

# KIC 005096053

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005096053-01	OBS	4331.01	1.717846	132.930637	57.4	1.146	12.7	15.7	1.73	6694	1.33	5667.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005096053-01	OBS	PC	0.91	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 005096053-01

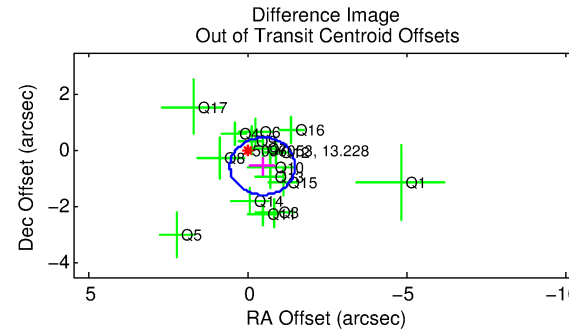
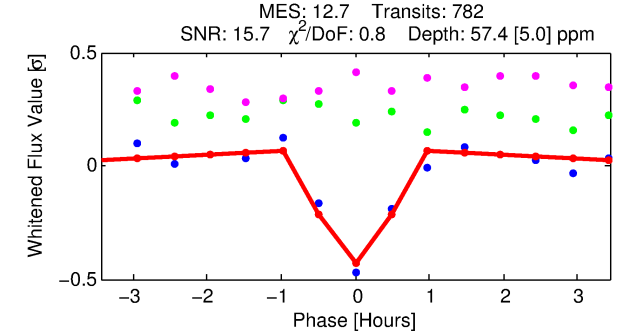
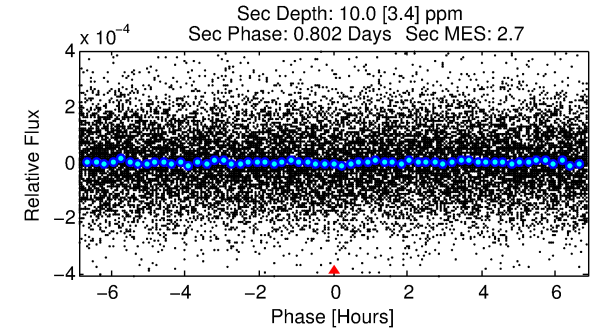
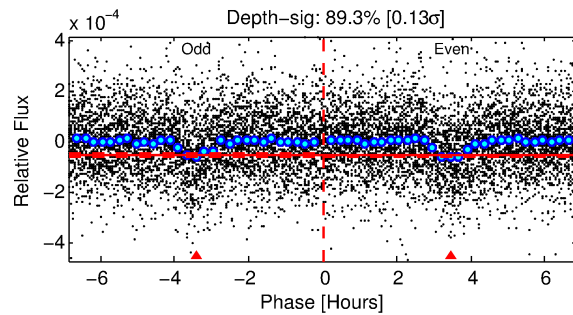
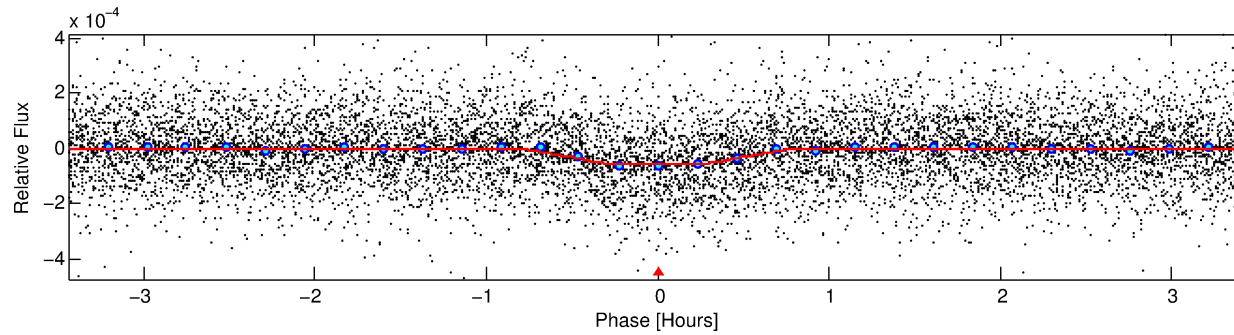
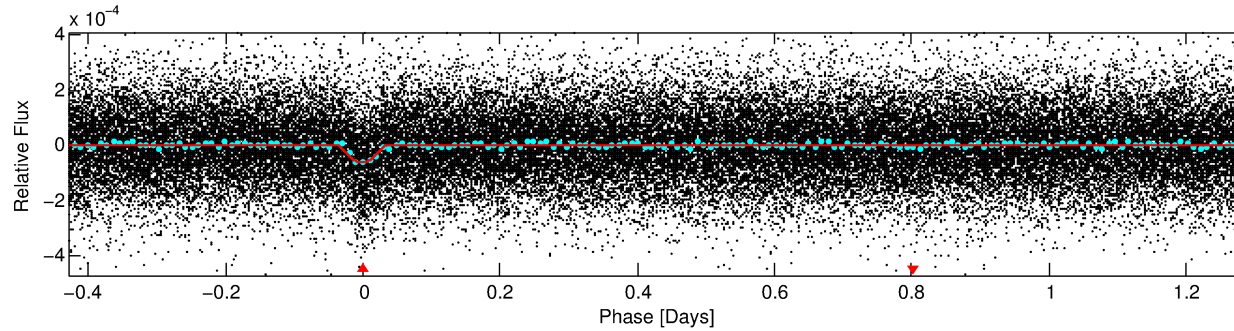
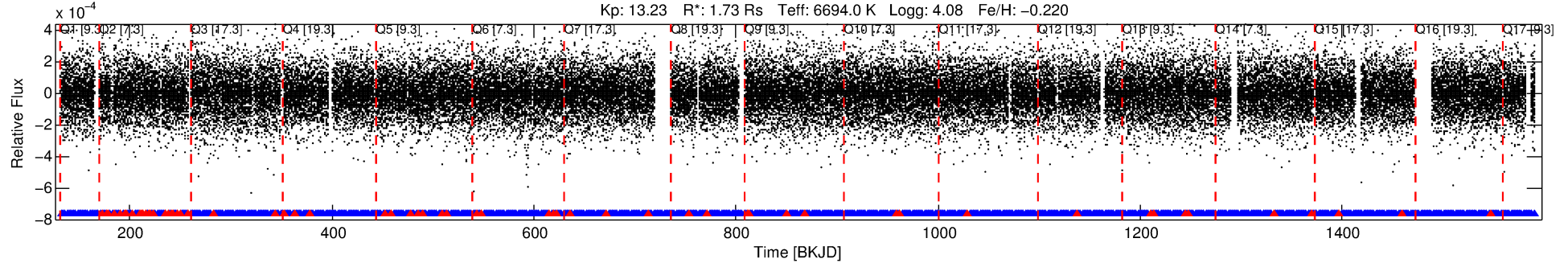
No Significant Match Found

# DV One-Page Summary

KIC: 5096053 Candidate: 1 of 1 Period: 1.718 d

KOI: K04331.01 Corr: 0.915

Kp: 13.23 R\*: 1.73 Rs Teff: 6694.0 K Logg: 4.08 Fe/H: -0.220



## DV Fit Results:

Period = 1.71785 [0.00001] d  
Epoch = 132.9306 [0.0011] BKJD  
Rp/R\* = 0.0070 [0.0055]  
a/R\* = 11.49 [48.43]  
b = 0.10 [42.20]  
Seff = 5667.04 [2660.42]  
Teq = 2212 [260] K  
Rp = 1.33 [1.13] Re  
a = 0.0309 [0.0090] AU  
Ag = 2.96 [4.91] [0.40σ]  
Teffp = 4486 [1803] K [1.25σ]

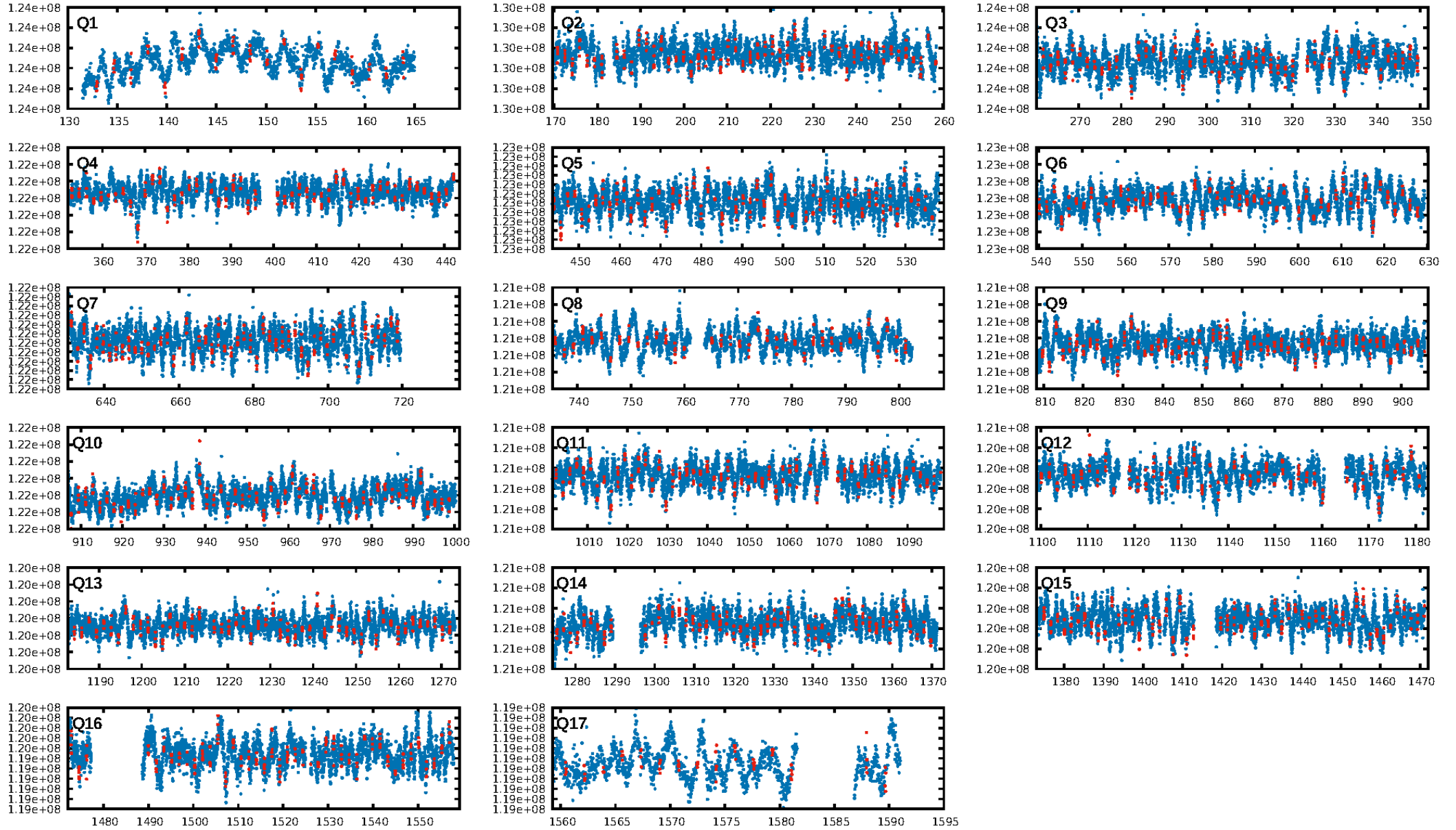
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.03e-36  
RollingBand-fgt: 0.92 [687/748]  
GhostDiagnostic-chr: 2.322  
Centroid-sig: 59.5%  
Centroid-so: 0.303 arcsec [0.53σ]  
OotOffset-rm: 0.719 arcsec [2.12σ]  
KicOffset-rm: 0.740 arcsec [2.05σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

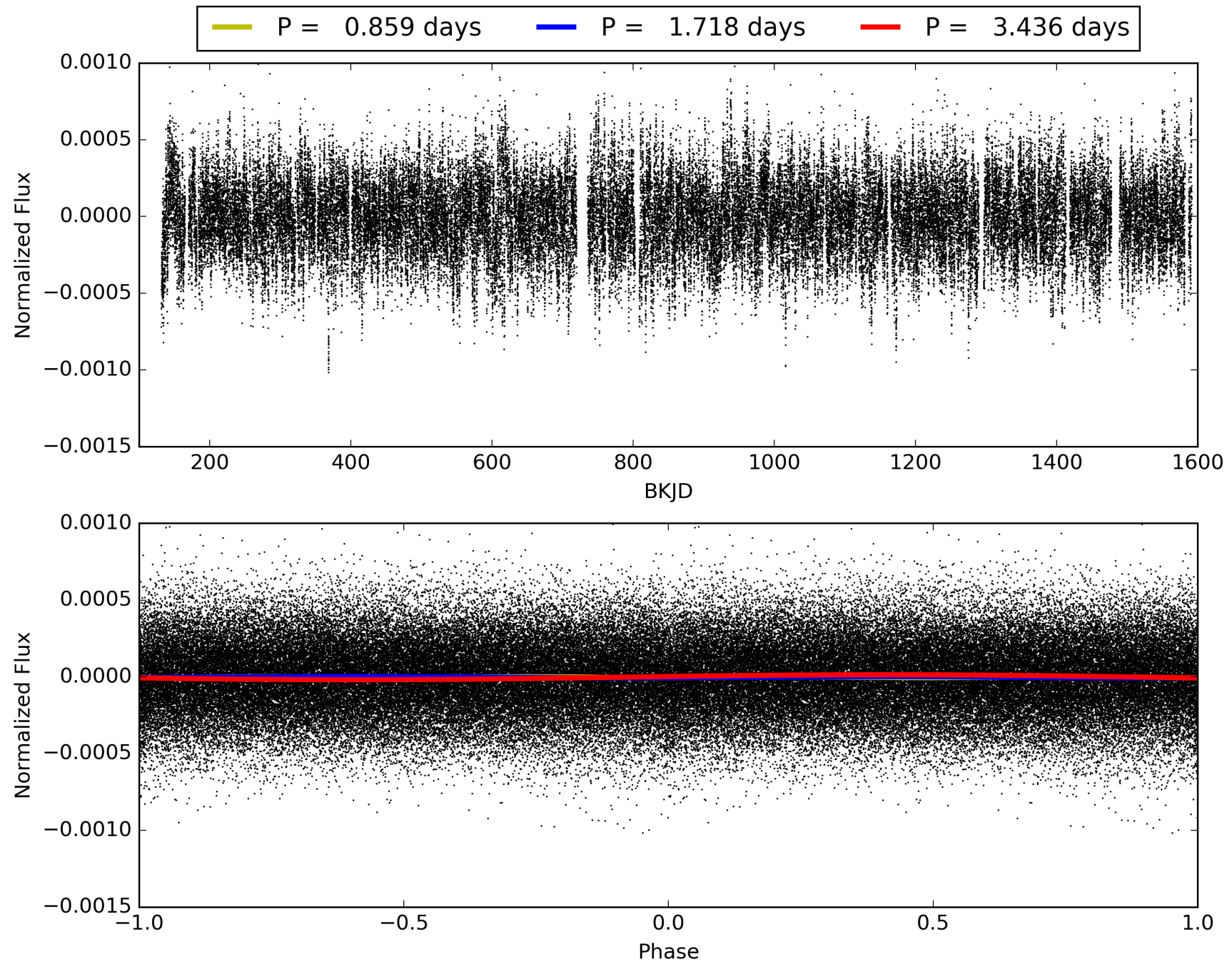
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:06:51 Z

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

# TCE 005096053-01, PDC Light Curves



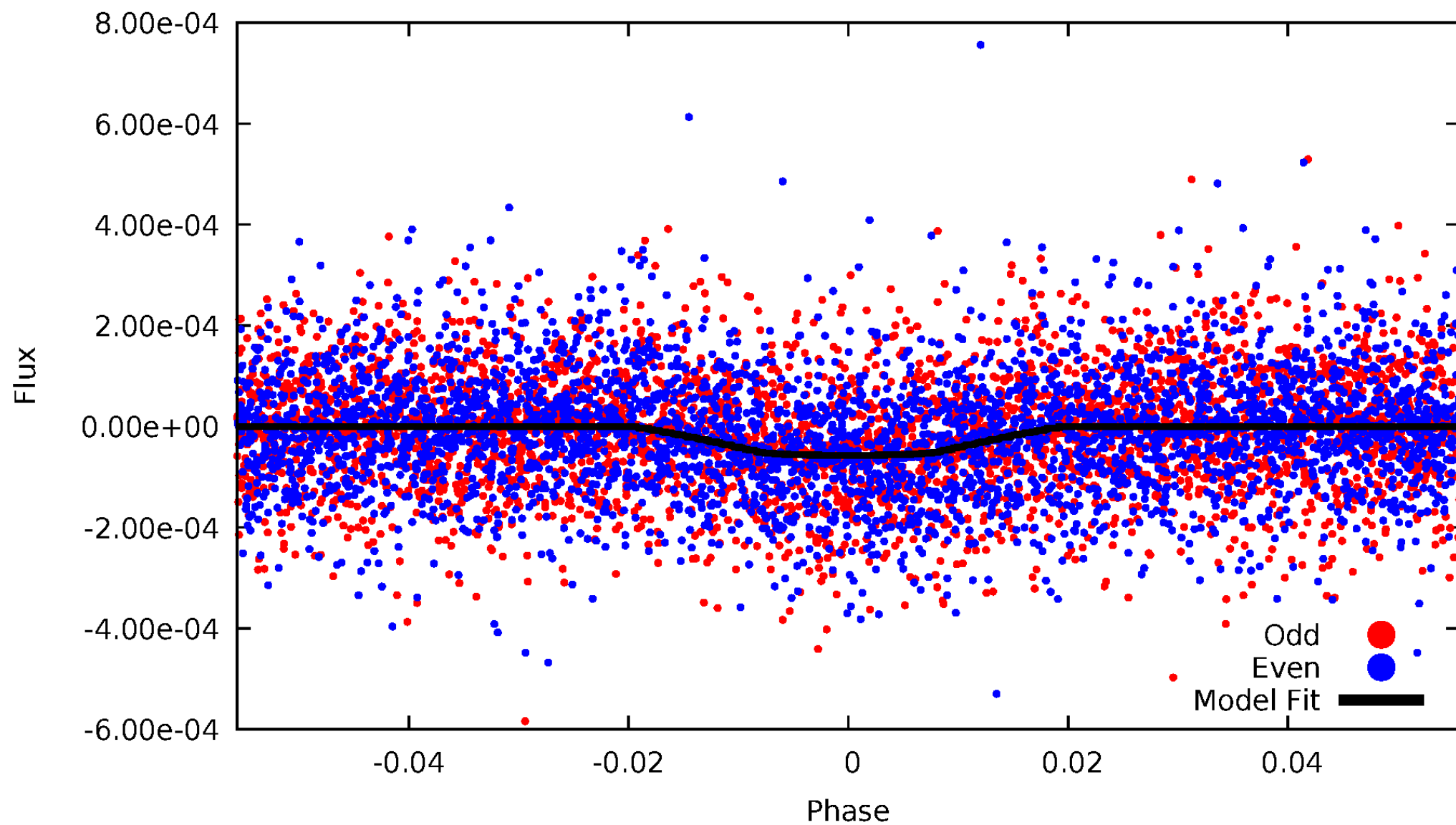
TCE 005096053-01





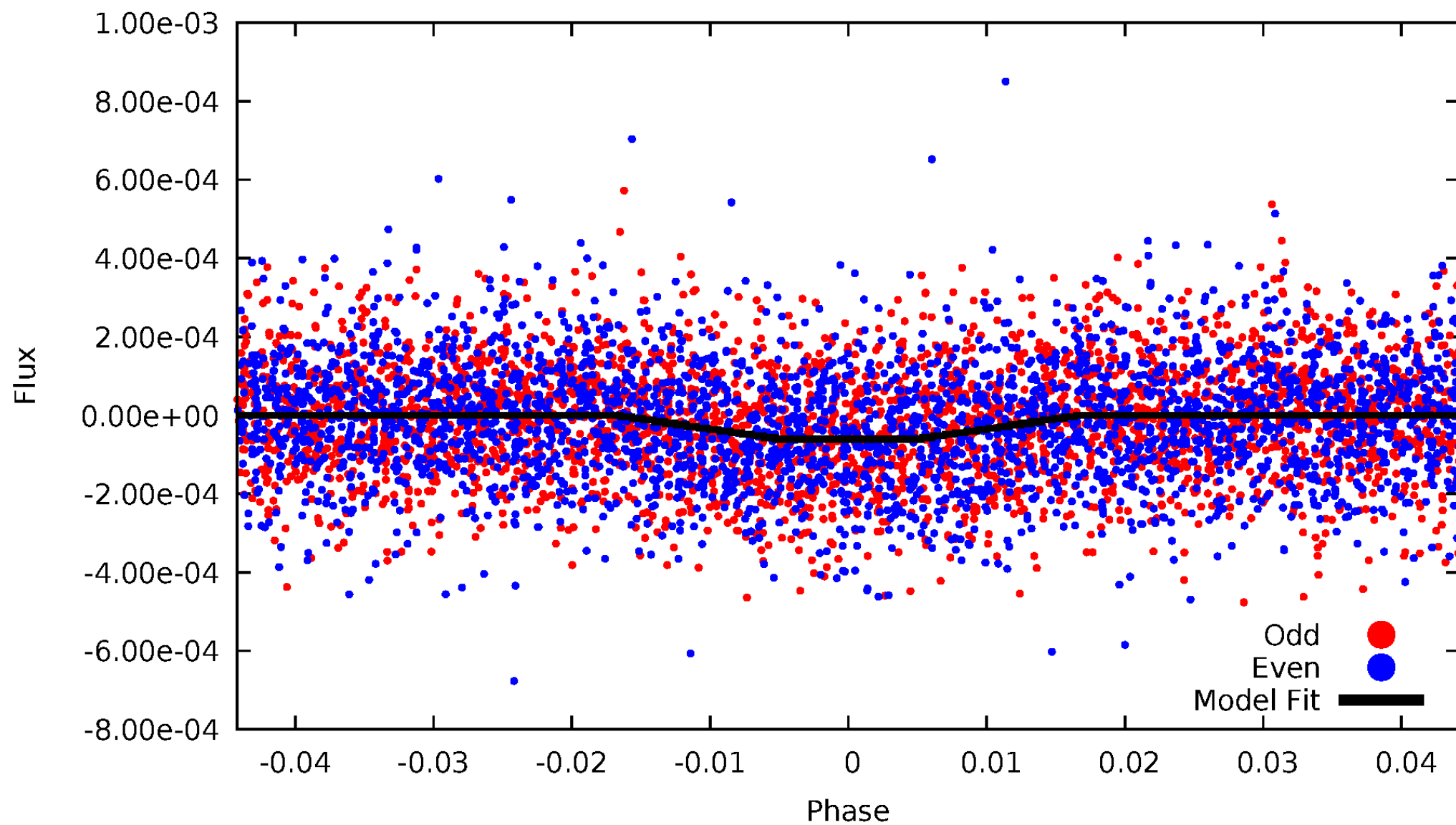
# DV Odd/Even

TCE 005096053-01



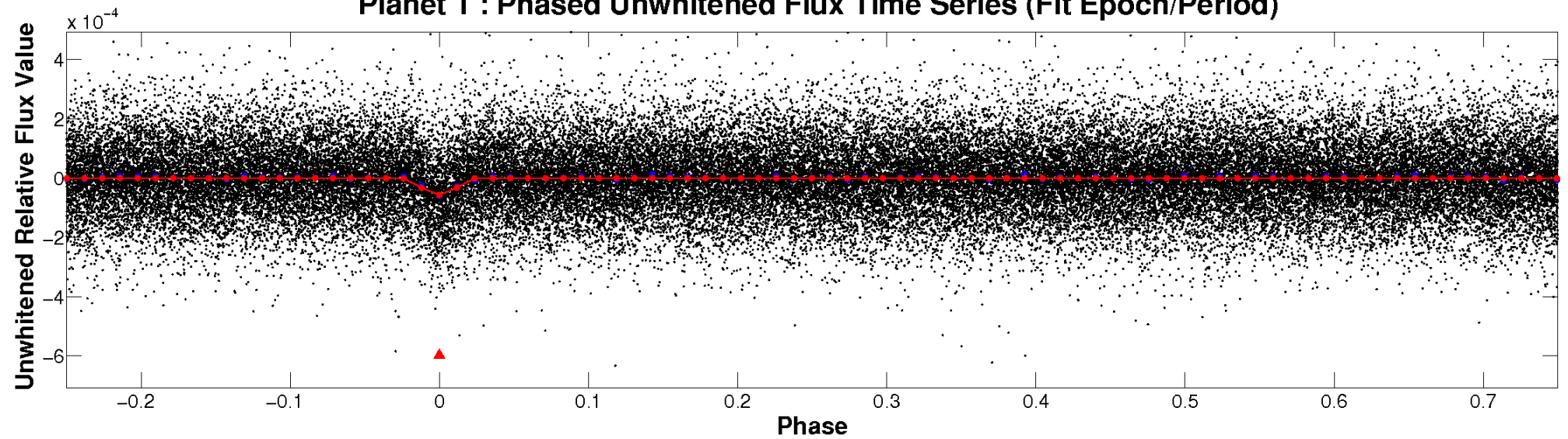
# ALT Odd/Even

TCE 005096053-01

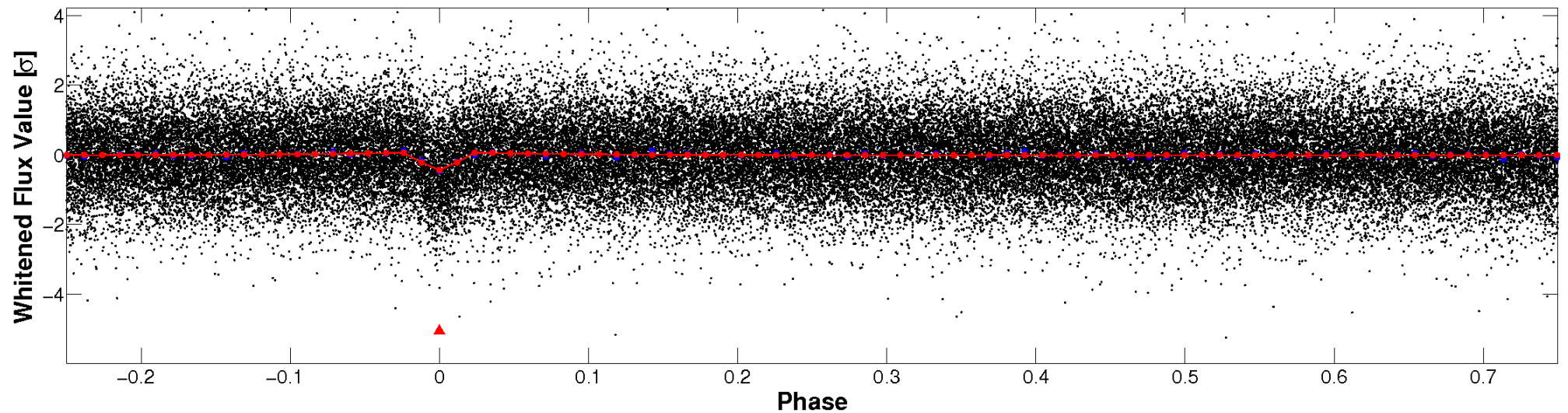


# Non-Whitened Vs. Whitened Light Curve

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

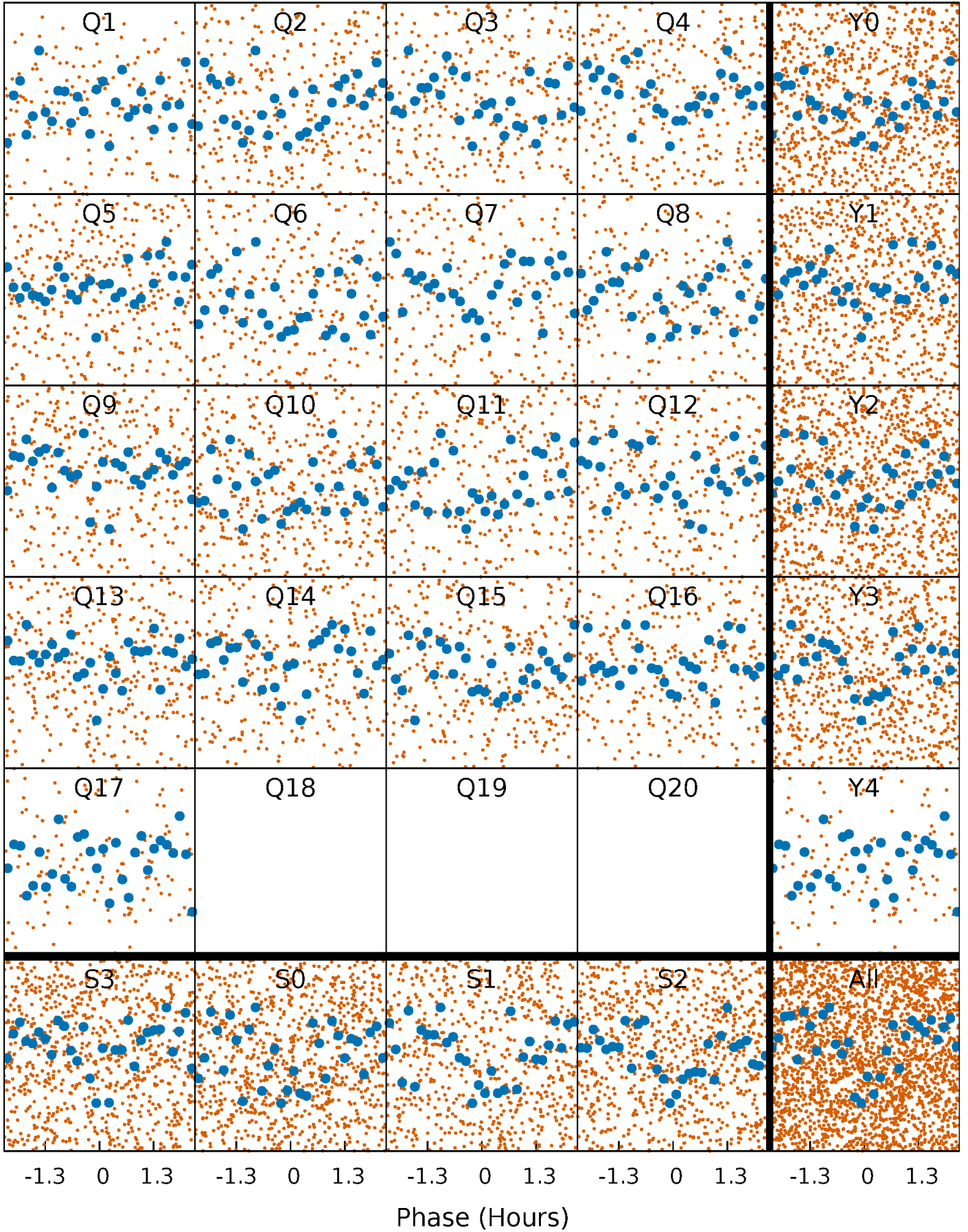


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

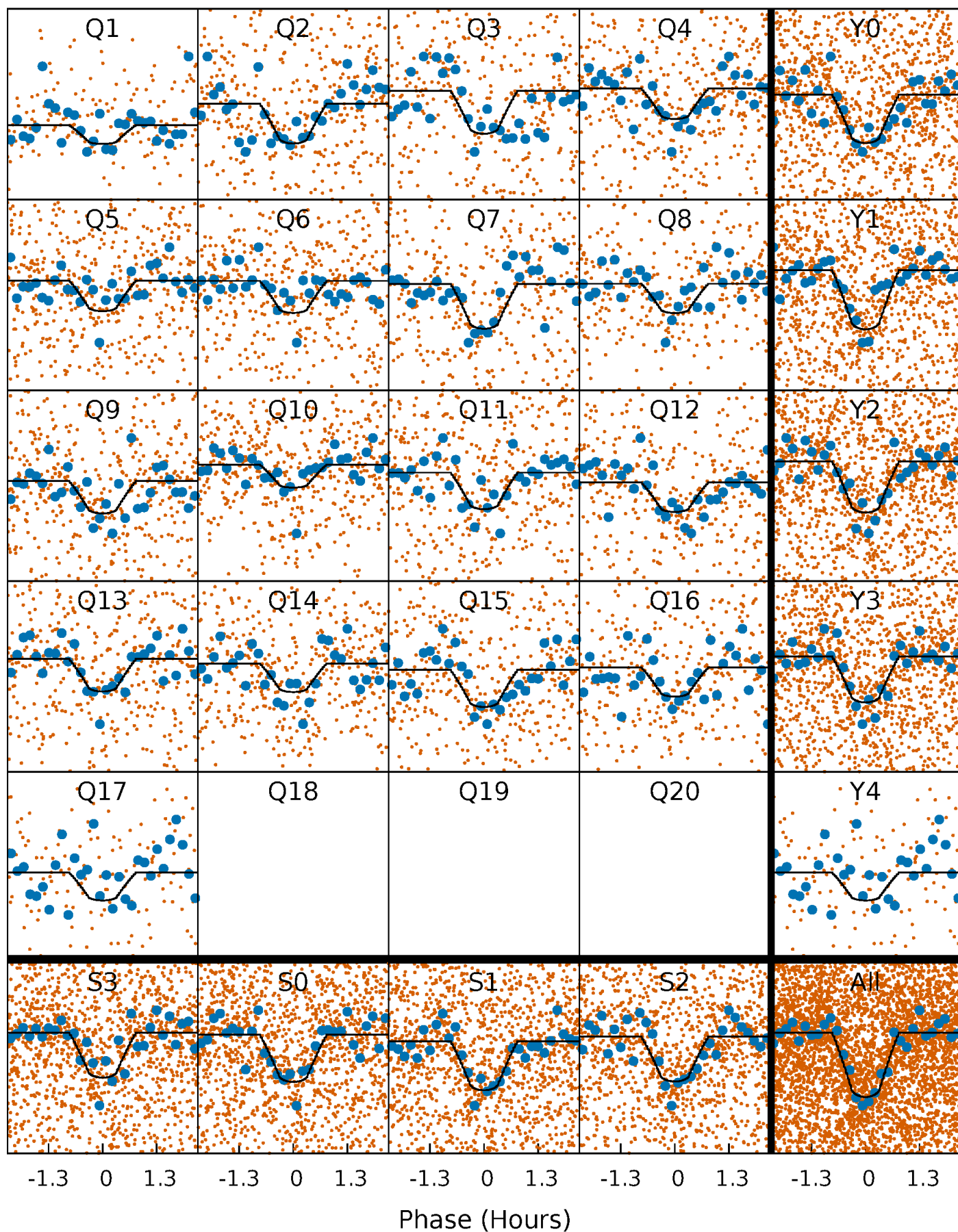
TCE 005096053-01   P= 1.717846 Days    $T_0=132.930637$  (BKJD)





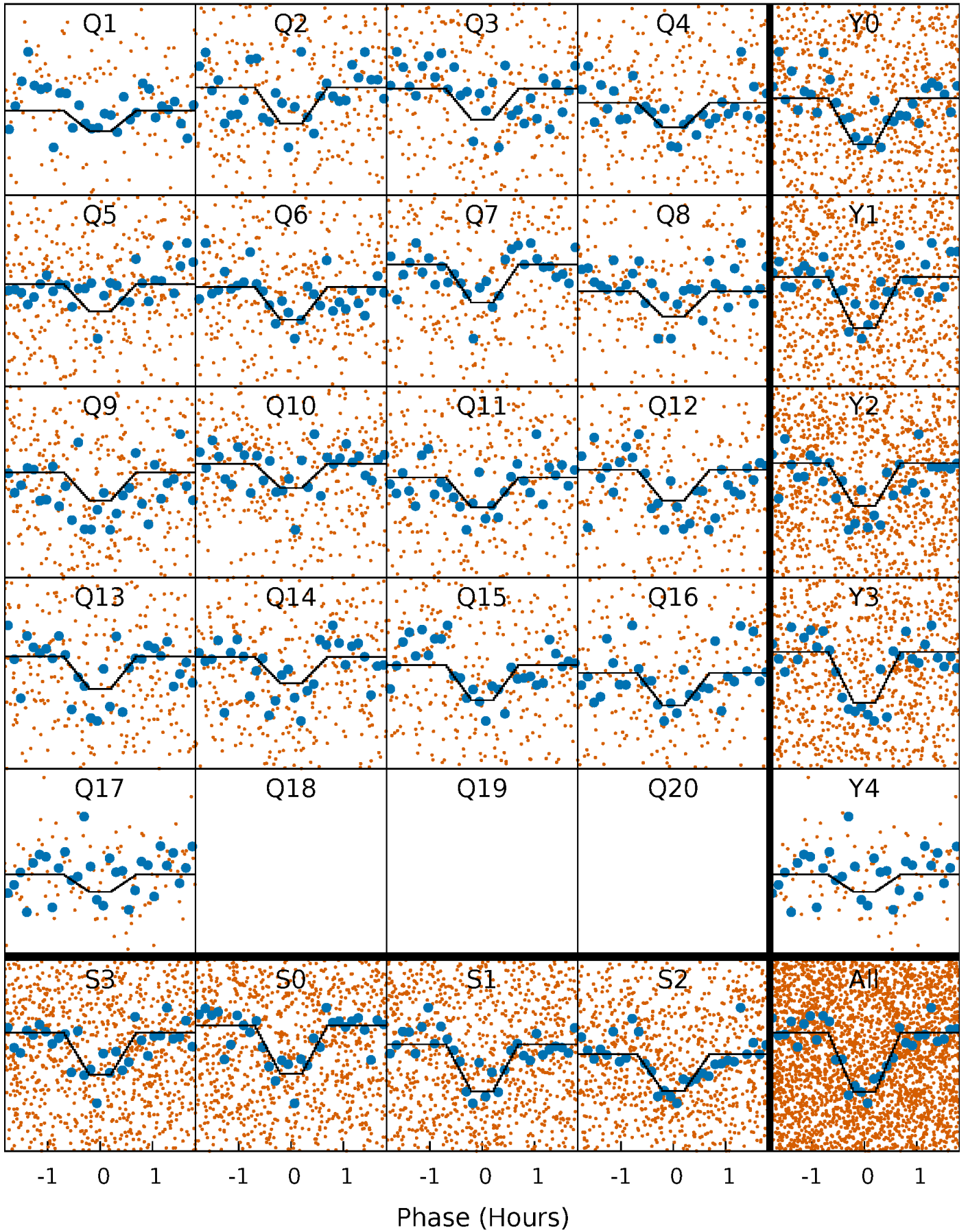
# DV Quarter-Phased Transit Curves

TCE 005096053-01 P= 1.717846 Days  $T_0=132.930637$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

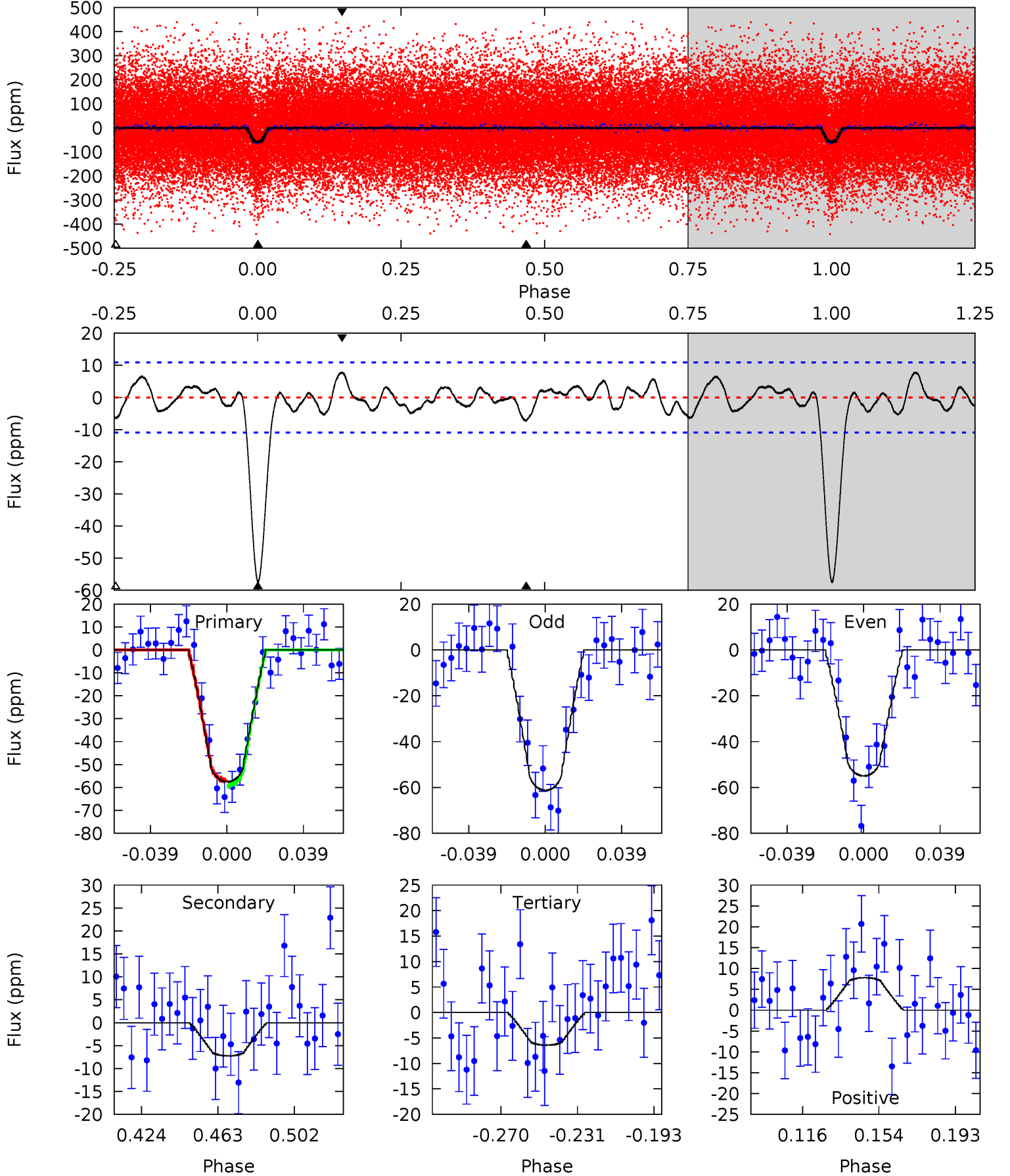
TCE 005096053-01 P= 1.717855 Days  $T_0=132.927882$  (BKJD)



# DV Model-Shift Uniqueness Test

005096053-01, P = 1.717846 Days, E = 131.212791 Days

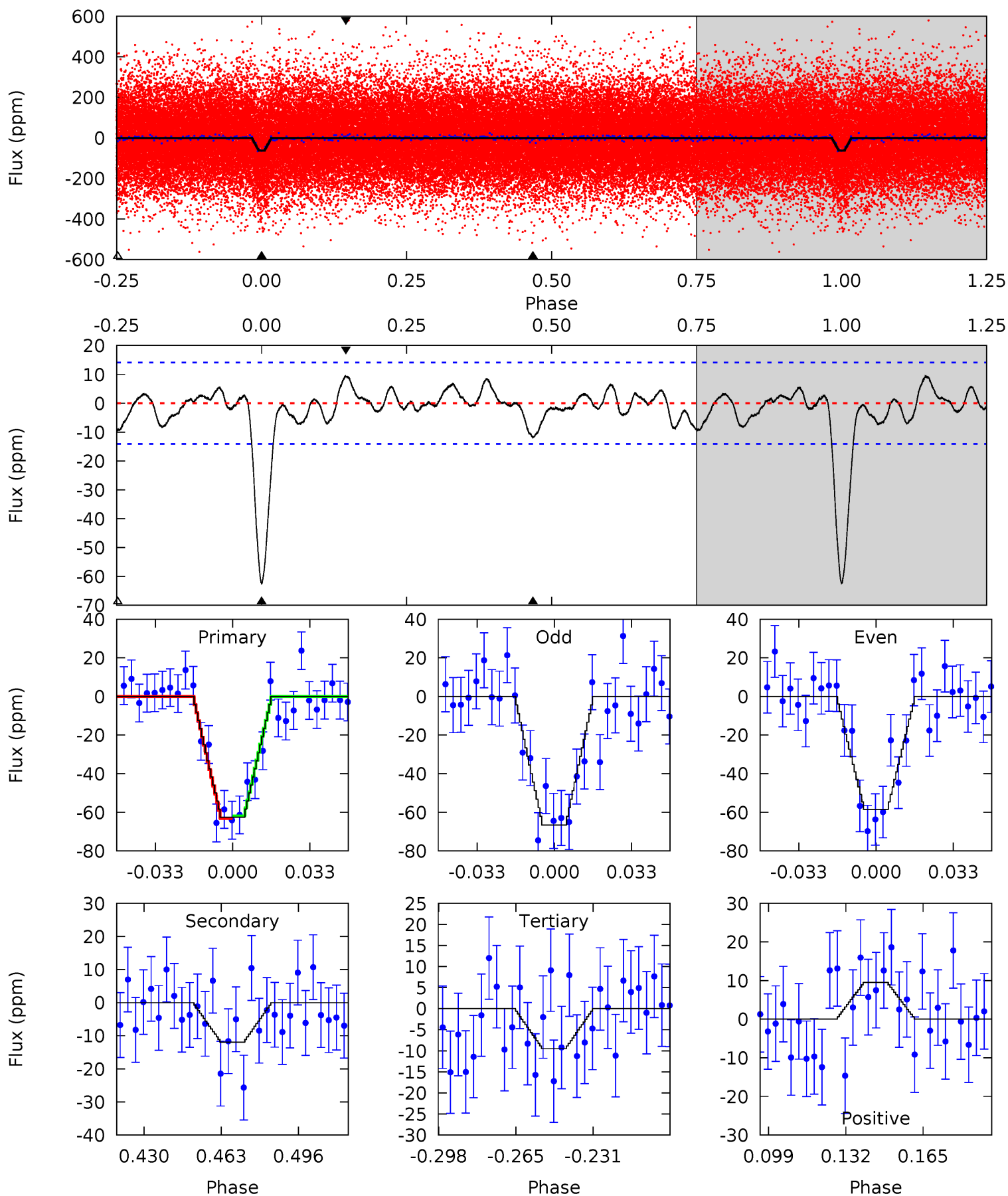
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	3.16	2.80	3.40	4.76	2.07	1.32	22.3	21.7	0.36	-0.24	1.38	0.92	0.12	0.44



# Alt Model-Shift Uniqueness Test

005096053-01, P = 1.717855 Days, E = 131.210027 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
21.2	4.05	3.23	3.24	4.79	2.13	1.31	18.0	18.0	0.83	0.82	1.36	1.12	0.13	0.24





### Stellar Parameters For KIC 005096053

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6694^{+188}_{-259}$	$4.084^{+0.252}_{-0.168}$	$-0.220^{+0.250}_{-0.300}$	$1.732^{+0.511}_{-0.562}$	$1.333^{+0.185}_{-0.254}$	$0.361^{+0.570}_{-0.170}$
	+3%/-4%	+6%/-4%	+114%/-136%	+30%/-32%	+14%/-19%	+158%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005096053-01 / KOI 4331.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-7 \pm 2$	$1.44^{+0.92}_{-0.79}$	$3072^{+246}_{-250}$	$4009^{+1822}_{-917}$	$1.793^{+7.306}_{-1.224}$
Alt.	$-12 \pm 3$	$1.46^{+1.04}_{-0.84}$	$3062^{+251}_{-272}$	$4408^{+2086}_{-892}$	$2.816^{+11.688}_{-1.890}$

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

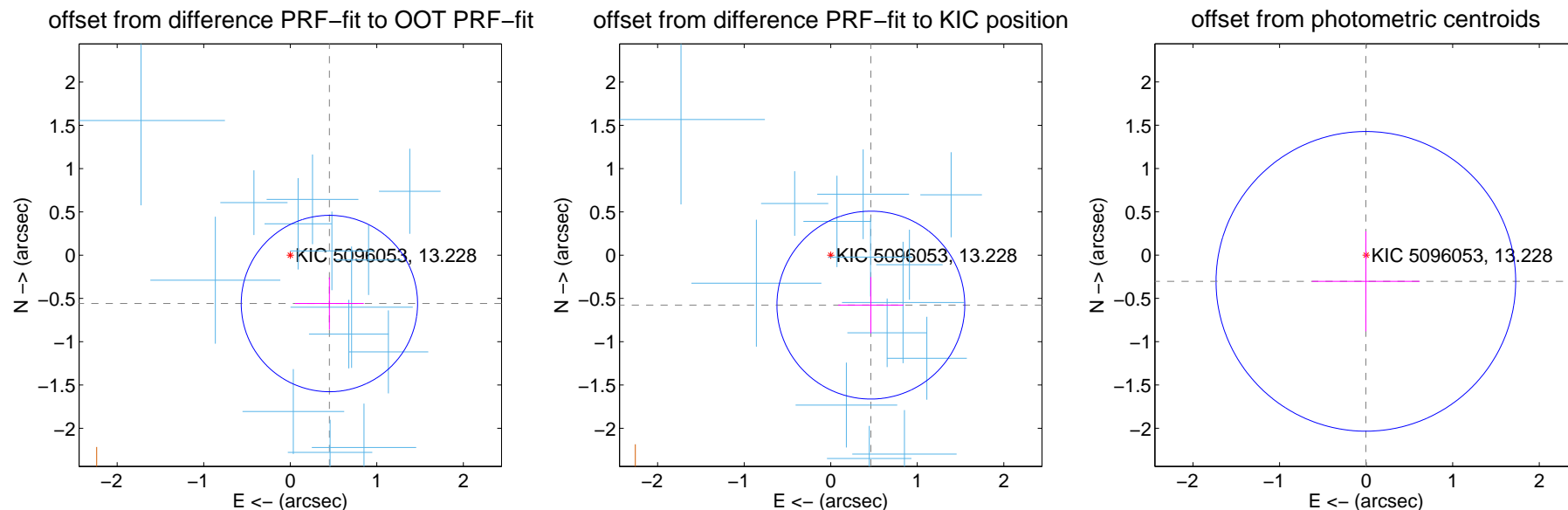
## DV Centroid Data

Supplemental centroid analysis for 005096053-01. Kepler magnitude: 13.23. Transit SNR 15.74

There are 14 quarters with good PRF difference image offsets

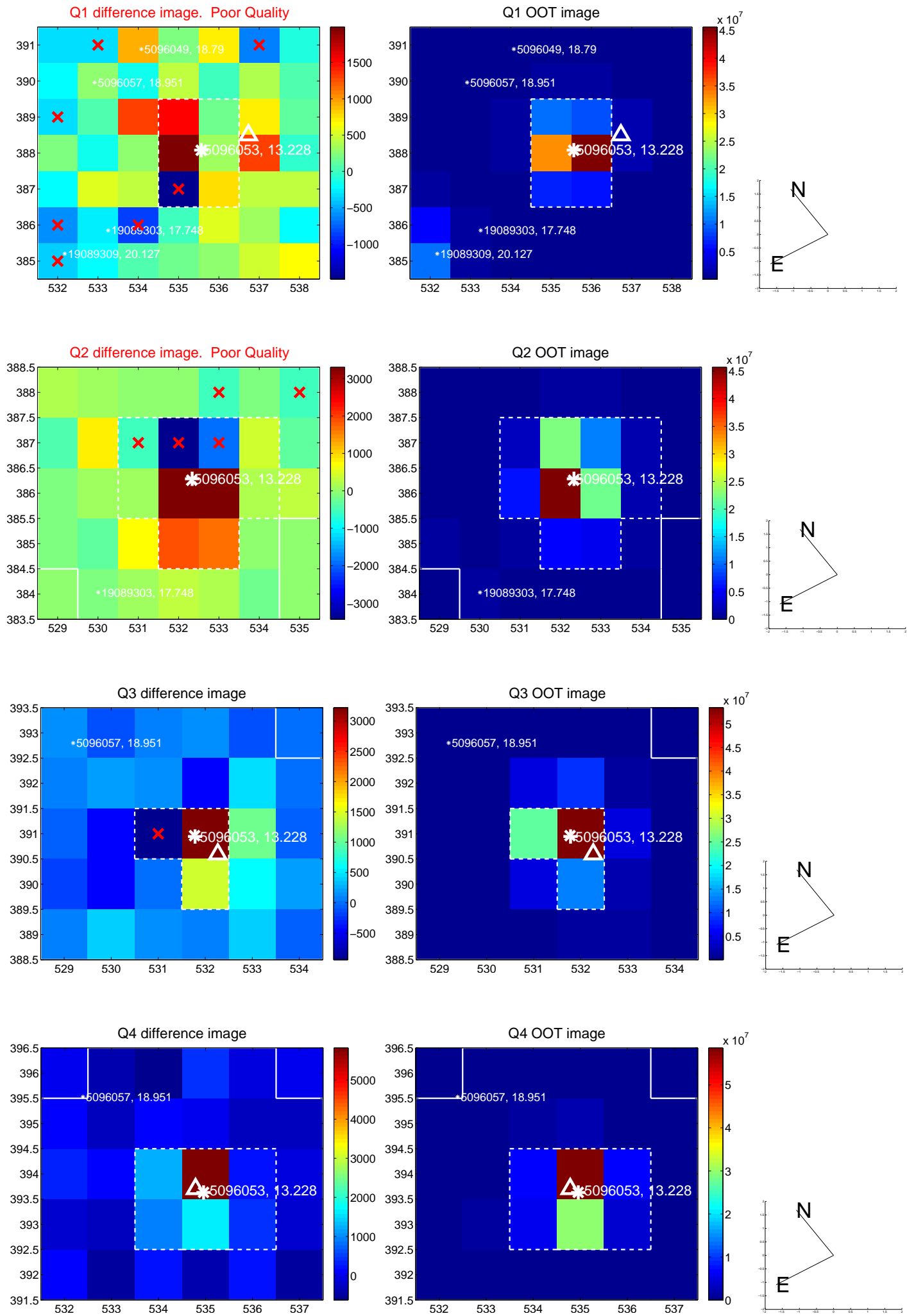
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.719 \pm 0.340$	2.12	$-0.452 \pm 0.398$	$-0.559 \pm 0.301$
PRF-fit source offset from KIC position	$0.740 \pm 0.362$	2.05	$-0.464 \pm 0.378$	$-0.577 \pm 0.325$
photometric centroid source offset	$0.30 \pm 0.58$	0.53	$0.00 \pm 0.62$	$-0.30 \pm 0.58$

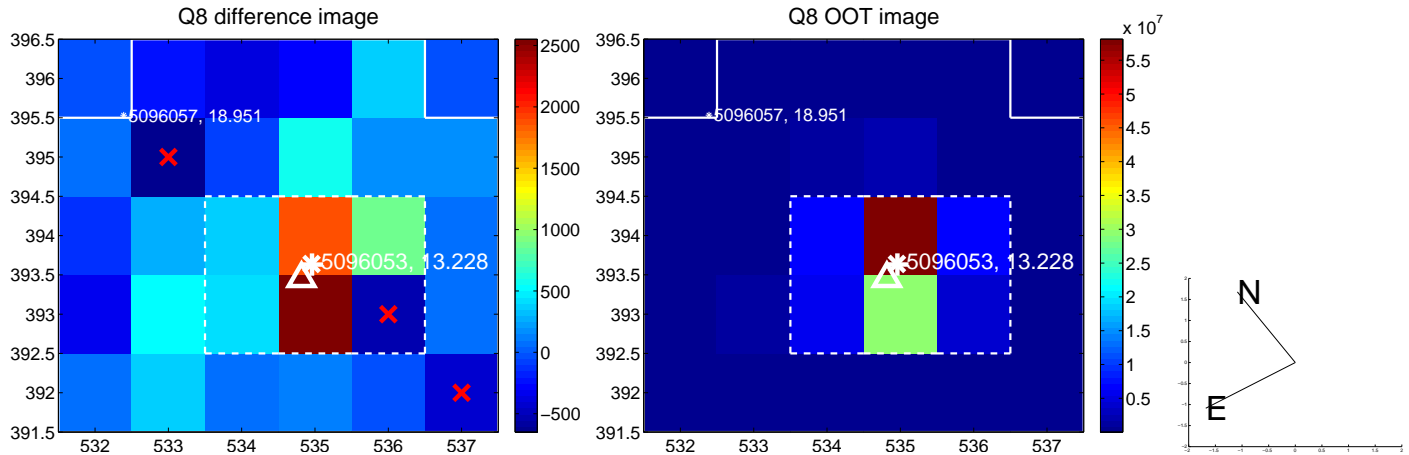
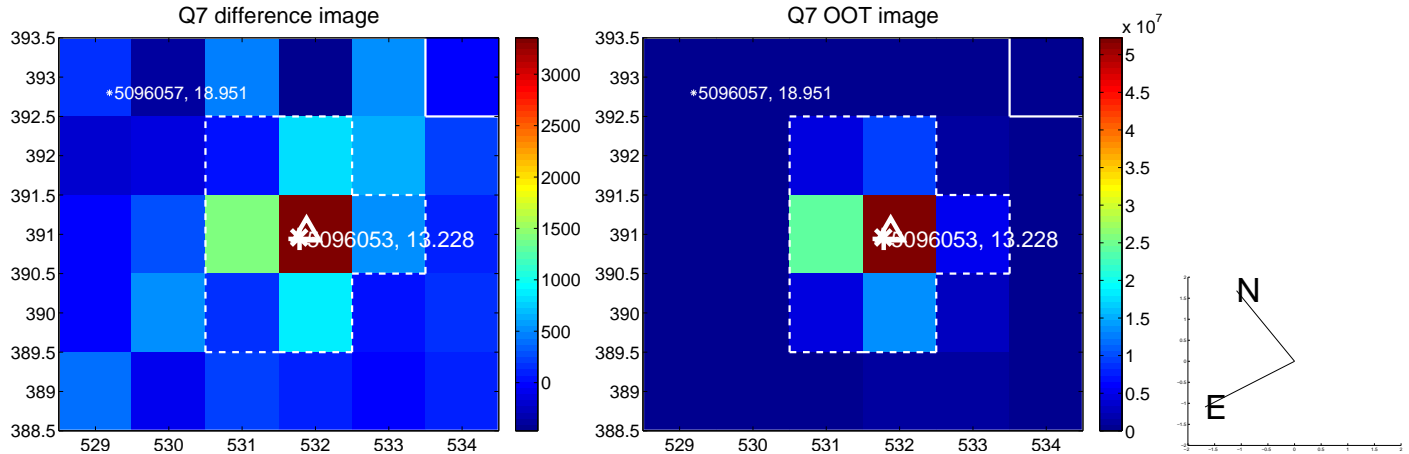
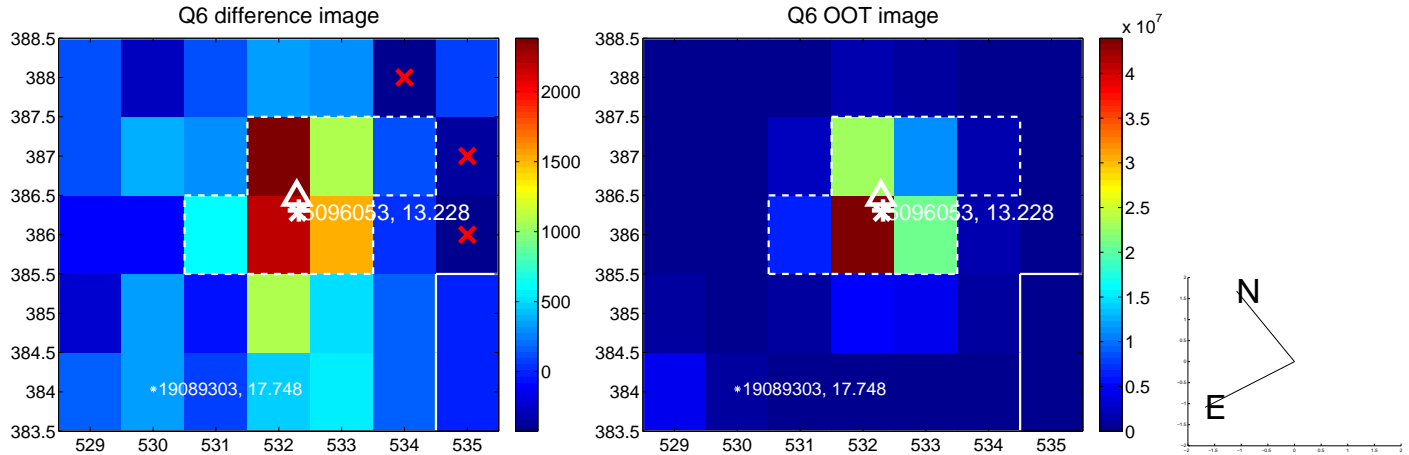
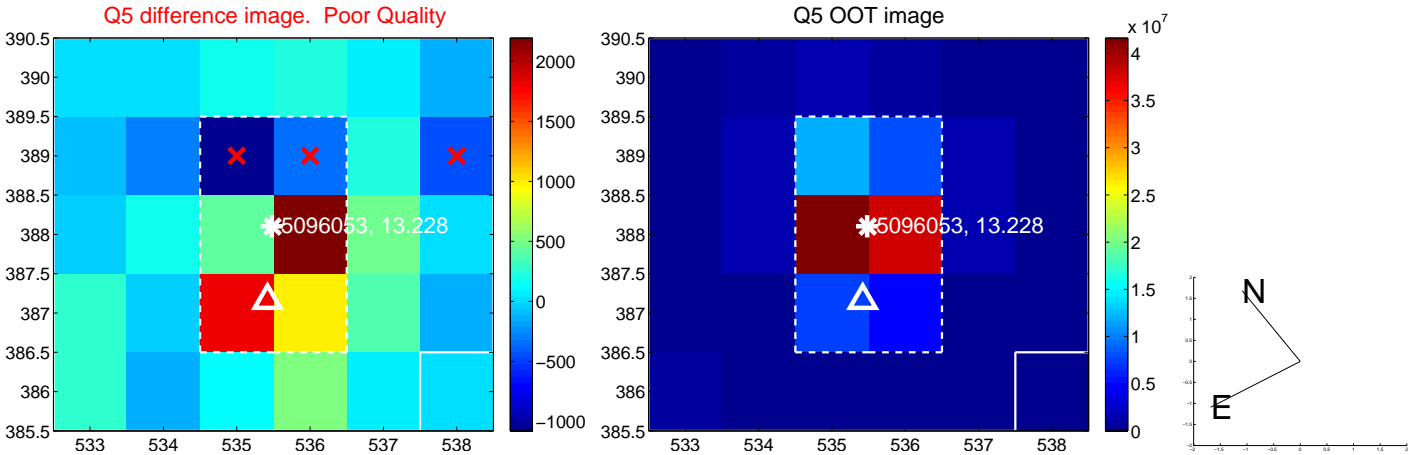


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

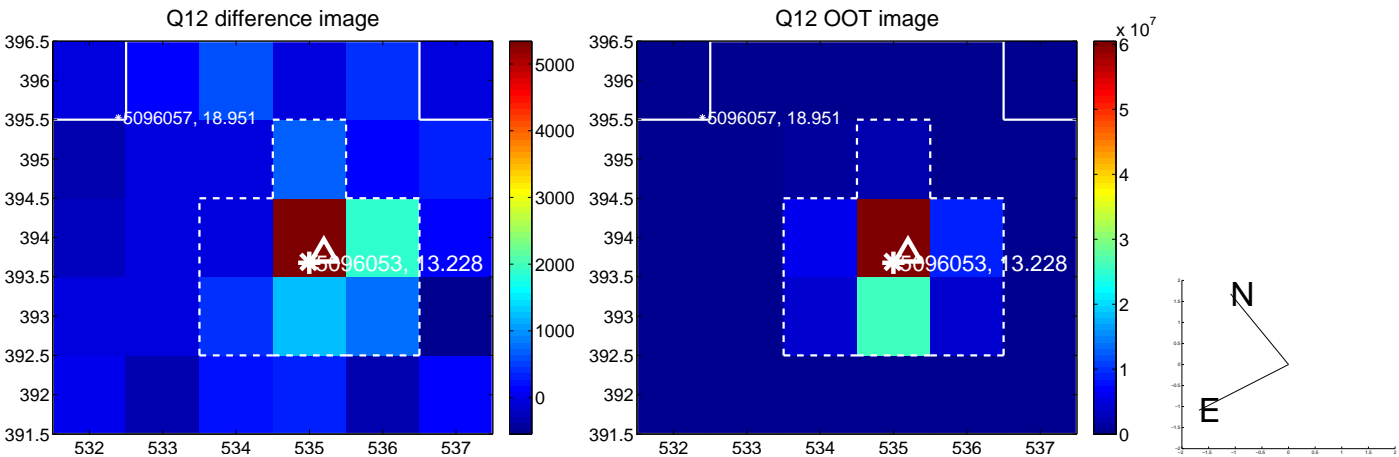
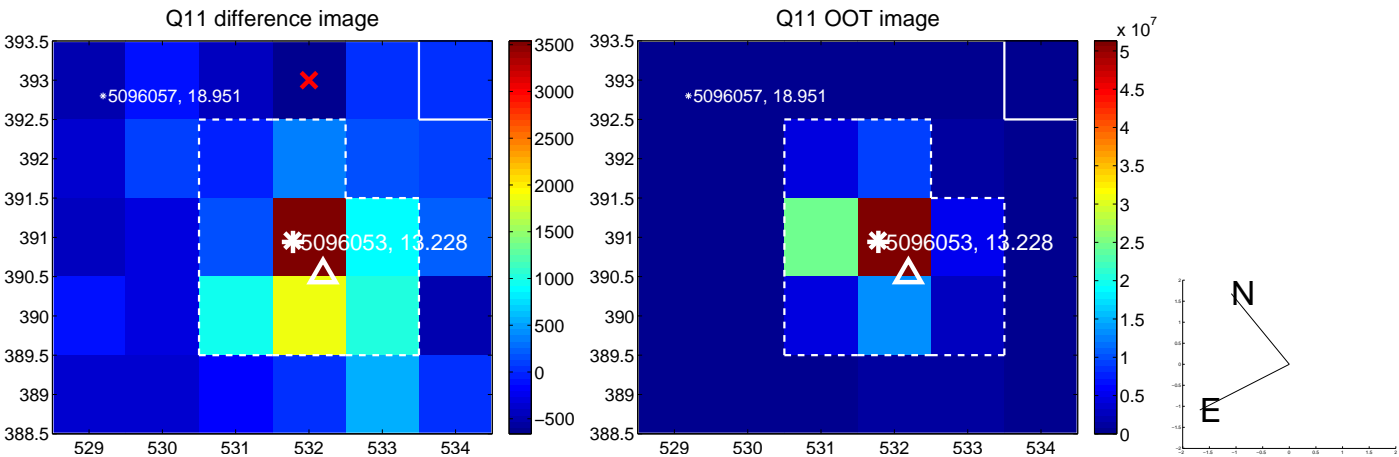
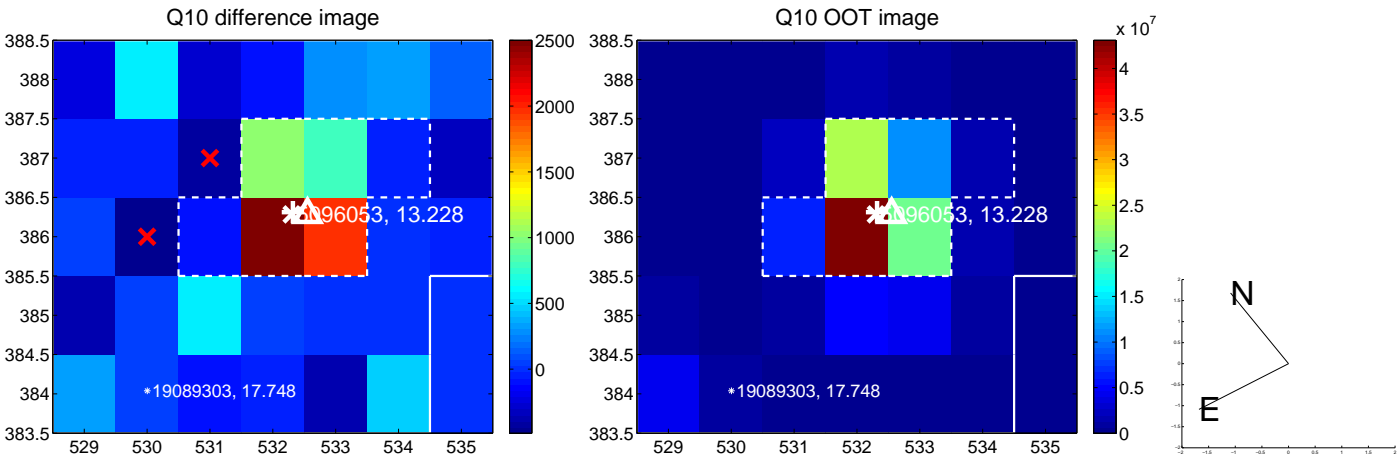
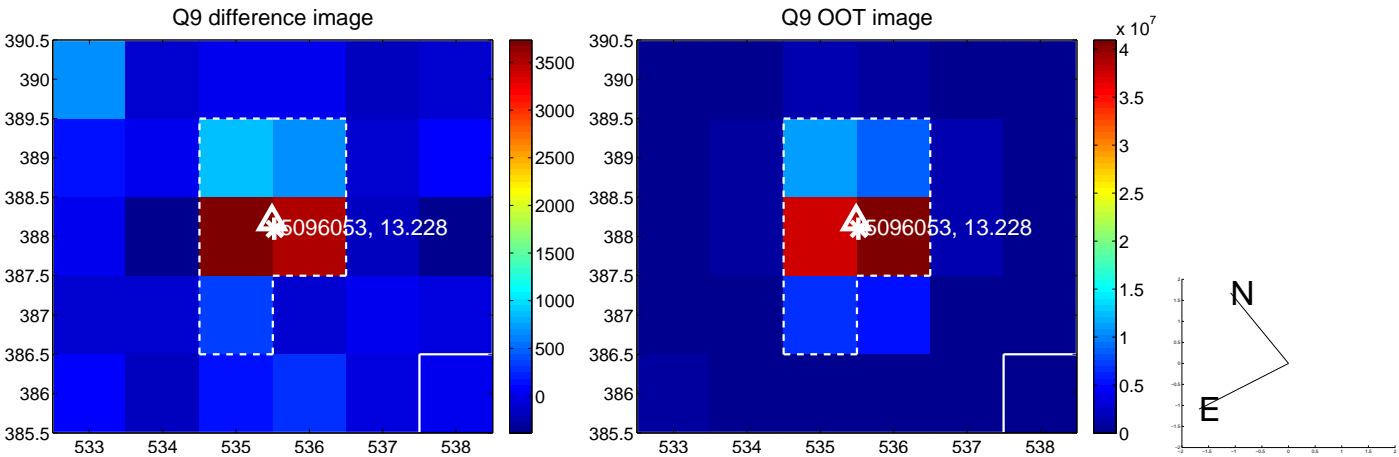


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

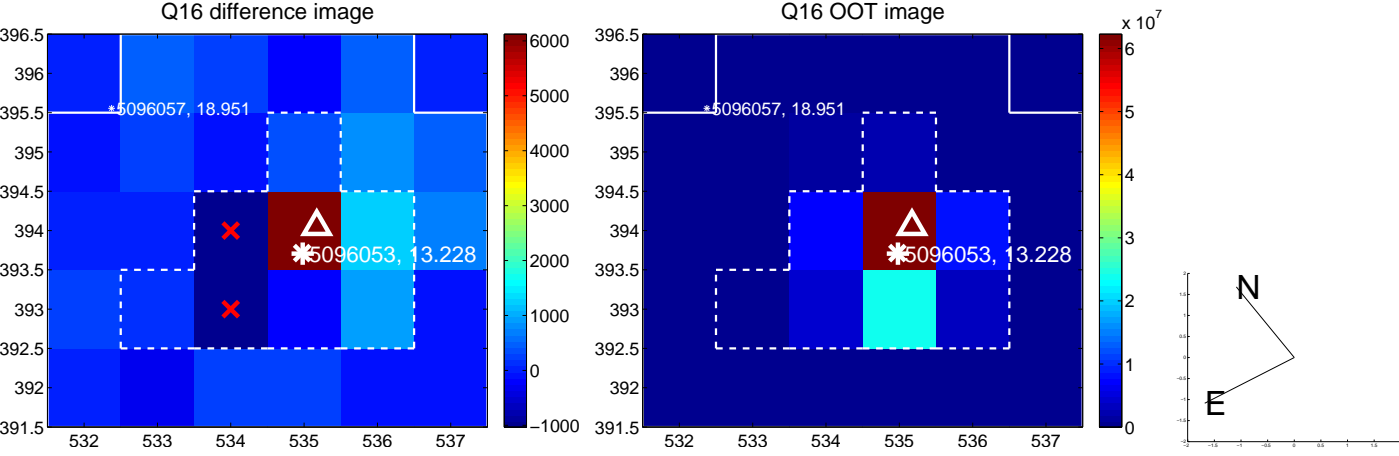
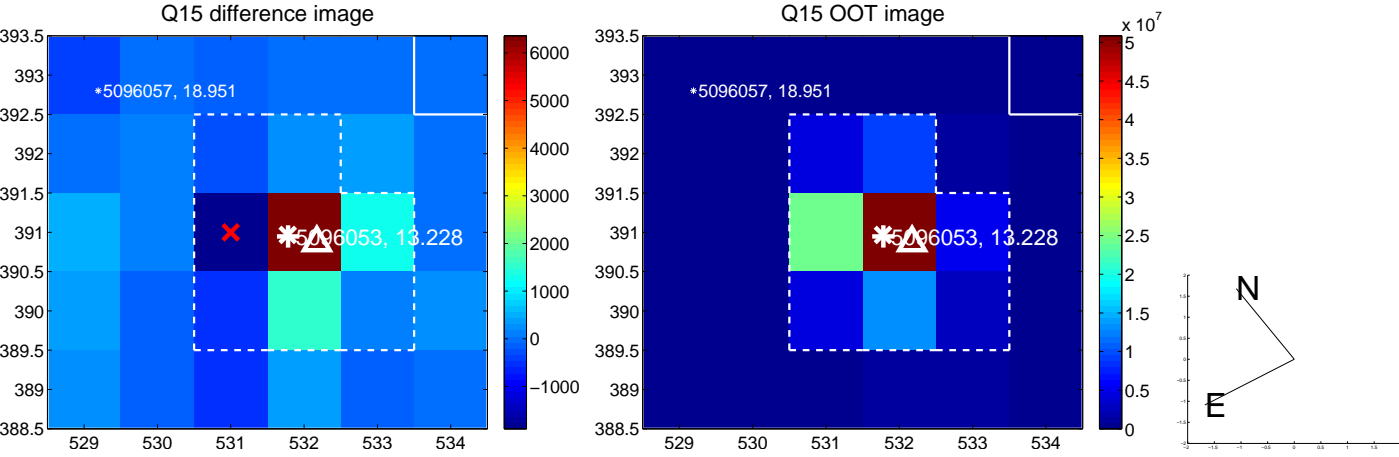
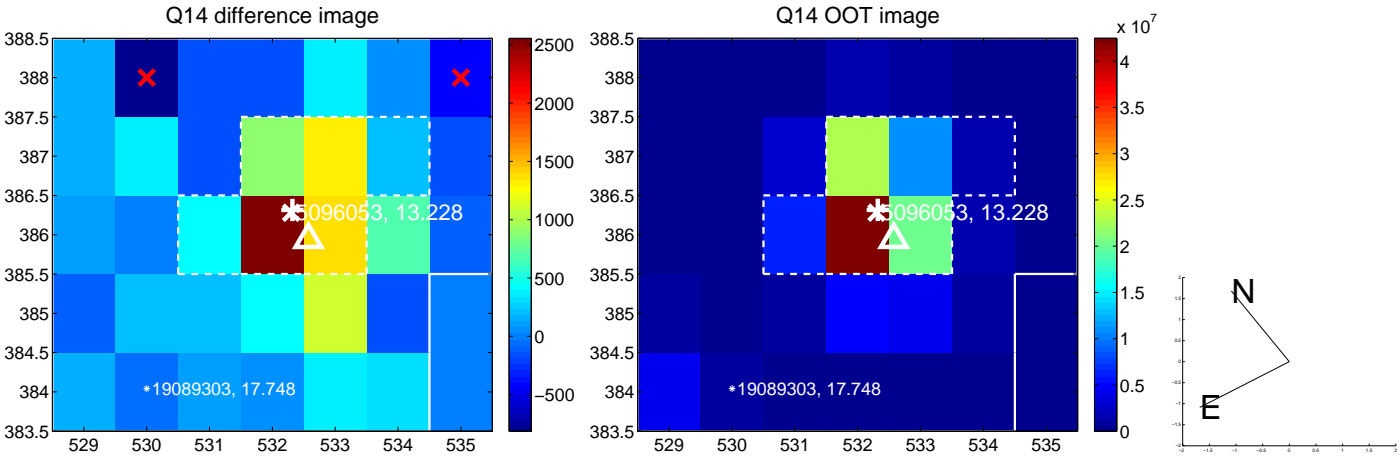
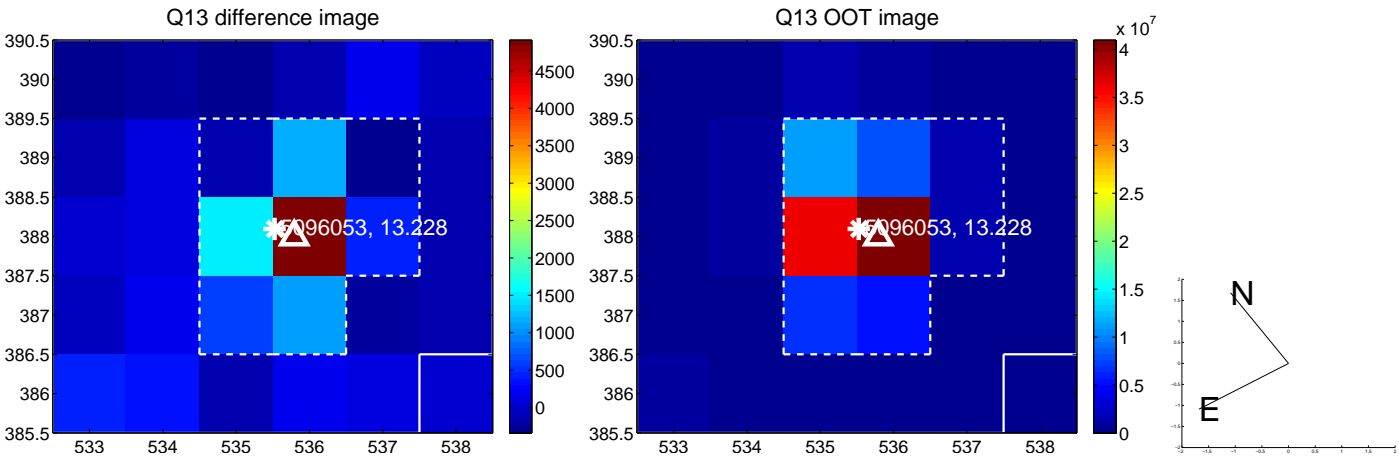




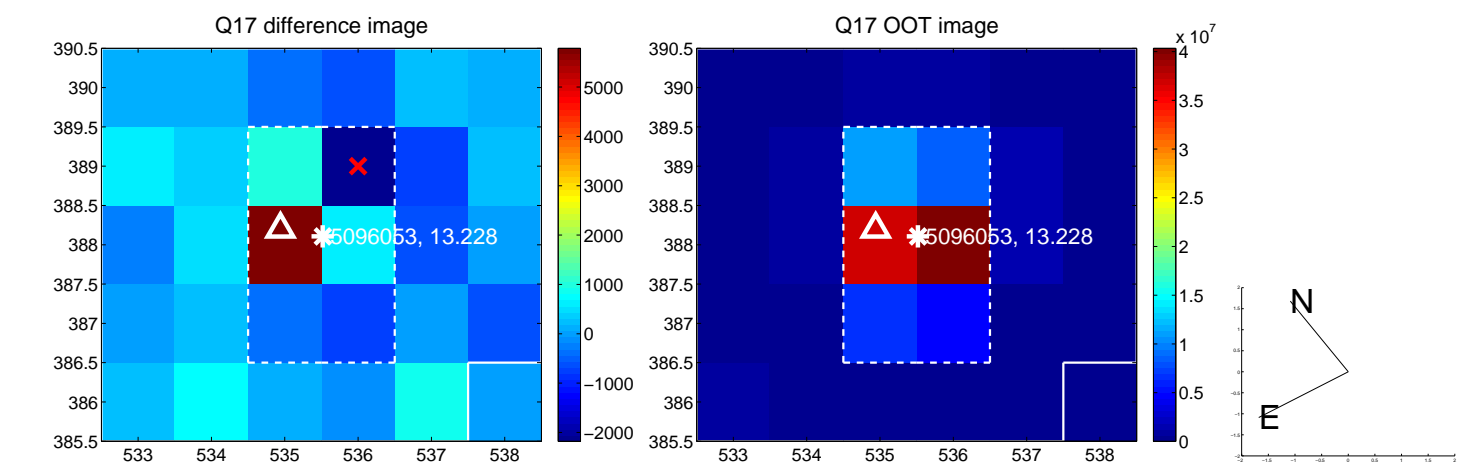
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



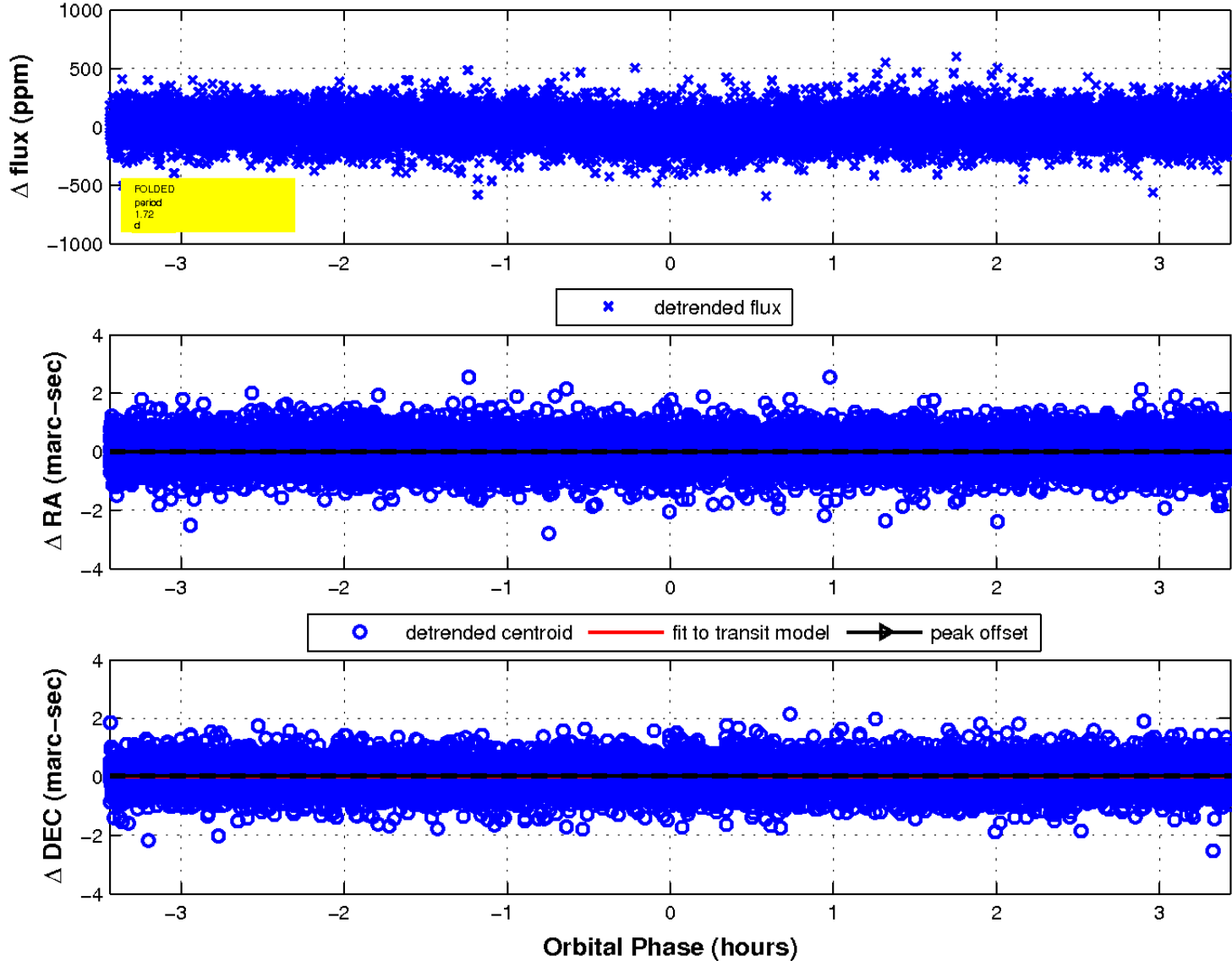
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

