

# KIC 010058376

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010058376-01	OBS	No	232.110744	165.358205	758.9	8.993	7.3	6.9	0.72	4631	2.47	0.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010058376-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—MOD_NONUNIQ_DV—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.

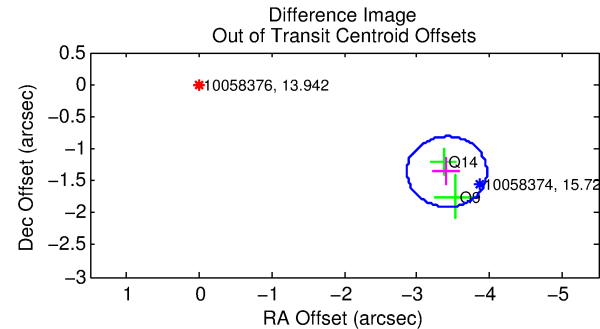
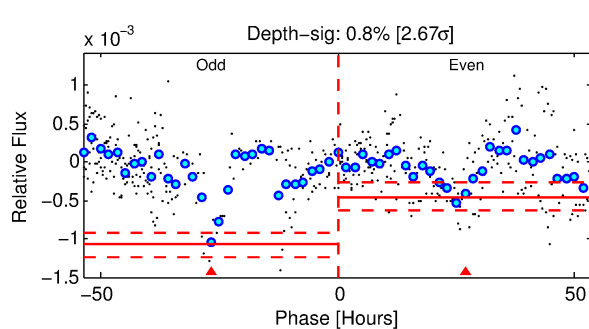
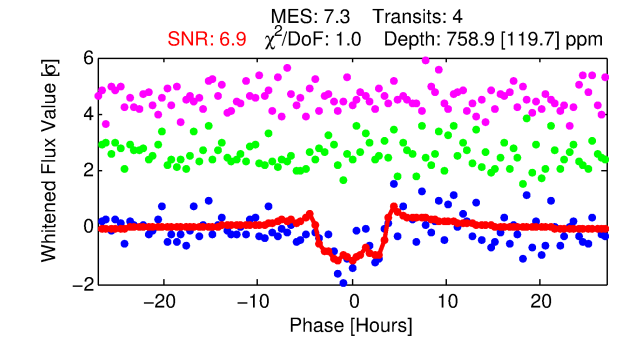
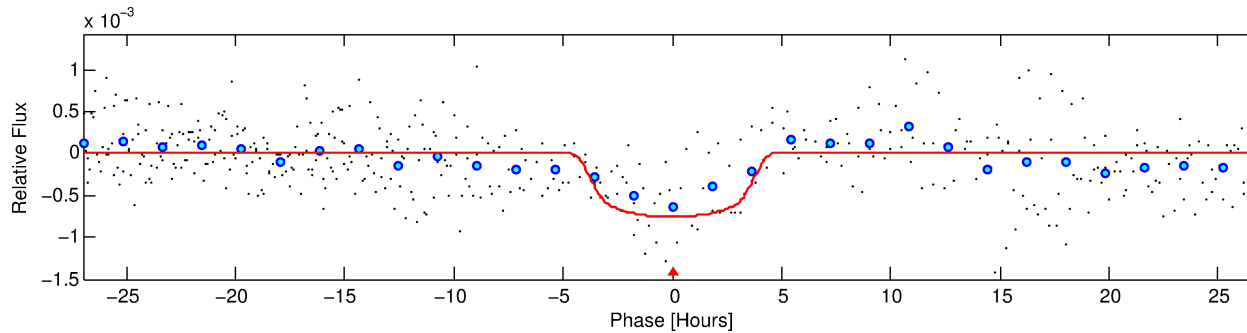
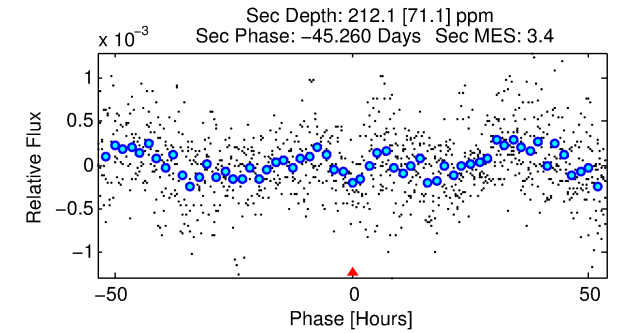
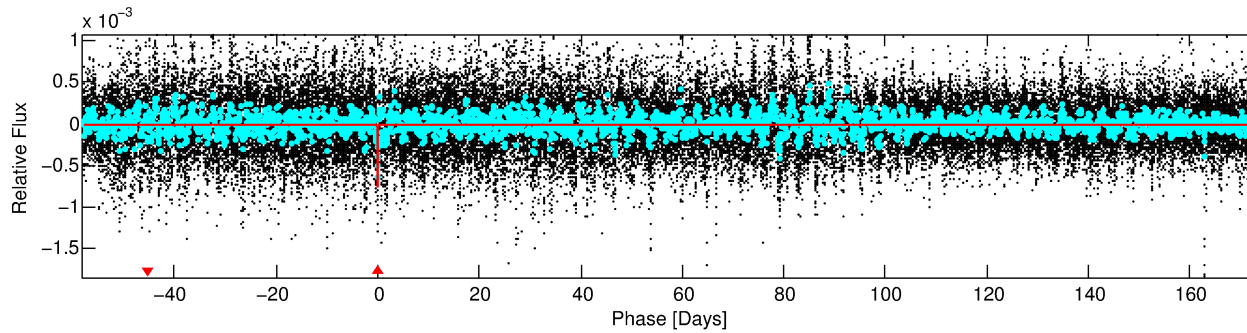
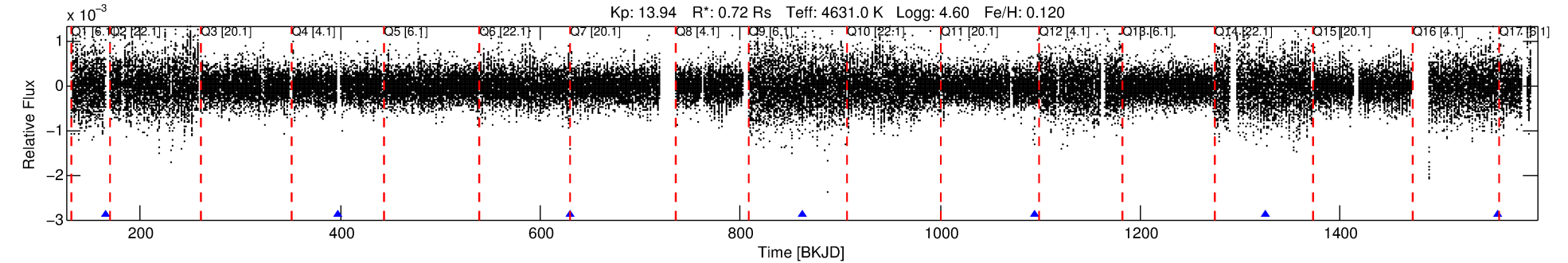
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010058376-01

No Significant Match Found

# DV One-Page Summary

KIC: 10058376 Candidate: 1 of 1 Period: 232.111 d



## DV Fit Results:

Period = 232.11074 [0.00919] d  
Epoch = 165.3582 [0.0416] BKJD  
Rp/R\* = 0.0315 [0.0037]  
a/R\* = 96.02 [28.47]  
b = 0.91 [0.06]  
Seff = 0.47 [0.07]  
Teq = 211 [7] K  
Rp = 2.47 [0.34] Re  
a = 0.6703 [0.0370] AU  
Ag = 8596.93 [3566.05] [2.41σ]  
Teffp = 3148 [335] K [8.76σ]

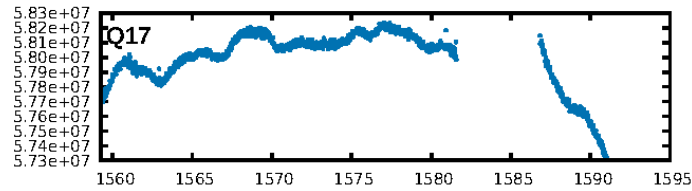
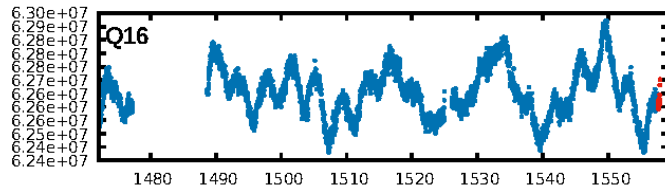
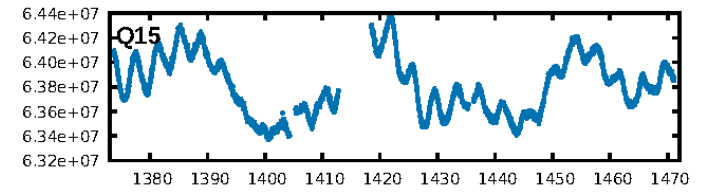
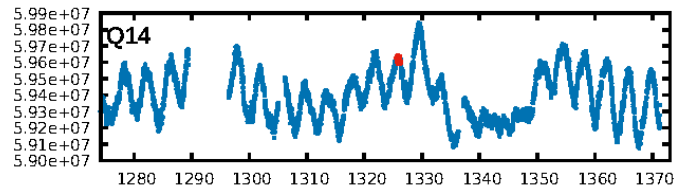
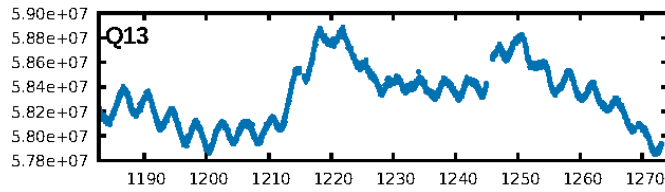
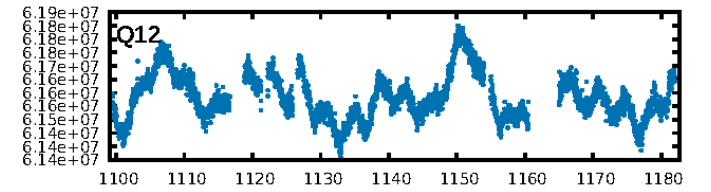
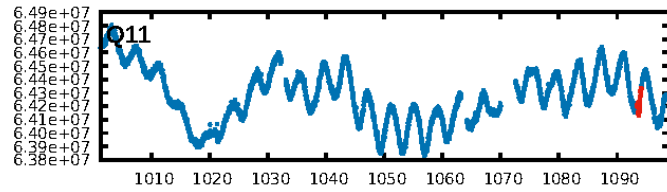
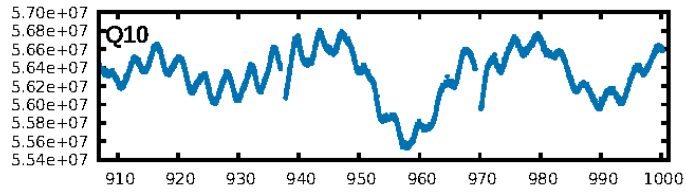
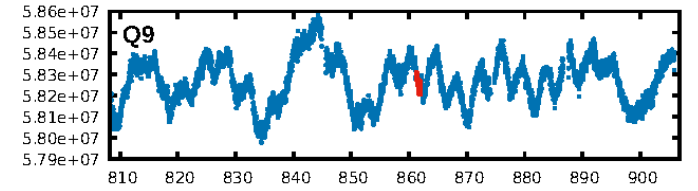
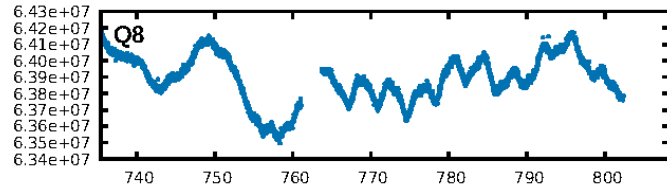
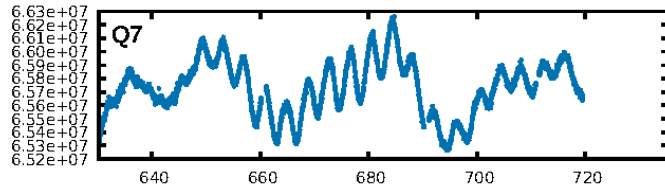
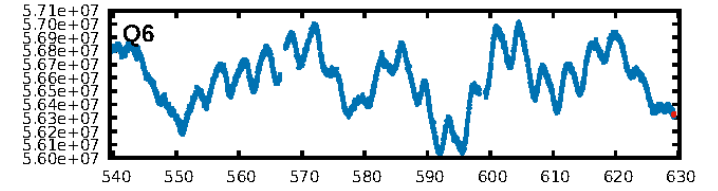
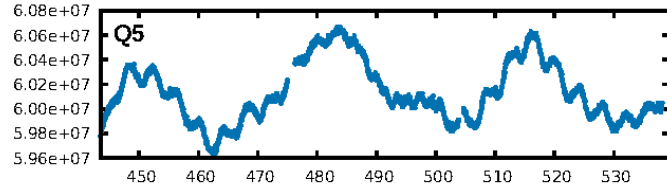
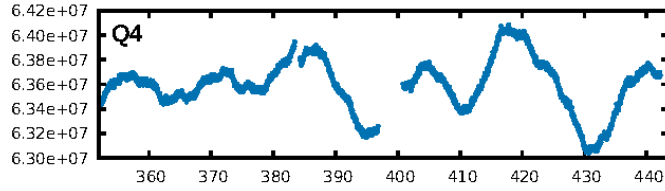
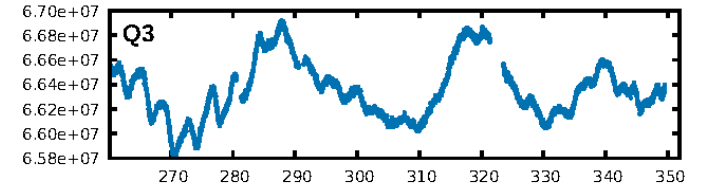
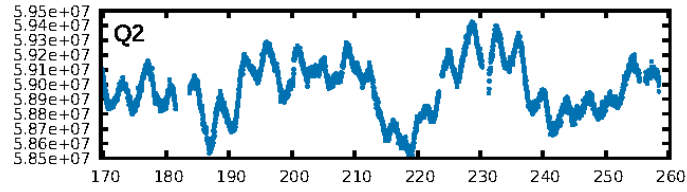
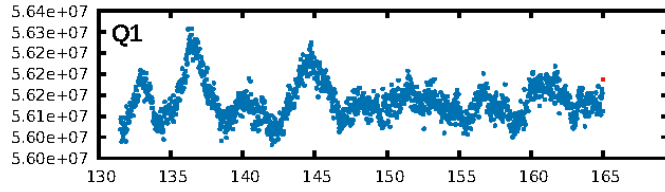
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.71e-10  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -1.228  
Centroid-sig: 57.7%  
Centroid-so: 0.253 arcsec [0.27σ]  
OotOffset-rm: 3.673 arcsec [20.04σ]  
KicOffset-rm: 4.225 arcsec [23.19σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

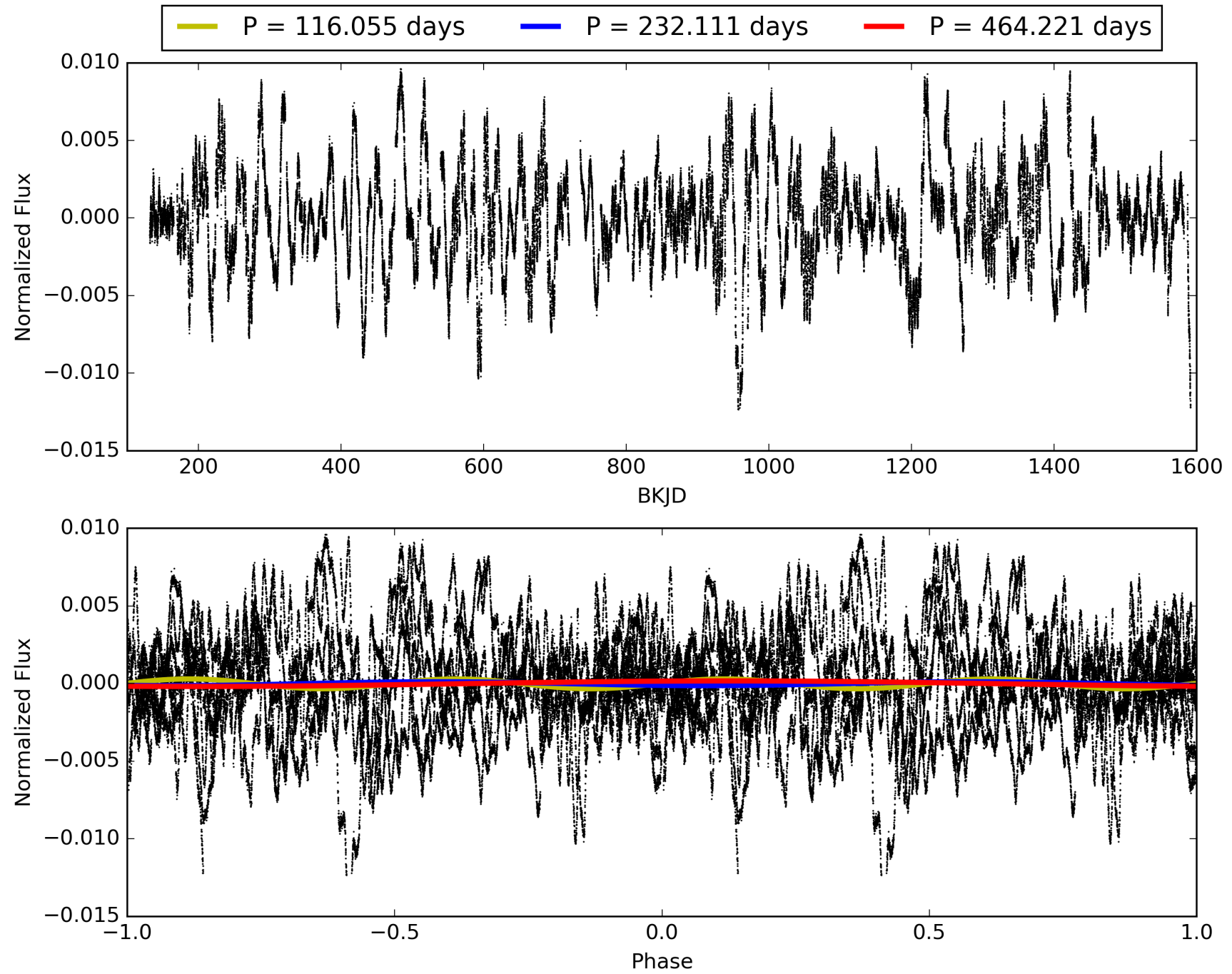
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:39:43 Z

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

# TCE 010058376-01, PDC Light Curves

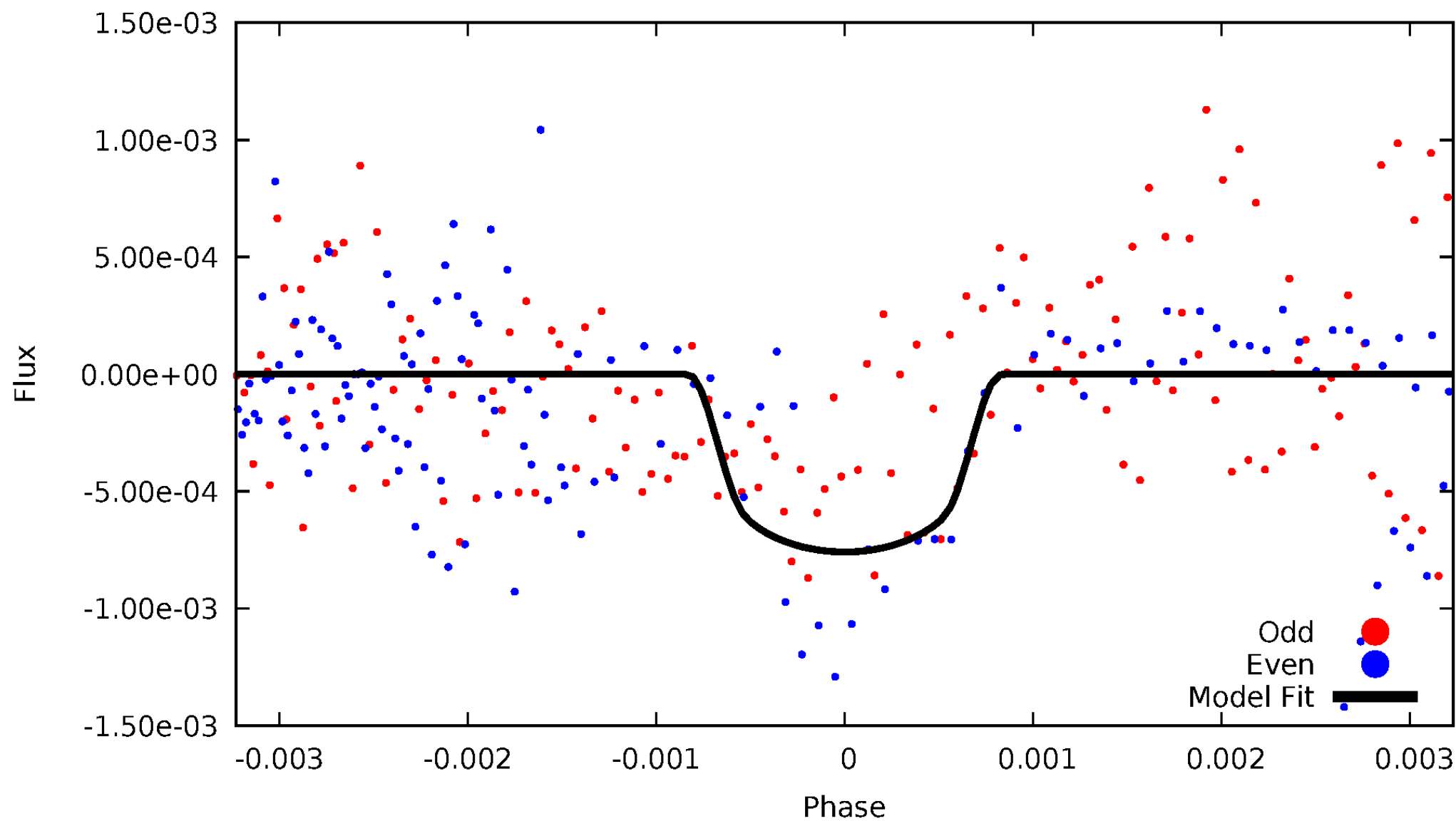


TCE 010058376-01



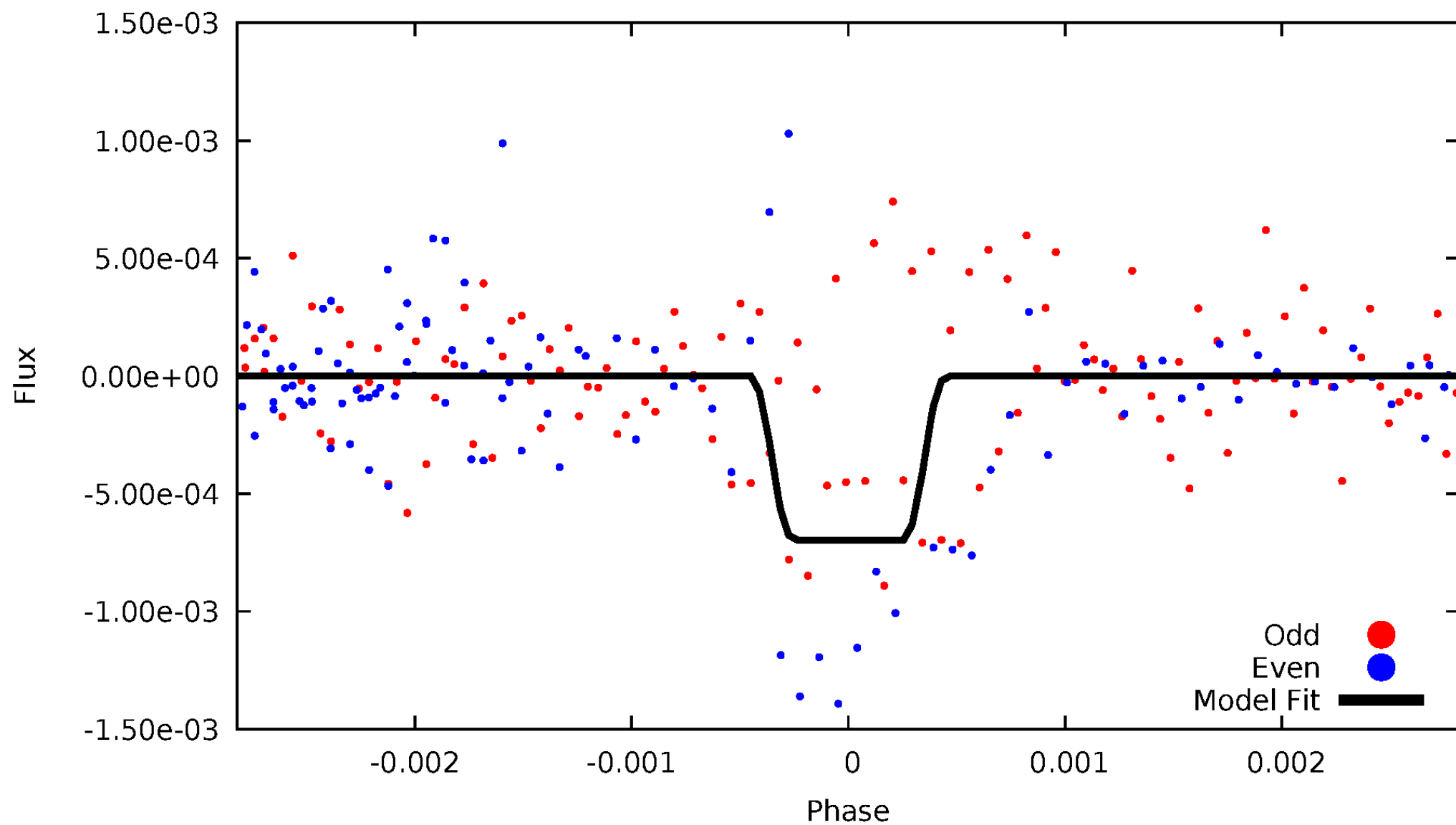
# DV Odd/Even

TCE 010058376-01



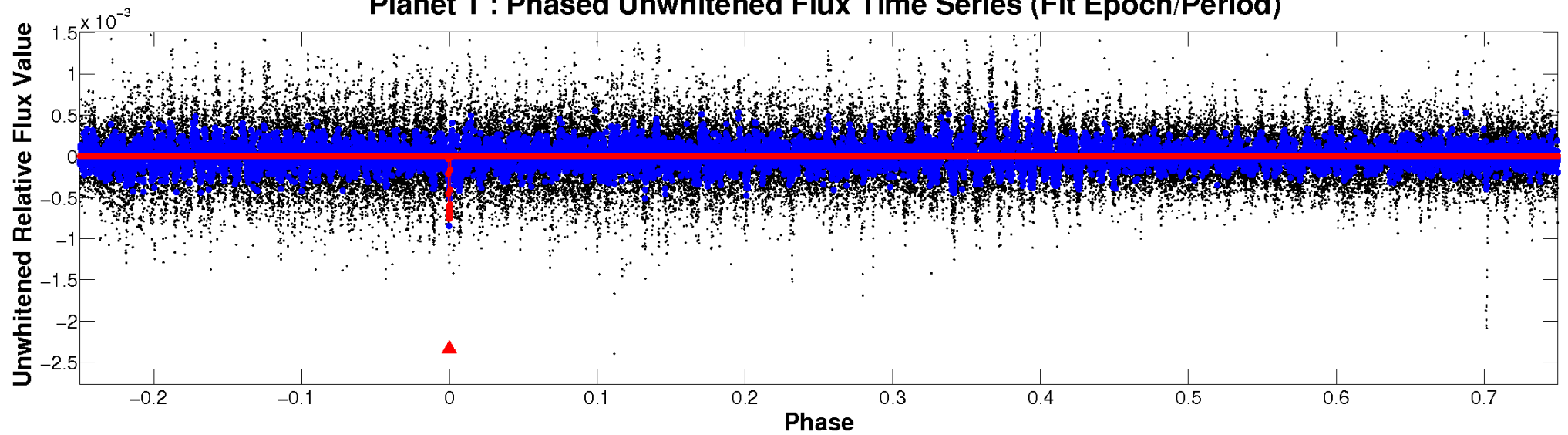
# ALT Odd/Even

TCE 010058376-01

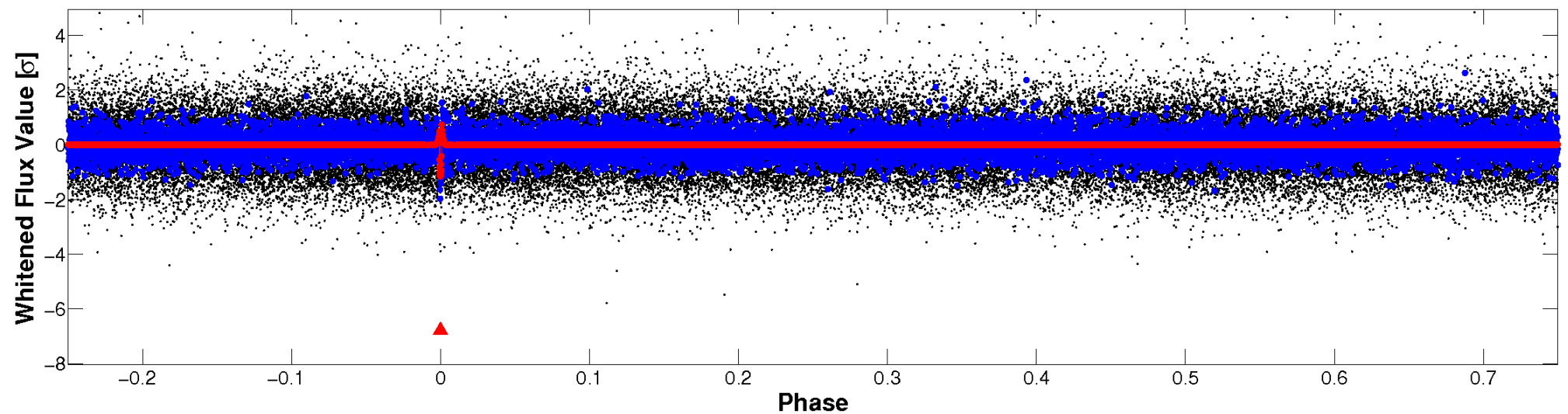


# Non-Whitened Vs. Whitened Light Curve

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

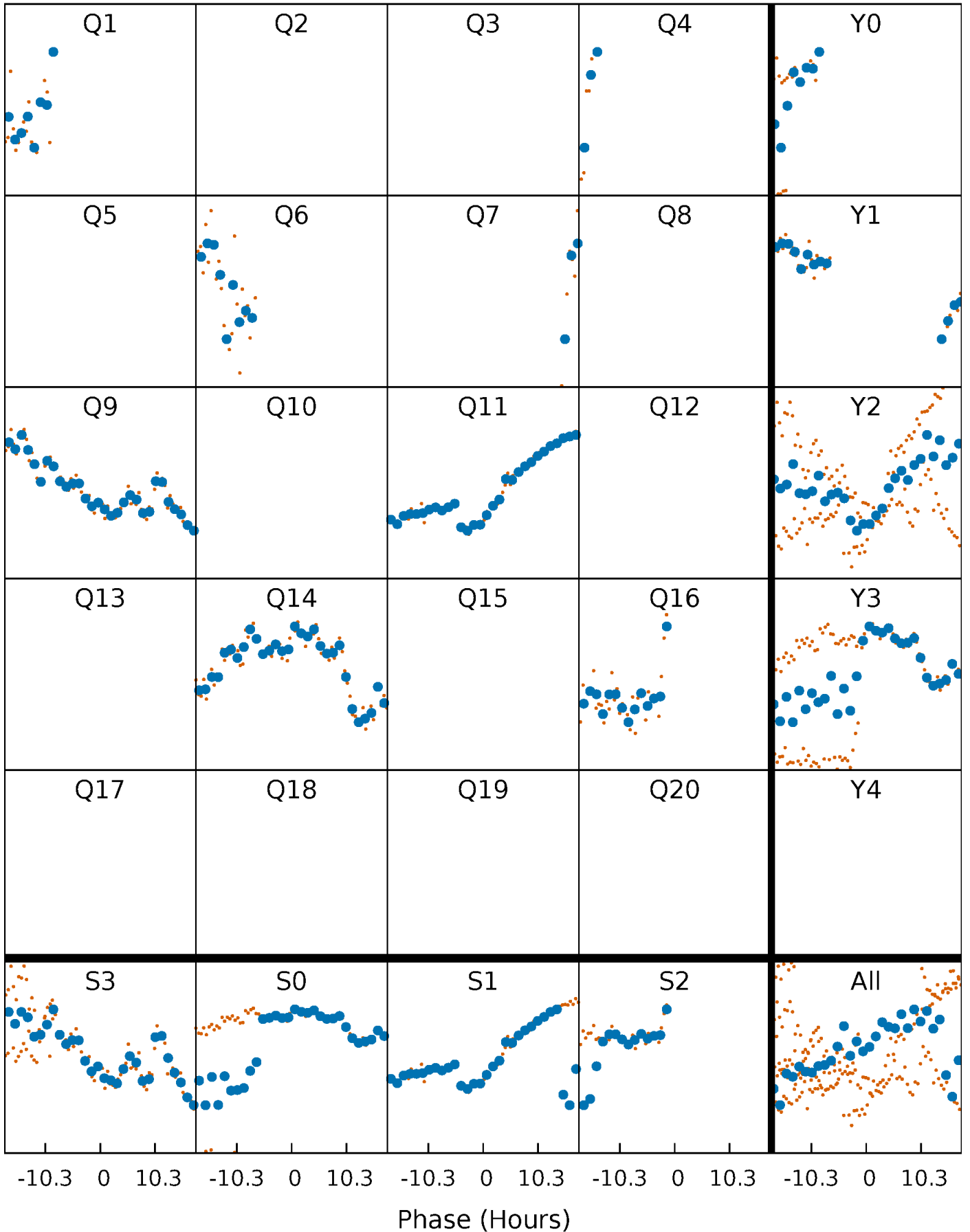


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

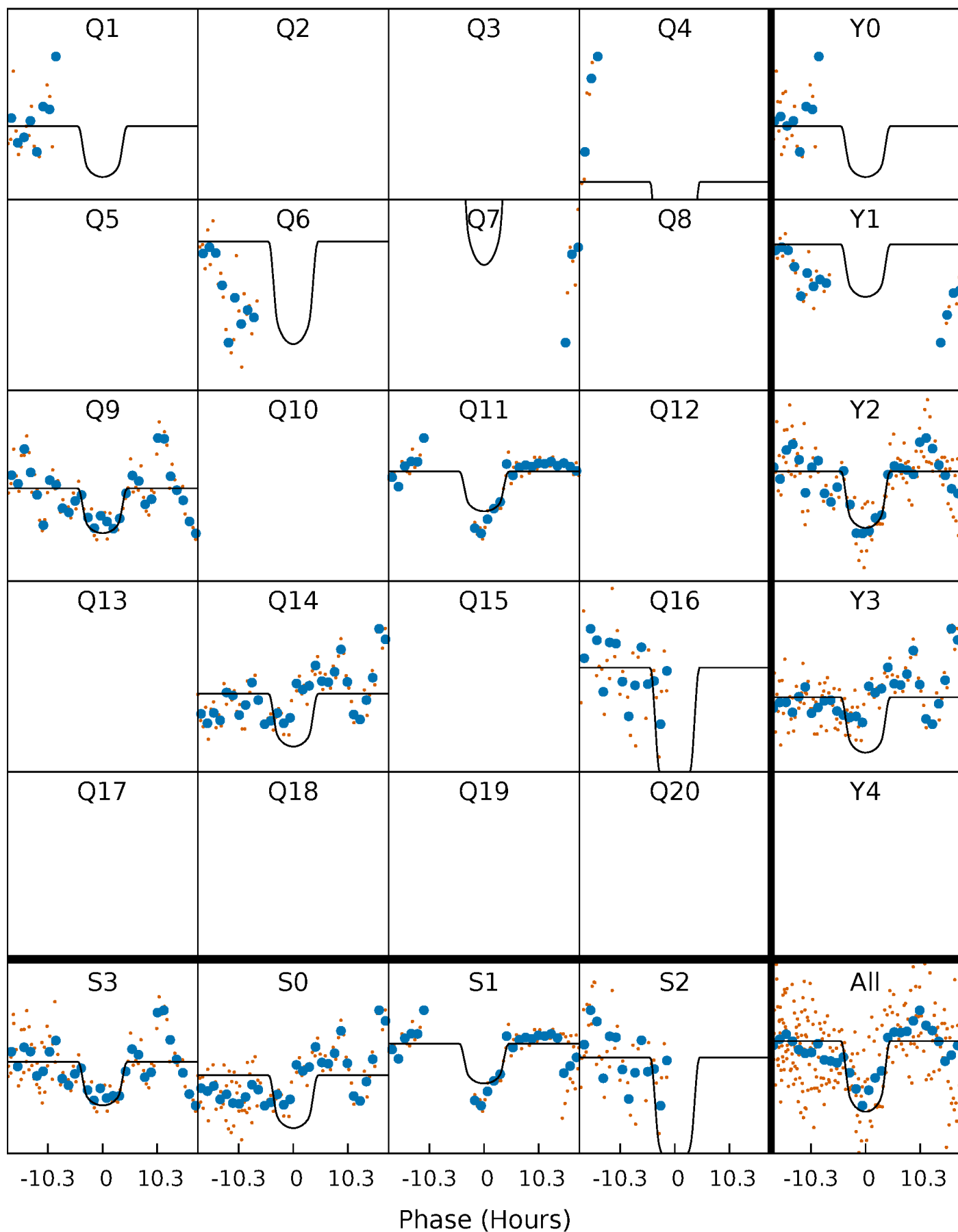
TCE 010058376-01 P=232.110744 Days  $T_0=165.358205$  (BKJD)





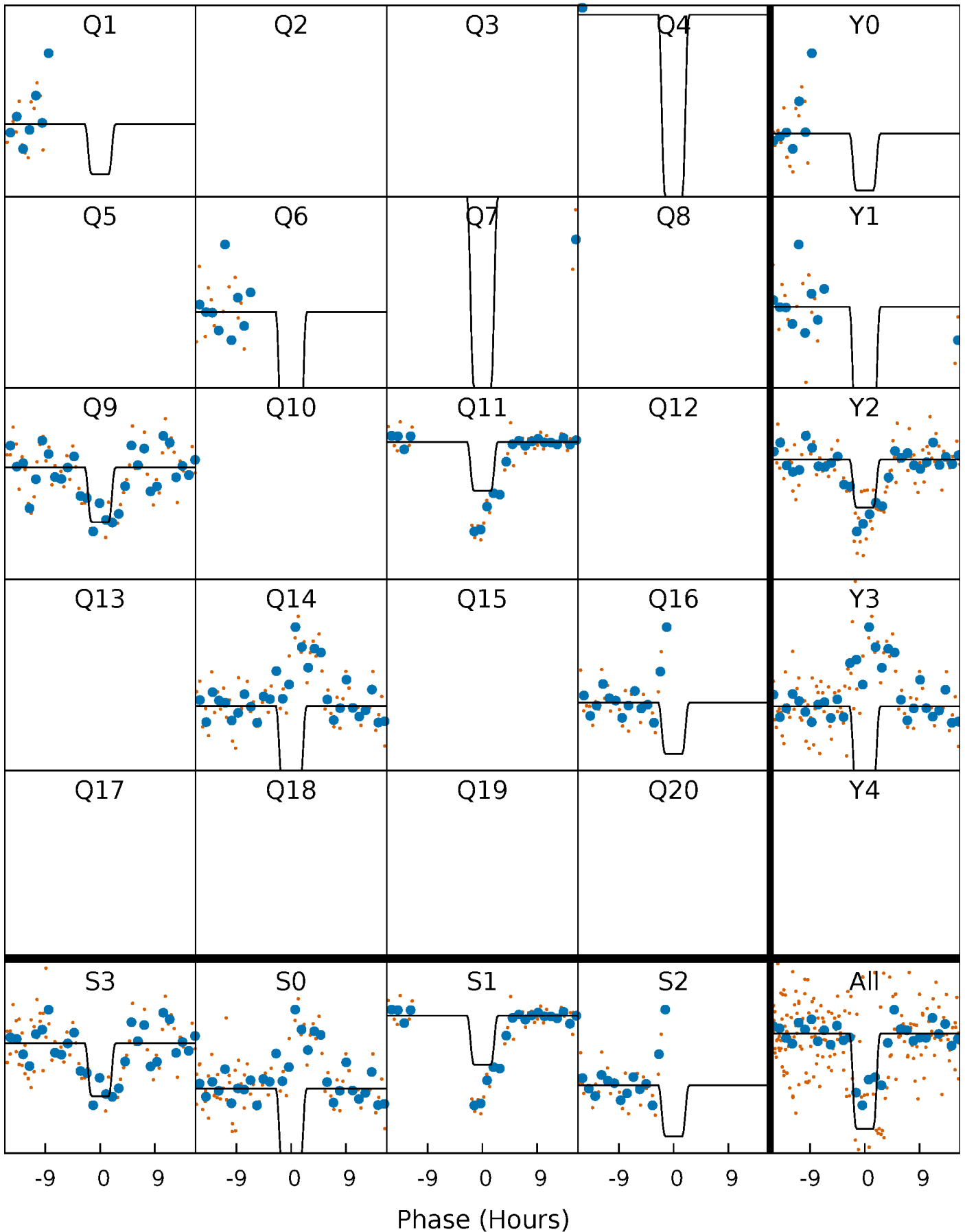
# DV Quarter-Phased Transit Curves

TCE 010058376-01 P=232.110744 Days  $T_0=165.358205$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

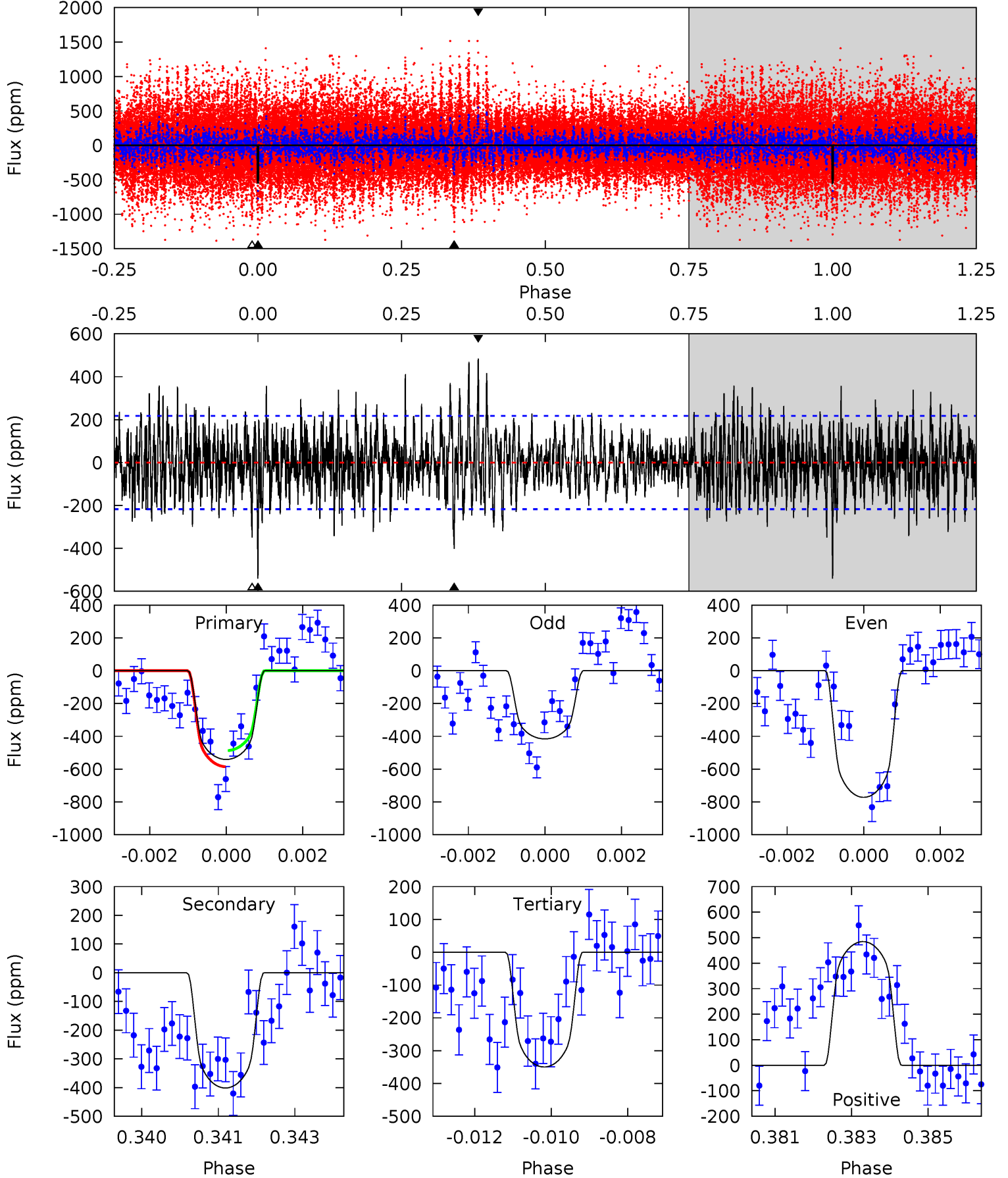
TCE 010058376-01 P=232.111619 Days  $T_0=165.353960$  (BKJD)



# DV Model-Shift Uniqueness Test

010058376-01, P = 232.110744 Days, E = 165.358205 Days

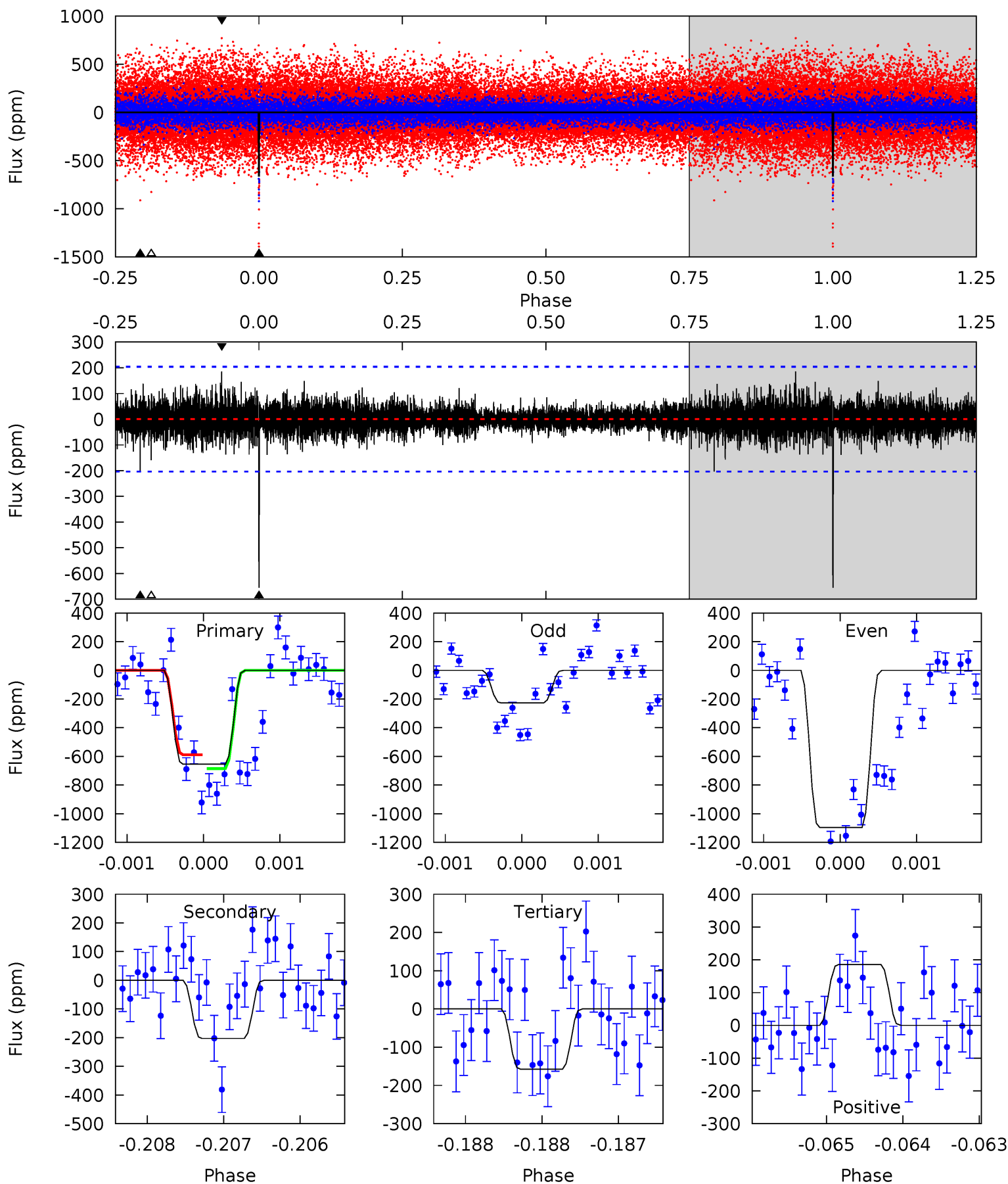
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	9.89	8.62	11.9	5.36	3.14	2.68	4.72	1.39	1.27	-2.05	4.20	1.20	0.47	1.21



# Alt Model-Shift Uniqueness Test

010058376-01, P = 232.111619 Days, E = 165.353960 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
17.6	5.45	4.22	4.98	5.47	3.33	0.92	13.4	12.6	1.23	0.46	11.4	0.57	0.22	1.23



### Stellar Parameters For KIC 010058376

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4631^{+140}_{-140}$	$4.598^{+0.035}_{-0.032}$	$0.120^{+0.250}_{-0.300}$	$0.718^{+0.047}_{-0.052}$	$0.745^{+0.046}_{-0.063}$	$2.829^{+0.504}_{-0.355}$
	+3%/-3%	+1%/-1%	+208%/-250%	+7%/-7%	+6%/-8%	+18%/-13%
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 010058376-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-401 \pm 41$	$2.49^{+0.30}_{-0.35}$	$295^{+11}_{-10}$	$3912^{+235}_{-207}$	$16003^{+5625}_{-3463}$
Alt.	$-203 \pm 37$	$2.07^{+0.30}_{-0.30}$	$296^{+10}_{-9}$	$3701^{+251}_{-207}$	$11761^{+5048}_{-3362}$

$T_{\text{max}}$  = 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  $A_{\text{obs}} \gg 1.0$

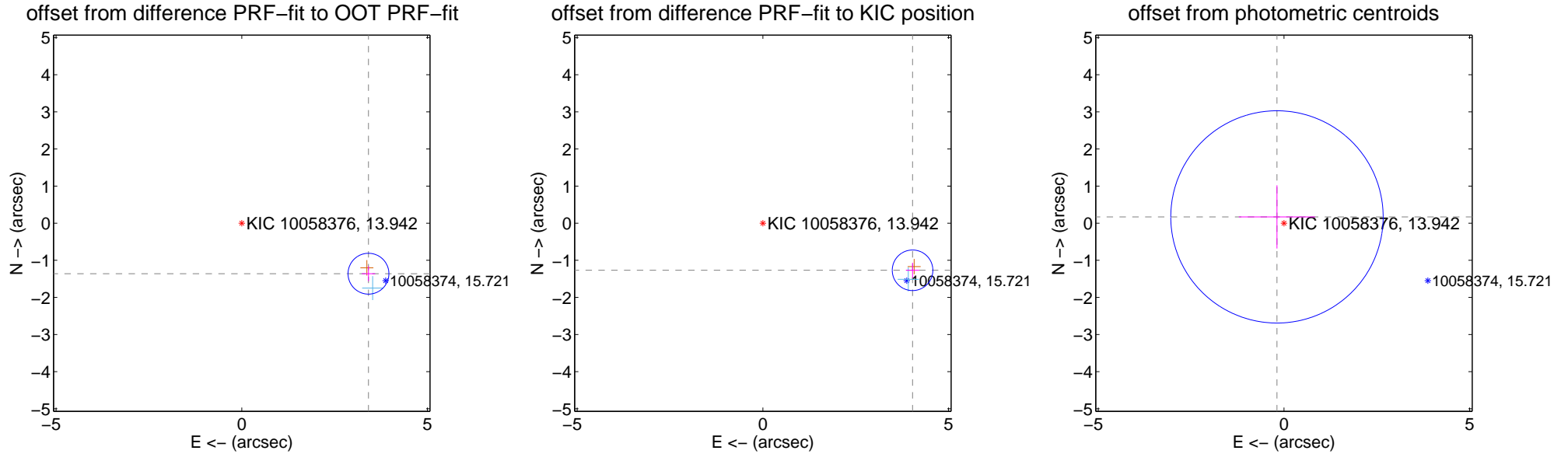
## DV Centroid Data

Supplemental centroid analysis for 010058376-01. Kepler magnitude: 13.94. Transit SNR 6.94

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.71 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.673 \pm 0.183$	20.04	$-3.411 \pm 0.180$	$-1.360 \pm 0.203$
PRF-fit source offset from KIC position	$4.225 \pm 0.182$	23.19	$-4.030 \pm 0.180$	$-1.269 \pm 0.203$
photometric centroid source offset	$0.25 \pm 0.95$	0.27	$0.19 \pm 1.03$	$0.17 \pm 0.85$



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.

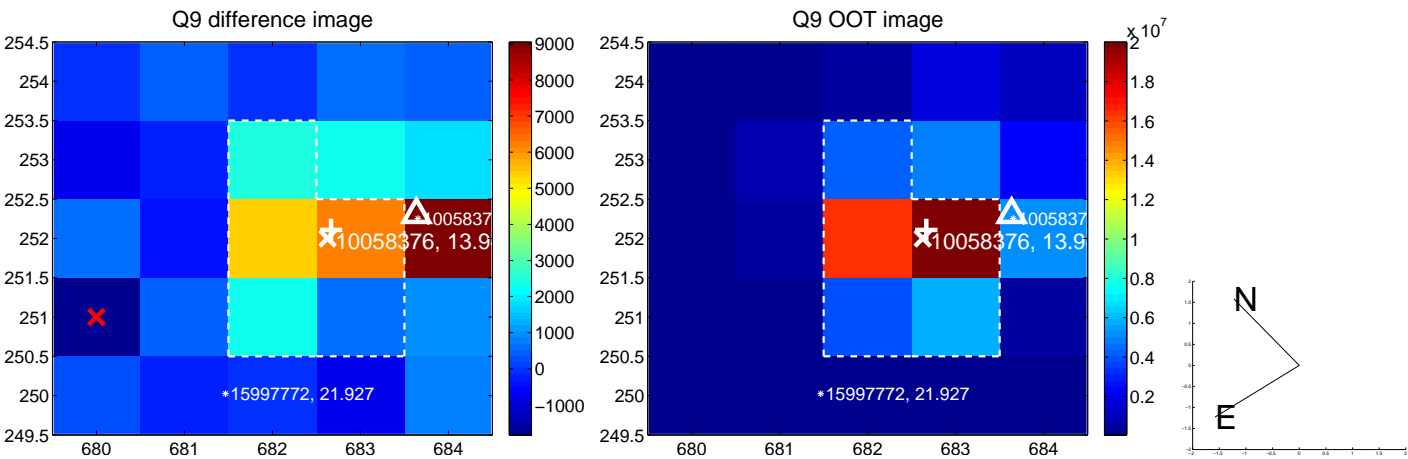


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

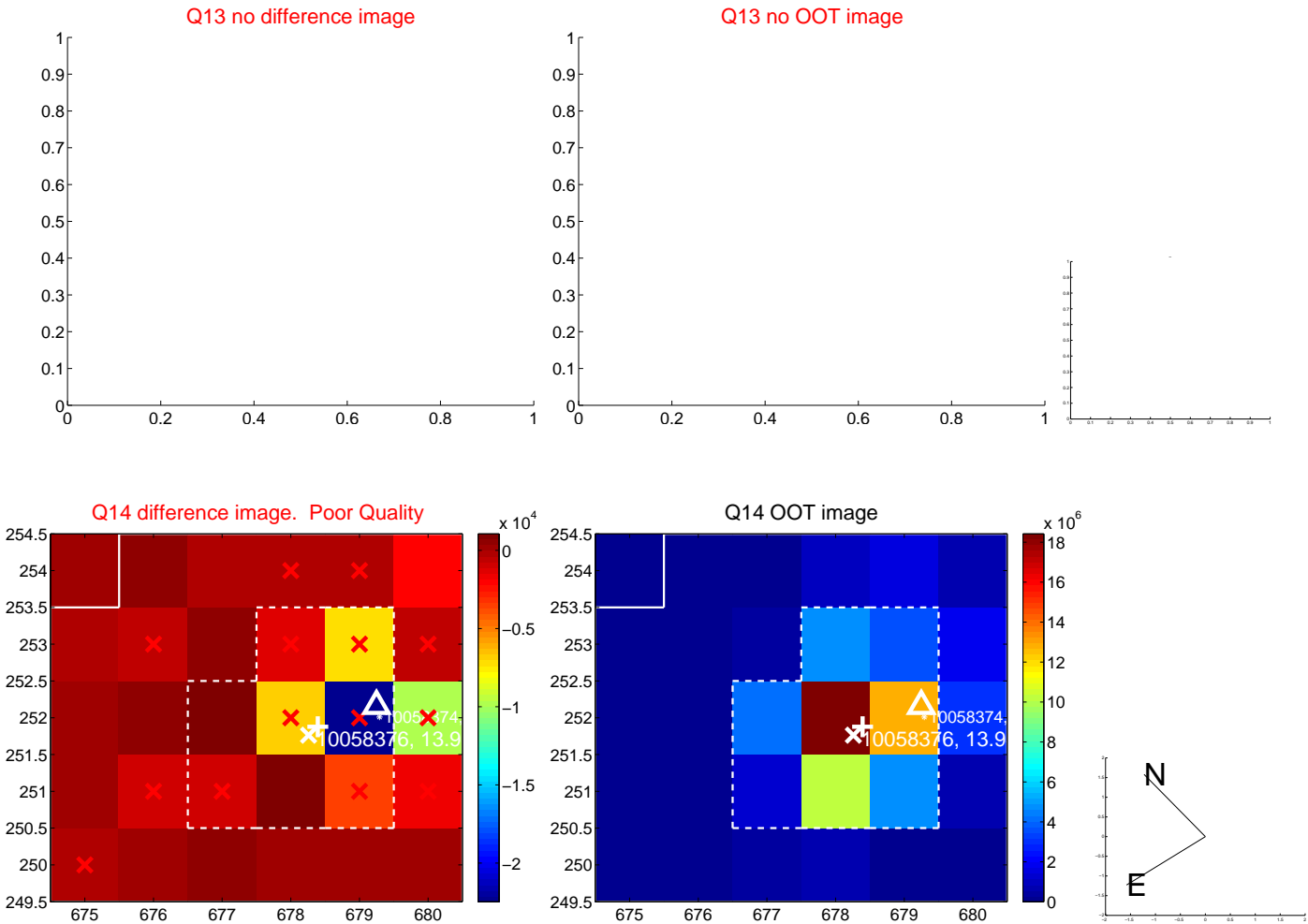




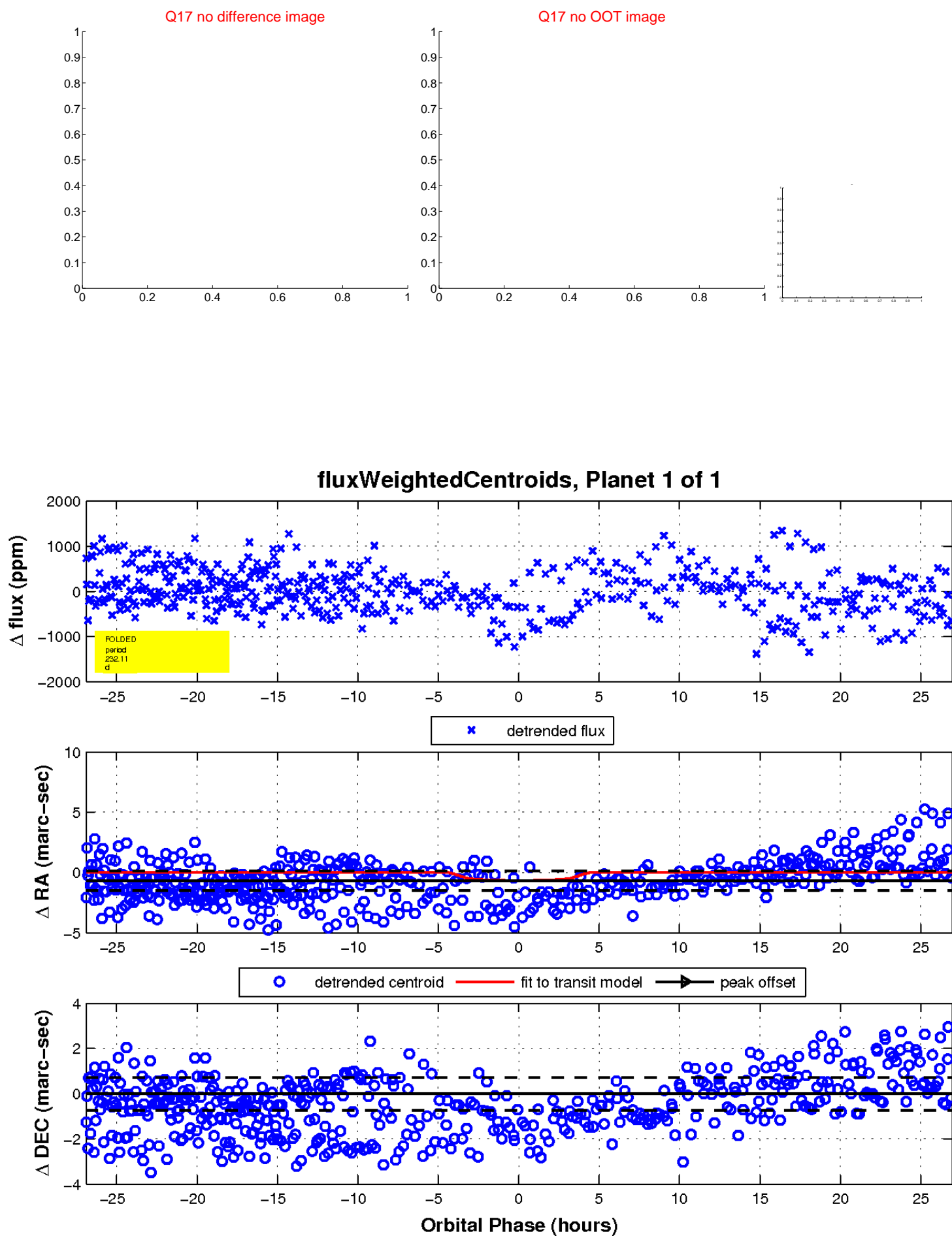
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

