

# KIC 011521678

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011521678-01	OBS	No	0.586707	131.558344	44.2	4.557	8.6	10.8	0.91	5362	0.59	3666.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011521678-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

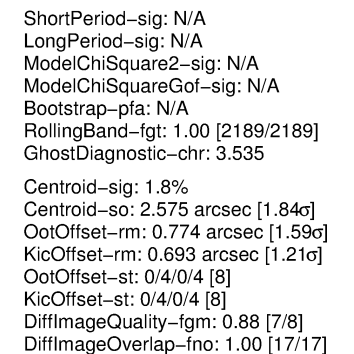
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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.

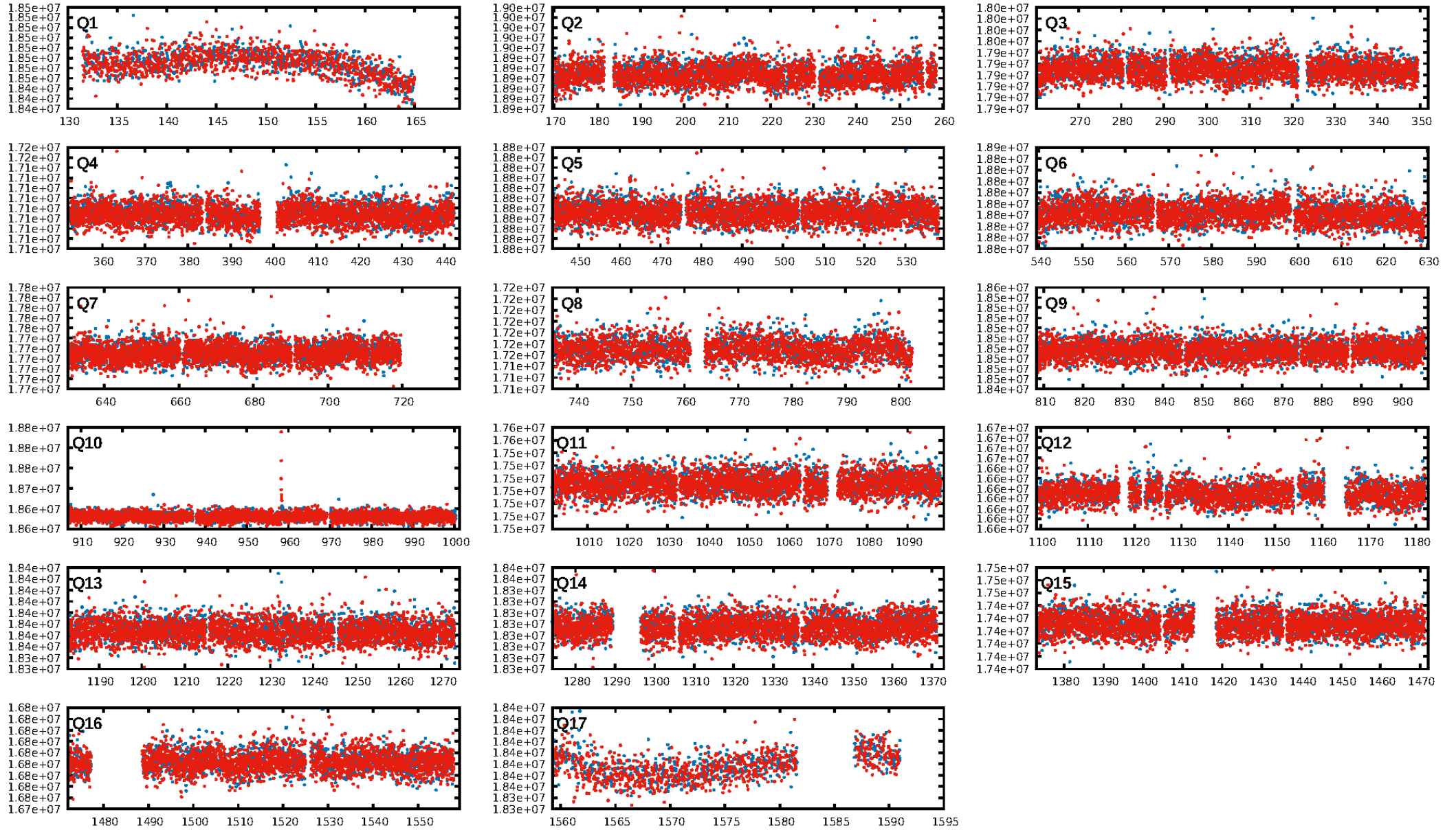
## Ephemeris Match Information For 011521678-01

No Significant Match Found

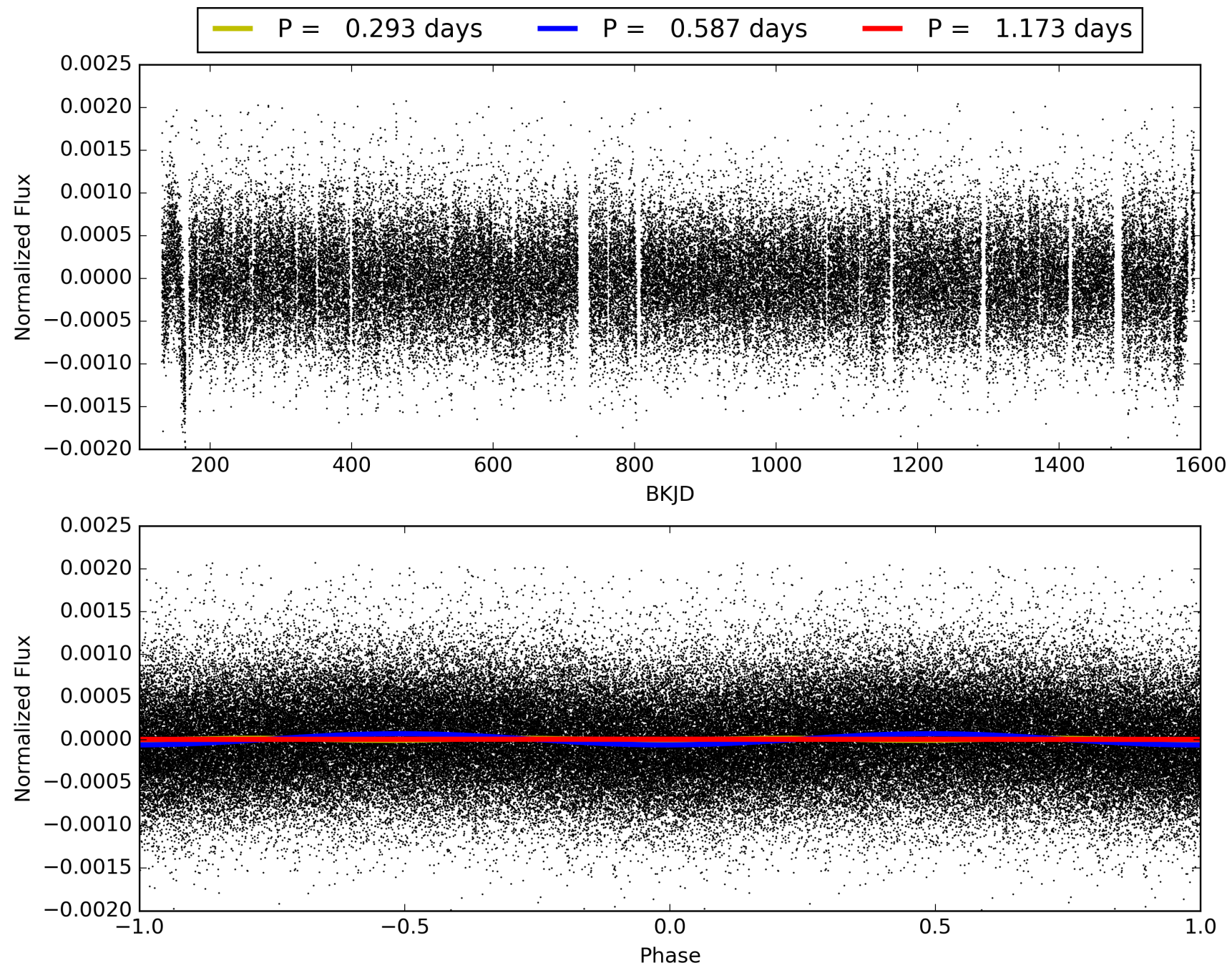
KIC: 11521678    Candidate: 1 of 1    Period: 0.587 d



# TCE 011521678-01, PDC Light Curves



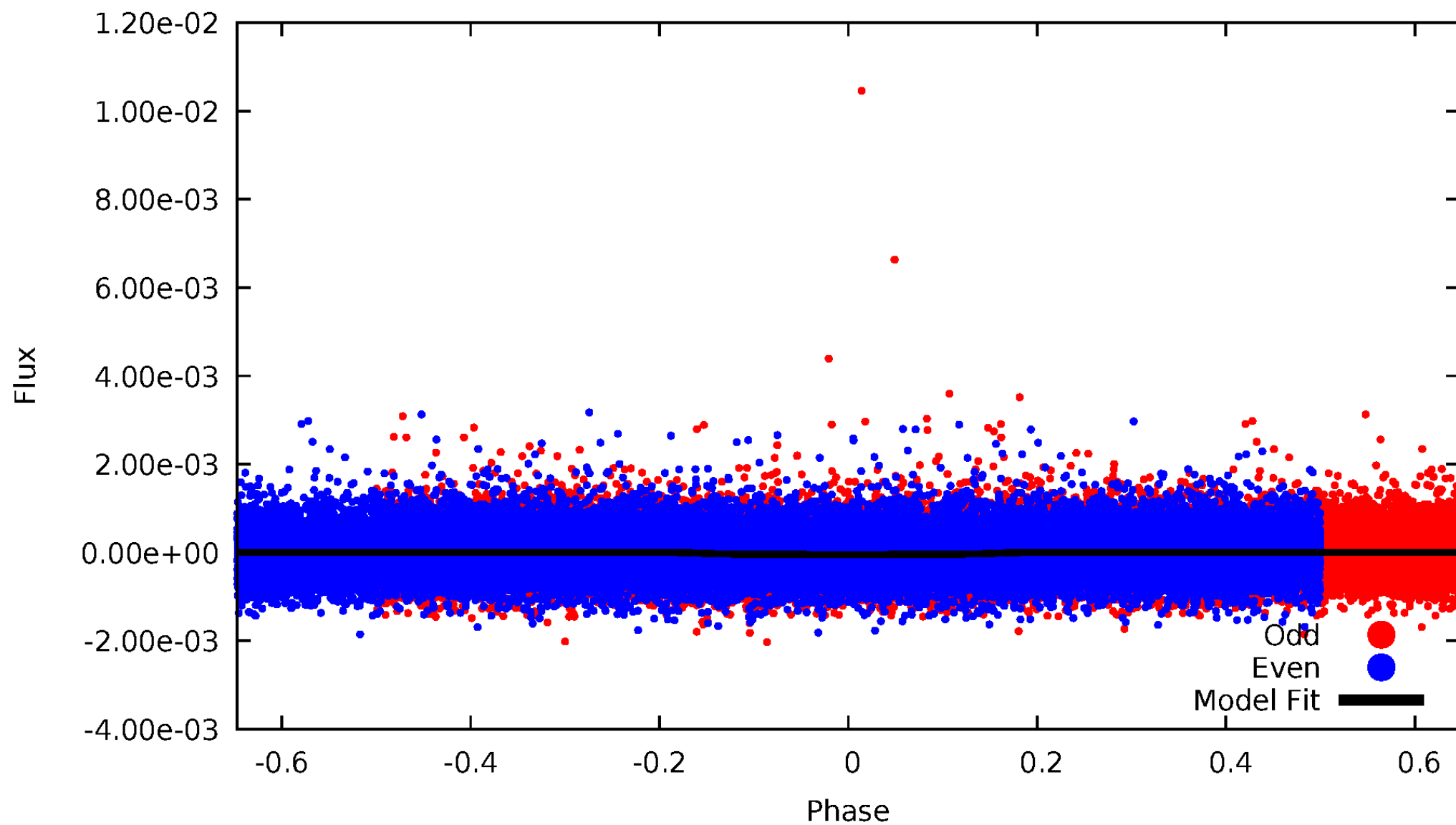
# TCE 011521678-01





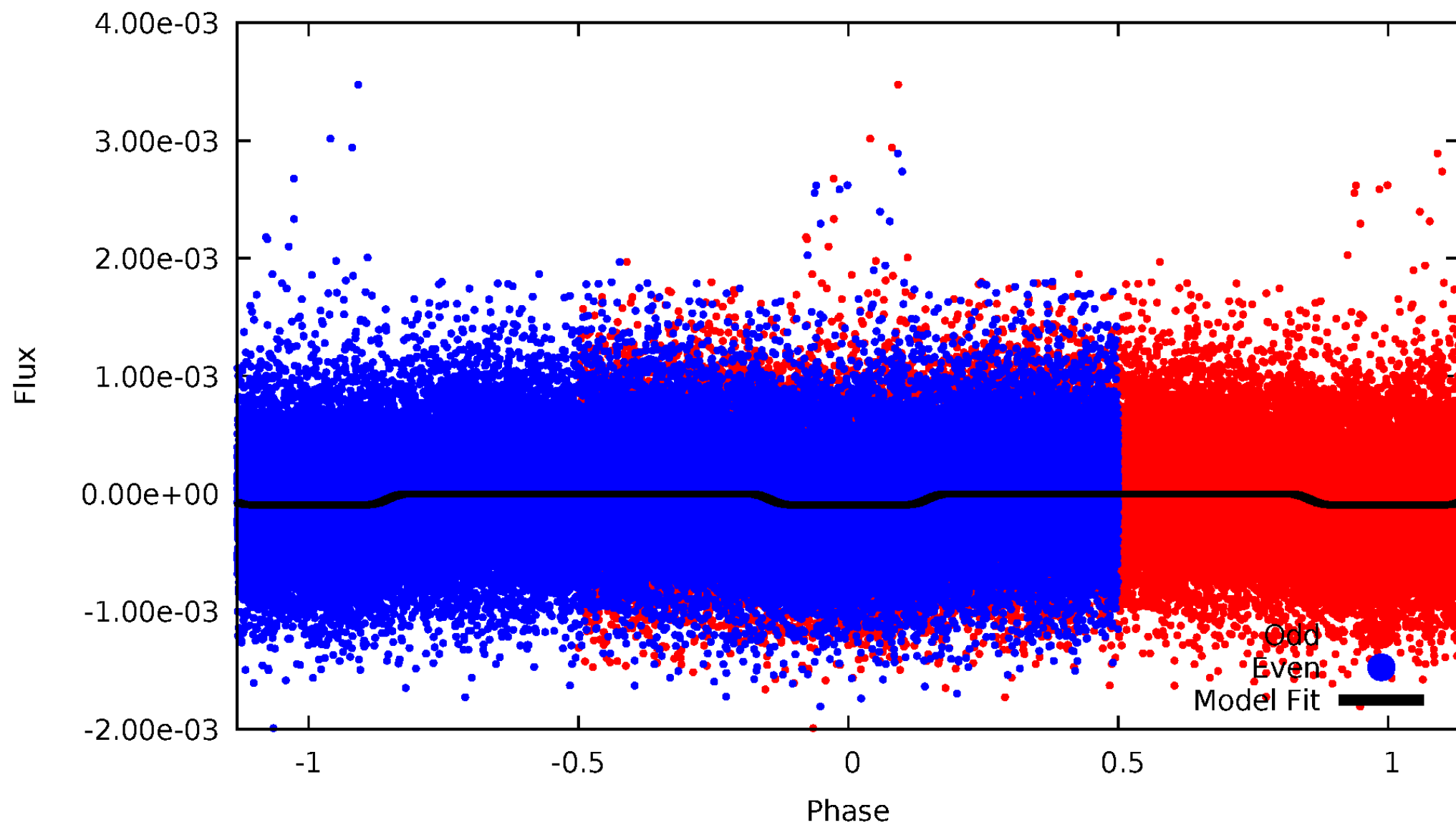
# DV Odd/Even

TCE 011521678-01



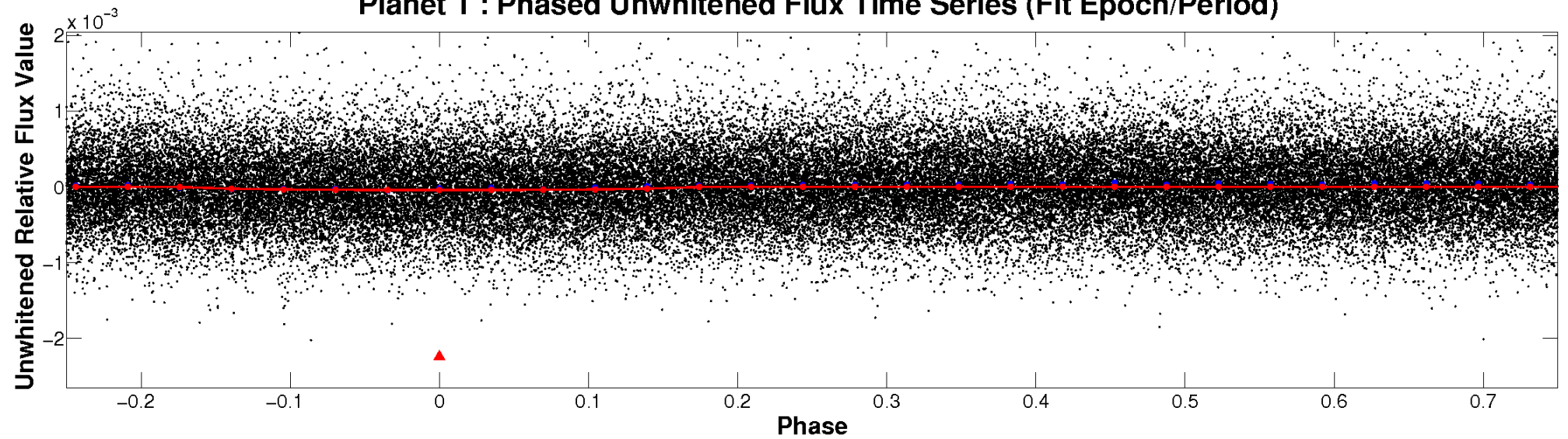
# ALT Odd/Even

TCE 011521678-01

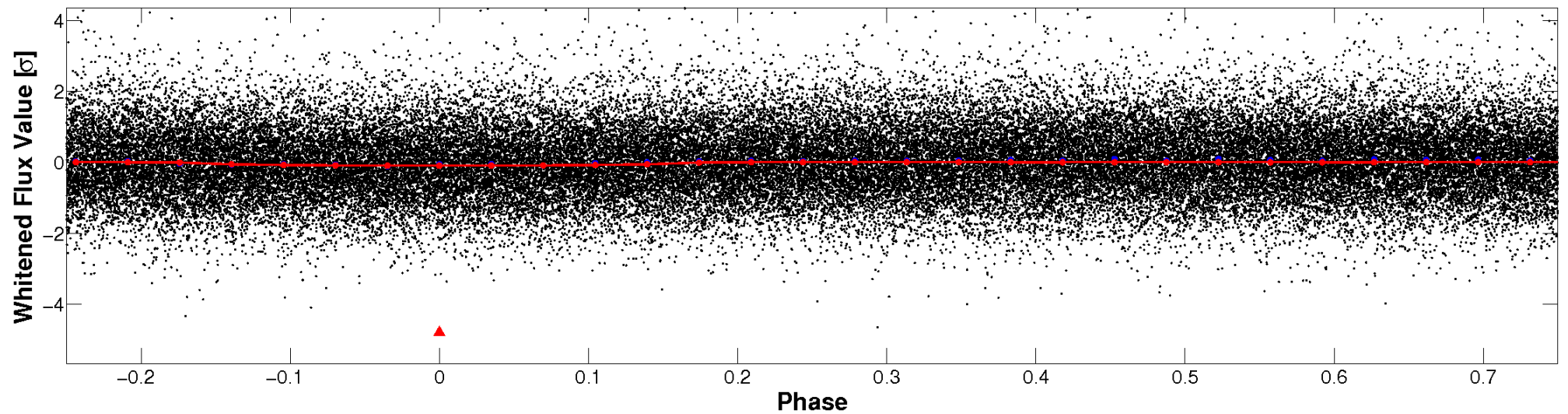


# Non-Whitened Vs. Whitened Light Curve

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

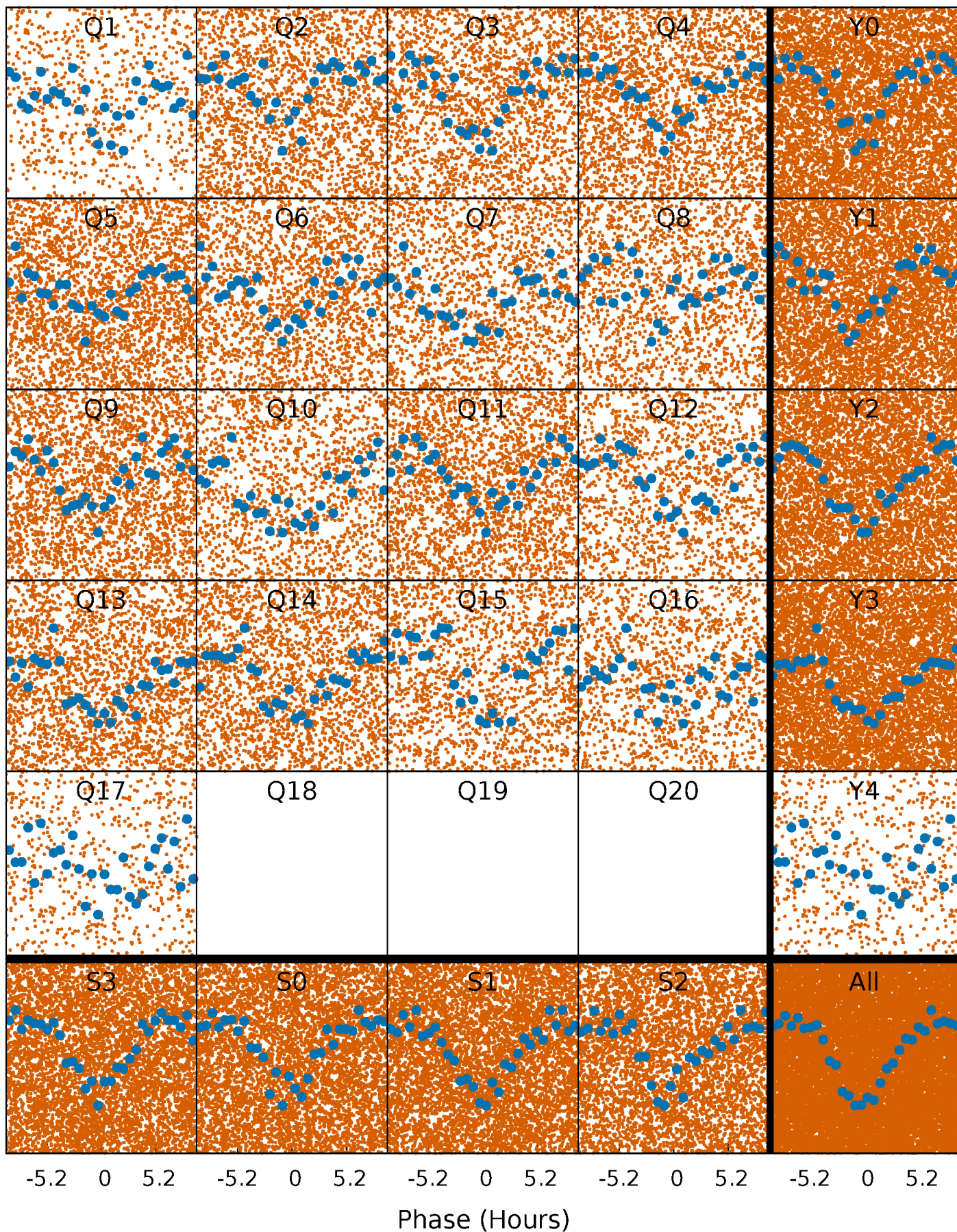


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

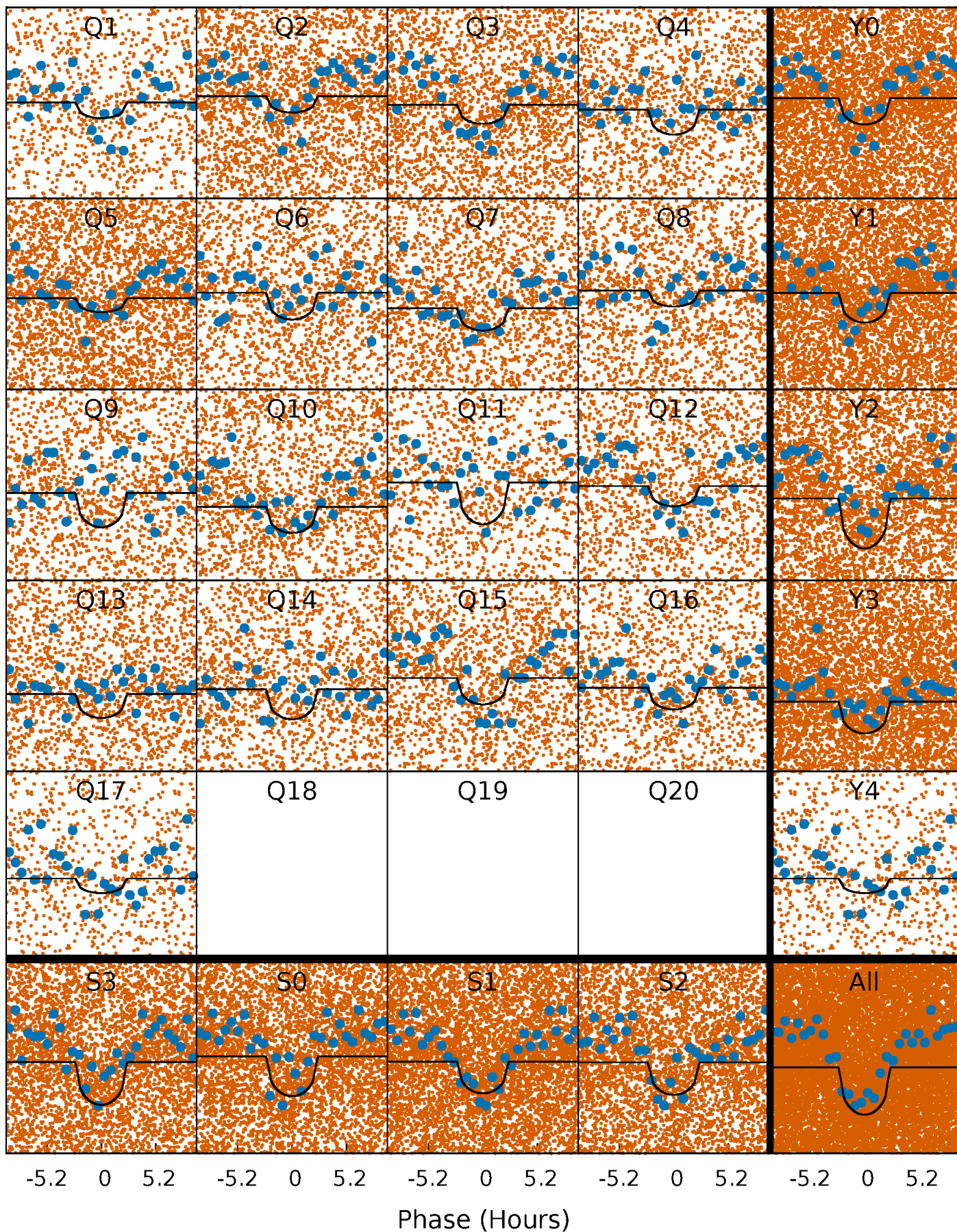
TCE 011521678-01 P= 0.586707 Days  $T_0=131.558344$  (BKJD)





# DV Quarter-Phased Transit Curves

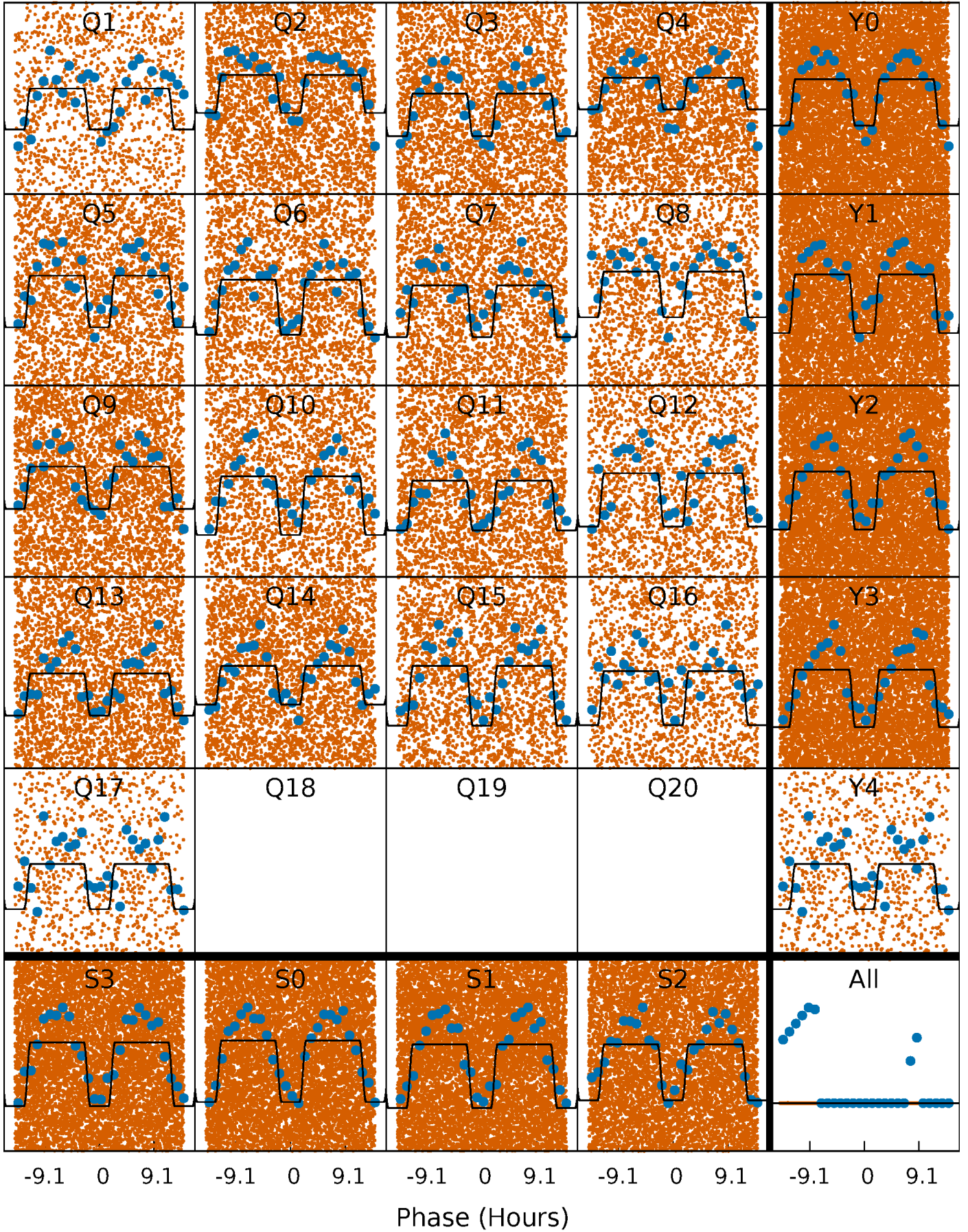
TCE 011521678-01 P= 0.586707 Days  $T_0=131.558344$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

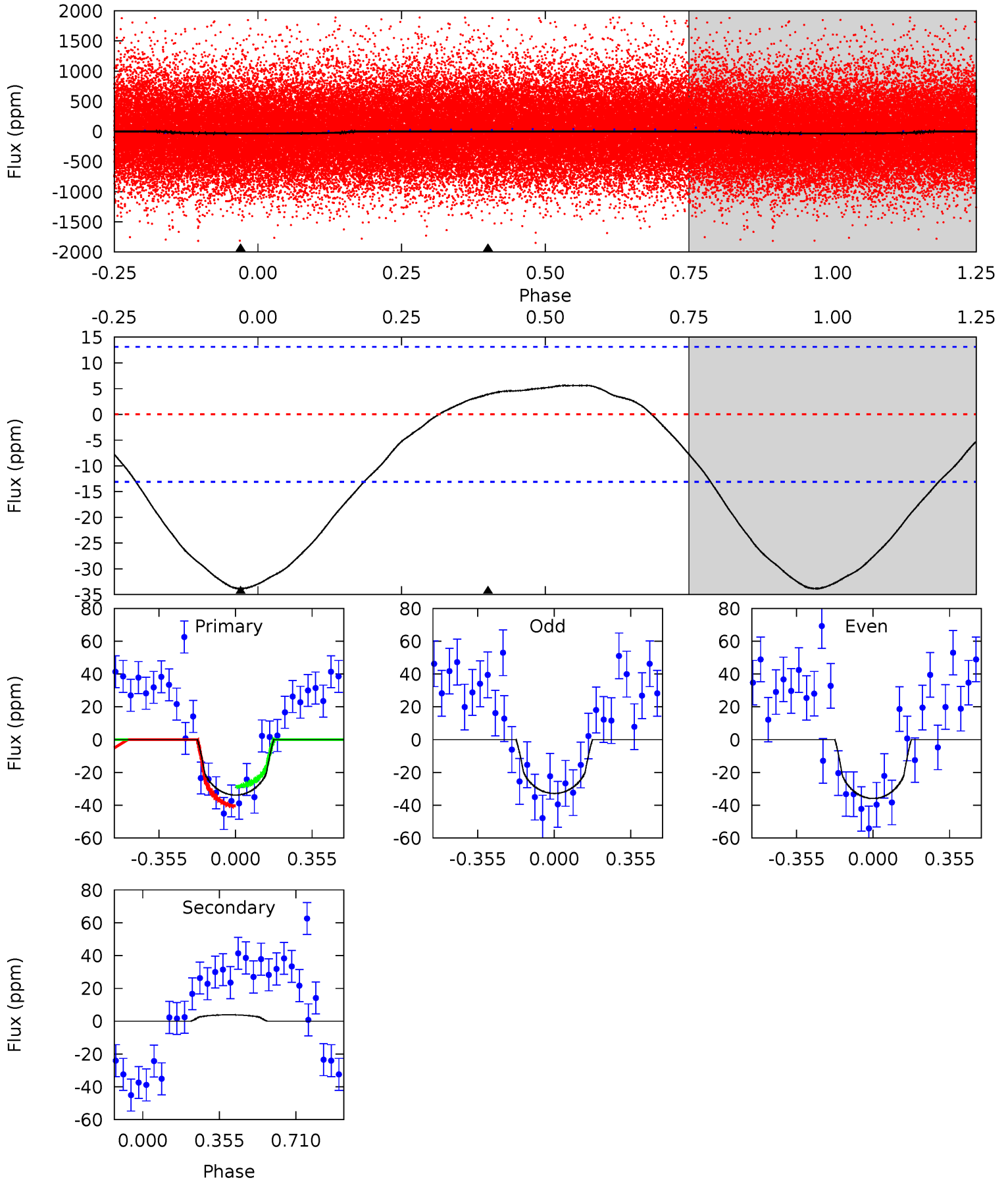
TCE 011521678-01 P= 0.586725 Days  $T_0=131.527742$  (BKJD)



# DV Model-Shift Uniqueness Test

011521678-01, P = 0.586707 Days, E = 130.971637 Days

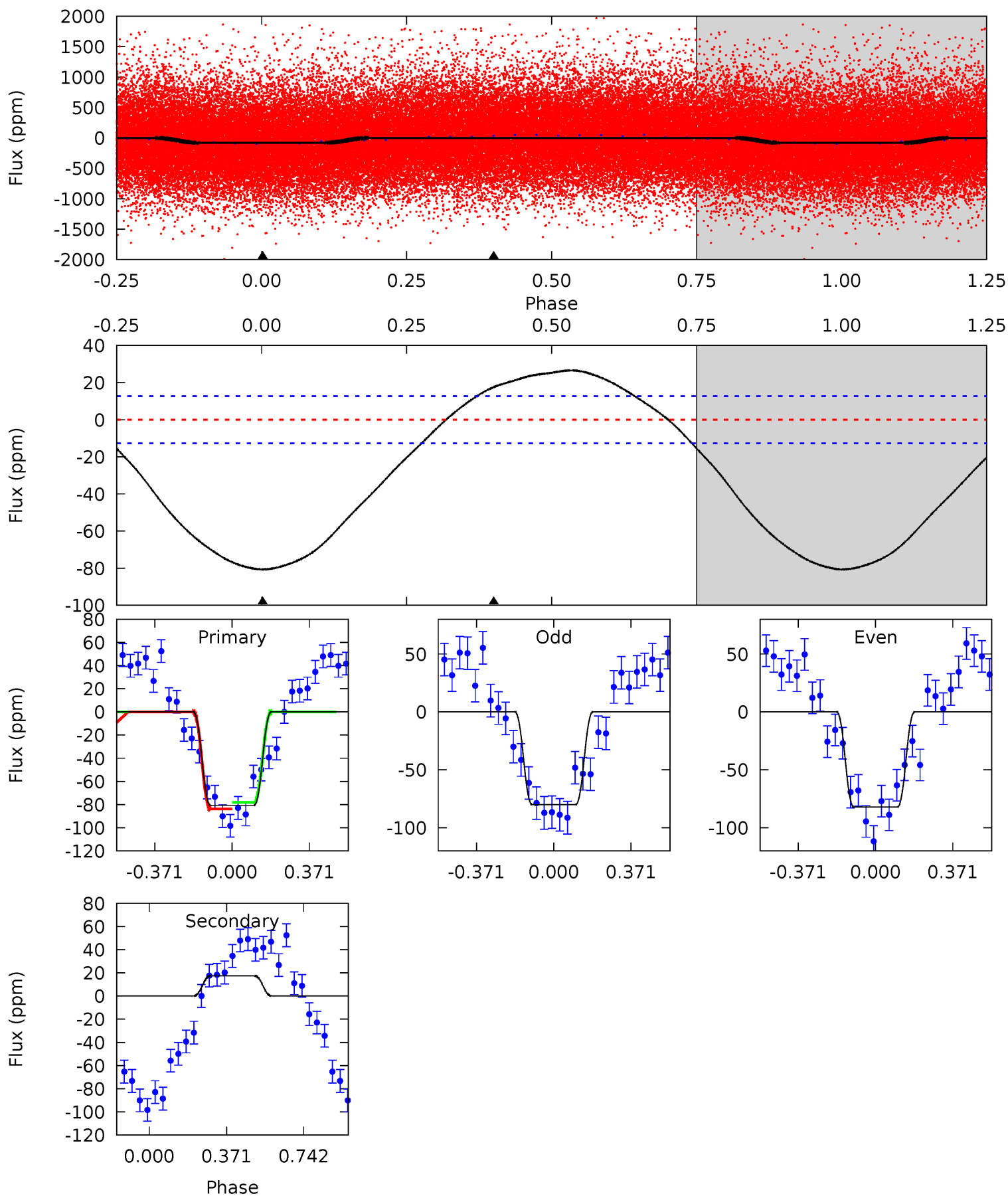
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	-1.27	0	0	4.29	0.92	0.91	11.1	11.1	-1.27	-1.27	0.51	0.84	0.14	1.95



# Alt Model-Shift Uniqueness Test

011521678-01, P = 0.586725 Days, E = 130.941017 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
27.2	-5.89	0	0	4.28	0.89	2.64	27.2	27.2	-5.89	-5.89	0.37	0.94	0.25	0.95





### Stellar Parameters For KIC 011521678

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5362^{+177}_{-160}$	$4.444^{+0.117}_{-0.156}$	$0.020^{+0.250}_{-0.300}$	$0.912^{+0.184}_{-0.123}$	$0.844^{+0.099}_{-0.072}$	$1.564^{+0.707}_{-0.666}$
	+3%/-3%	+3%/-4%	+1250%/-1500%	+20%/-13%	+12%/-9%	+45%/-43%
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 011521678-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$4\pm3$	$0.91^{+0.70}_{-0.58}$	$2789^{+152}_{-139}$	$-3325^{+312}_{-1043}$	$-0.366^{+0.323}_{-2.862}$
Alt.	$18\pm3$	$1.11^{+0.87}_{-0.67}$	$2781^{+179}_{-155}$	$-3840^{+492}_{-1464}$	$-1.341^{+0.933}_{-7.126}$

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

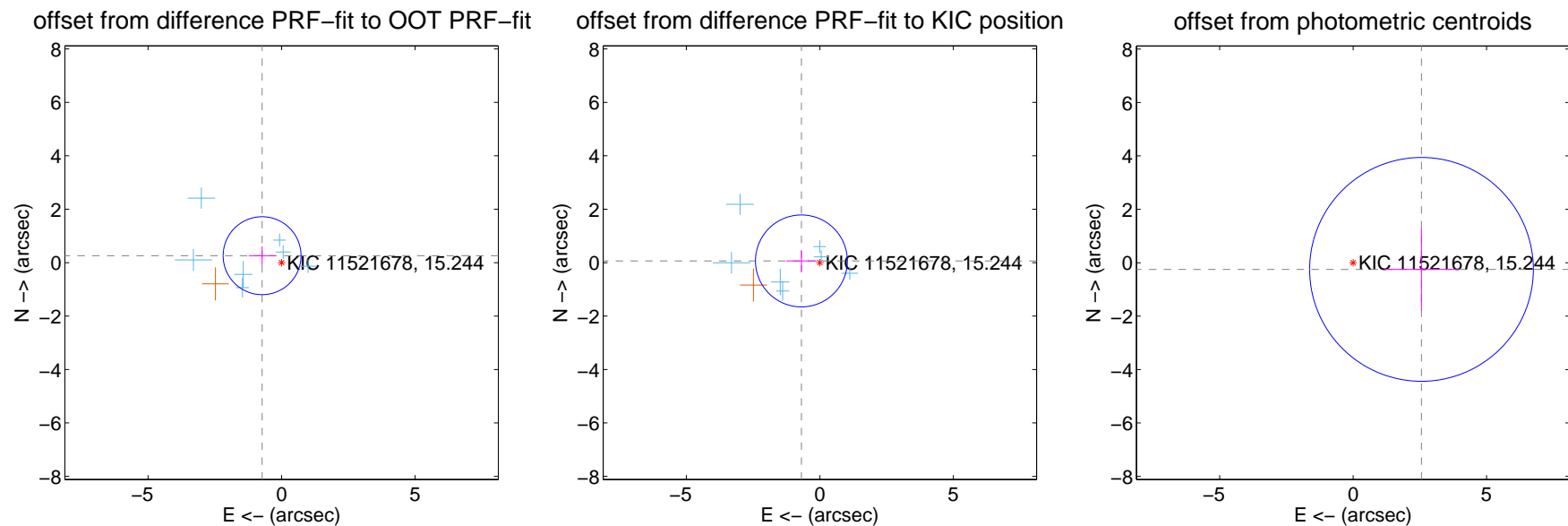
## DV Centroid Data

Supplemental centroid analysis for 011521678-01. Kepler magnitude: 15.24. Transit SNR 10.83

There are 7 quarters with good PRF difference image offsets

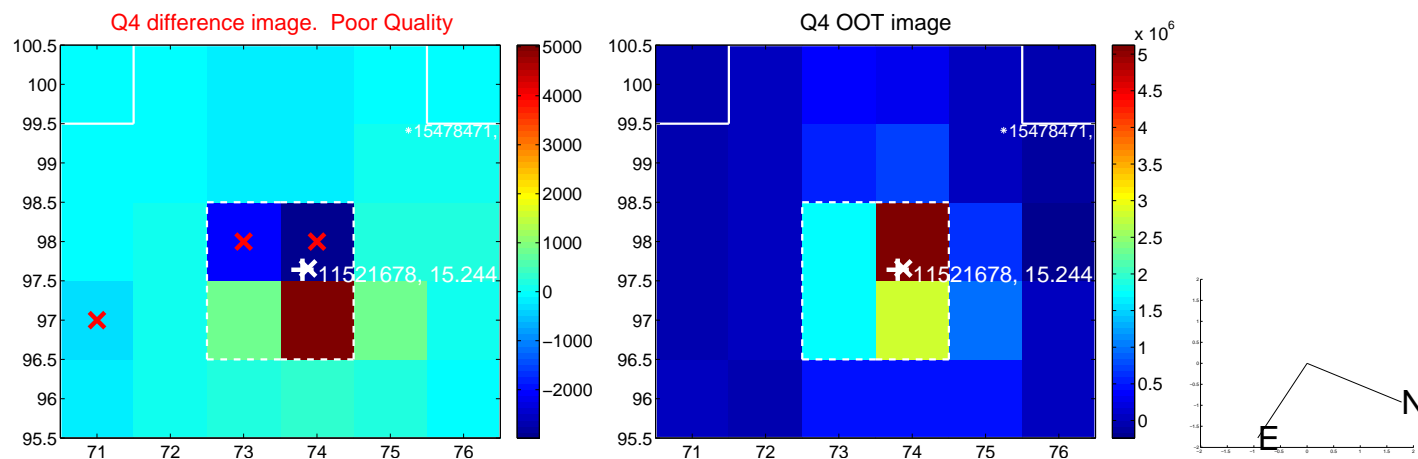
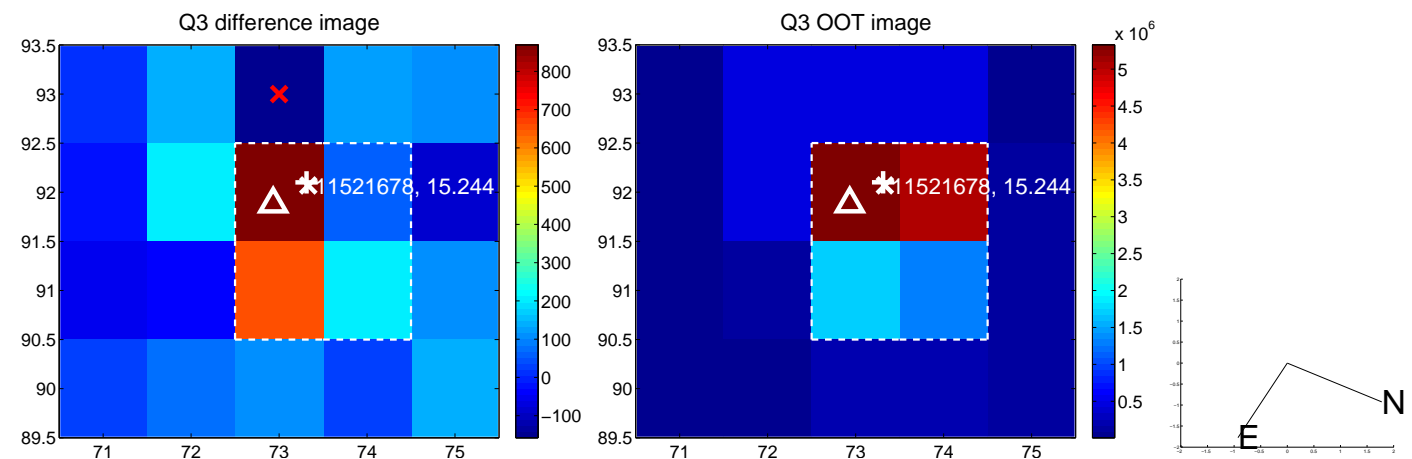
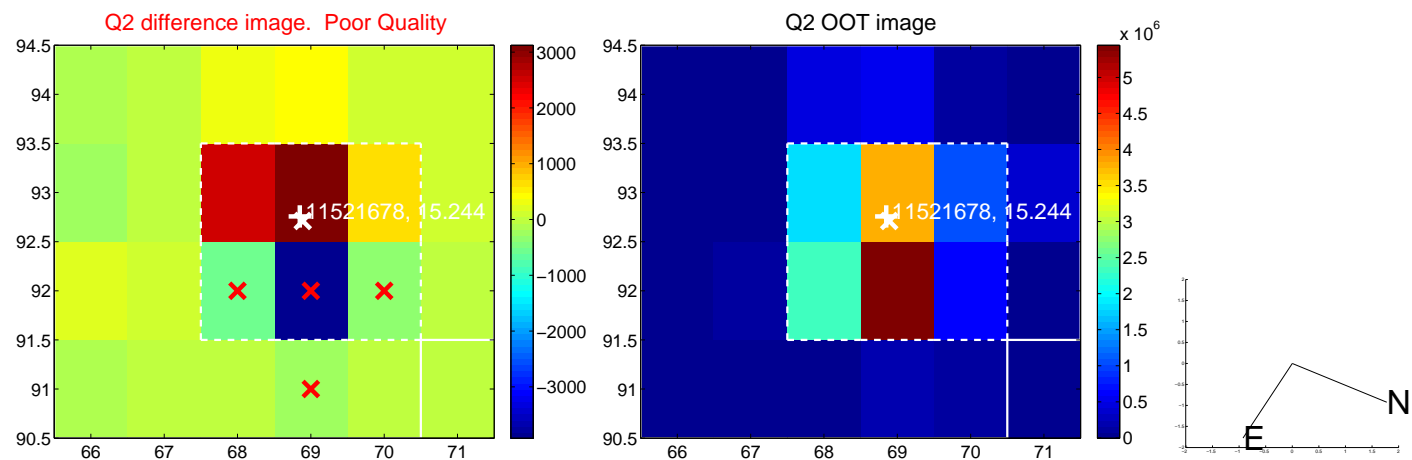
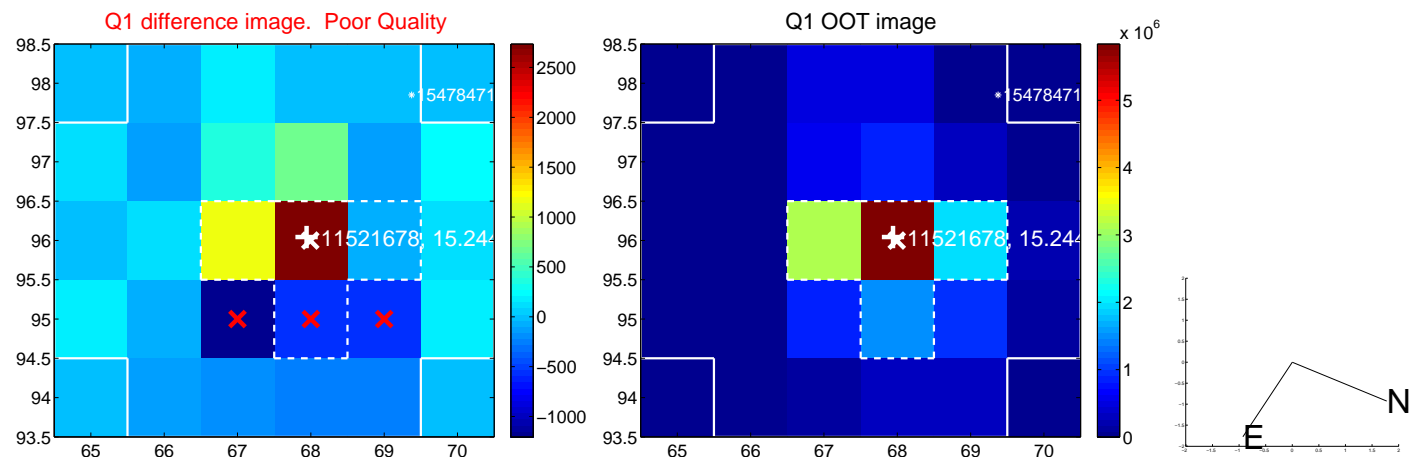
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.774 \pm 0.486$	1.59	$0.729 \pm 0.501$	$0.260 \pm 0.351$
PRF-fit source offset from KIC position	$0.693 \pm 0.574$	1.21	$0.690 \pm 0.569$	$0.064 \pm 0.395$
photometric centroid source offset	$2.57 \pm 1.40$	1.84	$-2.56 \pm 1.40$	$-0.25 \pm 1.54$

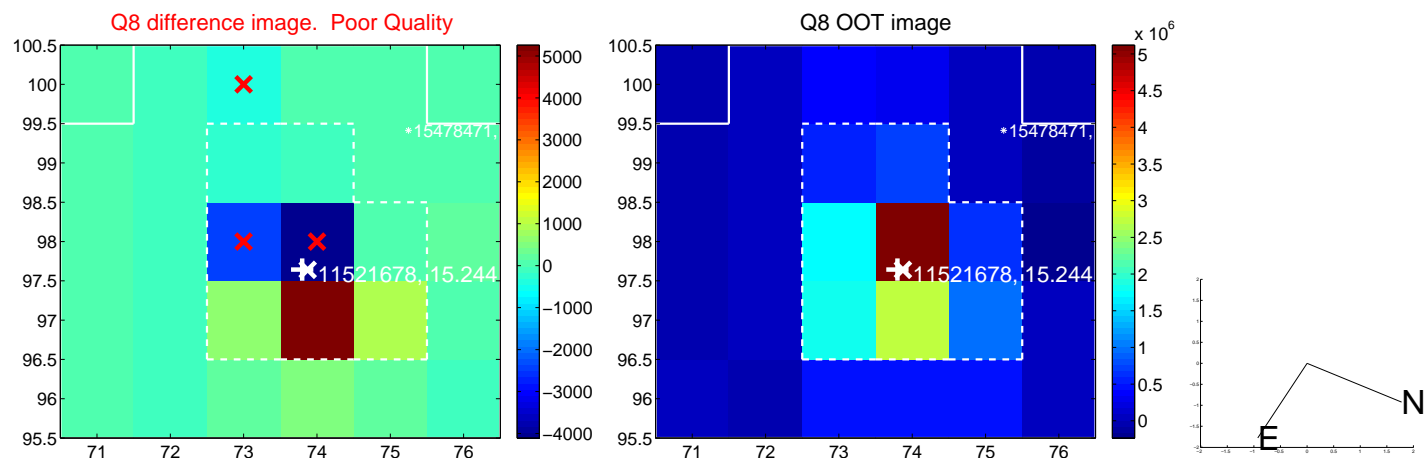
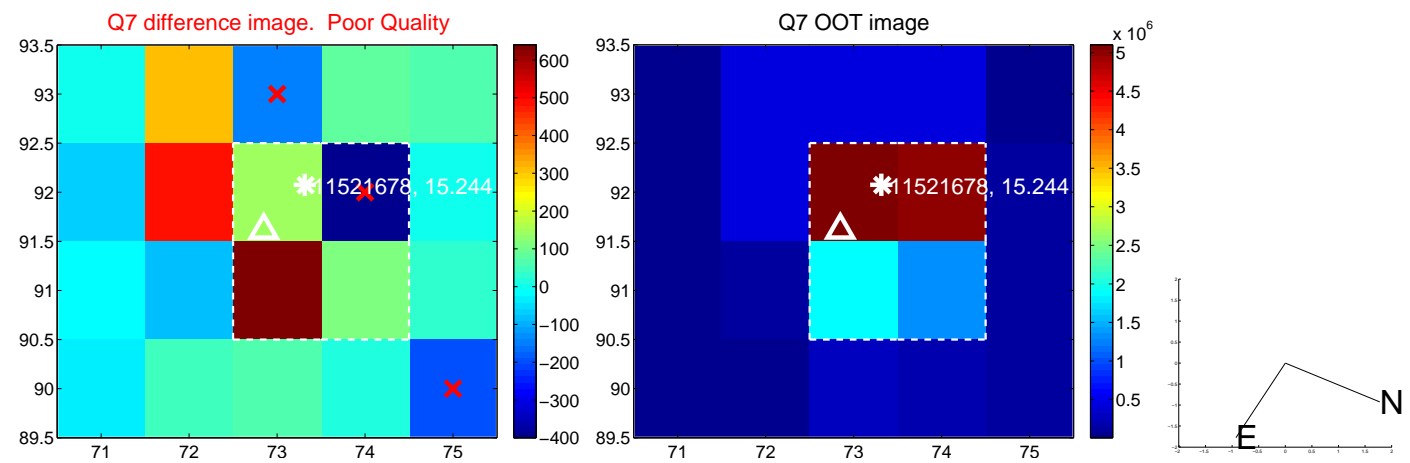
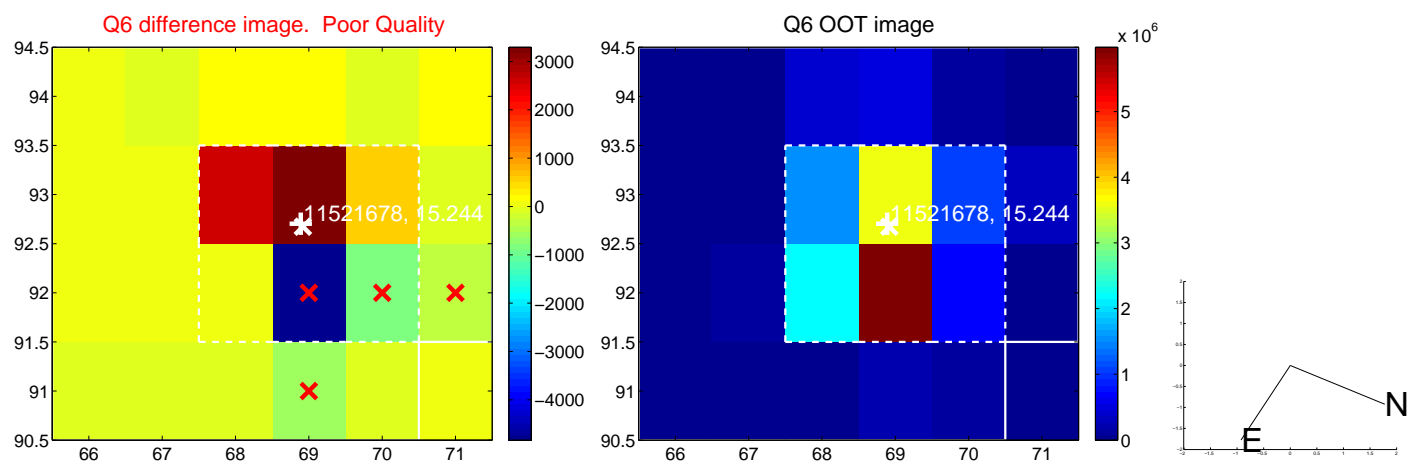
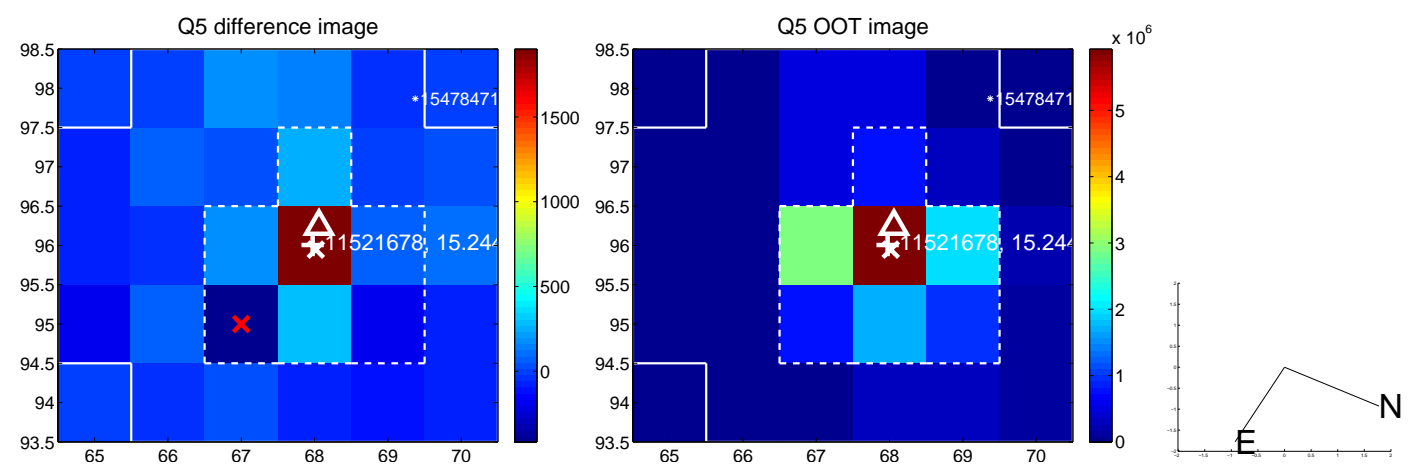


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

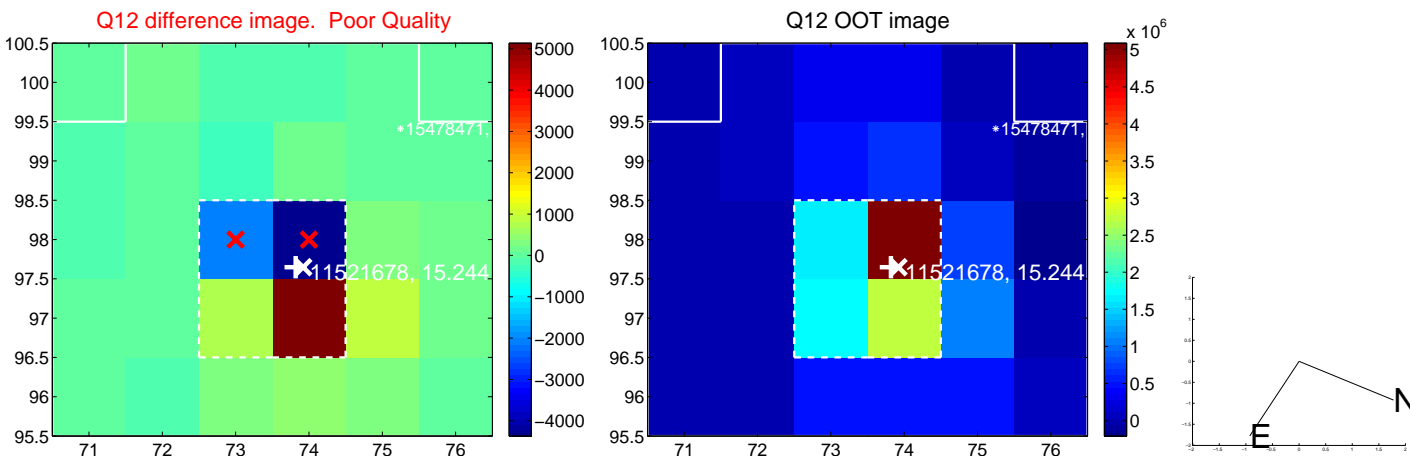
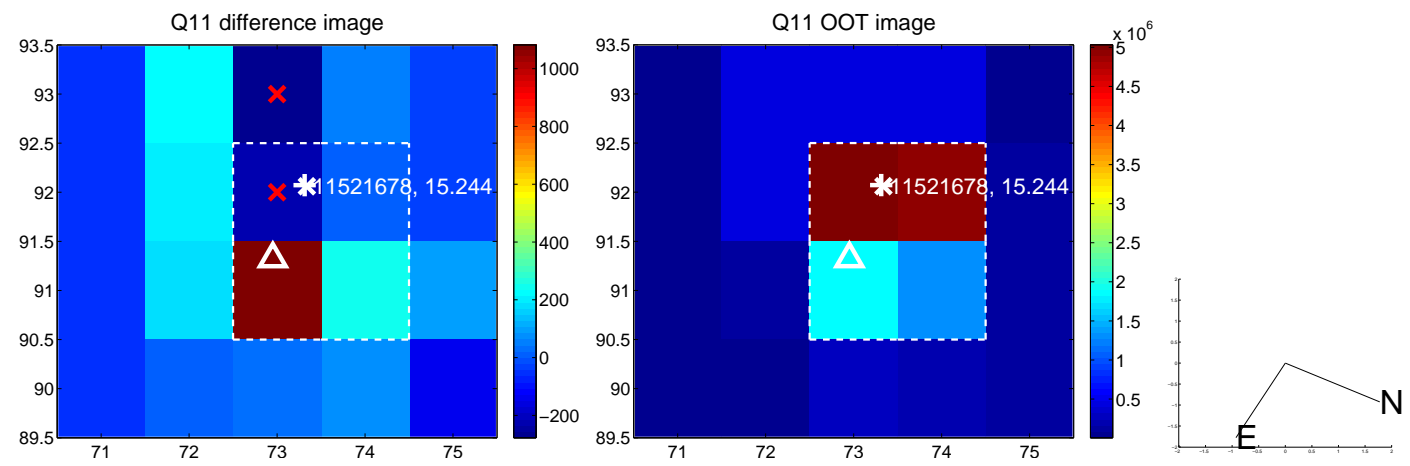
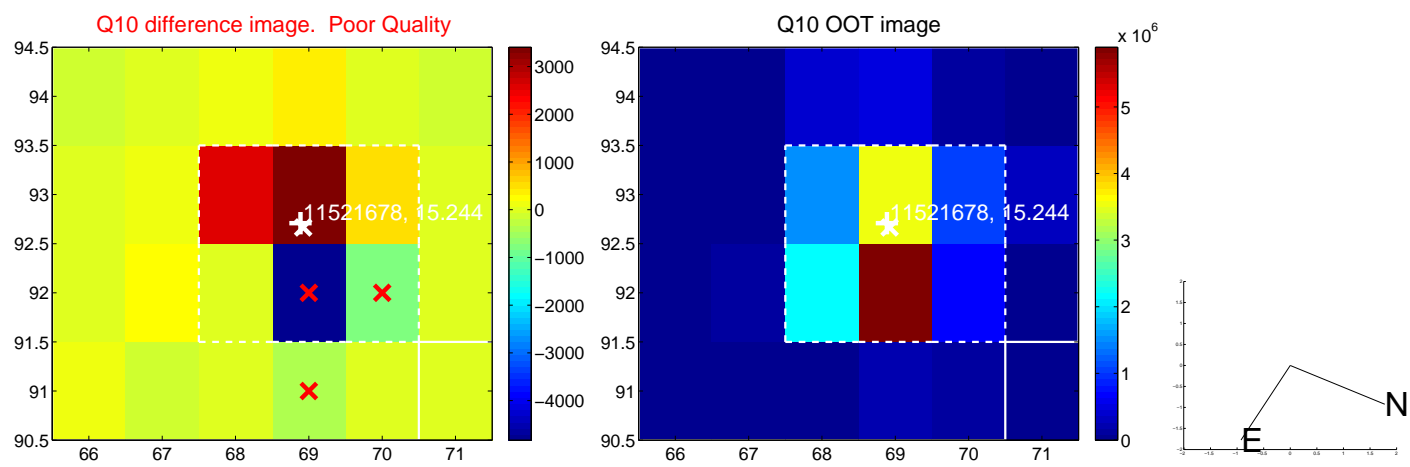
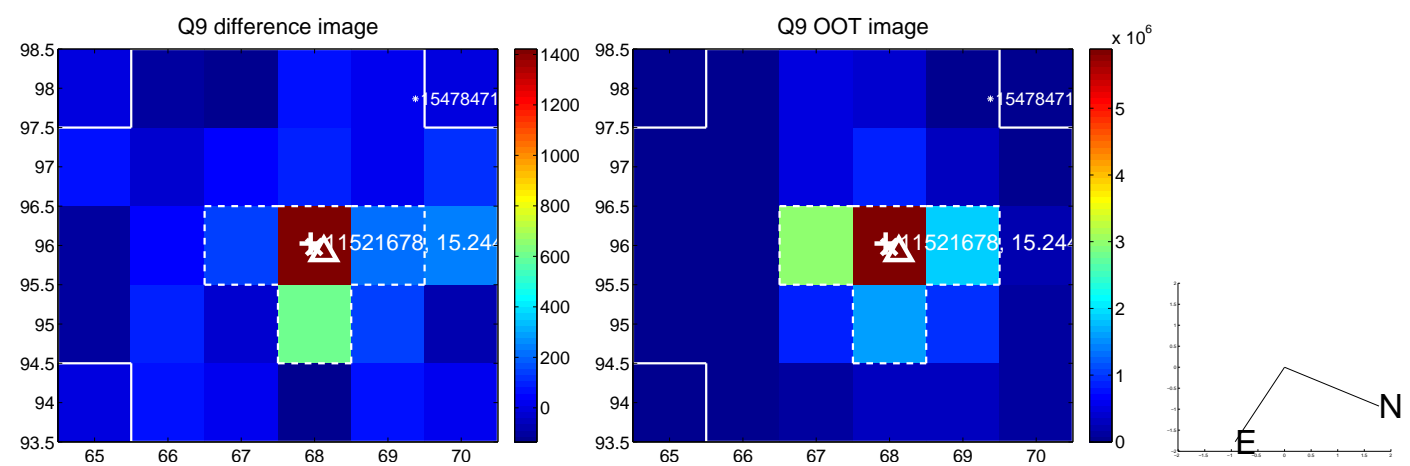


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

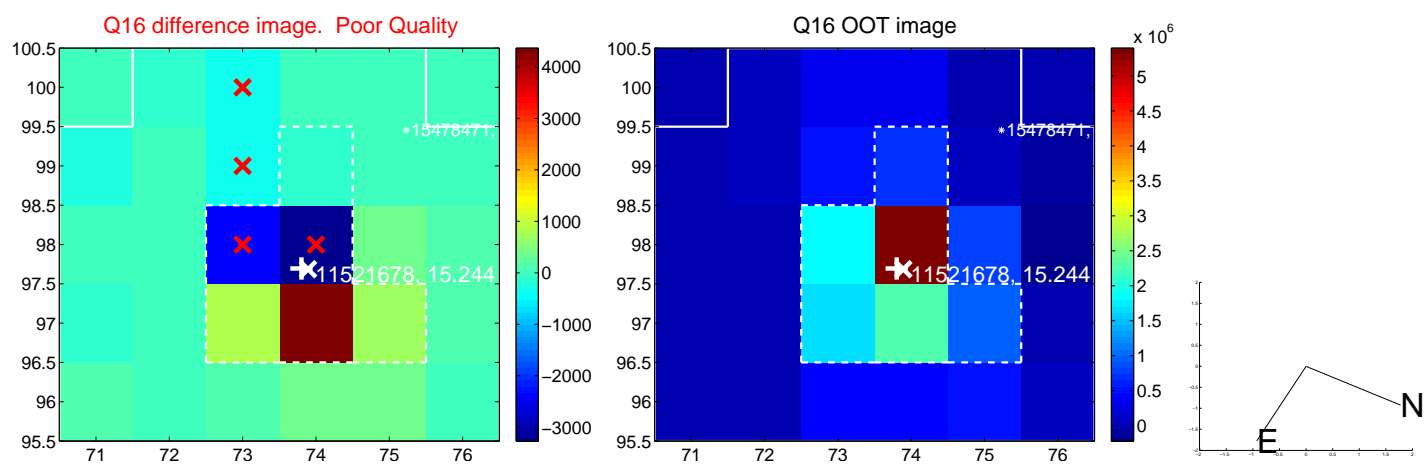
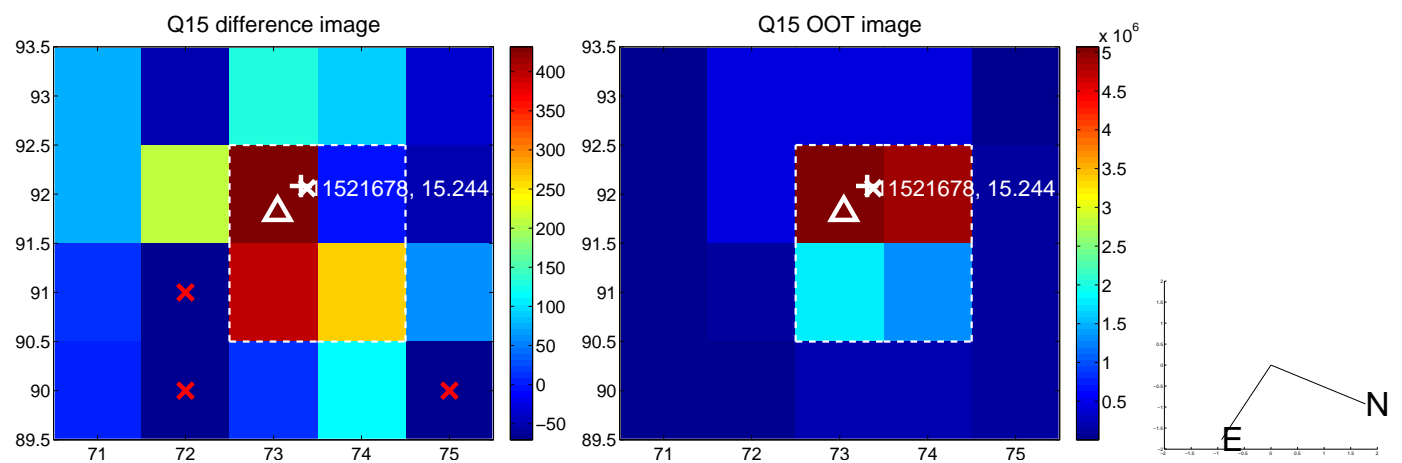
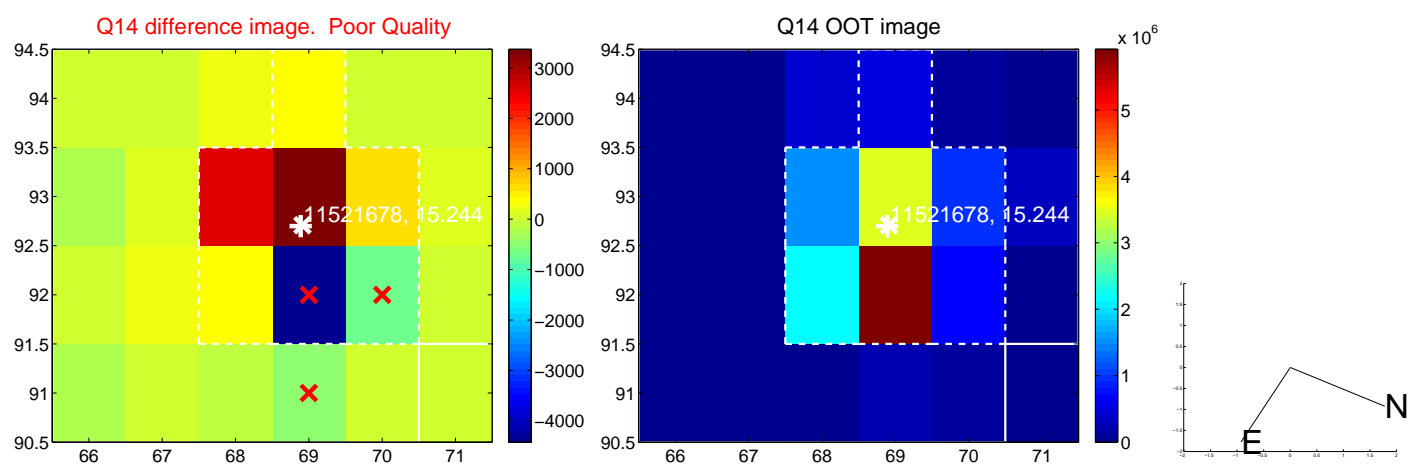
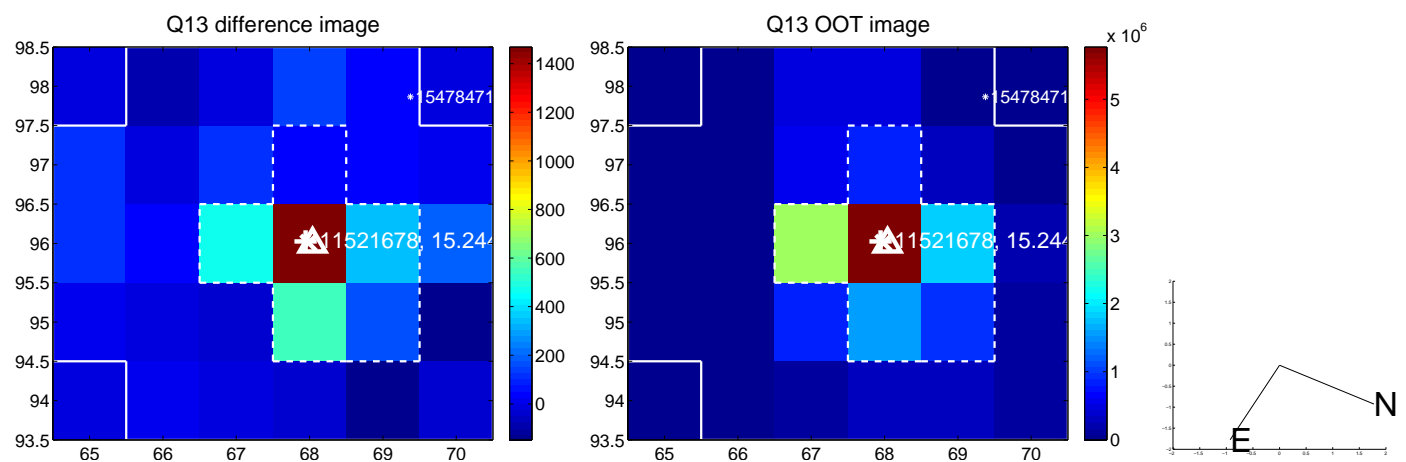




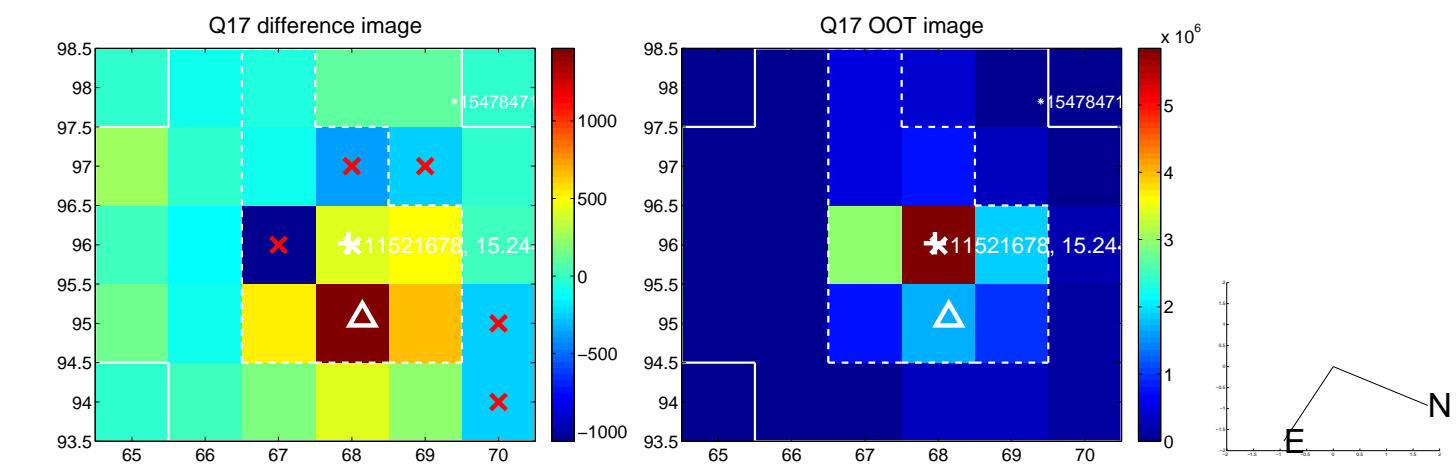
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



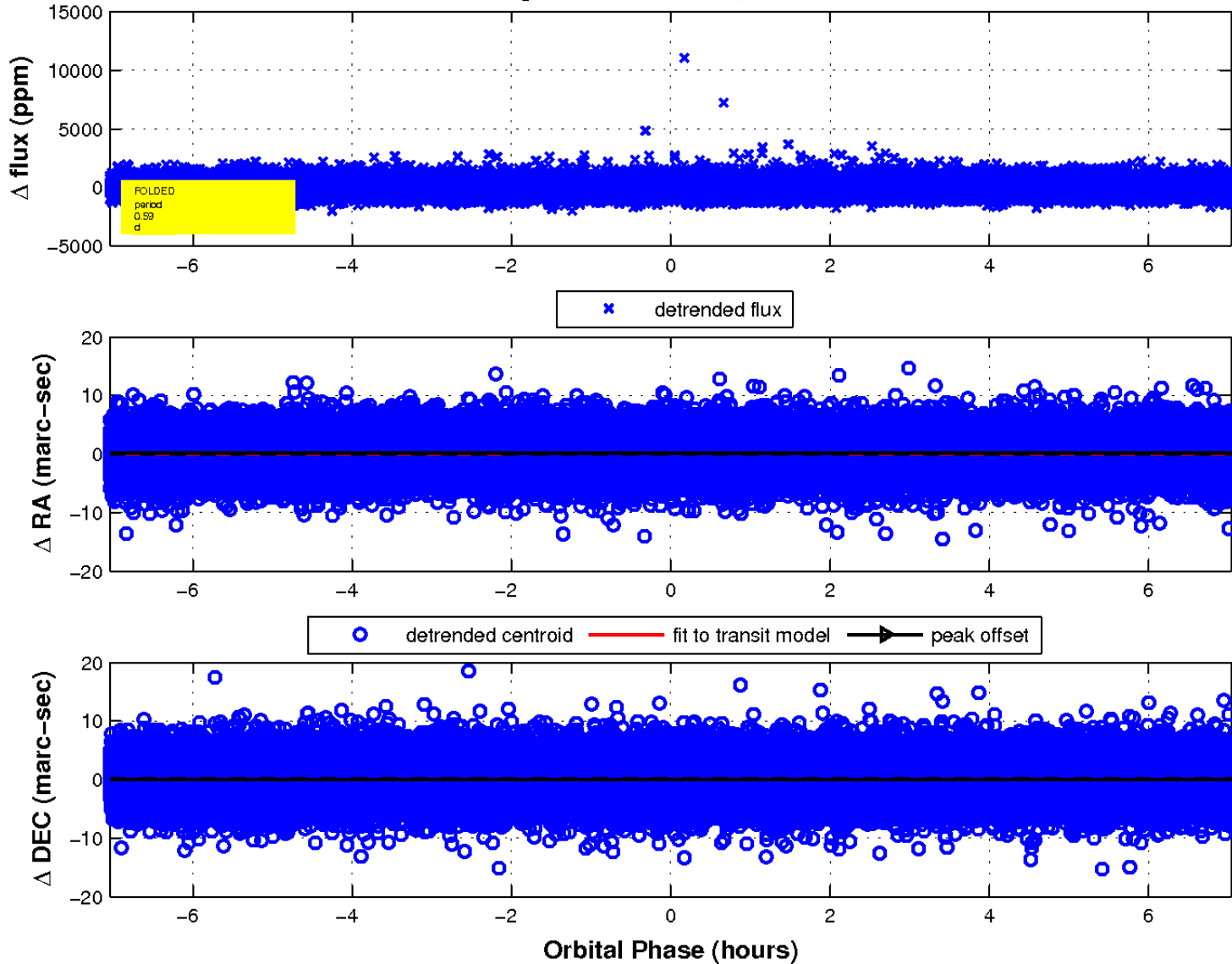
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

