

# KIC 007888863

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007888863-01	OBS	5440.01	74.625077	194.358960	345.5	9.189	9.4	9.4	0.94	6187	1.94	9.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007888863-01	OBS	PC	0.72	0	0	0	0	CENT_FEW_MEAS

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

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

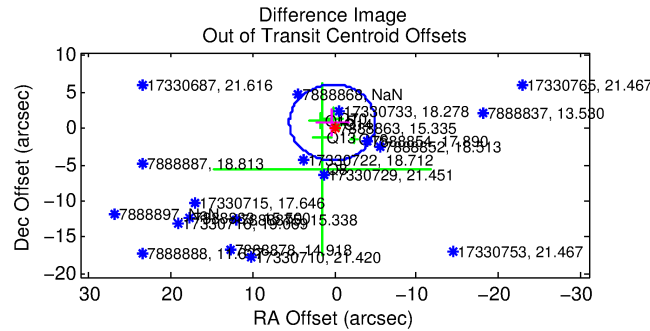
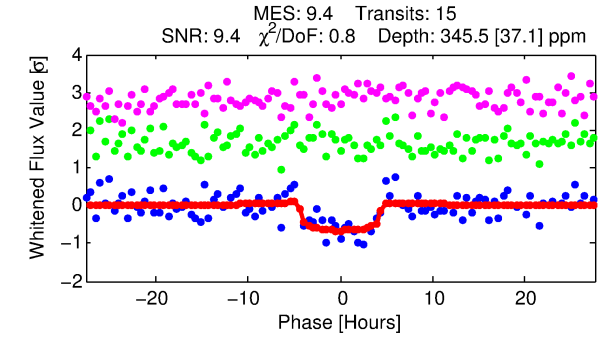
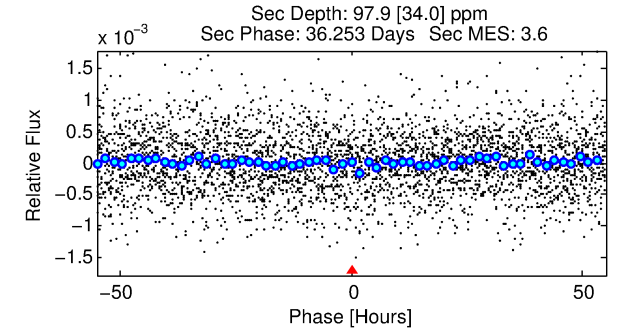
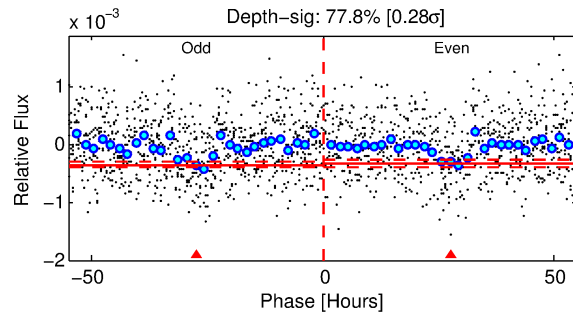
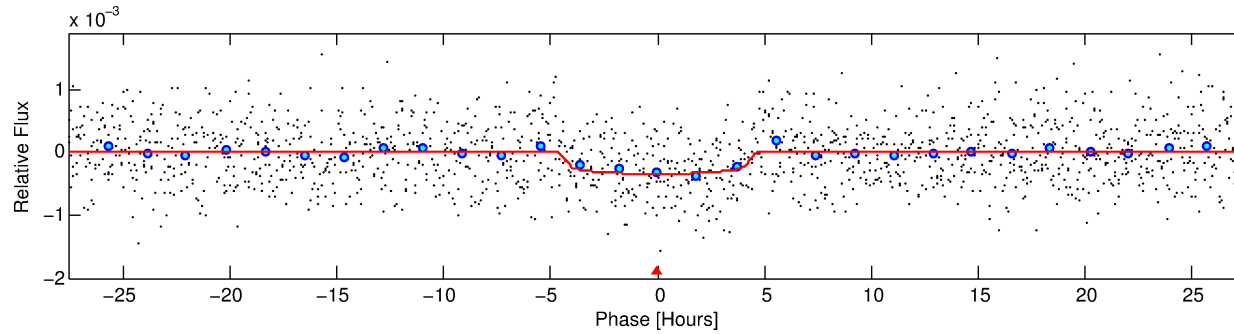
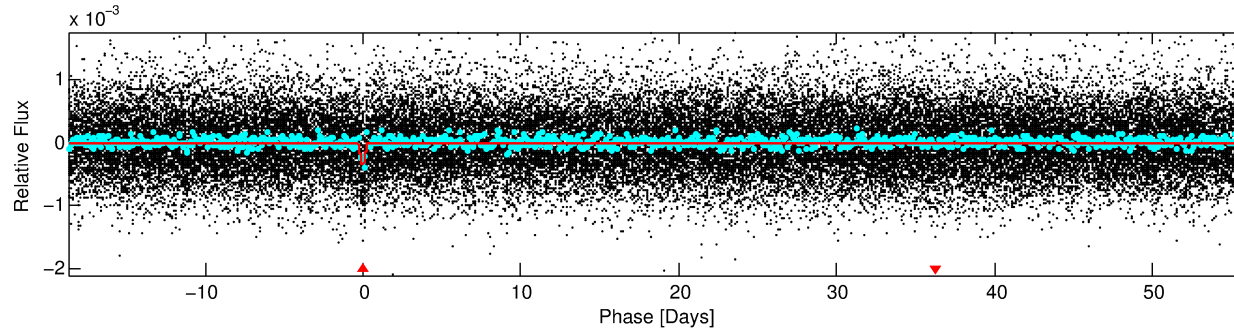
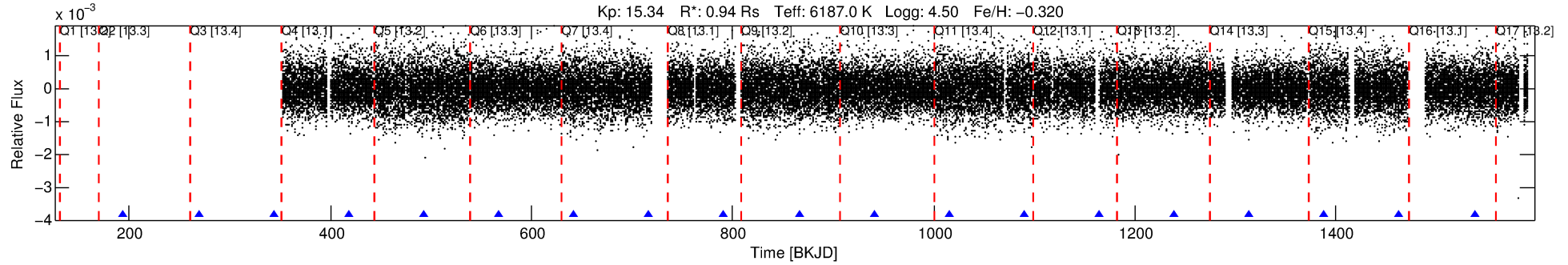
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007888863-01

No Significant Match Found

# DV One-Page Summary

KIC: 7888863 Candidate: 1 of 1 Period: 74.625 d  
KOI: K05440.01 Corr: 0.981



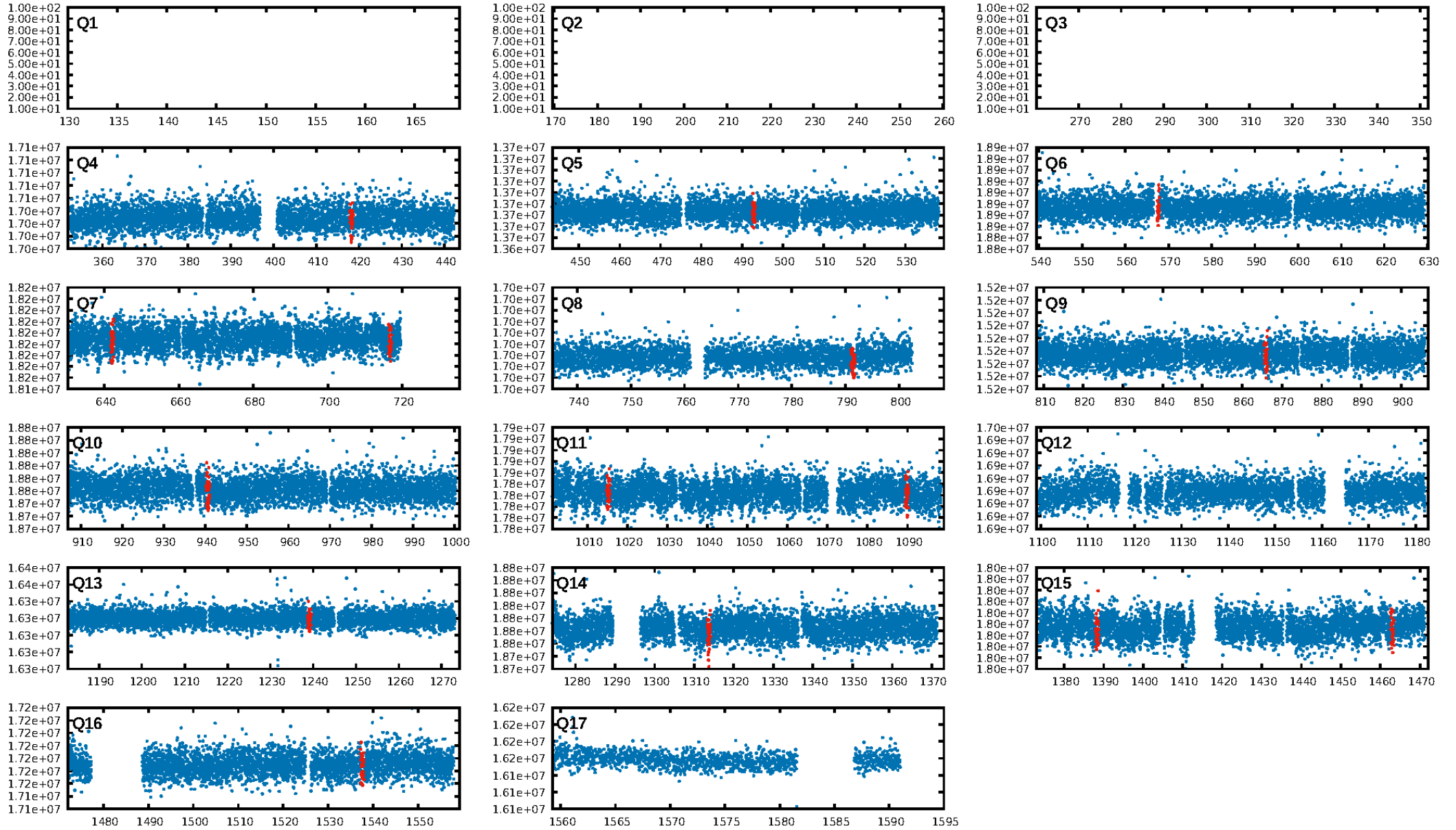
## DV Fit Results:

Period = 74.62508 [0.00173] d  
Epoch = 194.3590 [0.0204] BKJD  
Rp/R\* = 0.0189 [0.0059]  
a/R\* = 38.01 [61.52]  
b = 0.81 [0.68]  
Seff = 9.51 [3.91]  
Teq = 448 [46] K  
Rp = 1.94 [0.85] Re  
a = 0.3482 [0.0910] AU  
Ag = 1739.48 [1409.61] [1.23 $\sigma$ ]  
Teffp = 4471 [818] K [4.91 $\sigma$ ]

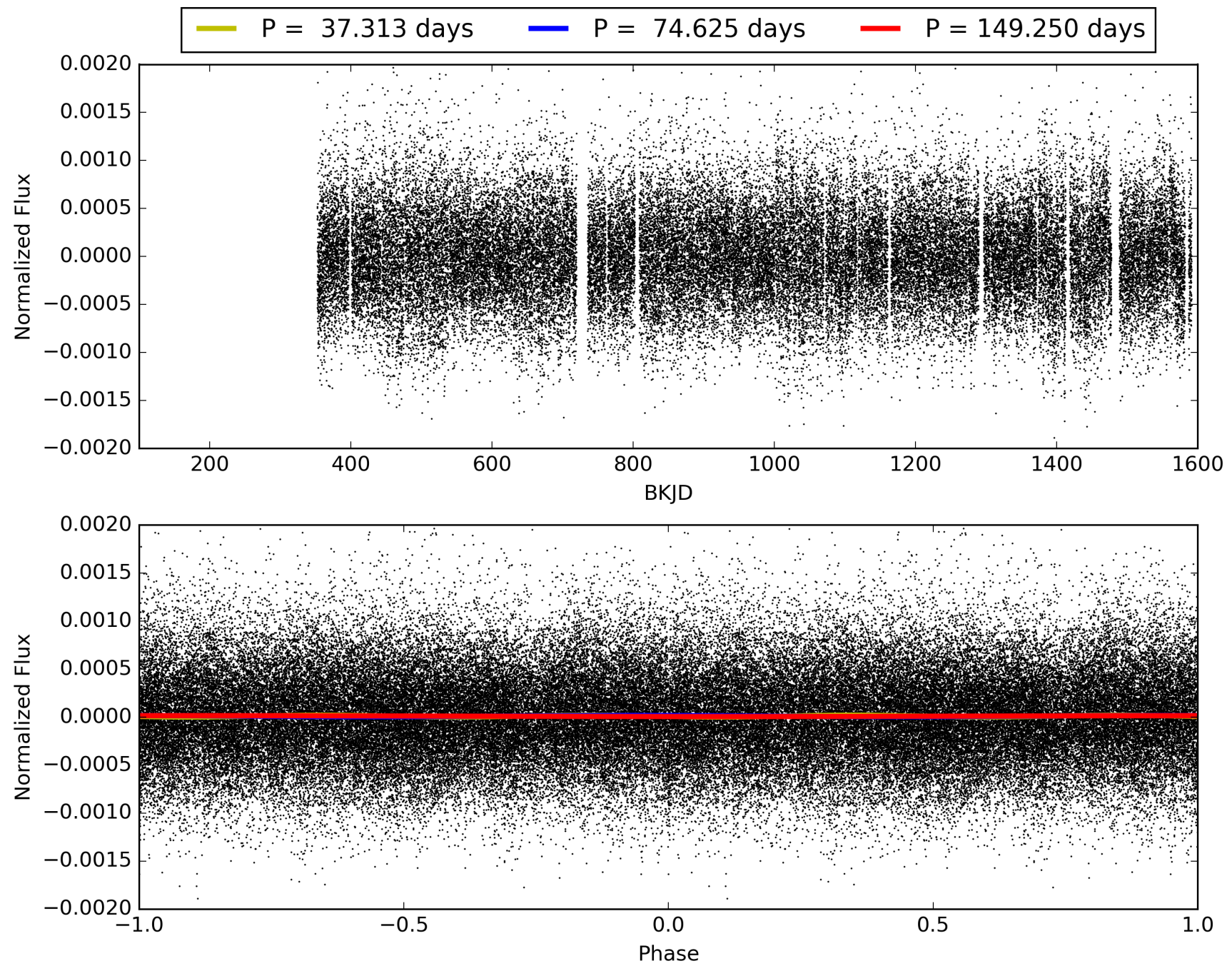
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.17e-21  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: 2.003  
Centroid-sig: 0.1%  
Centroid-so: 2.662 arcsec [1.91 $\sigma$ ]  
OotOffset-rm: 0.863 arcsec [0.49 $\sigma$ ]  
KicOffset-rm: 1.060 arcsec [0.60 $\sigma$ ]  
OotOffset-st: 2/2/2/1 [7]  
KicOffset-st: 2/2/2/1 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 1.00 [11/11]

# TCE 007888863-01, PDC Light Curves

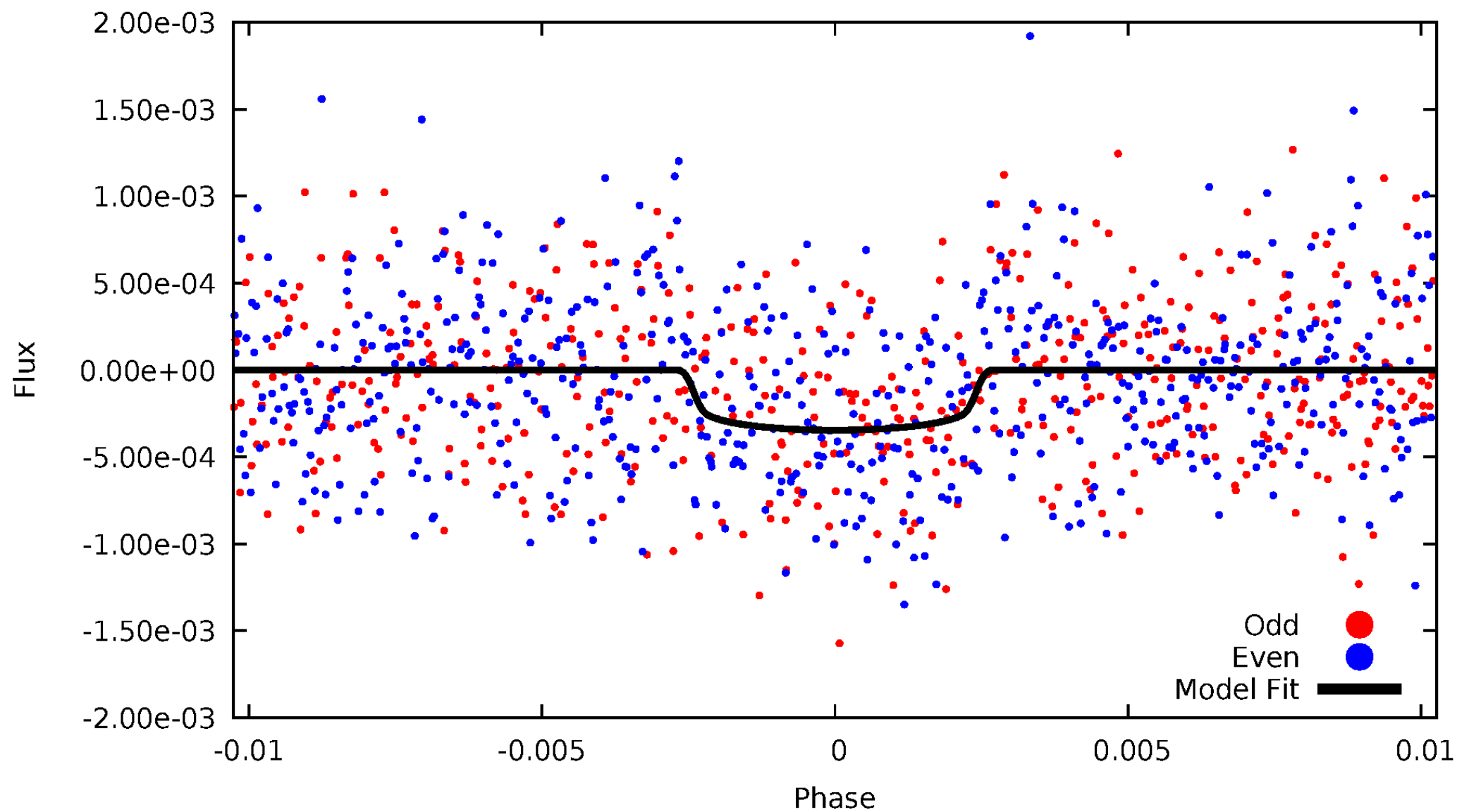


TCE 007888863-01



# DV Odd/Even

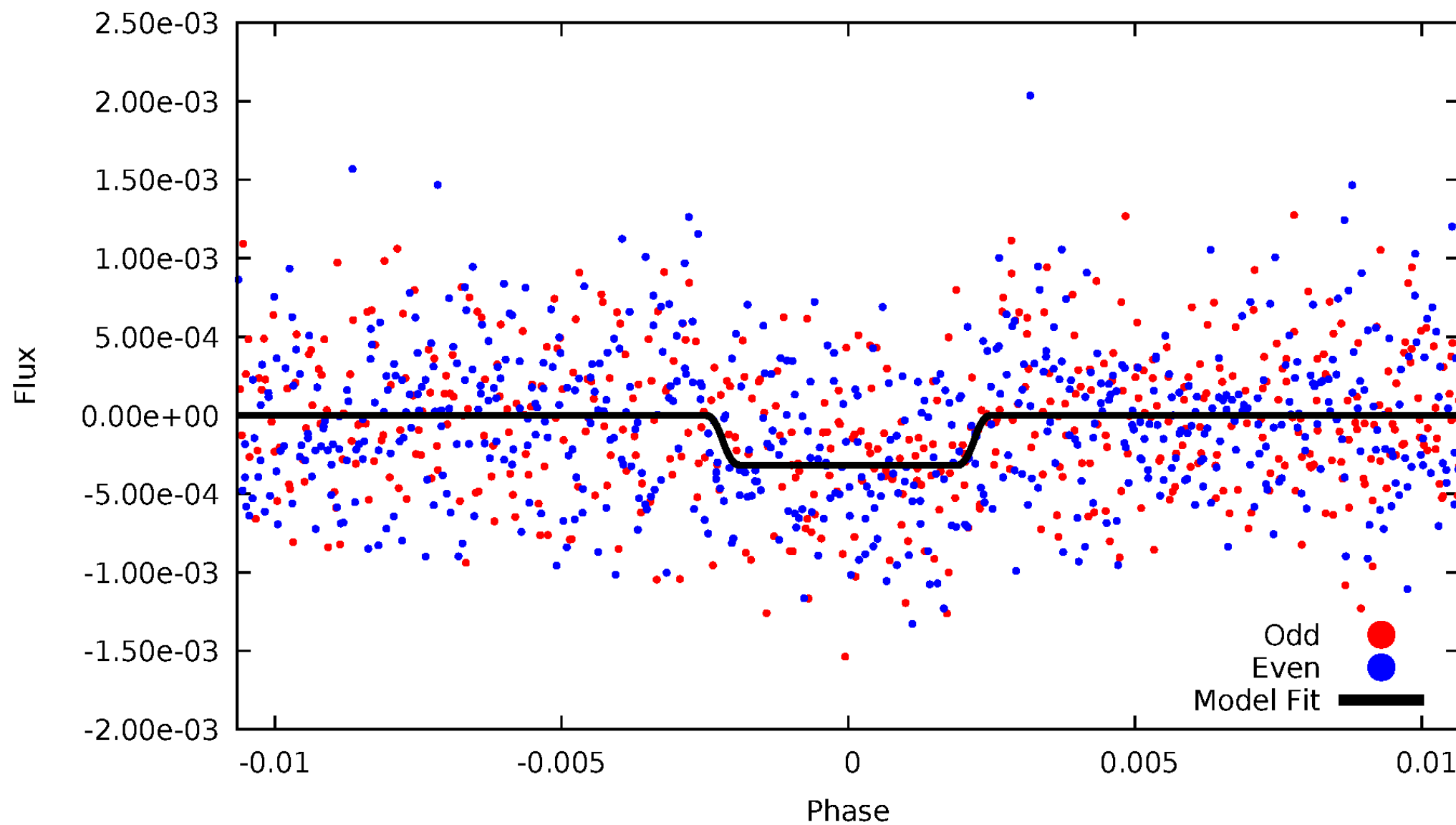
TCE 007888863-01





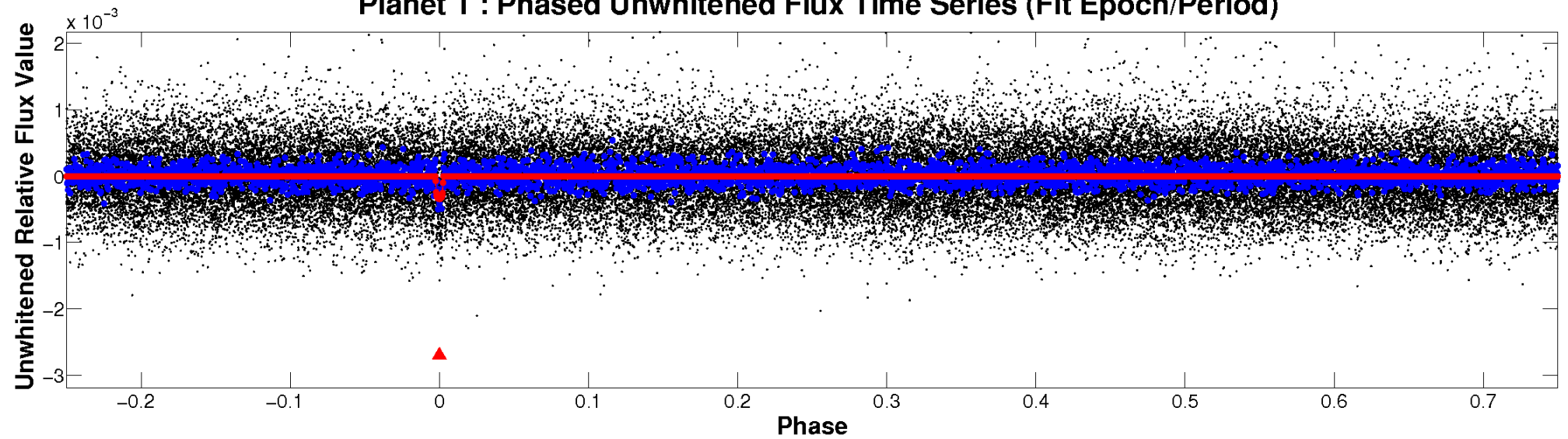
# ALT Odd/Even

TCE 007888863-01

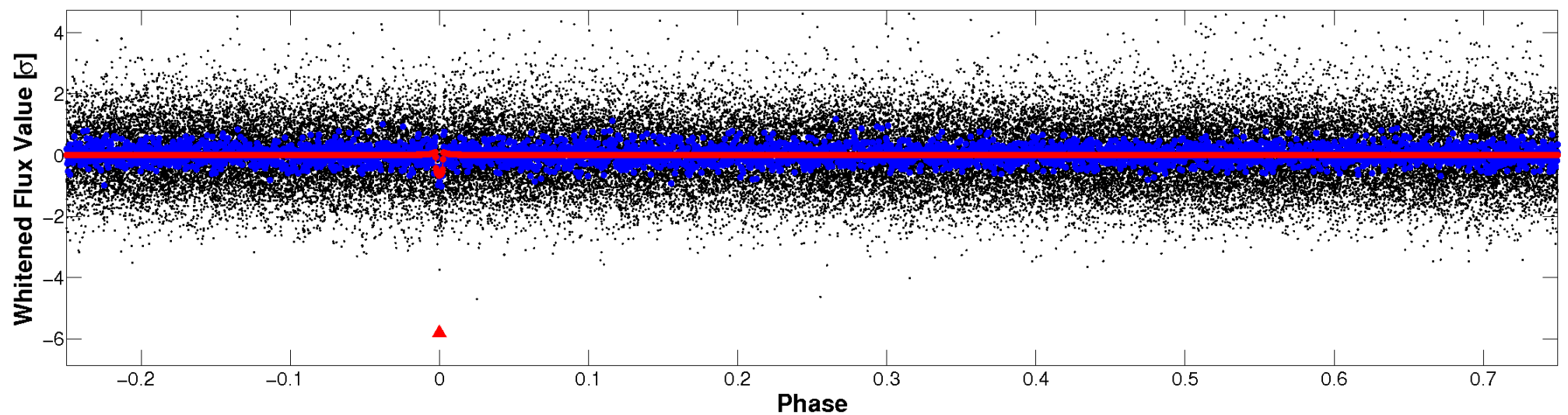


# Non-Whitened Vs. Whitened Light Curve

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

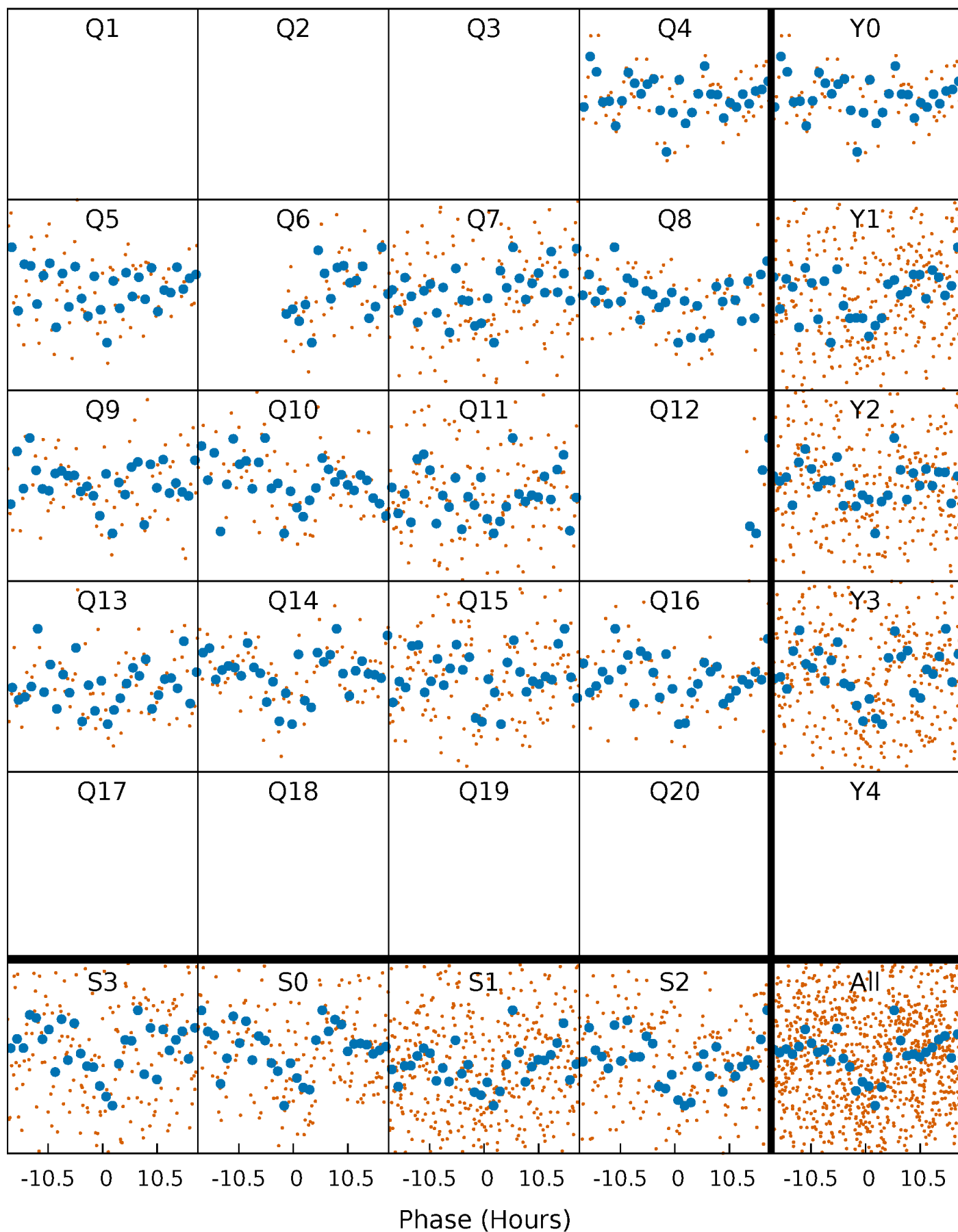


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

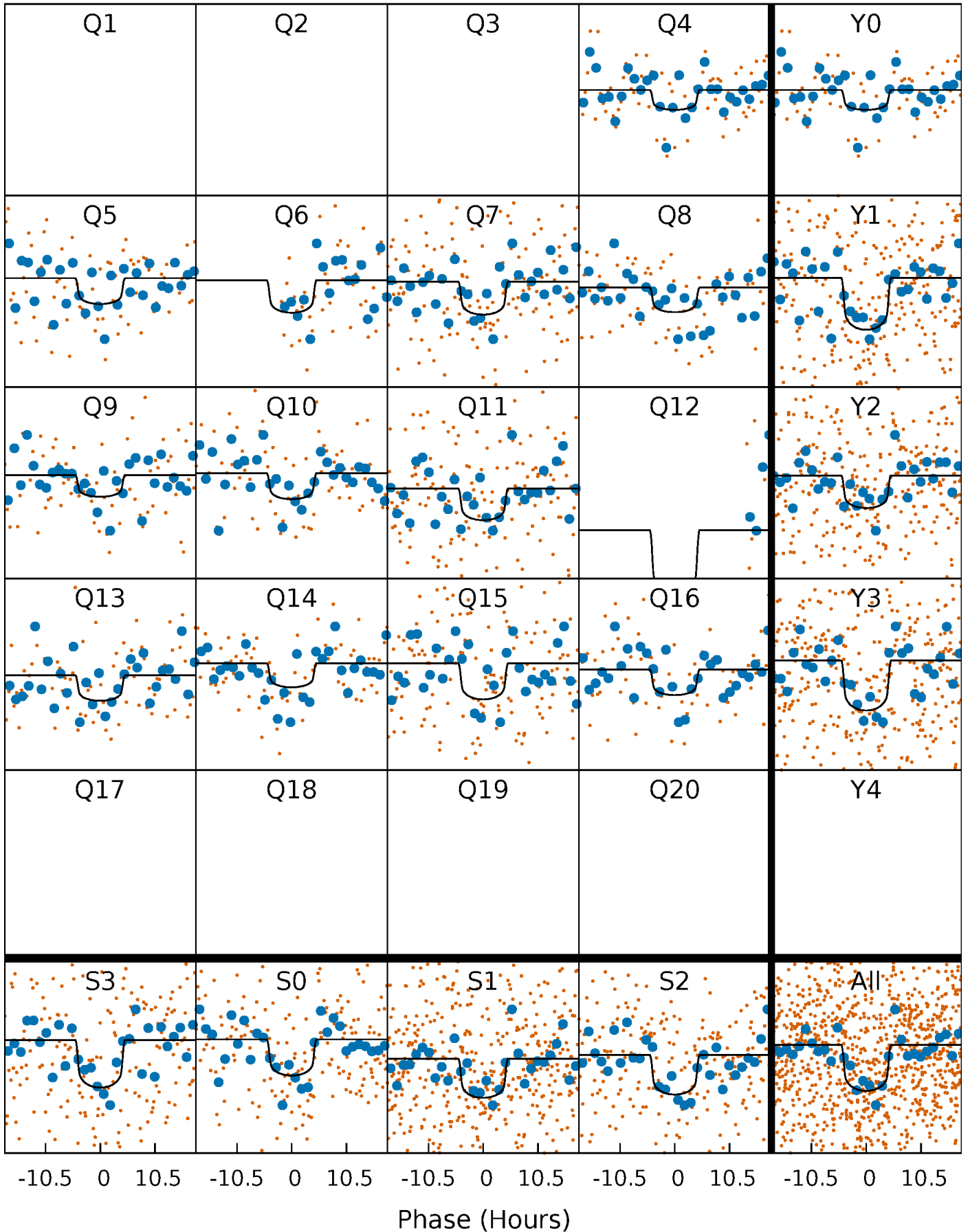
TCE 007888863-01 P= 74.625077 Days  $T_0=194.358960$  (BKJD)





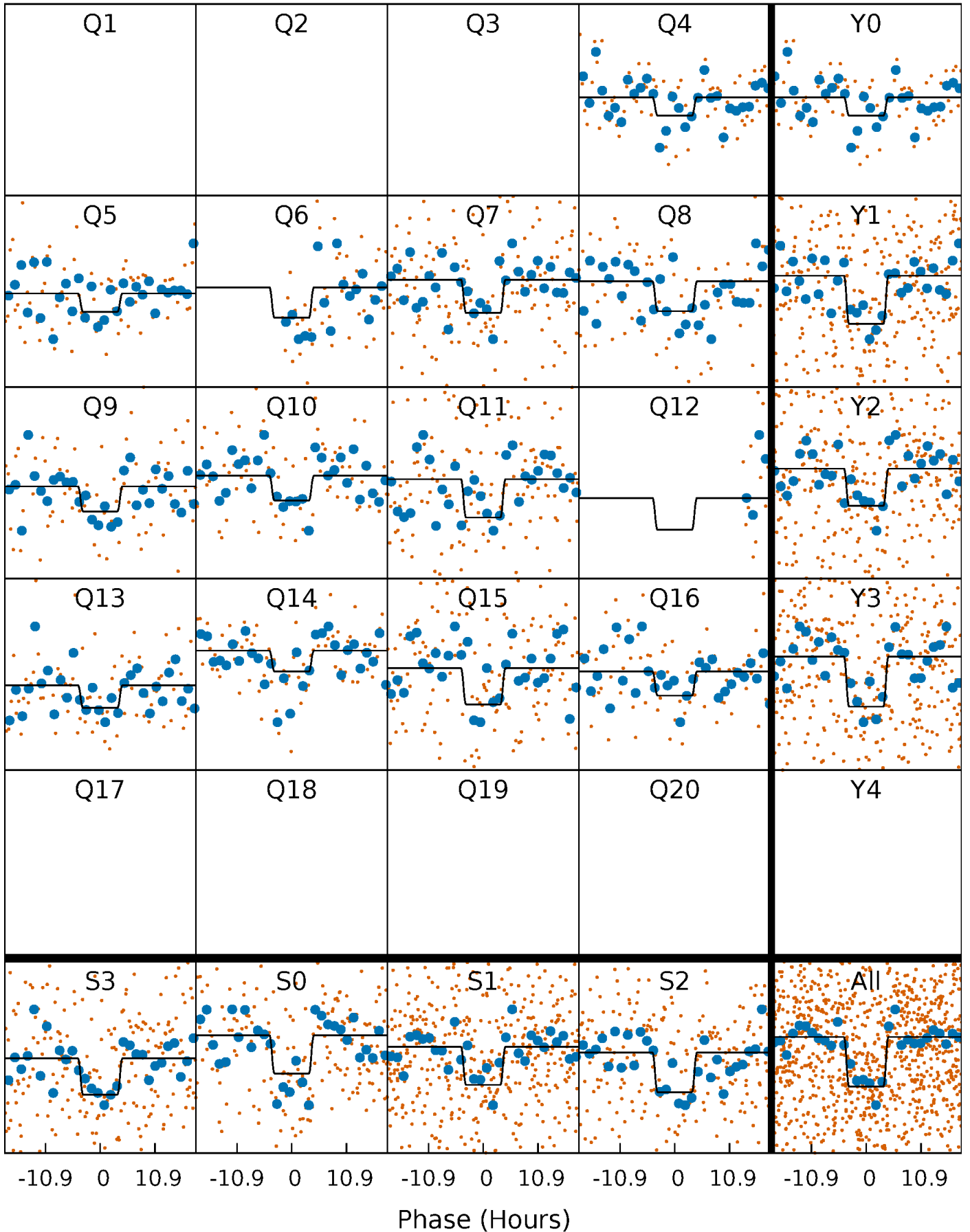
# DV Quarter-Phased Transit Curves

TCE 007888863-01   P= 74.625077 Days    $T_0=194.358960$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

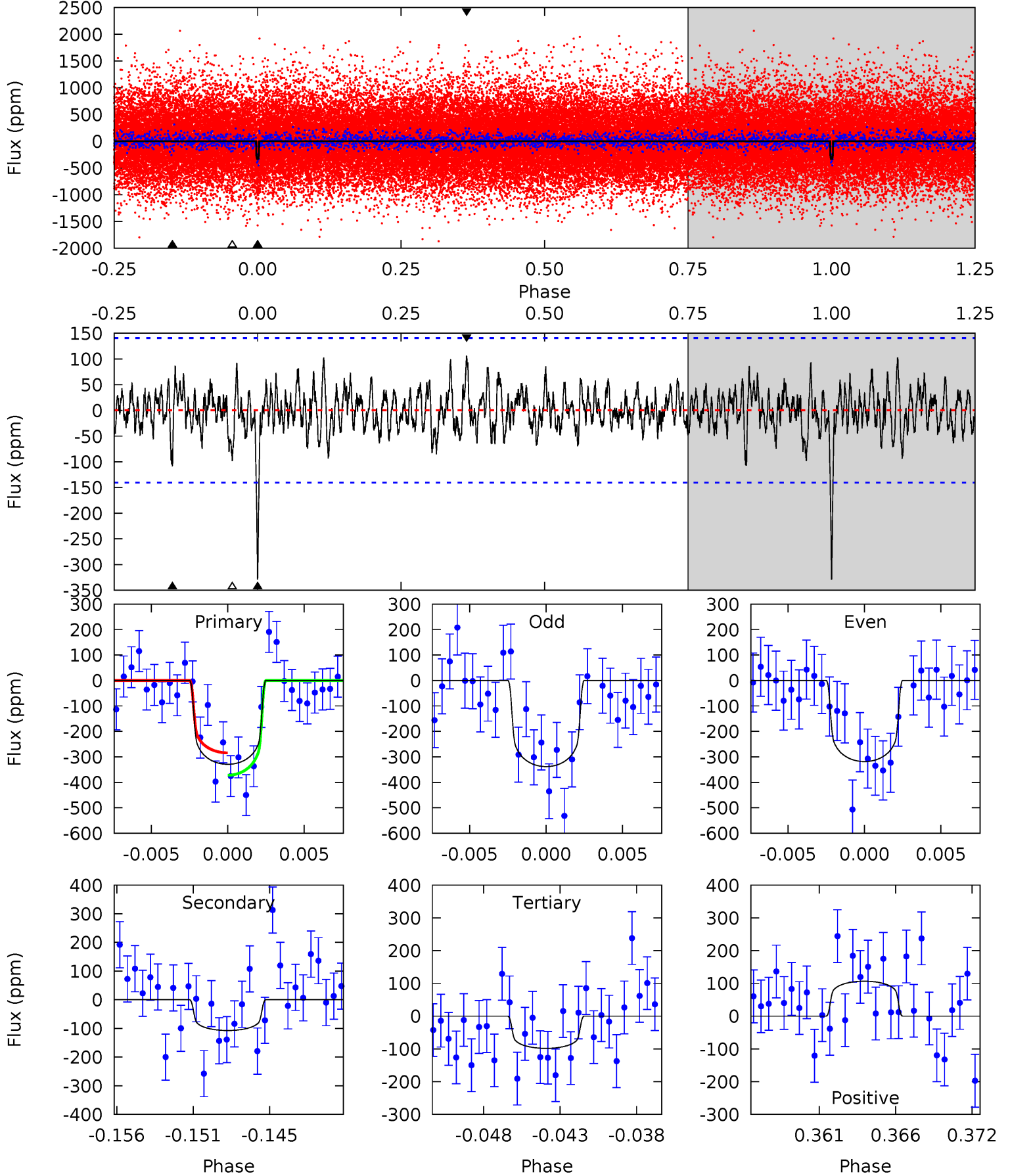
TCE 007888863-01 P= 74.626751 Days  $T_0=194.343839$  (BKJD)



# DV Model-Shift Uniqueness Test

007888863-01,  $P = 74.625077$  Days,  $E = 194.358960$  Days

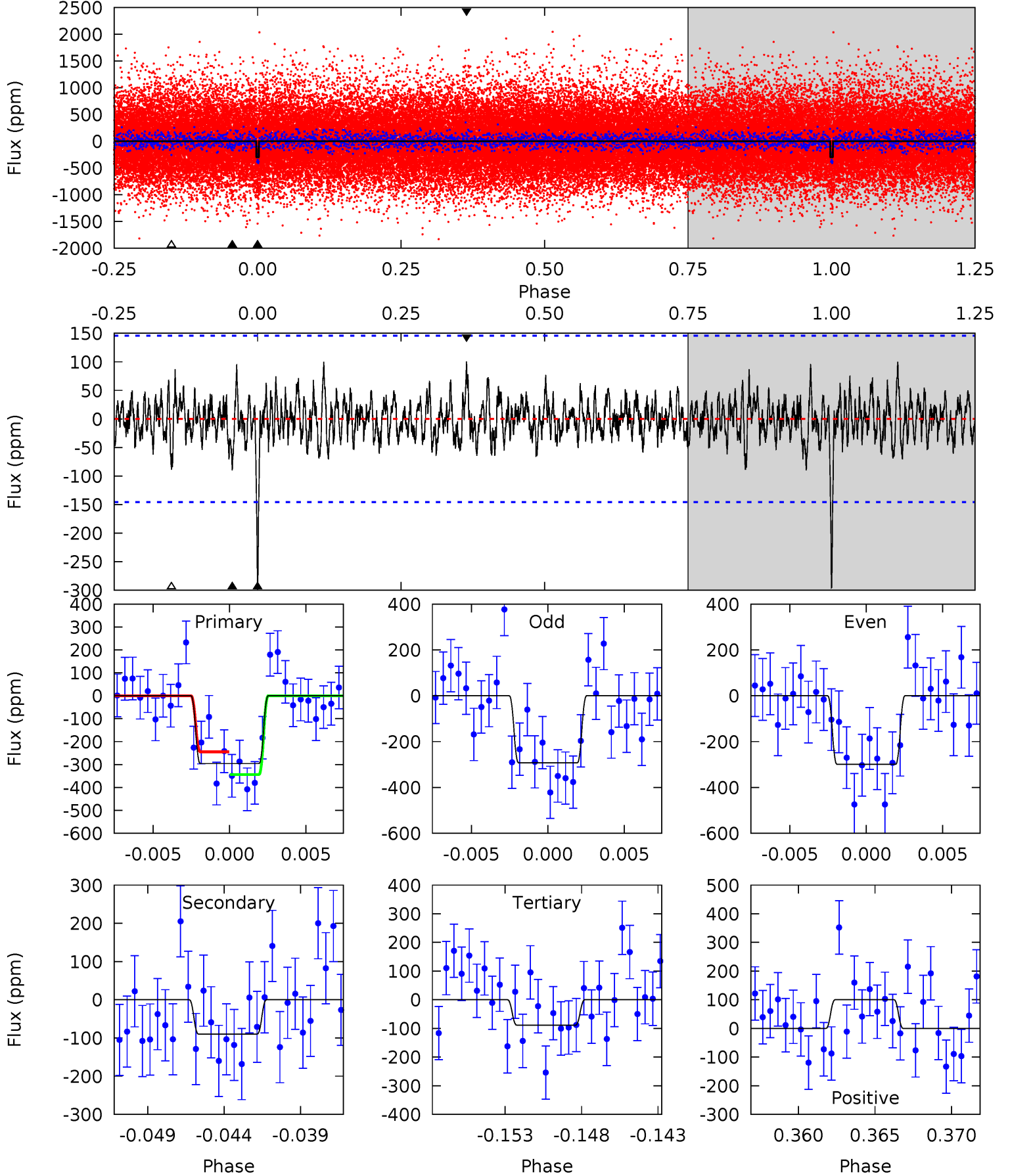
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	3.93	3.60	3.90	5.14	2.78	1.19	8.45	8.15	0.32	0.02	0.36	0.97	0.24	1.61



# Alt Model-Shift Uniqueness Test

007888863-01, P = 74.626751 Days, E = 194.343839 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
10.5	3.18	3.14	3.55	5.16	2.81	1.00	7.33	6.92	0.04	-0.37	0.11	0.86	0.25	1.75



### Stellar Parameters For KIC 007888863

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6187^{+197}_{-241}$	$4.499^{+0.052}_{-0.208}$	$-0.320^{+0.300}_{-0.300}$	$0.937^{+0.291}_{-0.097}$	$1.011^{+0.129}_{-0.129}$	$1.732^{+0.478}_{-0.893}$
	+3%/-4%	+1%/-5%	+94%/-94%	+31%/-10%	+13%/-13%	+28%/-52%
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 007888863-01 / KOI 5440.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-107 \pm 27$	$2.09^{+0.69}_{-0.70}$	$641^{+42}_{-35}$	$4674^{+919}_{-538}$	$1623^{+2168}_{-770}$
Alt.	$-90 \pm 28$	$1.92^{+0.68}_{-0.66}$	$641^{+48}_{-34}$	$4659^{+859}_{-583}$	$1527^{+2265}_{-735}$

$T_{\text{max}}$  = 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

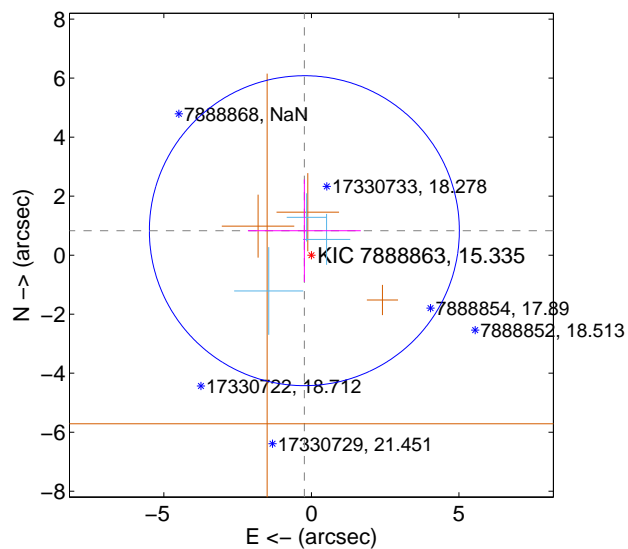
Supplemental centroid analysis for 007888863-01. Kepler magnitude: 15.34. Transit SNR 9.40

There are 3 quarters with good PRF difference image offsets

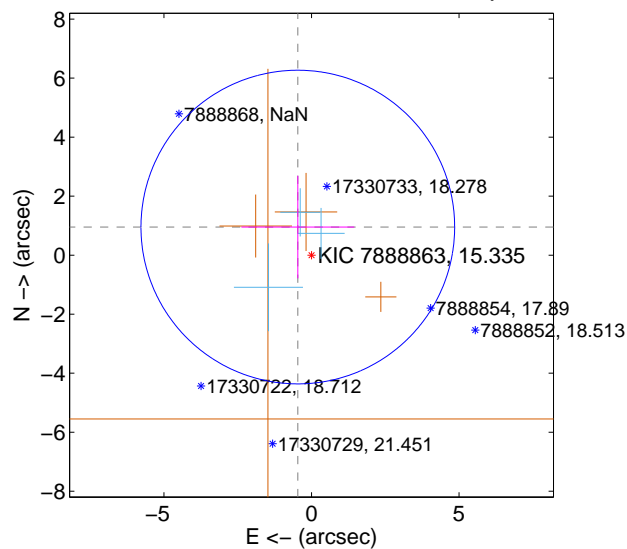
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.863 \pm 1.750$	0.49	$0.238 \pm 1.912$	$0.830 \pm 1.736$
PRF-fit source offset from KIC position	$1.060 \pm 1.771$	0.60	$0.464 \pm 1.912$	$0.953 \pm 1.736$
photometric centroid source offset	$2.66 \pm 1.39$	1.91	$0.03 \pm 1.30$	$-2.66 \pm 1.39$

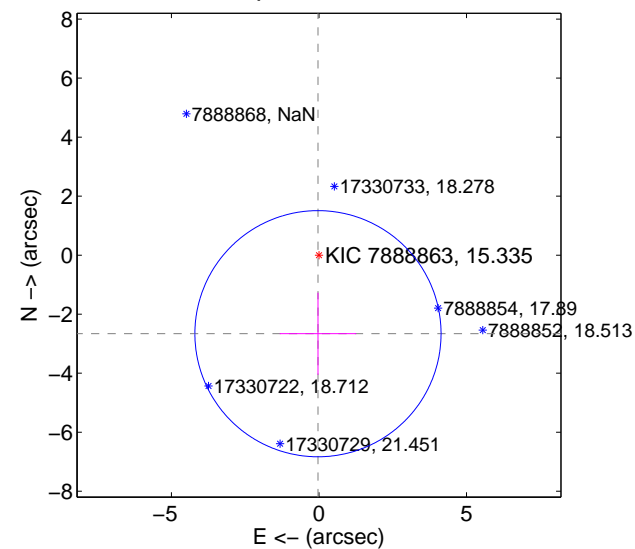
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

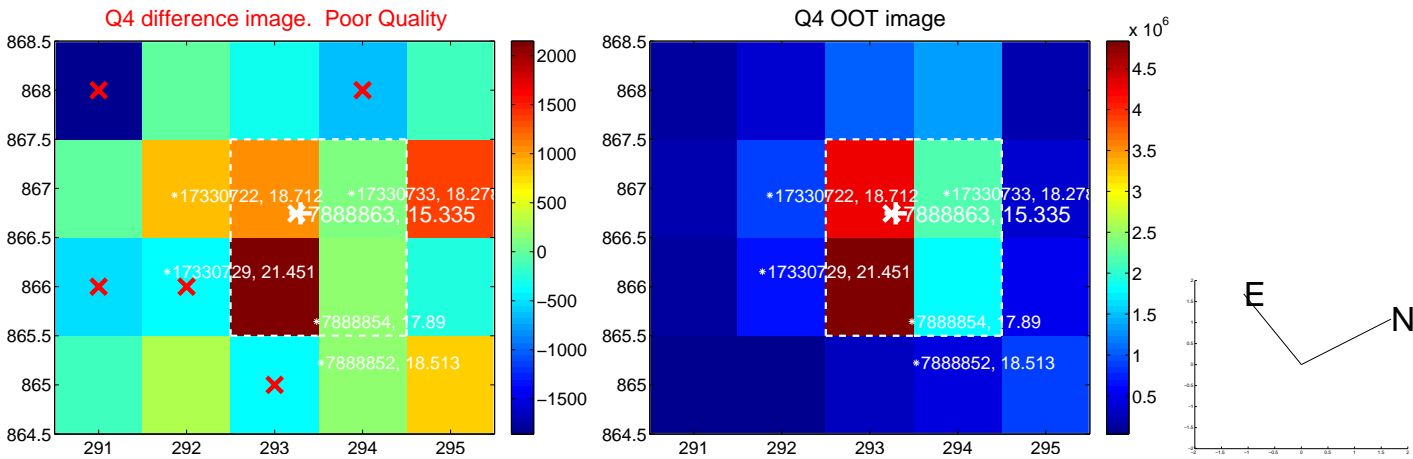
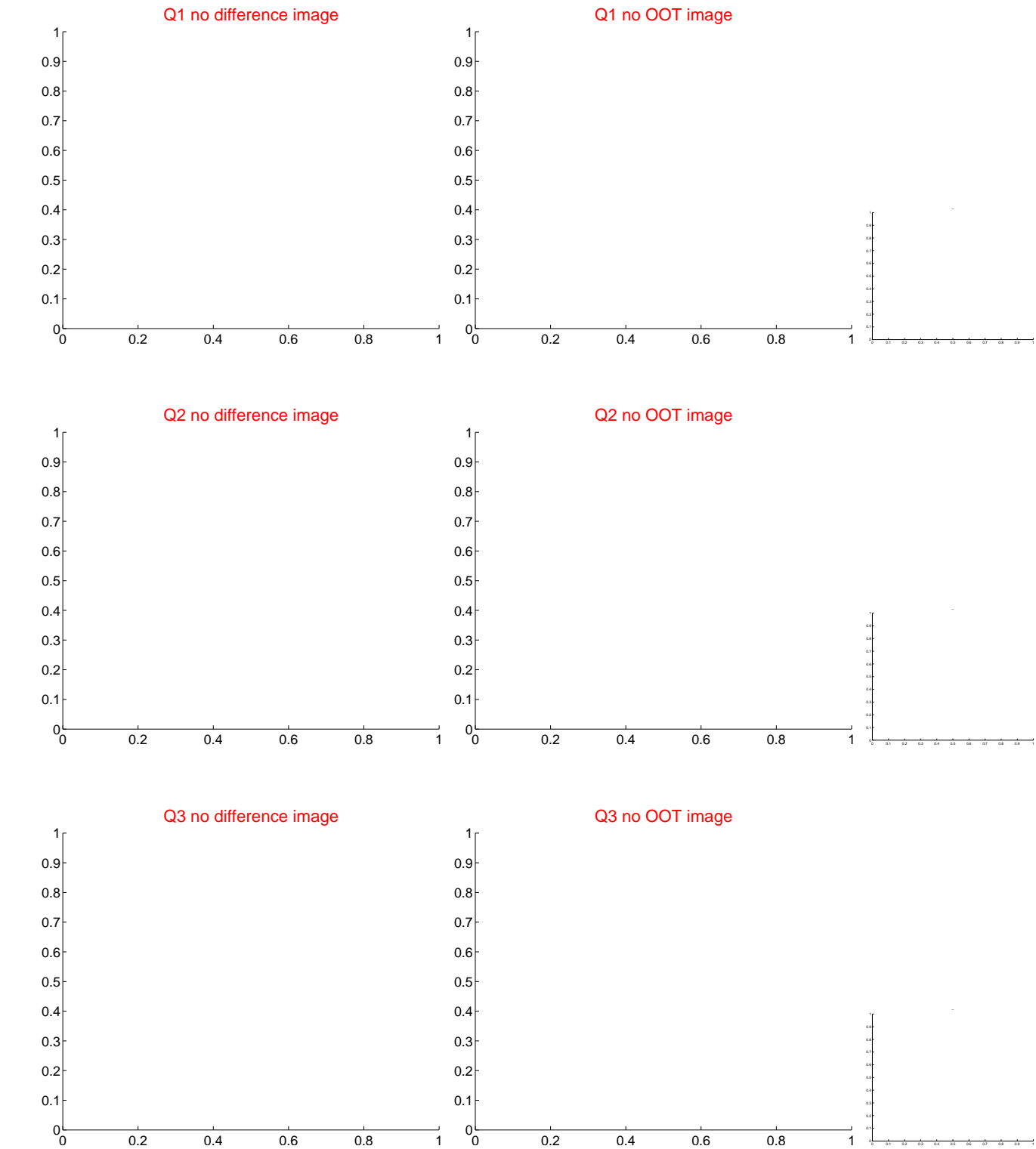


offset from photometric centroids

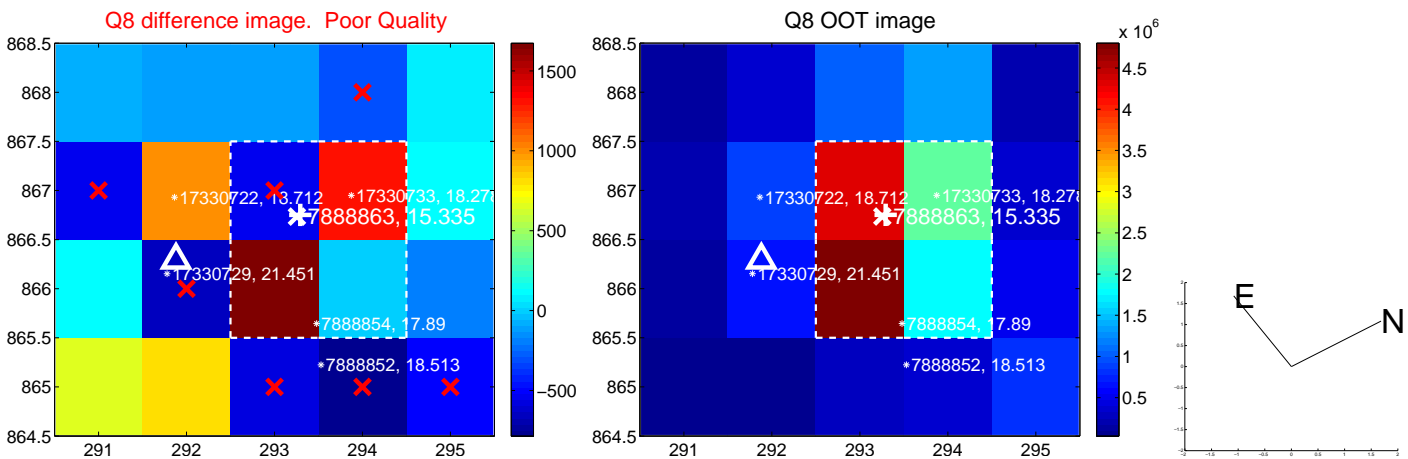
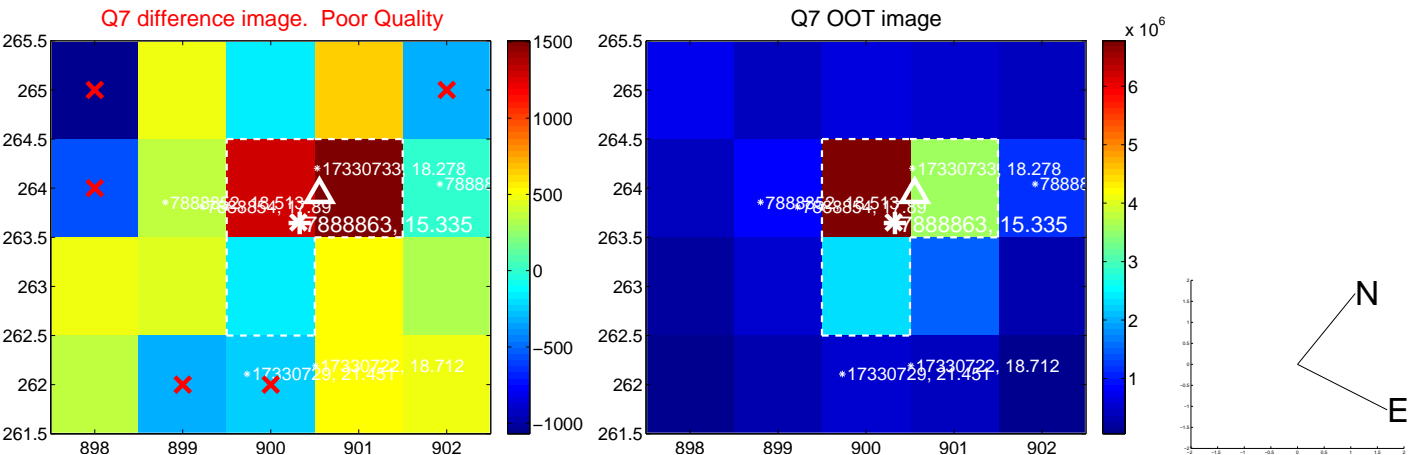
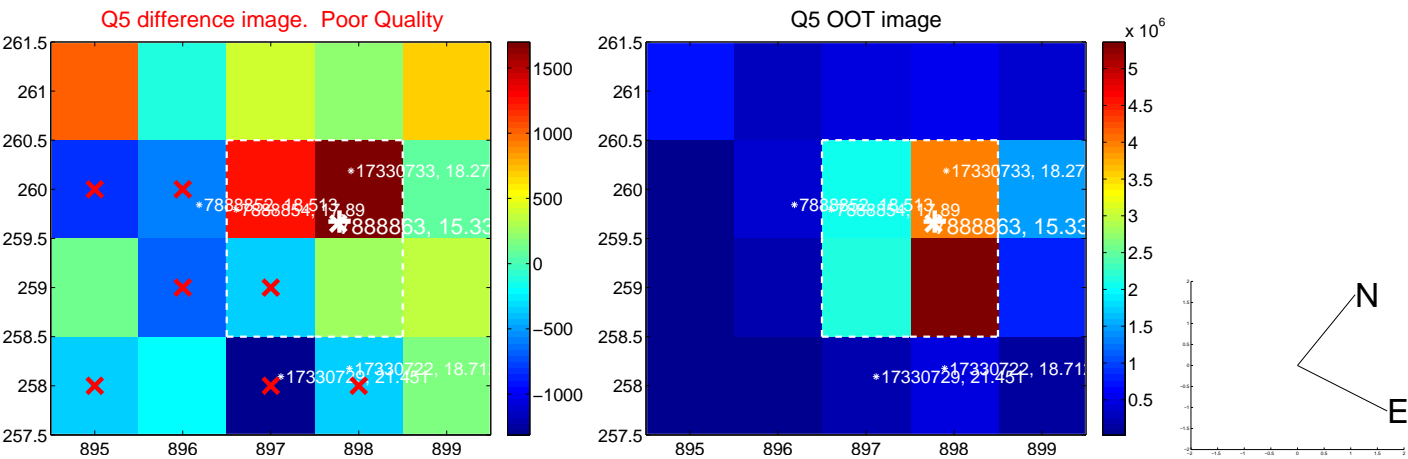


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

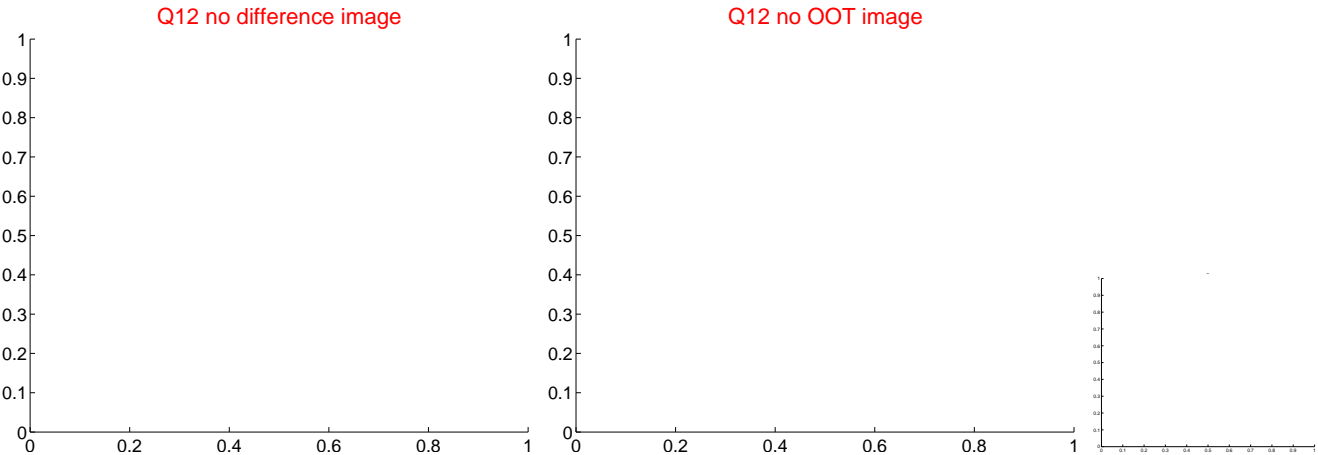
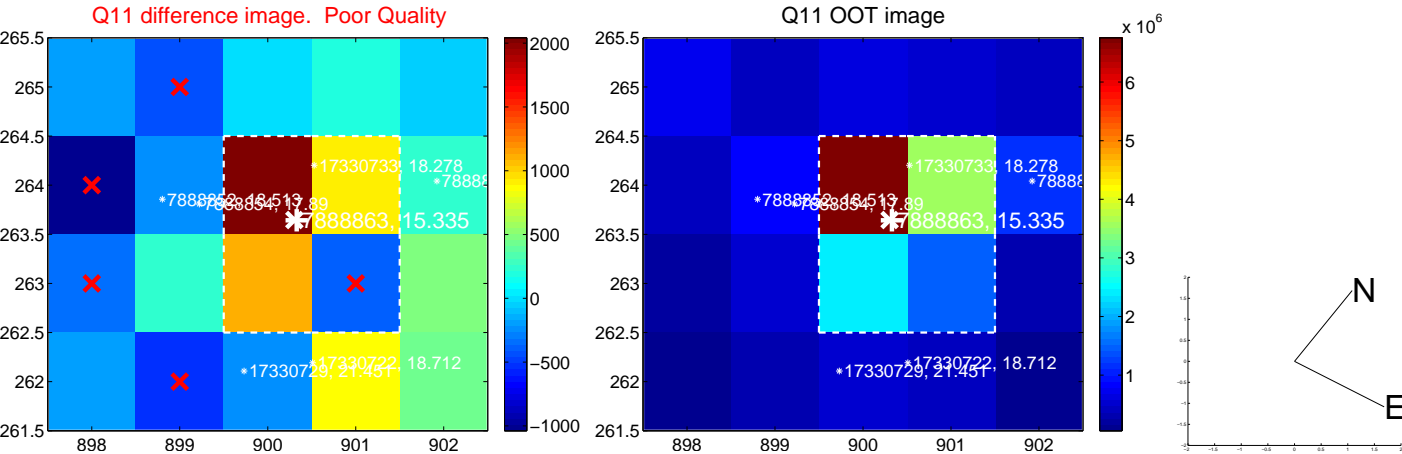
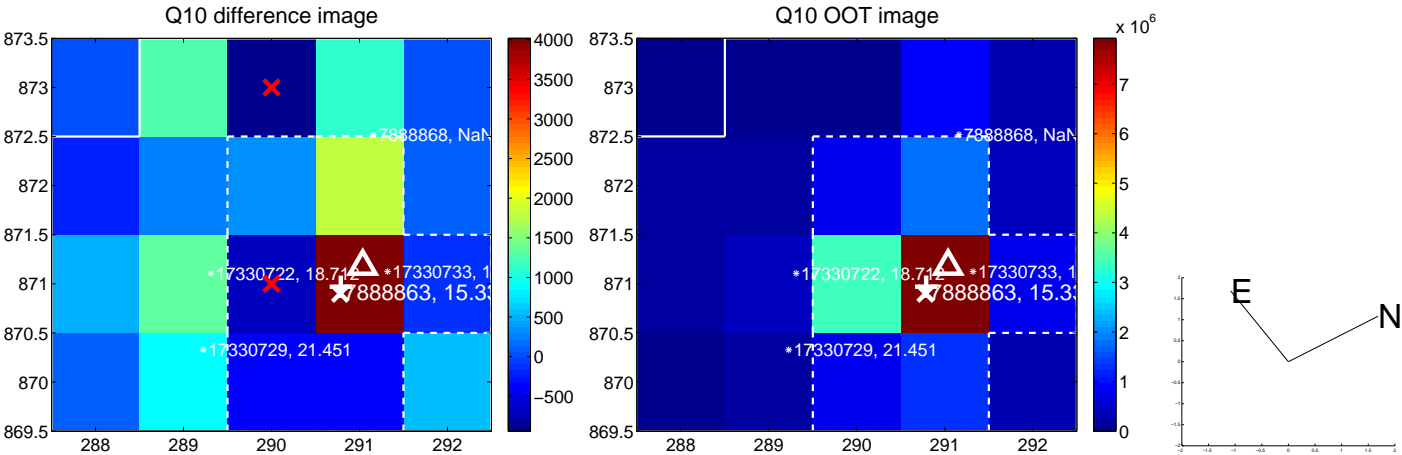
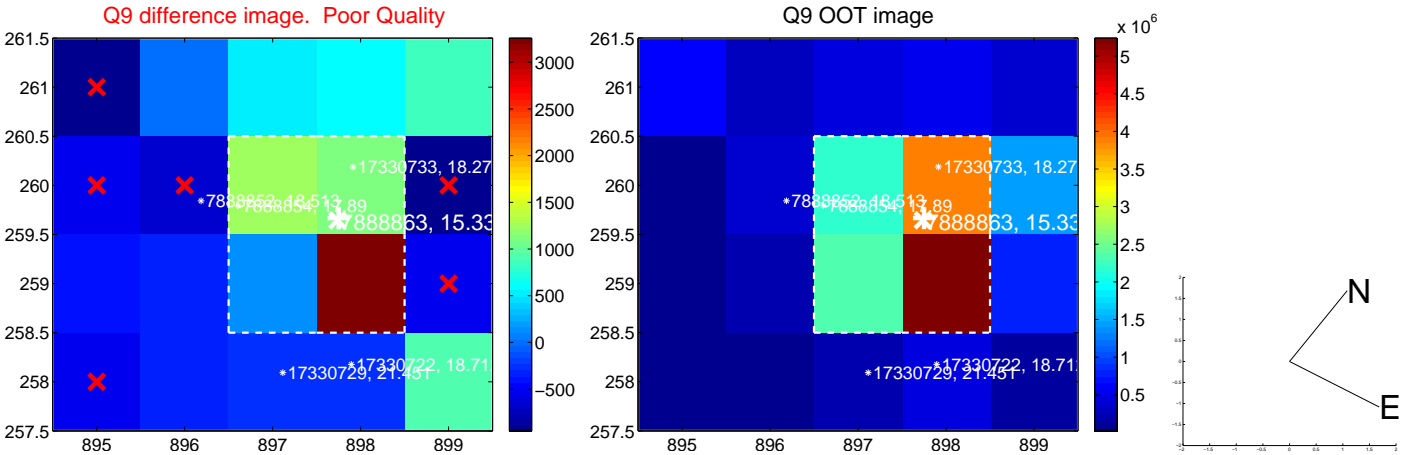
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



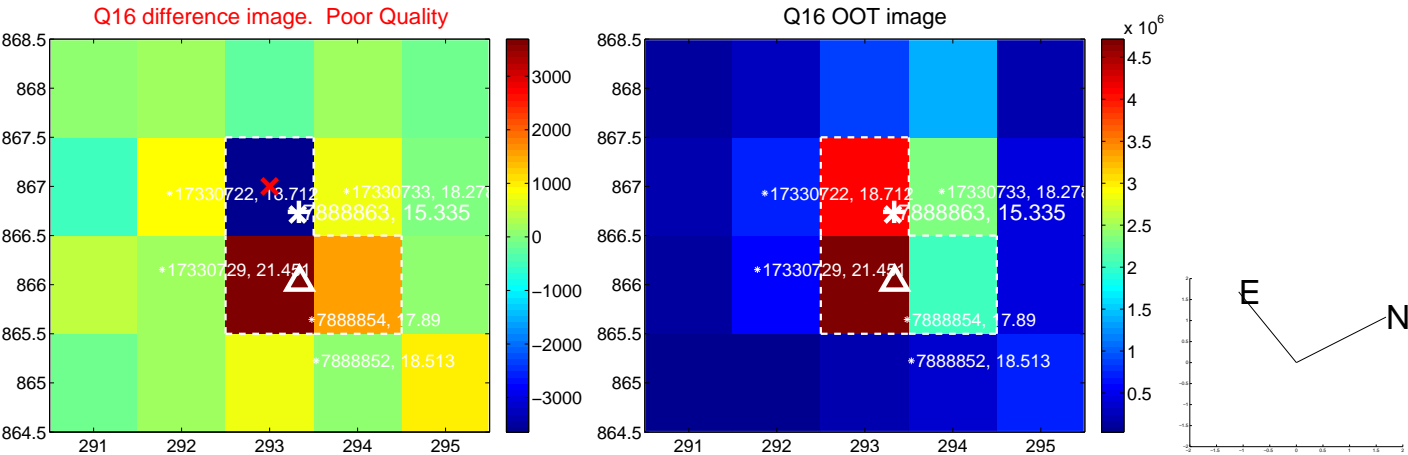
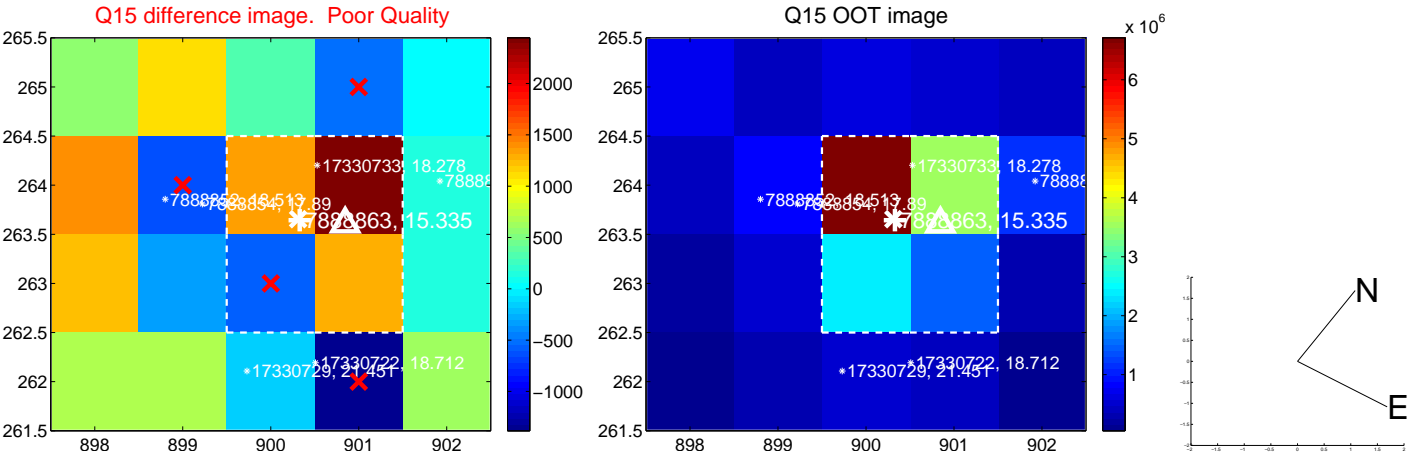
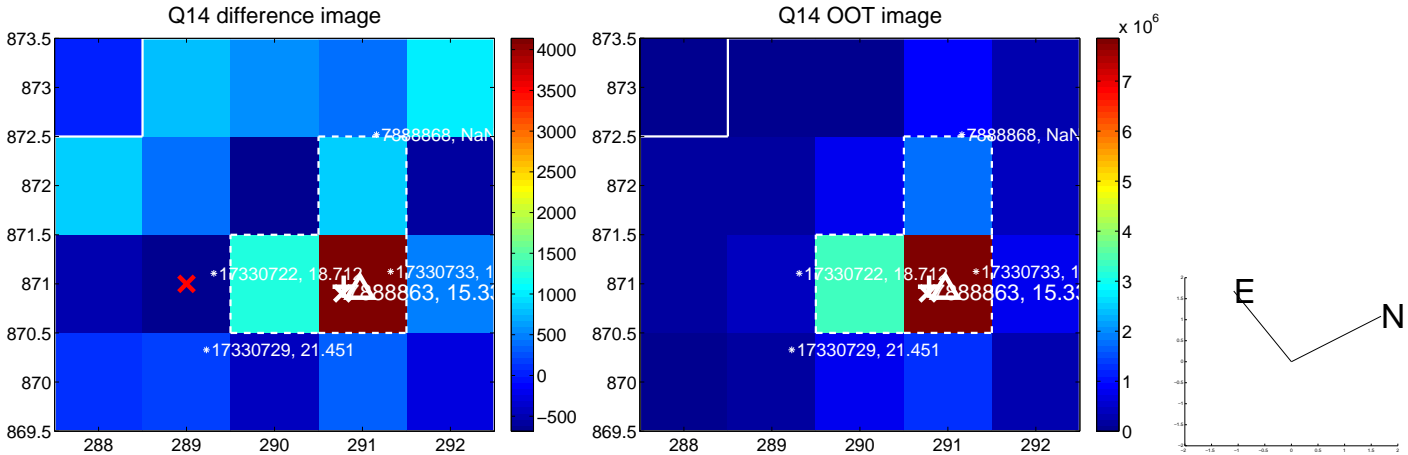
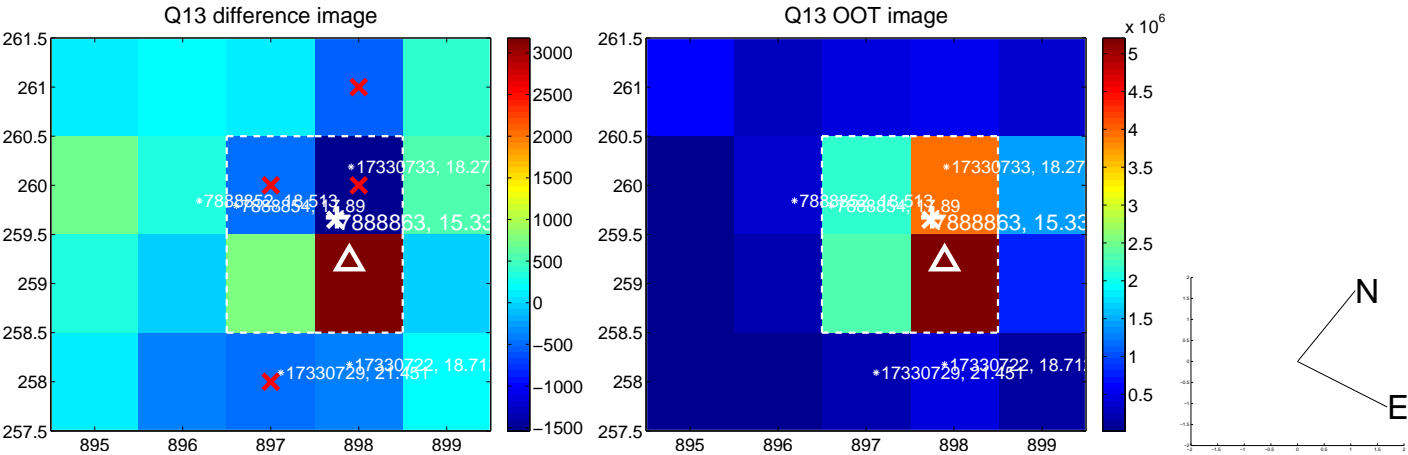
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

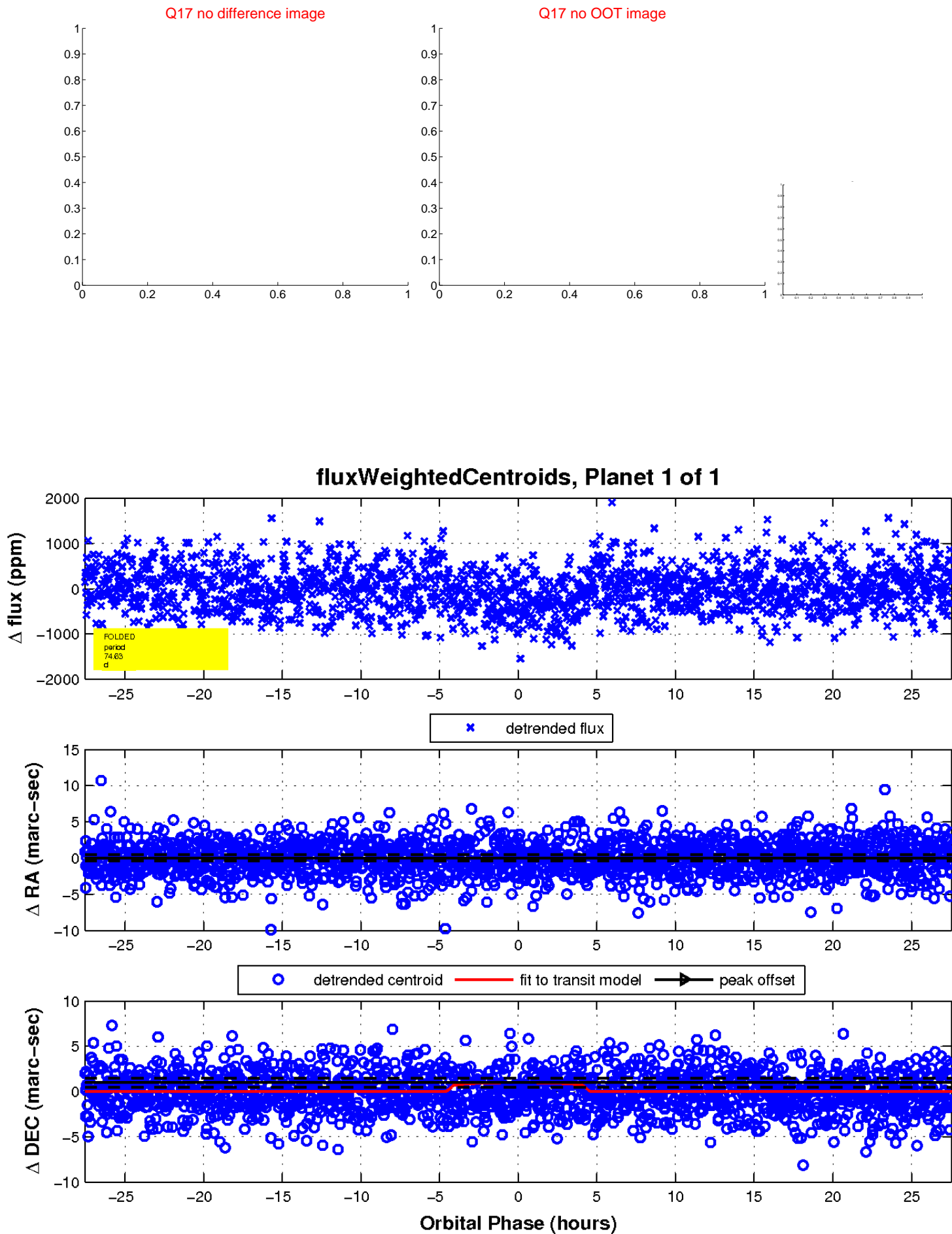


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

