

# KIC 012105744

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012105744-01	OBS	No	33.943271	133.829644	125.0	88.635	8.0	20.4	1.46	5717	3.34	50.85

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012105744-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

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

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

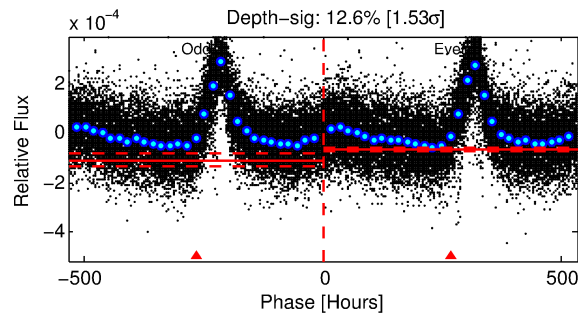
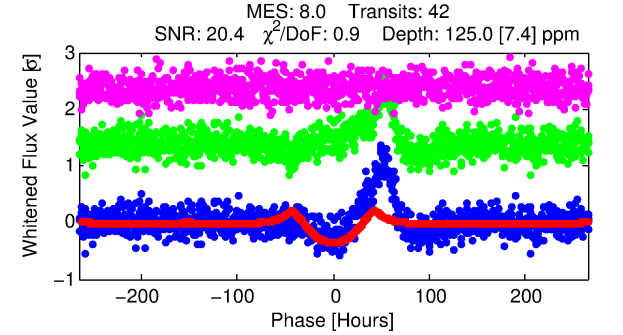
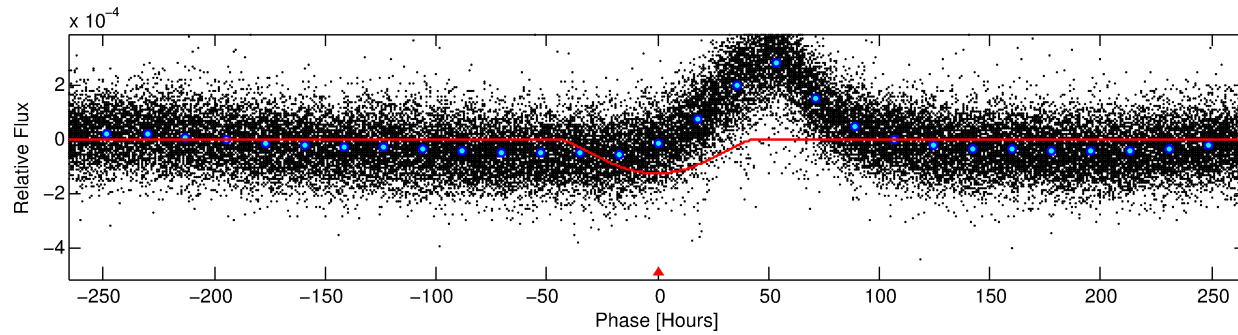
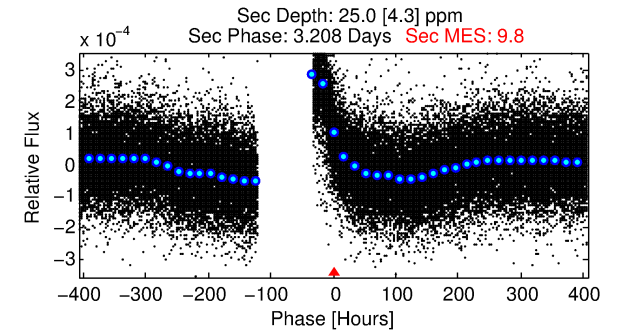
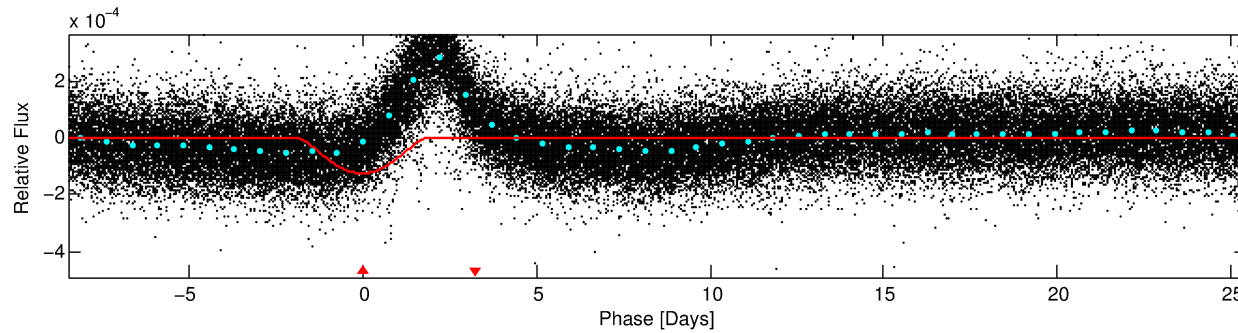
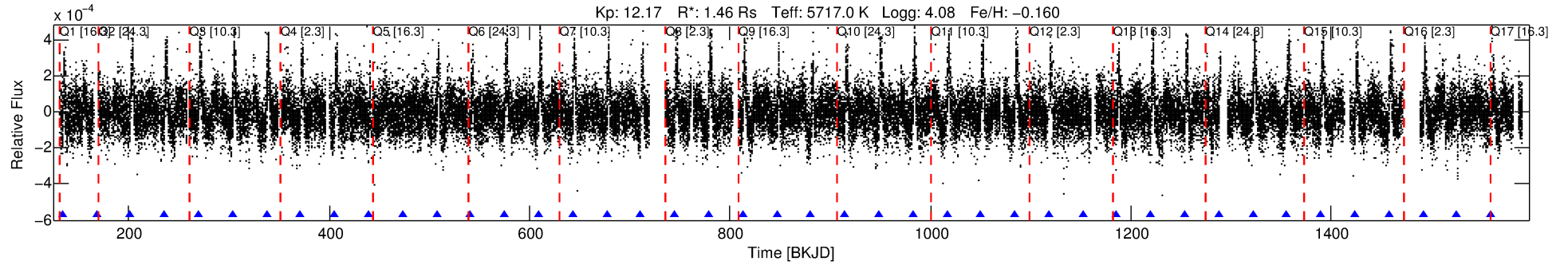
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012105744-01

No Significant Match Found

# DV One-Page Summary

KIC: 12105744 Candidate: 1 of 1 Period: 33.943 d



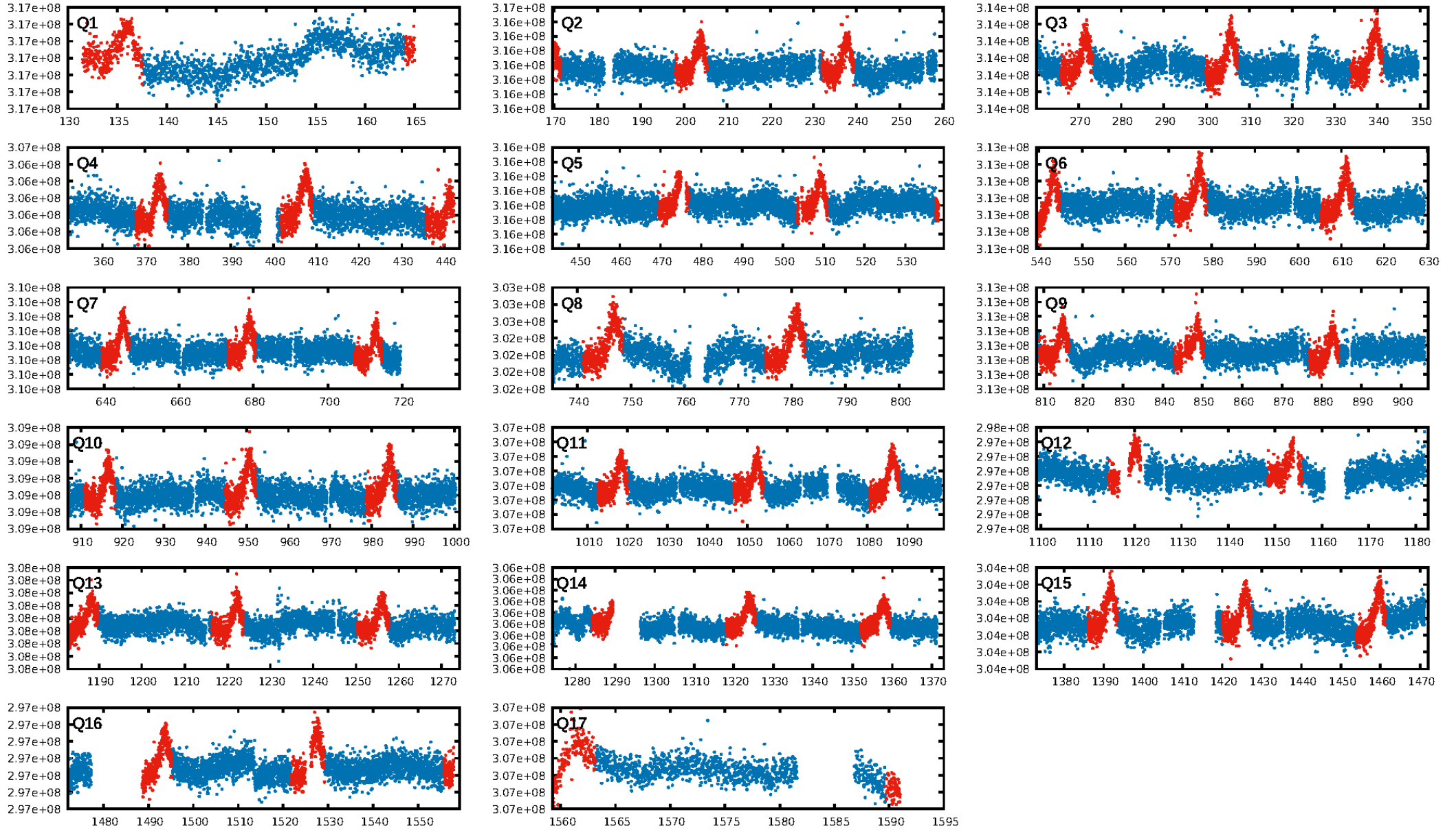
## DV Fit Results:

Period = 33.94327 [0.00266] d  
Epoch = 133.8296 [0.0627] BKJD  
Rp/R\* = 0.0209 [0.0119]  
a/R\* = 1.18 [0.04]  
b = 1.00 [0.02]  
Seff = 50.85 [25.15]  
Teq = 681 [84] K  
Rp = 3.34 [2.14] Re  
a = 0.2009 [0.0591] AU  
Ag = 49.76 [62.25] [0.78 $\sigma$ ]  
Teffp = 2796 [811] K [2.60 $\sigma$ ]

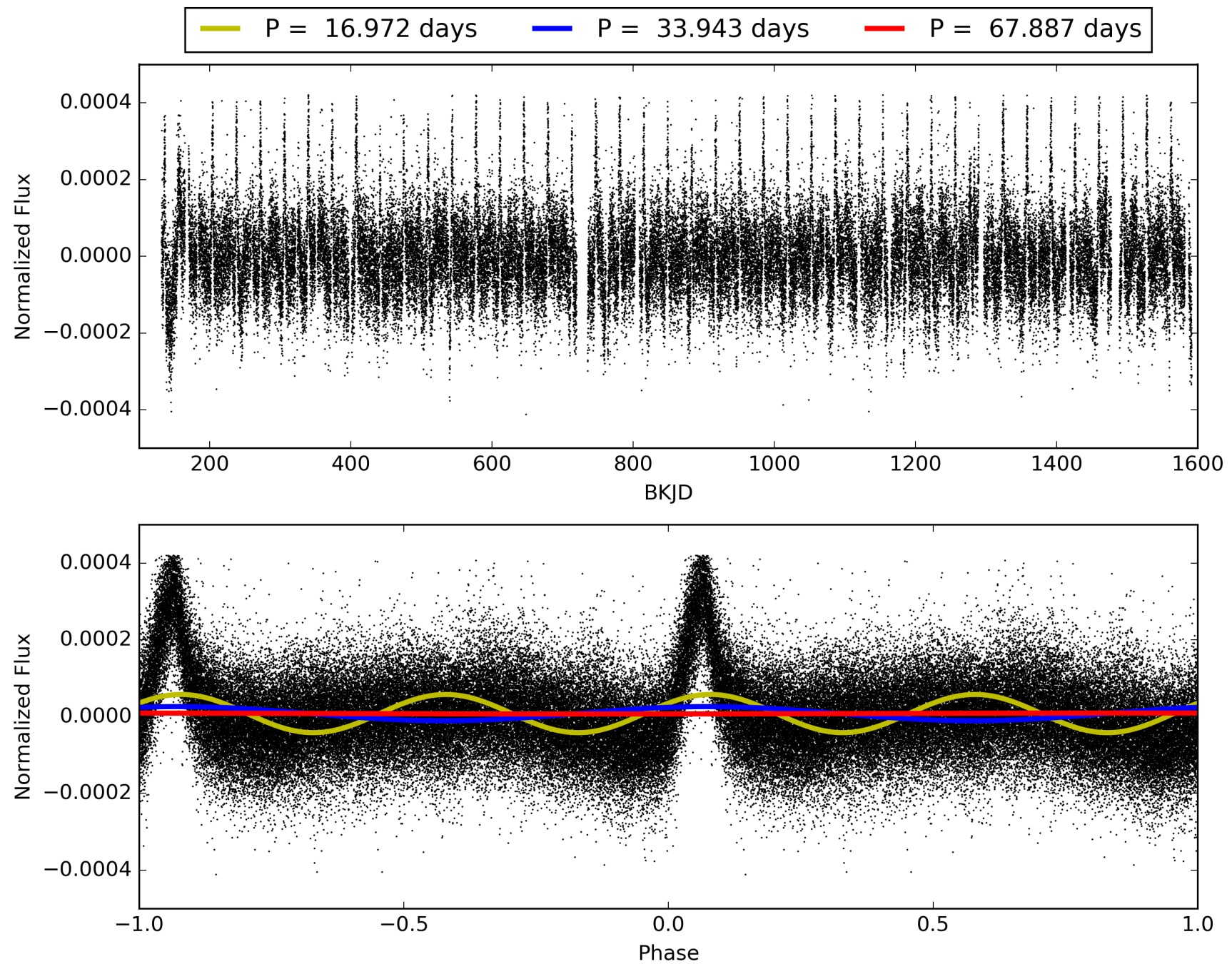
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.3%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: 1.39e-15  
RollingBand-fgt: 1.00 [41/41]  
GhostDiagnostic-chr: 3.751  
Centroid-sig: 58.2%  
Centroid-so: 0.734 arcsec [2.24 $\sigma$ ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [9/9]

# TCE 012105744-01, PDC Light Curves

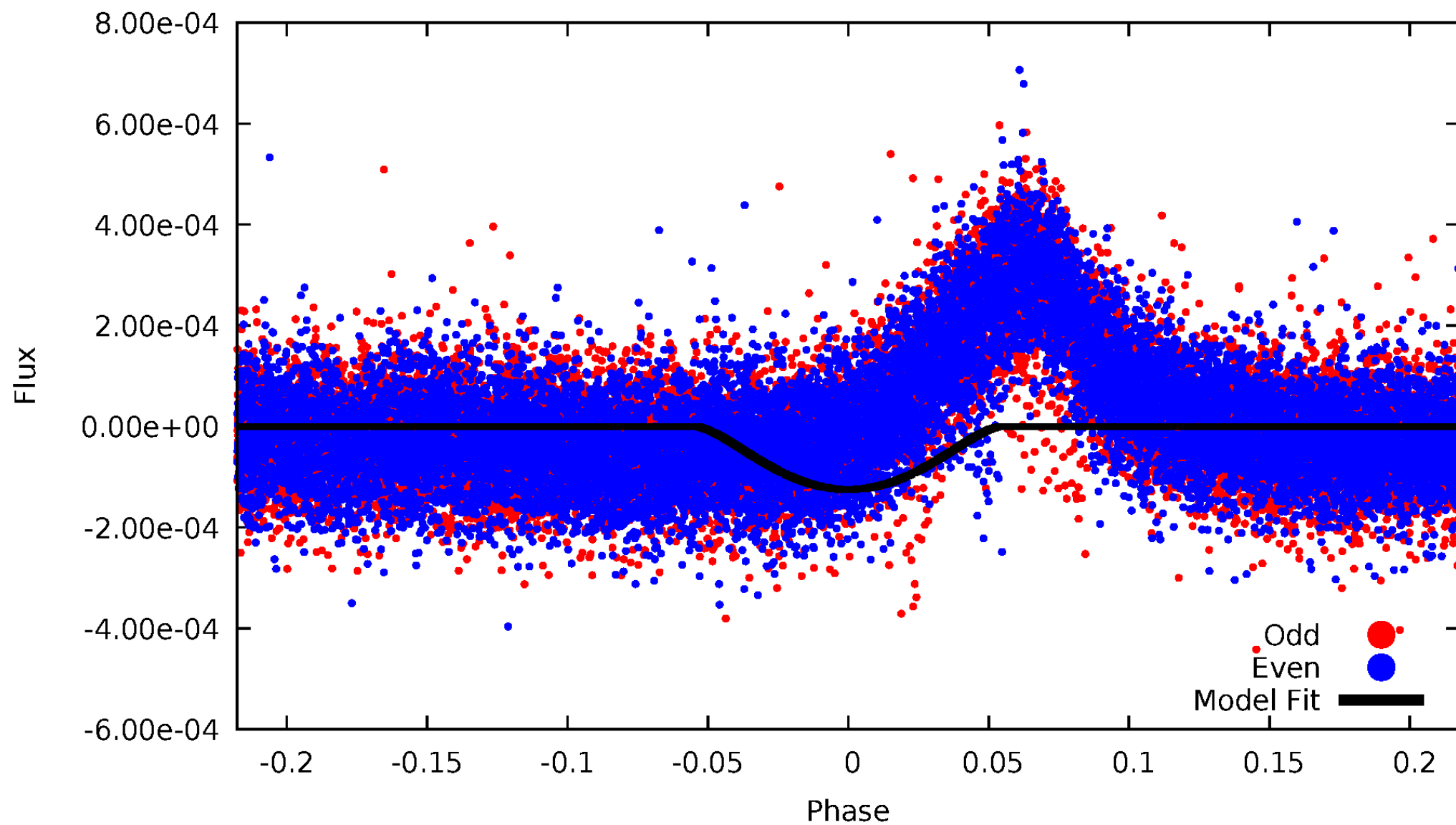


TCE 012105744-01



# DV Odd/Even

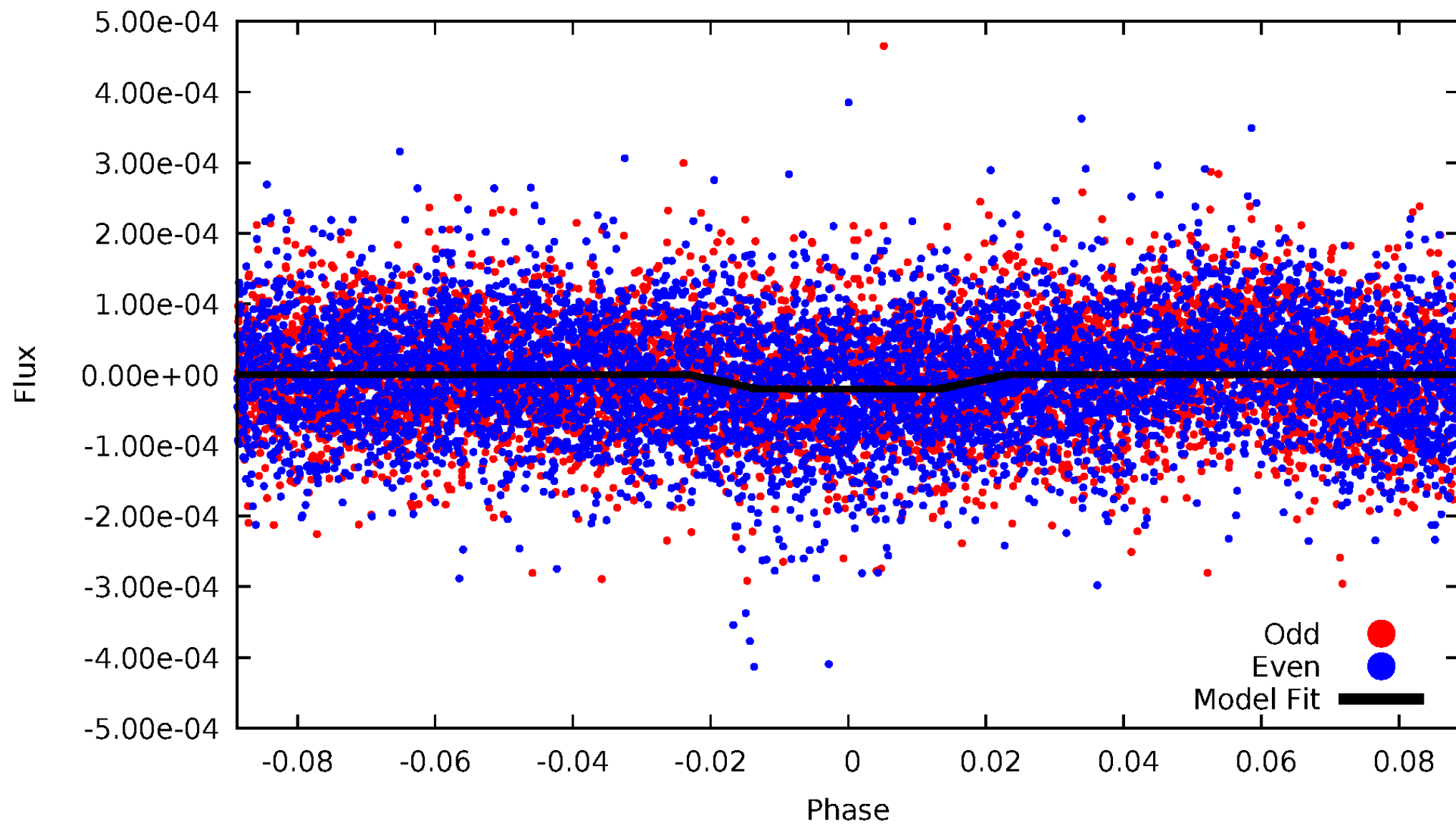
TCE 012105744-01





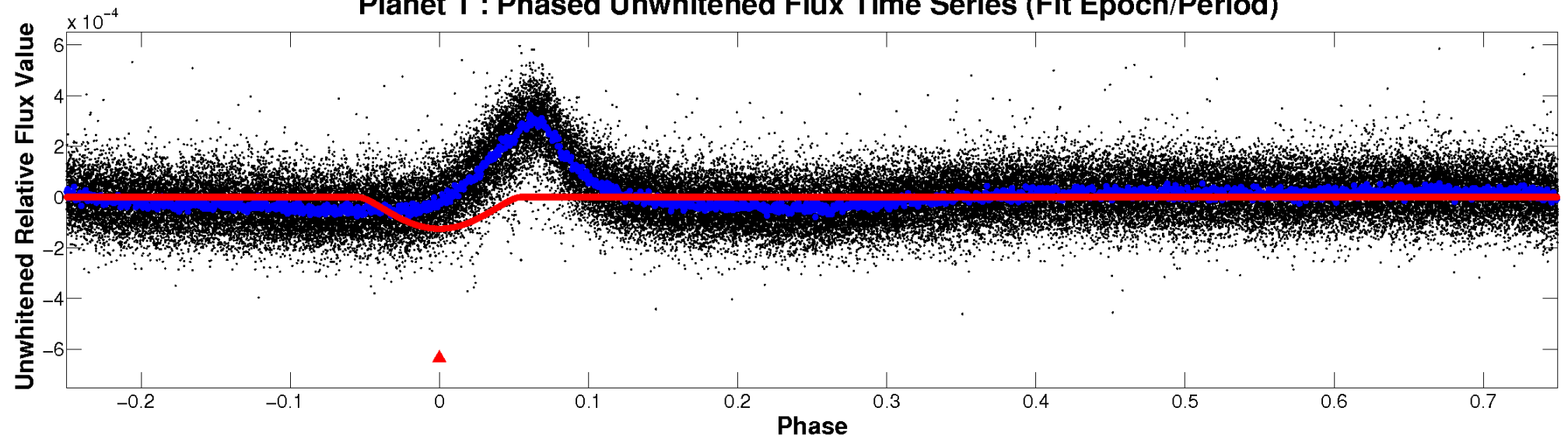
# ALT Odd/Even

TCE 012105744-01

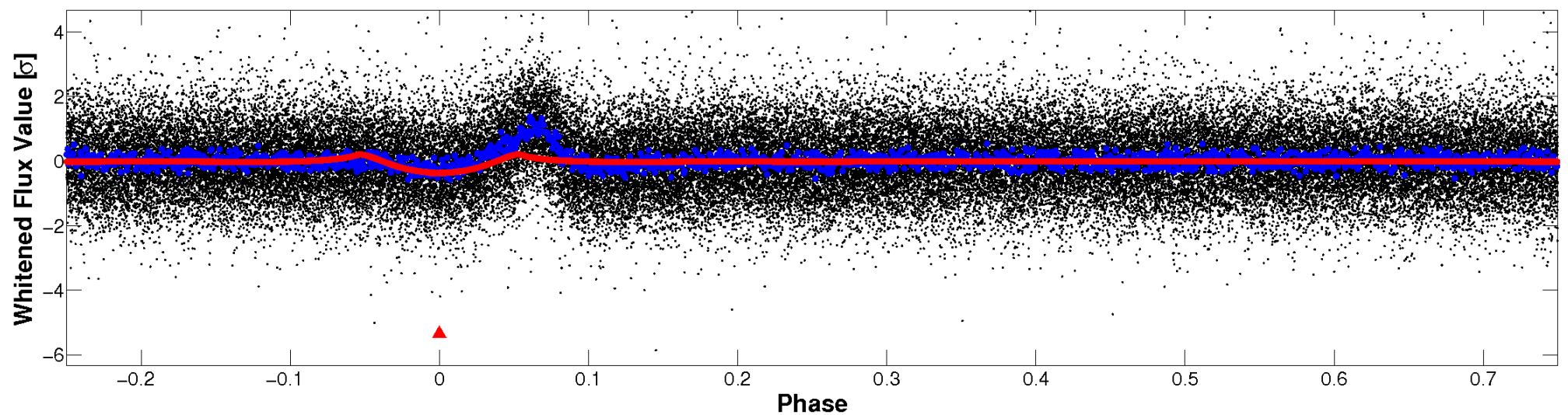


# Non-Whitened Vs. Whitened Light Curve

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

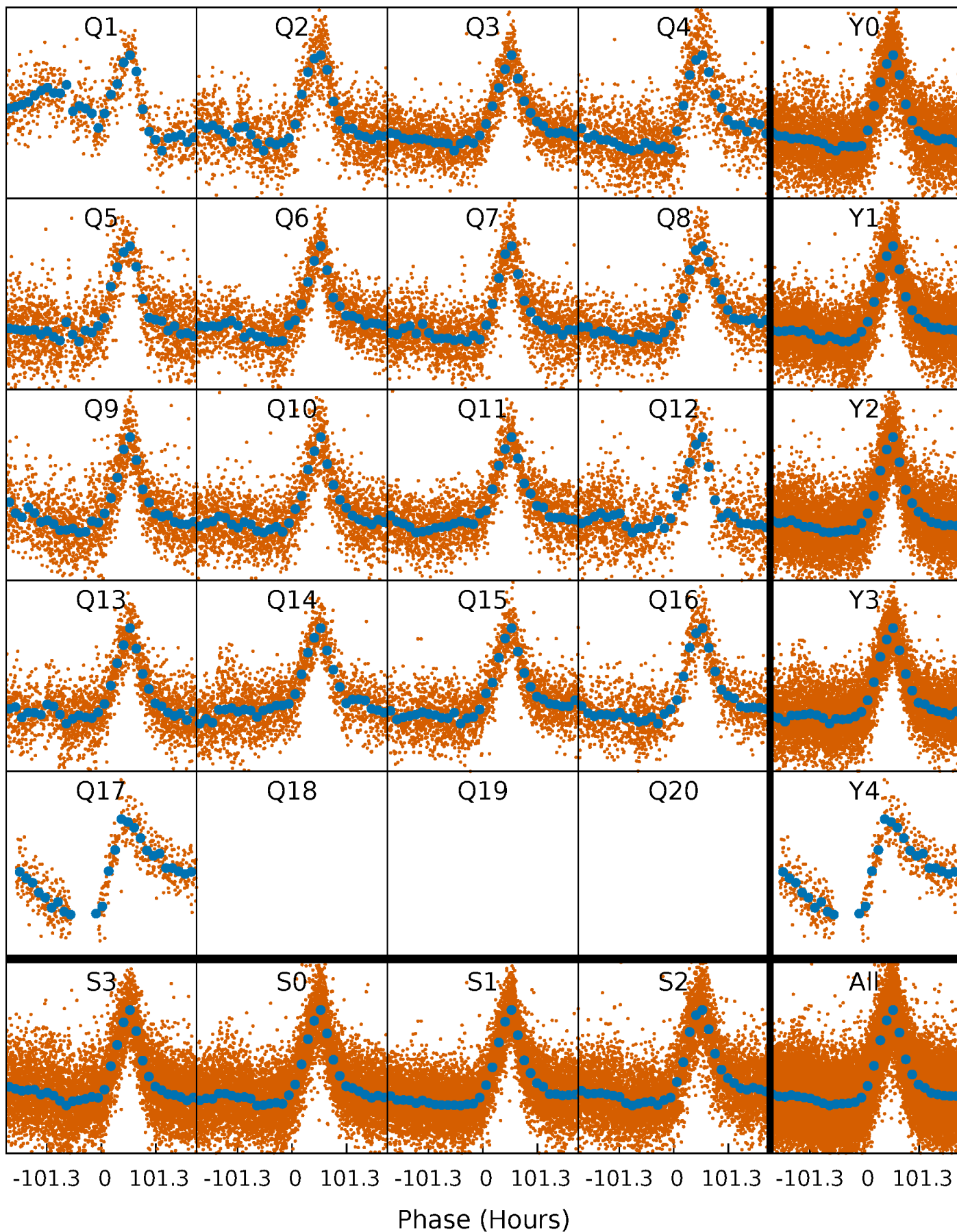


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

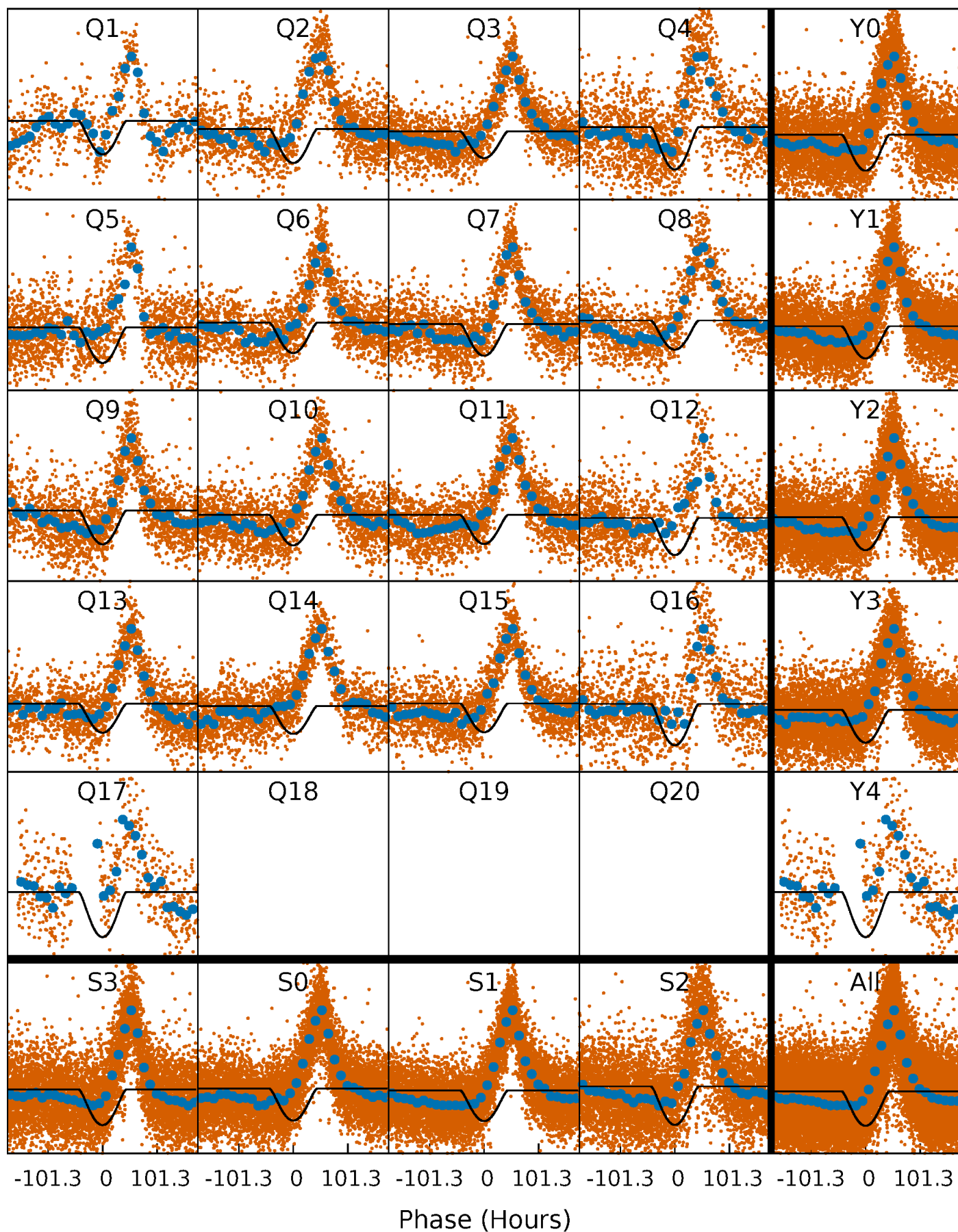
TCE 012105744-01 P= 33.943271 Days  $T_0=133.829644$  (BKJD)





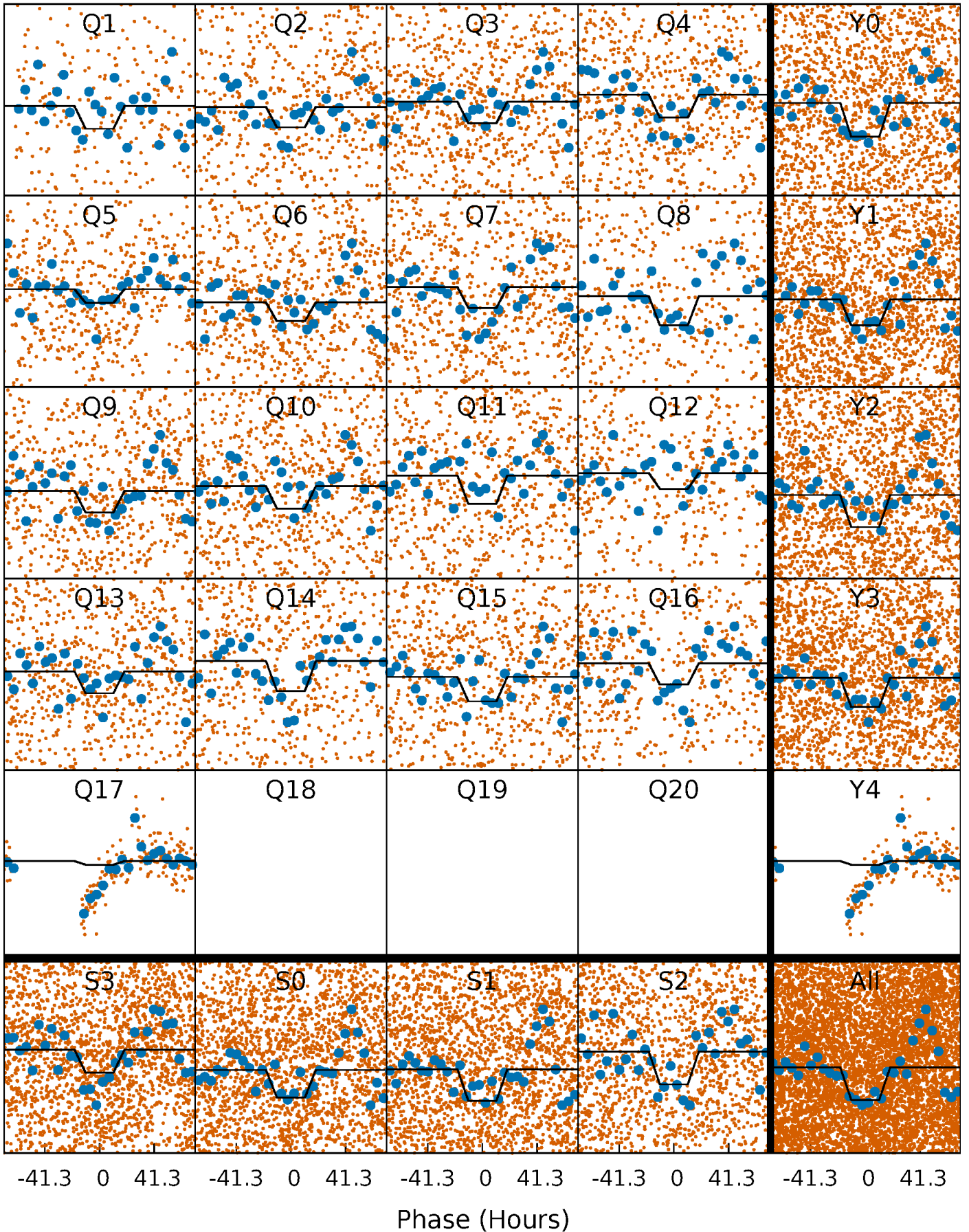
# DV Quarter-Phased Transit Curves

TCE 012105744-01 P= 33.943271 Days  $T_0=133.829644$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

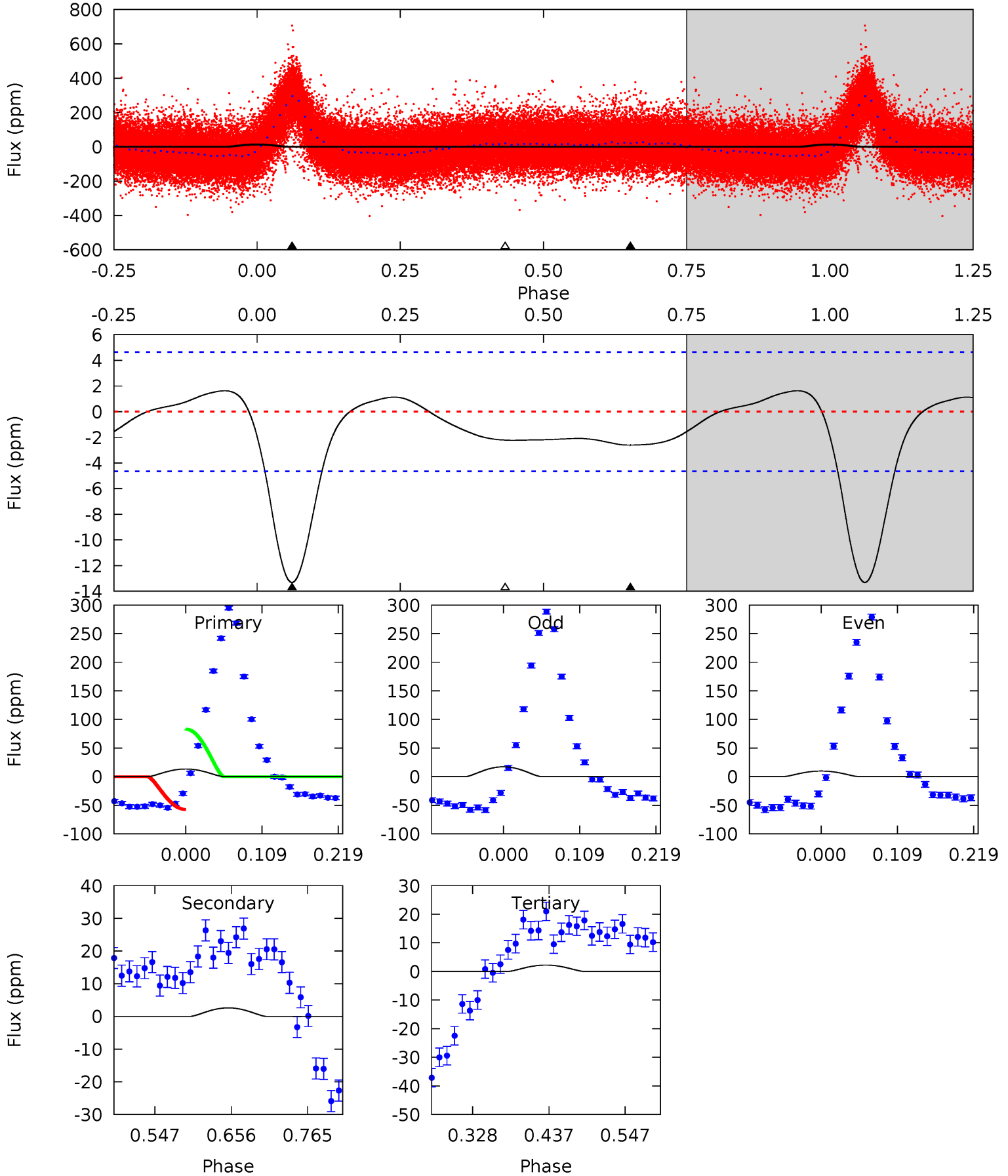
TCE 012105744-01 P= 33.944320 Days  $T_0=134.152196$  (BKJD)



# DV Model-Shift Uniqueness Test

012105744-01, P = 33.943271 Days, E = 99.886373 Days

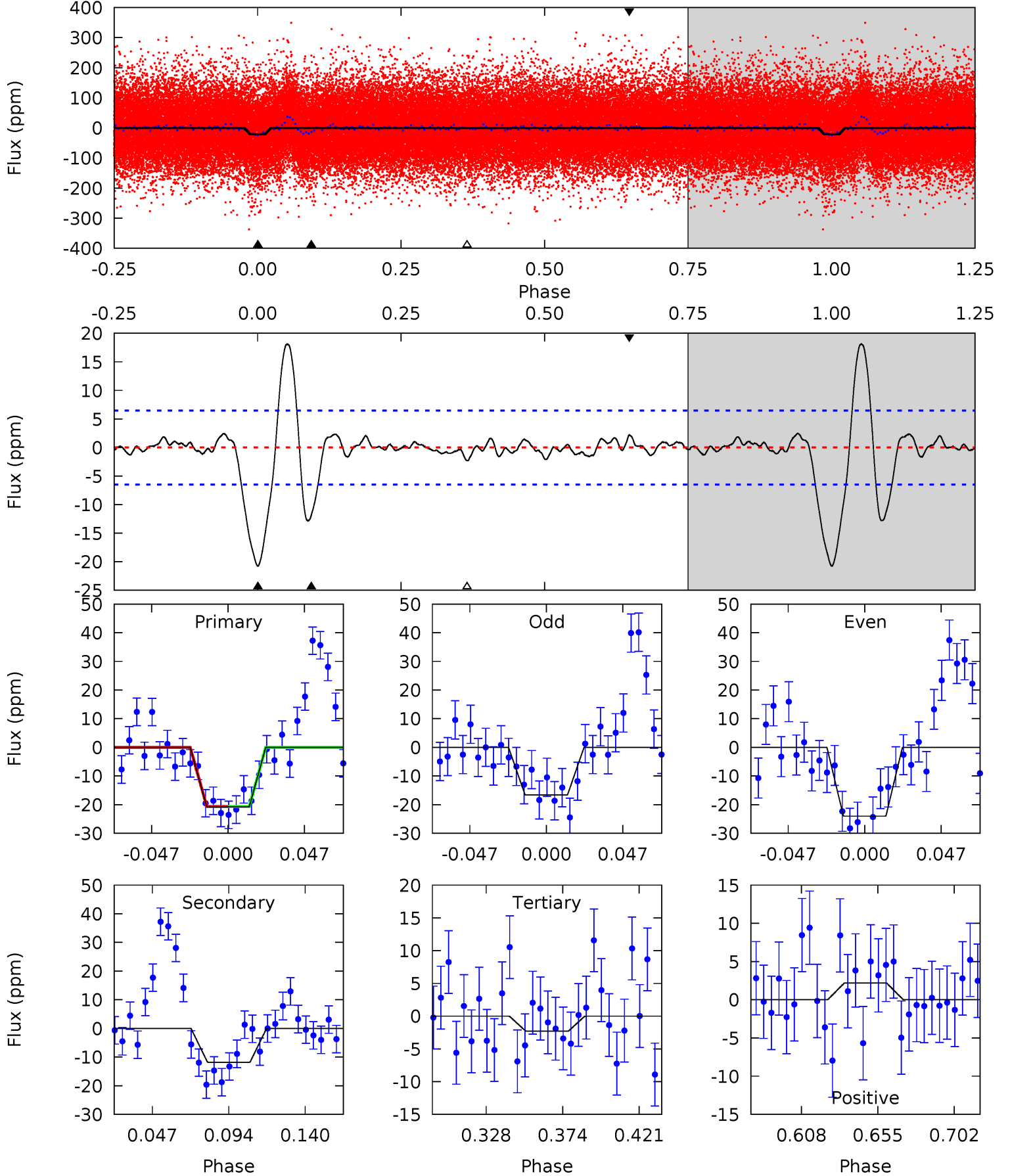
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	2.55	2.17	0	4.55	1.60	1.31	10.9	13.0	0.38	2.55	3.59	1.11	0.11	12.7



# Alt Model-Shift Uniqueness Test

012105744-01, P = 33.944320 Days, E = 100.207876 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
15.1	8.61	1.68	1.59	4.72	1.99	0.67	13.5	13.6	6.94	7.02	2.71	1.29	0.47	0.02



### Stellar Parameters For KIC 012105744

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5717^{+159}_{-130}$	$4.079^{+0.287}_{-0.123}$	$-0.160^{+0.350}_{-0.200}$	$1.464^{+0.286}_{-0.429}$	$0.939^{+0.136}_{-0.084}$	$0.421^{+0.733}_{-0.145}$
	+3%/-2%	+7%/-3%	+219%/-125%	+20%/-29%	+14%/-9%	+174%/-34%
Source	PHO1	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 012105744-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3\pm 1$	$3.31^{+1.92}_{-1.72}$	$938^{+57}_{-76}$	$2427^{+495}_{-302}$	$5.496^{+17.336}_{-3.707}$
Alt.	$-12\pm 1$	$1.57^{+1.46}_{-1.06}$	$942^{+58}_{-69}$	$3735^{+2061}_{-681}$	$109^{+873}_{-80}$

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



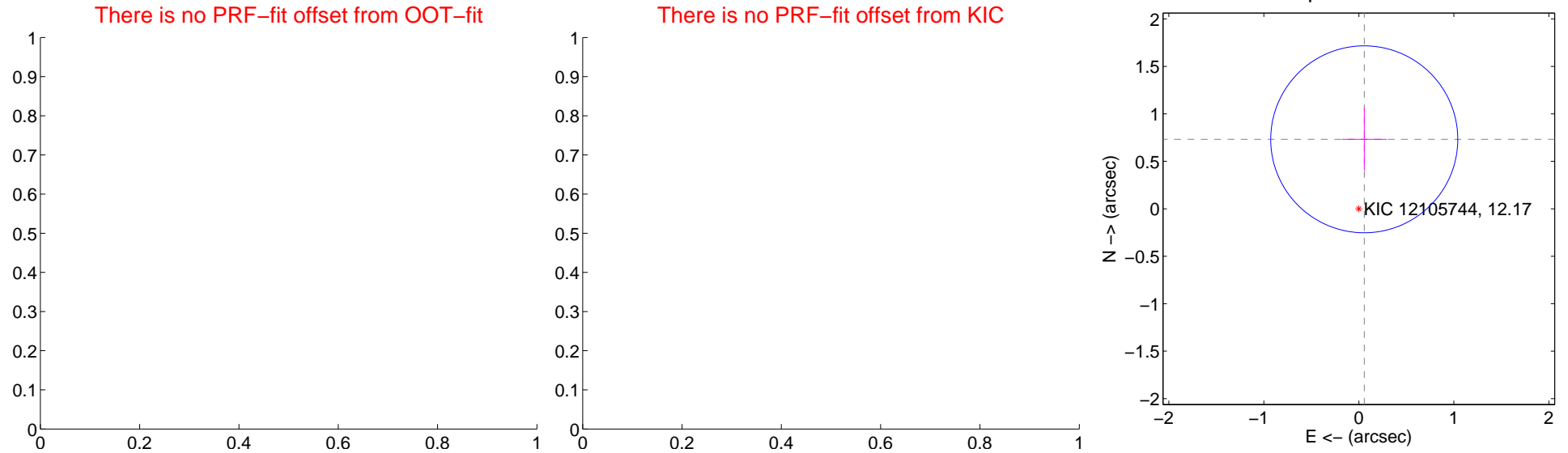
## DV Centroid Data

Supplemental centroid analysis for 012105744-01. Kepler magnitude: 12.17. Transit SNR 20.42

There are 0 quarters with good PRF difference image offsets

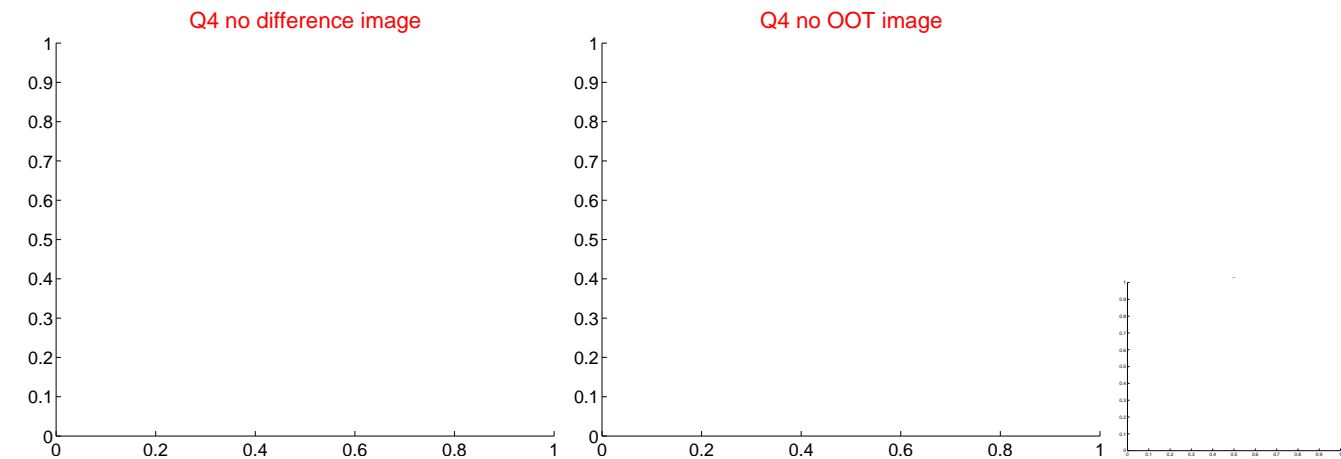
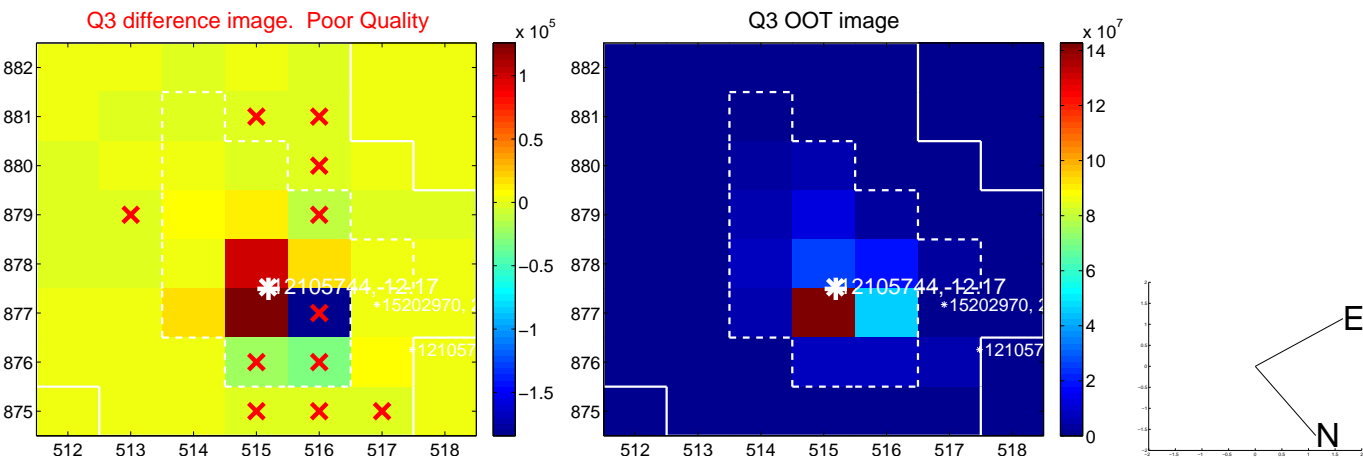
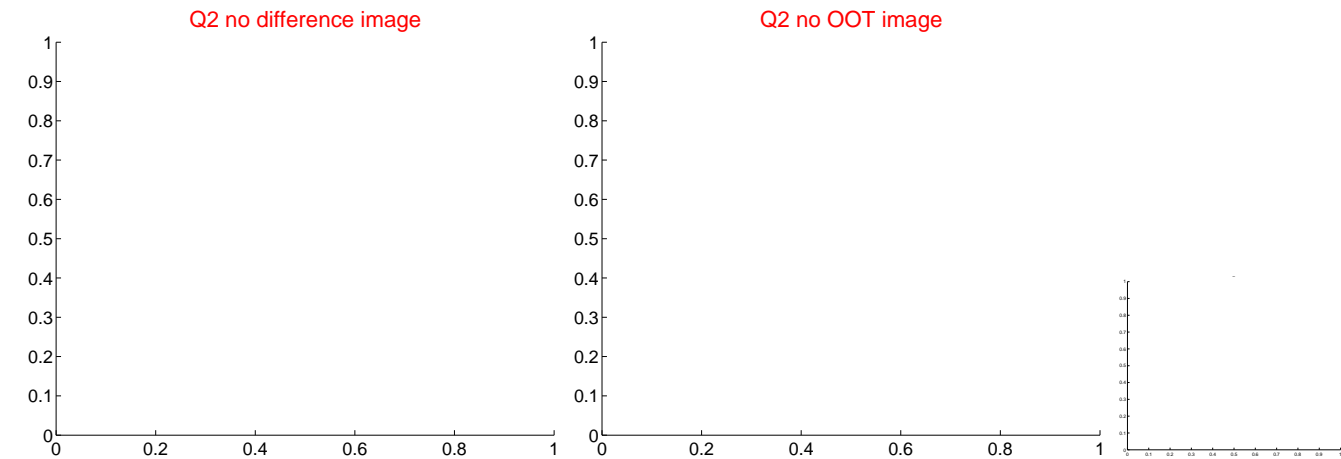
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$0.73 \pm 0.33$	2.24	$-0.06 \pm 0.24$	$0.73 \pm 0.33$

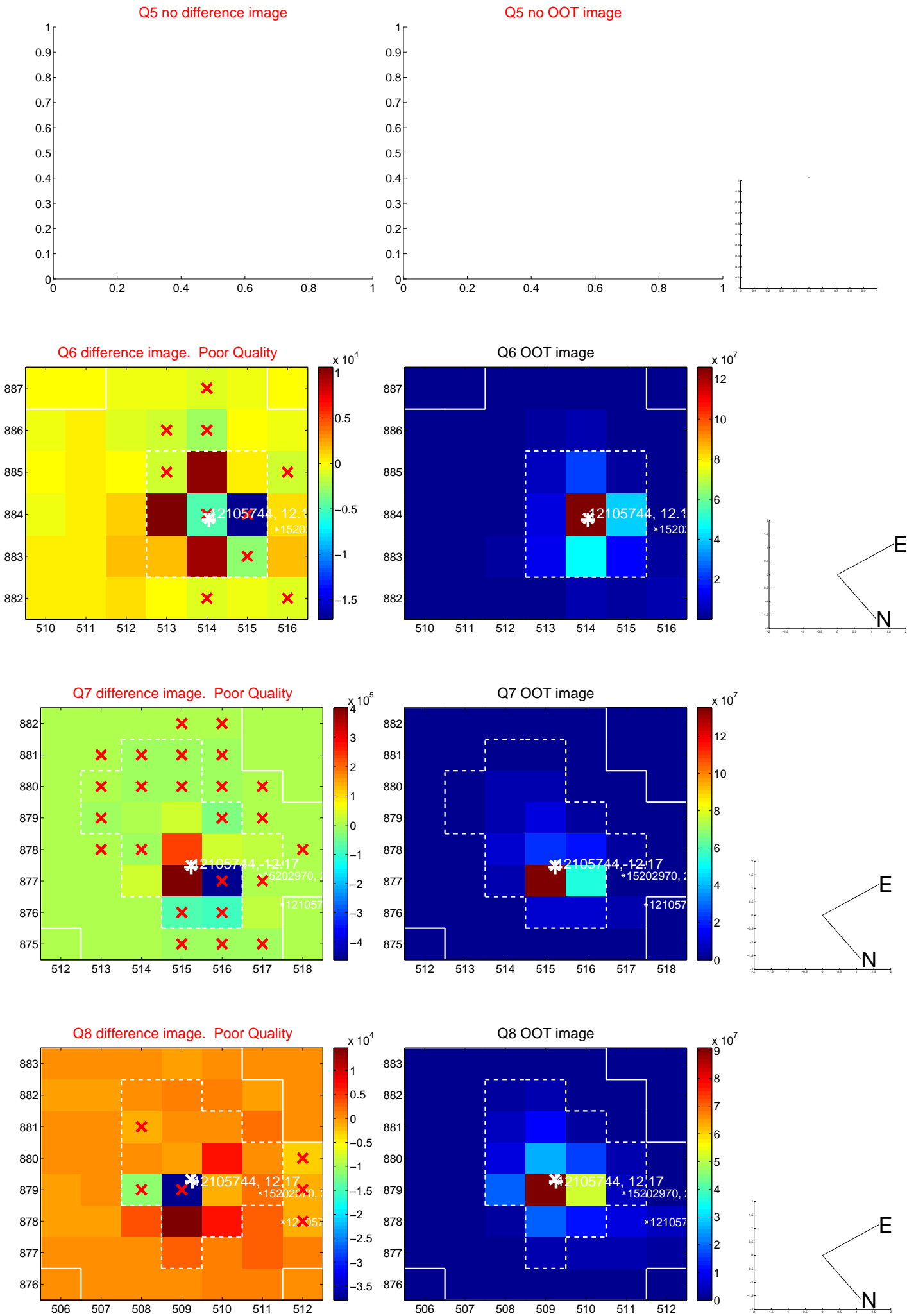


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

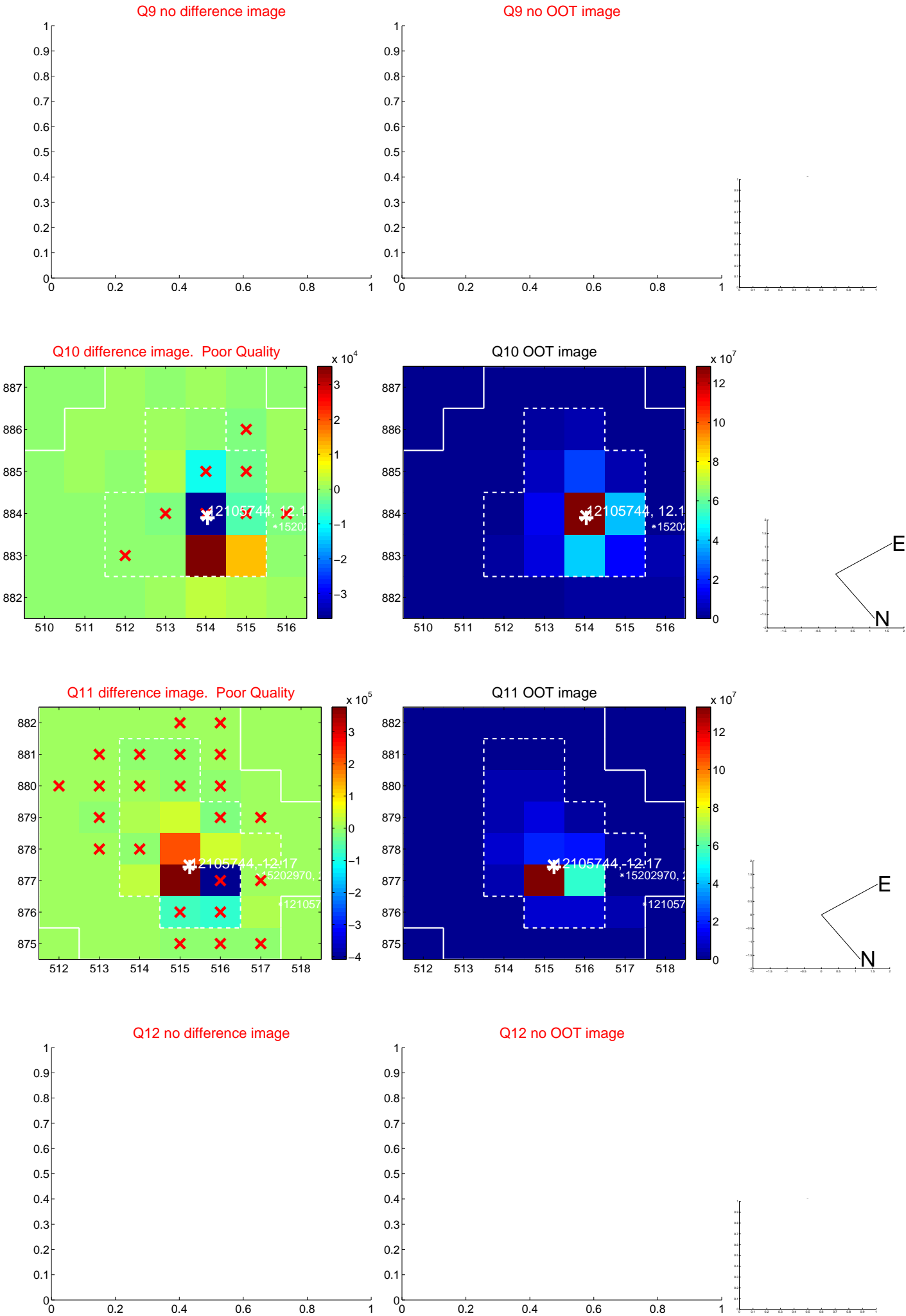
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



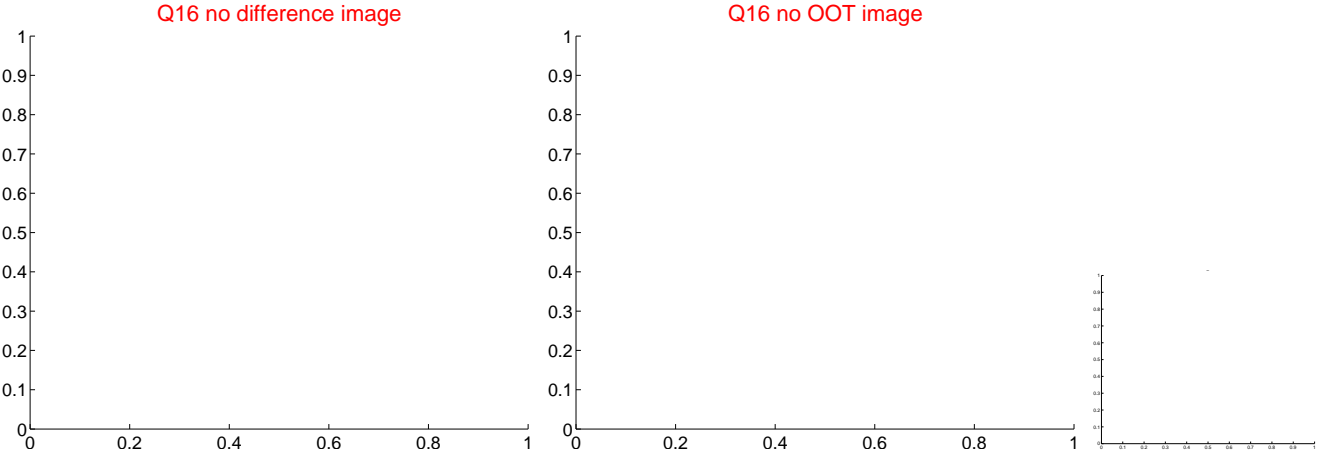
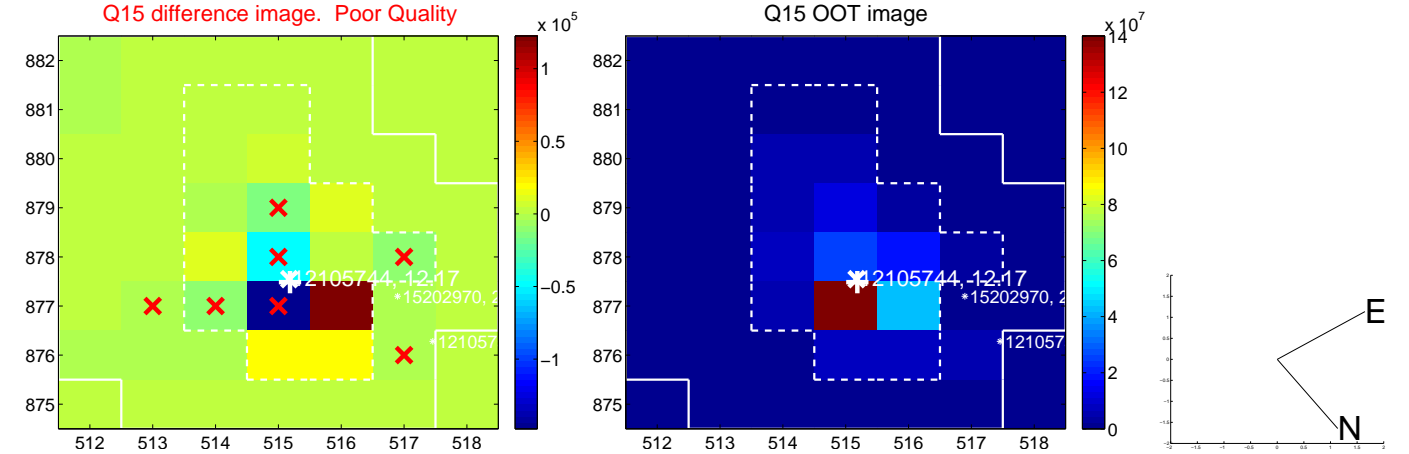
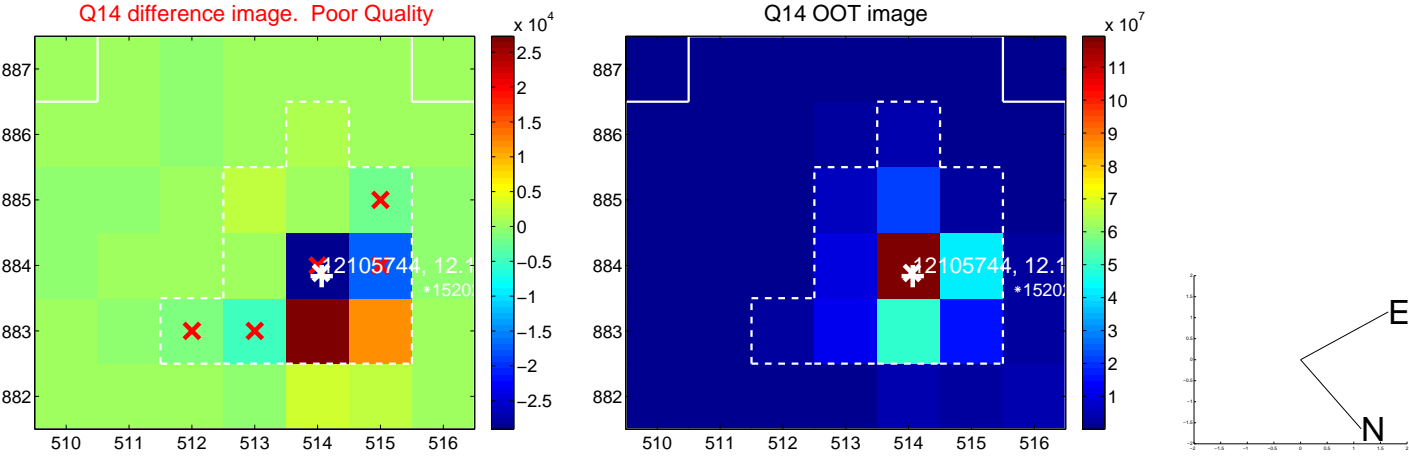
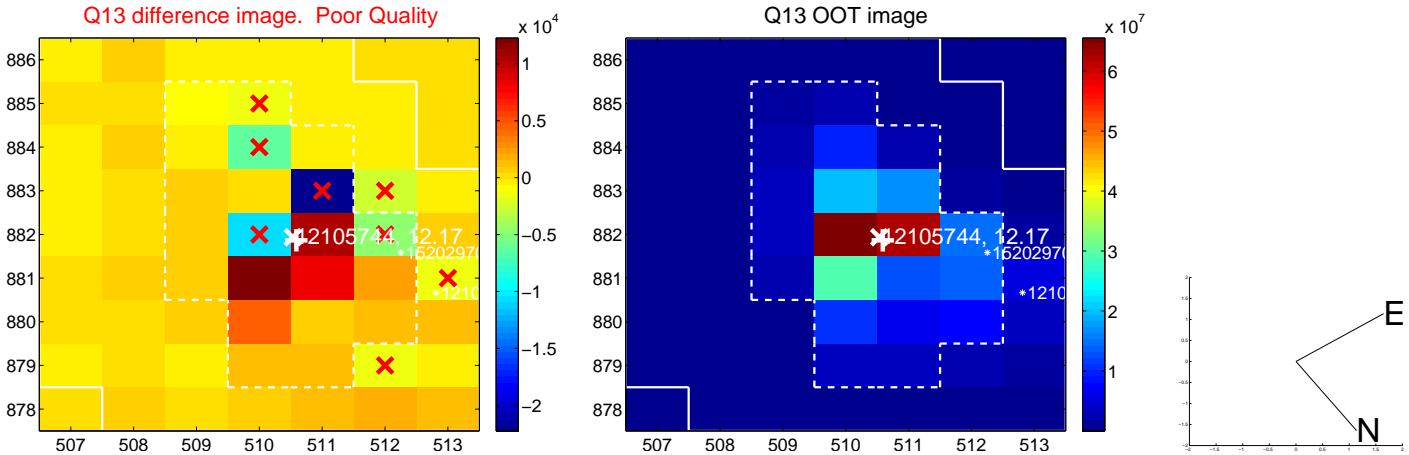
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

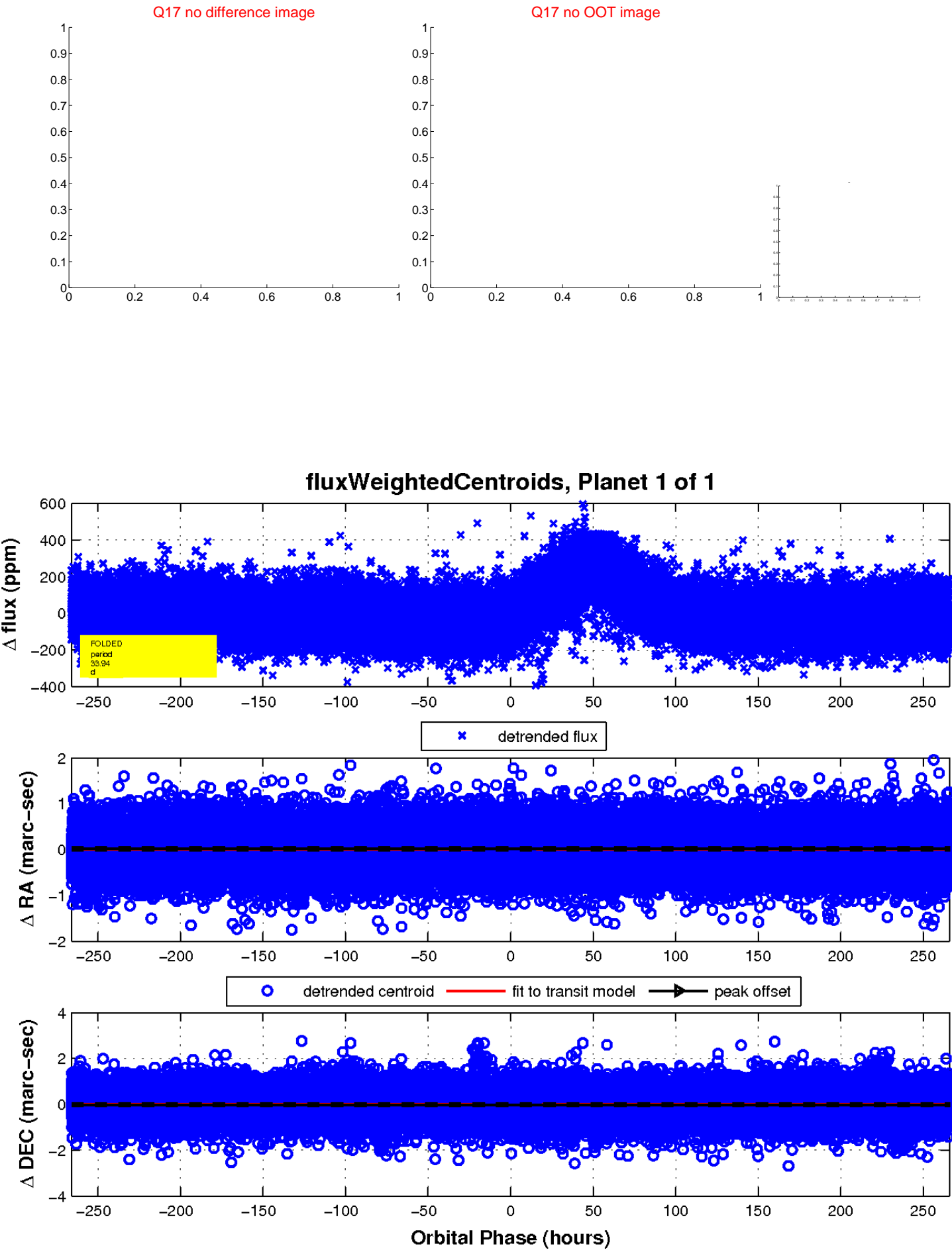


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

