

# KIC 008040398

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008040398-01	OBS	No	368.146390	234.667491	1045.8	24.841	7.8	9.1	0.95	5940	3.80	1.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008040398-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

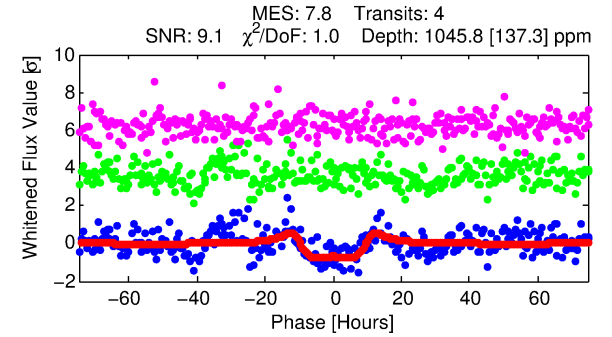
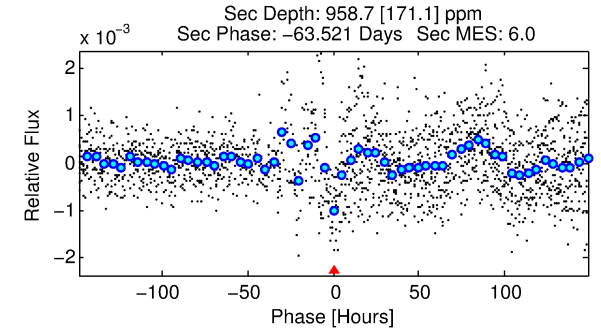
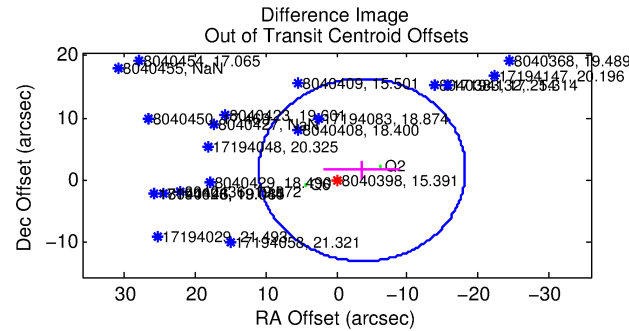
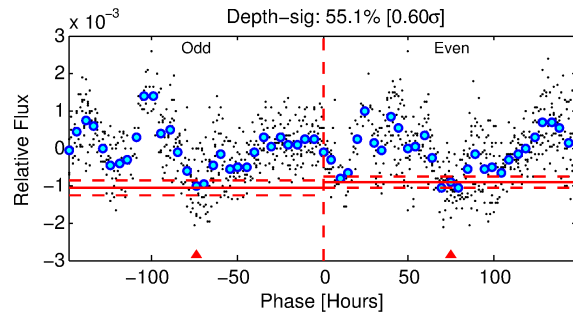
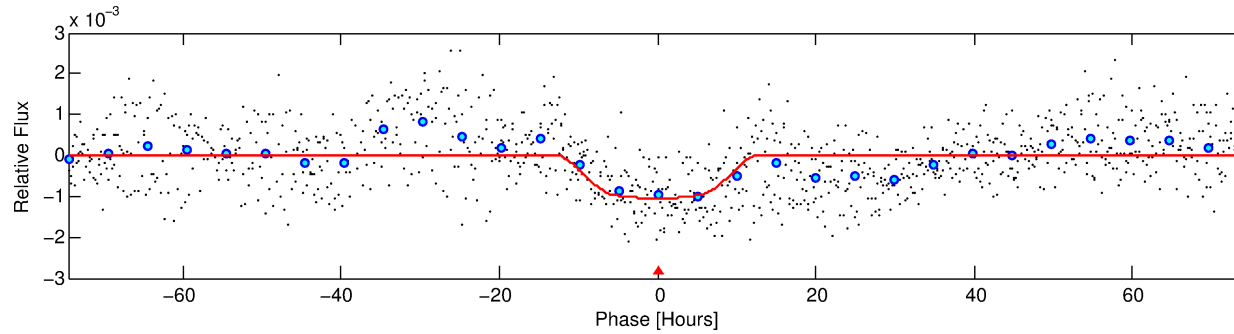
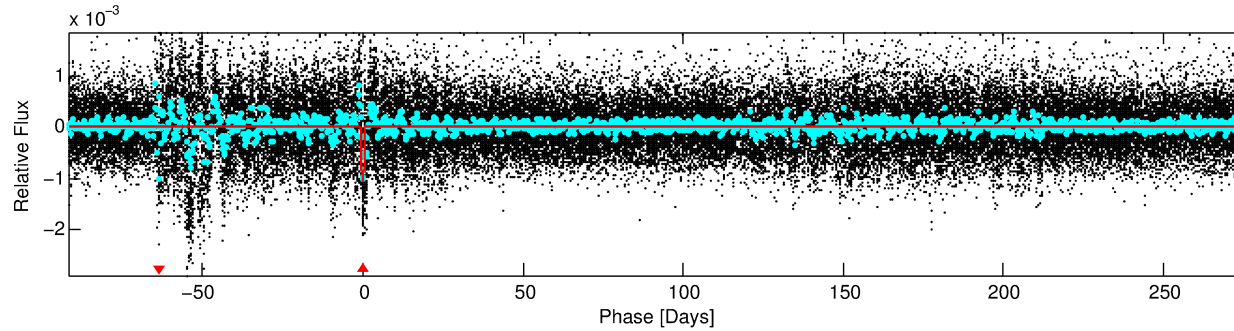
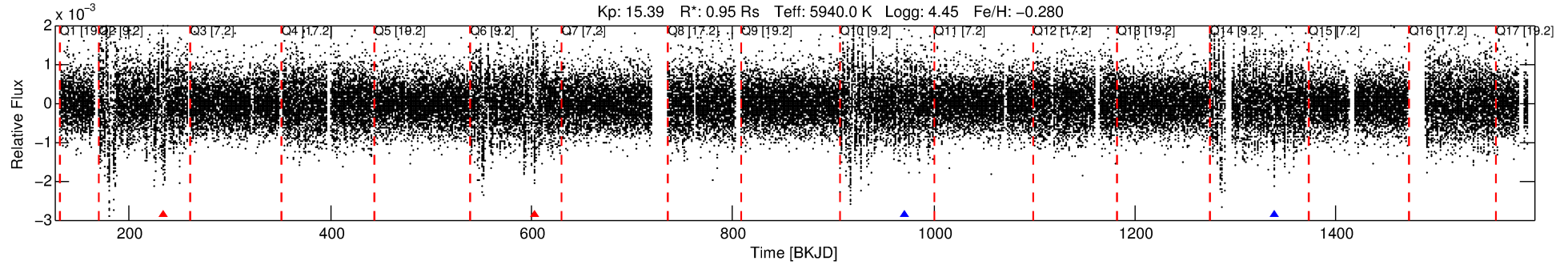
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008040398-01

No Significant Match Found

# DV One-Page Summary

KIC: 8040398 Candidate: 1 of 1 Period: 368.146 d



## DV Fit Results:

Period = 368.14639 [0.01829] d  
Epoch = 234.6675 [0.0358] BKJD  
Rp/R\* = 0.0368 [0.0029]  
a/R\* = 48.98 [6.90]  
b = 0.94 [0.02]  
Seff = 1.04 [0.39]  
Teq = 257 [24] K  
Rp = 3.80 [1.16] Re  
a = 0.9816 [0.2429] AU  
Ag = 35151.48 [15132.73] [2.32 $\sigma$ ]  
Teffp = 5449 [362] K [14.31 $\sigma$ ]

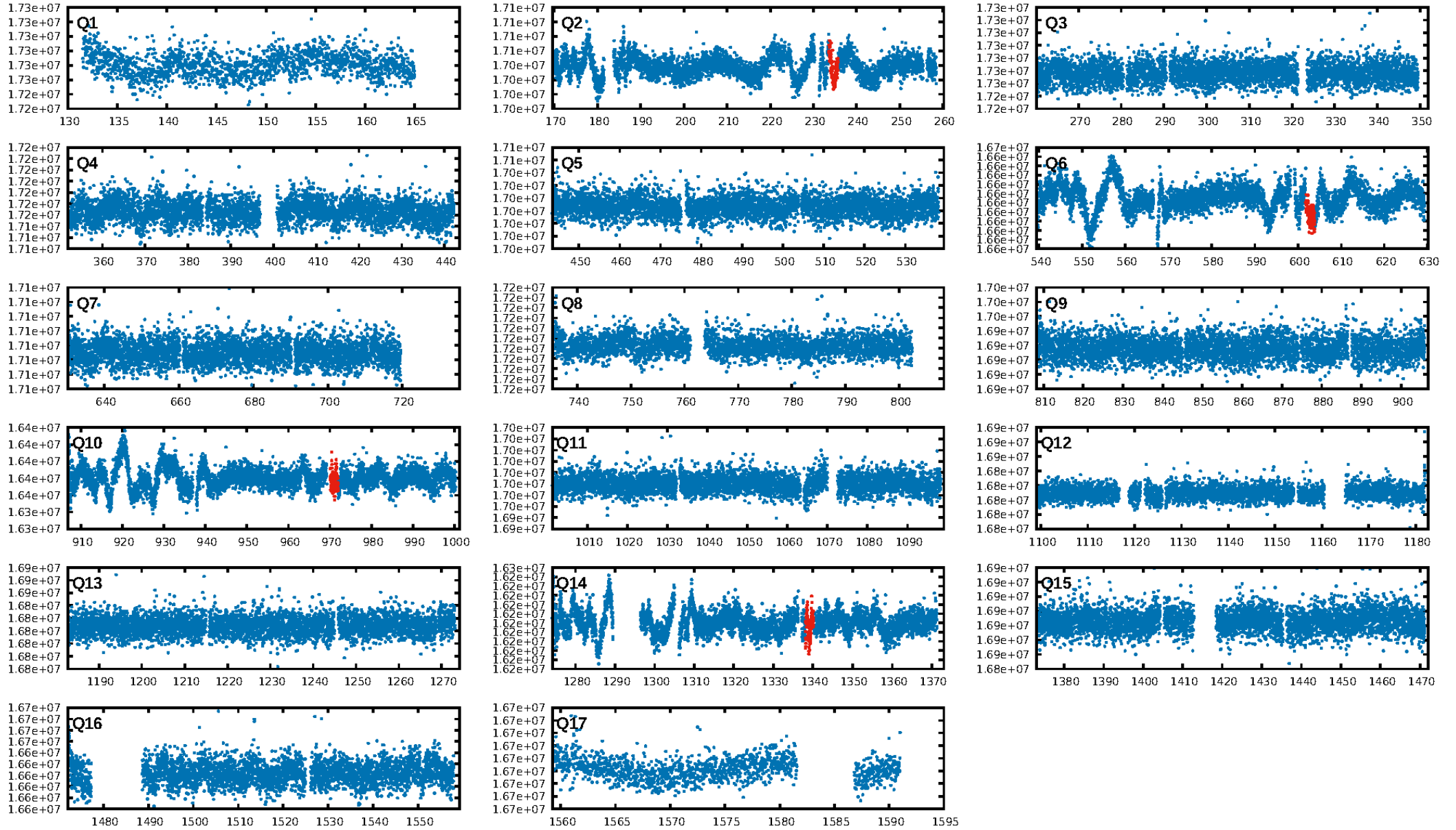
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.04e-09  
RollingBand-fgt: 0.50 [2/4]  
GhostDiagnostic-chr: -0.2899  
Centroid-sig: 1.9%  
Centroid-so: 4.575 arcsec [1.89 $\sigma$ ]  
OotOffset-rm: 3.996 arcsec [0.82 $\sigma$ ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-rm: 4.071 arcsec [0.79 $\sigma$ ]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

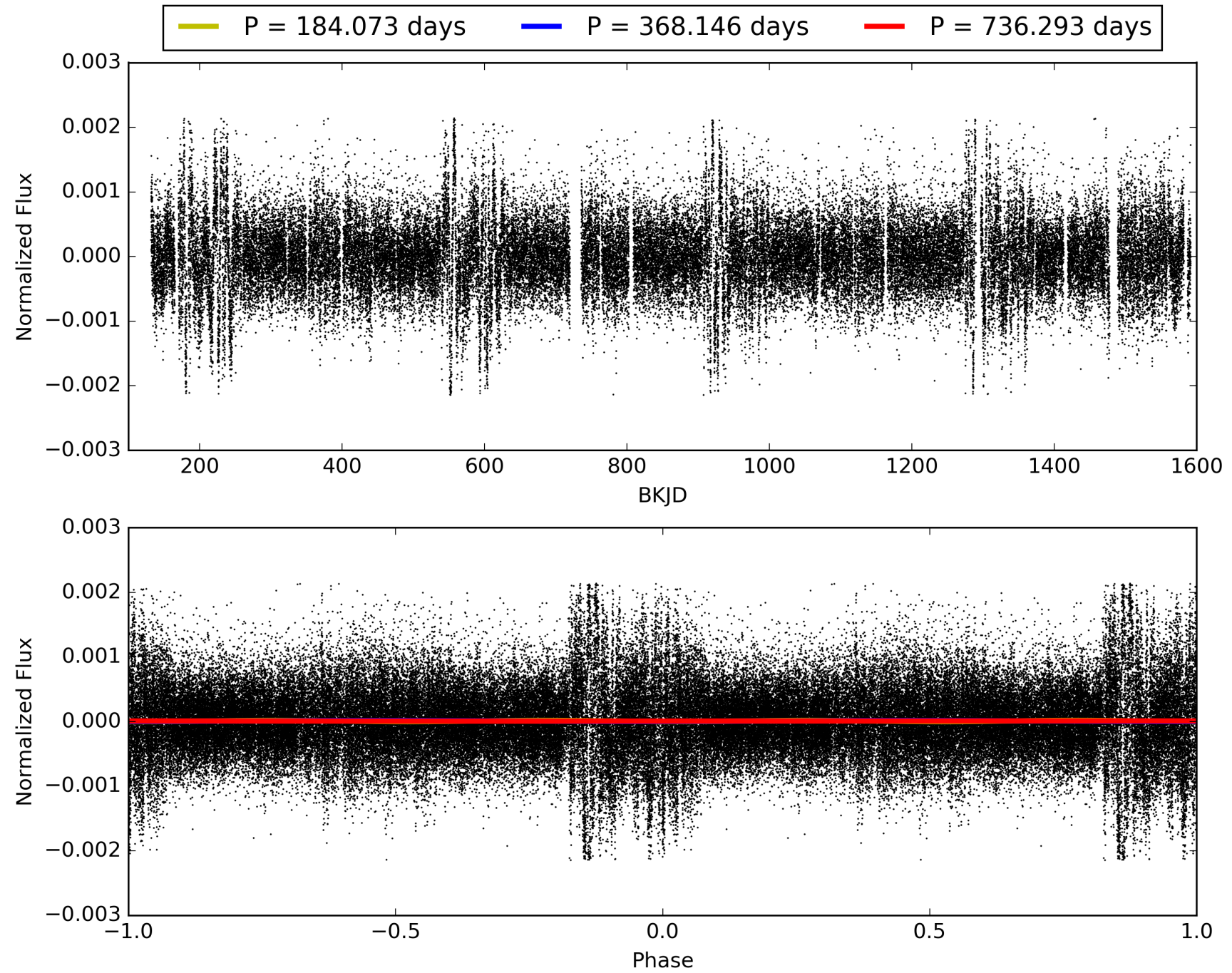
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:04:06 Z

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

# TCE 008040398-01, PDC Light Curves

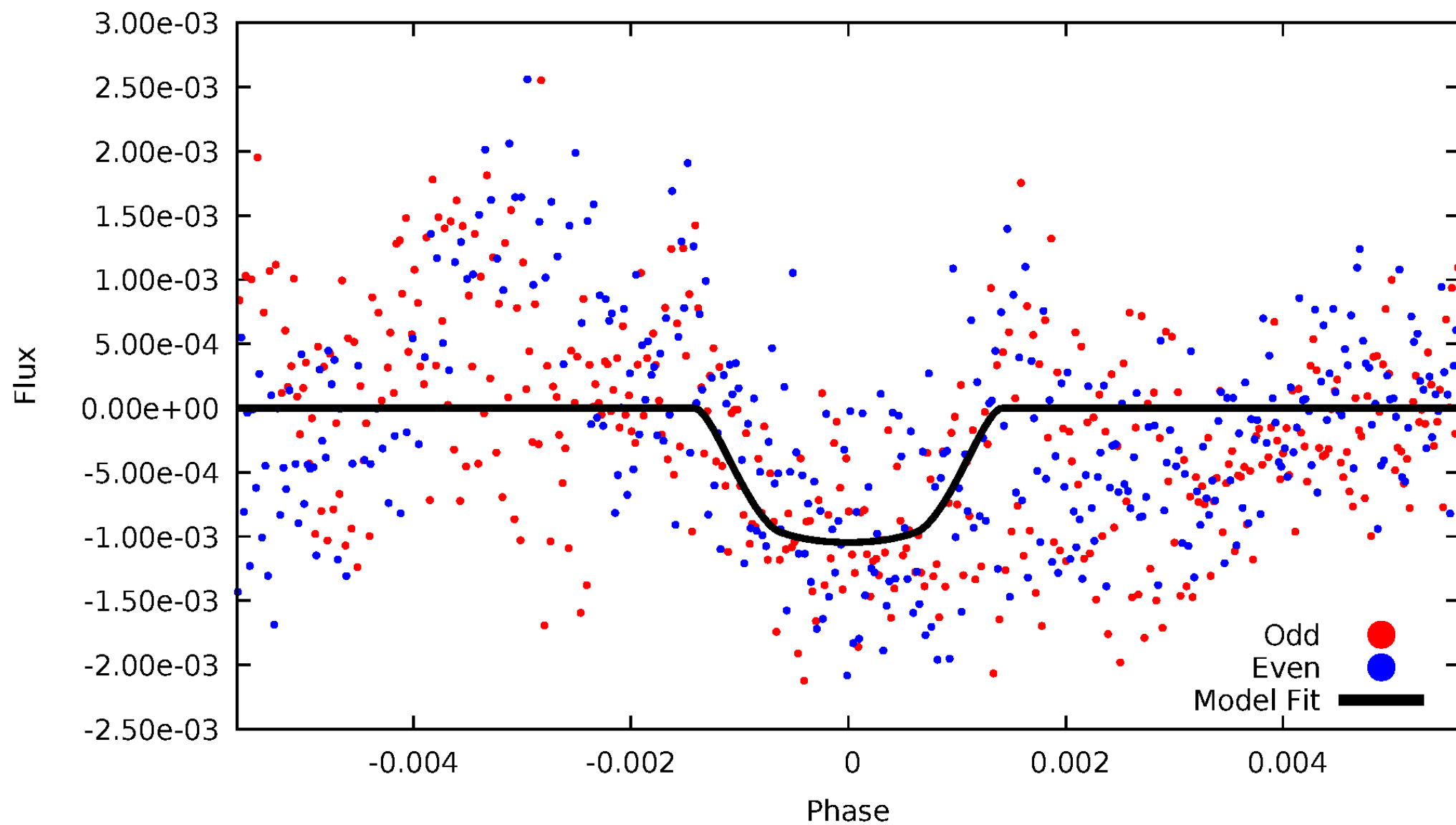


TCE 008040398-01



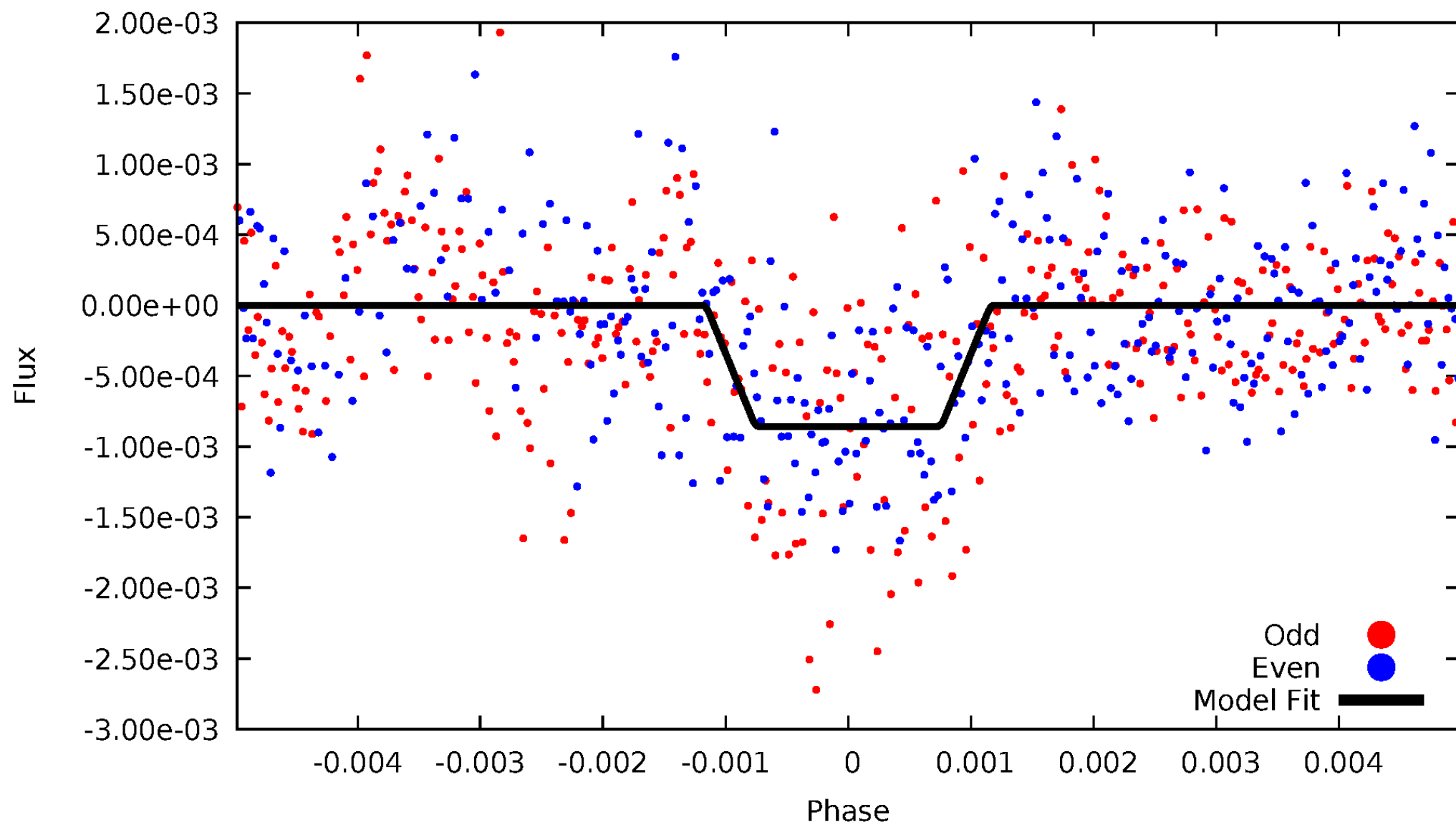
# DV Odd/Even

TCE 008040398-01



# ALT Odd/Even

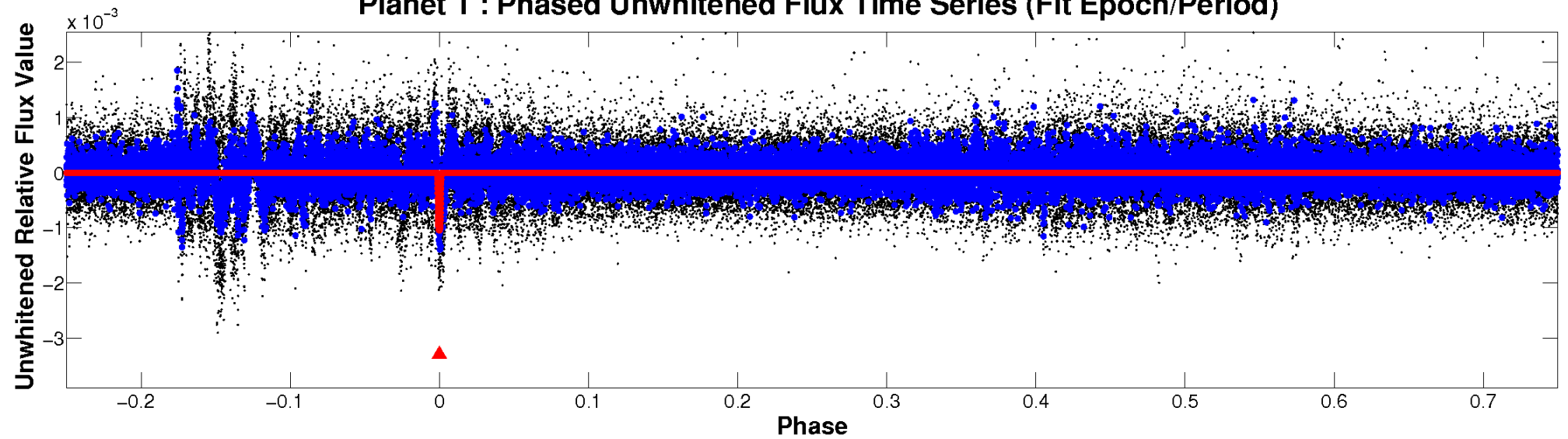
TCE 008040398-01



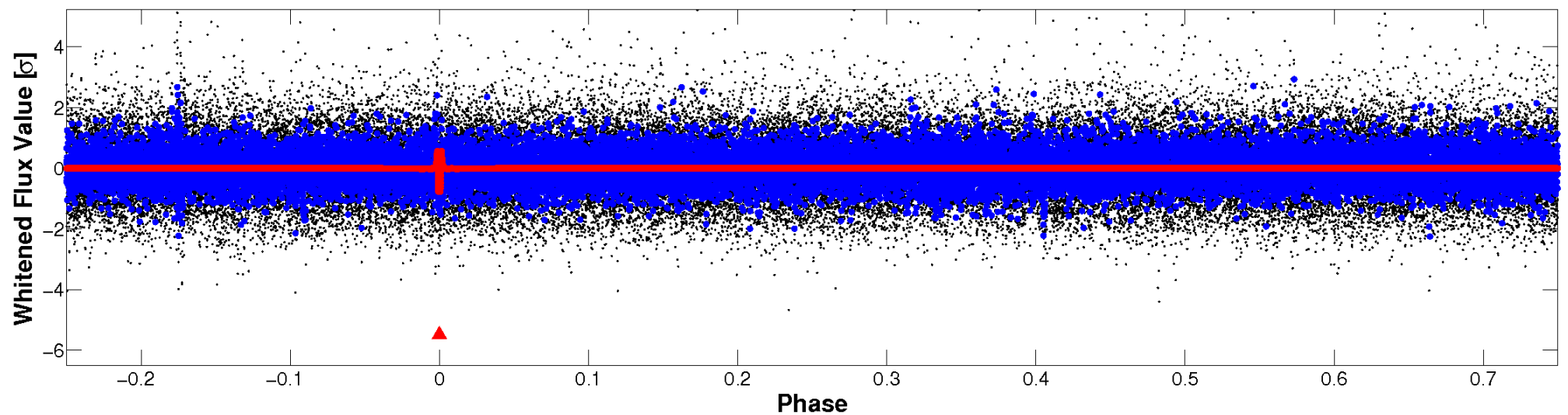


# Non-Whitened Vs. Whitened Light Curve

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

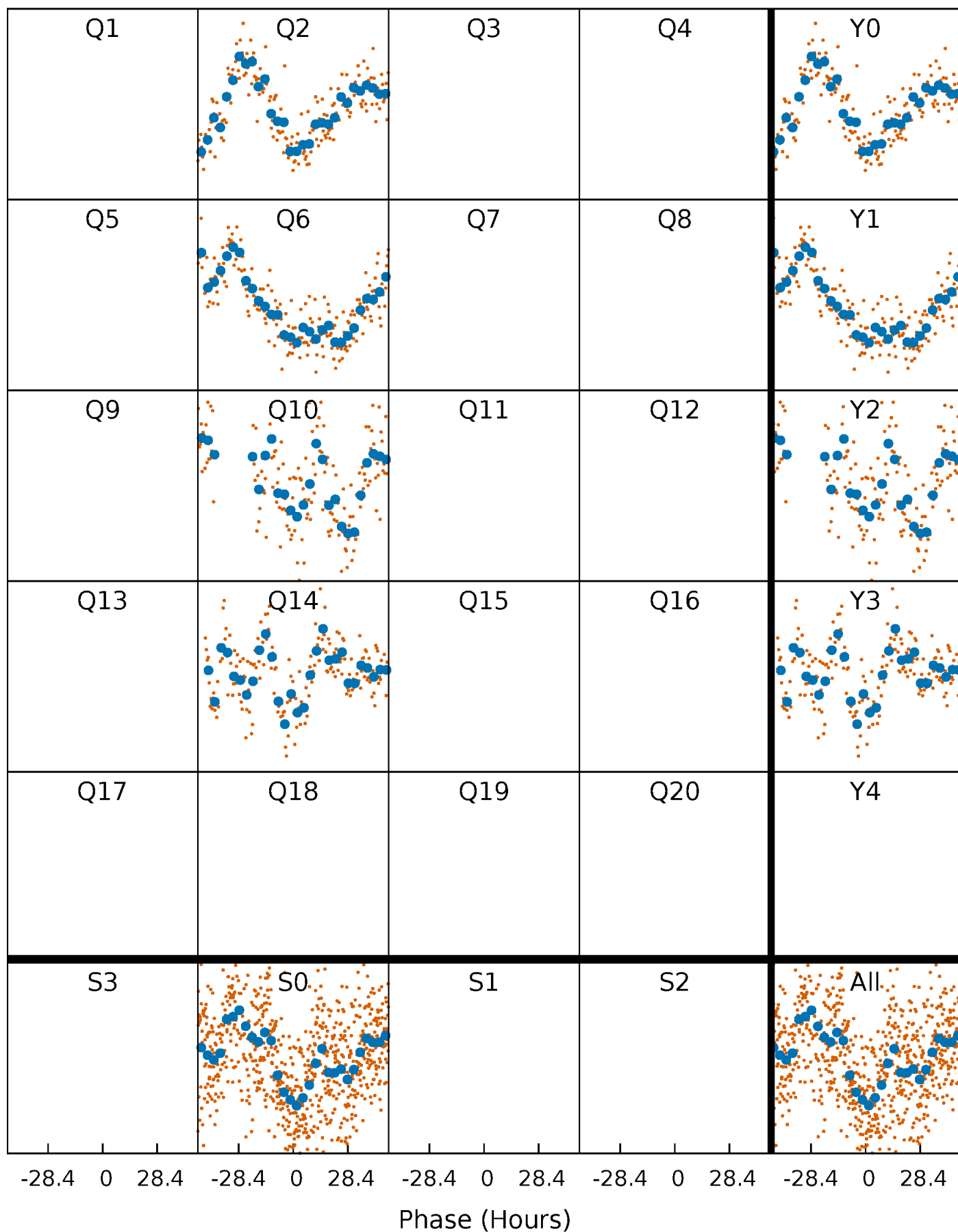


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

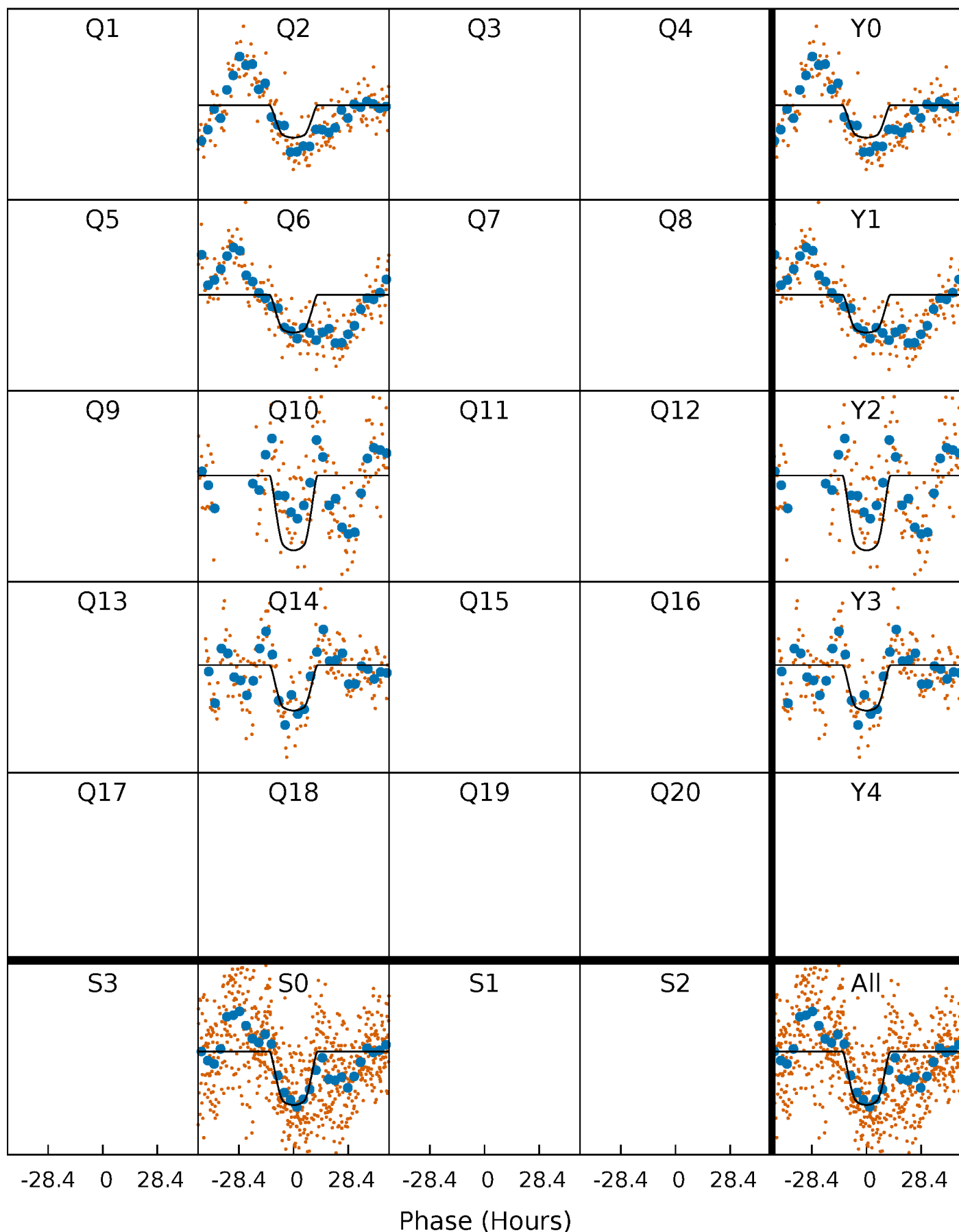
TCE 008040398-01 P=368.146390 Days  $T_0=234.667491$  (BKJD)





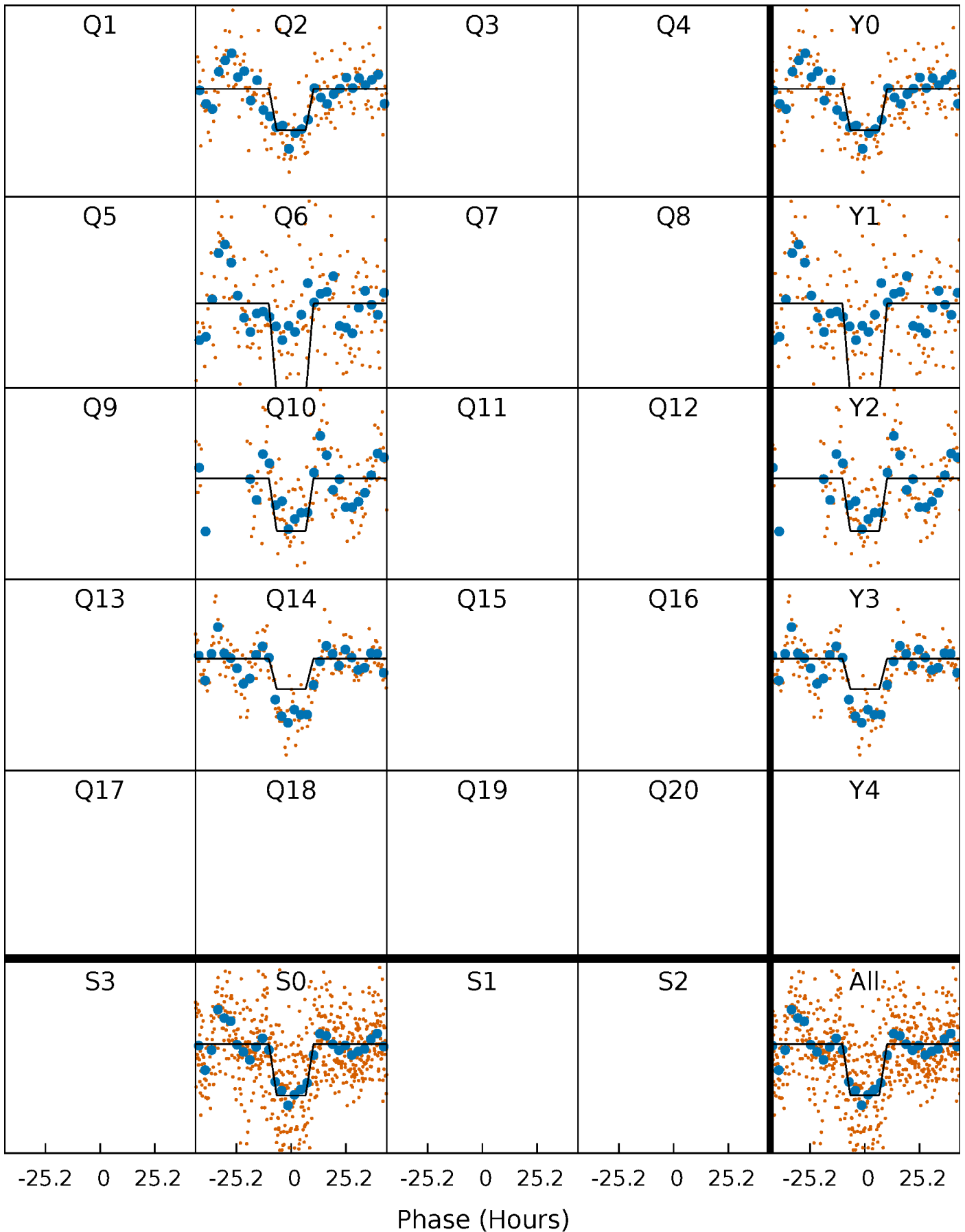
# DV Quarter-Phased Transit Curves

TCE 008040398-01 P=368.146390 Days  $T_0=234.667491$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

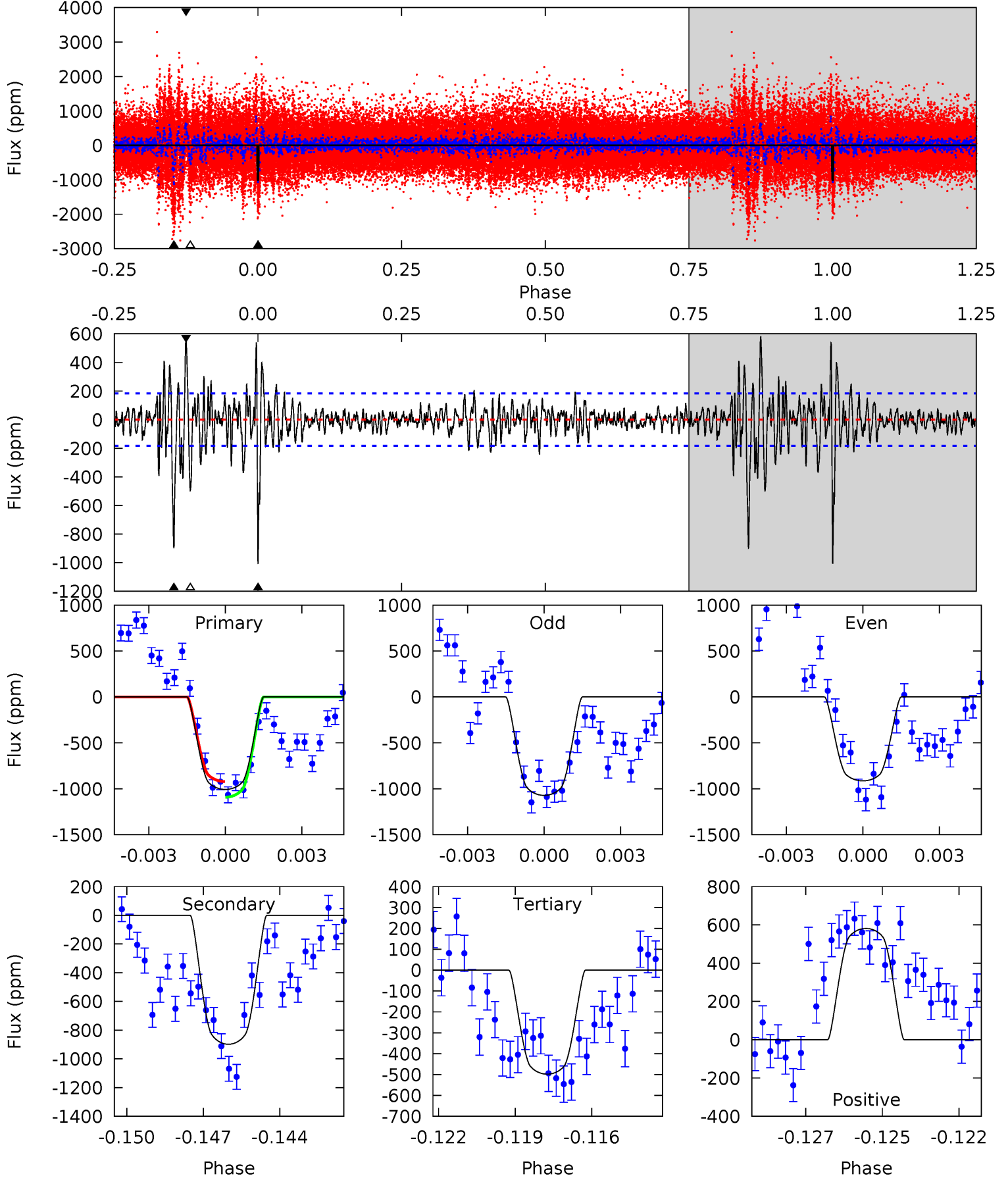
TCE 008040398-01 P=368.117395 Days  $T_0=234.700650$  (BKJD)



# DV Model-Shift Uniqueness Test

008040398-01, P = 368.146390 Days, E = 234.667491 Days

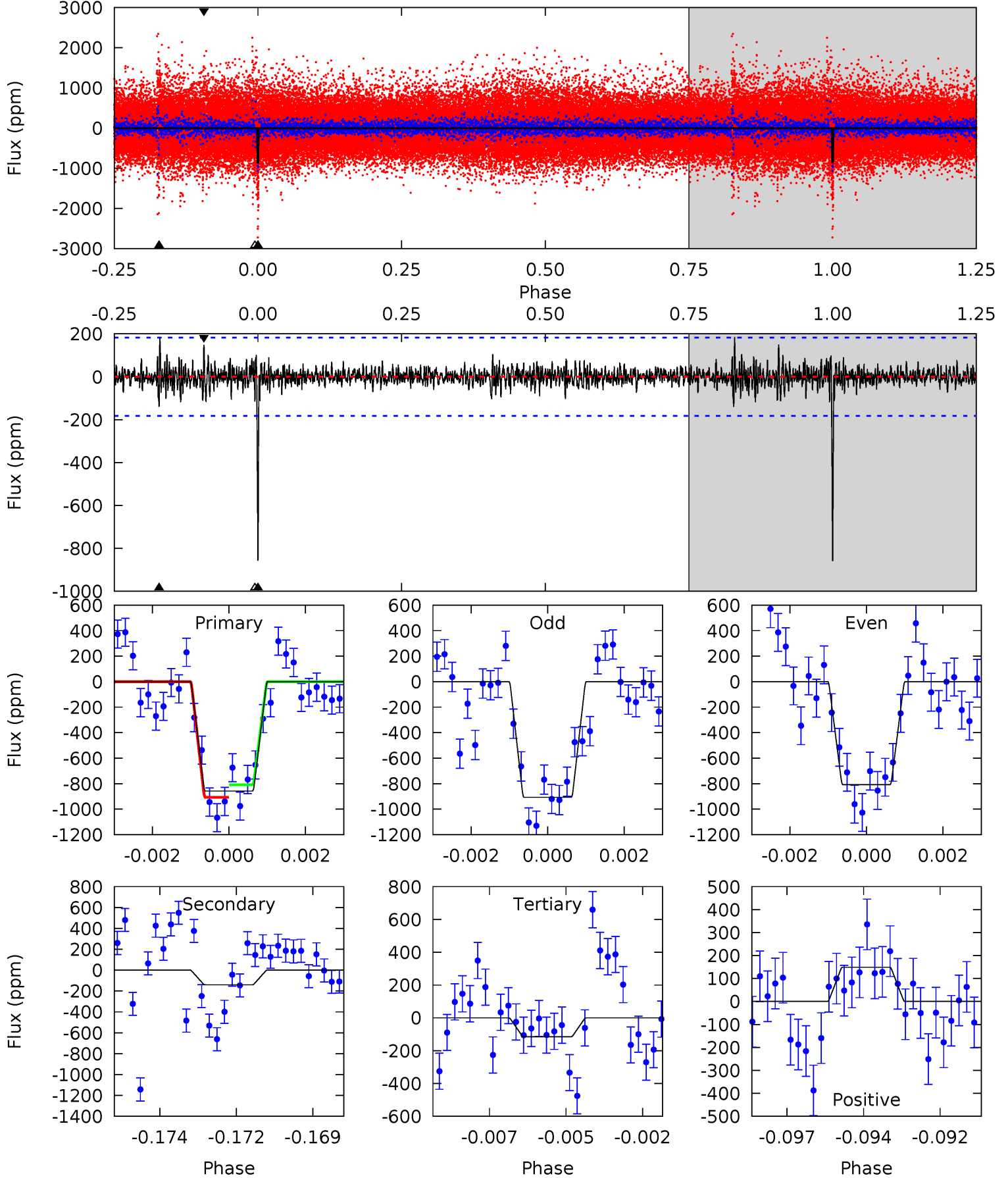
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	25.8	14.3	16.7	5.26	2.99	2.95	14.6	12.2	11.5	9.09	2.27	0.93	0.37	2.44



# Alt Model-Shift Uniqueness Test

008040398-01, P = 368.117395 Days, E = 234.700650 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
24.9	4.09	3.36	4.33	5.30	3.04	0.88	21.5	20.6	0.73	-0.24	1.44	1.09	0.18	1.42



### Stellar Parameters For KIC 008040398

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5940^{+178}_{-178}$	$4.454^{+0.084}_{-0.196}$	$-0.280^{+0.300}_{-0.300}$	$0.947^{+0.279}_{-0.119}$	$0.931^{+0.119}_{-0.109}$	$1.544^{+0.553}_{-0.792}$
	+3%/-3%	+2%/-4%	+107%/-107%	+29%/-13%	+13%/-12%	+36%/-51%
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 008040398-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-898 \pm 35$	$3.93^{+0.67}_{-0.49}$	$366^{+23}_{-19}$	$5390^{+255}_{-224}$	$30635^{+8833}_{-7553}$
Alt.	$-141 \pm 34$	$3.09^{+0.61}_{-0.39}$	$365^{+26}_{-20}$	$4078^{+248}_{-253}$	$7659^{+2935}_{-2738}$

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

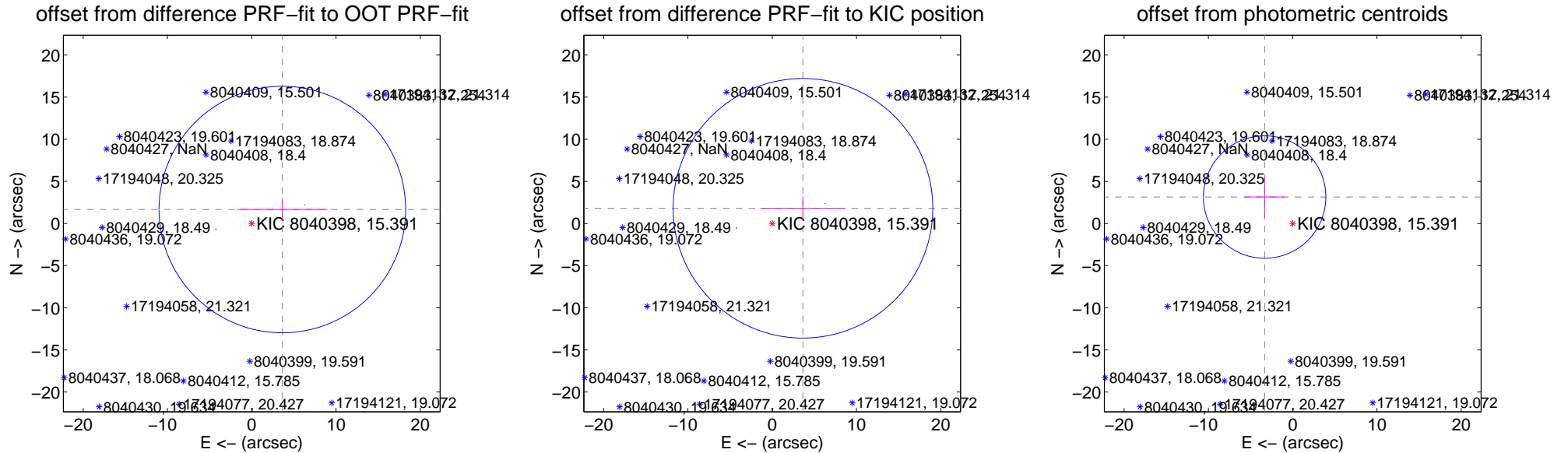
## DV Centroid Data

Supplemental centroid analysis for 008040398-01. Kepler magnitude: 15.39. Transit SNR 9.06

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

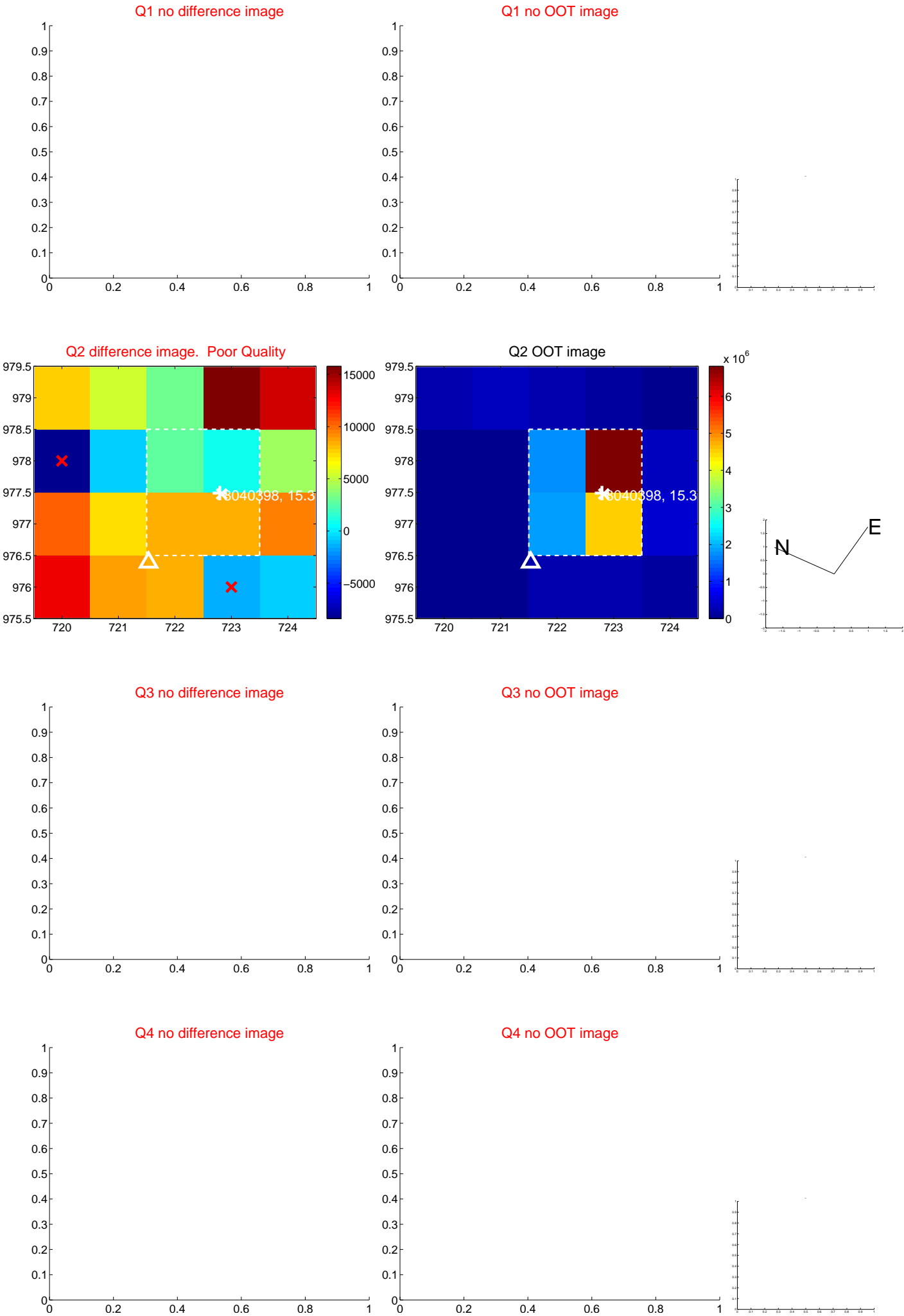
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.996 \pm 4.876$	0.82	$-3.635 \pm 5.326$	$1.661 \pm 1.345$
PRF-fit source offset from KIC position	$4.071 \pm 5.135$	0.79	$-3.649 \pm 5.040$	$1.806 \pm 1.393$
photometric centroid source offset	$4.58 \pm 2.42$	1.89	$3.33 \pm 2.41$	$3.14 \pm 2.43$



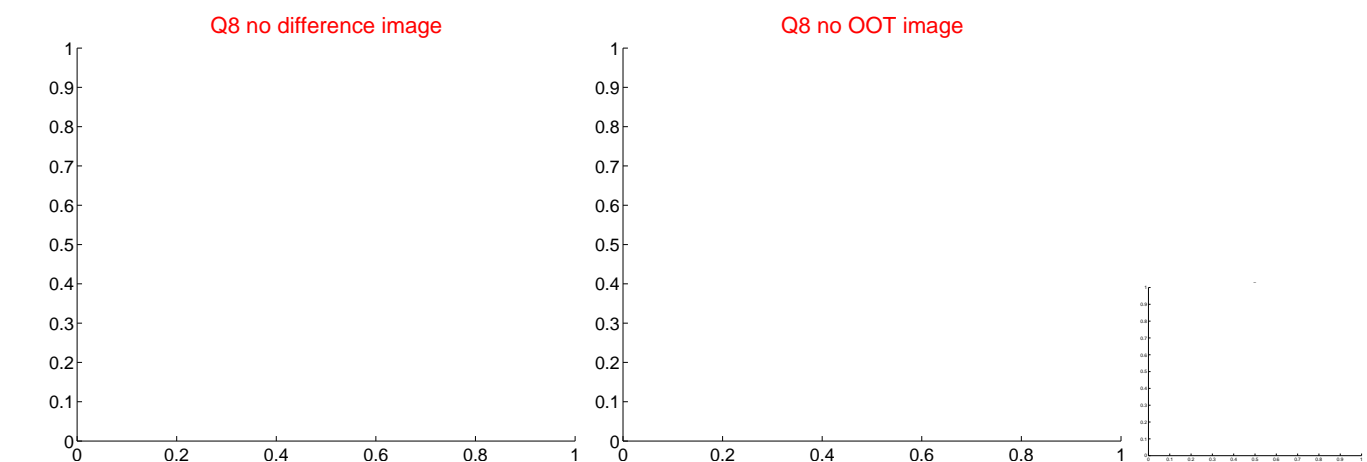
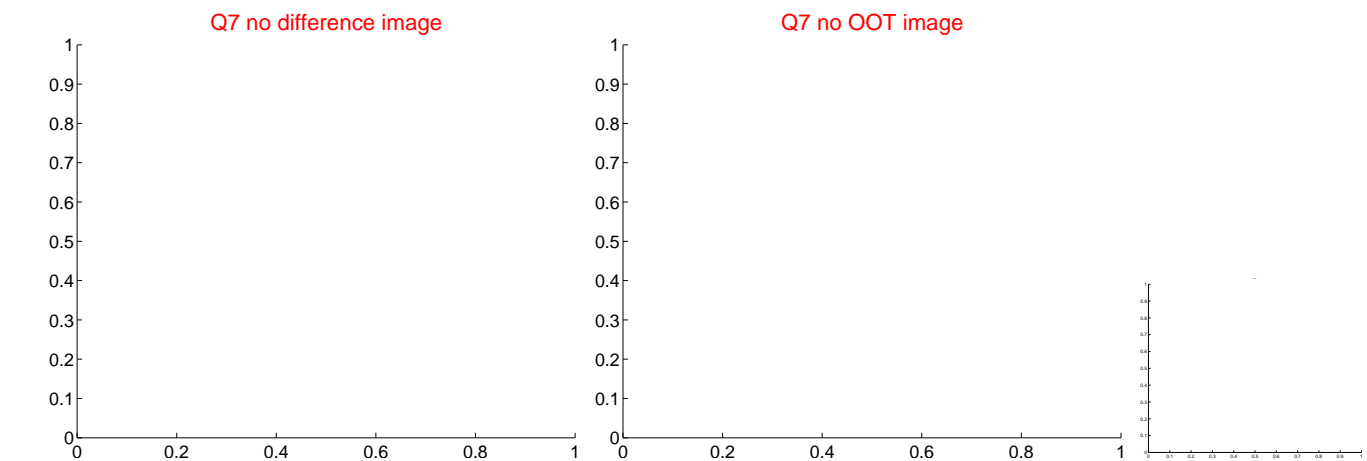
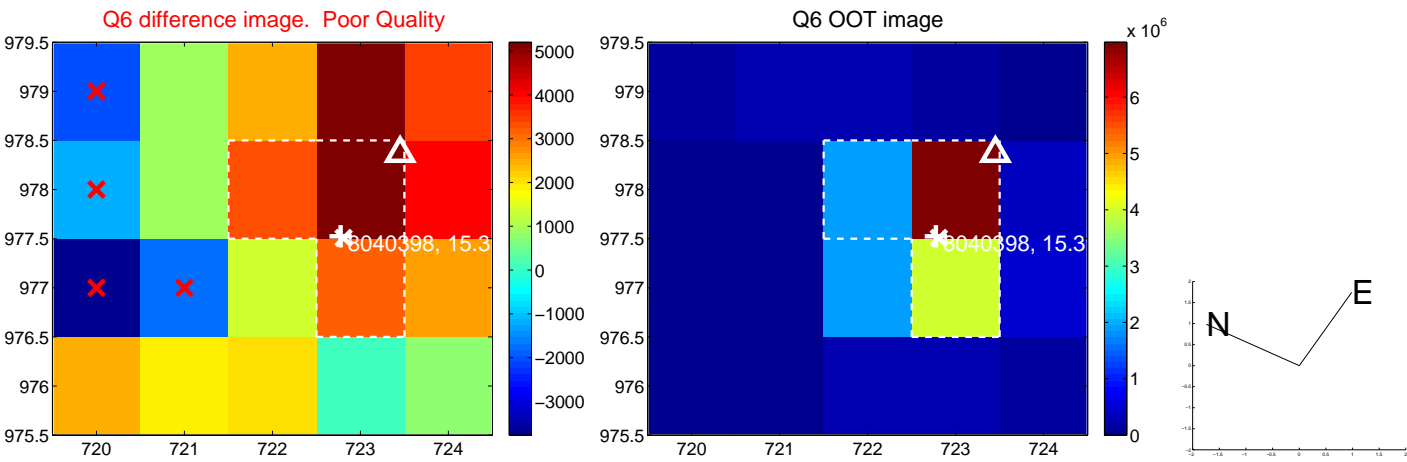
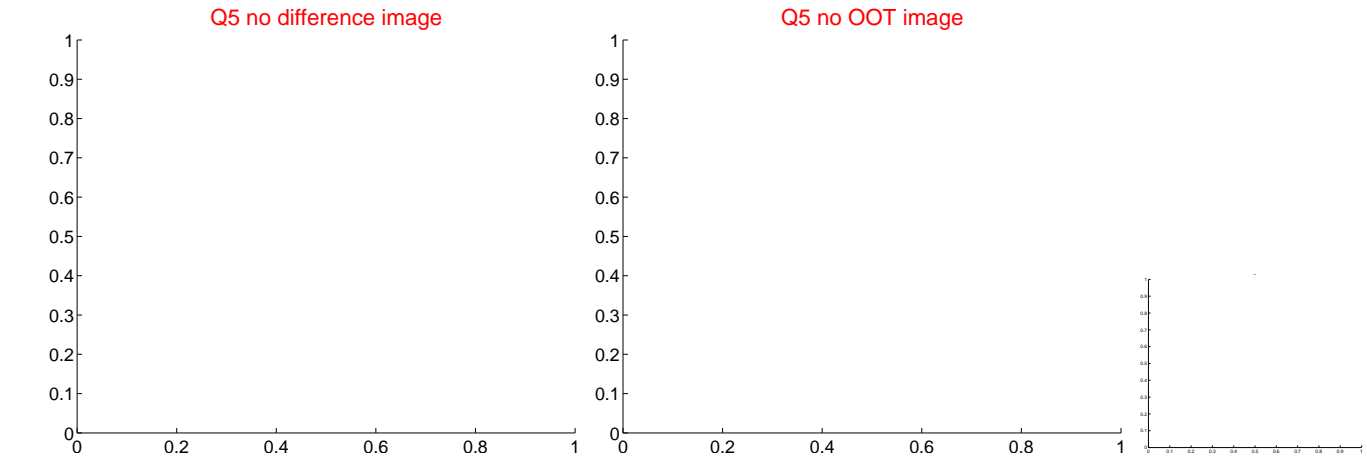
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



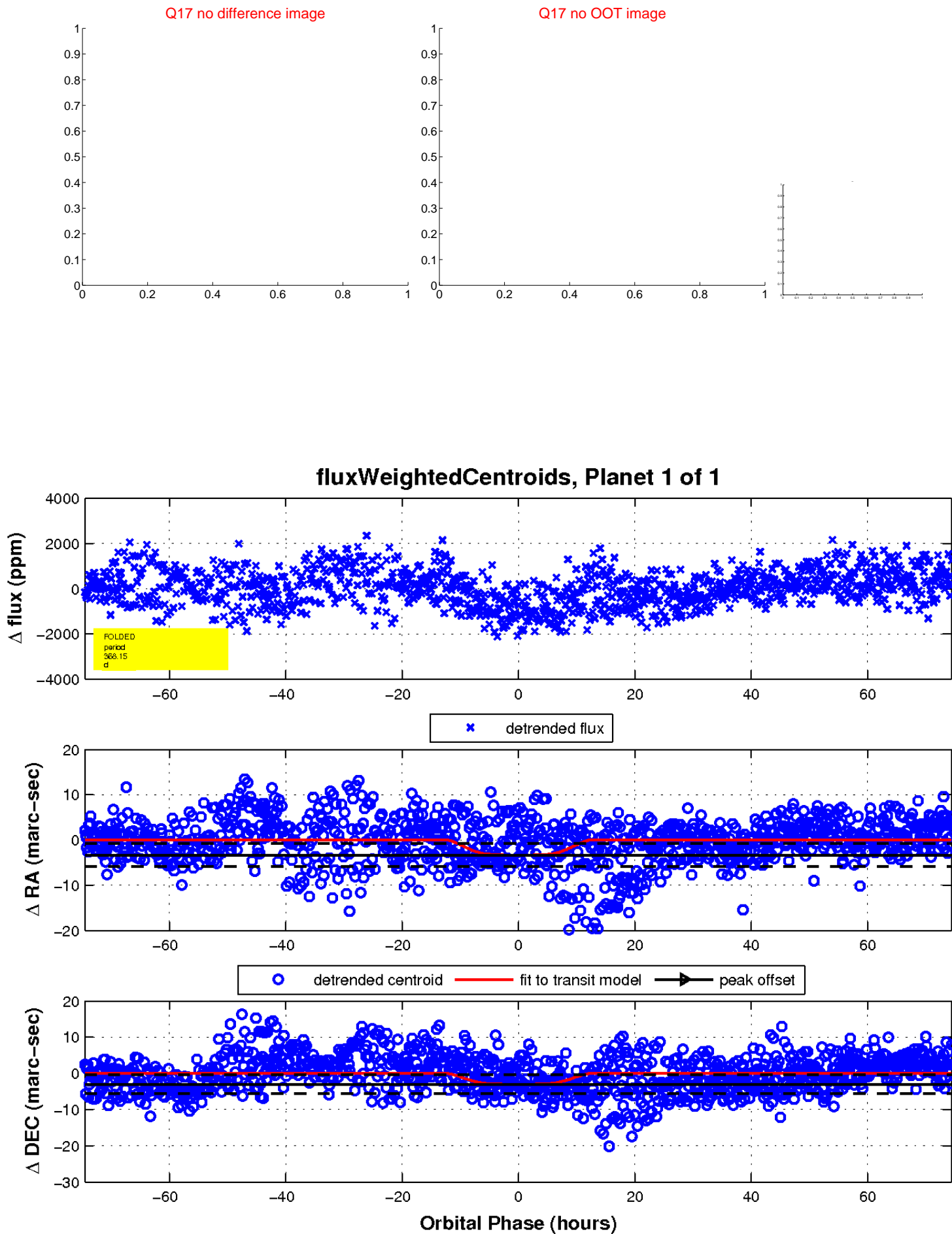
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

