

# KIC 012069319

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012069319-01	OBS	8234.01	231.165168	346.935088	856.9	8.585	7.3	7.6	11.84	5386	36.57	91.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012069319-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—INCONSISTENT_TRANS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

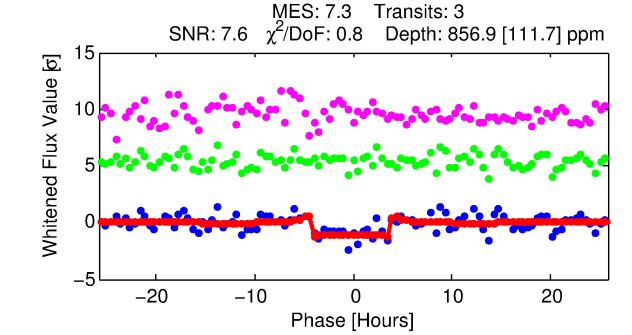
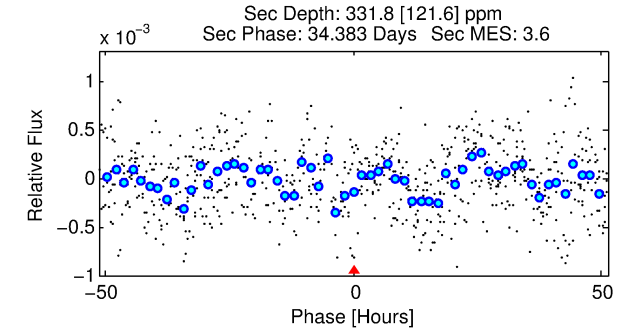
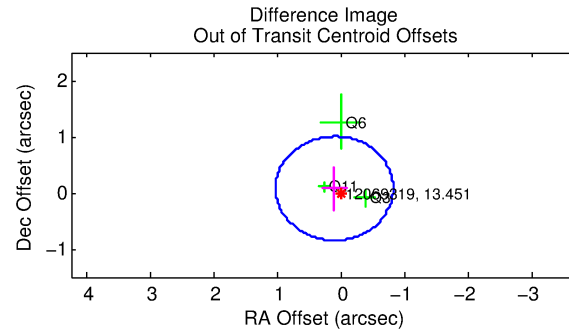
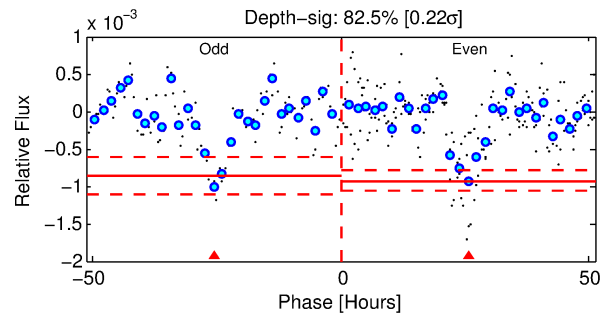
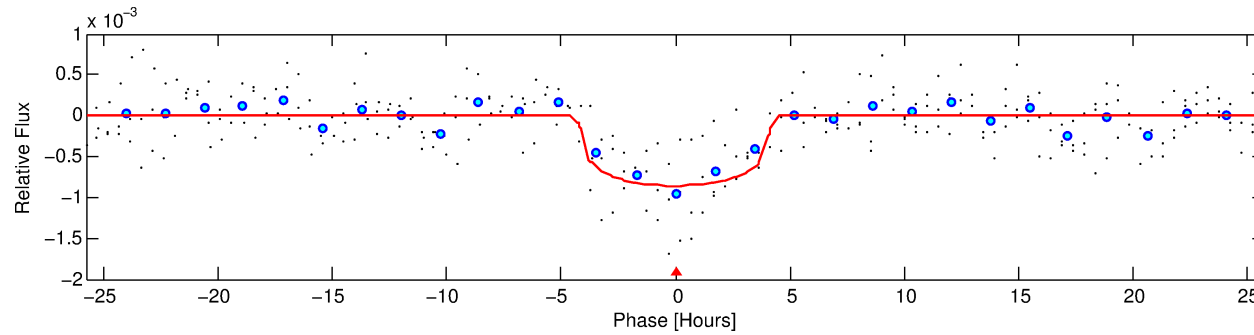
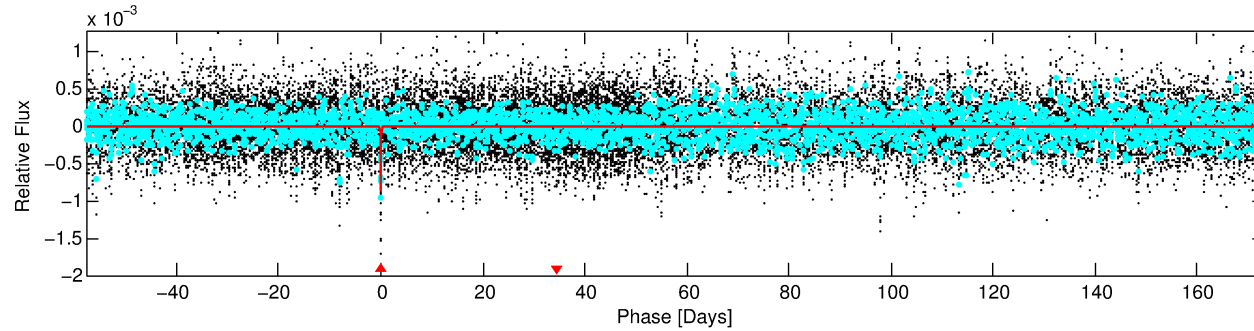
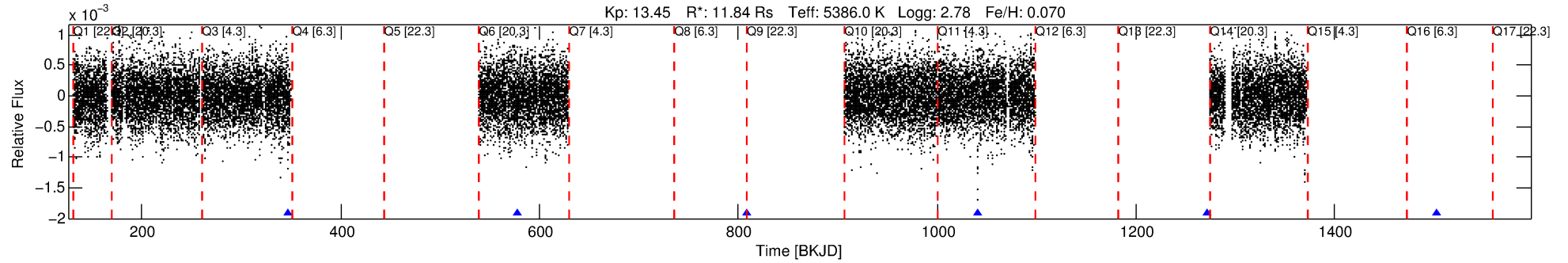
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012069319-01

No Significant Match Found

# DV One-Page Summary

KIC: 12069319 Candidate: 1 of 1 Period: 231.165 d



## DV Fit Results:

Period = 231.16517 [0.00335] d  
Epoch = 346.9351 [0.0064] BKJD  
Rp/R\* = 0.0283 [0.0103]  
a/R\* = 161.33 [221.80]  
b = 0.67 [1.18]  
Seff = 91.82 [32.72]  
Teff = 789 [70] K  
Rp = 36.57 [18.78] Re  
a = 1.0728 [0.2605] AU  
Ag = 157.13 [133.66] [1.17 $\sigma$ ]  
Teffp = 4321 [923] K [3.82 $\sigma$ ]

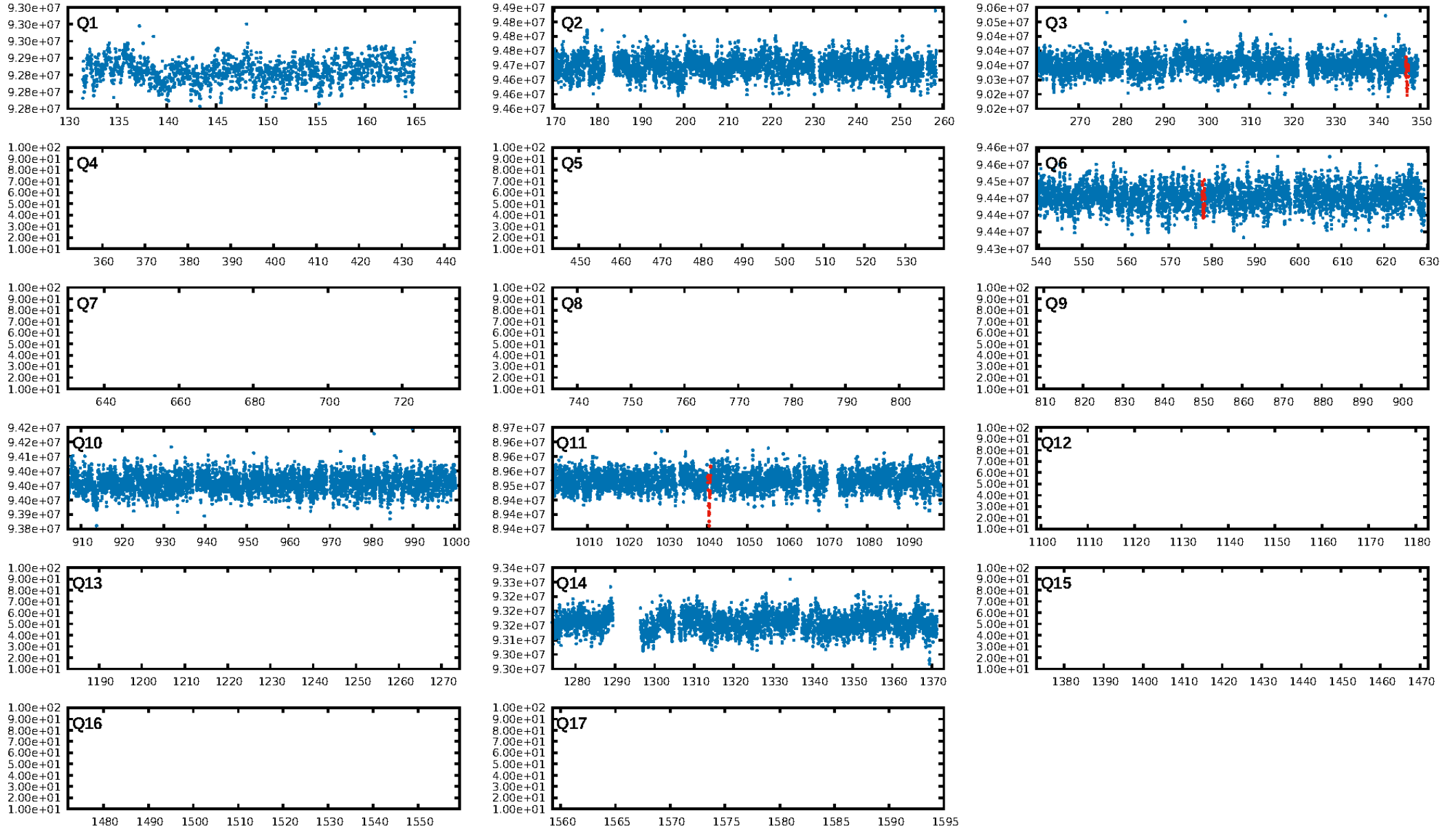
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 36.5%  
ModelChiSquareGof-sig: 99.4%  
**Bootstrap-pfa: 2.27e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 22.63  
Centroid-sig: 9.3%  
Centroid-so: 0.675 arcsec [1.23 $\sigma$ ]  
OotOffset-rm: 0.134 arcsec [0.43 $\sigma$ ]  
KicOffset-rm: 0.133 arcsec [0.51 $\sigma$ ]  
OotOffset-st: 1/2/0/0 [3]  
KicOffset-st: 1/2/0/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

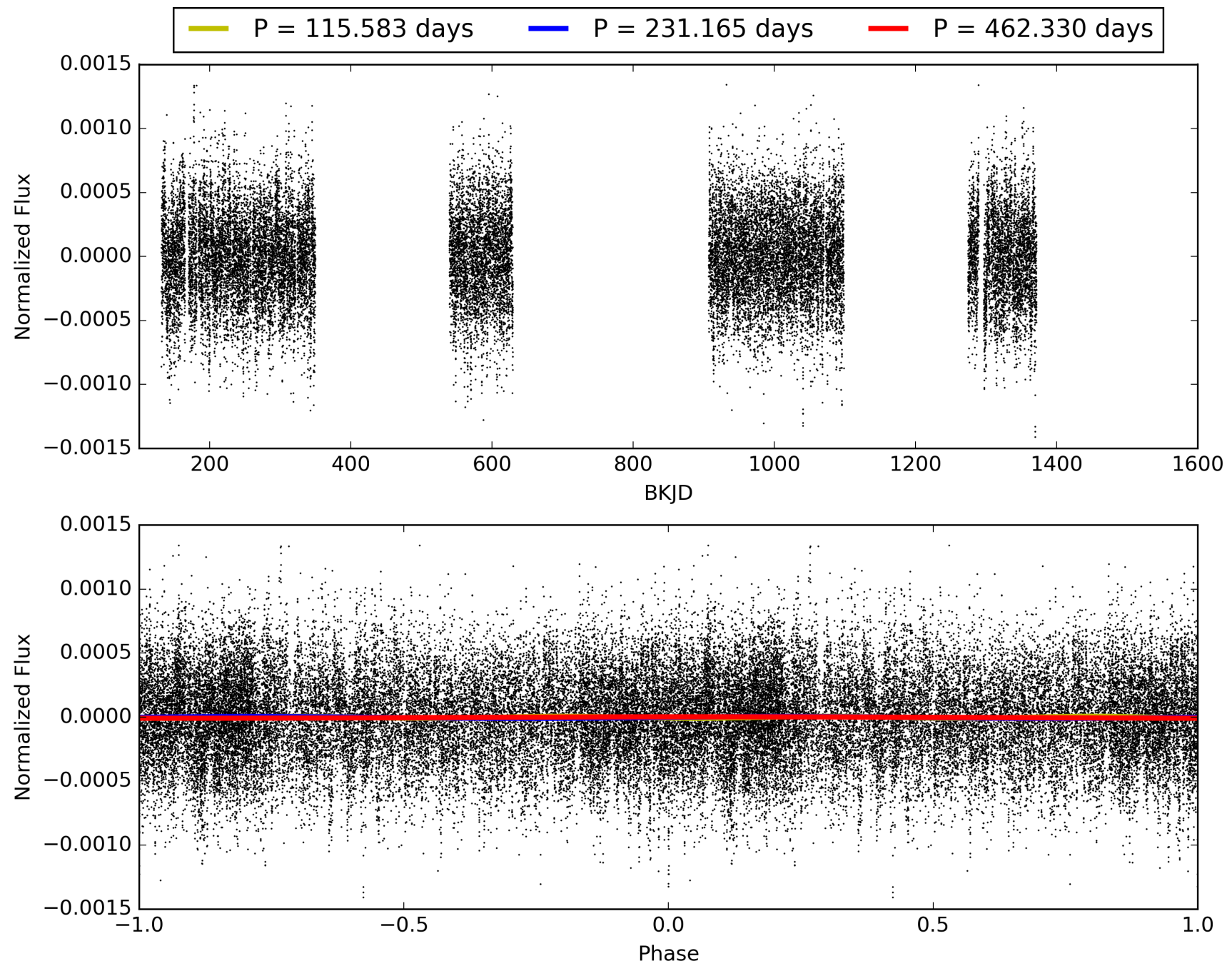
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:57:35 Z

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

# TCE 012069319-01, PDC Light Curves

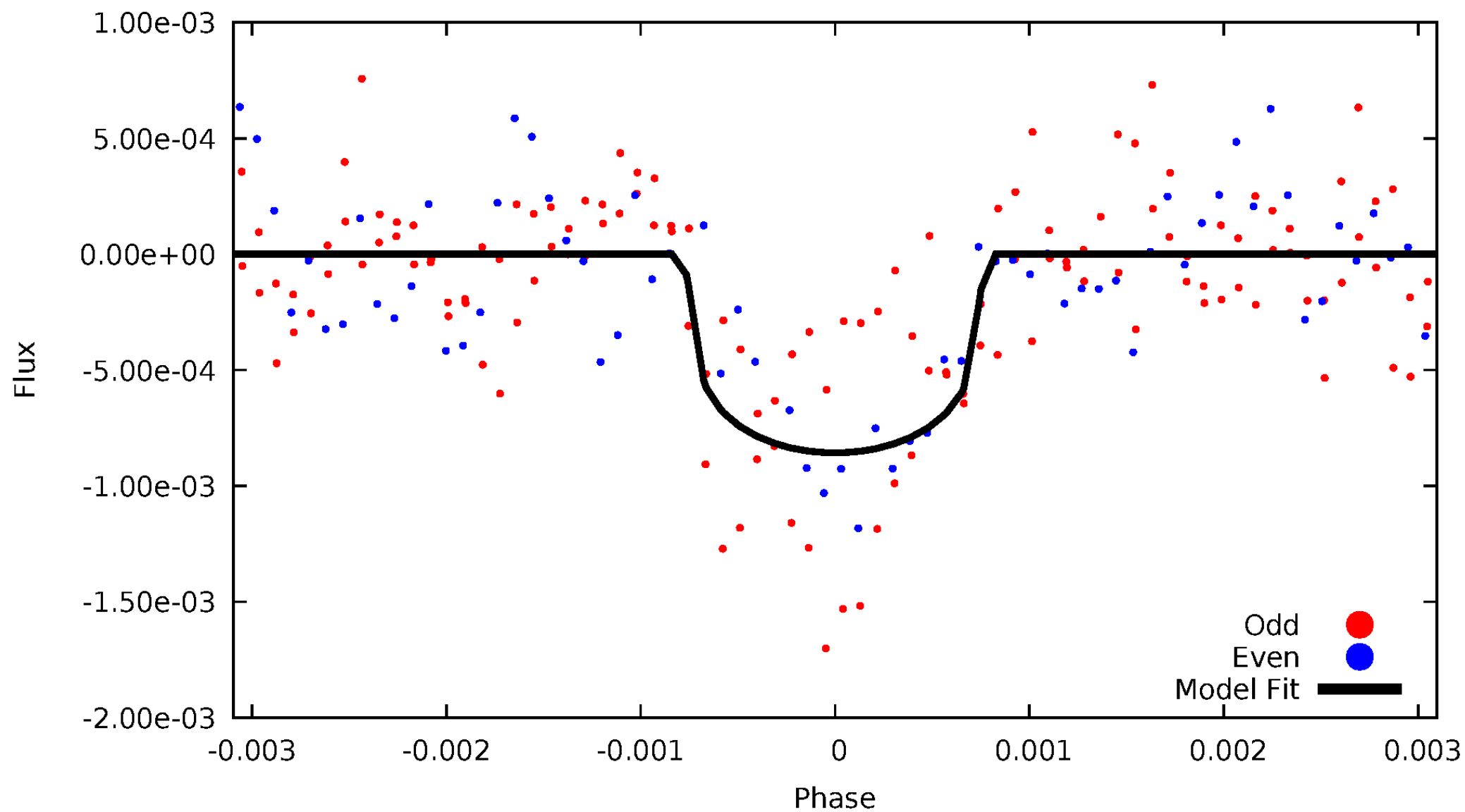


# TCE 012069319-01



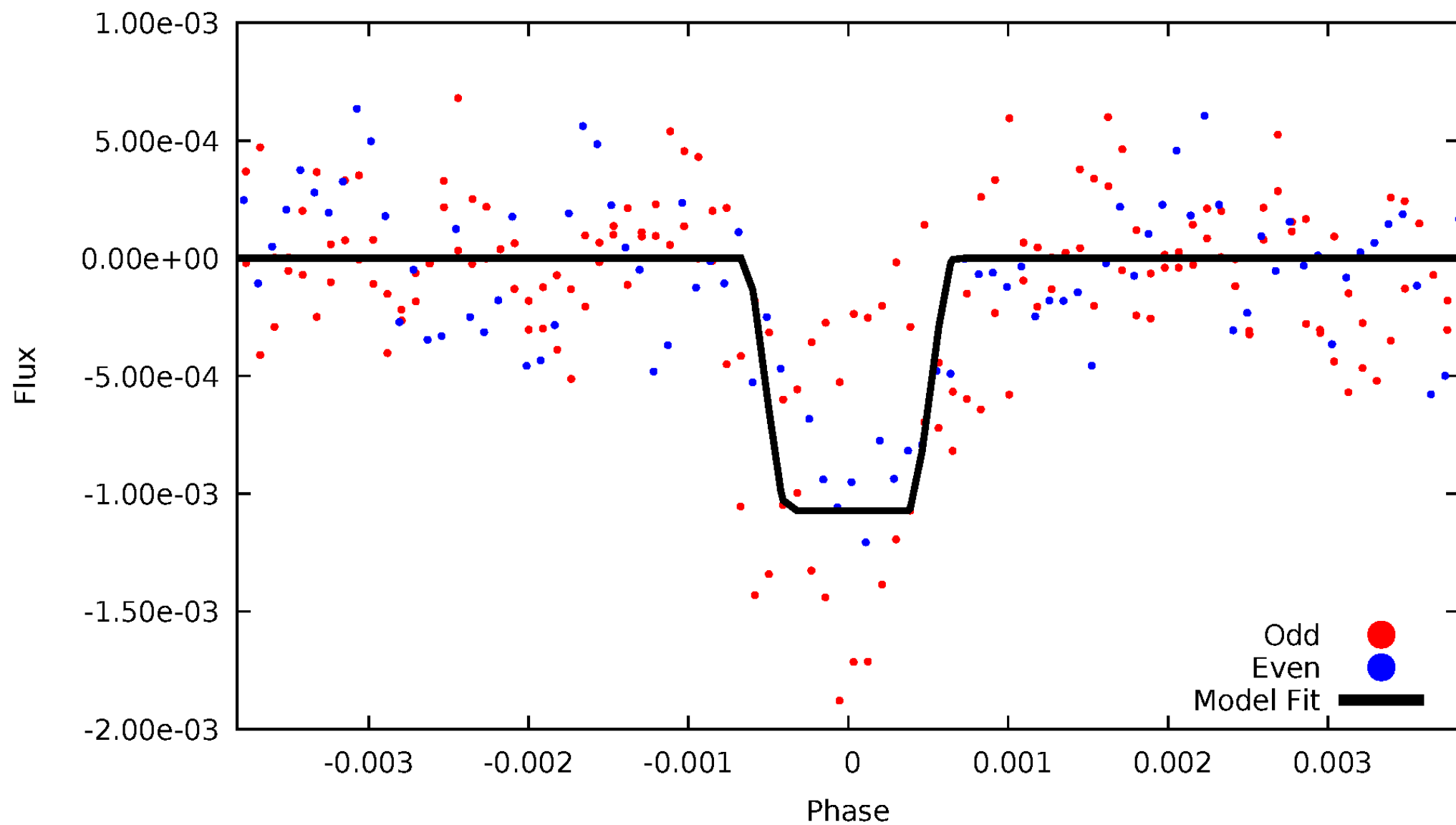
# DV Odd/Even

TCE 012069319-01



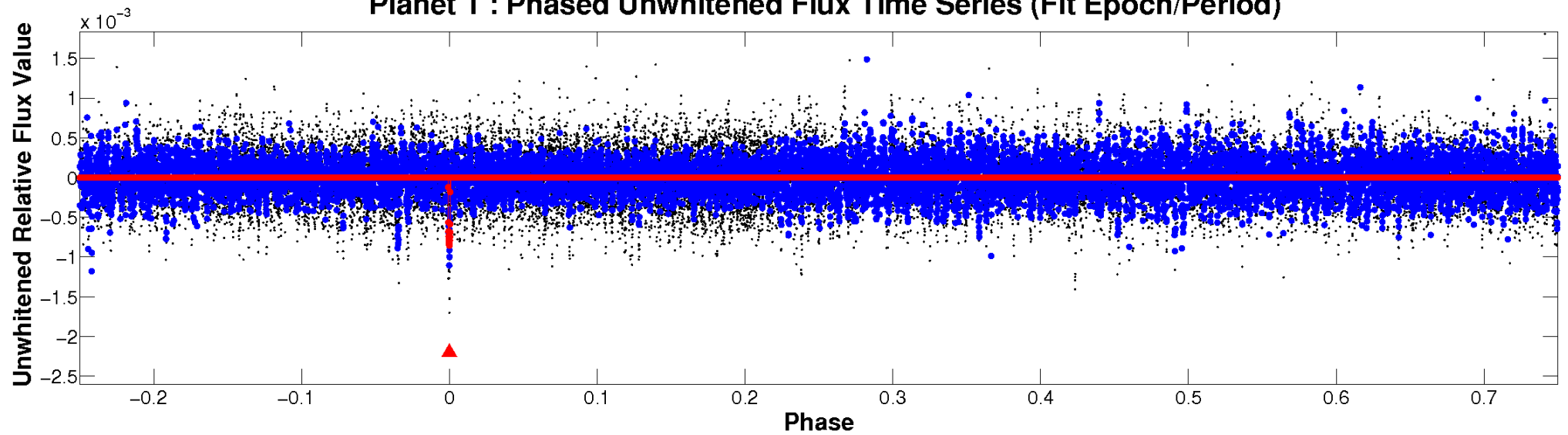
# ALT Odd/Even

TCE 012069319-01

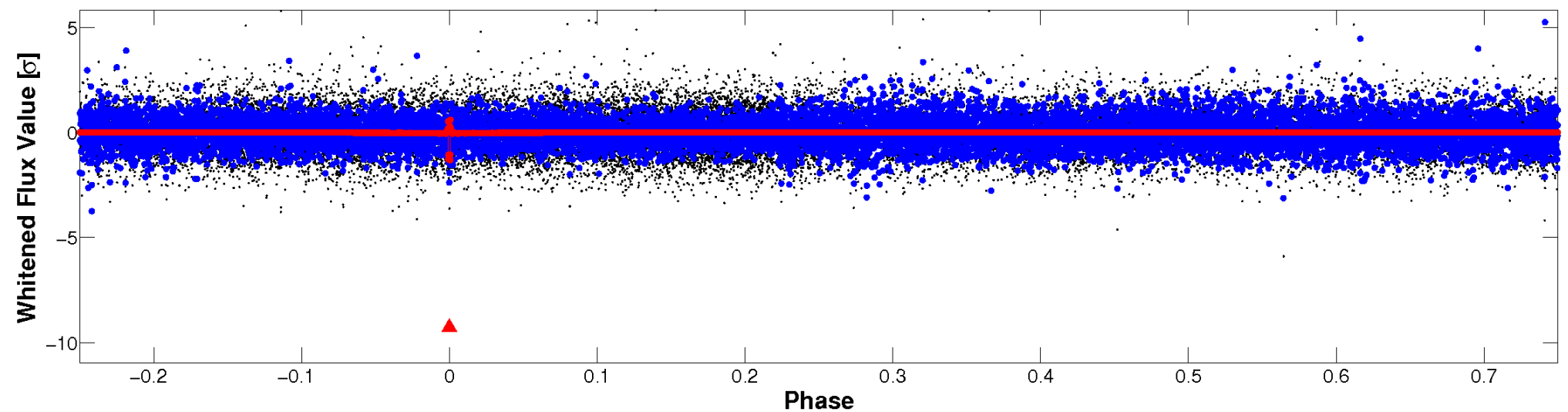


# Non-Whitened Vs. Whitened Light Curve

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

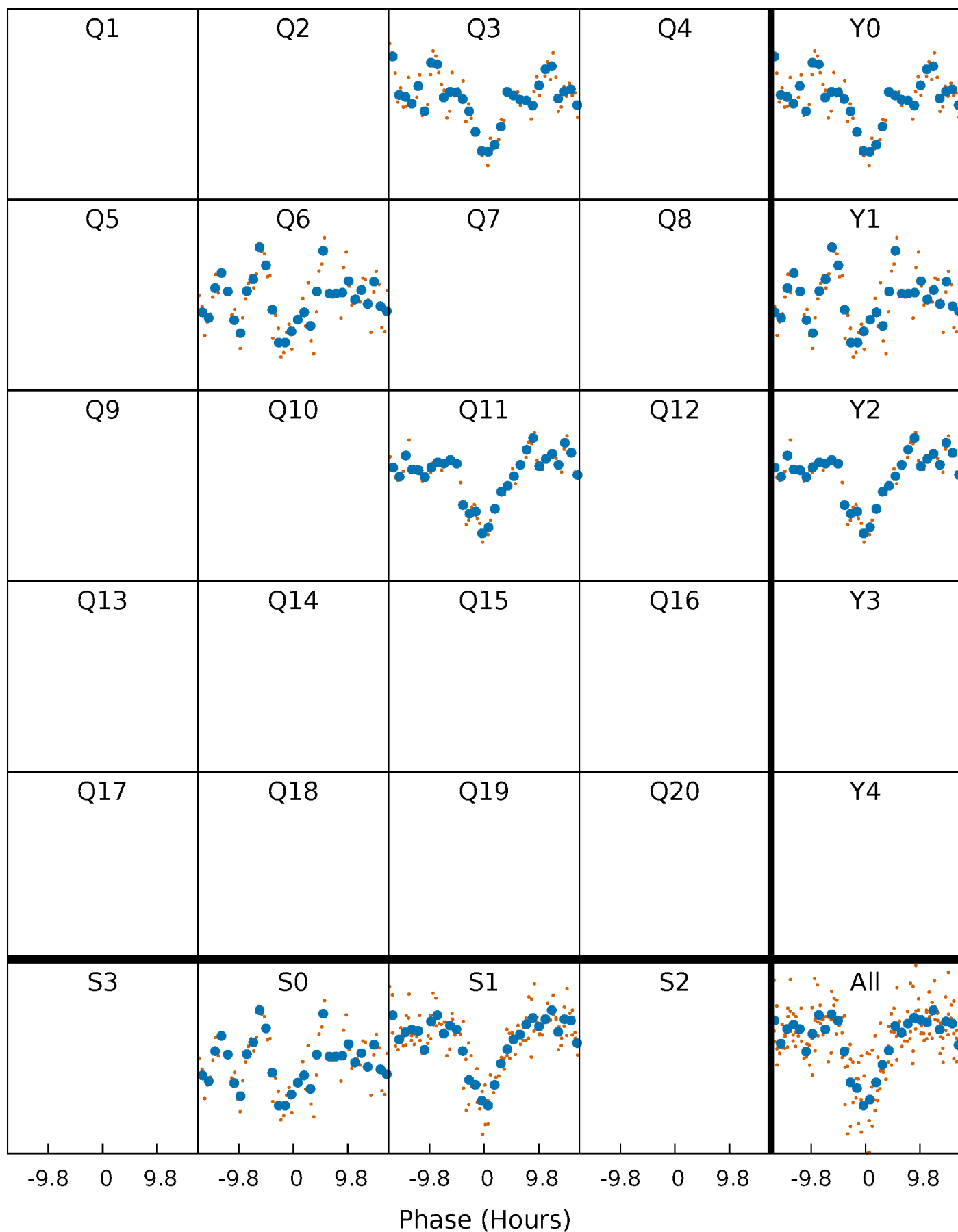


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

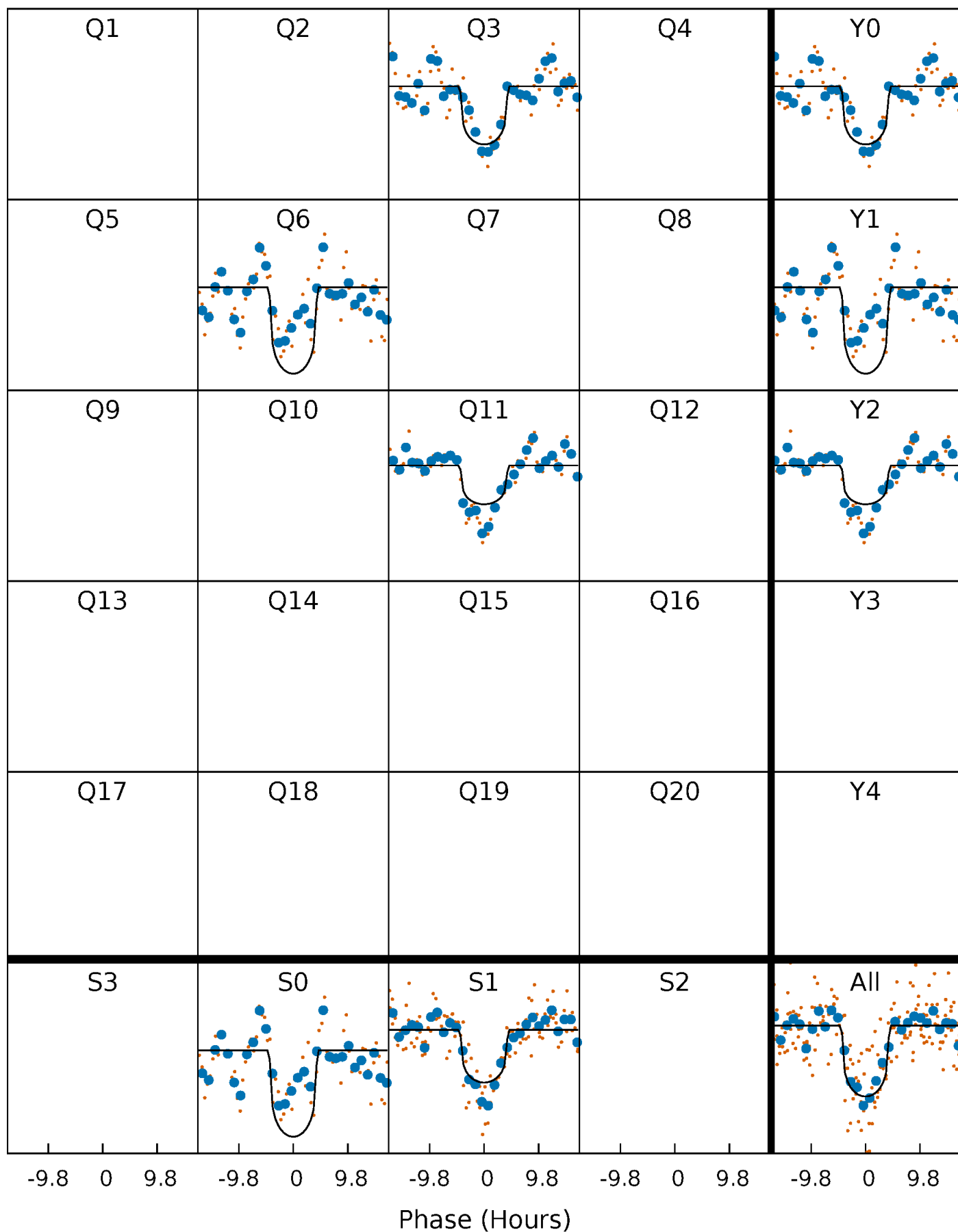
TCE 012069319-01 P=231.165168 Days  $T_0=346.935088$  (BKJD)





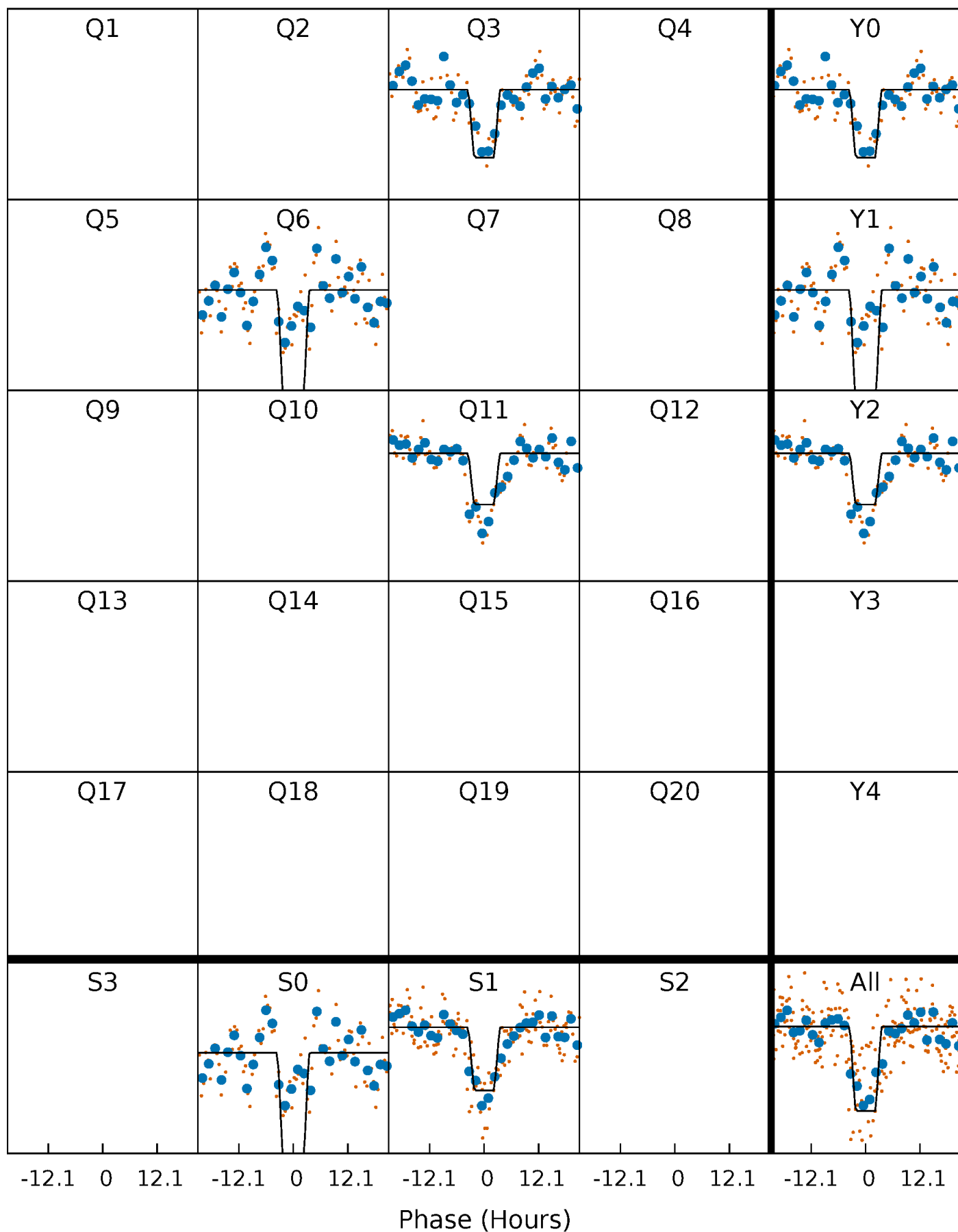
# DV Quarter-Phased Transit Curves

TCE 012069319-01 P=231.165168 Days  $T_0=346.935088$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

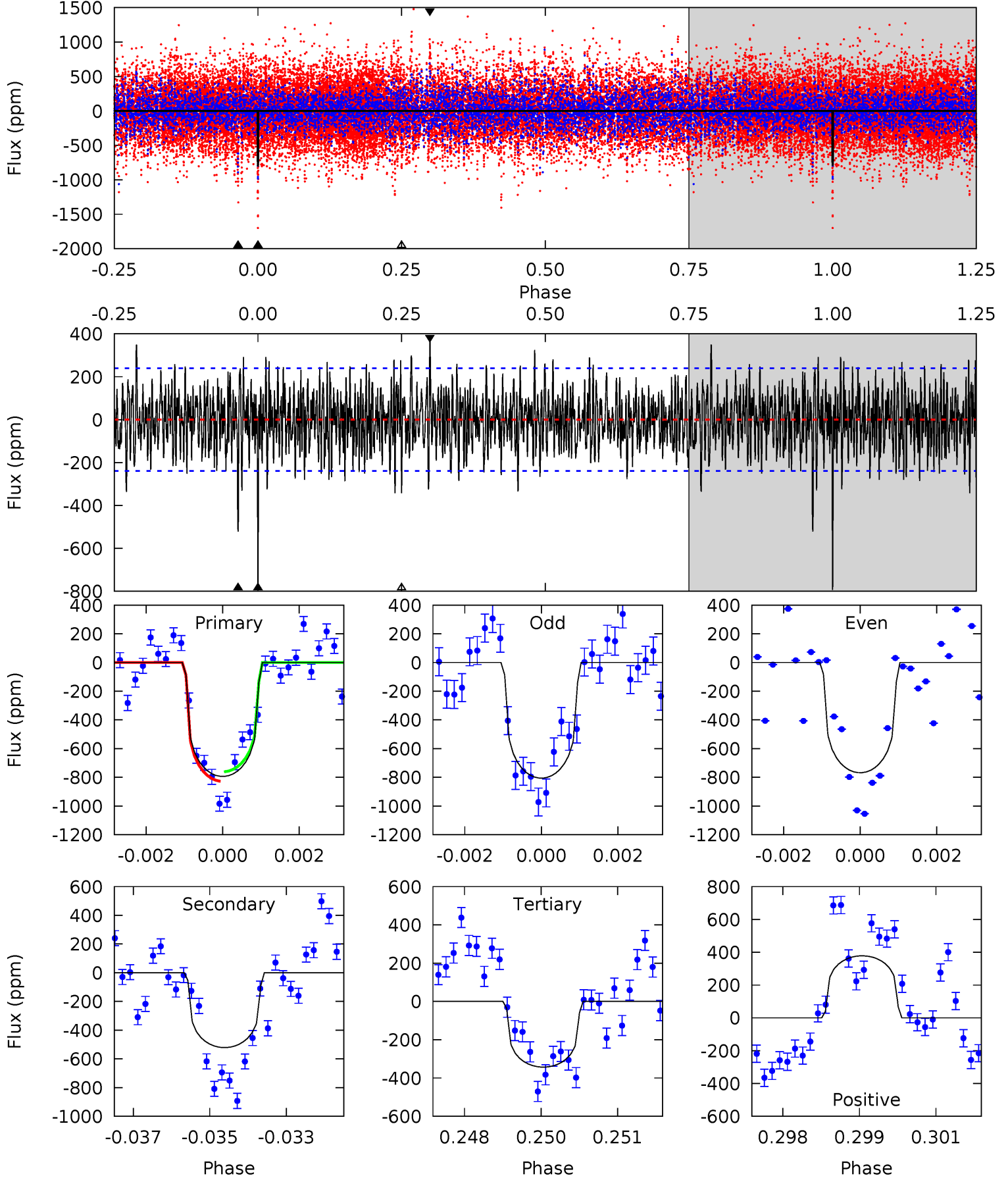
TCE 012069319-01 P=231.164864 Days  $T_0=346.937586$  (BKJD)



# DV Model-Shift Uniqueness Test

012069319-01, P = 231.165168 Days, E = 115.769920 Days

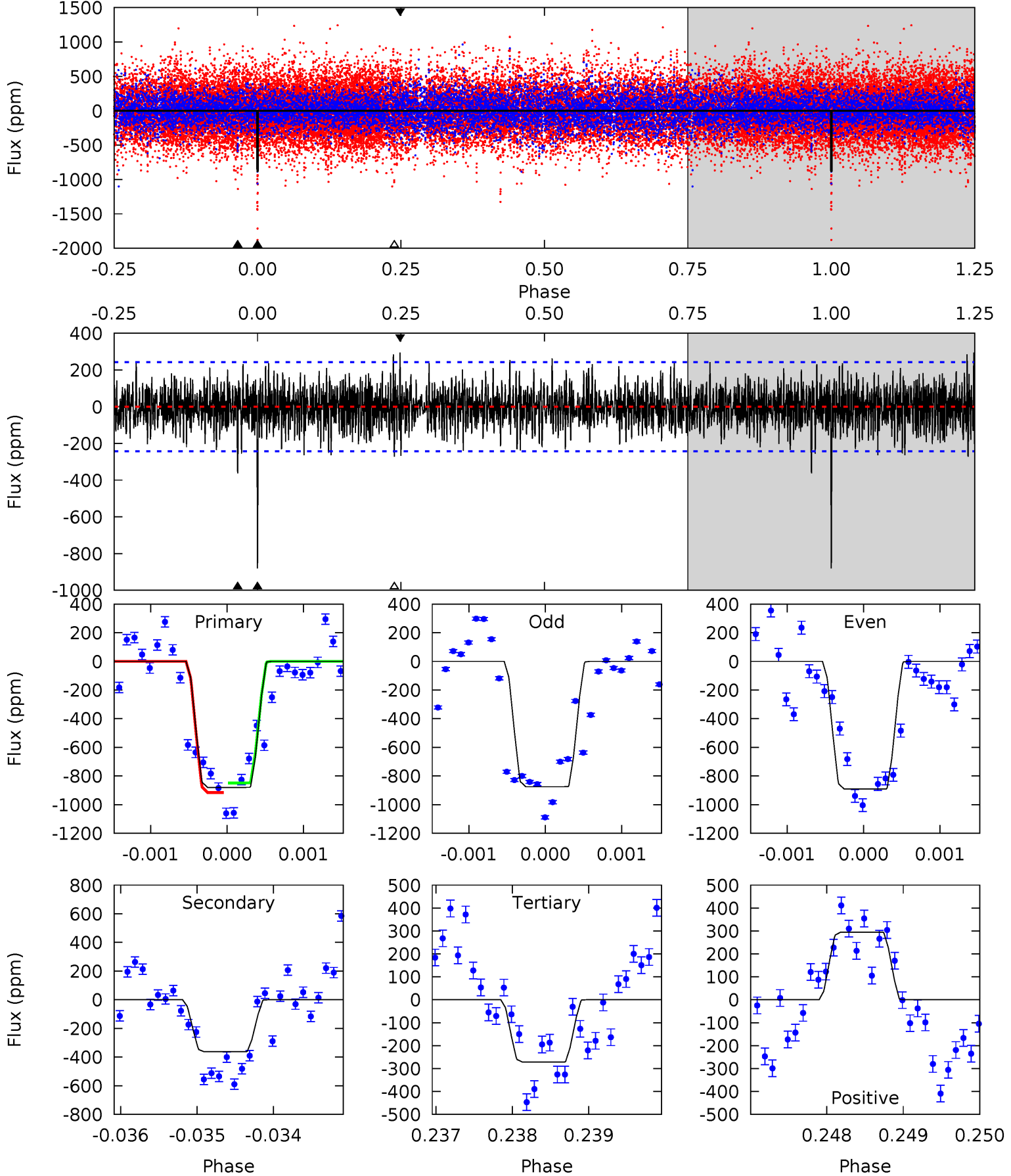
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	11.7	7.69	8.48	5.37	3.16	2.51	10.1	9.32	4.00	3.21	0.40	1.03	0.32	0.74



# Alt Model-Shift Uniqueness Test

012069319-01, P = 231.164864 Days, E = 115.772722 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
19.6	8.08	6.06	6.57	5.41	3.23	1.88	13.5	13.0	2.02	1.51	0.17	0.99	0.25	0.74



### Stellar Parameters For KIC 012069319

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5386^{+133}_{-347}$	$2.780^{+0.030}_{-0.030}$	$0.070^{+0.150}_{-0.750}$	$11.839^{+0.239}_{-4.293}$	$3.083^{+0.094}_{-1.887}$	$0.003^{+0.002}_{-0.000}$
	+2%/-6%	+1%/-1%	+214%/-1071%	+2%/-36%	+3%/-61%	+64%/-5%
Source	PHO1	AST9	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 012069319-01 / KOI 8234.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-521 \pm 45$	$36.30^{+12.87}_{-12.33}$	$1103^{+30}_{-65}$	$4857^{+967}_{-579}$	$250^{+322}_{-114}$
Alt.	$-363 \pm 45$	$41.59^{+14.19}_{-13.27}$	$1101^{+31}_{-73}$	$4272^{+686}_{-452}$	$128^{+152}_{-55}$

$T_{max}$  = 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

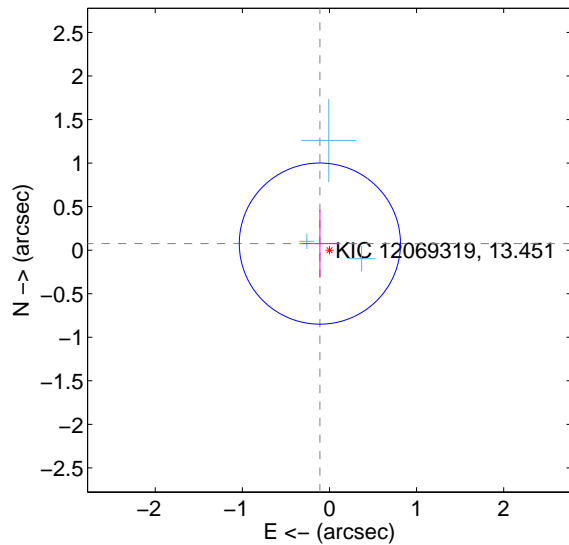
Supplemental centroid analysis for 012069319-01. Kepler magnitude: 13.45. Transit SNR 7.64

There are 3 quarters with good PRF difference image offsets

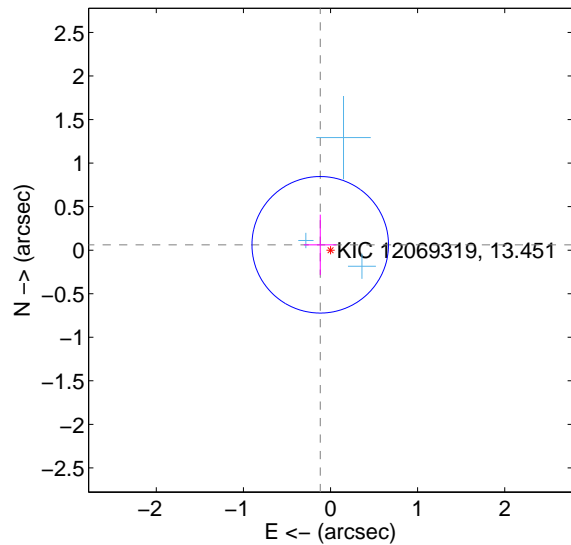
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.134 \pm 0.308$	0.43	$0.110 \pm 0.194$	$0.076 \pm 0.385$
PRF-fit source offset from KIC position	$0.133 \pm 0.261$	0.51	$0.118 \pm 0.188$	$0.062 \pm 0.347$
photometric centroid source offset	$0.68 \pm 0.55$	1.23	$-0.34 \pm 0.42$	$0.58 \pm 0.58$

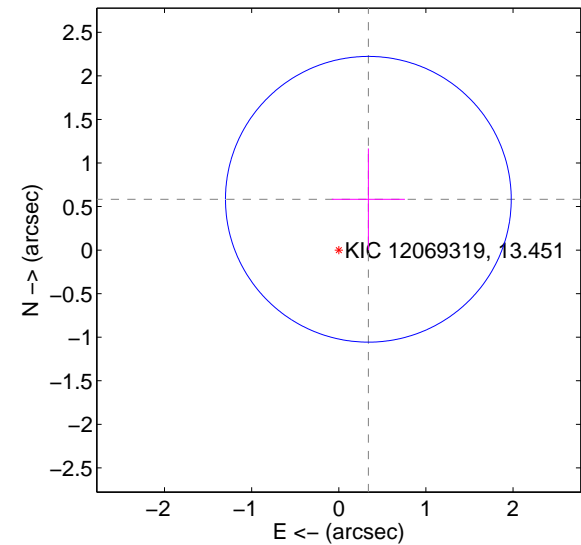
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

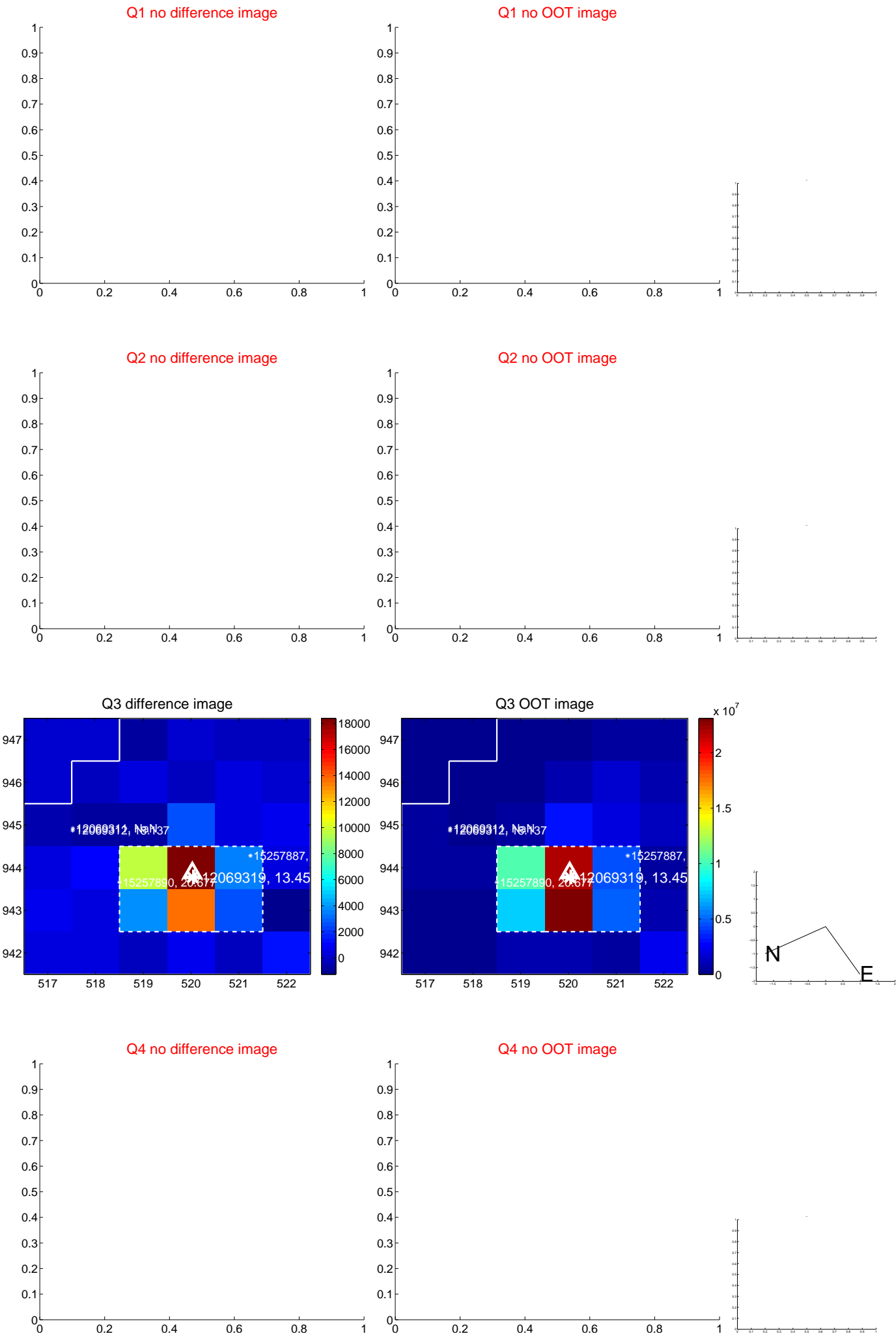


offset from photometric centroids

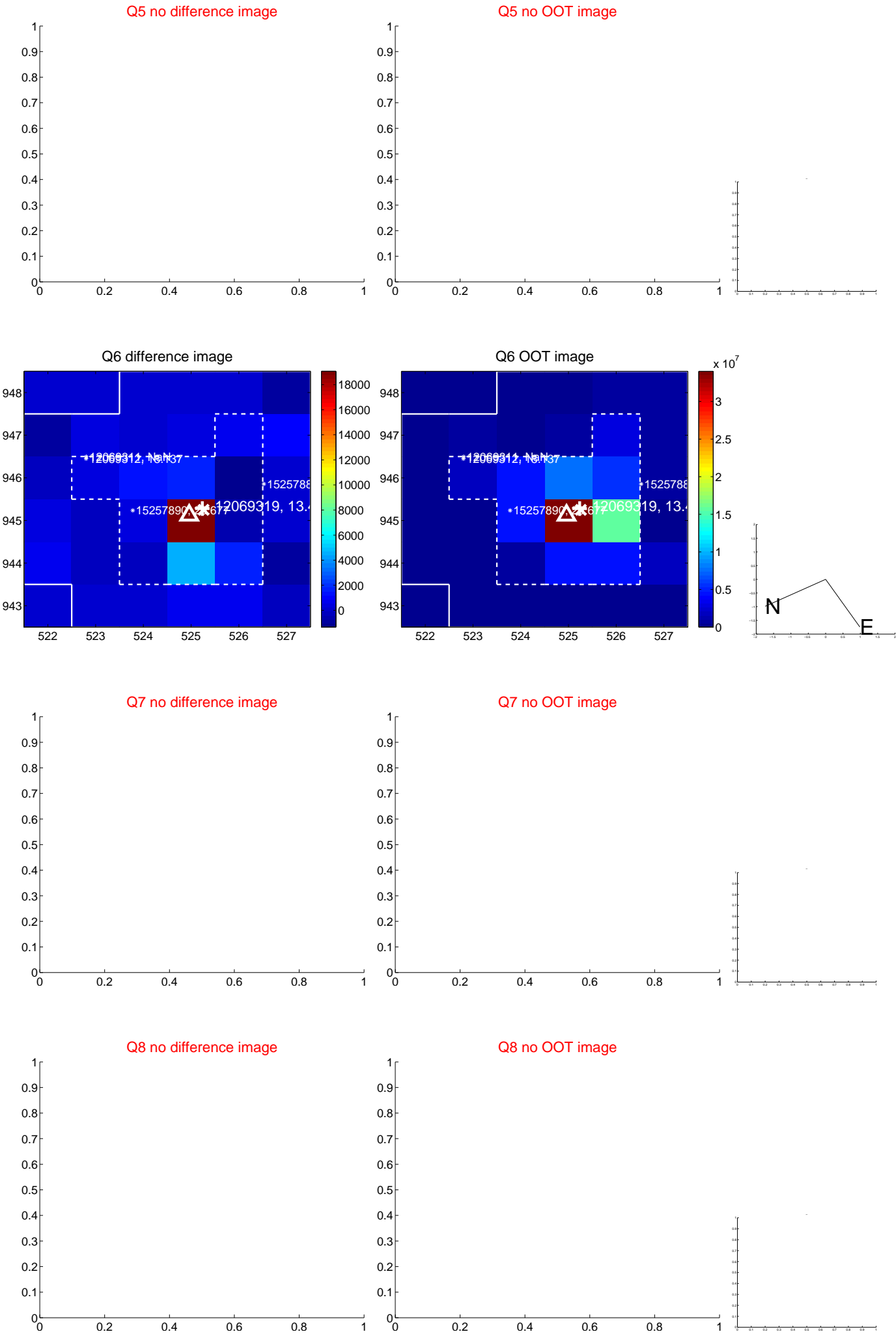


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

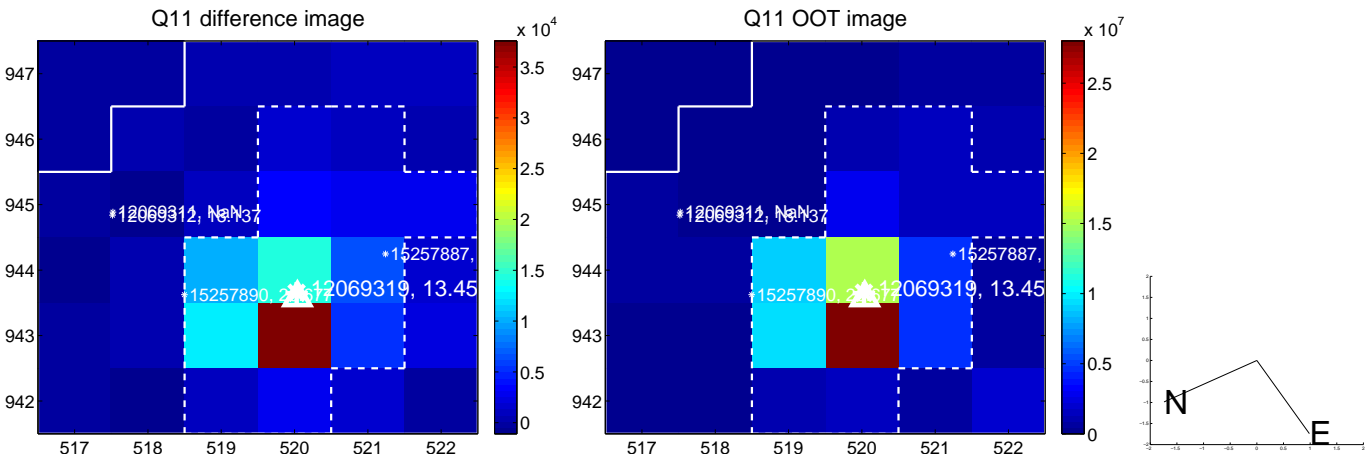


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





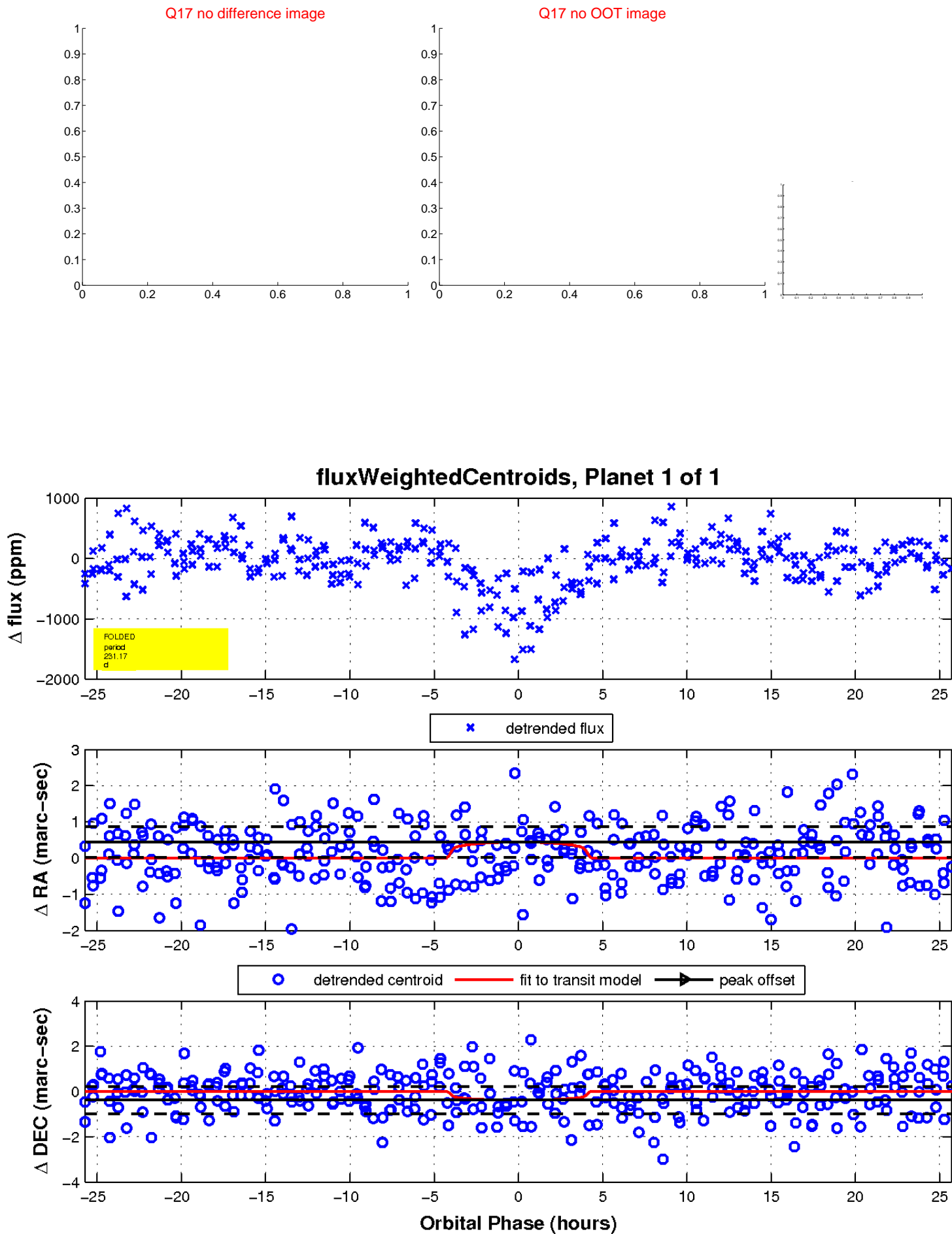
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

