

# KIC 007983622

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007983622-01	OBS	No	520.702131	471.729165	5831.0	24.069	28.1	37.1	0.77	5341	10.32	0.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007983622-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

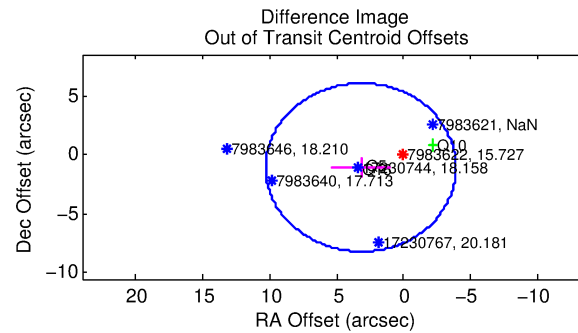
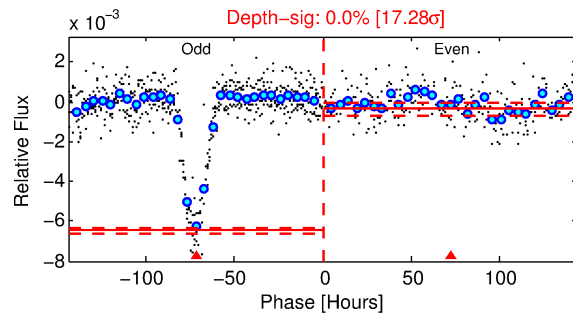
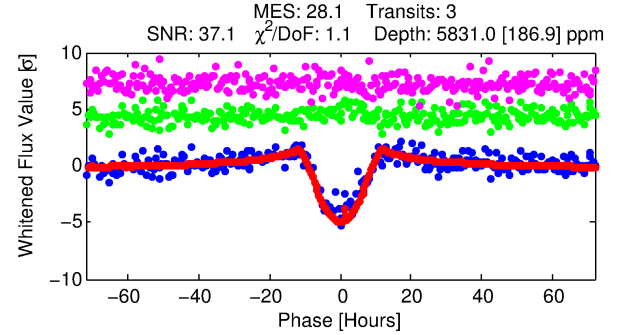
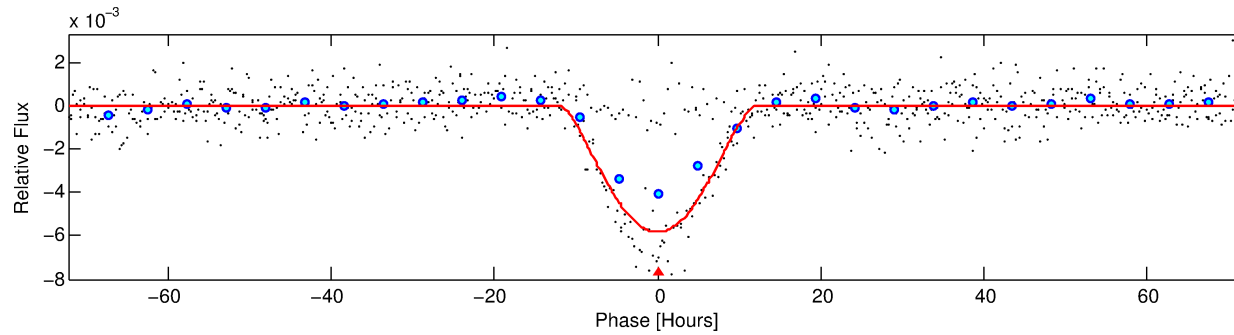
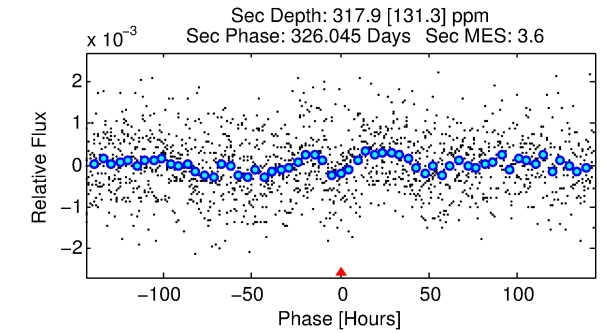
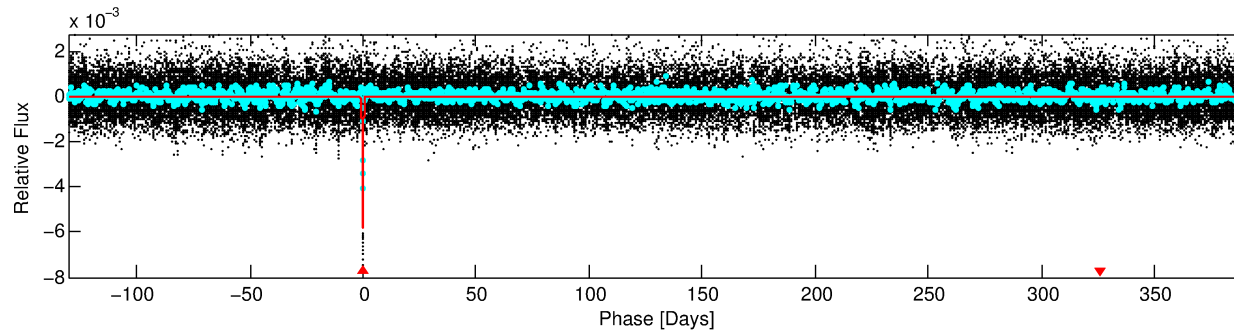
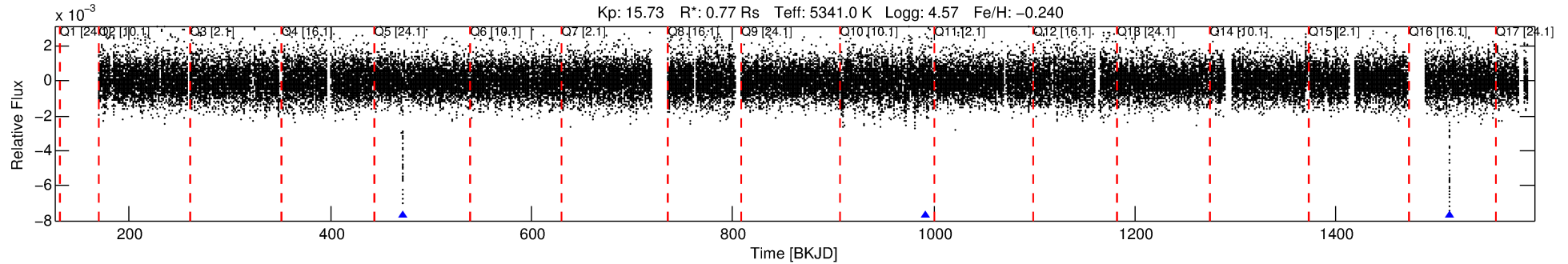
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007983622-01

No Significant Match Found

# DV One-Page Summary

KIC: 7983622 Candidate: 1 of 1 Period: 520.702 d



## DV Fit Results:

Period = 520.70213 [0.00780] d  
Epoch = 471.7292 [0.0088] BKJD  
Rp/R\* = 0.1225 [0.0982]  
a/R\* = 87.90 [13.42]  
b = 0.99 [0.15]  
Seff = 0.31 [0.07]  
Teq = 191 [11] K  
Rp = 10.32 [8.46] Re  
a = 1.1763 [0.1601] AU  
Ag = 2273.57 [3789.09] [0.60σ]  
Teffp = 2038 [846] K [2.18σ]

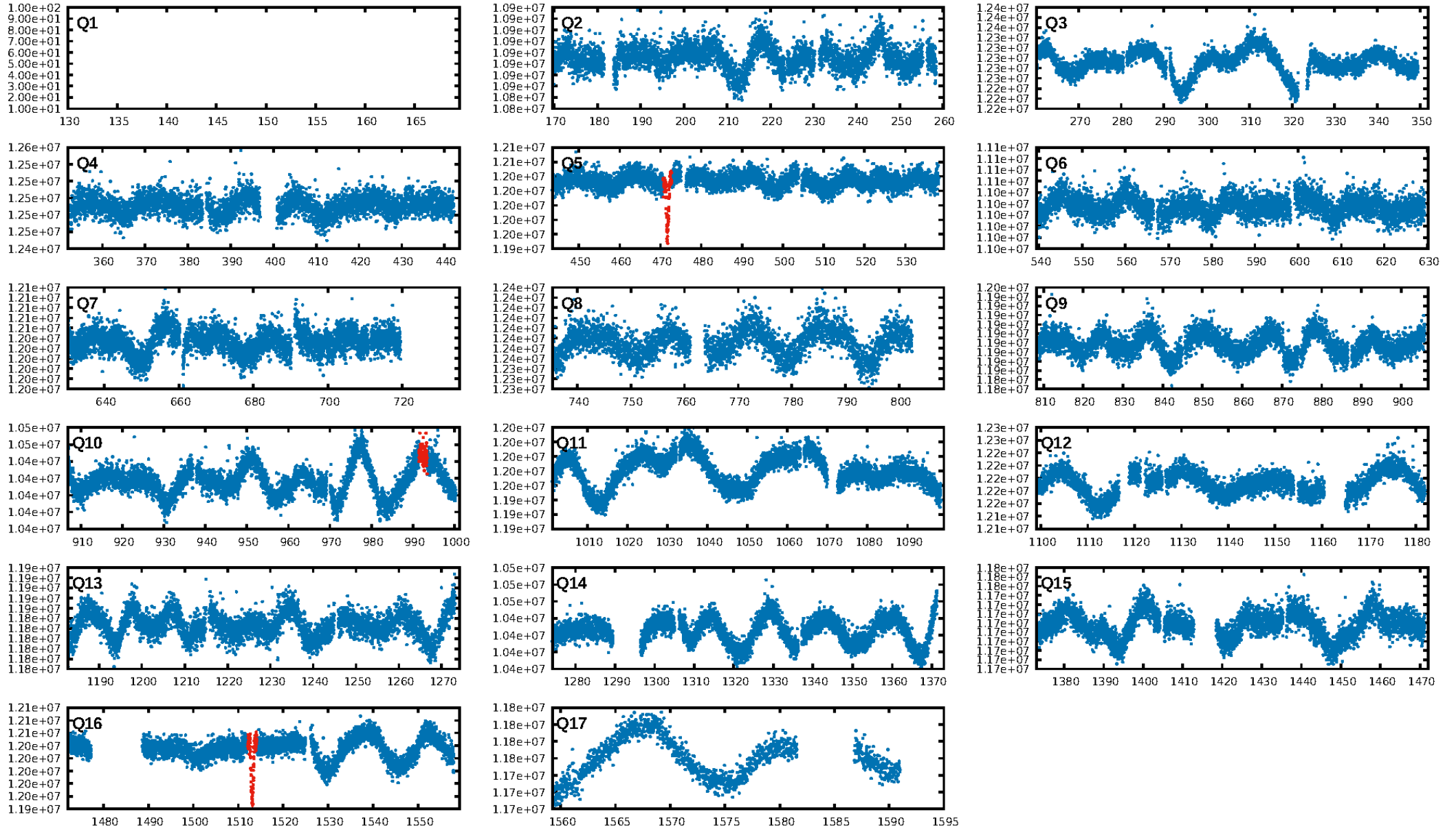
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 96.8%  
Bootstrap-pfa: 2.49e-108  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.235  
Centroid-sig: 0.0%  
Centroid-so: 3.263 arcsec [15.86σ]  
OotOffset-rm: 3.355 arcsec [1.42σ]  
KicOffset-rm: 3.509 arcsec [2.20σ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

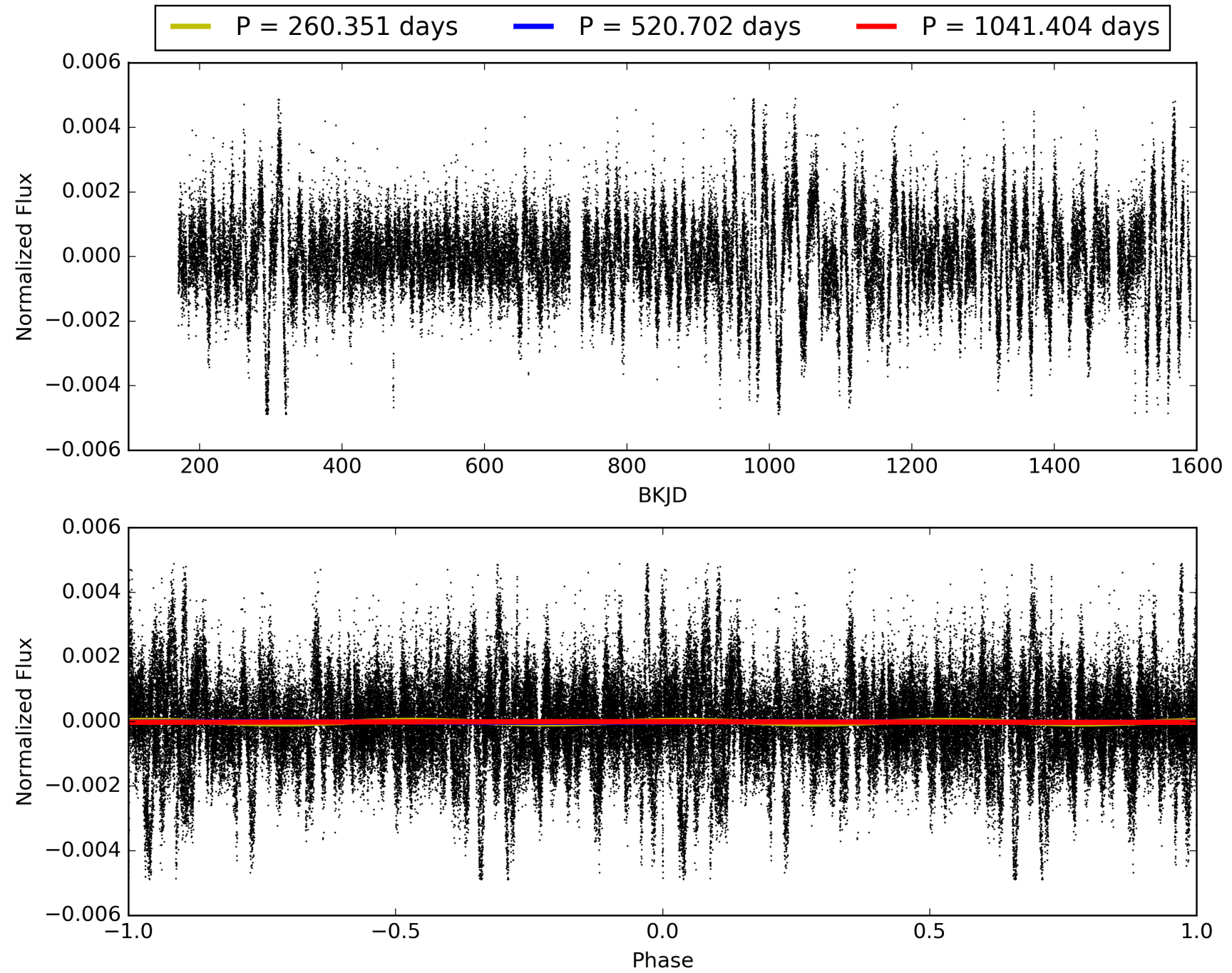
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:05:26 Z

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

# TCE 007983622-01, PDC Light Curves

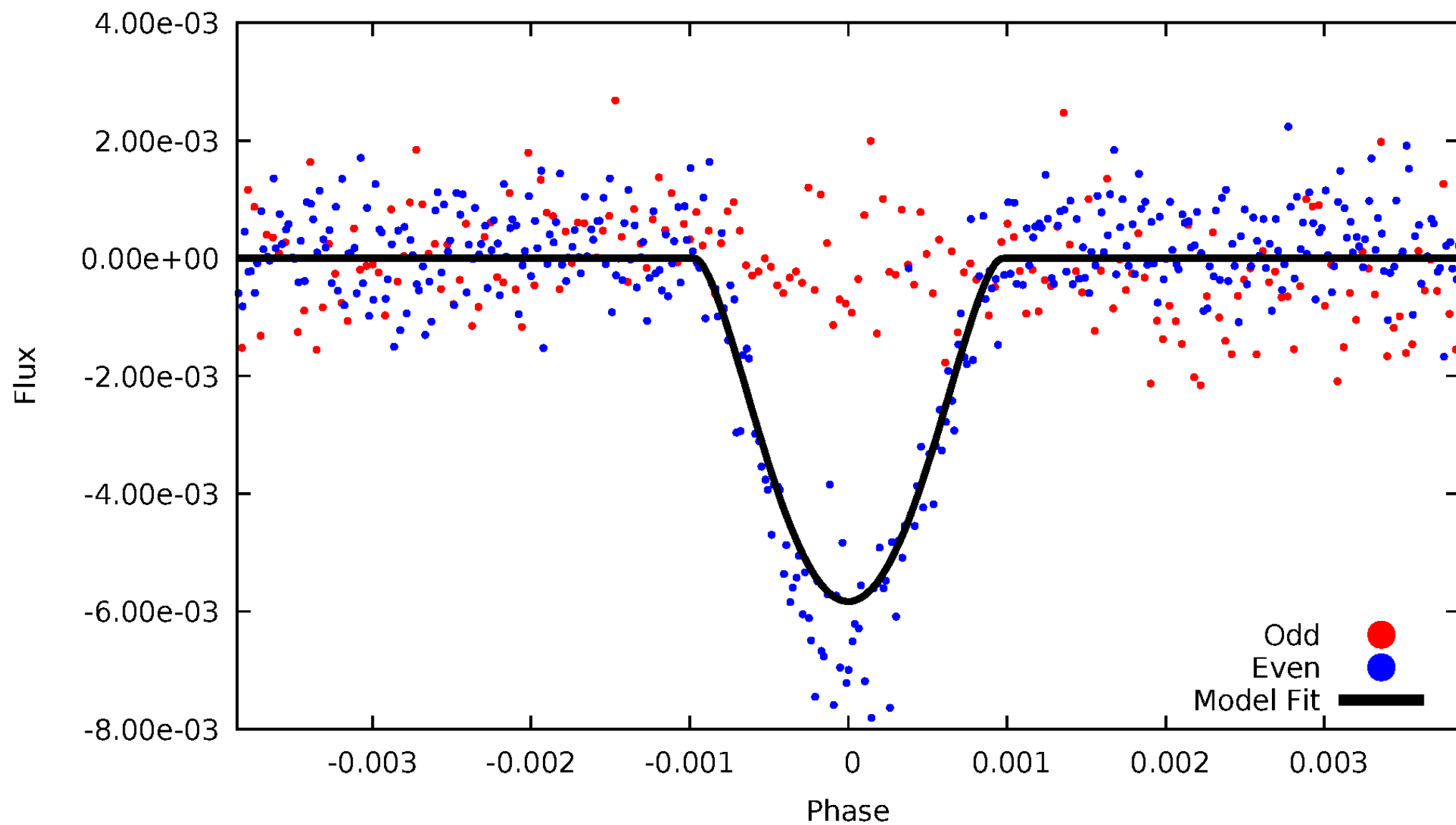


TCE 007983622-01



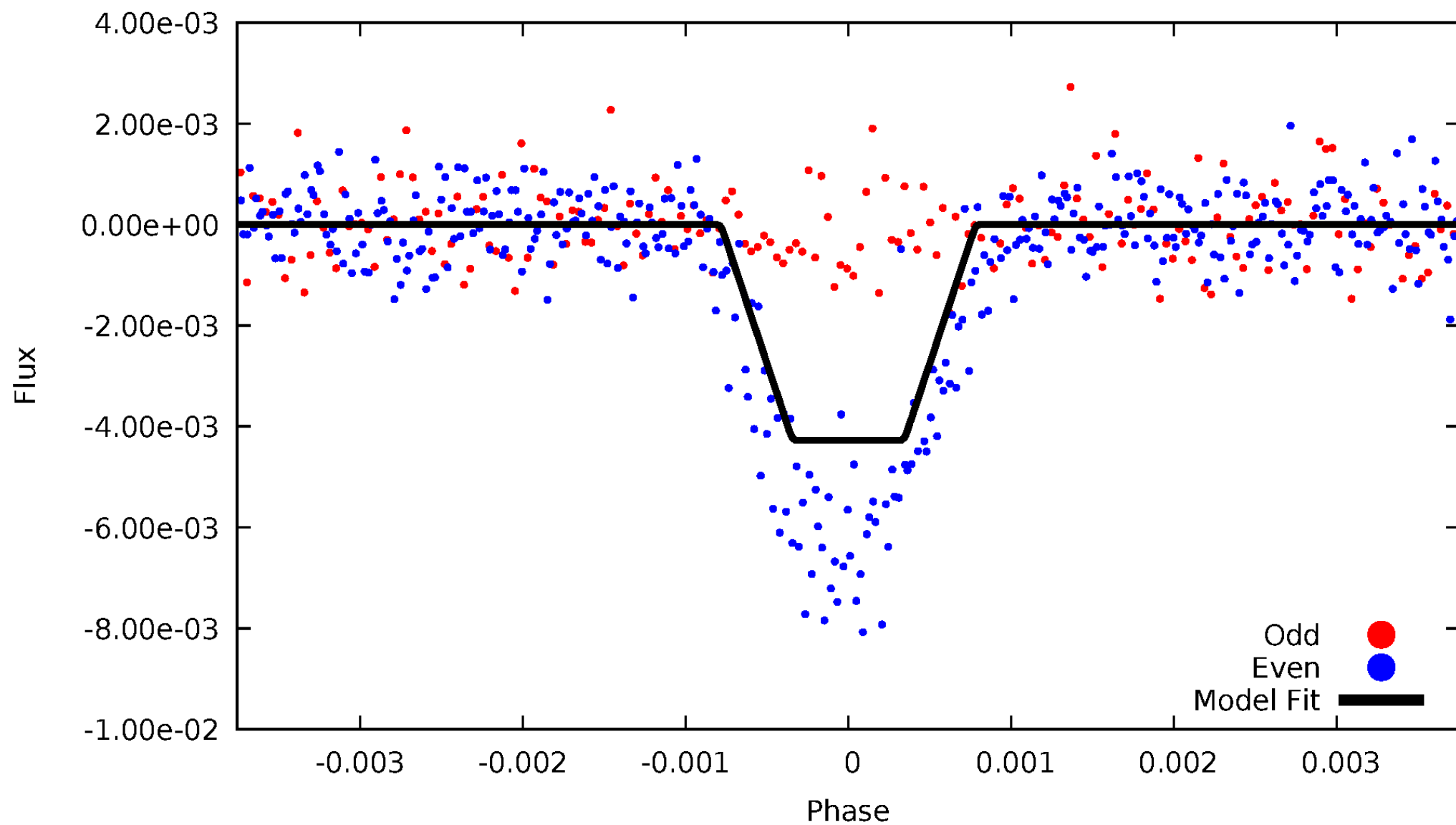
# DV Odd/Even

TCE 007983622-01



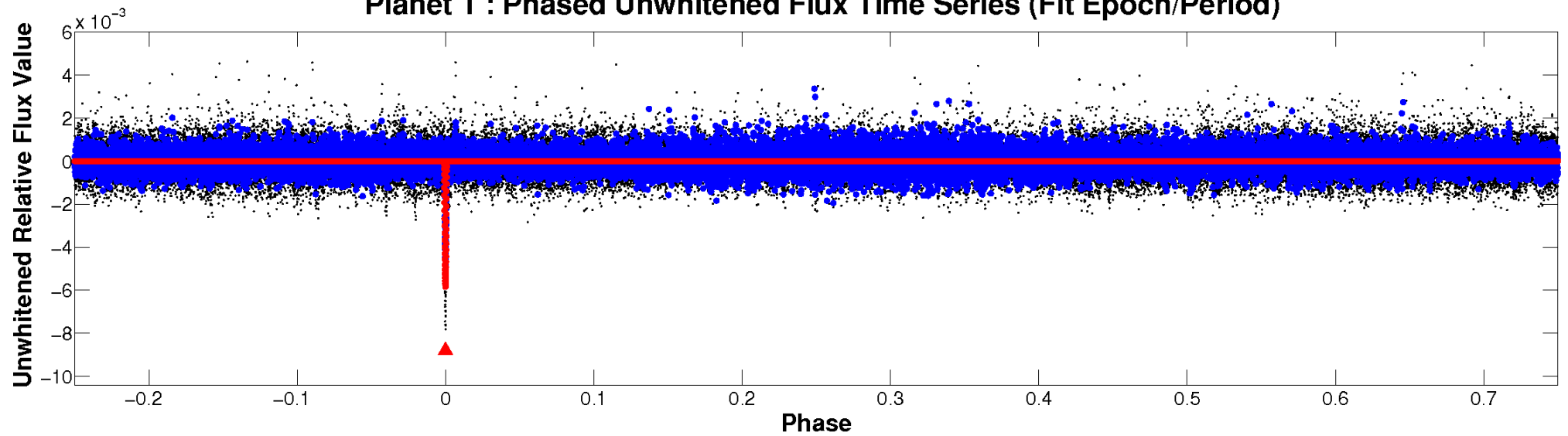
# ALT Odd/Even

TCE 007983622-01

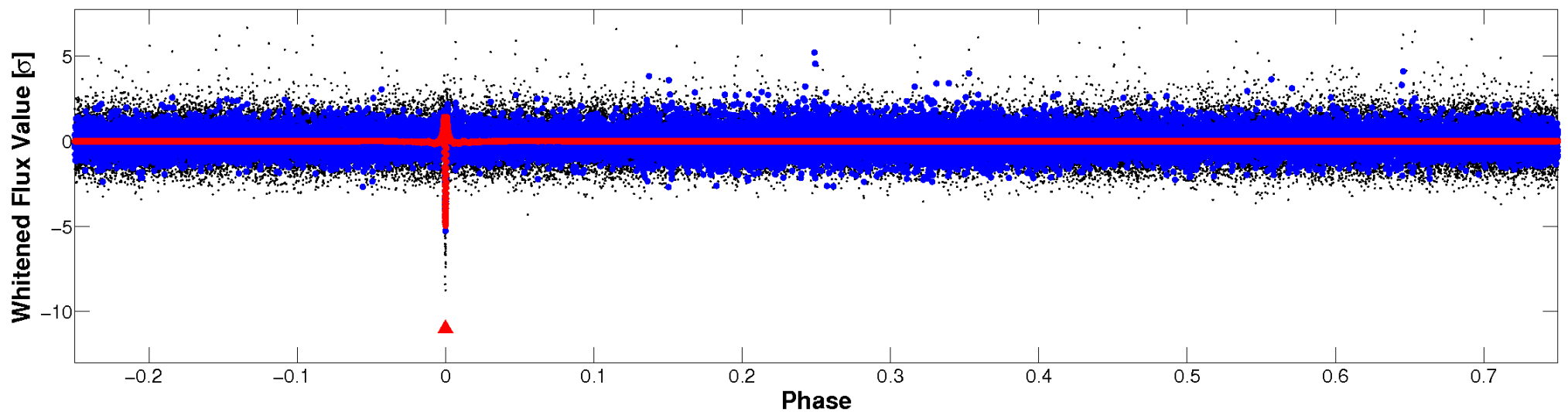


# Non-Whitened Vs. Whitened Light Curve

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

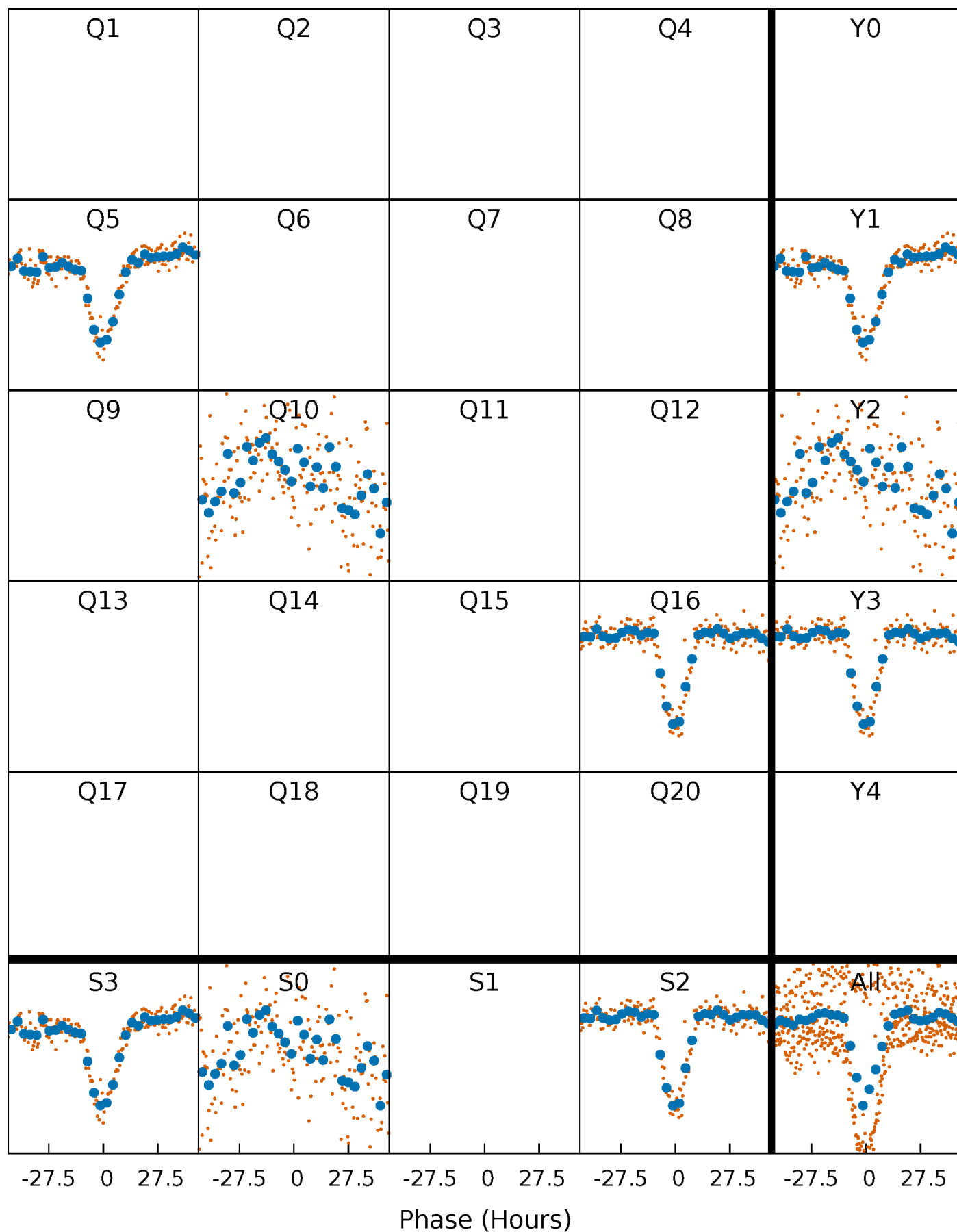


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



## PDC Quarter-Phased Transit Curves

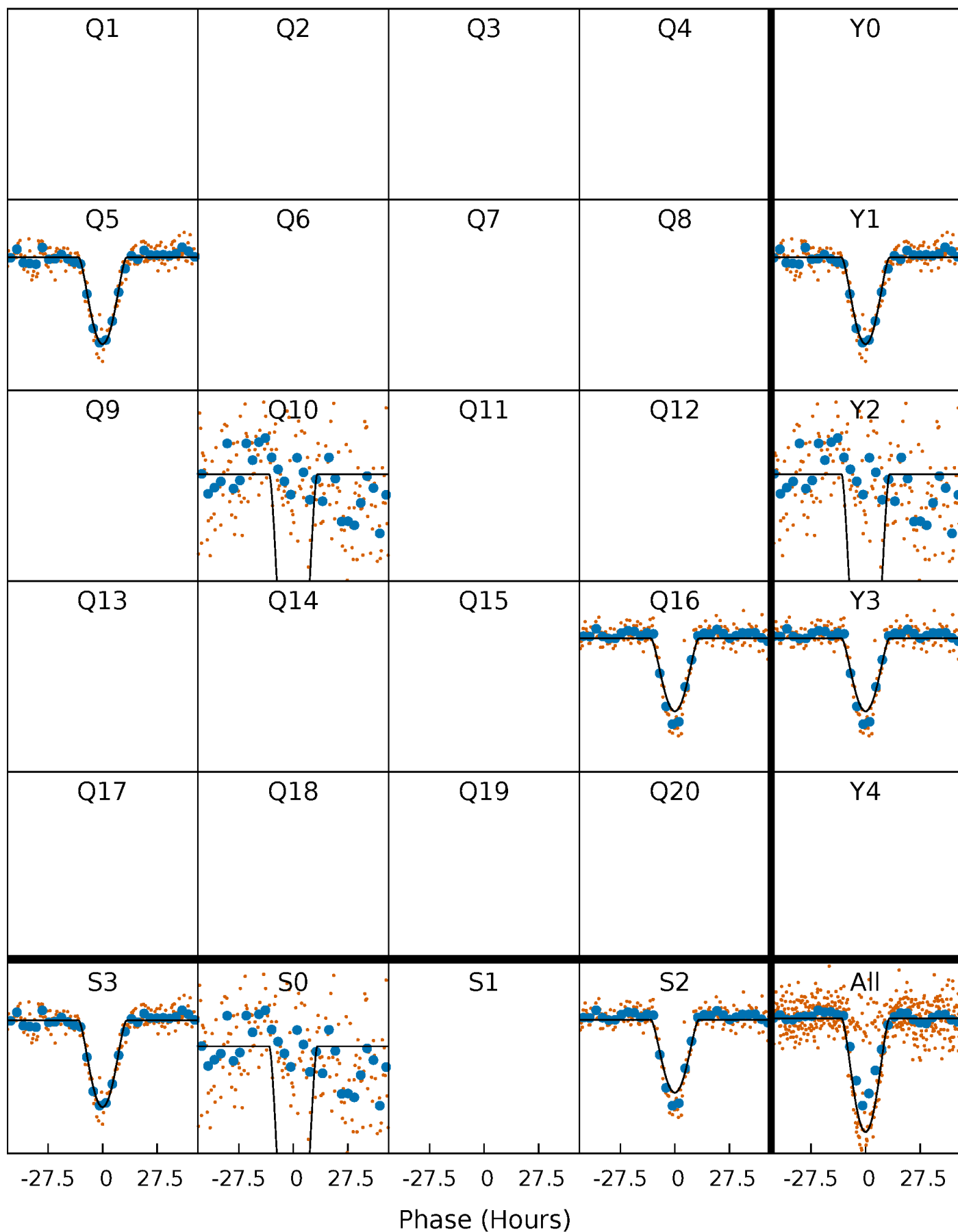
TCE 007983622-01 P=520.702131 Days  $T_0=471.729165$  (BKJD)





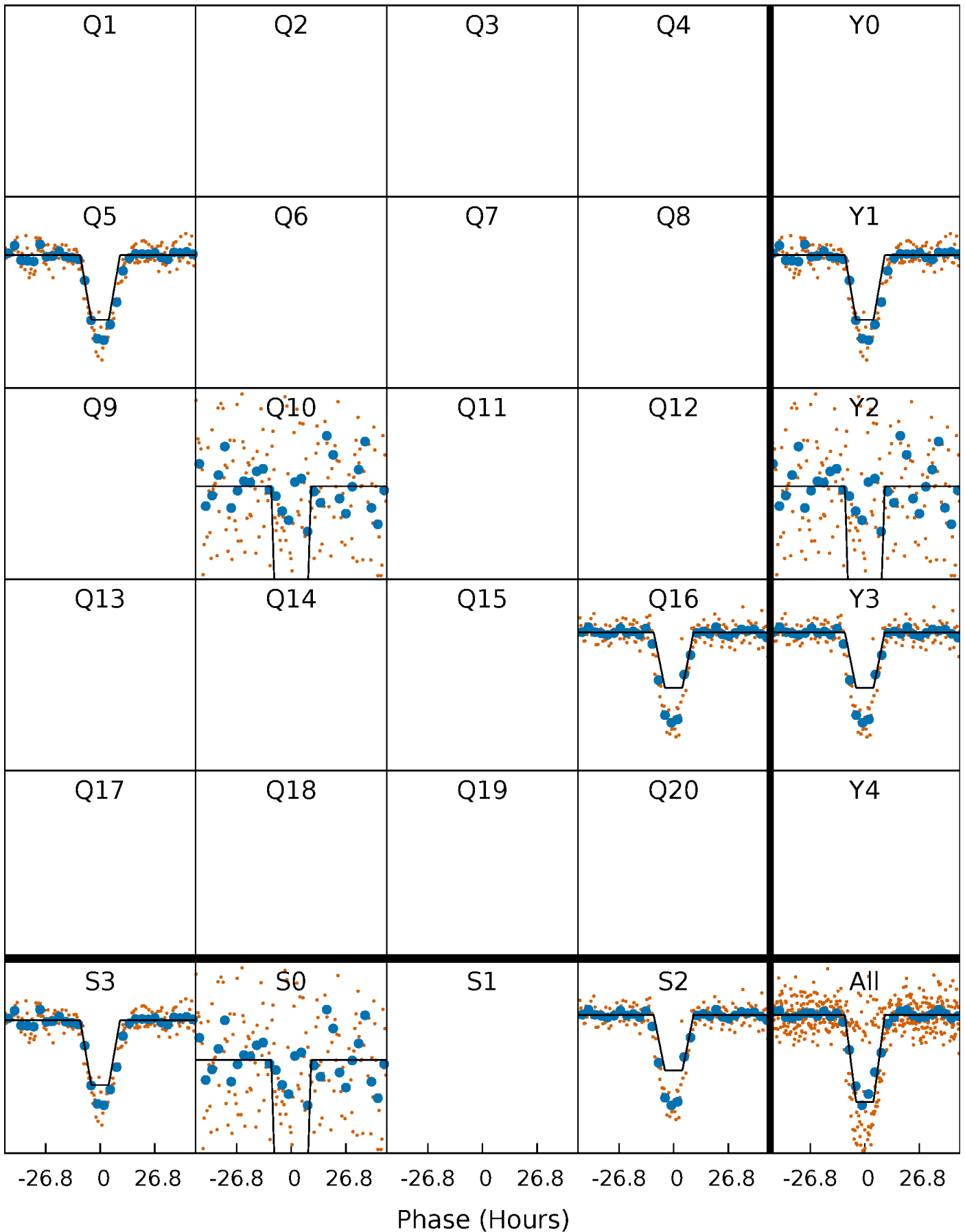
# DV Quarter-Phased Transit Curves

TCE 007983622-01 P=520.702131 Days  $T_0=471.729165$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

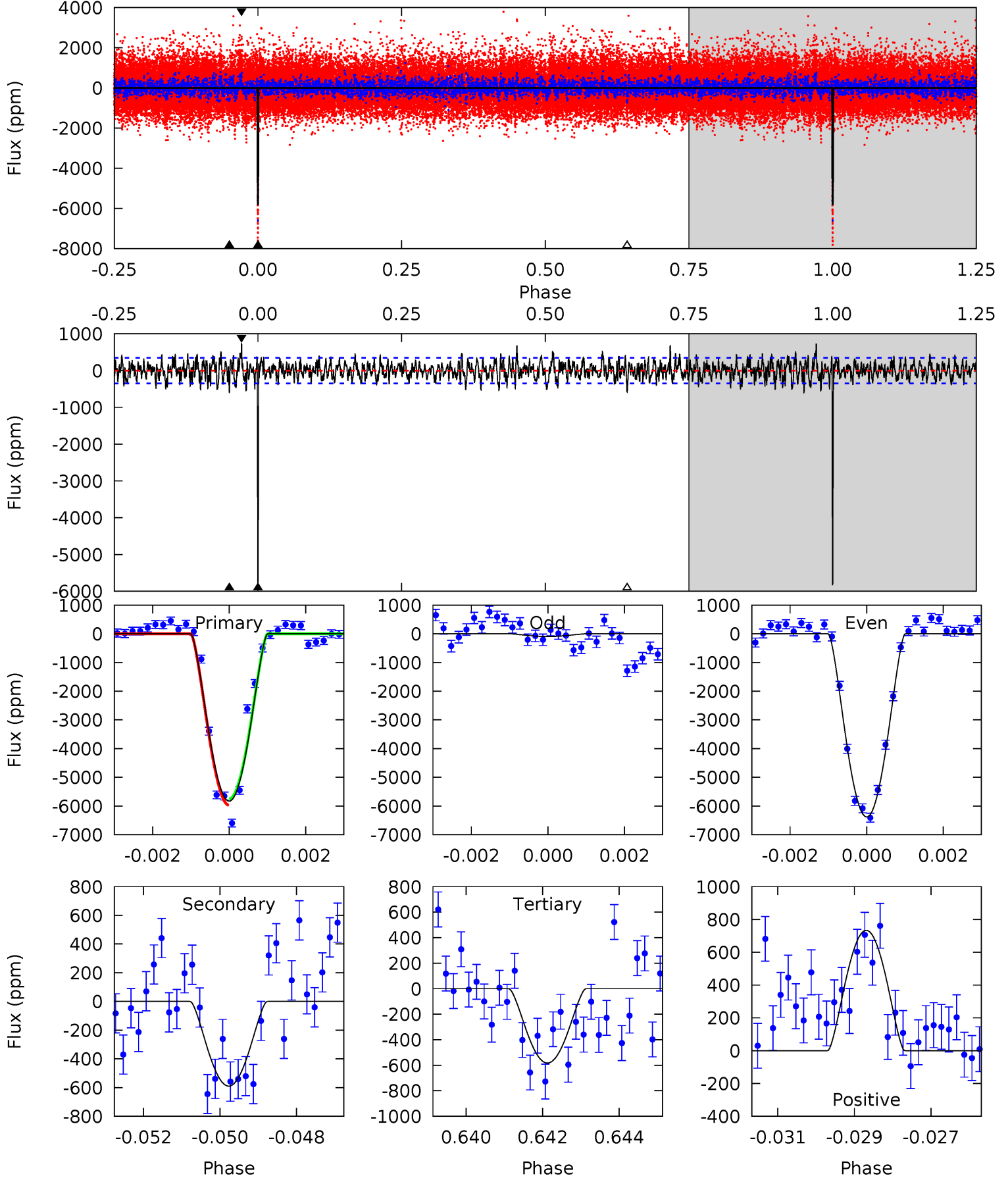
TCE 007983622-01 P=520.735654 Days  $T_0=471.691198$  (BKJD)



# DV Model-Shift Uniqueness Test

007983622-01, P = 520.702131 Days, E = 471.729165 Days

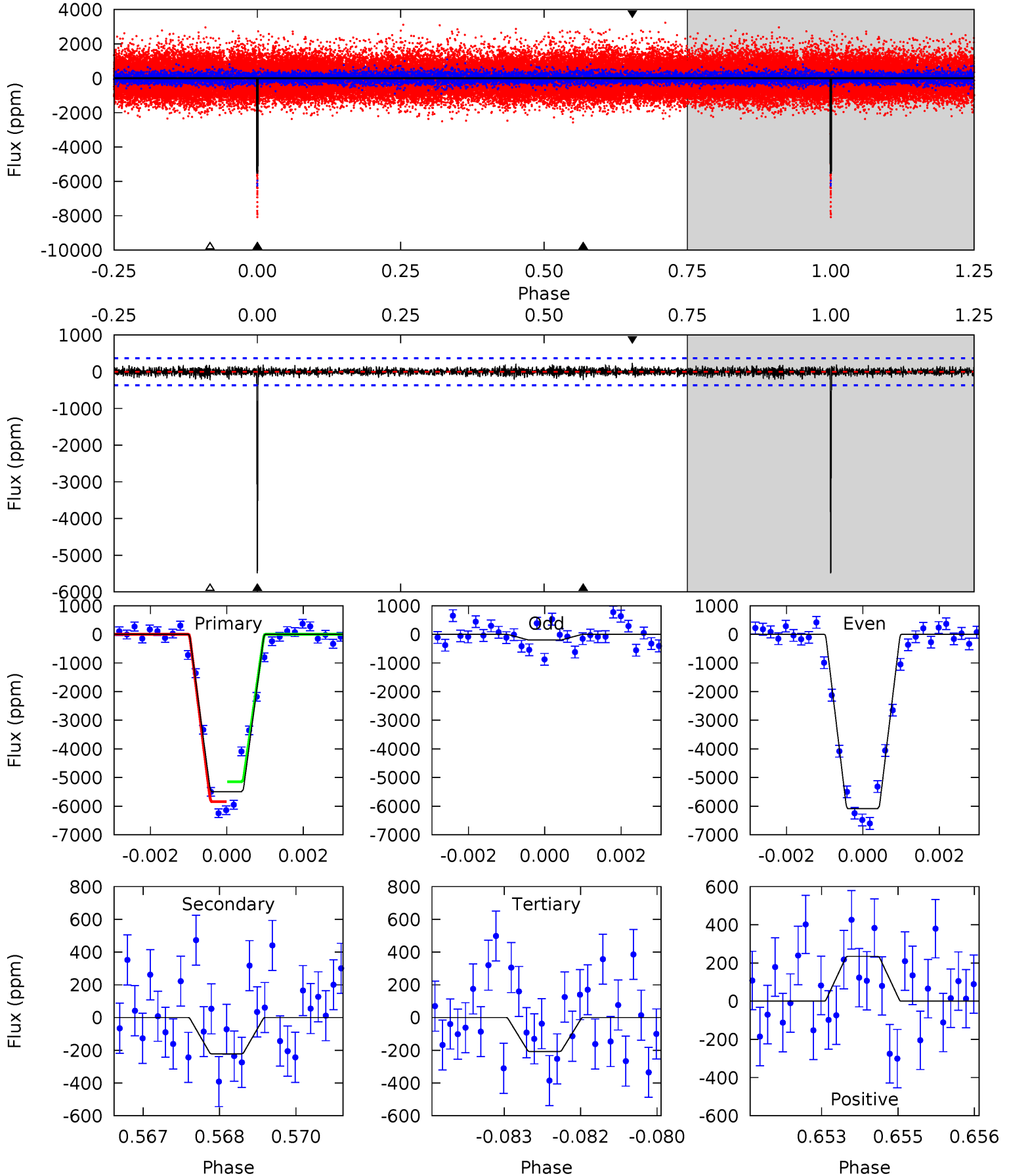
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.4	9.04	8.93	11.2	5.33	3.10	2.90	80.5	78.1	0.11	-2.20	49.5	0.71	0.11	1.72



# Alt Model-Shift Uniqueness Test

007983622-01, P = 520.735654 Days, E = 471.691198 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
80.3	3.24	3.04	3.43	5.37	3.16	0.84	77.3	76.9	0.20	-0.19	45.4	0.74	0.04	5.11



### Stellar Parameters For KIC 007983622

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5341^{+175}_{-175}$	$4.566^{+0.052}_{-0.097}$	$-0.240^{+0.300}_{-0.300}$	$0.772^{+0.132}_{-0.075}$	$0.801^{+0.094}_{-0.078}$	$2.452^{+0.545}_{-0.762}$
	+3%/-3%	+1%/-2%	+125%/-125%	+17%/-10%	+12%/-10%	+22%/-31%
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 007983622-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-590 \pm 65$	$11.18^{+8.70}_{-6.64}$	$268^{+13}_{-12}$	$2971^{+959}_{-415}$	$3621^{+18133}_{-2466}$
Alt.	$-222 \pm 68$	$8.48^{+7.25}_{-5.77}$	$268^{+12}_{-11}$	$2808^{+1102}_{-433}$	$2332^{+18045}_{-1677}$

$T_{\text{max}}$  = 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

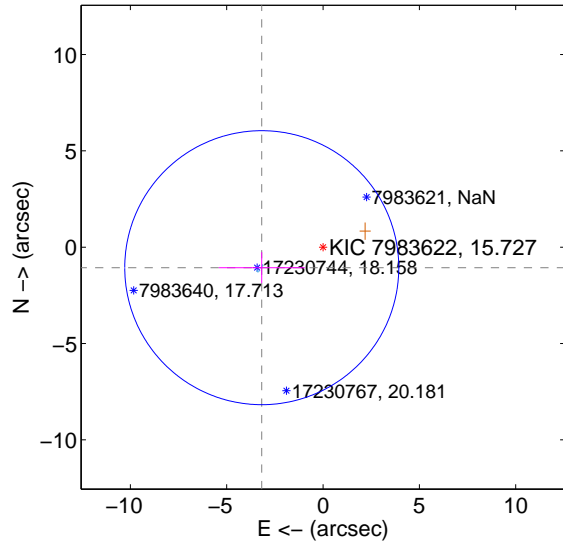
Supplemental centroid analysis for 007983622-01. Kepler magnitude: 15.73. Transit SNR 37.08

There are 2 quarters with good PRF difference image offsets

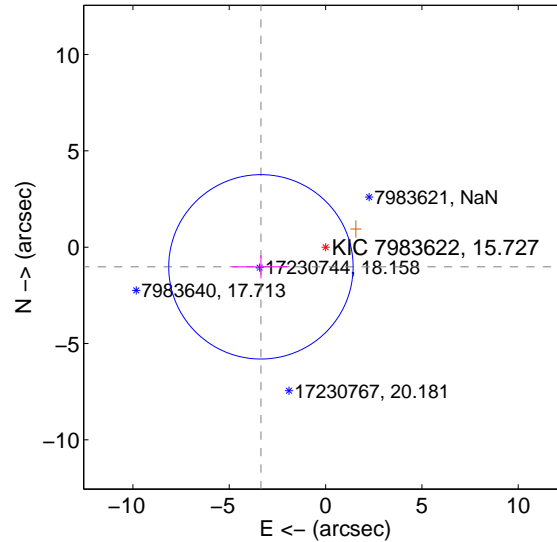
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.355 \pm 2.371$	1.42	$3.181 \pm 2.232$	$-1.065 \pm 0.804$
PRF-fit source offset from KIC position	$3.509 \pm 1.595$	2.20	$3.357 \pm 1.486$	$-1.021 \pm 0.601$
photometric centroid source offset	$3.26 \pm 0.21$	15.86	$3.20 \pm 0.21$	$-0.65 \pm 0.19$

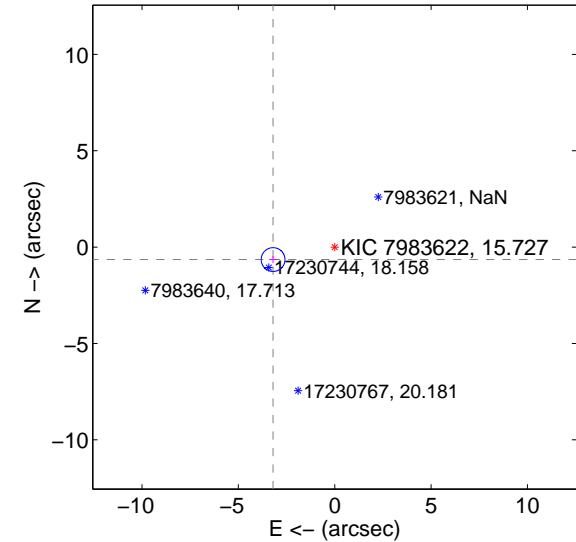
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

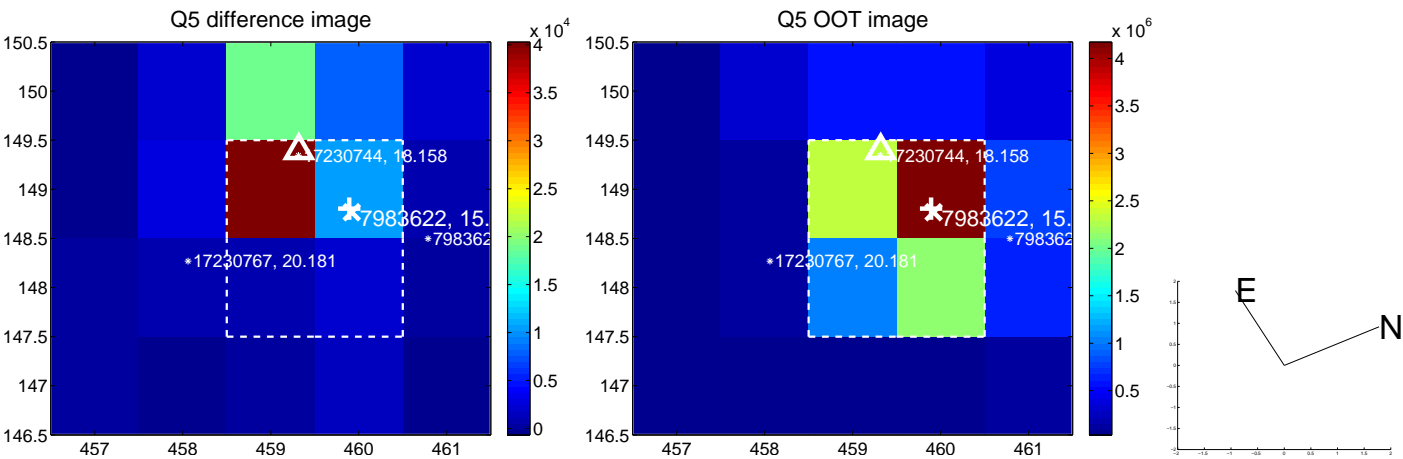


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

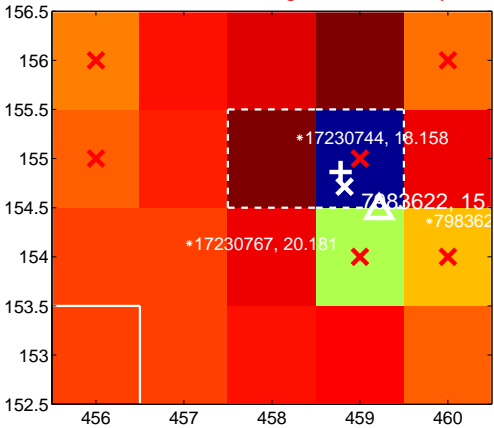
Q9 no difference image



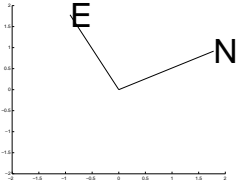
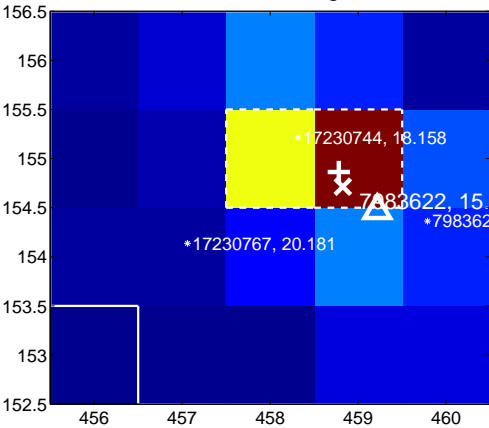
Q9 no OOT image



Q10 difference image. Poor Quality



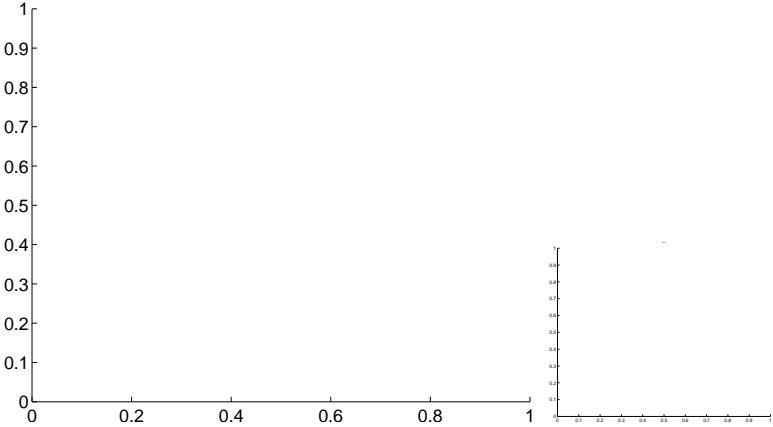
Q10 OOT image



Q11 no difference image



Q11 no OOT image



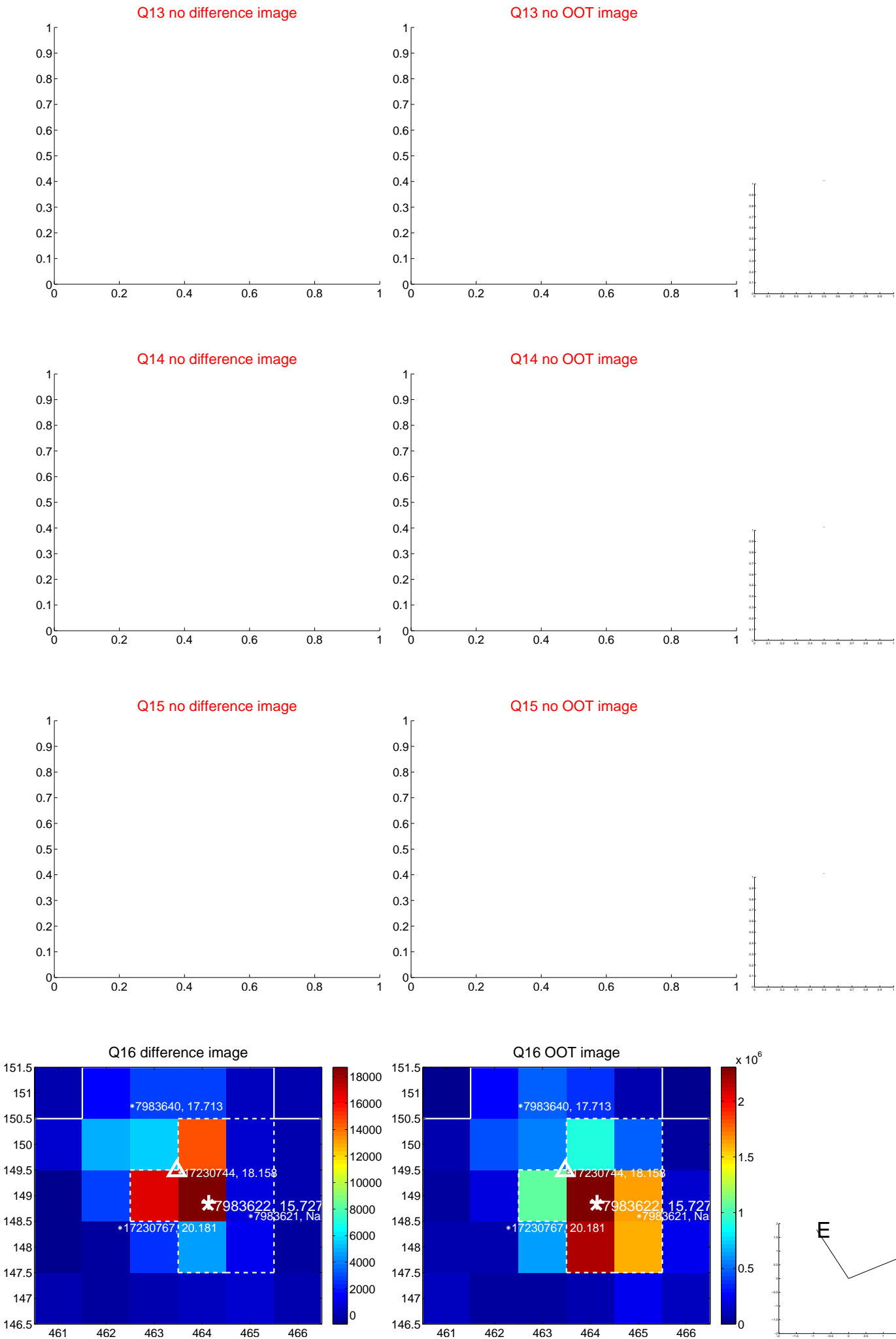
Q12 no difference image



Q12 no OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



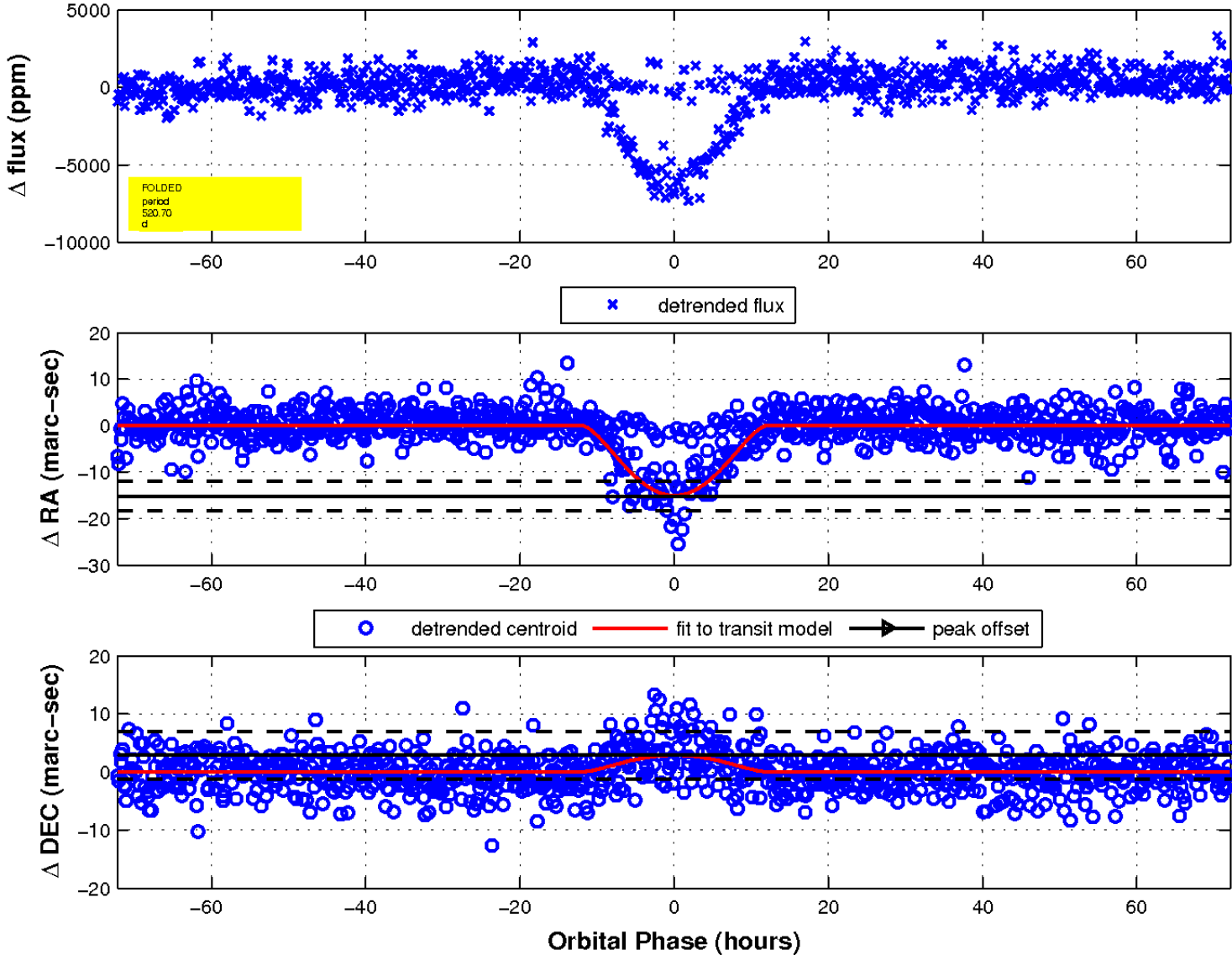
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

