

# KIC 012107363

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012107363-01	OBS	No	554.369486	160.401072	988.9	25.516	7.8	10.4	0.67	5129	2.10	0.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012107363-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

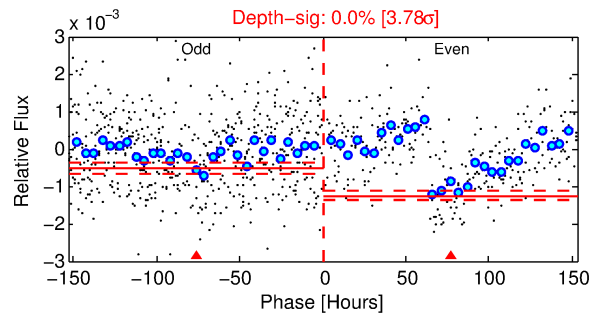
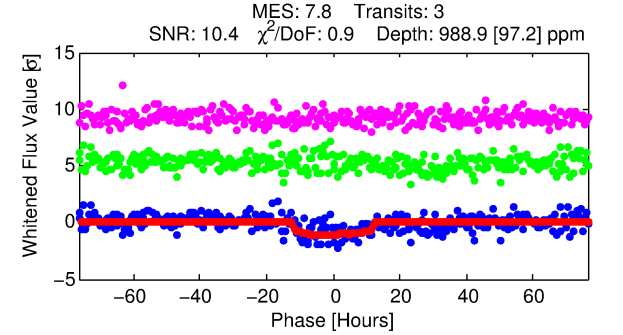
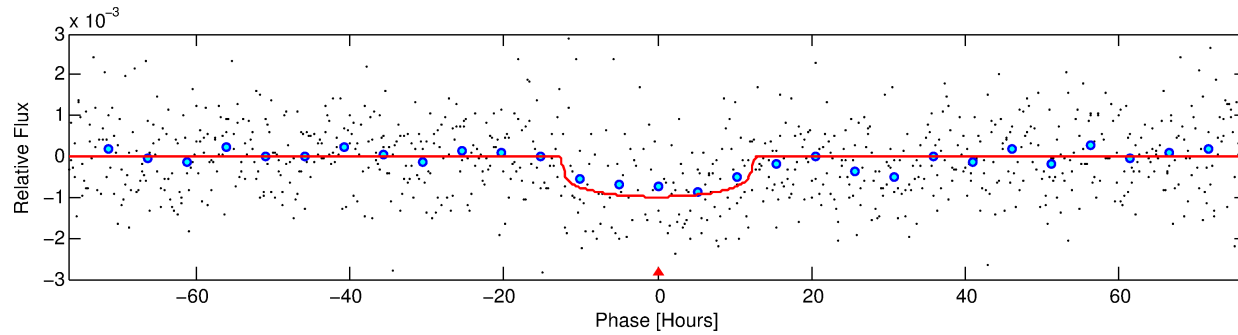
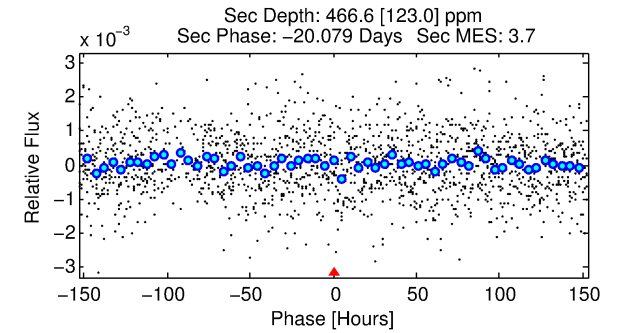
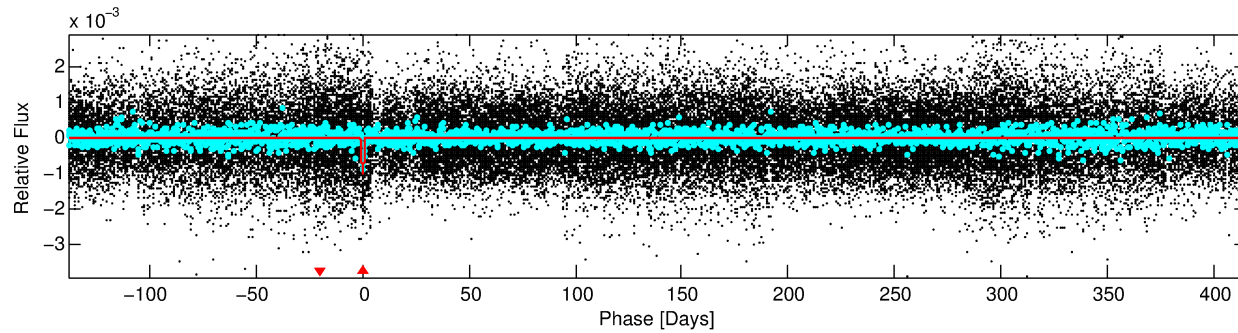
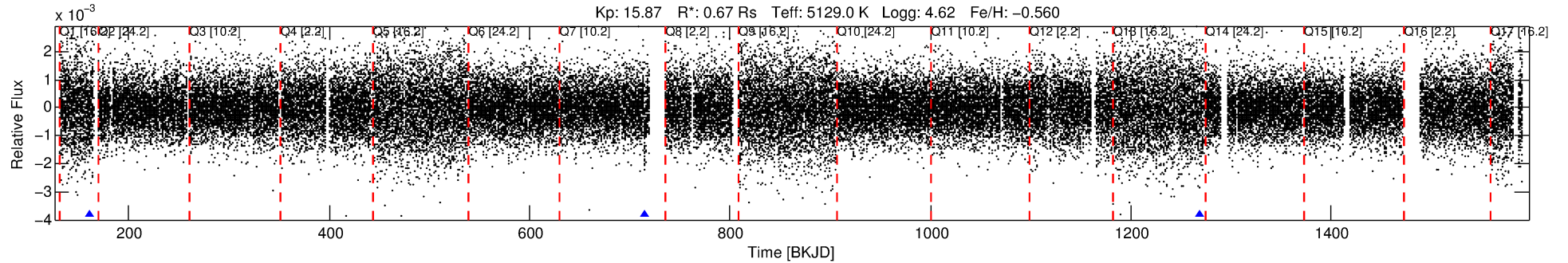
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012107363-01

No Significant Match Found

# DV One-Page Summary

KIC: 12107363 Candidate: 1 of 1 Period: 554.369 d



## DV Fit Results:

Period = 554.36949 [0.02542] d  
Epoch = 160.4011 [0.0296] BKJD  
Rp/R\* = 0.0287 [0.0130]  
a/R\* = 159.91 [281.43]  
b = 0.36 [4.27]  
Seff = 0.21 [0.03]  
Teq = 172 [7] K  
Rp = 2.10 [0.98] Re  
a = 1.1642 [0.0977] AU  
Ag = 78838.47 [75111.35] [1.05σ]  
Teffp = 4450 [1061] K [4.03σ]

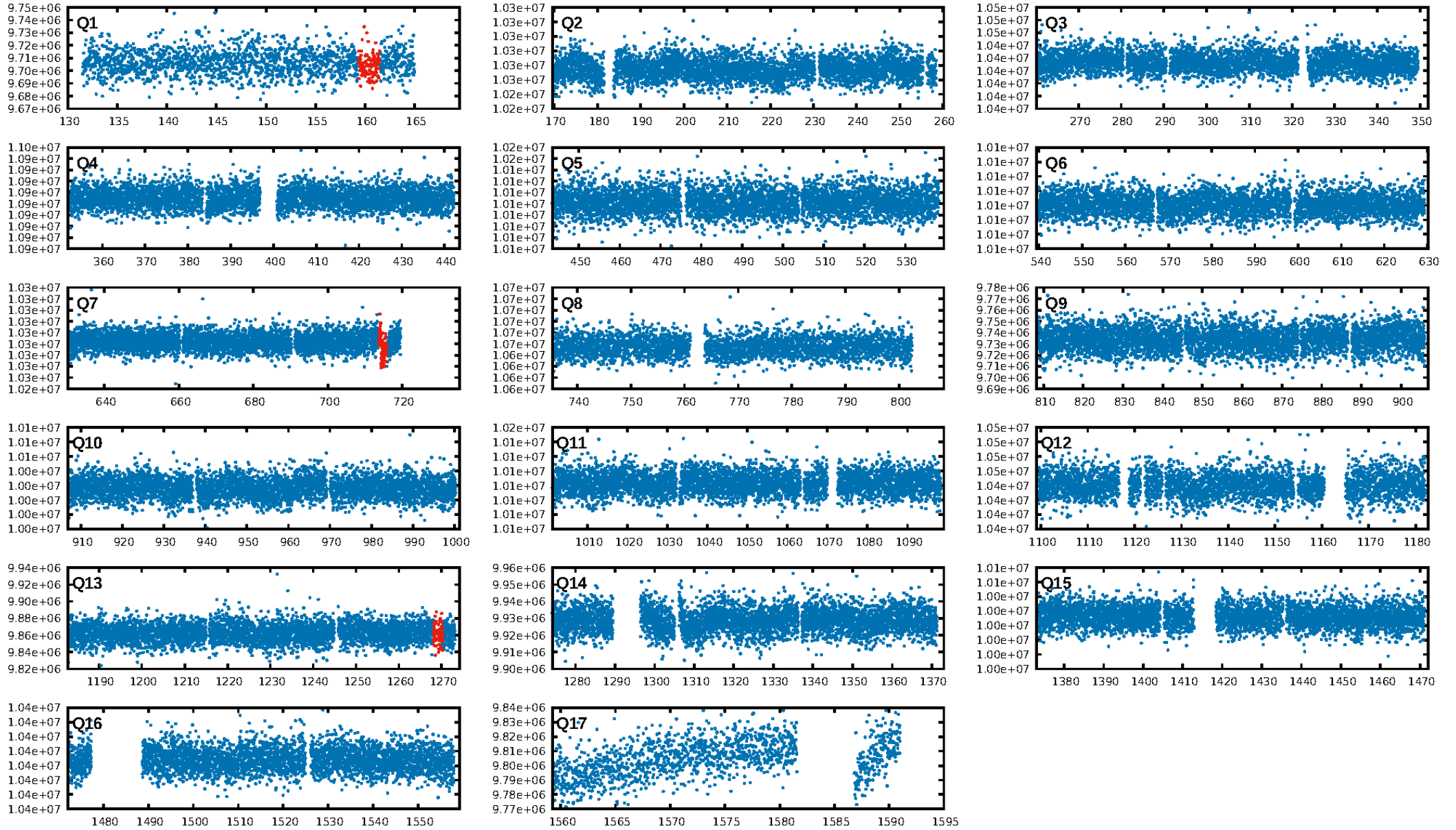
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.12e-15  
RollingBand-fgt: 1.00 [2/2]  
**GhostDiagnostic-chr: 0.8231**  
Centroid-sig: 13.2%  
Centroid-so: 1.309 arcsec [1.03σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [1/1]

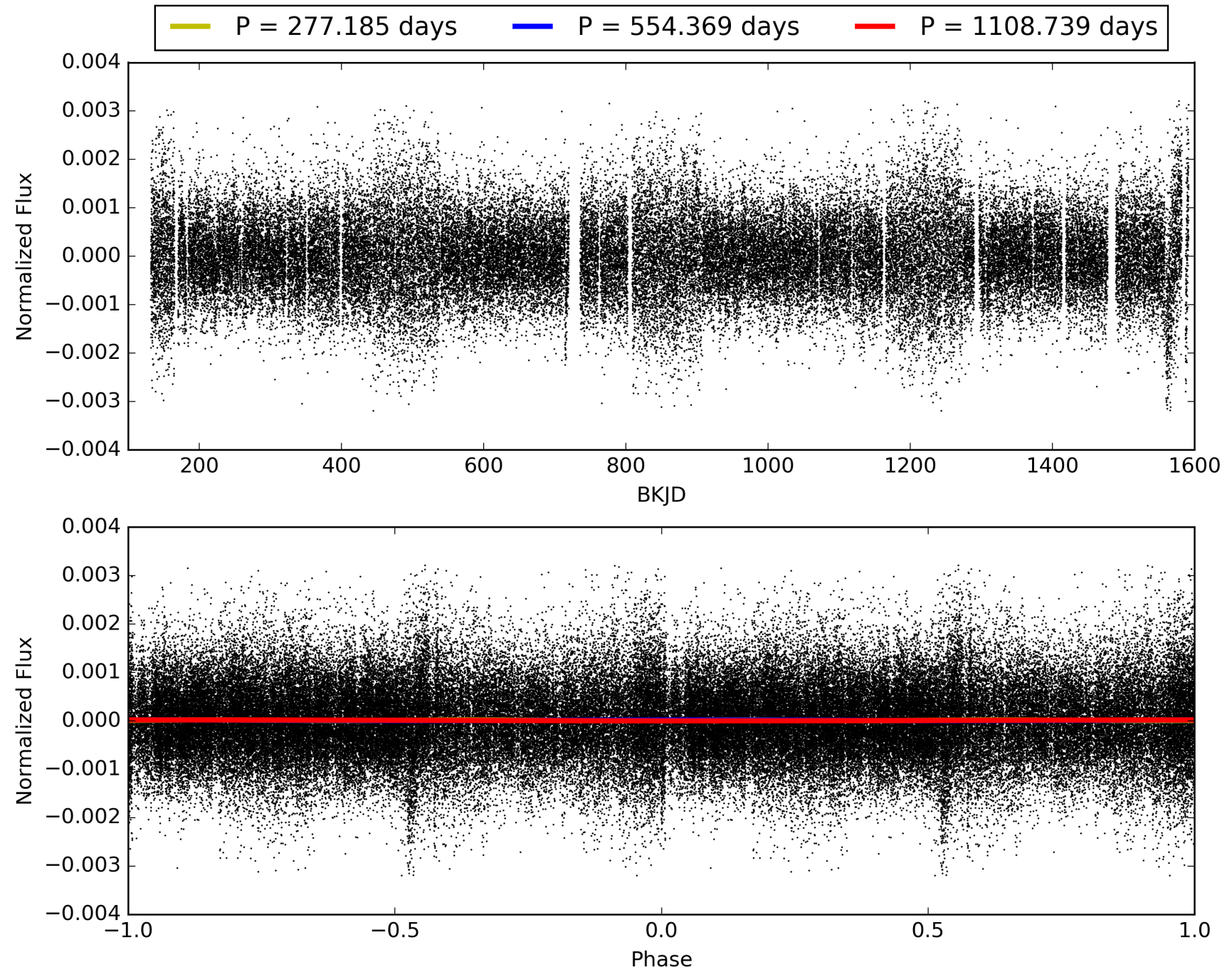
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:32:16 Z

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

# TCE 012107363-01, PDC Light Curves

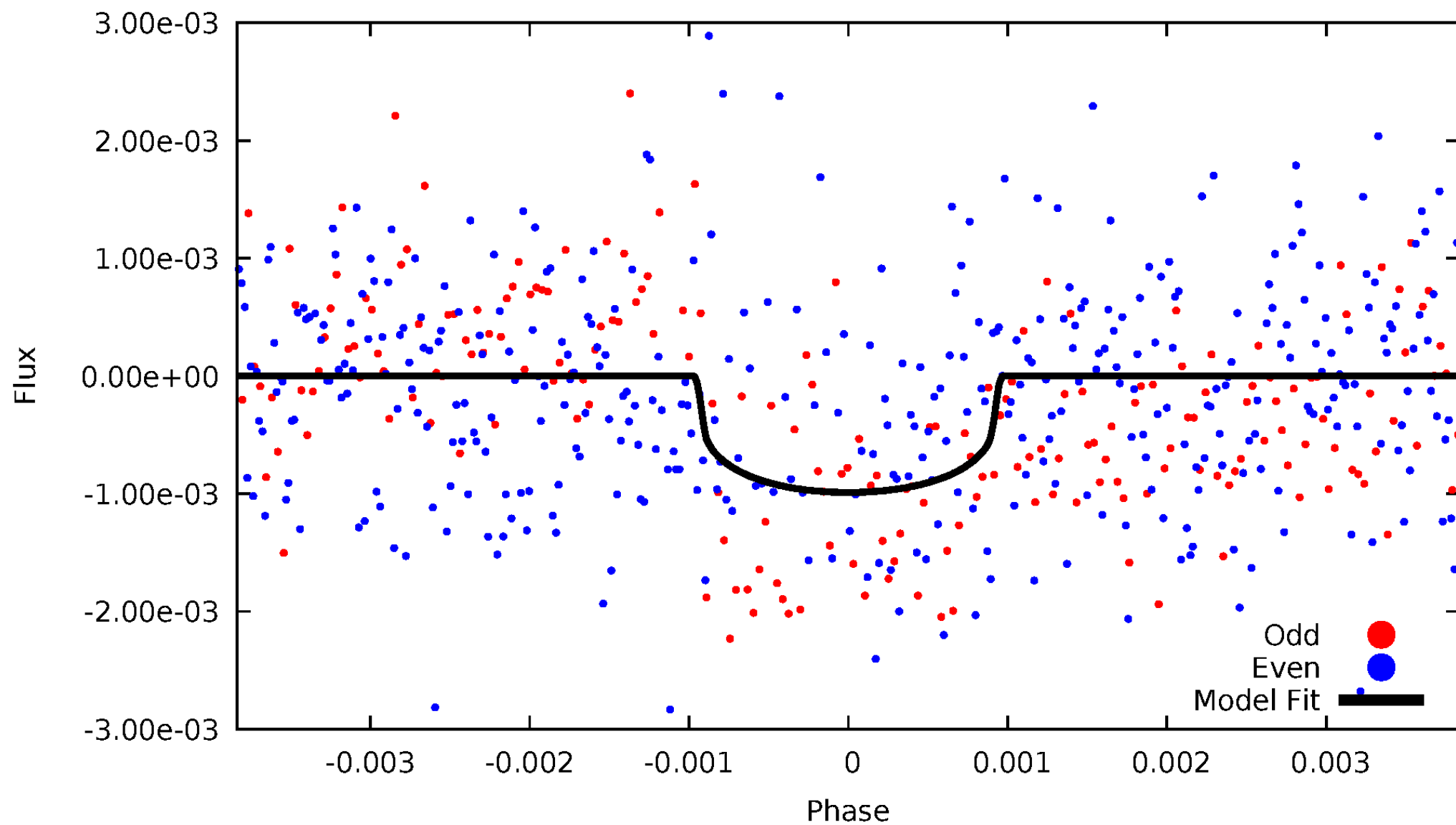


# TCE 012107363-01



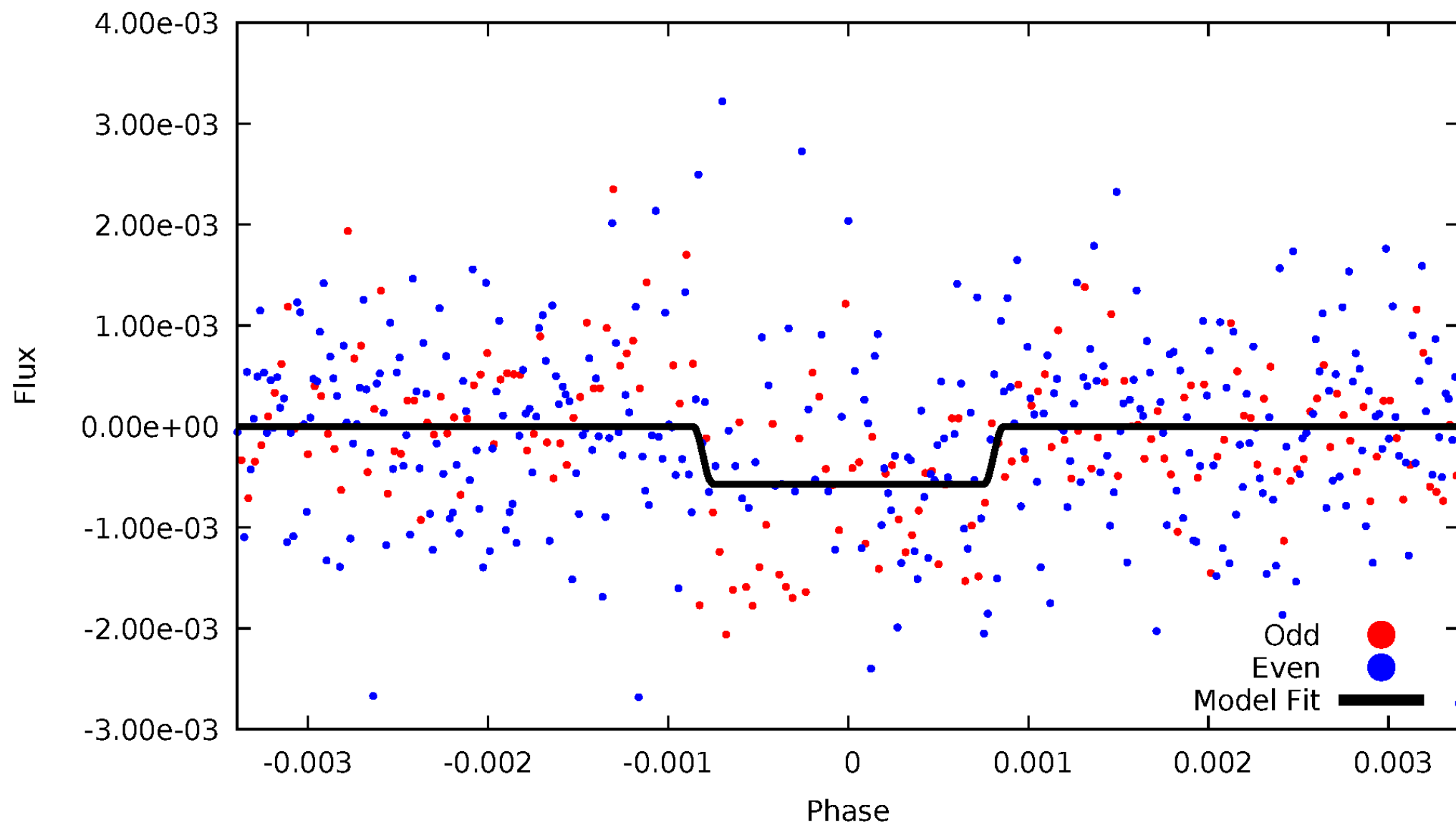
# DV Odd/Even

TCE 012107363-01



# ALT Odd/Even

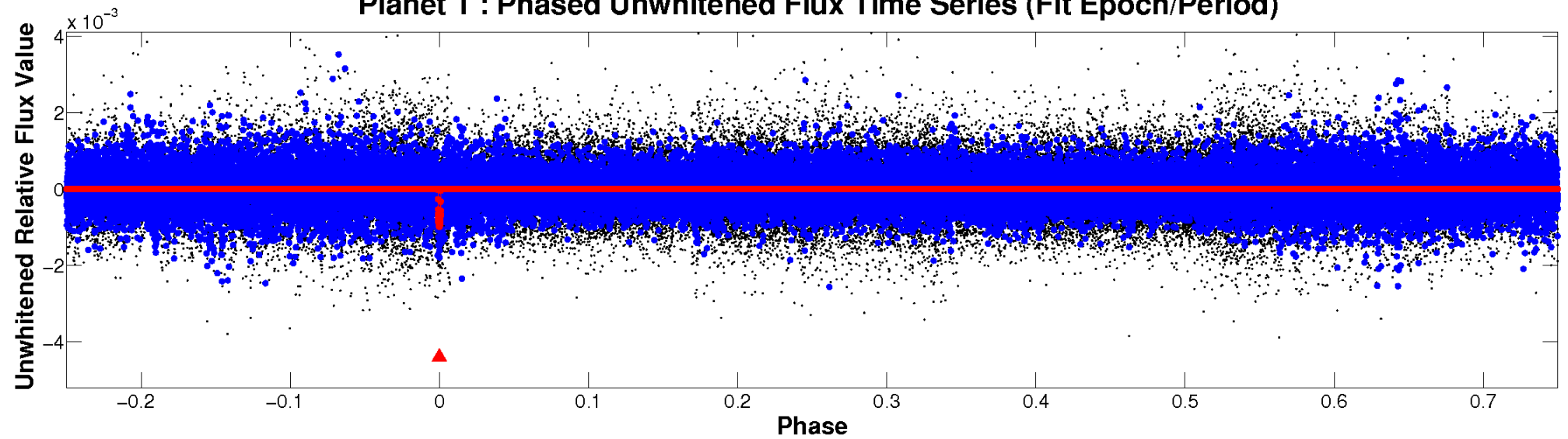
TCE 012107363-01



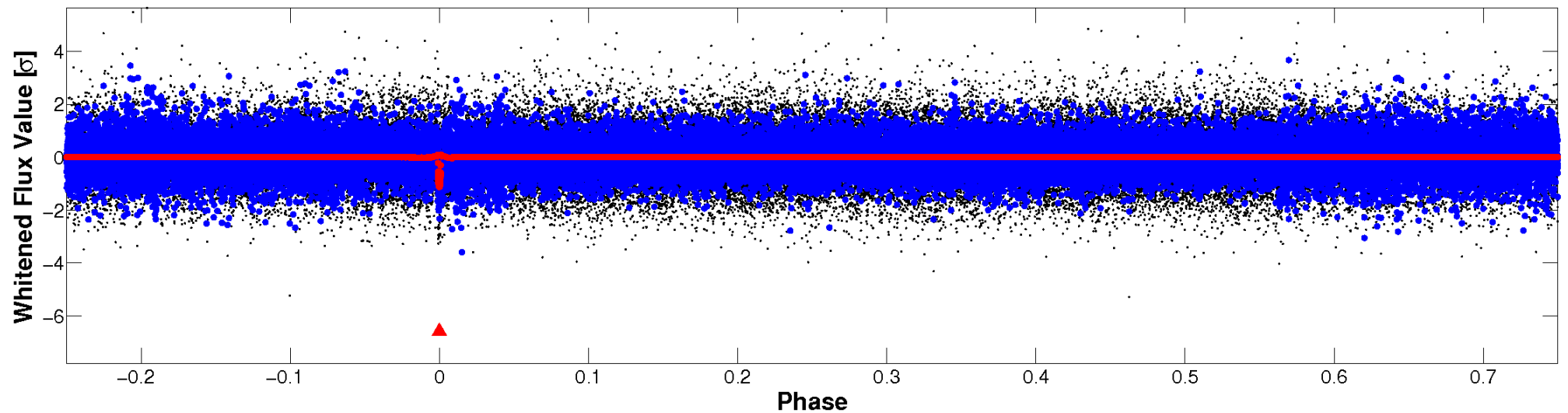


# Non-Whitened Vs. Whitened Light Curve

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

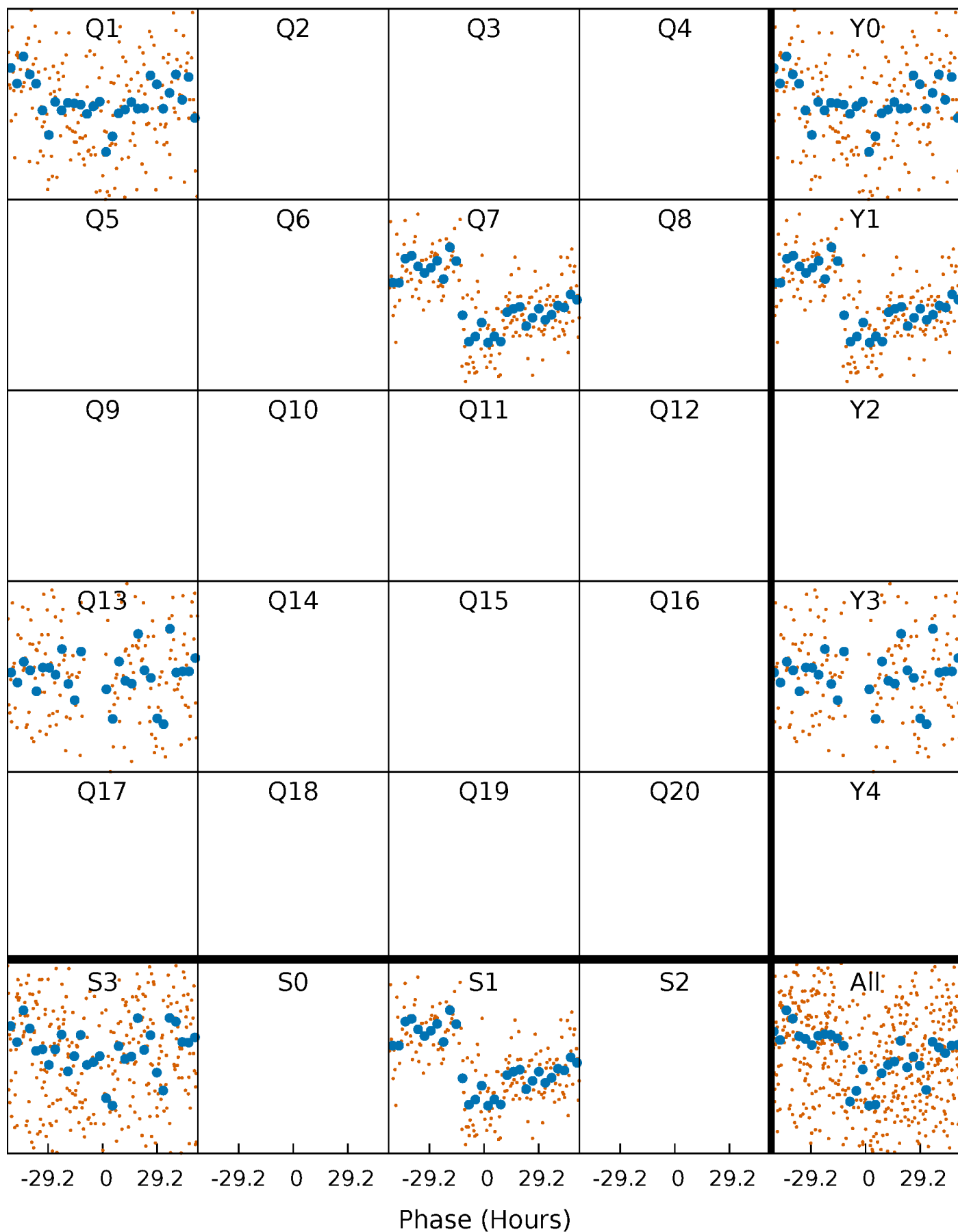


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

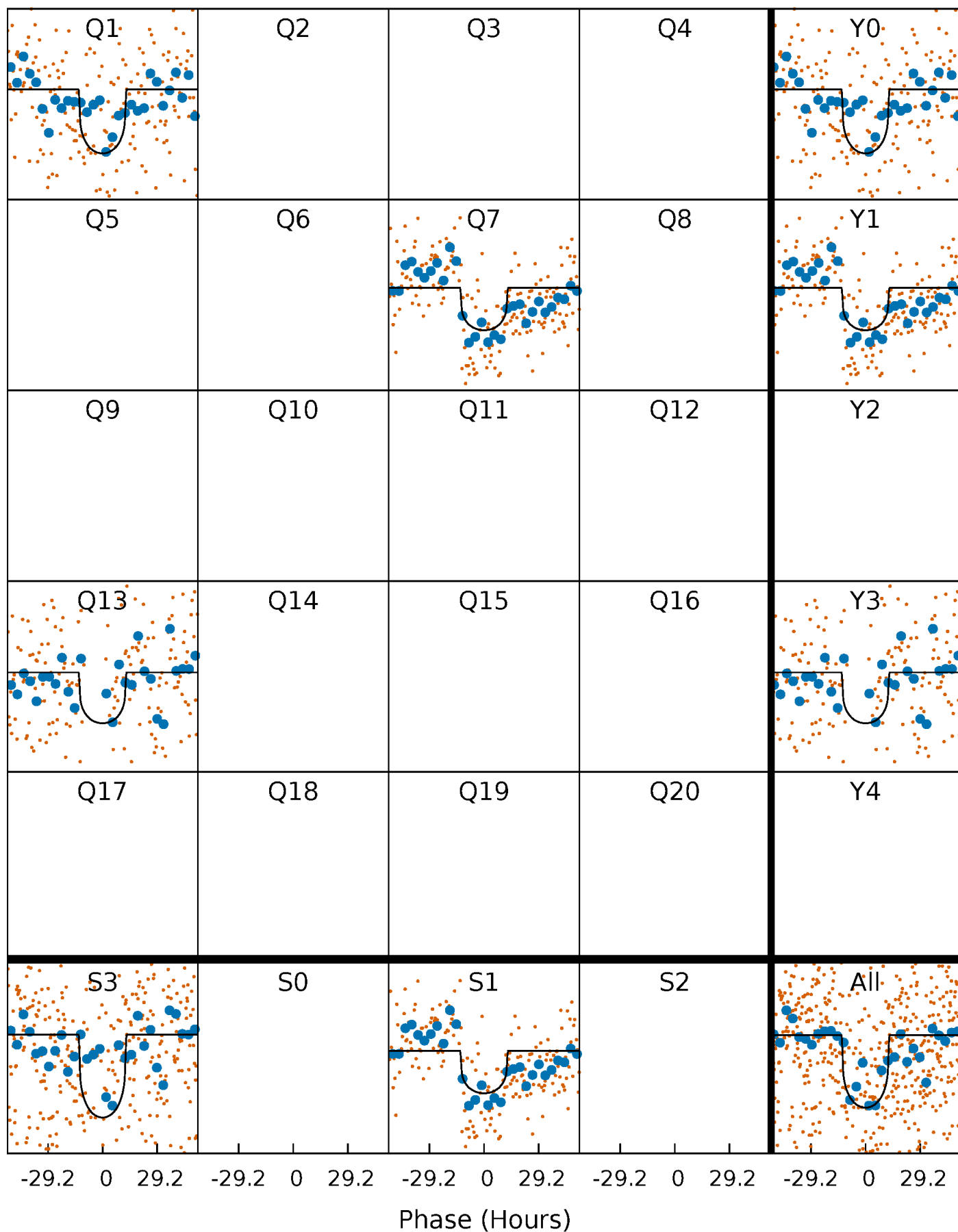
TCE 012107363-01 P=554.369486 Days  $T_0=160.401072$  (BKJD)





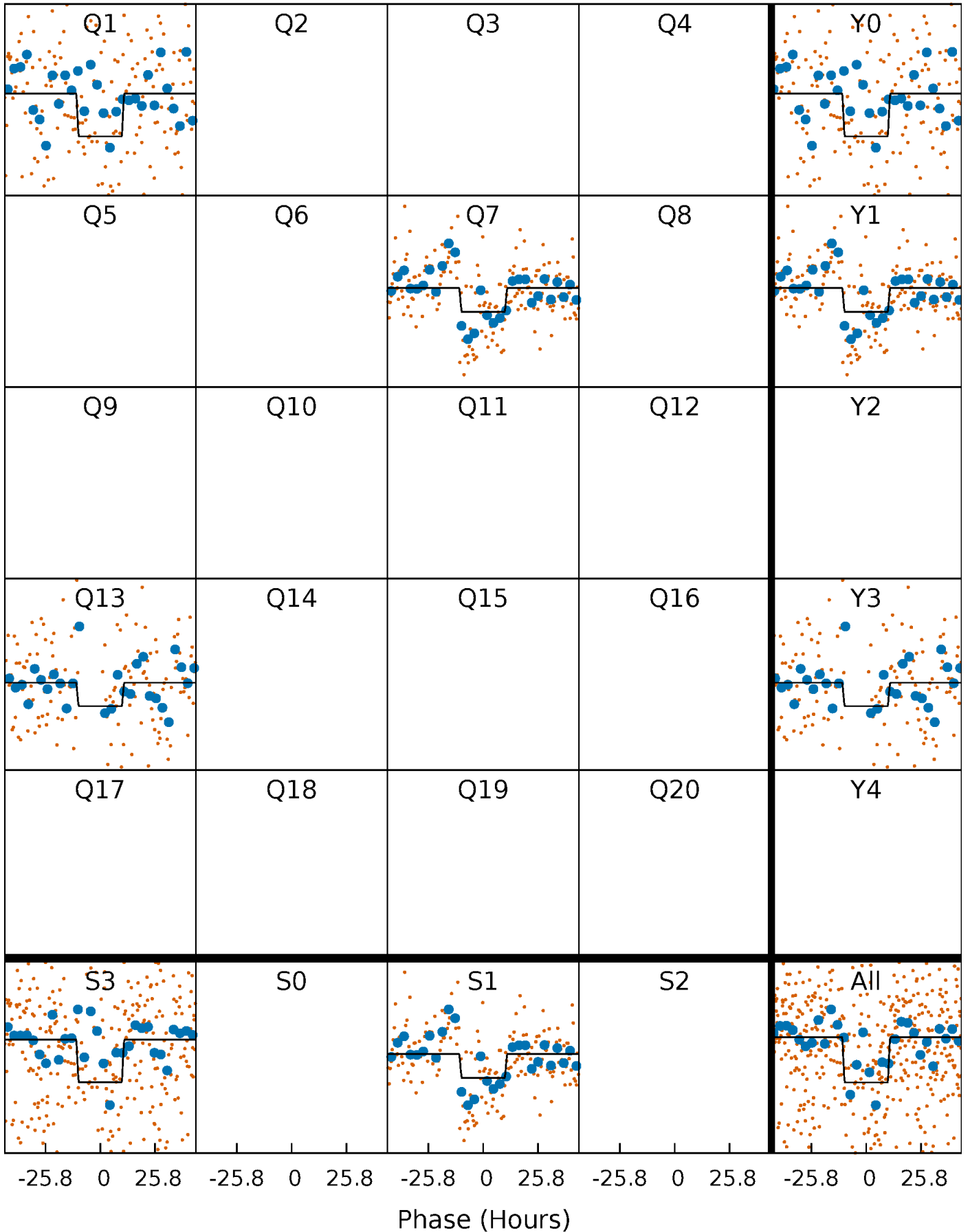
# DV Quarter-Phased Transit Curves

TCE 012107363-01 P=554.369486 Days  $T_0=160.401072$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

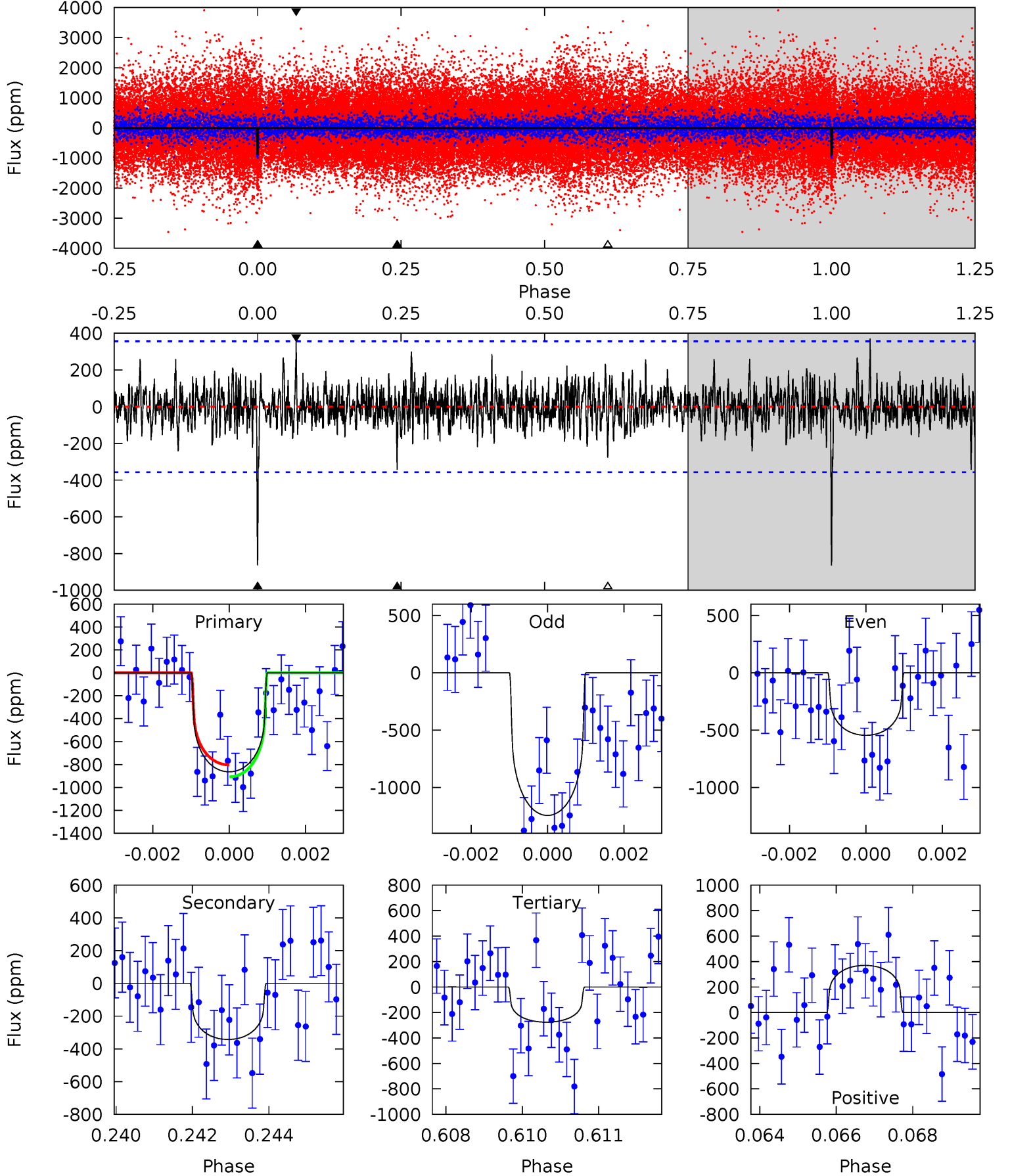
TCE 012107363-01 P=554.430595 Days  $T_0=160.304061$  (BKJD)



# DV Model-Shift Uniqueness Test

012107363-01,  $P = 554.369486$  Days,  $E = 160.401072$  Days

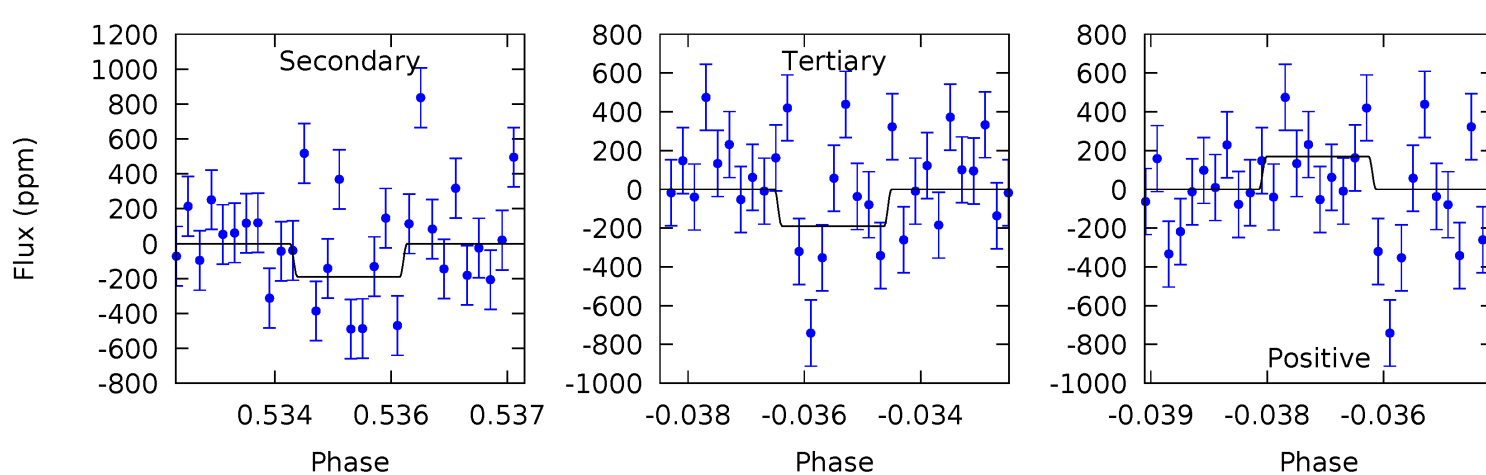
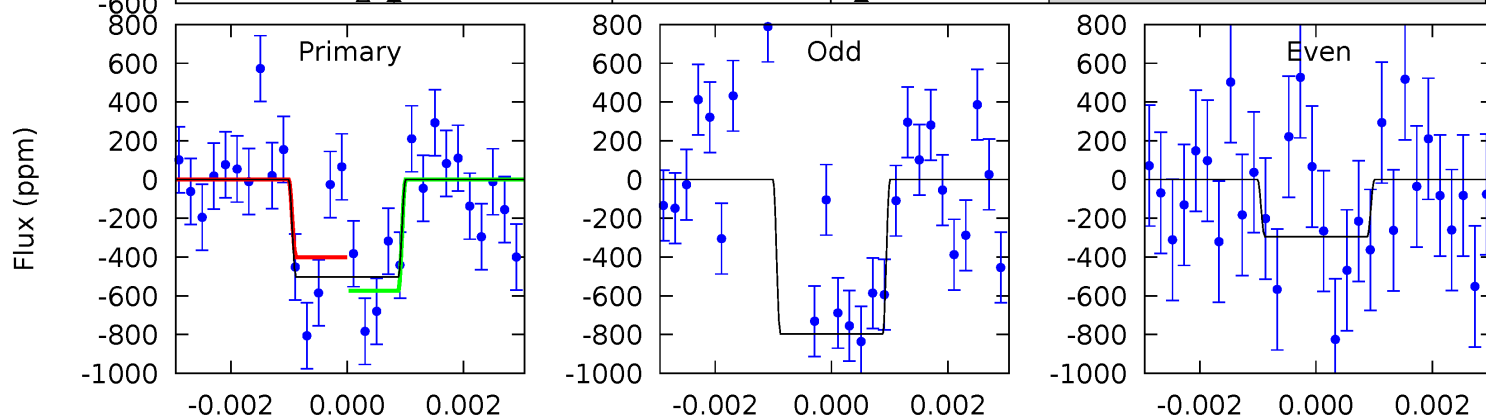
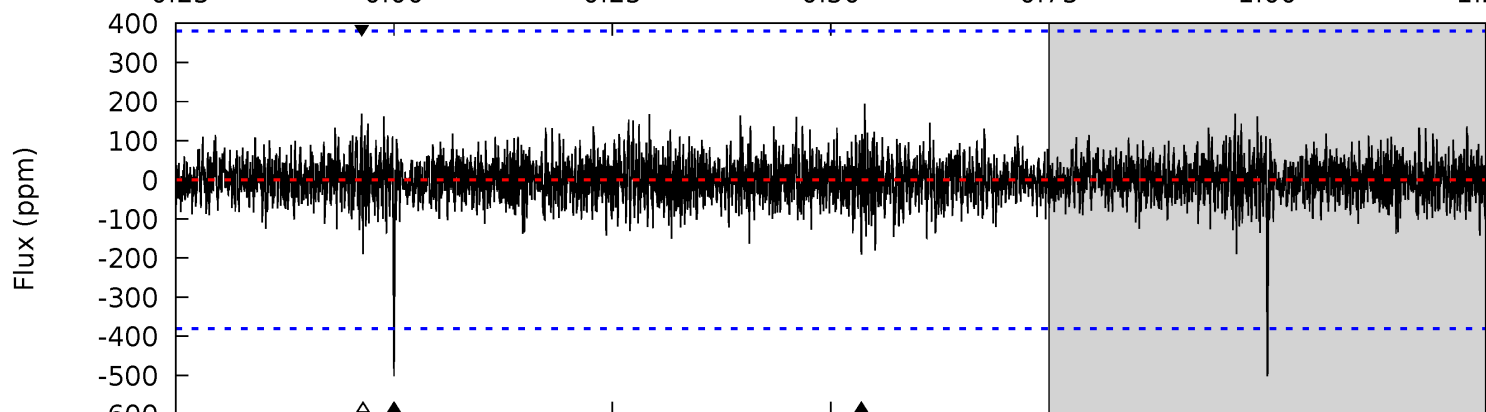
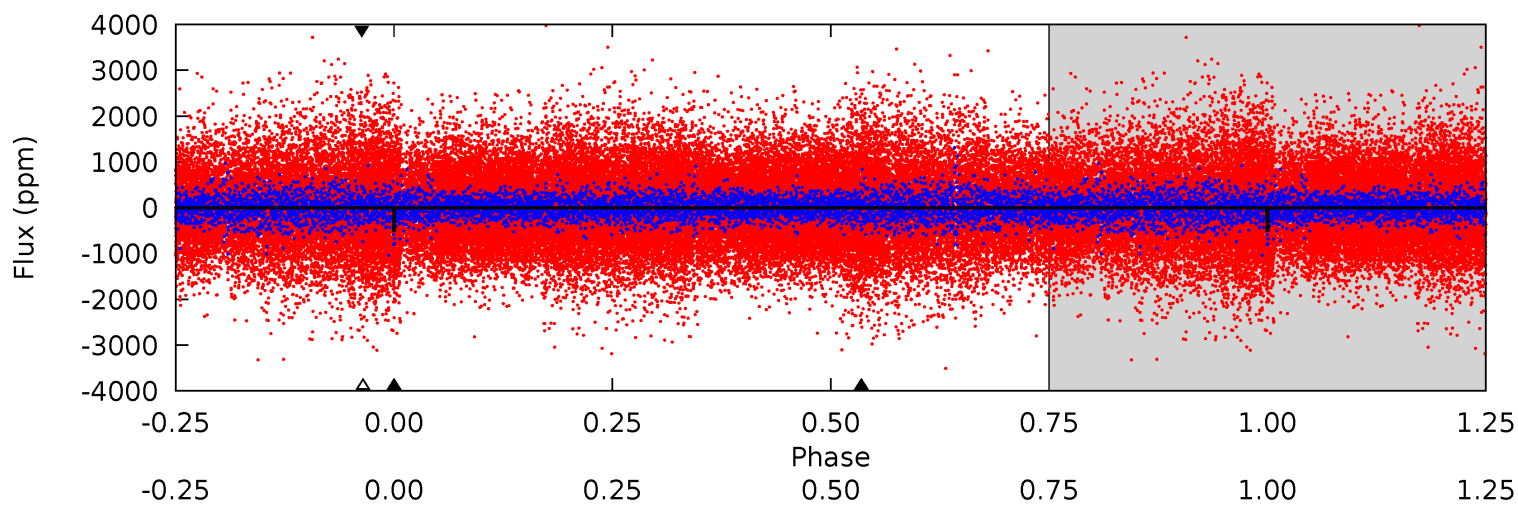
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	5.12	4.13	5.53	5.33	3.10	1.18	8.79	7.39	0.99	-0.41	5.09	1.44	0.30	0.76



# Alt Model-Shift Uniqueness Test

012107363-01, P = 554.430595 Days, E = 160.304061 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
7.07	2.69	2.67	2.38	5.35	3.14	0.63	4.40	4.69	0.02	0.31	3.42	1.04	0.28	1.19



### Stellar Parameters For KIC 012107363

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5129^{+154}_{-154}$	$4.620^{+0.050}_{-0.055}$	$-0.560^{+0.300}_{-0.300}$	$0.671^{+0.073}_{-0.053}$	$0.684^{+0.075}_{-0.050}$	$3.189^{+0.689}_{-0.622}$
	+3%/-3%	+1%/-1%	+54%/-54%	+11%/-8%	+11%/-7%	+22%/-20%
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 012107363-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-343 \pm 67$	$2.07^{+0.98}_{-0.92}$	$241^{+9}_{-9}$	$4341^{+1231}_{-587}$	$58727^{+138306}_{-32261}$
Alt.	$-191 \pm 71$	$1.77^{+0.96}_{-0.82}$	$240^{+9}_{-8}$	$4063^{+1165}_{-571}$	$41905^{+111628}_{-25296}$

$T_{max}$  = 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

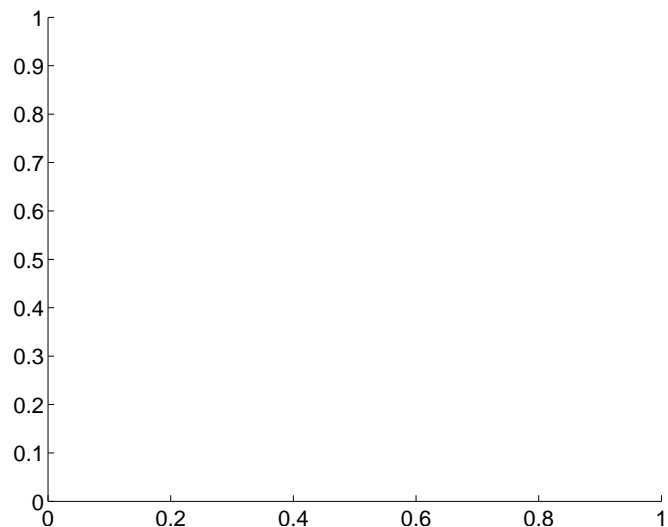
Supplemental centroid analysis for 012107363-01. Kepler magnitude: 15.87. Transit SNR 10.41

There are 0 quarters with good PRF difference image offsets

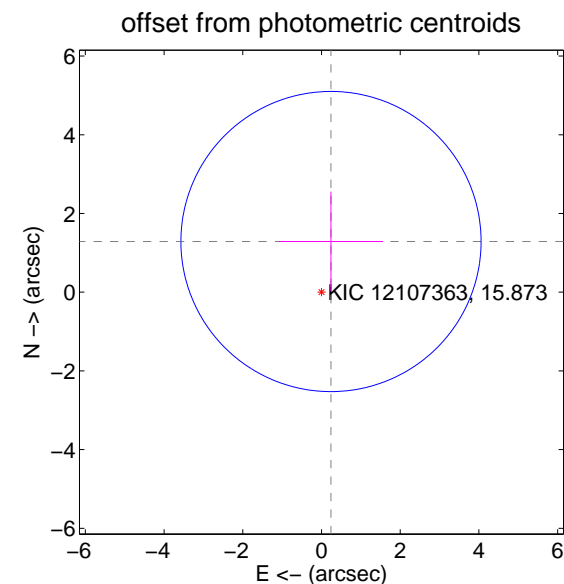
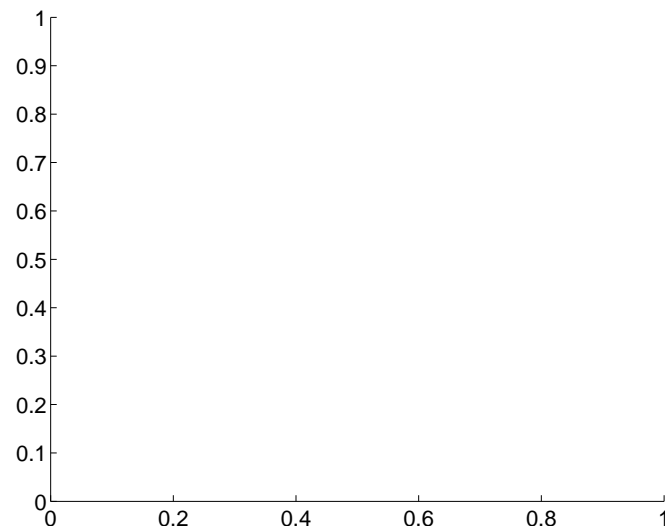
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$1.31 \pm 1.27$	1.03	$-0.24 \pm 1.32$	$1.29 \pm 1.27$

There is no PRF-fit offset from OOT-fit



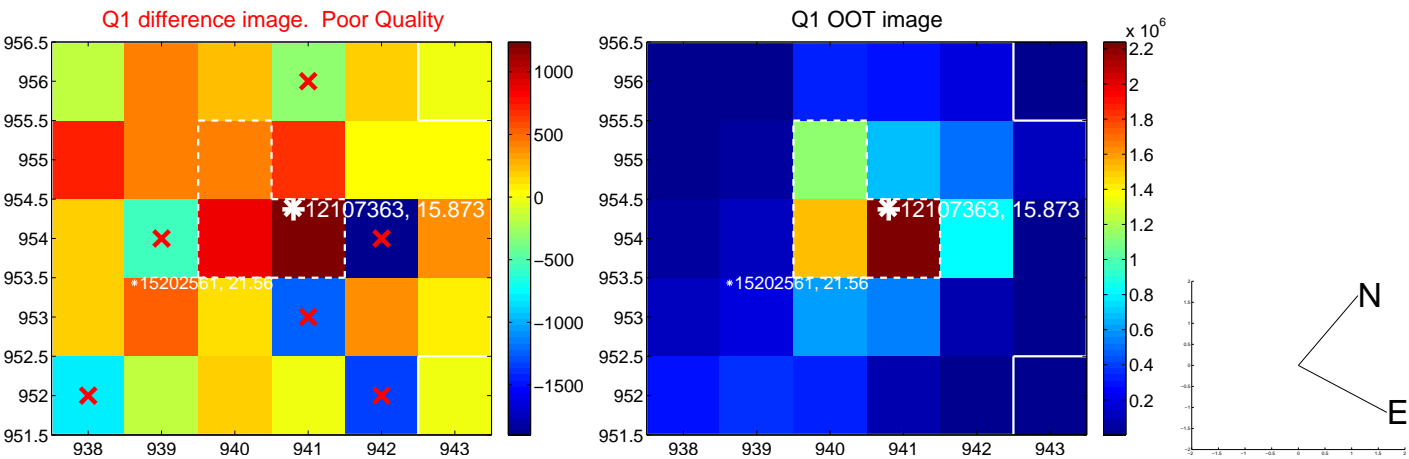
There is no PRF-fit offset from KIC



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.



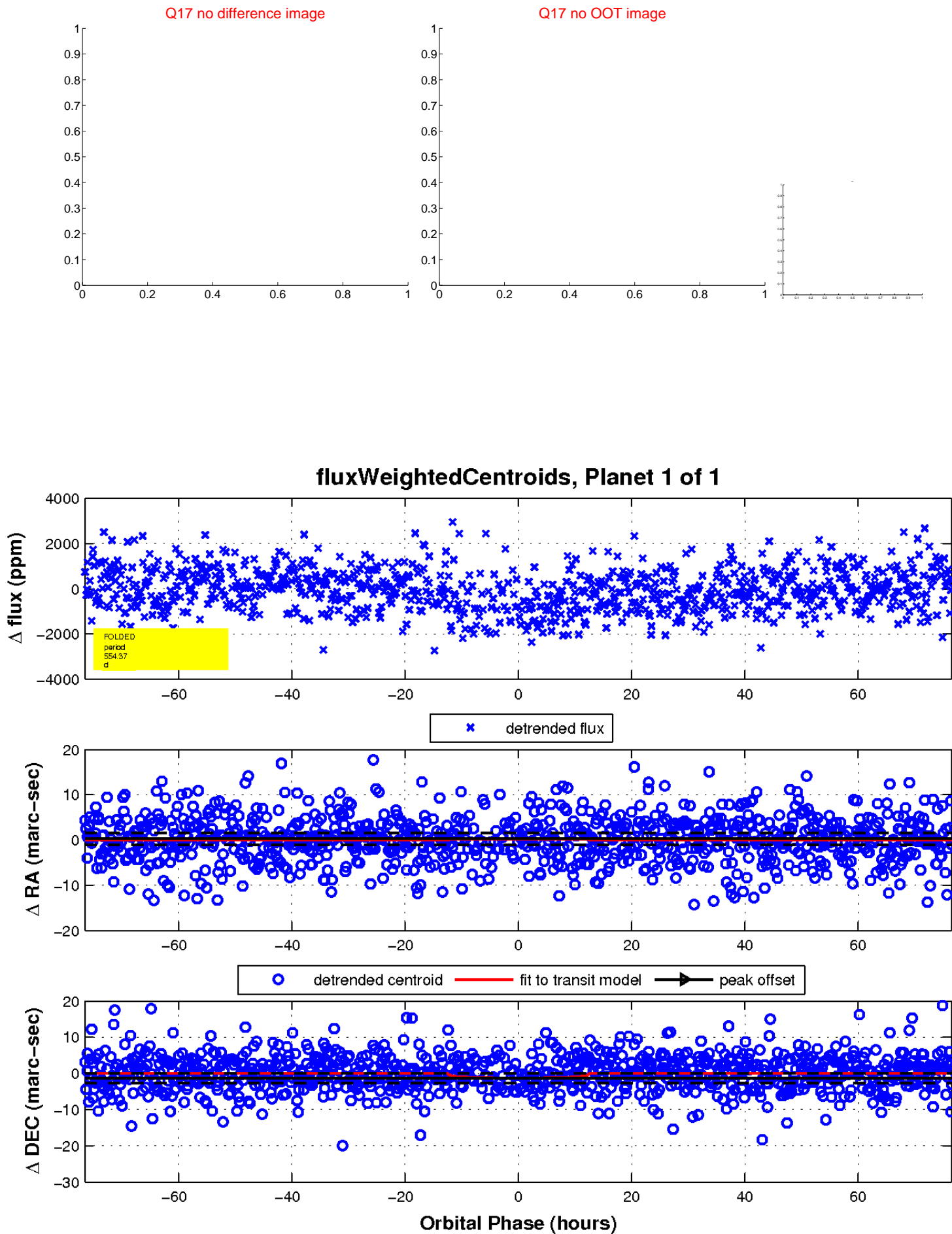
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

