

# KIC 004055059

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004055059-01	OBS	No	269.994305	257.082553	397.5	10.964	7.8	5.2	0.81	5324	1.79	0.86

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004055059-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

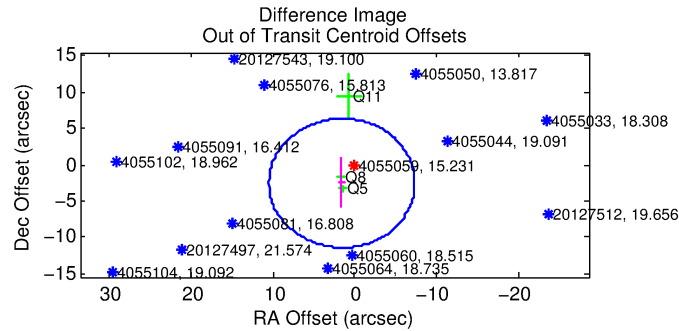
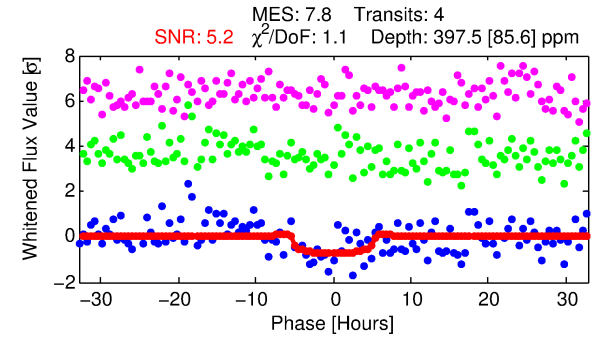
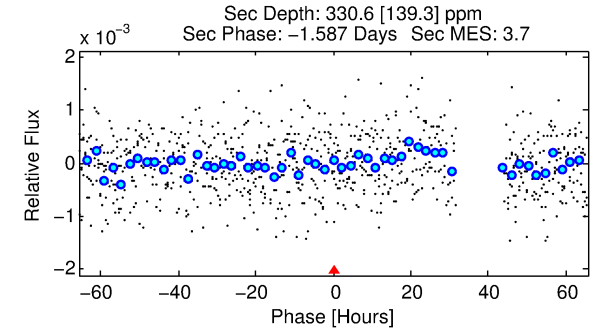
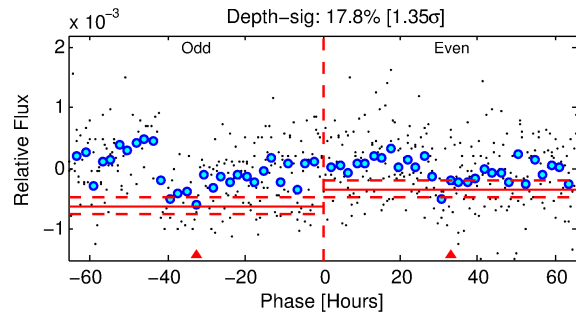
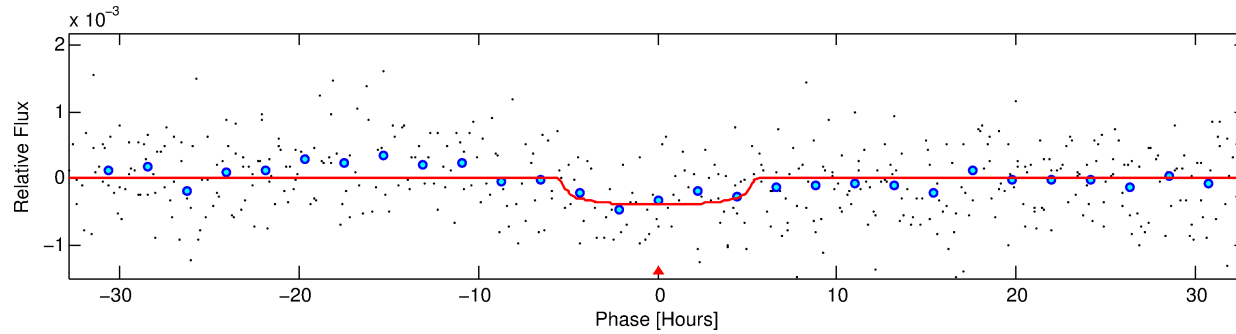
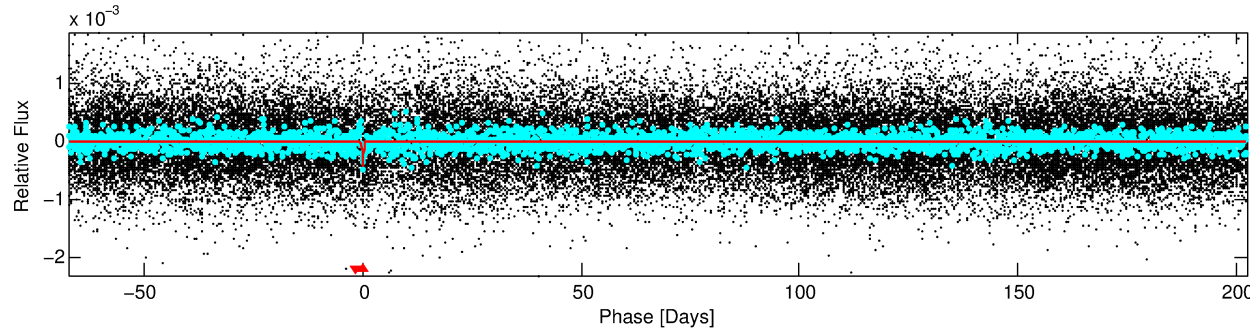
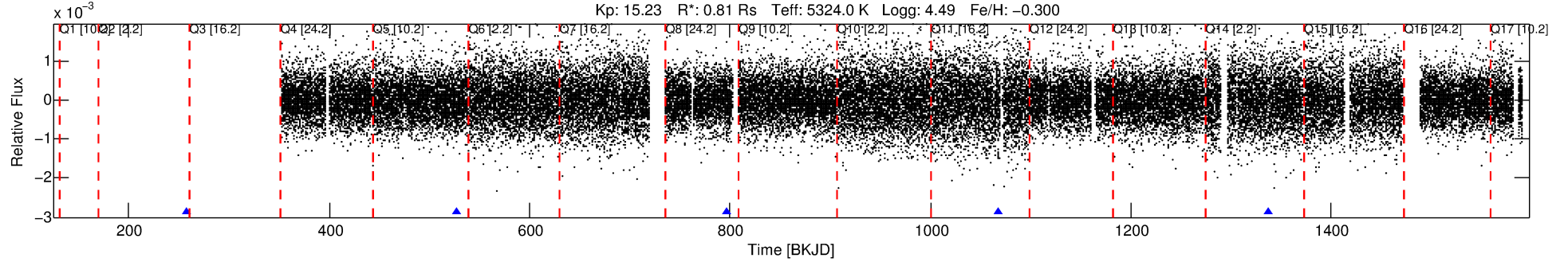
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004055059-01

No Significant Match Found

# DV One-Page Summary

KIC: 4055059 Candidate: 1 of 1 Period: 269.994 d



## DV Fit Results:

Period = 269.99430 [0.02015] d  
Epoch = 257.0826 [0.0448] BKJD  
Rp/R\* = 0.0202 [0.0140]  
a/R\* = 122.84 [343.45]  
b = 0.78 [1.40]  
Seff = 0.86 [0.25]  
Teq = 246 [17] K  
Rp = 1.79 [1.28] Re  
a = 0.7419 [0.1146] AU  
Ag = 31265.99 [45941.38] [0.68 $\sigma$ ]  
Teffp = 5055 [1842] K [2.61 $\sigma$ ]

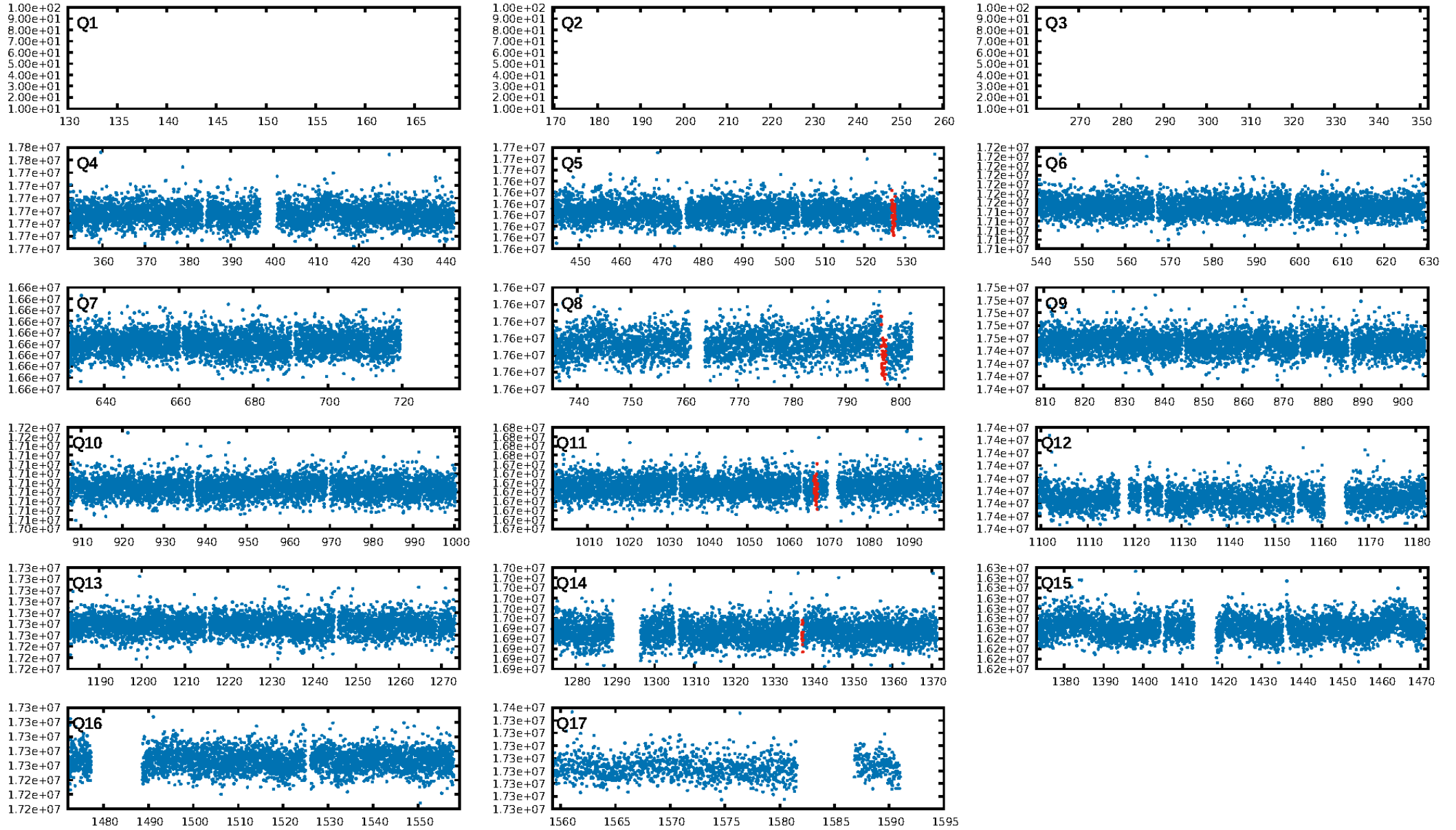
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 11.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.47e-14  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.497  
Centroid-sig: 0.1%  
Centroid-so: 6.060 arcsec [2.07 $\sigma$ ]  
OotOffset-rm: 3.015 arcsec [1.02 $\sigma$ ]  
KicOffset-rm: 3.116 arcsec [0.77 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

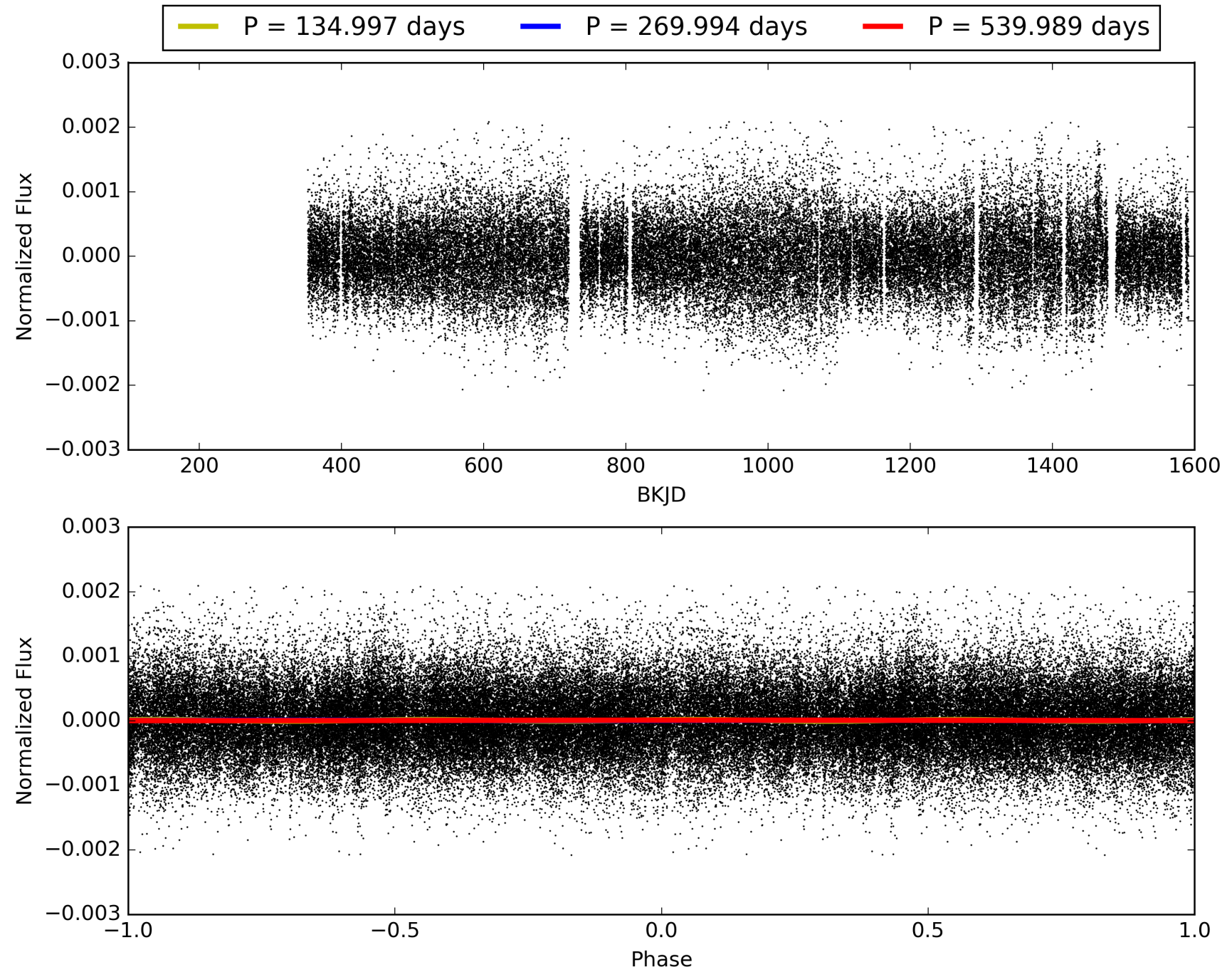
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:22:13 Z

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

# TCE 004055059-01, PDC Light Curves

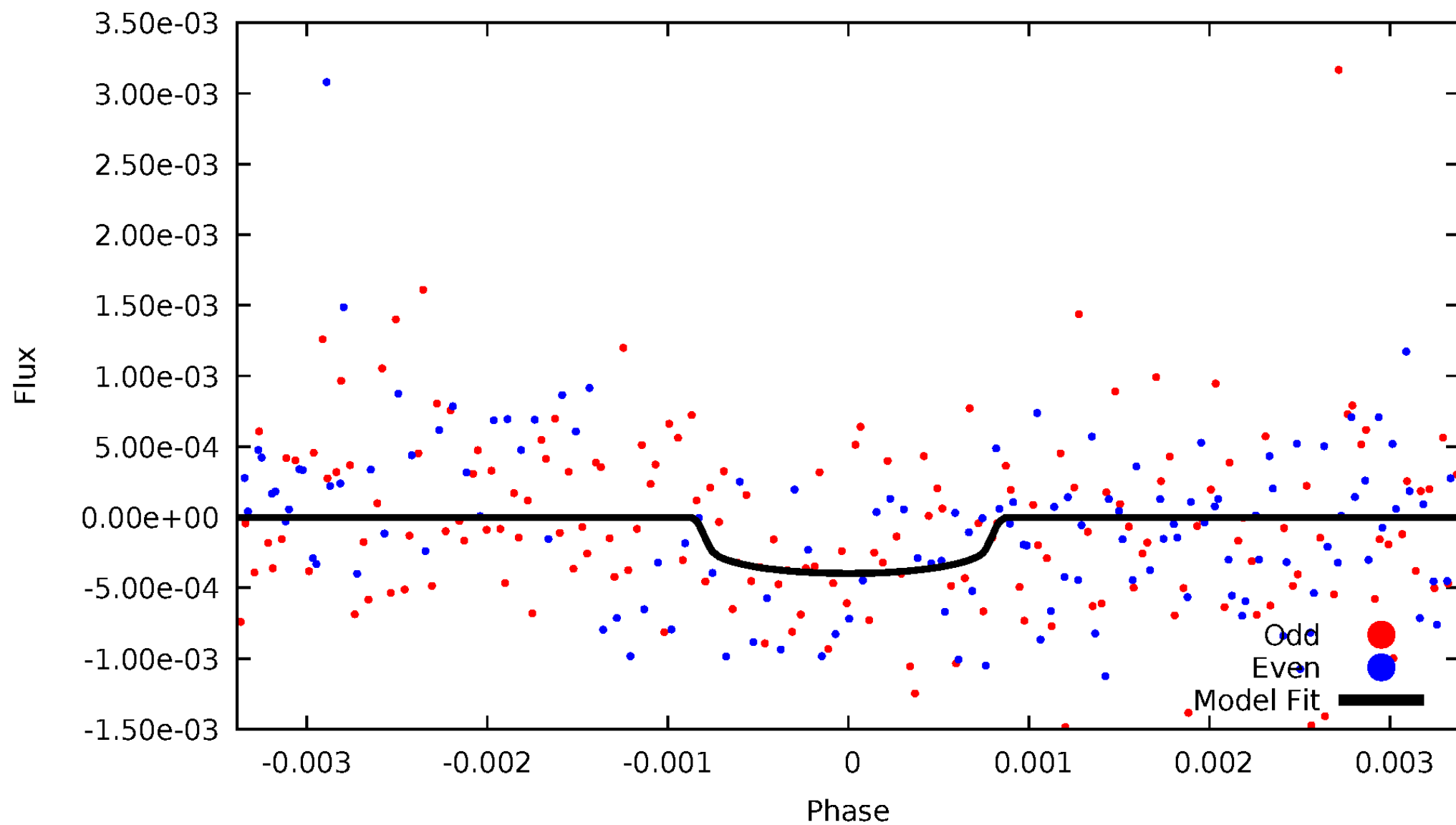


# TCE 004055059-01



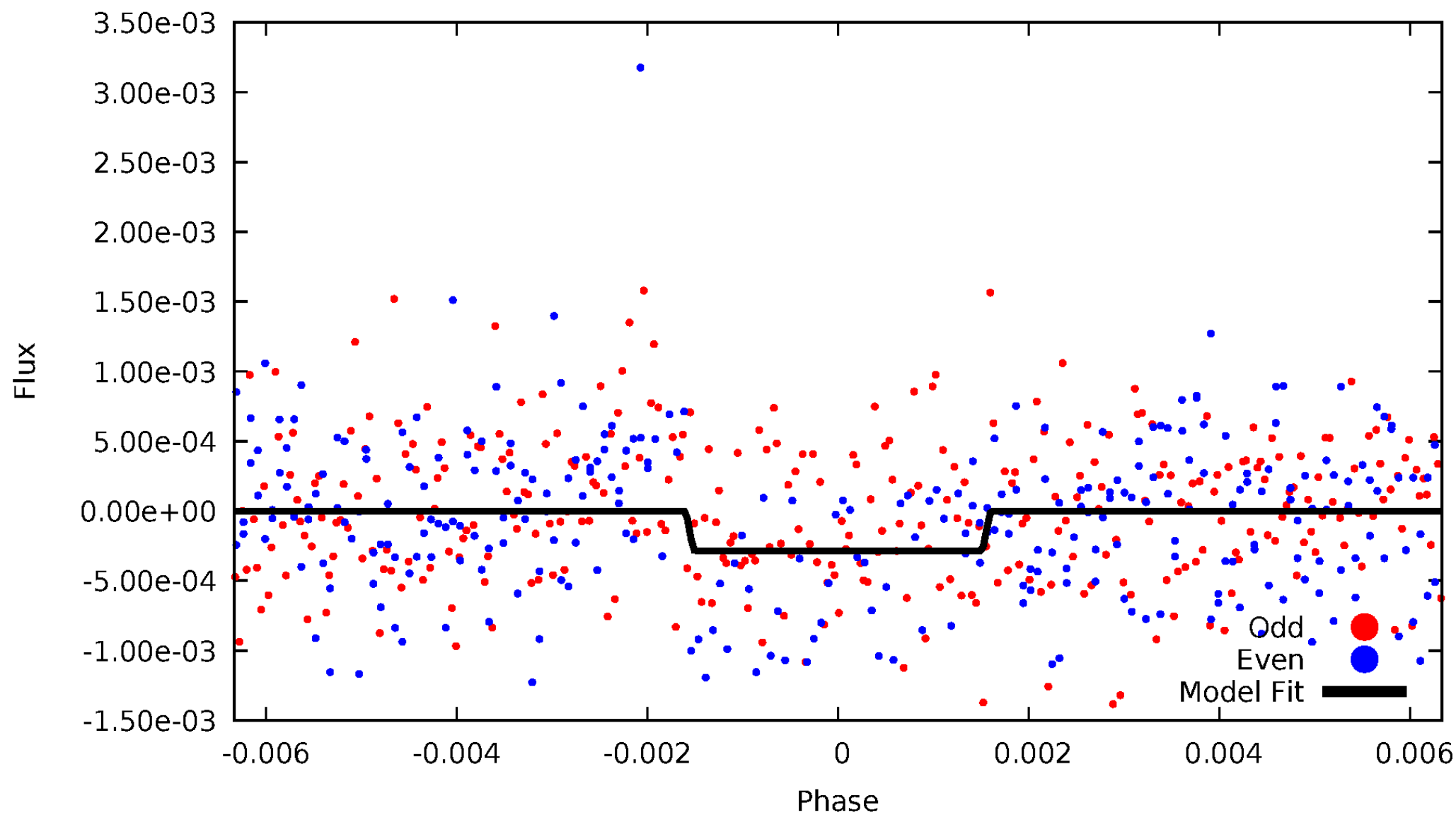
# DV Odd/Even

TCE 004055059-01



# ALT Odd/Even

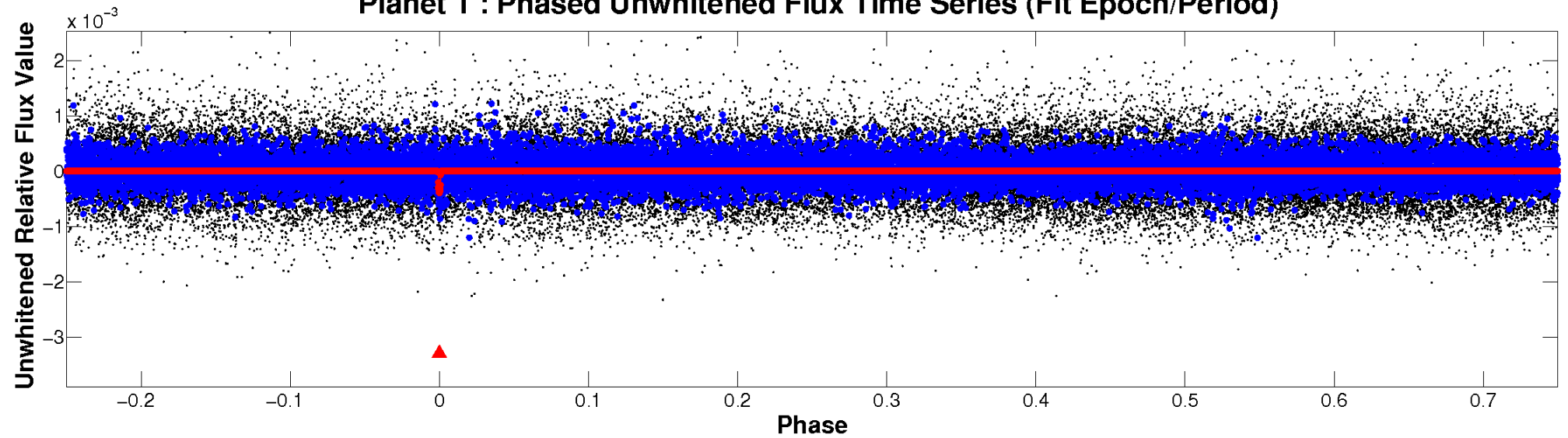
TCE 004055059-01



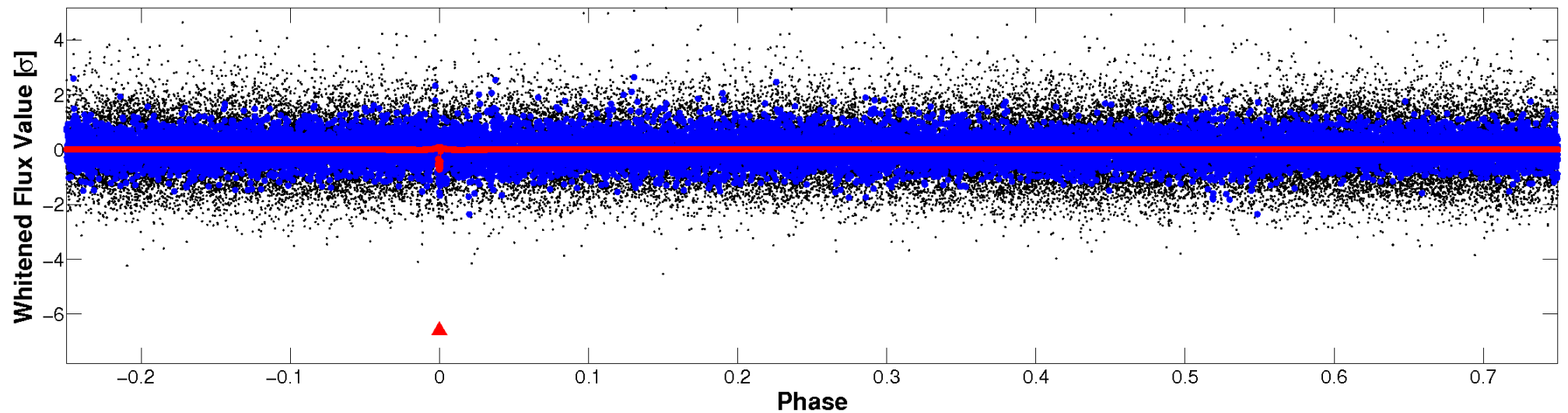


# Non-Whitened Vs. Whitened Light Curve

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

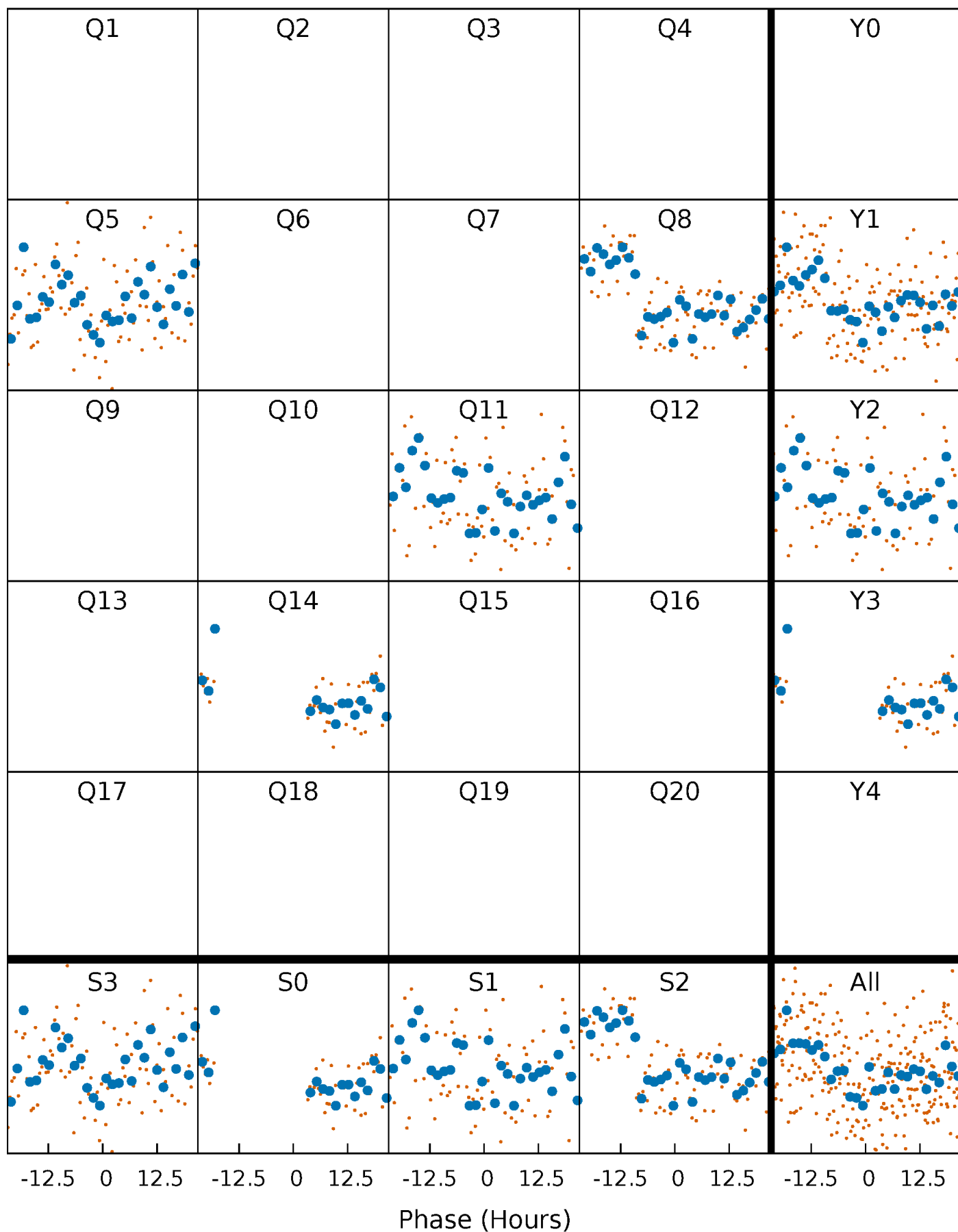


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

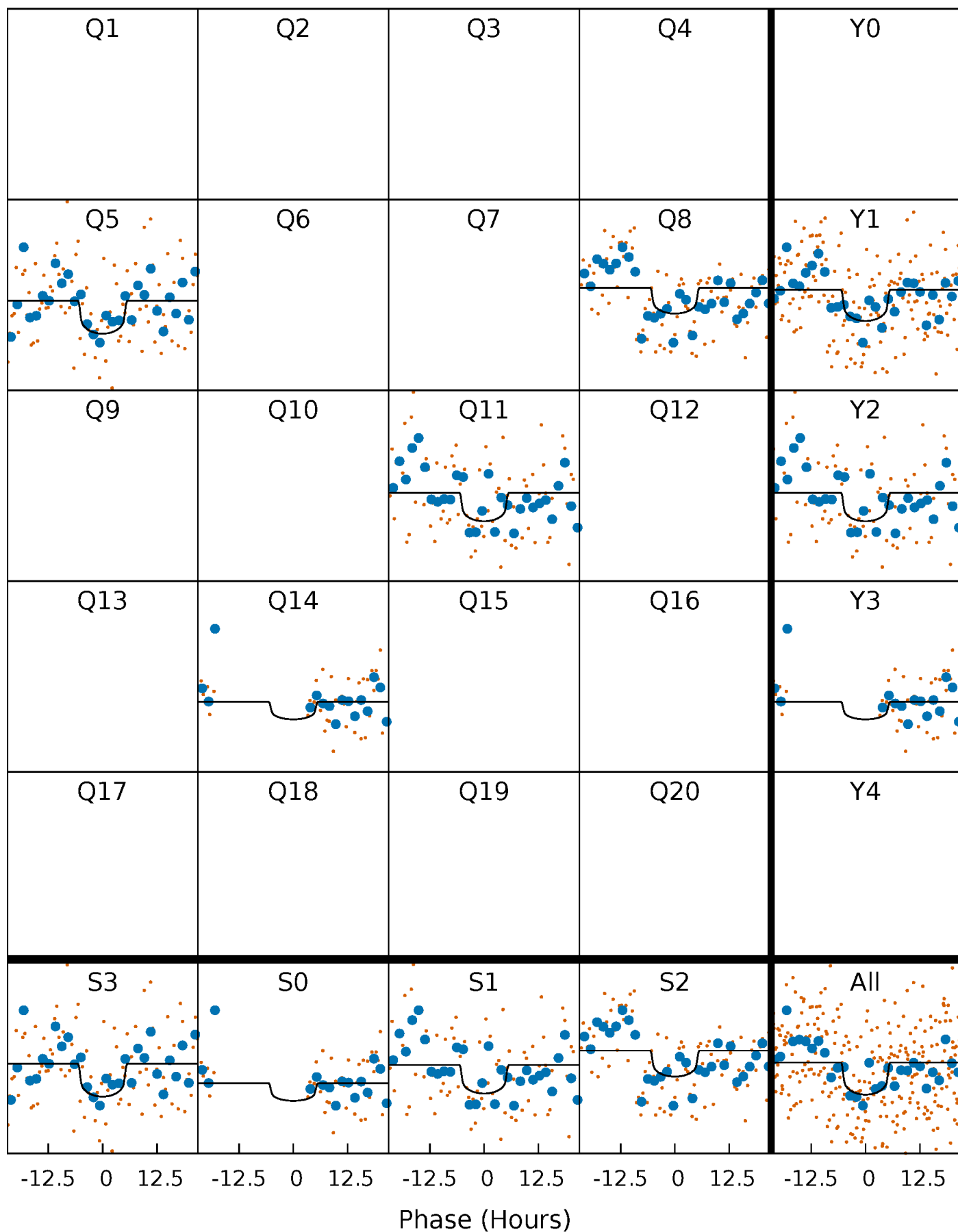
TCE 004055059-01 P=269.994305 Days  $T_0=257.082553$  (BKJD)





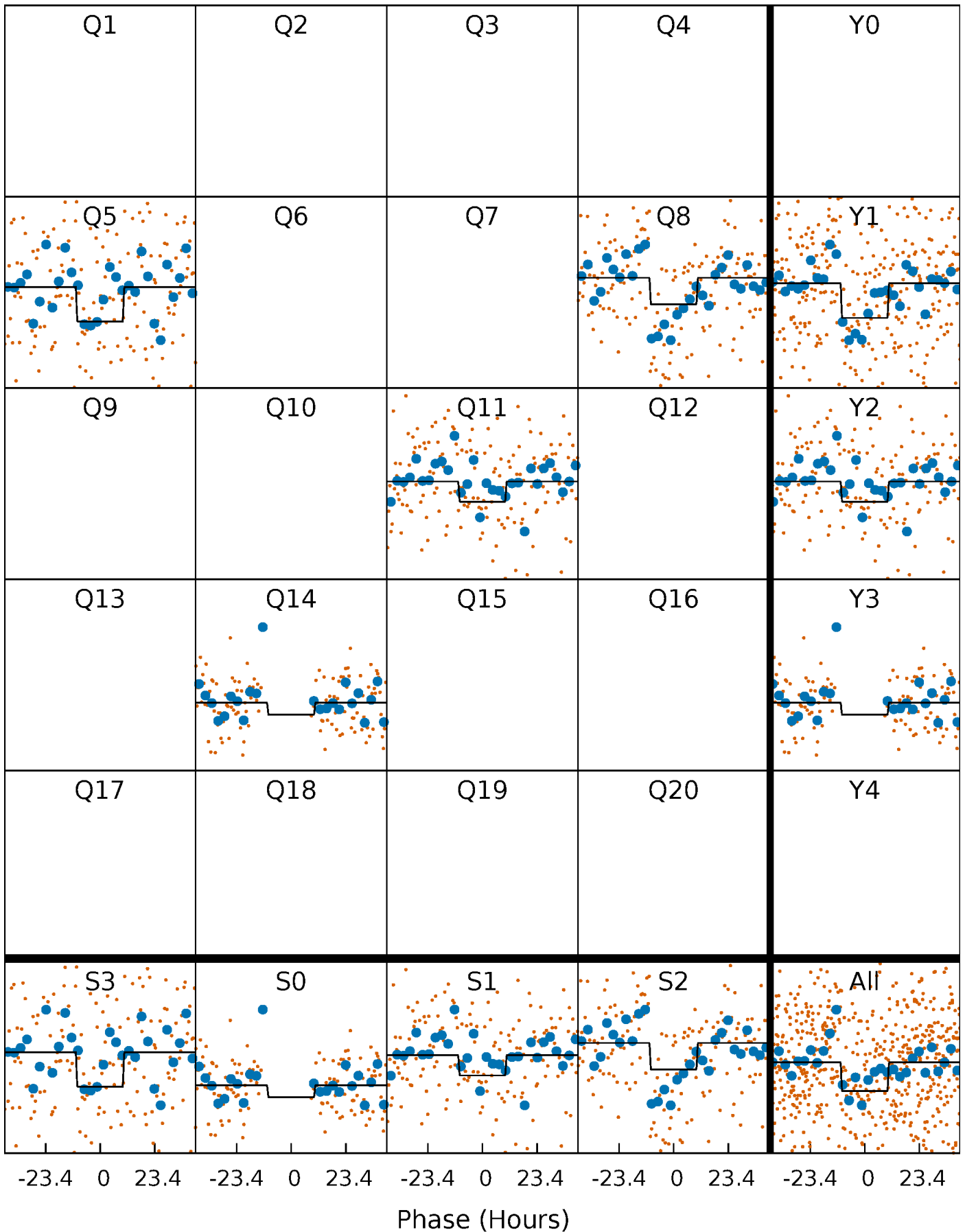
# DV Quarter-Phased Transit Curves

TCE 004055059-01 P=269.994305 Days  $T_0=257.082553$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

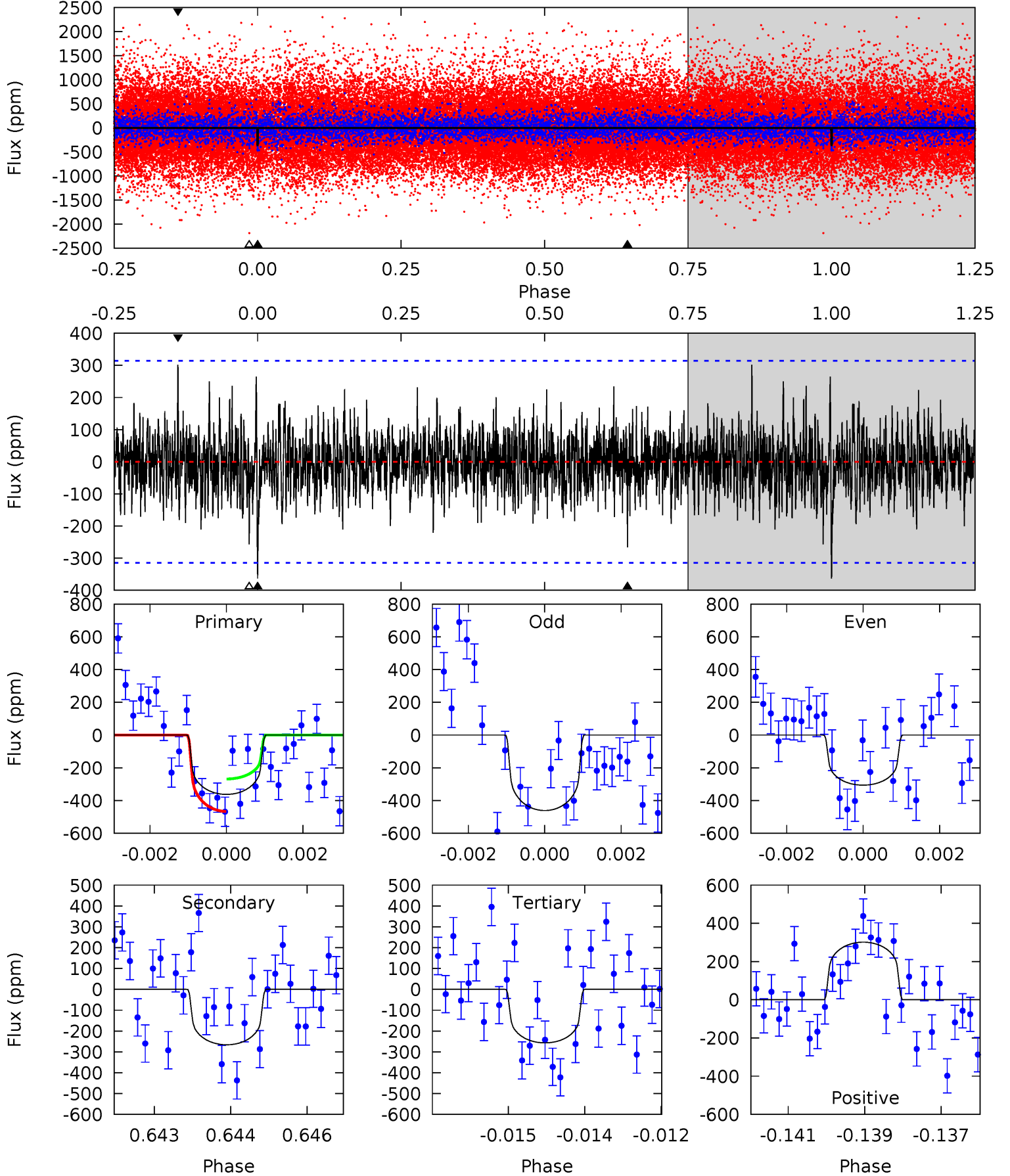
TCE 004055059-01 P=269.859216 Days  $T_0=257.401664$  (BKJD)



# DV Model-Shift Uniqueness Test

004055059-01, P = 269.994305 Days, E = 257.082553 Days

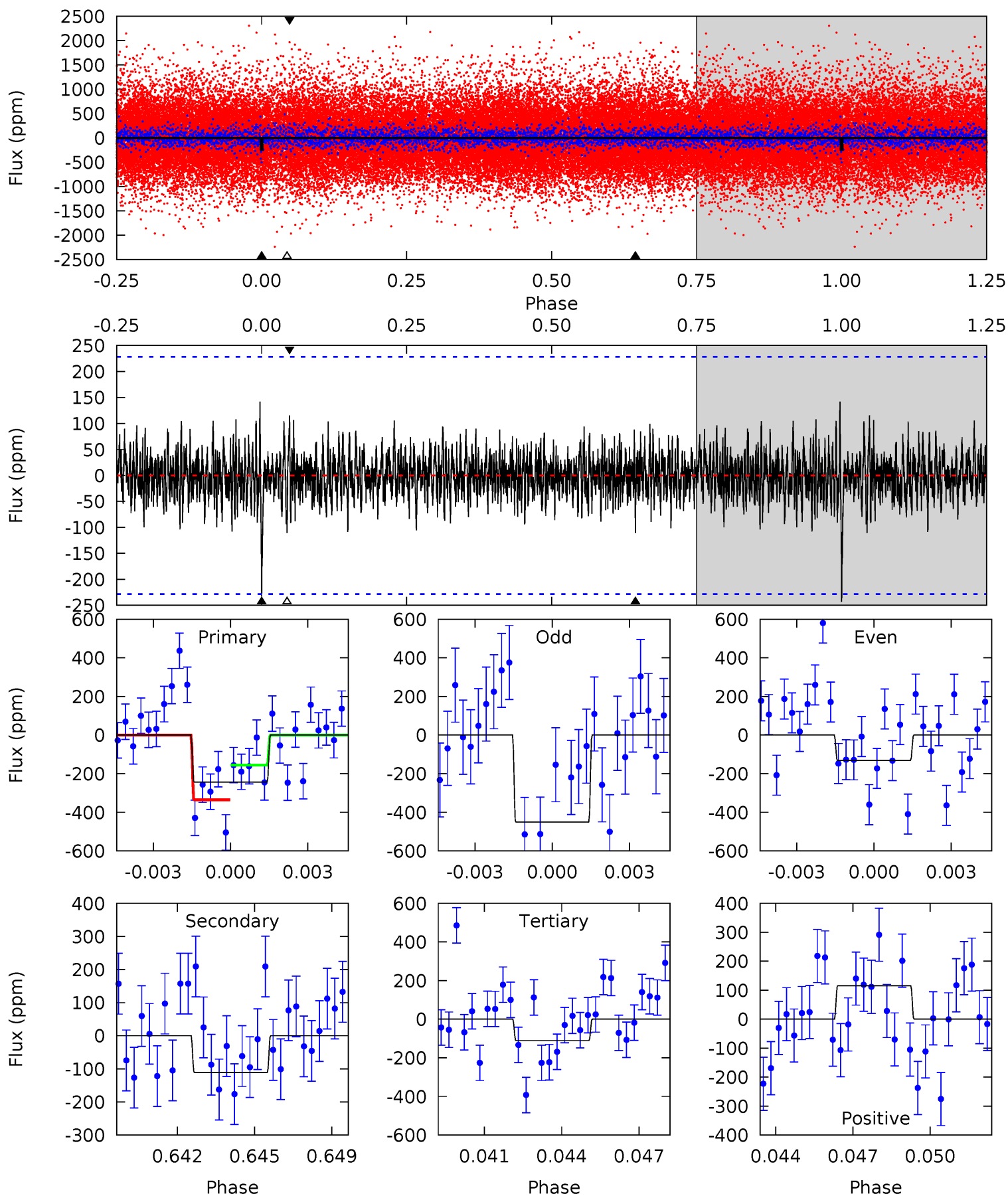
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.17	4.53	4.37	5.13	5.35	3.14	1.18	1.80	1.04	0.16	-0.61	1.29	1.00	0.45	1.69



# Alt Model-Shift Uniqueness Test

004055059-01, P = 269.859216 Days, E = 257.401664 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
5.58	2.54	2.54	2.65	5.24	2.95	0.78	3.04	2.93	0.00	-0.11	3.53	1.62	0.37	2.07



### Stellar Parameters For KIC 004055059

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5324^{+204}_{-185}$	$4.491^{+0.113}_{-0.137}$	$-0.300^{+0.350}_{-0.300}$	$0.813^{+0.138}_{-0.101}$	$0.746^{+0.122}_{-0.052}$	$1.960^{+0.925}_{-0.741}$
	+4%/-3%	+3%/-3%	+117%/-100%	+17%/-12%	+16%/-7%	+47%/-38%
Source	KIC0	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 004055059-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-266 \pm 59$	$1.90^{+1.23}_{-1.09}$	$345^{+21}_{-20}$	$4780^{+2522}_{-851}$	$22695^{+114488}_{-14592}$
Alt.	$-111 \pm 44$	$1.65^{+1.24}_{-0.96}$	$345^{+22}_{-18}$	$4212^{+1882}_{-793}$	$11861^{+53613}_{-8494}$

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

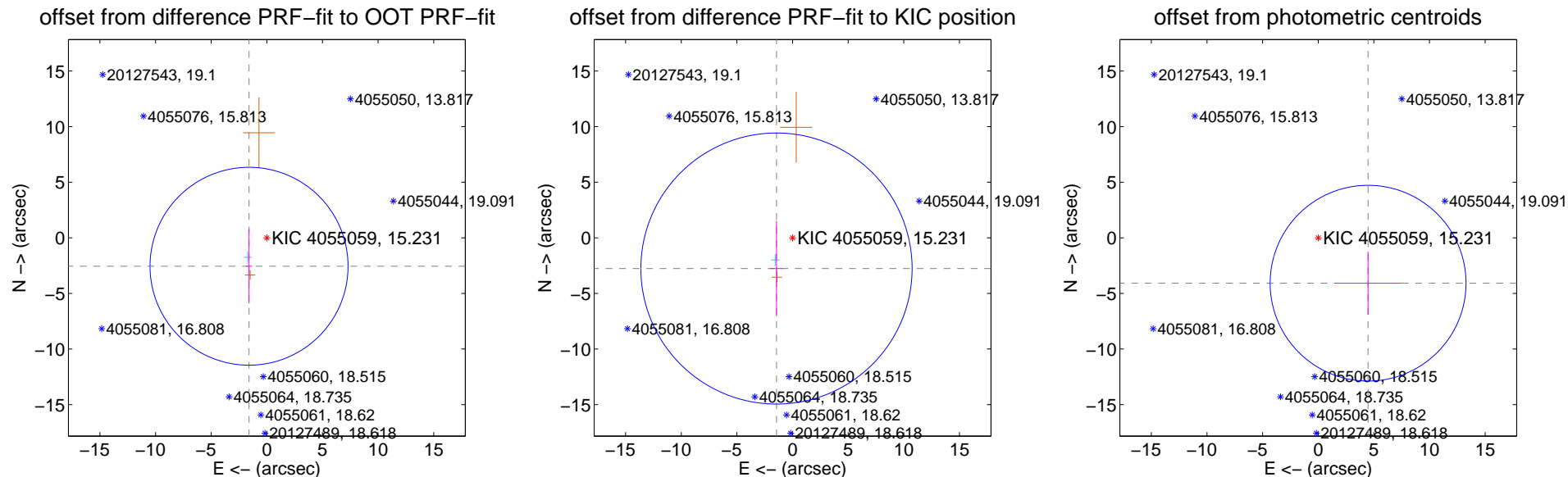
## DV Centroid Data

Supplemental centroid analysis for 004055059-01. Kepler magnitude: 15.23. Transit SNR 5.19

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.015 \pm 2.966$	1.02	$1.599 \pm 0.263$	$-2.556 \pm 3.343$
PRF-fit source offset from KIC position	$3.116 \pm 4.063$	0.77	$1.442 \pm 0.574$	$-2.763 \pm 4.287$
photometric centroid source offset	$6.06 \pm 2.93$	2.07	$-4.48 \pm 3.01$	$-4.08 \pm 2.84$



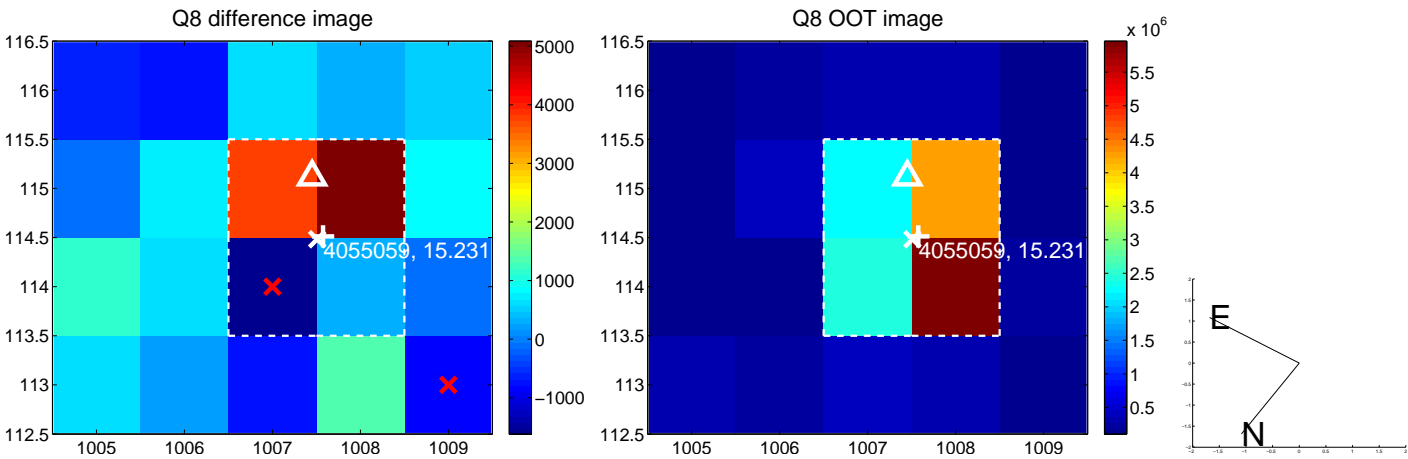
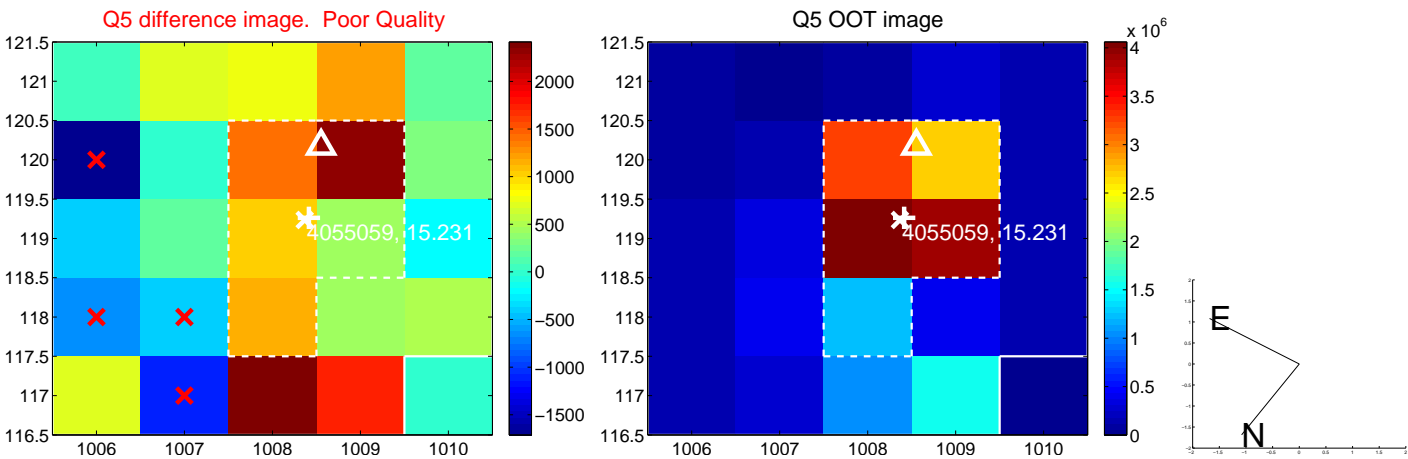
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

Q9 no difference image



Q9 no OOT image



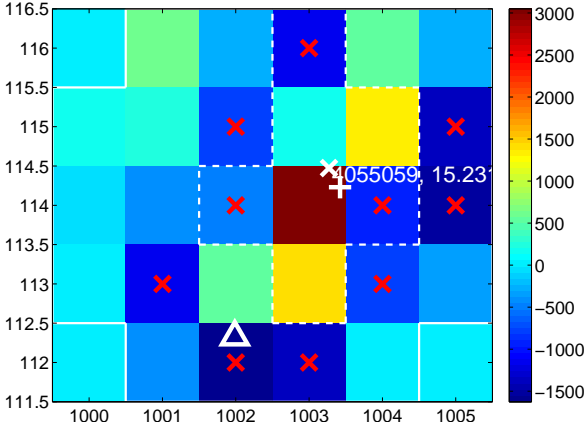
Q10 no difference image



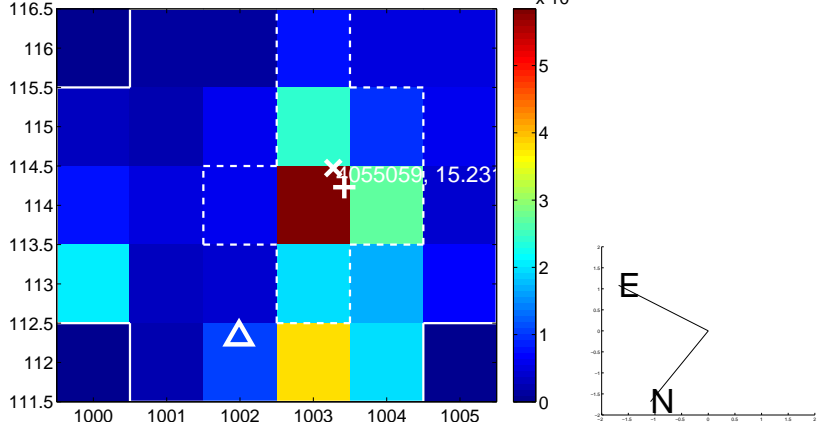
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



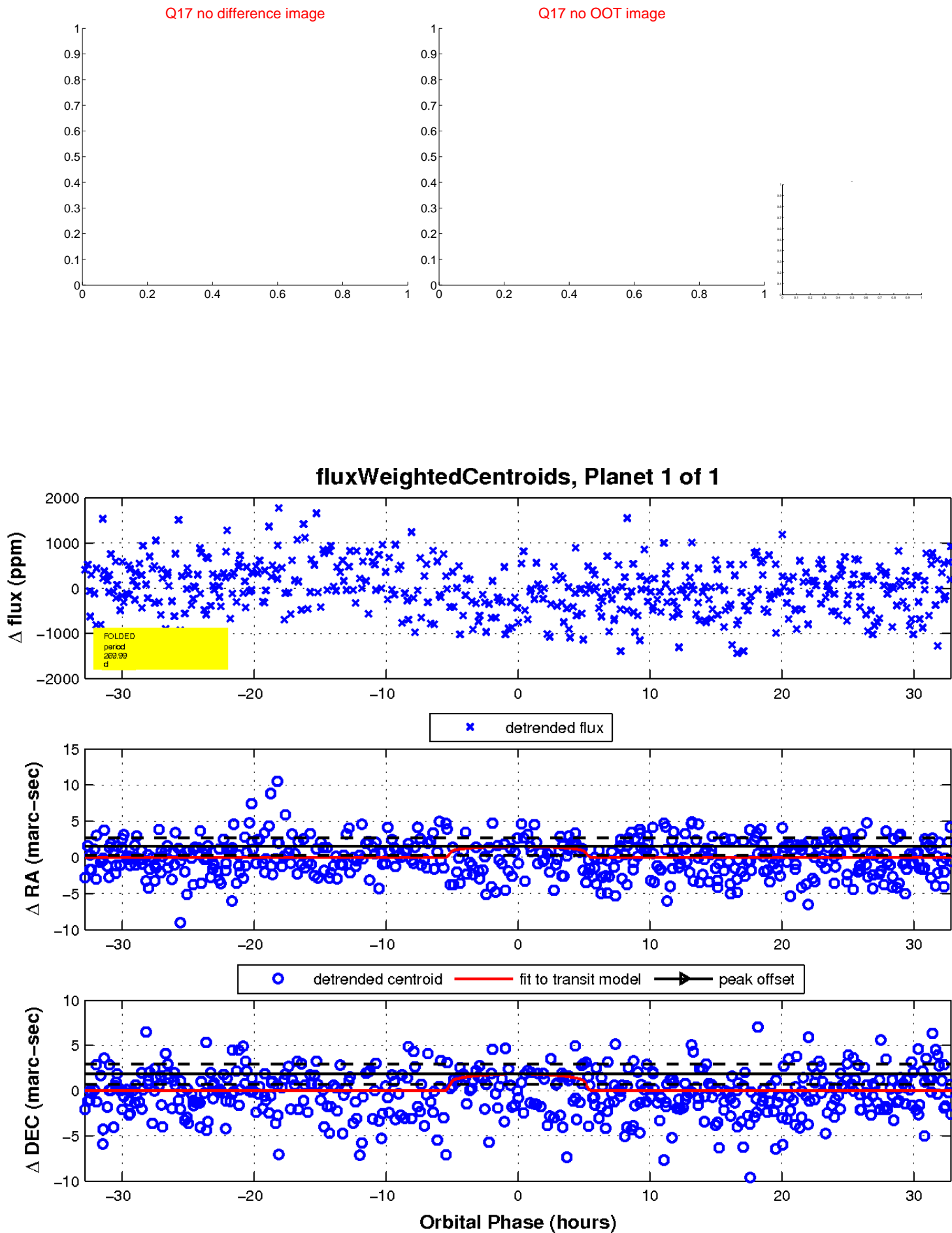
Q12 no OOT image



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.



UKIRT Image

Declination

