

# KIC 012052643

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012052643-01	OBS	No	388.152055	254.660935	1752.2	5.405	7.9	8.5	0.84	5642	3.56	0.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012052643-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

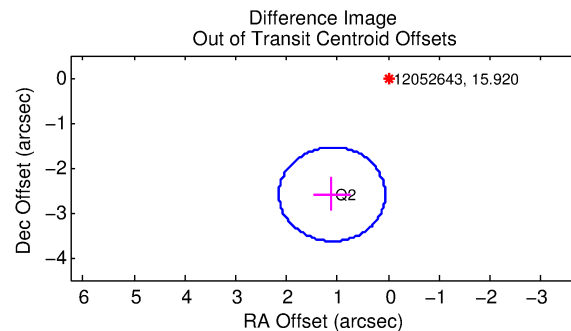
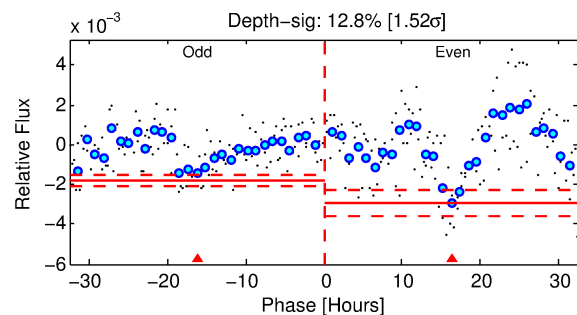
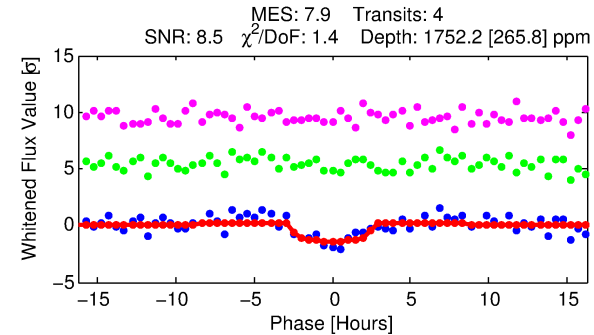
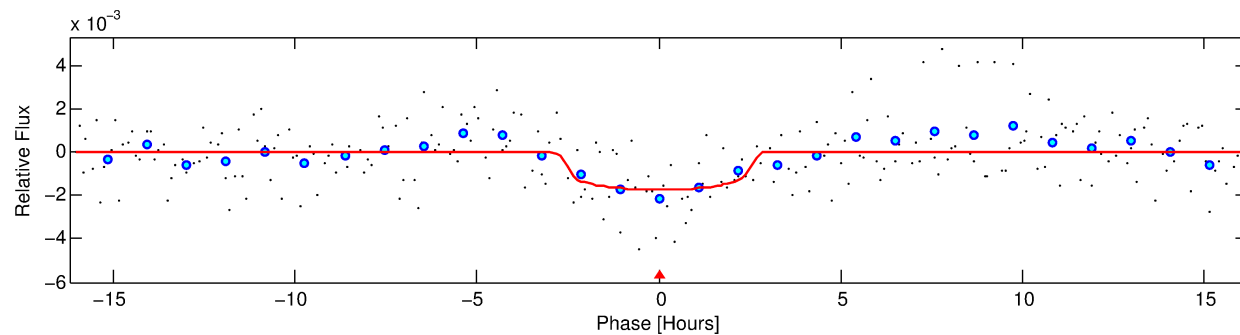
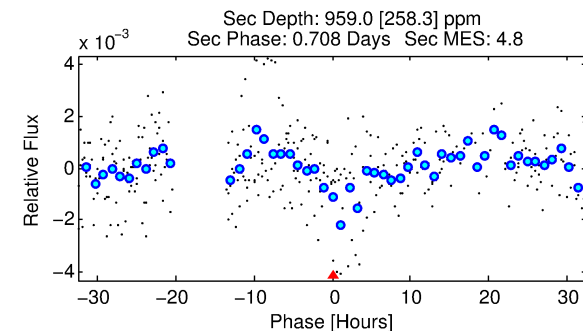
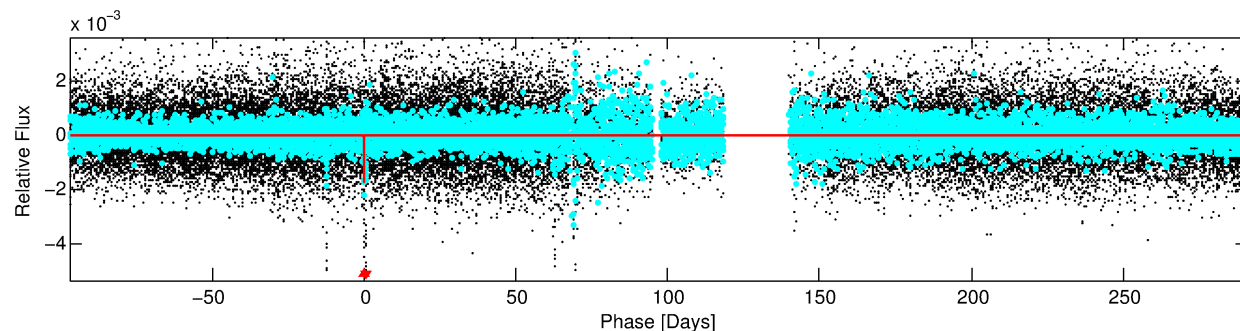
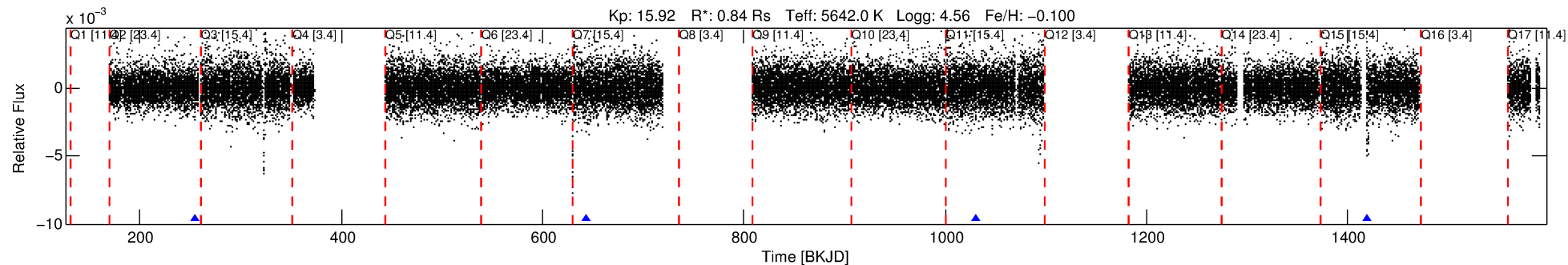
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012052643-01

No Significant Match Found

# DV One-Page Summary

KIC: 12052643 Candidate: 1 of 1 Period: 388.152 d



## DV Fit Results:

Period = 388.15206 [0.00595] d  
Epoch = 254.6609 [0.0109] BKJD  
Rp/R\* = 0.0388 [0.0552]  
a/R\* = 517.08 [3099.01]  
b = 0.44 [11.21]  
Seff = 0.62 [0.21]  
Teq = 226 [19] K  
Rp = 3.56 [5.14] Re  
a = 1.0168 [0.2245] AU  
Ag = 43106.57 [123933.22] [0.35σ]  
Teffp = 5040 [3603] K [1.34σ]

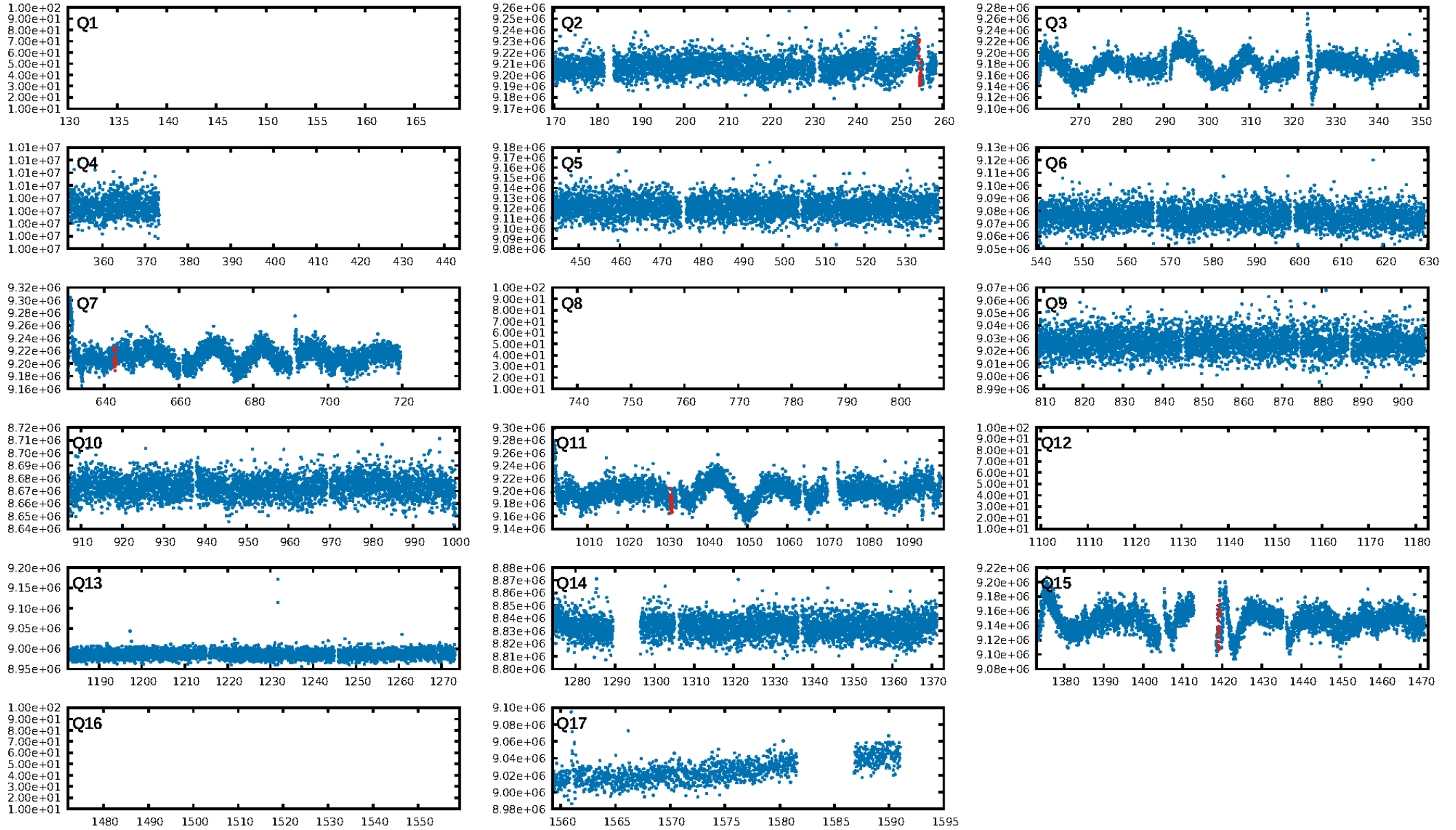
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 77.2%  
**Bootstrap-pfa: 1.01e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.751  
Centroid-sig: 24.6%  
Centroid-so: 1.160 arcsec [0.57σ]  
**OotOffset-rm: 2.818 arcsec [8.09σ]**  
**KicOffset-rm: 2.662 arcsec [7.66σ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

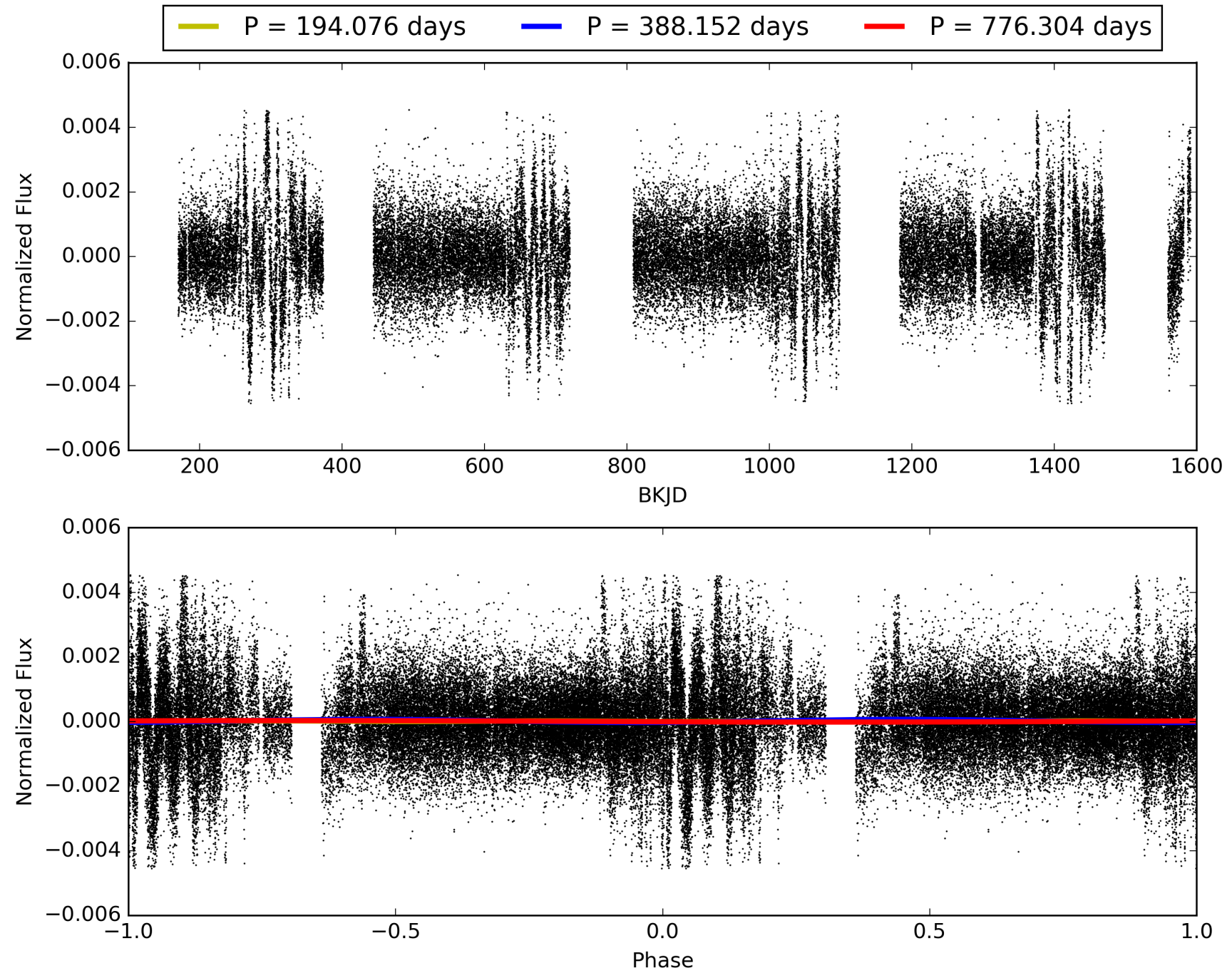
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:33:26 Z

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

# TCE 012052643-01, PDC Light Curves

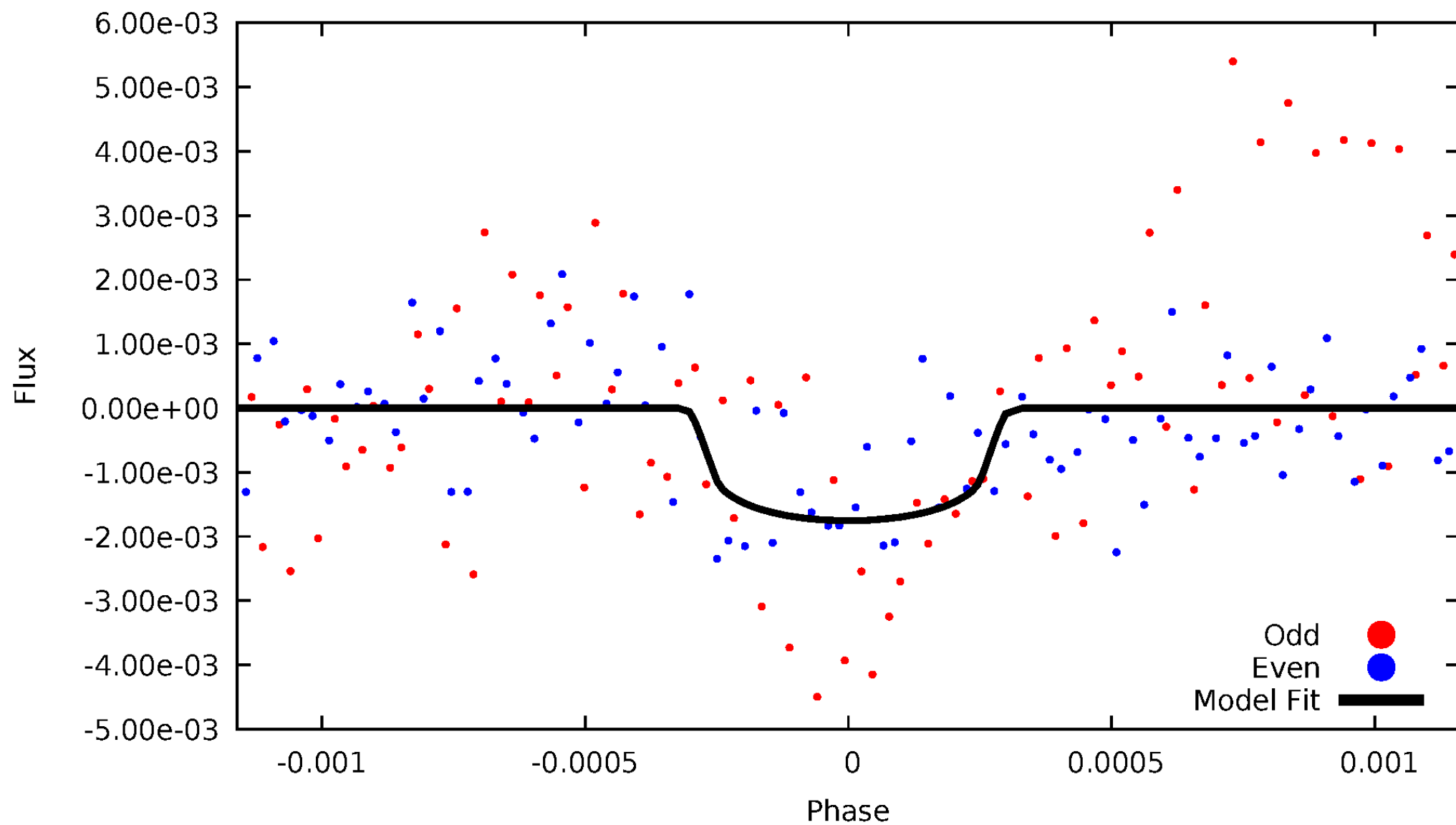


TCE 012052643-01



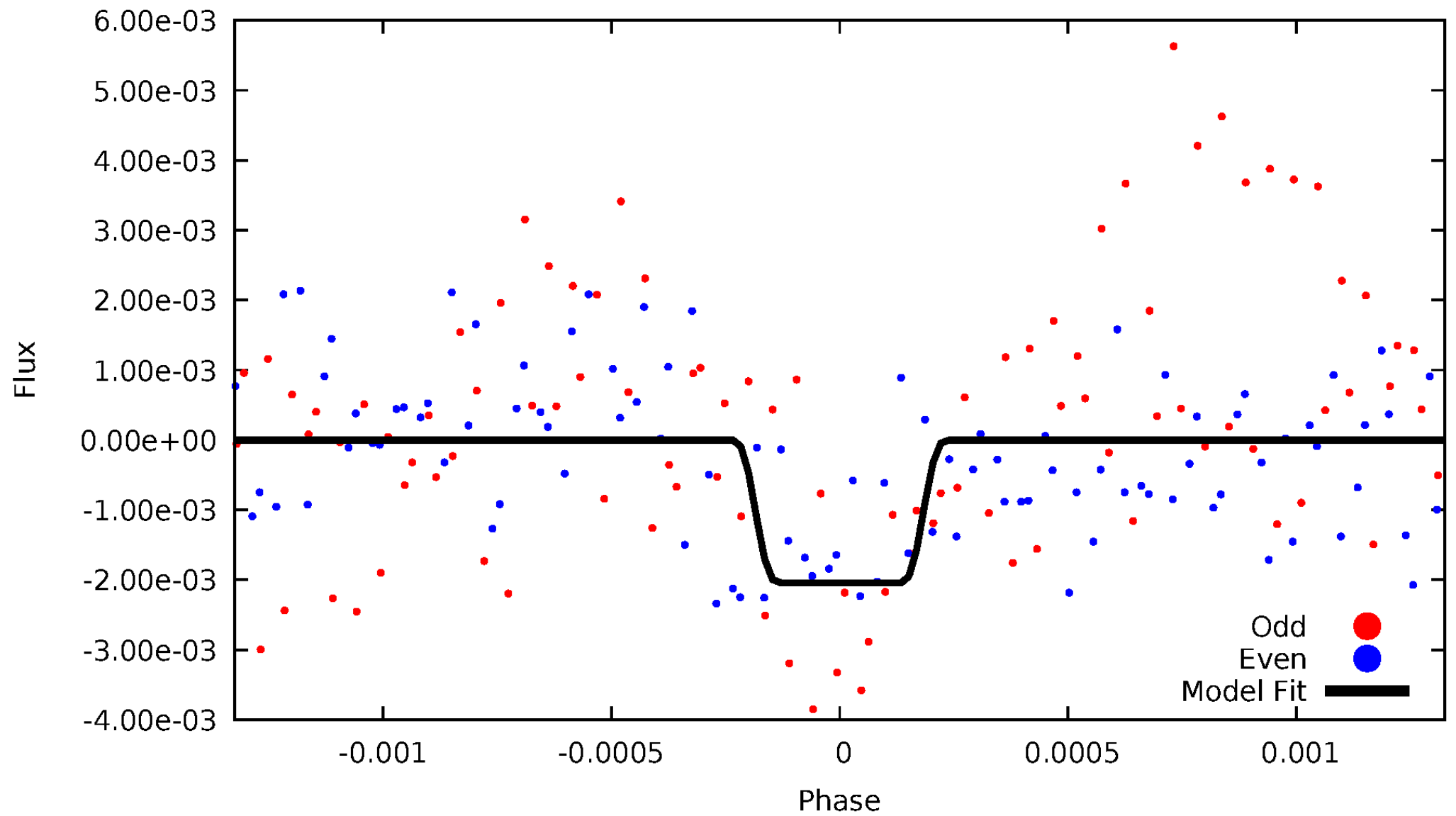
# DV Odd/Even

TCE 012052643-01

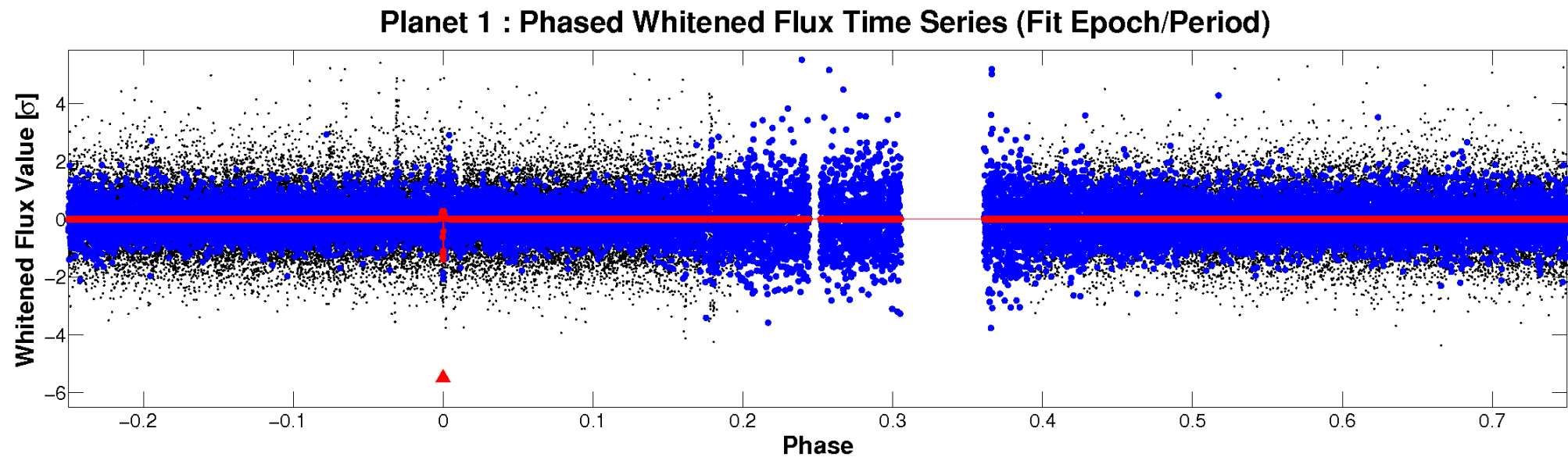
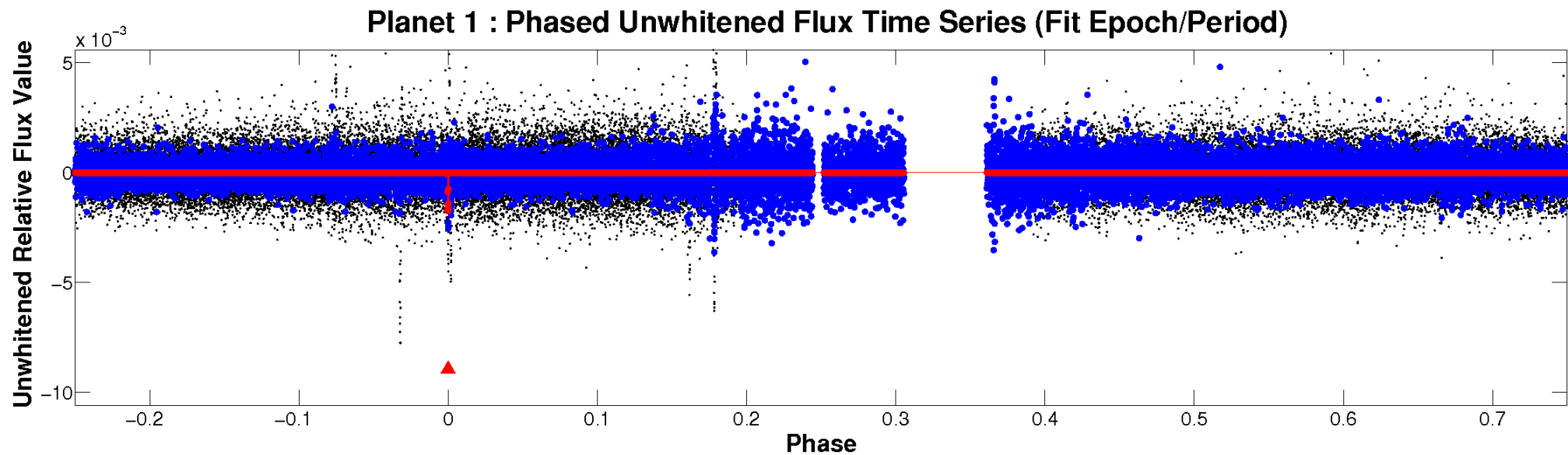


# ALT Odd/Even

TCE 012052643-01

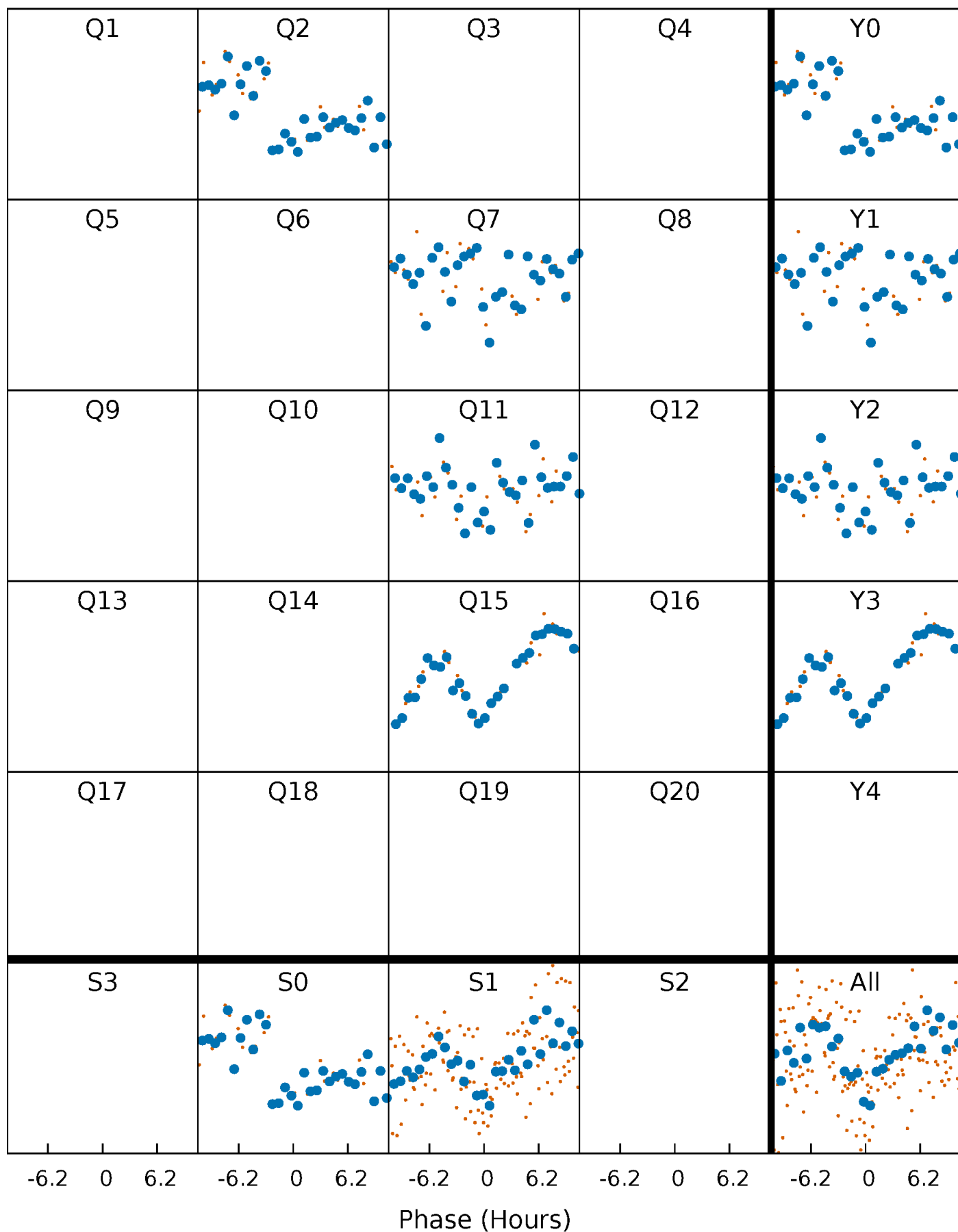


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

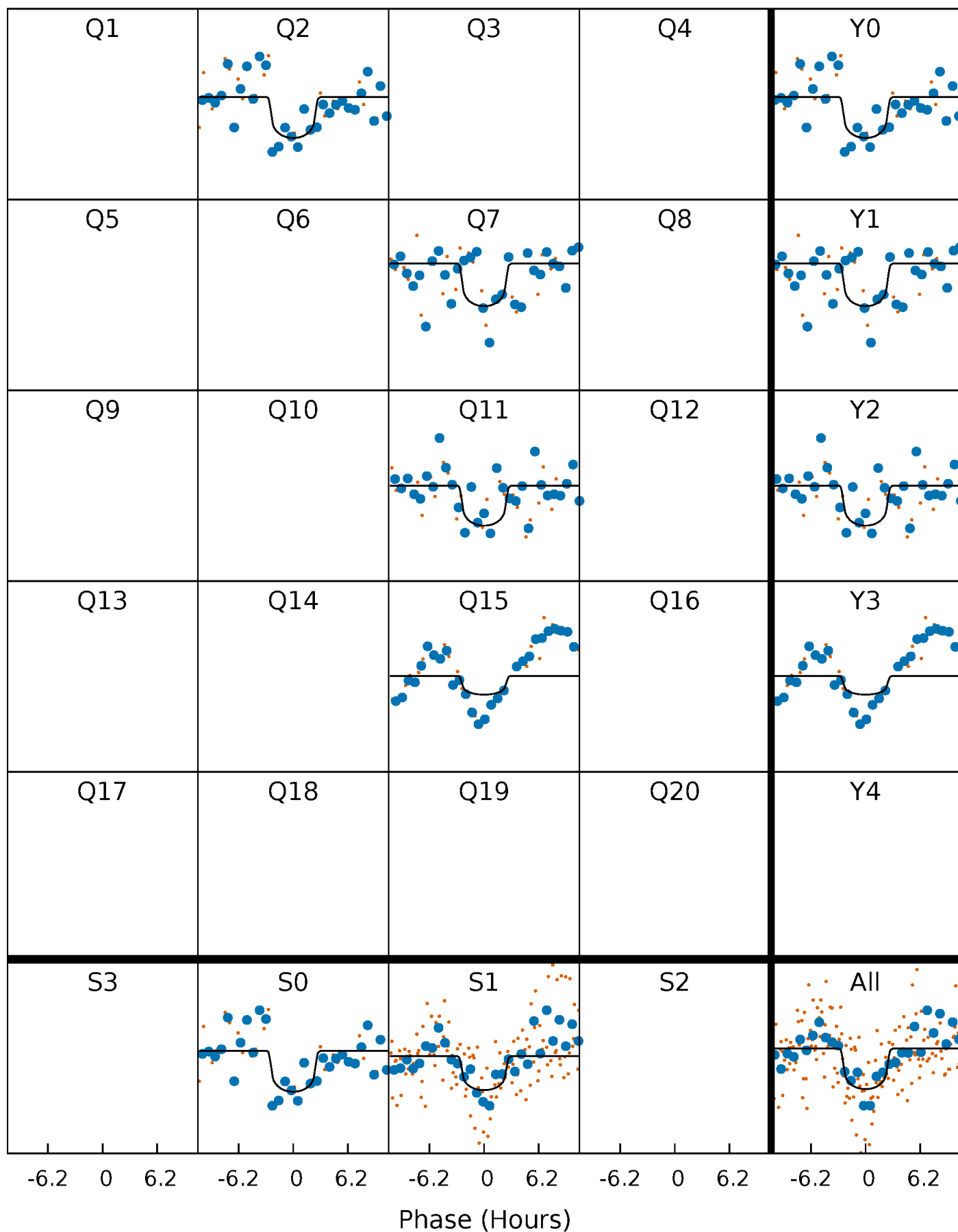
TCE 012052643-01 P=388.152055 Days  $T_0=254.660935$  (BKJD)





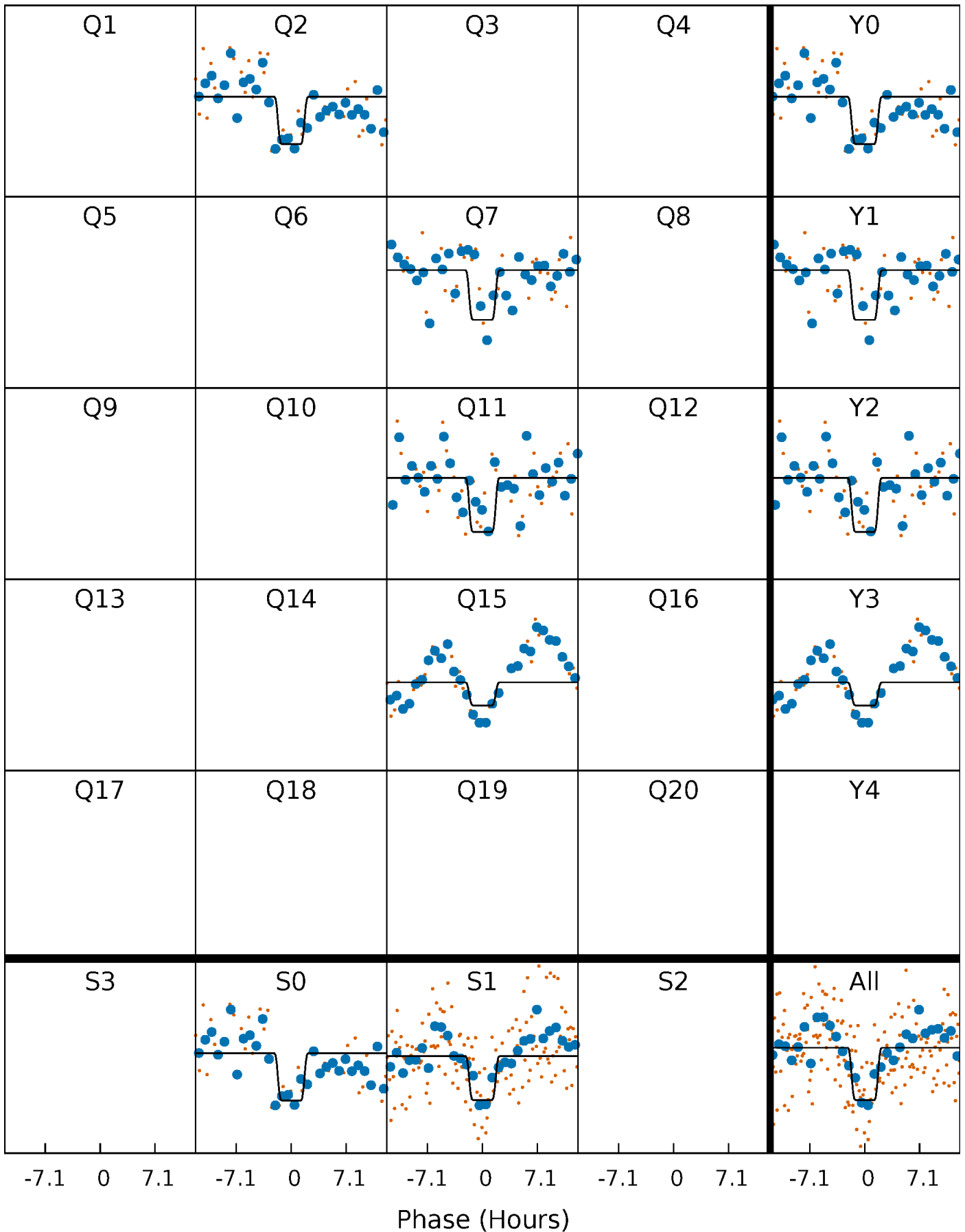
# DV Quarter-Phased Transit Curves

TCE 012052643-01 P=388.152055 Days  $T_0=254.660935$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

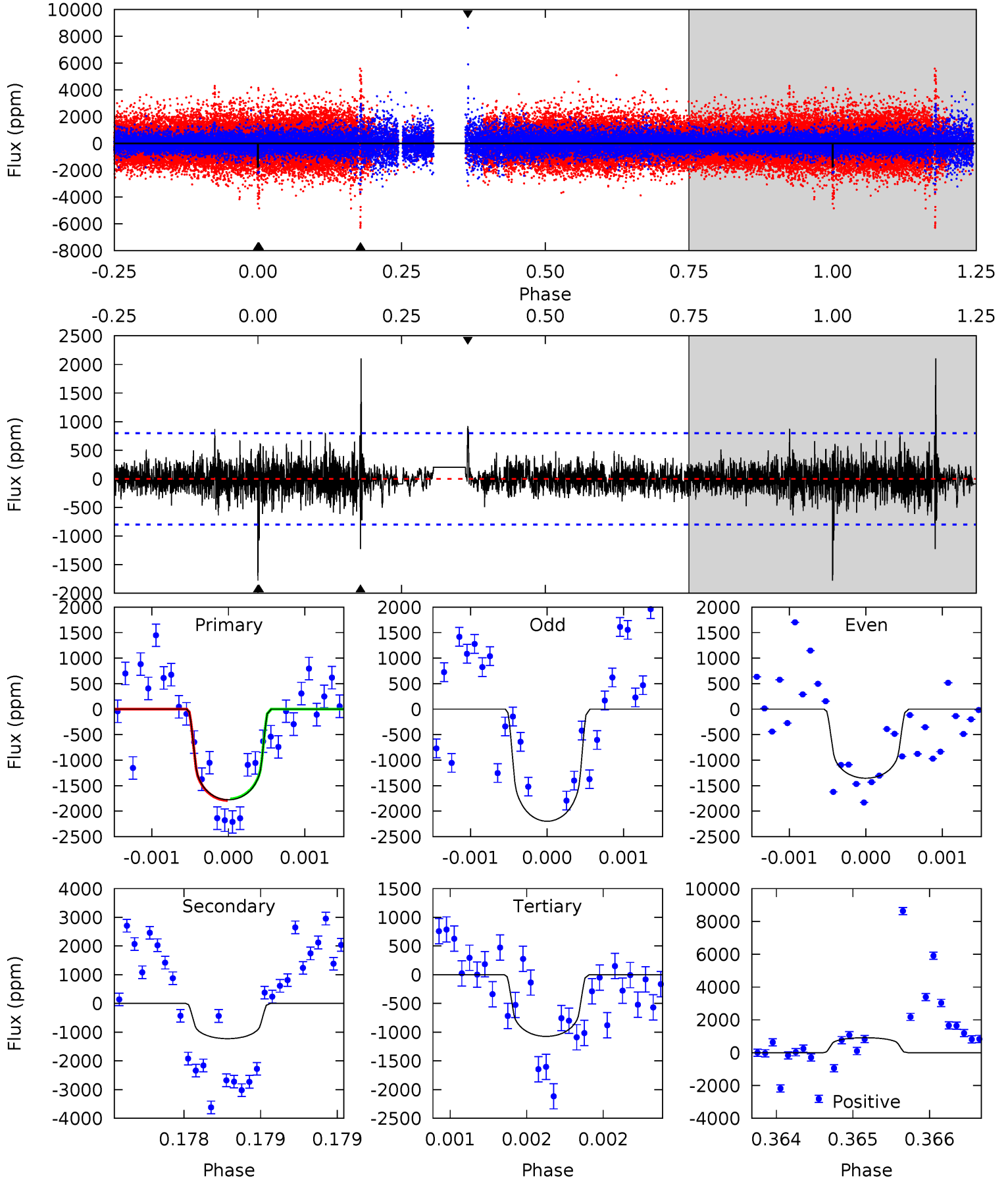
TCE 012052643-01 P=388.149095 Days  $T_0=254.669283$  (BKJD)



# DV Model-Shift Uniqueness Test

012052643-01, P = 388.152055 Days, E = 254.660935 Days

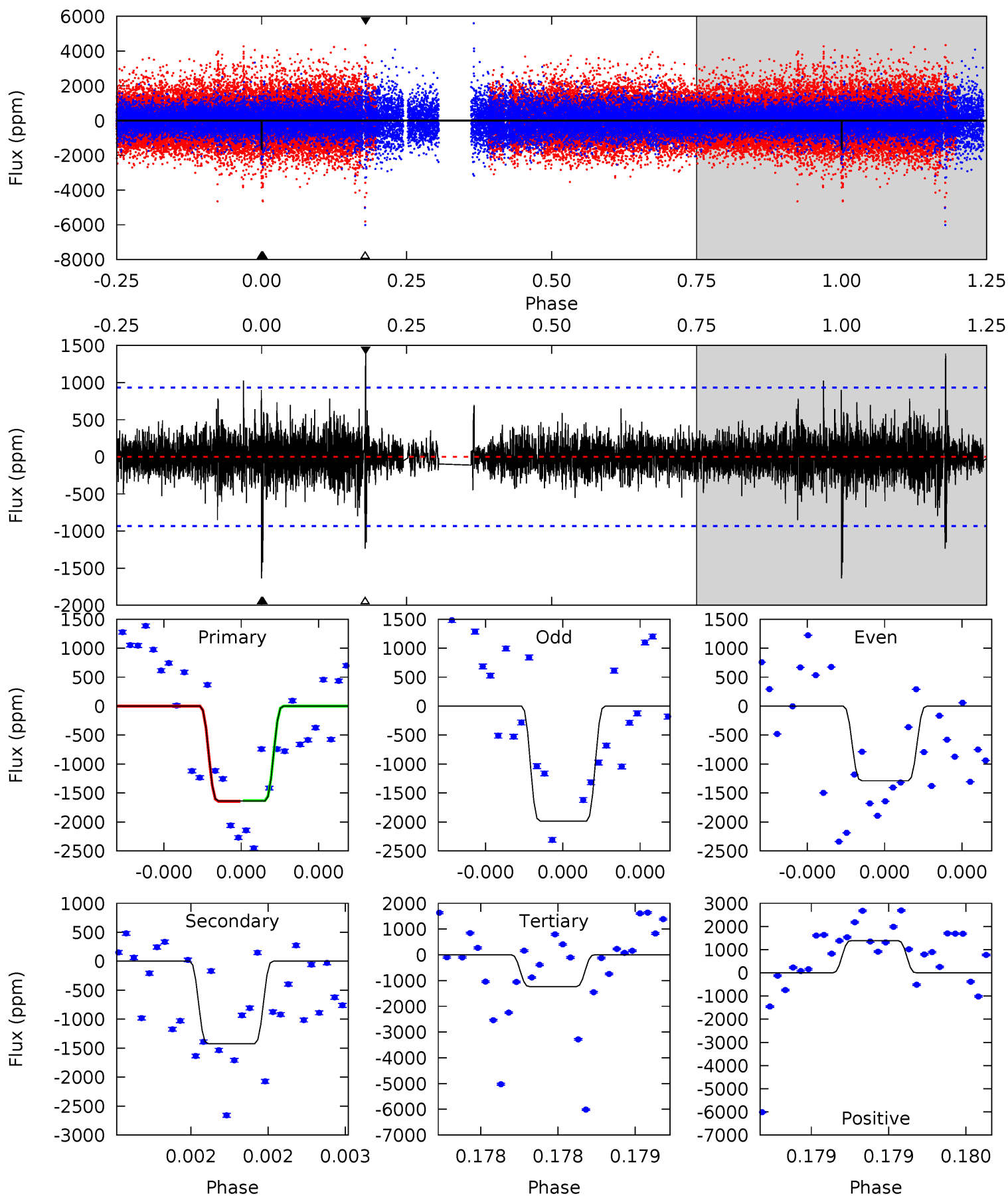
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	8.51	7.45	6.33	5.54	3.44	1.27	4.87	5.99	1.06	2.18	2.92	1.21	0.54	0.10



# Alt Model-Shift Uniqueness Test

012052643-01, P = 388.149095 Days, E = 254.669283 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
9.82	8.52	7.41	8.34	5.60	3.52	1.12	2.41	1.48	1.12	0.18	2.08	1.21	0.46	0.04



### Stellar Parameters For KIC 012052643

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5642^{+152}_{-169}$	$4.558^{+0.033}_{-0.176}$	$-0.100^{+0.300}_{-0.300}$	$0.840^{+0.220}_{-0.073}$	$0.934^{+0.094}_{-0.104}$	$2.216^{+0.402}_{-1.081}$
	+3%/-3%	+1%/-4%	+300%/-300%	+26%/-9%	+10%/-11%	+18%/-49%
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 012052643-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1226 \pm 144$	$5.26^{+4.82}_{-3.26}$	$323^{+19}_{-13}$	$4644^{+2766}_{-1006}$	$24909^{+146762}_{-18413}$
Alt.	$-1422 \pm 167$	$5.76^{+4.63}_{-3.53}$	$323^{+19}_{-13}$	$4597^{+2565}_{-863}$	$23429^{+136896}_{-15902}$

$T_{max}$  = 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

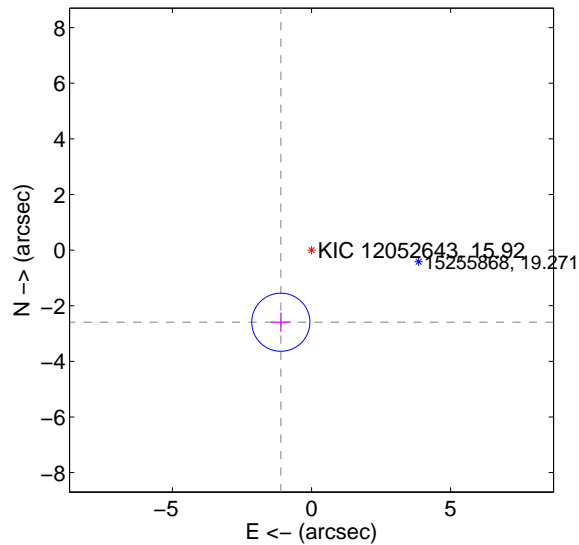
Supplemental centroid analysis for 012052643-01. Kepler magnitude: 15.92. Transit SNR 8.55

There are 1 quarters with good PRF difference image offsets

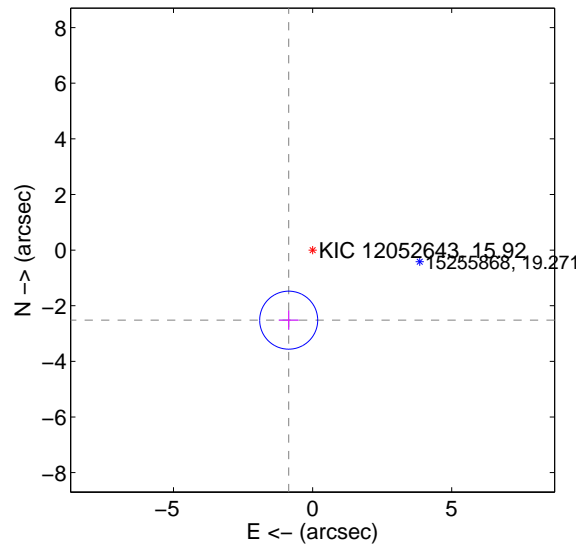
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.818 \pm 0.348$	8.09	$1.104 \pm 0.359$	$-2.593 \pm 0.346$
PRF-fit source offset from KIC position	$2.662 \pm 0.348$	7.66	$0.860 \pm 0.359$	$-2.519 \pm 0.346$
photometric centroid source offset	$1.16 \pm 2.03$	0.57	$0.35 \pm 1.97$	$-1.11 \pm 2.04$

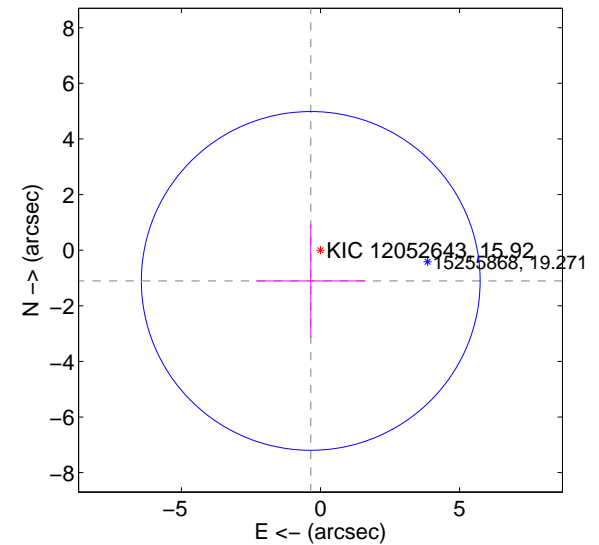
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

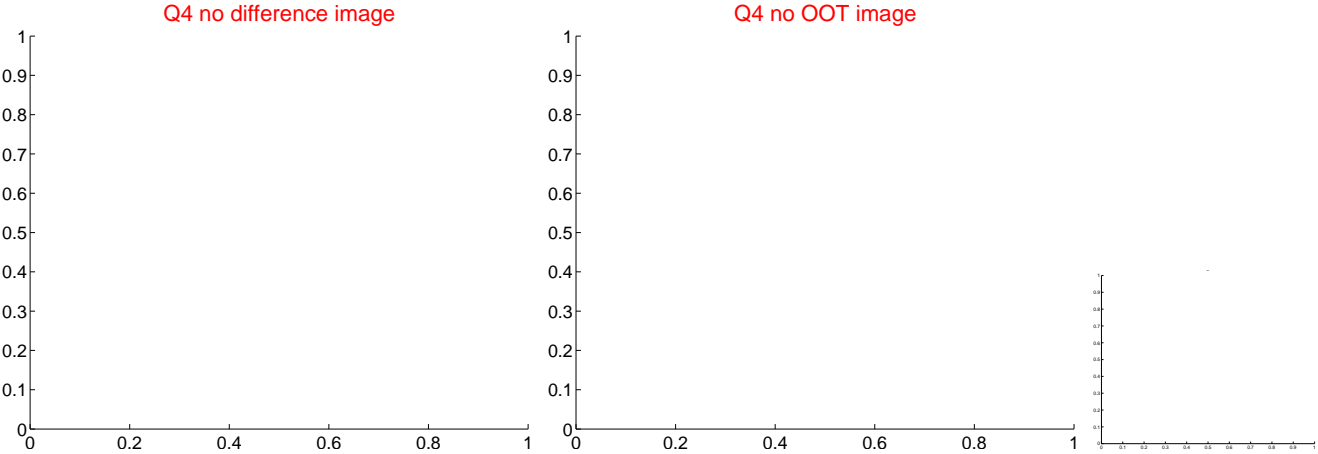
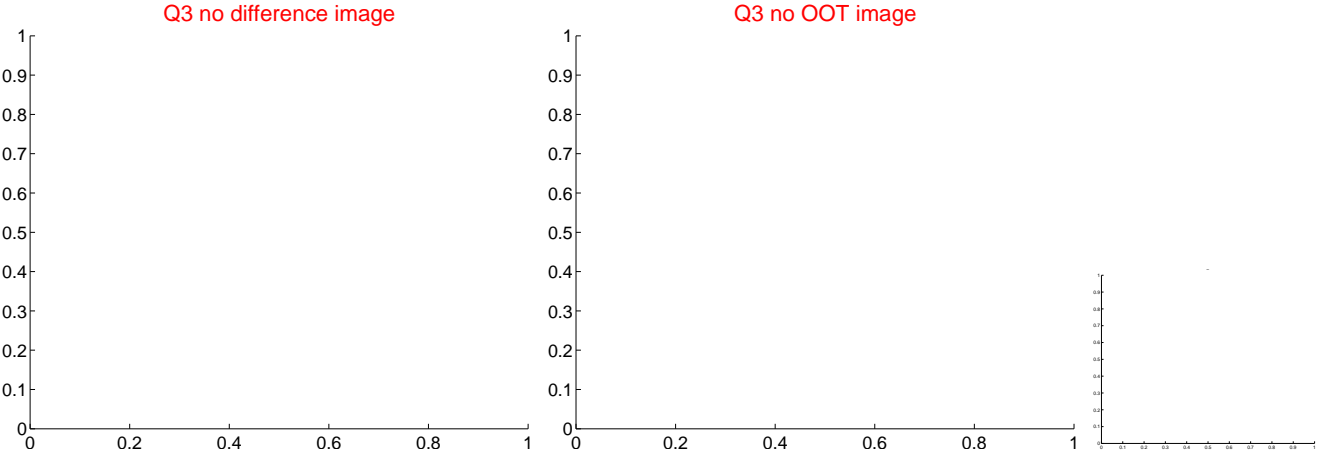
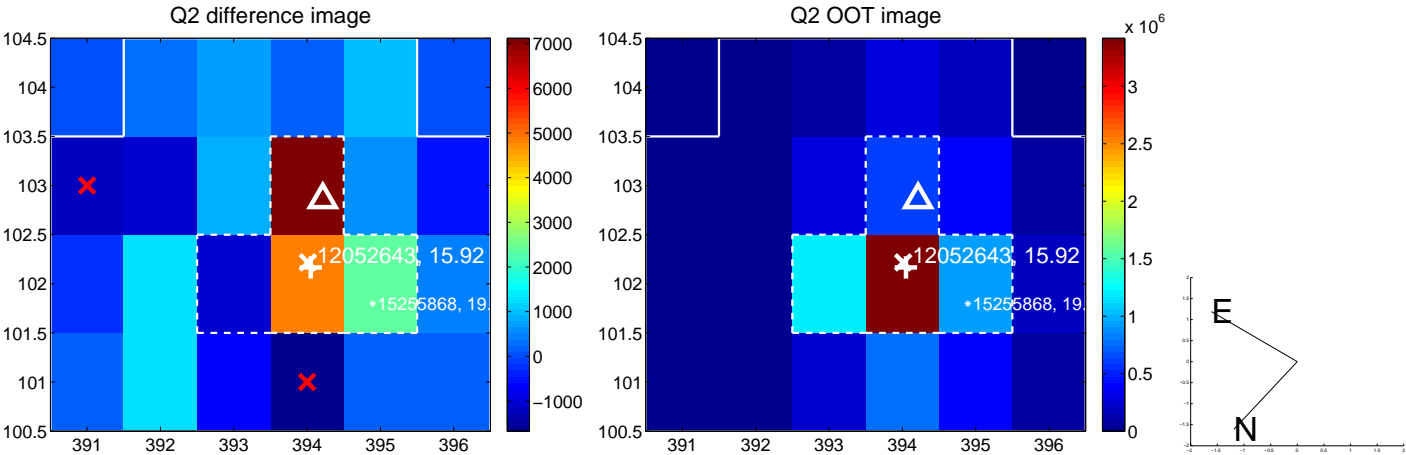
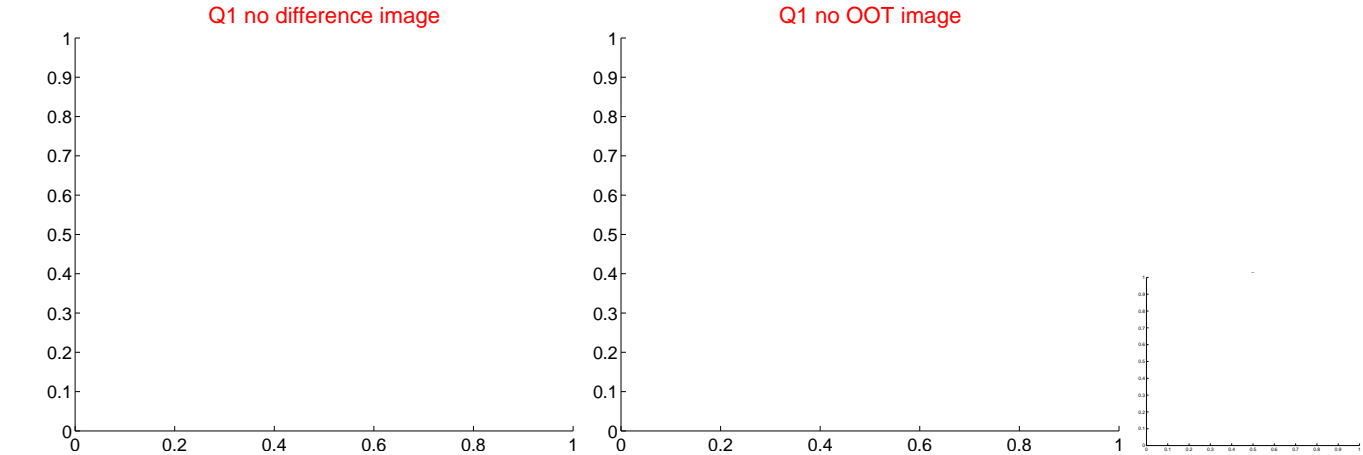


offset from photometric centroids

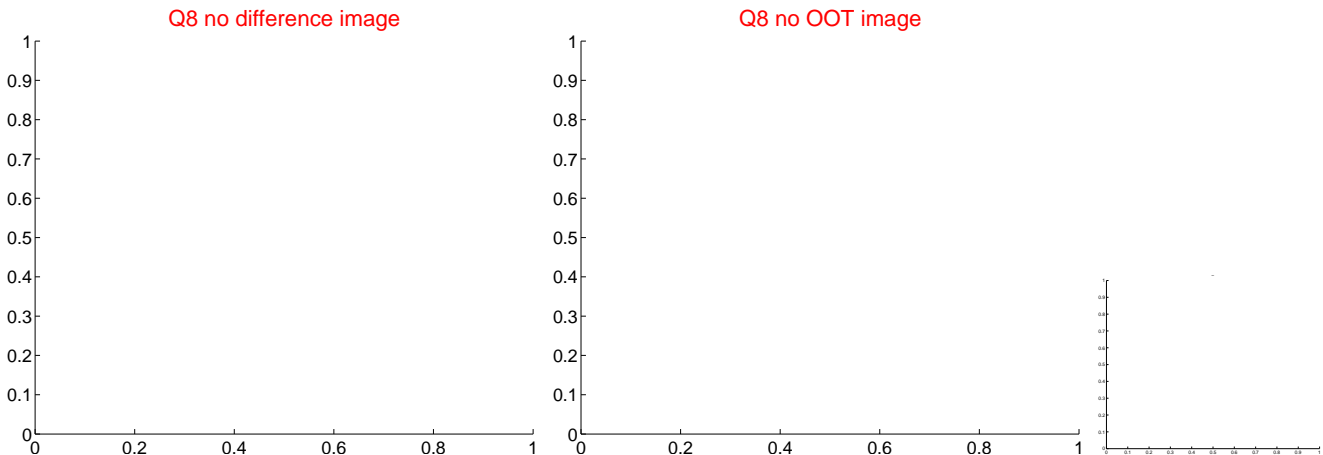
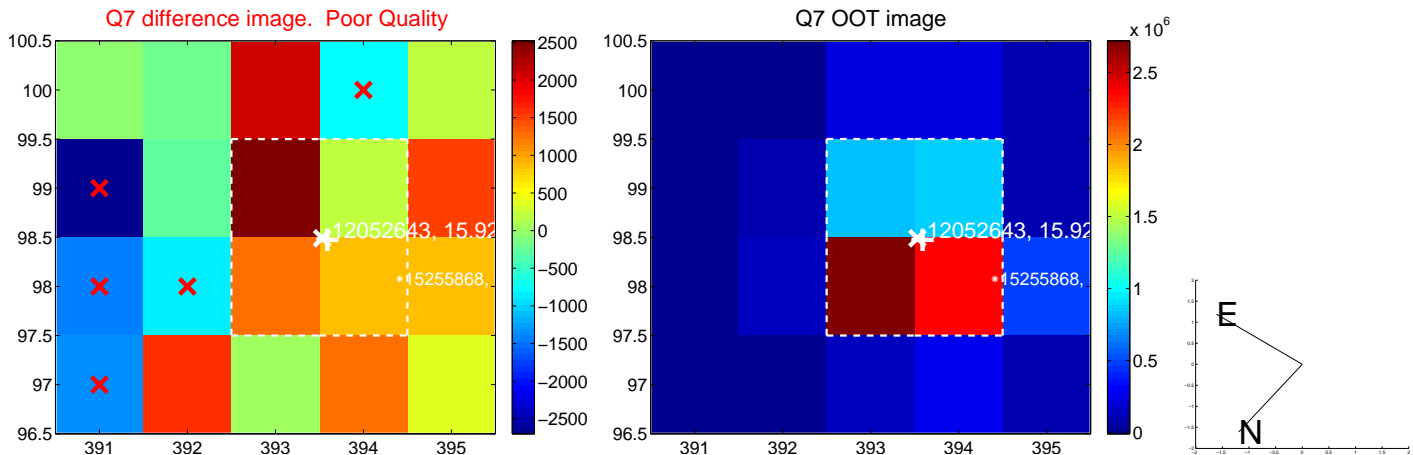


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

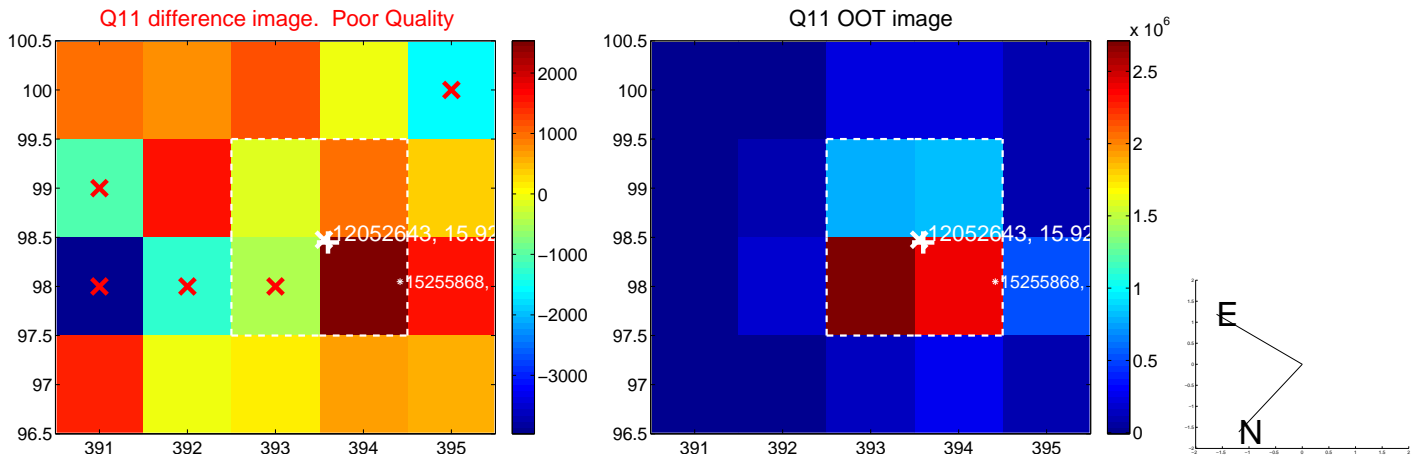


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value





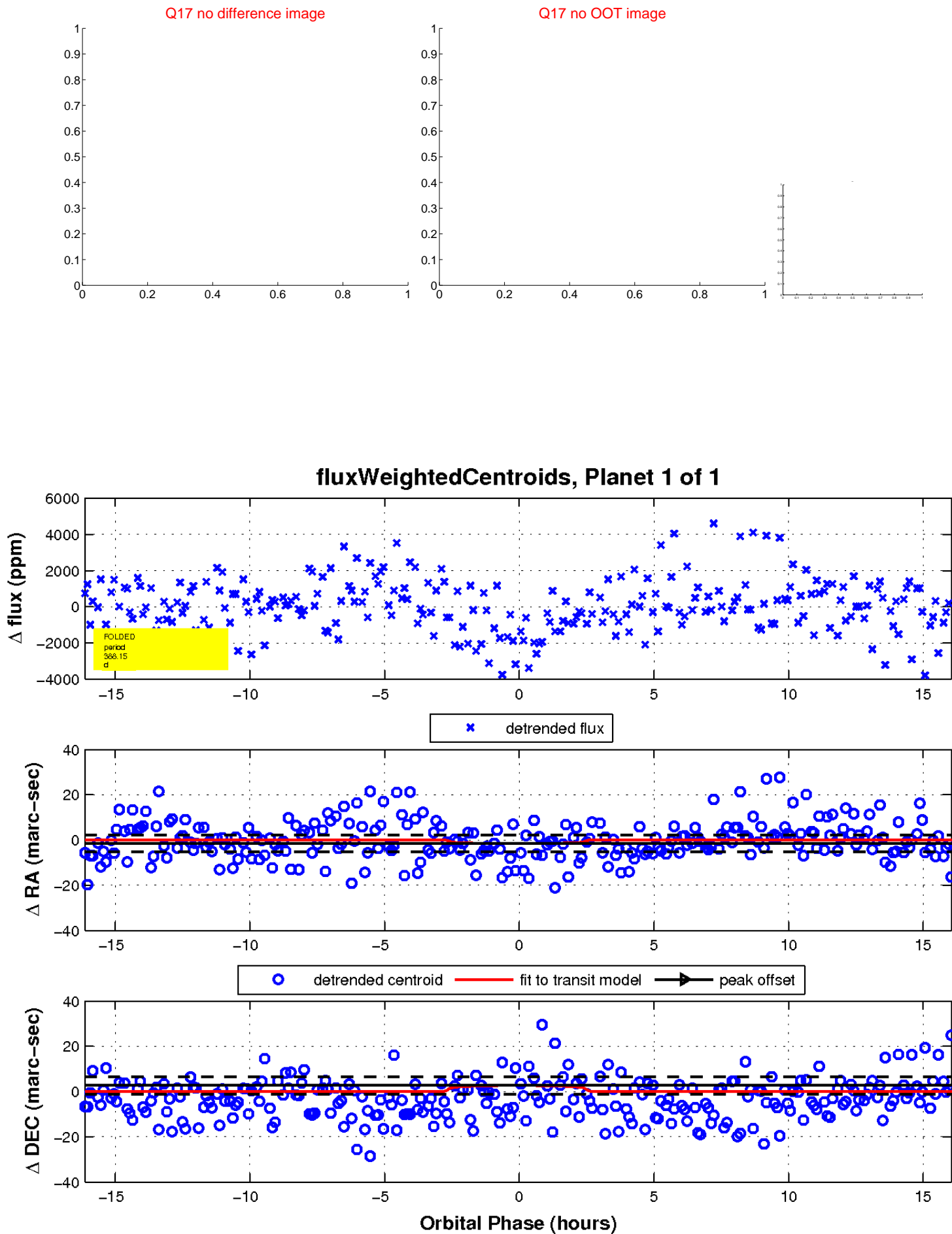
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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

