

# KIC 009883123

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009883123-01	OBS	No	471.500795	138.048361	626.6	7.867	8.4	7.9	8.60	5040	36.28	19.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009883123-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

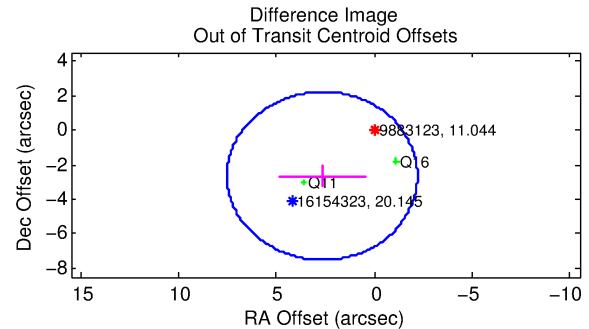
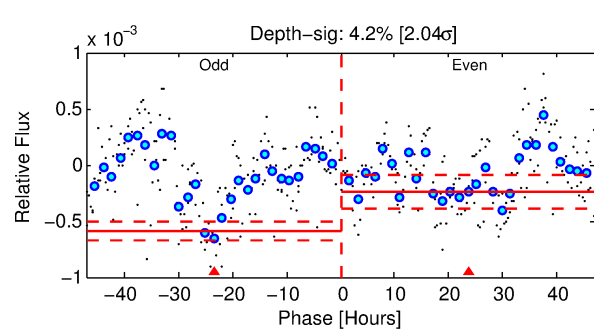
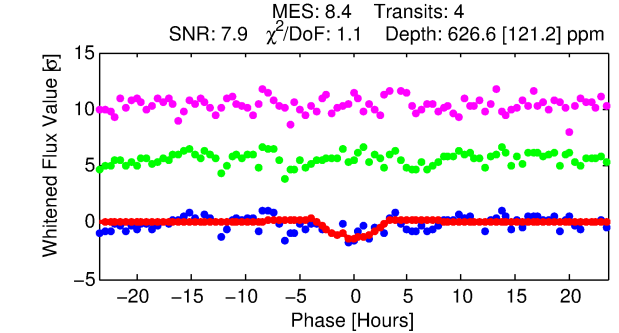
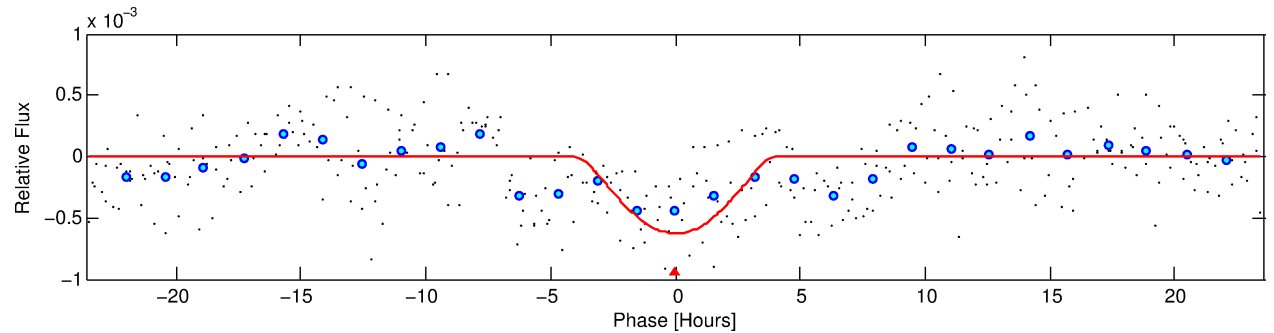
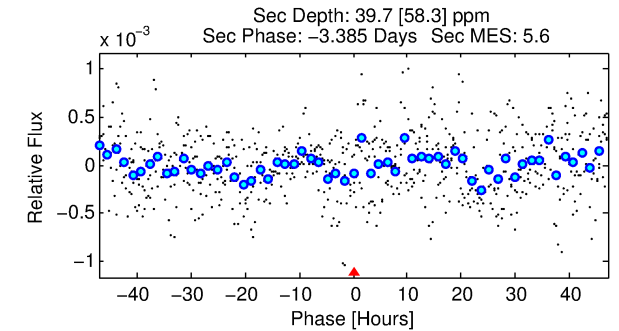
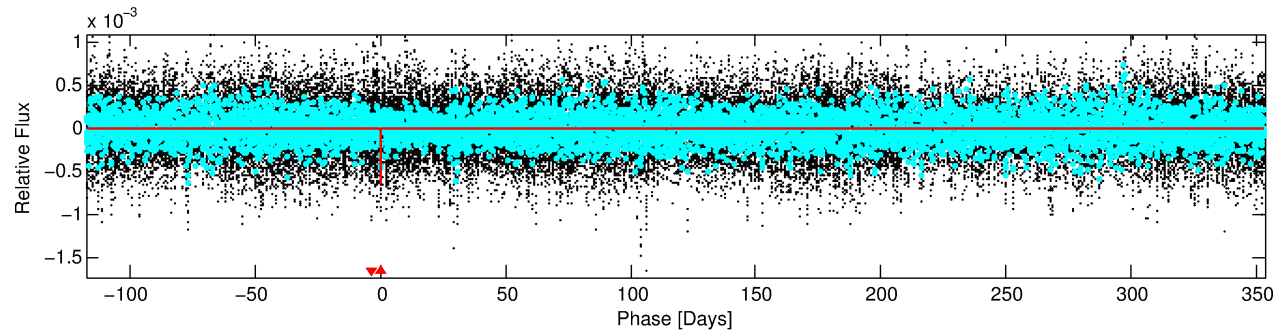
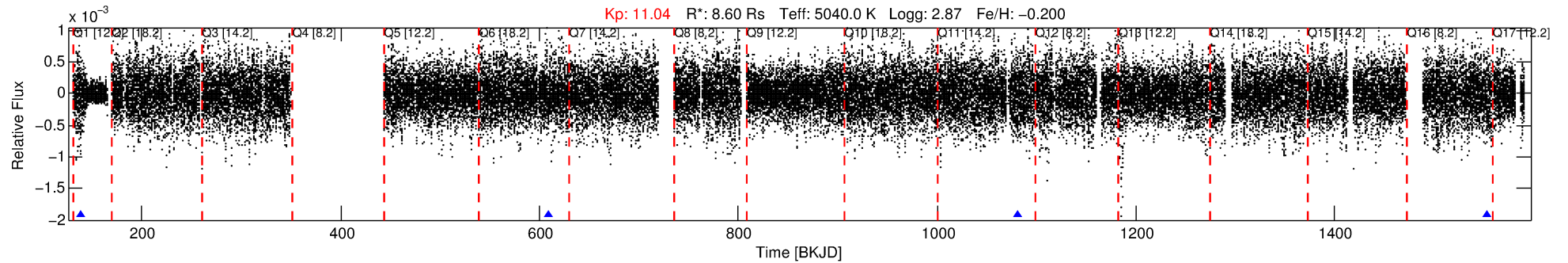
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009883123-01

No Significant Match Found

# DV One-Page Summary

KIC: 9883123 Candidate: 1 of 1 Period: 471.501 d



## DV Fit Results:

Period = 471.50079 [0.00989] d  
Epoch = 138.0484 [0.0141] BKJD  
Rp/R\* = 0.0387 [0.0600]  
a/R\* = 148.91 [74.85]  
b = 0.99 [0.11]  
Seff = 19.03 [3.13]  
Teff = 533 [22] K  
Rp = 36.28 [56.76] Re  
a = 1.4982 [0.1969] AU  
Ag = 37.27 [128.10] [0.28 $\sigma$ ]  
Teffp = 2035 [1747] K [0.86 $\sigma$ ]

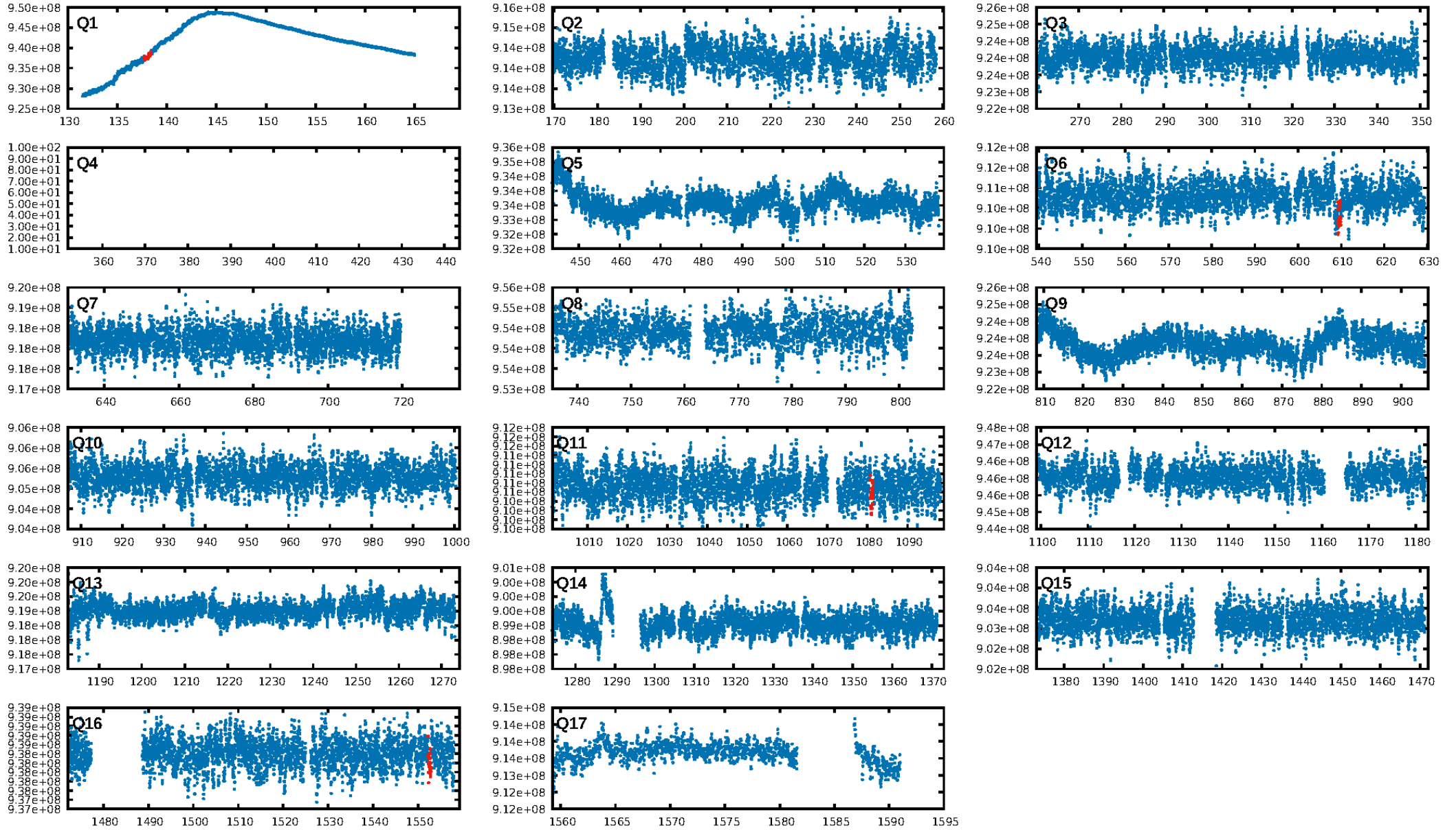
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 10.2%  
ModelChiSquareGof-sig: 96.3%  
Bootstrap-pfa: 4.12e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 6.208  
Centroid-sig: 0.7%  
Centroid-so: 1.139 arcsec [2.29 $\sigma$ ]  
OotOffset-rm: 3.760 arcsec [2.32 $\sigma$ ]  
KicOffset-rm: 3.418 arcsec [2.15 $\sigma$ ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [4/4]

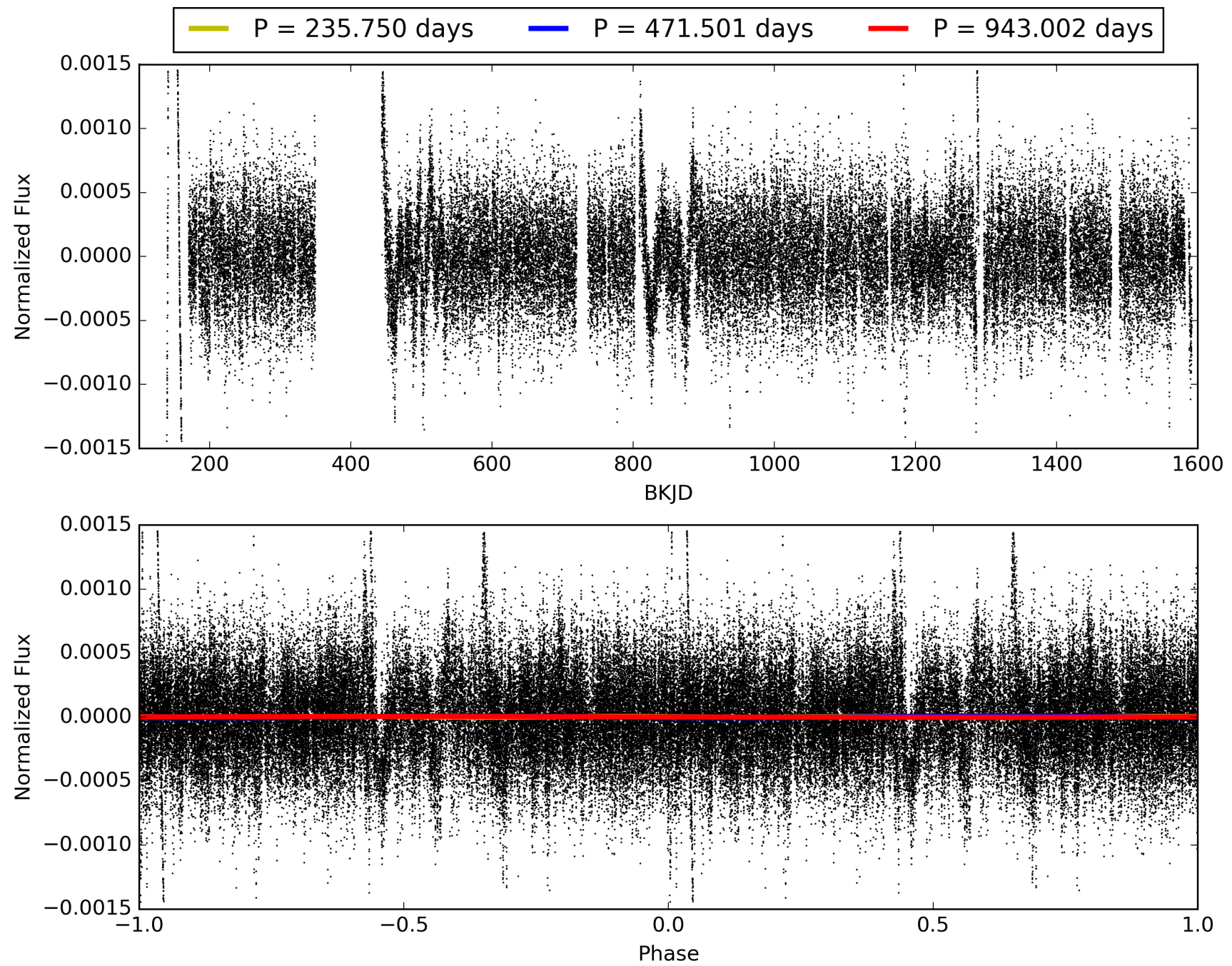
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:42:21 Z

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

# TCE 009883123-01, PDC Light Curves

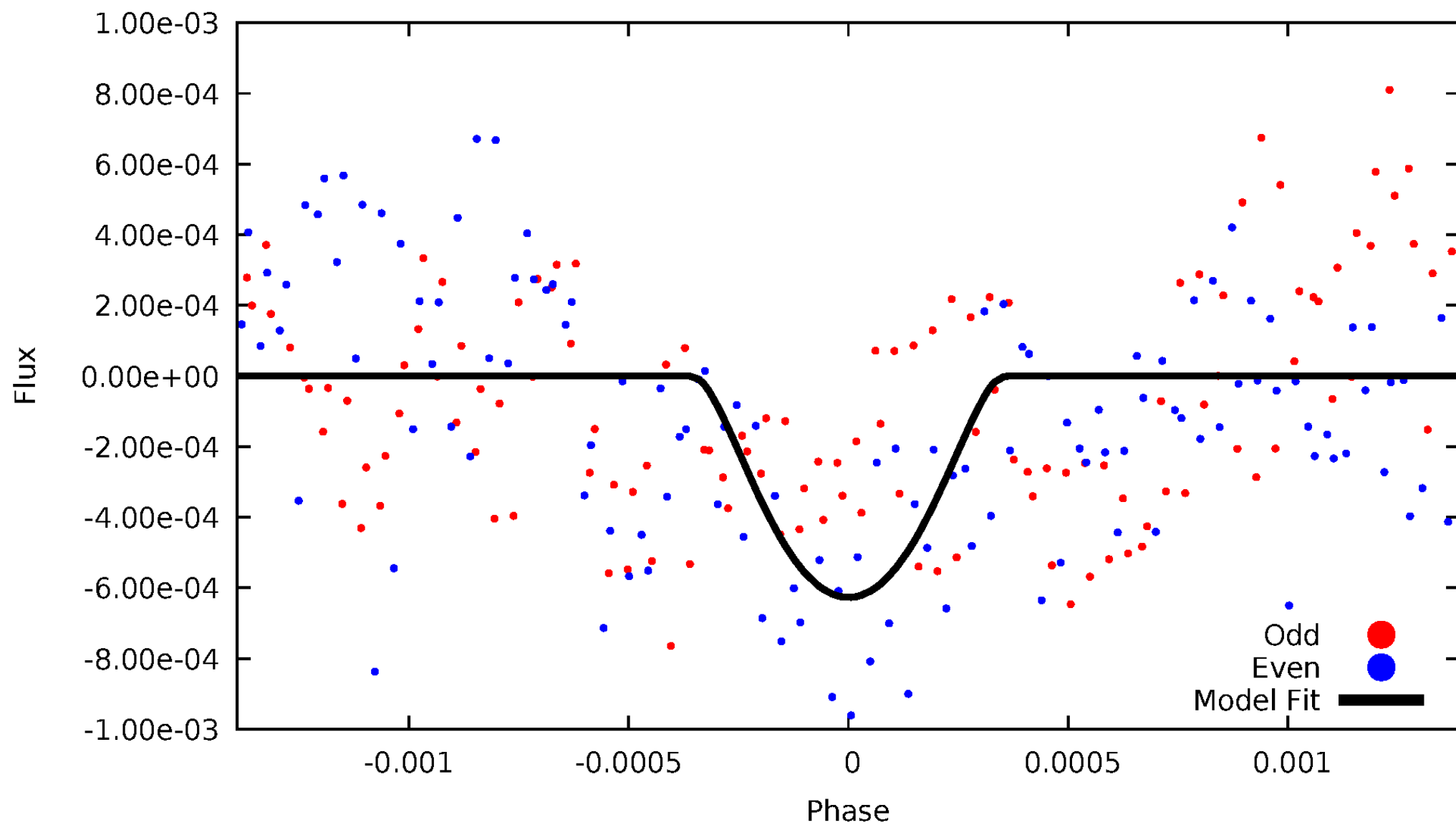


TCE 009883123-01



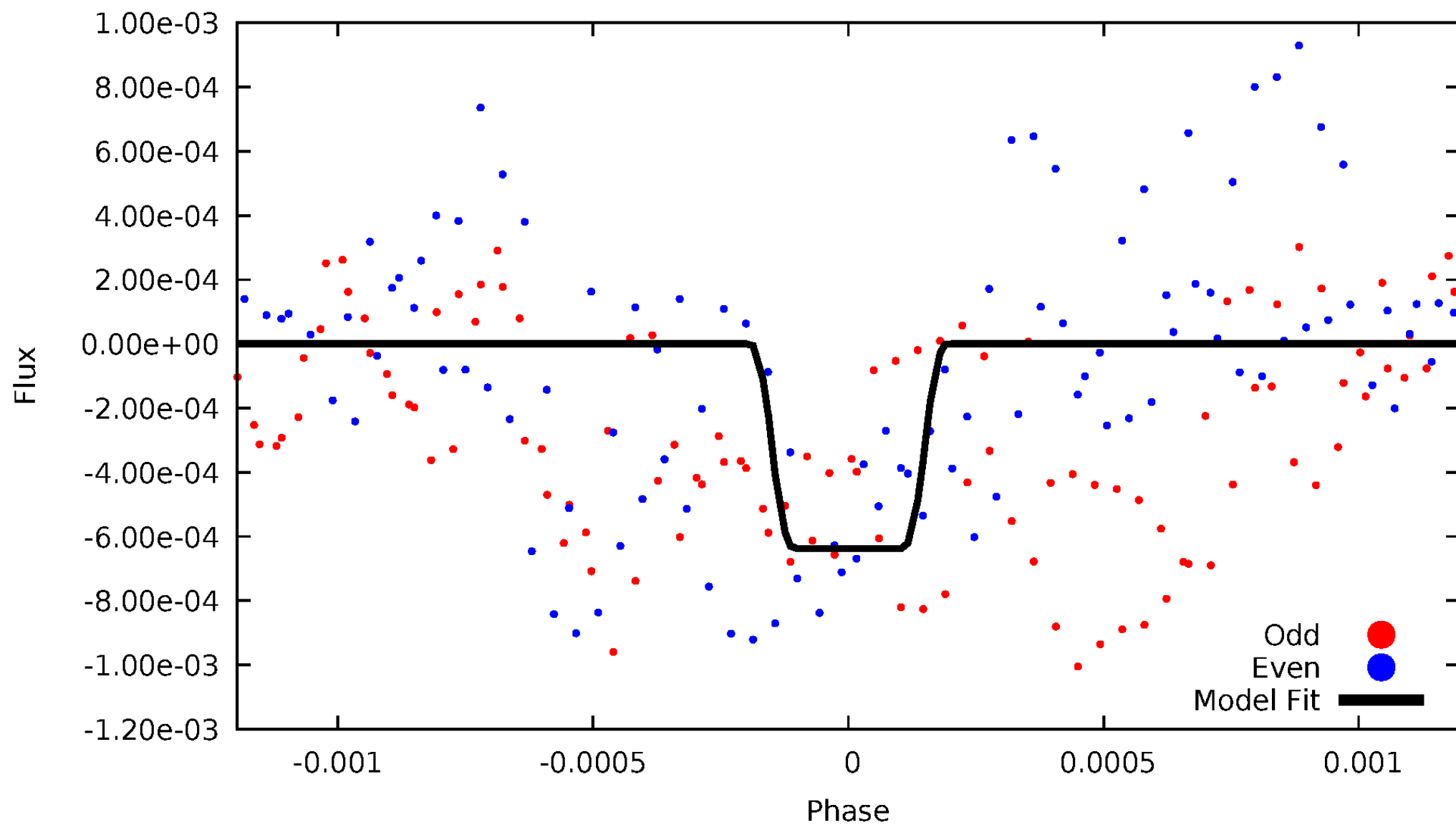
# DV Odd/Even

TCE 009883123-01



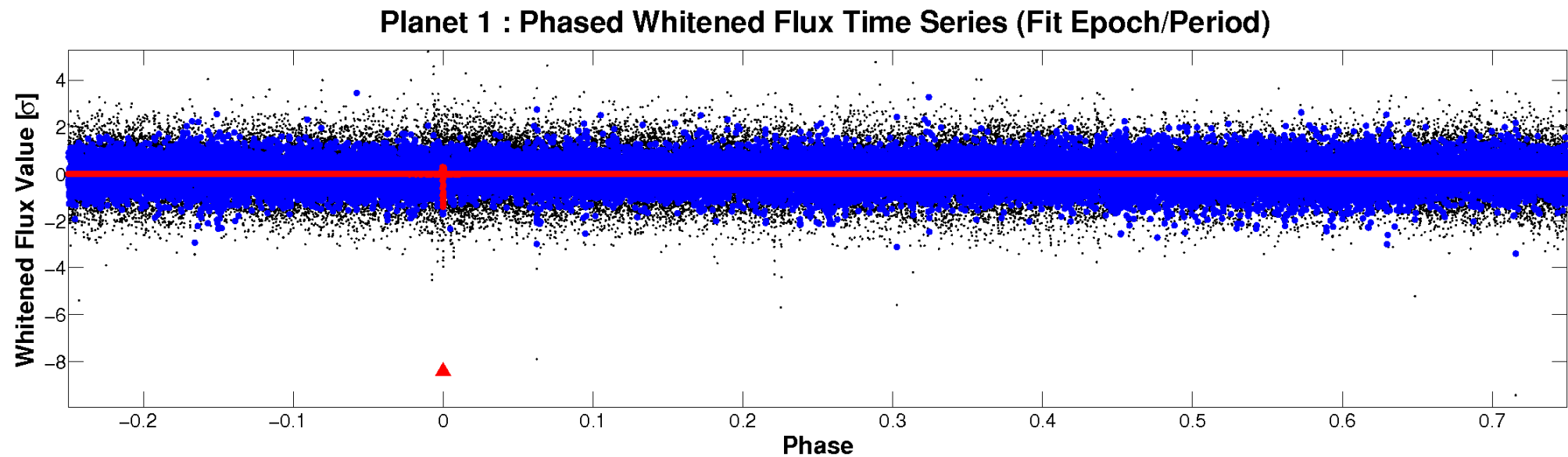
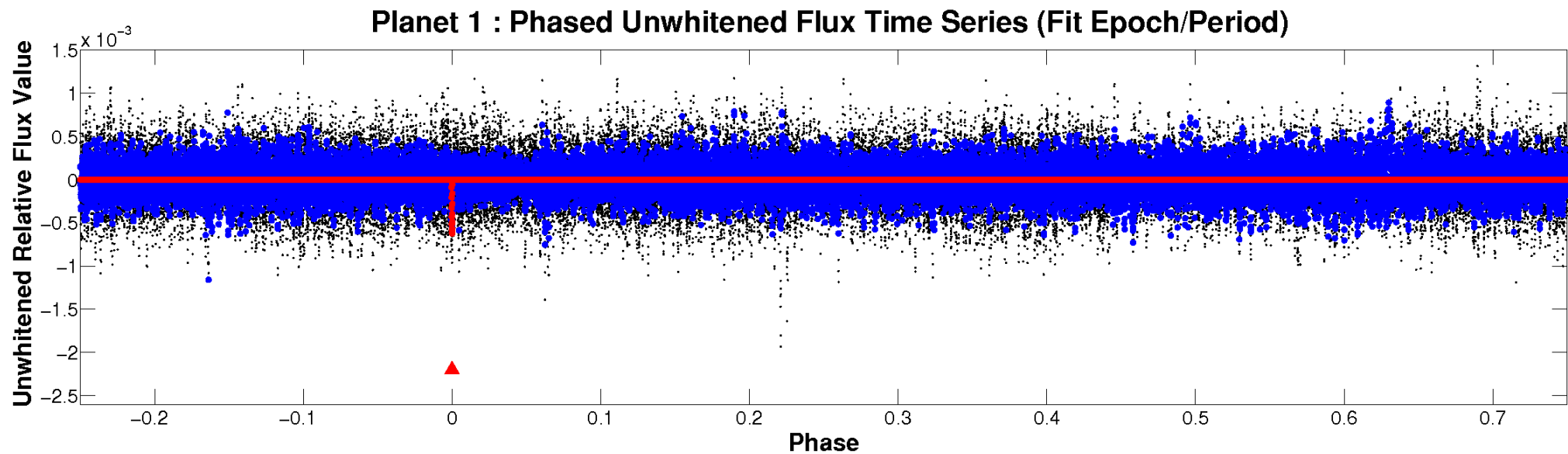
# ALT Odd/Even

TCE 009883123-01



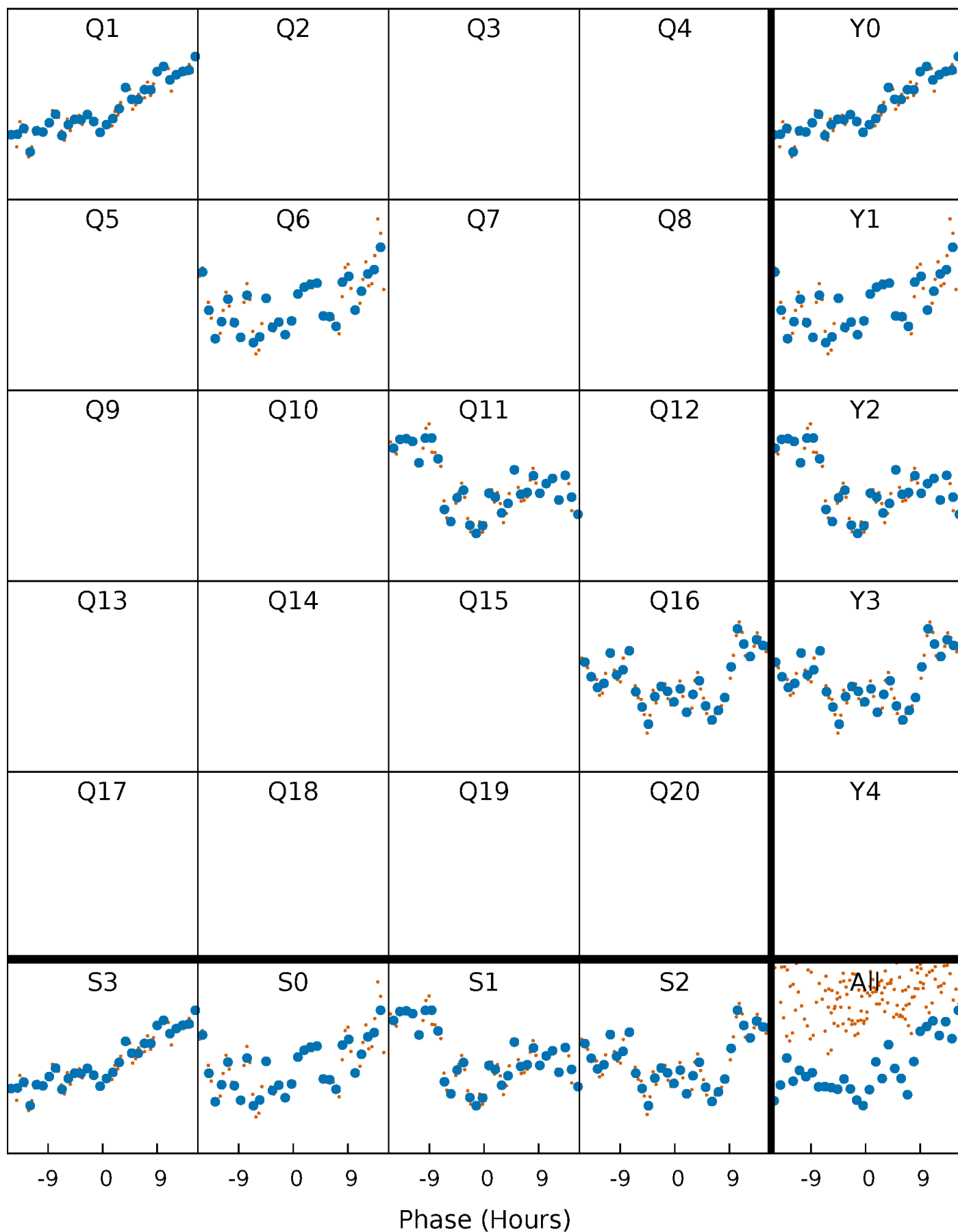


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

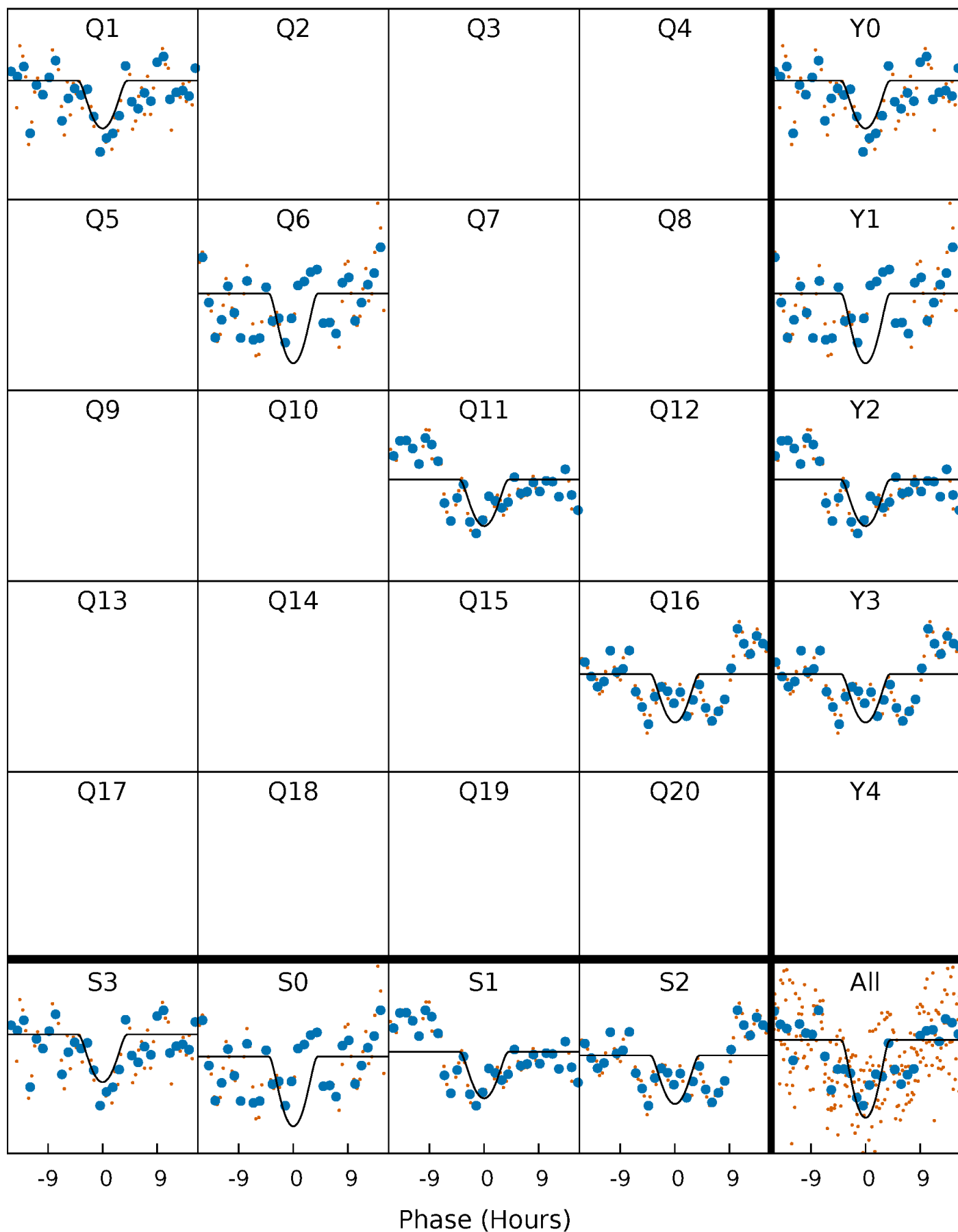
TCE 009883123-01 P=471.500795 Days  $T_0=138.048361$  (BKJD)





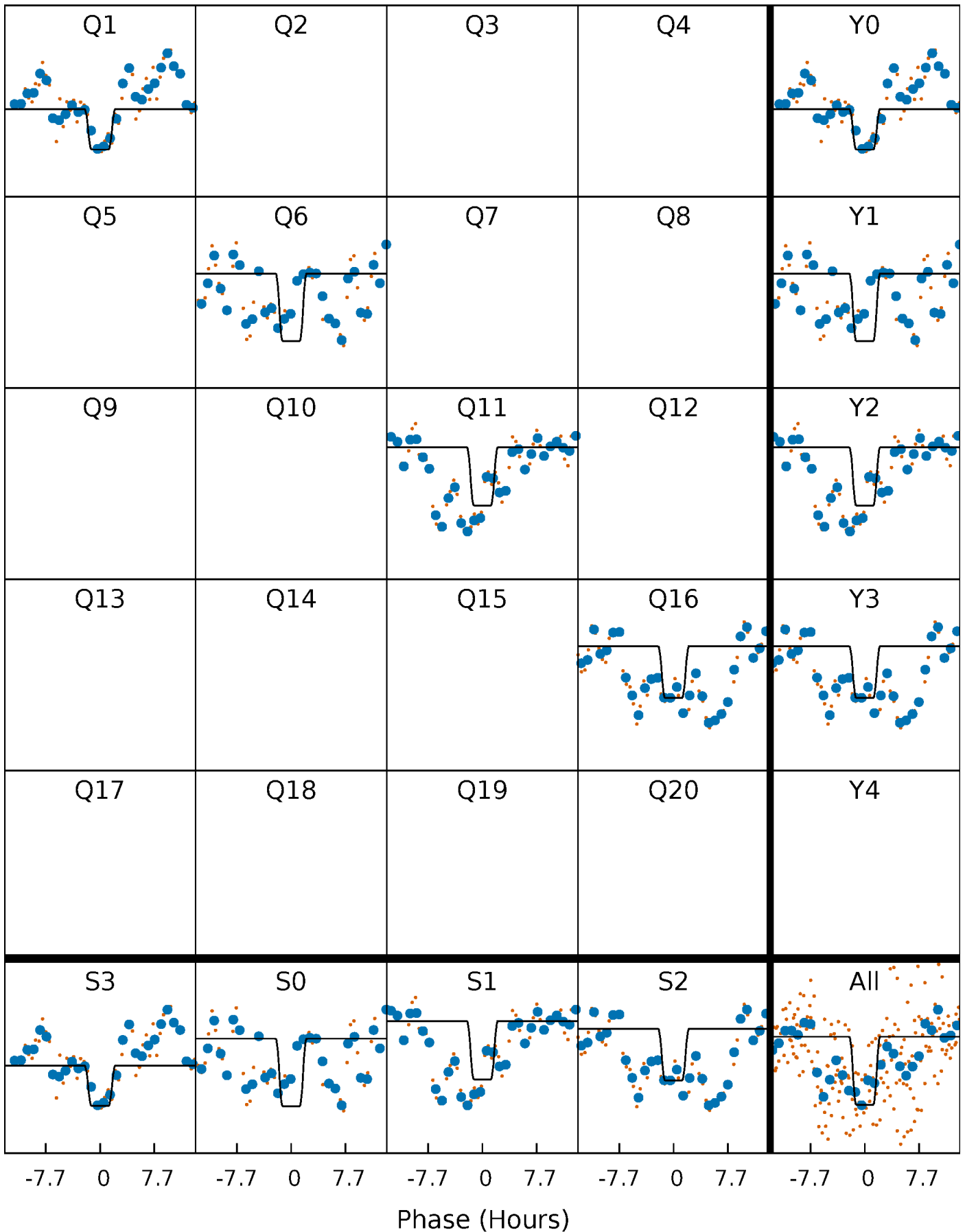
# DV Quarter-Phased Transit Curves

TCE 009883123-01 P=471.500795 Days  $T_0=138.048361$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

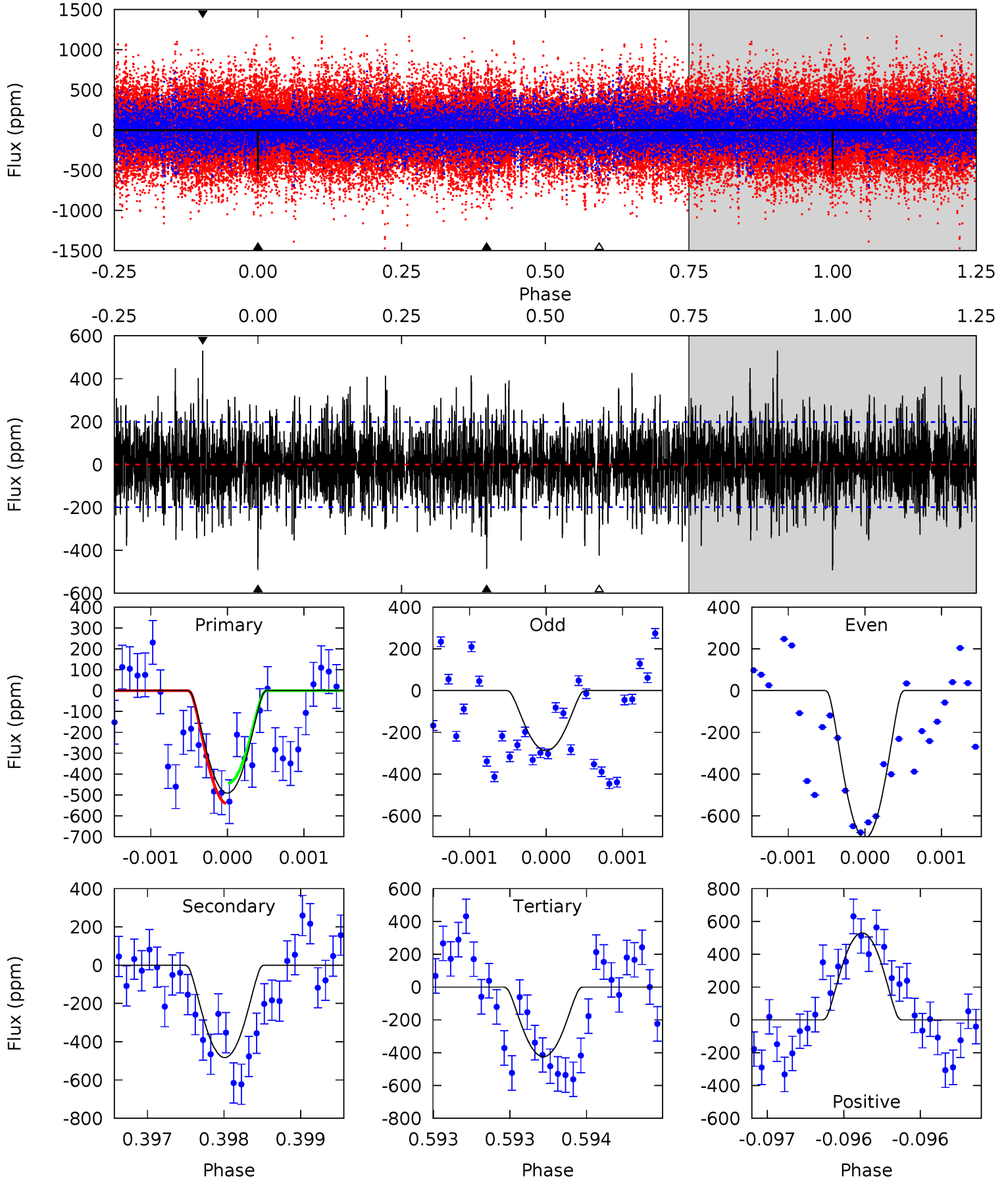
TCE 009883123-01 P=471.511208 Days  $T_0=138.043724$  (BKJD)



# DV Model-Shift Uniqueness Test

009883123-01, P = 471.500795 Days, E = 138.048361 Days

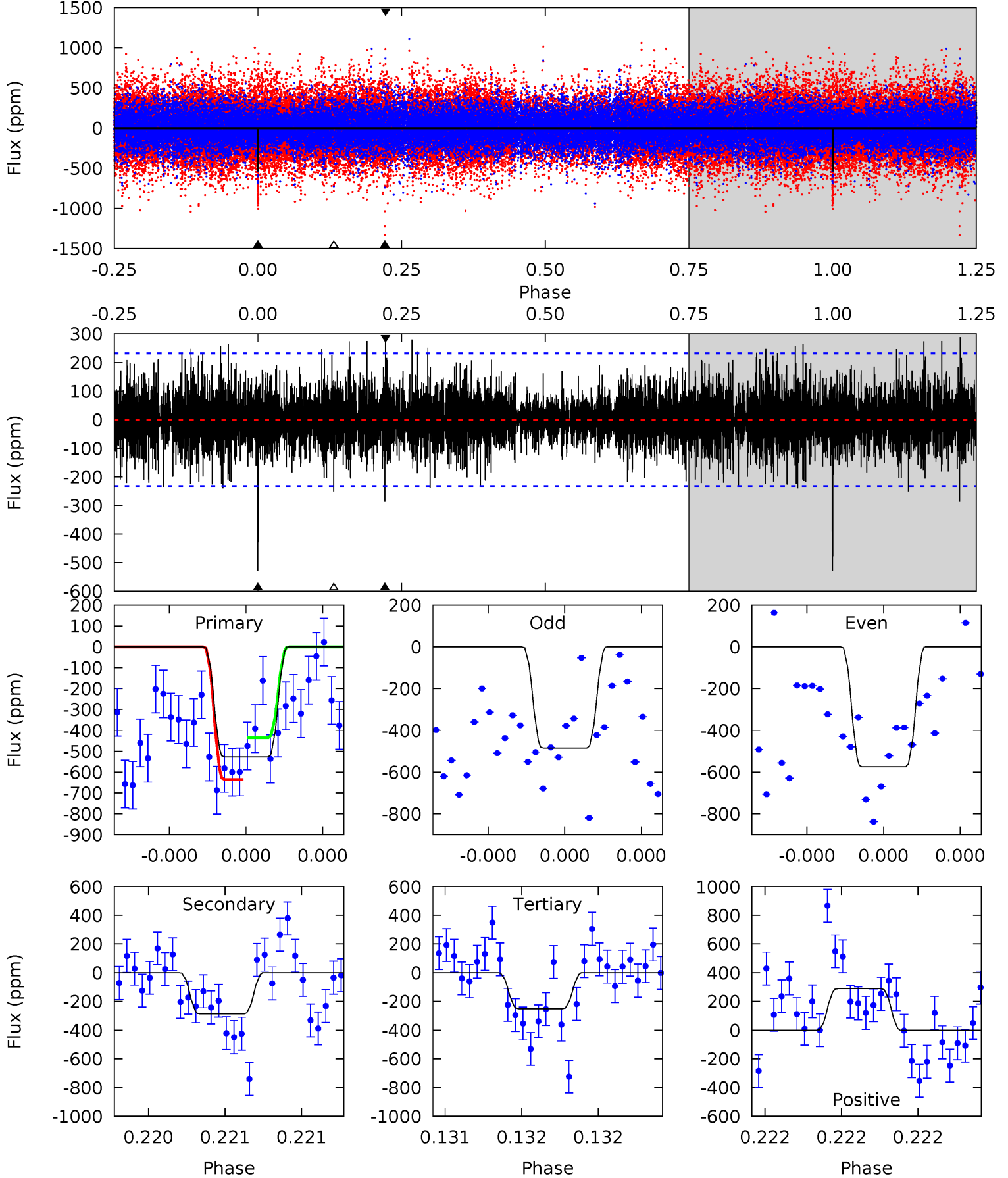
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	13.4	11.8	14.7	5.51	3.39	3.33	1.86	-1.07	1.62	-1.32	5.91	1.00	0.52	1.32



# Alt Model-Shift Uniqueness Test

009883123-01, P = 471.511208 Days, E = 138.043724 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
12.8	6.95	6.08	6.99	5.63	3.57	1.66	6.72	5.80	0.88	-0.04	1.09	0.93	0.35	2.39



### Stellar Parameters For KIC 009883123

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5040^{+45}_{-112}$	$2.874^{+0.033}_{-0.030}$	$-0.200^{+0.100}_{-0.200}$	$8.597^{+1.188}_{-1.663}$	$2.020^{+0.553}_{-0.676}$	$0.004^{+0.001}_{-0.000}$
	+1%/-2%	+1%/-1%	+50%/-100%	+14%/-19%	+27%/-33%	+30%/-11%
Source	PHO55	AST55	SPE55	DSEP		

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

### Secondary Eclipse Parameters for KIC 009883123-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-483 \pm 36$	$54.94^{+50.74}_{-37.40}$	$743^{+18}_{-21}$	$3511^{+1831}_{-603}$	$203^{+1648}_{-147}$
Alt.	$-287 \pm 41$	$48.74^{+44.42}_{-32.94}$	$743^{+18}_{-22}$	$3349^{+1733}_{-563}$	$145^{+1364}_{-105}$

$T_{max}$  = 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

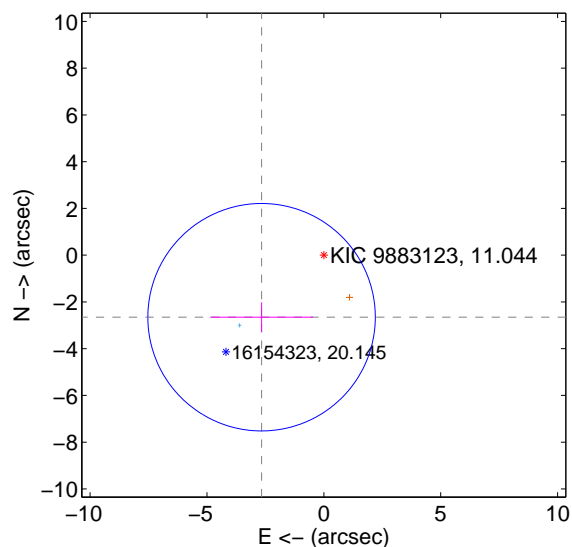
Supplemental centroid analysis for 009883123-01. **Kepler magnitude: 11.04.** Transit SNR 7.94

**There are 1 quarters with good PRF difference image offsets**

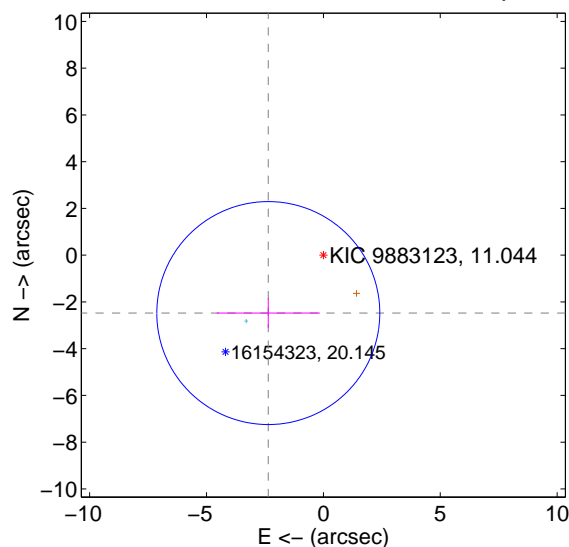
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.760 \pm 1.622$	2.32	$2.663 \pm 2.199$	$-2.654 \pm 0.639$
PRF-fit source offset from KIC position	$3.418 \pm 1.590$	2.15	$2.356 \pm 2.208$	$-2.476 \pm 0.633$
photometric centroid source offset	$1.14 \pm 0.50$	2.29	$0.55 \pm 0.44$	$-1.00 \pm 0.51$

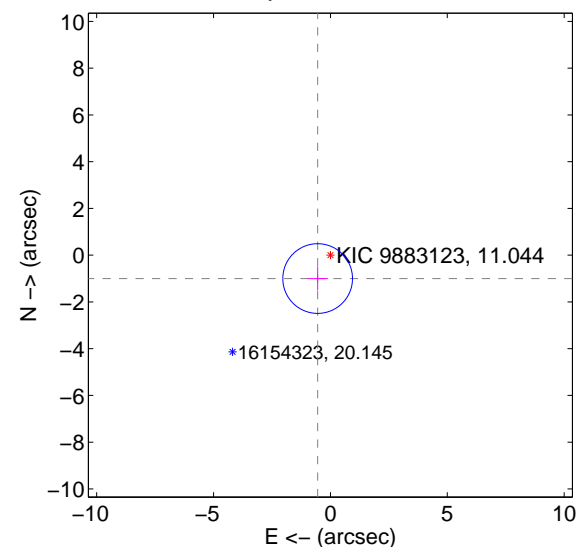
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

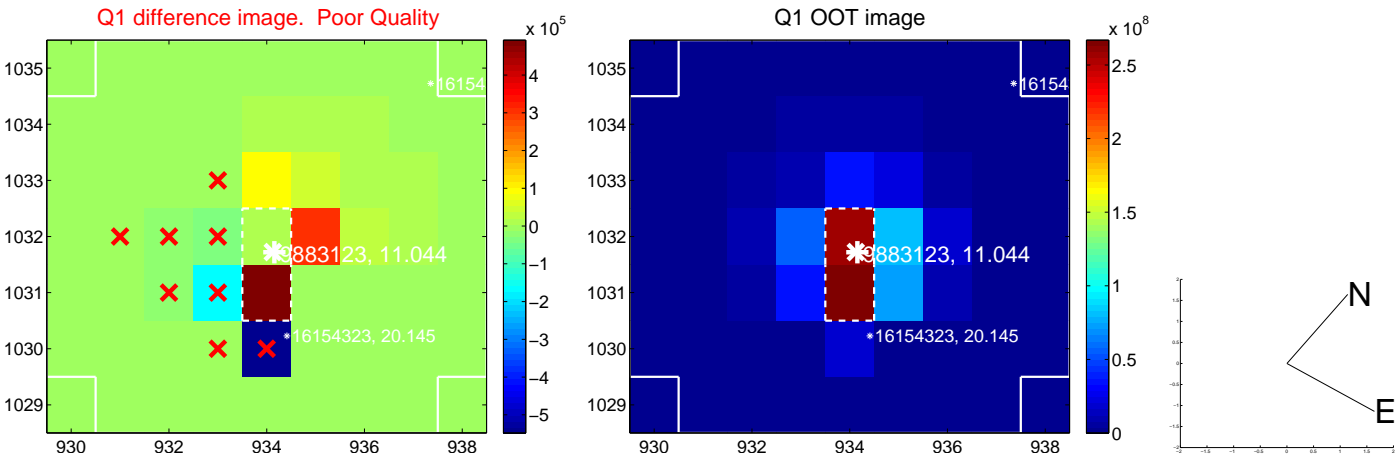


offset from photometric centroids



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

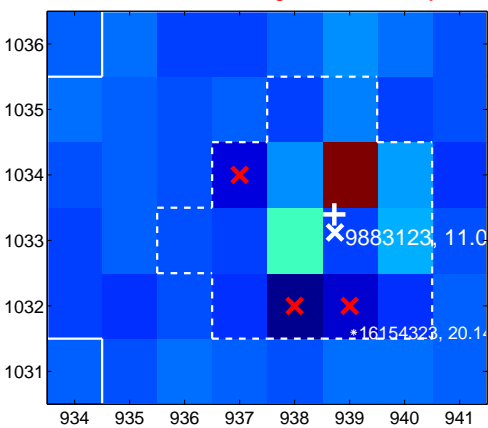
Q5 no difference image



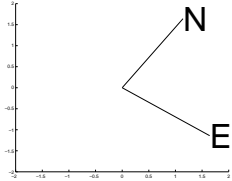
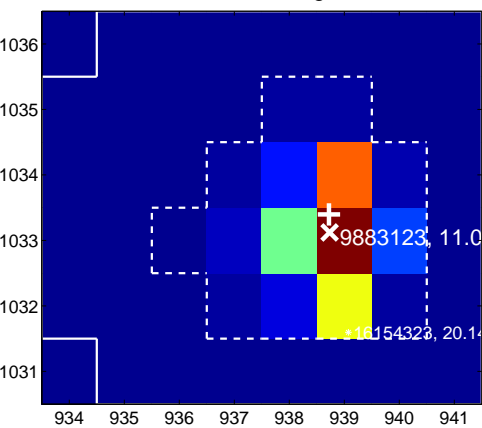
Q5 no OOT image



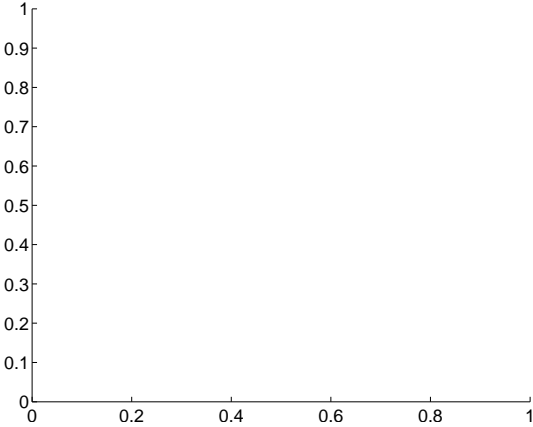
Q6 difference image. Poor Quality



Q6 OOT image



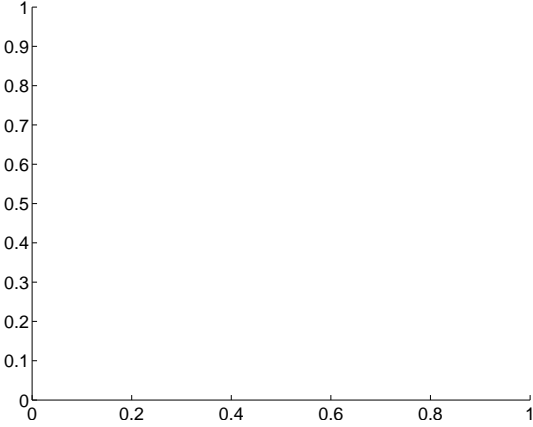
Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

Q9 no difference image



Q9 no OOT image



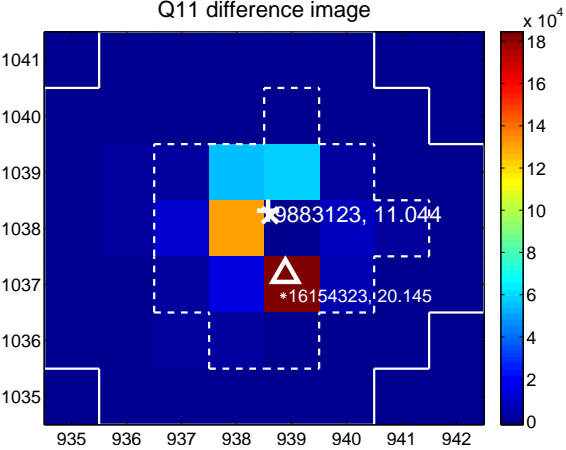
Q10 no difference image



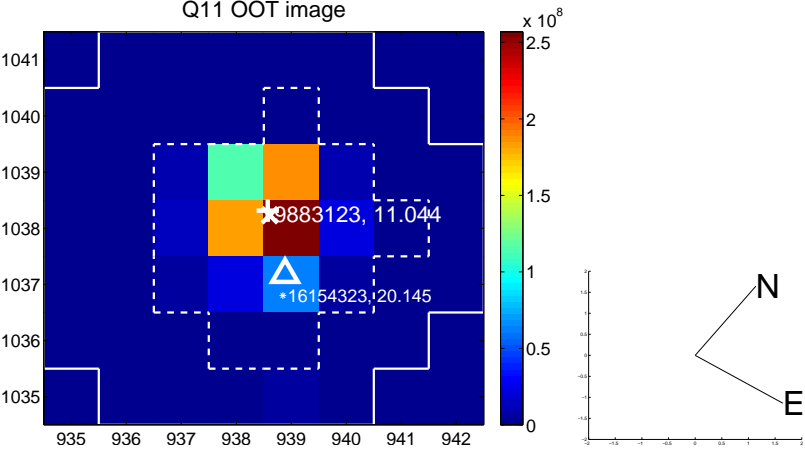
Q10 no OOT image



Q11 difference image



Q11 OOT image



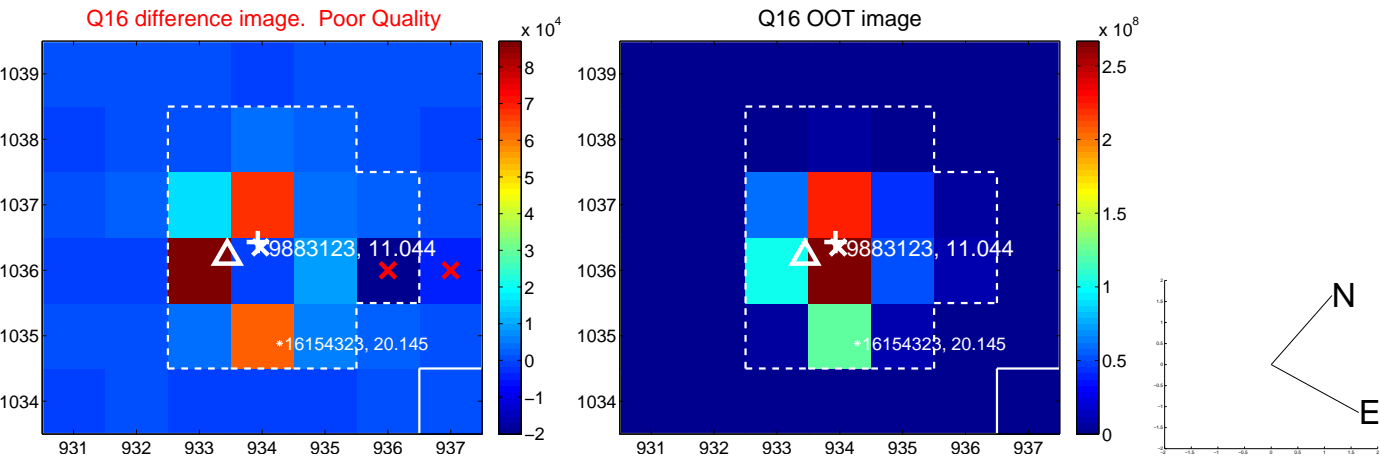
Q12 no difference image



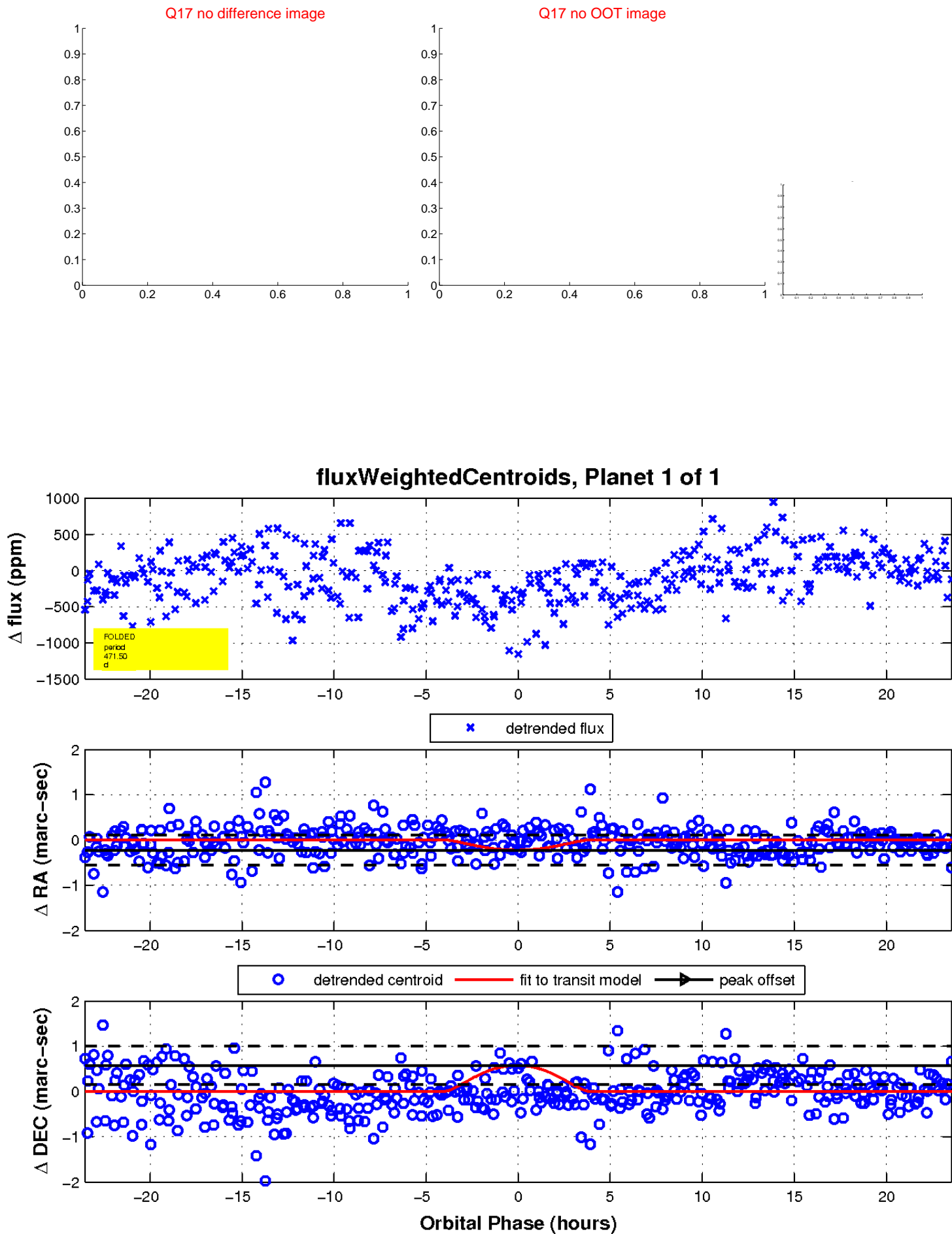
Q12 no OOT image



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

