

# KIC 009936698

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009936698-01	OBS	7257.01	2.856095	133.388867	147673.7	4.945	5474.8	2626.2	1.53	6604	65.46	2168.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009936698-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—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.

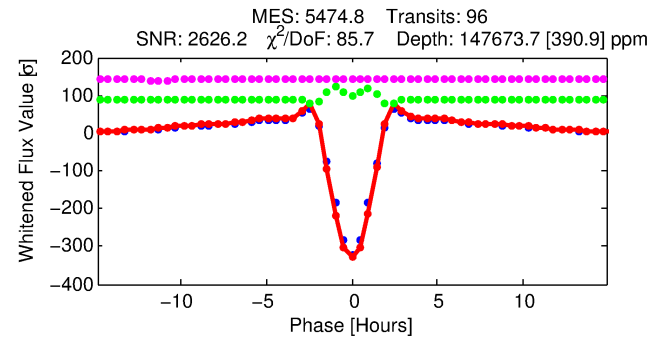
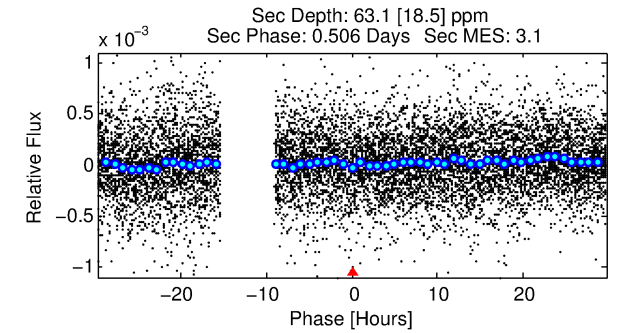
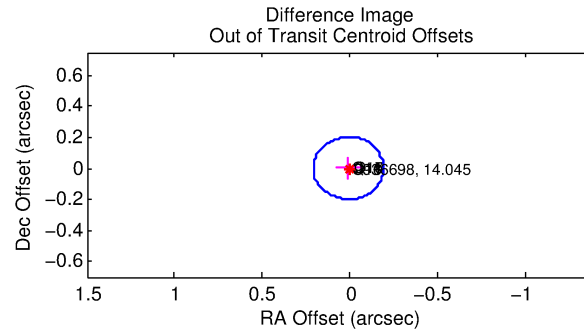
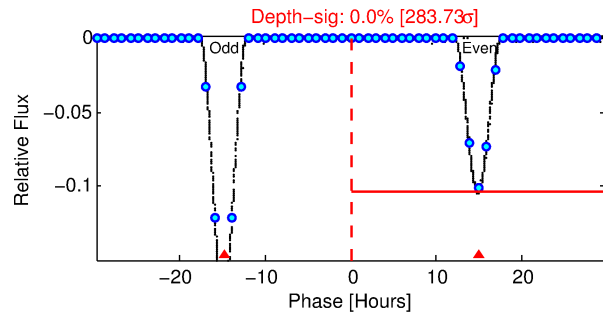
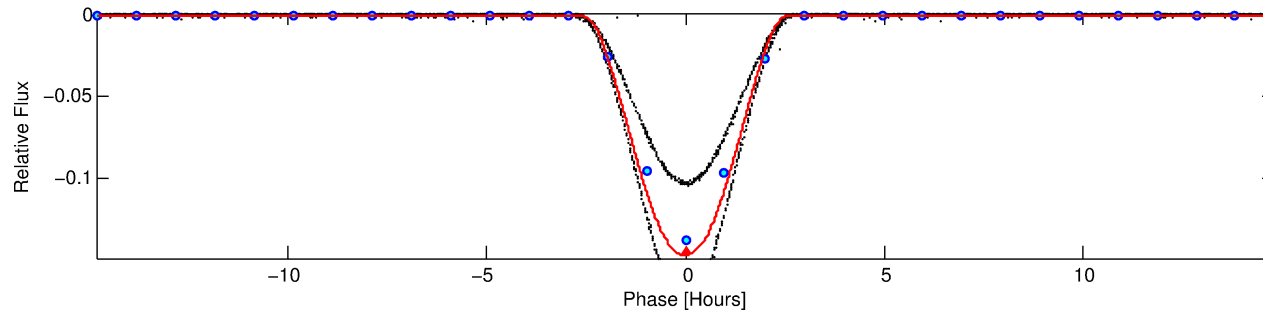
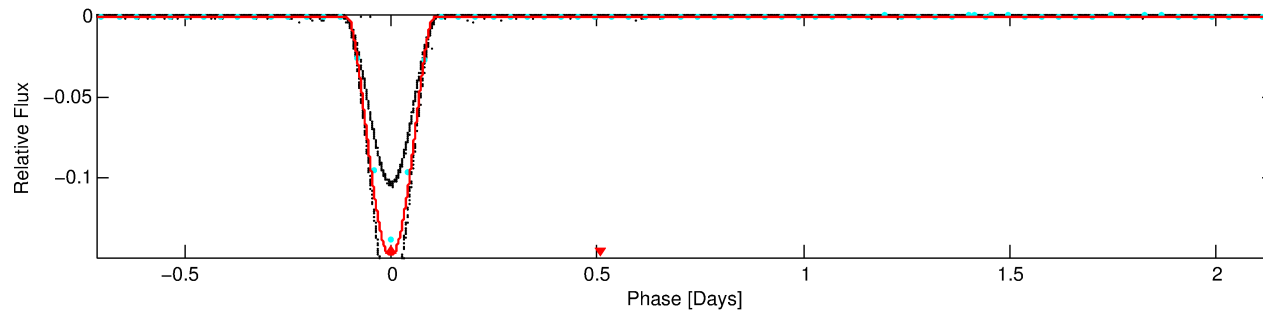
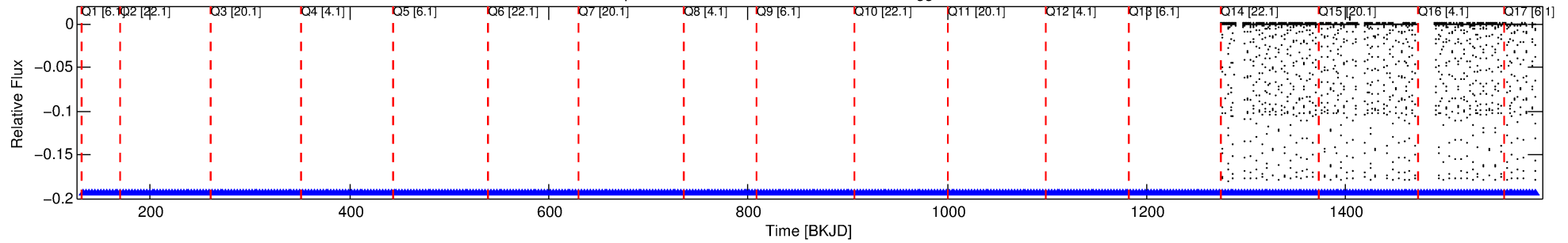
## Ephemeris Match Information For 009936698-01

No Significant Match Found

# DV One-Page Summary

KIC: 9936698 Candidate: 1 of 1 Period: 2.856 d  
KOI: K07257.01 Corr: 0.987

Kp: 14.05 R\*: 1.53 Rs Teff: 6604.0 K Logg: 4.18 Fe/H: -0.120



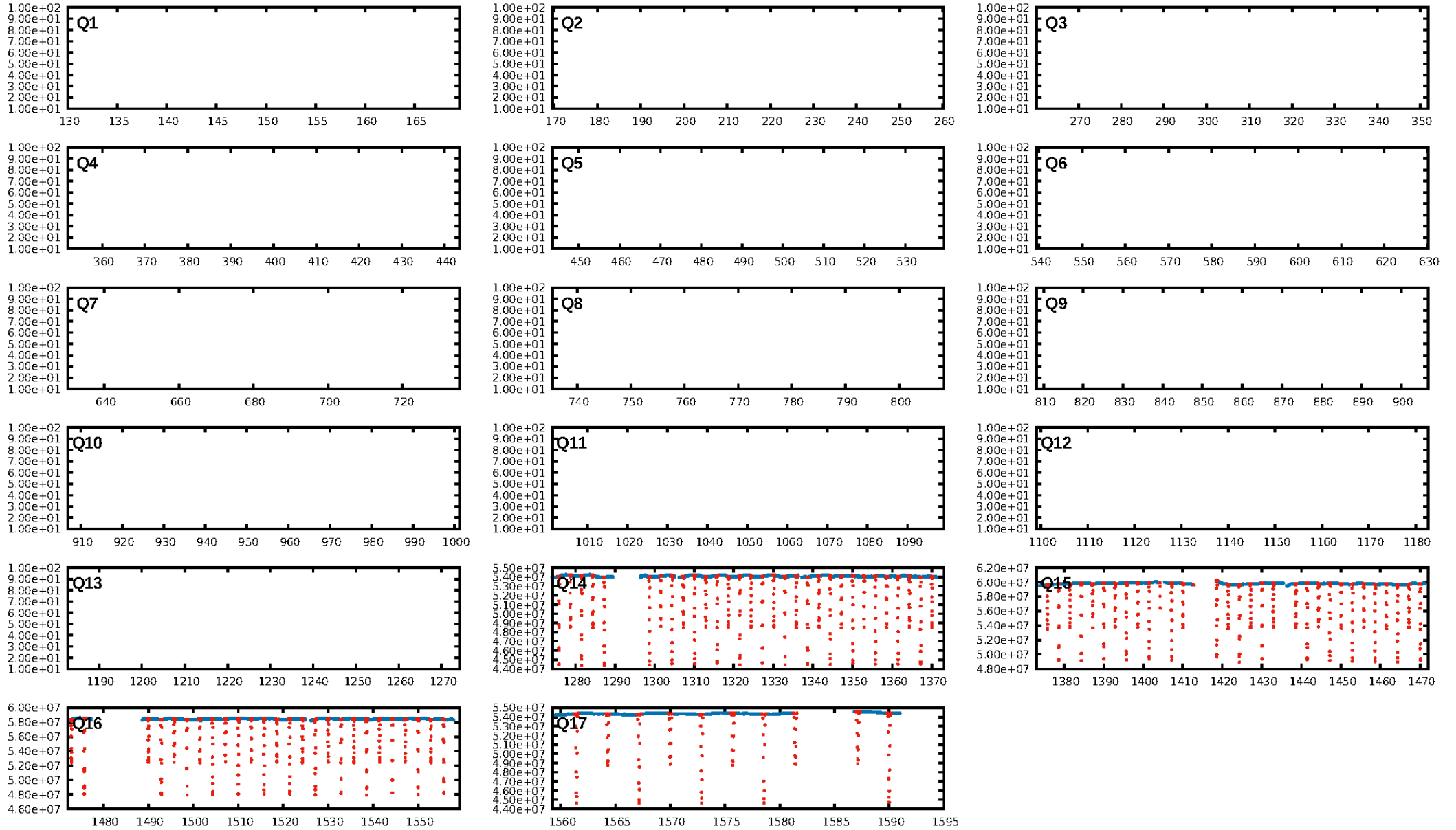
## DV Fit Results:

Period = 2.85609 [0.00000] d  
Epoch = 133.3889 [0.0002] BKJD  
Rp/R\* = 0.3931 [0.0027]  
a/R\* = 5.47 [0.01]  
b = 0.67 [0.01]  
Seff = 2168.35 [811.13]  
Teq = 1740 [163] K  
Rp = 65.46 [19.44] Re  
a = 0.0428 [0.0103] AU  
Ag = 0.01 [0.01] [-148.10σ]  
Teffp = 939 [78] K [-4.44σ]

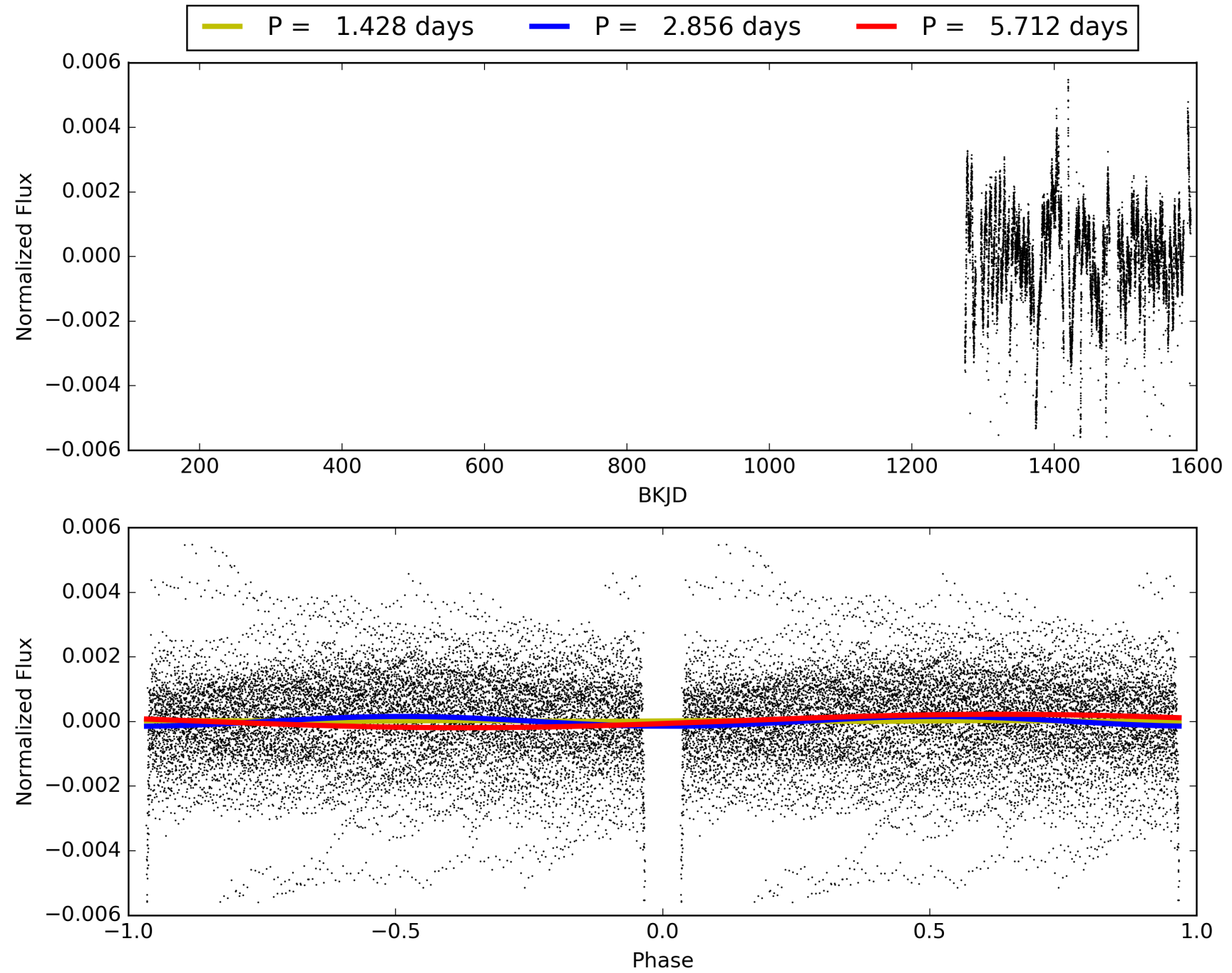
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [86/86]  
GhostDiagnostic-chr: 1.459  
Centroid-sig: 0.0%  
Centroid-so: 0.165 arcsec [155.95σ]  
OotOffset-rm: 0.010 arcsec [0.14σ]  
KicOffset-rm: 0.186 arcsec [1.78σ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

# TCE 009936698-01, PDC Light Curves

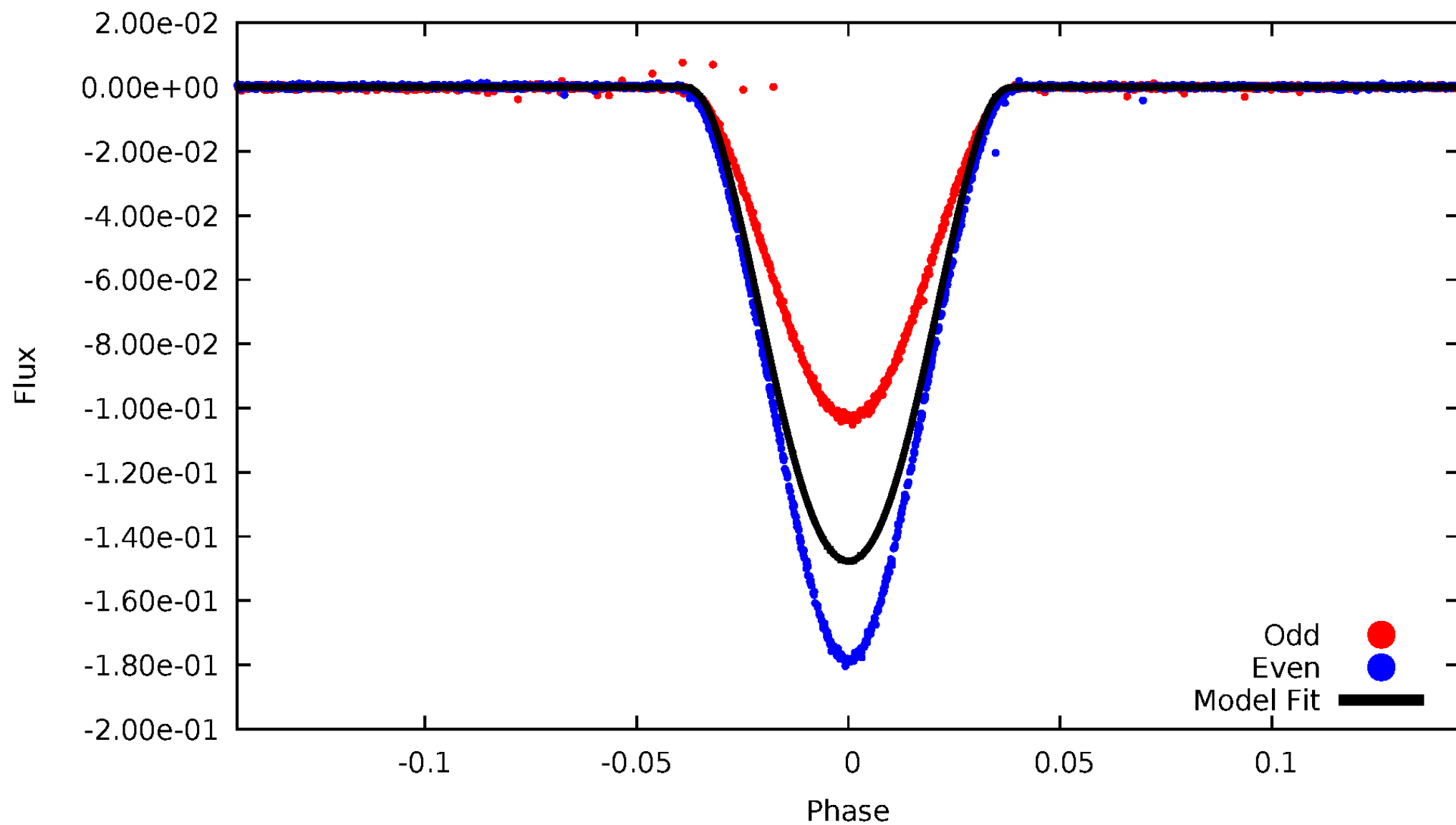


TCE 009936698-01



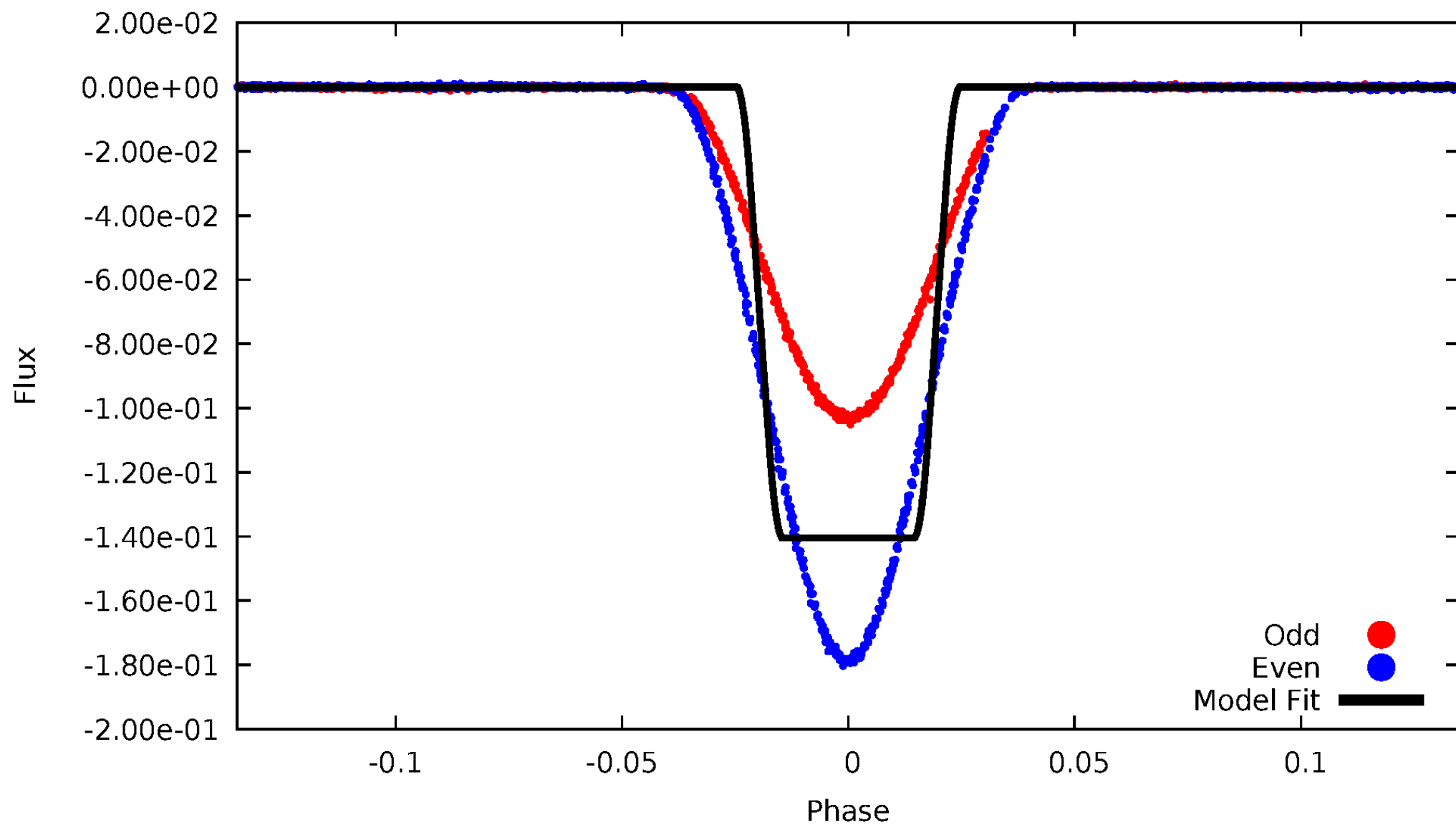
# DV Odd/Even

TCE 009936698-01



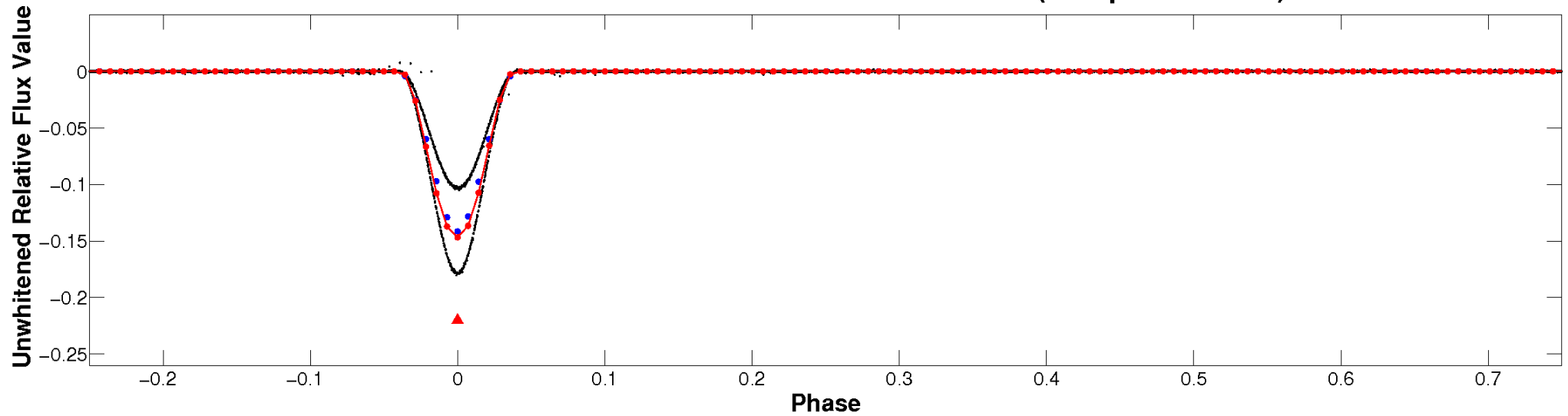
# ALT Odd/Even

TCE 009936698-01

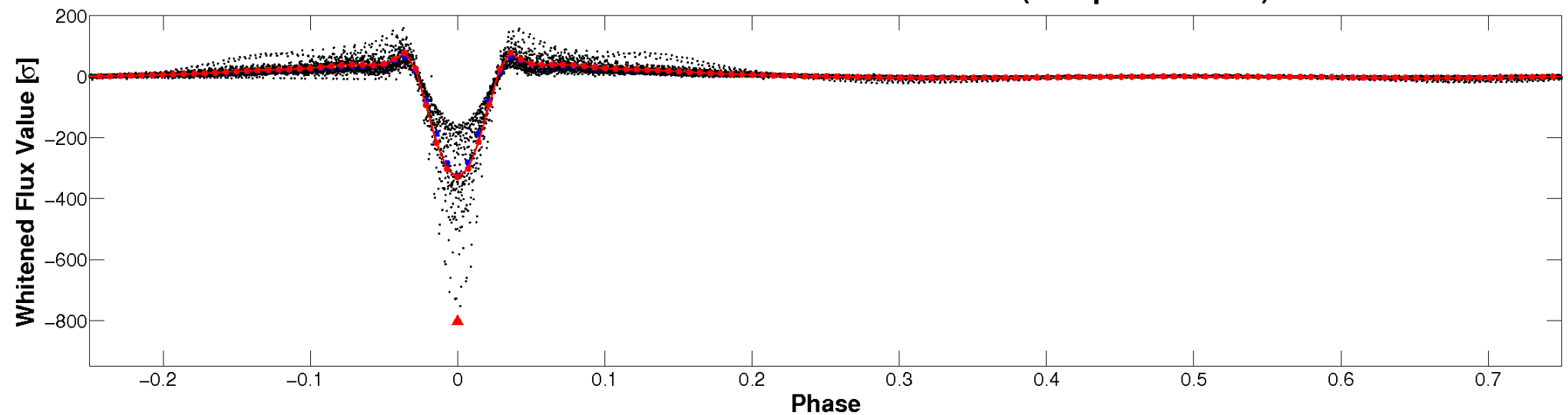


# Non-Whitened Vs. Whitened Light Curve

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

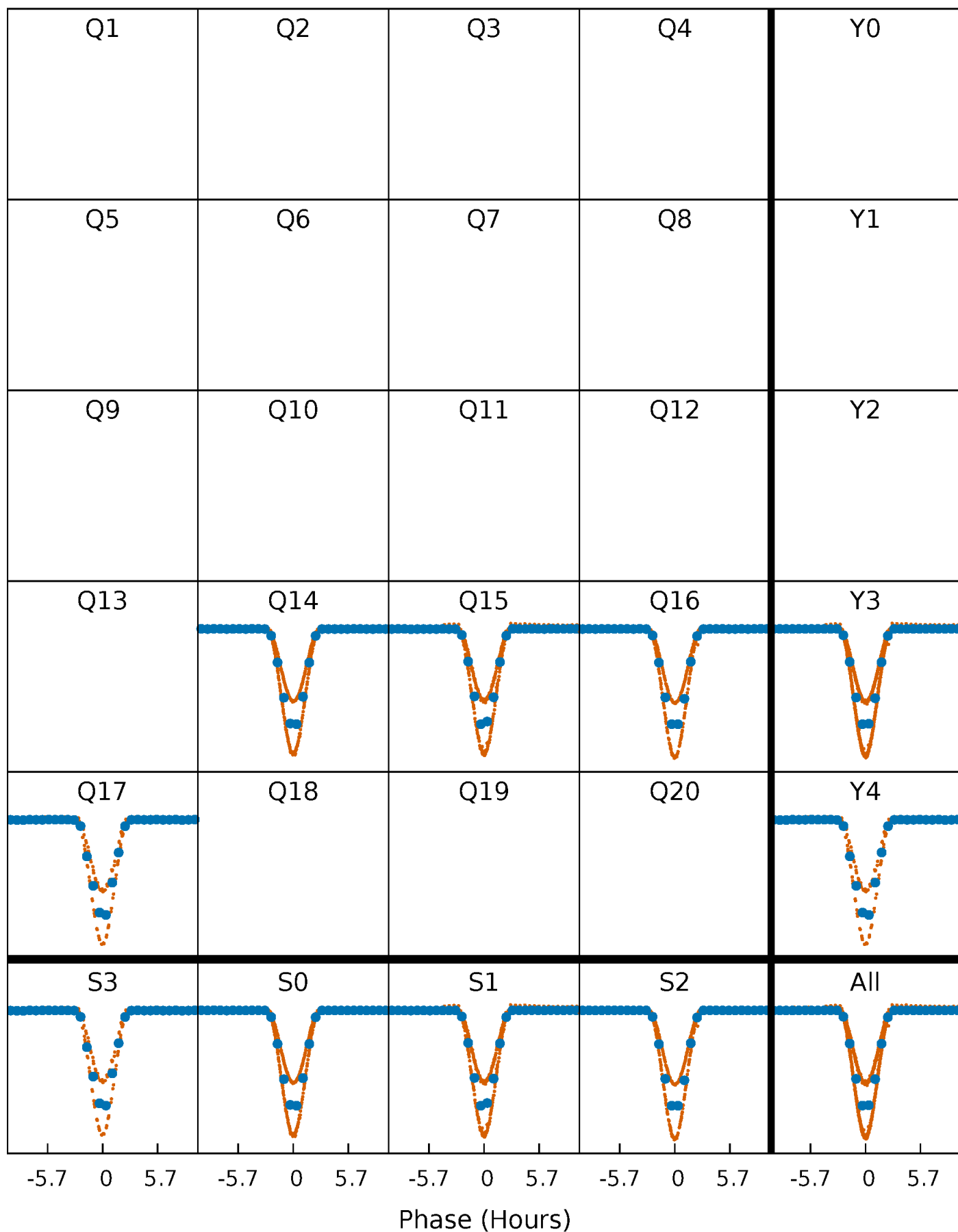


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

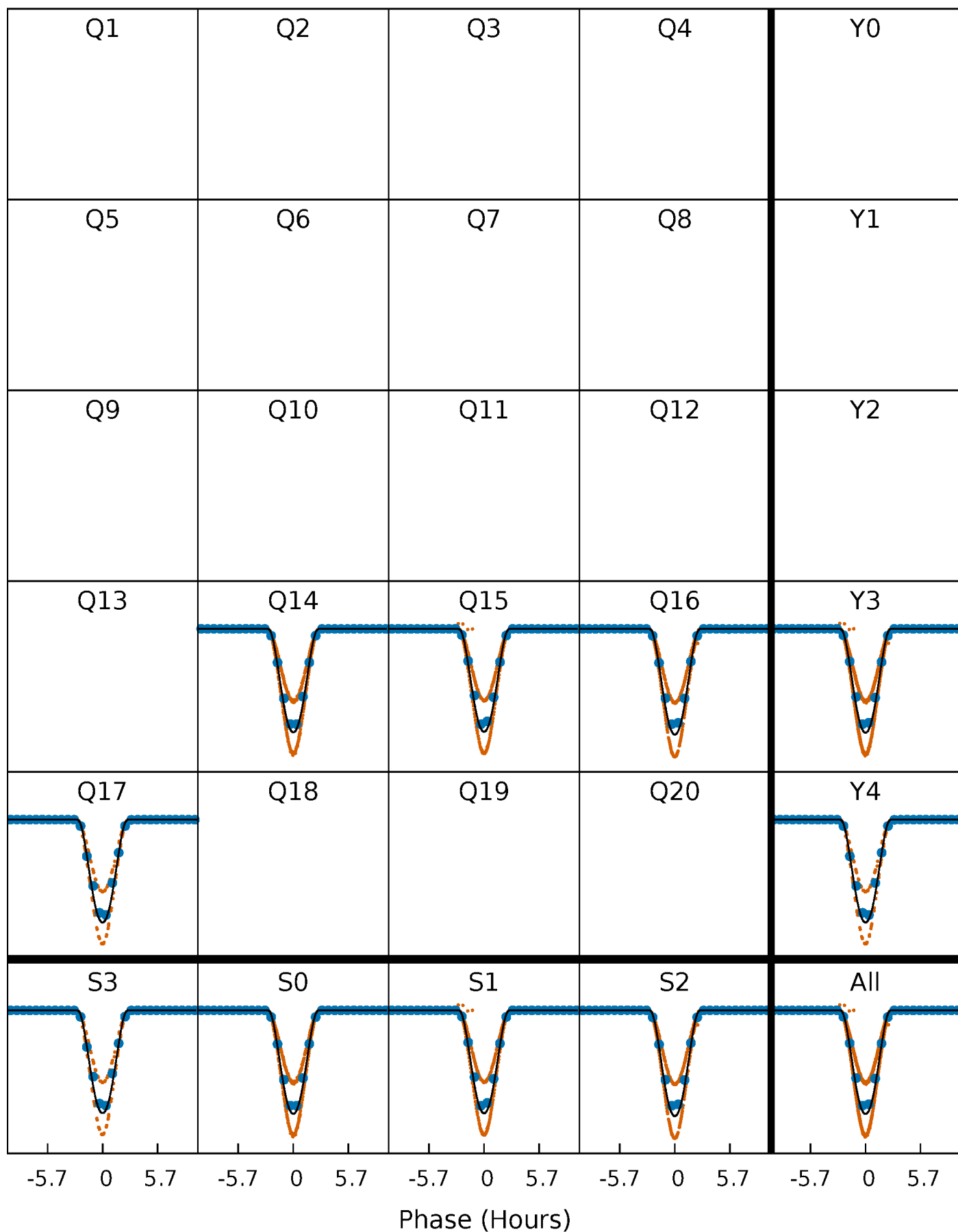
TCE 009936698-01   P= 2.856095 Days    $T_0=133.388867$  (BKJD)





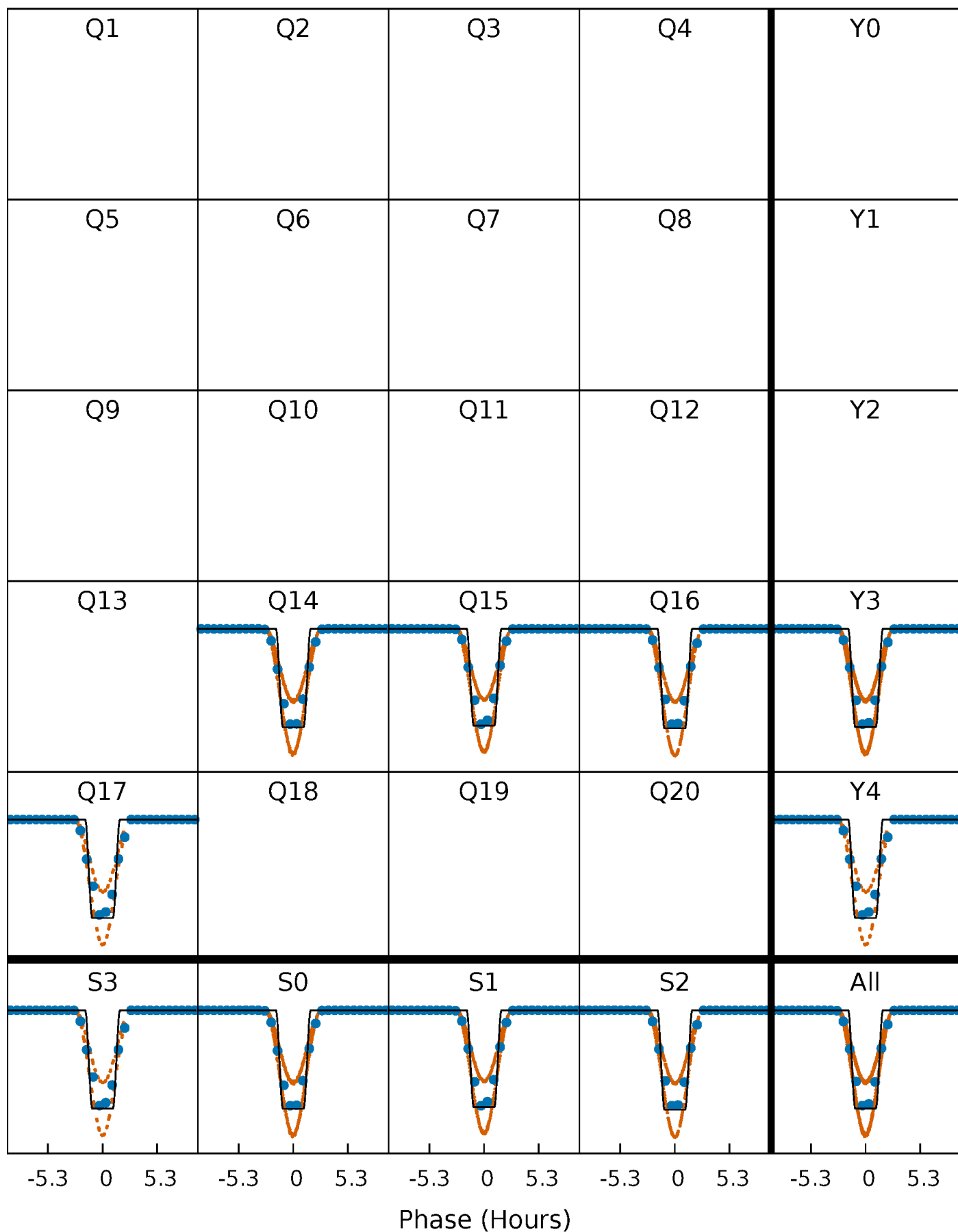
# DV Quarter-Phased Transit Curves

TCE 009936698-01   P= 2.856095 Days    $T_0=133.388867$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

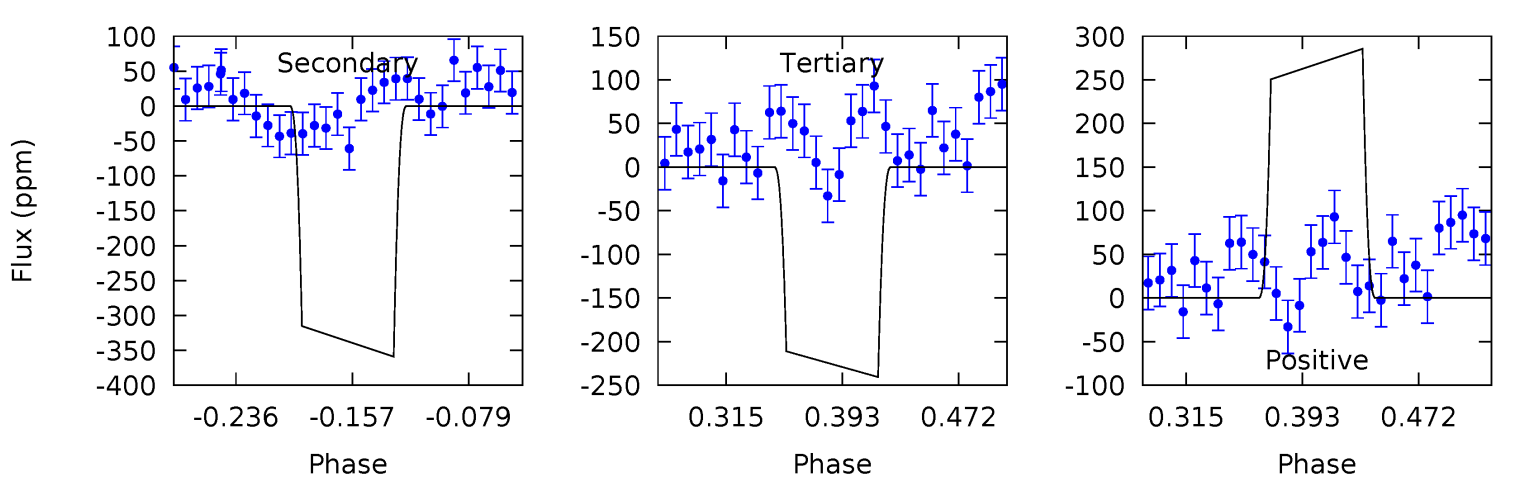
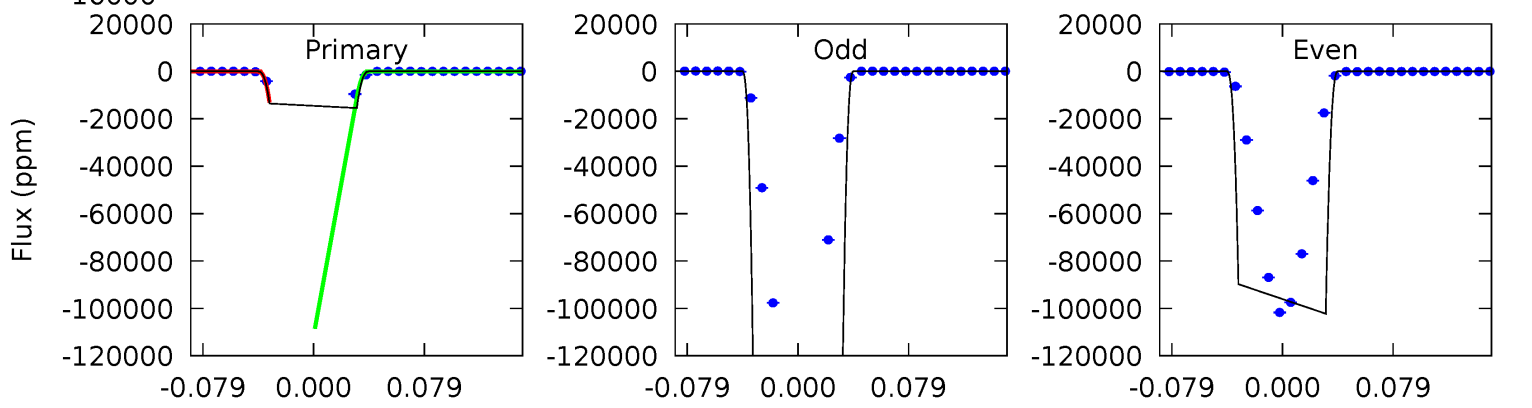
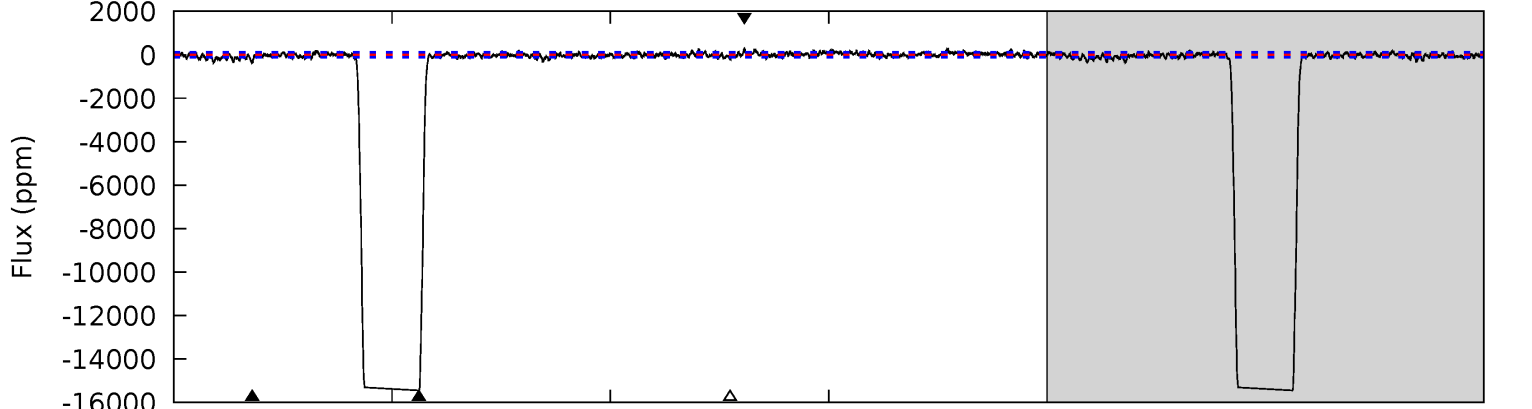
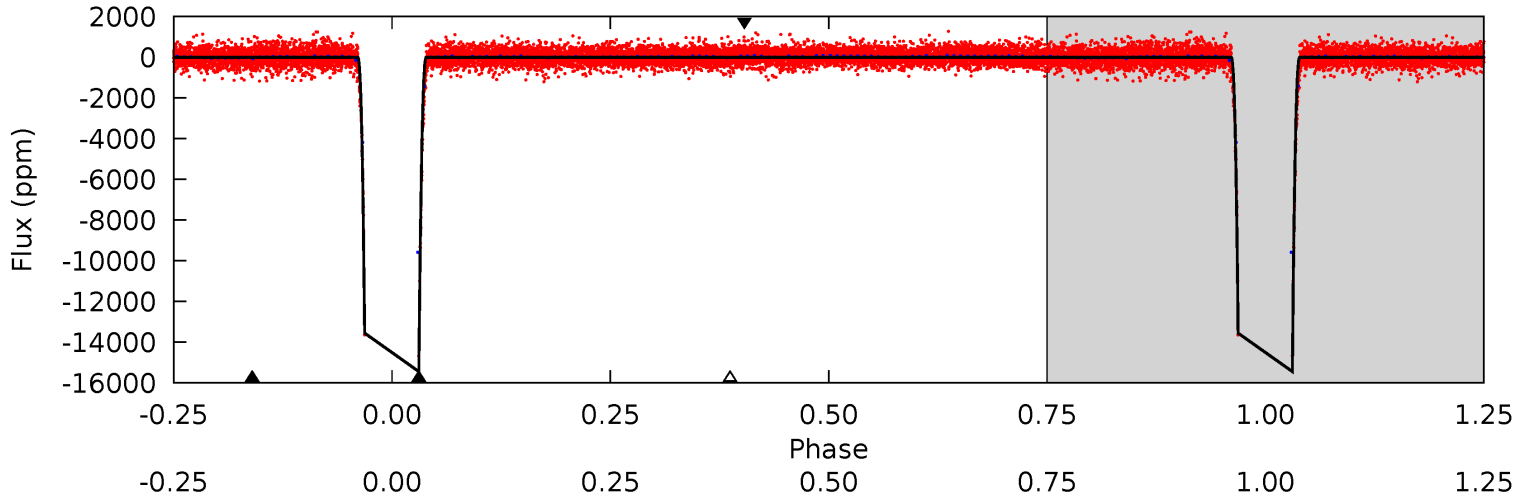
TCE 009936698-01   P= 2.856073 Days    $T_0=133.398825$  (BKJD)



# DV Model-Shift Uniqueness Test

009936698-01, P = 2.856095 Days, E = 133.388867 Days

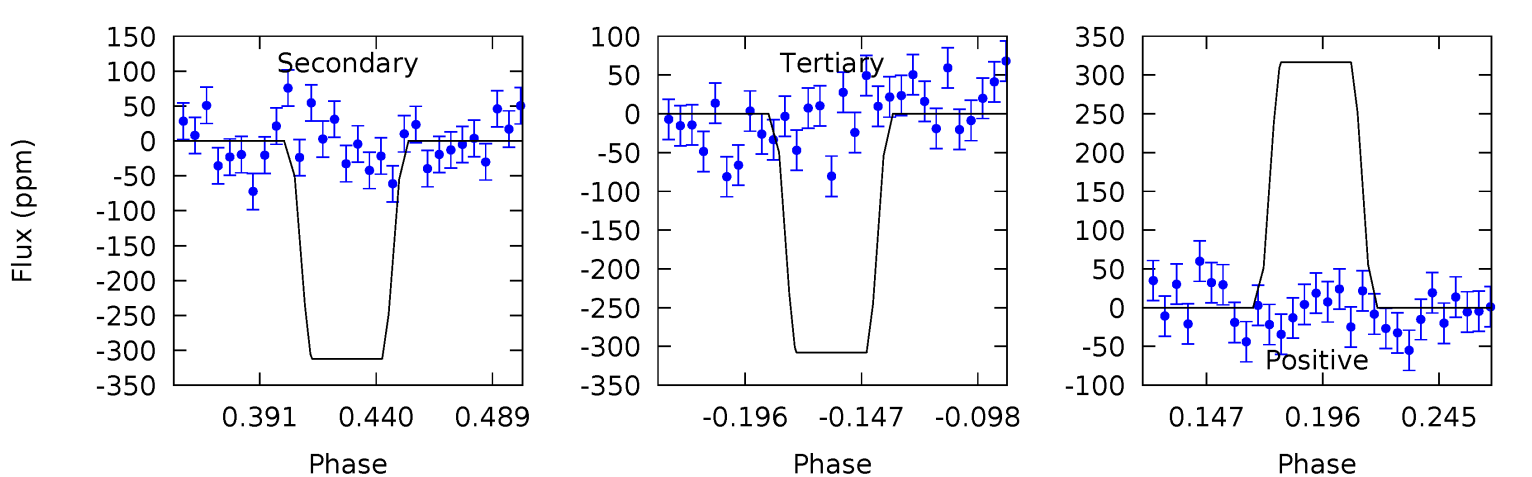
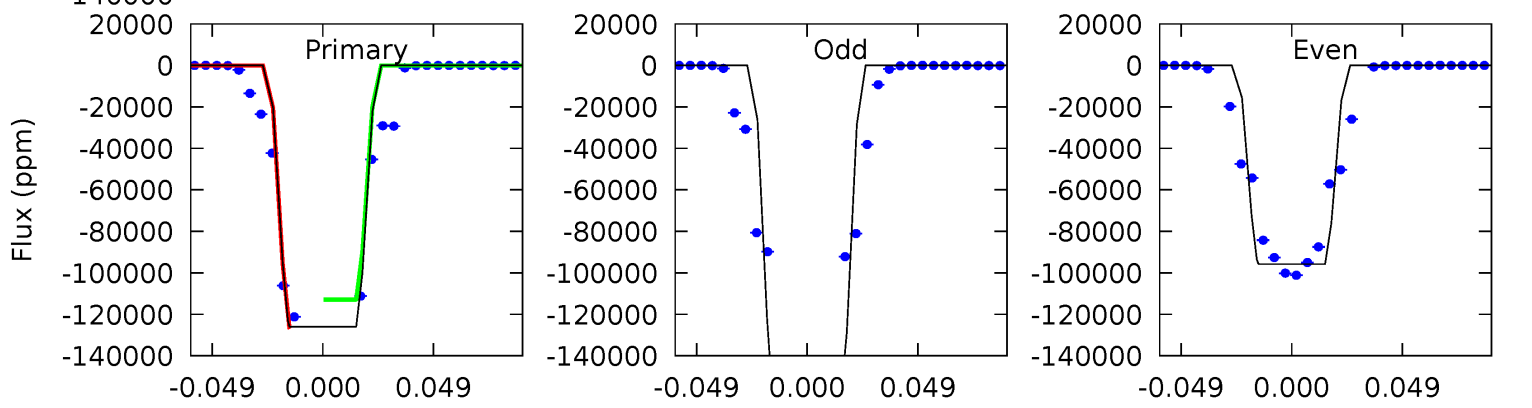
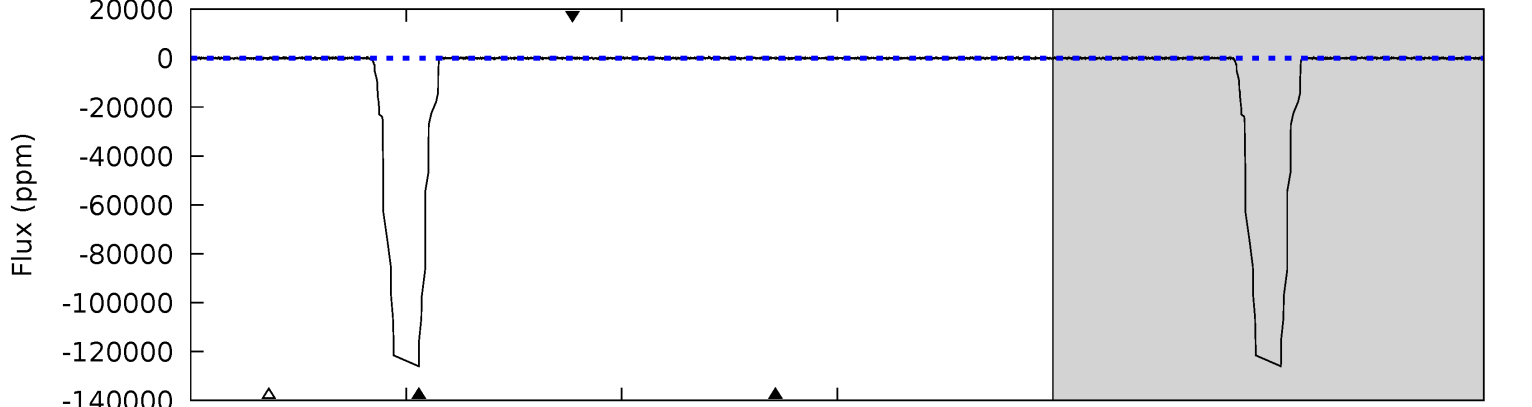
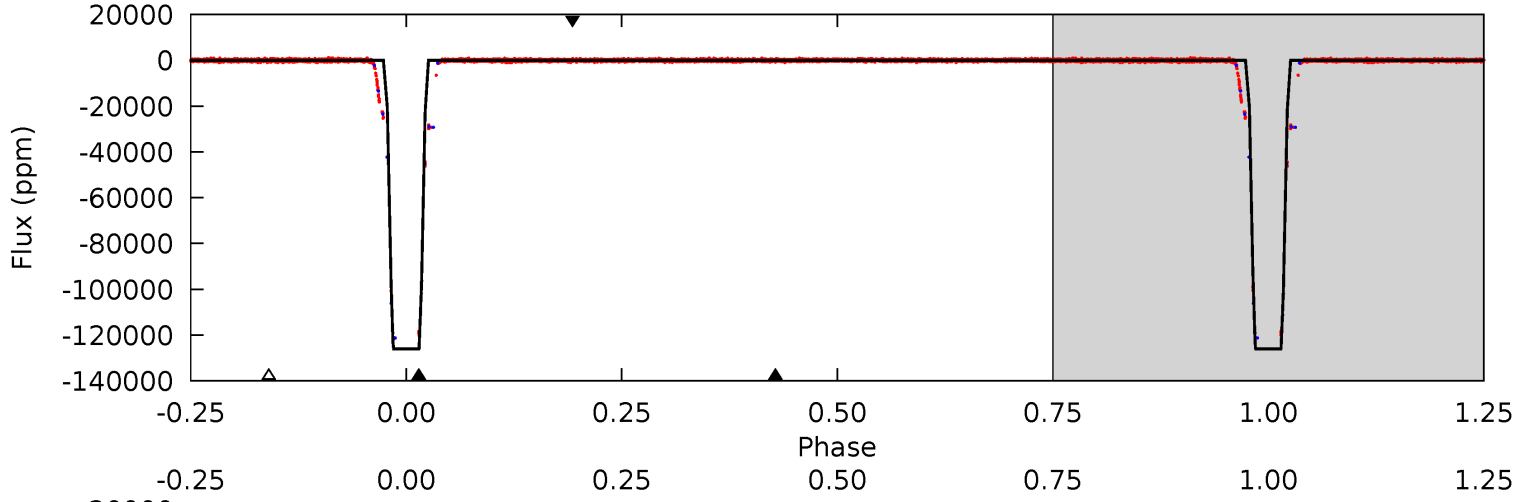
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
612.5	14.2	9.54	11.3	4.61	1.76	3.30	603.0	601.2	4.71	2.92	3488	0.99	0.02	0



# Alt Model-Shift Uniqueness Test

009936698-01, P = 2.856073 Days, E = 133.398825 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
1651	4.09	4.04	4.15	4.71	1.97	2.54	1647	1647	0.06	-0.05	1771	0.82	0.00	0



### Stellar Parameters For KIC 009936698

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6604^{+187}_{-258}$	$4.178^{+0.162}_{-0.180}$	$-0.120^{+0.250}_{-0.300}$	$1.526^{+0.453}_{-0.371}$	$1.283^{+0.200}_{-0.220}$	$0.509^{+0.432}_{-0.255}$
	+3%/-4%	+4%/-4%	+208%/-250%	+30%/-24%	+16%/-17%	+85%/-50%
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 009936698-01 / KOI 7257.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-359 \pm 25$	$65.62^{+11.97}_{-8.76}$	$2435^{+201}_{-178}$	$-2641^{+135}_{-147}$	$0.083^{+0.025}_{-0.023}$
Alt.	$-312 \pm 76$	$62.31^{+9.61}_{-8.30}$	$2432^{+196}_{-176}$	$-2648^{+142}_{-130}$	$0.079^{+0.034}_{-0.027}$

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

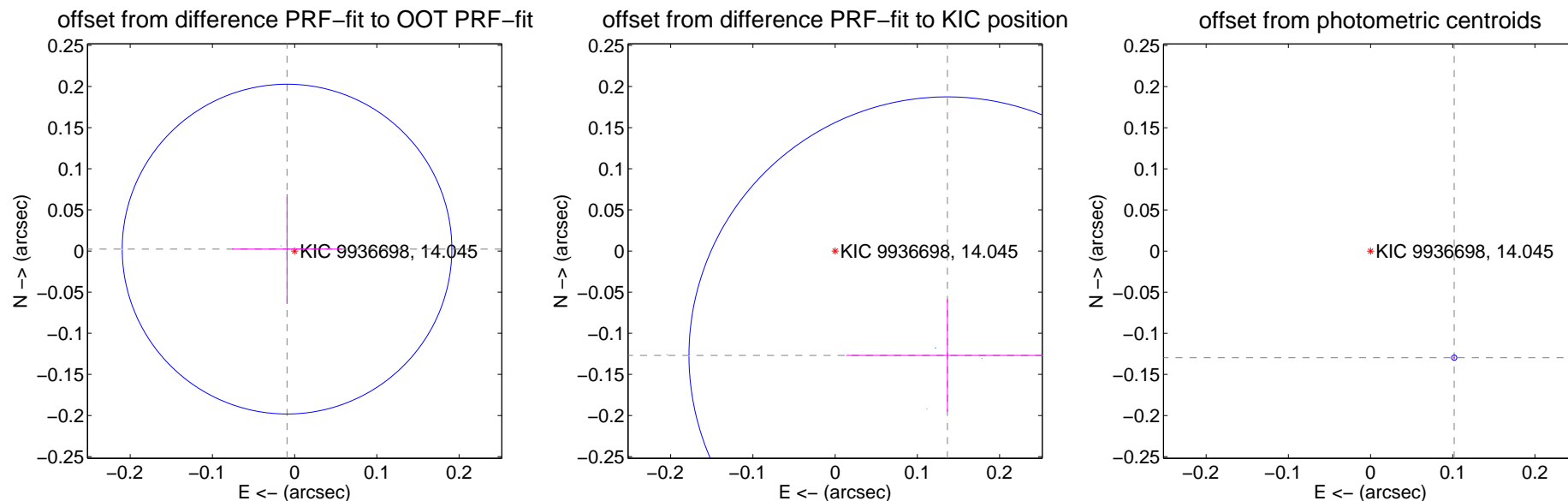
## DV Centroid Data

Supplemental centroid analysis for 009936698-01. Kepler magnitude: 14.04. Transit SNR 2626.17

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.010 \pm 0.067$	0.14	$0.009 \pm 0.067$	$0.002 \pm 0.067$
PRF-fit source offset from KIC position	$0.186 \pm 0.105$	1.78	$-0.137 \pm 0.123$	$-0.127 \pm 0.068$
photometric centroid source offset	$0.16 \pm 0.00$	155.95	$-0.10 \pm 0.00$	$-0.13 \pm 0.00$



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.



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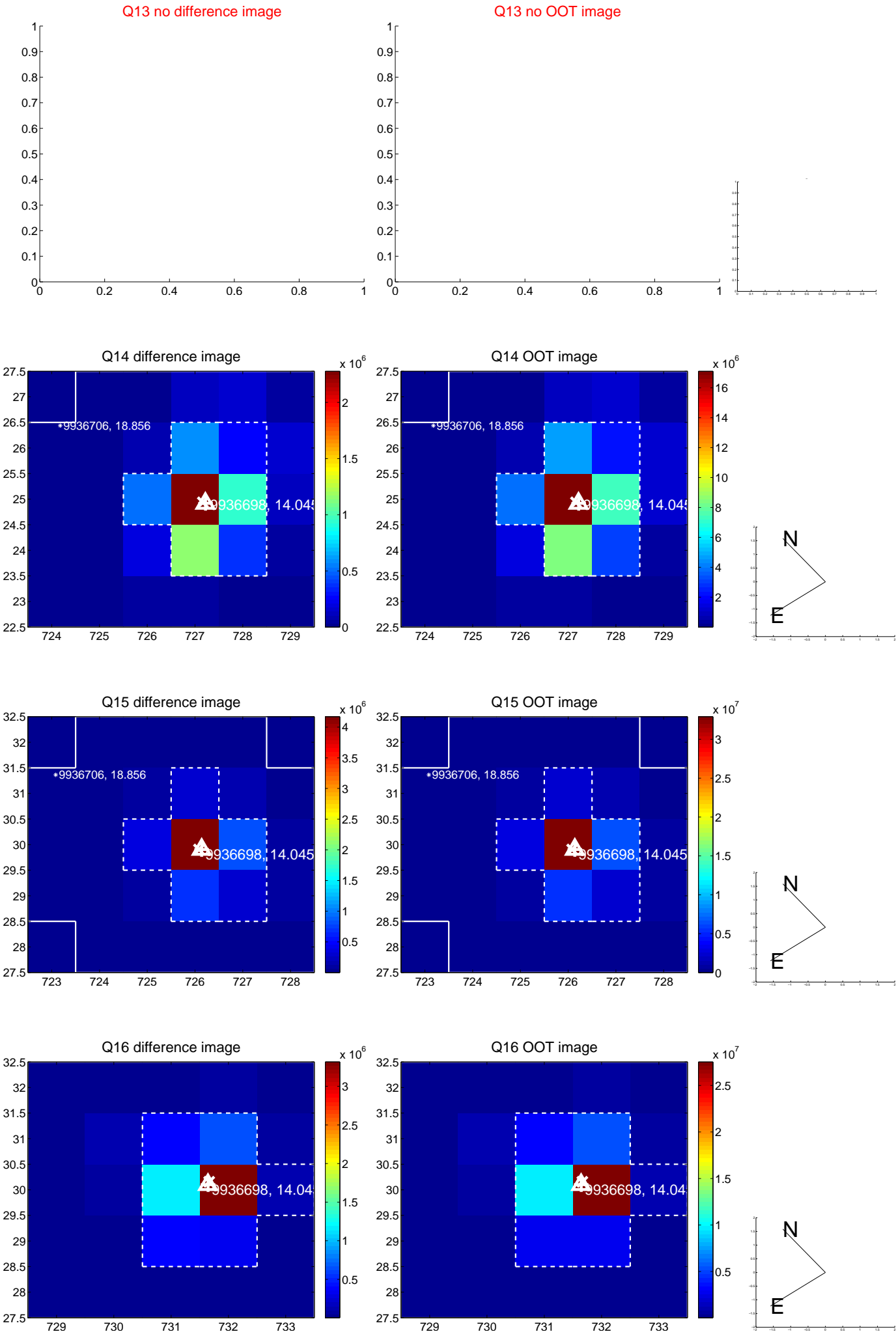




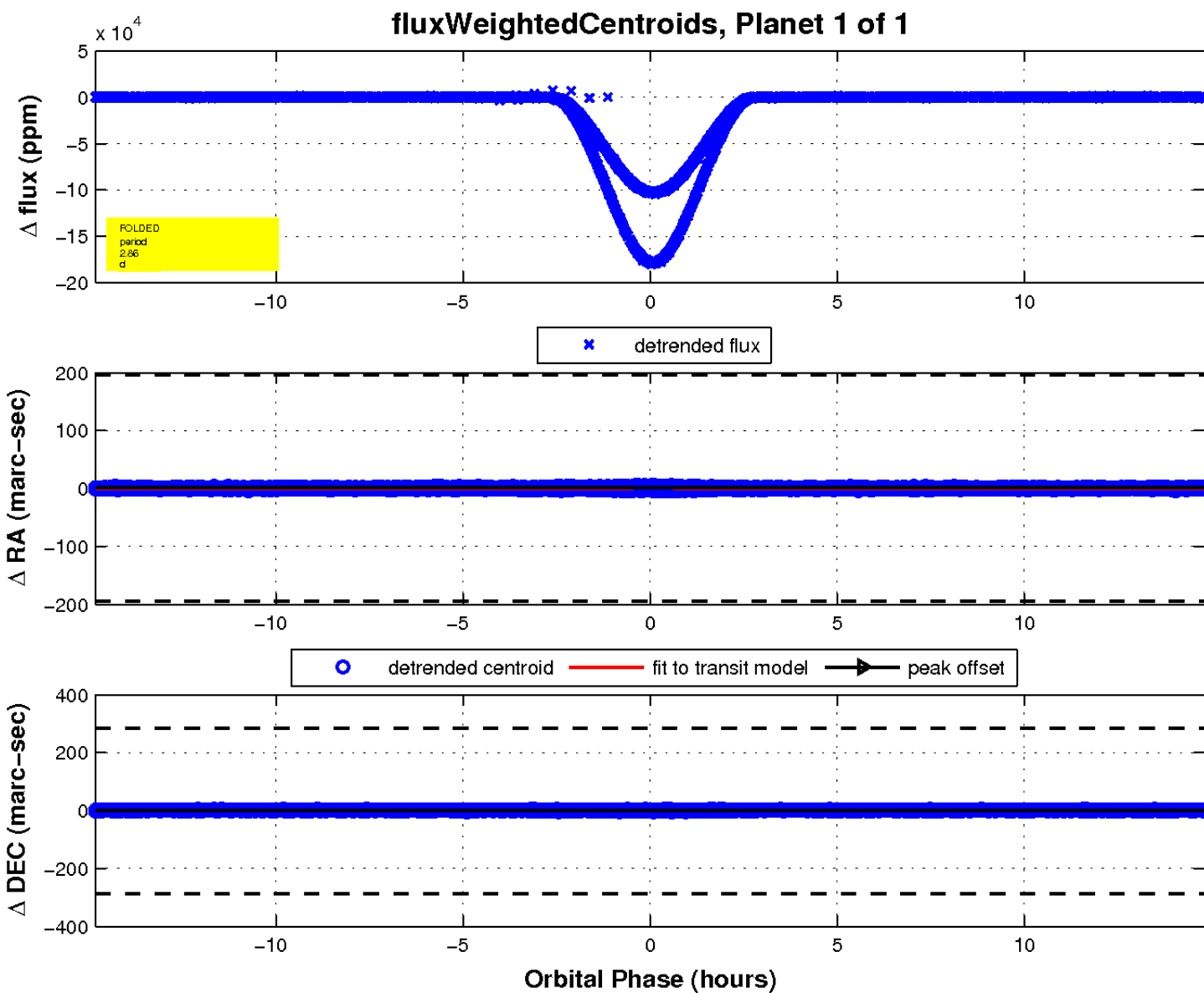
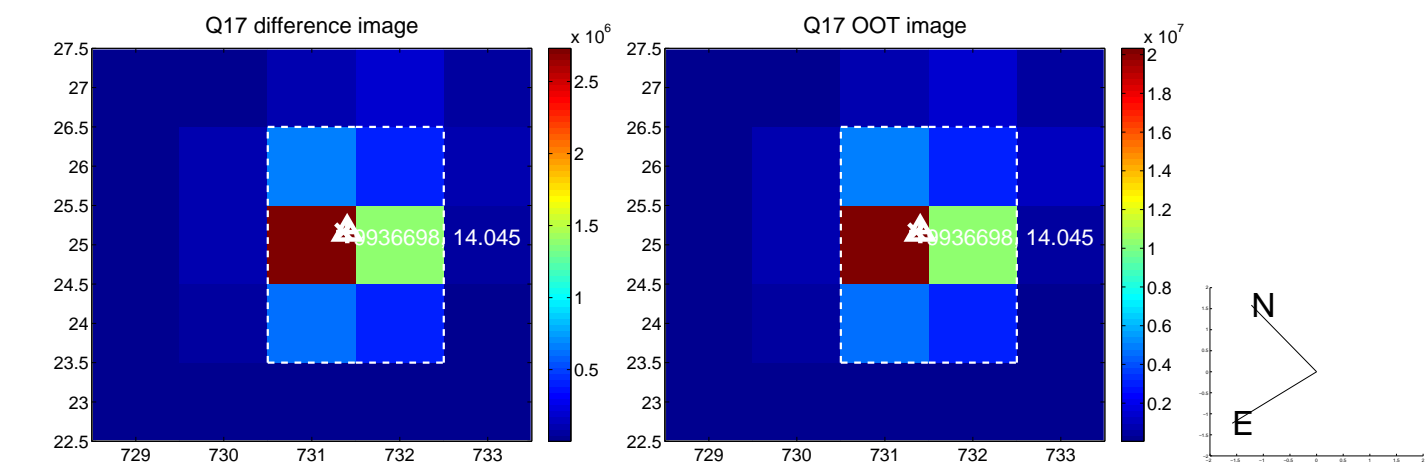
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

