

# KIC 009652166

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009652166-01	OBS	7216.01	0.646488	131.659961	4.6	6.323	8.4	3.7	1.63	7257	0.35	23703.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009652166-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

**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.

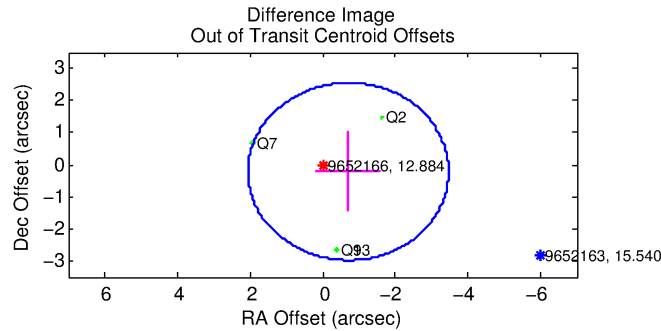
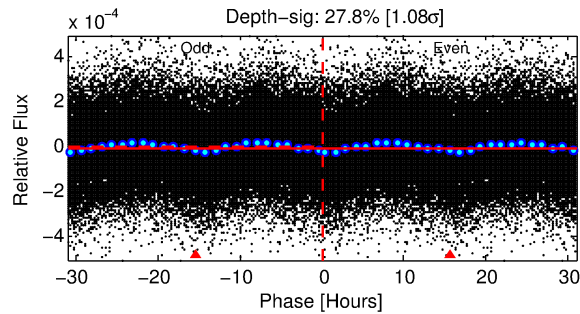
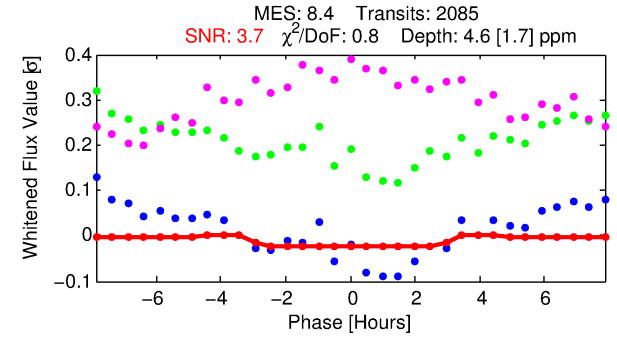
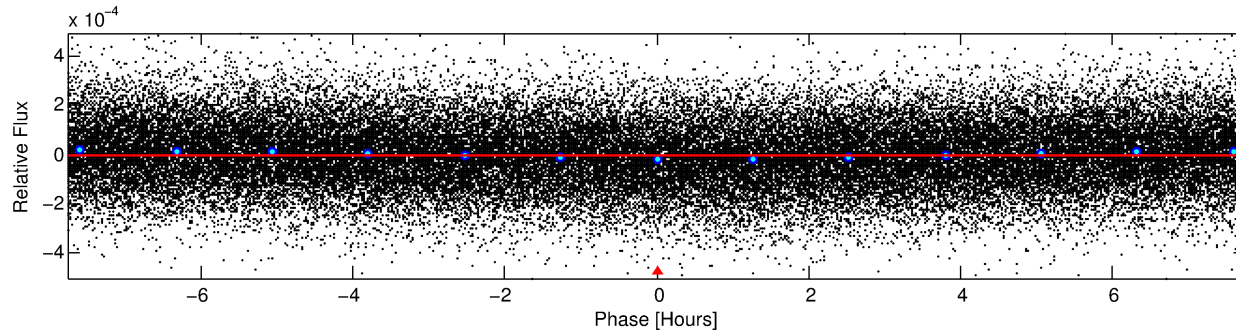
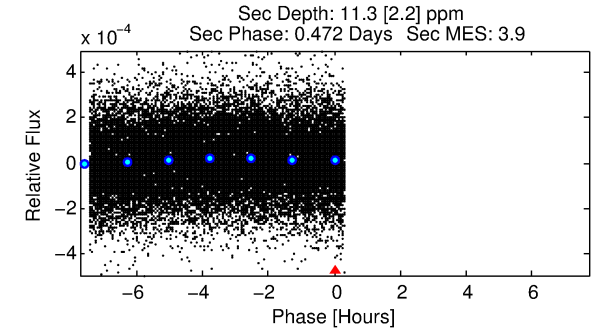
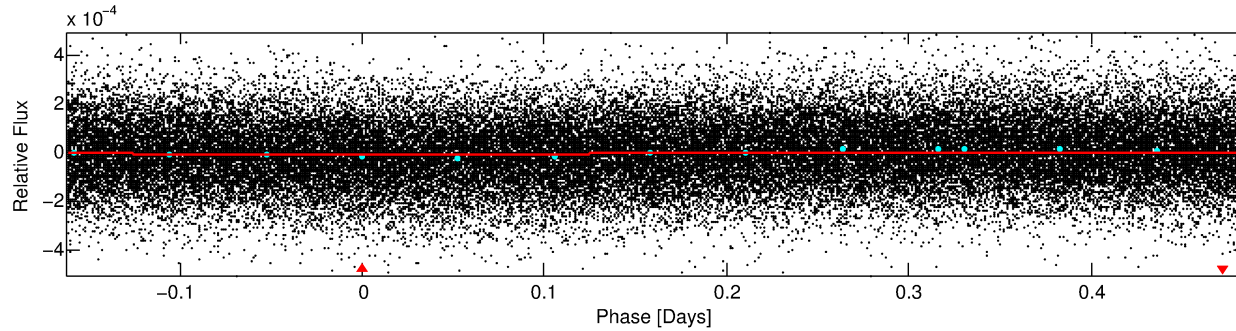
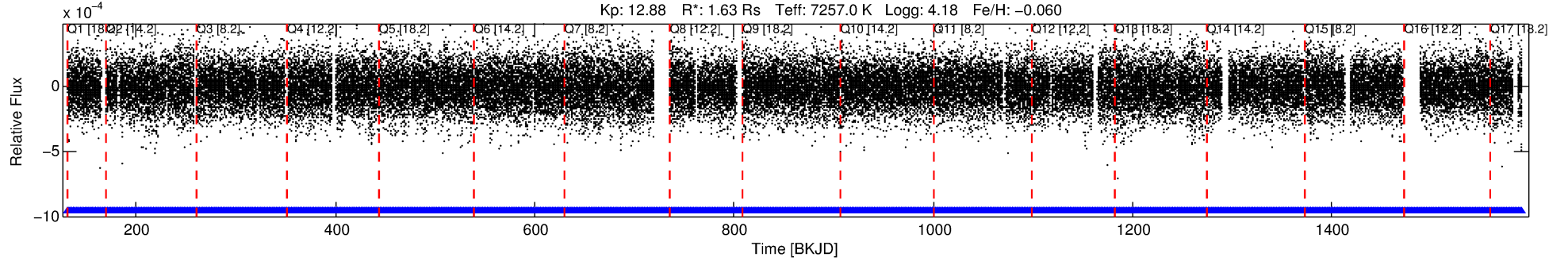
Ephemeris Match Information For 009652166-01

No Significant Match Found

# DV One-Page Summary

KIC: 9652166 Candidate: 1 of 1 Period: 0.646 d

KOI: K07216 Corr: No Ephemeris Match



## DV Fit Results:

Period = 0.64649 [0.00003] d  
Epoch = 131.6600 [0.0130] BKJD  
Rp/R\* = 0.0020 [0.0039]  
a/R\* = 1.05 [1.03]  
b = 0.06 [180.74]  
Seff = 23703.45 [9894.80]  
Teq = 3164 [330] K  
Rp = 0.35 [0.70] Re  
a = 0.0167 [0.0045] AU  
Ag = 13.91 [54.53] [0.24σ]  
Teffp = 9447 [9226] K [0.68σ]

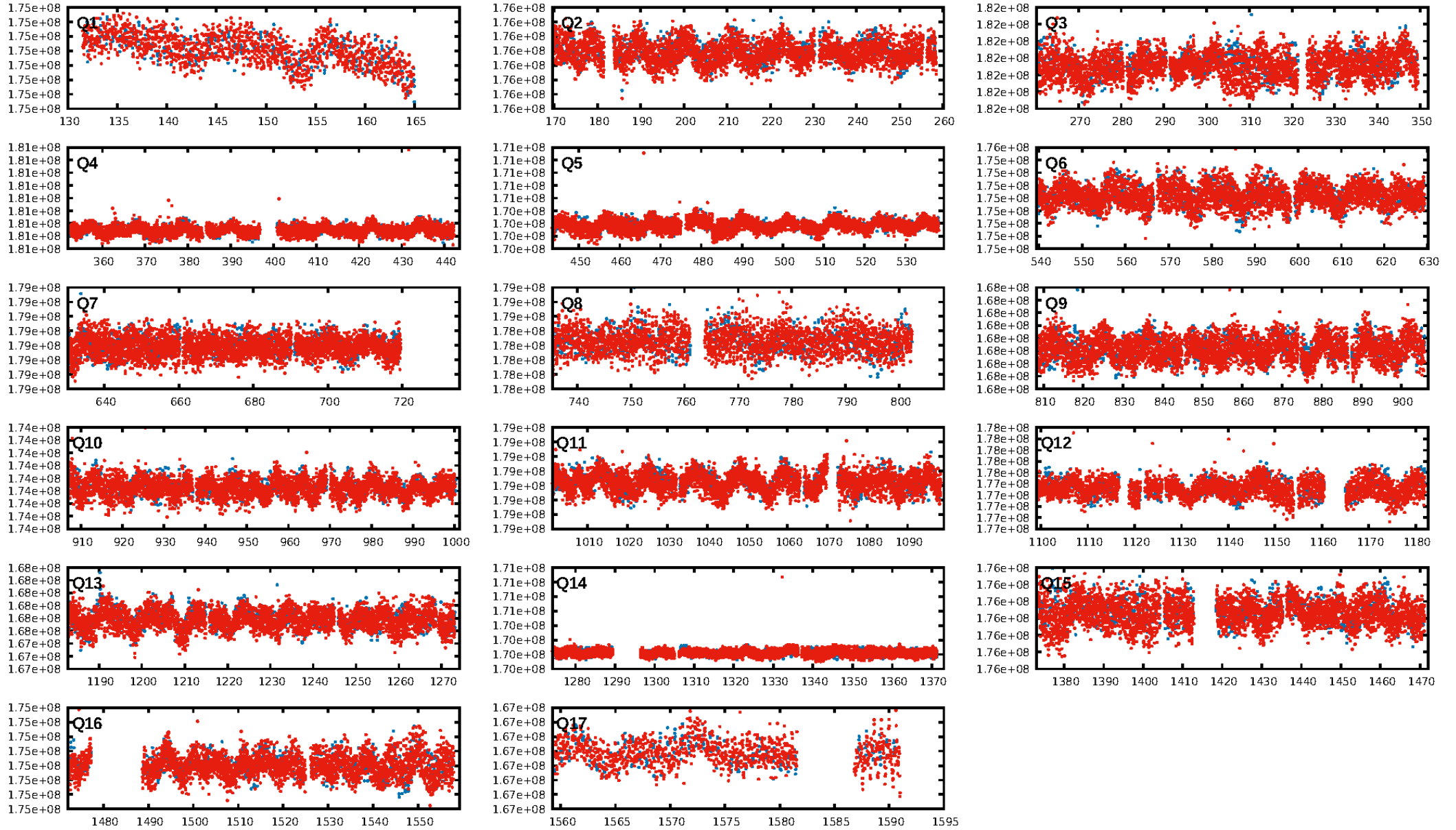
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1991/1991]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.739 arcsec [0.80σ]  
KicOffset-rm: 0.904 arcsec [0.98σ]  
OotOffset-st: 1/1/0/2 [4]  
KicOffset-st: 1/1/0/2 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 1.00 [17/17]

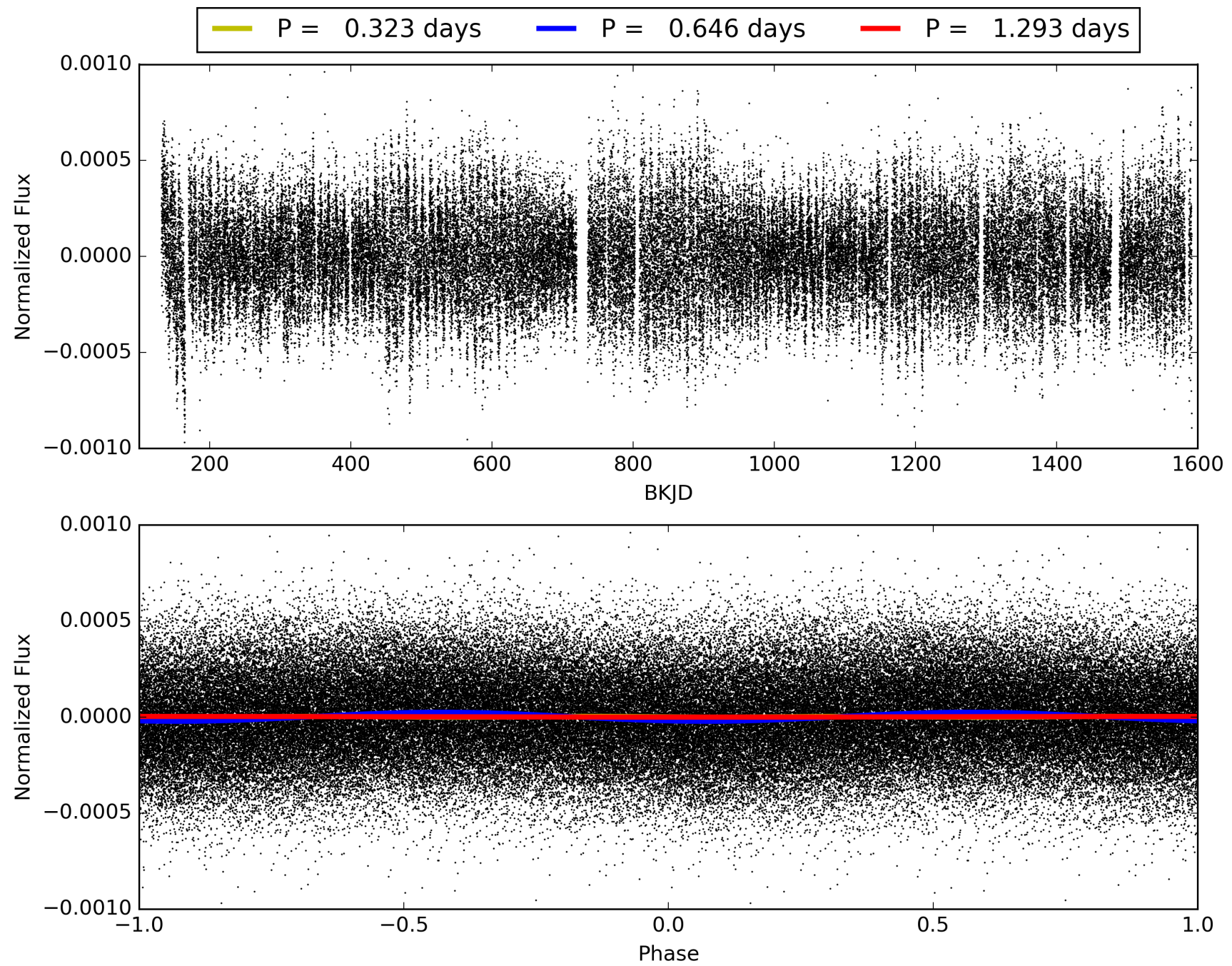
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:49:55 Z

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

# TCE 009652166-01, PDC Light Curves

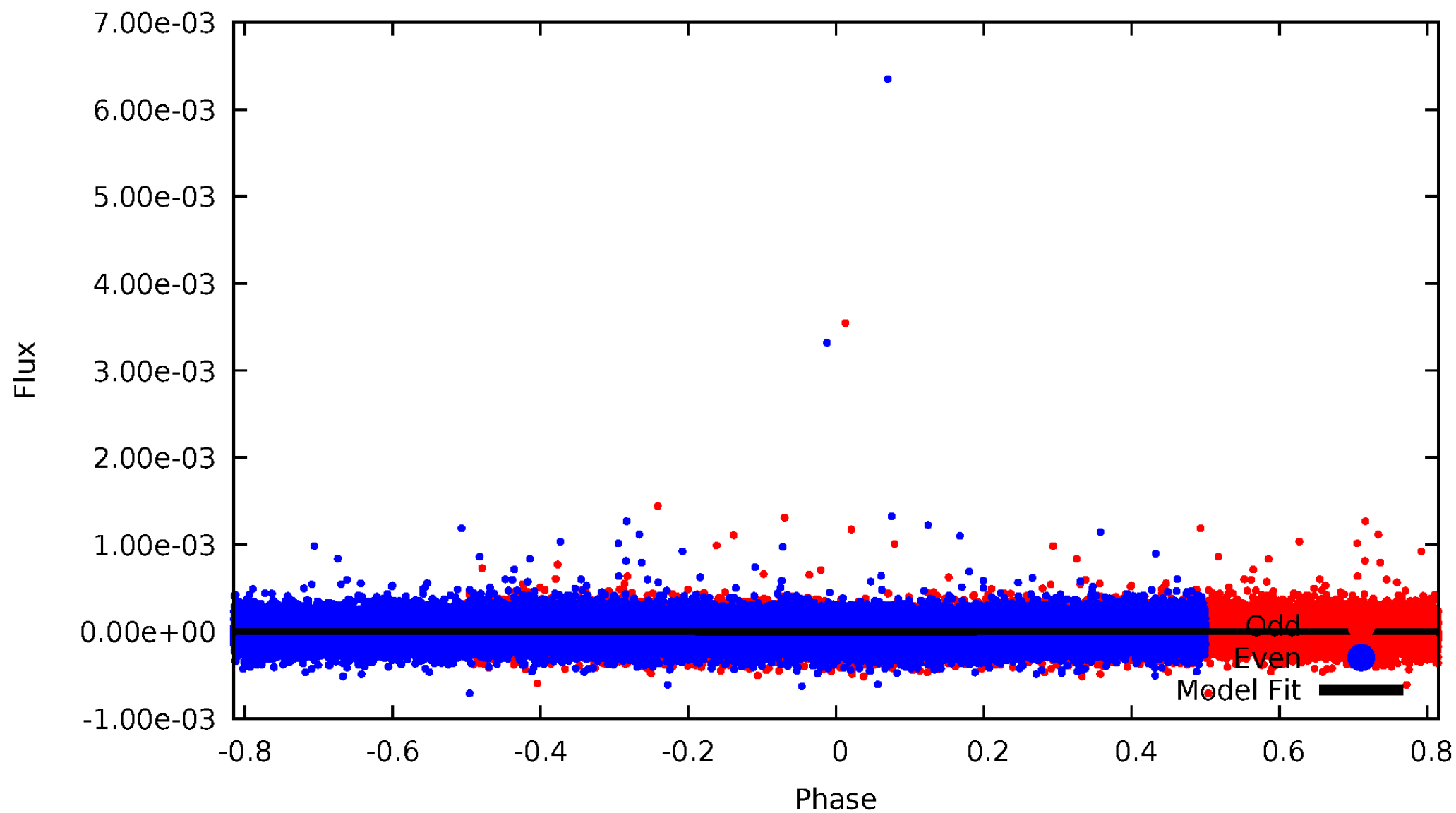


TCE 009652166-01



# DV Odd/Even

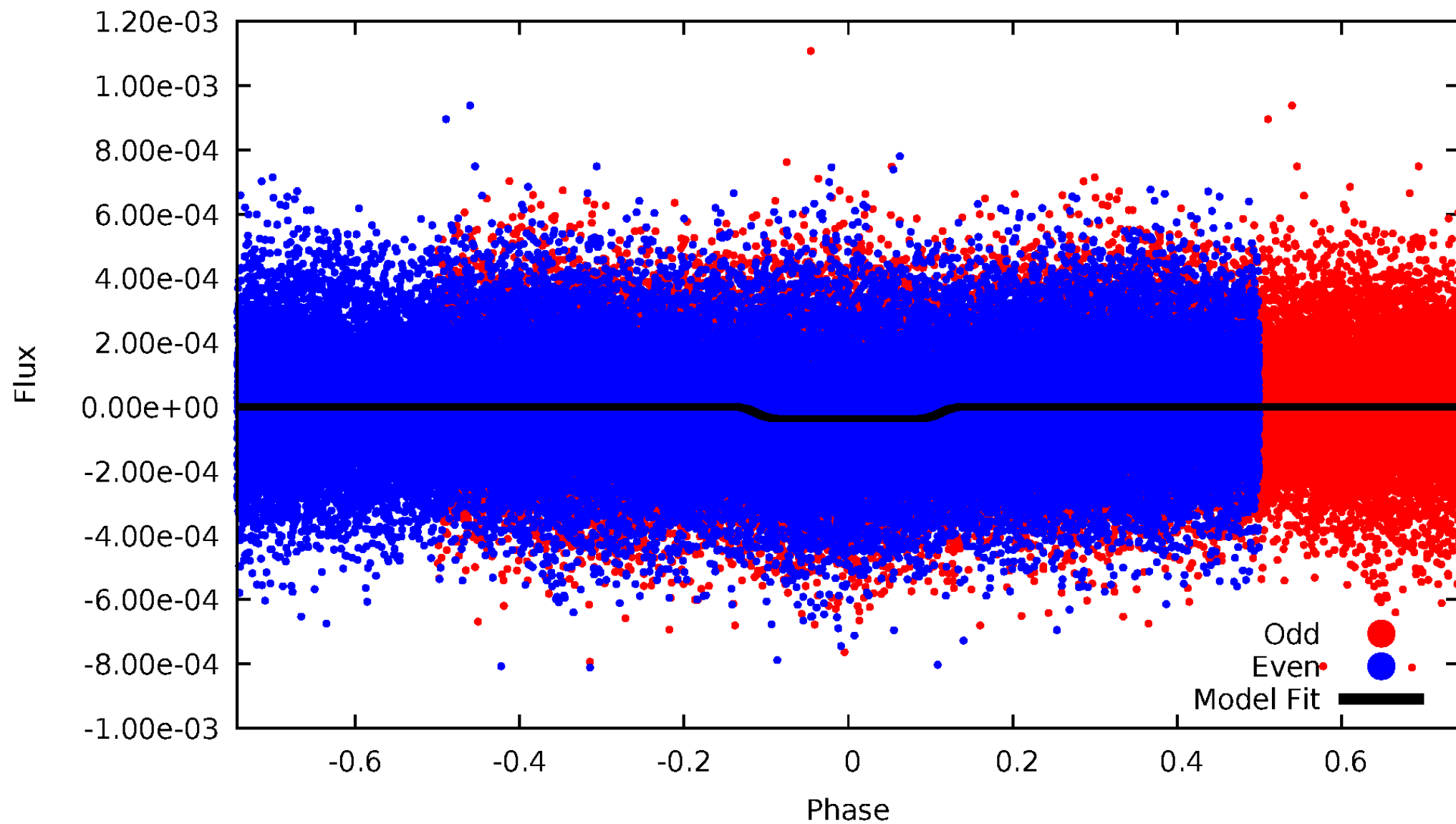
TCE 009652166-01





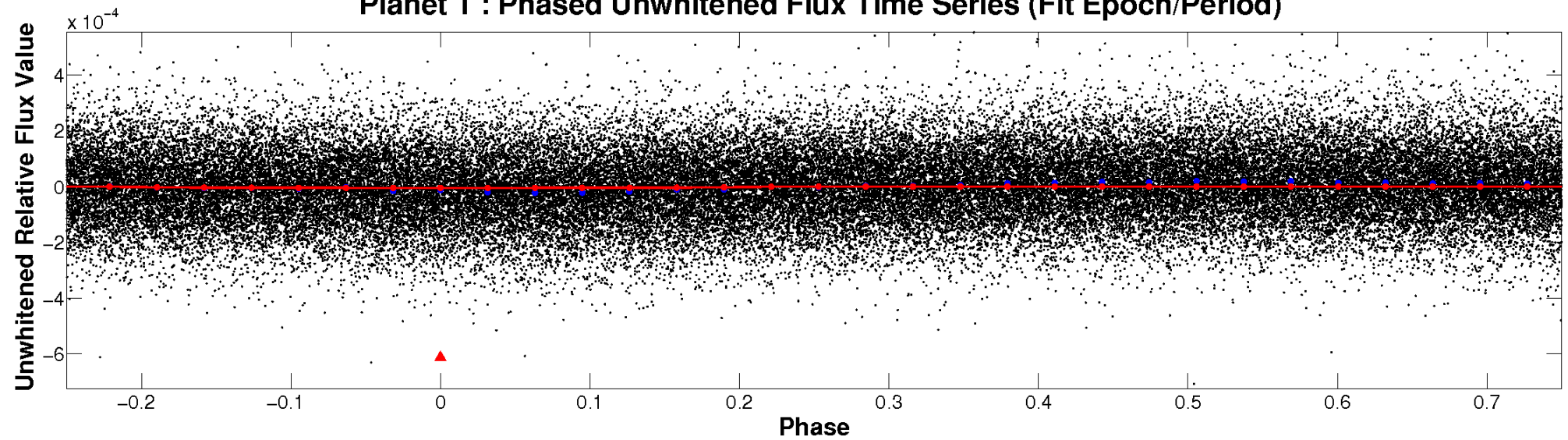
# ALT Odd/Even

TCE 009652166-01

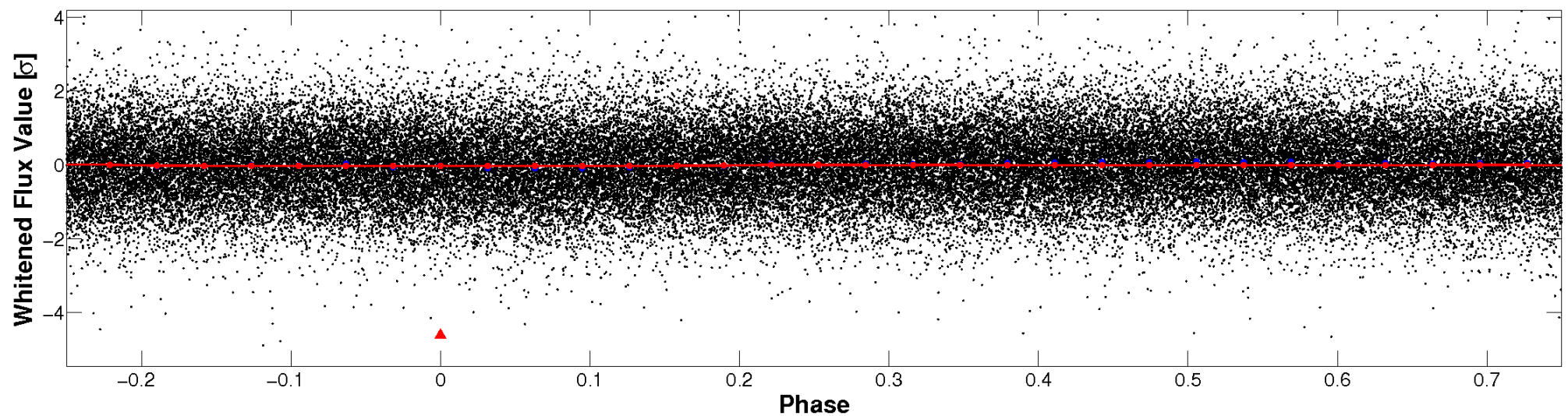


# Non-Whitened Vs. Whitened Light Curve

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

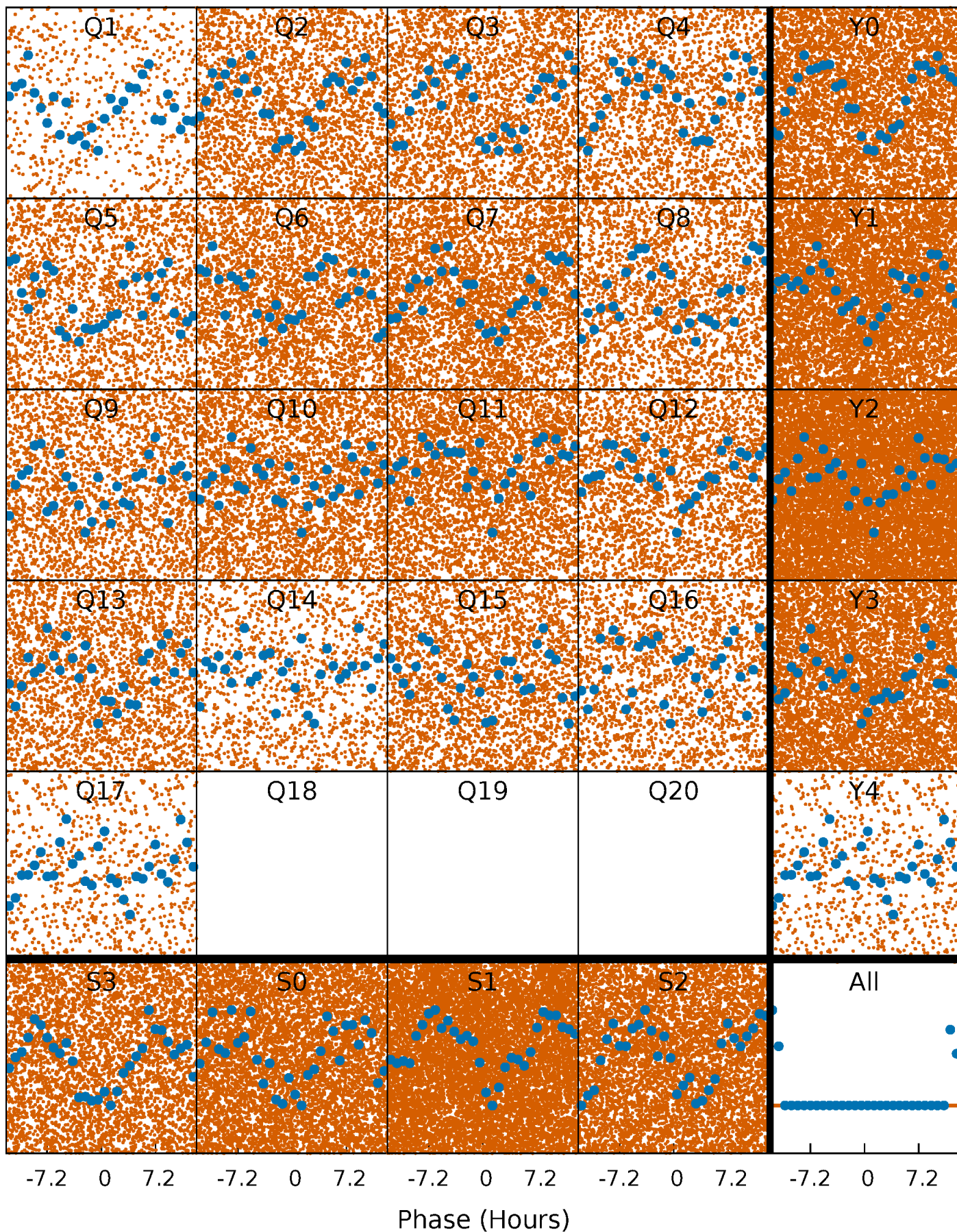


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

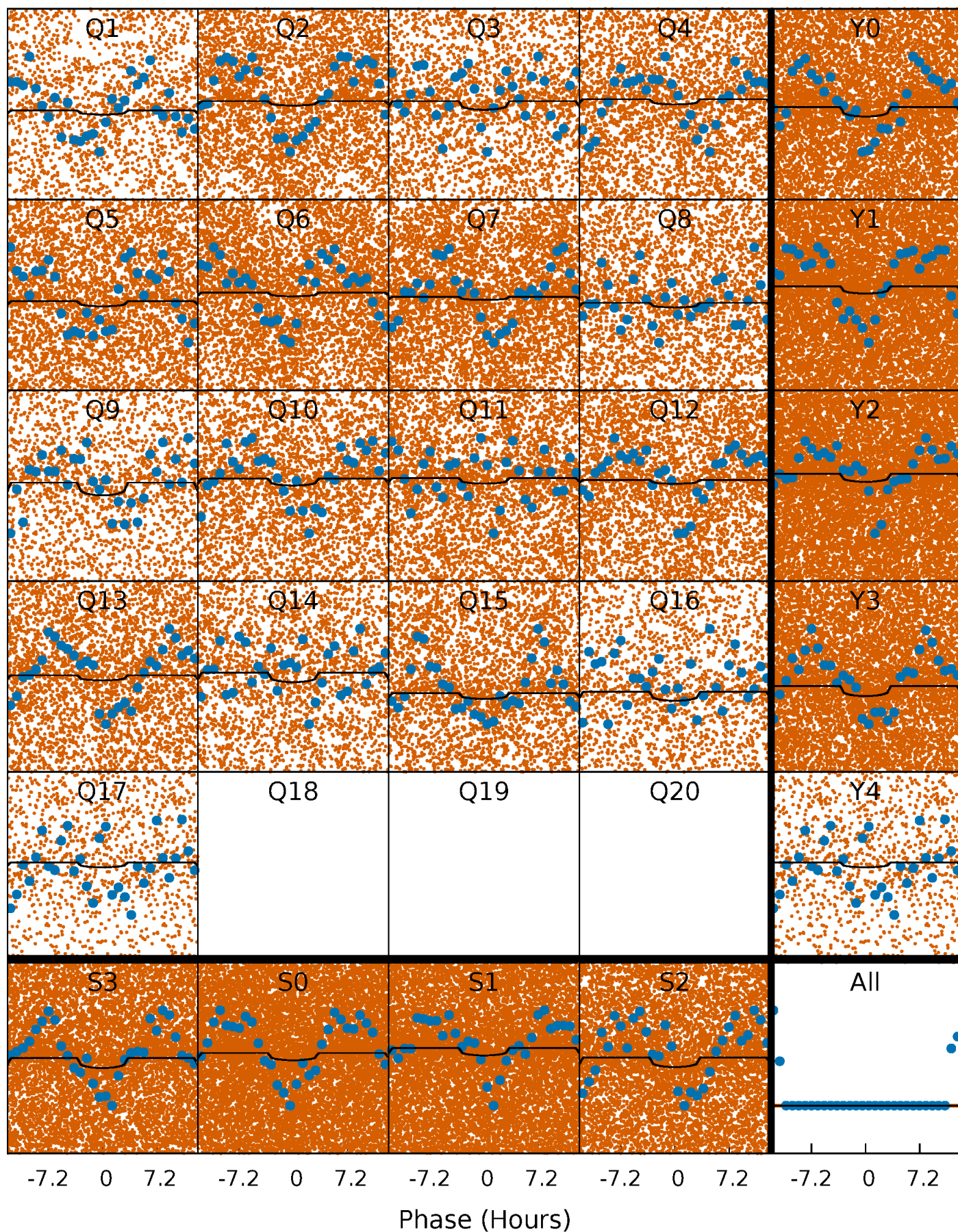
TCE 009652166-01 P= 0.646488 Days  $T_0=131.659961$  (BKJD)





# DV Quarter-Phased Transit Curves

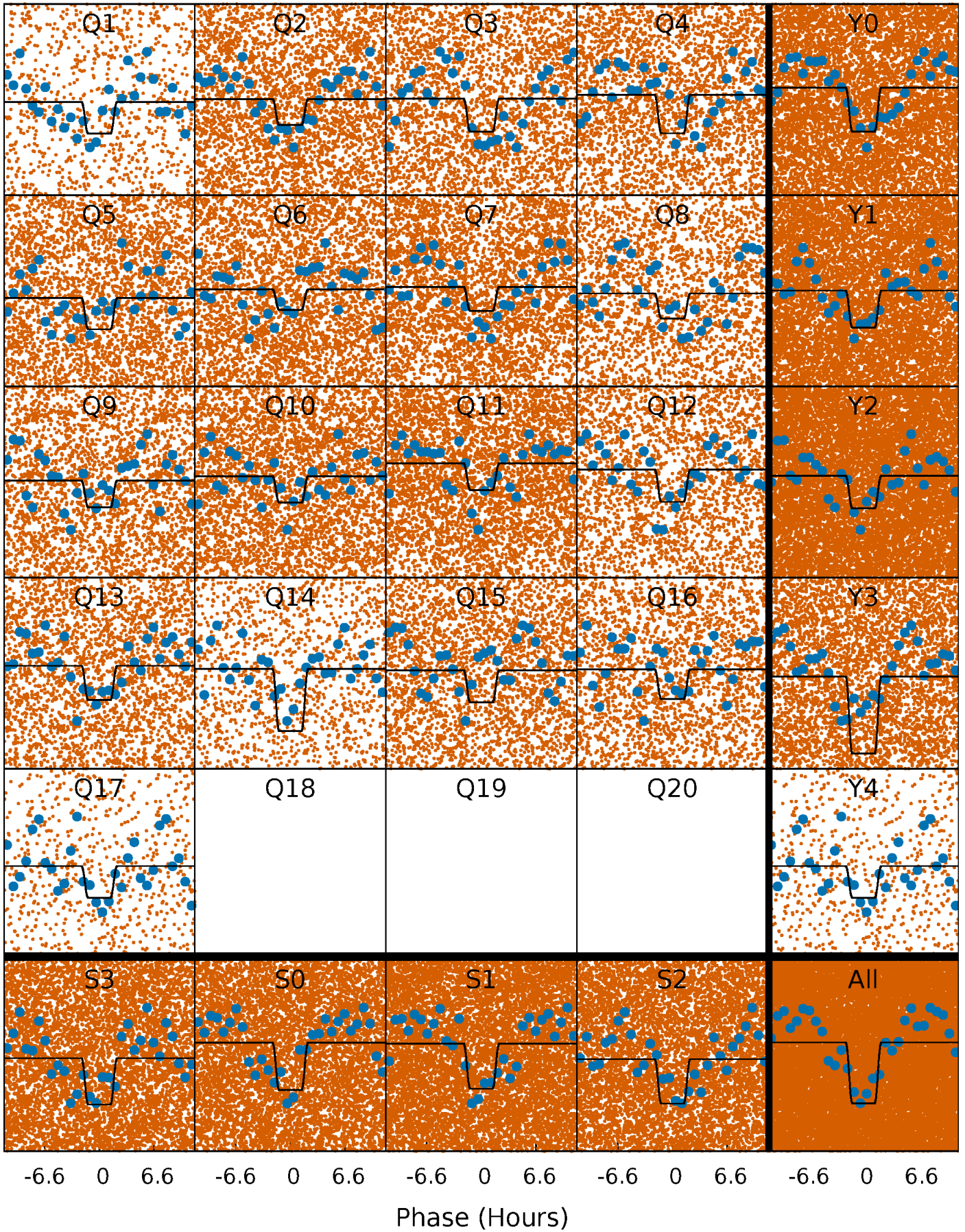
TCE 009652166-01 P= 0.646488 Days  $T_0=131.659961$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

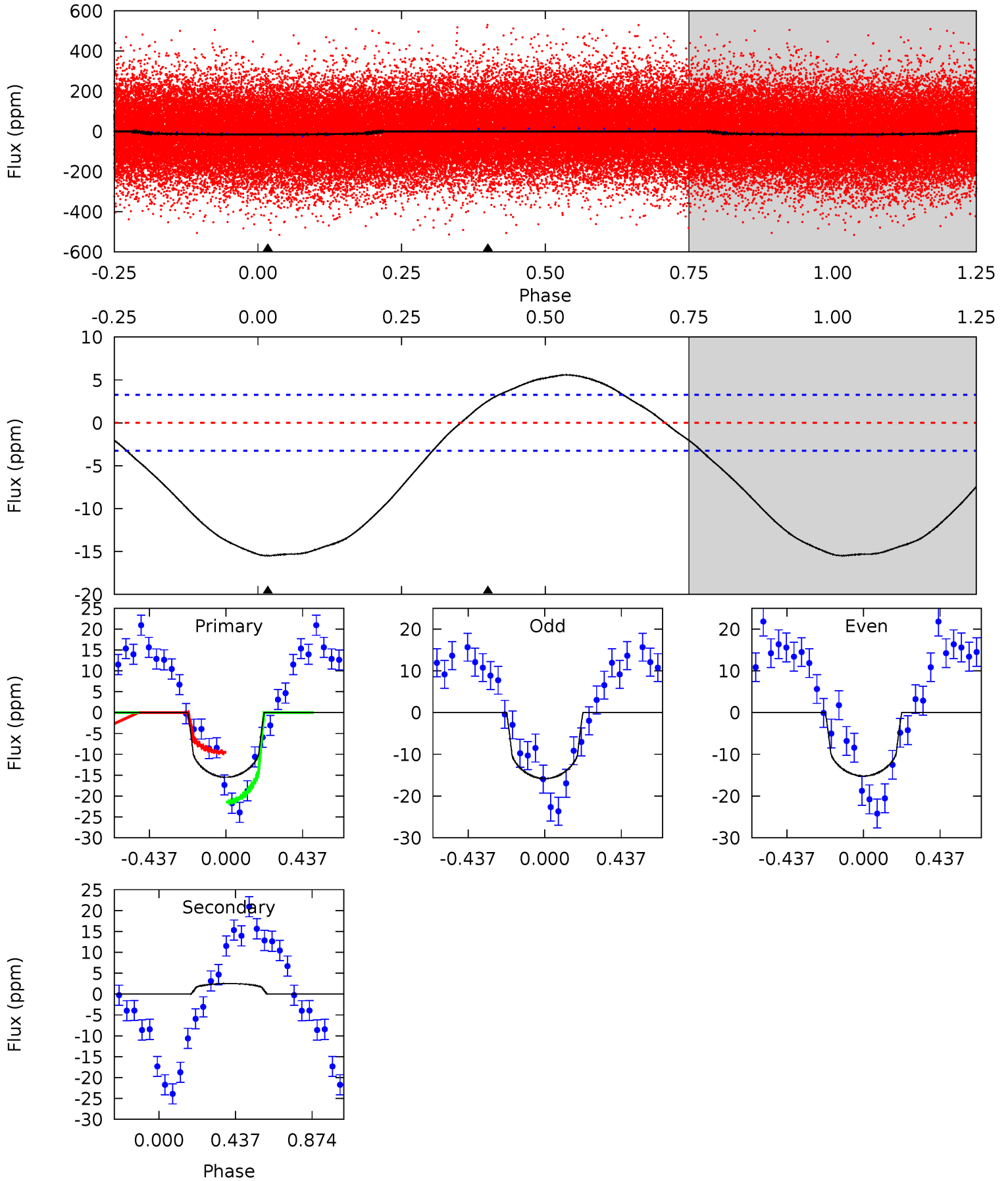
TCE 009652166-01 P= 0.646542 Days  $T_0=131.664903$  (BKJD)



# DV Model-Shift Uniqueness Test

009652166-01, P = 0.646488 Days, E = 131.013473 Days

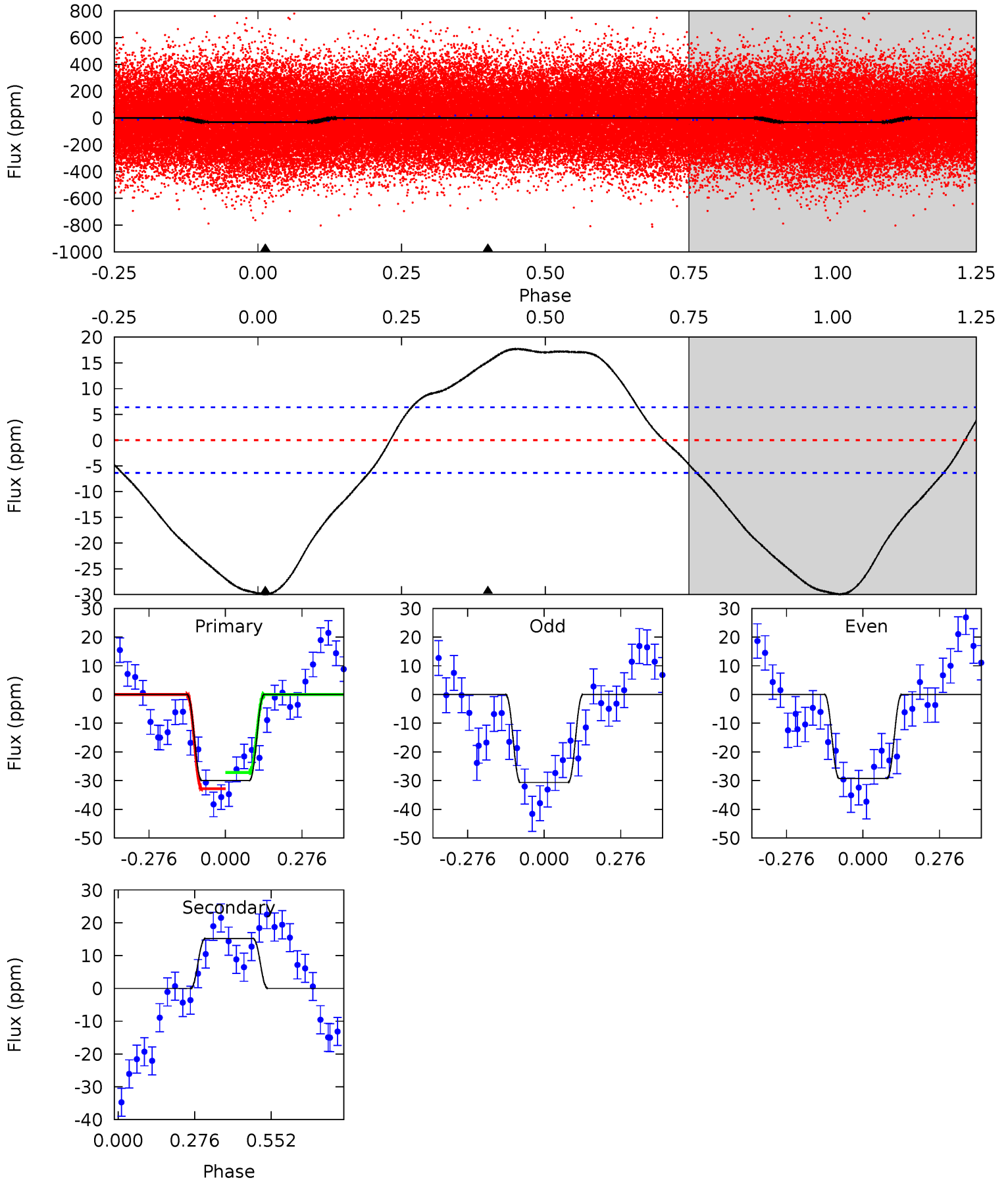
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	-3.31	0	0	4.25	0.78	1.88	20.2	20.2	-3.31	-3.31	0.40	1.11	0.27	7.82



# Alt Model-Shift Uniqueness Test

009652166-01, P = 0.646542 Days, E = 131.018361 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
20.4	-10.3	0	0	4.35	1.09	2.45	20.4	20.4	-10.3	-10.3	0.48	0.95	0.37	1.95





### Stellar Parameters For KIC 009652166

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7257^{+230}_{-316}$	$4.185^{+0.108}_{-0.201}$	$-0.060^{+0.200}_{-0.350}$	$1.631^{+0.540}_{-0.291}$	$1.487^{+0.212}_{-0.236}$	$0.483^{+0.250}_{-0.262}$
	+3%/-4%	+3%/-5%	+333%/-583%	+33%/-18%	+14%/-16%	+52%/-54%
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 009652166-01 / KOI 7216.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$3\pm 1$	$0.62^{+0.65}_{-0.43}$	$4458^{+292}_{-267}$	$-5228^{+826}_{-4683}$	$-0.965^{+0.741}_{-10.746}$
Alt.	$15\pm 1$	$1.15^{+0.72}_{-0.61}$	$4439^{+368}_{-277}$	$-5849^{+874}_{-2617}$	$-1.718^{+1.038}_{-5.927}$

$T_{\text{max}}$  = 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

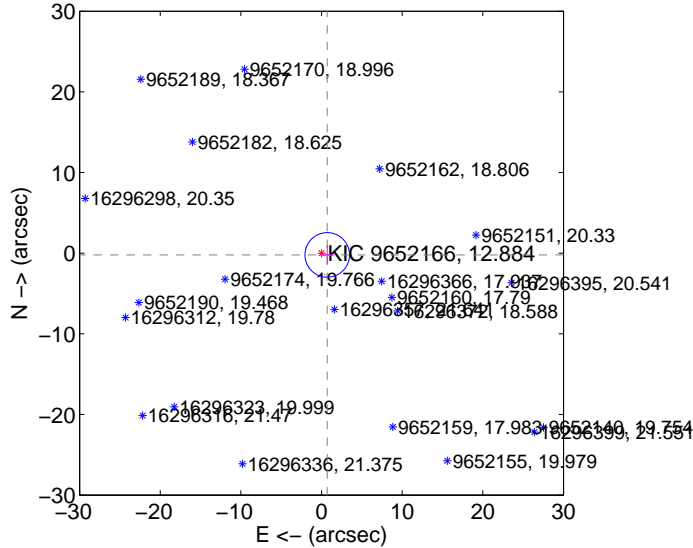
Supplemental centroid analysis for 009652166-01. Kepler magnitude: 12.88. Transit SNR 3.71

There are 1 quarters with good PRF difference image offsets

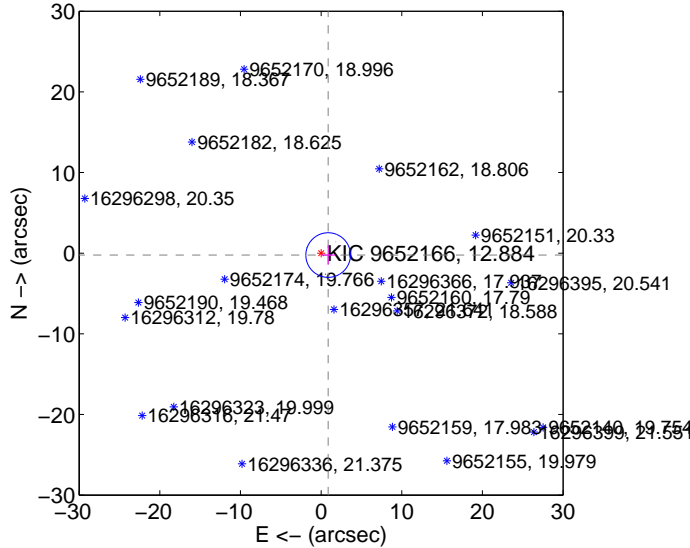
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.739 \pm 0.921$	0.80	$-0.707 \pm 0.888$	$-0.216 \pm 1.219$
PRF-fit source offset from KIC position	$0.904 \pm 0.922$	0.98	$-0.873 \pm 0.899$	$-0.235 \pm 1.191$
photometric centroid source offset	—	—	—	—

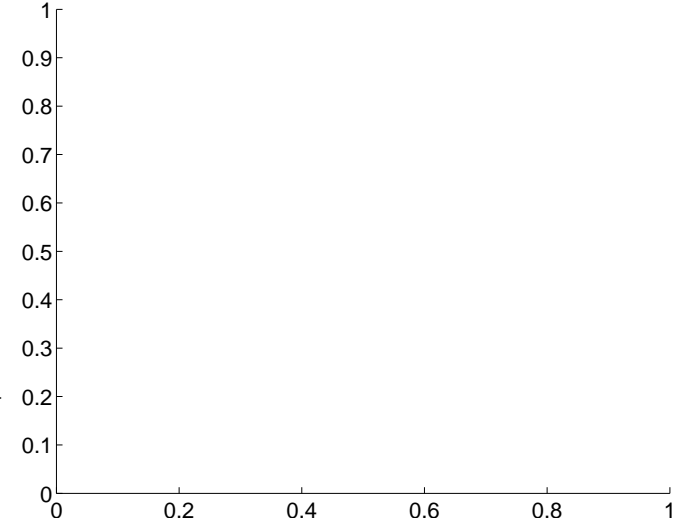
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

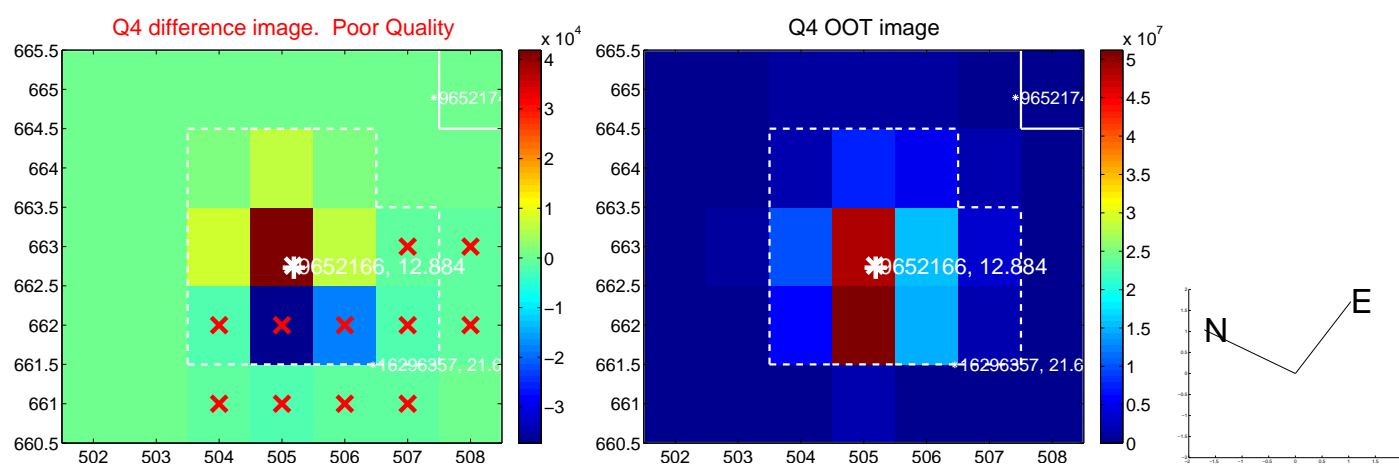
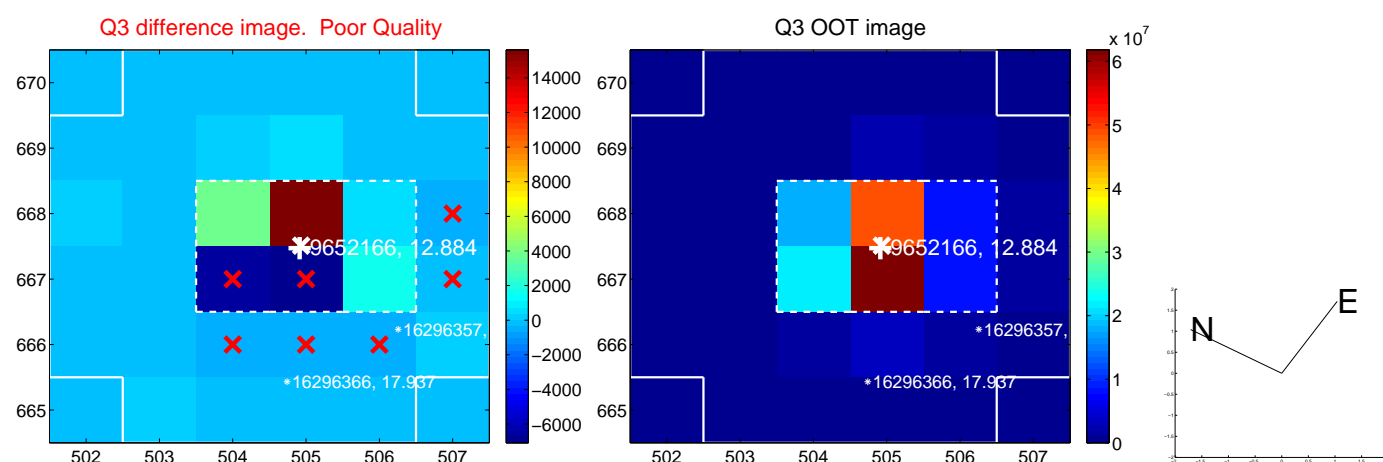
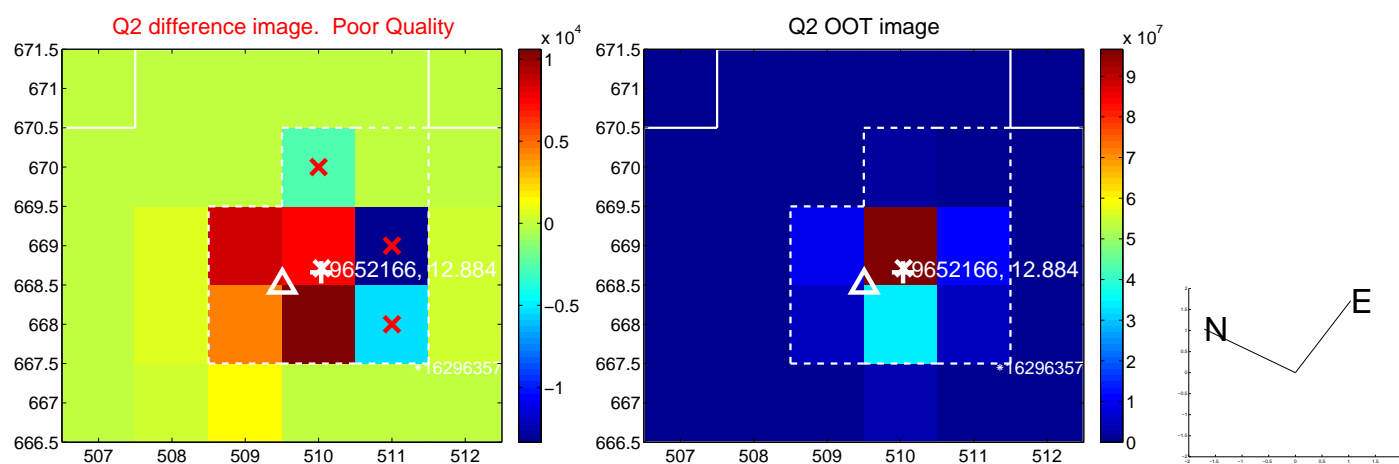
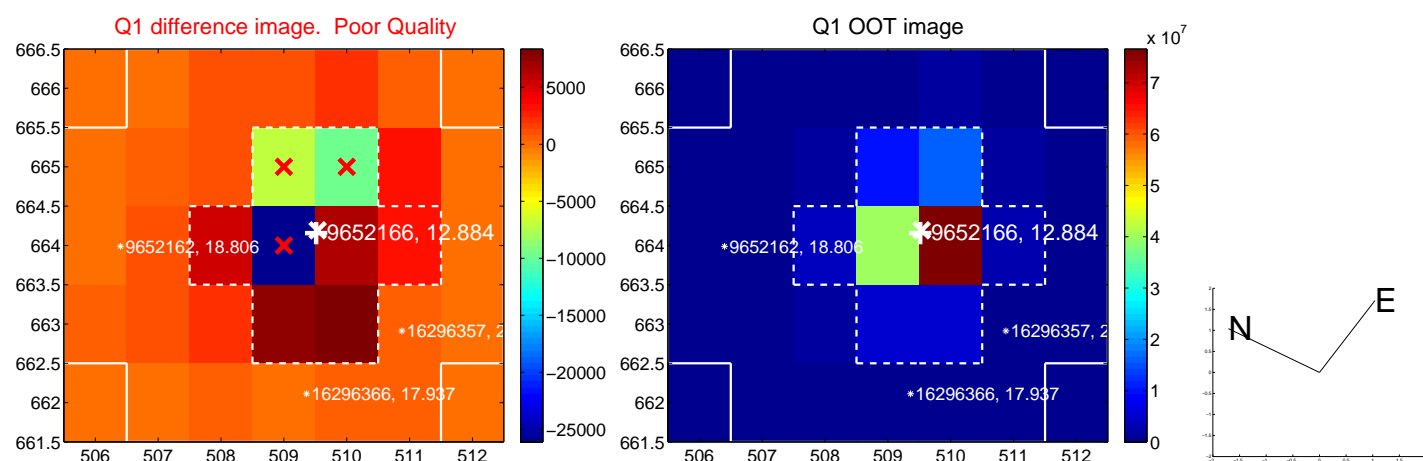


There are no photometric centroids

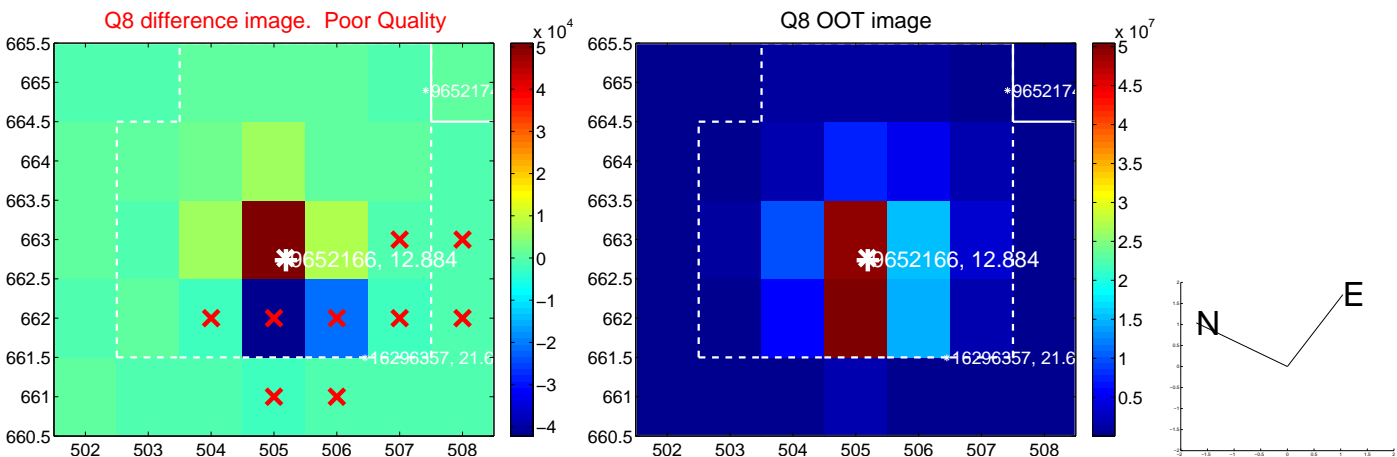
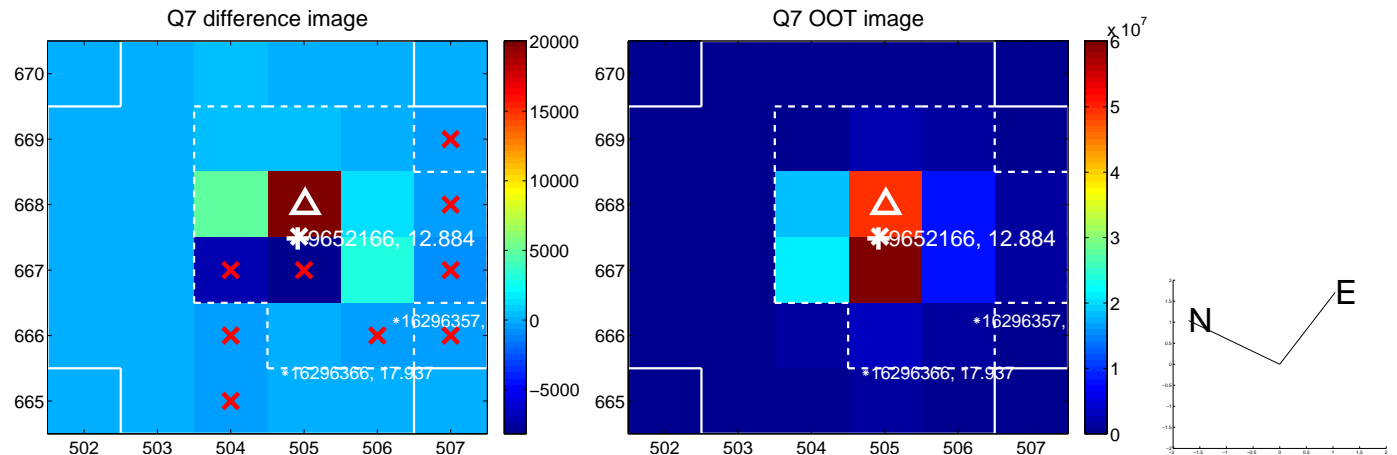
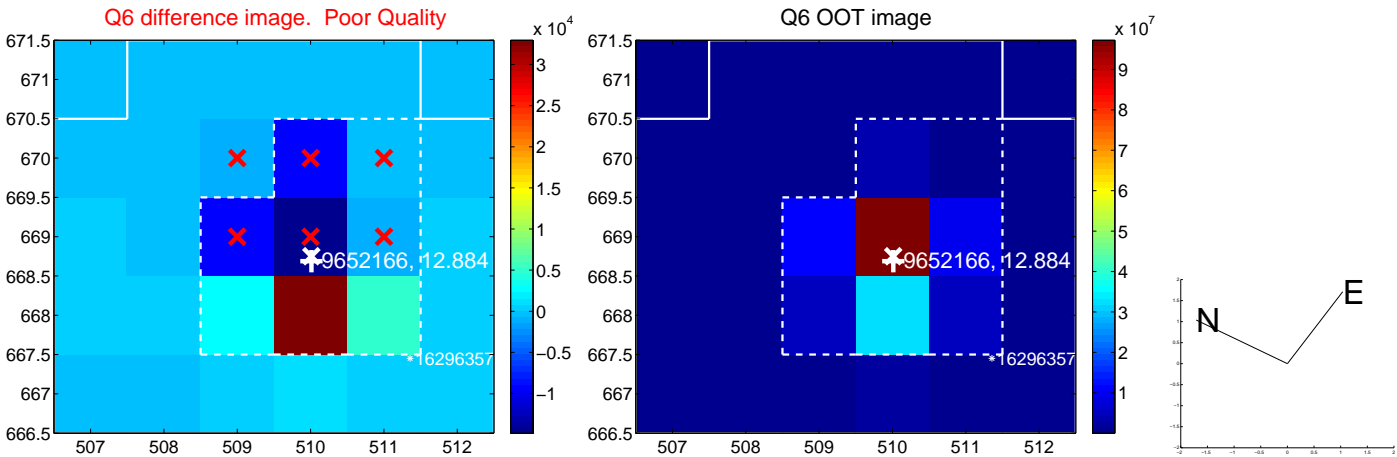
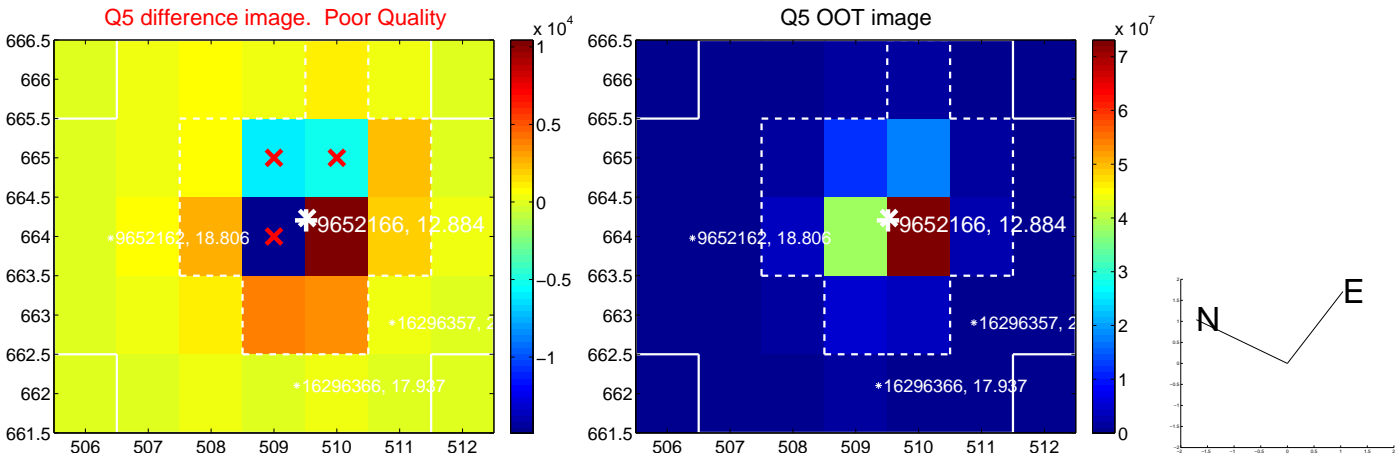


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

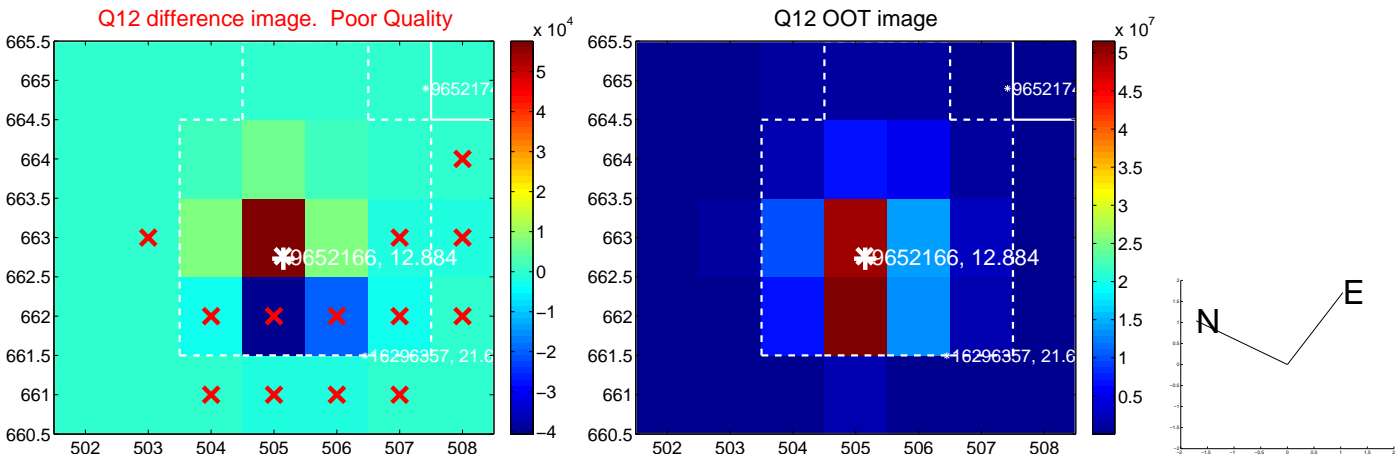
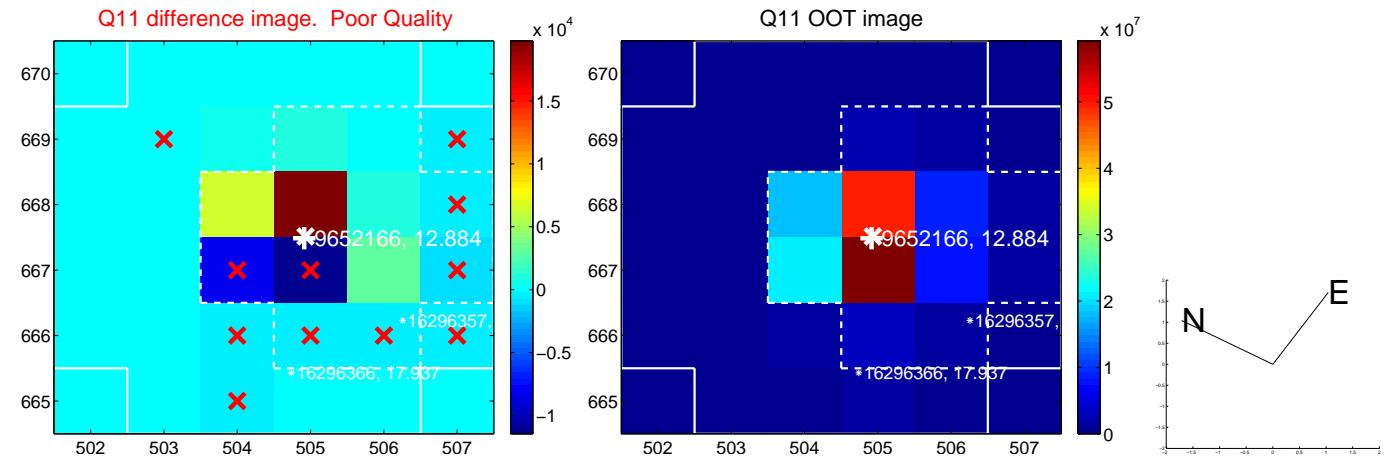
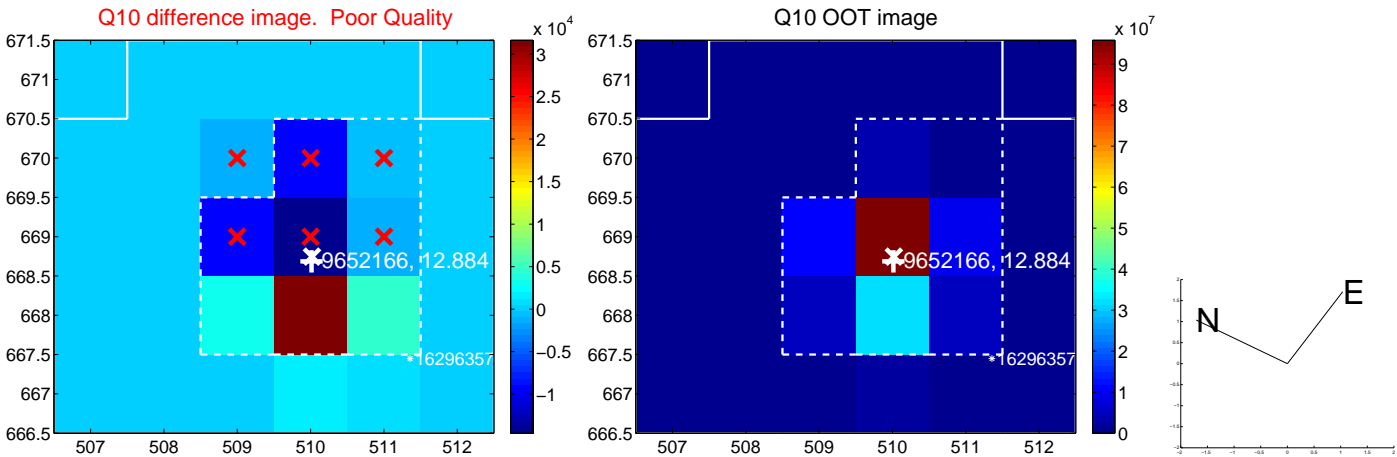
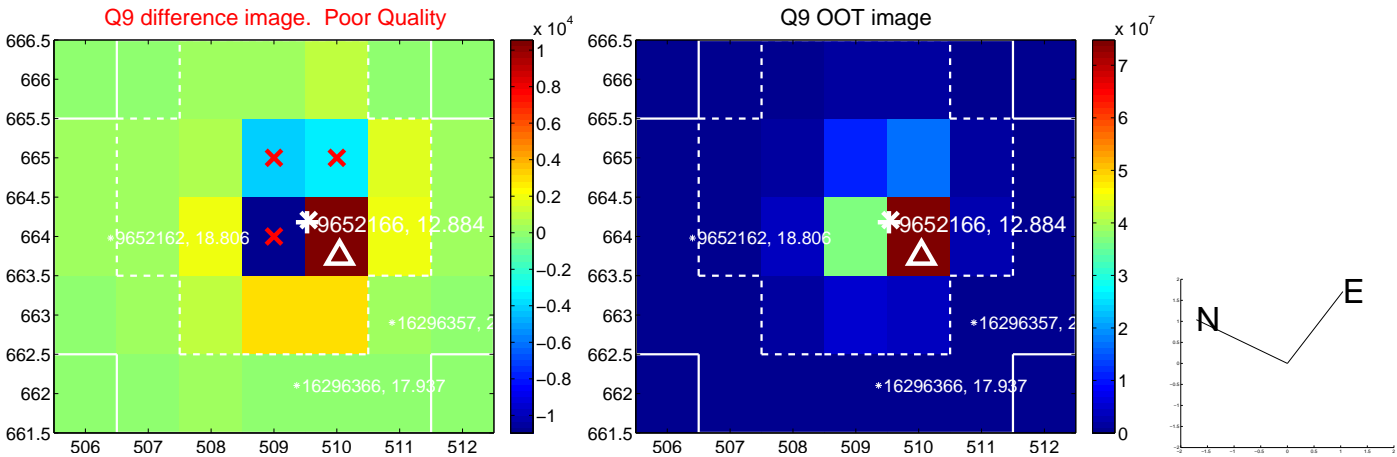


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

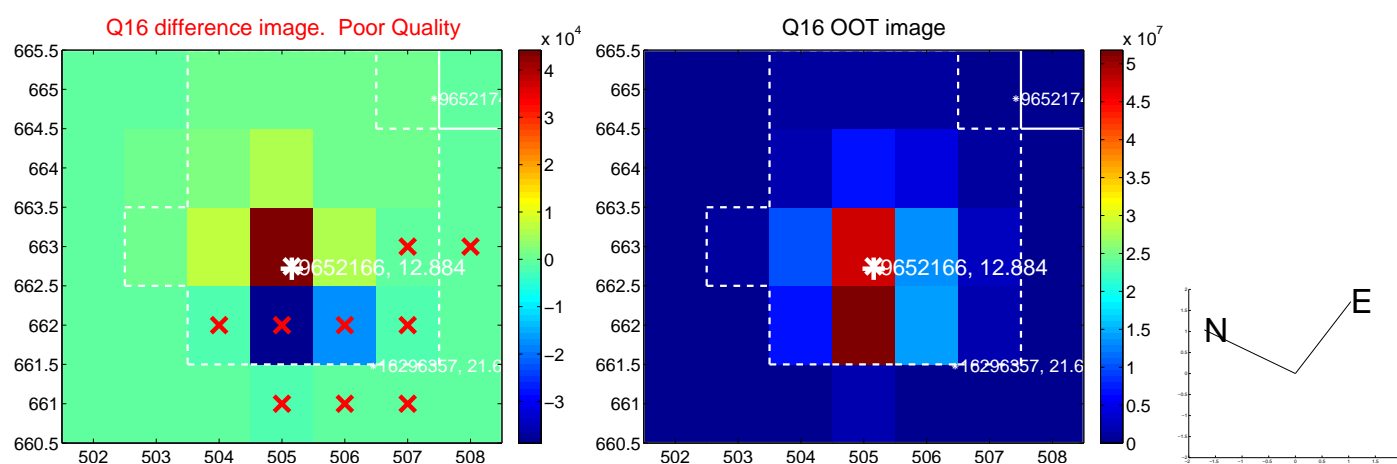
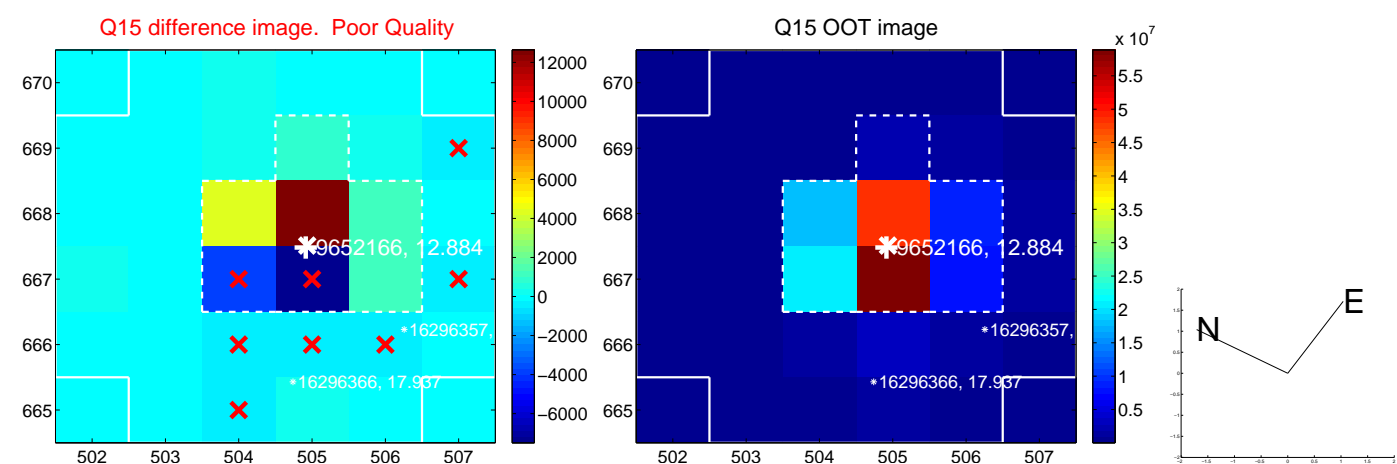
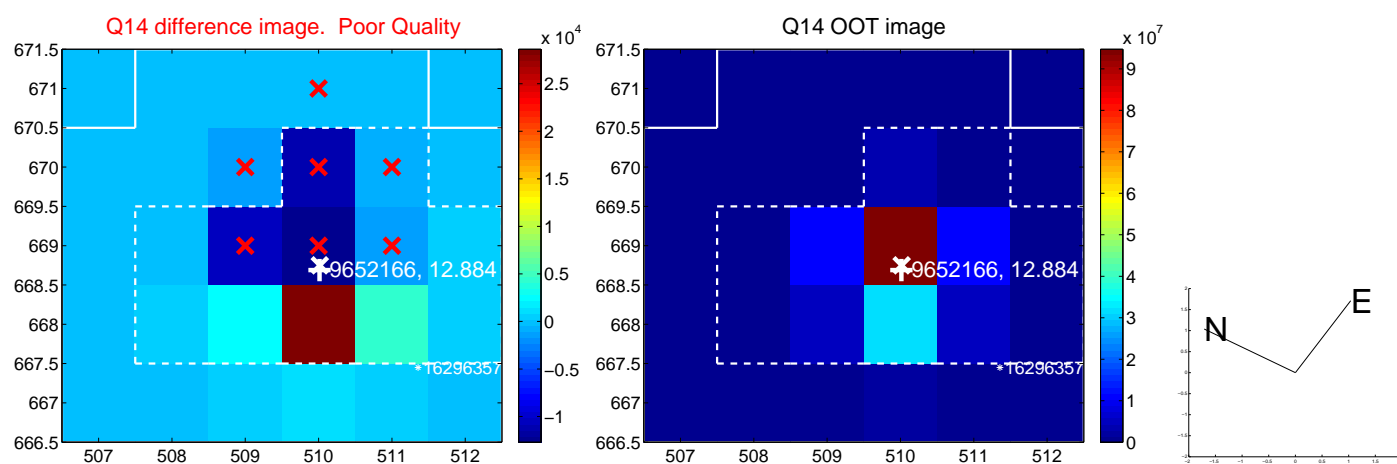
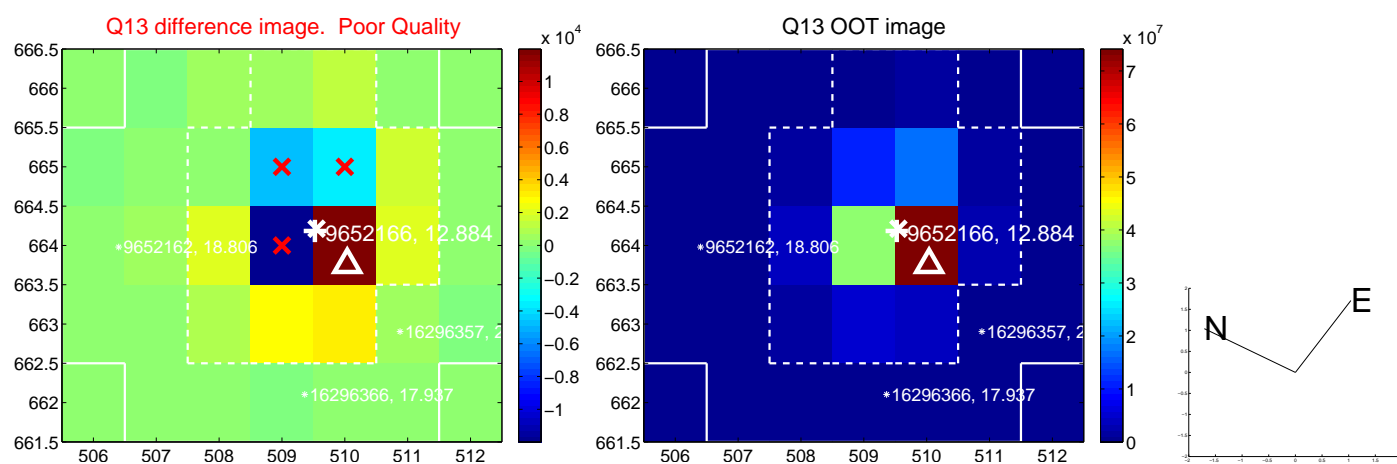




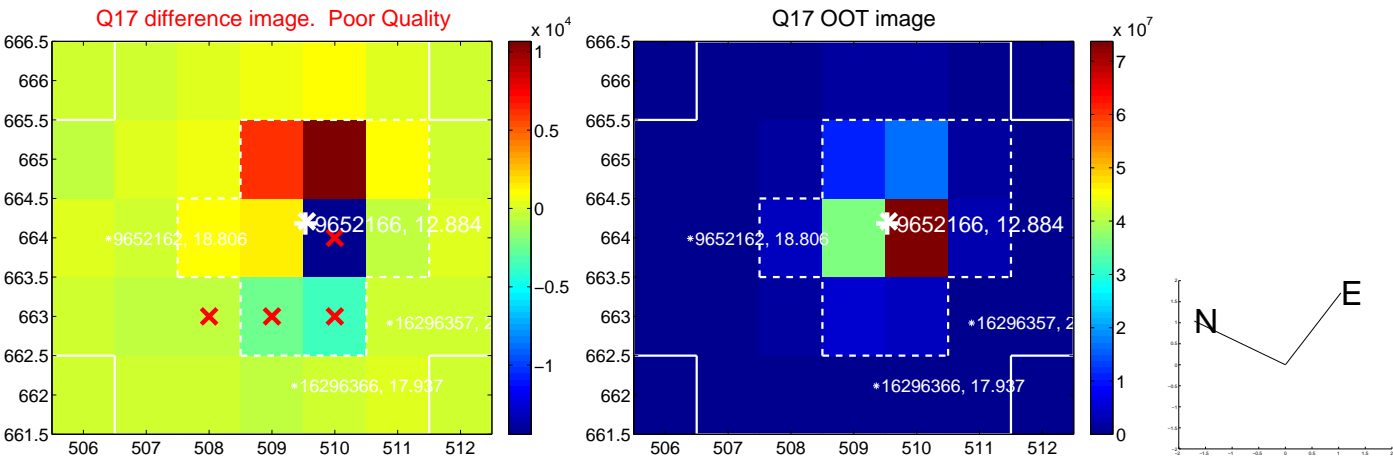
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

