

# KIC 004814229

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004814229-01	OBS	No	62.638212	192.708191	2468.0	3.592	8.5	7.1	0.30	3373	1.50	0.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004814229-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—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.

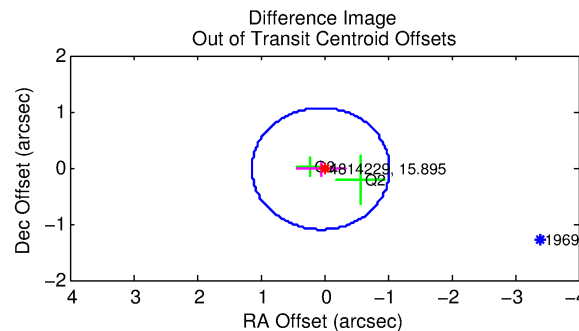
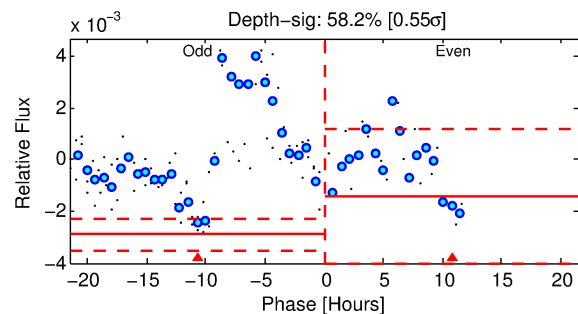
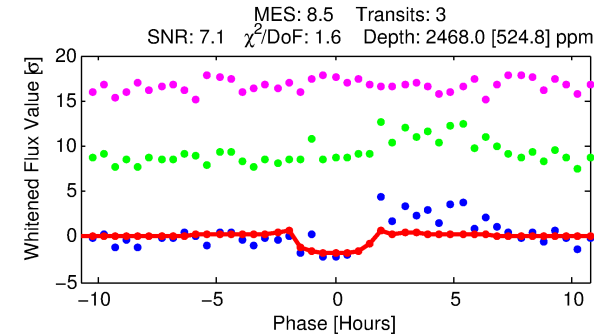
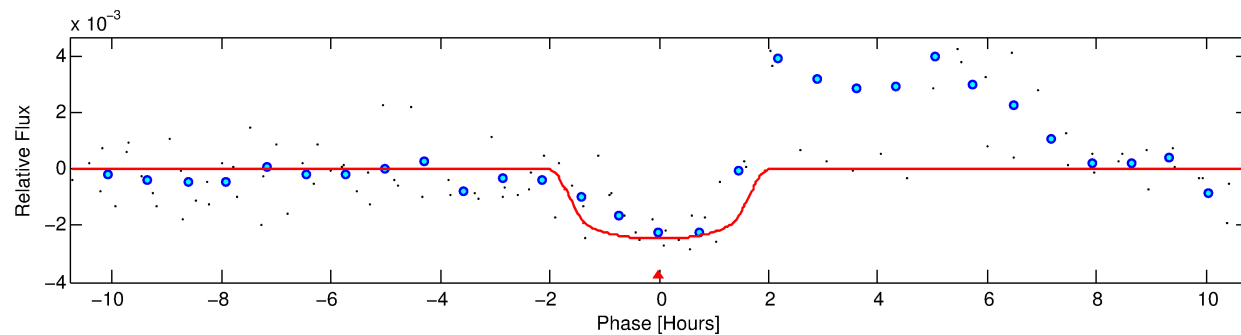
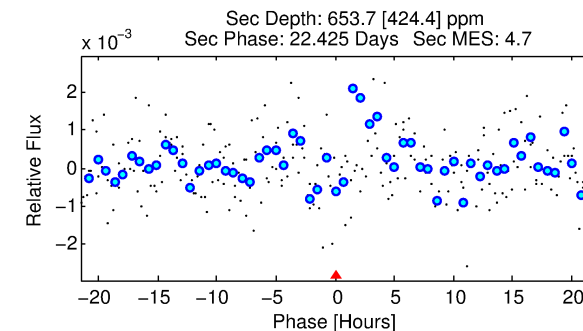
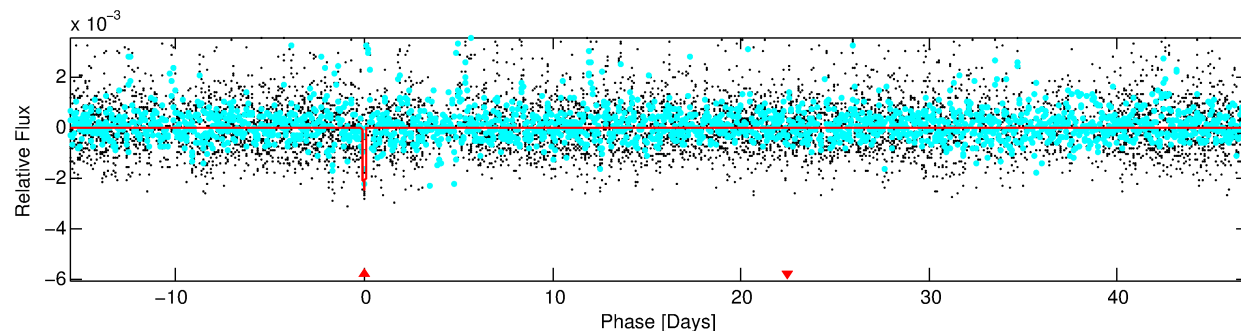
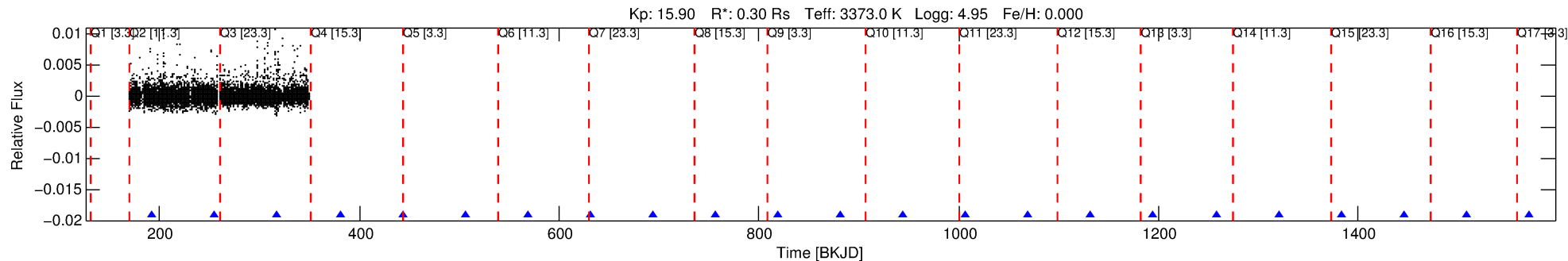
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004814229-01

No Significant Match Found

# DV One-Page Summary

KIC: 4814229 Candidate: 1 of 1 Period: 62.638 d



## DV Fit Results:

Period = 62.63821 [0.00646] d  
Epoch = 192.7082 [0.0087] BKJD  
Rp/R\* = 0.0465 [0.0708]  
a/R\* = 121.62 [780.69]  
b = 0.51 [9.33]  
Seff = 0.25 [0.04]  
Teq = 179 [8] K  
Rp = 1.50 [2.30] Re  
a = 0.2034 [0.0251] AU  
Ag = 6603.06 [20595.72] [0.32σ]  
Teff = 2502 [1949] K [1.19σ]

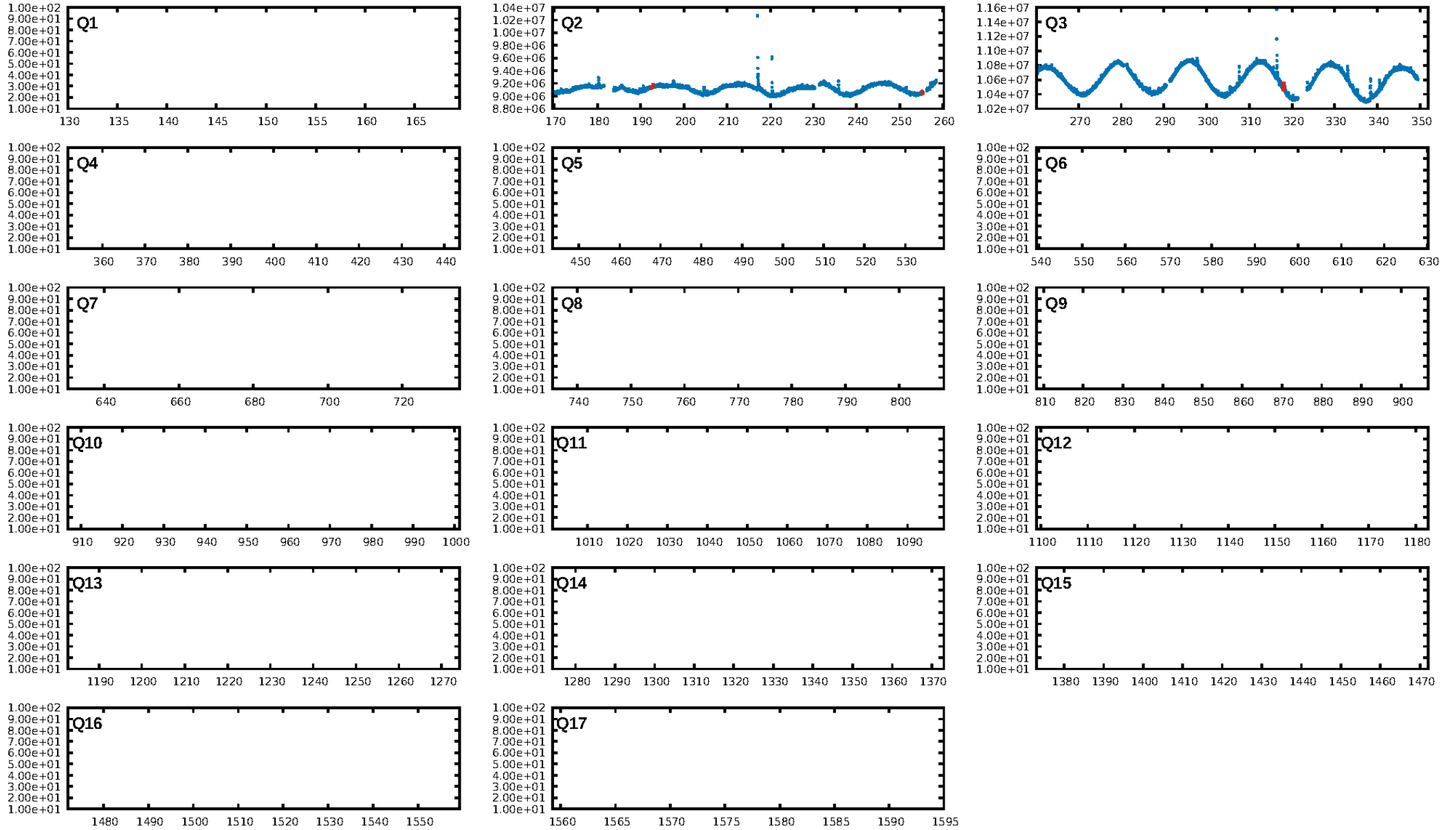
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 8.3%  
ModelChiSquareGof-sig: 65.8%  
**Bootstrap-pfa: 8.25e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.691  
Centroid-sig: 6.7%  
Centroid-so: 2.490 arcsec [2.00σ]  
OotOffset-rm: 0.059 arcsec [0.16σ]  
KicOffset-rm: 0.108 arcsec [0.45σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

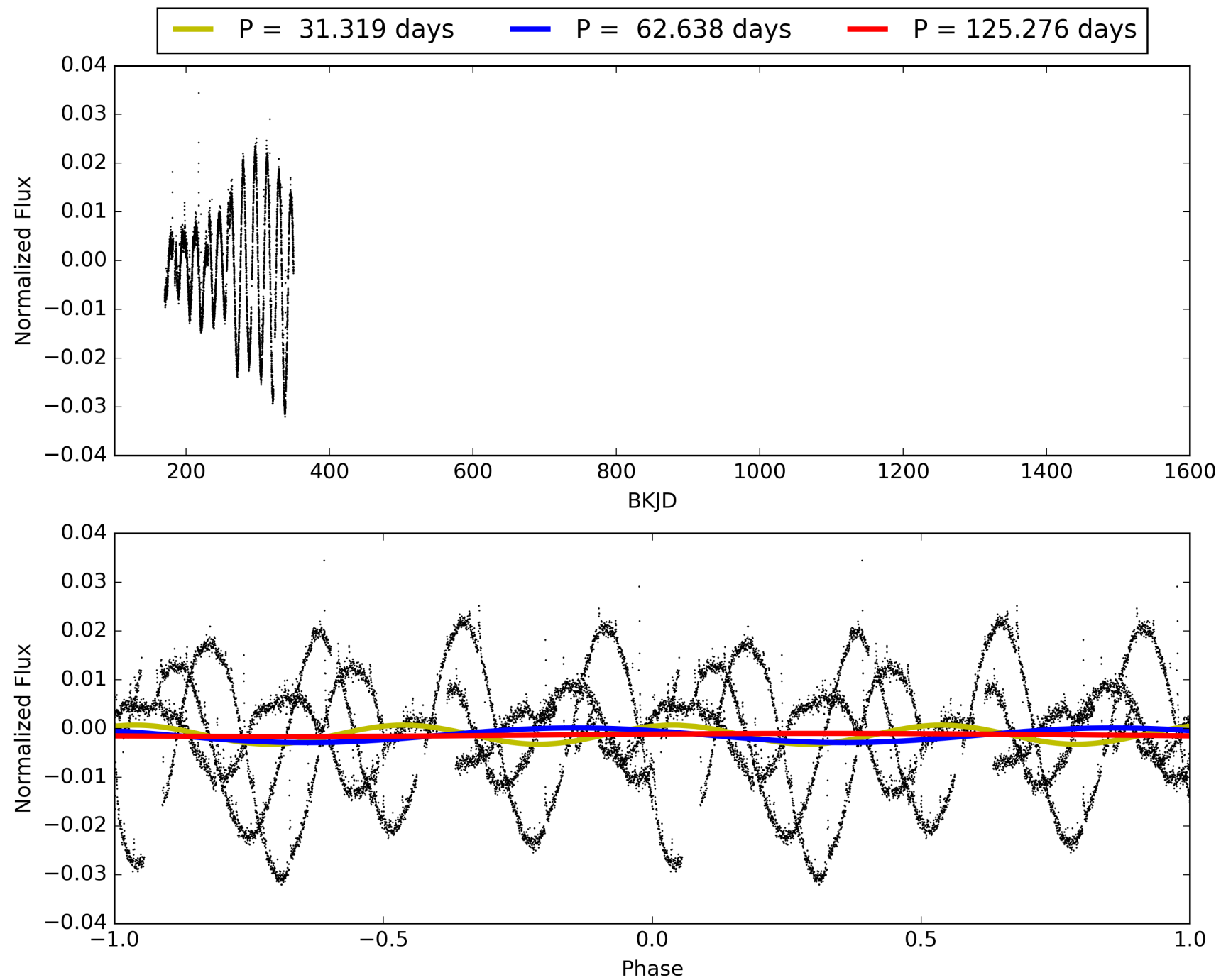
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:42:33 Z

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

# TCE 004814229-01, PDC Light Curves

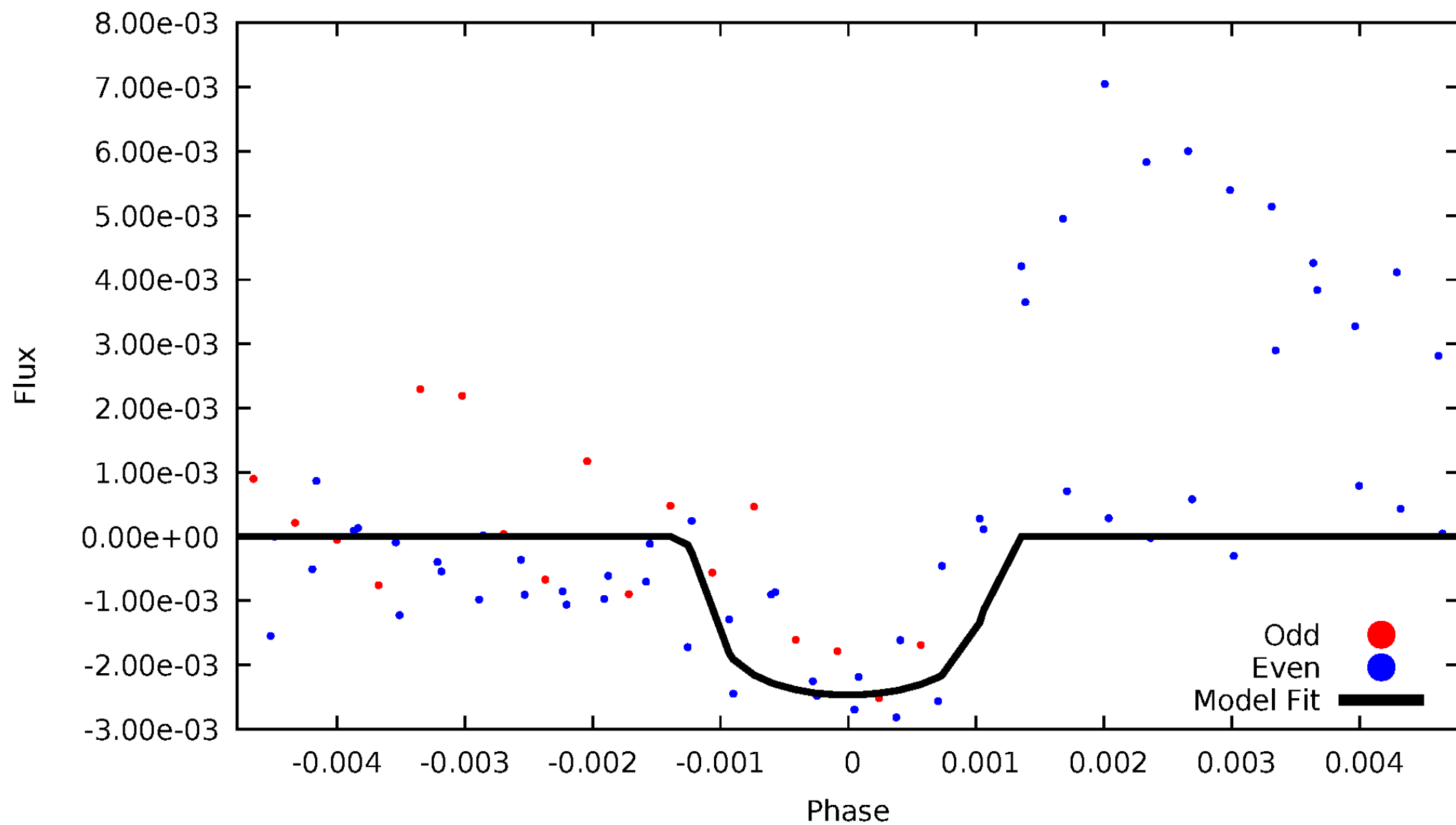


# TCE 004814229-01



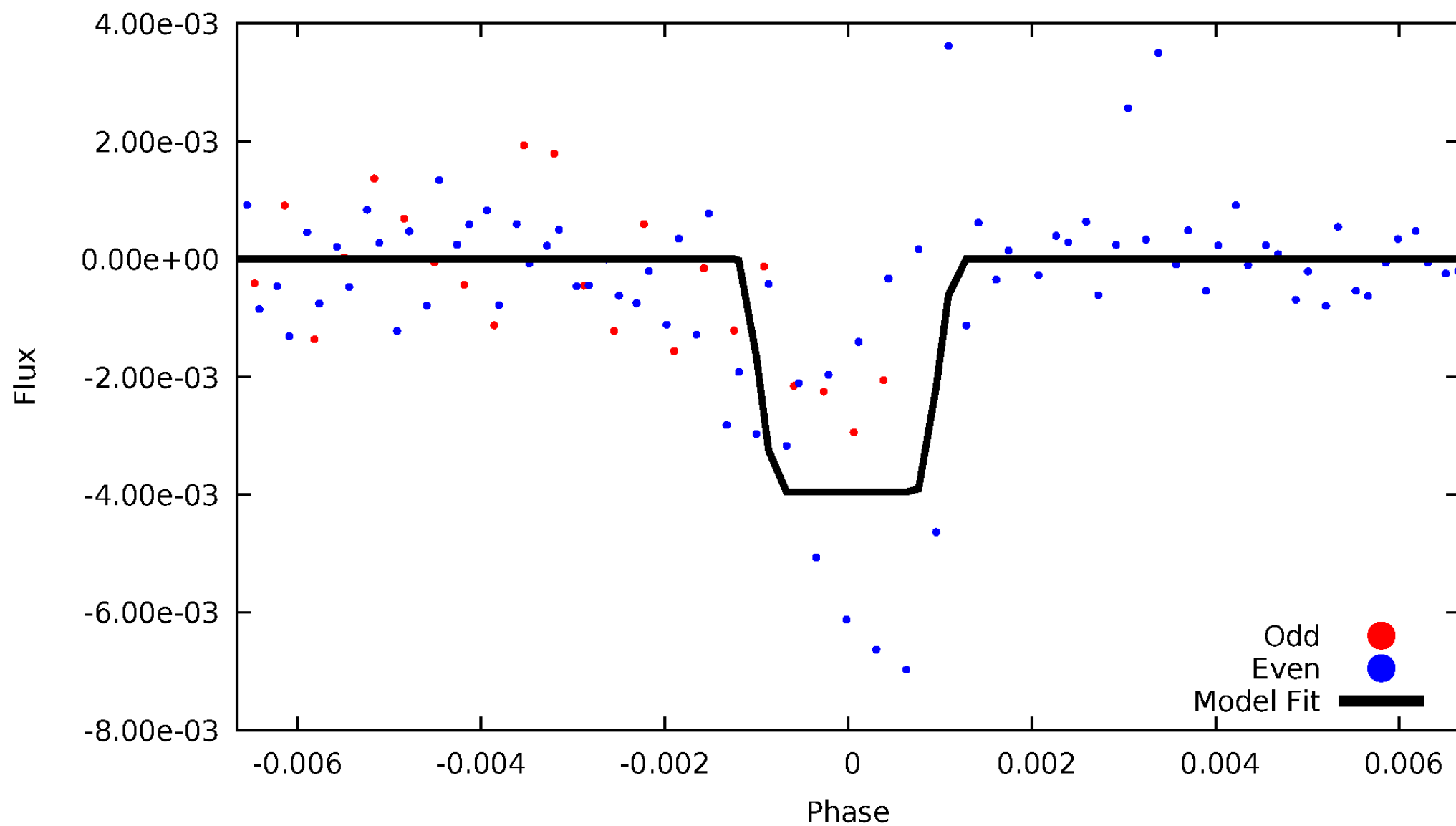
# DV Odd/Even

TCE 004814229-01

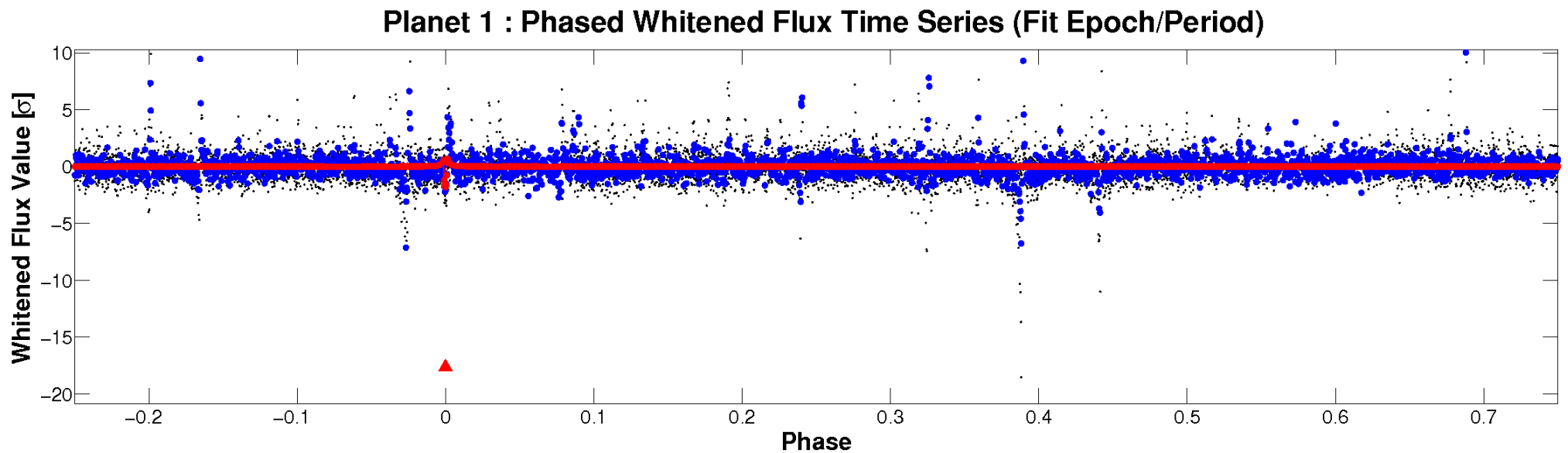
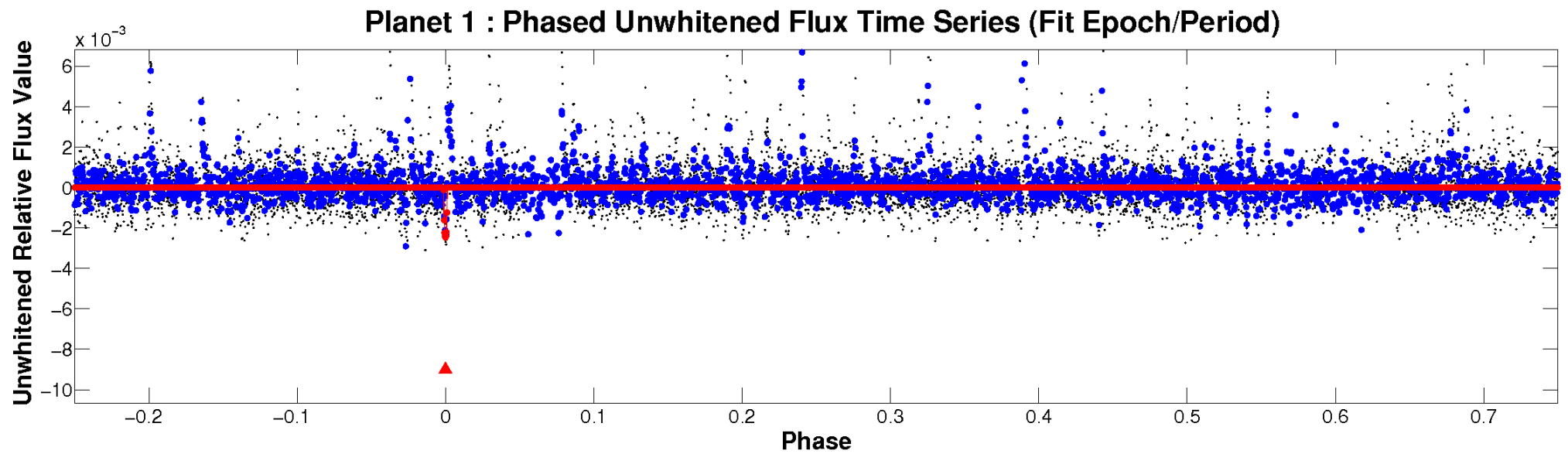


# ALT Odd/Even

TCE 004814229-01

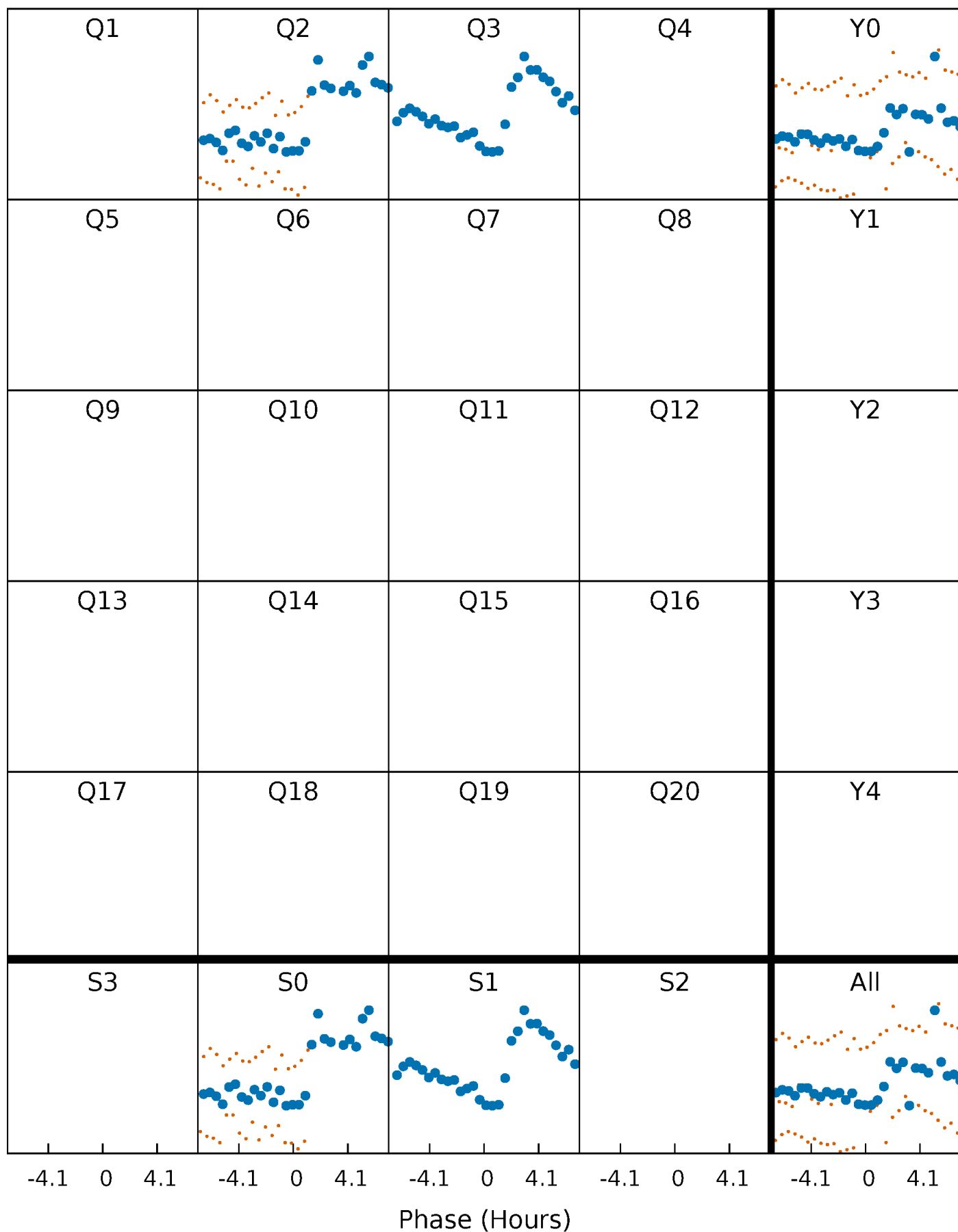


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

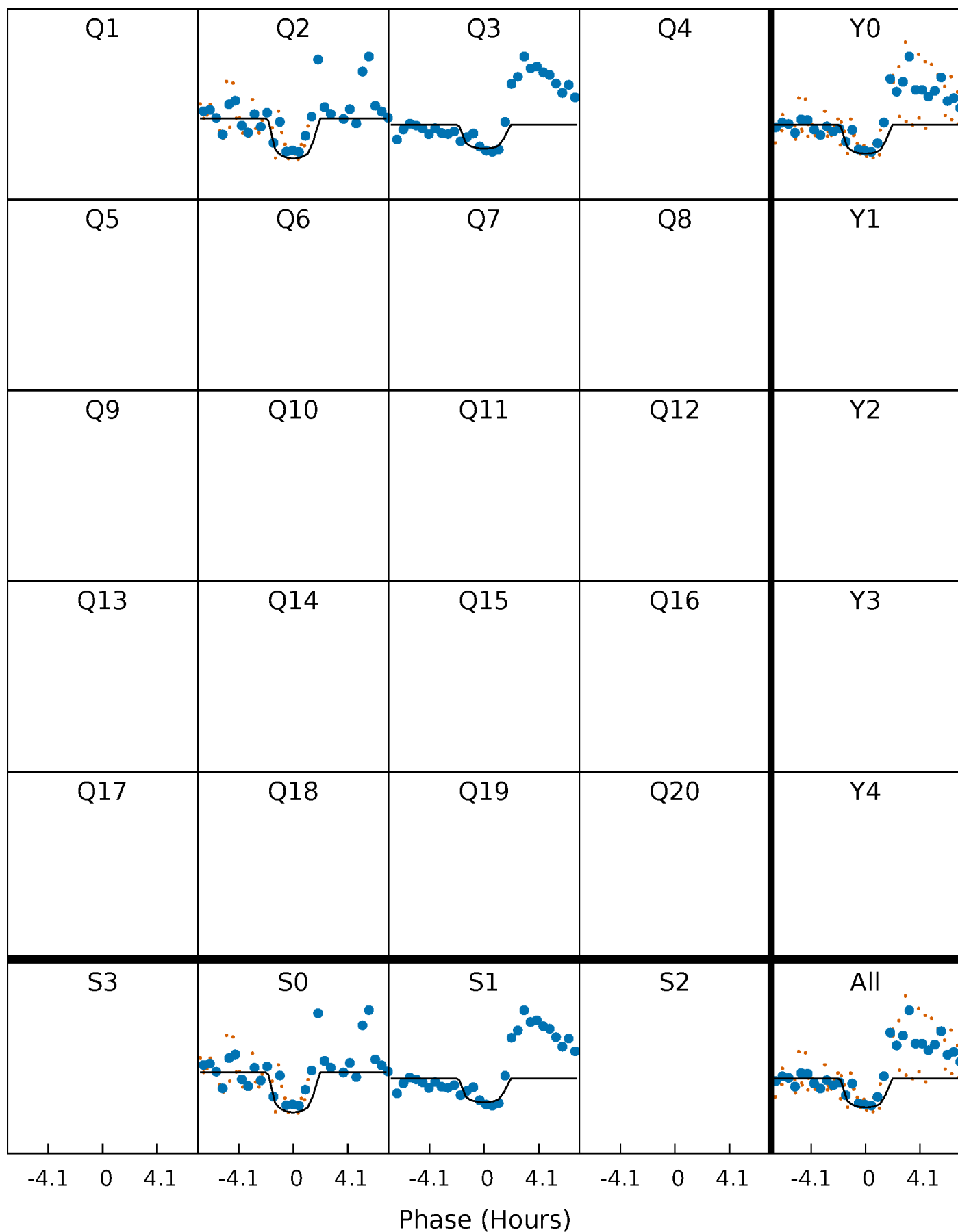
TCE 004814229-01 P= 62.638212 Days  $T_0=192.708191$  (BKJD)





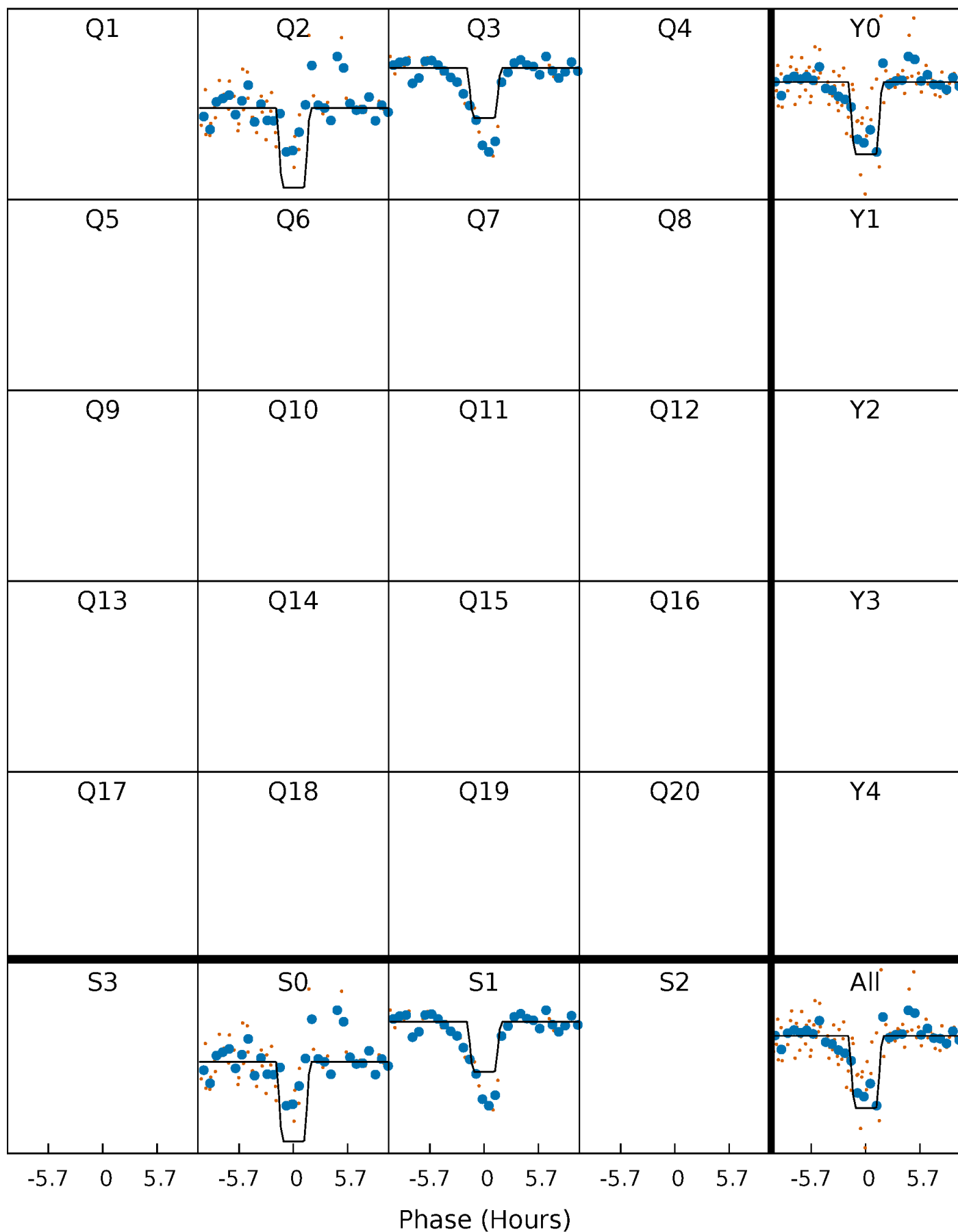
# DV Quarter-Phased Transit Curves

TCE 004814229-01 P= 62.638212 Days  $T_0=192.708191$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

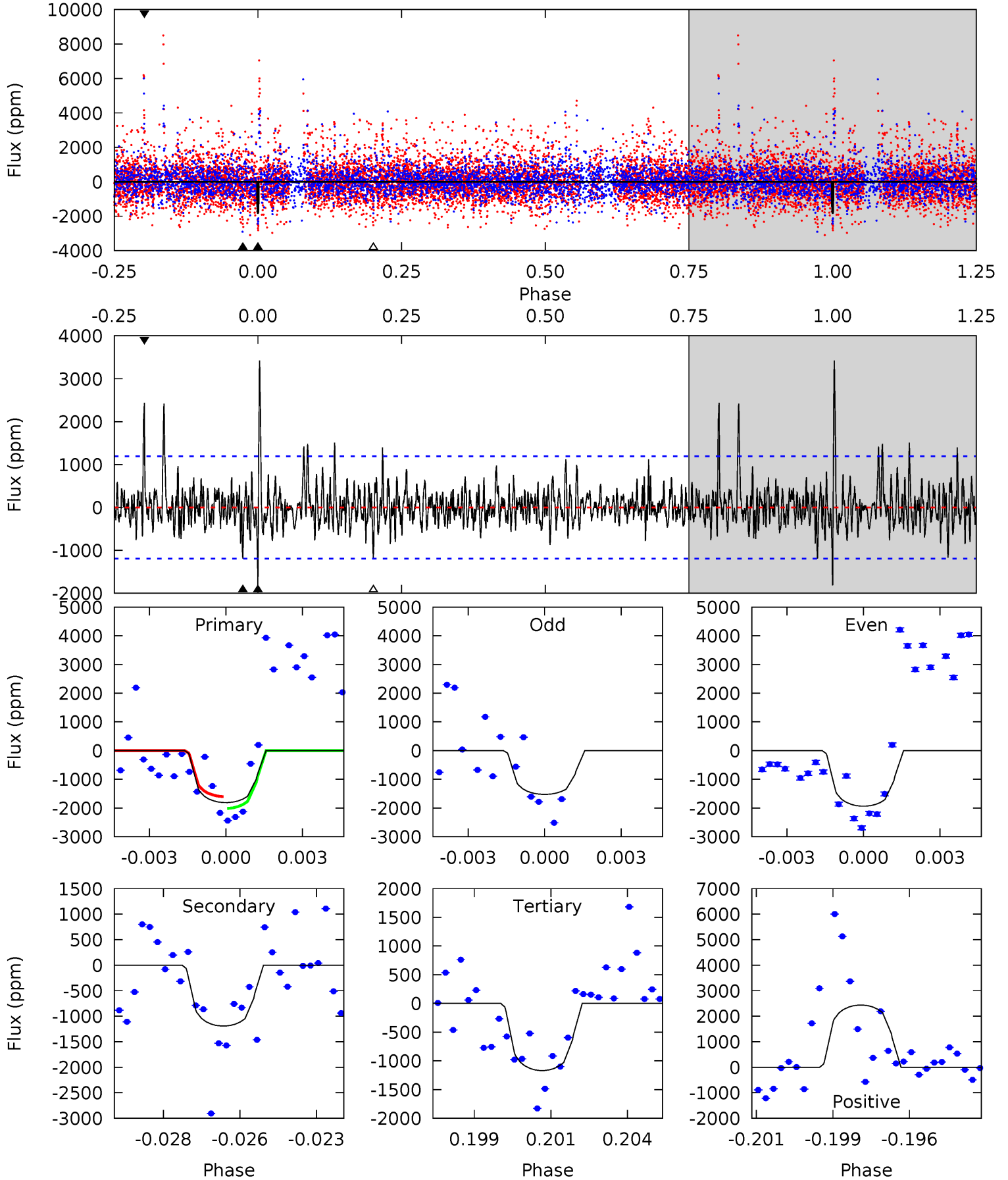
TCE 004814229-01 P= 62.631195 Days  $T_0=192.726579$  (BKJD)



# DV Model-Shift Uniqueness Test

004814229-01, P = 62.638212 Days, E = 130.069979 Days

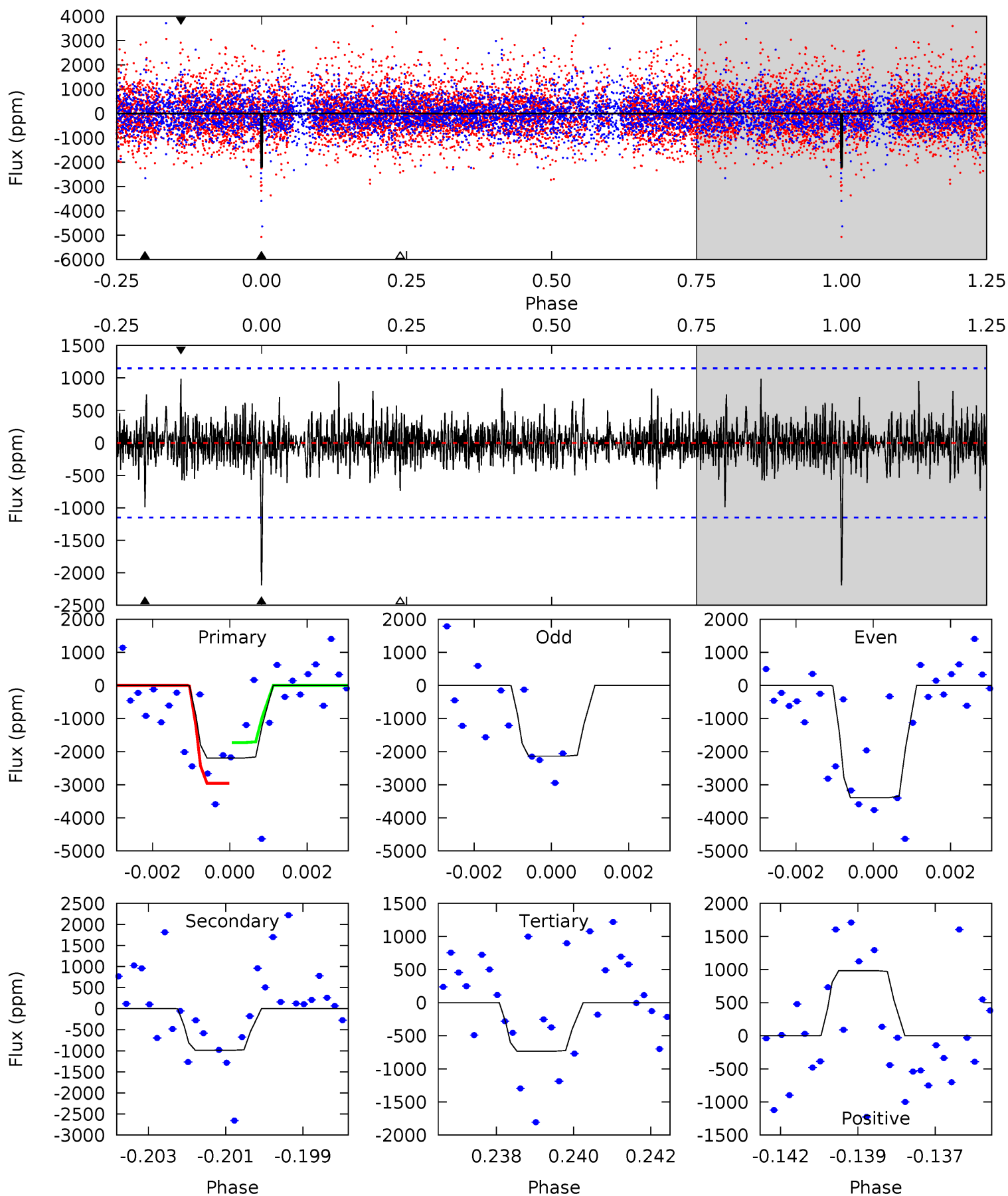
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.01	5.27	5.17	10.8	5.28	3.01	1.67	2.84	-2.76	0.10	-5.50	0.75	1.05	0.65	0.91



# Alt Model-Shift Uniqueness Test

004814229-01, P = 62.631195 Days, E = 130.095384 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
10.1	4.57	3.39	4.54	5.30	3.05	0.97	6.73	5.58	1.18	0.03	2.85	1.39	0.31	2.92



### Stellar Parameters For KIC 004814229

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3373^{+67}_{-60}$	$4.952^{+0.066}_{-0.048}$	$0.000^{+0.100}_{-0.100}$	$0.296^{+0.050}_{-0.050}$	$0.286^{+0.069}_{-0.056}$	$15.560^{+6.407}_{-3.835}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+17%/-17%	+24%/-20%	+41%/-25%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 004814229-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1192 \pm 226$	$2.27^{+2.04}_{-1.52}$	$251^{+8}_{-8}$	$2754^{+1159}_{-403}$	$5223^{+46230}_{-3717}$
Alt.	$-989 \pm 217$	$2.52^{+2.07}_{-1.65}$	$250^{+8}_{-8}$	$2596^{+899}_{-336}$	$3456^{+24966}_{-2408}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

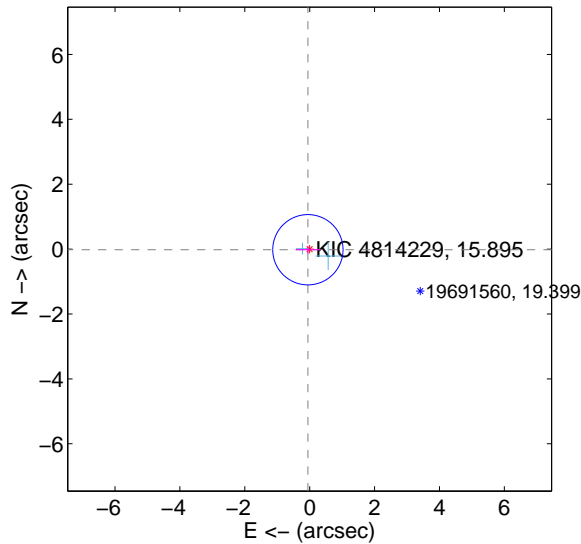
Supplemental centroid analysis for 004814229-01. Kepler magnitude: 15.89. Transit SNR 7.12

There are 2 quarters with good PRF difference image offsets

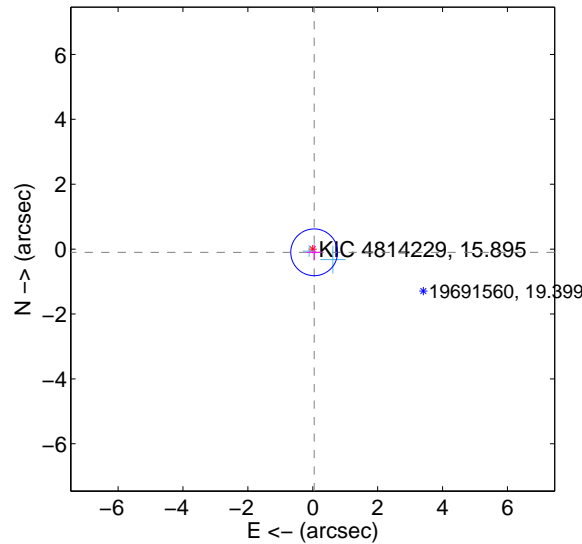
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.059 \pm 0.361$	0.16	$0.055 \pm 0.381$	$-0.020 \pm 0.115$
PRF-fit source offset from KIC position	$0.108 \pm 0.240$	0.45	$-0.043 \pm 0.229$	$-0.099 \pm 0.242$
photometric centroid source offset	$2.49 \pm 1.24$	2.00	$-1.93 \pm 1.27$	$-1.57 \pm 1.21$

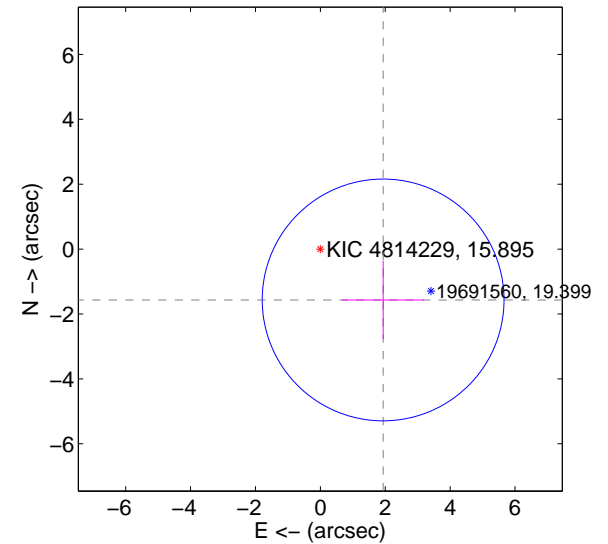
offset from difference PRF-fit to OOT PRF-fit



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.

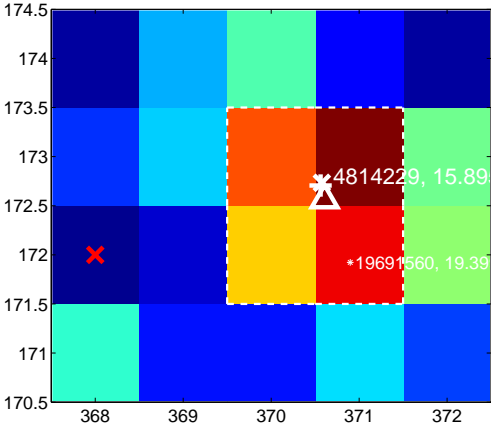
Q1 no difference image



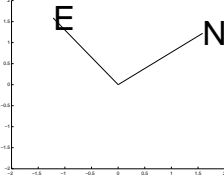
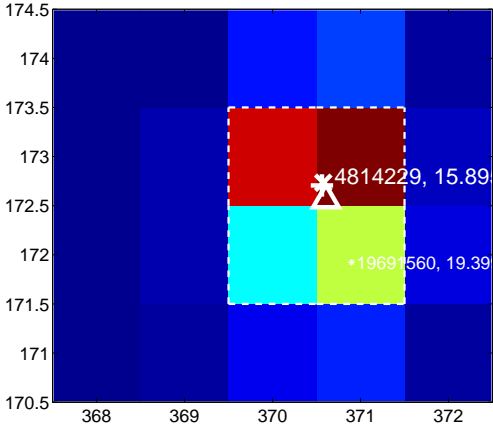
Q1 no OOT image



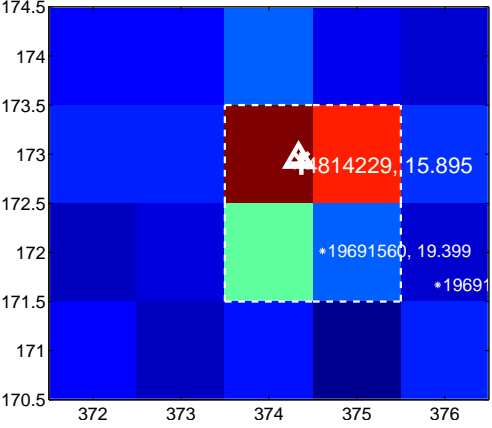
Q2 difference image



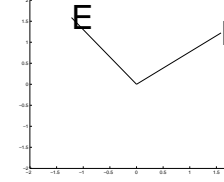
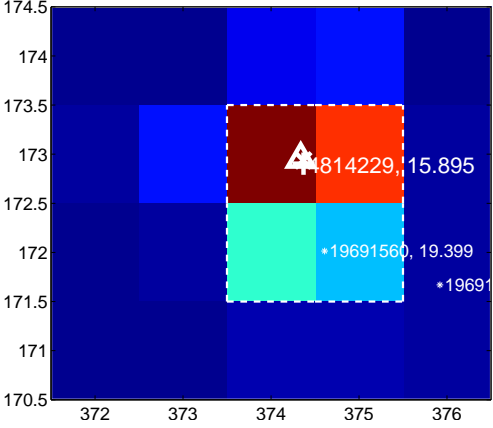
Q2 OOT image



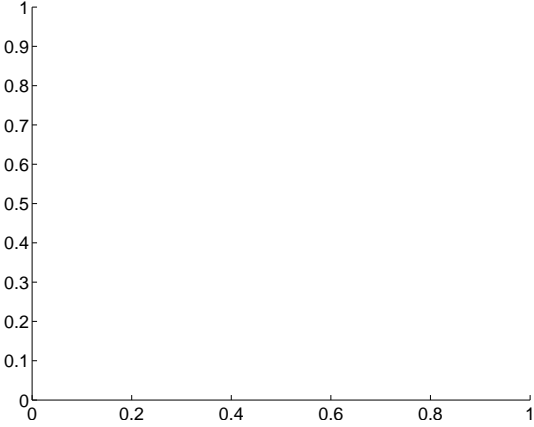
Q3 difference image



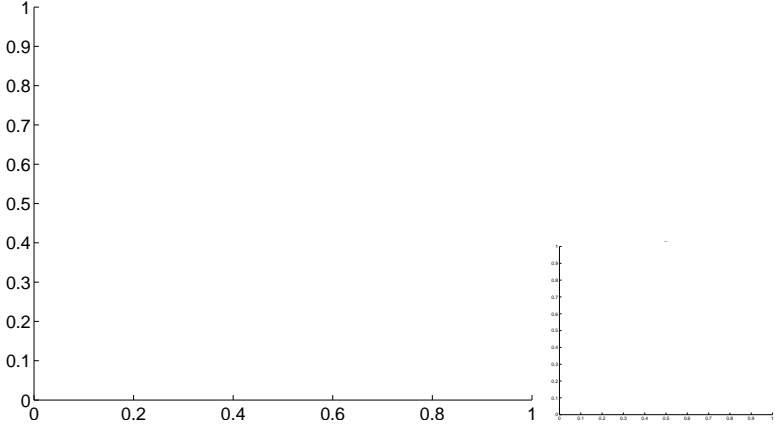
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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





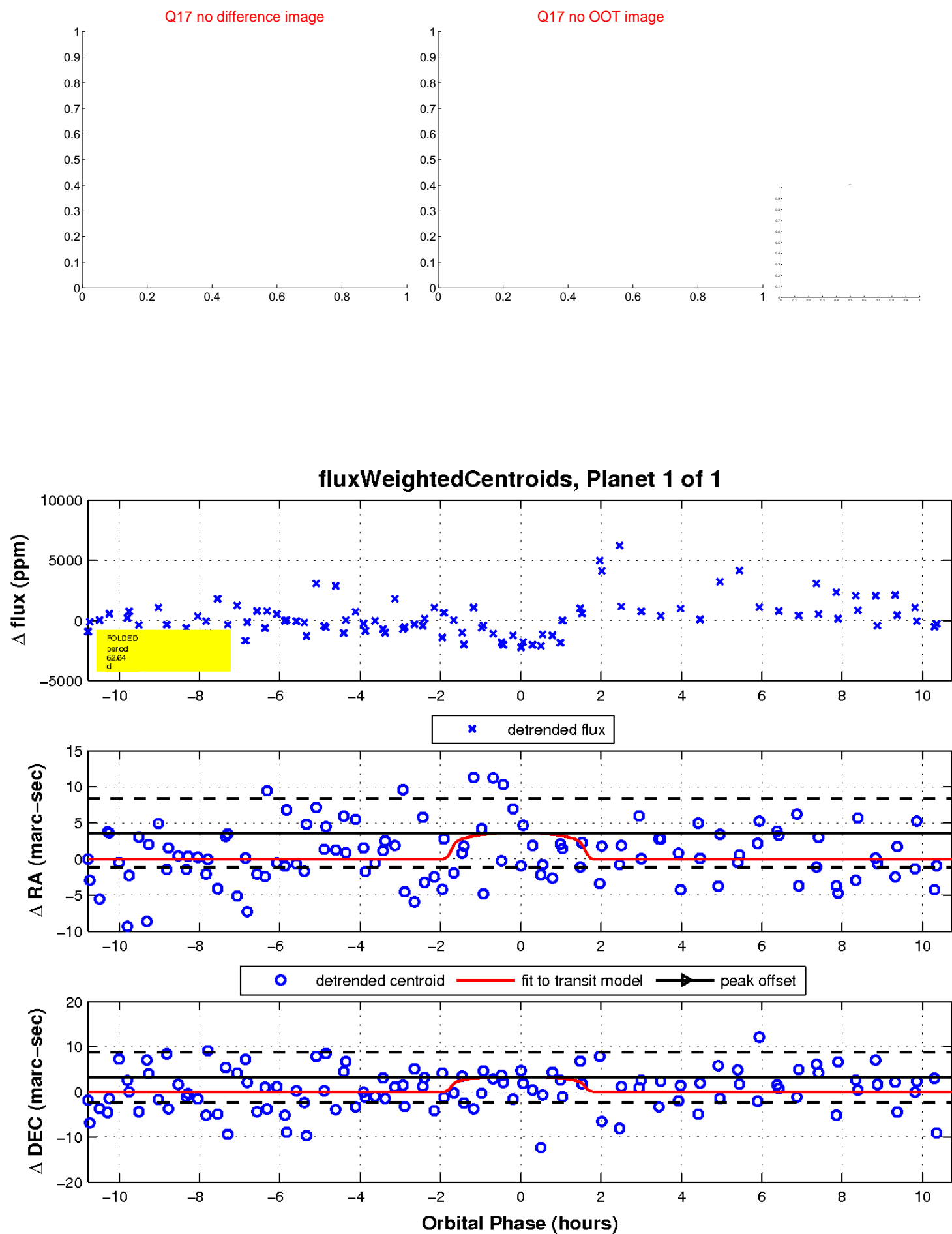
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

