

# KIC 003854231

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003854231-01	OBS	No	0.596030	131.984067	19.2	2.486	7.5	7.8	1.82	7415	0.93	33587.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003854231-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS

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

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

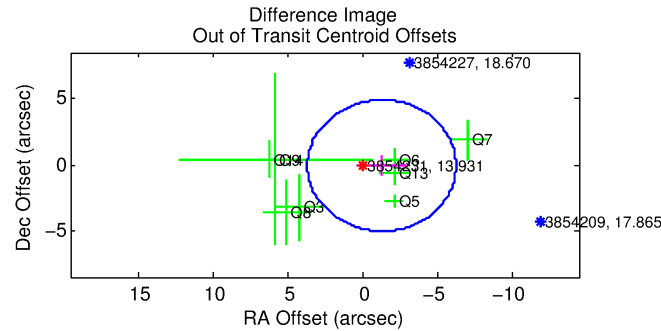
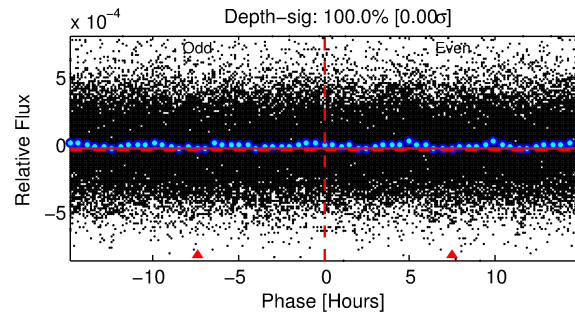
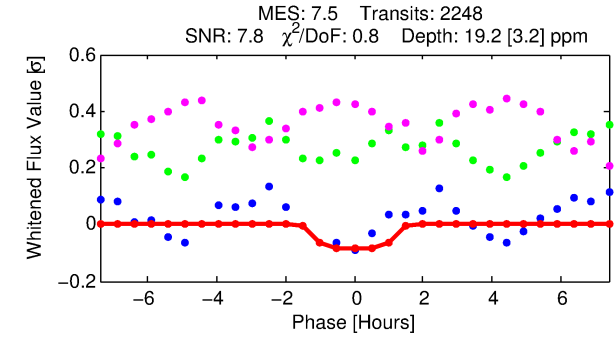
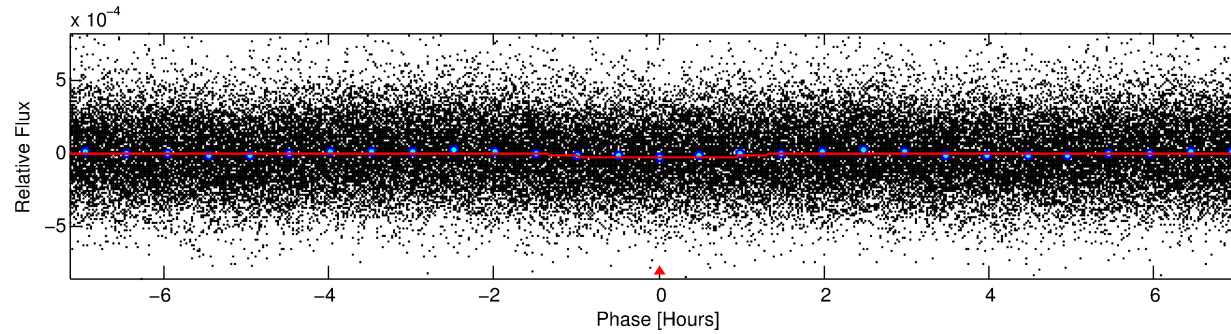
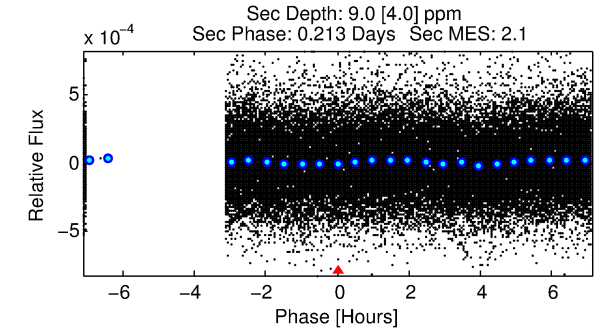
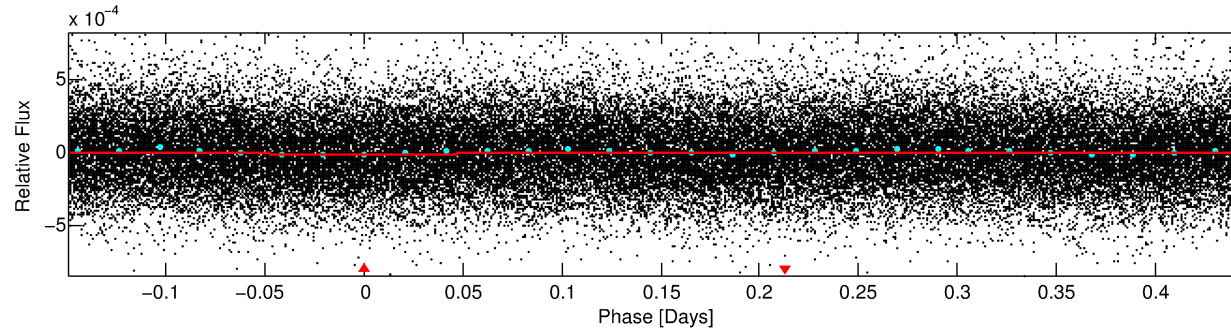
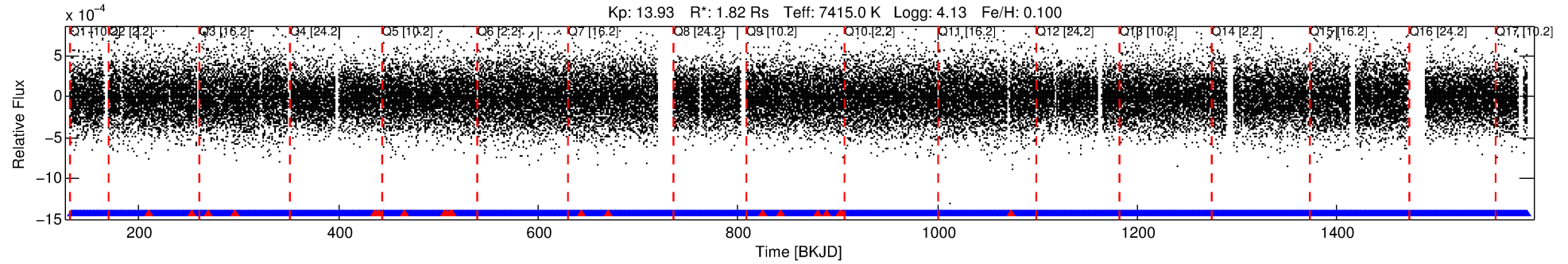
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003854231-01

No Significant Match Found

# DV One-Page Summary

KIC: 3854231 Candidate: 1 of 1 Period: 0.596 d



## DV Fit Results:

Period = 0.59603 [0.00001] d  
Epoch = 131.9841 [0.0041] BKJD  
Rp/R\* = 0.0046 [0.0025]  
a/R\* = 1.24 [1.52]  
b = 0.90 [0.74]  
Seff = 33587.12 [13016.63]  
Teff = 3452 [334] K  
Rp = 0.92 [0.57] Re  
a = 0.0164 [0.0041] AU  
Ag = 1.54 [1.85] [0.29σ]  
Teffp = 5949 [1722] K [1.42σ]

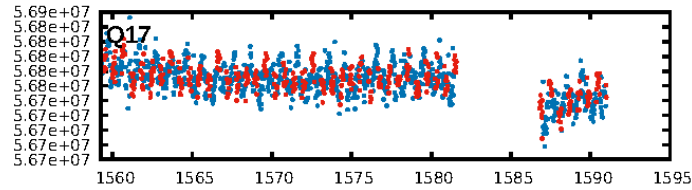
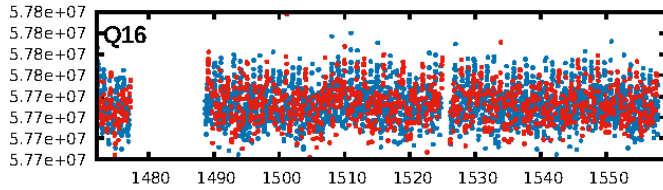
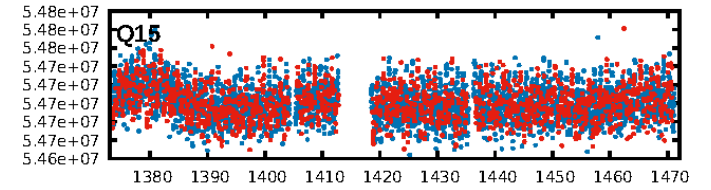
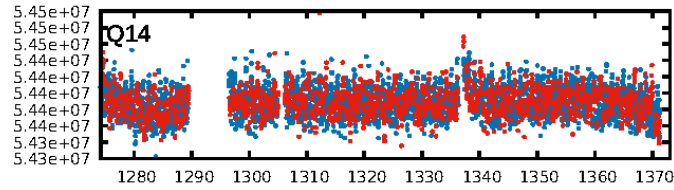
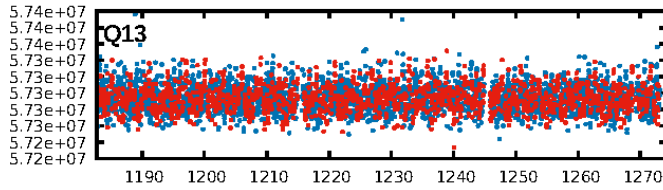
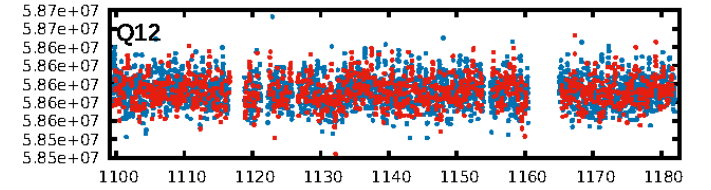
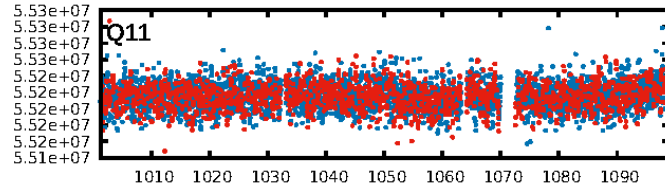
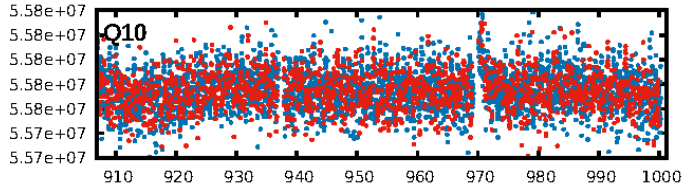
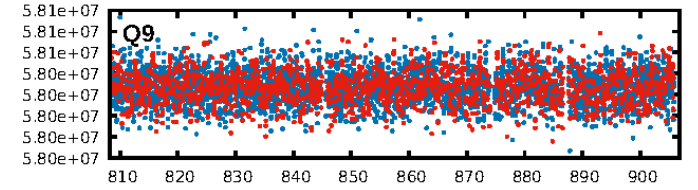
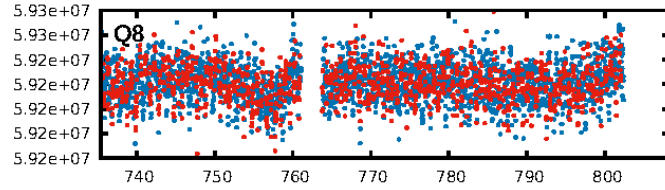
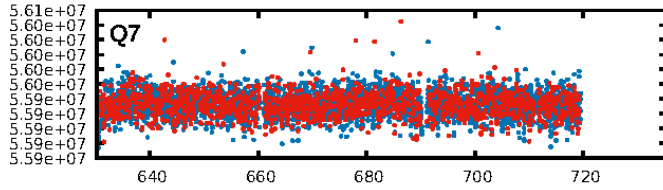
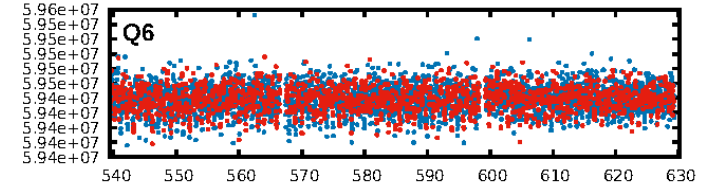
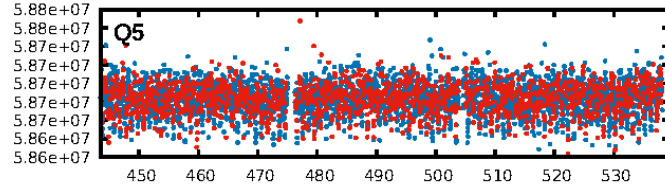
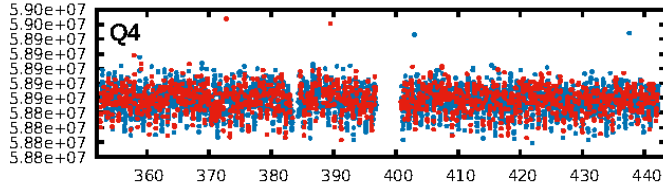
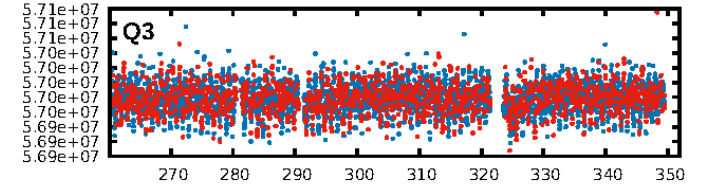
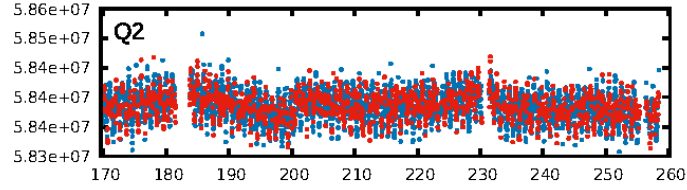
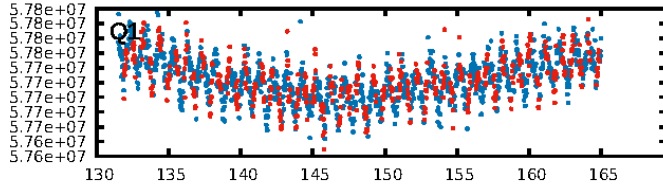
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.52e-13  
RollingBand-fgt: 0.99 [2124/2147]  
**GhostDiagnostic-chr: 0.5931**  
Centroid-sig: 22.5%  
Centroid-so: 2.055 arcsec [1.07σ]  
OotOffset-rm: 1.320 arcsec [0.80σ]  
KicOffset-rm: 1.346 arcsec [0.83σ]  
OotOffset-st: 2/2/1/3 [8]  
KicOffset-st: 2/2/1/3 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:48:35 Z

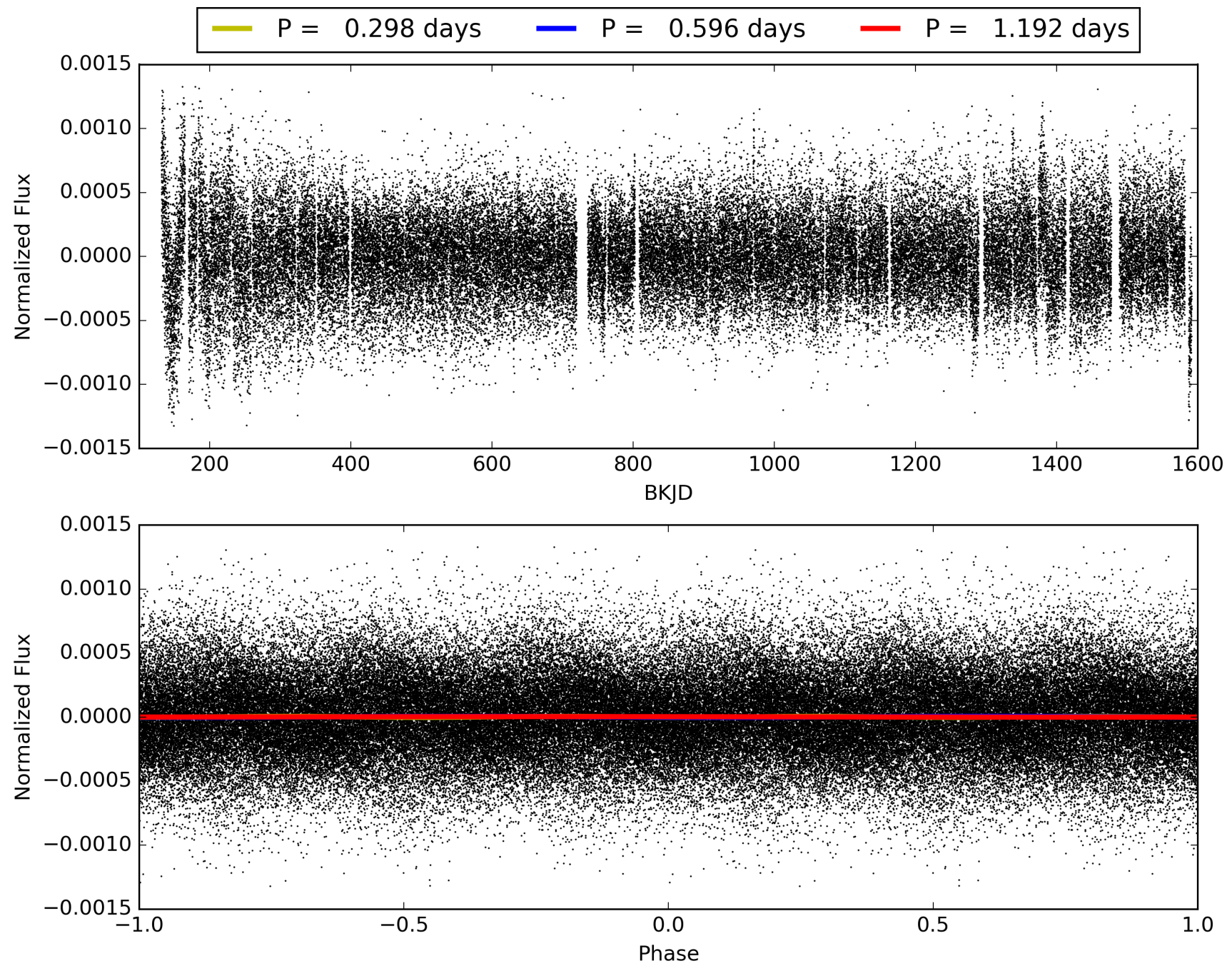
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003854231-01, PDC Light Curves



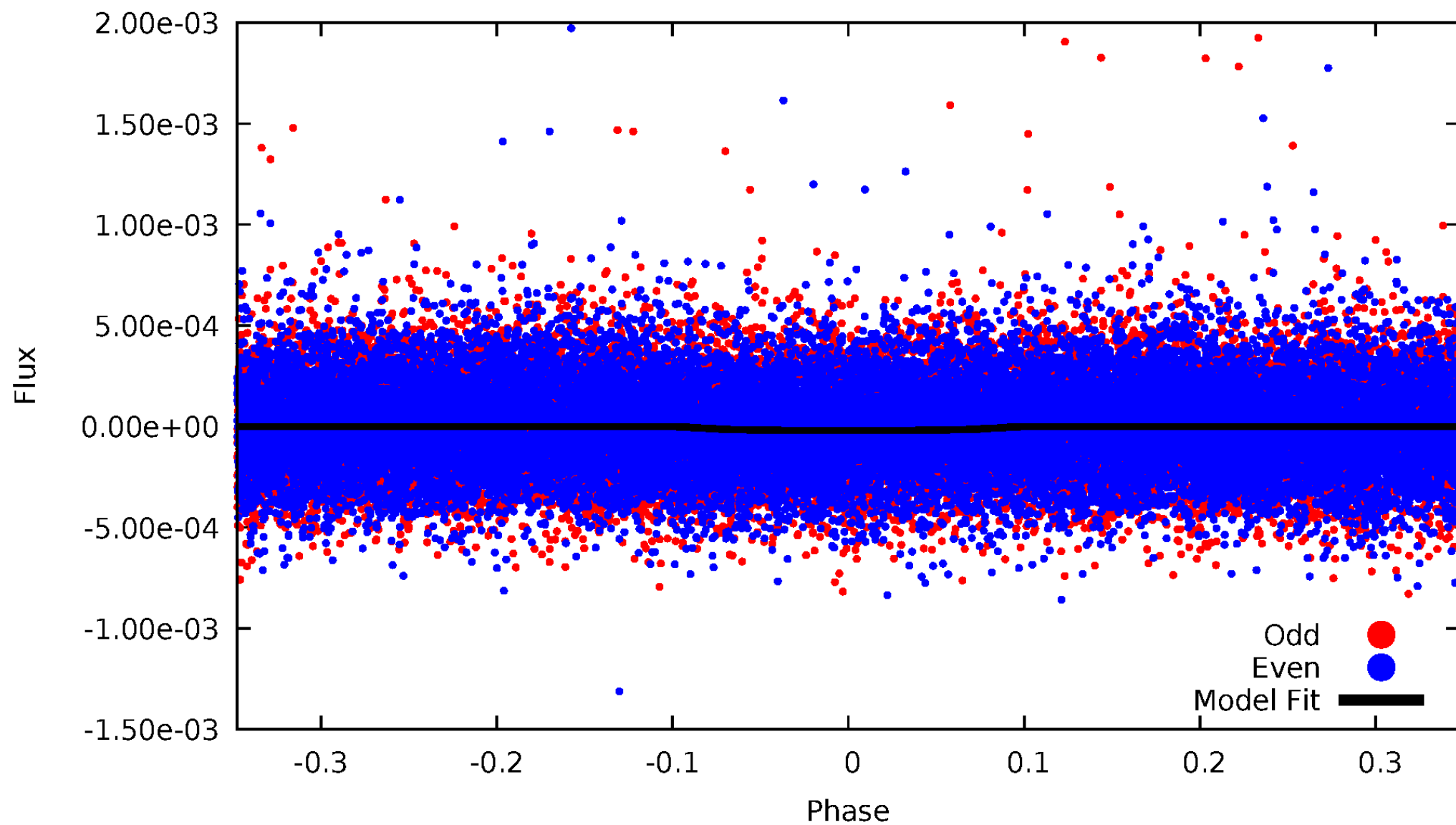


TCE 003854231-01



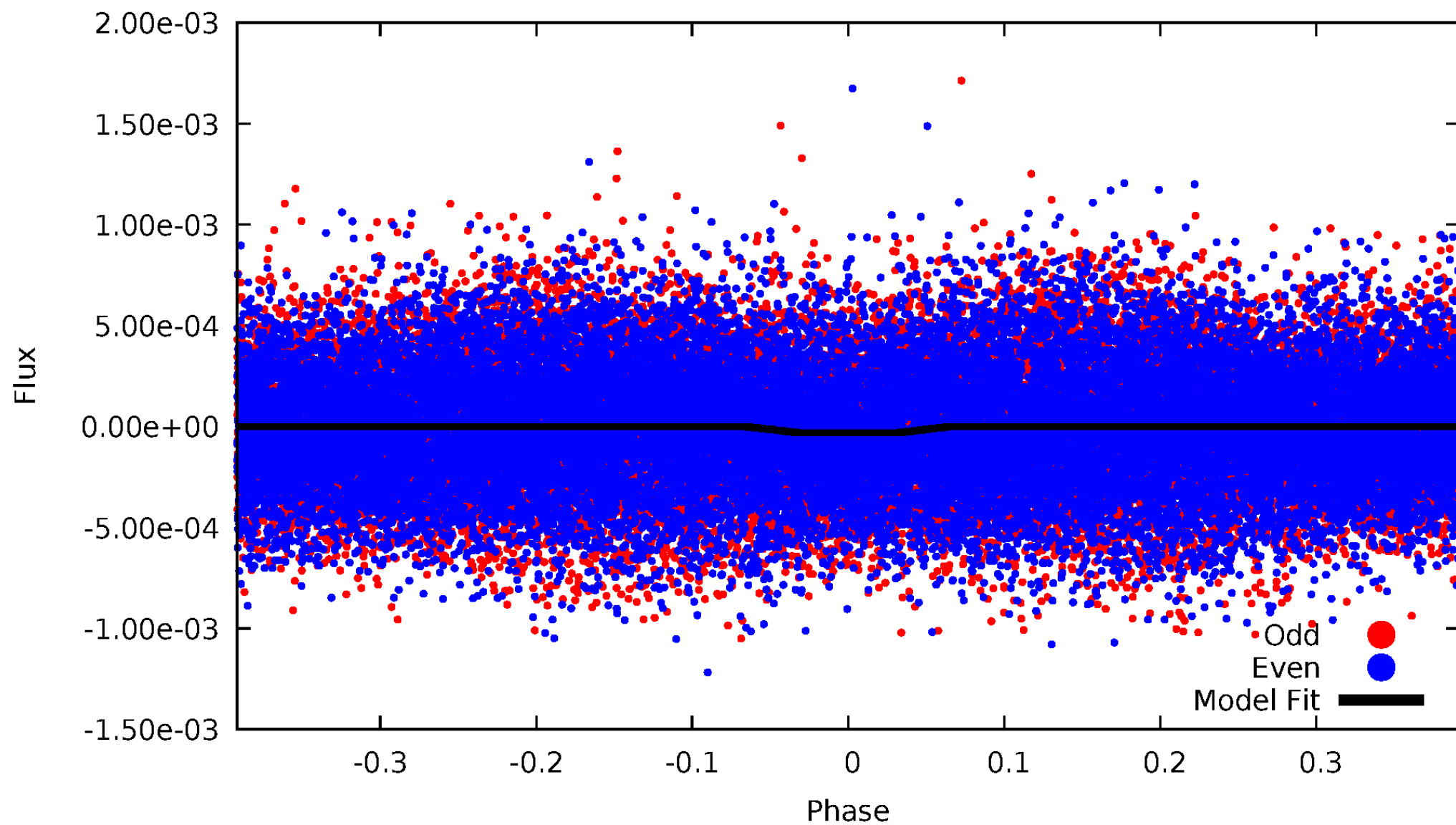
# DV Odd/Even

TCE 003854231-01



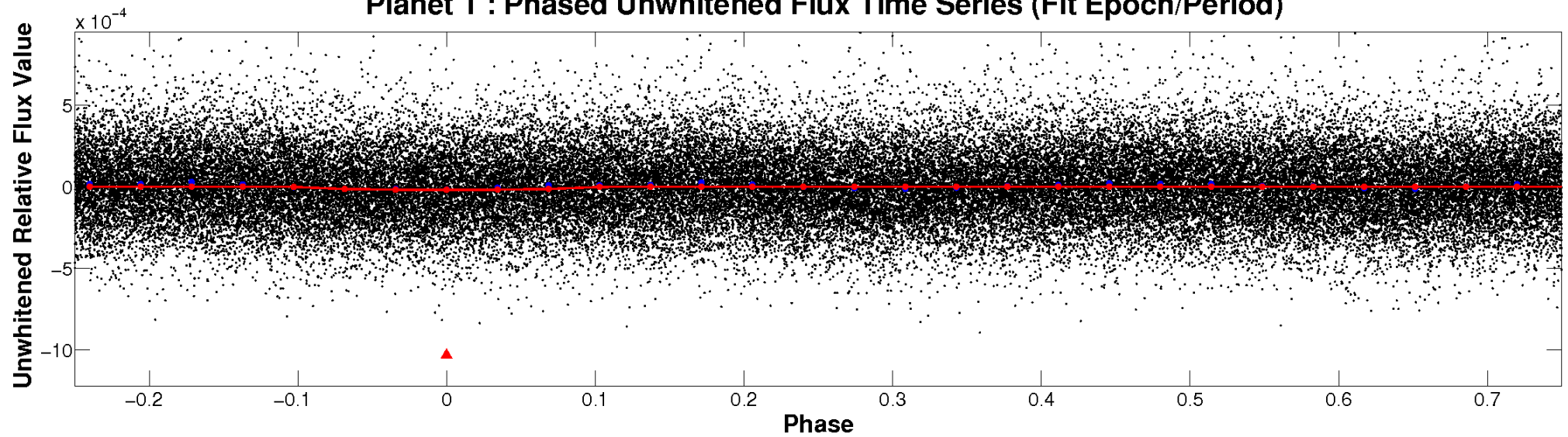
# ALT Odd/Even

TCE 003854231-01

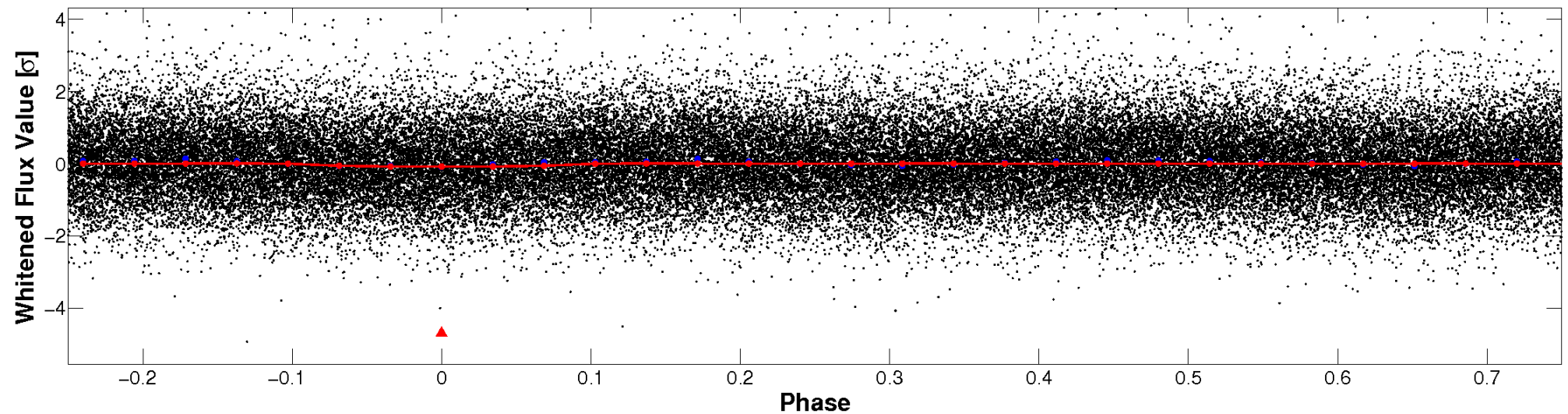


# Non-Whitened Vs. Whitened Light Curve

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



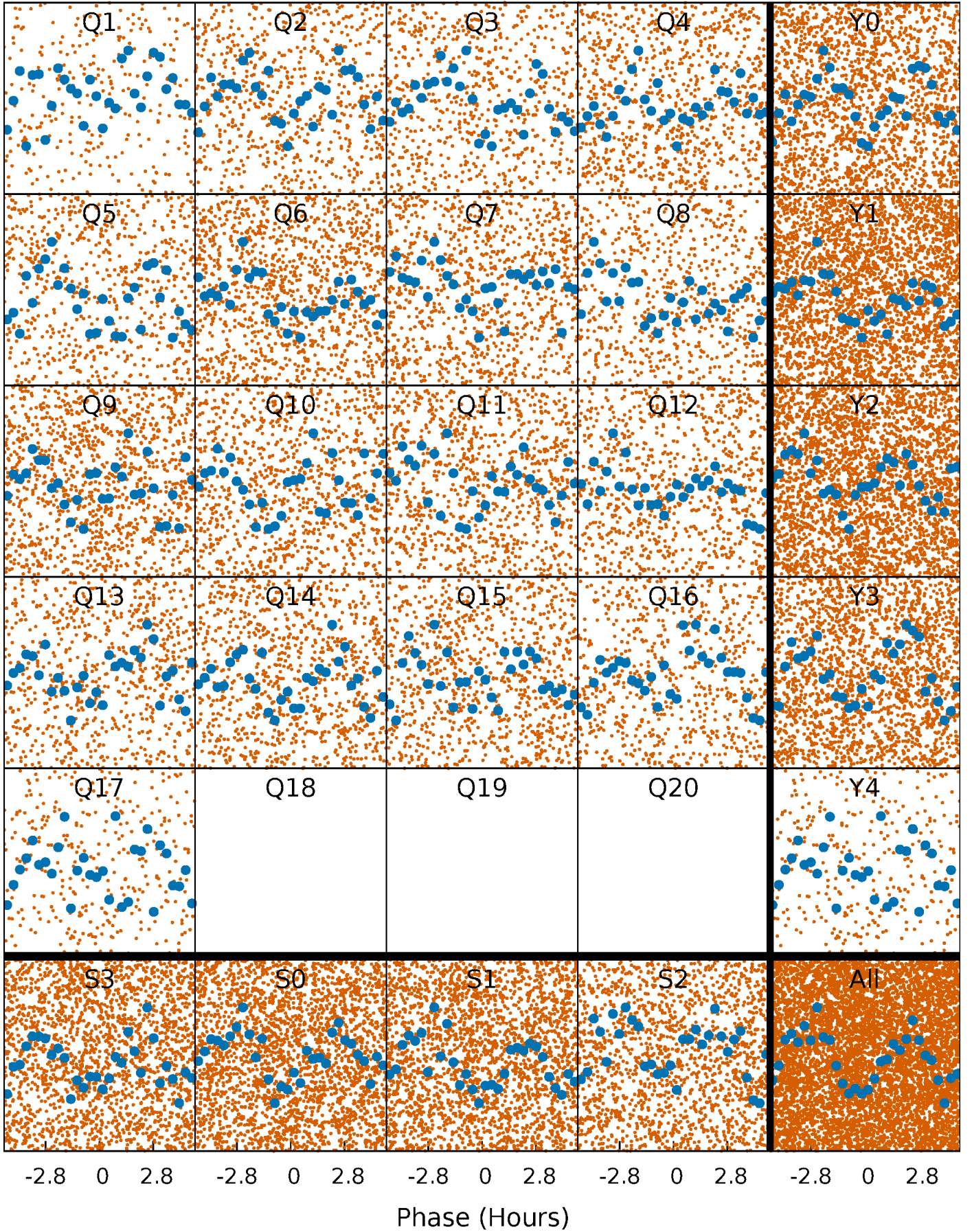
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

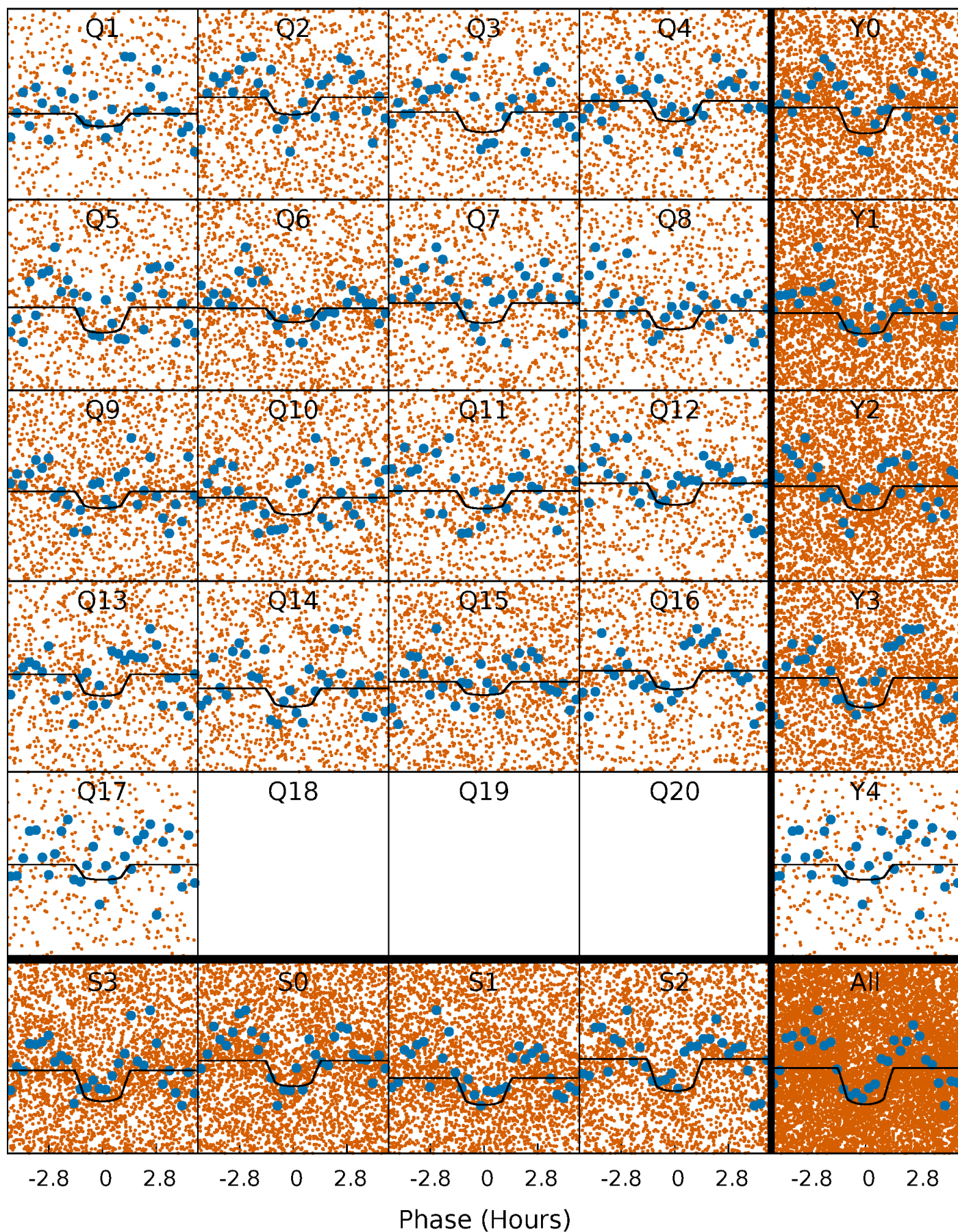
TCE 003854231-01   P= 0.596030 Days    $T_0=131.984067$  (BKJD)





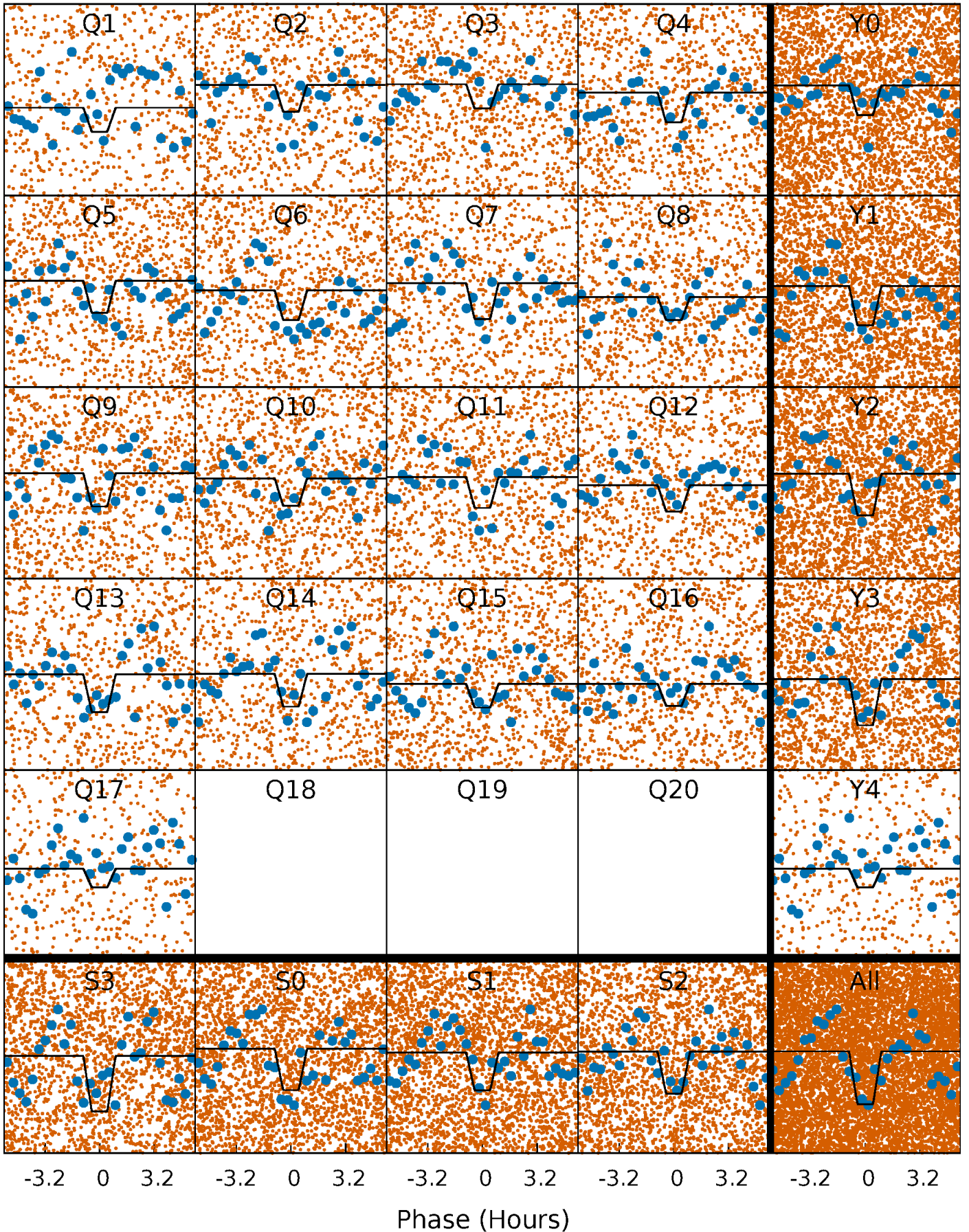
# DV Quarter-Phased Transit Curves

TCE 003854231-01   P= 0.596030 Days    $T_0=131.984067$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003854231-01 P= 0.596015 Days  $T_0=131.981603$  (BKJD)

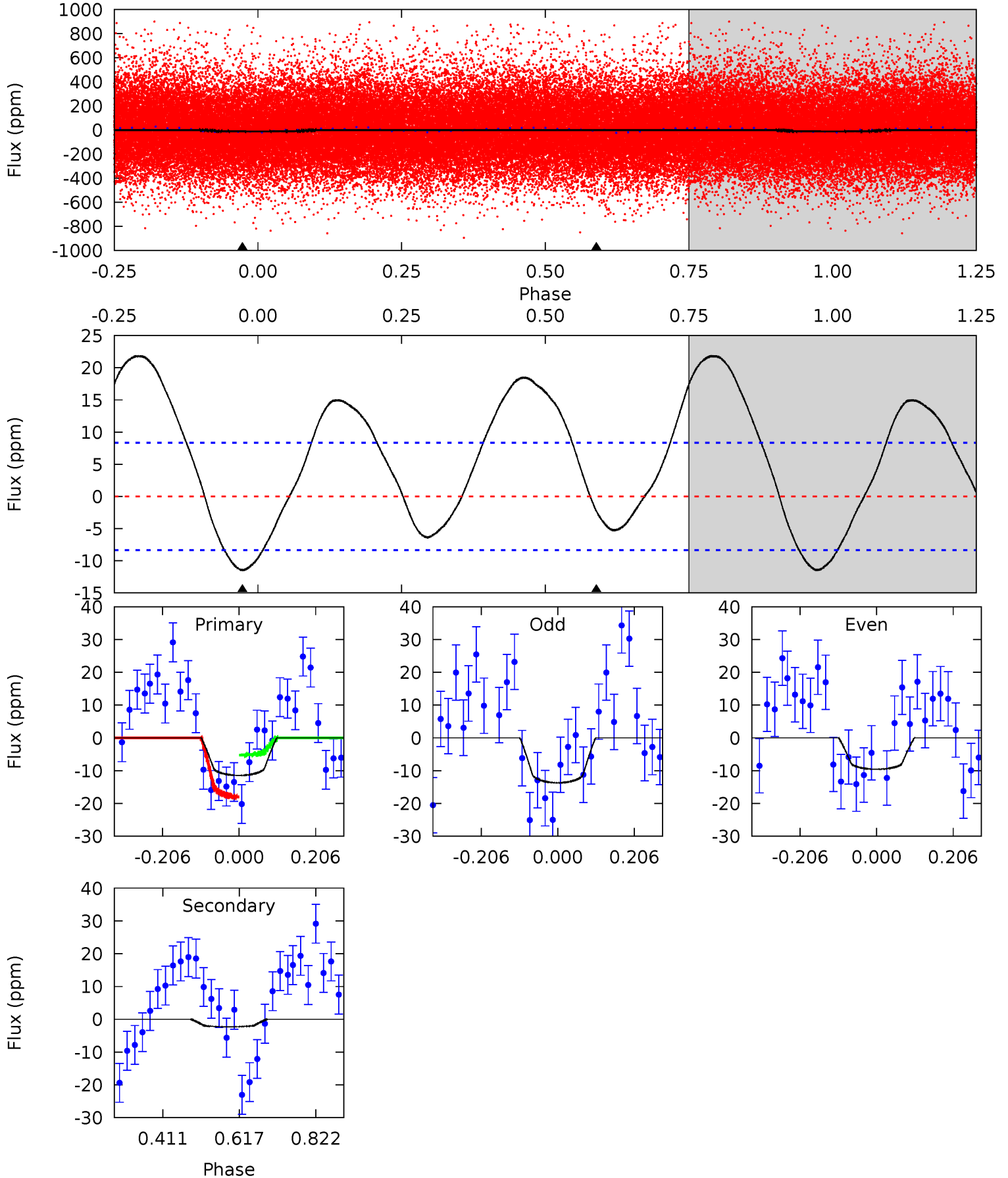




# DV Model-Shift Uniqueness Test

003854231-01, P = 0.596030 Days, E = 131.388037 Days

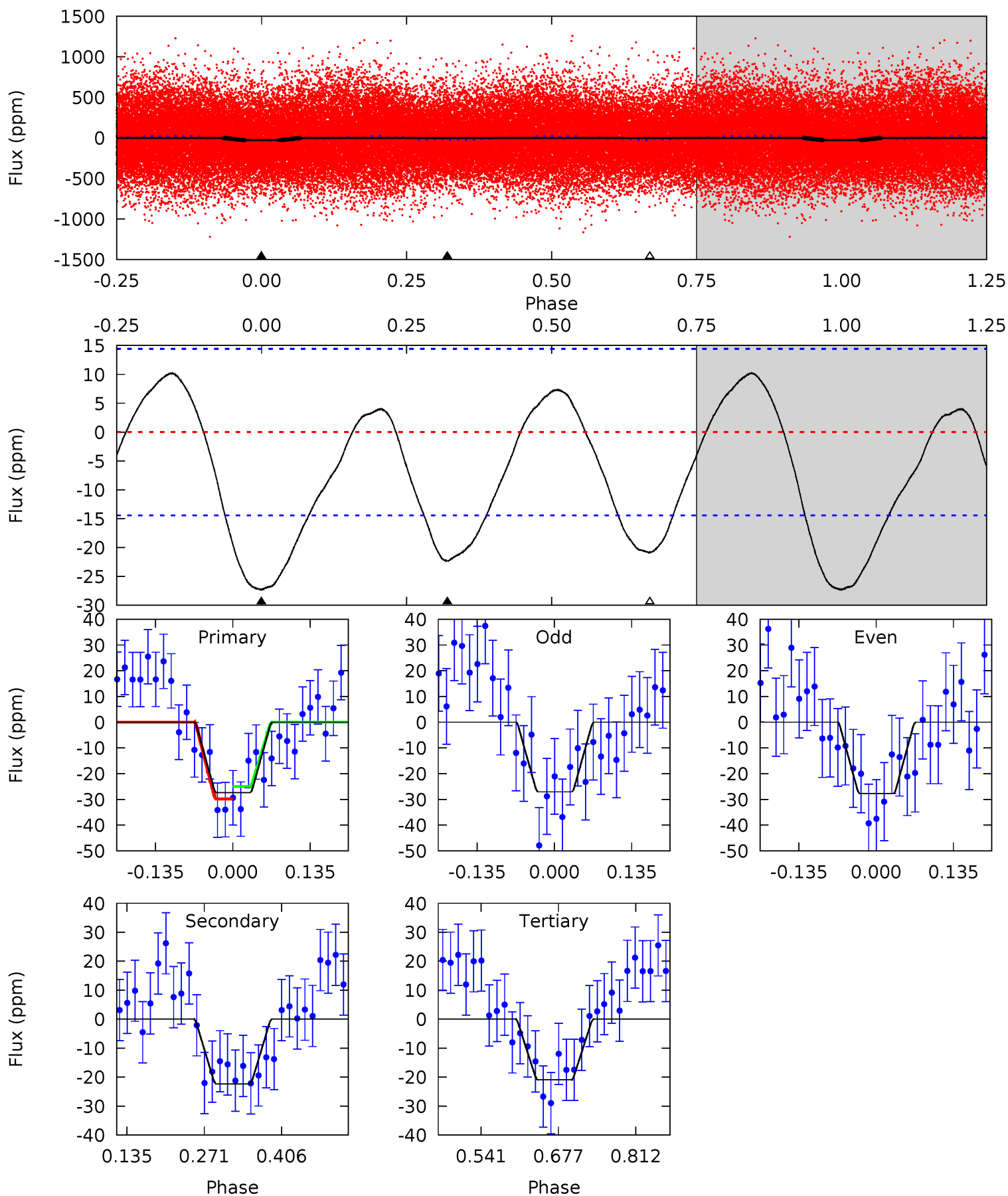
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.05	1.21	0	0	4.41	1.27	3.03	6.05	6.05	1.21	1.21	1.10	0.89	0.66	3.41



# Alt Model-Shift Uniqueness Test

003854231-01, P = 0.596015 Days, E = 131.385588 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
8.54	6.98	6.54	0	4.50	1.49	3.12	2.00	8.54	0.44	6.98	0.10	0.71	0.27	0.77





### Stellar Parameters For KIC 003854231

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7415^{+206}_{-324}$	$4.133^{+0.105}_{-0.180}$	$0.100^{+0.200}_{-0.350}$	$1.823^{+0.569}_{-0.306}$	$1.648^{+0.214}_{-0.235}$	$0.383^{+0.223}_{-0.192}$
	+3%/-4%	+3%/-4%	+200%/-350%	+31%/-17%	+13%/-14%	+58%/-50%
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 003854231-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2 \pm 2$	$0.96^{+0.56}_{-0.48}$	$4857^{+344}_{-290}$	$2659^{+2702}_{-6840}$	$0.315^{+1.009}_{-0.277}$
Alt.	$-22 \pm 3$	$1.15^{+0.48}_{-0.47}$	$4846^{+323}_{-276}$	$6428^{+2579}_{-1215}$	$2.490^{+4.570}_{-1.307}$

$T_{\text{max}}$  = 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

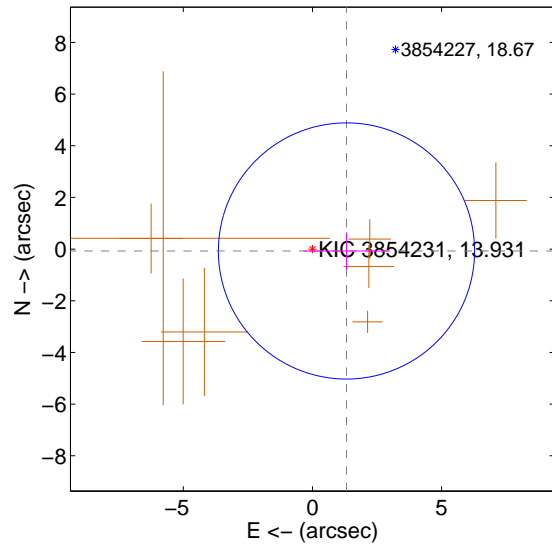
Supplemental centroid analysis for 003854231-01. Kepler magnitude: 13.93. Transit SNR 7.78

There are 0 quarters with good PRF difference image offsets

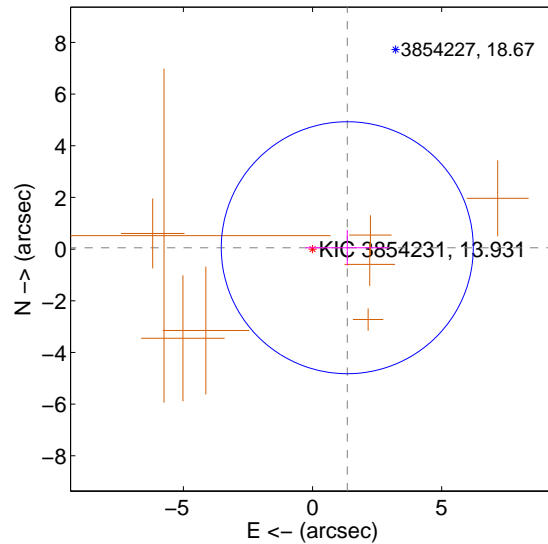
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.320 \pm 1.653$	0.80	$-1.318 \pm 1.667$	$-0.072 \pm 0.716$
PRF-fit source offset from KIC position	$1.346 \pm 1.626$	0.83	$-1.345 \pm 1.621$	$0.053 \pm 0.688$
photometric centroid source offset	$2.05 \pm 1.92$	1.07	$2.03 \pm 1.92$	$0.33 \pm 1.97$

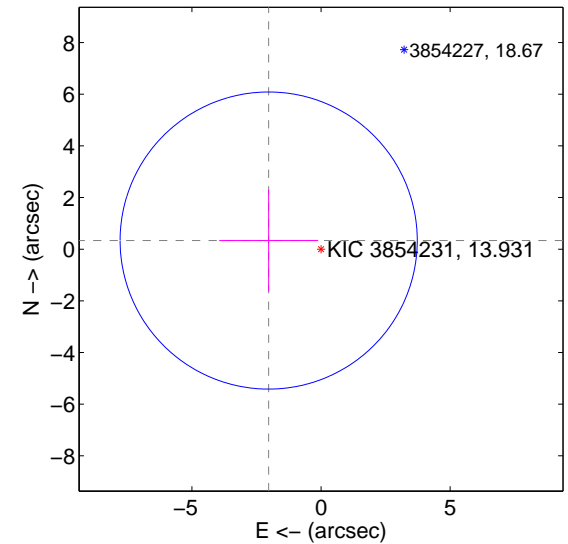
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

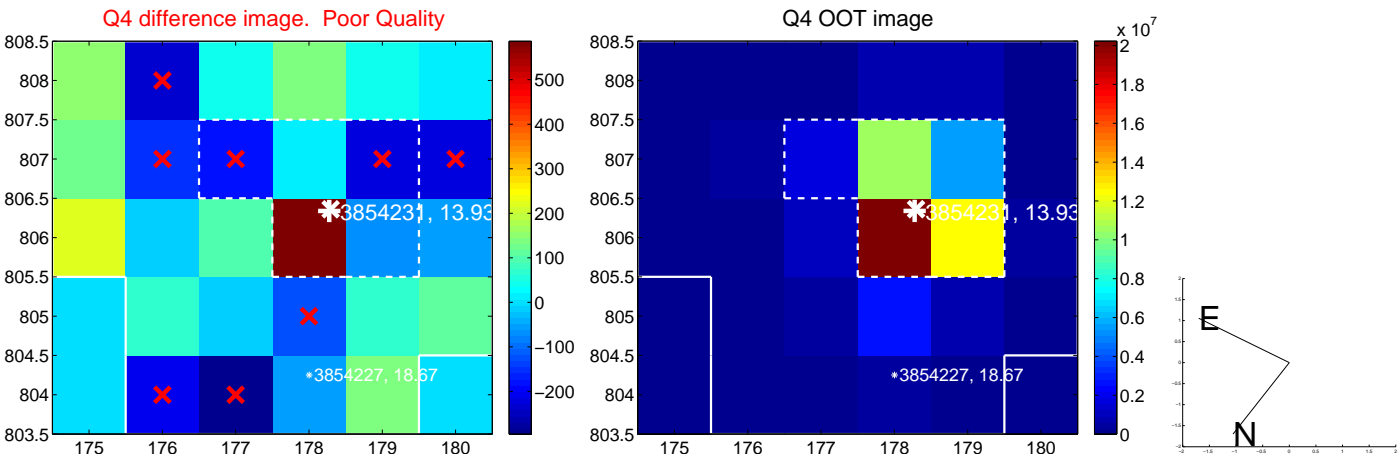
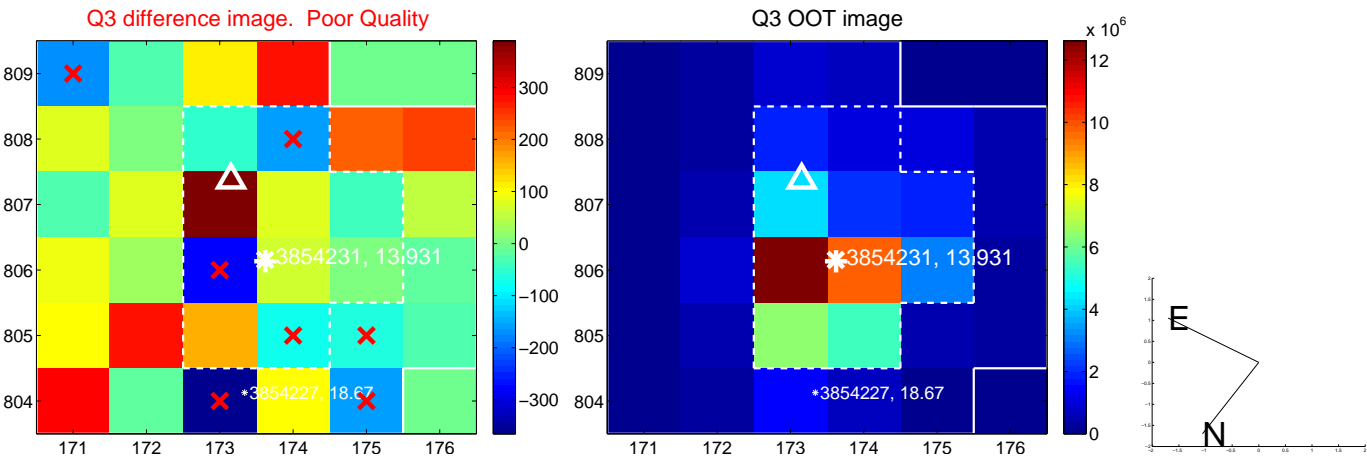
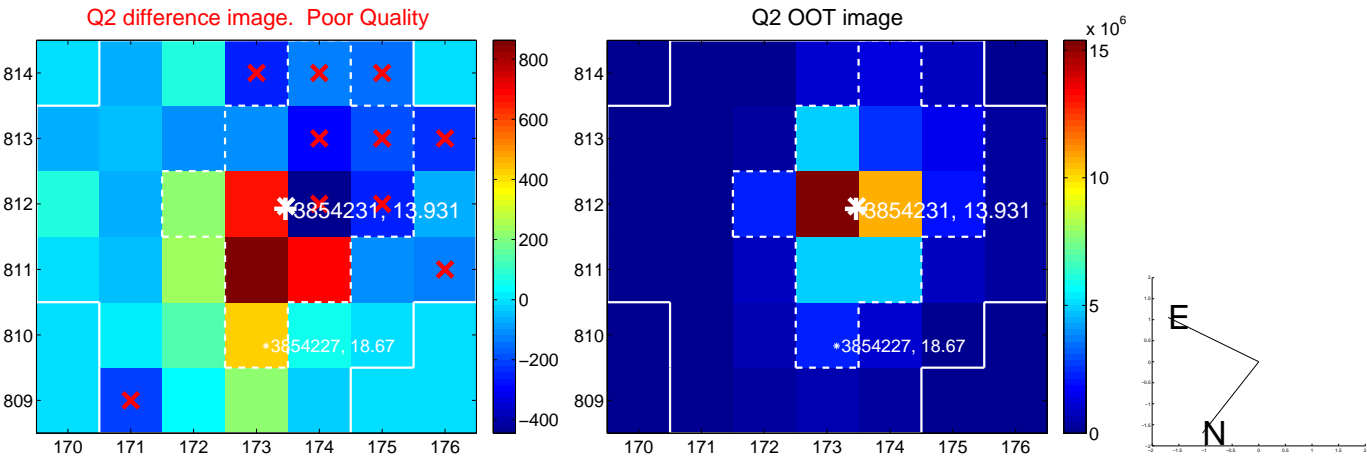
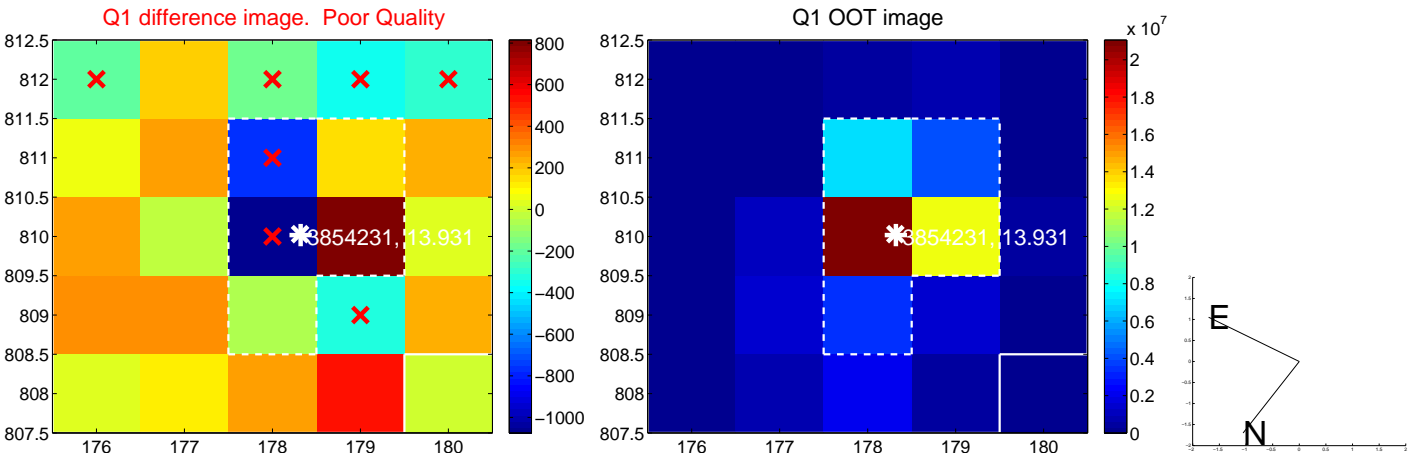


offset from photometric centroids

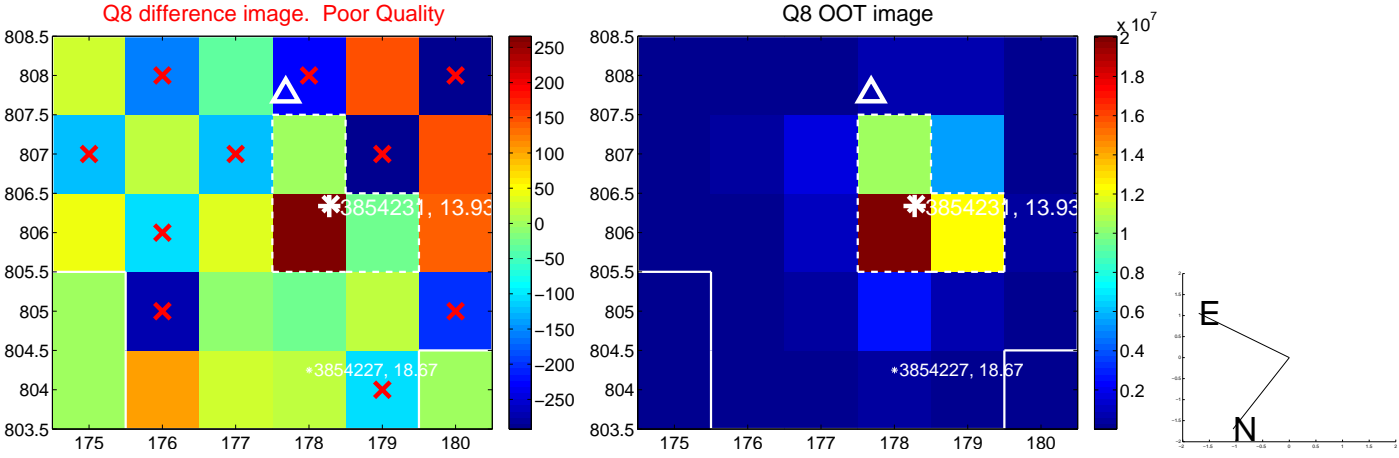
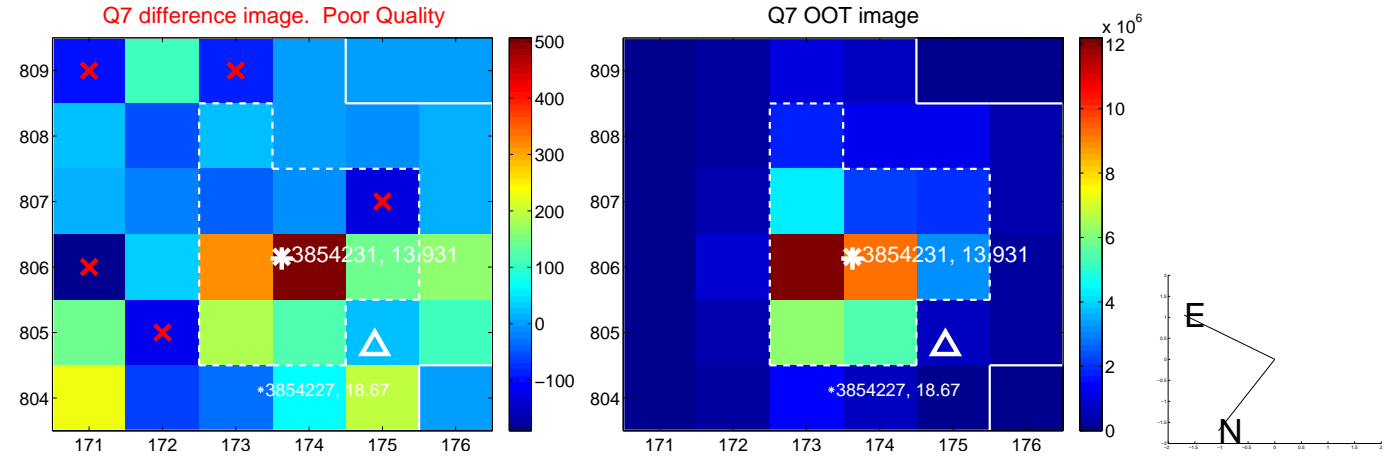
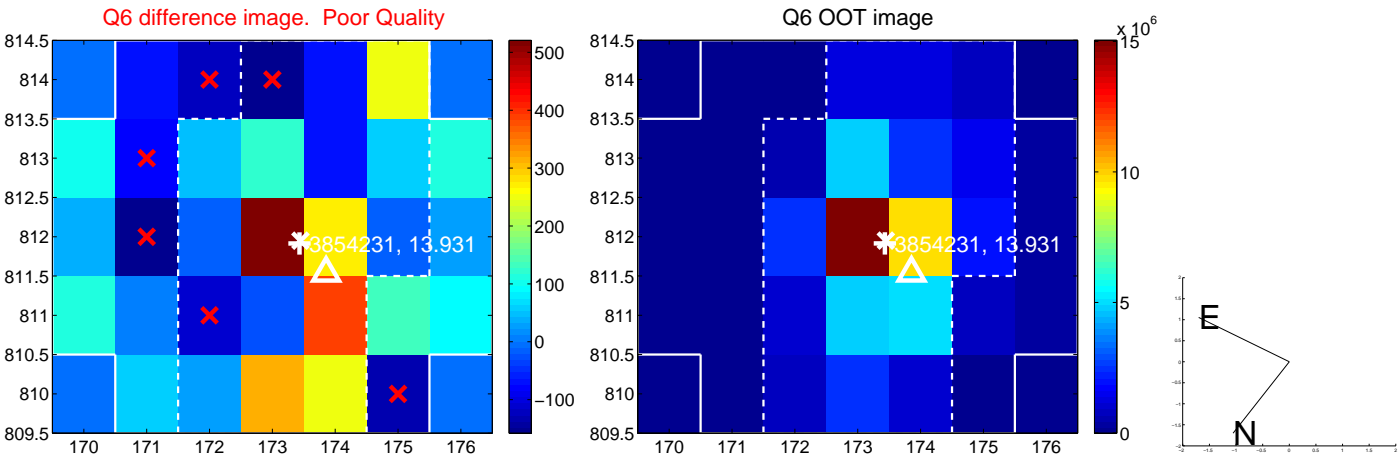
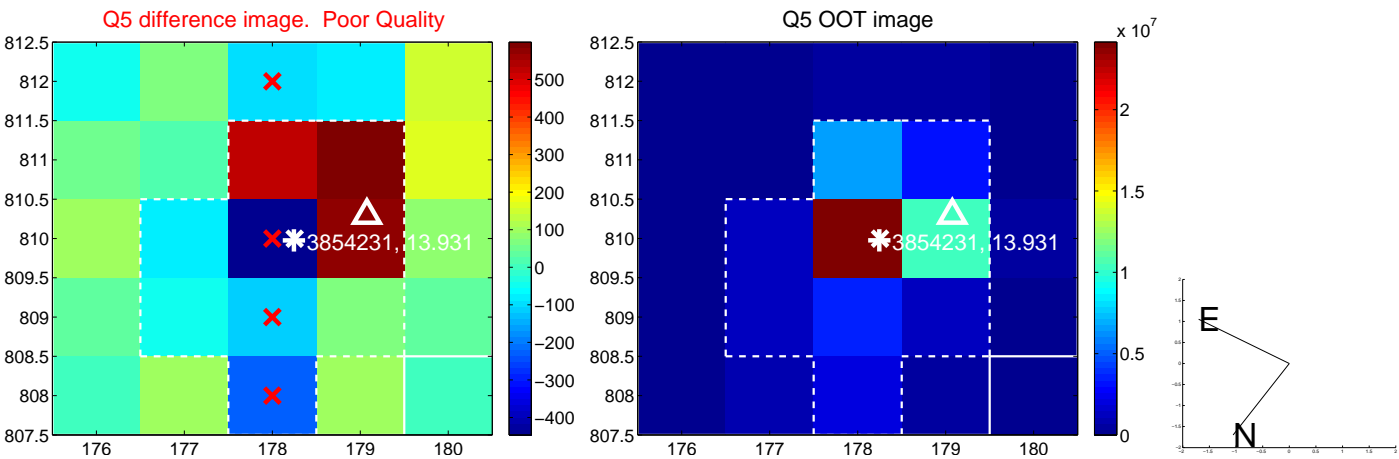


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

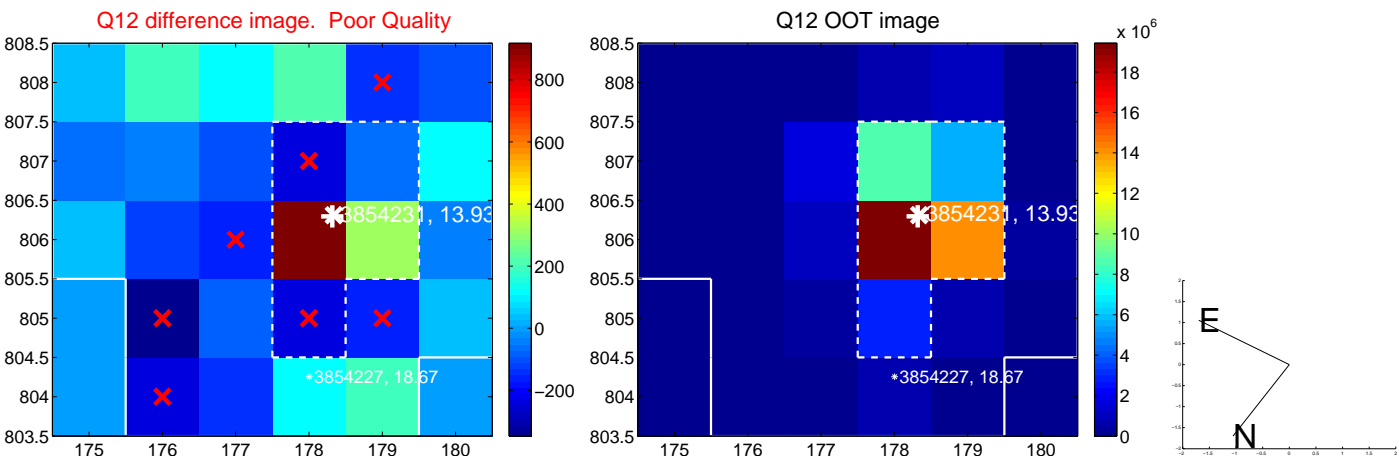
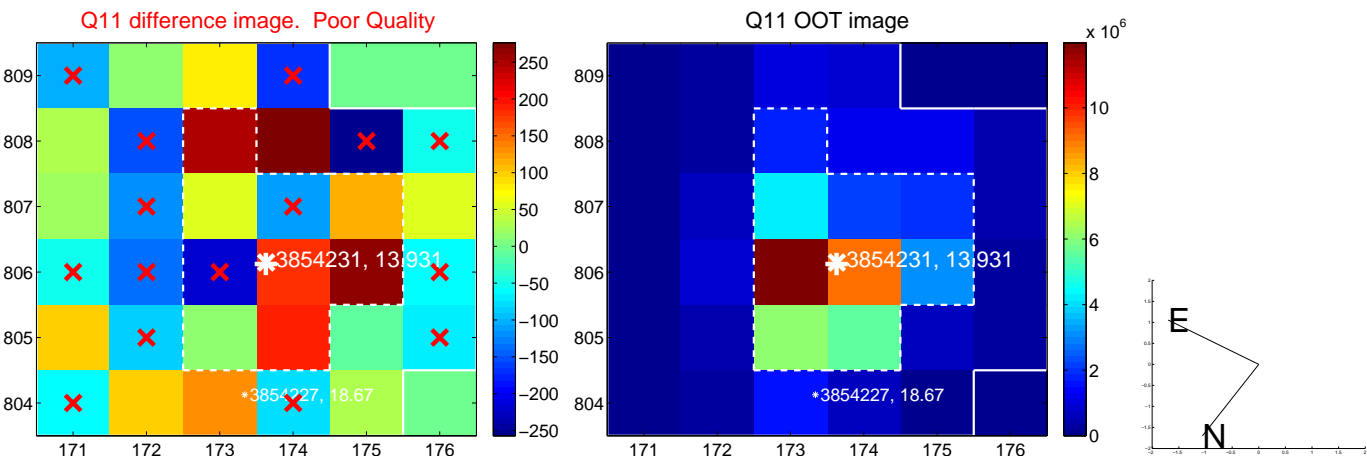
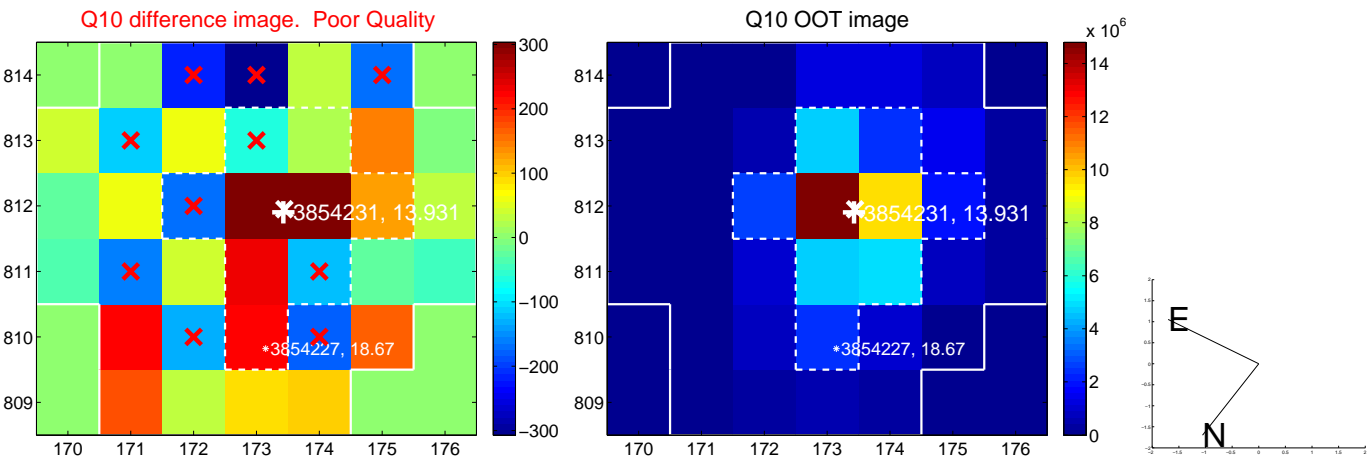
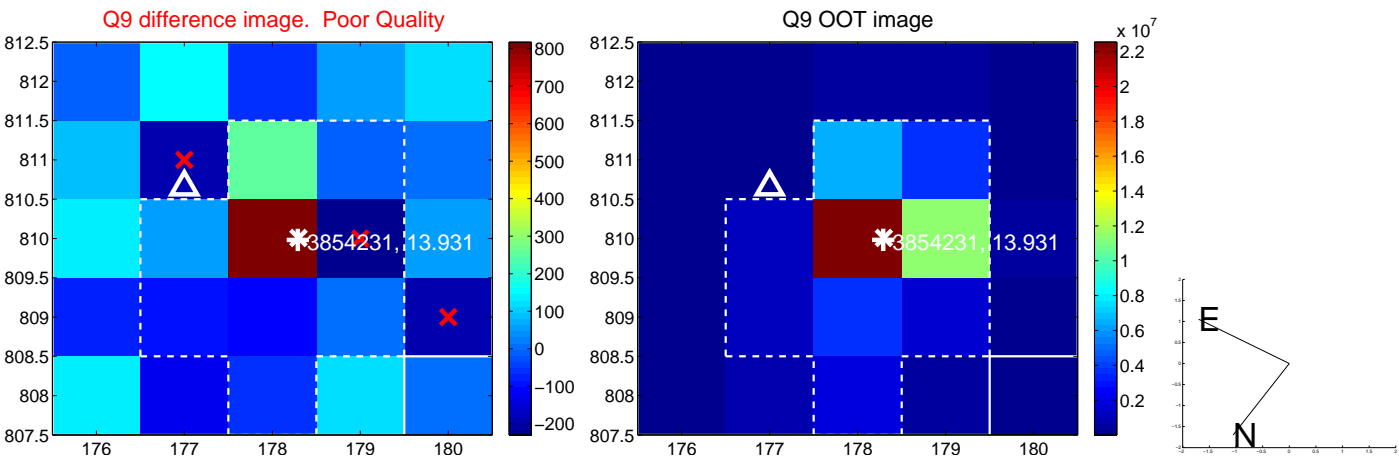


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

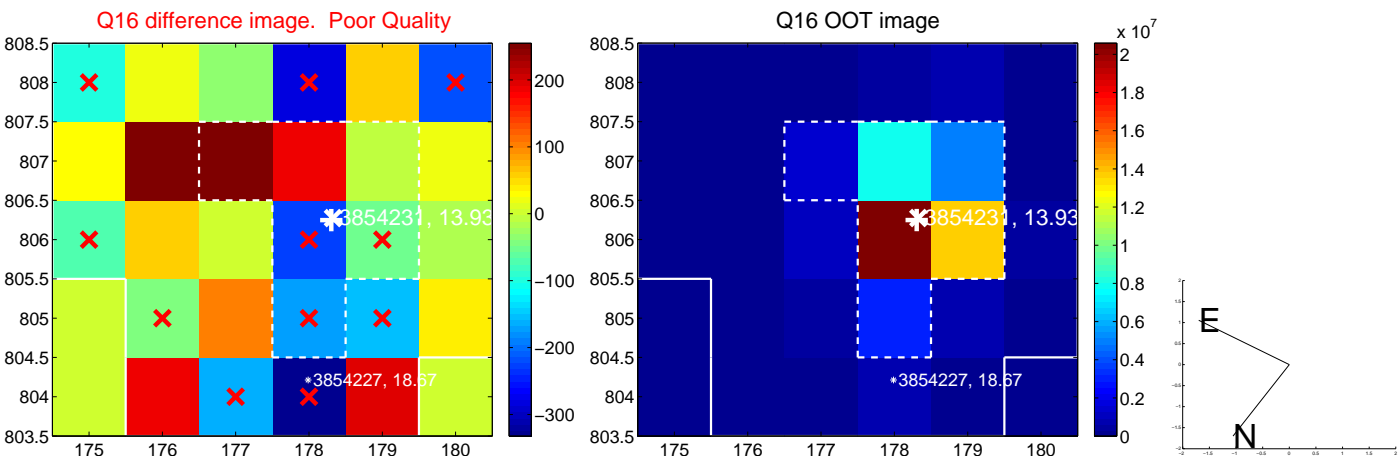
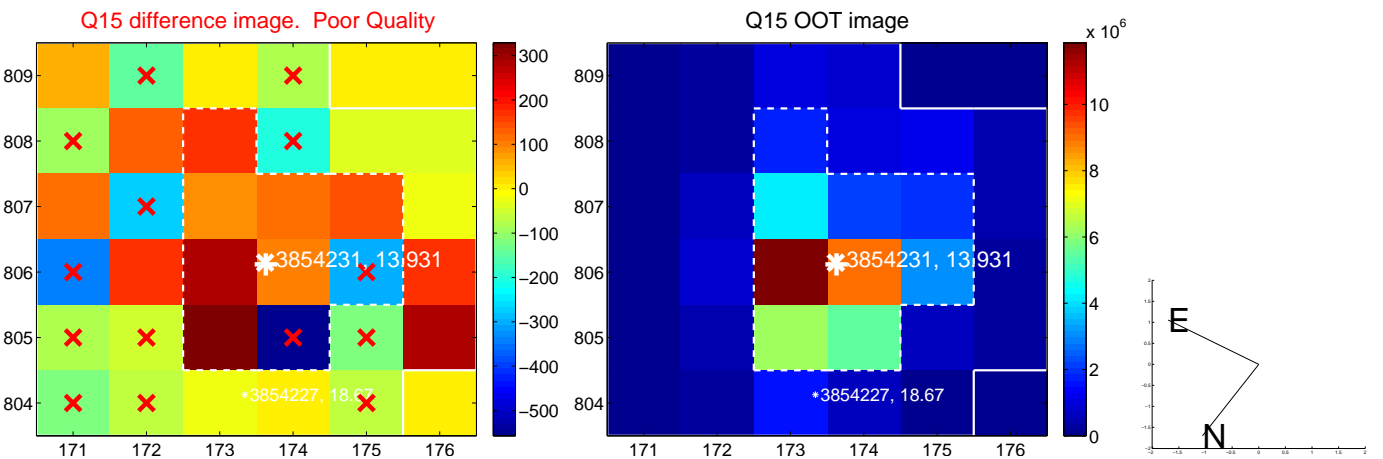
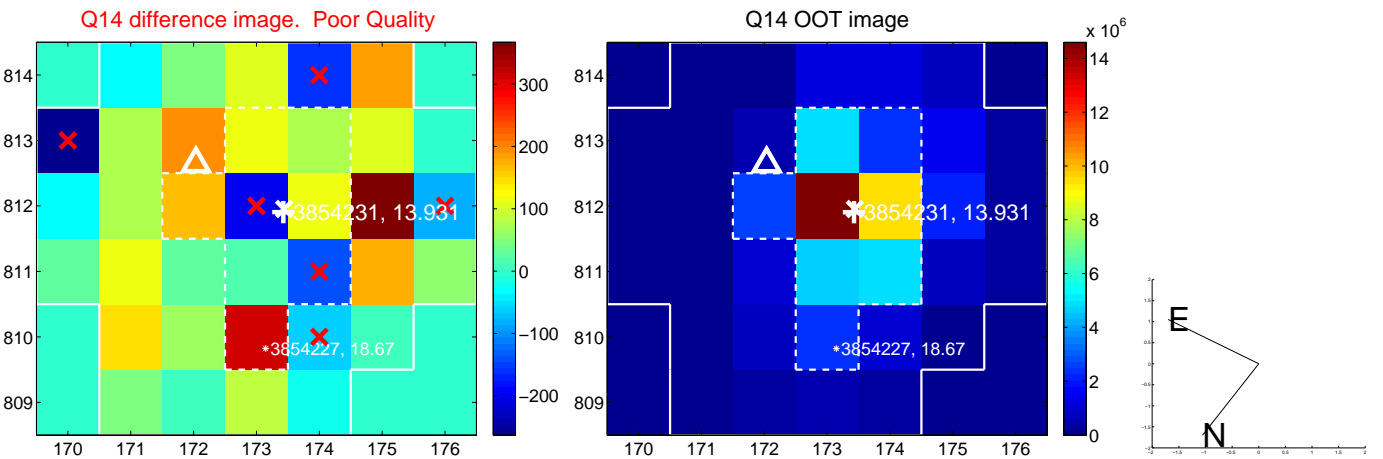
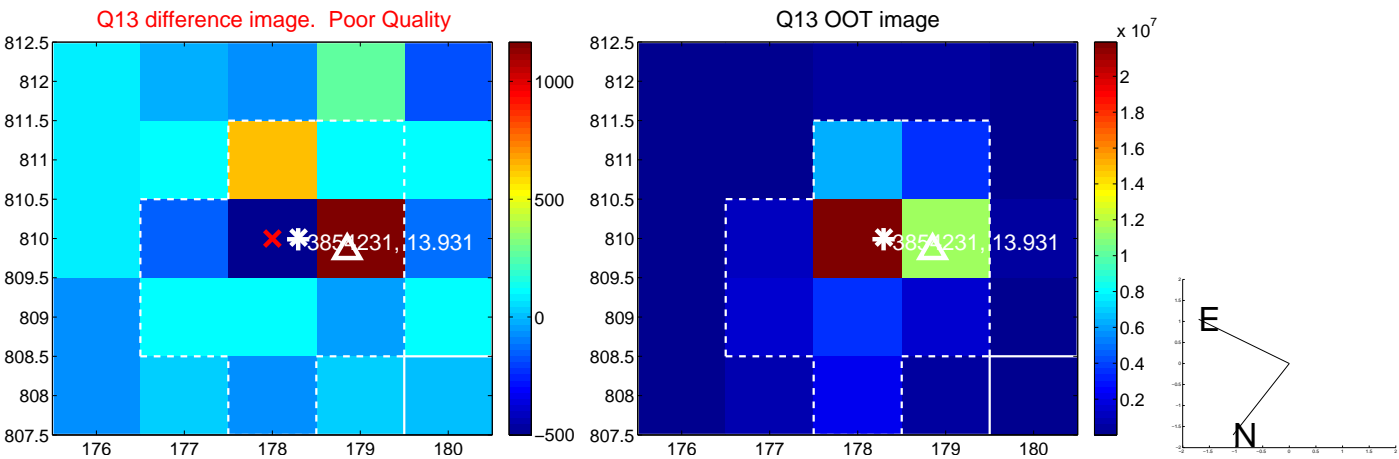




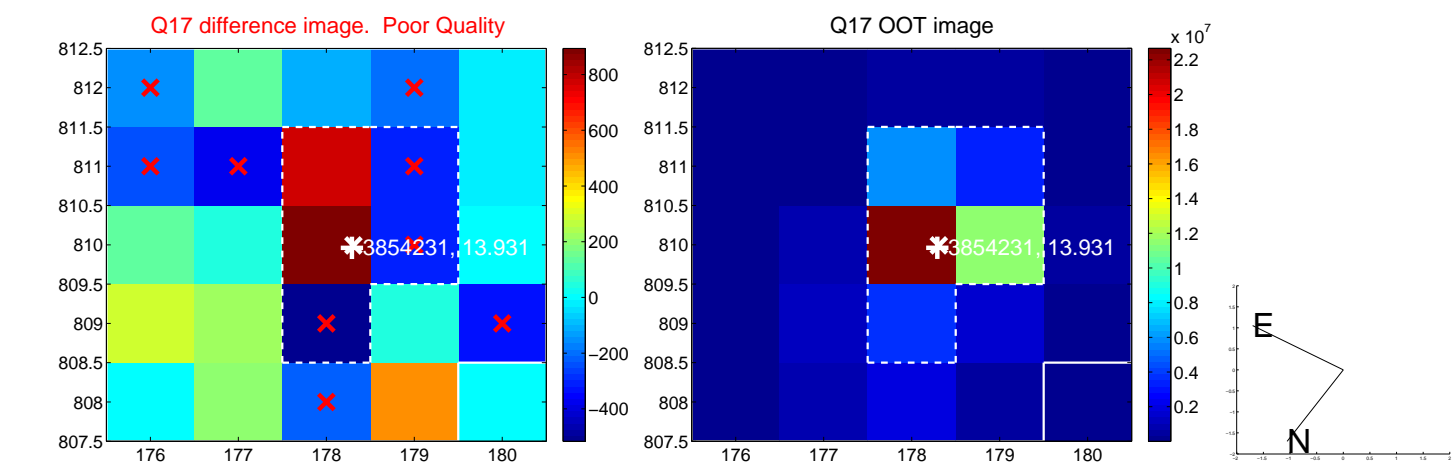
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



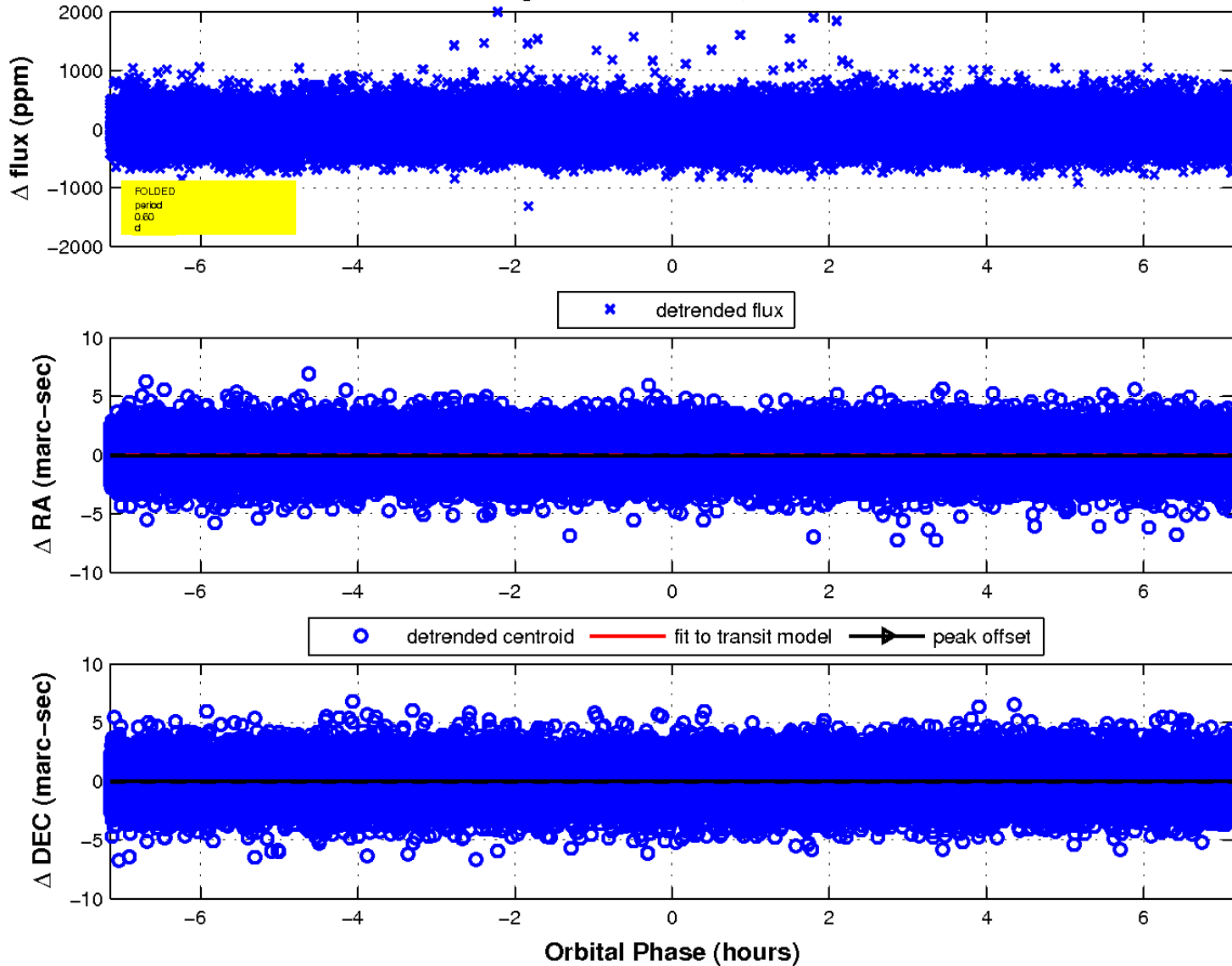
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

