

# KIC 007898372

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007898372-01	OBS	No	653.035640	233.323866	265.4	8.497	7.9	3.3	0.94	5880	1.77	0.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007898372-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

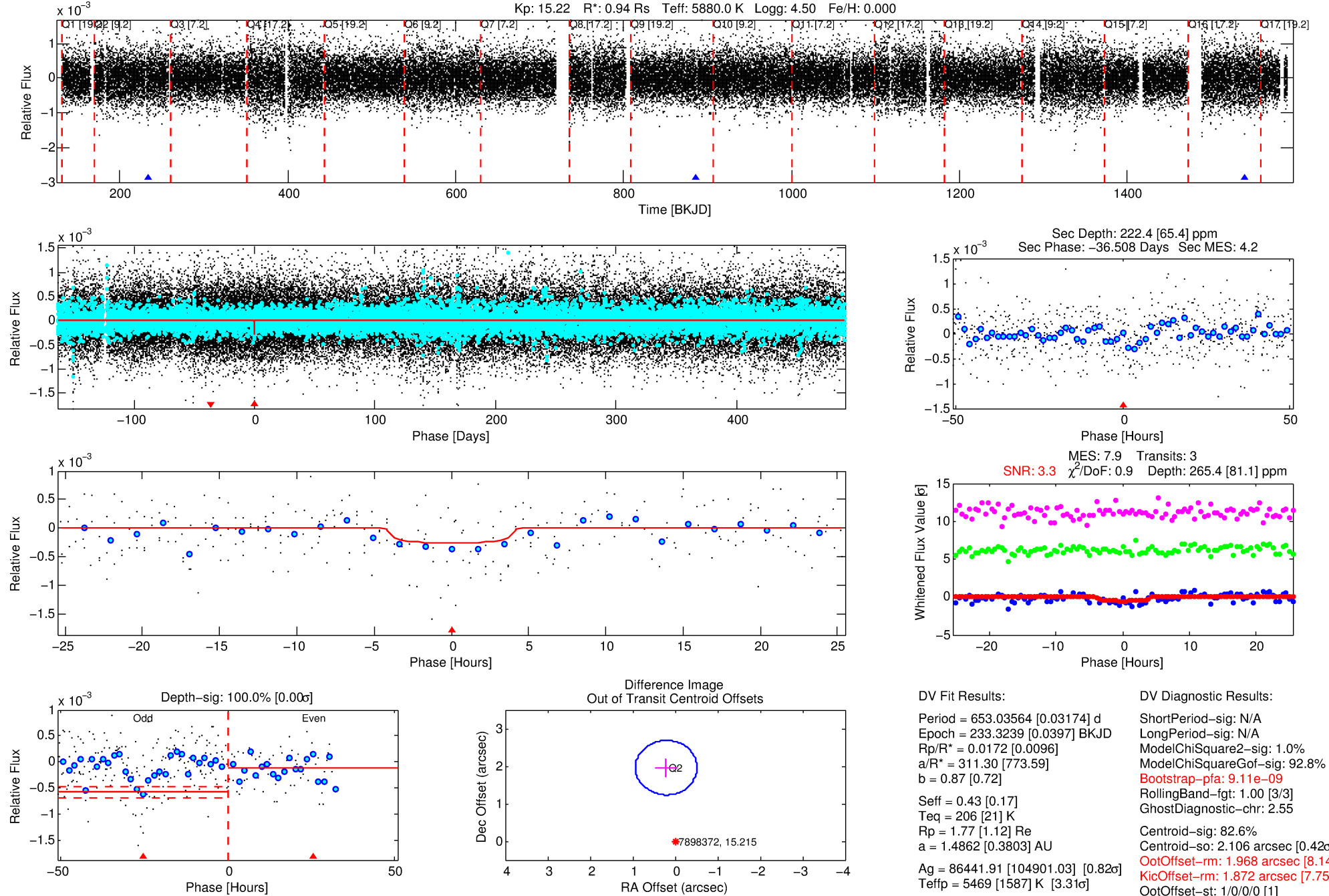
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007898372-01

No Significant Match Found

# DV One-Page Summary

KIC: 7898372 Candidate: 1 of 1 Period: 653.036 d



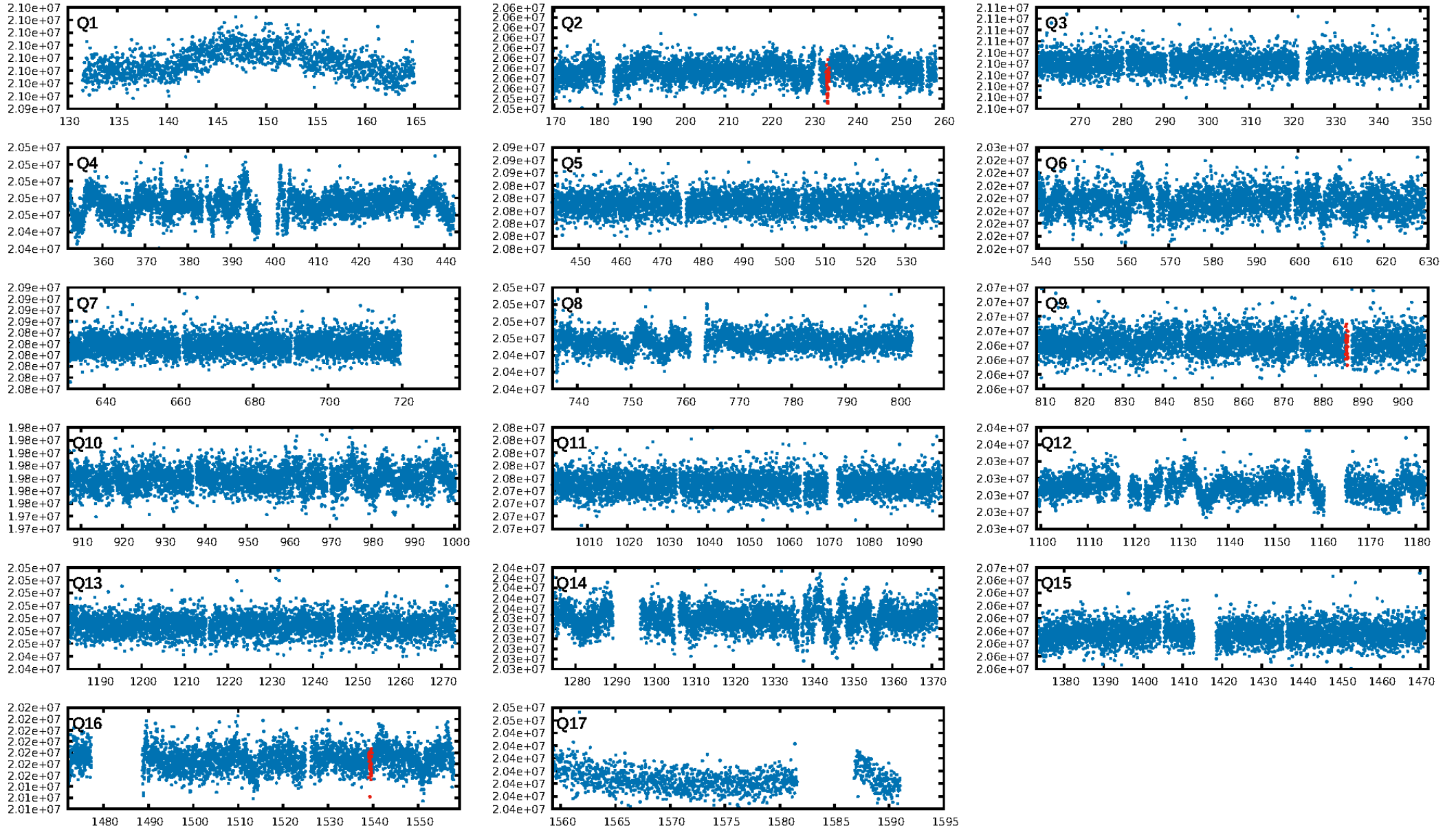
## DV Fit Results:

Period = 653.03564 [0.03174] d  
Epoch = 233.3239 [0.0397] BKJD  
Rp/R\* = 0.0172 [0.0096]  
a/R\* = 311.30 [773.59]  
b = 0.87 [0.72]  
Seff = 0.43 [0.17]  
Teff = 206 [21] K  
Rp = 1.77 [1.12] Re  
a = 1.4862 [0.3803] AU  
Ag = 86441.91 [104901.03] [0.82 $\sigma$ ]  
Teffp = 5469 [1587] K [3.31 $\sigma$ ]

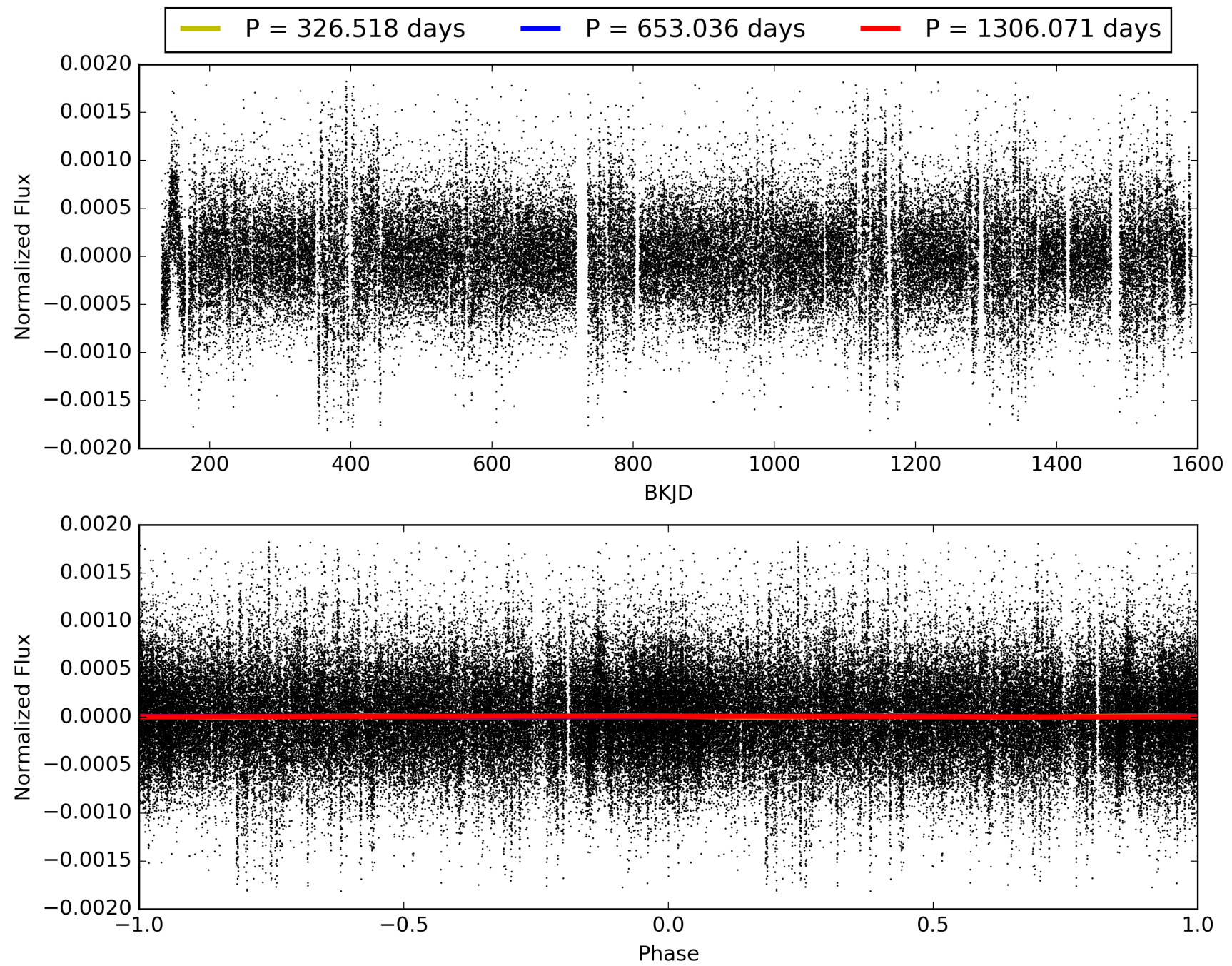
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.0%  
ModelChiSquareGof-sig: 92.8%  
**Bootstrap-pfa: 9.11e-09**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.55  
Centroid-sig: 82.6%  
Centroid-so: 2.106 arcsec [0.42 $\sigma$ ]  
**OotOffset-rm: 1.968 arcsec [8.14 $\sigma$ ]**  
**KicOffset-rm: 1.872 arcsec [7.75 $\sigma$ ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

# TCE 007898372-01, PDC Light Curves

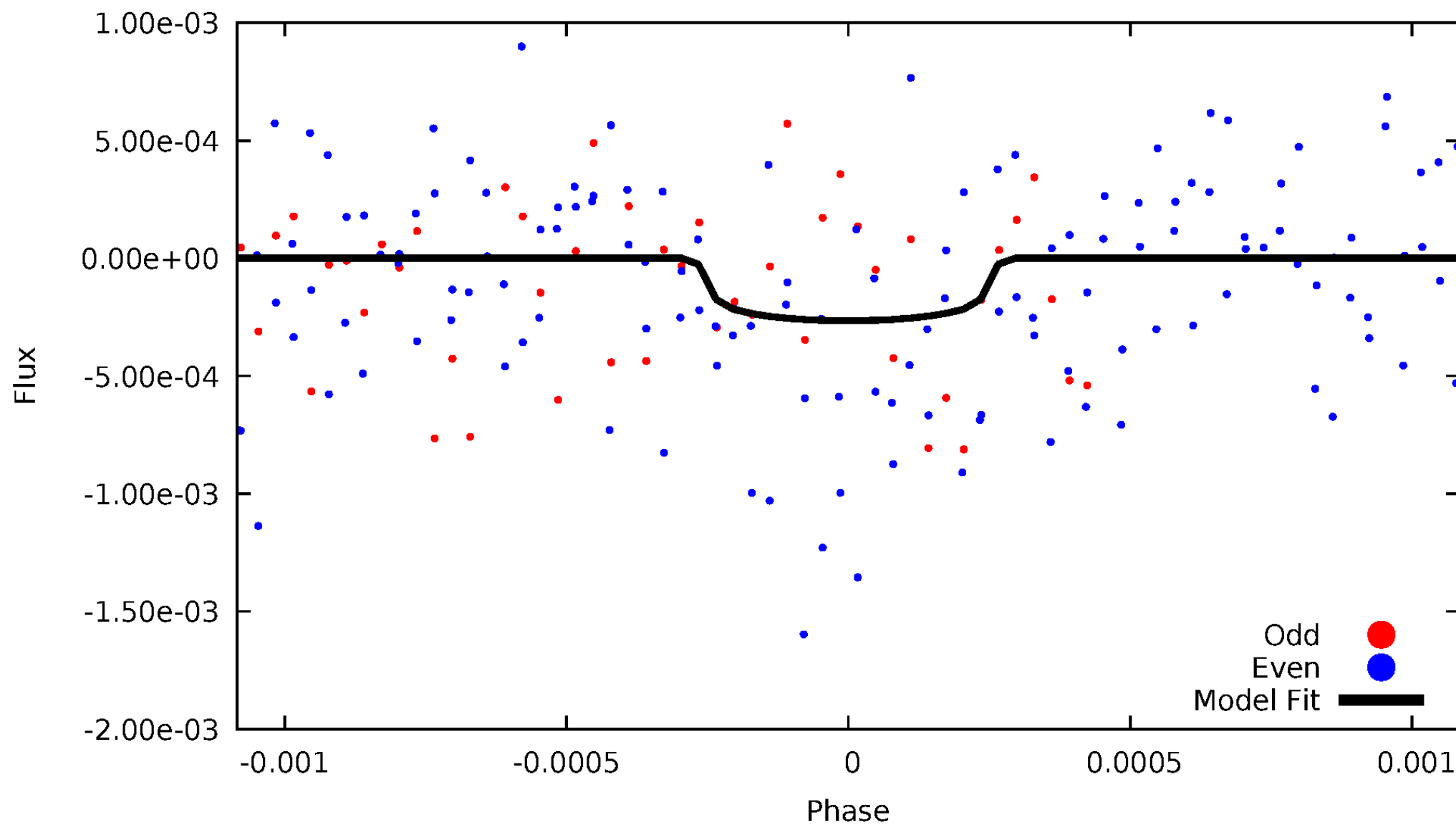


TCE 007898372-01



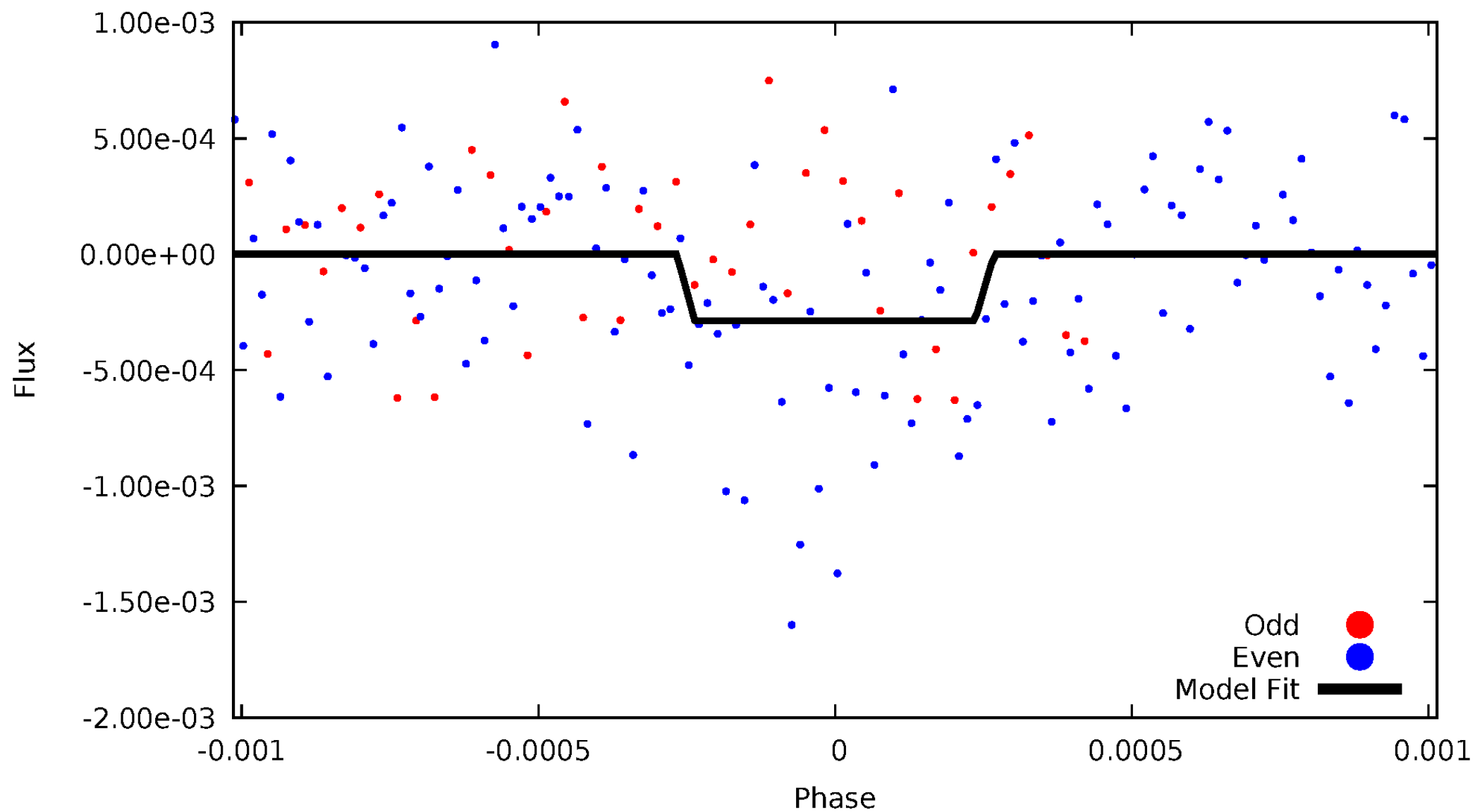
# DV Odd/Even

TCE 007898372-01



# ALT Odd/Even

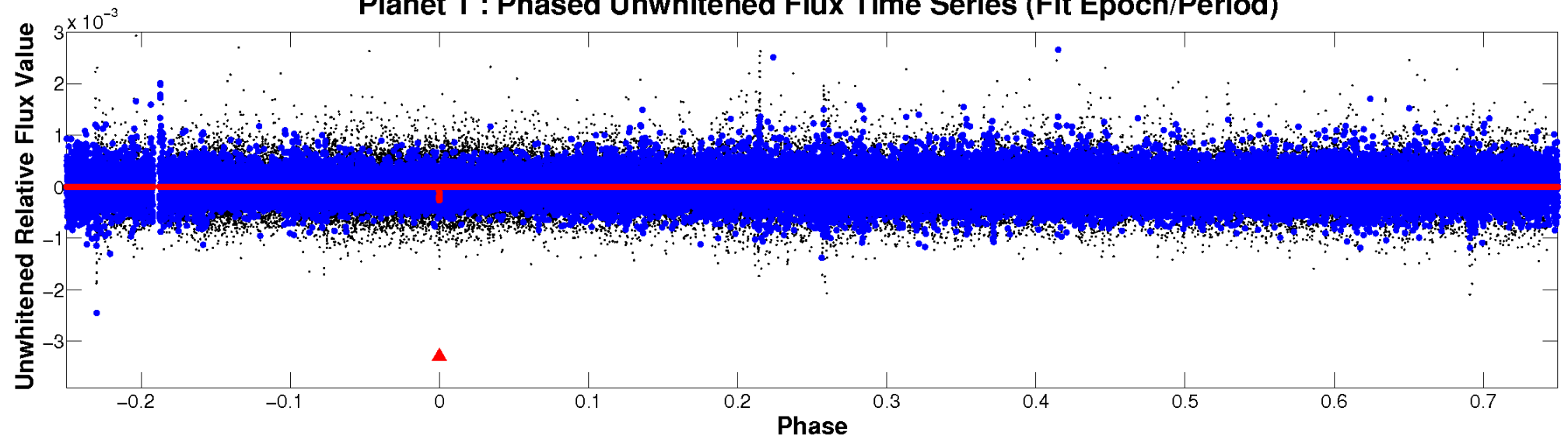
TCE 007898372-01



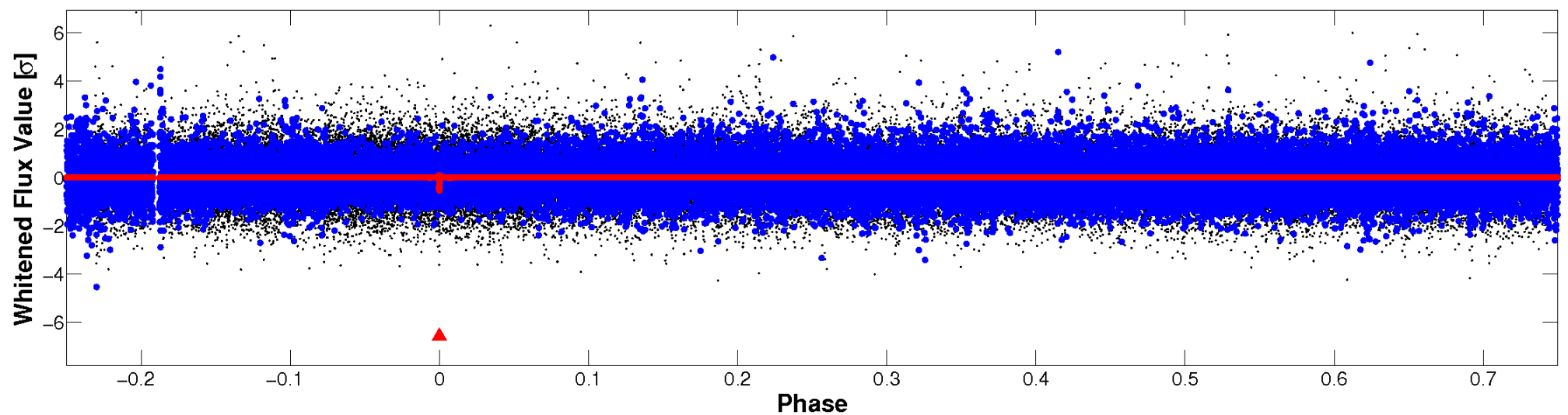


# Non-Whitened Vs. Whitened Light Curve

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

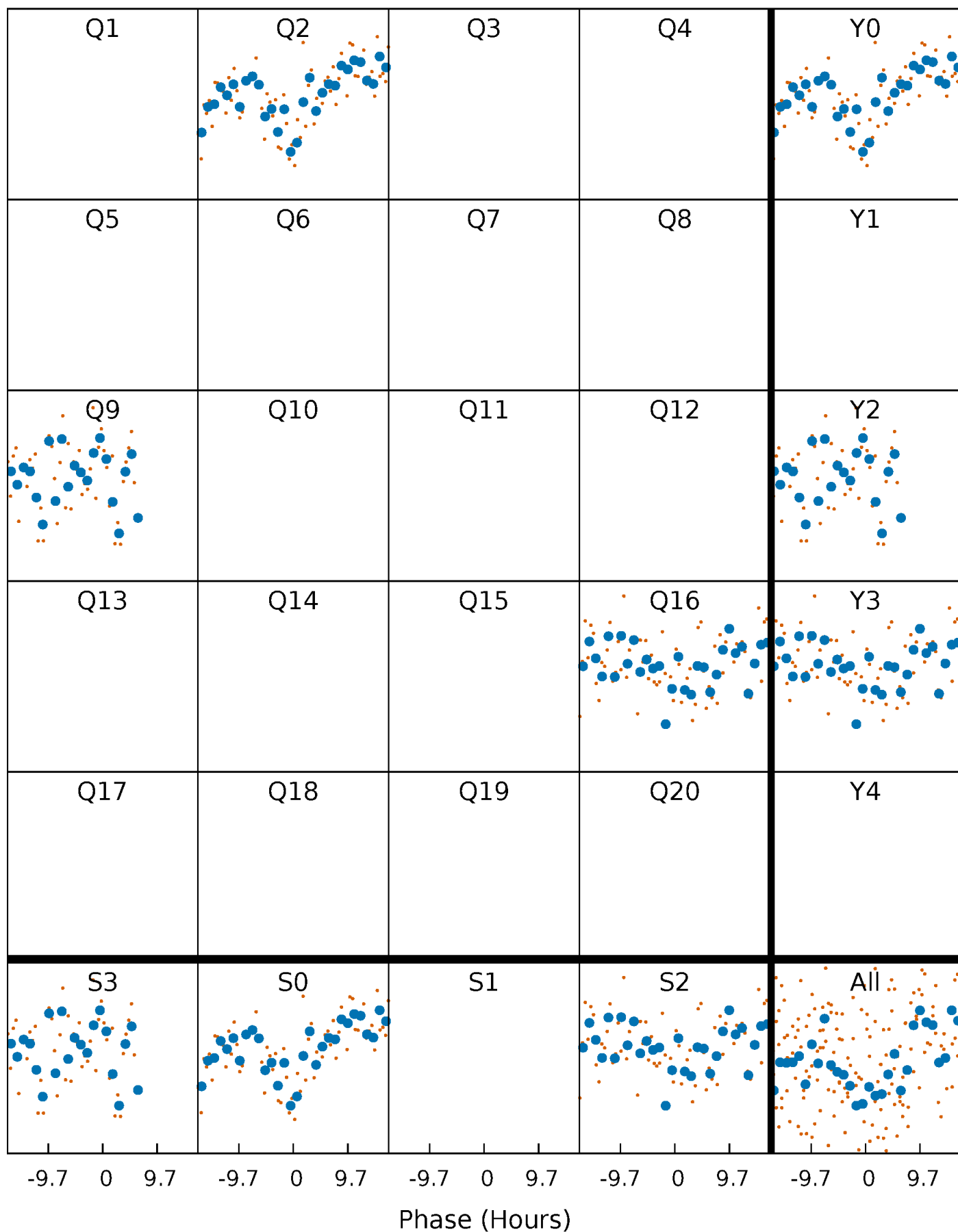


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

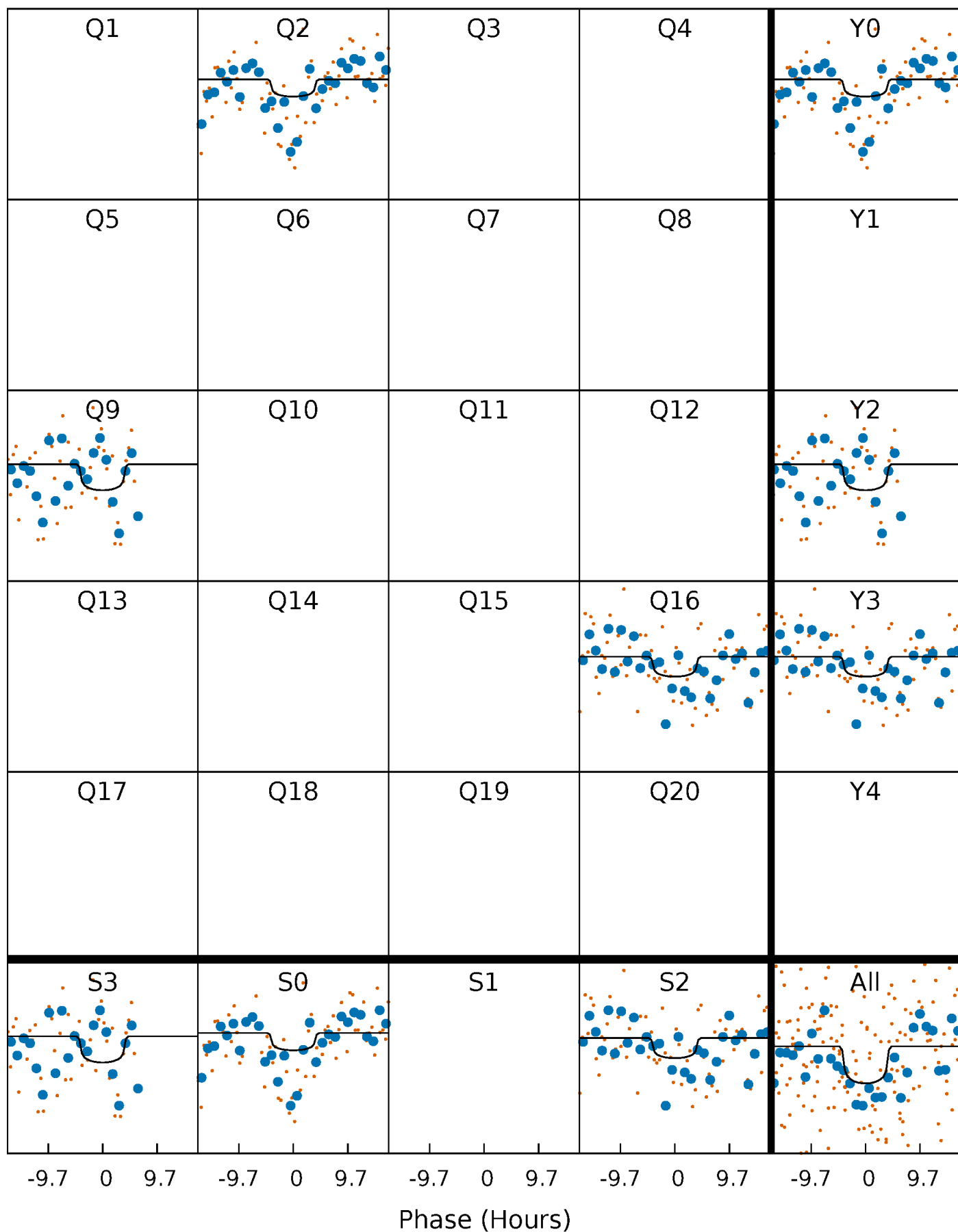
TCE 007898372-01 P=653.035640 Days  $T_0=233.323866$  (BKJD)





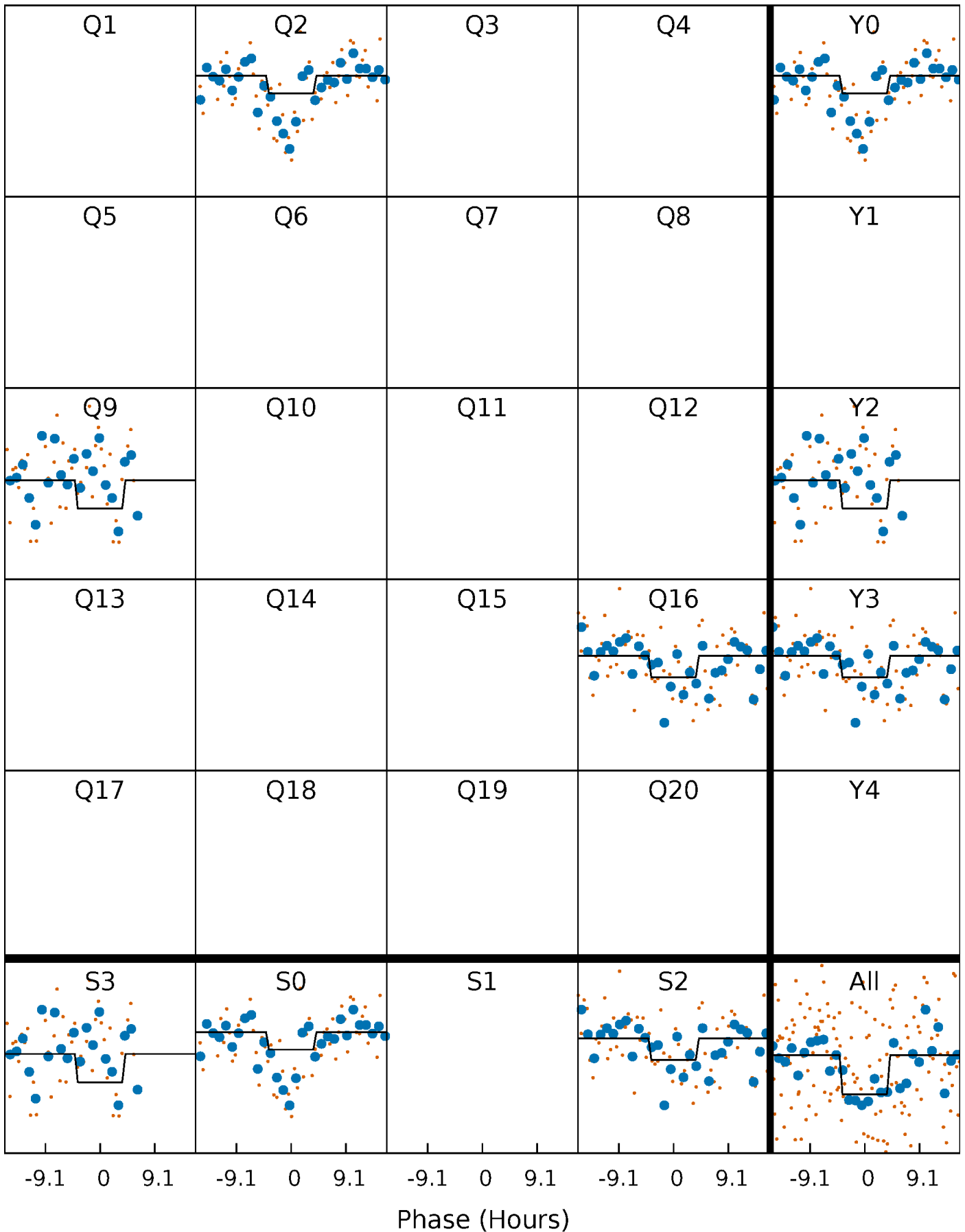
# DV Quarter-Phased Transit Curves

TCE 007898372-01     $P=653.035640$  Days     $T_0=233.323866$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

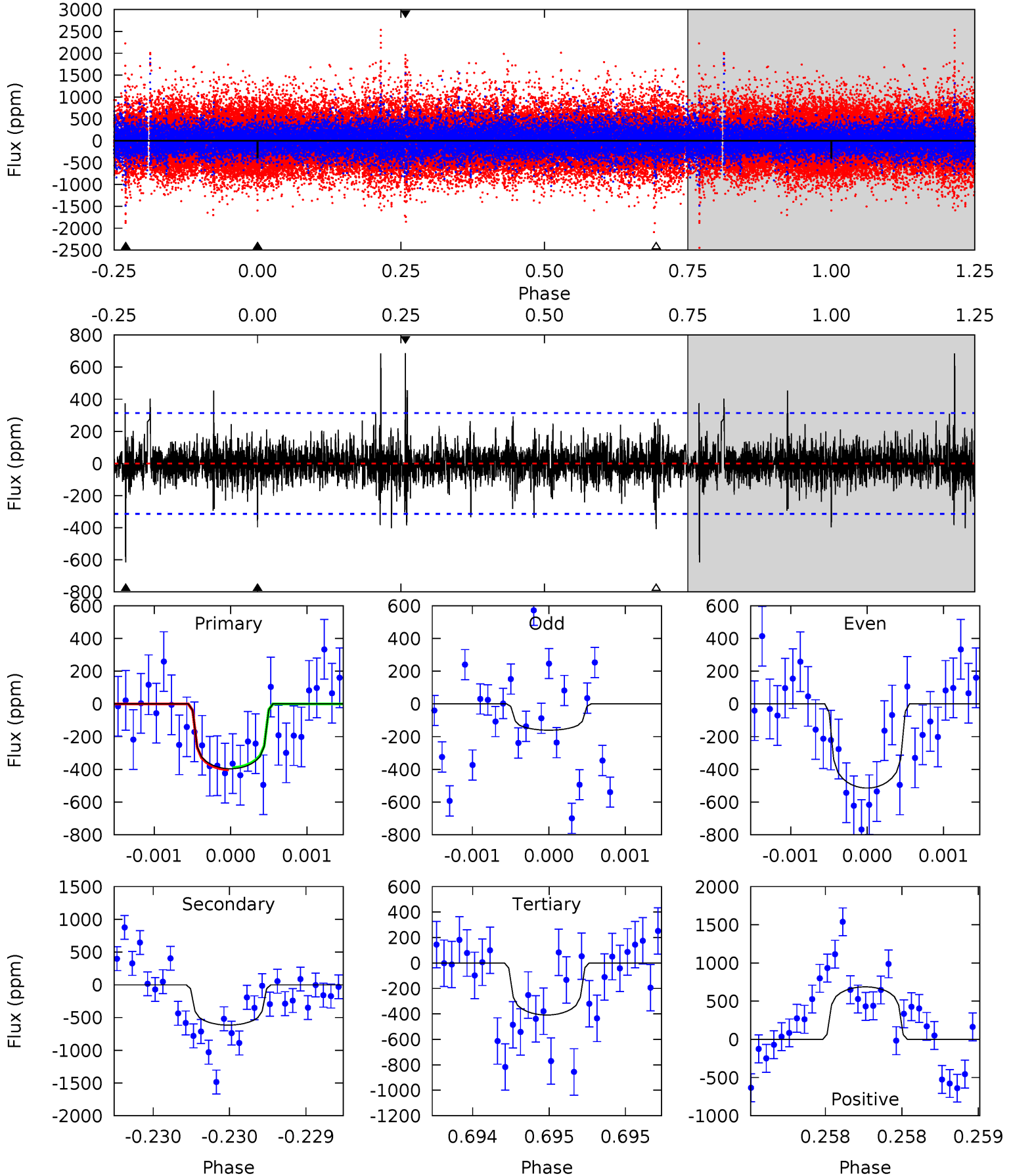
TCE 007898372-01 P=653.029333 Days  $T_0=233.332506$  (BKJD)



# DV Model-Shift Uniqueness Test

007898372-01, P = 653.035640 Days, E = 233.323866 Days

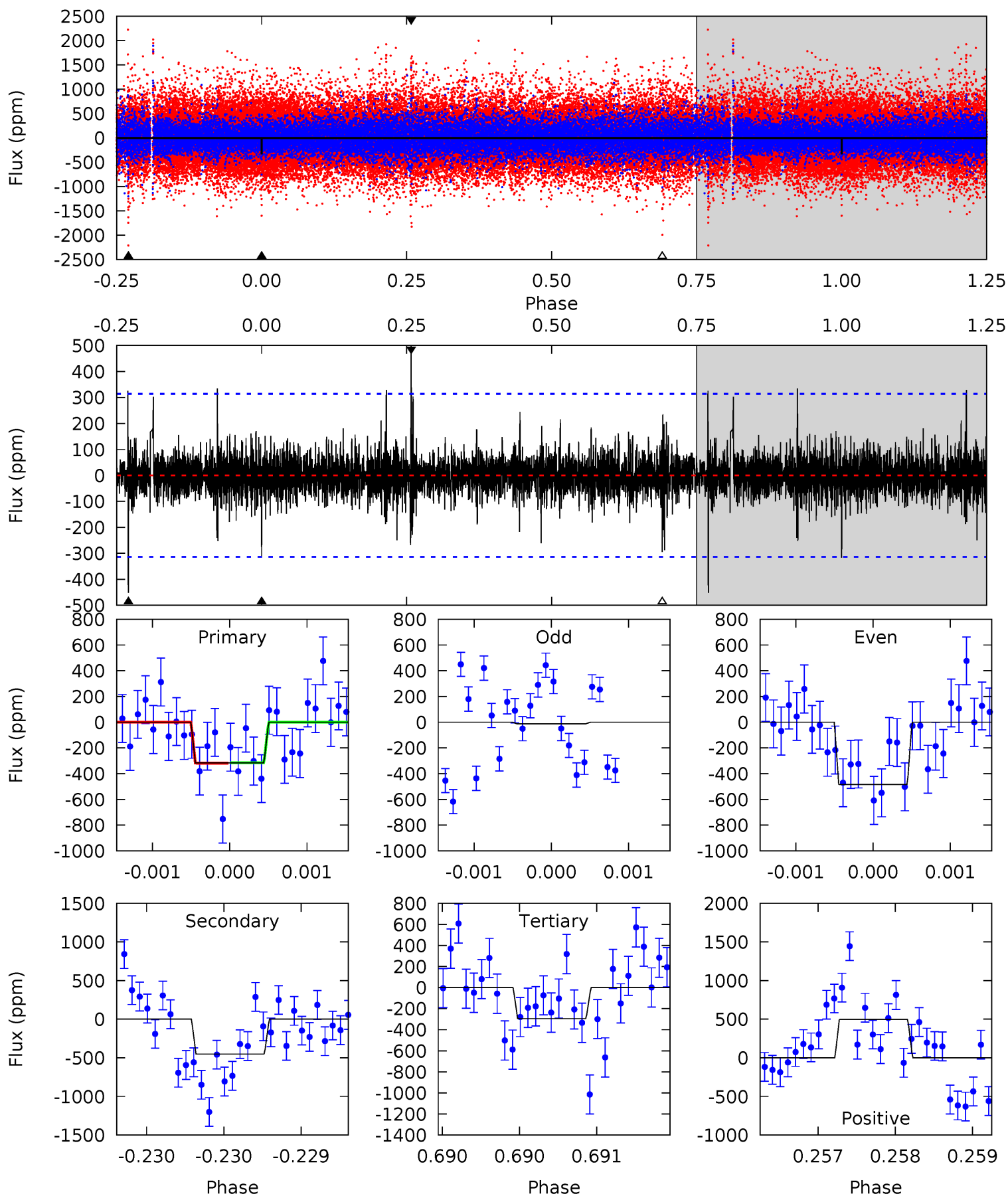
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.03	10.9	7.24	12.2	5.56	3.46	1.42	-0.22	-5.16	3.66	-1.28	2.97	0.95	0.53	0.11



# Alt Model-Shift Uniqueness Test

007898372-01, P = 653.029333 Days, E = 233.332506 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
5.62	8.01	5.23	8.82	5.56	3.46	1.02	0.39	-3.20	2.78	-0.81	4.00	0.83	0.52	0.02



### Stellar Parameters For KIC 007898372

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5880^{+158}_{-193}$	$4.503^{+0.052}_{-0.208}$	$0.000^{+0.250}_{-0.300}$	$0.940^{+0.282}_{-0.094}$	$1.027^{+0.115}_{-0.140}$	$1.740^{+0.368}_{-0.938}$
	+3%/-3%	+1%/-5%	+inf%/-inf%	+30%/-10%	+11%/-14%	+21%/-54%
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 007898372-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-615 \pm 56$	$1.88^{+1.06}_{-0.97}$	$295^{+21}_{-15}$	$7053^{+4264}_{-1449}$	$206720^{+663565}_{-122029}$
Alt.	$-451 \pm 56$	$1.87^{+1.01}_{-0.94}$	$294^{+19}_{-14}$	$6432^{+3587}_{-1184}$	$155345^{+484581}_{-91857}$

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

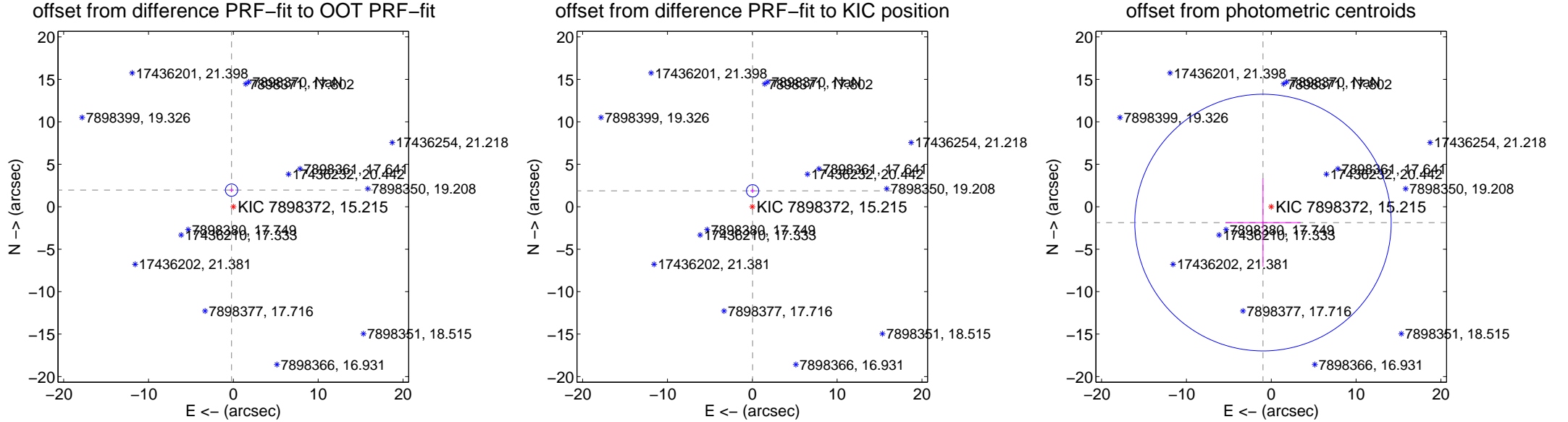
## DV Centroid Data

Supplemental centroid analysis for 007898372-01. Kepler magnitude: 15.21. Transit SNR 3.30

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.968 \pm 0.242$	8.14	$0.211 \pm 0.245$	$1.956 \pm 0.242$
PRF-fit source offset from KIC position	$1.872 \pm 0.242$	7.75	$-0.034 \pm 0.245$	$1.872 \pm 0.242$
photometric centroid source offset	$2.11 \pm 5.04$	0.42	$0.97 \pm 4.43$	$-1.87 \pm 5.19$



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.

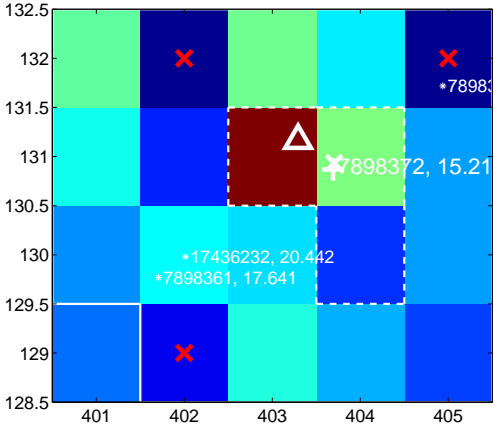
Q1 no difference image



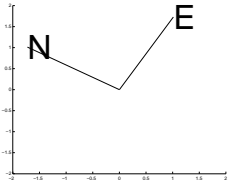
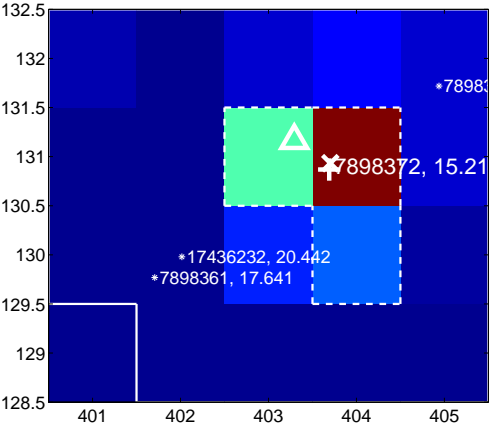
Q1 no OOT image



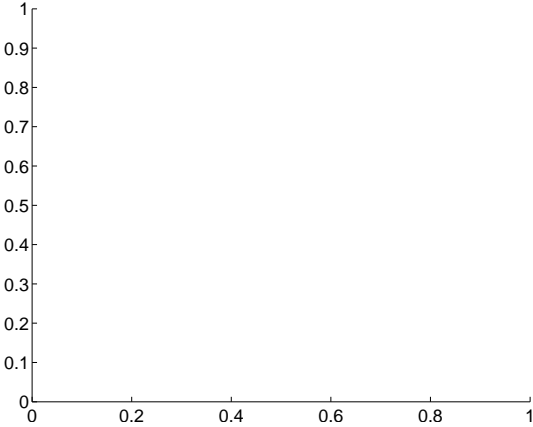
Q2 difference image



Q2 OOT image



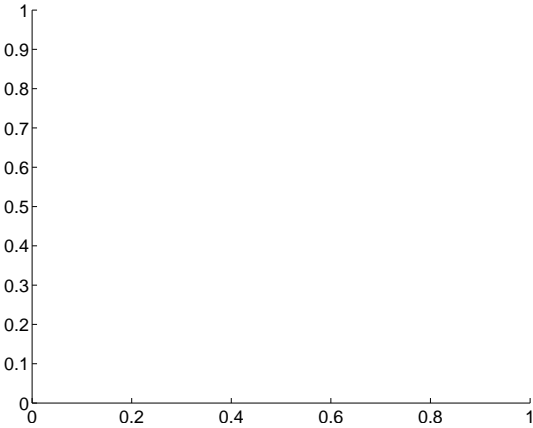
Q3 no difference image



Q3 no OOT image



Q4 no difference image



Q4 no OOT image





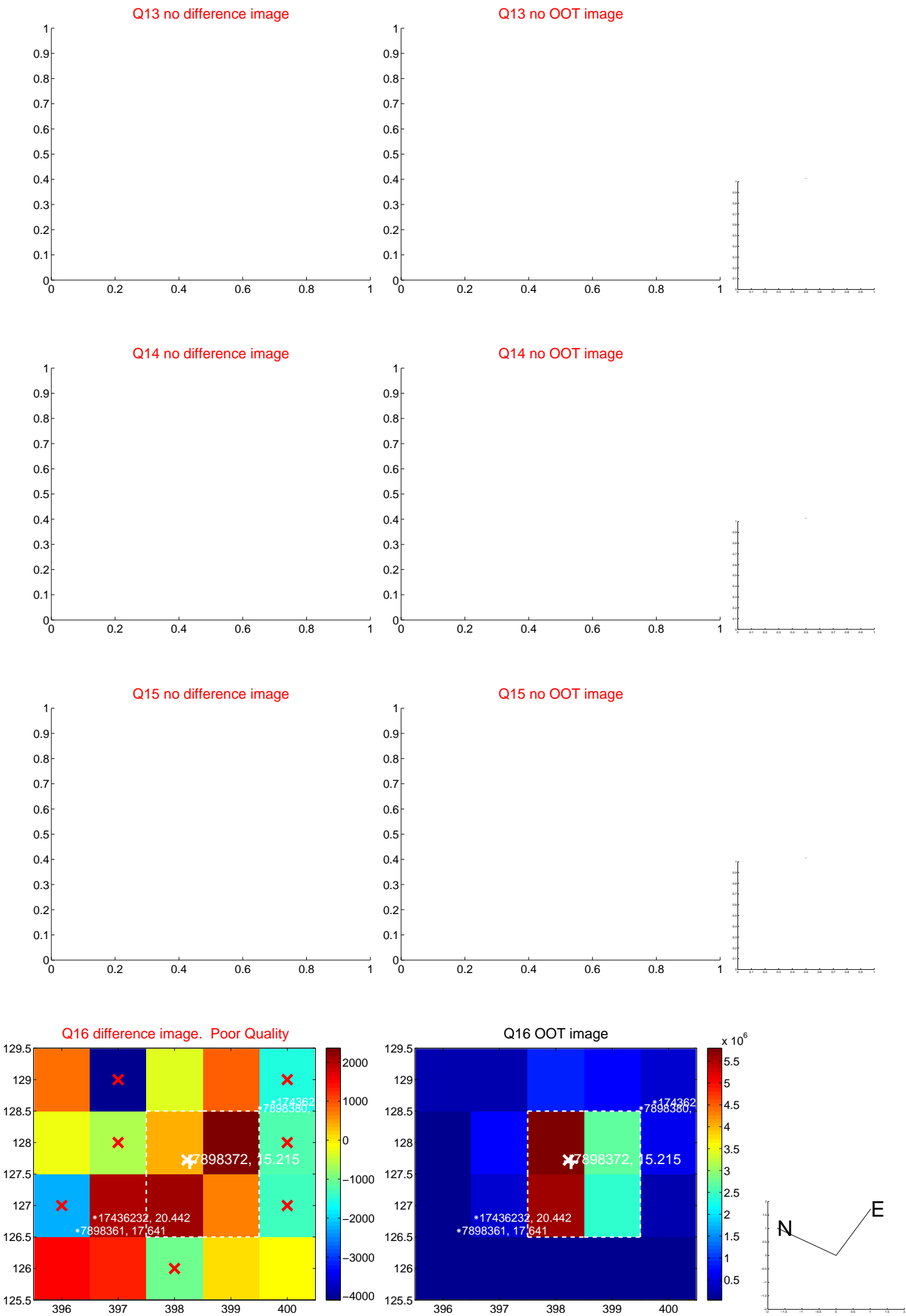
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



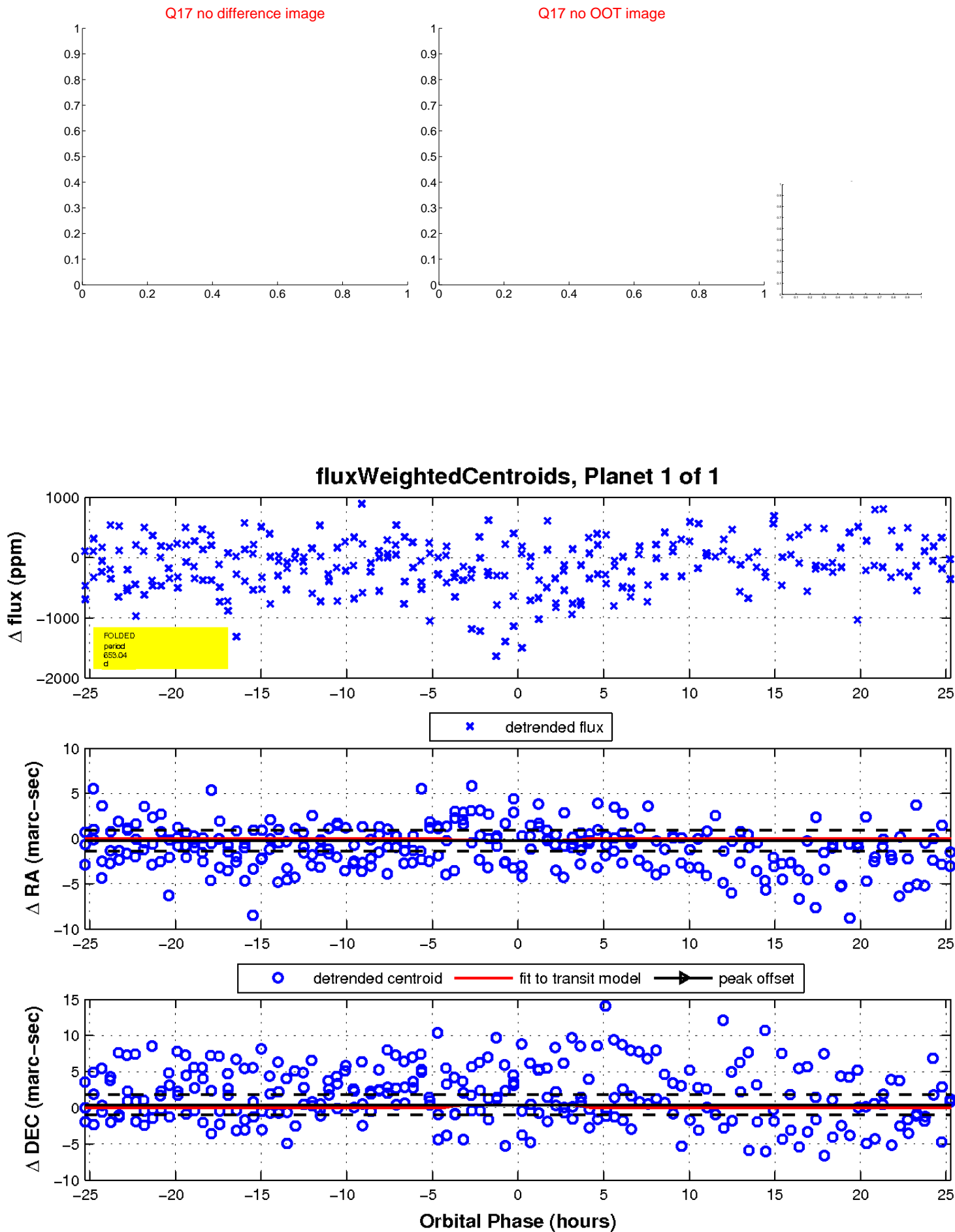
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

