

# KIC 002283703

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002283703-01	OBS	No	517.186633	343.292745	2308.5	6.805	12.9	7.9	0.60	5040	3.52	0.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002283703-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

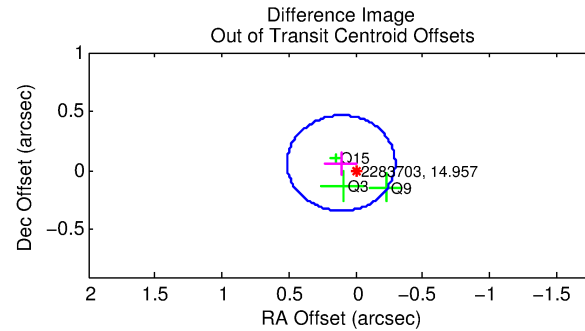
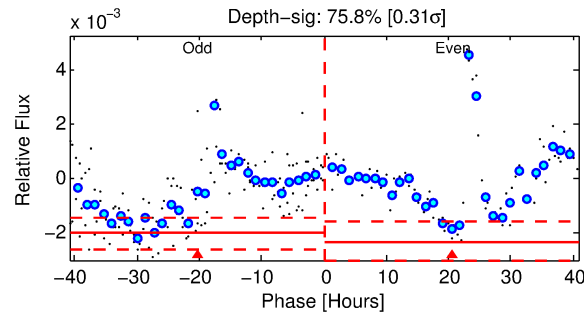
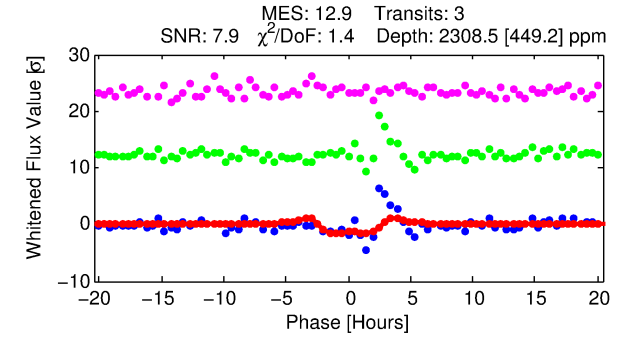
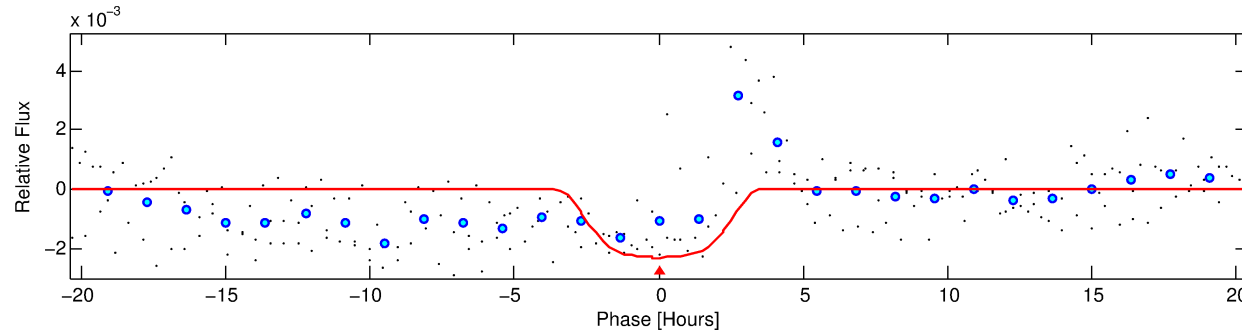
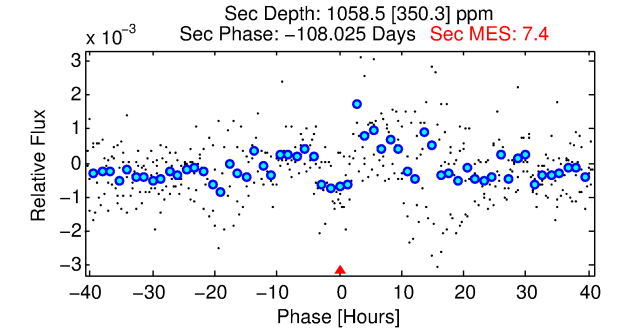
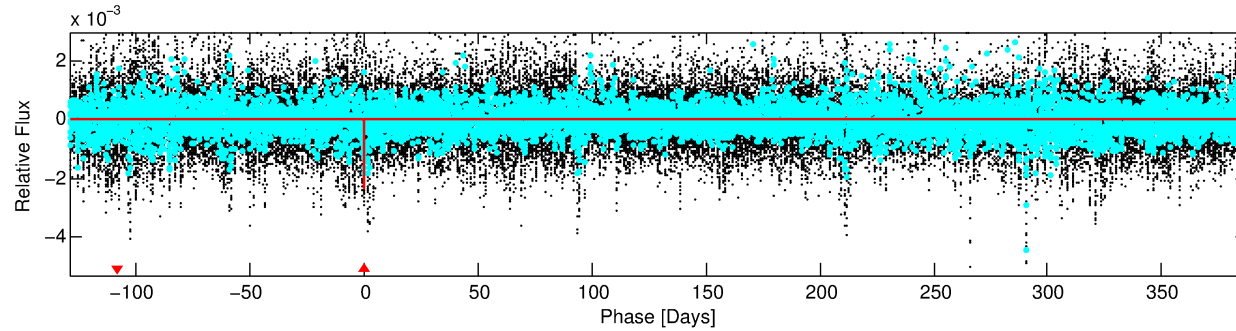
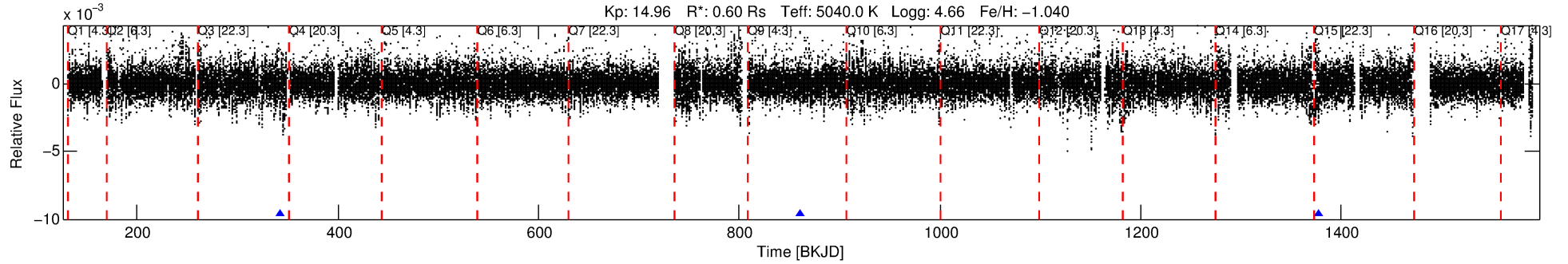
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002283703-01

No Significant Match Found

# DV One-Page Summary

KIC: 2283703 Candidate: 1 of 1 Period: 517.187 d



## DV Fit Results:

Period = 517.18663 [0.00946] d  
Epoch = 343.2927 [0.0128] BKJD  
Rp/R\* = 0.0539 [0.0065]  
a/R\* = 302.65 [58.73]  
b = 0.92 [0.04]  
Seff = 0.18 [0.03]  
Teq = 167 [6] K  
Rp = 3.52 [0.49] Re  
a = 1.0607 [0.0674] AU  
Ag = 53009.15 [22300.40] [2.38 $\sigma$ ]  
Teffp = 3917 [417] K [8.98 $\sigma$ ]

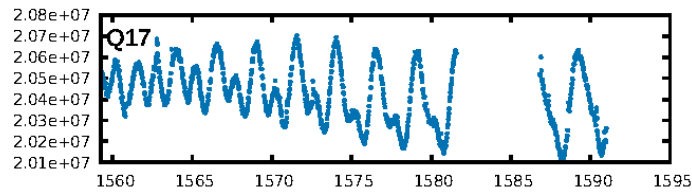
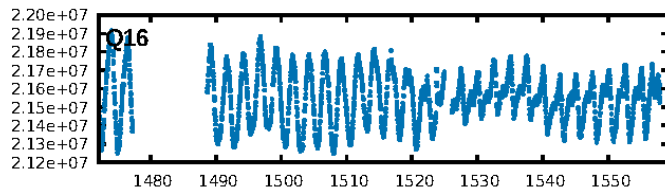
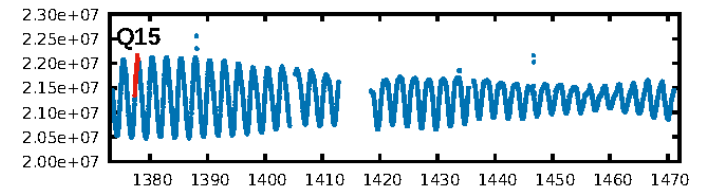
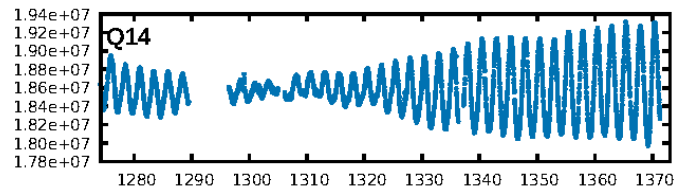
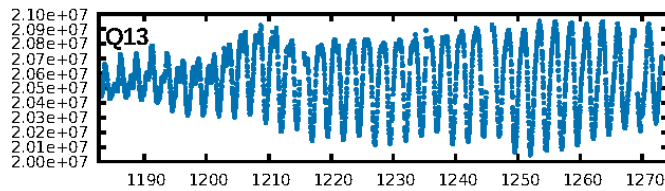
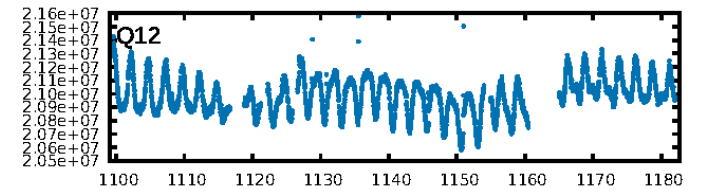
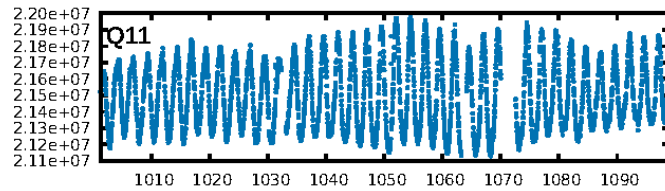
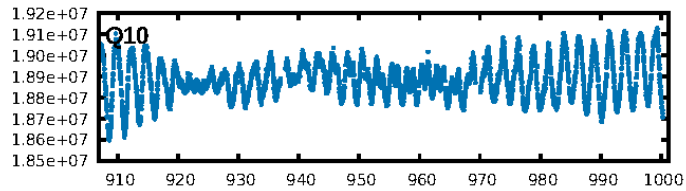
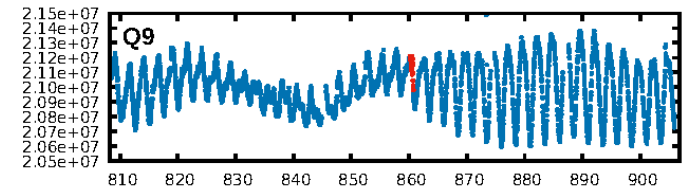
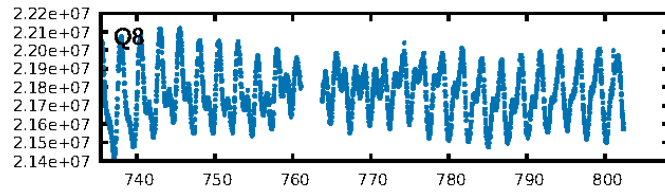
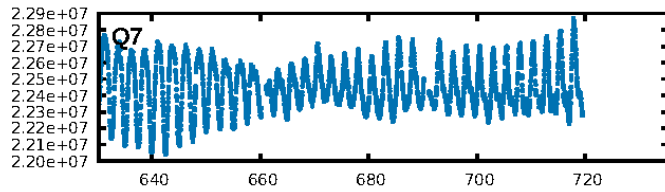
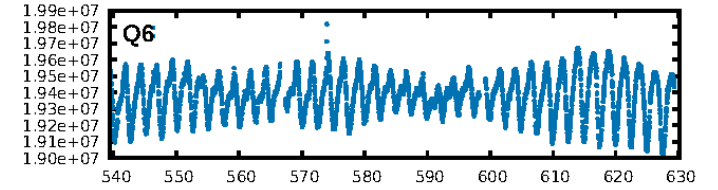
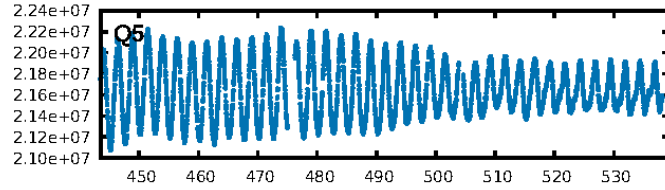
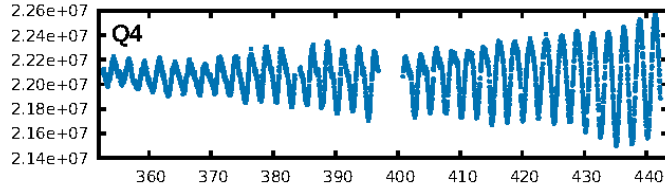
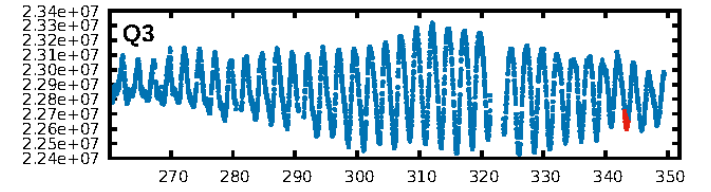
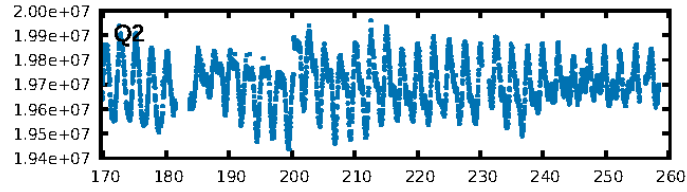
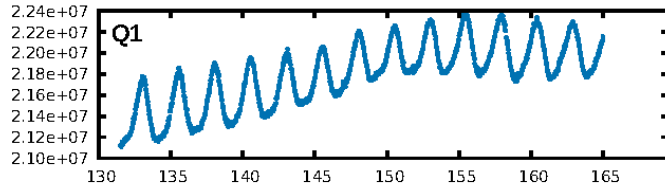
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.8%  
ModelChiSquareGof-sig: 75.2%  
Bootstrap-pfa: 4.33e-12  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.8306  
Centroid-sig: 0.5%  
Centroid-so: 1.552 arcsec [1.59 $\sigma$ ]  
OotOffset-rm: 0.128 arcsec [0.95 $\sigma$ ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-rm: 0.134 arcsec [1.42 $\sigma$ ]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

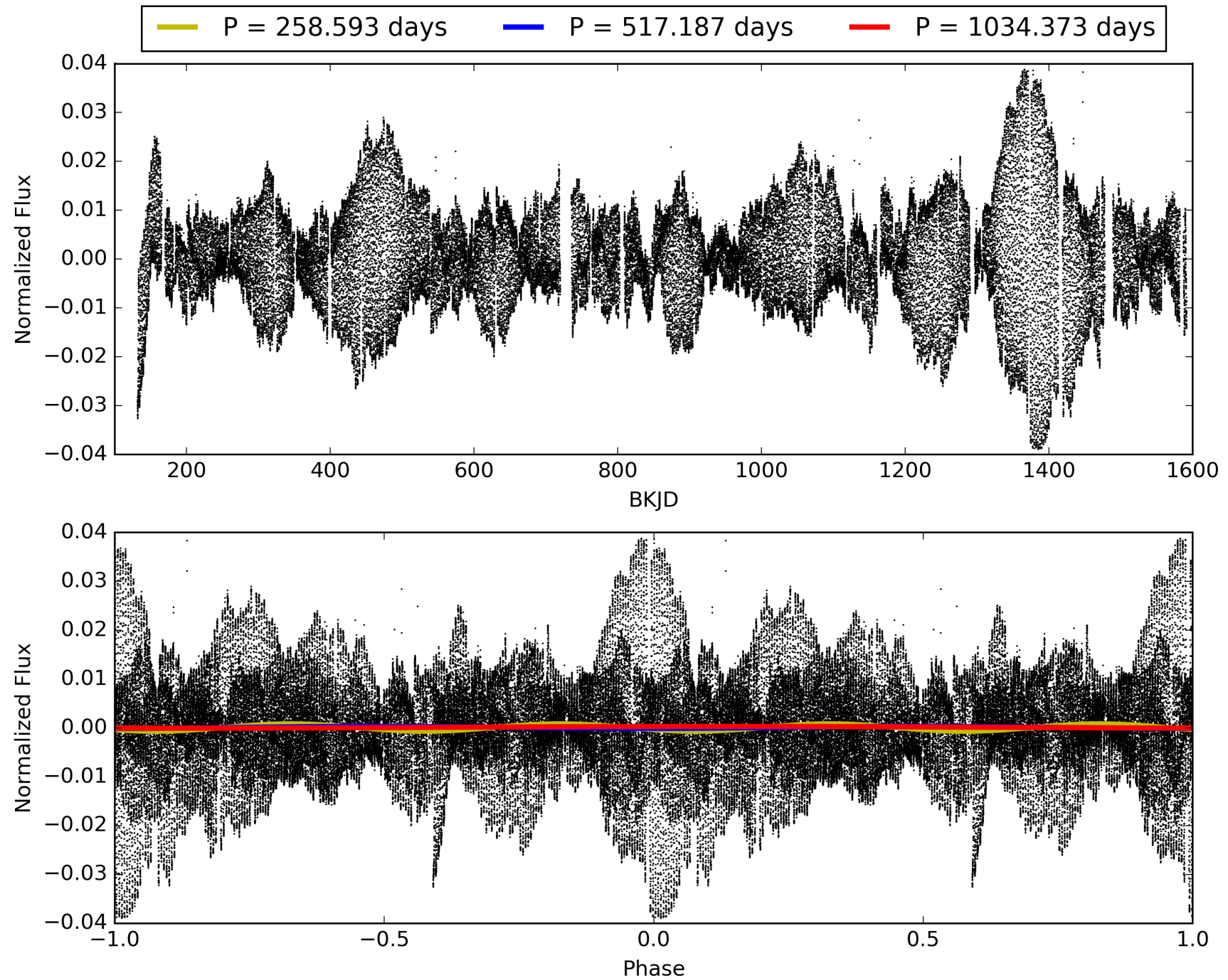
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:23:12 Z

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

# TCE 002283703-01, PDC Light Curves

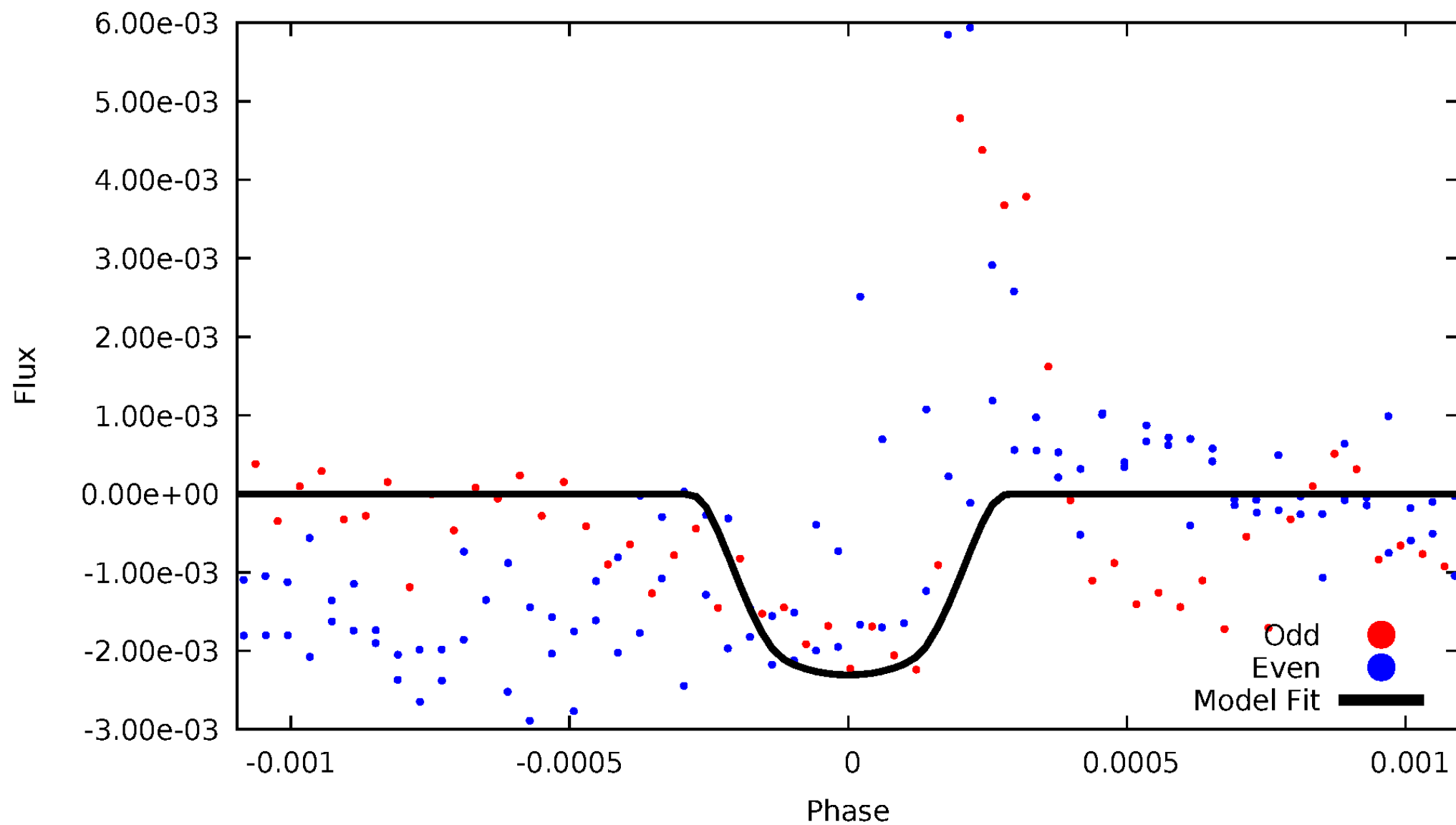


TCE 002283703-01



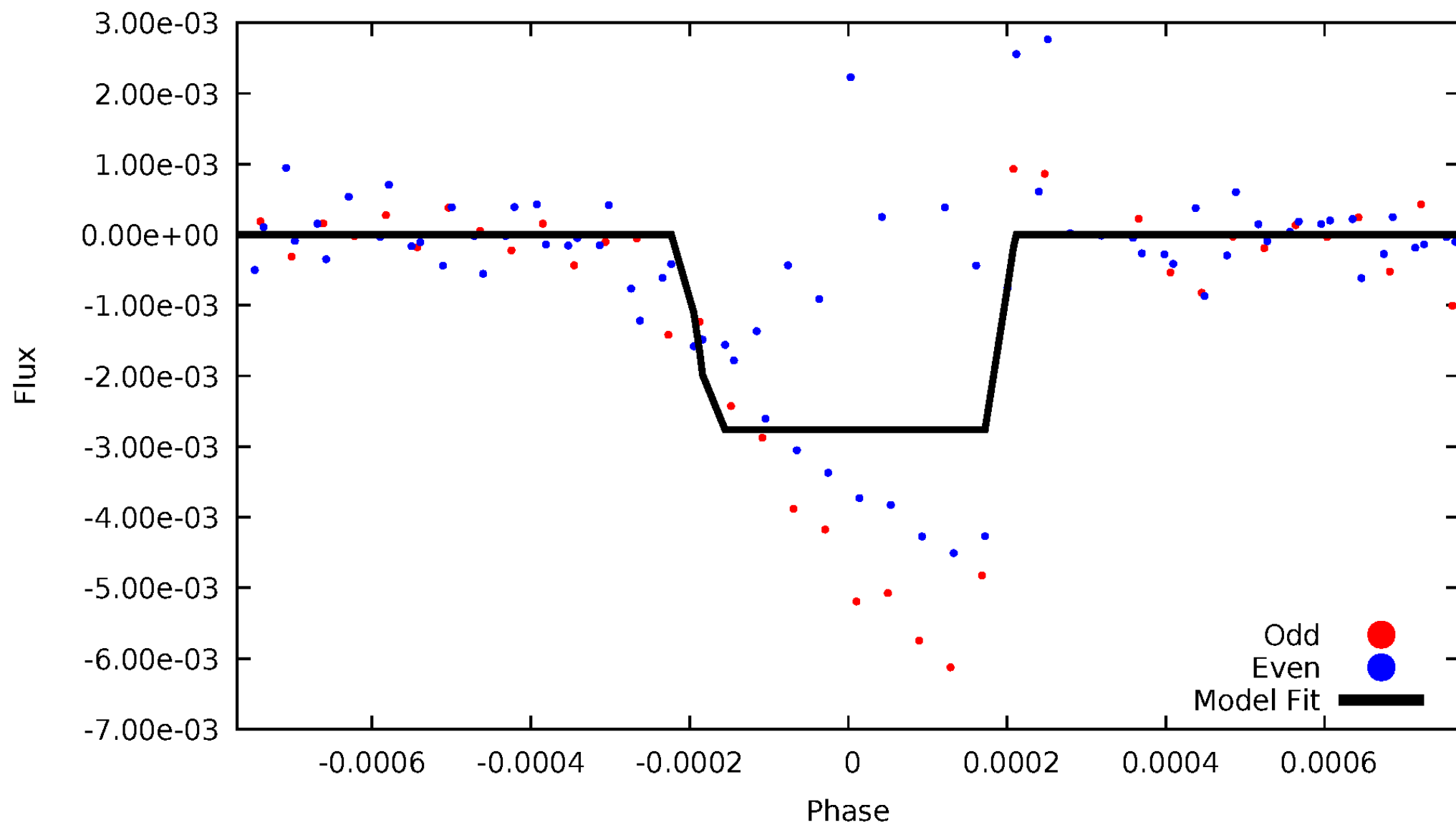
# DV Odd/Even

TCE 002283703-01

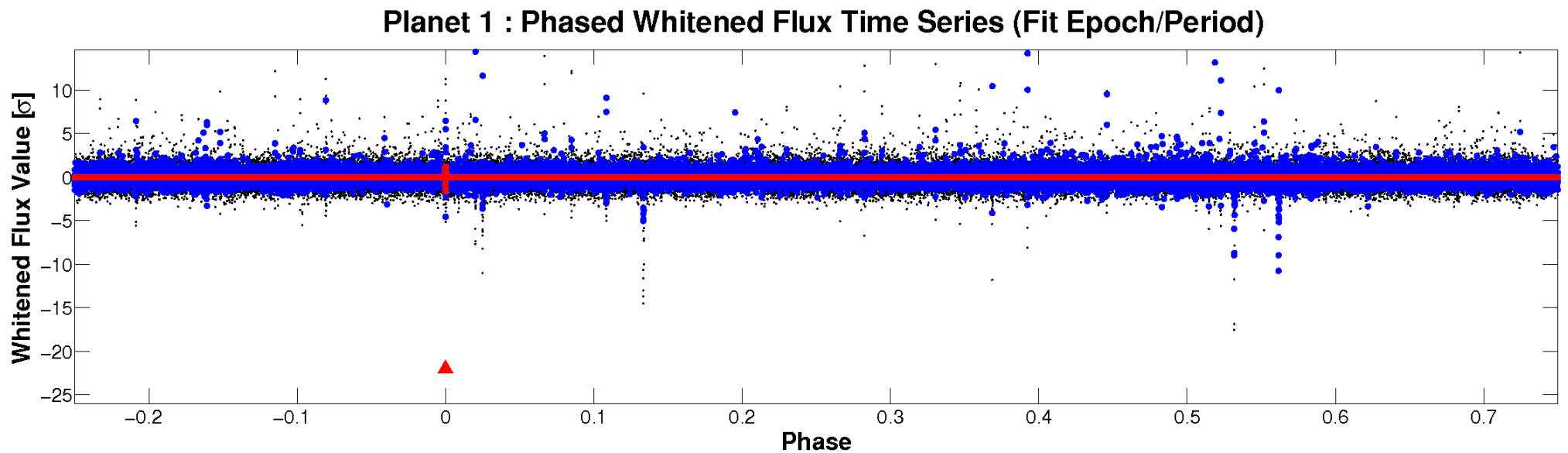
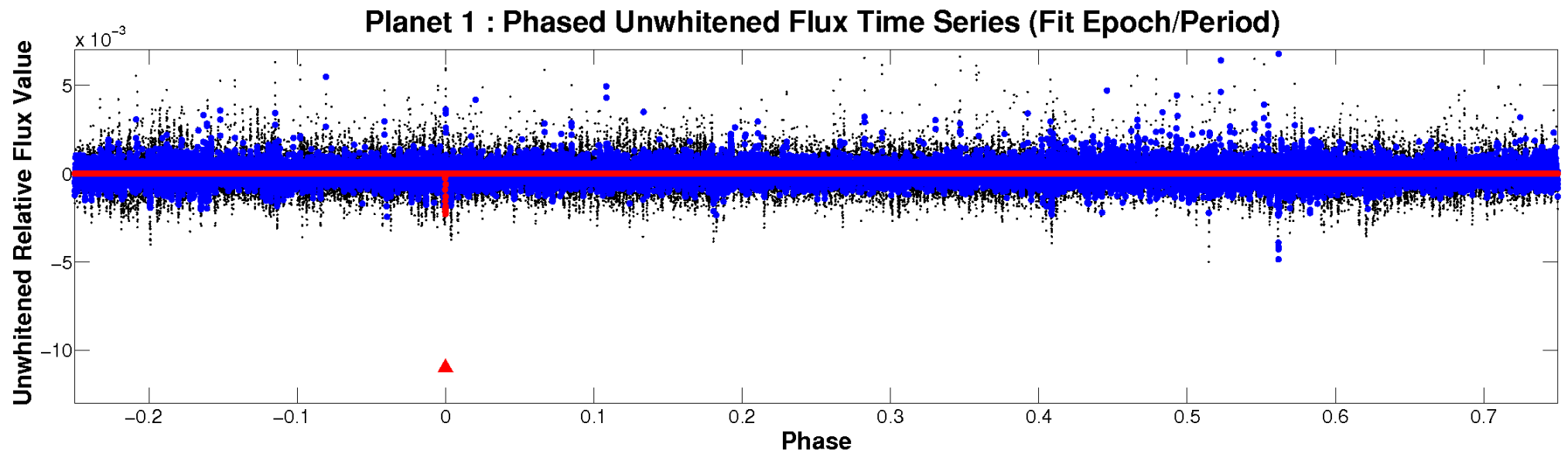


# ALT Odd/Even

TCE 002283703-01



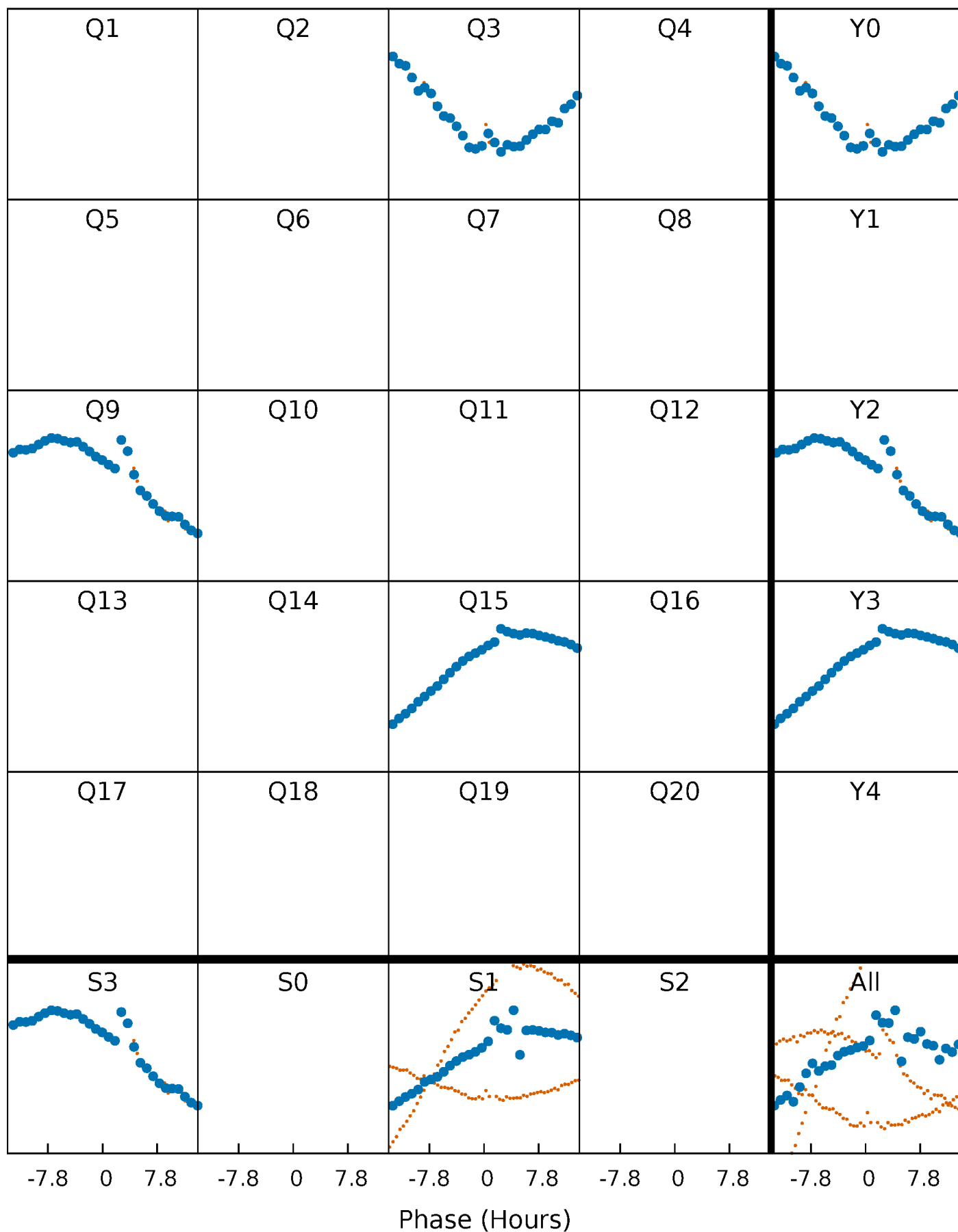
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

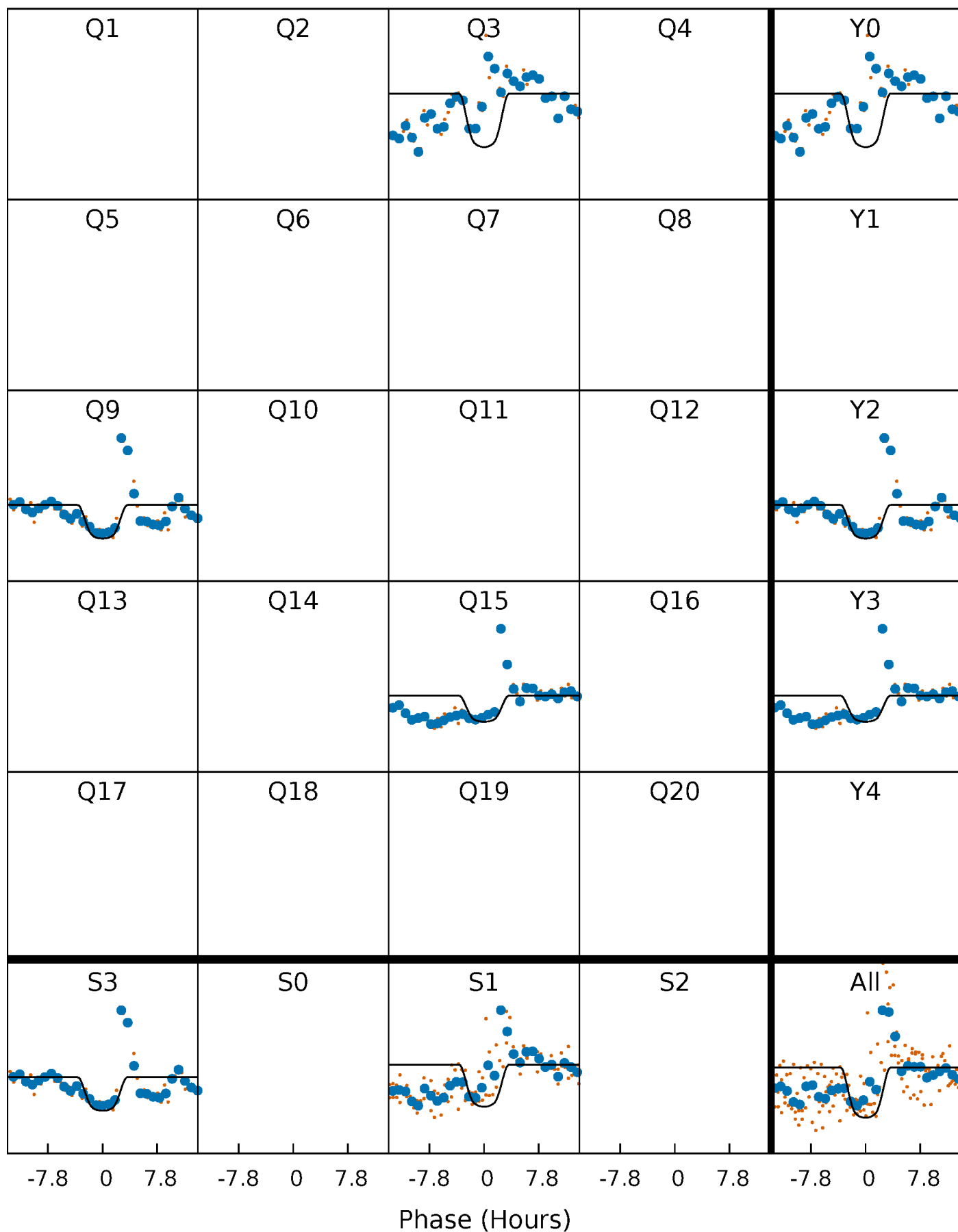
TCE 002283703-01 P=517.186633 Days  $T_0=343.292745$  (BKJD)





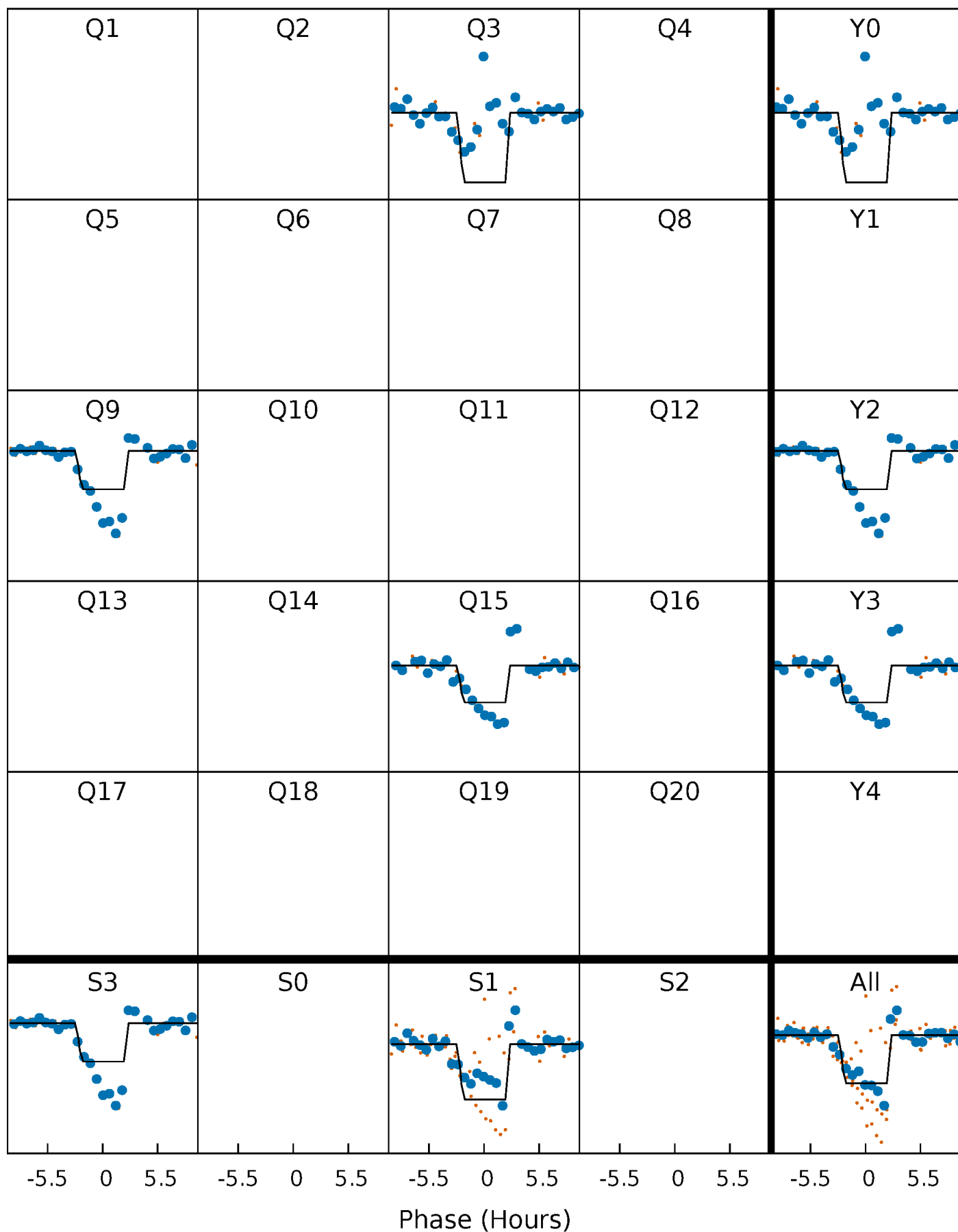
# DV Quarter-Phased Transit Curves

TCE 002283703-01 P=517.186633 Days  $T_0=343.292745$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

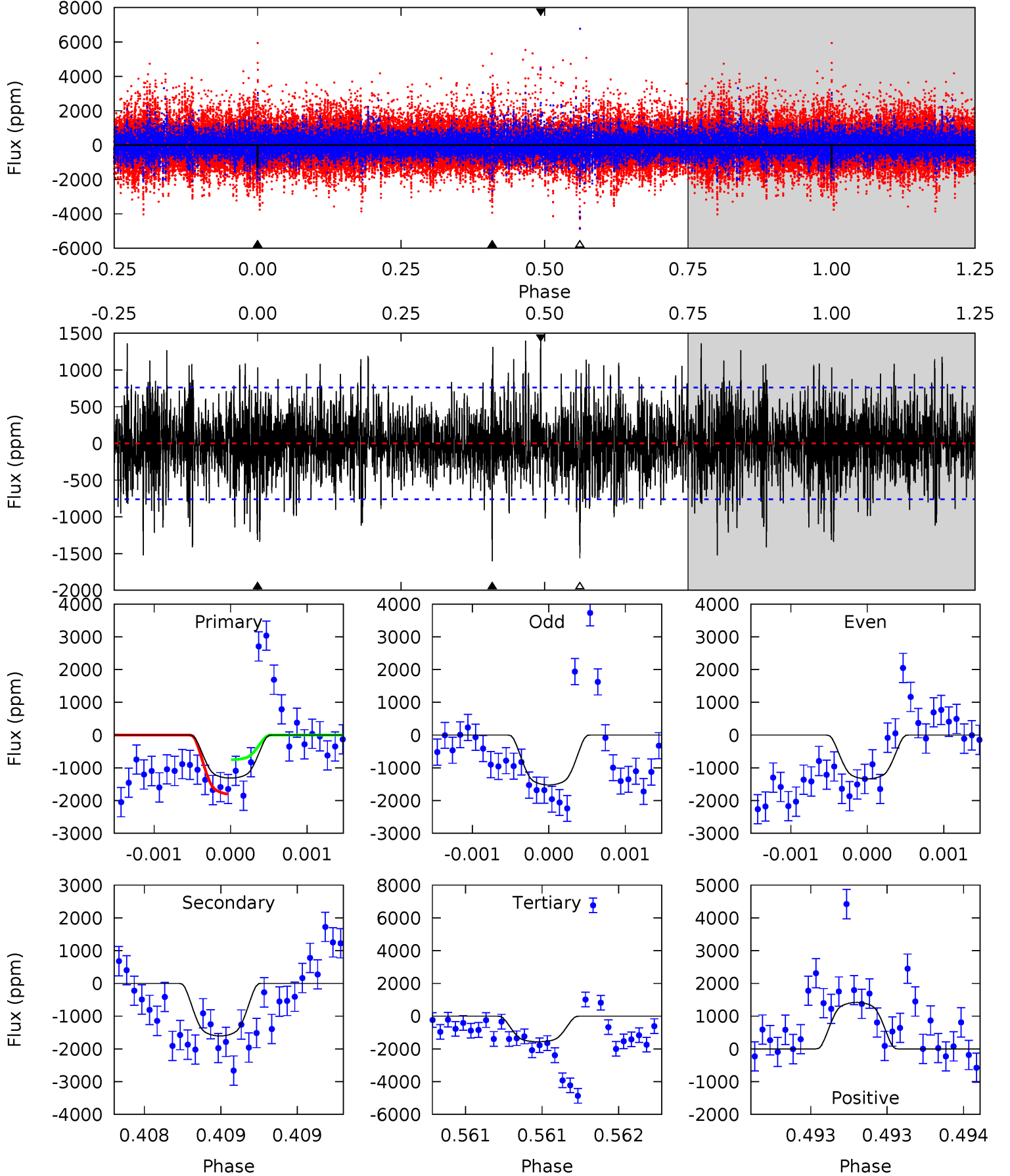
TCE 002283703-01 P=517.173404 Days  $T_0=343.302322$  (BKJD)



# DV Model-Shift Uniqueness Test

002283703-01, P = 517.186633 Days, E = 343.292745 Days

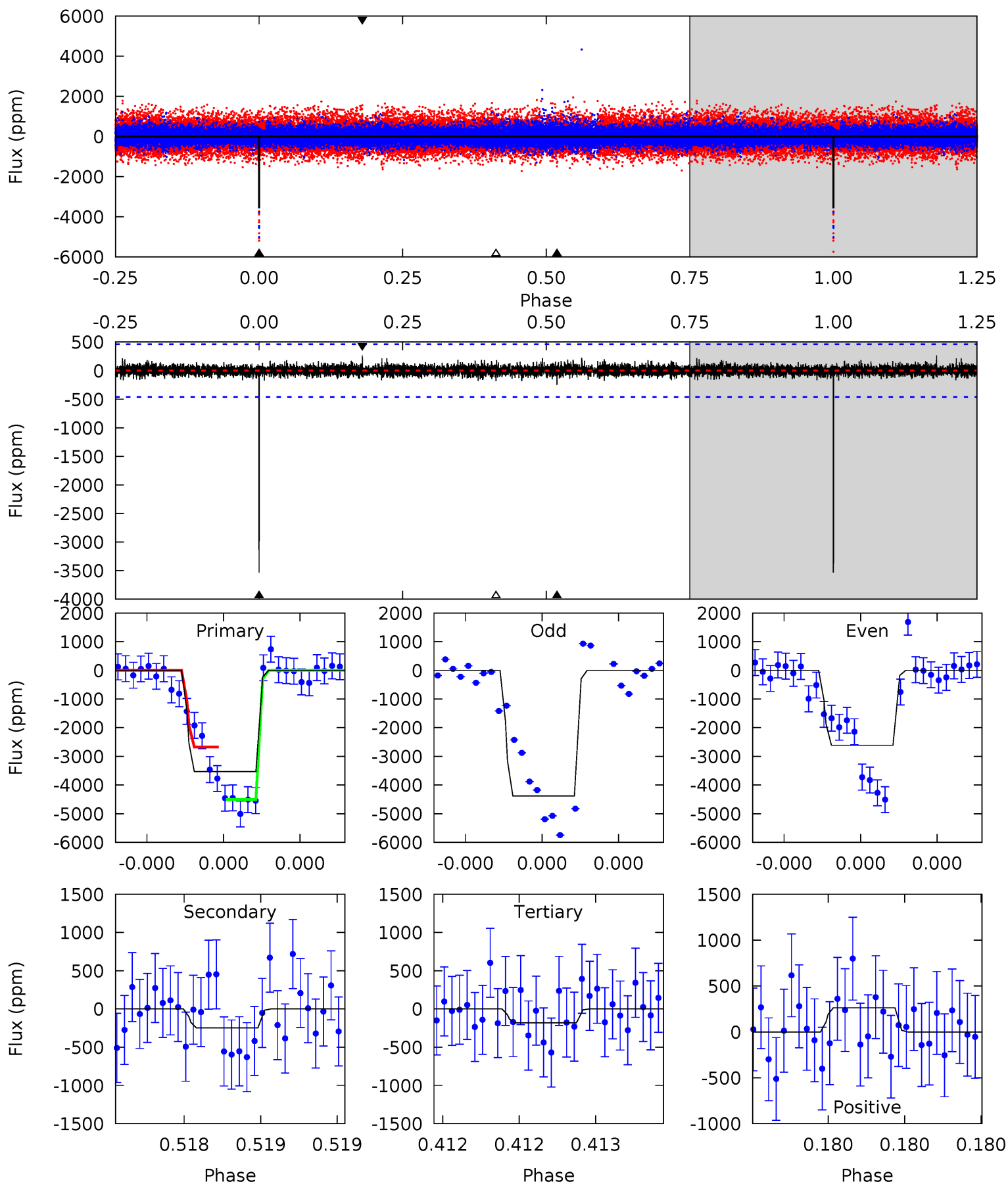
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.60	11.7	11.4	10.4	5.56	3.45	2.62	-1.83	-0.76	0.29	1.37	0.64	0.78	0.47	3.84



# Alt Model-Shift Uniqueness Test

002283703-01, P = 517.173404 Days, E = 343.302322 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
43.0	3.01	2.22	3.19	5.61	3.54	0.56	40.8	39.8	0.78	-0.19	11.2	0.79	0.07	10.9



### Stellar Parameters For KIC 002283703

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5040^{+151}_{-151}$	$4.659^{+0.056}_{-0.032}$	$-1.040^{+0.300}_{-0.300}$	$0.598^{+0.042}_{-0.042}$	$0.596^{+0.048}_{-0.022}$	$3.918^{+0.906}_{-0.508}$
	+3%/-3%	+1%/-1%	+29%/-29%	+7%/-7%	+8%/-4%	+23%/-13%
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 002283703-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1606 \pm 137$	$3.48^{+0.49}_{-0.44}$	$232^{+8}_{-8}$	$4483^{+285}_{-240}$	$83081^{+25231}_{-19731}$
Alt.	$-247 \pm 82$	$3.42^{+0.49}_{-0.46}$	$232^{+8}_{-7}$	$3288^{+205}_{-242}$	$13554^{+6556}_{-5389}$

$T_{max}$  = 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

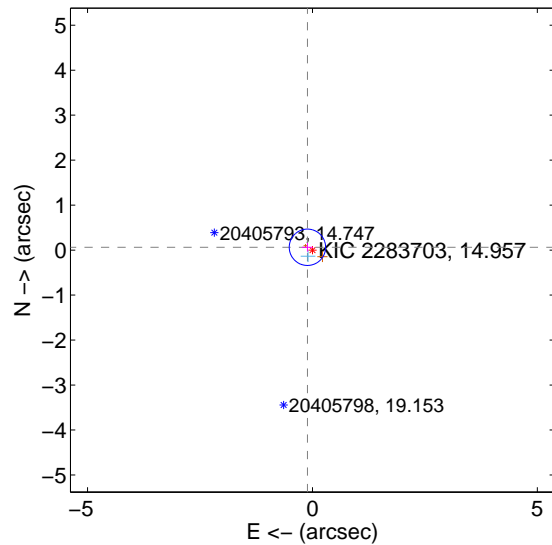
Supplemental centroid analysis for 002283703-01. Kepler magnitude: 14.96. Transit SNR 7.91

There are 1 quarters with good PRF difference image offsets

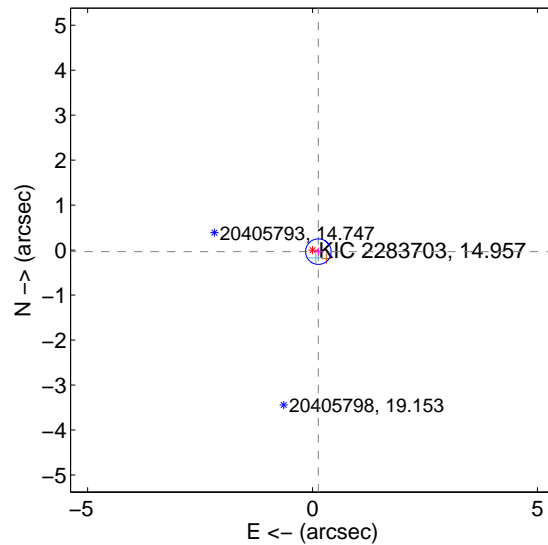
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.128 \pm 0.135$	0.95	$0.112 \pm 0.121$	$0.063 \pm 0.096$
PRF-fit source offset from KIC position	$0.134 \pm 0.095$	1.42	$-0.130 \pm 0.095$	$-0.034 \pm 0.090$
photometric centroid source offset	$1.55 \pm 0.98$	1.59	$0.61 \pm 0.87$	$-1.43 \pm 1.00$

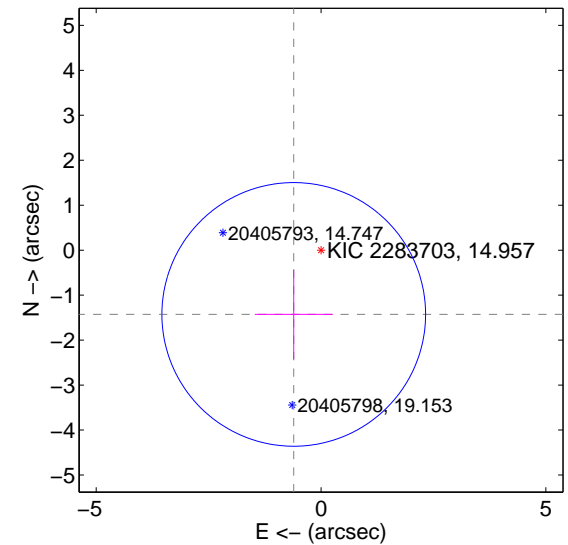
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

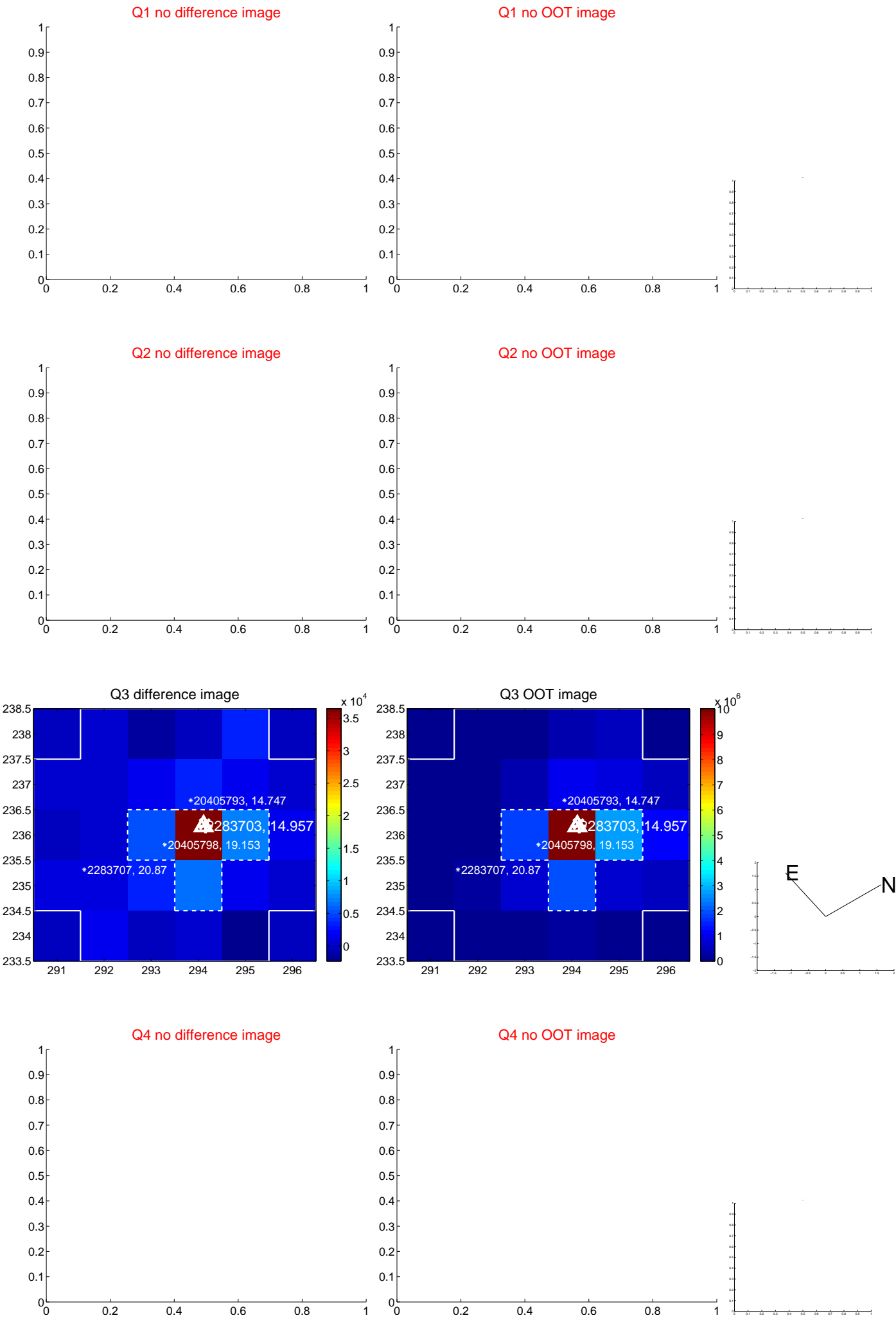


offset from photometric centroids



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

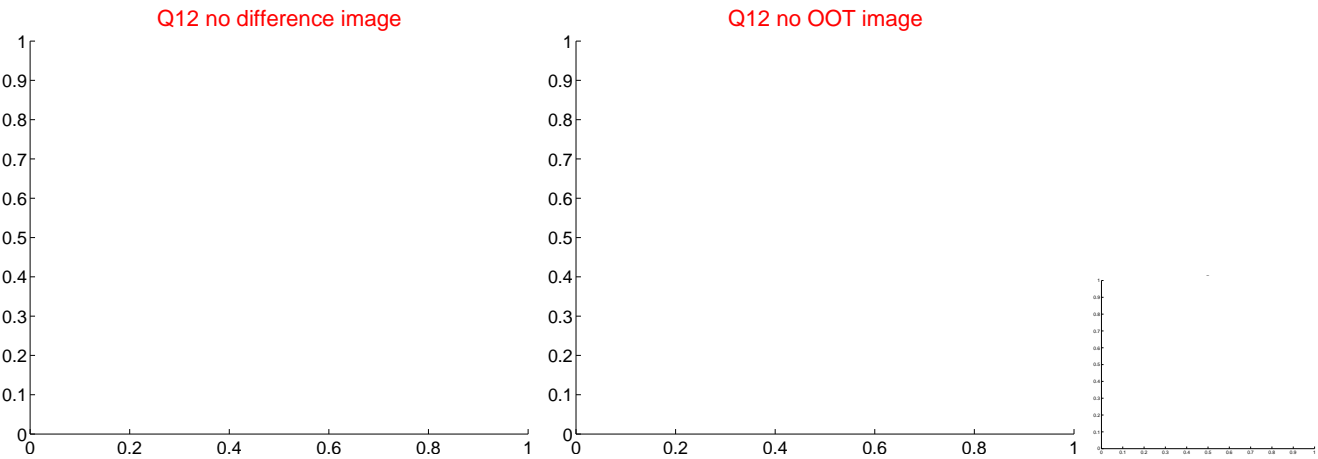
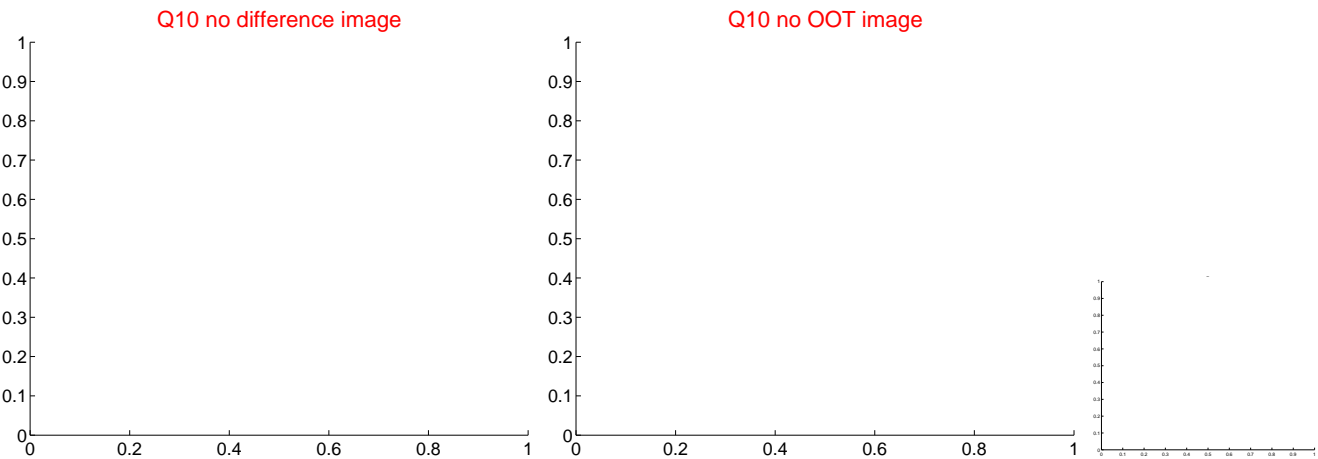
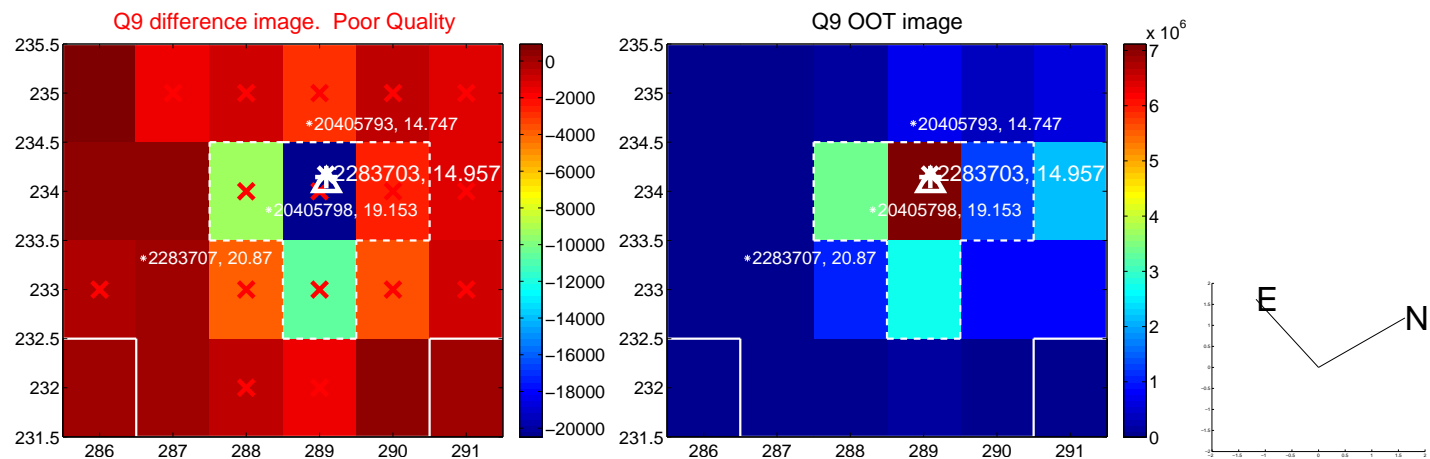




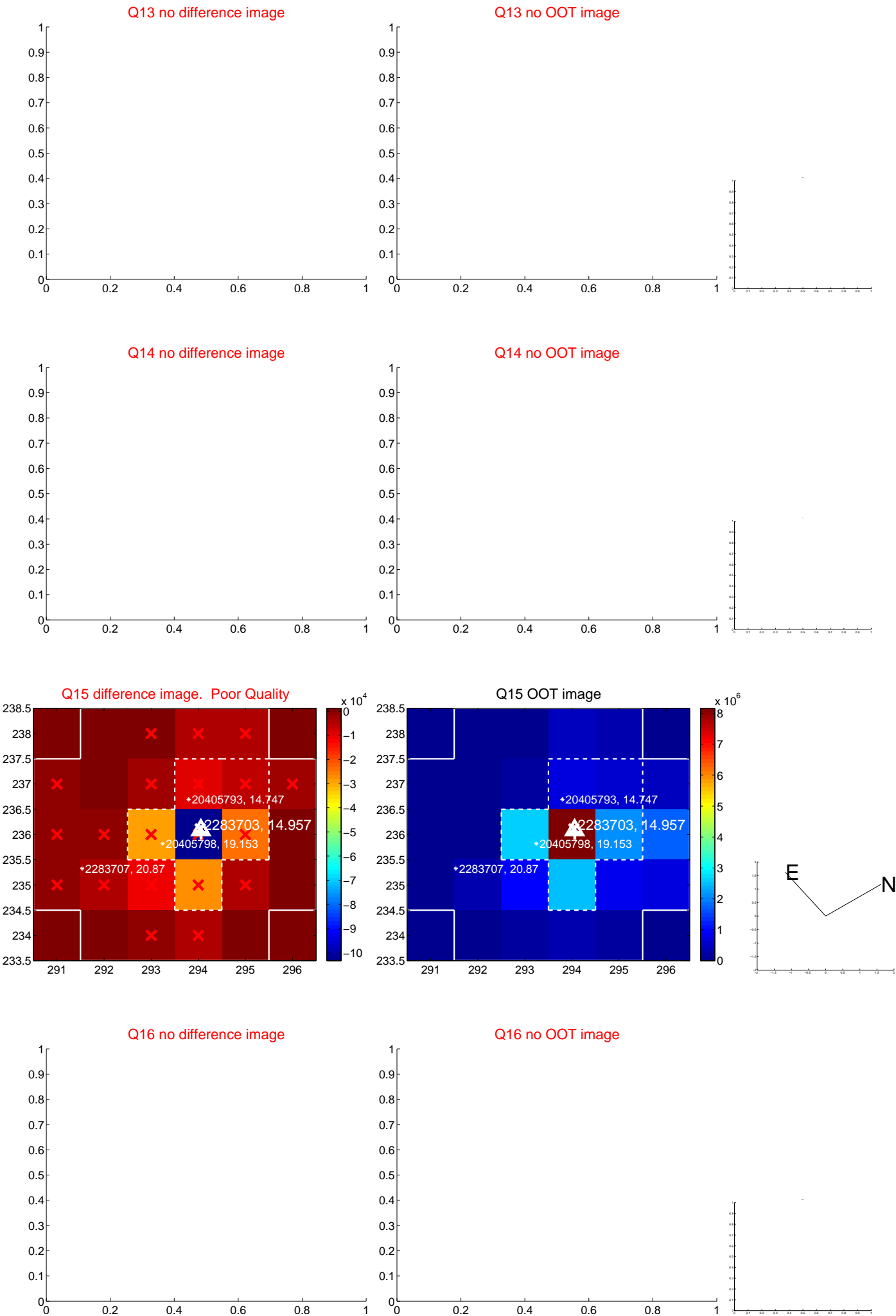
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



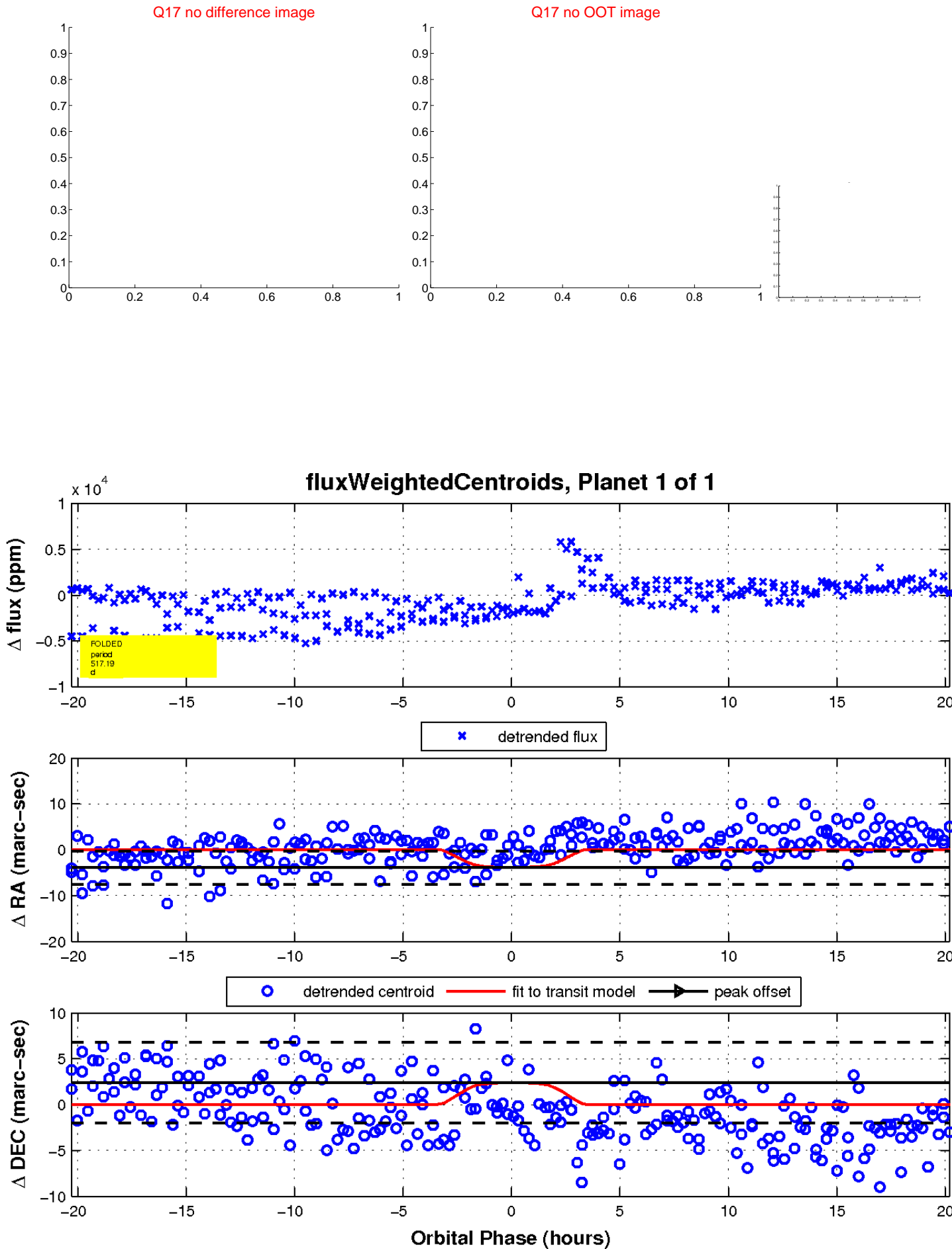
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

