

# KIC 010340212

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010340212-01	OBS	8003.01	0.933722	131.533079	93.0	5.205	8.5	4.1	0.12	2661	0.11	8.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010340212-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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.

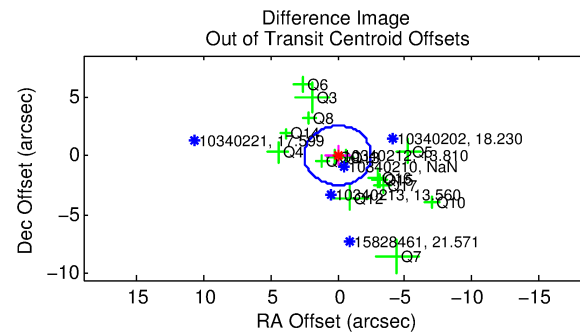
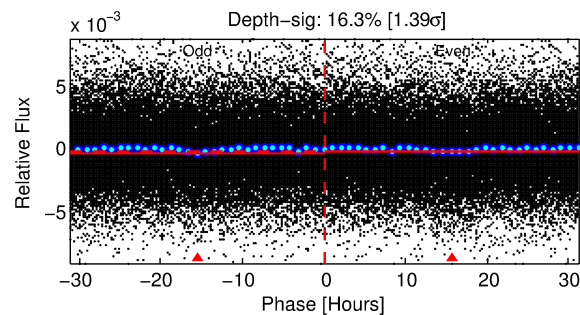
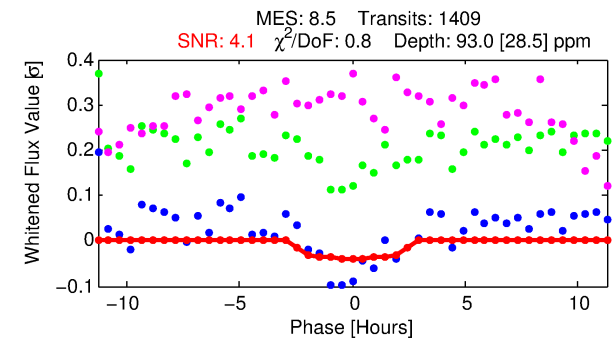
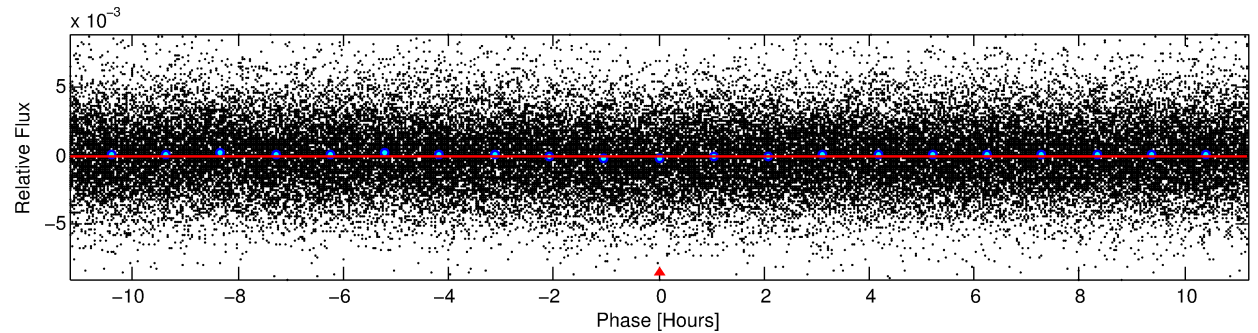
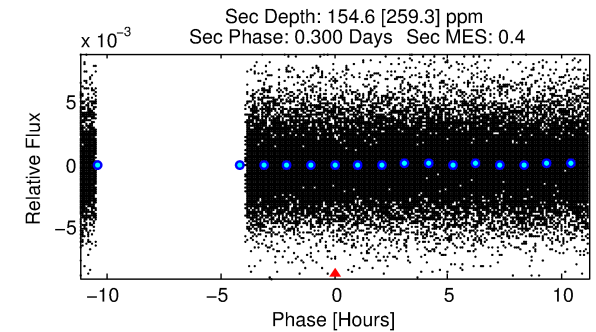
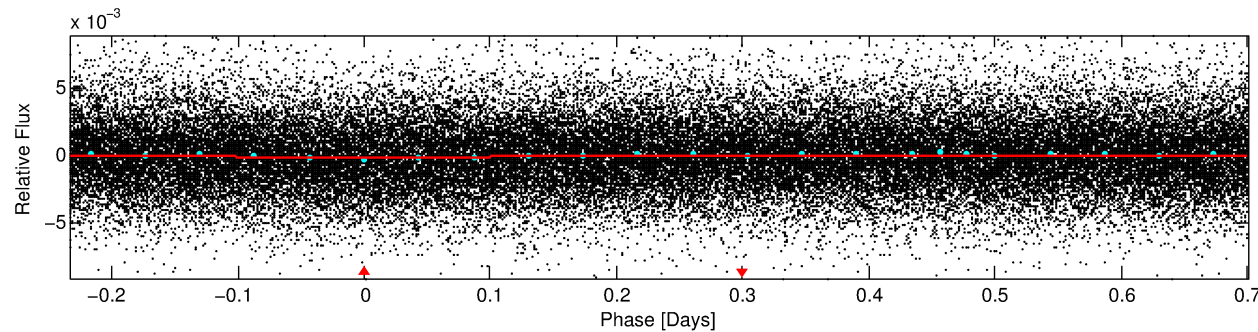
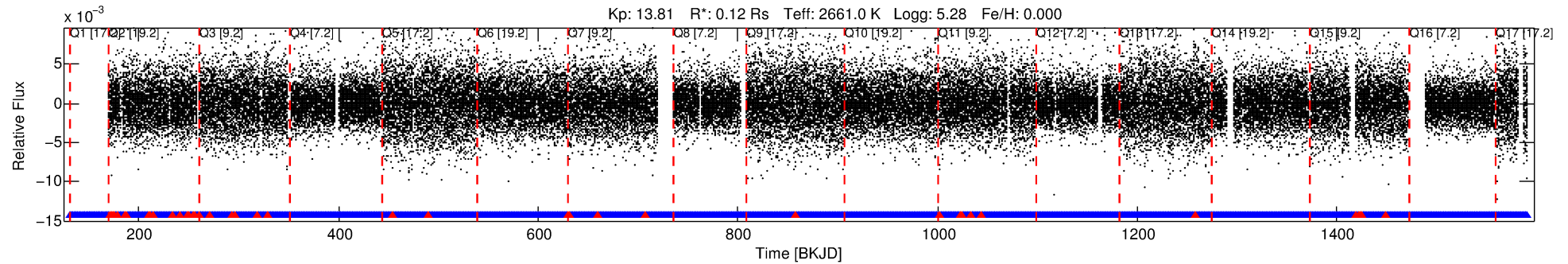
## Ephemeris Match Information For 010340212-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010340212-01	10340212	010340115-01	10340115	1:1	95.3	-1	24	15.41	13.81	0.51	Direct-PRF	1	2.48	1.80

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10340212 Candidate: 1 of 1 Period: 0.934 d



## DV Fit Results:

Period = 0.93372 [0.00003] d  
Epoch = 131.5331 [0.0153] BKJD  
Rp/R\* = 0.0087 [0.0620]  
a/R\* = 1.51 [26.39]  
b = 0.08 [382.90]  
Seff = 8.35 [0.00]  
Teq = 433 [0] K  
Rp = 0.11 [0.78] Re  
a = 0.0085 [0.0000] AU  
Ag = 505.08 [7227.54] [0.07σ]  
Teffp = 3177 [11366] K [0.24σ]

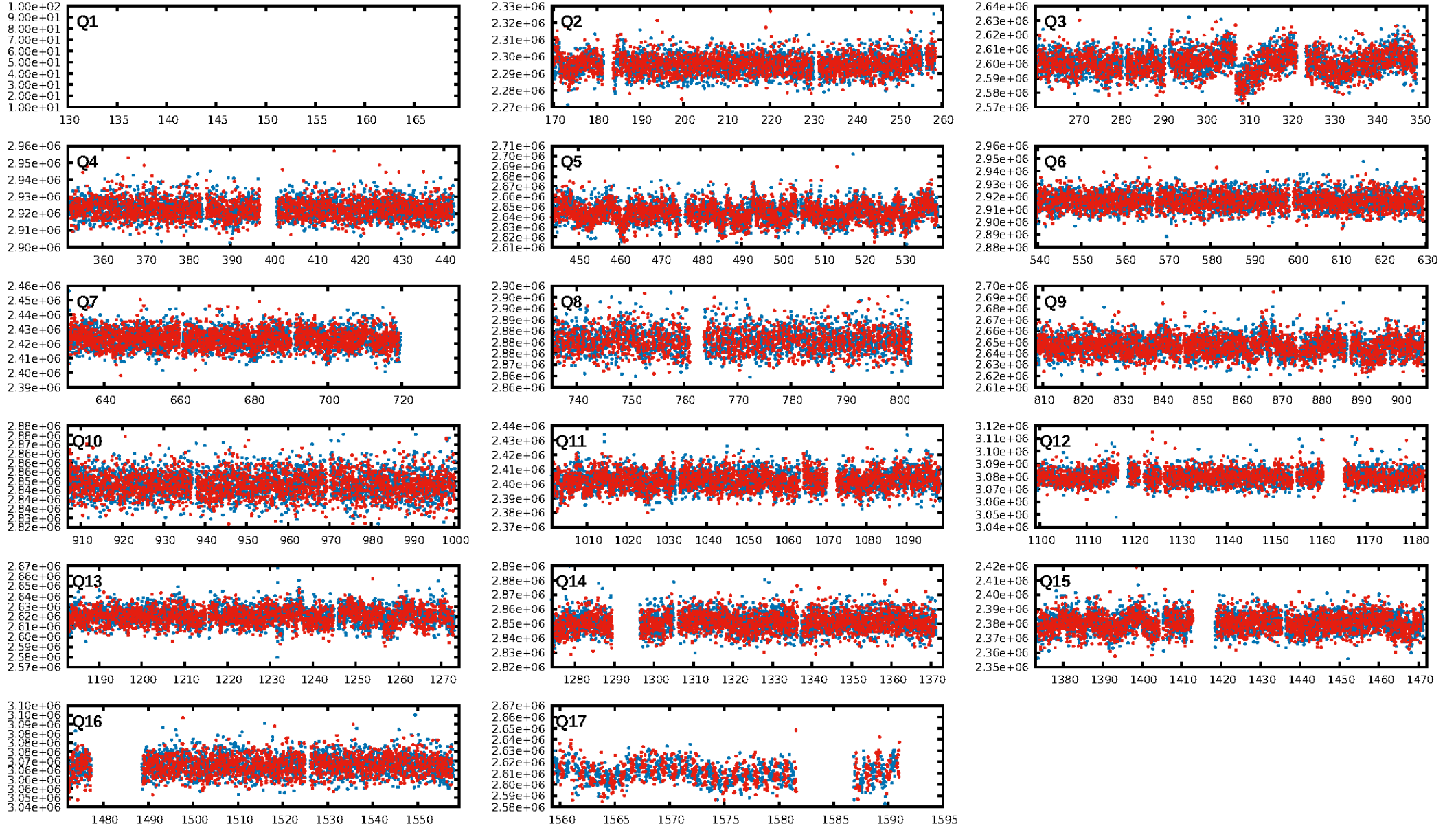
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.38e-15  
RollingBand-fgt: 0.97 [1335/1379]  
GhostDiagnostic-chr: 0.1449  
Centroid-sig: 0.0%  
Centroid-so: 4.974 arcsec [2.91σ]  
OotOffset-rm: 0.037 arcsec [0.04σ]  
KicOffset-rm: 0.299 arcsec [0.24σ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 0.00 [0/15]  
DiffImageOverlap-fno: 1.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:01:10 Z

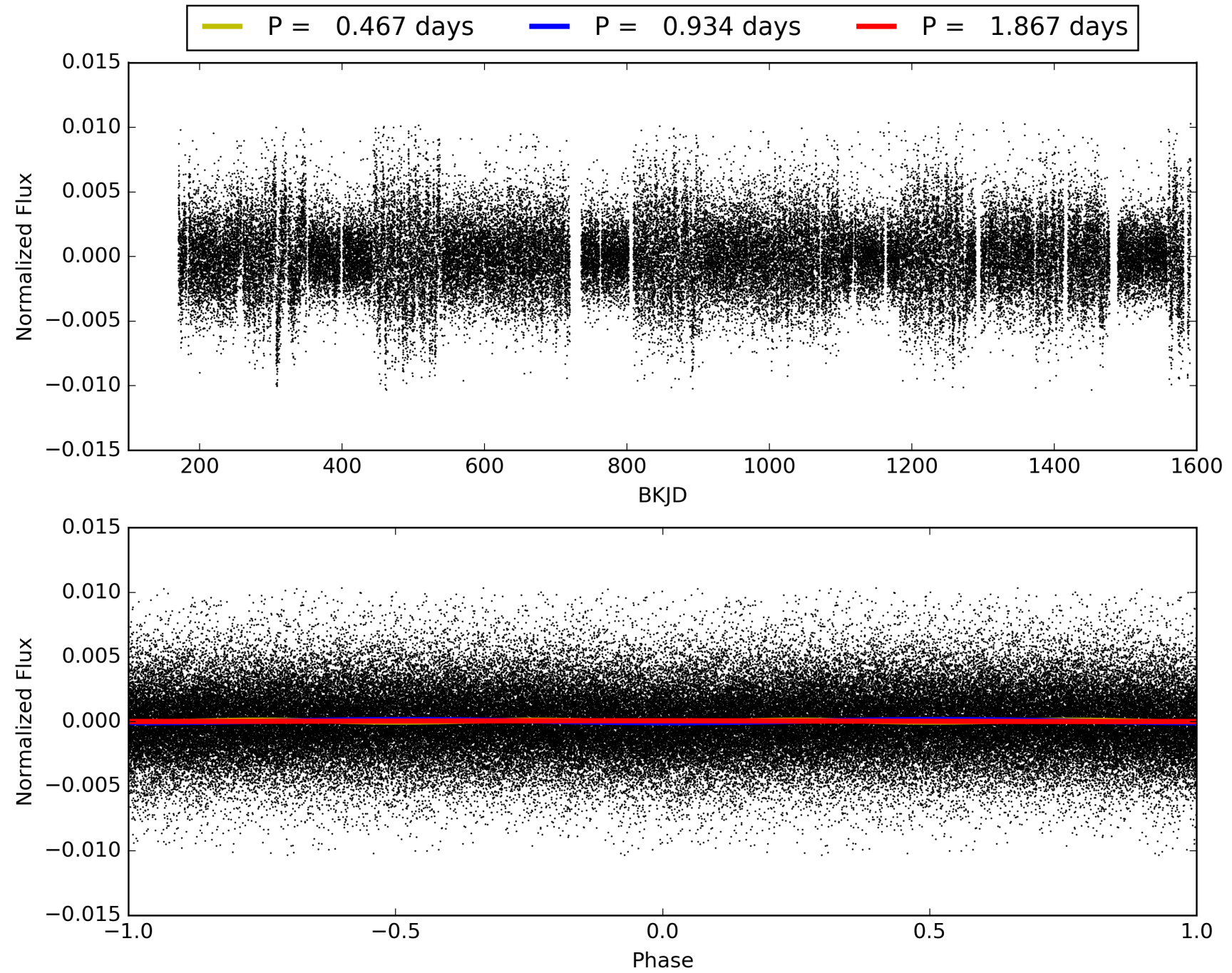
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010340212-01, PDC Light Curves



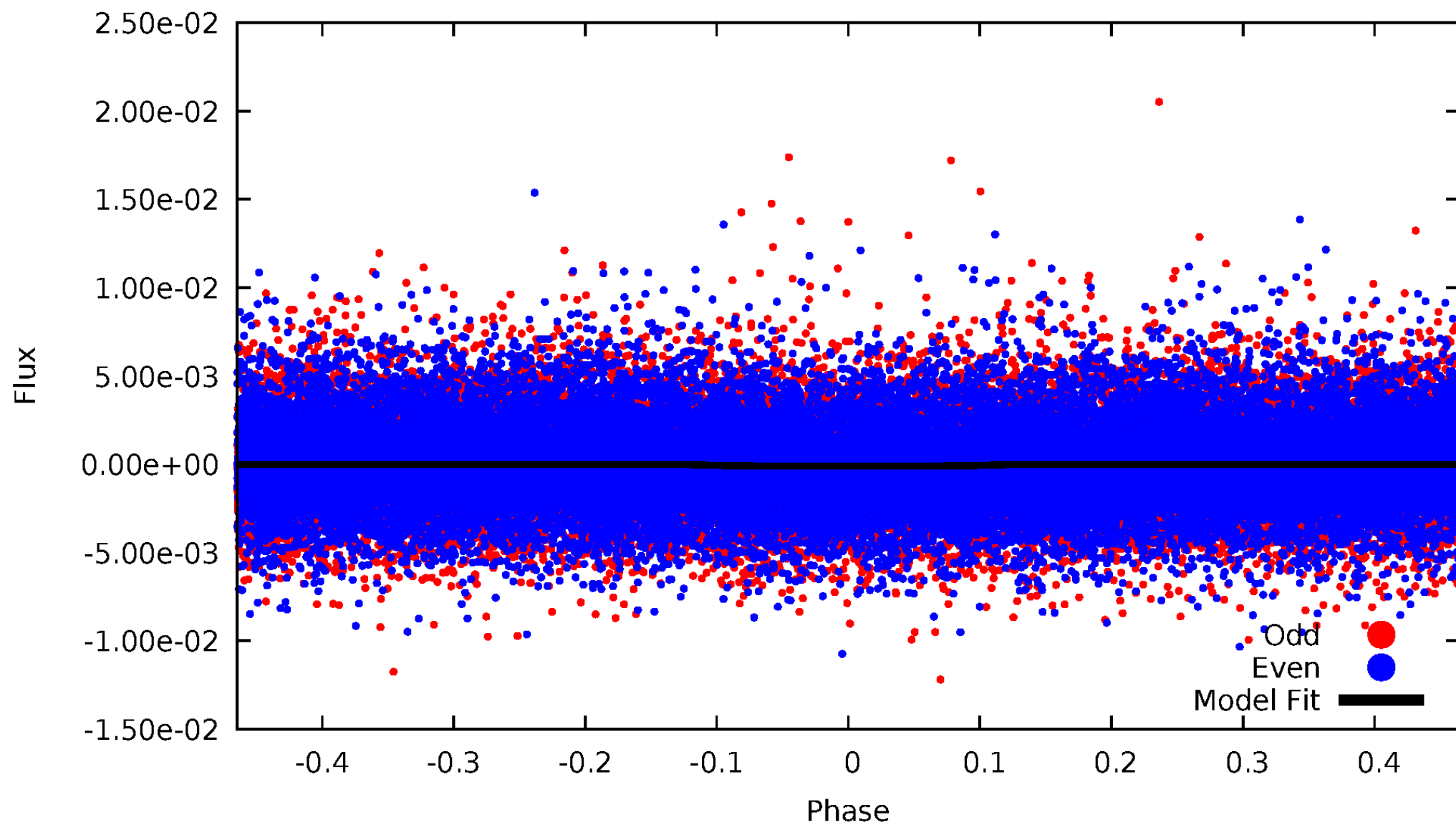


TCE 010340212-01



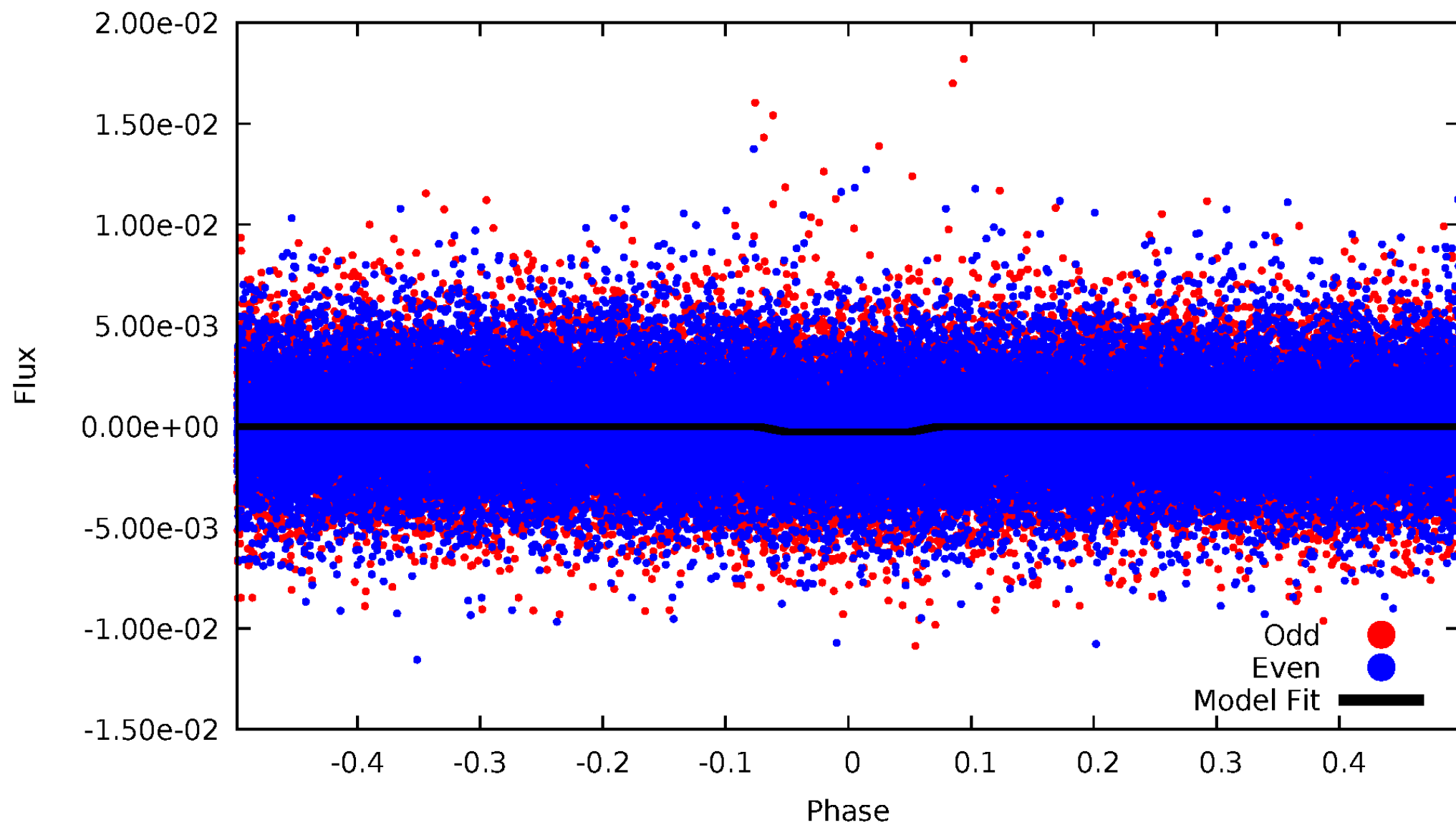
# DV Odd/Even

TCE 010340212-01



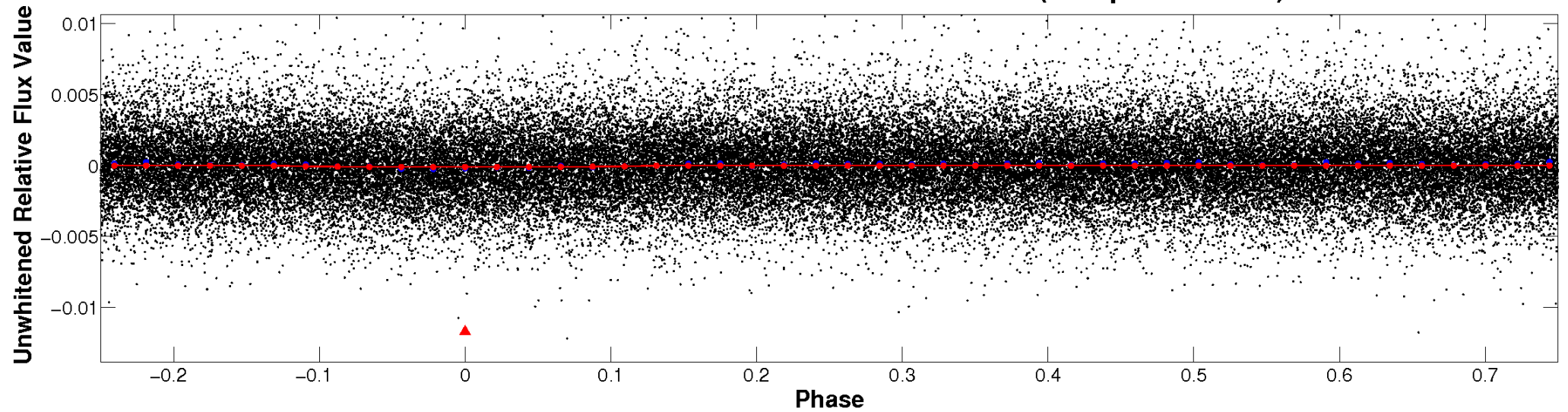
# ALT Odd/Even

TCE 010340212-01

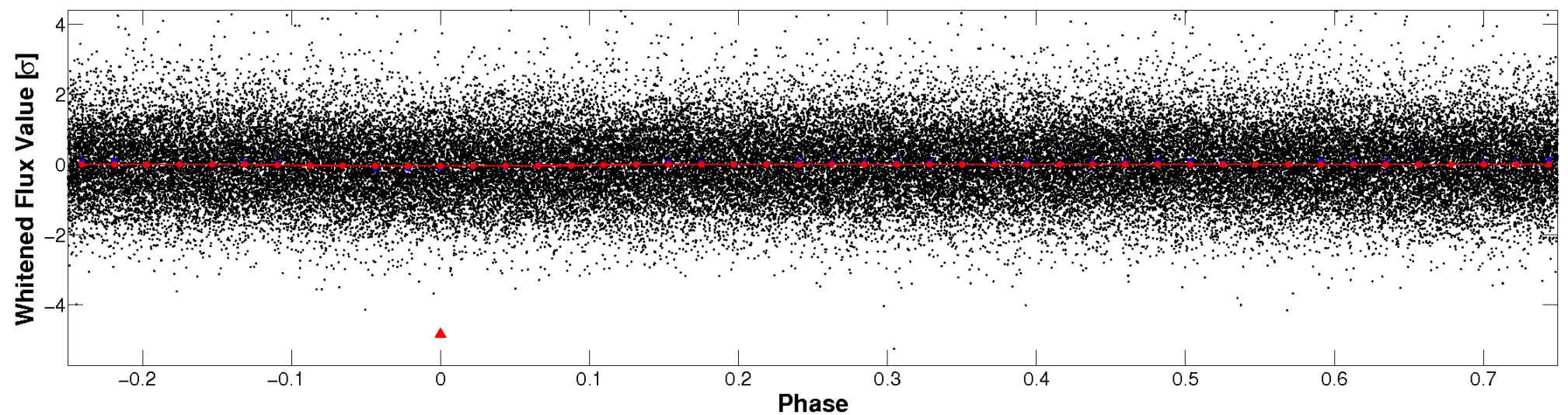


# Non-Whitened Vs. Whitened Light Curve

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



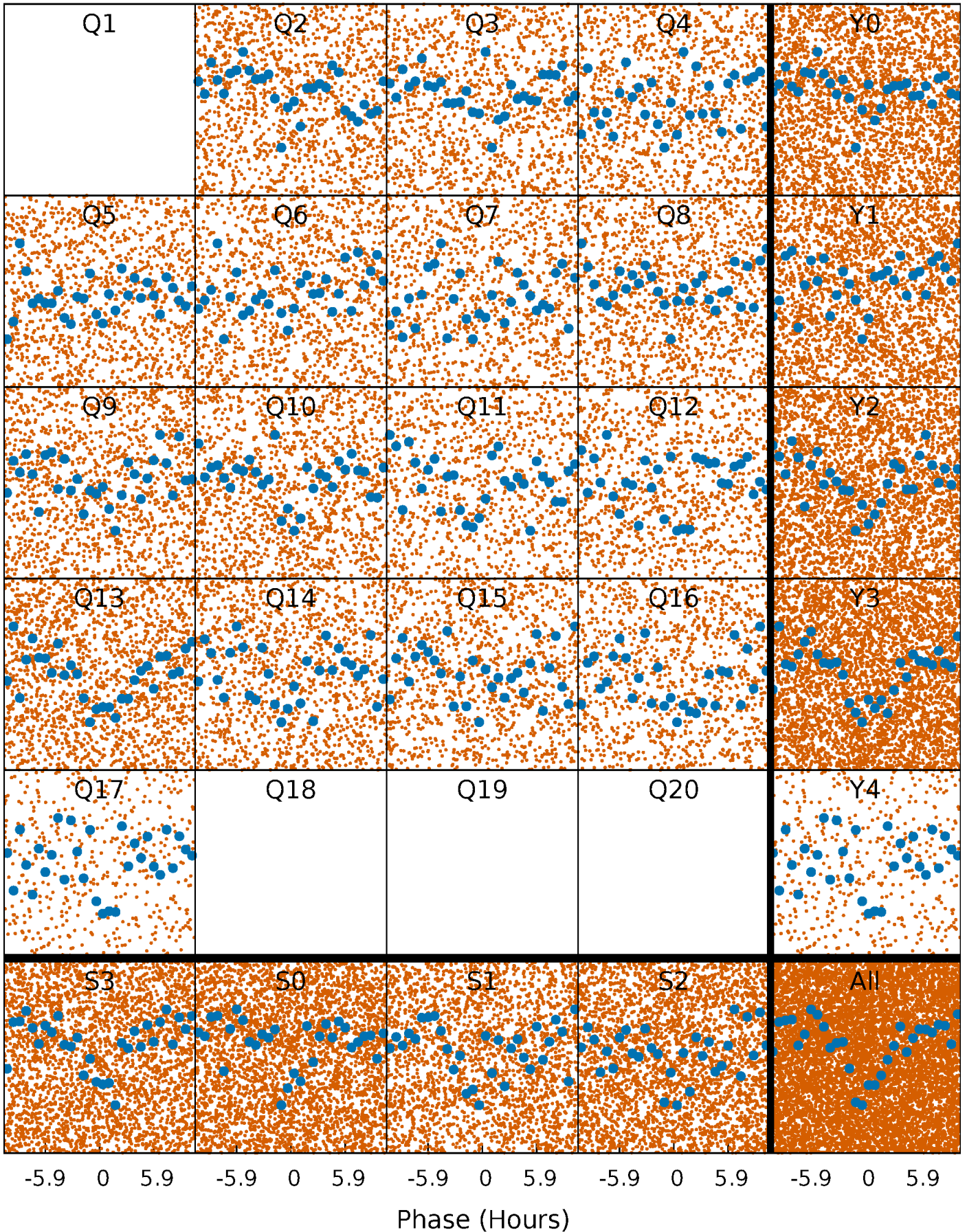
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

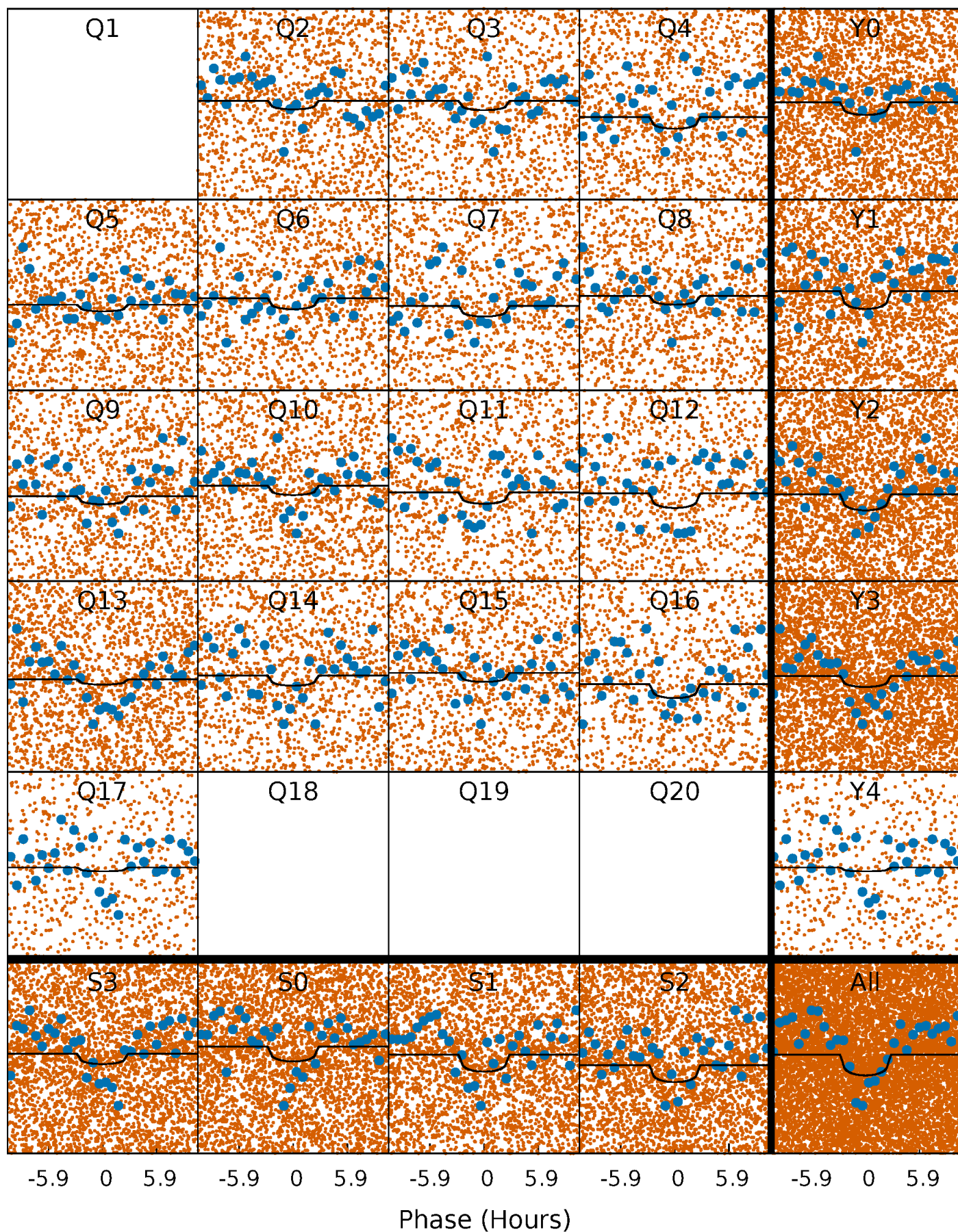
TCE 010340212-01 P= 0.933722 Days  $T_0=131.533079$  (BKJD)





# DV Quarter-Phased Transit Curves

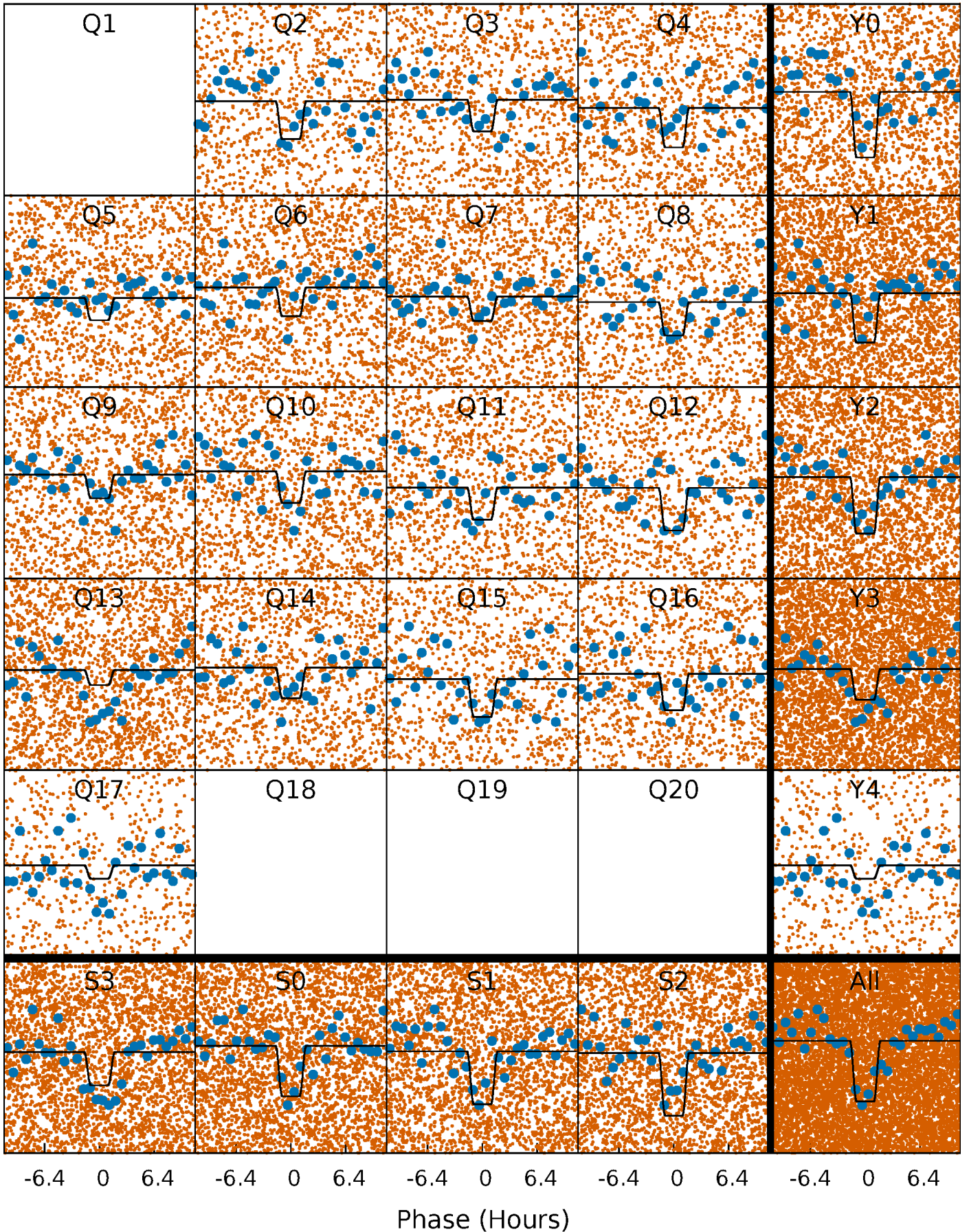
TCE 010340212-01 P= 0.933722 Days  $T_0=131.533079$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

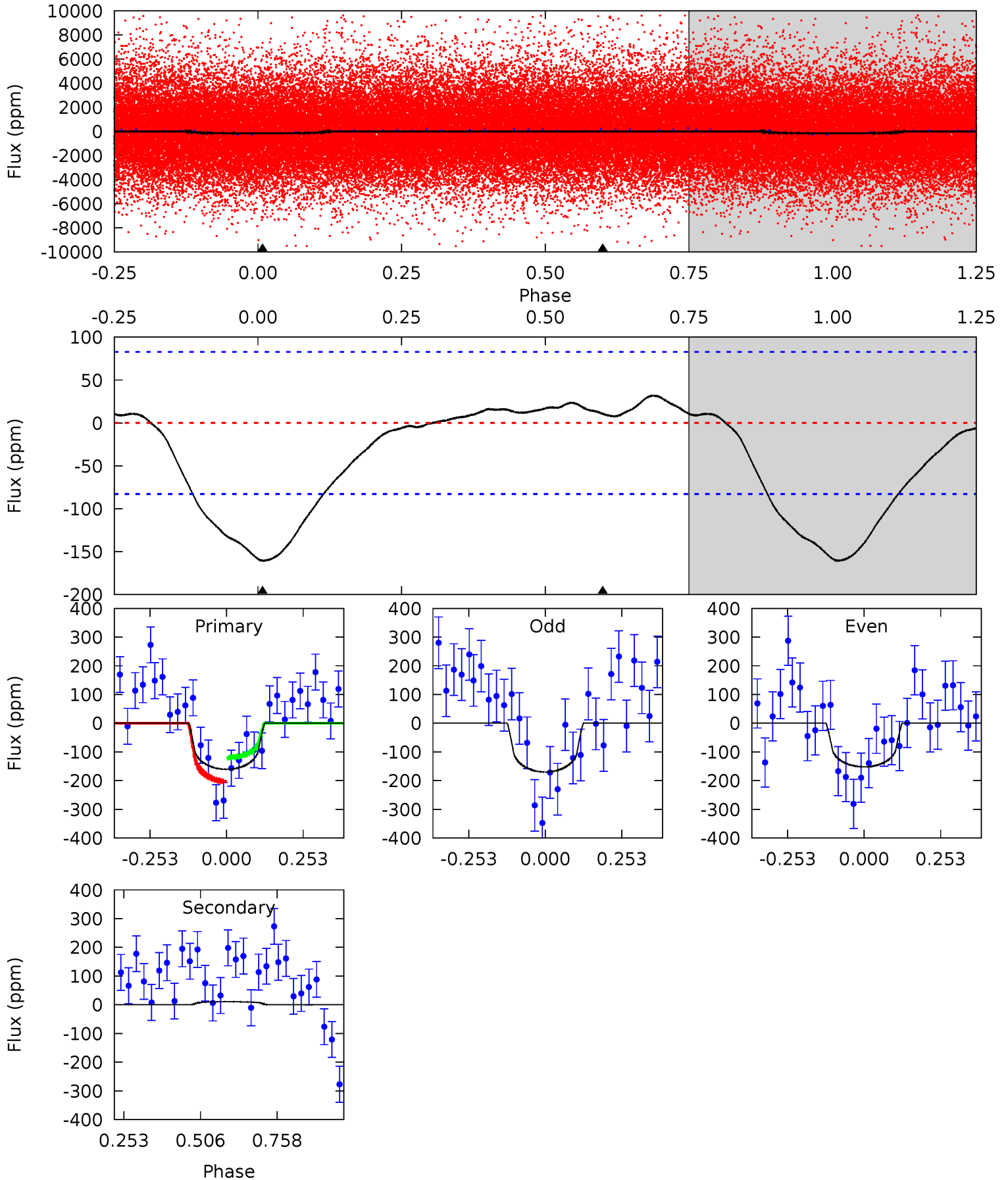
TCE 010340212-01 P= 0.933748 Days  $T_0=131.507441$  (BKJD)



# DV Model-Shift Uniqueness Test

010340212-01, P = 0.933722 Days, E = 131.533079 Days

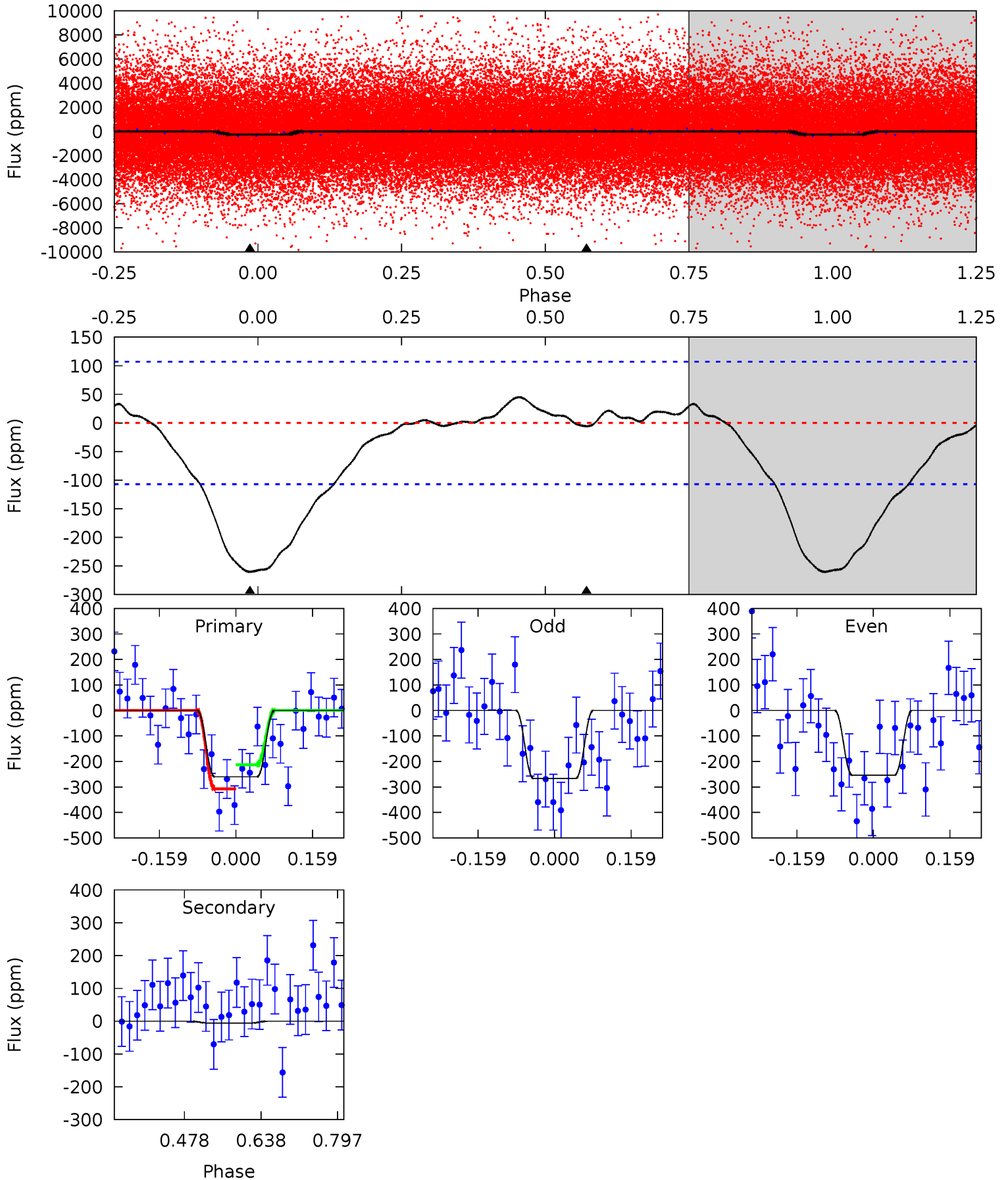
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.46	-0.56	0	0	4.37	1.14	0.20	8.46	8.46	-0.56	-0.56	0.47	0.89	0.17	0



# Alt Model-Shift Uniqueness Test

010340212-01, P = 0.933748 Days, E = 131.507441 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
10.9	0.24	0	0	4.47	1.41	1.05	10.9	10.9	0.24	0.24	0.26	0.94	0.15	1.97





### Stellar Parameters For KIC 010340212

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$2661^{+1}_{-1}$	$5.283^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$0.116^{+1.000}_{-1.000}$	$0.094^{+1.000}_{-1.000}$	$85.200^{+1.000}_{-1.000}$
	+0%/-0%	+19%/-19%	+inf%/-inf%	+862%/-862%	+1064%/-1064%	+1%/-1%
Source	PHO54	PHO54	PHO54	BTSL		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010340212-01 / KOI 8003.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$11 \pm 19$	$0.64^{+0.74}_{-0.45}$	$621^{+63}_{-62}$	$-1519^{+2984}_{-378}$	$-0.584^{+1.488}_{-10.488}$
Alt.	$-6 \pm 24$	$0.66^{+0.81}_{-0.48}$	$622^{+54}_{-63}$	$1199^{+623}_{-2849}$	$0.337^{+7.865}_{-2.177}$

$T_{max}$  = 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

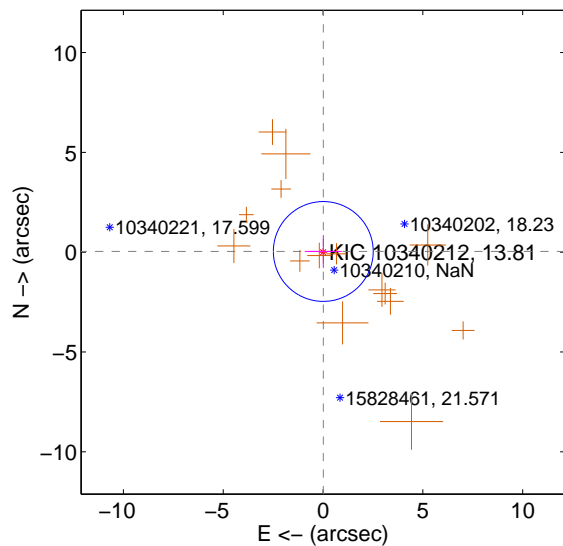
Supplemental centroid analysis for 010340212-01. Kepler magnitude: 13.81. Transit SNR 4.06

There are 0 quarters with good PRF difference image offsets

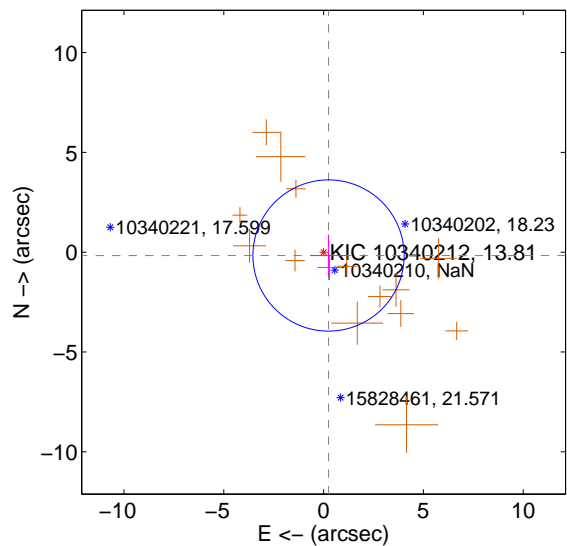
The direct PRF centroid is offset from the target star catalog position by about 0.79 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.037 \pm 0.834$	0.04	$-0.012 \pm 0.925$	$0.035 \pm 0.822$
PRF-fit source offset from KIC position	$0.299 \pm 1.263$	0.24	$-0.248 \pm 0.909$	$-0.166 \pm 1.047$
photometric centroid source offset	$4.97 \pm 1.71$	2.91	$-3.43 \pm 1.73$	$3.60 \pm 1.69$

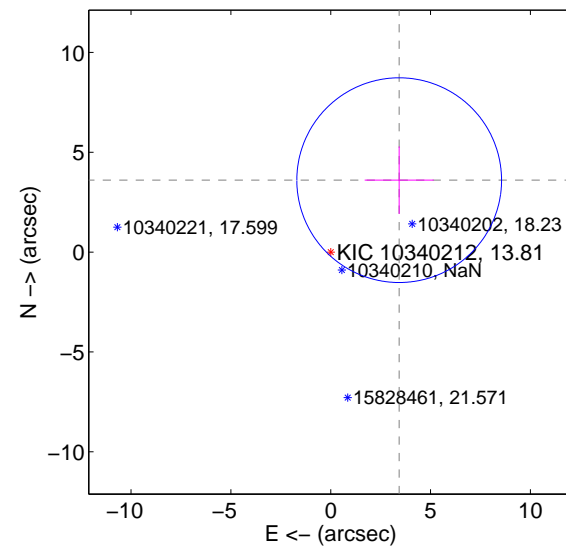
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

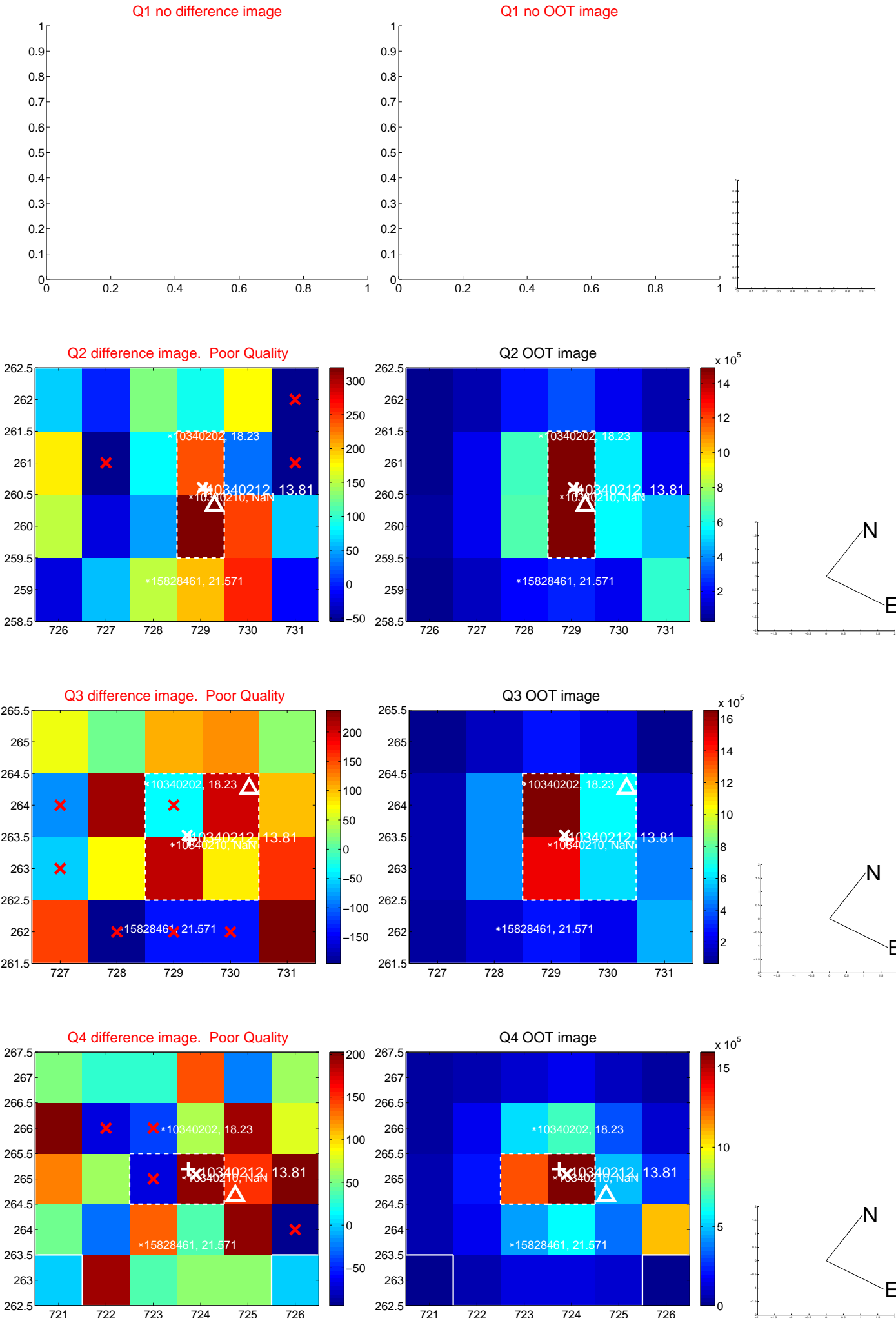


offset from photometric centroids

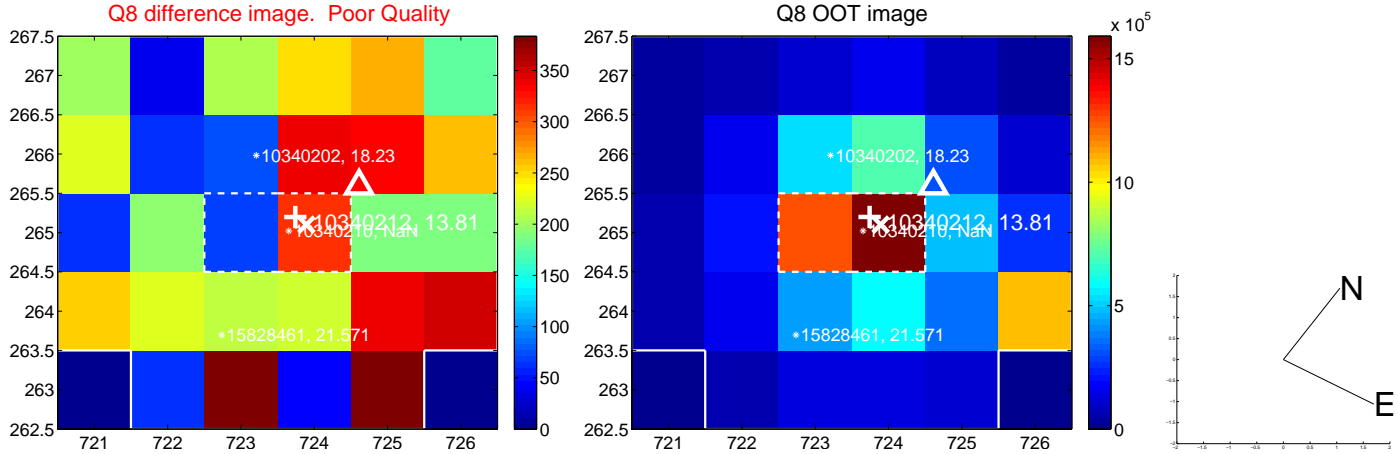
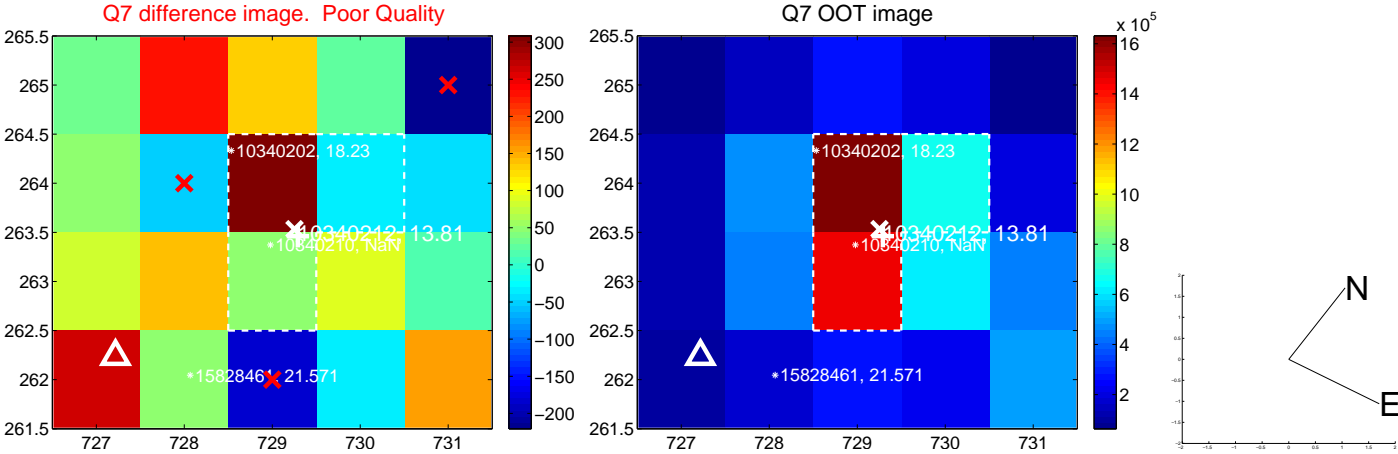
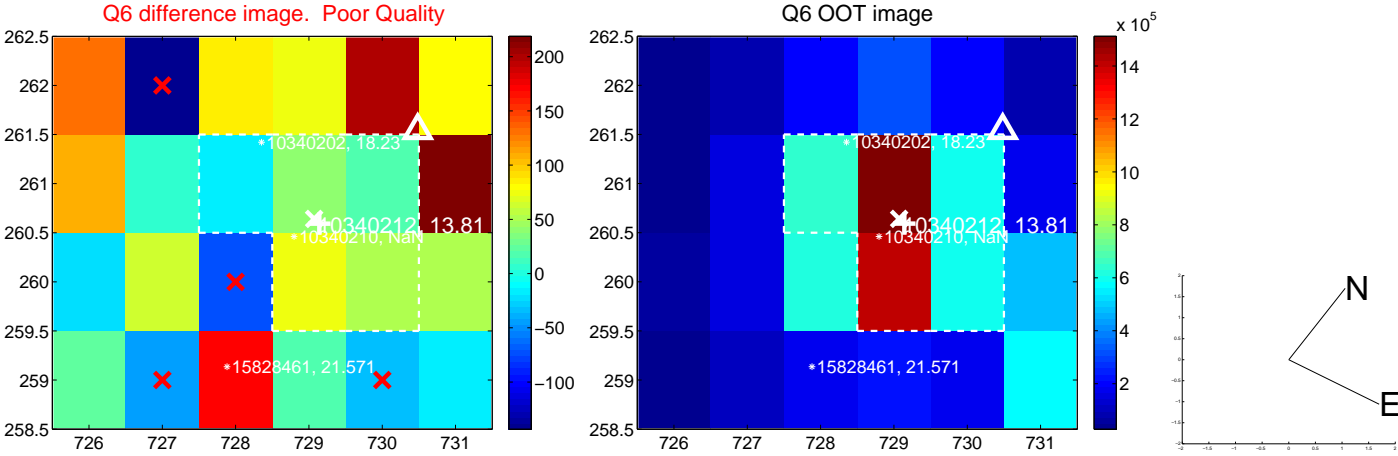
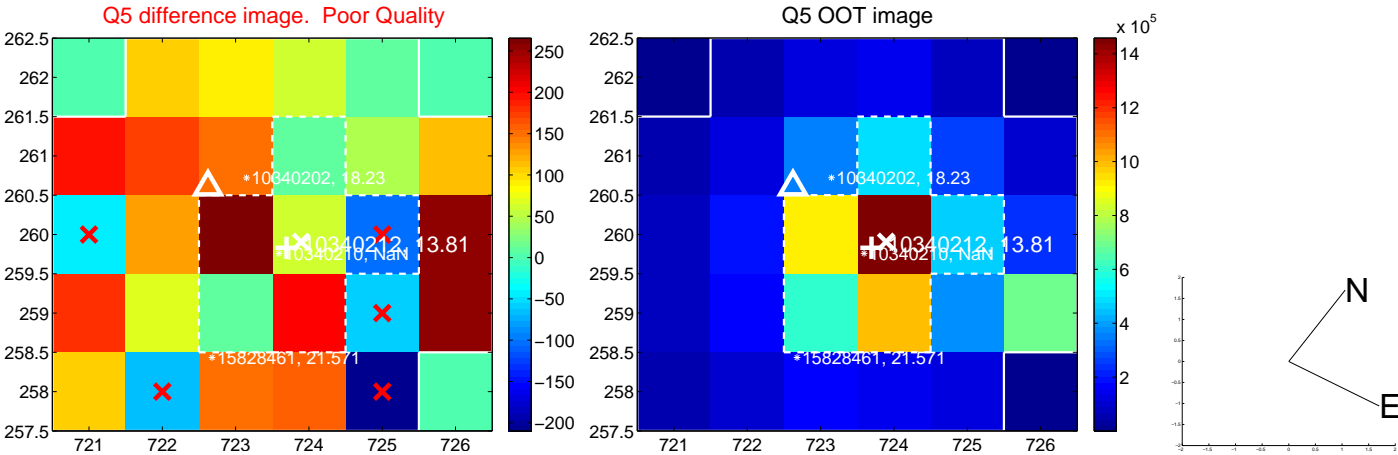


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

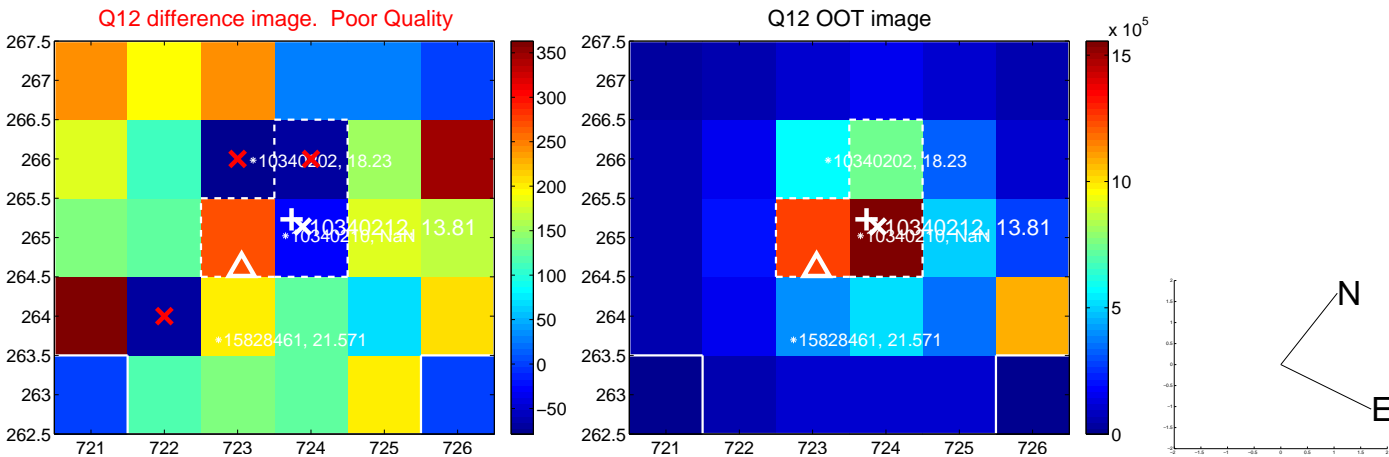
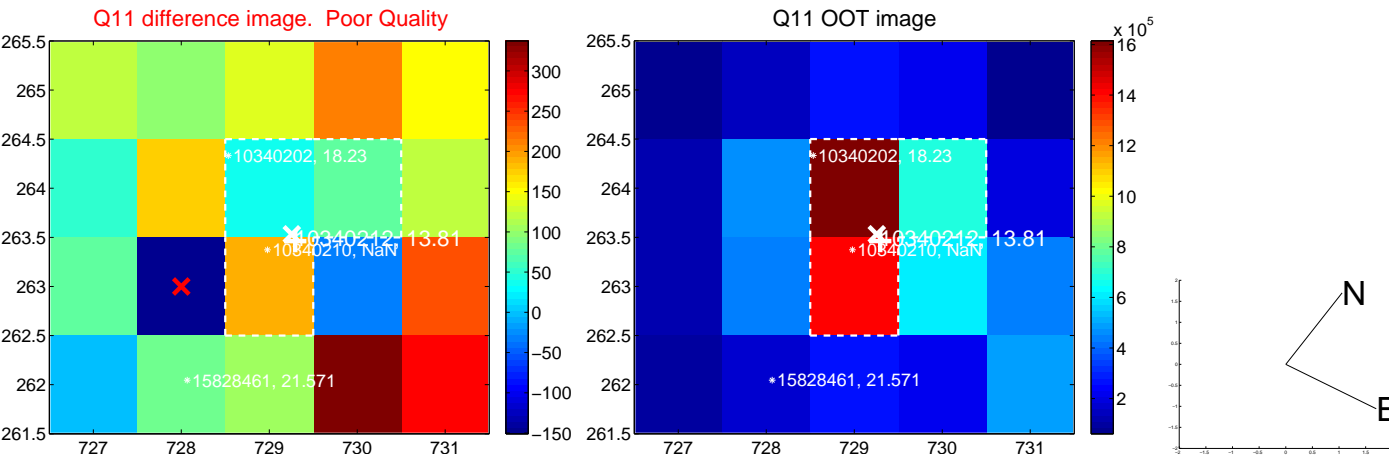
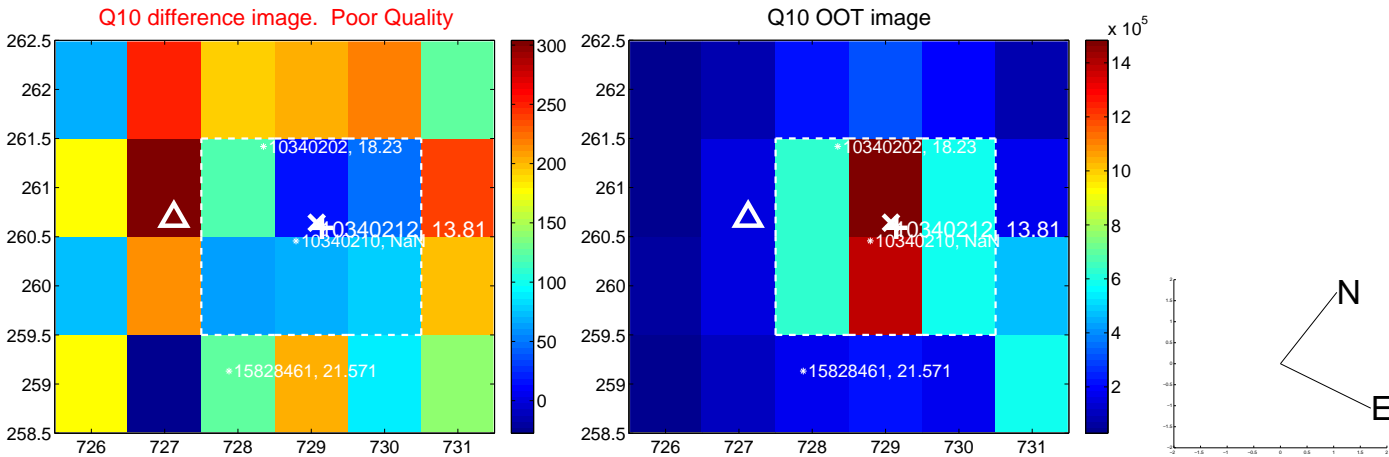
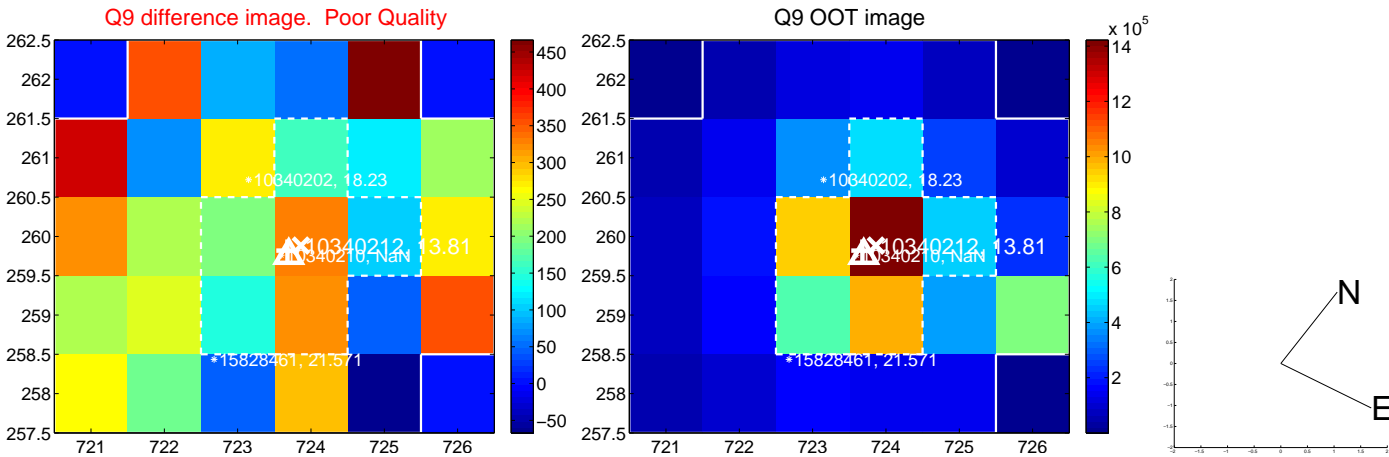


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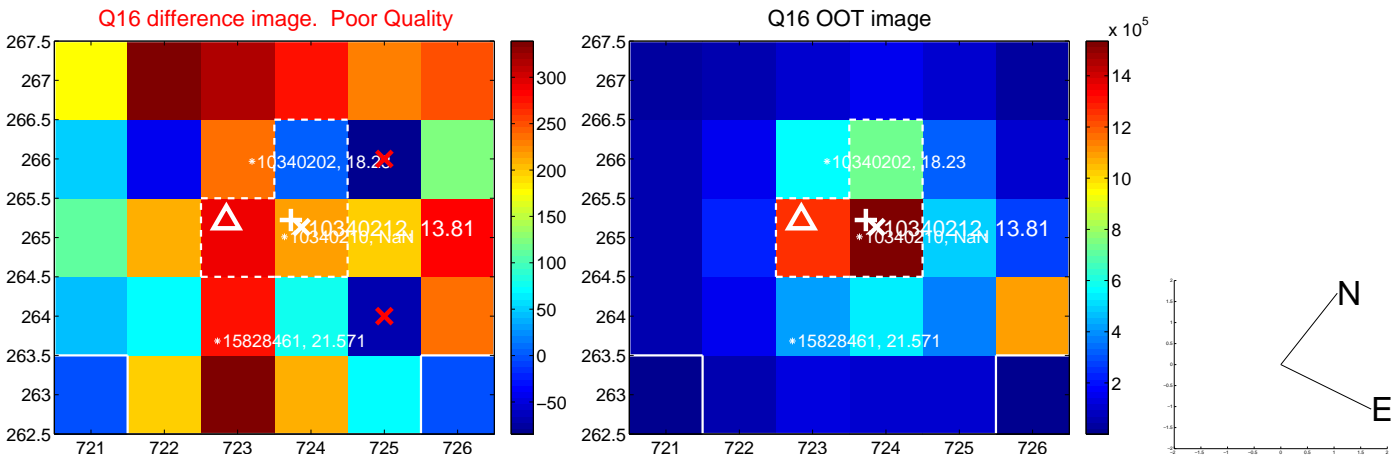
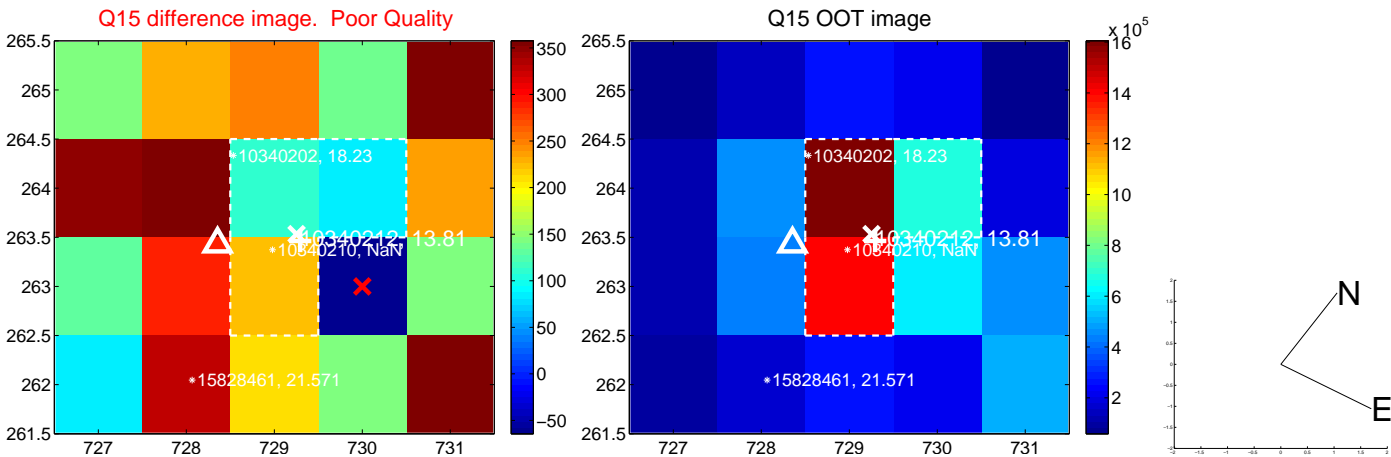
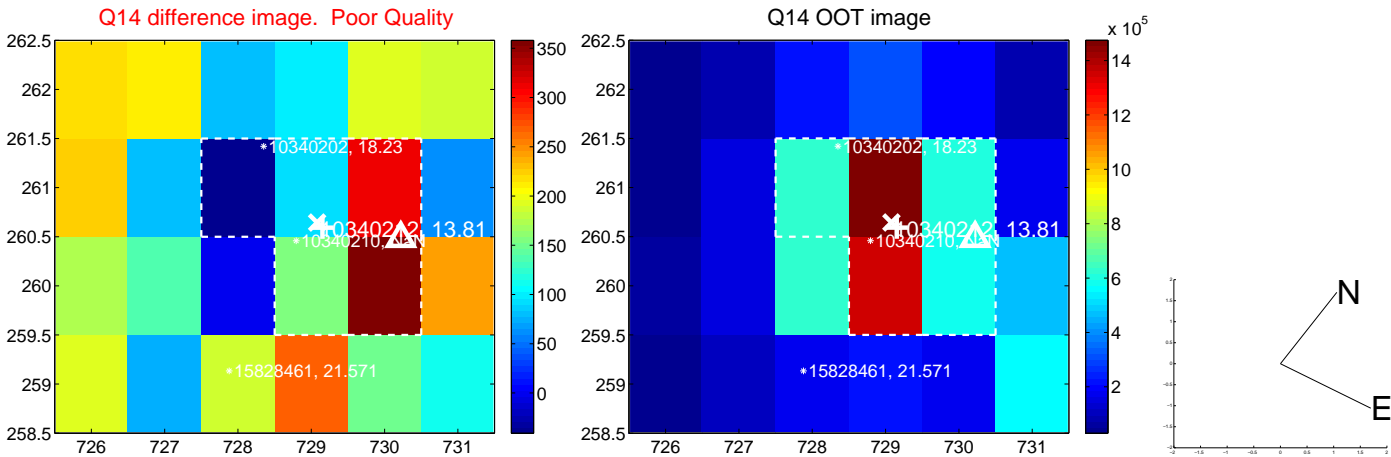
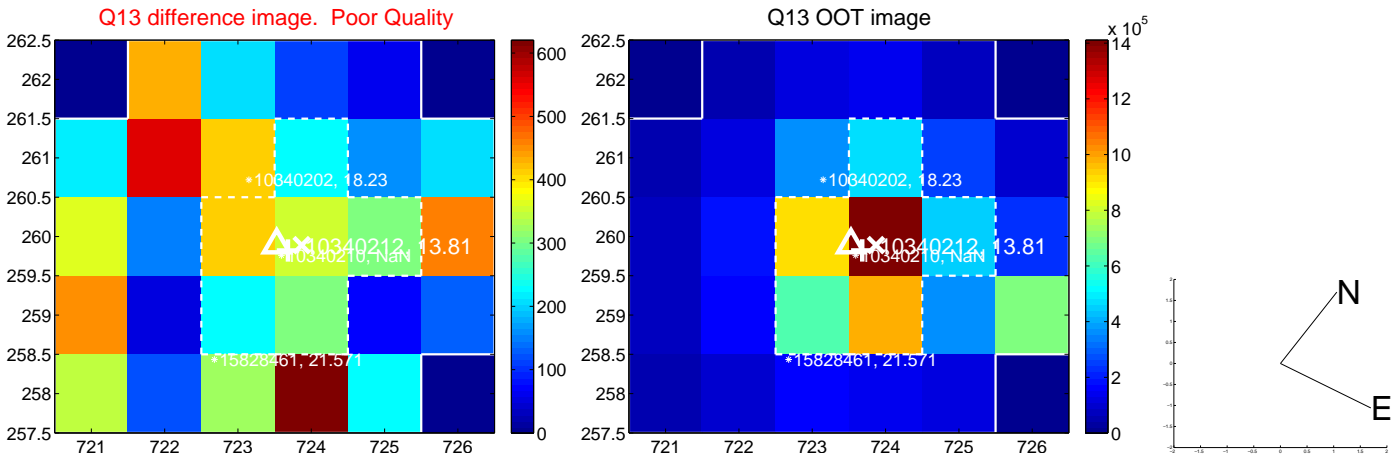




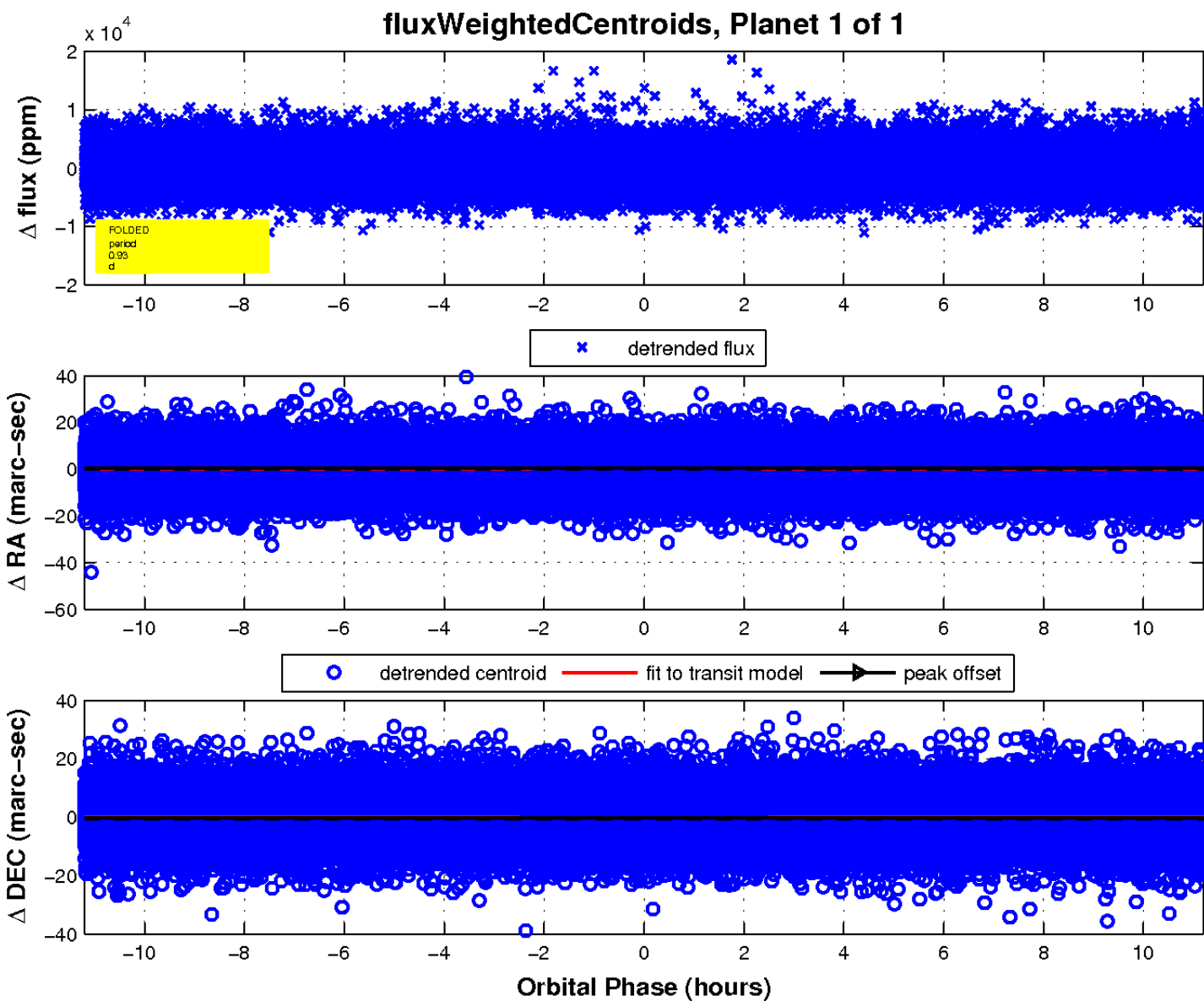
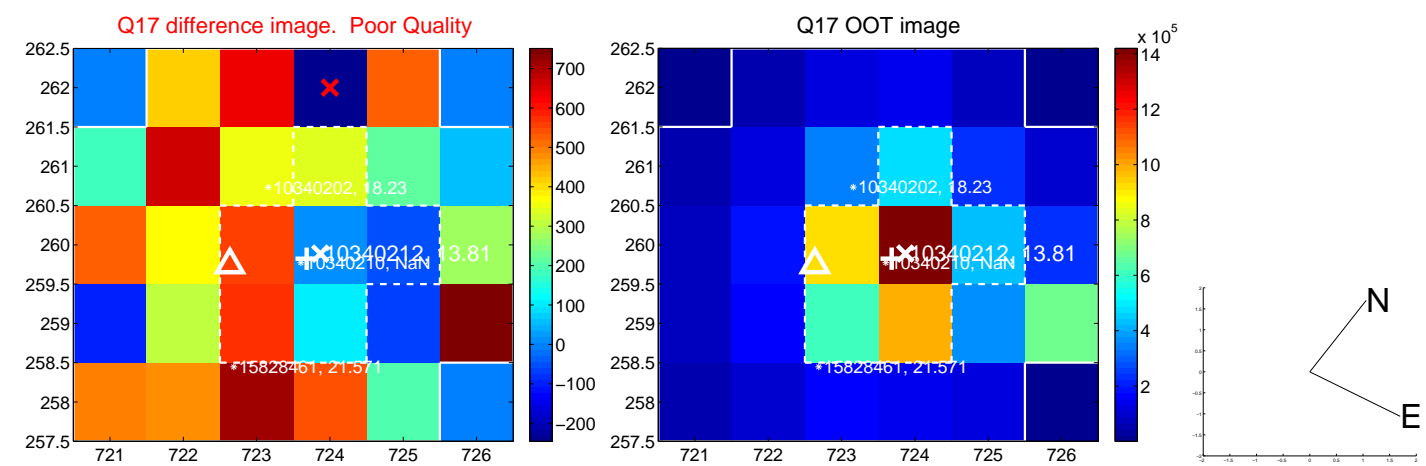
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

