

# KIC 010810838

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010810838-01	OBS	0174.01	56.354062	144.837219	1036.4	3.467	51.2	51.1	0.70	4802	2.66	3.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010810838-01	OBS	PC	1.00	0	0	0	0	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.

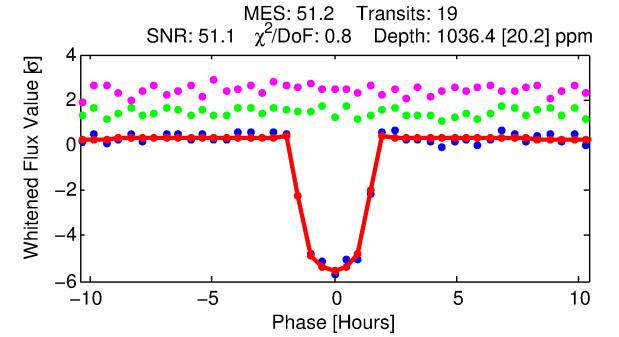
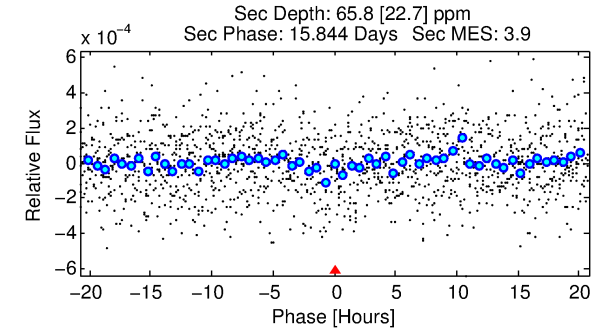
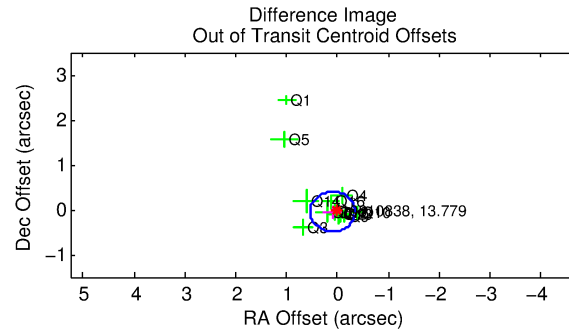
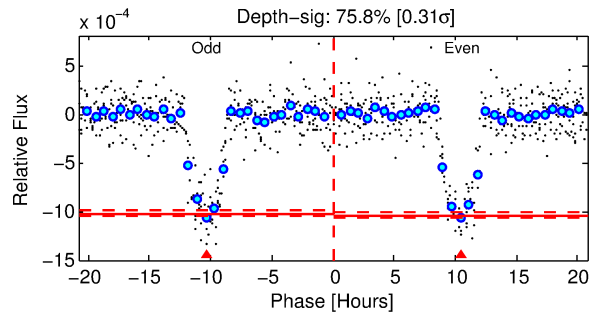
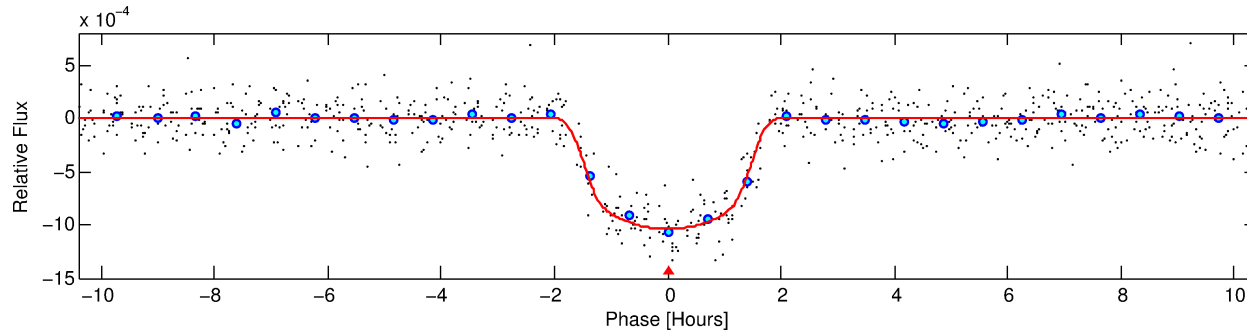
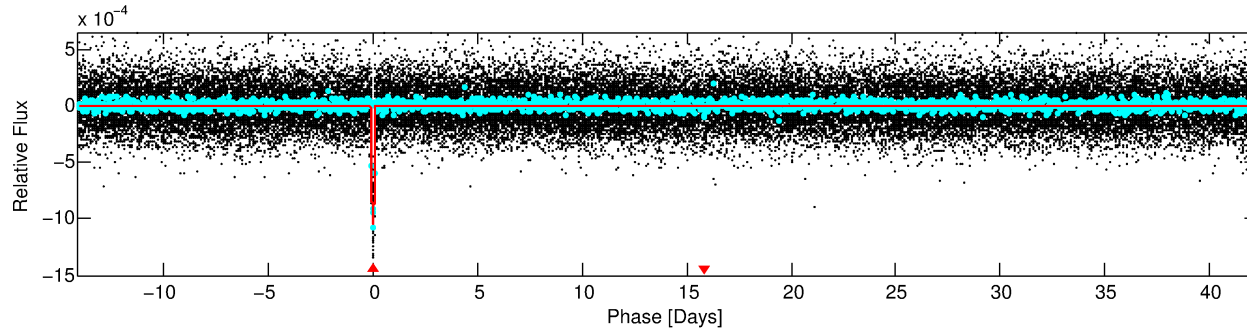
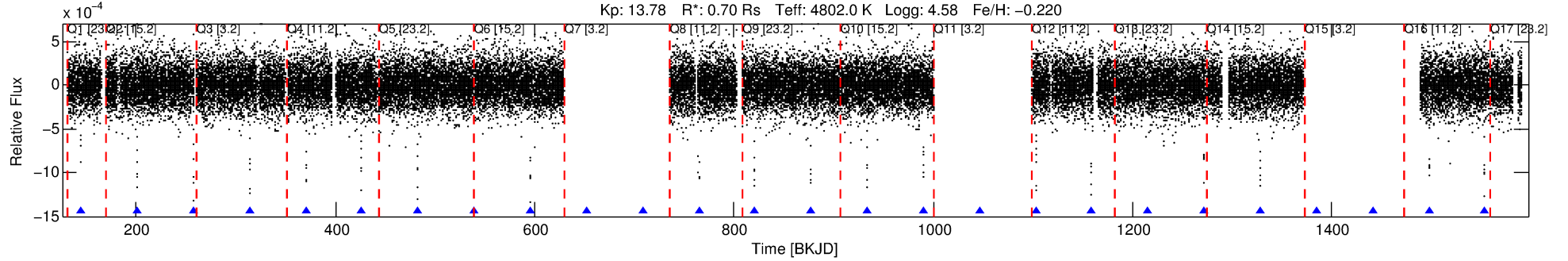
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010810838-01

No Significant Match Found

# DV One-Page Summary

KIC: 10810838 Candidate: 1 of 1 Period: 56.354 d  
KOI: K00174.01 Corr: 0.978



## DV Fit Results:

Period = 56.35406 [0.00010] d  
Epoch = 144.8372 [0.0014] BKJD  
Rp/R\* = 0.0348 [0.0029]  
a/R\* = 70.44 [21.45]  
b = 0.87 [0.09]  
Seff = 3.64 [0.43]  
Teq = 352 [10] K  
Rp = 2.66 [0.28] Re  
a = 0.2536 [0.0143] AU  
Ag = 328.13 [129.37] [2.53σ]  
Teffp = 2318 [228] K [8.62σ]

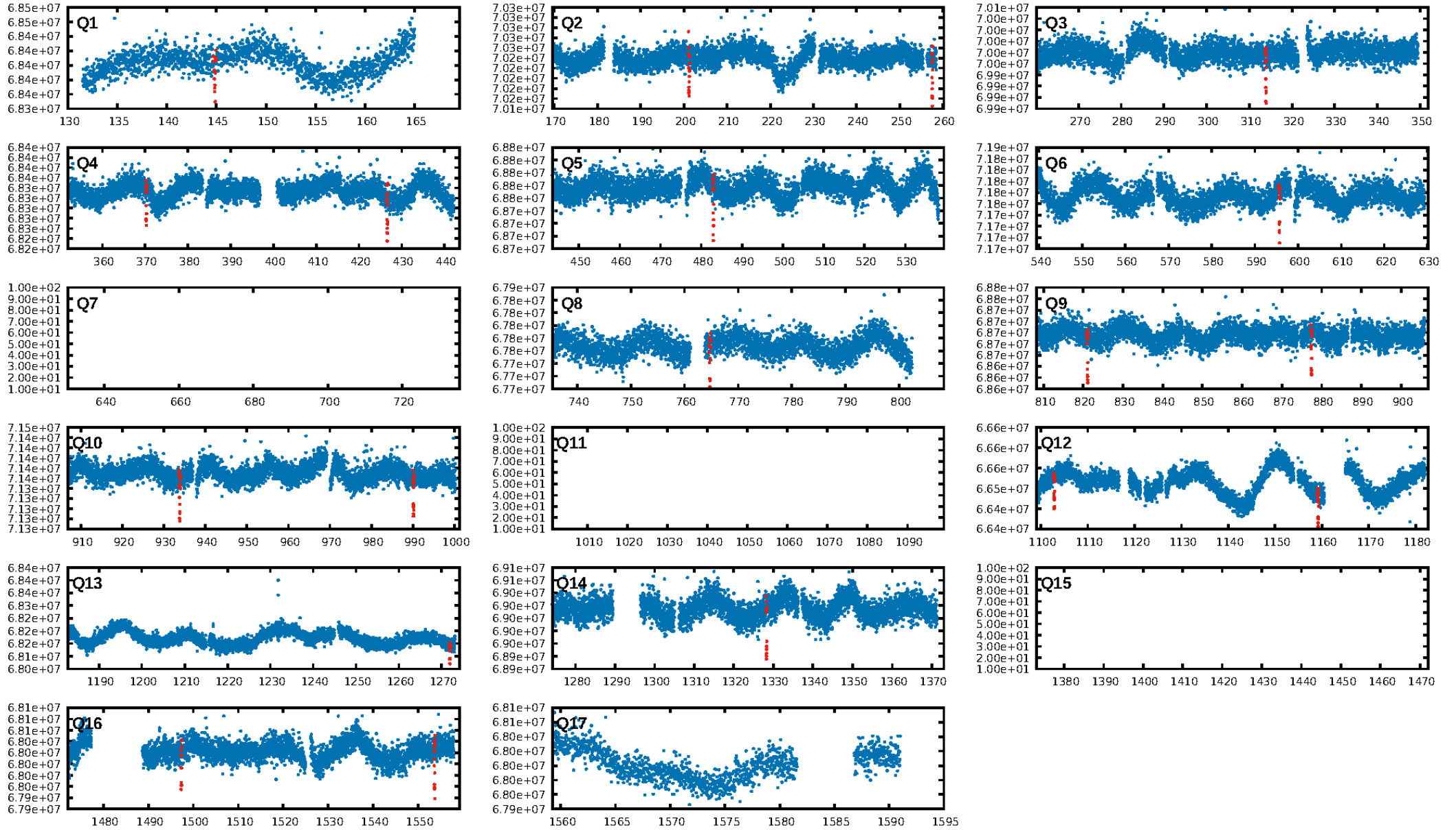
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 55.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [18/18]  
GhostDiagnostic-chr: 12.02  
Centroid-sig: 9.6%  
Centroid-so: 0.911 arcsec [3.54σ]  
OotOffset-rm: 0.110 arcsec [0.75σ]  
KicOffset-rm: 0.649 arcsec [2.98σ]  
OotOffset-st: 4/1/3/4 [12]  
KicOffset-st: 4/1/3/4 [12]  
DiffImageQuality-fgm: 1.00 [12/12]  
DiffImageOverlap-fno: 1.00 [12/12]

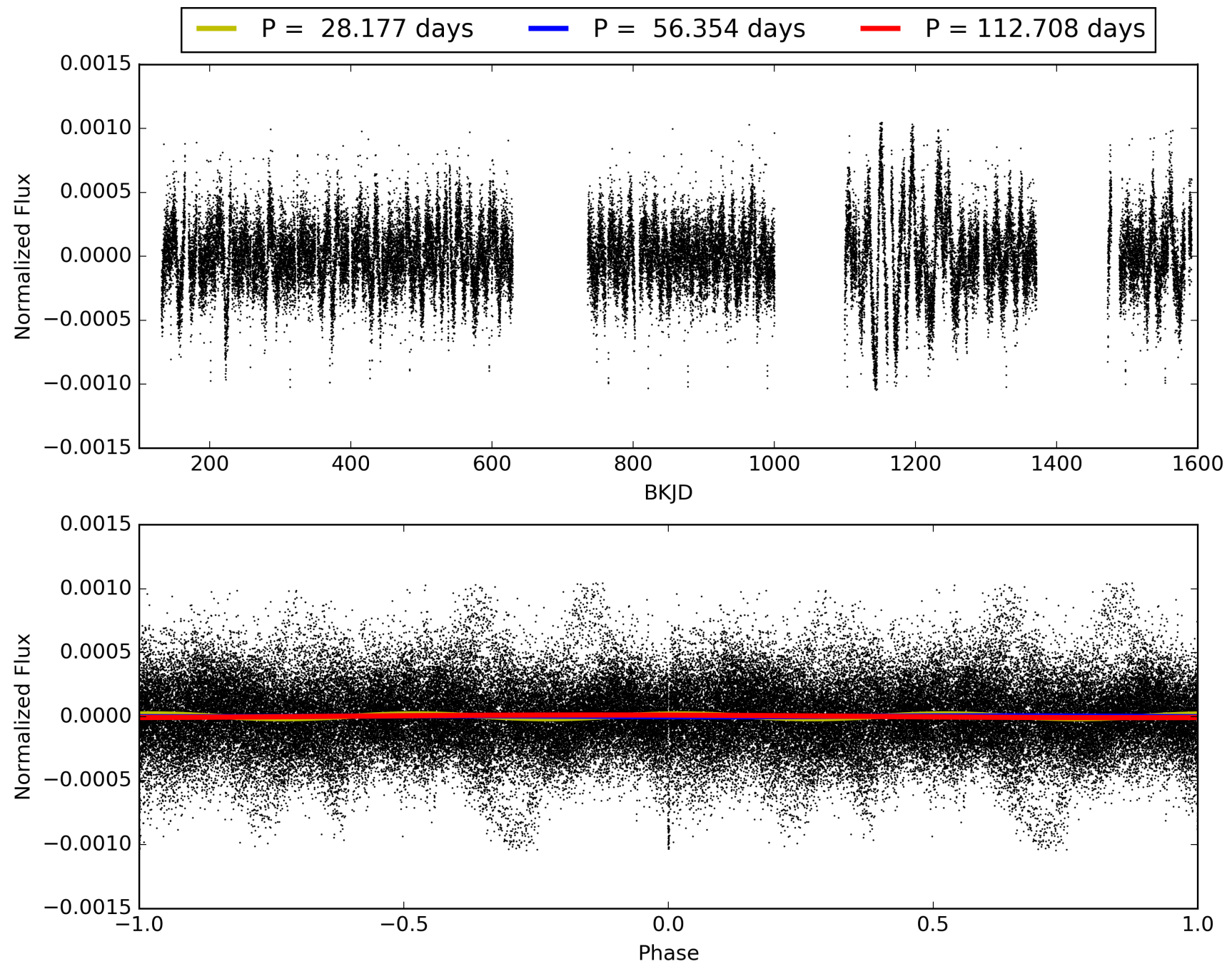
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:54:49 Z

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

# TCE 010810838-01, PDC Light Curves

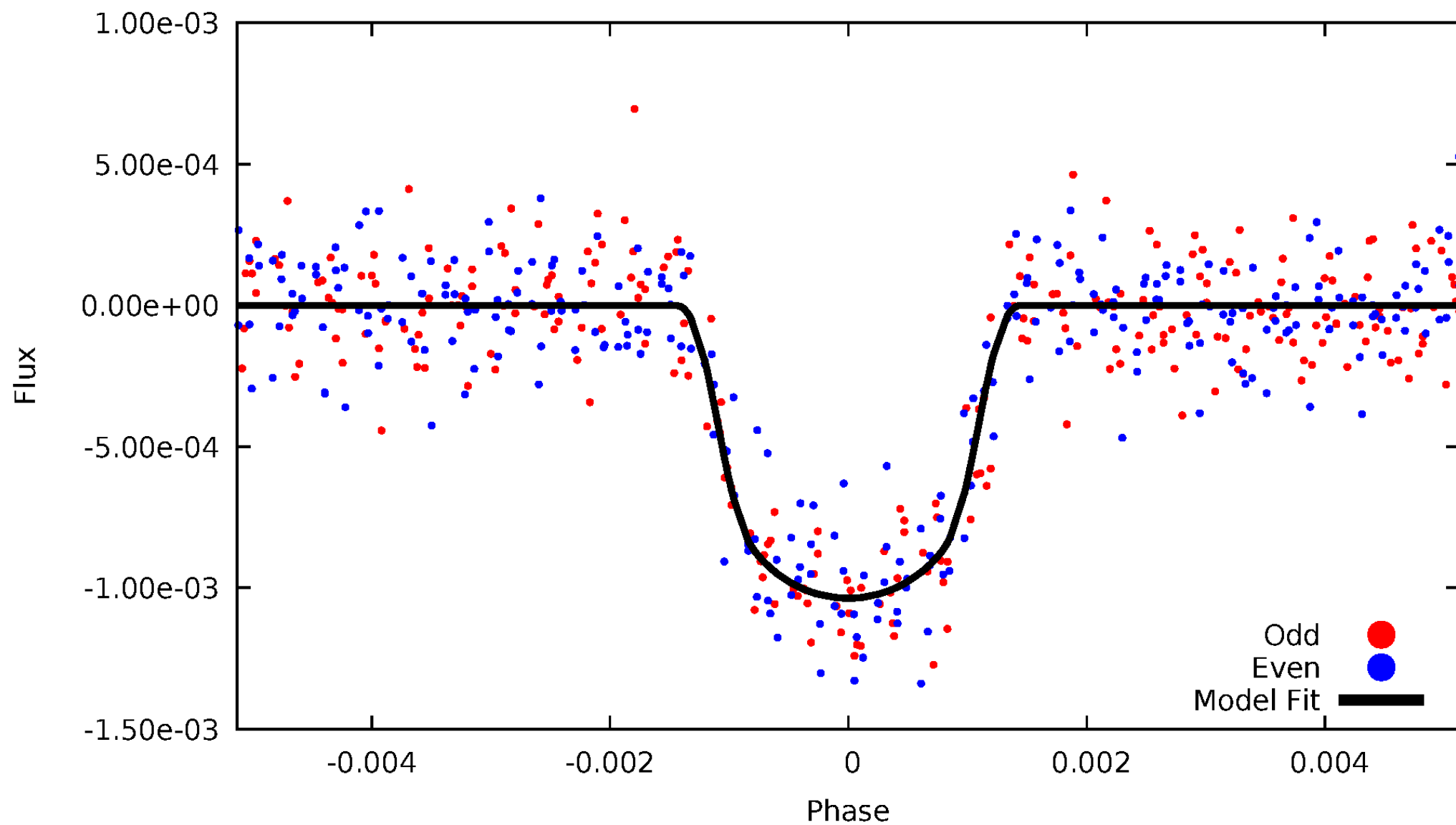


# TCE 010810838-01



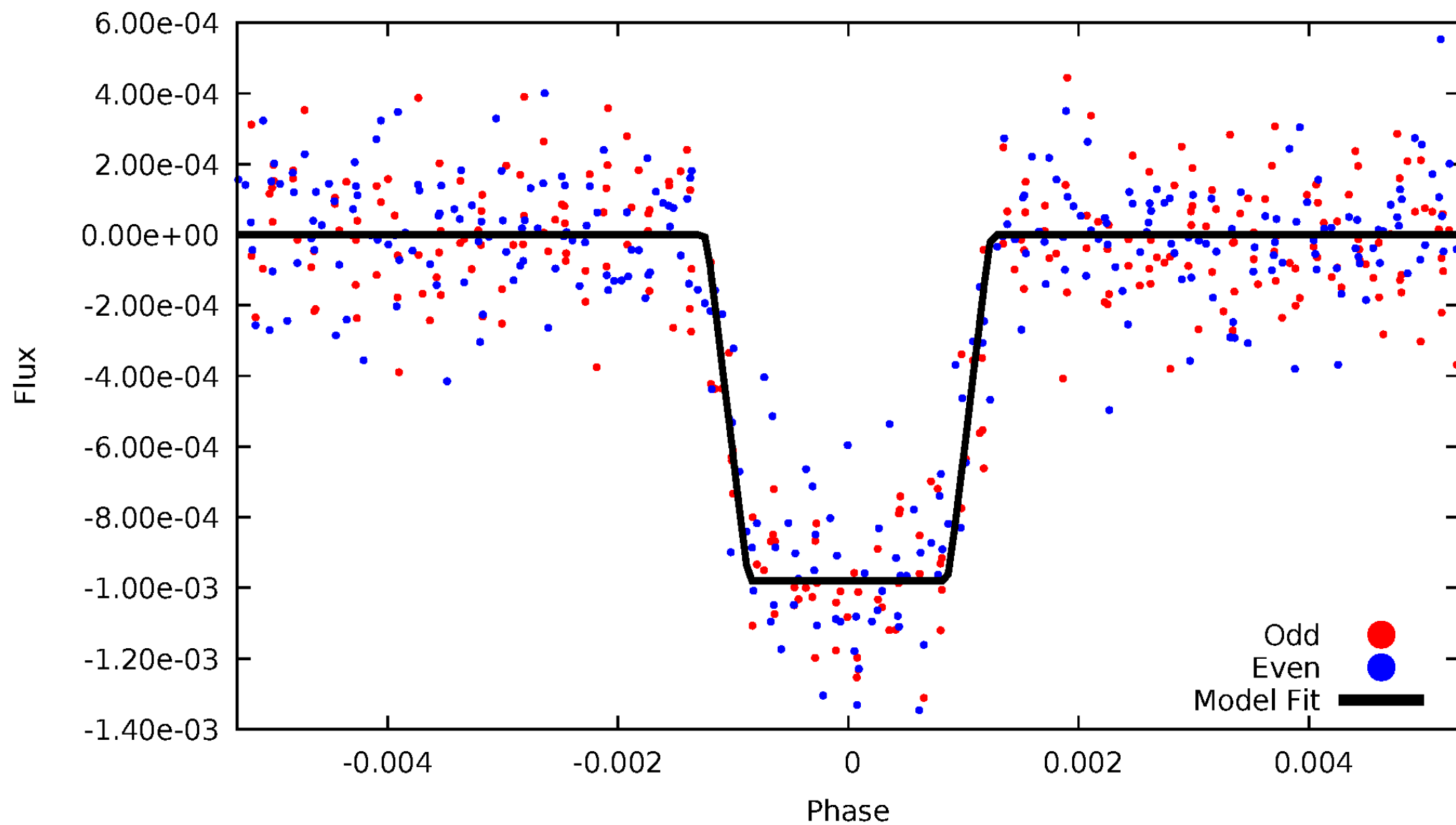
# DV Odd/Even

TCE 010810838-01

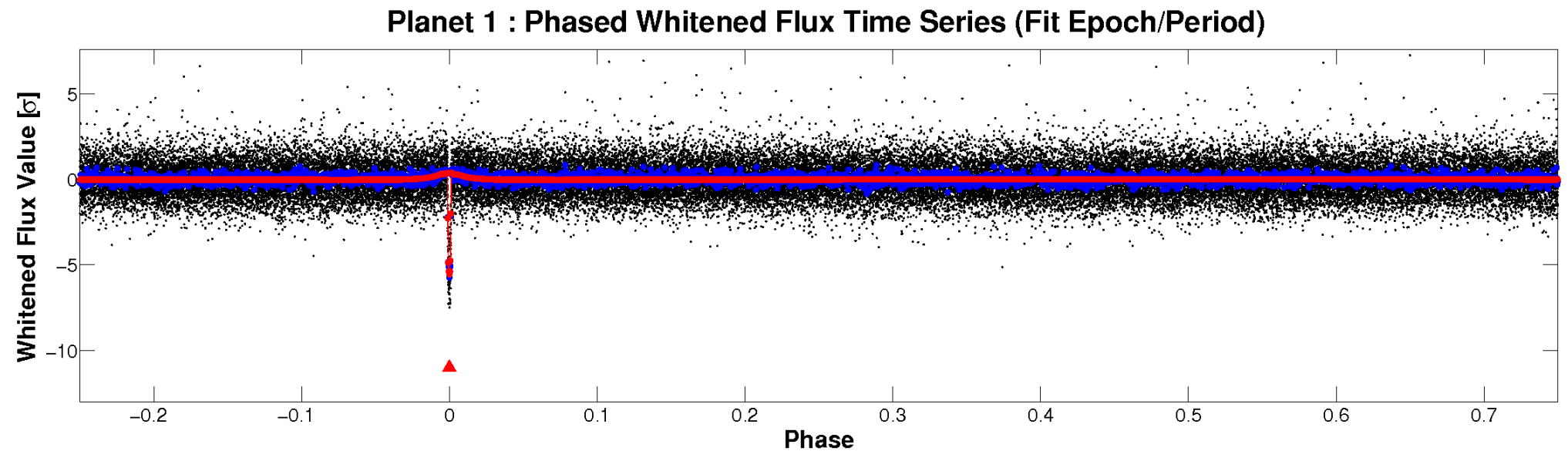
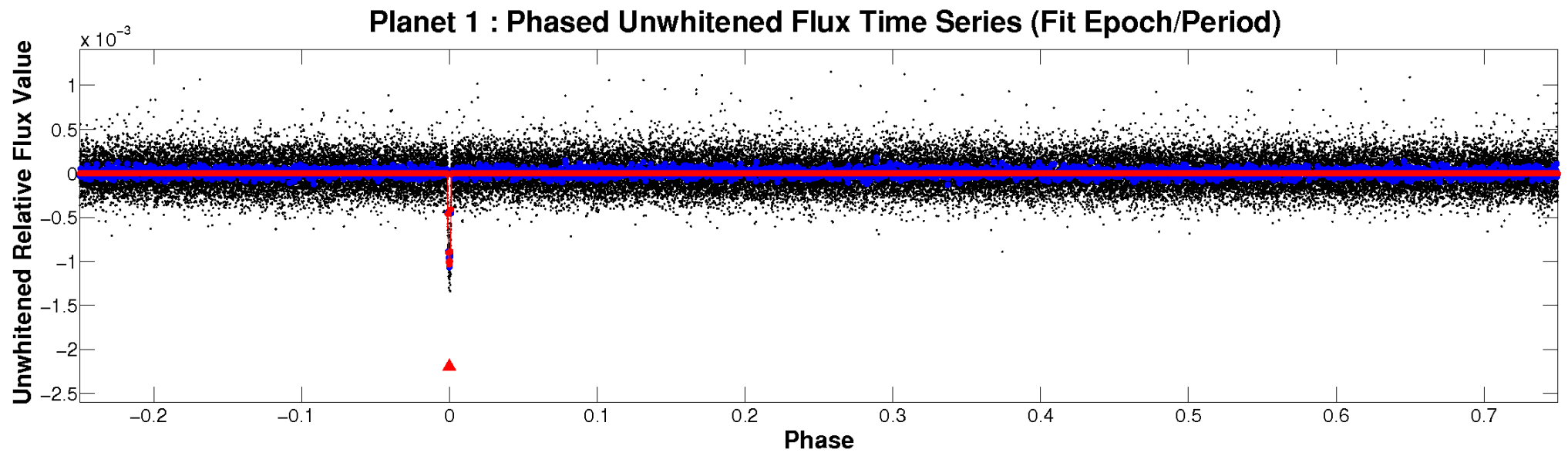


# ALT Odd/Even

TCE 010810838-01

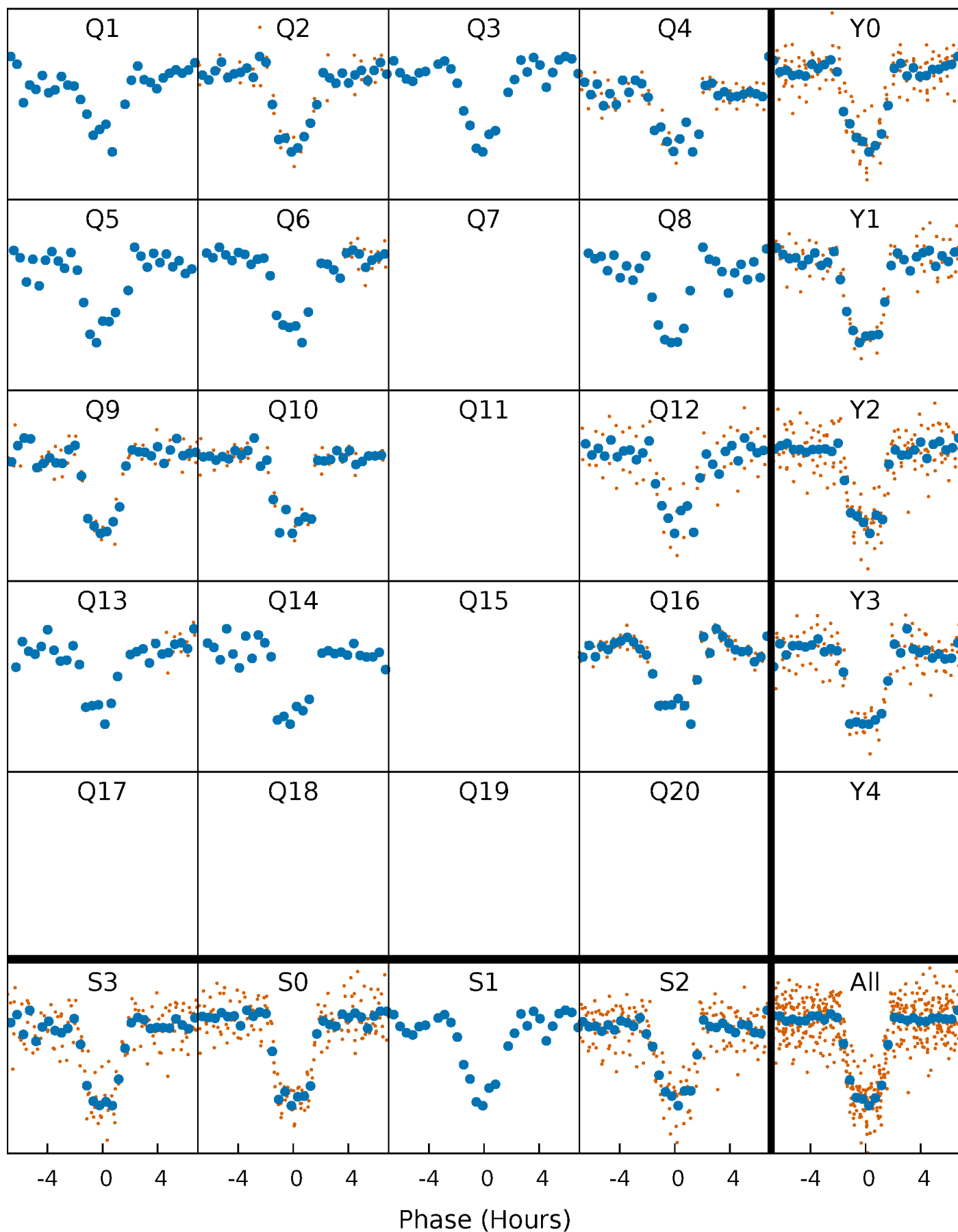


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

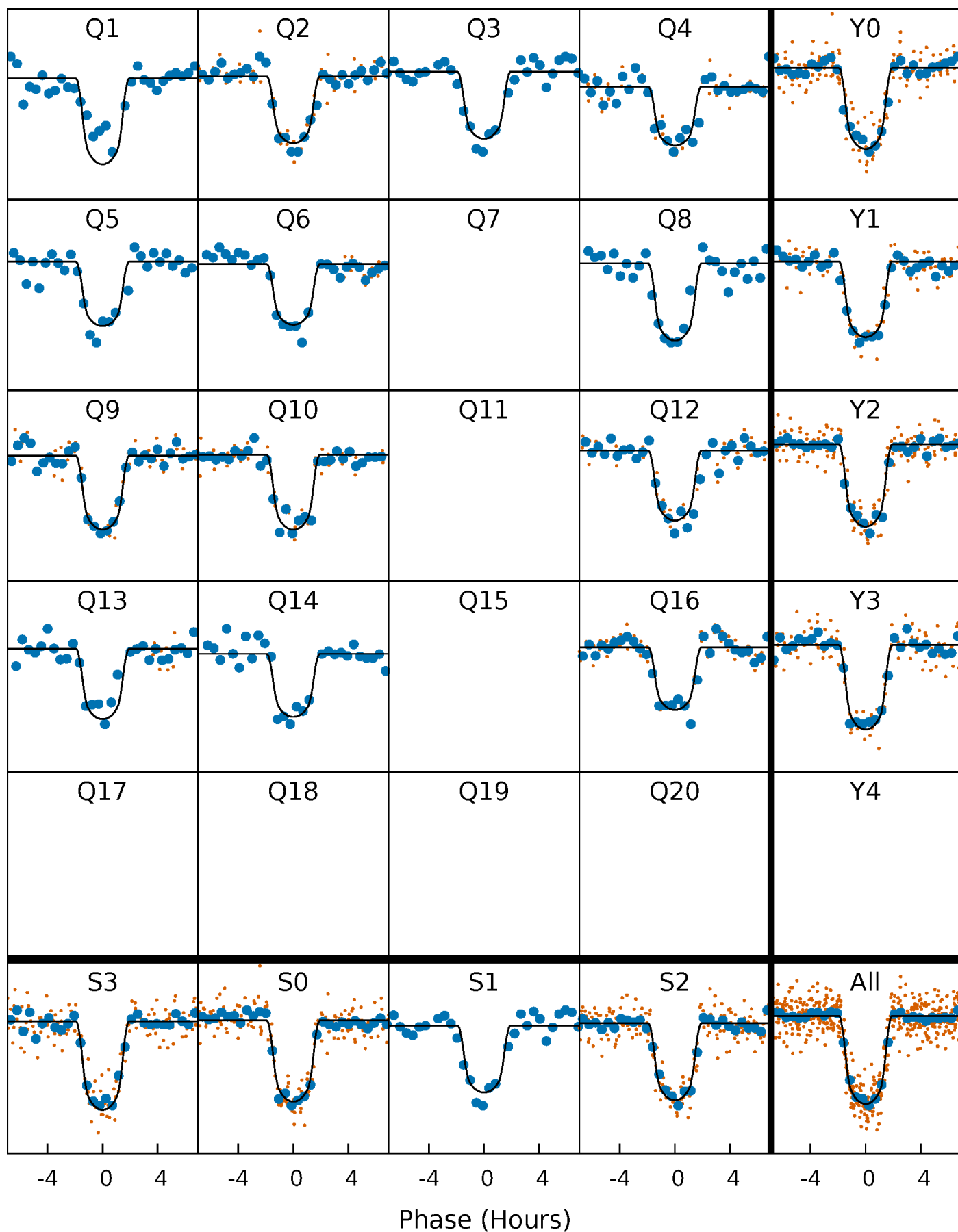
TCE 010810838-01 P= 56.354062 Days  $T_0=144.837219$  (BKJD)





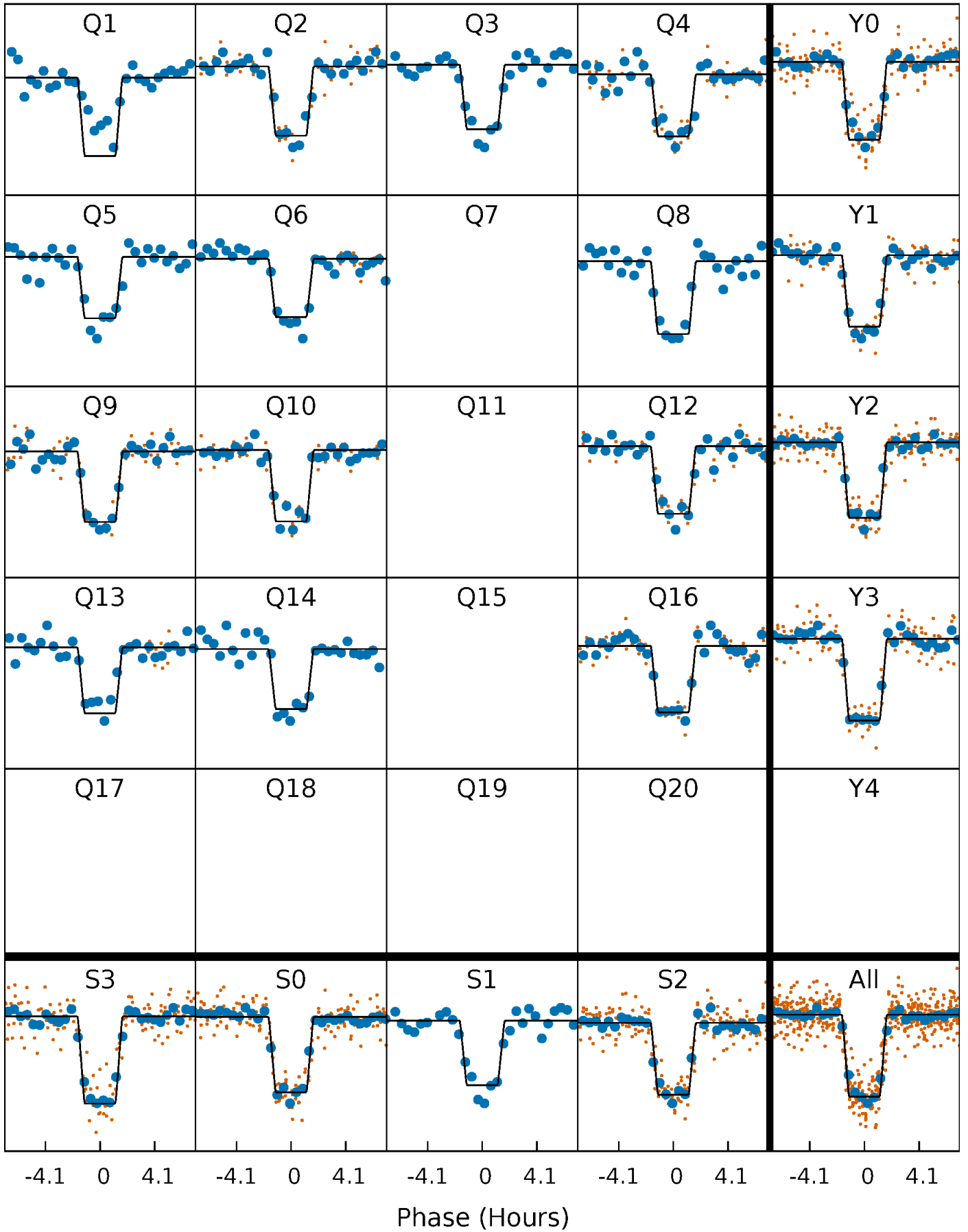
# DV Quarter-Phased Transit Curves

TCE 010810838-01 P= 56.354062 Days  $T_0=144.837219$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

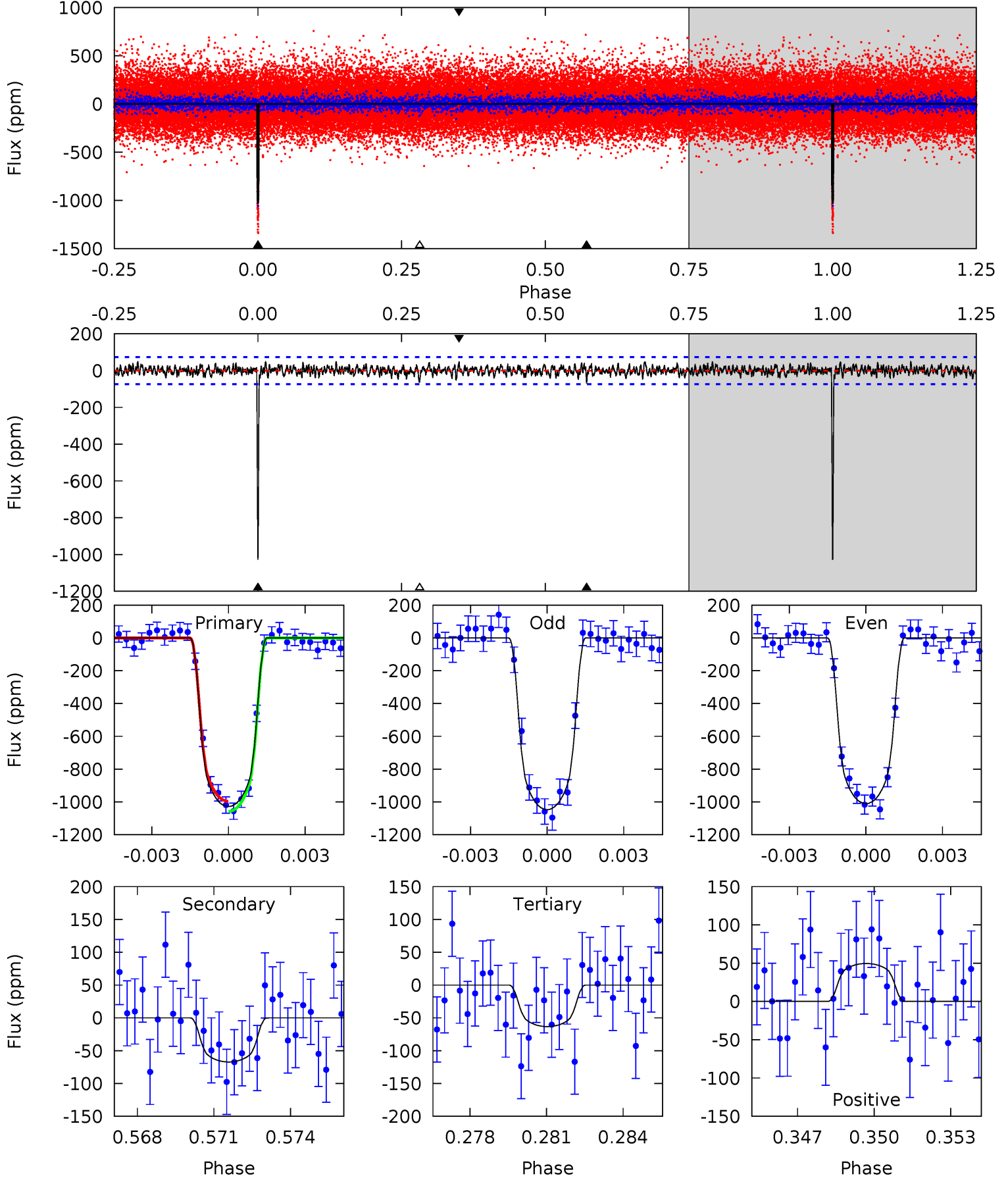
TCE 010810838-01 P= 56.354274 Days  $T_0=144.835278$  (BKJD)



# DV Model-Shift Uniqueness Test

010810838-01, P = 56.354062 Days, E = 88.483157 Days

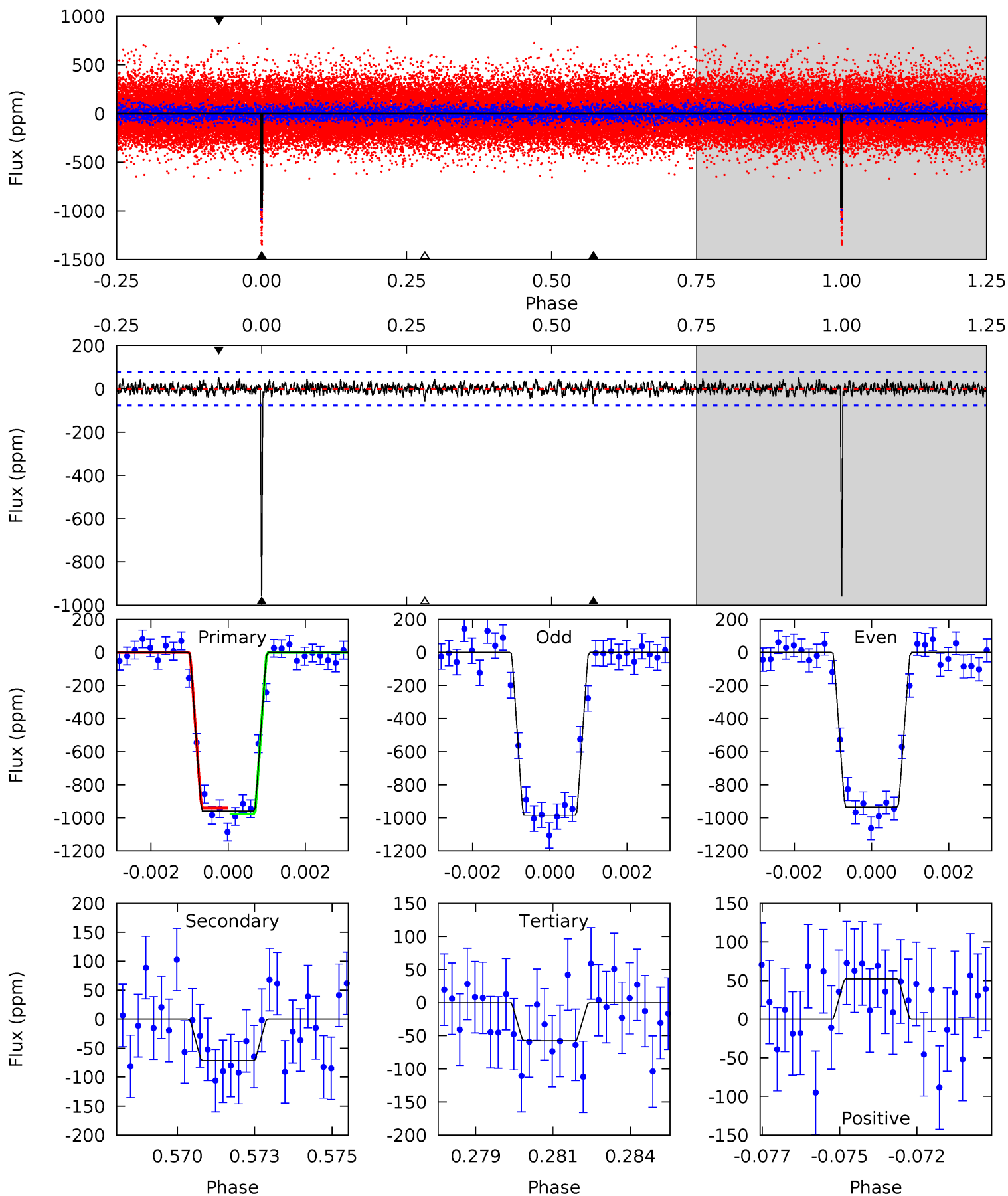
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.9	4.83	4.55	3.56	5.26	2.98	1.22	69.3	70.3	0.28	1.27	1.31	0.99	0.05	2.23



# Alt Model-Shift Uniqueness Test

010810838-01, P = 56.354274 Days, E = 88.481004 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
64.9	4.83	3.91	3.55	5.29	3.02	1.07	61.0	61.4	0.92	1.28	1.71	0.99	0.05	1.31



### Stellar Parameters For KIC 010810838

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4802^{+96}_{-96}$	$4.582^{+0.049}_{-0.017}$	$-0.220^{+0.150}_{-0.150}$	$0.701^{+0.027}_{-0.044}$	$0.686^{+0.053}_{-0.026}$	$2.799^{+0.549}_{-0.222}$
	+2%/-2%	+1%/-0%	+68%/-68%	+4%/-6%	+8%/-4%	+20%/-8%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 010810838-01 / KOI 0174.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-67 \pm 14$	$2.65^{+0.23}_{-0.23}$	$489^{+11}_{-12}$	$2954^{+118}_{-112}$	$342^{+109}_{-82}$
Alt.	$-71 \pm 15$	$2.39^{+0.25}_{-0.25}$	$489^{+12}_{-11}$	$3068^{+139}_{-138}$	$451^{+154}_{-126}$

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

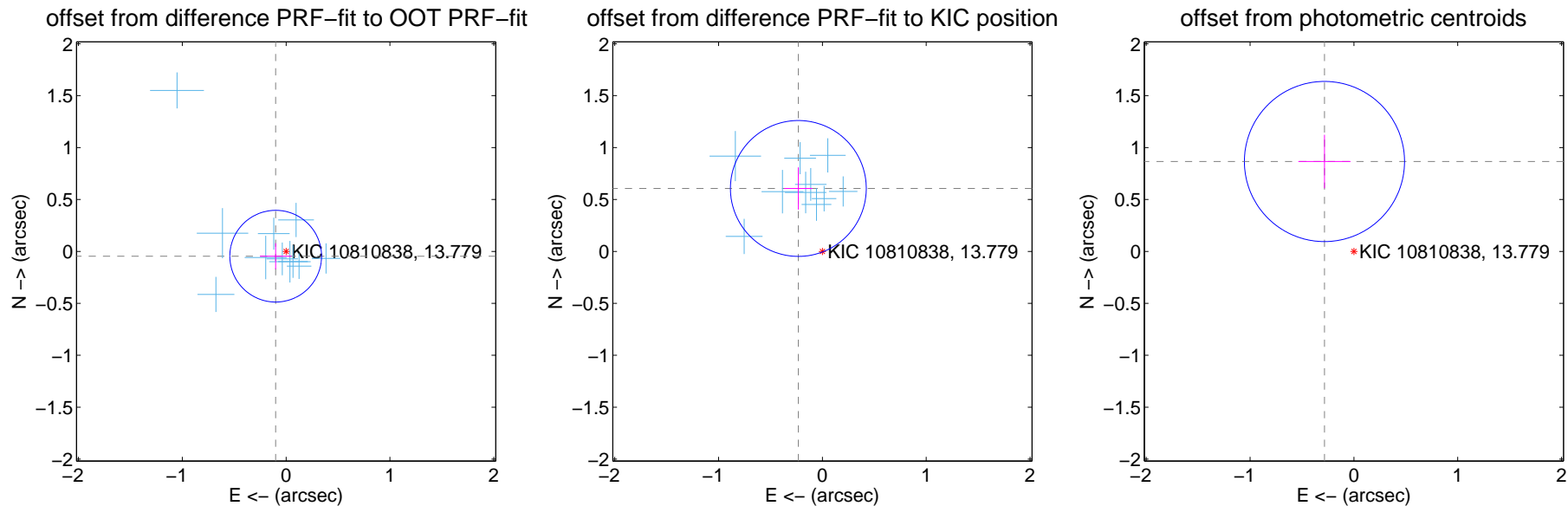
## DV Centroid Data

Supplemental centroid analysis for 010810838-01. Kepler magnitude: 13.78. Transit SNR 51.08

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.73 arcsec

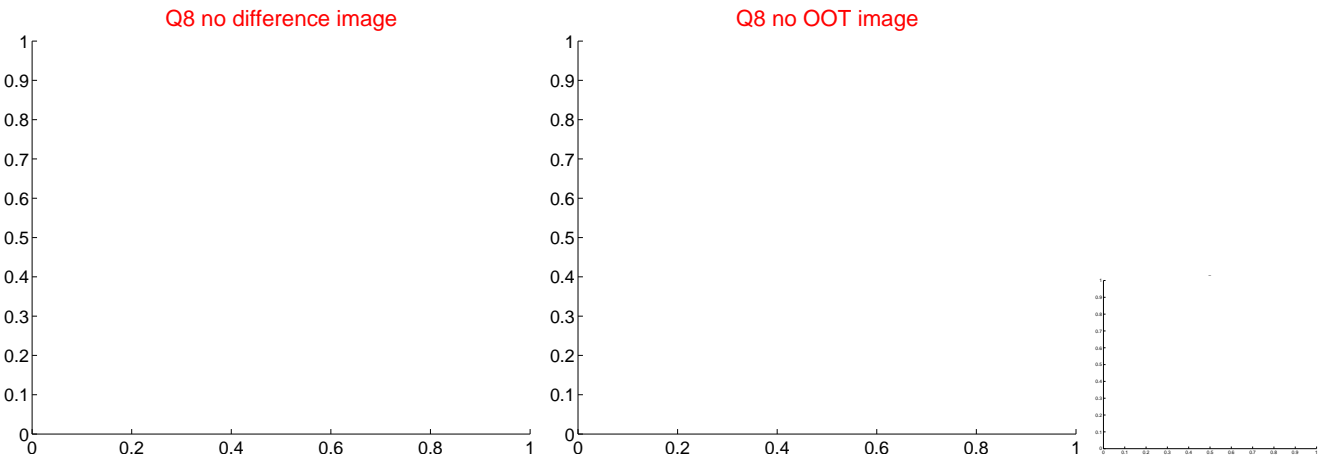
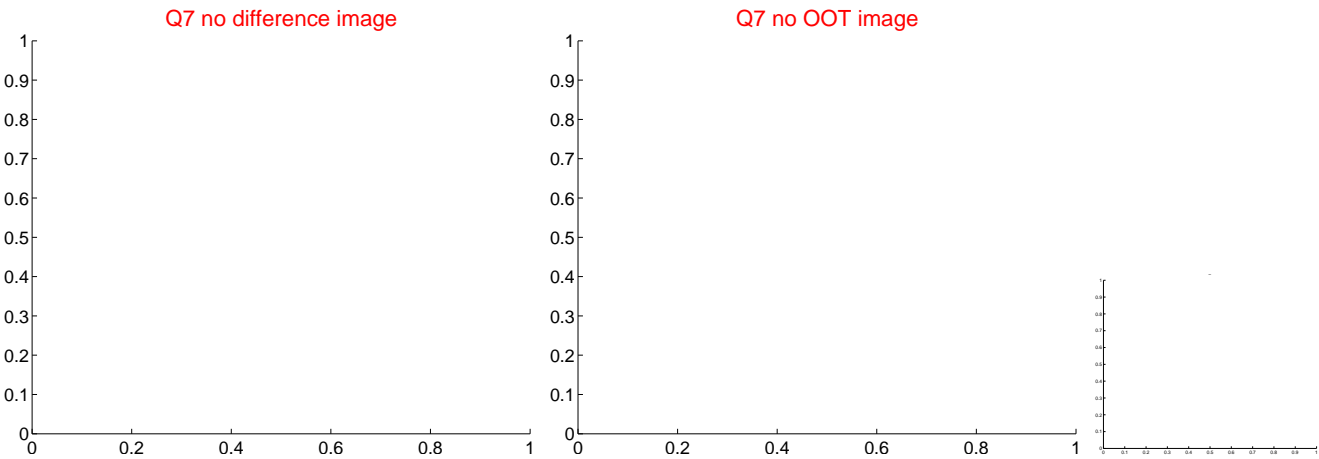
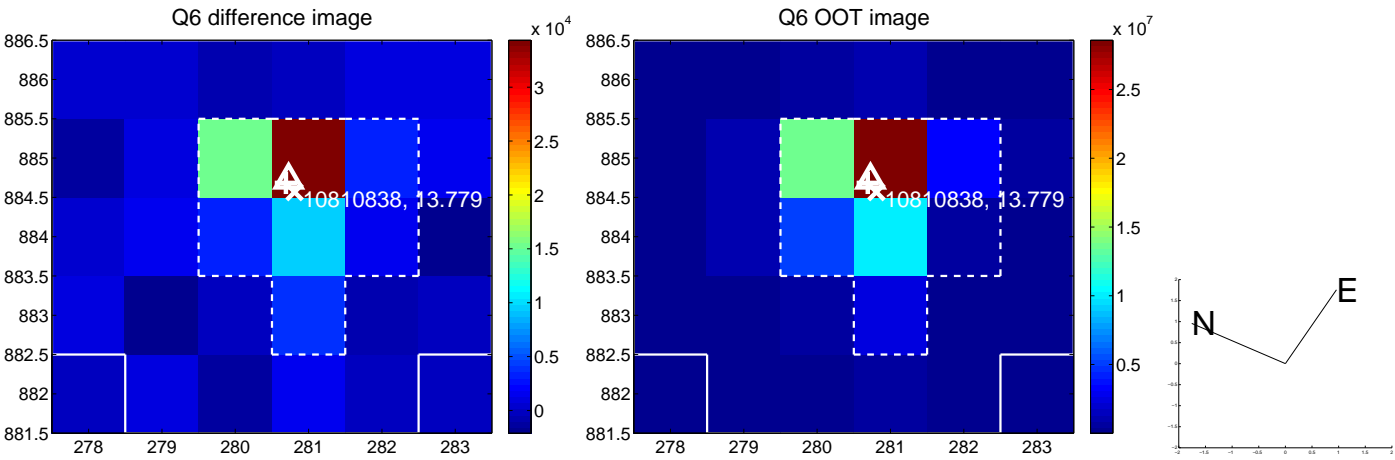
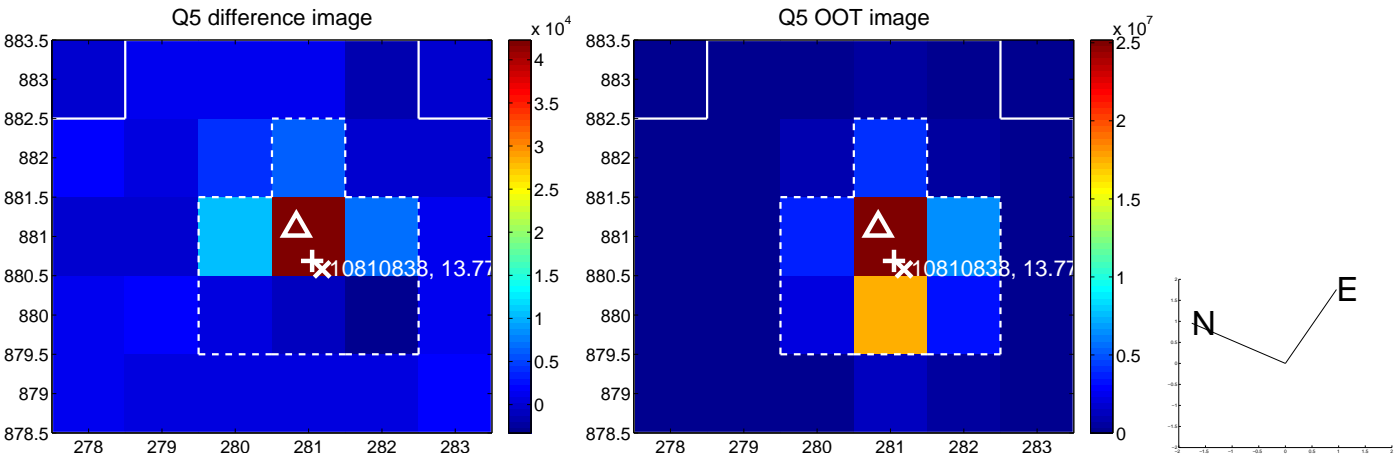
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.110 \pm 0.147$	0.75	$0.100 \pm 0.151$	$-0.046 \pm 0.125$
PRF-fit source offset from KIC position	$0.649 \pm 0.218$	2.98	$0.232 \pm 0.136$	$0.606 \pm 0.204$
photometric centroid source offset	$0.91 \pm 0.26$	3.54	$0.28 \pm 0.25$	$0.87 \pm 0.26$



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.

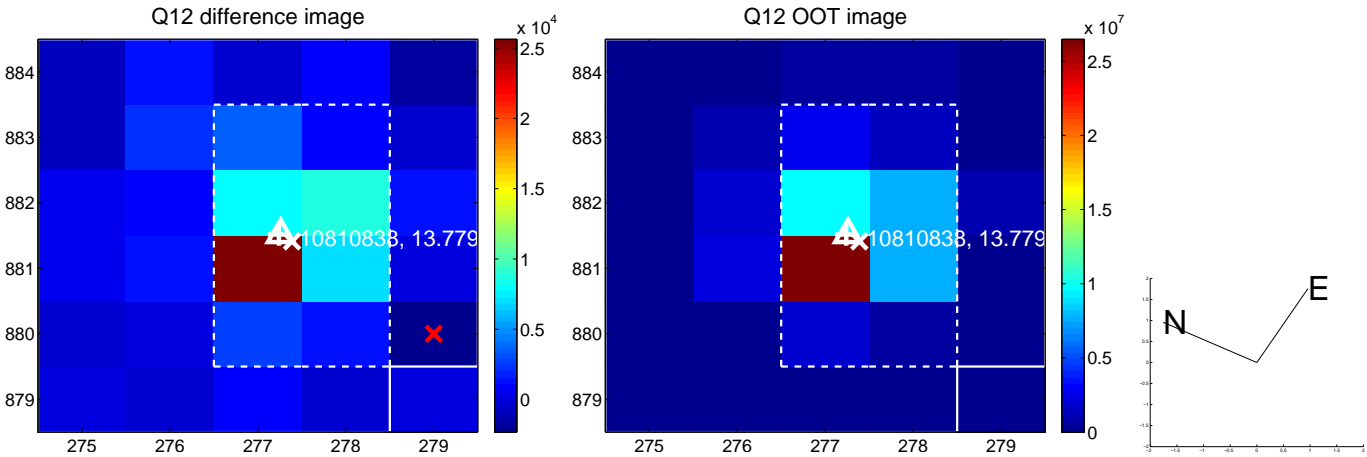
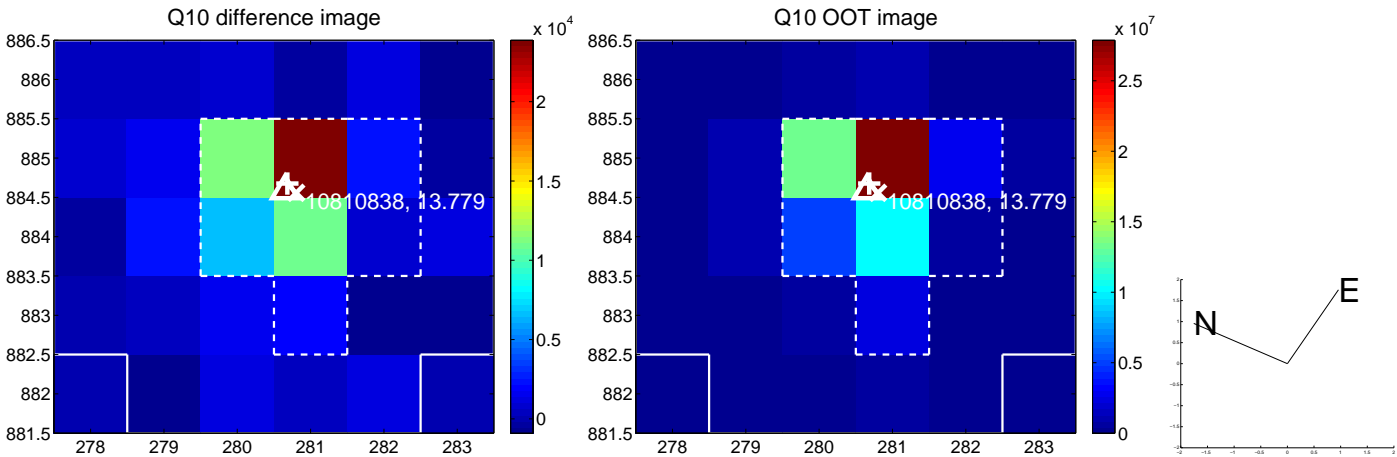
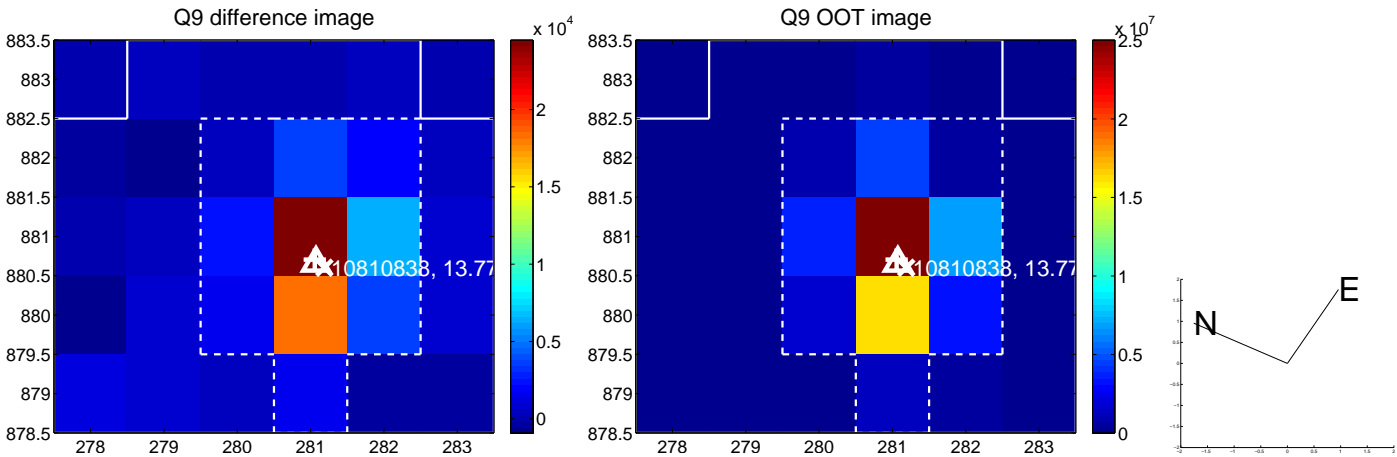


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

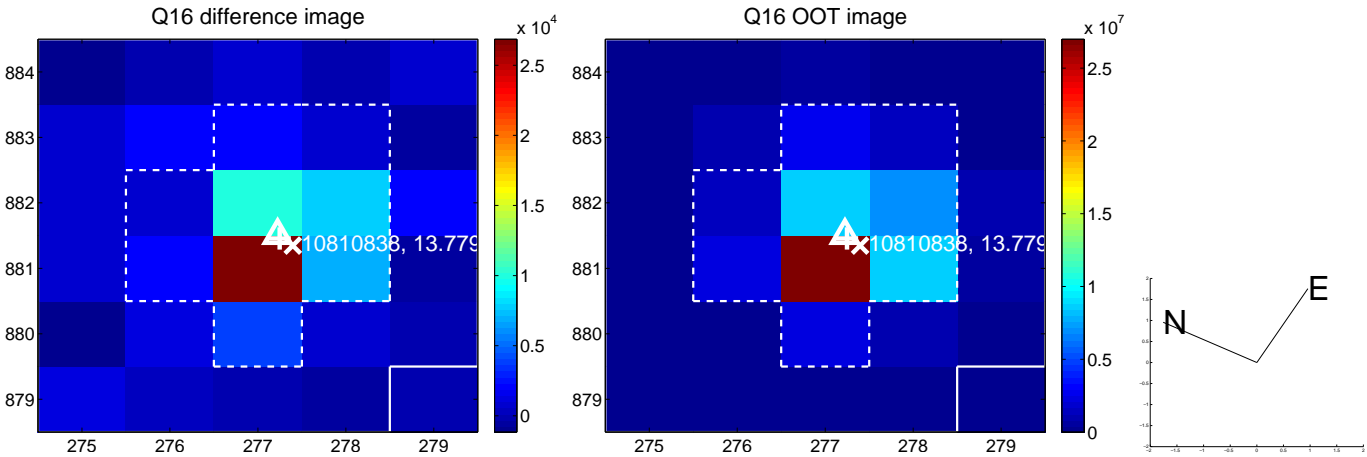
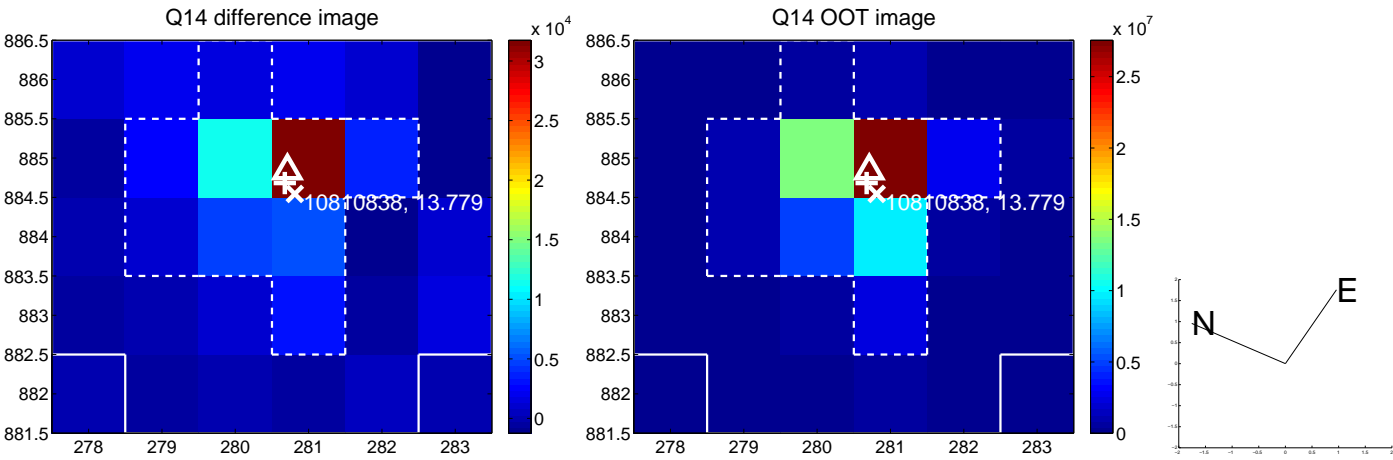
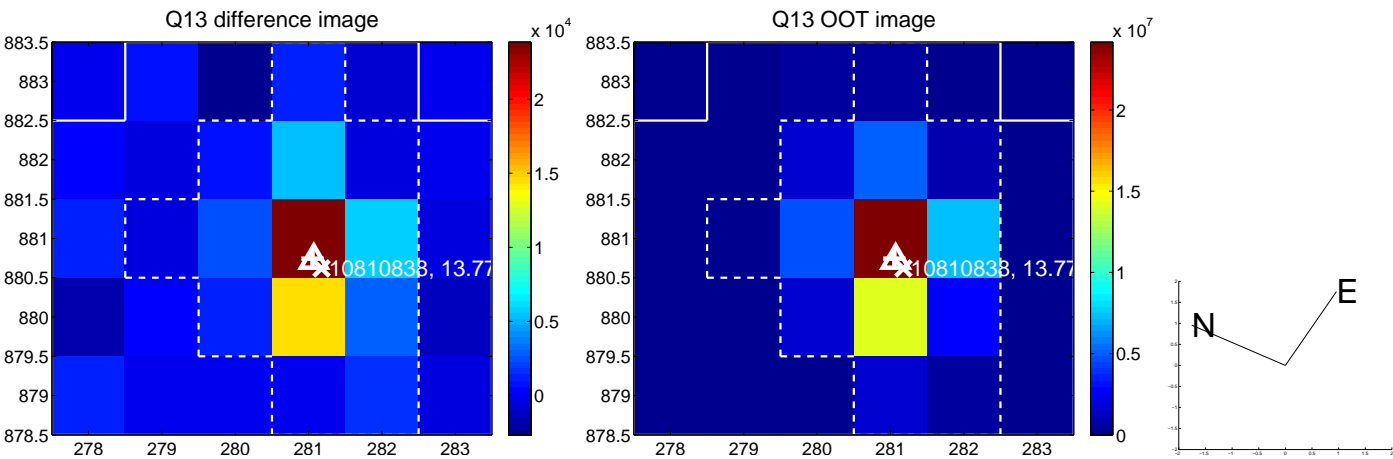




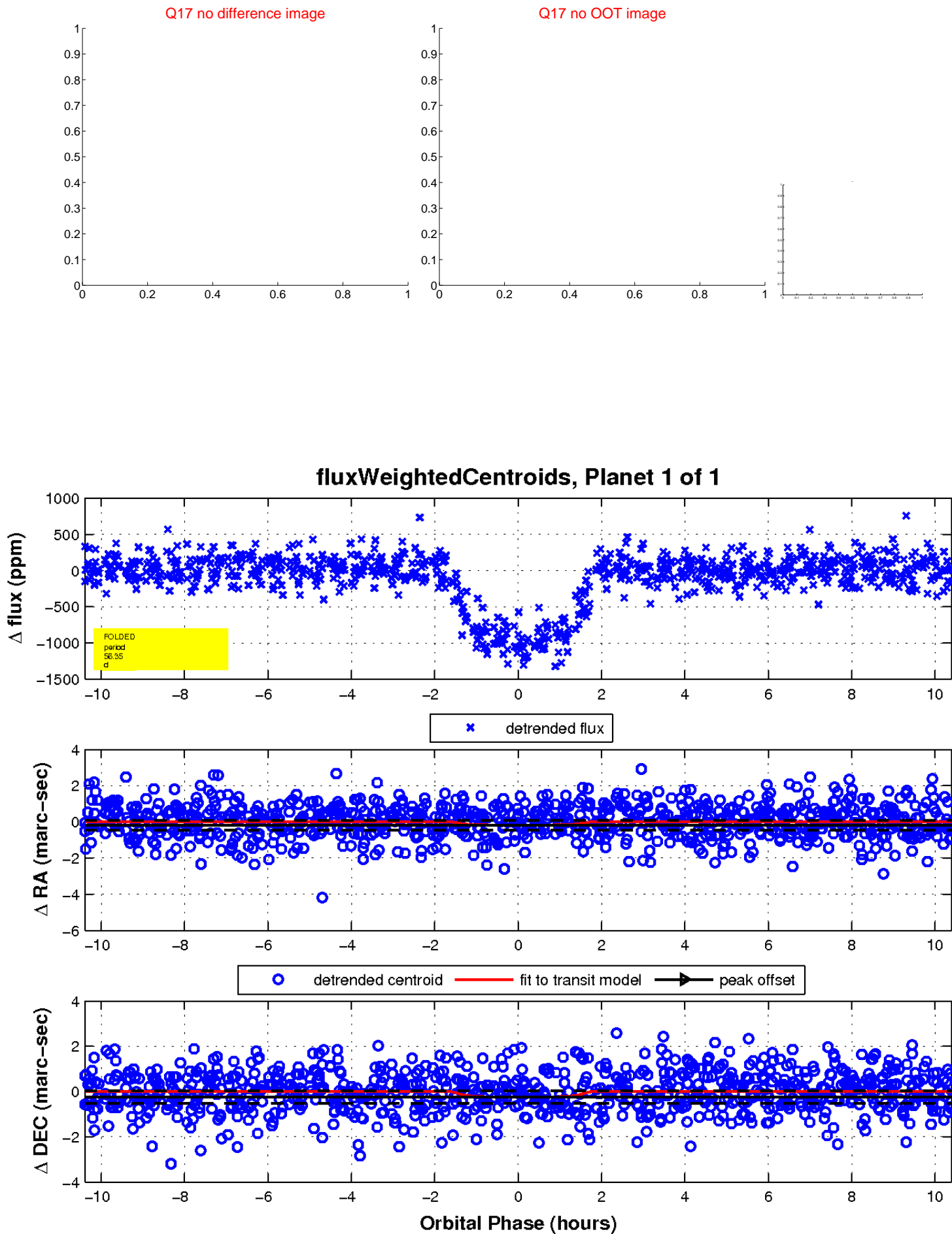
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

