

# KIC 010407271

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
010407271-01	OBS	7611.01	0.933704	132.478431	23.3	4.535	10.7	6.9	0.79	5611	0.41	1879.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407271-01	OBS	FP	0.00	0	0	1	1	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 010407271-01

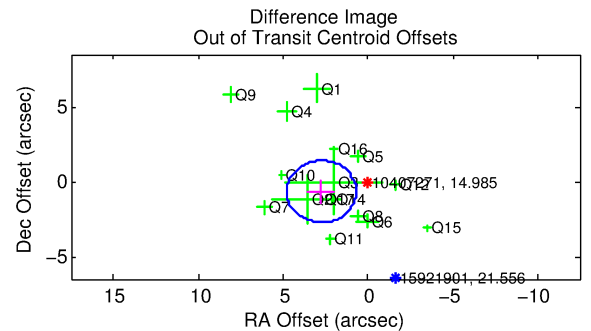
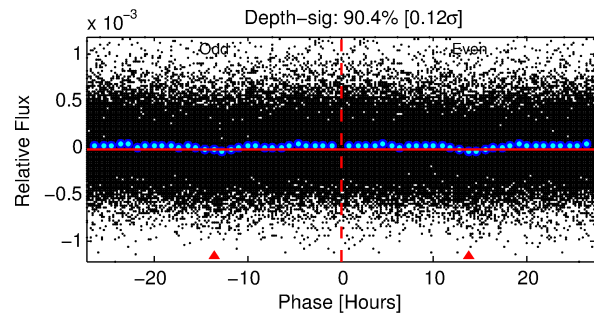
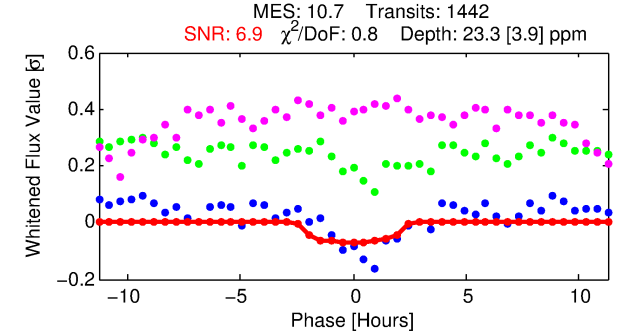
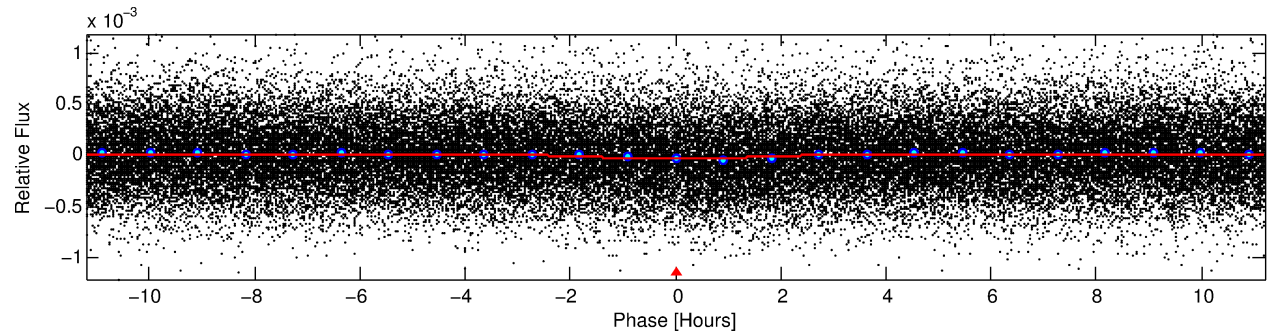
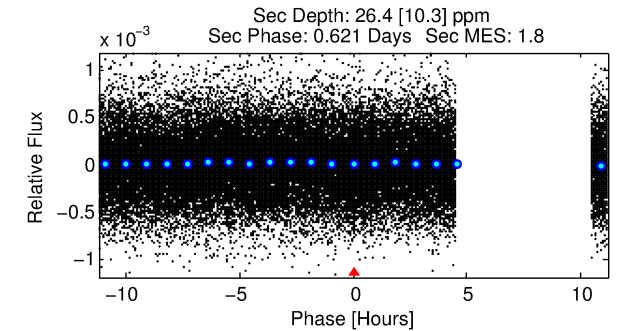
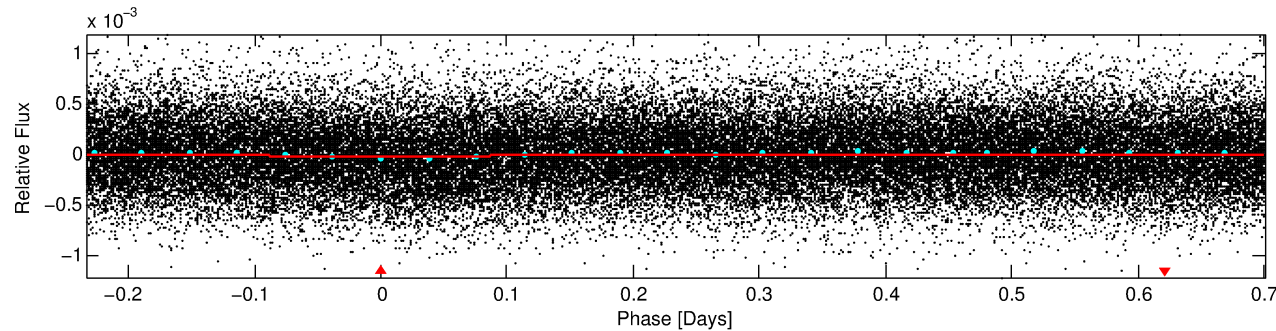
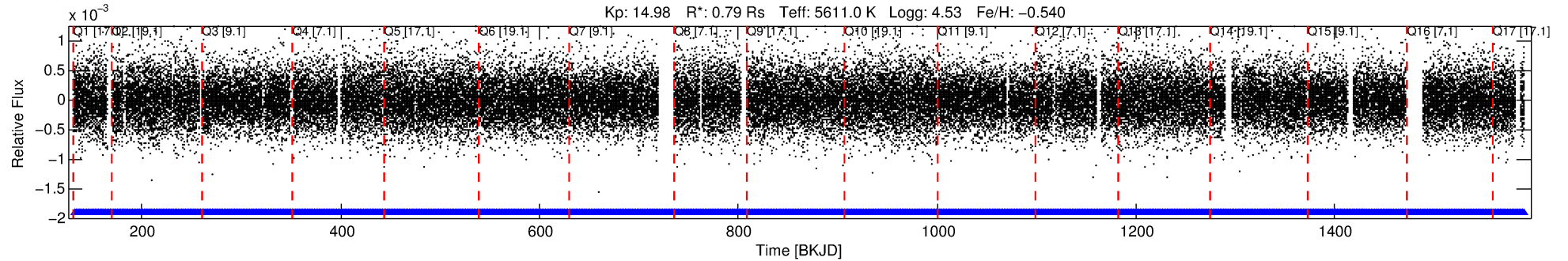
TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
010407271-01	10407271	010341787-01	10341787	1:1	547.6	48	-2	15.93	14.99	5.83	Col-Anomaly	1	0.21	1.15

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10407271 Candidate: 1 of 1 Period: 0.934 d

KOI: K07611.01 Corr: 0.870



## DV Fit Results:

Period = 0.93370 [0.00002] d  
Epoch = 132.4784 [0.0077] BKJD  
Rp/R\* = 0.0047 [0.0041]  
a/R\* = 1.40 [2.77]  
b = 0.70 [2.99]  
Seff = 1879.72 [483.73]  
Teff = 1679 [108] K  
Rp = 0.41 [0.36] Re  
a = 0.0171 [0.0026] AU  
Ag = 25.79 [46.54] [0.53σ]  
Teffp = 5850 [2626] K [1.59σ]

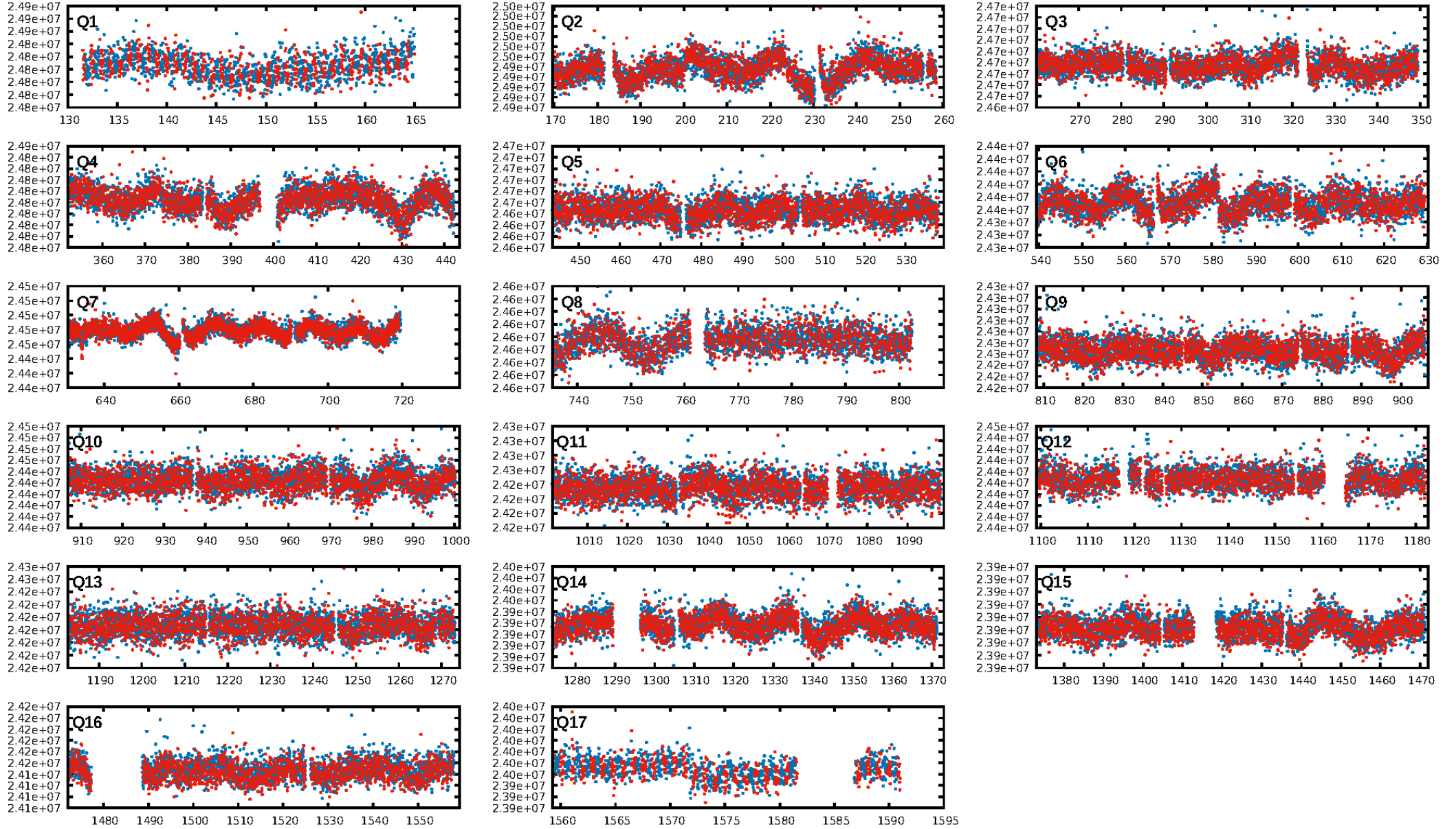
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.81e-24  
RollingBand-fgt: 1.00 [1376/1376]  
GhostDiagnostic-chr: -0.1068  
Centroid-sig: 82.2%  
Centroid-so: 0.835 arcsec [0.40σ]  
OotOffset-rm: 2.829 arcsec [4.12σ]  
KicOffset-rm: 2.784 arcsec [4.72σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.06 [1/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:33:51 Z

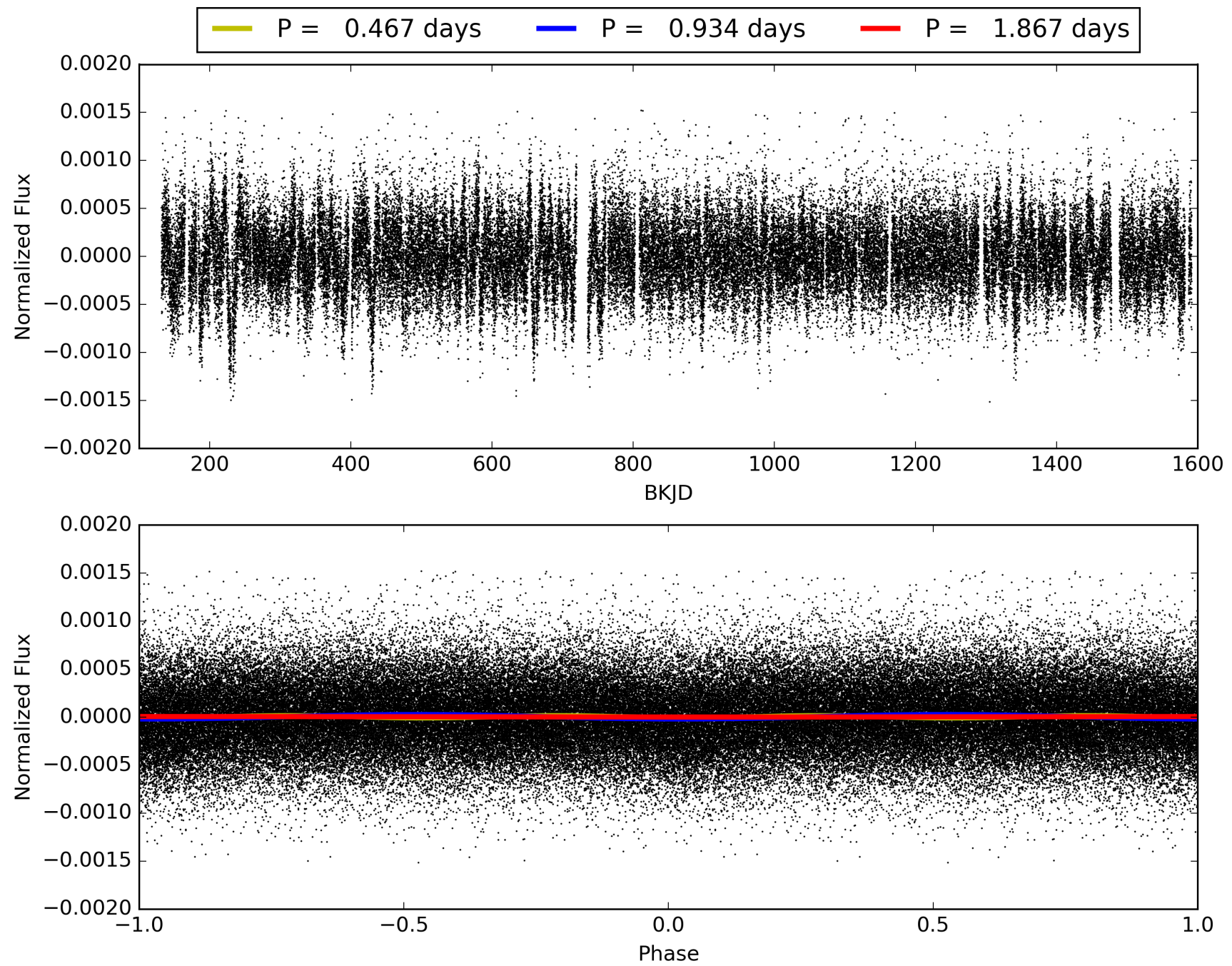
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010407271-01, PDC Light Curves



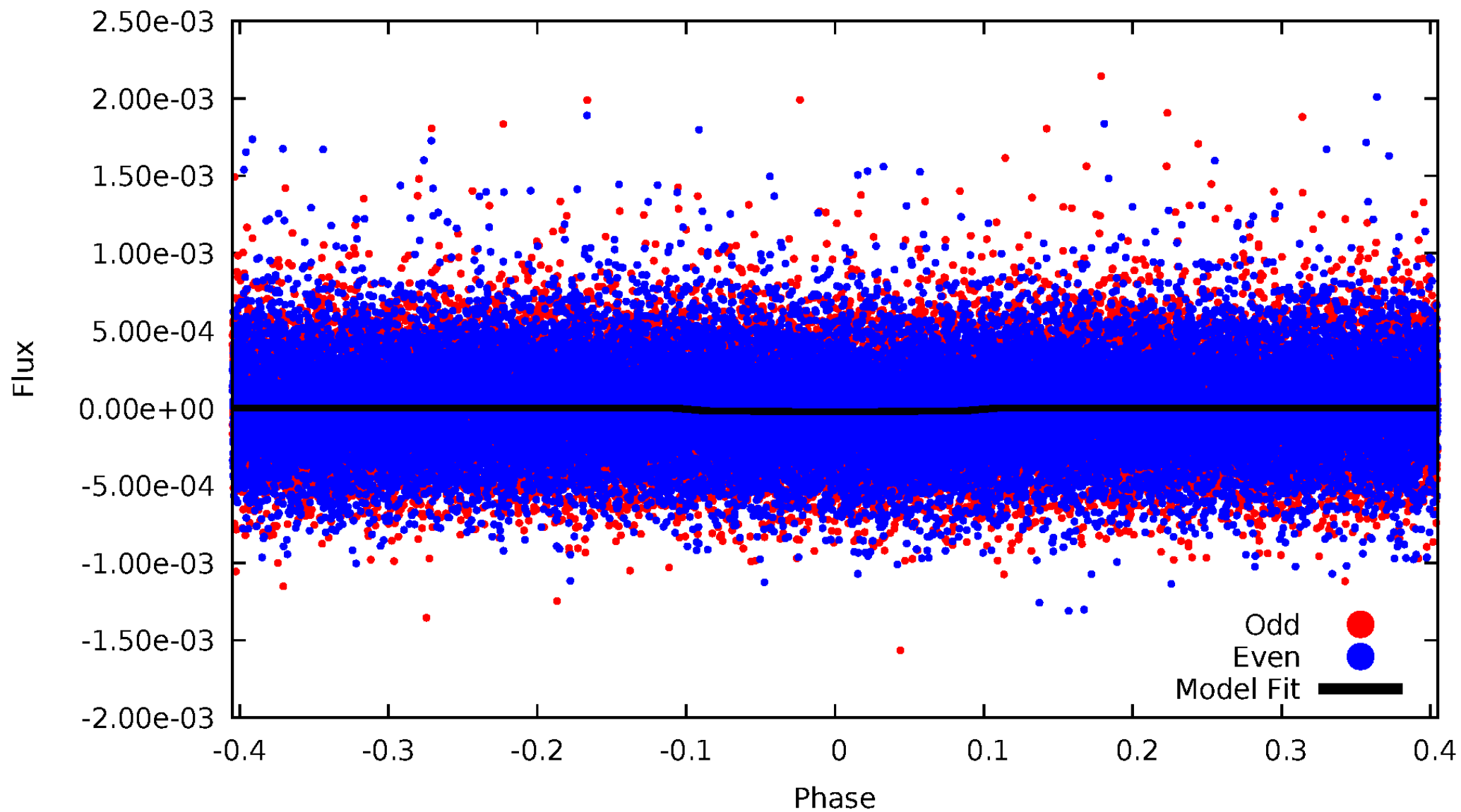


TCE 010407271-01



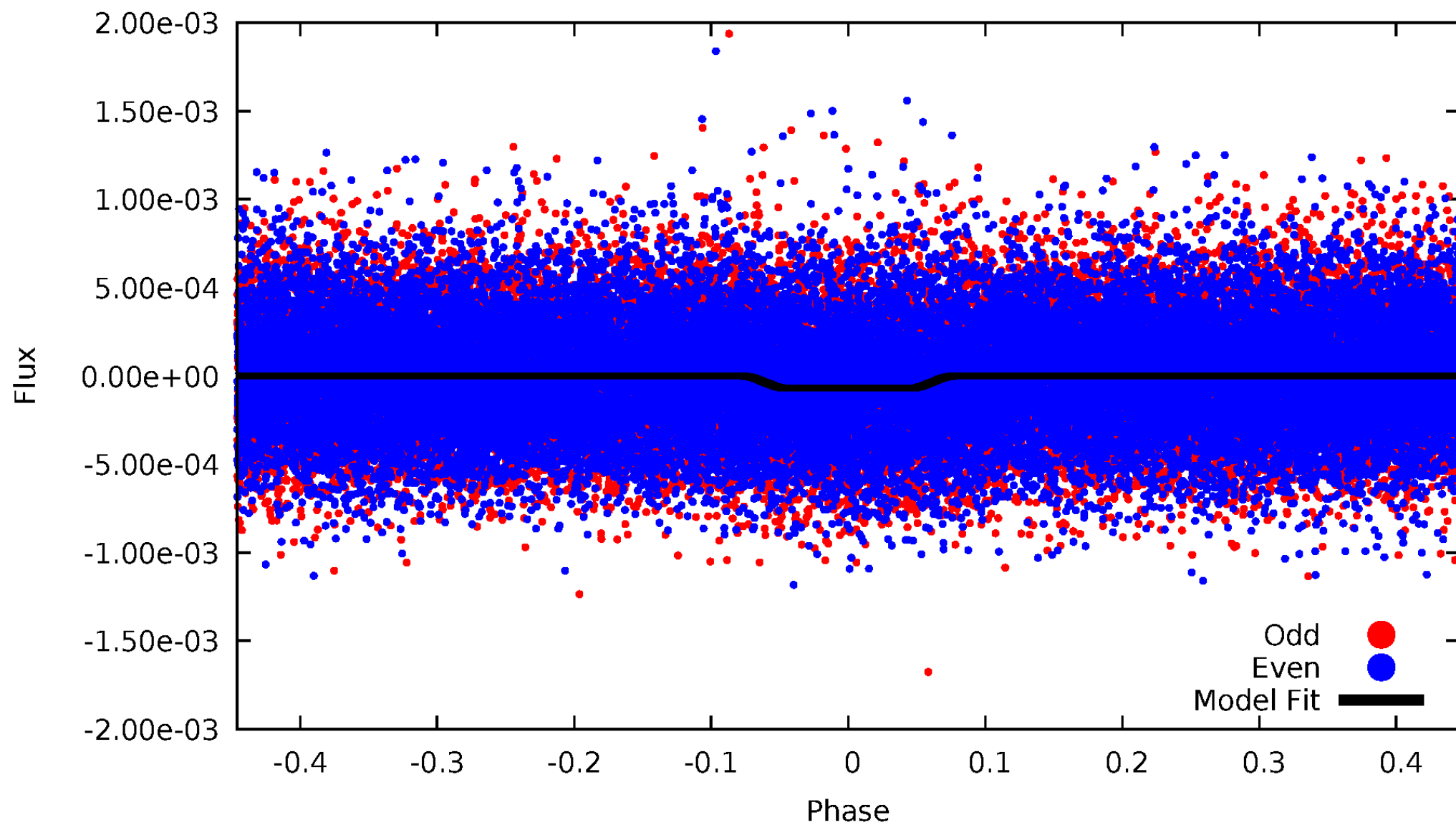
# DV Odd/Even

TCE 010407271-01



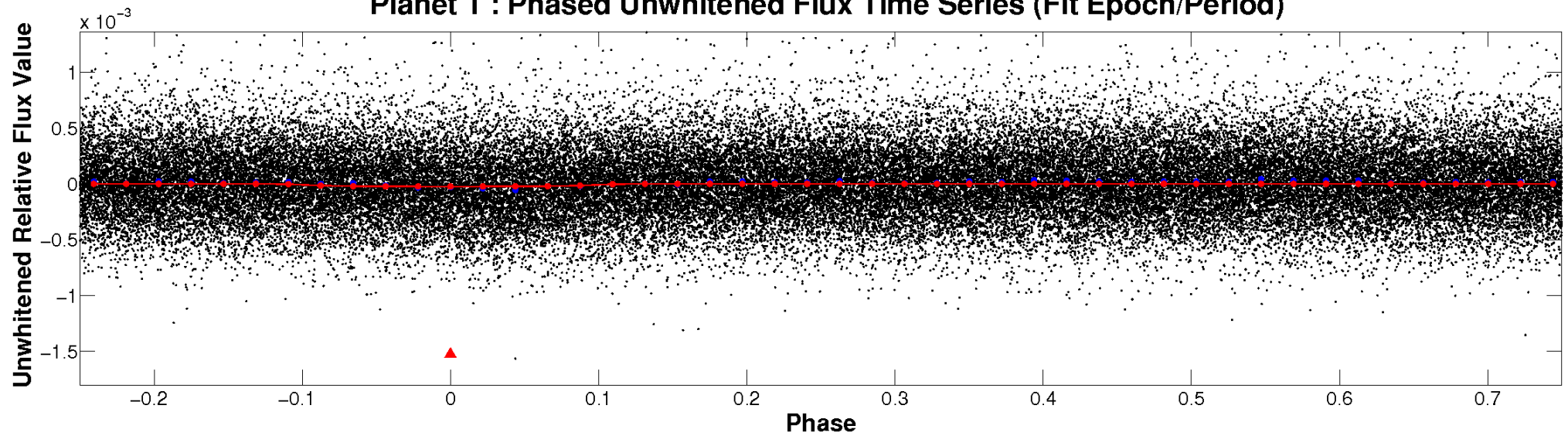
# ALT Odd/Even

TCE 010407271-01

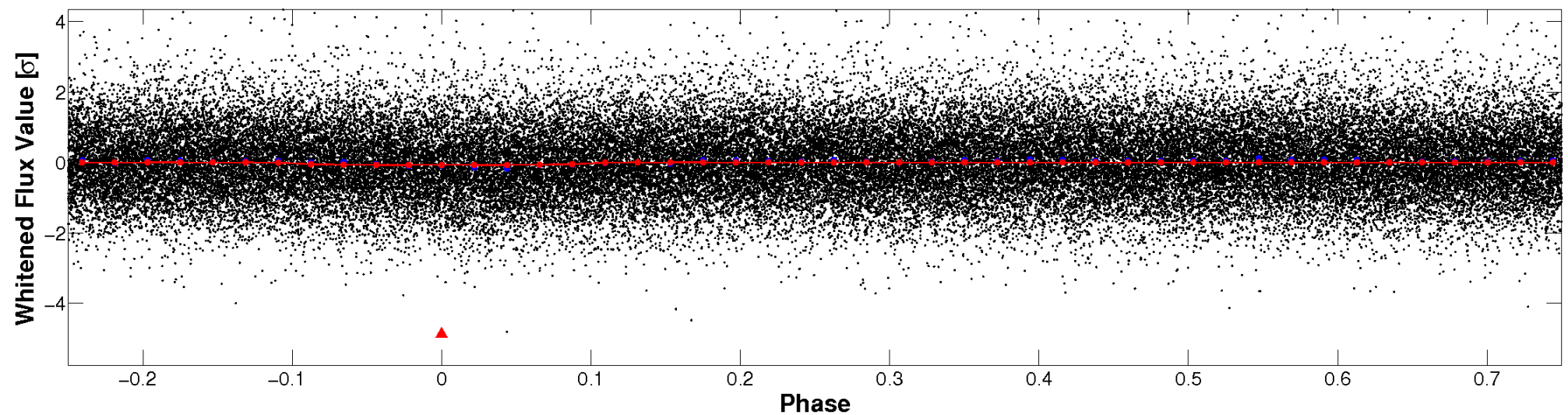


# Non-Whitened Vs. Whitened Light Curve

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



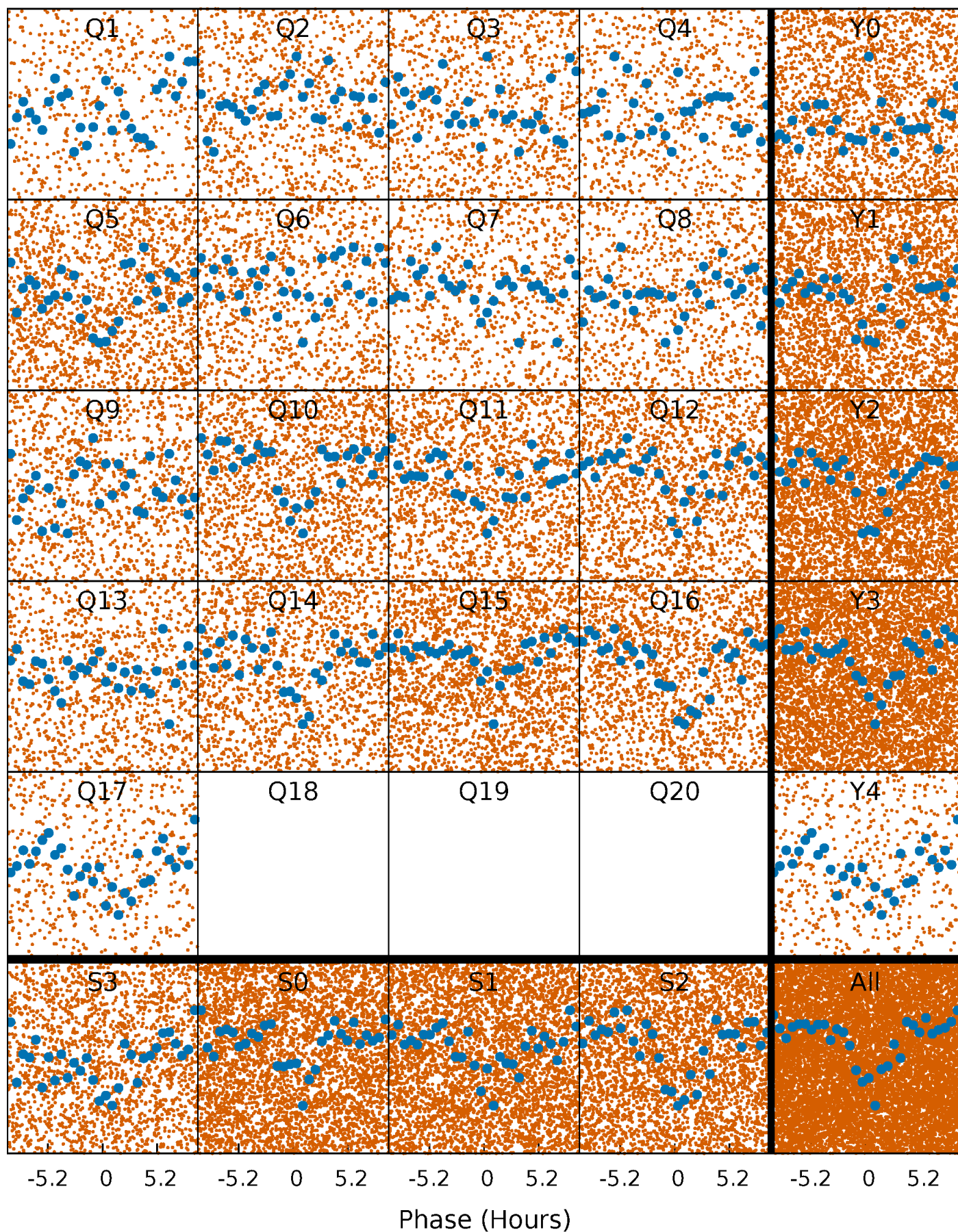
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

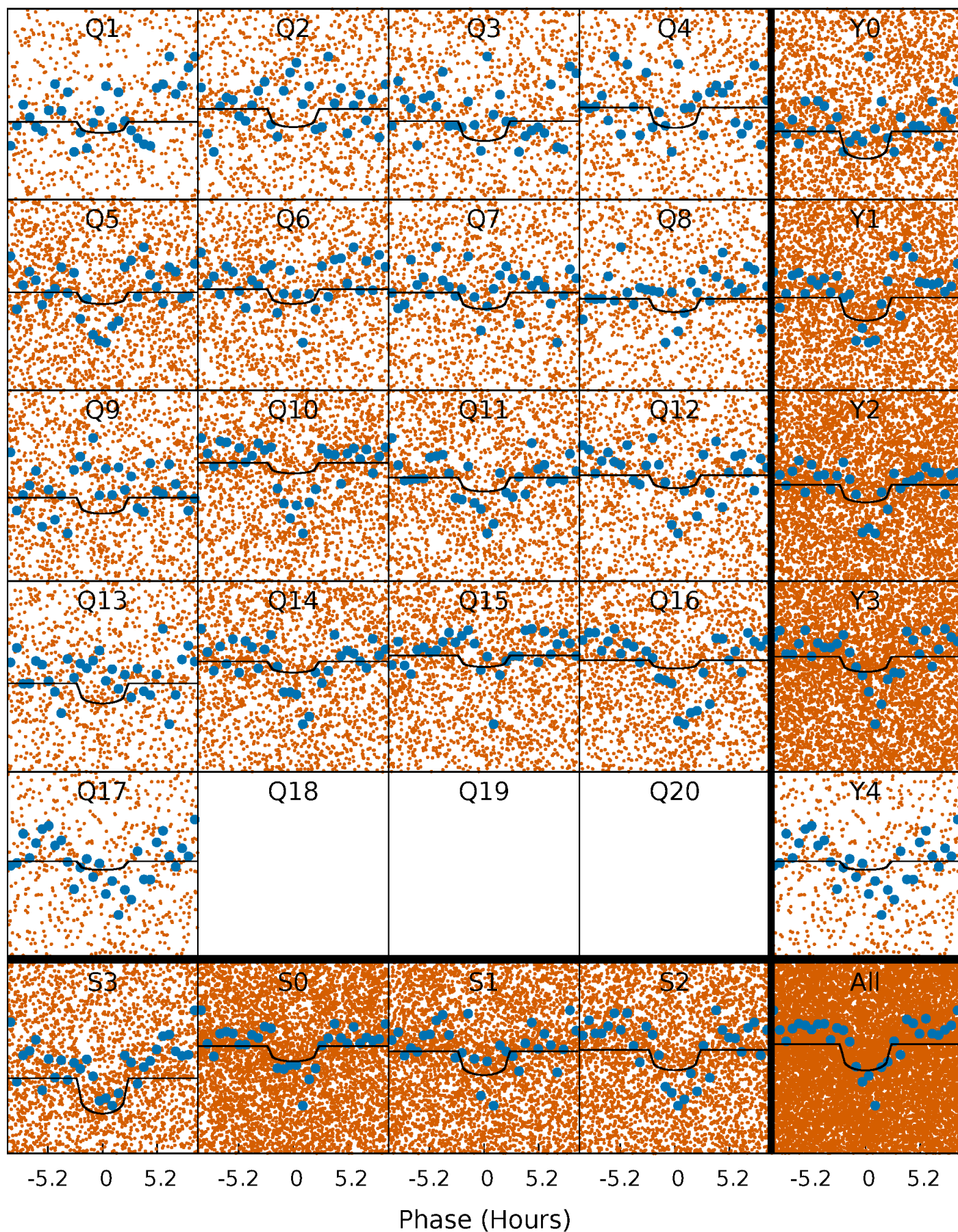
TCE 010407271-01 P= 0.933704 Days  $T_0=132.478431$  (BKJD)





# DV Quarter-Phased Transit Curves

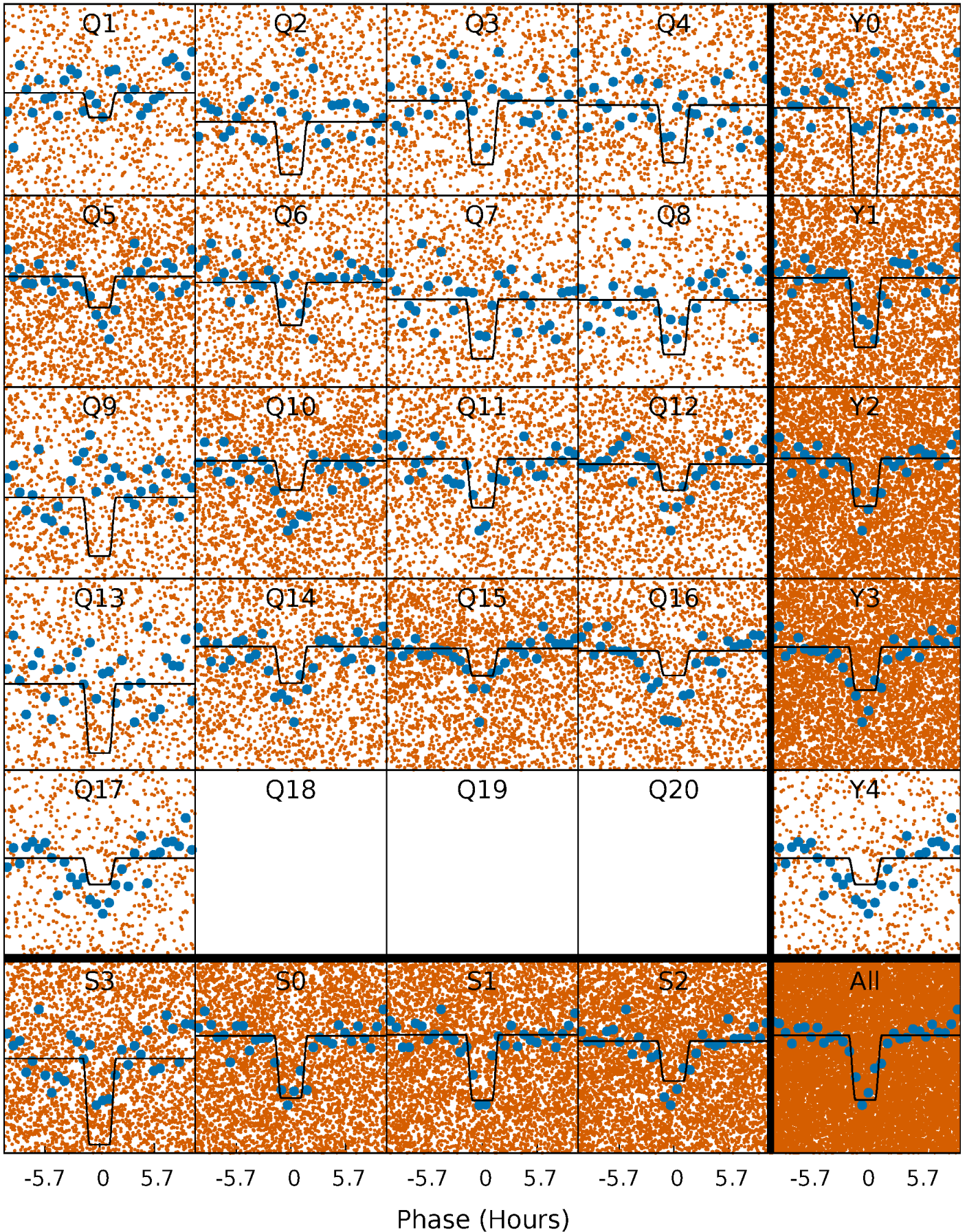
TCE 010407271-01 P= 0.933704 Days  $T_0=132.478431$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

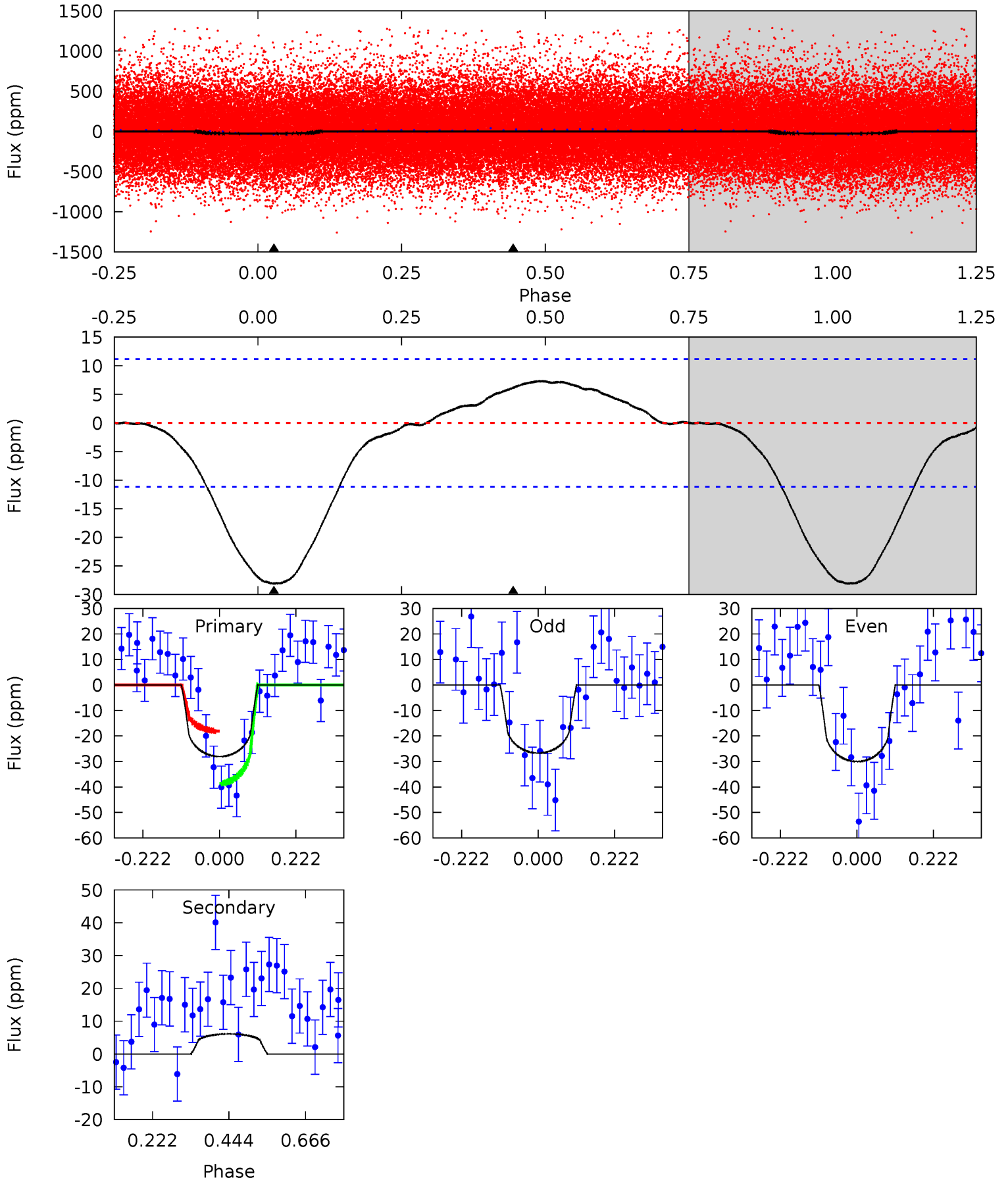
TCE 010407271-01 P= 0.933780 Days  $T_0=132.422385$  (BKJD)



# DV Model-Shift Uniqueness Test

010407271-01, P = 0.933704 Days, E = 130.611023 Days

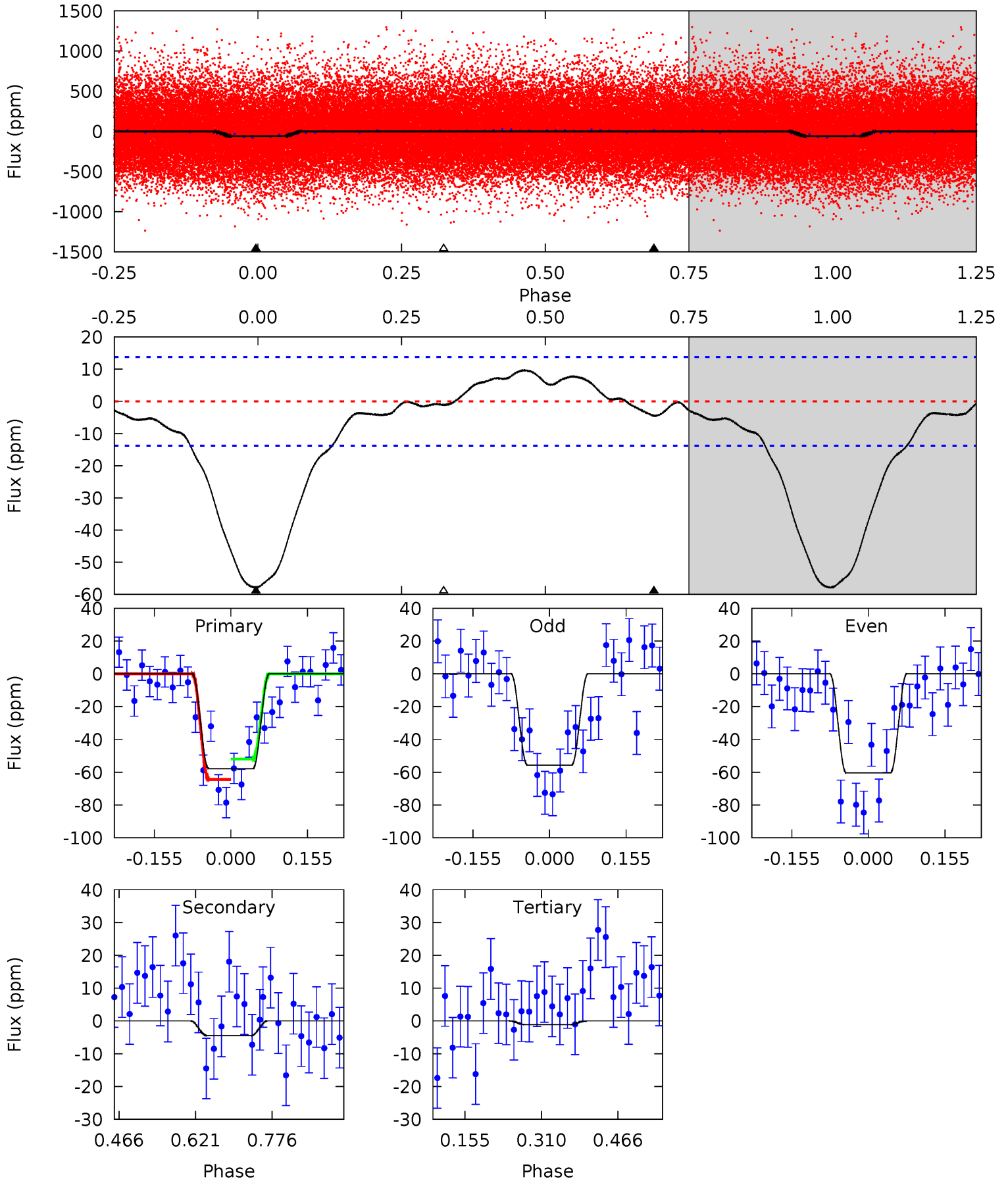
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	-2.41	0	0	4.39	1.22	0.27	11.1	11.1	-2.41	-2.41	0.65	0.94	0.21	4.03



# Alt Model-Shift Uniqueness Test

010407271-01, P = 0.933780 Days, E = 131.488605 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
18.8	1.45	0.36	0	4.47	1.42	1.57	18.4	18.8	1.09	1.45	0.77	0.95	0.14	2.03





### Stellar Parameters For KIC 010407271

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5611^{+184}_{-151}$	$4.530^{+0.080}_{-0.120}$	$-0.540^{+0.350}_{-0.300}$	$0.787^{+0.145}_{-0.085}$	$0.764^{+0.102}_{-0.055}$	$2.210^{+0.763}_{-0.796}$
	+3%/-3%	+2%/-3%	+65%/-56%	+18%/-11%	+13%/-7%	+35%/-36%
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 010407271-01 / KOI 7611.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$6\pm3$	$0.49^{+0.34}_{-0.30}$	$2371^{+117}_{-116}$	$-4063^{+659}_{-1751}$	$-3.825^{+2.630}_{-21.243}$
Alt.	$-4\pm3$	$0.72^{+0.37}_{-0.34}$	$2363^{+112}_{-105}$	$3143^{+939}_{-5254}$	$1.159^{+3.628}_{-0.894}$

$T_{\text{max}}$  = 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

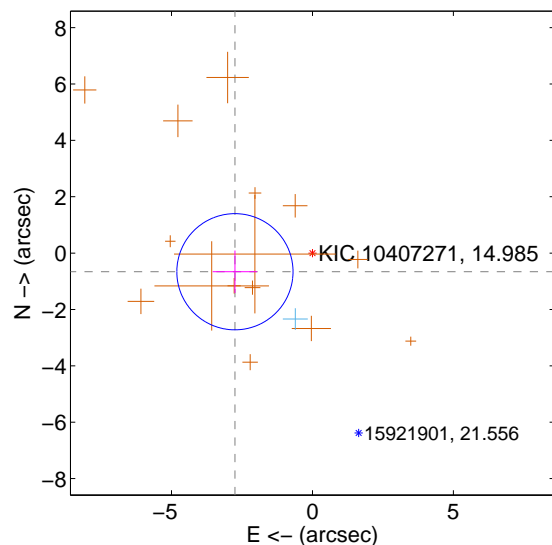
Supplemental centroid analysis for 010407271-01. Kepler magnitude: 14.98. Transit SNR 6.88

There are 1 quarters with good PRF difference image offsets

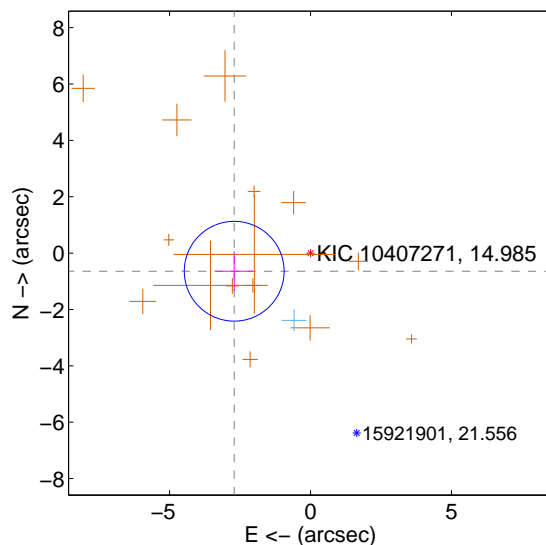
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.829 \pm 0.687$	4.12	$2.750 \pm 0.790$	$-0.662 \pm 0.754$
PRF-fit source offset from KIC position	$2.784 \pm 0.590$	4.72	$2.708 \pm 0.670$	$-0.644 \pm 0.704$
photometric centroid source offset	$0.83 \pm 2.11$	0.40	$-0.59 \pm 2.17$	$-0.59 \pm 2.05$

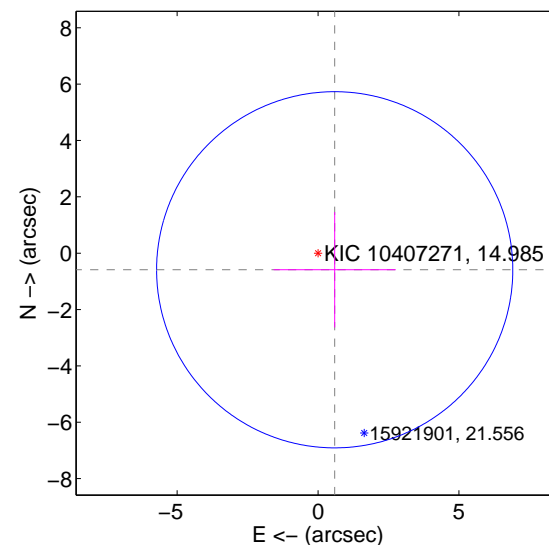
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

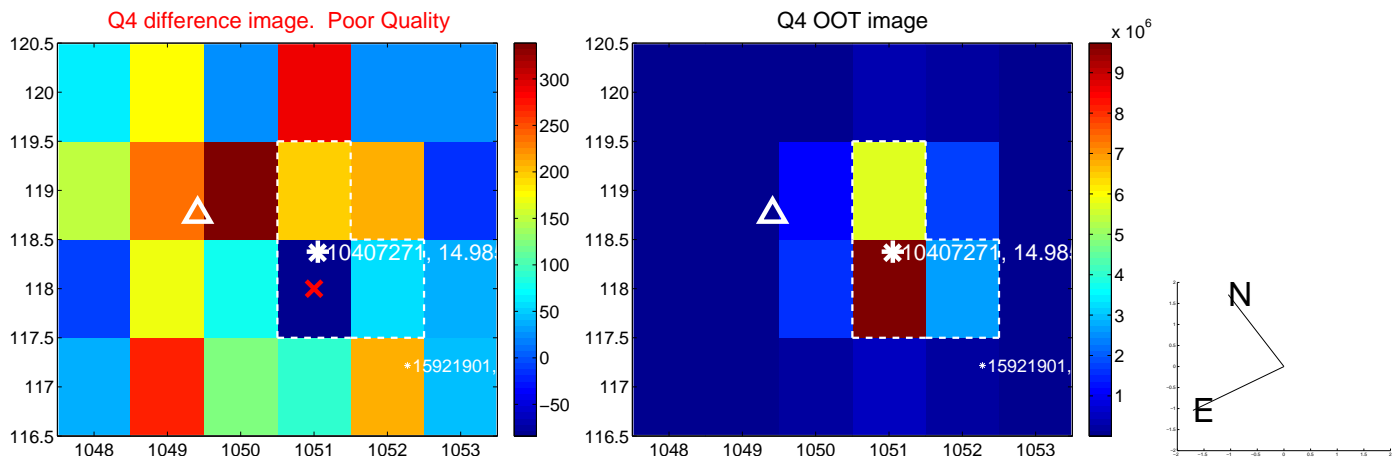
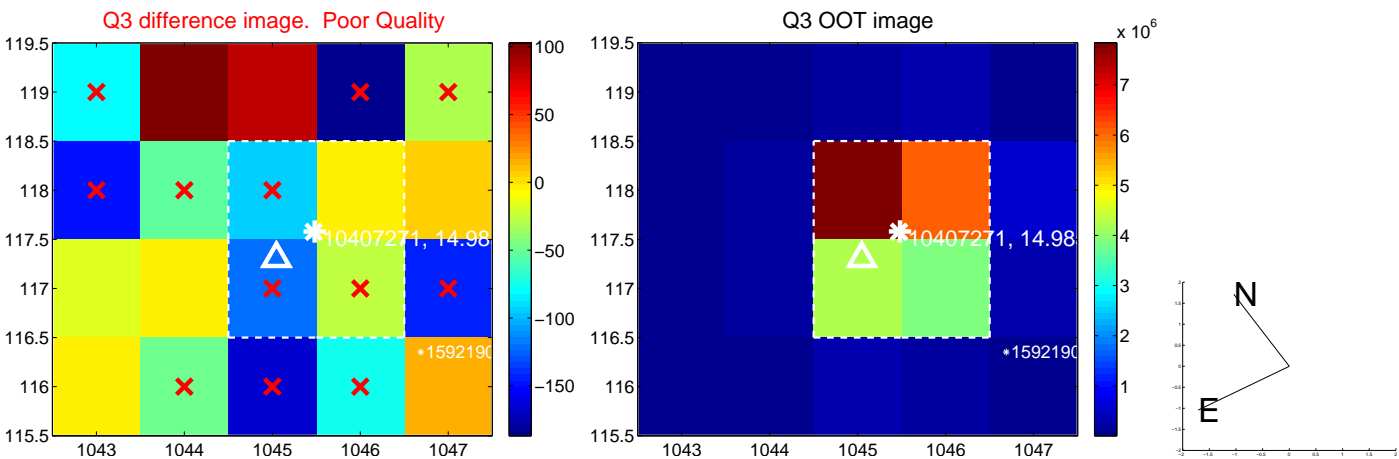
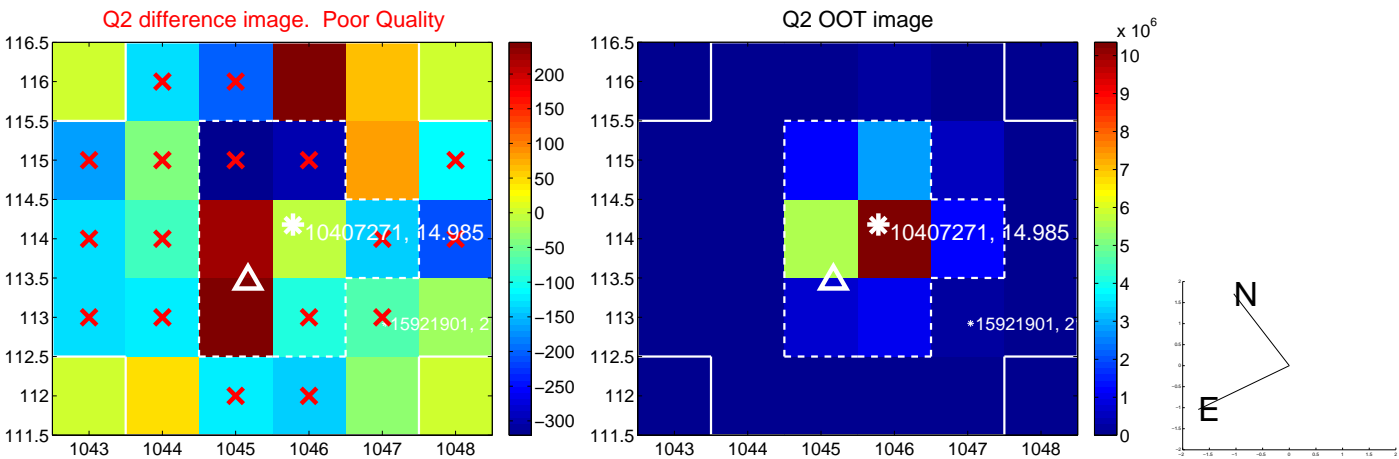
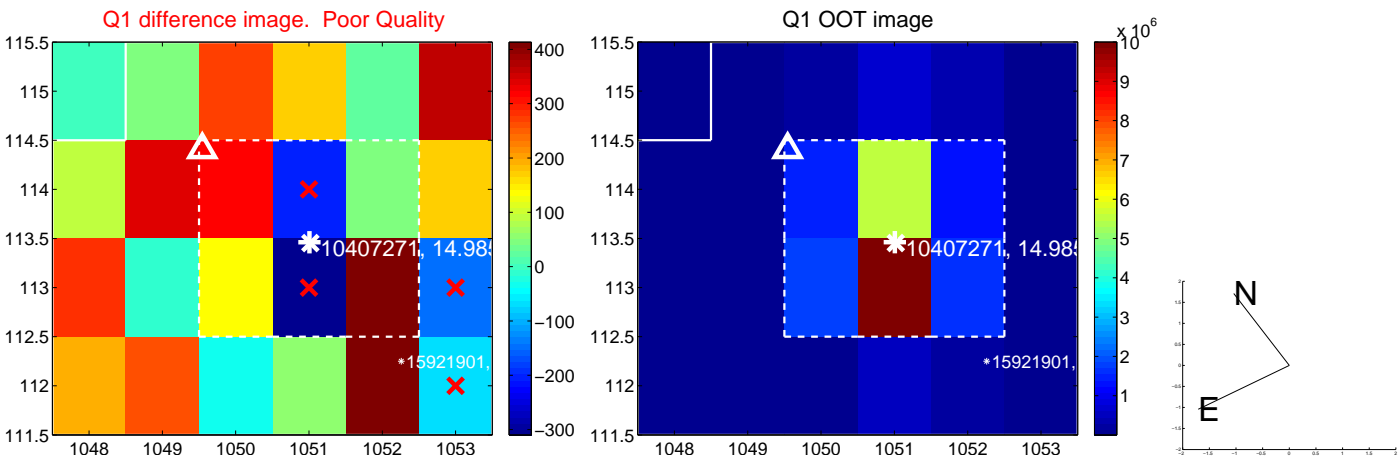


offset from photometric centroids

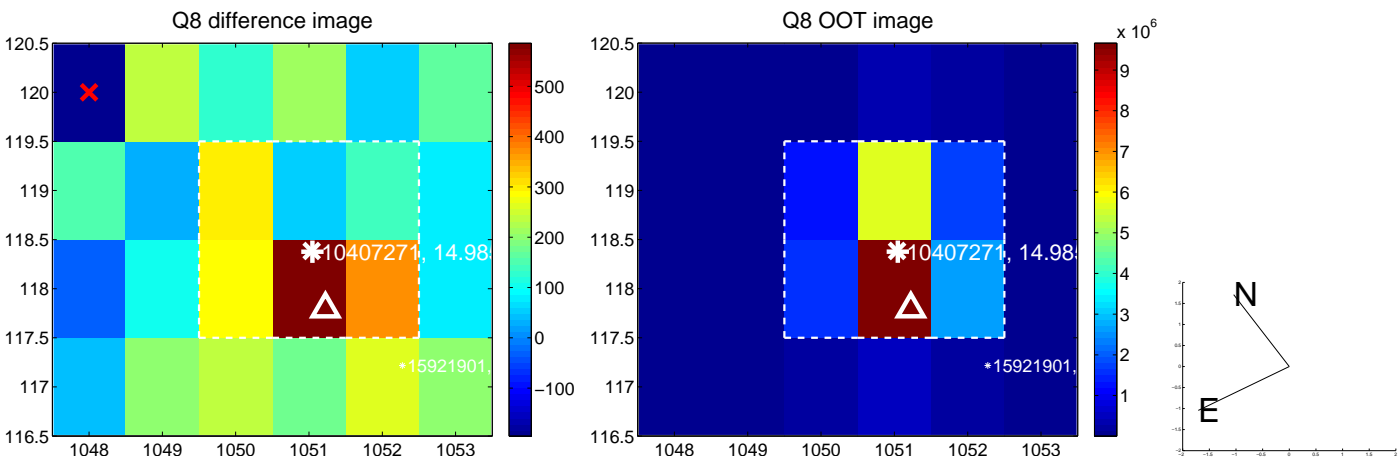
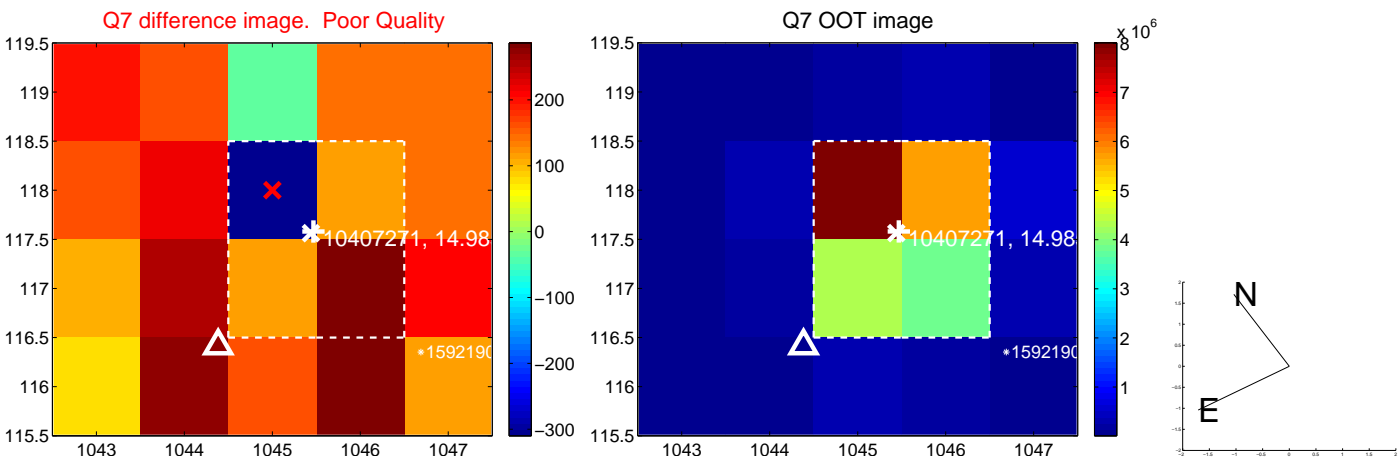
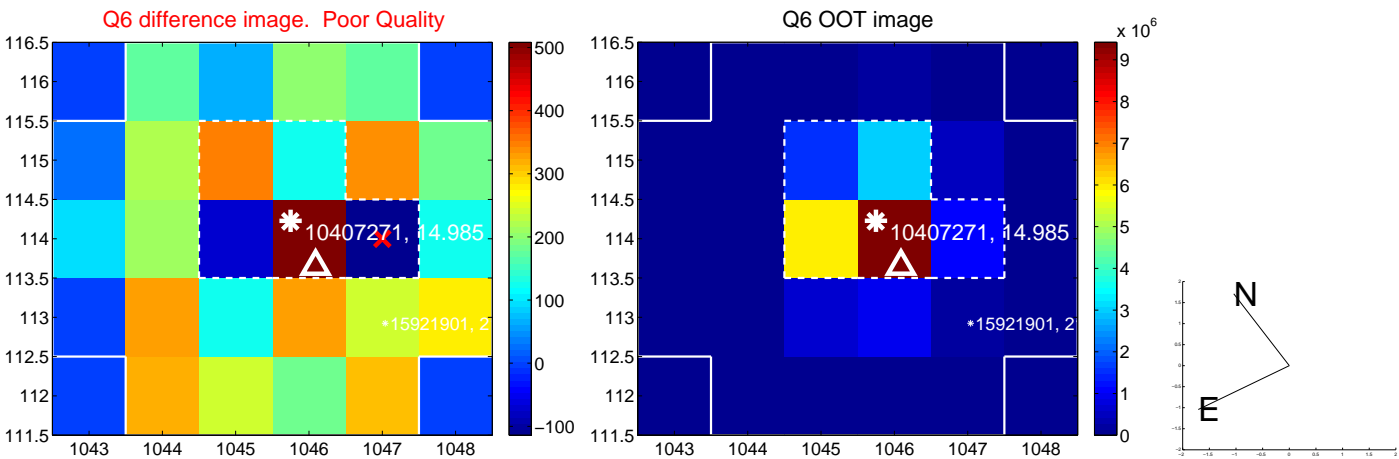
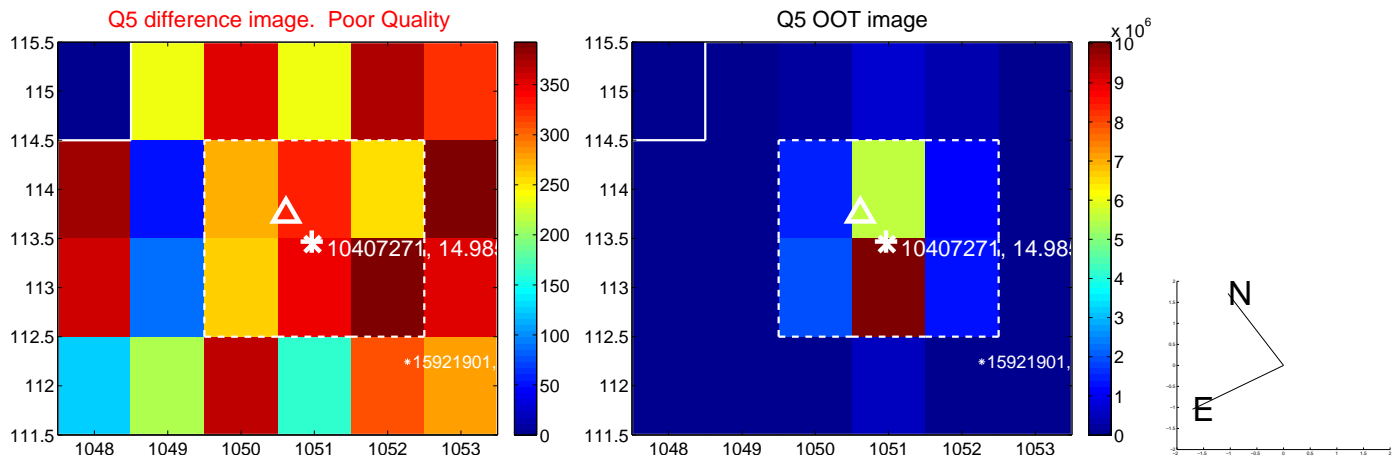


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

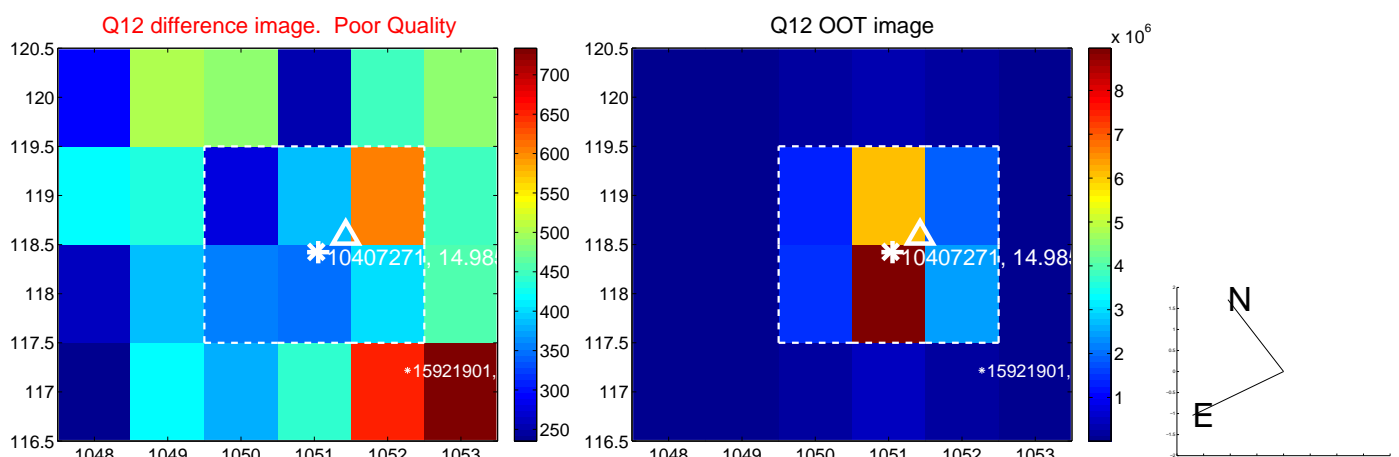
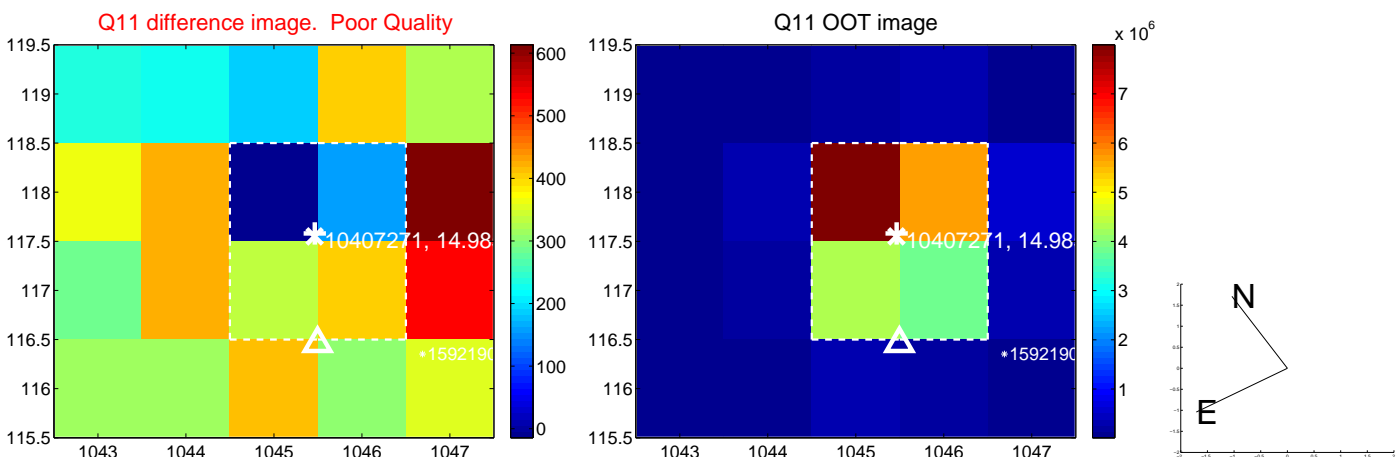
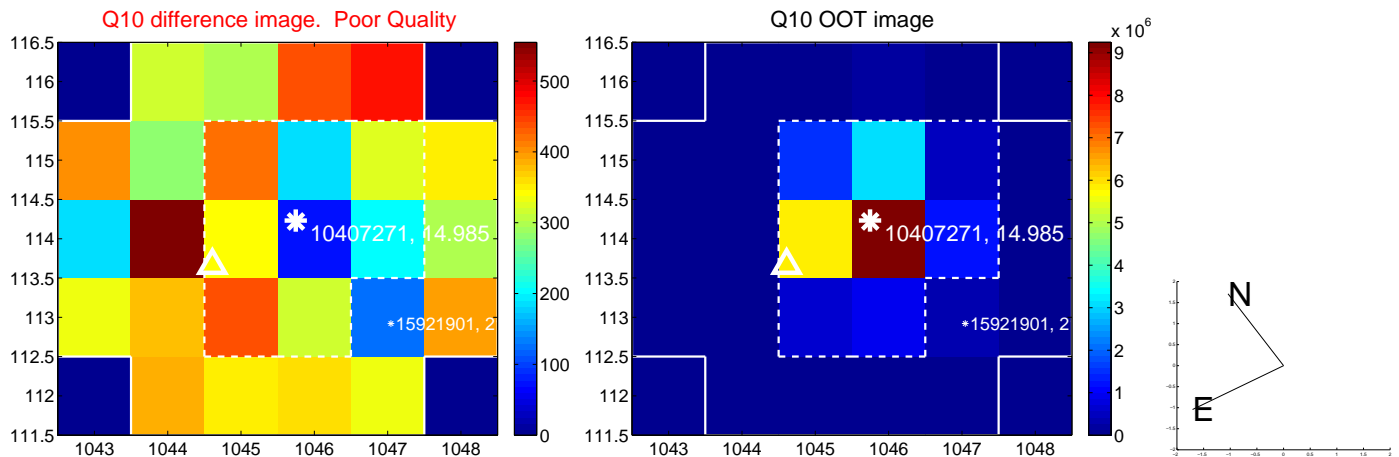
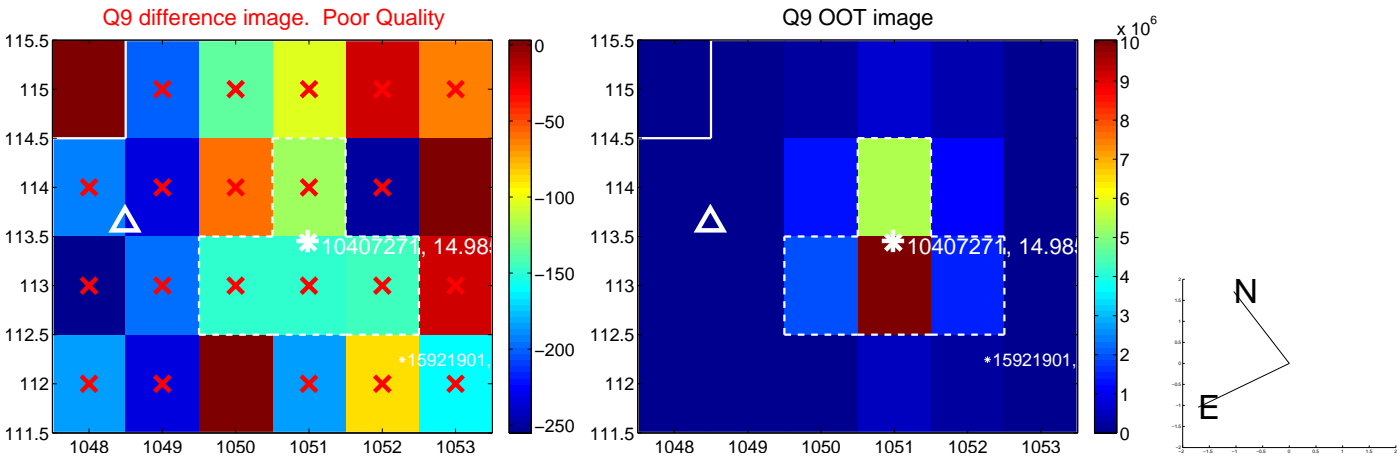


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

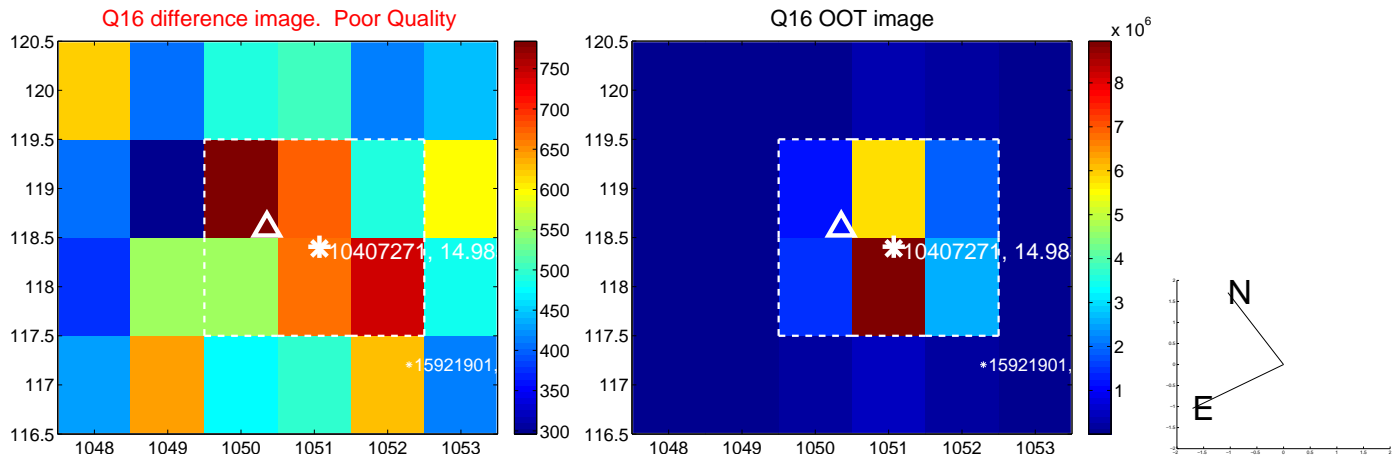
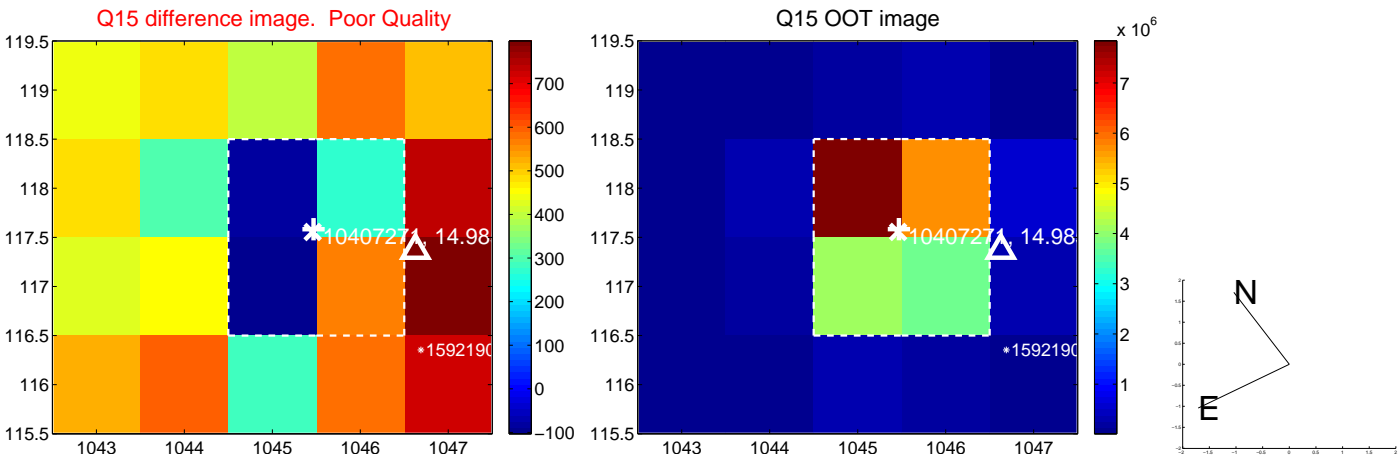
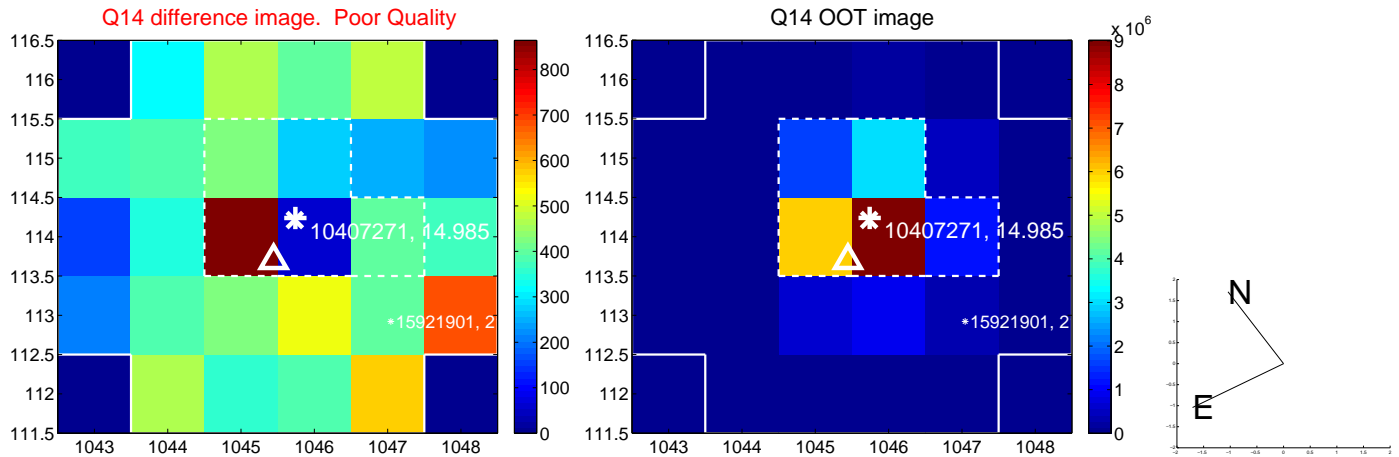
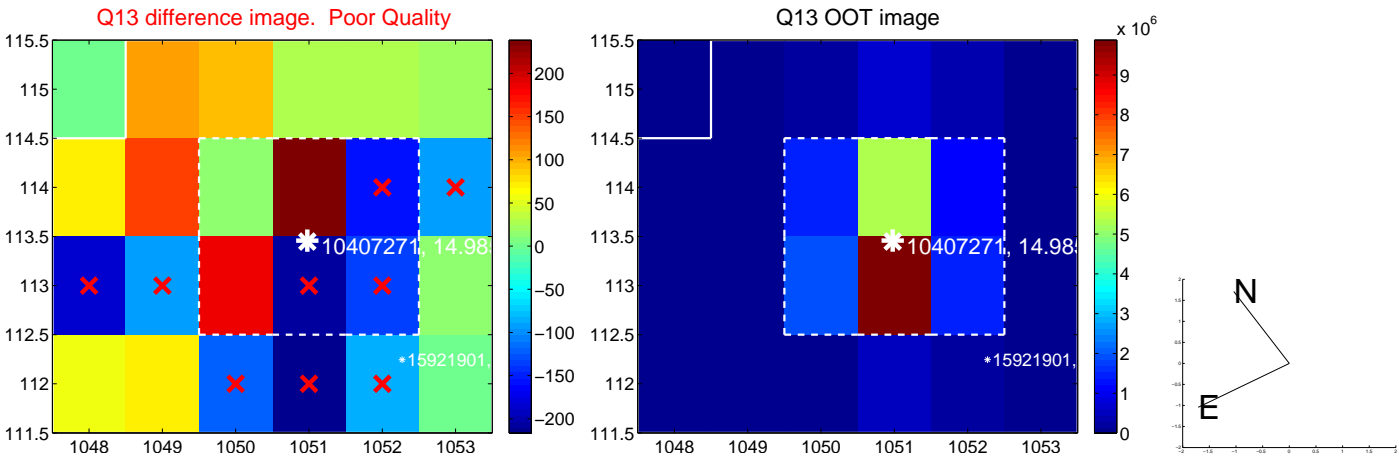




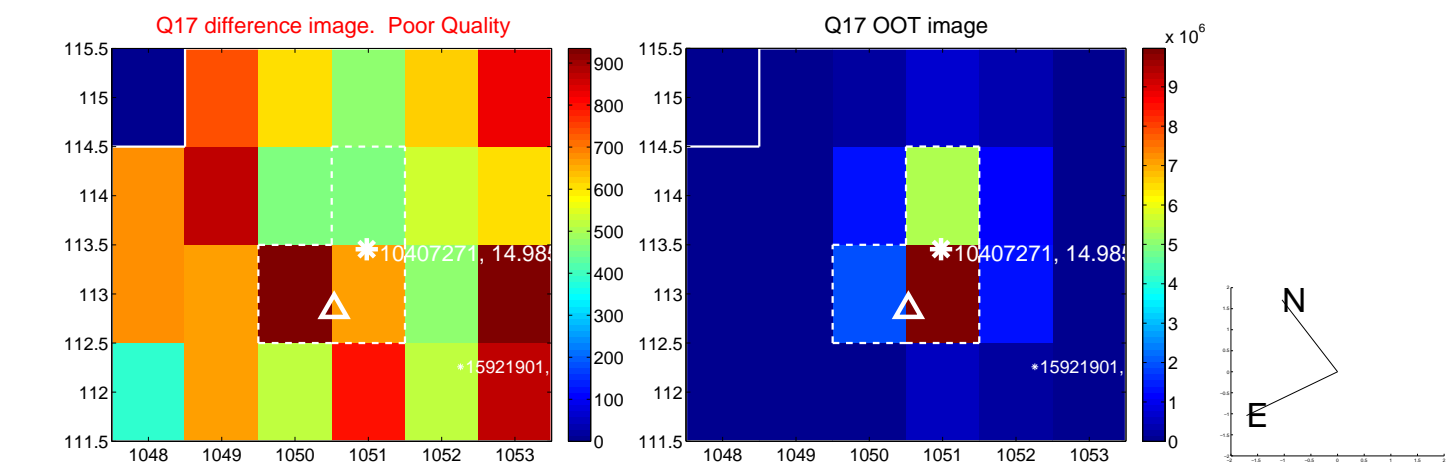
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



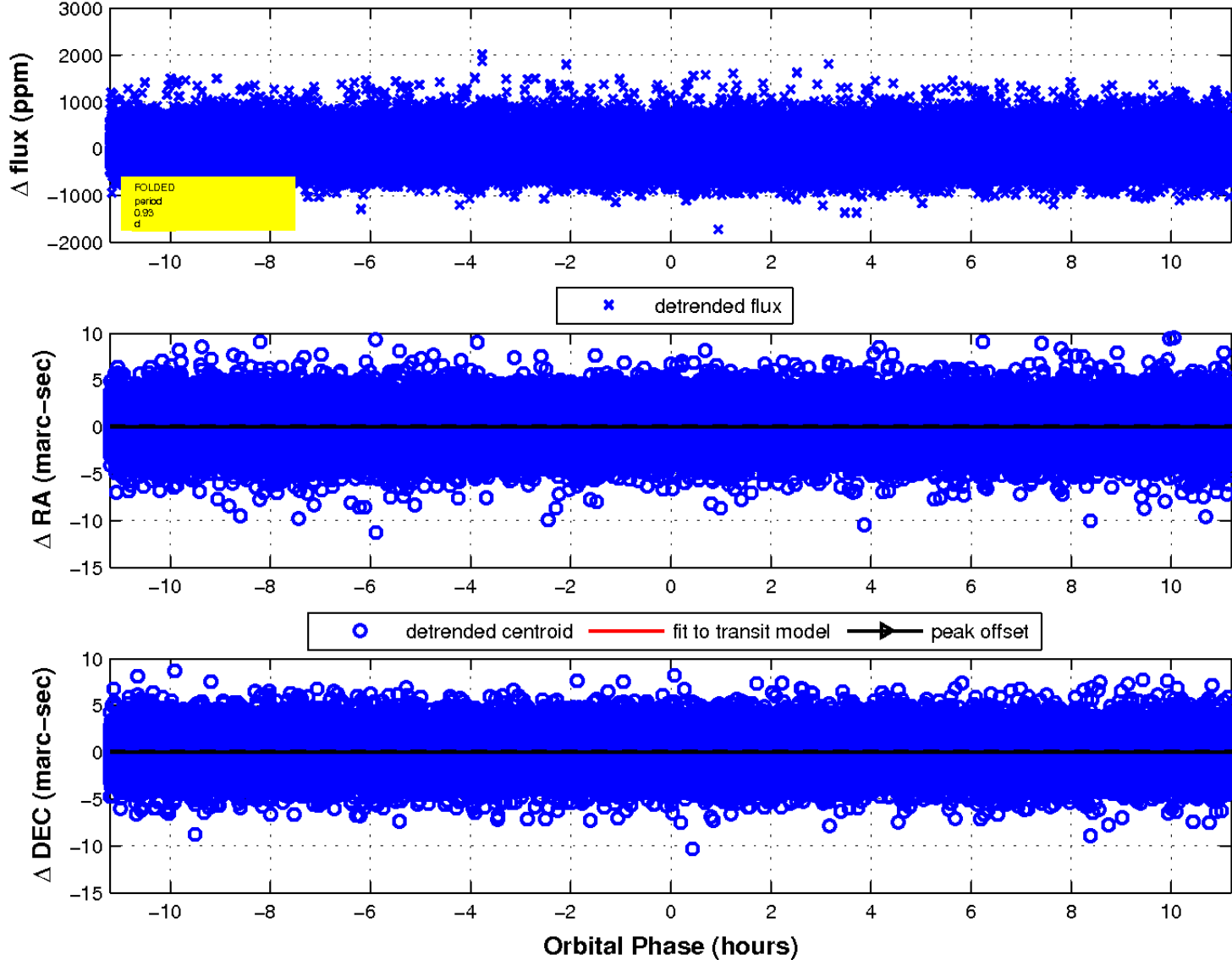
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

