

# KIC 002017224

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002017224-01	OBS	No	479.261877	226.657942	1347.9	8.445	16.0	11.5	1.31	6056	7.27	1.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002017224-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

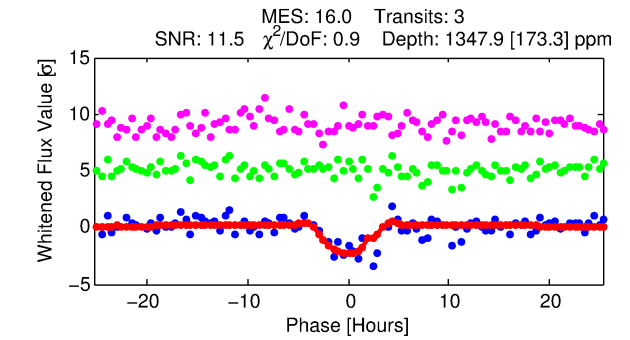
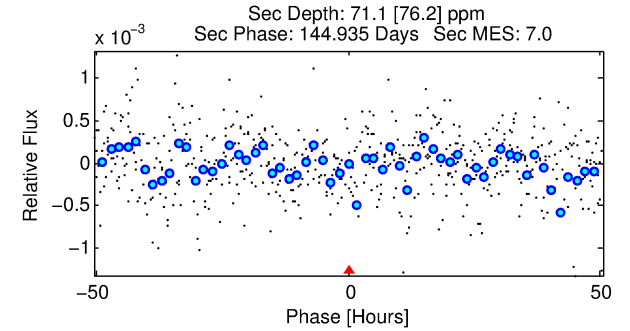
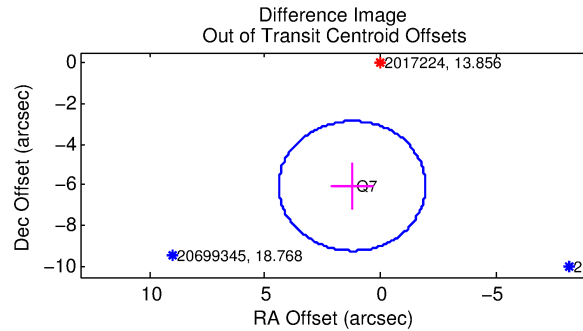
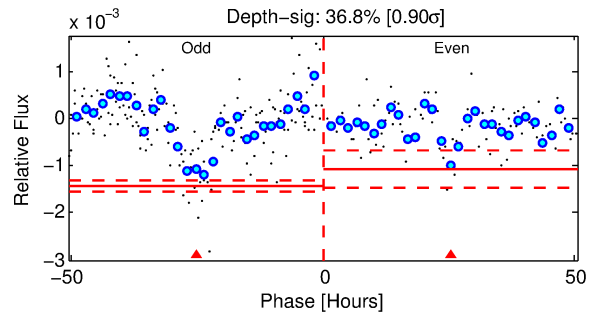
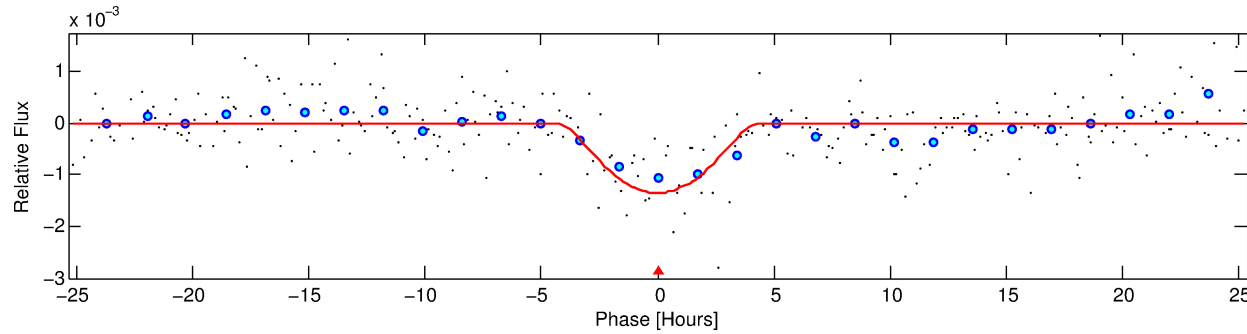
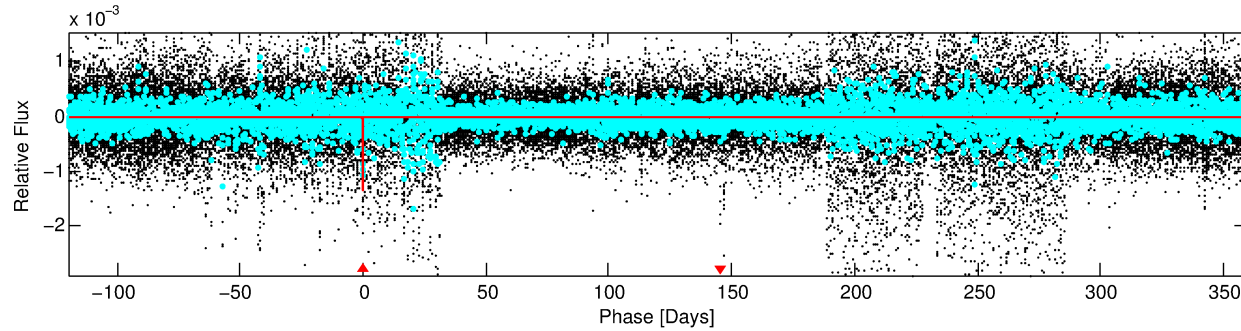
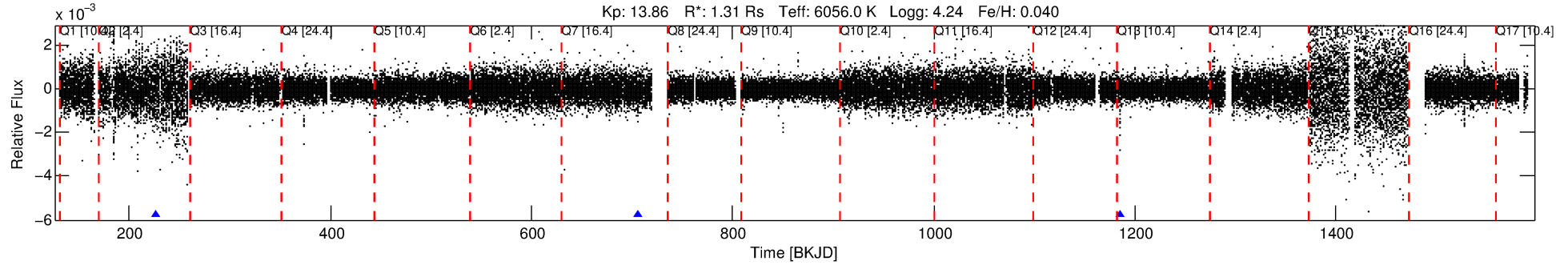
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002017224-01

No Significant Match Found

# DV One-Page Summary

KIC: 2017224 Candidate: 1 of 1 Period: 479.262 d



## DV Fit Results:

Period = 479.26188 [0.01474] d  
Epoch = 226.6579 [0.0249] BKJD  
Rp/R\* = 0.0510 [0.0502]  
a/R\* = 166.73 [61.82]  
b = 0.98 [0.10]  
Seff = 1.35 [0.35]  
Teq = 275 [18] K  
Rp = 7.27 [7.29] Re  
a = 1.2348 [0.2030] AU  
Ag = 1128.13 [2545.92] [0.44 $\sigma$ ]  
Teffp = 2463 [1381] K [1.58 $\sigma$ ]

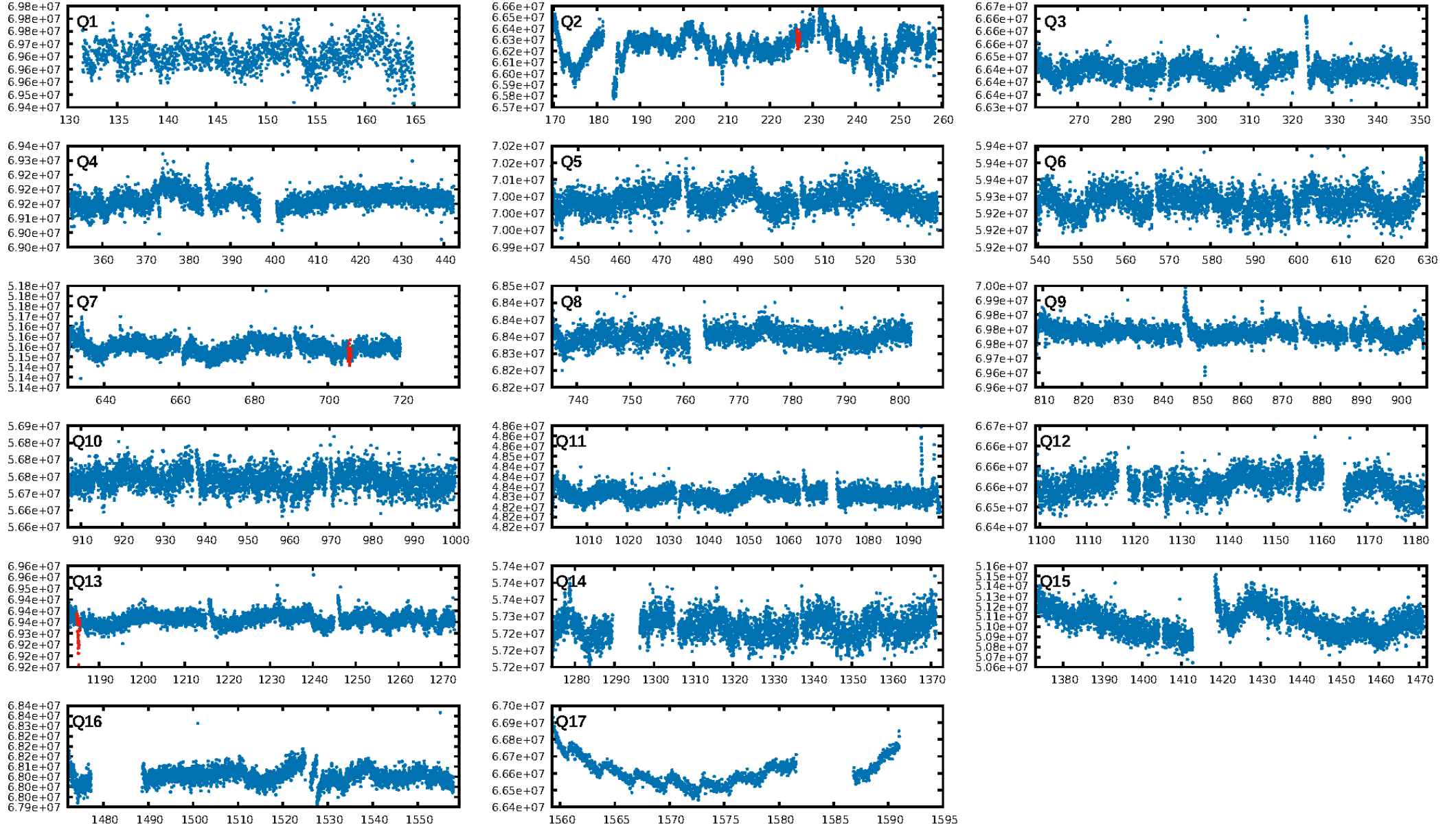
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.0%  
ModelChiSquareGof-sig: 99.8%  
Bootstrap-pfa: 1.82e-20  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.771  
Centroid-sig: 0.0%  
Centroid-so: 0.844 arcsec [3.83 $\sigma$ ]  
OotOffset-rm: 6.172 arcsec [5.83 $\sigma$ ]  
KicOffset-rm: 3.254 arcsec [3.06 $\sigma$ ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

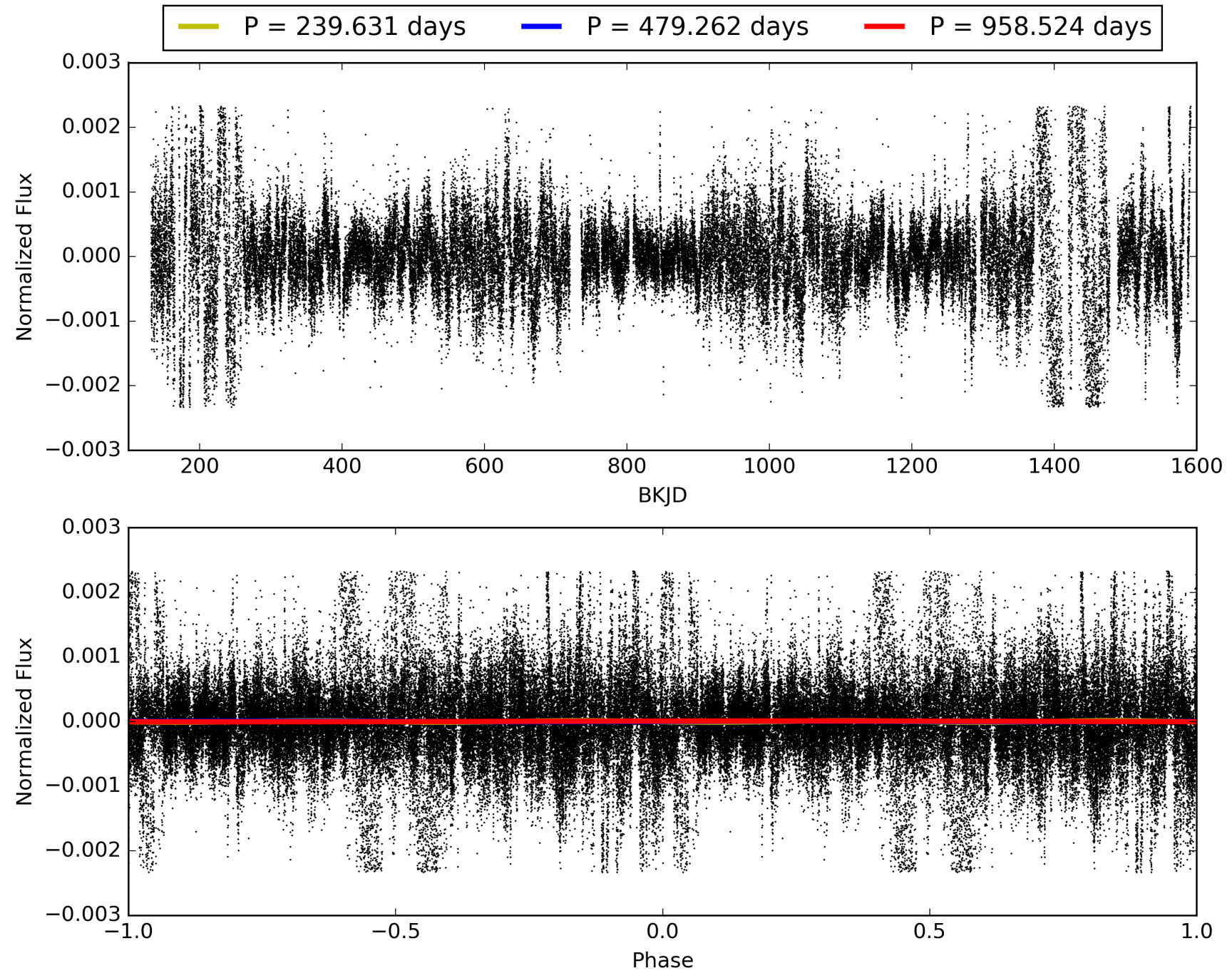
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:09:32 Z

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

# TCE 002017224-01, PDC Light Curves

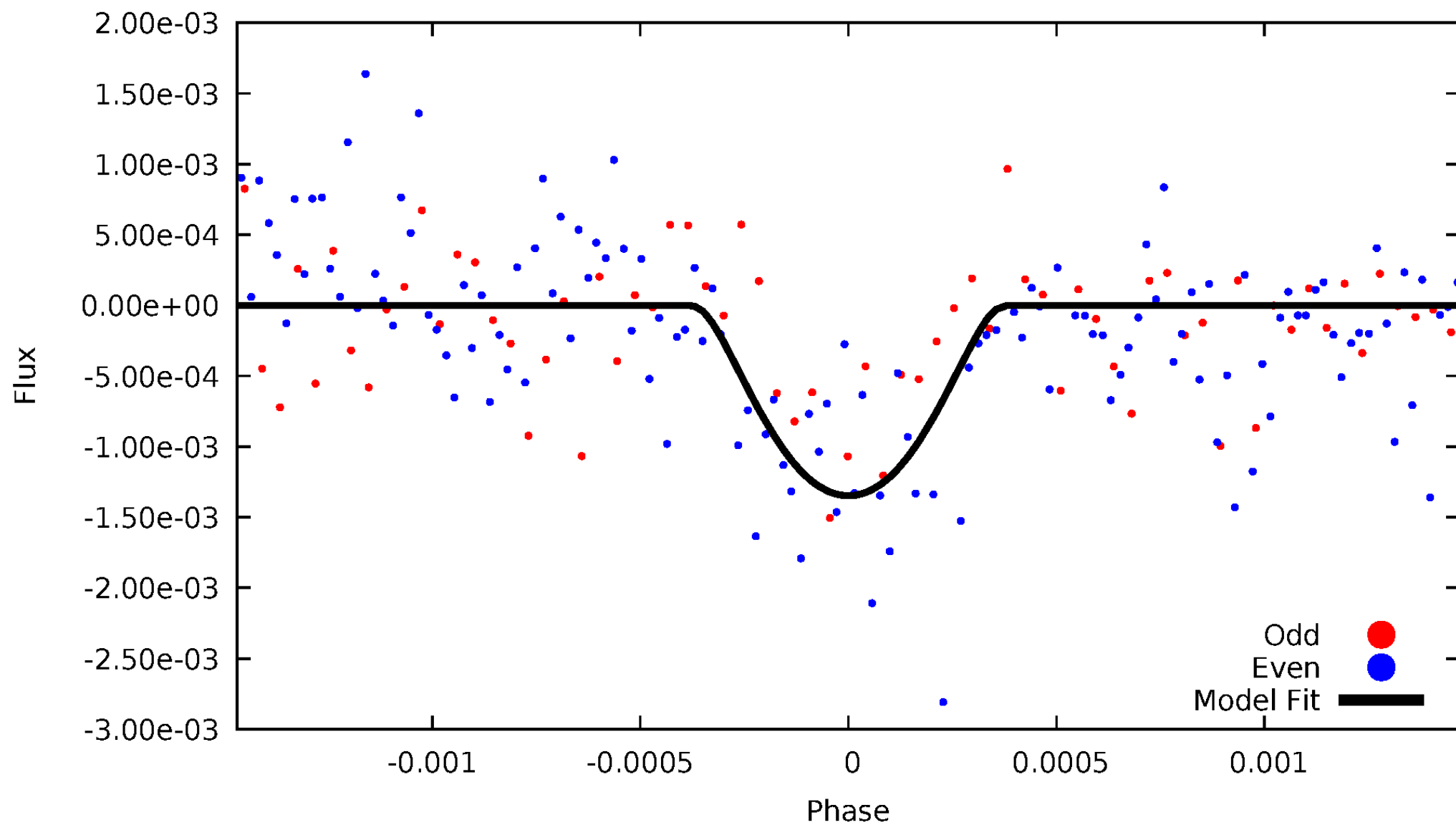


TCE 002017224-01



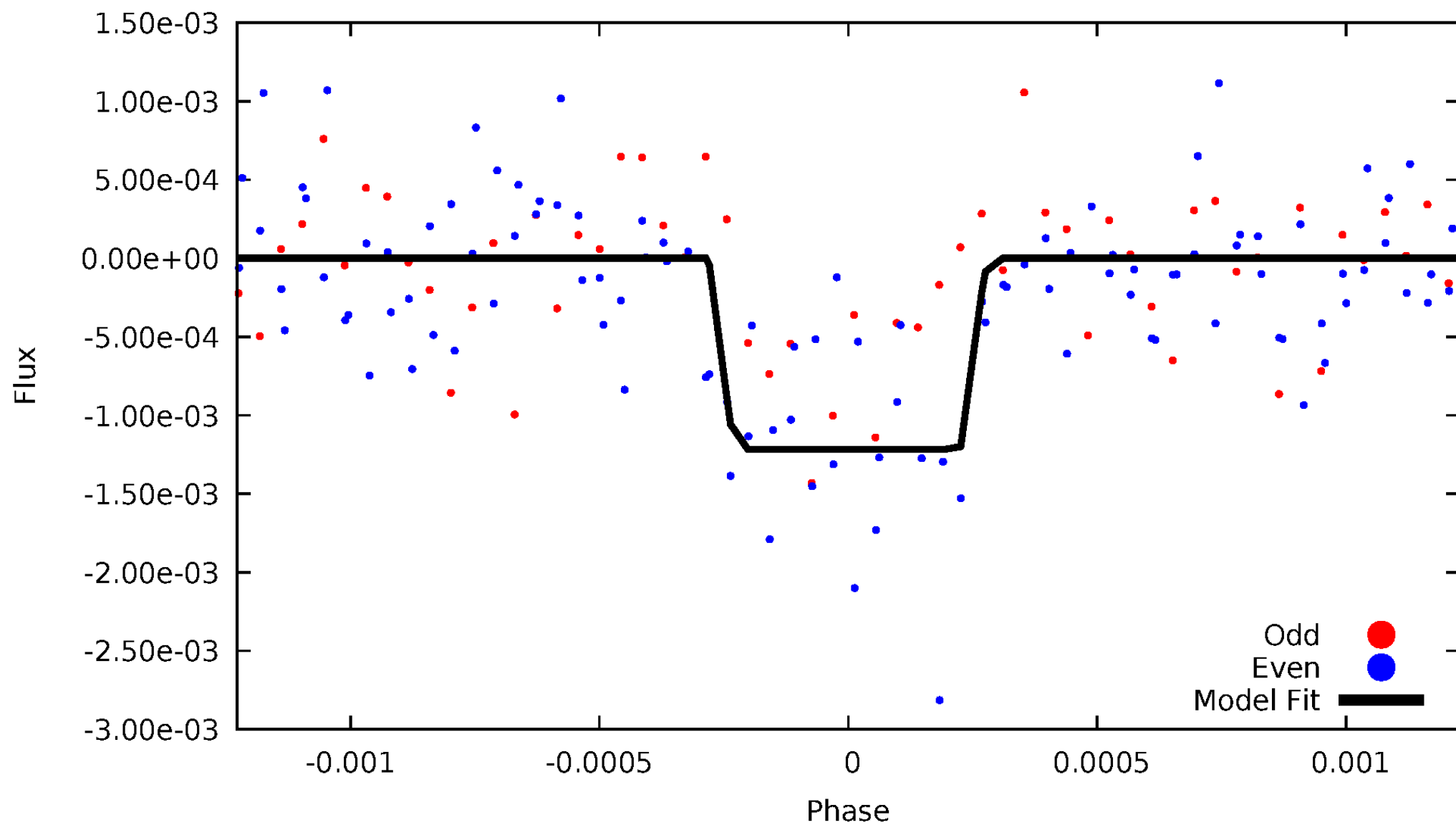
# DV Odd/Even

TCE 002017224-01



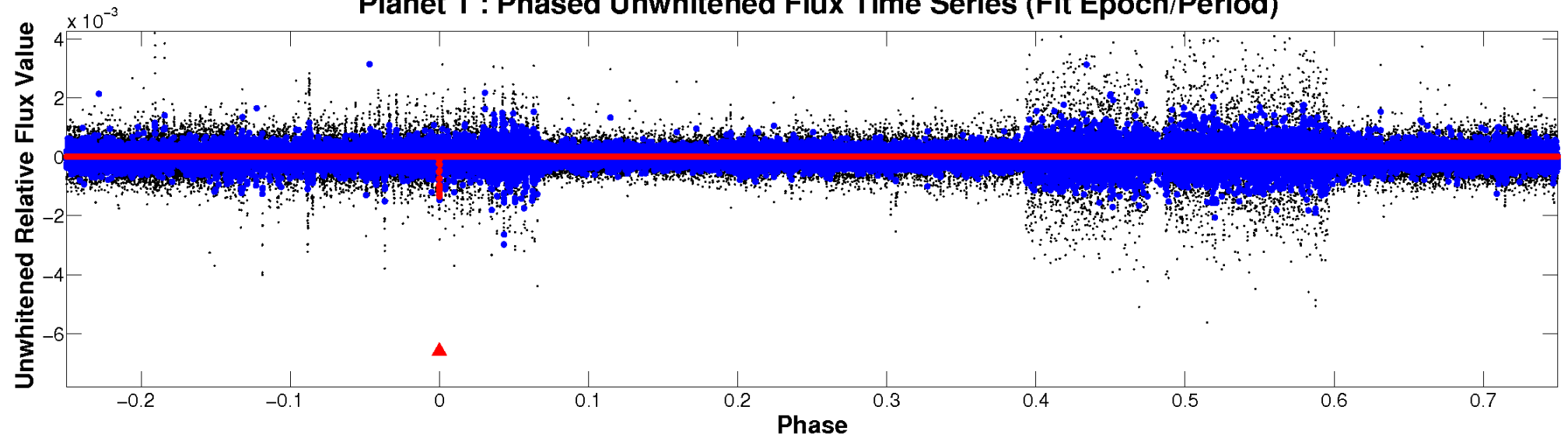
# ALT Odd/Even

TCE 002017224-01

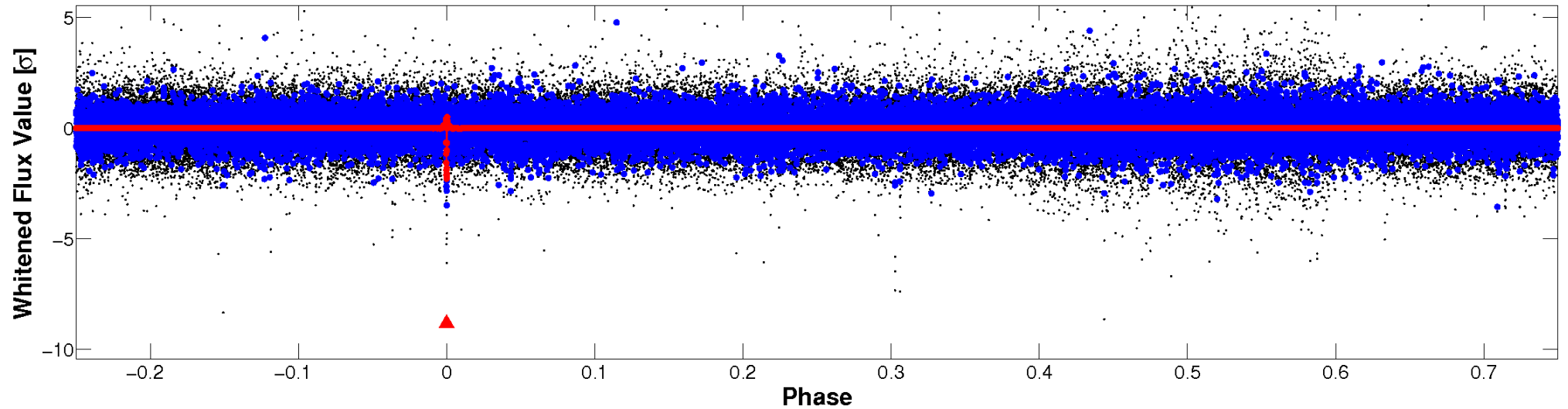


# Non-Whitened Vs. Whitened Light Curve

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

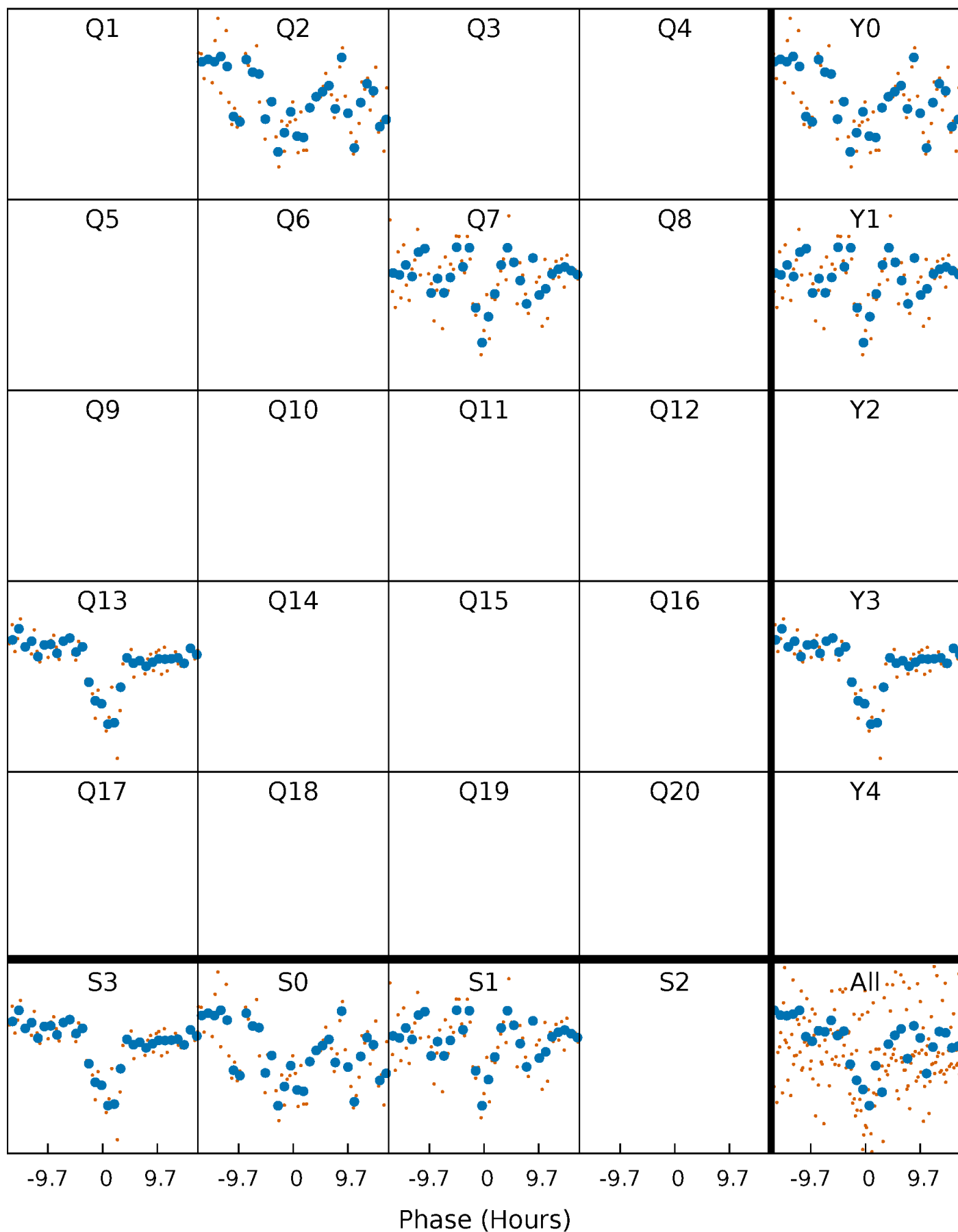


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

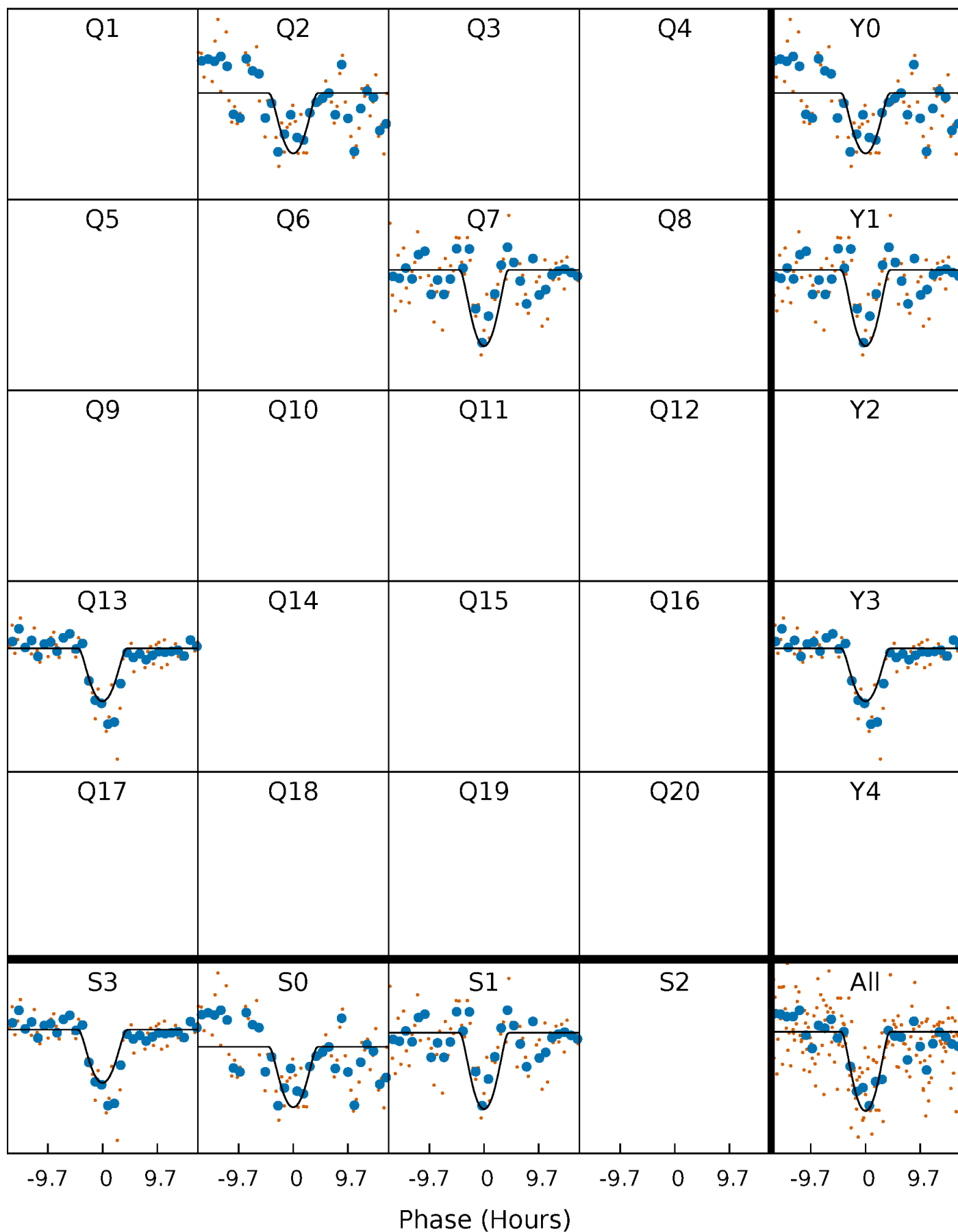
TCE 002017224-01 P=479.261877 Days  $T_0=226.657942$  (BKJD)





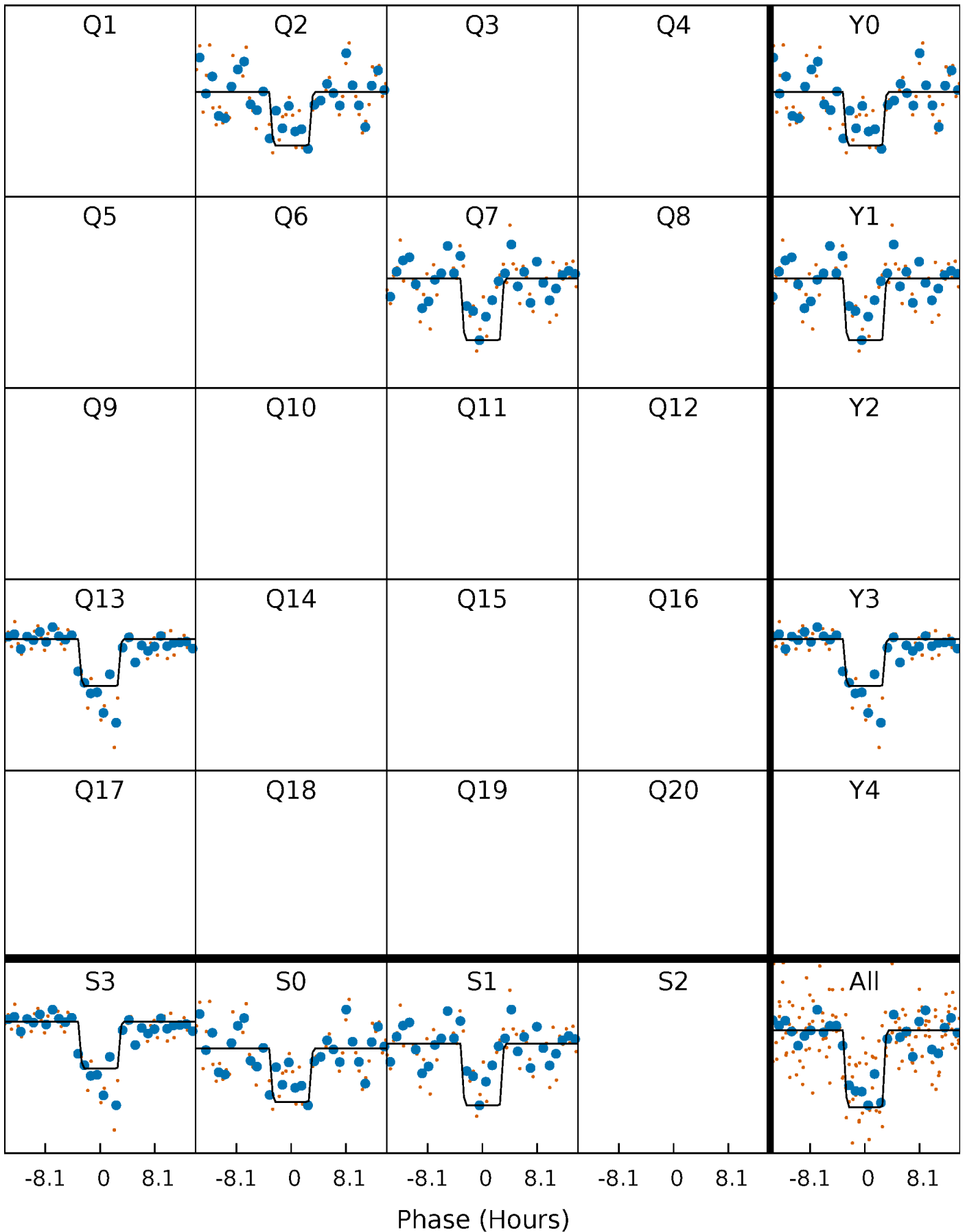
# DV Quarter-Phased Transit Curves

TCE 002017224-01 P=479.261877 Days  $T_0=226.657942$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

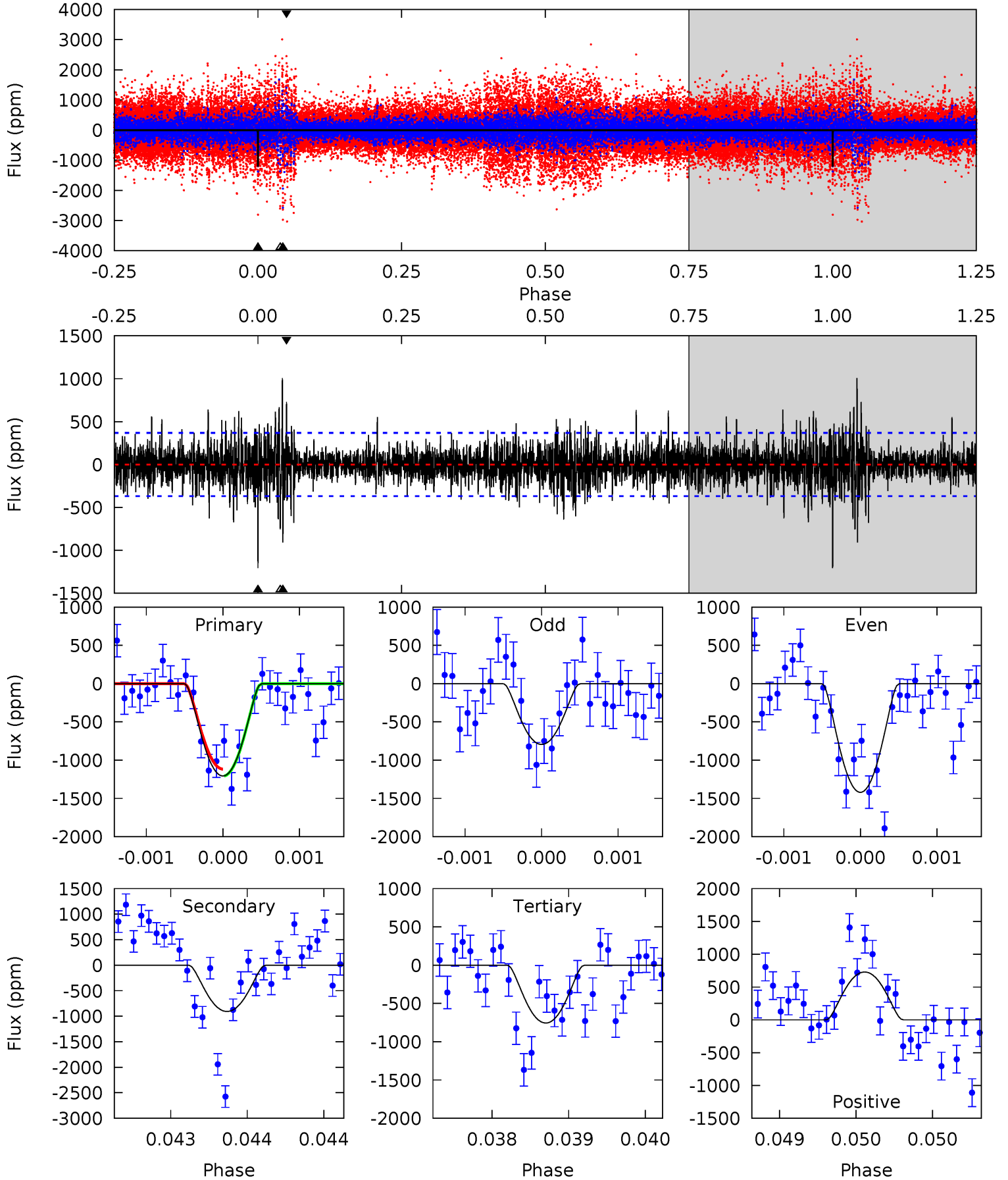
TCE 002017224-01 P=479.269150 Days  $T_0=226.664706$  (BKJD)



# DV Model-Shift Uniqueness Test

002017224-01, P = 479.261877 Days, E = 226.657942 Days

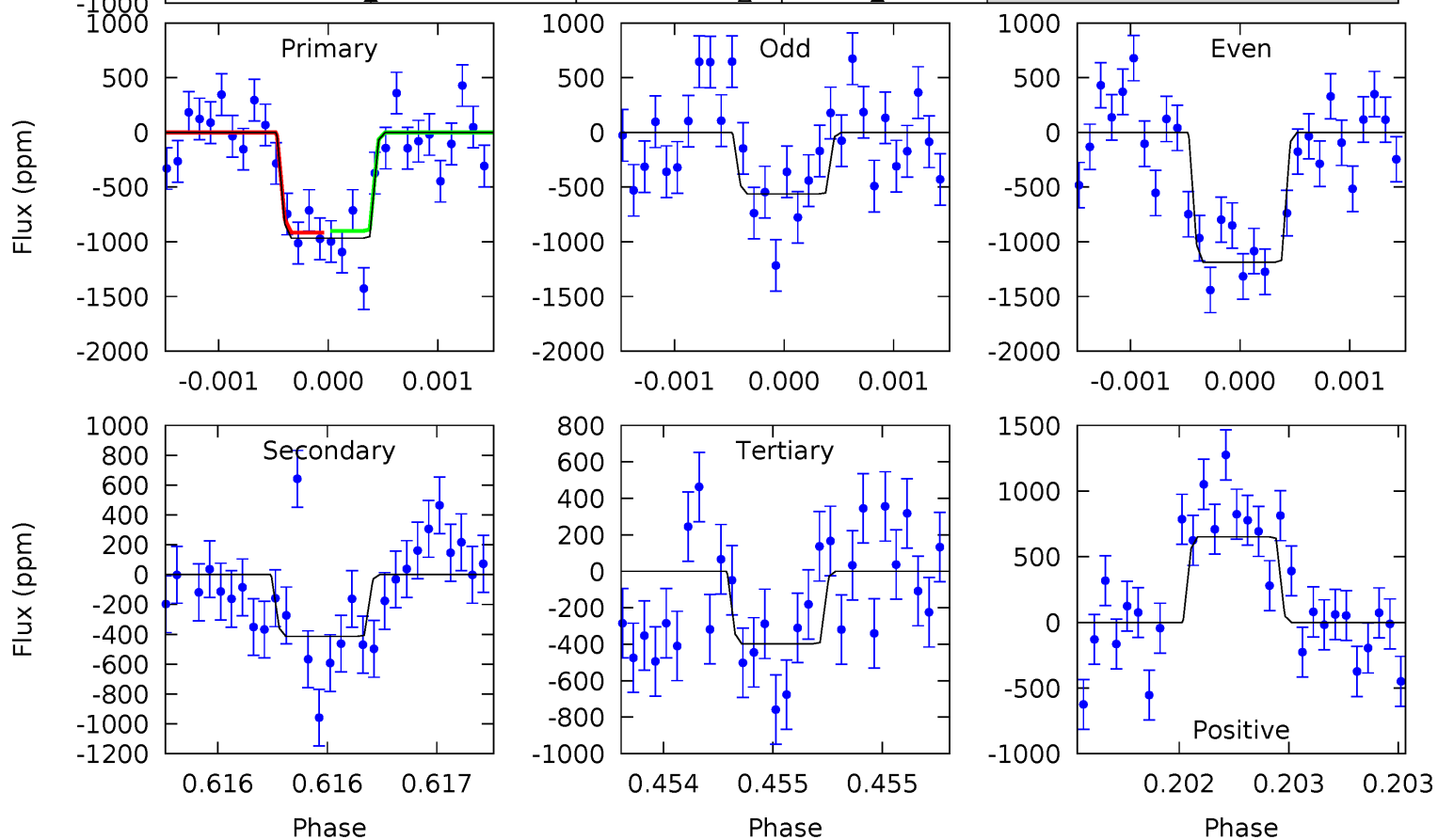
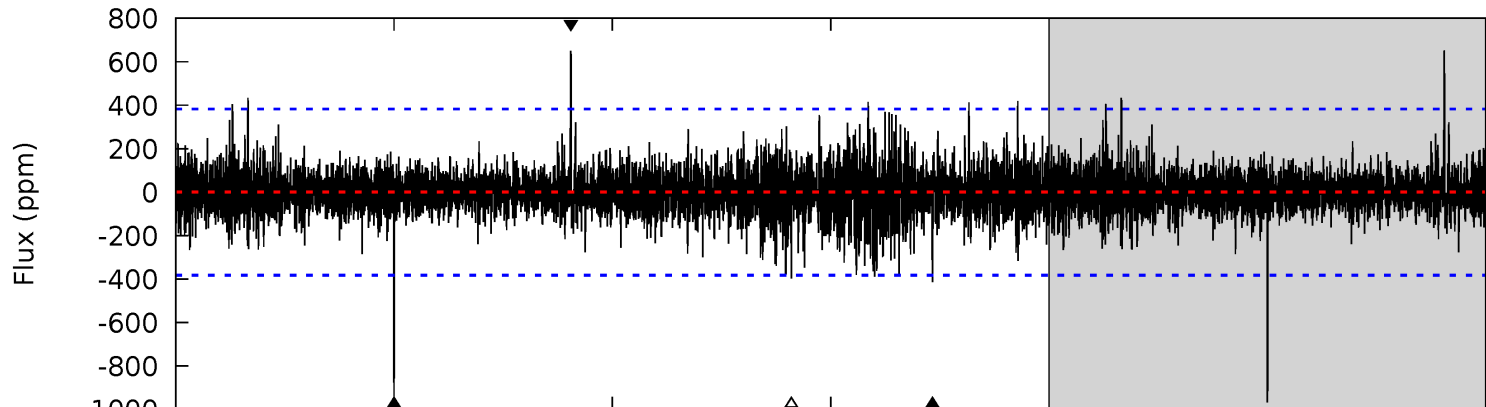
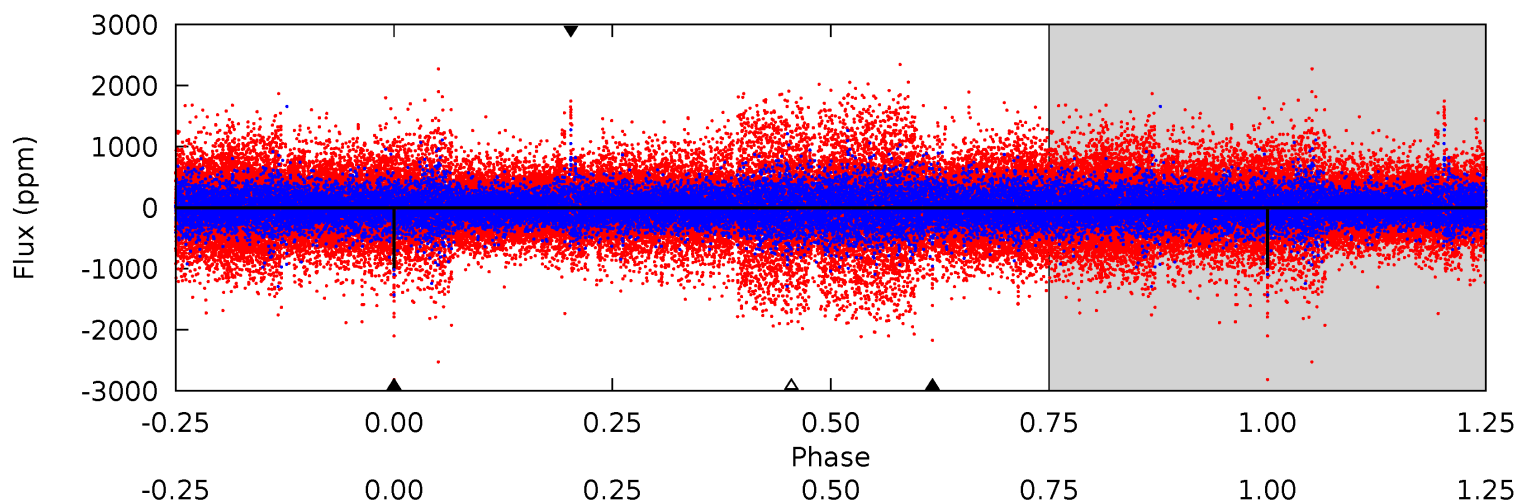
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	13.6	11.3	10.9	5.50	3.37	2.34	6.75	7.14	2.27	2.66	4.52	1.11	0.46	0.69



# Alt Model-Shift Uniqueness Test

002017224-01, P = 479.269150 Days, E = 226.664706 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
14.0	6.01	5.76	9.45	5.54	3.43	1.31	8.29	4.60	0.25	-3.44	4.36	1.20	0.40	0.11



### Stellar Parameters For KIC 002017224

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6056^{+81}_{-81}$	$4.244^{+0.143}_{-0.117}$	$0.040^{+0.150}_{-0.150}$	$1.307^{+0.240}_{-0.196}$	$1.092^{+0.100}_{-0.072}$	$0.689^{+0.451}_{-0.232}$
	+1%/-1%	+3%/-3%	+375%/-375%	+18%/-15%	+9%/-7%	+66%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002017224-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-908 \pm 67$	$8.70^{+6.10}_{-5.29}$	$382^{+18}_{-18}$	$4432^{+2323}_{-775}$	$10100^{+57367}_{-6615}$
Alt.	$-414 \pm 69$	$6.68^{+6.18}_{-4.25}$	$383^{+19}_{-18}$	$4214^{+2379}_{-827}$	$7410^{+54664}_{-5379}$

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

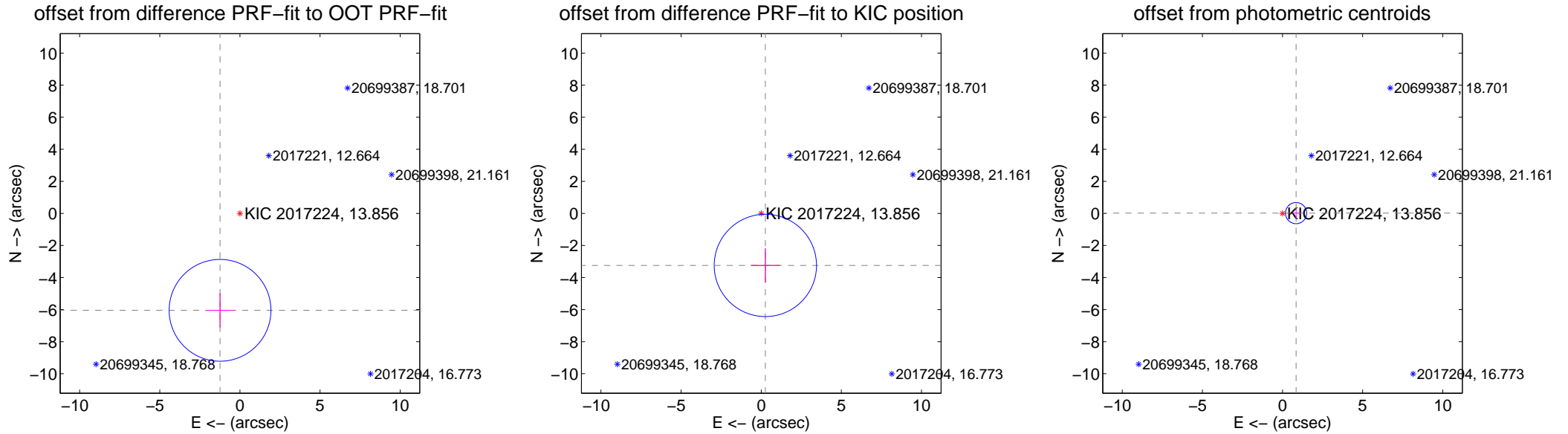
## DV Centroid Data

Supplemental centroid analysis for 002017224-01. Kepler magnitude: 13.86. Transit SNR 11.49

There are 0 quarters with good PRF difference image offsets

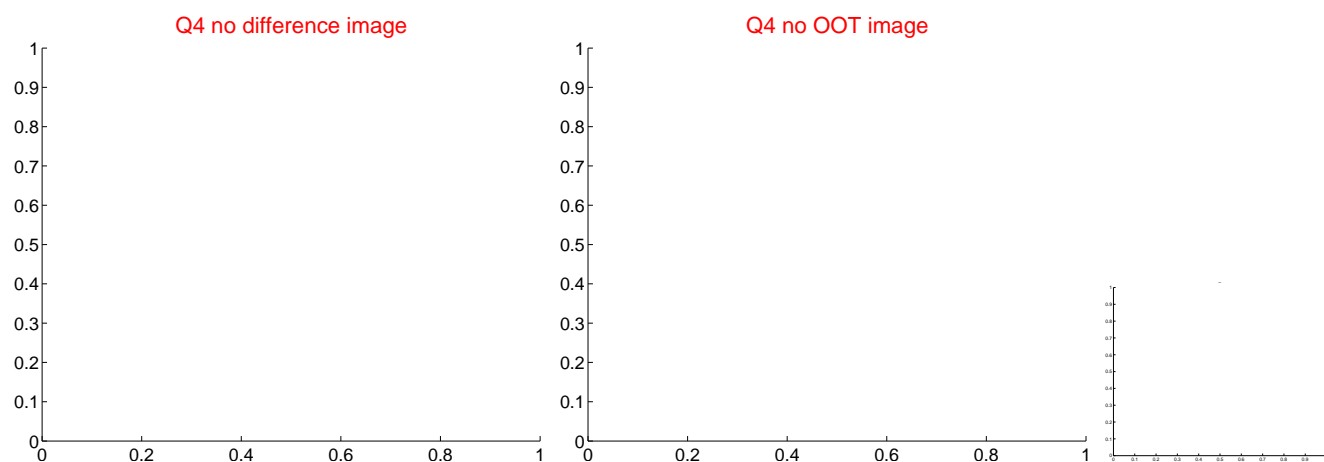
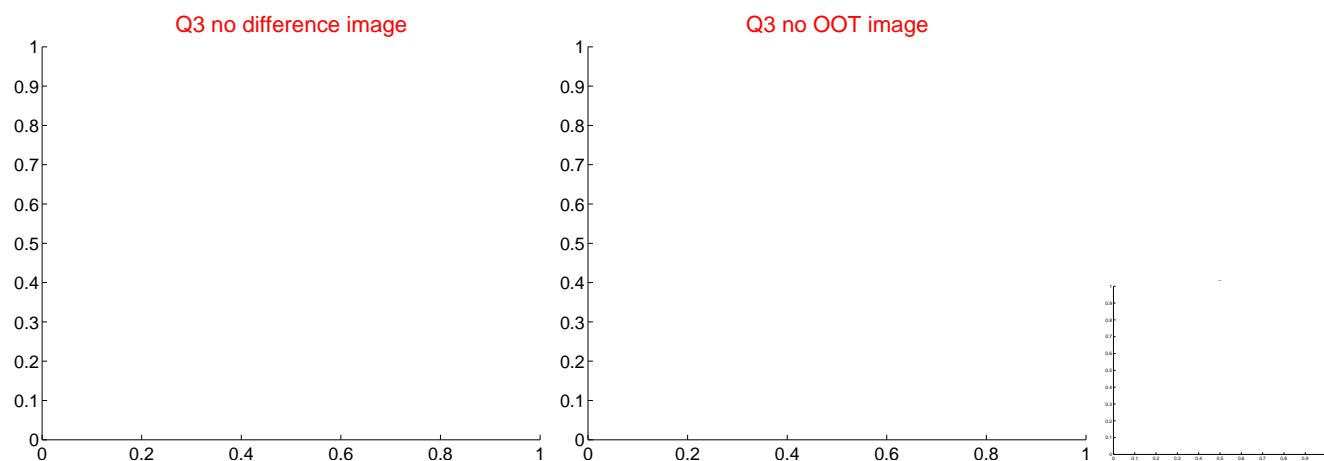
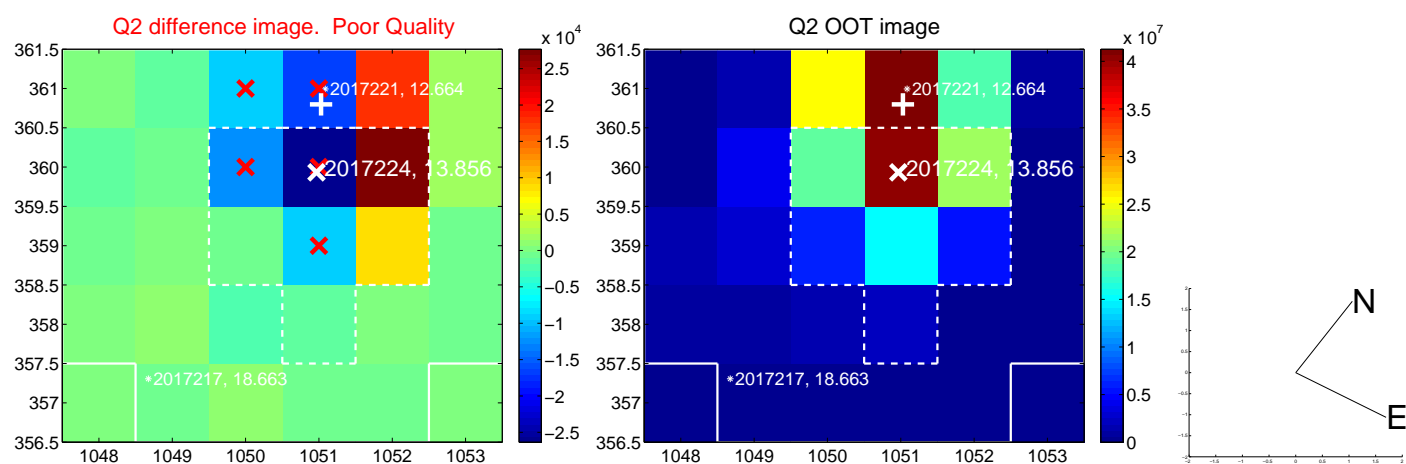
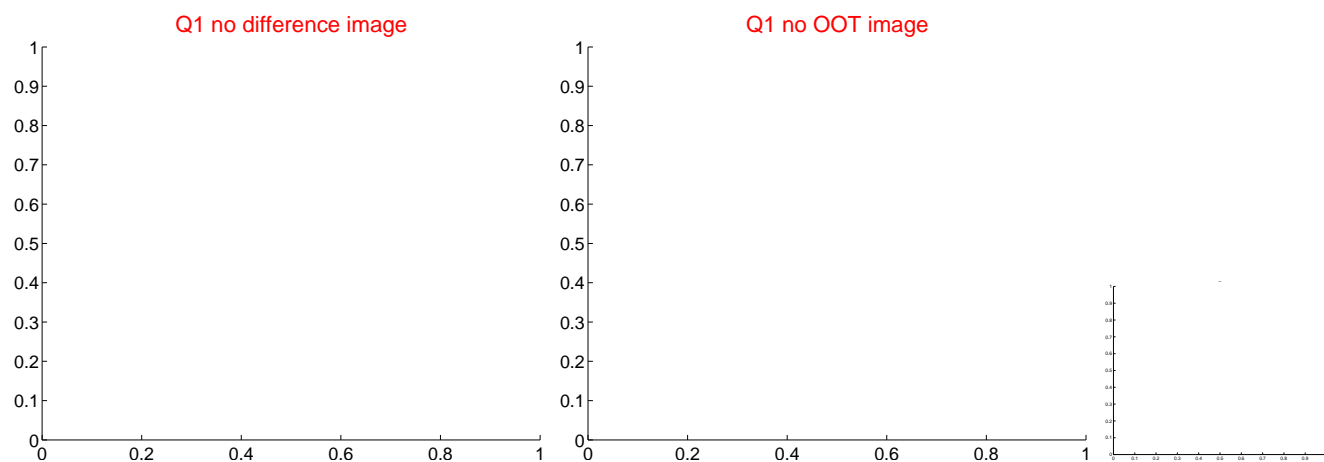
The OOT PRF centroid is offset from the target star catalog position by about 3.18 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.172 \pm 1.058$	5.83	$1.239 \pm 0.900$	$-6.046 \pm 1.065$
PRF-fit source offset from KIC position	$3.254 \pm 1.064$	3.06	$-0.258 \pm 0.900$	$-3.244 \pm 1.065$
photometric centroid source offset	$0.84 \pm 0.22$	3.83	$-0.84 \pm 0.22$	$0.02 \pm 0.30$



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.

Q5 no difference image



Q5 no OOT image



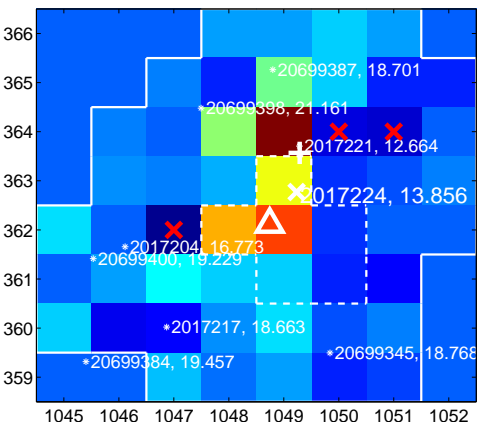
Q6 no difference image



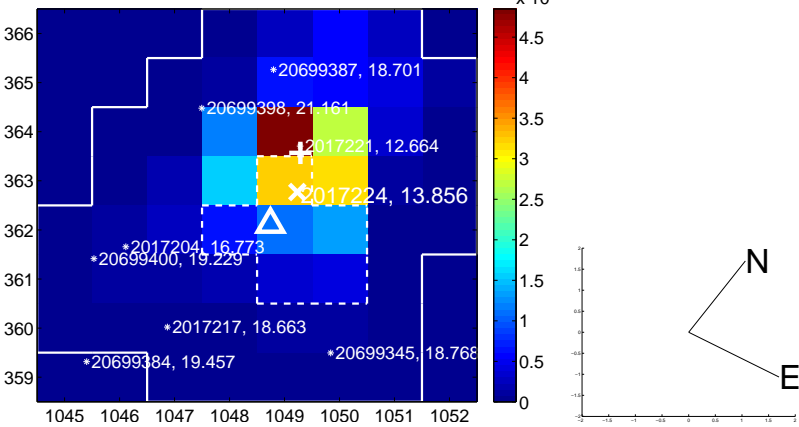
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



Q8 no OOT image





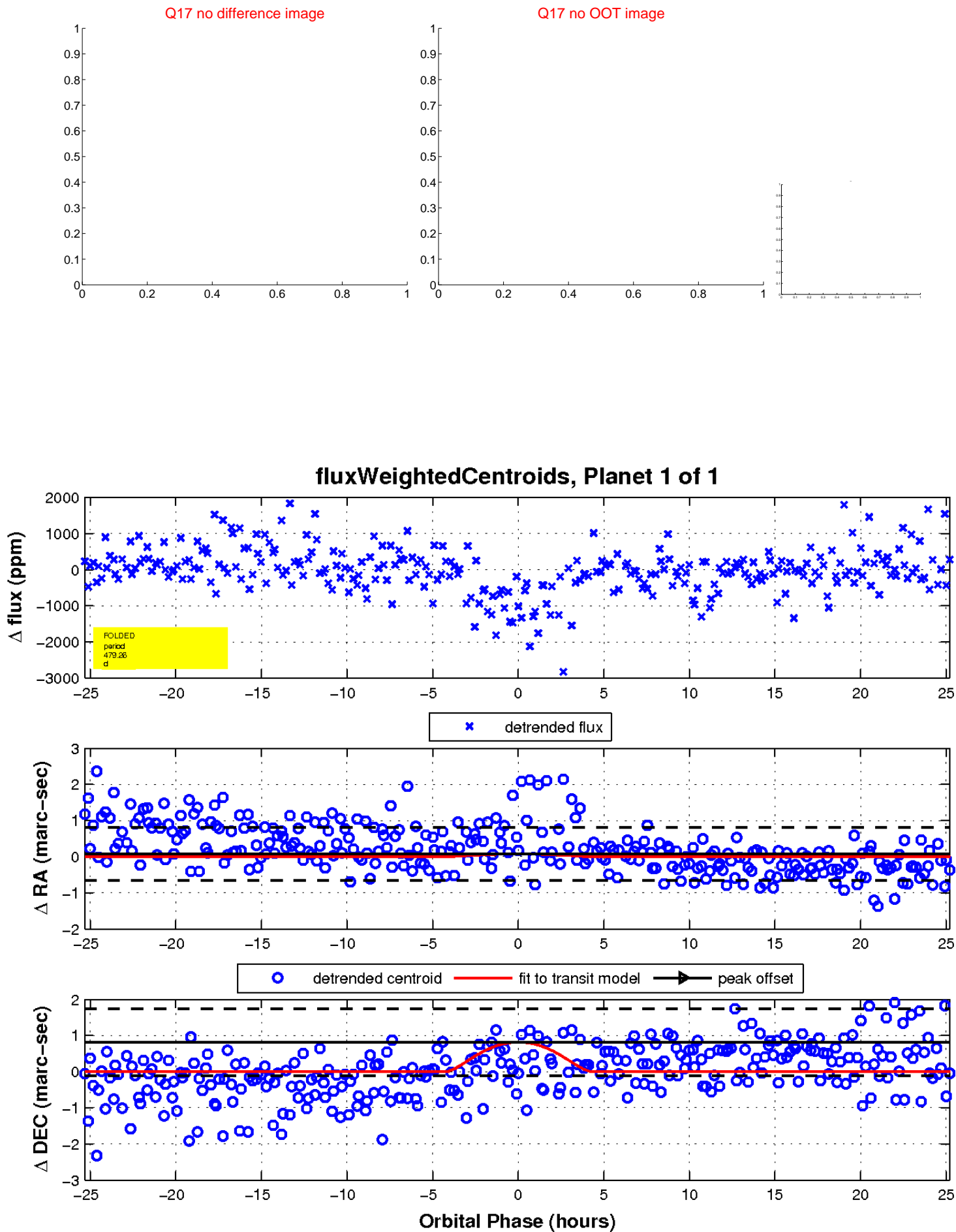
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

