

# KIC 009283572

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009283572-01	OBS	No	371.630290	298.196902	1000.1	3.146	13.1	6.8	1.77	5211	6.52	2.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009283572-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

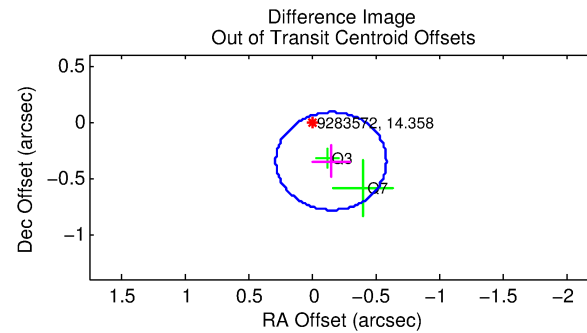
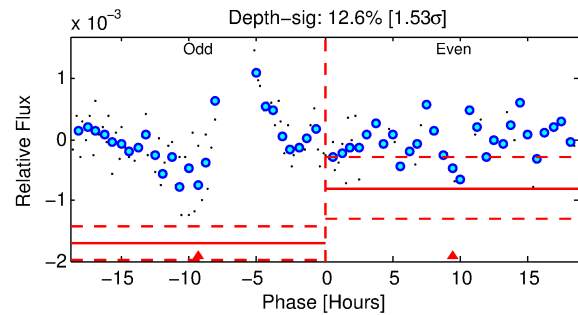
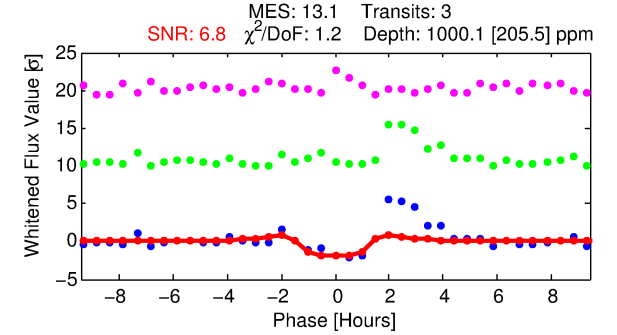
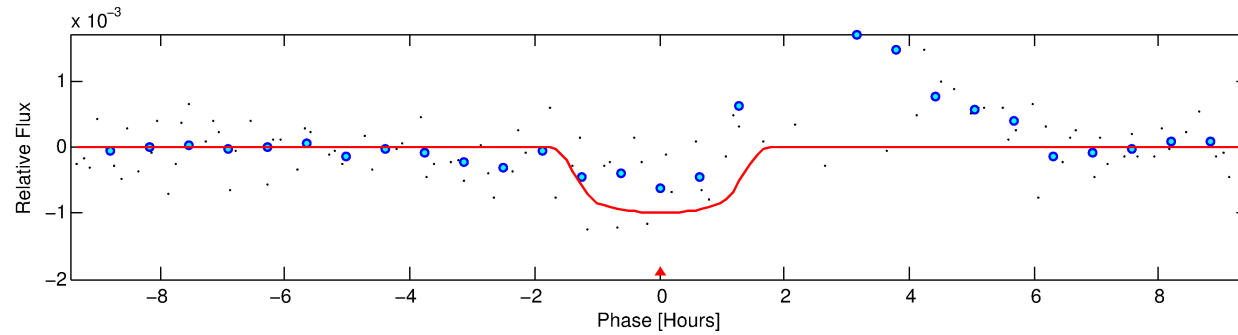
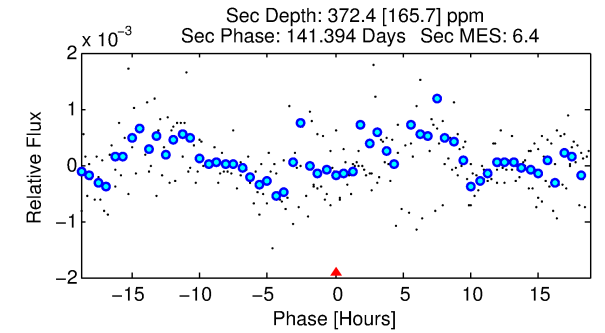
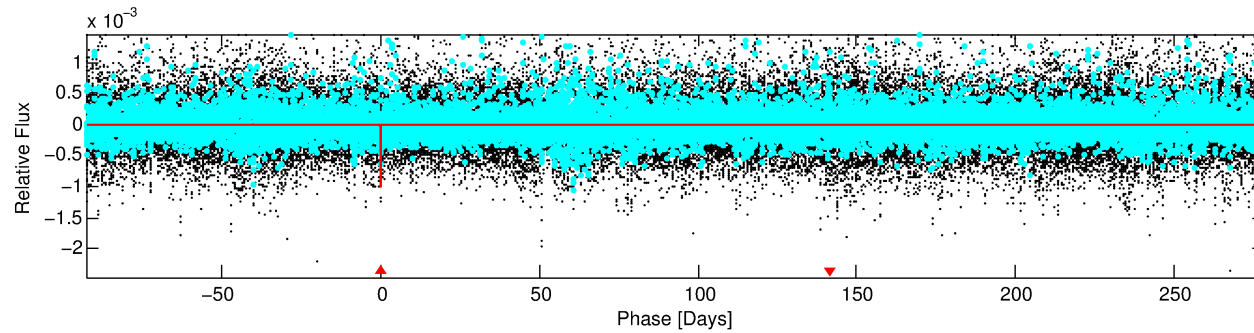
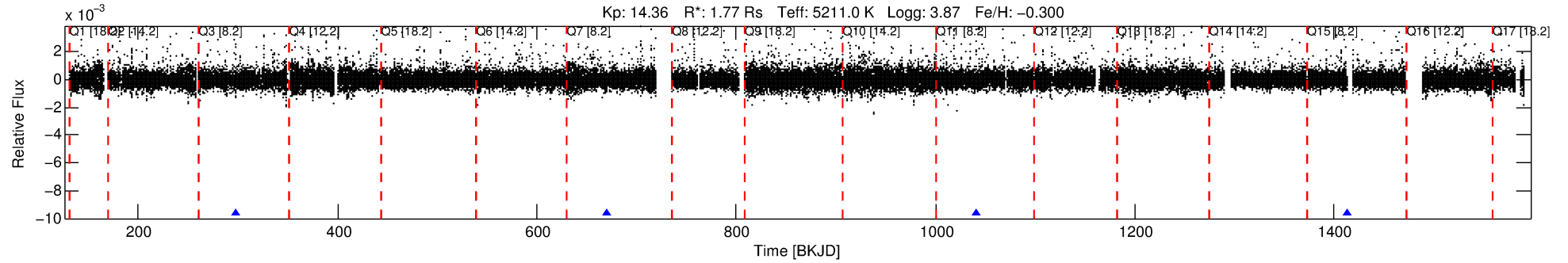
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009283572-01

No Significant Match Found

# DV One-Page Summary

KIC: 9283572 Candidate: 1 of 1 Period: 371.630 d



## DV Fit Results:

Period = 371.63029 [0.00668] d  
Epoch = 298.1969 [0.0080] BKJD  
Rp/R\* = 0.0337 [0.0167]  
a/R\* = 517.34 [970.75]  
b = 0.86 [0.58]  
Seff = 2.25 [2.84]  
Teq = 312 [99] K  
Rp = 6.52 [5.28] Re  
a = 0.9621 [0.7023] AU  
Ag = 4462.74 [7431.36] [0.60σ]  
Teffp = 3946 [1081] K [3.35σ]

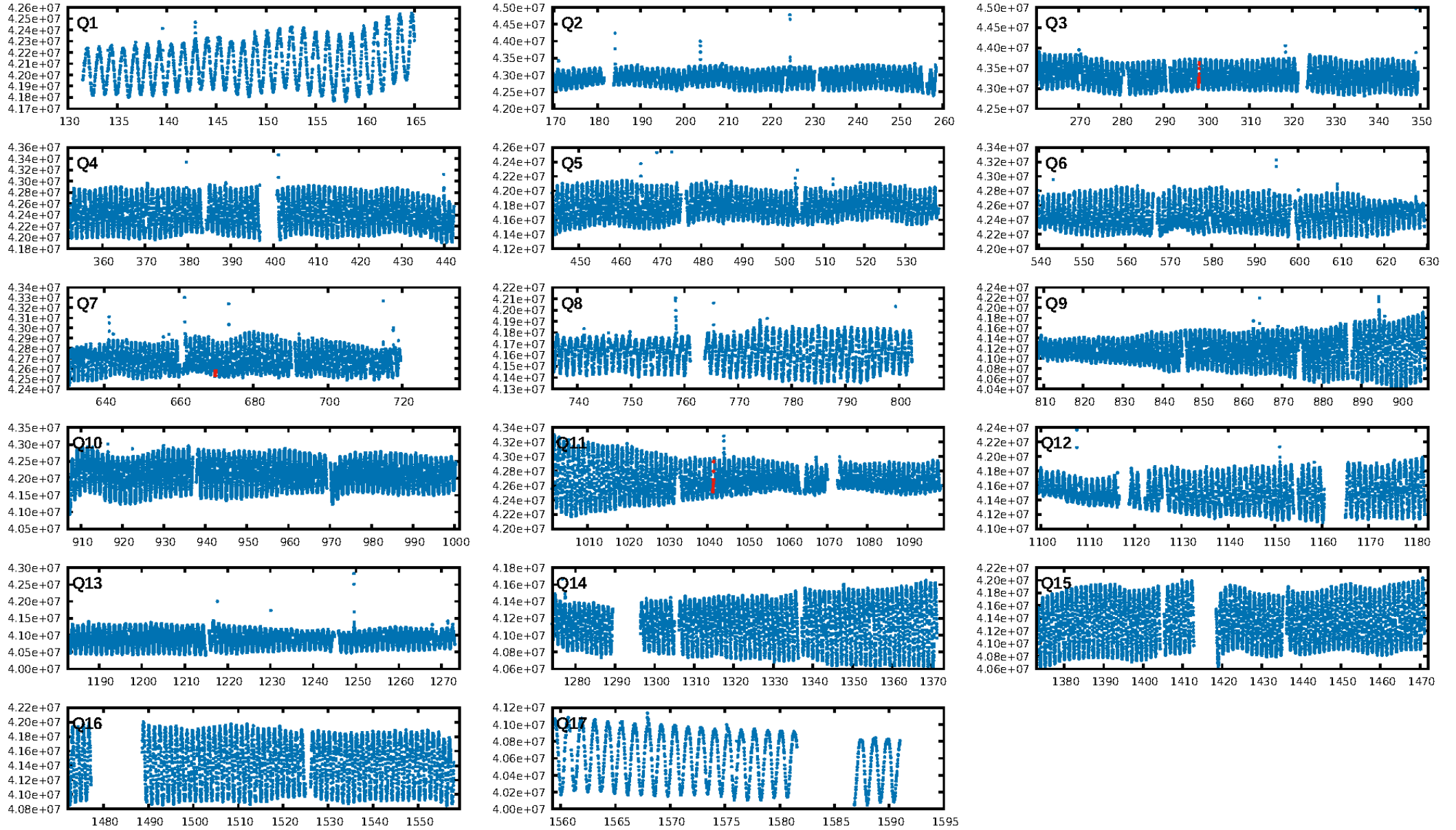
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 41.7%  
**Bootstrap-pfa: 6.20e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 4.915  
Centroid-sig: 53.5%  
Centroid-so: 0.652 arcsec [0.69σ]  
OotOffset-rm: 0.383 arcsec [2.64σ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-rm: 0.258 arcsec [1.43σ]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

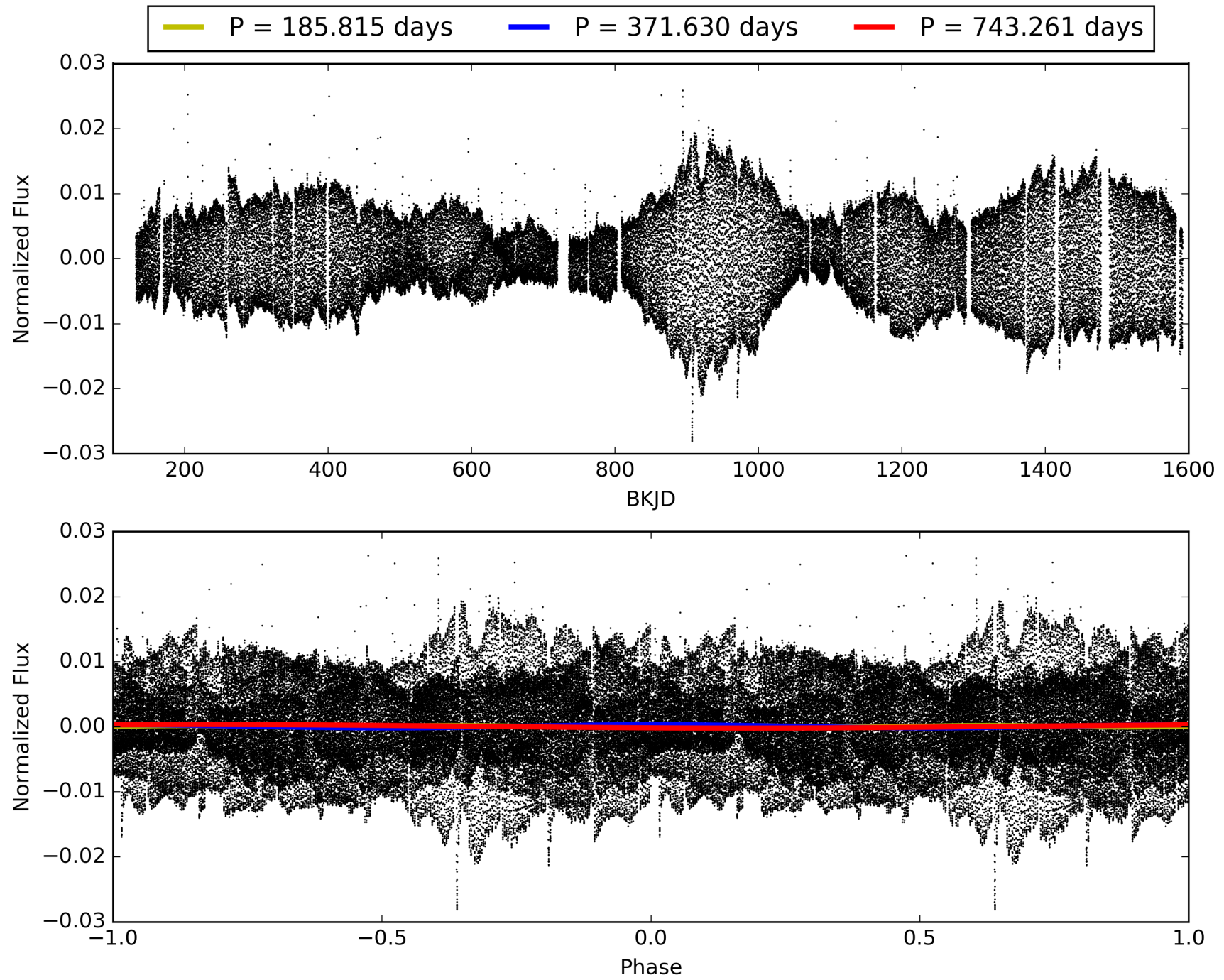
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:37:10 Z

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

# TCE 009283572-01, PDC Light Curves

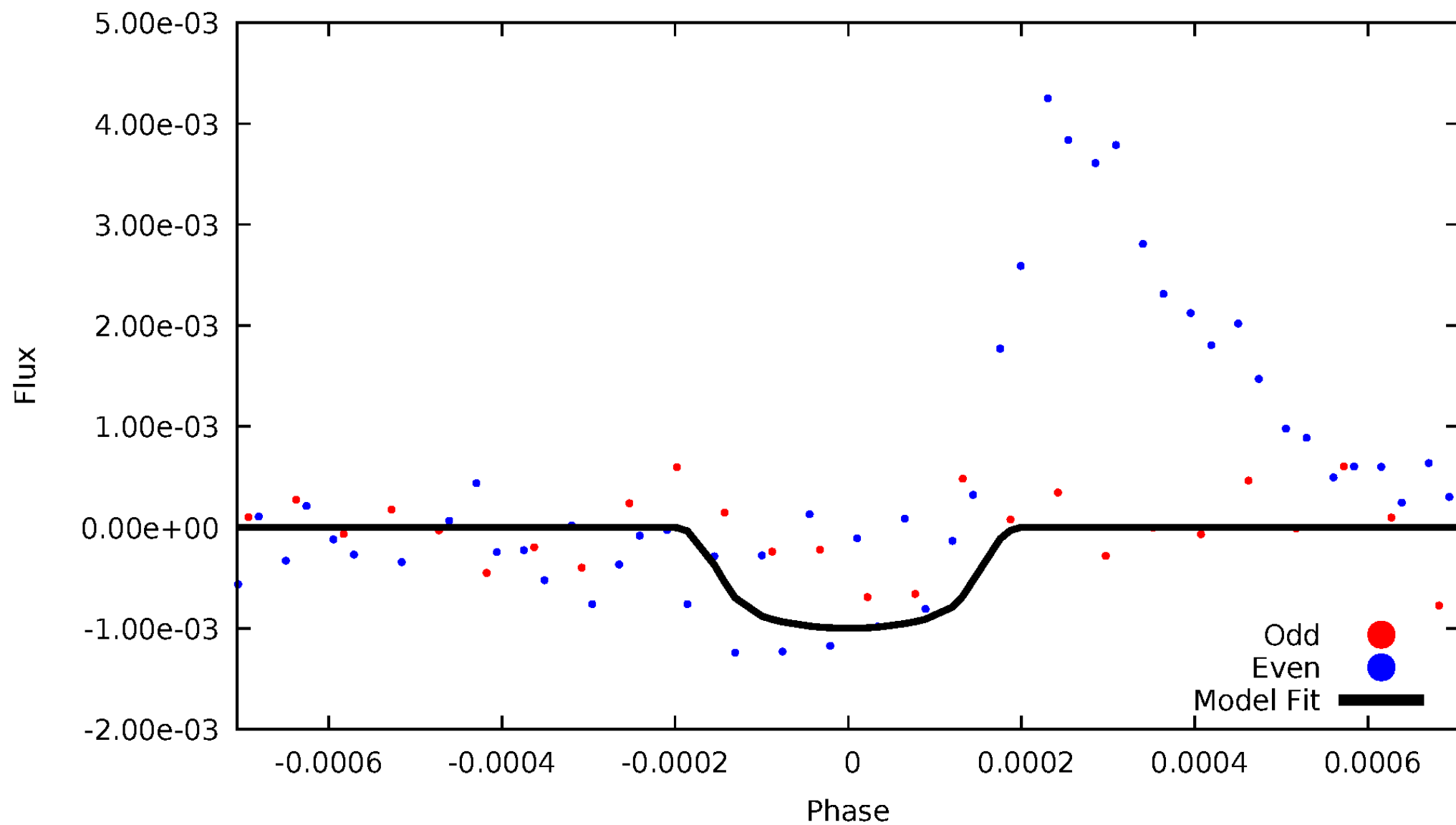


TCE 009283572-01



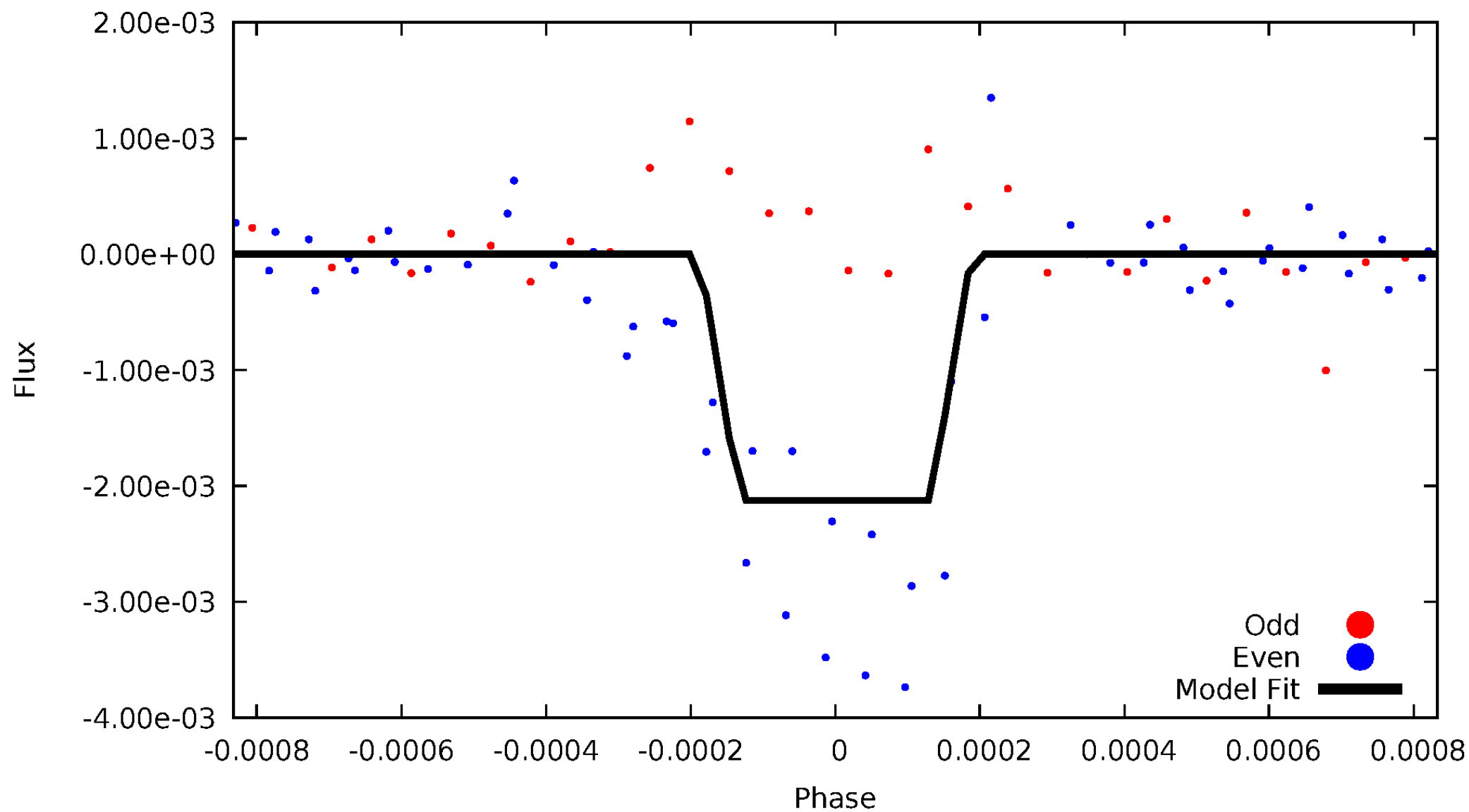
# DV Odd/Even

TCE 009283572-01



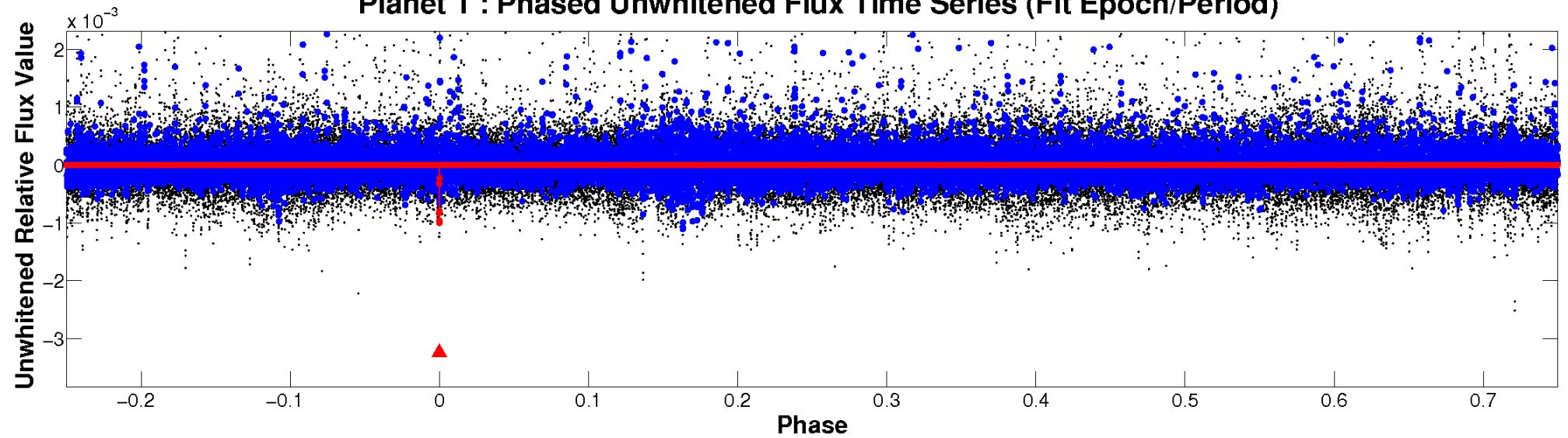
# ALT Odd/Even

TCE 009283572-01

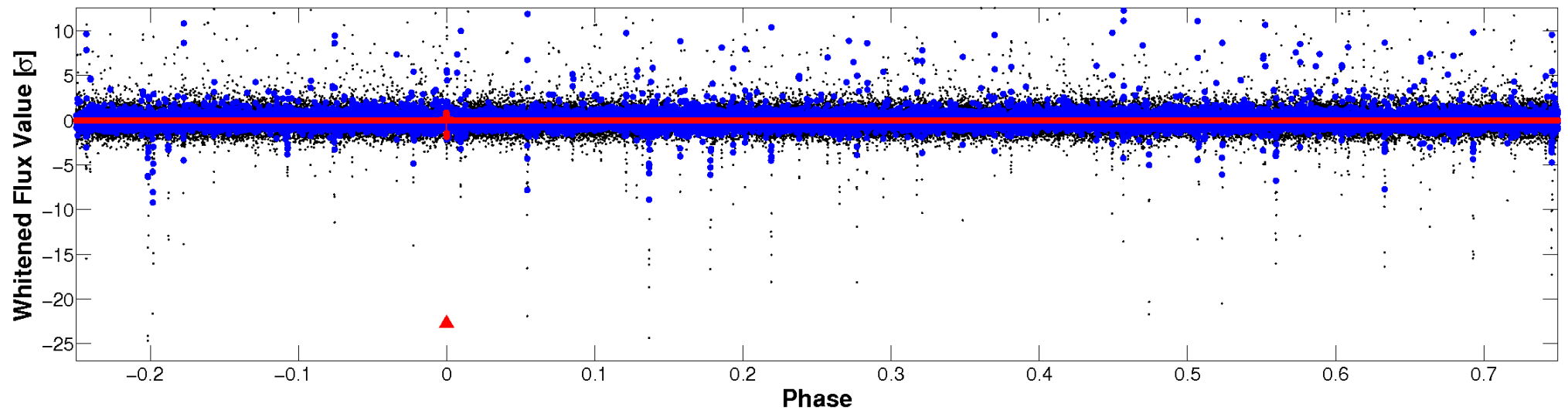


# Non-Whitened Vs. Whitened Light Curve

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

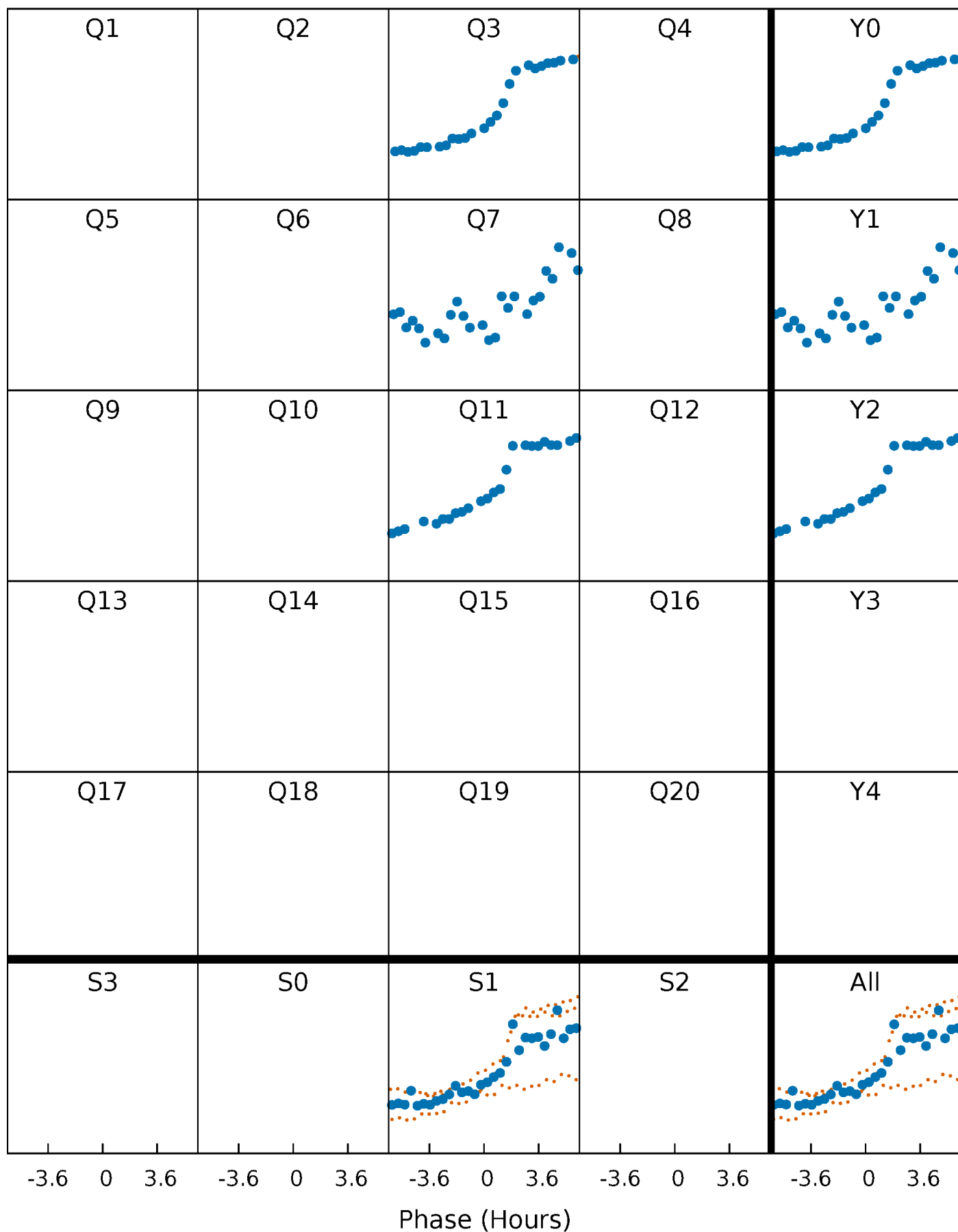


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

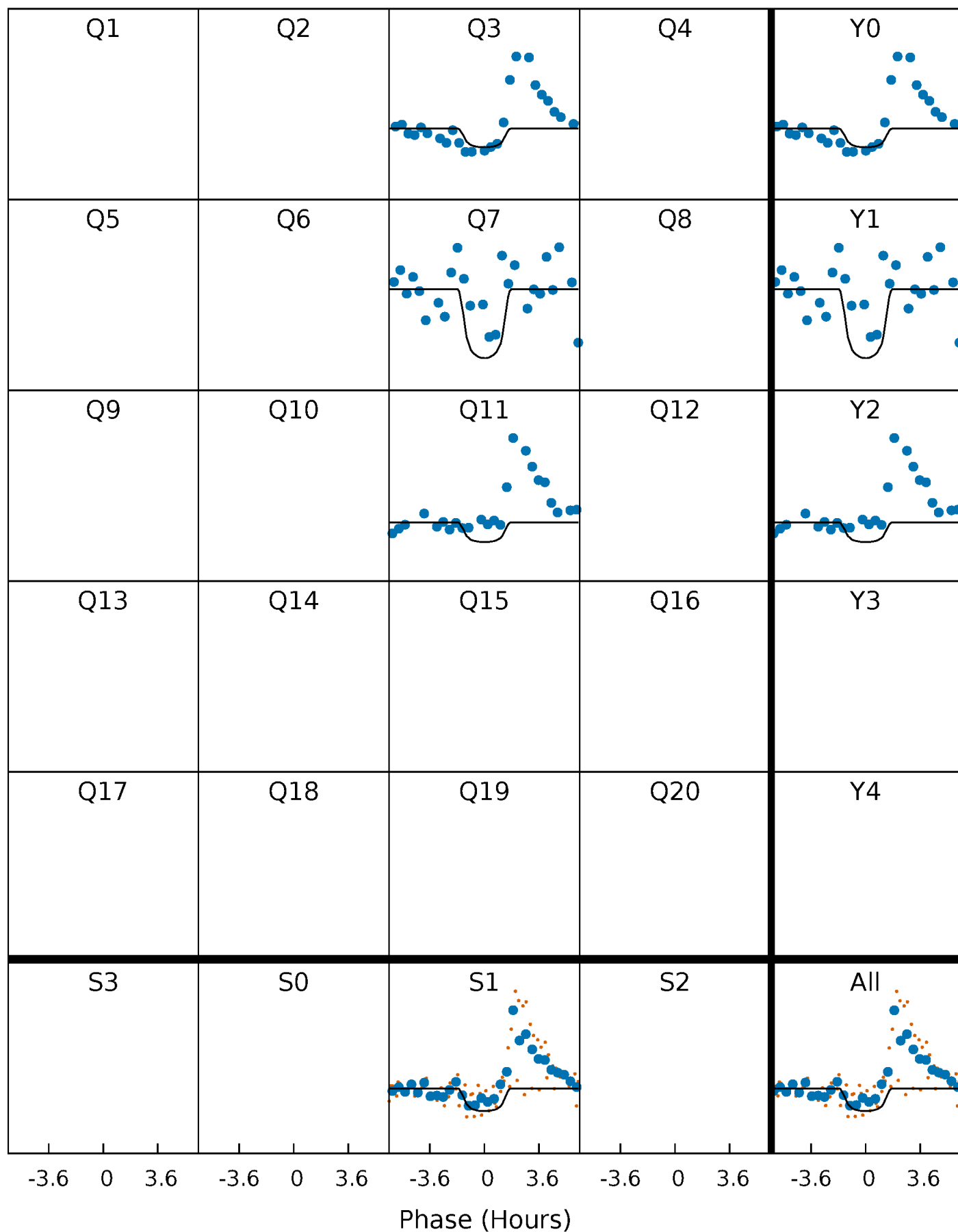
TCE 009283572-01 P=371.630290 Days  $T_0=298.196903$  (BKJD)





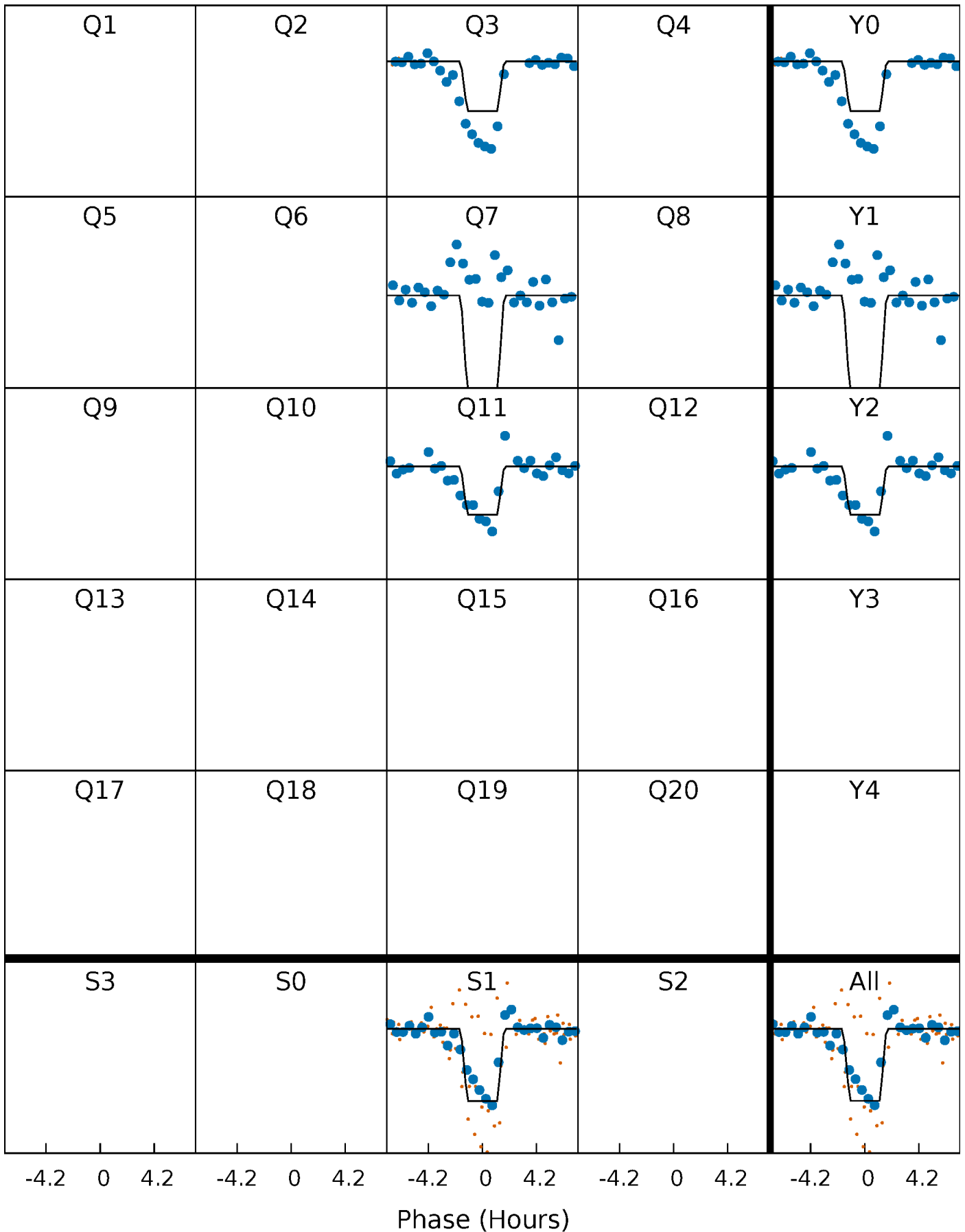
# DV Quarter-Phased Transit Curves

TCE 009283572-01 P=371.630290 Days  $T_0=298.196903$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

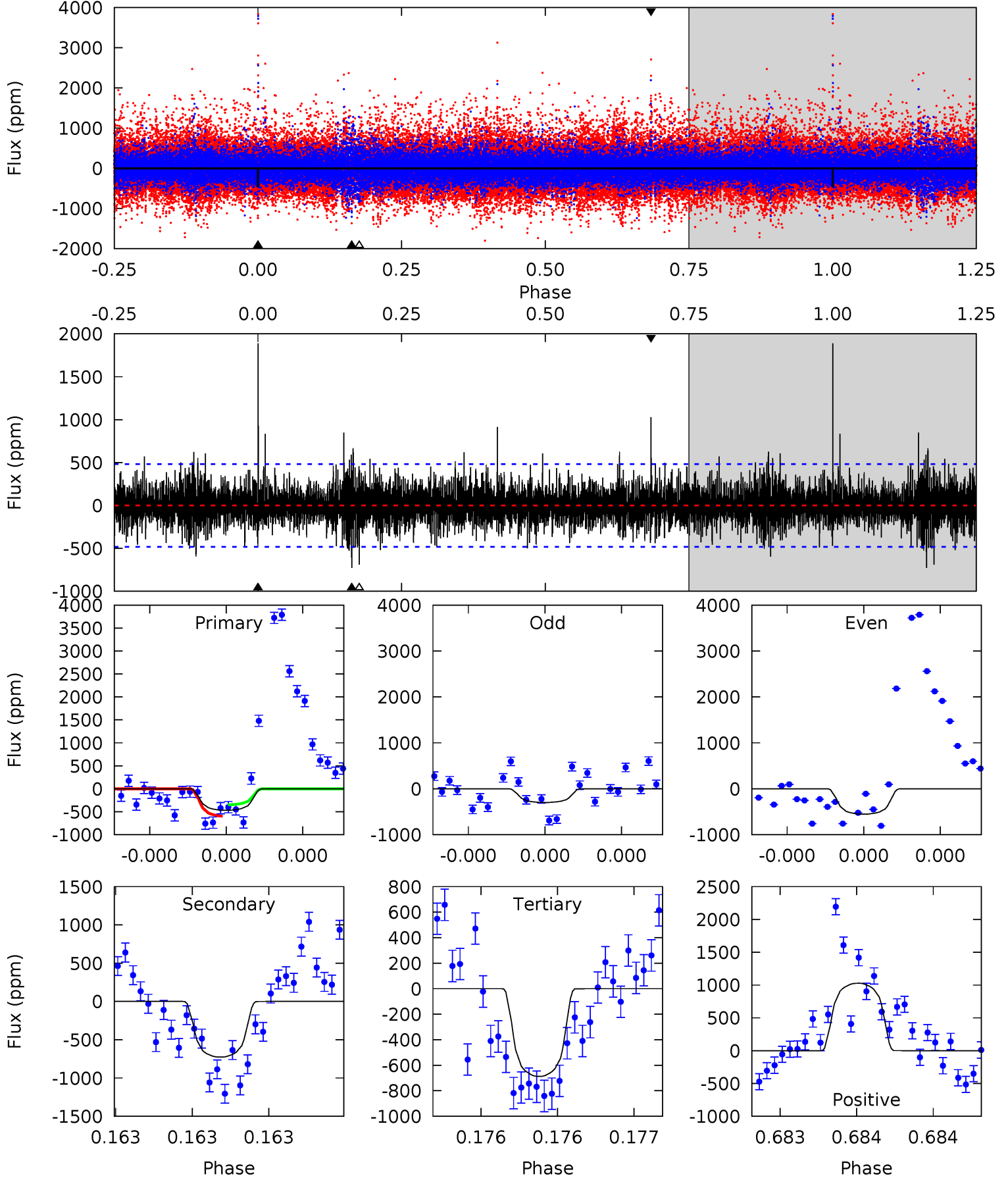
TCE 009283572-01 P=371.634438 Days  $T_0=298.194134$  (BKJD)



# DV Model-Shift Uniqueness Test

009283572-01, P = 371.630290 Days, E = 298.196903 Days

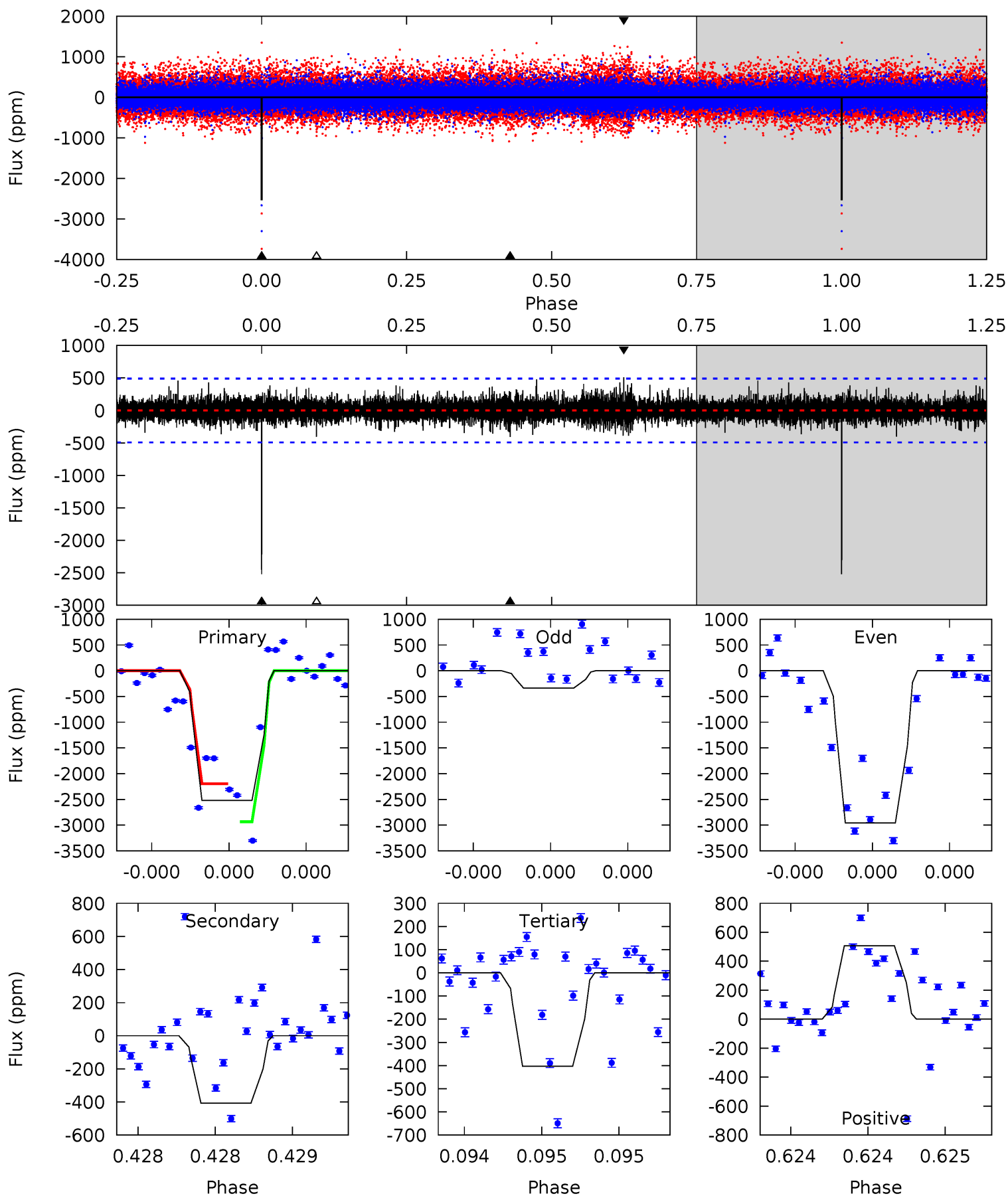
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.43	8.43	7.97	11.9	5.60	3.52	1.81	-2.54	-6.49	0.46	-3.49	1.31	1.56	0.72	1.43



# Alt Model-Shift Uniqueness Test

009283572-01, P = 371.634438 Days, E = 298.194134 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
28.8	4.66	4.62	5.80	5.63	3.57	1.02	24.2	23.0	0.04	-1.15	20.5	0.80	0.17	4.25



### Stellar Parameters For KIC 009283572

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5211^{+153}_{-153}$	$3.874^{+0.772}_{-0.309}$	$-0.300^{+0.350}_{-0.250}$	$1.775^{+1.032}_{-1.135}$	$0.862^{+0.110}_{-0.135}$	$0.217^{+2.832}_{-0.151}$
	+3%/-3%	+20%/-8%	+117%/-83%	+58%/-64%	+13%/-16%	+1305%/-70%
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 009283572-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-727 \pm 86$	$5.72^{+4.24}_{-3.18}$	$425^{+67}_{-78}$	$4738^{+1910}_{-692}$	$10880^{+45919}_{-7228}$
Alt.	$-407 \pm 87$	$7.97^{+4.37}_{-3.63}$	$425^{+65}_{-68}$	$3791^{+645}_{-404}$	$3133^{+7451}_{-1893}$

$T_{\text{max}}$  = 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

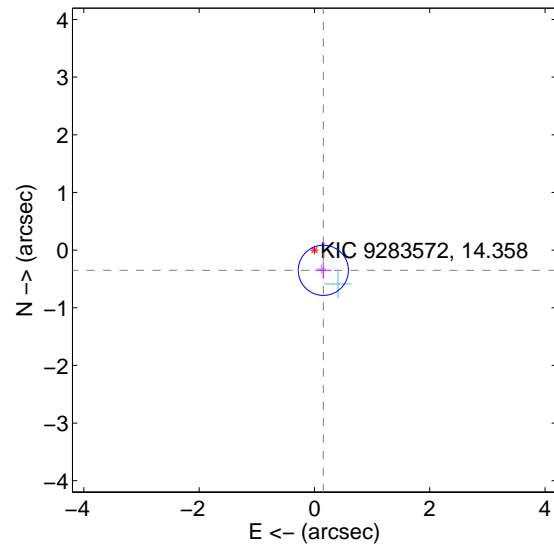
Supplemental centroid analysis for 009283572-01. Kepler magnitude: 14.36. Transit SNR 6.76

There are 2 quarters with good PRF difference image offsets

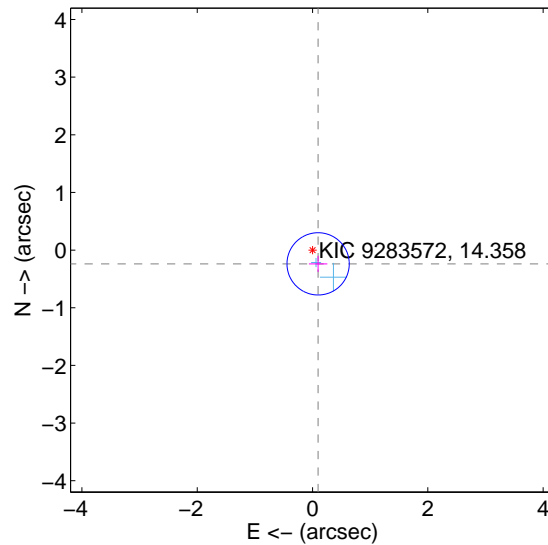
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.383 \pm 0.145$	2.64	$-0.154 \pm 0.142$	$-0.351 \pm 0.146$
PRF-fit source offset from KIC position	$0.258 \pm 0.180$	1.43	$-0.097 \pm 0.159$	$-0.239 \pm 0.139$
photometric centroid source offset	$0.65 \pm 0.95$	0.69	$-0.50 \pm 1.03$	$-0.42 \pm 0.81$

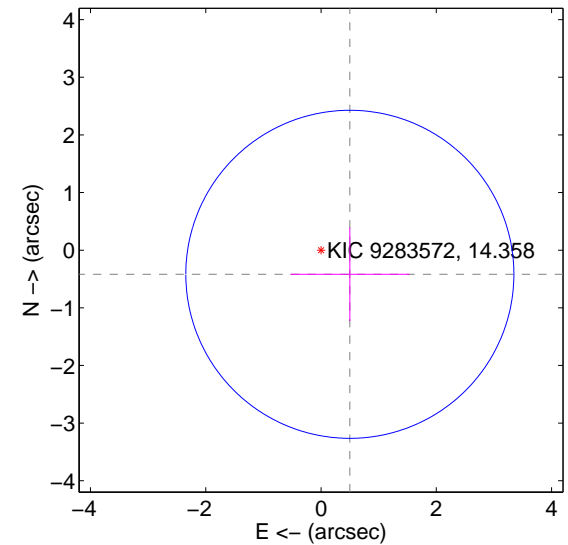
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

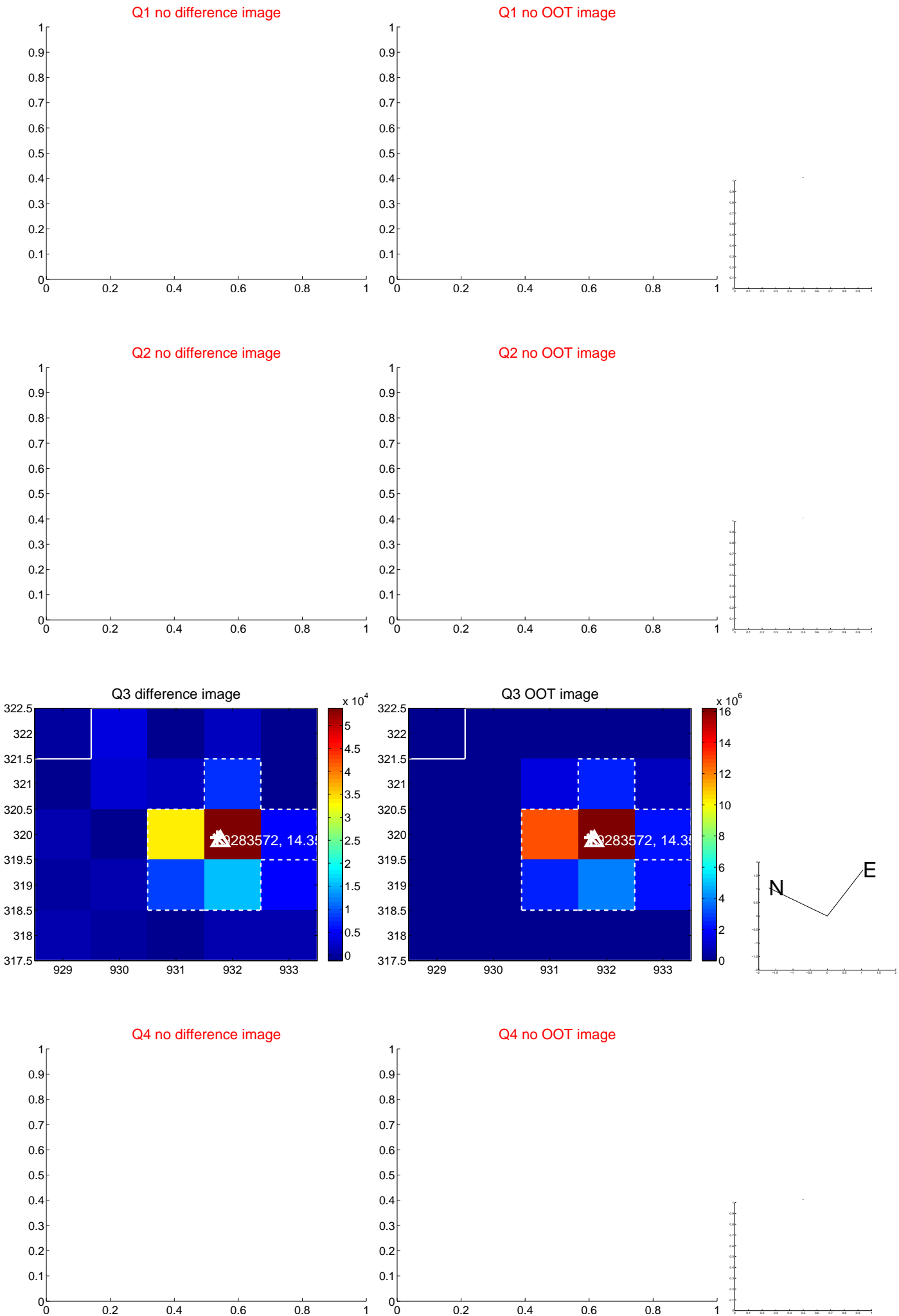


offset from photometric centroids

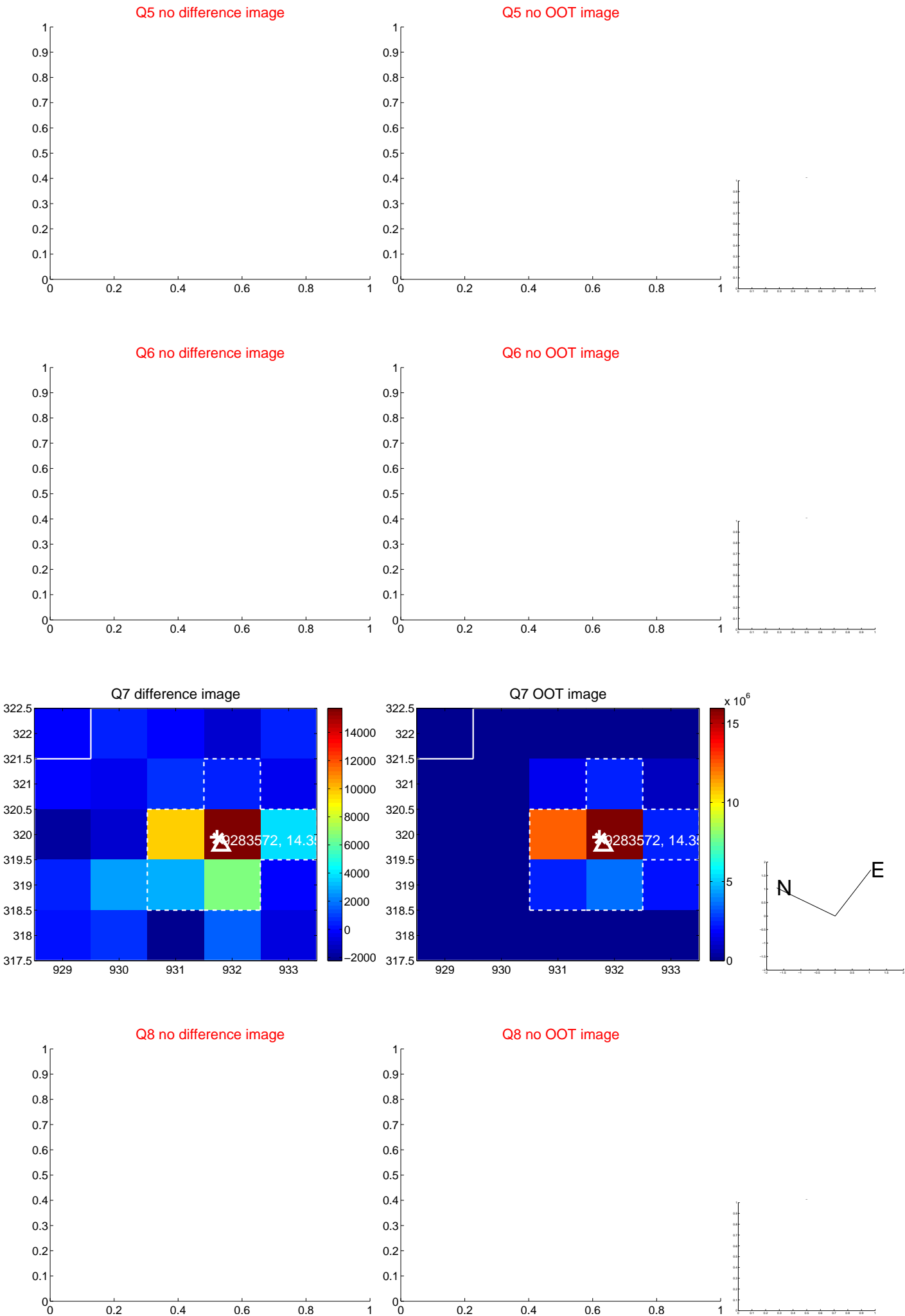


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.





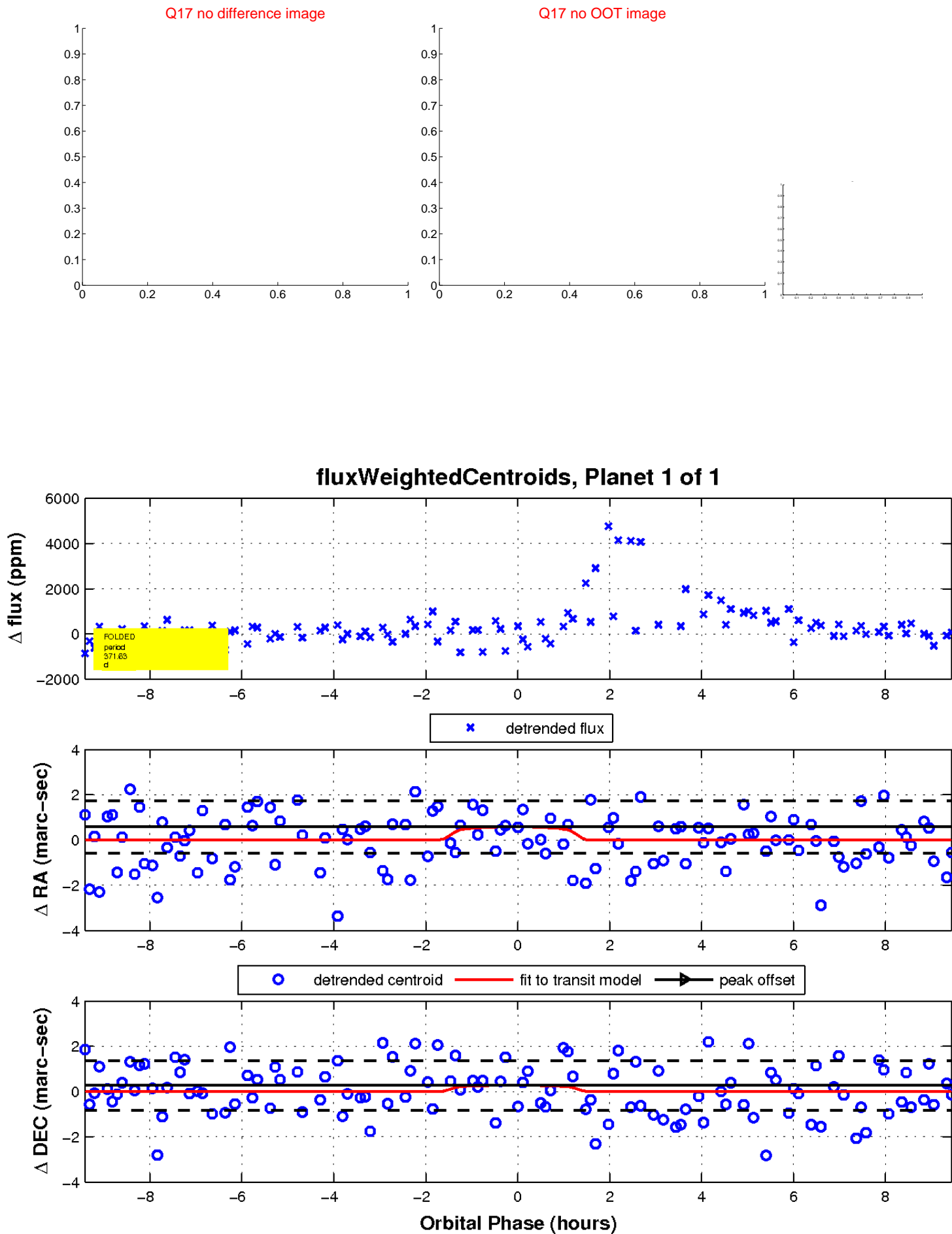
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

