

# KIC 010533233

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010533233-01	OBS	No	0.881928	131.718919	8.8	7.282	8.5	10.2	2.25	9801	0.69	72209.80

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010533233-01	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.

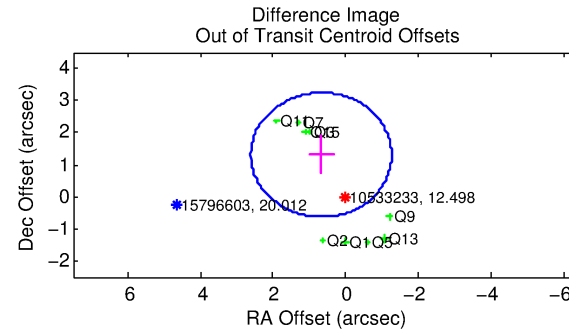
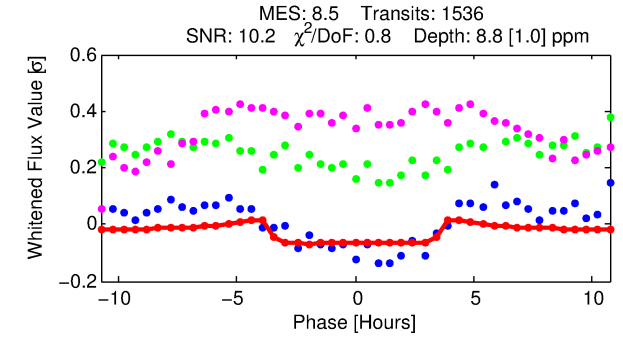
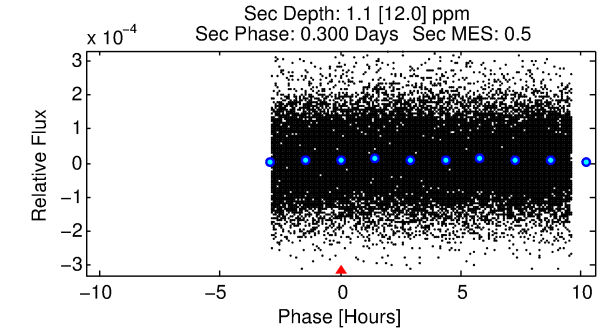
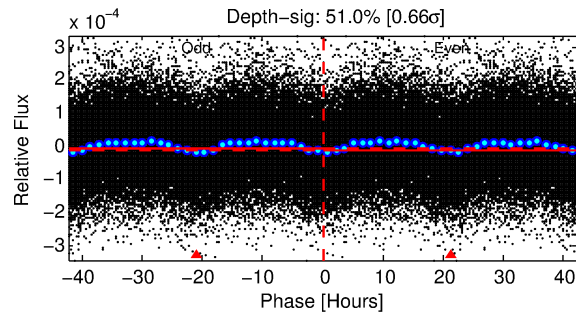
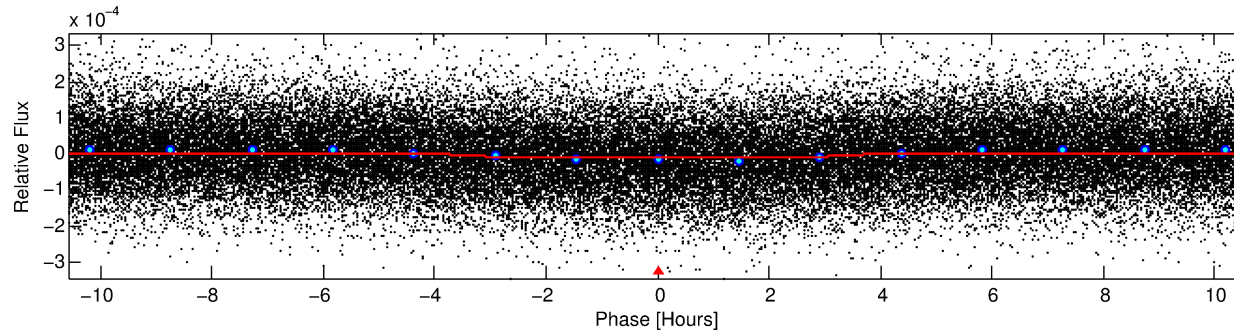
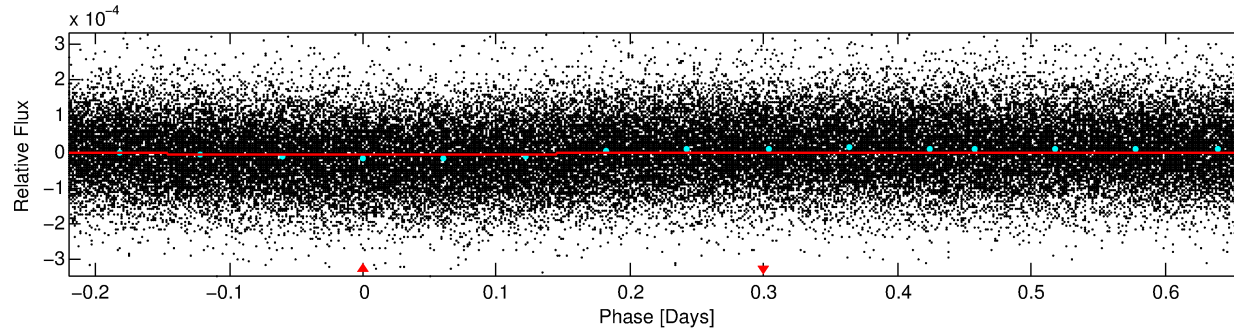
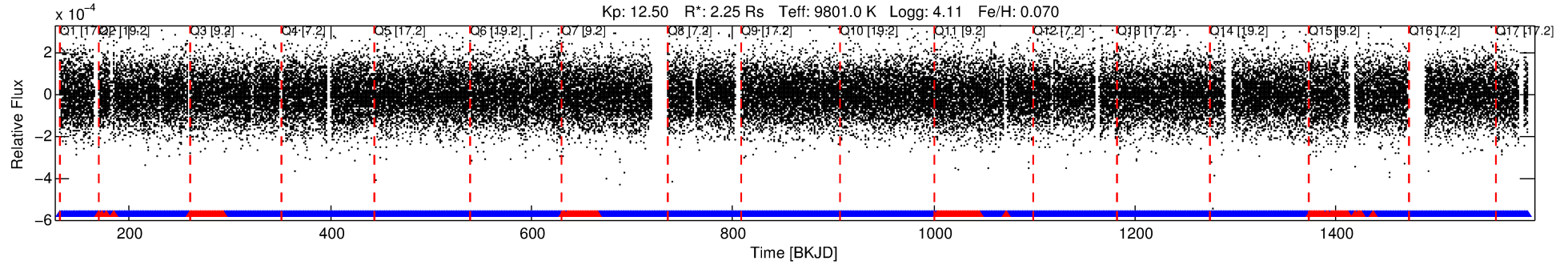
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010533233-01

No Significant Match Found

# DV One-Page Summary

KIC: 10533233 Candidate: 1 of 1 Period: 0.882 d



## DV Fit Results:

Period = 0.88193 [0.00001] d  
Epoch = 131.7189 [0.0051] BKJD  
Rp/R\* = 0.0028 [0.0016]  
a/R\* = 1.13 [0.96]  
b = 0.29 [12.90]  
Seff = 72209.80 [31503.40]  
Teq = 4180 [456] K  
Rp = 0.69 [0.47] Re  
a = 0.0241 [0.0071] AU  
Ag = 0.72 [8.15] [-0.03 $\sigma$ ]  
Teffp = 5955 [16819] K [0.1 $\sigma$ ]

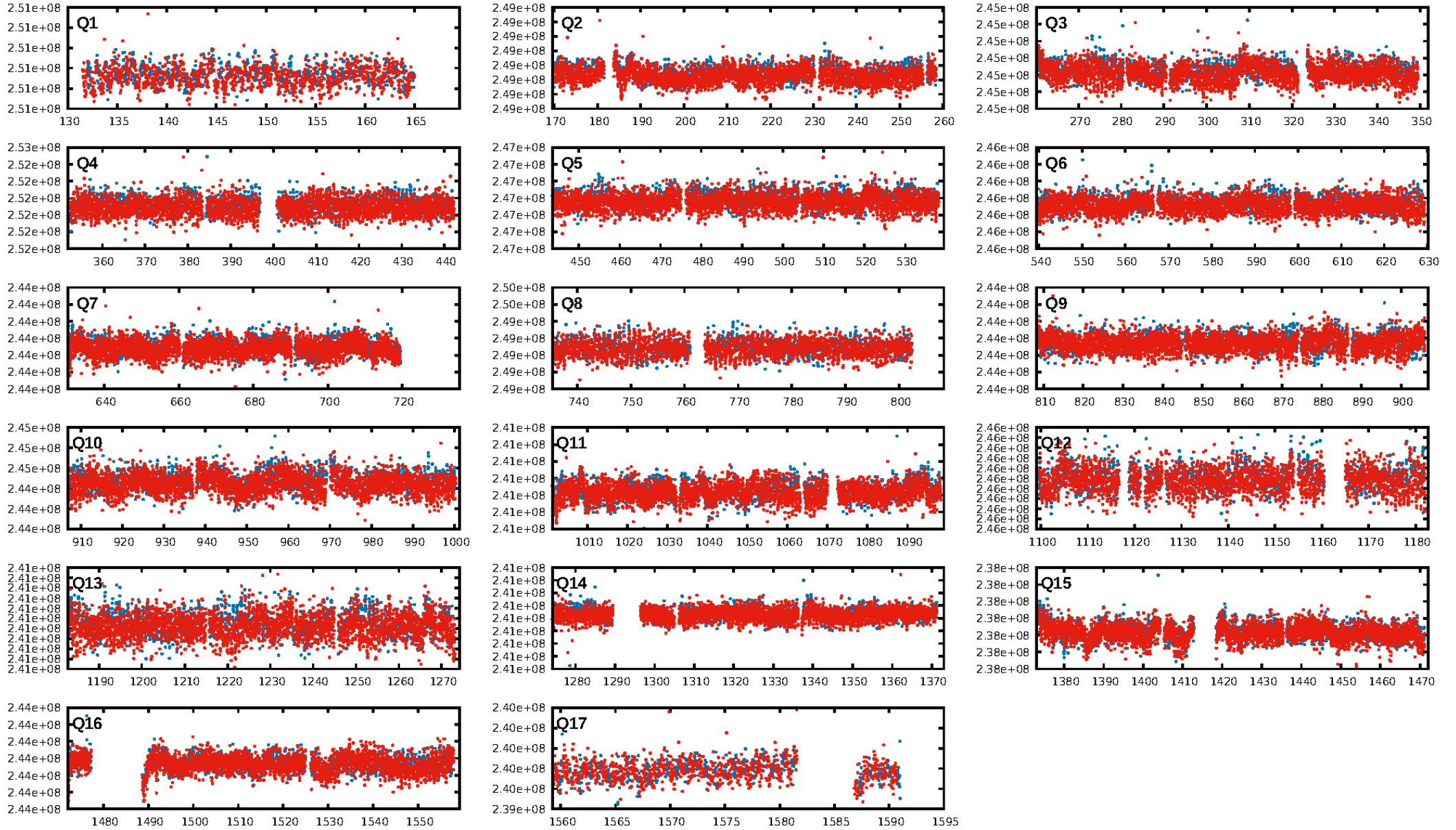
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.88 [1298/1467]  
GhostDiagnostic-chr: 5.456  
Centroid-sig: 64.3%  
Centroid-so: 0.627 arcsec [0.66 $\sigma$ ]  
OotOffset-rm: 1.468 arcsec [2.27 $\sigma$ ]  
OotOffset-st: 1/4/0/4 [9]  
KicOffset-rm: 1.503 arcsec [2.35 $\sigma$ ]  
KicOffset-st: 1/4/0/4 [9]  
DiffImageQuality-fgm: 0.56 [5/9]  
DiffImageOverlap-fno: 1.00 [17/17]

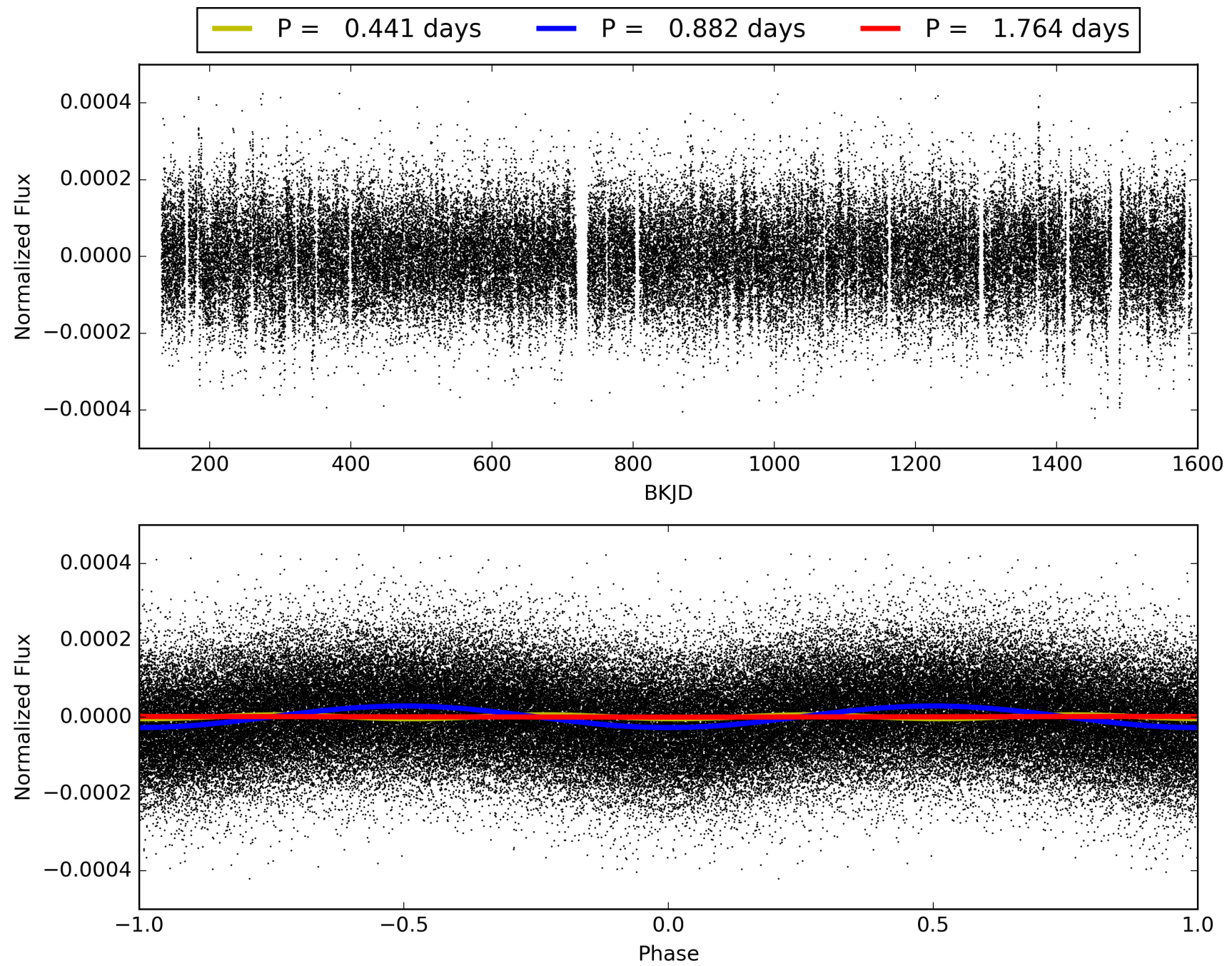
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:52:39 Z

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

# TCE 010533233-01, PDC Light Curves



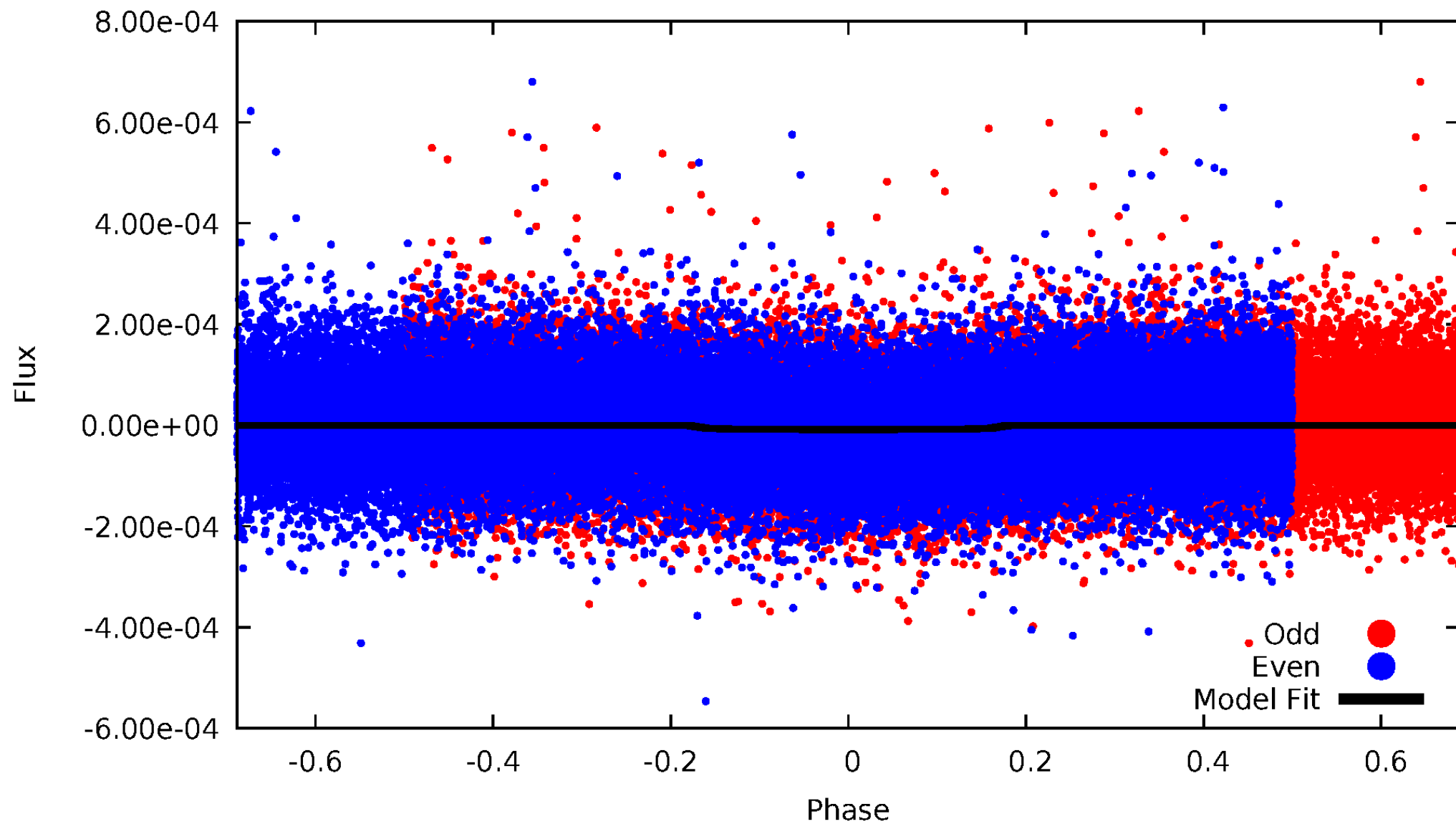
TCE 010533233-01





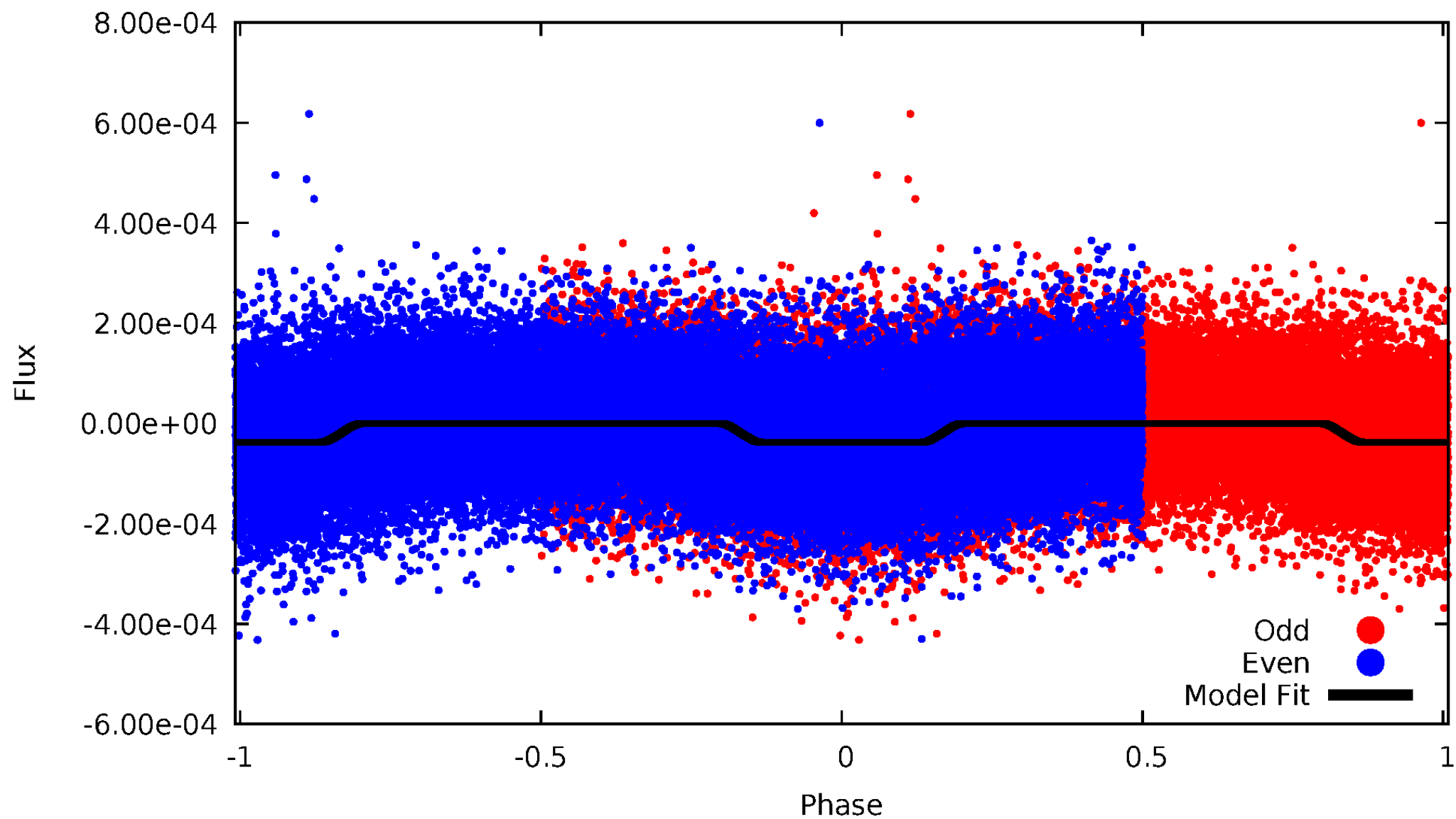
# DV Odd/Even

TCE 010533233-01



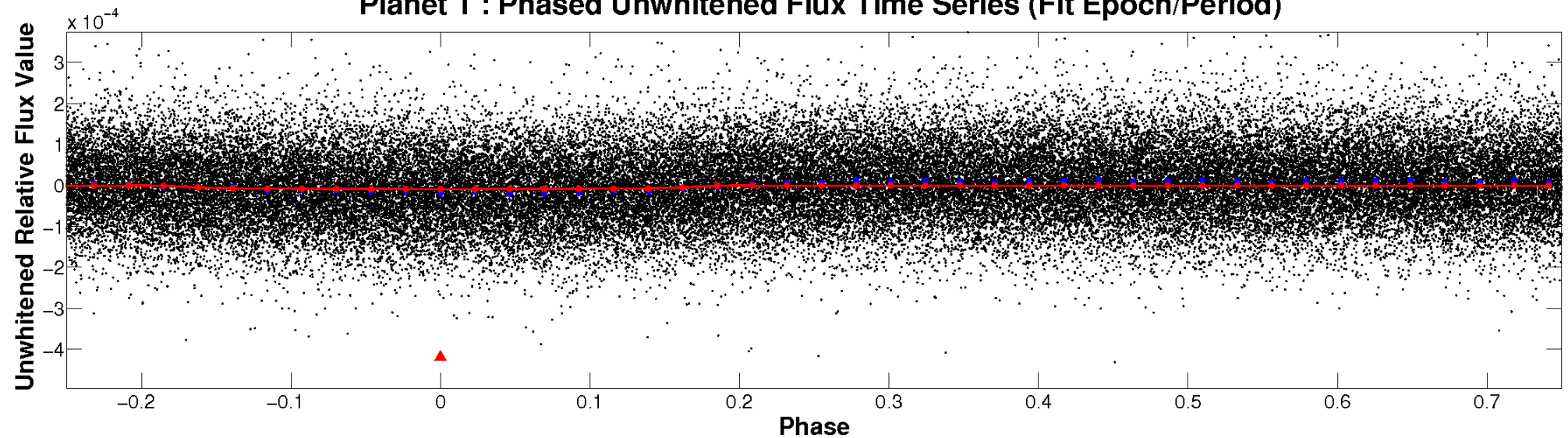
# ALT Odd/Even

TCE 010533233-01

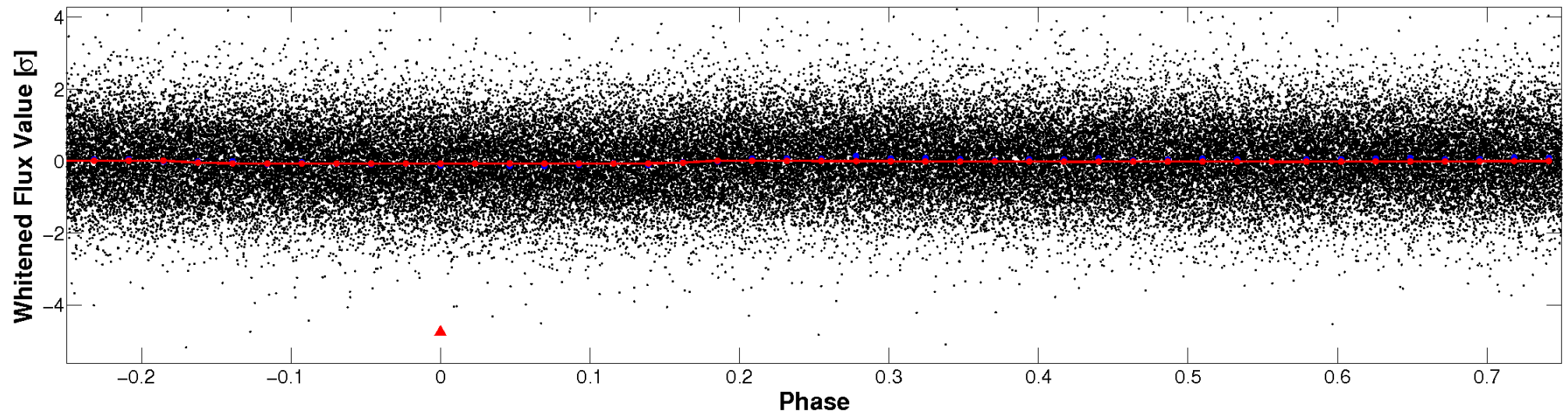


# Non-Whitened Vs. Whitened Light Curve

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

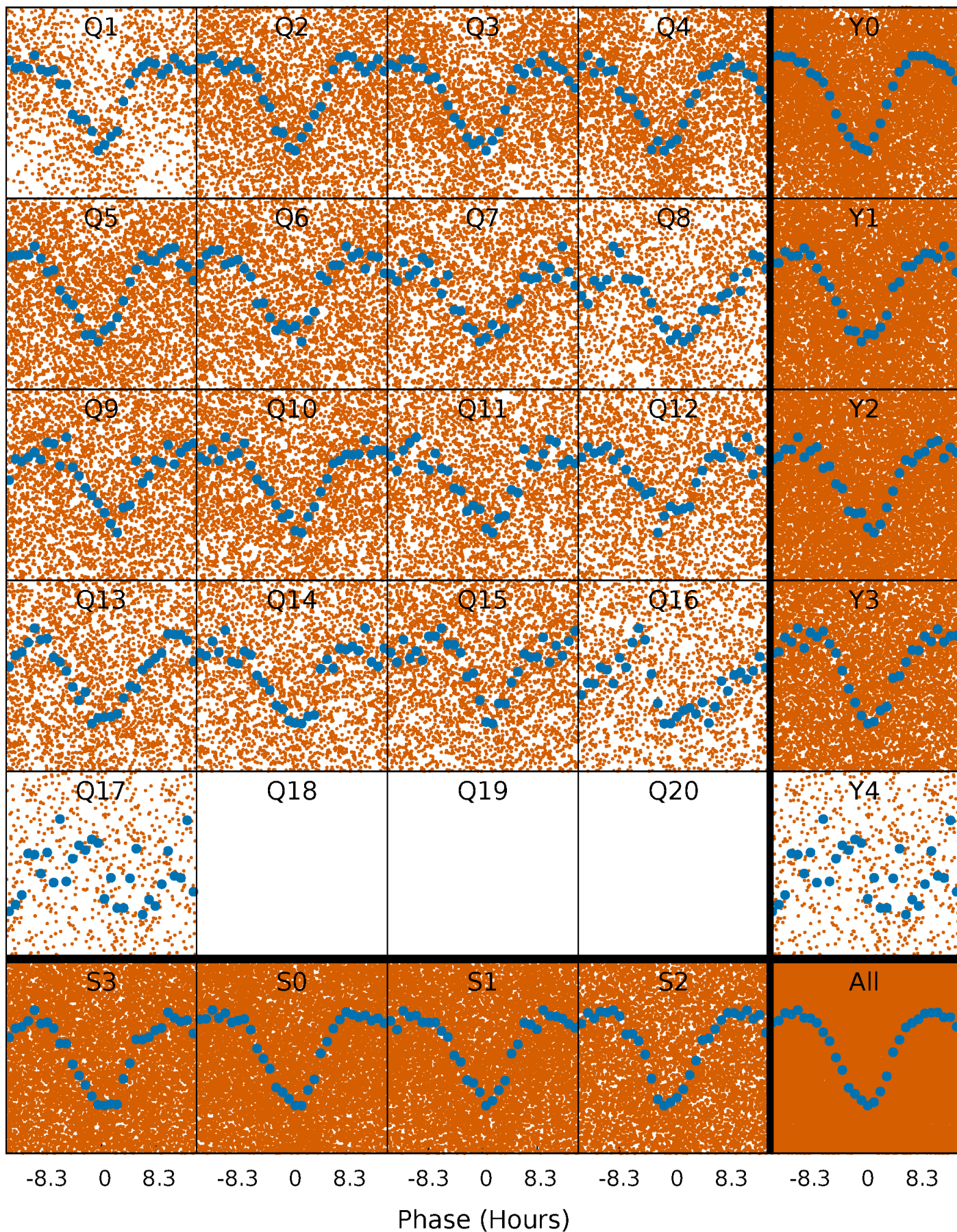


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

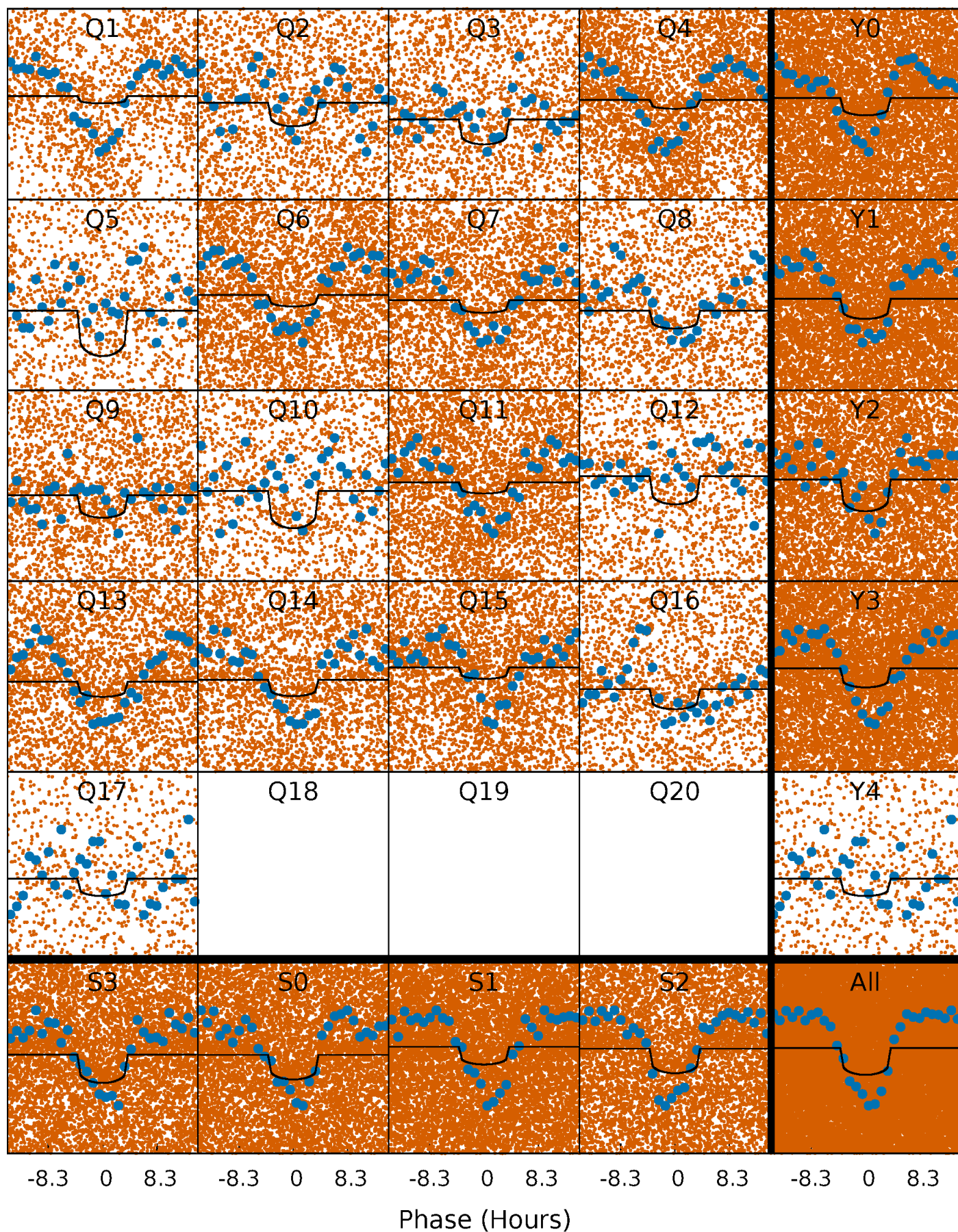
TCE 010533233-01 P= 0.881928 Days  $T_0=131.718919$  (BKJD)





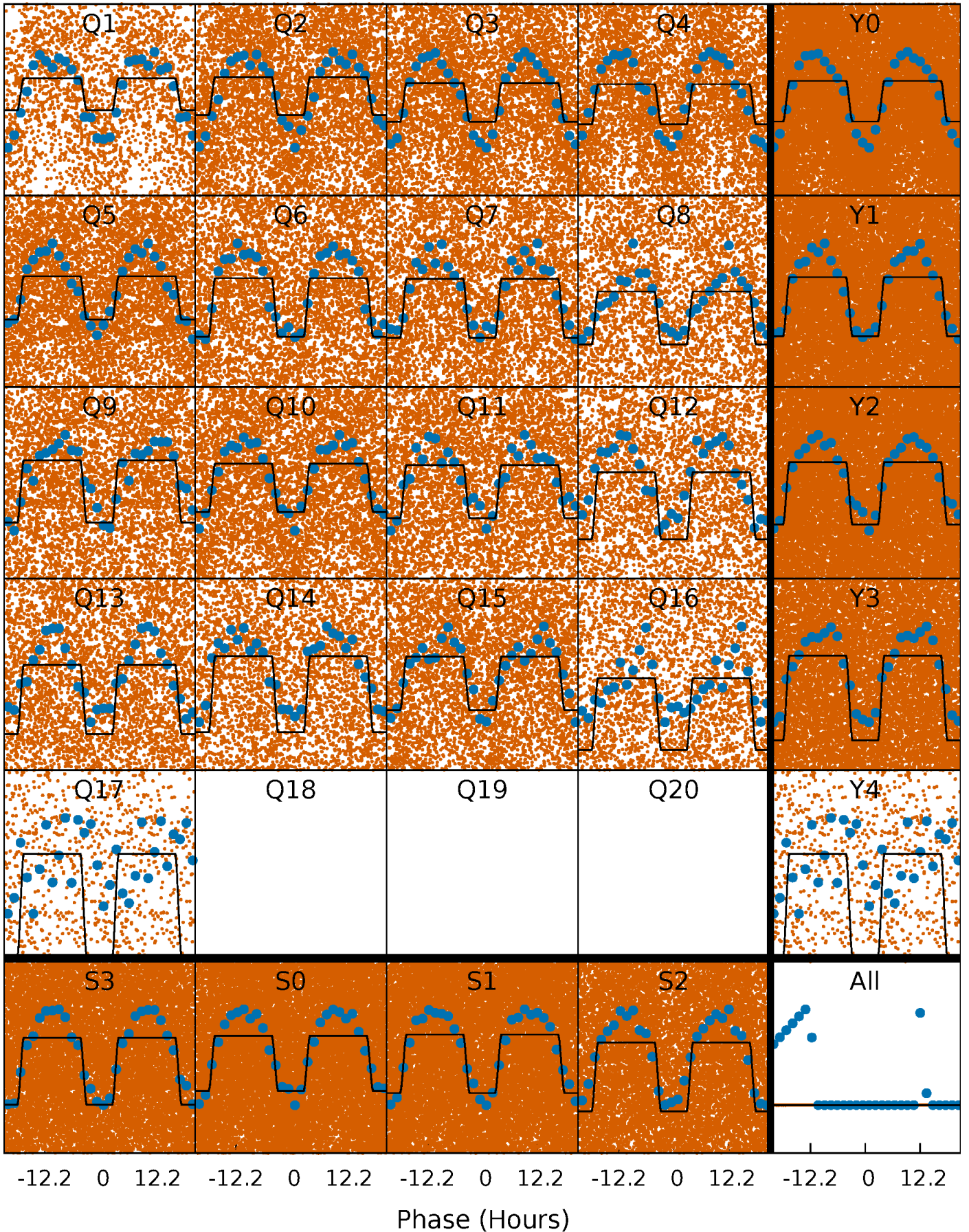
# DV Quarter-Phased Transit Curves

TCE 010533233-01 P= 0.881928 Days  $T_0=131.718919$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010533233-01 P= 0.881979 Days  $T_0=131.686819$  (BKJD)

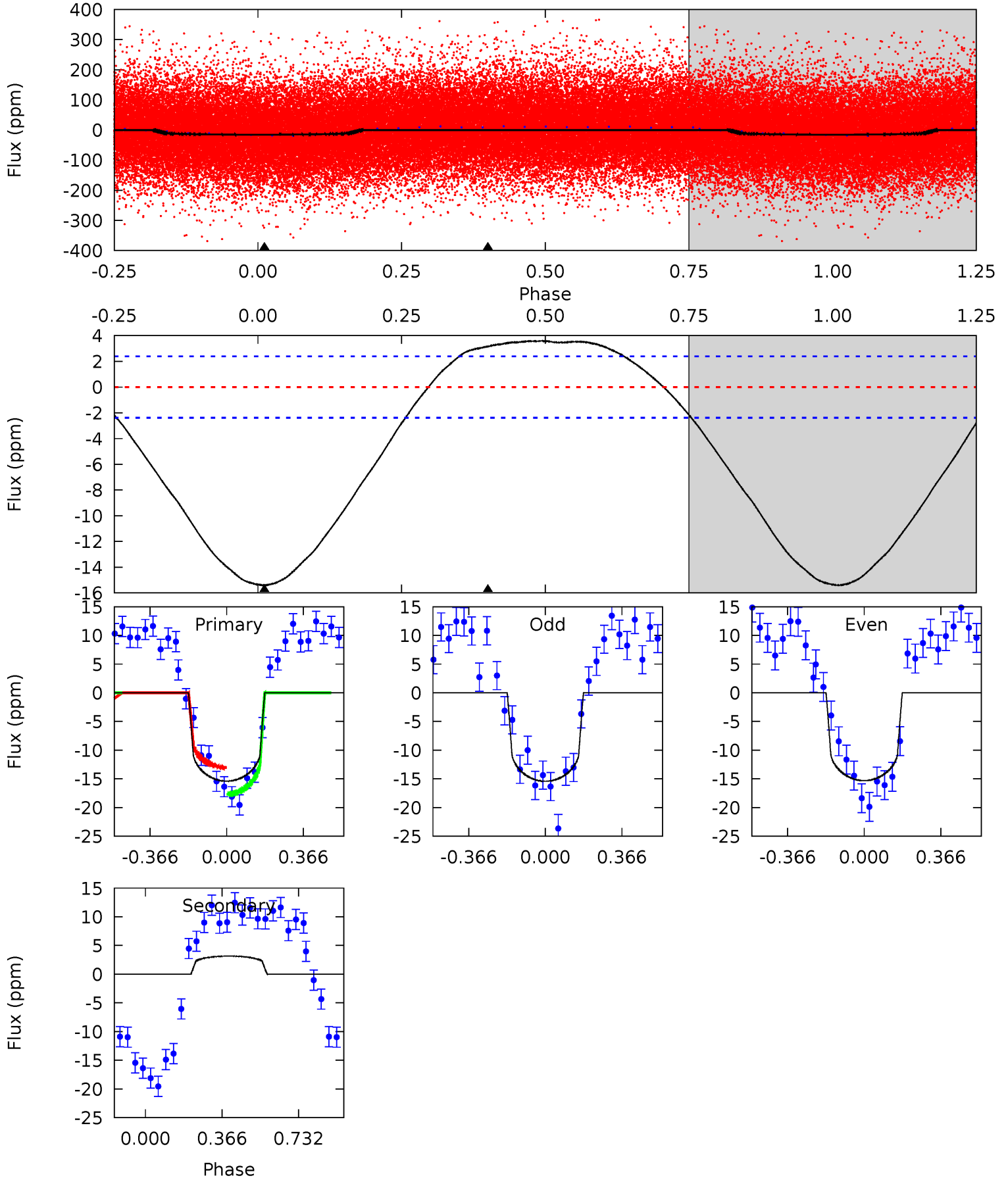




# DV Model-Shift Uniqueness Test

010533233-01, P = 0.881928 Days, E = 130.836991 Days

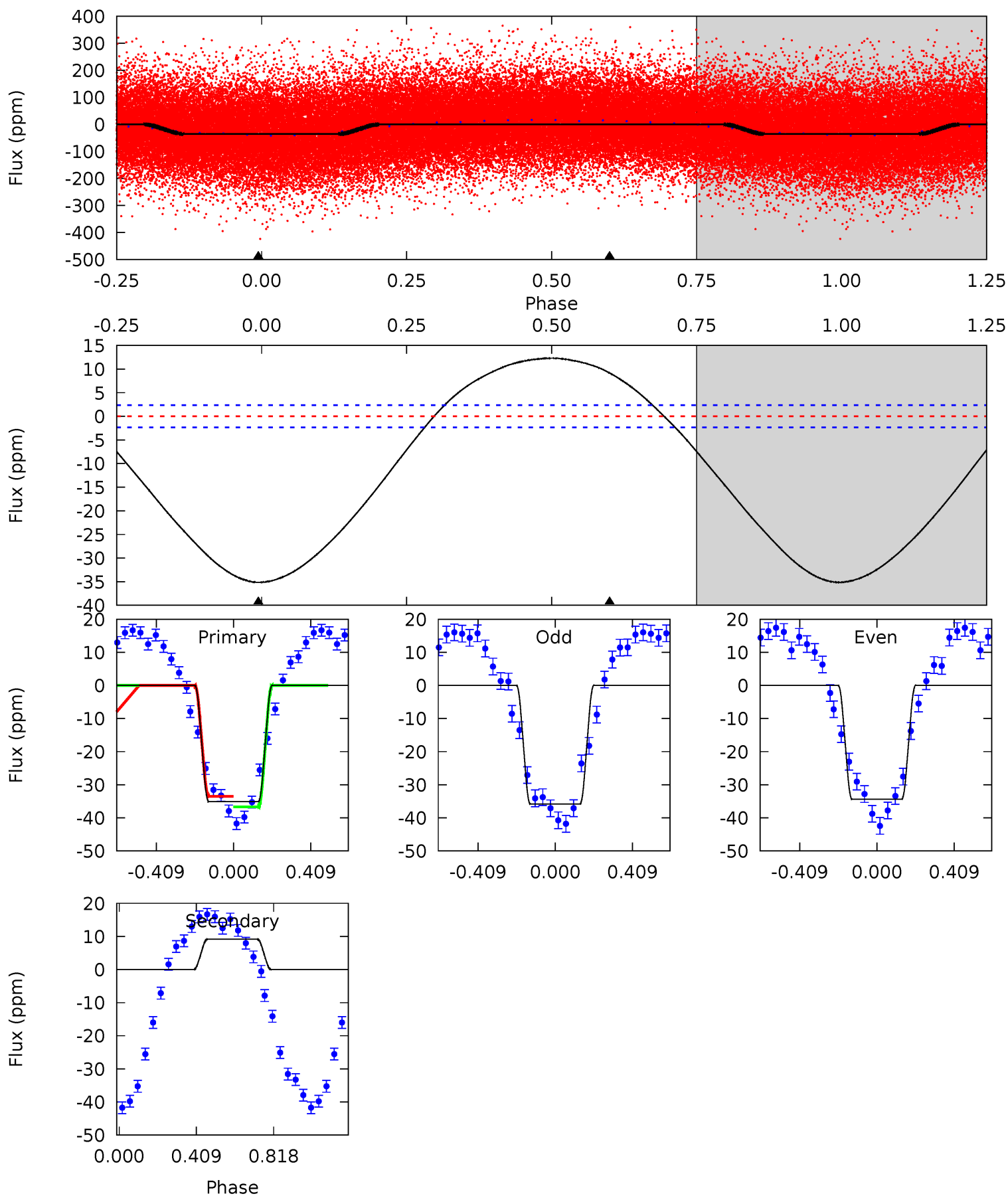
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	-5.67	0	0	4.28	0.90	2.29	27.7	27.7	-5.67	-5.67	0.10	1.07	0.19	4.23



# Alt Model-Shift Uniqueness Test

010533233-01, P = 0.881979 Days, E = 130.804840 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
63.7	-16.6	0	0	4.26	0.83	7.27	63.7	63.7	-16.6	-16.6	1.33	1.03	0.26	2.87





### Stellar Parameters For KIC 010533233

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9801^{+306}_{-443}$	$4.112^{+0.200}_{-0.200}$	$0.070^{+0.200}_{-0.650}$	$2.248^{+0.849}_{-0.695}$	$2.386^{+0.363}_{-0.674}$	$0.296^{+0.369}_{-0.167}$
	+3%/-5%	+5%/-5%	+286%/-929%	+38%/-31%	+15%/-28%	+125%/-56%
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 010533233-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$3\pm 1$	$0.68^{+0.44}_{-0.35}$	$5806^{+491}_{-467}$	$-7448^{+1317}_{-4206}$	$-2.030^{+1.265}_{-6.303}$
Alt.	$9\pm 1$	$1.47^{+0.49}_{-0.43}$	$5810^{+562}_{-462}$	$-6754^{+658}_{-1147}$	$-1.303^{+0.561}_{-1.235}$

$T_{max}$  = 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

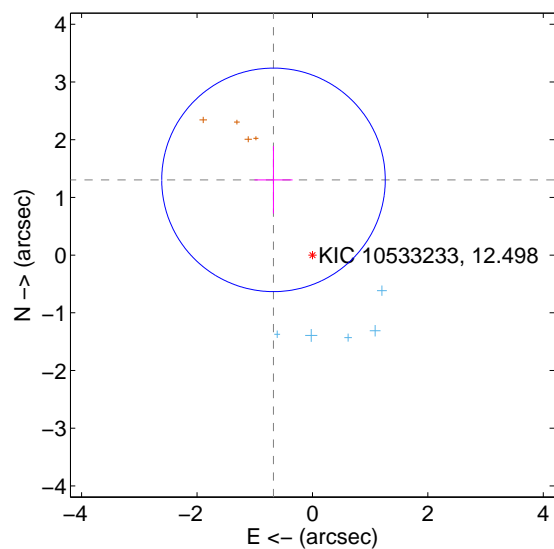
Supplemental centroid analysis for 010533233-01. Kepler magnitude: 12.50. Transit SNR 10.19

There are 5 quarters with good PRF difference image offsets

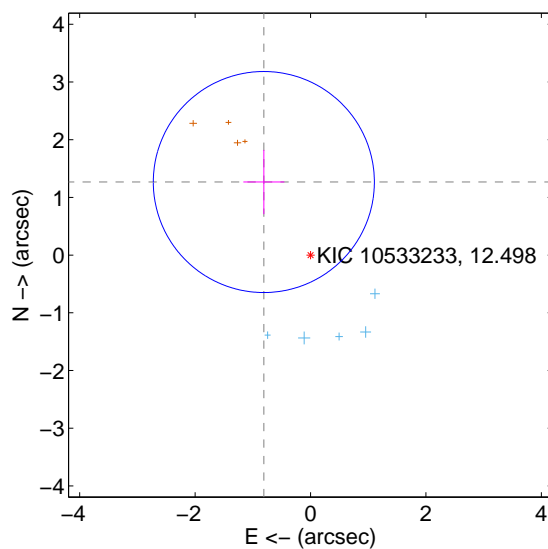
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.468 \pm 0.645$	2.27	$0.675 \pm 0.330$	$1.304 \pm 0.584$
PRF-fit source offset from KIC position	$1.503 \pm 0.638$	2.35	$0.809 \pm 0.355$	$1.266 \pm 0.556$
photometric centroid source offset	$0.63 \pm 0.96$	0.66	$0.33 \pm 1.05$	$-0.53 \pm 0.91$

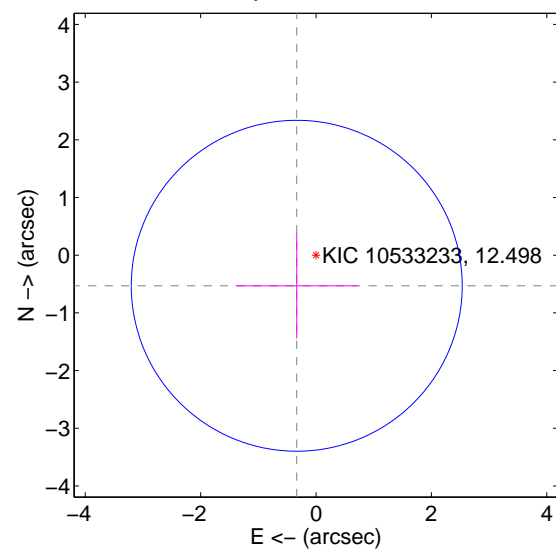
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

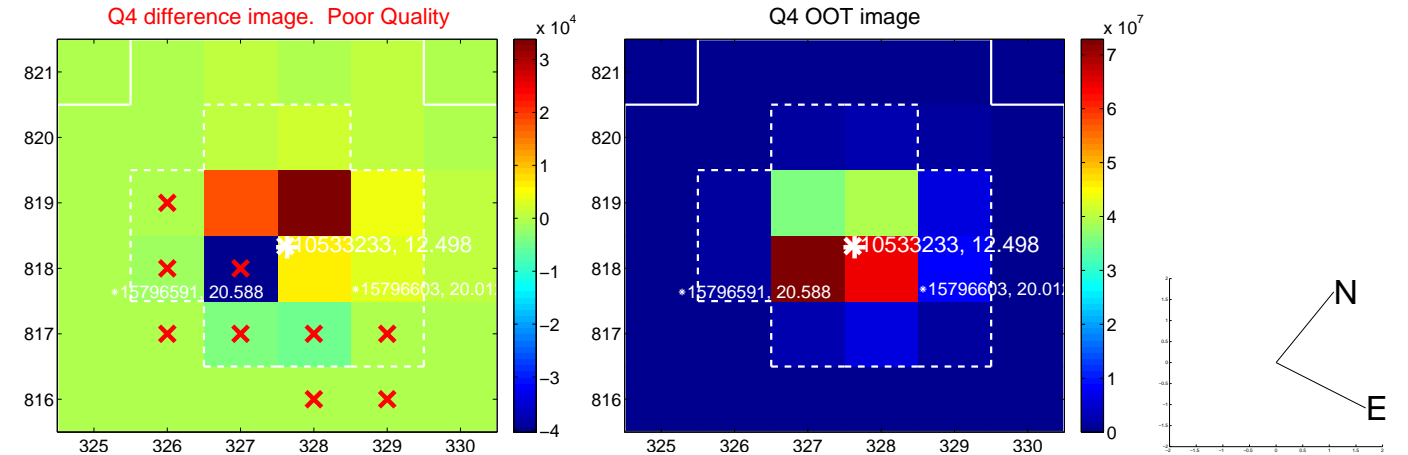
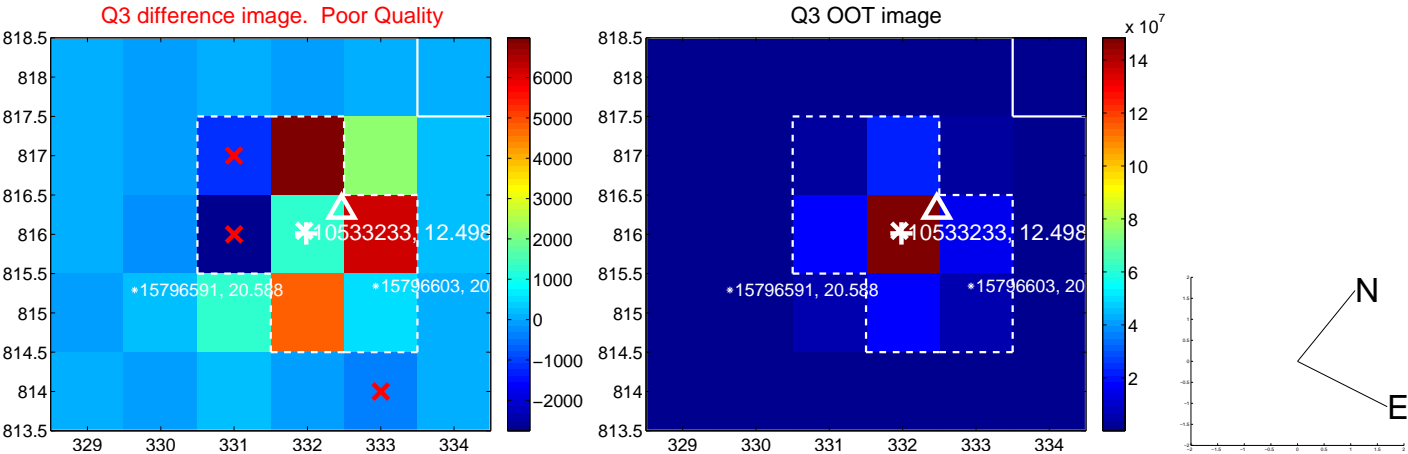
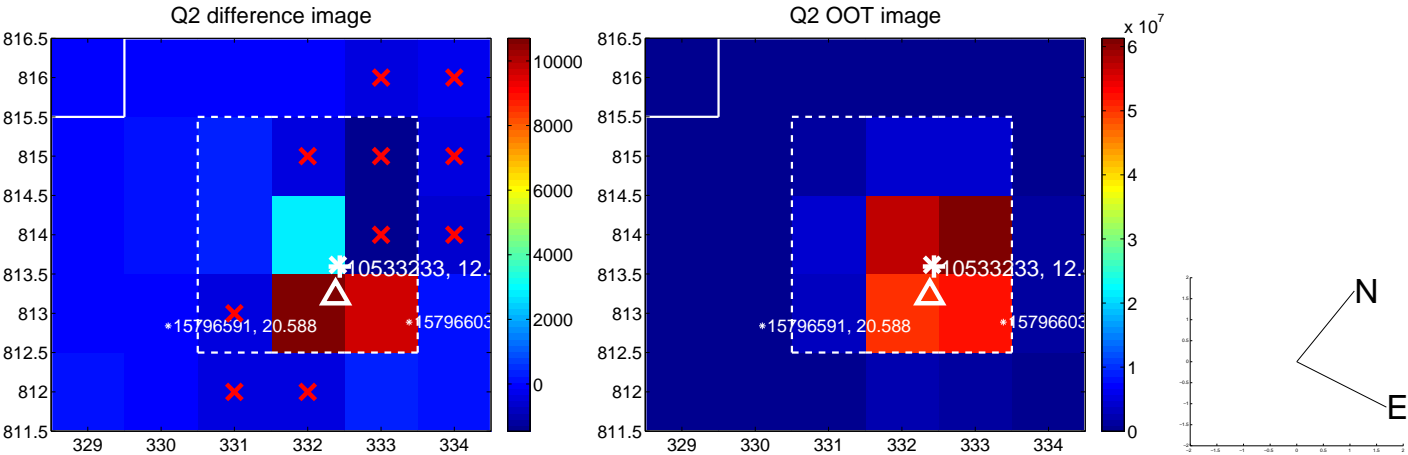
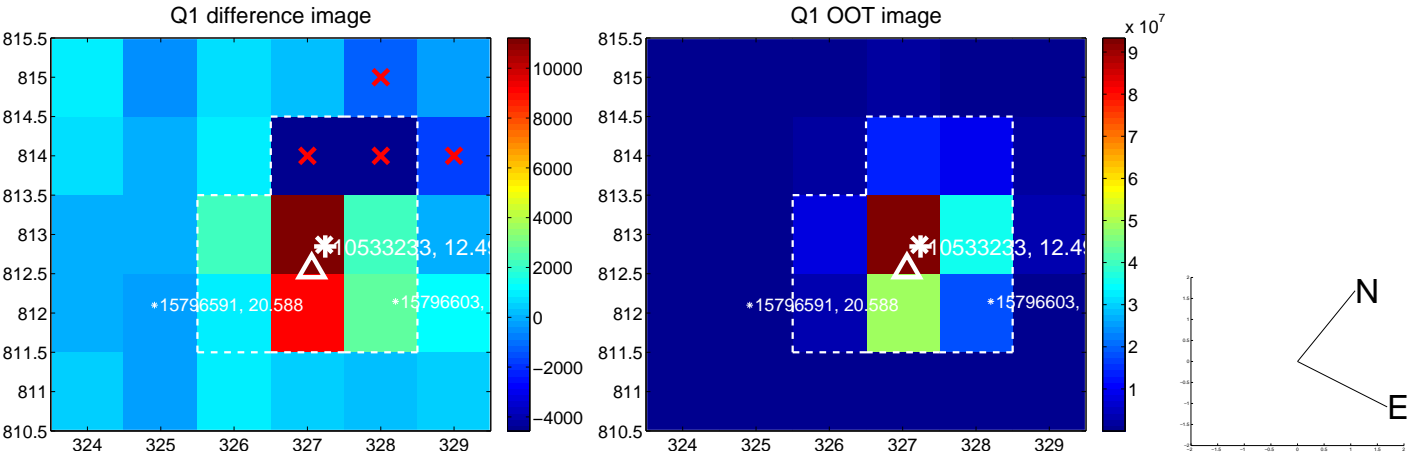


offset from photometric centroids

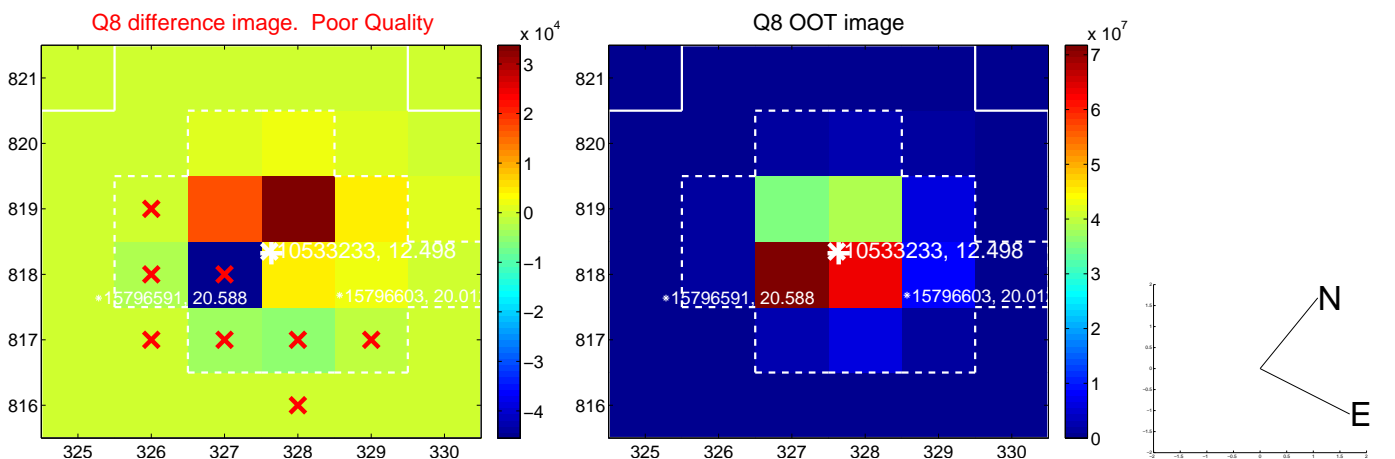
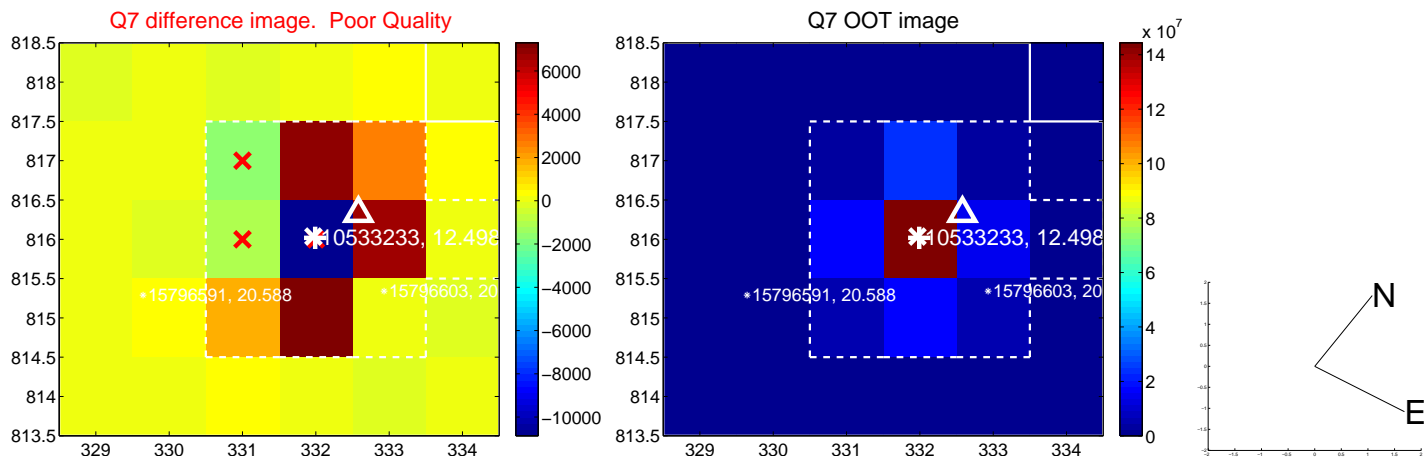
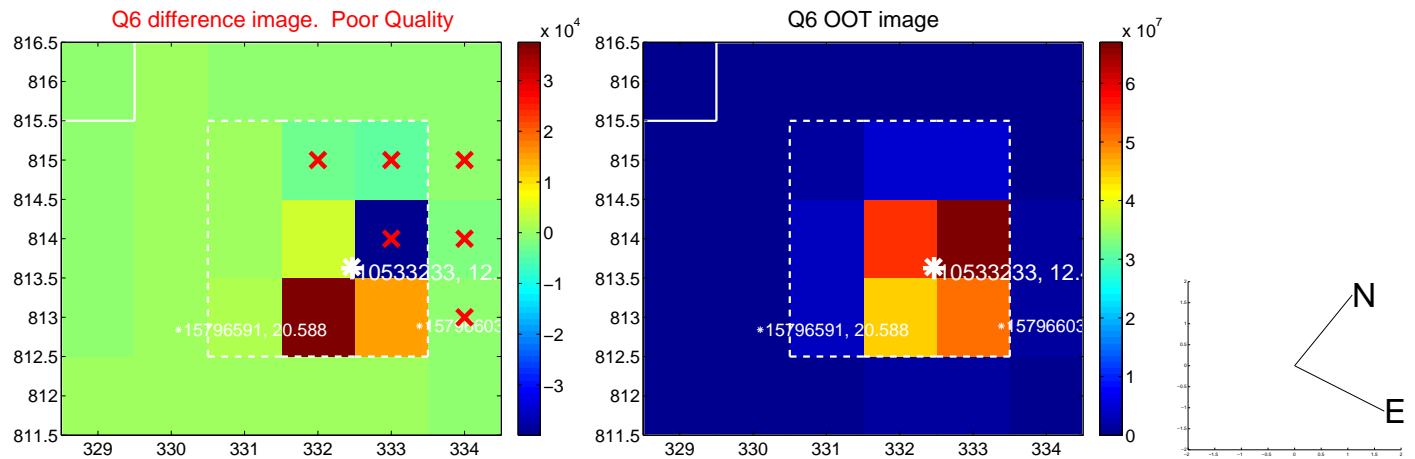
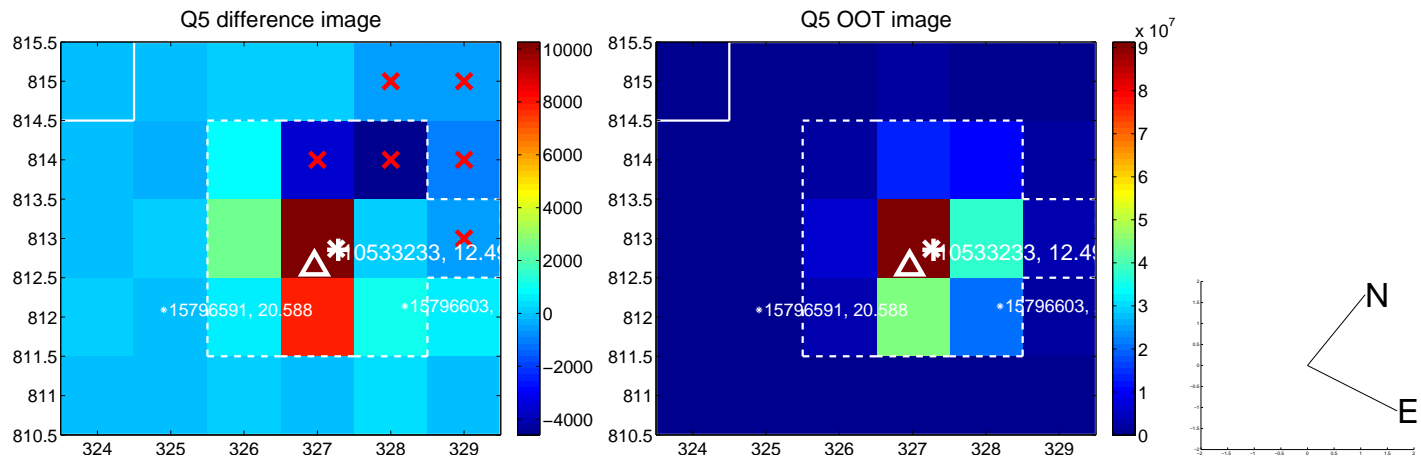


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

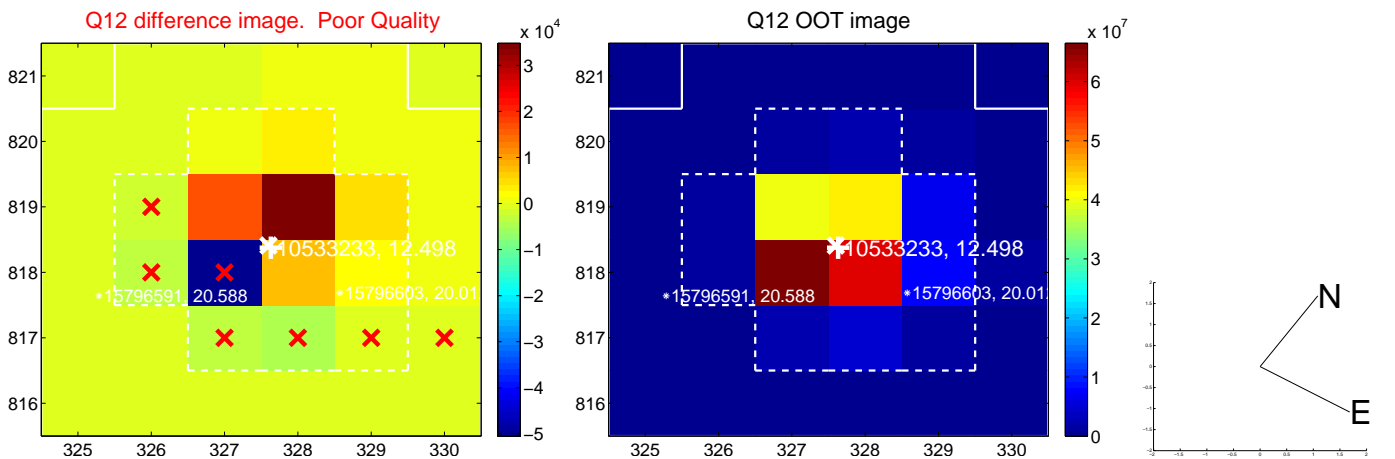
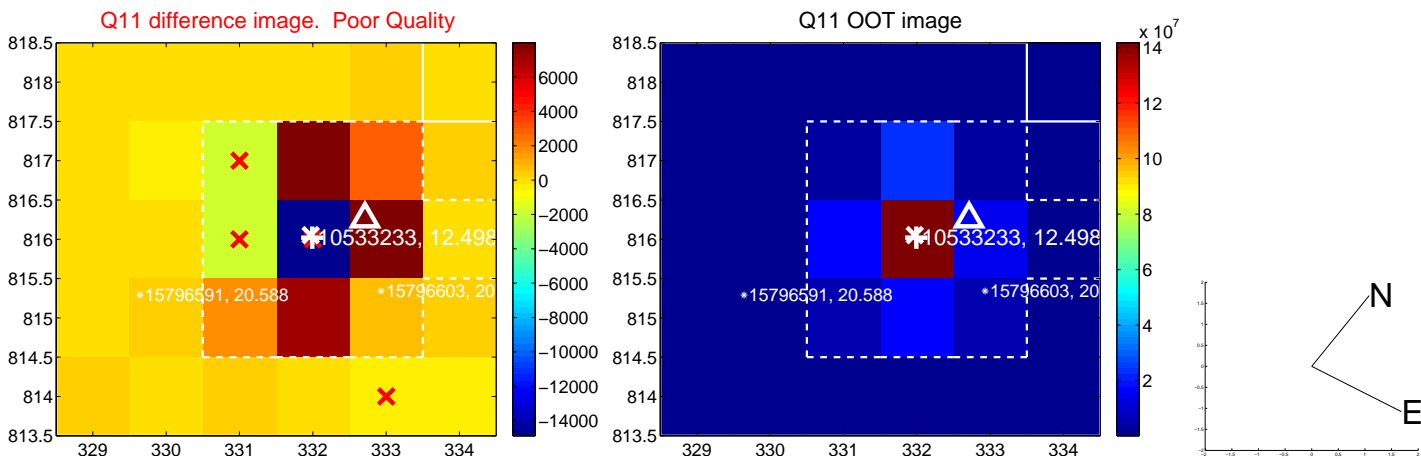
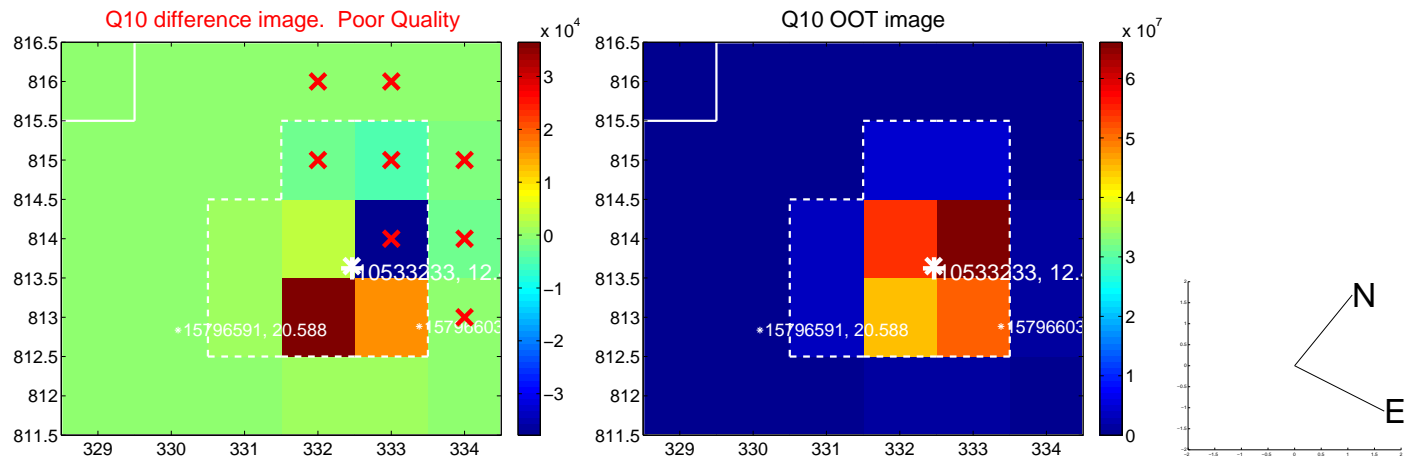
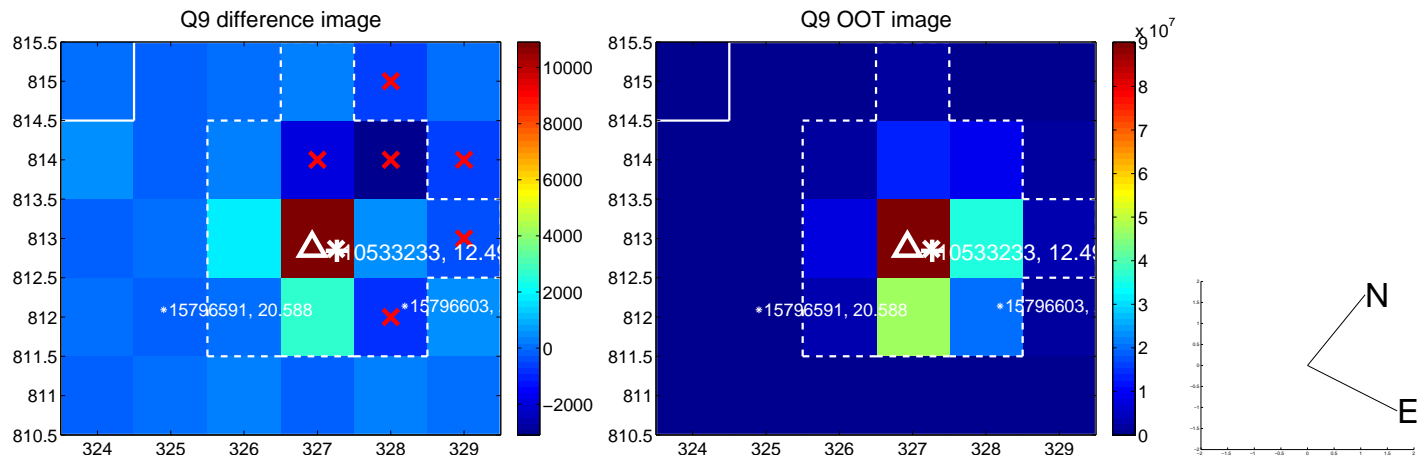


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

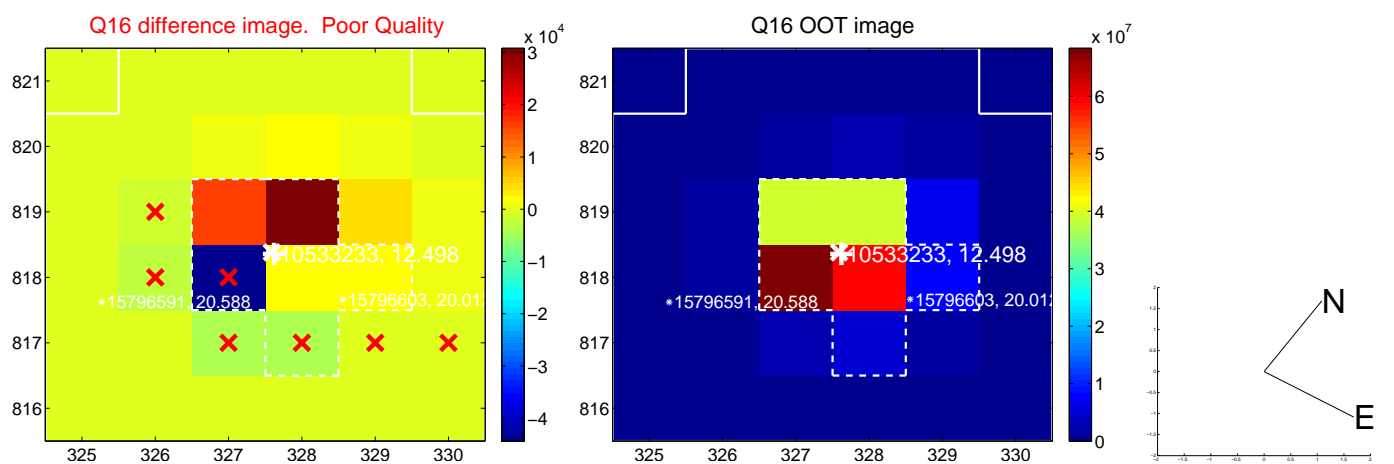
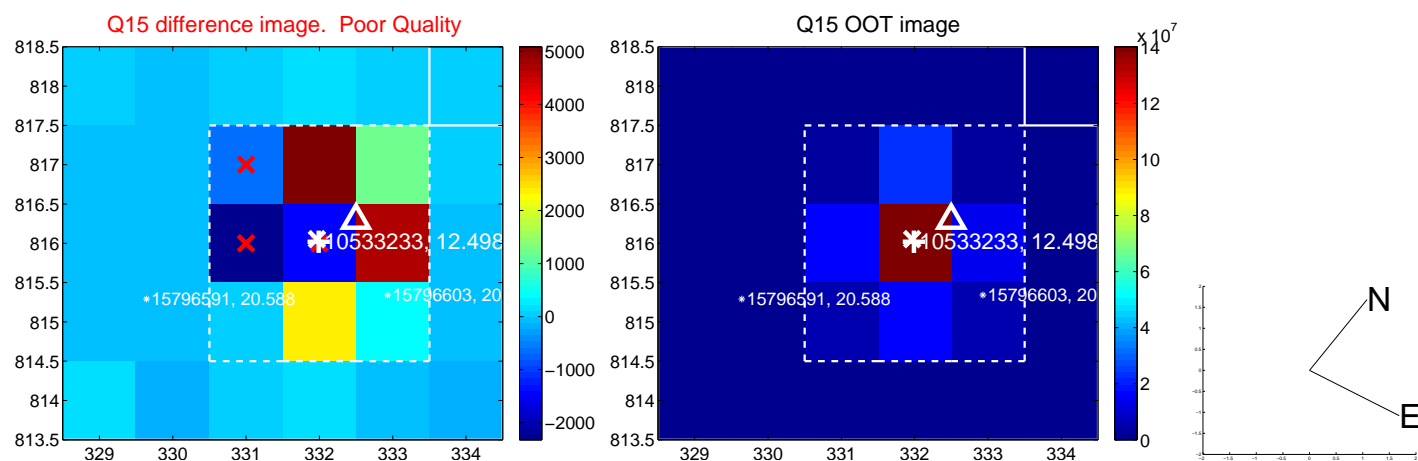
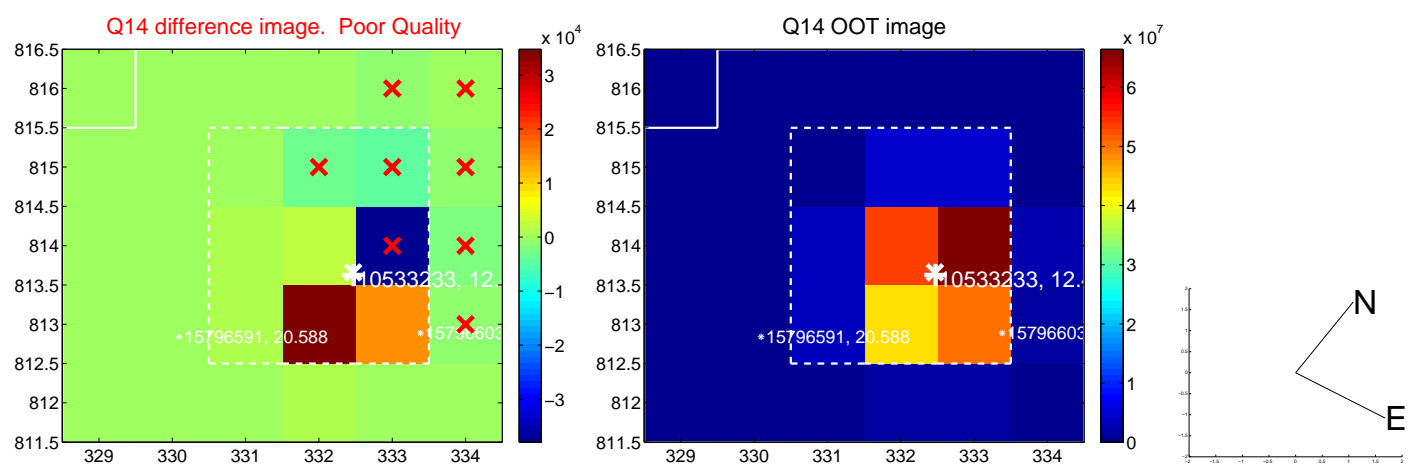
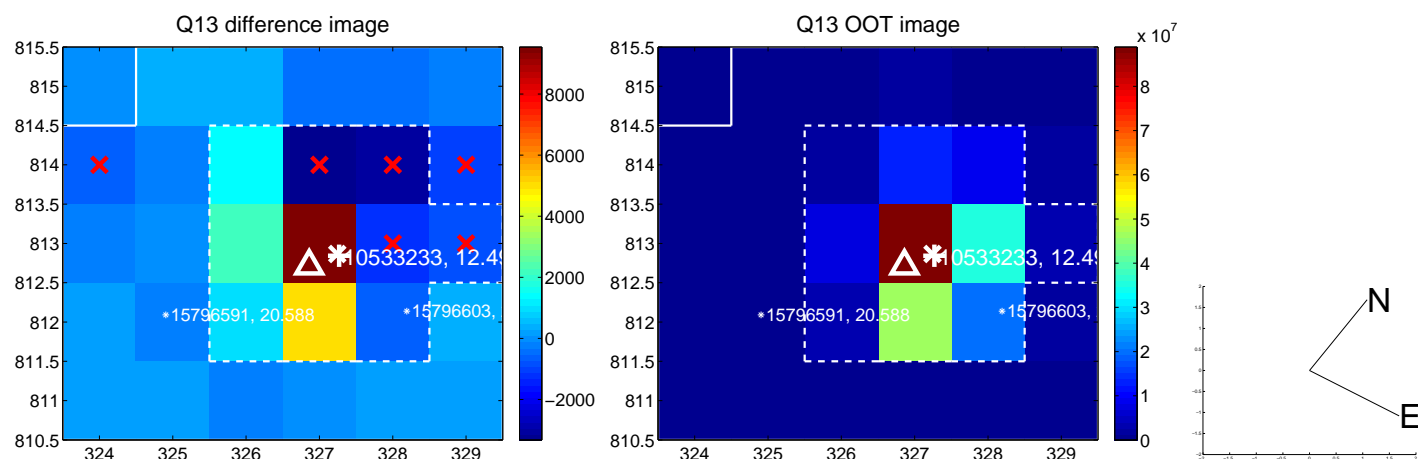




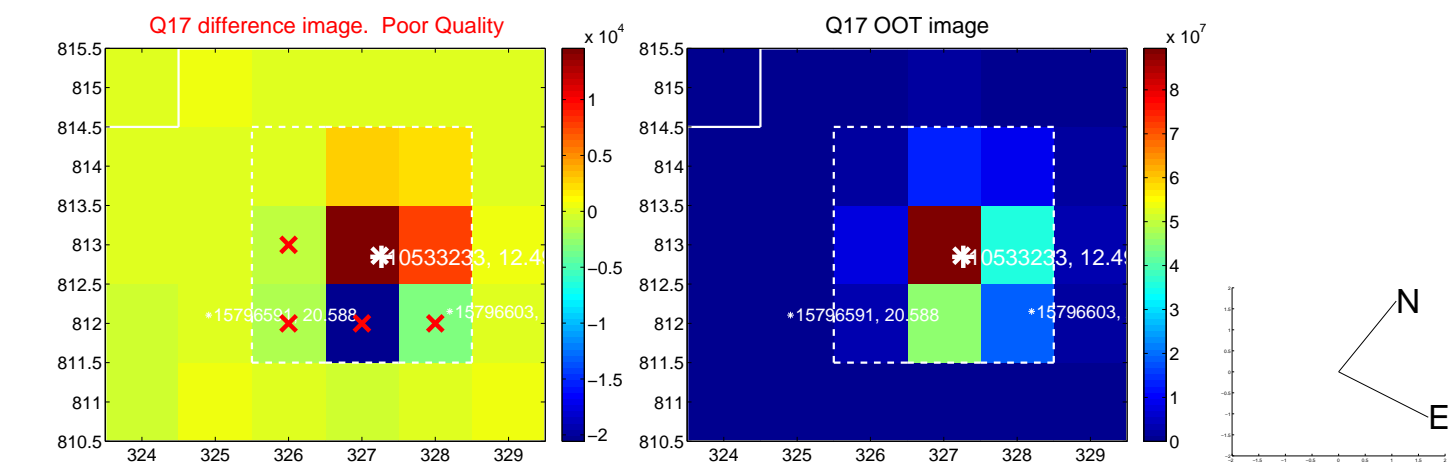
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



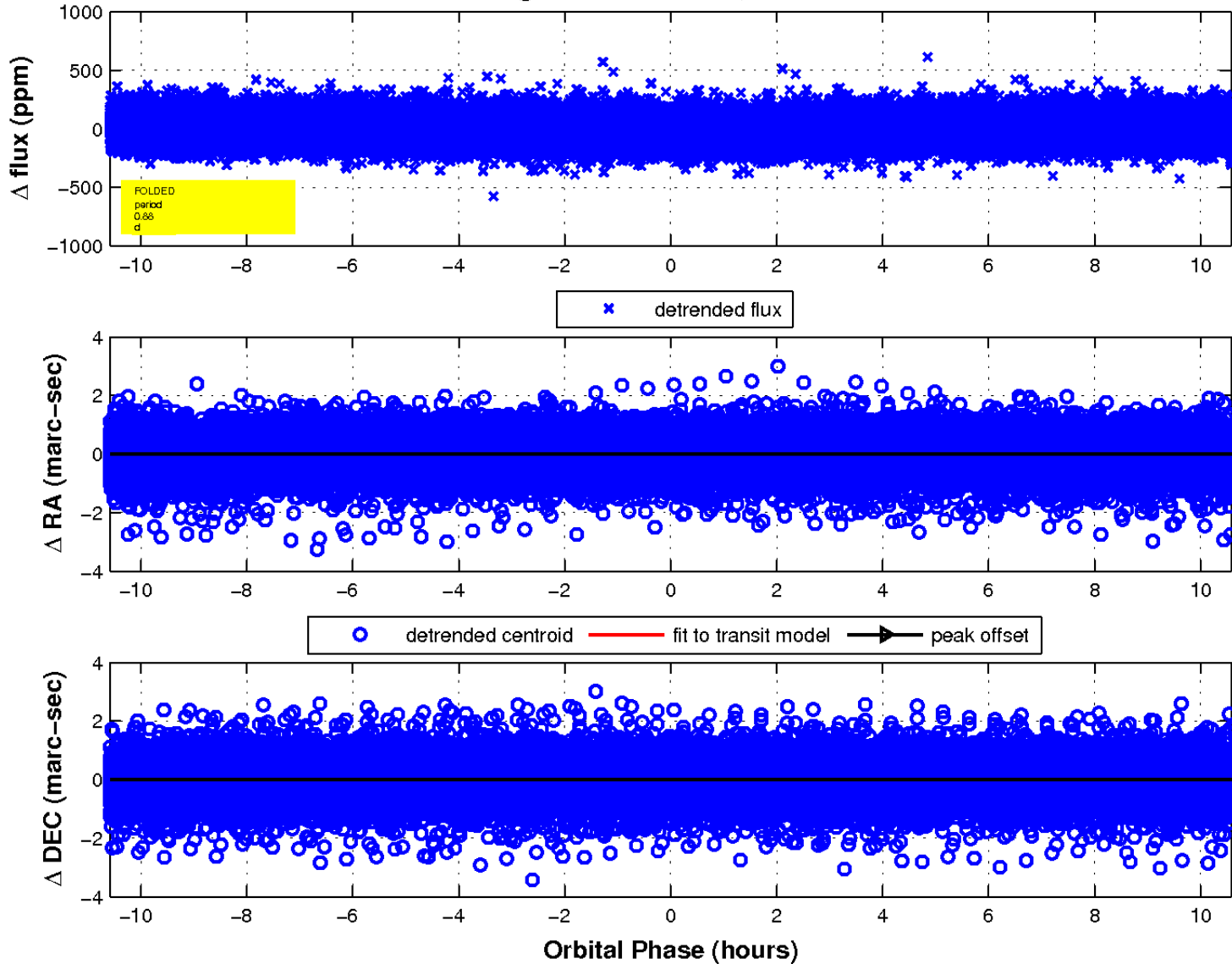
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



### fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

