

# KIC 010860098

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010860098-01	OBS	No	526.117337	144.610976	156.6	10.877	7.8	8.9	1.46	6036	2.06	1.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010860098-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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.

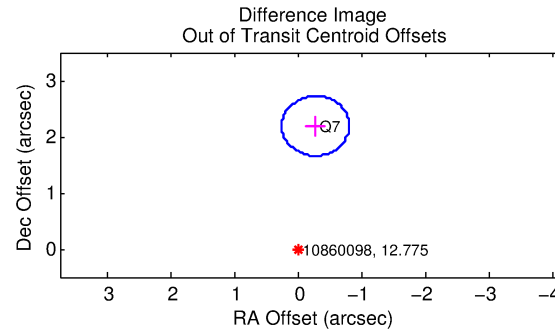
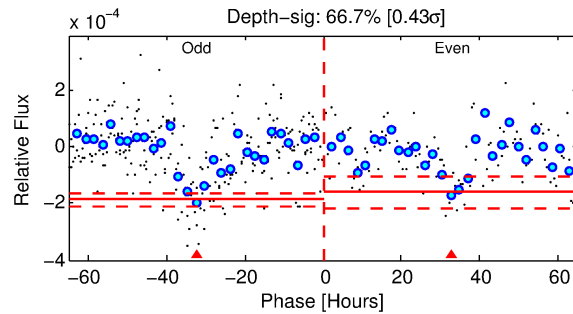
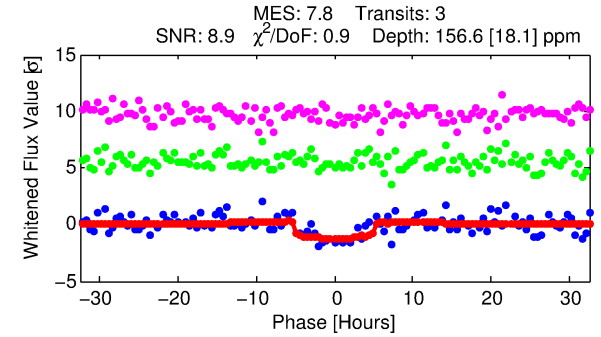
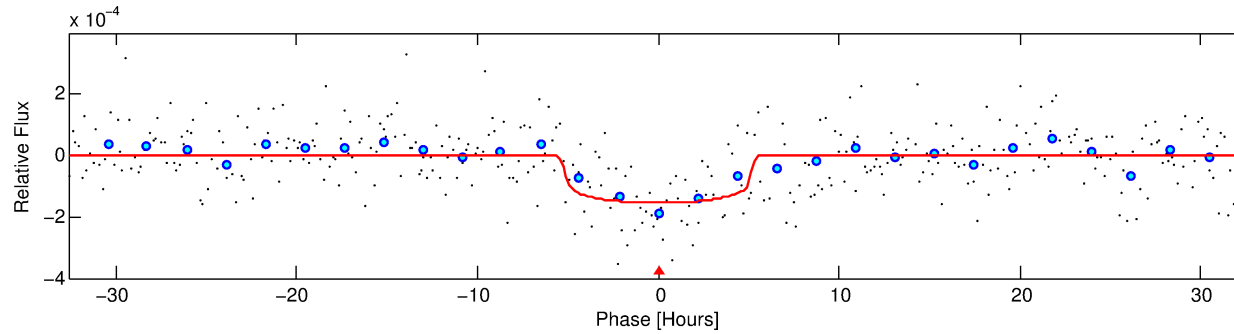
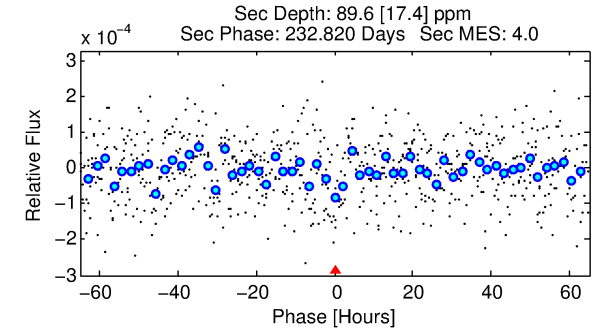
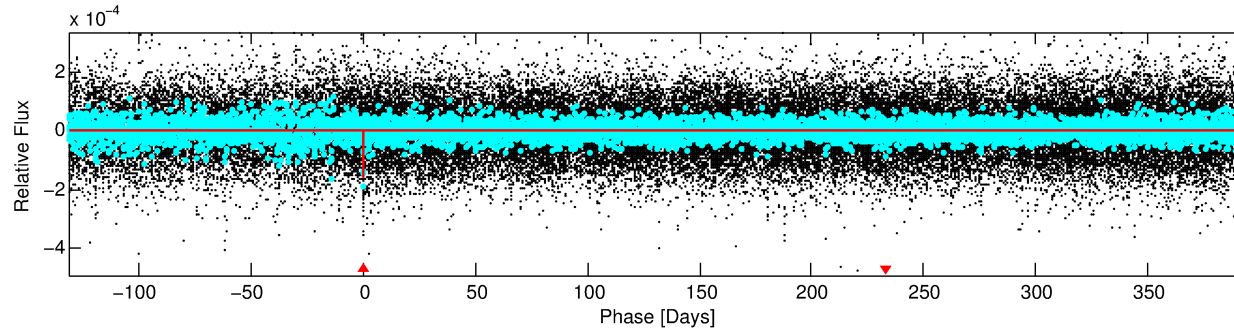
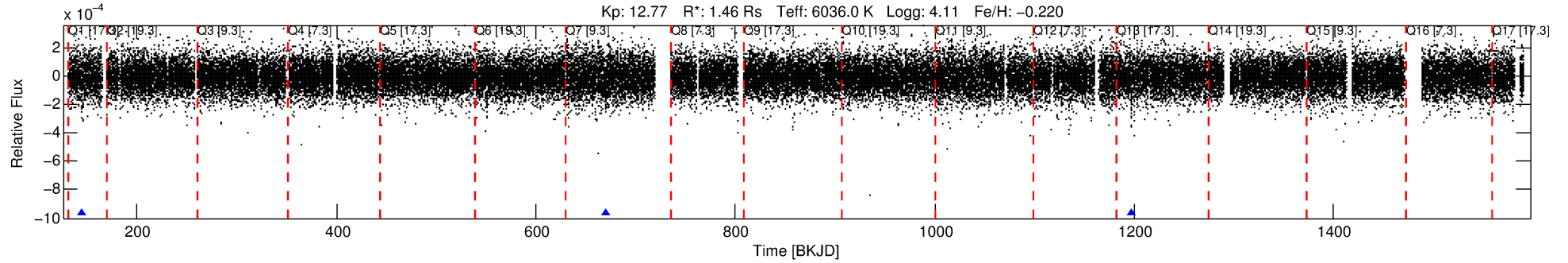
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010860098-01

No Significant Match Found

# DV One-Page Summary

KIC: 10860098 Candidate: 1 of 1 Period: 526.117 d



## DV Fit Results:

Period = 526.11734 [0.01069] d  
Epoch = 144.6110 [0.0165] BKJD  
Rp/R\* = 0.0129 [0.0041]  
a/R\* = 212.59 [335.49]  
b = 0.83 [0.58]  
Seff = 1.55 [0.87]  
Teq = 285 [40] K  
Rp = 2.06 [0.90] Re  
a = 1.2789 [0.4137] AU  
Ag = 19059.72 [16268.32] [1.17σ]  
Teffp = 5170 [869] K [5.62σ]

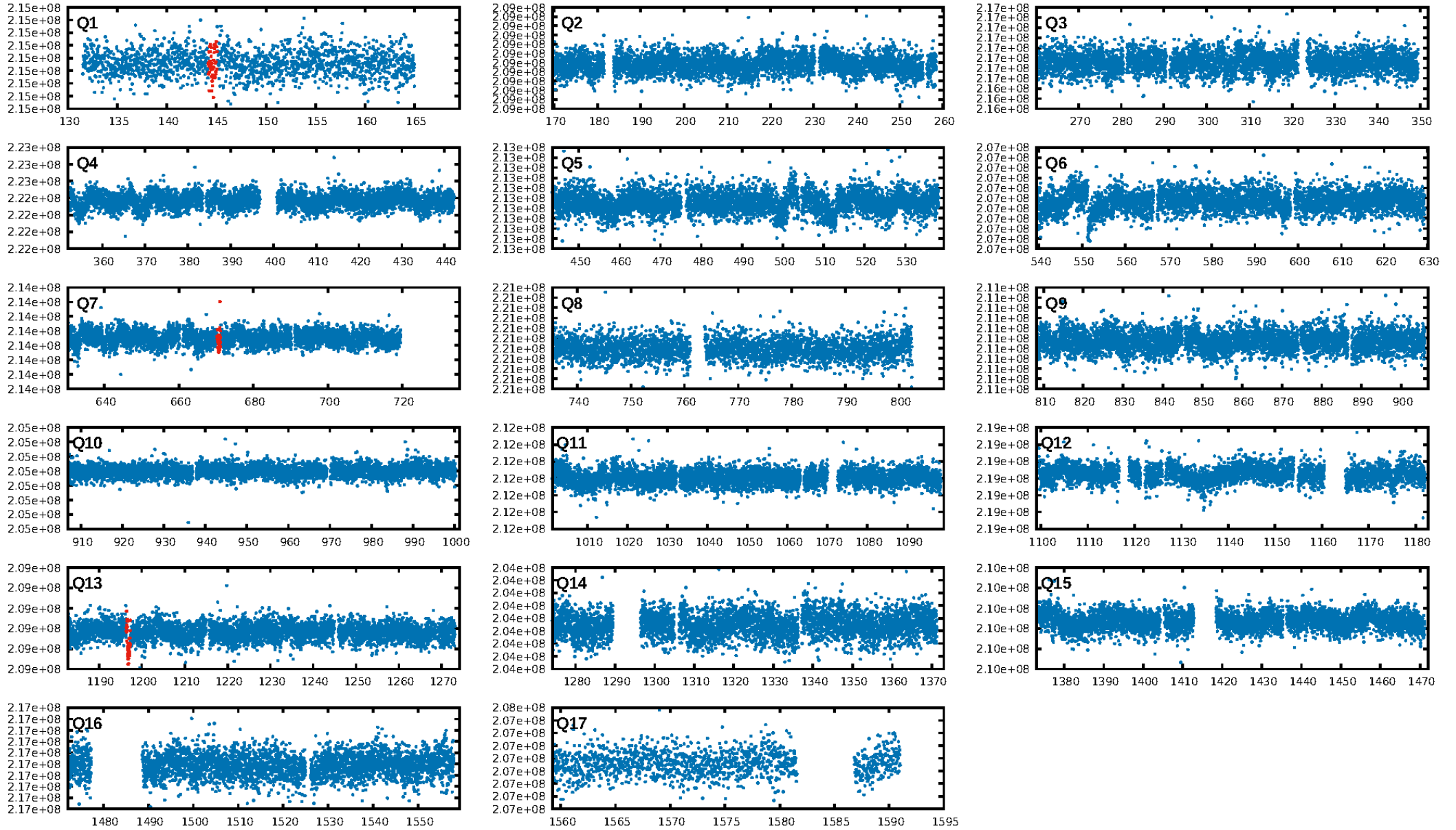
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 92.5%  
Bootstrap-pfa: 1.27e-11  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -51.7  
Centroid-sig: 55.6%  
Centroid-so: 0.847 arcsec [0.88σ]  
OotOffset-rm: 2.204 arcsec [12.43σ]  
KicOffset-rm: 2.173 arcsec [12.25σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

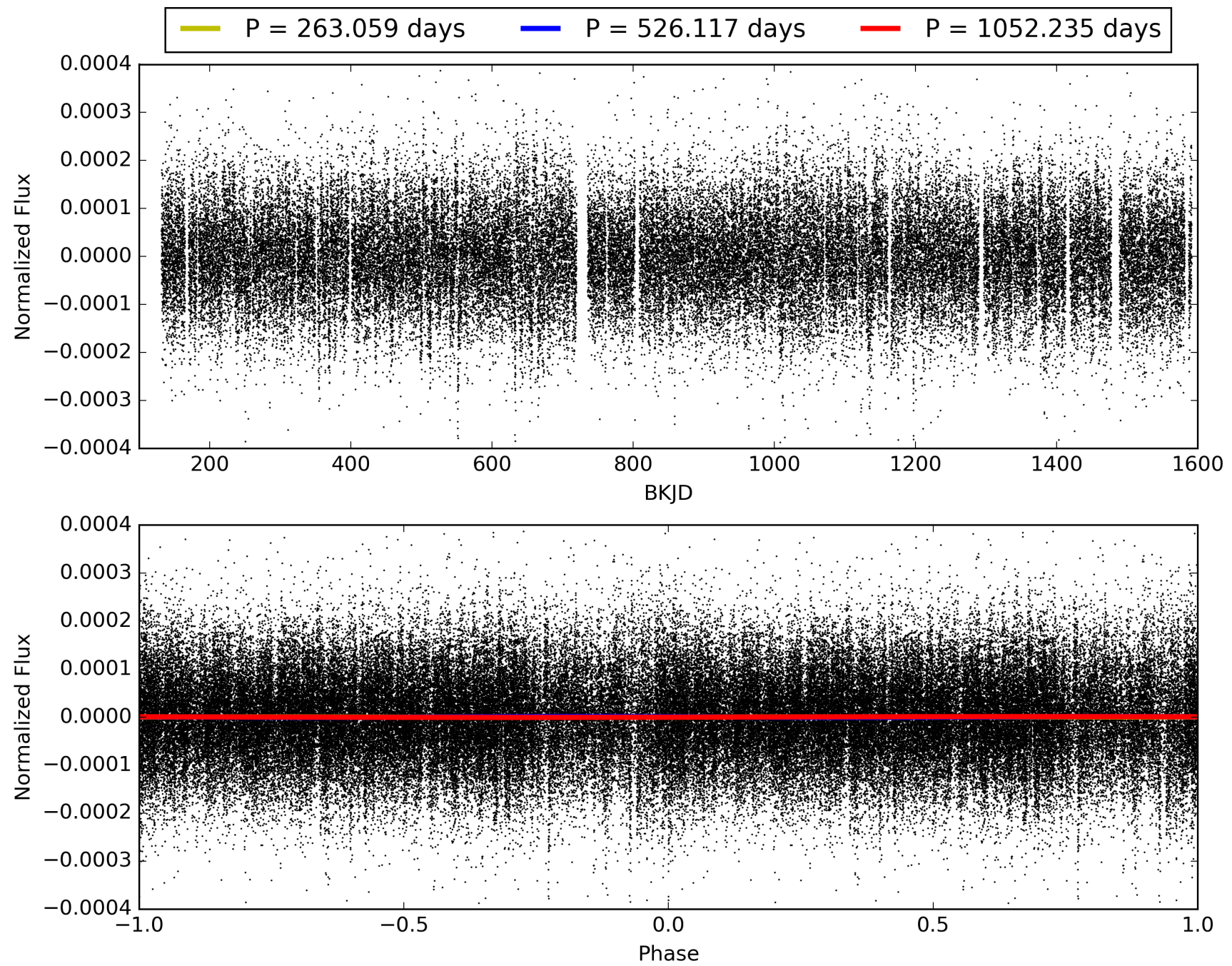
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:50:23 Z

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

# TCE 010860098-01, PDC Light Curves

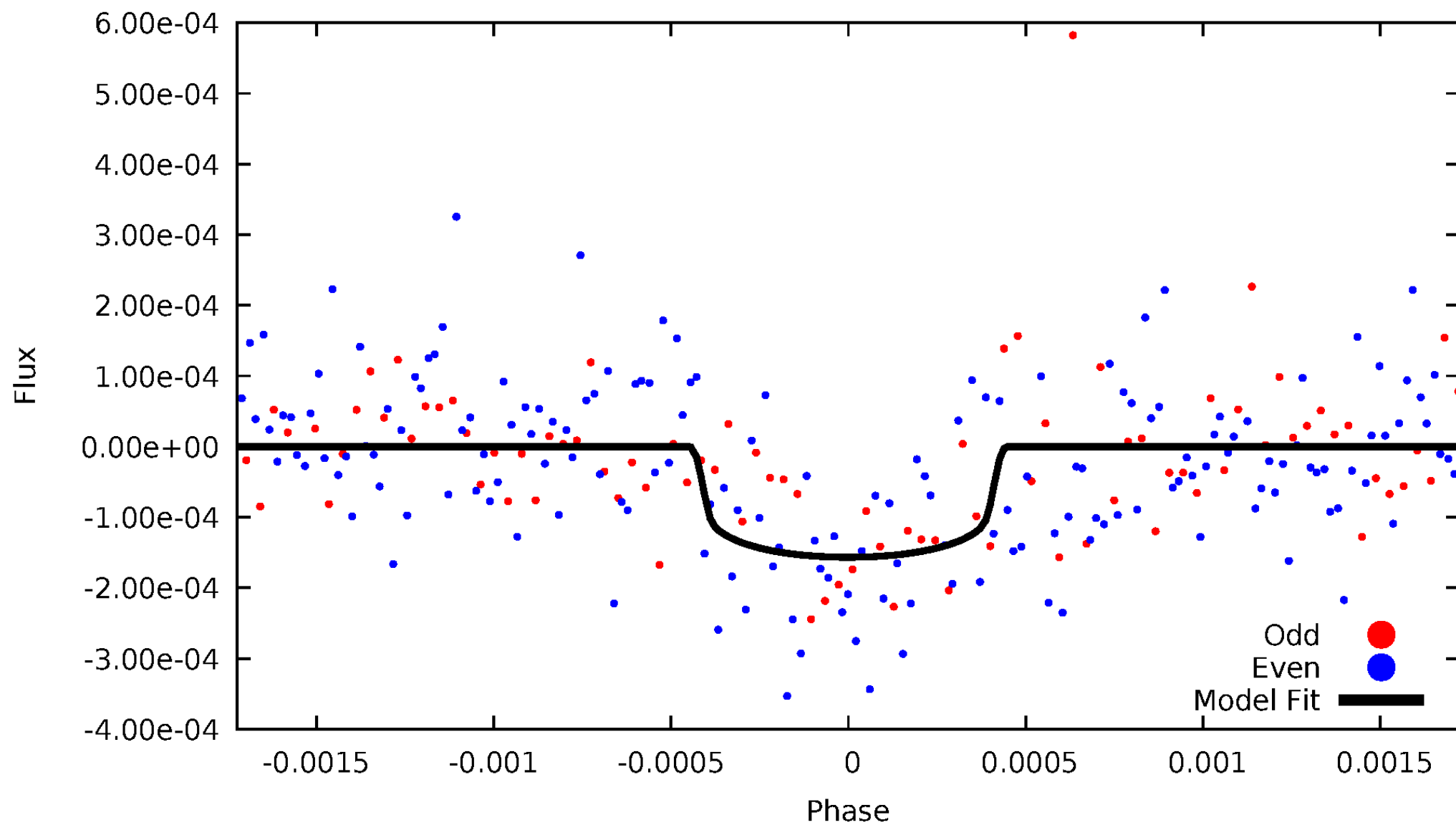


# TCE 010860098-01



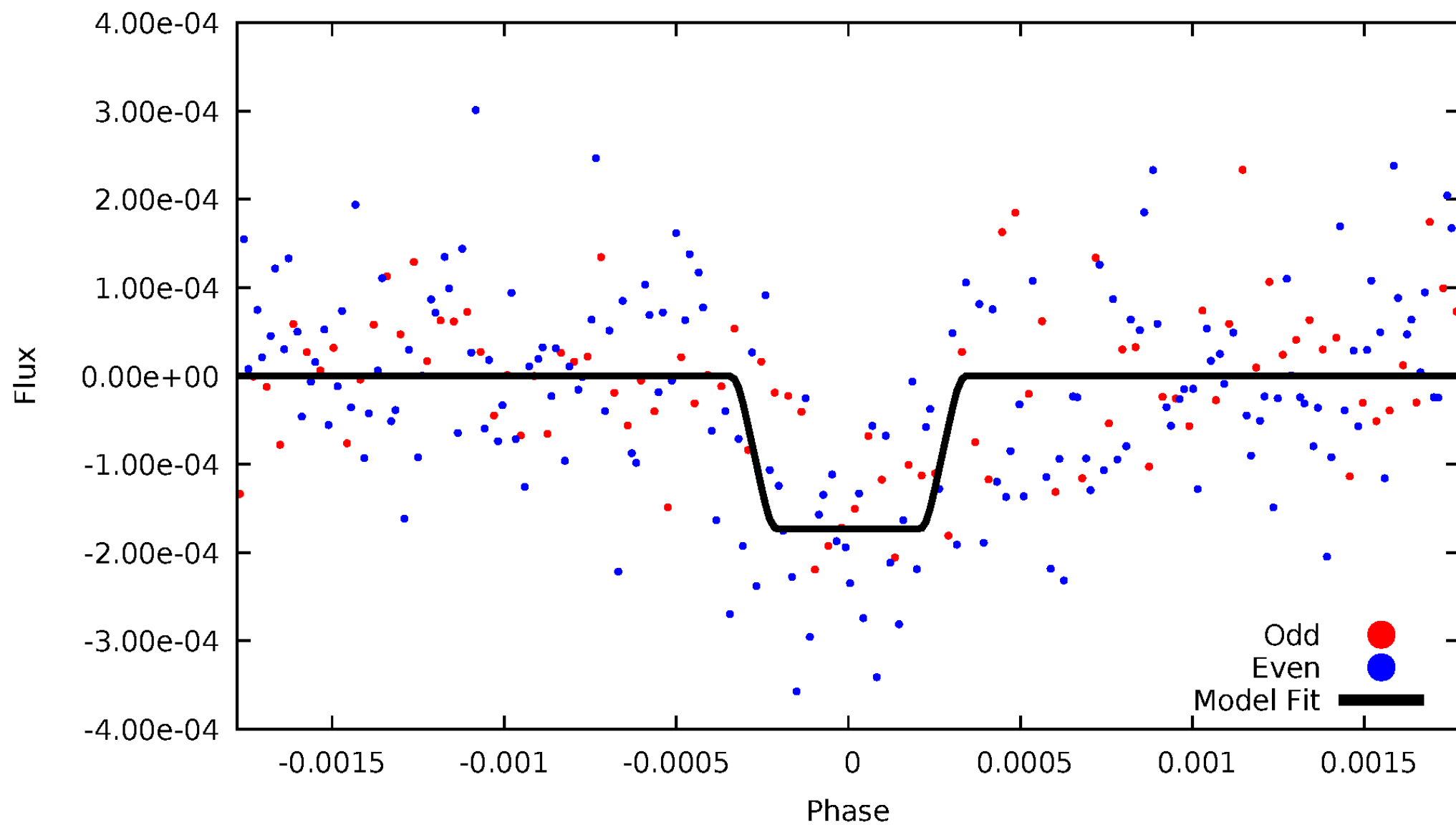
# DV Odd/Even

TCE 010860098-01



# ALT Odd/Even

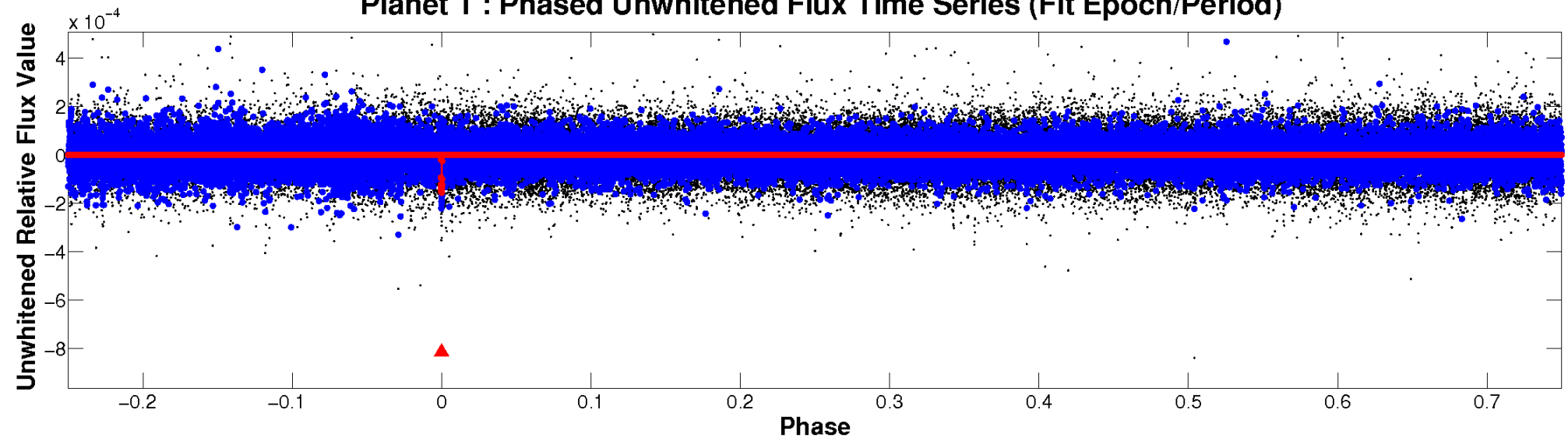
TCE 010860098-01



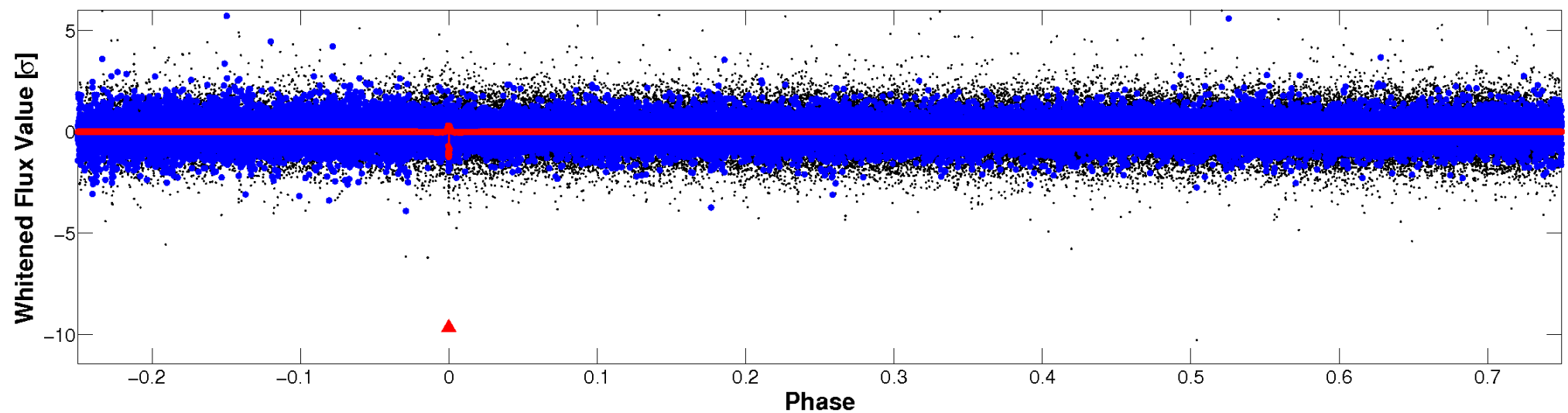


# Non-Whitened Vs. Whitened Light Curve

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

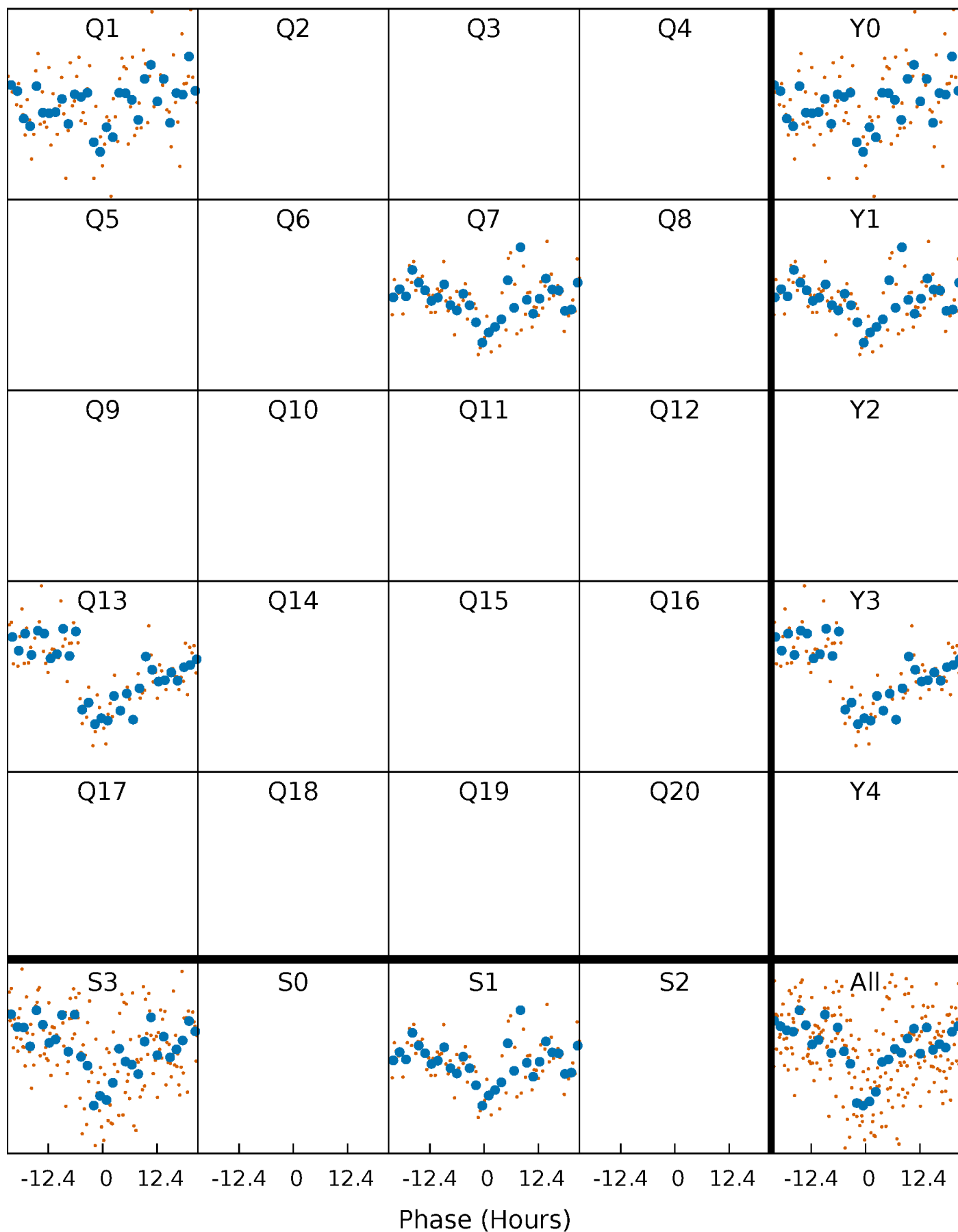


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

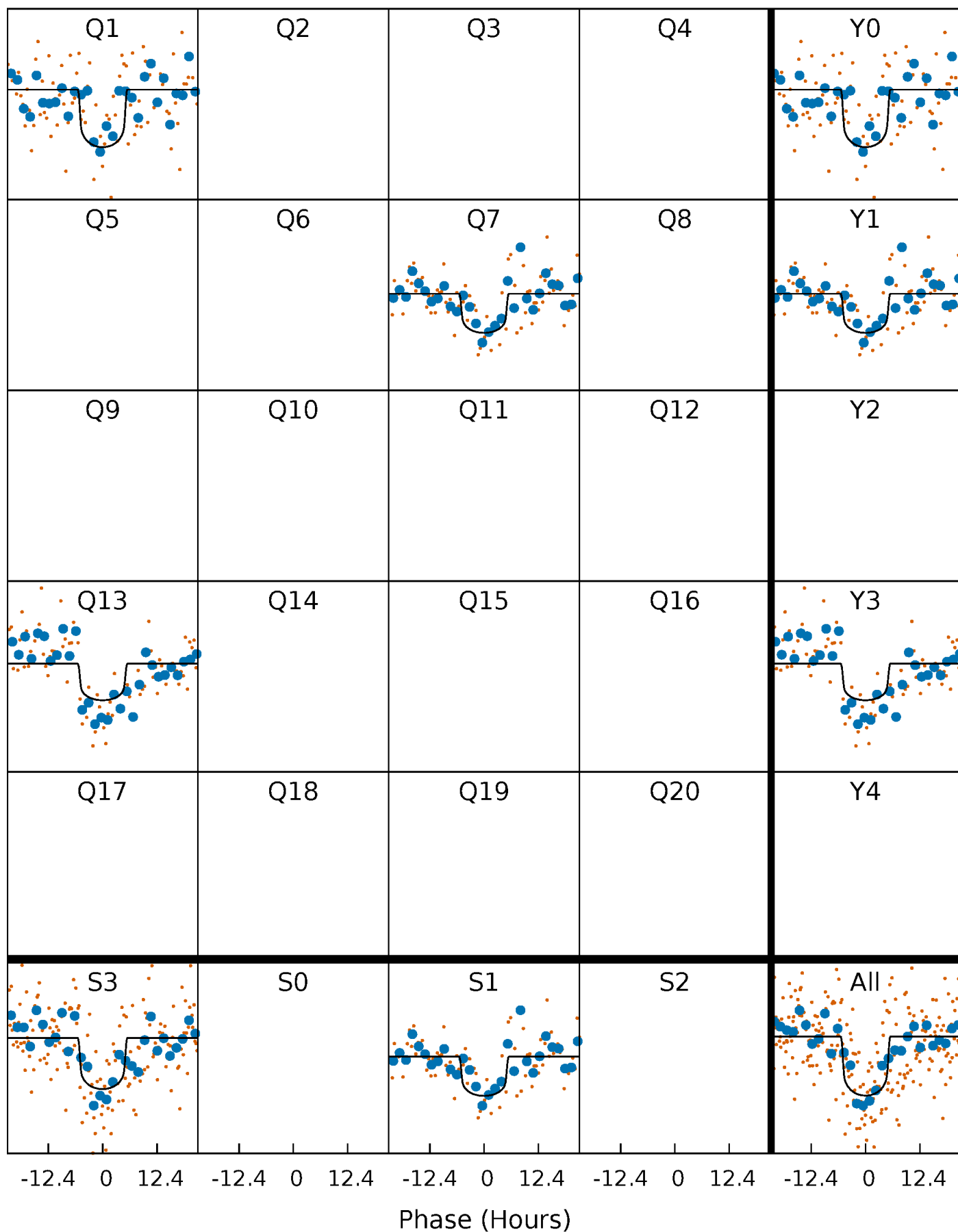
TCE 010860098-01 P=526.117337 Days  $T_0=144.610976$  (BKJD)





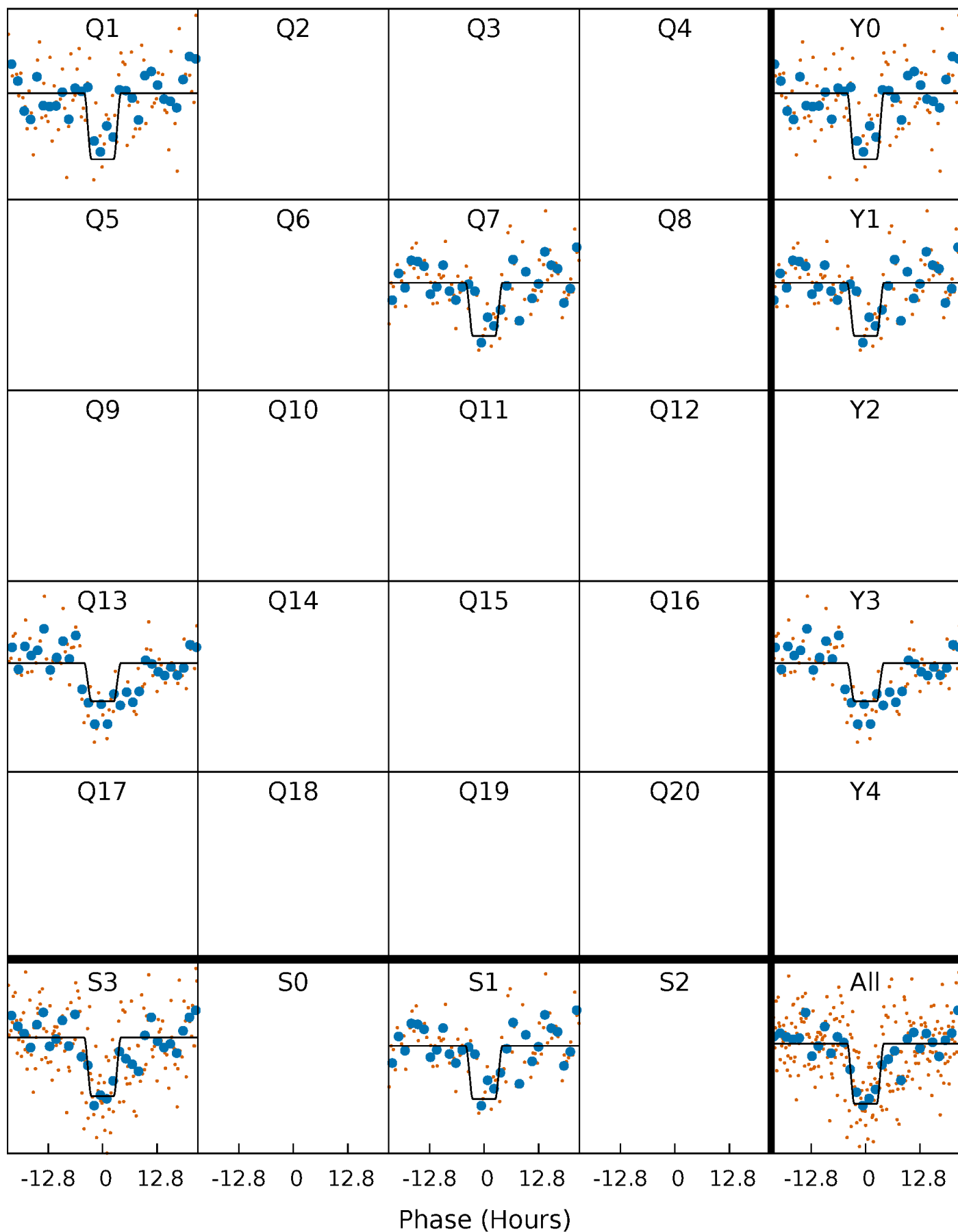
# DV Quarter-Phased Transit Curves

TCE 010860098-01 P=526.117337 Days  $T_0=144.610976$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

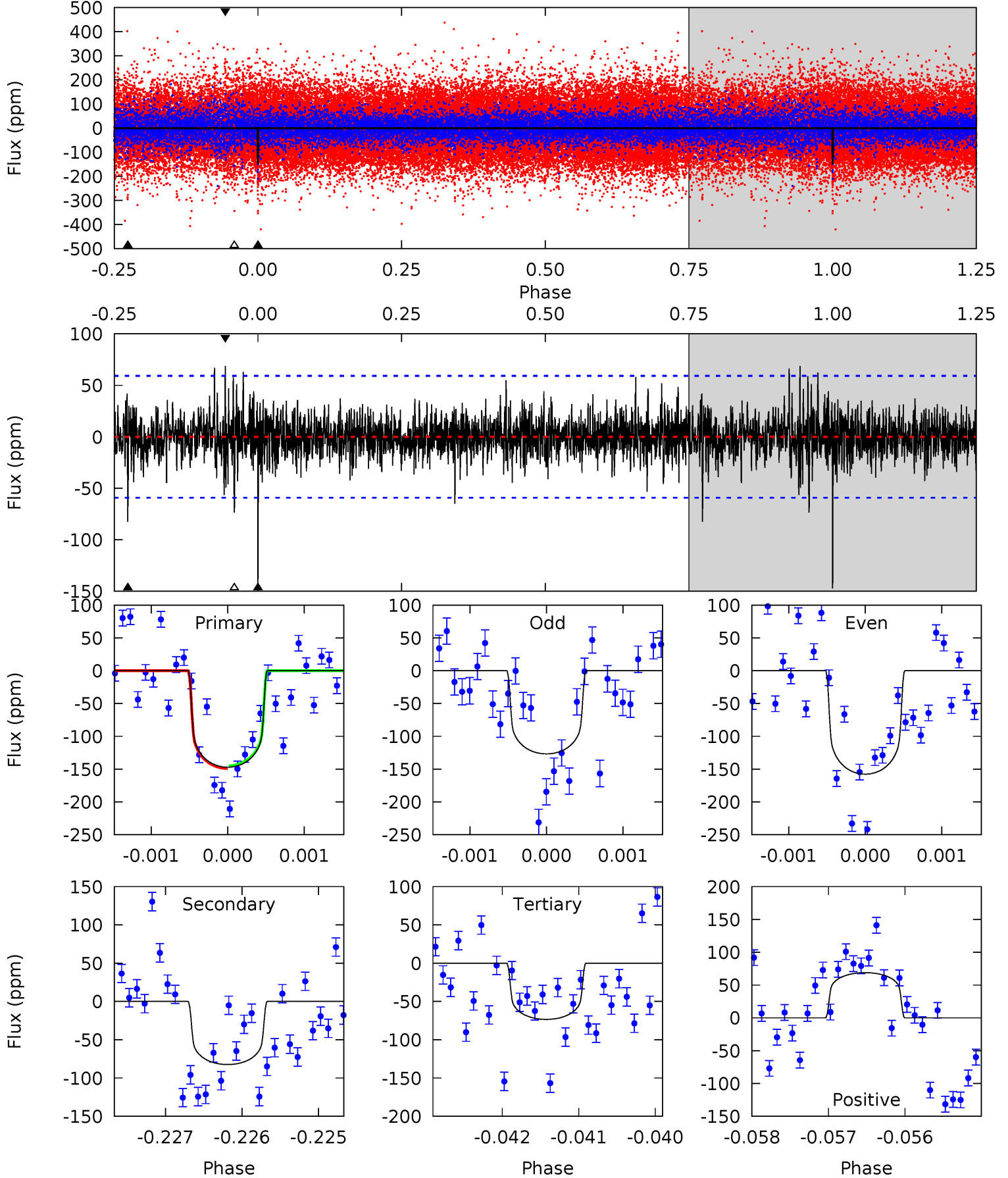
TCE 010860098-01   P=526.109680 Days    $T_0=144.614633$  (BKJD)



# DV Model-Shift Uniqueness Test

010860098-01, P = 526.117337 Days, E = 144.610976 Days

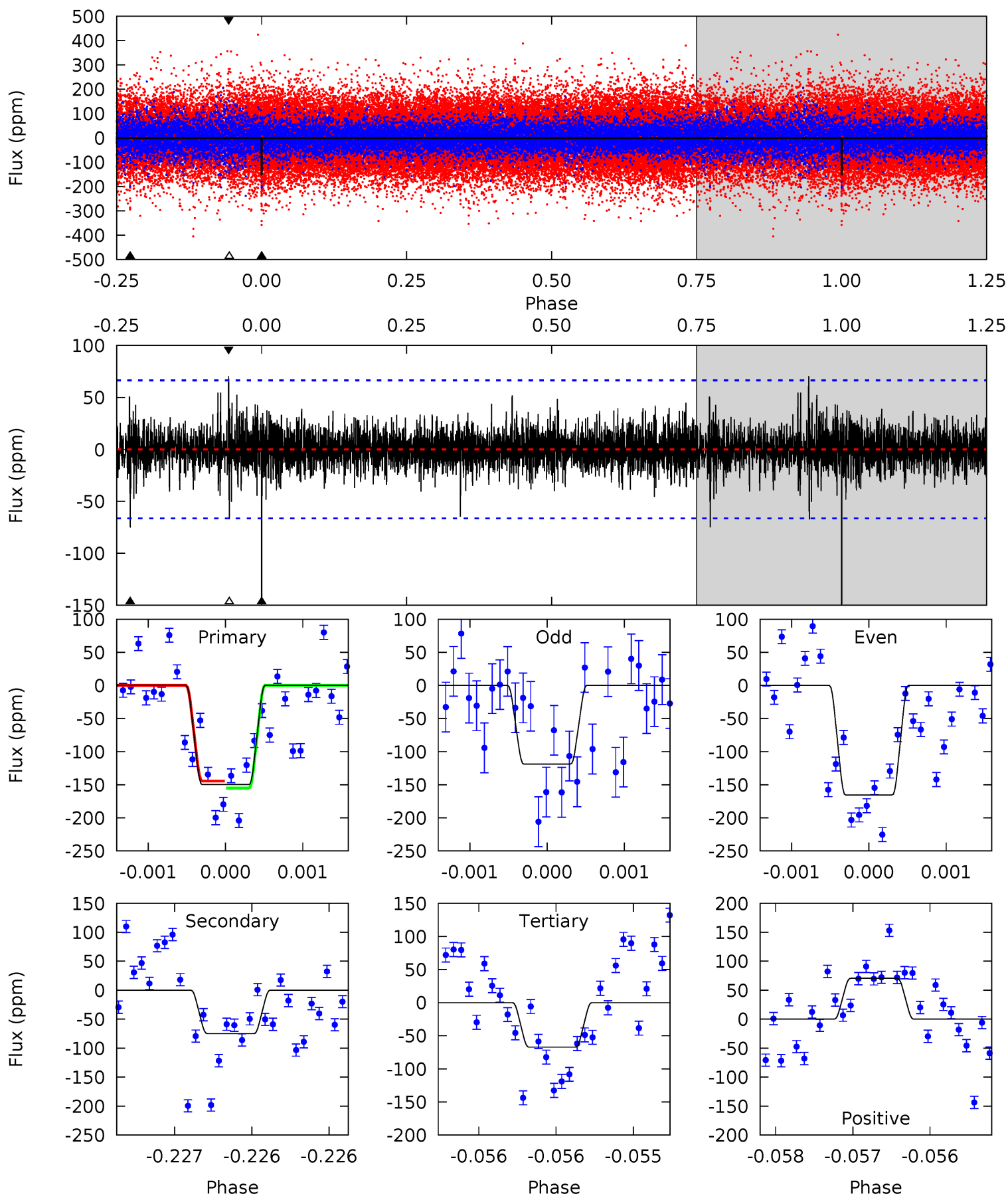
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	7.63	6.80	6.38	5.48	3.33	1.37	6.82	7.24	0.83	1.25	1.37	1.18	0.32	0.19



# Alt Model-Shift Uniqueness Test

010860098-01, P = 526.109680 Days, E = 144.614633 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
12.5	6.24	5.60	5.87	5.52	3.40	1.13	6.87	6.60	0.65	0.37	1.85	1.26	0.32	0.44



### Stellar Parameters For KIC 010860098

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6036^{+211}_{-211}$	$4.112^{+0.329}_{-0.165}$	$-0.220^{+0.300}_{-0.300}$	$1.461^{+0.398}_{-0.443}$	$1.008^{+0.165}_{-0.135}$	$0.455^{+0.904}_{-0.200}$
	+3%/-3%	+8%/-4%	+136%/-136%	+27%/-30%	+16%/-13%	+199%/-44%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010860098-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-82 \pm 11$	$1.97^{+0.77}_{-0.67}$	$392^{+37}_{-36}$	$5124^{+977}_{-584}$	$18772^{+24094}_{-8882}$
Alt.	$-75 \pm 12$	$2.05^{+0.72}_{-0.74}$	$393^{+33}_{-37}$	$4954^{+933}_{-555}$	$16325^{+21664}_{-7582}$

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

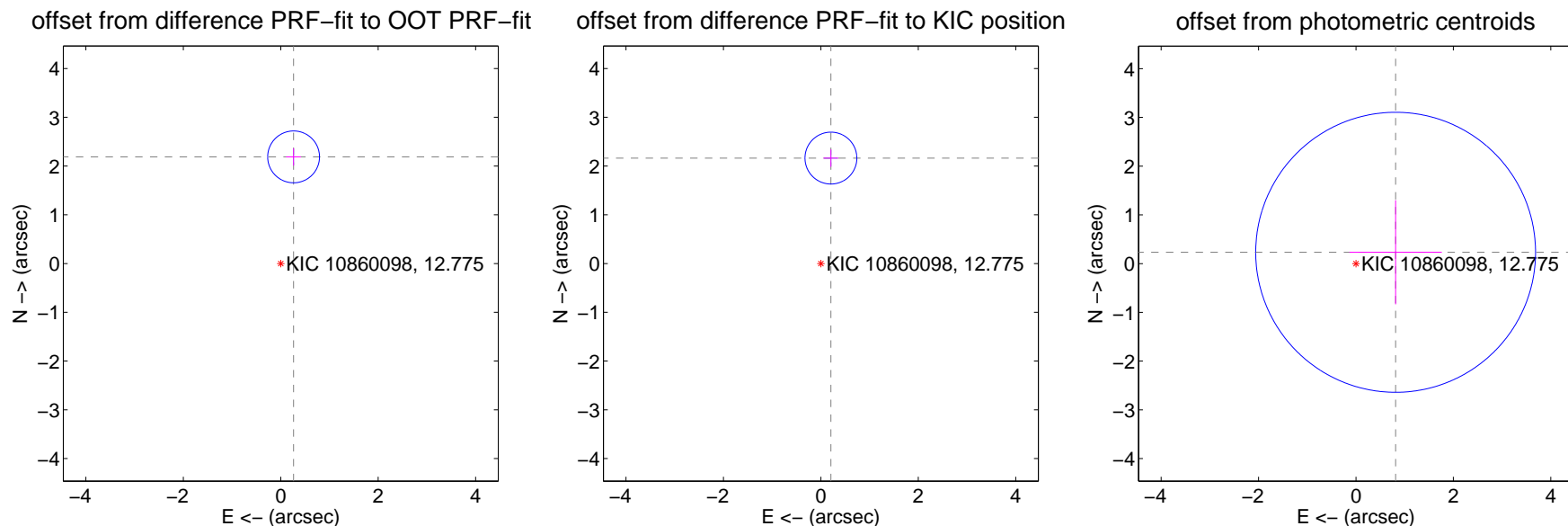
## DV Centroid Data

Supplemental centroid analysis for 010860098-01. Kepler magnitude: 12.78. Transit SNR 8.85

There are 1 quarters with good PRF difference image offsets

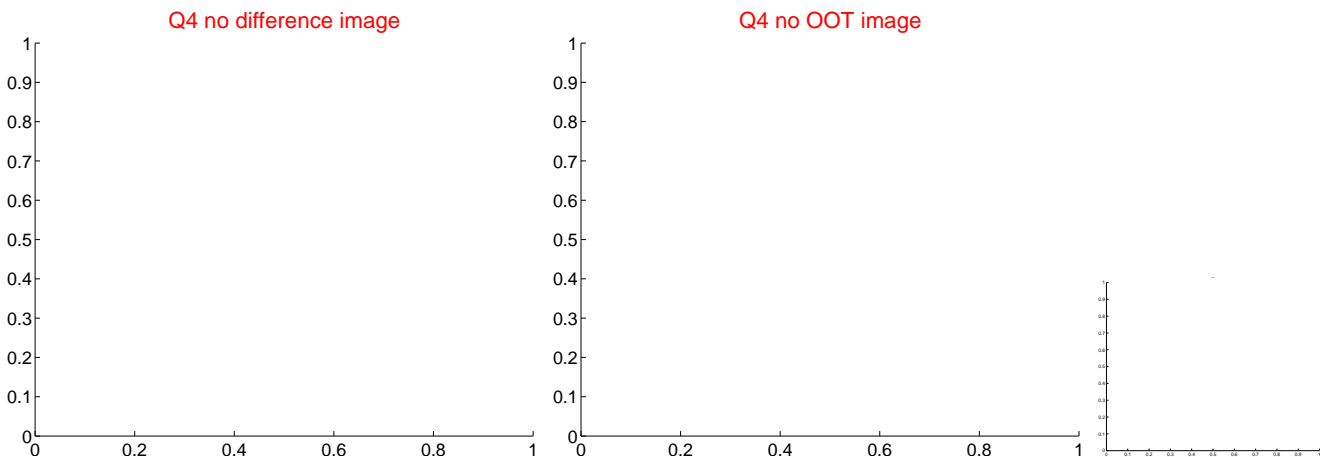
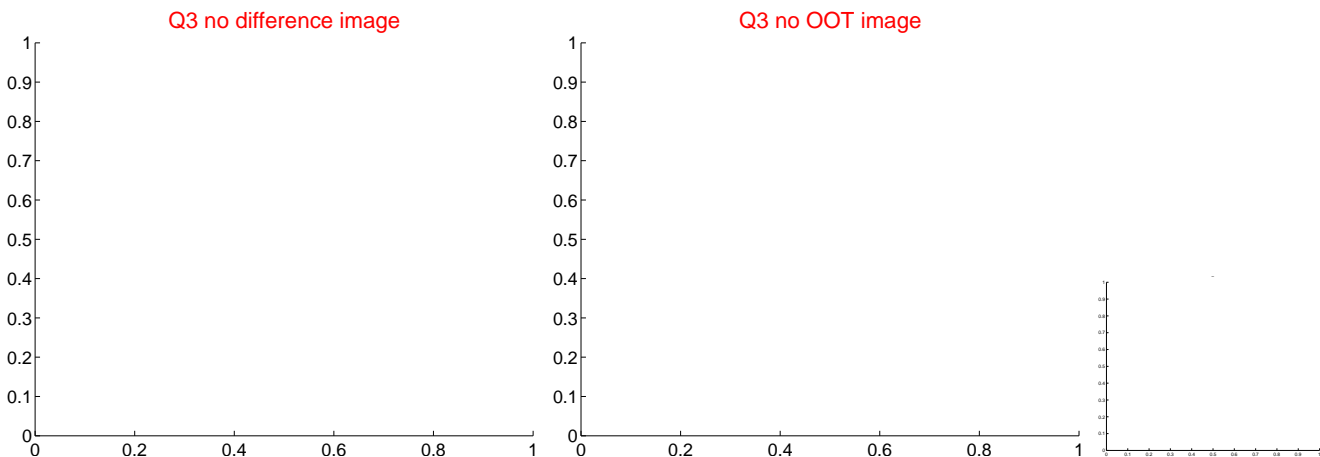
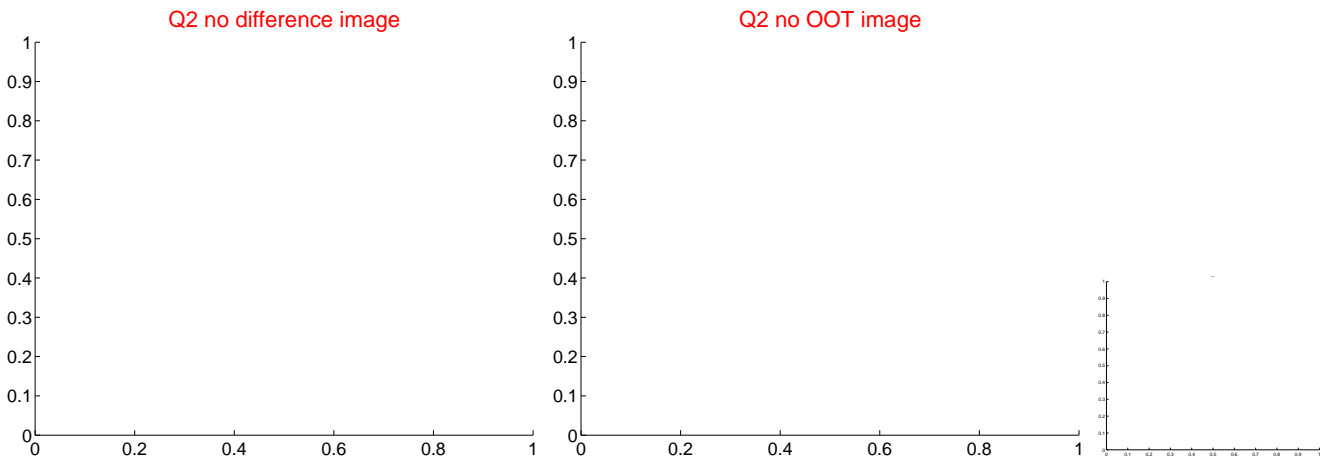
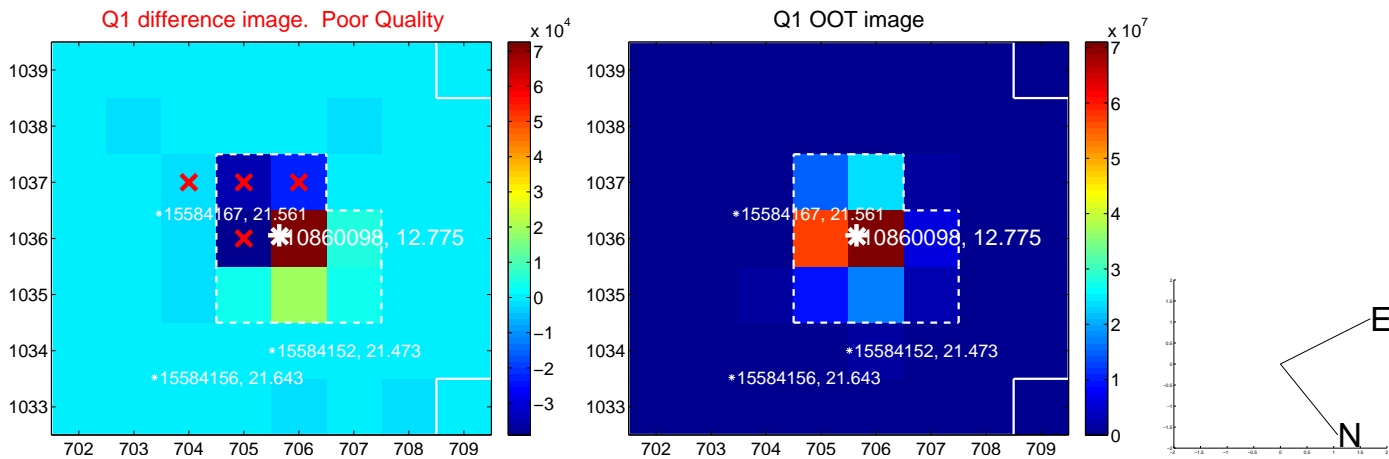
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.204 \pm 0.177$	12.43	$-0.264 \pm 0.152$	$2.188 \pm 0.178$
PRF-fit source offset from KIC position	$2.173 \pm 0.177$	12.25	$-0.206 \pm 0.152$	$2.163 \pm 0.178$
photometric centroid source offset	$0.85 \pm 0.96$	0.88	$-0.81 \pm 0.95$	$0.23 \pm 1.07$



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.

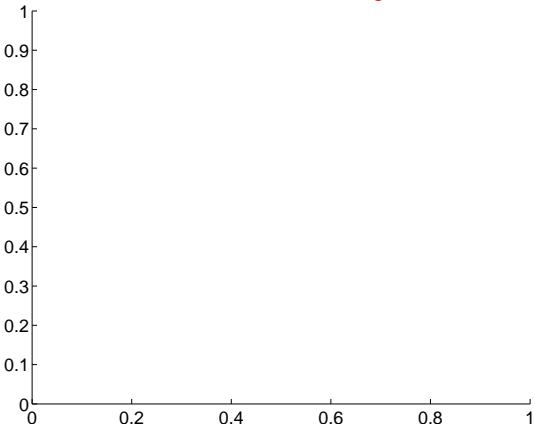
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



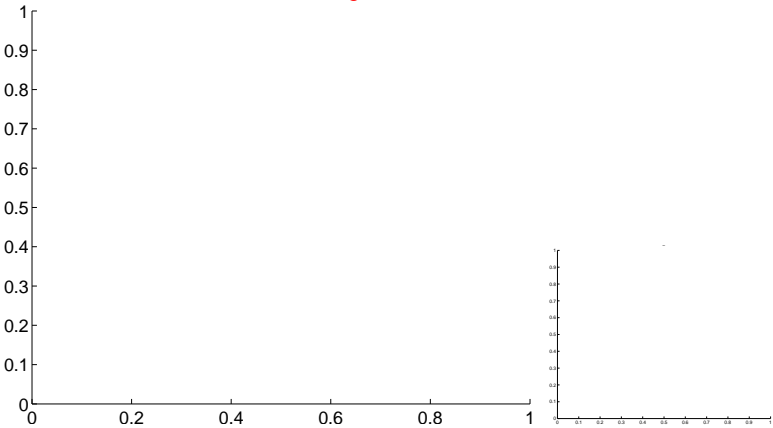


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

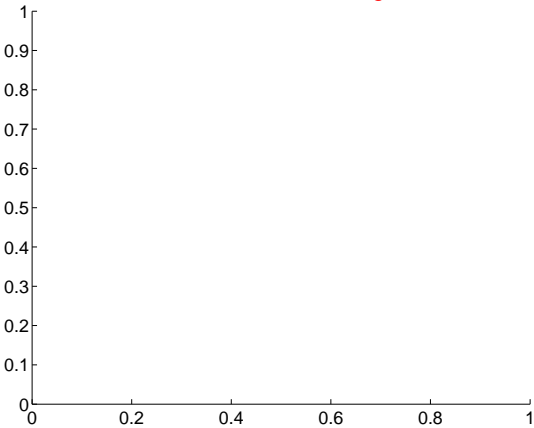
Q5 no difference image



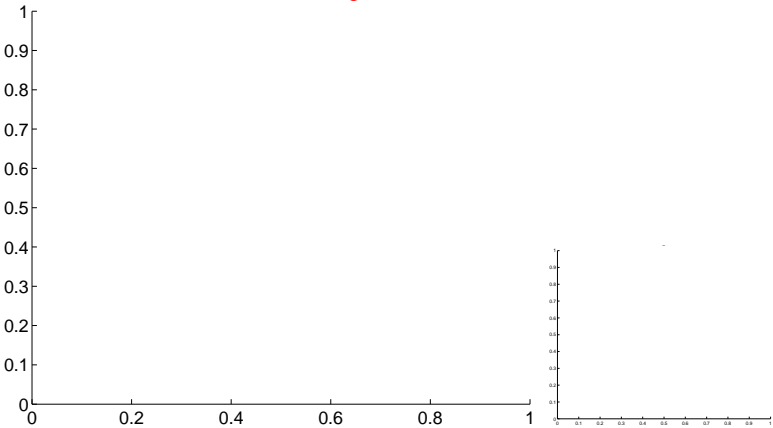
Q5 no OOT image



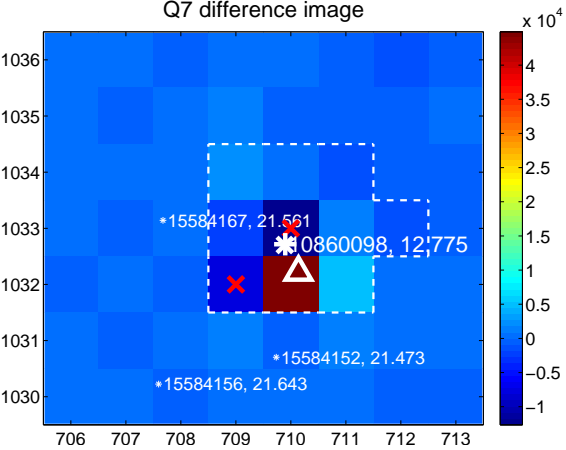
Q6 no difference image



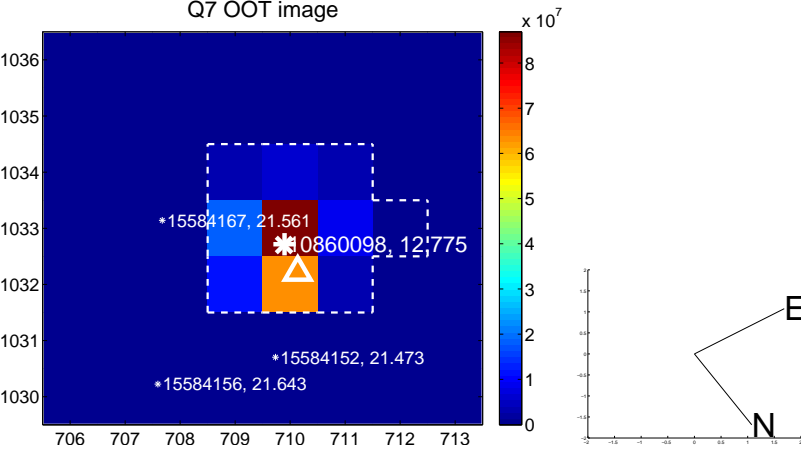
Q6 no OOT image



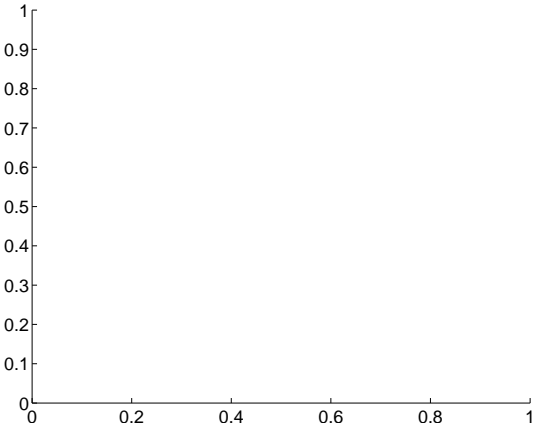
Q7 difference image



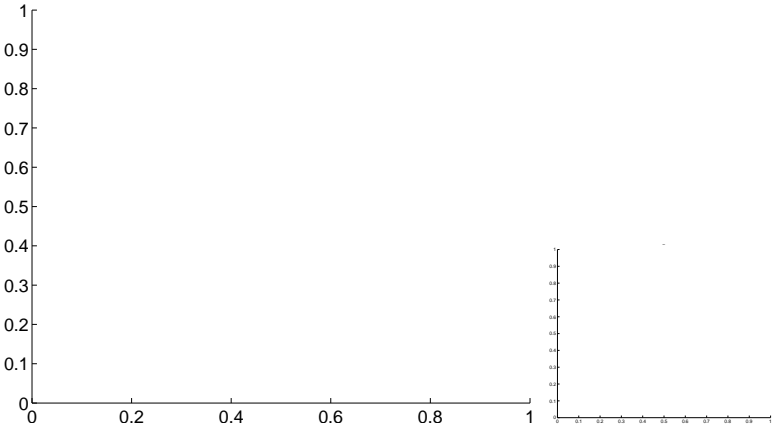
Q7 OOT image



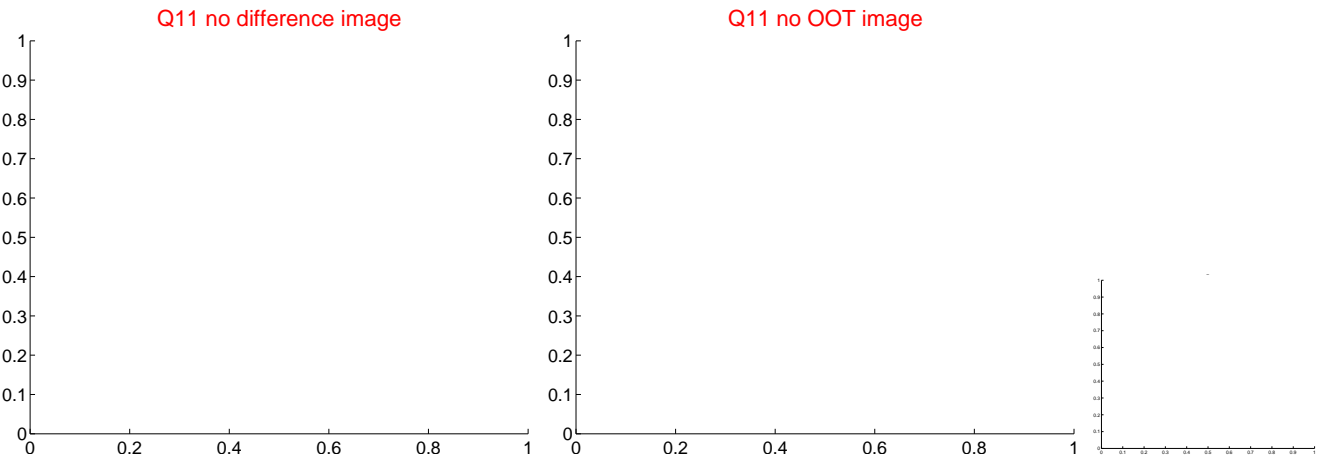
Q8 no difference image



Q8 no OOT image



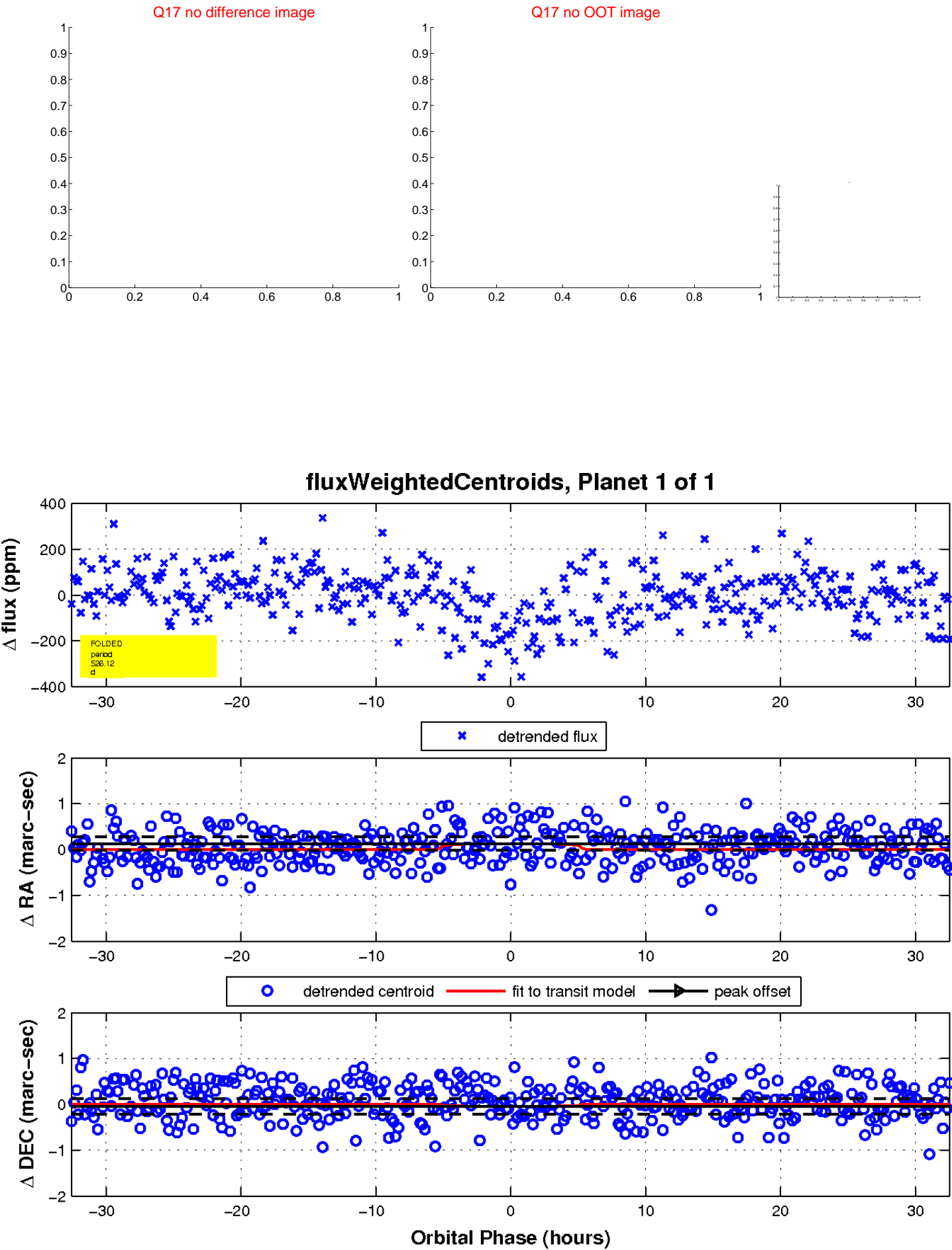
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

