

# KIC 006137704

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006137704-01	OBS	3605.01	178.268080	255.351040	45367.1	5.873	1105.5	876.4	0.70	5126	24.17	1.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006137704-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

**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 006137704-01

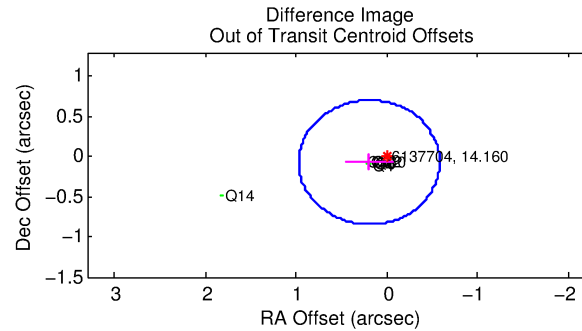
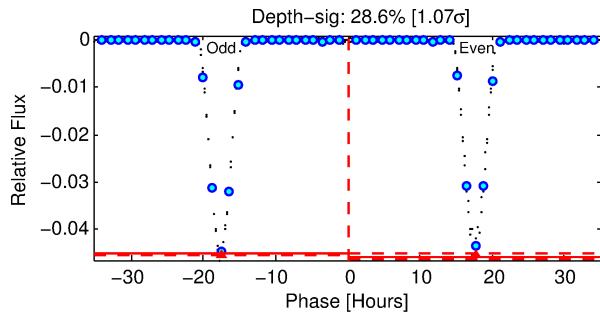
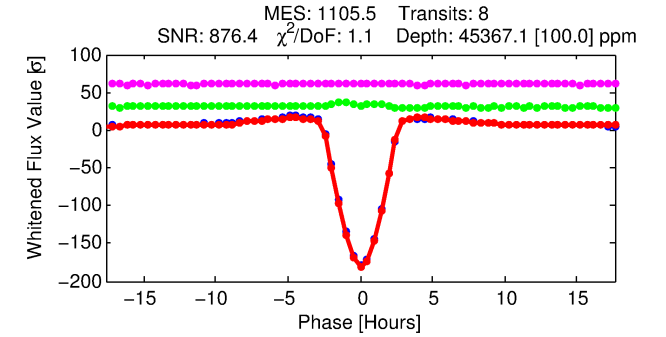
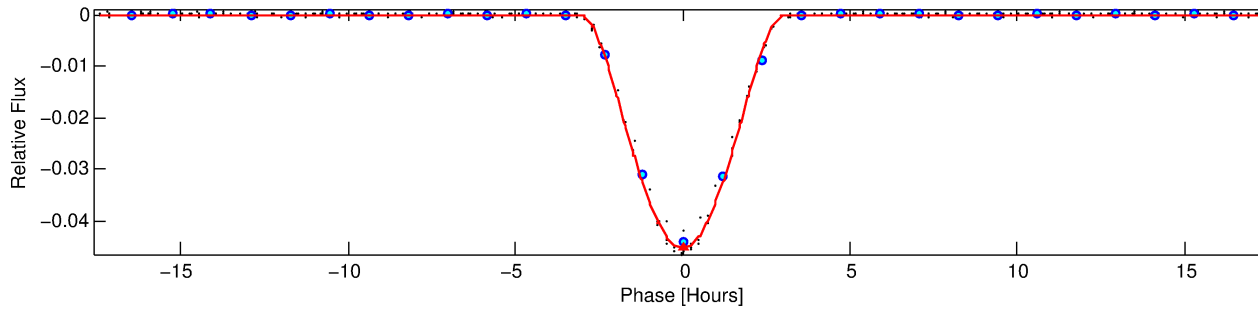
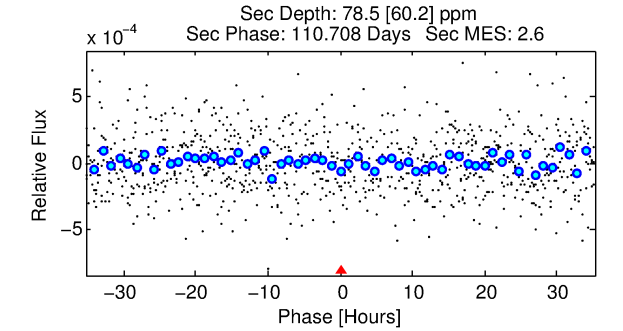
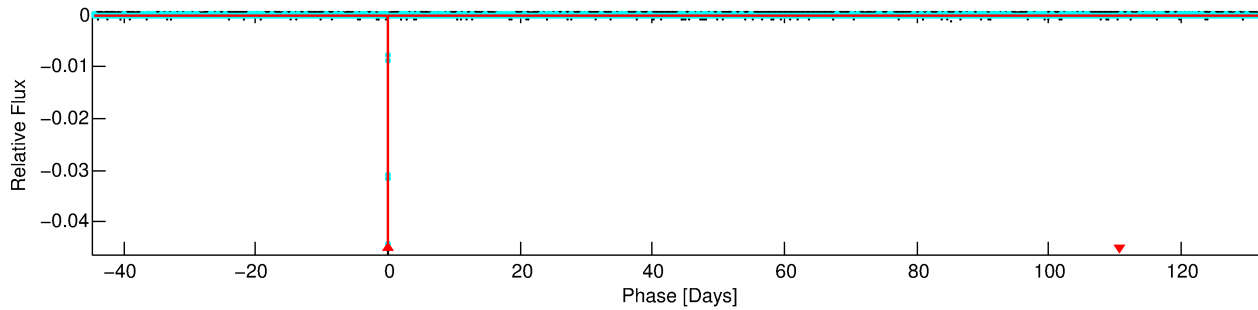
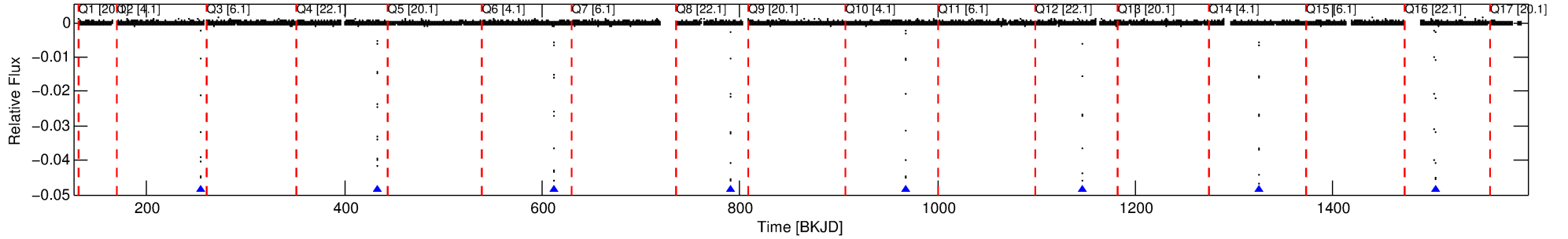
No Significant Match Found

# DV One-Page Summary

KIC: 6137704 Candidate: 1 of 1 Period: 178.268 d

KOI: K03605.01 Corr: 0.998

Kp: 14.16 R\*: 0.70 Rs Teff: 5126.0 K Logg: 4.58 Fe/H: -0.540



## DV Fit Results:

Period = 178.26808 [0.00004] d  
Epoch = 255.3510 [0.0002] BKJD  
Rp/R\* = 0.3182 [0.0347]  
a/R\* = 207.19 [0.90]  
b = 0.97 [0.05]  
Seff = 1.02 [0.19]  
Teq = 256 [12] K  
Rp = 24.17 [3.65] Re  
a = 0.5422 [0.0499] AU  
Ag = 21.73 [17.57] [1.18σ]  
Teffp = 855 [172] K [3.47σ]

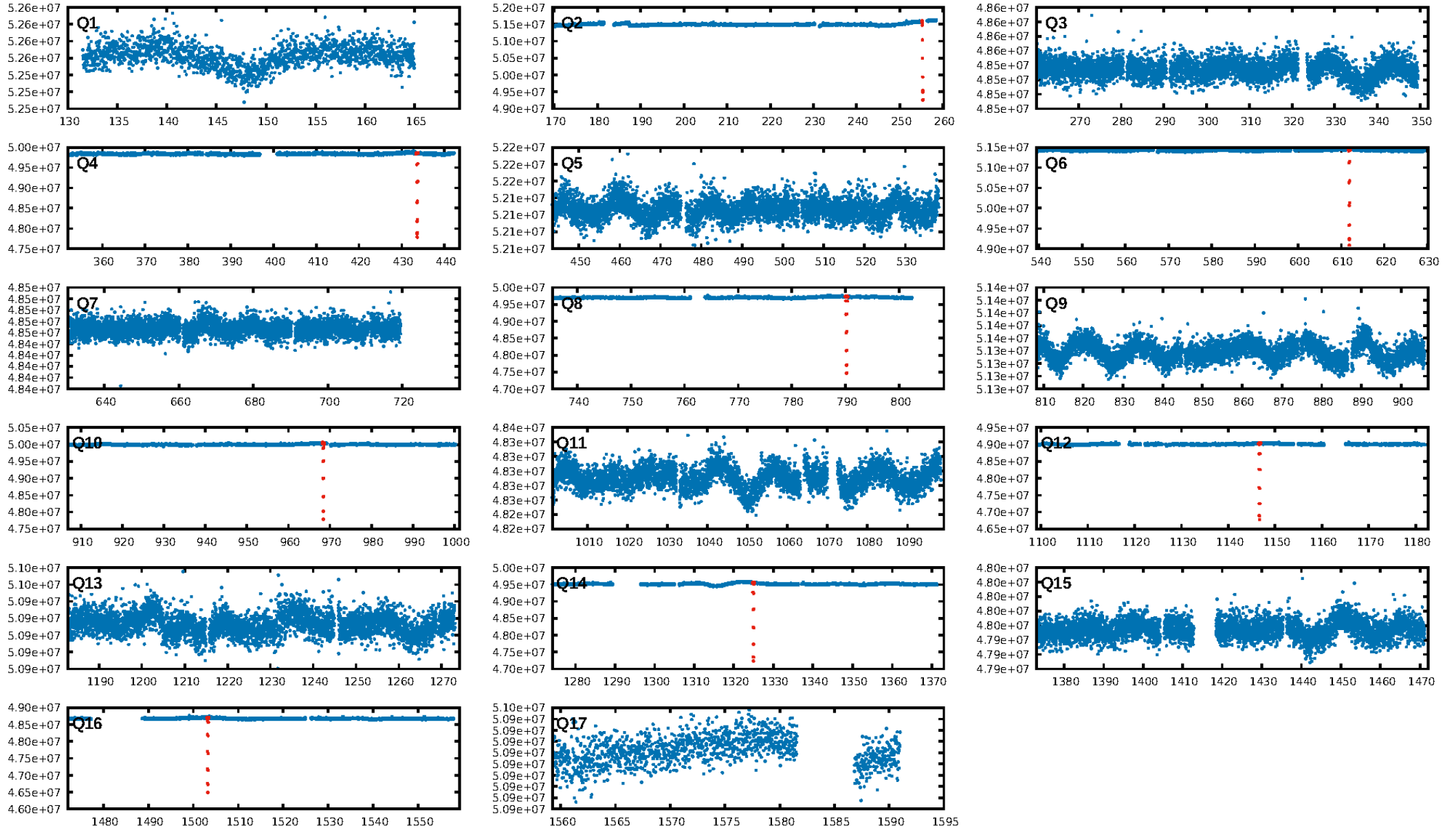
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.3%  
ModelChiSquareGof-sig: 45.6%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 7.658  
Centroid-sig: 0.0%  
Centroid-so: 0.341 arcsec [34.05σ]  
OotOffset-rm: 0.208 arcsec [0.81σ]  
OotOffset-st: 3/0/4/0 [7]  
KicOffset-rm: 0.398 arcsec [4.52σ]  
KicOffset-st: 3/0/4/0 [7]  
DiffImageQuality-fgm: 1.00 [7/7]  
DiffImageOverlap-fno: 1.00 [7/7]

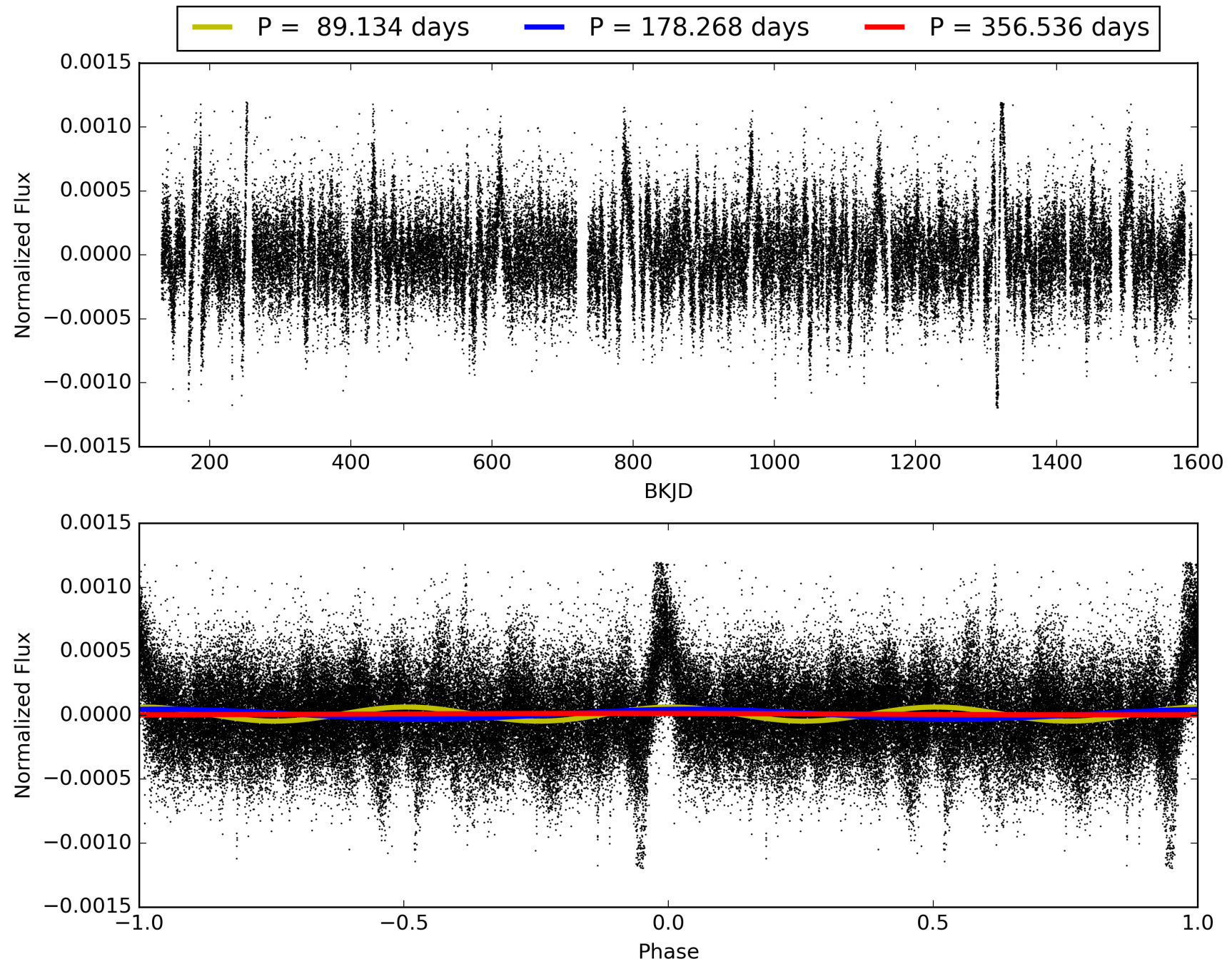
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:36:42 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006137704-01, PDC Light Curves

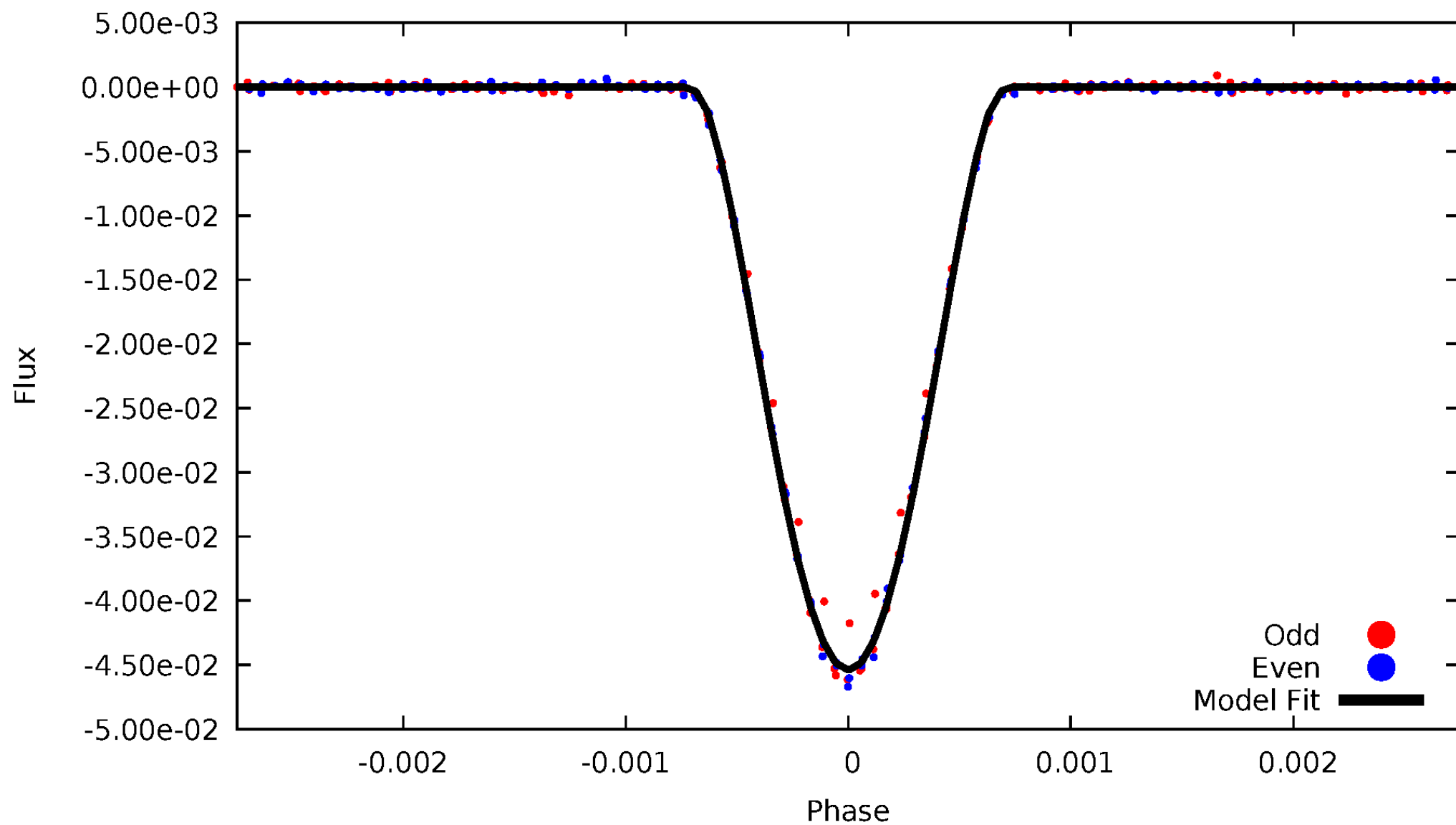


TCE 006137704-01



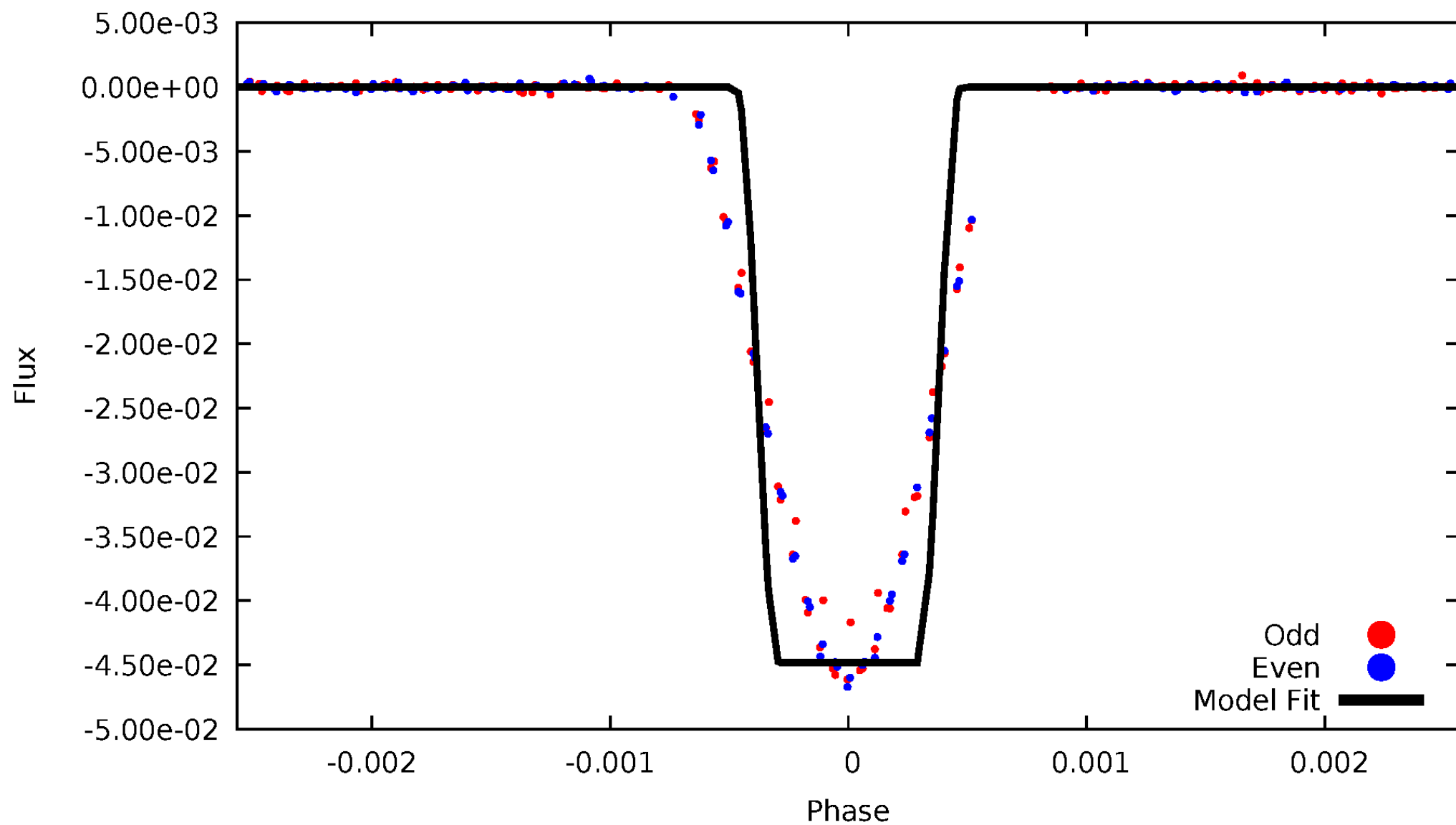
# DV Odd/Even

TCE 006137704-01



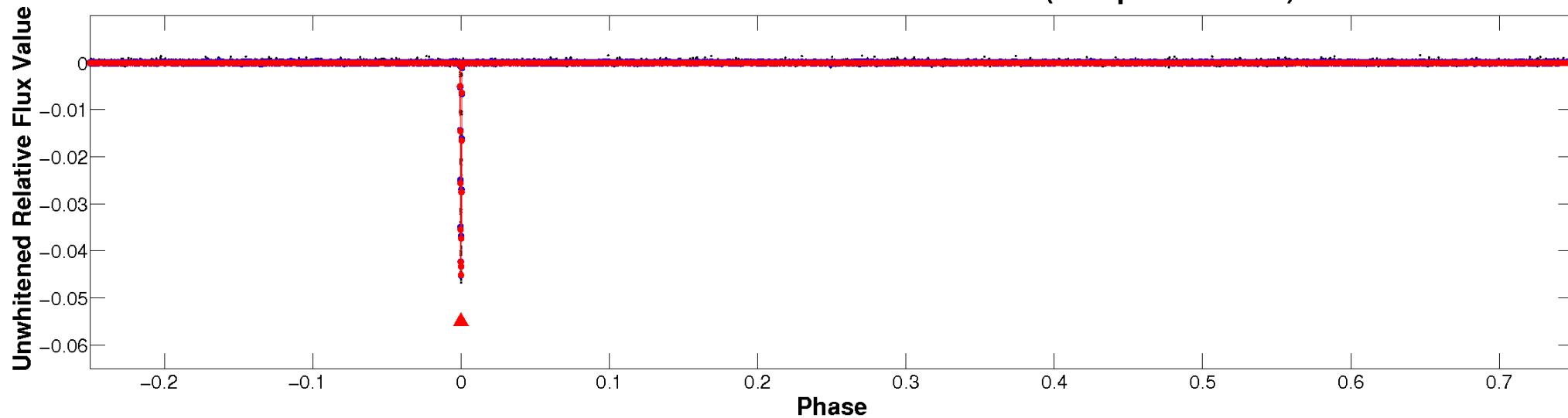
# ALT Odd/Even

TCE 006137704-01

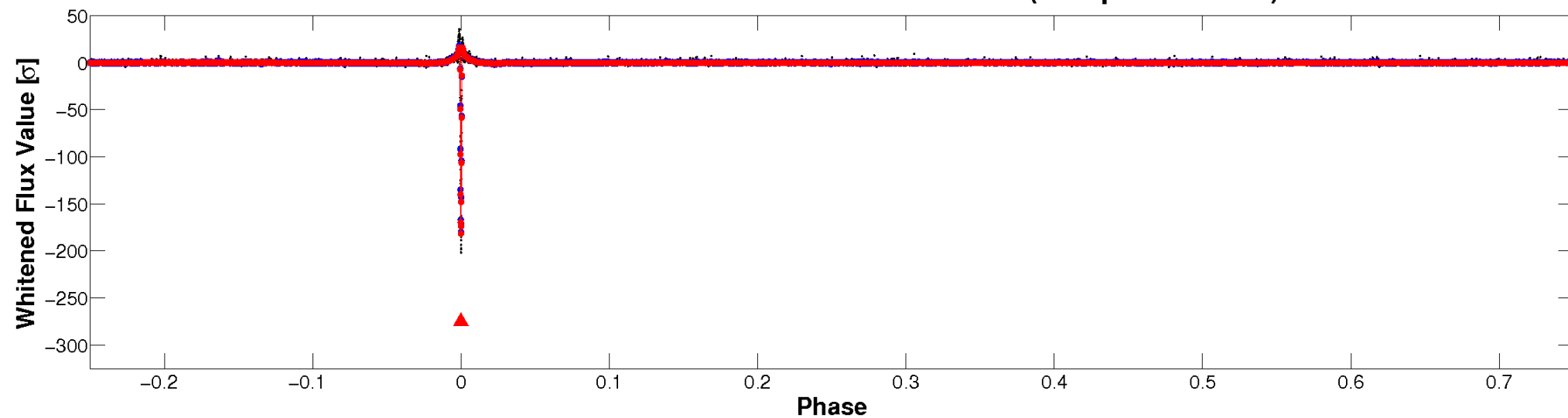


# Non-Whitened Vs. Whitened Light Curve

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

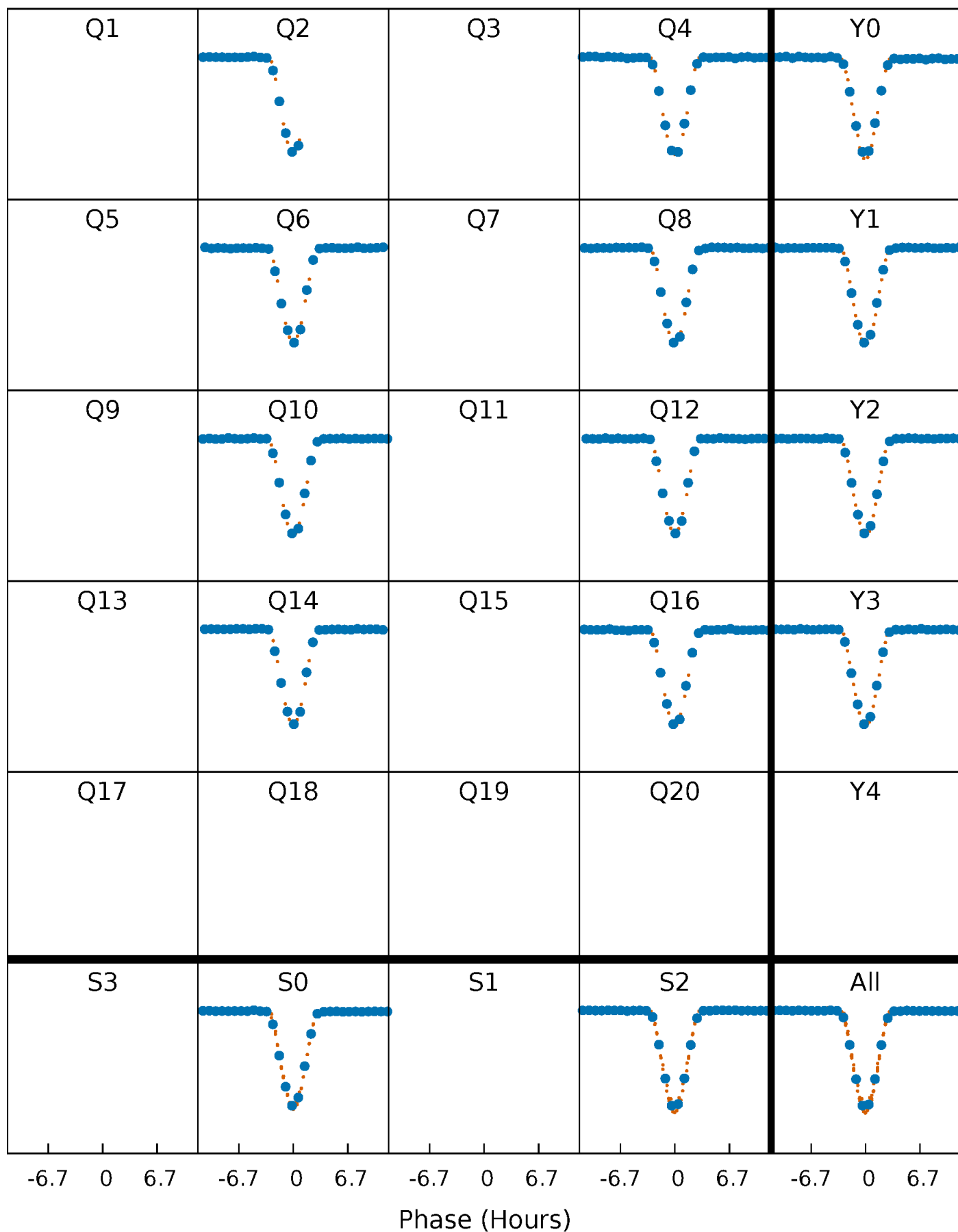


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

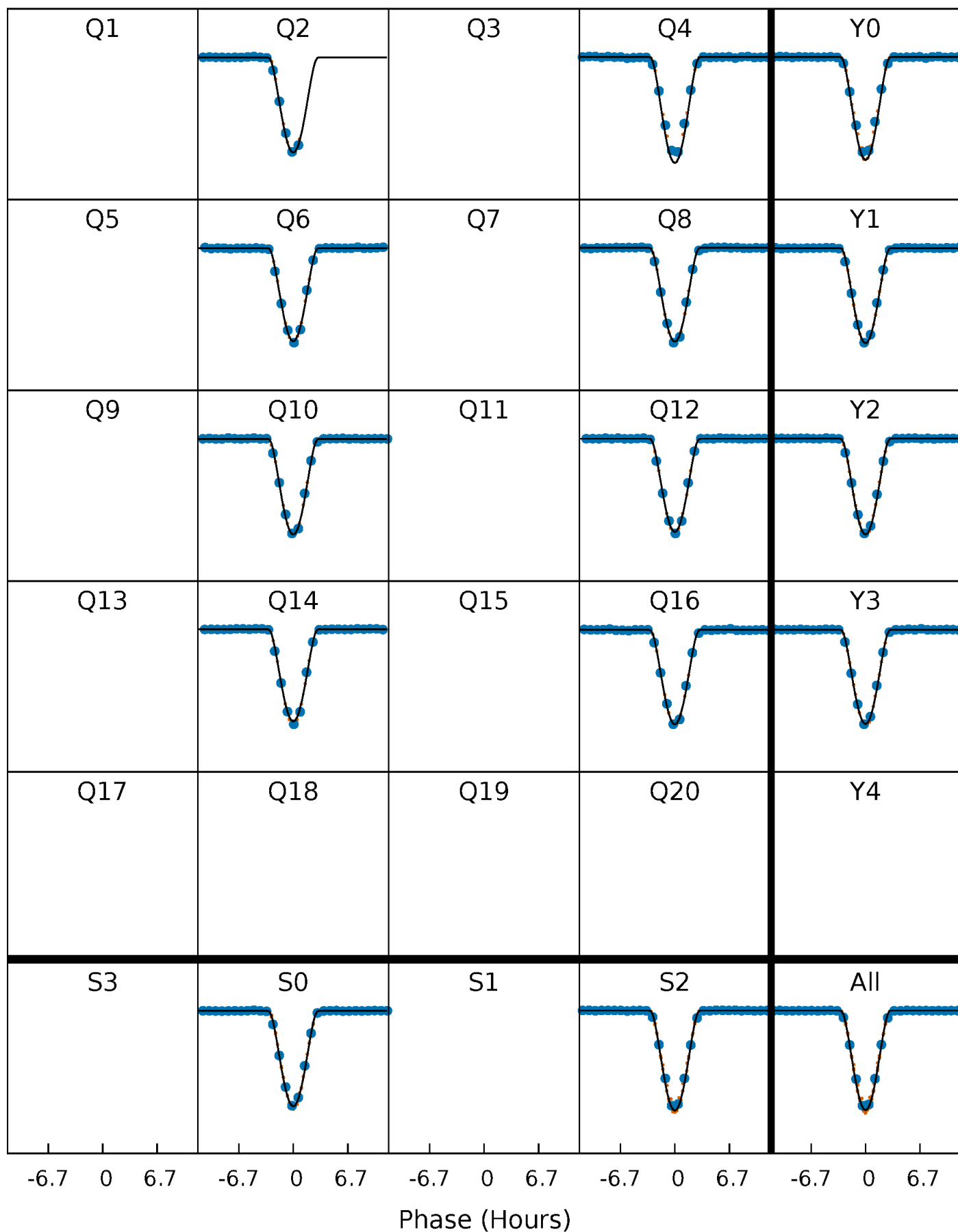
TCE 006137704-01 P=178.268080 Days  $T_0=255.351040$  (BKJD)





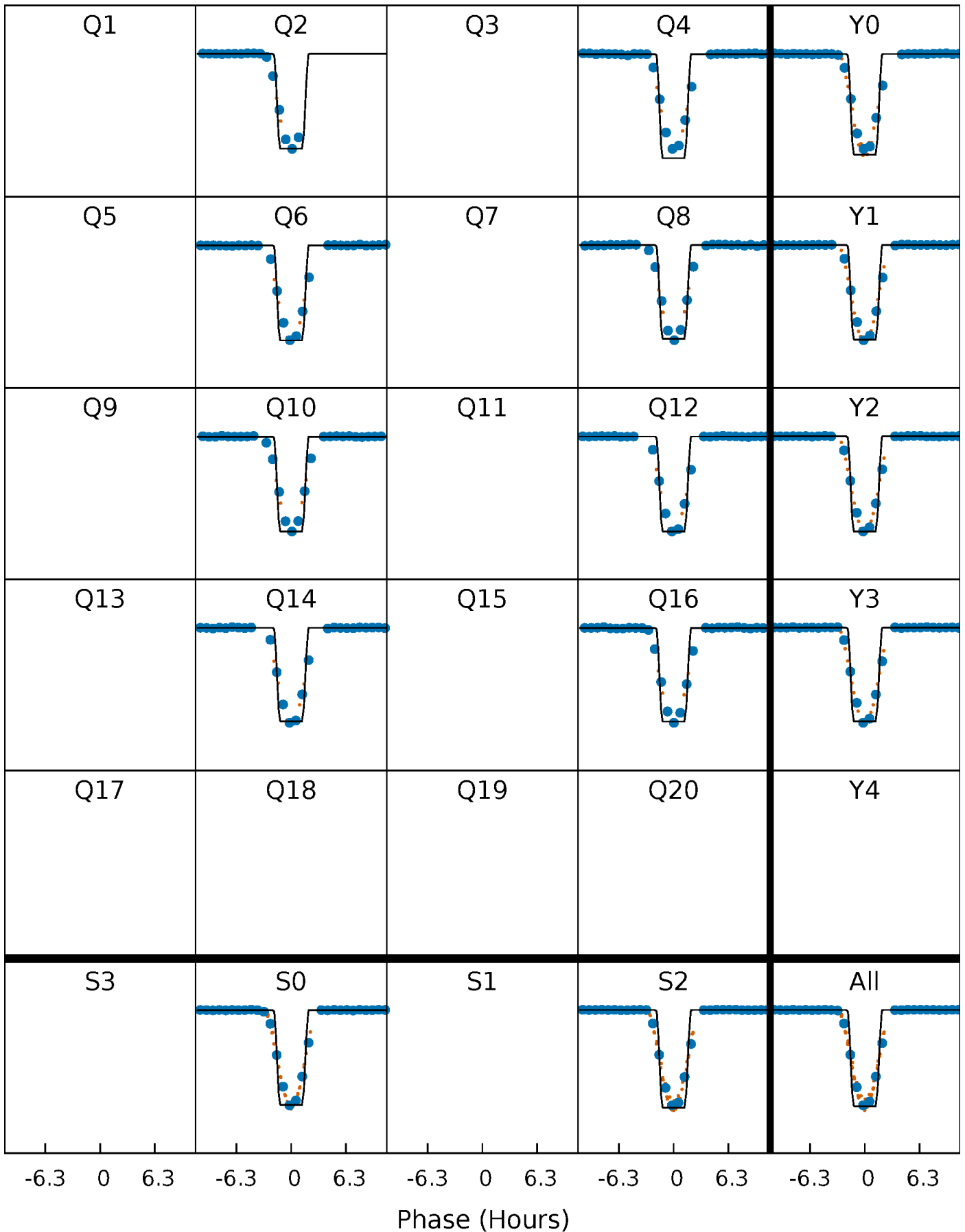
# DV Quarter-Phased Transit Curves

TCE 006137704-01 P=178.268080 Days  $T_0=255.351040$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

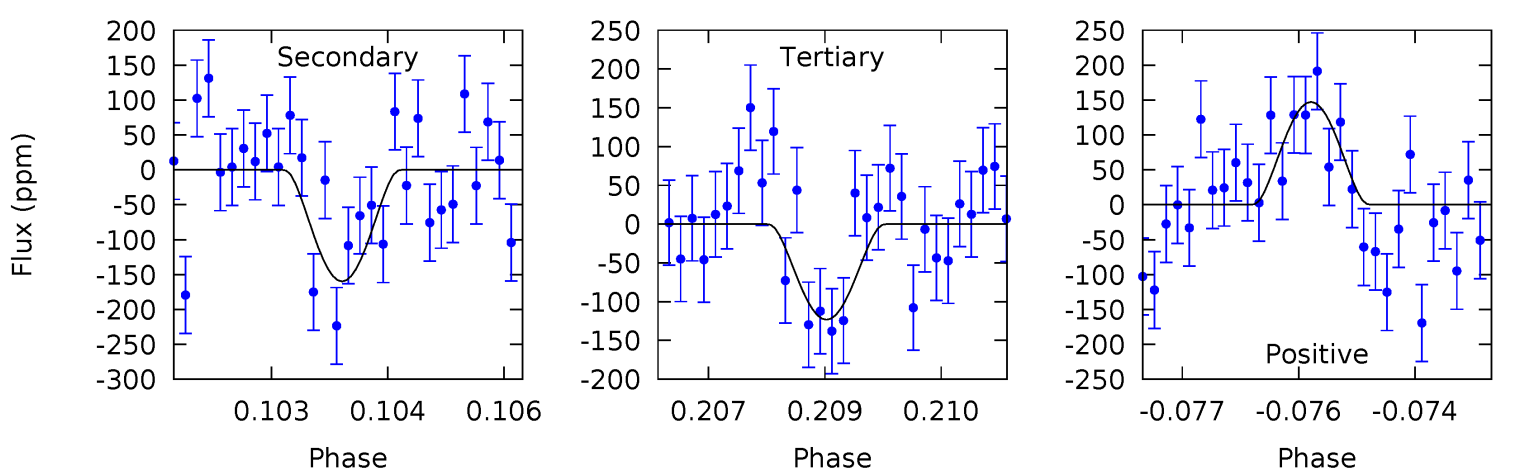
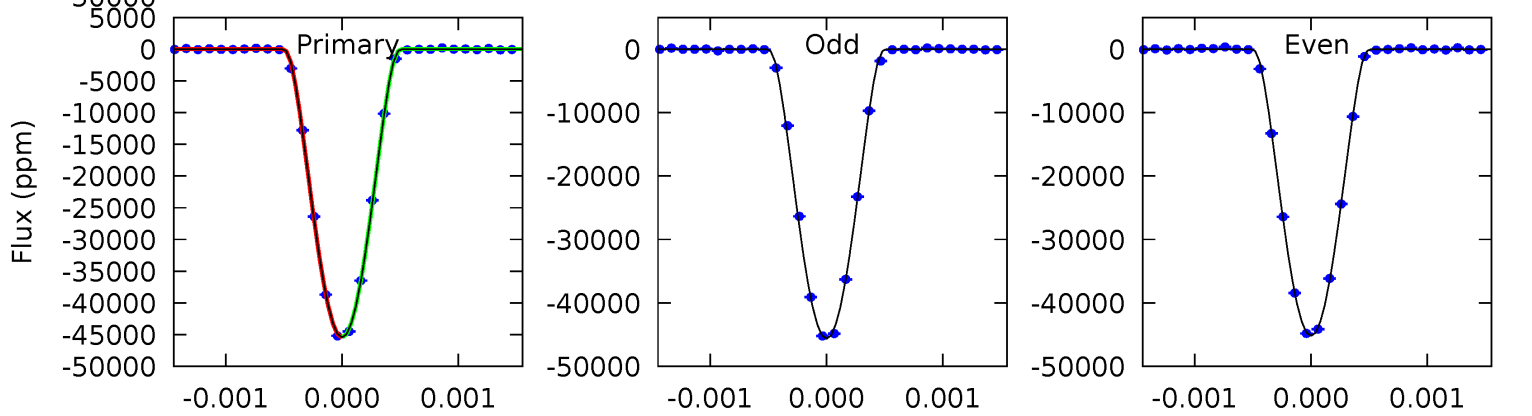
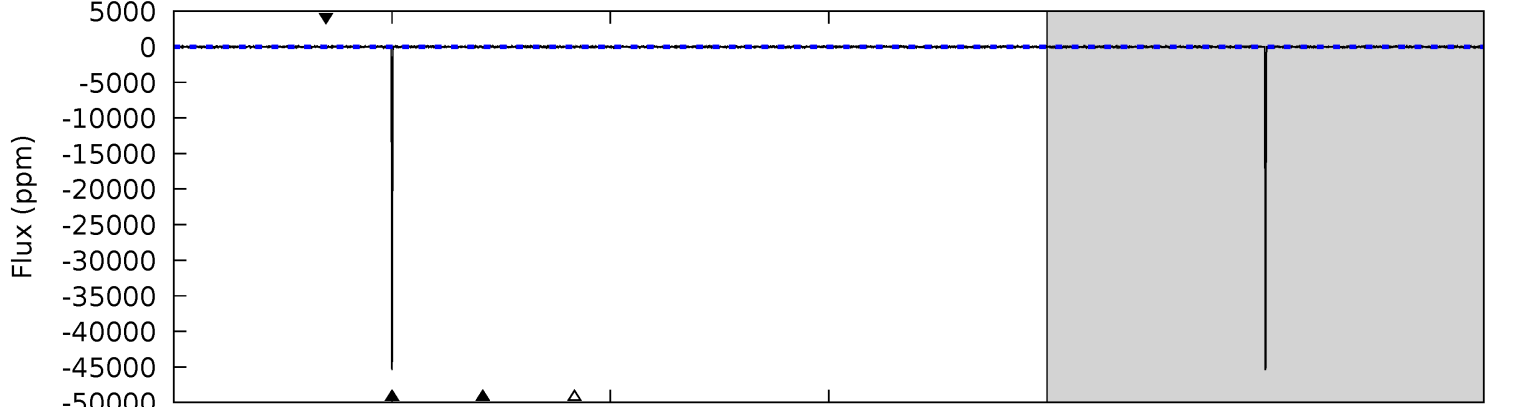
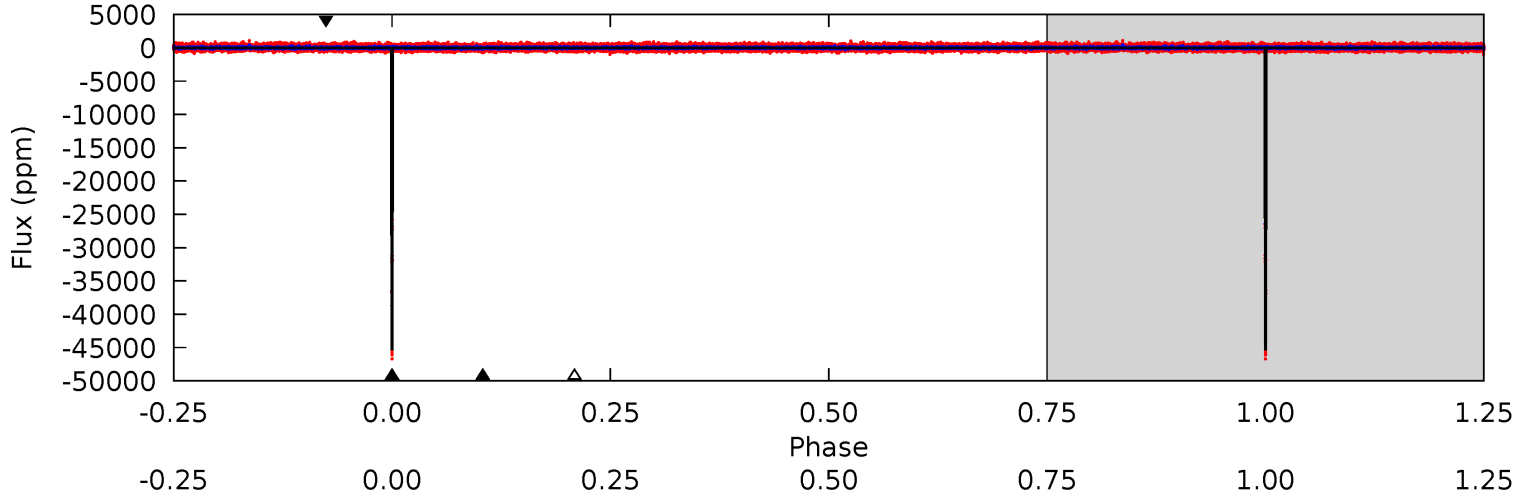
TCE 006137704-01 P=178.268306 Days  $T_0=255.350077$  (BKJD)



# DV Model-Shift Uniqueness Test

006137704-01, P = 178.268080 Days, E = 77.082960 Days

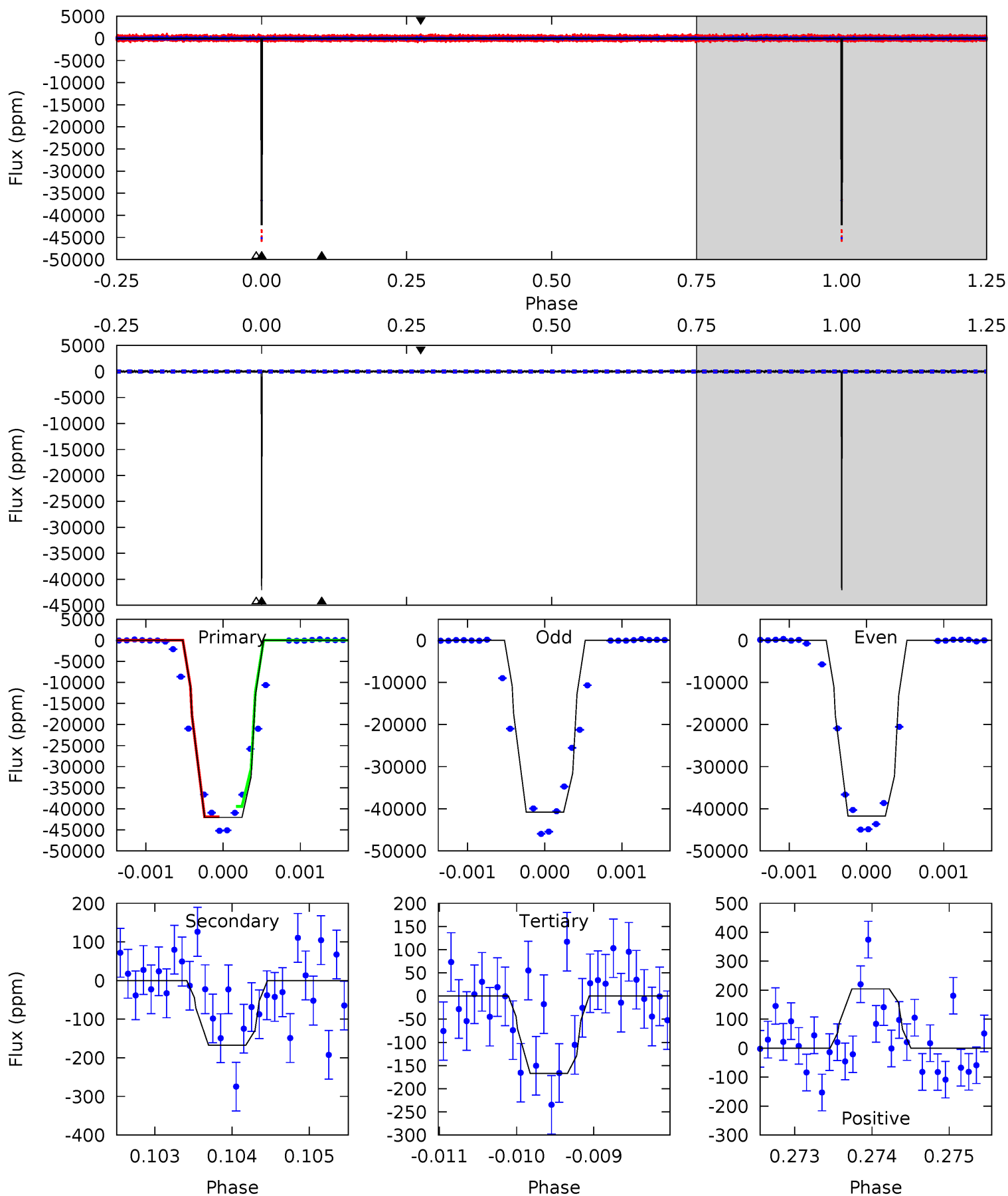
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1947	6.85	5.28	6.31	5.39	3.19	1.58	1942	1940	1.56	0.54	9.14	0.99	0.00	1.48



# Alt Model-Shift Uniqueness Test

006137704-01, P = 178.268306 Days, E = 77.081771 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
1051	4.19	4.17	5.12	5.46	3.30	1.17	1047	1046	0.01	-0.93	11.5	0.99	0.00	0



### Stellar Parameters For KIC 006137704

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5126^{+154}_{-138}$	$4.578^{+0.078}_{-0.045}$	$-0.540^{+0.350}_{-0.300}$	$0.696^{+0.073}_{-0.073}$	$0.668^{+0.087}_{-0.037}$	$2.792^{+0.854}_{-0.493}$
	+3%/-3%	+2%/-1%	+65%/-56%	+10%/-10%	+13%/-6%	+31%/-18%
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 006137704-01 / KOI 3605.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-160 \pm 23$	$24.16^{+3.10}_{-3.07}$	$357^{+12}_{-14}$	$2008^{+64}_{-58}$	$45^{+16}_{-11}$
Alt.	$-167 \pm 40$	$15.90^{+3.06}_{-2.77}$	$356^{+14}_{-14}$	$2204^{+109}_{-105}$	$106^{+60}_{-37}$

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

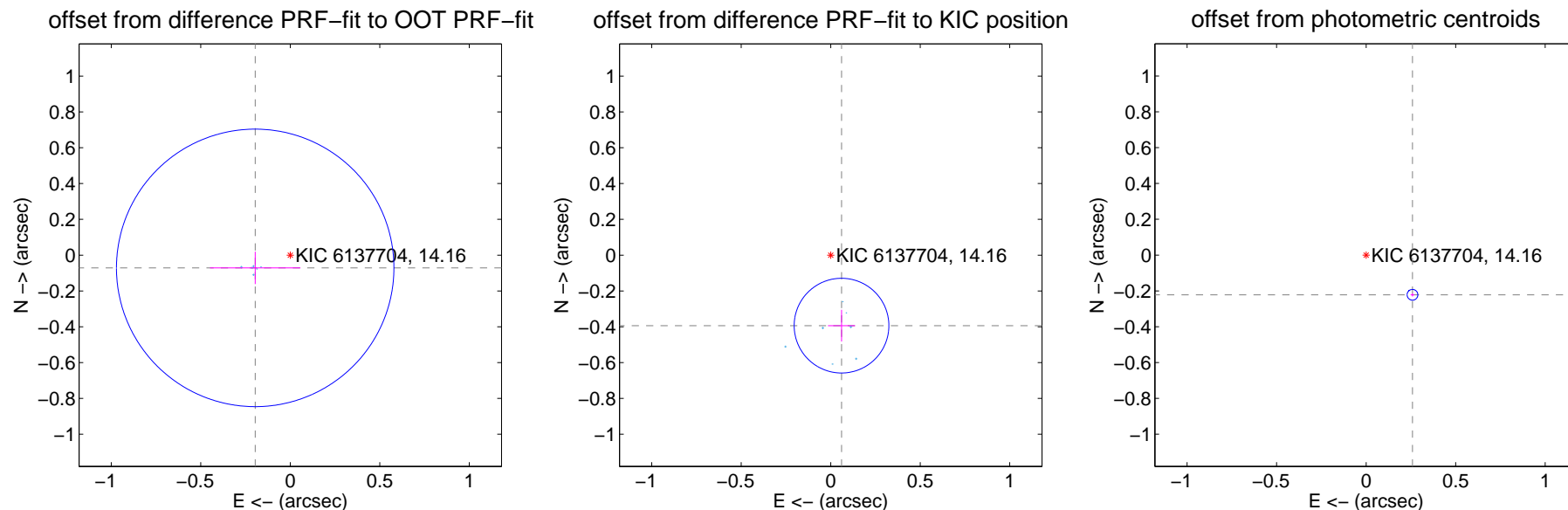
## DV Centroid Data

Supplemental centroid analysis for 006137704-01. Kepler magnitude: 14.16. Transit SNR 876.44

There are 7 quarters with good PRF difference image offsets

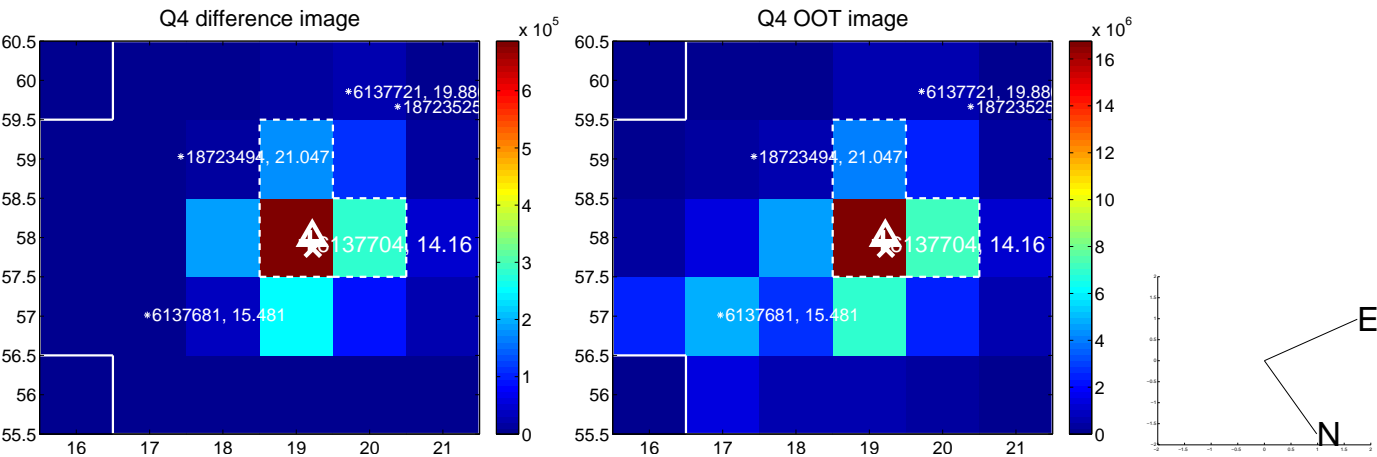
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.208 \pm 0.258$	0.81	$0.196 \pm 0.252$	$-0.071 \pm 0.091$
PRF-fit source offset from KIC position	$0.398 \pm 0.088$	4.52	$-0.060 \pm 0.075$	$-0.394 \pm 0.088$
photometric centroid source offset	$0.34 \pm 0.01$	34.05	$-0.26 \pm 0.01$	$-0.22 \pm 0.01$



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.

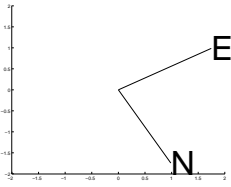
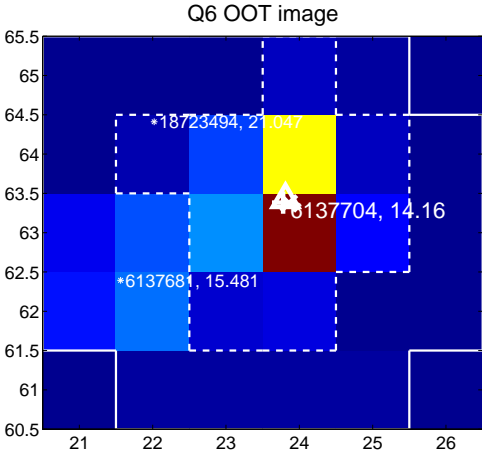
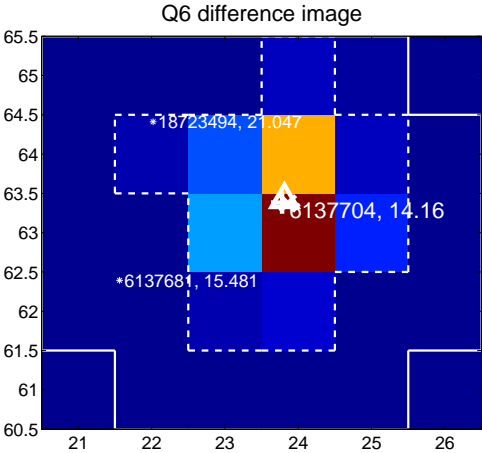


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

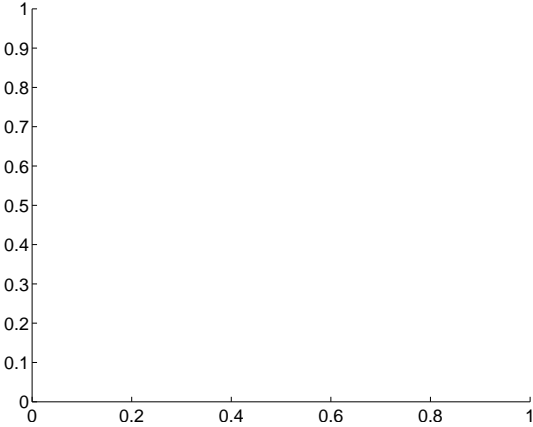
Q5 no difference image



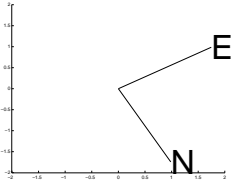
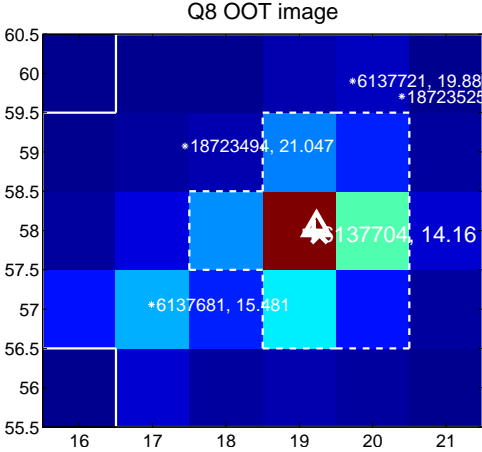
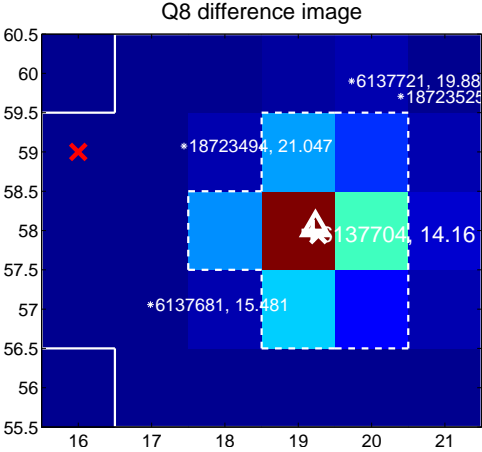
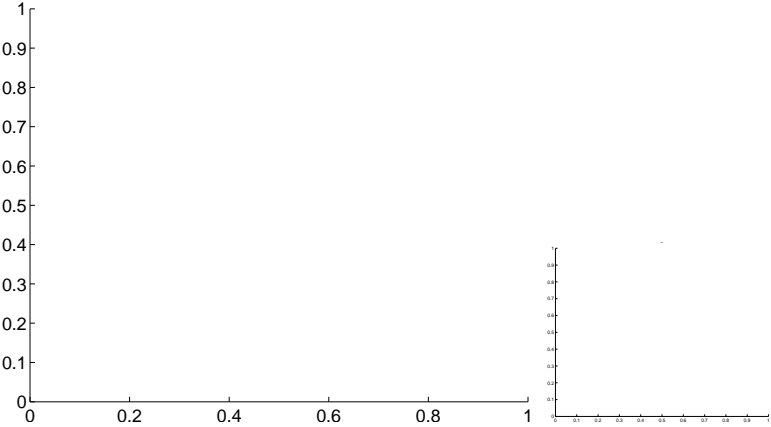
Q5 no OOT image



Q7 no difference image



Q7 no OOT image



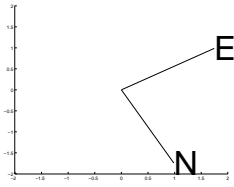
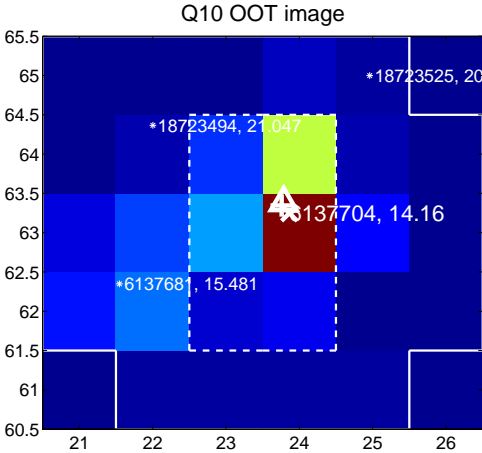
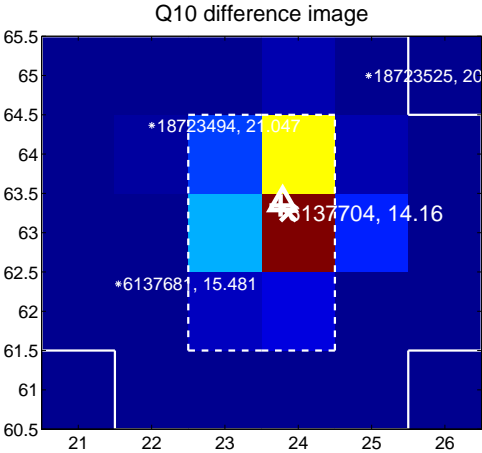


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

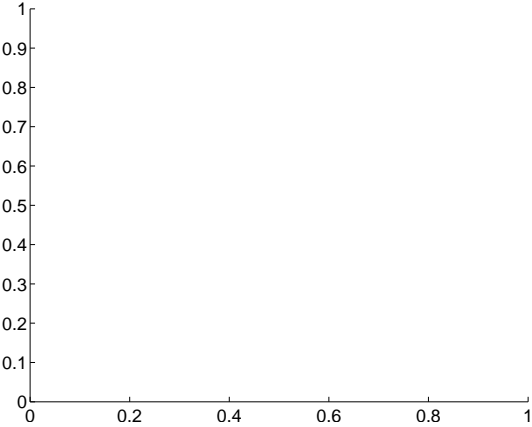
Q9 no difference image



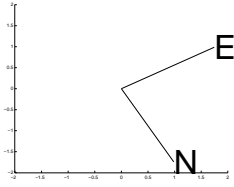
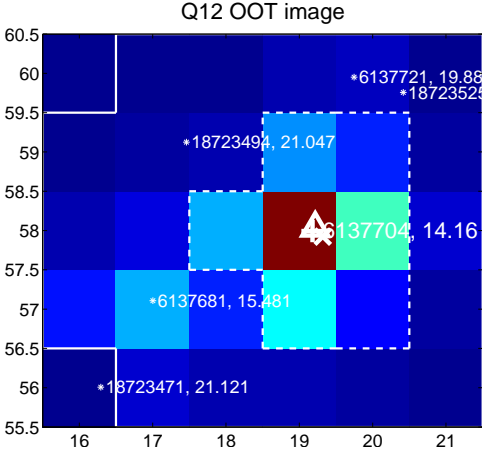
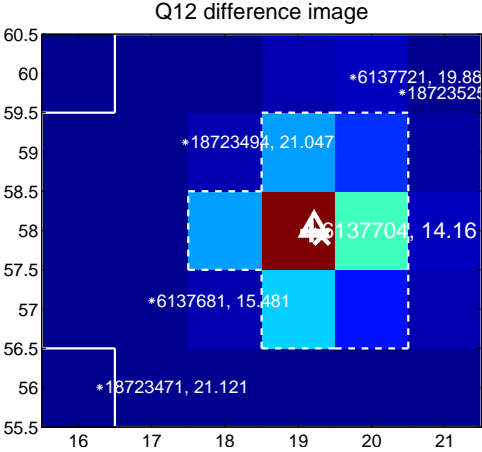
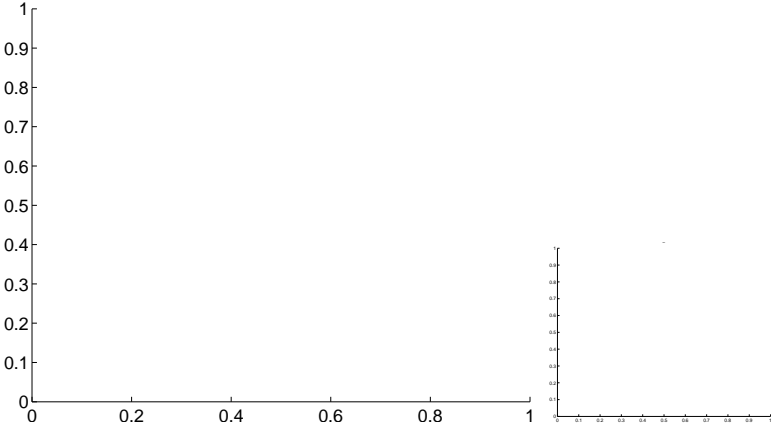
Q9 no OOT image



Q11 no difference image



Q11 no OOT image

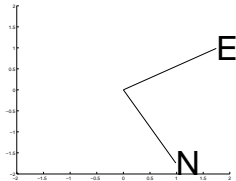
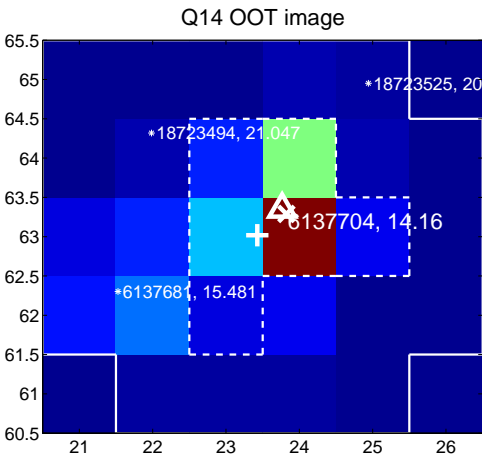
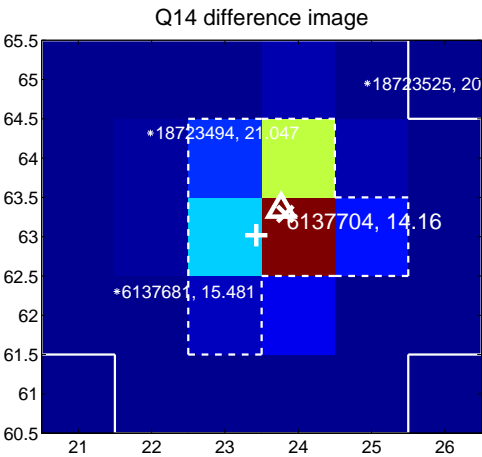


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

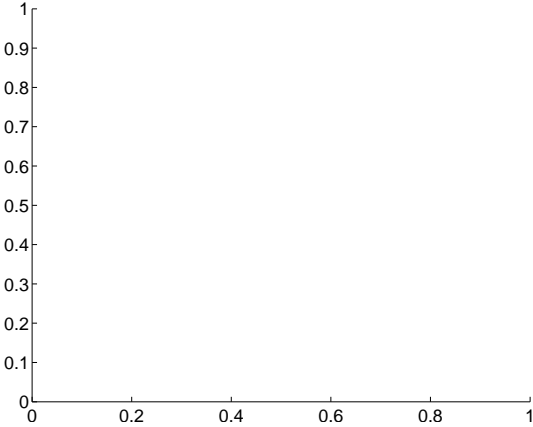
Q13 no difference image



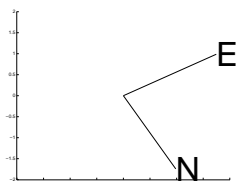
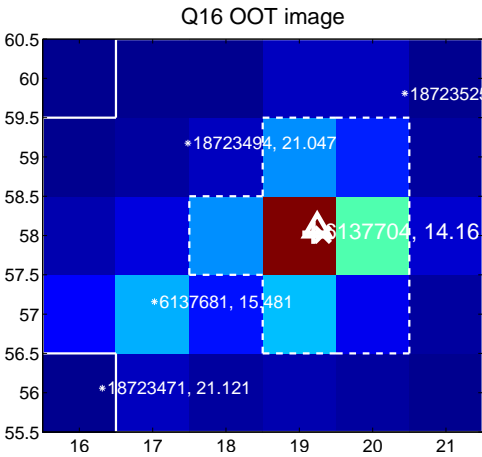
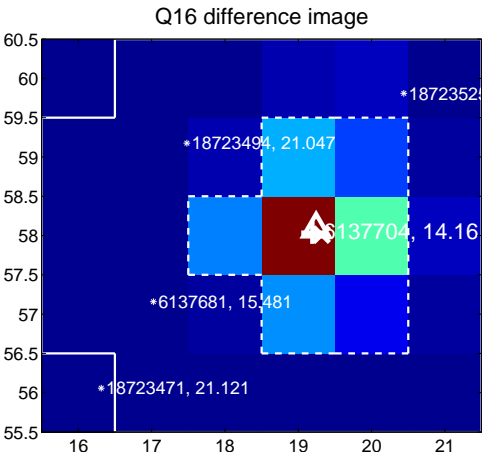
Q13 no OOT image



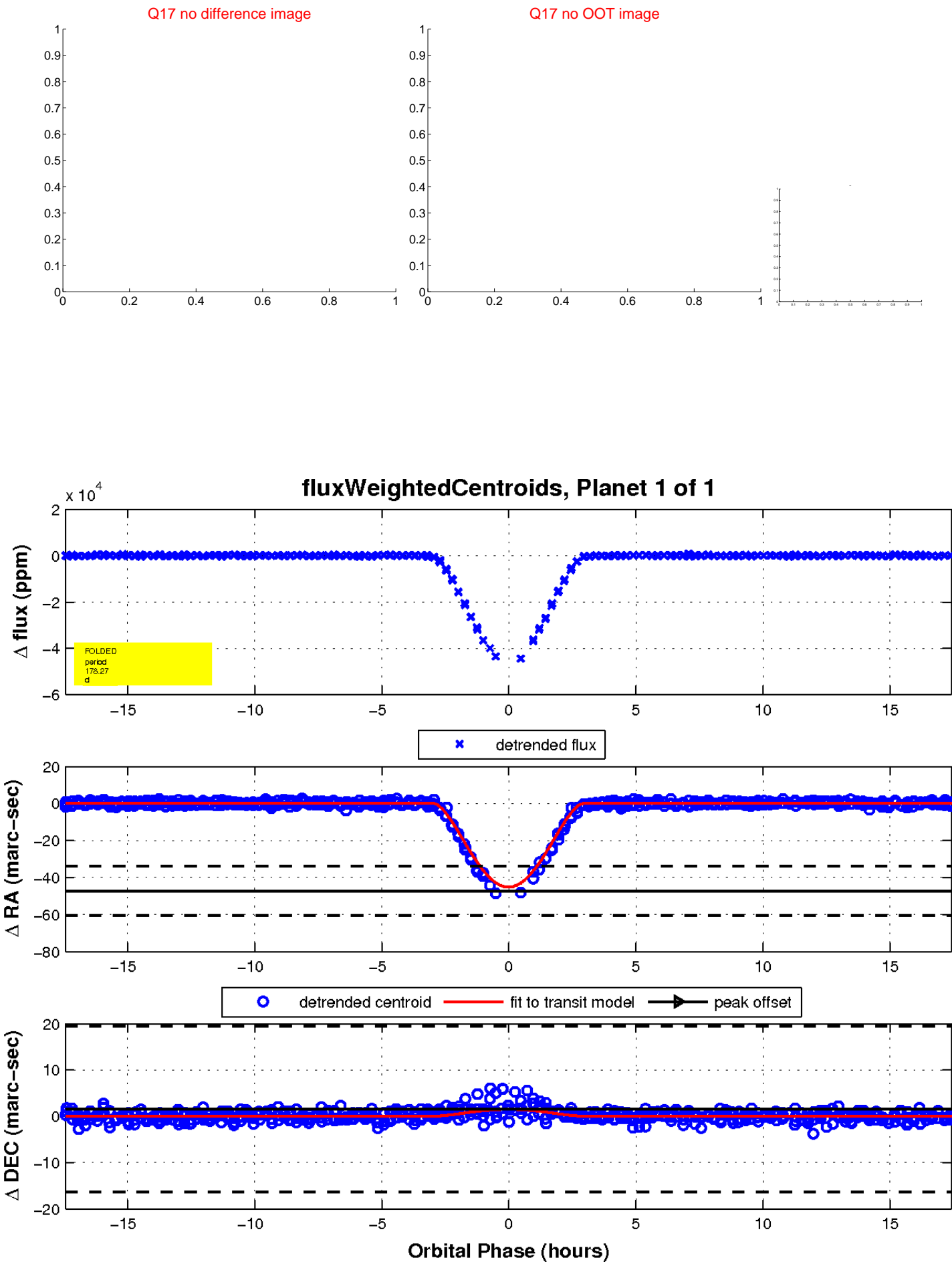
Q15 no difference image



Q15 no OOT image



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



UKIRT Image

Declination

