

# KIC 008520426

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008520426-01	OBS	No	0.524692	131.947556	66.8	5.882	9.7	16.8	0.80	5110	0.65	2830.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008520426-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

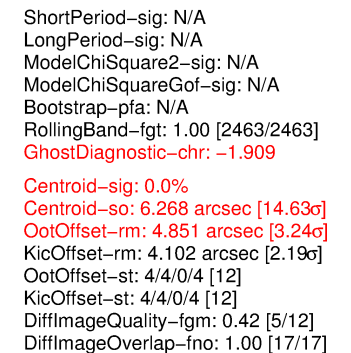
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

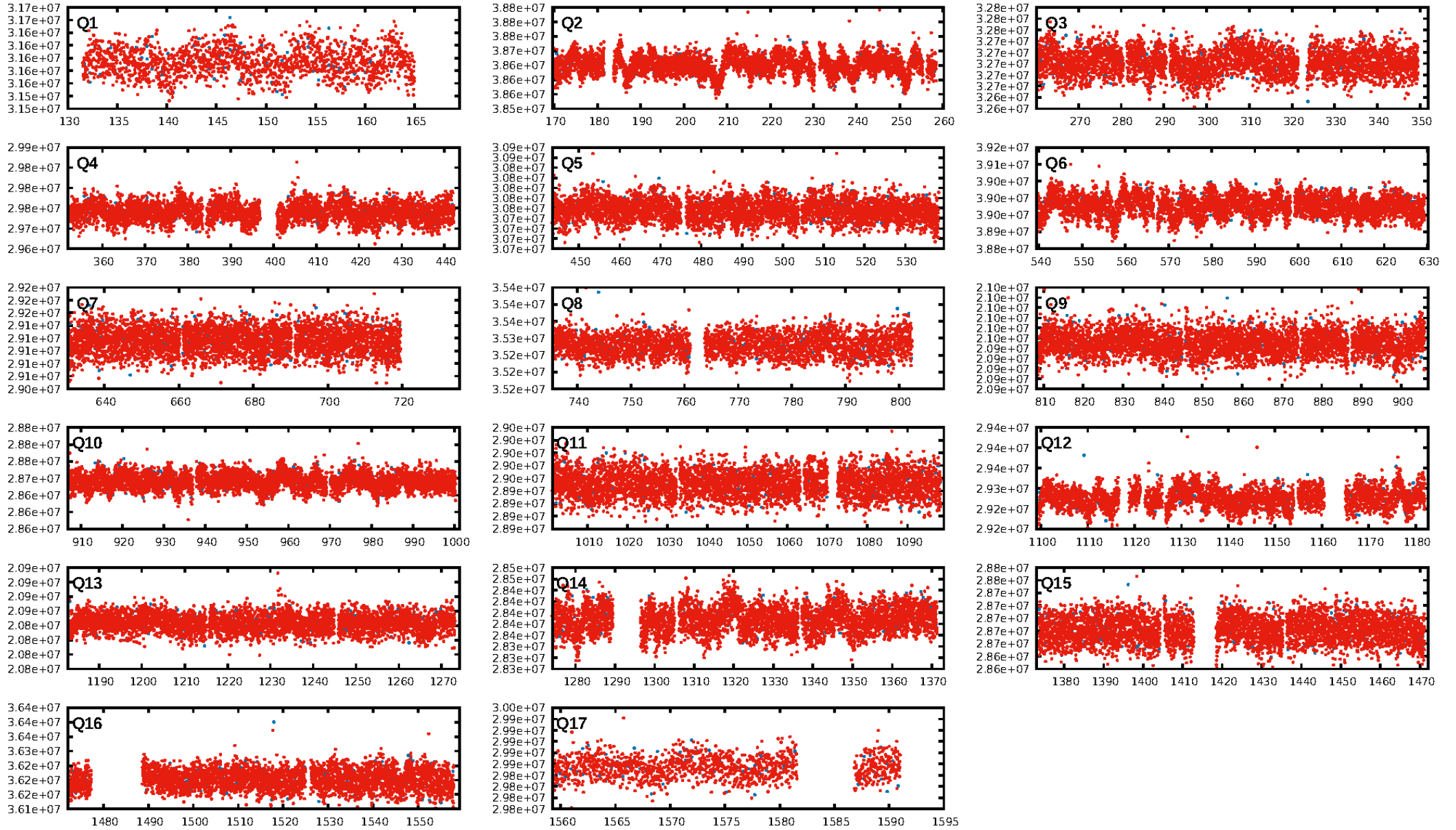
## Ephemeris Match Information For 008520426-01

No Significant Match Found

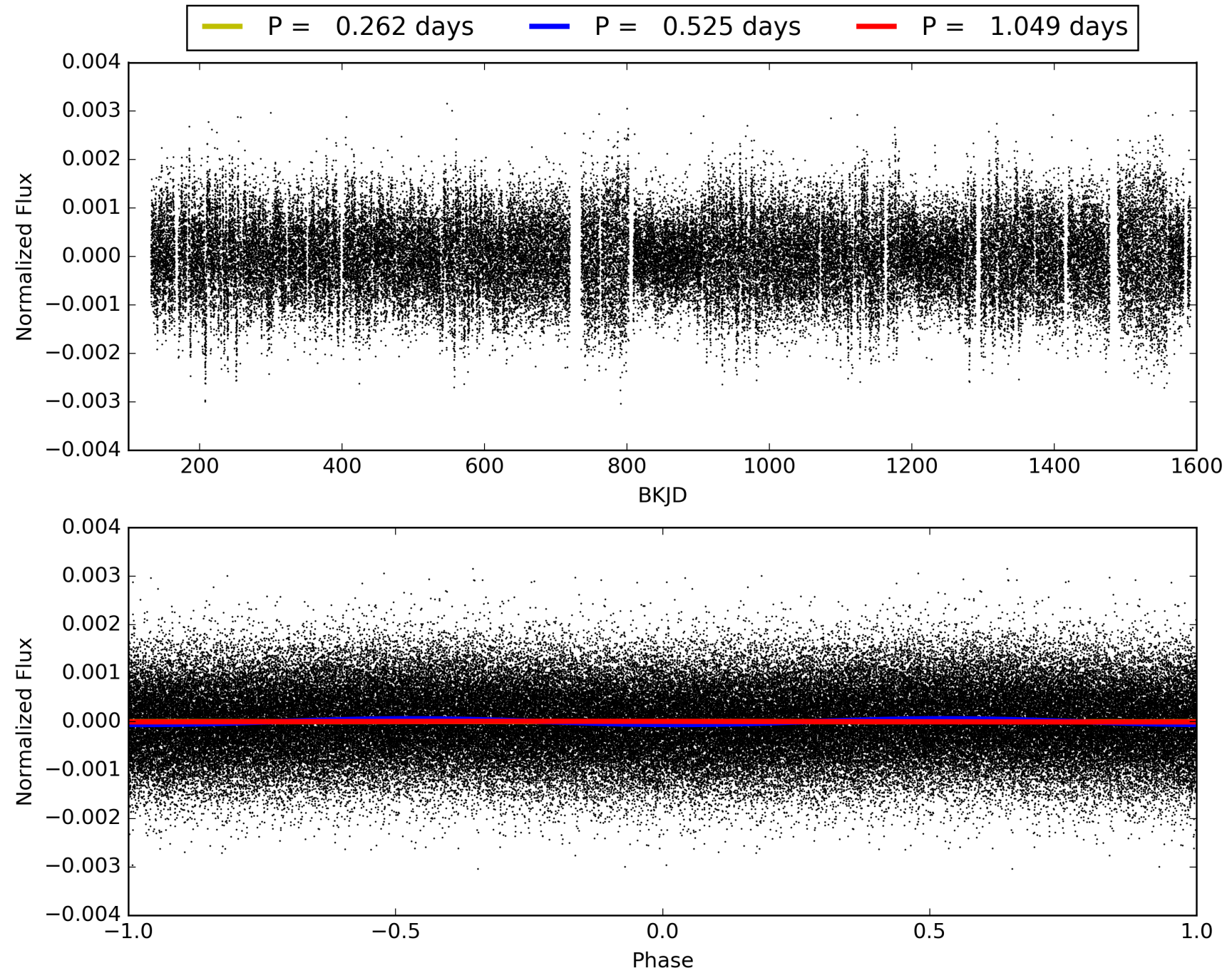
## KIC: 8520426    Candidate: 1 of 1    Period: 0.525 d



# TCE 008520426-01, PDC Light Curves

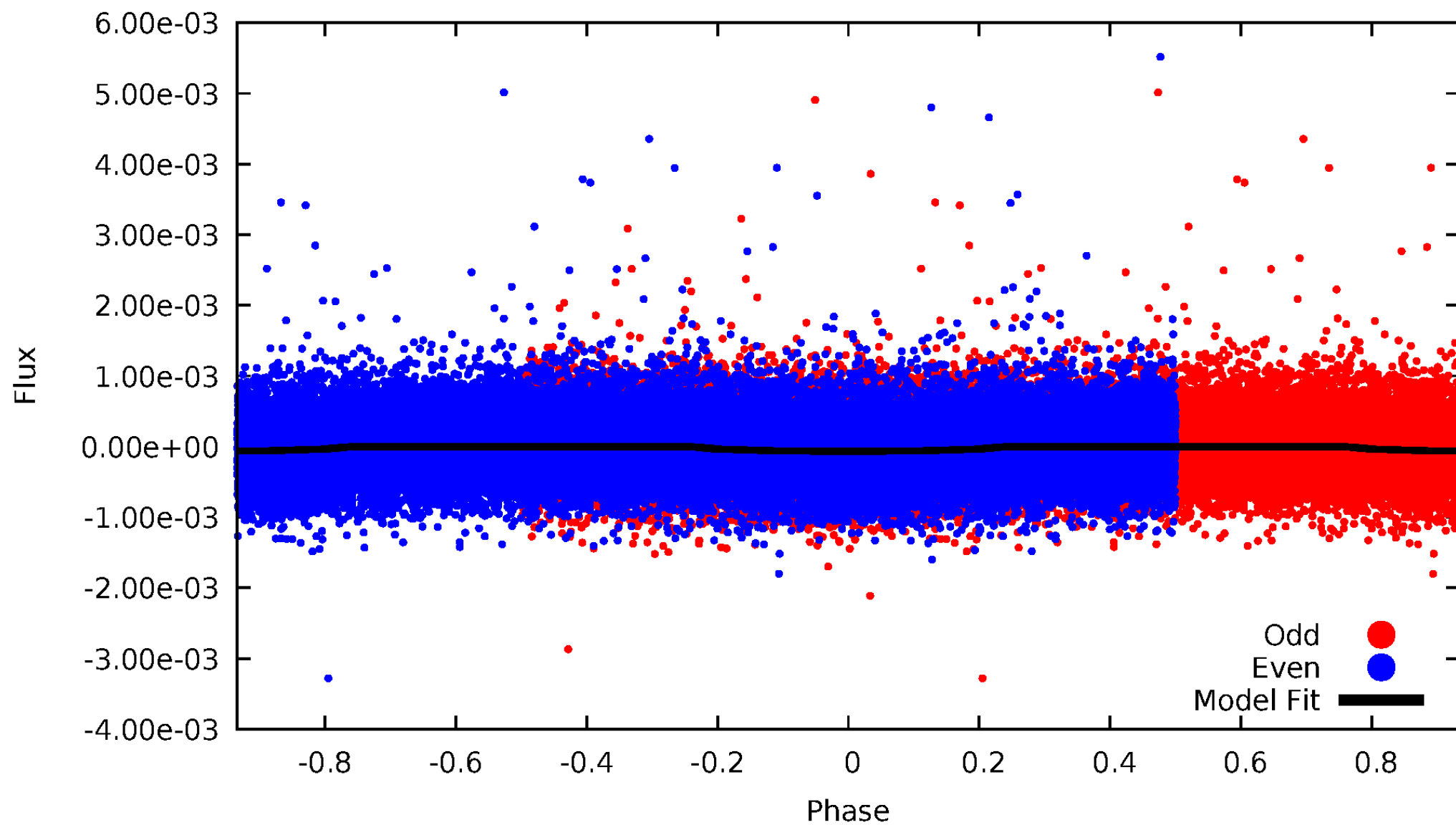


TCE 008520426-01



# DV Odd/Even

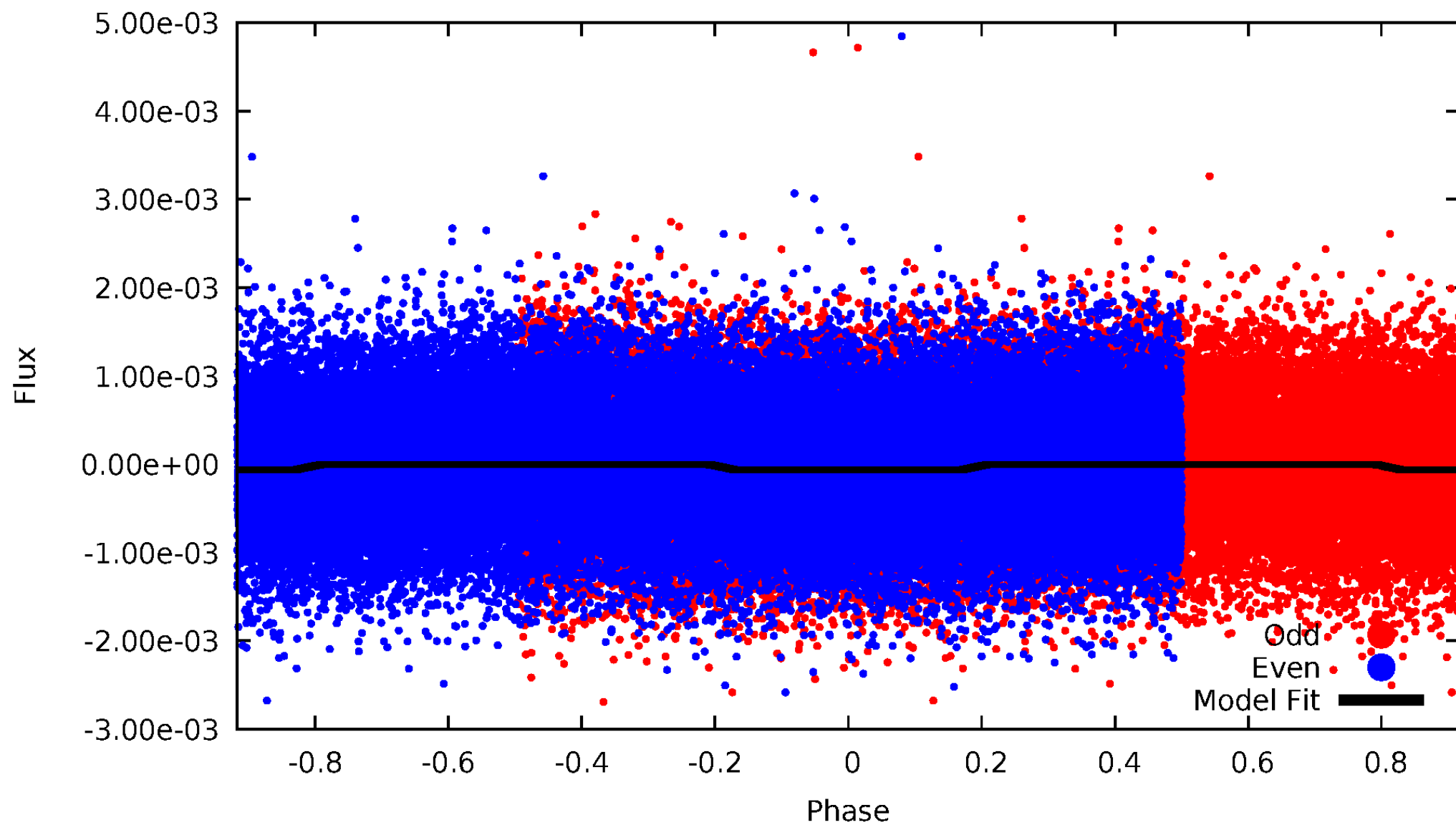
TCE 008520426-01





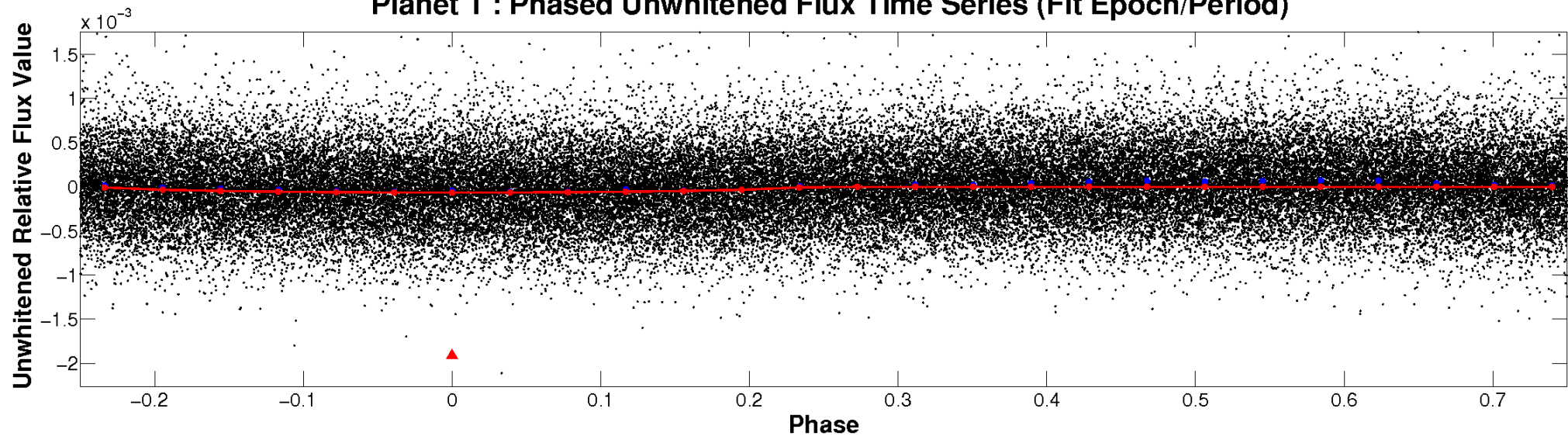
# ALT Odd/Even

TCE 008520426-01

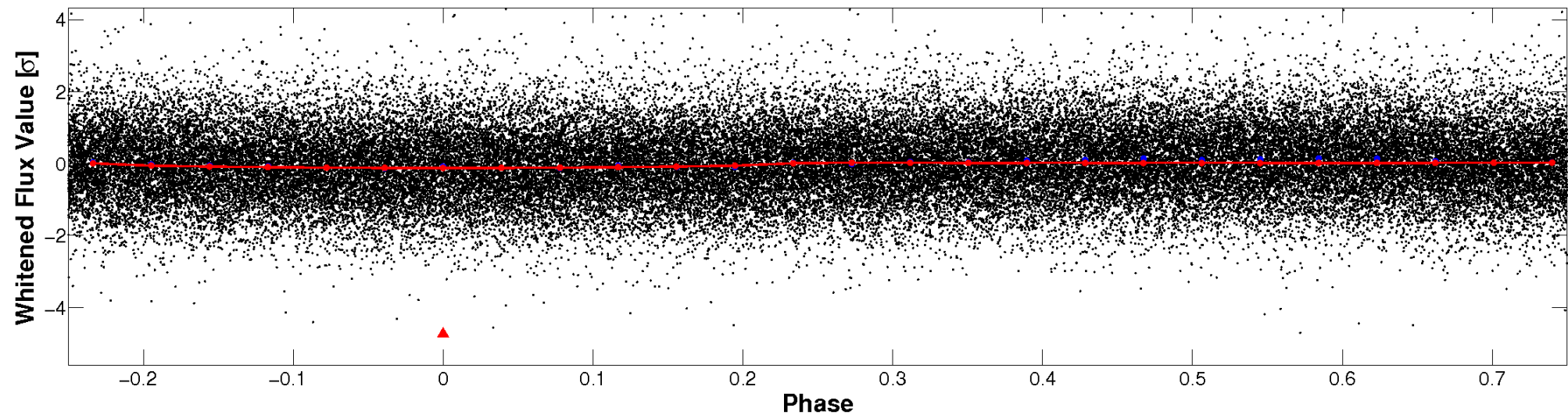


# Non-Whitened Vs. Whitened Light Curve

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

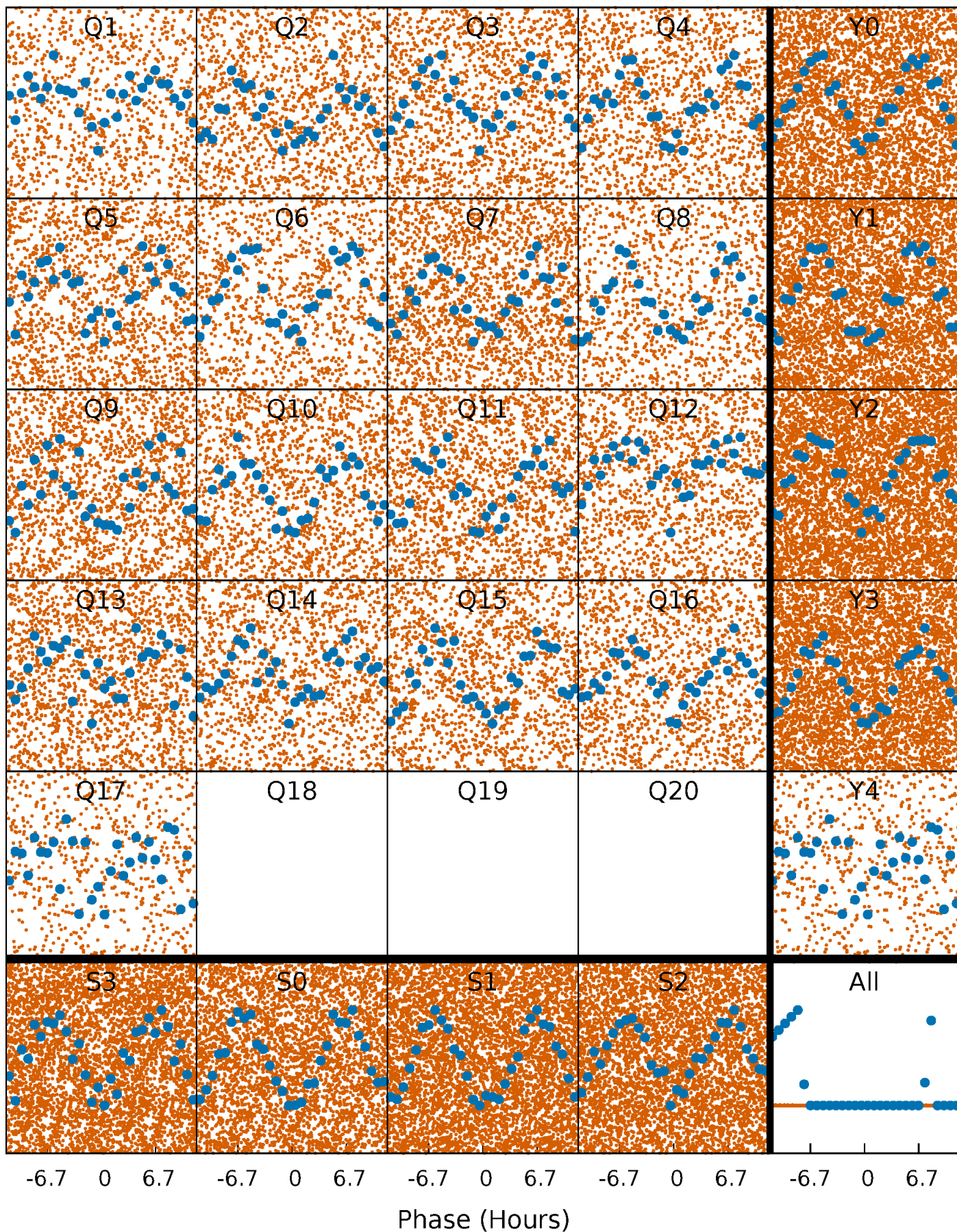


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

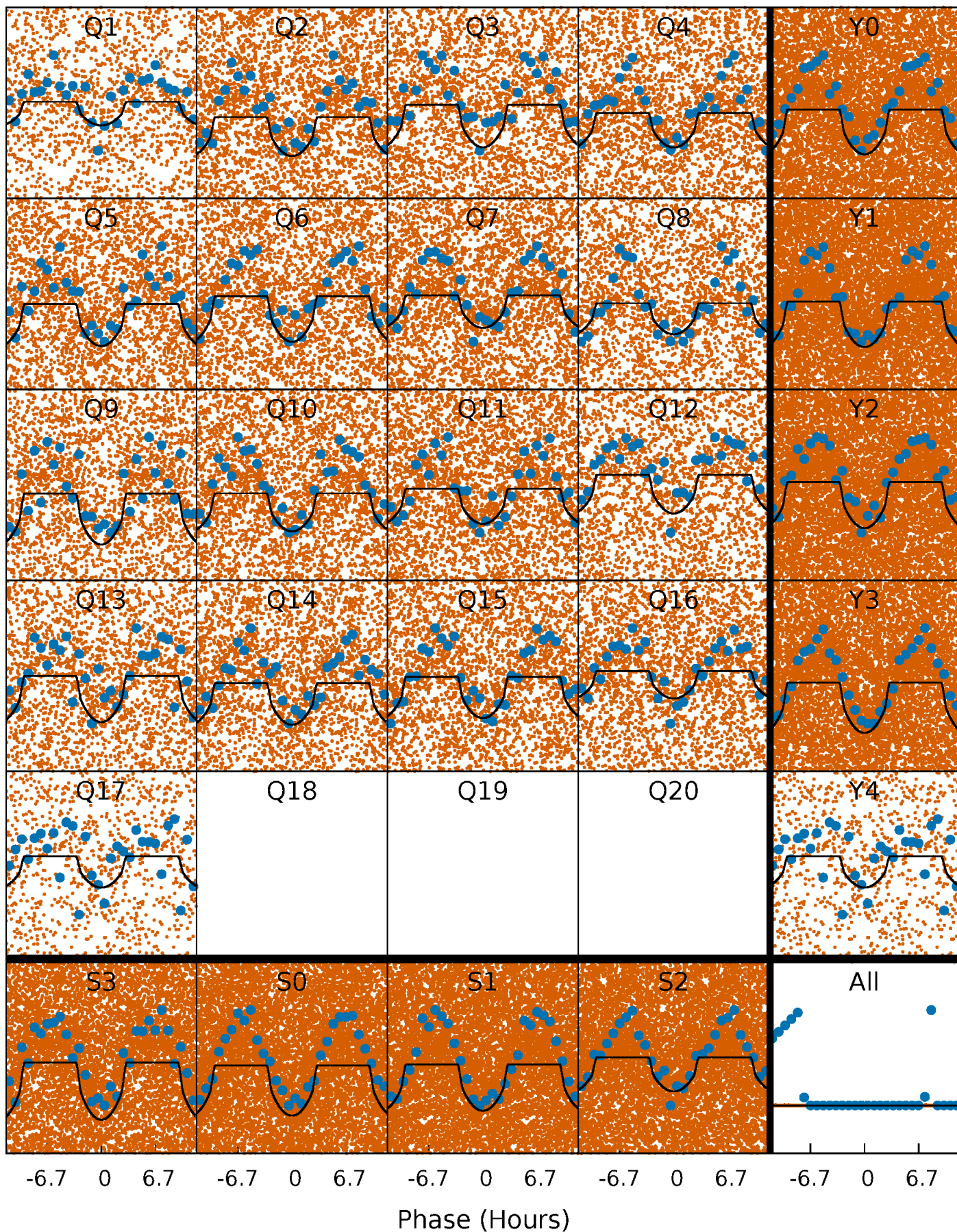
TCE 008520426-01 P= 0.524692 Days  $T_0=131.947556$  (BKJD)





# DV Quarter-Phased Transit Curves

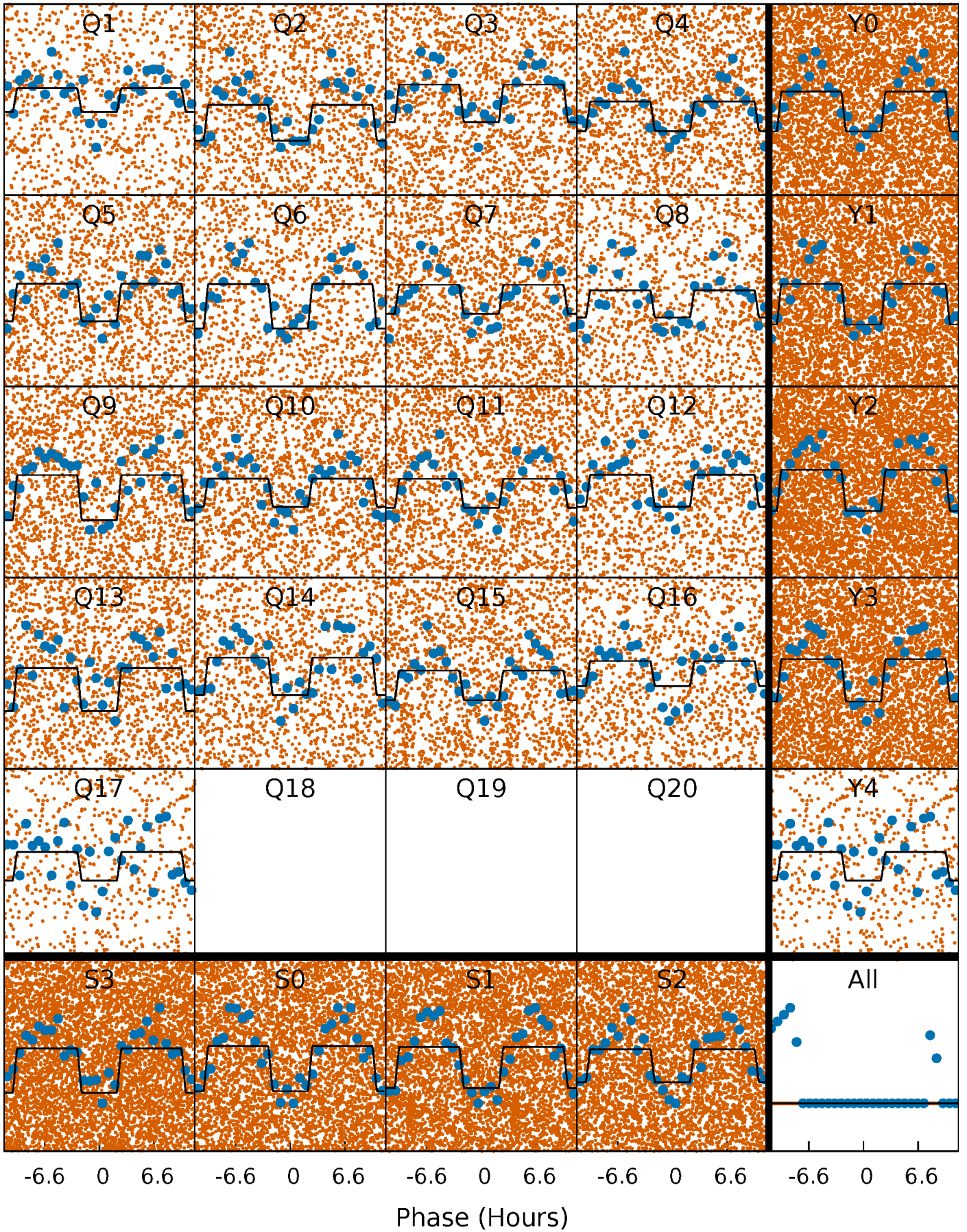
TCE 008520426-01   P= 0.524692 Days    $T_0=131.947556$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

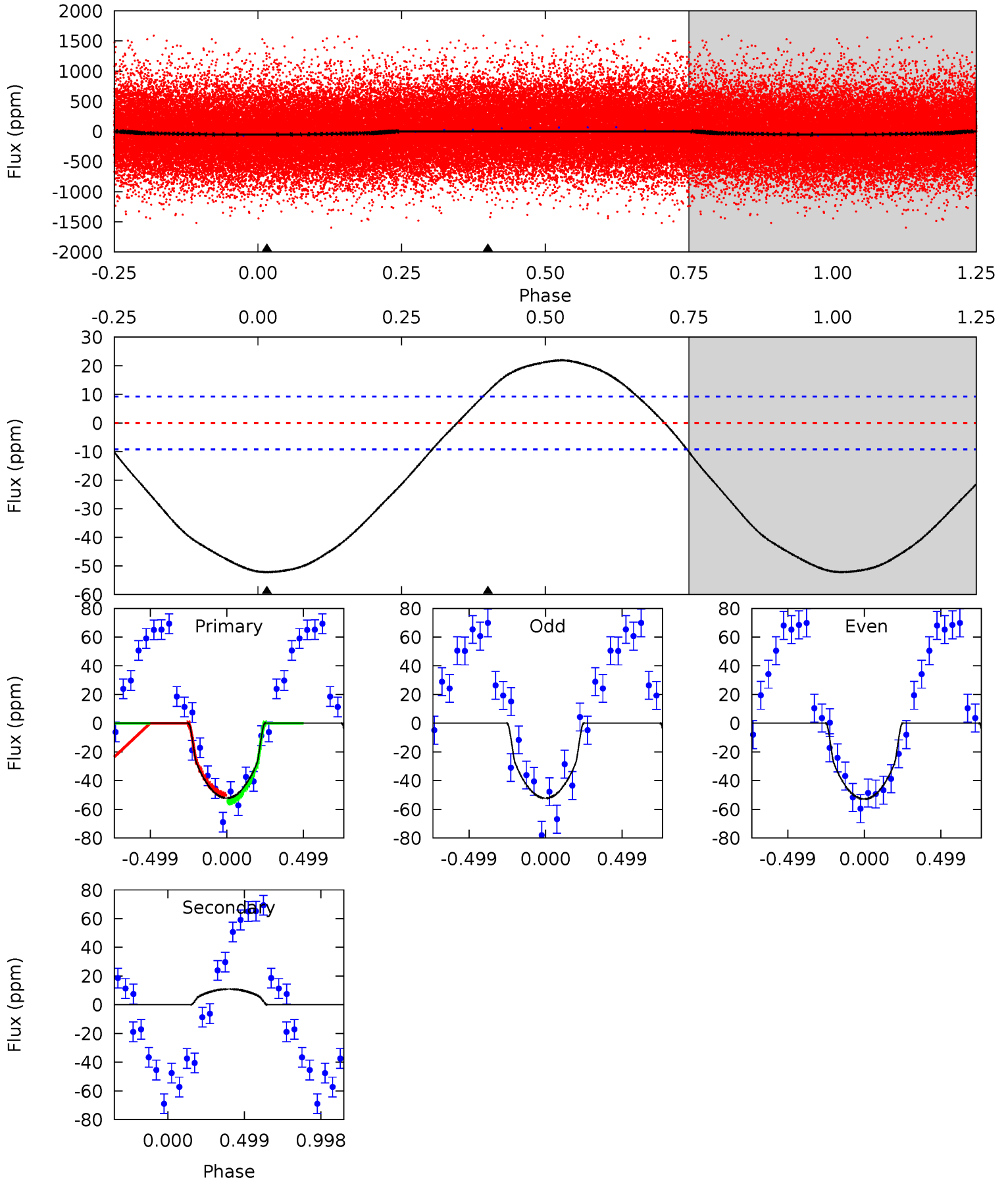
TCE 008520426-01 P= 0.524701 Days  $T_0=131.947033$  (BKJD)



# DV Model-Shift Uniqueness Test

008520426-01, P = 0.524692 Days, E = 131.422864 Days

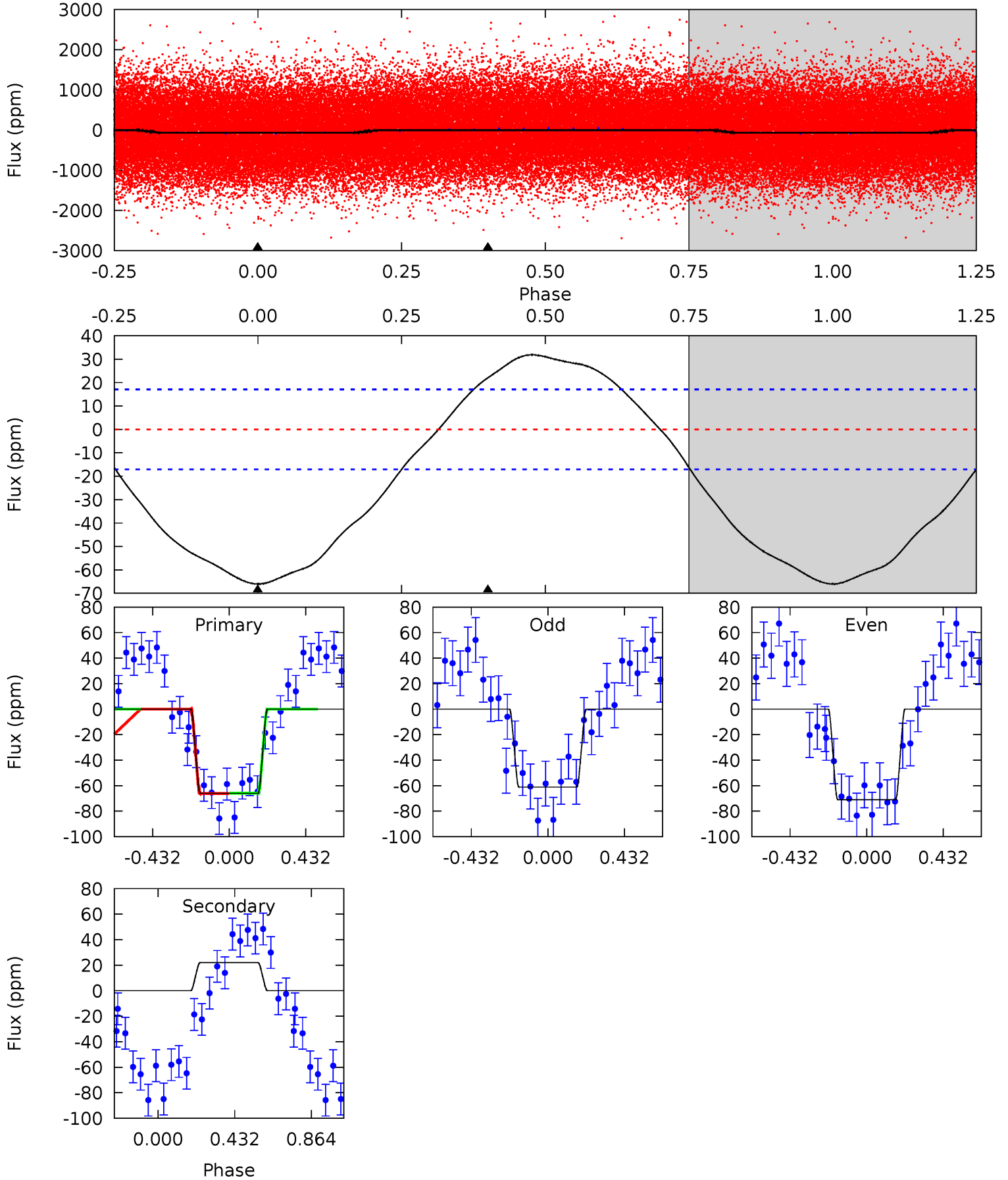
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	-4.99	0	0	4.22	0.68	2.92	23.9	23.9	-4.99	-4.99	0.13	0.97	0.30	1.11



# Alt Model-Shift Uniqueness Test

008520426-01, P = 0.524701 Days, E = 131.422332 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
16.4	-5.48	0	0	4.25	0.79	2.11	16.4	16.4	-5.48	-5.48	1.23	0.97	0.33	0.04





### Stellar Parameters For KIC 008520426

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5110^{+179}_{-179}$	$4.529^{+0.070}_{-0.070}$	$0.000^{+0.250}_{-0.300}$	$0.803^{+0.089}_{-0.081}$	$0.795^{+0.088}_{-0.066}$	$2.162^{+0.657}_{-0.504}$
	+4%/-4%	+2%/-2%	+inf%/-inf%	+11%/-10%	+11%/-8%	+30%/-23%
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 008520426-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$11 \pm 2$	$0.64^{+0.25}_{-0.24}$	$2601^{+119}_{-115}$	$-3879^{+379}_{-708}$	$-2.063^{+1.032}_{-3.081}$
Alt.	$22 \pm 4$	$0.70^{+0.26}_{-0.24}$	$2597^{+110}_{-114}$	$-4199^{+429}_{-727}$	$-3.399^{+1.607}_{-4.821}$

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

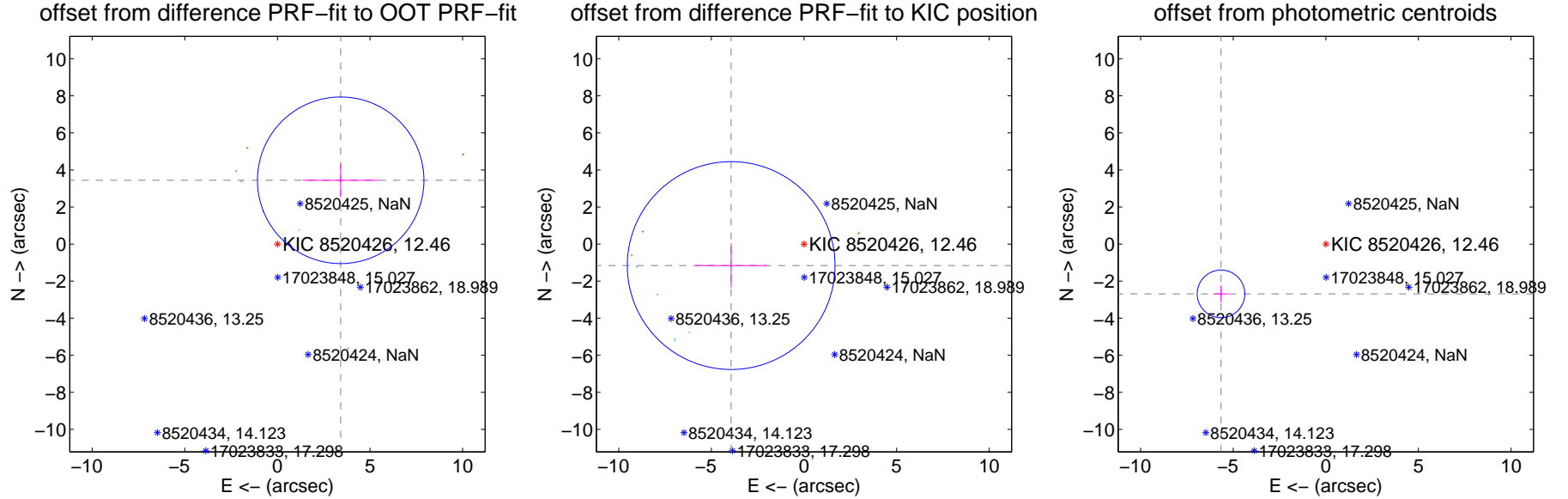
## DV Centroid Data

Supplemental centroid analysis for 008520426-01. Kepler magnitude: 12.46. Transit SNR 16.81

There are 5 quarters with good PRF difference image offsets

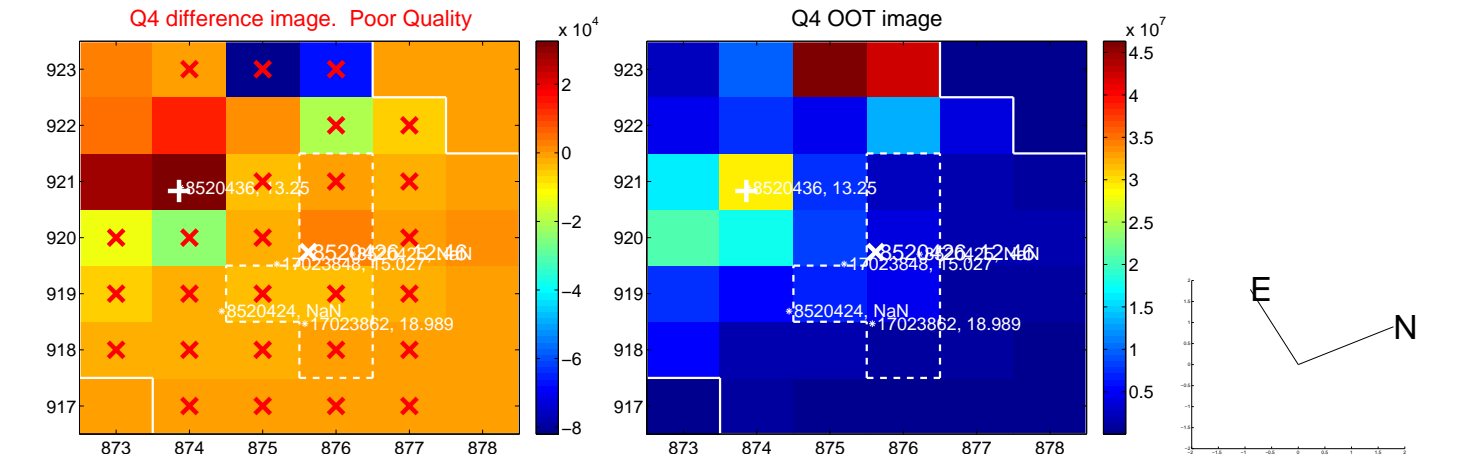
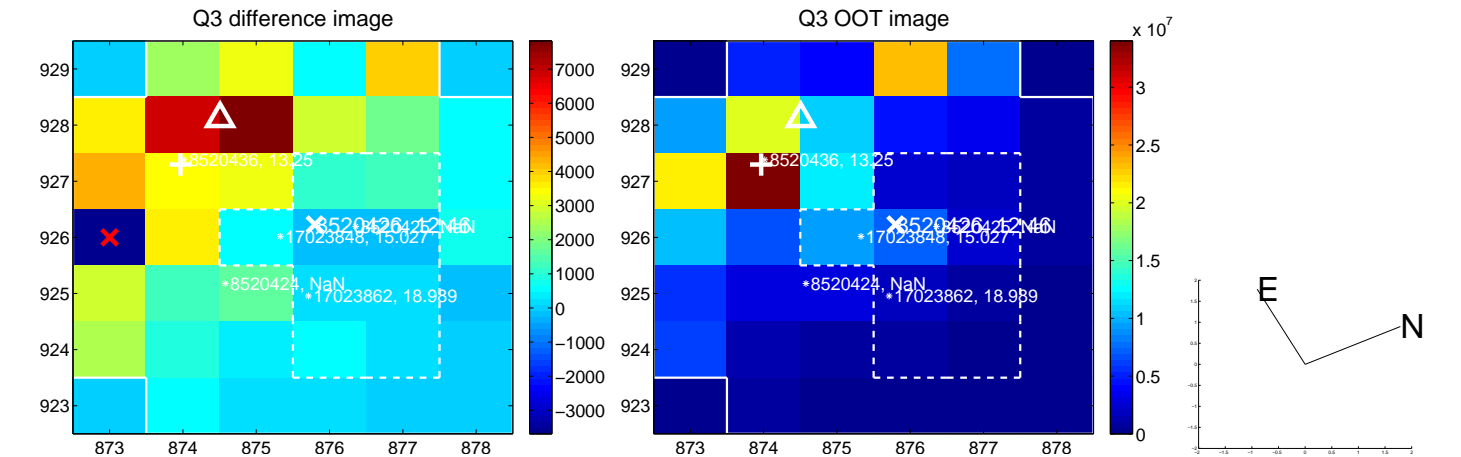
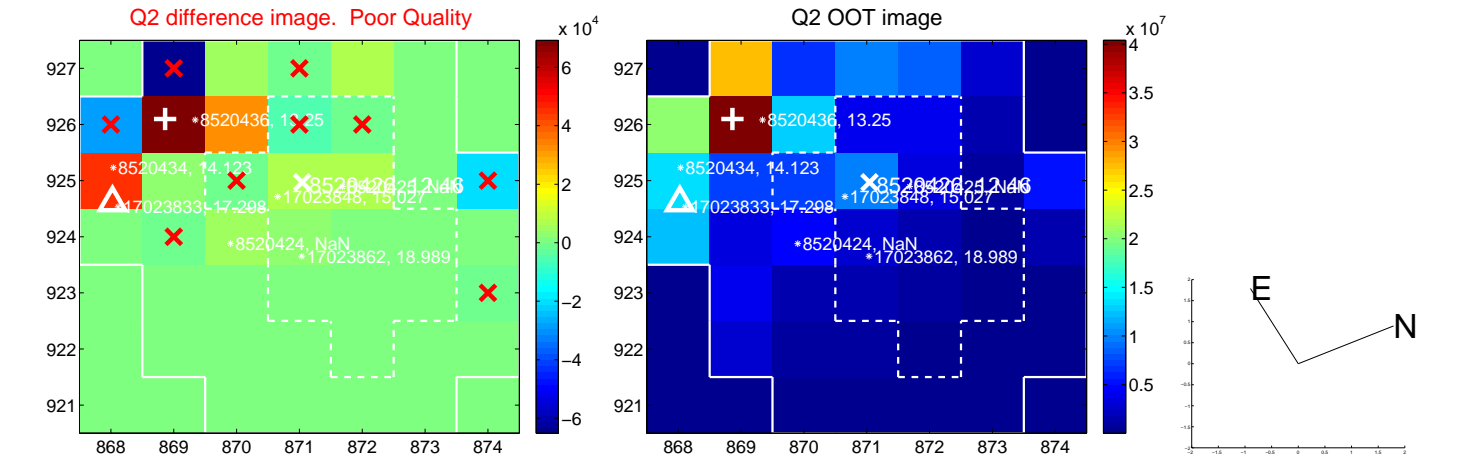
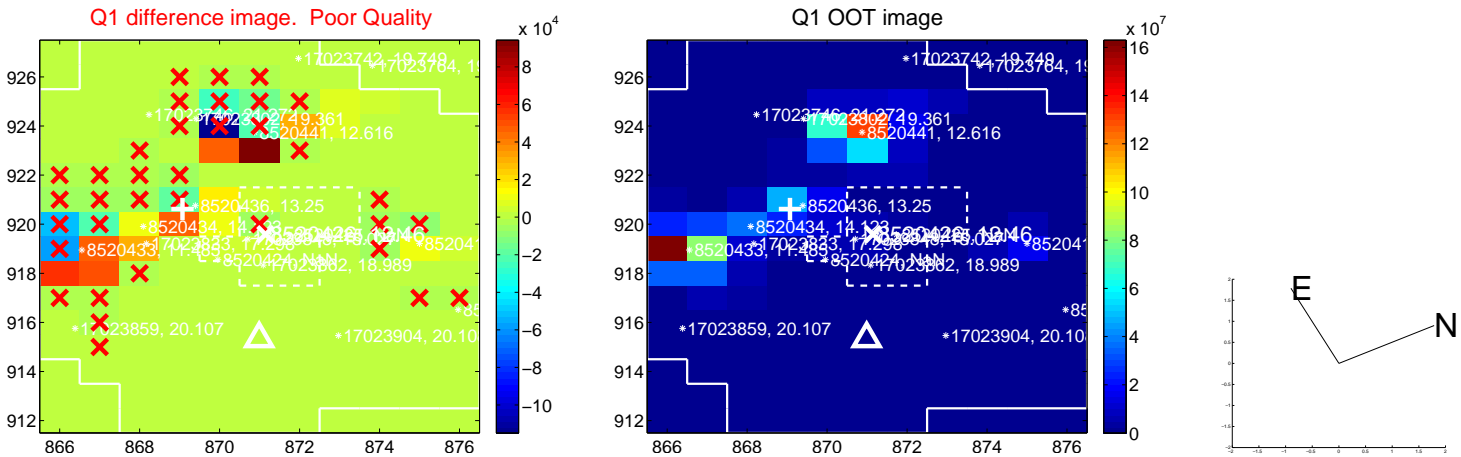
The OOT PRF centroid is offset from the target star catalog position by about 8.43 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.851 \pm 1.498$	3.24	$-3.417 \pm 2.060$	$3.443 \pm 0.870$
PRF-fit source offset from KIC position	$4.102 \pm 1.870$	2.19	$3.934 \pm 1.939$	$-1.160 \pm 1.193$
photometric centroid source offset	$6.27 \pm 0.43$	14.63	$5.66 \pm 0.42$	$-2.69 \pm 0.46$

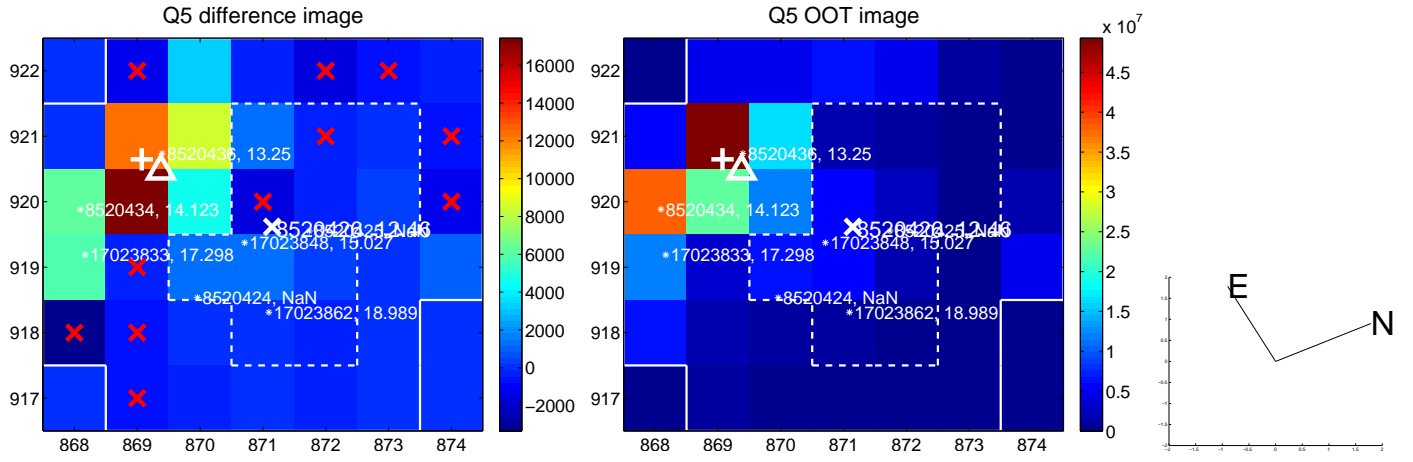


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

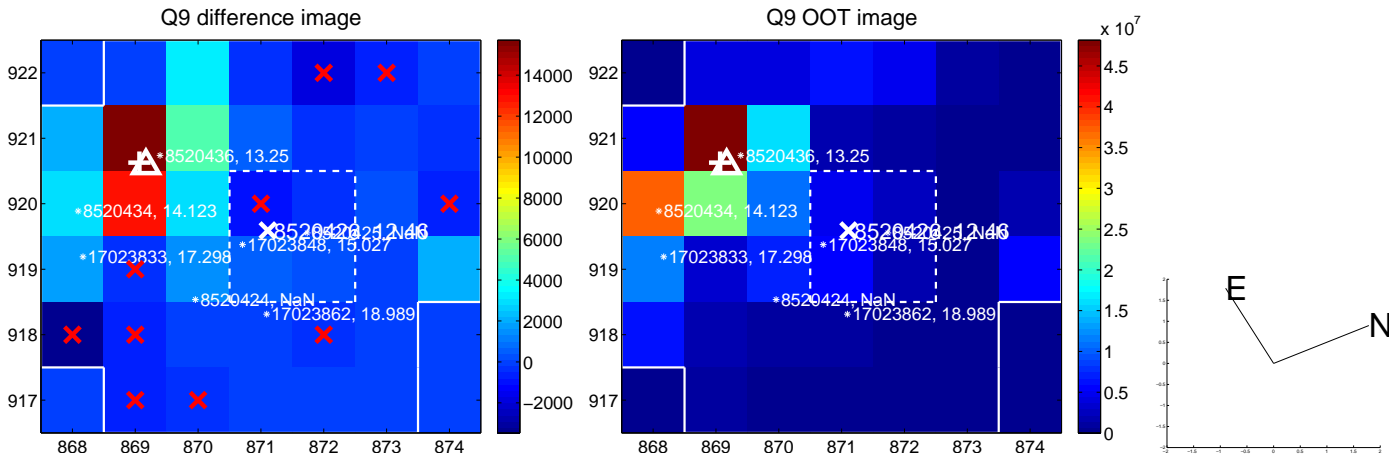


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

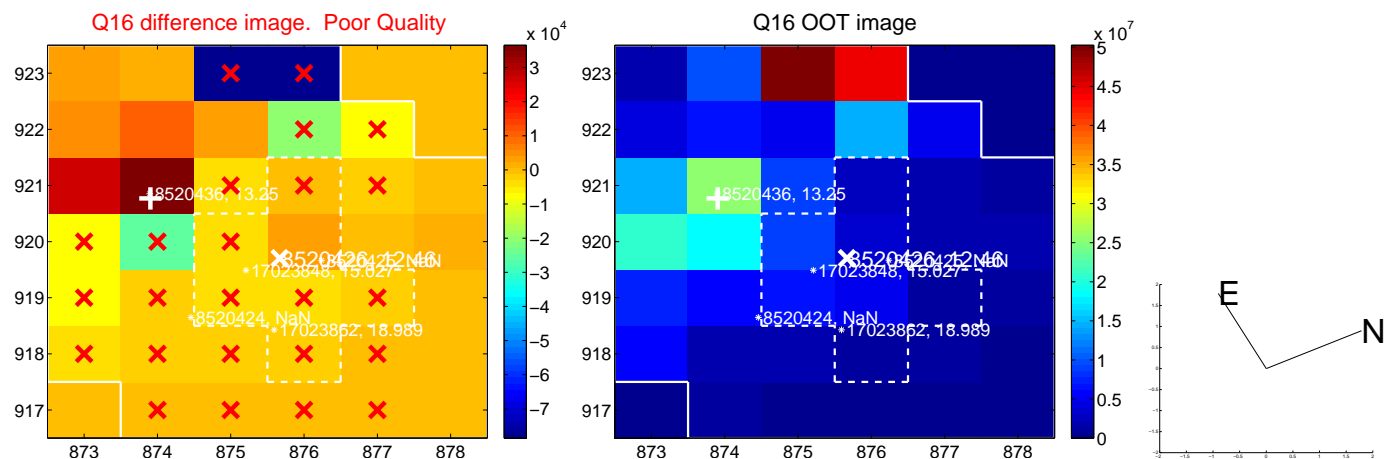
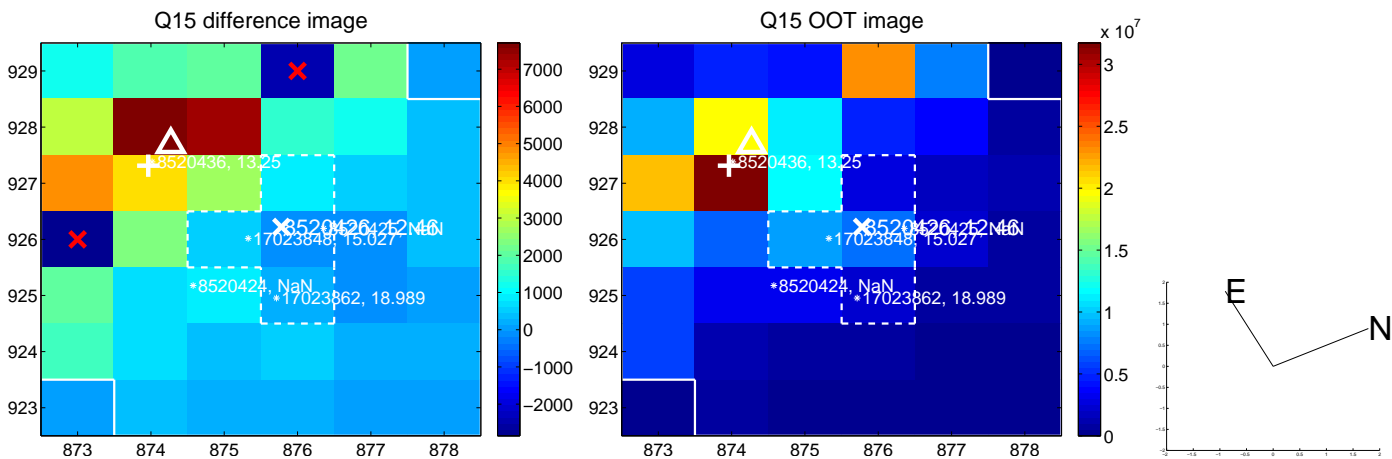
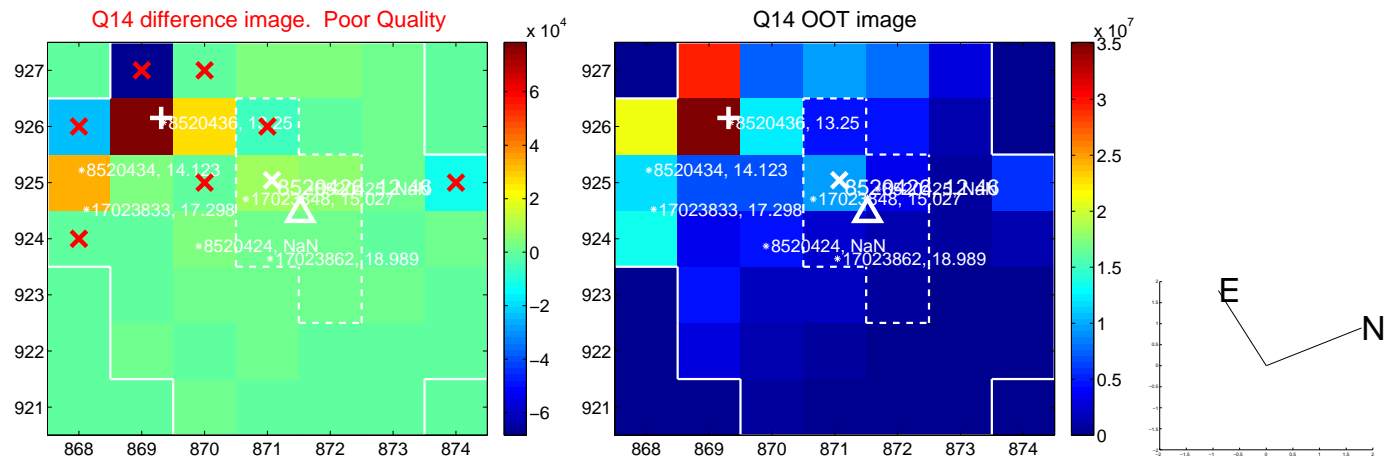
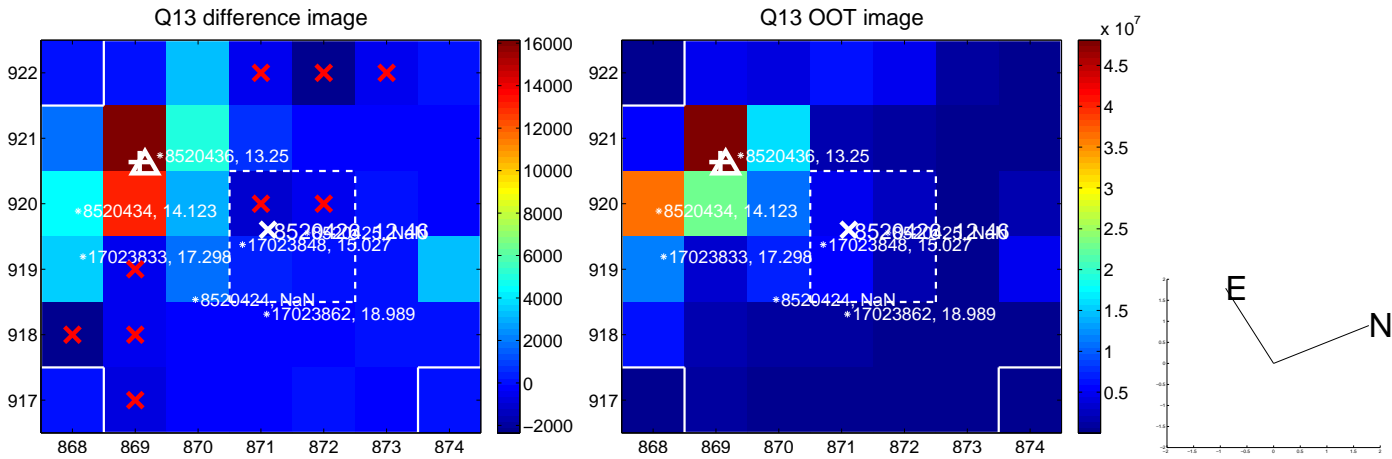




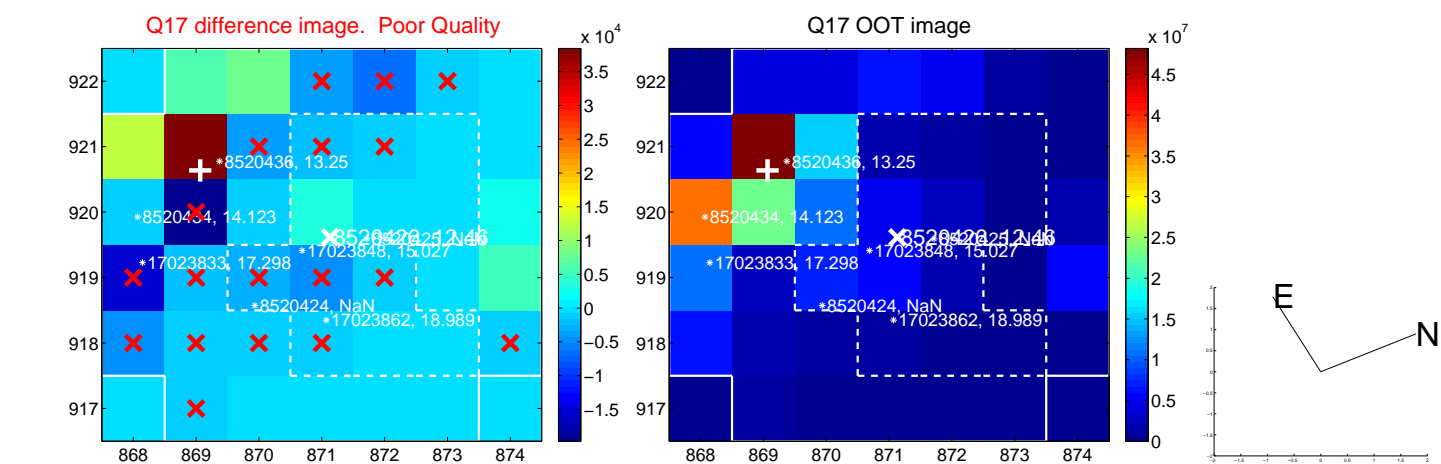
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



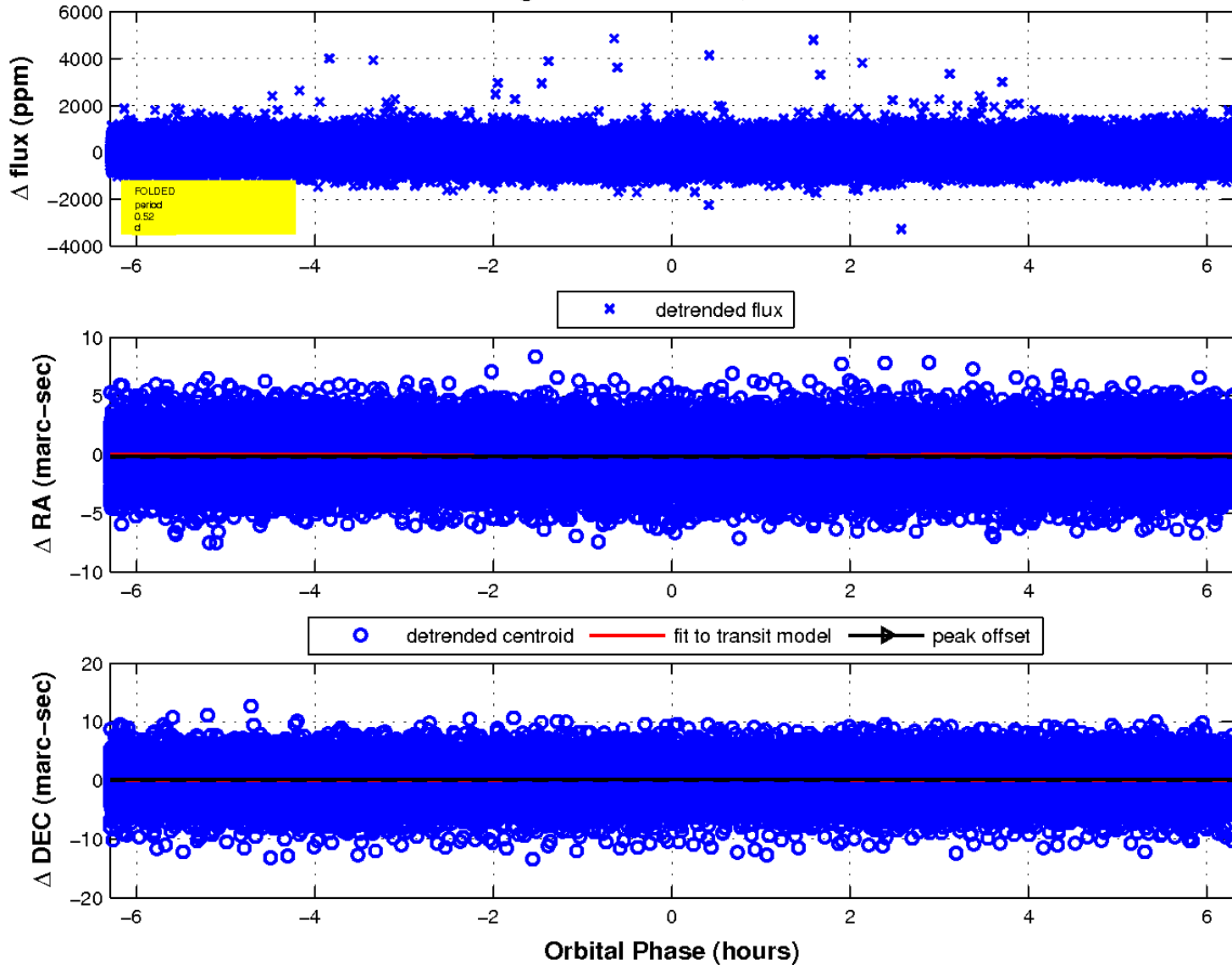
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

