

# KIC 006123205

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006123205-01	OBS	No	278.314007	242.583387	1327.9	4.115	10.0	6.4	0.51	4565	1.90	0.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006123205-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_KIC_POS

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

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

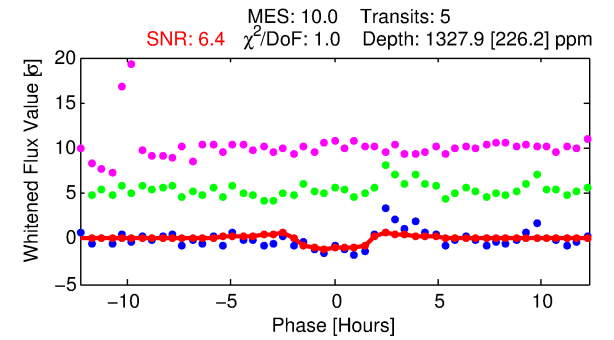
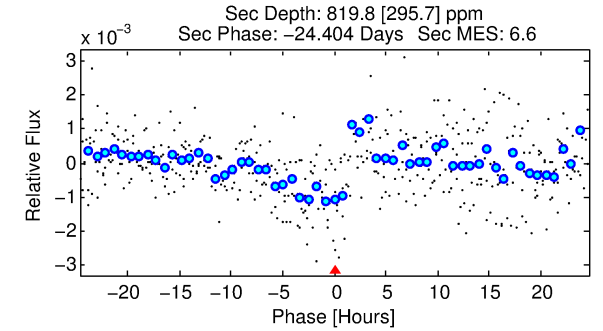
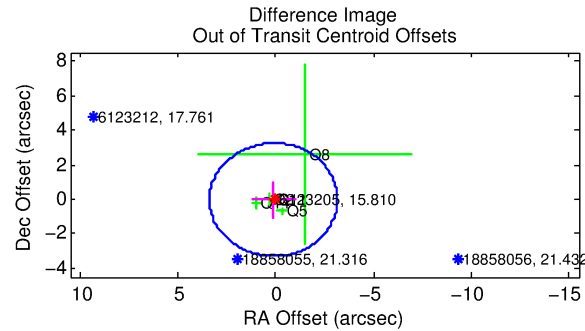
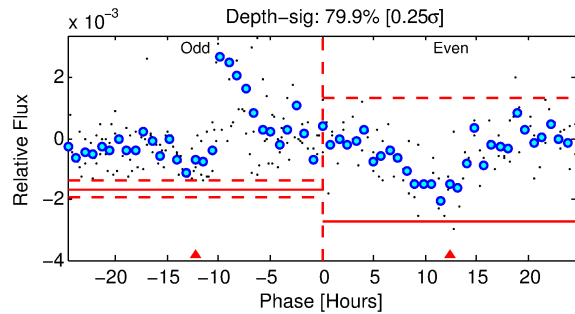
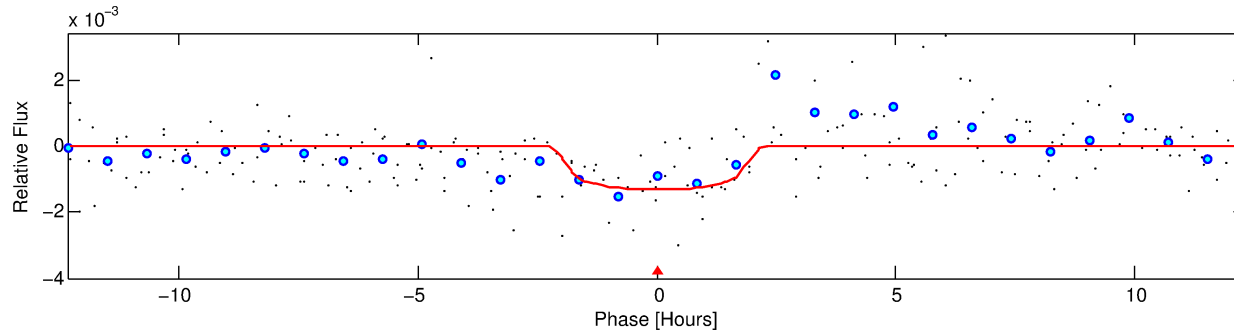
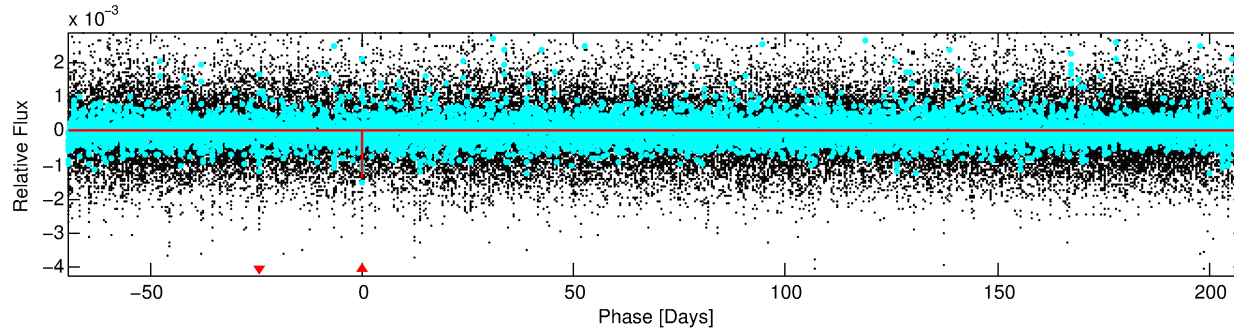
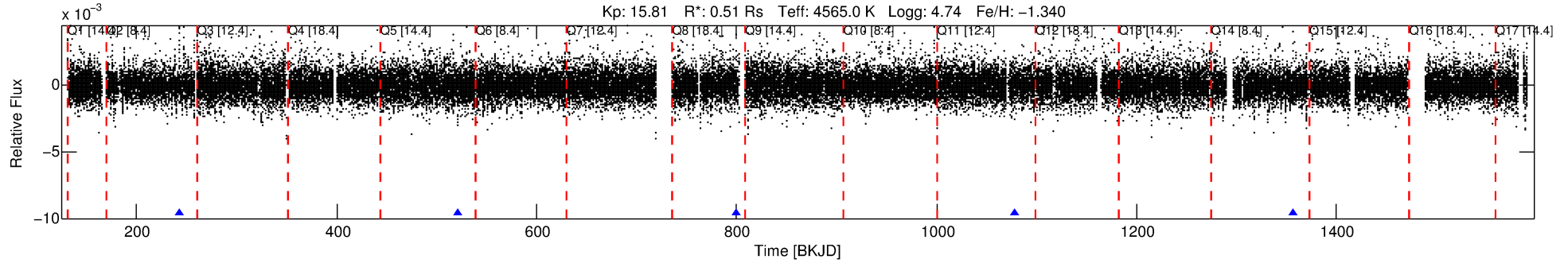
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006123205-01

No Significant Match Found

# DV One-Page Summary

KIC: 6123205 Candidate: 1 of 1 Period: 278.314 d



## DV Fit Results:

Period = 278.31401 [0.00353] d  
Epoch = 242.5834 [0.0085] BKJD  
Rp/R\* = 0.0341 [0.1065]  
a/R\* = 459.44 [5748.35]  
b = 0.53 [17.28]  
Seff = 0.23 [0.04]  
Teq = 176 [8] K  
Rp = 1.90 [5.94] Re  
a = 0.6704 [0.0454] AU  
Ag = 55923.87 [349490.48] [0.16 $\sigma$ ]  
Teffp = 4180 [6532] K [0.61 $\sigma$ ]

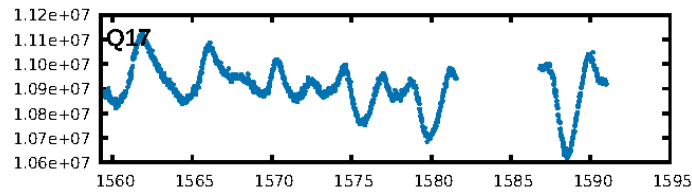
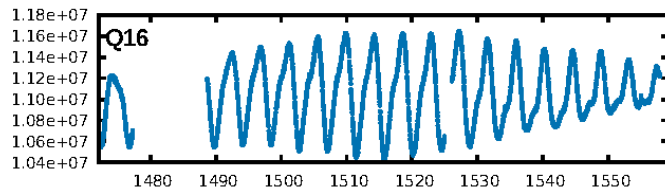
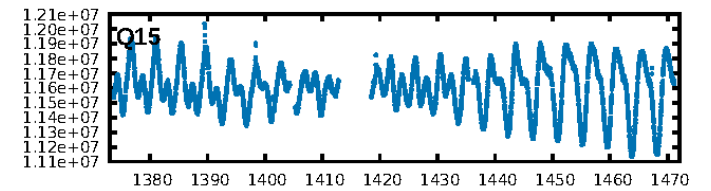
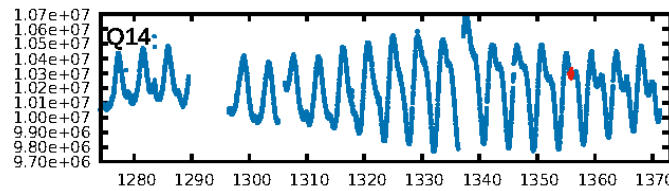
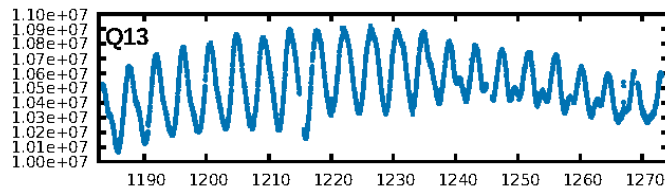
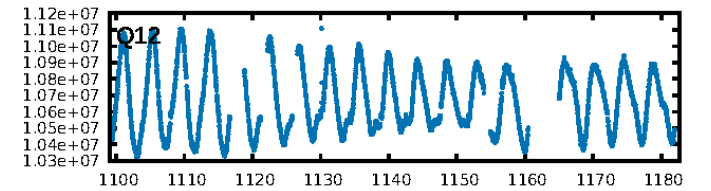
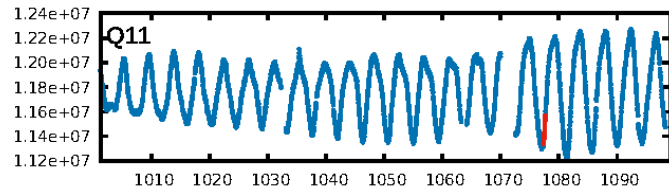
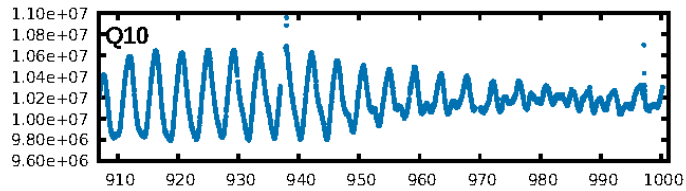
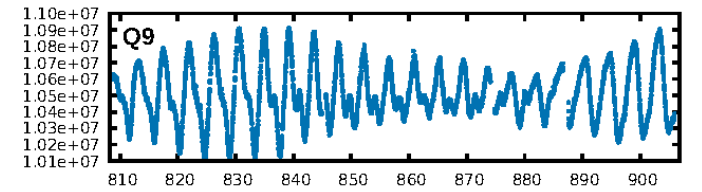
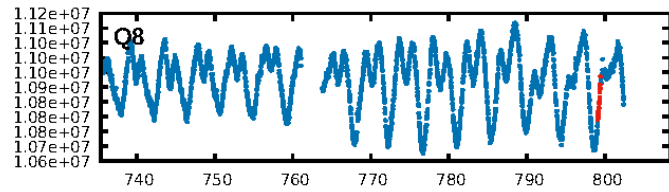
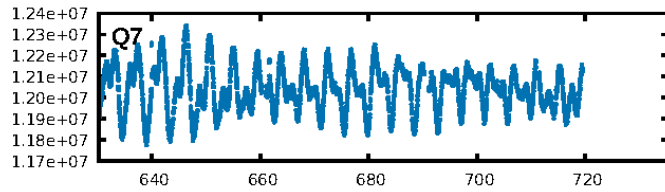
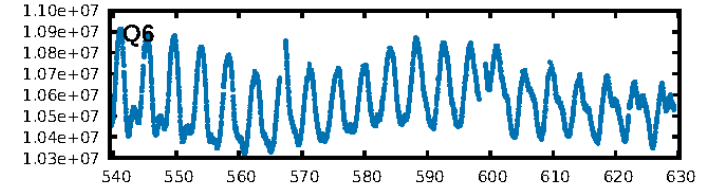
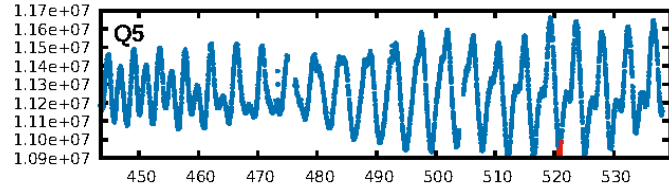
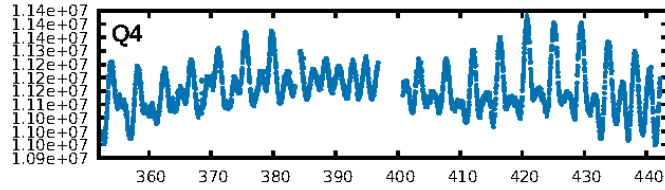
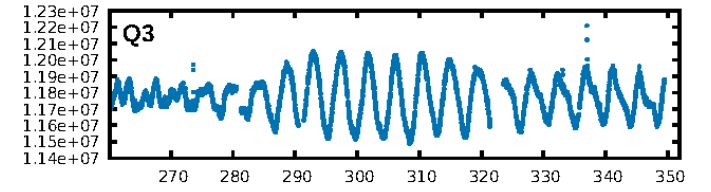
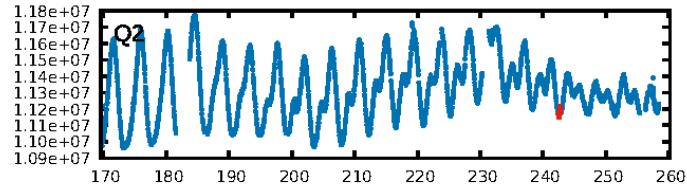
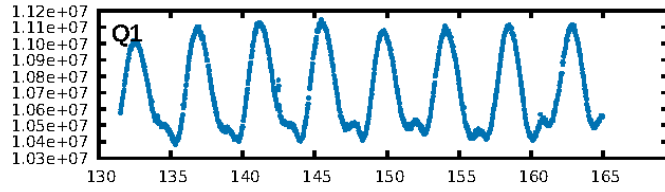
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 29.3%  
ModelChiSquareGof-sig: 99.0%  
**Bootstrap-pfa: 6.92e-11**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 1.132  
Centroid-sig: 35.2%  
Centroid-so: 0.997 arcsec [1.10 $\sigma$ ]  
OotOffset-rm: 0.121 arcsec [0.11 $\sigma$ ]  
OotOffset-st: 2/1/1/1 [5]  
KicOffset-rm: 0.431 arcsec [0.41 $\sigma$ ]  
KicOffset-st: 2/1/1/1 [5]  
DiffImageQuality-fgm: 0.80 [4/5]  
DiffImageOverlap-fno: 1.00 [5/5]

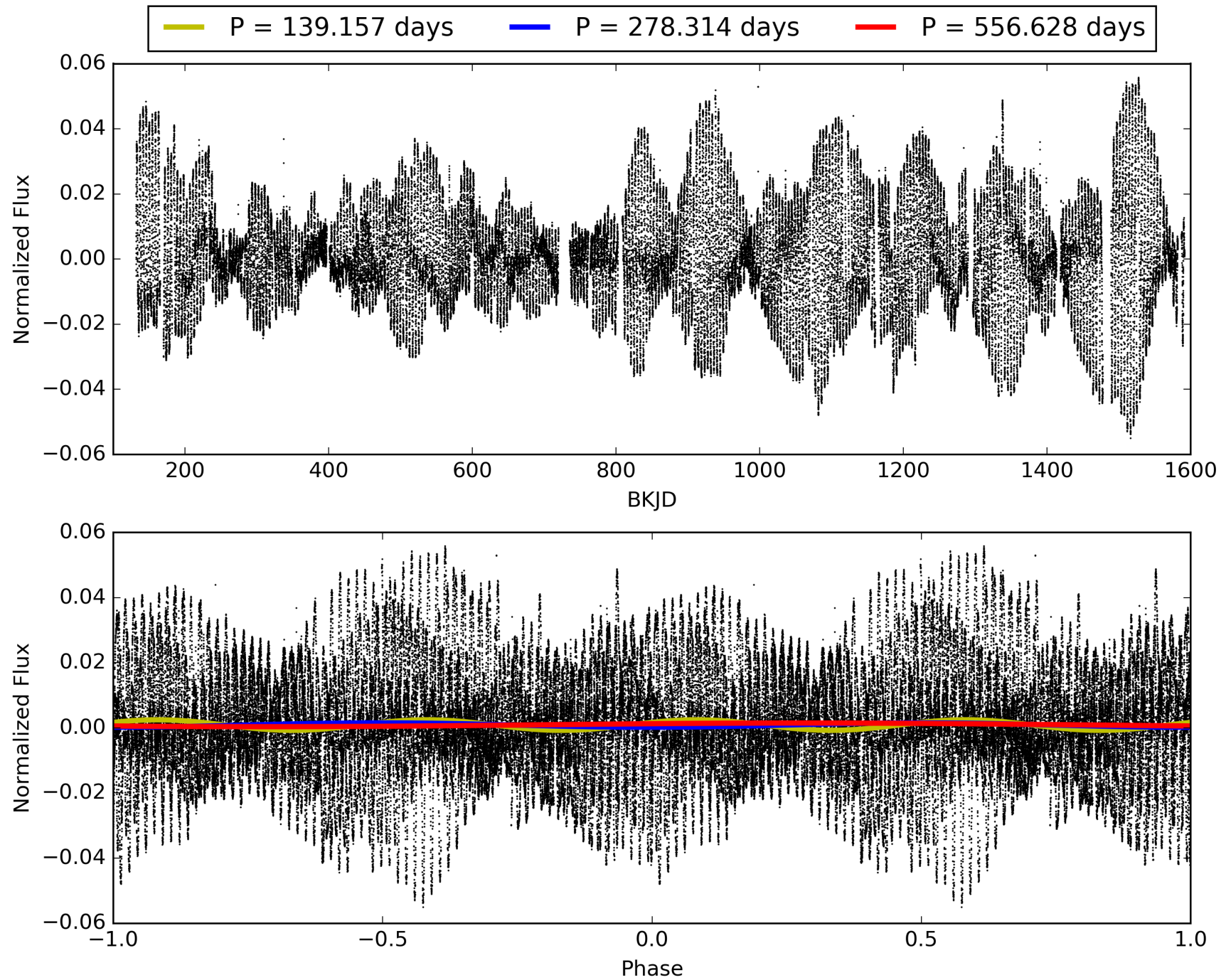
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:53:45 Z

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

# TCE 006123205-01, PDC Light Curves

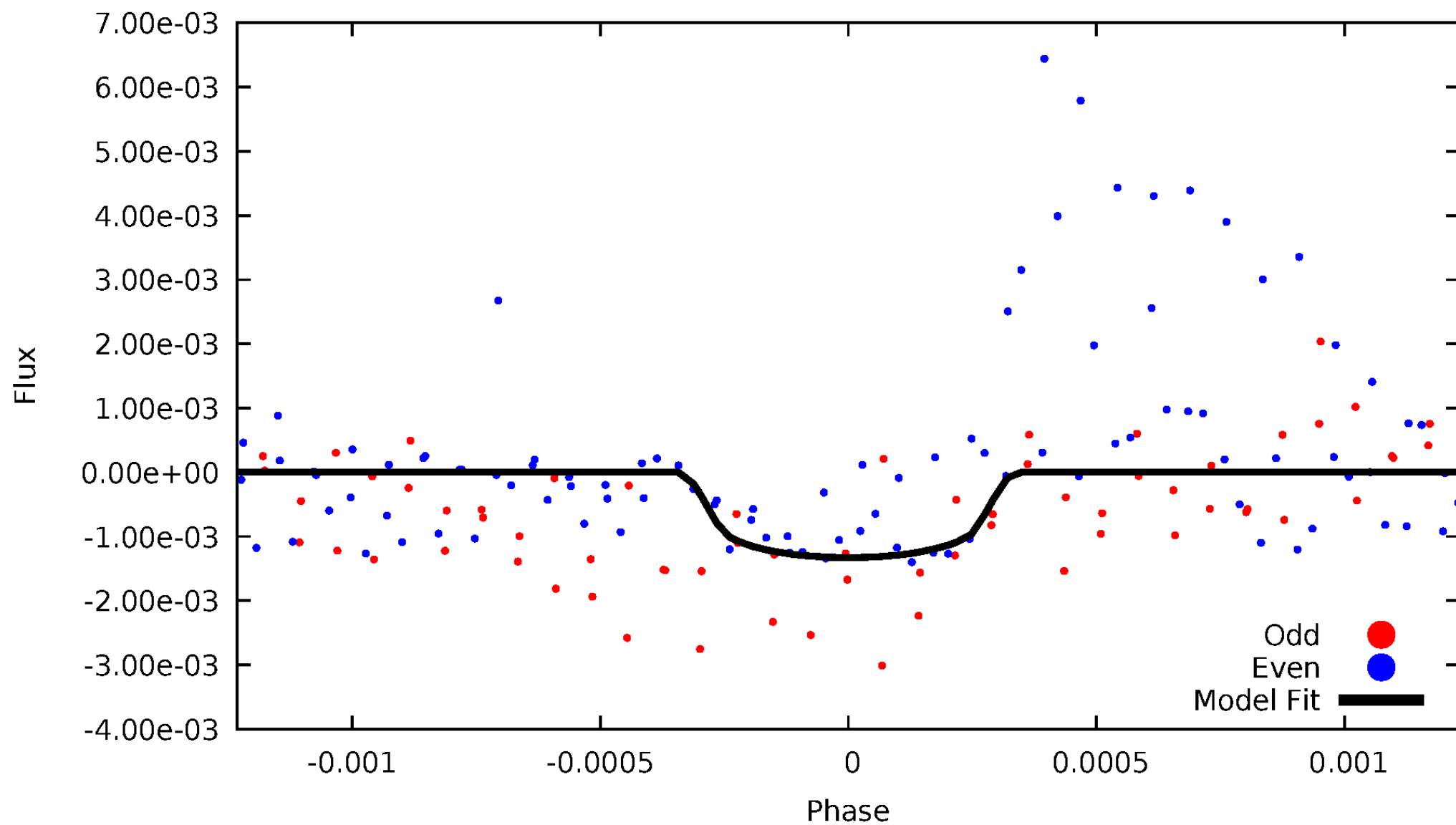


TCE 006123205-01



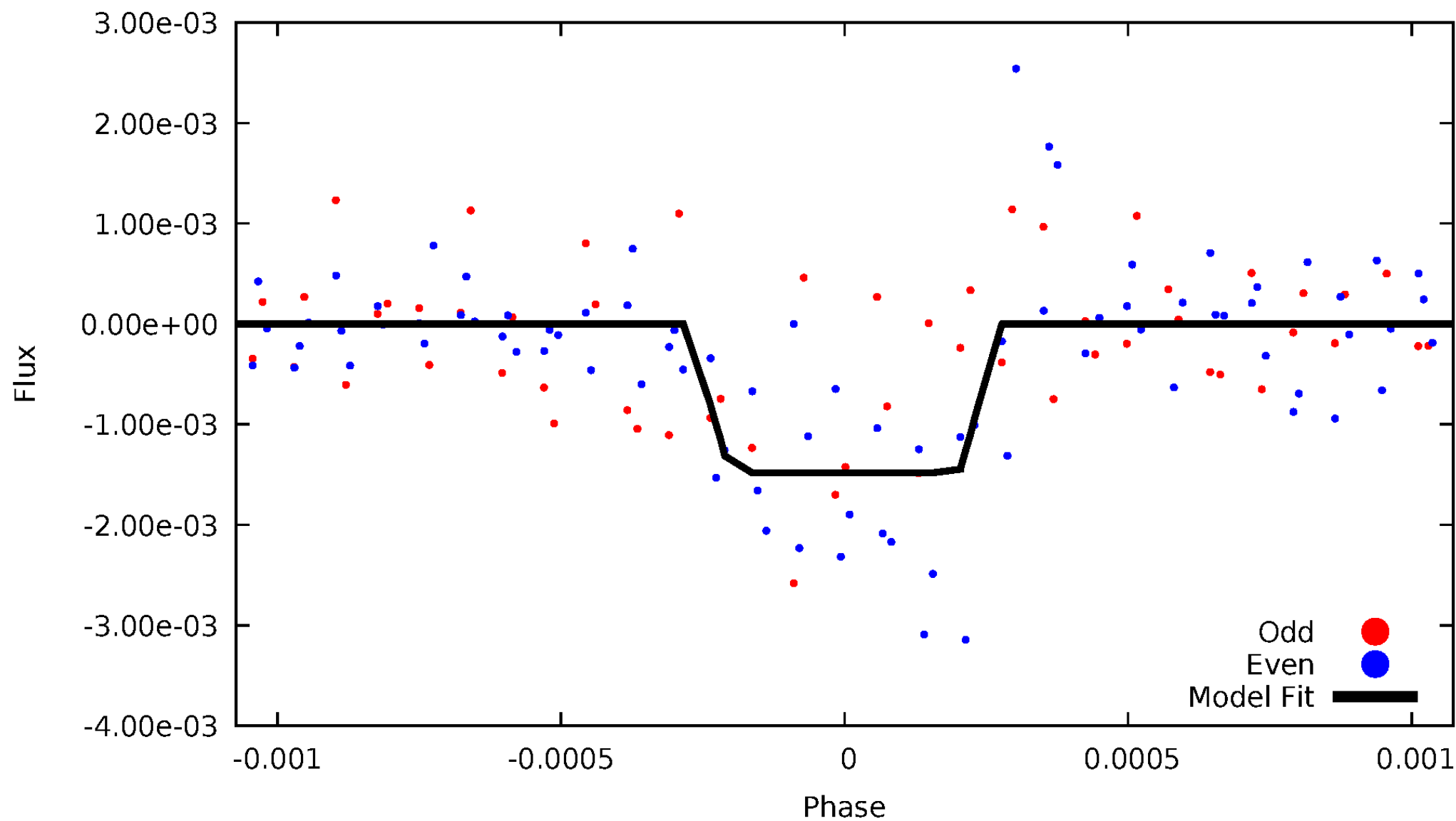
# DV Odd/Even

TCE 006123205-01



# ALT Odd/Even

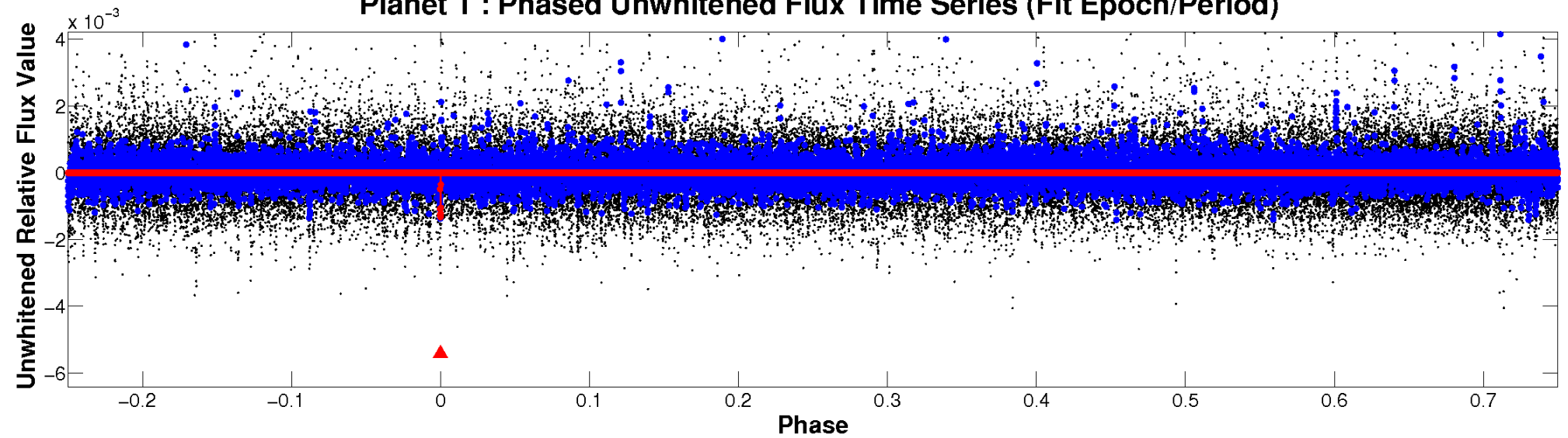
TCE 006123205-01



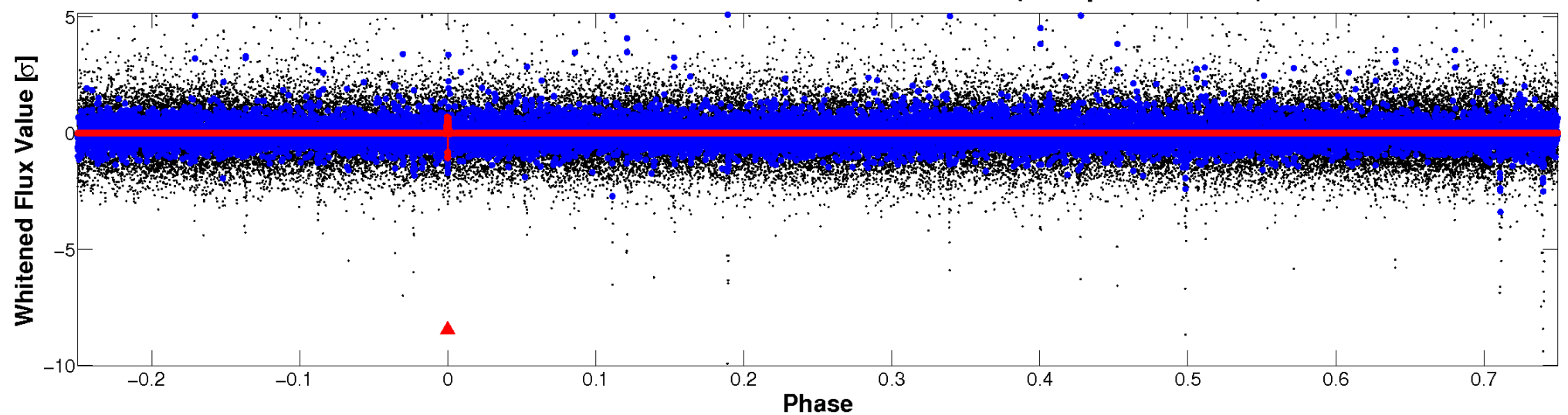


# Non-Whitened Vs. Whitened Light Curve

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

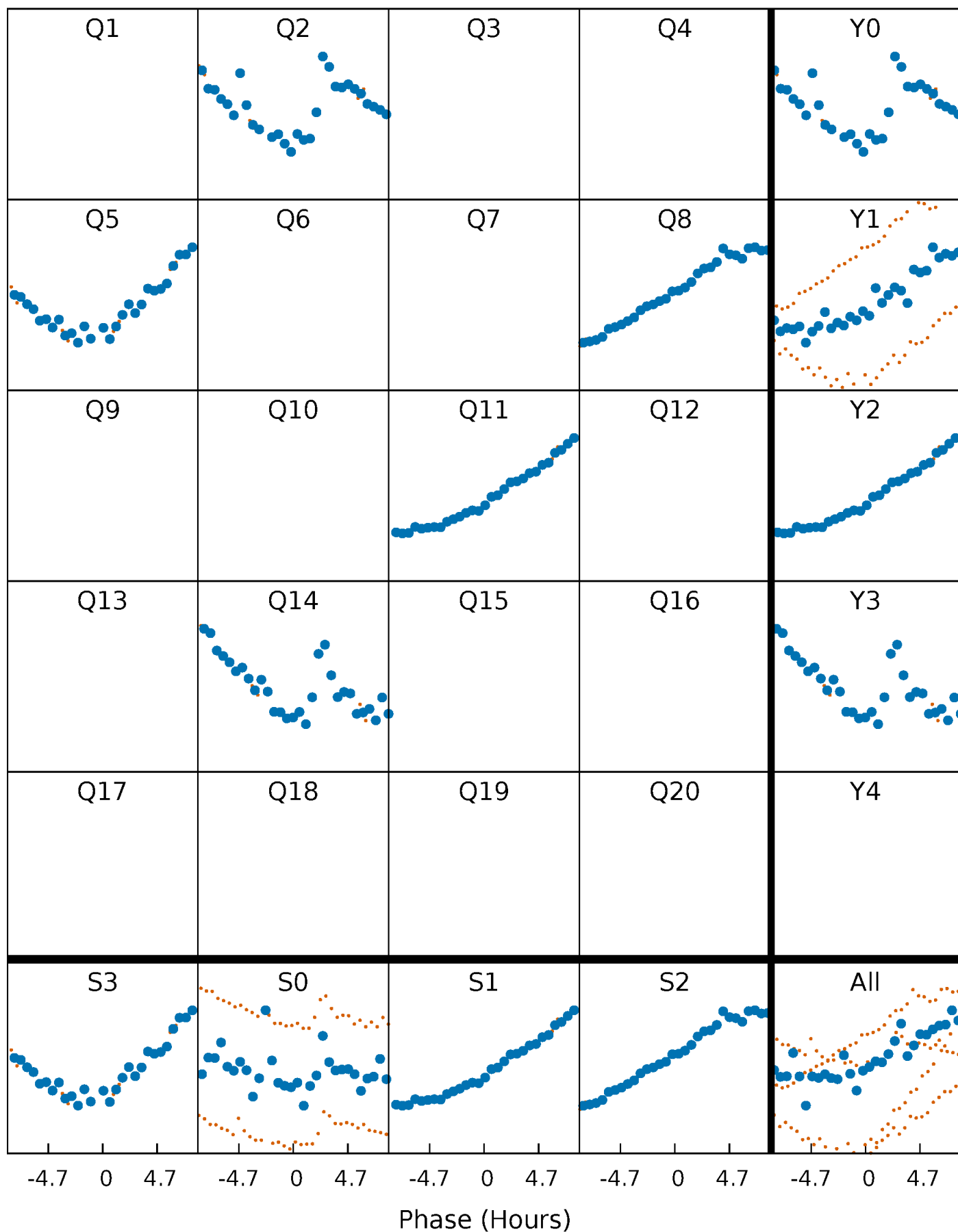


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

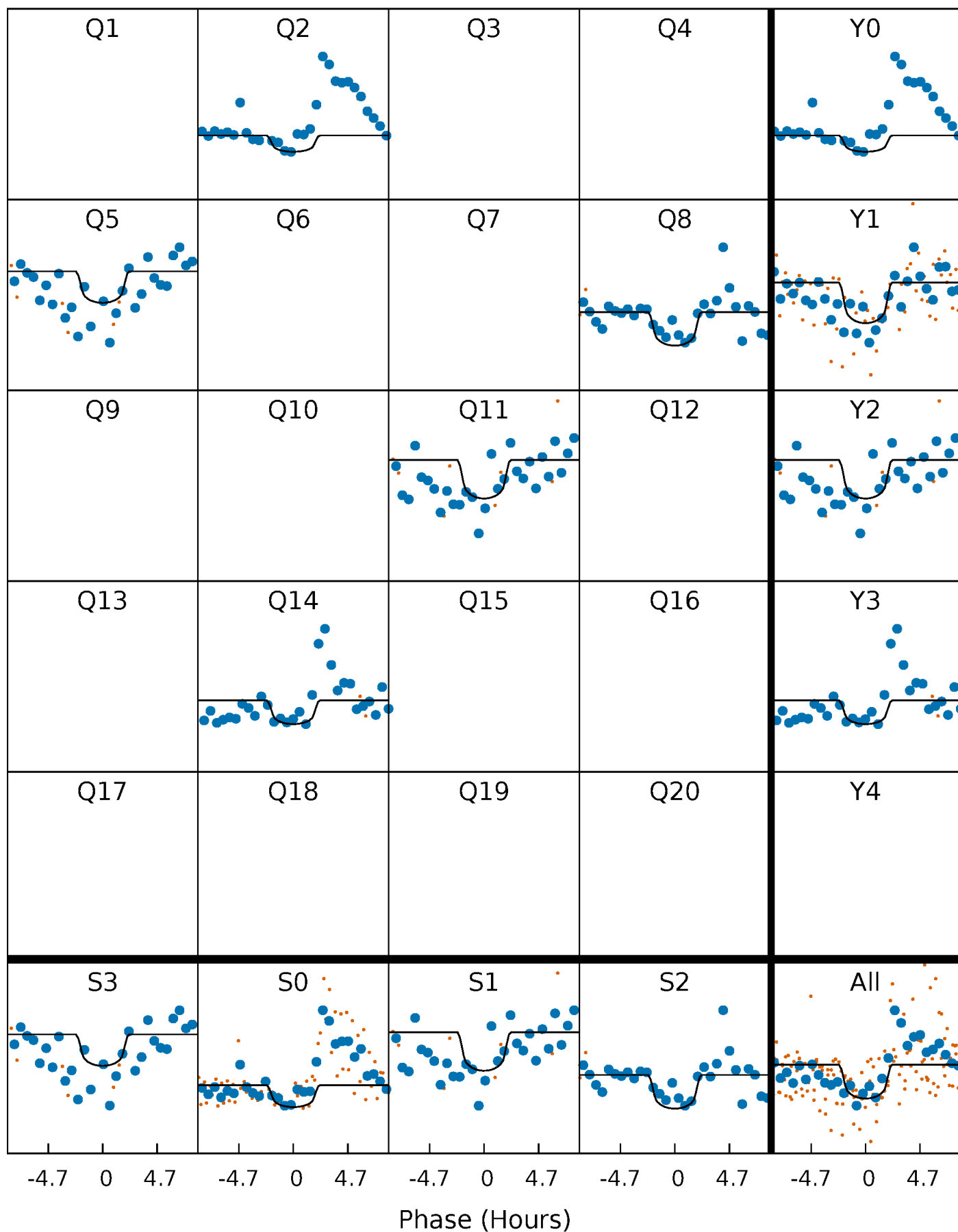
TCE 006123205-01 P=278.314007 Days  $T_0=242.583387$  (BKJD)





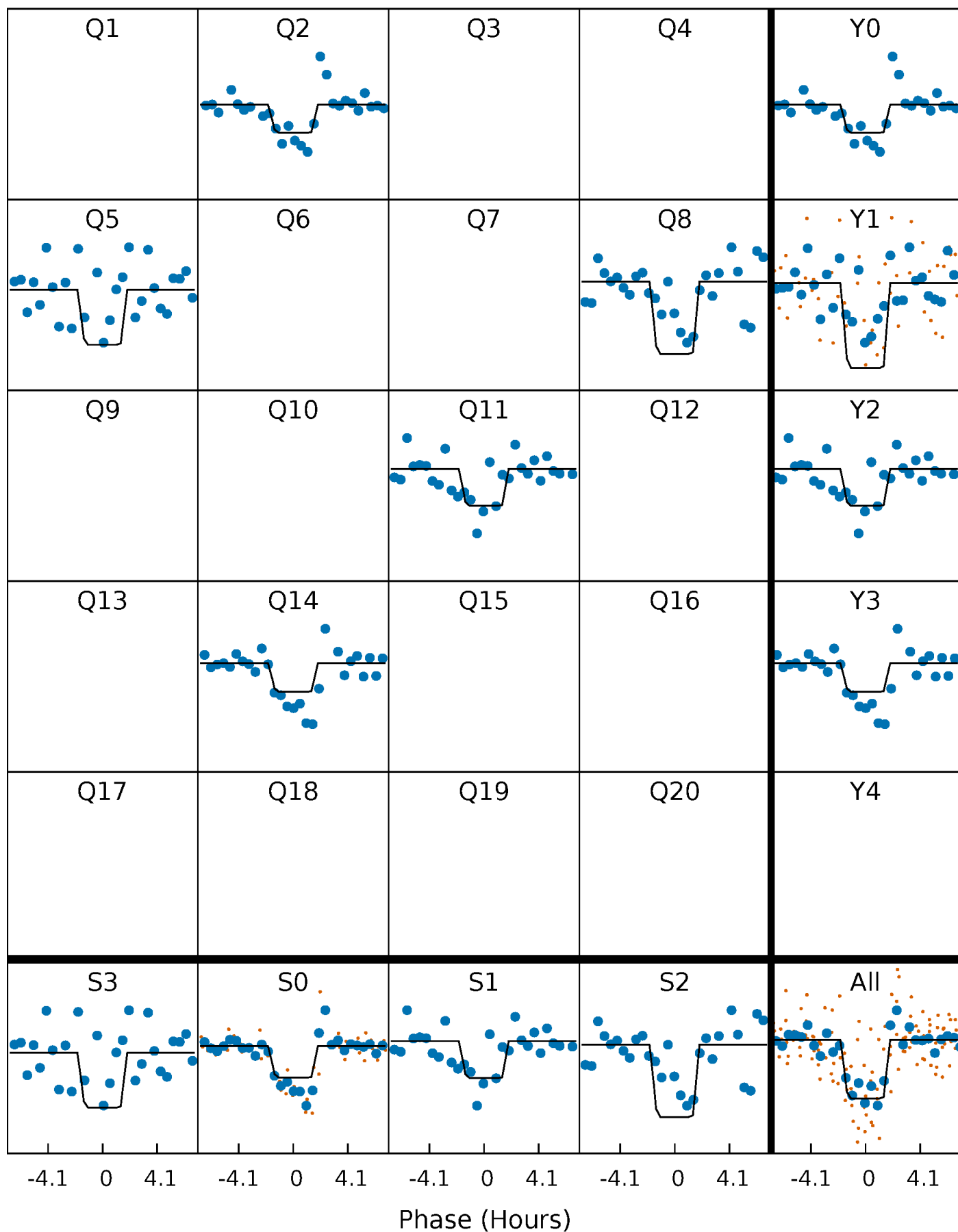
# DV Quarter-Phased Transit Curves

TCE 006123205-01 P=278.314007 Days  $T_0=242.583387$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

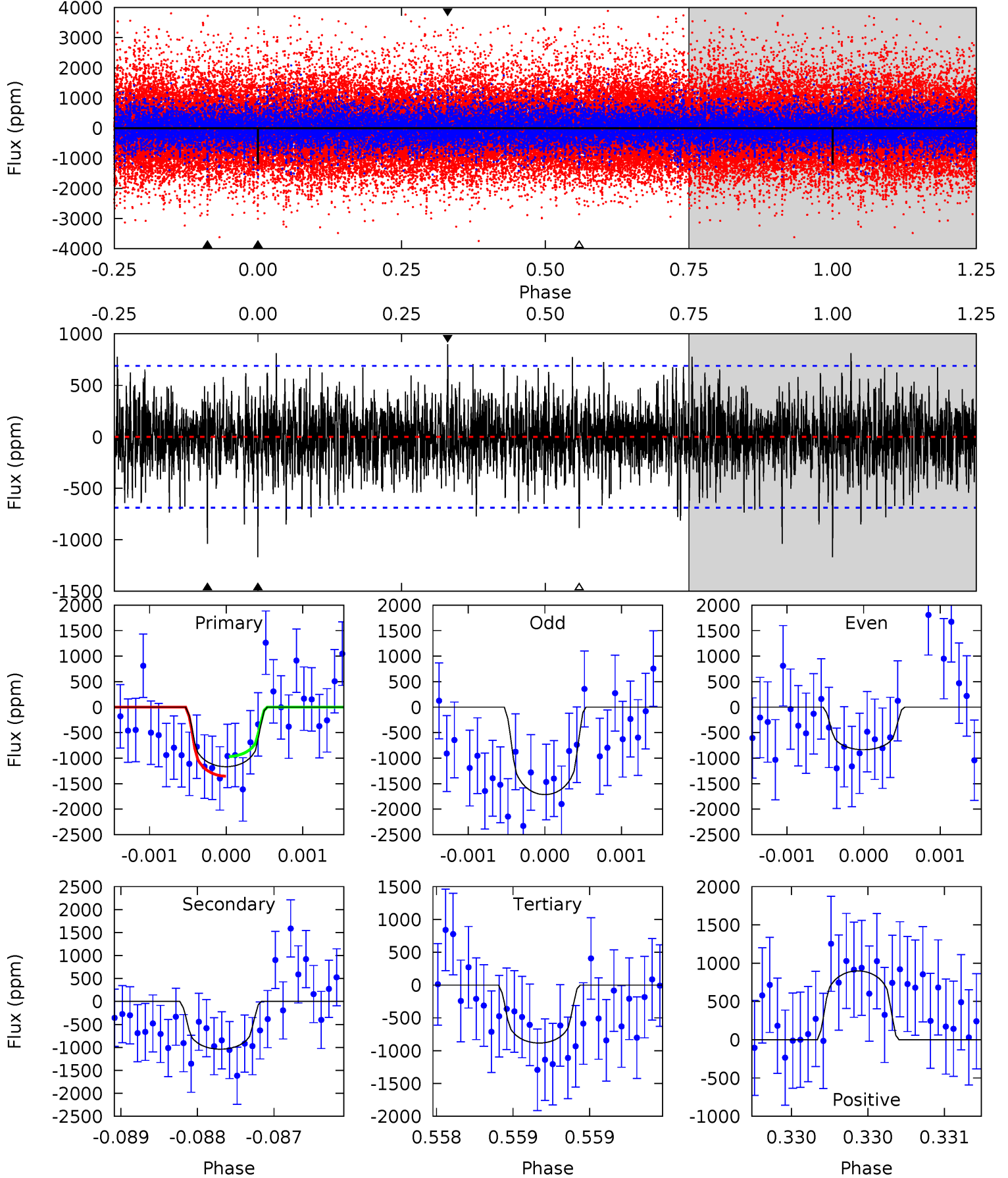
TCE 006123205-01 P=278.306698 Days  $T_0=242.609204$  (BKJD)



# DV Model-Shift Uniqueness Test

006123205-01, P = 278.314007 Days, E = 242.583387 Days

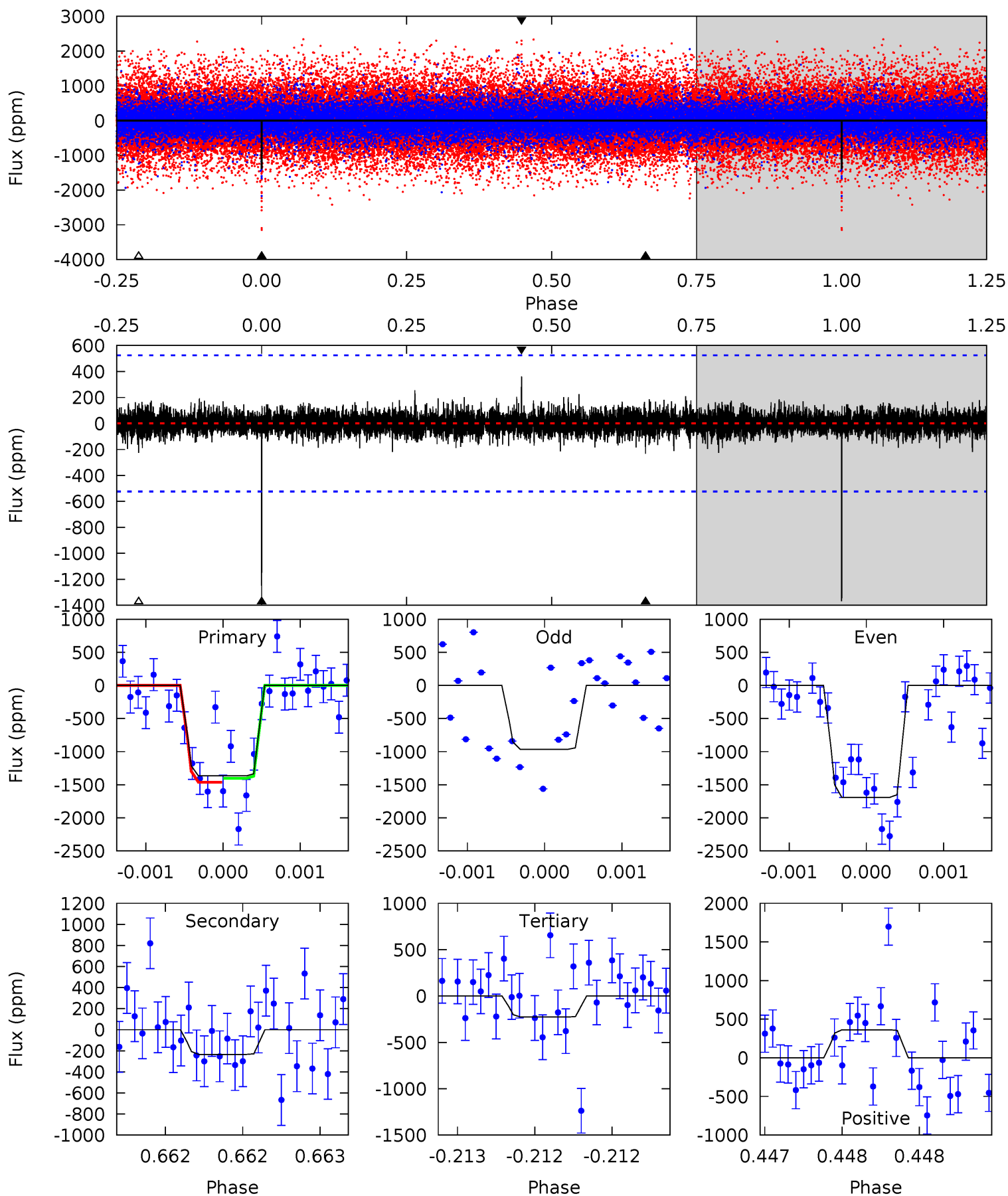
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.38	8.35	7.10	7.22	5.53	3.41	1.84	2.28	2.15	1.24	1.12	3.38	1.06	0.44	1.54



# Alt Model-Shift Uniqueness Test

006123205-01, P = 278.306698 Days, E = 242.609204 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
14.5	2.48	2.40	3.85	5.57	3.47	0.57	12.1	10.7	0.08	-1.36	3.68	1.12	0.21	0.30



### Stellar Parameters For KIC 006123205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4565^{+147}_{-165}$	$4.736^{+0.052}_{-0.028}$	$-1.340^{+0.300}_{-0.300}$	$0.511^{+0.032}_{-0.042}$	$0.518^{+0.037}_{-0.030}$	$5.466^{+1.171}_{-0.586}$
	+3%/-4%	+1%/-1%	+22%/-22%	+6%/-8%	+7%/-6%	+21%/-11%
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 006123205-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1039 \pm 124$	$4.56^{+4.82}_{-3.12}$	$244^{+9}_{-10}$	$3293^{+1570}_{-600}$	$12218^{+105787}_{-9268}$
Alt.	$-234 \pm 94$	$4.83^{+4.86}_{-3.39}$	$245^{+9}_{-10}$	$2633^{+1104}_{-413}$	$2390^{+23687}_{-1815}$

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

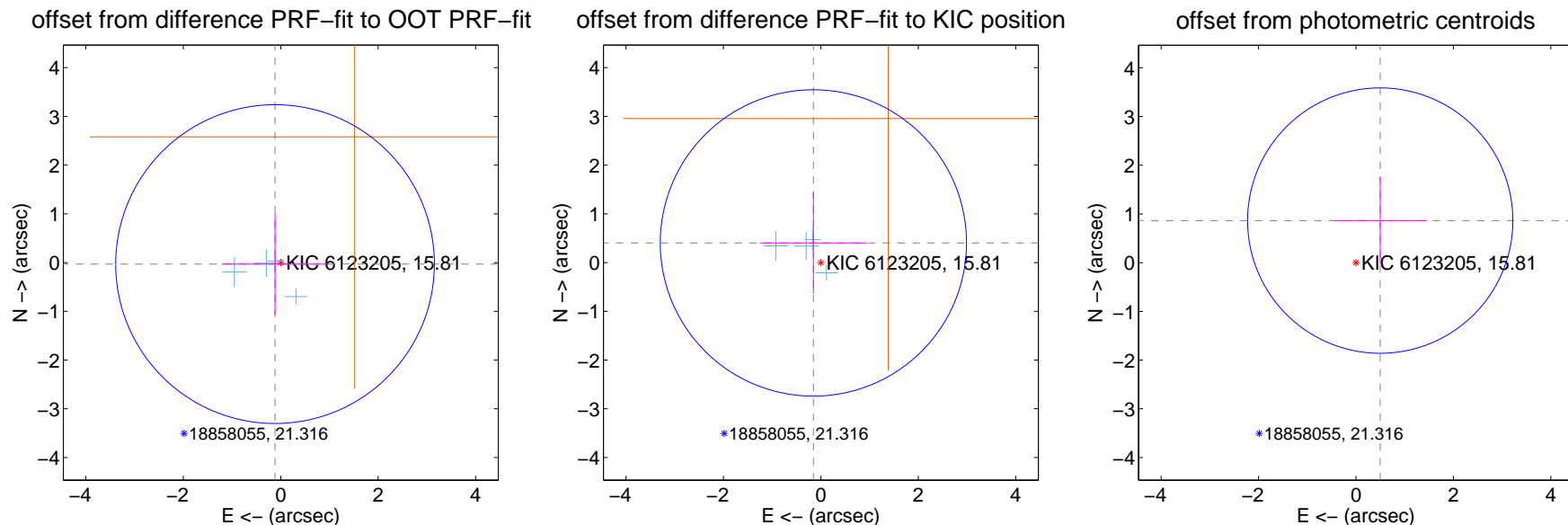
## DV Centroid Data

Supplemental centroid analysis for 006123205-01. Kepler magnitude: 15.81. Transit SNR 6.41

There are 4 quarters with good PRF difference image offsets

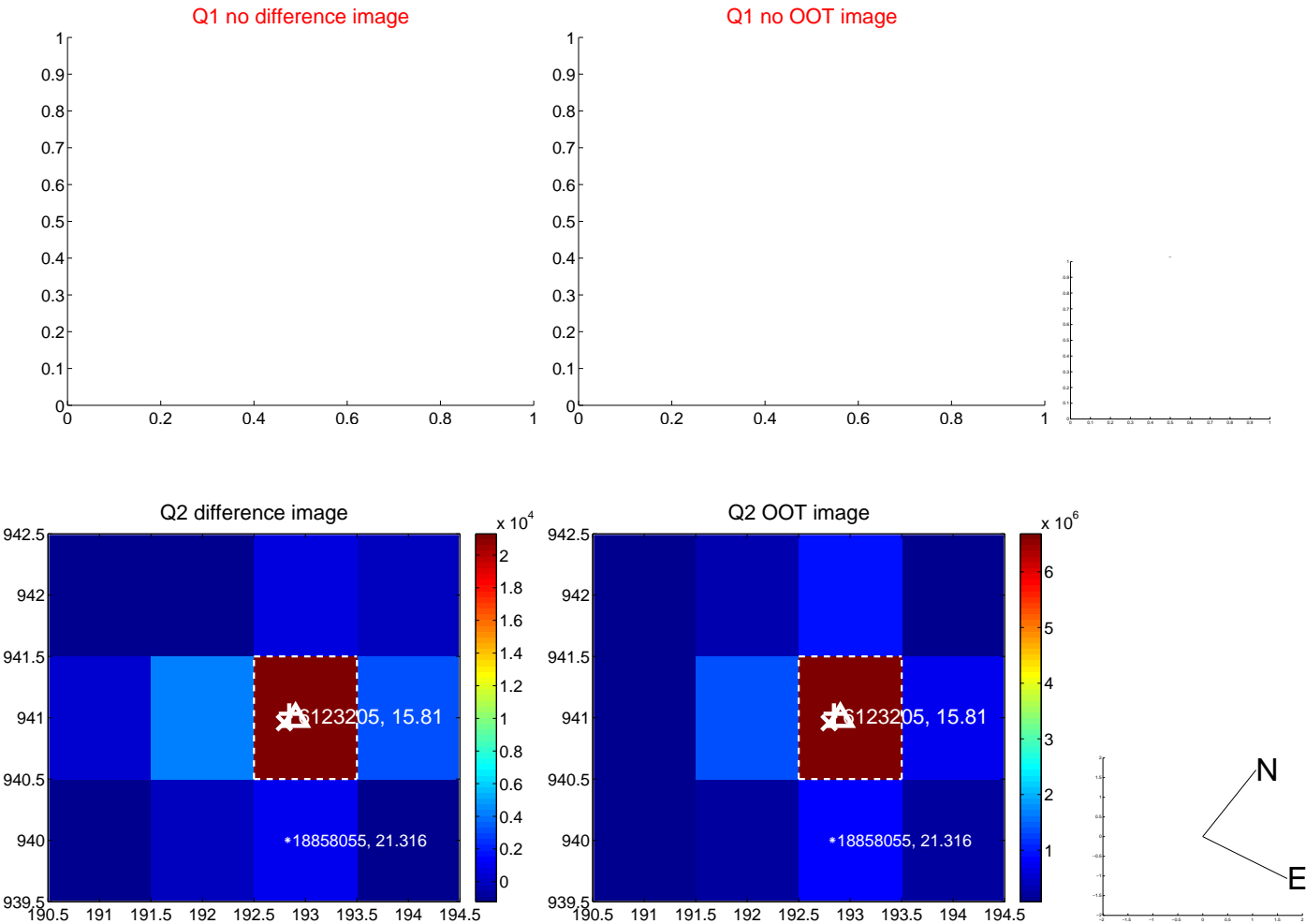
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.121 \pm 1.090$	0.11	$0.117 \pm 1.094$	$-0.031 \pm 1.041$
PRF-fit source offset from KIC position	$0.431 \pm 1.048$	0.41	$0.154 \pm 1.094$	$0.403 \pm 1.041$
photometric centroid source offset	$1.00 \pm 0.91$	1.10	$-0.50 \pm 0.95$	$0.86 \pm 0.89$



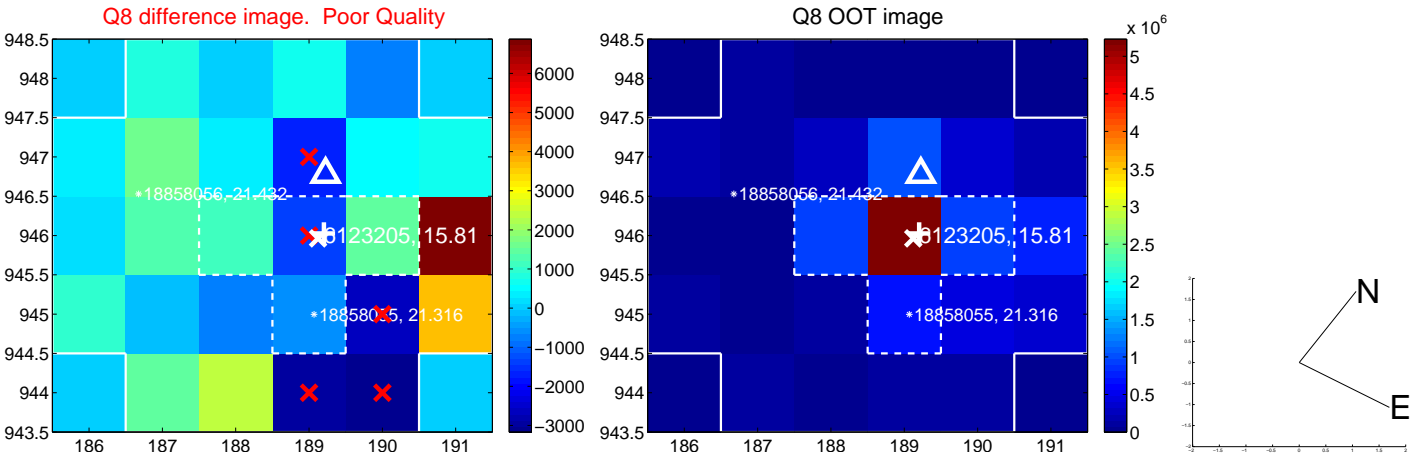
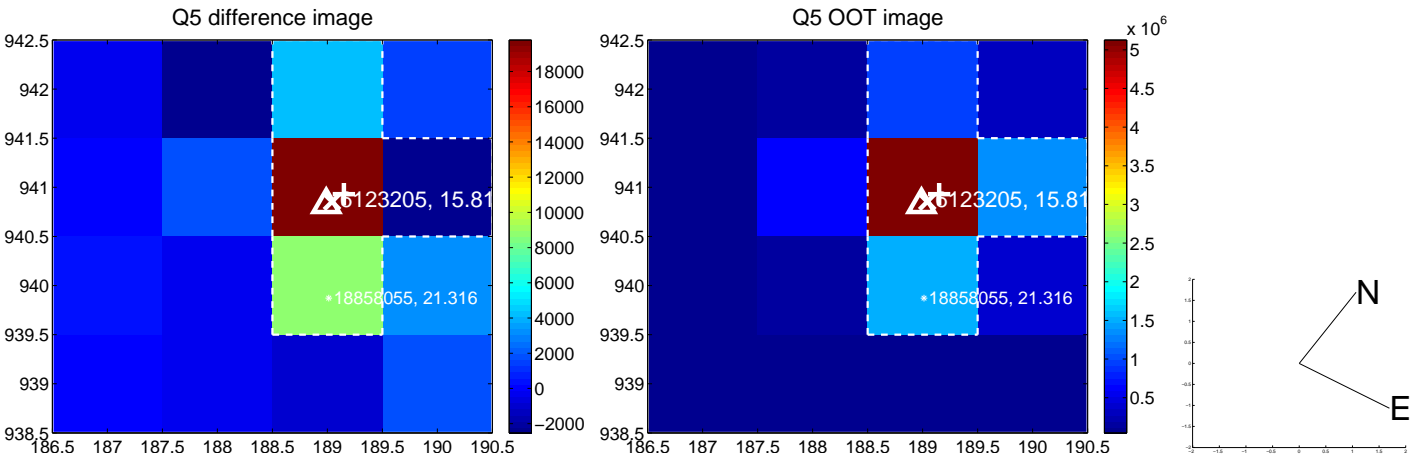
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

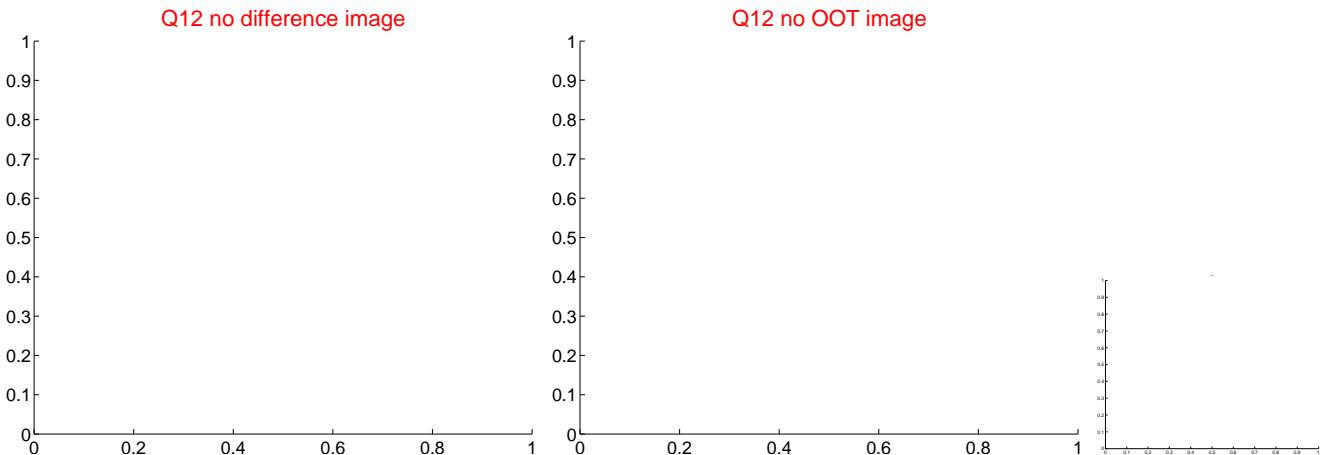
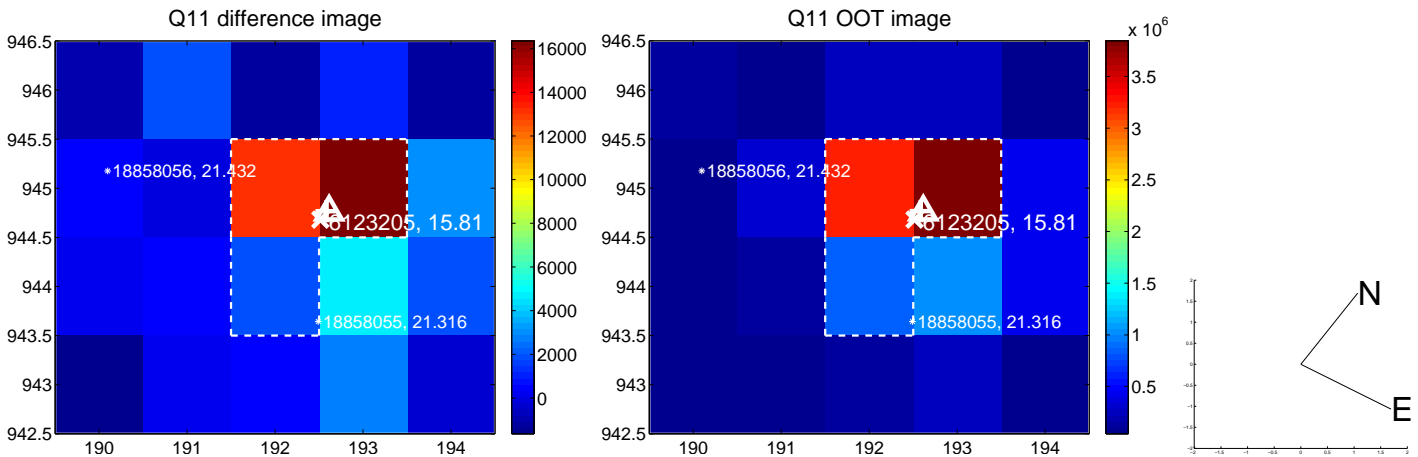
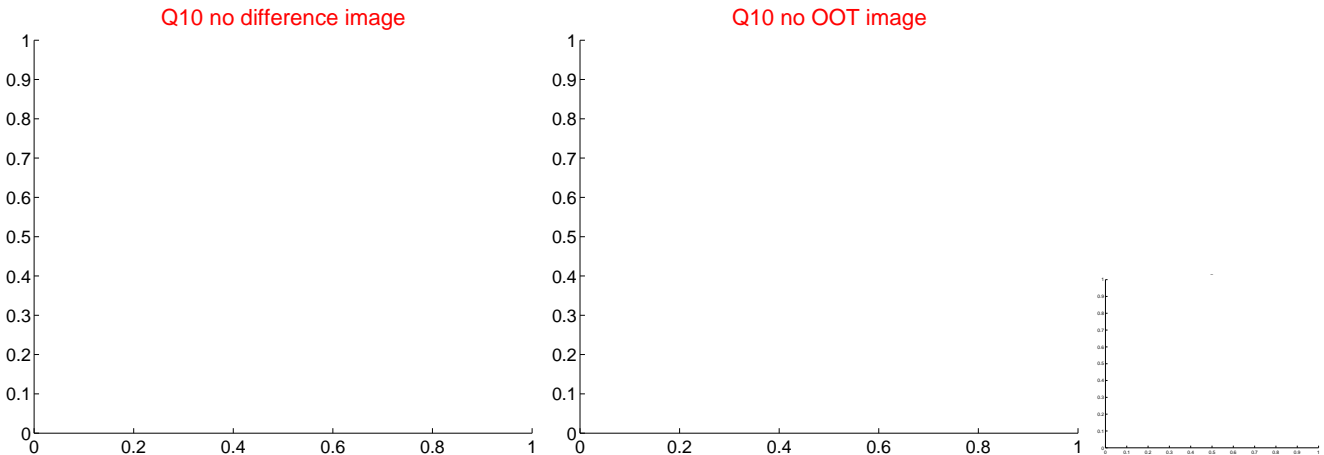
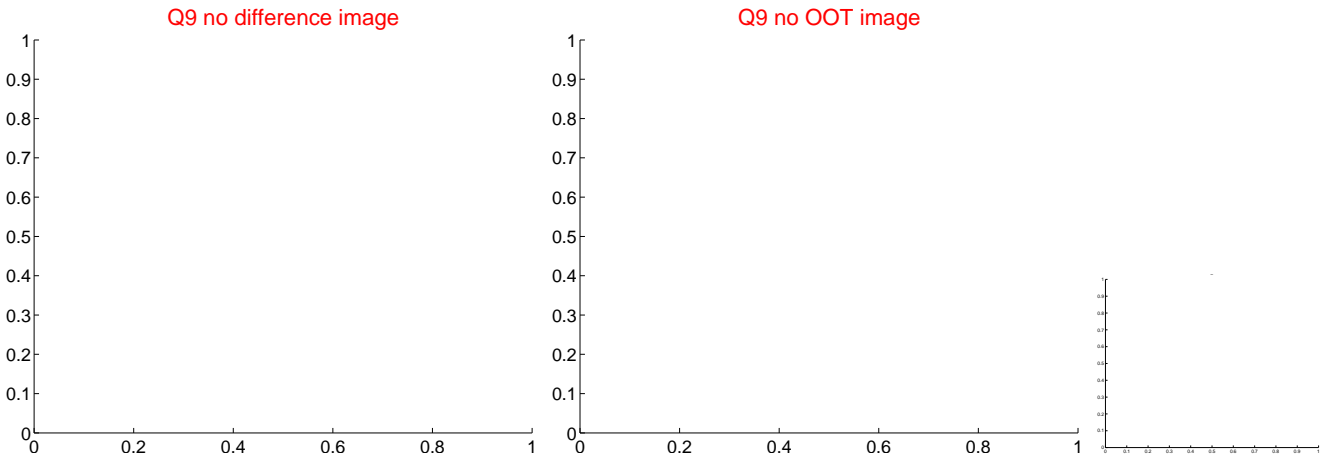




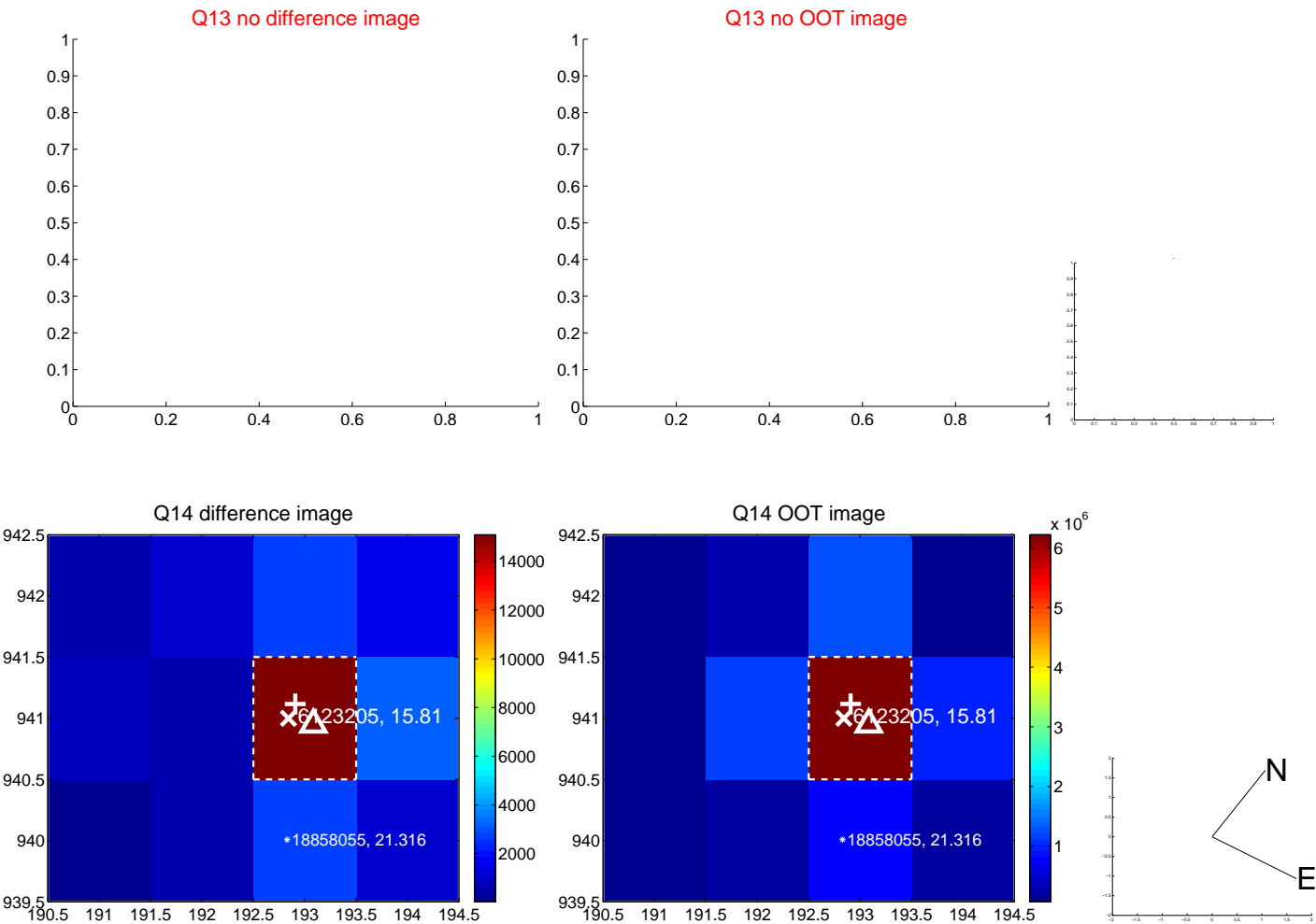
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



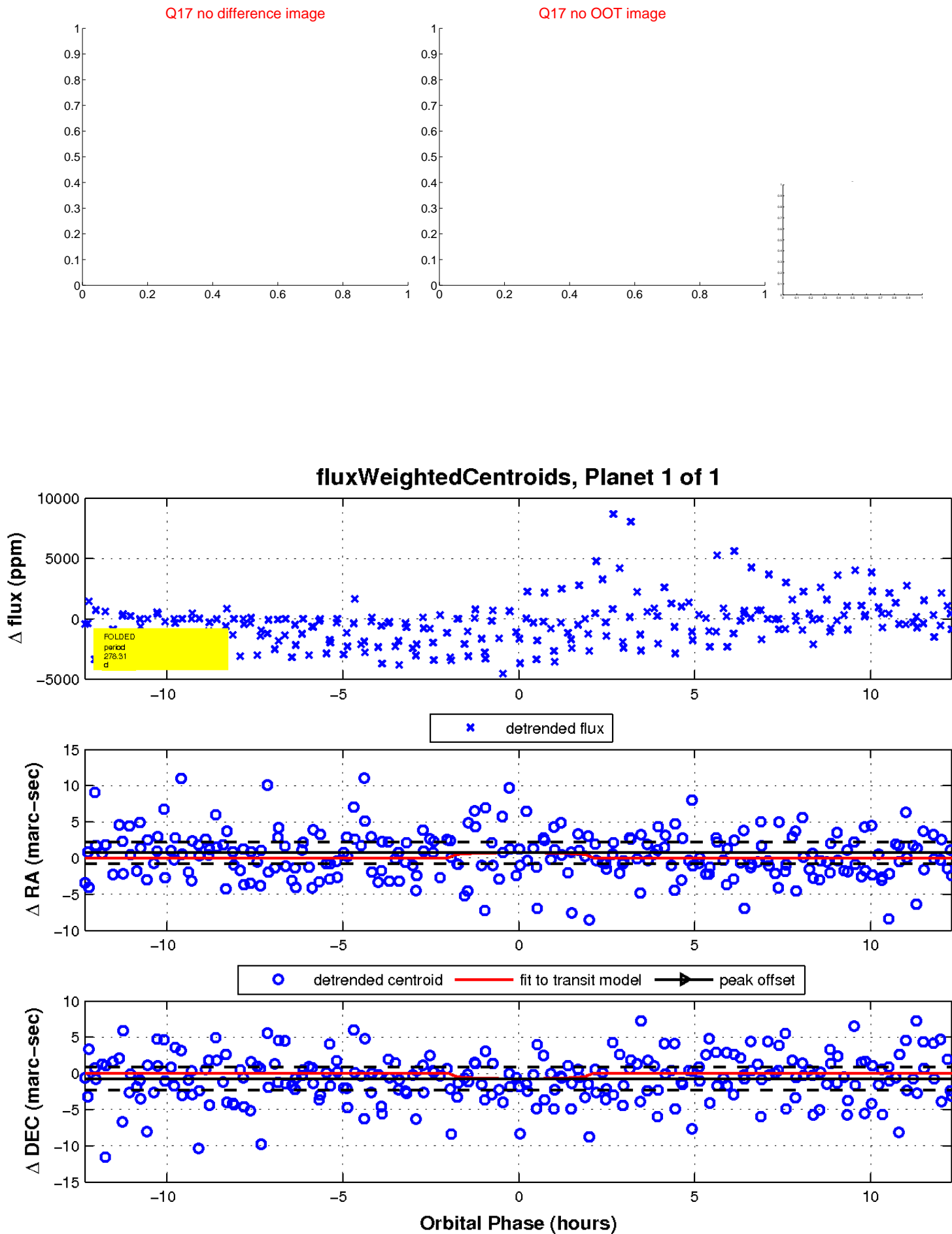
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

