

# KIC 009790965

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009790965-01	OBS	7231.01	0.822068	132.242273	19963.0	2.125	2205.0	1555.1	1.92	6531	42.07	17726.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009790965-01	OBS	FP	0.00	1	0	0	0	LPP_ALT

**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.

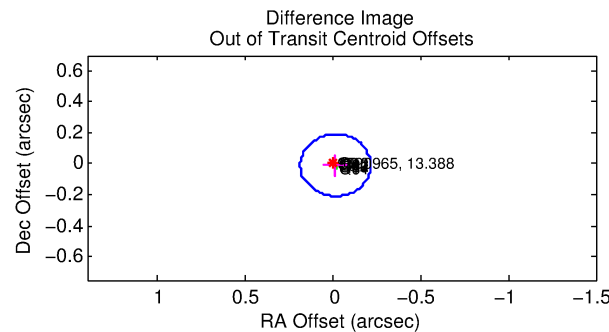
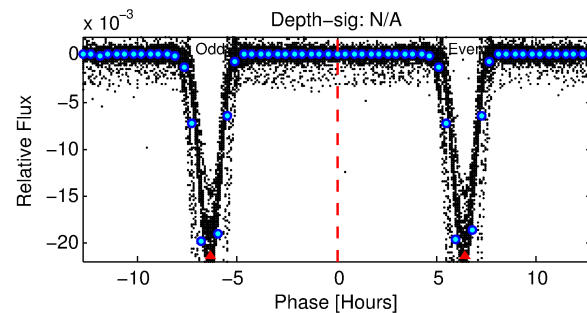
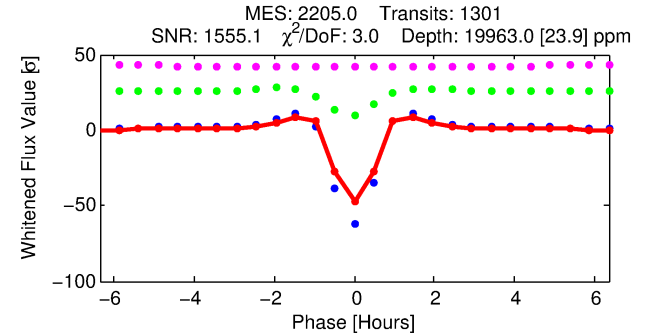
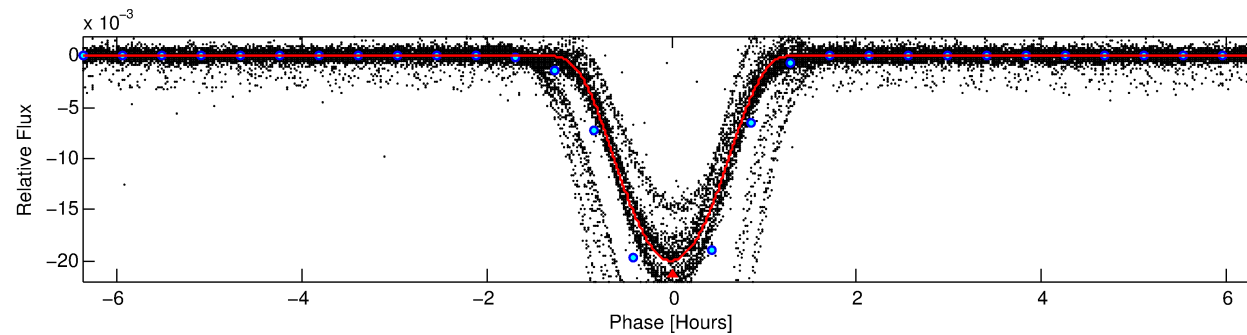
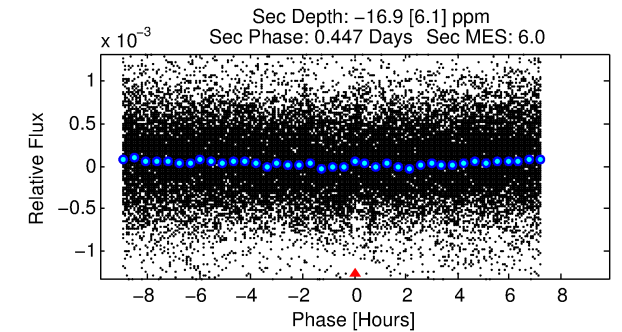
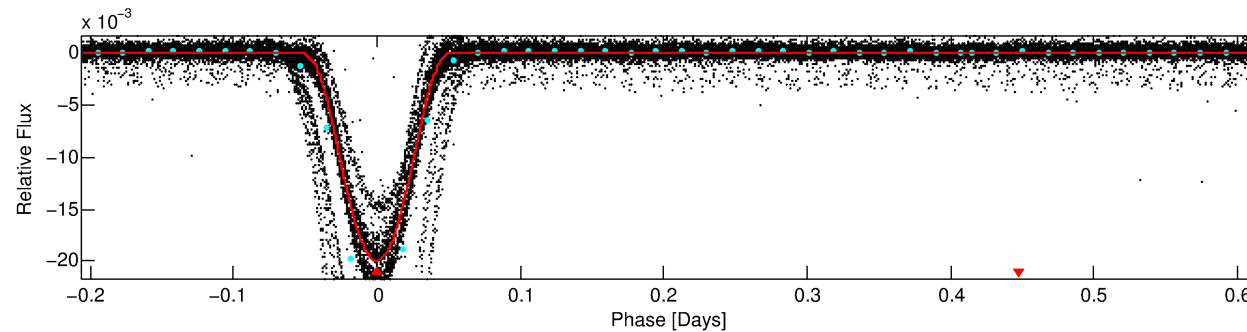
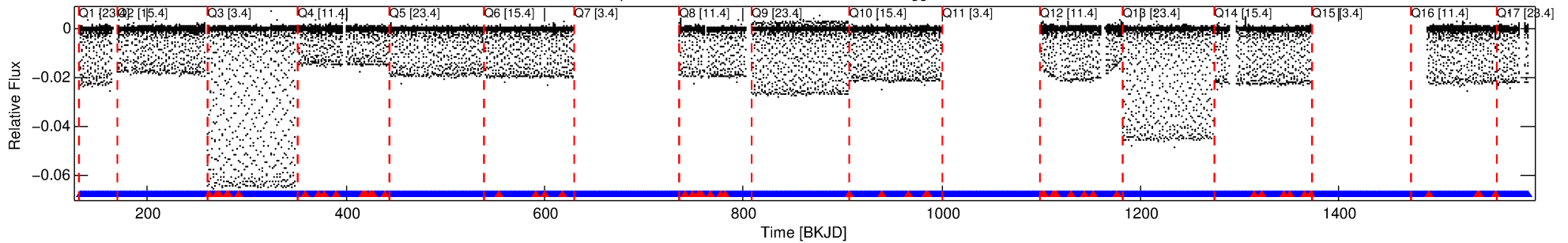
## Ephemeris Match Information For 009790965-01

No Significant Match Found

# DV One-Page Summary

KIC: 9790965 Candidate: 1 of 1 Period: 0.822 d  
KOI: K07231 Corr: No Ephemeris Match

Kp: 13.39 R\*: 1.92 Rs Teff: 6531.0 K Logg: 3.96 Fe/H: -0.280



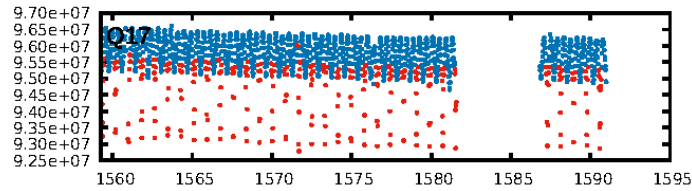
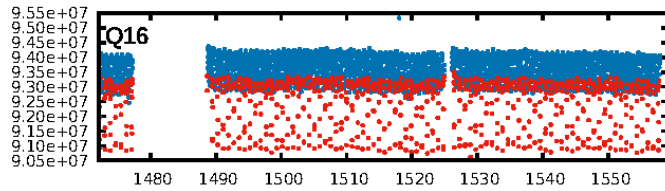
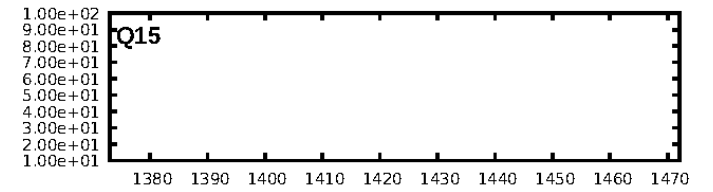
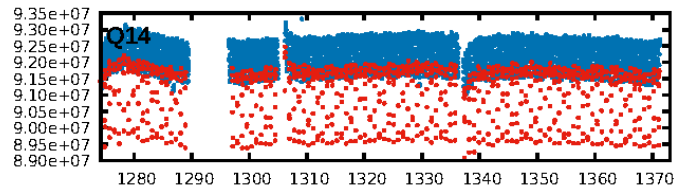
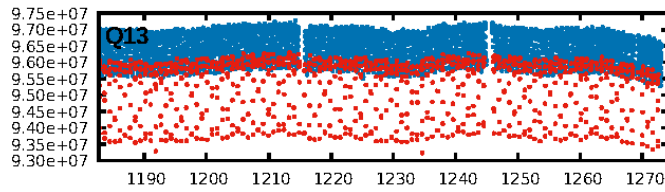
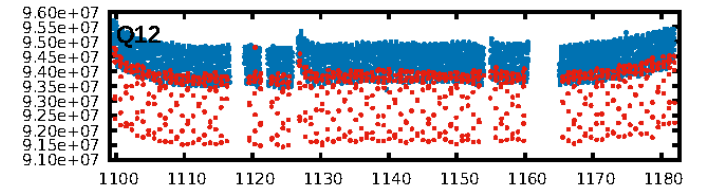
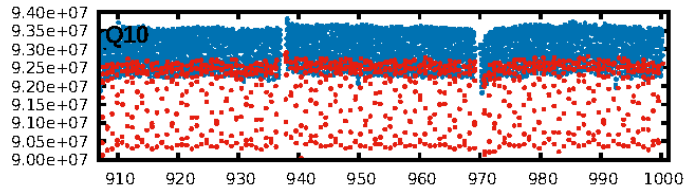
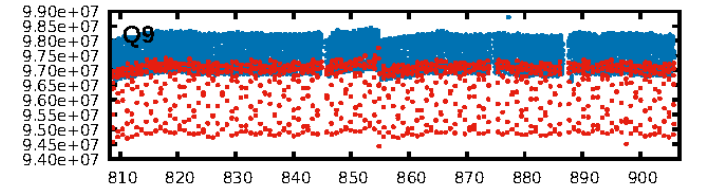
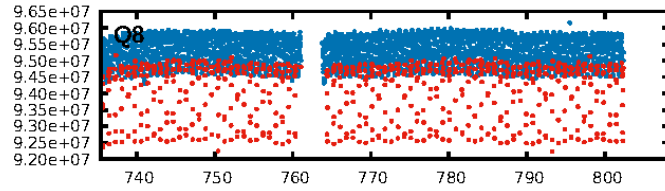
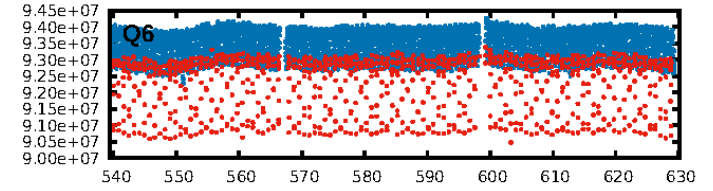
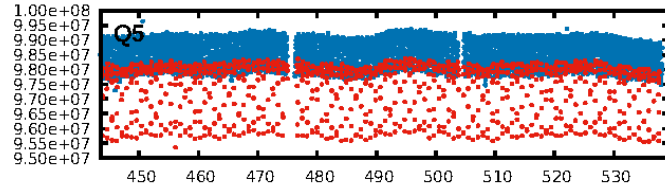
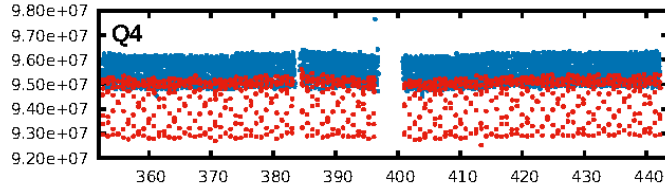
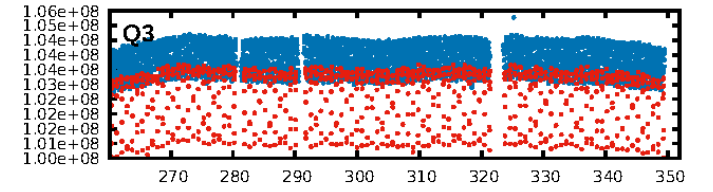
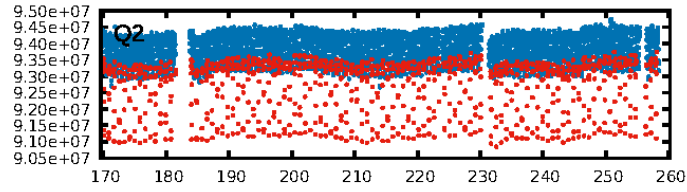
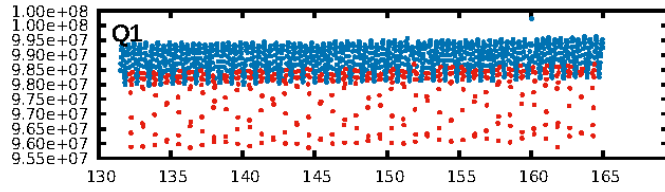
## DV Fit Results:

Period = 0.82207 [0.00000] d  
Epoch = 132.2423 [0.0000] BKJD  
Rp/R\* = 0.2007 [0.0068]  
a/R\* = 2.37 [0.01]  
b = 0.96 [0.01]  
Seff = 17726.41 [10717.20]  
Teq = 2942 [445] K  
Rp = 42.07 [15.48] Re  
a = 0.0184 [0.0067] AU  
Ag = N/A  
Teffp = N/A

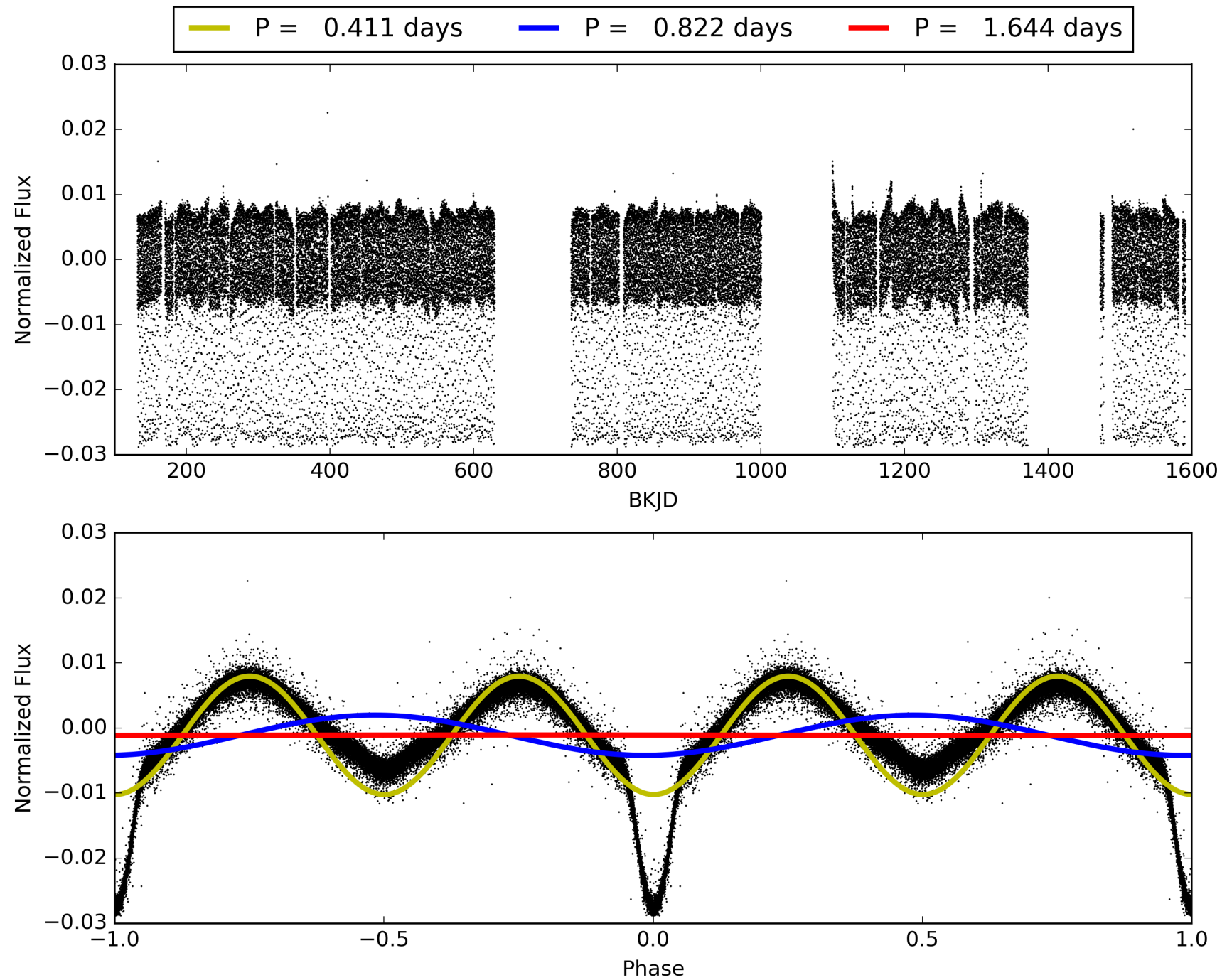
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.96 [1175/1228]  
GhostDiagnostic-chr: 2.025  
Centroid-sig: 0.0%  
Centroid-so: 0.175 arcsec [72.30σ]  
OotOffset-rm: 0.017 arcsec [0.26σ]  
KicOffset-rm: 0.088 arcsec [1.30σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 009790965-01, PDC Light Curves

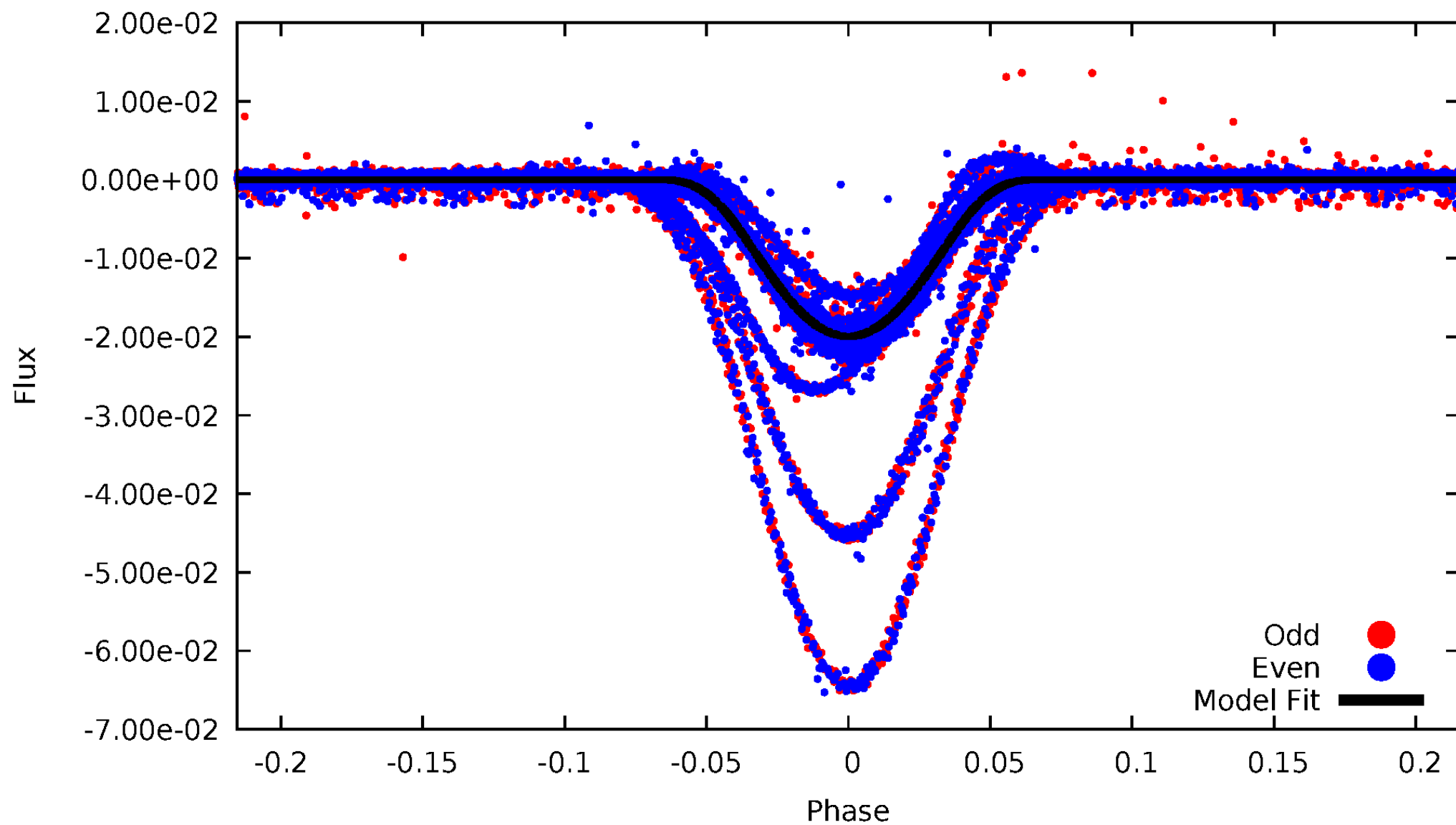


TCE 009790965-01



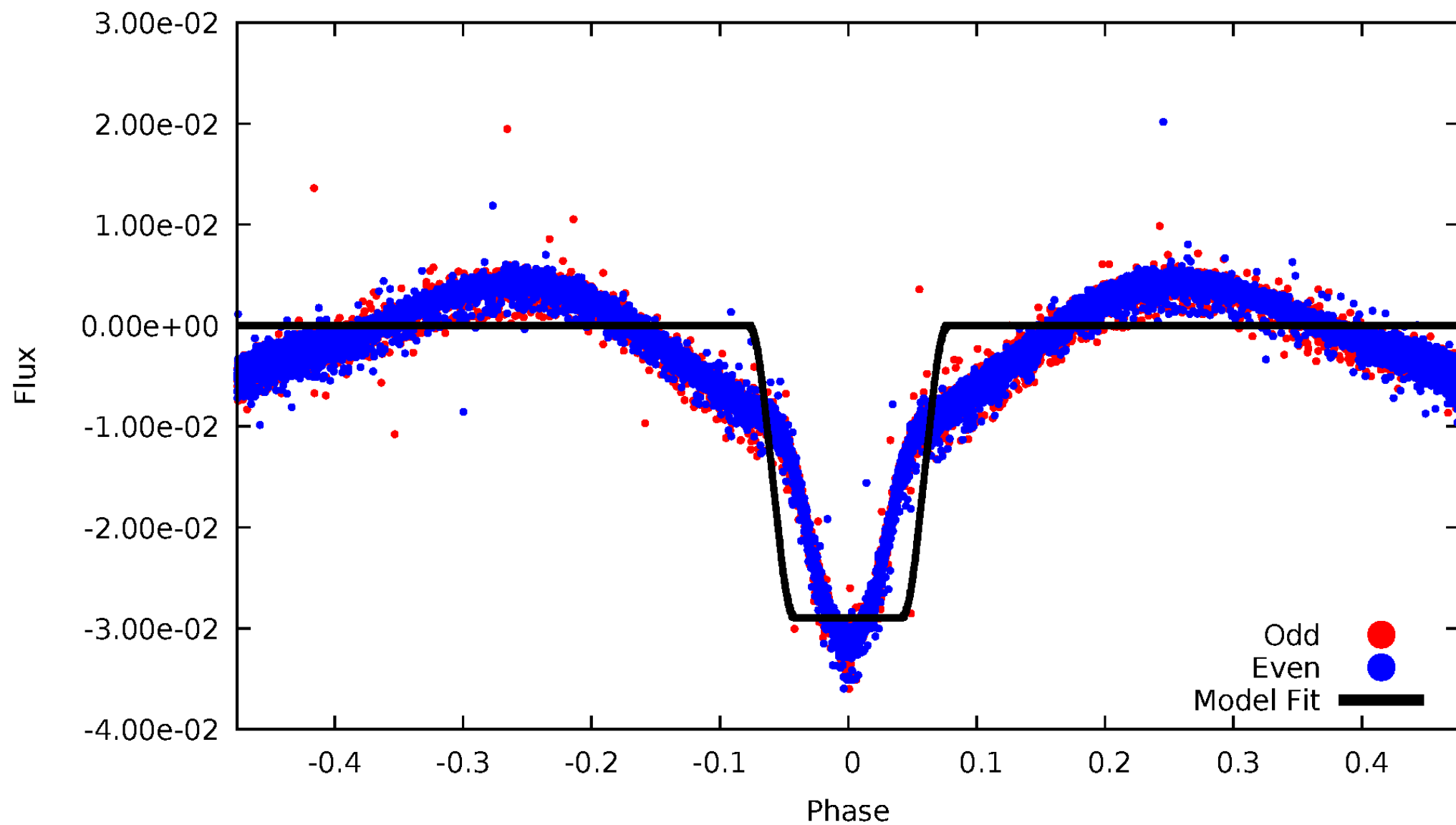
# DV Odd/Even

TCE 009790965-01



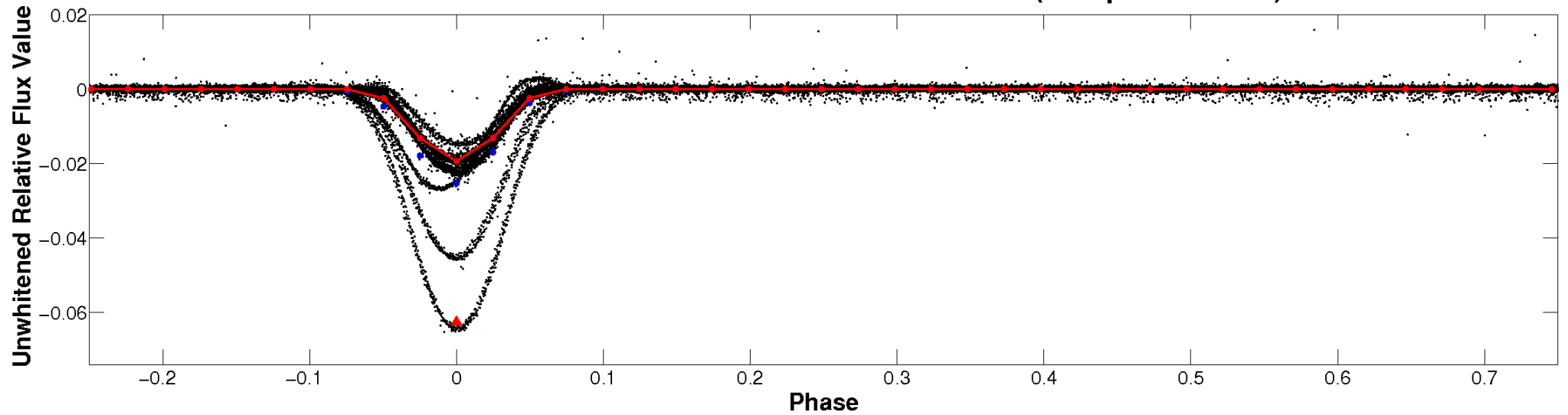
# ALT Odd/Even

TCE 009790965-01

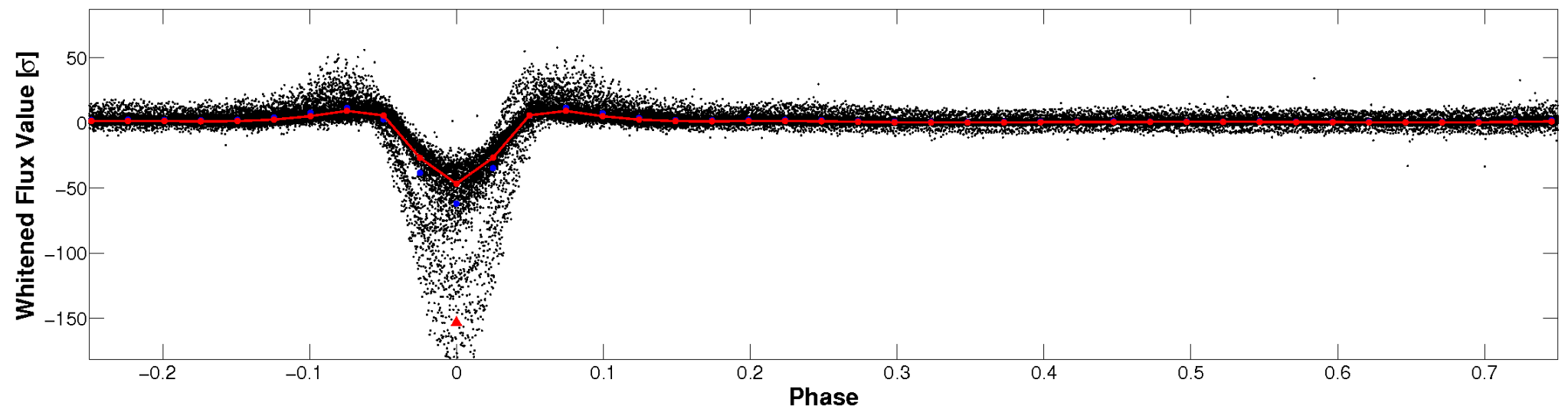


# Non-Whitened Vs. Whitened Light Curve

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

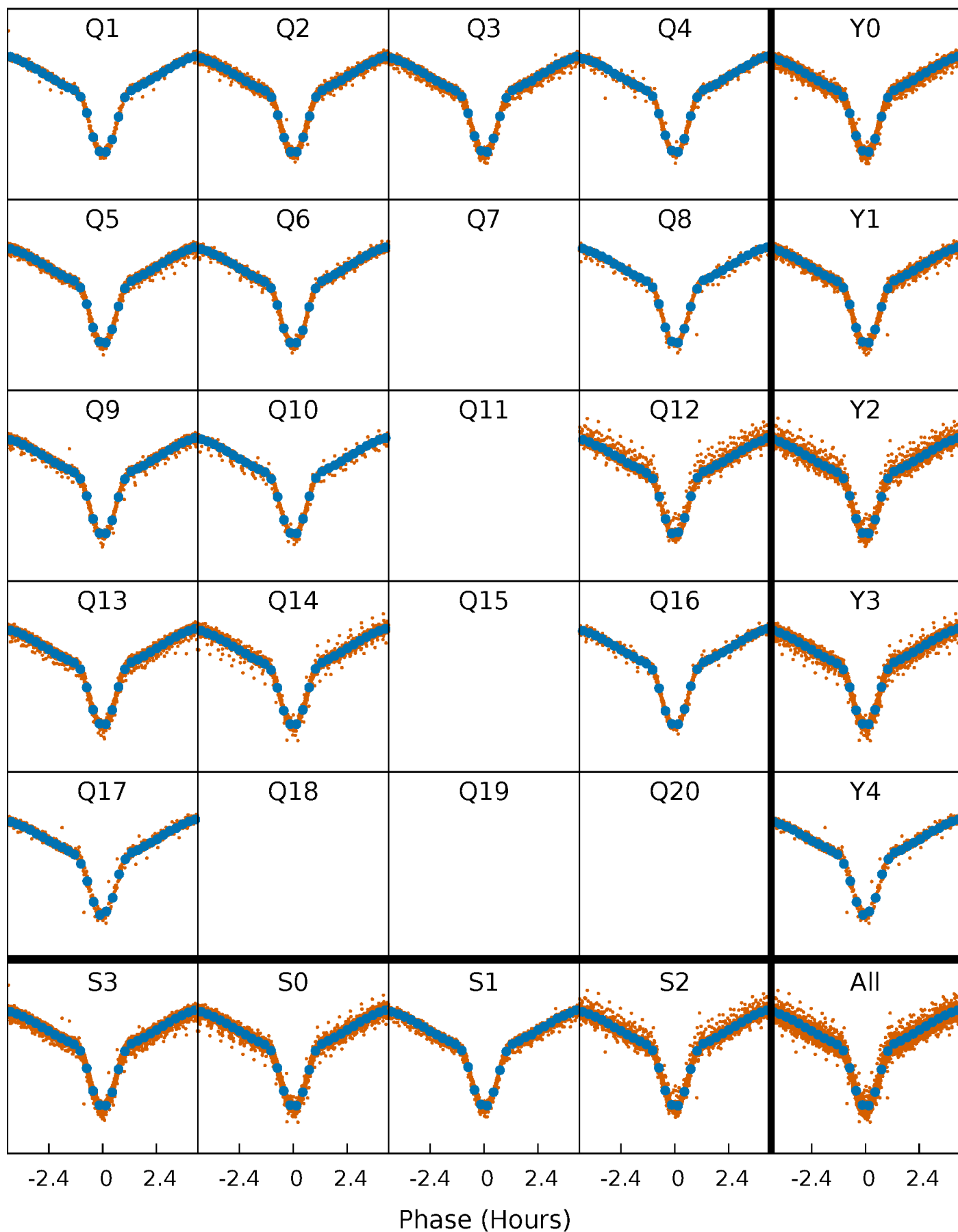


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

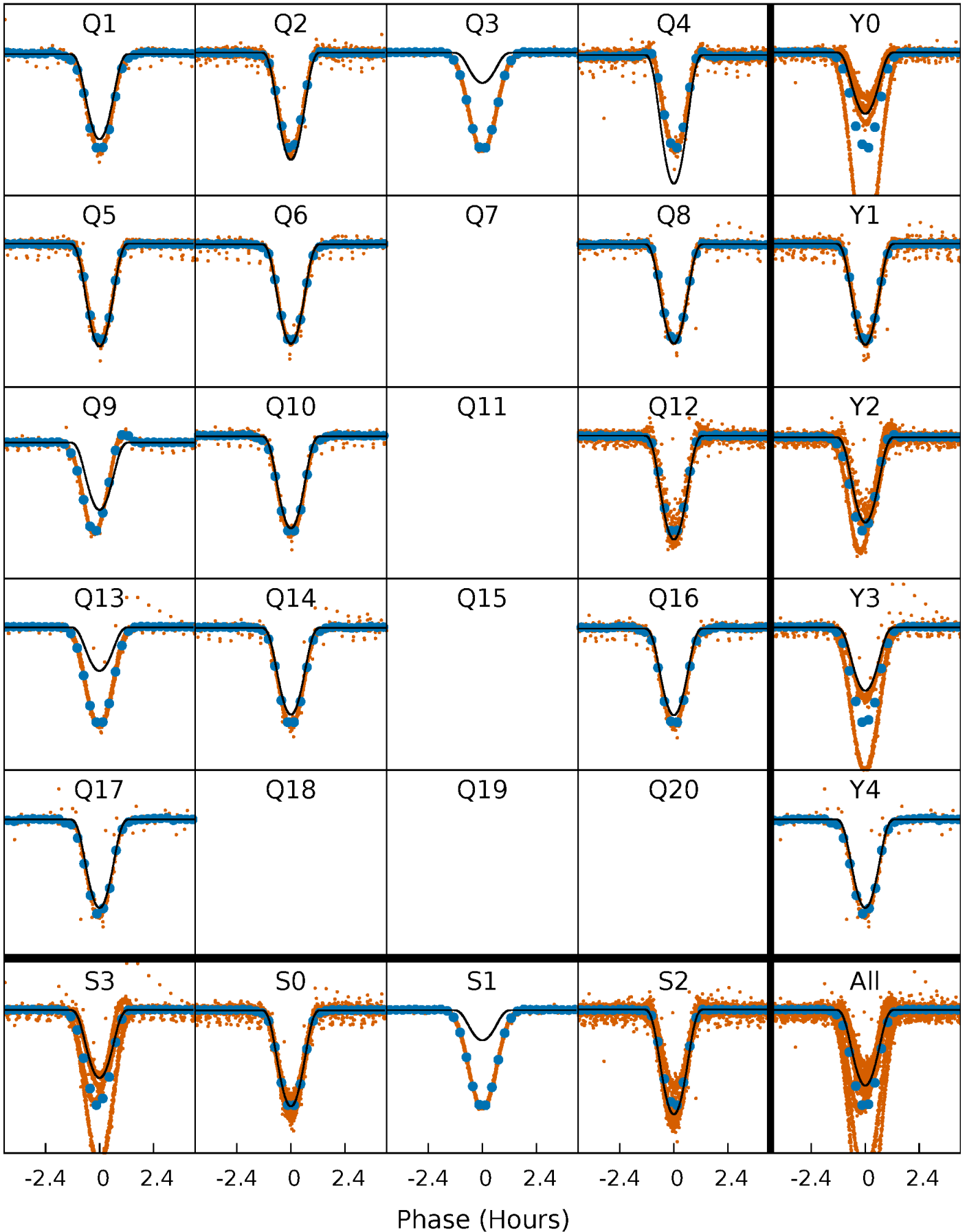
TCE 009790965-01   P= 0.822068 Days    $T_0=132.242273$  (BKJD)





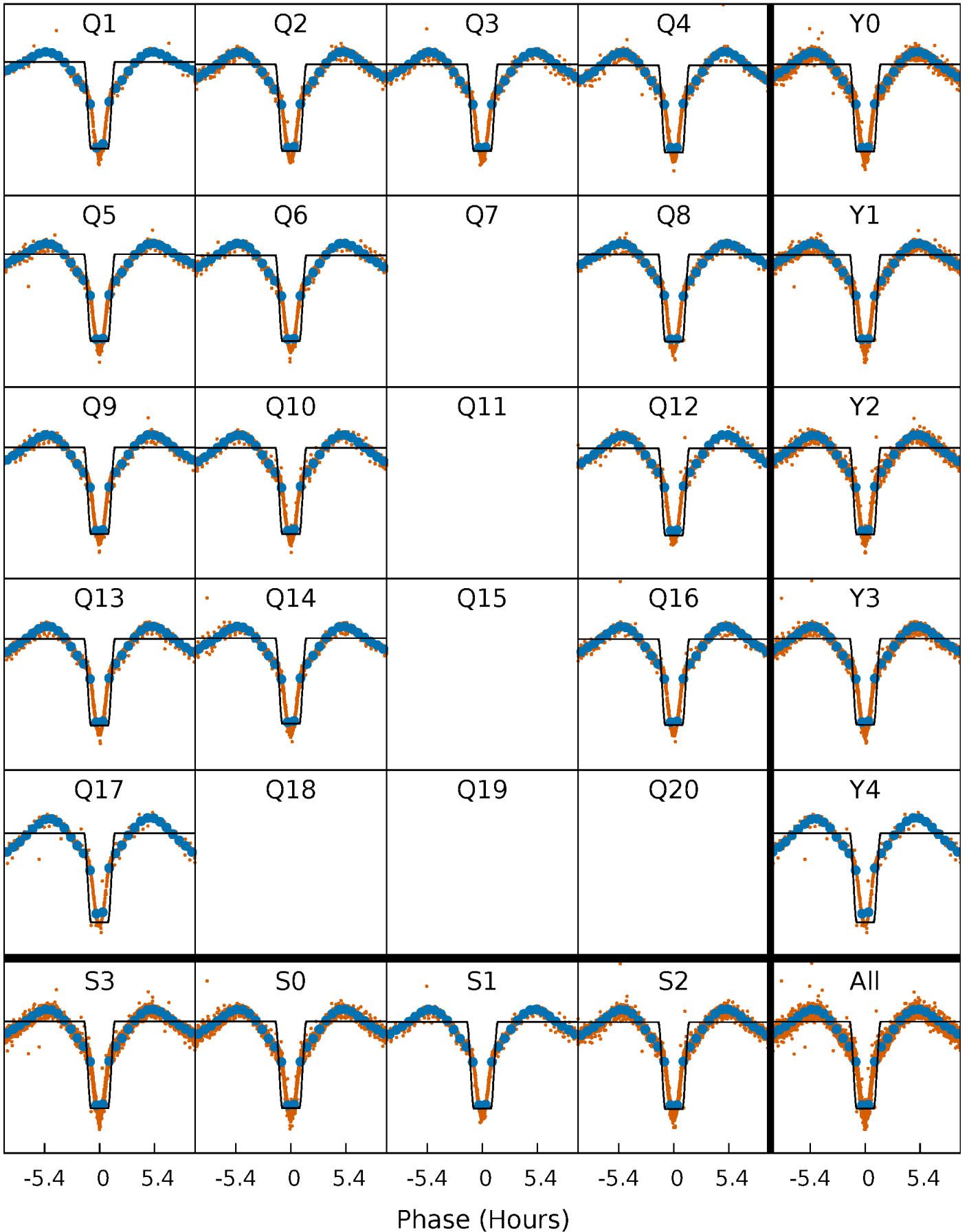
# DV Quarter-Phased Transit Curves

TCE 009790965-01   P= 0.822068 Days    $T_0=132.242273$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

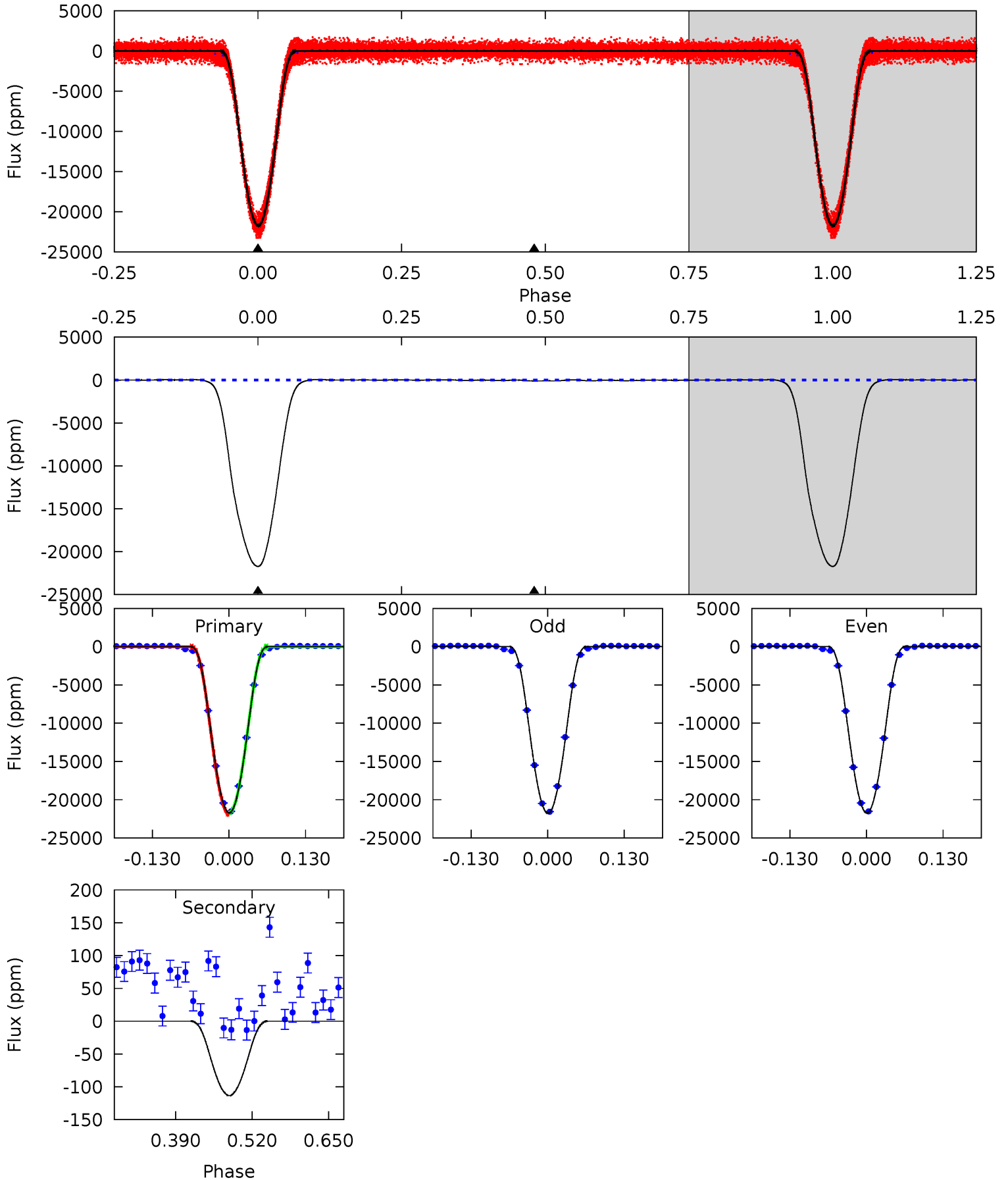
TCE 009790965-01   P= 0.822068 Days    $T_0=132.243427$  (BKJD)



# DV Model-Shift Uniqueness Test

009790965-01, P = 0.822068 Days, E = 131.420205 Days

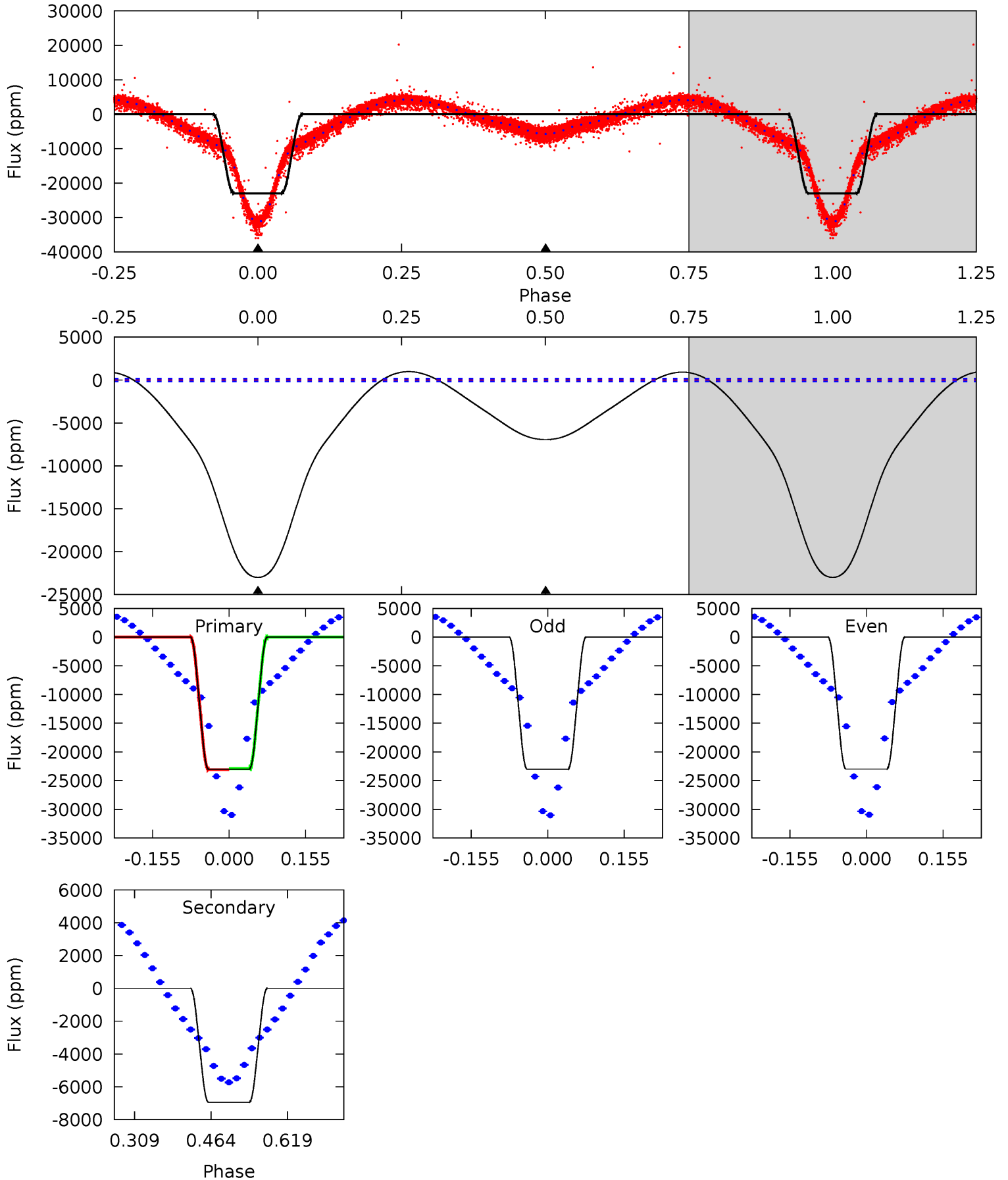
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3219	16.8	0	0	4.51	1.51	3.64	3219	3219	16.8	16.8	3.07	1.22	0.00	23.7



# Alt Model-Shift Uniqueness Test

009790965-01, P = 0.822068 Days, E = 131.421359 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
669.0	201.8	0	0	4.47	1.42	37.7	669.0	669.0	201.8	201.8	0.13	1.00	0.04	2.46



### Stellar Parameters For KIC 009790965

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6531^{+175}_{-214}$	$3.962^{+0.350}_{-0.150}$	$-0.280^{+0.250}_{-0.300}$	$1.921^{+0.512}_{-0.704}$	$1.234^{+0.201}_{-0.221}$	$0.245^{+0.650}_{-0.102}$
	+3%/-3%	+9%/-4%	+89%/-107%	+27%/-37%	+16%/-18%	+265%/-42%
Source	PHO1	KIC0	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 009790965-01 / KOI 7231.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-113 \pm 7$	$41.36^{+6.03}_{-8.74}$	$4031^{+318}_{-425}$	$-3681^{+268}_{-203}$	$0.013^{+0.007}_{-0.003}$
Alt.	$-6937 \pm 34$	$34.66^{+6.10}_{-7.09}$	$4032^{+320}_{-464}$	$4419^{+159}_{-185}$	$1.107^{+0.584}_{-0.298}$

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

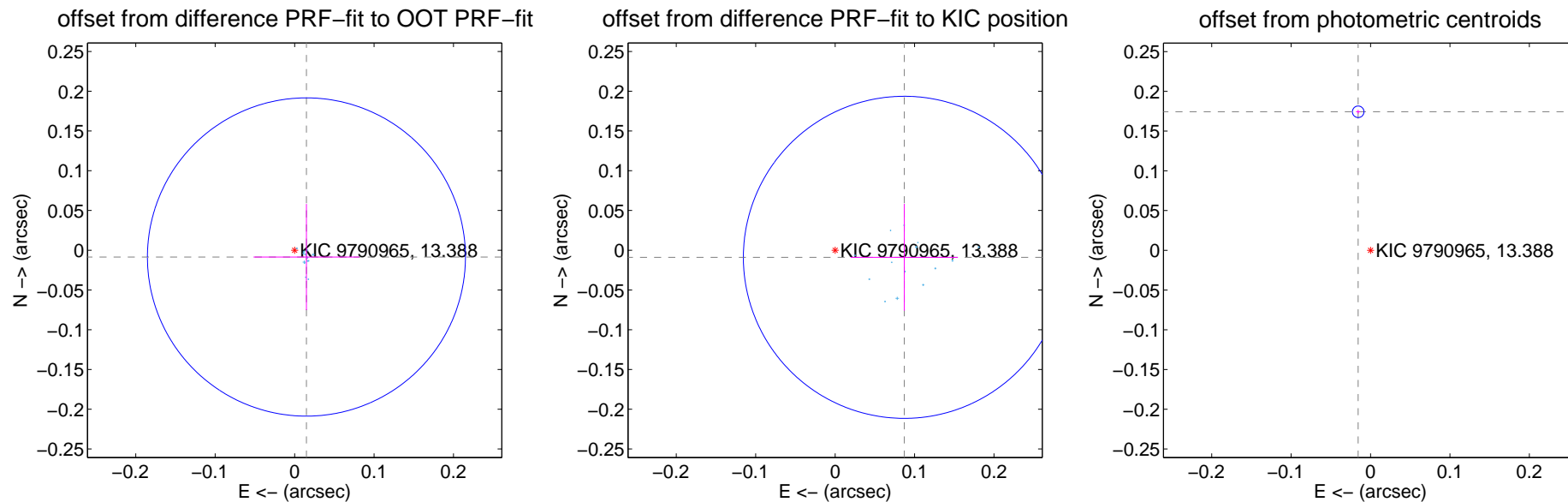
## DV Centroid Data

Supplemental centroid analysis for 009790965-01. Kepler magnitude: 13.39. Transit SNR 1555.14

There are 14 quarters with good PRF difference image offsets

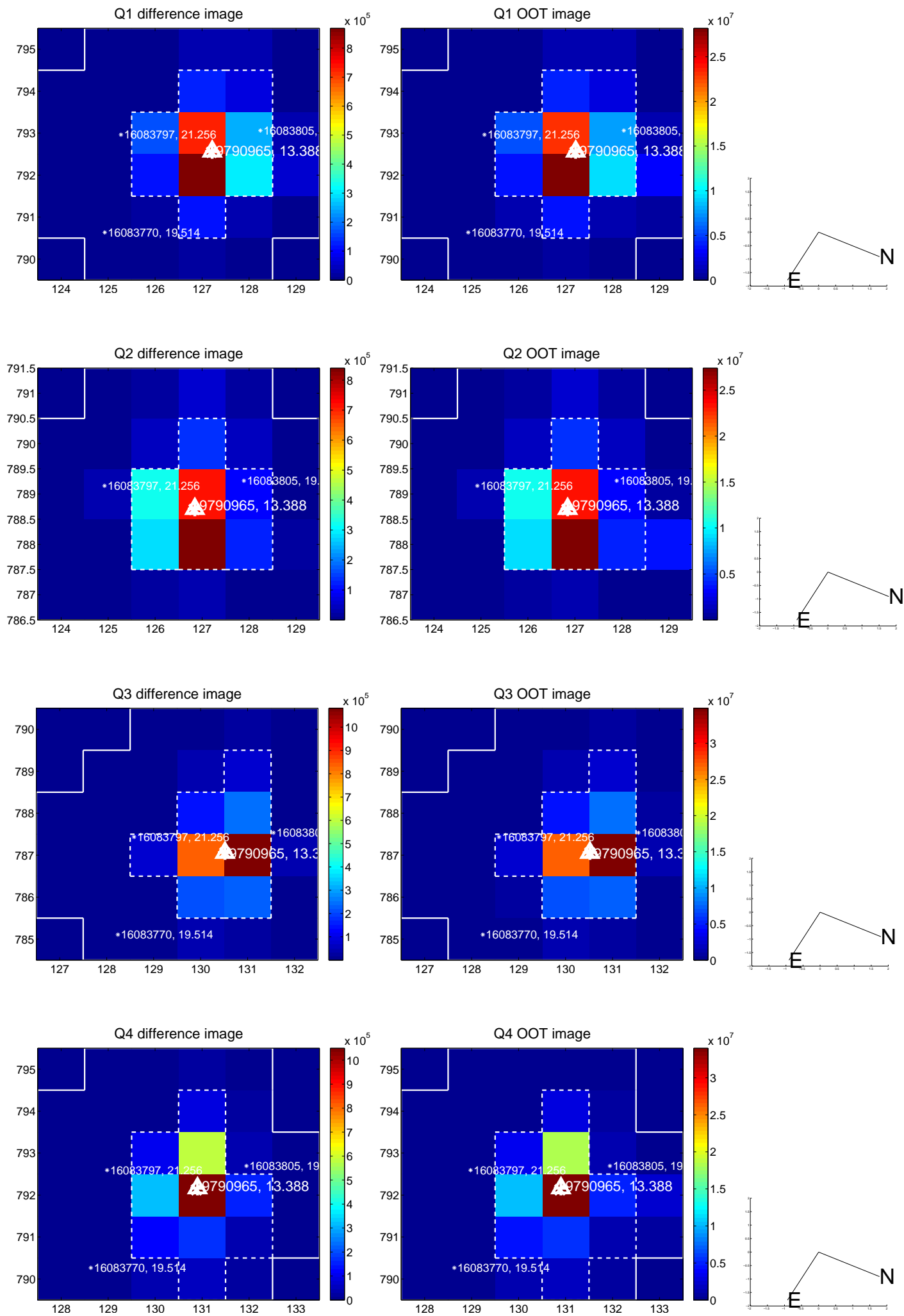
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.017 \pm 0.067$	0.26	$-0.015 \pm 0.067$	$-0.009 \pm 0.067$
PRF-fit source offset from KIC position	$0.088 \pm 0.068$	1.30	$-0.087 \pm 0.068$	$-0.009 \pm 0.067$
photometric centroid source offset	$0.17 \pm 0.00$	72.30	$0.02 \pm 0.00$	$0.17 \pm 0.00$

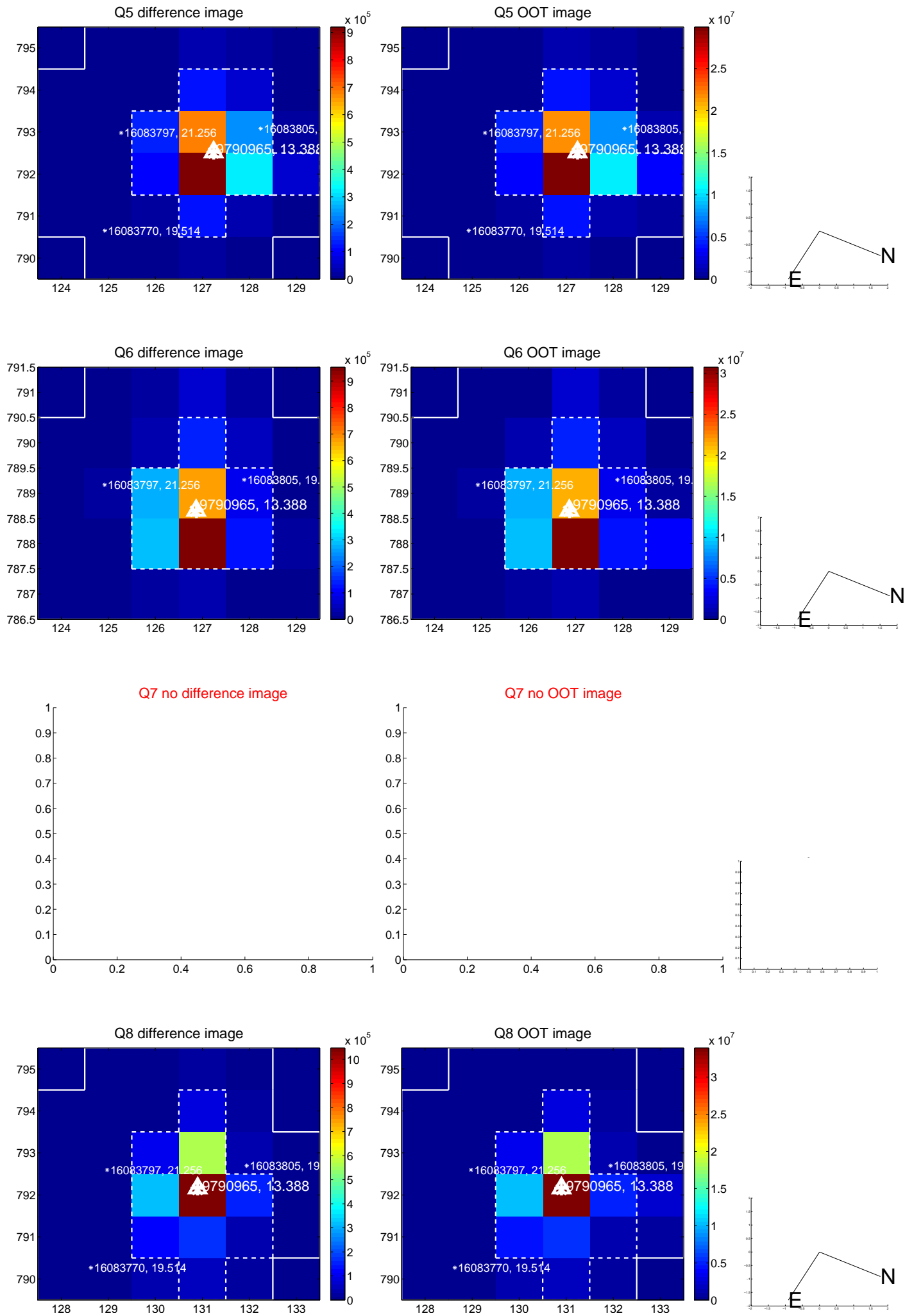


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

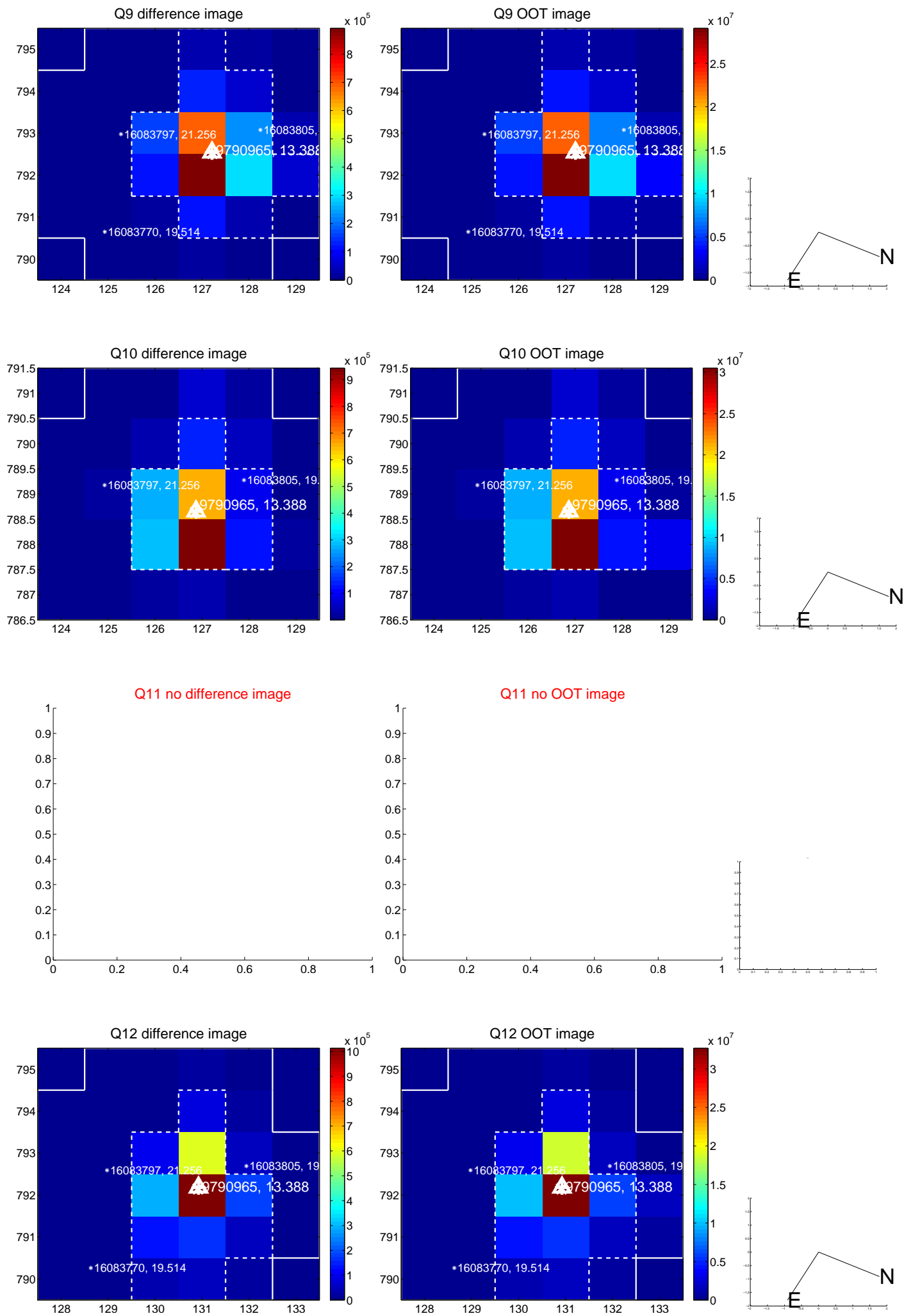


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

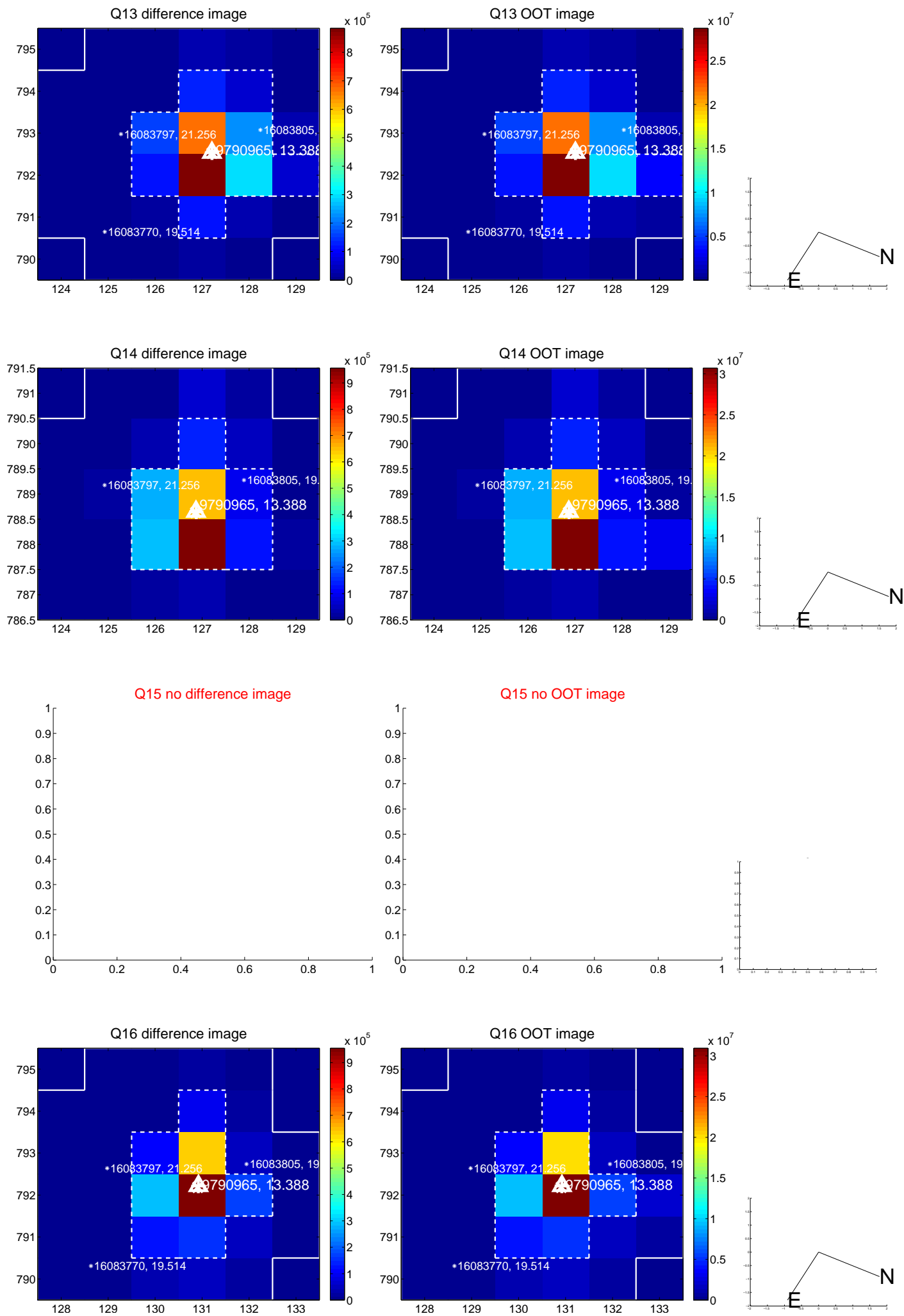




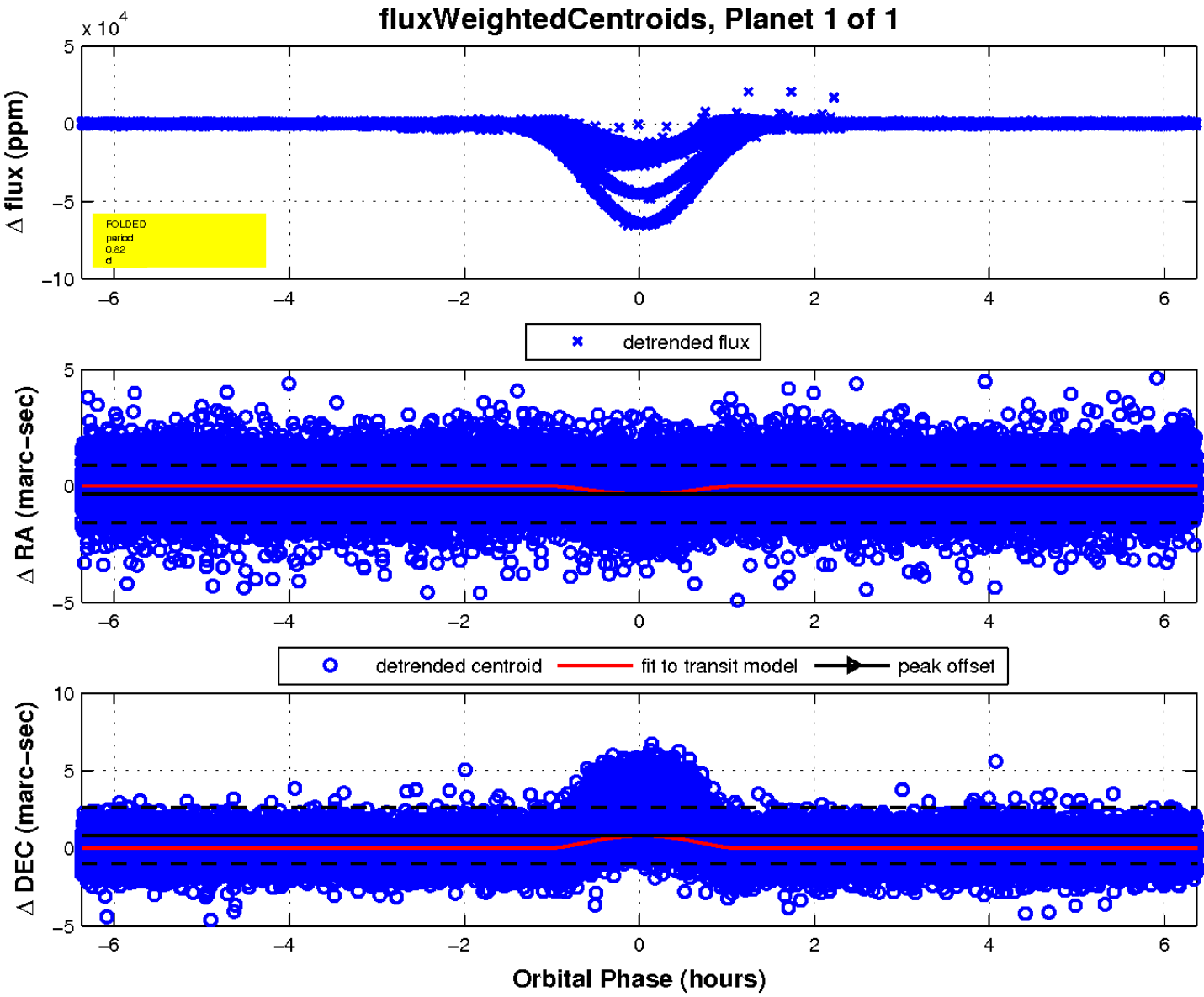
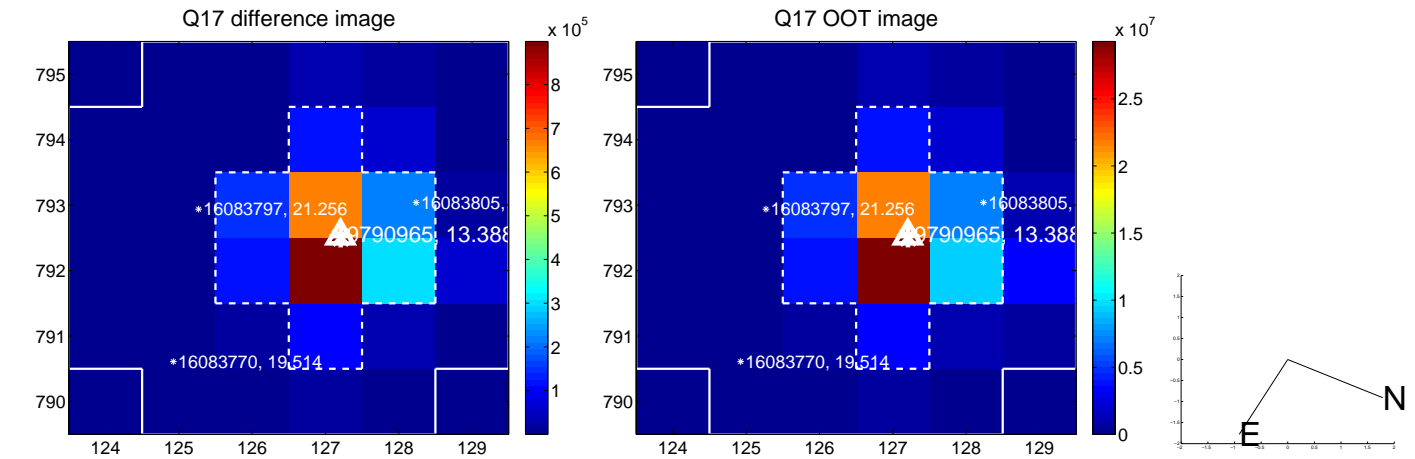
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

