

# KIC 004863753

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004863753-01	OBS	6466.01	1.000032	131.747959	24.3	1.956	9.3	9.8	3.60	5176	2.18	15804.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004863753-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

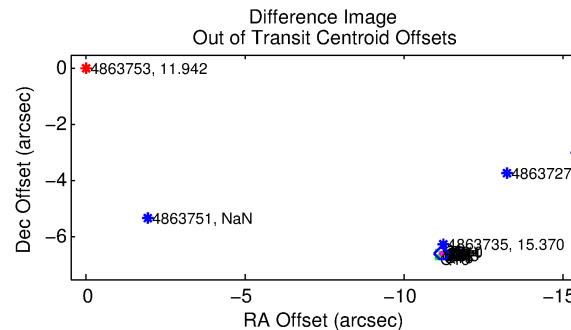
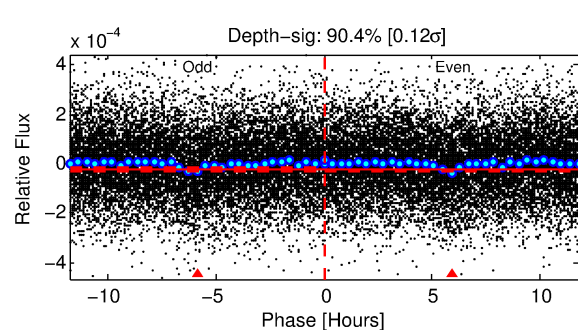
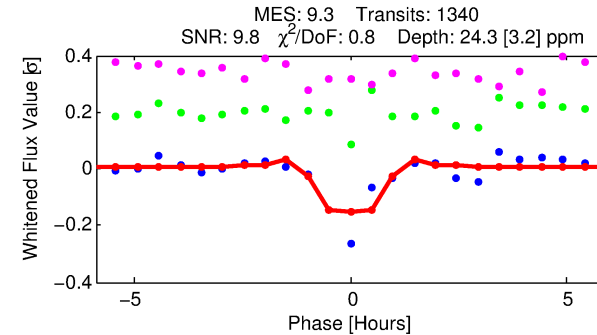
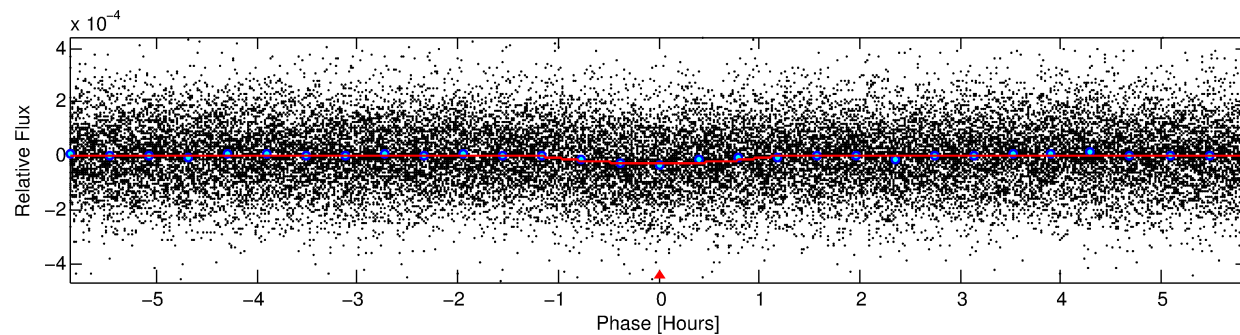
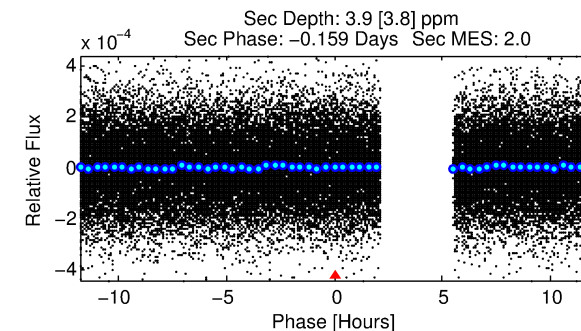
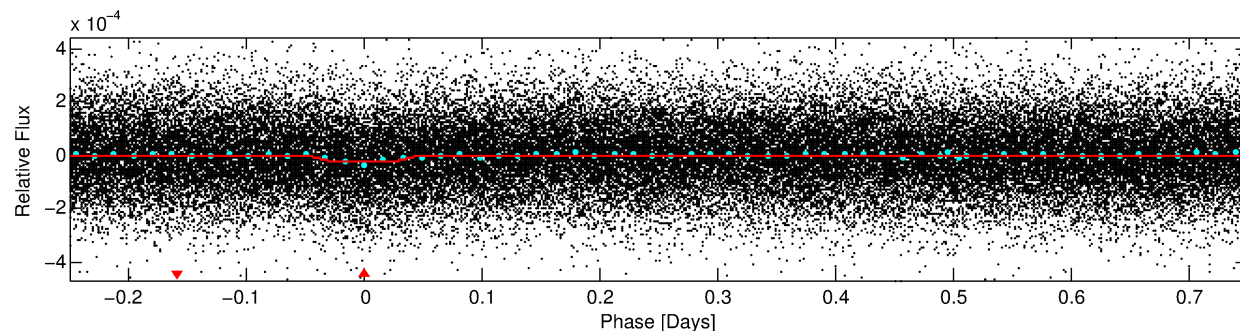
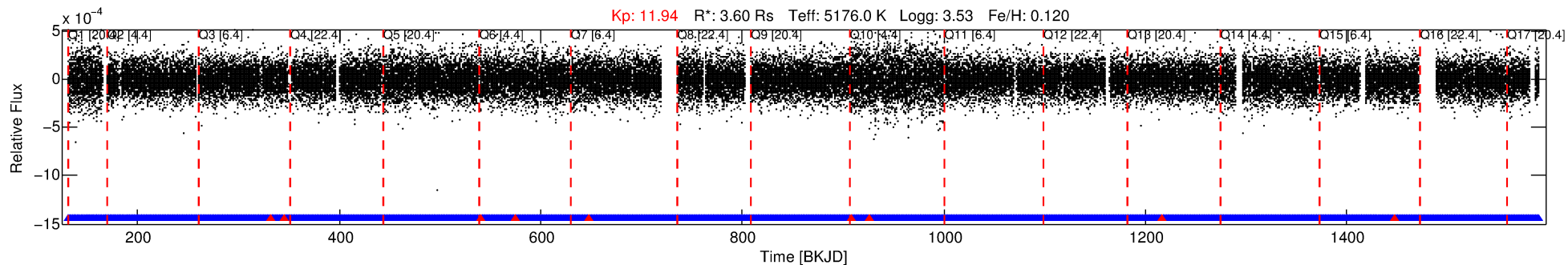
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004863753-01

No Significant Match Found

# DV One-Page Summary

KIC: 4863753 Candidate: 1 of 1 Period: 1.000 d  
KOI: K06466.01 Corr: 0.802



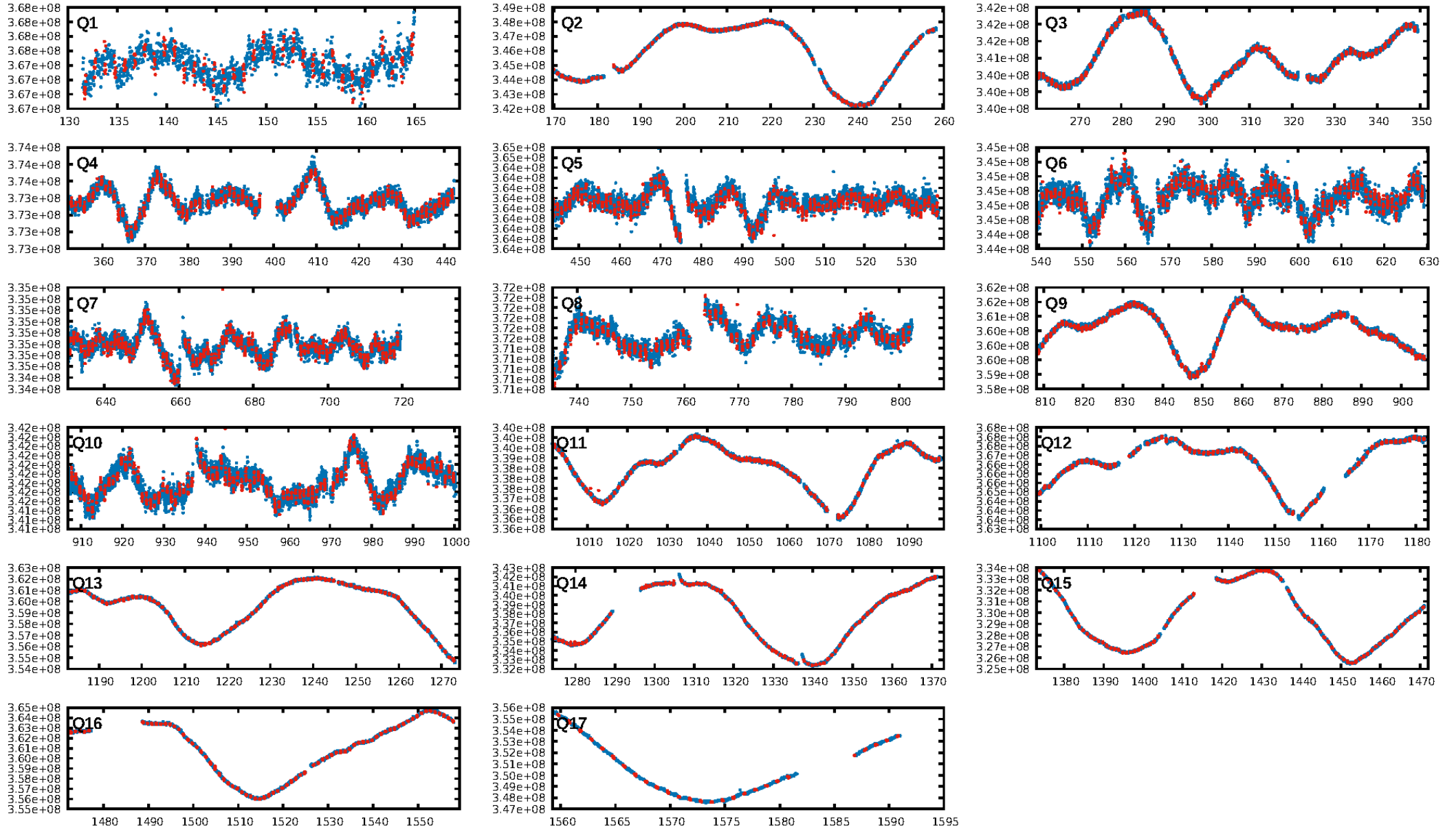
## DV Fit Results:

Period = 1.00003 [0.00001] d  
Epoch = 131.7480 [0.0022] BKJD  
Rp/R\* = 0.0055 [0.0025]  
a/R\* = 1.92 [2.69]  
b = 0.91 [0.38]  
Seff = 15804.82 [6572.18]  
Teq = 2859 [297] K  
Rp = 2.18 [1.22] Re  
a = 0.0230 [0.0064] AU  
Ag = 0.24 [0.33] [-2.27σ]  
Teffp = 3099 [1028] K [0.22σ]

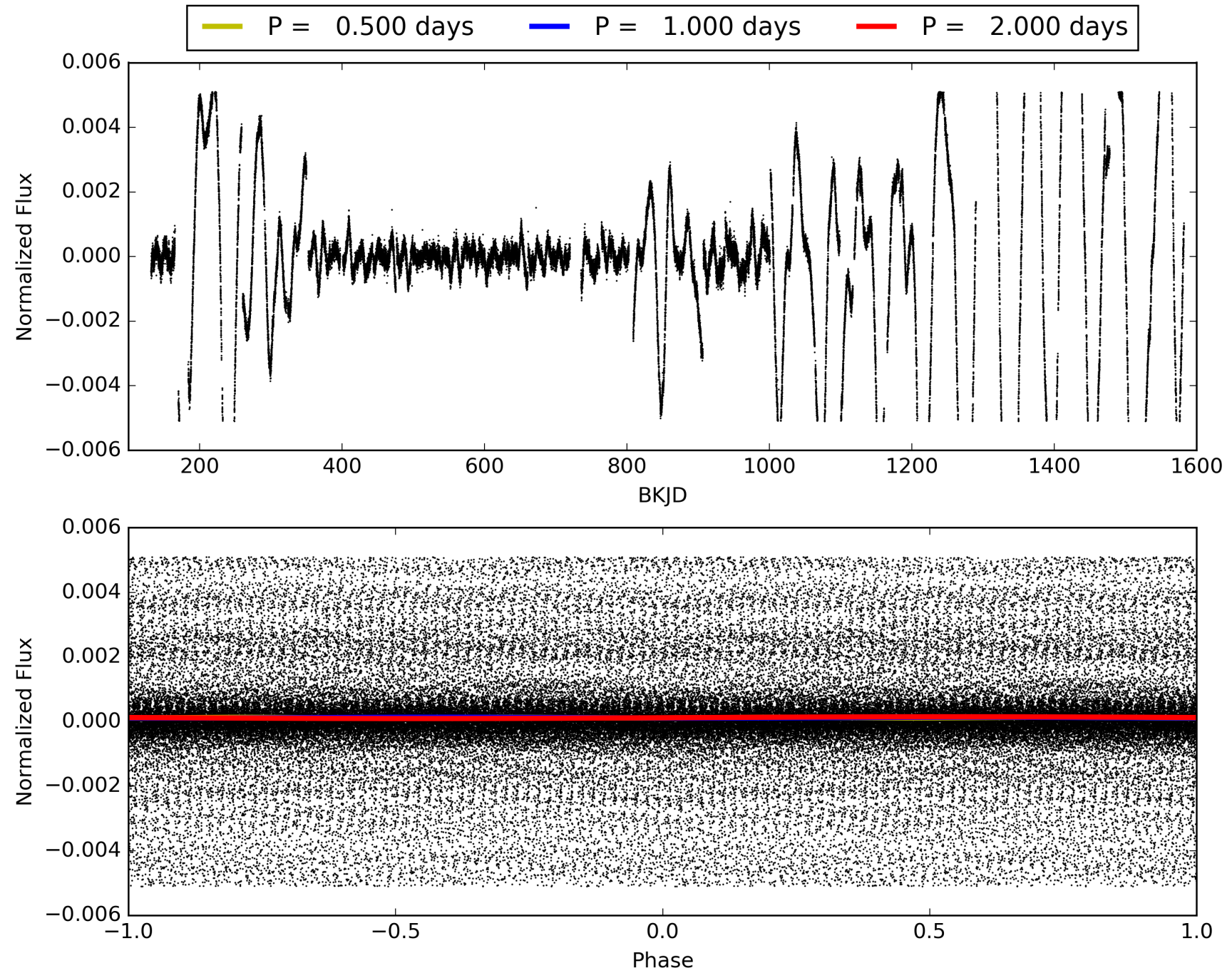
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 2.61e-18  
RollingBand-fgt: 0.99 [1270/1279]  
GhostDiagnostic-chr: -3.542  
Centroid-sig: 0.0%  
Centroid-so: 4.290 arcsec [4.93σ]  
OotOffset-rm: 12.986 arcsec [185.62σ]  
KicOffset-rm: 12.969 arcsec [186.25σ]  
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 004863753-01, PDC Light Curves

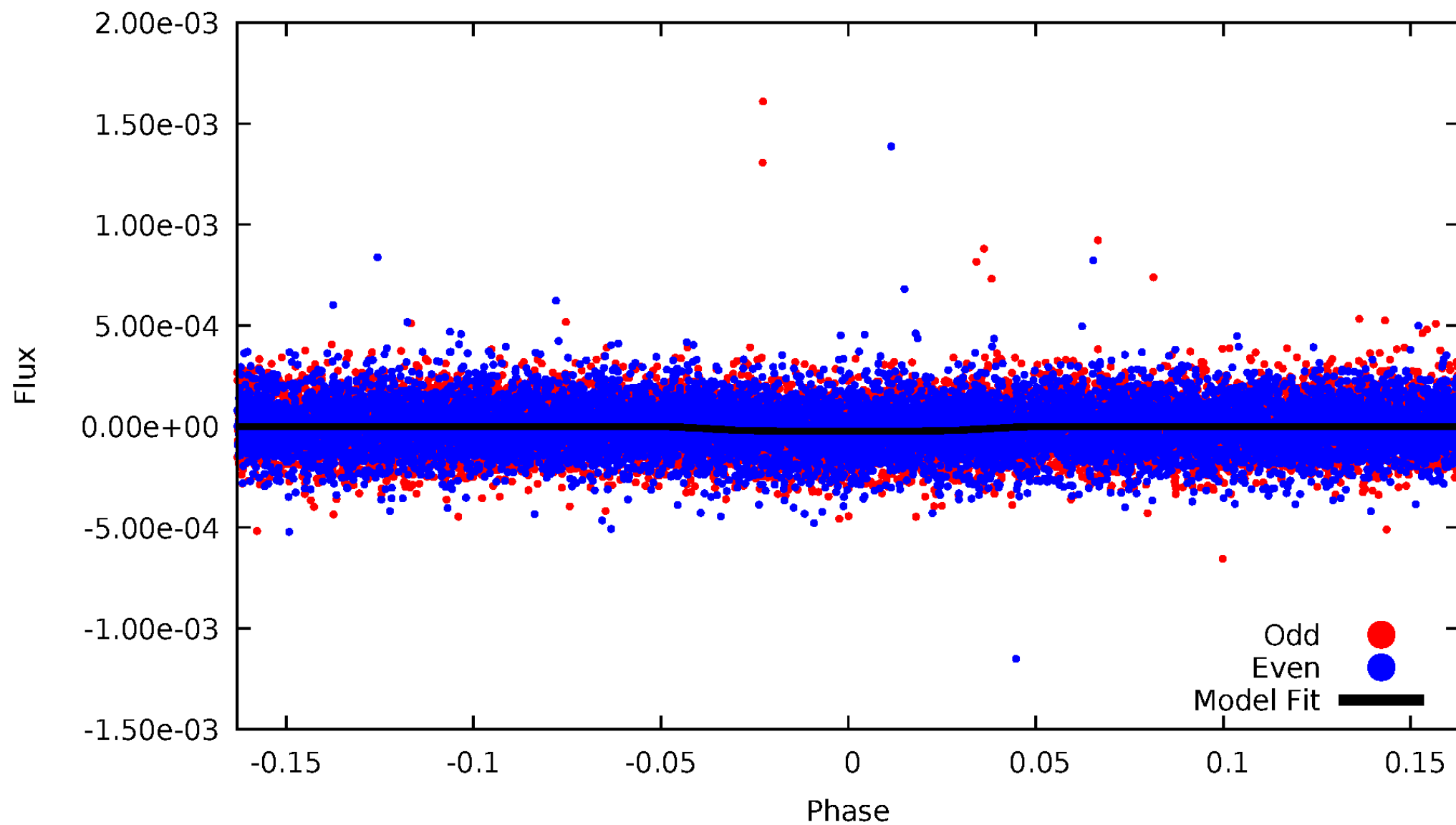


TCE 004863753-01



# DV Odd/Even

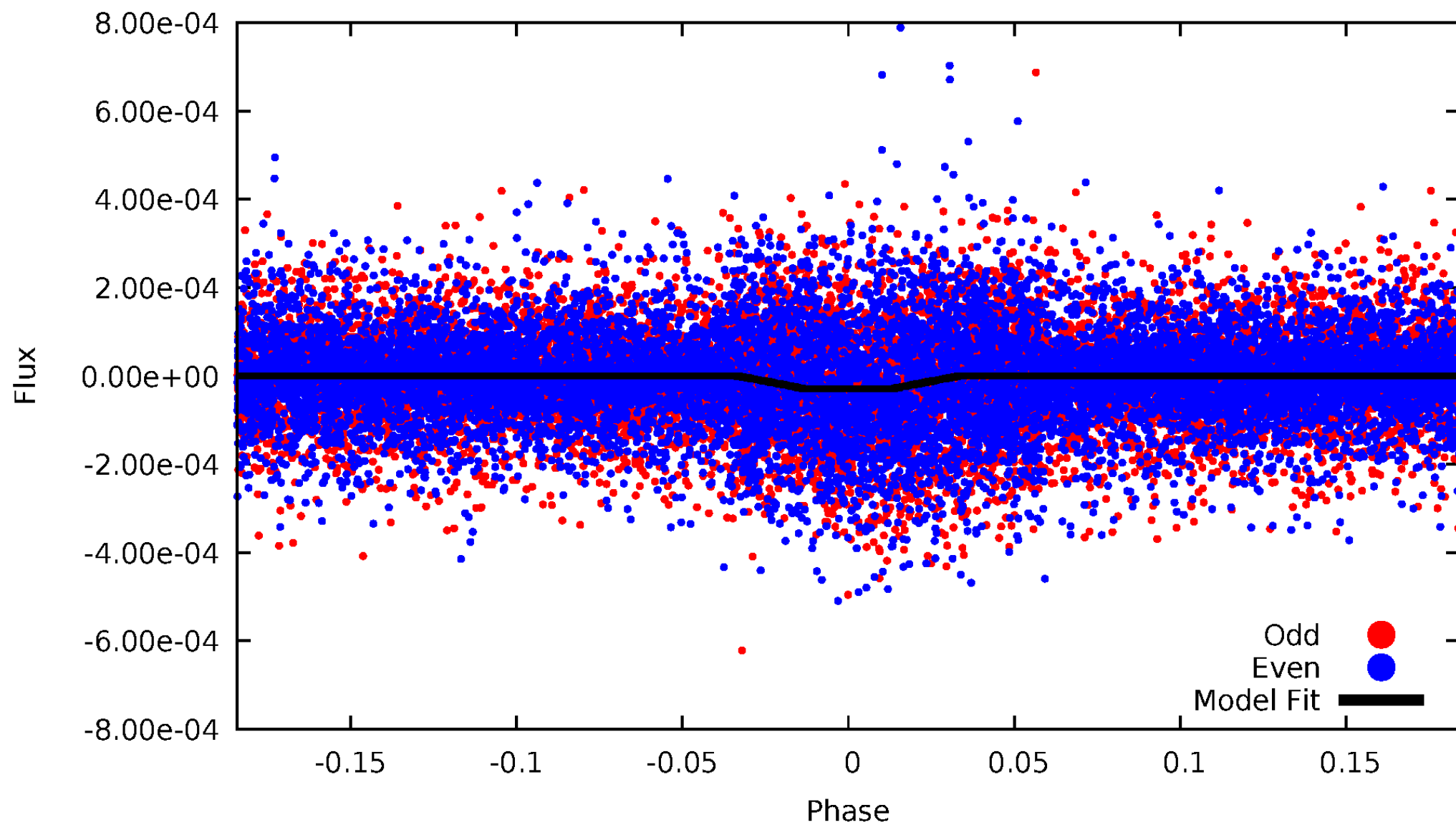
TCE 004863753-01





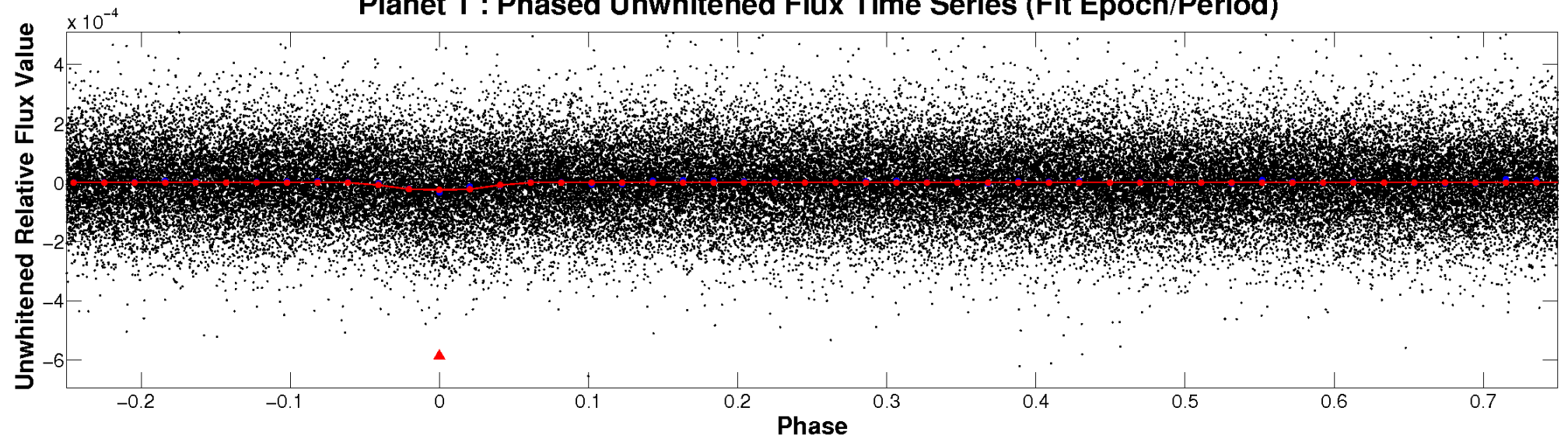
# ALT Odd/Even

TCE 004863753-01

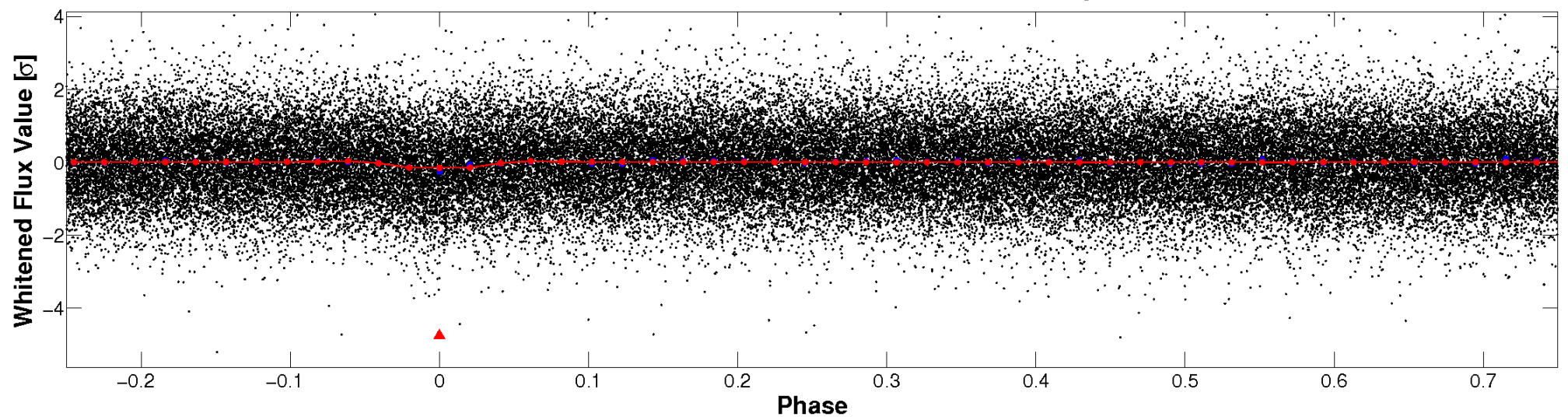


# Non-Whitened Vs. Whitened Light Curve

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

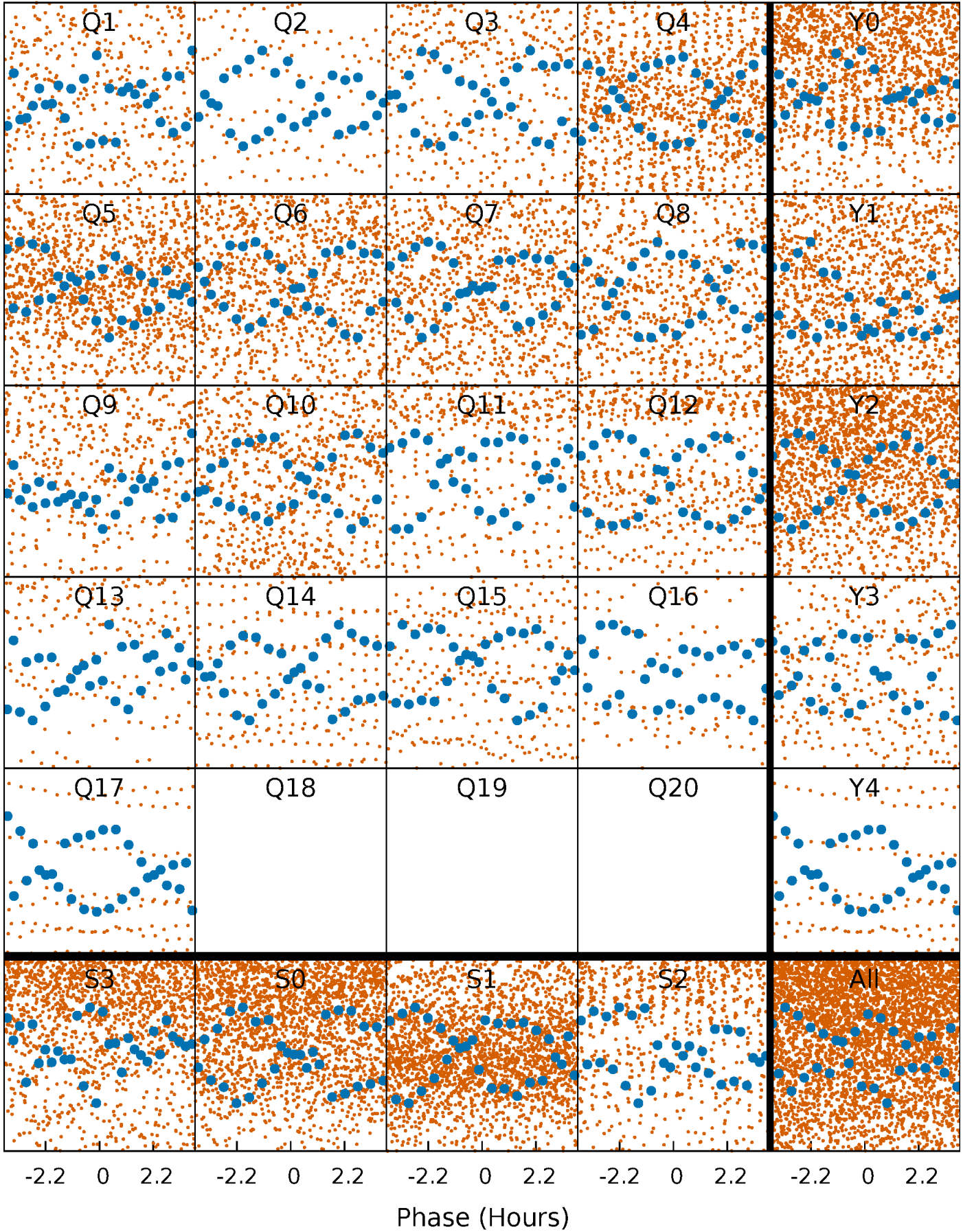


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

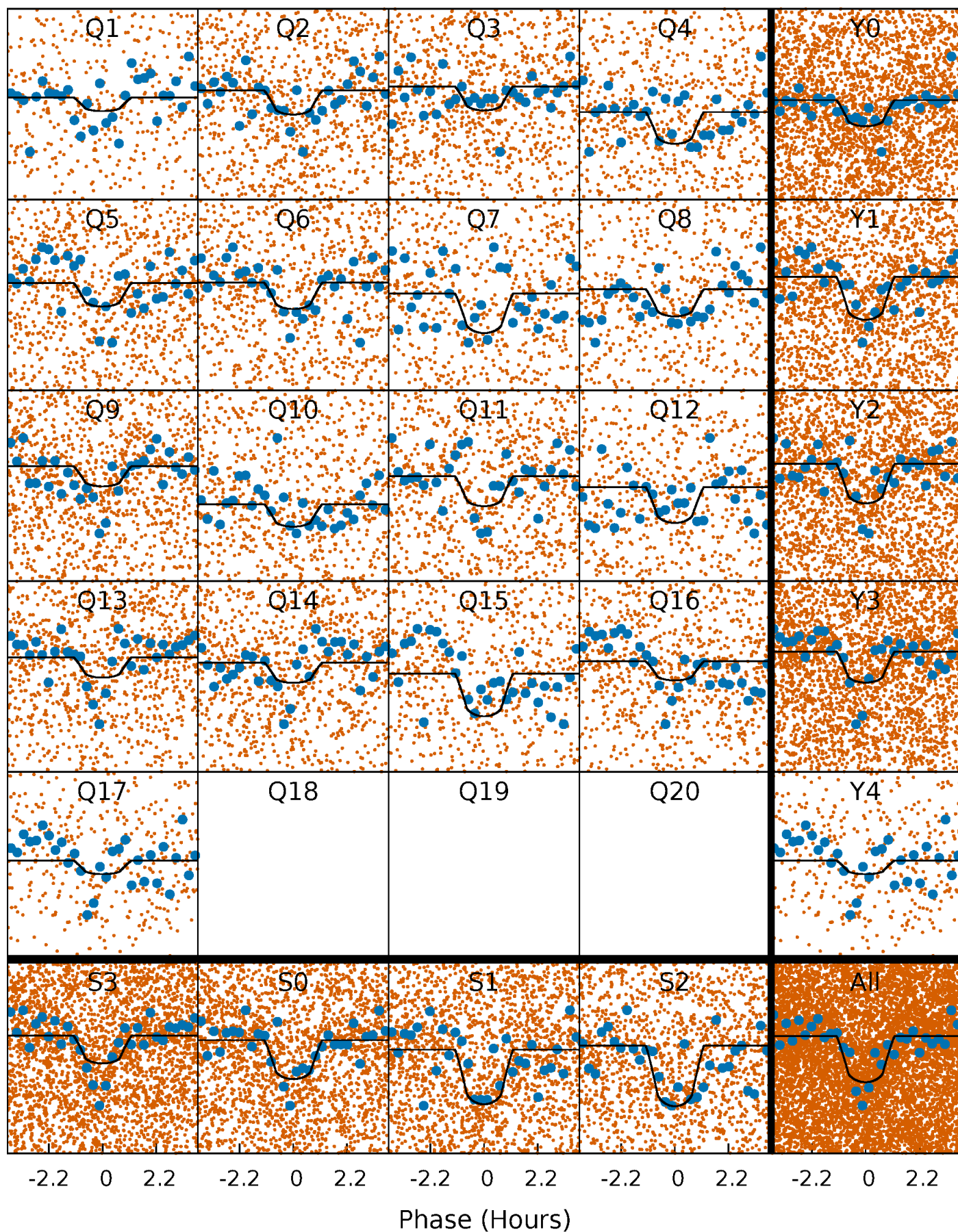
TCE 004863753-01   P= 1.000032 Days    $T_0=131.747959$  (BKJD)





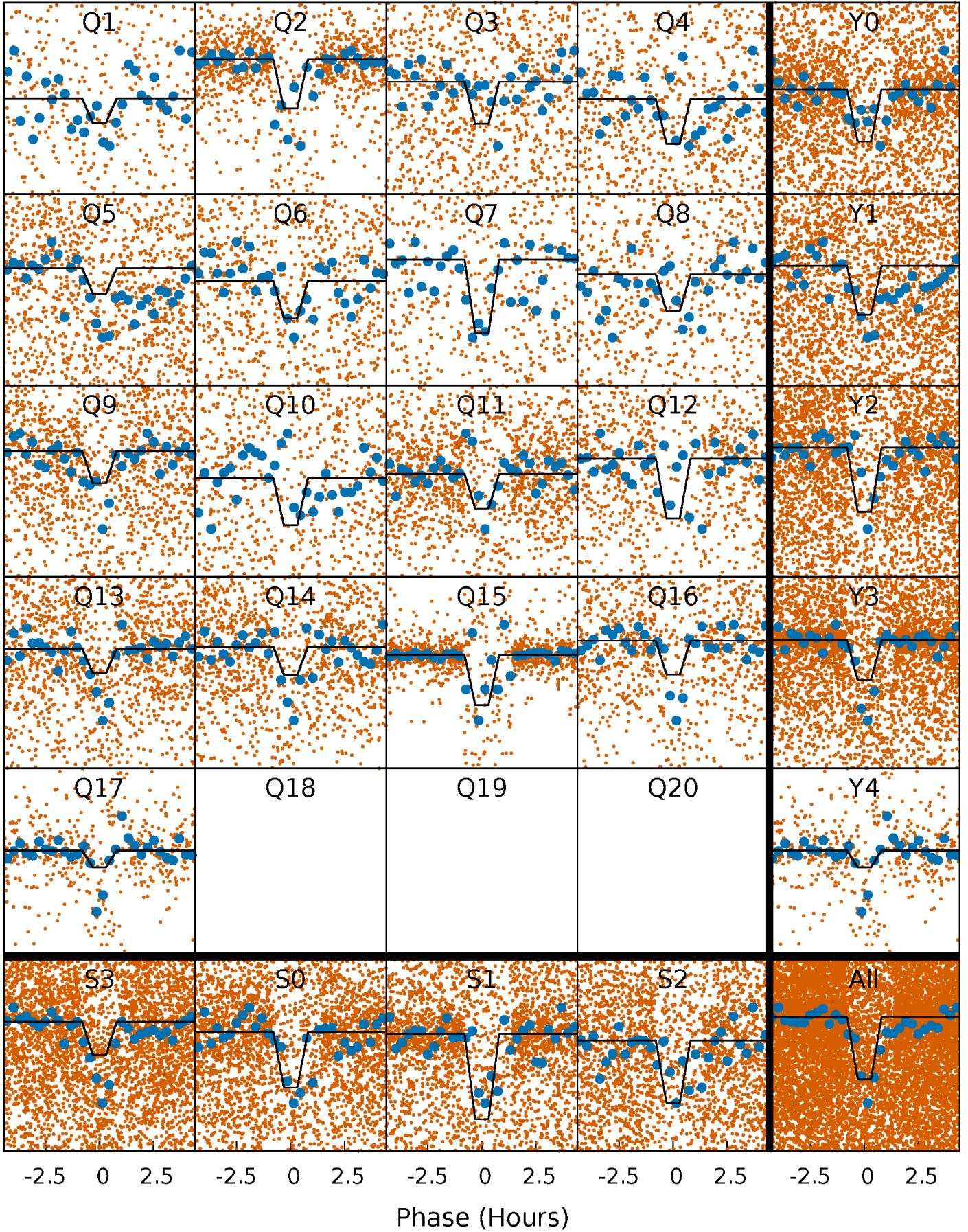
# DV Quarter-Phased Transit Curves

TCE 004863753-01 P= 1.000032 Days  $T_0=131.747959$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004863753-01 P= 1.000020 Days  $T_0=131.746185$  (BKJD)

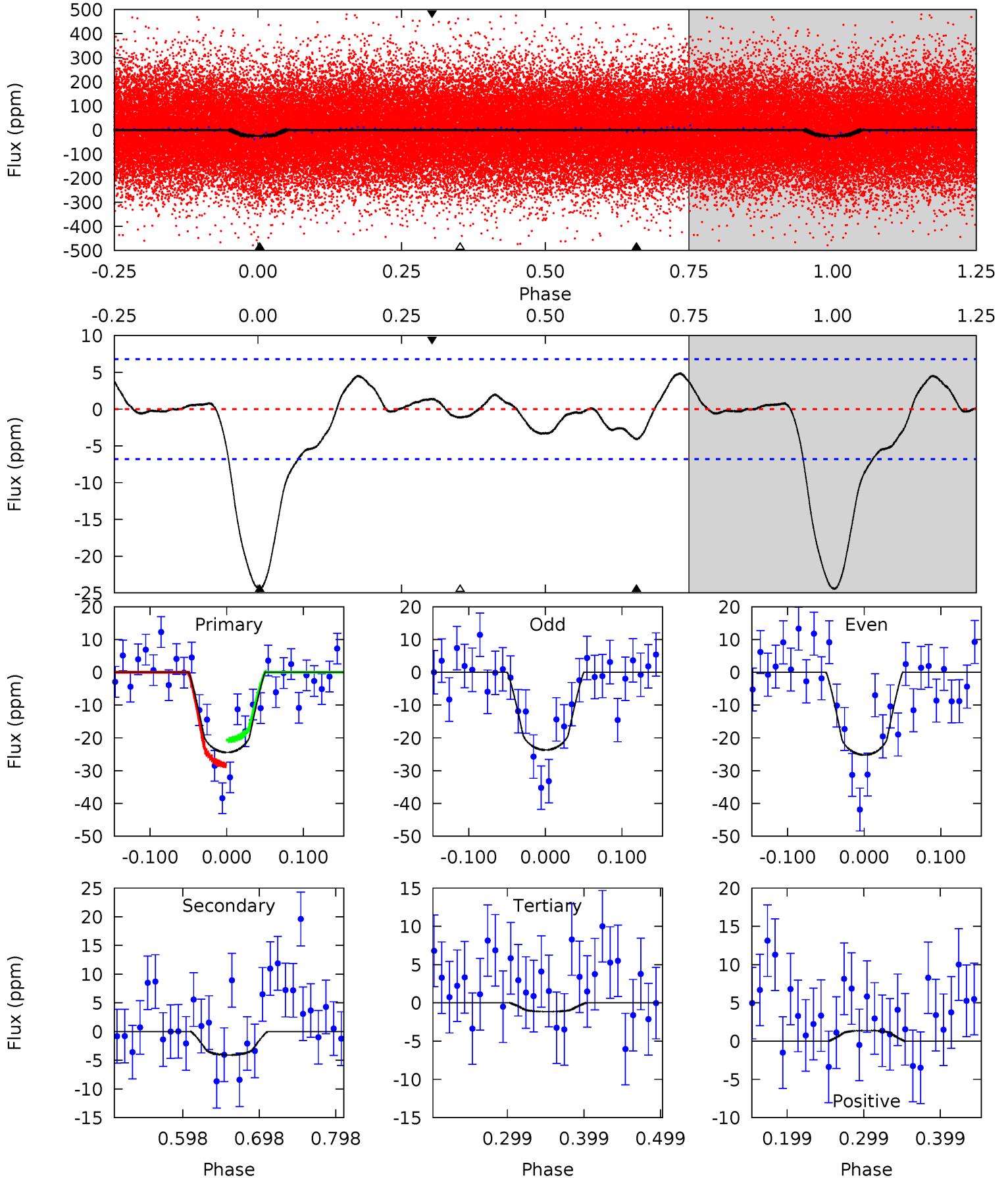




# DV Model-Shift Uniqueness Test

004863753-01, P = 1.000032 Days, E = 130.747927 Days

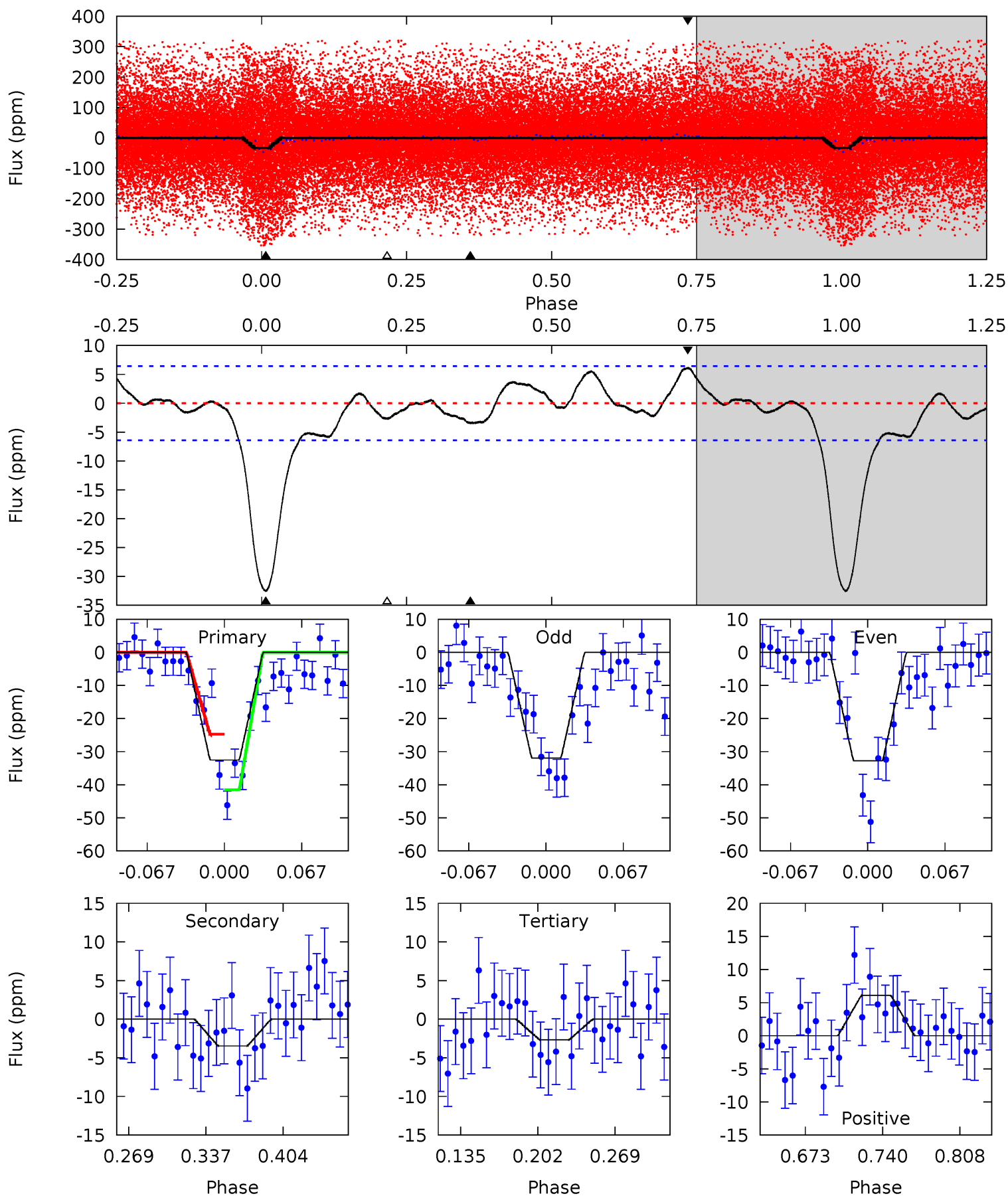
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	2.74	0.77	0.93	4.57	1.65	1.22	15.6	15.5	1.97	1.81	0.51	1.00	0.17	2.56



# Alt Model-Shift Uniqueness Test

004863753-01, P = 1.000020 Days, E = 130.746165 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
23.5	2.50	1.93	4.42	4.65	1.83	1.90	21.6	19.1	0.57	-1.91	0.29	1.08	0.16	6.10





### Stellar Parameters For KIC 004863753

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5176^{+72}_{-103}$	$3.534^{+0.224}_{-0.096}$	$0.120^{+0.150}_{-0.200}$	$3.605^{+0.595}_{-1.189}$	$1.621^{+0.152}_{-0.425}$	$0.049^{+0.067}_{-0.015}$
	+1%/-2%	+6%/-3%	+125%/-167%	+17%/-33%	+9%/-26%	+138%/-31%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 004863753-01 / KOI 6466.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 1$	$2.05^{+1.02}_{-0.87}$	$3959^{+179}_{-260}$	$-2584^{+6575}_{-830}$	$0.269^{+0.608}_{-0.161}$
Alt.	$-3 \pm 1$	$1.98^{+0.99}_{-0.97}$	$3950^{+197}_{-275}$	$-2798^{+6902}_{-646}$	$0.247^{+0.667}_{-0.153}$

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

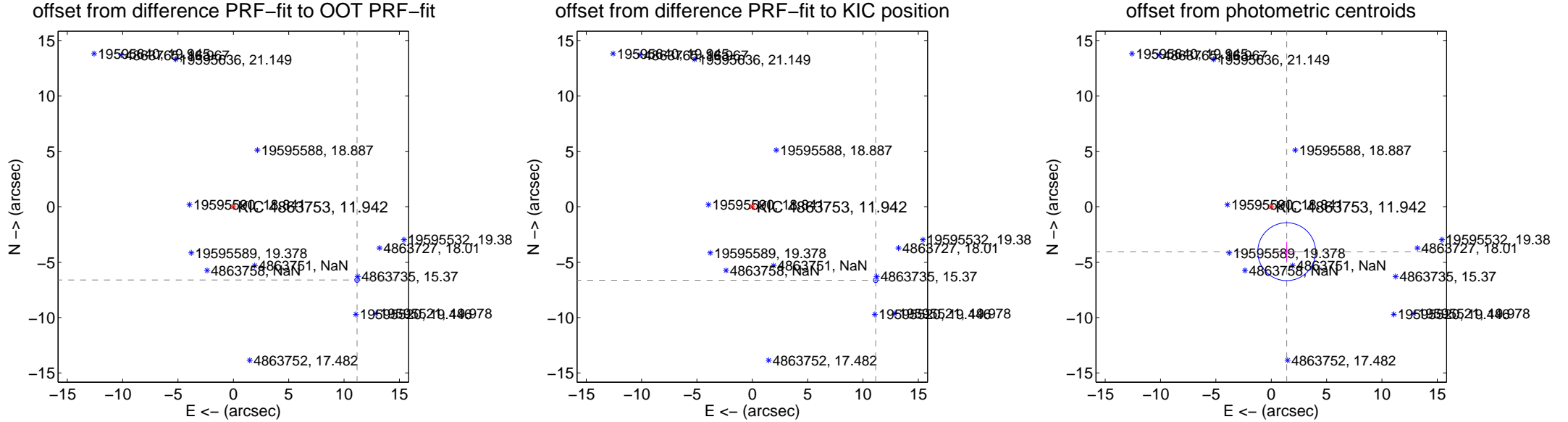
## DV Centroid Data

Supplemental centroid analysis for 004863753-01. **Kepler magnitude: 11.94.** Transit SNR 9.81

There are 17 quarters with good PRF difference image offsets

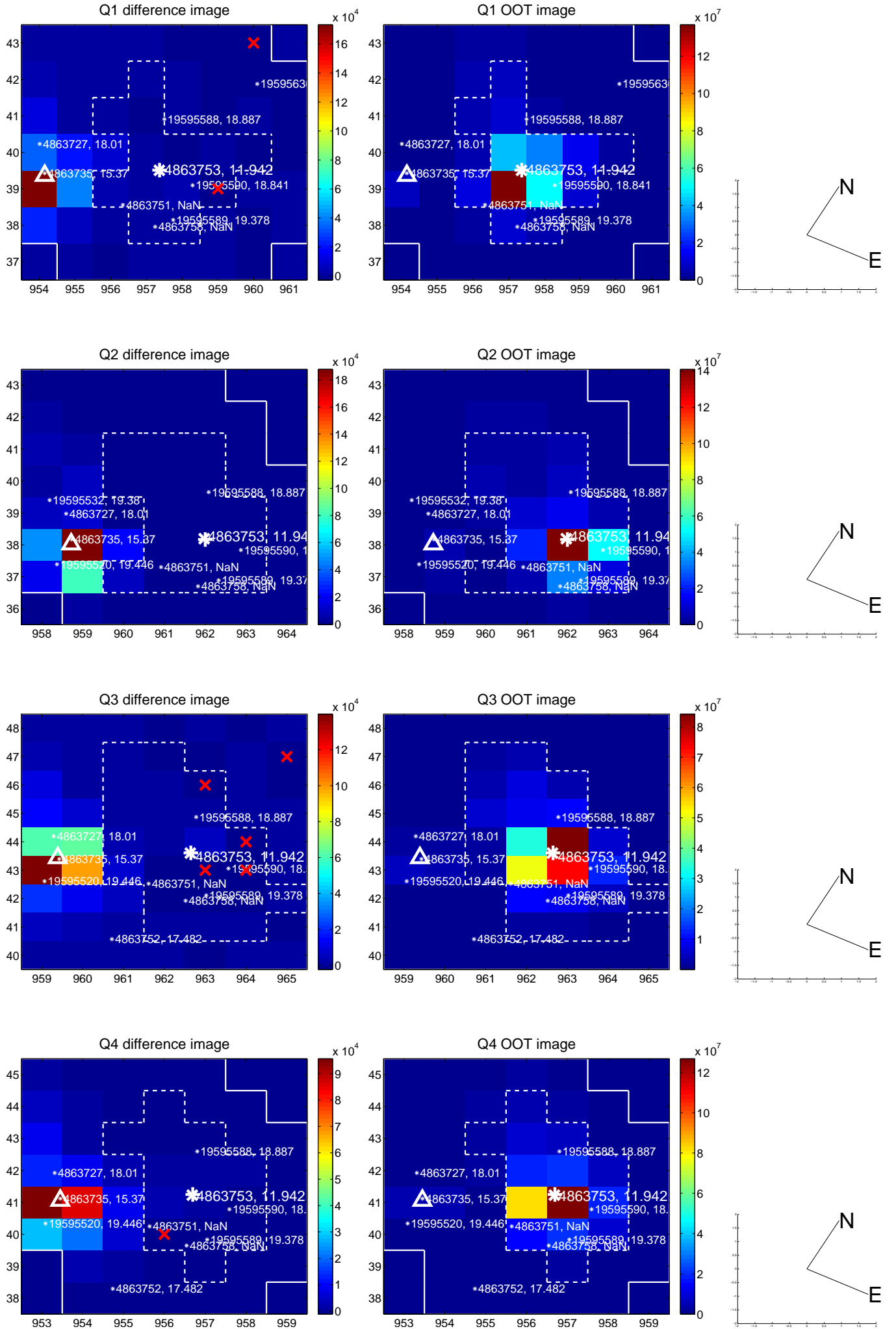
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>12.986 \pm 0.070</math></b>	<b>185.62</b>	$-11.175 \pm 0.071$	$-6.615 \pm 0.068$
PRF-fit source offset from KIC position	<b><math>12.969 \pm 0.070</math></b>	<b>186.25</b>	$-11.145 \pm 0.069$	$-6.633 \pm 0.069$
photometric centroid source offset	<b><math>4.29 \pm 0.87</math></b>	<b>4.93</b>	$-1.39 \pm 0.90$	$-4.06 \pm 0.87$

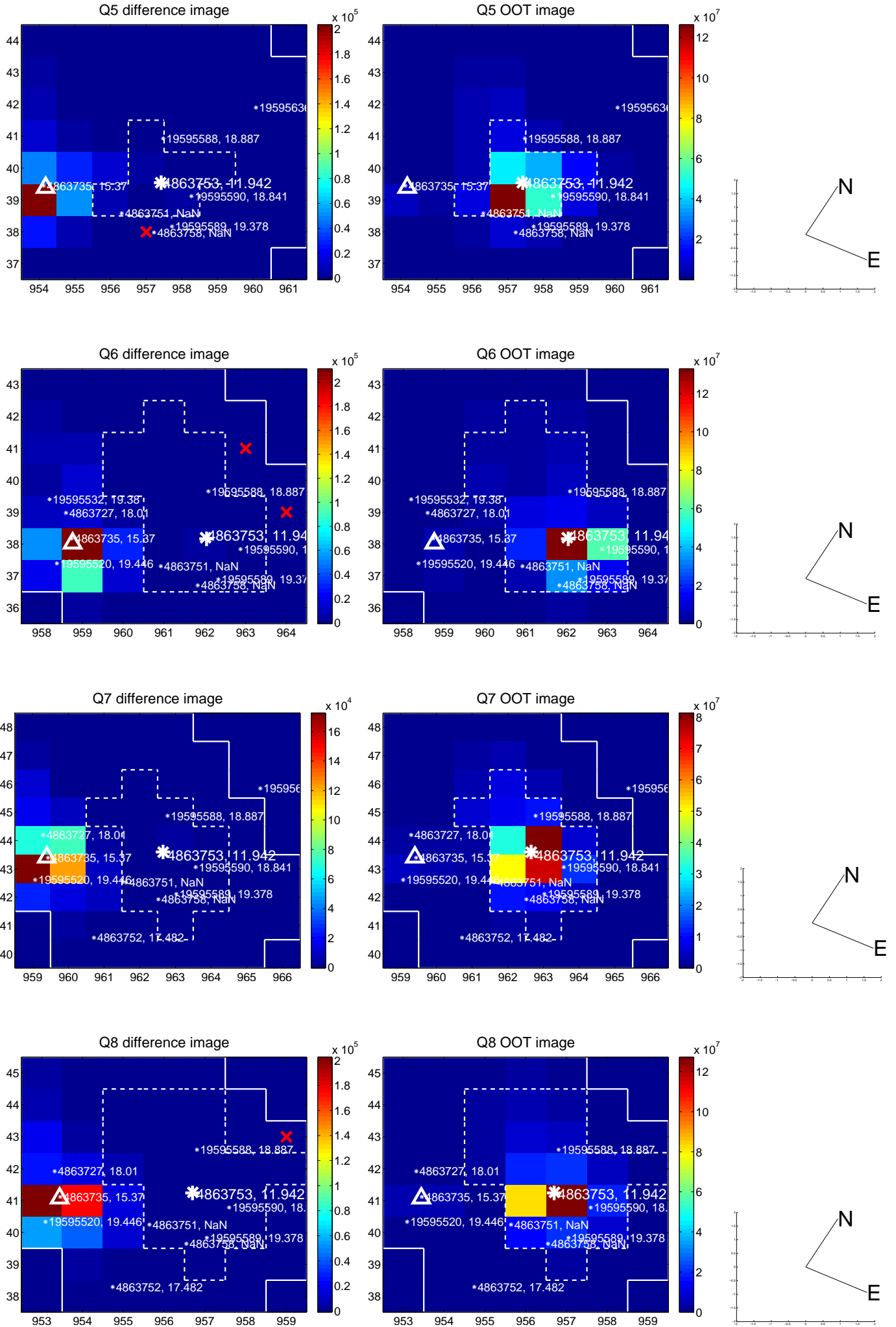


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

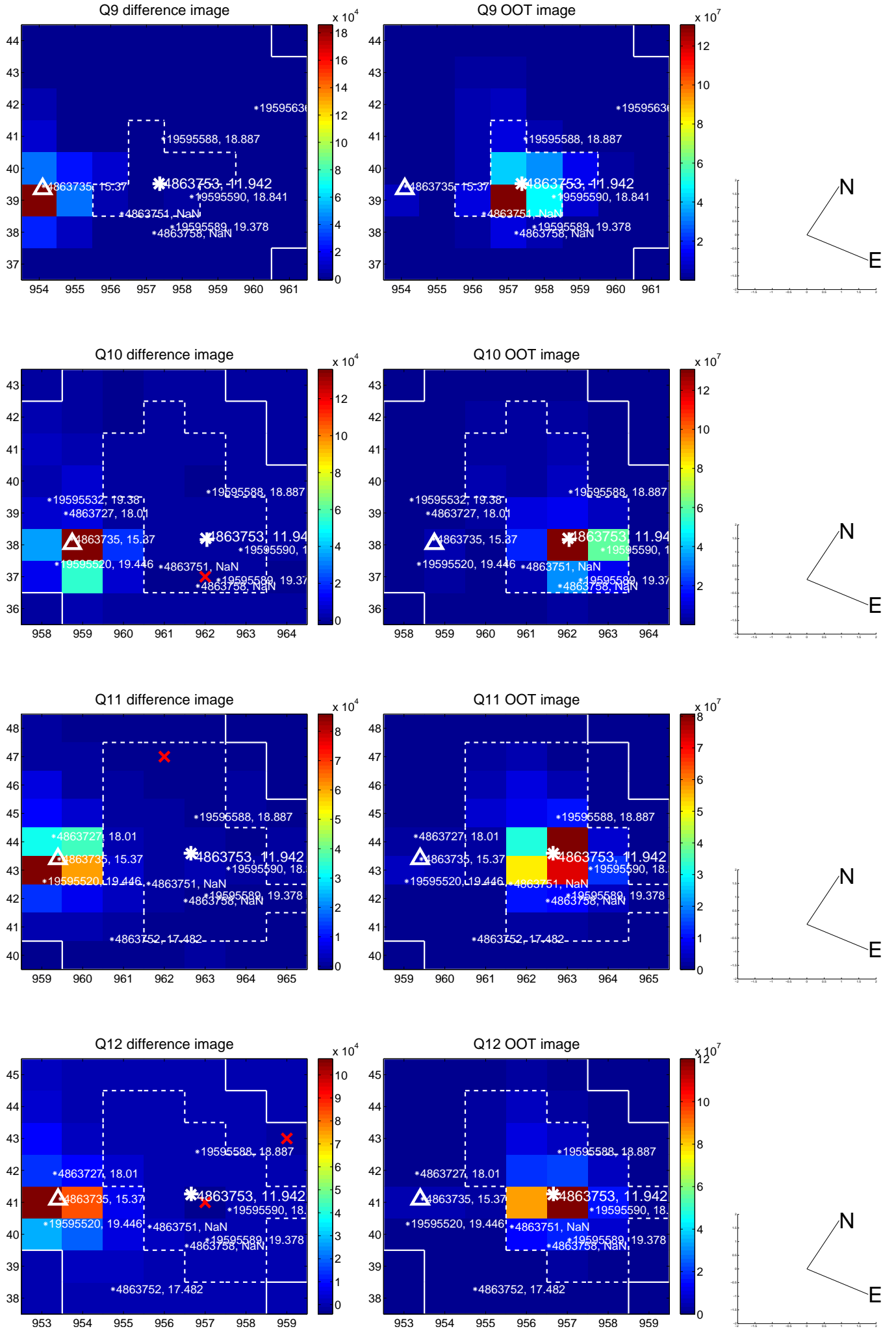


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

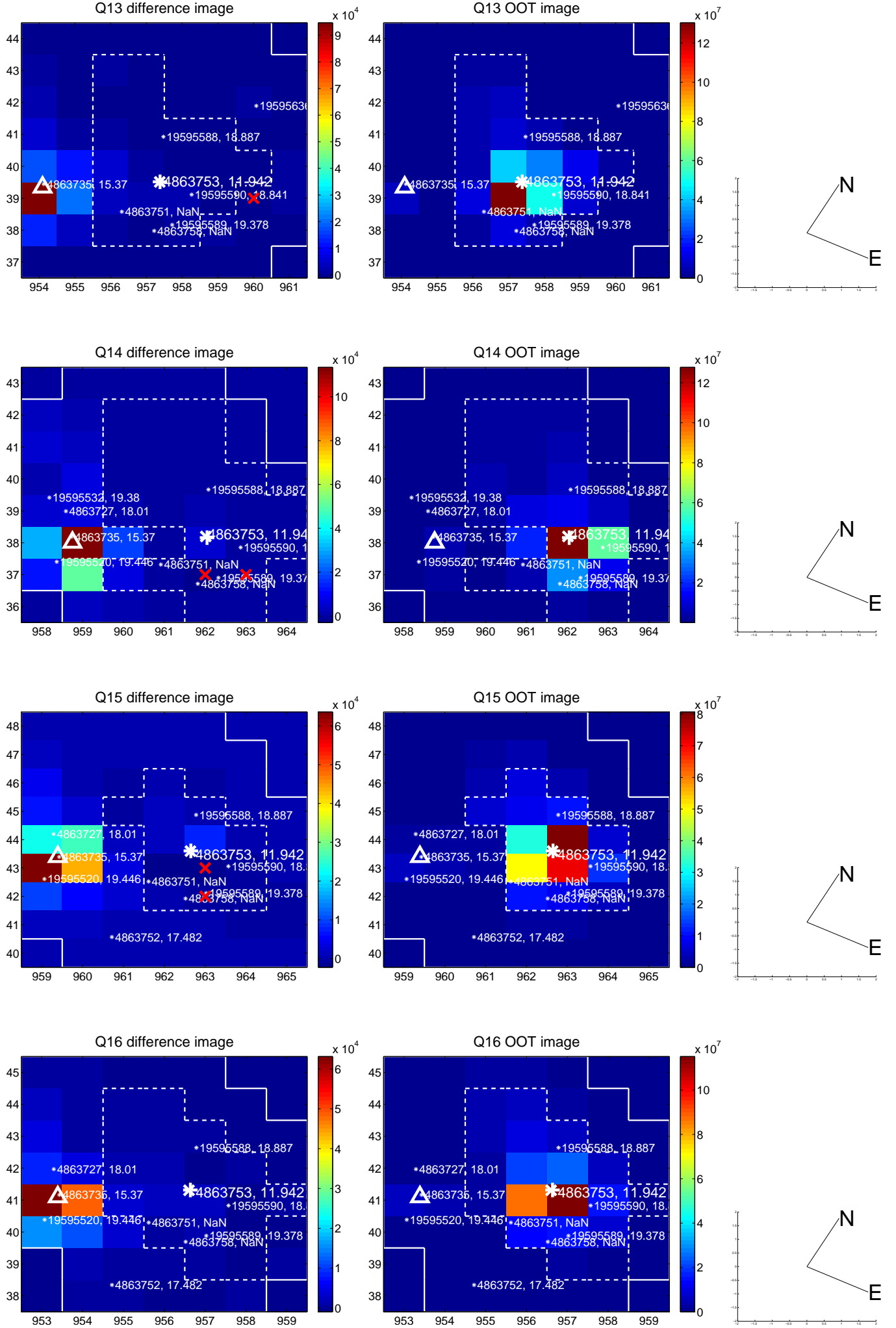




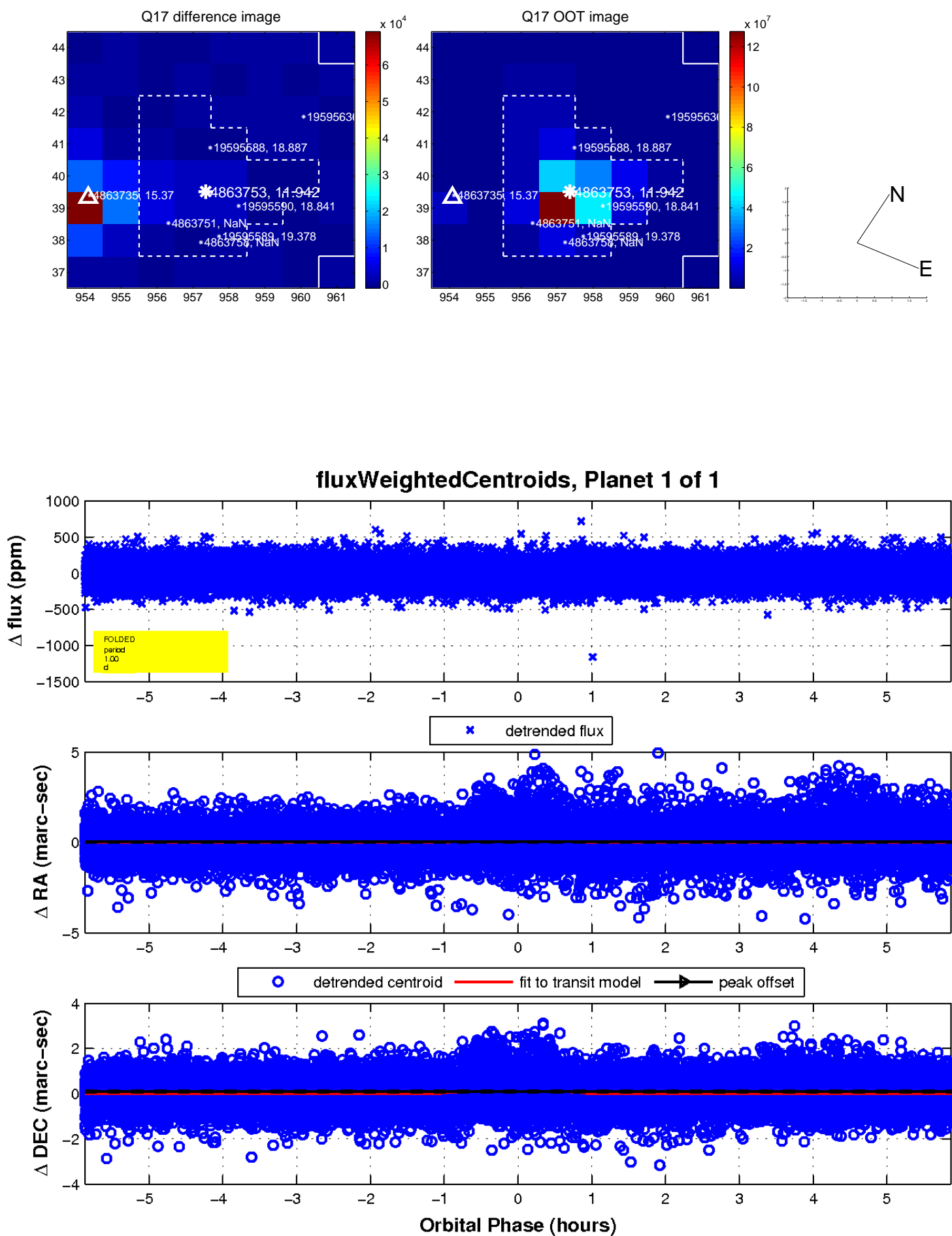
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

