

# KIC 003832716

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832716-01	OBS	0027.01	1.141868	131.517444	296608.7	2.000	6993.1	-1.0	1.37	6158	29.76	5385.46
003832716-02	OBS	No	0.570938	131.513277	14210.0	2.000	1967.3	-1.0	1.37	6158	16.40	13570.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832716-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
003832716-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SAME_NTL_PERIOD—CENT_NOFITS

**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.

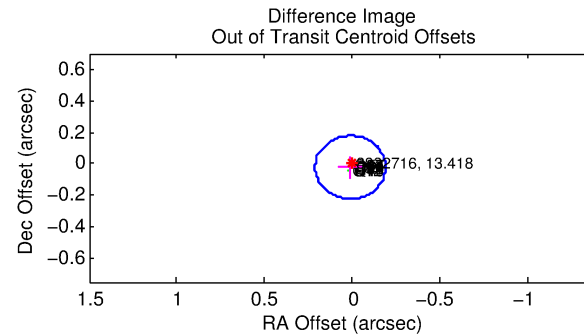
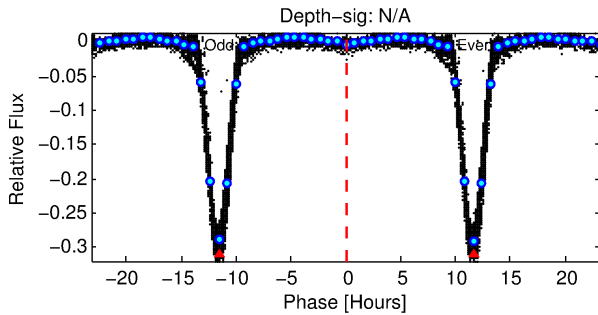
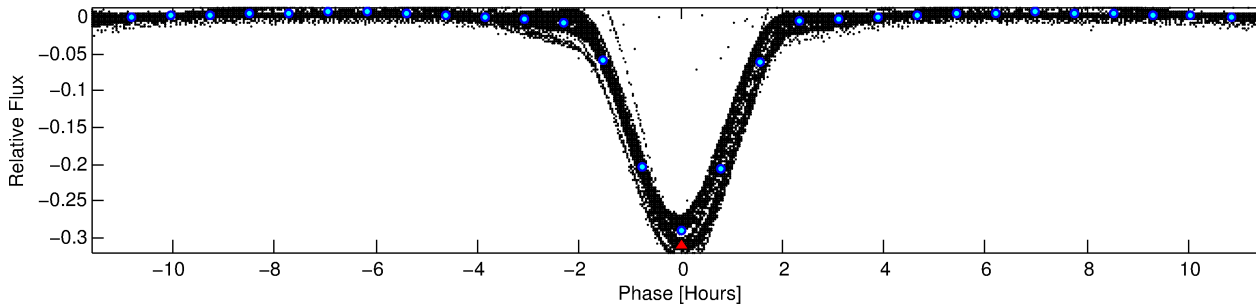
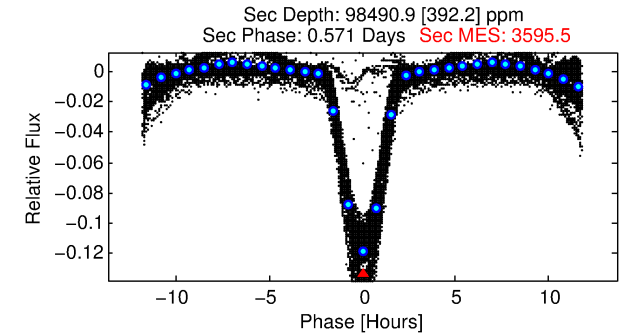
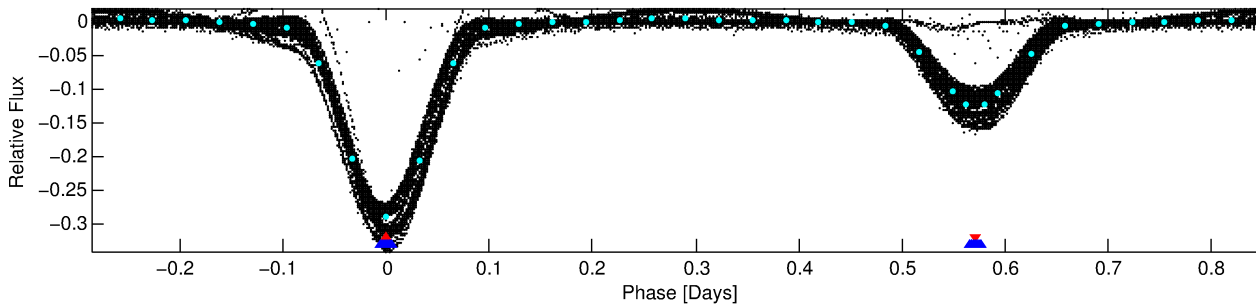
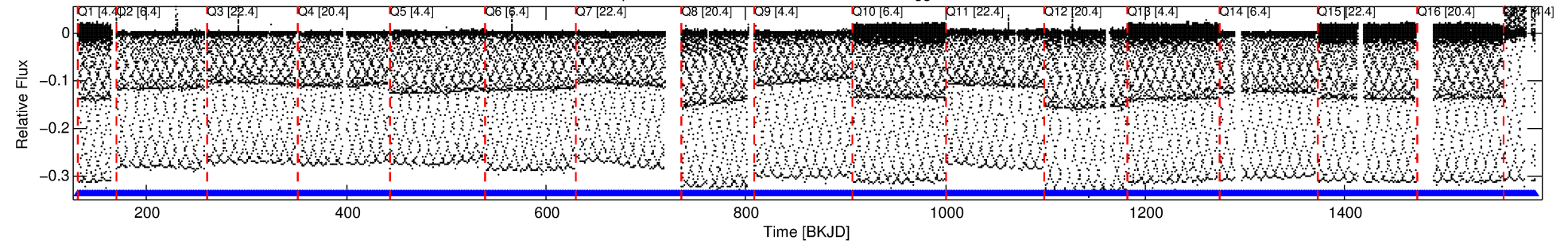
## Ephemeris Match Information For 003832716-01

No Significant Match Found

# DV One-Page Summary

KIC: 3832716 Candidate: 1 of 2 Period: 1.142 d  
KOI: K00027 Corr: No Ephemeris Match

Kp: 13.42 R\*: 1.37 Rs Teff: 6158.0 K Logg: 4.15 Fe/H: -0.380



## TPS TCE Results:

Period = 1.14187 d  
Epoch = 131.5174 BKJD

DV fit results are unavailable

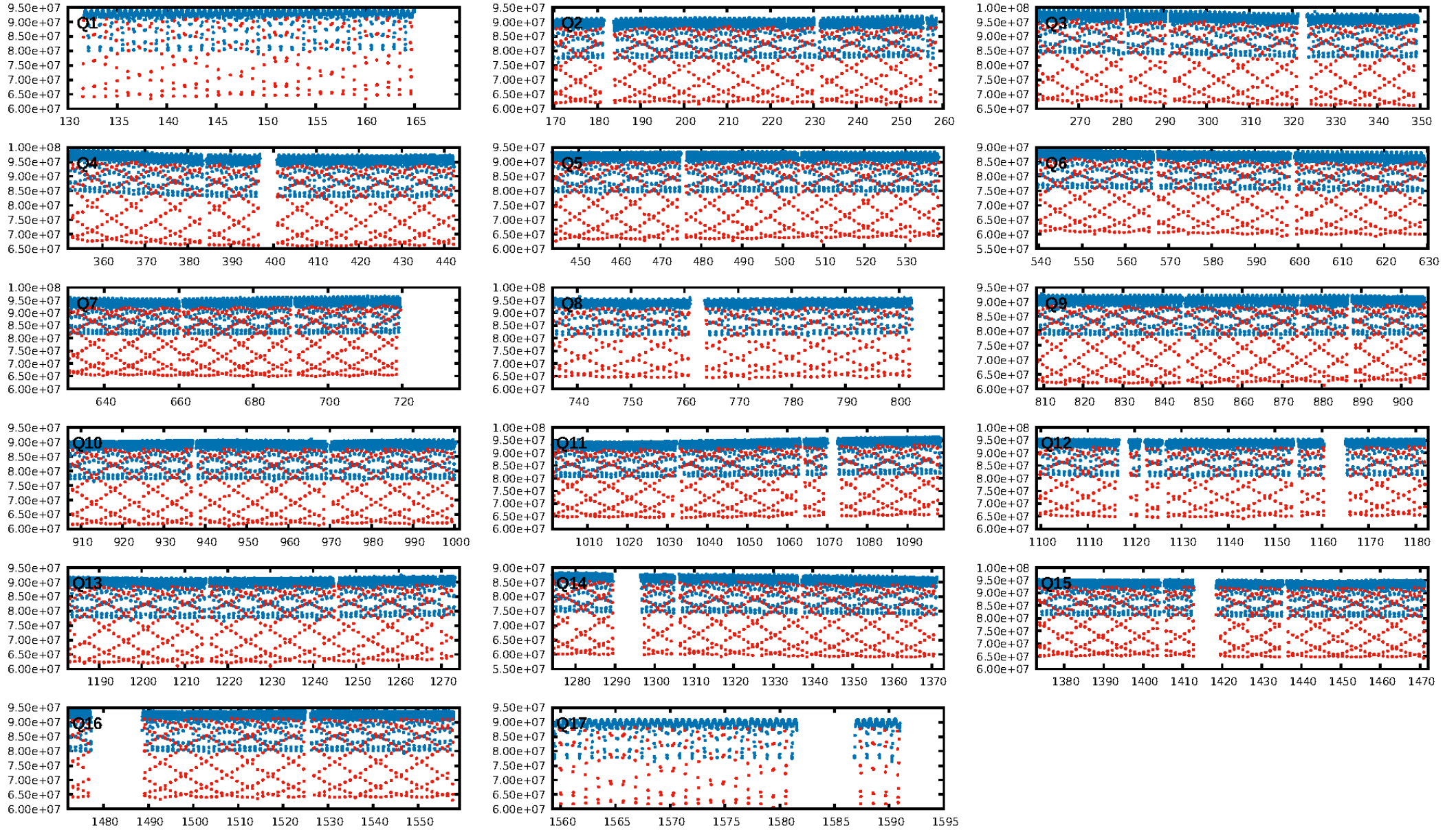
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.84 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1122/1122]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.025 arcsec [0.38 $\sigma$ ]  
KicOffset-rm: 0.041 arcsec [0.61 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

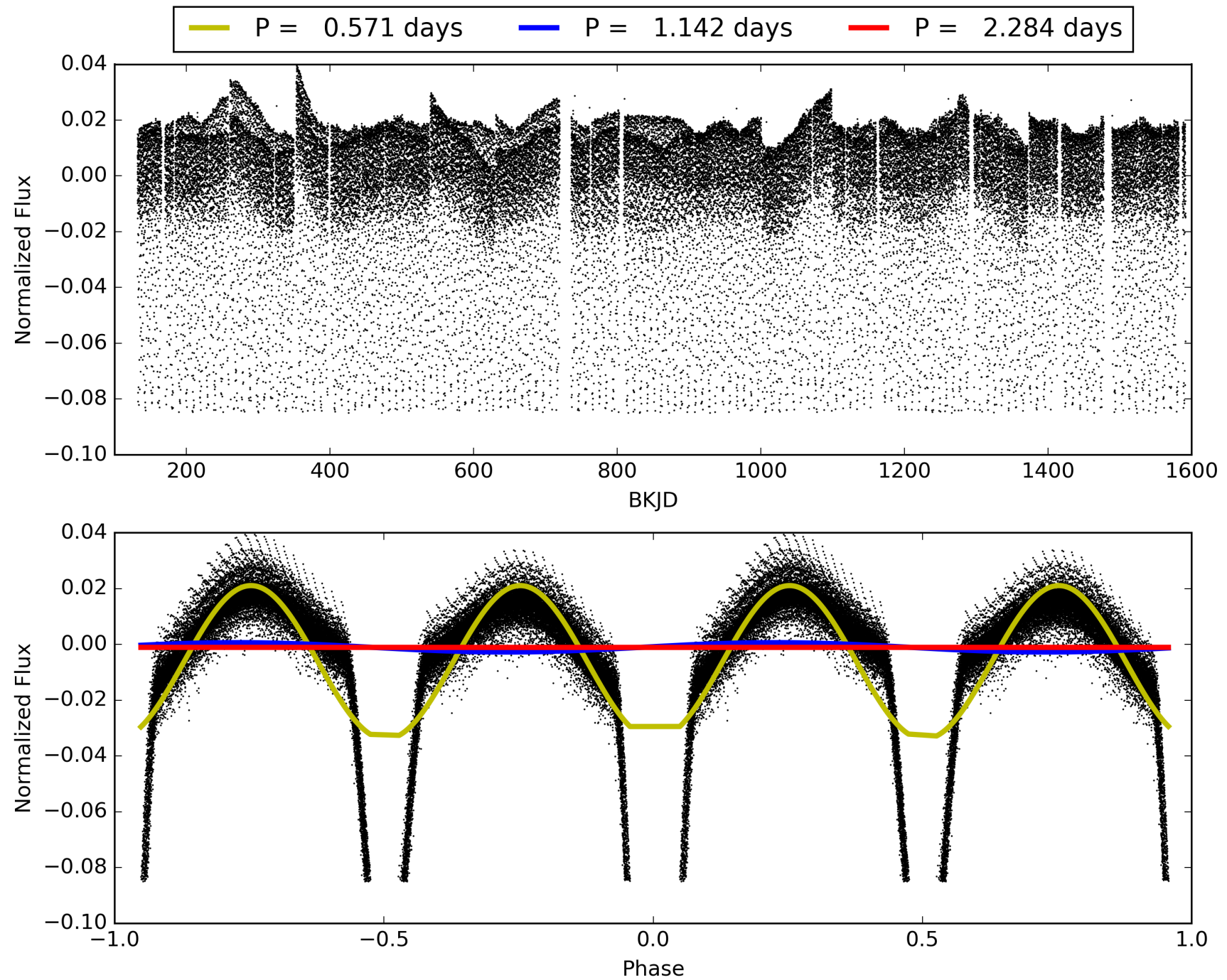
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 10:56:20 Z

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

# TCE 003832716-01, PDC Light Curves

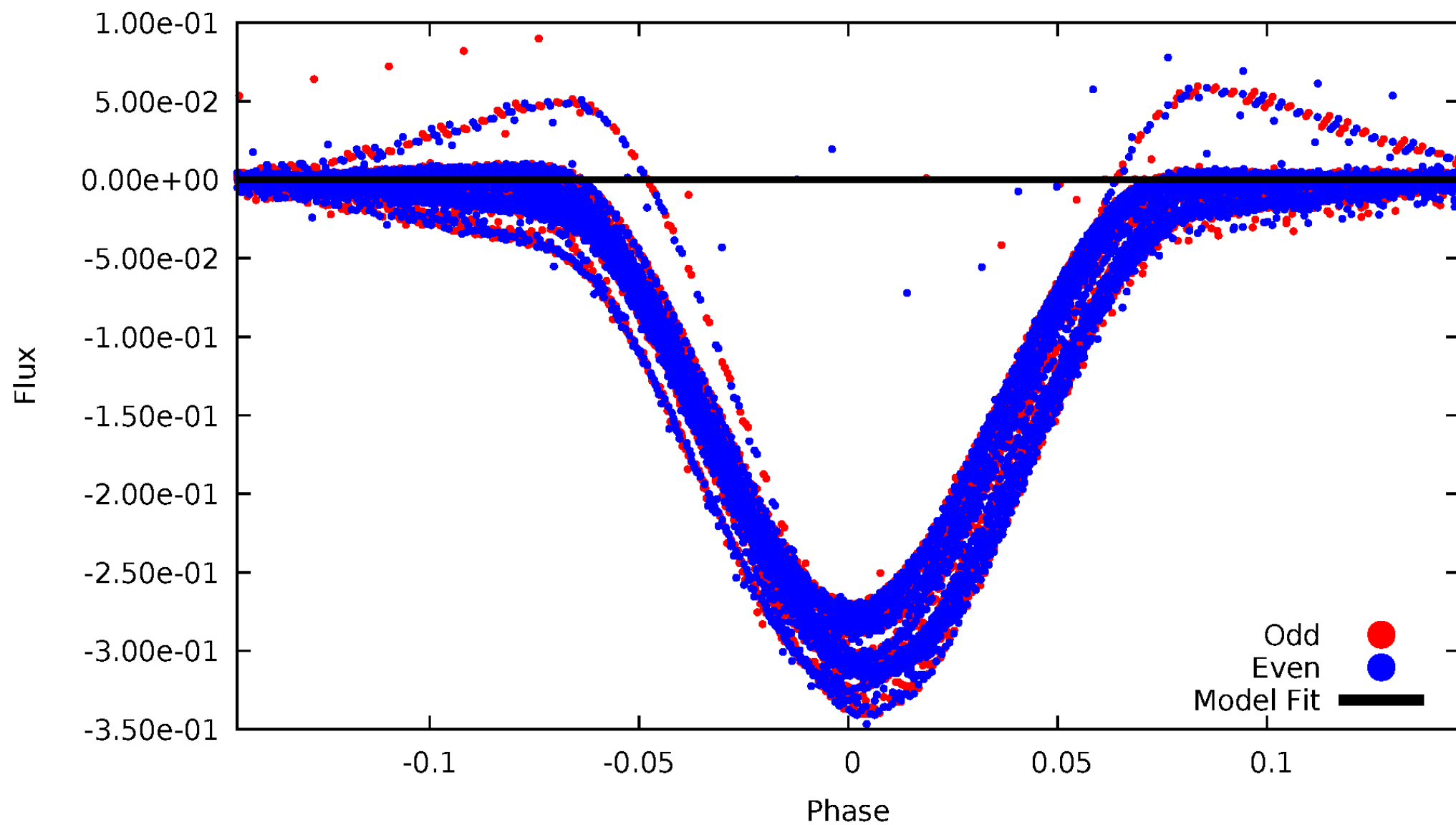


TCE 003832716-01



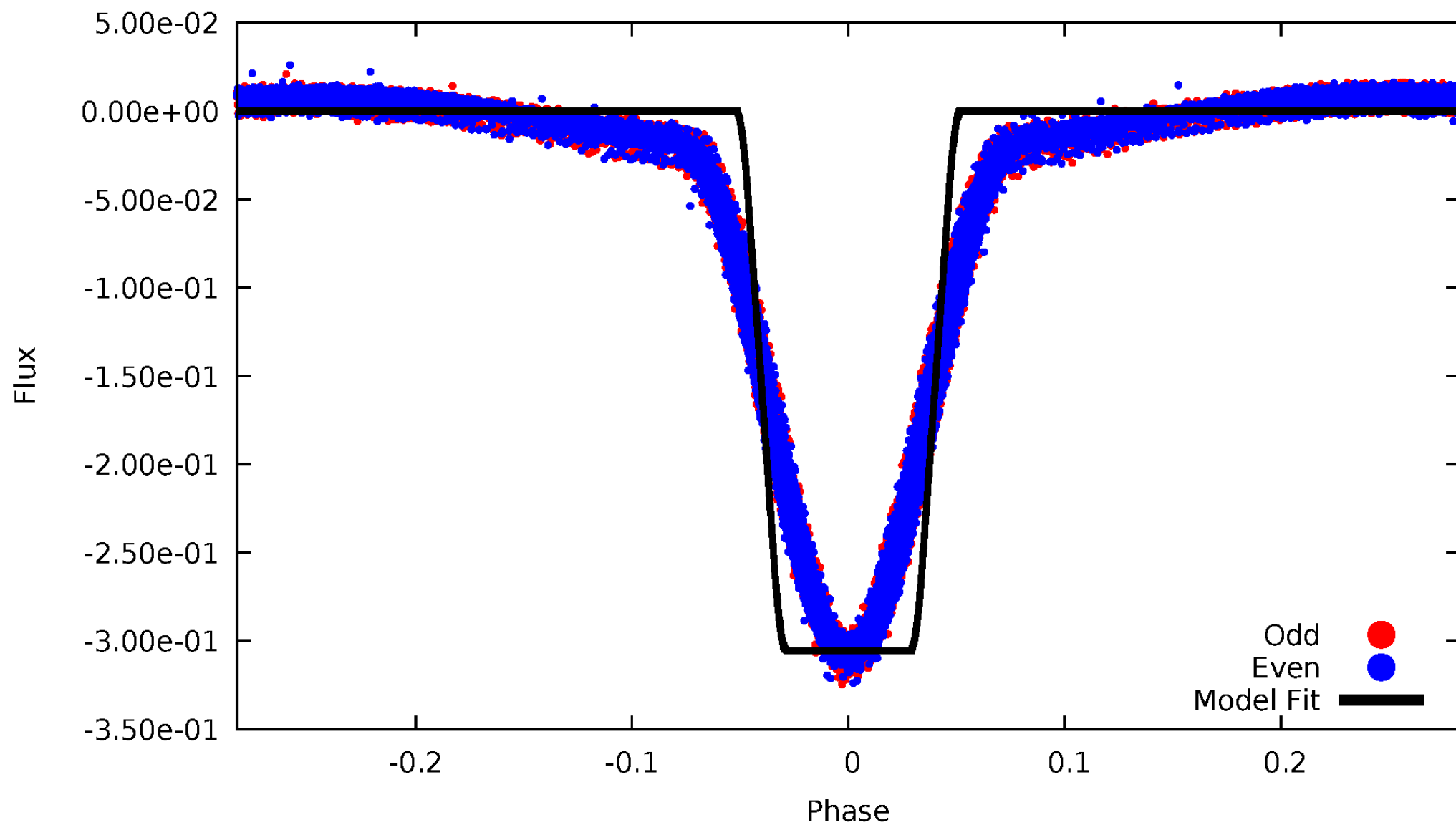
# DV Odd/Even

TCE 003832716-01



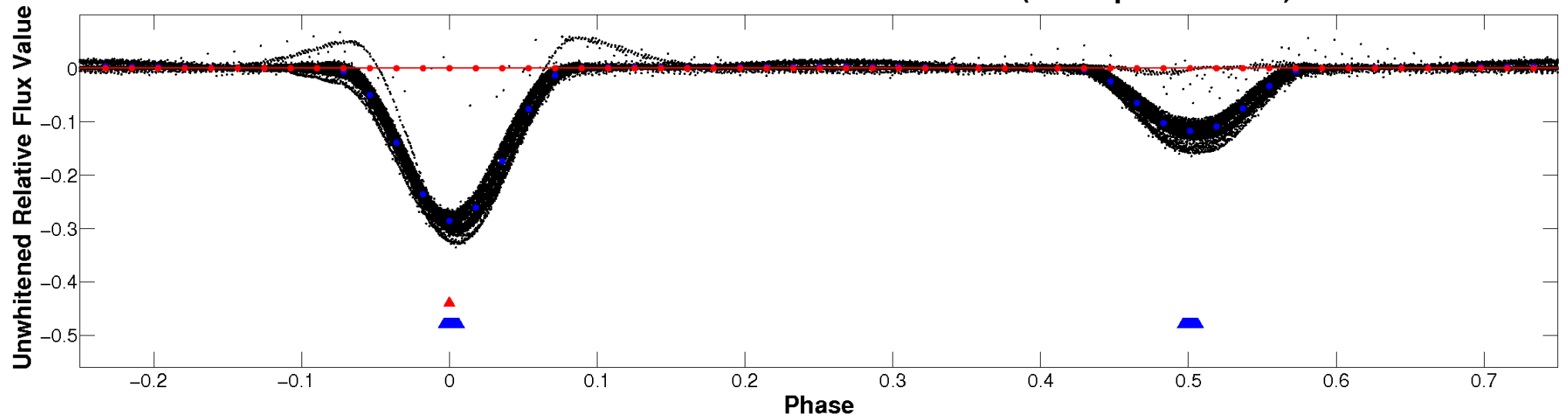
# ALT Odd/Even

TCE 003832716-01

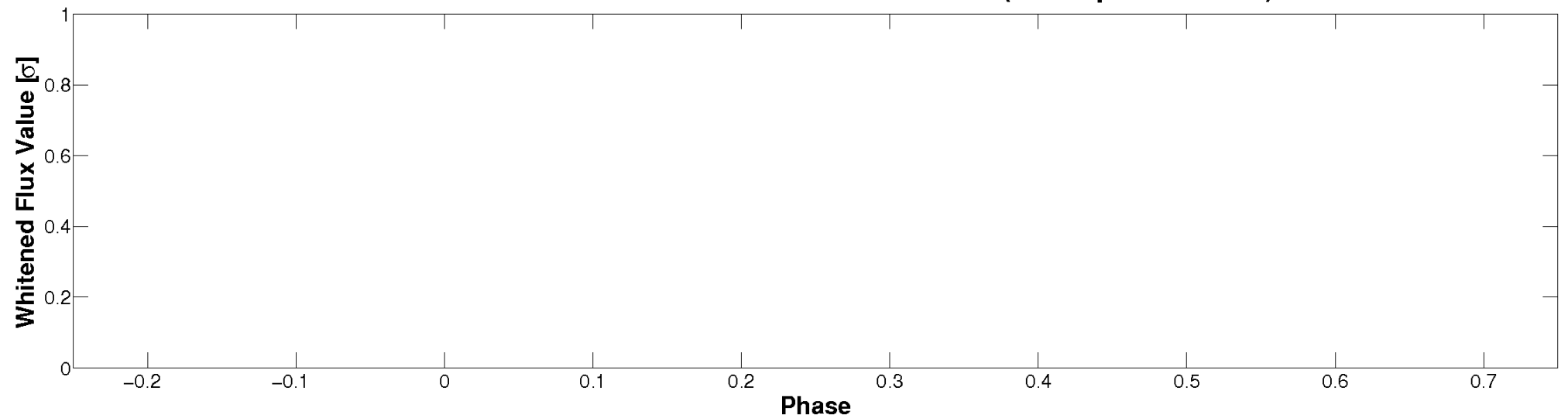


# Non-Whitened Vs. Whitened Light Curve

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



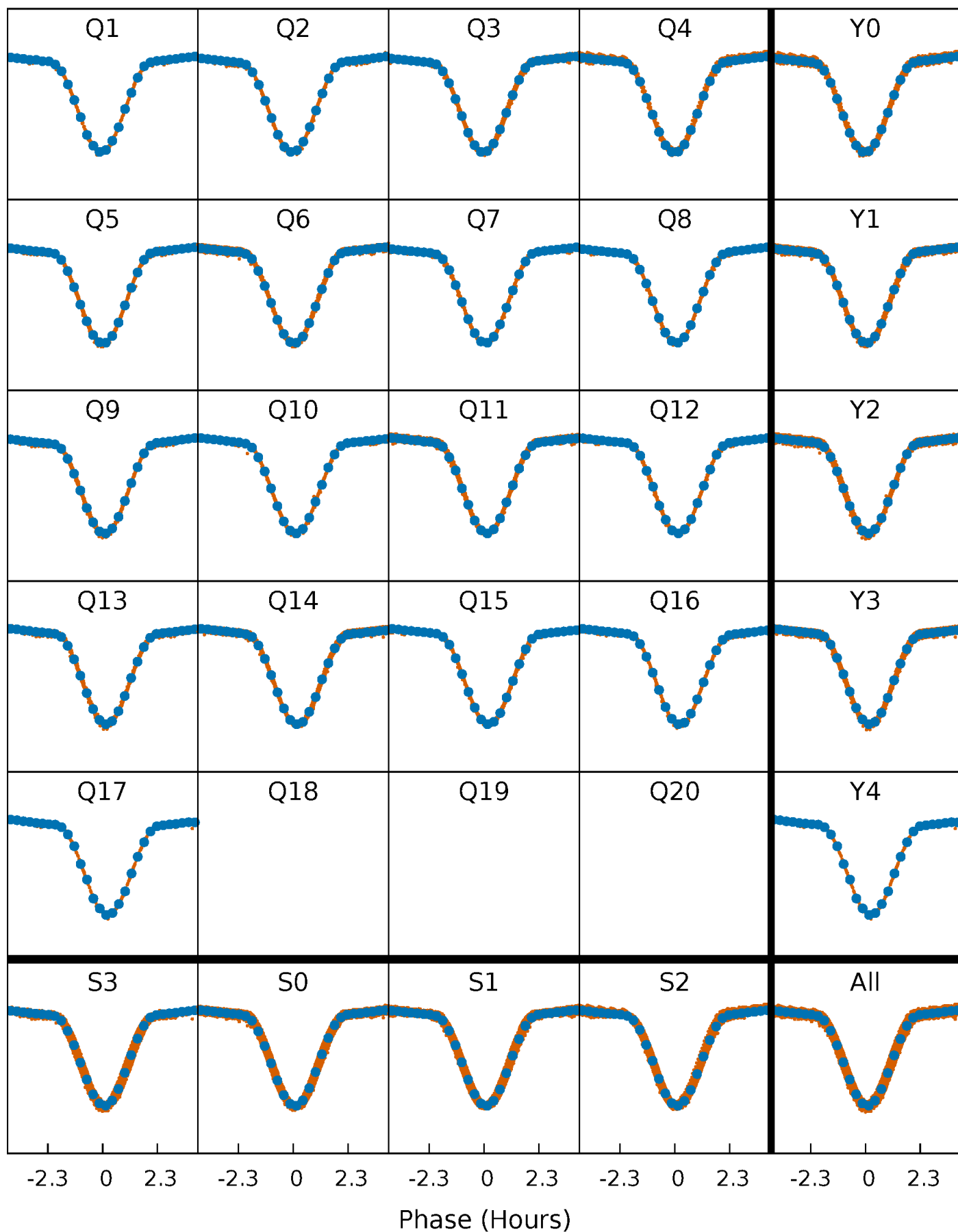
**Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





# PDC Quarter-Phased Transit Curves

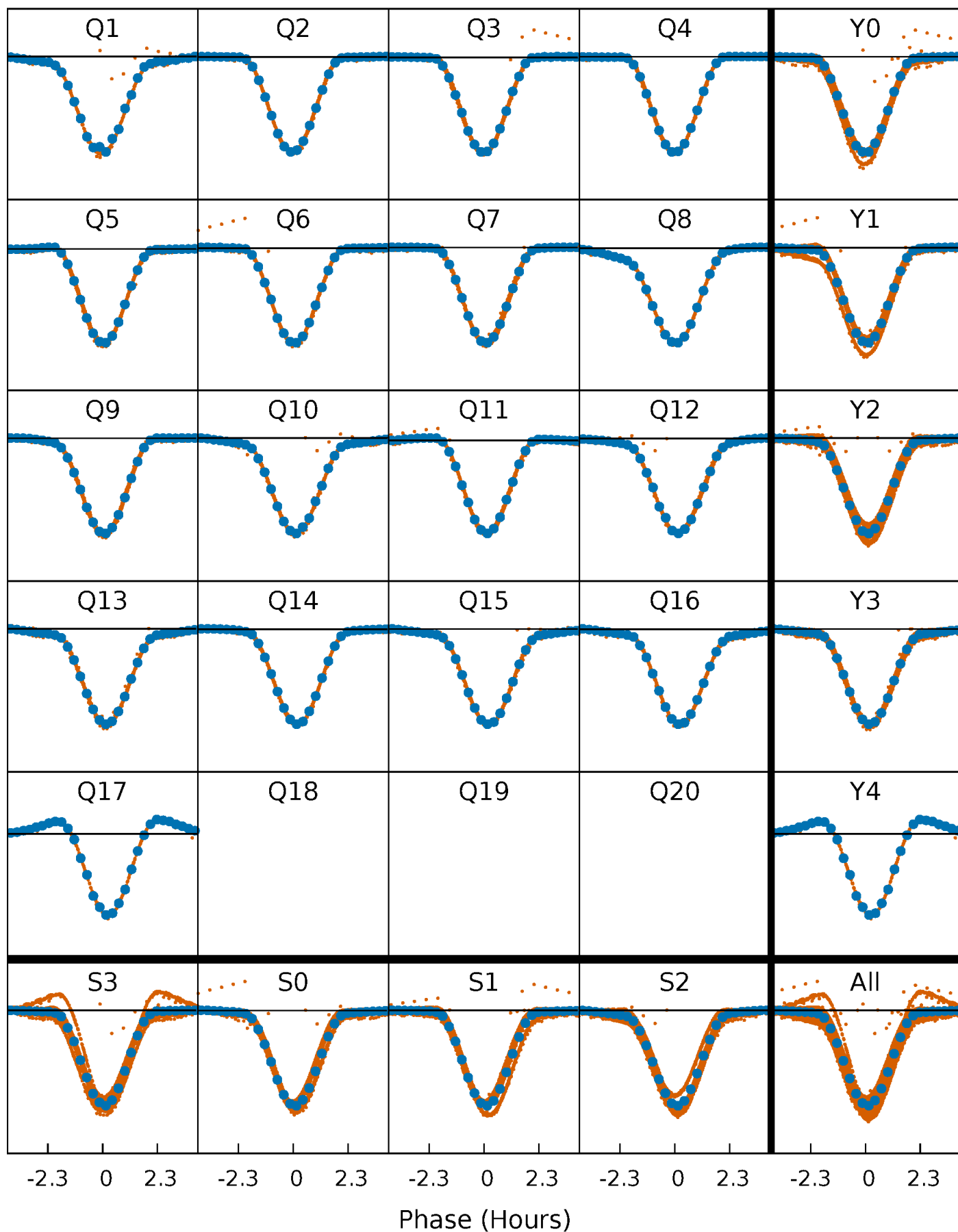
TCE 003832716-01 P= 1.141868 Days  $T_0=131.517444$  (BKJD)





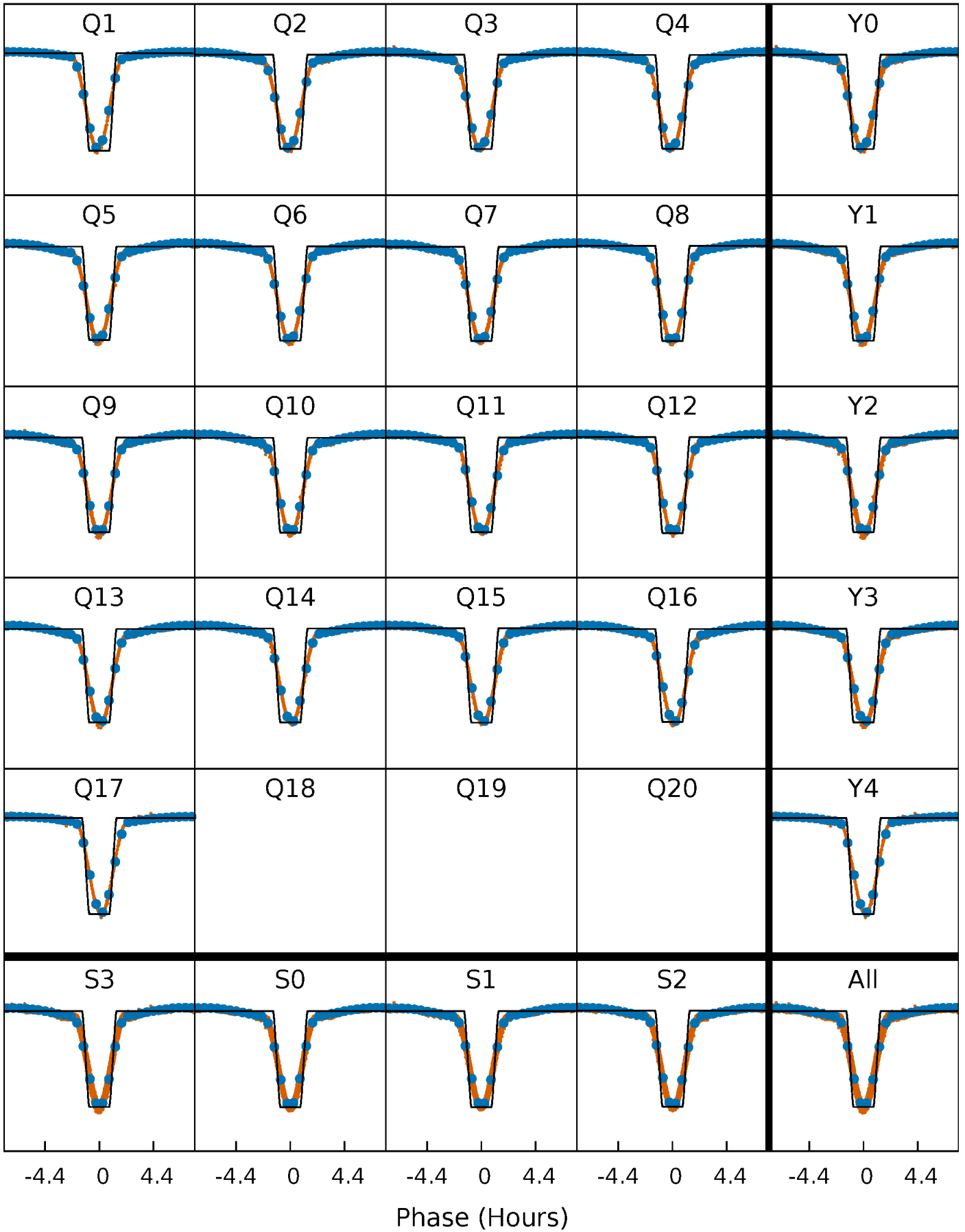
# DV Quarter-Phased Transit Curves

TCE 003832716-01 P= 1.141868 Days  $T_0=131.517444$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

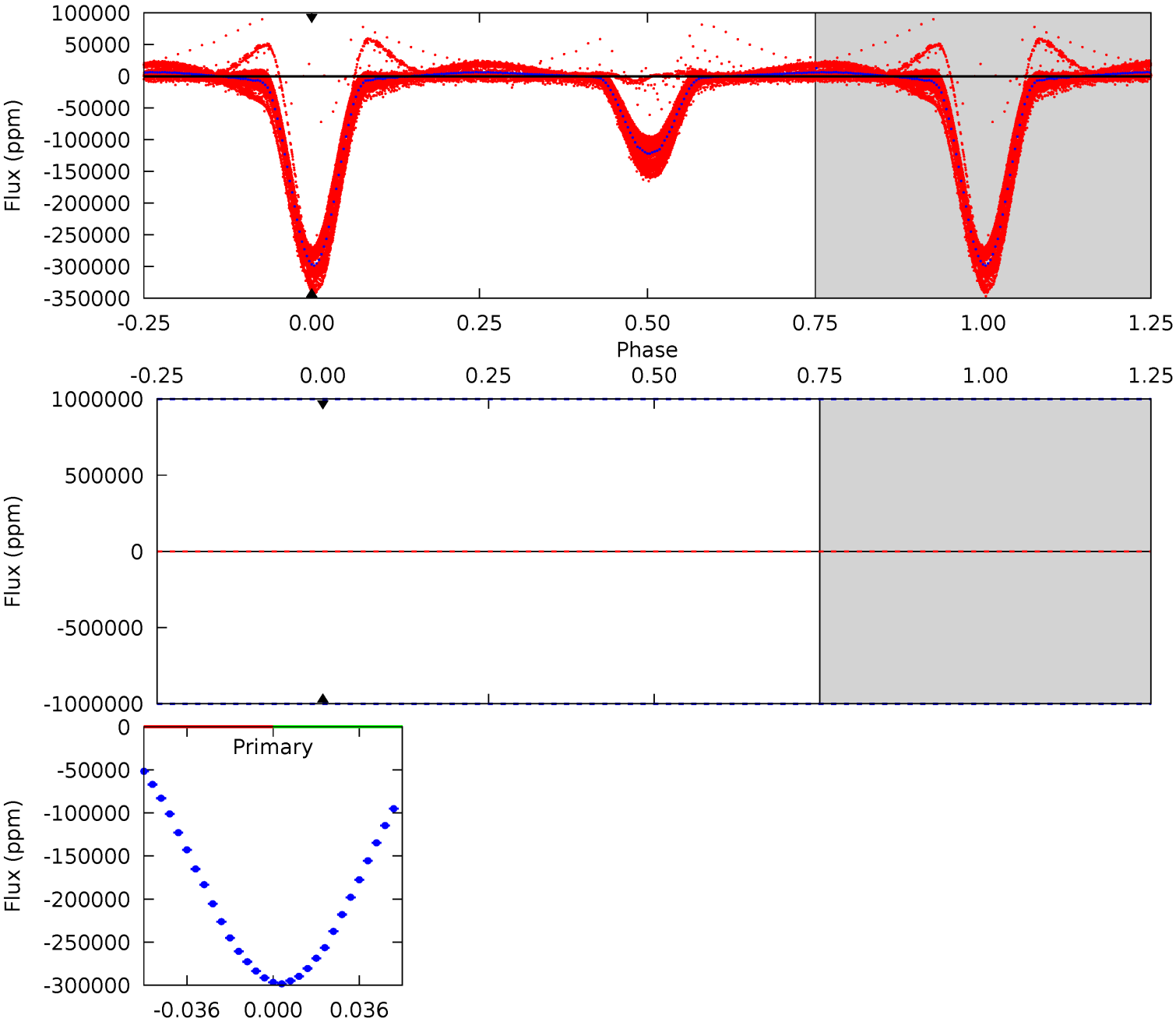
TCE 003832716-01 P= 1.141868 Days  $T_0=131.520601$  (BKJD)



# DV Model-Shift Uniqueness Test

003832716-01, P = 1.141868 Days, E = 130.375576 Days

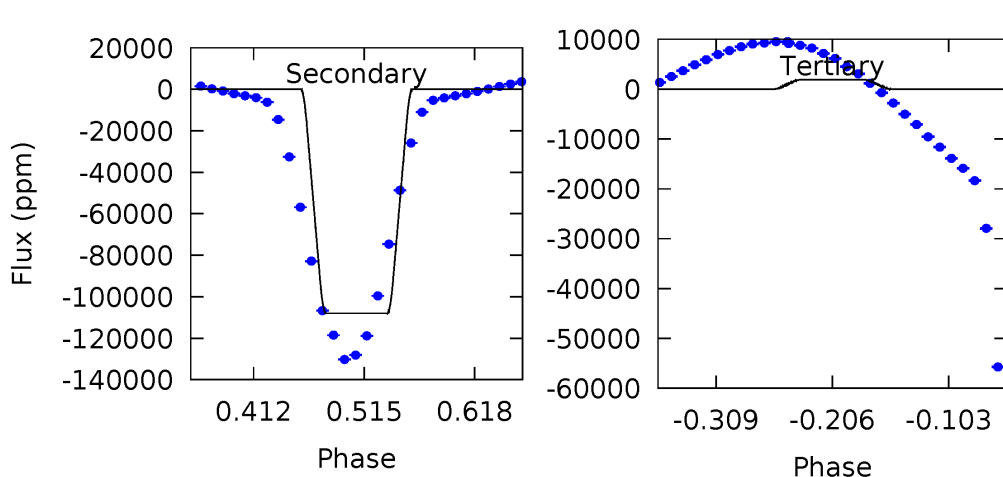
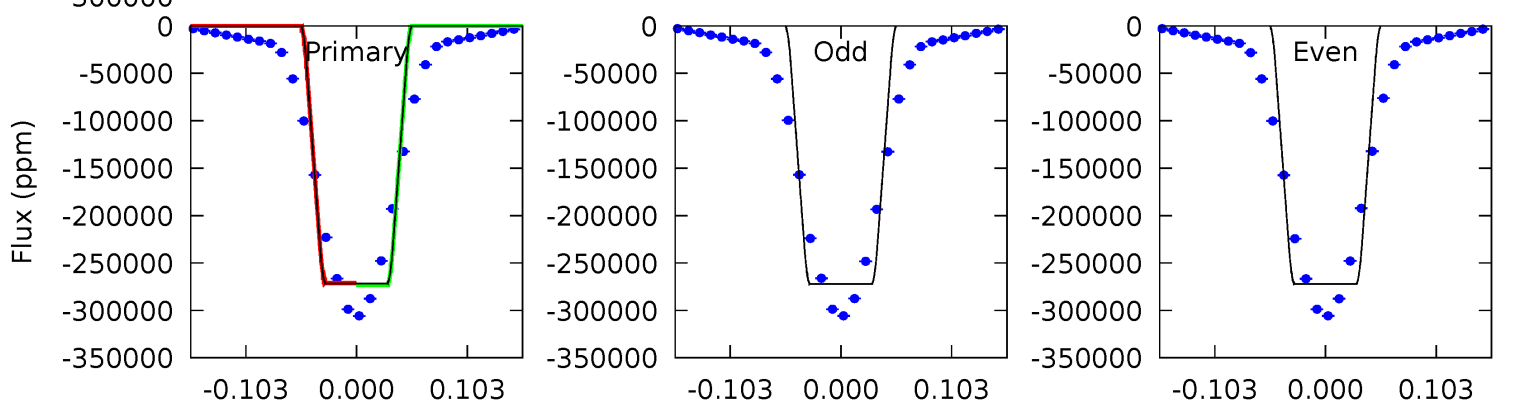
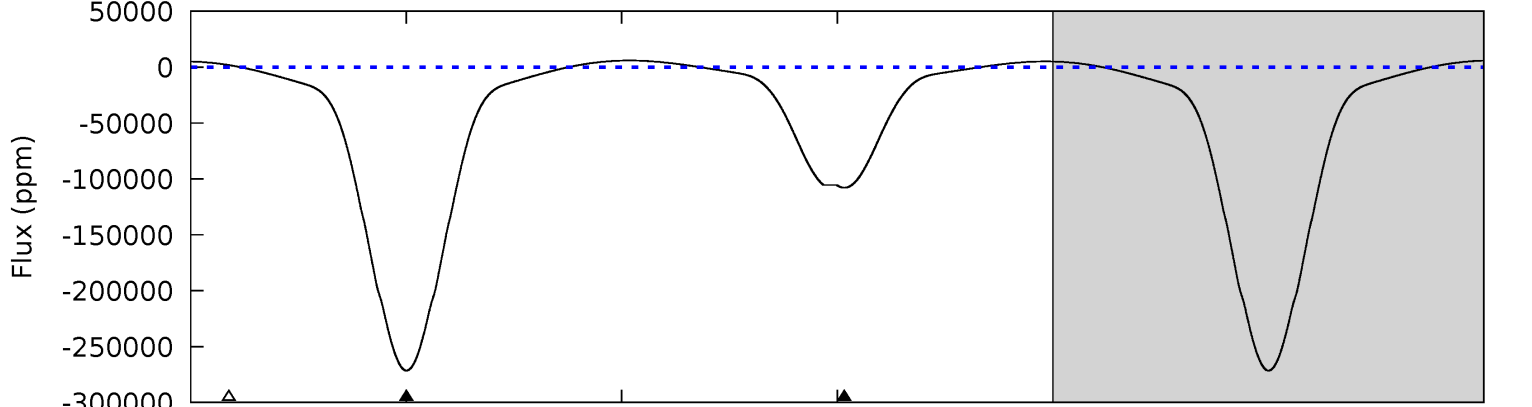
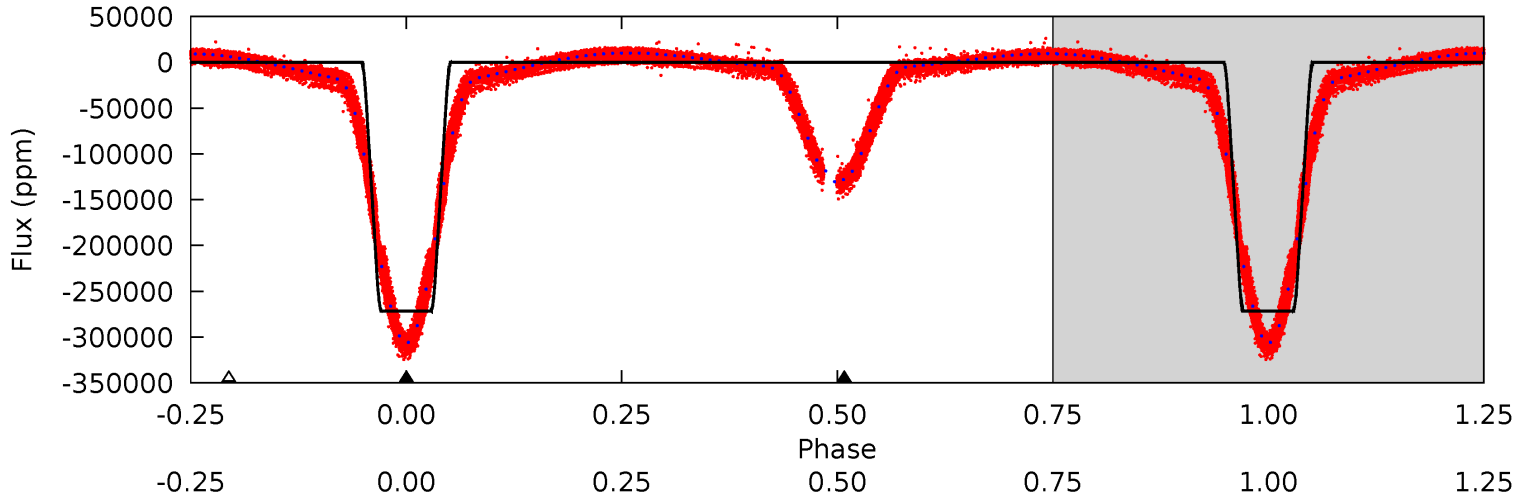
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003832716-01, P = 1.141868 Days, E = 130.378733 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
3003	1194	-20.5	0	4.56	1.63	71.1	3024	3003	1214	1194	0.83	1.00	0.02	11.7



### Stellar Parameters For KIC 003832716

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6158^{+169}_{-188}$	$4.152^{+0.286}_{-0.176}$	$-0.380^{+0.300}_{-0.300}$	$1.368^{+0.398}_{-0.398}$	$0.969^{+0.160}_{-0.120}$	$0.534^{+0.868}_{-0.253}$
	+3%/-3%	+7%/-4%	+79%/-79%	+29%/-29%	+17%/-12%	+163%/-47%
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 003832716-01 / KOI 0027.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$29.42^{+16.42}_{-14.32}$	$3030^{+256}_{-257}$	$-4060^{+12484}_{-4198}$	$-0.960^{+36.279}_{-32.623}$
Alt.	$-107945 \pm 90$	$79.99^{+22.57}_{-19.59}$	$3007^{+254}_{-267}$	$4904^{+498}_{-377}$	$4.767^{+3.348}_{-1.853}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

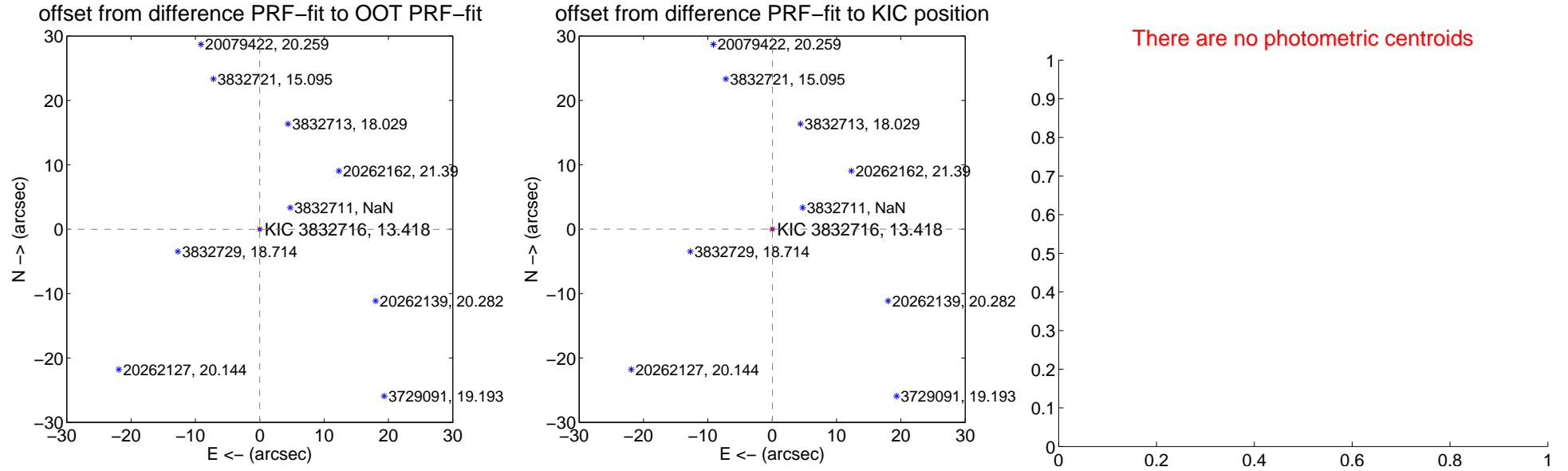
## DV Centroid Data

Supplemental centroid analysis for 003832716-01. Kepler magnitude: 13.42. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

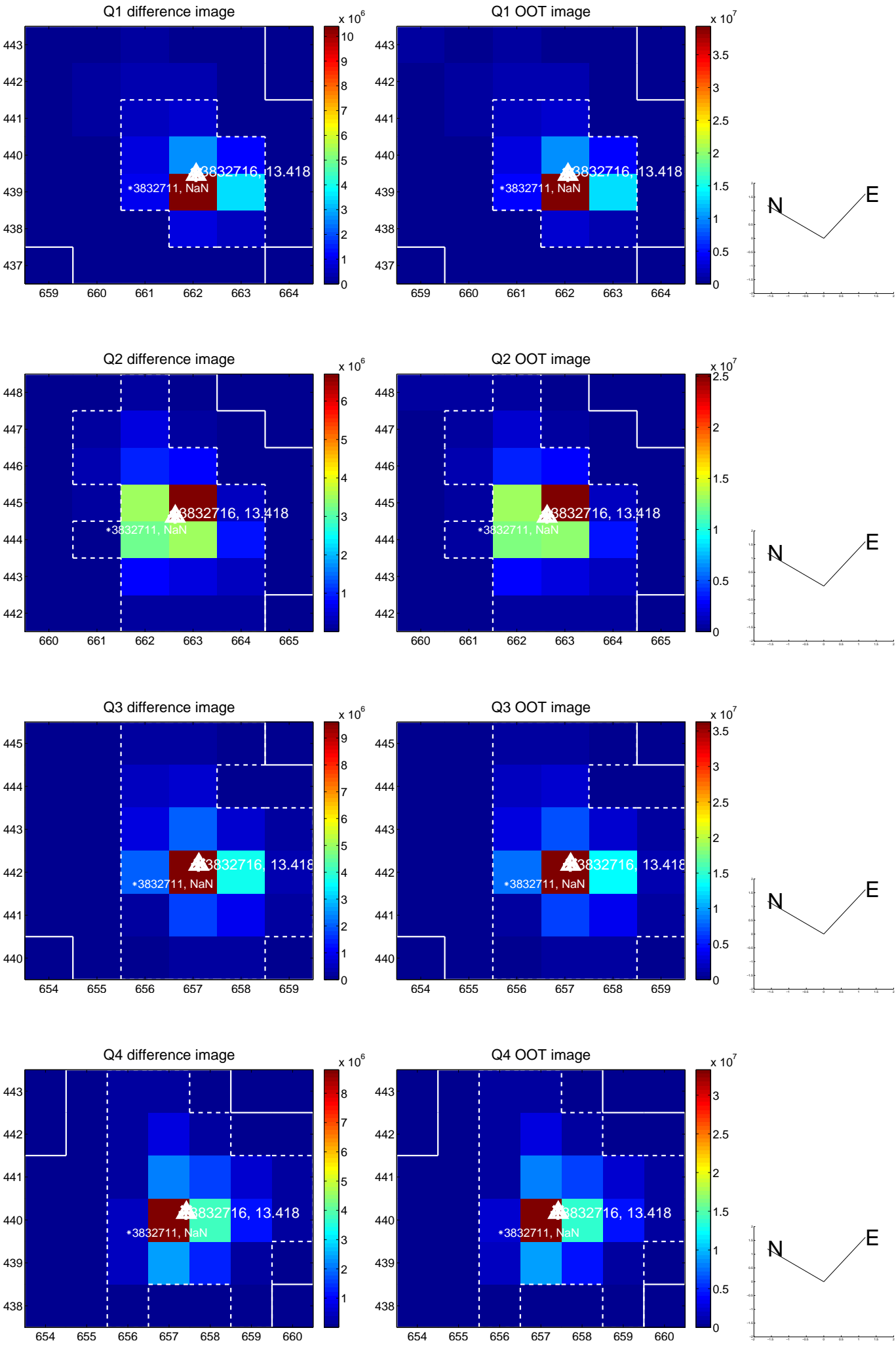
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.025 \pm 0.067$	0.38	$0.012 \pm 0.067$	$-0.022 \pm 0.067$
PRF-fit source offset from KIC position	$0.041 \pm 0.068$	0.61	$-0.041 \pm 0.068$	$0.000 \pm 0.067$
photometric centroid source offset	—	—	—	—



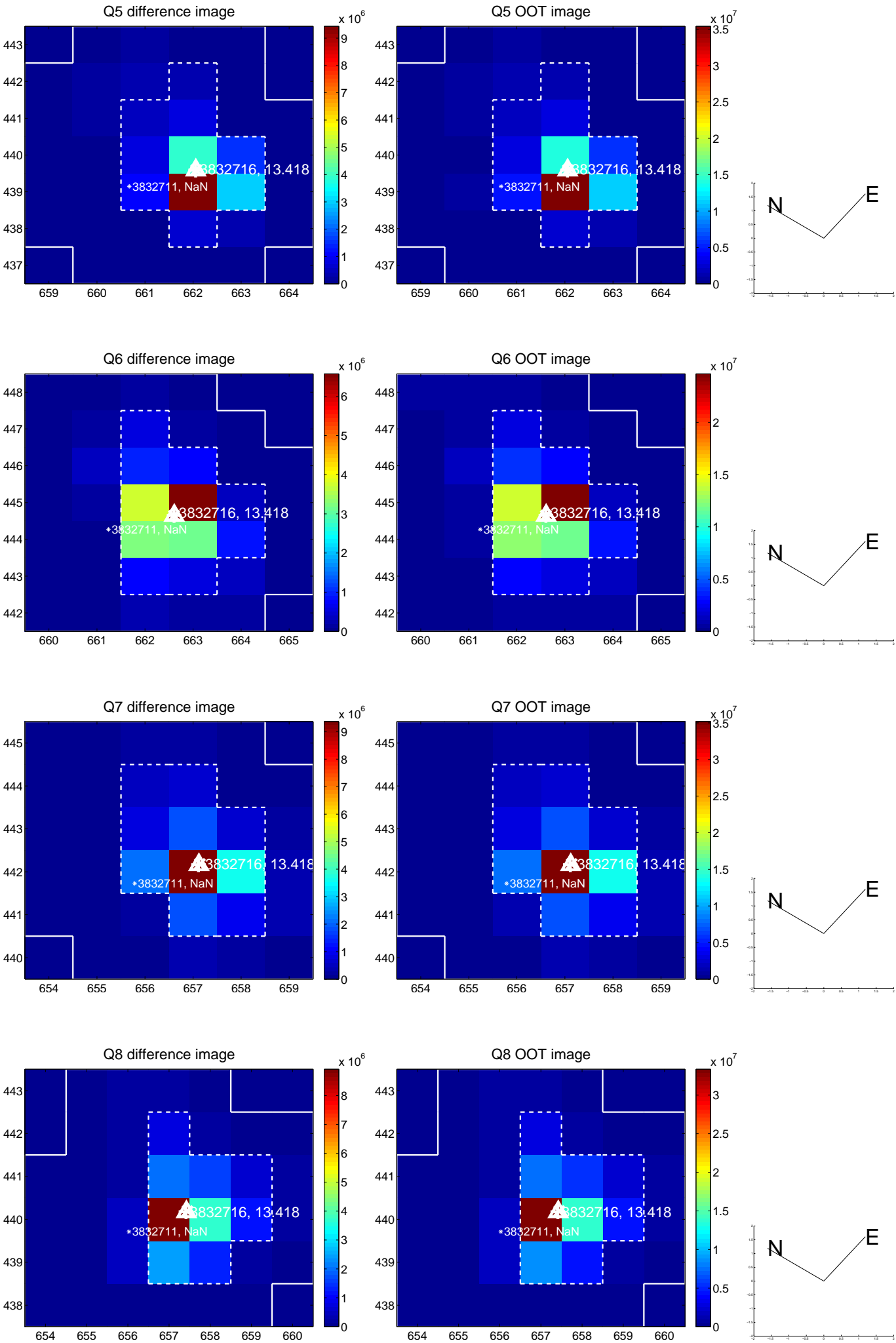
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

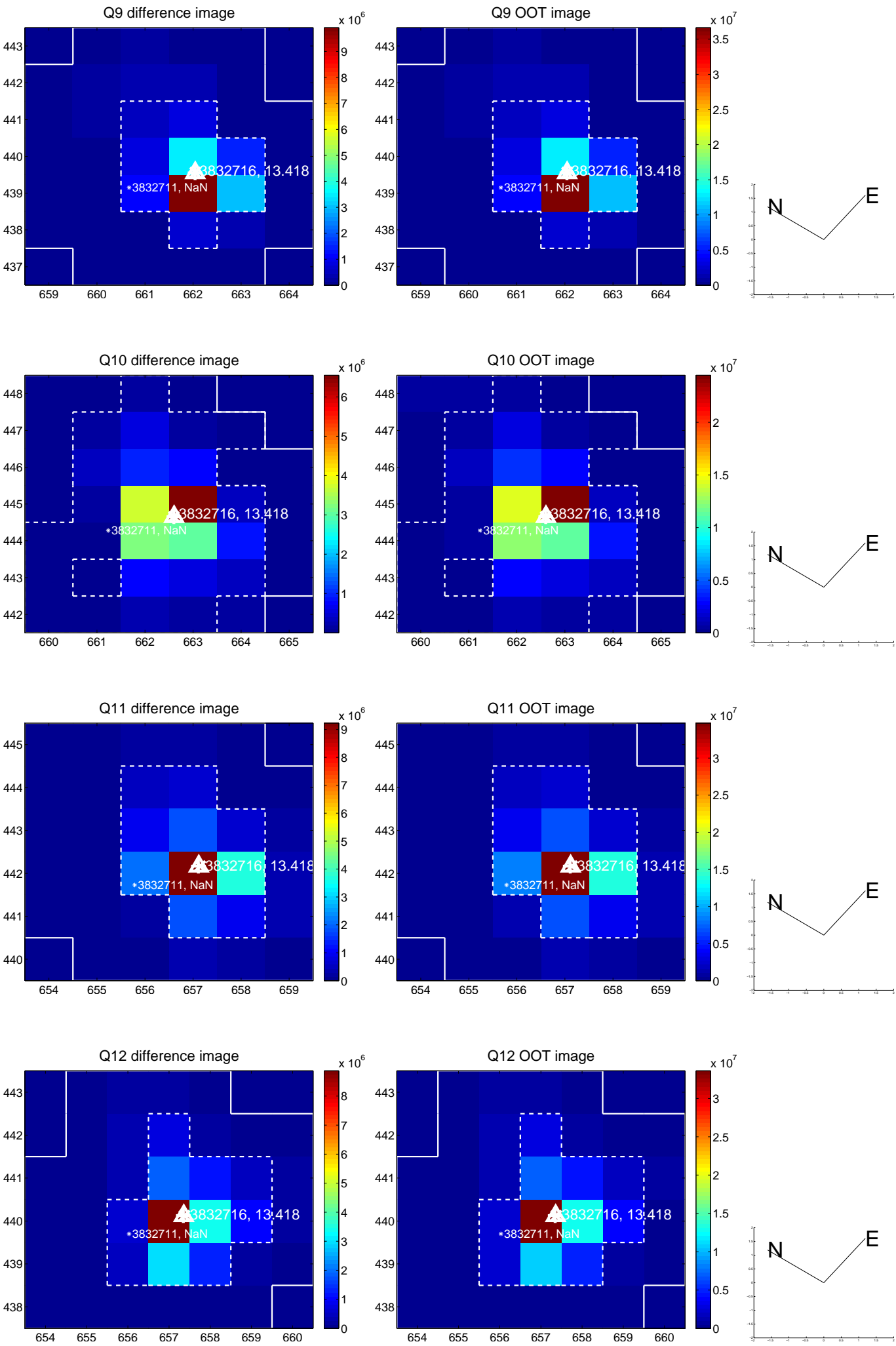




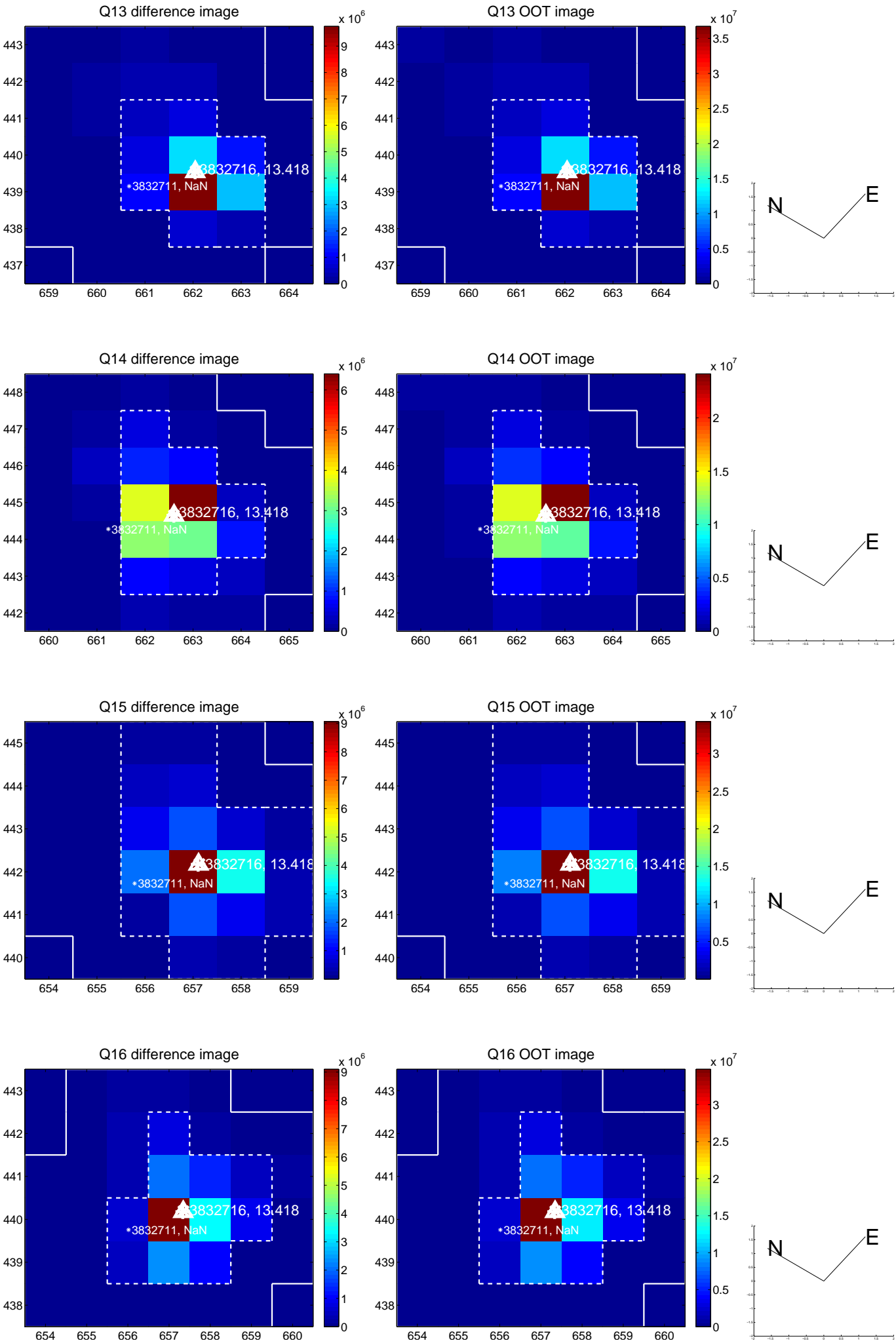
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



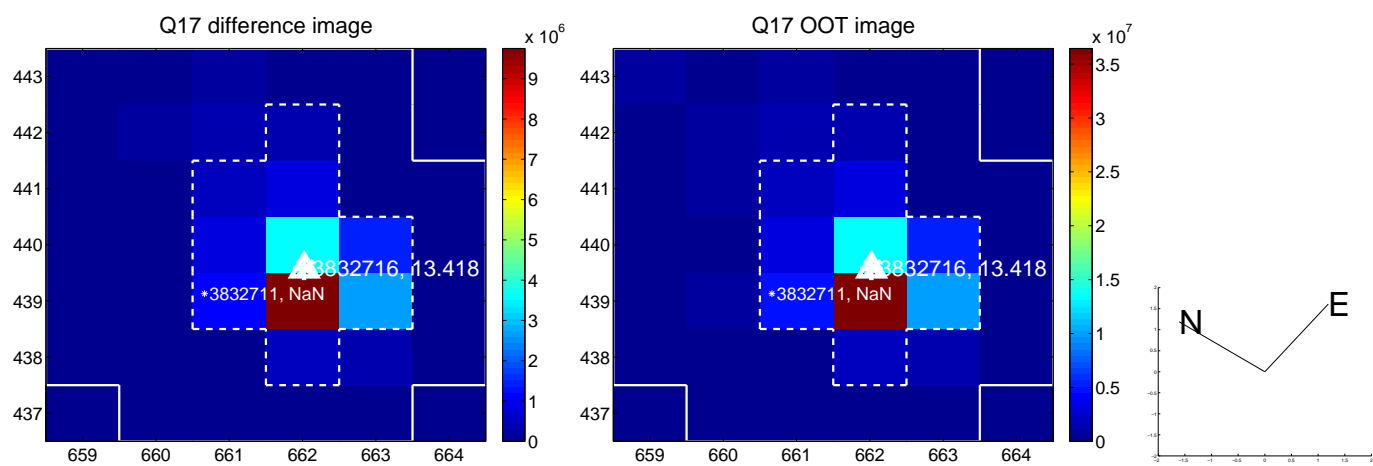
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

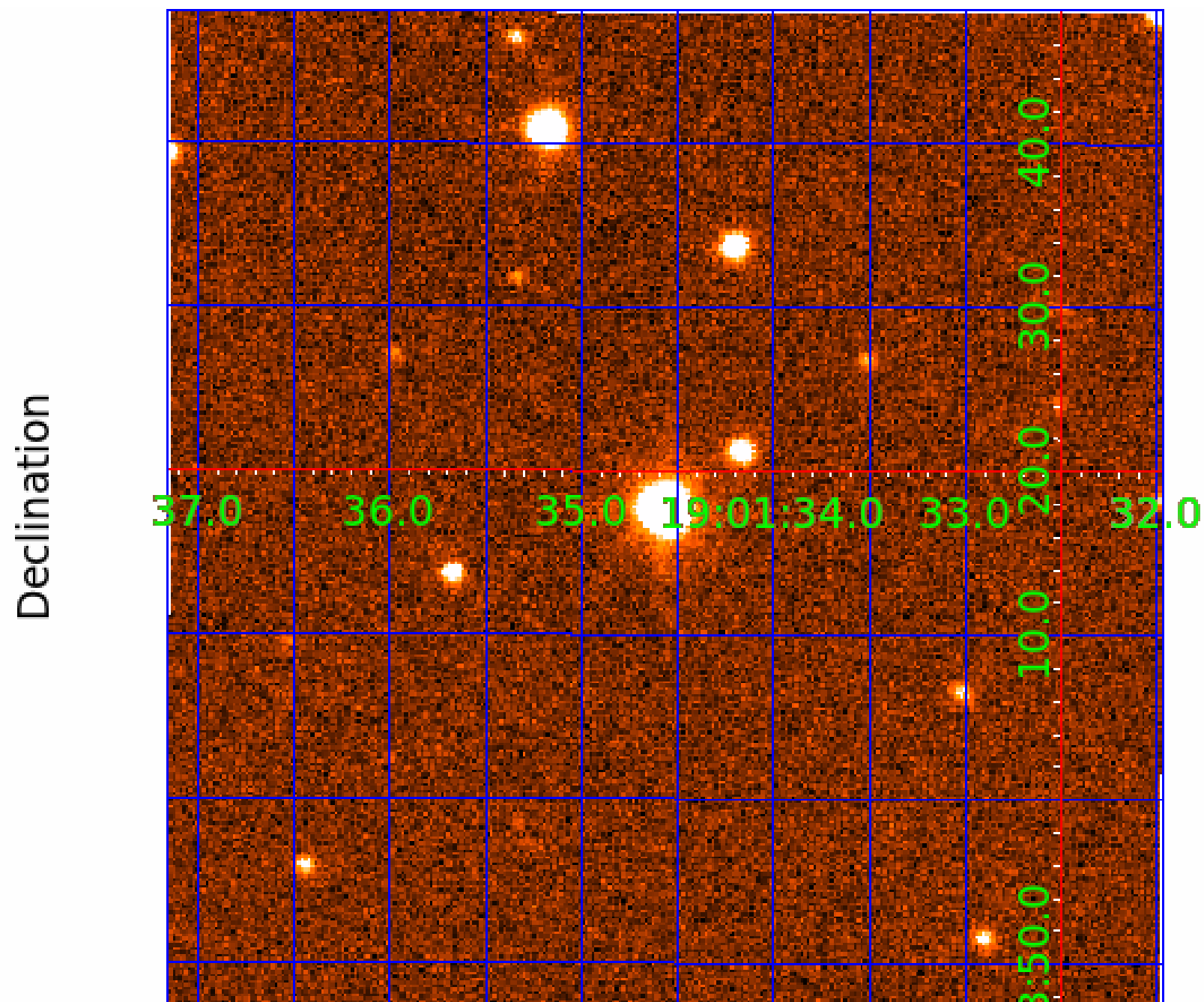


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



# KIC 003832716

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003832716-01	OBS	0027.01	1.141868	131.517444	296608.7	2.000	6993.1	-1.0	1.37	6158	29.76	5385.46
003832716-02	OBS	No	0.570938	131.513277	14210.0	2.000	1967.3	-1.0	1.37	6158	16.40	13570.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003832716-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
003832716-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SAME_NTL_PERIOD—CENT_NOFITS

**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.

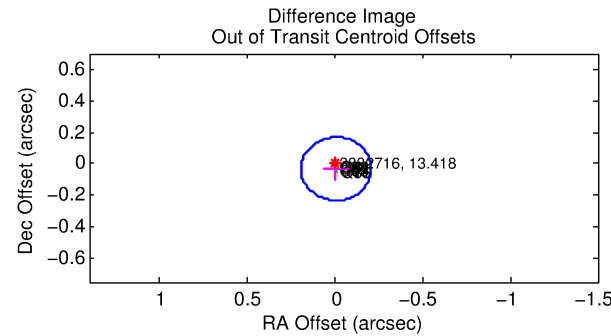
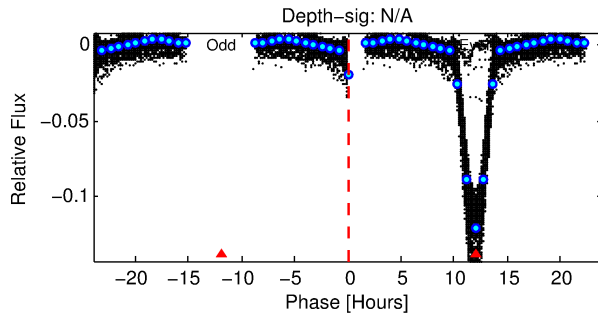
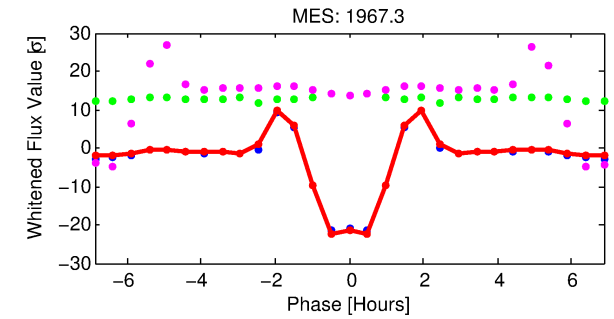
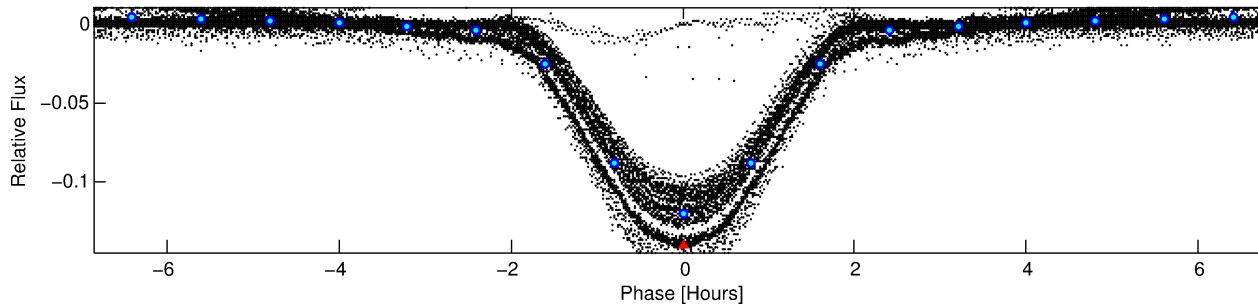
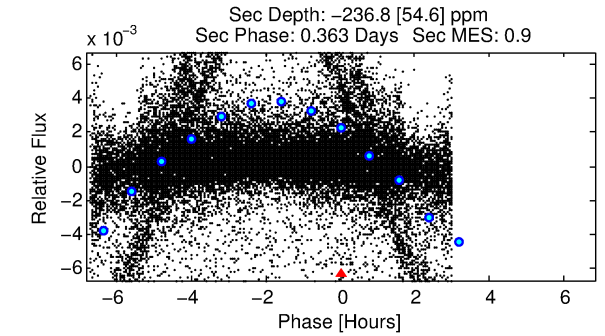
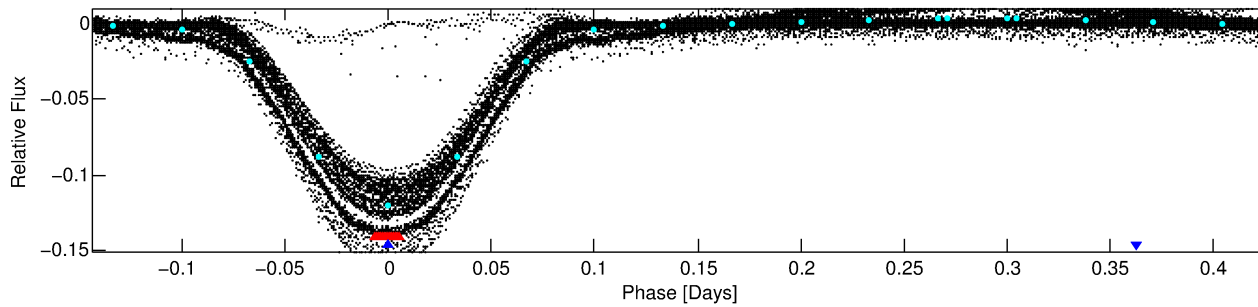
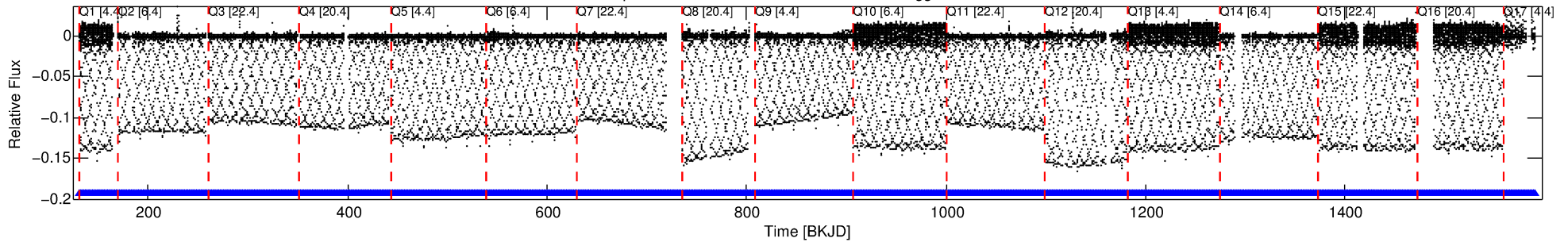
## Ephemeris Match Information For 003832716-02

No Significant Match Found

# DV One-Page Summary

KIC: 3832716 Candidate: 2 of 2 Period: 0.571 d  
KOI: K00027 Corr: No Ephemeris Match

Kp: 13.42 R\*: 1.37 Rs Teff: 6158.0 K Logg: 4.15 Fe/H: -0.380



## TPS TCE Results:

Period = 0.57094 d  
Epoch = 131.5133 BKJD

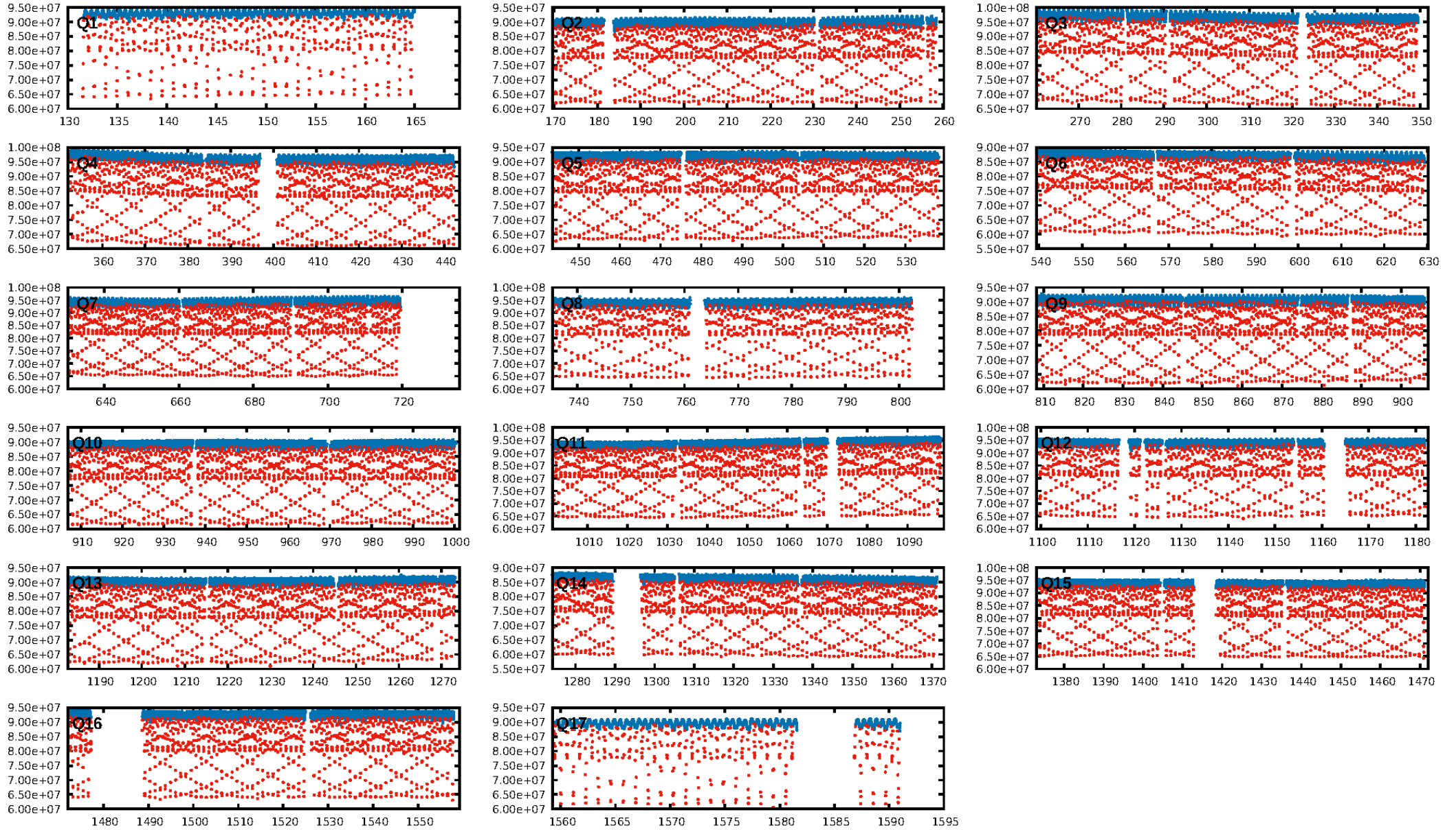
DV fit results are unavailable

## DV Diagnostic Results:

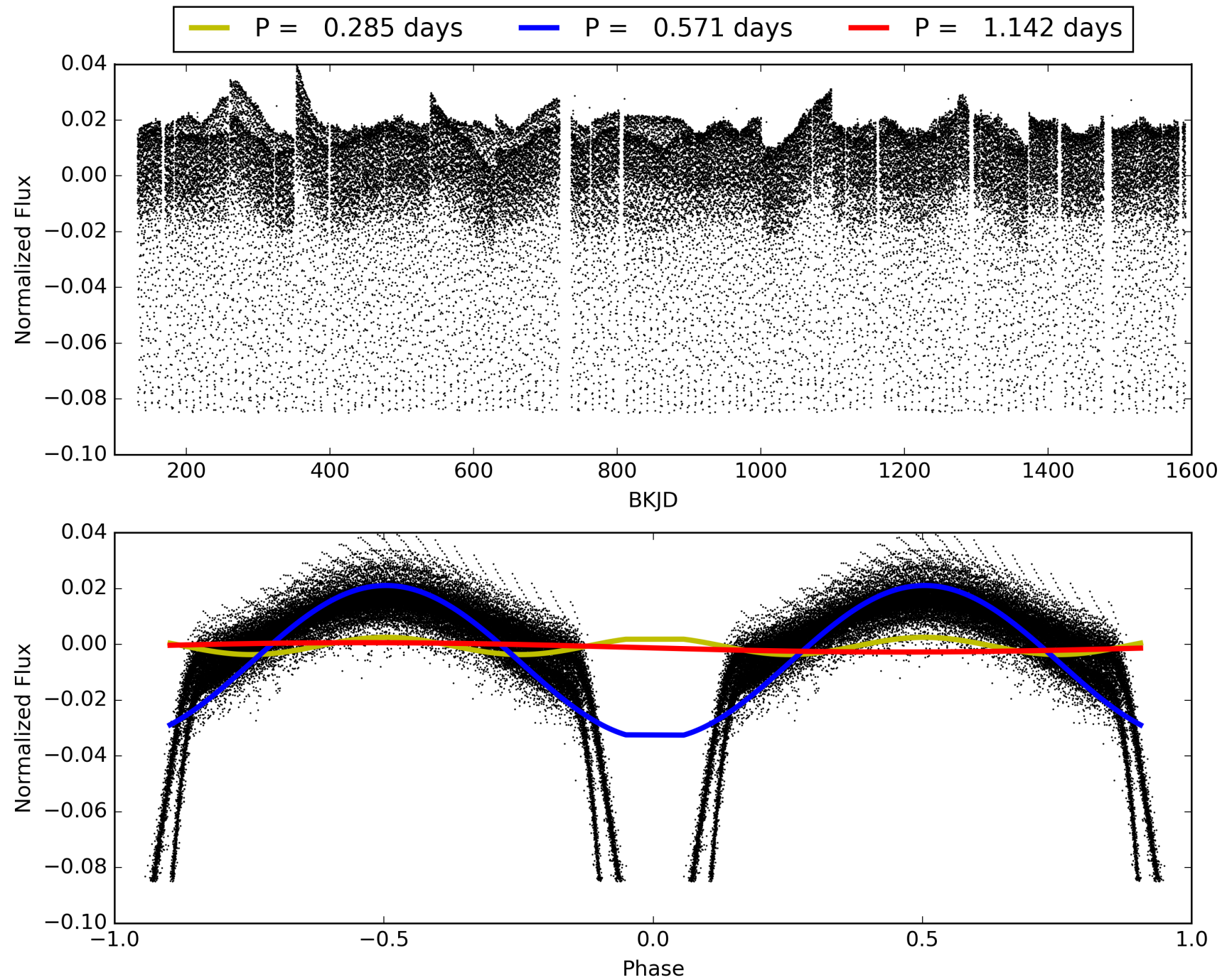
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [4.84σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1112/1112]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.033 arcsec [0.49σ]  
KicOffset-rm: 0.059 arcsec [0.87σ]  
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 003832716-02, PDC Light Curves

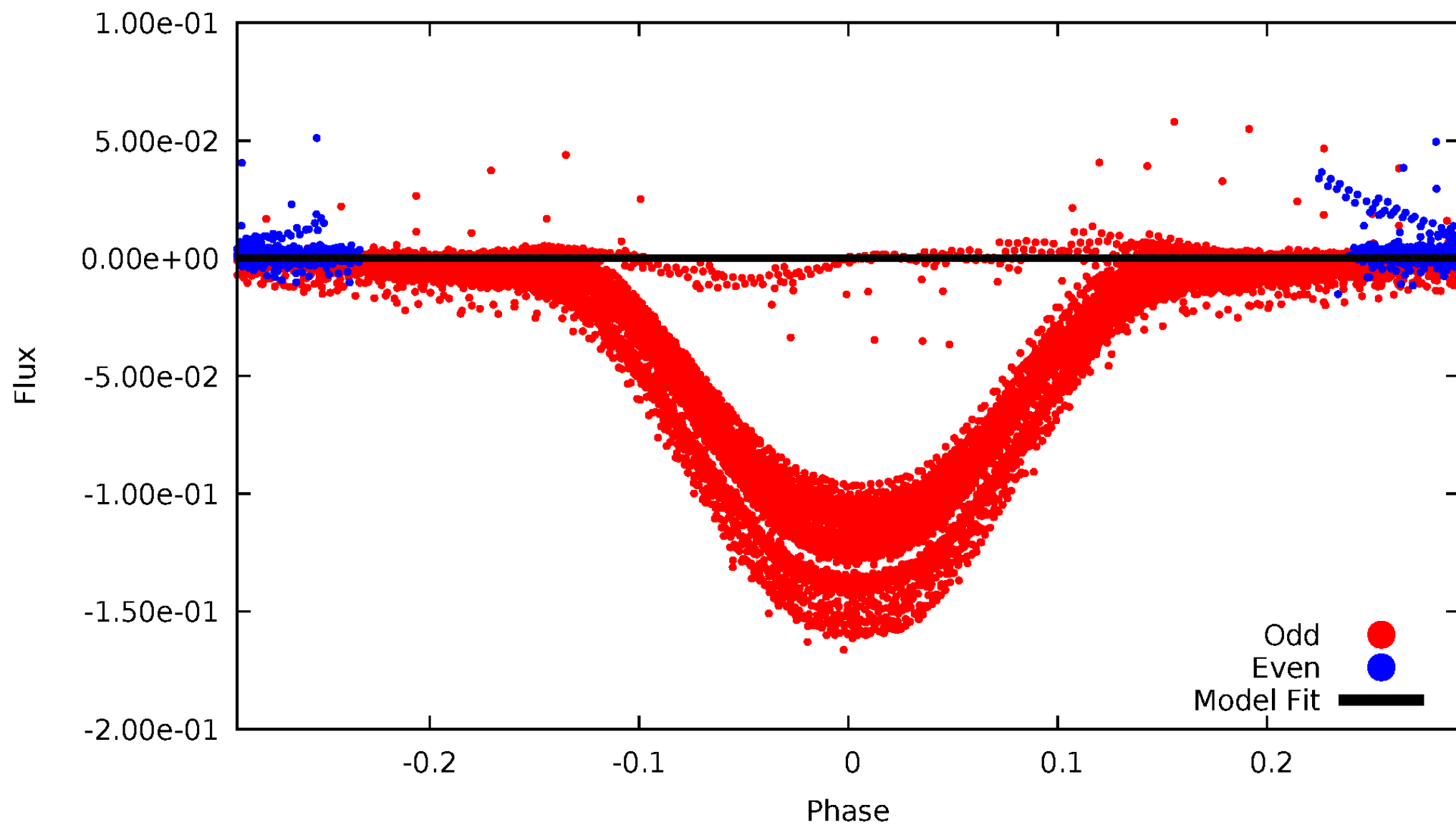


TCE 003832716-02



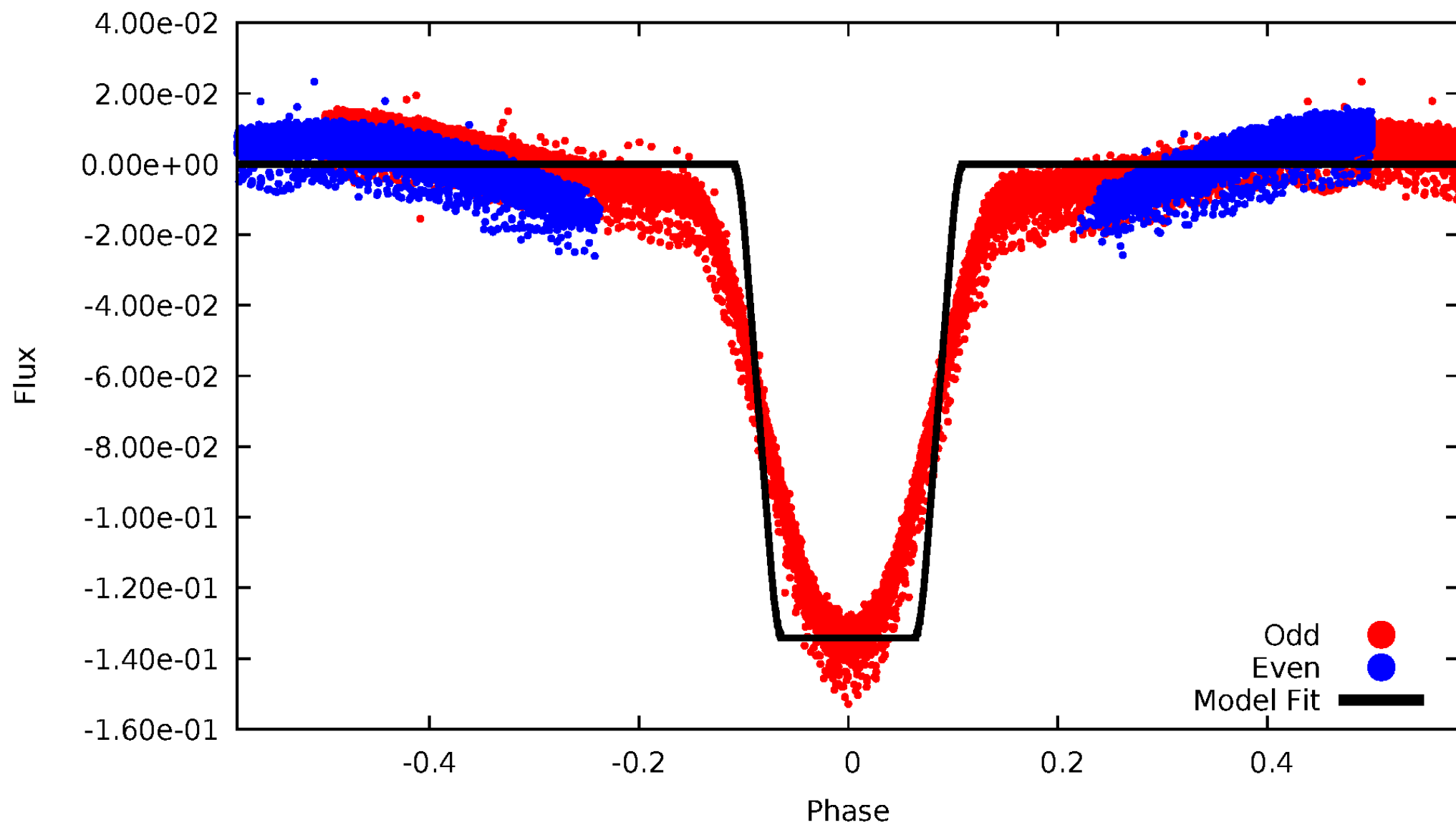
# DV Odd/Even

TCE 003832716-02



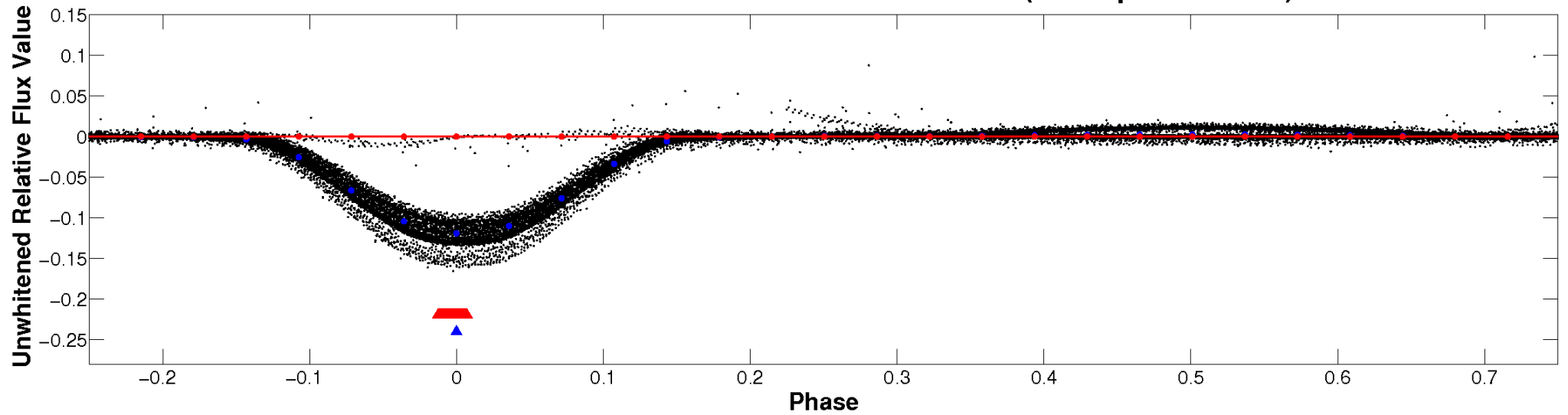
# ALT Odd/Even

TCE 003832716-02

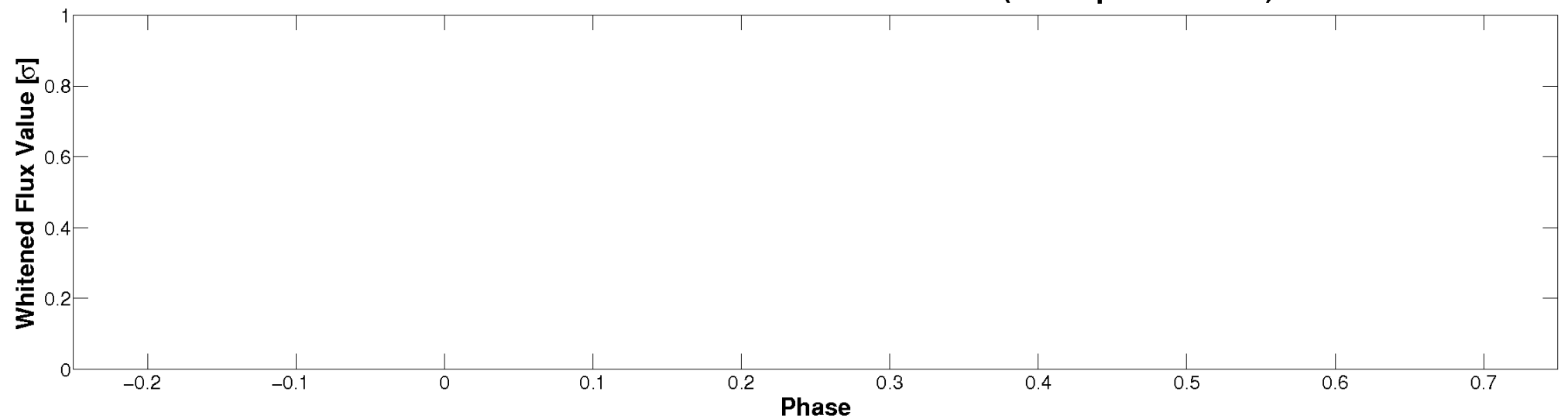


# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

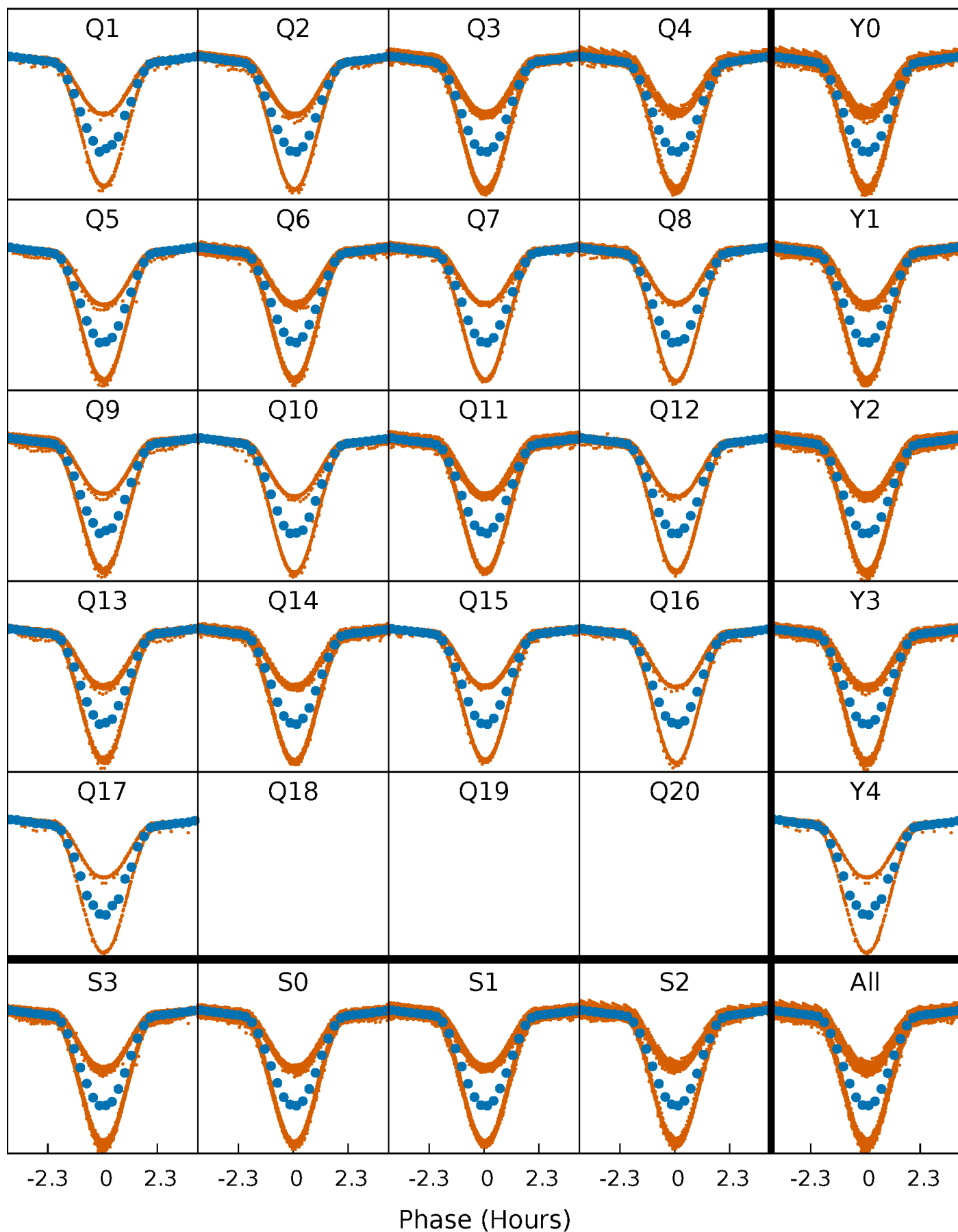


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



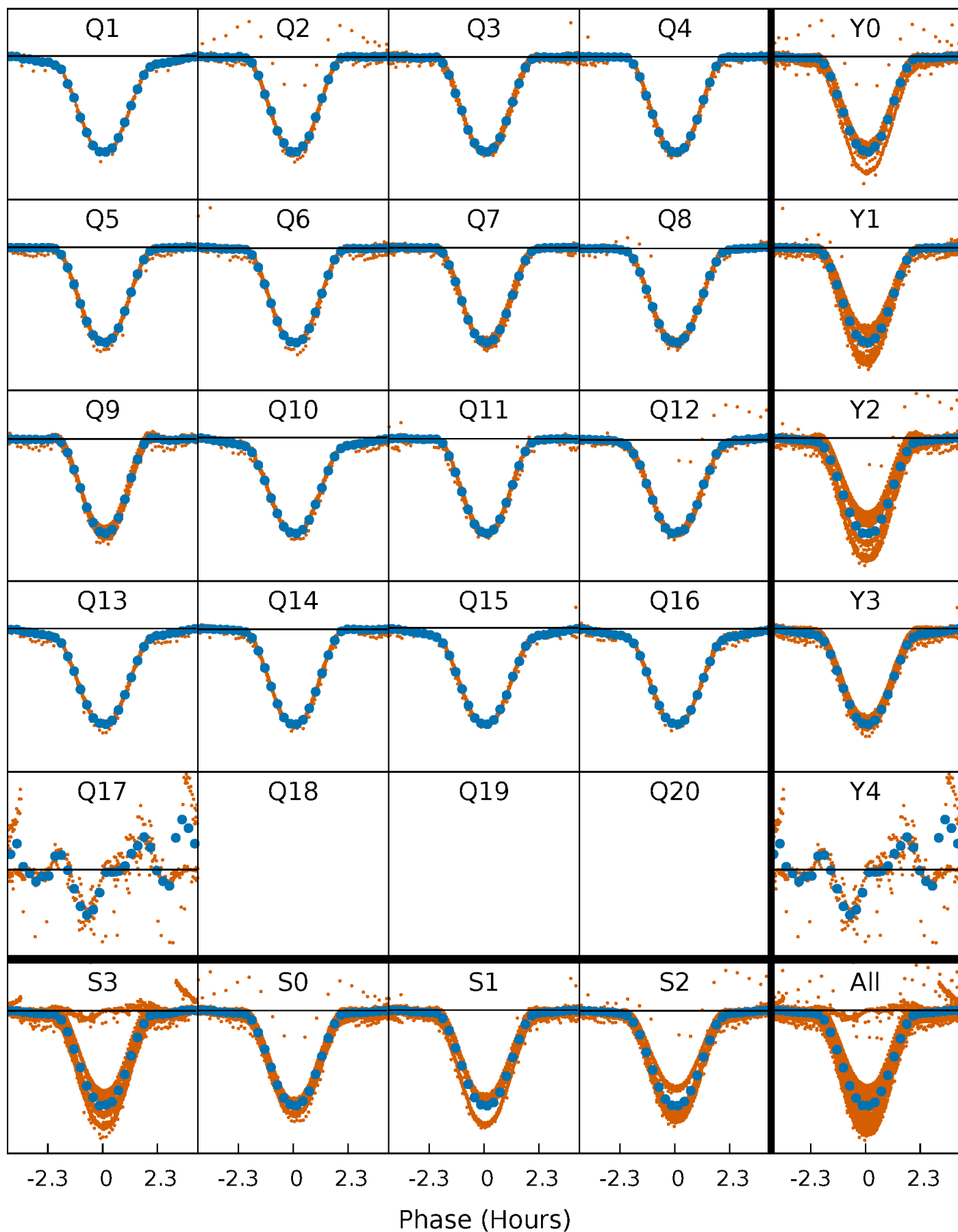
# PDC Quarter-Phased Transit Curves

TCE 003832716-02   P= 0.570938 Days    $T_0=131.513277$  (BKJD)



# DV Quarter-Phased Transit Curves

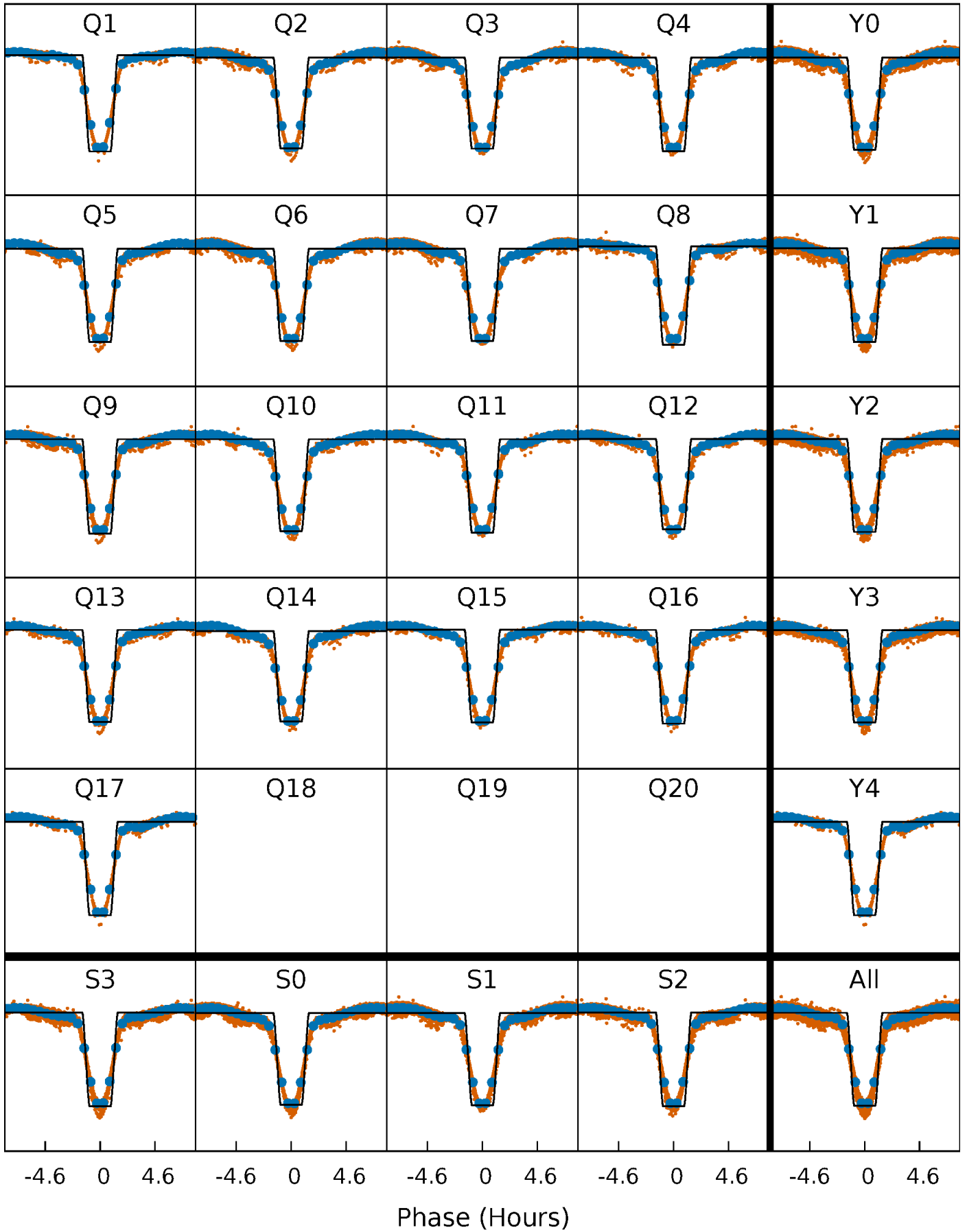
TCE 003832716-02   P= 0.570938 Days    $T_0=131.513277$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

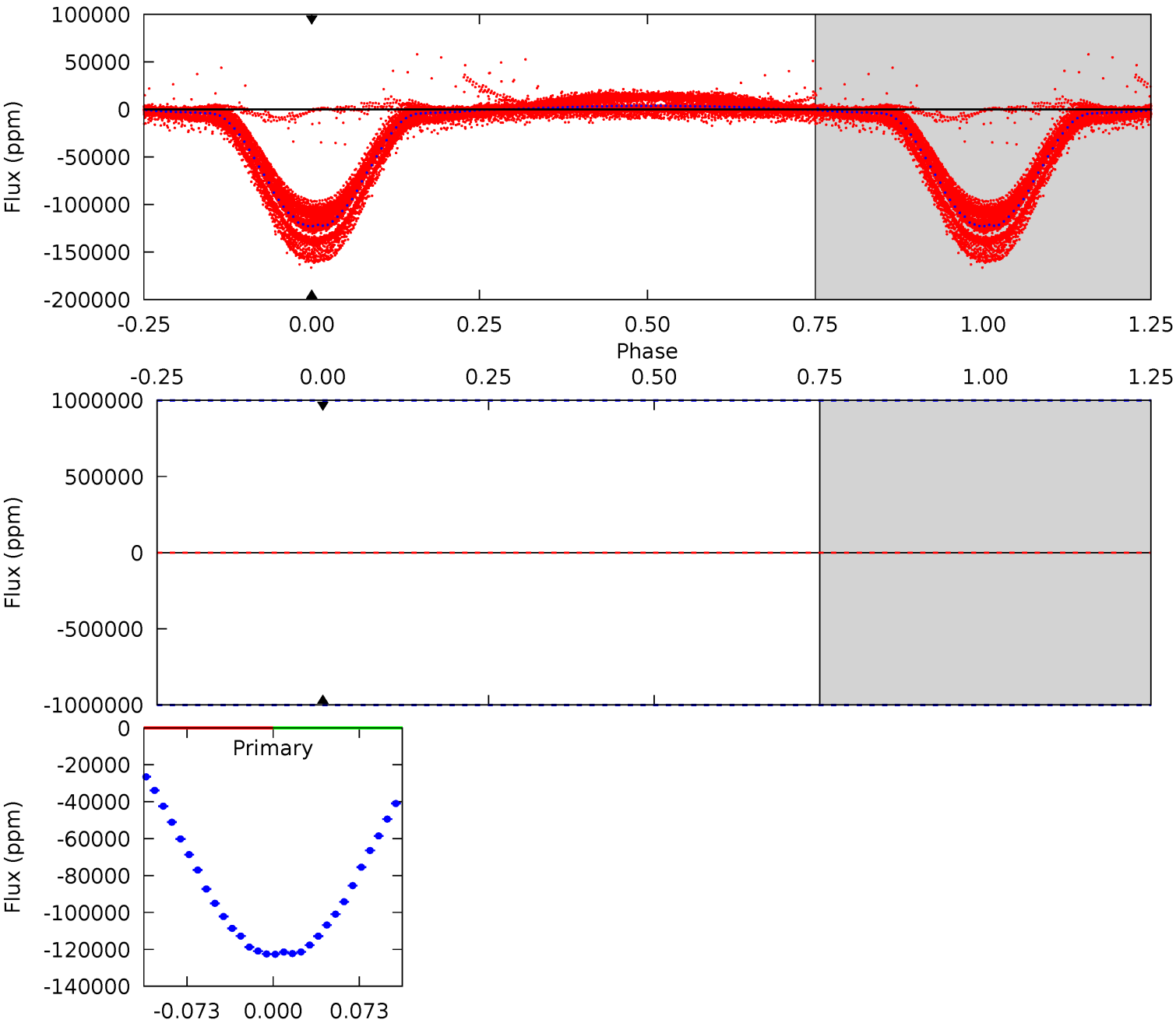
TCE 003832716-02   P= 0.570938 Days    $T_0=131.515502$  (BKJD)



# DV Model-Shift Uniqueness Test

003832716-02, P = 0.570938 Days, E = 131.513277 Days

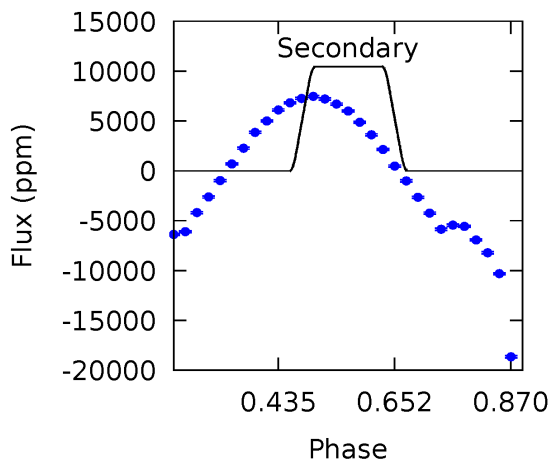
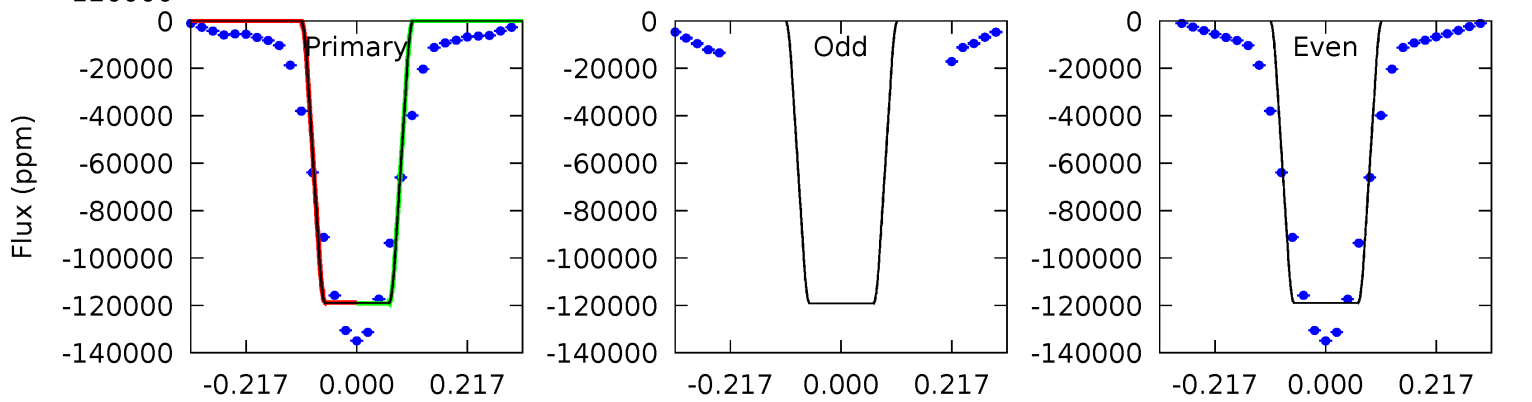
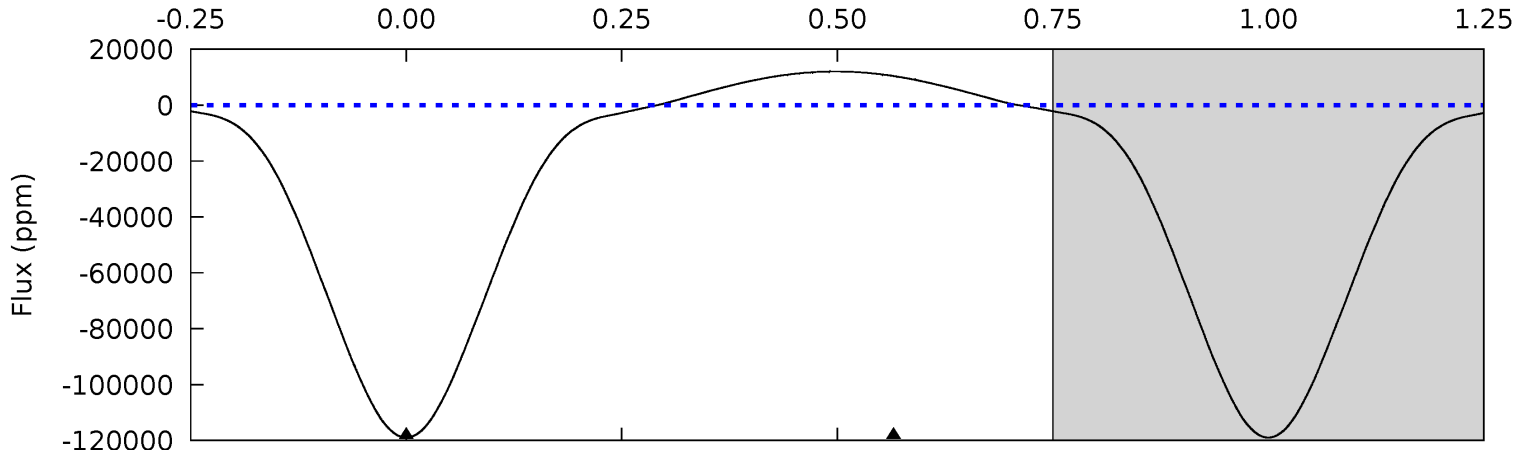
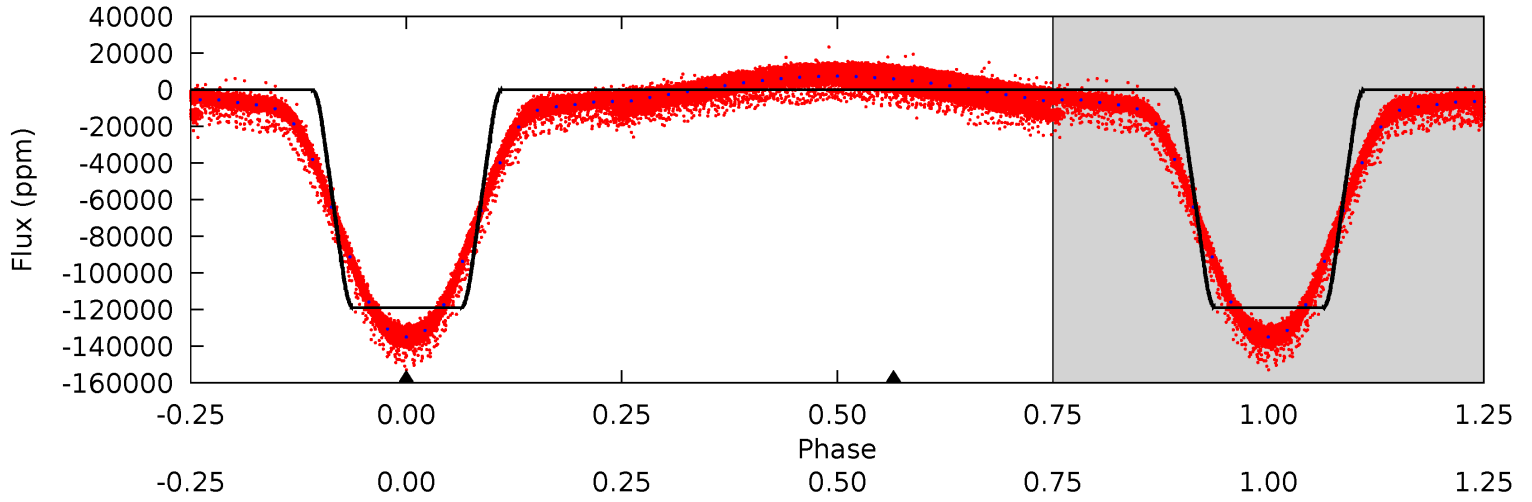
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003832716-02, P = 0.570938 Days, E = 131.515502 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
1855	-162.6	0	0	4.40	1.23	41.8	1855	1855	-162.6	-162.6	1.49	1.00	0.09	2.25



### Stellar Parameters For KIC 003832716

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6158^{+169}_{-188}$	$4.152^{+0.286}_{-0.176}$	$-0.380^{+0.300}_{-0.300}$	$1.368^{+0.398}_{-0.398}$	$0.969^{+0.160}_{-0.120}$	$0.534^{+0.868}_{-0.253}$
	+3%/-3%	+7%/-4%	+79%/-79%	+29%/-29%	+17%/-12%	+163%/-47%
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 003832716-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$18.12^{+13.69}_{-10.76}$	$3820^{+298}_{-330}$	$-3500^{+17507}_{-9509}$	$-0.036^{+55.395}_{-42.003}$
Alt.	$10430 \pm 64$	$53.66^{+18.85}_{-17.47}$	$3820^{+315}_{-332}$	$-4121^{+217}_{-322}$	$-0.352^{+0.158}_{-0.410}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

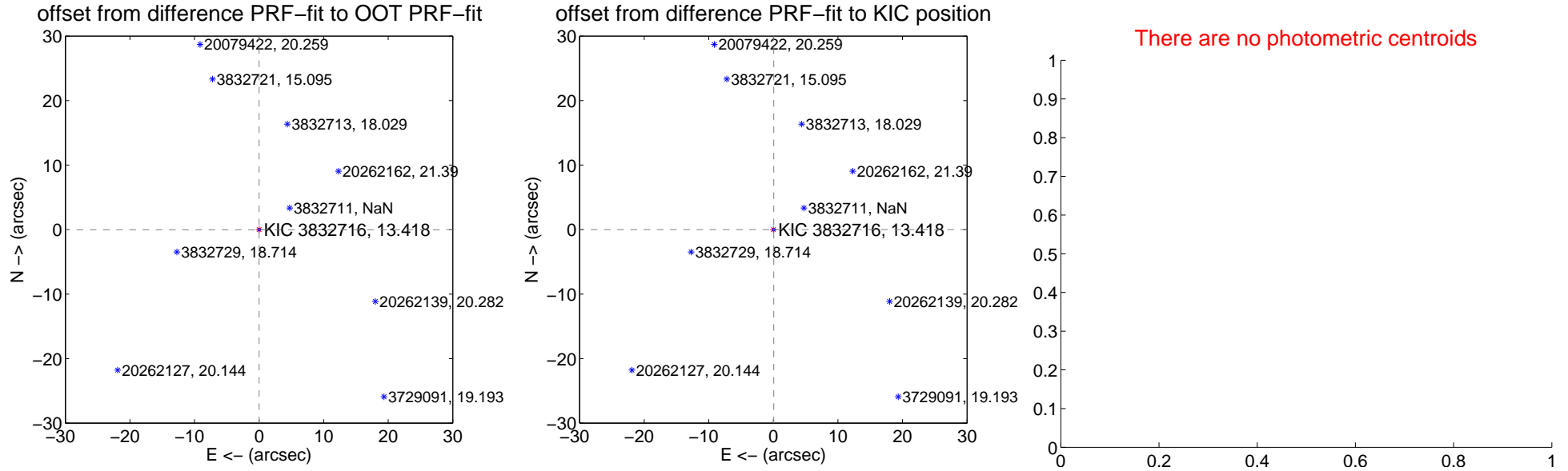
## DV Centroid Data

Supplemental centroid analysis for 003832716-02. Kepler magnitude: 13.42. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

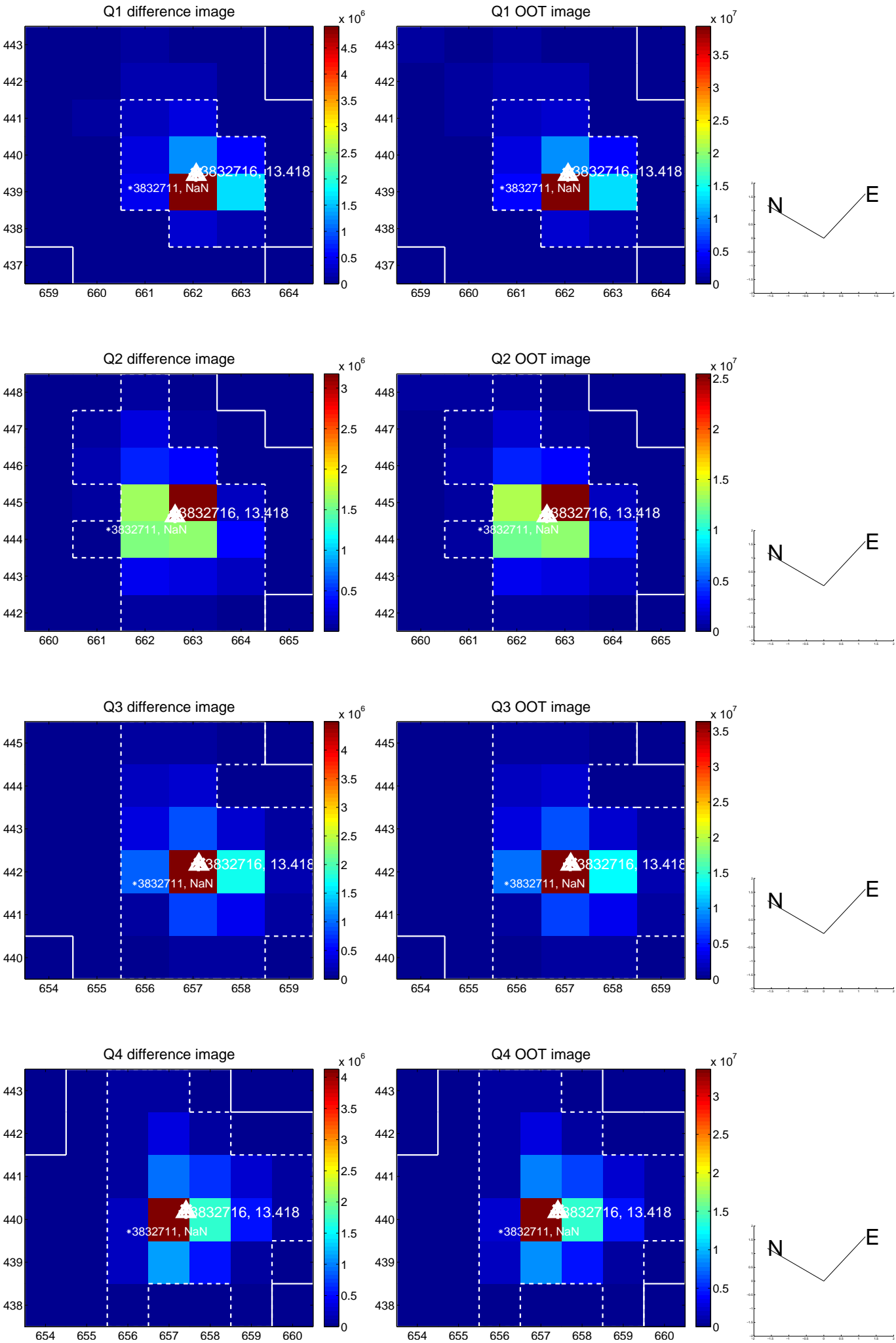
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.033 \pm 0.067$	0.49	$-0.006 \pm 0.067$	$-0.032 \pm 0.067$
PRF-fit source offset from KIC position	$0.059 \pm 0.068$	0.87	$-0.058 \pm 0.068$	$-0.010 \pm 0.067$
photometric centroid source offset	—	—	—	—

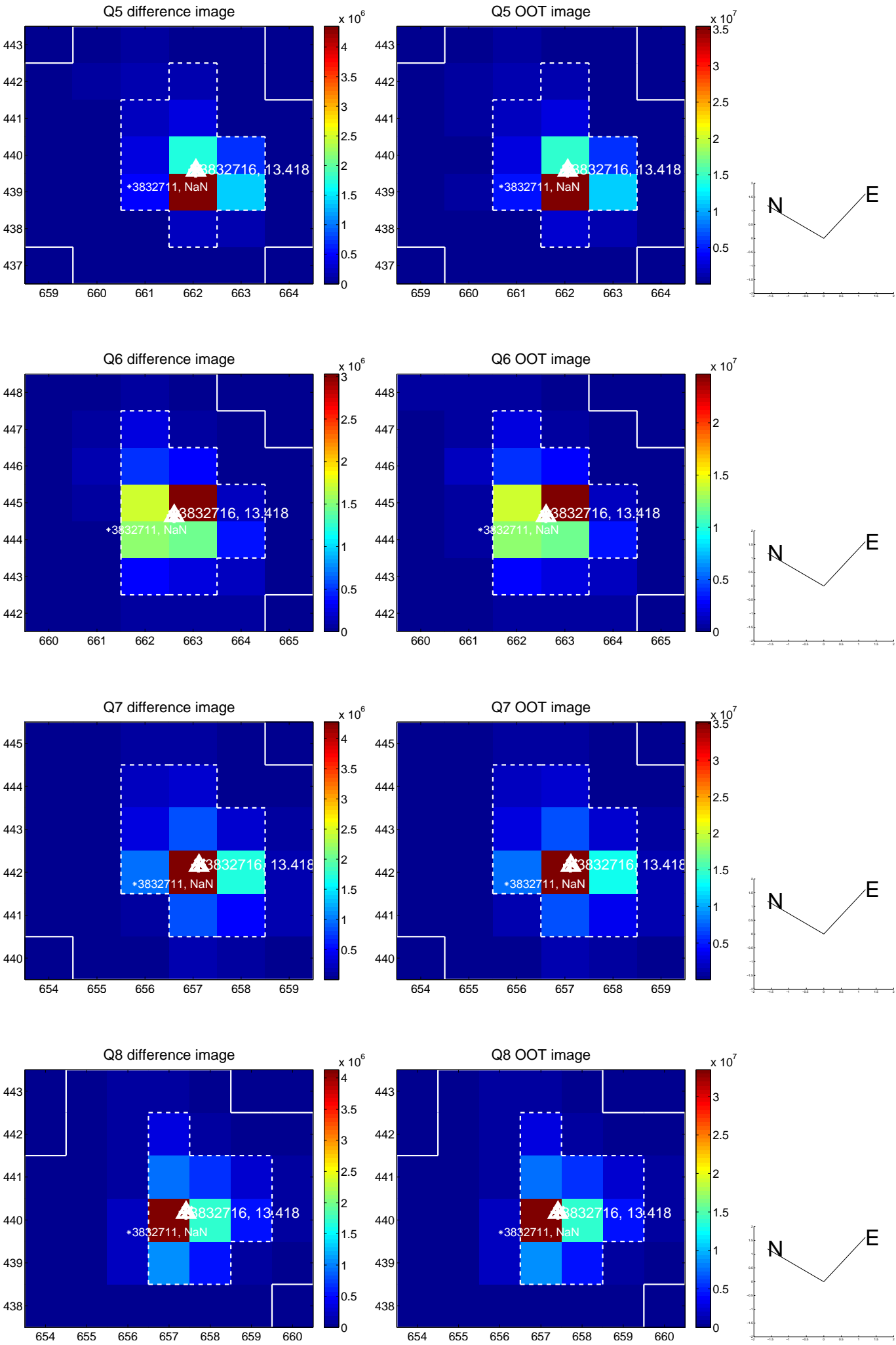


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

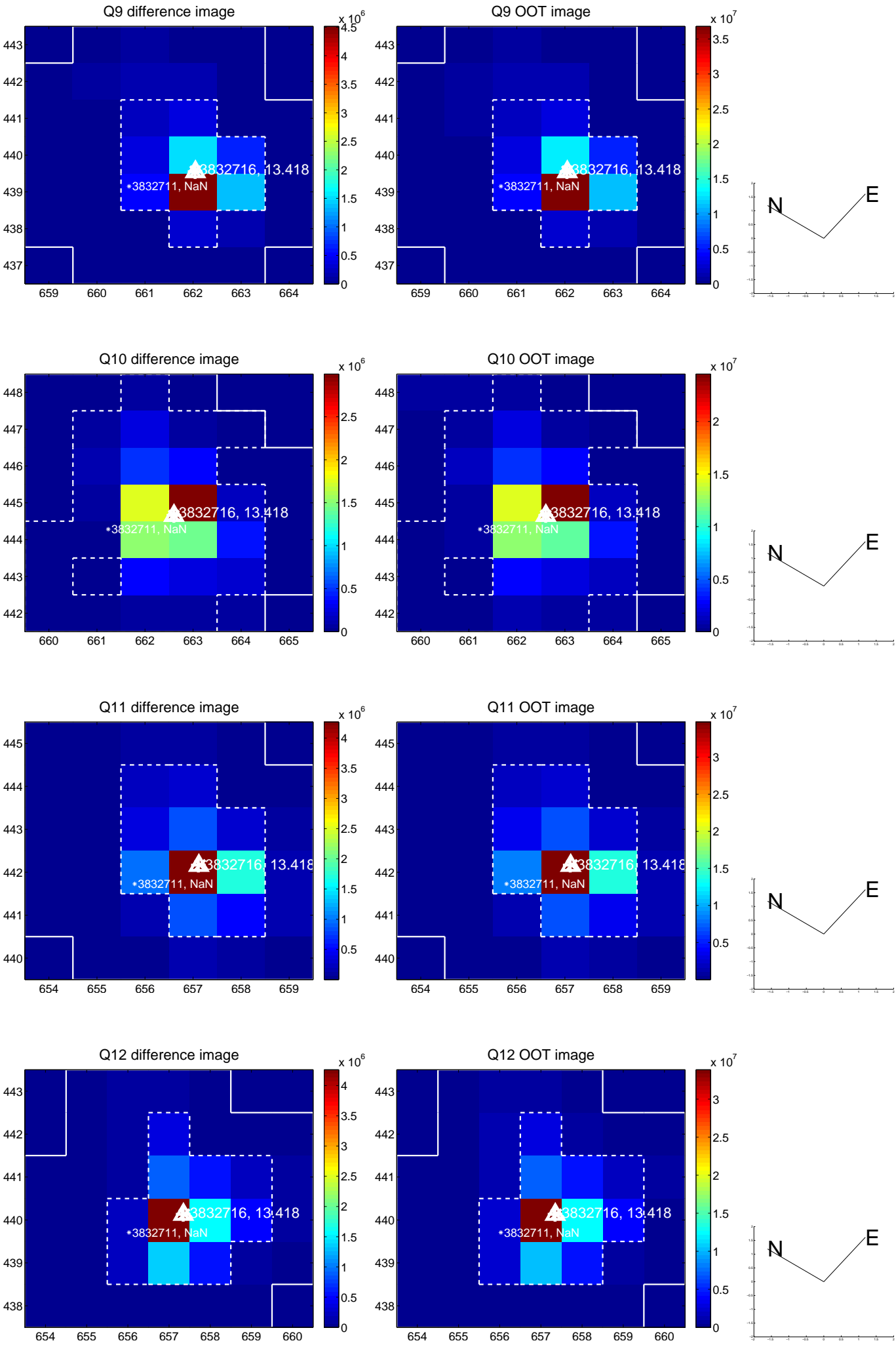
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

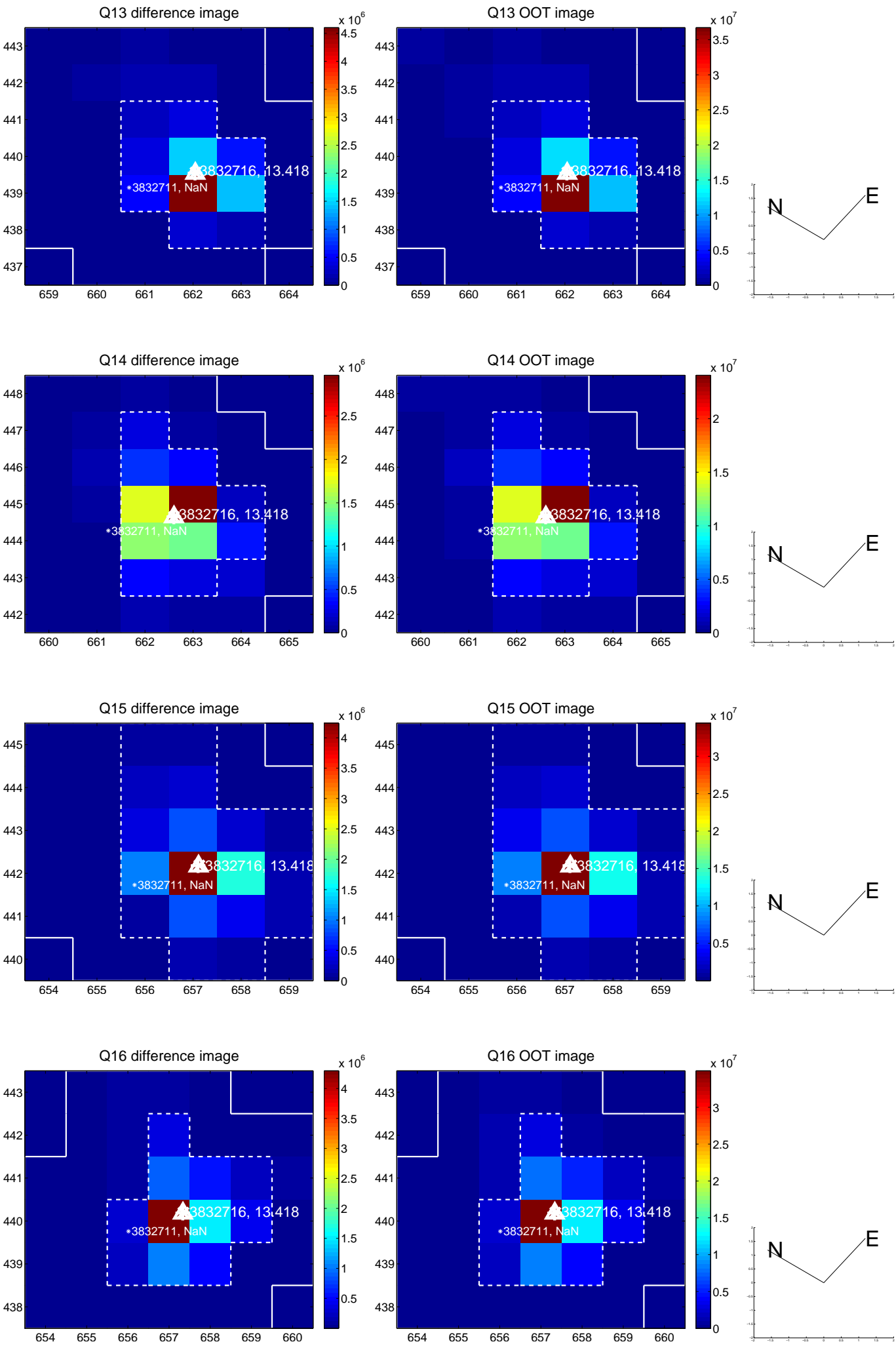


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

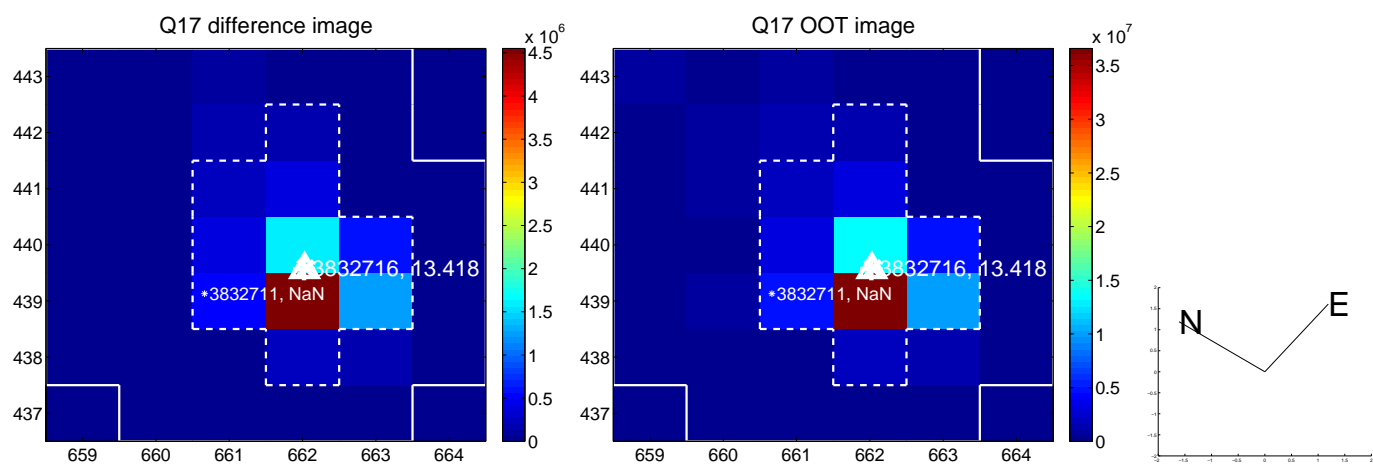




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.



UKIRT Image

