

# KIC 009658623

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009658623-01	OBS	No	379.838238	425.521078	746.3	7.256	7.4	6.8	0.84	5662	2.41	0.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009658623-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

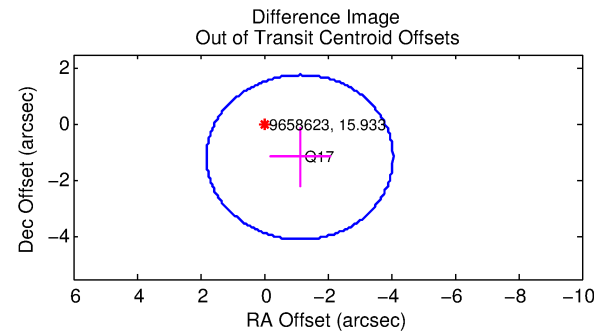
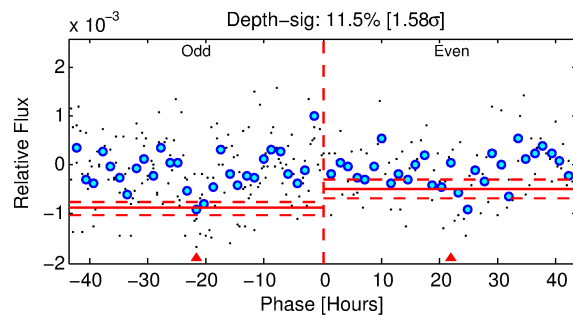
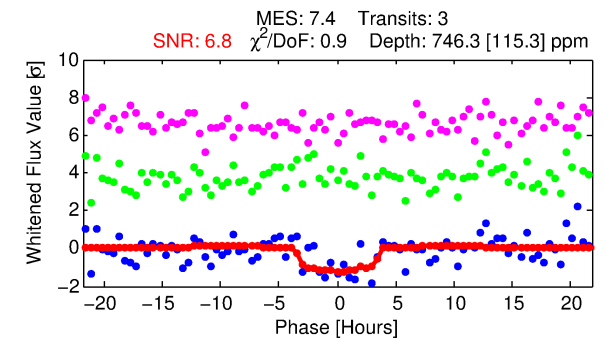
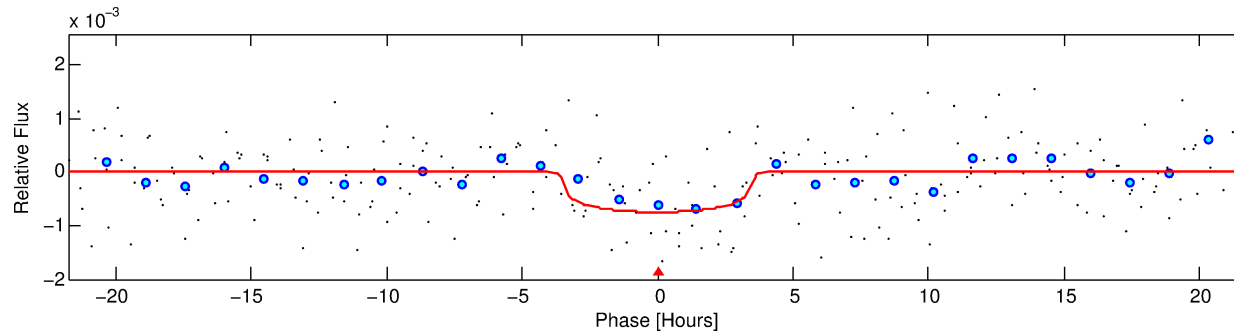
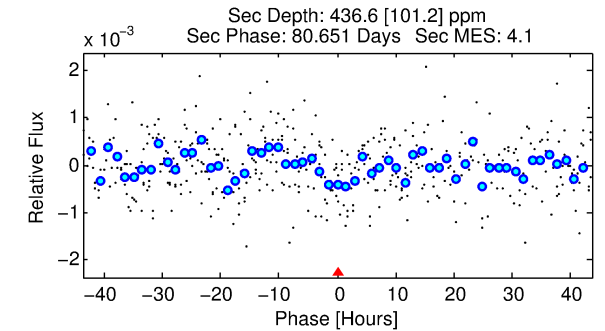
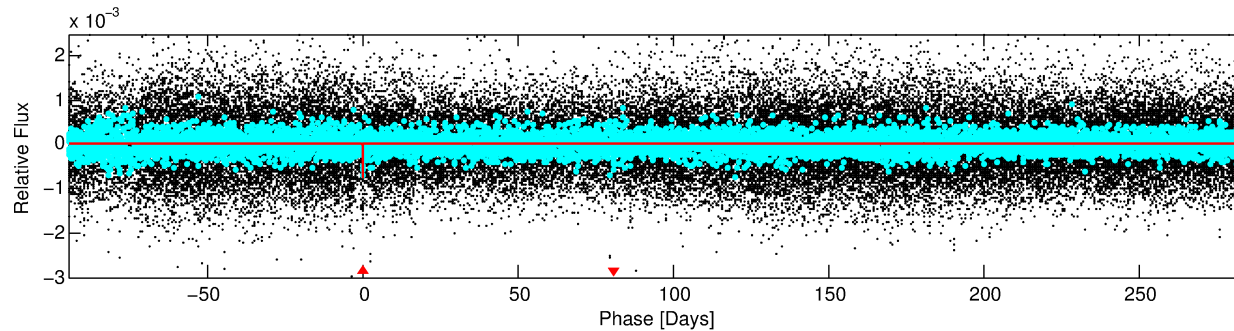
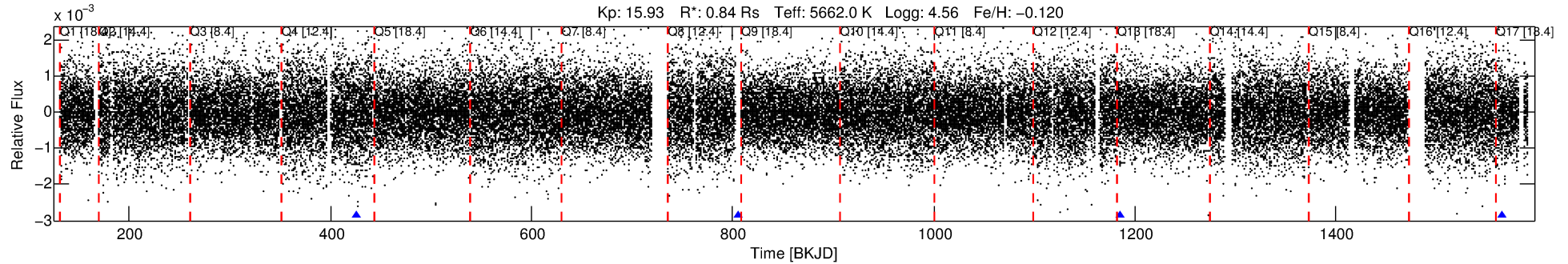
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009658623-01

No Significant Match Found

# DV One-Page Summary

KIC: 9658623 Candidate: 1 of 1 Period: 379.838 d



## DV Fit Results:

Period = 379.83824 [0.01058] d  
Epoch = 425.5211 [0.0236] BKJD  
Rp/R\* = 0.0263 [0.0321]  
a/R\* = 319.35 [1678.10]  
b = 0.64 [4.80]  
Seff = 0.64 [0.19]  
Teq = 229 [17] K  
Rp = 2.41 [2.99] Re  
a = 1.0037 [0.1857] AU  
Ag = 41600.65 [102694.46] [0.41σ]  
Teffp = 5046 [3098] K [1.55σ]

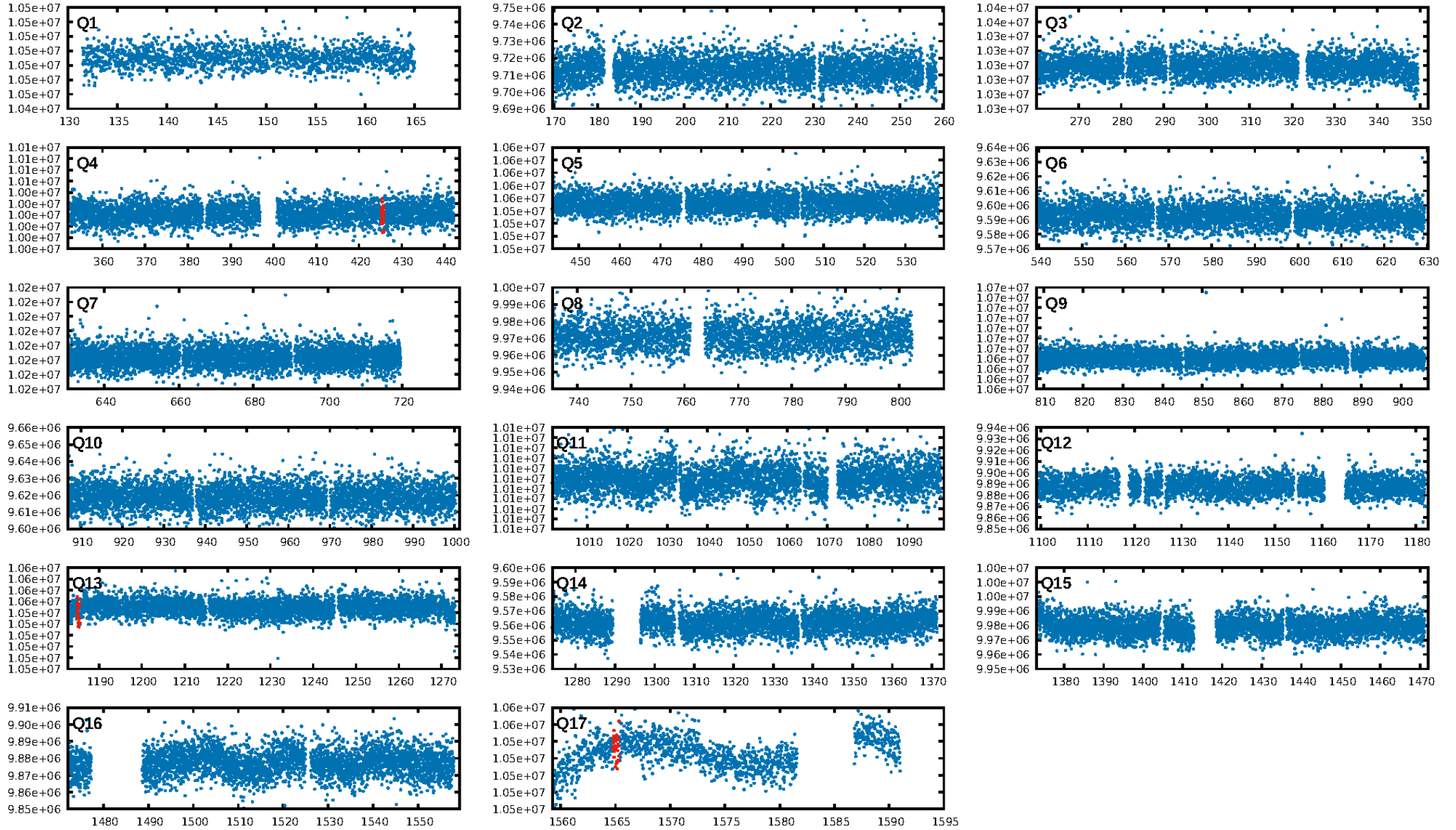
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.2%  
ModelChiSquareGof-sig: 93.5%  
Bootstrap-pfa: 9.20e-15  
RollingBand-fgt: 1.00 [2/2]  
**GhostDiagnostic-chr: -0.0938**  
Centroid-sig: 54.8%  
Centroid-so: 1.656 arcsec [0.93σ]  
OotOffset-rm: 1.625 arcsec [1.66σ]  
KicOffset-rm: 1.717 arcsec [1.77σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

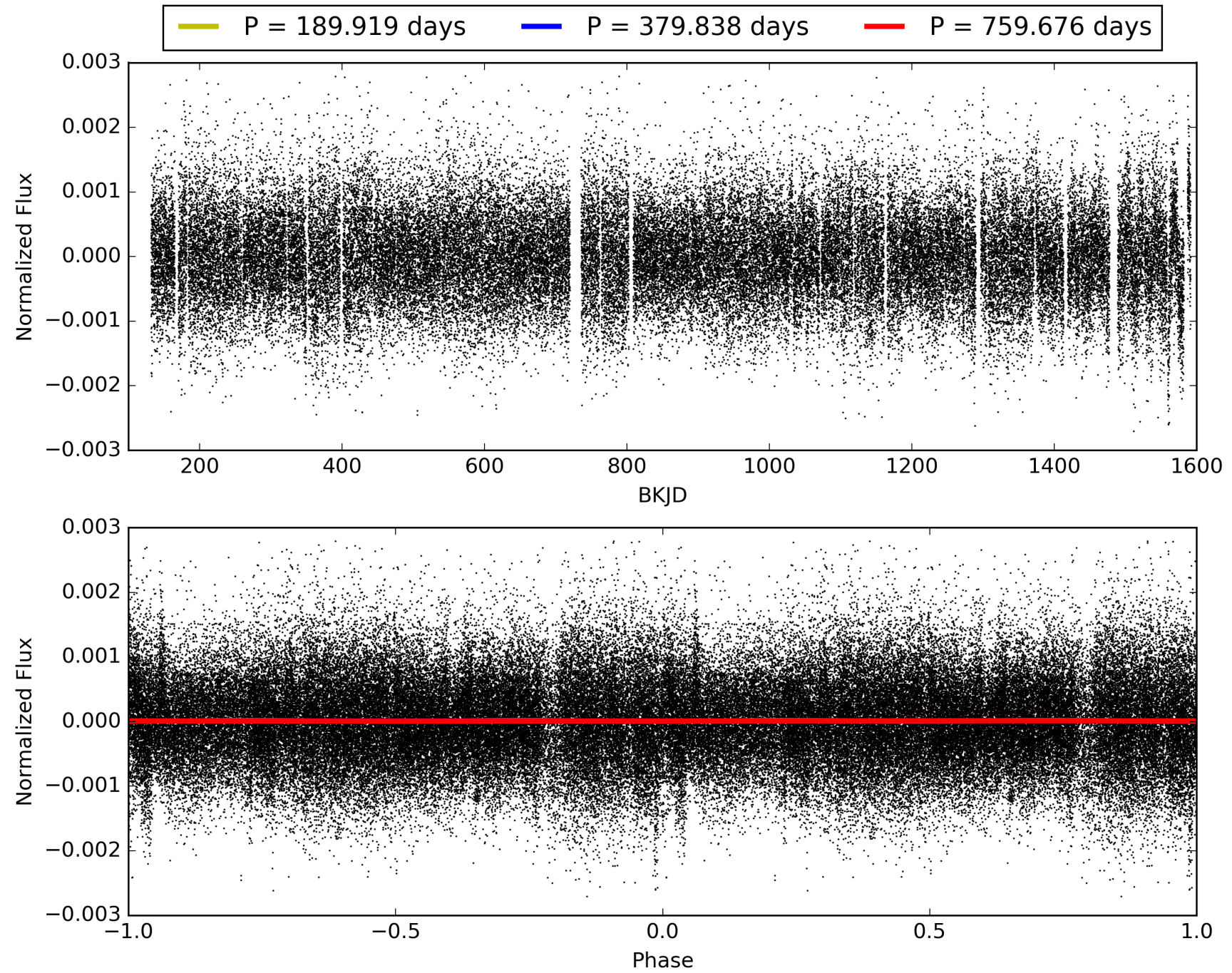
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:21:24 Z

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

# TCE 009658623-01, PDC Light Curves

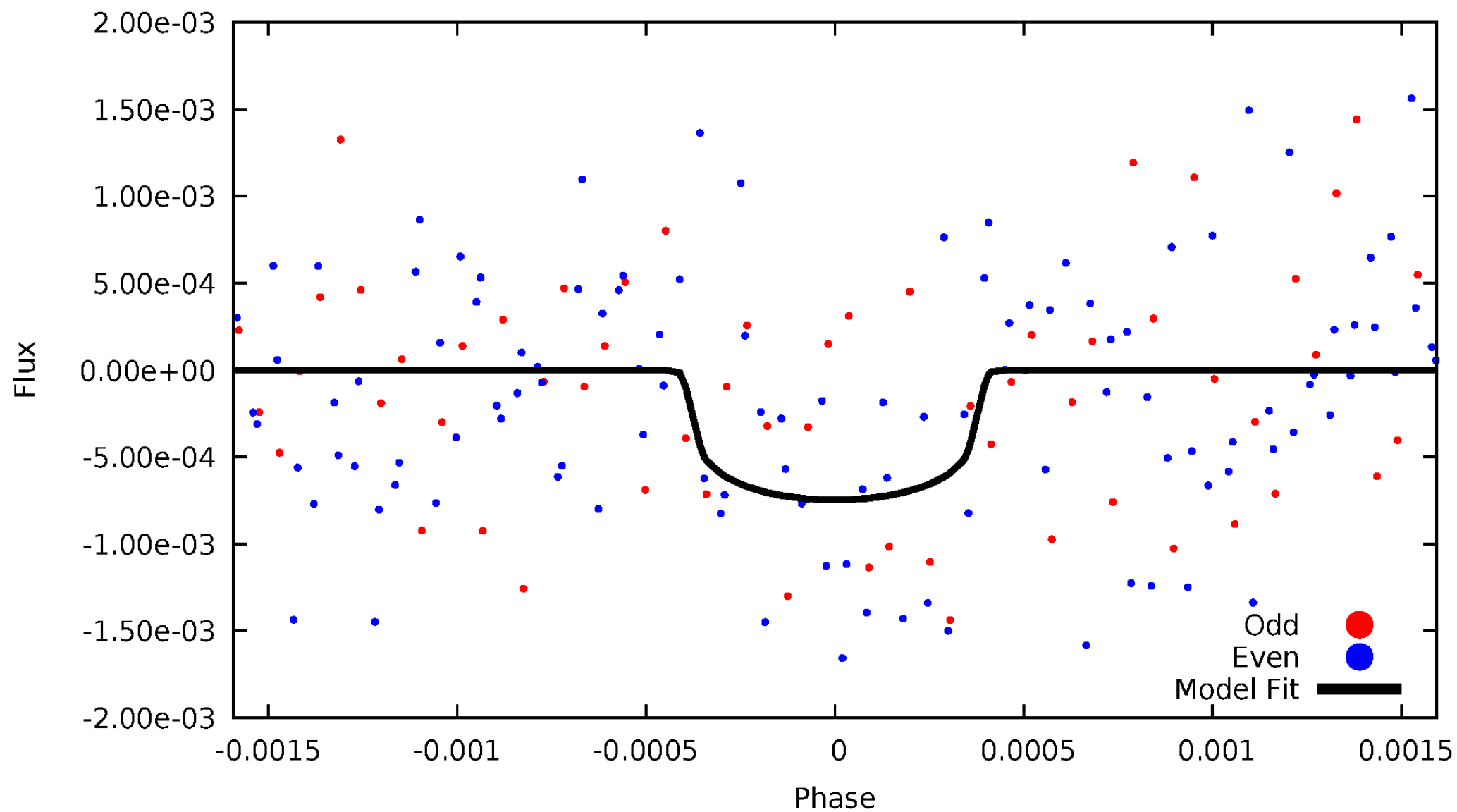


TCE 009658623-01



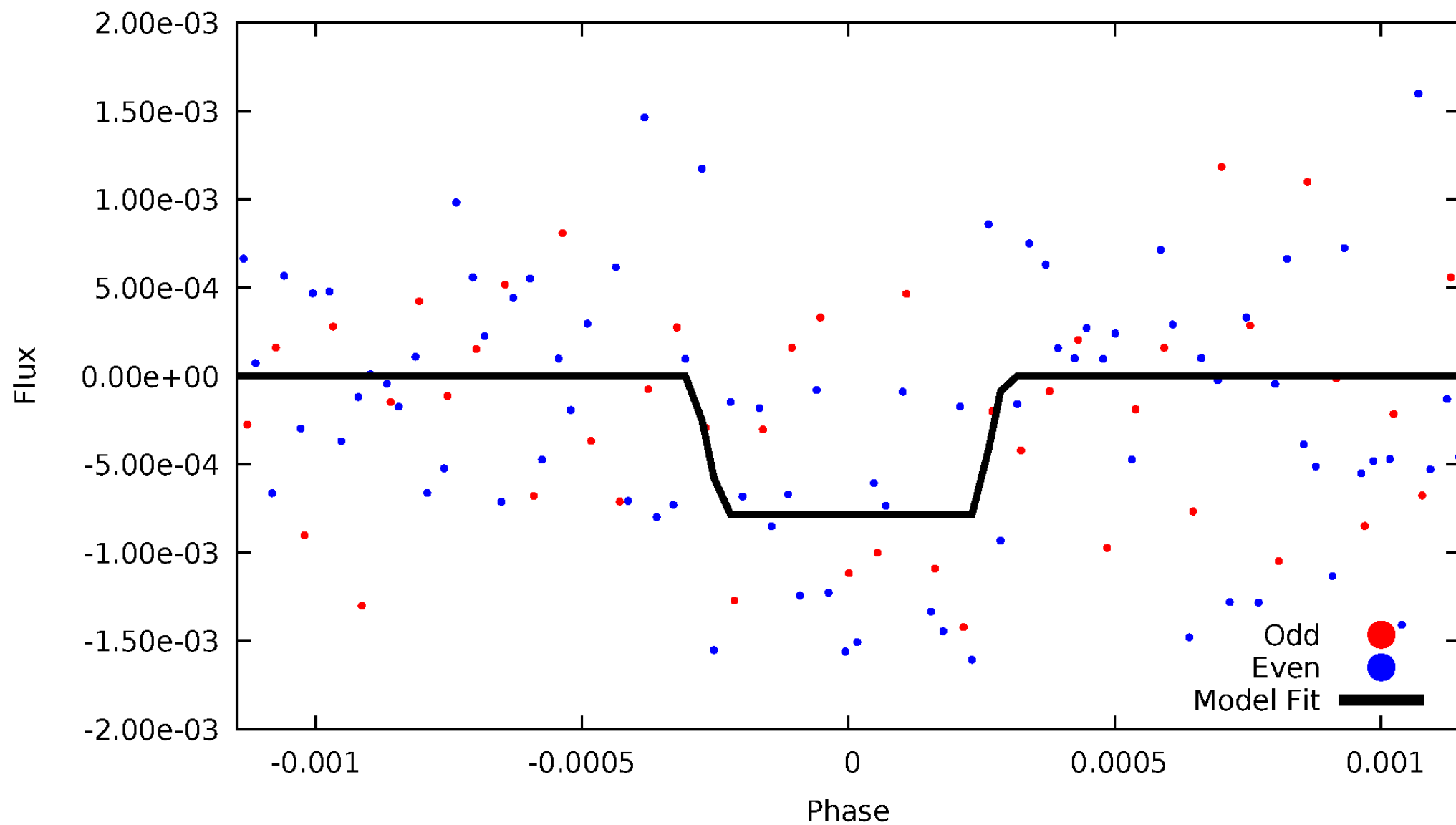
# DV Odd/Even

TCE 009658623-01



# ALT Odd/Even

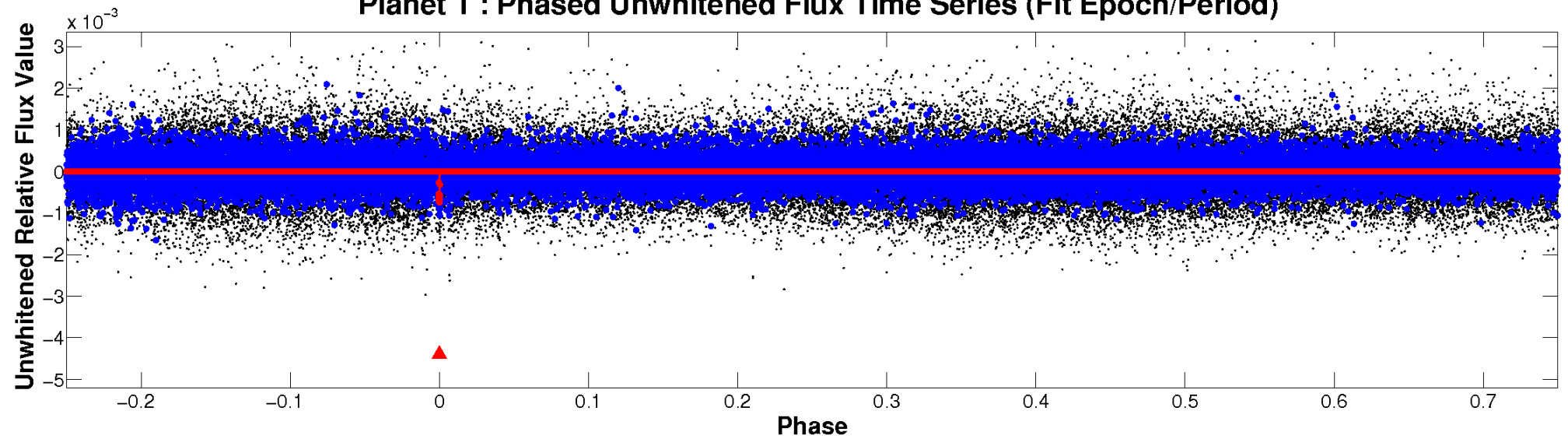
TCE 009658623-01



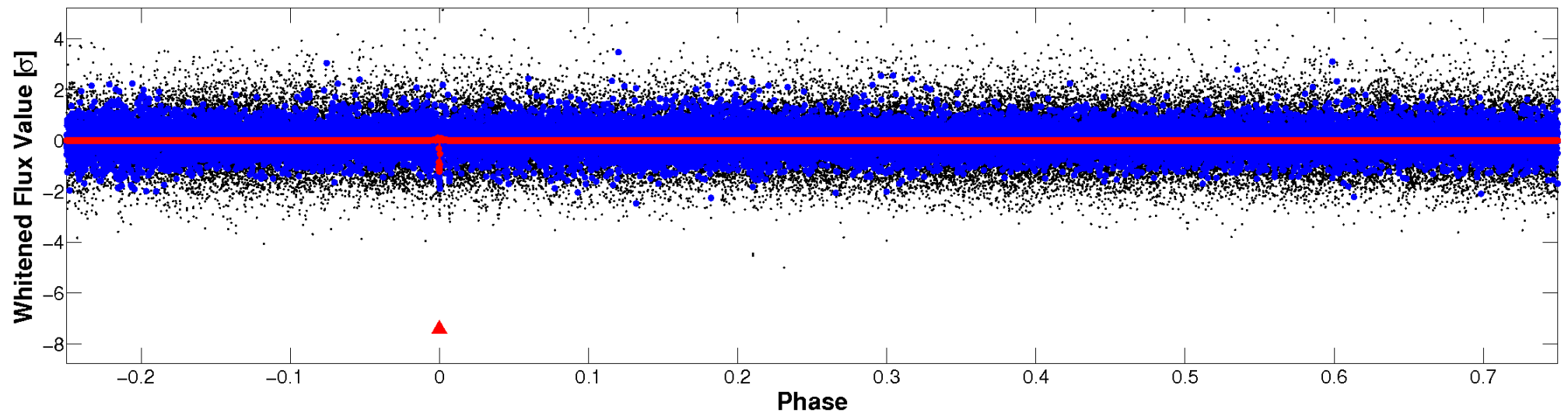


# Non-Whitened Vs. Whitened Light Curve

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

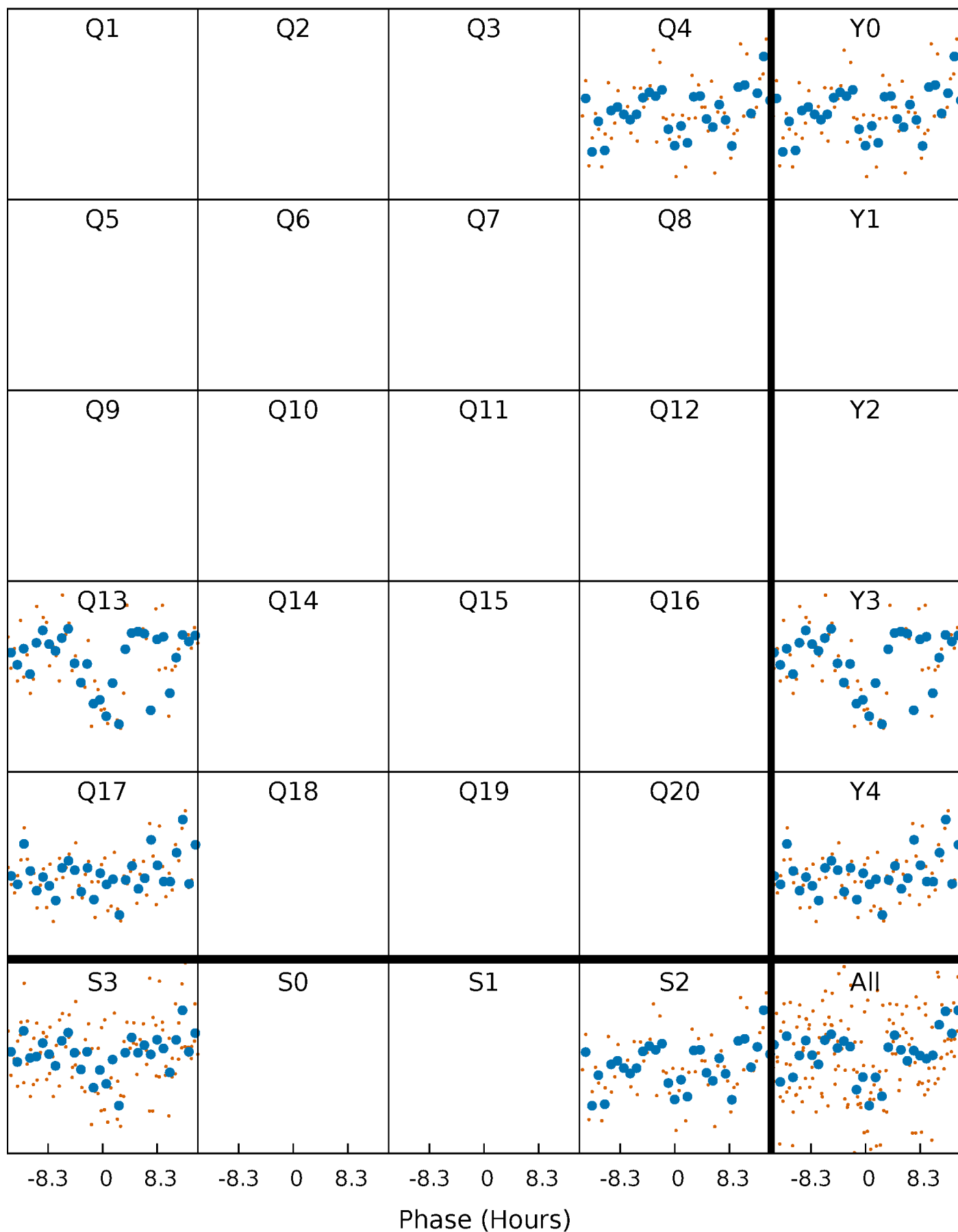


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

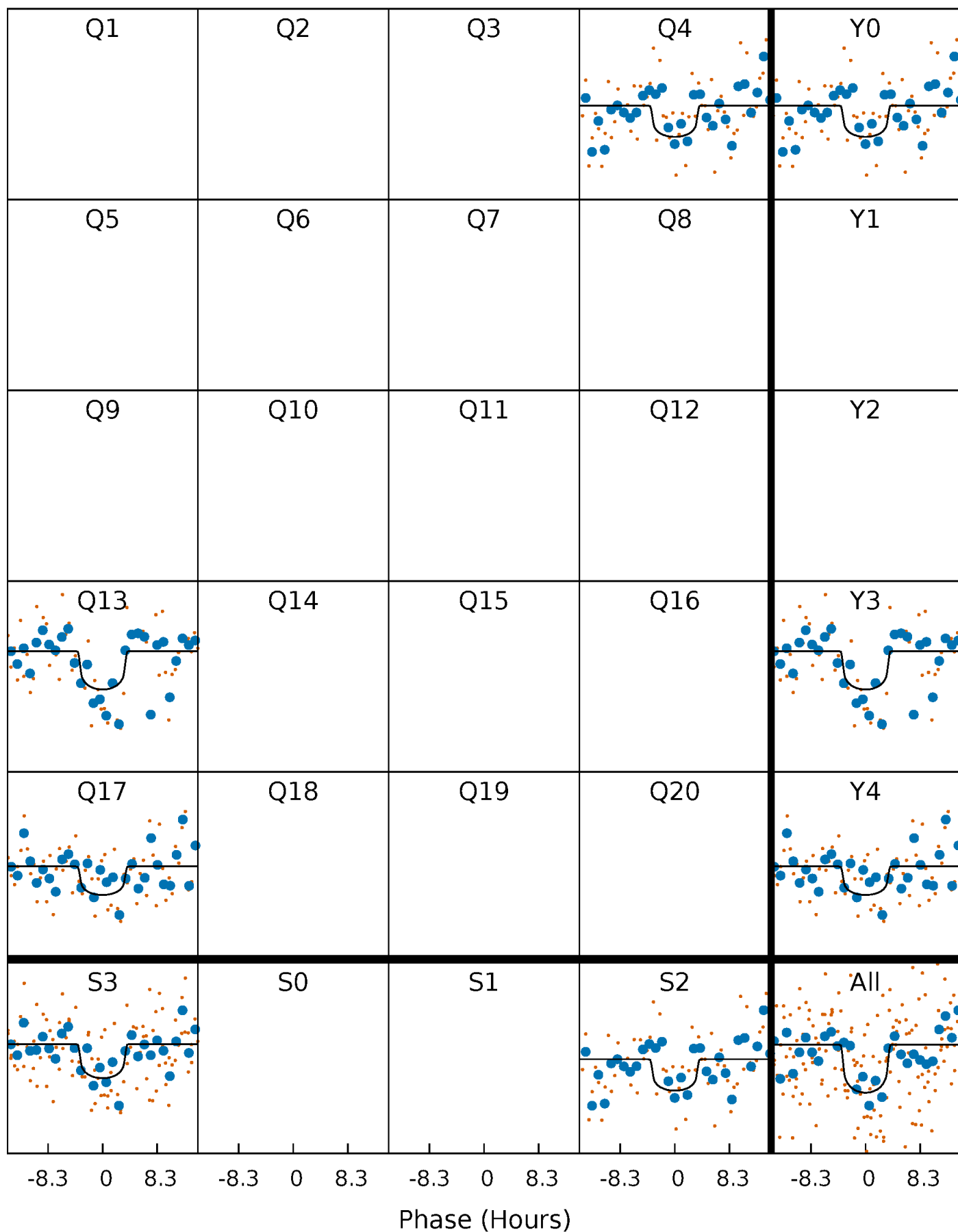
TCE 009658623-01 P=379.838238 Days  $T_0=425.521078$  (BKJD)





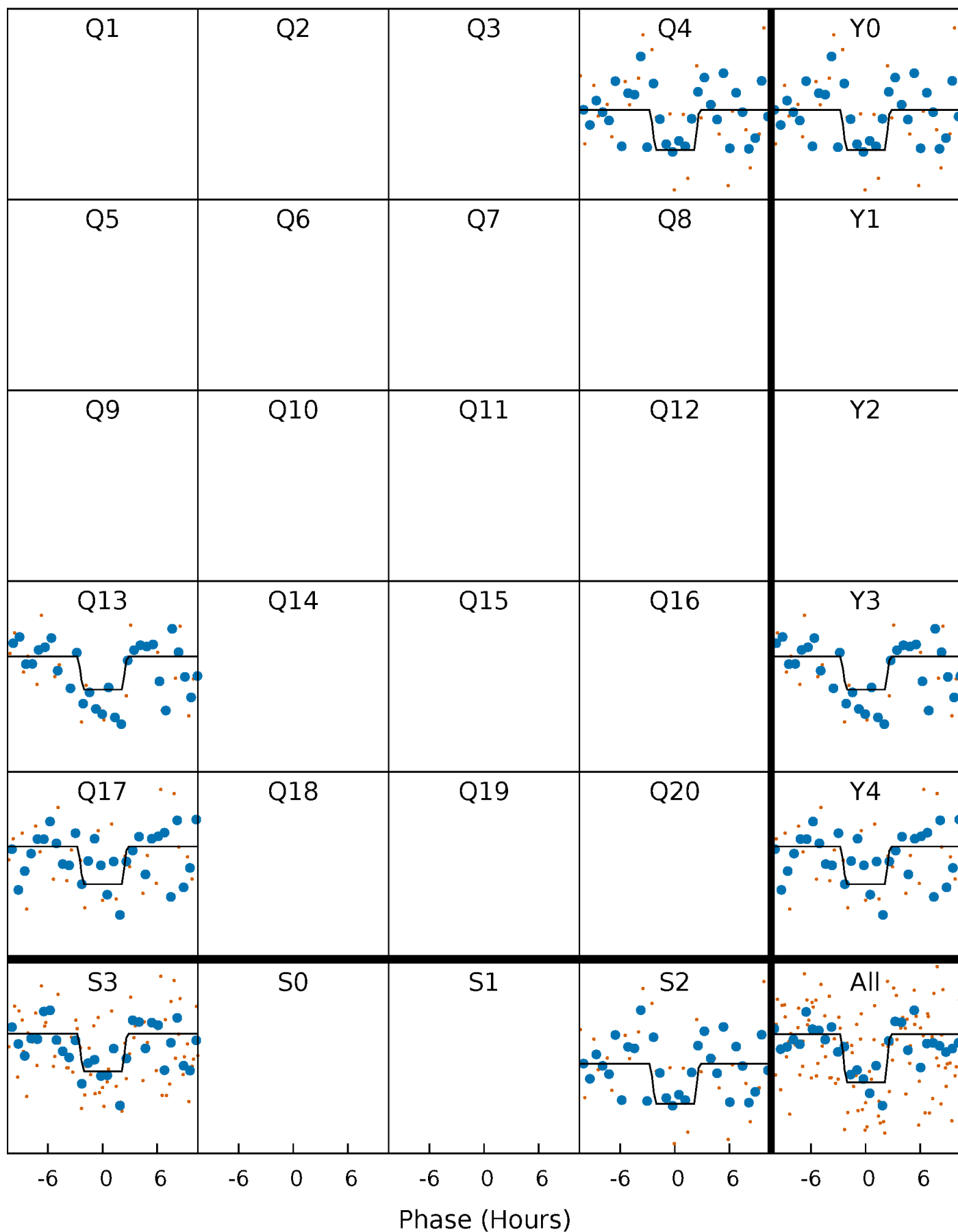
# DV Quarter-Phased Transit Curves

TCE 009658623-01 P=379.838238 Days  $T_0=425.521078$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

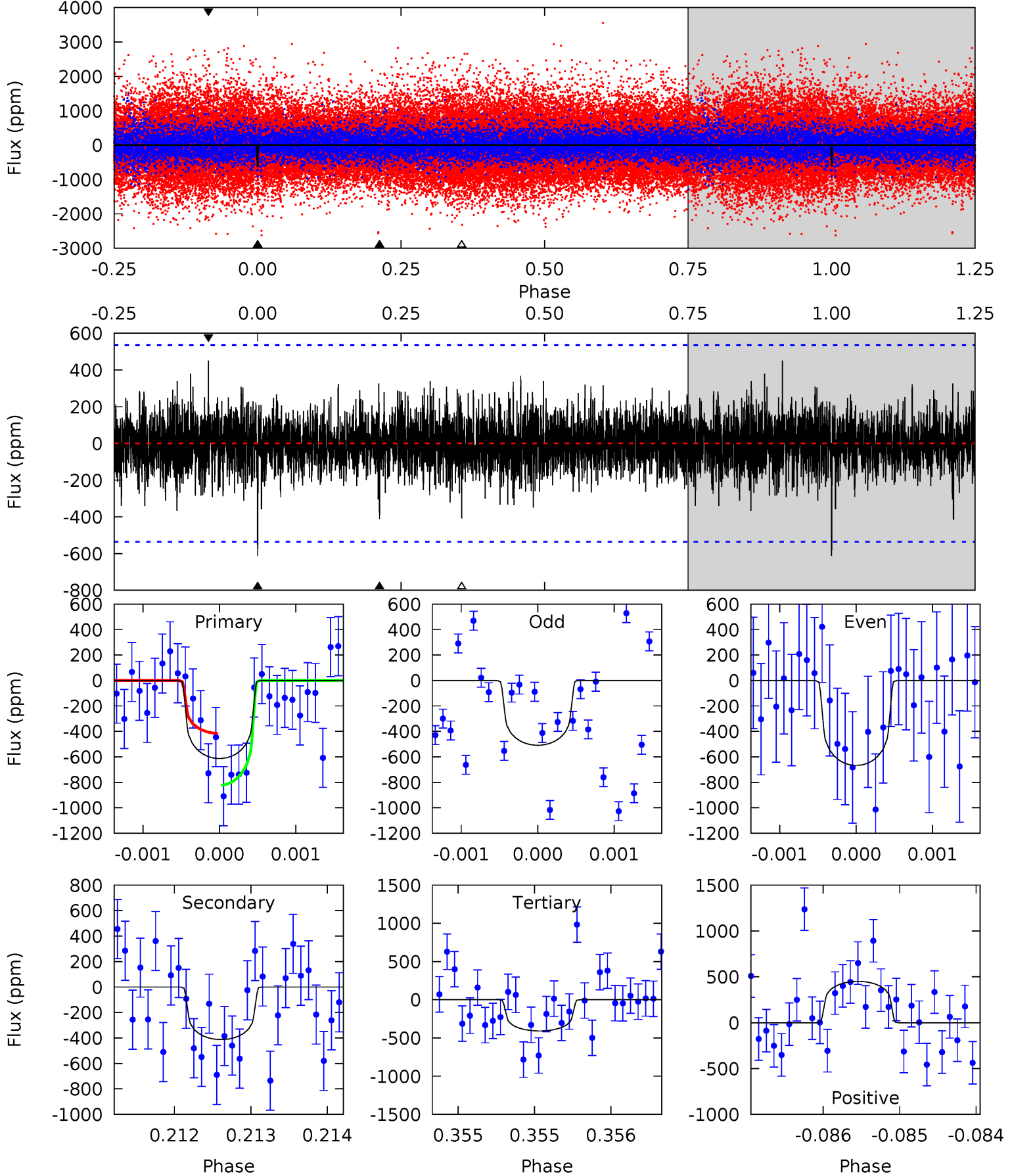
TCE 009658623-01 P=379.846258 Days  $T_0=425.530723$  (BKJD)



# DV Model-Shift Uniqueness Test

009658623-01, P = 379.838238 Days, E = 45.682840 Days

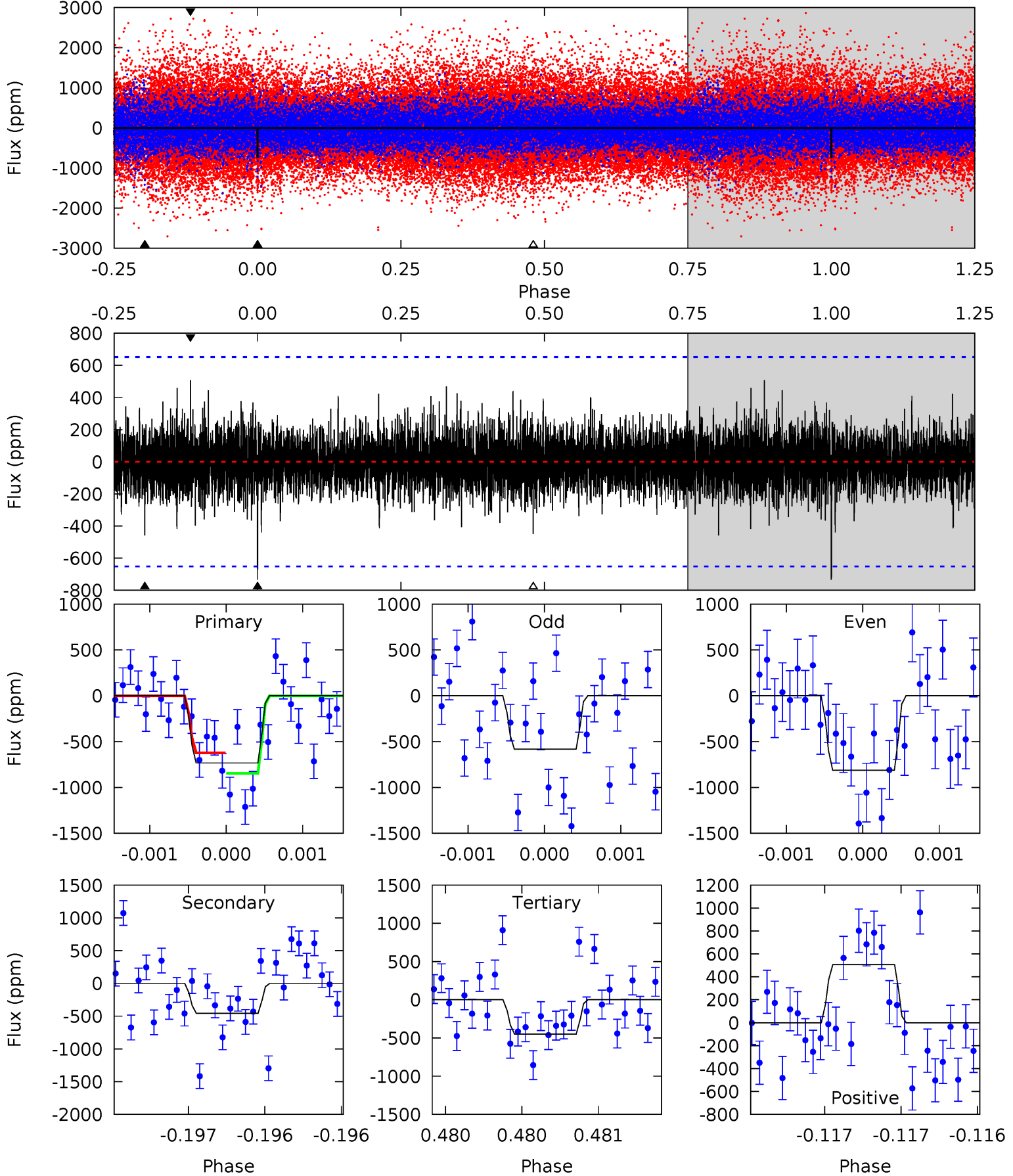
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.27	4.22	4.18	4.61	5.48	3.34	1.07	2.09	1.66	0.04	-0.39	0.77	1.23	0.42	2.08



# Alt Model-Shift Uniqueness Test

009658623-01, P = 379.846258 Days, E = 45.684465 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
6.25	3.91	3.82	4.33	5.55	3.45	0.98	2.43	1.93	0.09	-0.42	0.94	1.28	0.41	0.96



### Stellar Parameters For KIC 009658623

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5662^{+152}_{-169}$	$4.560^{+0.038}_{-0.152}$	$-0.120^{+0.300}_{-0.300}$	$0.840^{+0.181}_{-0.078}$	$0.937^{+0.083}_{-0.115}$	$2.228^{+0.430}_{-0.913}$
	+3%/-3%	+1%/-3%	+250%/-250%	+22%/-9%	+9%/-12%	+19%/-41%
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 009658623-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-412 \pm 98$	$3.27^{+2.89}_{-2.00}$	$324^{+19}_{-12}$	$4501^{+2505}_{-886}$	$20114^{+132982}_{-14350}$
Alt.	$-458 \pm 117$	$3.33^{+2.88}_{-2.28}$	$325^{+17}_{-14}$	$4533^{+3511}_{-904}$	$20874^{+203024}_{-14763}$

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

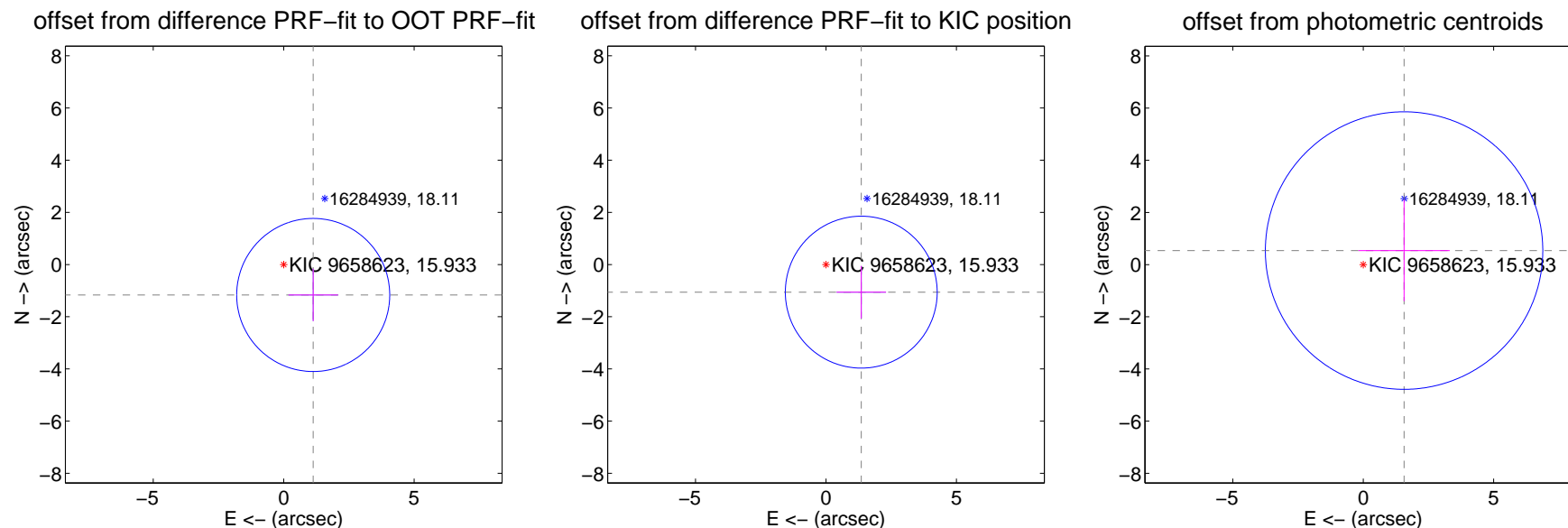
## DV Centroid Data

Supplemental centroid analysis for 009658623-01. Kepler magnitude: 15.93. Transit SNR 6.77

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

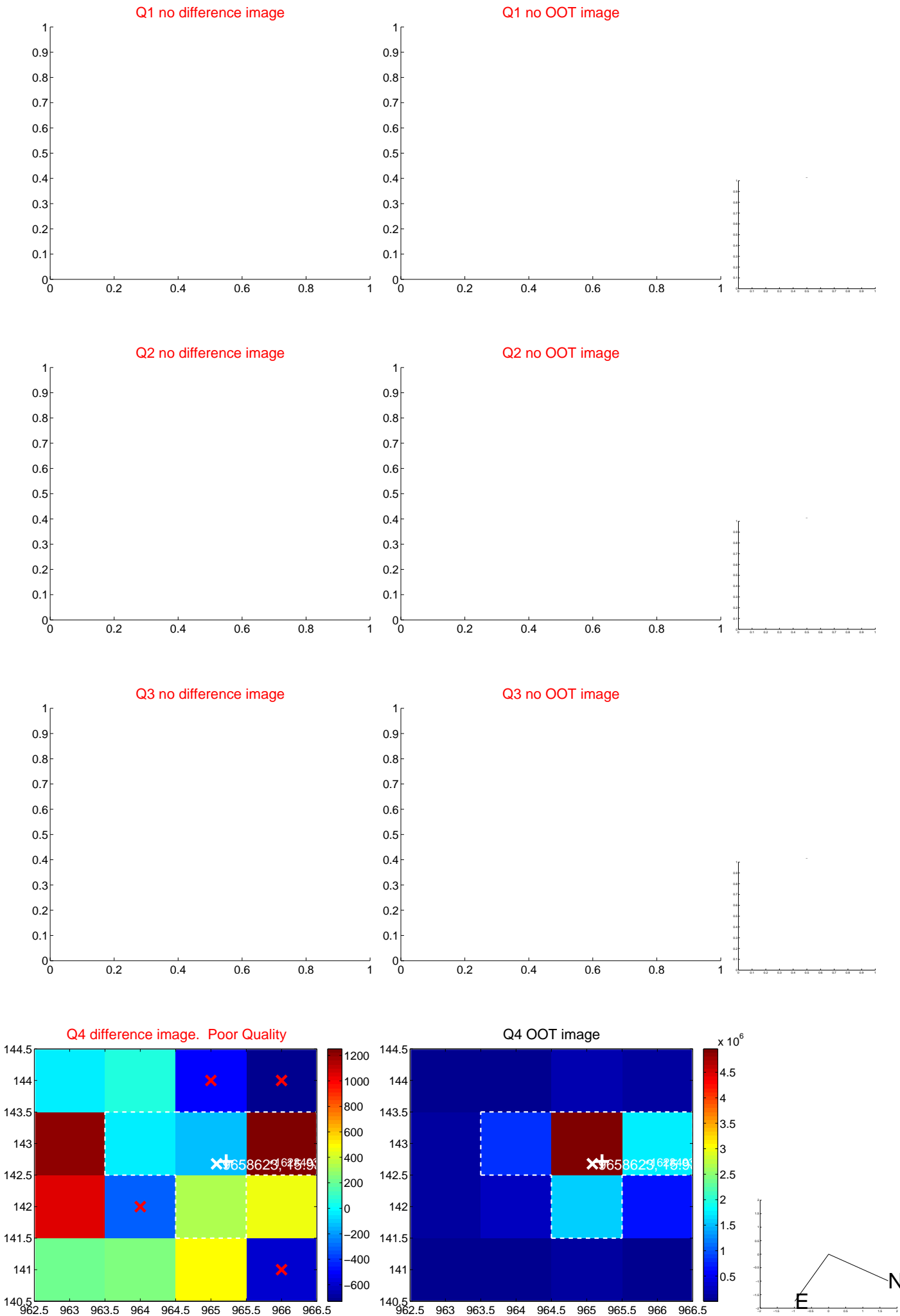
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.625 \pm 0.978$	1.66	$-1.132 \pm 0.948$	$-1.166 \pm 1.004$
PRF-fit source offset from KIC position	$1.717 \pm 0.970$	1.77	$-1.353 \pm 0.948$	$-1.058 \pm 1.004$
photometric centroid source offset	$1.66 \pm 1.77$	0.93	$-1.57 \pm 1.75$	$0.54 \pm 1.94$



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.



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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

