

# KIC 012072363

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012072363-01	OBS	No	629.305593	152.028460	212.1	11.552	7.3	7.3	3.38	5132	5.08	2.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012072363-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—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.

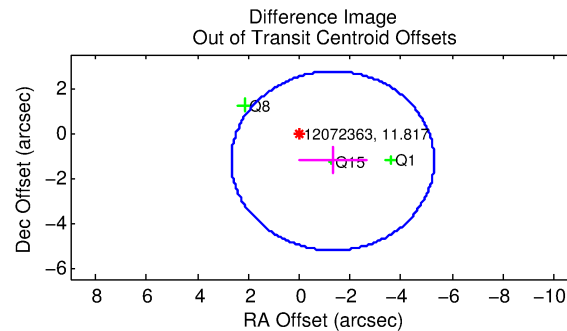
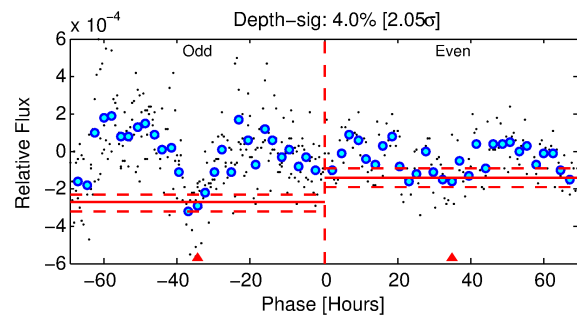
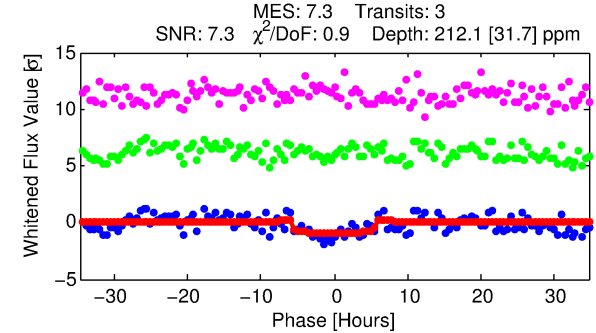
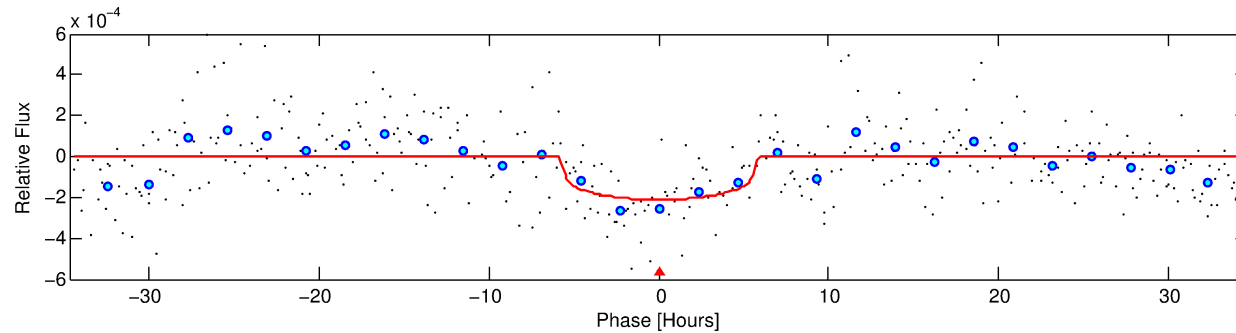
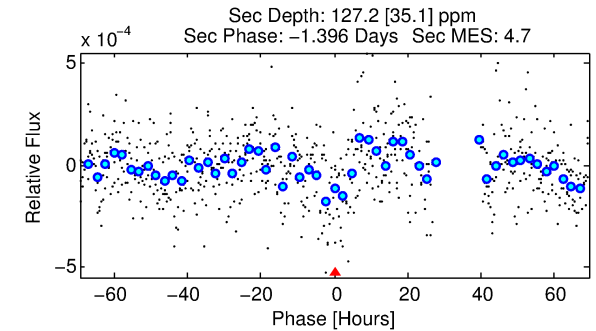
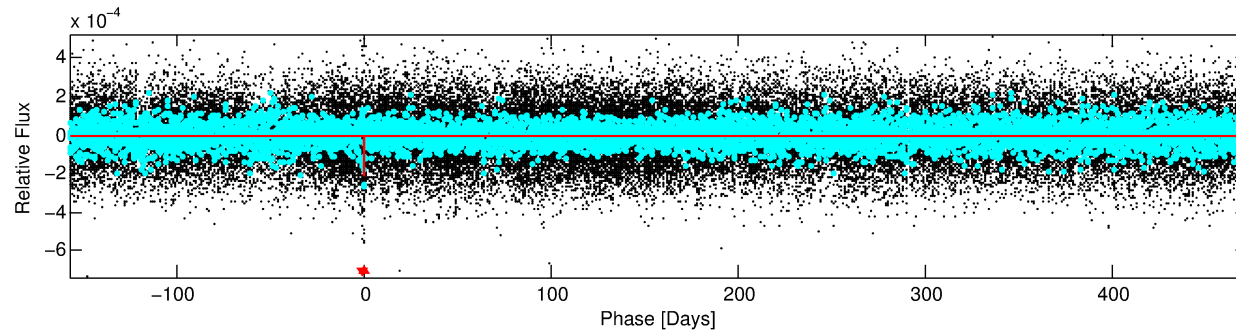
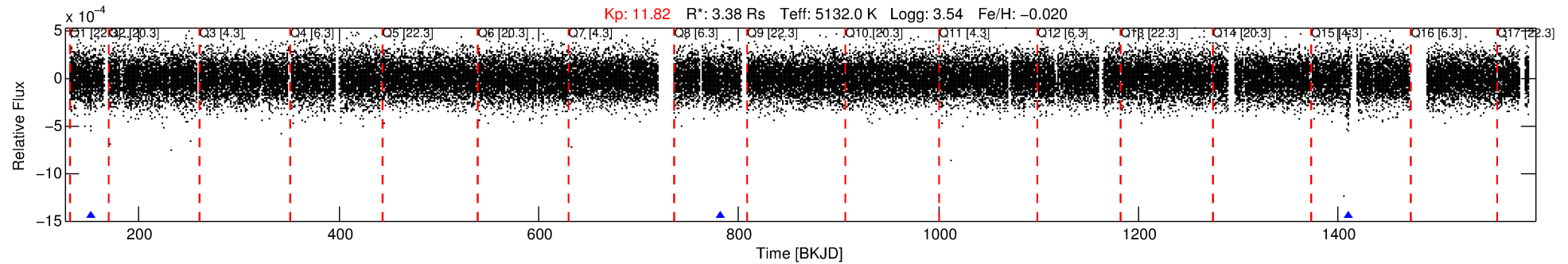
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012072363-01

No Significant Match Found

# DV One-Page Summary

KIC: 12072363 Candidate: 1 of 1 Period: 629.306 d



## DV Fit Results:

Period = 629.30559 [0.01403] d  
Epoch = 152.0285 [0.0189] BKJD  
 $R_p/R^* = 0.0137$  [0.0127]  
 $a/R^* = 344.47$  [1168.94]  
 $b = 0.59$  [3.84]  
 $\text{Seff} = 2.69$  [1.01]  
 $T_{\text{eq}} = 326$  [31] K  
 $R_p = 5.07$  [4.91]  $R_e$   
 $a = 1.6276$  [0.3922] AU  
 $A_g = 7197.49$  [13711.97] [0.52σ]  
 $T_{\text{eff}} = 4649$  [2179] K [1.98σ]

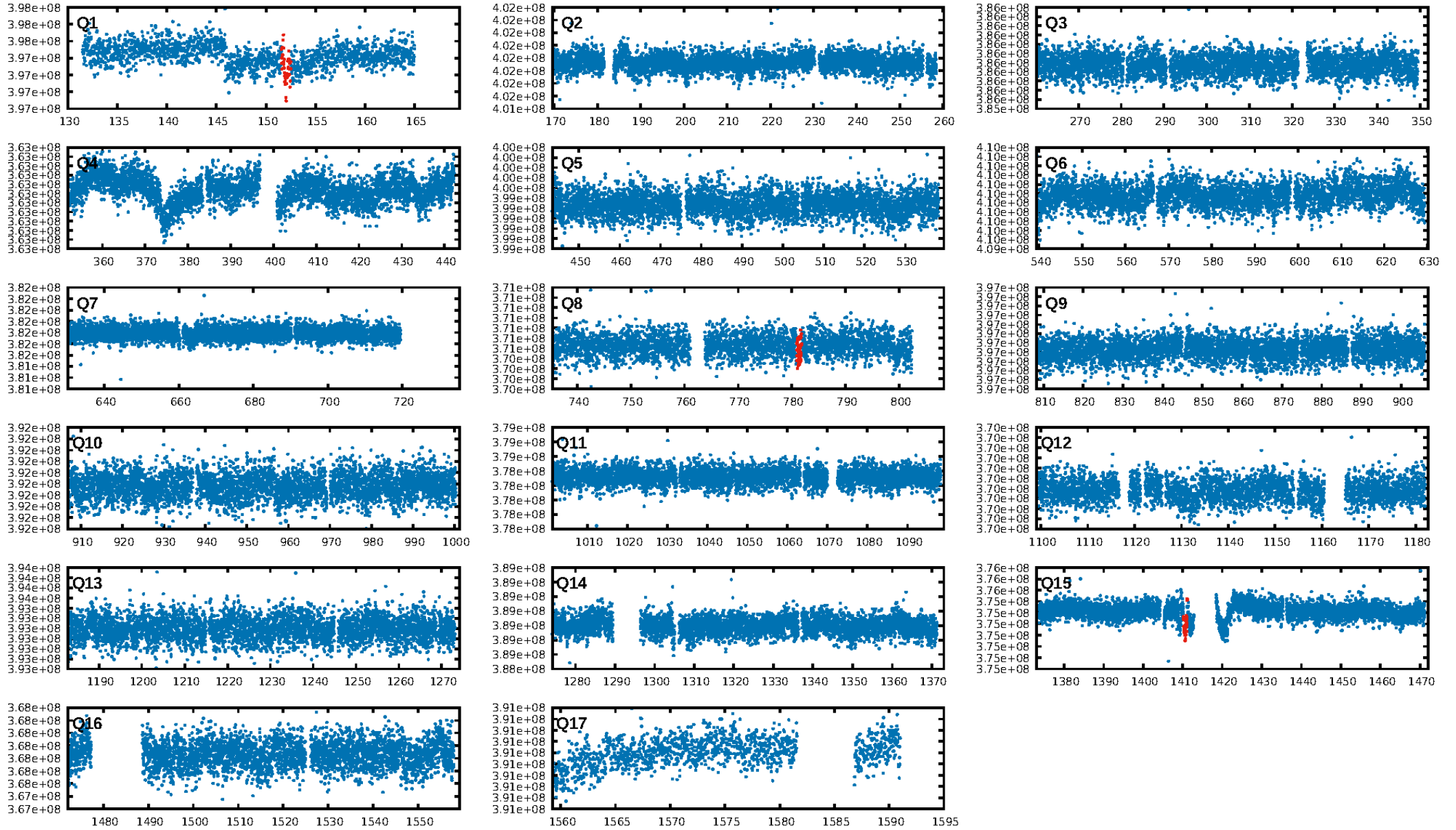
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 13.6%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.86e-08**  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -3.335  
Centroid-sig: 39.7%  
Centroid-so: 1.313 arcsec [1.20σ]  
OotOffset-rm: 1.809 arcsec [1.36σ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-rm: 1.631 arcsec [1.06σ]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

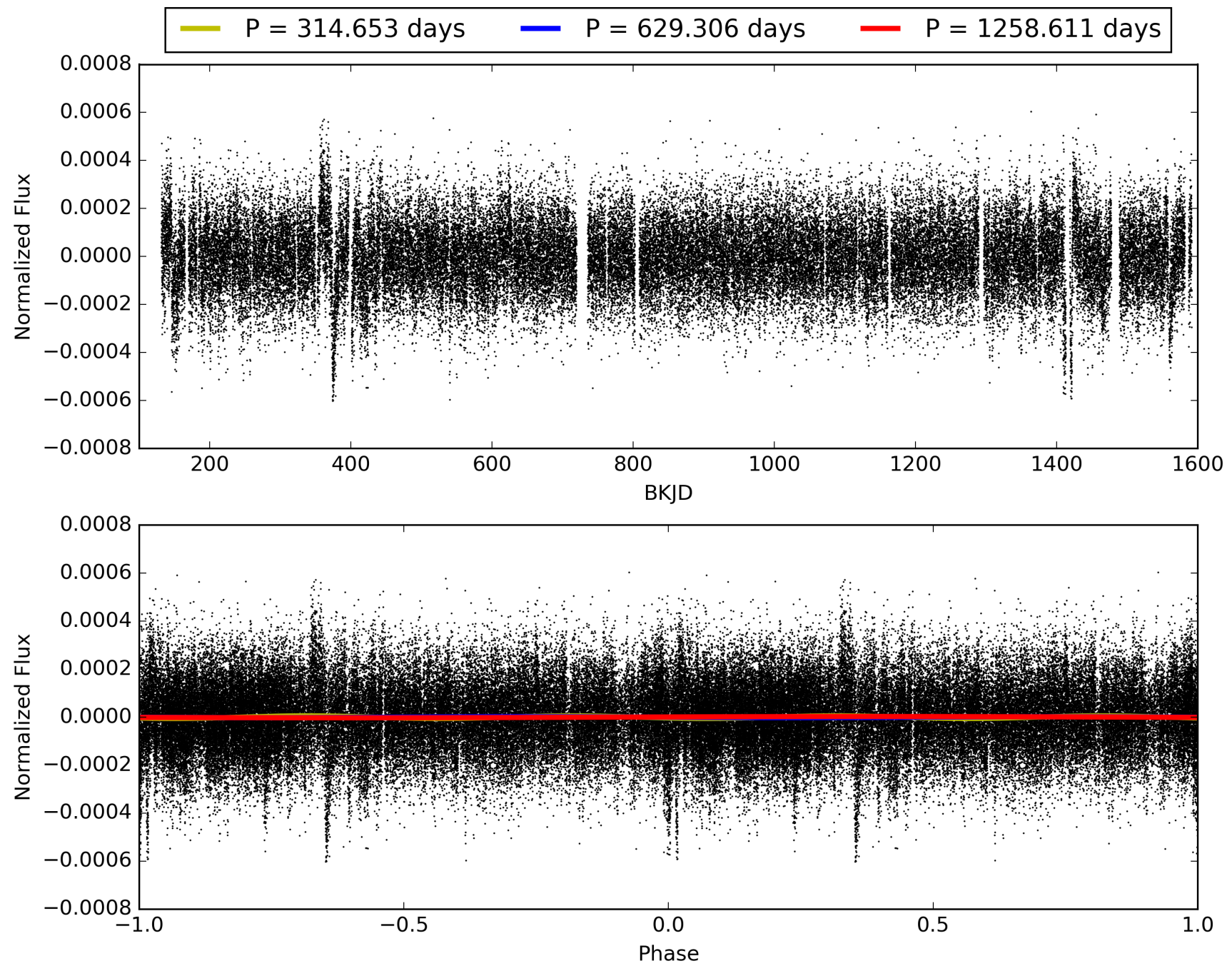
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:55:16 Z

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

# TCE 012072363-01, PDC Light Curves

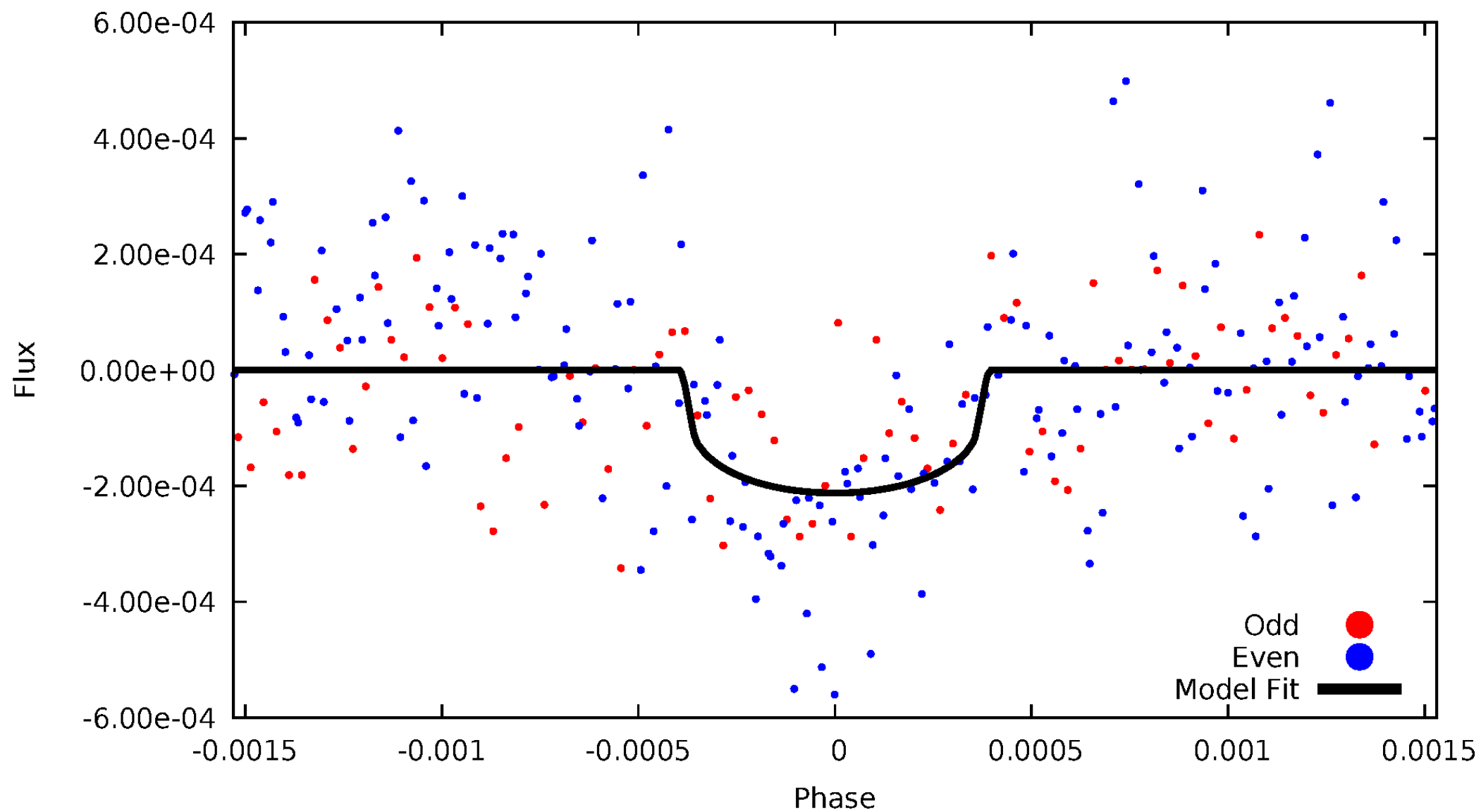


TCE 012072363-01



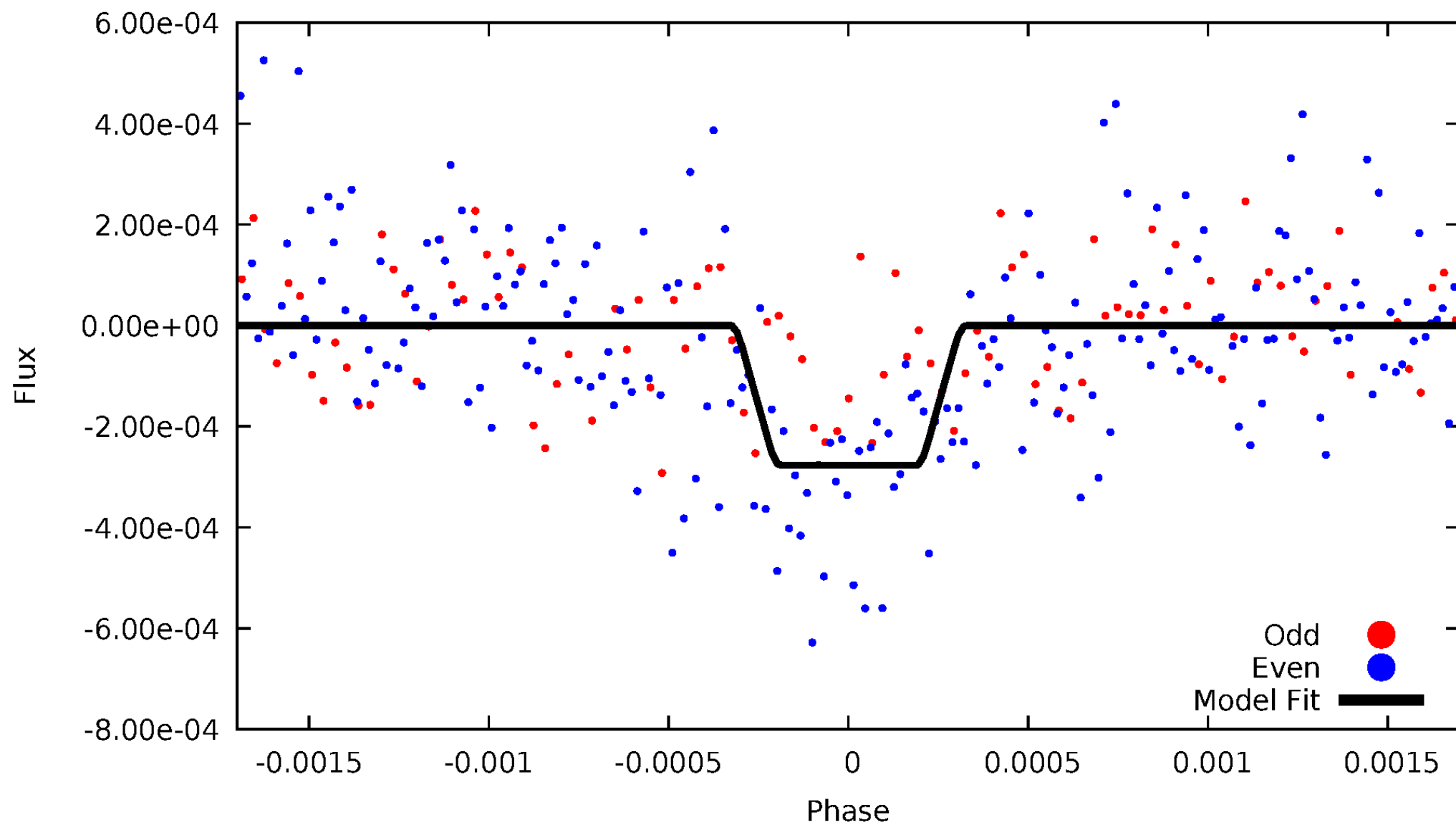
# DV Odd/Even

TCE 012072363-01

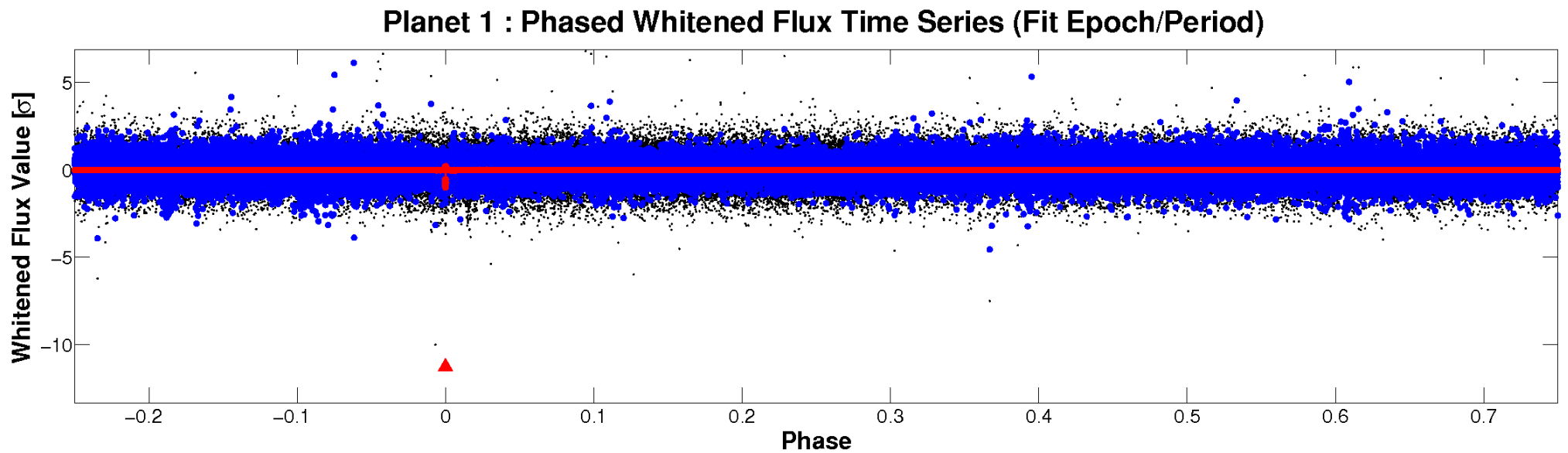
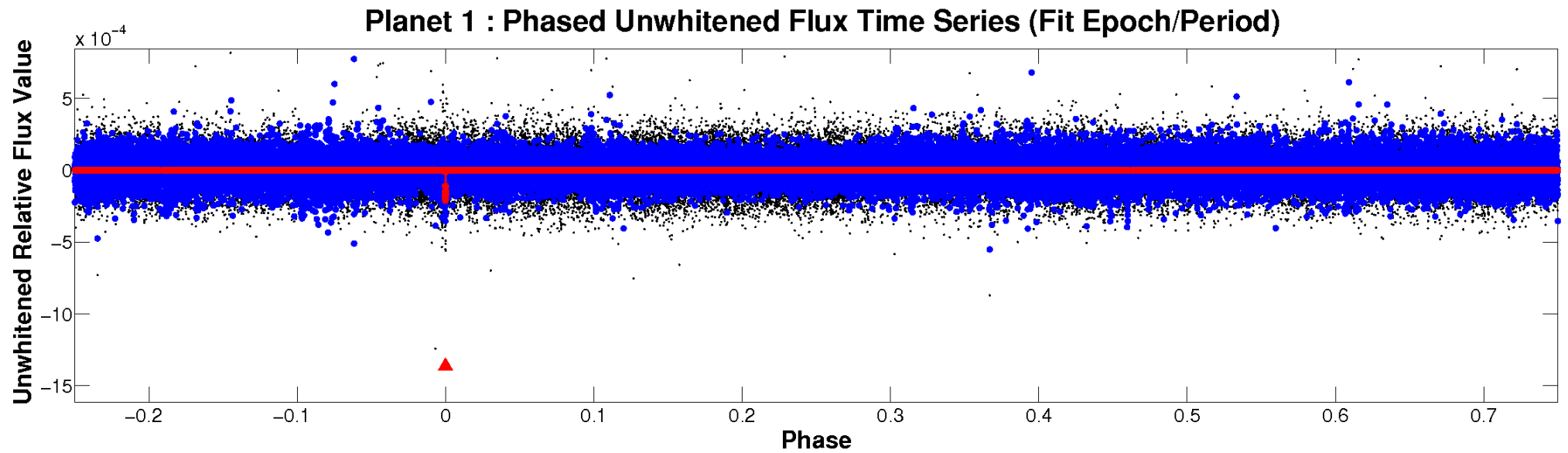


# ALT Odd/Even

TCE 012072363-01



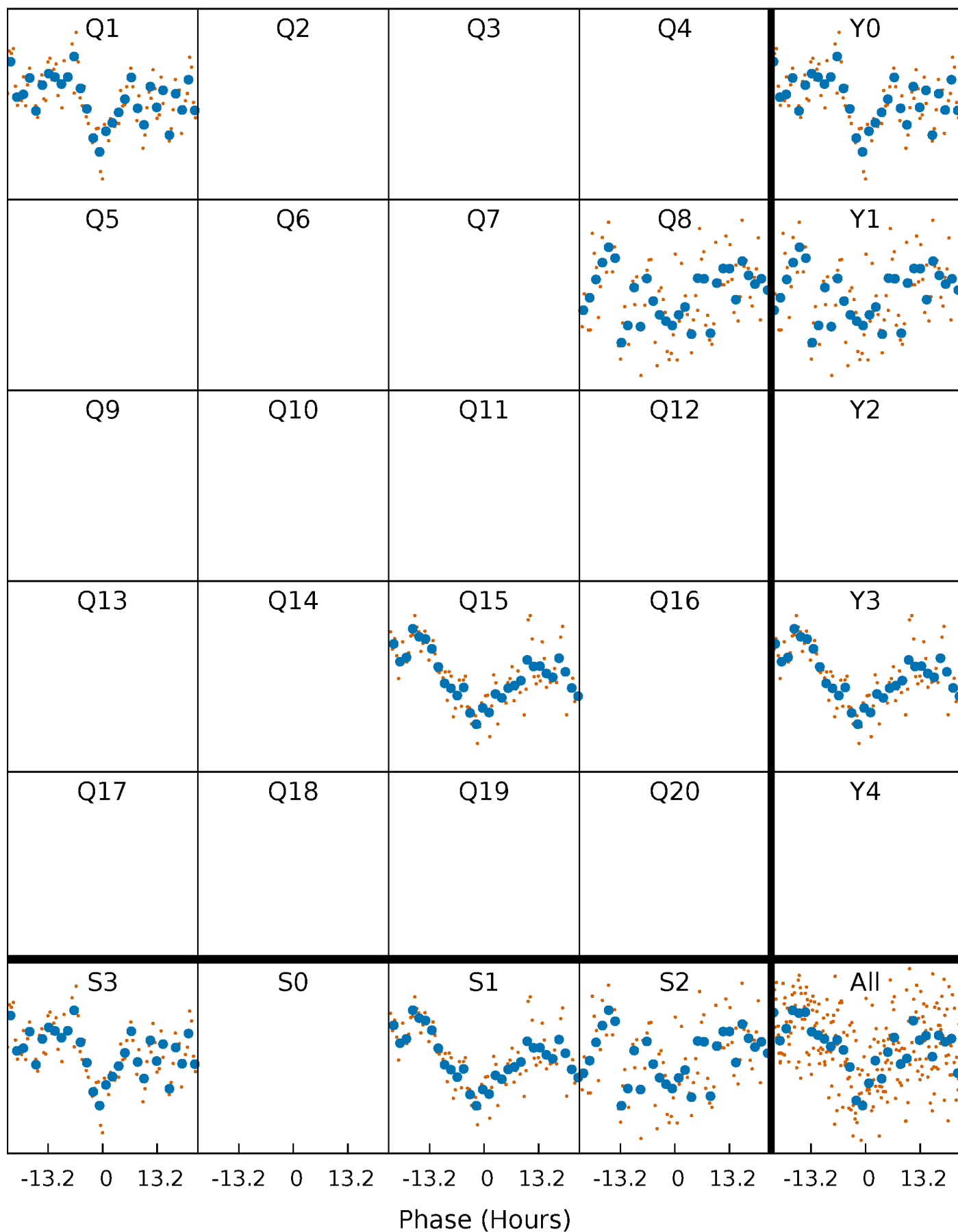
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

TCE 012072363-01 P=629.305593 Days  $T_0=152.028460$  (BKJD)





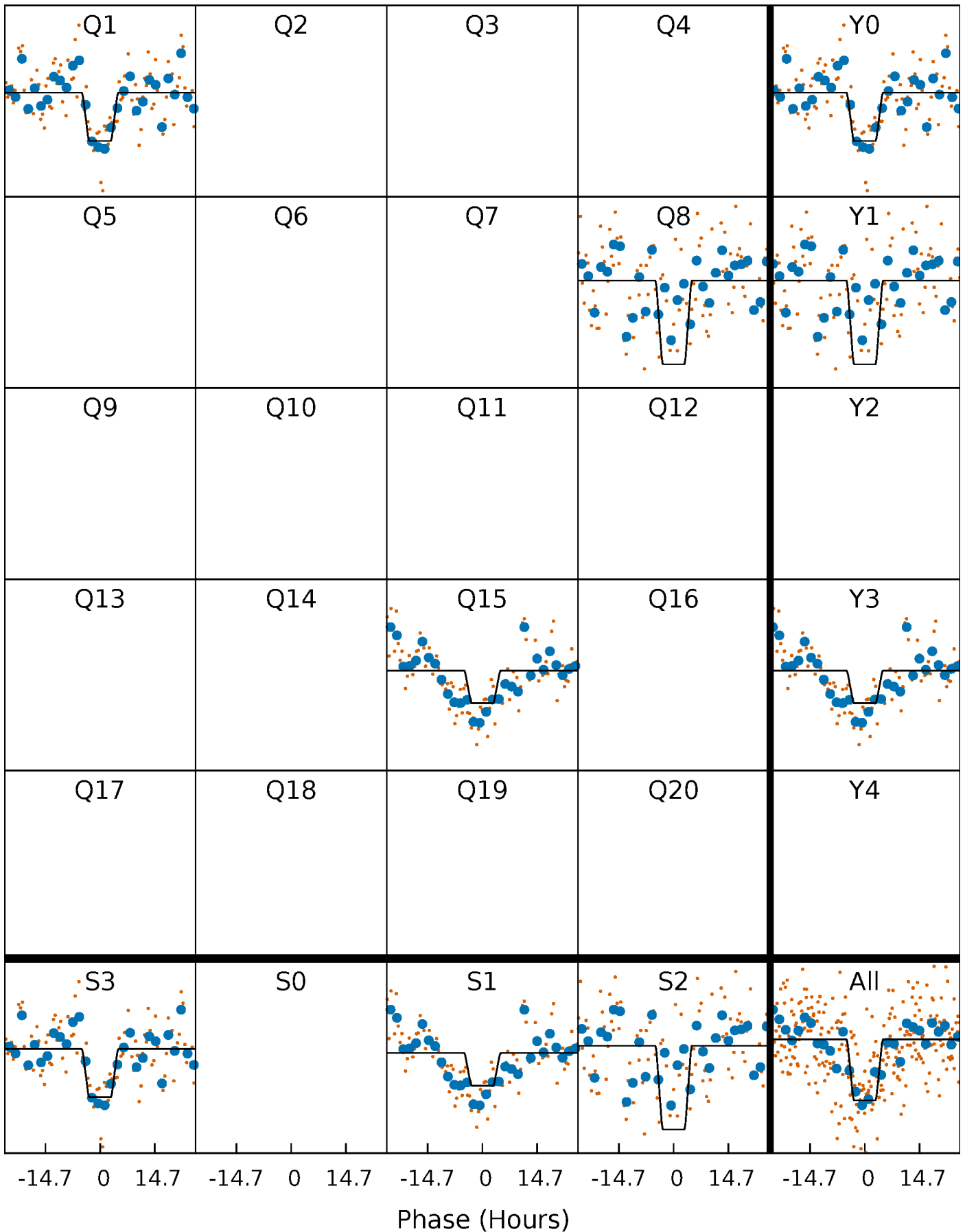
# DV Quarter-Phased Transit Curves

TCE 012072363-01 P=629.305593 Days  $T_0=152.028460$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

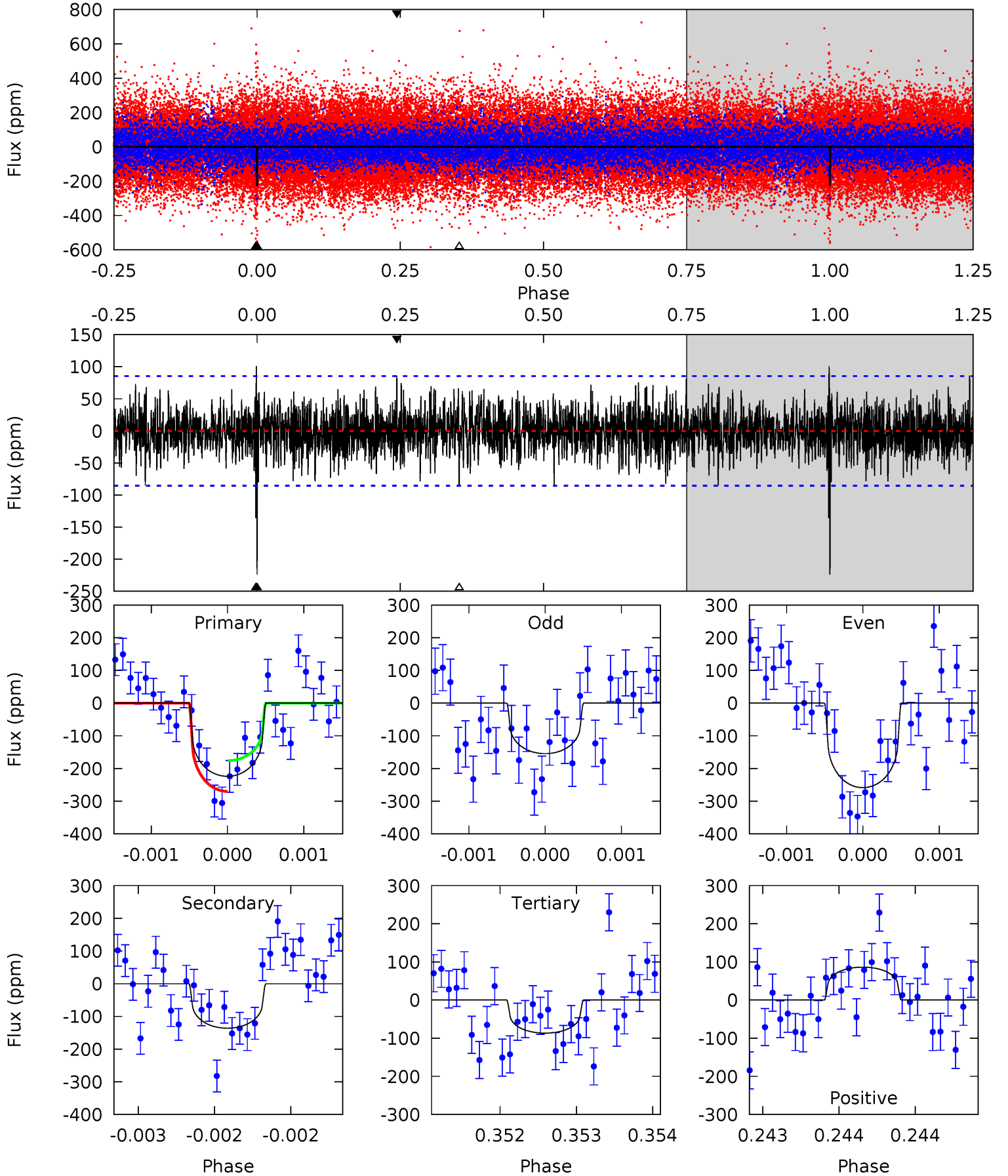
TCE 012072363-01 P=629.319592 Days  $T_0=151.998154$  (BKJD)



# DV Model-Shift Uniqueness Test

012072363-01, P = 629.305593 Days, E = 152.028460 Days

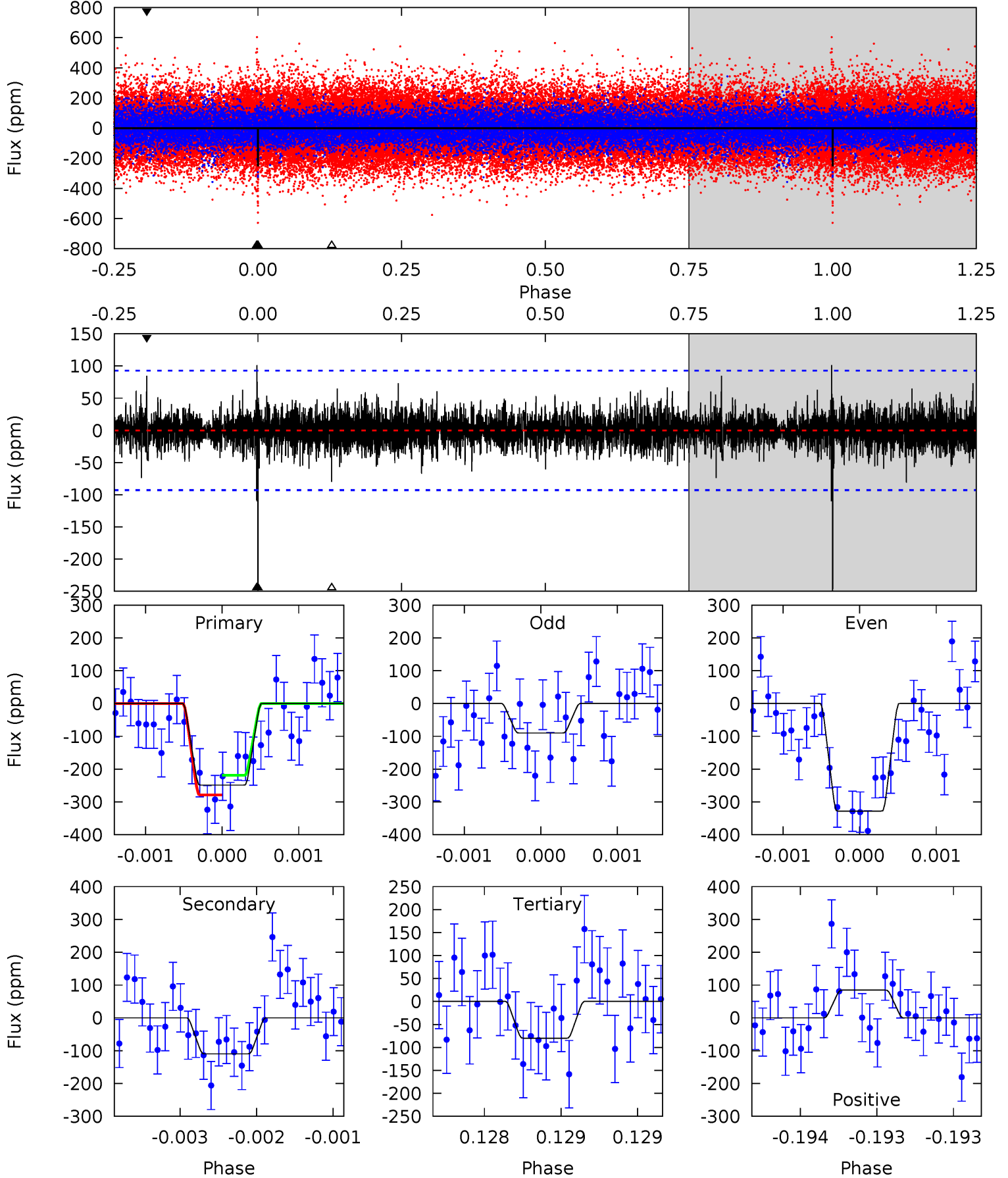
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	8.75	5.58	5.55	5.49	3.36	1.63	8.83	8.86	3.18	3.21	3.19	0.96	0.31	3.02



# Alt Model-Shift Uniqueness Test

012072363-01, P = 629.319592 Days, E = 151.998154 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
14.8	6.55	4.76	5.04	5.53	3.42	1.13	10.1	9.78	1.79	1.51	6.71	0.91	0.29	1.78



### Stellar Parameters For KIC 012072363

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5132^{+115}_{-154}$	$3.541^{+0.198}_{-0.162}$	$-0.020^{+0.200}_{-0.300}$	$3.384^{+0.632}_{-0.949}$	$1.450^{+0.180}_{-0.419}$	$0.053^{+0.060}_{-0.021}$
	+2%/-3%	+6%/-5%	+1000%/-1500%	+19%/-28%	+12%/-29%	+115%/-40%
Source	PHO1	FLK73	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 012072363-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-136 \pm 16$	$5.61^{+4.69}_{-3.53}$	$455^{+31}_{-34}$	$4589^{+2454}_{-880}$	$6114^{+39024}_{-4268}$
Alt.	$-110 \pm 17$	$6.18^{+4.91}_{-3.63}$	$456^{+29}_{-34}$	$4198^{+1941}_{-728}$	$3946^{+19652}_{-2673}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

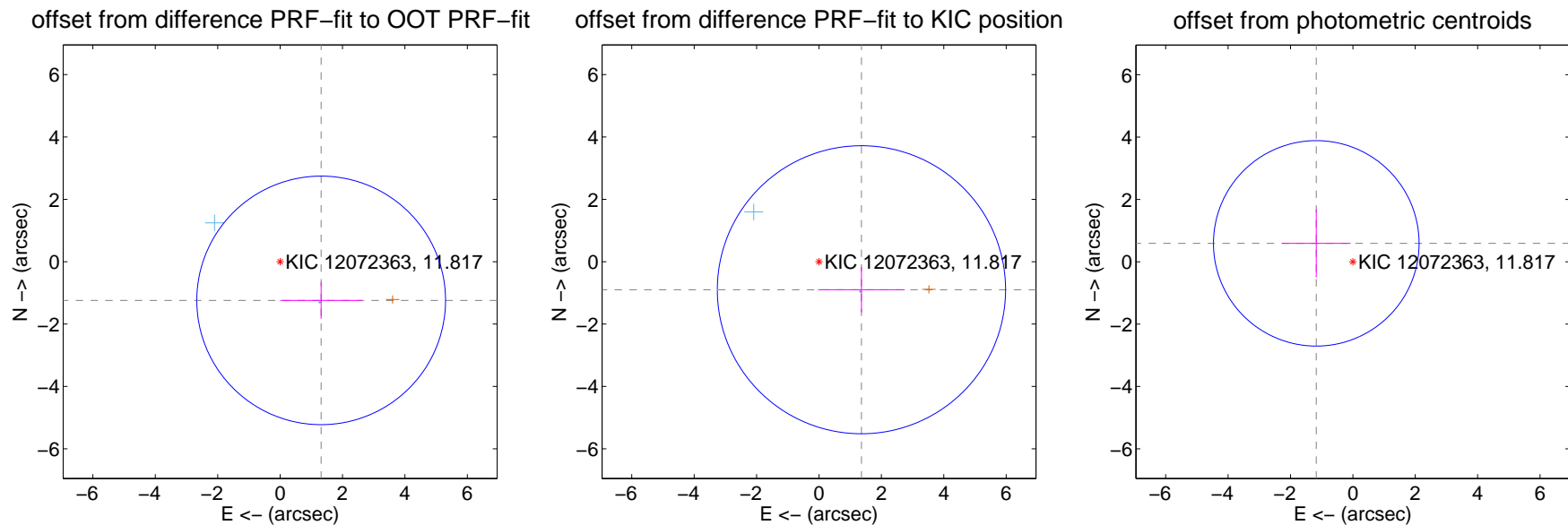
## DV Centroid Data

Supplemental centroid analysis for 012072363-01. **Kepler magnitude: 11.82.** Transit SNR 7.25

**There are 2 quarters with good PRF difference image offsets**

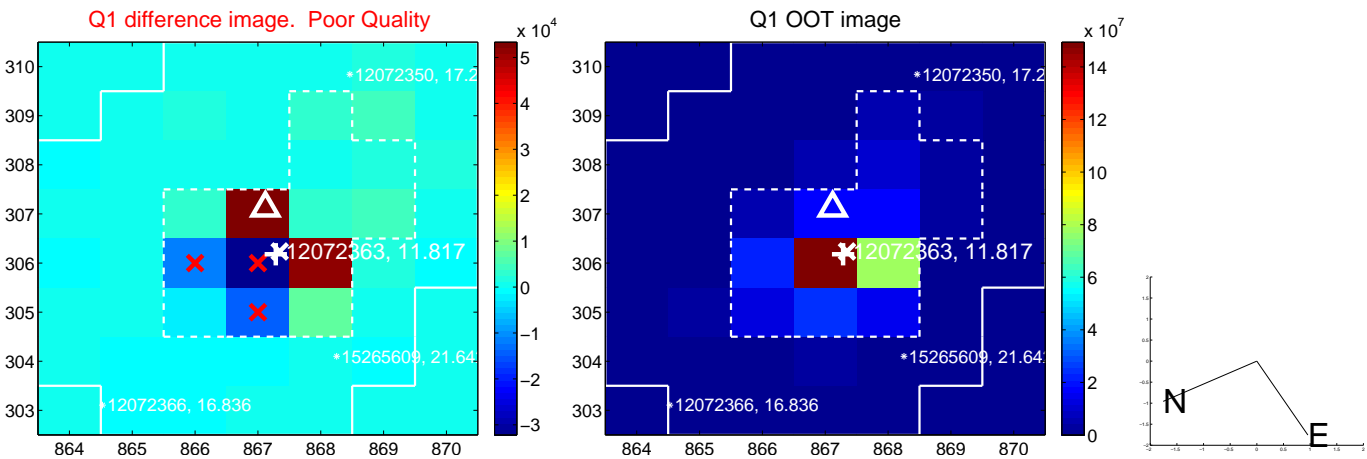
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.809 \pm 1.329$	1.36	$-1.316 \pm 1.309$	$-1.241 \pm 0.589$
PRF-fit source offset from KIC position	$1.631 \pm 1.540$	1.06	$-1.361 \pm 1.390$	$-0.900 \pm 0.729$
photometric centroid source offset	$1.31 \pm 1.10$	1.20	$1.17 \pm 1.10$	$0.59 \pm 1.09$



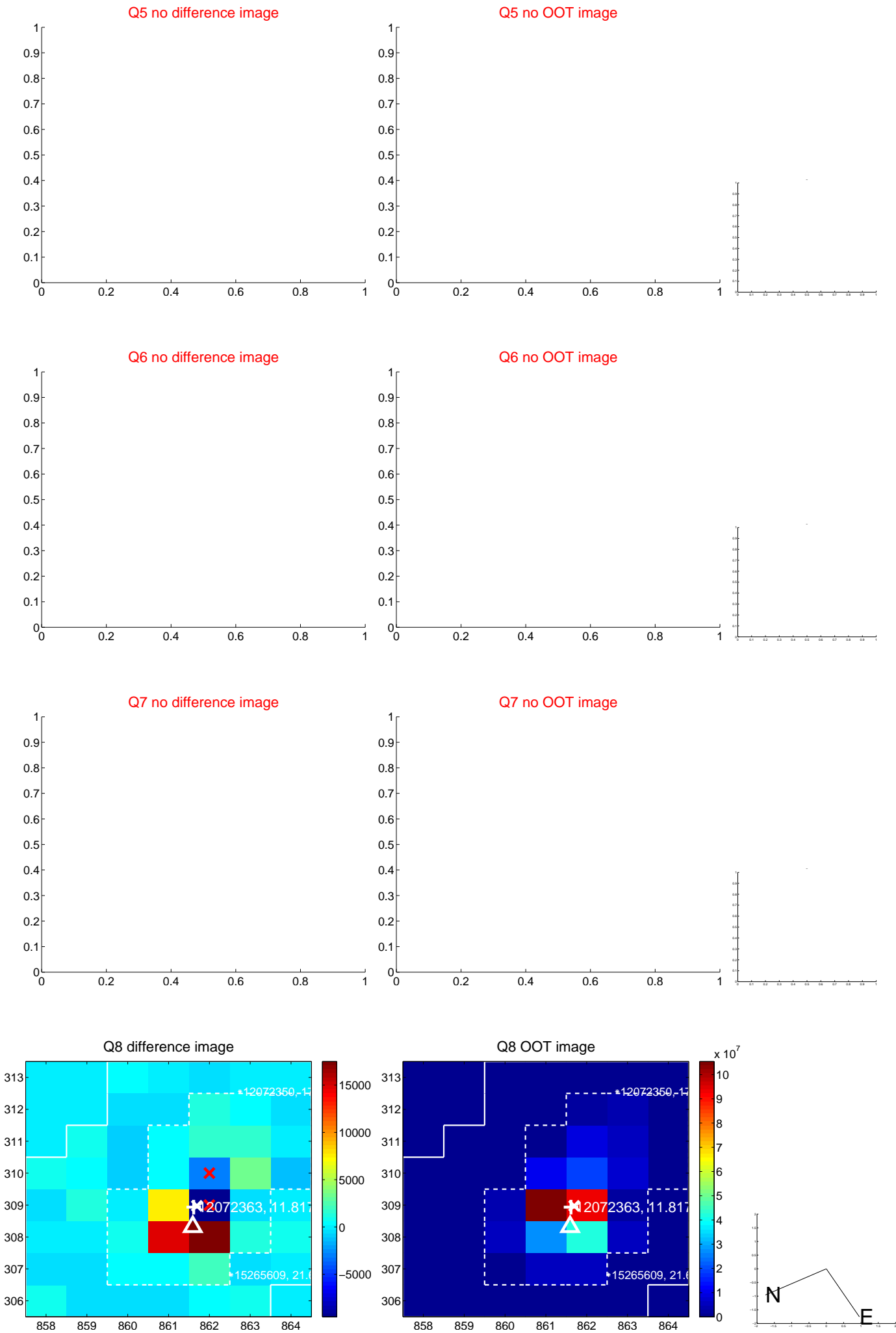
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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





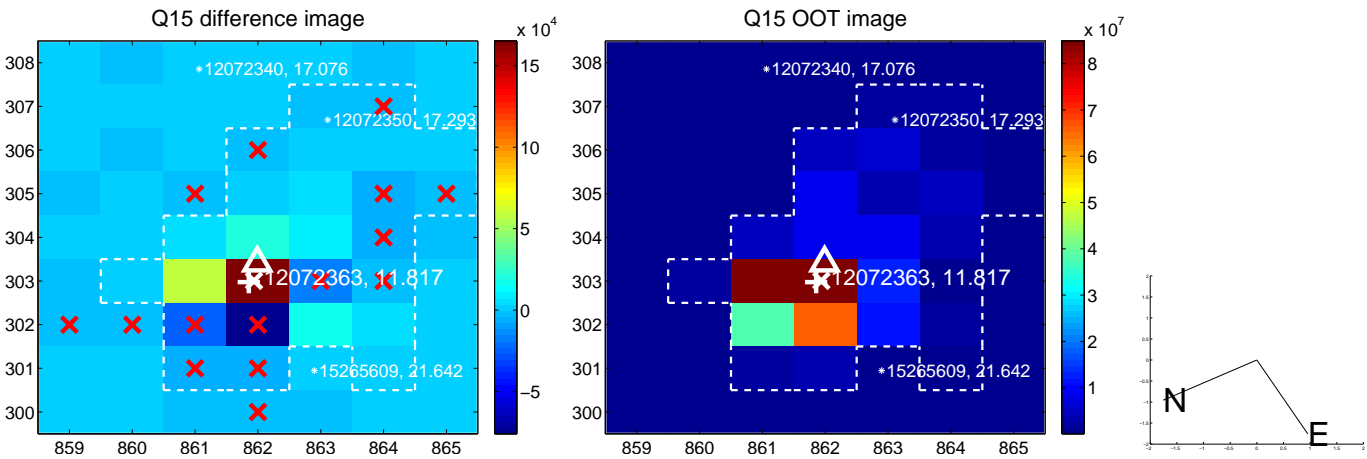
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



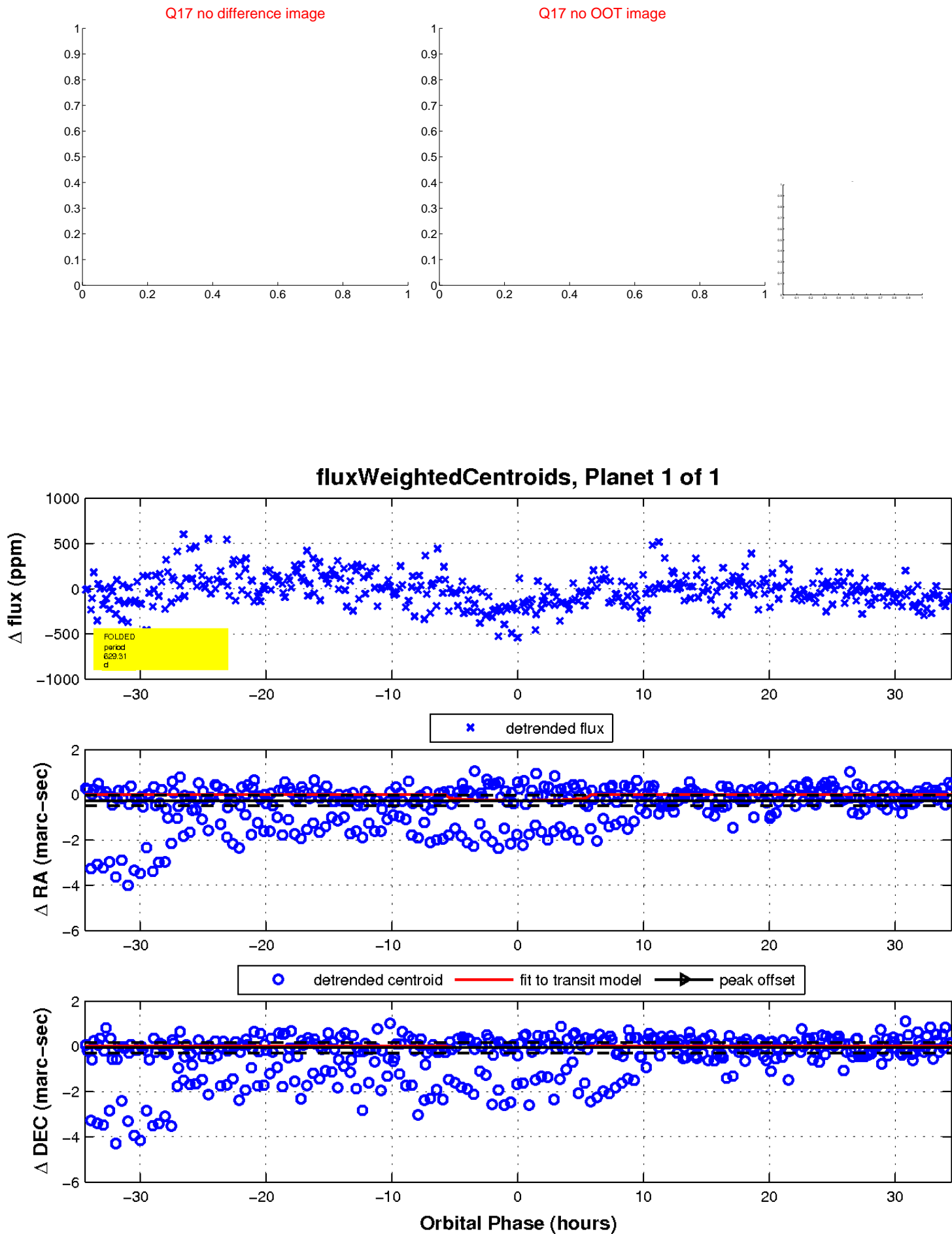
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

