

# KIC 010321061

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010321061-01	OBS	No	333.589835	239.416323	11989.8	4.509	76.8	19.9	1.09	6003	21.21	1.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321061-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

**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.

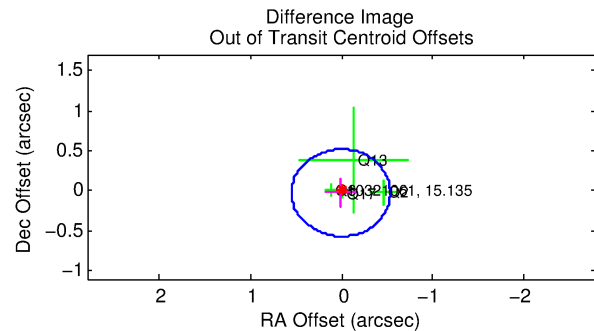
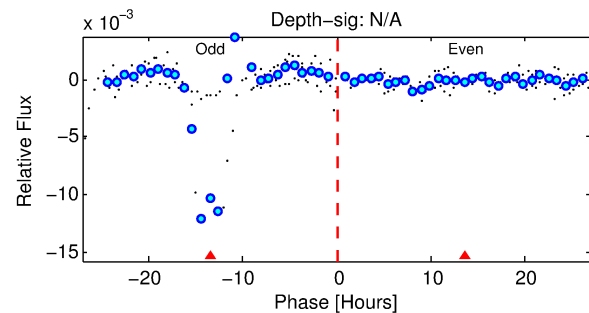
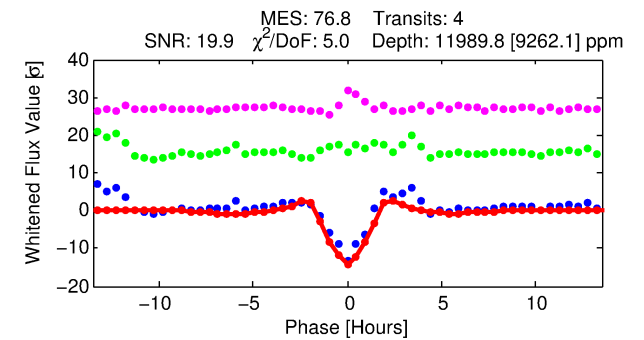
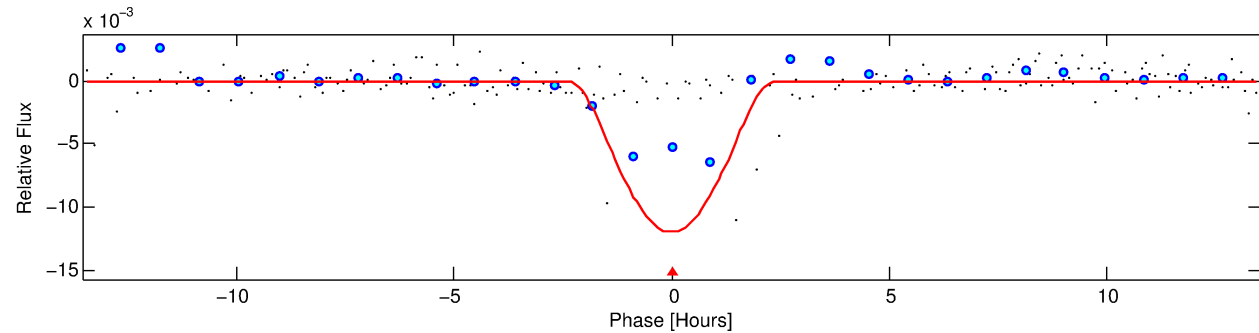
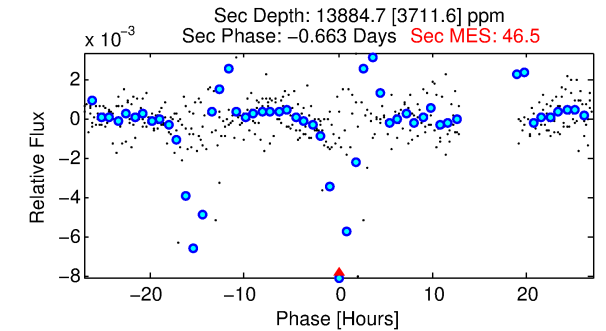
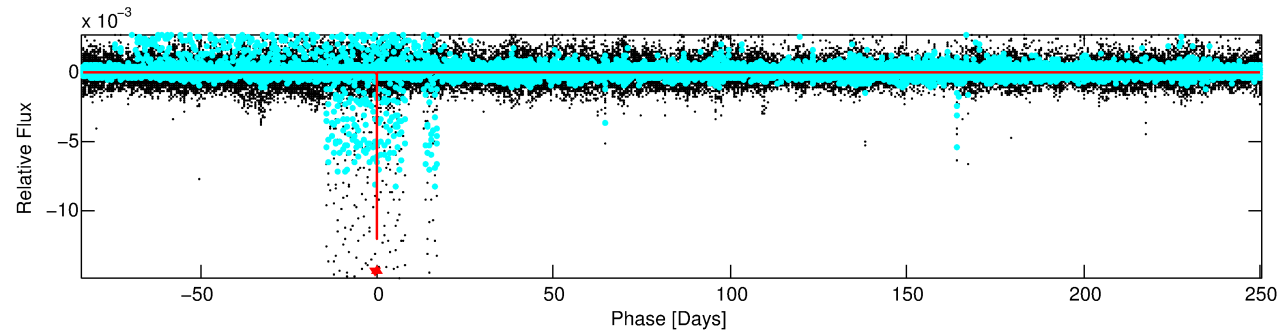
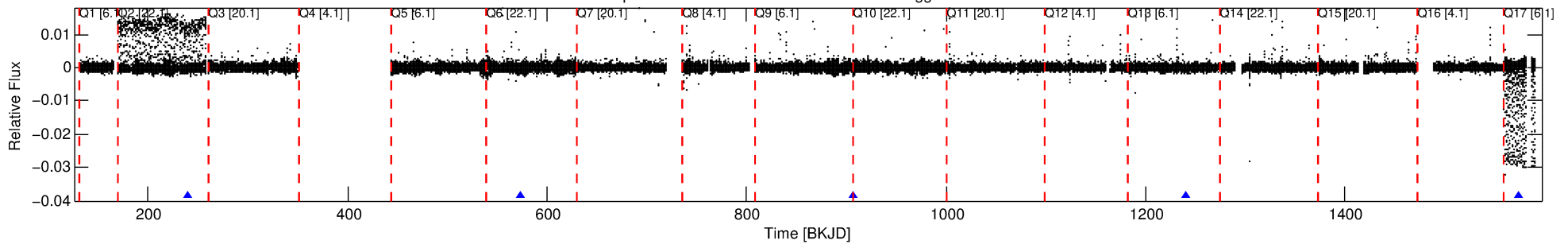
## Ephemeris Match Information For 010321061-01

No Significant Match Found

# DV One-Page Summary

KIC: 10321061 Candidate: 1 of 1 Period: 333.590 d

Kp: 15.14 R\*: 1.09 Rs Teff: 6003.0 K Logg: 4.33 Fe/H: -0.320



## DV Fit Results:

Period = 333.58984 [0.00140] d  
Epoch = 239.4163 [0.0037] BKJD  
Rp/R\* = 0.1783 [0.3464]  
a/R\* = 352.26 [93.88]  
b = 1.00 [0.39]  
Seff = 1.64 [0.61]  
Teq = 289 [27] K  
Rp = 21.21 [41.64] Re  
a = 0.9172 [0.2202] AU  
Ag = 14279.49 [55828.02] [0.26σ]  
Teffp = 4879 [4752] K [0.97σ]

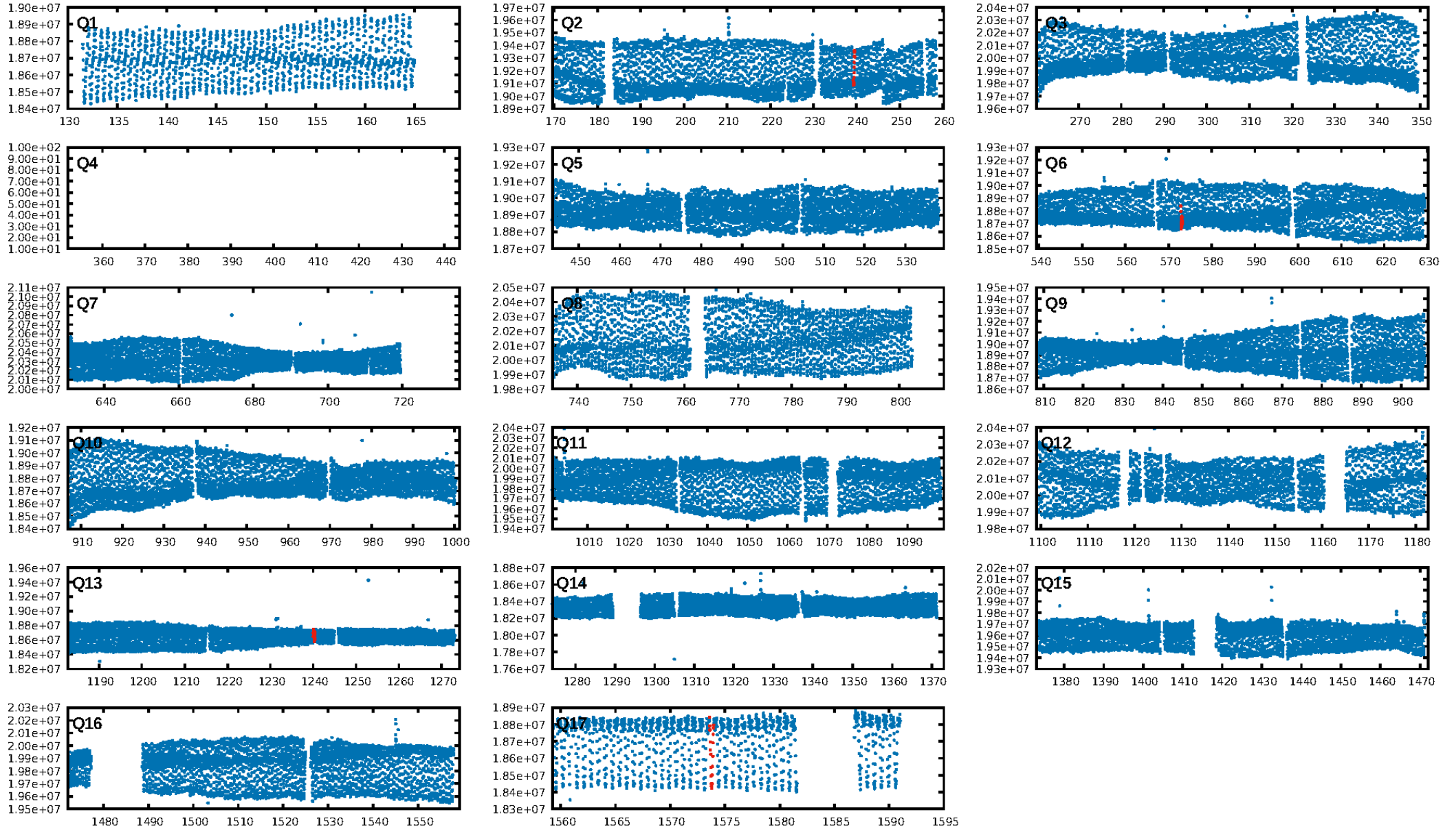
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 5.65e-12  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.004654  
Centroid-sig: 60.9%  
Centroid-so: 0.157 arcsec [1.02σ]  
OotOffset-rm: 0.027 arcsec [0.15σ]  
KicOffset-rm: 0.341 arcsec [1.92σ]  
OotOffset-st: 2/0/0/2 [4]  
KicOffset-st: 2/0/0/2 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

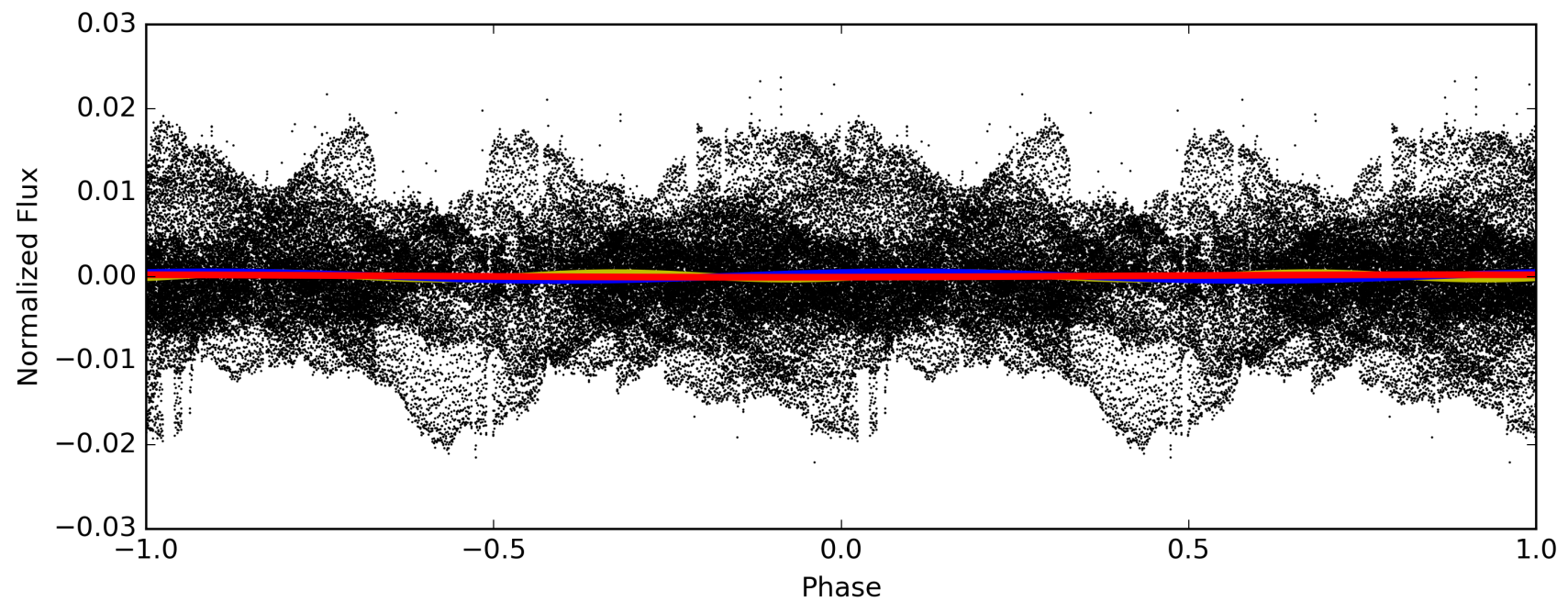
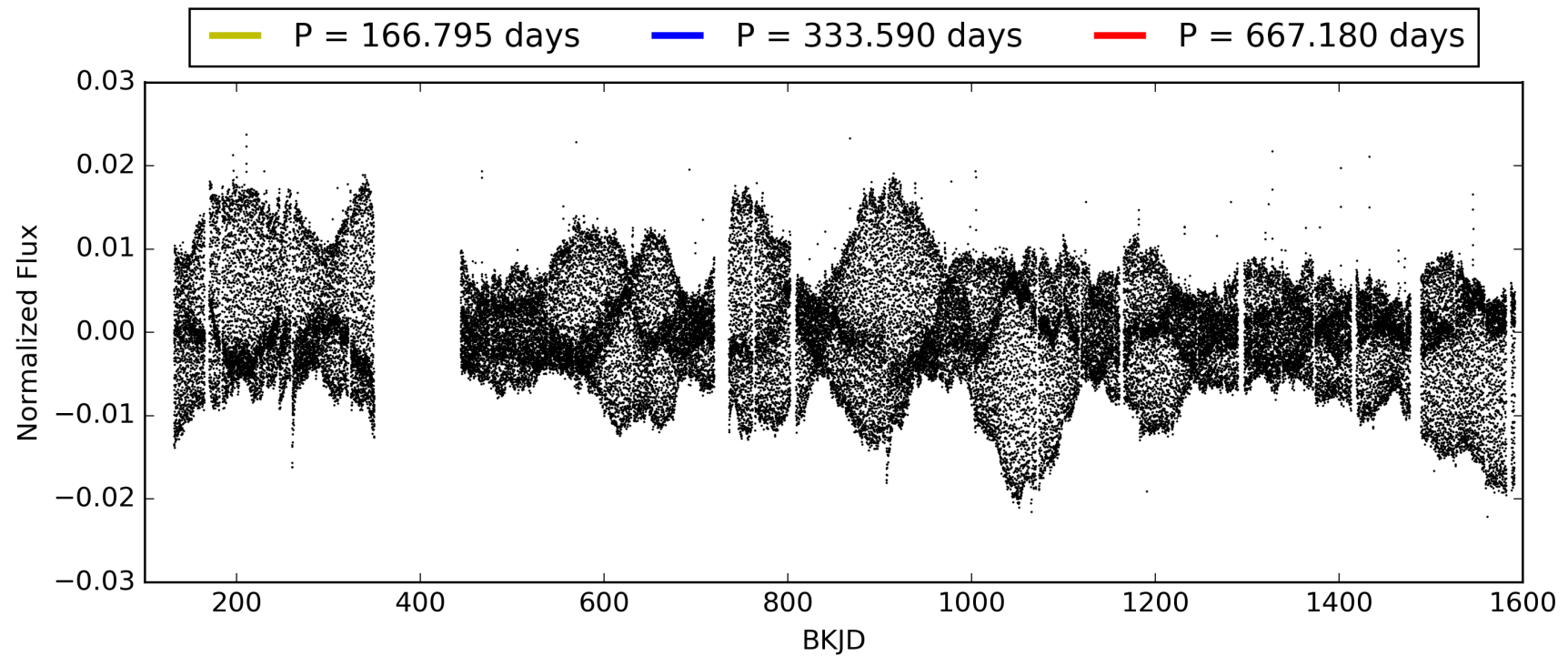
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:03:22 Z

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

# TCE 010321061-01, PDC Light Curves

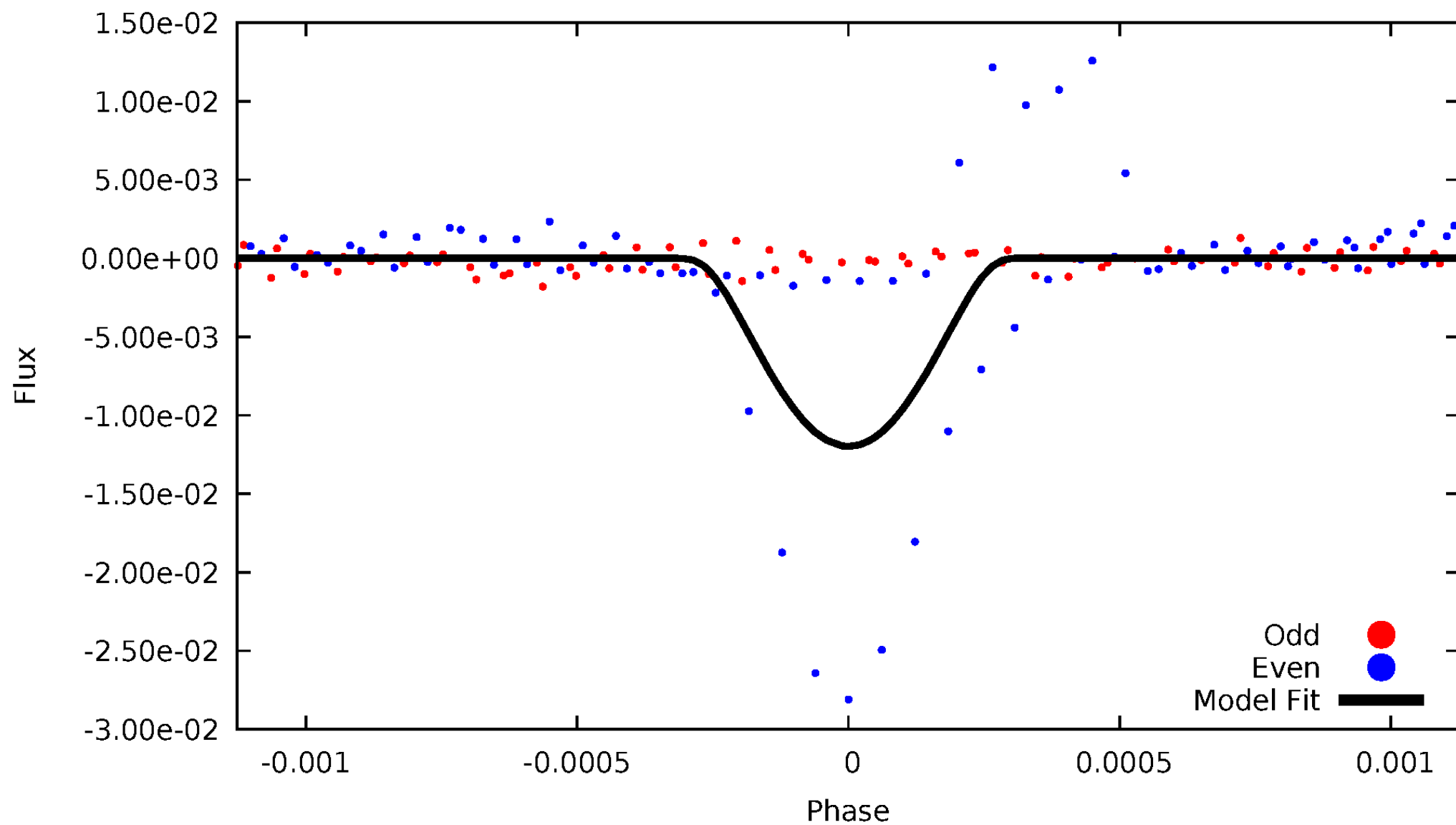


TCE 010321061-01



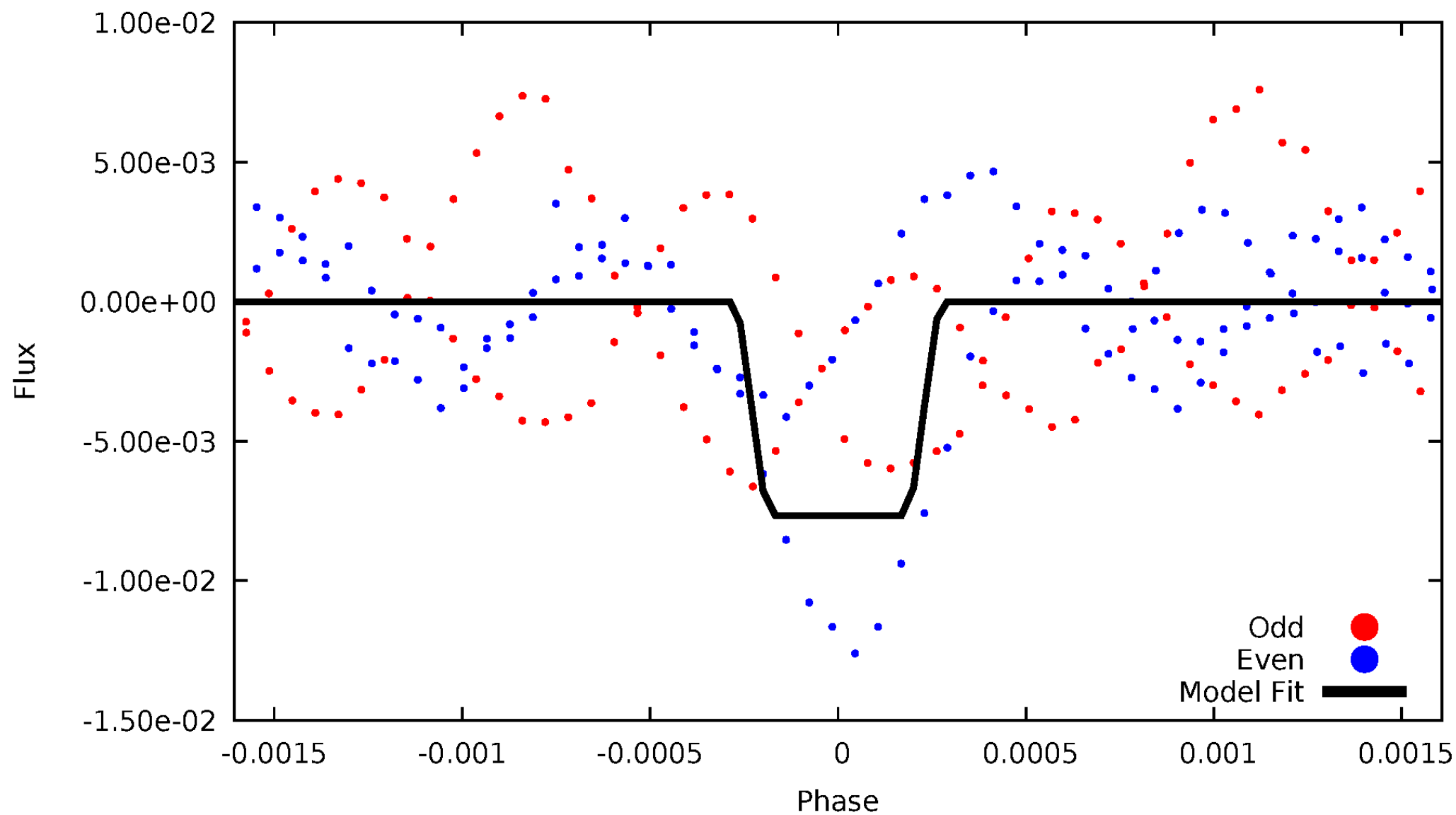
# DV Odd/Even

TCE 010321061-01



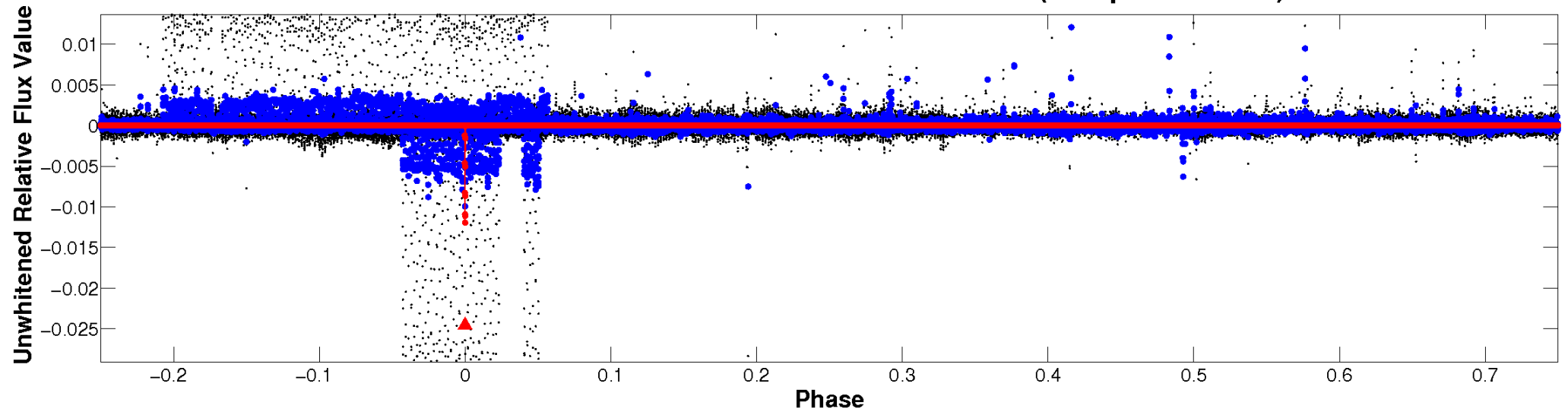
# ALT Odd/Even

TCE 010321061-01

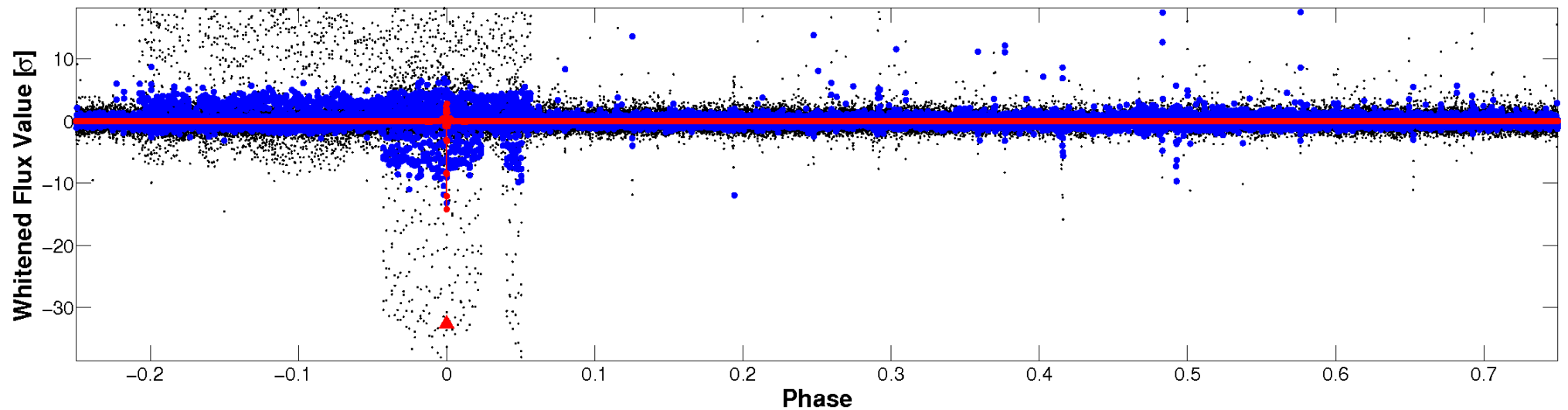


# Non-Whitened Vs. Whitened Light Curve

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

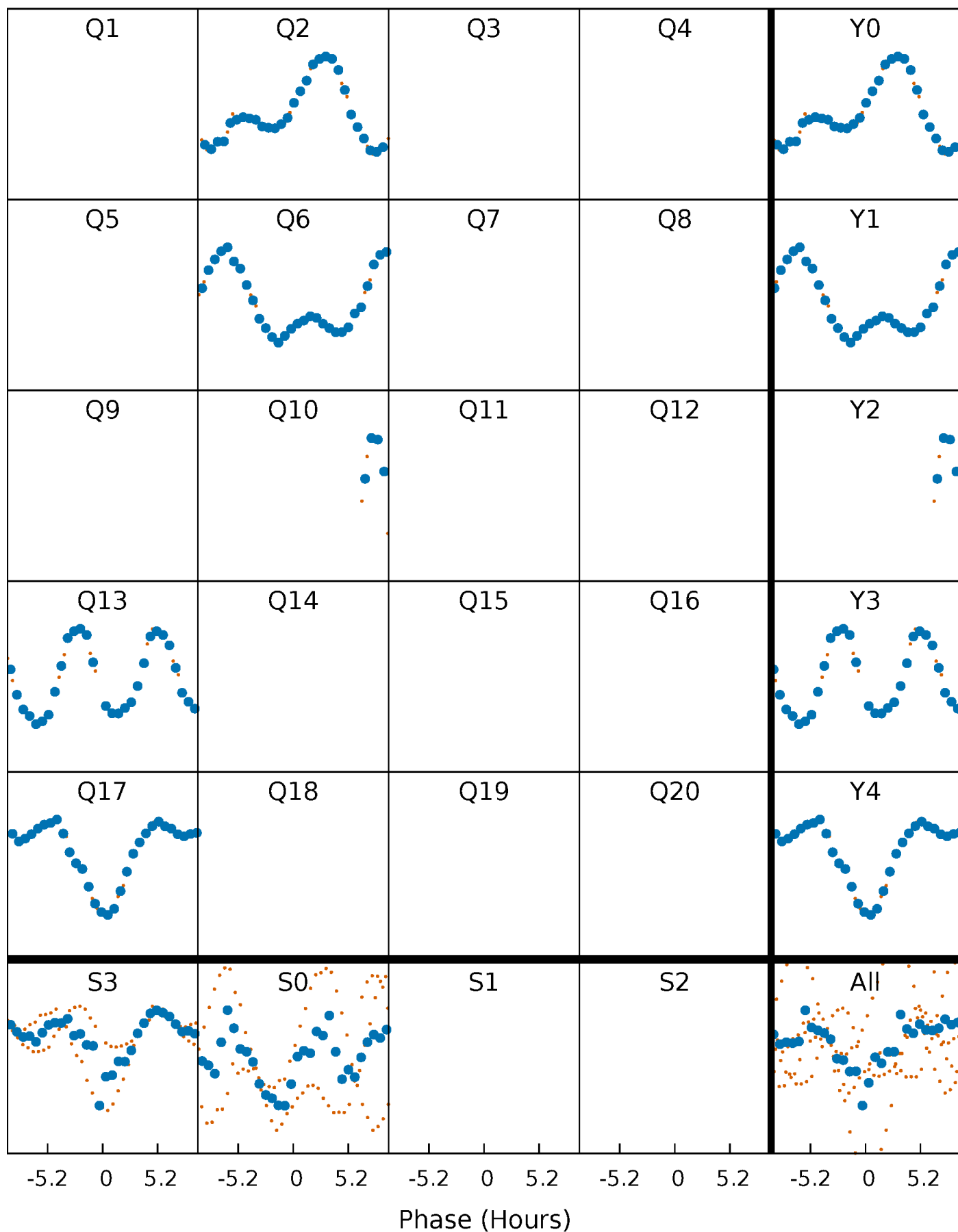


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

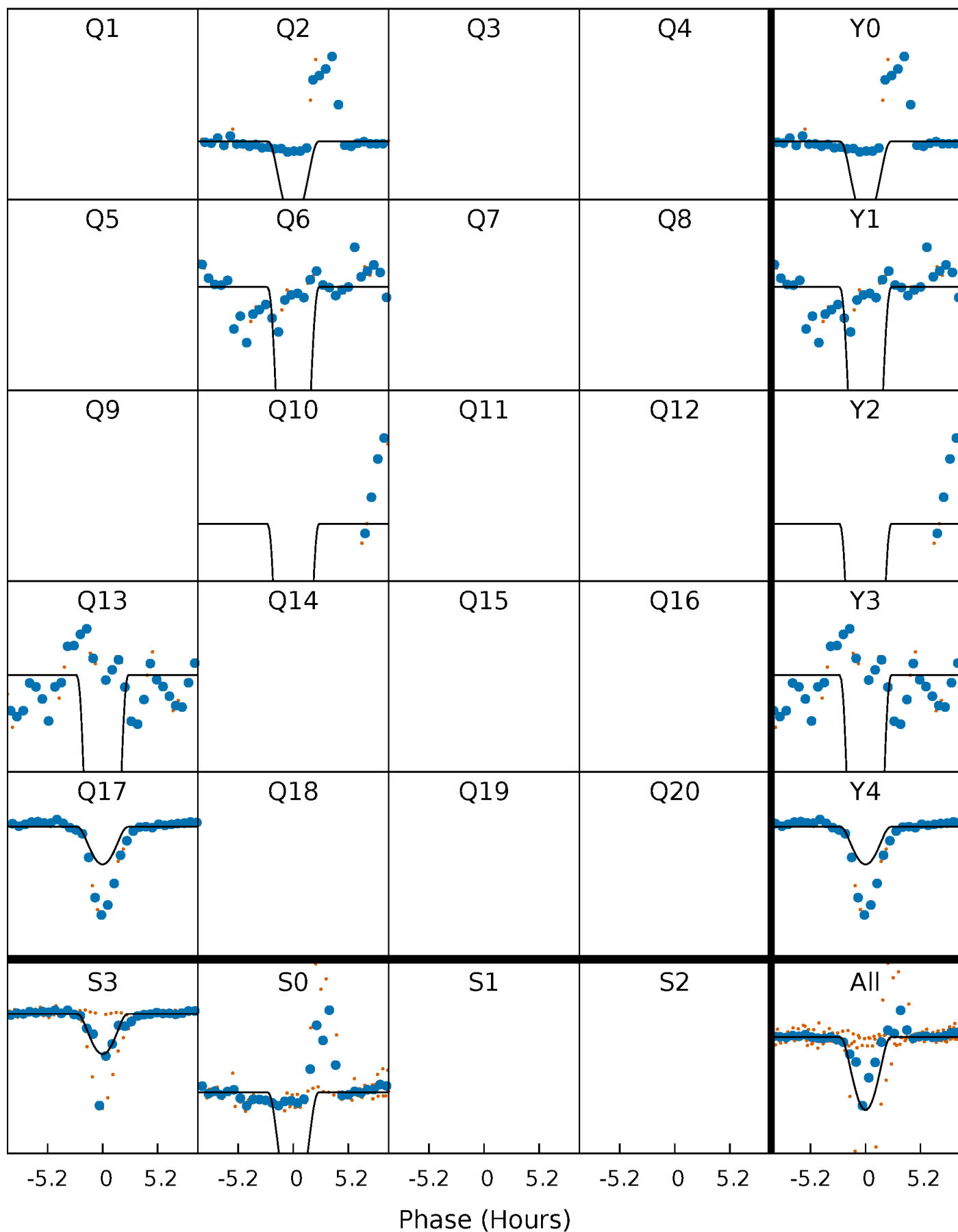
TCE 010321061-01 P=333.589835 Days  $T_0=239.416323$  (BKJD)





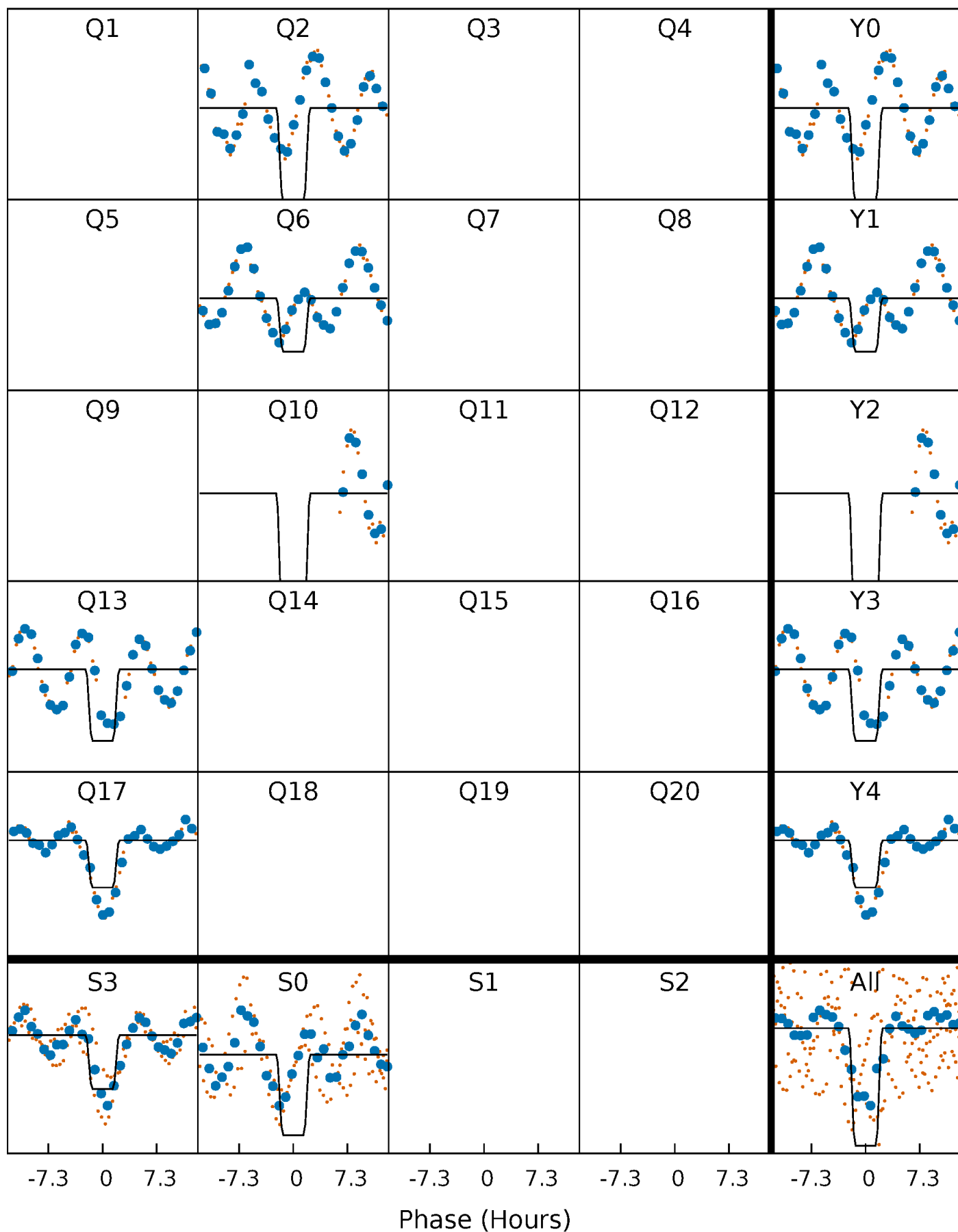
# DV Quarter-Phased Transit Curves

TCE 010321061-01 P=333.589835 Days  $T_0=239.416323$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

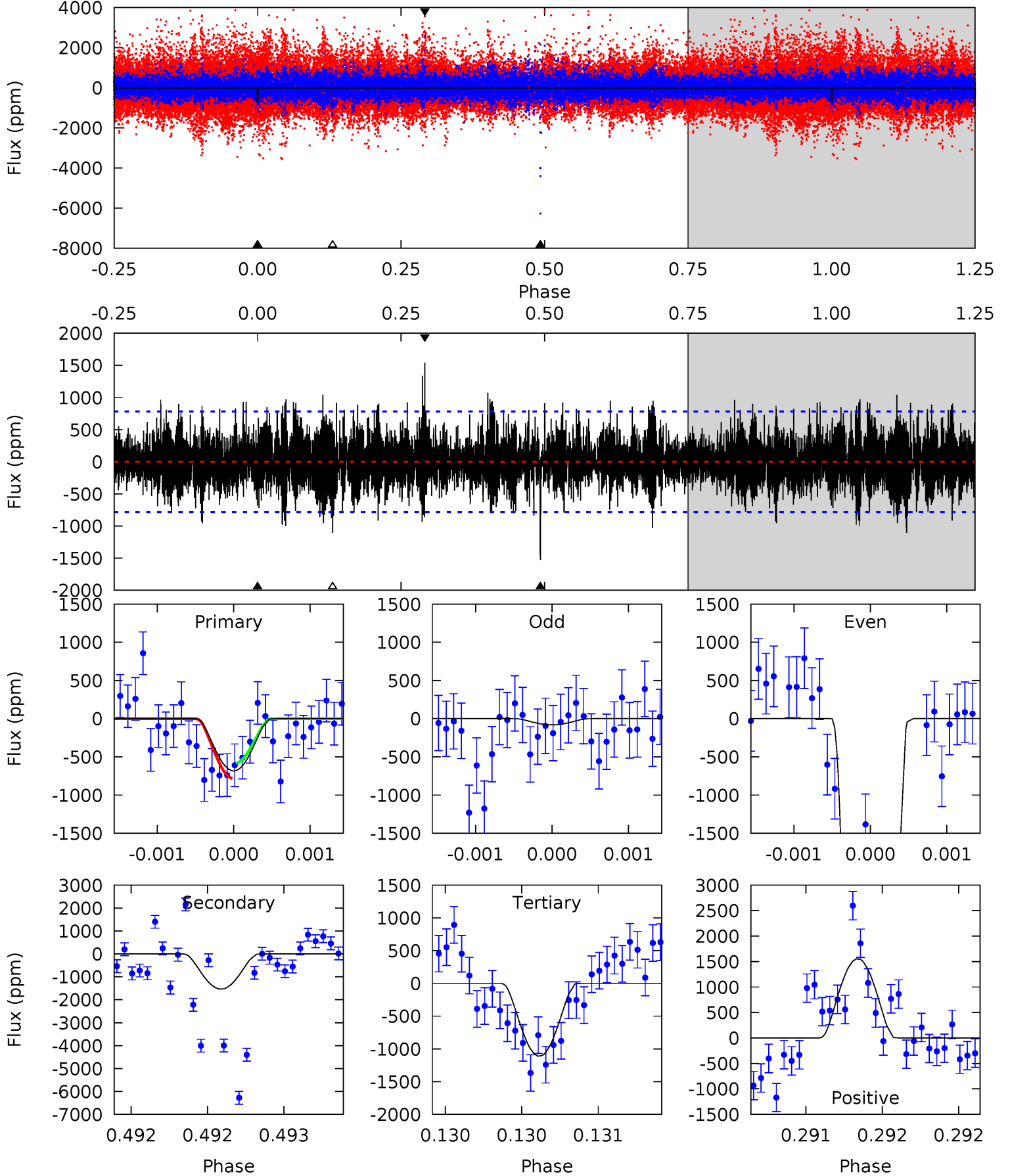
TCE 010321061-01 P=333.588179 Days  $T_0=239.428354$  (BKJD)



# DV Model-Shift Uniqueness Test

010321061-01, P = 333.589835 Days, E = 239.416323 Days

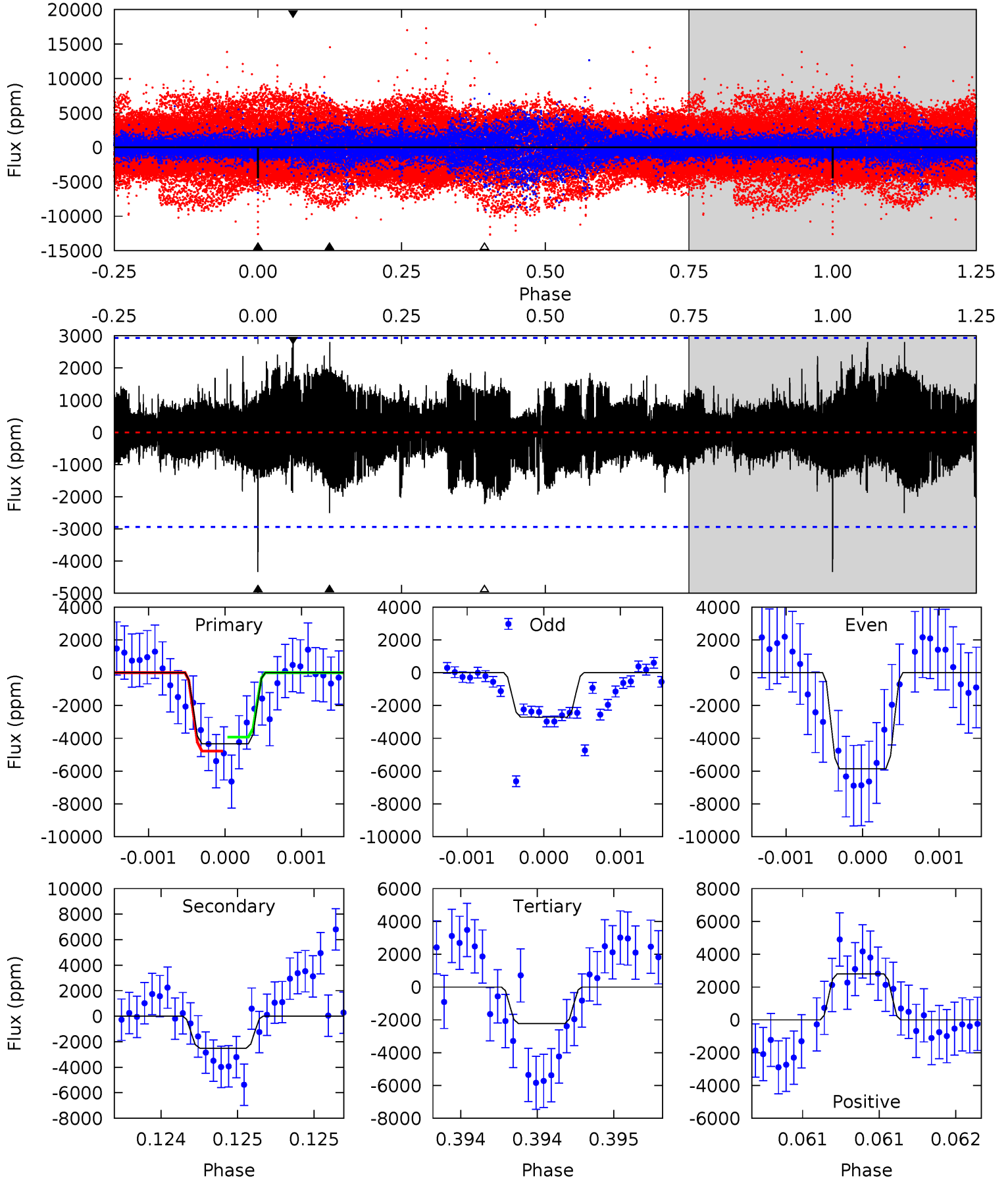
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.80	10.8	7.80	10.9	5.54	3.43	2.07	-3.00	-6.11	2.96	-0.14	35.0	9.27	0.50	0.70



# Alt Model-Shift Uniqueness Test

010321061-01, P = 333.588179 Days, E = 239.428354 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
8.21	4.75	4.22	5.31	5.56	3.45	1.33	4.00	2.90	0.53	-0.57	2.96	1.56	0.39	0.80



### Stellar Parameters For KIC 010321061

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6003^{+163}_{-181}$	$4.329^{+0.158}_{-0.193}$	$-0.320^{+0.300}_{-0.300}$	$1.090^{+0.309}_{-0.206}$	$0.924^{+0.132}_{-0.096}$	$1.005^{+0.766}_{-0.506}$
	+3%/-3%	+4%/-4%	+94%/-94%	+28%/-19%	+14%/-10%	+76%/-50%
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 010321061-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1523 \pm 142$	$39.13^{+35.73}_{-27.41}$	$405^{+29}_{-24}$	$2837^{+1305}_{-447}$	$469^{+4874}_{-345}$
Alt.	$-2508 \pm 528$	$32.96^{+34.54}_{-22.49}$	$403^{+32}_{-24}$	$3169^{+1531}_{-577}$	$1099^{+9149}_{-854}$

$T_{\text{max}}$  = 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

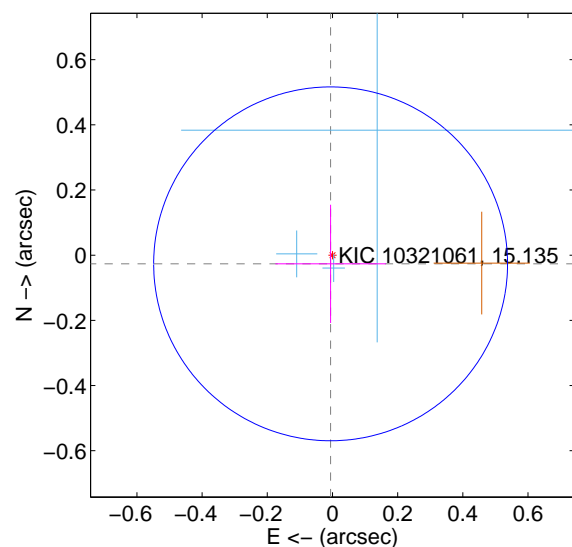
Supplemental centroid analysis for 010321061-01. Kepler magnitude: 15.13. Transit SNR 19.86

There are 3 quarters with good PRF difference image offsets

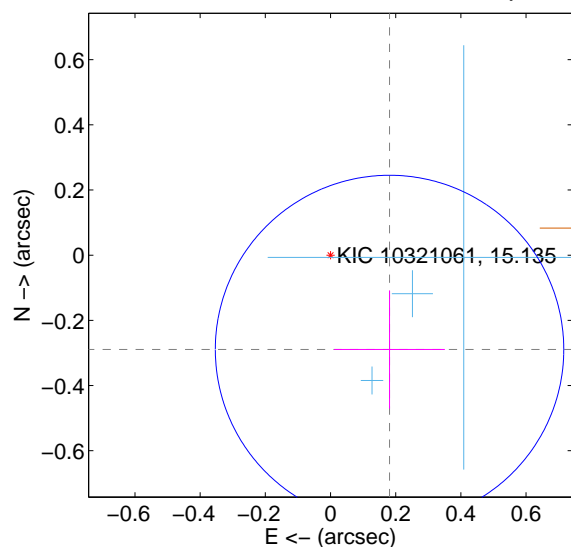
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.027 \pm 0.181$	0.15	$0.006 \pm 0.170$	$-0.027 \pm 0.181$
PRF-fit source offset from KIC position	$0.341 \pm 0.178$	1.92	$-0.181 \pm 0.170$	$-0.289 \pm 0.181$
photometric centroid source offset	$0.16 \pm 0.15$	1.02	$-0.09 \pm 0.14$	$-0.13 \pm 0.16$

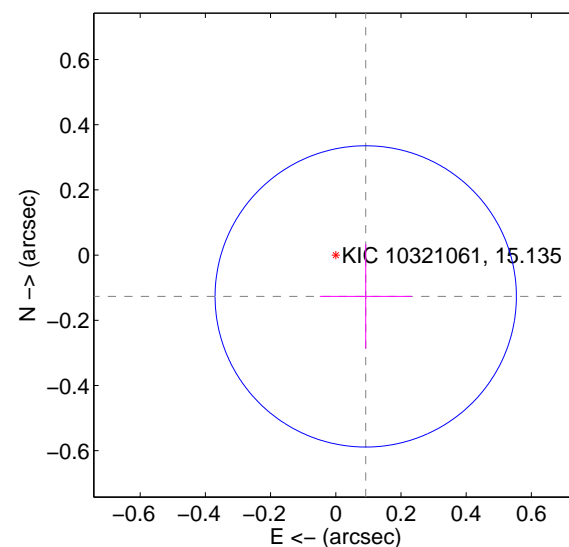
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

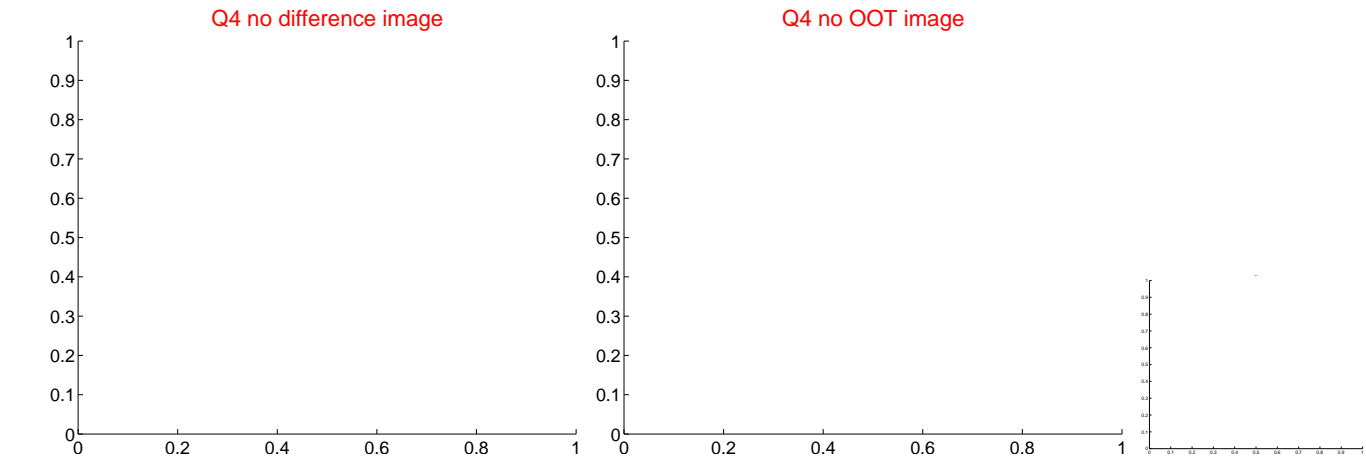
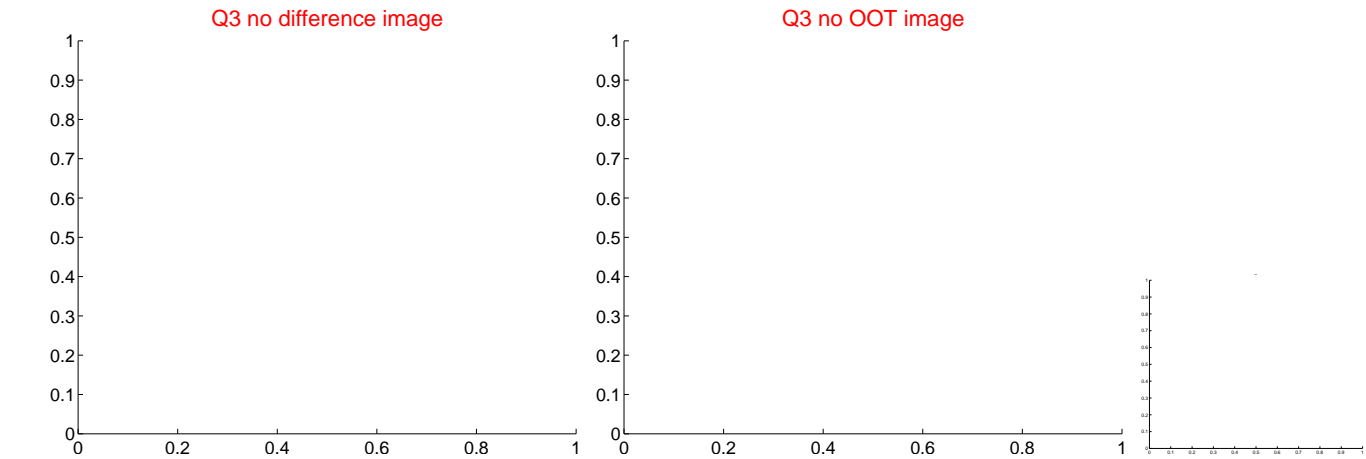
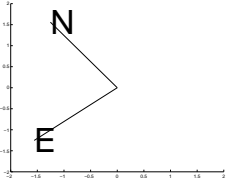
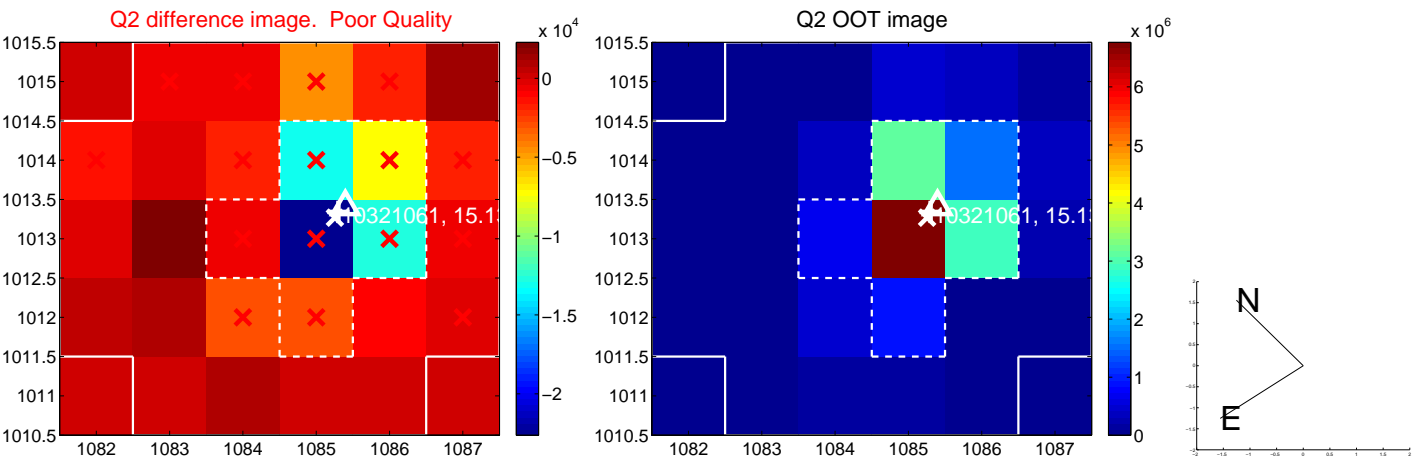
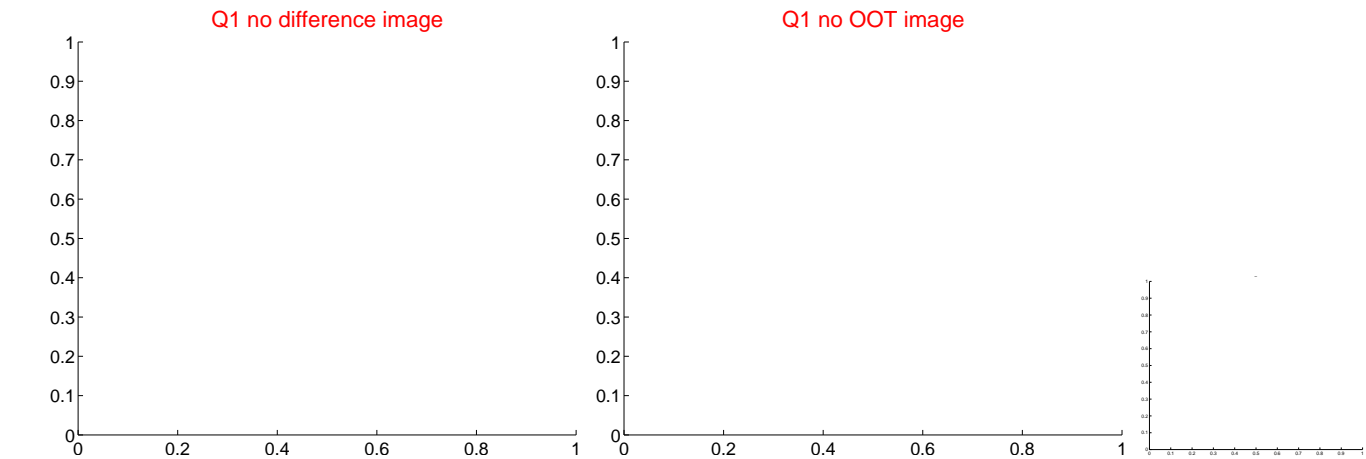


offset from photometric centroids

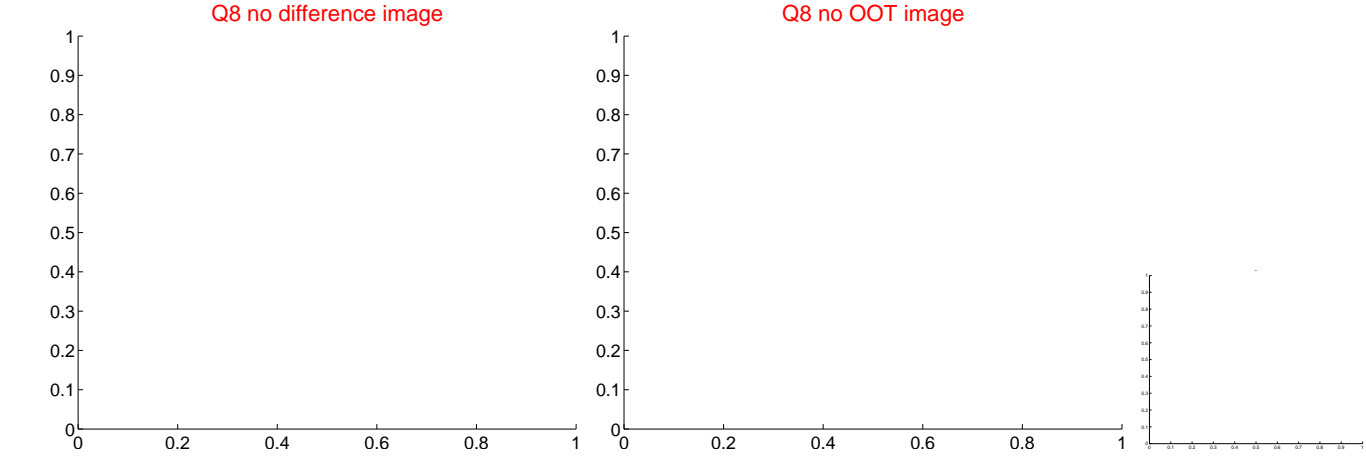
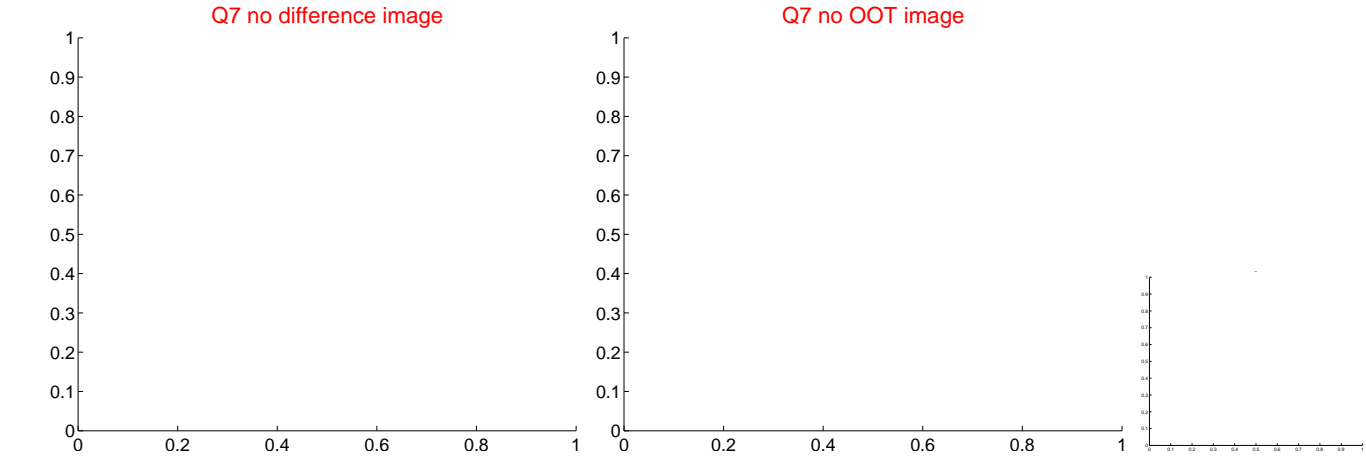
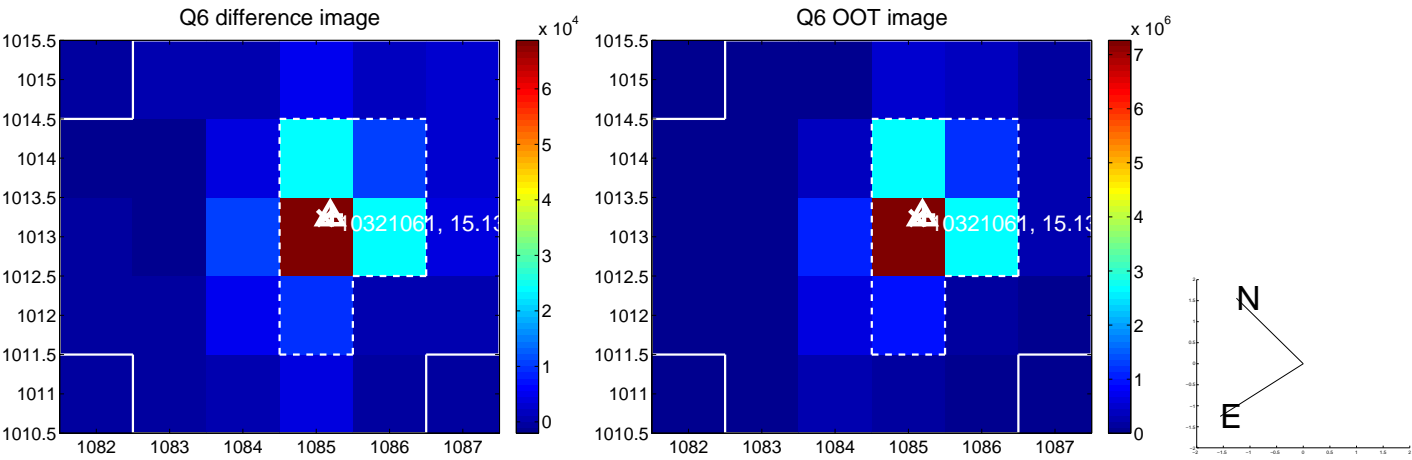
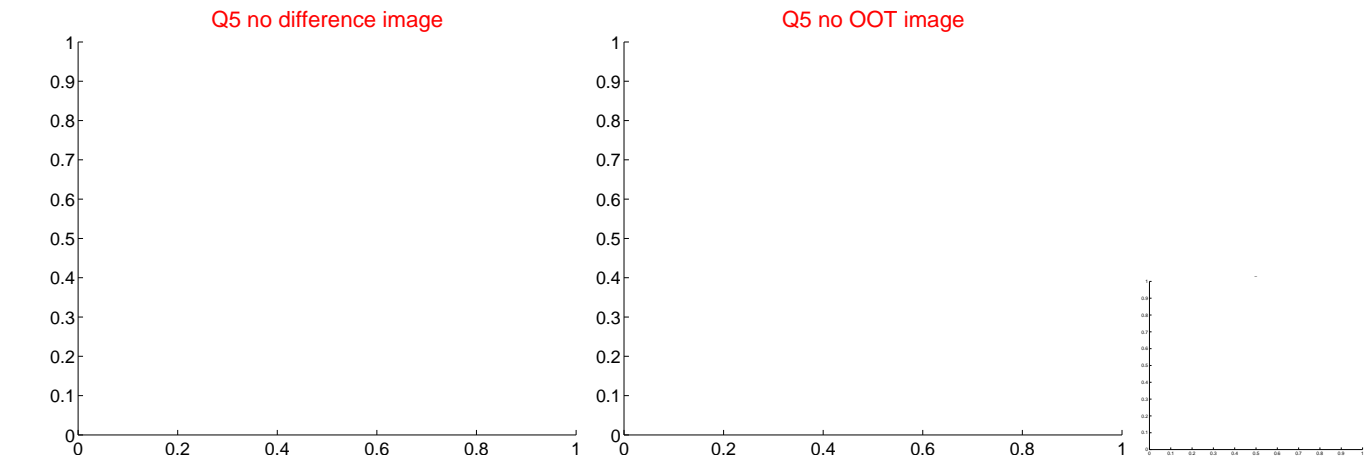


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



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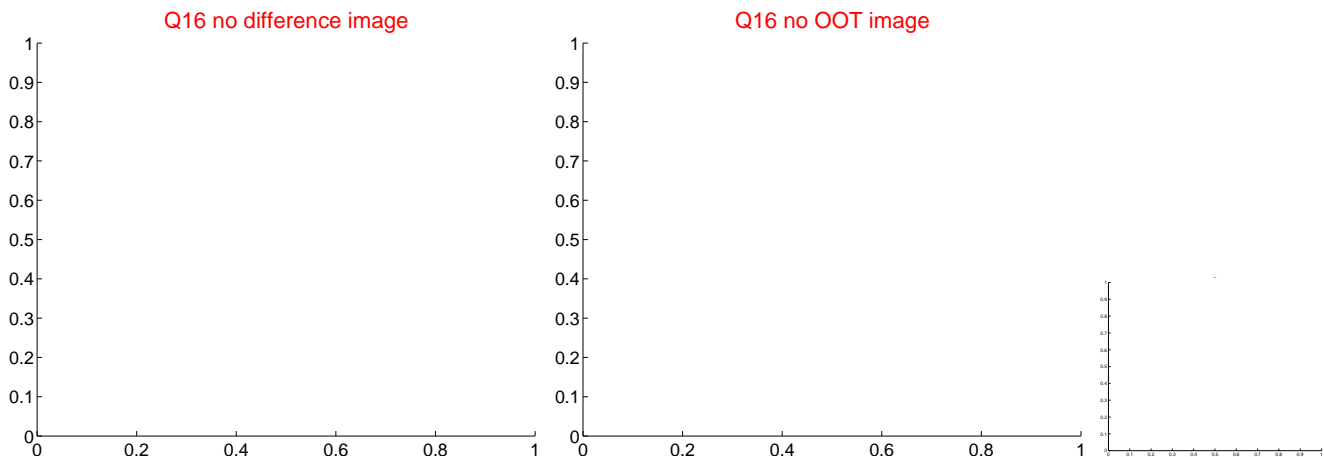
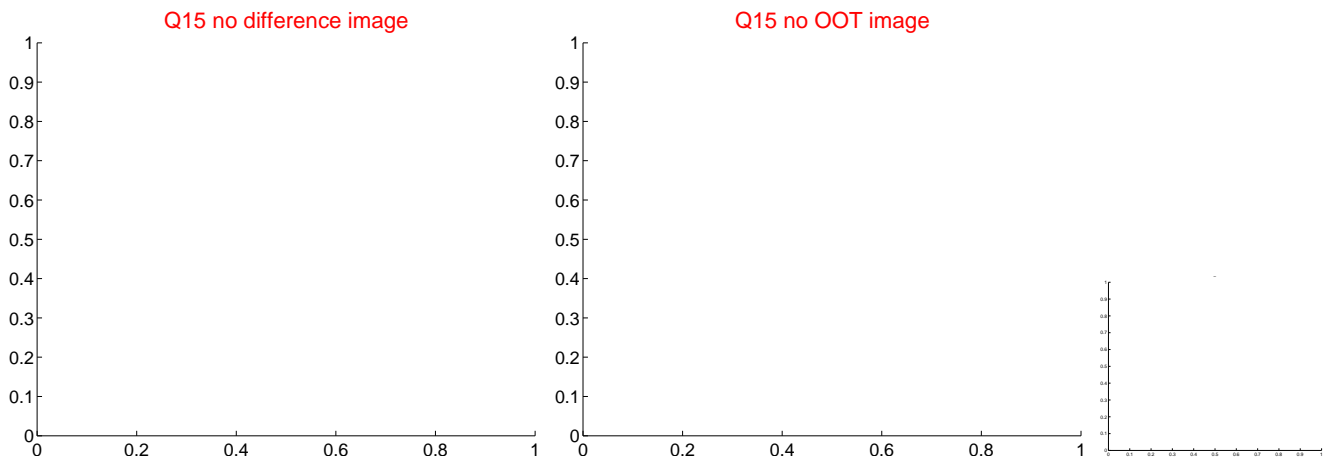
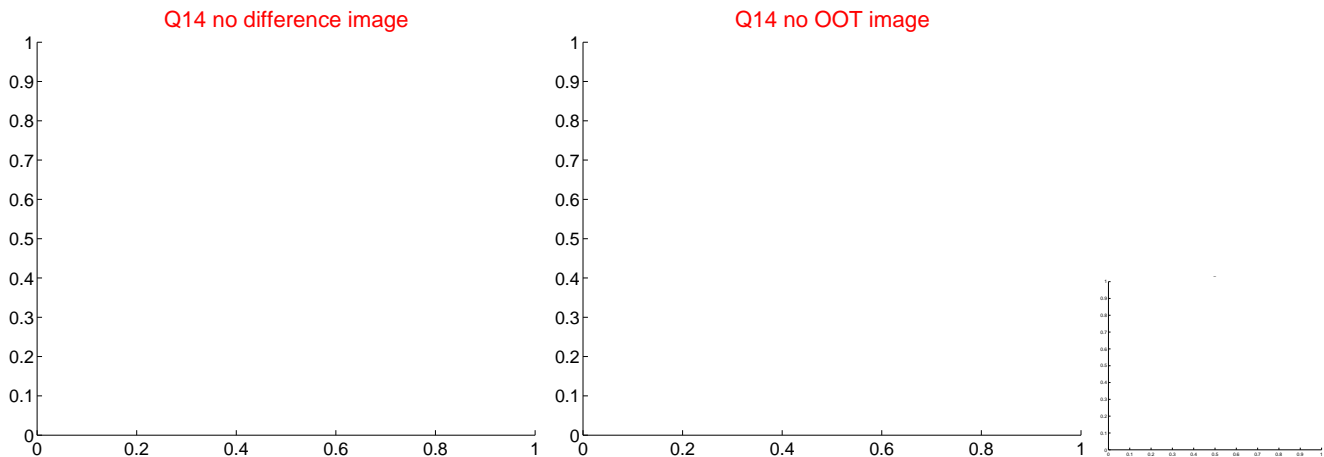
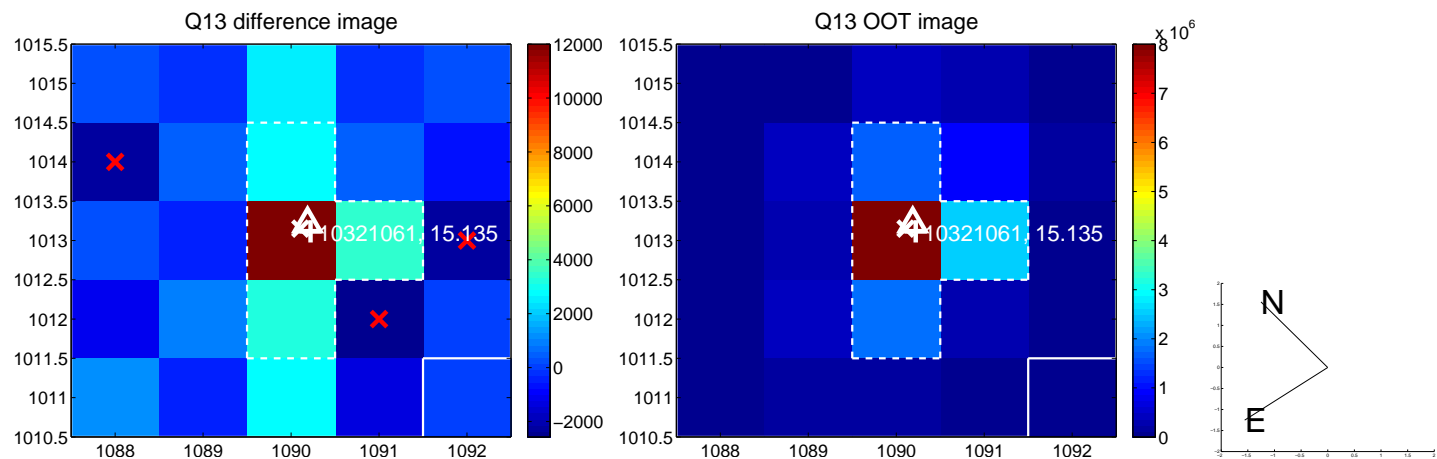




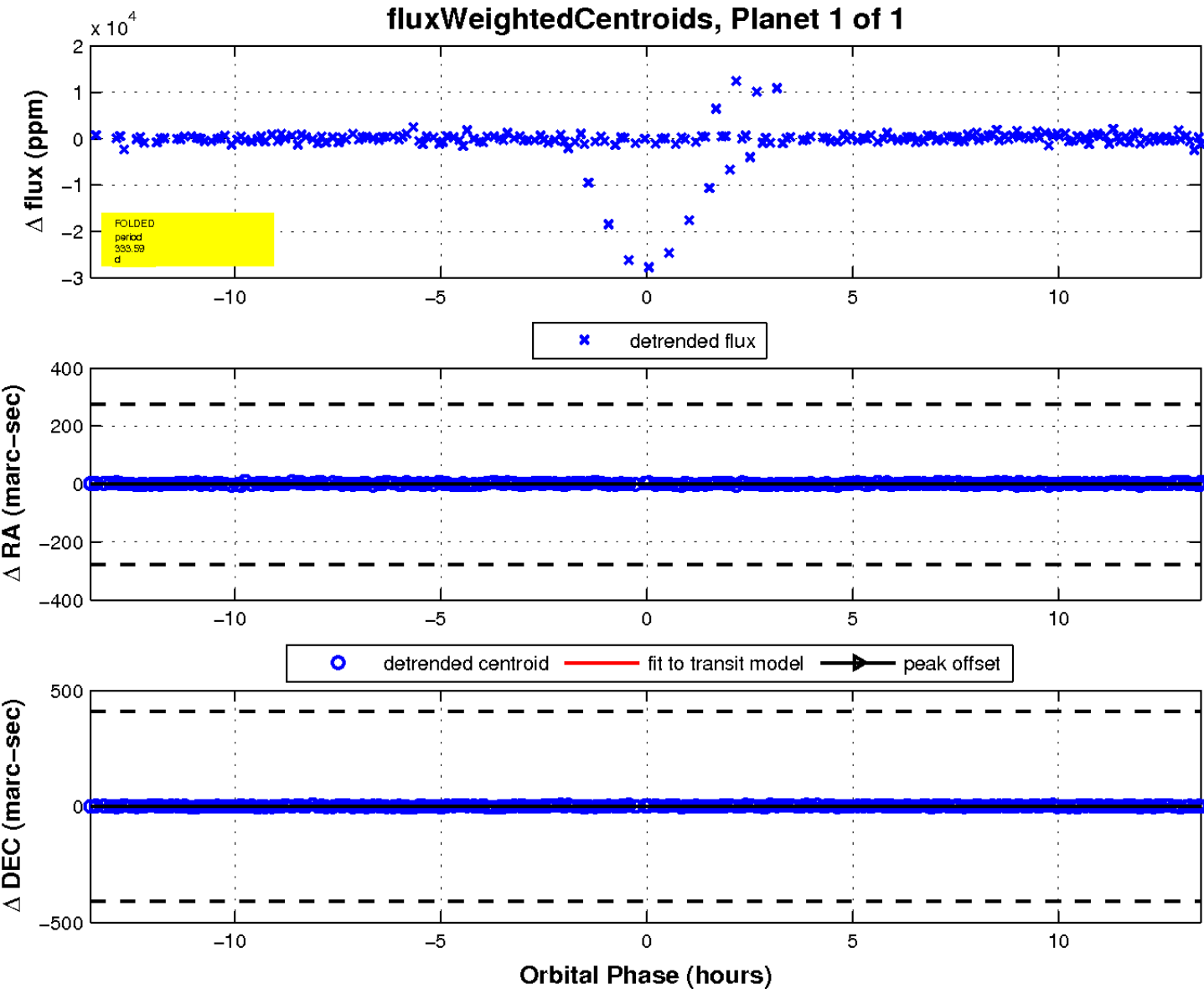
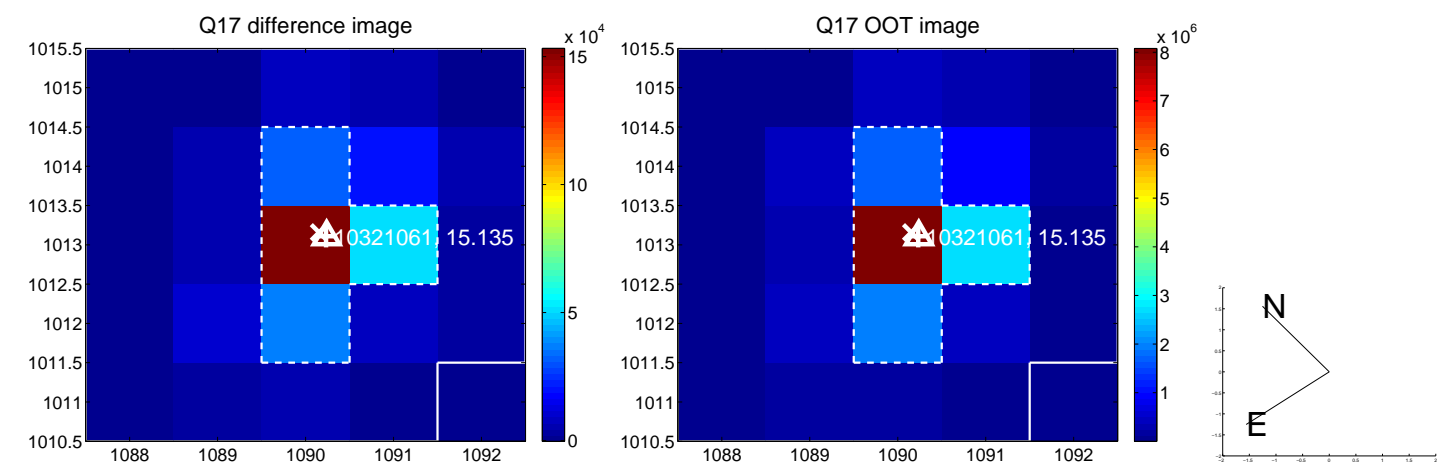
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UKIRT Image

Declination

