

# KIC 003846515

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003846515-01	OBS	5013.01	0.888049	131.845459	71.0	2.044	17.5	20.3	2.09	6316	2.06	16060.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003846515-01	OBS	FP	0.14	0	0	1	0	CENT_RESOLVED_OFFSET

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

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

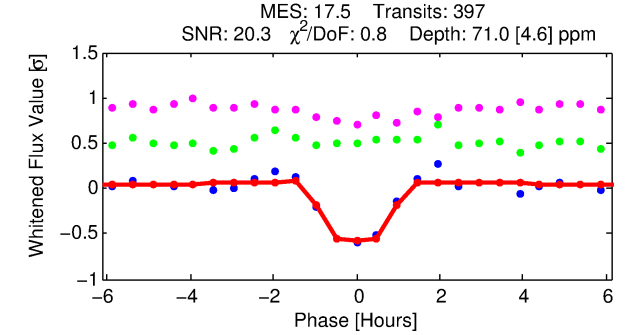
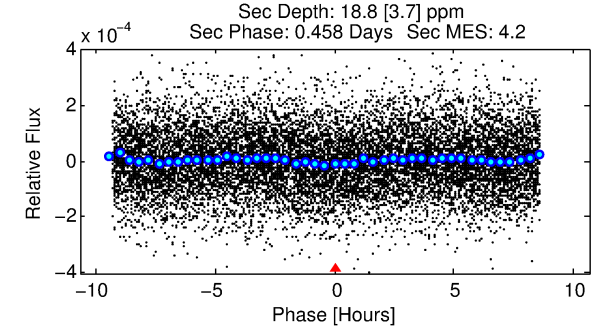
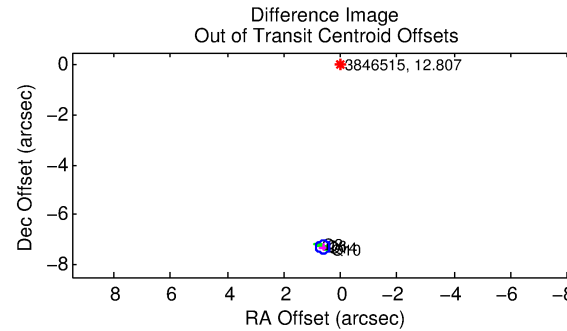
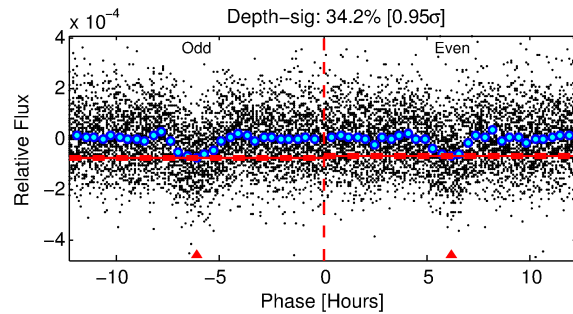
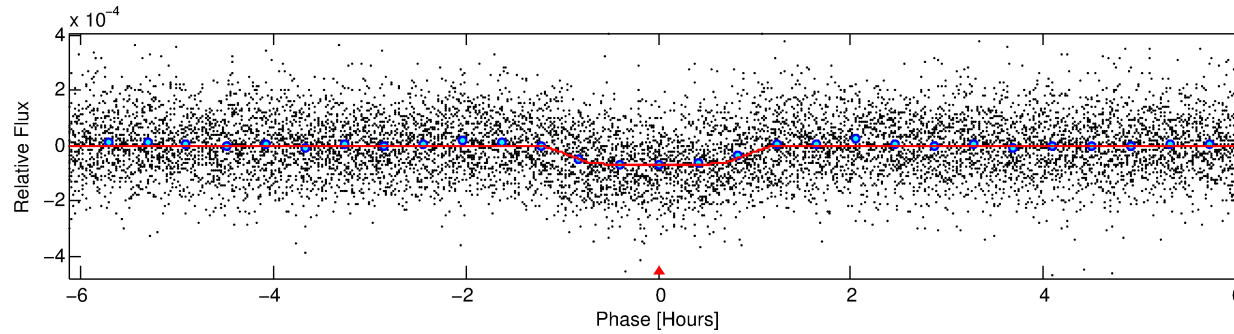
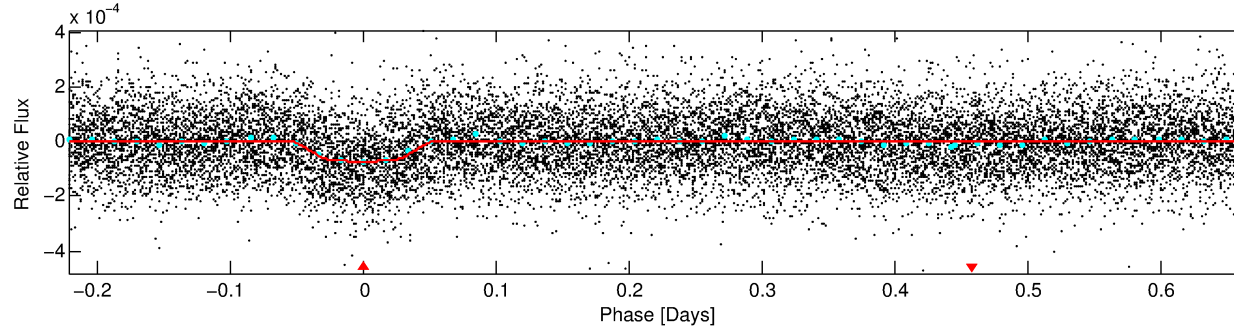
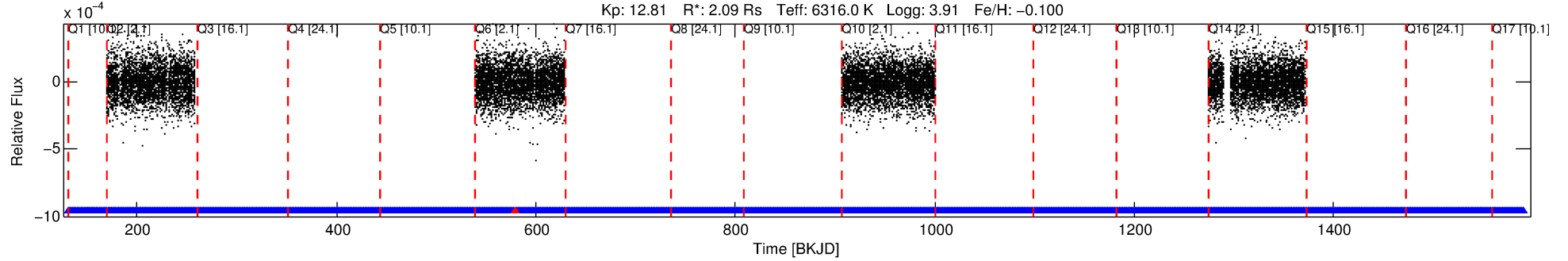
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003846515-01

No Significant Match Found

# DV One-Page Summary

KIC: 3846515 Candidate: 1 of 1 Period: 0.888 d  
KOI: K05013.01 Corr: 0.959



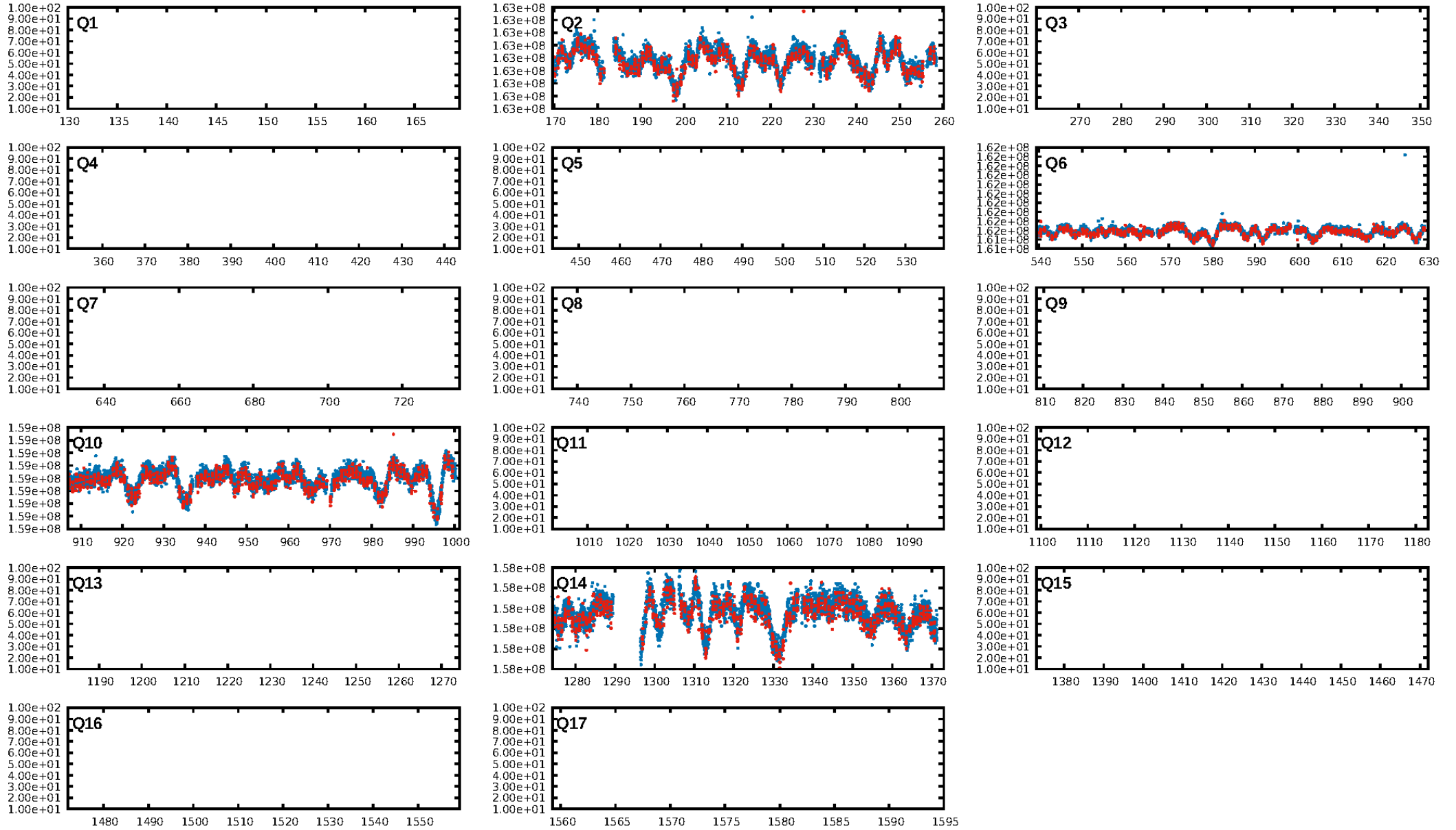
## DV Fit Results:

Period = 0.88805 [0.00000] d  
Epoch = 131.8455 [0.0013] BKJD  
Rp/R\* = 0.0091 [0.0026]  
a/R\* = 1.78 [1.94]  
b = 0.90 [0.34]  
Seff = 16060.60 [7638.28]  
Teq = 2871 [341] K  
Rp = 2.06 [0.85] Re  
a = 0.0197 [0.0056] AU  
Ag = 0.94 [0.71] [-0.09 $\sigma$ ]  
Teffp = 4368 [679] K [1.97 $\sigma$ ]

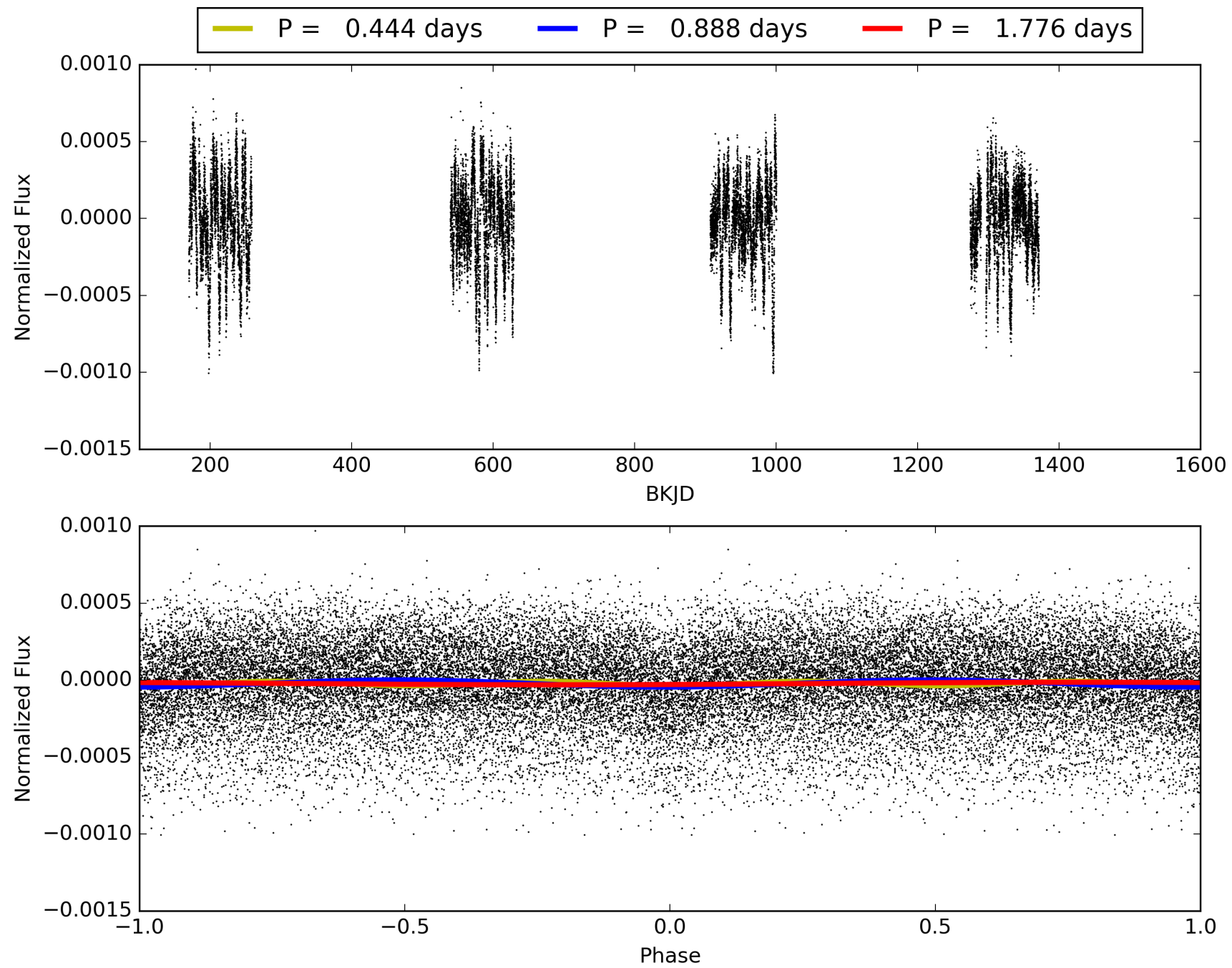
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.12e-67  
RollingBand-fgt: 1.00 [396/397]  
GhostDiagnostic-chr: 1.013  
Centroid-sig: 0.0%  
Centroid-so: 3.548 arcsec [4.77 $\sigma$ ]  
OotOffset-rm: 7.328 arcsec [85.36 $\sigma$ ]  
KicOffset-rm: 7.411 arcsec [89.95 $\sigma$ ]  
OotOffset-st: 4/0/0/0 [4]  
KicOffset-st: 4/0/0/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

# TCE 003846515-01, PDC Light Curves

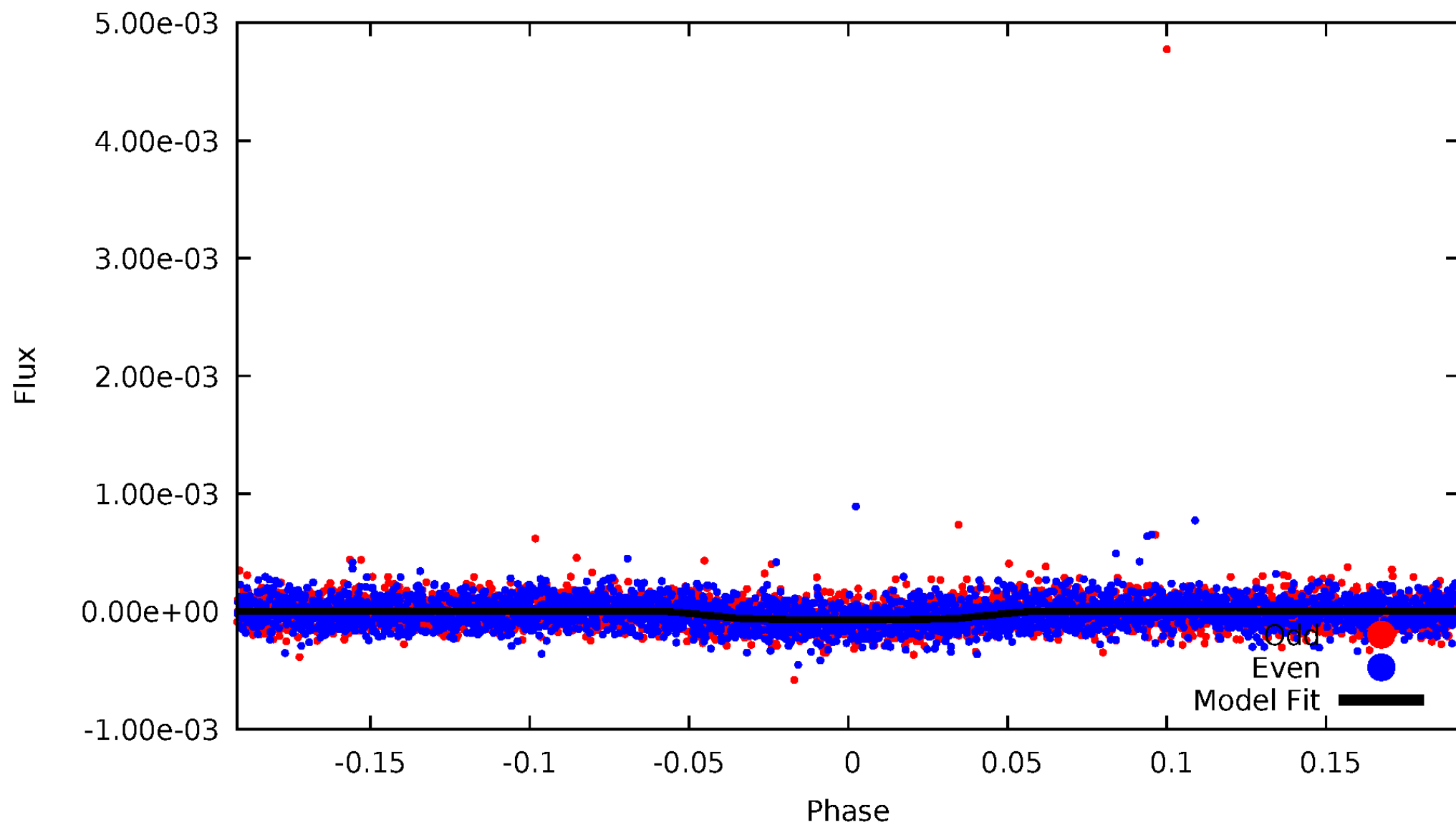


TCE 003846515-01



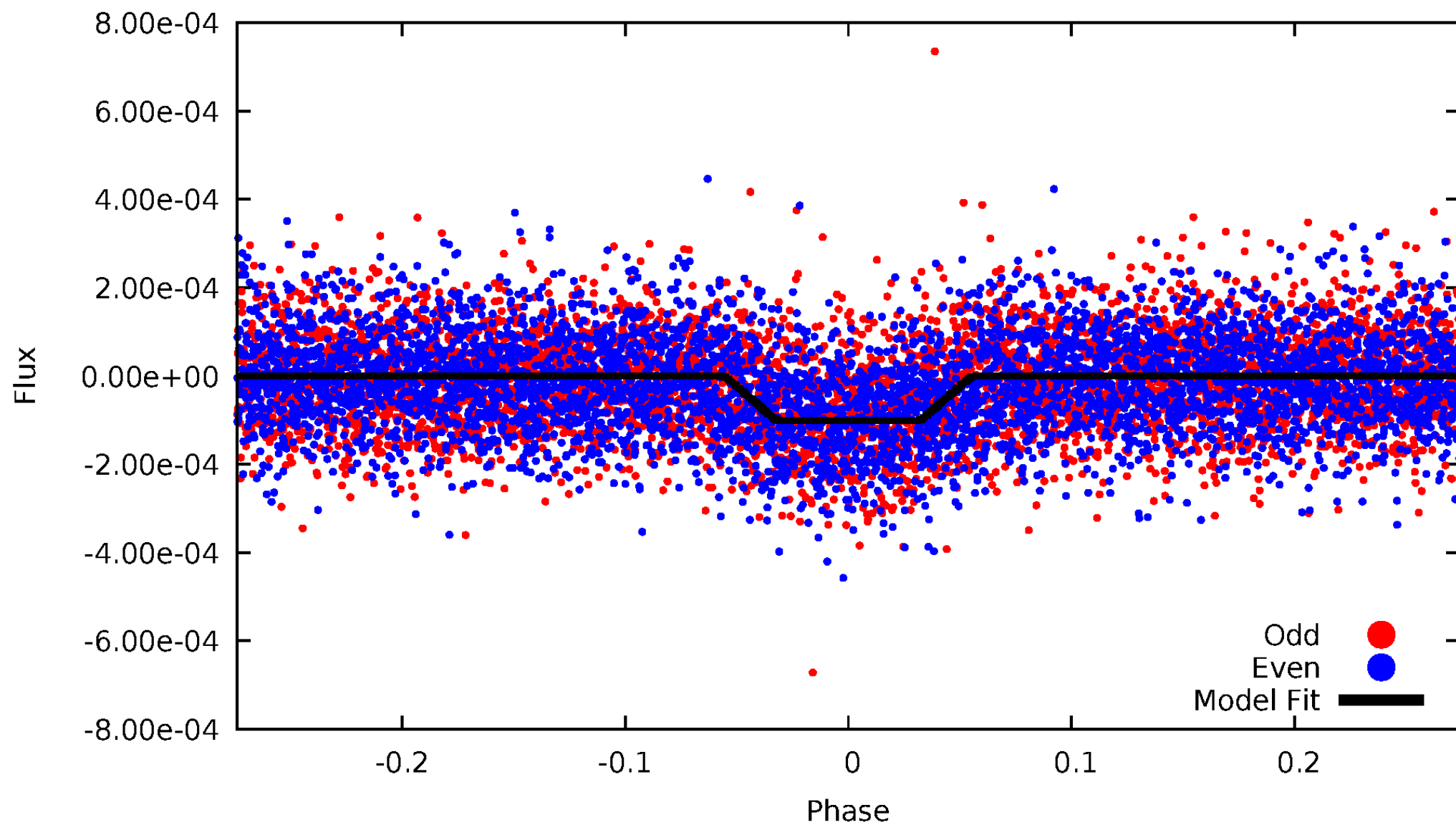
# DV Odd/Even

TCE 003846515-01

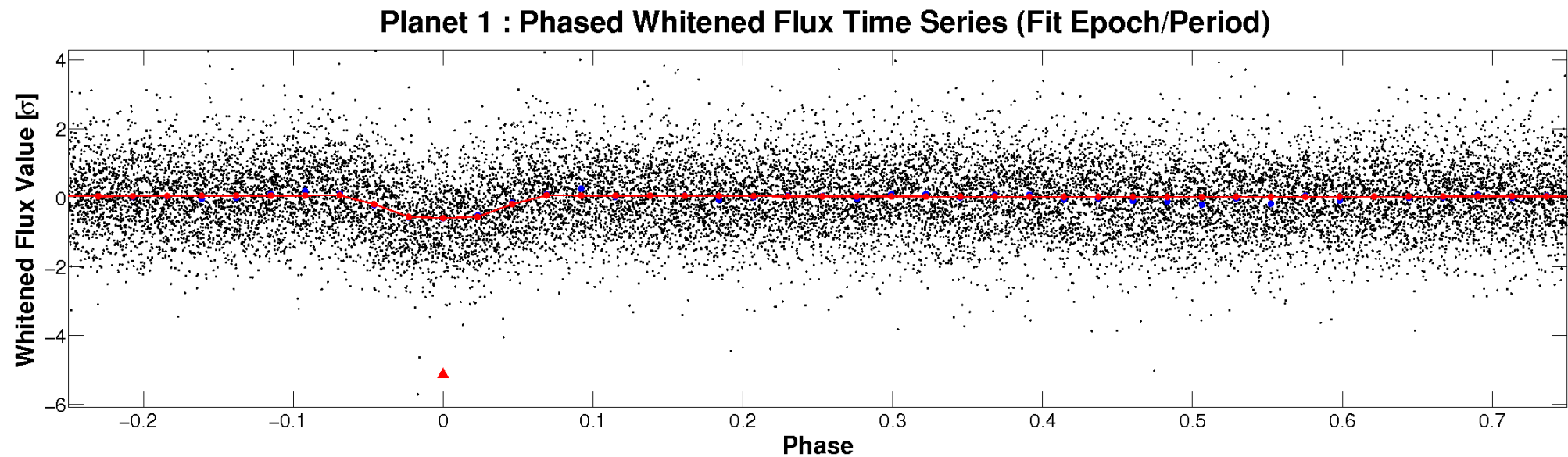
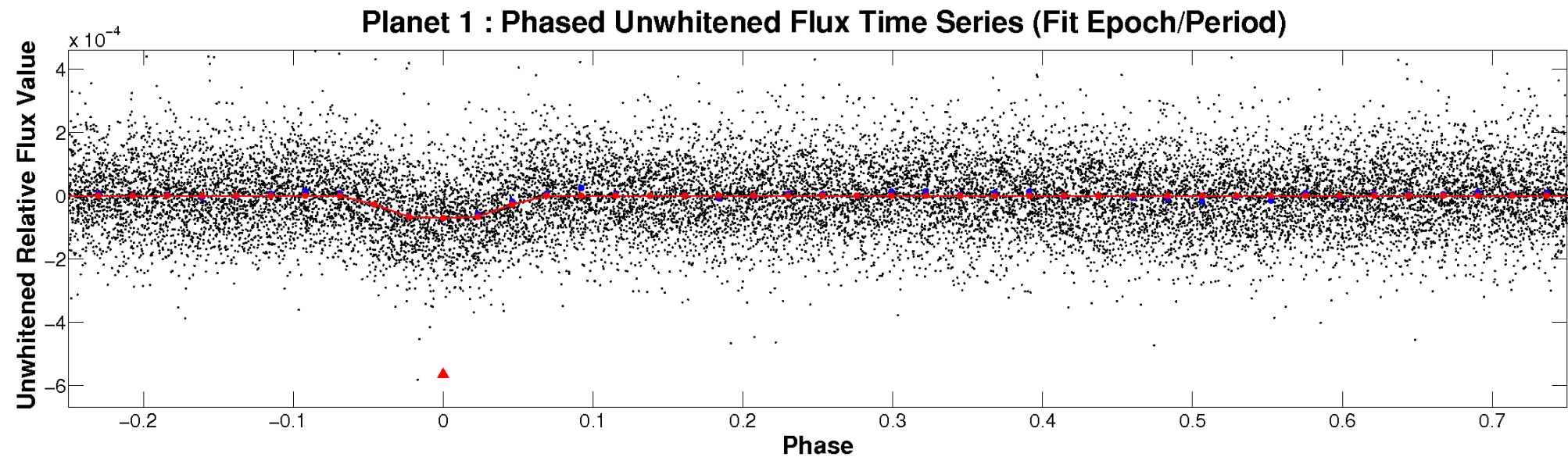


# ALT Odd/Even

TCE 003846515-01



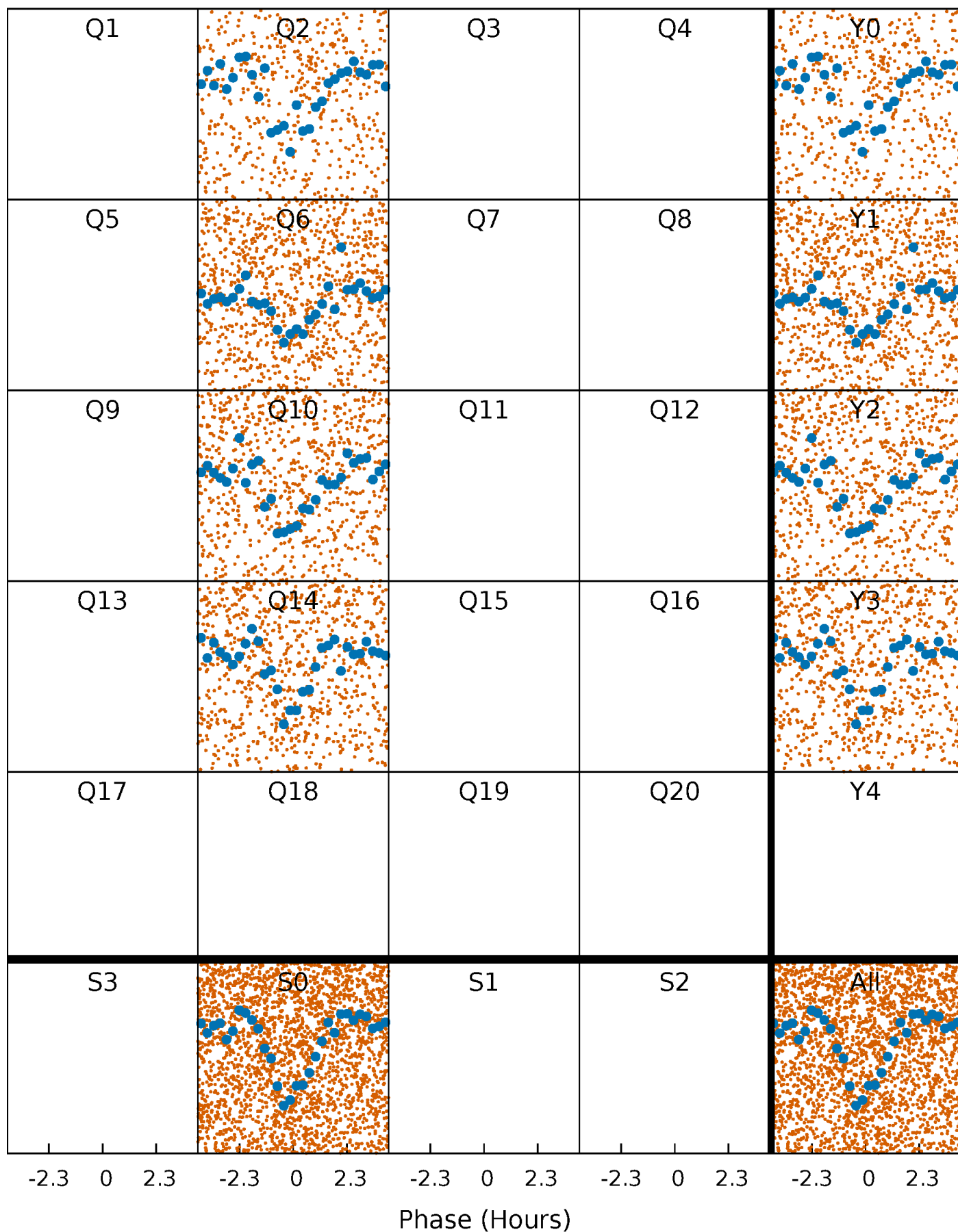
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

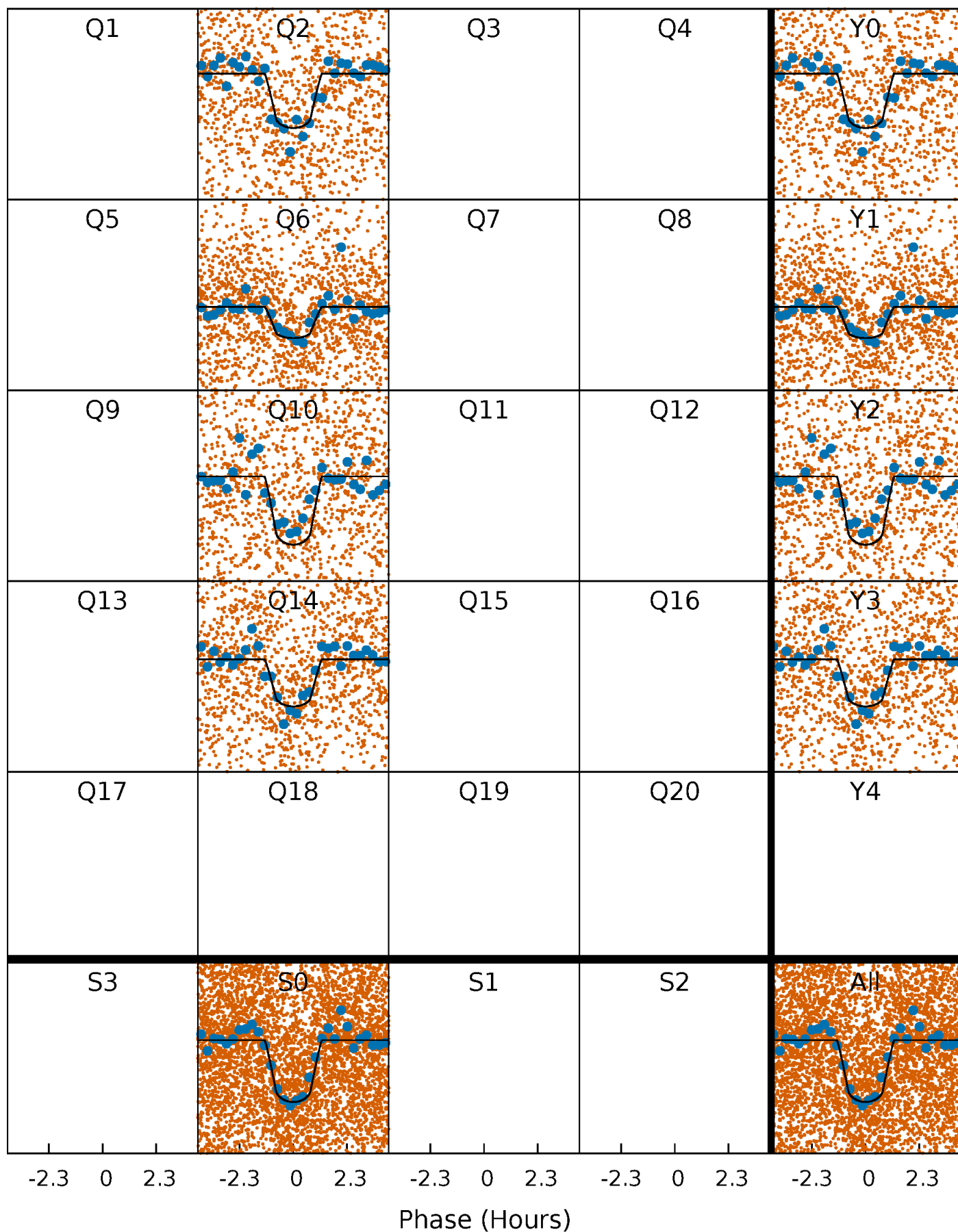
TCE 003846515-01 P= 0.888049 Days  $T_0=131.845459$  (BKJD)





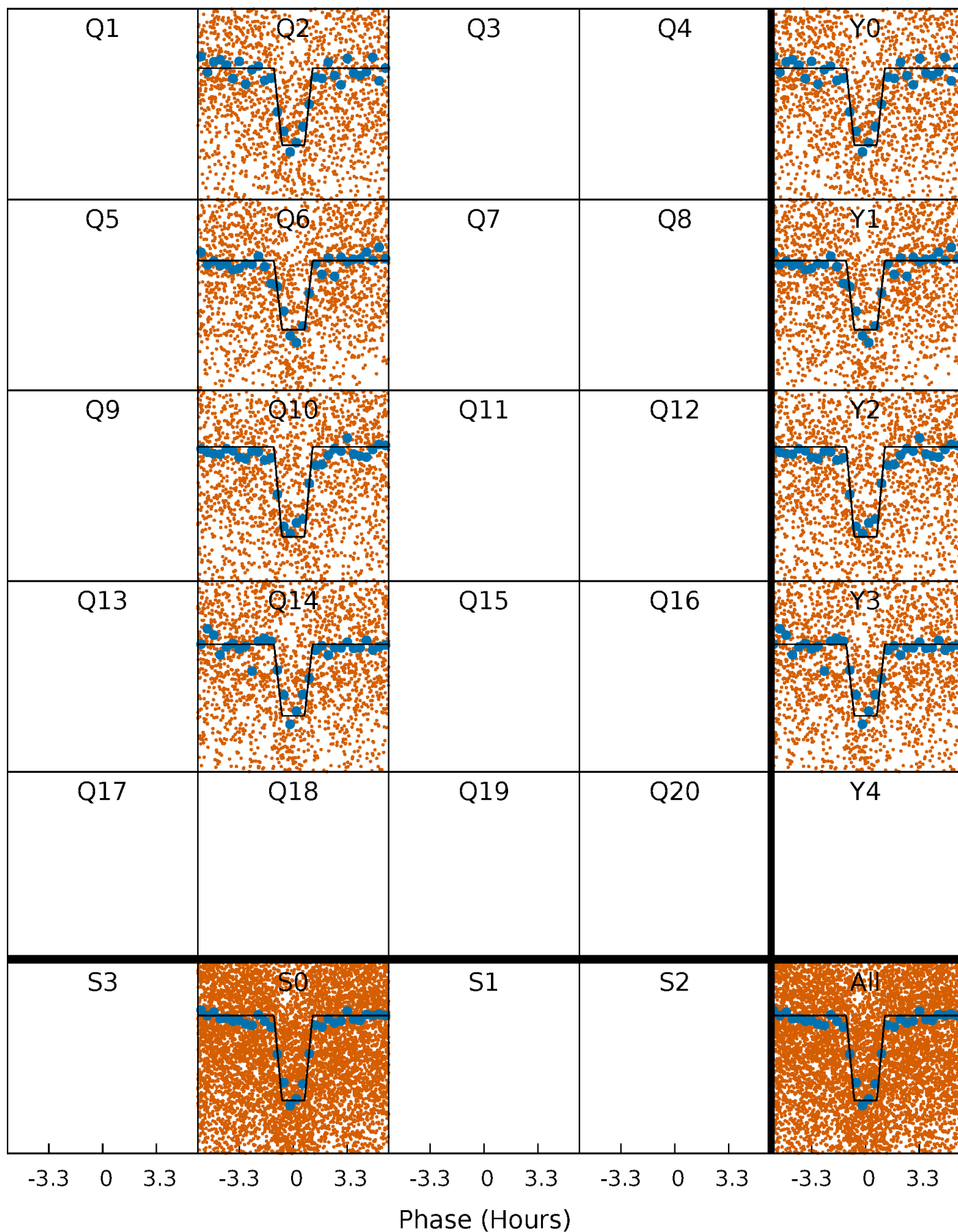
# DV Quarter-Phased Transit Curves

TCE 003846515-01 P= 0.888049 Days  $T_0=131.845459$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

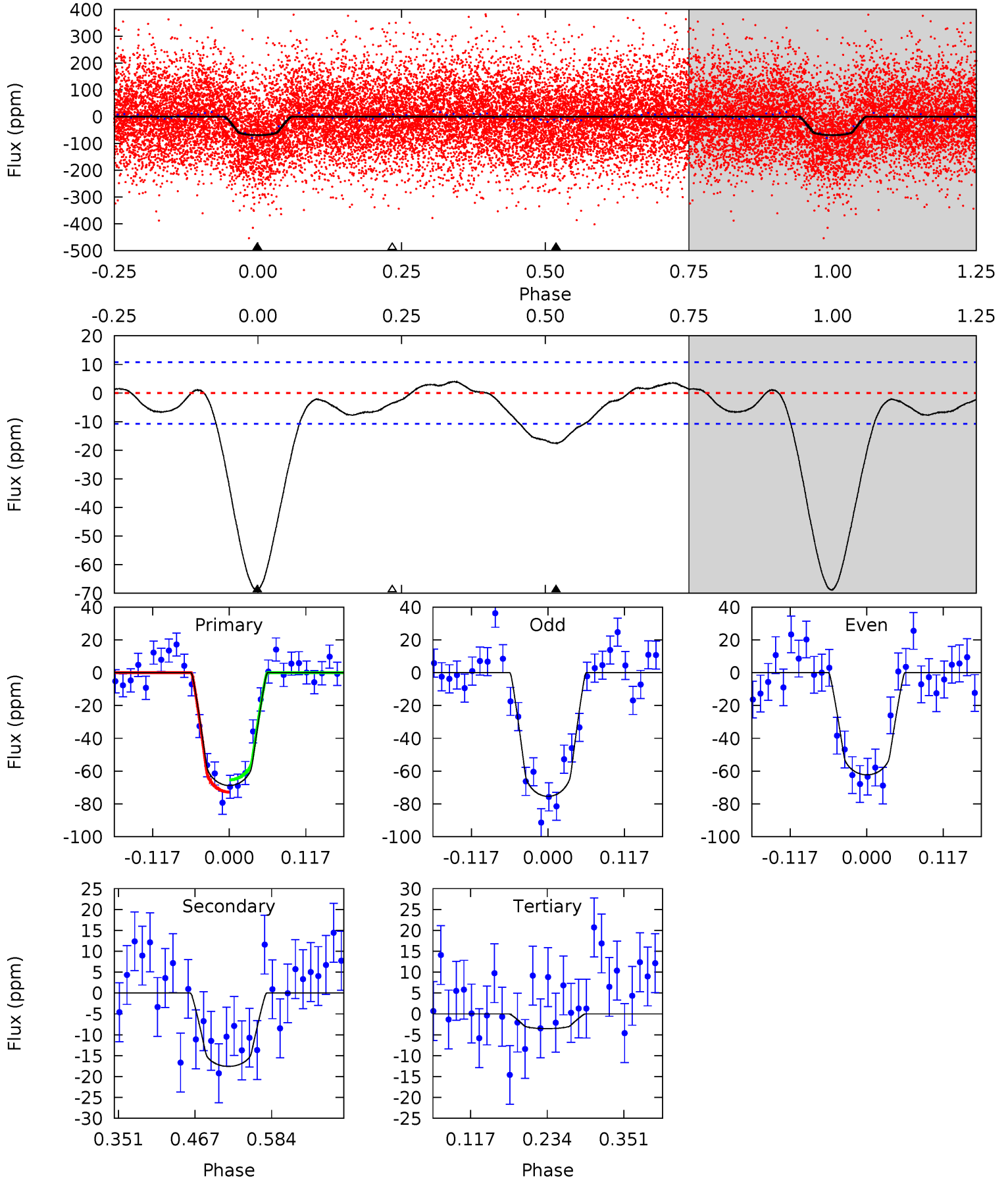
TCE 003846515-01   P= 0.888043 Days    $T_0=131.847691$  (BKJD)



# DV Model-Shift Uniqueness Test

003846515-01, P = 0.888049 Days, E = 131.845459 Days

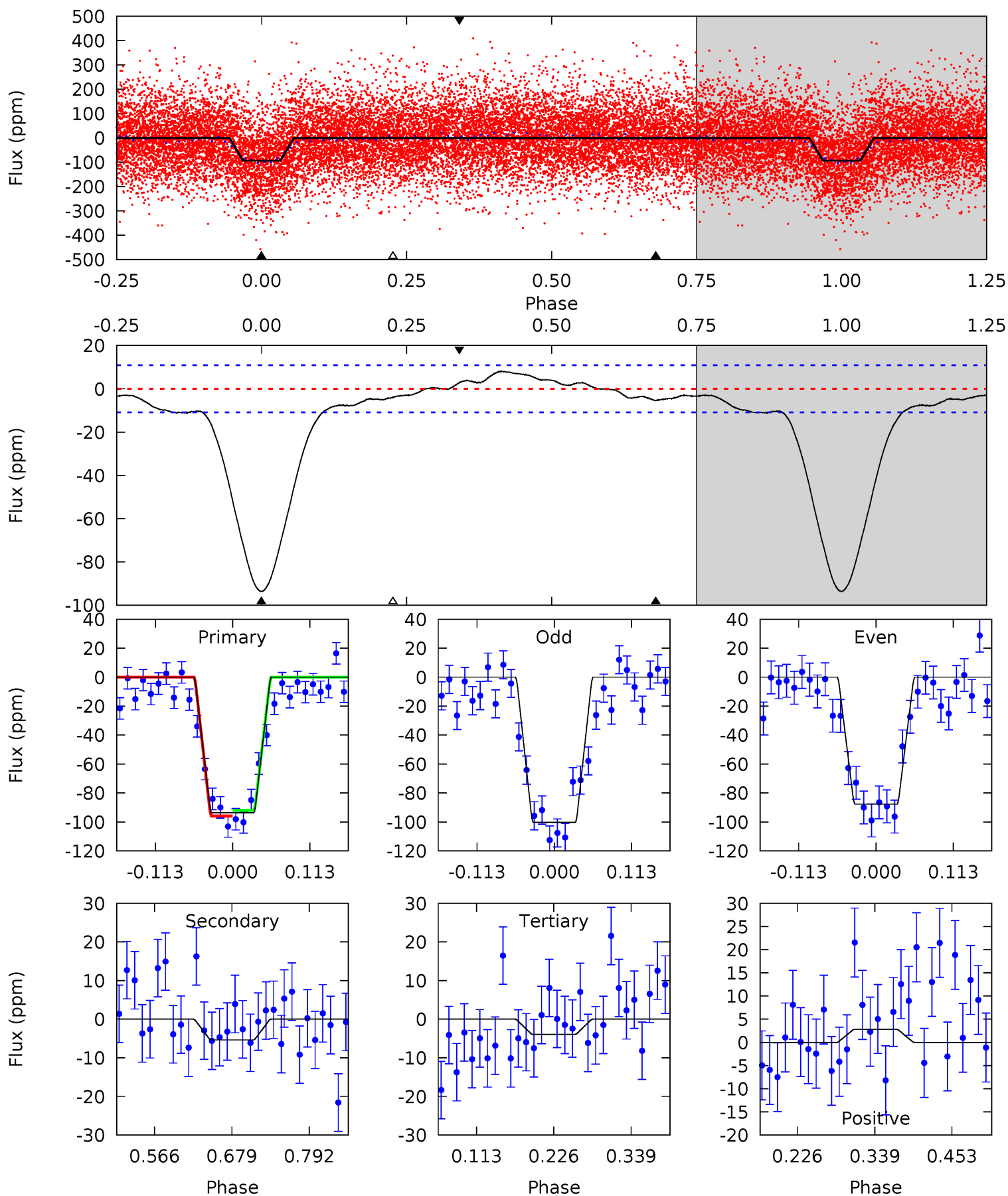
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	7.38	1.48	0	4.53	1.57	1.59	27.4	28.9	5.90	7.38	2.77	1.01	0.05	1.56



# Alt Model-Shift Uniqueness Test

003846515-01, P = 0.888043 Days, E = 131.847691 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
39.0	2.24	1.65	1.17	4.54	1.58	2.43	37.3	37.8	0.60	1.08	2.62	1.03	0.08	0.82



### Stellar Parameters For KIC 003846515

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6316^{+203}_{-226}$	$3.908^{+0.266}_{-0.114}$	$-0.100^{+0.300}_{-0.250}$	$2.087^{+0.450}_{-0.618}$	$1.285^{+0.245}_{-0.200}$	$0.199^{+0.345}_{-0.069}$
	+3%/-4%	+7%/-3%	+300%/-250%	+22%/-30%	+19%/-16%	+173%/-35%
Source	KIC0	FLK73	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 003846515-01 / KOI 5013.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-18 \pm 2$	$1.96^{+0.66}_{-0.66}$	$3956^{+253}_{-336}$	$4174^{+859}_{-631}$	$0.983^{+1.138}_{-0.457}$
Alt.	$-5 \pm 2$	$2.18^{+0.69}_{-0.60}$	$3919^{+285}_{-308}$	$-2905^{+6215}_{-542}$	$0.231^{+0.263}_{-0.126}$

$T_{\text{max}}$  = 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

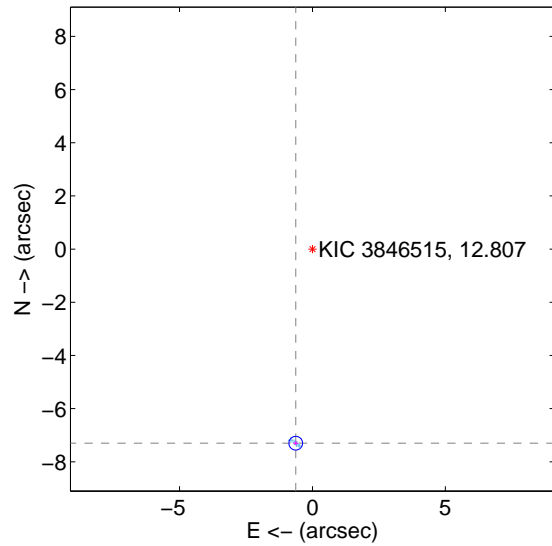
Supplemental centroid analysis for 003846515-01. Kepler magnitude: 12.81. Transit SNR 20.28

There are 4 quarters with good PRF difference image offsets

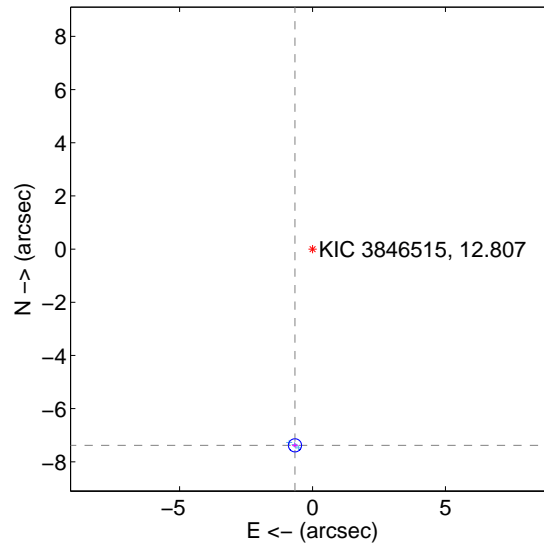
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>7.328 <math>\pm</math> 0.086</b>	<b>85.36</b>	0.629 $\pm$ 0.100	-7.301 $\pm$ 0.086
PRF-fit source offset from KIC position	<b>7.411 <math>\pm</math> 0.082</b>	<b>89.95</b>	0.660 $\pm$ 0.109	-7.382 $\pm$ 0.082
photometric centroid source offset	<b>3.55 <math>\pm</math> 0.74</b>	<b>4.77</b>	1.17 $\pm$ 0.65	-3.35 $\pm$ 0.76

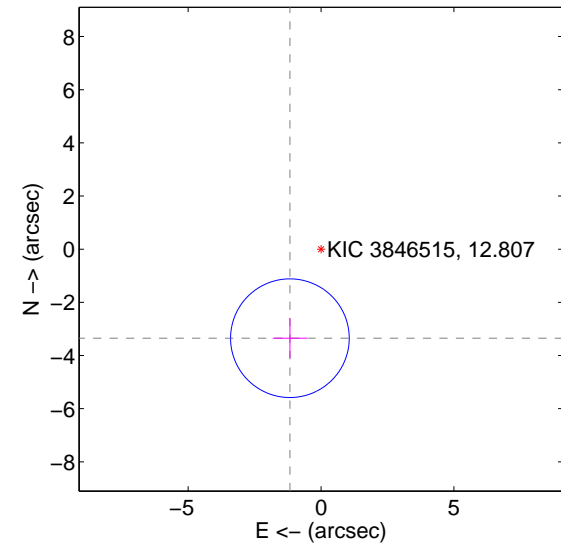
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



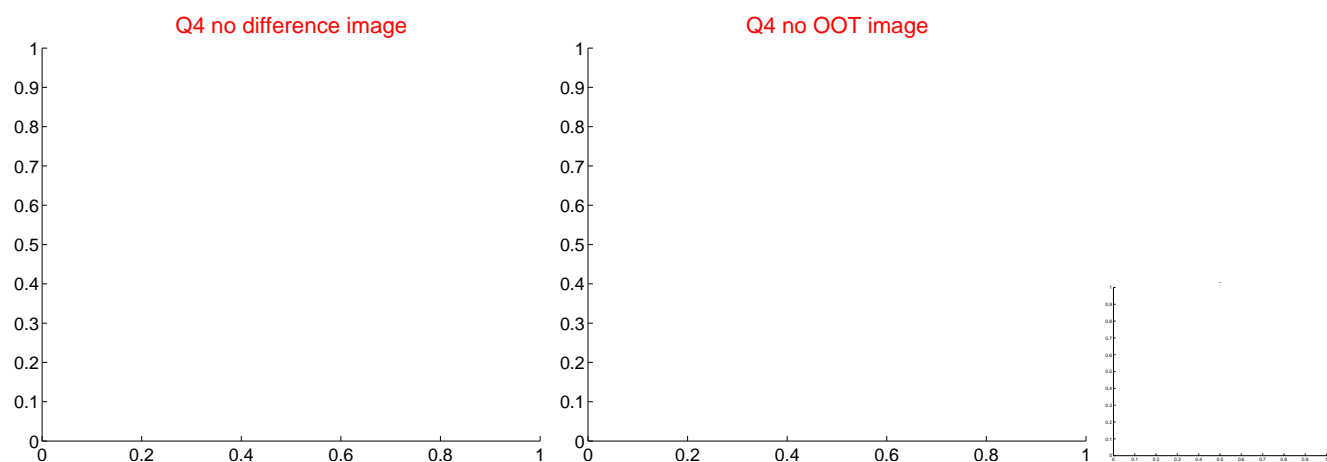
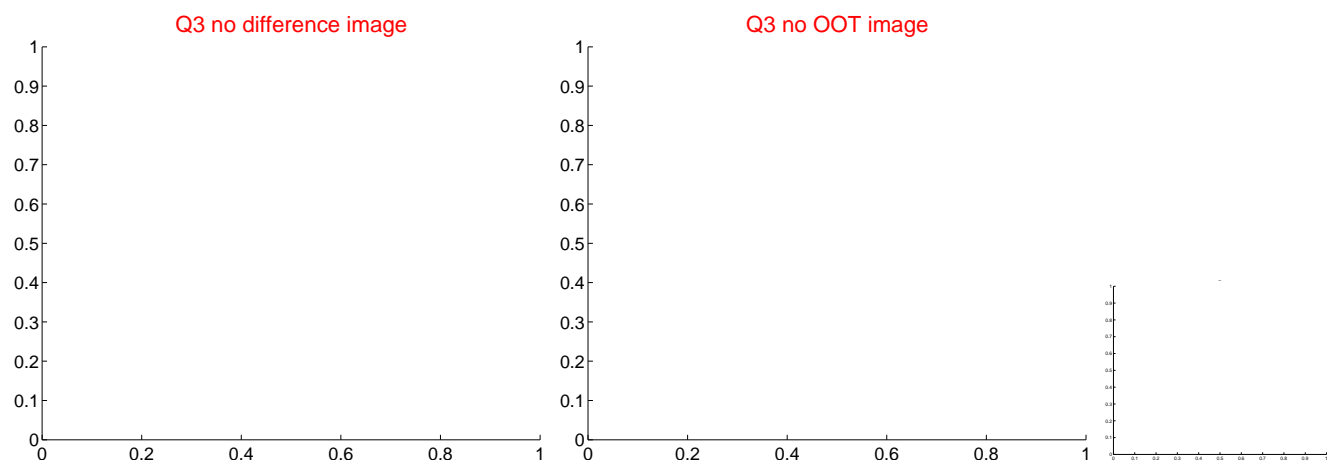
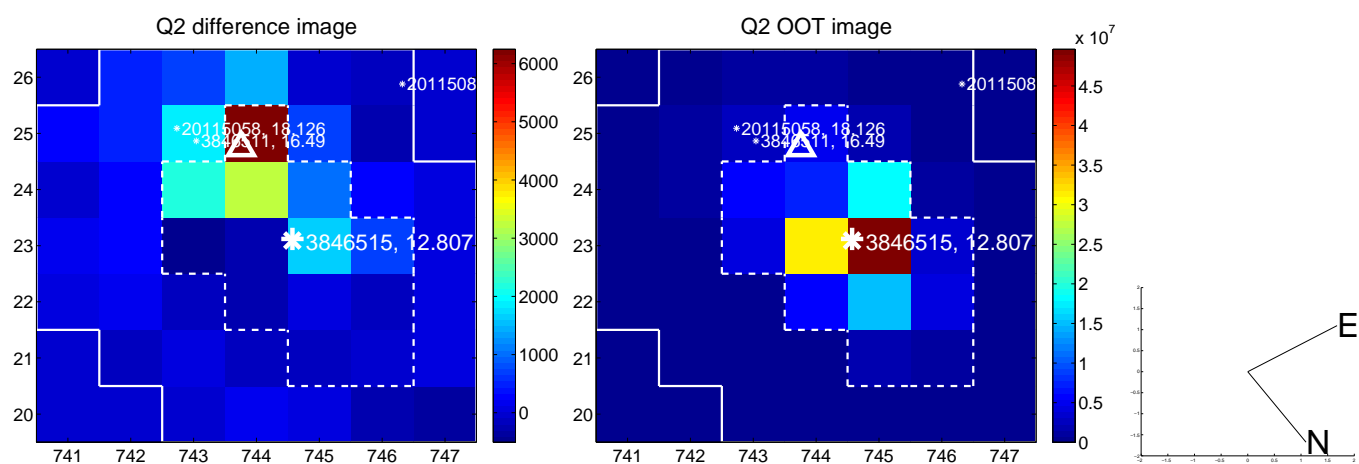
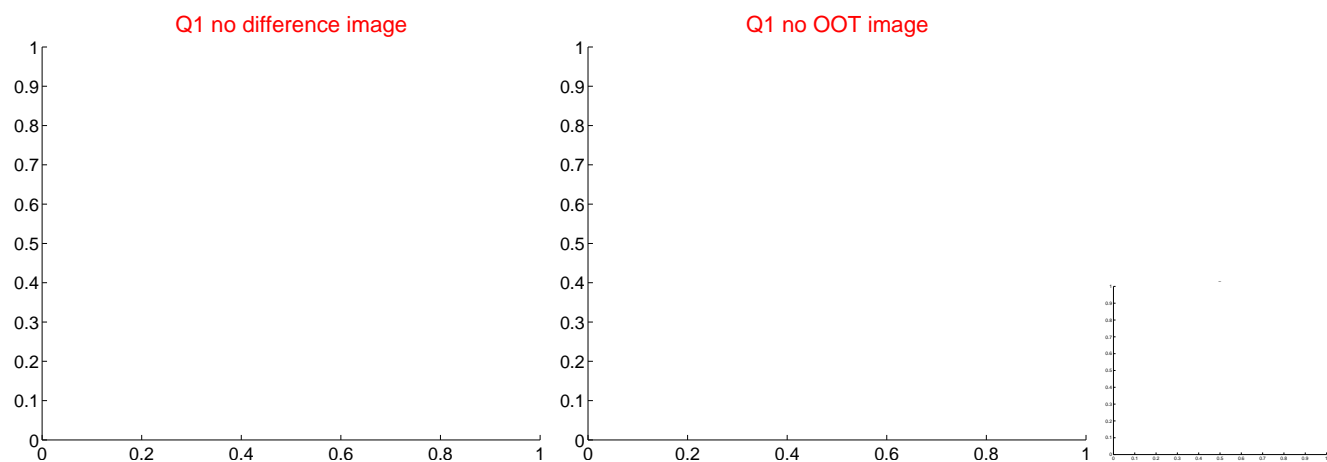
offset from photometric centroids



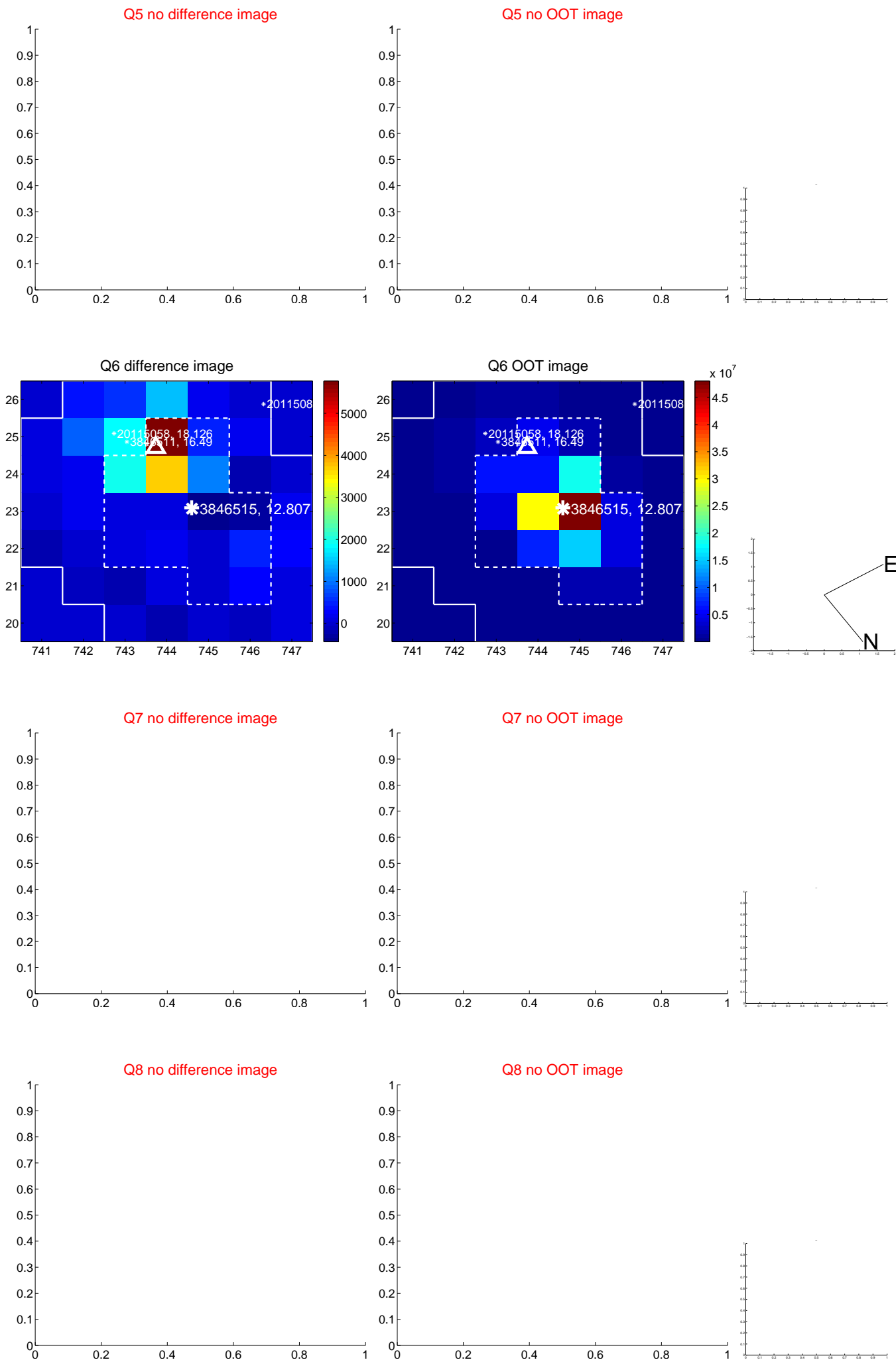
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



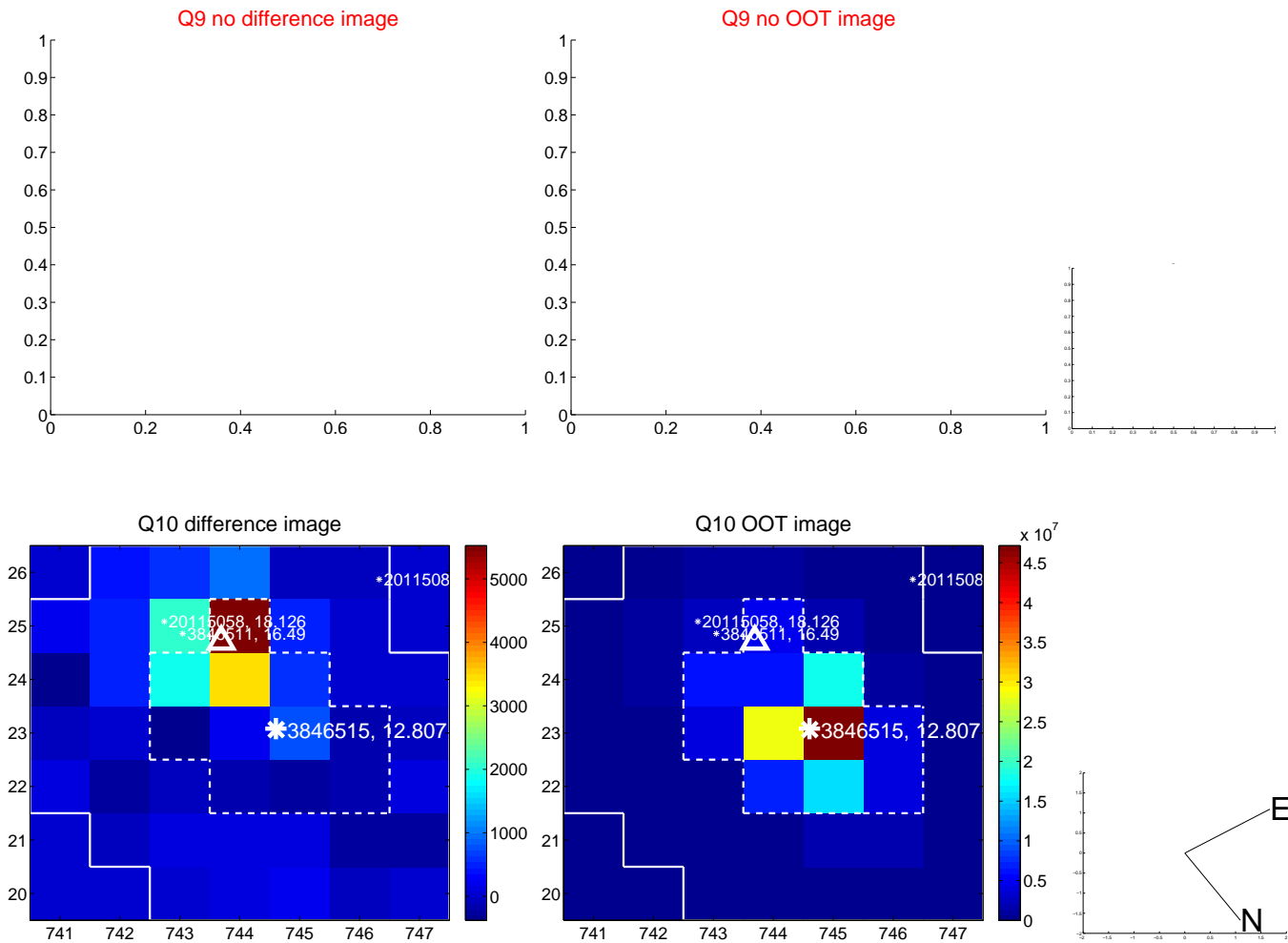
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



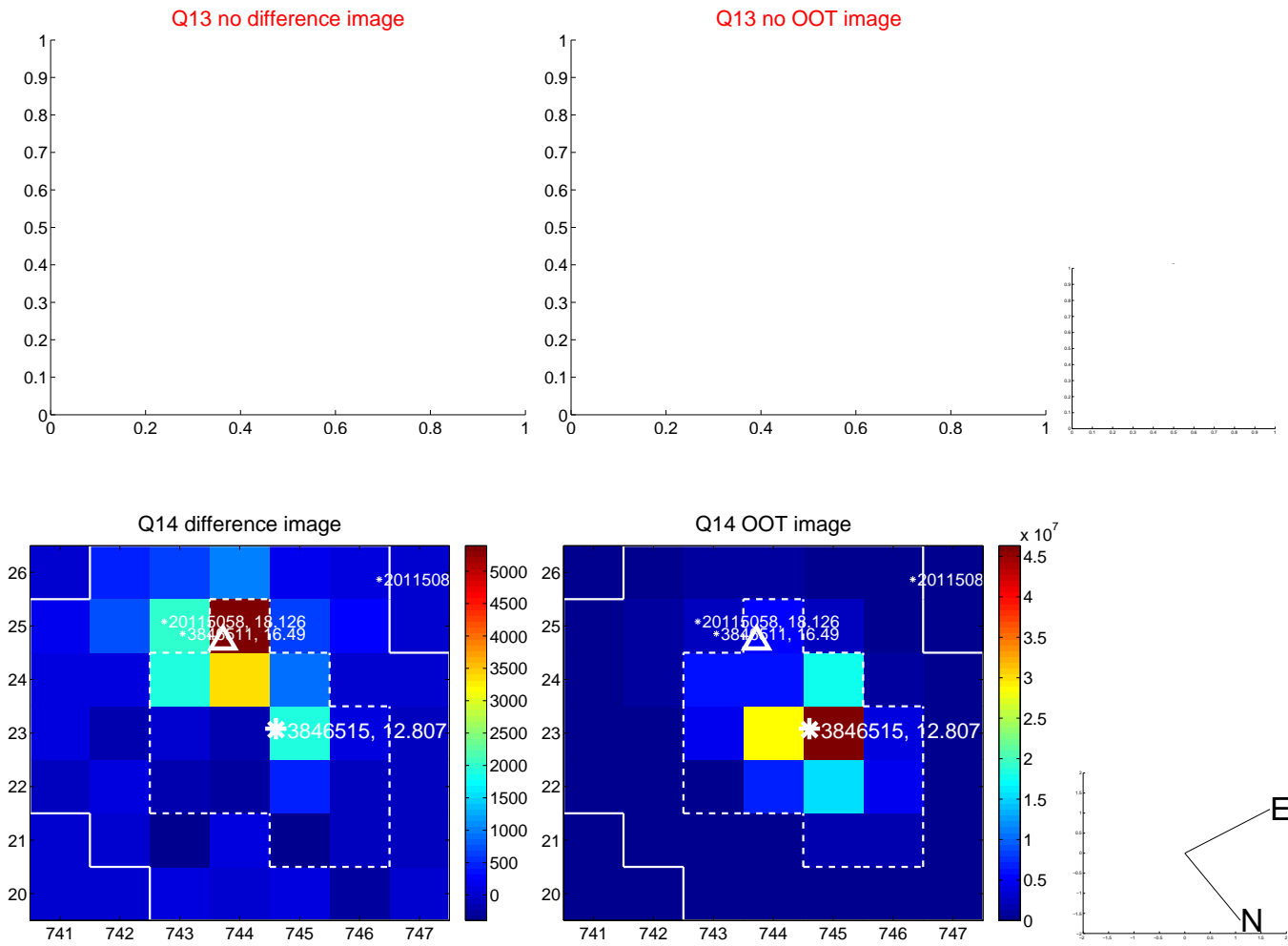
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



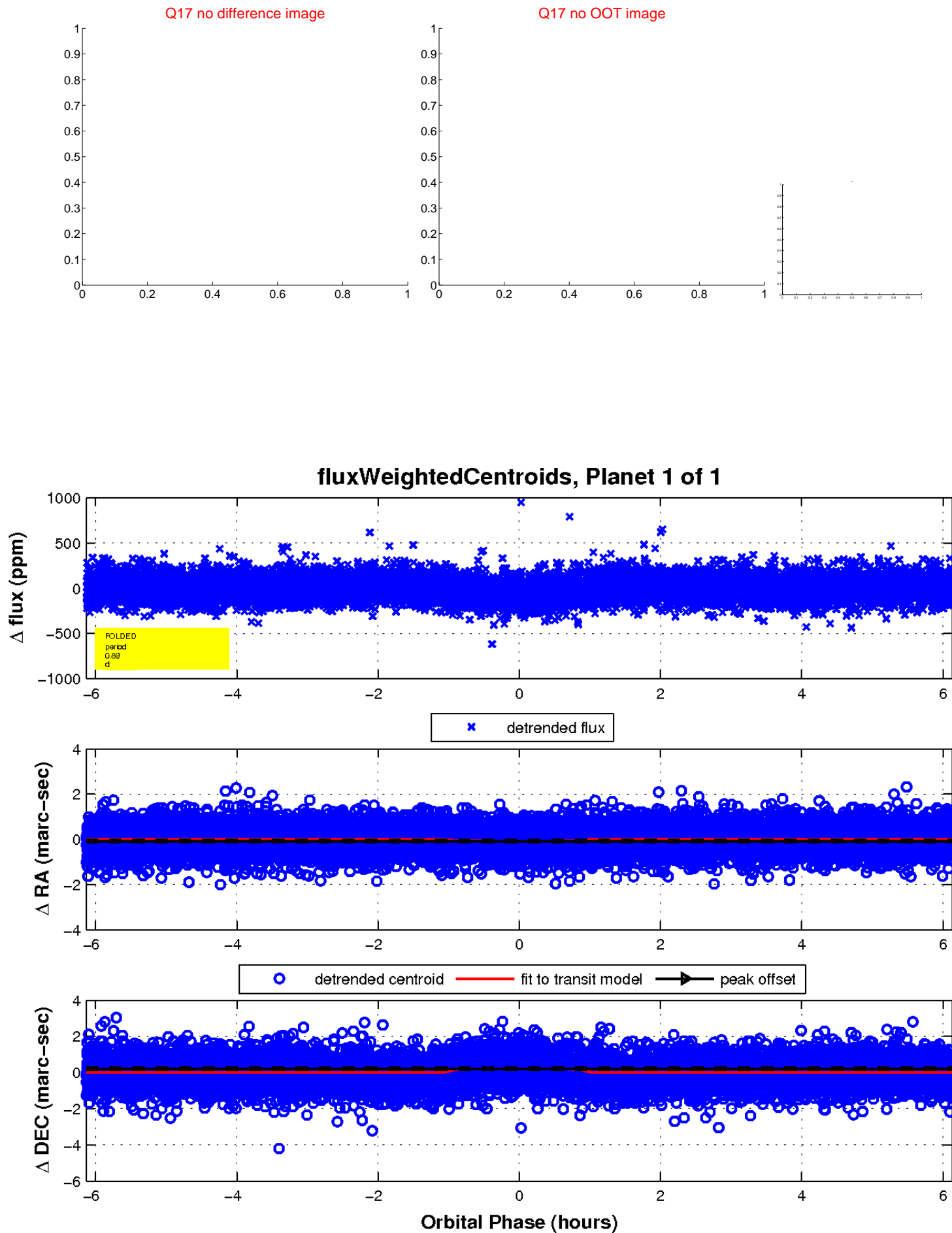
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

