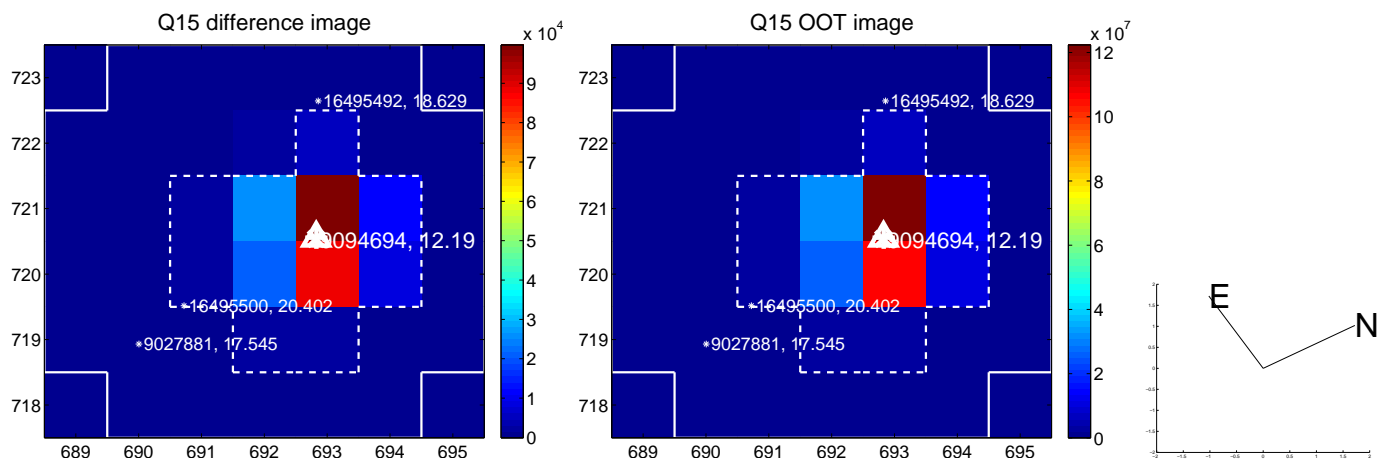
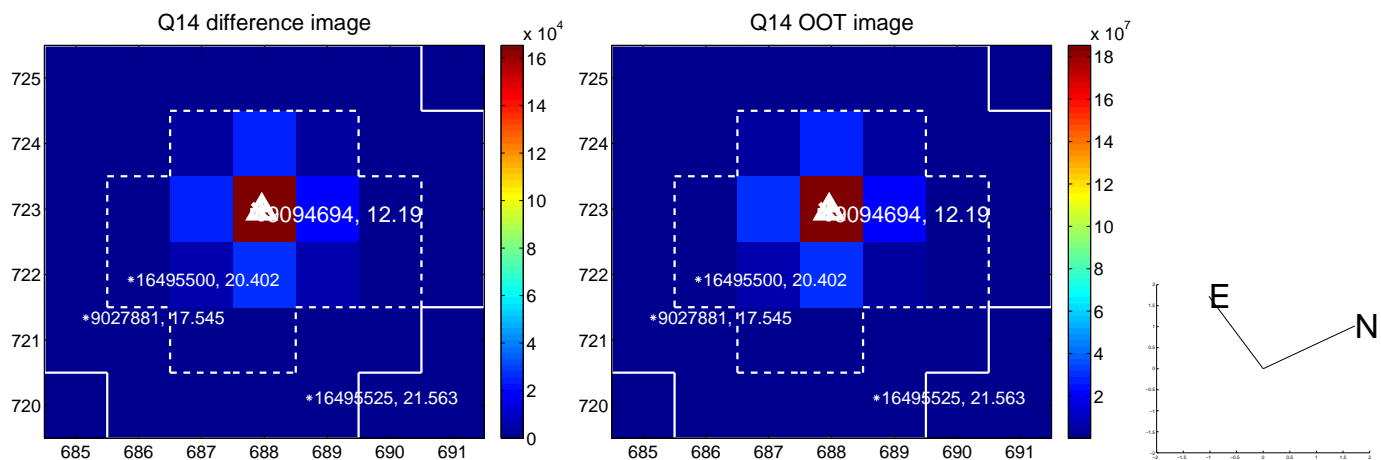
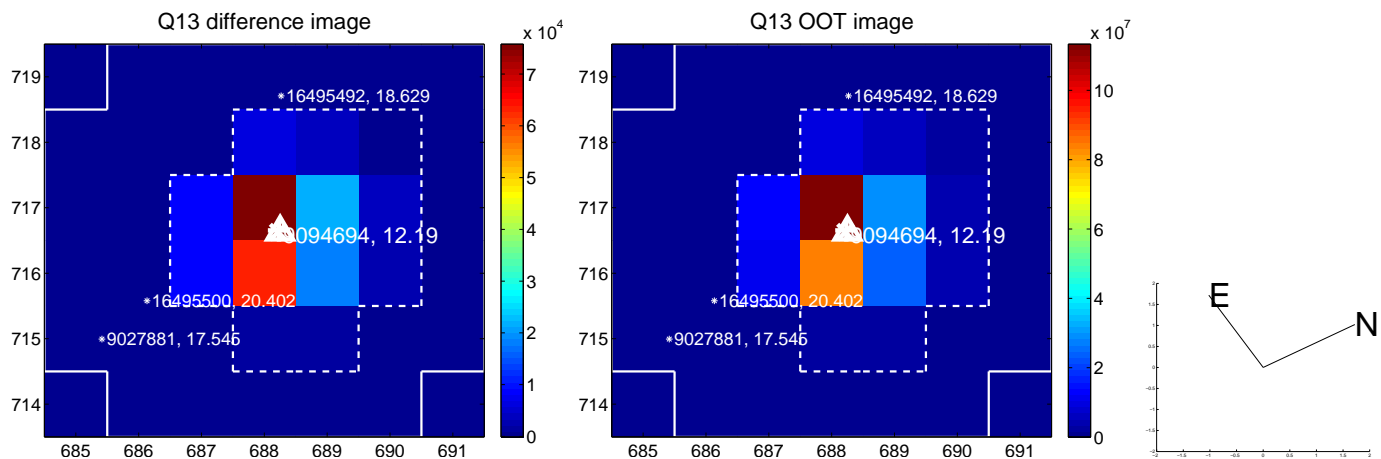


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

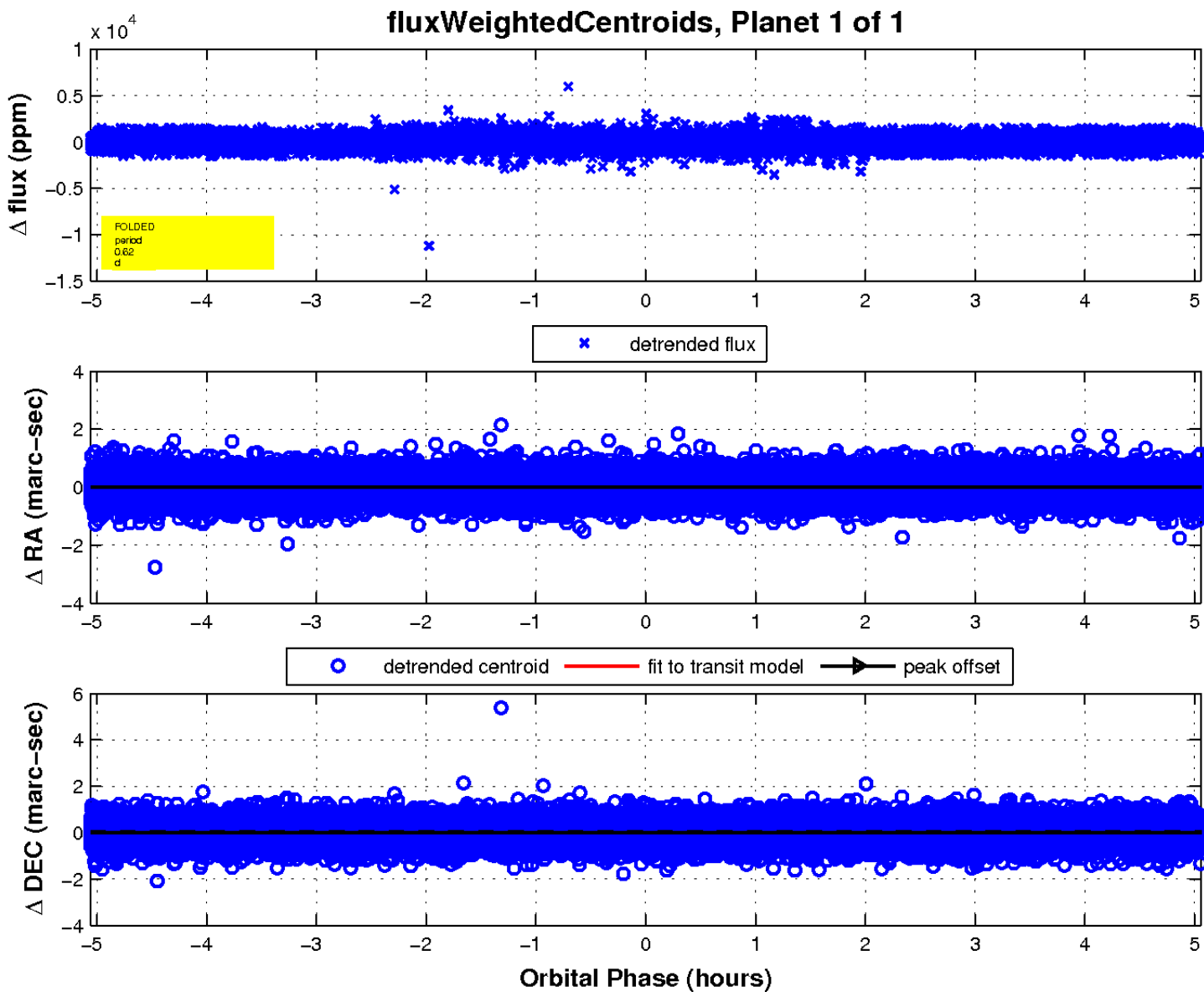
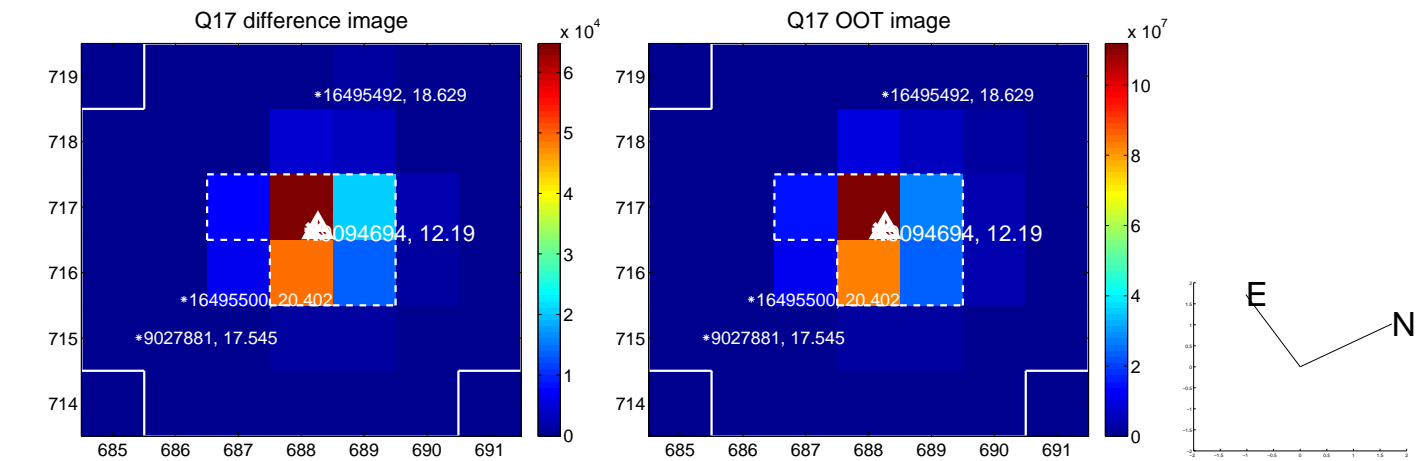




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

