

# KIC 005113708

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005113708-01	OBS	No	212.035518	334.215282	738.8	14.506	29.3	5.6	1.49	6169	4.07	5.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005113708-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

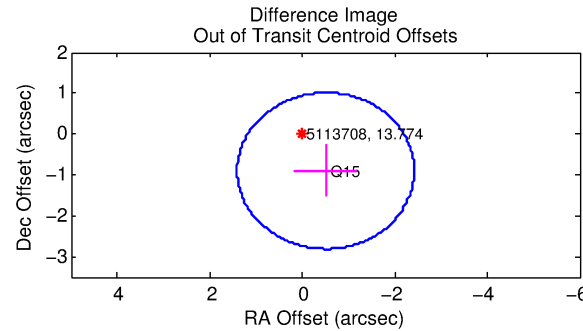
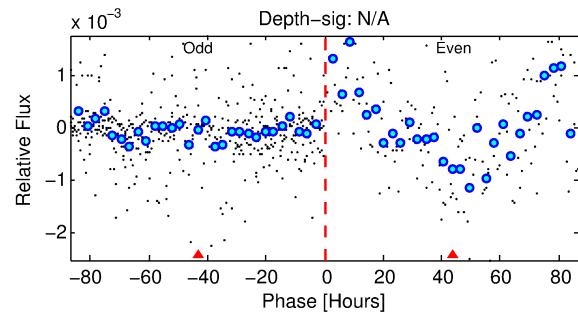
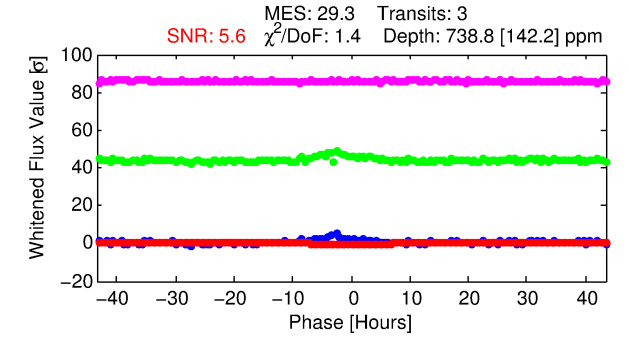
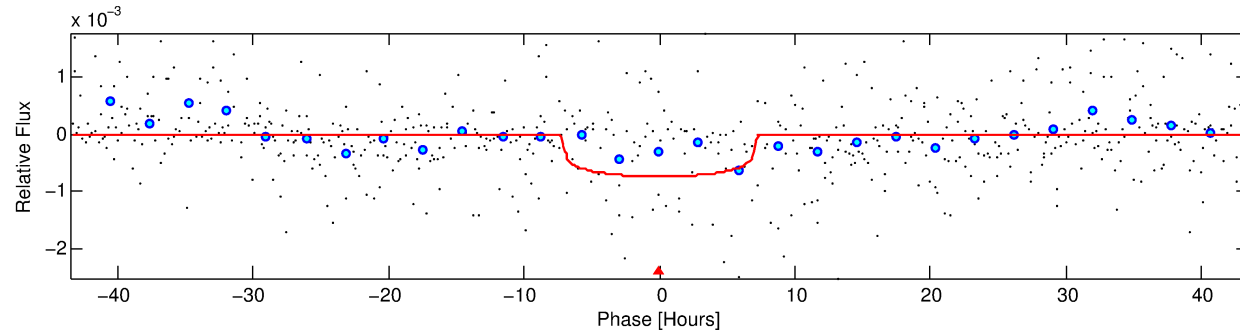
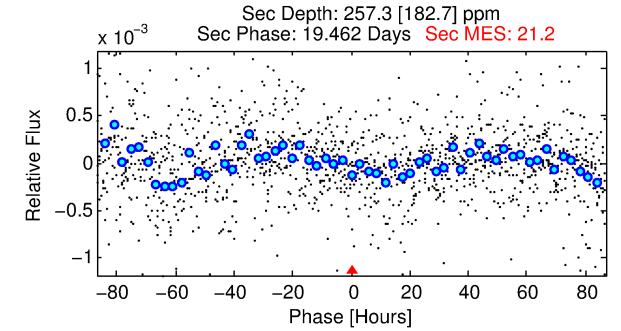
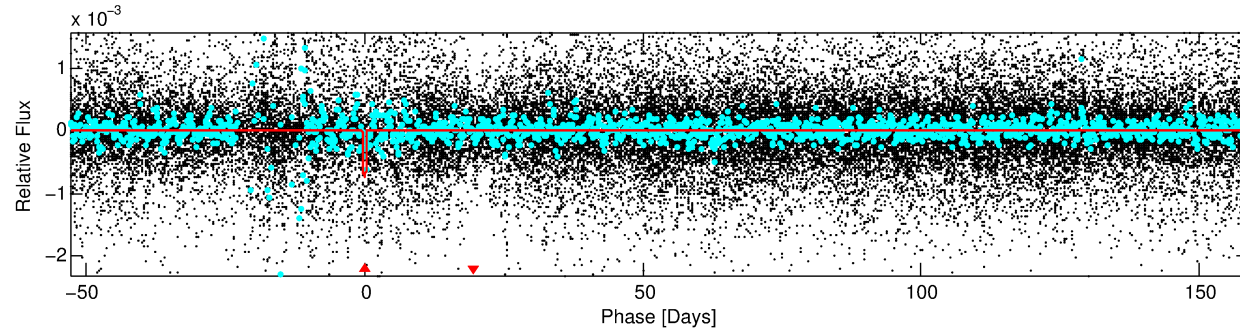
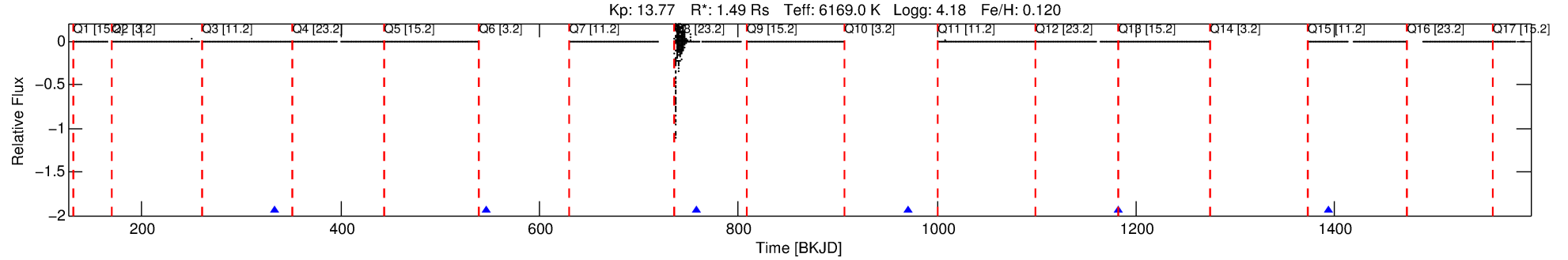
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005113708-01

No Significant Match Found

# DV One-Page Summary

KIC: 5113708 Candidate: 1 of 1 Period: 212.036 d



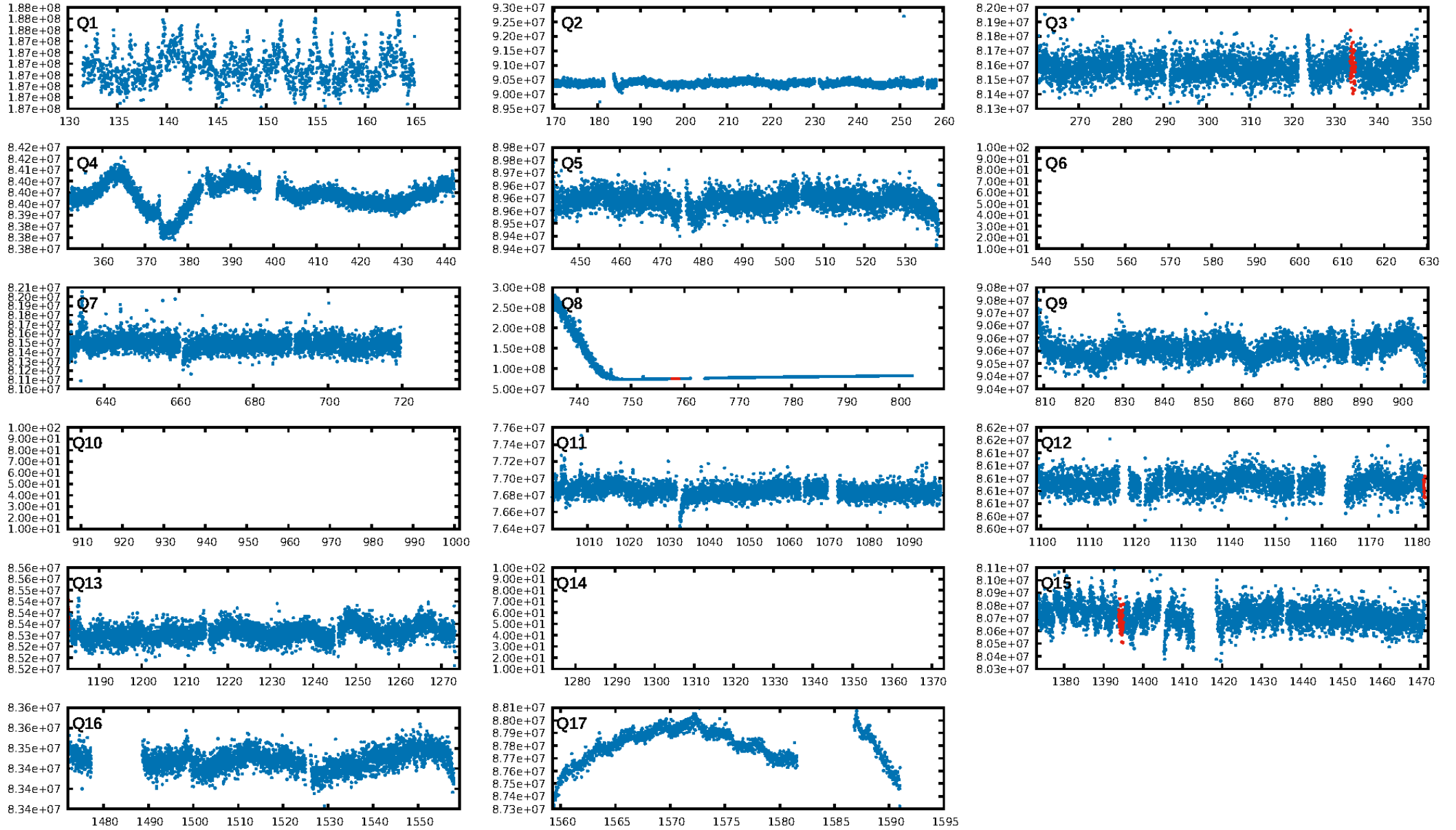
## DV Fit Results:

Period = 212.03552 [0.01110] d  
Epoch = 334.2153 [0.0262] BKJD  
Rp/R\* = 0.0250 [0.0155]  
a/R\* = 111.13 [322.79]  
b = 0.25 [11.13]  
Seff = 5.17 [2.08]  
Teq = 385 [39] K  
Rp = 4.07 [2.83] Re  
a = 0.7473 [0.1924] AU  
Ag = 4773.96 [7036.98] [0.68σ]  
Teffp = 4942 [1777] K [2.56σ]

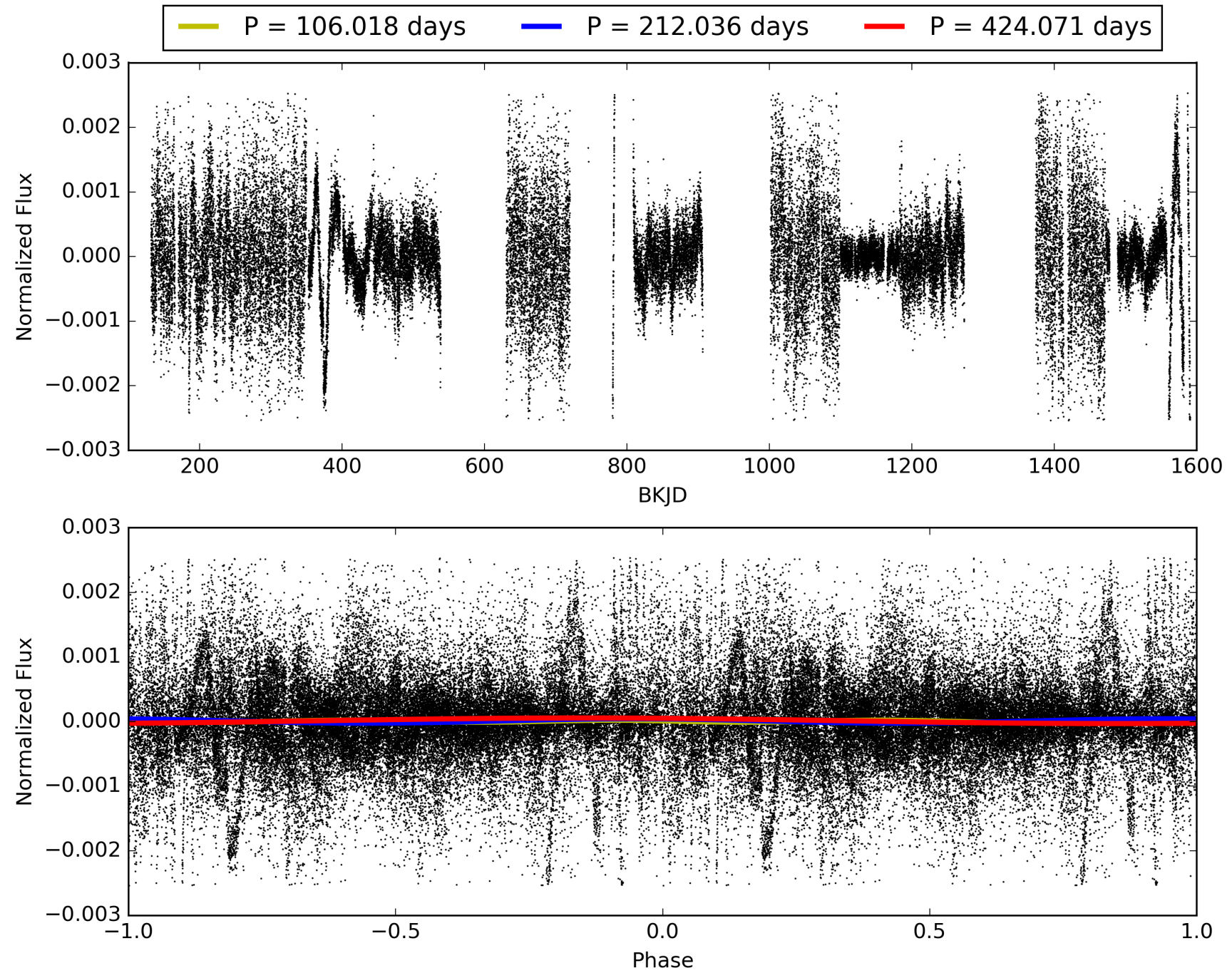
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 19.6%  
ModelChiSquareGof-sig: 92.6%  
**Bootstrap-pfa: 2.94e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.2662**  
Centroid-sig: 94.1%  
Centroid-so: 0.955 arcsec [2.27σ]  
OotOffset-rm: 1.034 arcsec [1.62σ]  
KicOffset-rm: 0.912 arcsec [1.44σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 005113708-01, PDC Light Curves

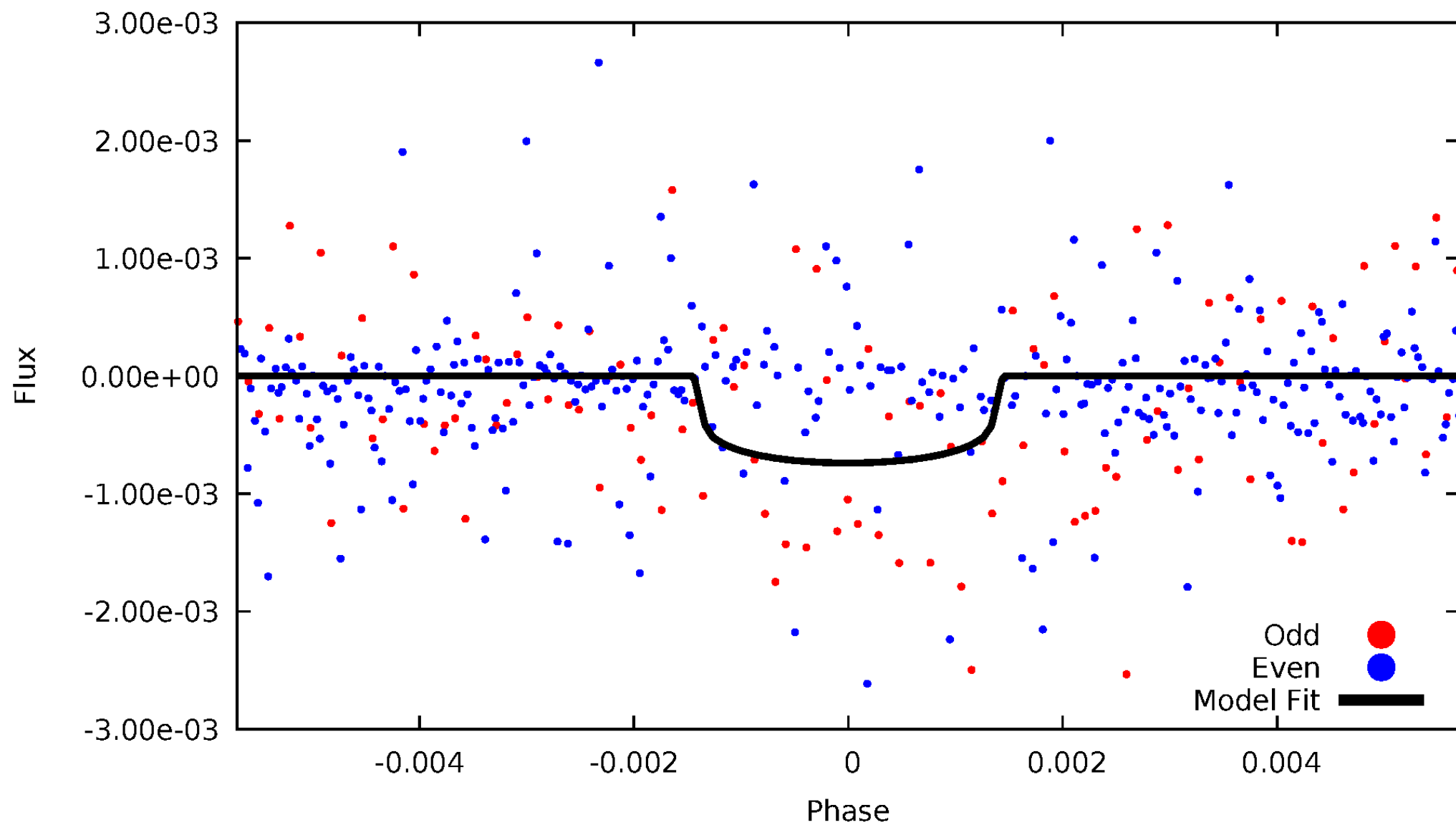


TCE 005113708-01



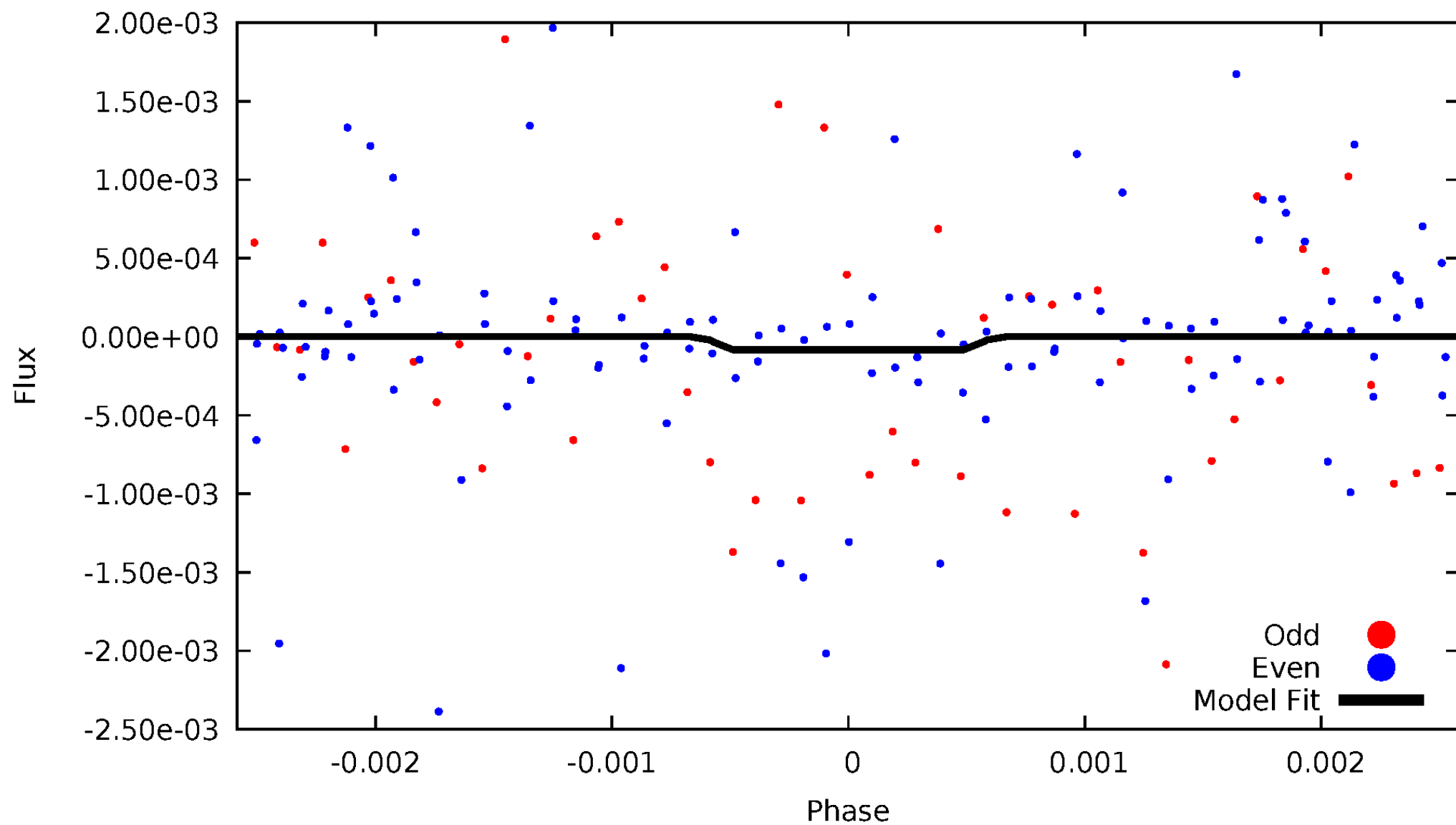
# DV Odd/Even

TCE 005113708-01



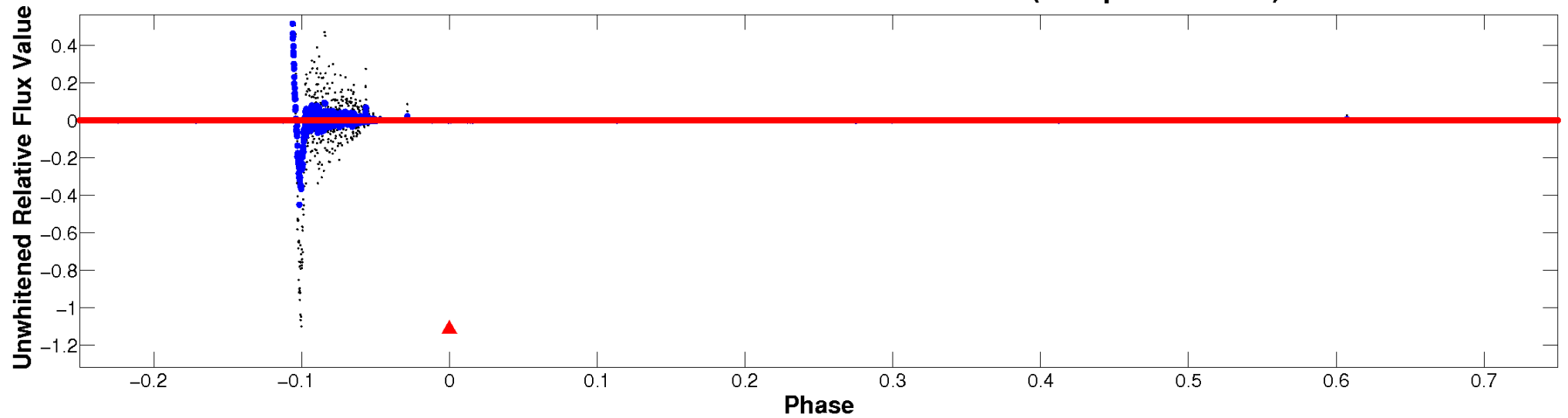
# ALT Odd/Even

TCE 005113708-01

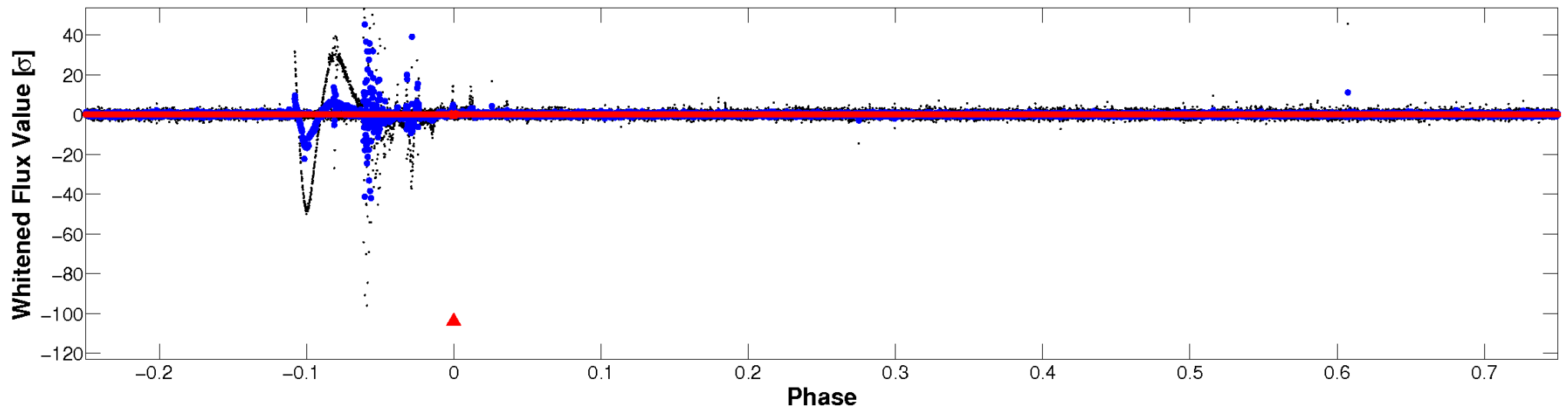


# Non-Whitened Vs. Whitened Light Curve

**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

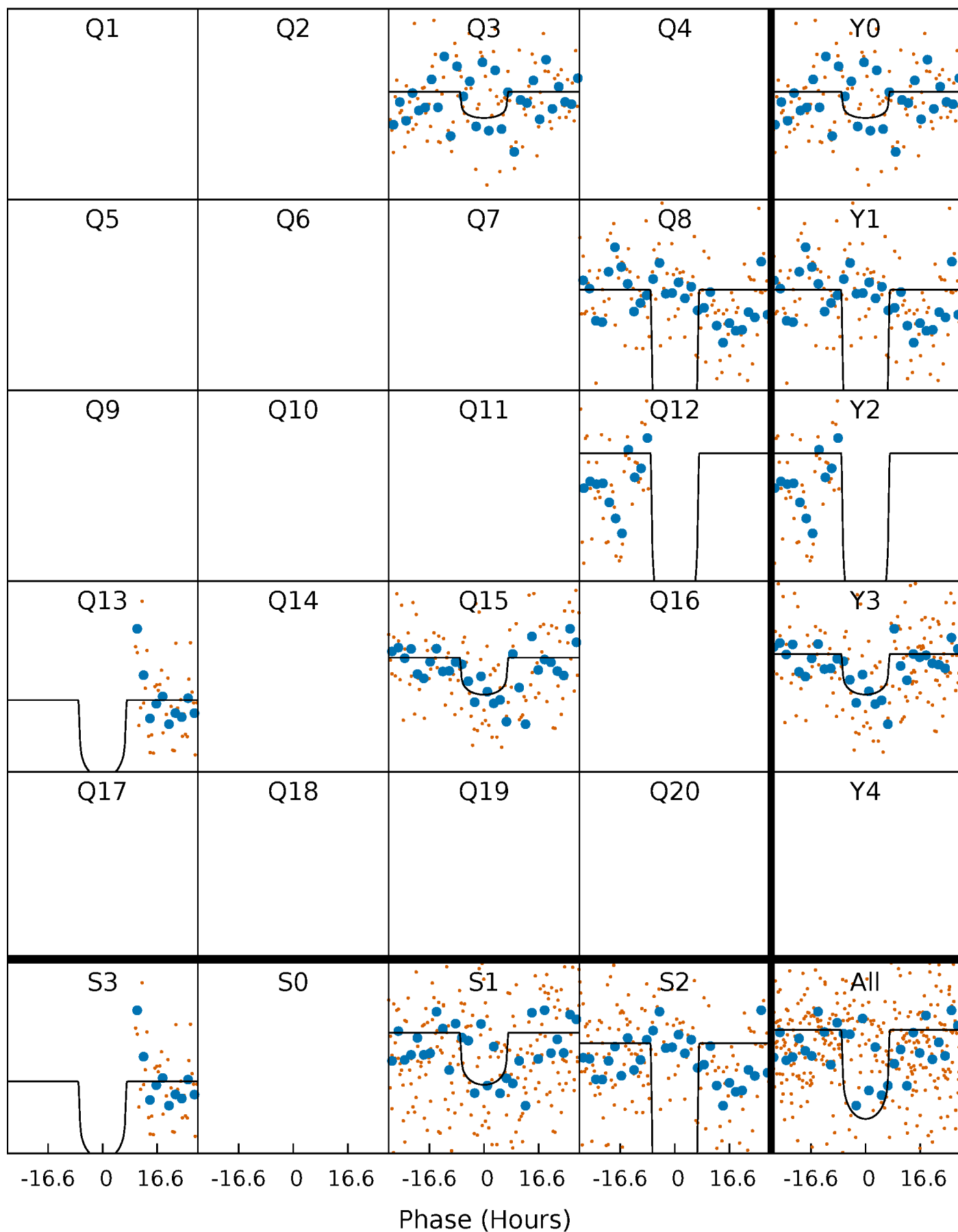
TCE 005113708-01 P=212.035518 Days  $T_0=334.215282$  (BKJD)





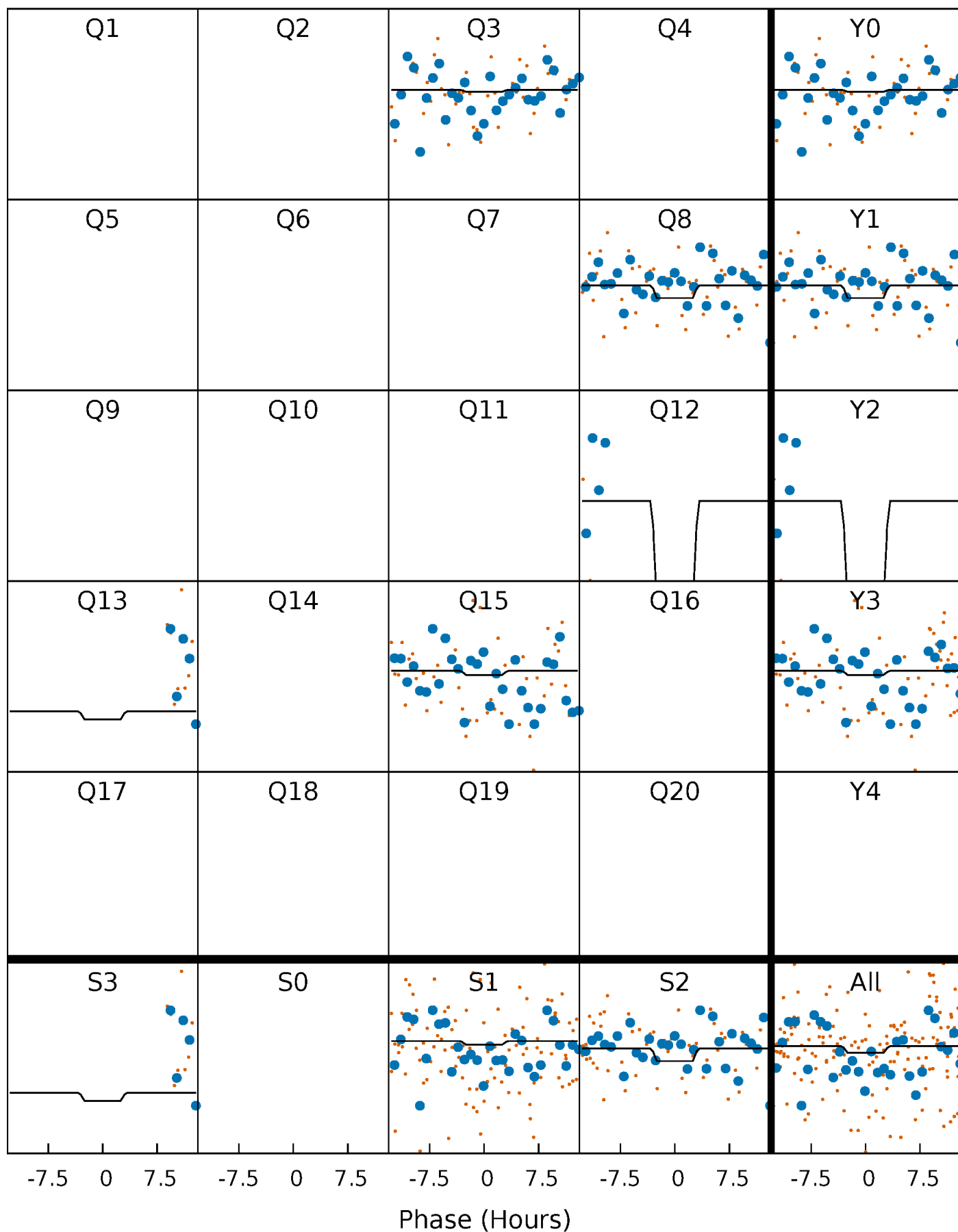
# DV Quarter-Phased Transit Curves

TCE 005113708-01 P=212.035518 Days  $T_0=334.215282$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

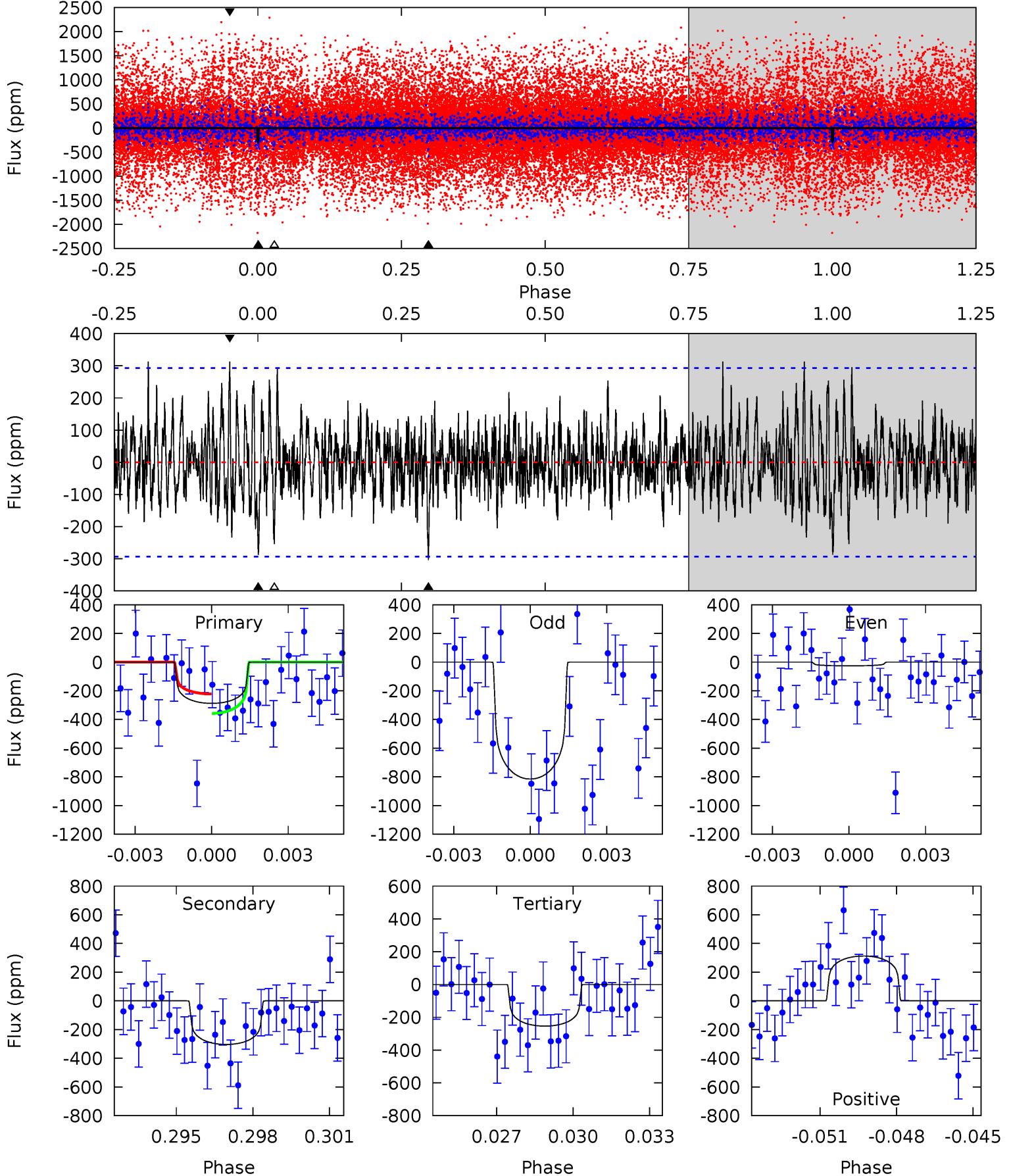
TCE 005113708-01 P=211.946384 Days  $T_0=334.619967$  (BKJD)



# DV Model-Shift Uniqueness Test

005113708-01, P = 212.035518 Days, E = 122.179764 Days

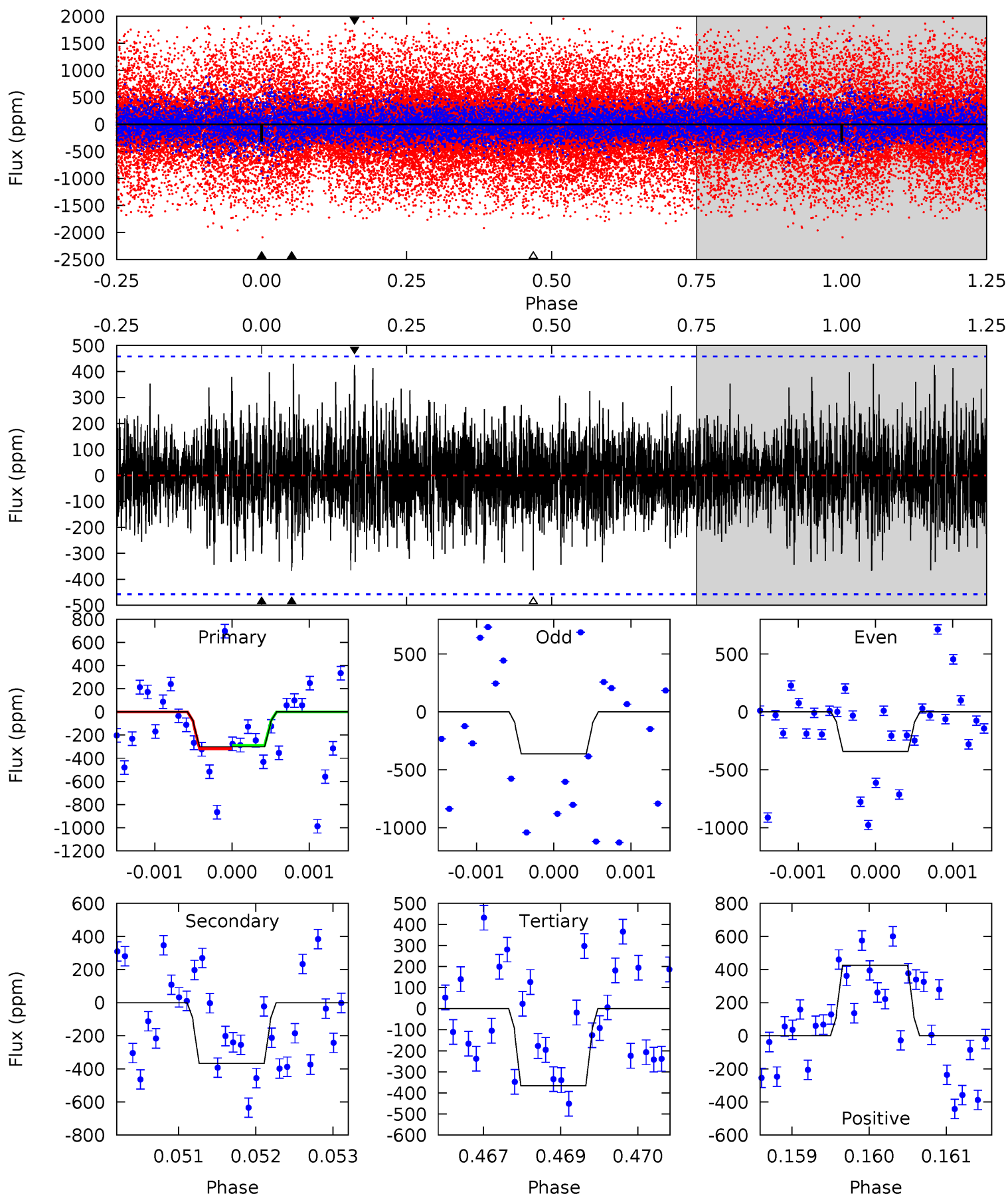
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.16	5.45	4.55	5.61	5.25	2.97	1.41	0.60	-0.45	0.90	-0.16	4.05	1.52	0.51	1.24



# Alt Model-Shift Uniqueness Test

005113708-01, P = 211.946384 Days, E = 122.673583 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
3.57	4.35	4.33	5.04	5.42	3.25	1.23	-0.76	-1.47	0.02	-0.69	0.09	1.16	0.54	0.18



### Stellar Parameters For KIC 005113708

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6169^{+195}_{-260}$	$4.183^{+0.195}_{-0.175}$	$0.120^{+0.250}_{-0.300}$	$1.492^{+0.469}_{-0.384}$	$1.240^{+0.175}_{-0.213}$	$0.525^{+0.573}_{-0.278}$
	+3%/-4%	+5%/-4%	+208%/-250%	+31%/-26%	+14%/-17%	+109%/-53%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005113708-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-304 \pm 56$	$3.97^{+2.57}_{-2.12}$	$534^{+43}_{-39}$	$5218^{+2403}_{-949}$	$5869^{+20290}_{-3766}$
Alt.	$-367 \pm 84$	$2.37^{+2.27}_{-1.64}$	$535^{+43}_{-38}$	$7028^{+10897}_{-1965}$	$19858^{+190566}_{-14943}$

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

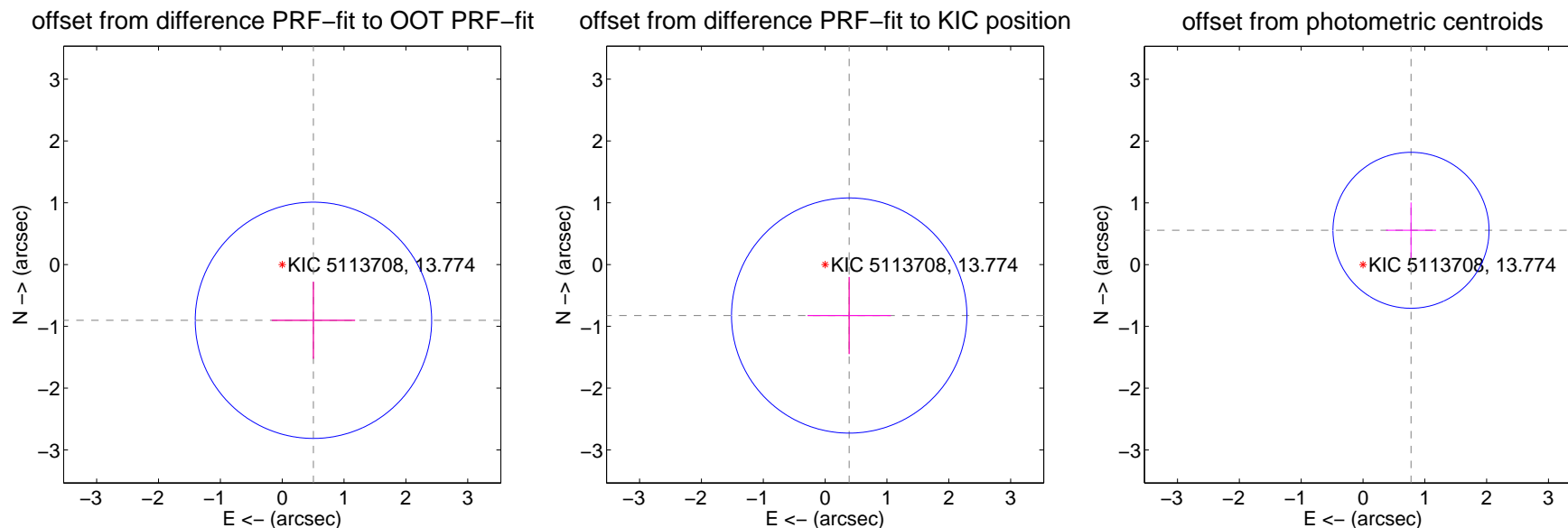
## DV Centroid Data

Supplemental centroid analysis for 005113708-01. Kepler magnitude: 13.77. Transit SNR 5.56

There are 0 quarters with good PRF difference image offsets

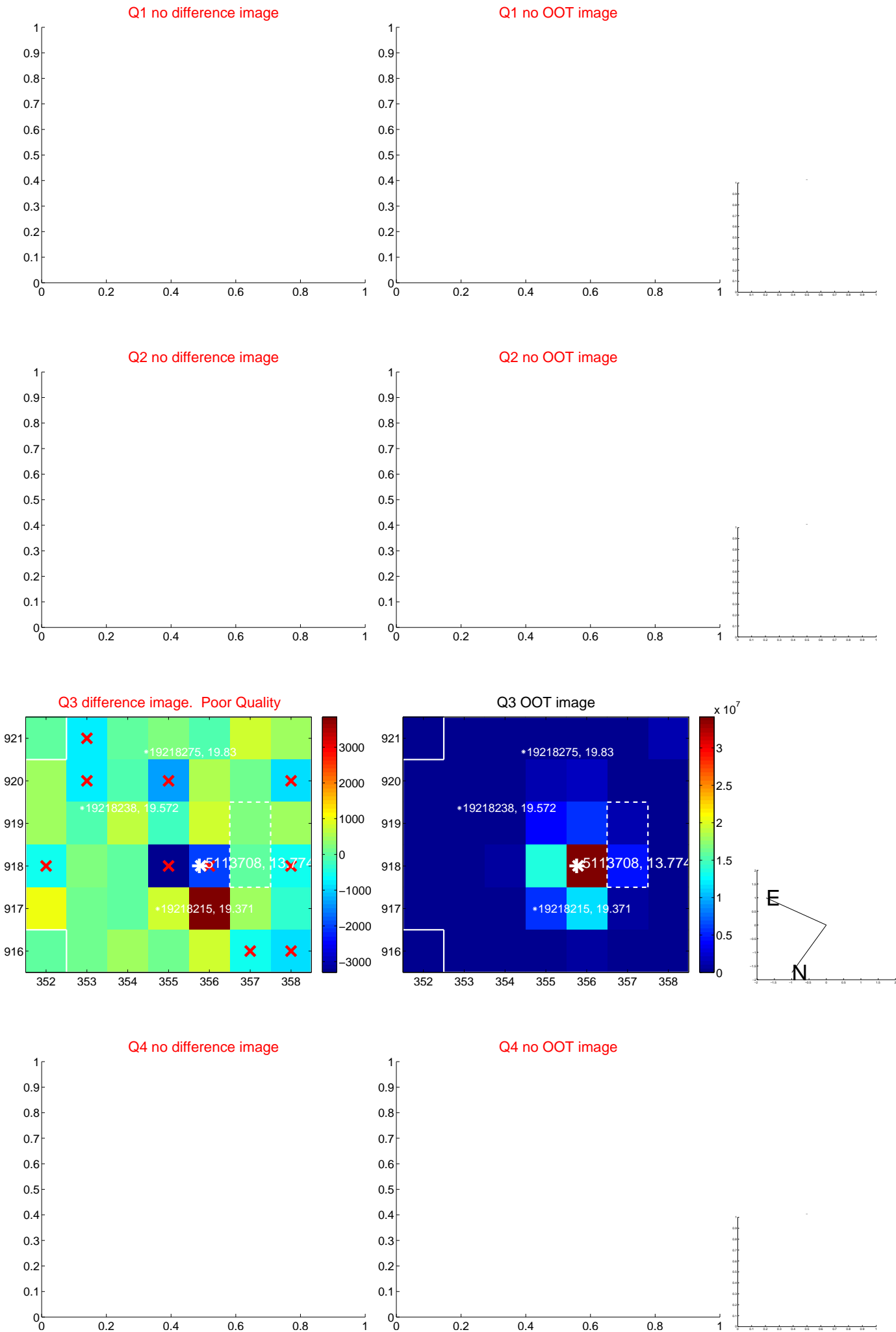
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.034 \pm 0.637$	1.62	$-0.505 \pm 0.675$	$-0.902 \pm 0.625$
PRF-fit source offset from KIC position	$0.912 \pm 0.634$	1.44	$-0.389 \pm 0.675$	$-0.825 \pm 0.625$
photometric centroid source offset	$0.96 \pm 0.42$	2.27	$-0.78 \pm 0.40$	$0.56 \pm 0.45$

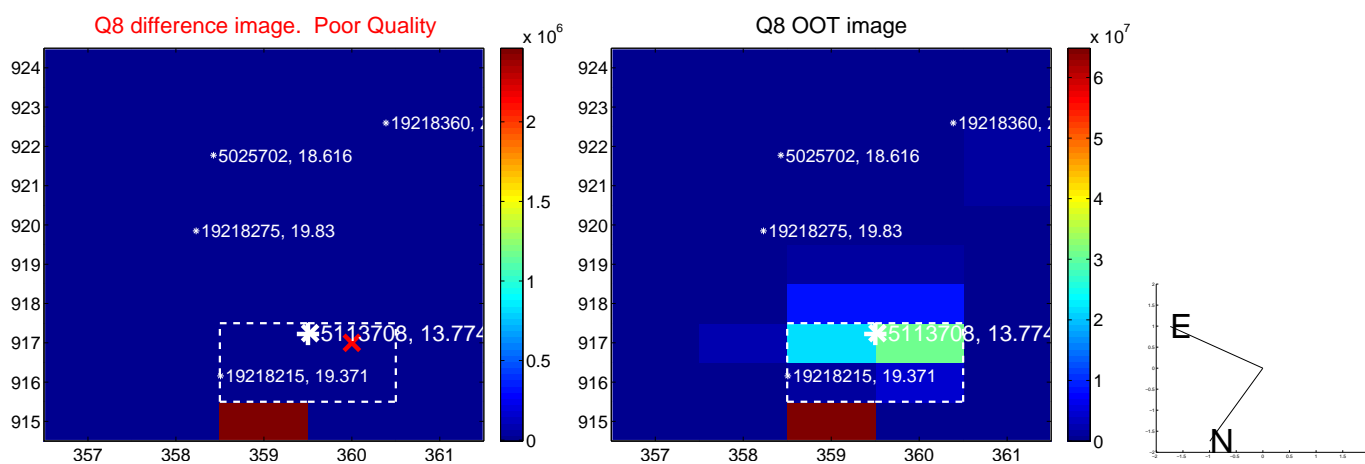
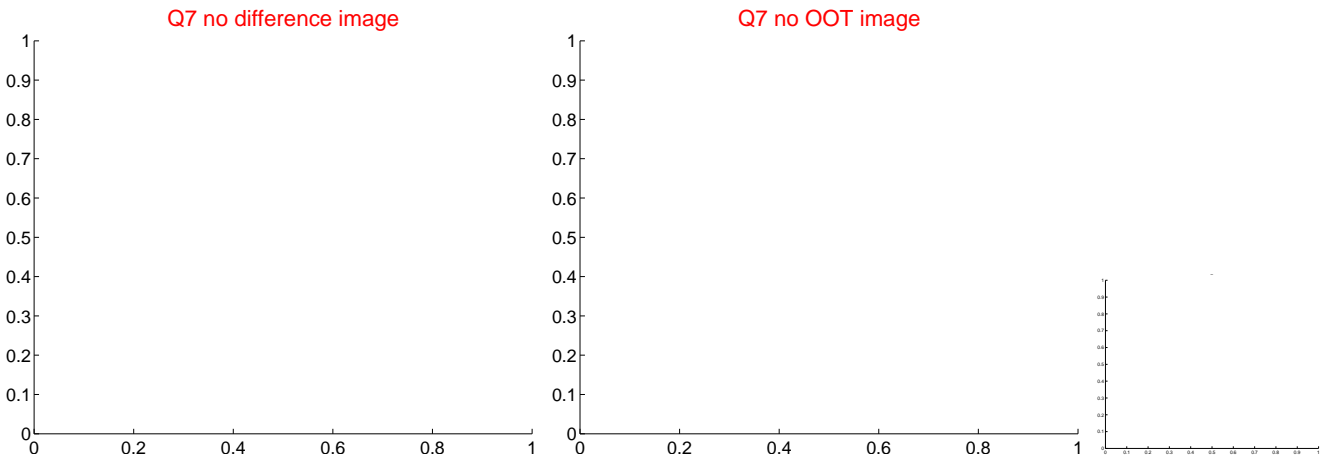
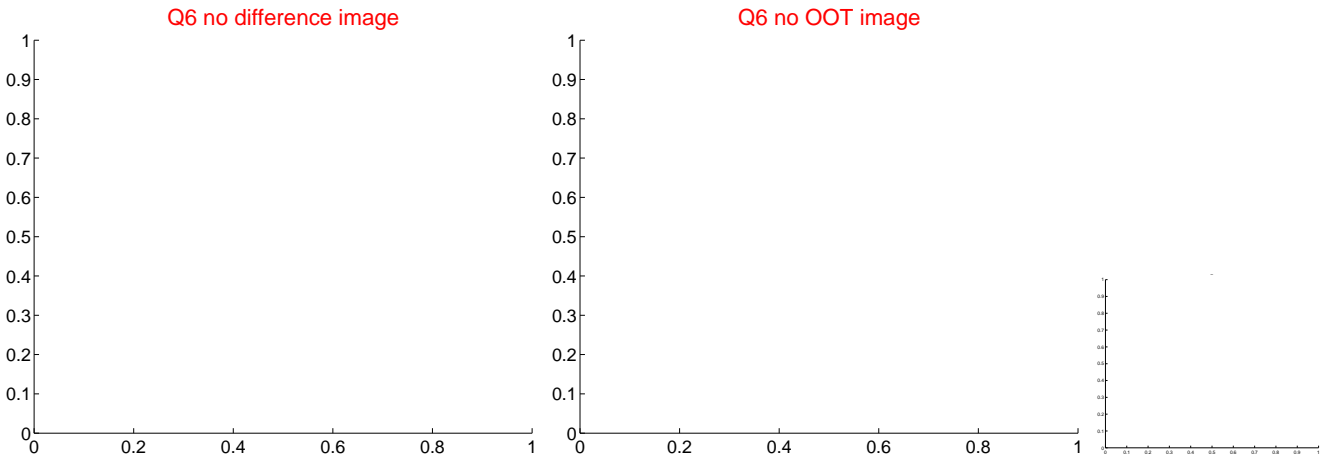
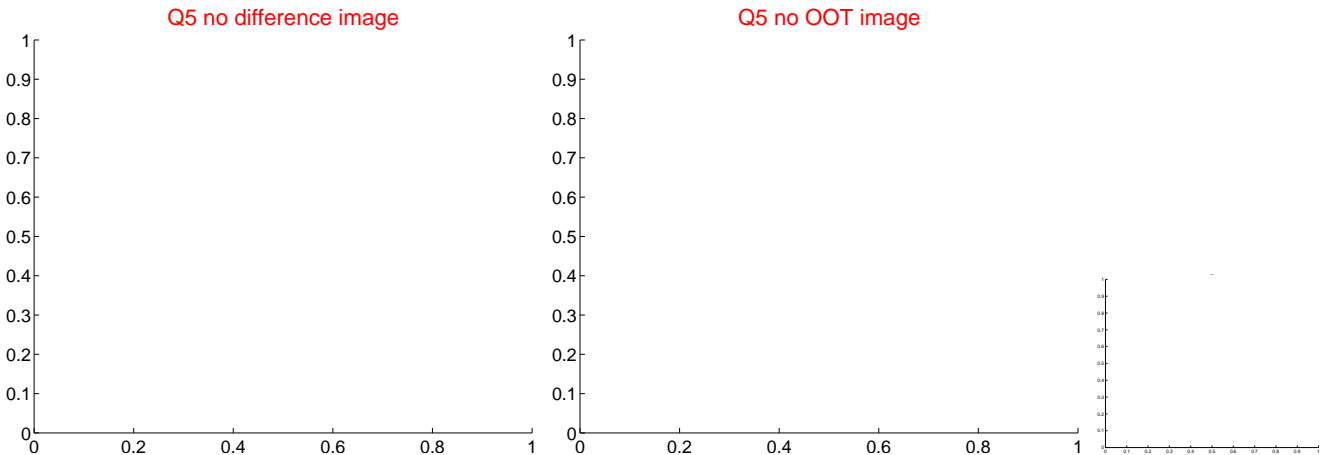


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

Q13 no difference image



Q13 no OOT image



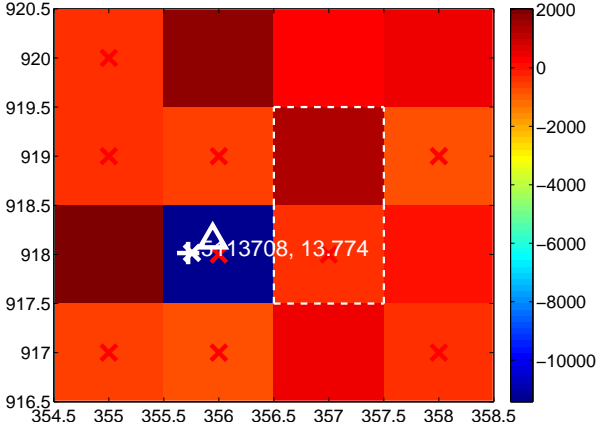
Q14 no difference image



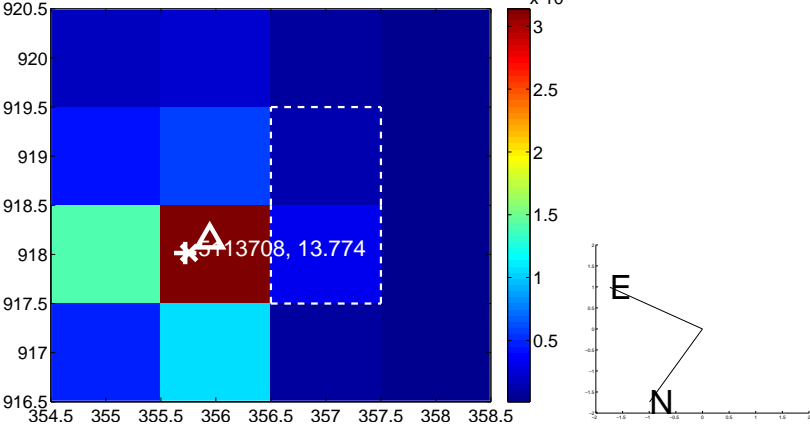
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



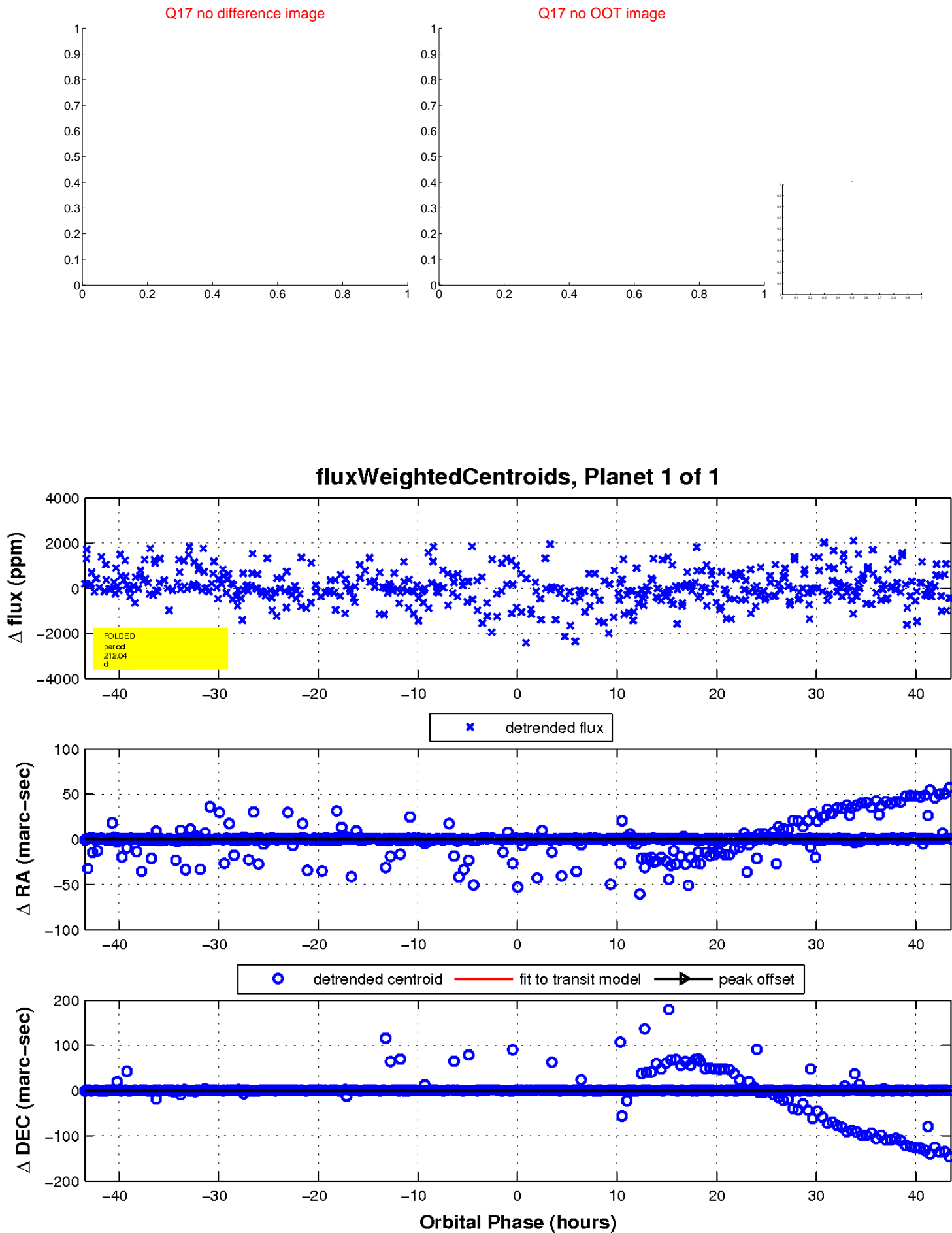
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

