

# KIC 008694309

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008694309-01	OBS	4027.01	0.827332	131.930163	24.3	2.499	17.3	16.5	1.31	5609	0.77	5628.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008694309-01	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.

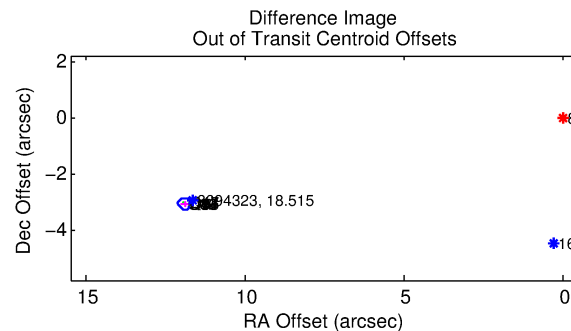
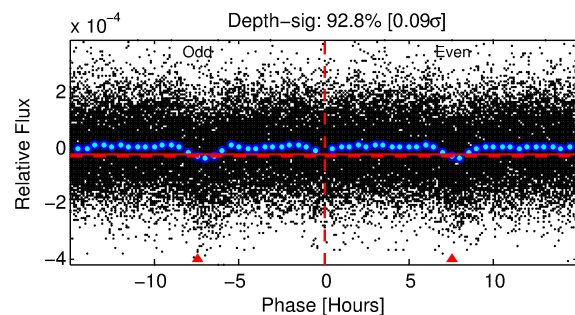
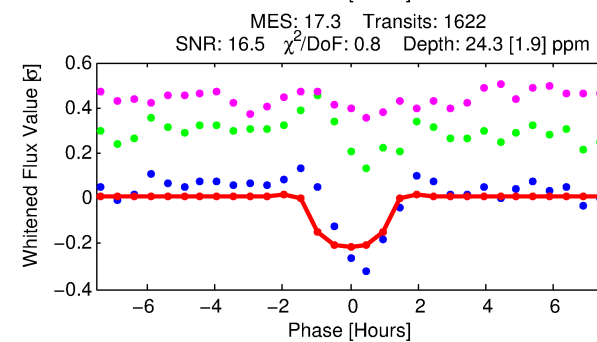
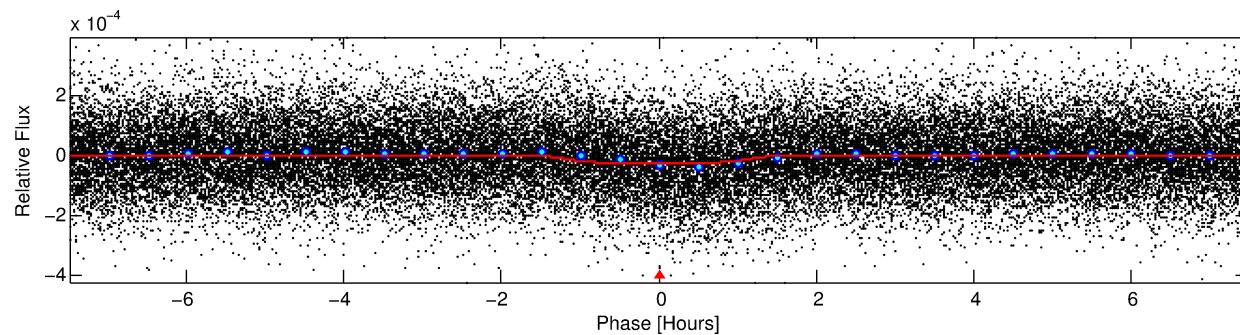
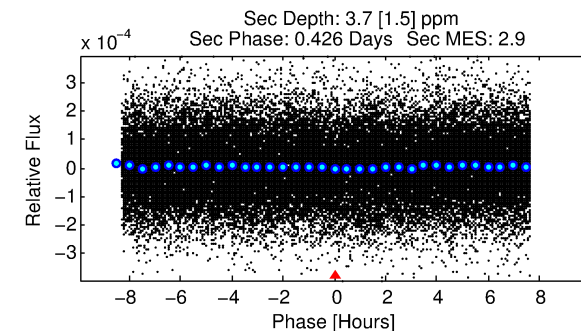
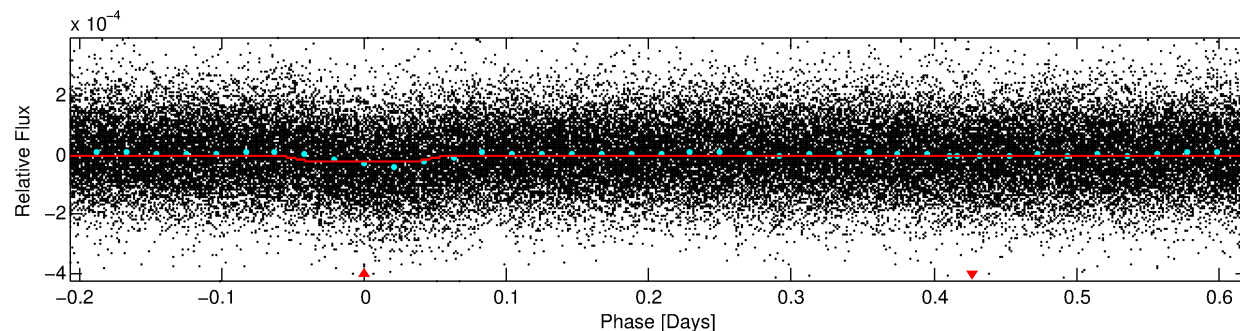
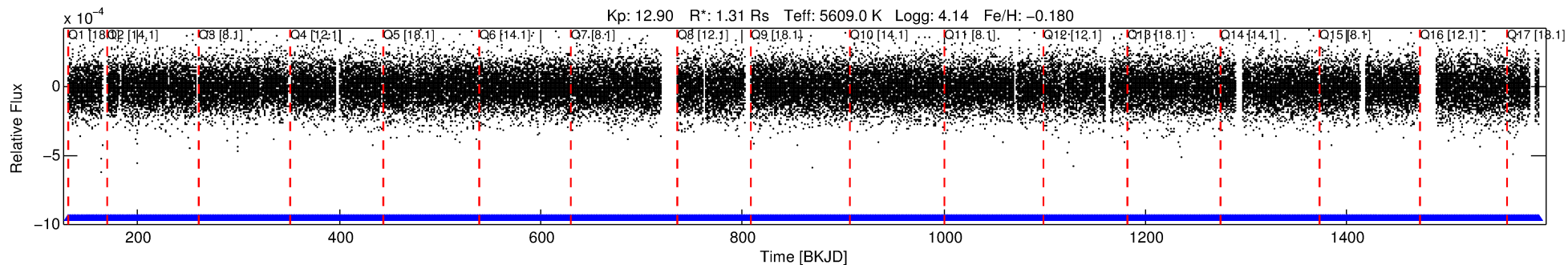
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008694309-01

No Significant Match Found

# DV One-Page Summary

KIC: 8694309 Candidate: 1 of 1 Period: 0.827 d  
KOI: K04027.01 Corr: 0.877



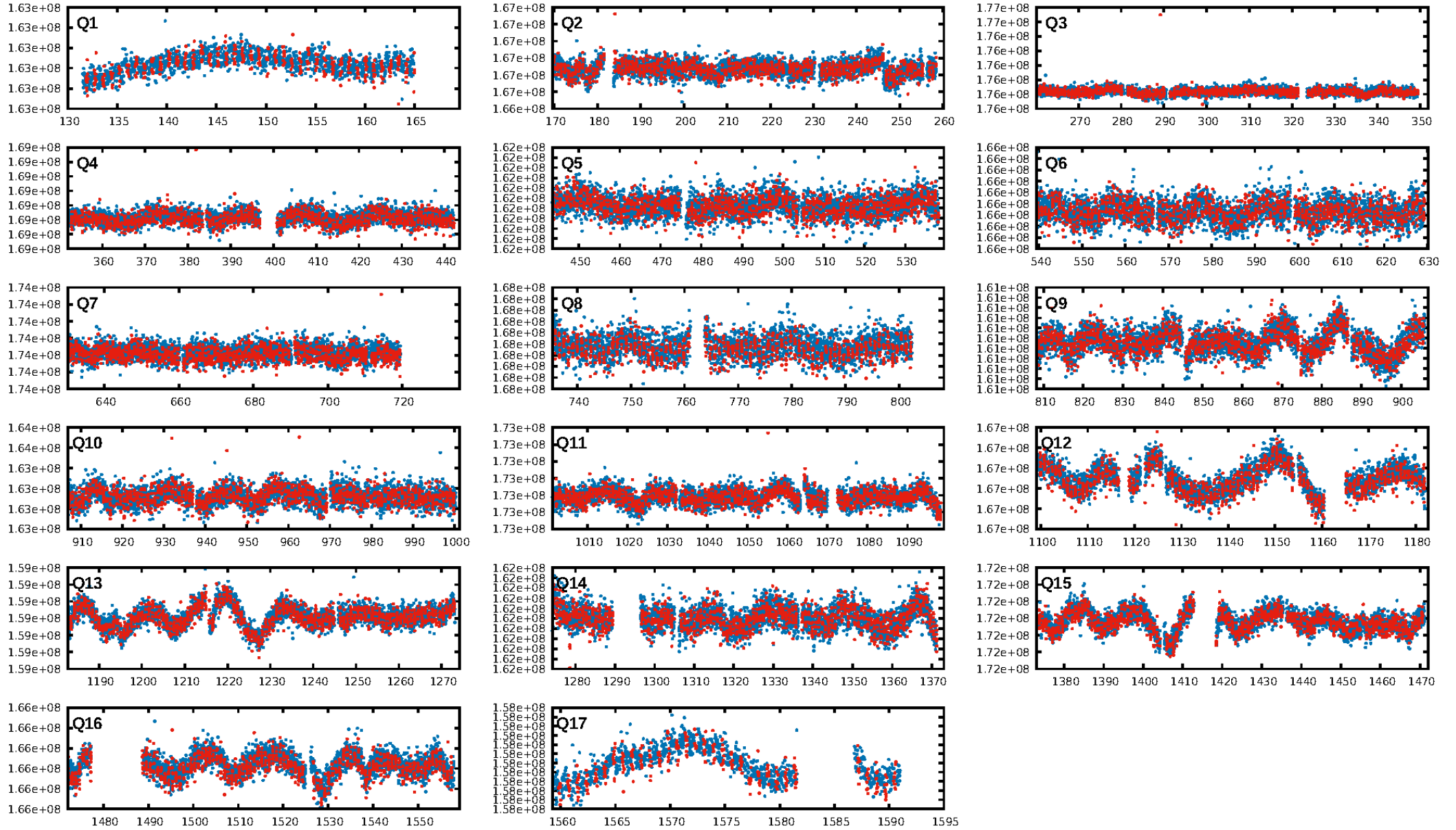
## DV Fit Results:

Period = 0.82733 [0.00001] d  
Epoch = 131.9302 [0.0019] BKJD  
Rp/R\* = 0.0054 [0.0016]  
a/R\* = 1.46 [1.10]  
b = 0.90 [0.30]  
Seff = 5628.30 [2886.99]  
Teq = 2209 [283] K  
Rp = 0.77 [0.32] Re  
a = 0.0164 [0.0049] AU  
Ag = 0.92 [0.81] [-0.09σ]  
Teff = 3348 [613] K [1.69σ]

## DV Diagnostic Results:

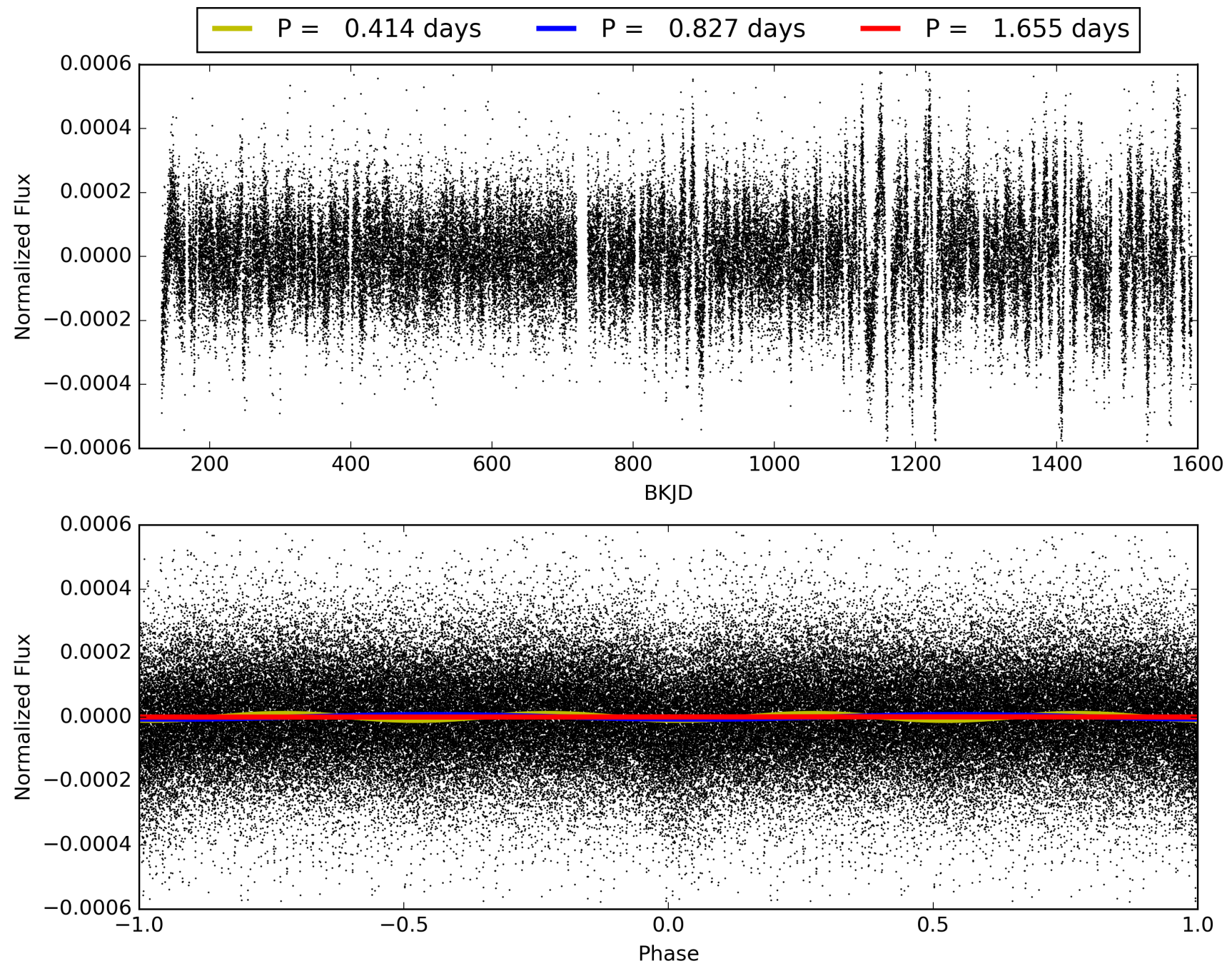
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 5.81e-61  
RollingBand-fgt: 1.00 [1549/1549]  
GhostDiagnostic-chr: -0.2839  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 12.293 arcsec [183.56σ]  
KicOffset-rm: 12.320 arcsec [183.99σ]  
OotOffset-st: 0/4/4/5 [13]  
KicOffset-st: 0/4/4/5 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008694309-01, PDC Light Curves



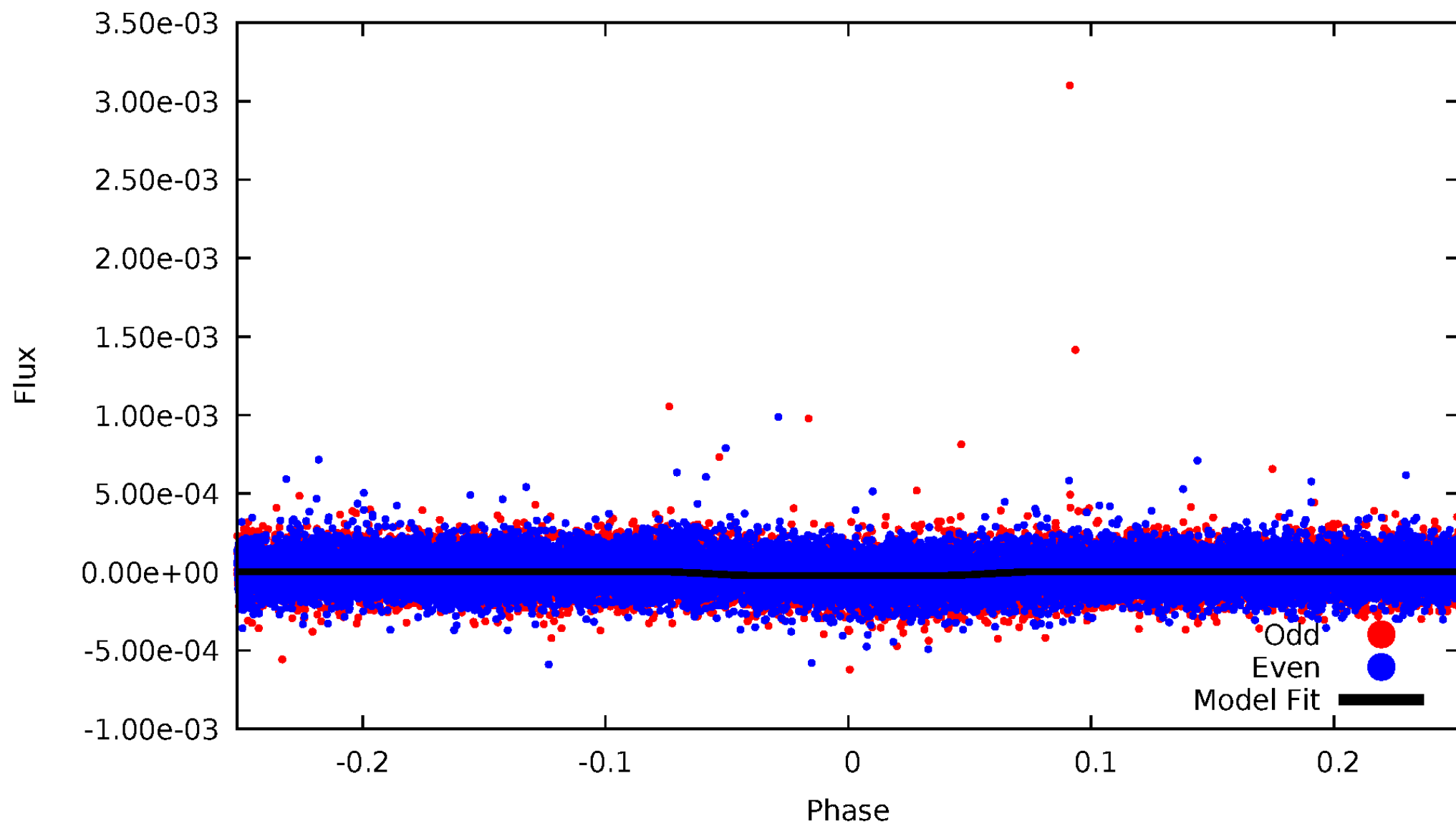


TCE 008694309-01



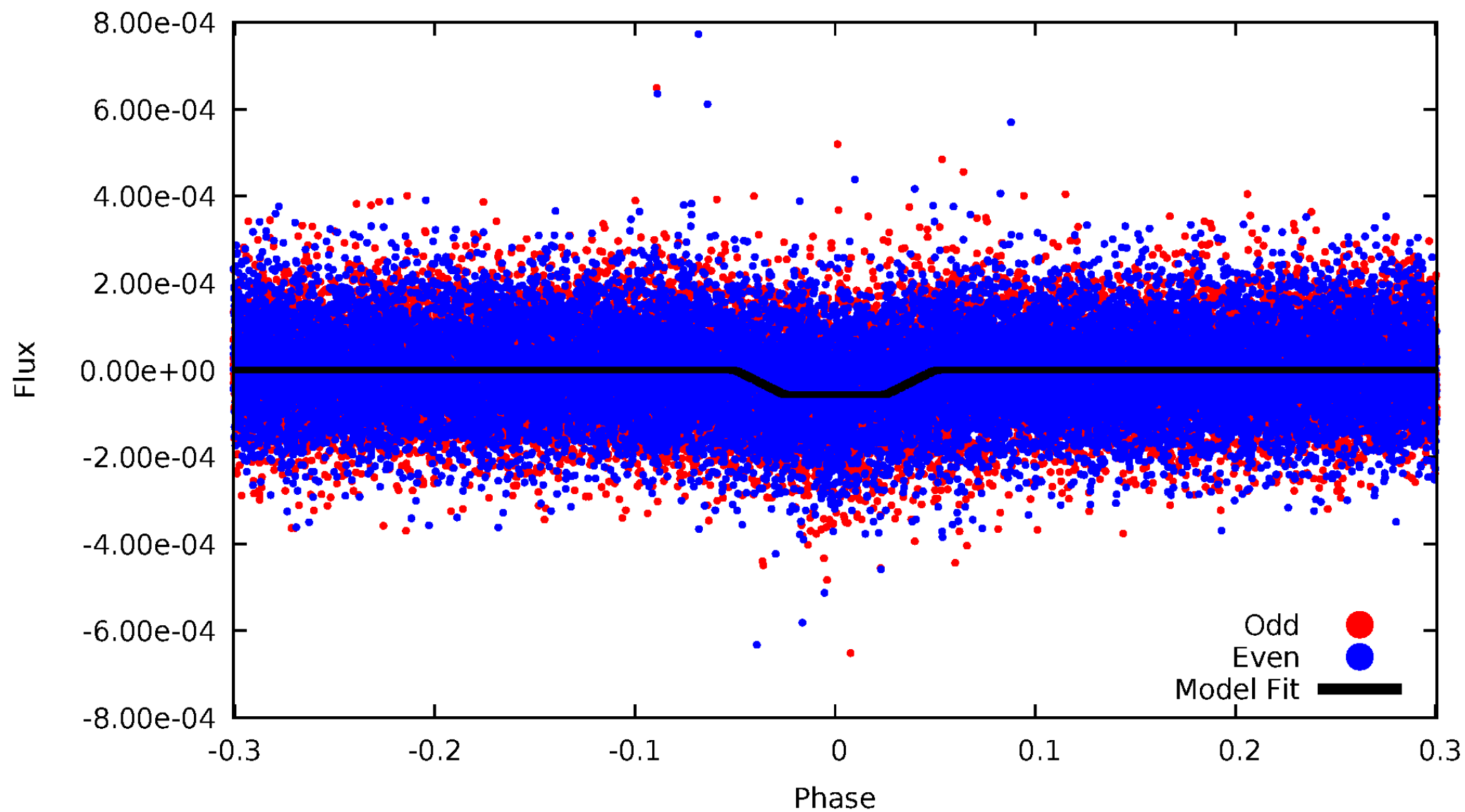
# DV Odd/Even

TCE 008694309-01



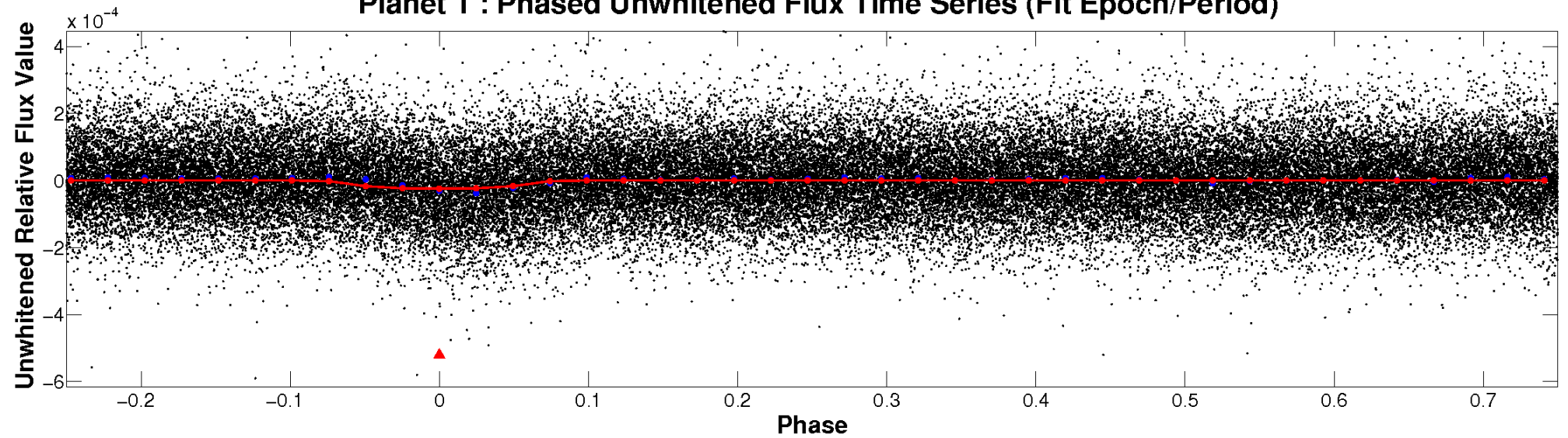
# ALT Odd/Even

TCE 008694309-01

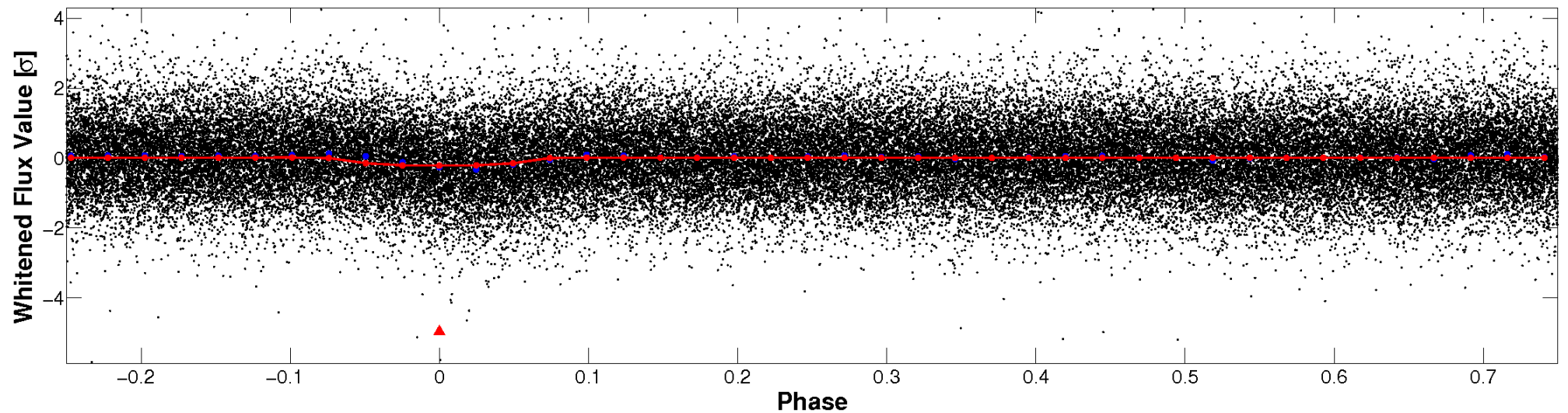


# Non-Whitened Vs. Whitened Light Curve

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



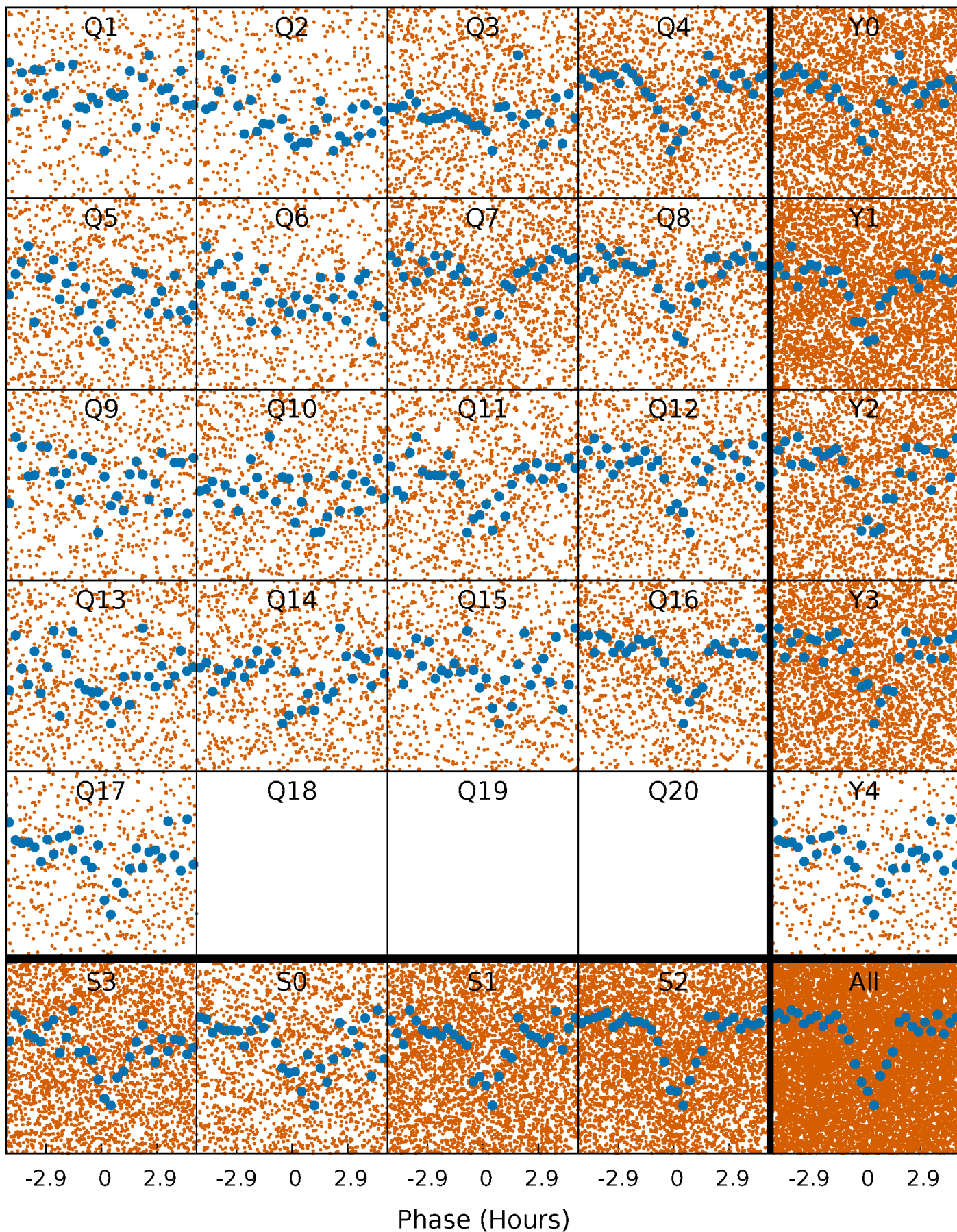
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

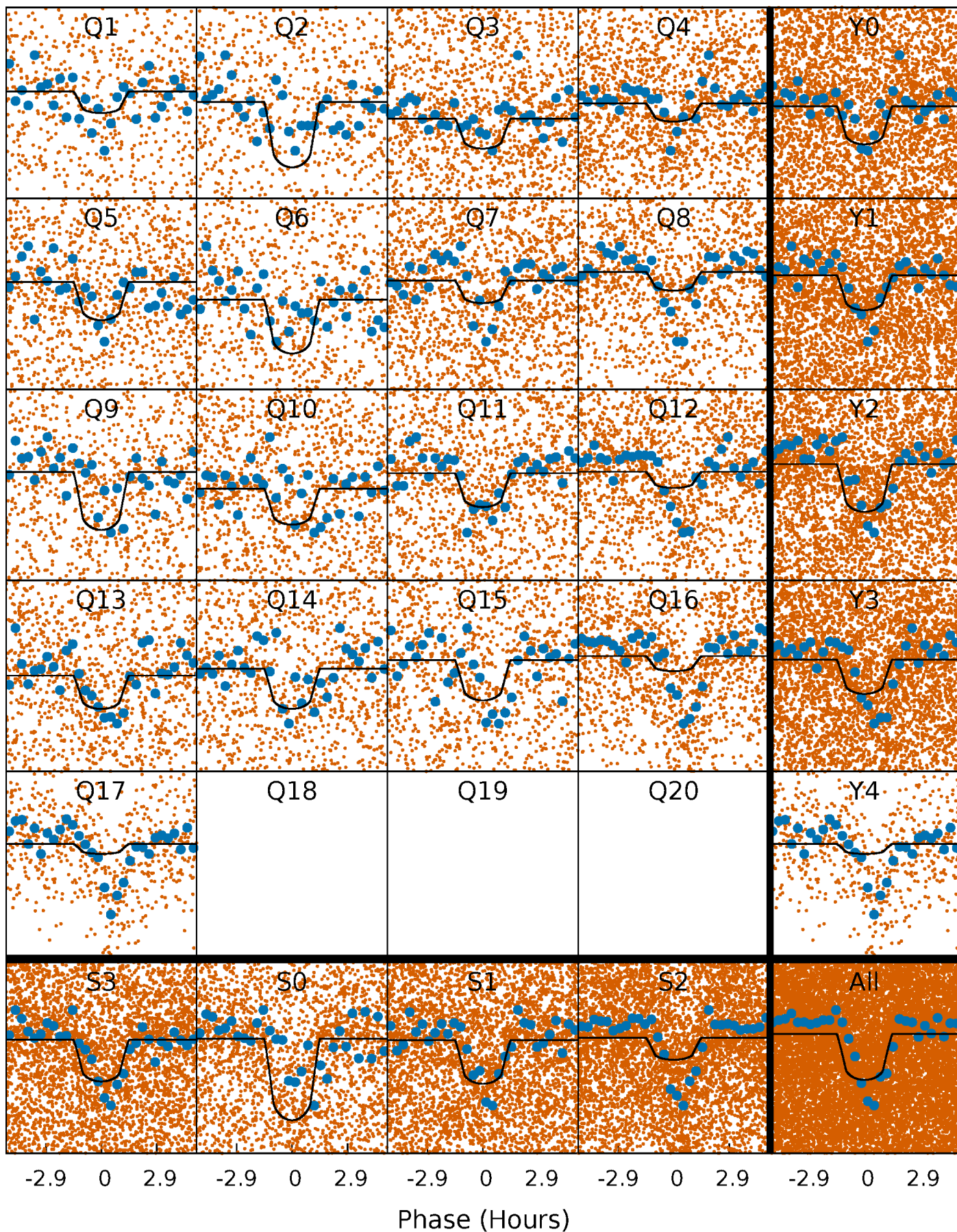
TCE 008694309-01 P= 0.827332 Days  $T_0=131.930163$  (BKJD)





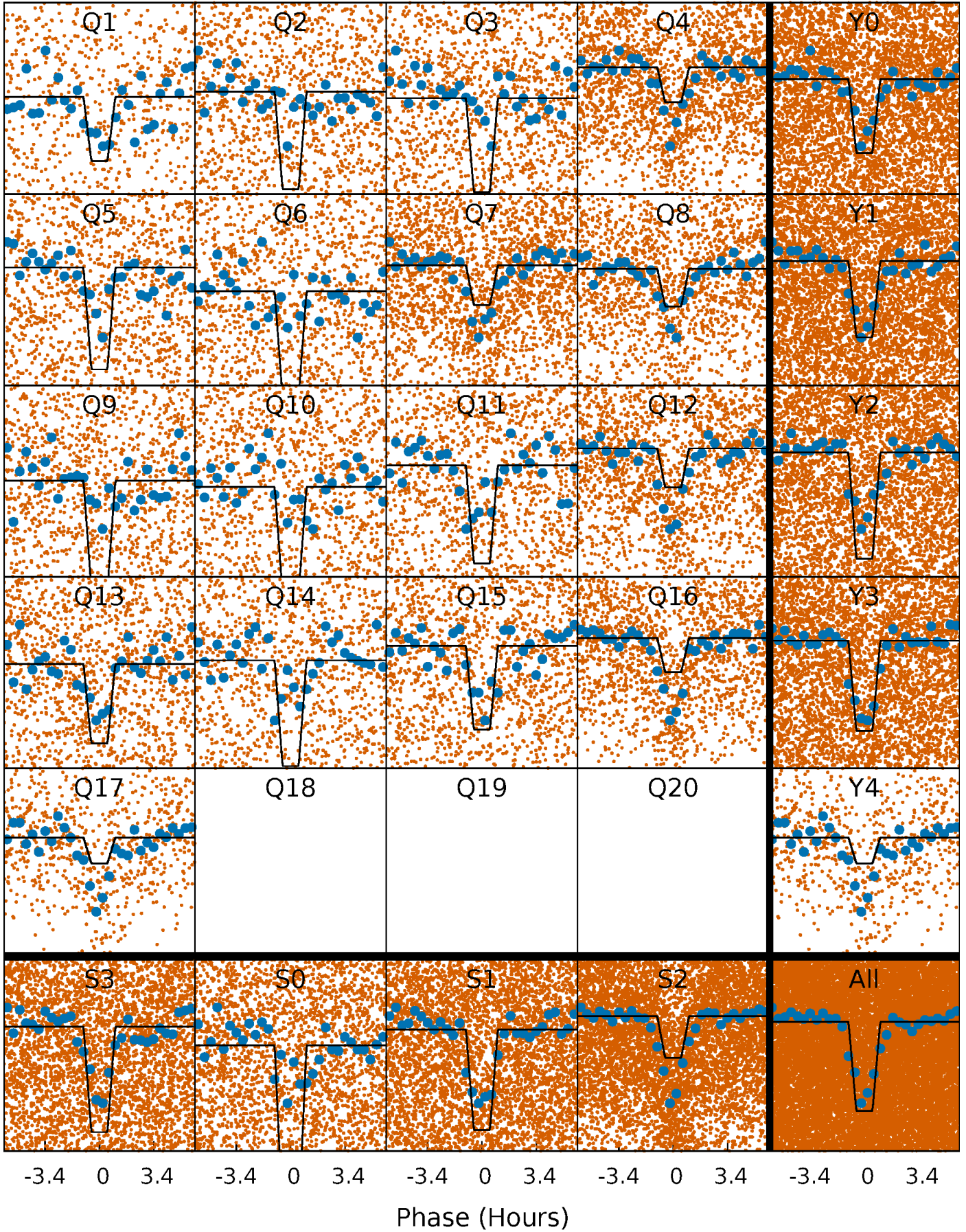
# DV Quarter-Phased Transit Curves

TCE 008694309-01   P= 0.827332 Days    $T_0=131.930163$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008694309-01 P= 0.827354 Days  $T_0=131.923428$  (BKJD)

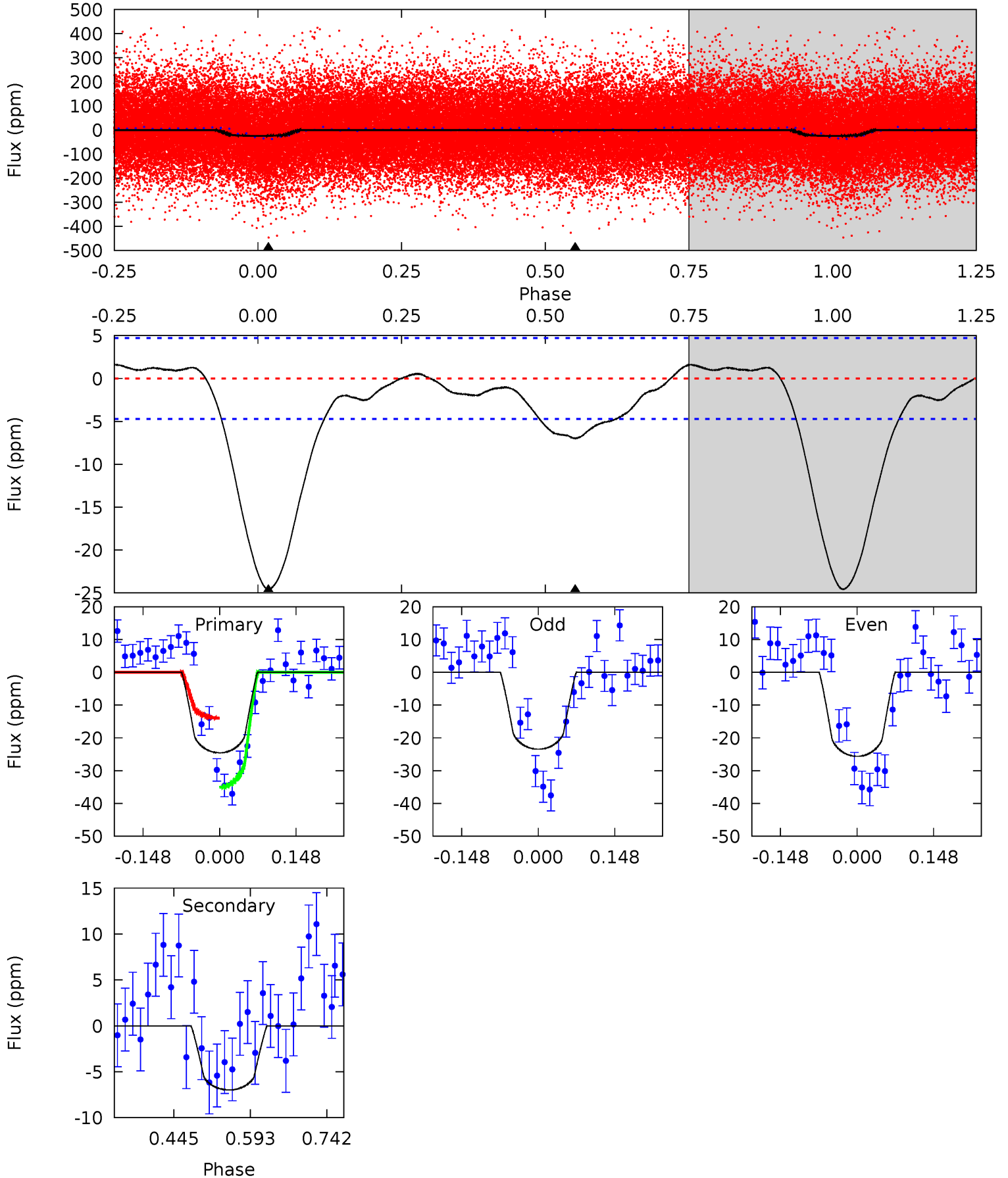




# DV Model-Shift Uniqueness Test

008694309-01, P = 0.827332 Days, E = 131.102831 Days

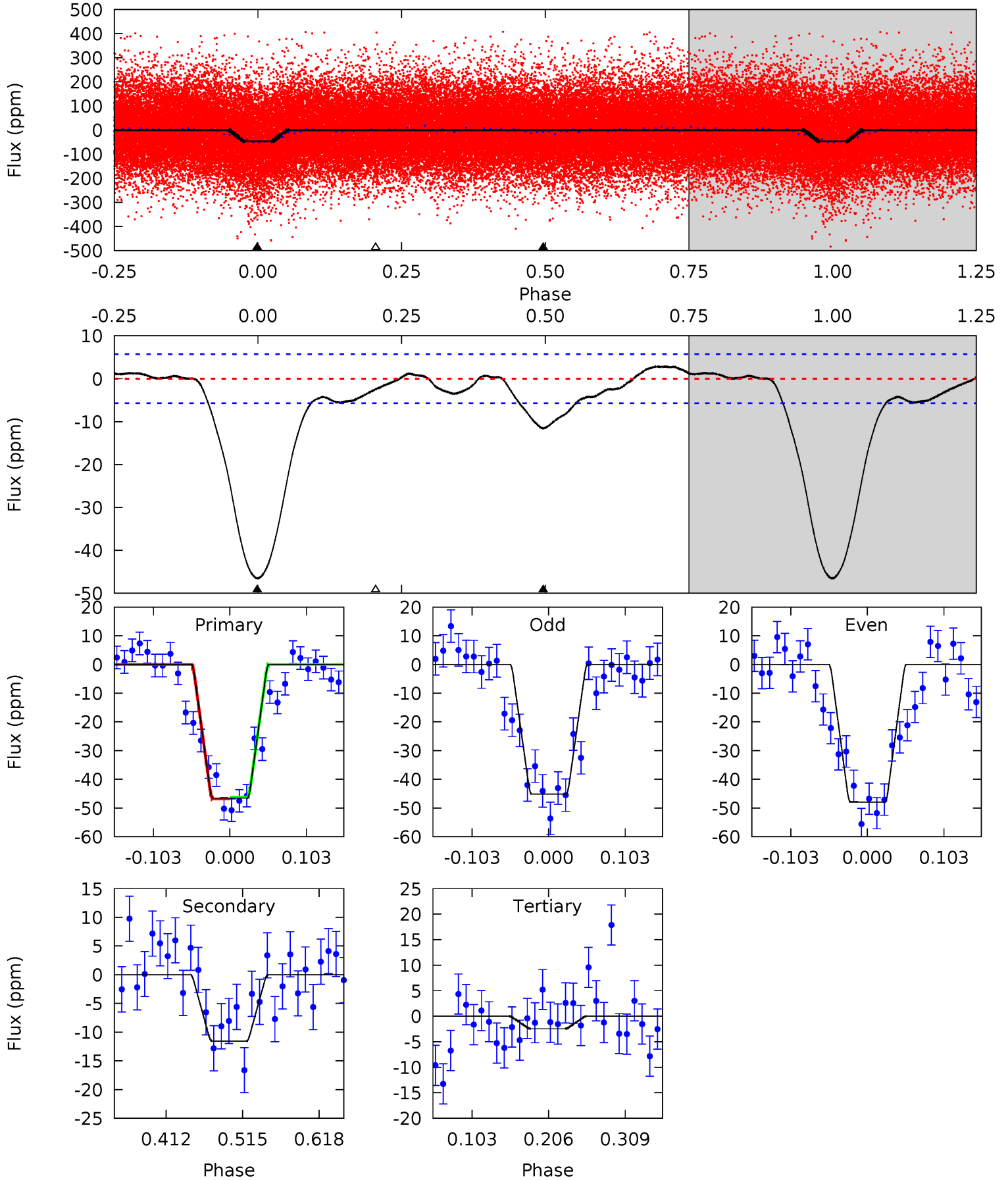
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.3	6.62	0	0	4.48	1.45	1.22	23.3	23.3	6.62	6.62	1.03	1.03	0.06	10.0



# Alt Model-Shift Uniqueness Test

008694309-01, P = 0.827354 Days, E = 131.096074 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
37.0	9.21	1.95	0	4.56	1.63	1.88	35.1	37.0	7.26	9.21	1.11	0.99	0.06	0.26





### Stellar Parameters For KIC 008694309

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5609^{+168}_{-126}$	$4.141^{+0.301}_{-0.129}$	$-0.180^{+0.350}_{-0.200}$	$1.310^{+0.302}_{-0.369}$	$0.867^{+0.131}_{-0.066}$	$0.543^{+0.970}_{-0.235}$
	+3%/-2%	+7%/-3%	+194%/-111%	+23%/-28%	+15%/-8%	+179%/-43%
Source	PHO1	FLK73	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 008694309-01 / KOI 4027.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-7 \pm 1$	$0.75^{+0.28}_{-0.23}$	$3045^{+213}_{-253}$	$4015^{+662}_{-434}$	$1.847^{+2.093}_{-0.858}$
Alt.	$-12 \pm 1$	$1.04^{+0.29}_{-0.25}$	$3056^{+197}_{-270}$	$3914^{+443}_{-342}$	$1.624^{+1.228}_{-0.644}$

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

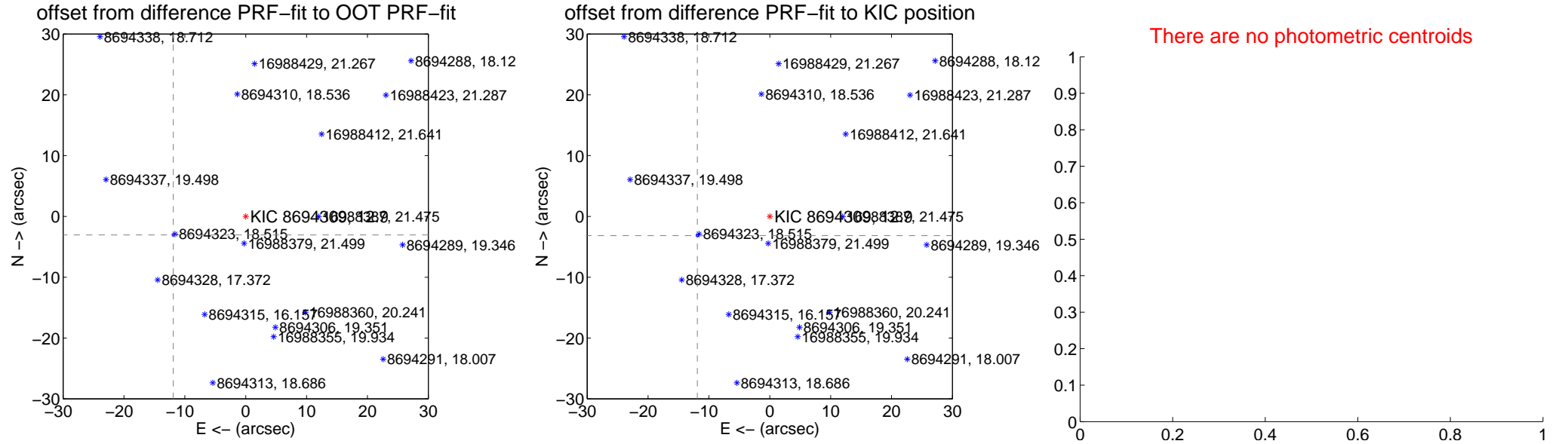
## DV Centroid Data

Supplemental centroid analysis for 008694309-01. Kepler magnitude: 12.90. Transit SNR 16.46

There are 13 quarters with good PRF difference image offsets

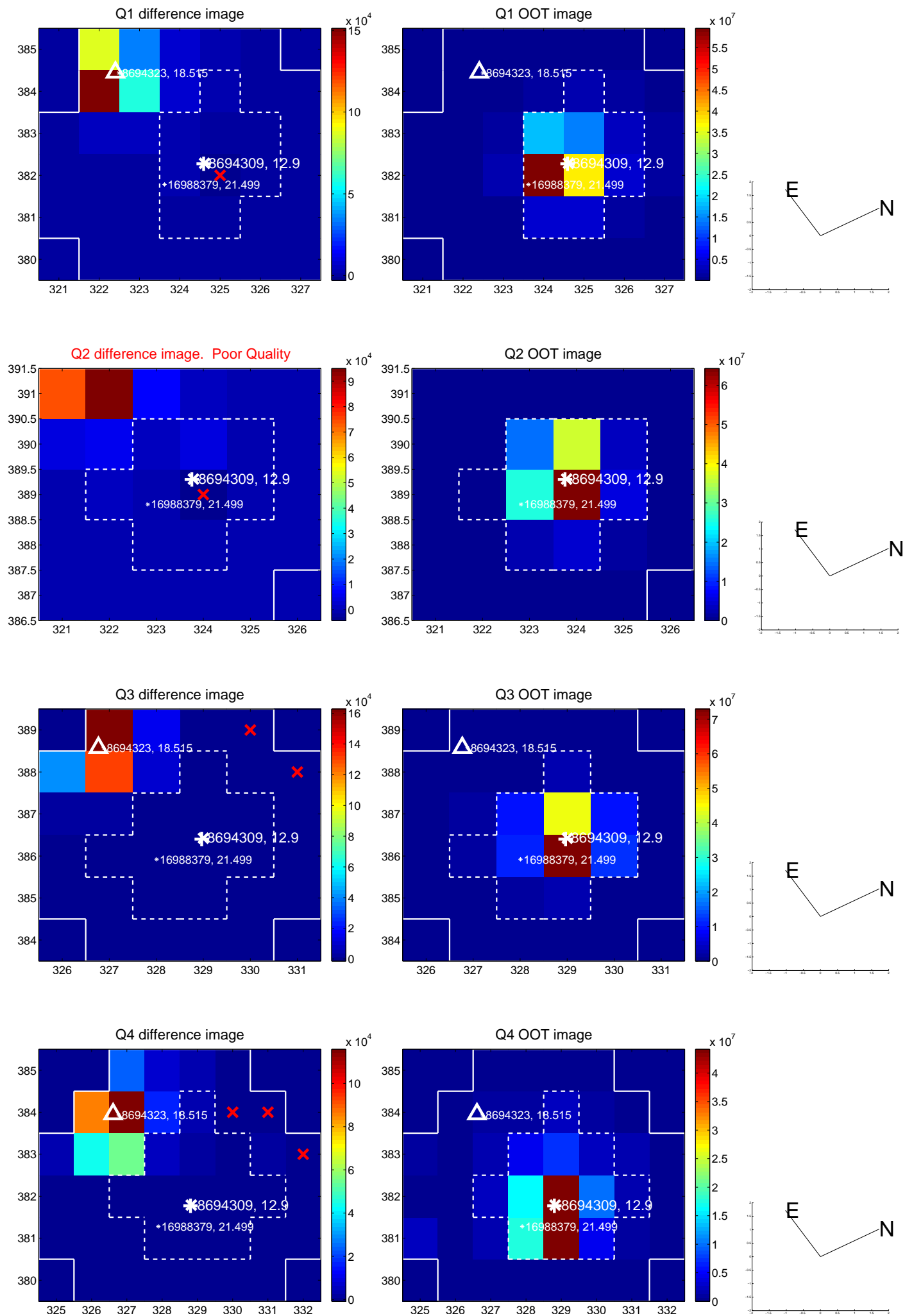
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>12.293 <math>\pm</math> 0.067</b>	<b>183.56</b>	11.911 $\pm$ 0.067	-3.041 $\pm$ 0.067
PRF-fit source offset from KIC position	<b>12.320 <math>\pm</math> 0.067</b>	<b>183.99</b>	11.908 $\pm$ 0.067	-3.160 $\pm$ 0.067
photometric centroid source offset	—	—	—	—

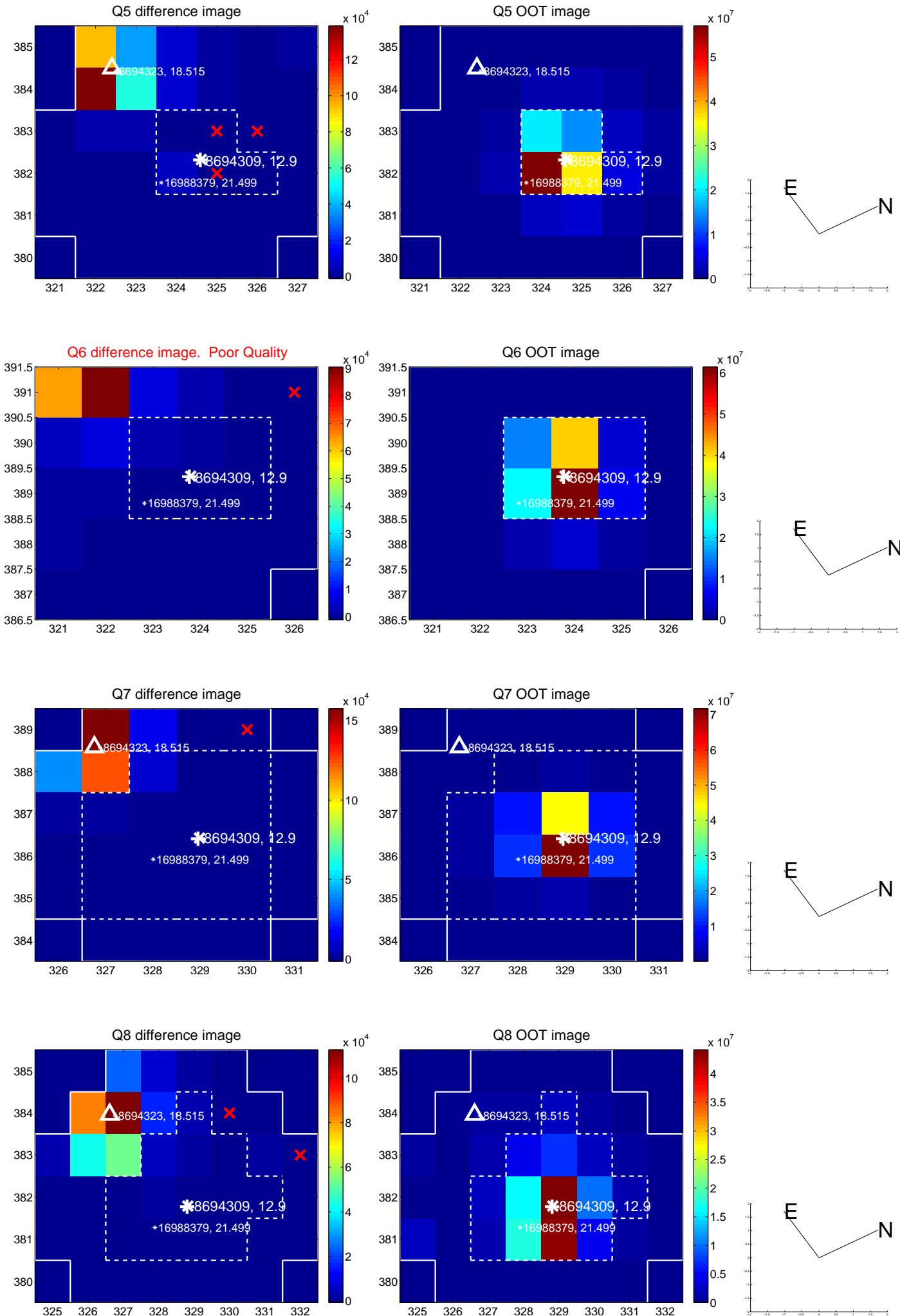


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

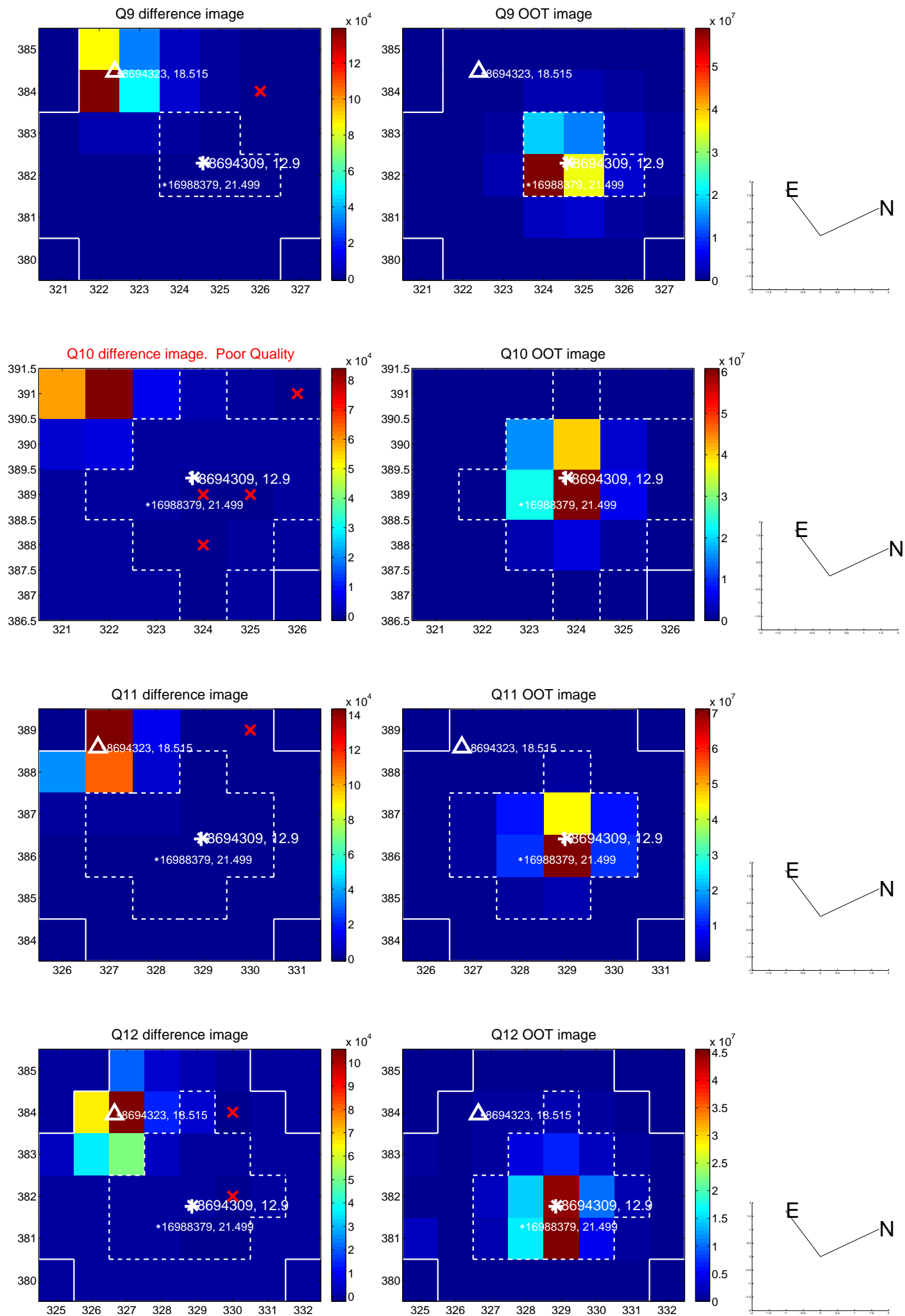


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

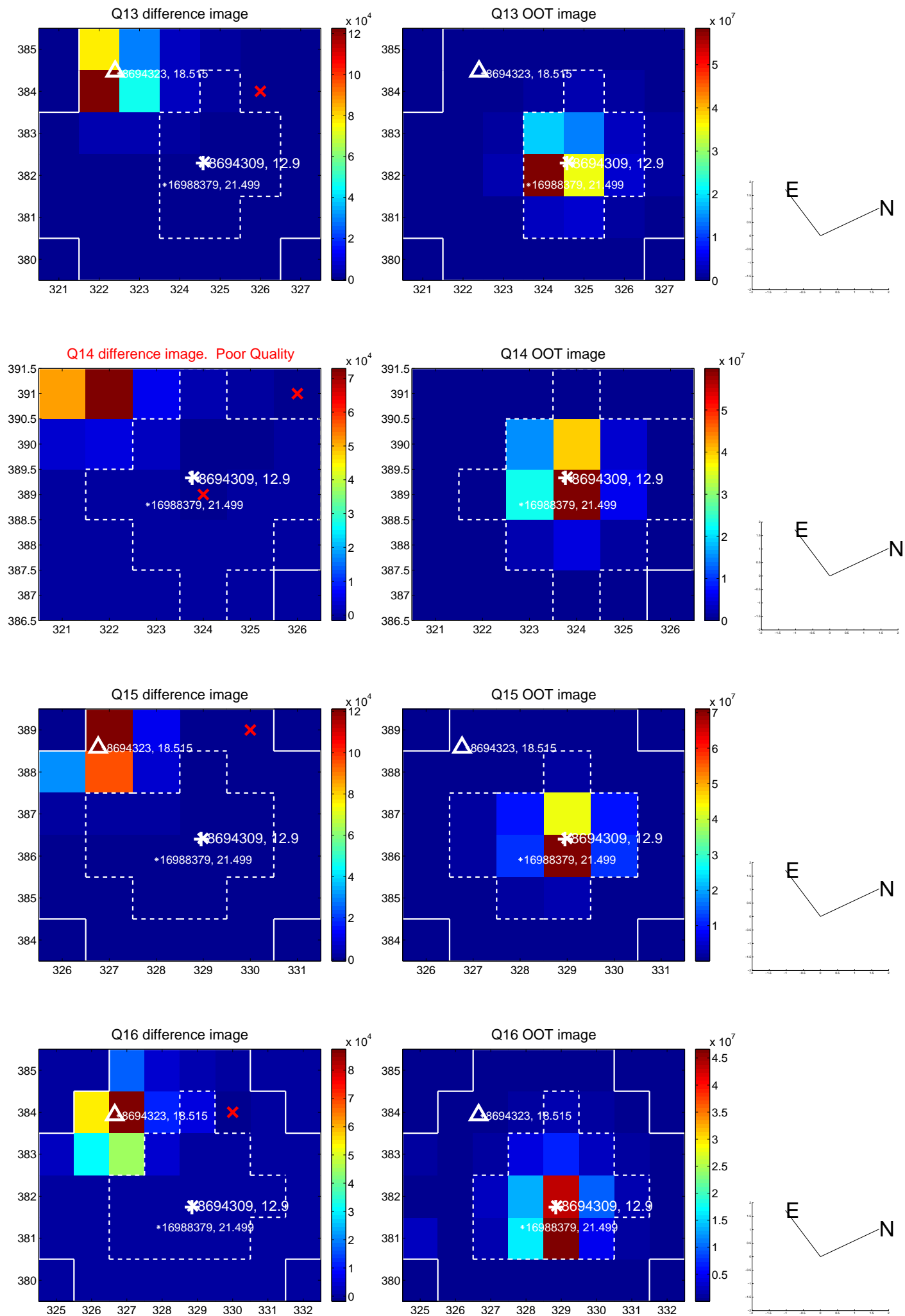




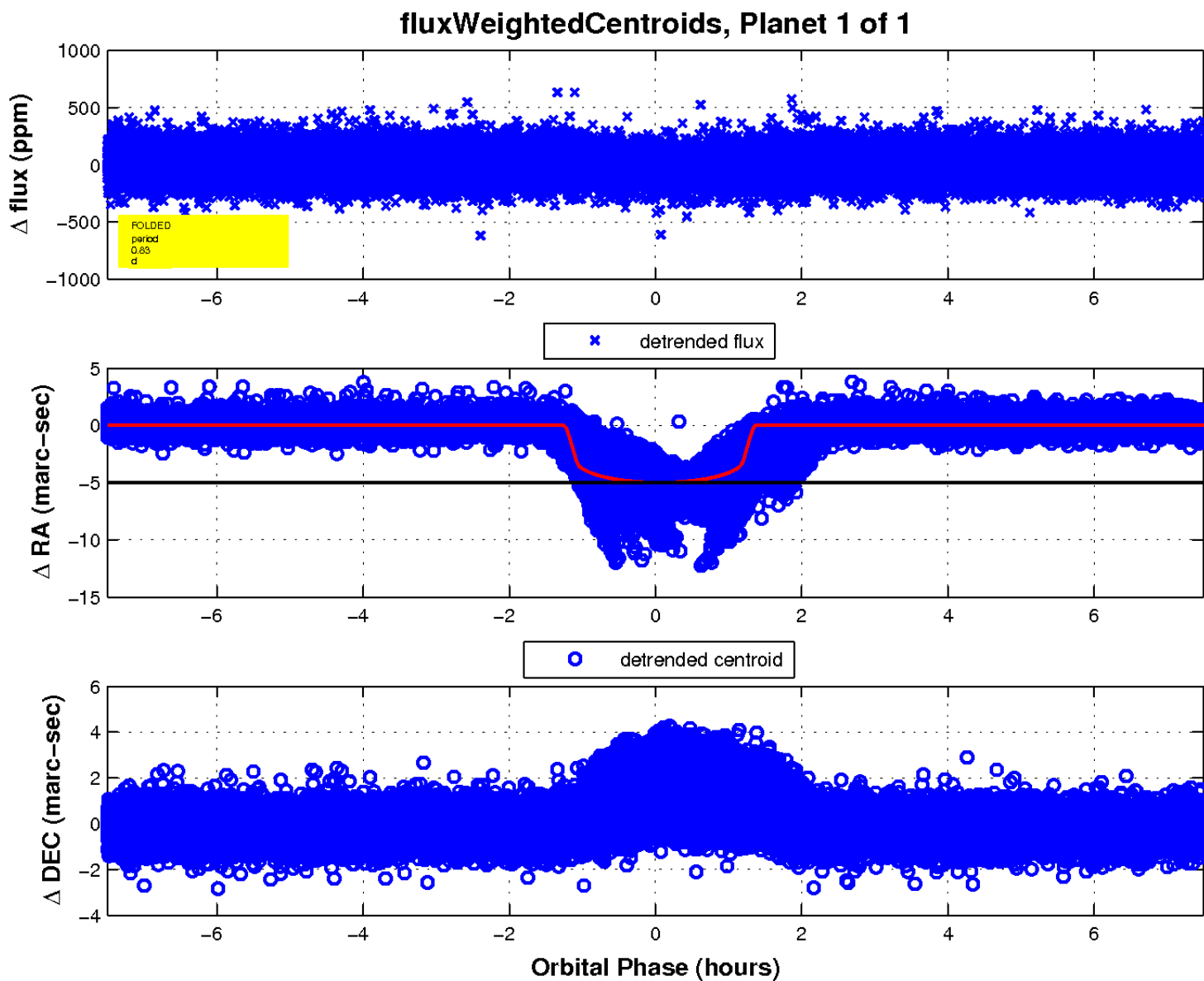
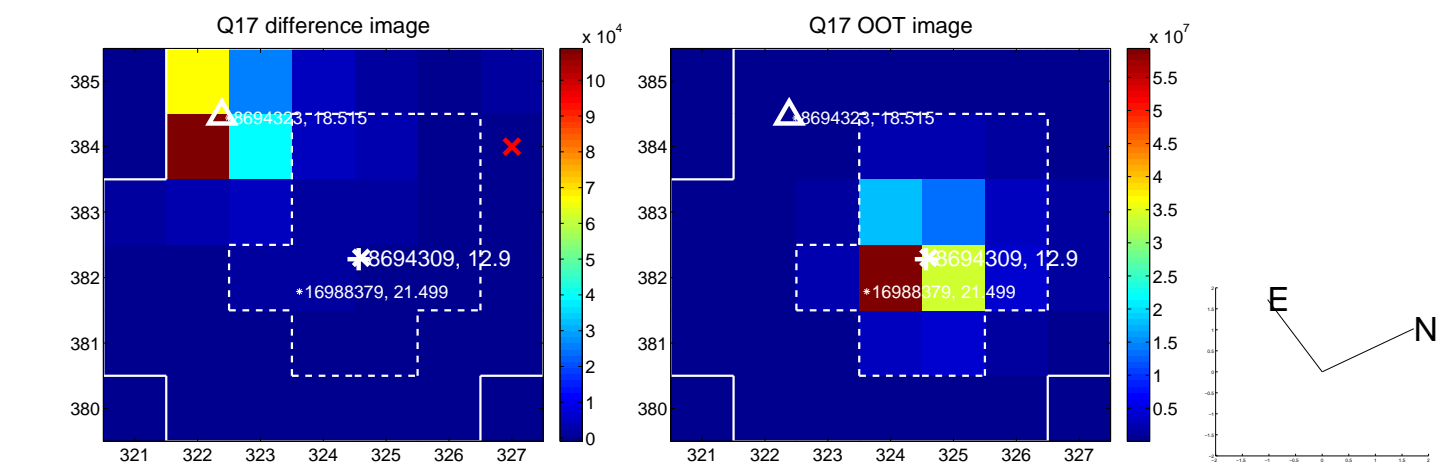
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

