

# KIC 008843859

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008843859-01	OBS	No	300.561035	286.572959	633.7	9.665	8.1	5.5	0.76	4524	2.08	0.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008843859-01	OBS	FP	0.00	1	0	1	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

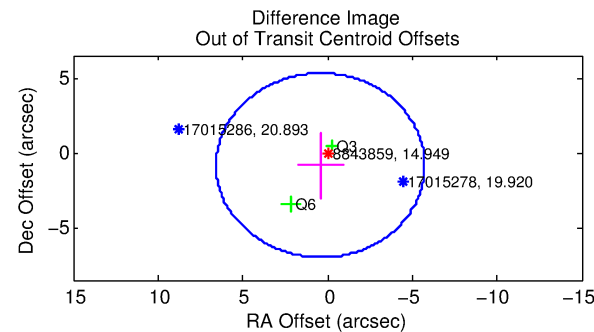
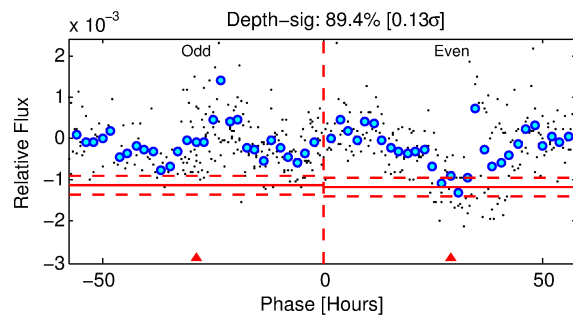
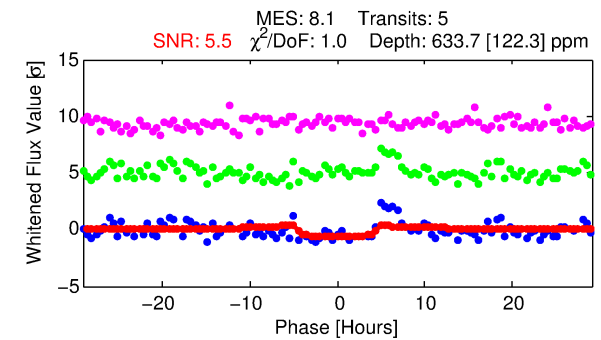
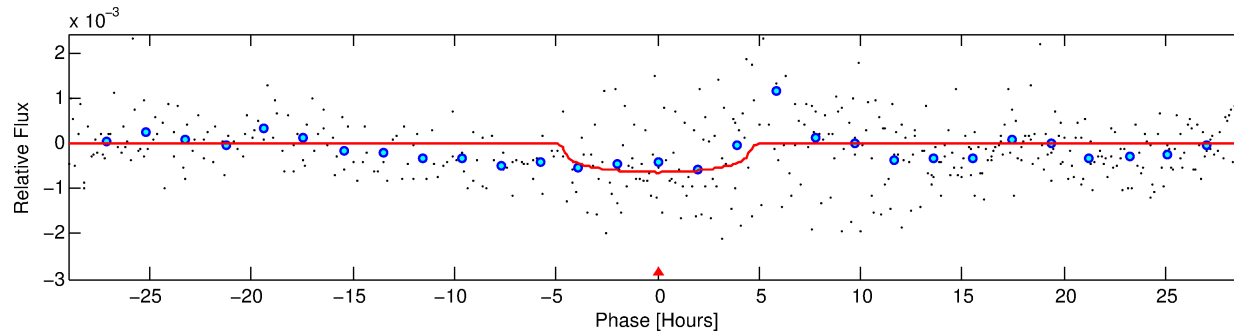
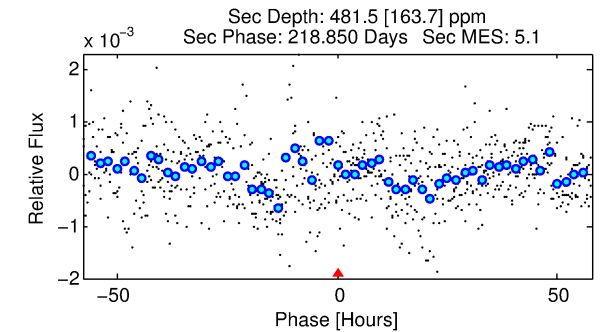
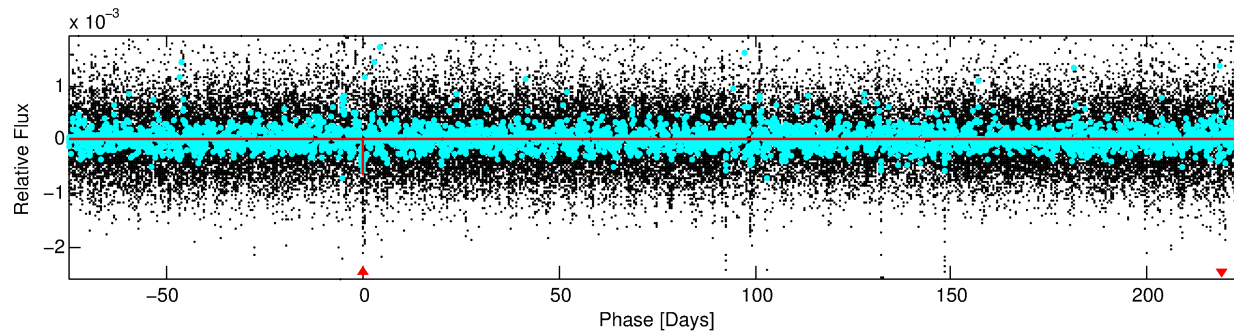
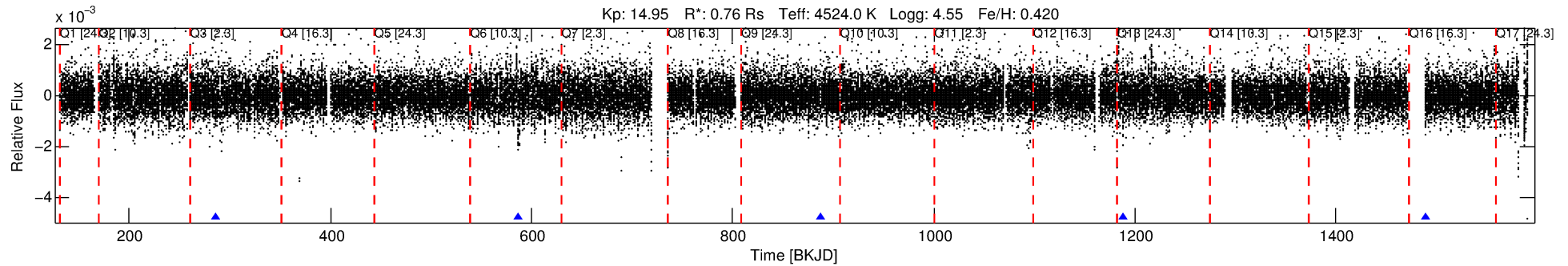
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008843859-01

No Significant Match Found

# DV One-Page Summary

KIC: 8843859 Candidate: 1 of 1 Period: 300.561 d



## DV Fit Results:

Period = 300.56103 [0.00924] d  
Epoch = 286.5730 [0.0204] BKJD  
Rp/R\* = 0.0251 [0.0160]  
a/R\* = 167.60 [326.58]  
b = 0.74 [1.20]  
Seff = 0.34 [0.06]  
Teq = 194 [8] K  
Rp = 2.08 [1.34] Re  
a = 0.7982 [0.0612] AU  
Ag = 38996.45 [51641.39] [0.76σ]  
Teffp = 4226 [1400] K [2.88σ]

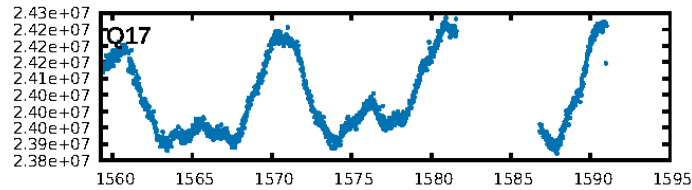
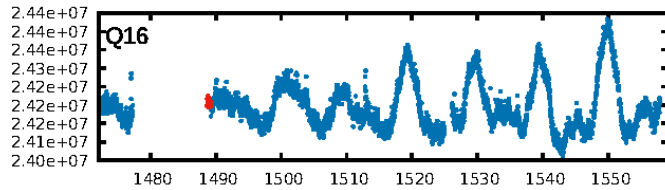
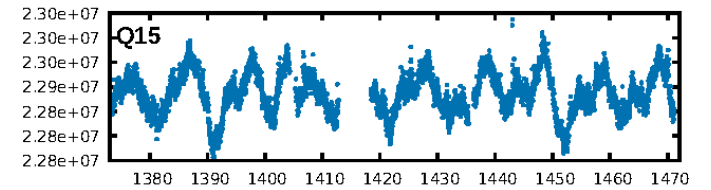
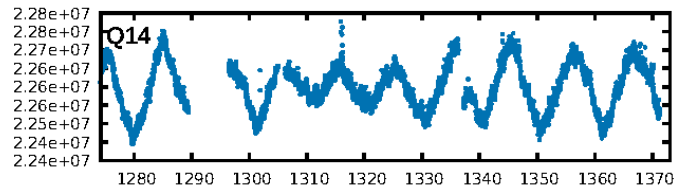
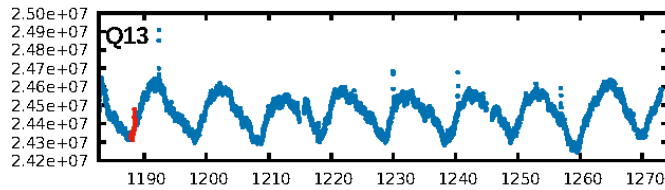
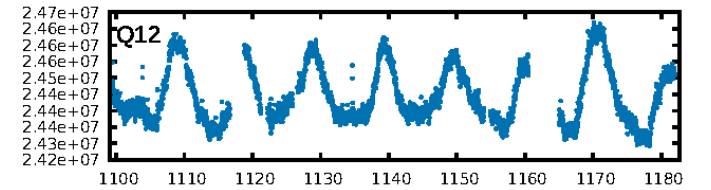
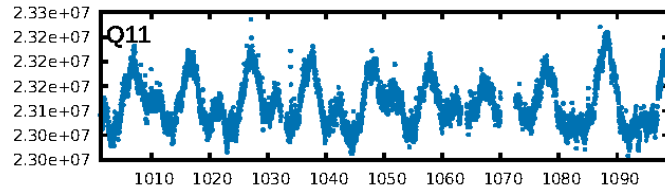
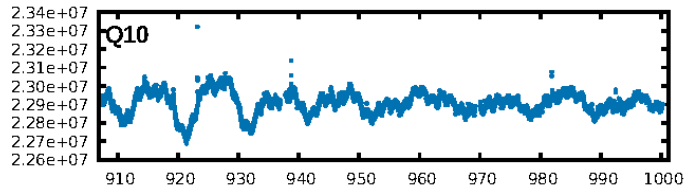
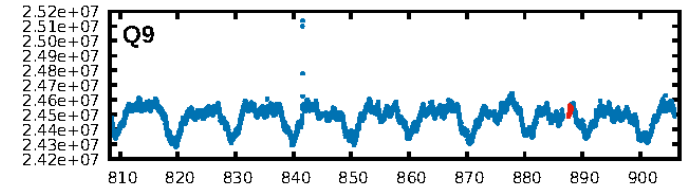
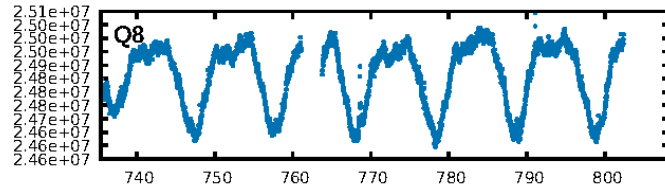
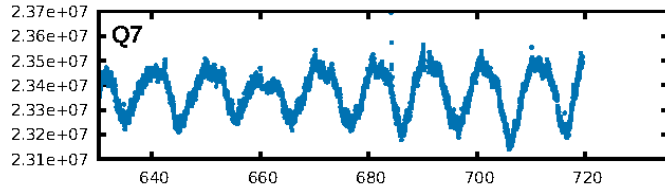
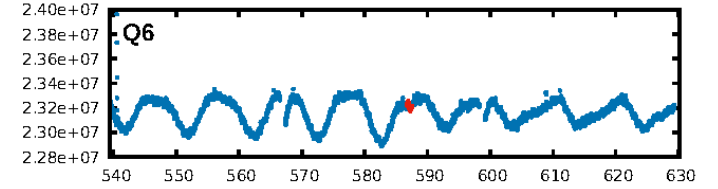
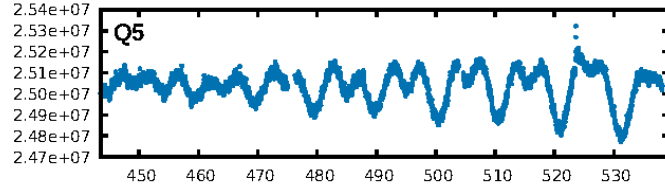
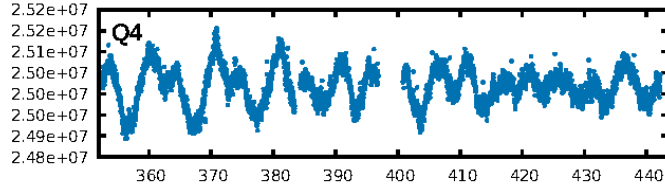
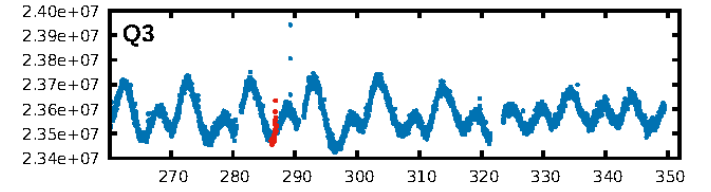
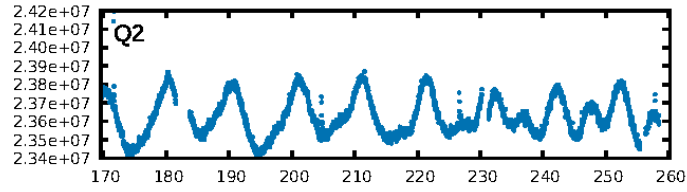
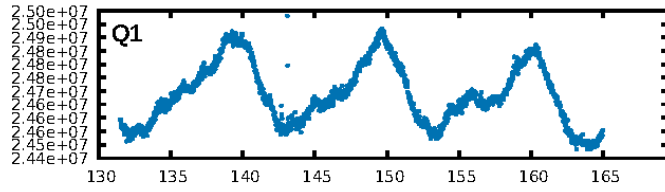
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 98.2%  
Bootstrap-pfa: 2.11e-10  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.03073  
Centroid-sig: 7.4%  
Centroid-so: 1.566 arcsec [1.23σ]  
OotOffset-rm: 0.943 arcsec [0.46σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 1.012 arcsec [0.50σ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

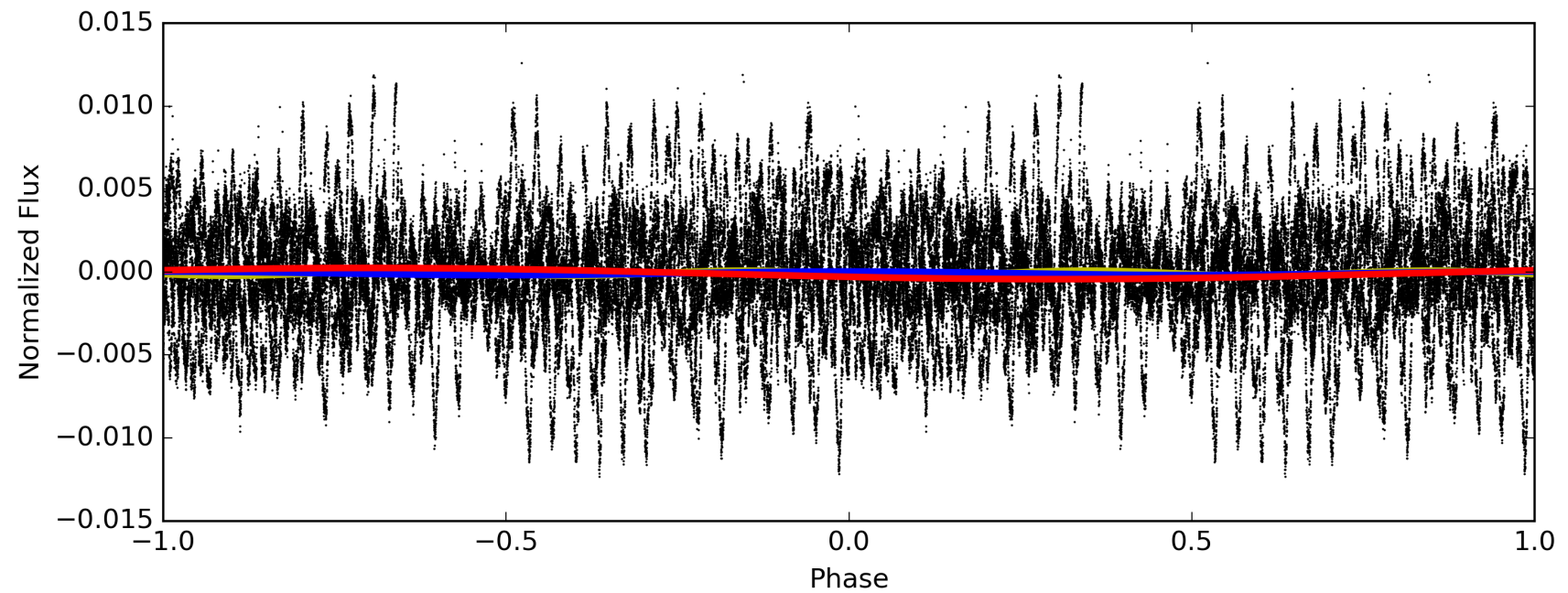
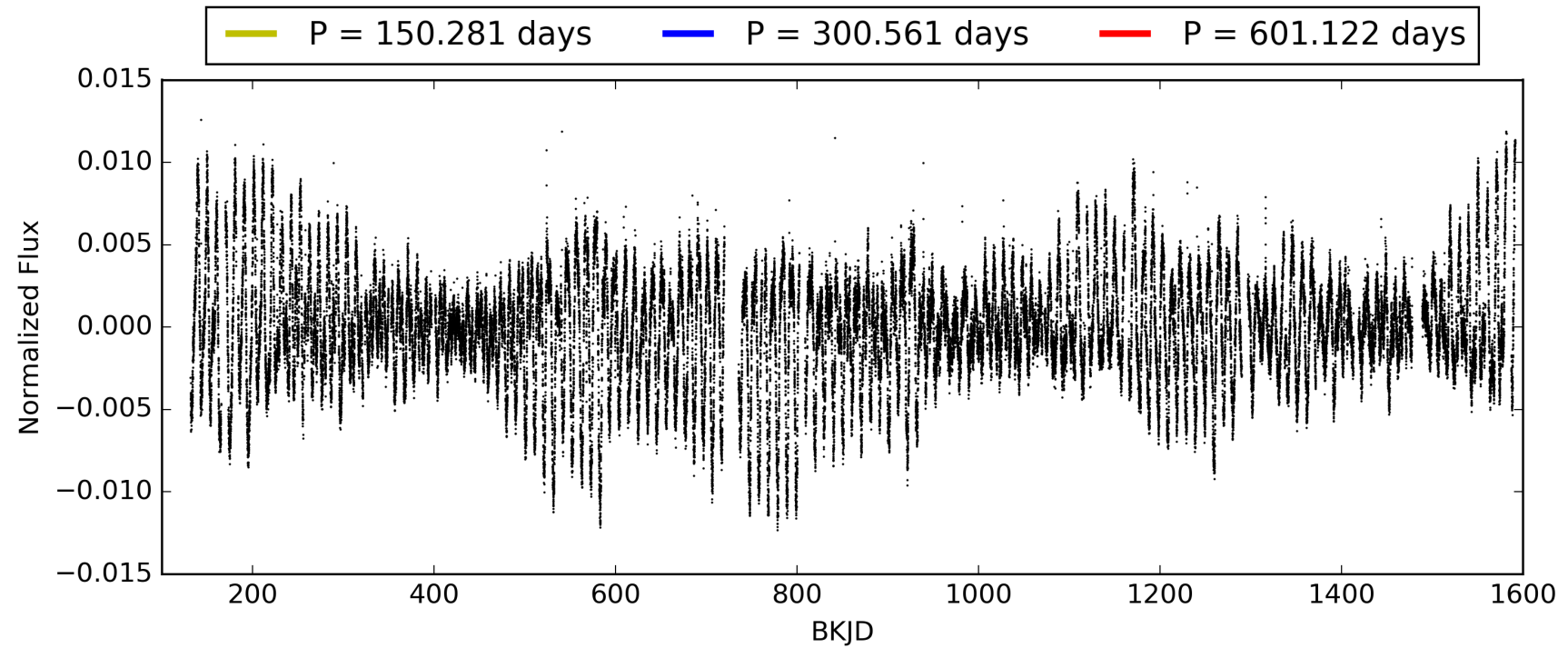
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:57:12 Z

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

# TCE 008843859-01, PDC Light Curves

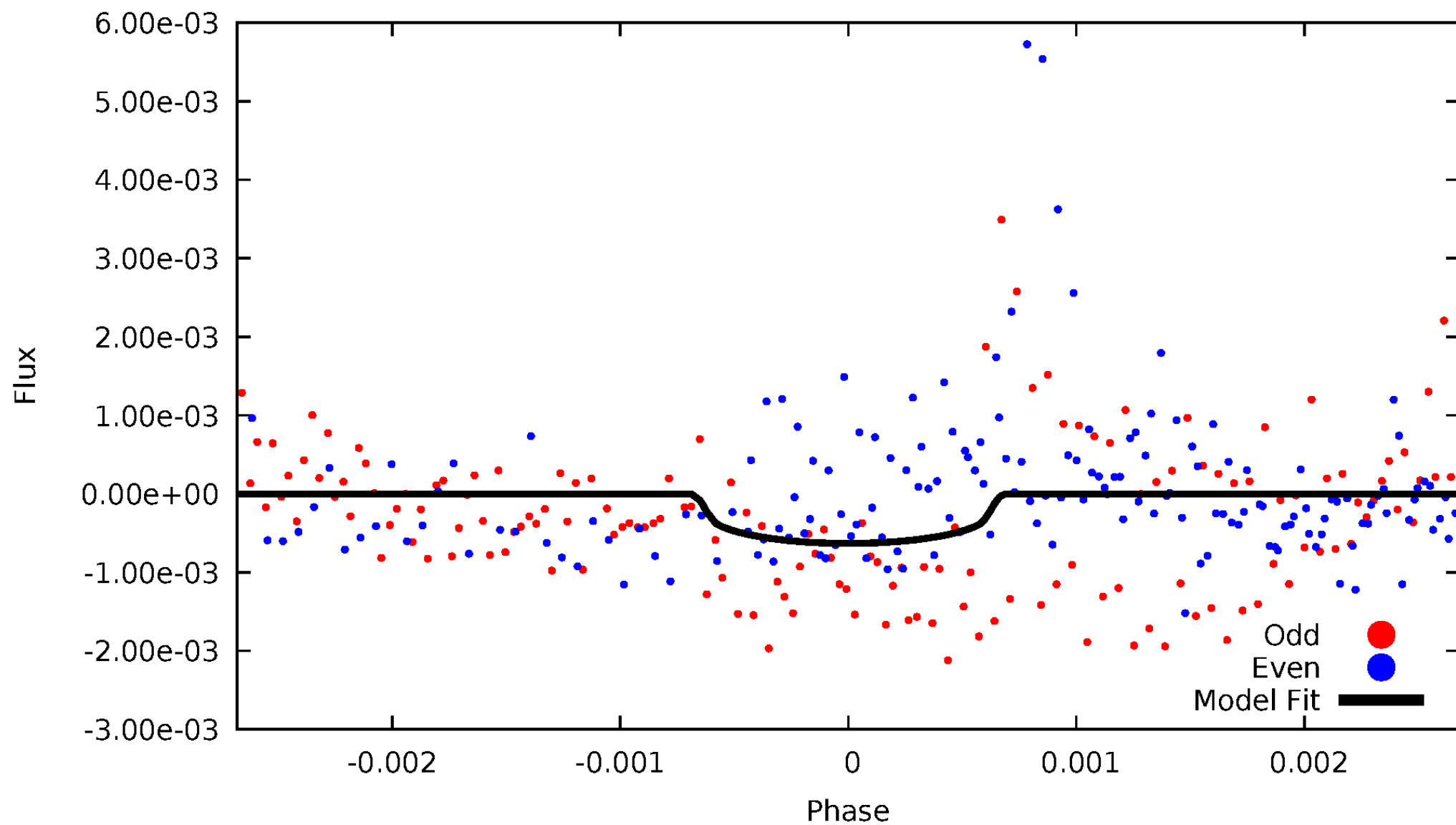


TCE 008843859-01



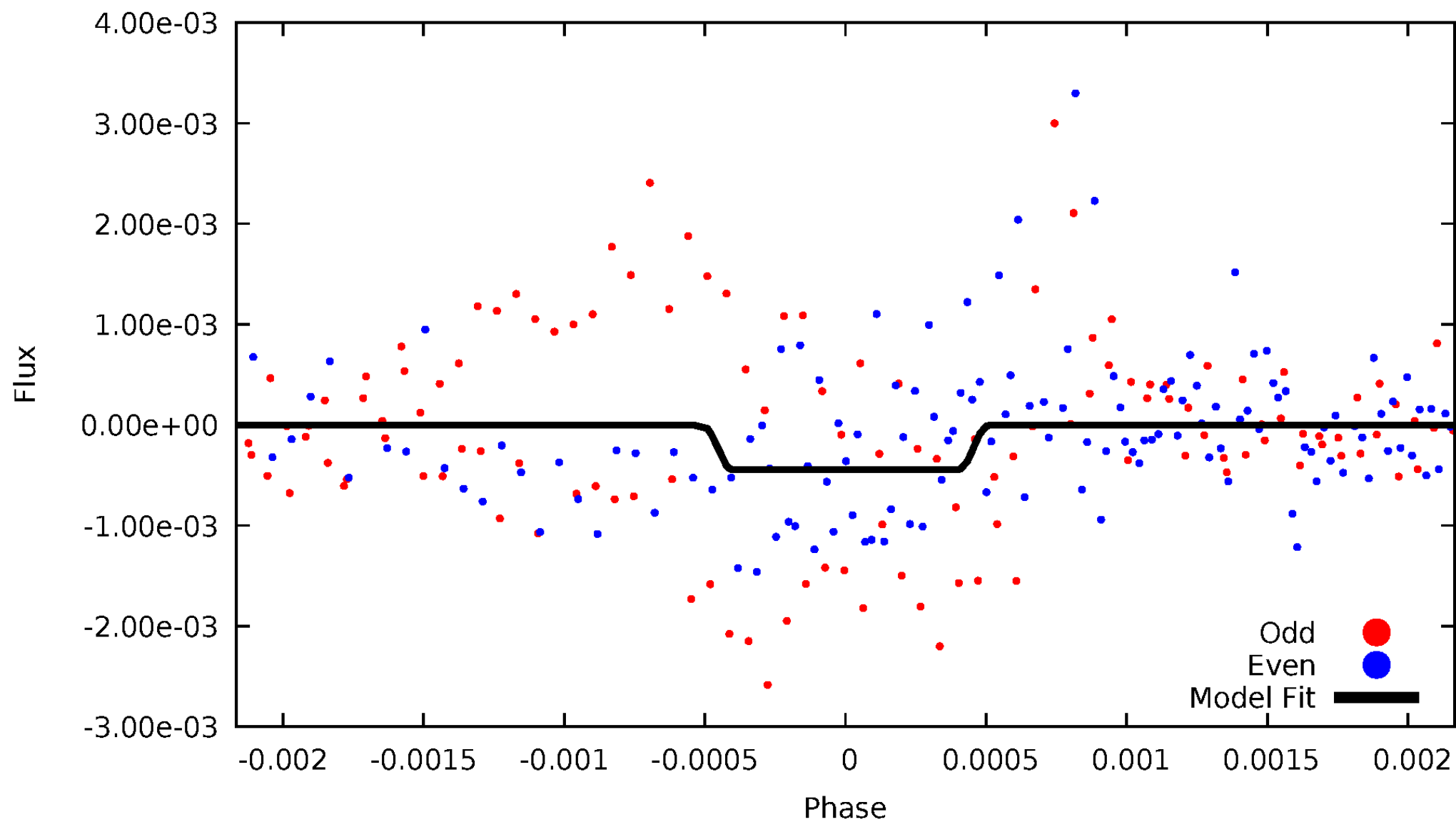
# DV Odd/Even

TCE 008843859-01



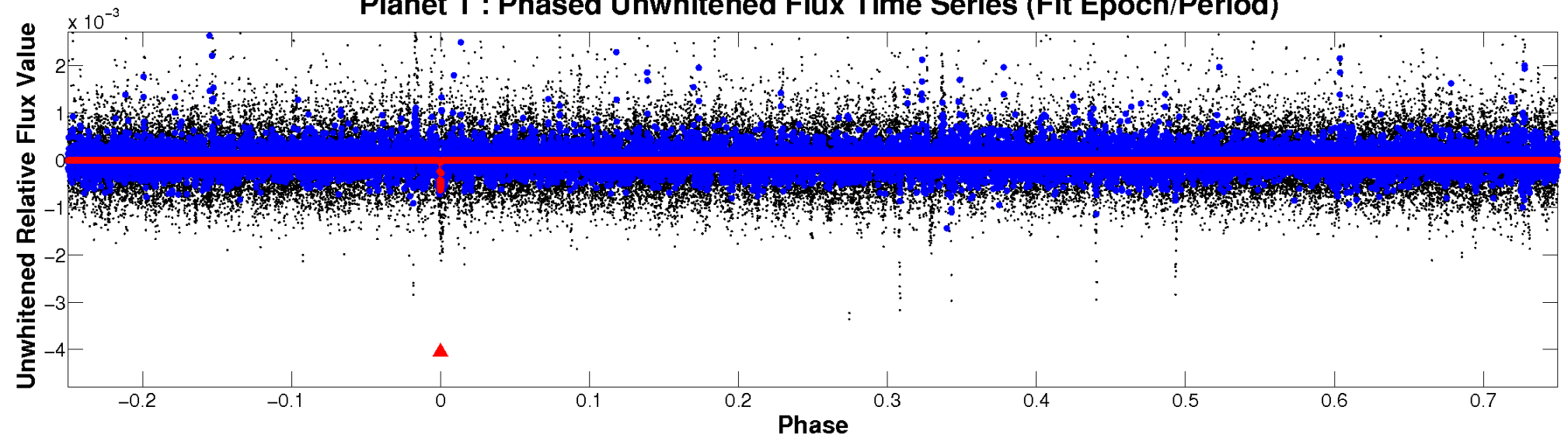
# ALT Odd/Even

TCE 008843859-01

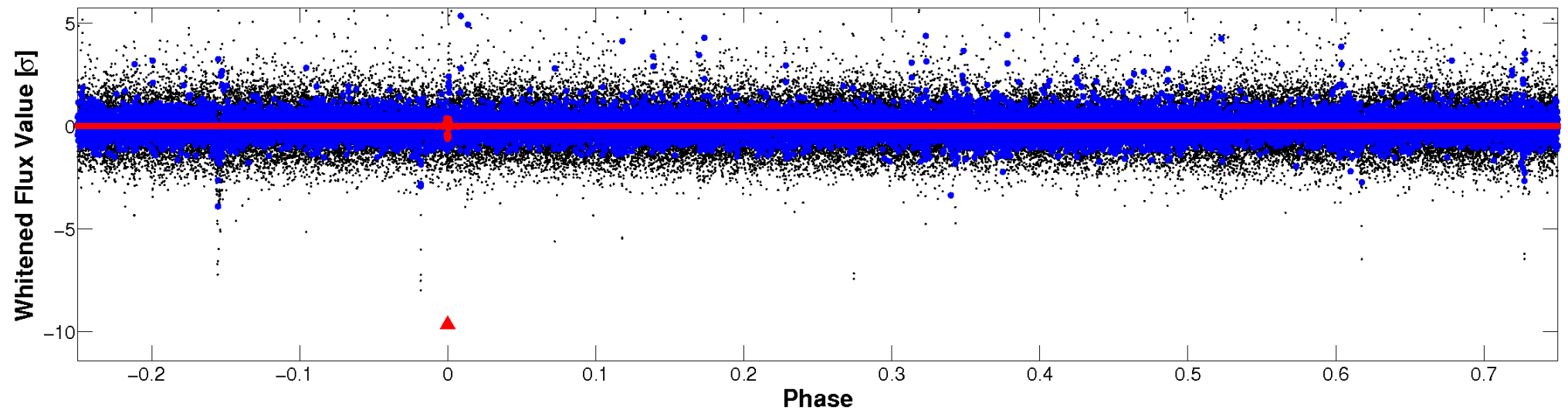


# Non-Whitened Vs. Whitened Light Curve

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

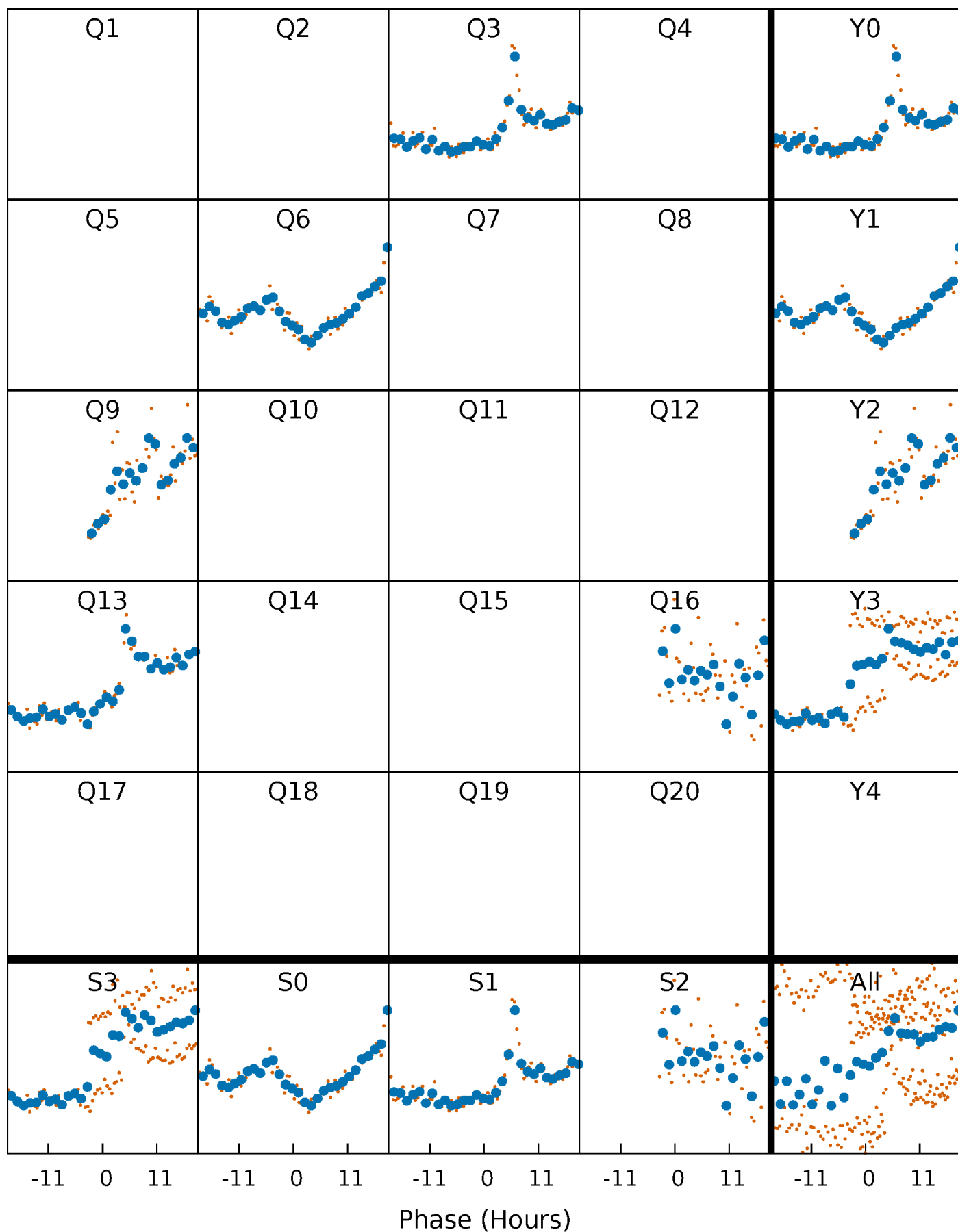


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

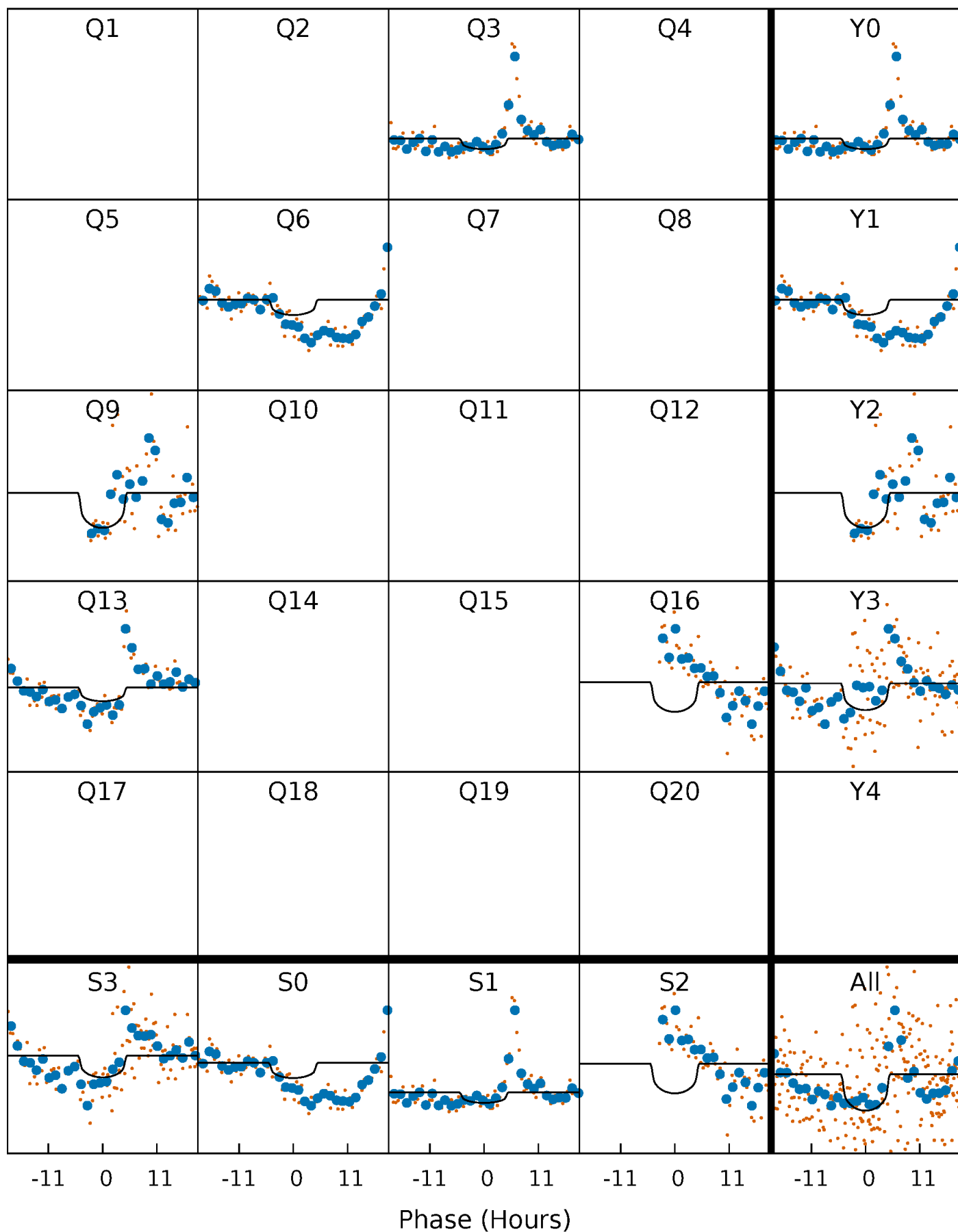
TCE 008843859-01 P=300.561035 Days  $T_0=286.572959$  (BKJD)





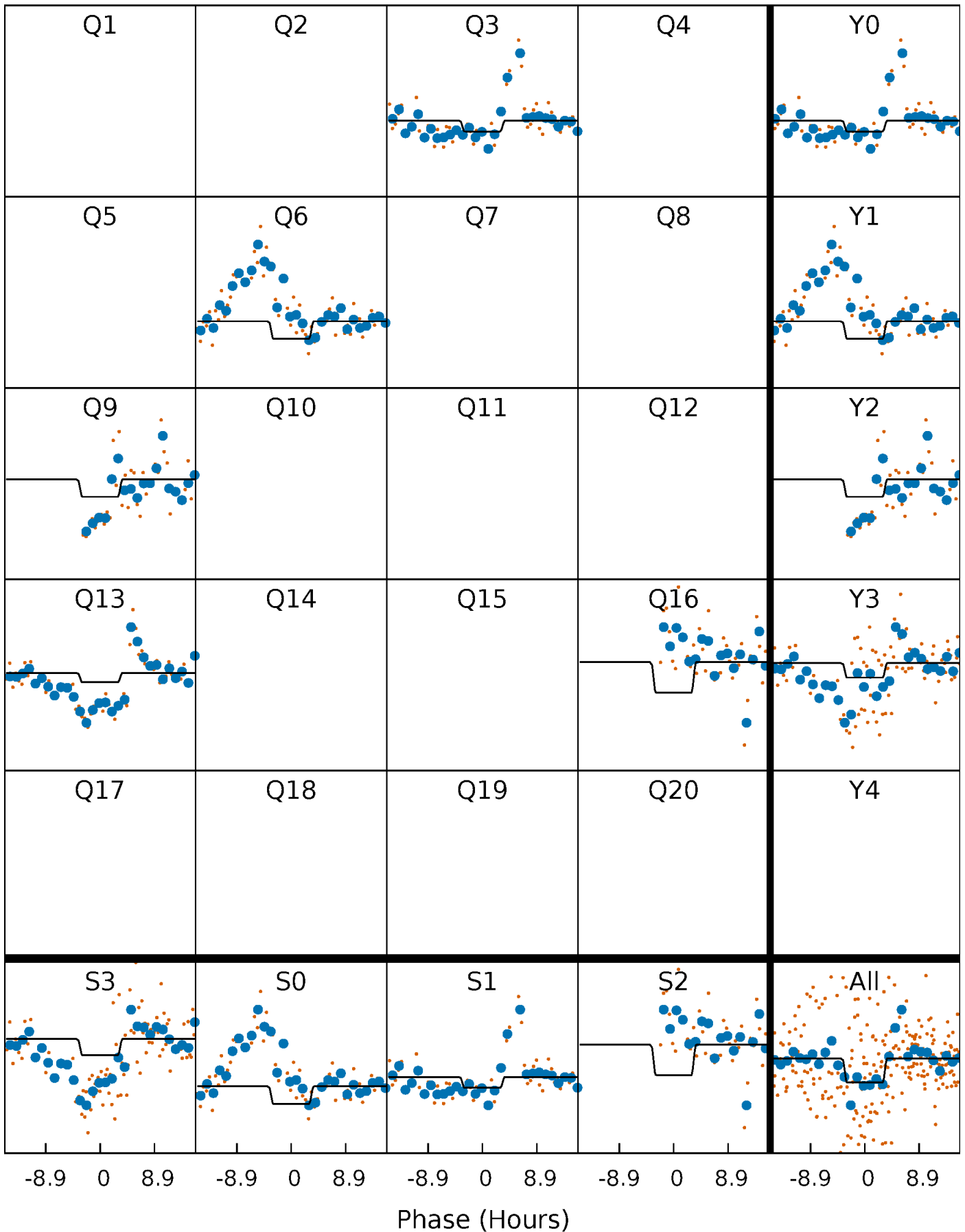
# DV Quarter-Phased Transit Curves

TCE 008843859-01   P=300.561035 Days    $T_0=286.572959$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

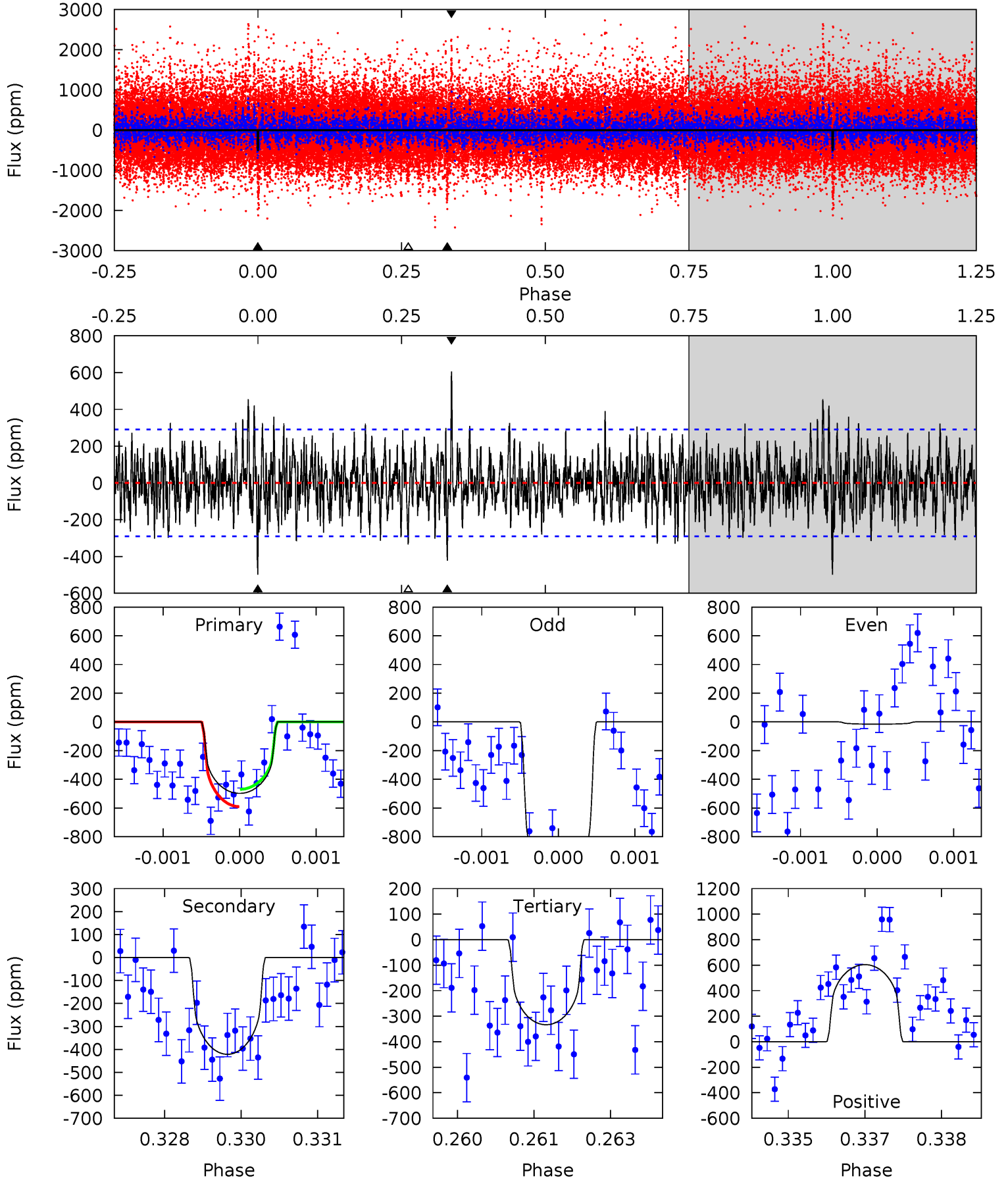
TCE 008843859-01 P=300.543612 Days  $T_0=286.603641$  (BKJD)



# DV Model-Shift Uniqueness Test

008843859-01, P = 300.561035 Days, E = 286.572959 Days

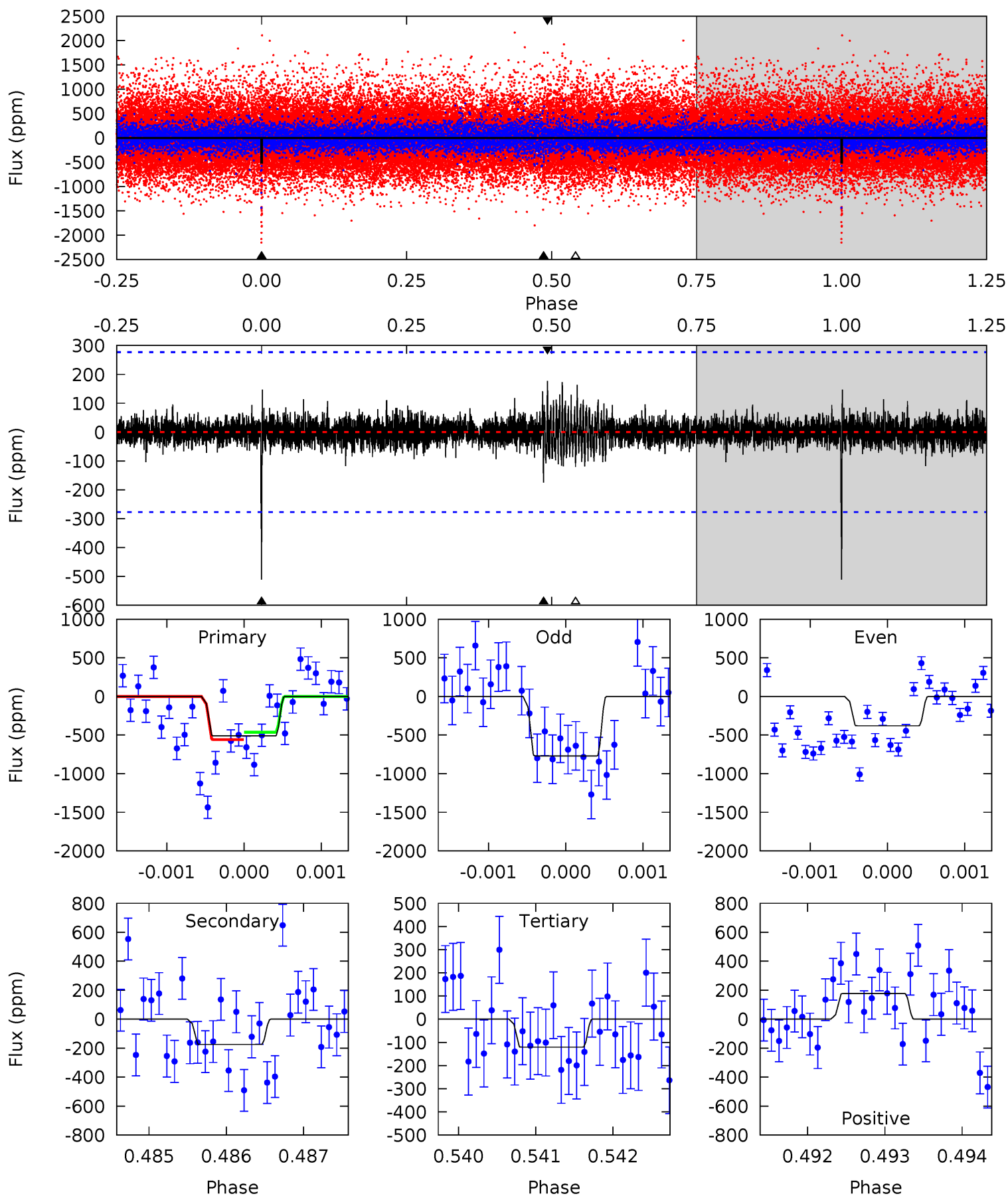
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.25	7.82	6.19	11.2	5.39	3.20	2.21	3.06	-1.97	1.63	-3.40	10.8	1.17	0.55	1.11



# Alt Model-Shift Uniqueness Test

008843859-01, P = 300.543612 Days, E = 286.603641 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
10.1	3.43	2.37	3.48	5.45	3.30	0.62	7.68	6.58	1.06	-0.05	3.88	0.90	0.26	0.94



### Stellar Parameters For KIC 008843859

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4524^{+137}_{-137}$	$4.554^{+0.064}_{-0.020}$	$0.420^{+0.050}_{-0.300}$	$0.758^{+0.026}_{-0.067}$	$0.749^{+0.038}_{-0.043}$	$2.427^{+0.662}_{-0.188}$
	+3%/-3%	+1%/-0%	+12%/-71%	+3%/-9%	+5%/-6%	+27%/-8%
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 008843859-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-421 \pm 54$	$2.12^{+1.34}_{-1.09}$	$270^{+9}_{-10}$	$4144^{+1419}_{-660}$	$32975^{+107871}_{-20884}$
Alt.	$-174 \pm 51$	$1.88^{+1.13}_{-1.11}$	$269^{+9}_{-9}$	$3663^{+1492}_{-496}$	$16743^{+86962}_{-10194}$

$T_{max}$  = 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

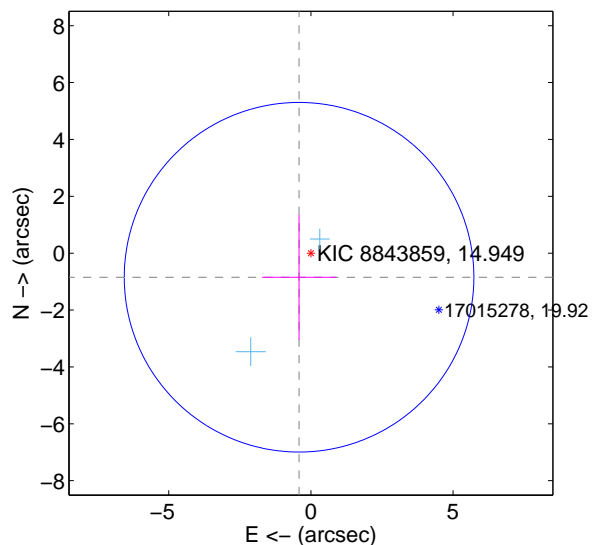
Supplemental centroid analysis for 008843859-01. Kepler magnitude: 14.95. Transit SNR 5.50

There are 2 quarters with good PRF difference image offsets

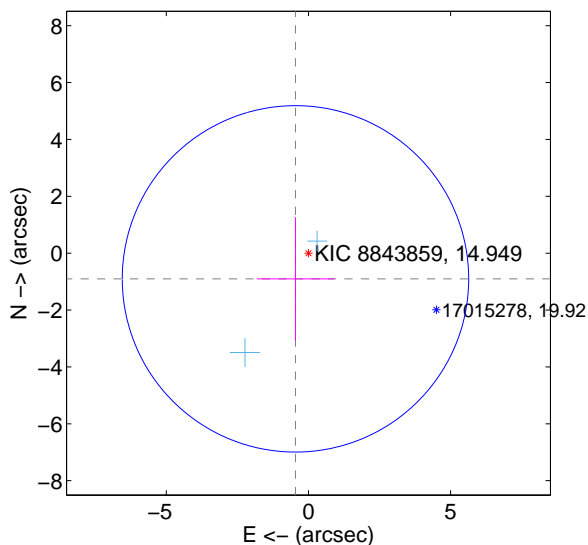
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.943 \pm 2.049$	0.46	$0.416 \pm 1.302$	$-0.846 \pm 2.192$
PRF-fit source offset from KIC position	$1.012 \pm 2.030$	0.50	$0.456 \pm 1.361$	$-0.904 \pm 2.168$
photometric centroid source offset	$1.57 \pm 1.27$	1.23	$0.90 \pm 1.39$	$1.28 \pm 1.21$

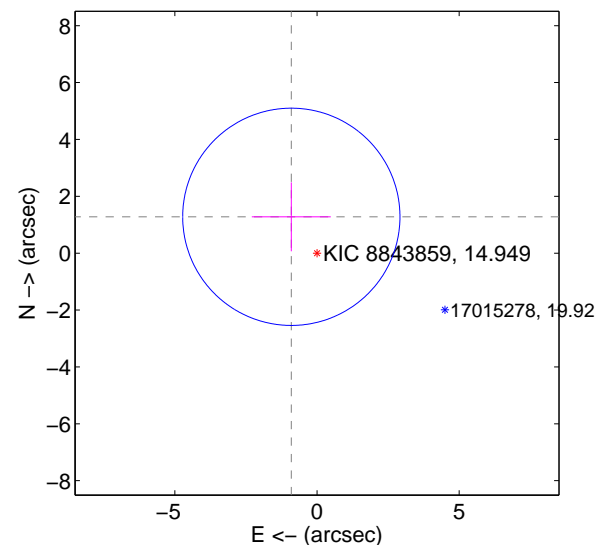
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

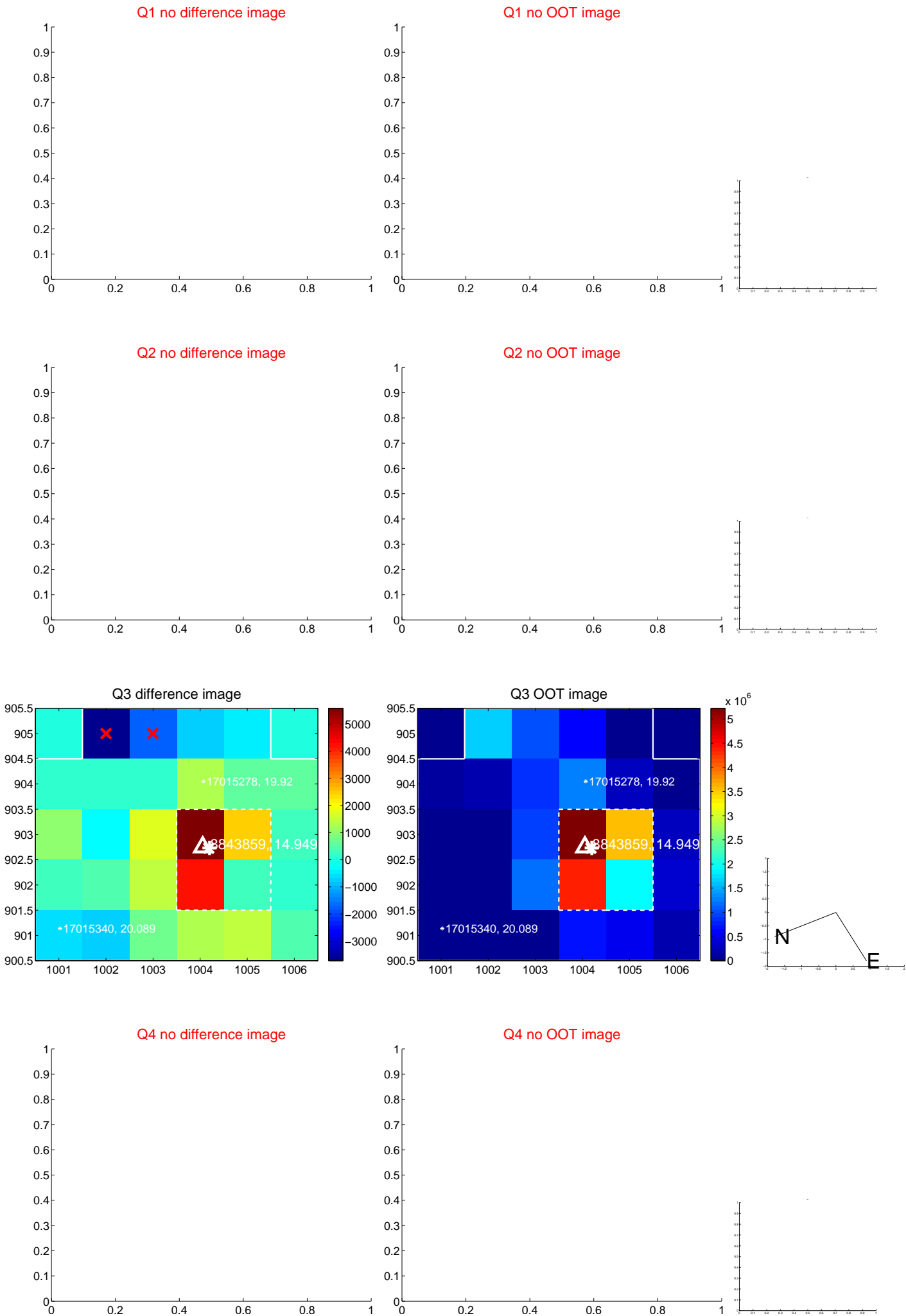


offset from photometric centroids

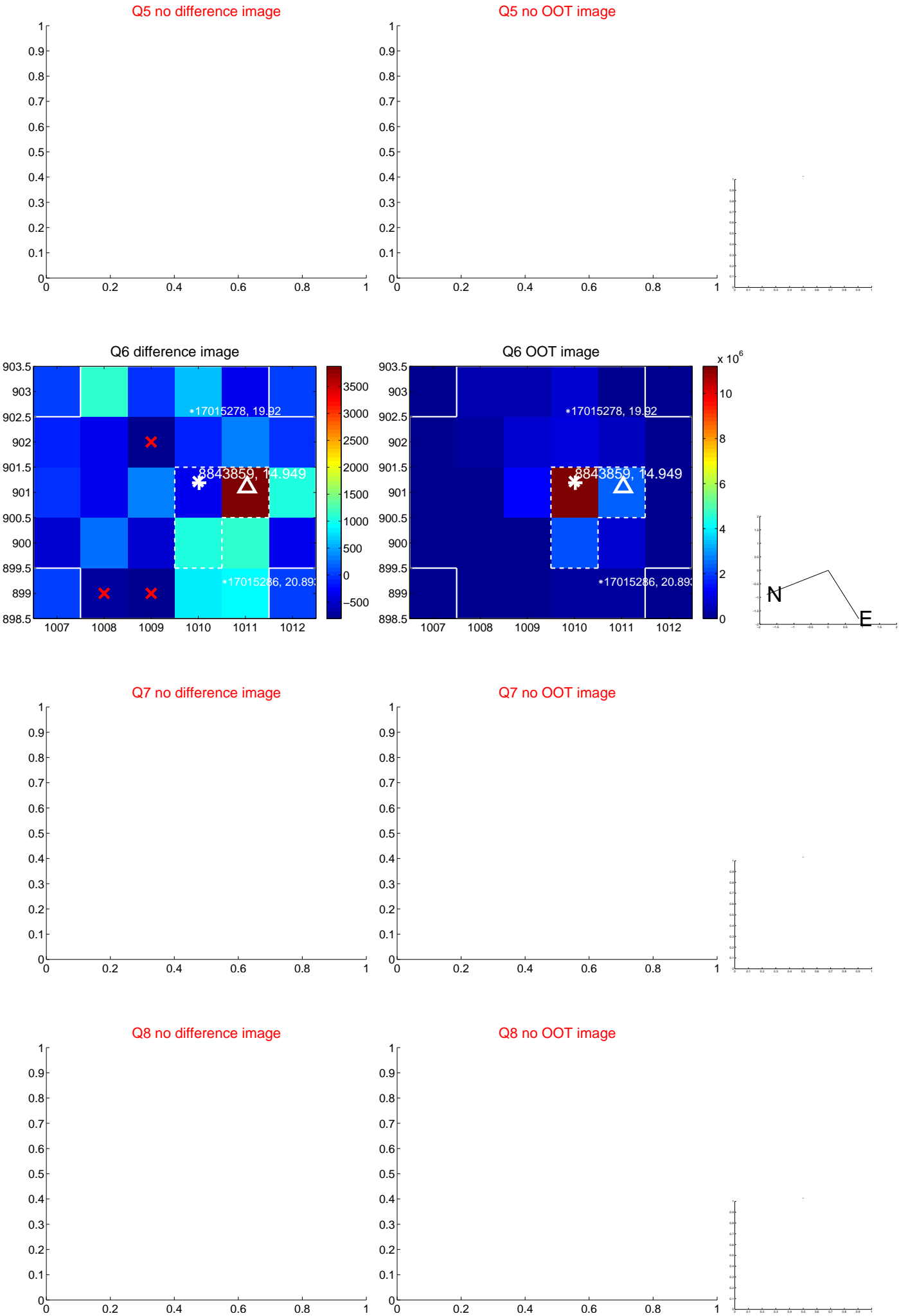


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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





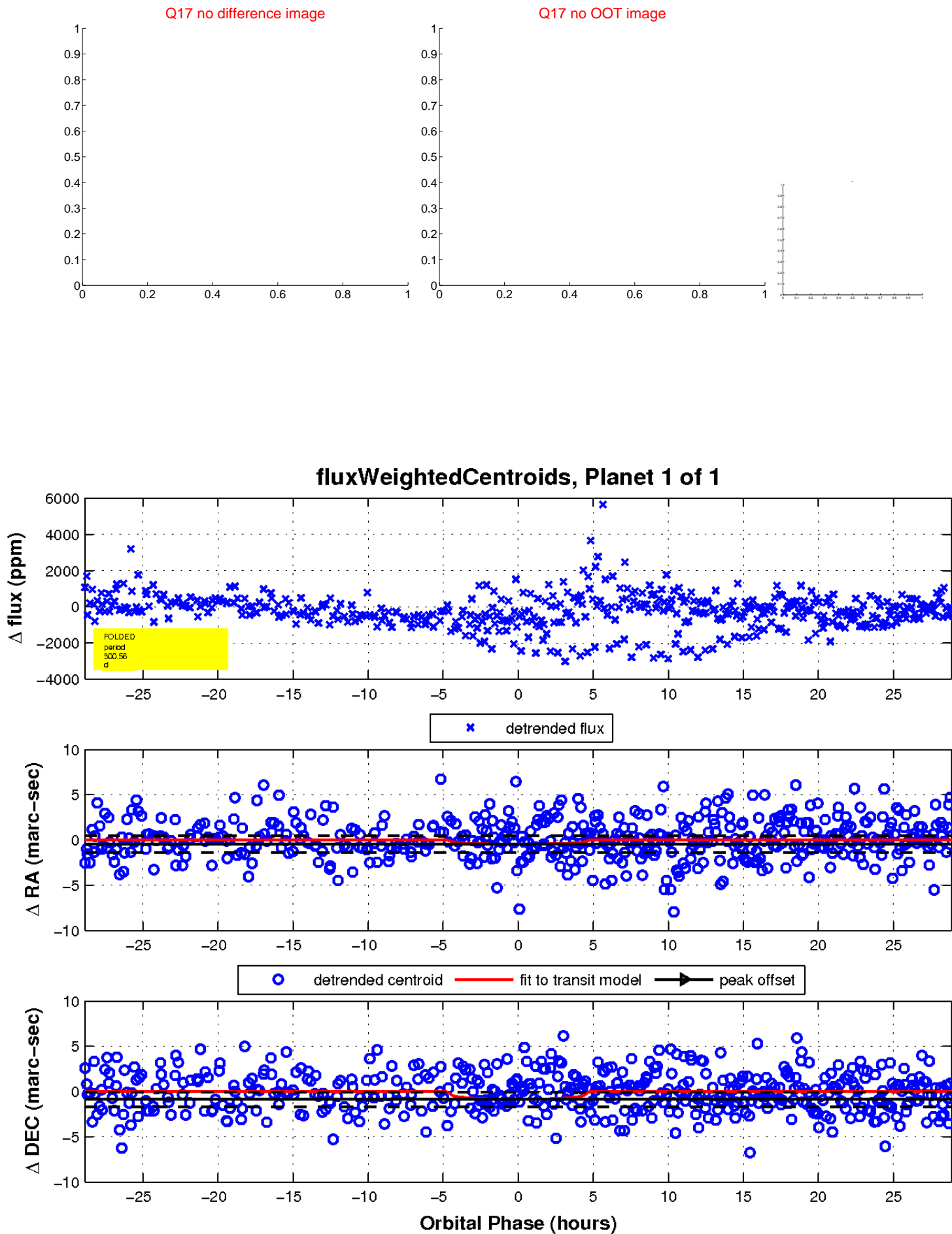
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

