

# KIC 010813132

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010813132-01	OBS	2378.01	4.767036	132.692876	159.3	2.048	12.1	13.5	0.94	5629	1.37	283.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010813132-01	OBS	PC	0.84	0	0	0	0	NO_COMMENT

**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.

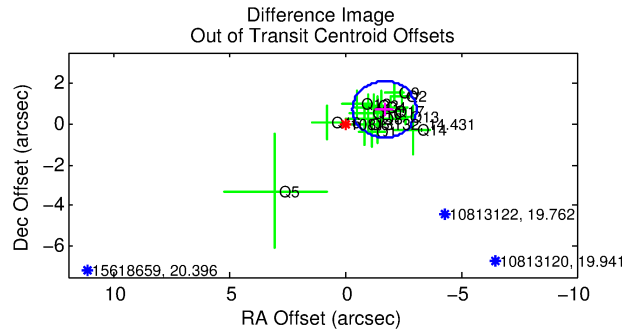
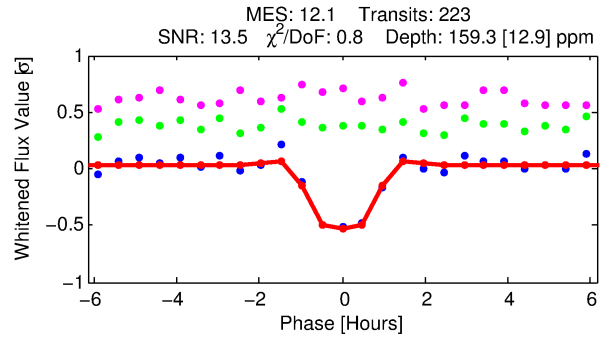
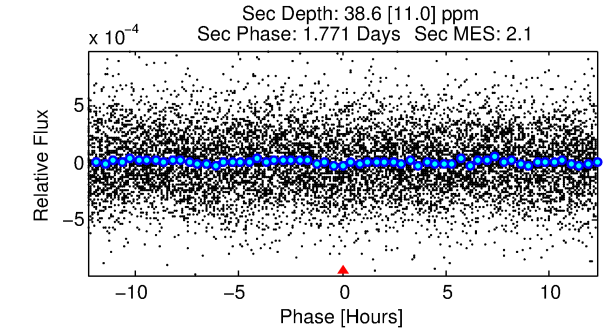
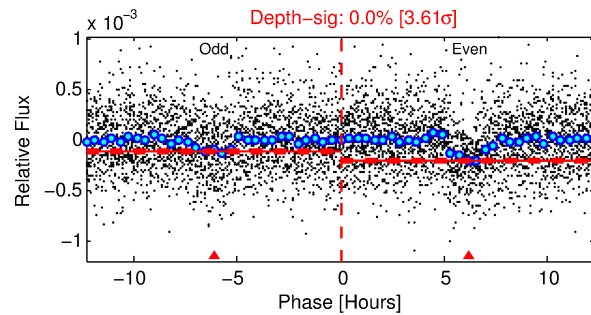
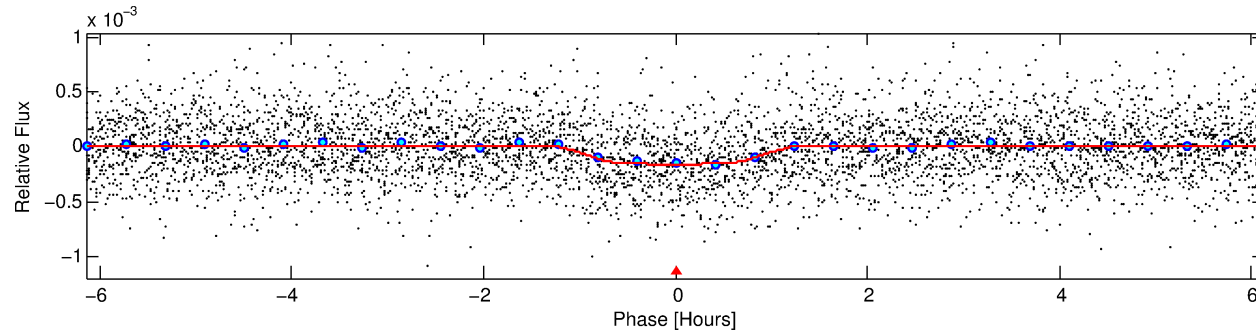
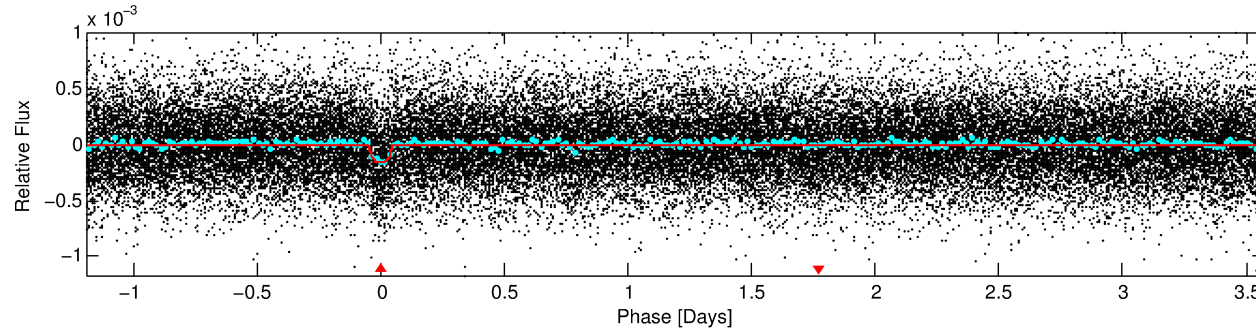
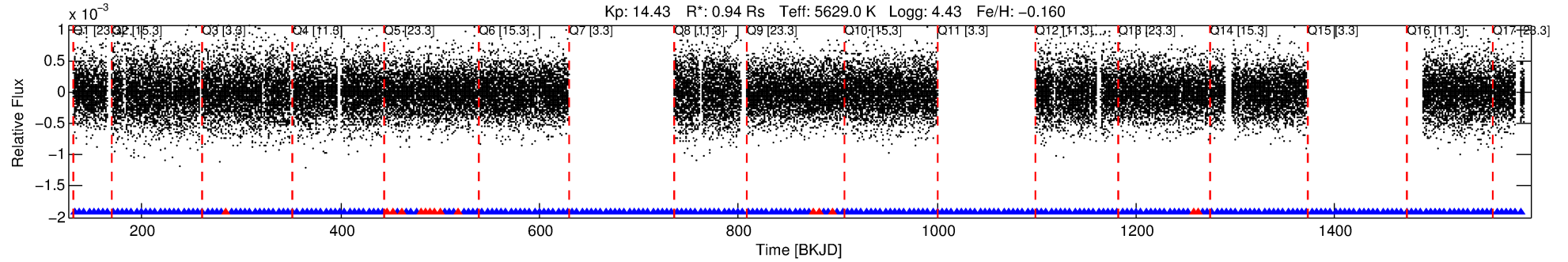
## Ephemeris Match Information For 010813132-01

No Significant Match Found

# DV One-Page Summary

KIC: 10813132 Candidate: 1 of 1 Period: 4.767 d

KOI: K02378.01 Corr: 0.951



## DV Fit Results:

Period = 4.76704 [0.00002] d  
Epoch = 132.6929 [0.0028] BKJD  
Rp/R\* = 0.0134 [0.0091]  
a/R\* = 9.37 [28.80]  
b = 0.87 [0.91]  
Seff = 283.65 [97.81]  
Teff = 1046 [90] K  
Rp = 1.37 [1.00] Re  
a = 0.0528 [0.0118] AU  
Ag = 31.41 [44.90] [0.68σ]  
Teffp = 3830 [1336] K [2.08σ]

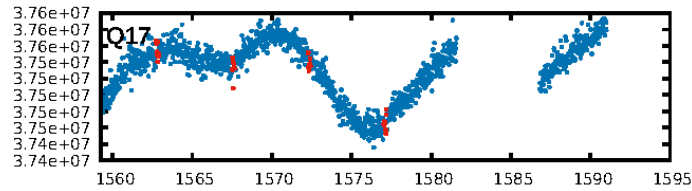
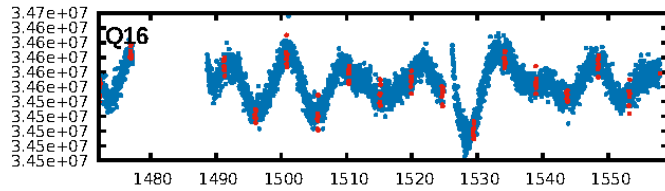
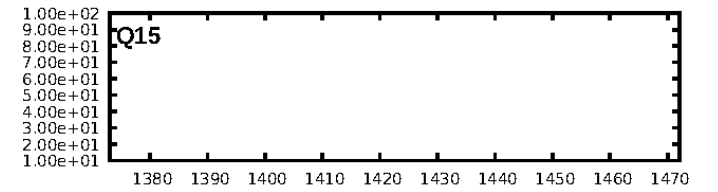
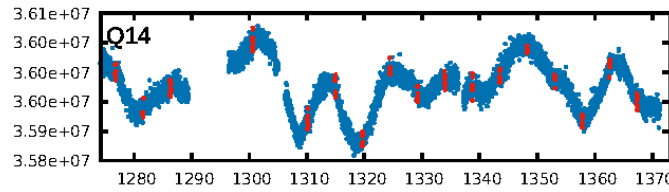
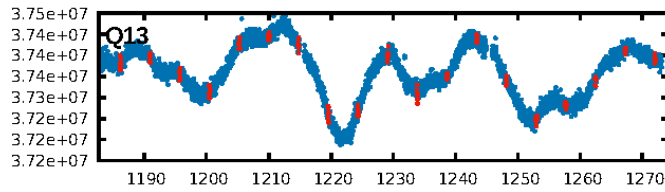
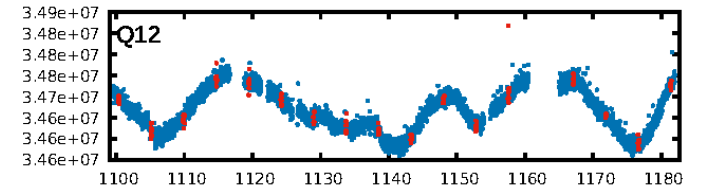
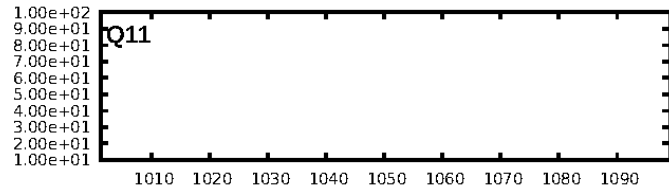
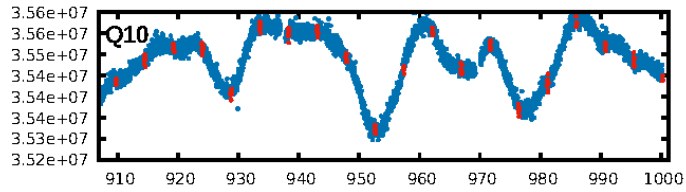
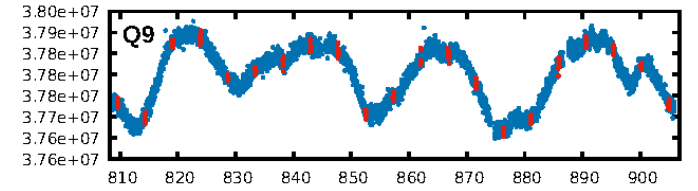
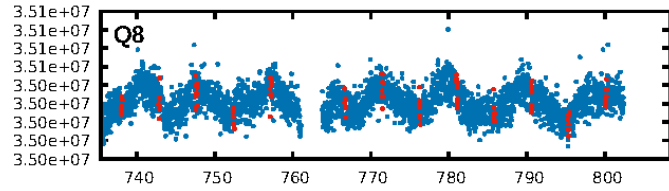
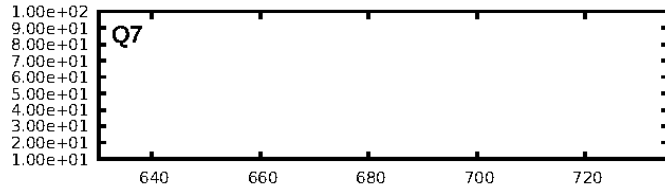
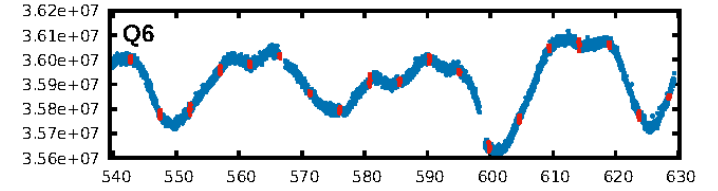
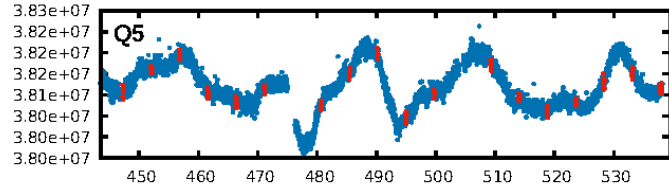
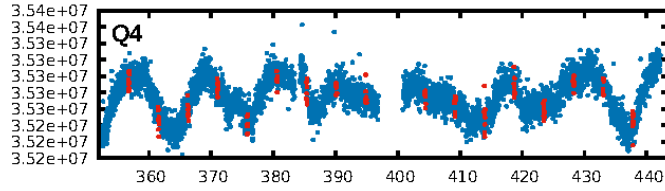
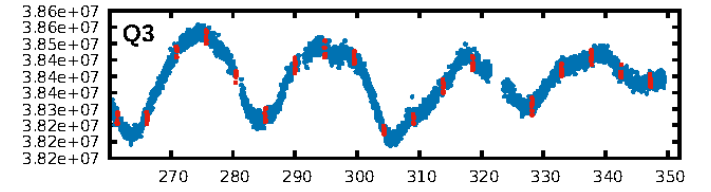
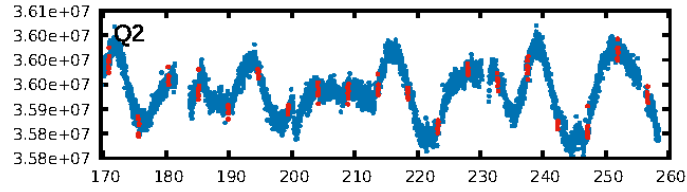
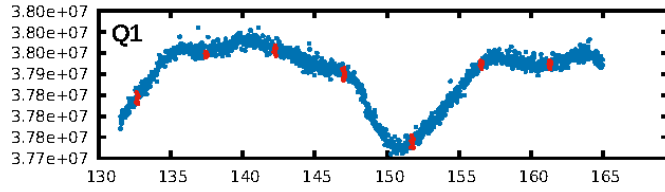
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.48e-33  
RollingBand-fgt: 0.93 [197/212]  
GhostDiagnostic-chr: 60.61  
Centroid-sig: 45.6%  
Centroid-so: 0.869 arcsec [0.82σ]  
OotOffset-rm: 1.818 arcsec [3.95σ]  
KicOffset-rm: 1.703 arcsec [3.43σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 0.64 [9/14]  
DiffImageOverlap-fno: 1.00 [14/14]

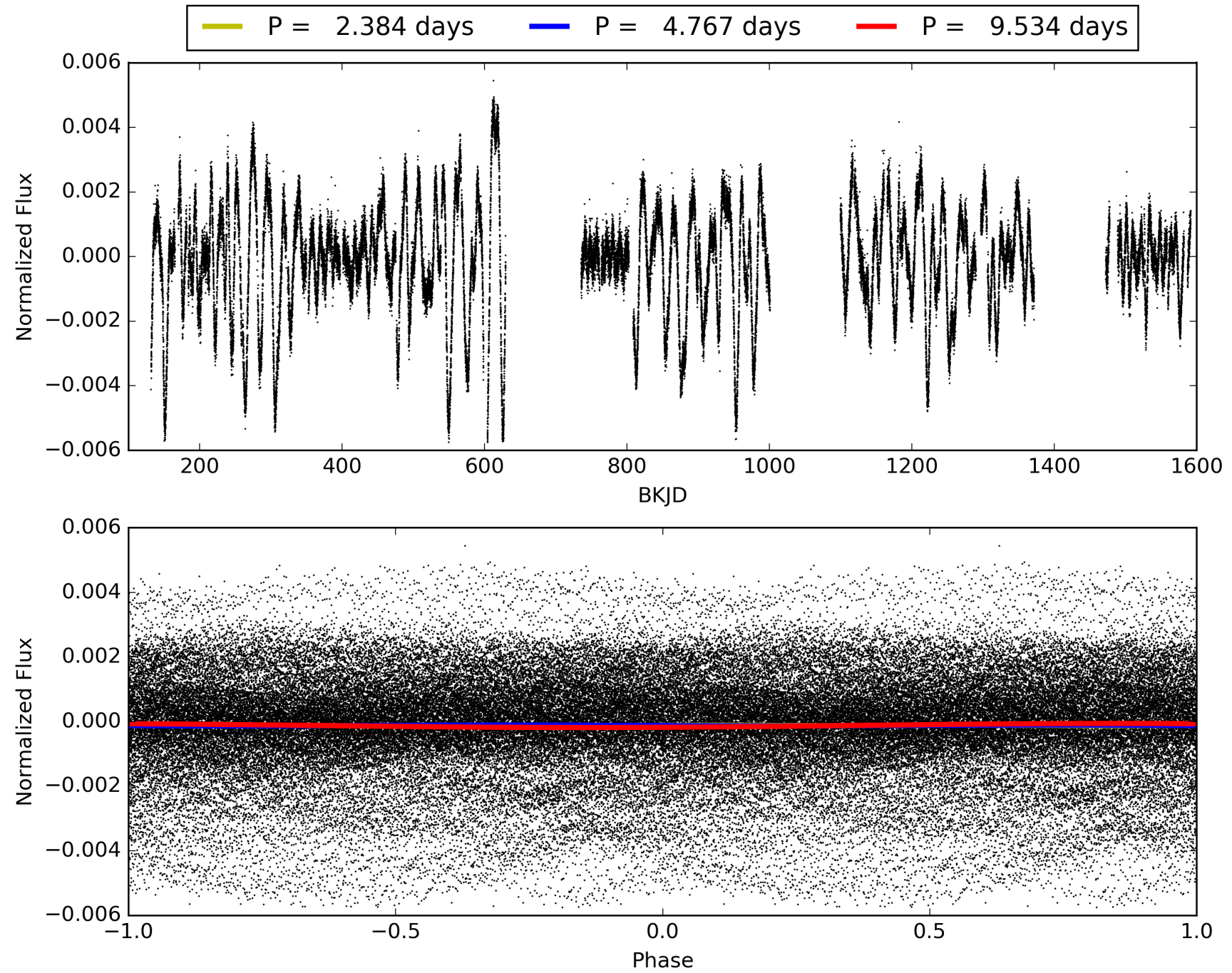
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:00:12 Z

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

# TCE 010813132-01, PDC Light Curves

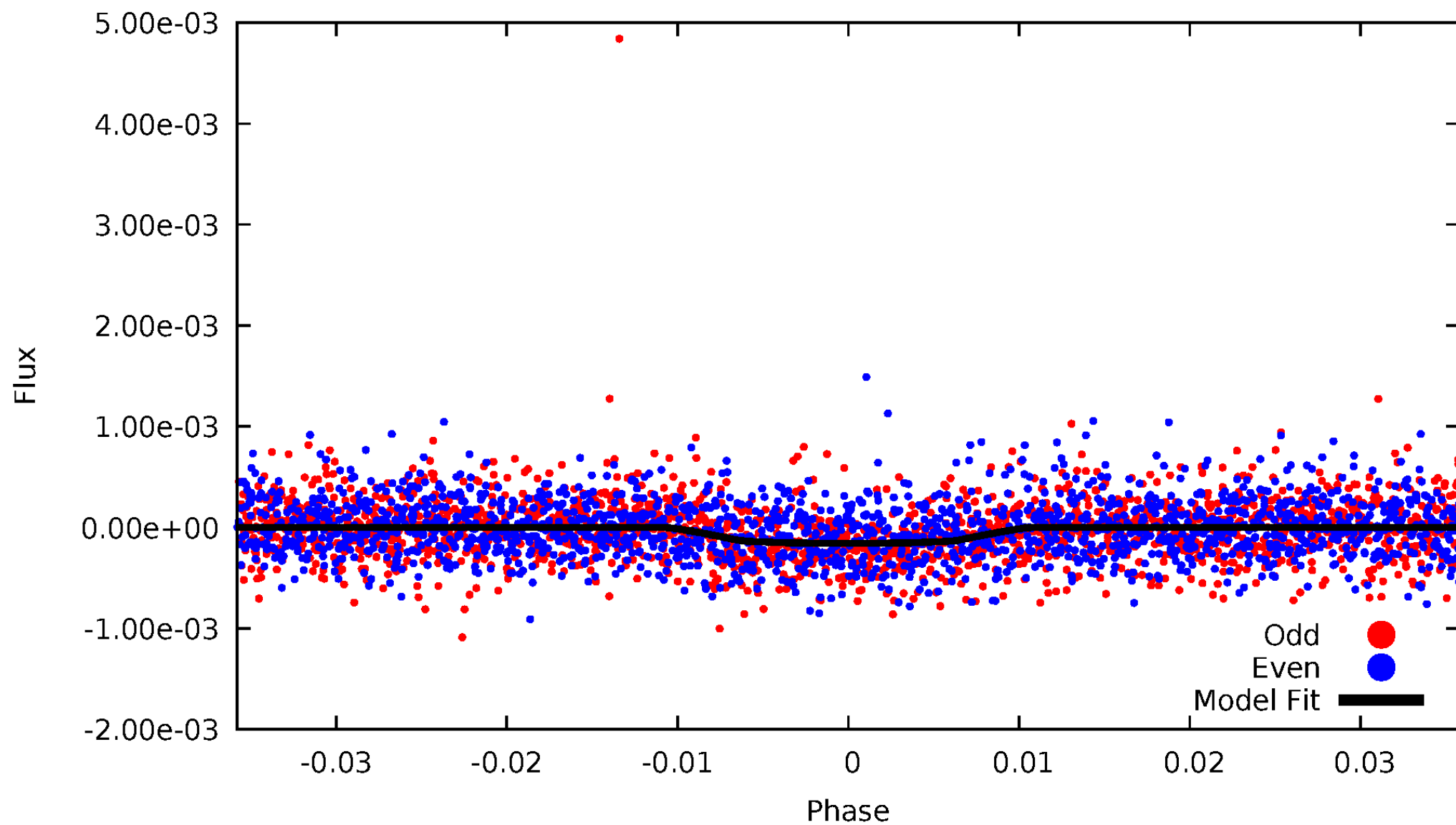


TCE 010813132-01



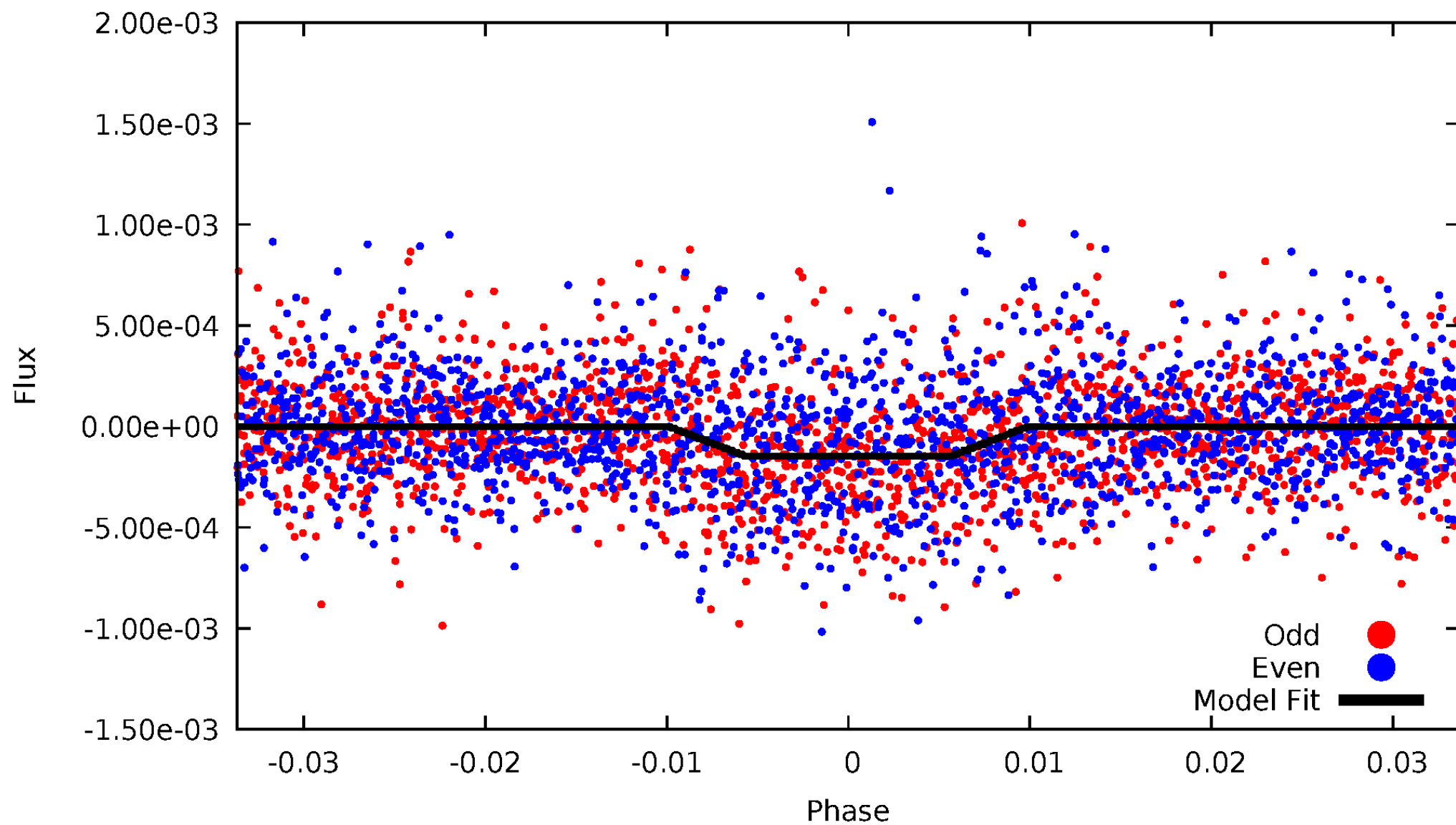
# DV Odd/Even

TCE 010813132-01



# ALT Odd/Even

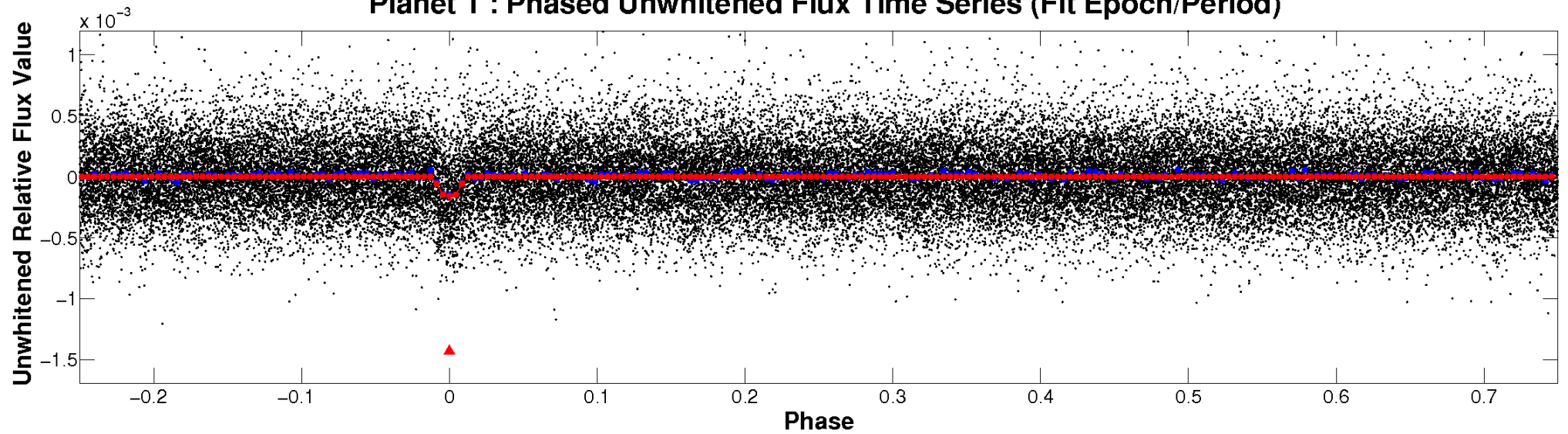
TCE 010813132-01



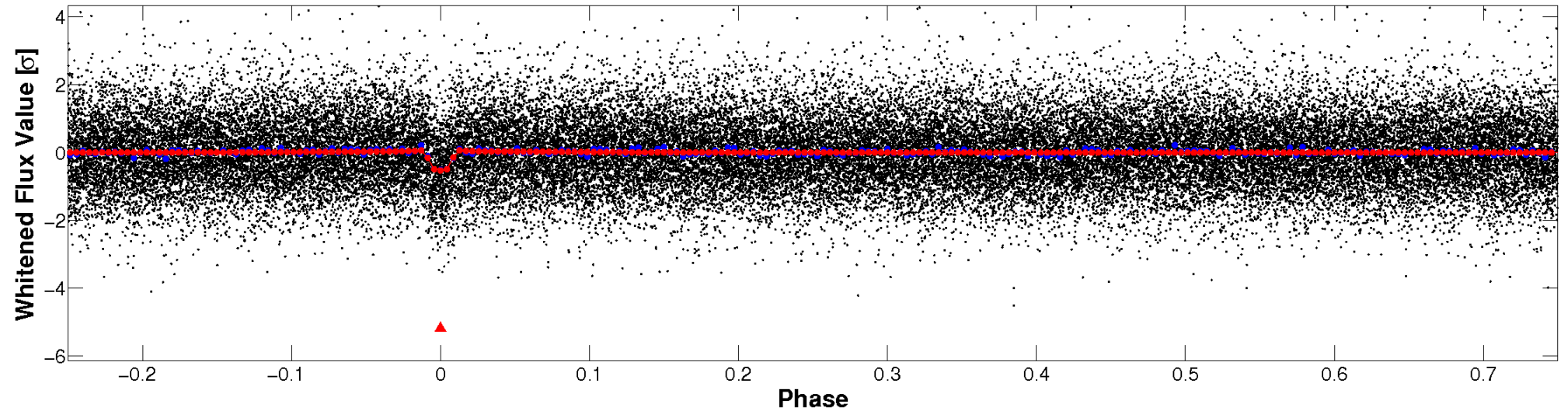


# Non-Whitened Vs. Whitened Light Curve

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

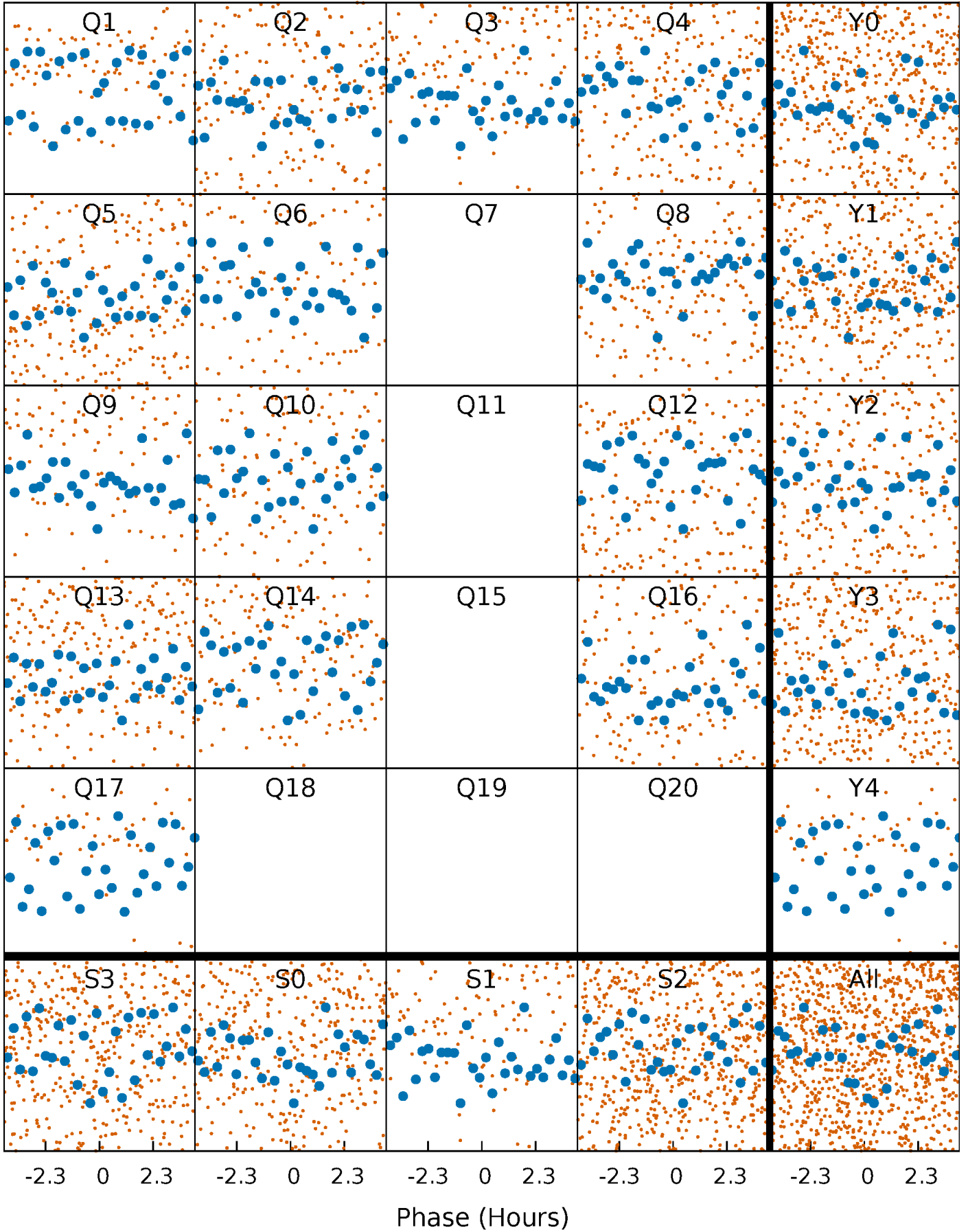


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

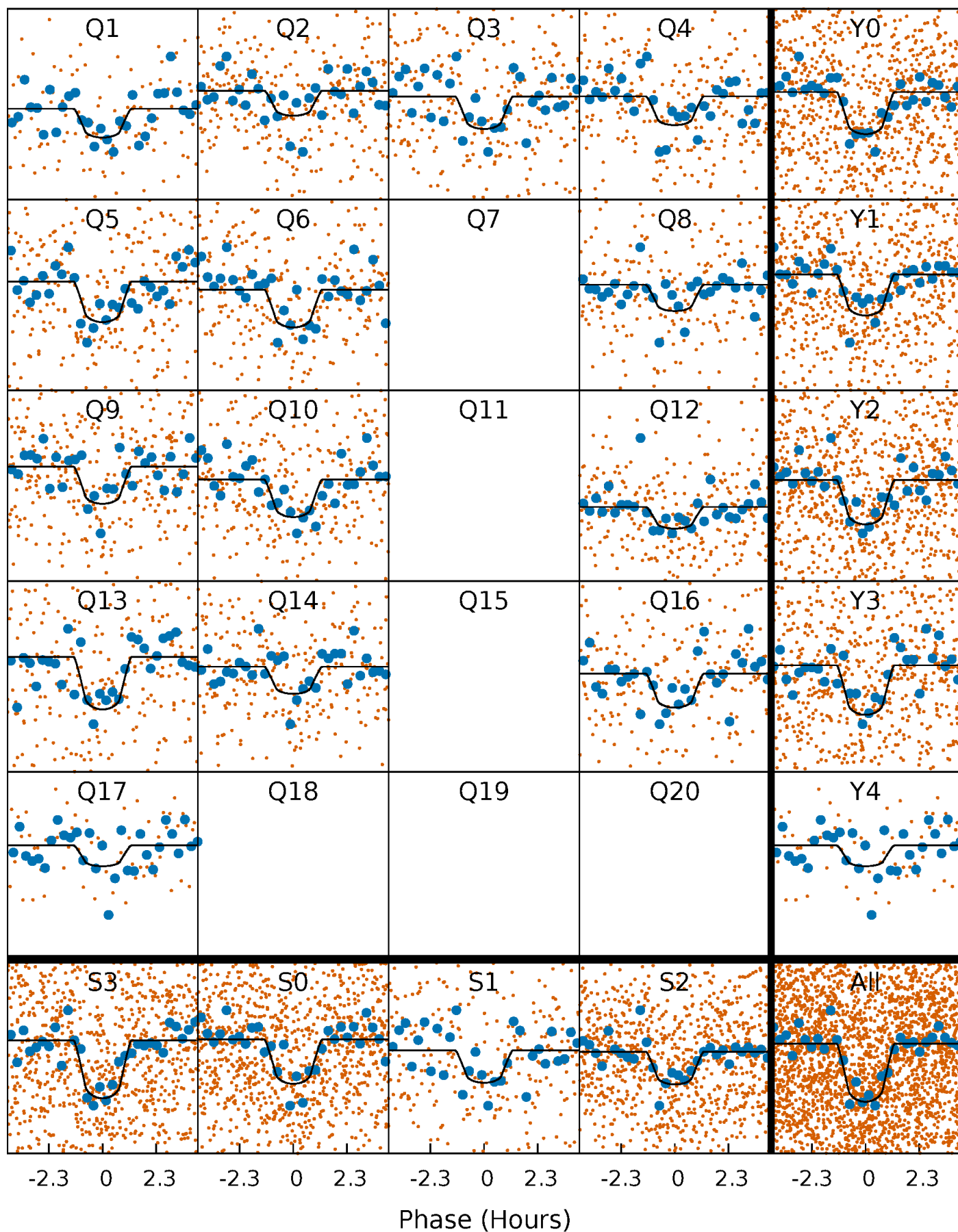
TCE 010813132-01   P= 4.767036 Days    $T_0=132.692876$  (BKJD)





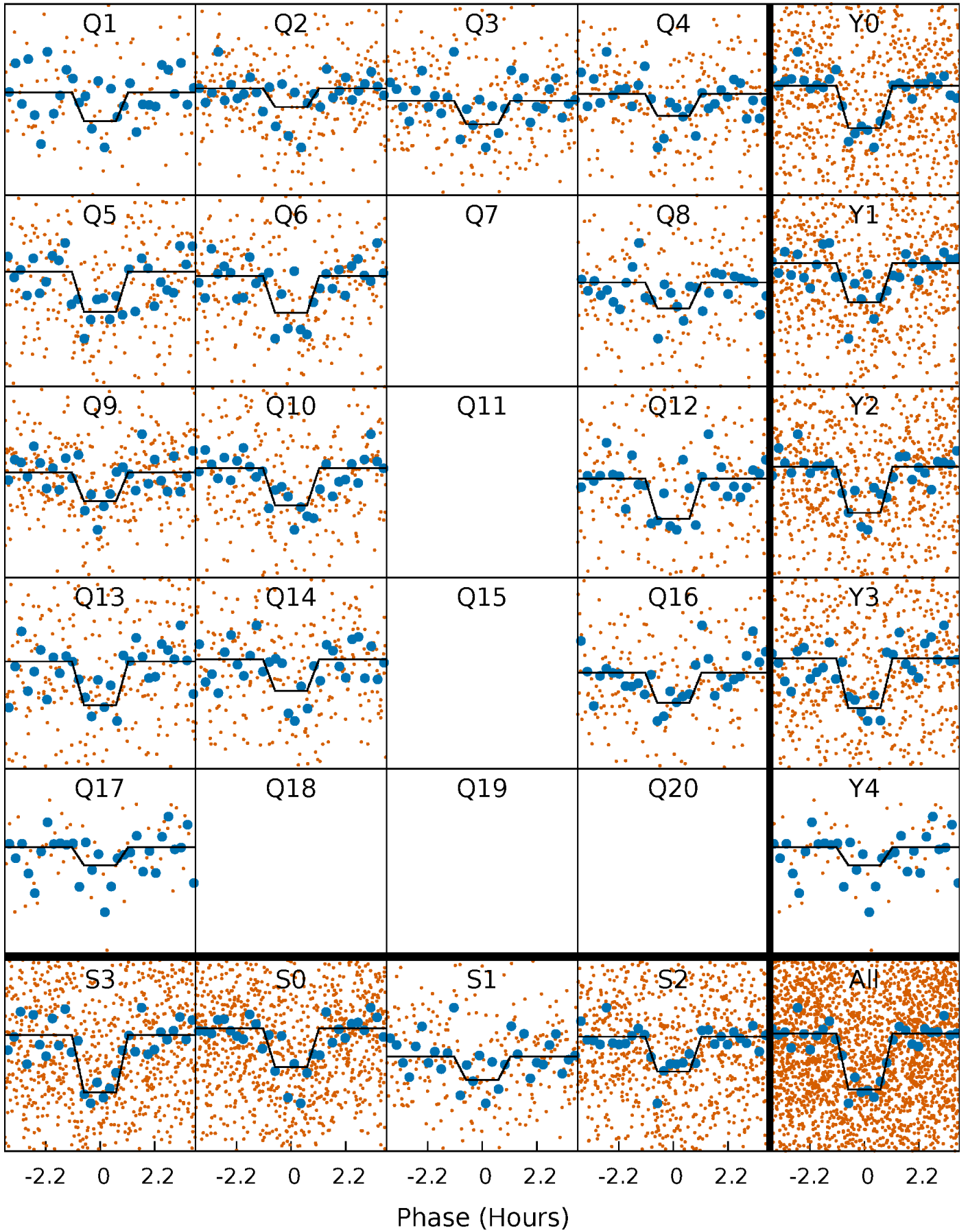
# DV Quarter-Phased Transit Curves

TCE 010813132-01 P= 4.767036 Days  $T_0=132.692876$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

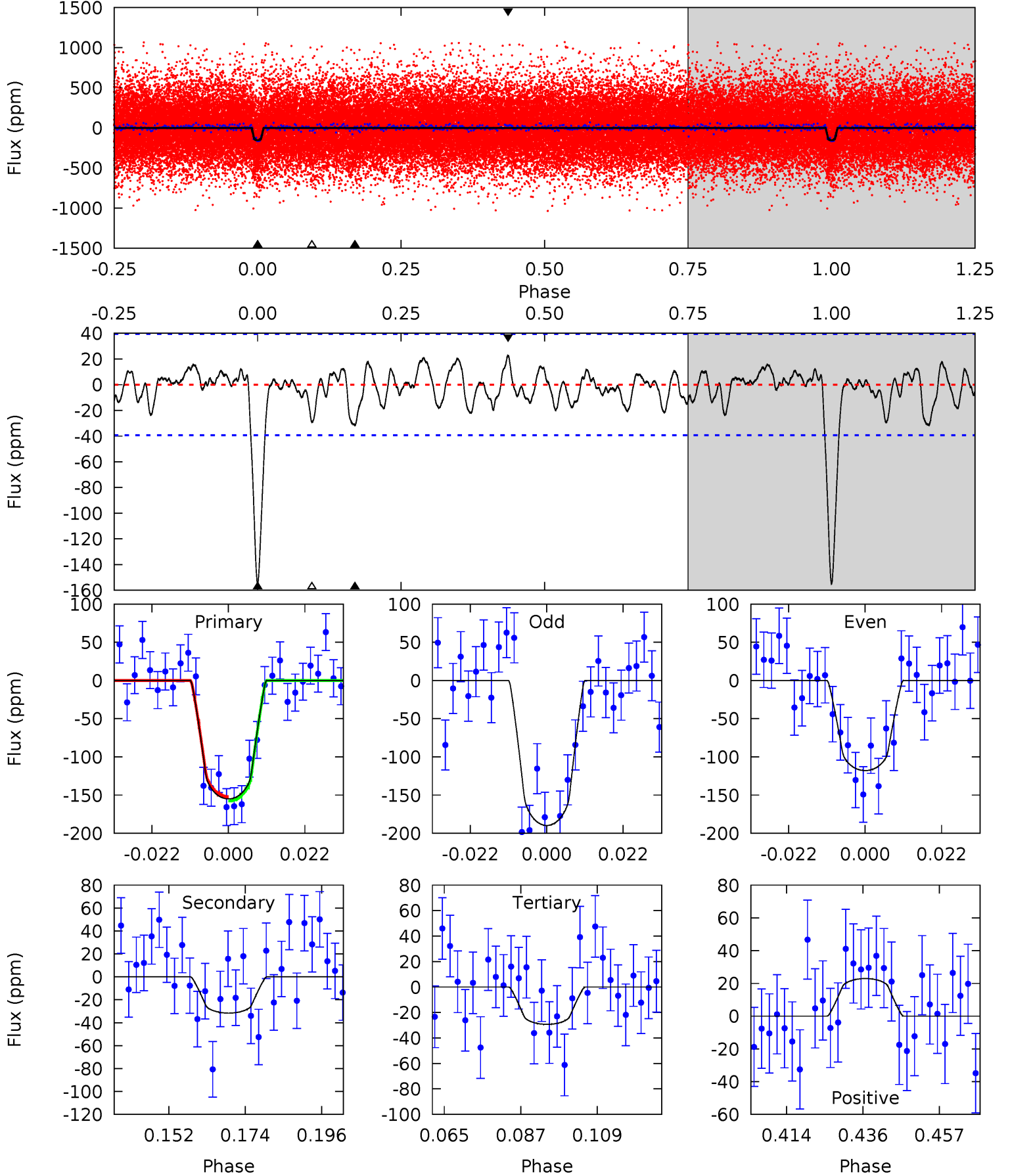
TCE 010813132-01 P= 4.767044 Days  $T_0=132.691516$  (BKJD)



# DV Model-Shift Uniqueness Test

010813132-01, P = 4.767036 Days, E = 127.925840 Days

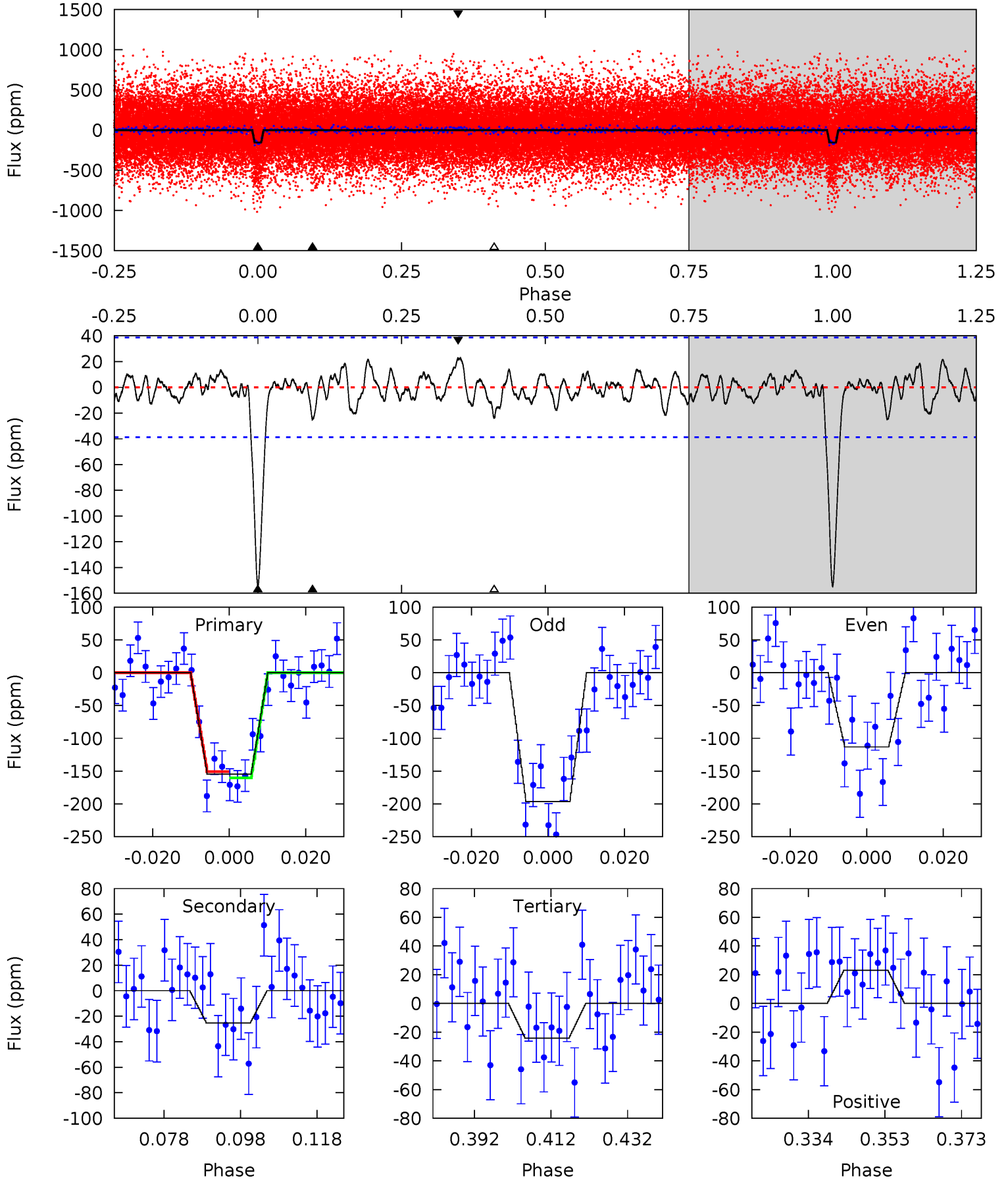
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	3.92	3.63	2.84	4.87	2.29	1.24	15.6	16.4	0.29	1.08	4.45	0.89	0.13	0.35



# Alt Model-Shift Uniqueness Test

010813132-01, P = 4.767044 Days, E = 127.924472 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
19.6	3.19	3.05	2.93	4.90	2.33	1.08	16.5	16.6	0.14	0.26	5.26	0.90	0.13	0.60



### Stellar Parameters For KIC 010813132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5629^{+152}_{-152}$	$4.430^{+0.120}_{-0.180}$	$-0.160^{+0.300}_{-0.300}$	$0.937^{+0.247}_{-0.133}$	$0.864^{+0.114}_{-0.076}$	$1.477^{+0.742}_{-0.669}$
	+3%/-3%	+3%/-4%	+188%/-188%	+26%/-14%	+13%/-9%	+50%/-45%
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 010813132-01 / KOI 2378.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-32 \pm 8$	$1.45^{+0.97}_{-0.75}$	$1474^{+95}_{-80}$	$3880^{+1264}_{-606}$	$22^{+73}_{-14}$
Alt.	$-25 \pm 8$	$1.38^{+0.99}_{-0.80}$	$1469^{+96}_{-74}$	$3765^{+1620}_{-570}$	$20^{+96}_{-13}$

$T_{max}$  = 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

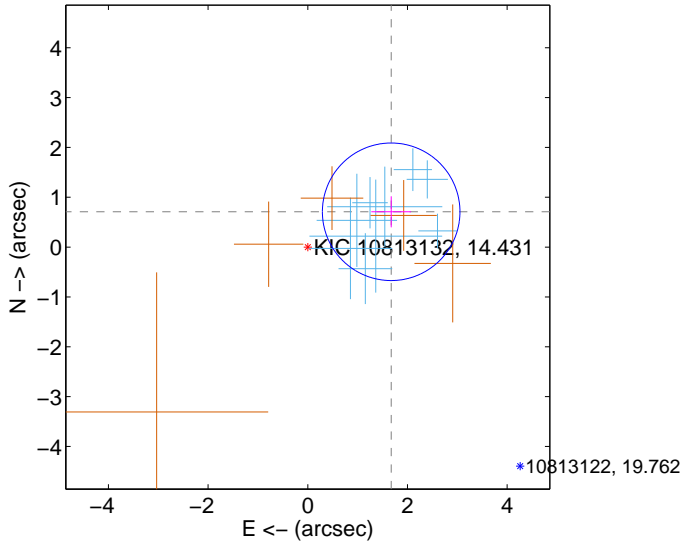
Supplemental centroid analysis for 010813132-01. Kepler magnitude: 14.43. Transit SNR 13.51

There are 9 quarters with good PRF difference image offsets

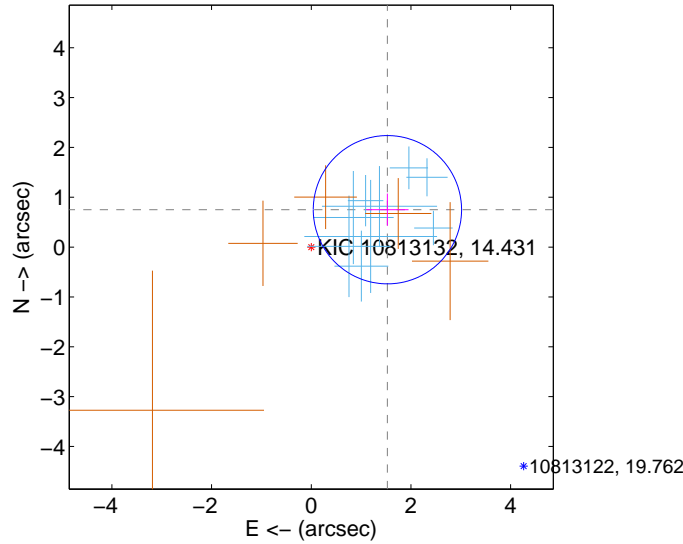
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.818 \pm 0.460$	<b>3.95</b>	$-1.674 \pm 0.399$	$0.709 \pm 0.312$
PRF-fit source offset from KIC position	$1.703 \pm 0.496$	<b>3.43</b>	$-1.529 \pm 0.425$	$0.750 \pm 0.324$
photometric centroid source offset	$0.87 \pm 1.06$	0.82	$-0.81 \pm 1.05$	$0.33 \pm 1.11$

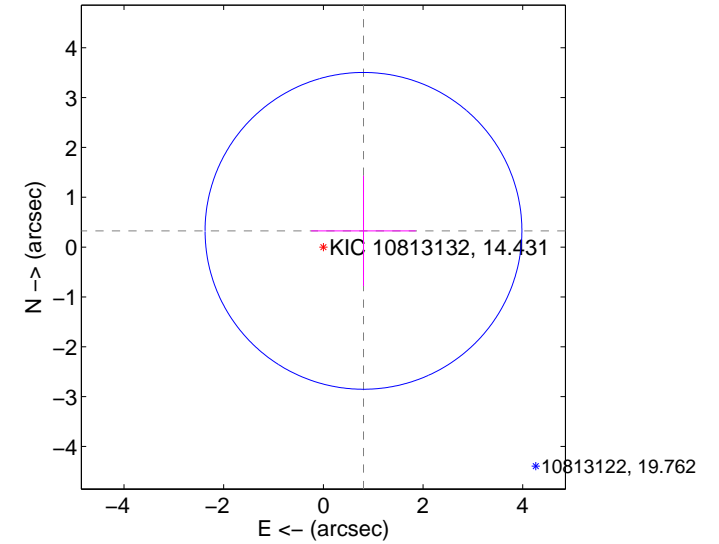
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

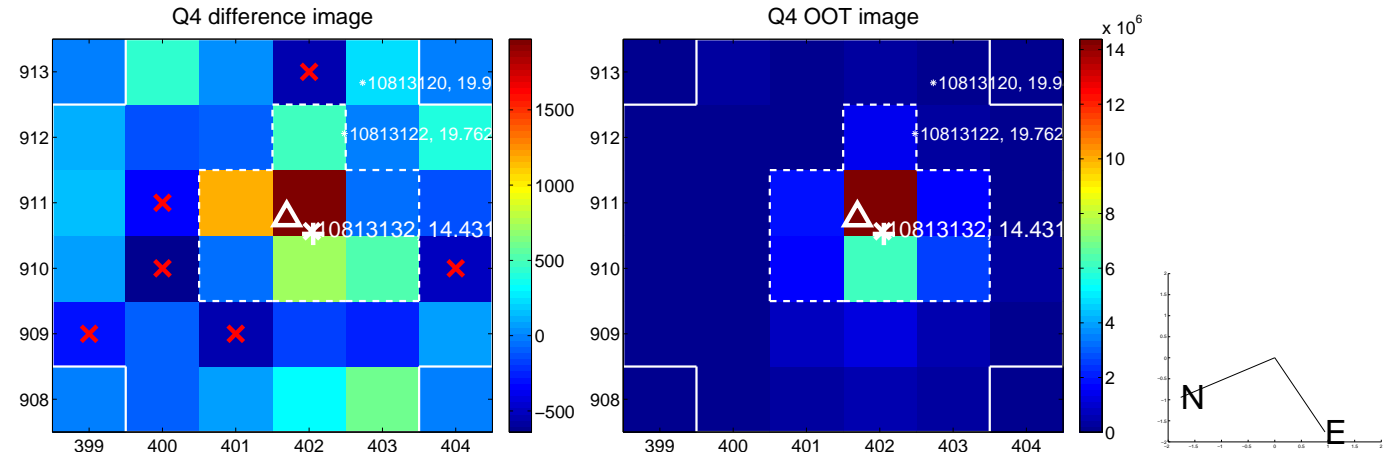
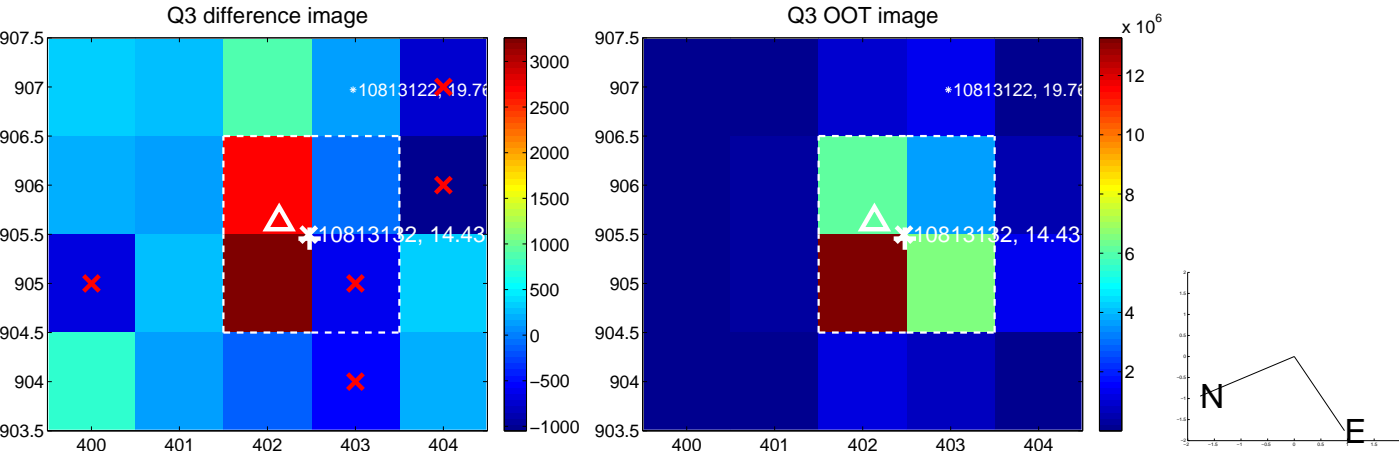
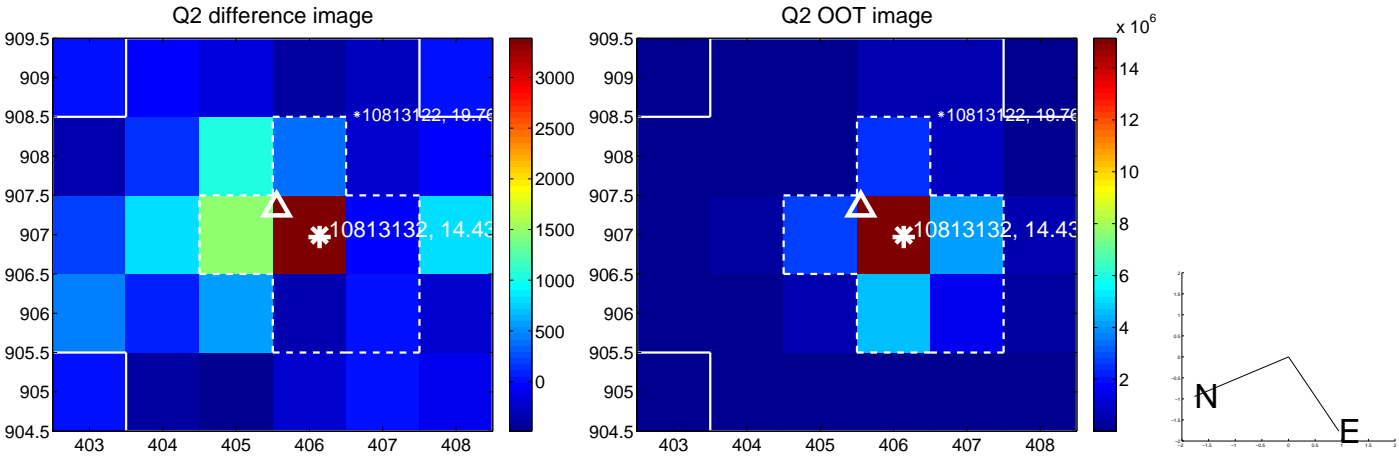
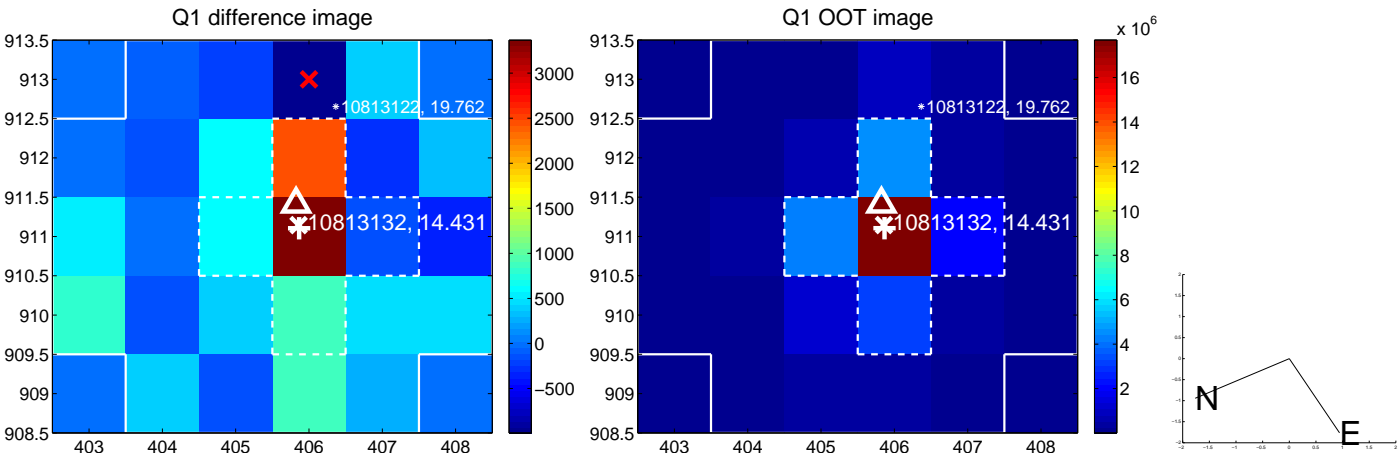


offset from photometric centroids

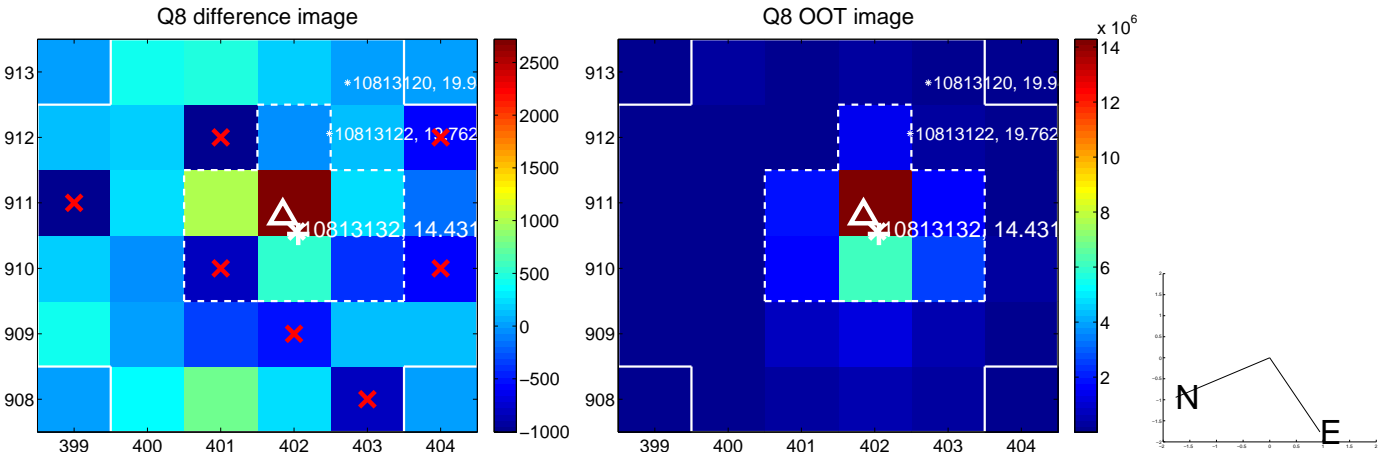
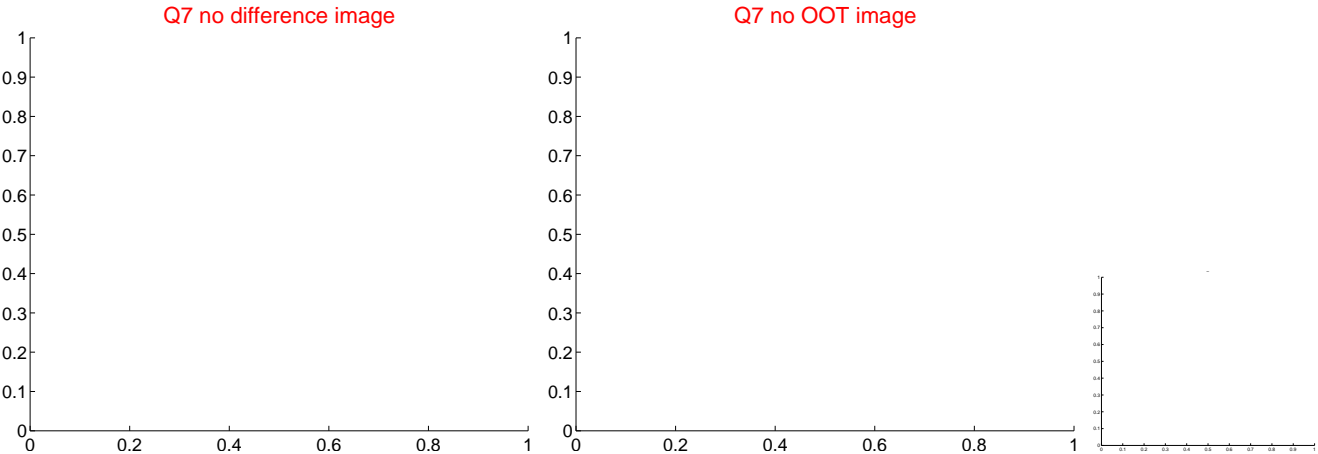
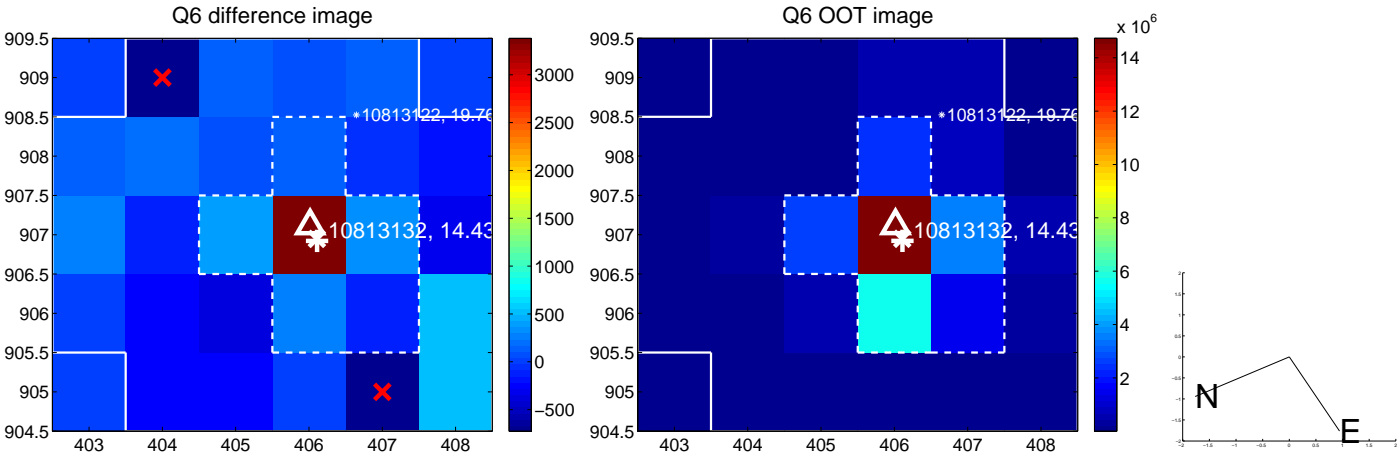
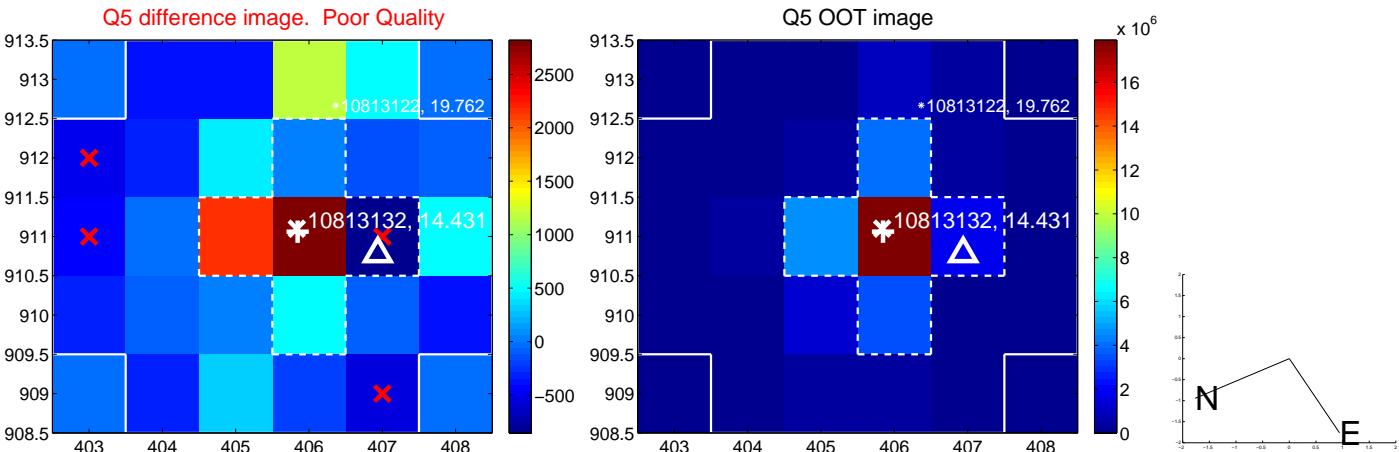


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

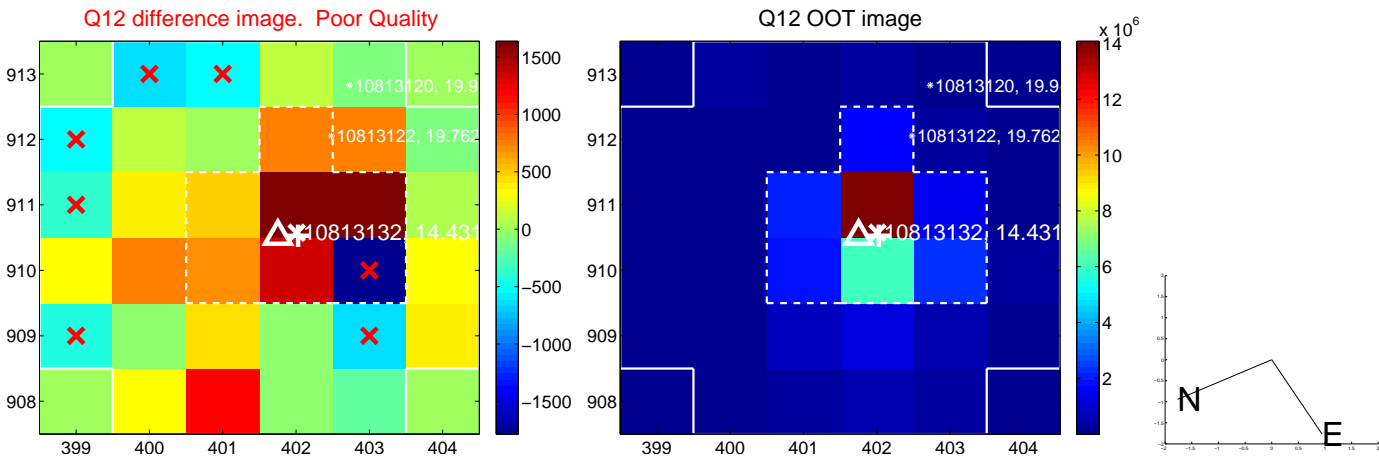
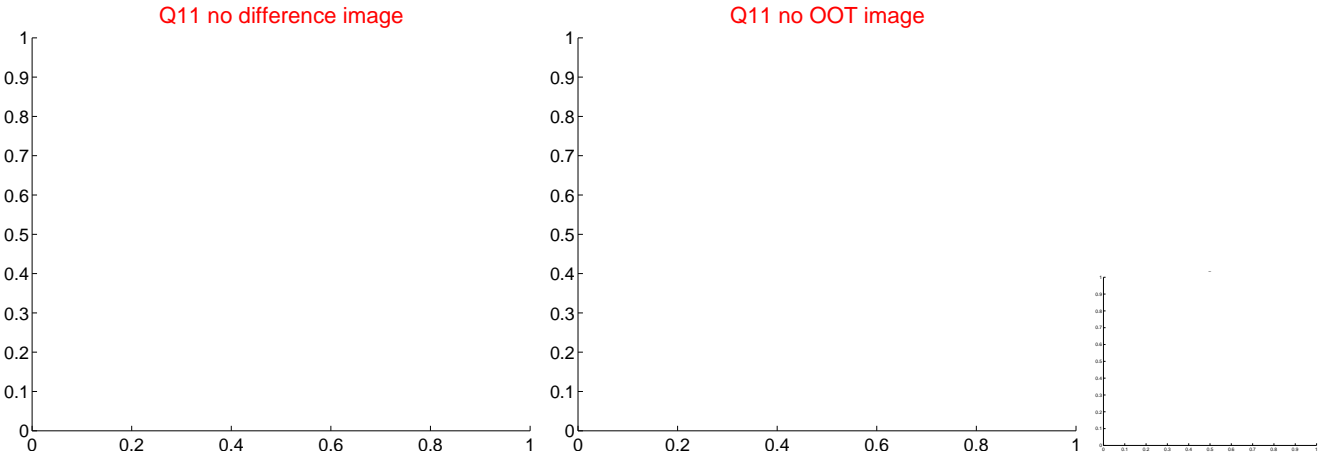
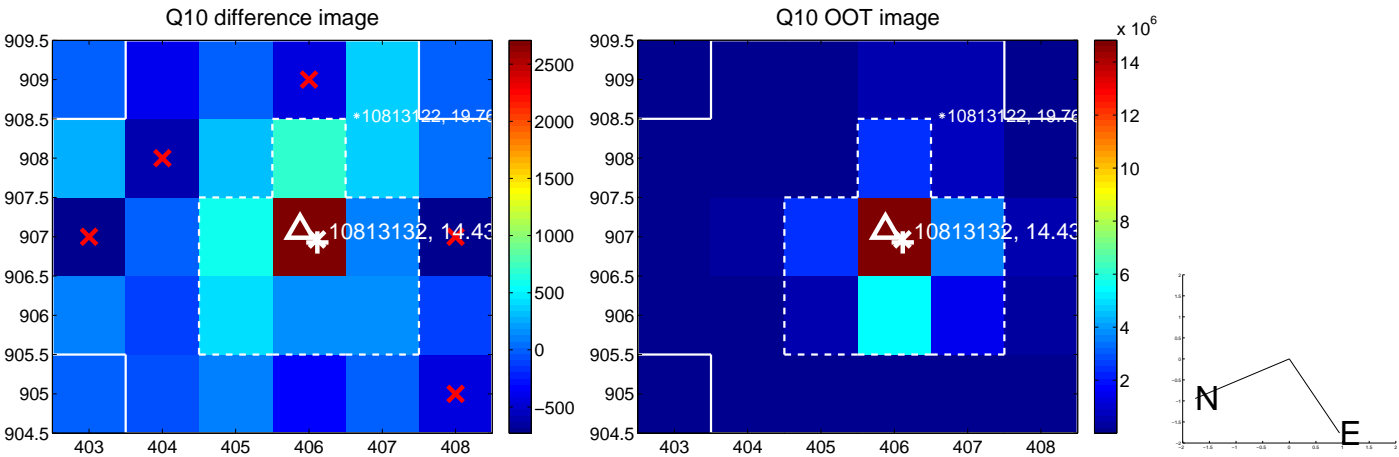
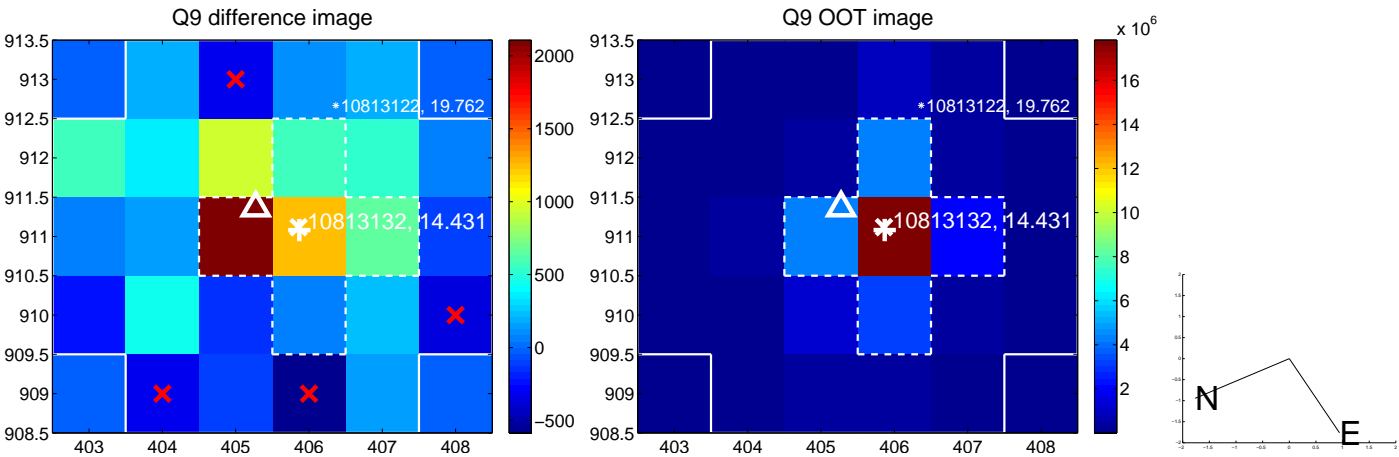
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



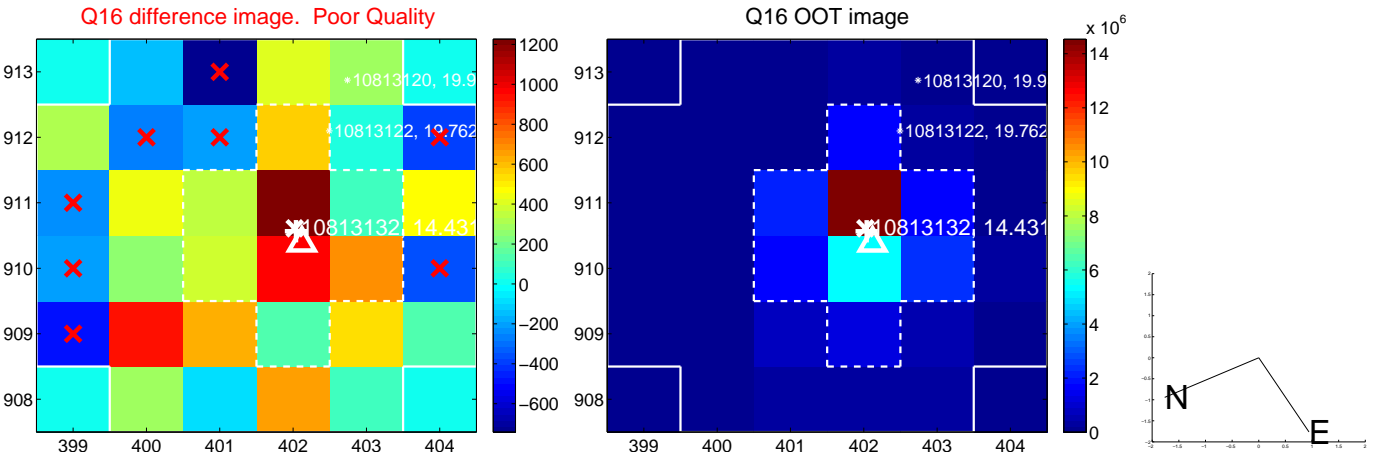
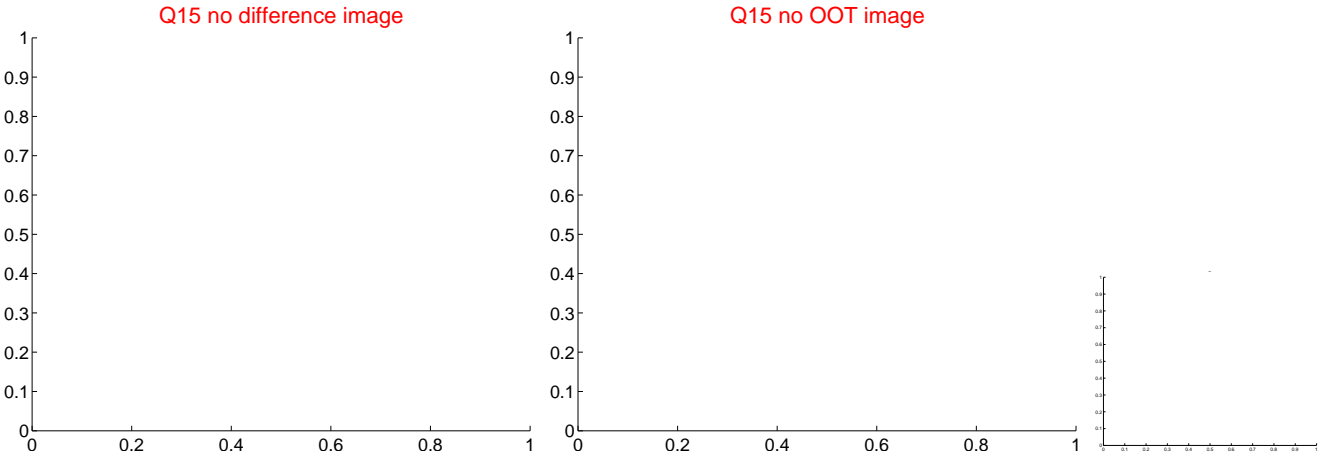
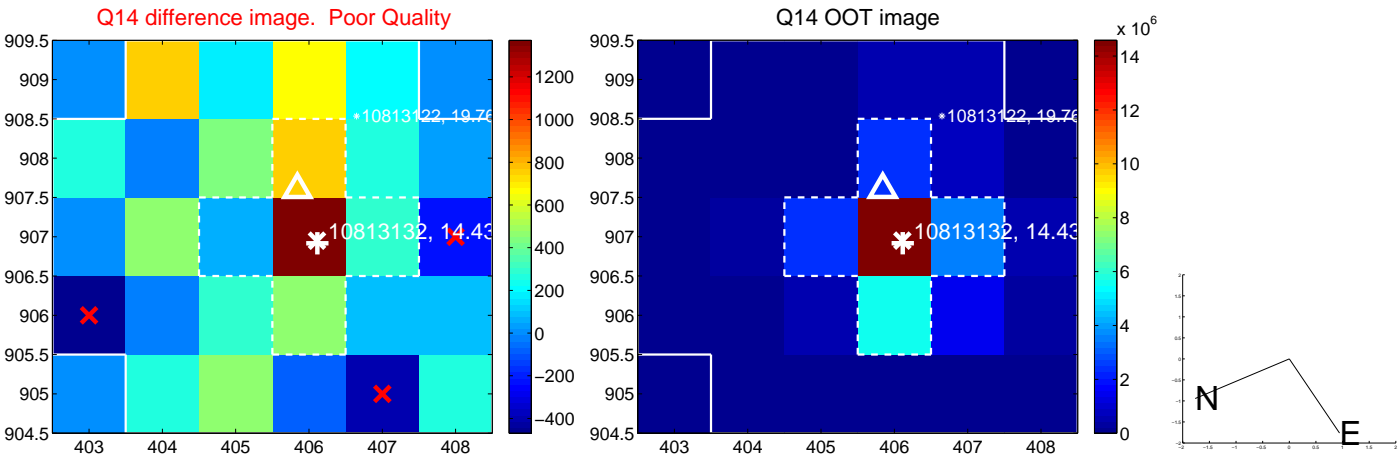
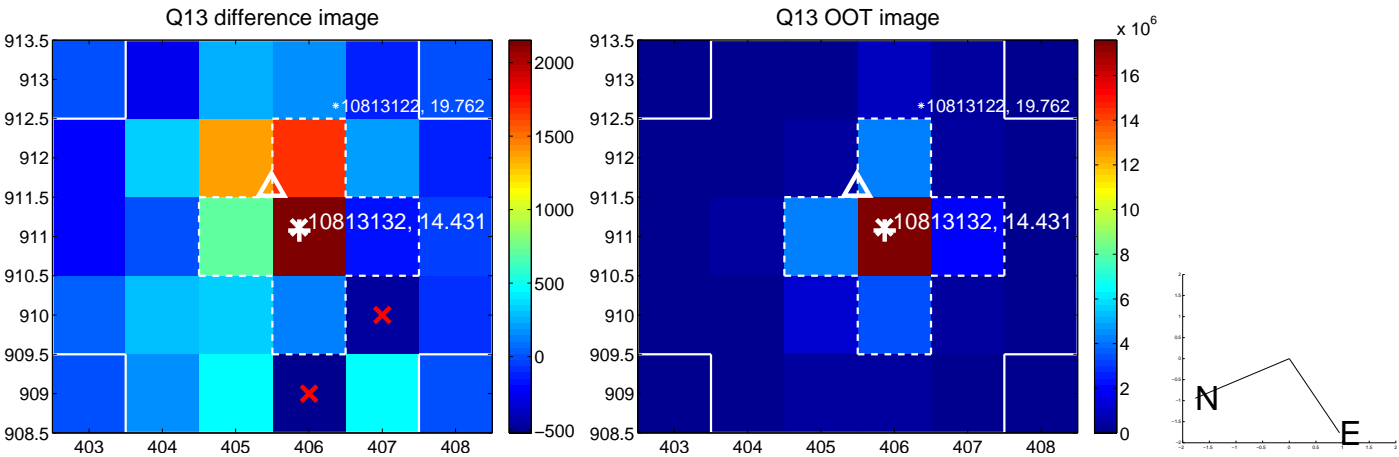
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

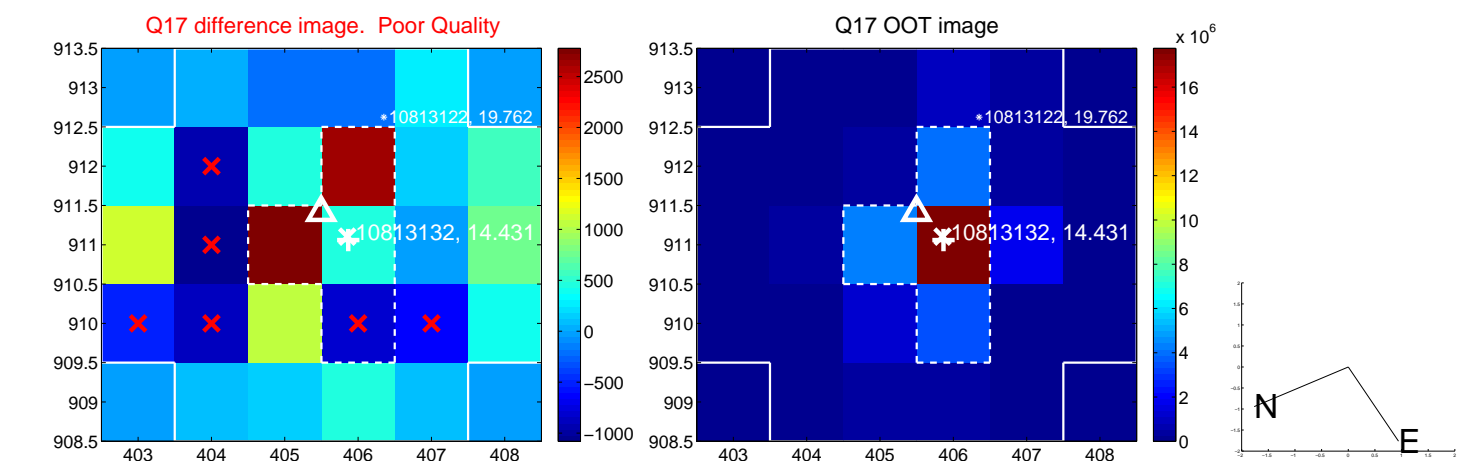


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

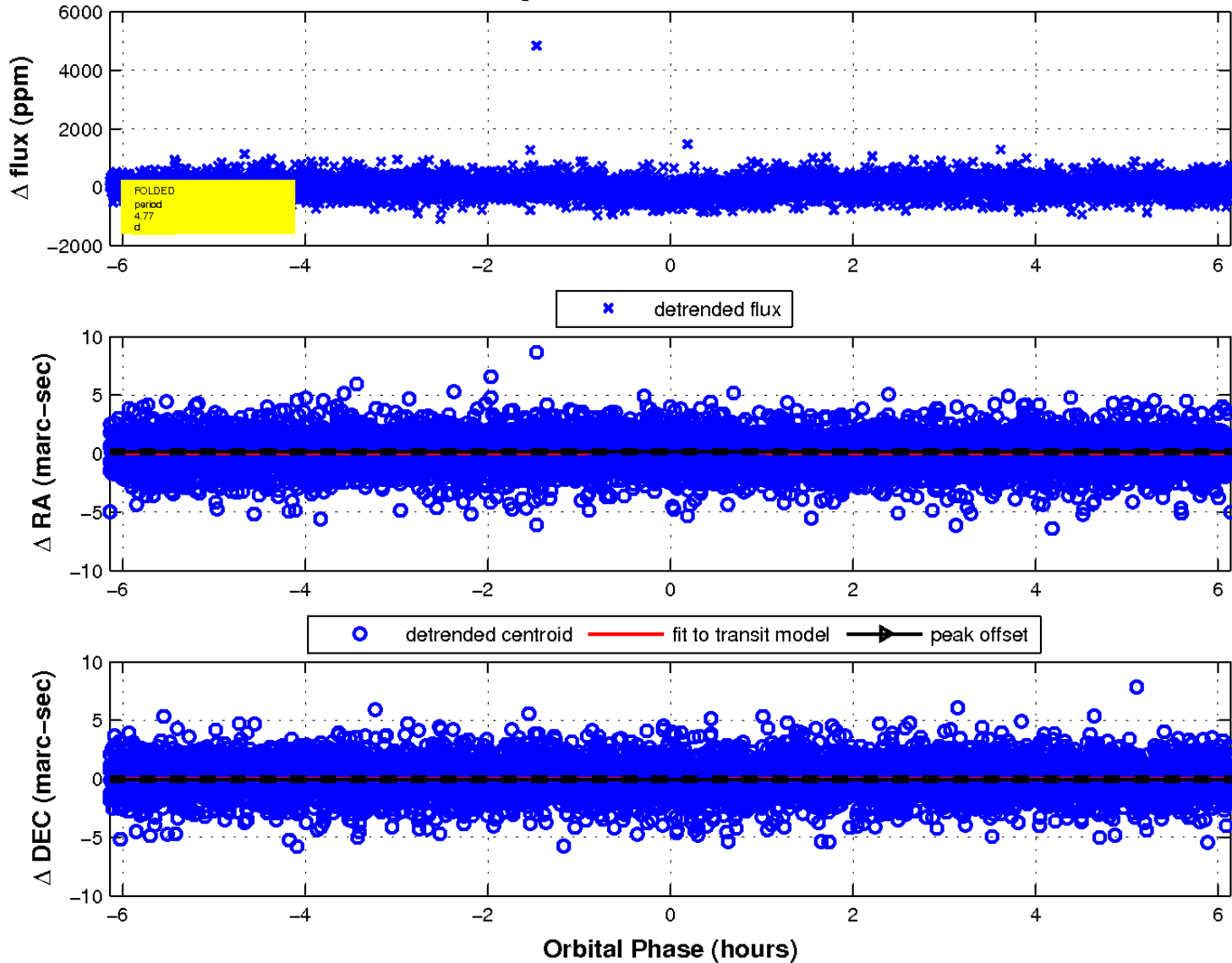




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

