

# KIC 003831053

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003831053-01	OBS	0388.01	6.149558	132.653949	316.4	5.872	63.2	74.0	1.77	5687	3.76	649.78

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003831053-01	OBS	PC	1.00	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.

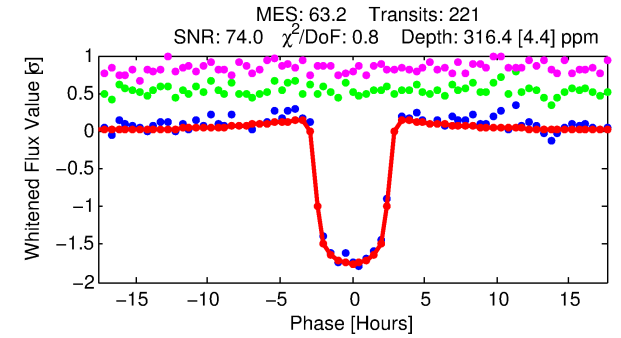
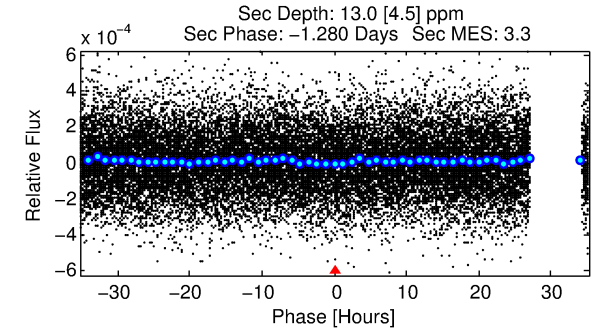
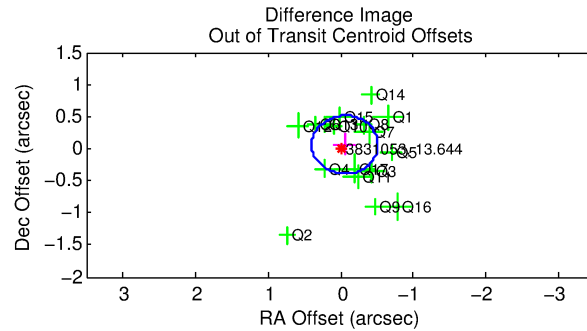
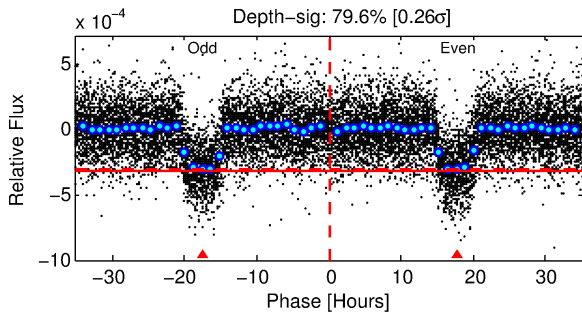
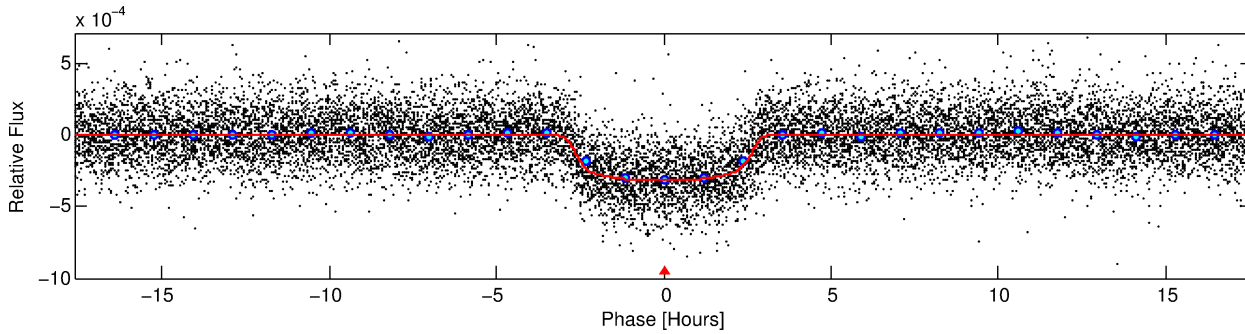
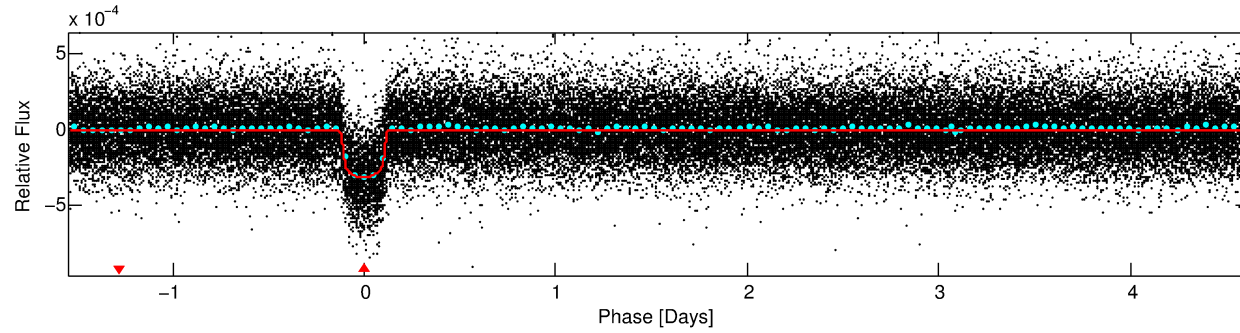
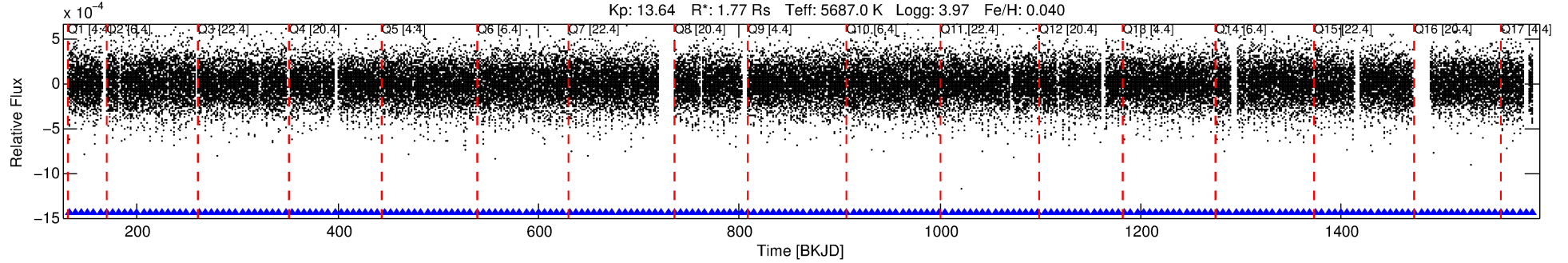
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003831053-01

No Significant Match Found

# DV One-Page Summary

KIC: 3831053 Candidate: 1 of 1 Period: 6.150 d  
KOI: K00388.01 Corr: 0.977



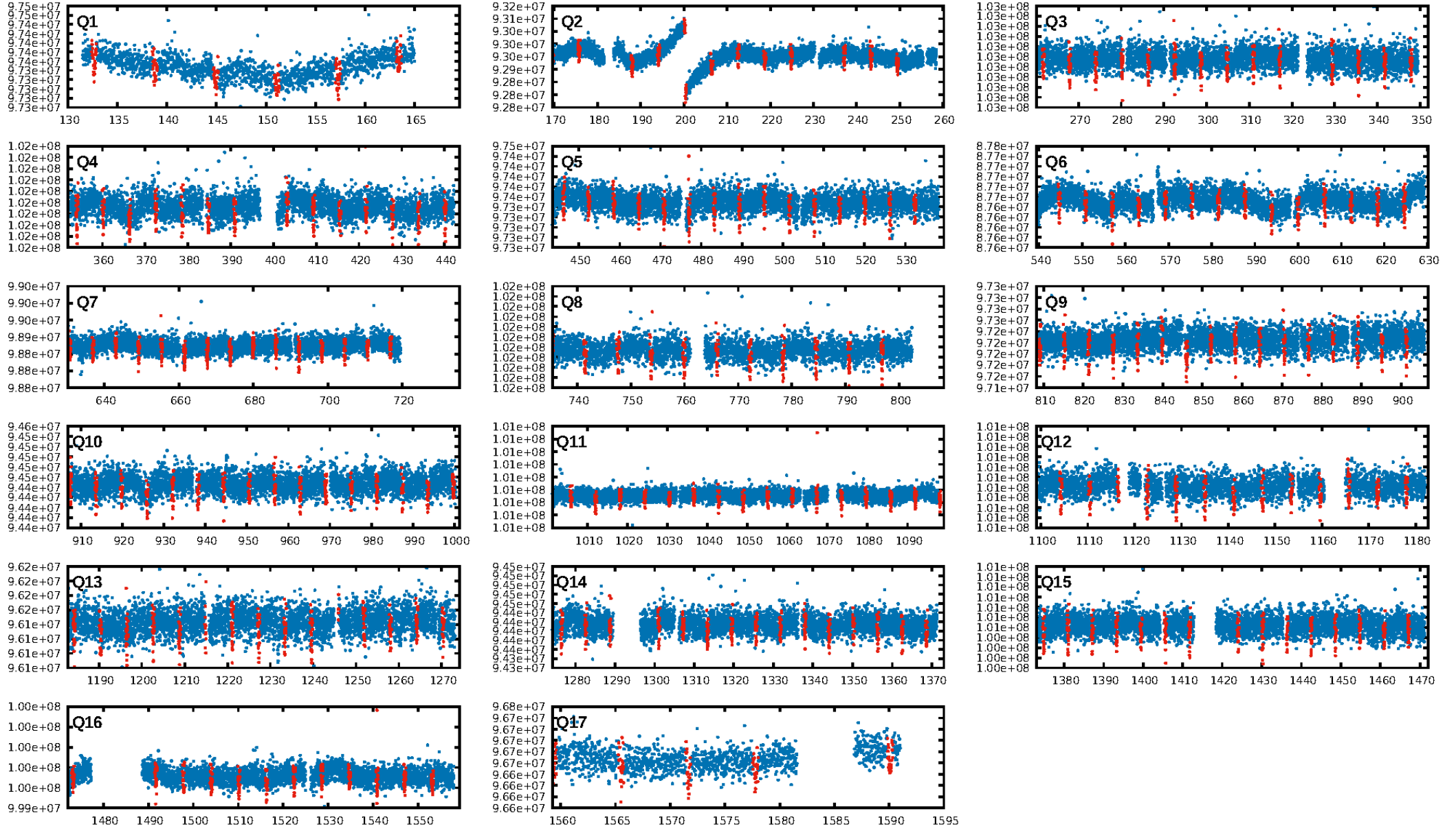
## DV Fit Results:

Period = 6.14956 [0.00001] d  
Epoch = 132.6539 [0.0014] BKJD  
Rp/R\* = 0.0194 [0.0006]  
a/R\* = 3.96 [0.53]  
b = 0.90 [0.03]  
Seff = 649.78 [243.30]  
Teq = 1287 [121] K  
Rp = 3.76 [0.98] Re  
a = 0.0674 [0.0159] AU  
Ag = 2.30 [1.17] [1.11 $\sigma$ ]  
Teffp = 2451 [221] K [4.62 $\sigma$ ]

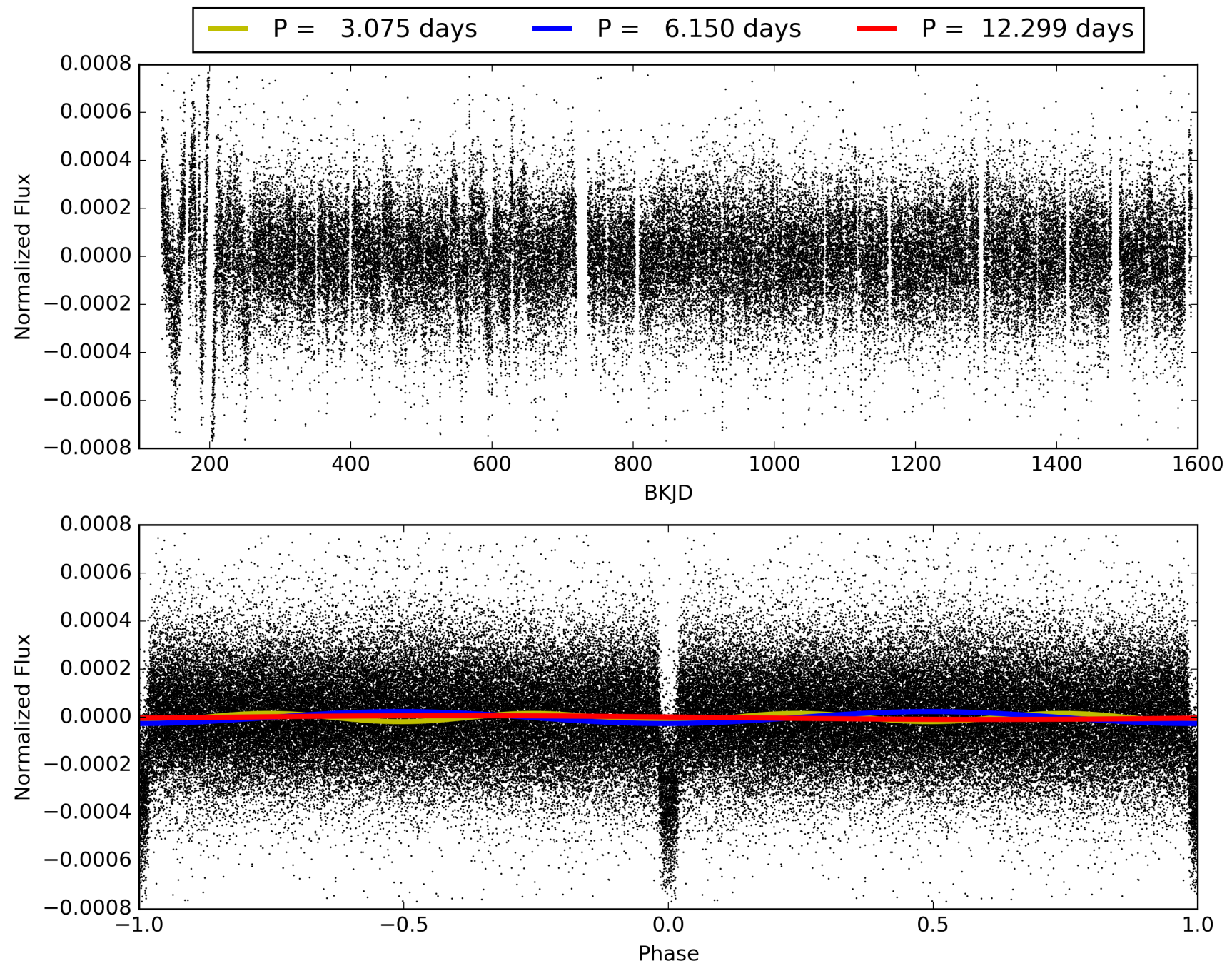
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [210/210]  
GhostDiagnostic-chr: 4.968  
Centroid-sig: 89.7%  
Centroid-so: 0.426 arcsec [2.38 $\sigma$ ]  
OotOffset-rm: 0.082 arcsec [0.54 $\sigma$ ]  
KicOffset-rm: 0.168 arcsec [1.09 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 003831053-01, PDC Light Curves



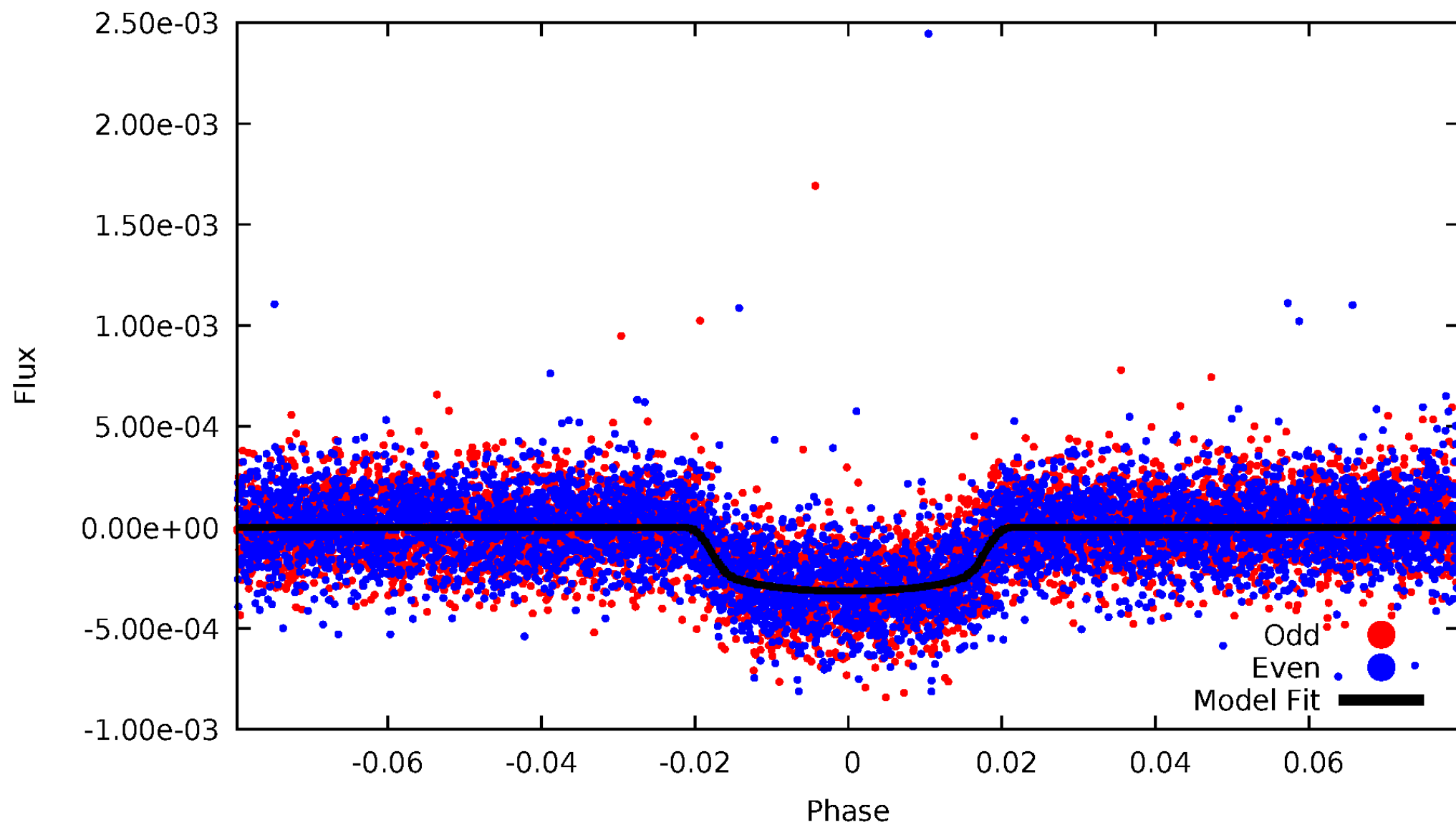
TCE 003831053-01





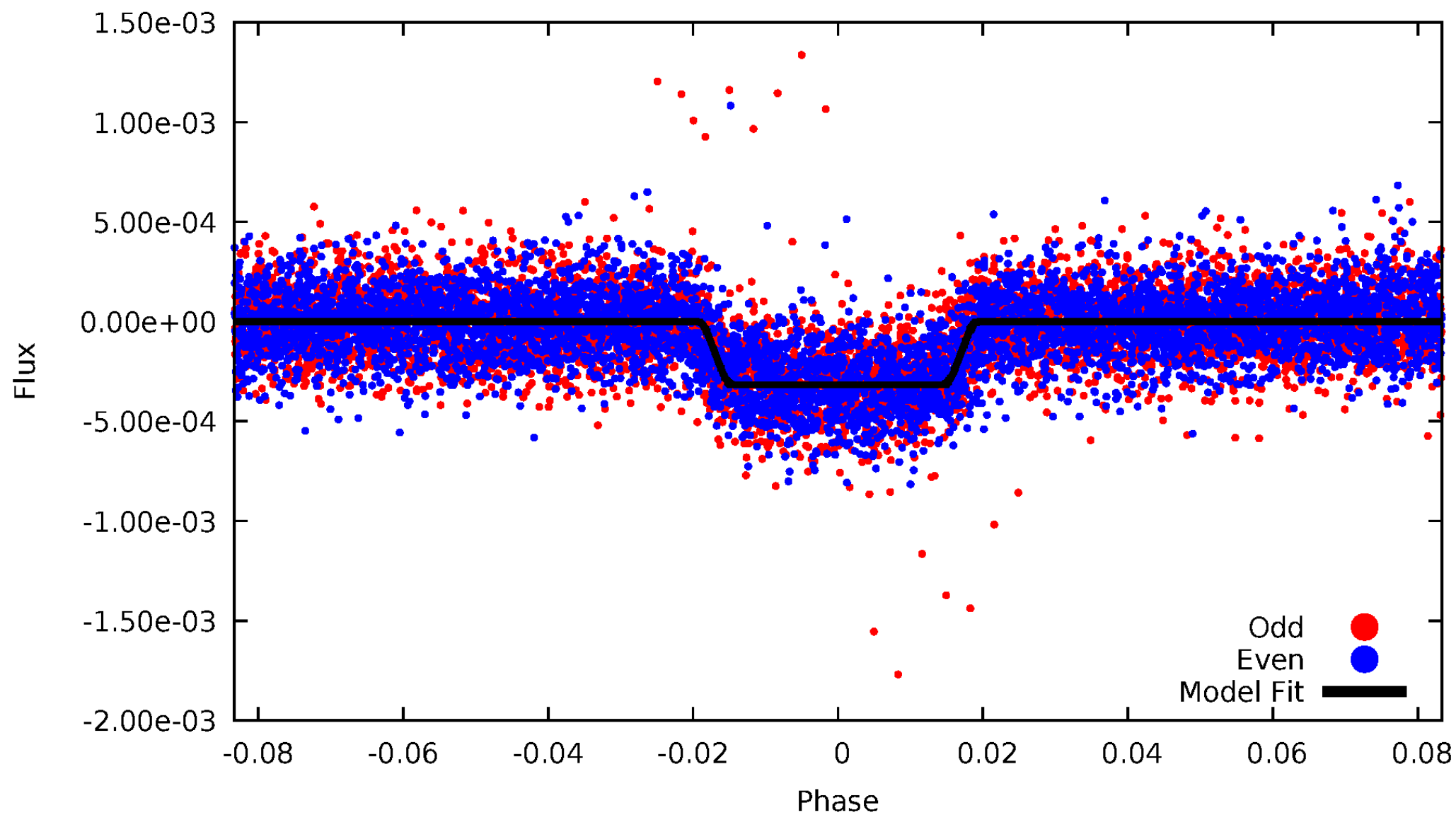
# DV Odd/Even

TCE 003831053-01

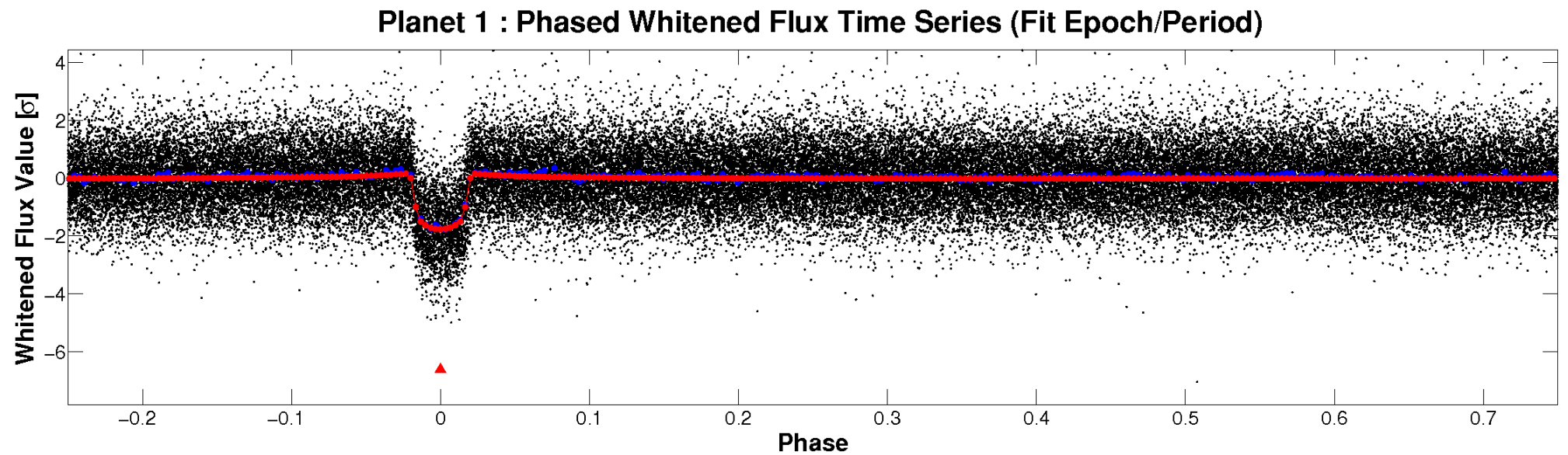
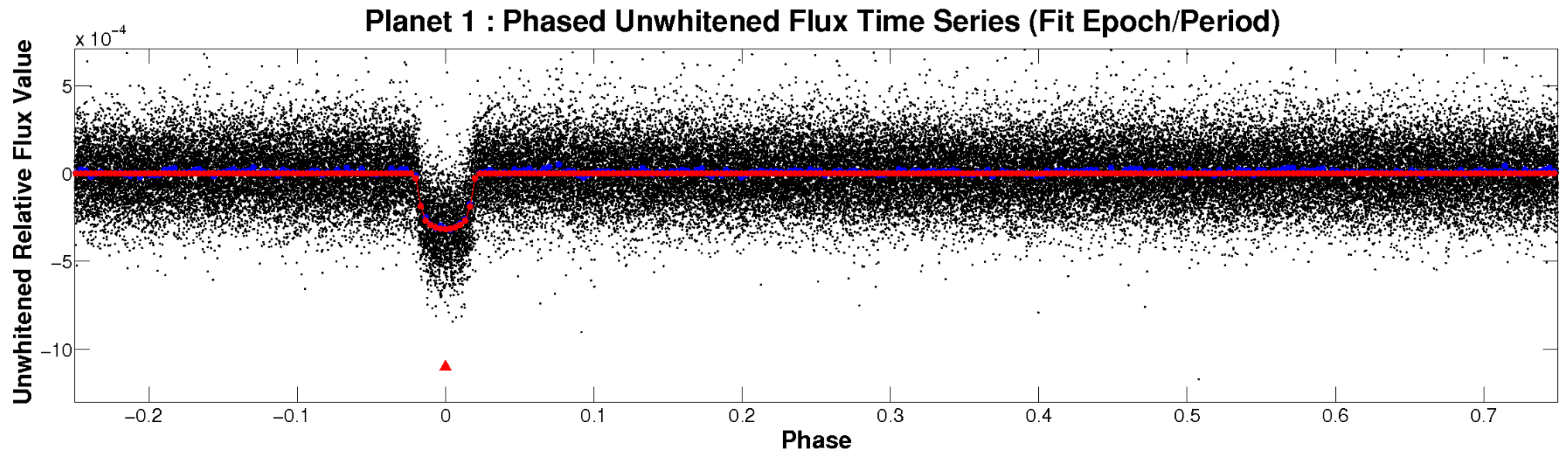


# ALT Odd/Even

TCE 003831053-01

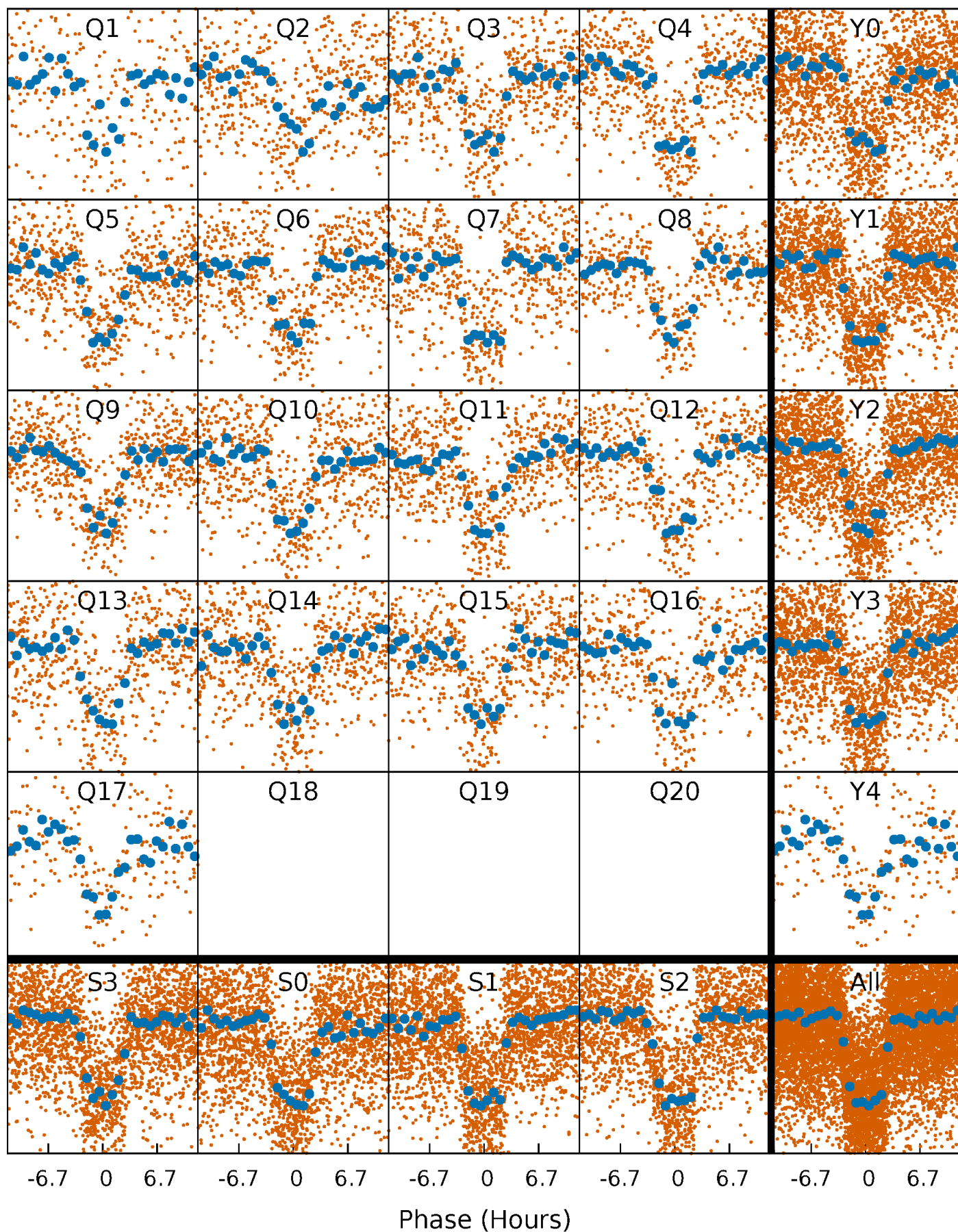


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

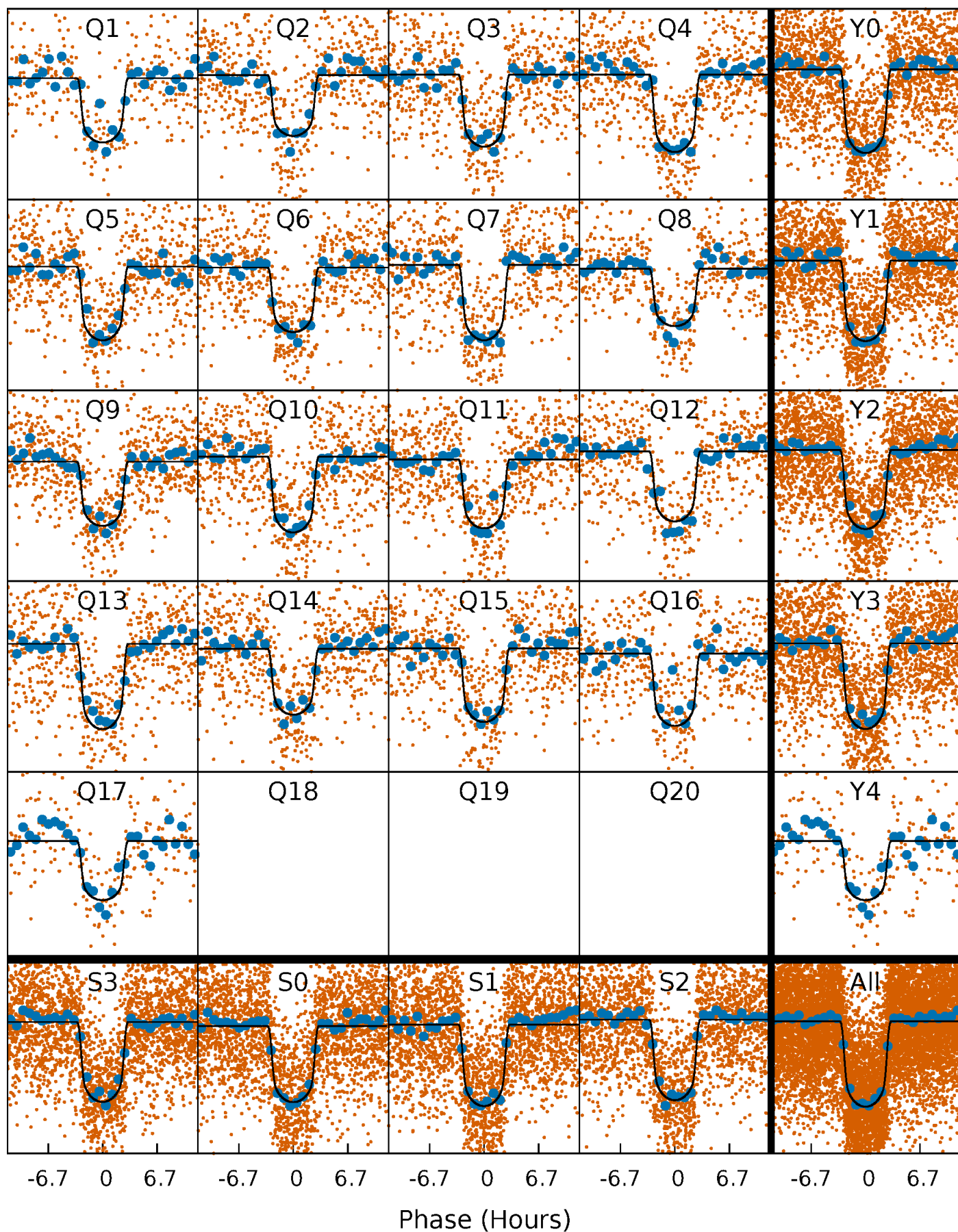
TCE 003831053-01 P= 6.149558 Days  $T_0=132.653949$  (BKJD)





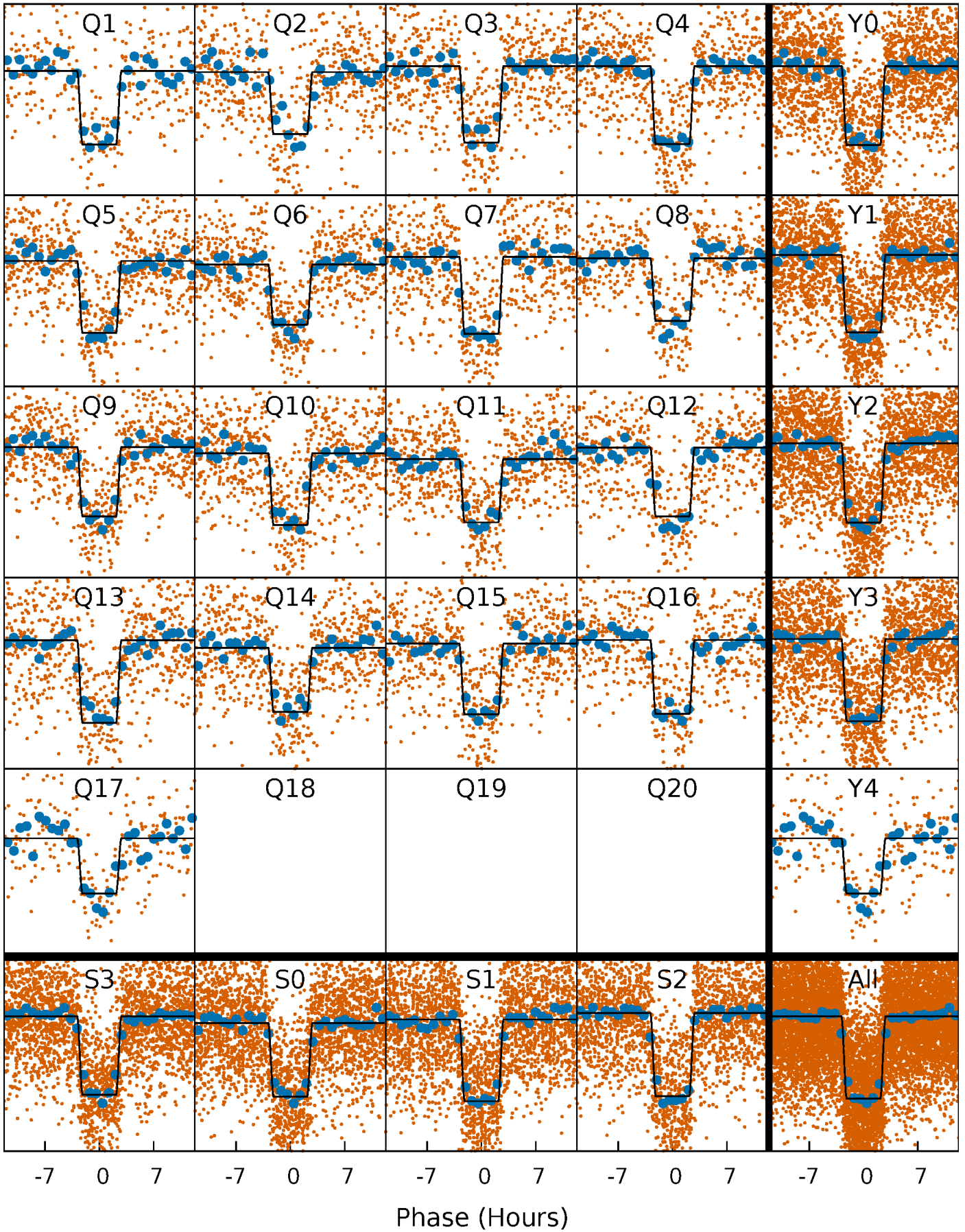
# DV Quarter-Phased Transit Curves

TCE 003831053-01 P= 6.149558 Days  $T_0=132.653949$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

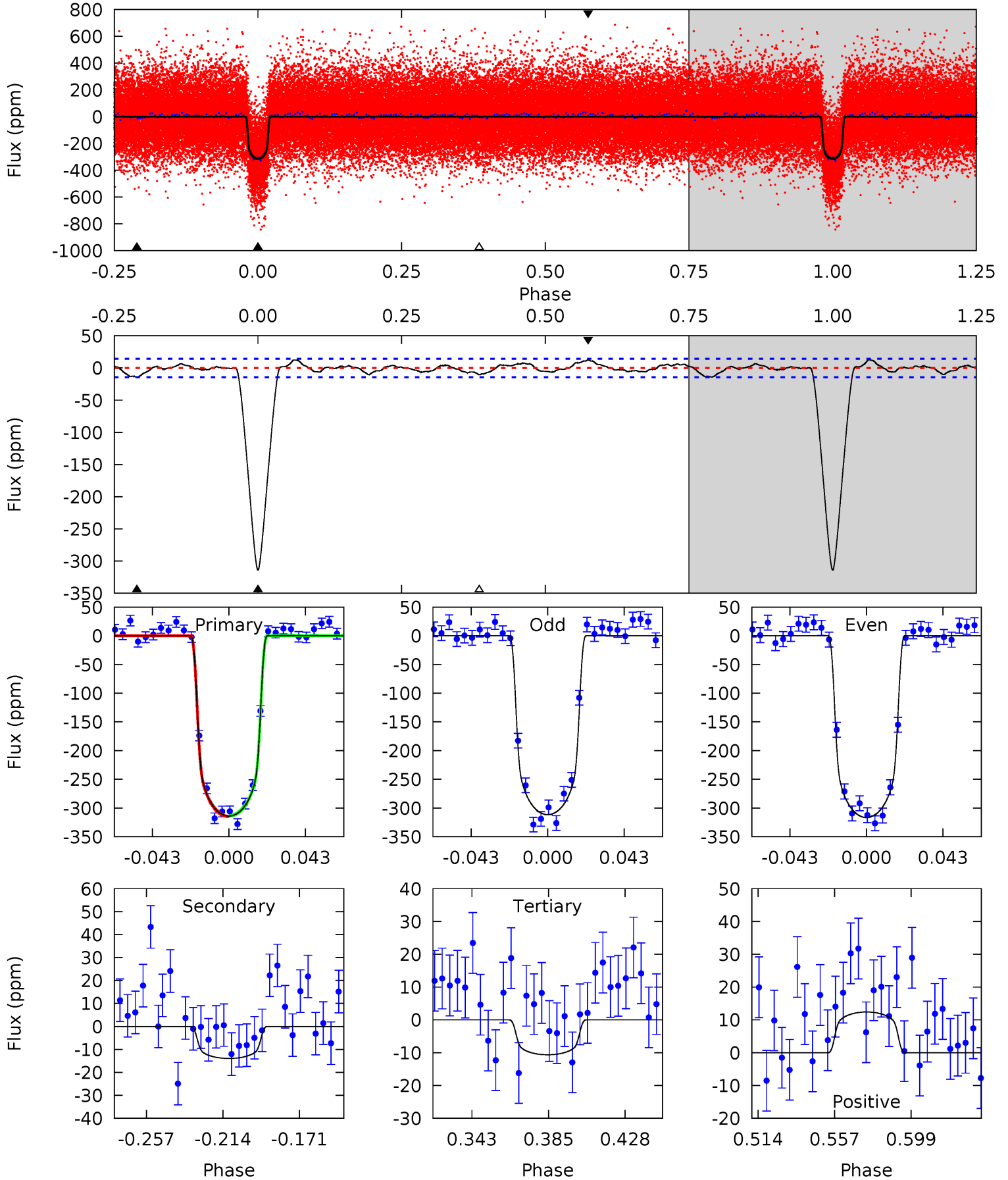
TCE 003831053-01 P= 6.149521 Days  $T_0=132.659784$  (BKJD)



# DV Model-Shift Uniqueness Test

003831053-01, P = 6.149558 Days, E = 126.504391 Days

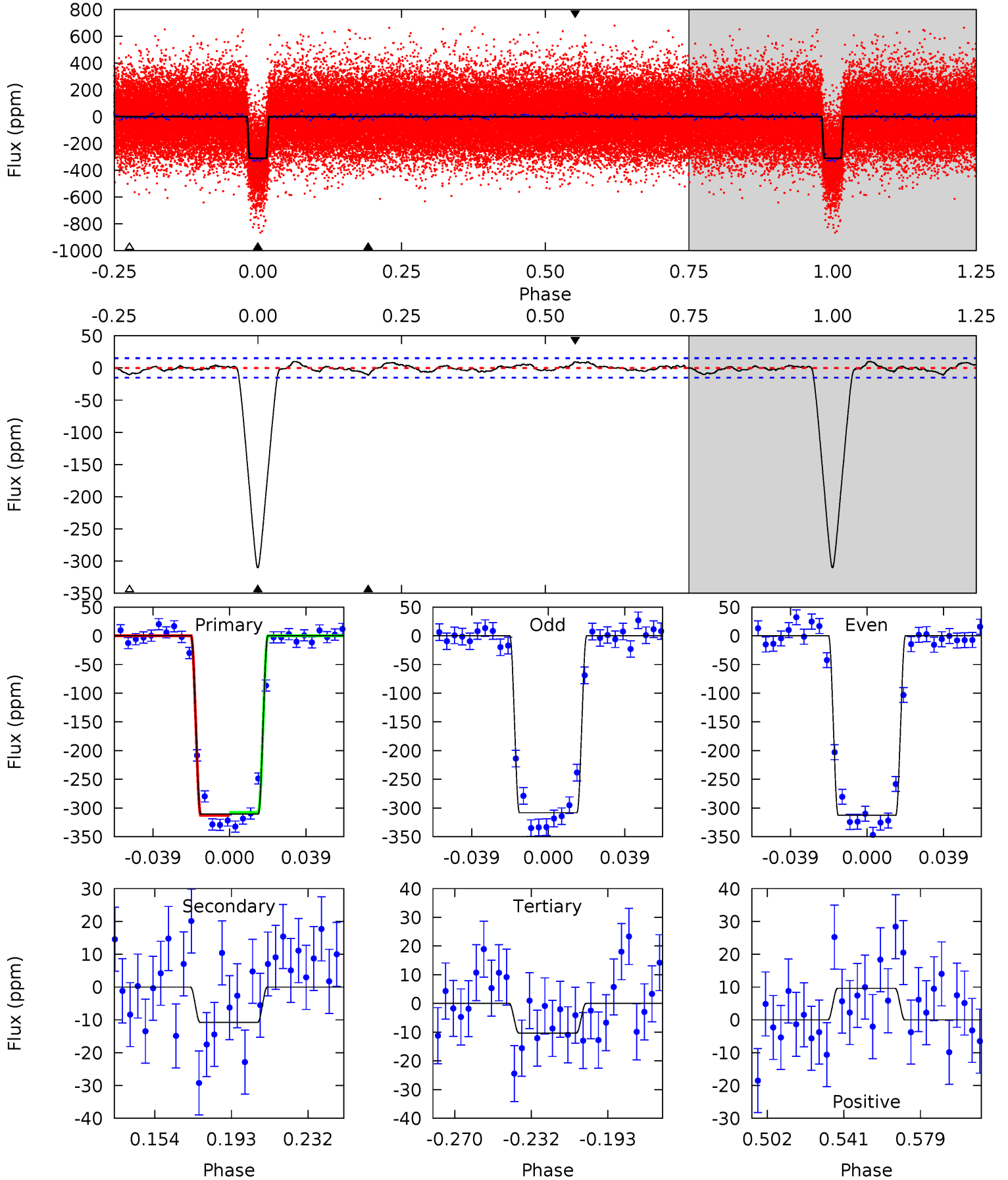
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.3	4.59	3.50	4.08	4.74	2.03	1.60	99.8	99.3	1.09	0.51	0.83	1.00	0.04	0.19



# Alt Model-Shift Uniqueness Test

003831053-01, P = 6.149521 Days, E = 126.510263 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
97.5	3.38	3.23	3.01	4.76	2.07	1.24	94.2	94.4	0.15	0.37	0.70	0.99	0.03	0.79





### Stellar Parameters For KIC 003831053

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5687^{+114}_{-103}$	$3.973^{+0.210}_{-0.090}$	$0.040^{+0.200}_{-0.150}$	$1.775^{+0.283}_{-0.460}$	$1.080^{+0.123}_{-0.123}$	$0.272^{+0.312}_{-0.075}$
	+2%/-2%	+5%/-2%	+500%/-375%	+16%/-26%	+11%/-11%	+115%/-28%
Source	SPE3	SPE3	SPE3	DSEP		

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

### Secondary Eclipse Parameters for KIC 003831053-01 / KOI 0388.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-14 \pm 3$	$3.72^{+0.37}_{-0.52}$	$1781^{+83}_{-117}$	$3062^{+123}_{-127}$	$2.600^{+0.969}_{-0.686}$
Alt.	$-11 \pm 3$	$3.41^{+0.35}_{-0.47}$	$1784^{+83}_{-121}$	$3014^{+146}_{-165}$	$2.343^{+1.043}_{-0.761}$

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

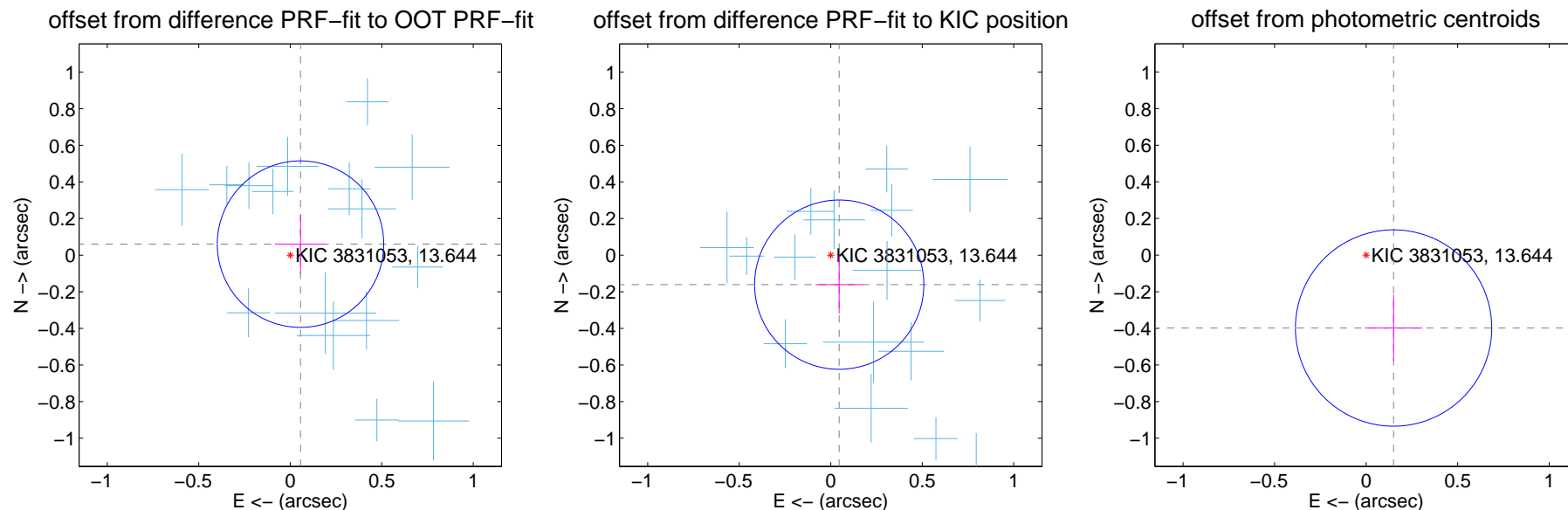
## DV Centroid Data

Supplemental centroid analysis for 003831053-01. Kepler magnitude: 13.64. Transit SNR 73.98

There are 17 quarters with good PRF difference image offsets

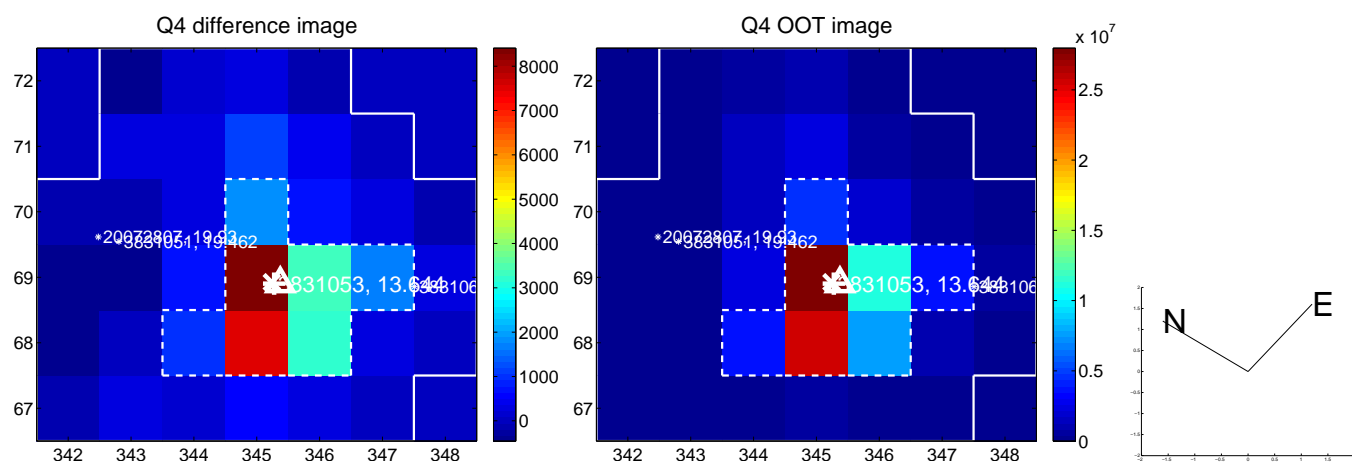
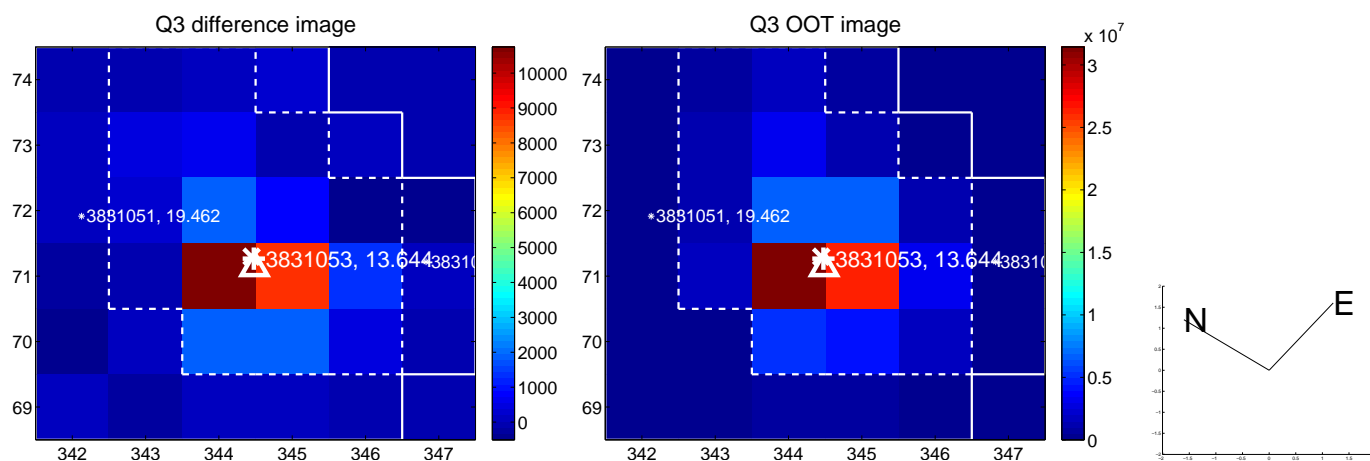
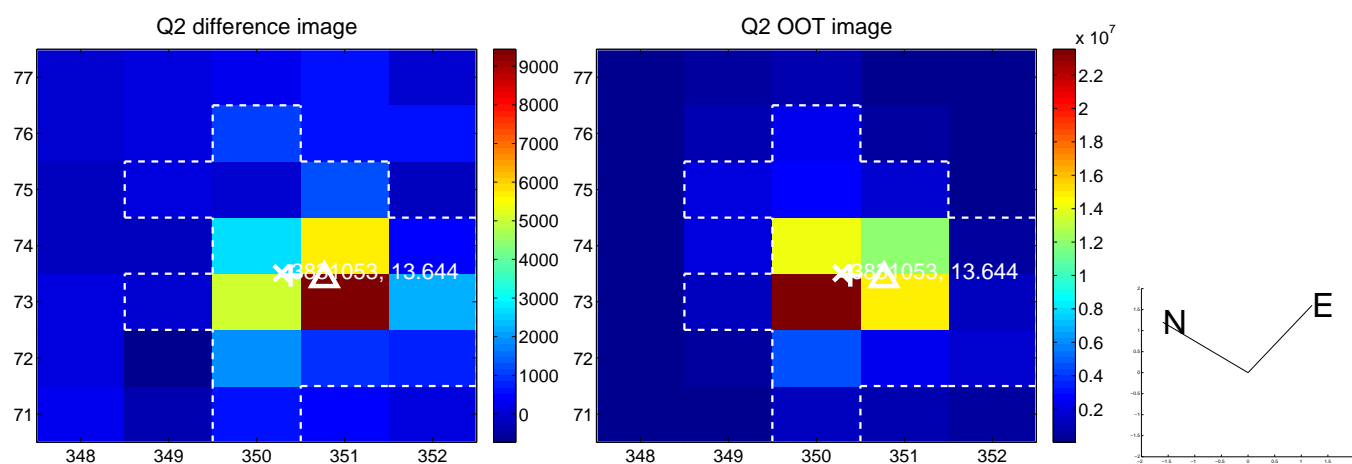
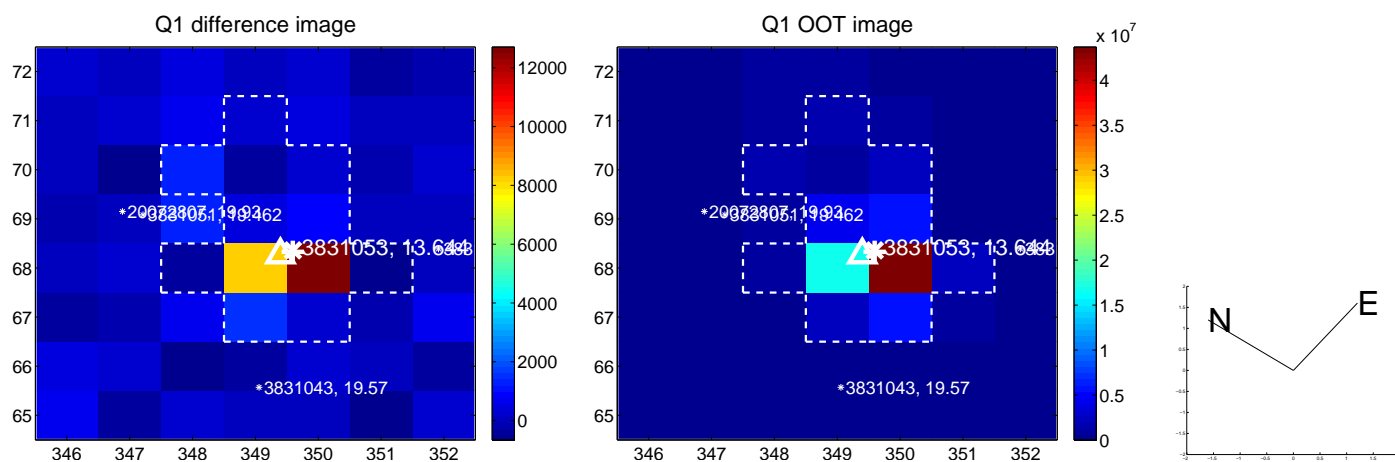
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.082 \pm 0.152$	0.54	$-0.056 \pm 0.139$	$0.060 \pm 0.162$
PRF-fit source offset from KIC position	$0.168 \pm 0.154$	1.09	$-0.046 \pm 0.129$	$-0.161 \pm 0.159$
photometric centroid source offset	$0.43 \pm 0.18$	2.38	$-0.15 \pm 0.16$	$-0.40 \pm 0.18$

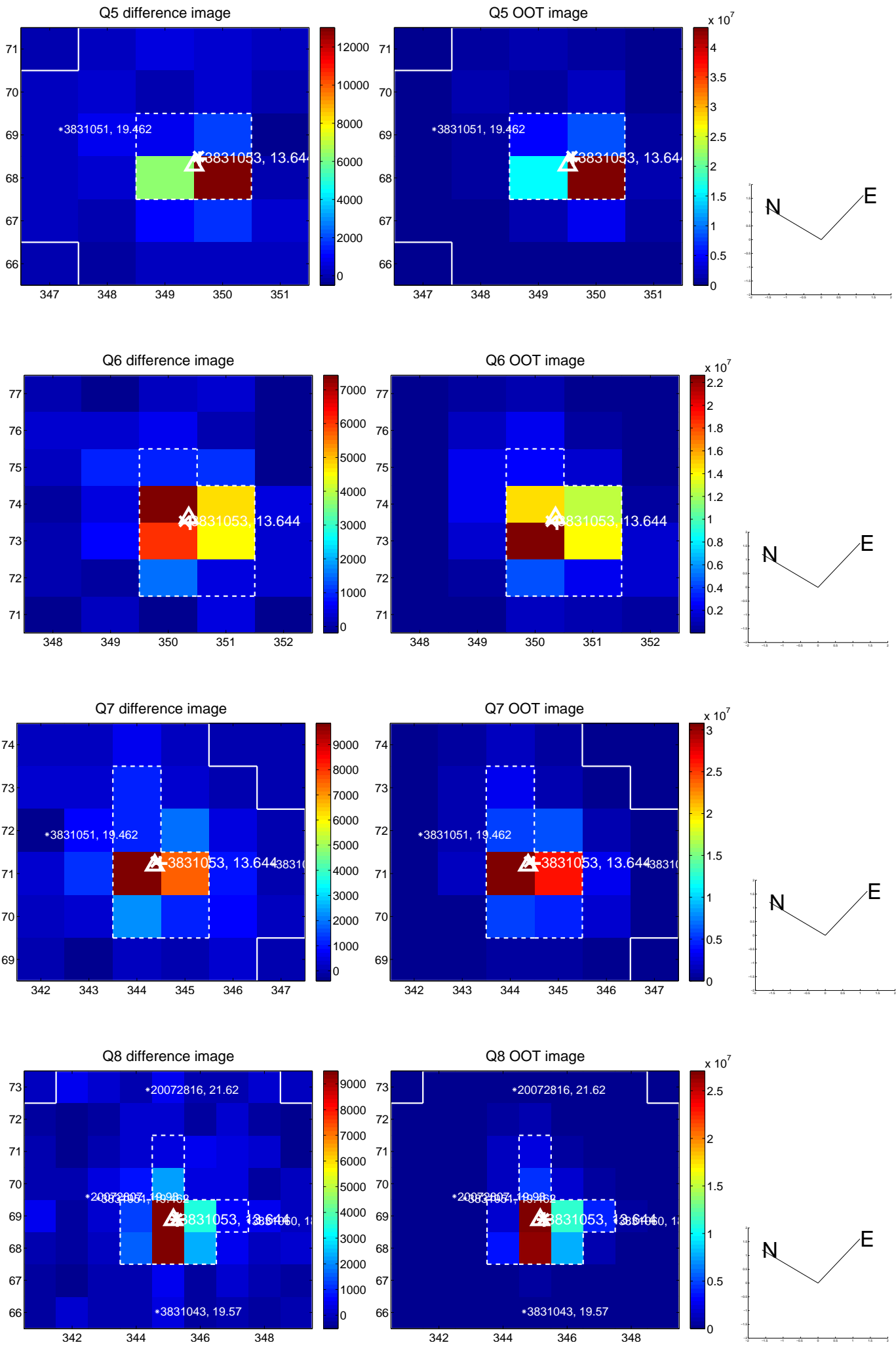


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



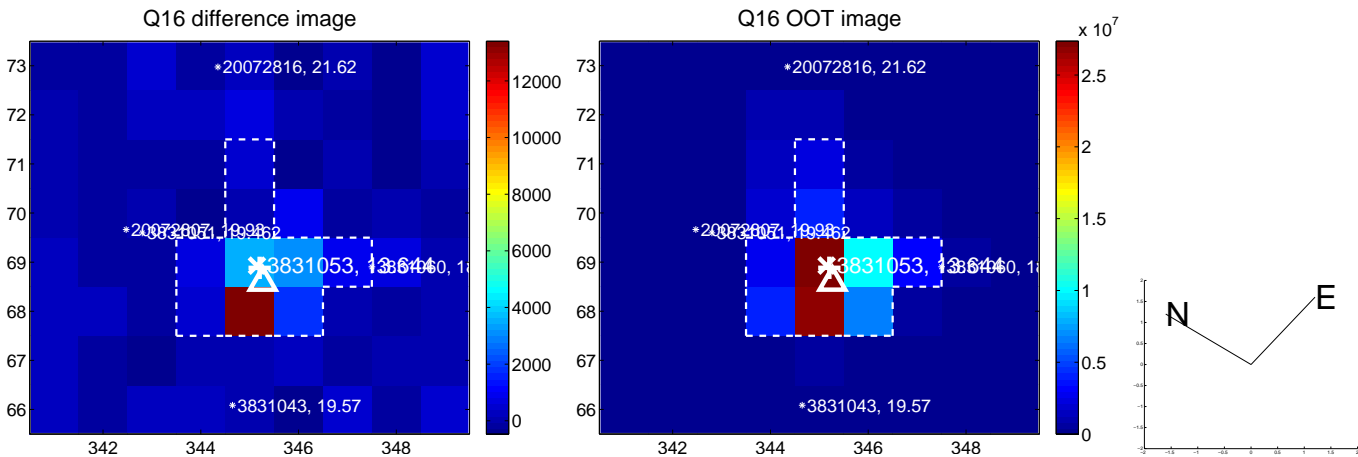
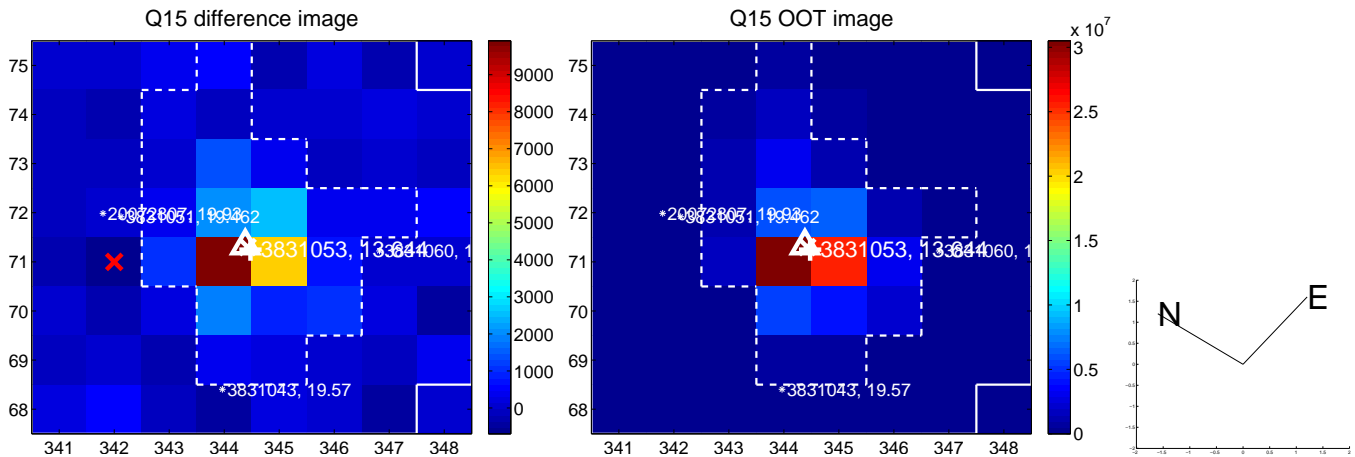
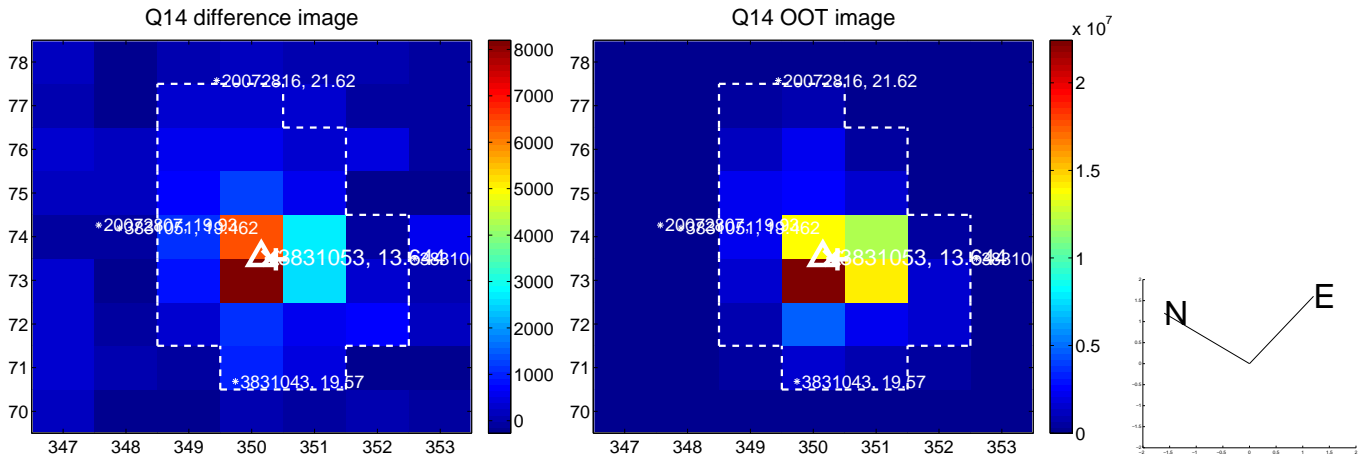
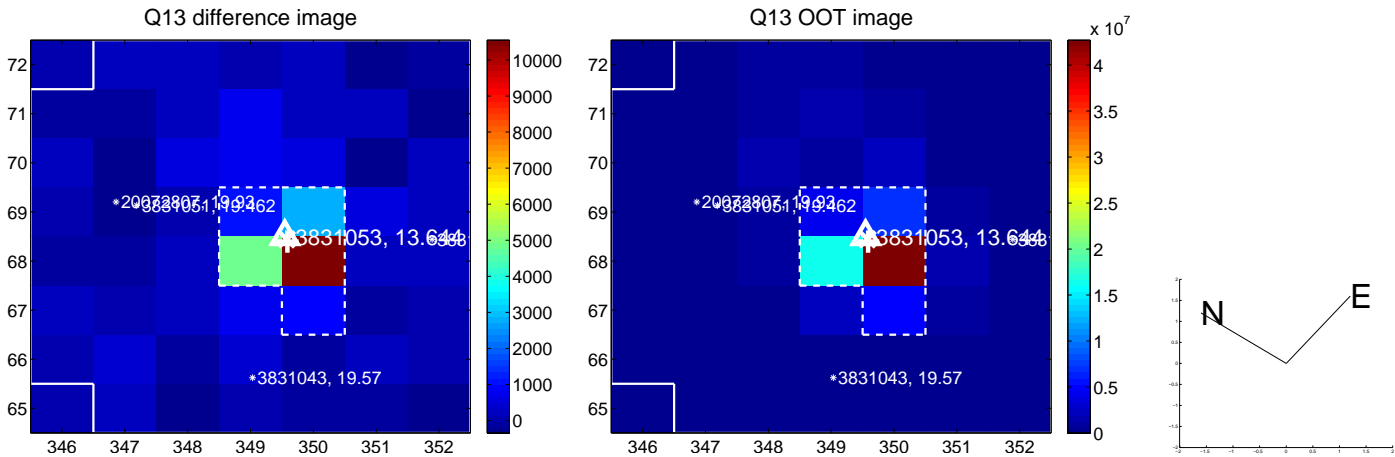
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



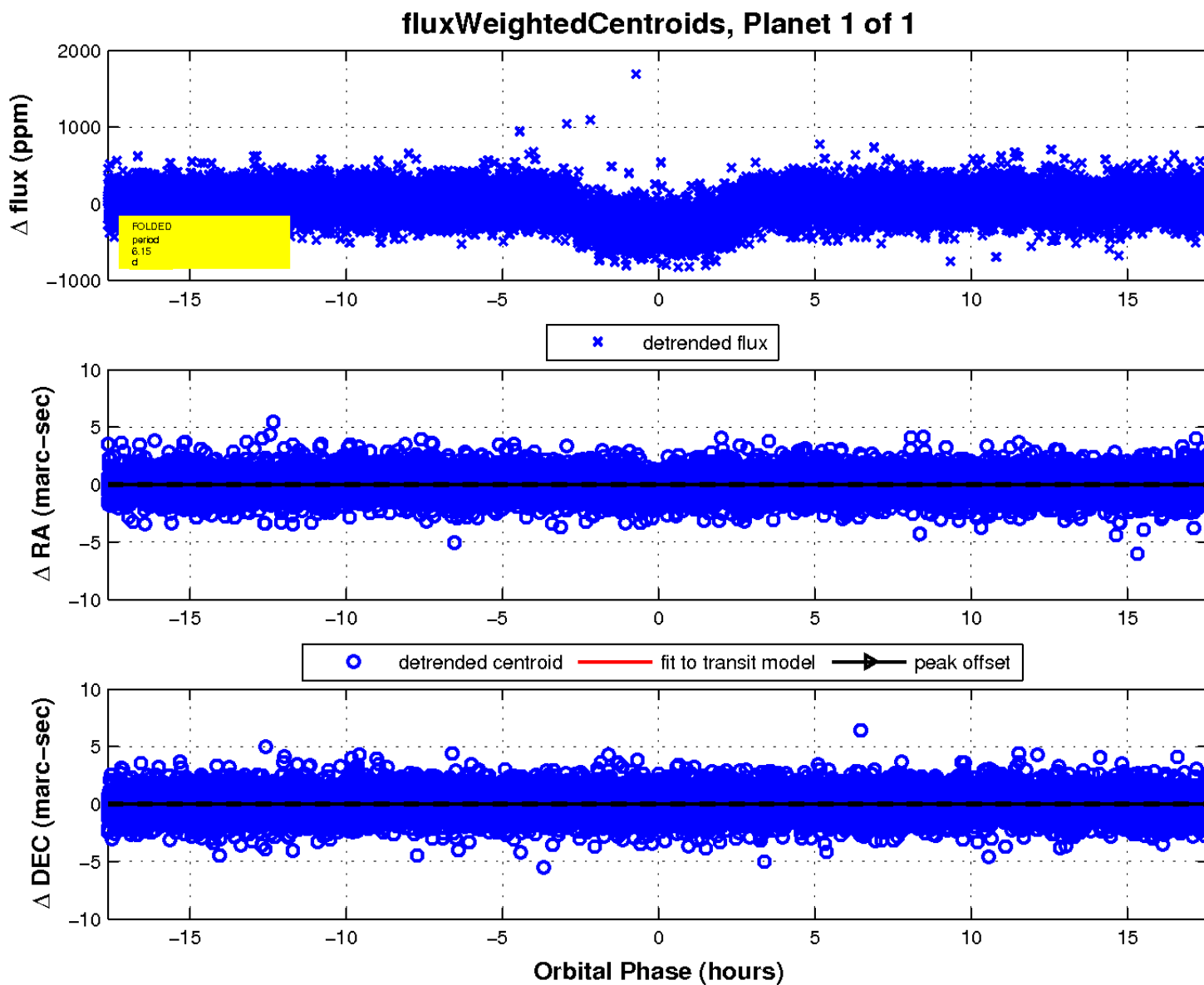
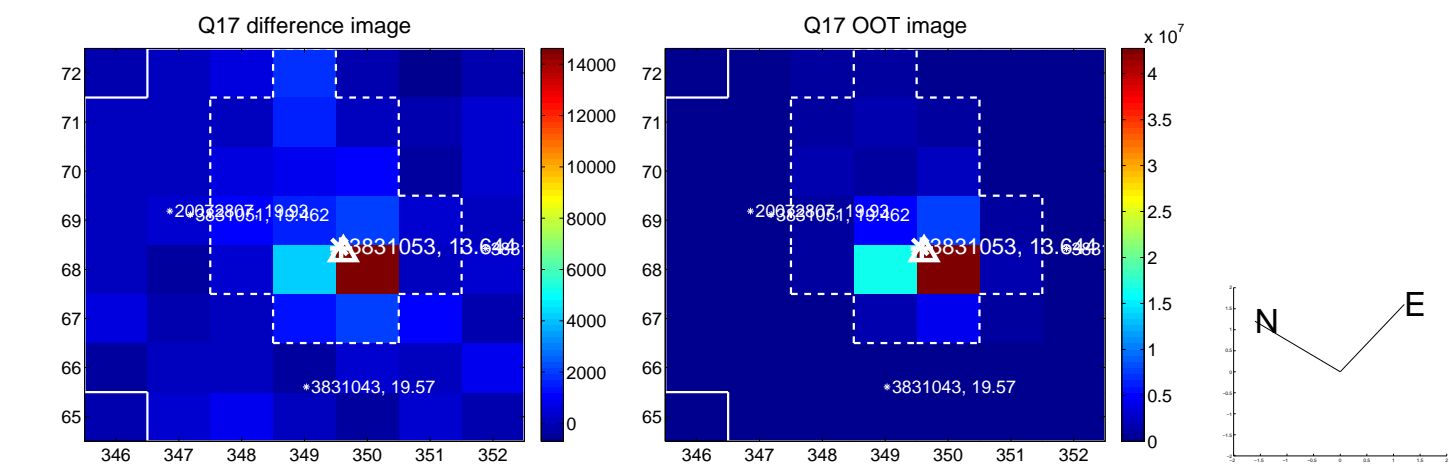




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

