

# KIC 006059055

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006059055-01	OBS	No	387.646425	195.448408	870.9	2.203	10.8	4.9	0.85	5985	2.57	0.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006059055-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_ALT—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

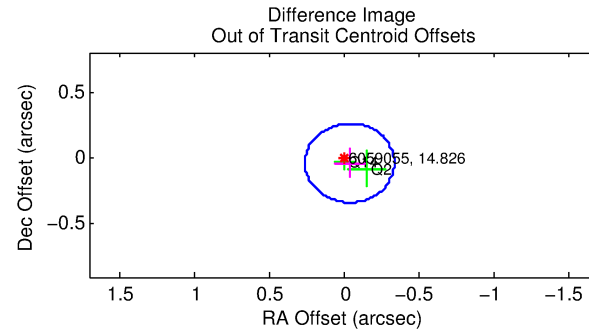
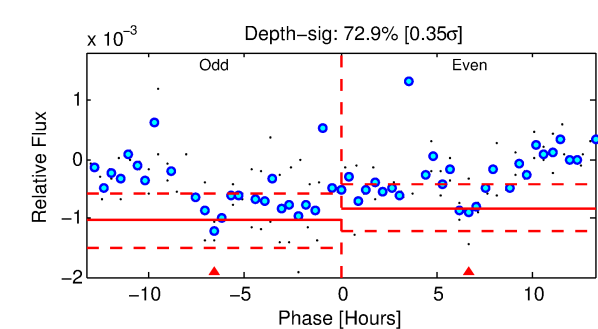
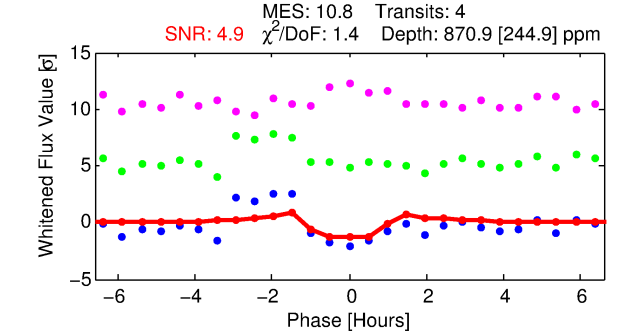
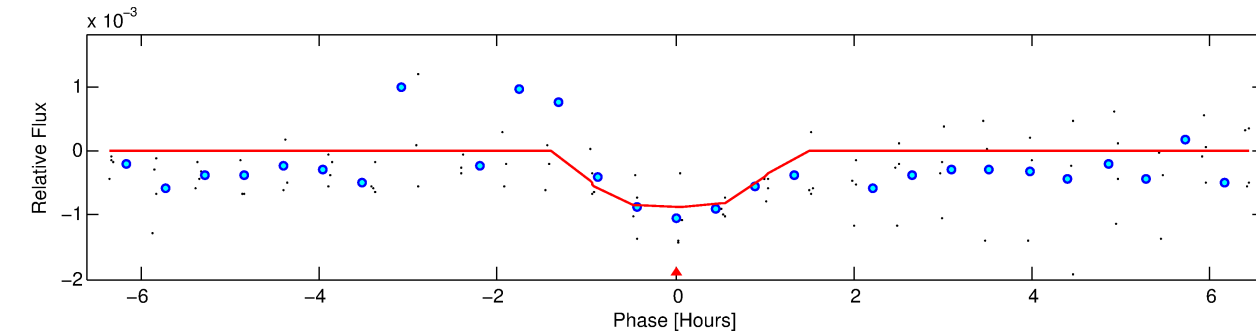
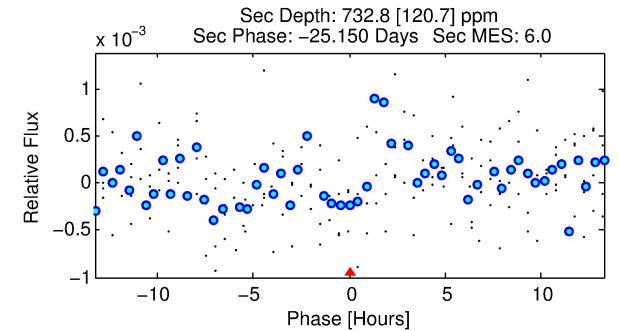
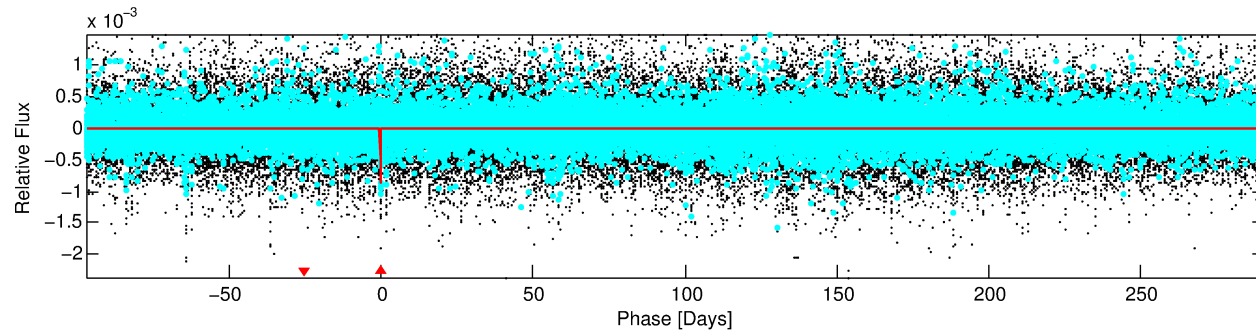
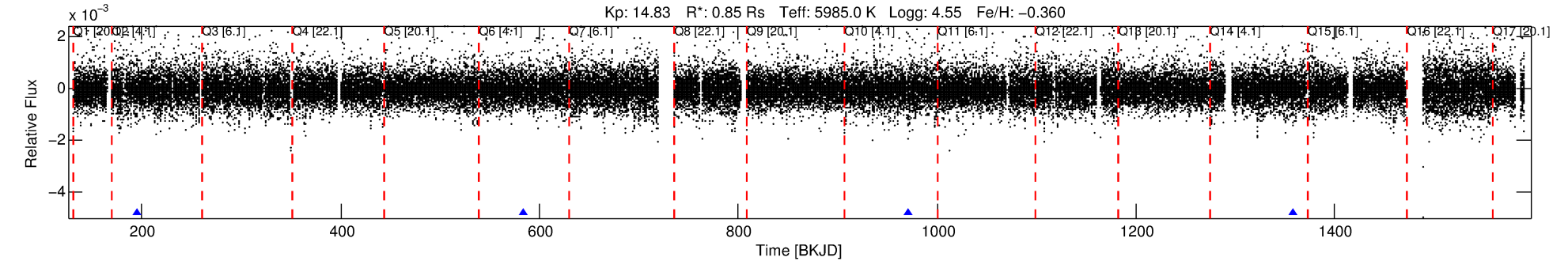
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006059055-01

No Significant Match Found

# DV One-Page Summary

KIC: 6059055 Candidate: 1 of 1 Period: 387.646 d



## DV Fit Results:

Period = 387.64642 [0.00438] d  
Epoch = 195.4484 [0.0074] BKJD  
Rp/R\* = 0.0276 [0.1636]  
a/R\* = 1263.73 [36628.52]  
b = 0.41 [58.45]  
Seff = 0.81 [0.33]  
Teq = 242 [25] K  
Rp = 2.57 [15.28] Re  
a = 1.0201 [0.2681] AU  
Ag = 63393.46 [752642.50] [0.08 $\sigma$ ]  
Teffp = 5930 [17594] K [0.32 $\sigma$ ]

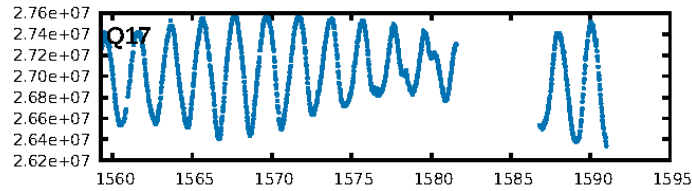
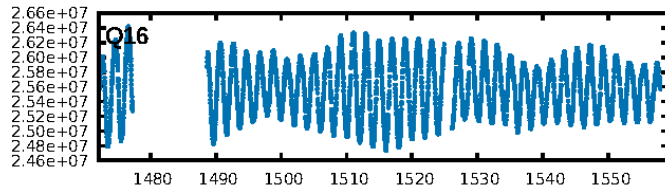
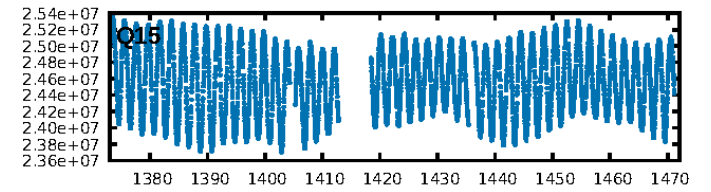
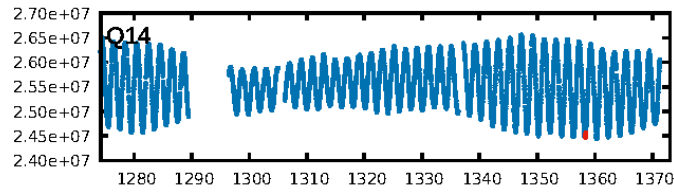
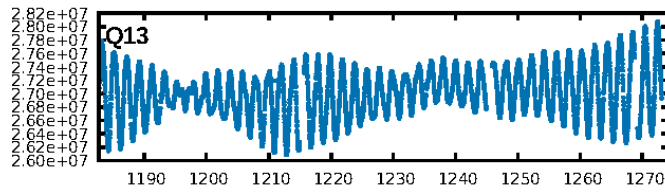
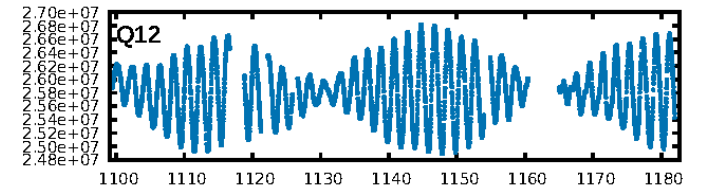
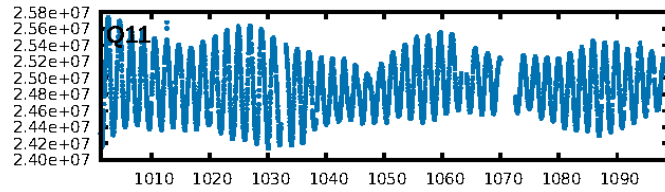
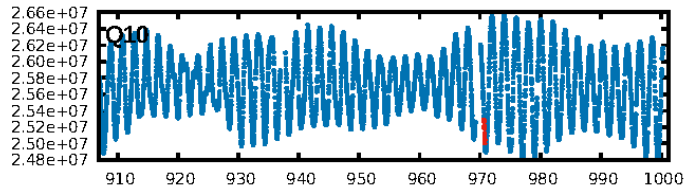
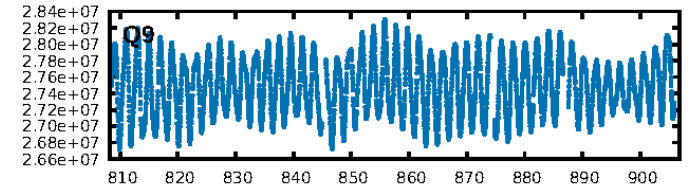
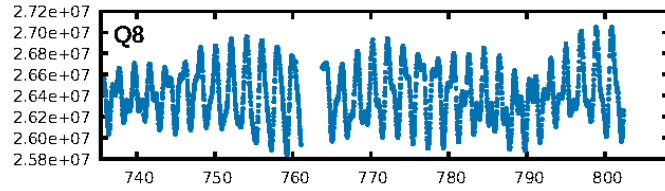
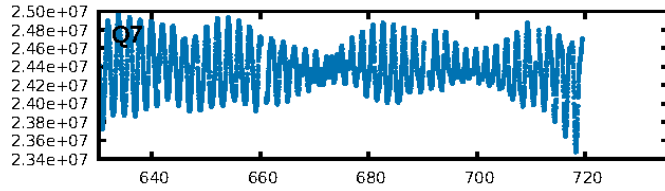
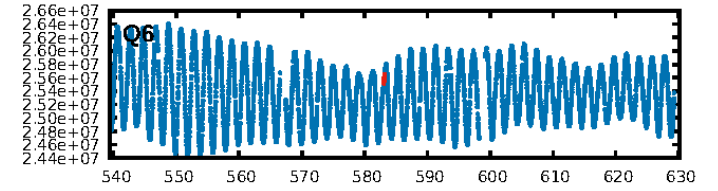
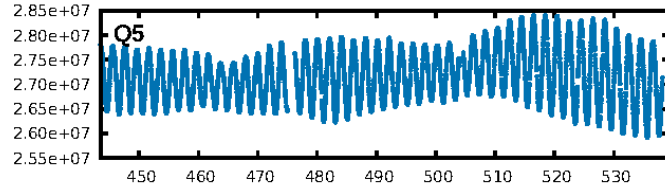
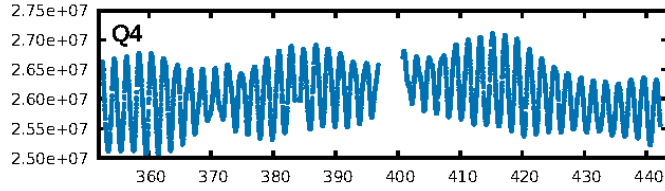
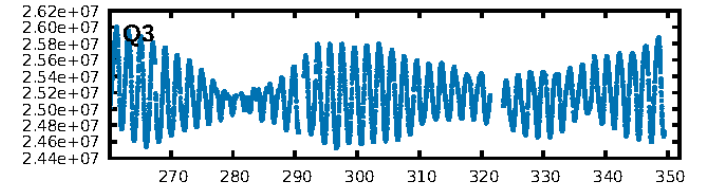
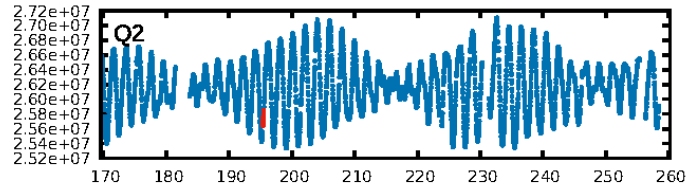
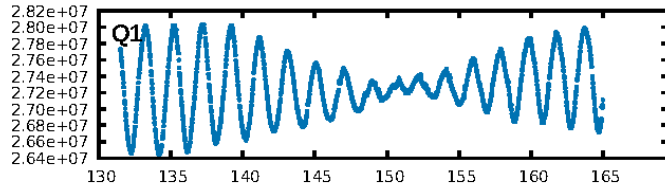
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.5%  
ModelChiSquareGof-sig: 54.6%  
**Bootstrap-pfa: 1.43e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.8063  
Centroid-sig: 22.9%  
Centroid-so: 1.902 arcsec [1.35 $\sigma$ ]  
OotOffset-rm: 0.056 arcsec [0.56 $\sigma$ ]  
KicOffset-rm: 0.099 arcsec [0.98 $\sigma$ ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

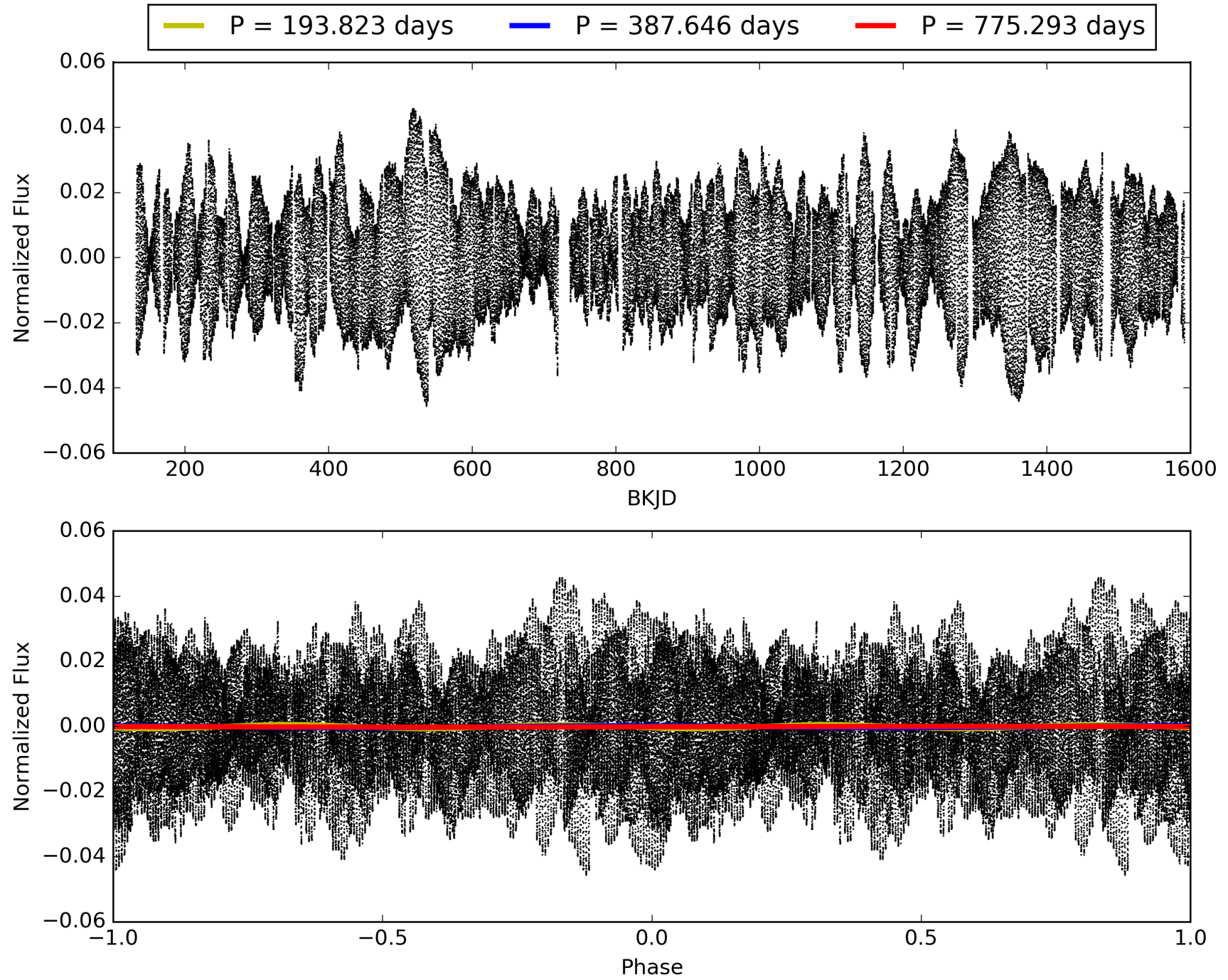
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:42:55 Z

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

# TCE 006059055-01, PDC Light Curves

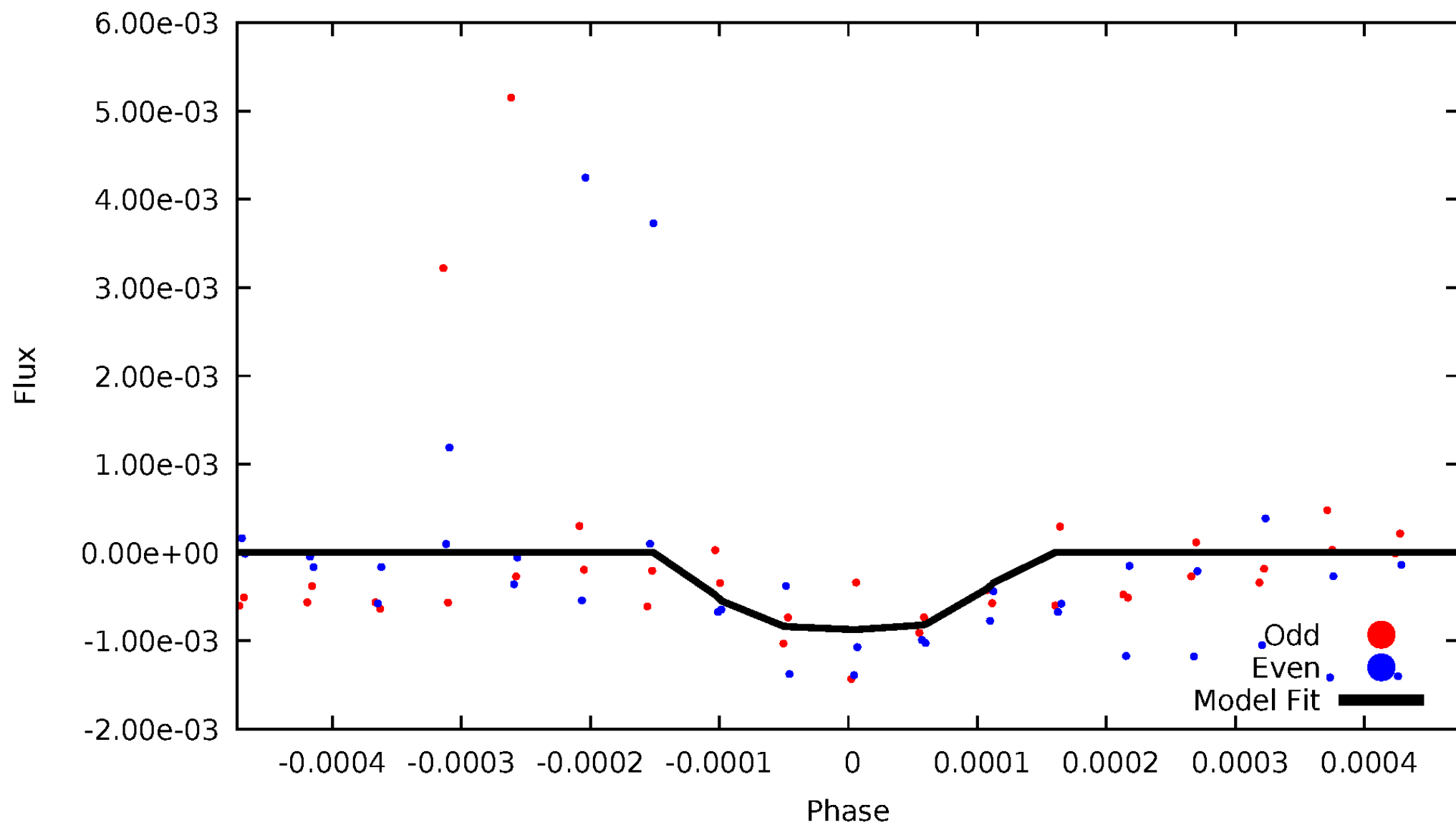


TCE 006059055-01



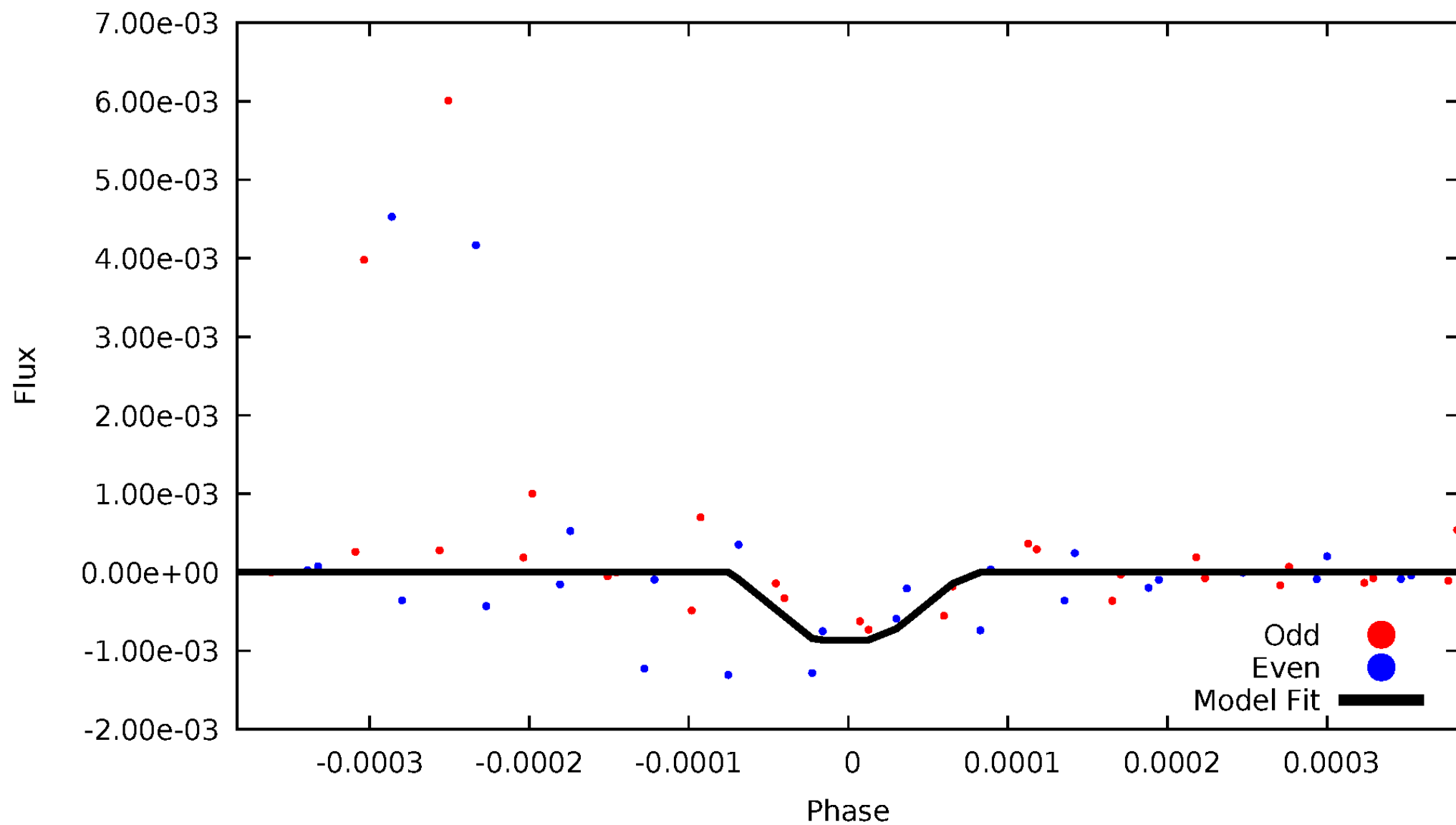
# DV Odd/Even

TCE 006059055-01



# ALT Odd/Even

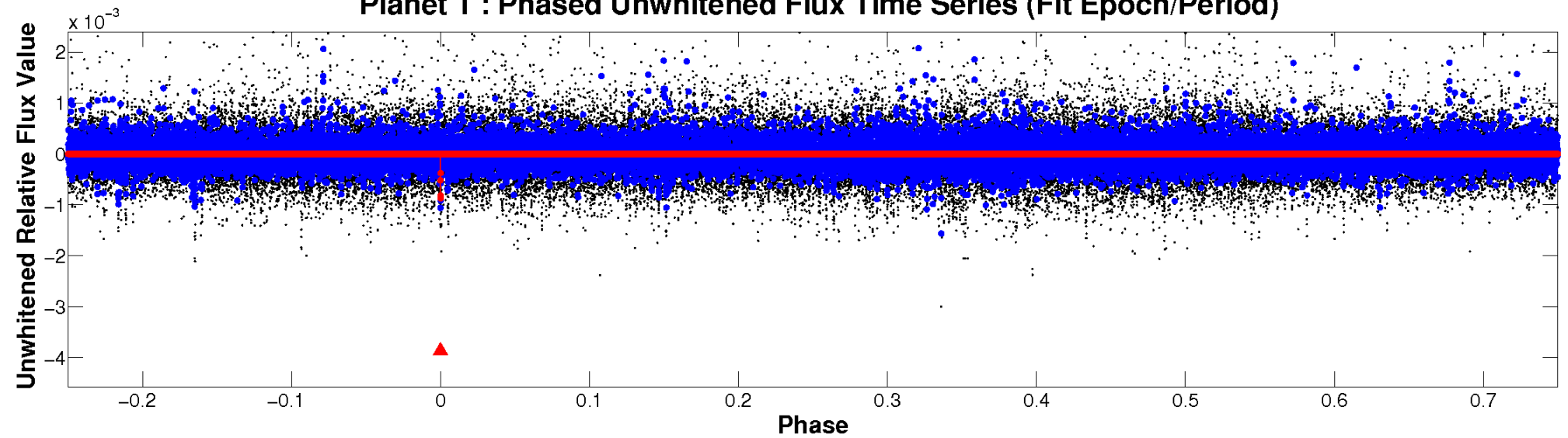
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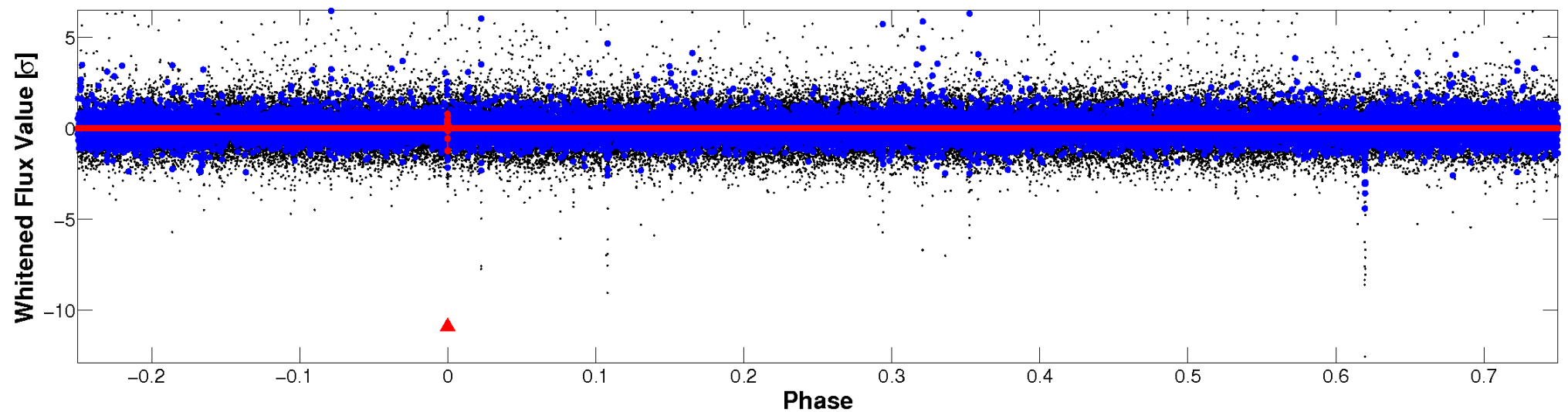


# Non-Whitened Vs. Whitened Light Curve

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

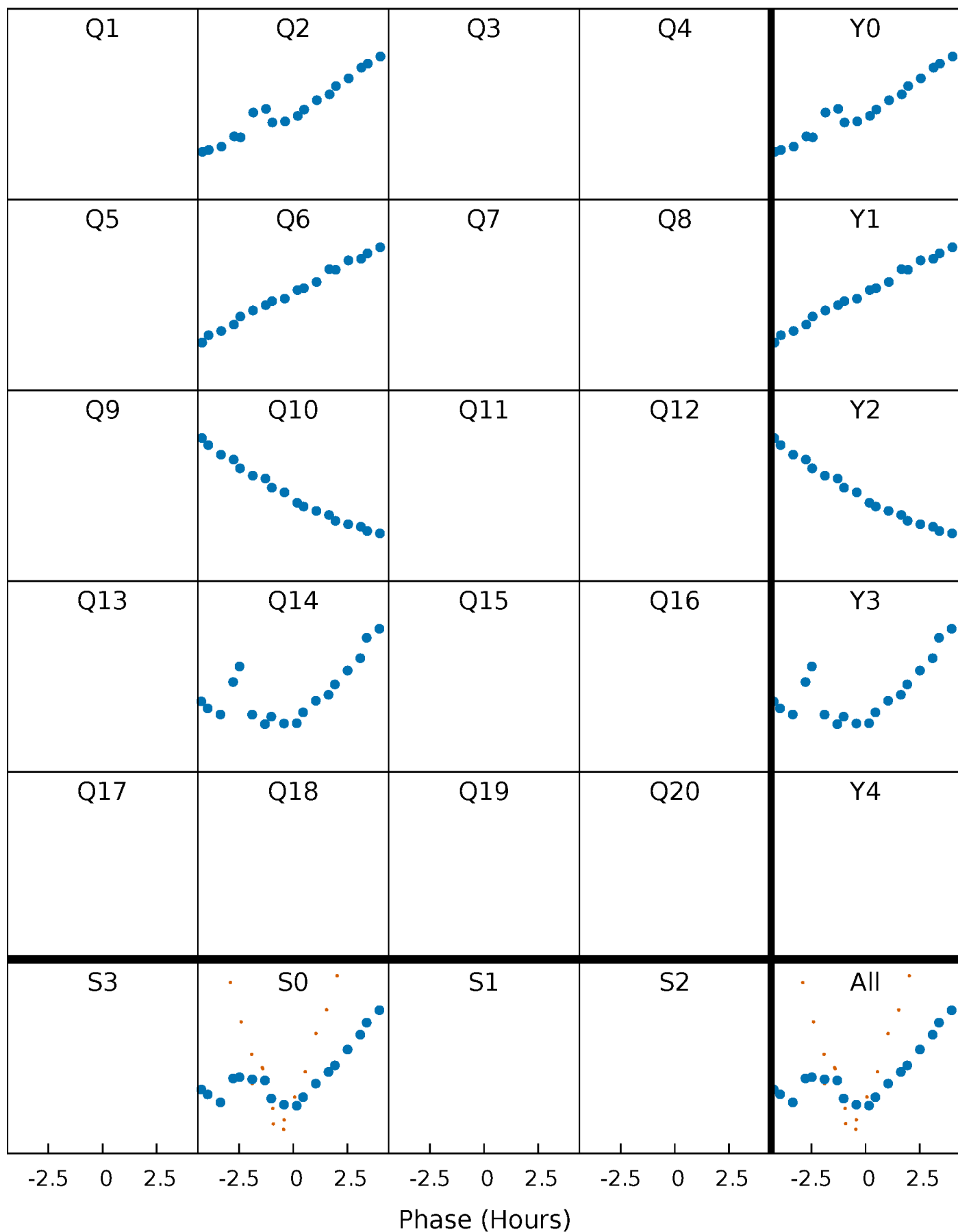


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

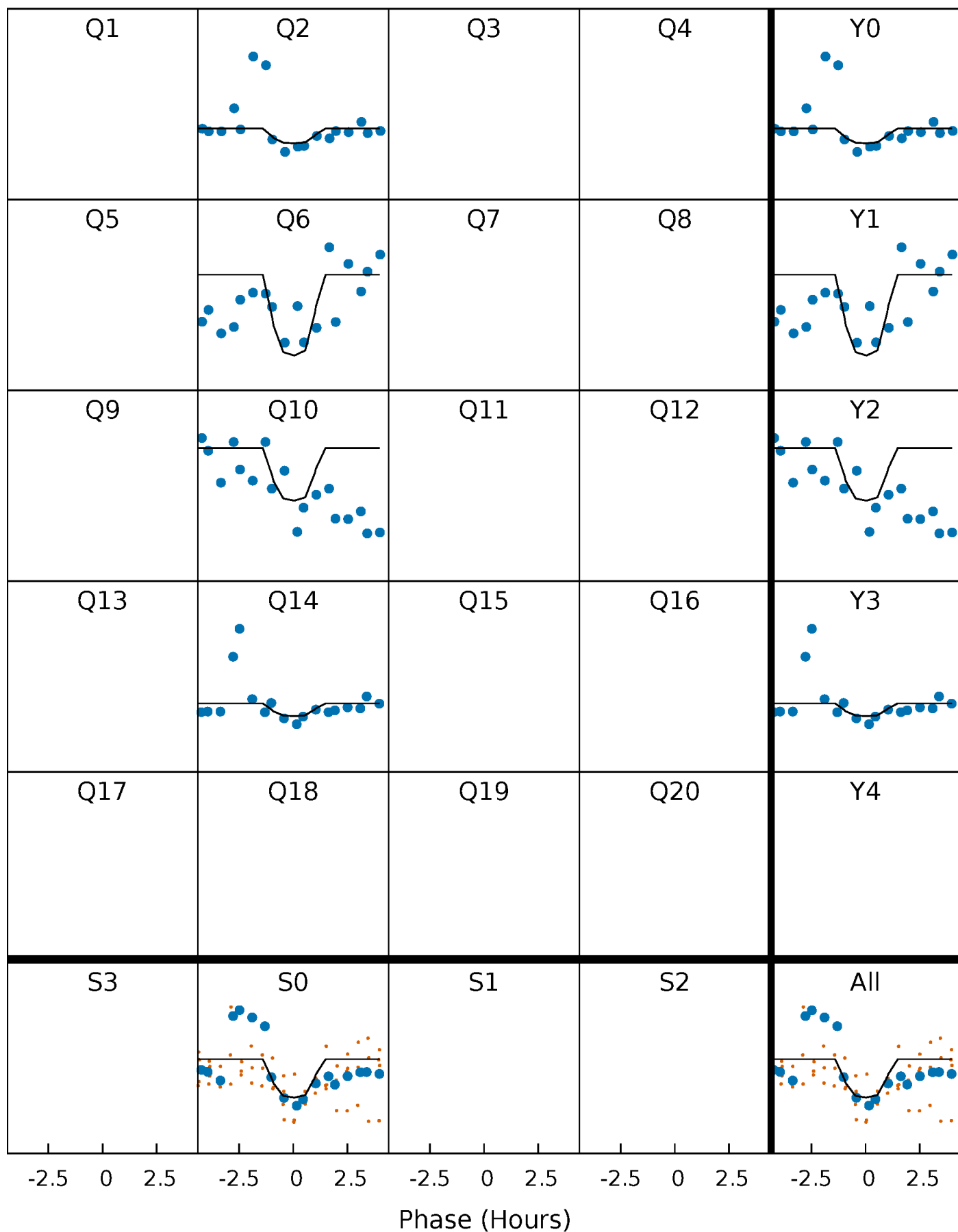
TCE 006059055-01 P=387.646425 Days  $T_0=195.448408$  (BKJD)





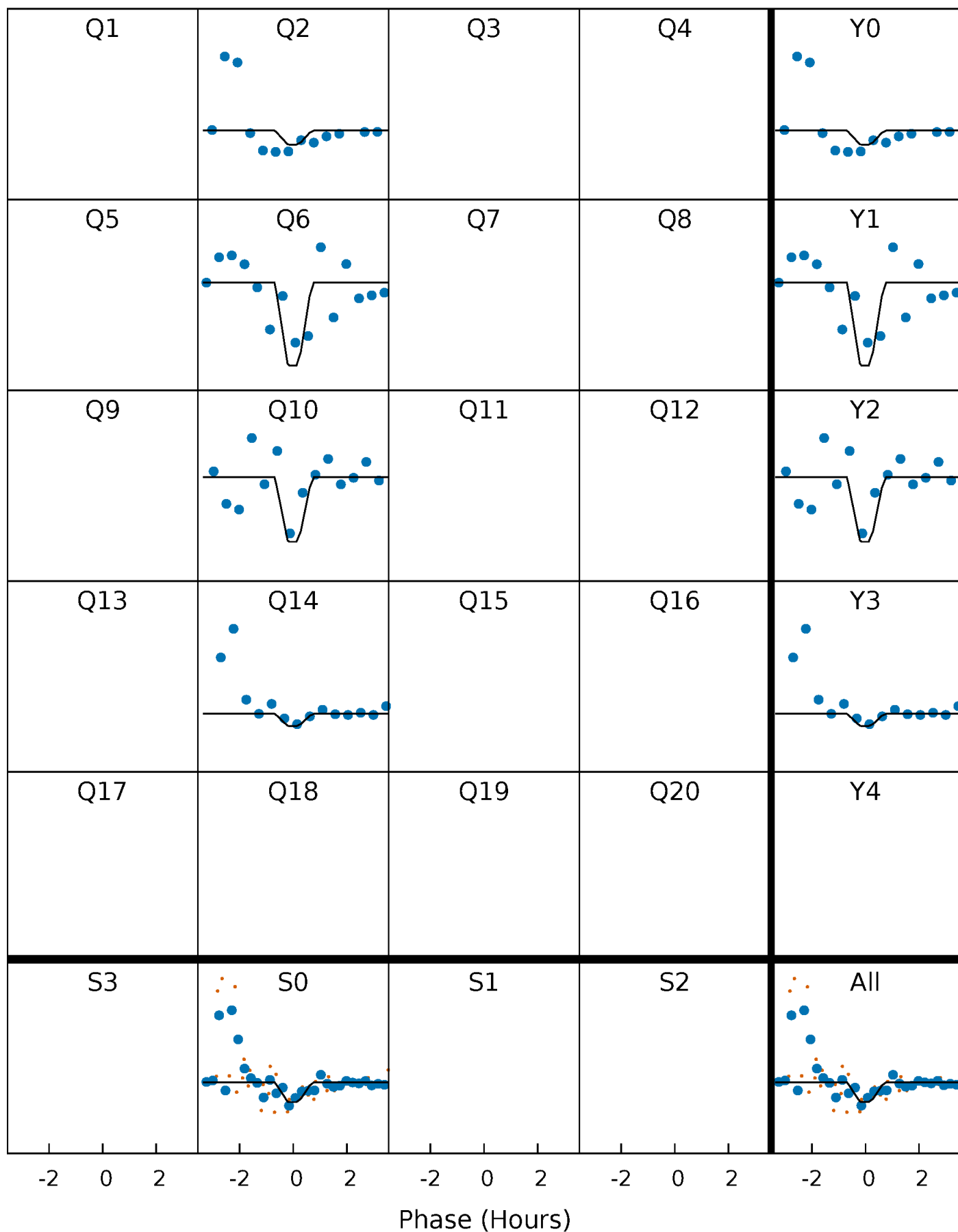
# DV Quarter-Phased Transit Curves

TCE 006059055-01 P=387.646425 Days  $T_0=195.448408$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

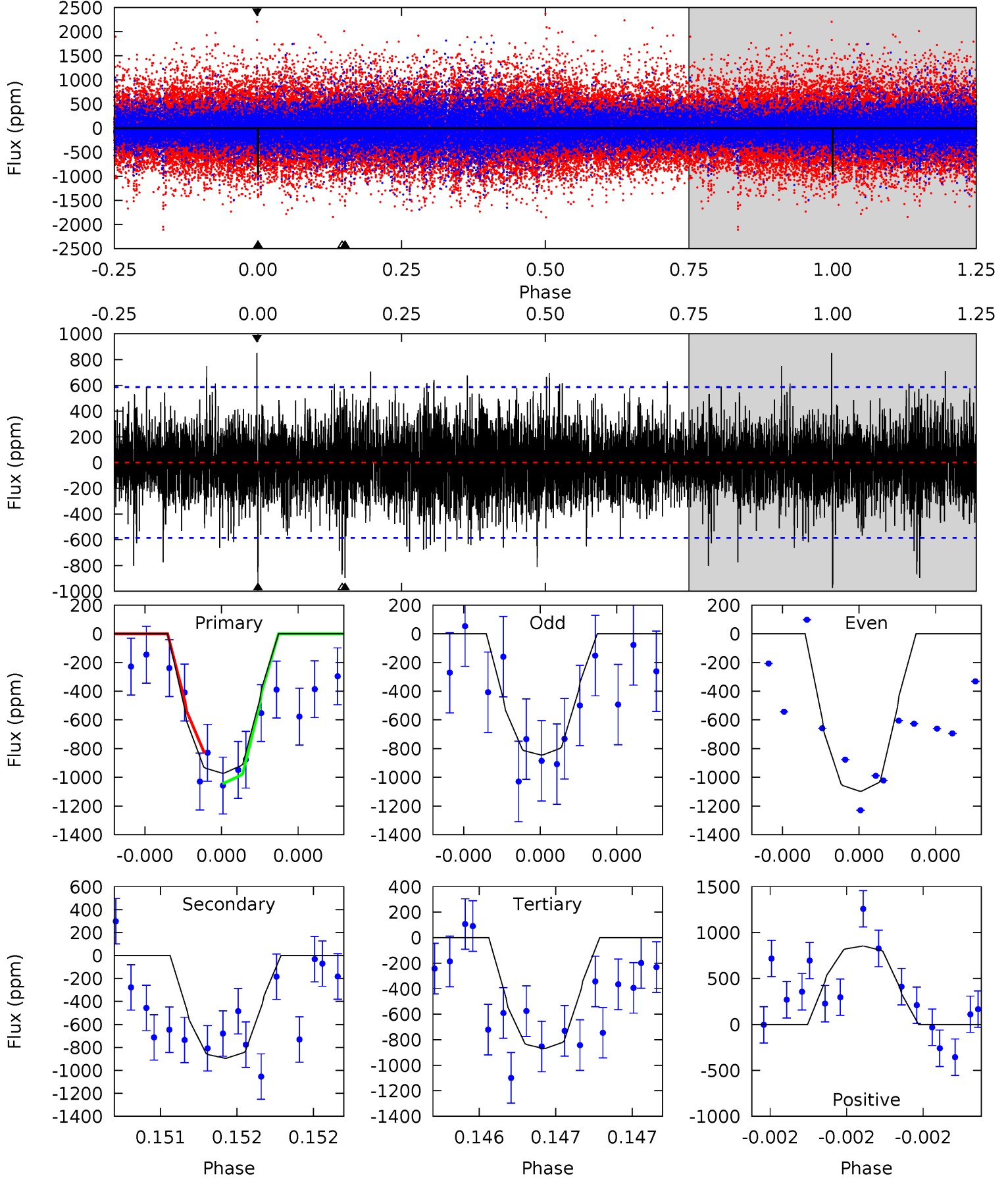
TCE 006059055-01 P=387.634442 Days  $T_0=195.480335$  (BKJD)



# DV Model-Shift Uniqueness Test

006059055-01, P = 387.646425 Days, E = 195.448408 Days

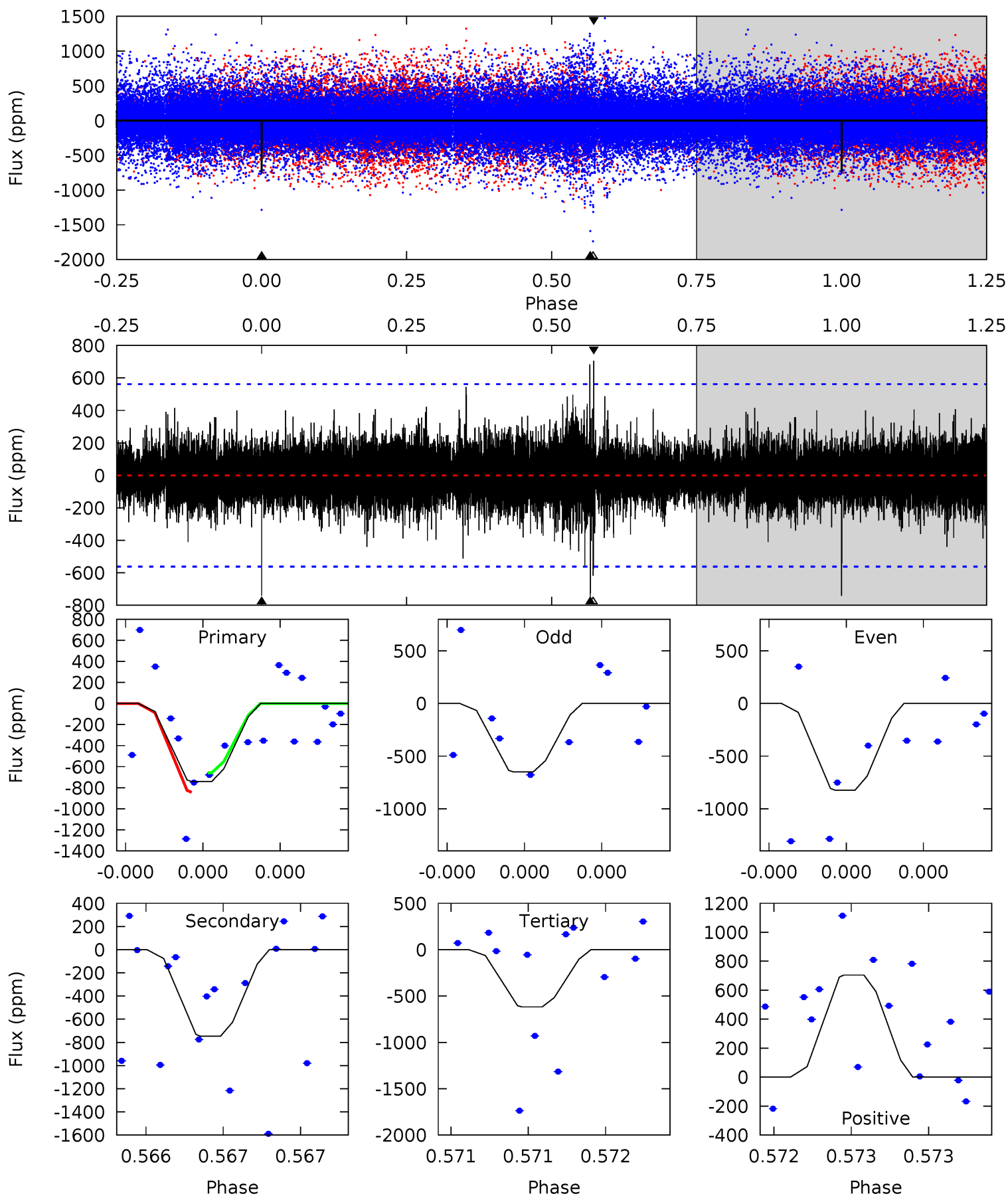
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.48	8.73	8.48	8.32	5.72	3.70	1.78	1.00	1.16	0.25	0.41	1.21	0.94	0.47	1.04



# Alt Model-Shift Uniqueness Test

006059055-01, P = 387.634442 Days, E = 195.480335 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
7.69	7.74	6.41	7.31	5.83	3.87	1.06	1.28	0.38	1.34	0.44	0.89	1.13	0.49	0.93



### Stellar Parameters For KIC 006059055

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5985^{+161}_{-197}$	$4.548^{+0.037}_{-0.213}$	$-0.360^{+0.300}_{-0.300}$	$0.855^{+0.264}_{-0.066}$	$0.942^{+0.109}_{-0.120}$	$2.122^{+0.437}_{-1.126}$
	+3%/-3%	+1%/-5%	+83%/-83%	+31%/-8%	+12%/-13%	+21%/-53%
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 006059055-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-894 \pm 102$	$11.91^{+12.35}_{-8.13}$	$345^{+24}_{-16}$	$3461^{+1878}_{-628}$	$3544^{+35235}_{-2720}$
Alt.	$-747 \pm 96$	$12.24^{+12.77}_{-8.91}$	$347^{+24}_{-17}$	$3357^{+2123}_{-645}$	$2828^{+34336}_{-2186}$

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

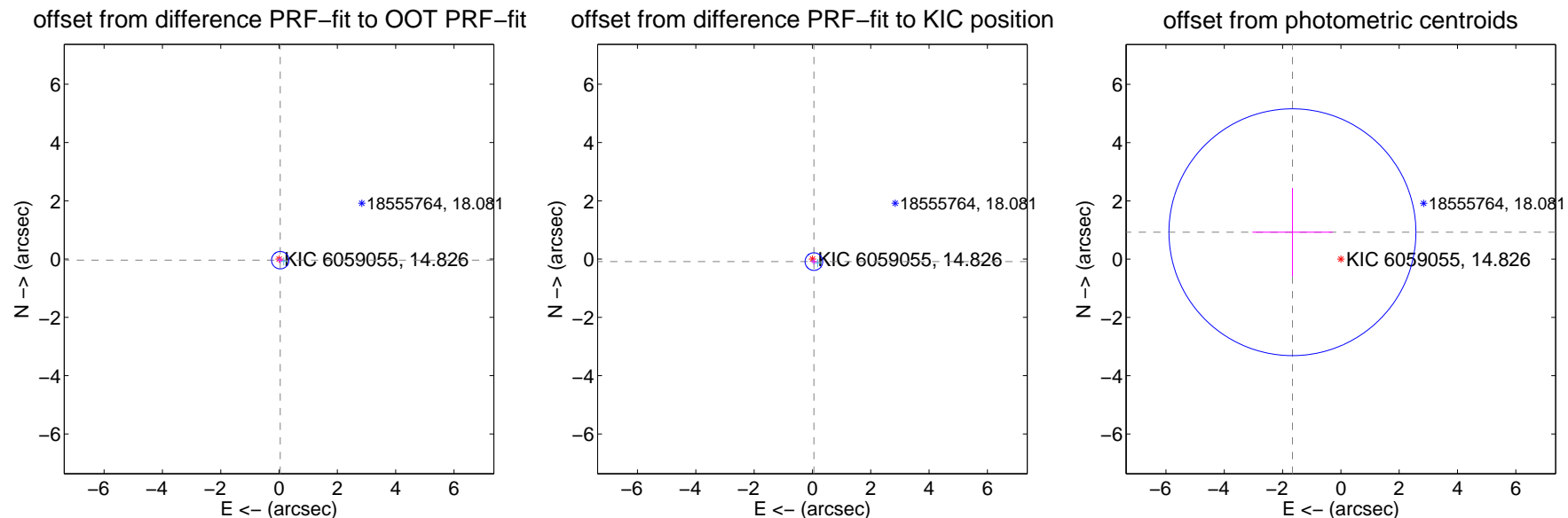
## DV Centroid Data

Supplemental centroid analysis for 006059055-01. Kepler magnitude: 14.83. Transit SNR 4.87

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.056 \pm 0.100$	0.56	$-0.041 \pm 0.098$	$-0.037 \pm 0.102$
PRF-fit source offset from KIC position	$0.099 \pm 0.101$	0.98	$-0.050 \pm 0.098$	$-0.086 \pm 0.102$
photometric centroid source offset	$1.90 \pm 1.41$	1.35	$1.66 \pm 1.38$	$0.92 \pm 1.52$



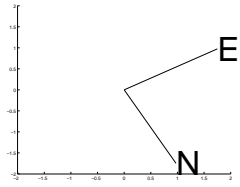
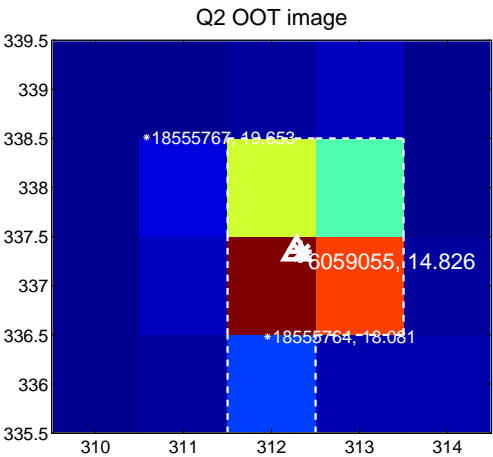
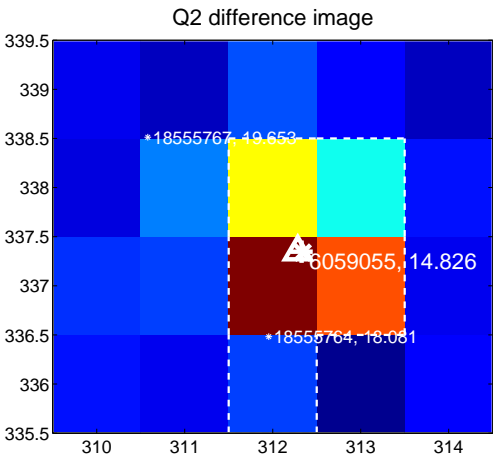
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

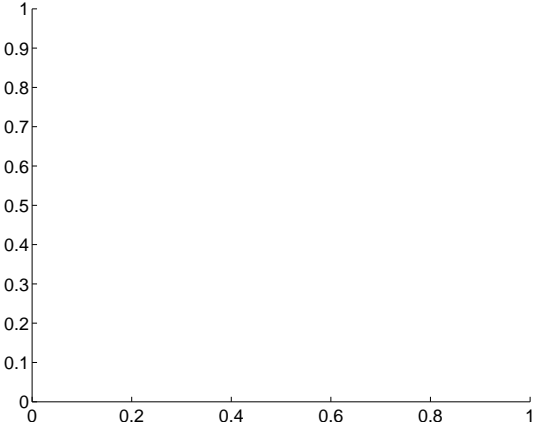
Q1 no difference image



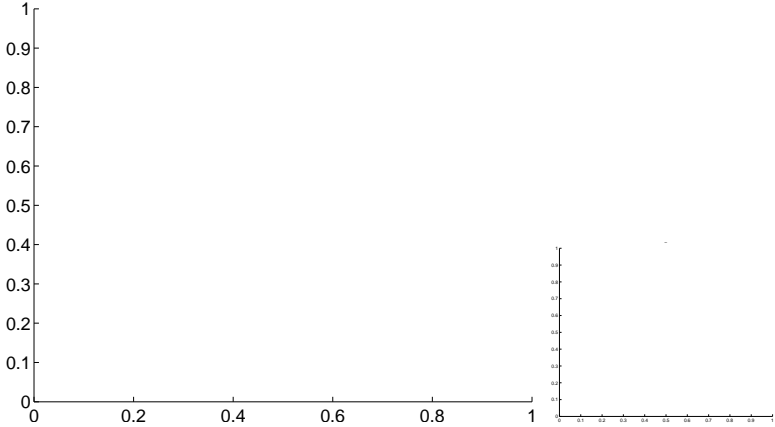
Q1 no OOT image



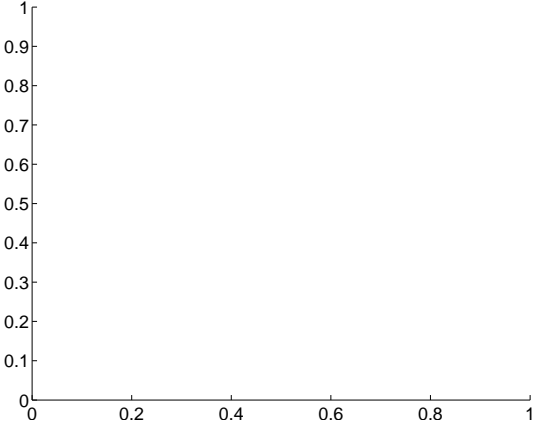
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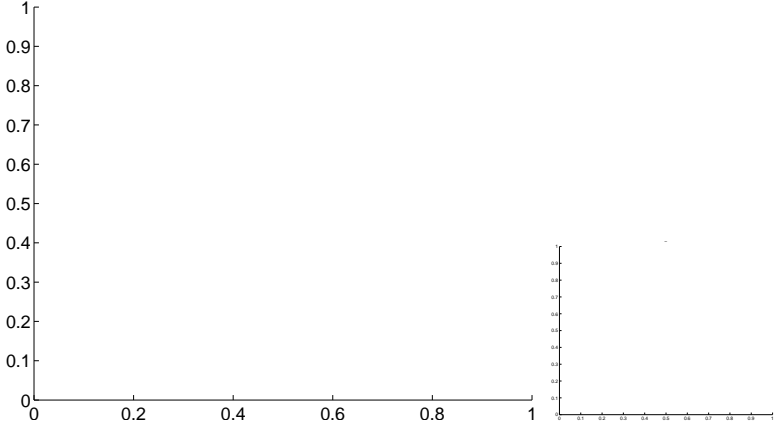
Q3 no OOT image



Q4 no difference image



Q4 no OOT image





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

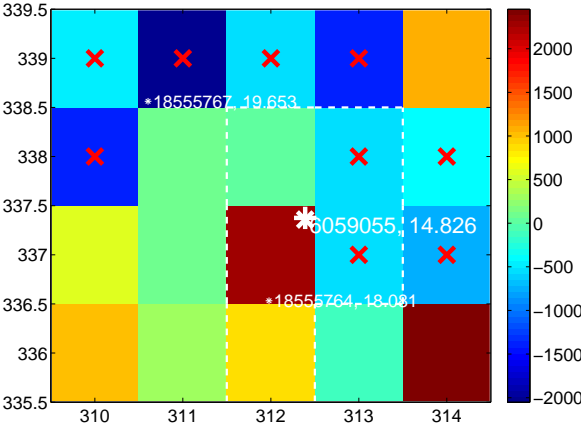
Q5 no difference image



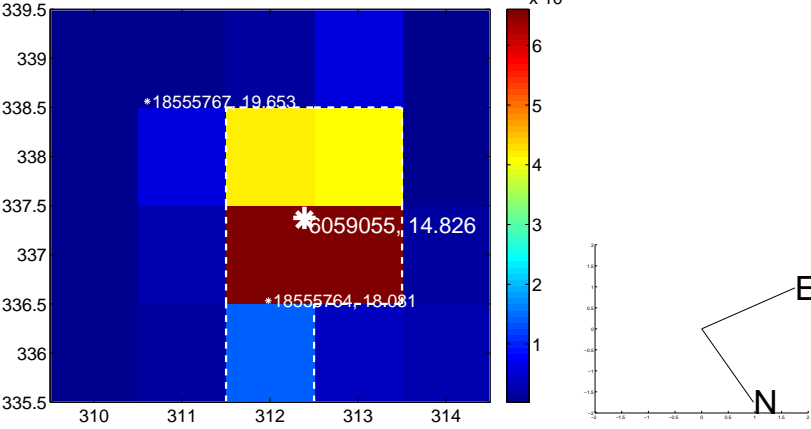
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



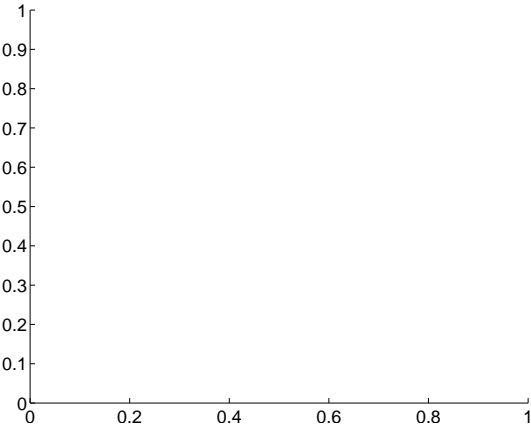
Q7 no difference image



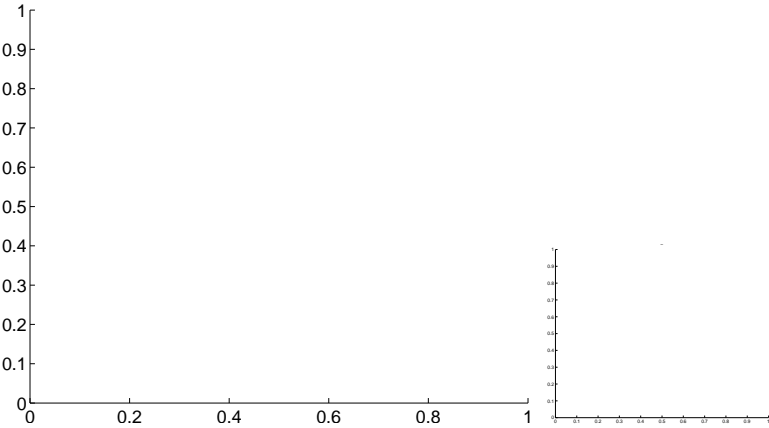
Q7 no OOT image



Q8 no difference image



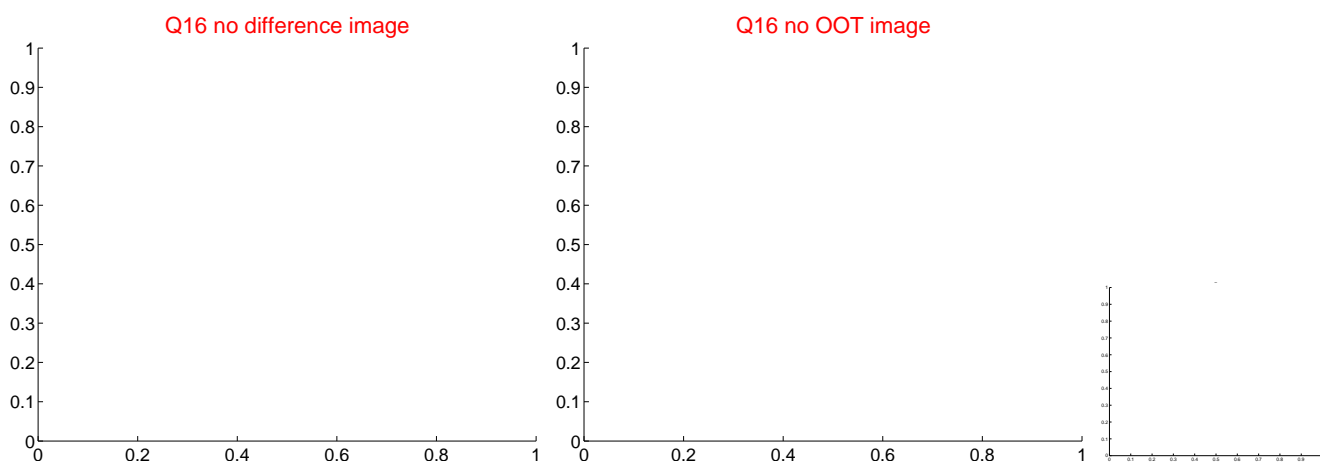
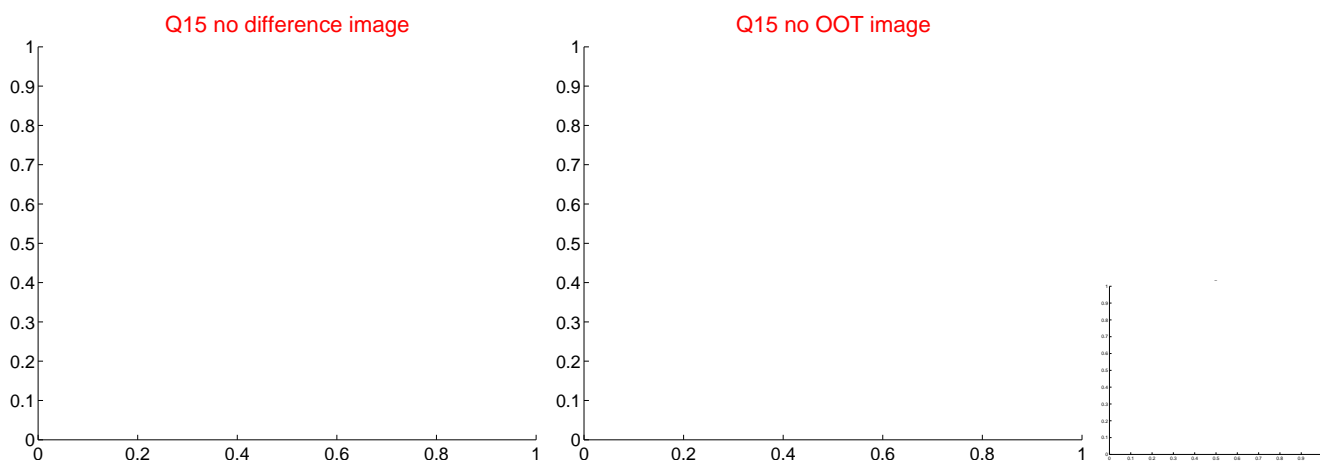
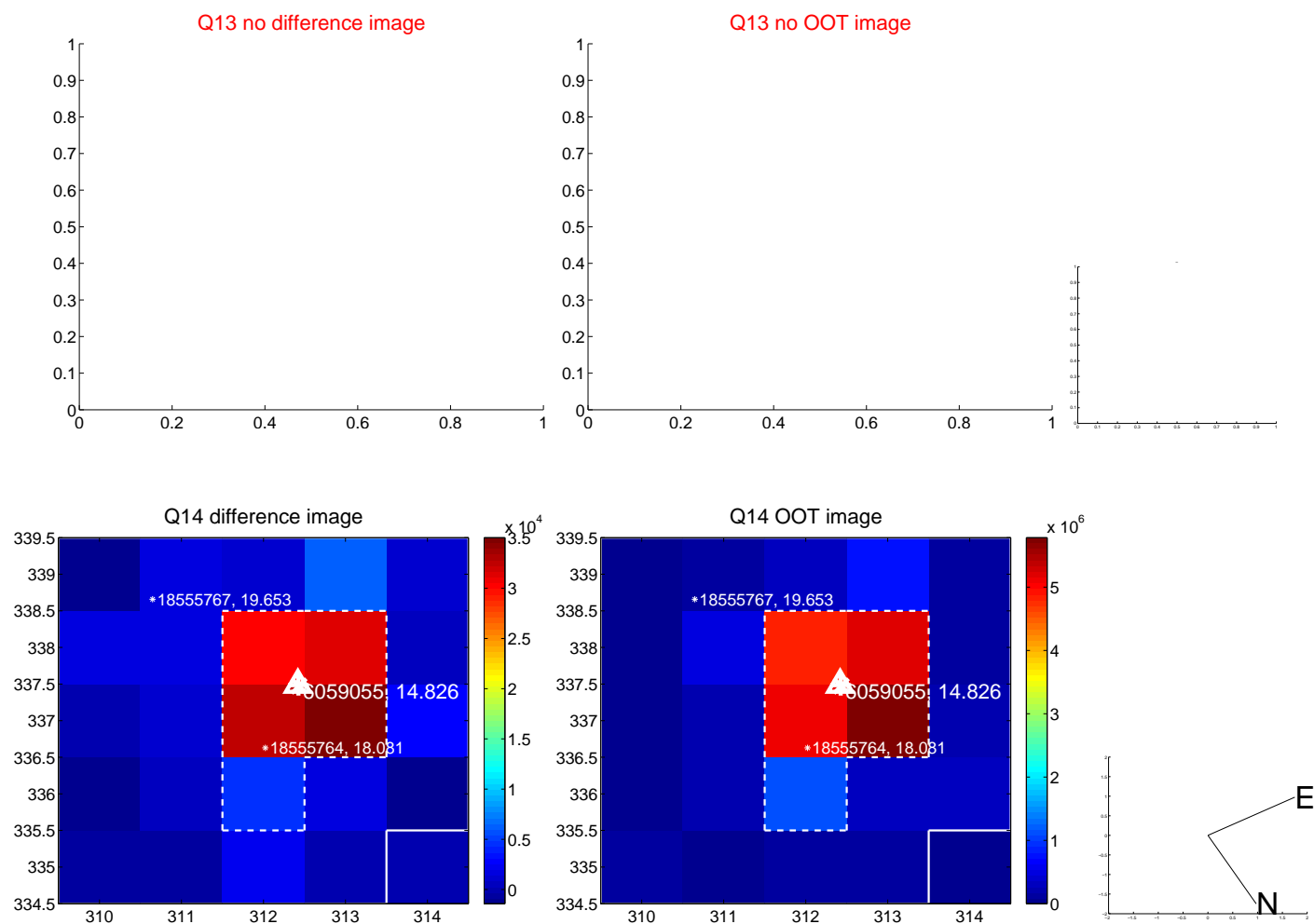
Q8 no OOT image



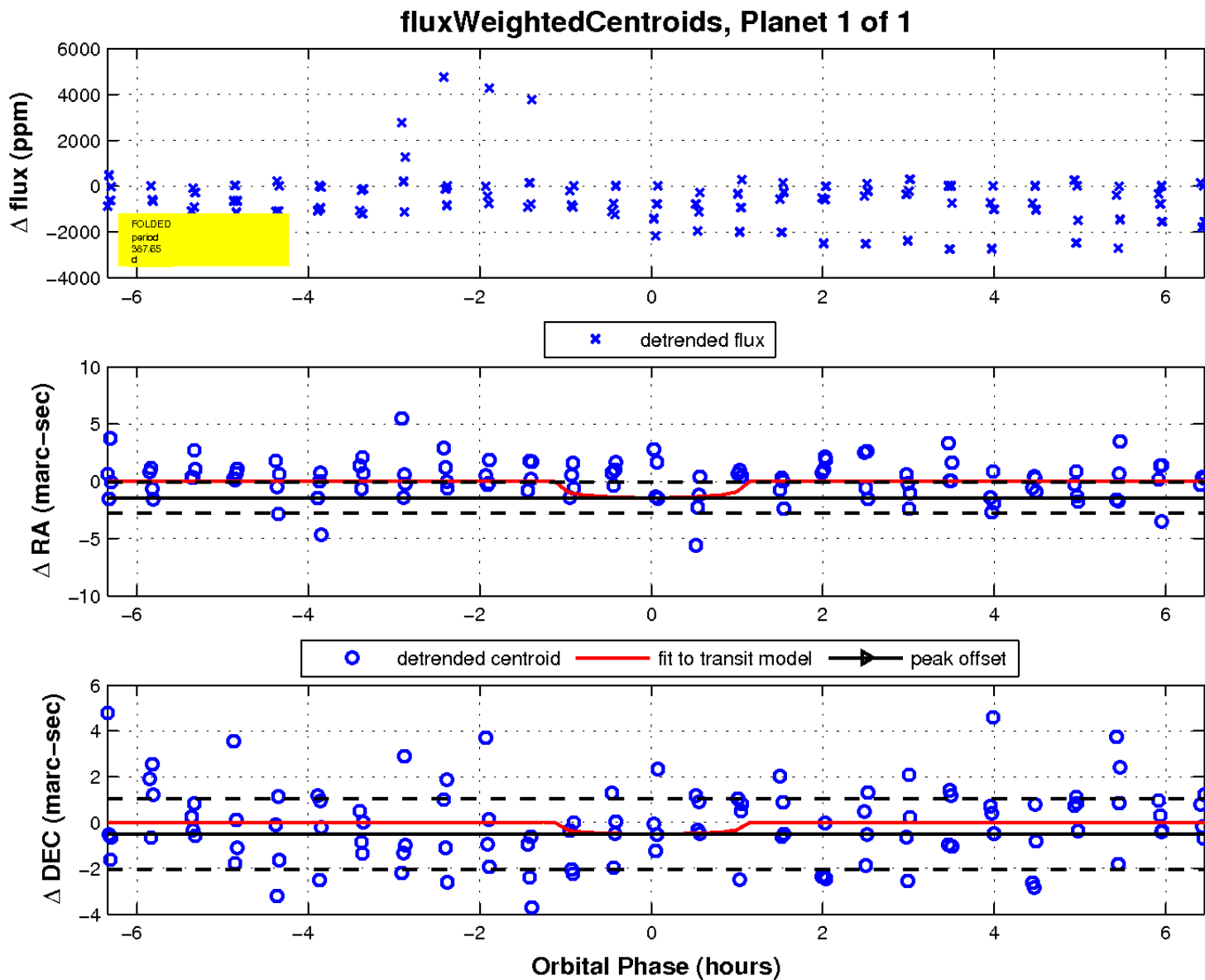
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

