

# KIC 002304655

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002304655-01	OBS	No	0.542060	132.078938	6.9	4.356	10.1	5.7	1.88	6837	0.50	32638.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002304655-01	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.

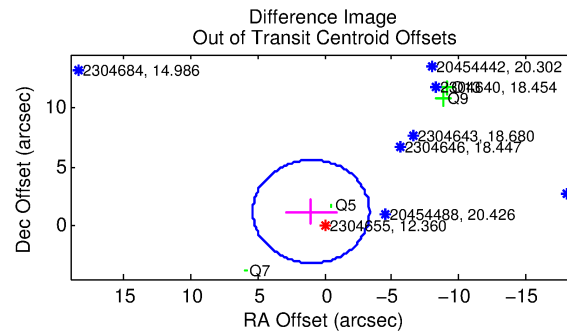
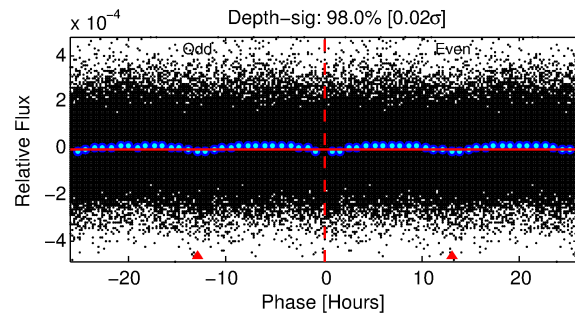
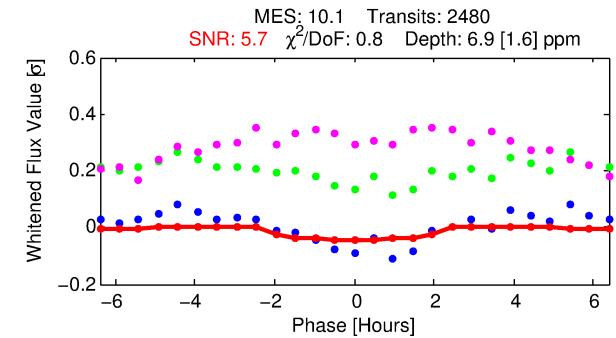
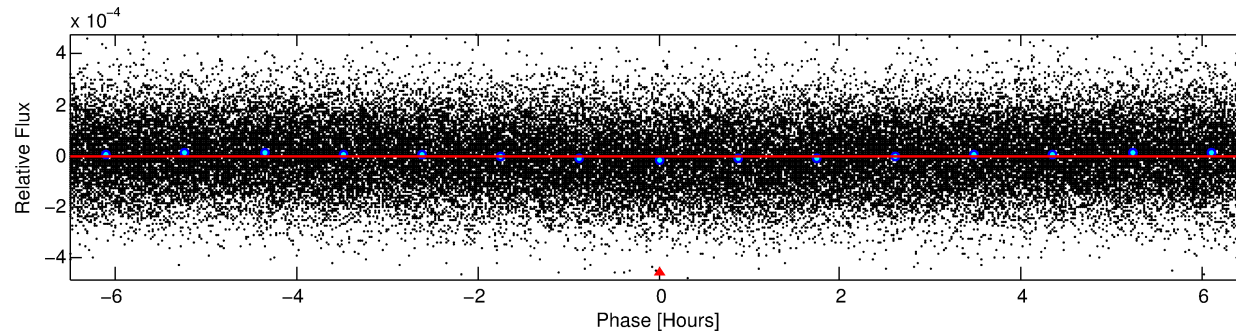
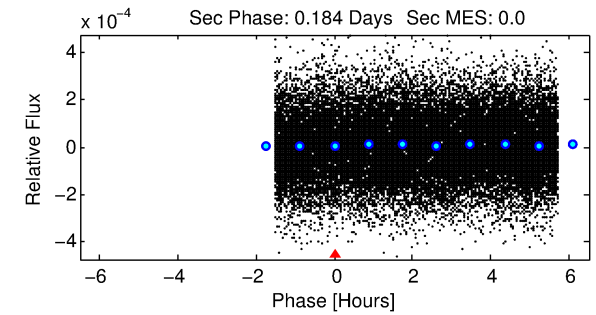
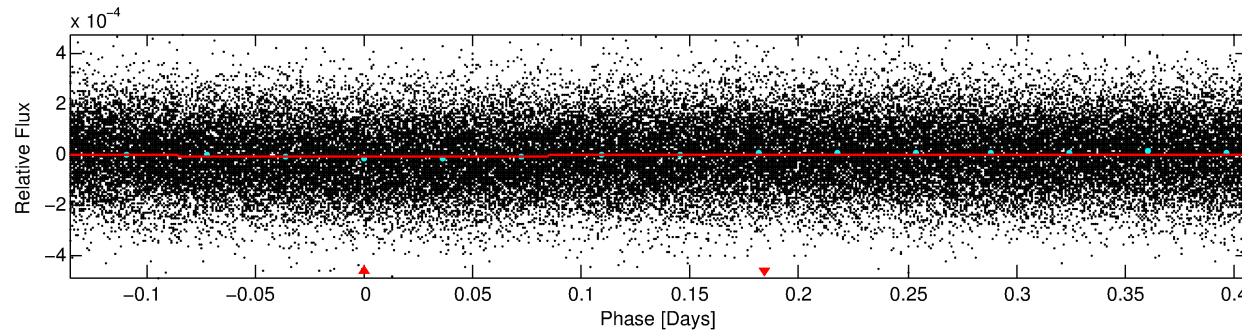
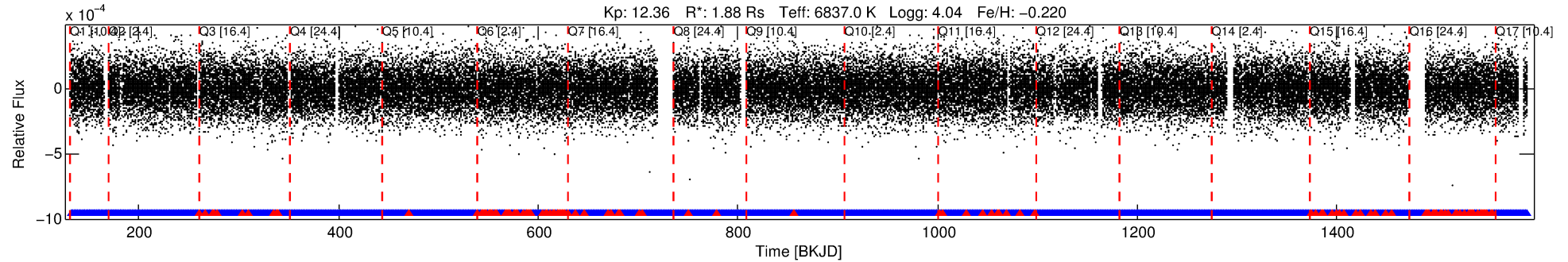
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002304655-01

No Significant Match Found

# DV One-Page Summary

KIC: 2304655 Candidate: 1 of 1 Period: 0.542 d



## DV Fit Results:

Period = 0.54206 [0.00002] d  
Epoch = 132.0789 [0.0073] BKJD  
Rp/R\* = 0.0025 [0.0035]  
a/R\* = 1.14 [2.11]  
b = 0.32 [23.05]  
Seff = 32638.62 [10082.02]  
Teq = 3427 [265] K  
Rp = 0.50 [0.73] Re  
a = 0.0146 [0.0029] AU  
Ag = N/A  
Teffp = N/A

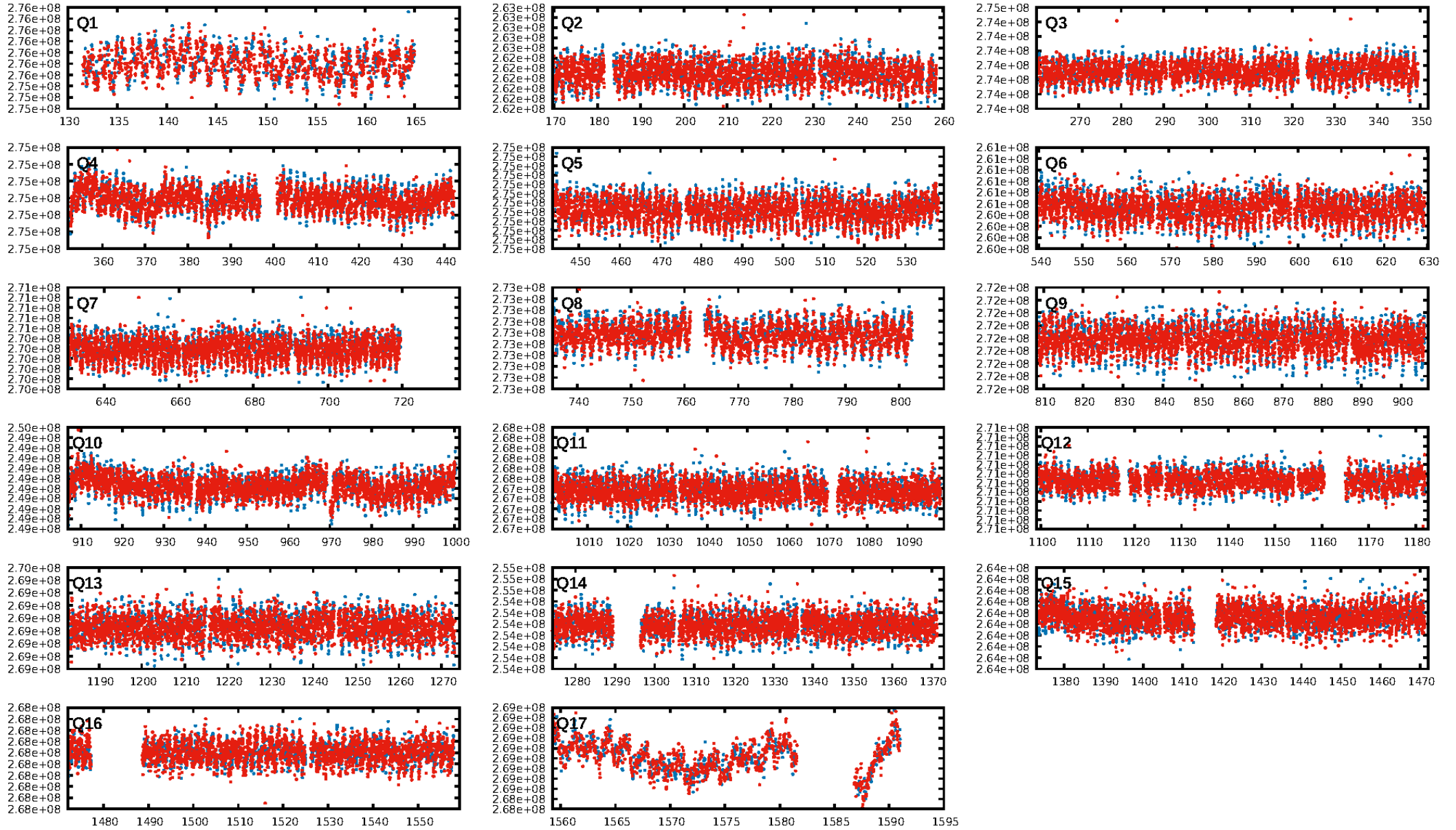
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.95 [2239/2368]  
GhostDiagnostic-chr: 1.373  
Centroid-sig: N/A  
Centroid-so: 0.451 arcsec [0.30σ]  
OotOffset-rm: 1.560 arcsec [1.07σ]  
KicOffset-rm: 1.569 arcsec [1.10σ]  
OotOffset-st: 0/1/0/3 [4]  
KicOffset-st: 0/1/0/3 [4]  
DiffImageQuality-fgm: 0.25 [1/4]  
DiffImageOverlap-fno: 1.00 [17/17]

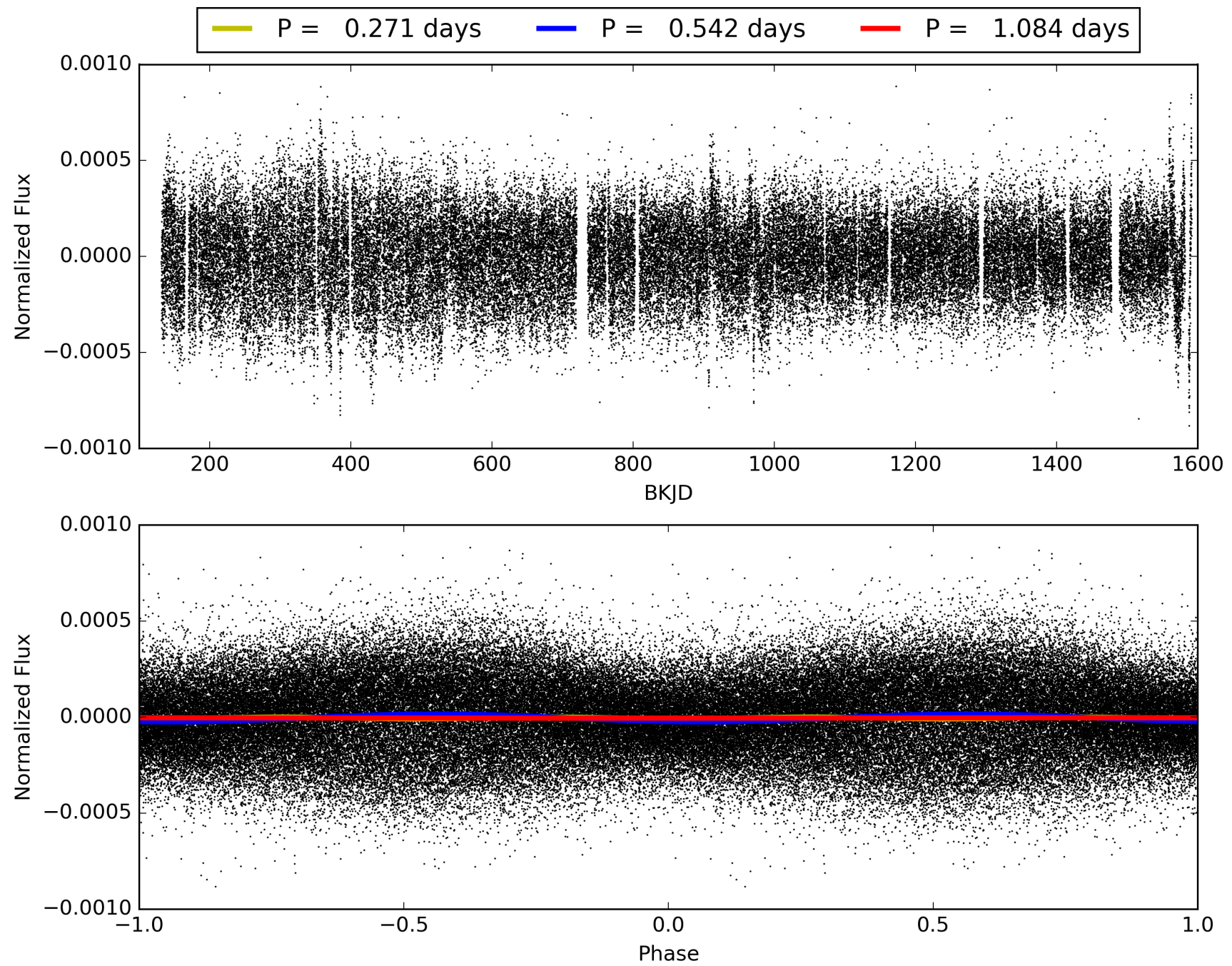
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:46:04 Z

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

# TCE 002304655-01, PDC Light Curves



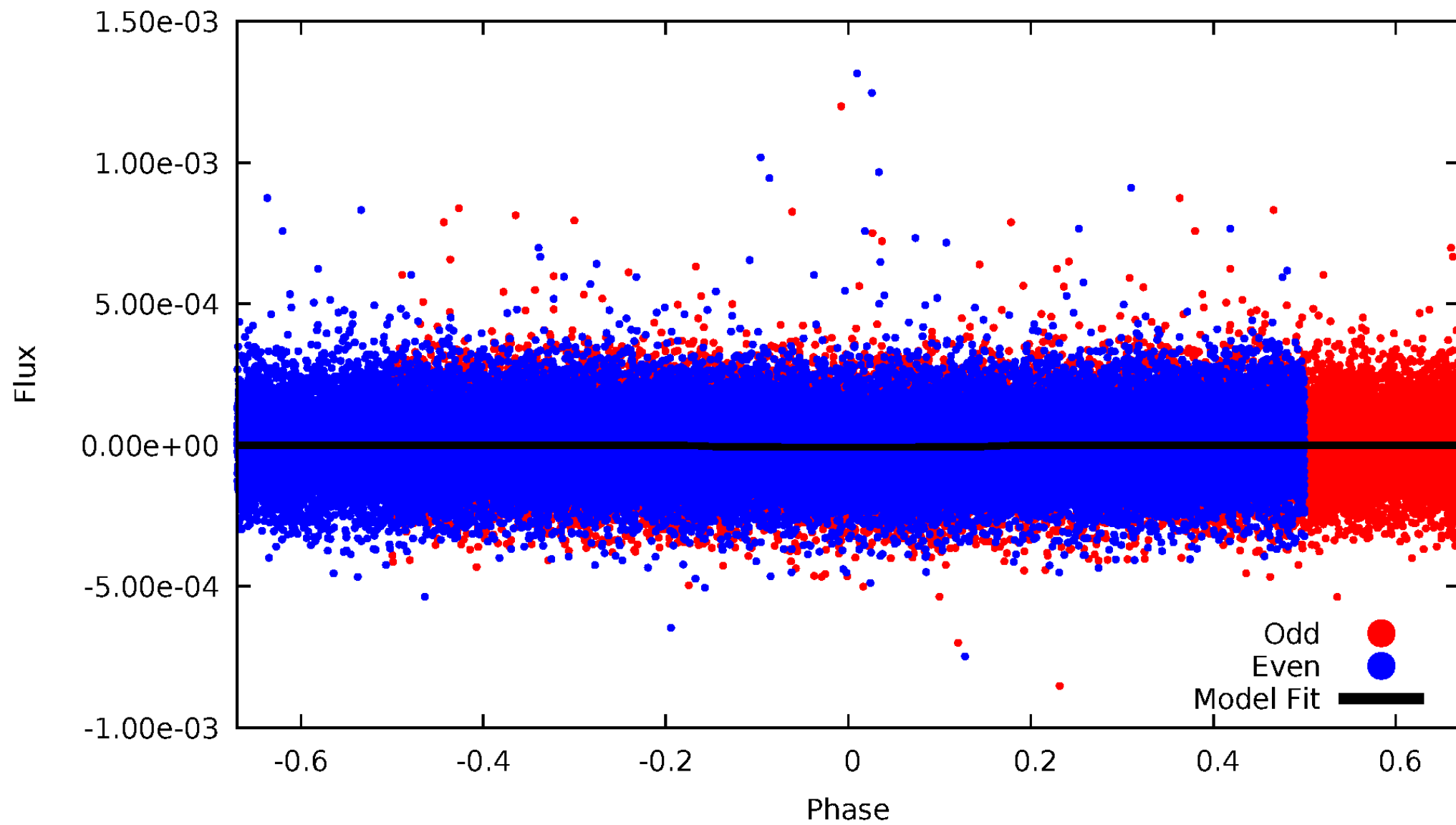
TCE 002304655-01





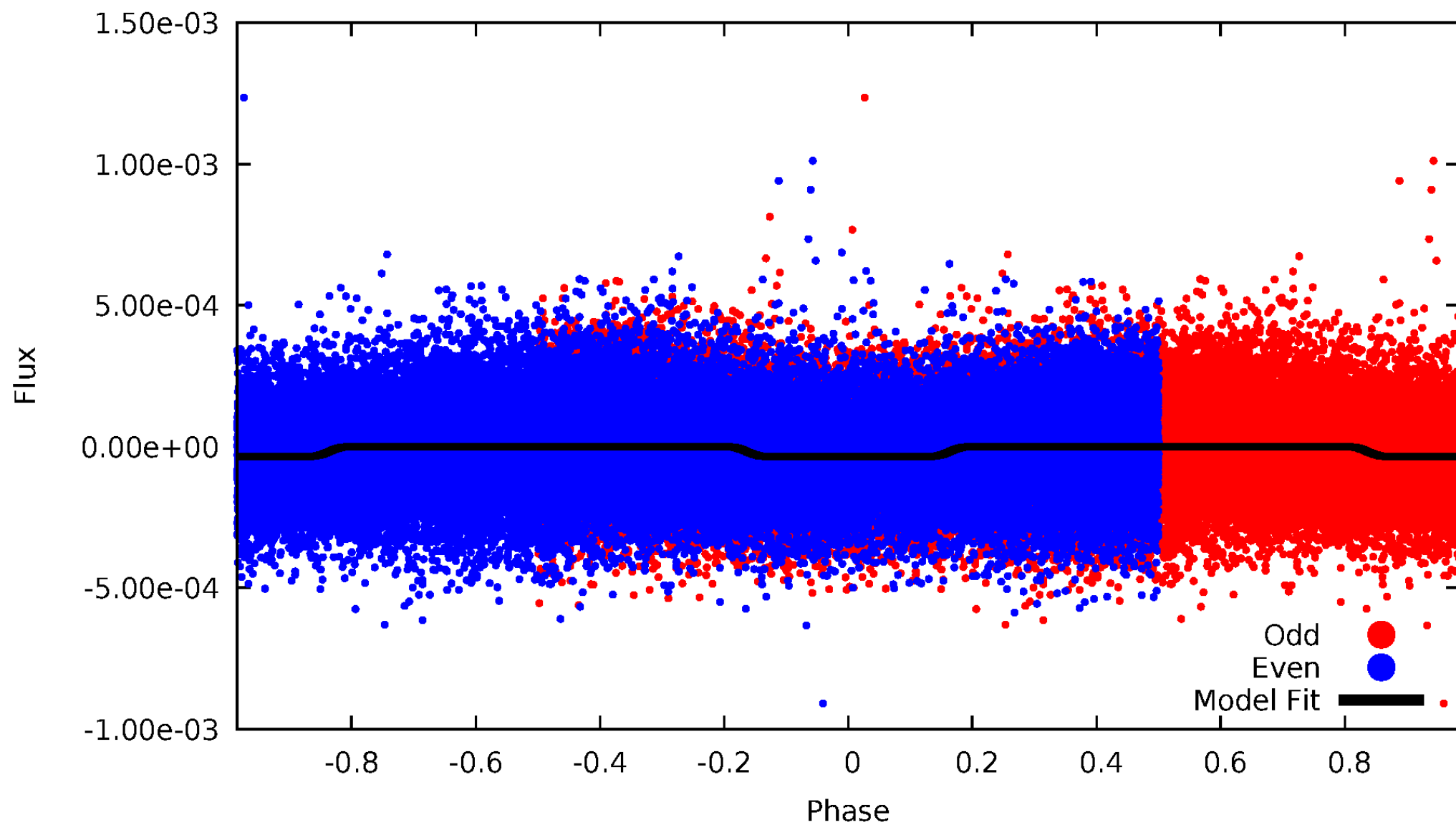
# DV Odd/Even

TCE 002304655-01



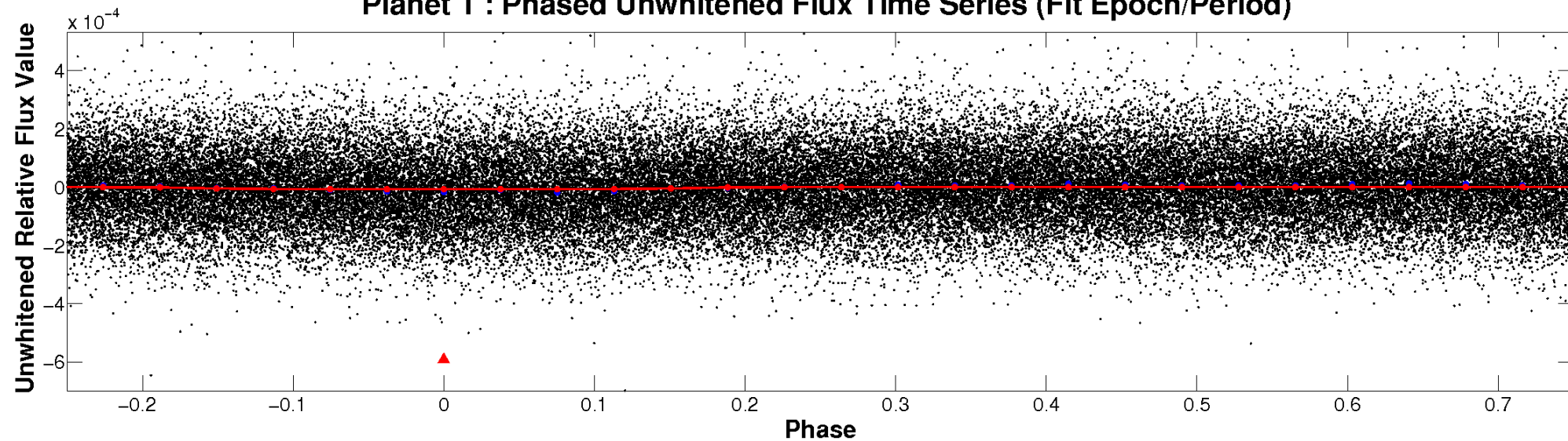
# ALT Odd/Even

TCE 002304655-01

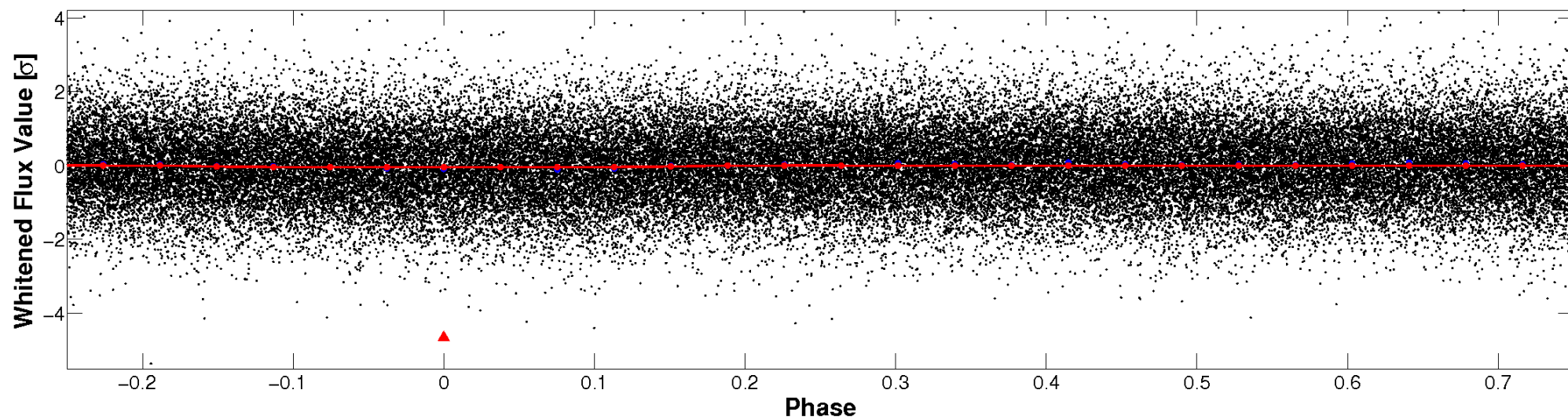


# Non-Whitened Vs. Whitened Light Curve

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

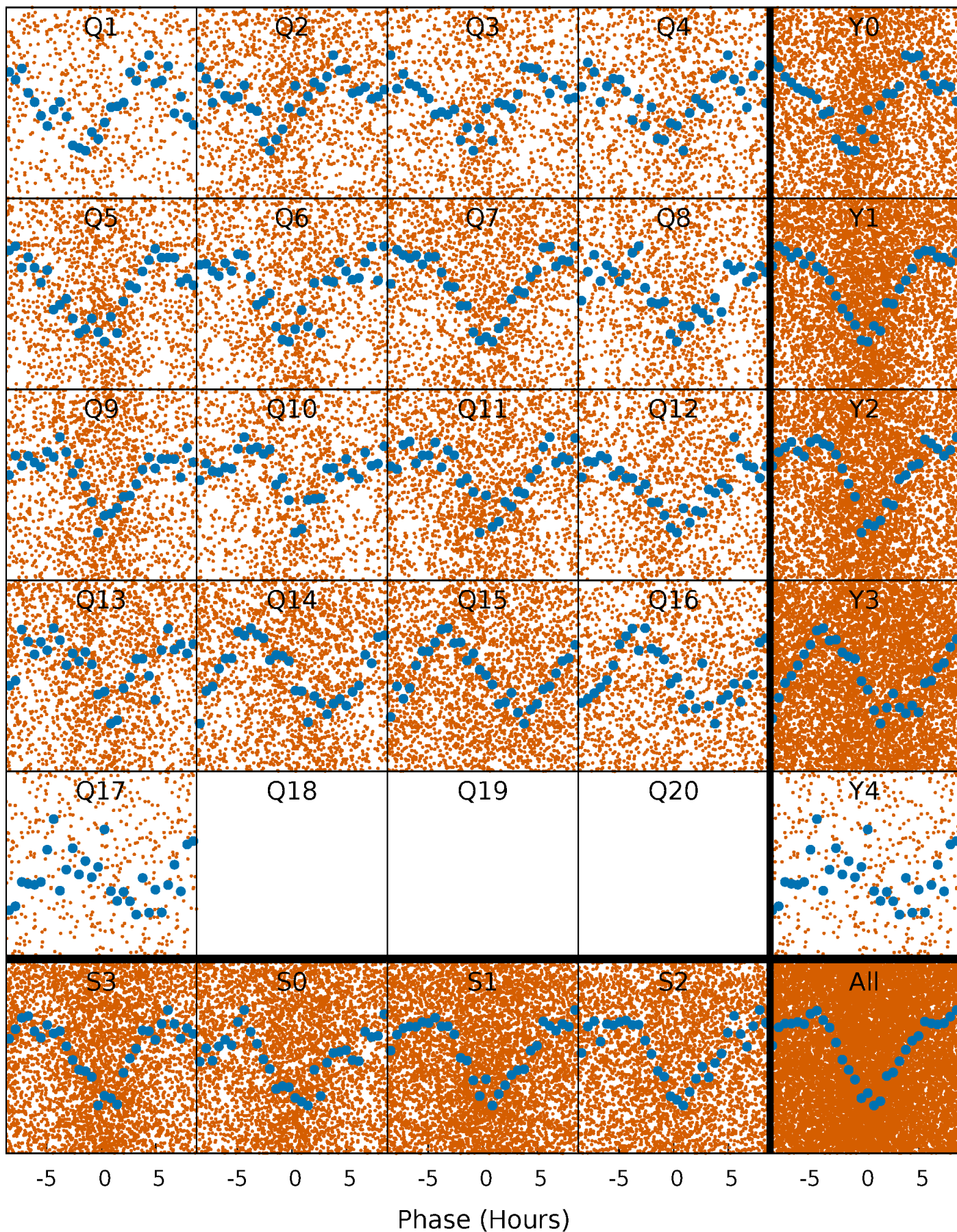


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

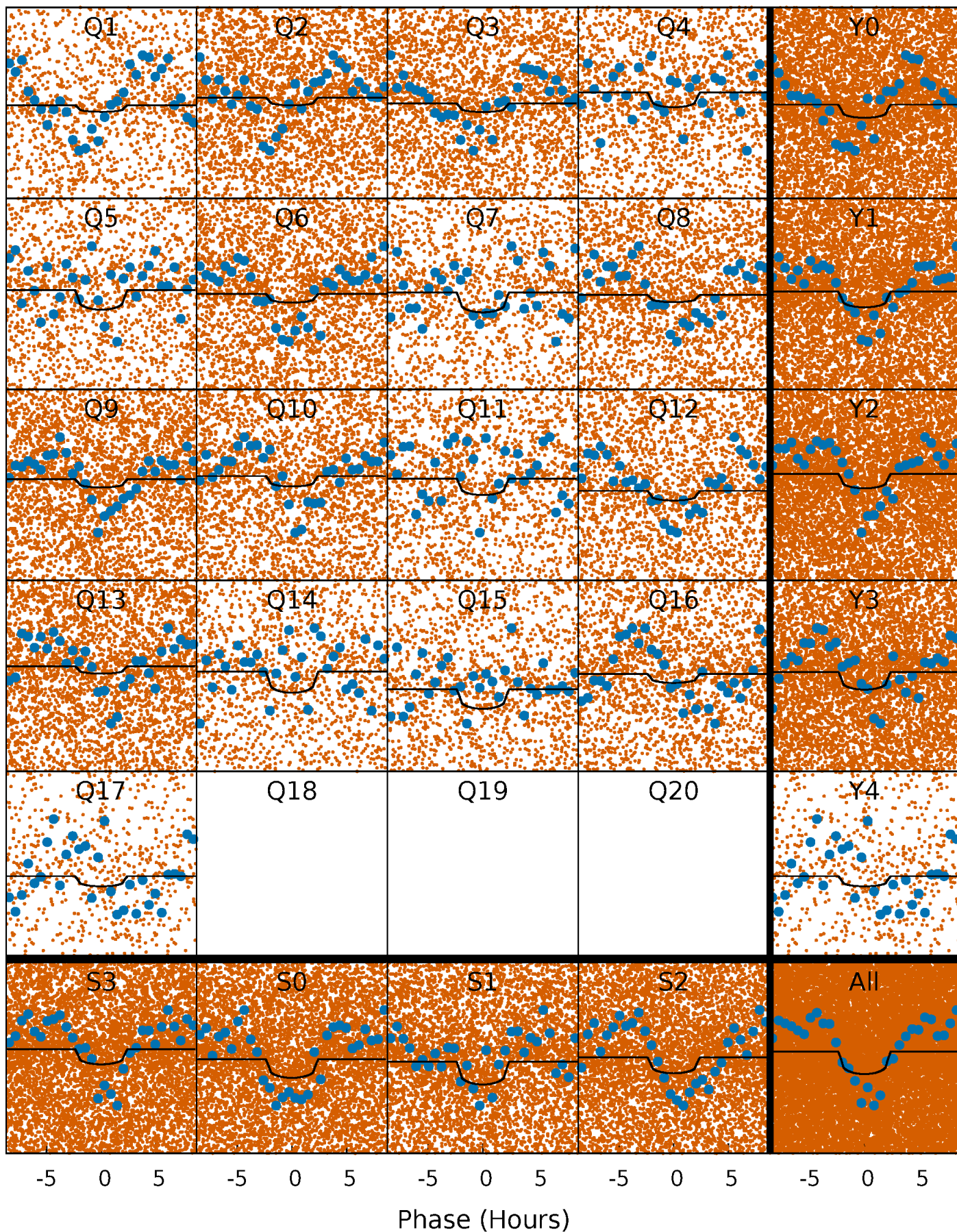
TCE 002304655-01 P= 0.542060 Days  $T_0=132.078938$  (BKJD)





# DV Quarter-Phased Transit Curves

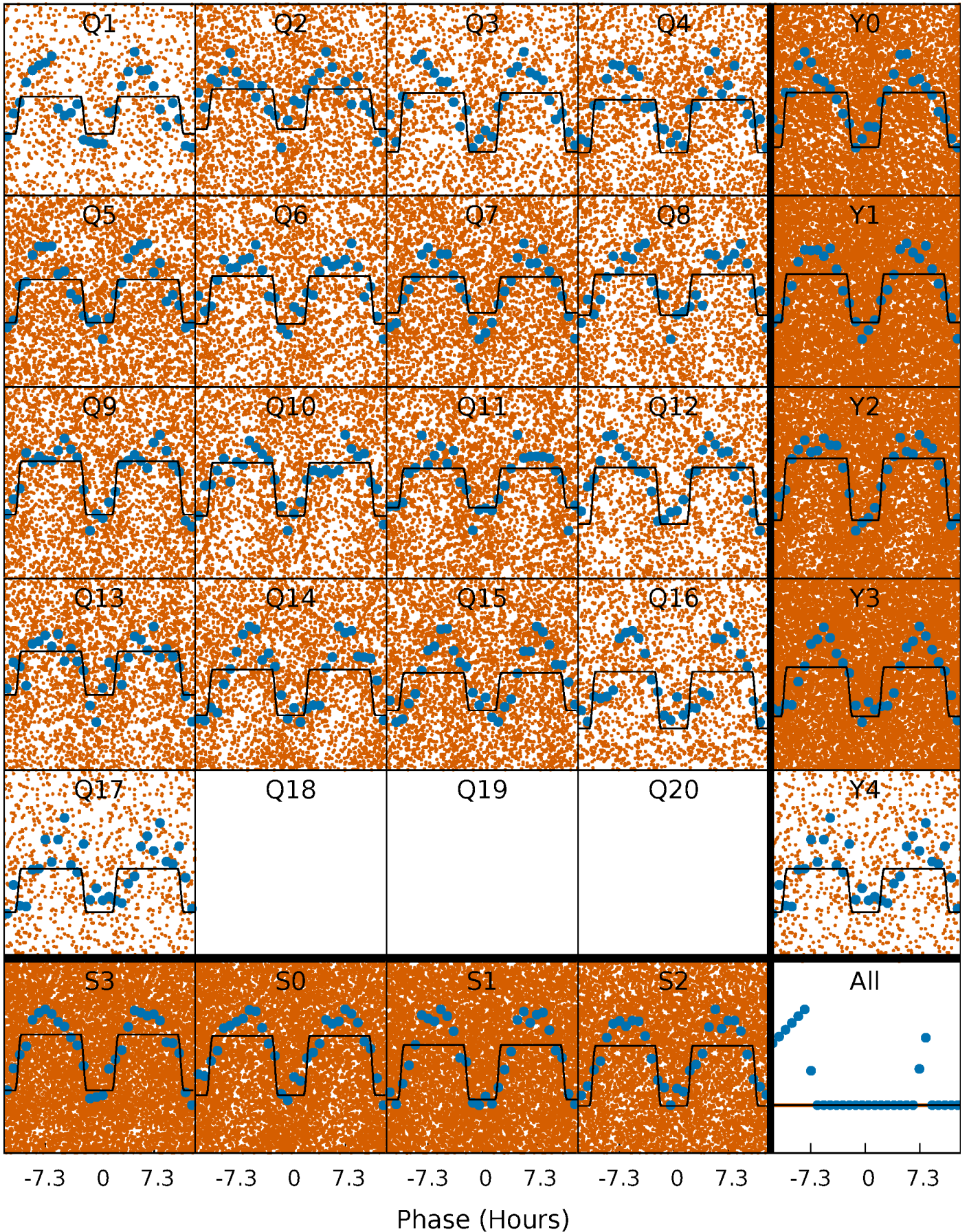
TCE 002304655-01 P= 0.542060 Days  $T_0=132.078938$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

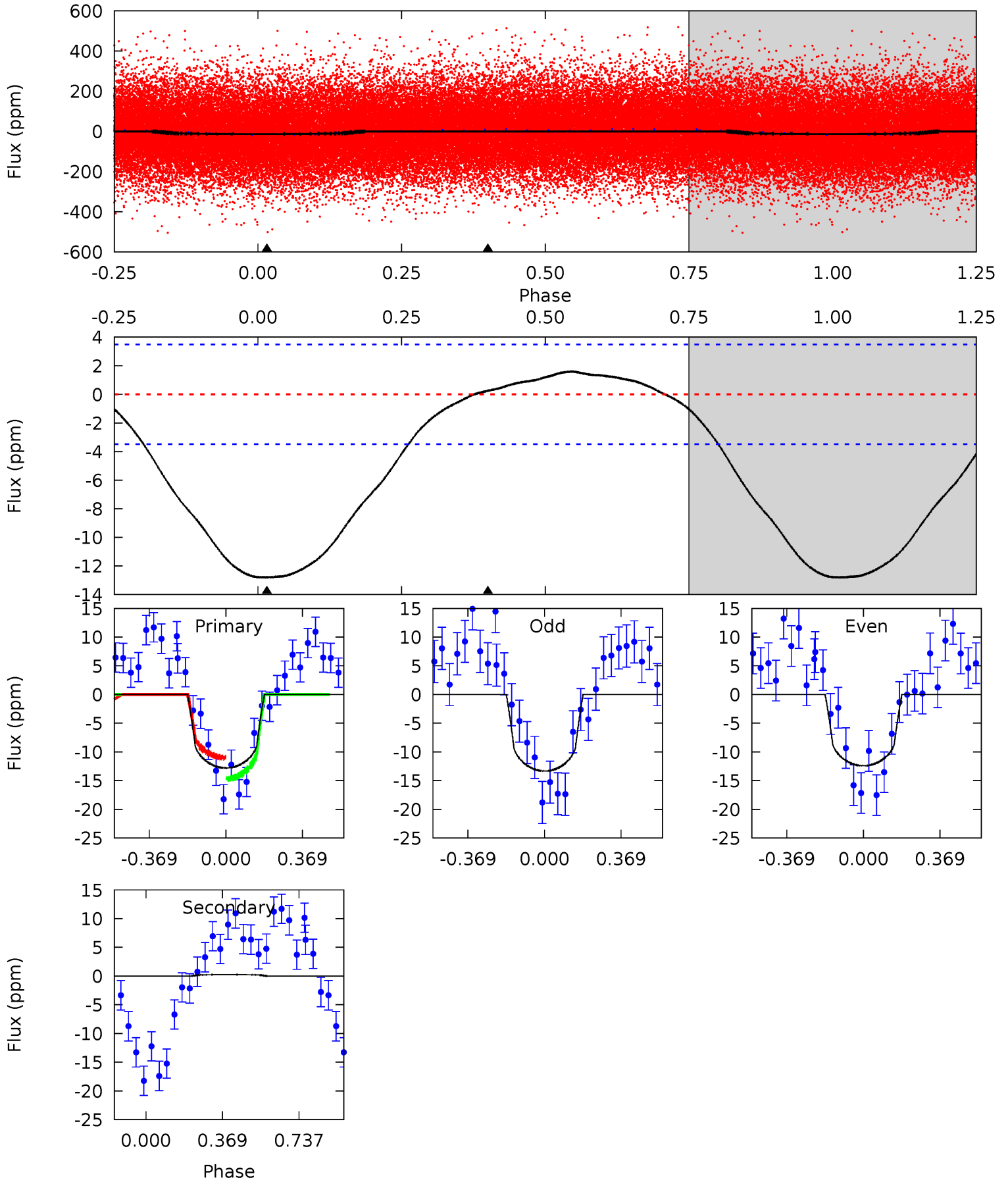
TCE 002304655-01 P= 0.542111 Days  $T_0=132.041554$  (BKJD)



# DV Model-Shift Uniqueness Test

002304655-01, P = 0.542060 Days, E = 130.994818 Days

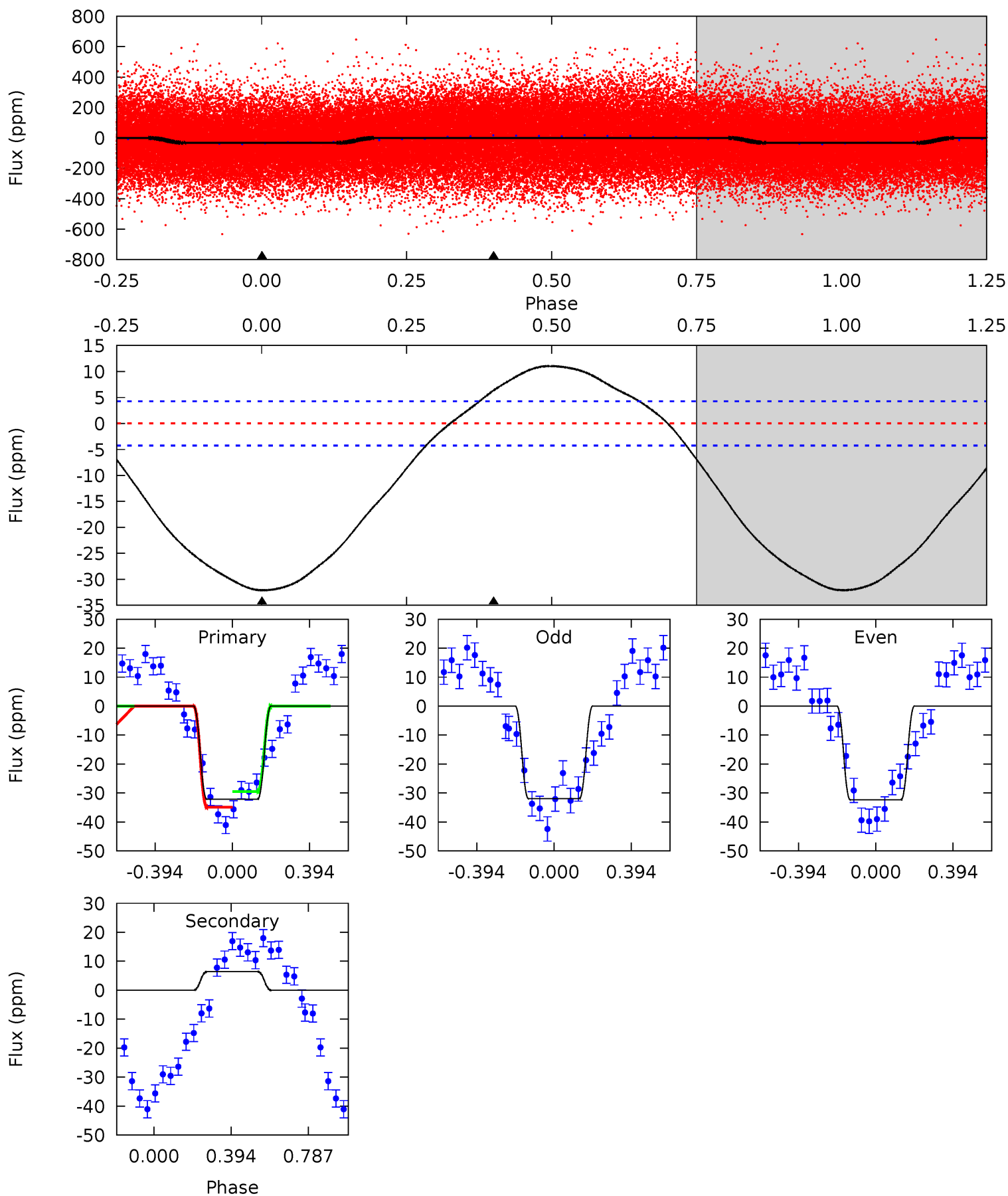
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	-0.31	0	0	4.28	0.90	0.79	15.7	15.7	-0.31	-0.31	0.57	0.93	0.11	2.28



# Alt Model-Shift Uniqueness Test

002304655-01, P = 0.542111 Days, E = 131.499443 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
32.1	-6.37	0	0	4.27	0.85	3.31	32.1	32.1	-6.37	-6.37	0.19	0.97	0.26	2.81





### Stellar Parameters For KIC 002304655

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6837^{+71}_{-91}$	$4.036^{+0.174}_{-0.116}$	$-0.220^{+0.200}_{-0.150}$	$1.880^{+0.337}_{-0.411}$	$1.402^{+0.126}_{-0.126}$	$0.297^{+0.267}_{-0.104}$
	+1%/-1%	+4%/-3%	+91%/-68%	+18%/-22%	+9%/-9%	+90%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 002304655-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1$	$0.71^{+0.65}_{-0.45}$	$4766^{+238}_{-245}$	$-4263^{+693}_{-722}$	$-0.033^{+0.203}_{-0.445}$
Alt.	$6 \pm 1$	$1.25^{+0.76}_{-0.63}$	$4780^{+235}_{-290}$	$-5036^{+483}_{-1394}$	$-0.482^{+0.296}_{-1.528}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

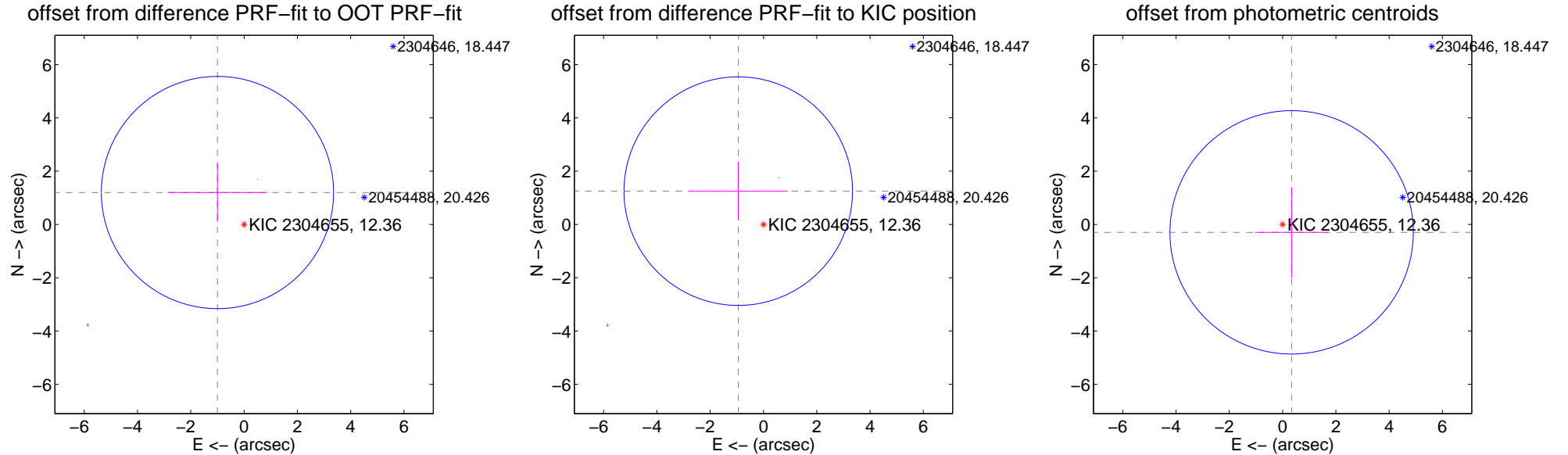
## DV Centroid Data

Supplemental centroid analysis for 002304655-01. Kepler magnitude: 12.36. Transit SNR 5.72

There are 1 quarters with good PRF difference image offsets

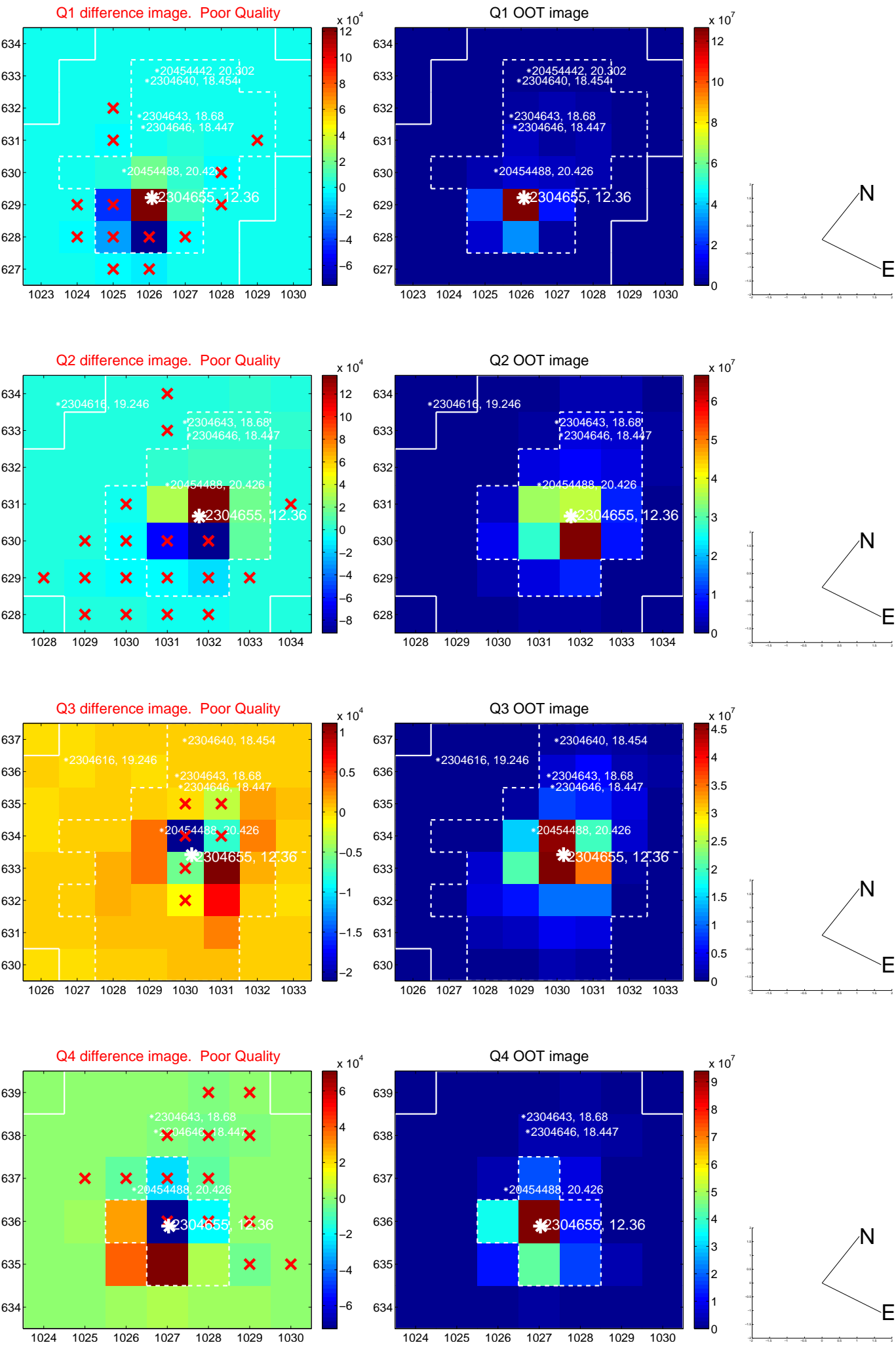
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.560 \pm 1.453$	1.07	$0.998 \pm 1.857$	$1.198 \pm 1.087$
PRF-fit source offset from KIC position	$1.569 \pm 1.430$	1.10	$0.947 \pm 1.871$	$1.251 \pm 1.100$
photometric centroid source offset	$0.45 \pm 1.52$	0.30	$-0.34 \pm 1.37$	$-0.30 \pm 1.70$

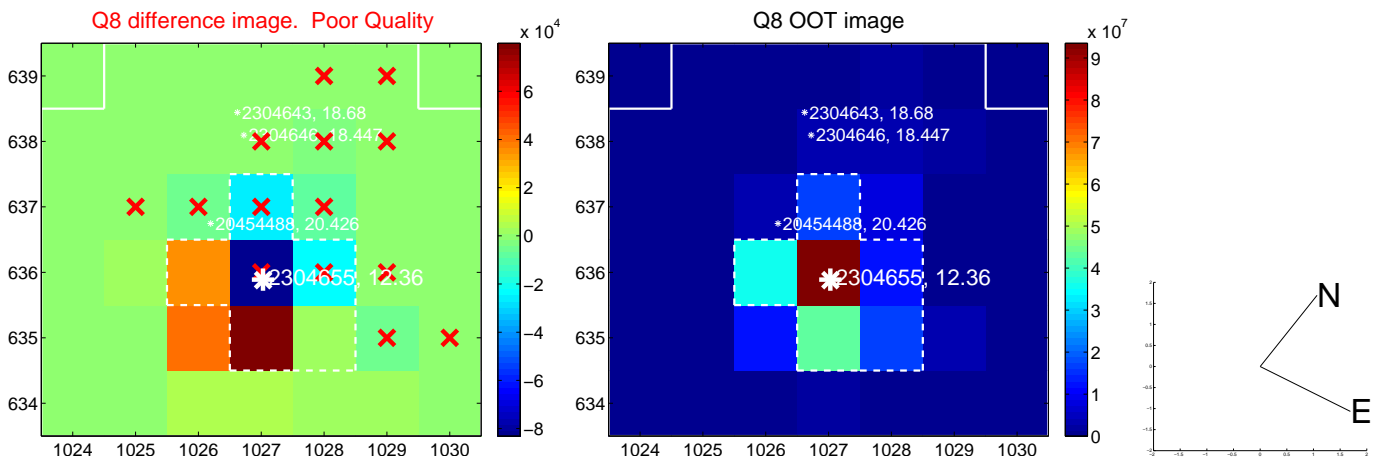
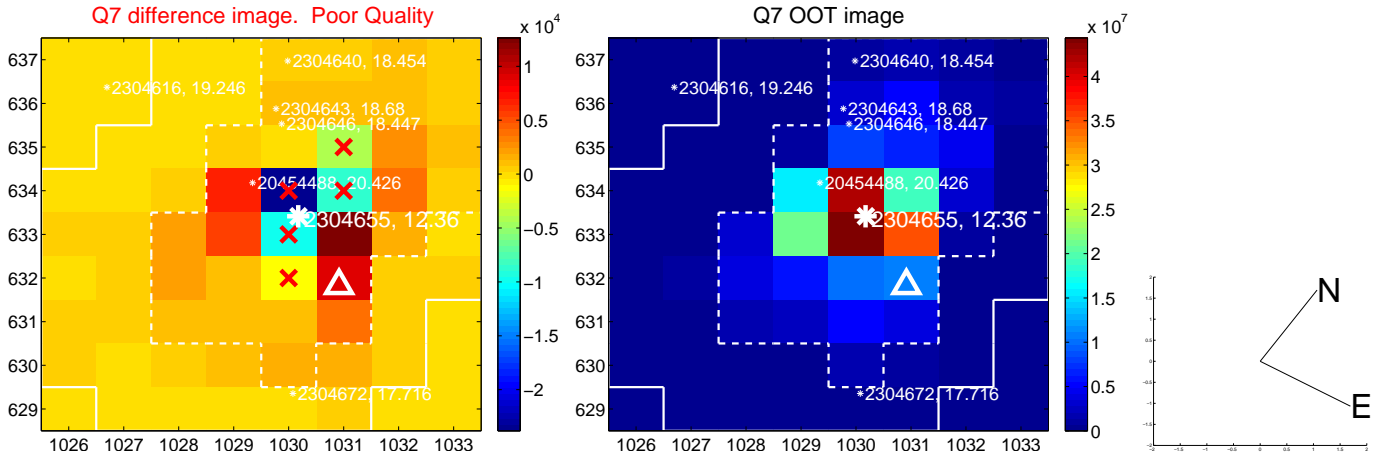
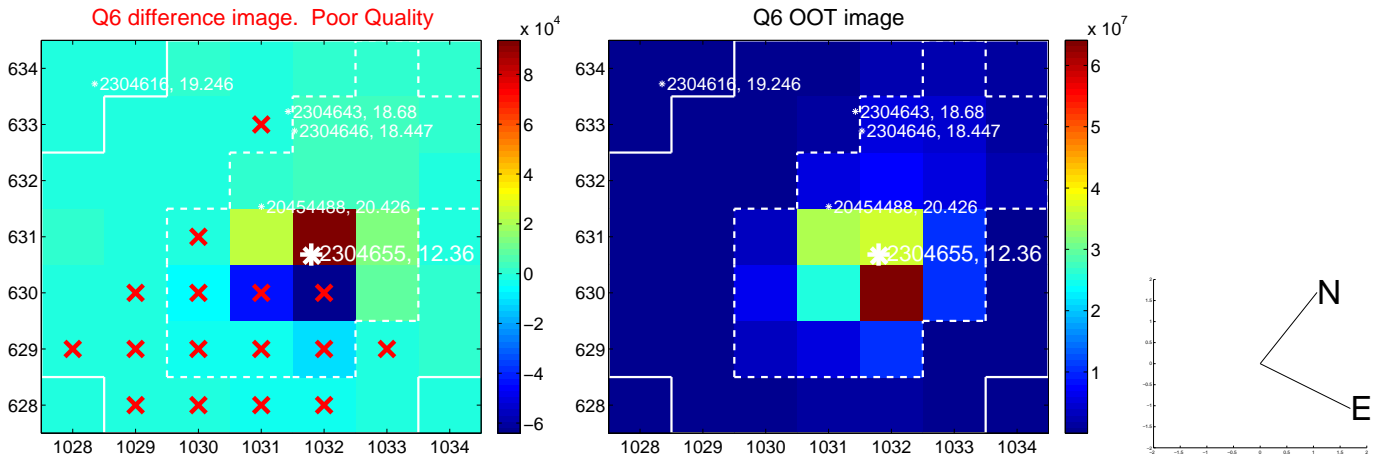
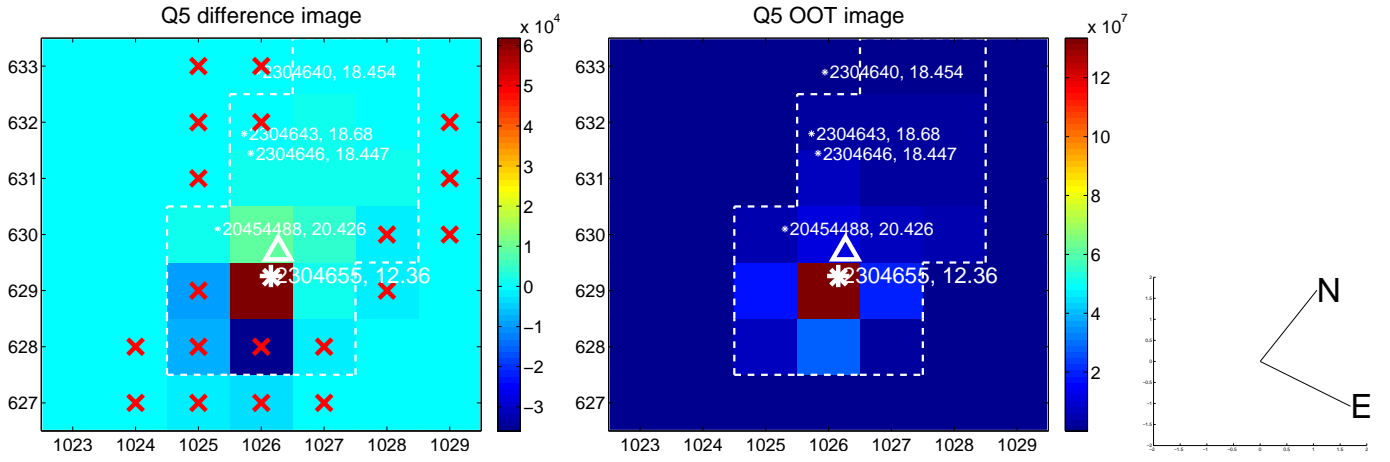


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

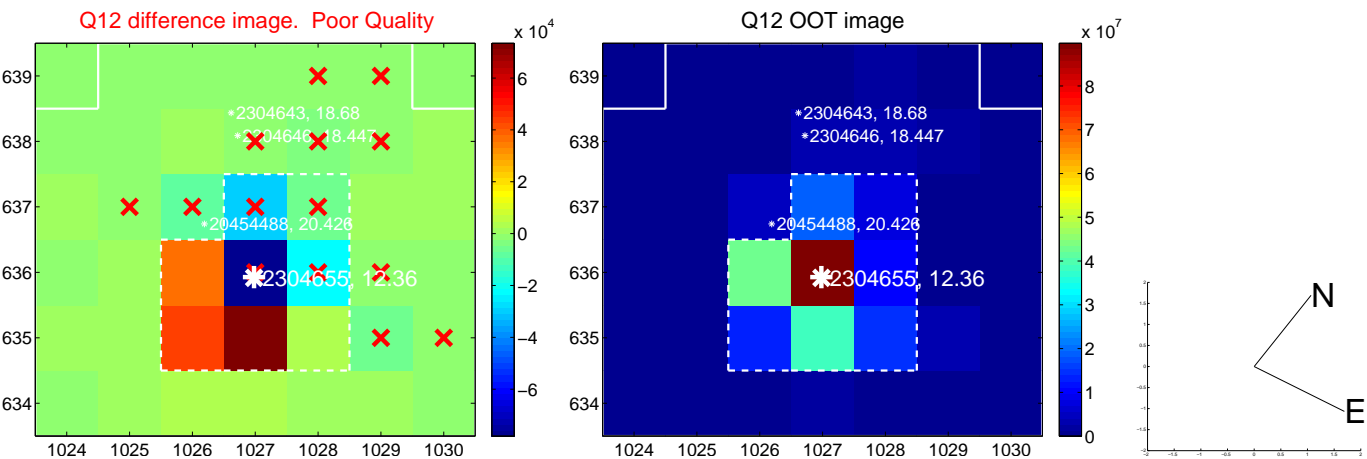
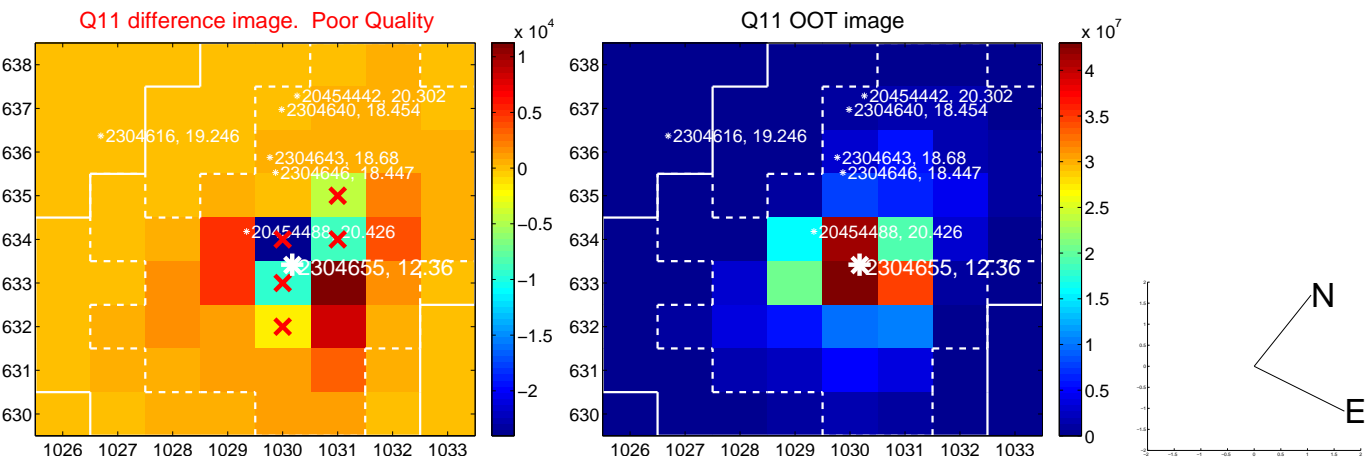
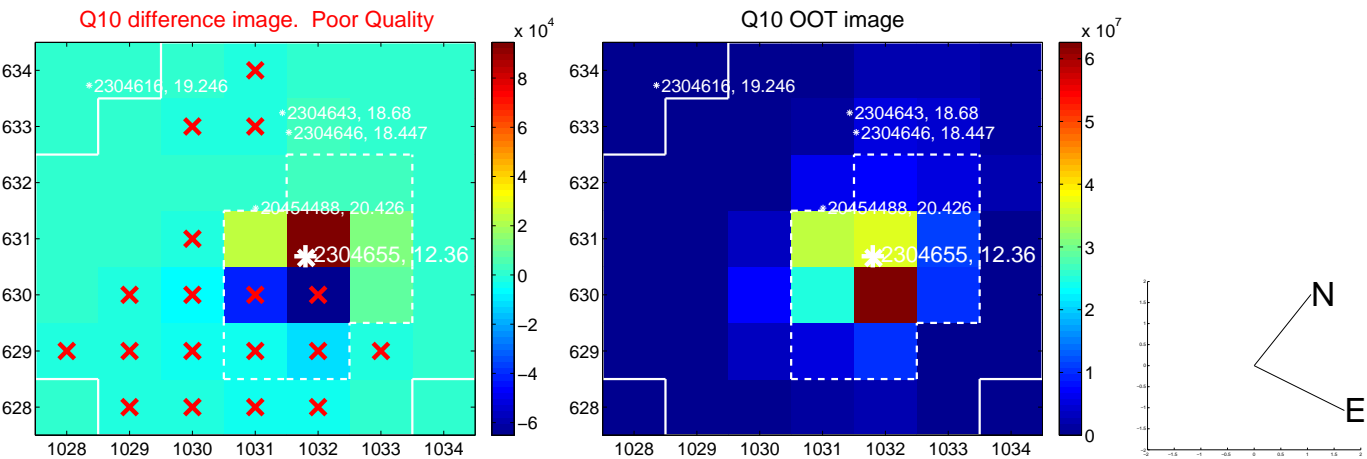
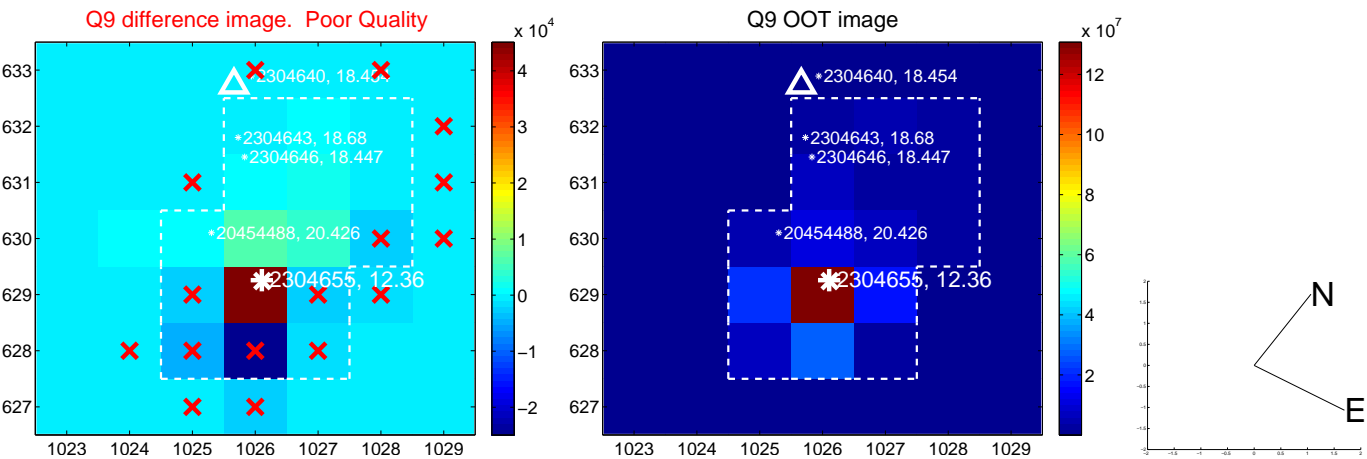


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

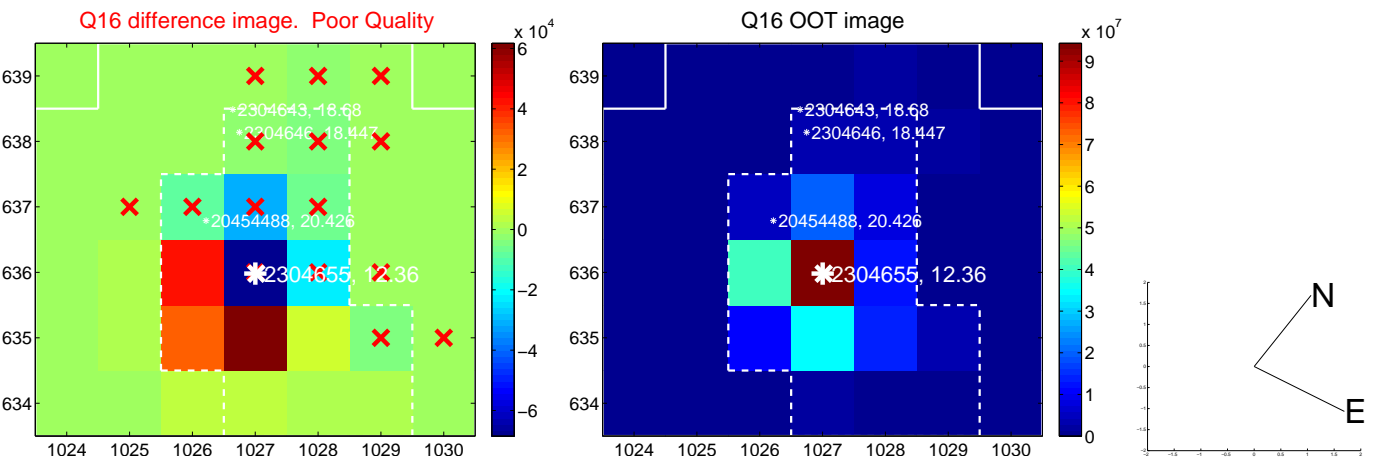
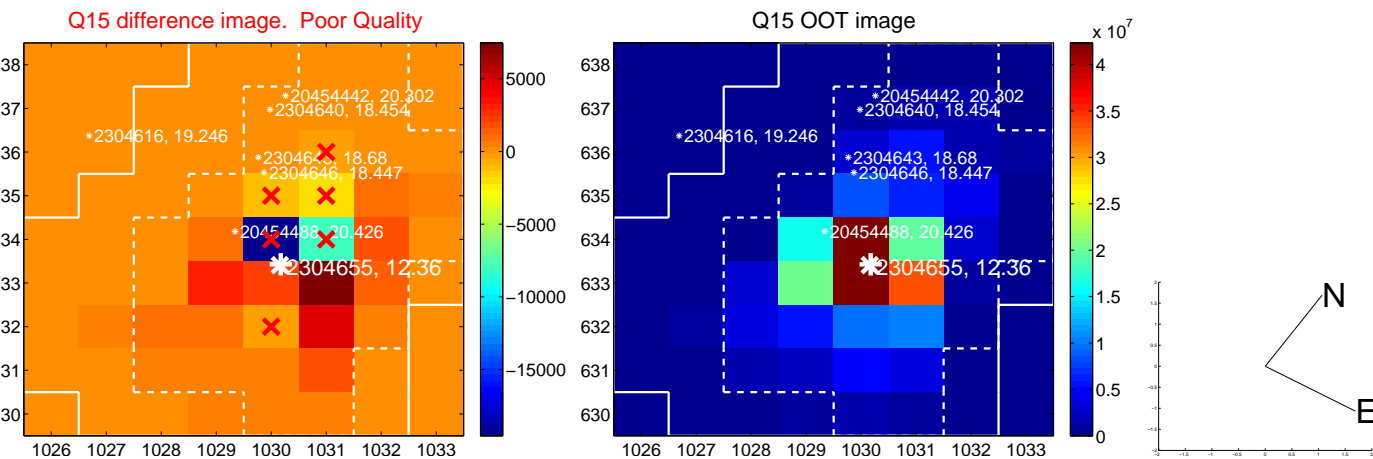
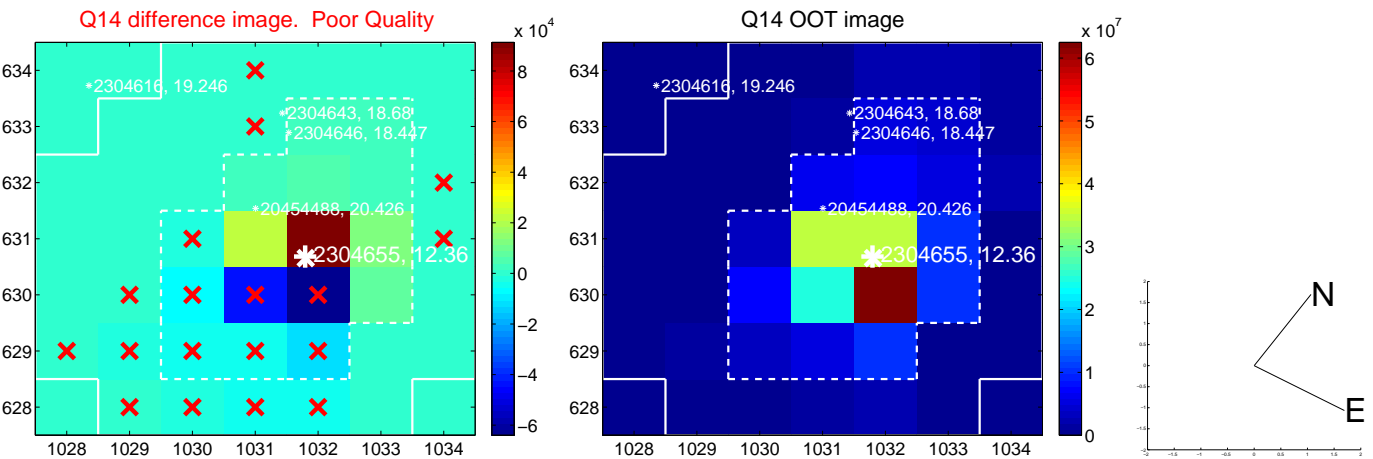
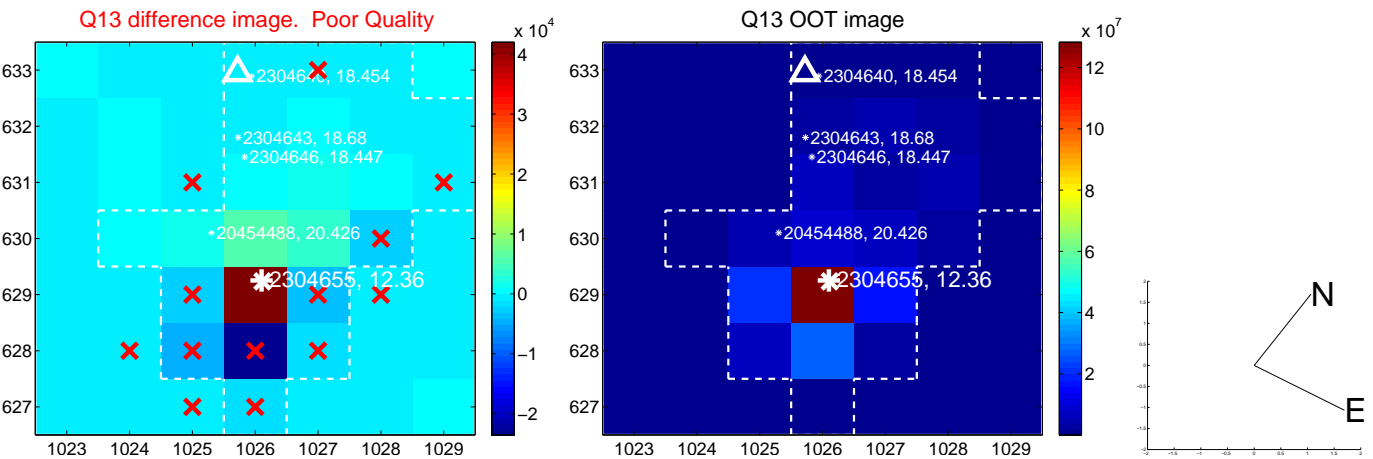




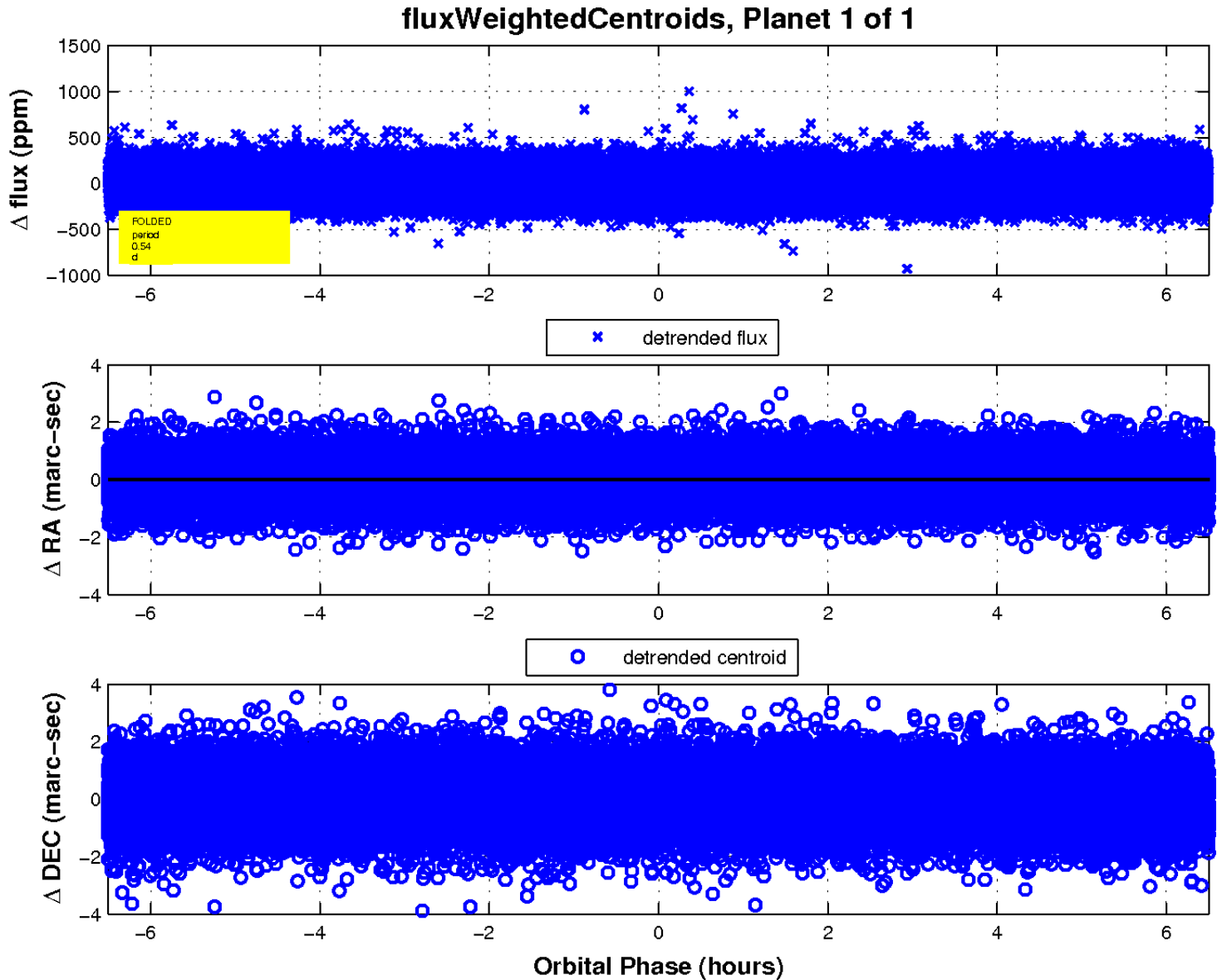
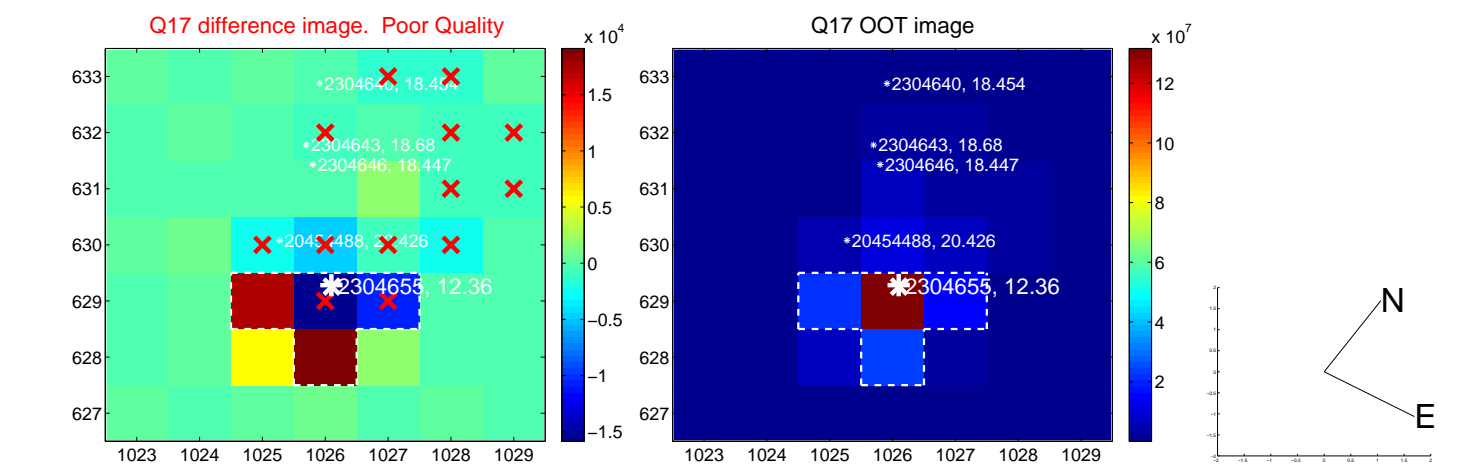
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

