

# KIC 010272394

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010272394-01	OBS	No	4.564529	133.093226	61.5	13.601	8.8	8.5	1.08	6227	0.99	502.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010272394-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—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.

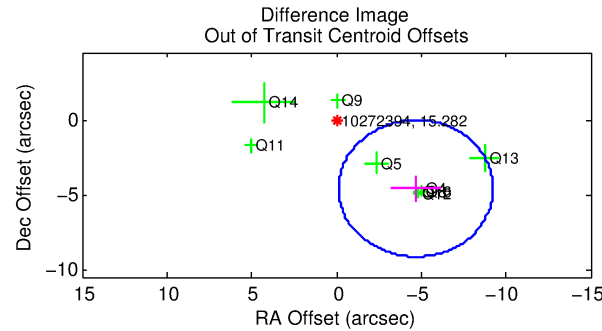
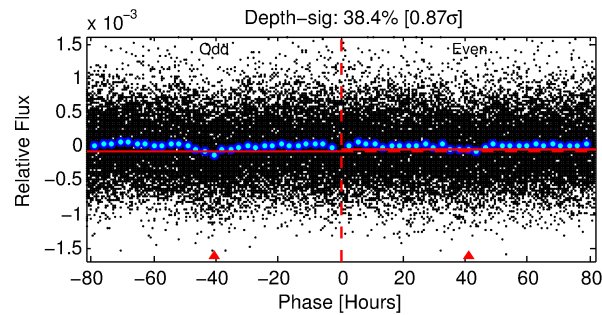
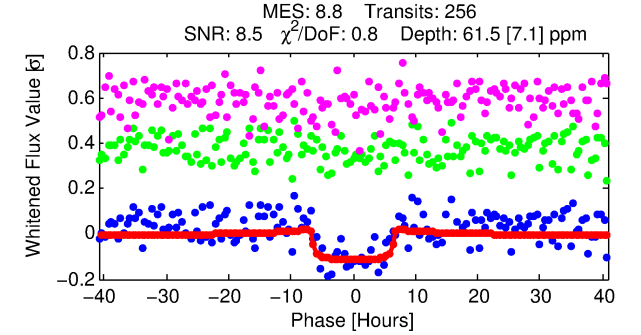
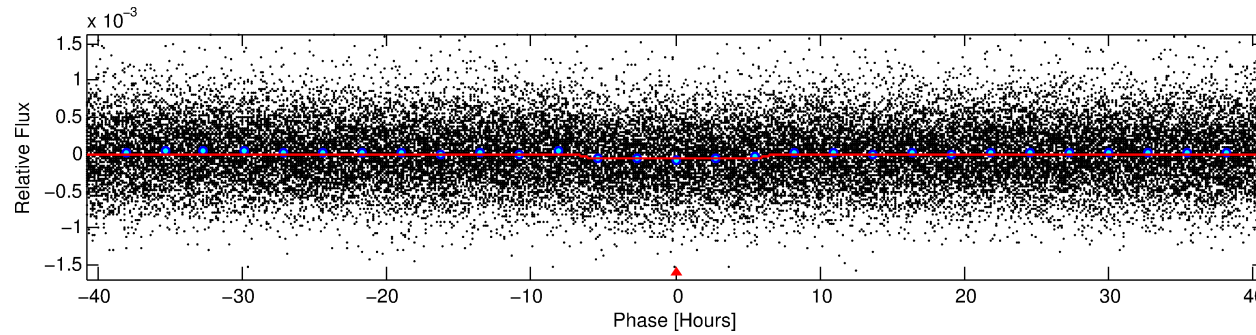
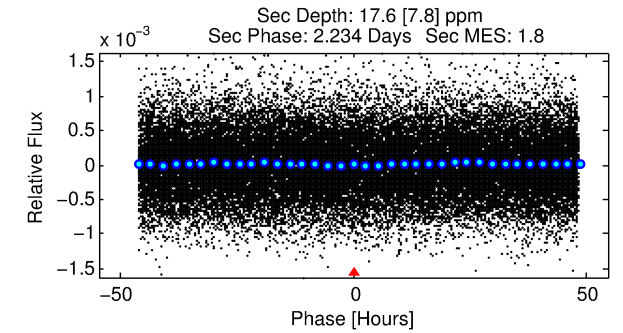
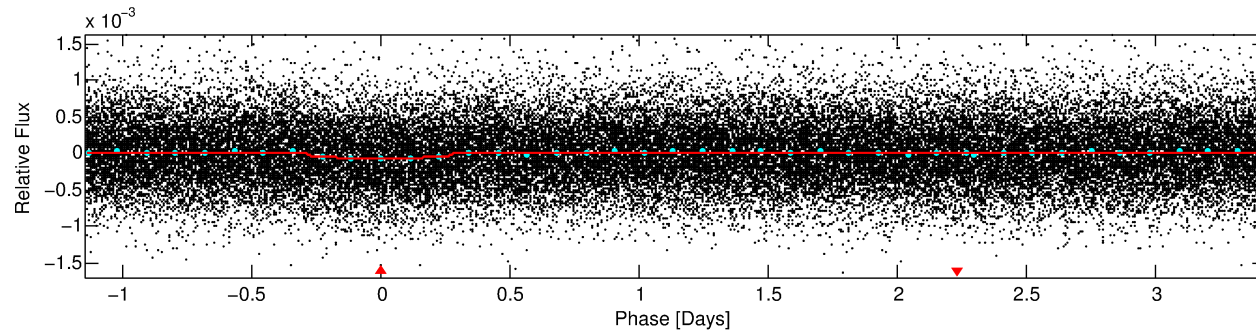
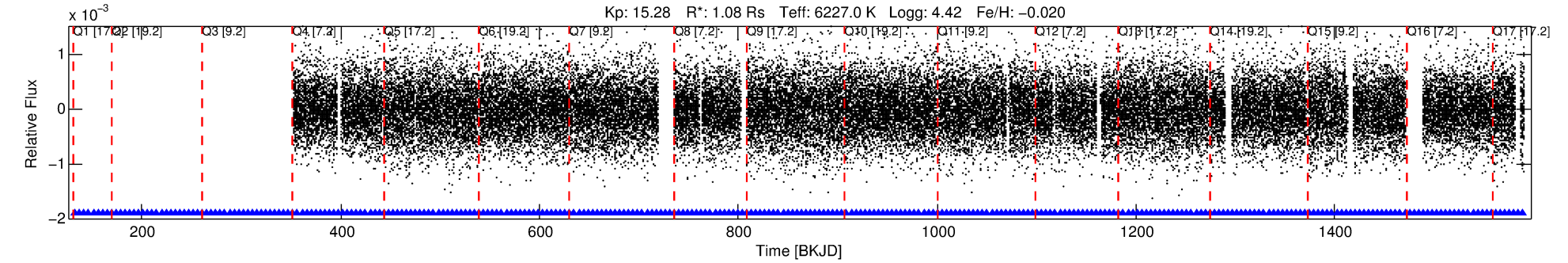
## Ephemeris Match Information For 010272394-01

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	$\sigma_P$	$\sigma_T$
010272394-01	10272394	V850-Cyg-pri	10206340	1:1	299.6	75	1	11.20	15.28	9708.00	Direct-PRF	0	1.62	0.12

**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: 10272394 Candidate: 1 of 1 Period: 4.565 d



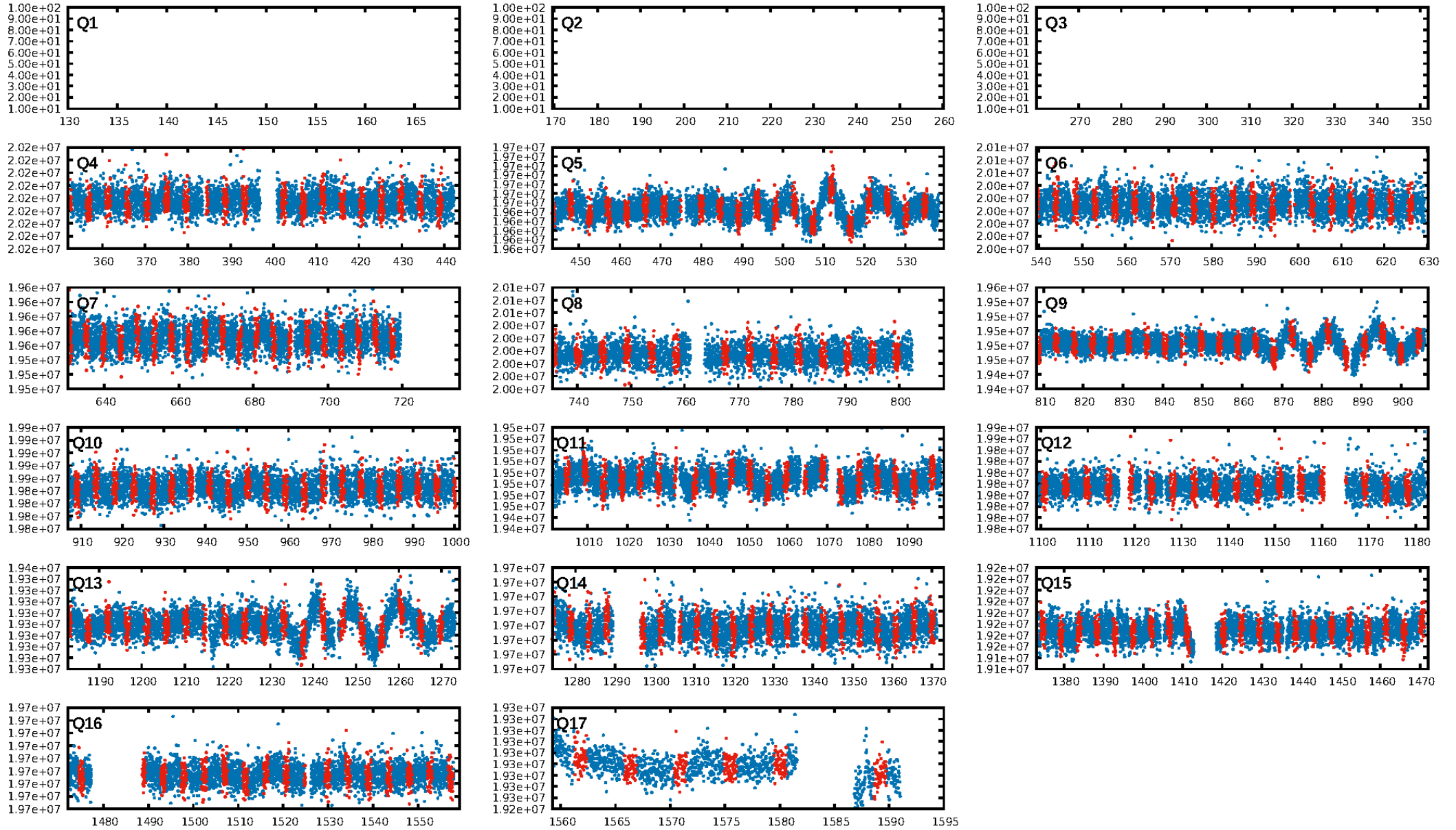
## DV Fit Results:

Period = 4.56453 [0.00011] d  
Epoch = 133.0932 [0.0185] BKJD  
Rp/R\* = 0.0084 [0.0019]  
a/R\* = 1.51 [1.00]  
b = 0.90 [0.26]  
Seff = 502.30 [217.98]  
Teff = 1207 [131] K  
Rp = 0.99 [0.40] Re  
a = 0.0560 [0.0155] AU  
Ag = 30.90 [23.08] [1.30σ]  
Teffp = 4400 [717] K [4.38σ]

## DV Diagnostic Results:

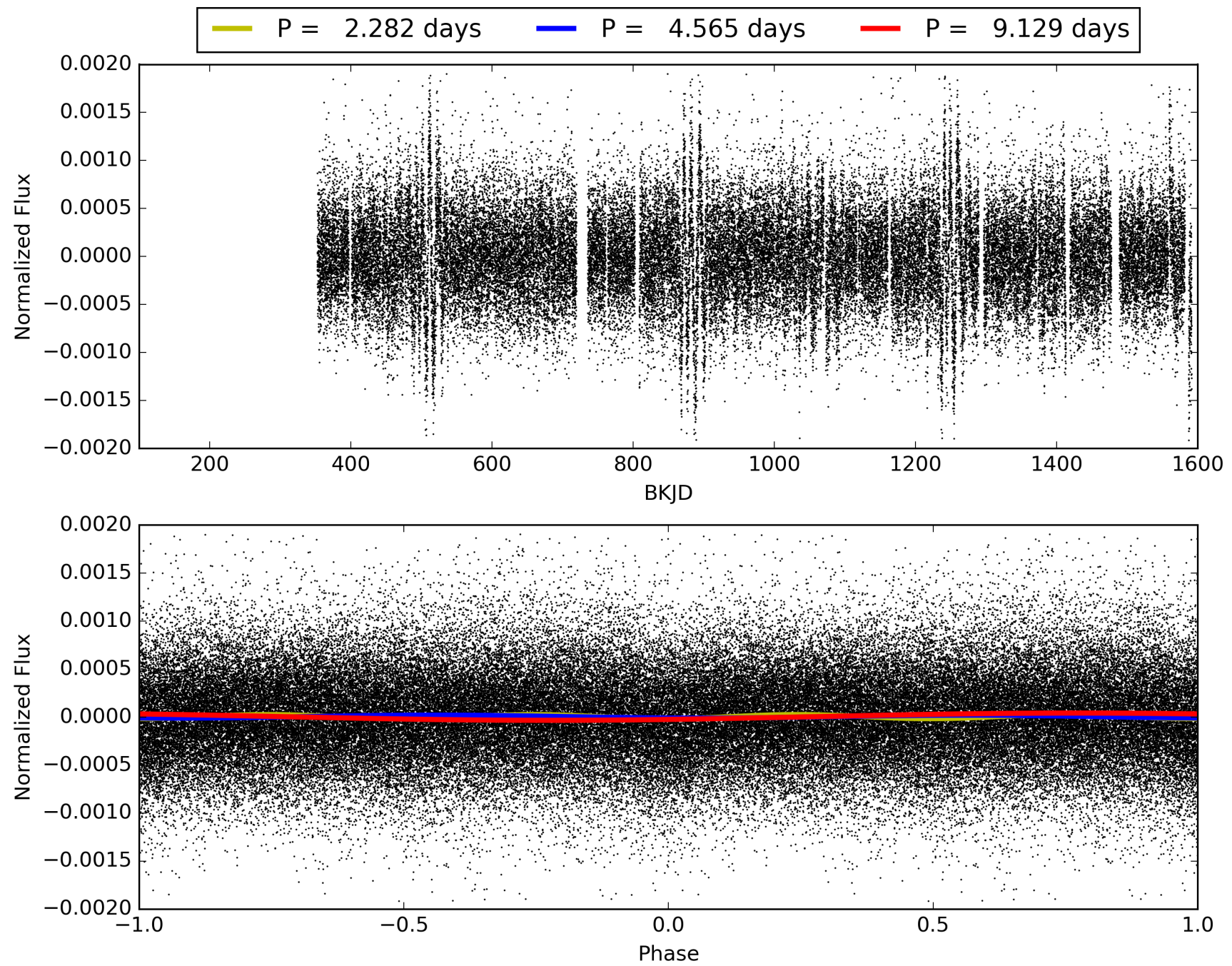
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.26e-16  
RollingBand-fgt: 1.00 [250/250]  
GhostDiagnostic-chr: -0.06608  
Centroid-sig: 0.0%  
Centroid-so: 6.177 arcsec [3.24σ]  
OotOffset-rm: 6.556 arcsec [4.31σ]  
KicOffset-rm: 6.622 arcsec [4.72σ]  
OotOffset-st: 1/1/4/3 [9]  
KicOffset-st: 1/1/4/3 [9]  
DiffImageQuality-fgm: 0.11 [1/9]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010272394-01, PDC Light Curves



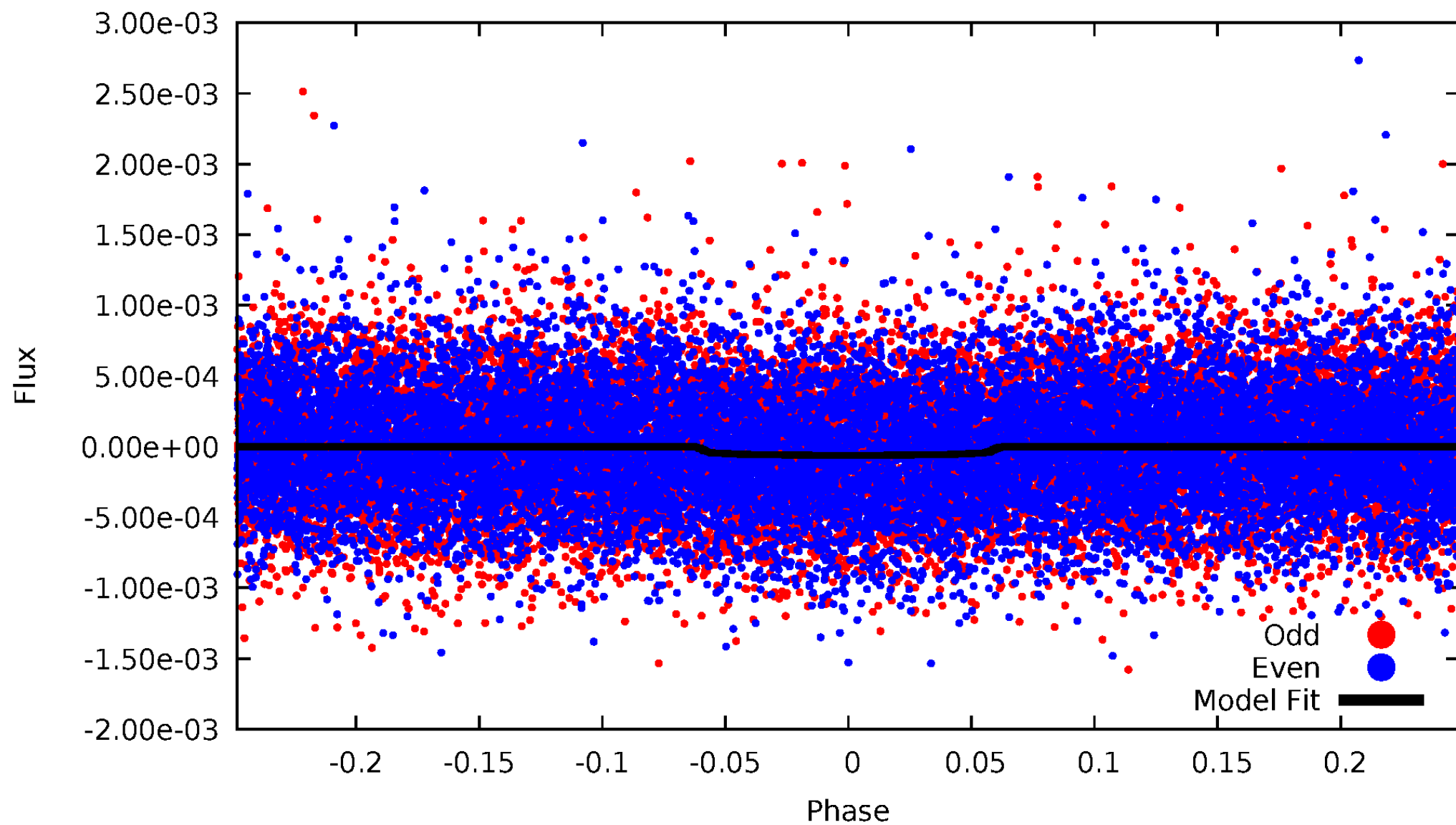


TCE 010272394-01



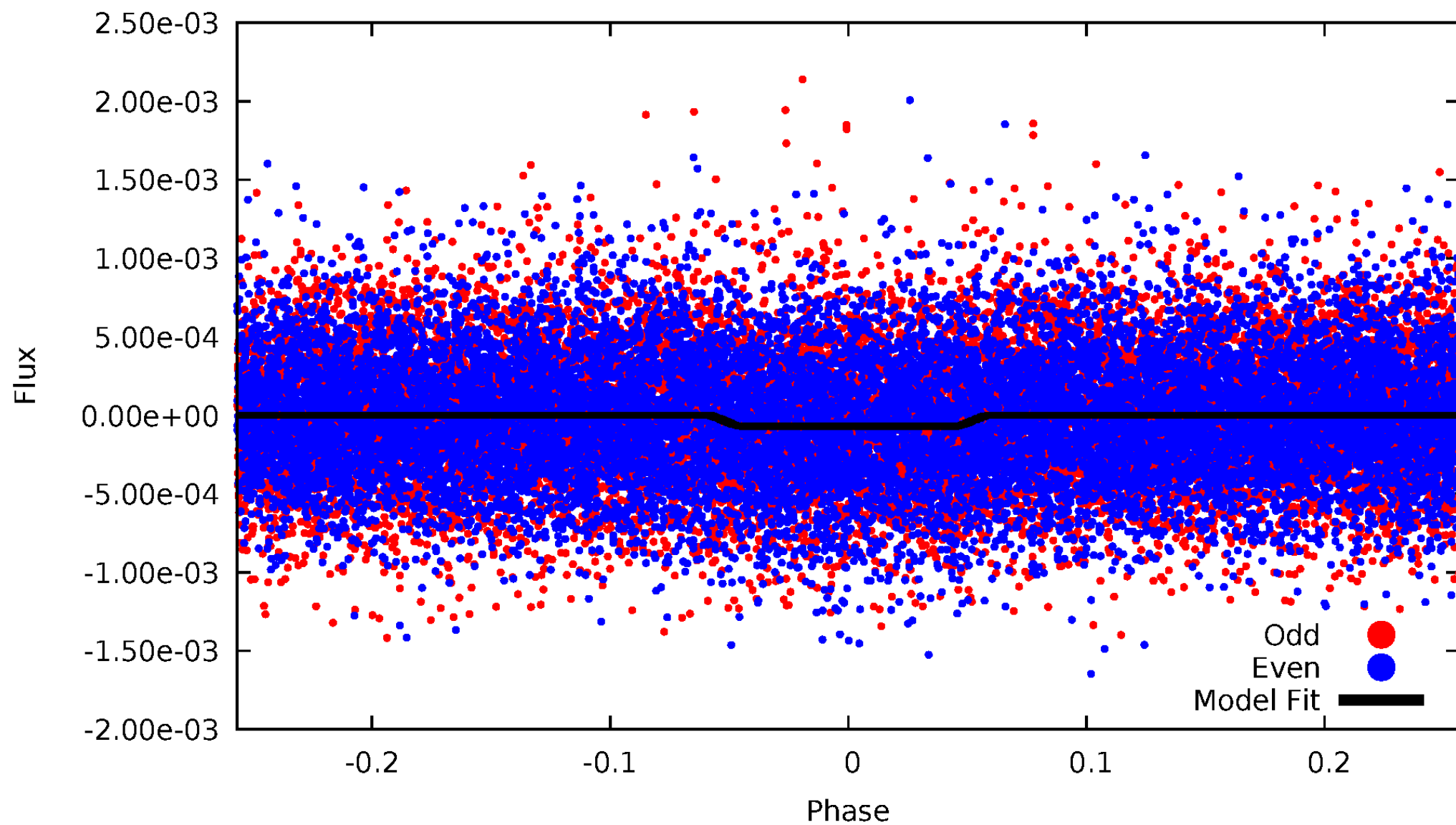
# DV Odd/Even

TCE 010272394-01



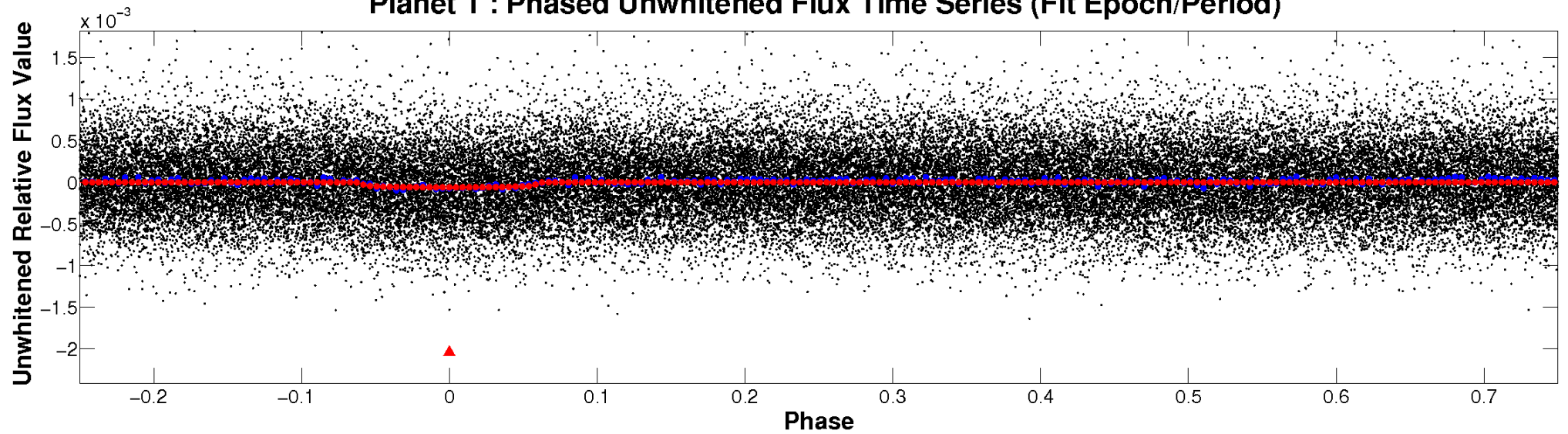
# ALT Odd/Even

TCE 010272394-01

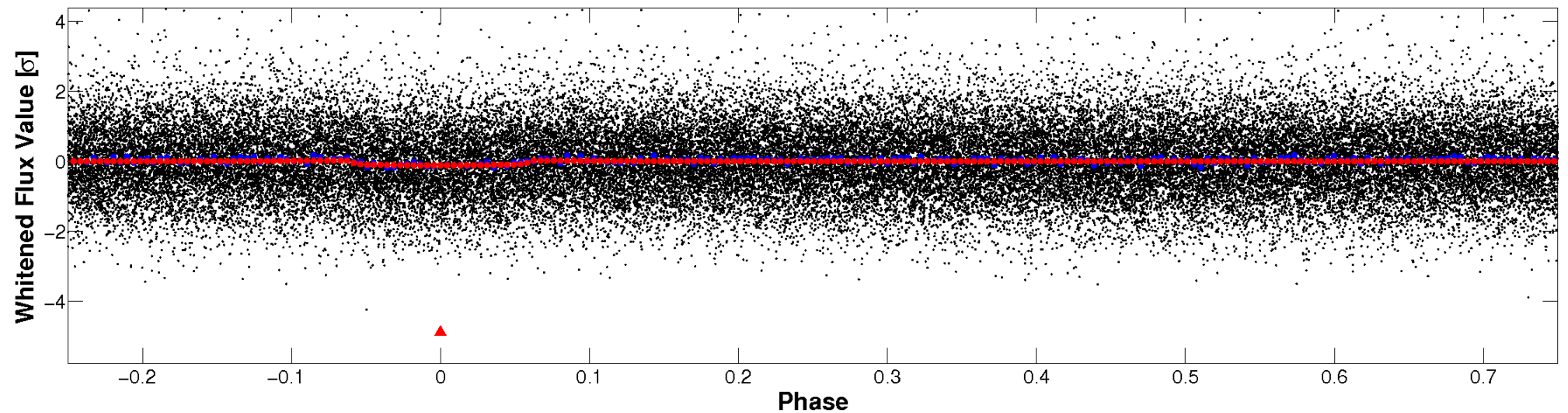


# Non-Whitened Vs. Whitened Light Curve

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



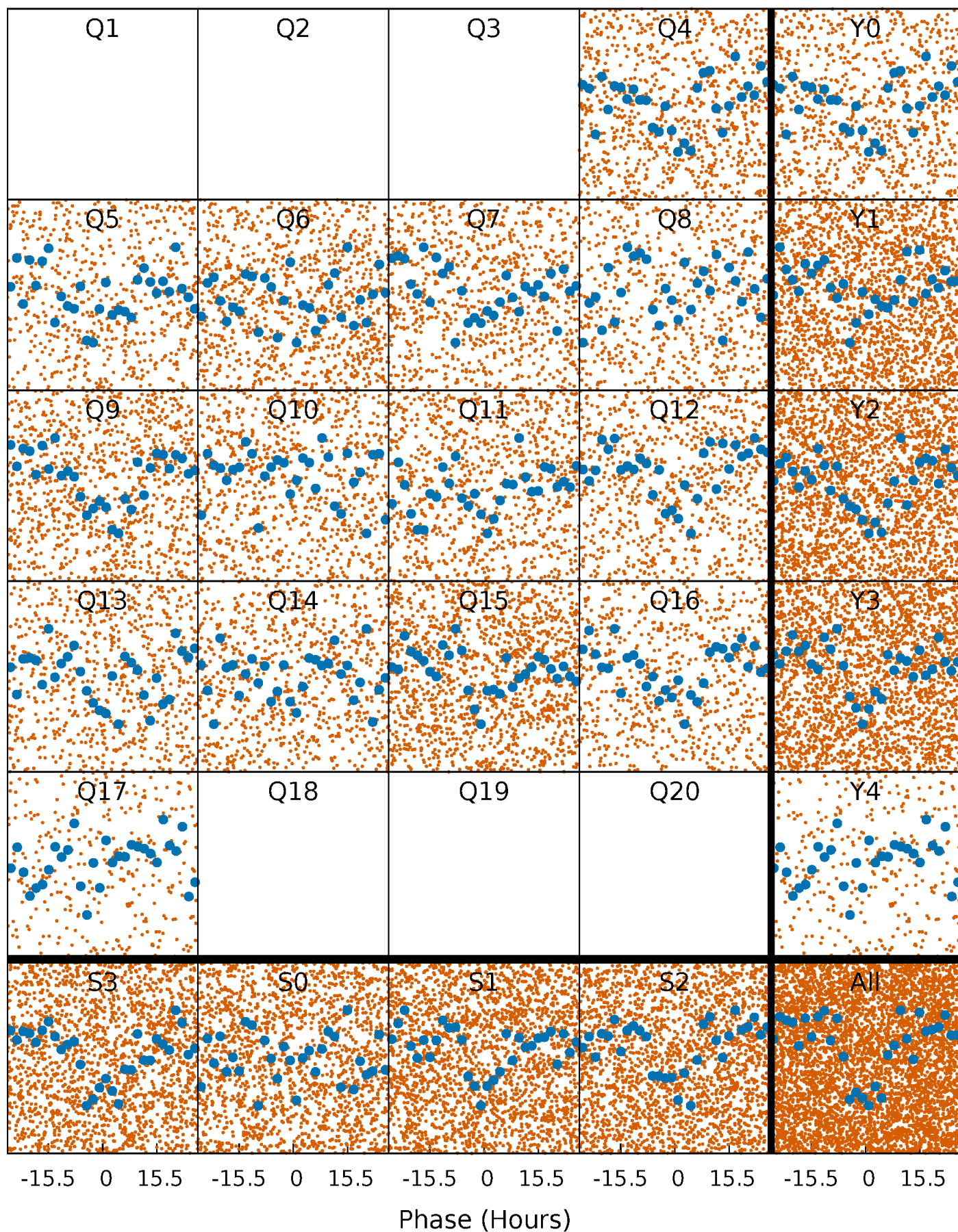
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

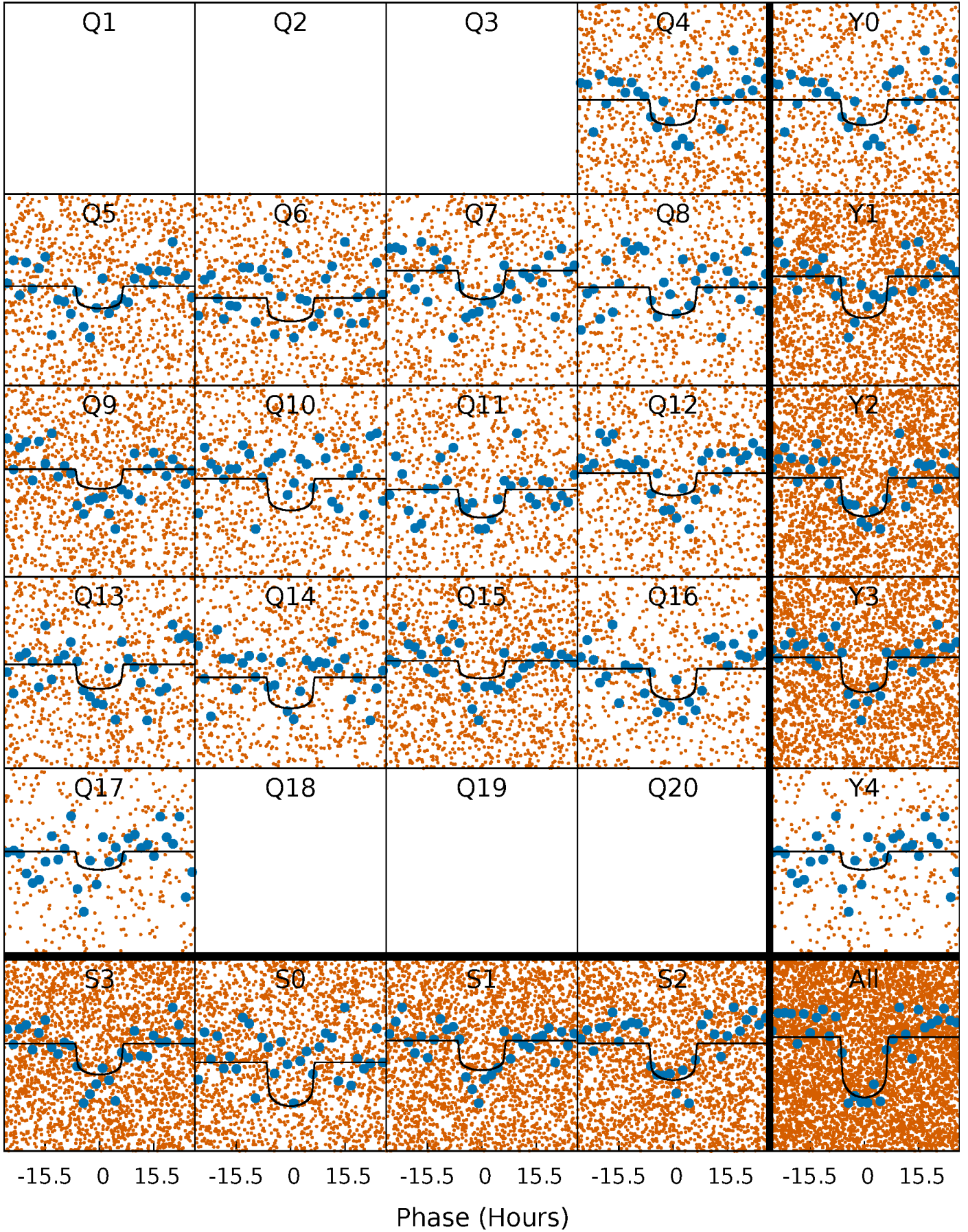
TCE 010272394-01 P= 4.564529 Days  $T_0=133.093226$  (BKJD)





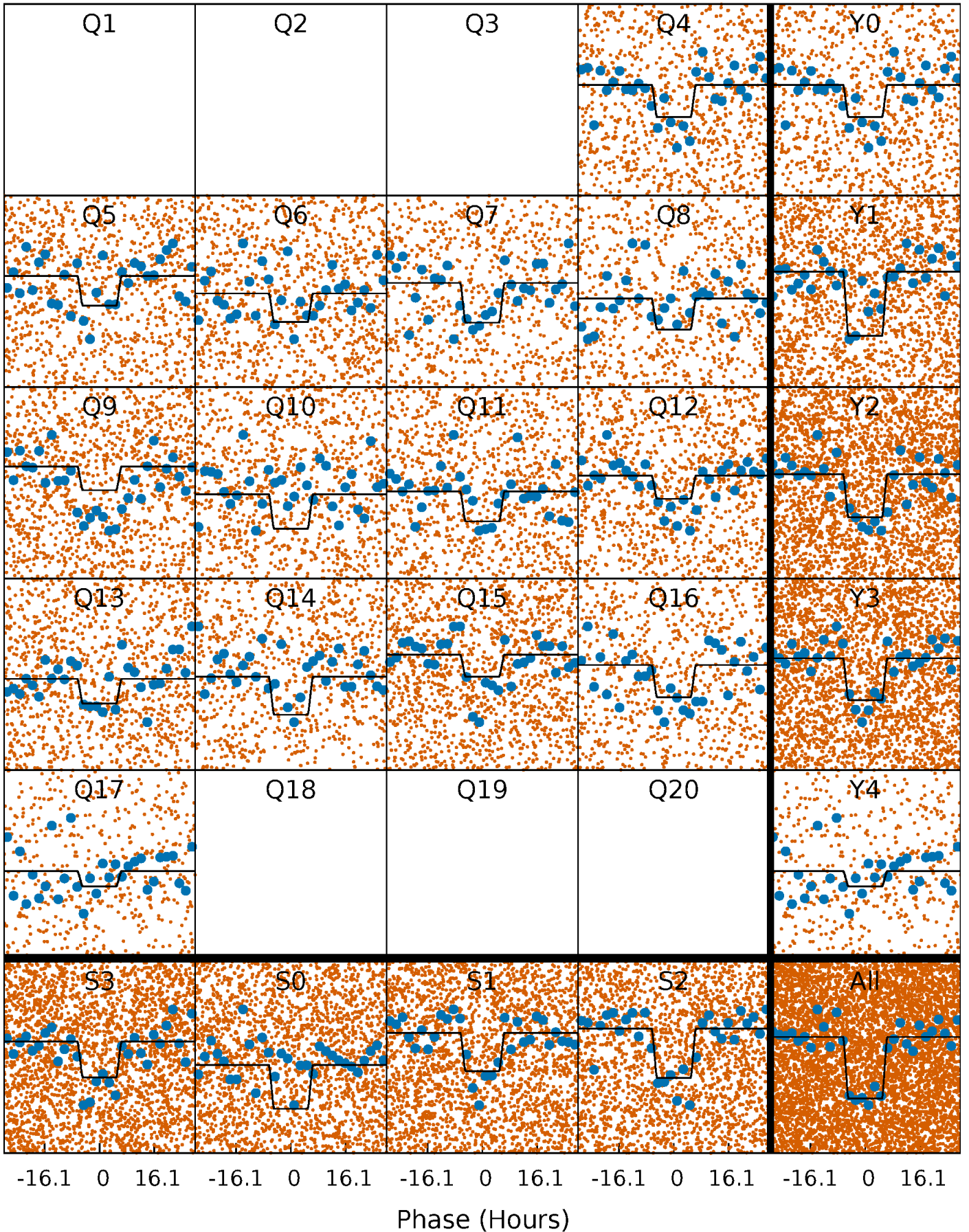
# DV Quarter-Phased Transit Curves

TCE 010272394-01   P= 4.564529 Days    $T_0=133.093226$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

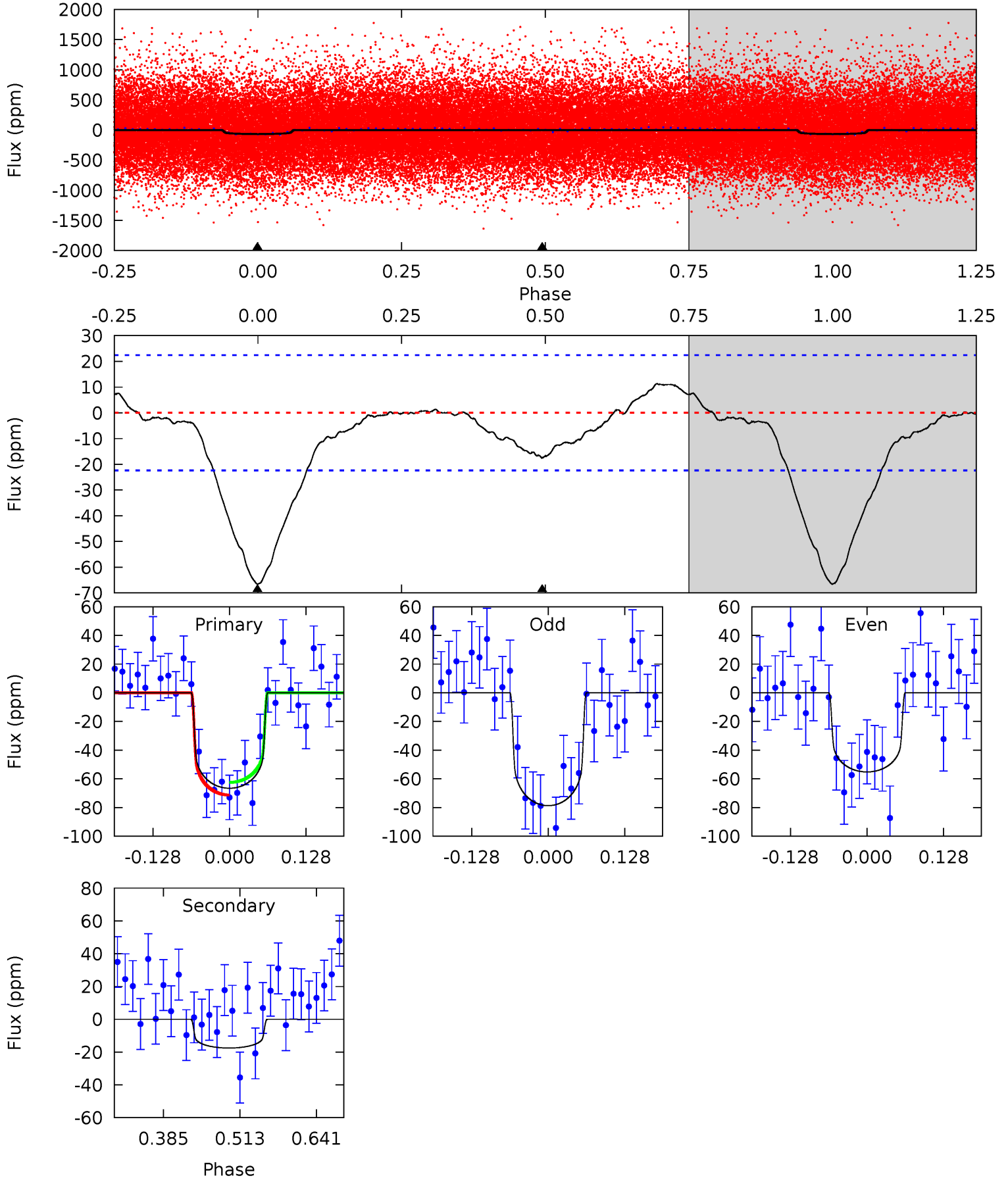
TCE 010272394-01 P= 4.564498 Days  $T_0=133.097426$  (BKJD)



# DV Model-Shift Uniqueness Test

010272394-01, P = 4.564529 Days, E = 133.093226 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
13.4	3.53	0	0	4.51	1.52	1.00	13.4	13.4	3.53	3.53	2.37	1.16	0.15	0.89

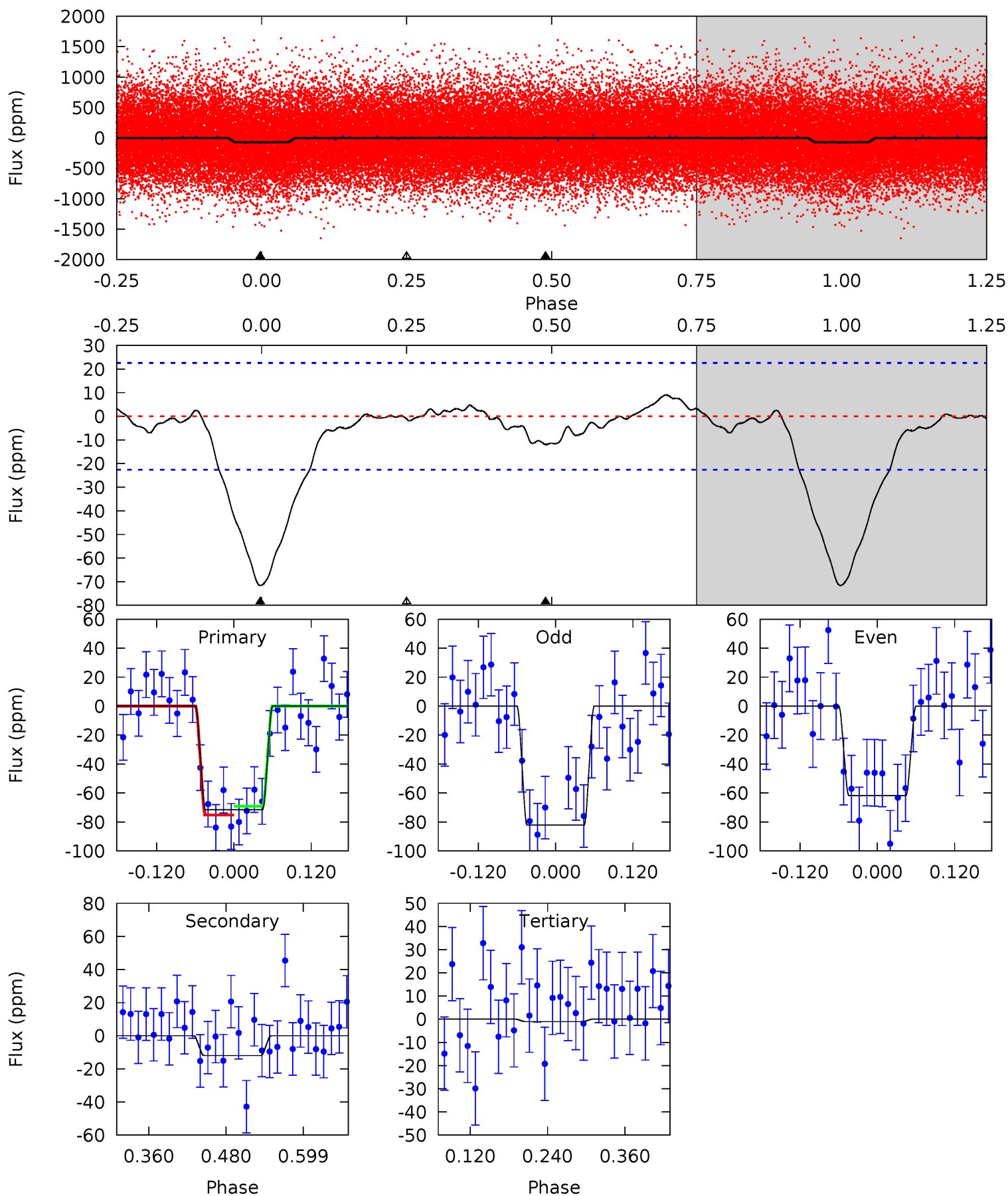




# Alt Model-Shift Uniqueness Test

010272394-01, P = 4.564498 Days, E = 133.097426 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
14.3	2.40	0.21	0	4.53	1.56	0.73	14.1	14.3	2.18	2.40	2.06	0.85	0.11	0.60





### Stellar Parameters For KIC 010272394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6227^{+194}_{-259}$	$4.421^{+0.073}_{-0.218}$	$-0.020^{+0.250}_{-0.300}$	$1.082^{+0.358}_{-0.128}$	$1.128^{+0.168}_{-0.153}$	$1.252^{+0.388}_{-0.701}$
	+3%/-4%	+2%/-5%	+1250%/-1500%	+33%/-12%	+15%/-14%	+31%/-56%
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 010272394-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-18 \pm 5$	$1.03^{+0.32}_{-0.25}$	$1715^{+146}_{-97}$	$4528^{+616}_{-459}$	$27^{+25}_{-13}$
Alt.	$-12 \pm 5$	$1.03^{+0.28}_{-0.25}$	$1714^{+127}_{-98}$	$4202^{+605}_{-480}$	$19^{+18}_{-10}$

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

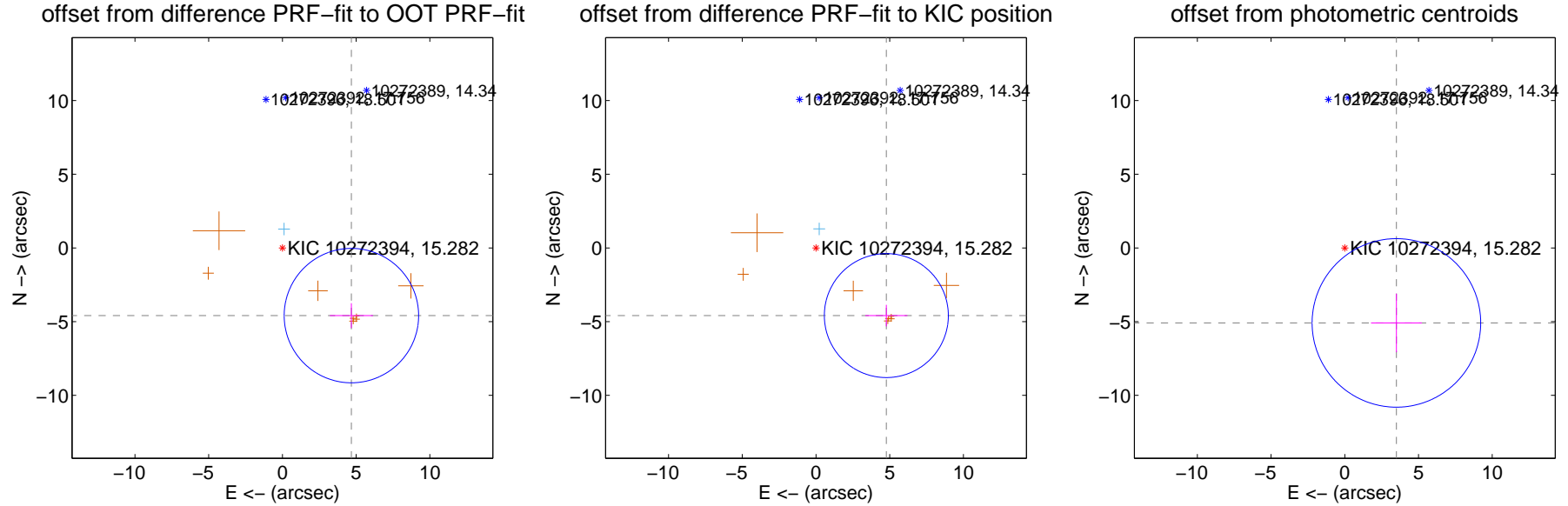
## DV Centroid Data

Supplemental centroid analysis for 010272394-01. Kepler magnitude: 15.28. Transit SNR 8.48

There are 1 quarters with good PRF difference image offsets

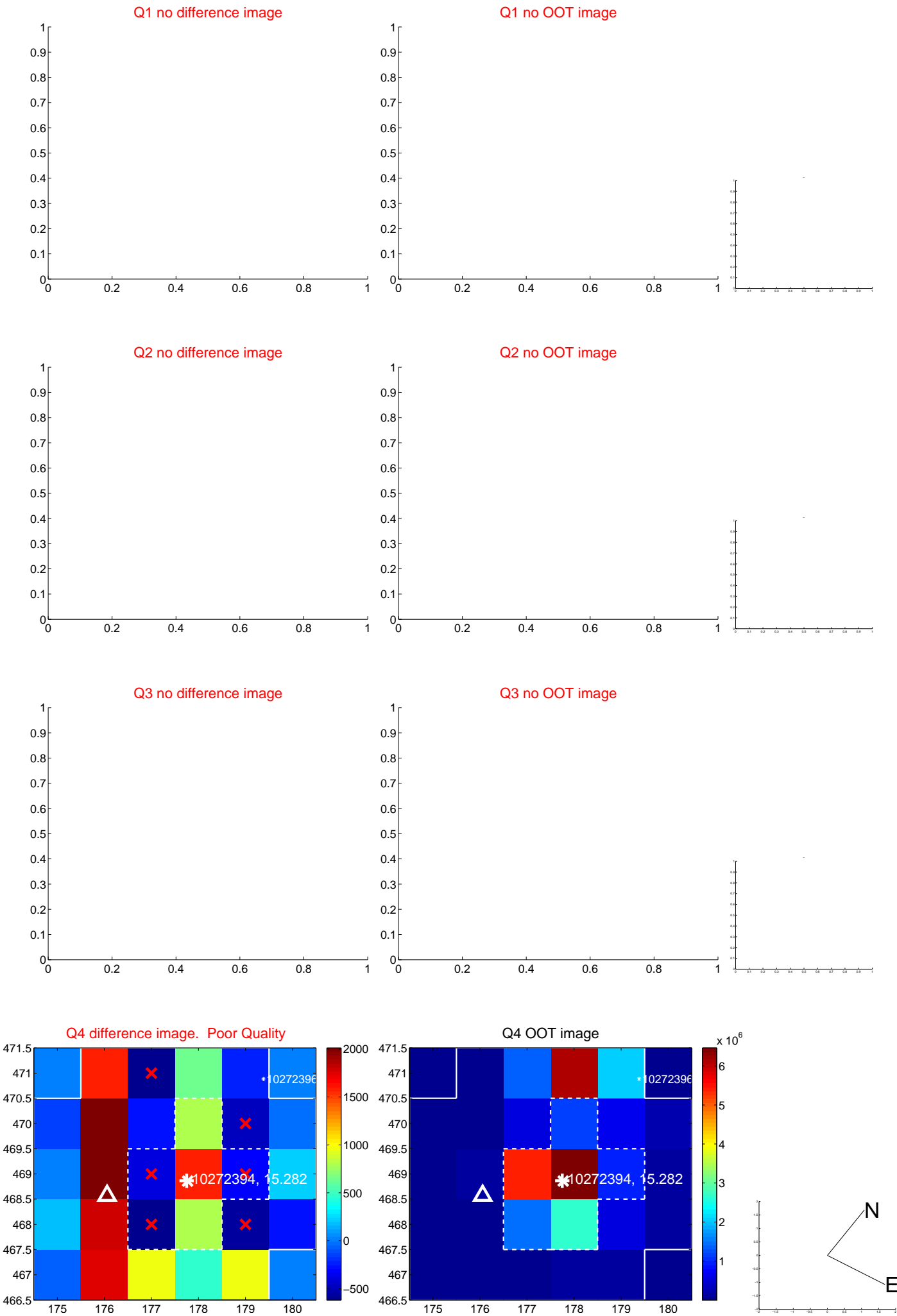
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.556 \pm 1.520$	4.31	$-4.680 \pm 1.464$	$-4.591 \pm 0.840$
PRF-fit source offset from KIC position	$6.622 \pm 1.402$	4.72	$-4.773 \pm 1.425$	$-4.591 \pm 0.732$
photometric centroid source offset	$6.18 \pm 1.91$	3.24	$-3.50 \pm 1.72$	$-5.09 \pm 1.99$

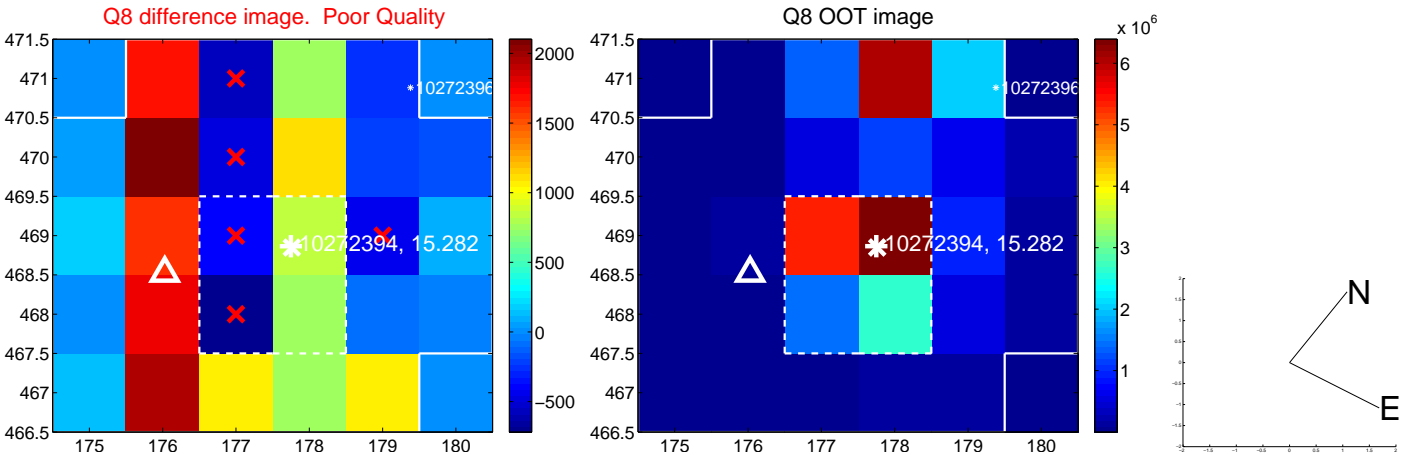
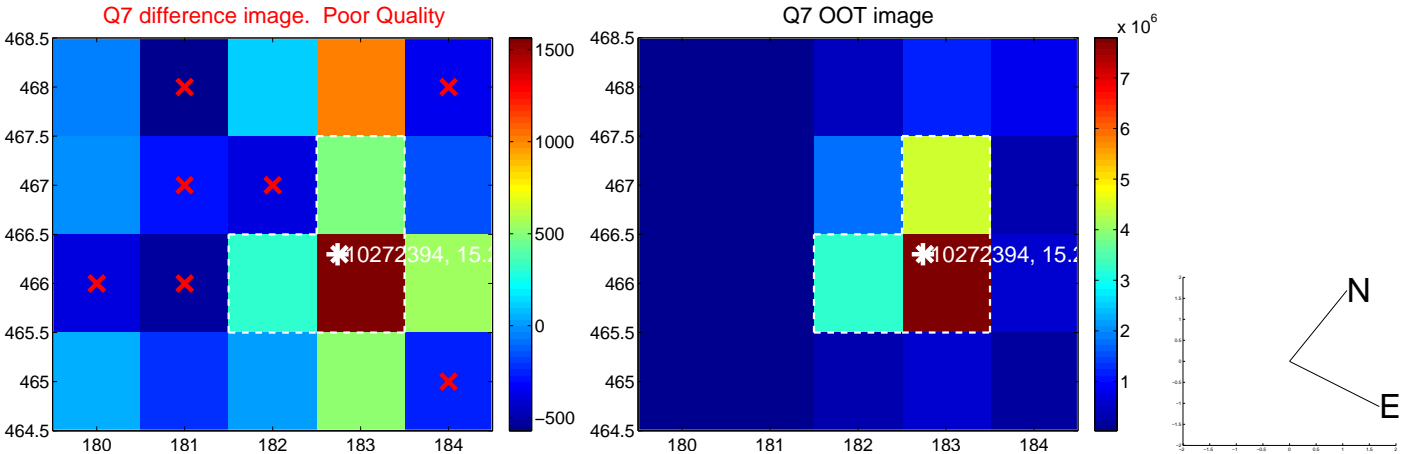
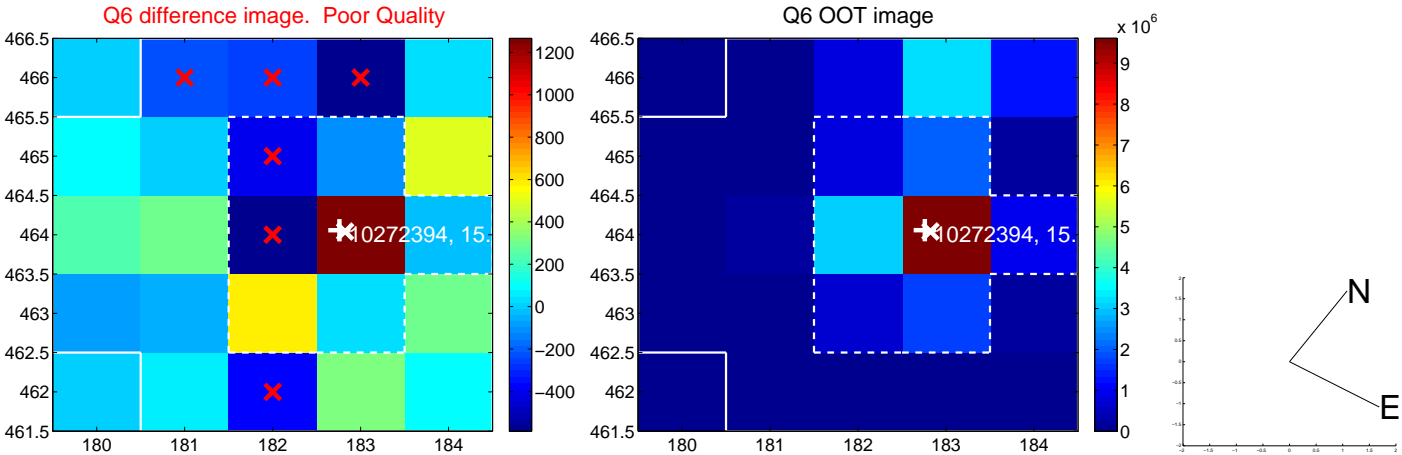
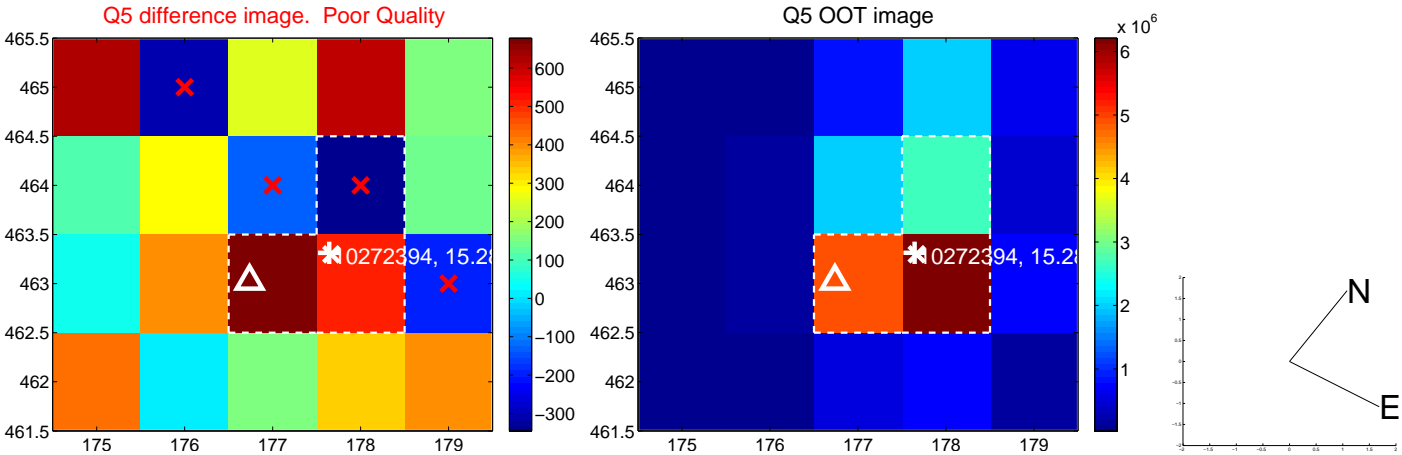


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

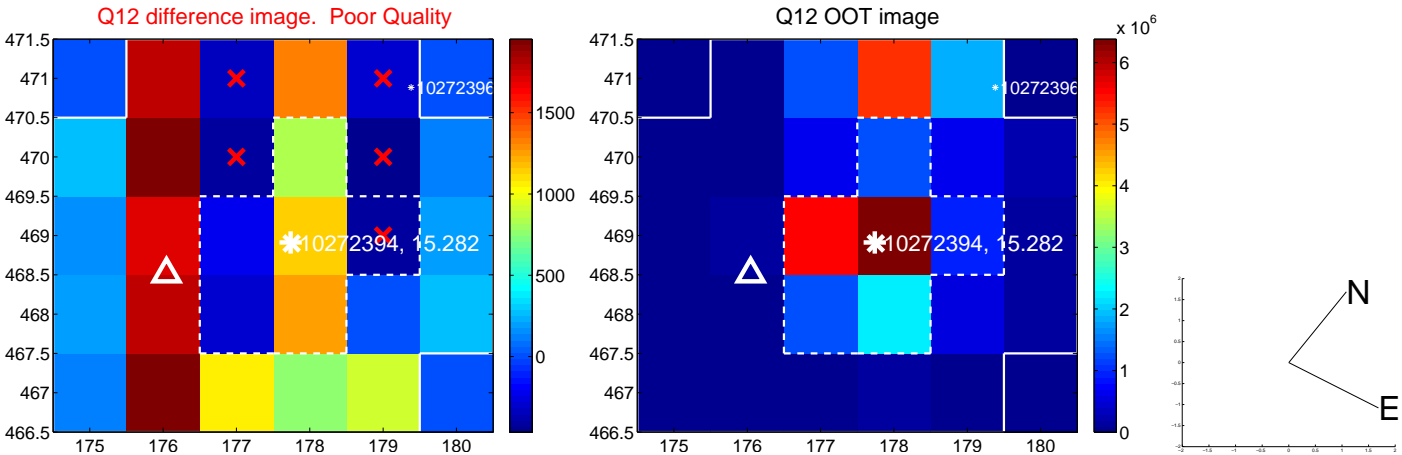
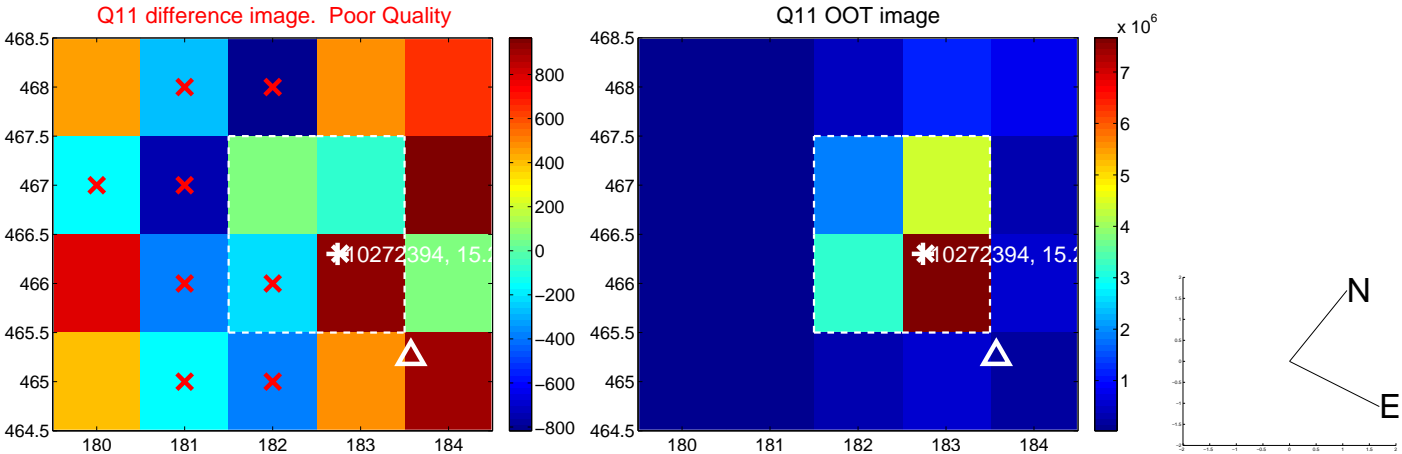
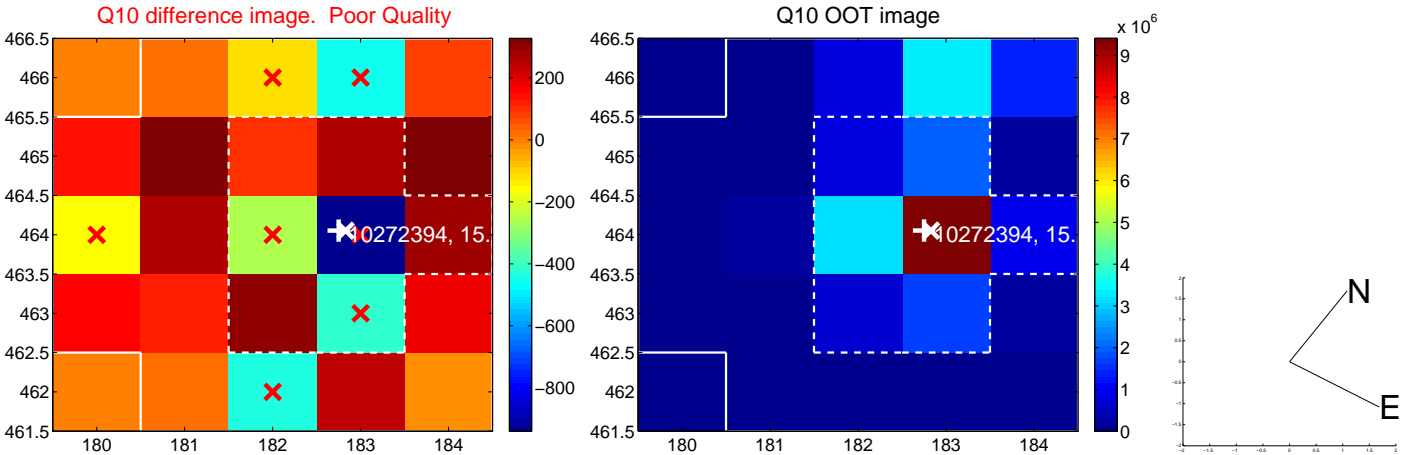
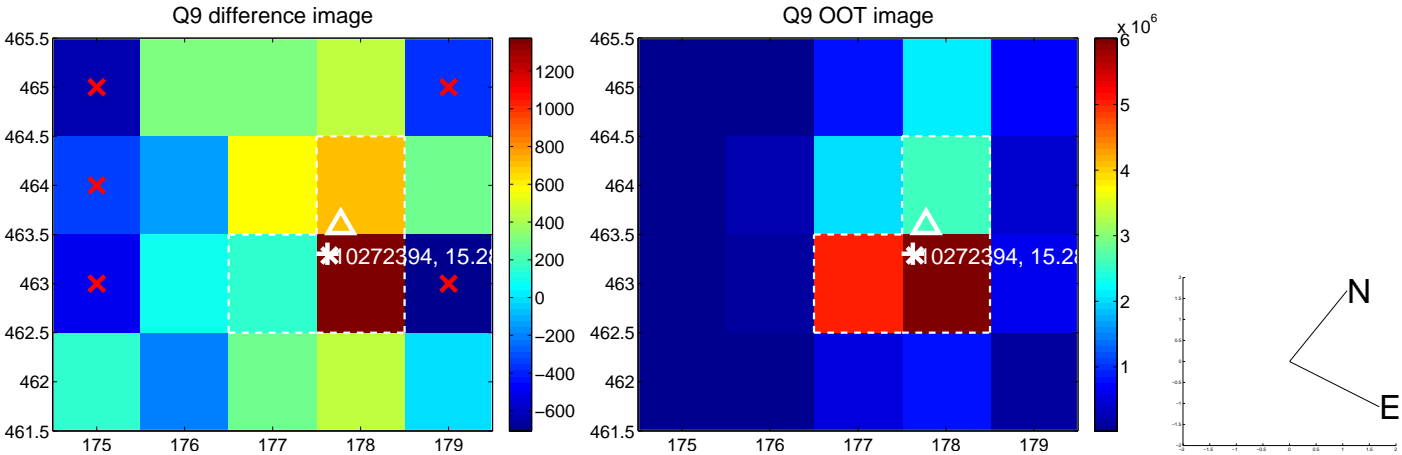


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

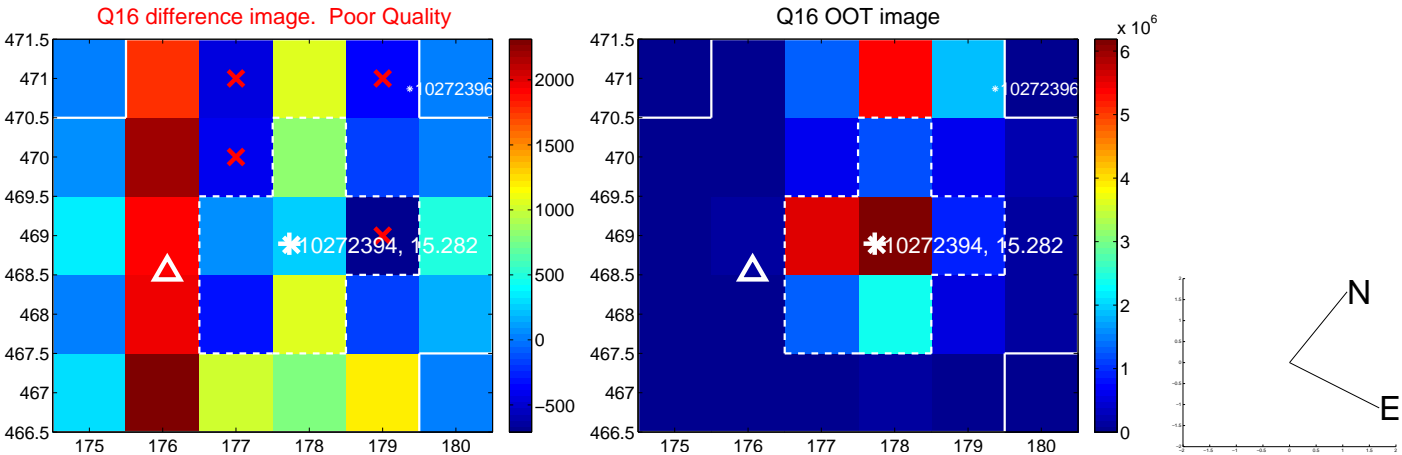
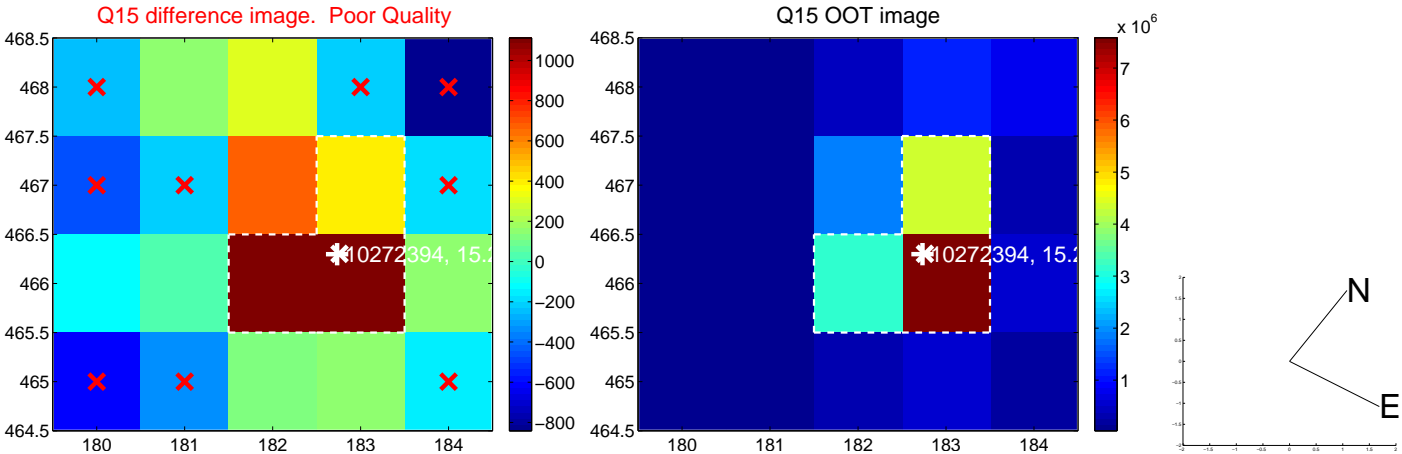
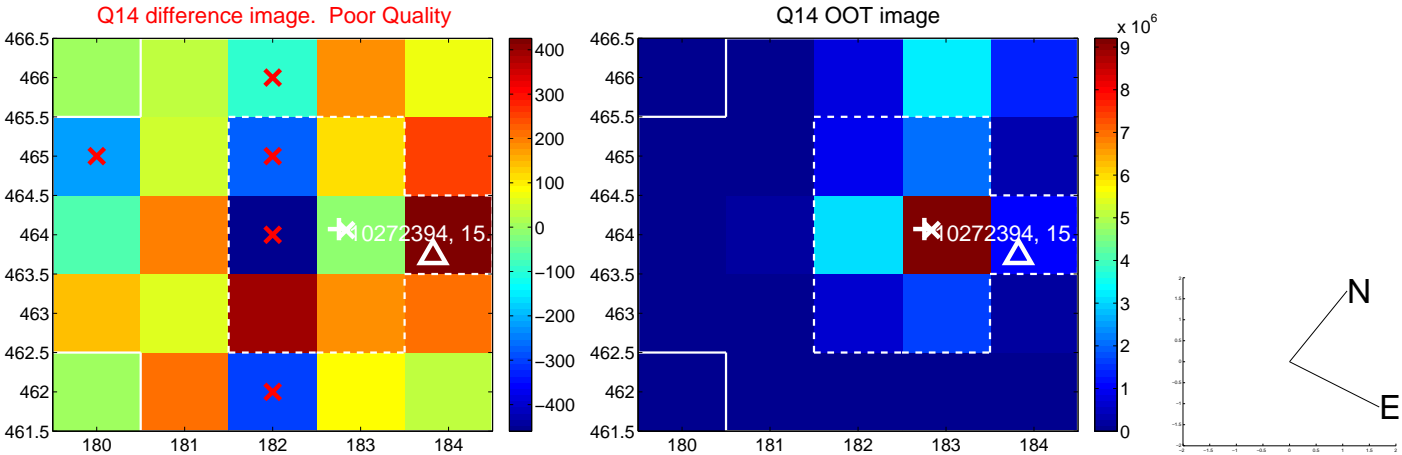
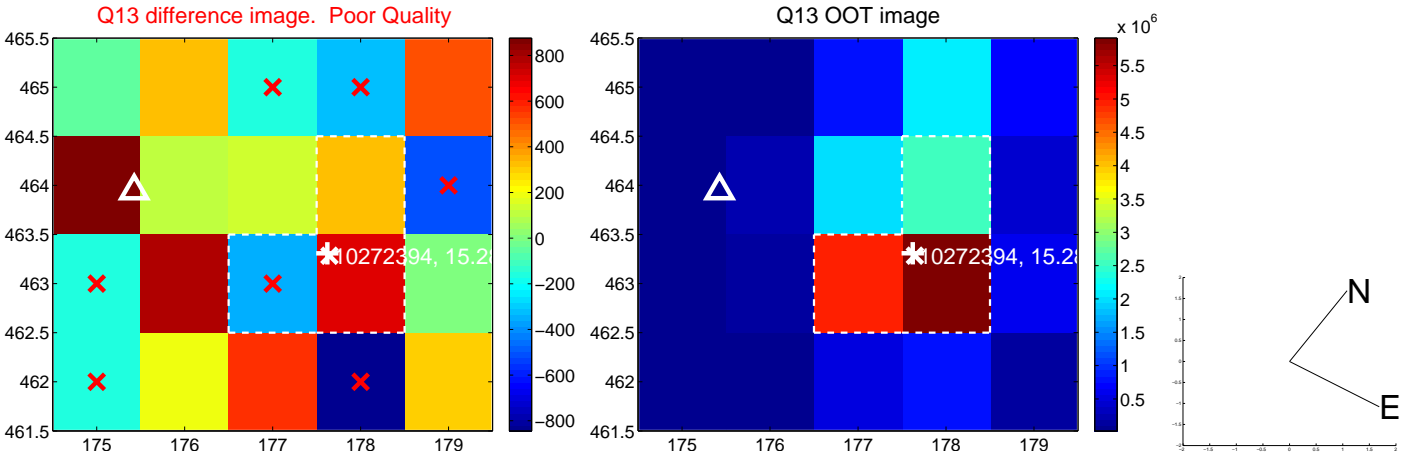




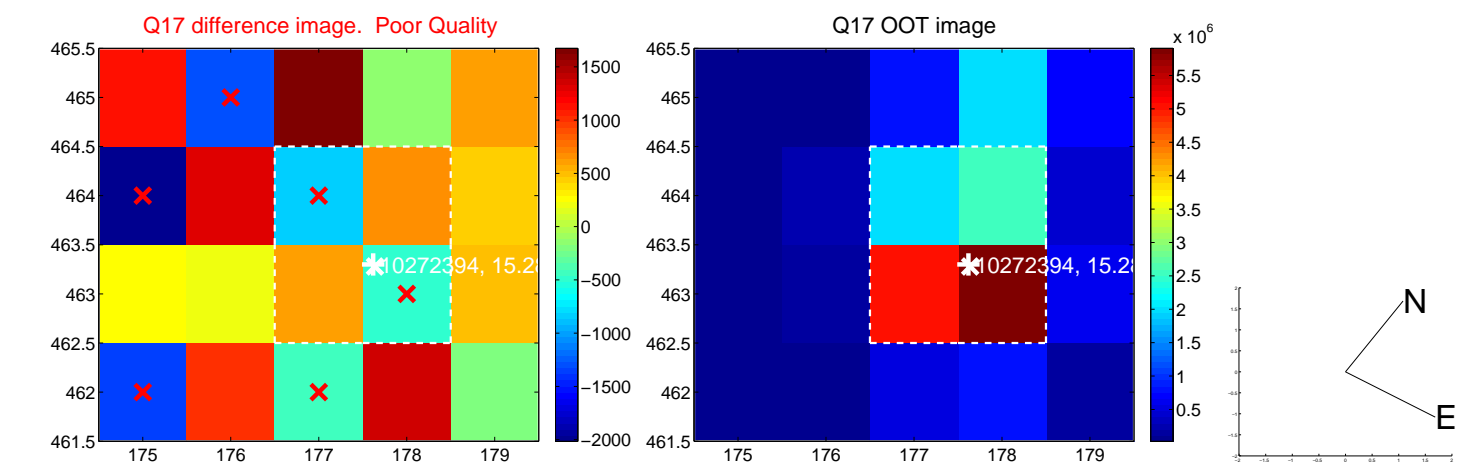
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



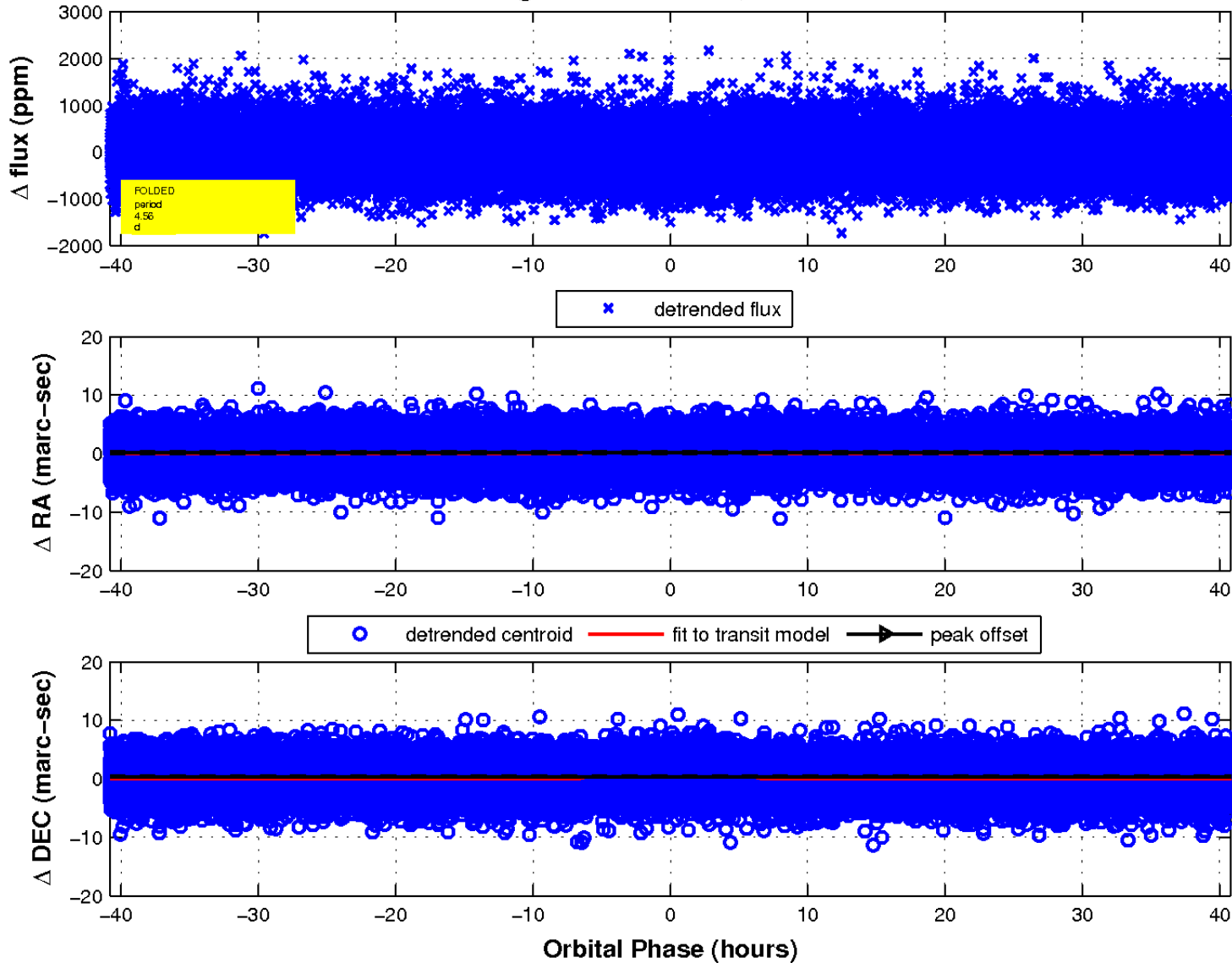
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

