

# KIC 012071317

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012071317-01	OBS	No	4.235969	132.099371	12.4	29.418	10.7	9.2	1.98	7794	0.74	3408.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012071317-01	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

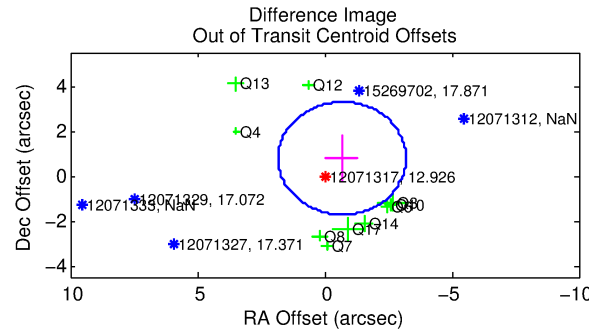
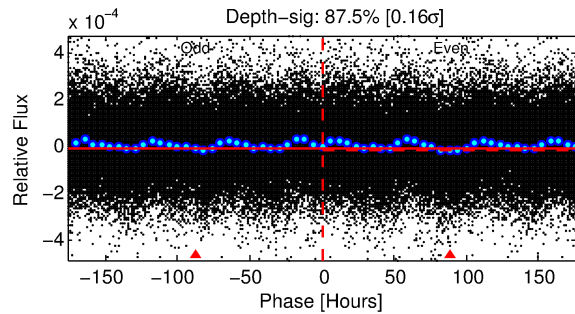
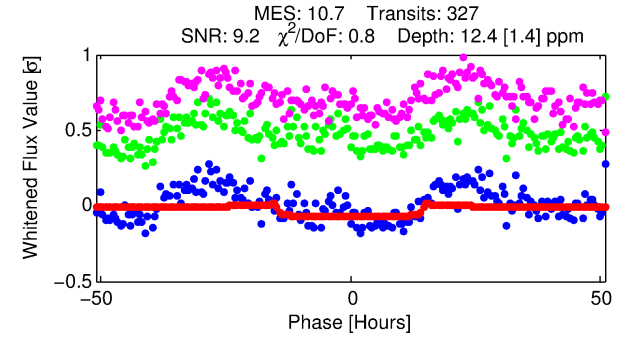
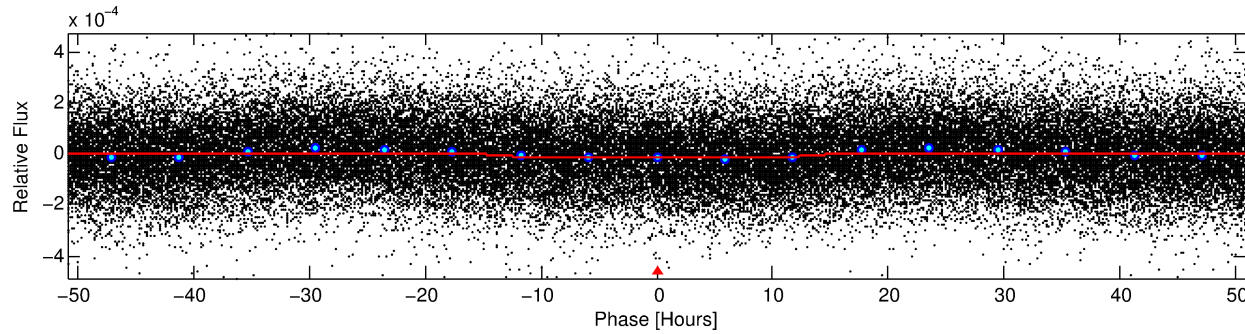
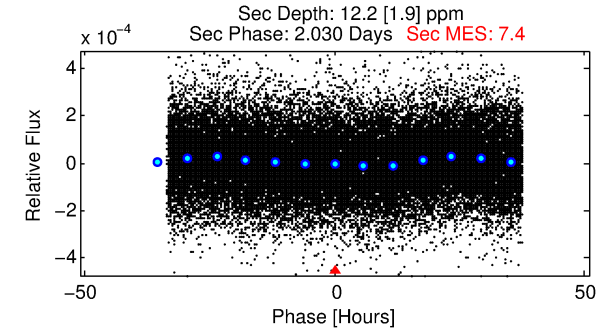
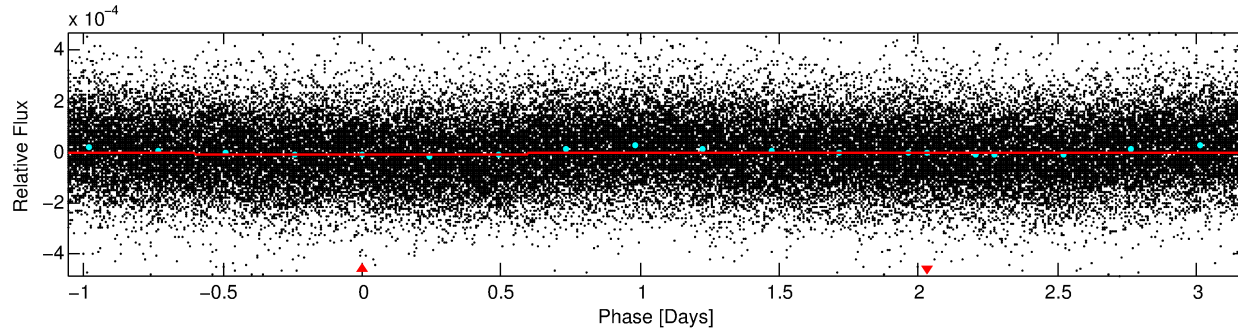
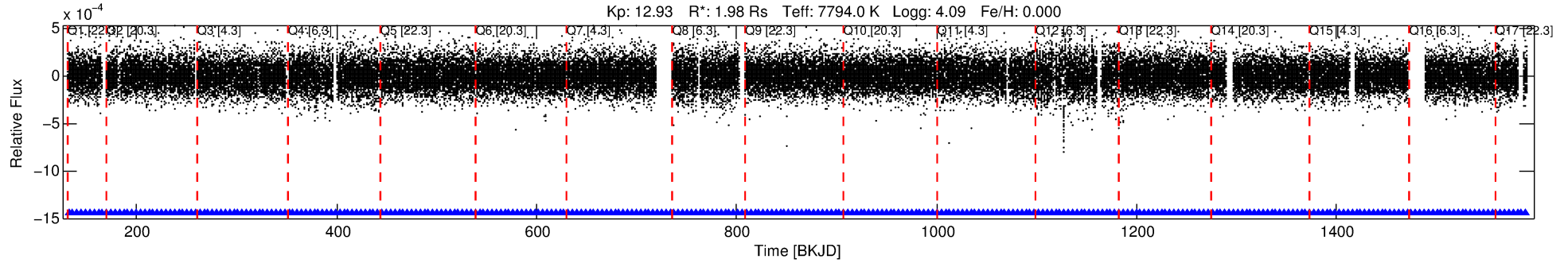
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012071317-01

No Significant Match Found

# DV One-Page Summary

KIC: 12071317 Candidate: 1 of 1 Period: 4.236 d



## DV Fit Results:

Period = 4.23597 [0.00012] d  
Epoch = 132.0994 [0.0195] BKJD  
Rp/R\* = 0.0034 [0.0015]  
a/R\* = 1.16 [0.85]  
b = 0.66 [2.41]  
Seff = 3408.70 [1206.75]  
Teq = 1948 [172] K  
Rp = 0.74 [0.38] Re  
a = 0.0617 [0.0134] AU  
Ag = 46.51 [43.62] [1.04σ]  
Teffp = 7867 [1769] K [3.33σ]

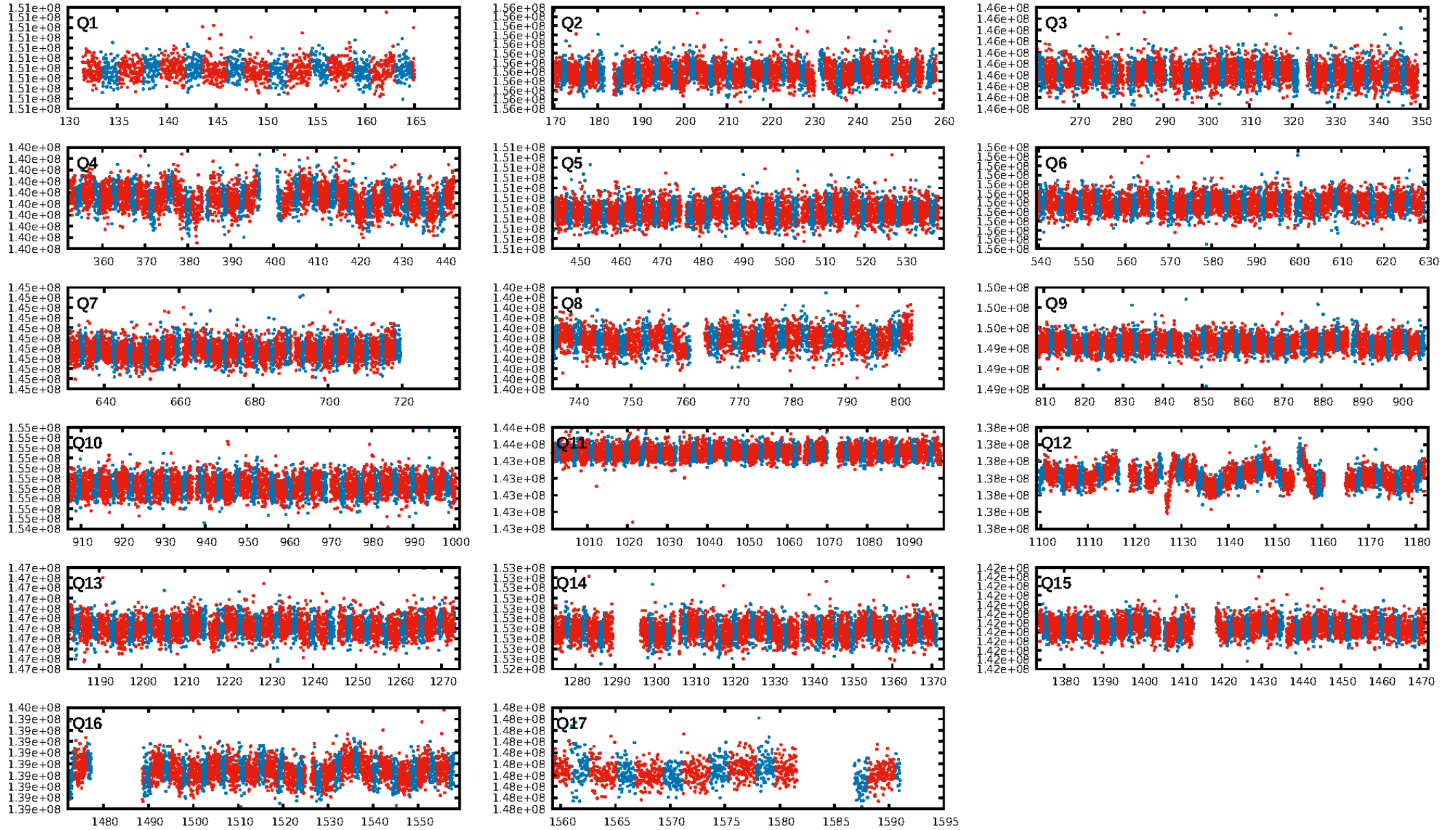
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.09e-45  
RollingBand-fgt: 1.00 [312/312]  
GhostDiagnostic-chr: 1.761  
Centroid-sig: 0.1%  
Centroid-so: 3.355 arcsec [2.59σ]  
OotOffset-rm: 1.041 arcsec [1.24σ]  
OotOffset-st: 3/2/3/2 [10]  
KicOffset-rm: 0.984 arcsec [1.22σ]  
KicOffset-st: 3/2/3/2 [10]  
DiffImageQuality-fgm: 0.20 [2/10]  
DiffImageOverlap-fno: 1.00 [17/17]

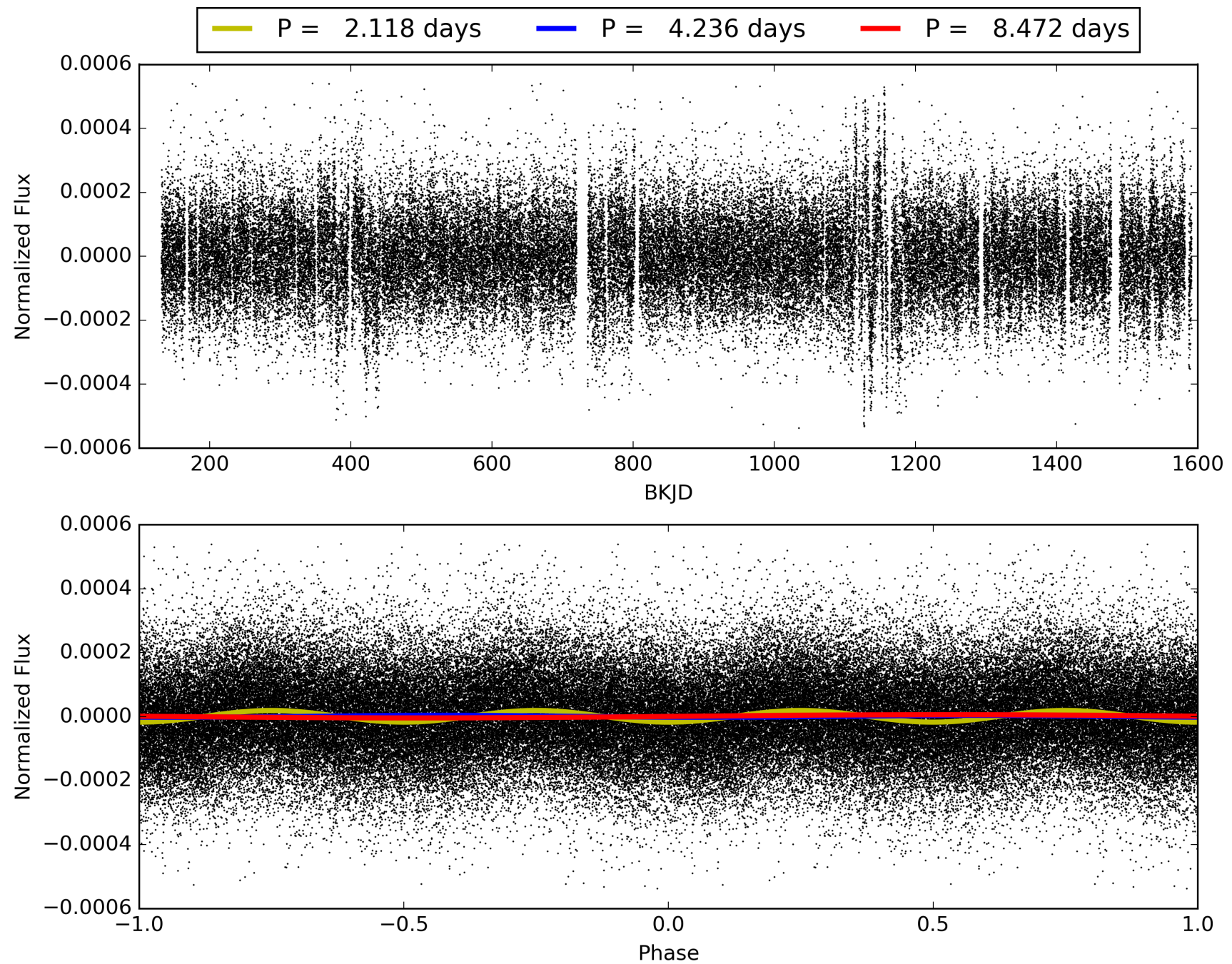
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:01:07 Z

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

# TCE 012071317-01, PDC Light Curves



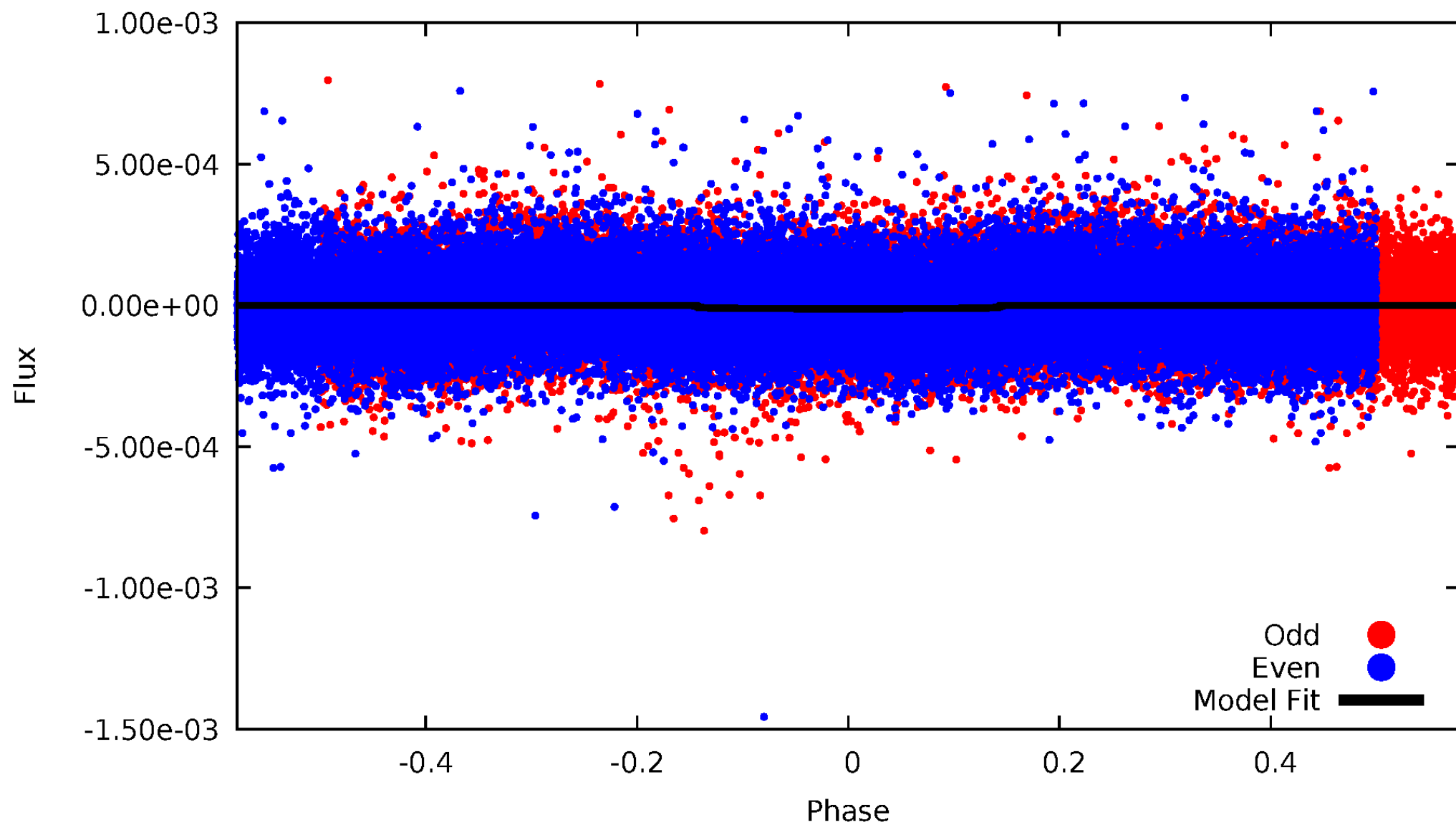
TCE 012071317-01





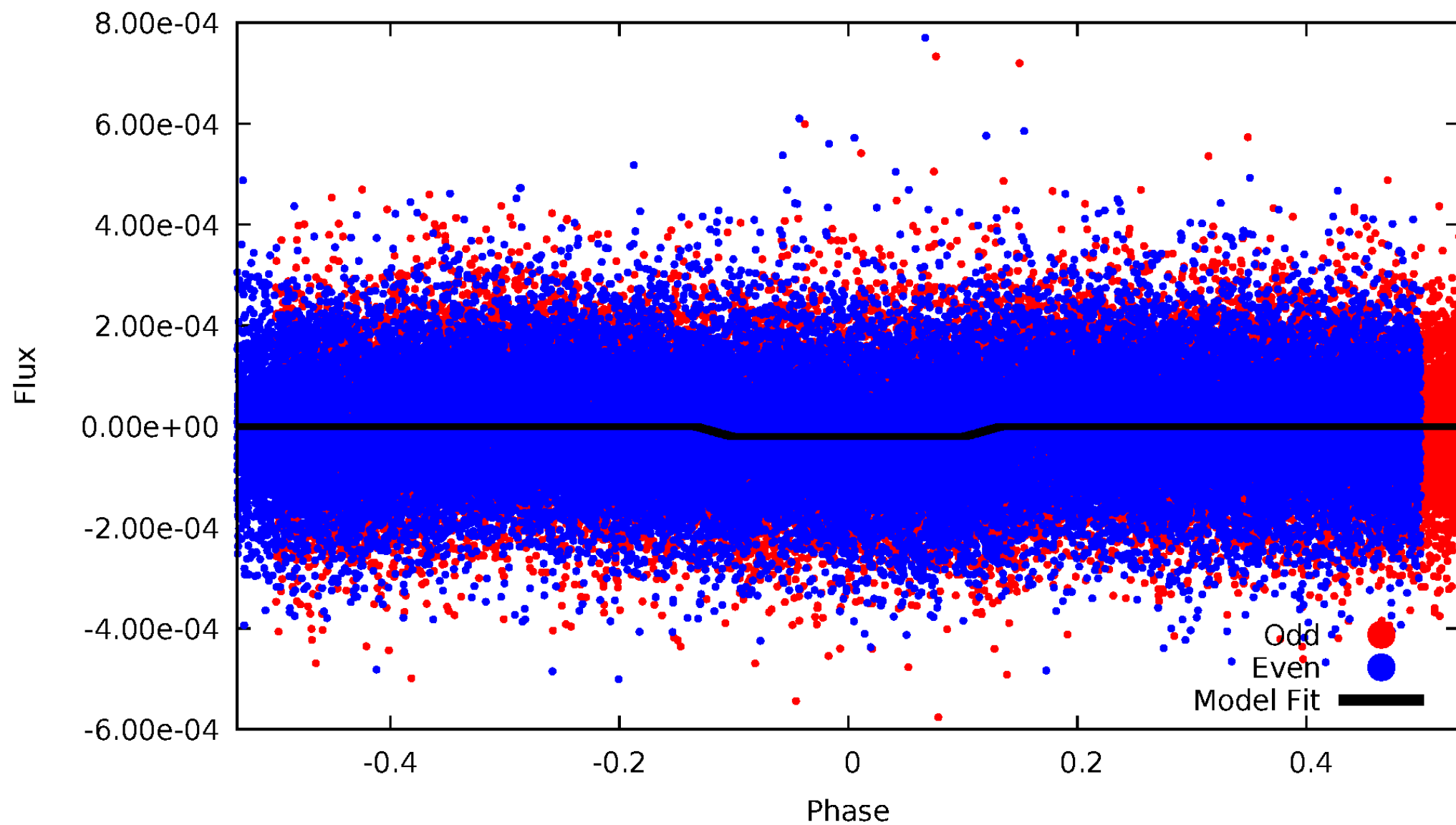
# DV Odd/Even

TCE 012071317-01



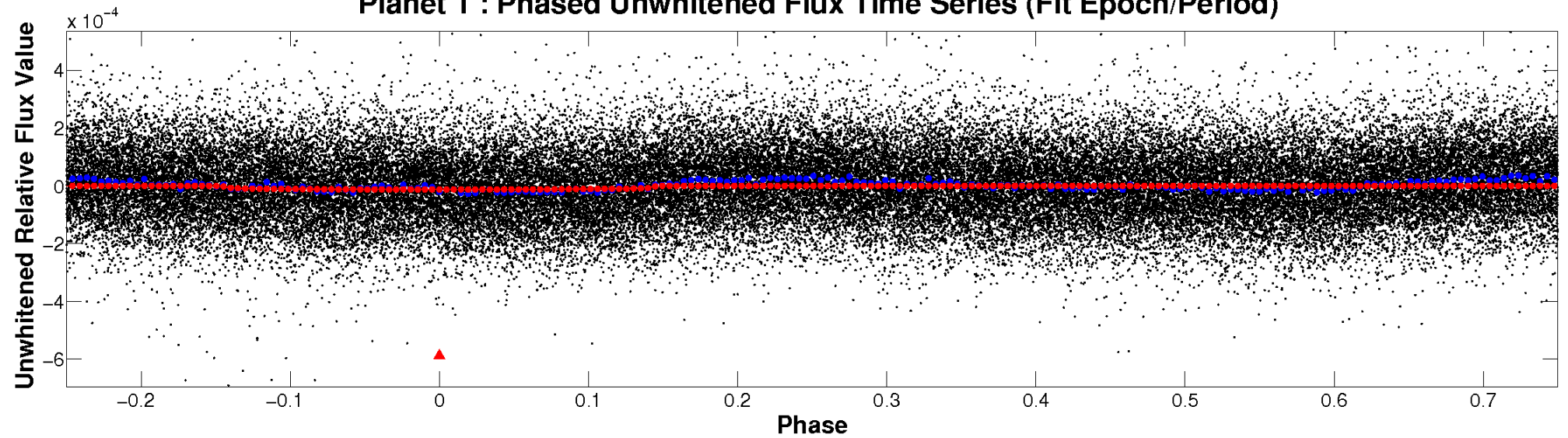
# ALT Odd/Even

TCE 012071317-01

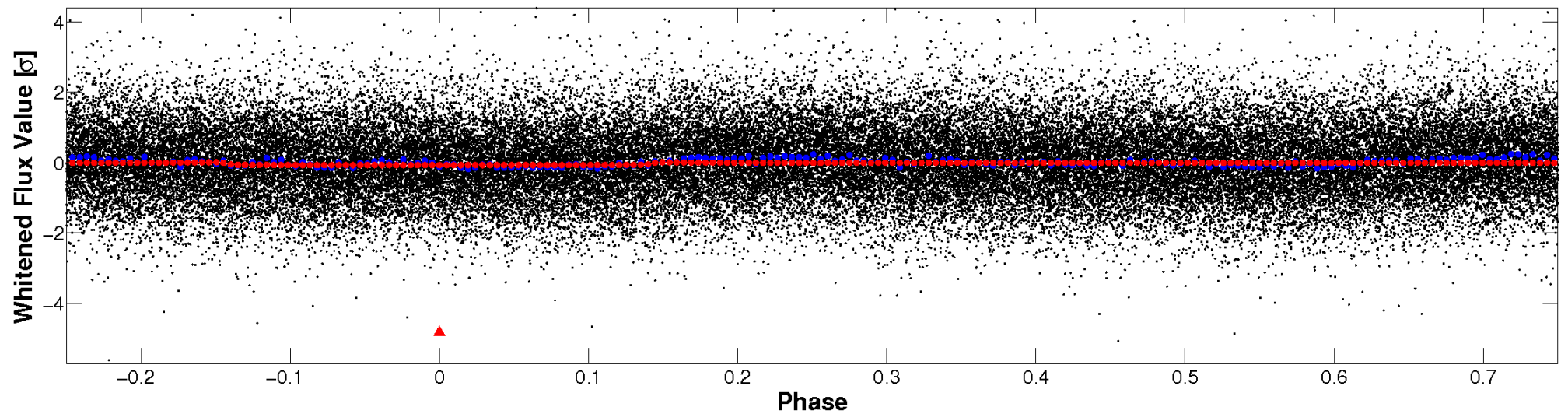


# Non-Whitened Vs. Whitened Light Curve

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

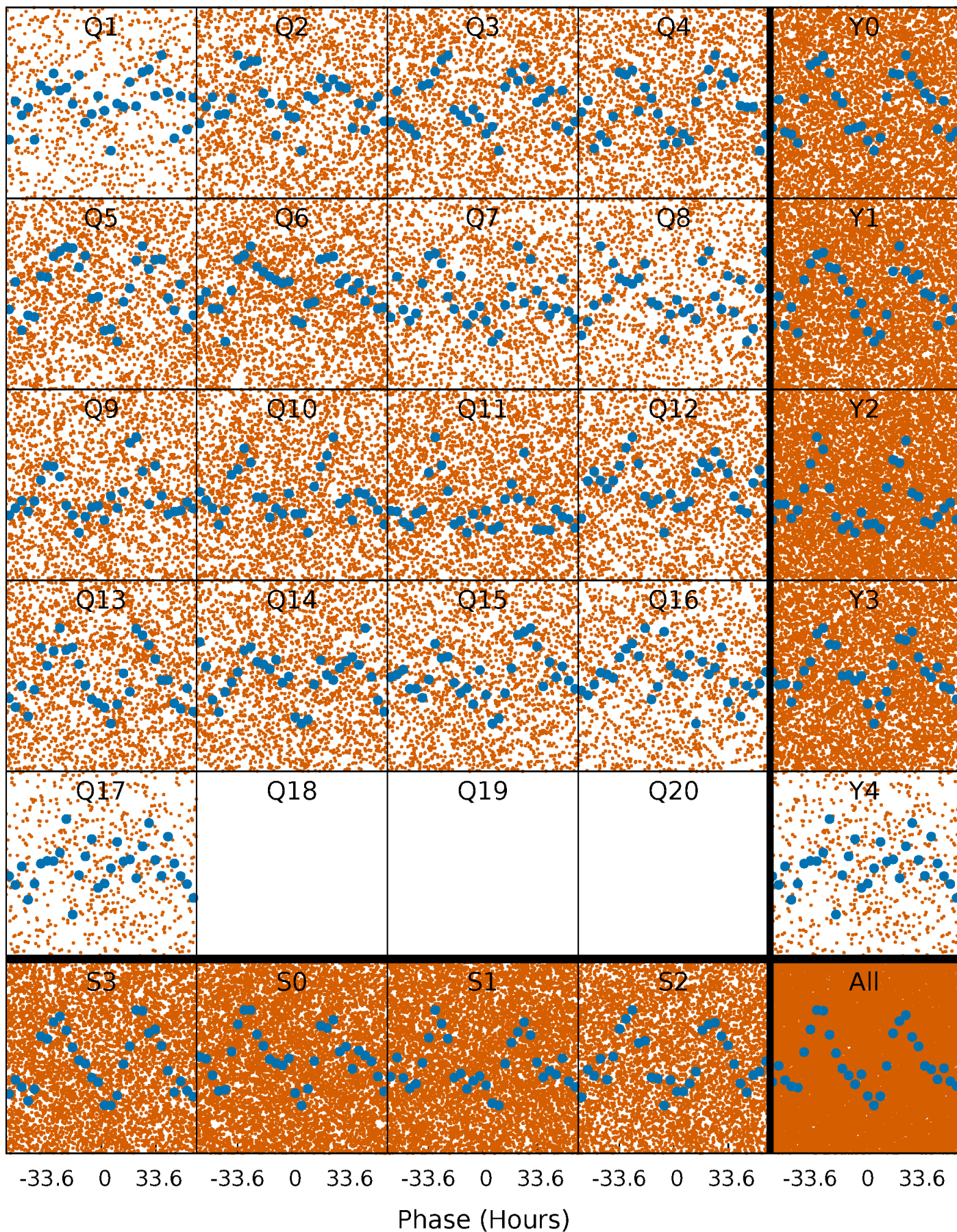


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

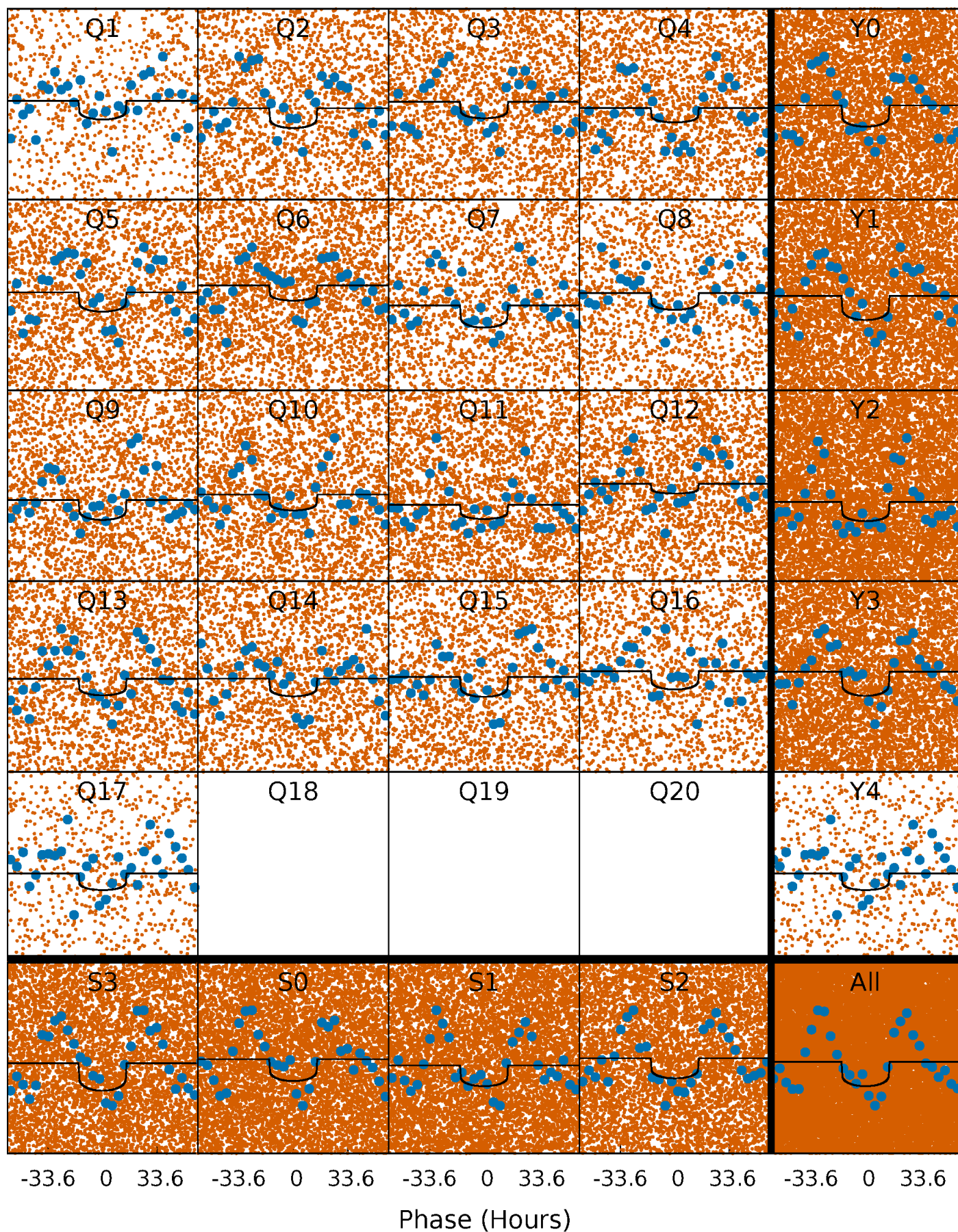
TCE 012071317-01 P= 4.235969 Days  $T_0=132.099371$  (BKJD)





# DV Quarter-Phased Transit Curves

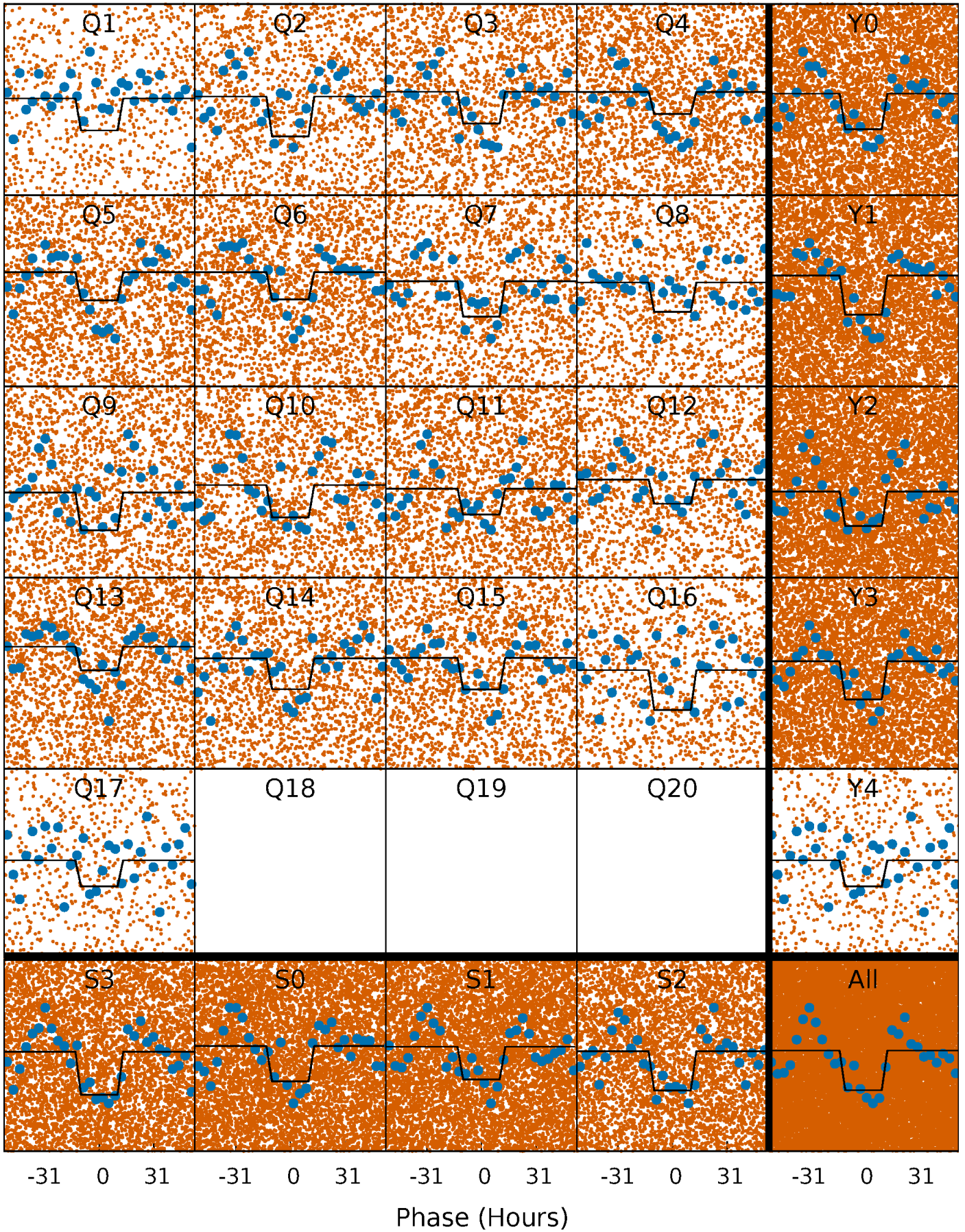
TCE 012071317-01 P= 4.235969 Days  $T_0=132.099371$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

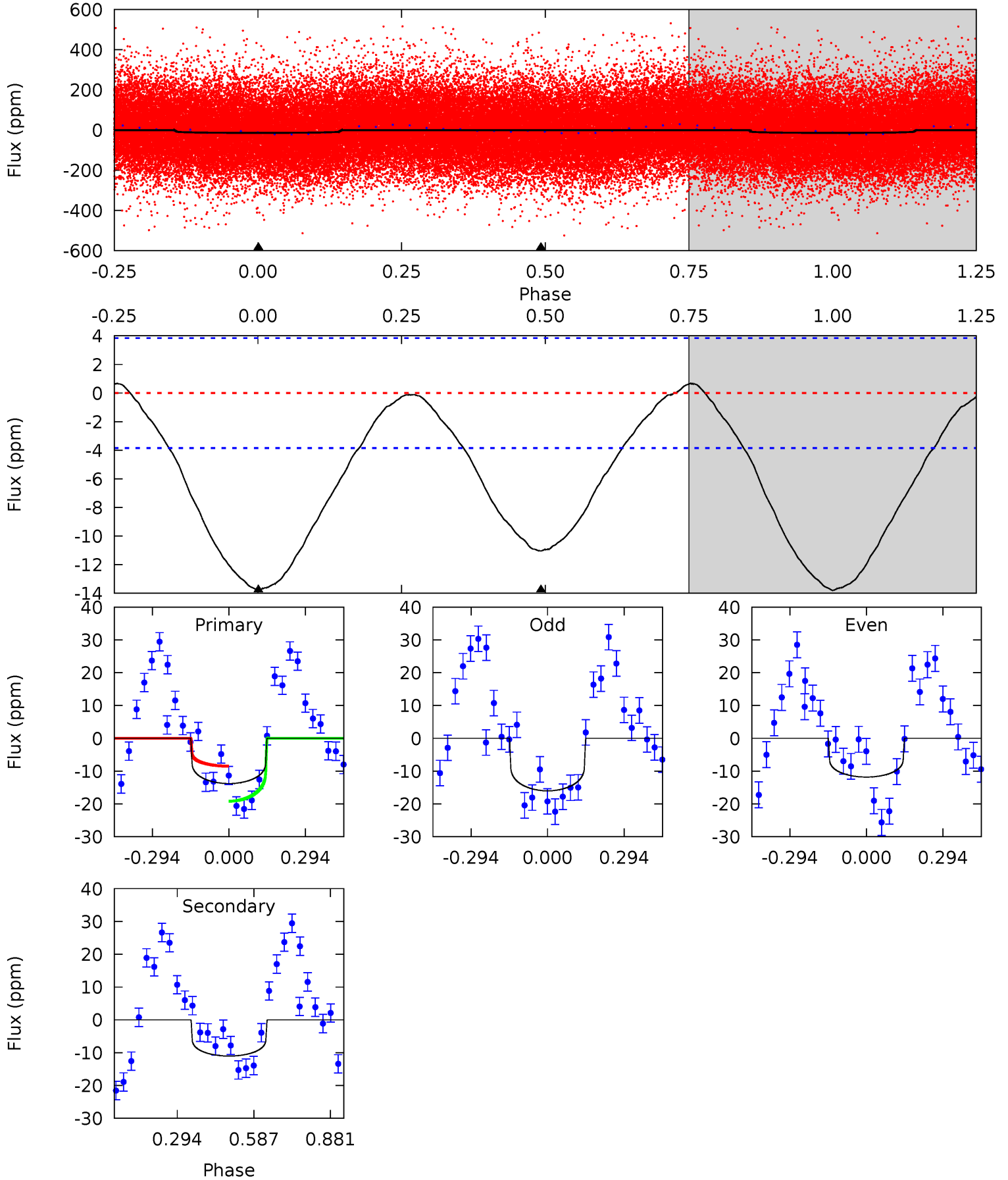
TCE 012071317-01 P= 4.236142 Days  $T_0=132.164919$  (BKJD)



# DV Model-Shift Uniqueness Test

012071317-01, P = 4.235969 Days, E = 127.863402 Days

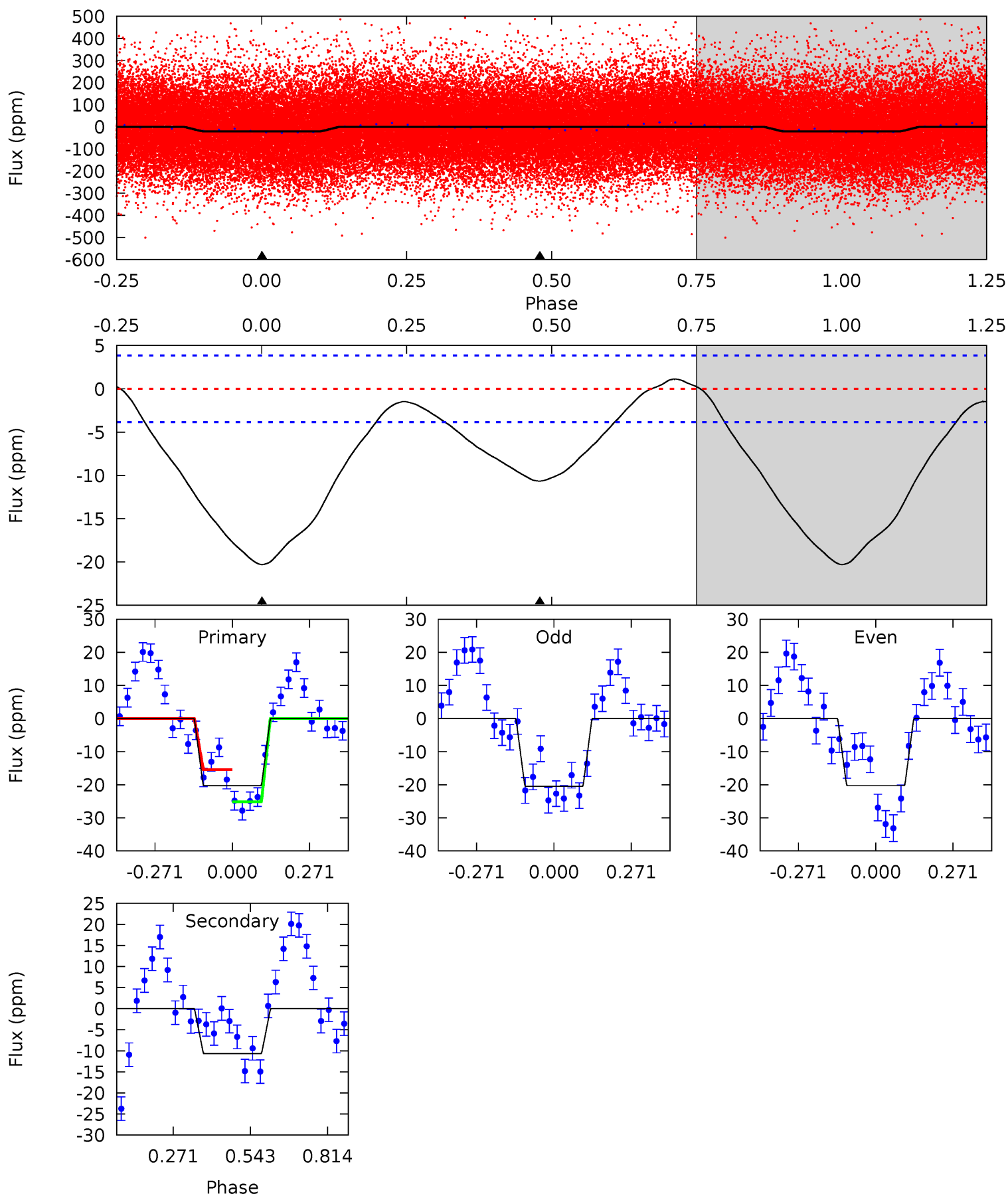
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	12.4	0	0	4.33	1.05	0.53	15.6	15.6	12.4	12.4	2.37	1.21	0.05	6.05



# Alt Model-Shift Uniqueness Test

012071317-01, P = 4.236142 Days, E = 127.928777 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
23.0	12.0	0	0	4.35	1.10	1.23	23.0	23.0	12.0	12.0	0.12	0.92	0.05	5.35





### Stellar Parameters For KIC 012071317

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7794^{+214}_{-322}$	$4.086^{+0.139}_{-0.170}$	$0.000^{+0.200}_{-0.350}$	$1.981^{+0.514}_{-0.420}$	$1.742^{+0.194}_{-0.291}$	$0.316^{+0.253}_{-0.139}$
	+3%/-4%	+3%/-4%	+inf%/-inf%	+26%/-21%	+11%/-17%	+80%/-44%
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 012071317-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-11 \pm 1$	$0.75^{+0.35}_{-0.33}$	$2717^{+200}_{-166}$	$7456^{+3274}_{-1348}$	$40^{+79}_{-22}$
Alt.	$-11 \pm 1$	$0.95^{+0.37}_{-0.33}$	$2722^{+210}_{-170}$	$6546^{+1963}_{-960}$	$24^{+33}_{-12}$

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

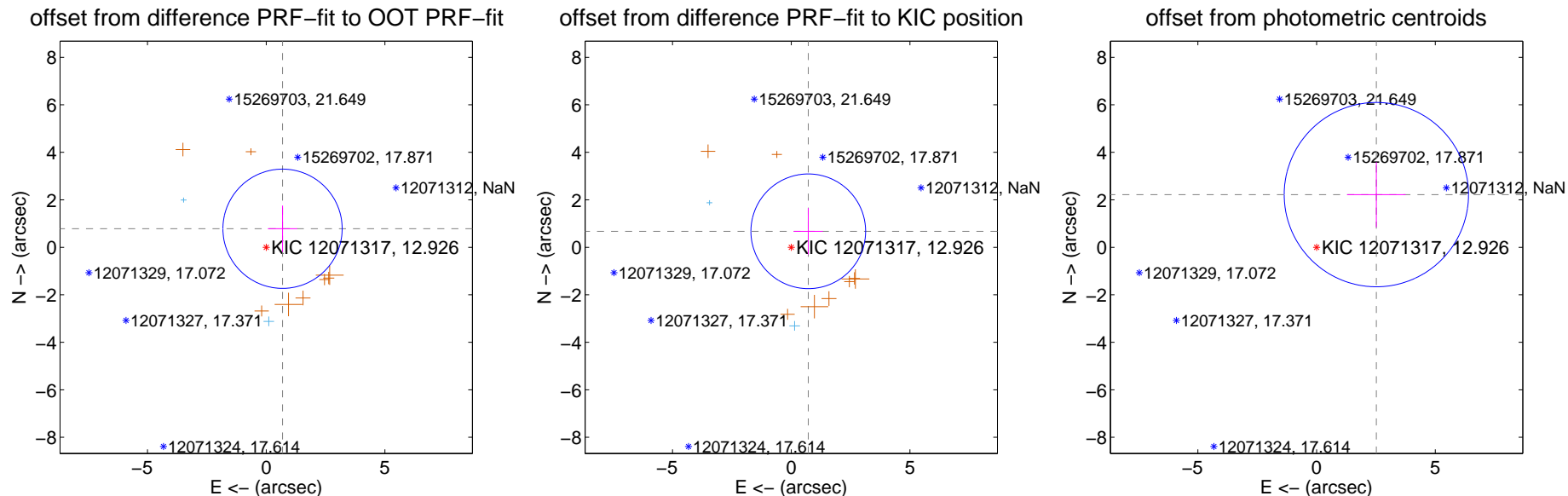
## DV Centroid Data

Supplemental centroid analysis for 012071317-01. Kepler magnitude: 12.93. Transit SNR 9.16

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

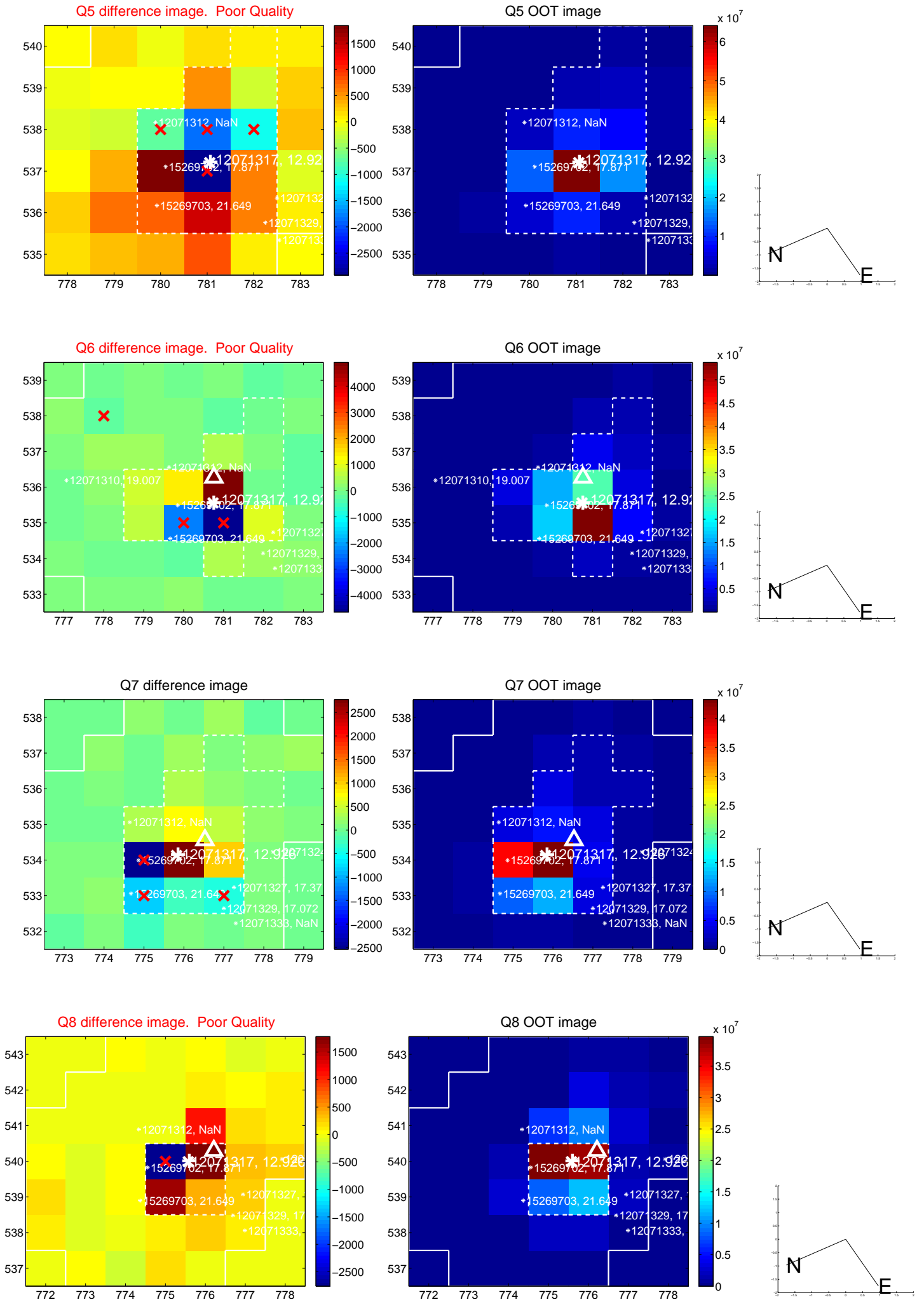
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.041 \pm 0.837$	1.24	$-0.688 \pm 0.615$	$0.781 \pm 0.975$
PRF-fit source offset from KIC position	$0.984 \pm 0.805$	1.22	$-0.717 \pm 0.613$	$0.674 \pm 0.978$
photometric centroid source offset	$3.35 \pm 1.29$	2.59	$-2.52 \pm 1.23$	$2.22 \pm 1.37$



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.

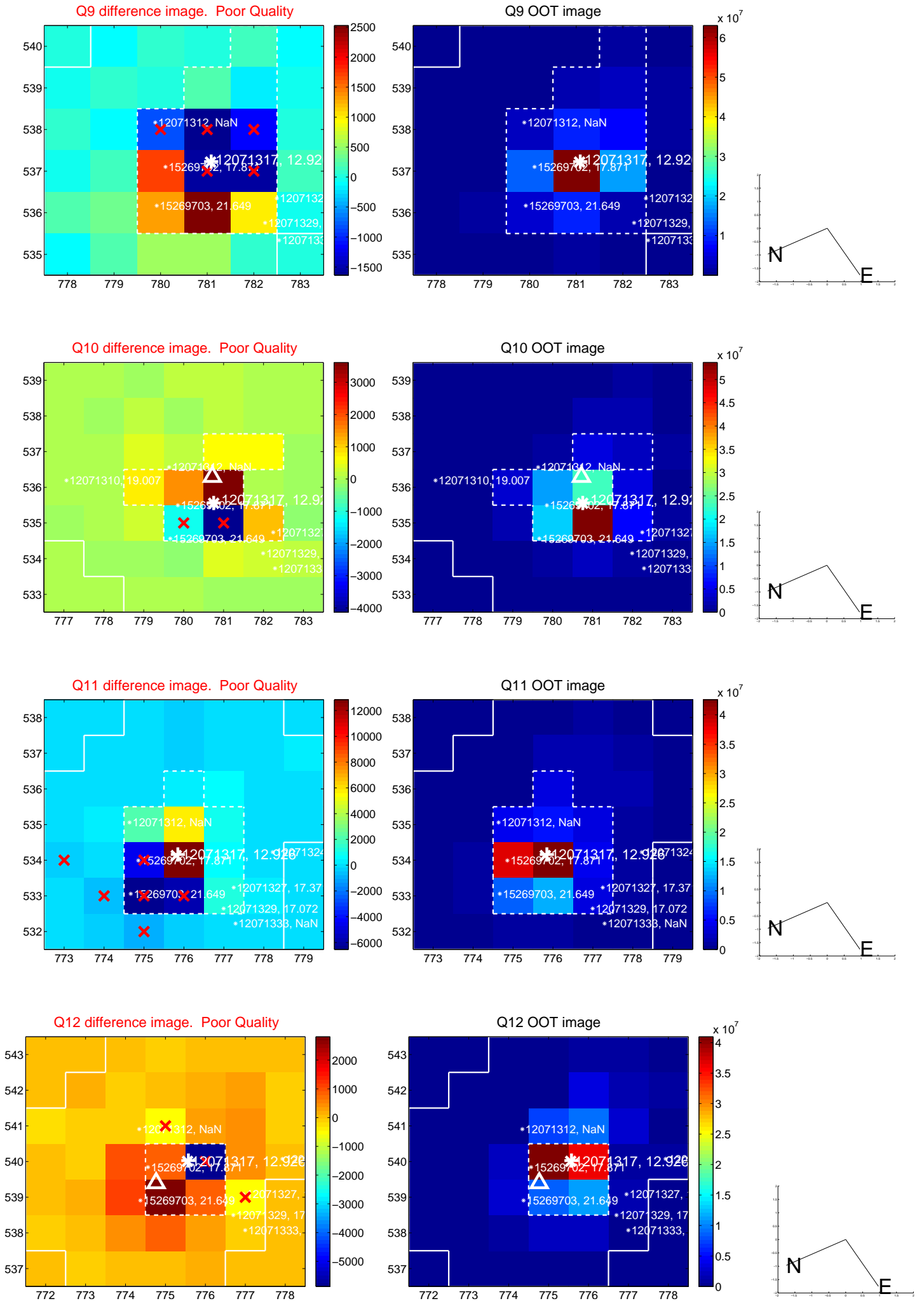


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

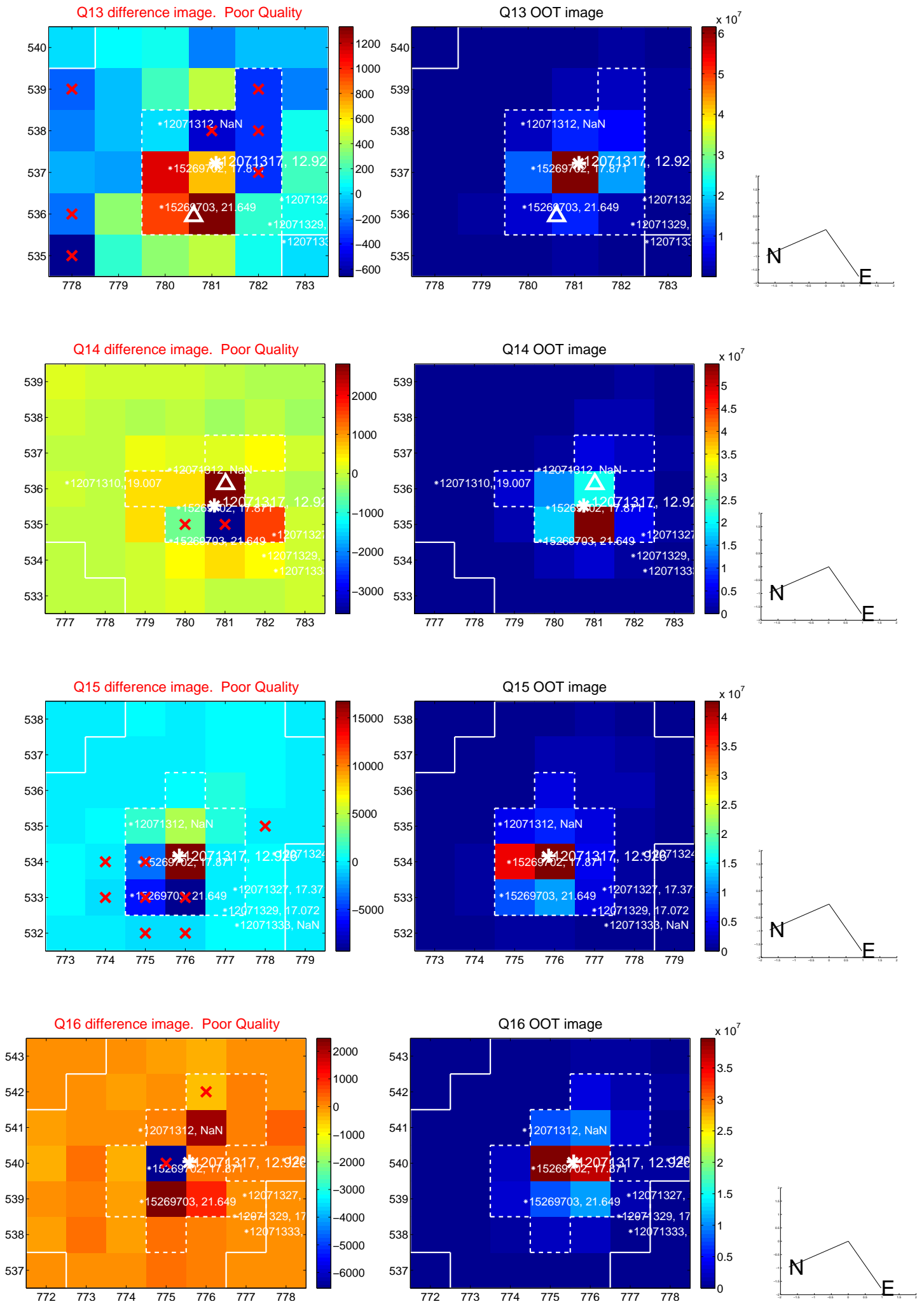




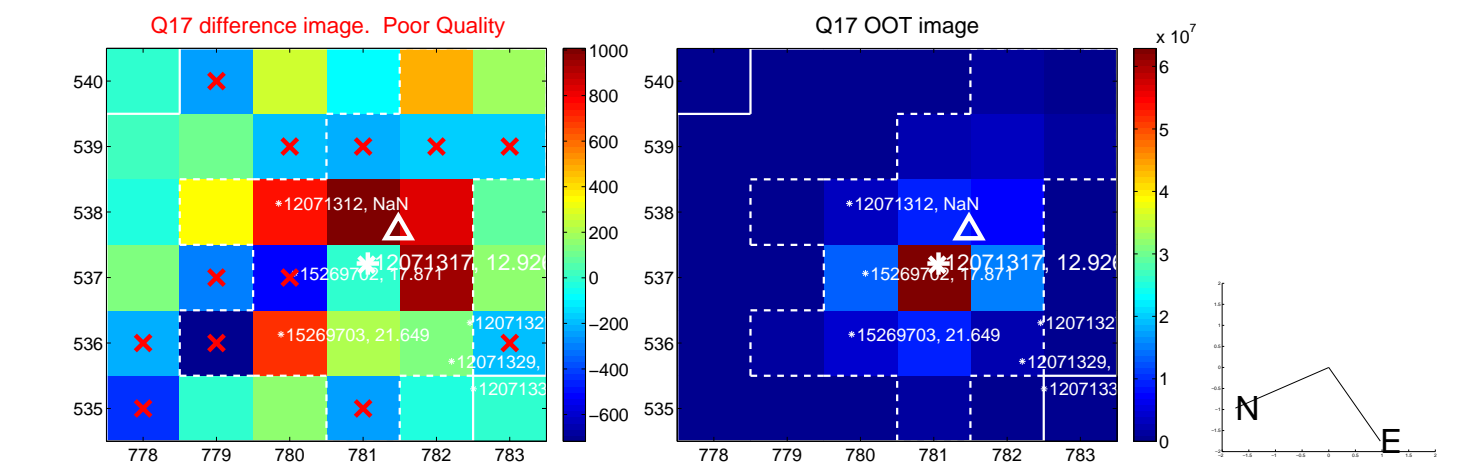
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



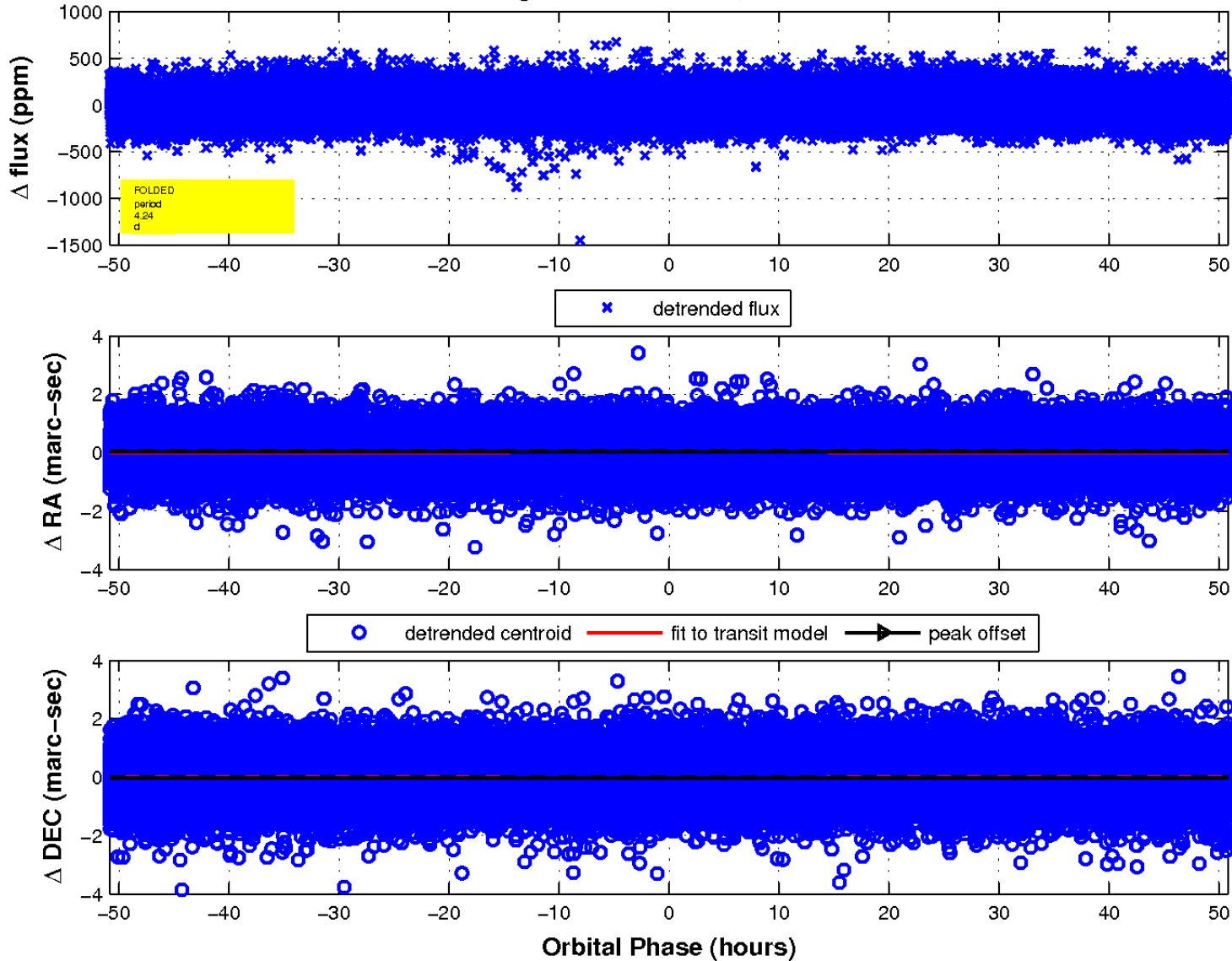
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

