

# KIC 010080218

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010080218-01	OBS	No	405.198529	388.207062	379.8	7.286	9.5	9.2	0.86	5759	1.83	0.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010080218-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—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.

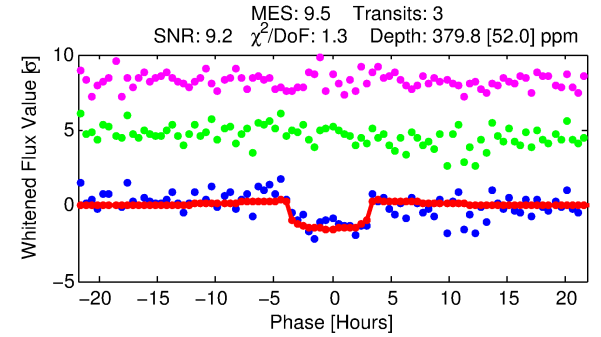
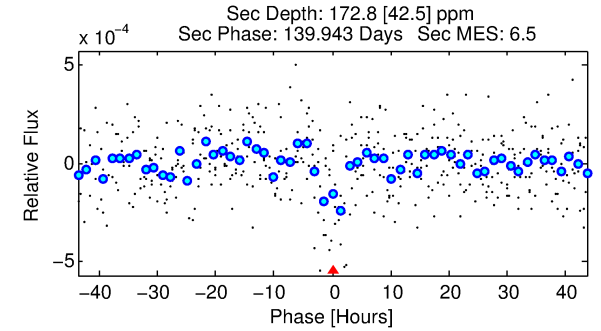
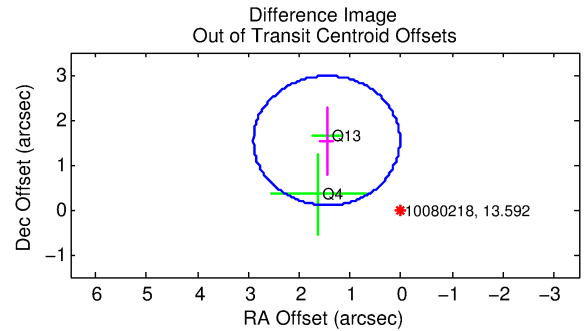
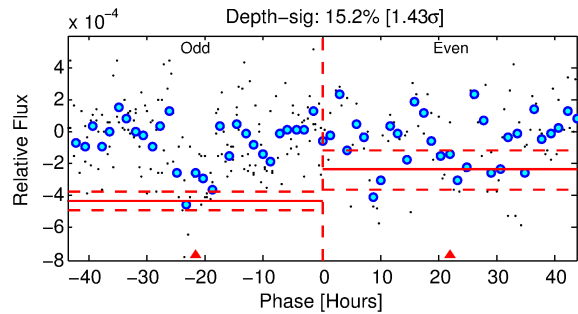
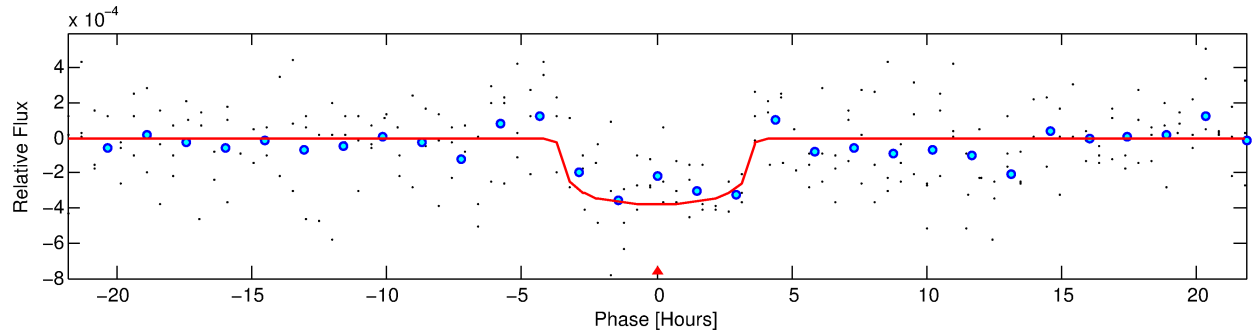
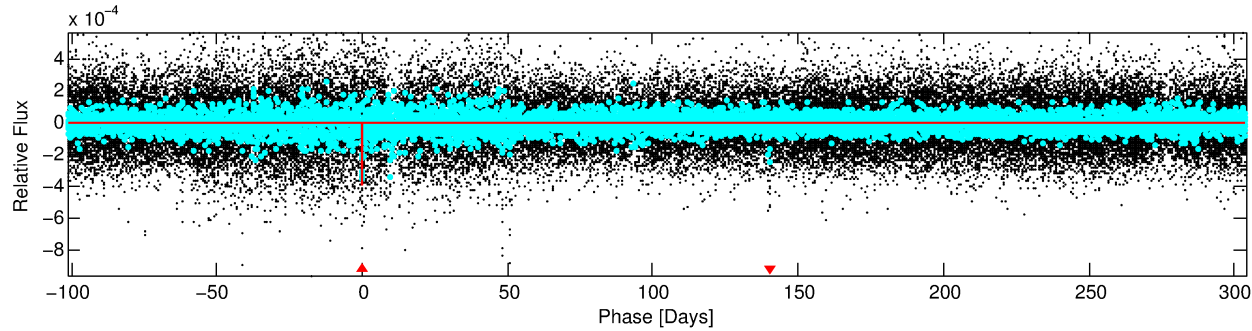
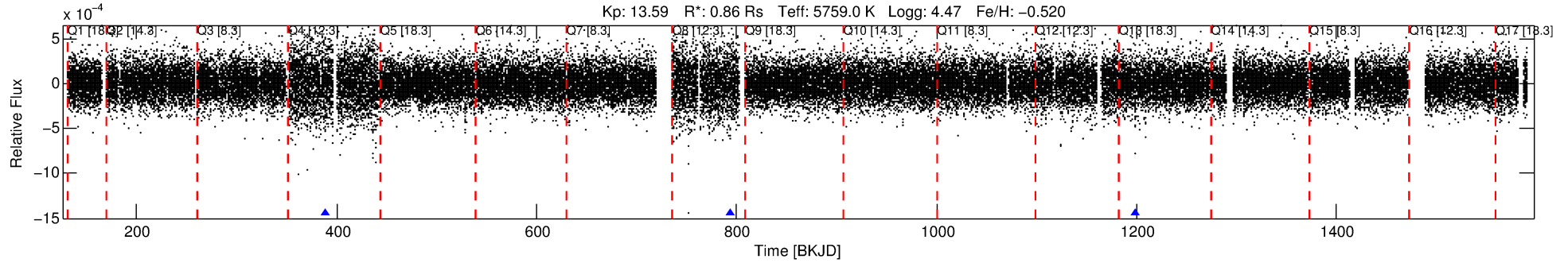
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010080218-01

No Significant Match Found

# DV One-Page Summary

KIC: 10080218 Candidate: 1 of 1 Period: 405.199 d



## DV Fit Results:

Period = 405.19853 [0.01190] d  
Epoch = 388.2071 [0.0187] BKJD  
Rp/R\* = 0.0196 [0.0077]  
a/R\* = 282.66 [518.14]  
b = 0.77 [0.97]  
Seff = 0.74 [0.23]  
Teq = 236 [18] K  
Rp = 1.83 [0.84] Re  
a = 0.9927 [0.1964] AU  
Ag = 27945.10 [24507.49] [1.14 $\sigma$ ]  
Teffp = 4722 [984] K [4.56 $\sigma$ ]

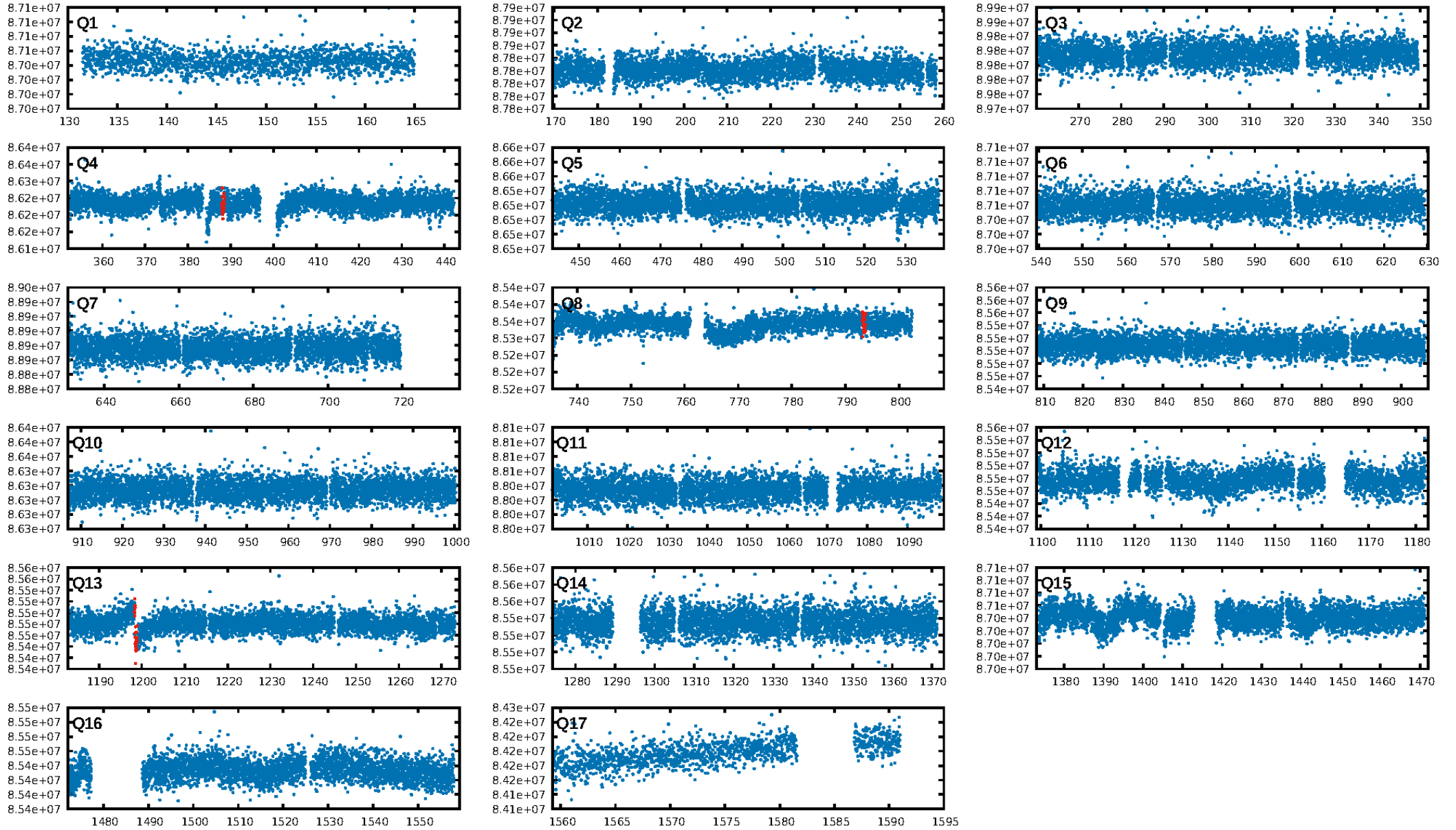
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.1%  
ModelChiSquareGof-sig: 96.5%  
Bootstrap-pfa: 1.13e-22  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.289  
Centroid-sig: 3.5%  
Centroid-so: 0.434 arcsec [0.68 $\sigma$ ]  
OotOffset-rm: 2.118 arcsec [4.41 $\sigma$ ]  
KicOffset-rm: 2.097 arcsec [4.39 $\sigma$ ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

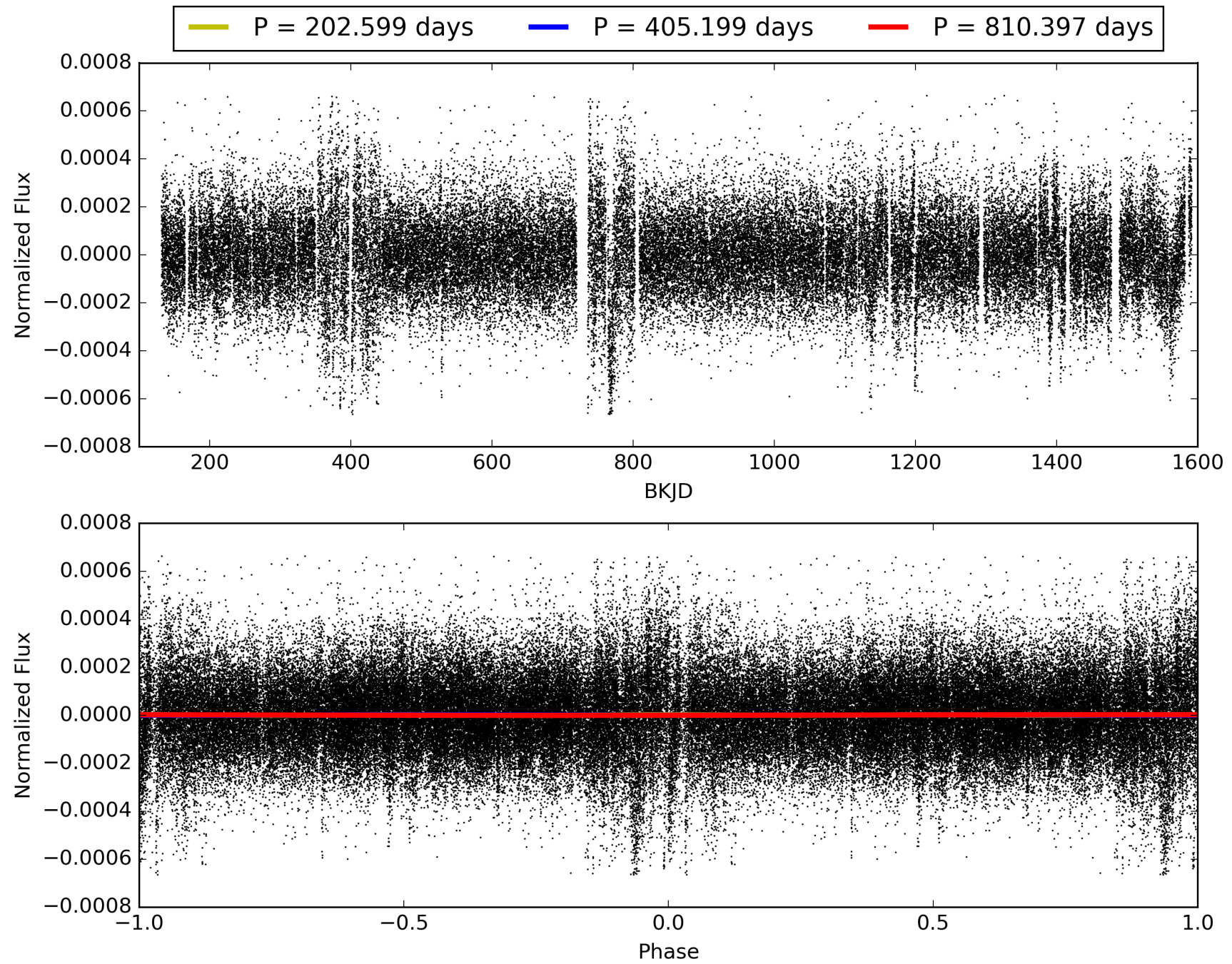
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:50:01 Z

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

# TCE 010080218-01, PDC Light Curves

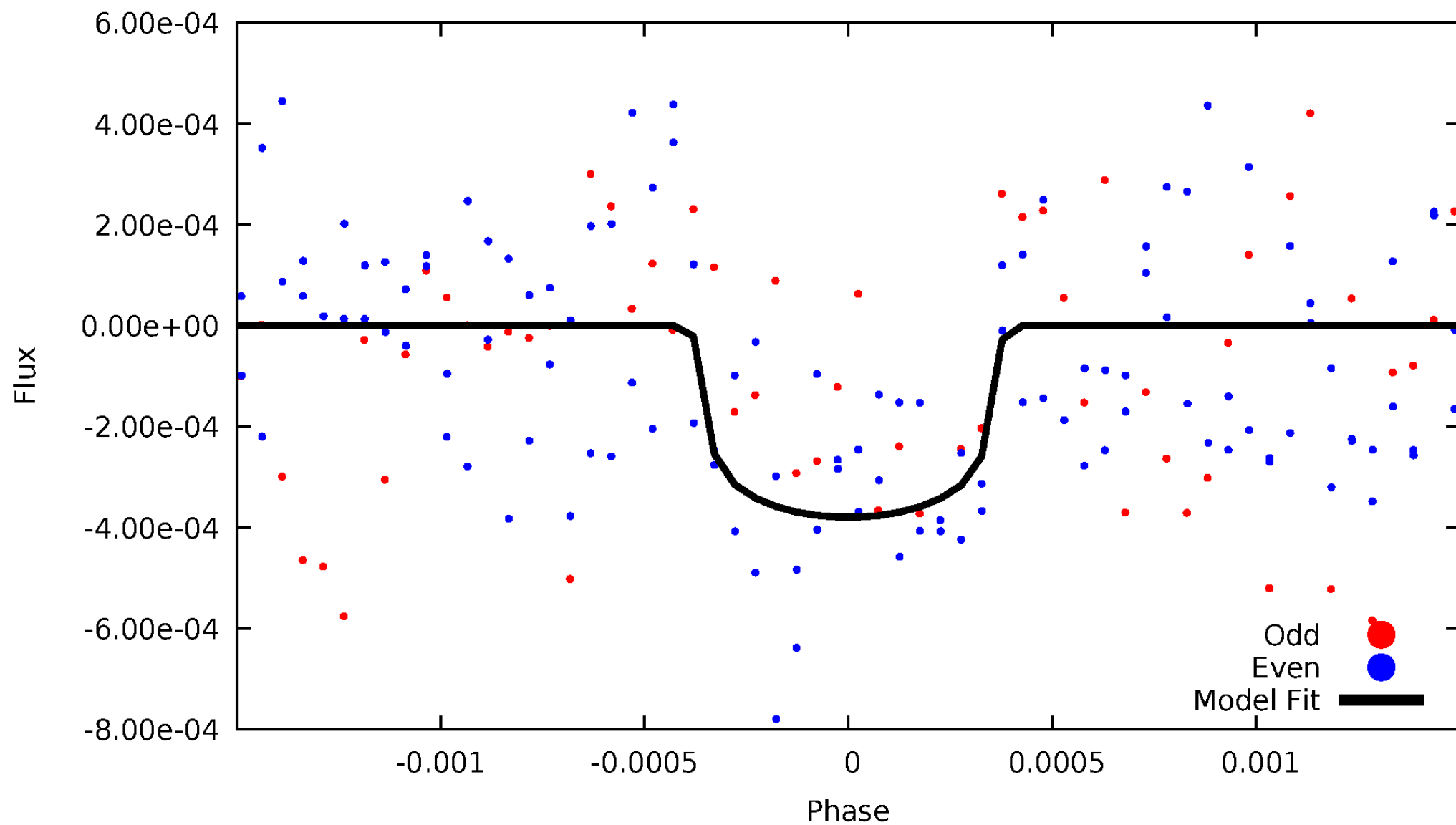


# TCE 010080218-01



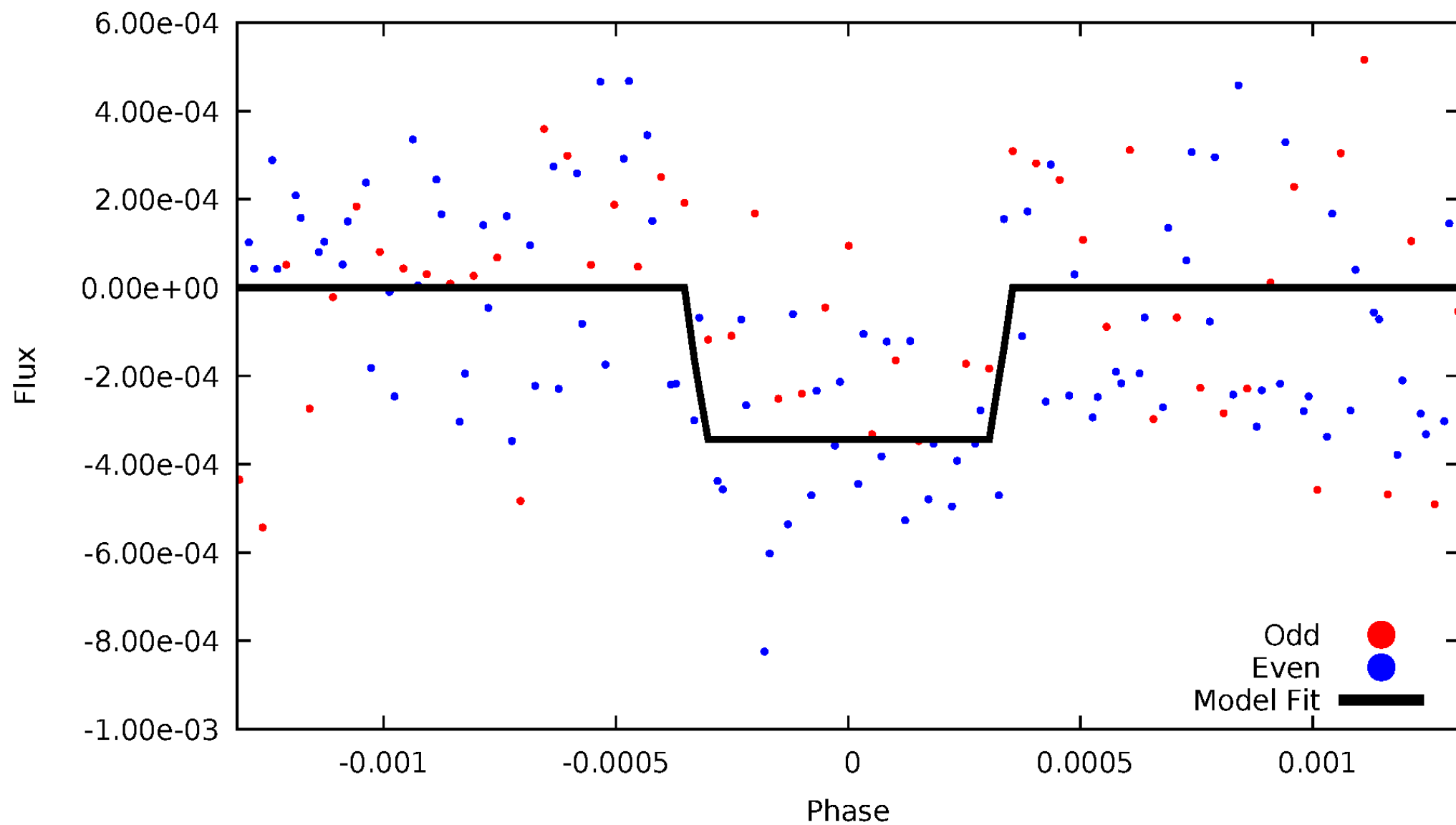
# DV Odd/Even

TCE 010080218-01



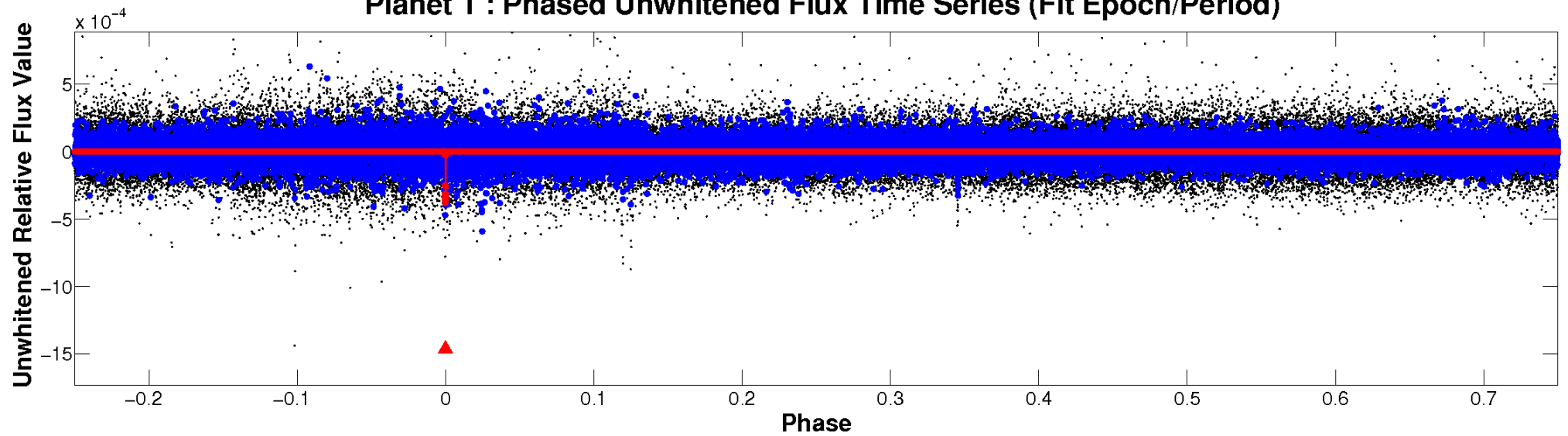
# ALT Odd/Even

TCE 010080218-01

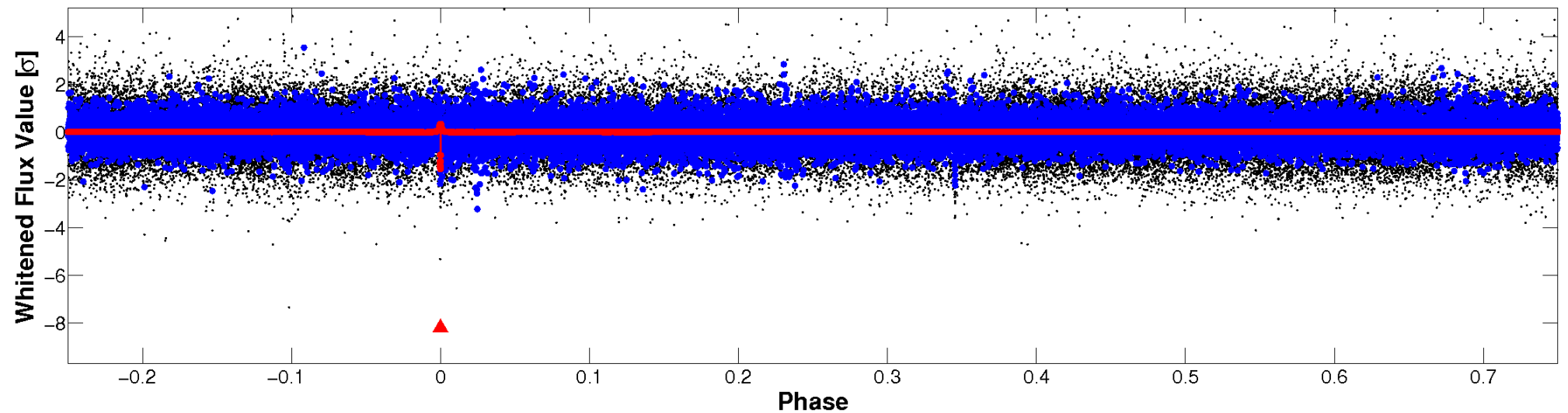


# Non-Whitened Vs. Whitened Light Curve

**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

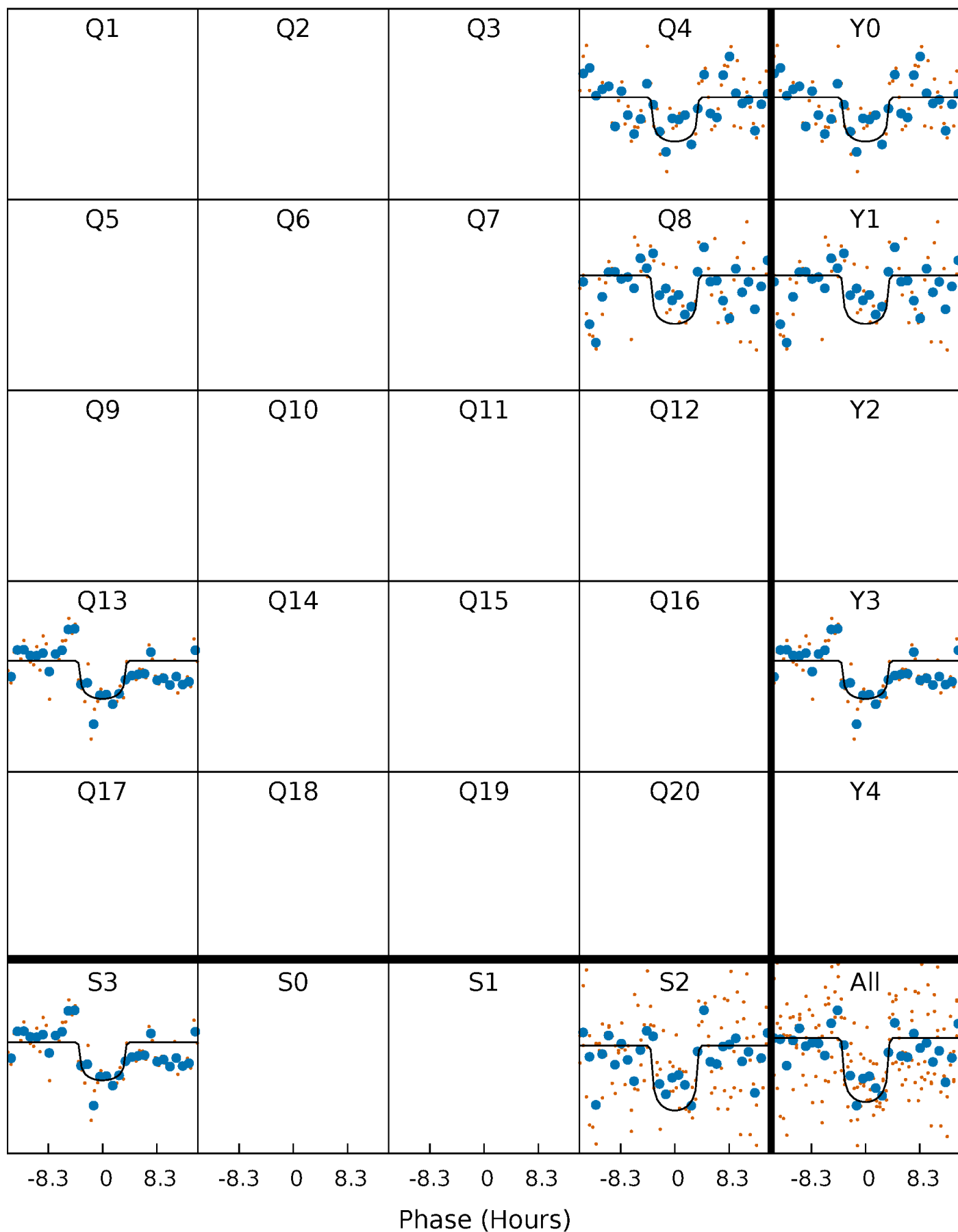
TCE 010080218-01 P=405.198529 Days  $T_0=388.207062$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 010080218-01 P=405.198529 Days  $T_0=388.207062$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

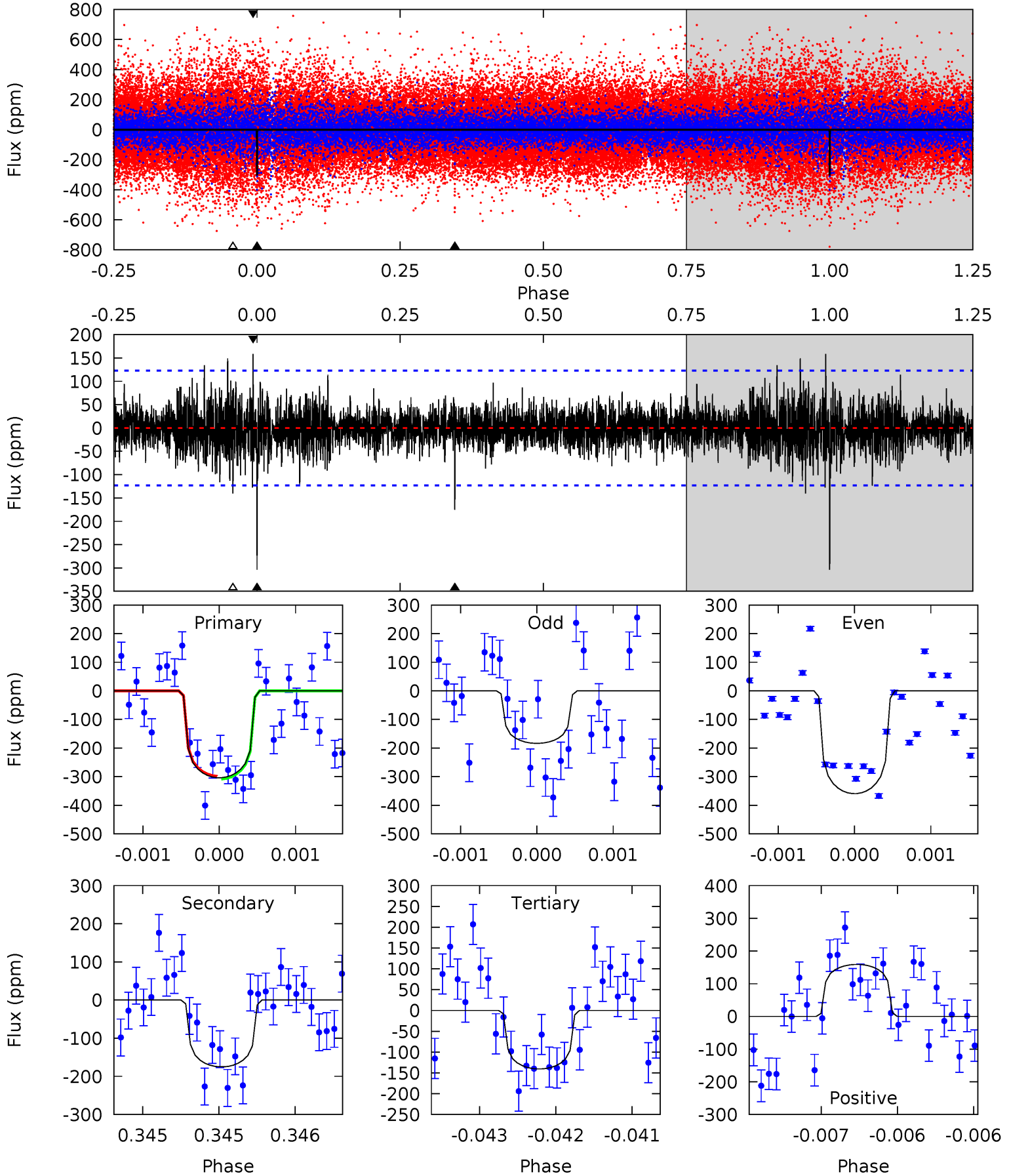
TCE 010080218-01 P=405.190684 Days  $T_0=388.224139$  (BKJD)



# DV Model-Shift Uniqueness Test

010080218-01, P = 405.198529 Days, E = 388.207062 Days

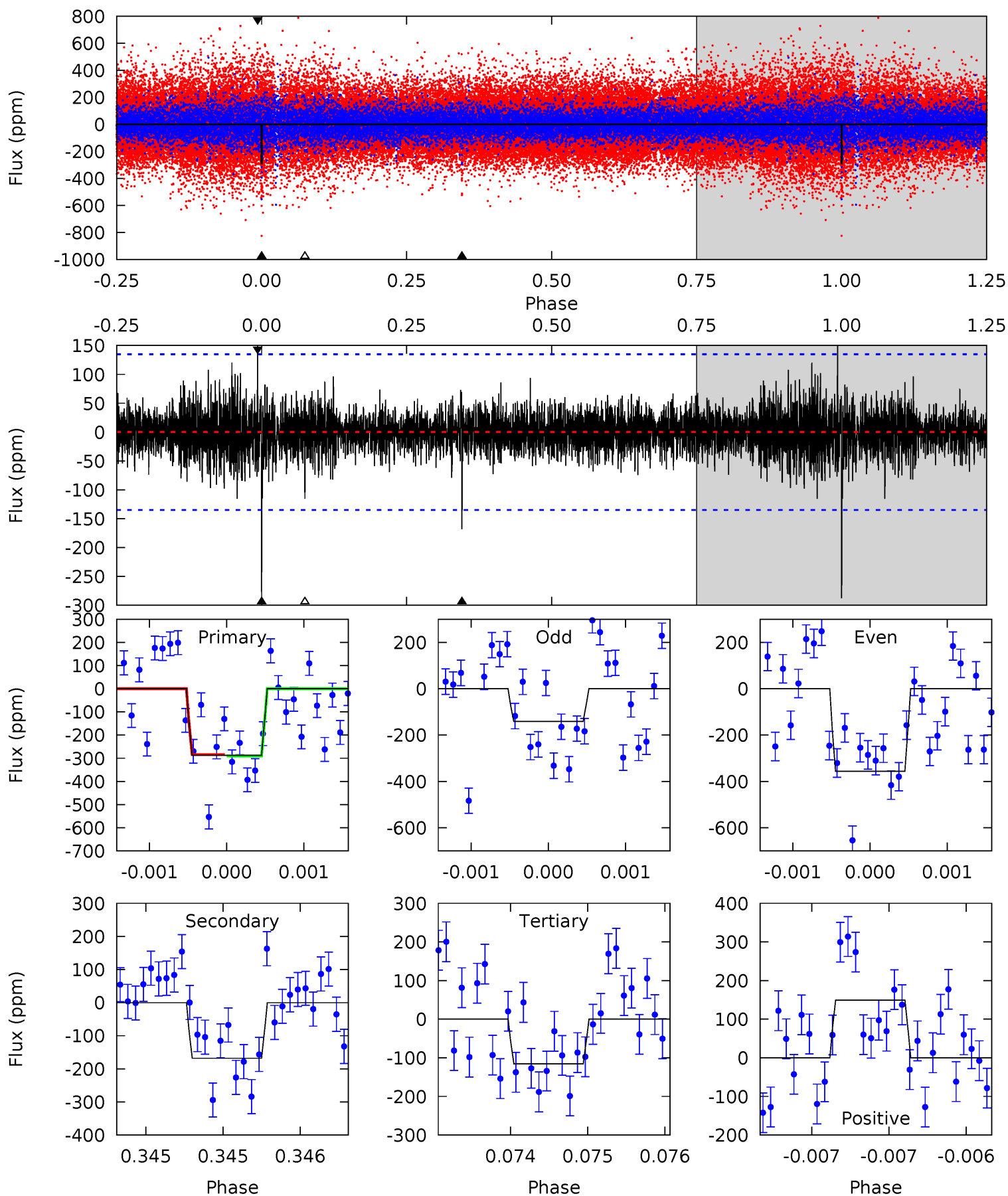
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	7.81	6.27	7.09	5.49	3.35	1.30	7.28	6.46	1.54	0.72	3.63	0.99	0.34	0.22



# Alt Model-Shift Uniqueness Test

010080218-01, P = 405.190684 Days, E = 388.224139 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
11.8	6.87	4.74	6.12	5.52	3.40	1.06	7.03	5.65	2.14	0.76	4.12	1.13	0.34	0.12



### Stellar Parameters For KIC 010080218

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5759^{+155}_{-155}$	$4.471^{+0.108}_{-0.162}$	$-0.520^{+0.300}_{-0.300}$	$0.858^{+0.198}_{-0.122}$	$0.793^{+0.103}_{-0.055}$	$1.769^{+0.833}_{-0.776}$
	+3%/-3%	+2%/-4%	+58%/-58%	+23%/-14%	+13%/-7%	+47%/-44%
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 010080218-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-175 \pm 22$	$1.87^{+0.81}_{-0.72}$	$331^{+20}_{-17}$	$4856^{+1173}_{-656}$	$27648^{+47322}_{-14652}$
Alt.	$-168 \pm 24$	$1.75^{+0.81}_{-0.71}$	$333^{+19}_{-16}$	$4942^{+1292}_{-706}$	$28571^{+56900}_{-14781}$

$T_{\text{max}}$  = 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

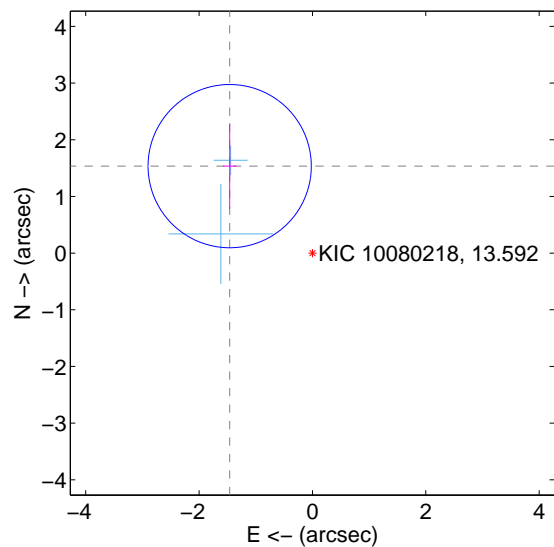
Supplemental centroid analysis for 010080218-01. Kepler magnitude: 13.59. Transit SNR 9.17

There are 2 quarters with good PRF difference image offsets

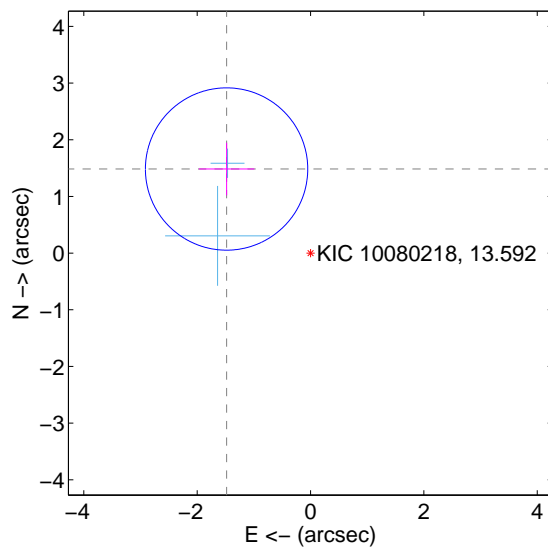
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.118 \pm 0.480$	4.41	$1.460 \pm 0.119$	$1.535 \pm 0.753$
PRF-fit source offset from KIC position	$2.097 \pm 0.477$	4.39	$1.481 \pm 0.490$	$1.484 \pm 0.464$
photometric centroid source offset	$0.43 \pm 0.64$	0.68	$0.40 \pm 0.62$	$-0.17 \pm 0.71$

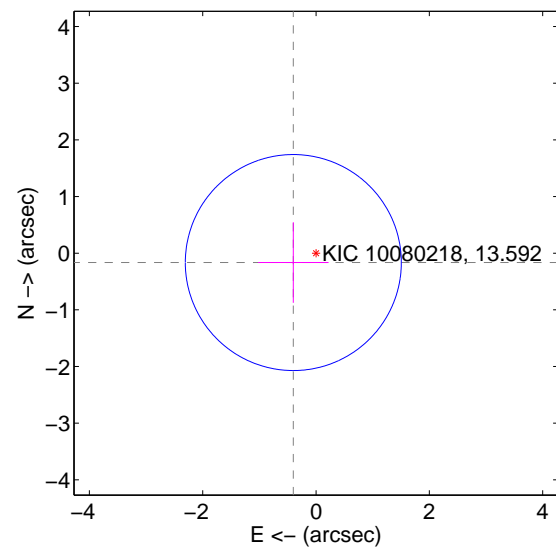
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

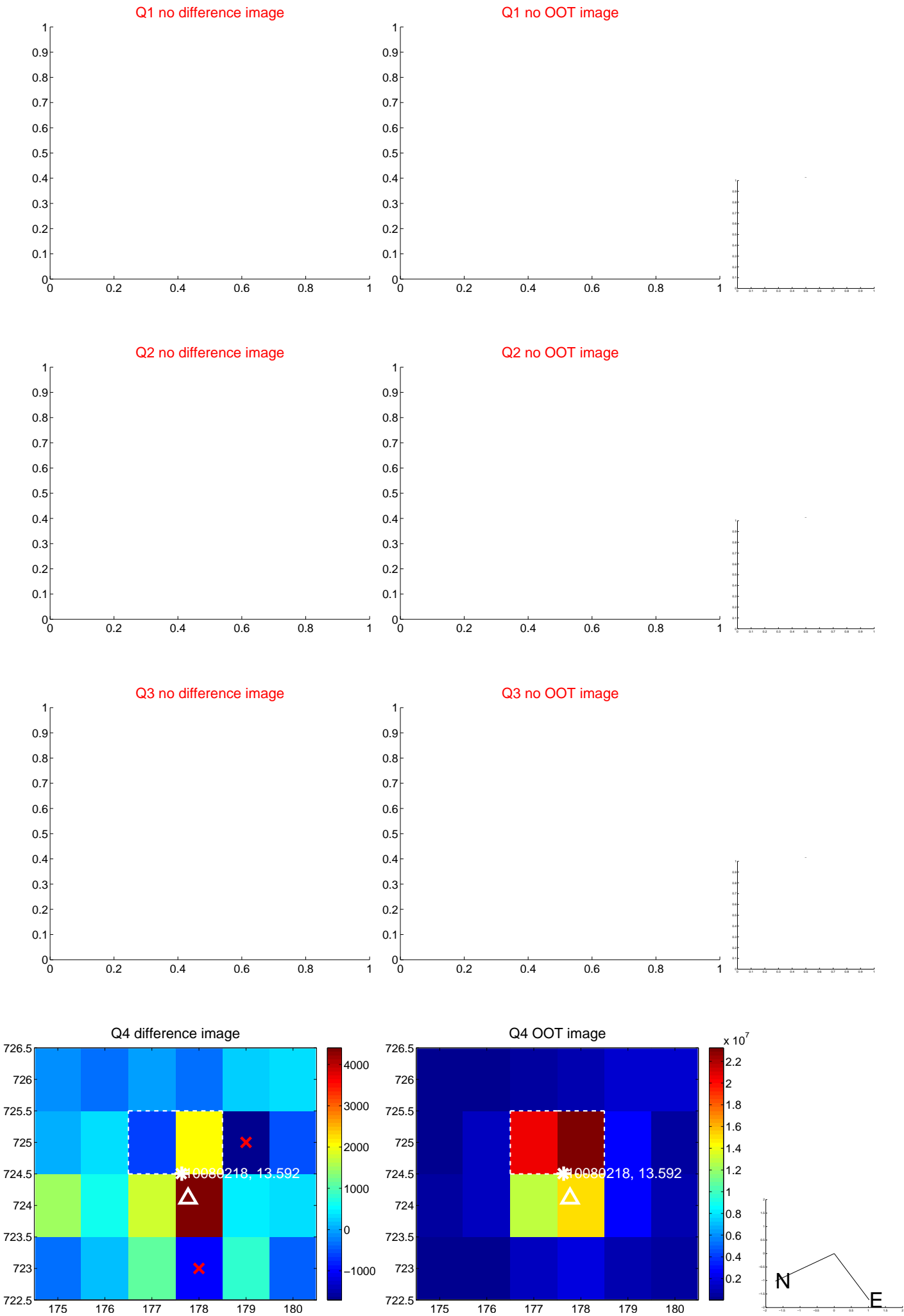


offset from photometric centroids



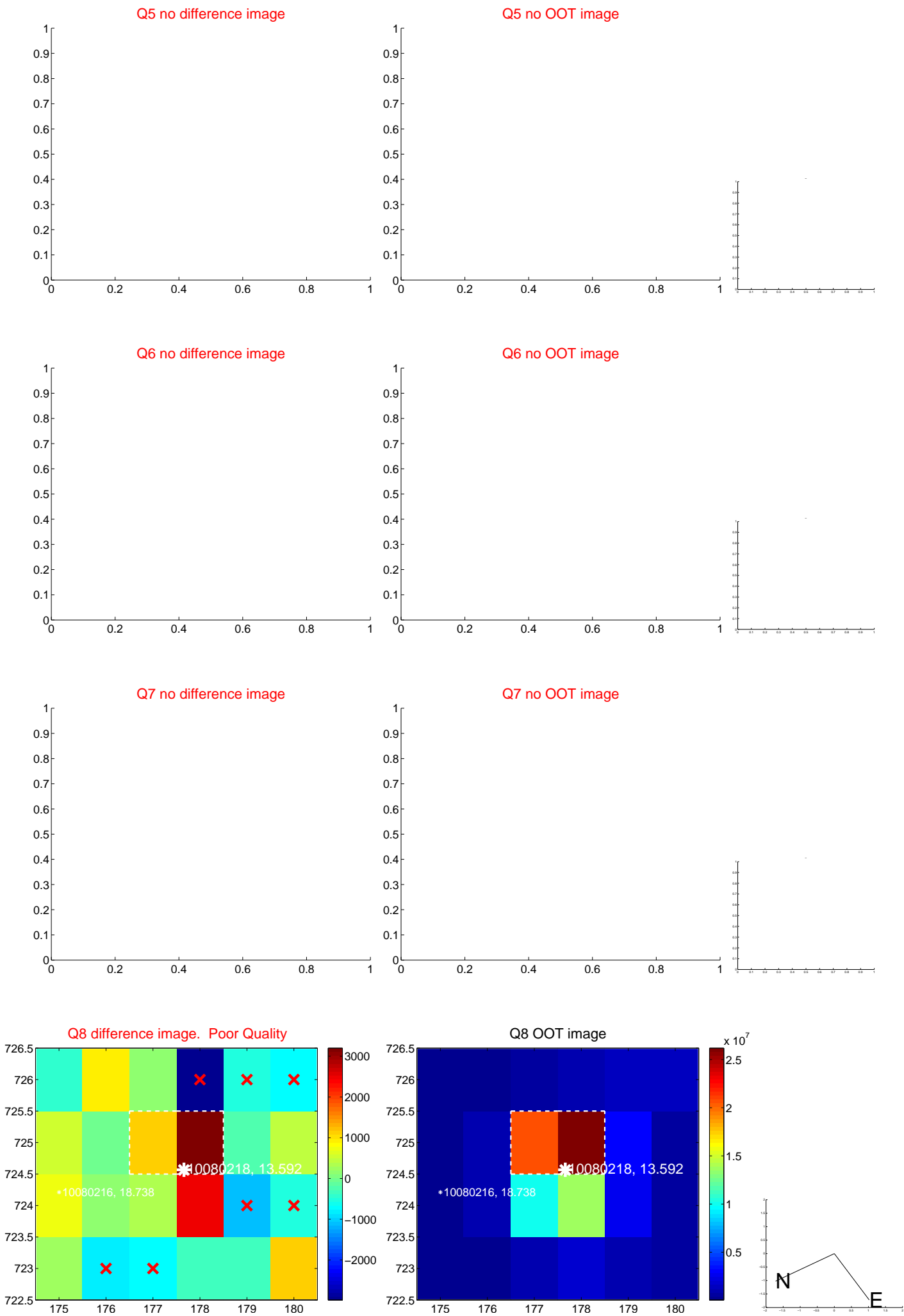
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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





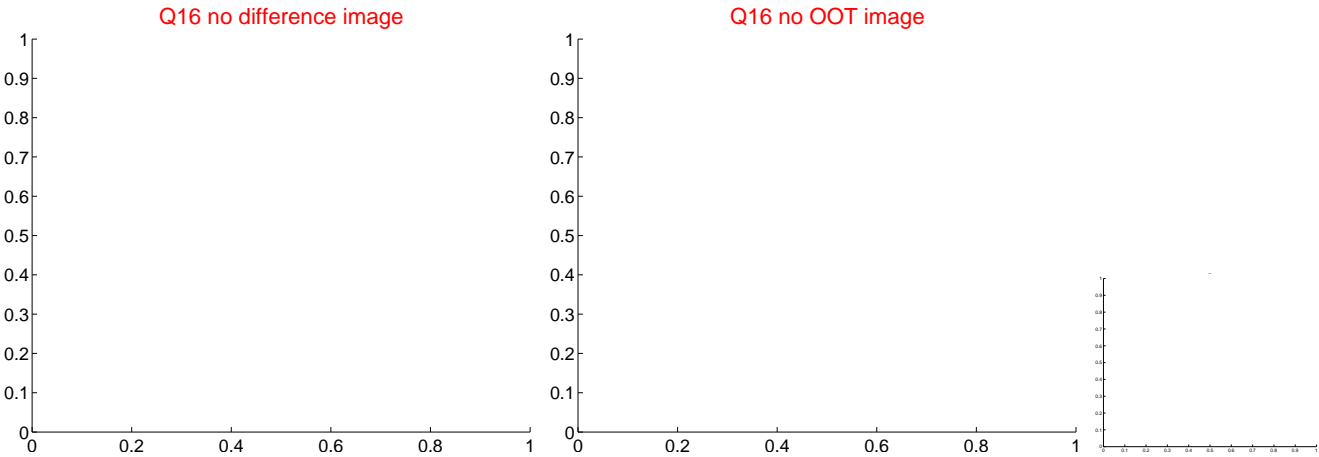
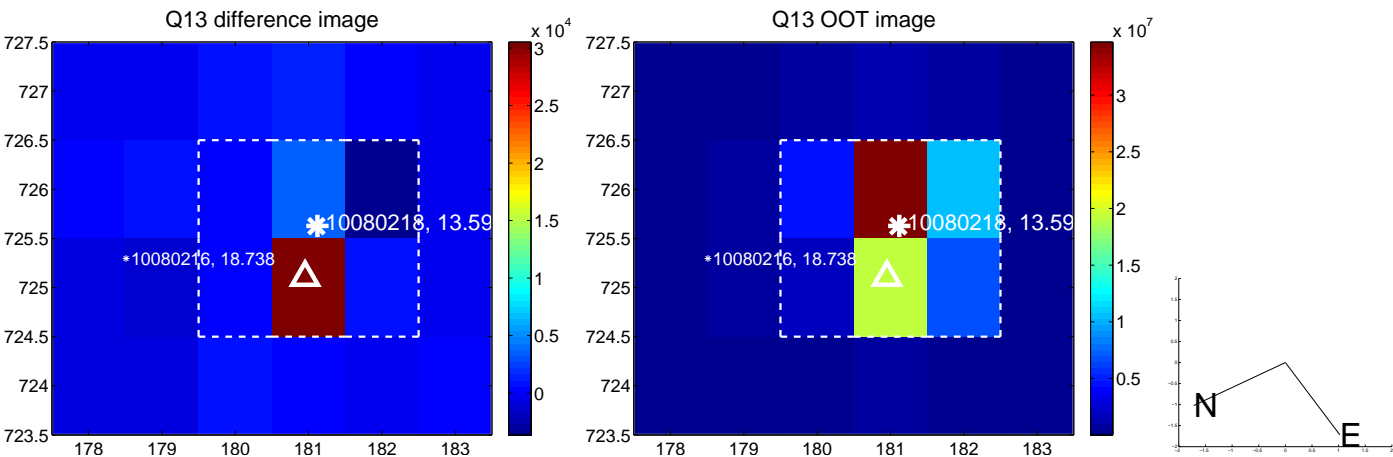
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



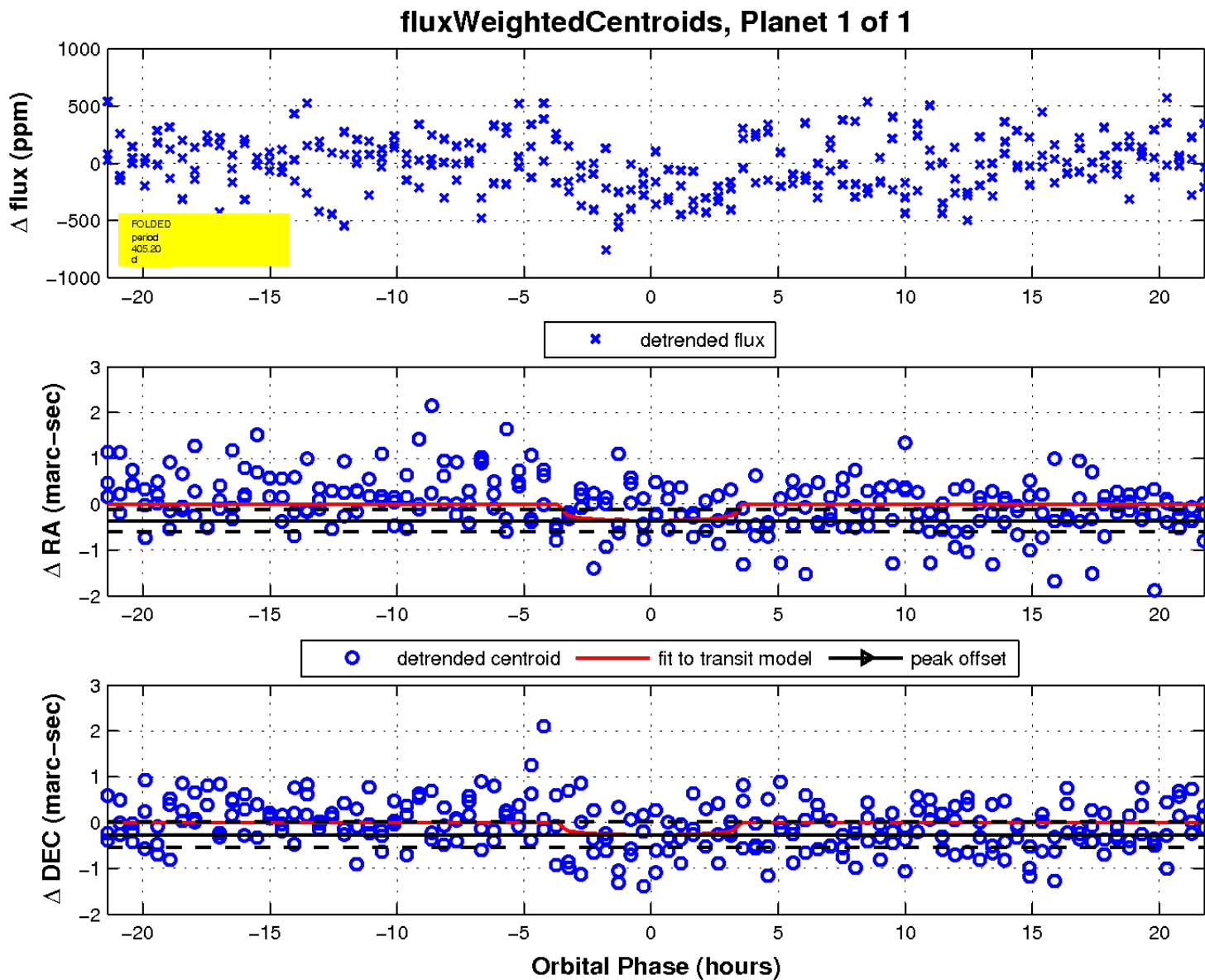
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

