

# KIC 010815677

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010815677-01	OBS	7376.01	1.284232	132.655886	143.2	1.932	10.4	10.8	0.92	5849	1.30	1641.50

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010815677-01	OBS	PC	0.76	0	0	0	0	NO_COMMENT

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

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

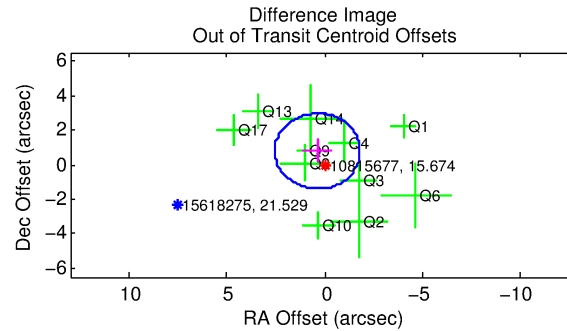
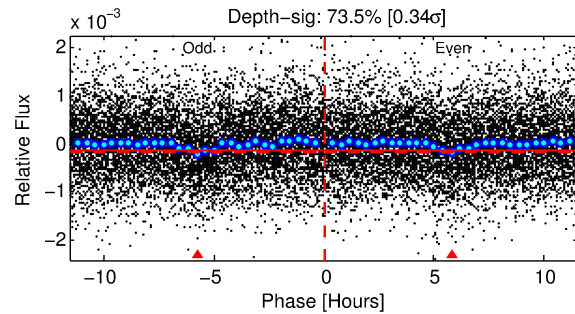
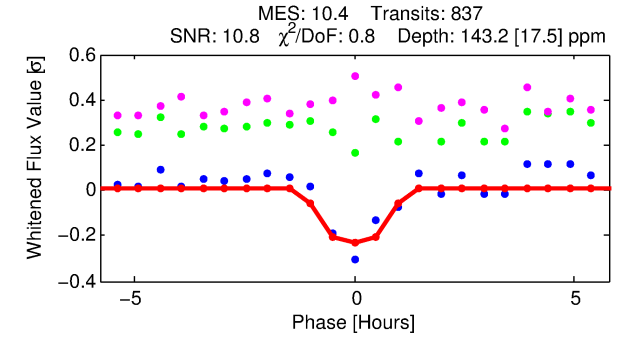
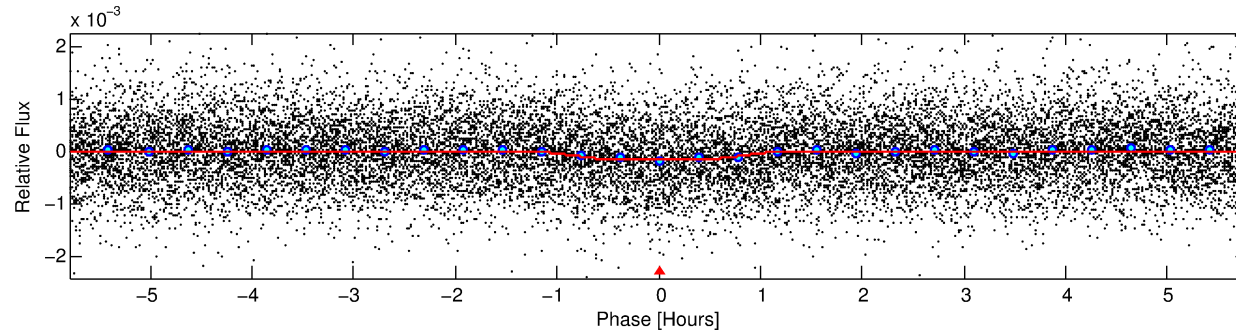
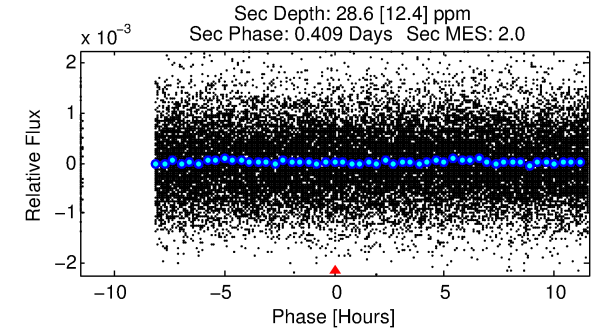
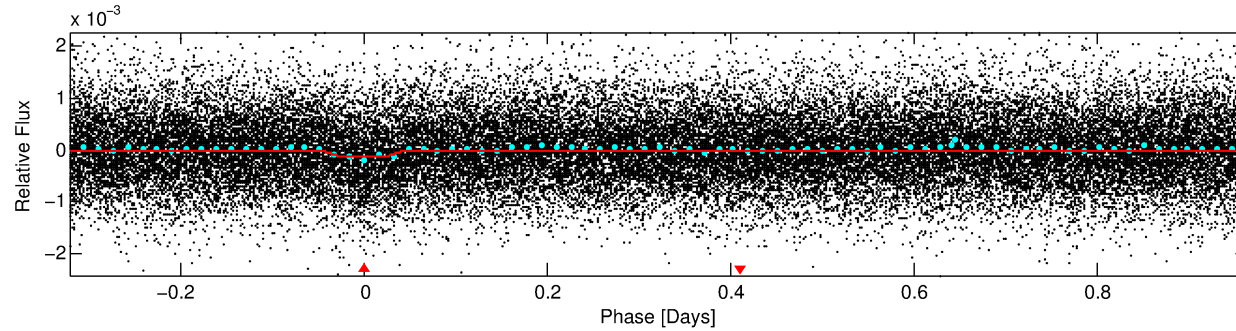
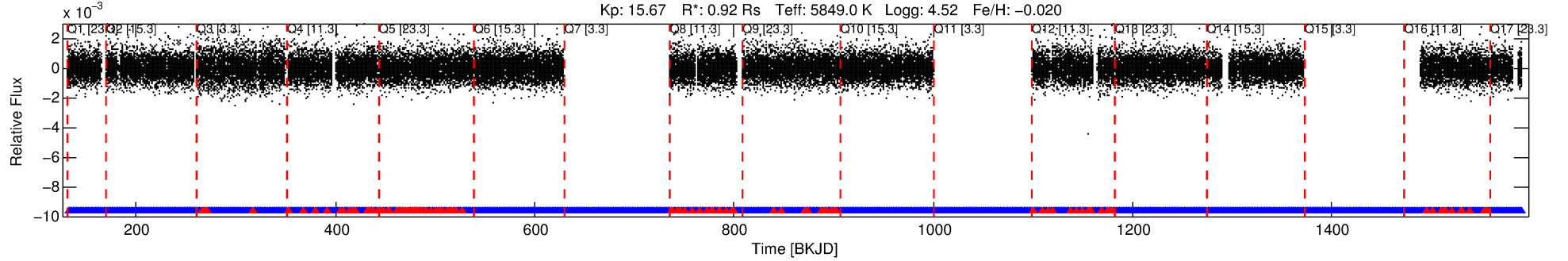
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010815677-01

No Significant Match Found

# DV One-Page Summary

KIC: 10815677 Candidate: 1 of 1 Period: 1.284 d  
KOI: K07376.01 Corr: 0.948



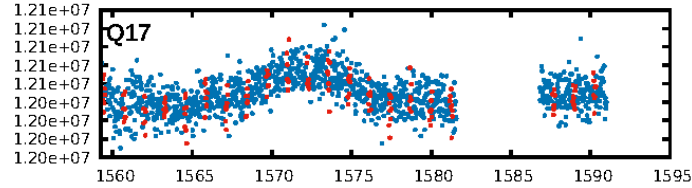
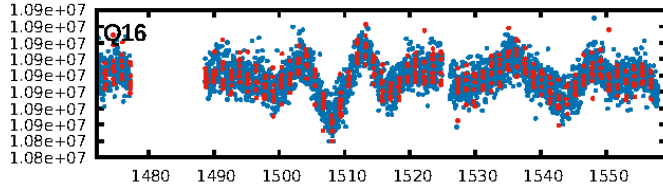
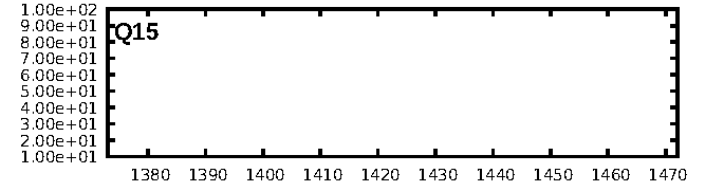
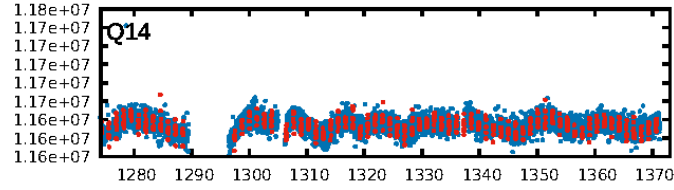
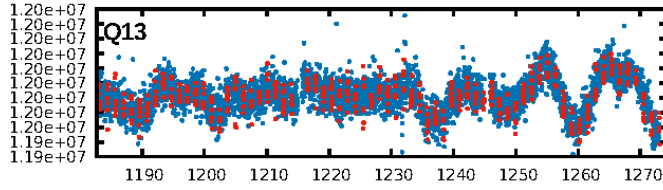
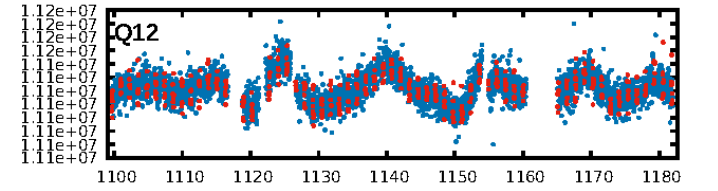
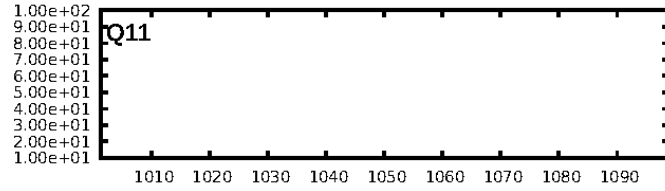
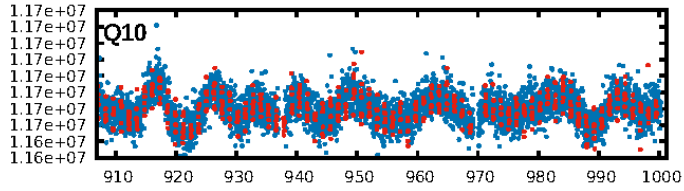
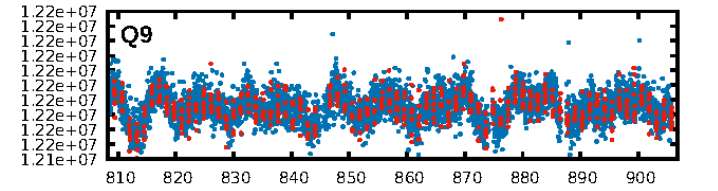
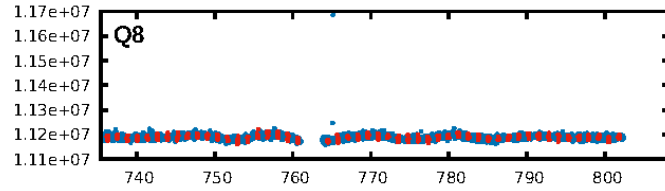
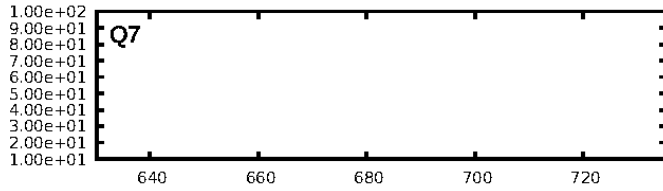
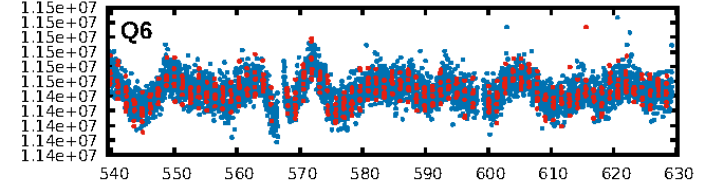
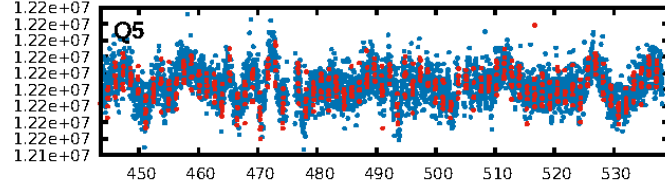
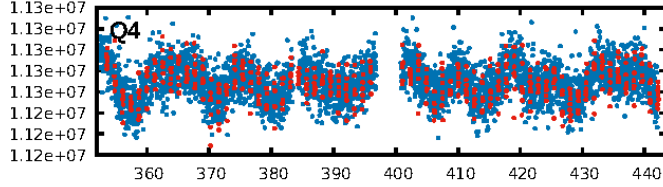
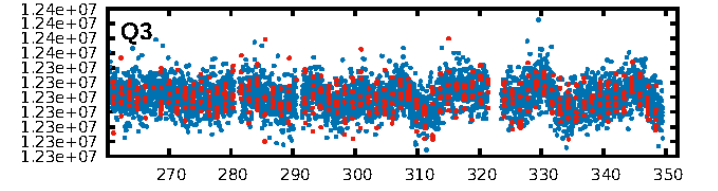
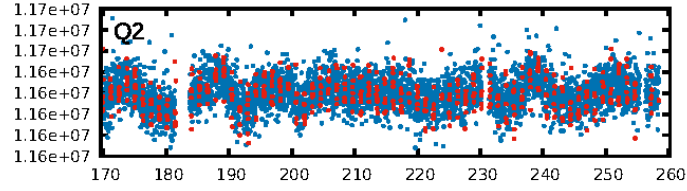
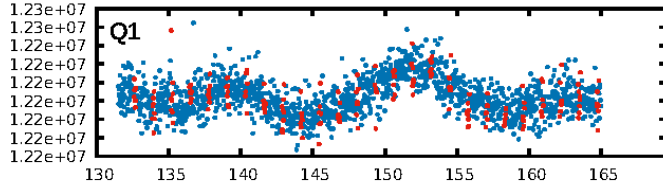
## DV Fit Results:

Period = 1.28423 [0.00001] d  
Epoch = 132.6559 [0.0026] BKJD  
Rp/R\* = 0.0130 [0.0103]  
a/R\* = 2.57 [8.38]  
b = 0.90 [0.86]  
Seff = 1641.50 [597.72]  
Teq = 1623 [148] K  
Rp = 1.30 [1.09] Re  
a = 0.0232 [0.0055] AU  
Ag = 4.99 [8.34] [0.48σ]  
Teffp = 3751 [1540] K [1.38σ]

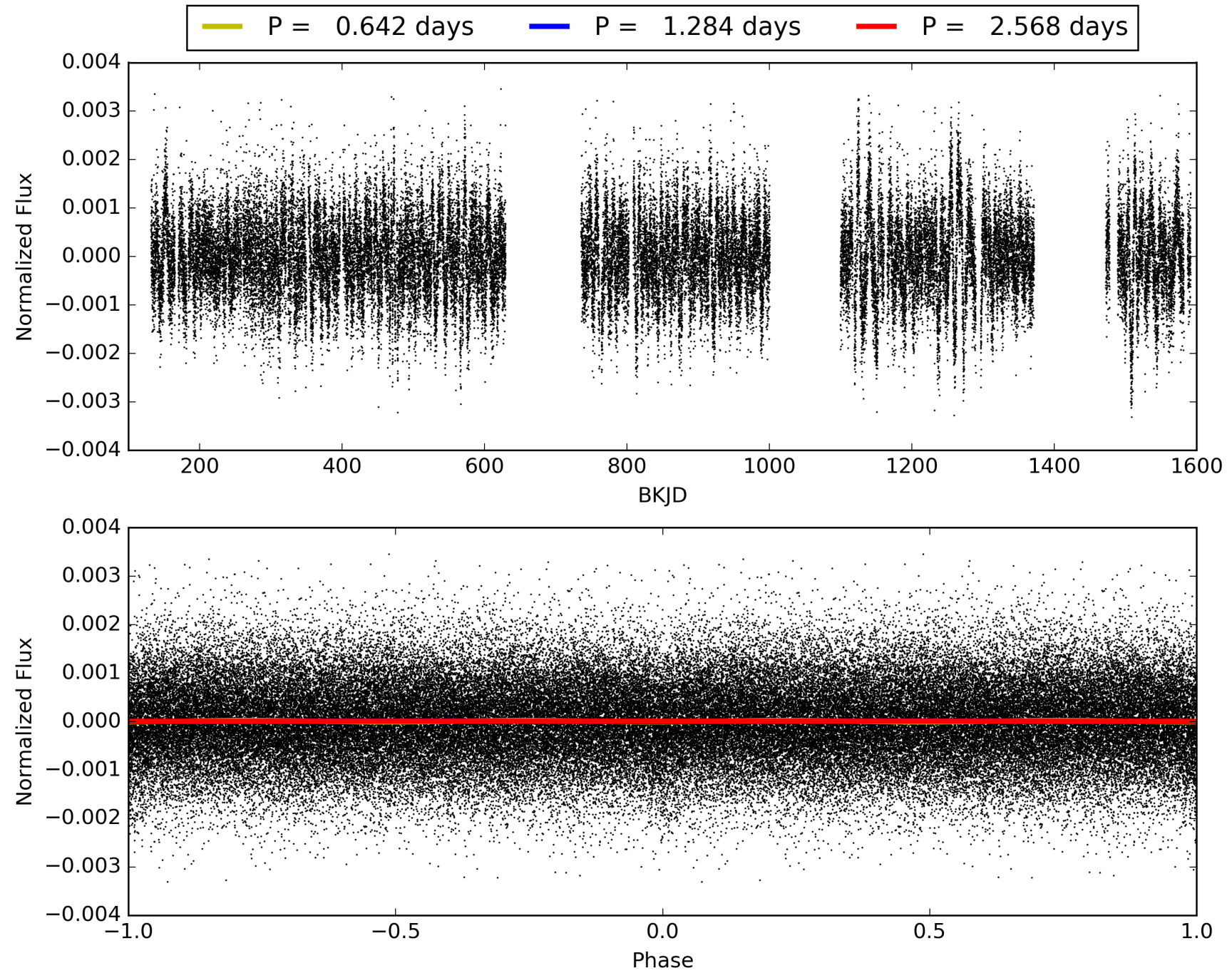
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.23e-24  
RollingBand-fgt: 0.87 [685/790]  
GhostDiagnostic-chr: -8.258  
Centroid-sig: 35.0%  
Centroid-so: 1.546 arcsec [1.11σ]  
OotOffset-rm: 0.862 arcsec [1.19σ]  
OotOffset-st: 4/1/2/4 [11]  
KicOffset-rm: 0.690 arcsec [0.74σ]  
KicOffset-st: 4/1/2/4 [11]  
DiffImageQuality-fgm: 0.27 [3/11]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010815677-01, PDC Light Curves



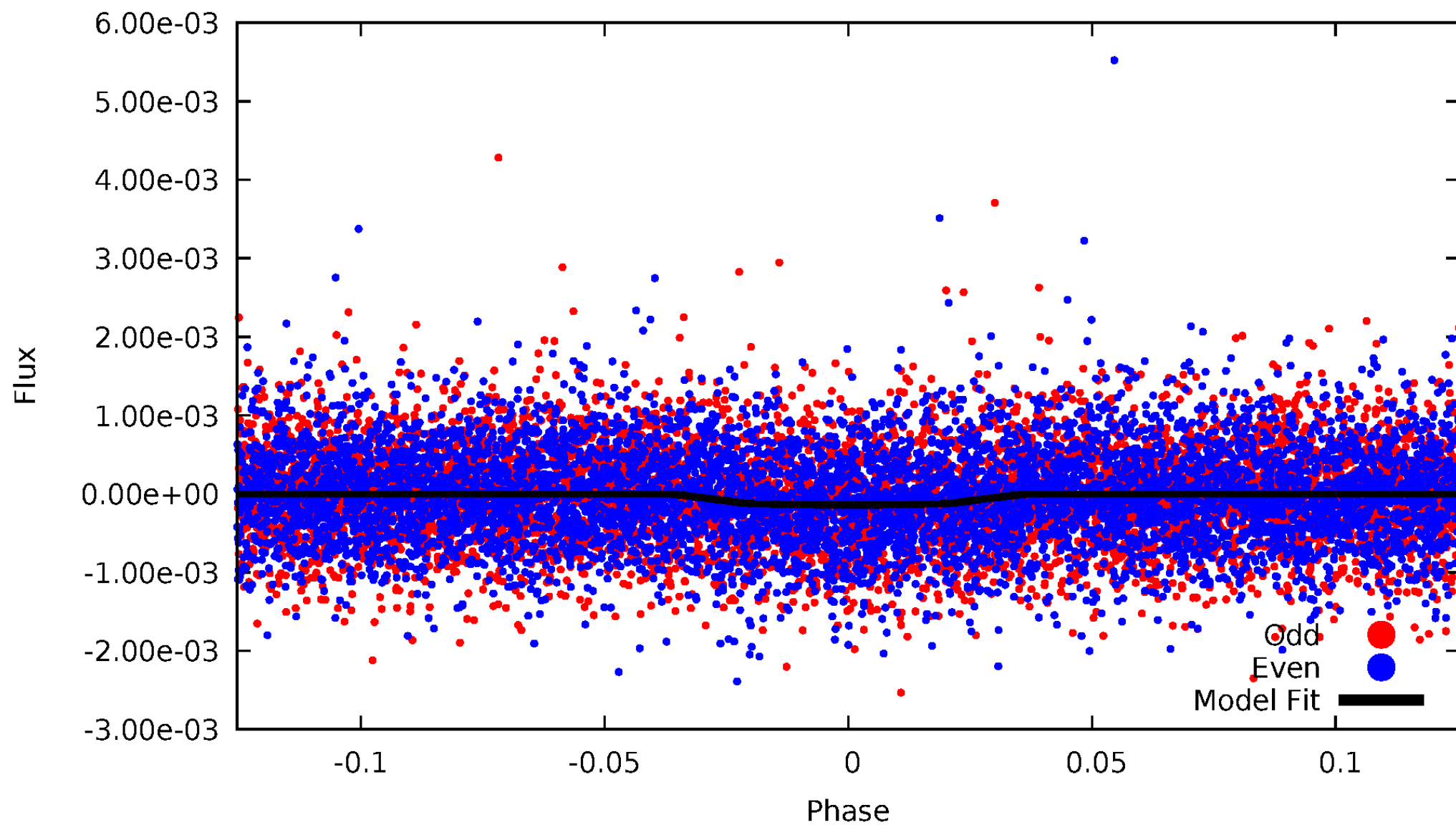
TCE 010815677-01





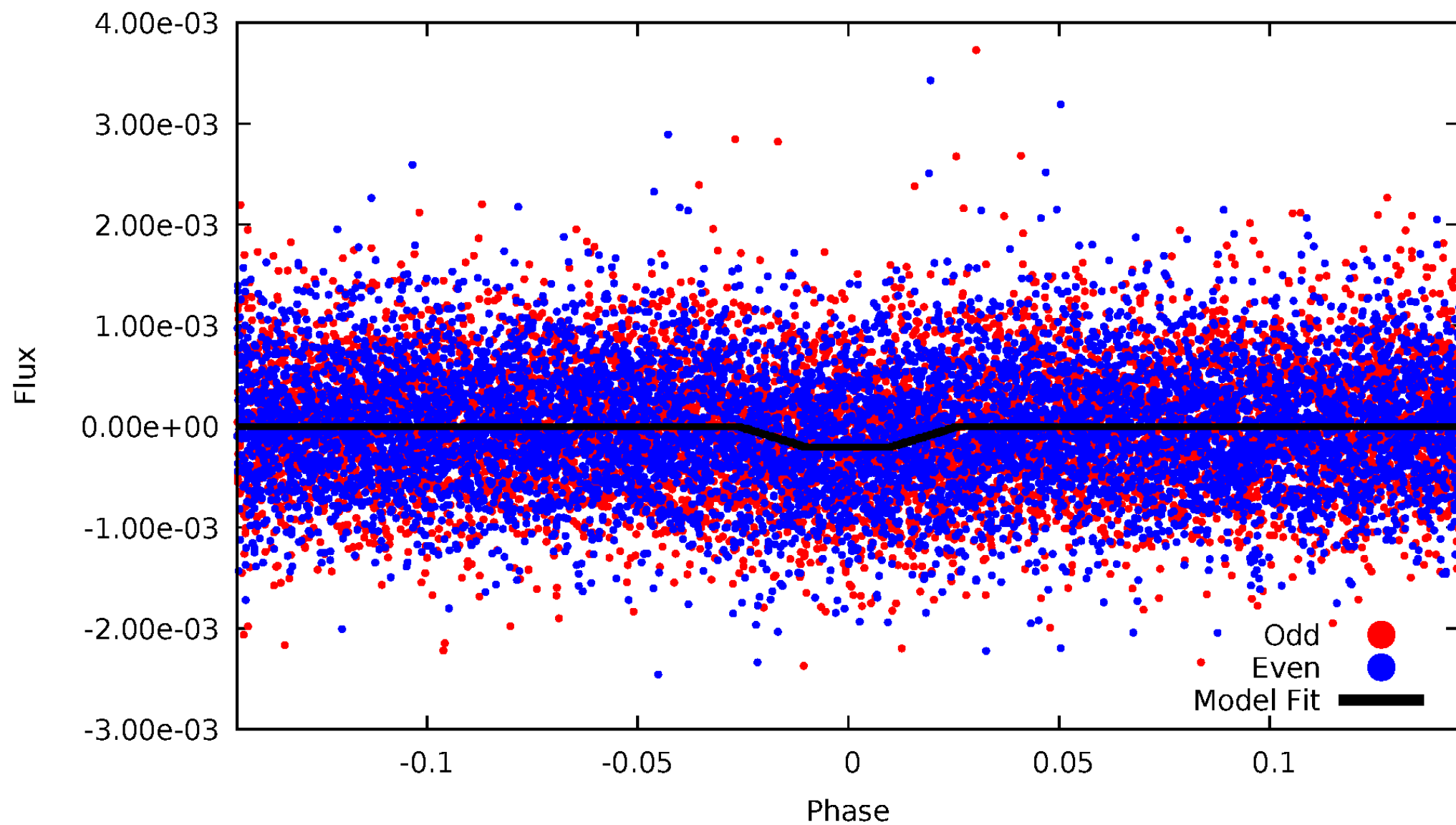
# DV Odd/Even

TCE 010815677-01



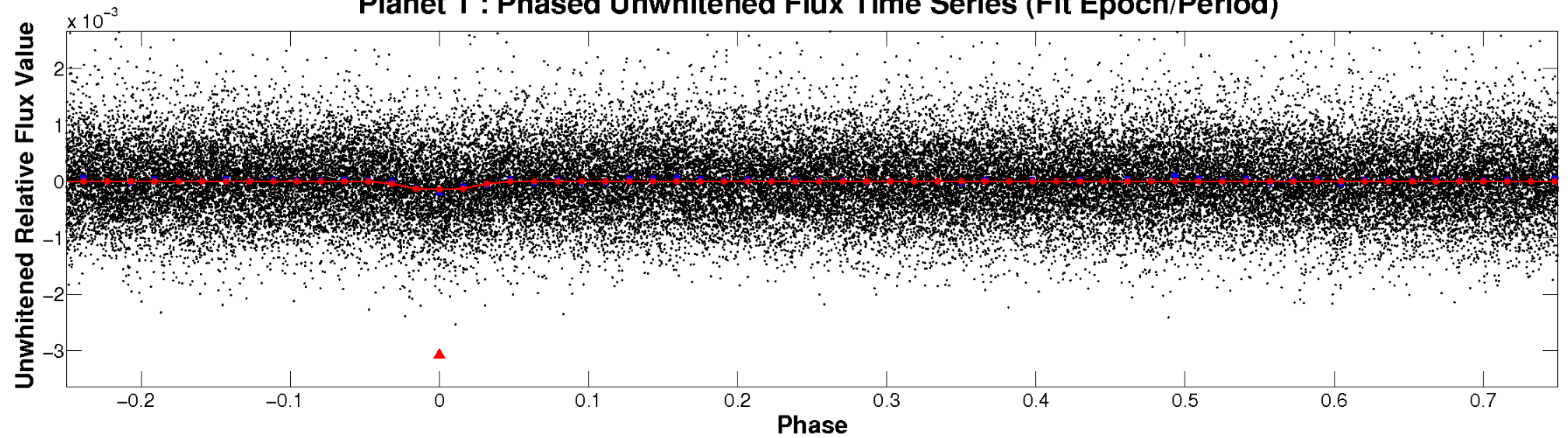
# ALT Odd/Even

TCE 010815677-01

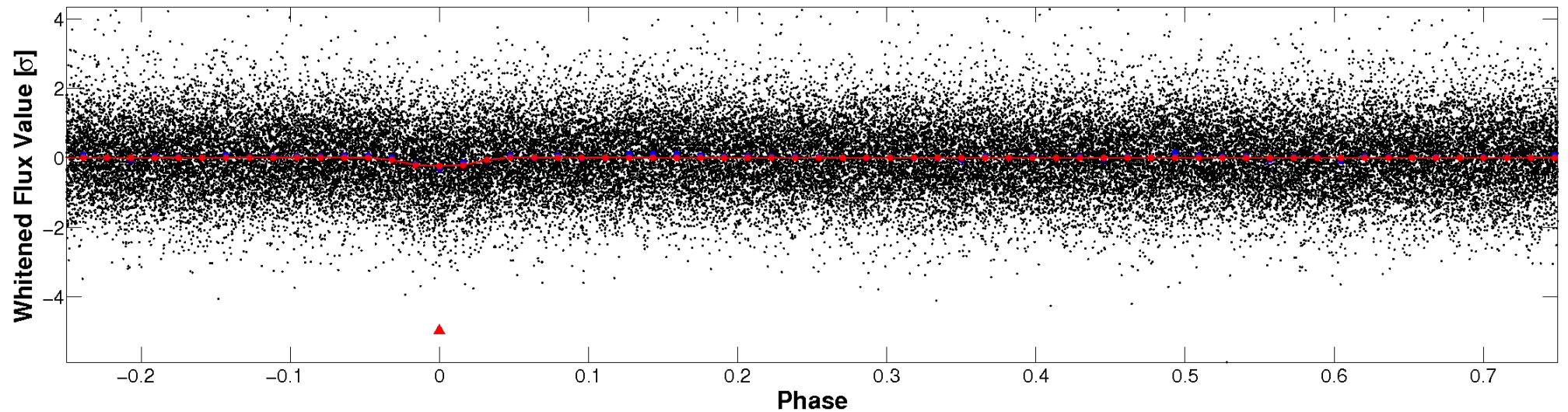


# Non-Whitened Vs. Whitened Light Curve

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

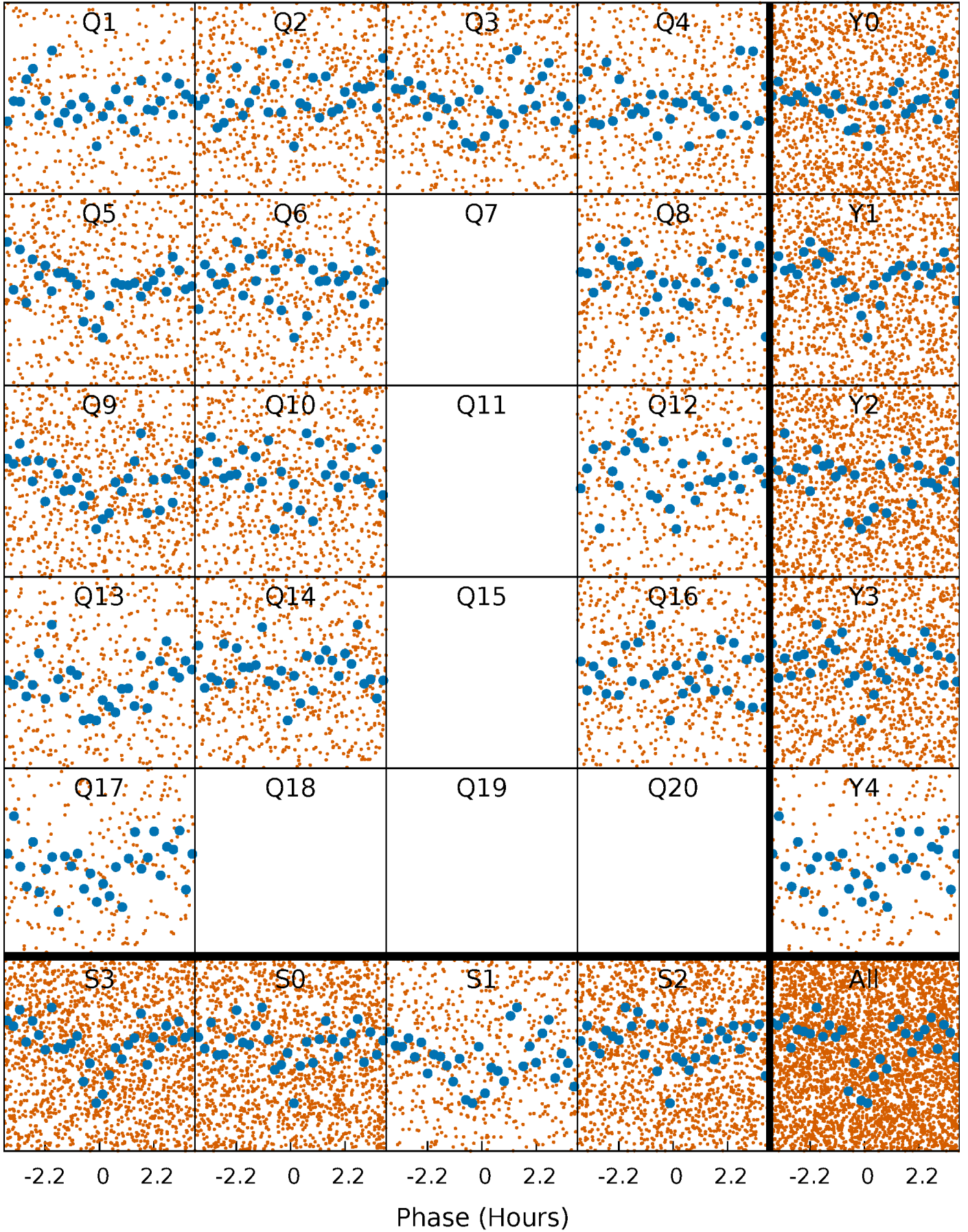


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

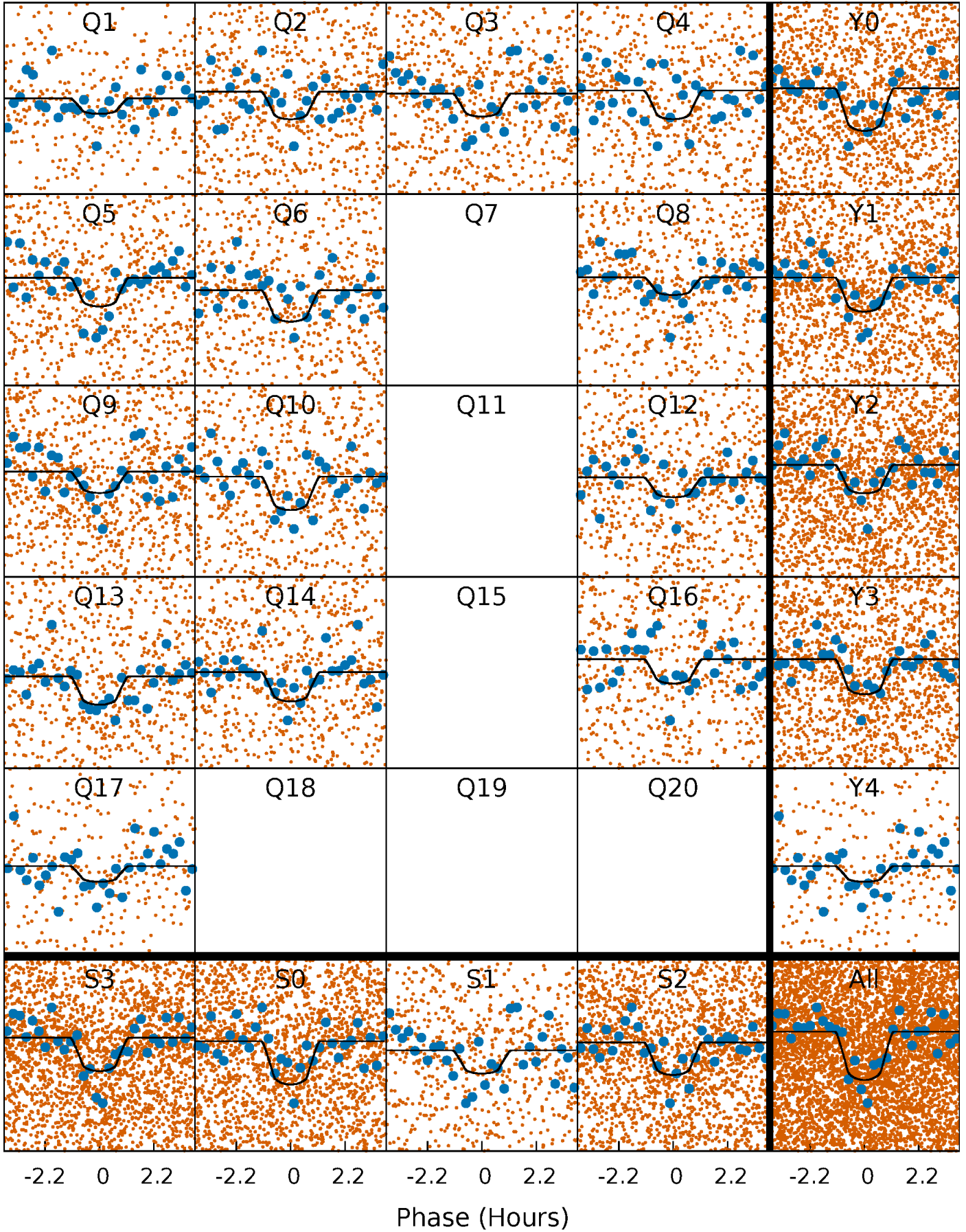
TCE 010815677-01 P= 1.284232 Days  $T_0=132.655886$  (BKJD)





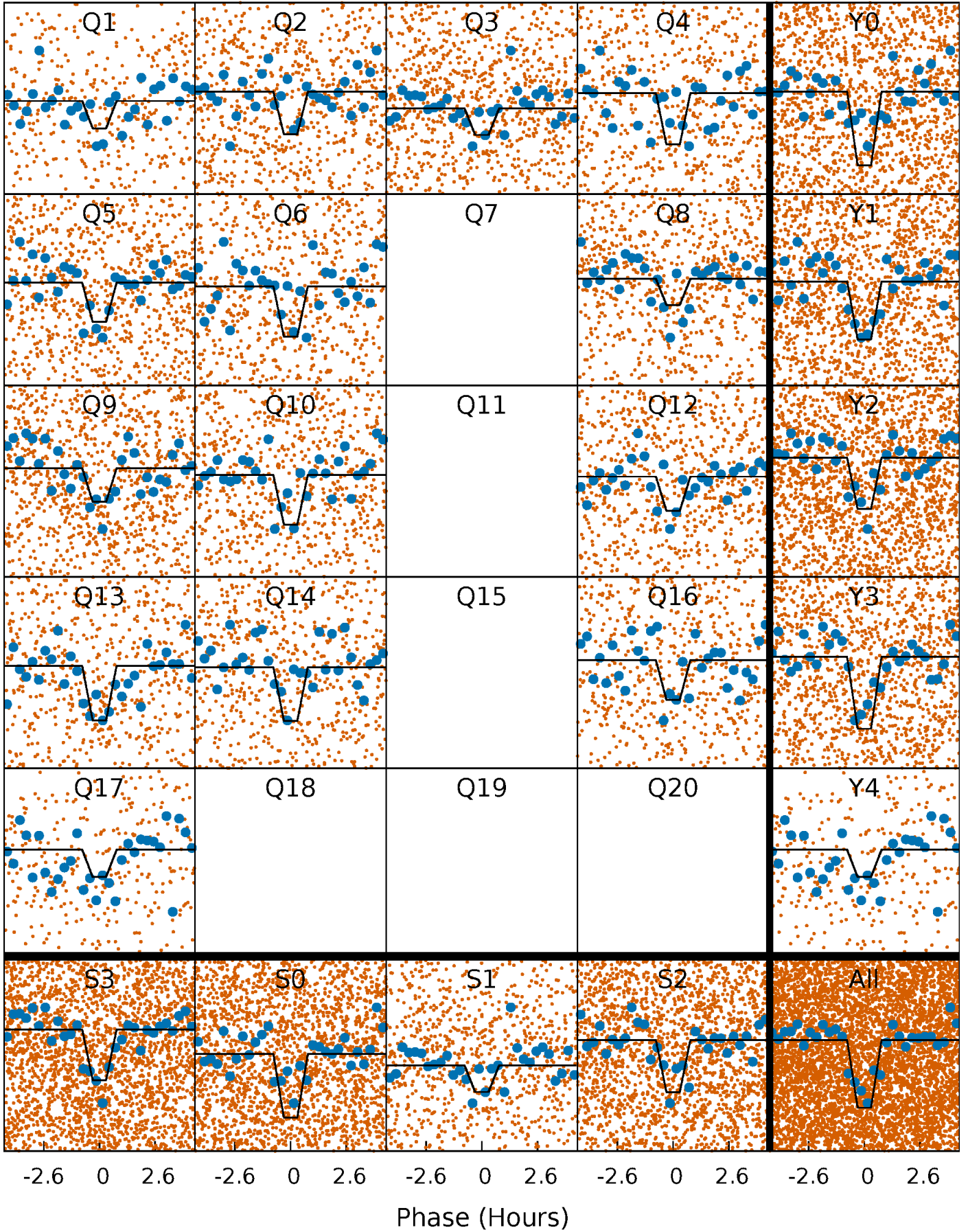
# DV Quarter-Phased Transit Curves

TCE 010815677-01 P= 1.284232 Days  $T_0=132.655886$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

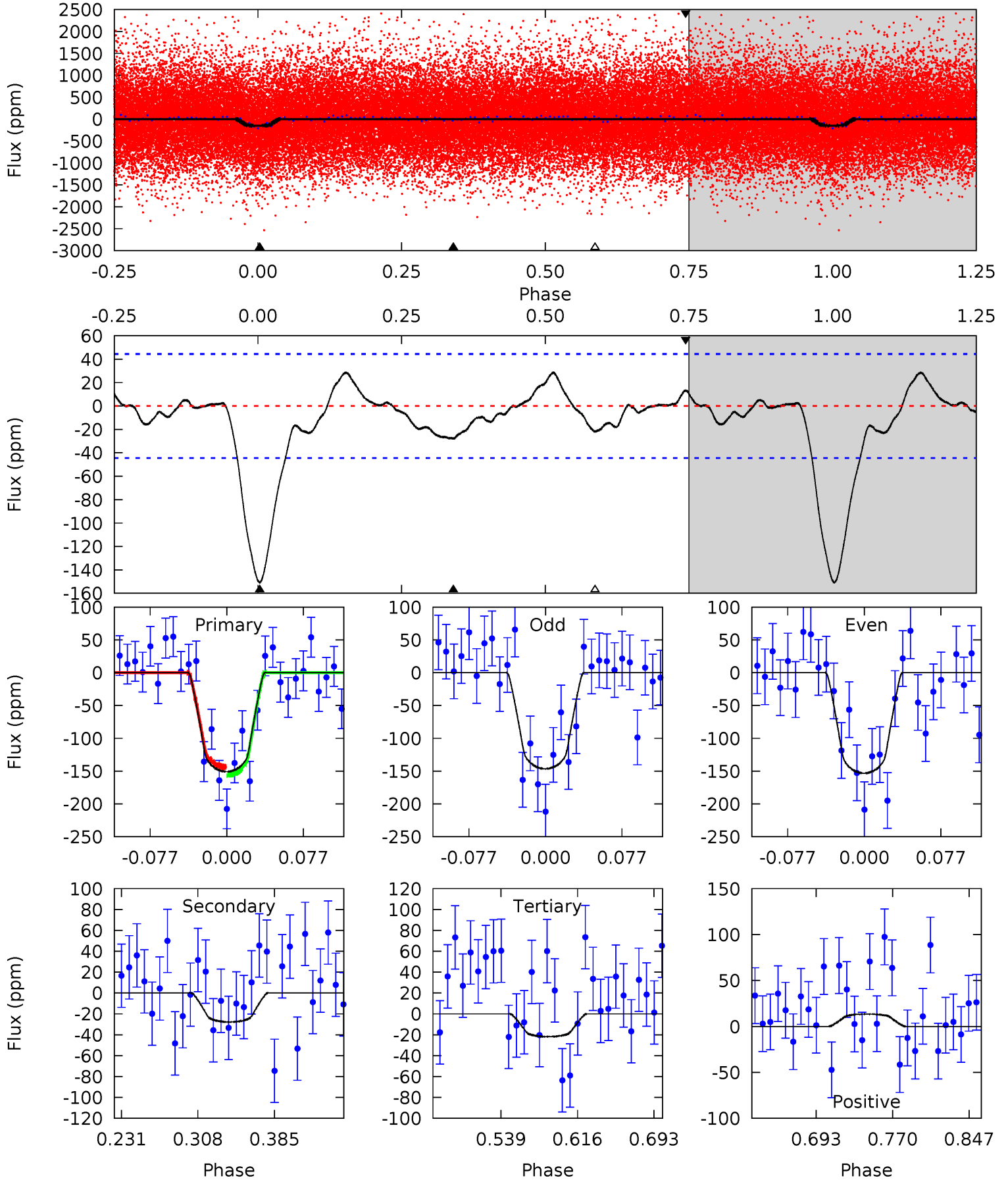
TCE 010815677-01 P= 1.284240 Days  $T_0=132.652355$  (BKJD)



# DV Model-Shift Uniqueness Test

010815677-01, P = 1.284232 Days, E = 131.371654 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
15.7	2.89	2.27	1.39	4.62	1.77	1.21	13.4	14.3	0.61	1.50	0.35	1.04	0.16	0.61

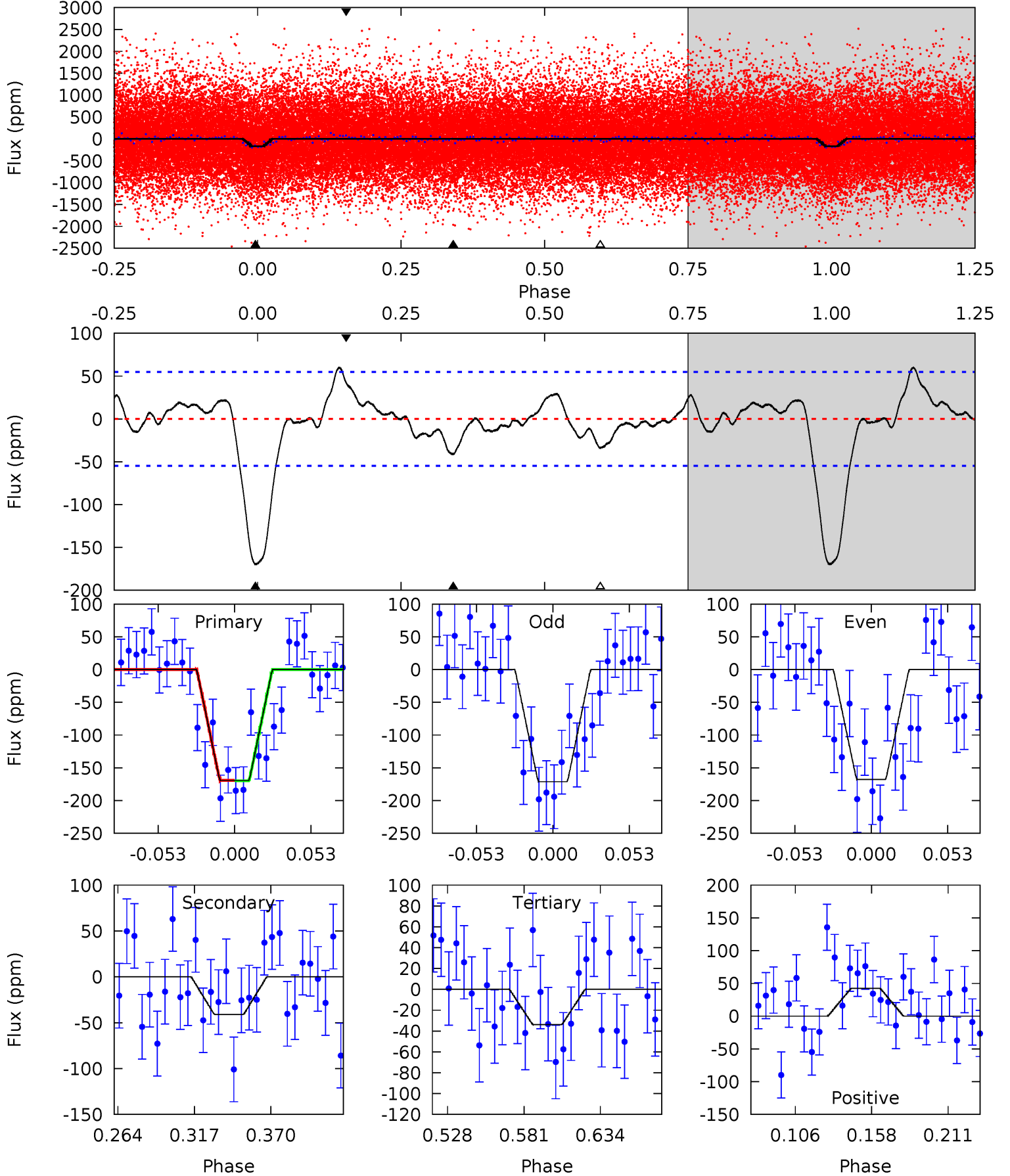




# Alt Model-Shift Uniqueness Test

010815677-01, P = 1.284240 Days, E = 131.368115 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
14.5	3.51	2.89	3.62	4.70	1.94	1.45	11.6	10.9	0.62	-0.11	0.15	0.94	0.26	0.03





### Stellar Parameters For KIC 010815677

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5849^{+157}_{-192}$	$4.517^{+0.046}_{-0.184}$	$-0.020^{+0.250}_{-0.300}$	$0.919^{+0.260}_{-0.087}$	$1.014^{+0.116}_{-0.127}$	$1.839^{+0.356}_{-0.938}$
	+3%/-3%	+1%/-4%	+1250%/-1500%	+28%/-9%	+11%/-13%	+19%/-51%
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 010815677-01 / KOI 7376.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-28 \pm 10$	$1.51^{+1.01}_{-0.85}$	$2303^{+154}_{-101}$	$3787^{+1498}_{-703}$	$3.175^{+15.330}_{-2.085}$
Alt.	$-41 \pm 12$	$1.59^{+0.96}_{-0.93}$	$2306^{+153}_{-114}$	$4016^{+1934}_{-711}$	$4.685^{+24.406}_{-3.073}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

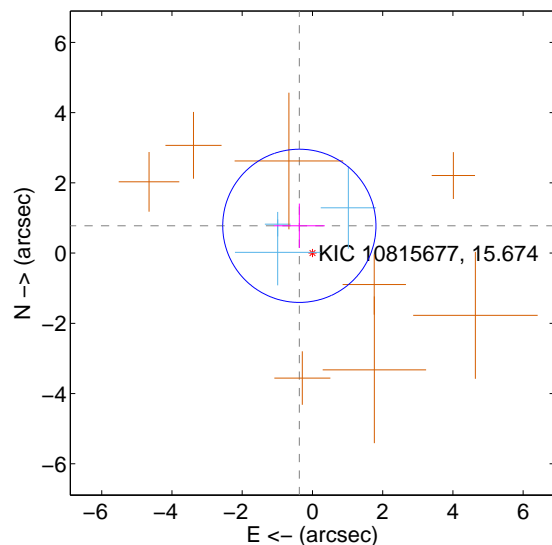
Supplemental centroid analysis for 010815677-01. Kepler magnitude: 15.67. Transit SNR 10.83

There are 3 quarters with good PRF difference image offsets

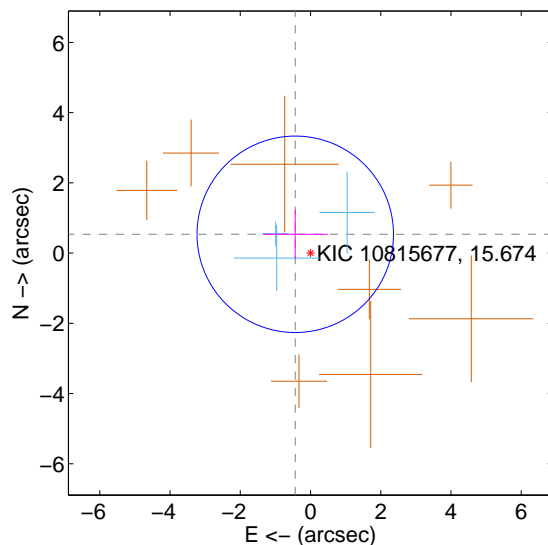
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.862 \pm 0.727$	1.19	$0.373 \pm 0.725$	$0.777 \pm 0.633$
PRF-fit source offset from KIC position	$0.690 \pm 0.932$	0.74	$0.435 \pm 0.931$	$0.536 \pm 0.692$
photometric centroid source offset	$1.55 \pm 1.40$	1.11	$1.26 \pm 1.36$	$-0.89 \pm 1.47$

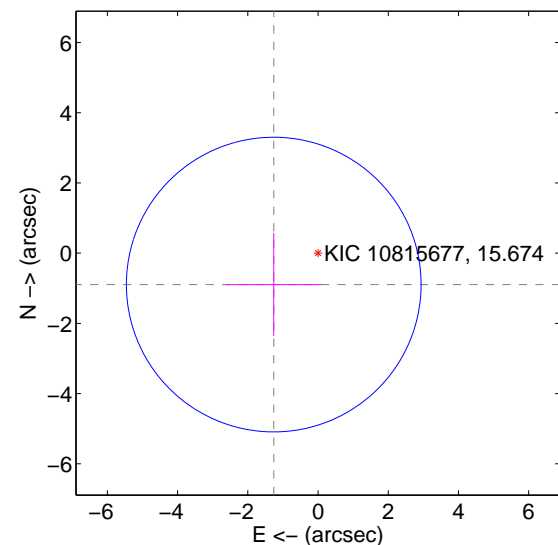
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

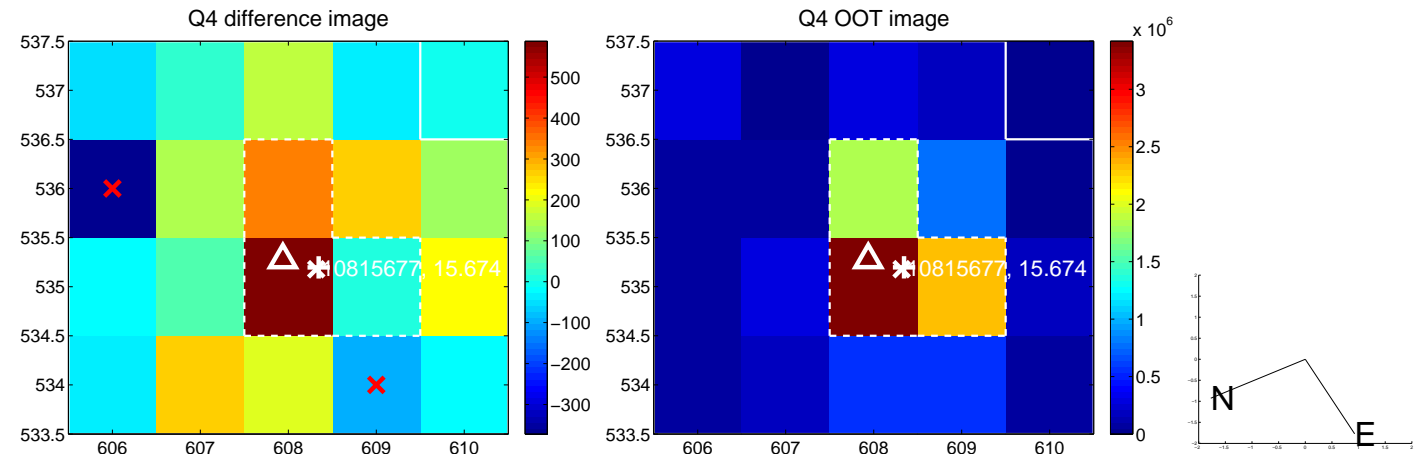
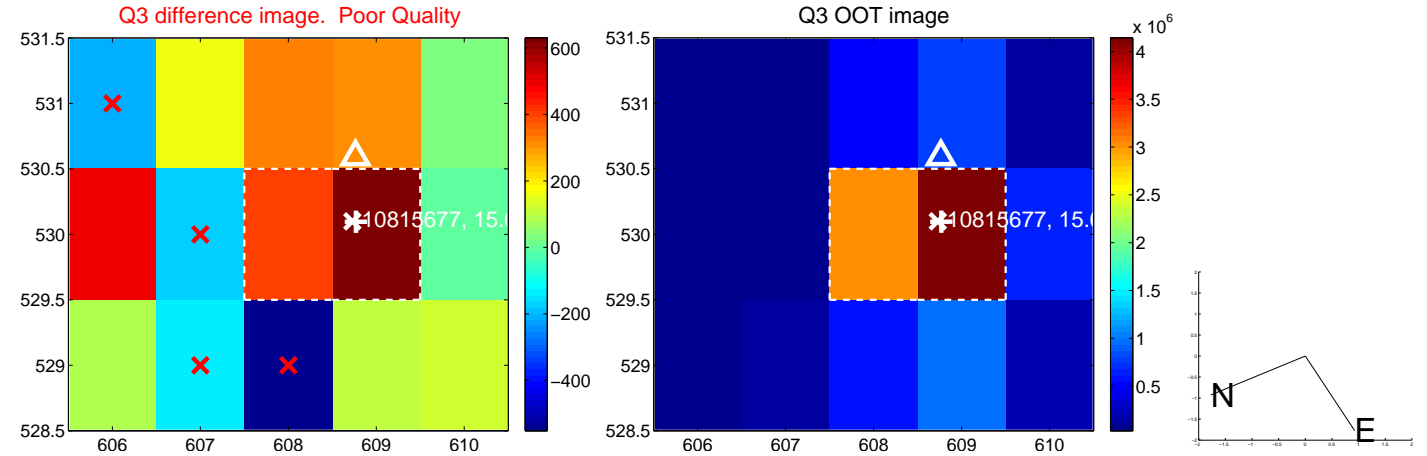
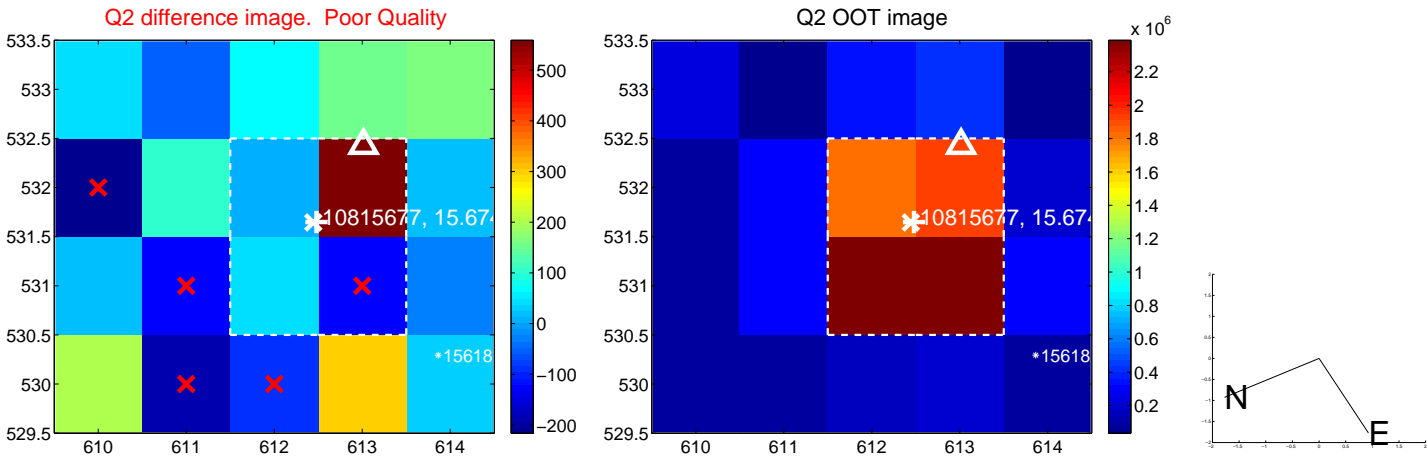
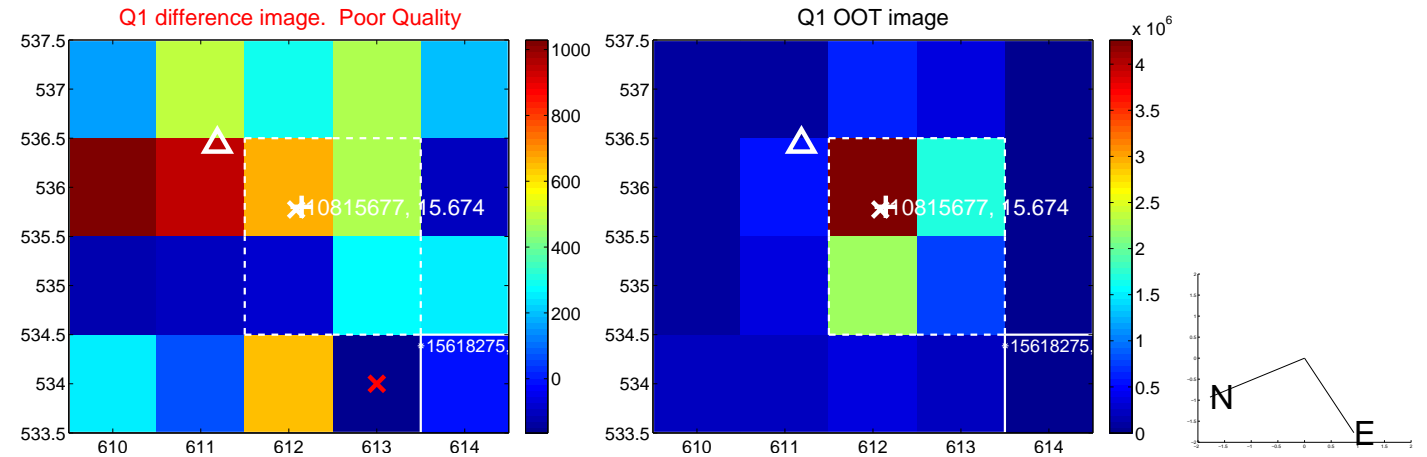


offset from photometric centroids

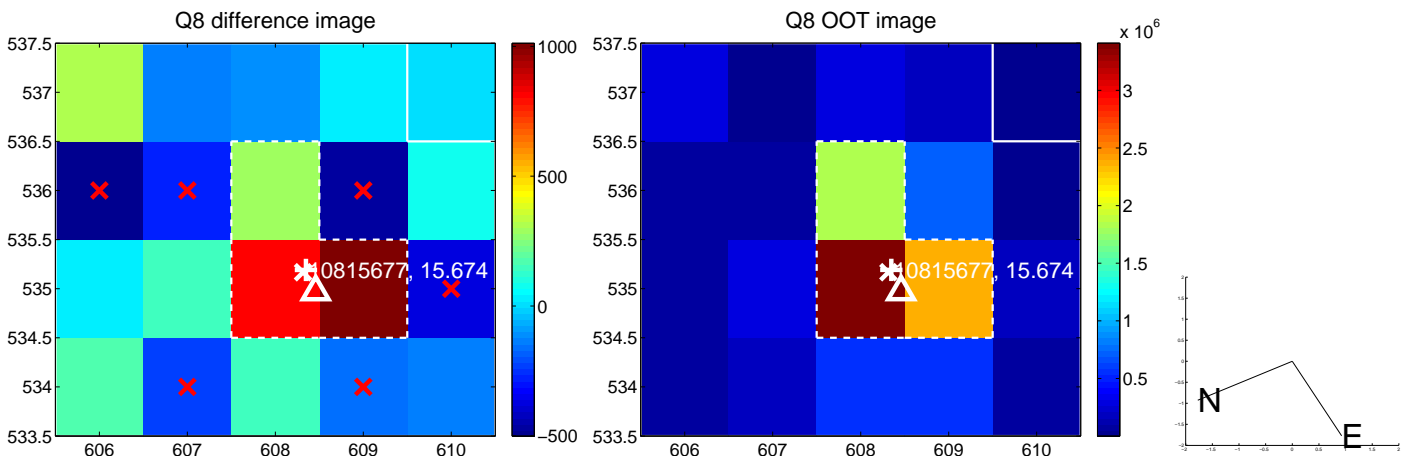
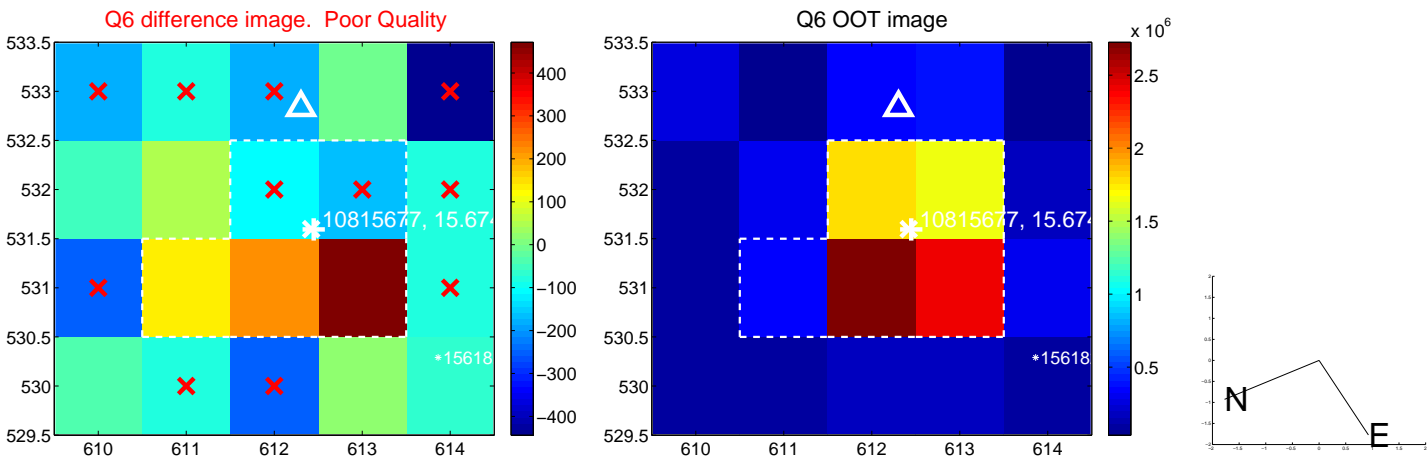
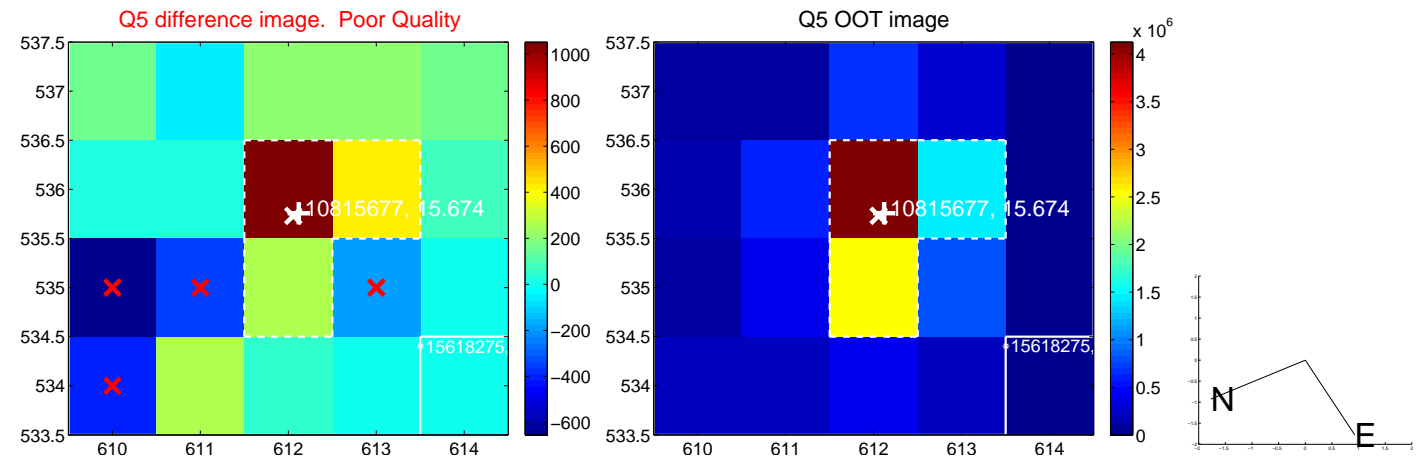


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

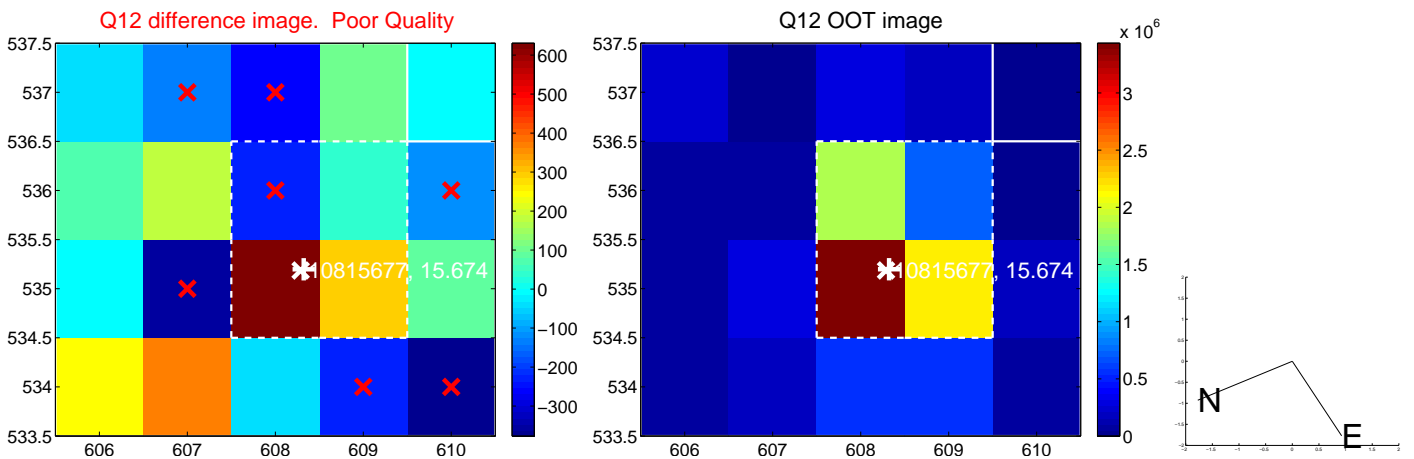
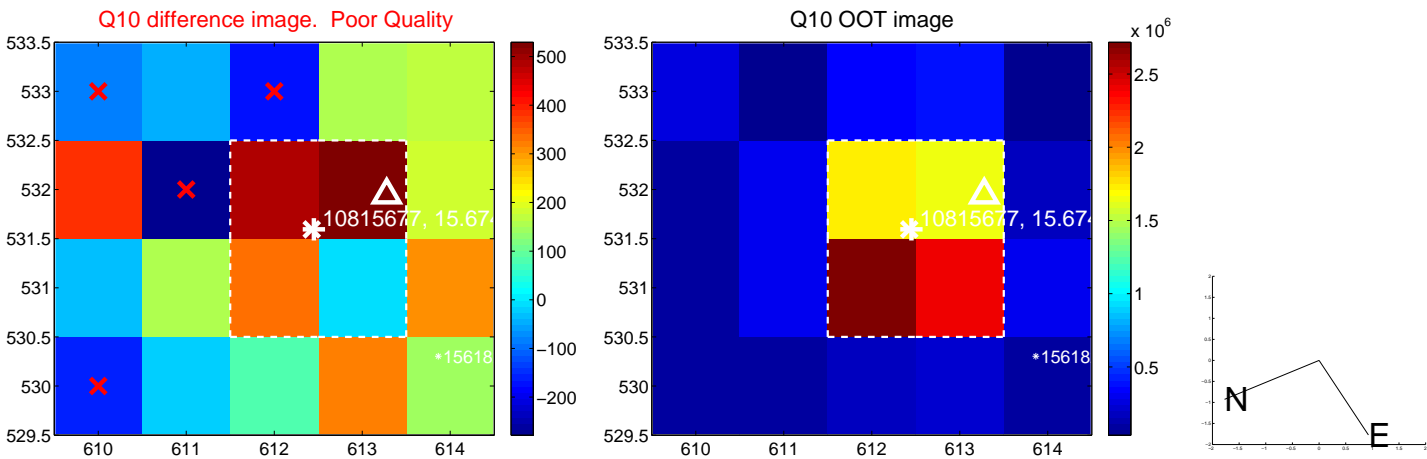
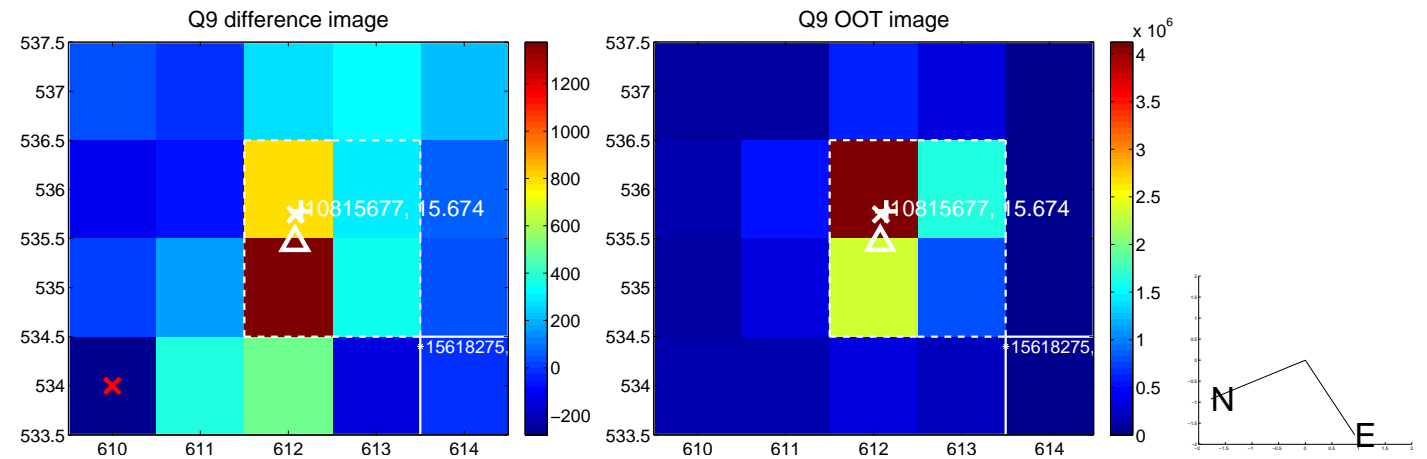


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

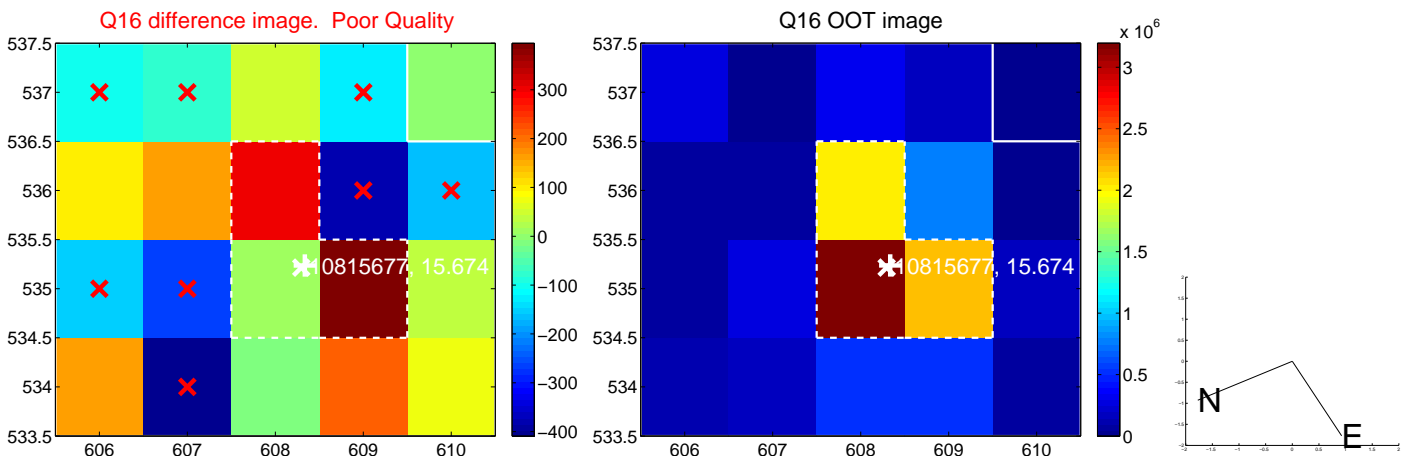
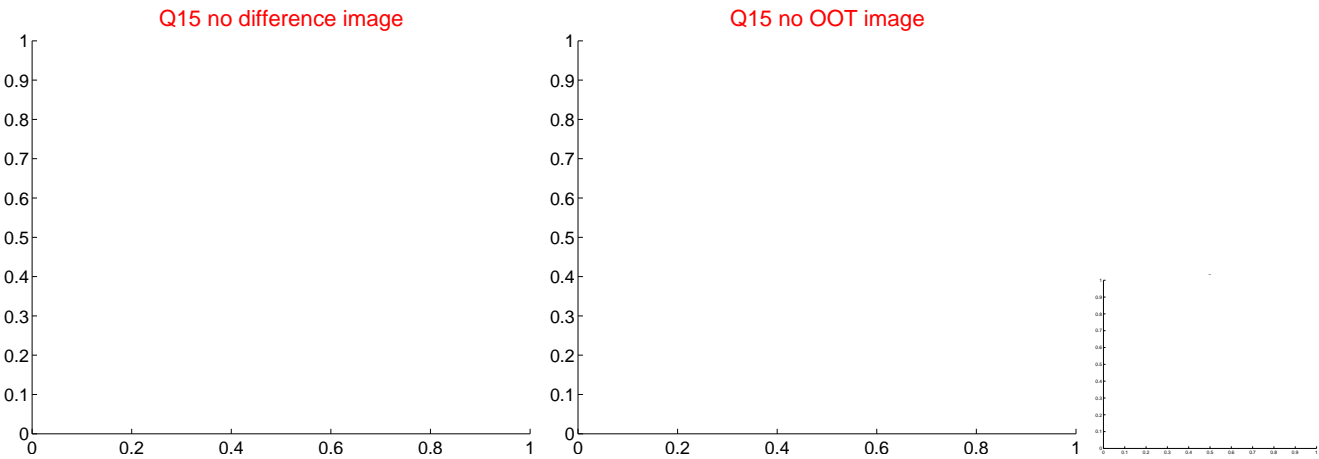
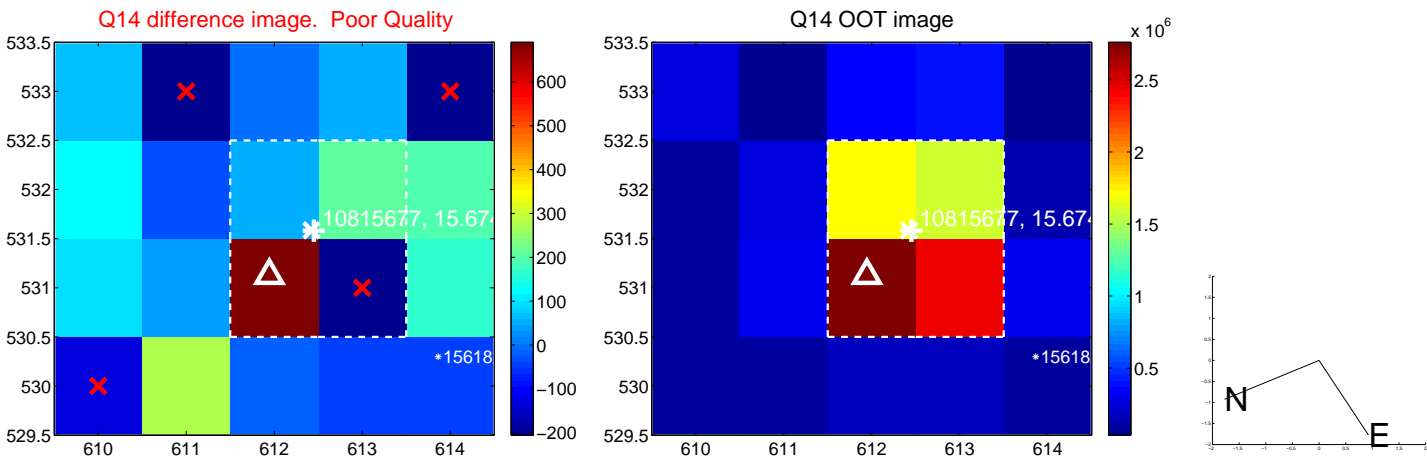
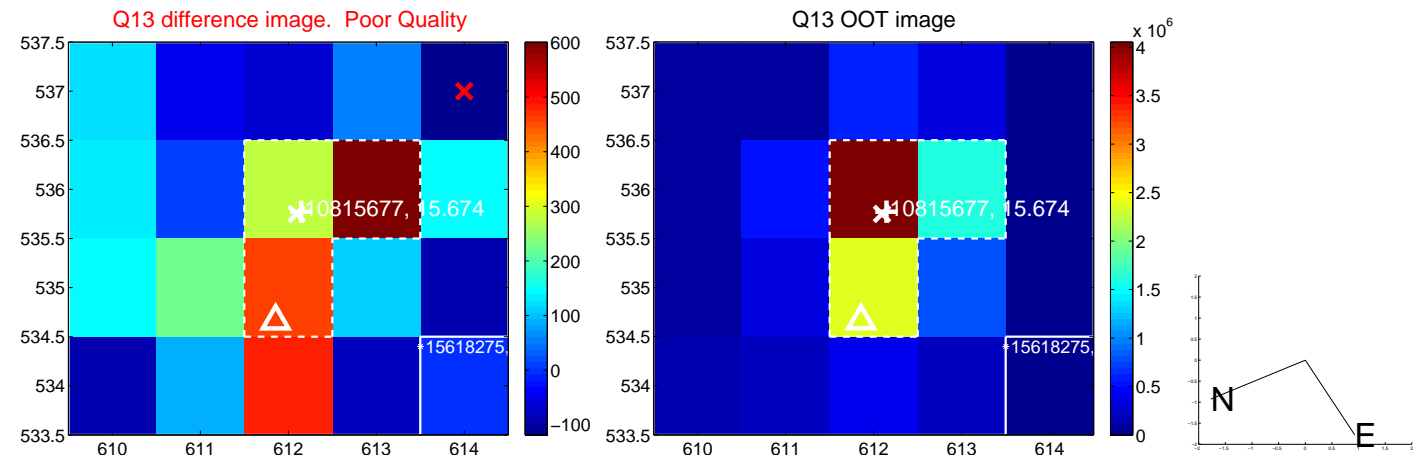




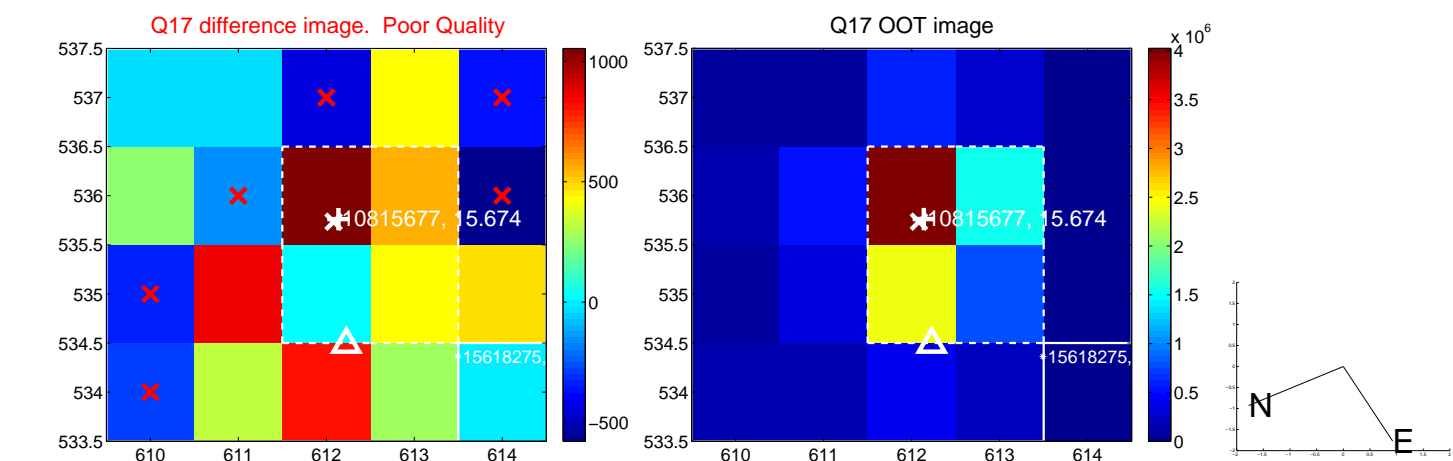
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



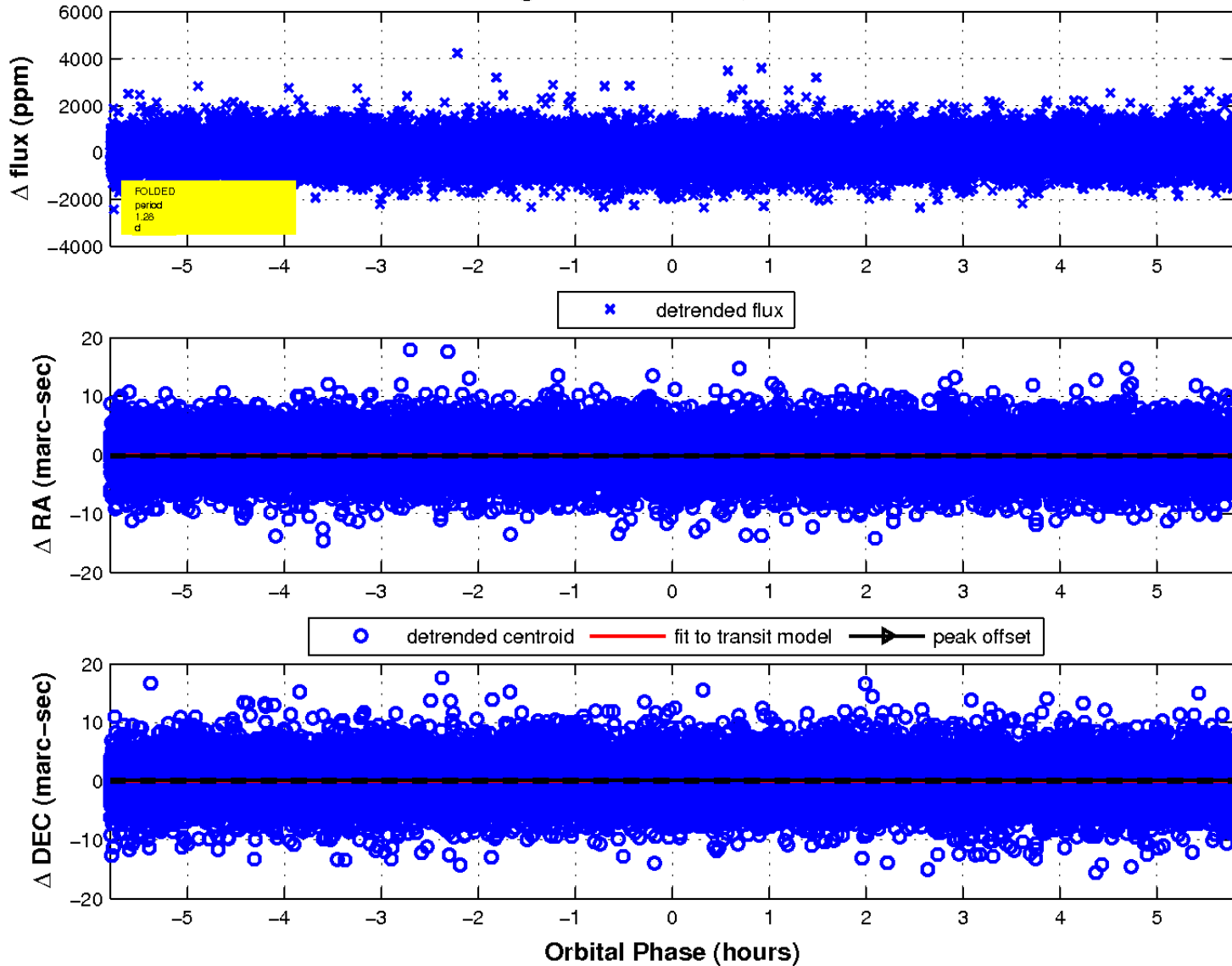
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

