

# KIC 004678875

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004678875-01	OBS	3664.01	1.878867	133.077567	801513.1	3.500	4238.2	-1.0	1.24	6569	20.01	2750.90
004678875-02	OBS	No	5.636619	134.016057	72091.5	4.480	1037.8	388.2	1.24	6569	43.23	635.79
004678875-03	OBS	No	5.636621	135.894513	73495.5	4.527	1202.2	401.8	1.24	6569	47.88	635.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004678875-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
004678875-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
004678875-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_KIC_POS

**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.

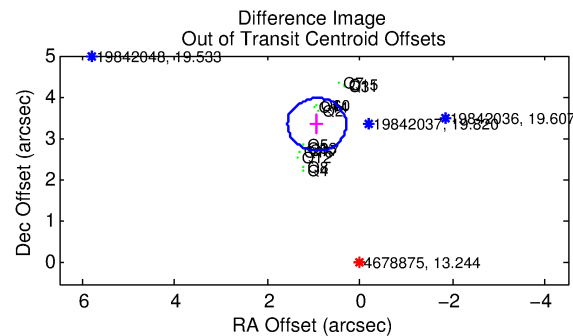
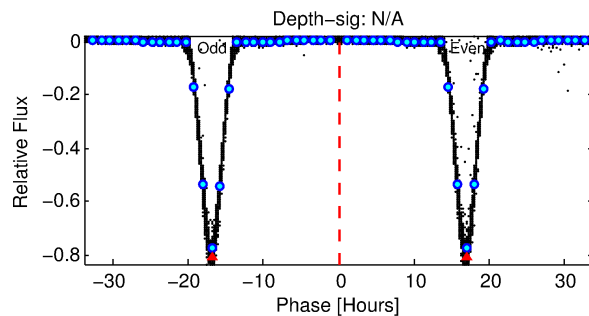
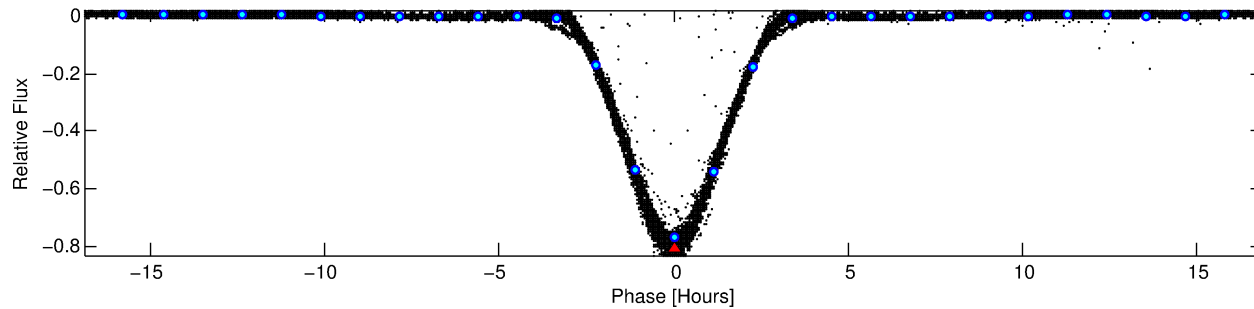
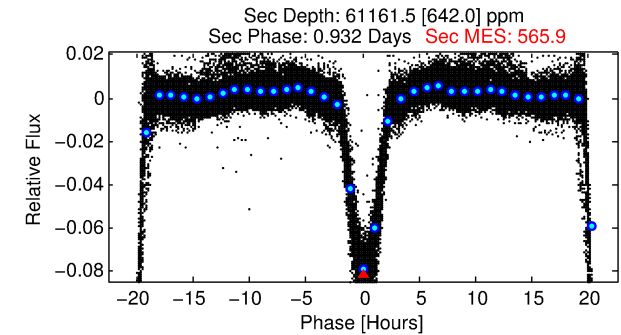
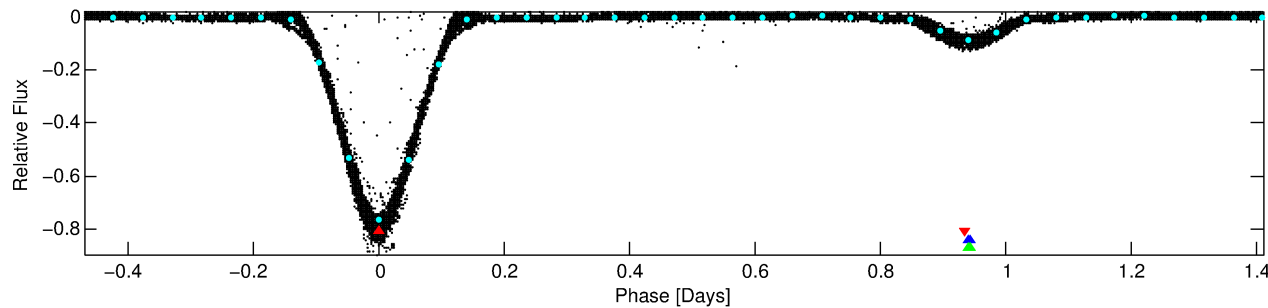
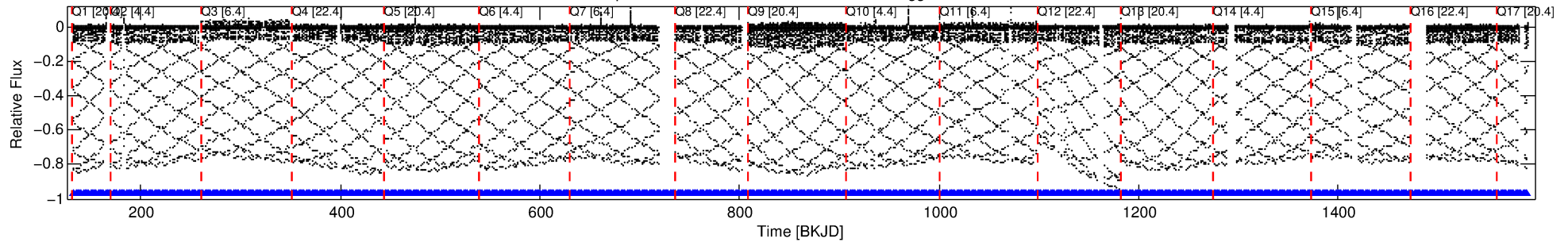
Ephemeris Match Information For 004678875-01

No Significant Match Found

# DV One-Page Summary

KIC: 4678875 Candidate: 1 of 3 Period: 1.879 d  
KOI: K03664 Corr: No Ephemeris Match

Kp: 13.24 R\*: 1.24 Rs Teff: 6569.0 K Logg: 4.28 Fe/H: -0.420



## TPS TCE Results:

Period = 1.87887 d  
Epoch = 133.0776 BKJD

DV fit results are unavailable

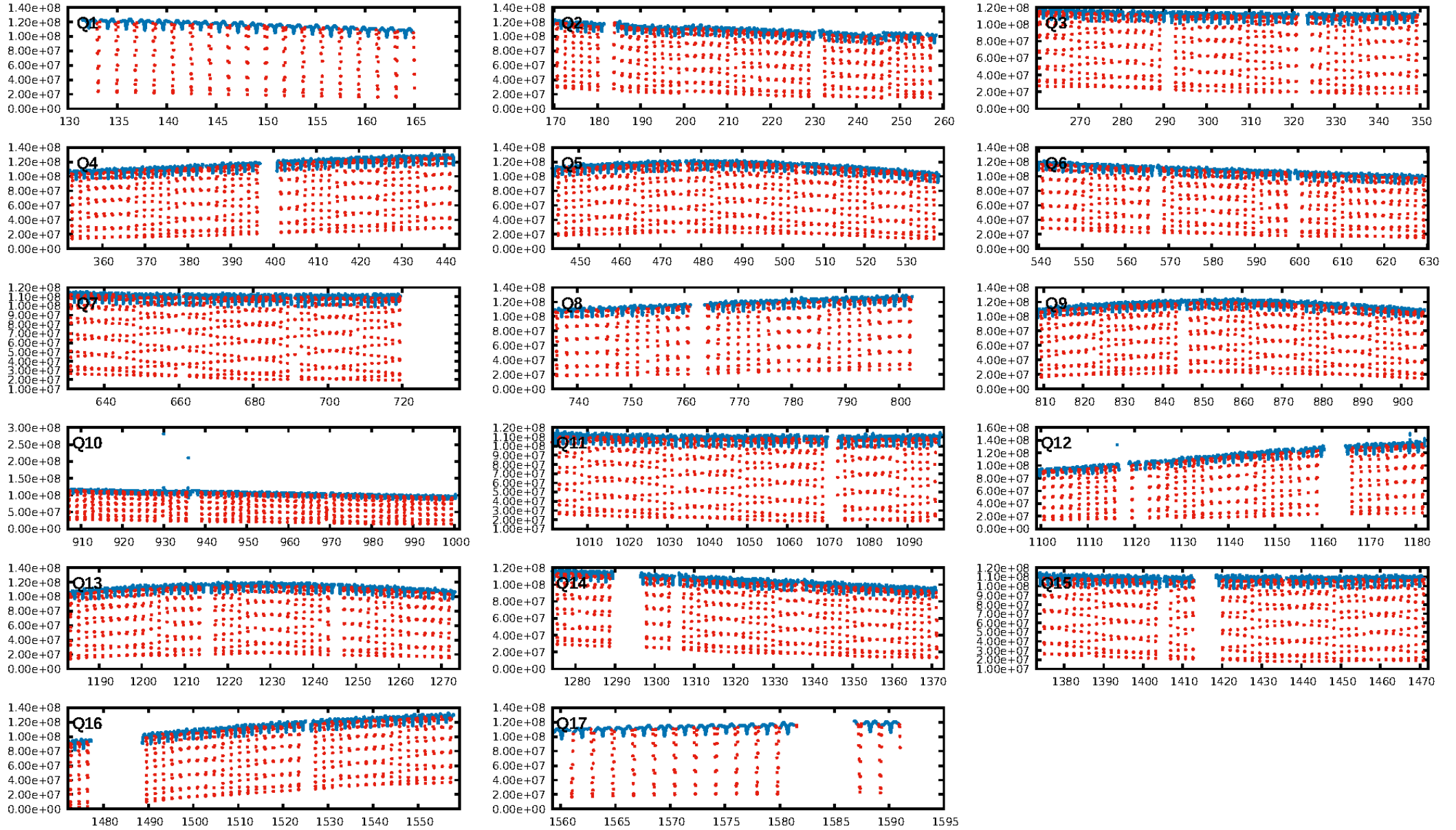
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [15.86σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [684/684]  
GhostDiagnostic-chr: 0.8395  
Centroid-sig: N/A  
Centroid-so: 0.905 arcsec [2177.53σ]  
OotOffset-rm: 3.469 arcsec [16.40σ]  
KicOffset-rm: 0.204 arcsec [2.99σ]  
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]

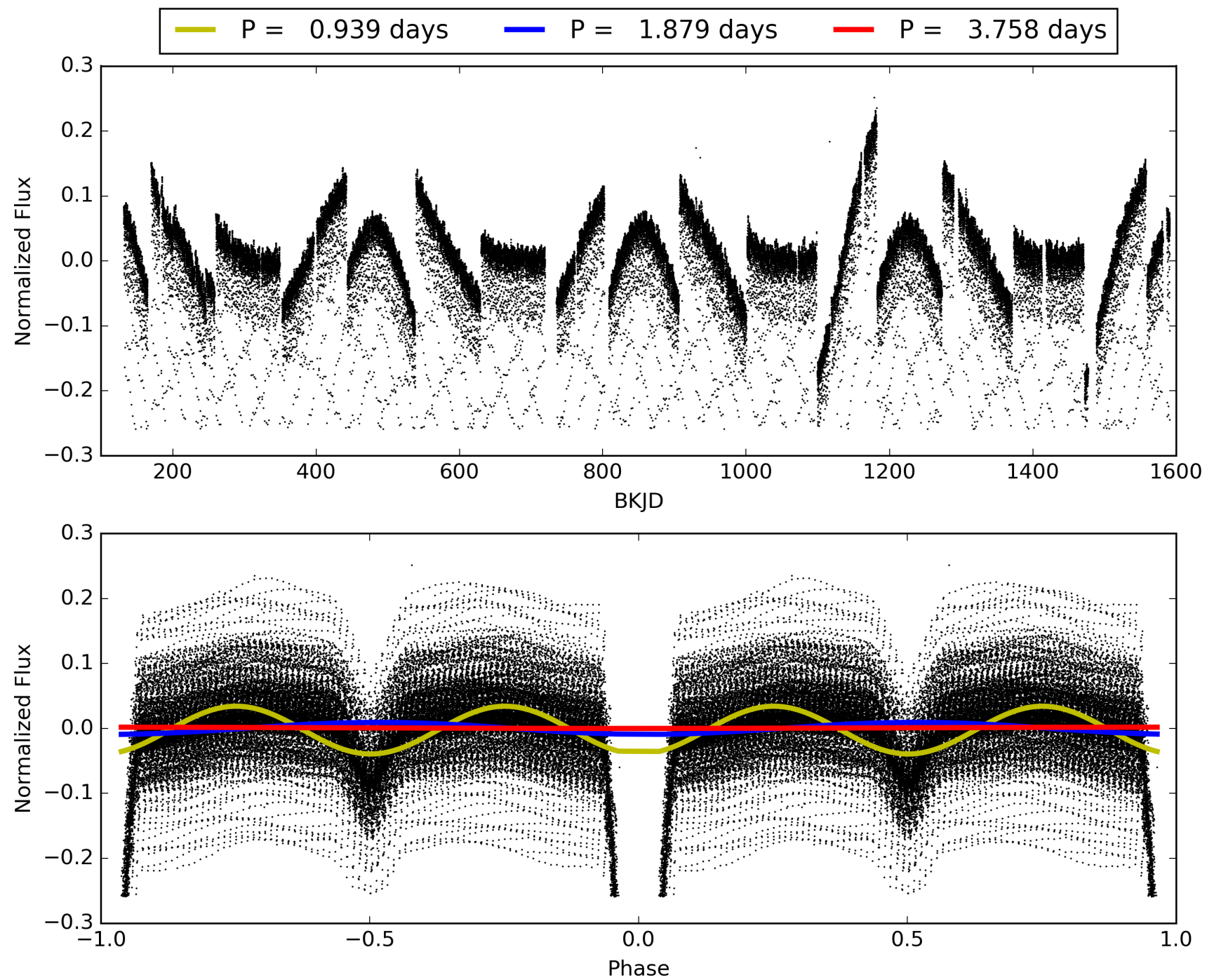
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:04:20 Z

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

# TCE 004678875-01, PDC Light Curves

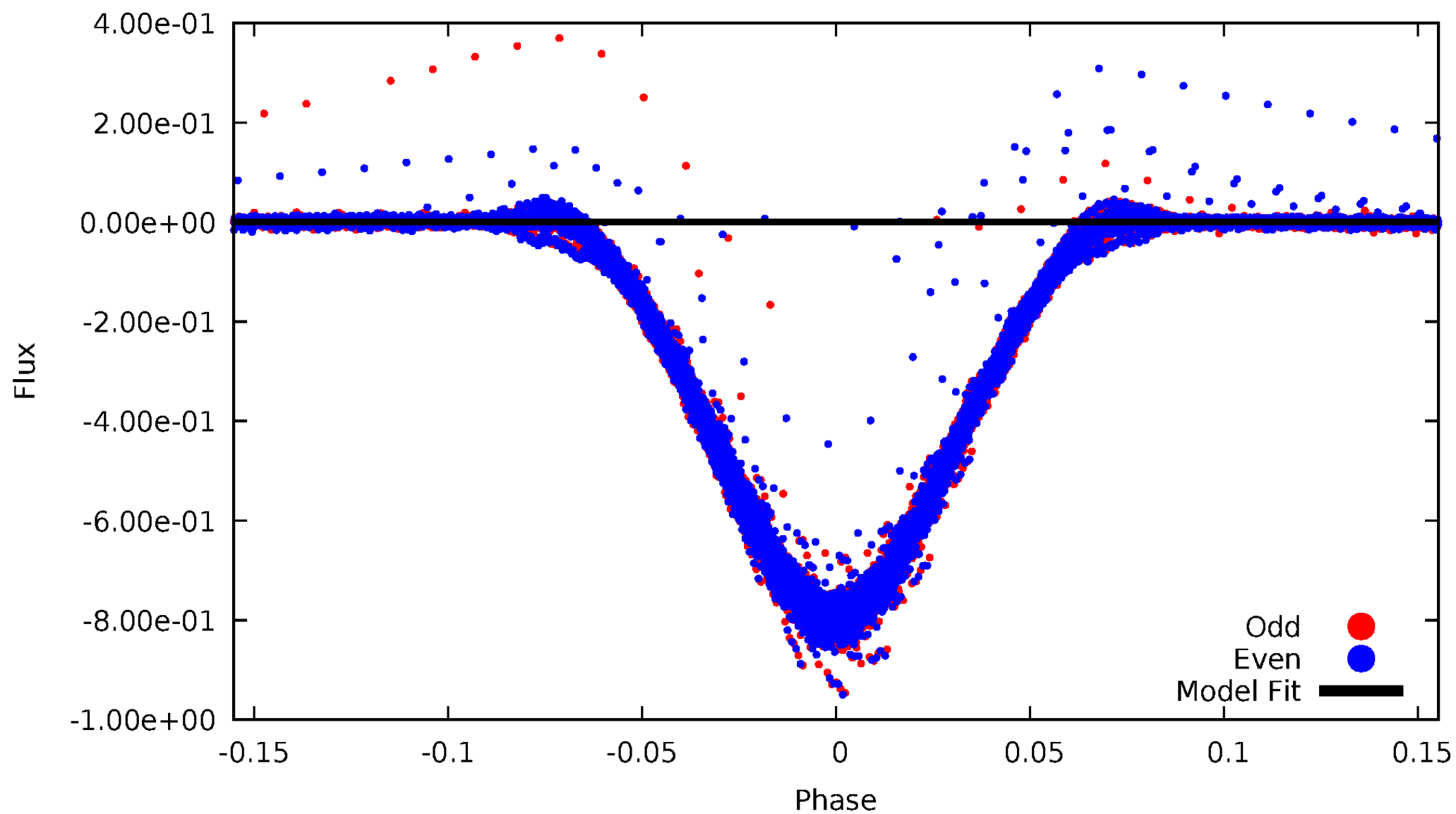


TCE 004678875-01



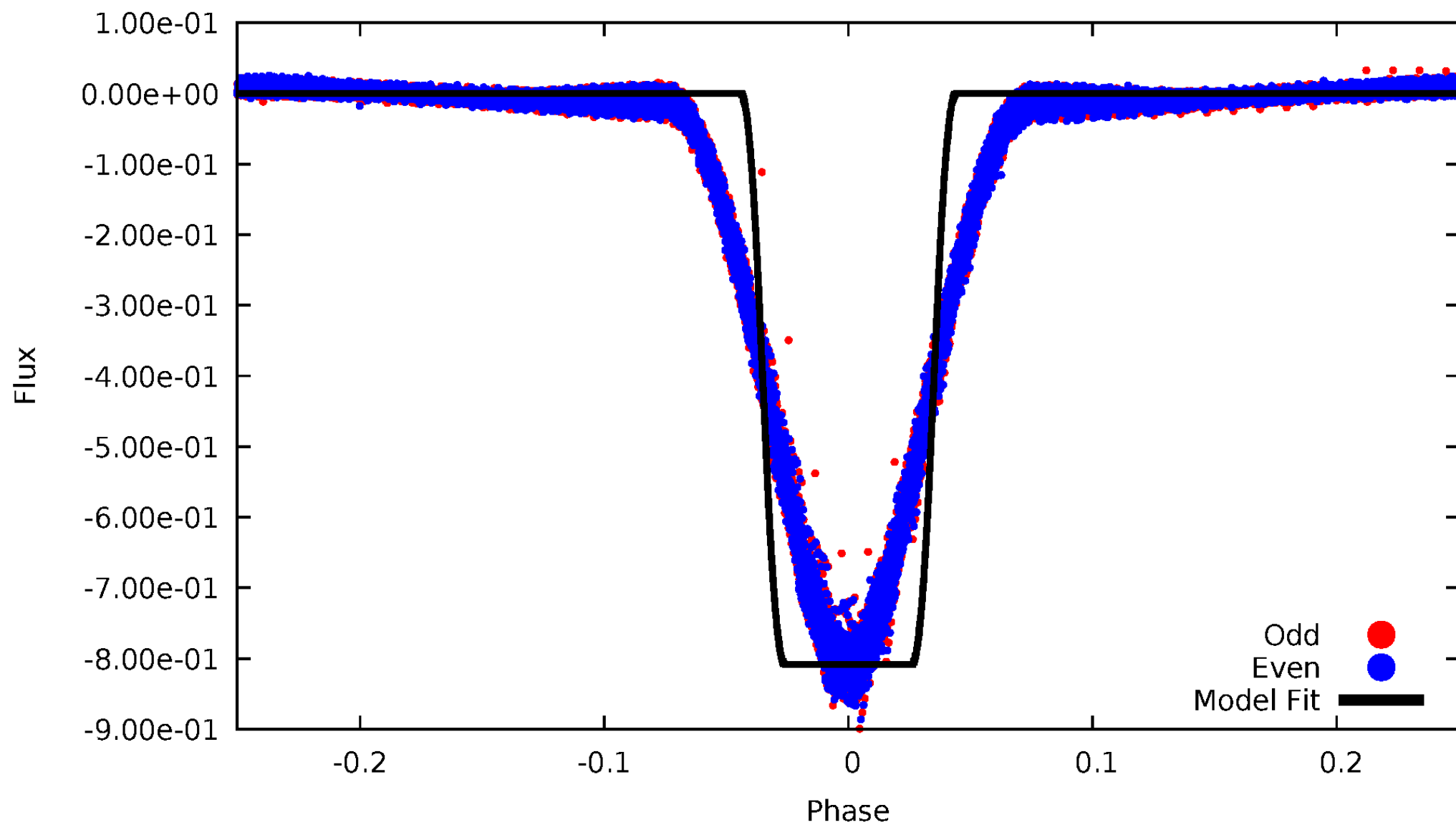
# DV Odd/Even

TCE 004678875-01



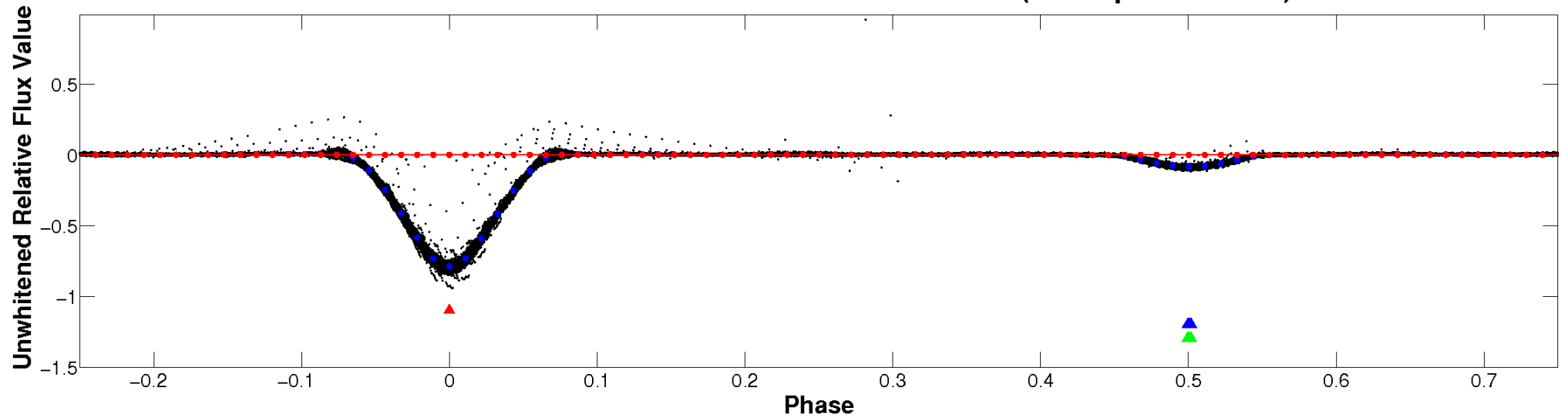
# ALT Odd/Even

TCE 004678875-01

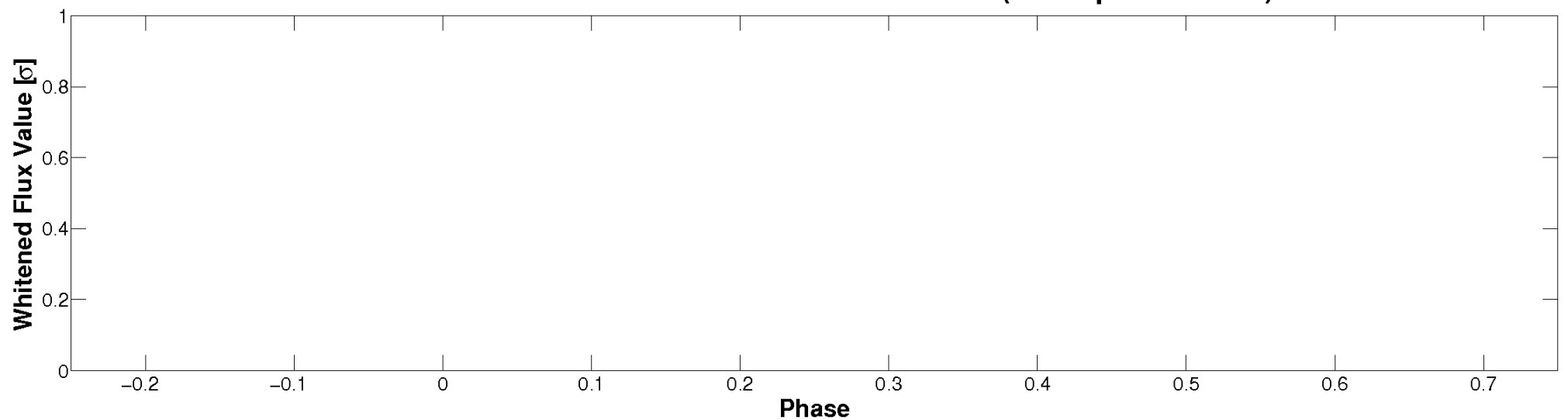


# Non-Whitened Vs. Whitened Light Curve

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

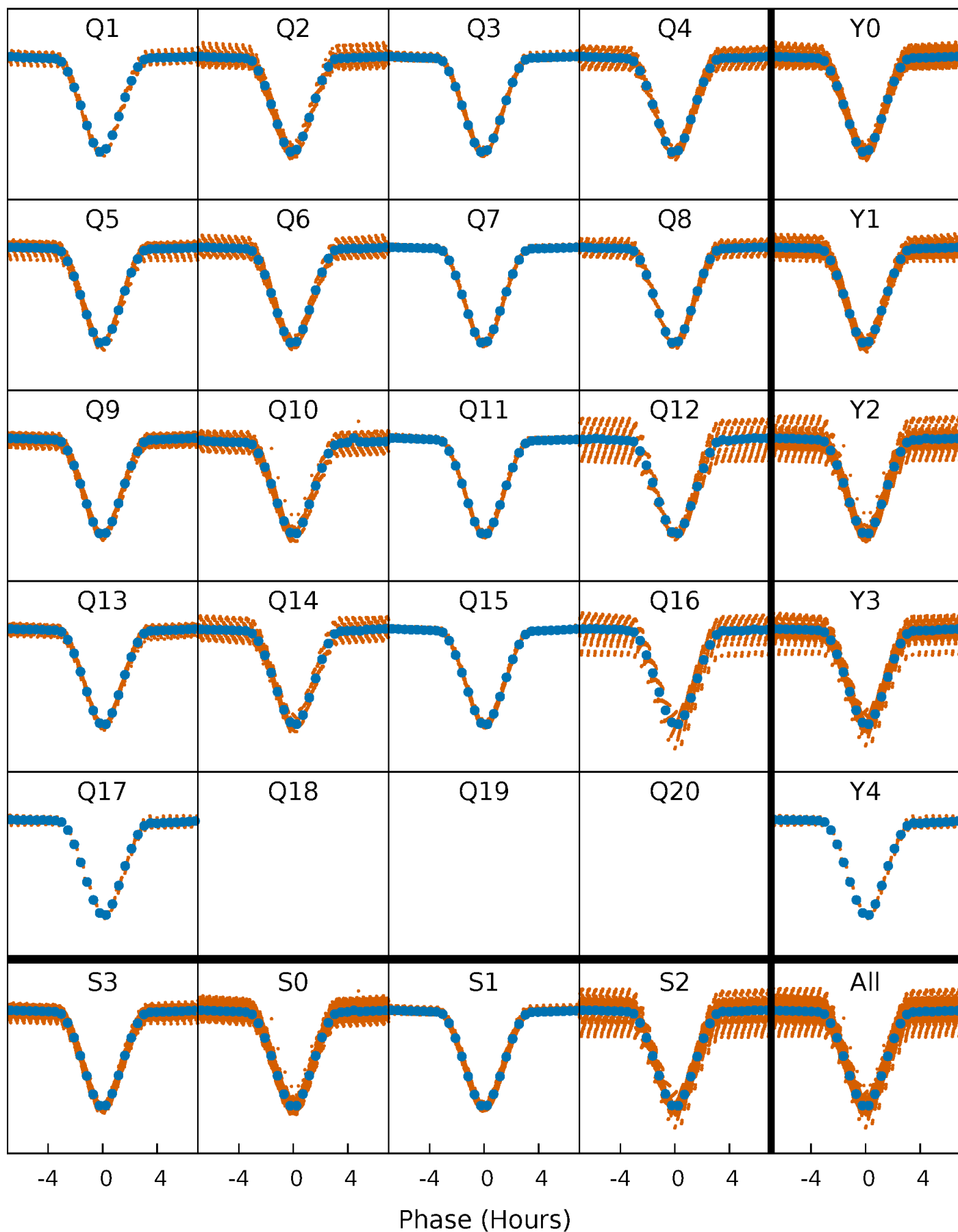


**Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

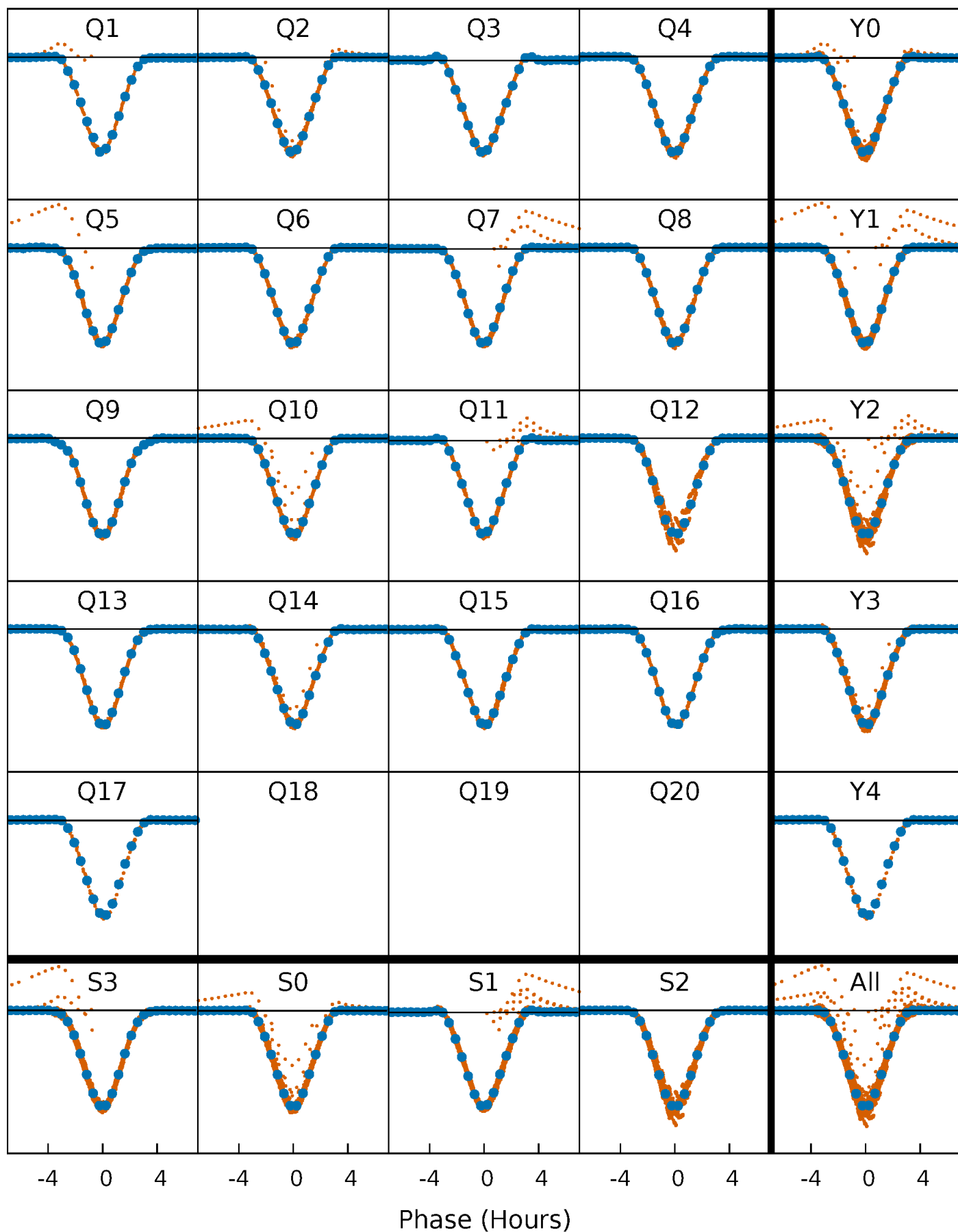
TCE 004678875-01 P= 1.878867 Days  $T_0=133.077567$  (BKJD)





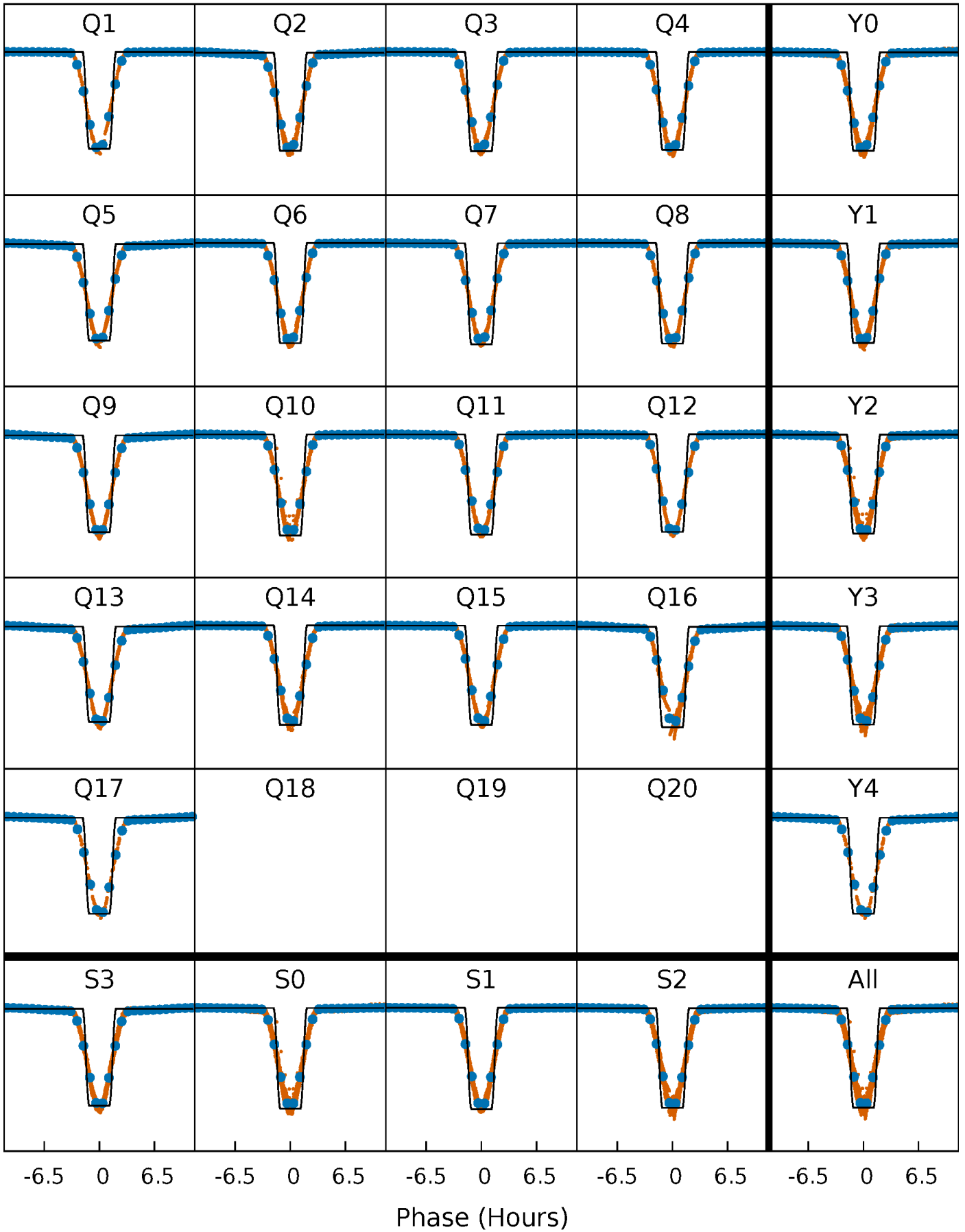
# DV Quarter-Phased Transit Curves

TCE 004678875-01 P= 1.878867 Days  $T_0=133.077567$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

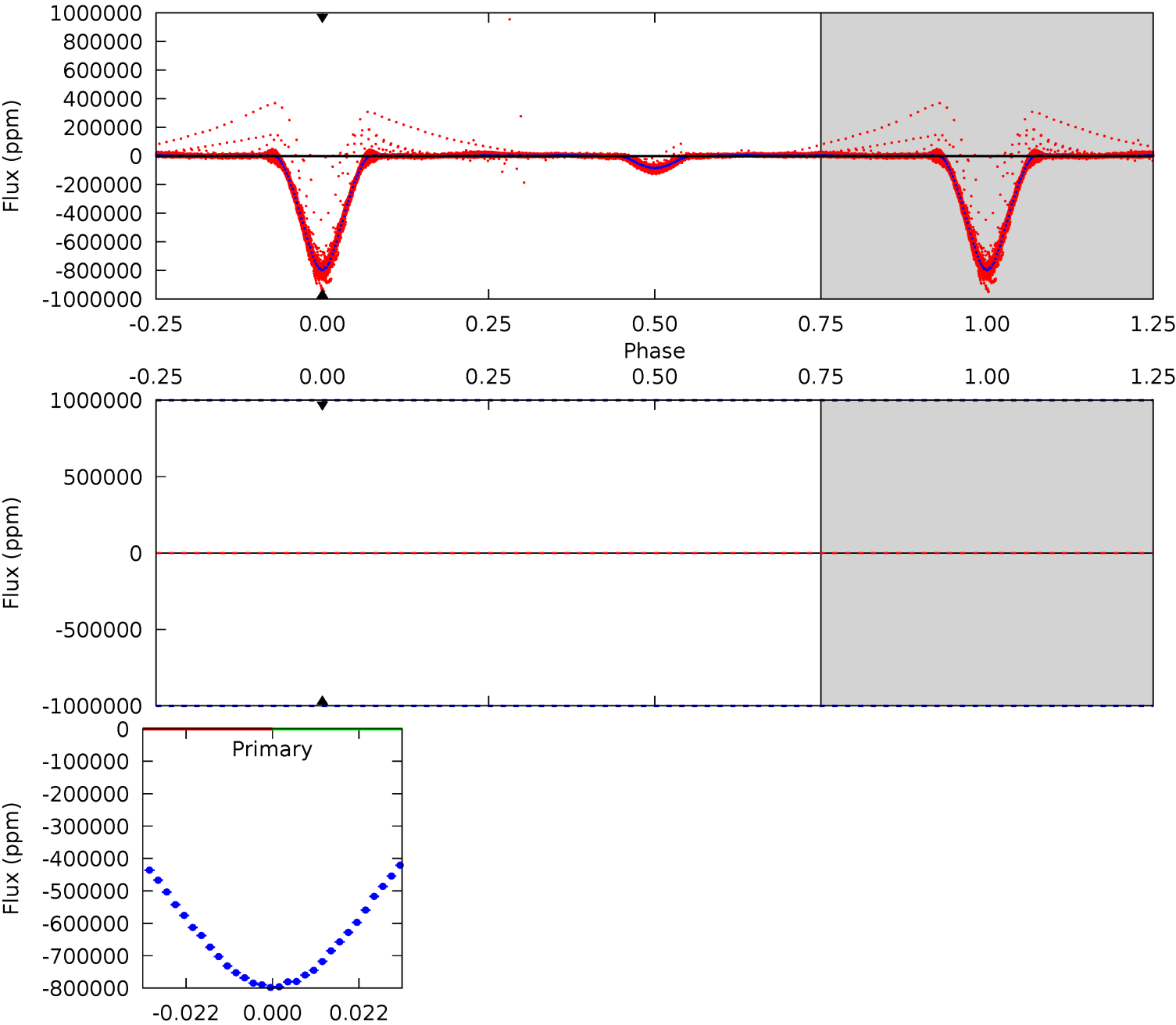
TCE 004678875-01 P= 1.878867 Days  $T_0=133.077561$  (BKJD)



DV Model-Shift Uniqueness Test

004678875-01, P = 1.878867 Days, E = 131.198700 Days

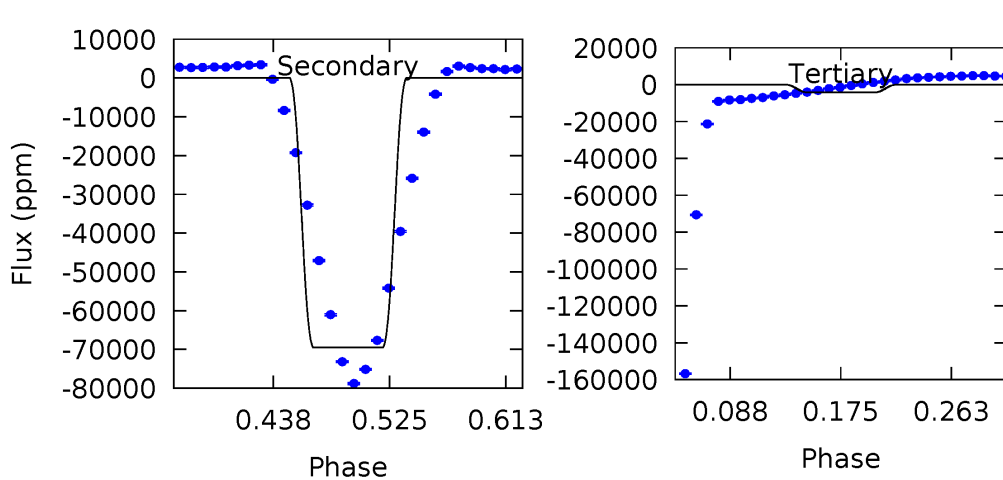
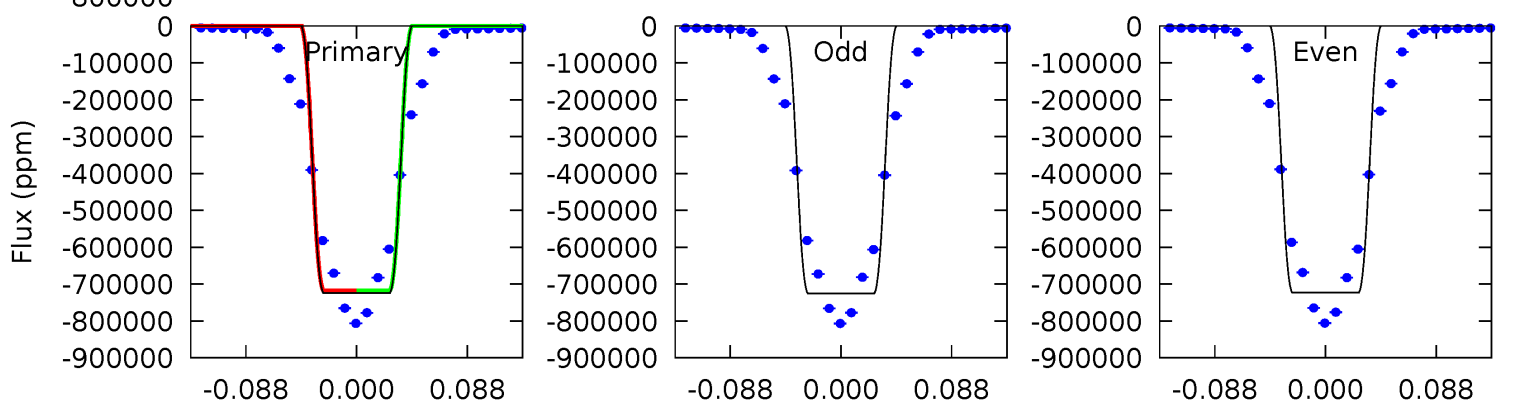
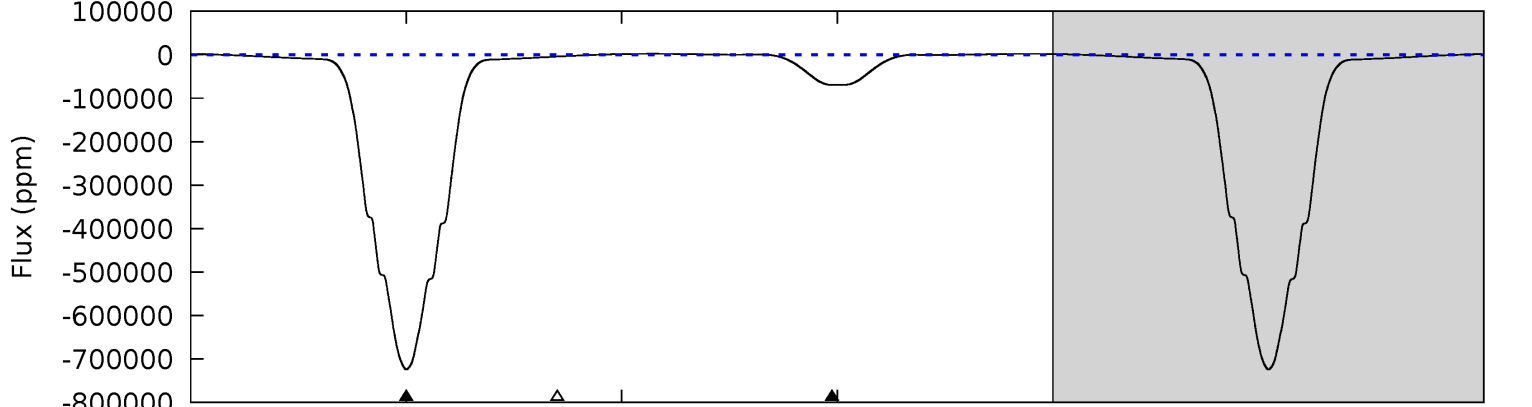
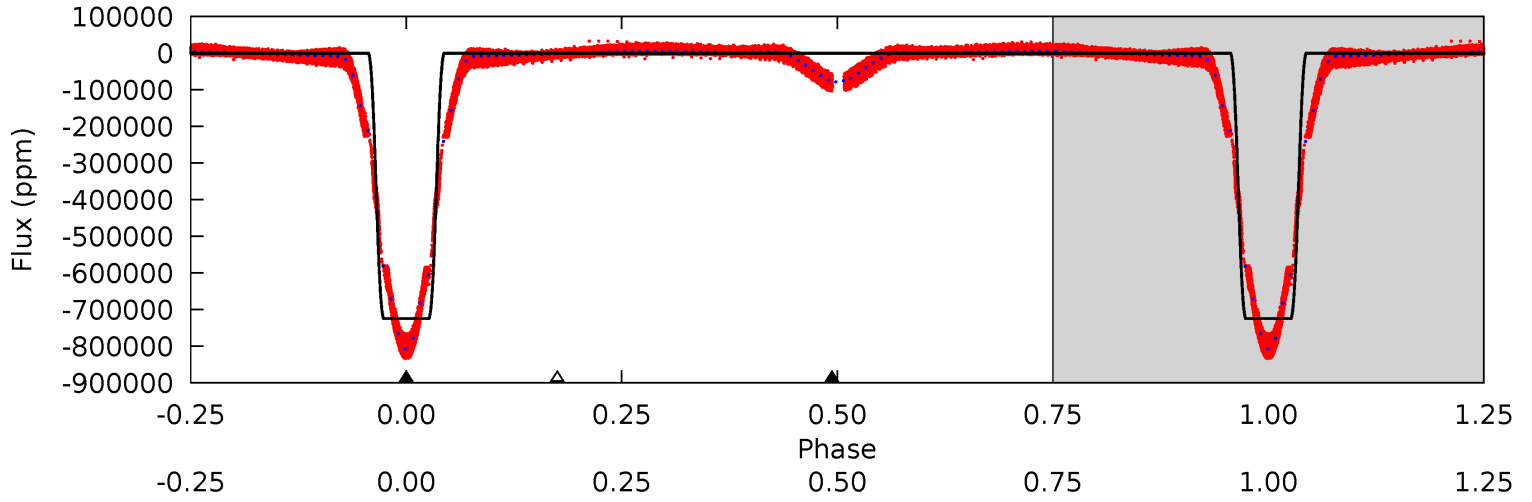
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

004678875-01, P = 1.878867 Days, E = 131.198694 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
5787	554.9	33.9	0	4.59	1.71	33.2	5753	5787	521.0	554.9	6.75	0.99	0.00	1.61



### Stellar Parameters For KIC 004678875

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6569^{+157}_{-196}$	$4.281^{+0.128}_{-0.176}$	$-0.420^{+0.250}_{-0.300}$	$1.235^{+0.366}_{-0.197}$	$1.060^{+0.176}_{-0.122}$	$0.793^{+0.535}_{-0.393}$
	+2%/-3%	+3%/-4%	+60%/-71%	+30%/-16%	+17%/-12%	+67%/-50%
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 004678875-01 / KOI 3664.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$21.33^{+15.57}_{-11.22}$	$2596^{+180}_{-154}$	$-3304^{+14919}_{-8129}$	$-0.263^{+160.103}_{-150.727}$
Alt.	$-69461 \pm 125$	$121.39^{+23.66}_{-17.54}$	$2579^{+199}_{-141}$	$3863^{+201}_{-174}$	$2.574^{+0.939}_{-0.717}$

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

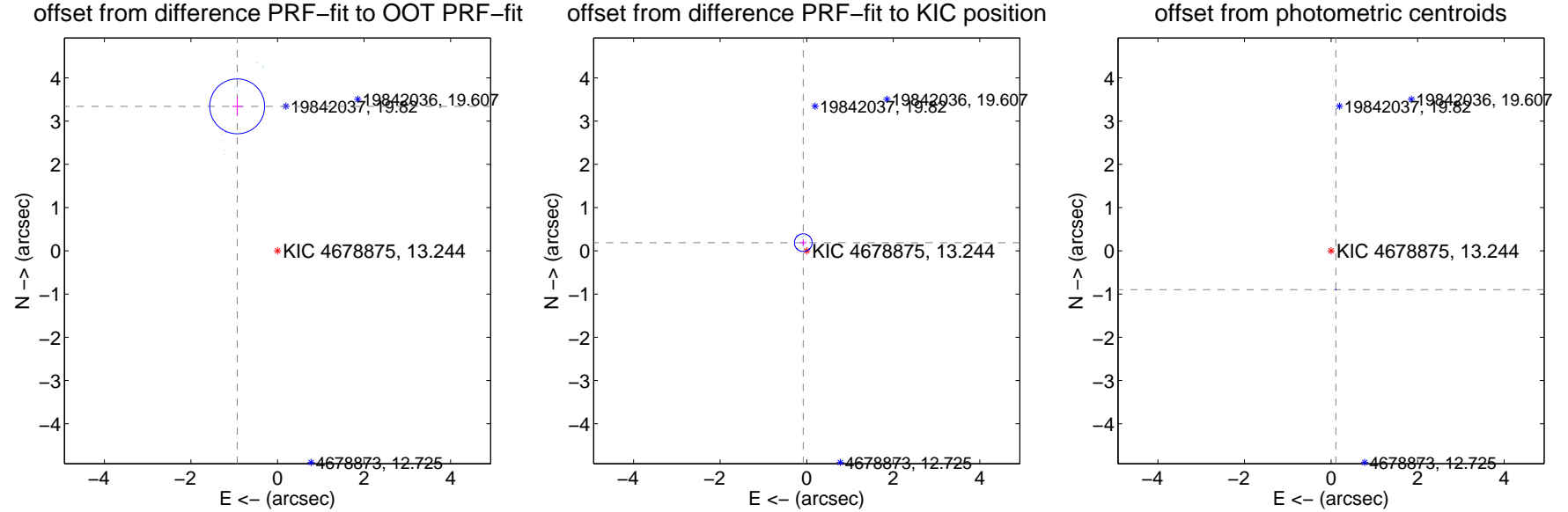
## DV Centroid Data

Supplemental centroid analysis for 004678875-01. Kepler magnitude: 13.24. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

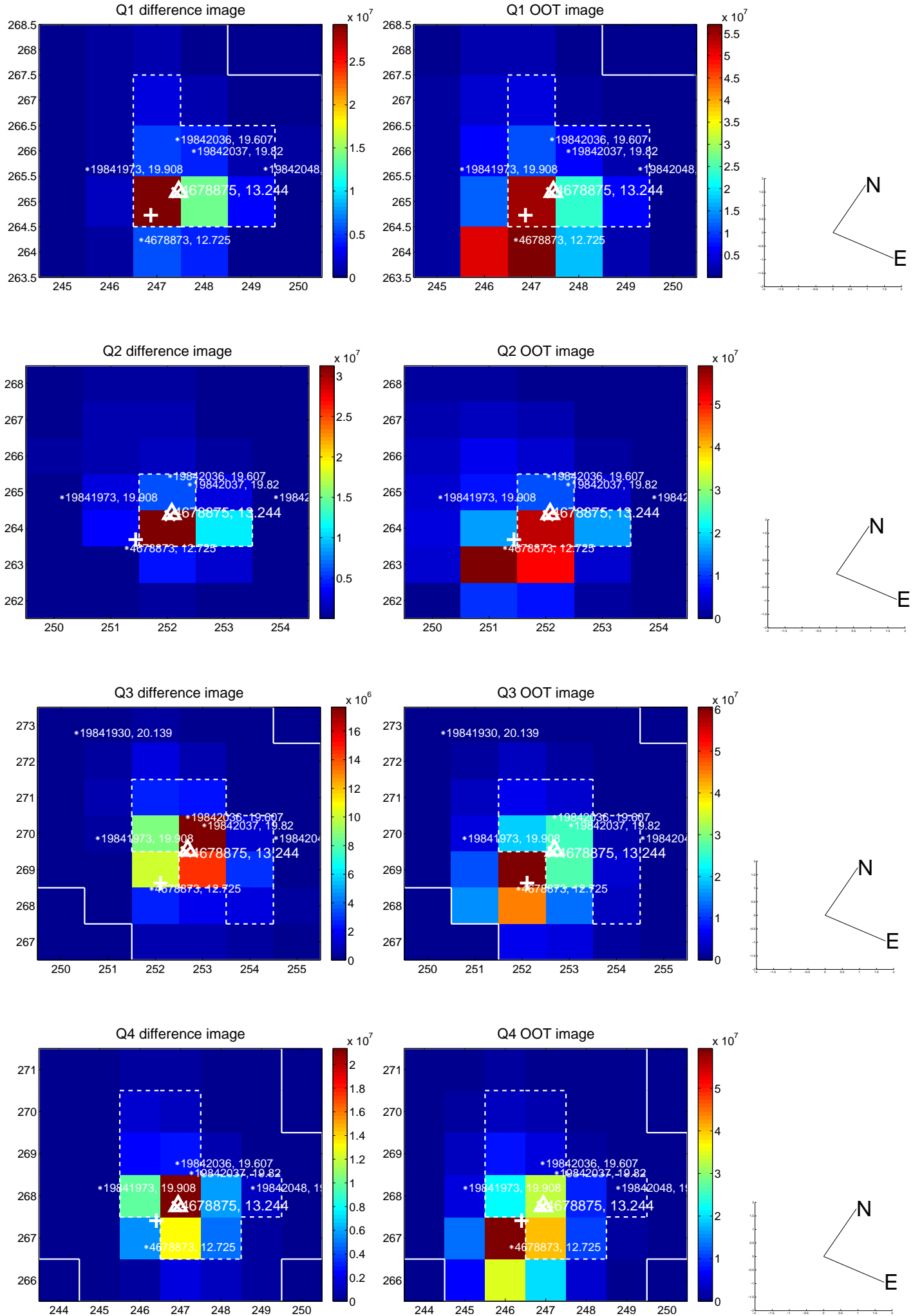
The OOT PRF centroid is offset from the target star catalog position by about 2.80 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.469 \pm 0.211$	16.40	$0.932 \pm 0.117$	$3.342 \pm 0.217$
PRF-fit source offset from KIC position	$0.204 \pm 0.068$	2.99	$0.080 \pm 0.067$	$0.188 \pm 0.068$
photometric centroid source offset	$0.91 \pm 0.00$	2177.53	$-0.11 \pm 0.00$	$-0.90 \pm 0.00$

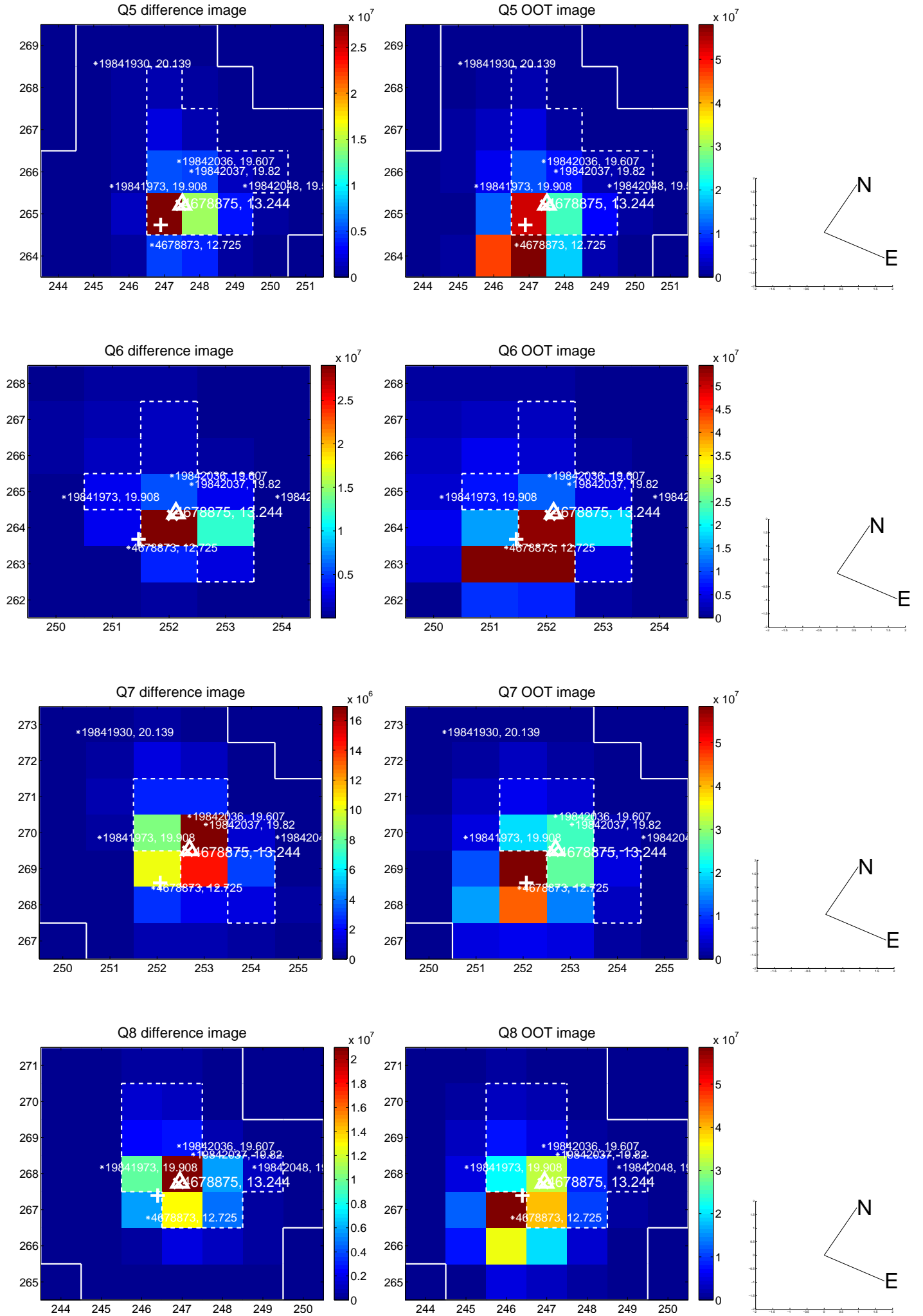


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

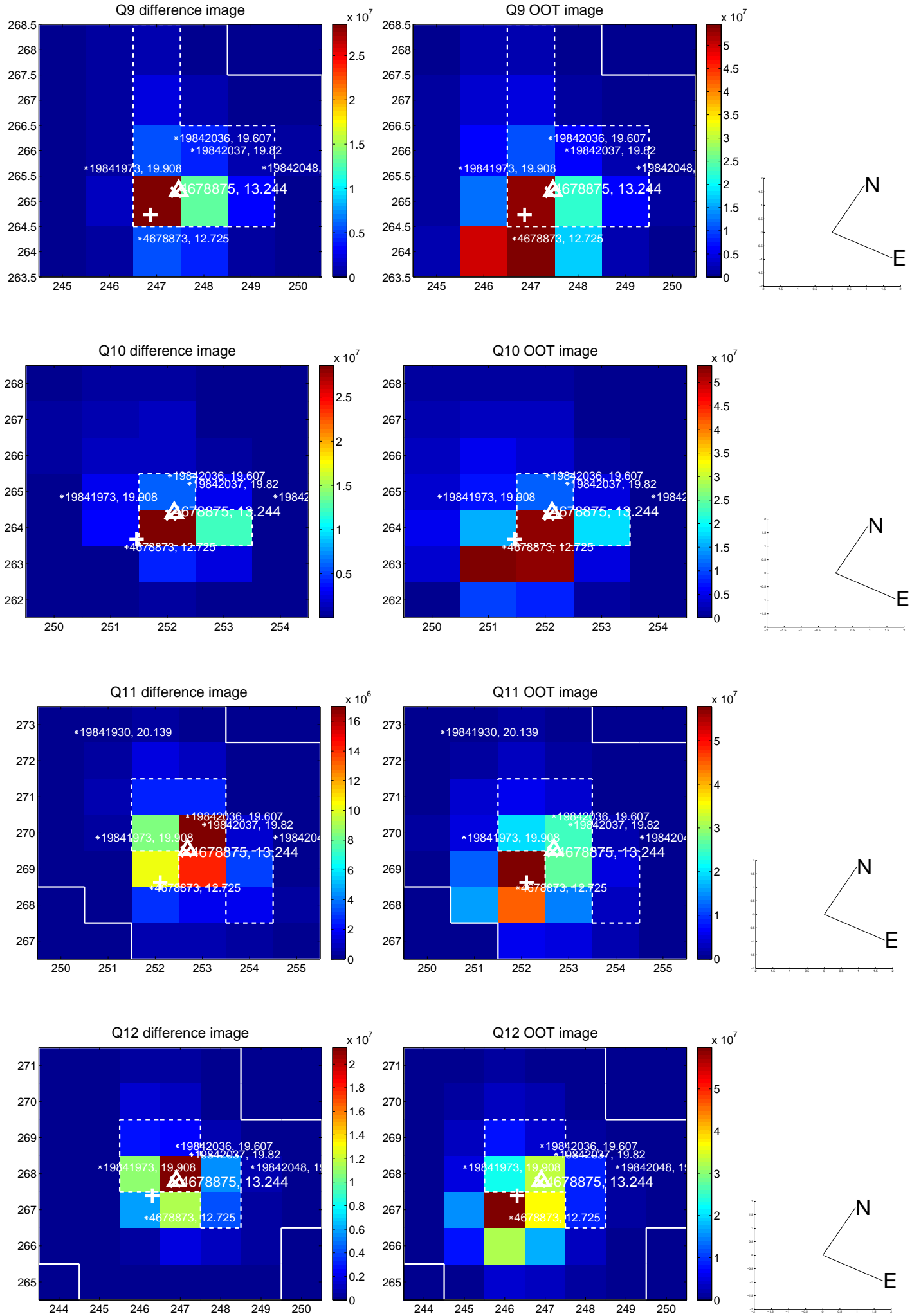


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

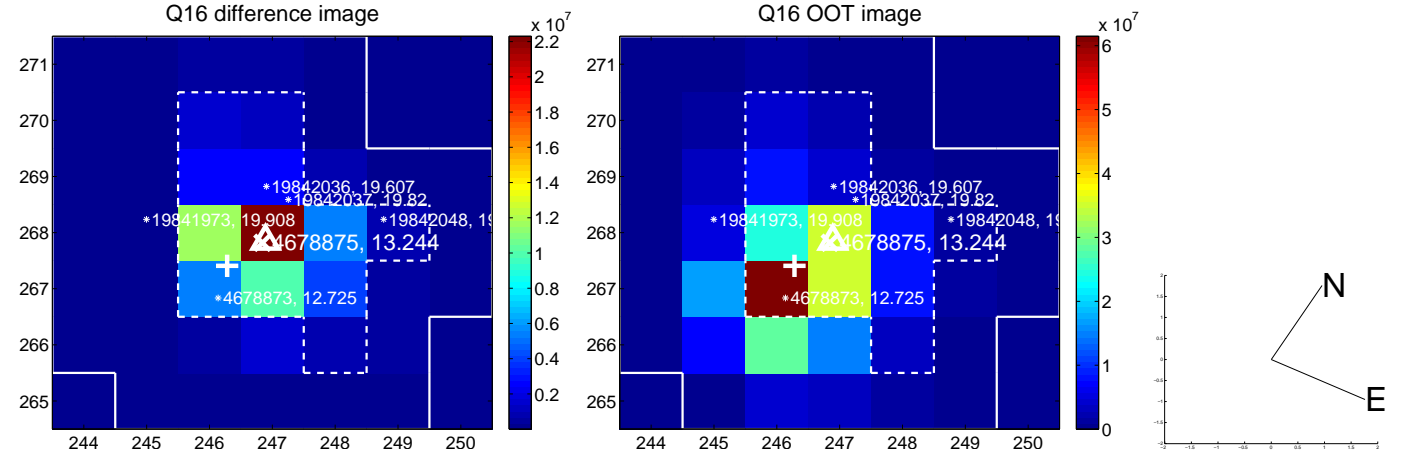
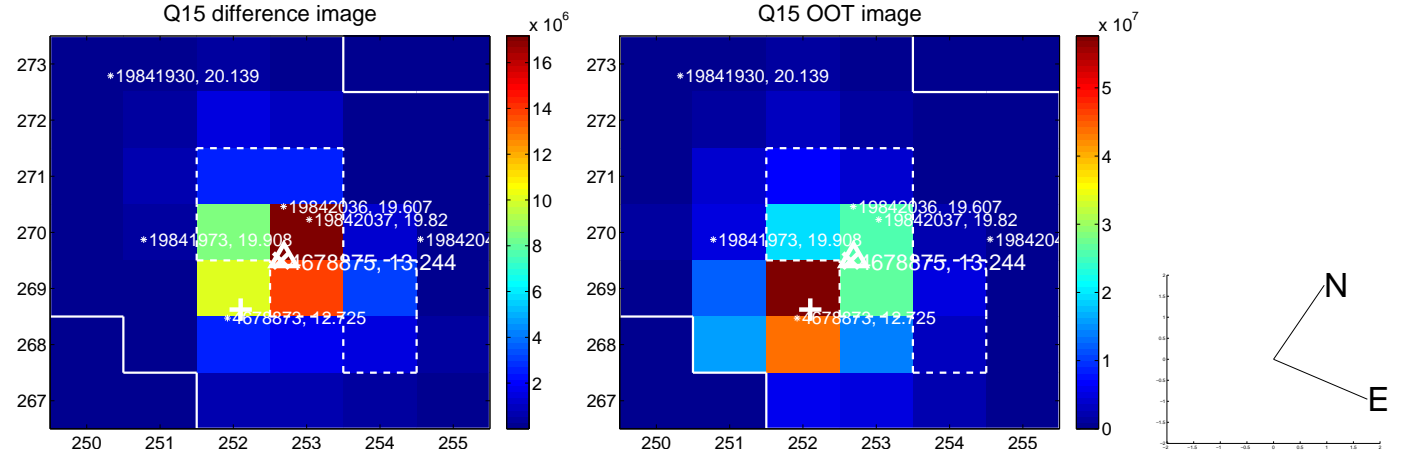
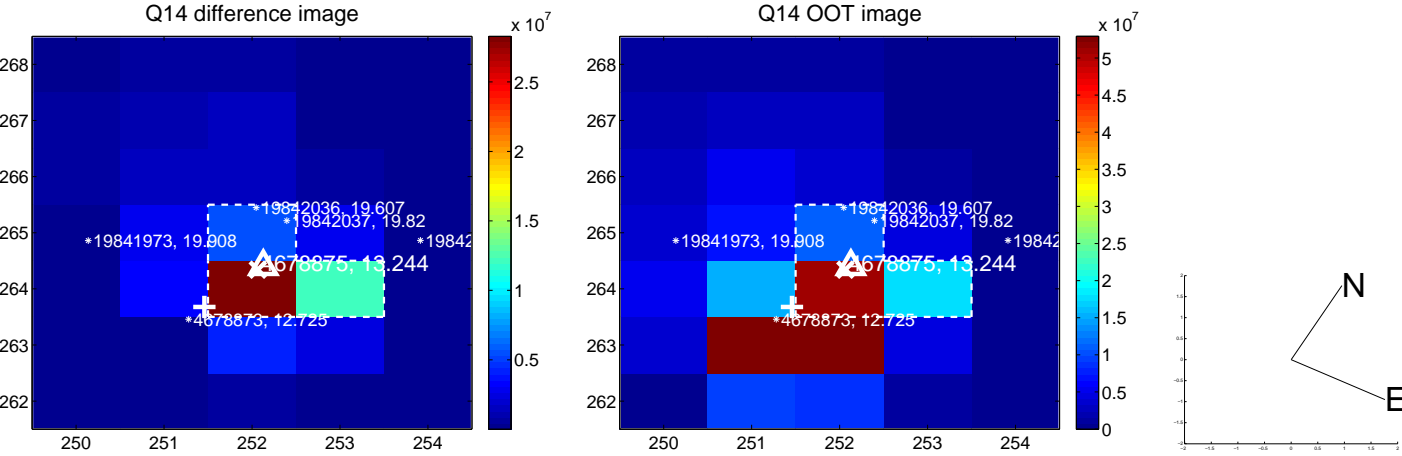
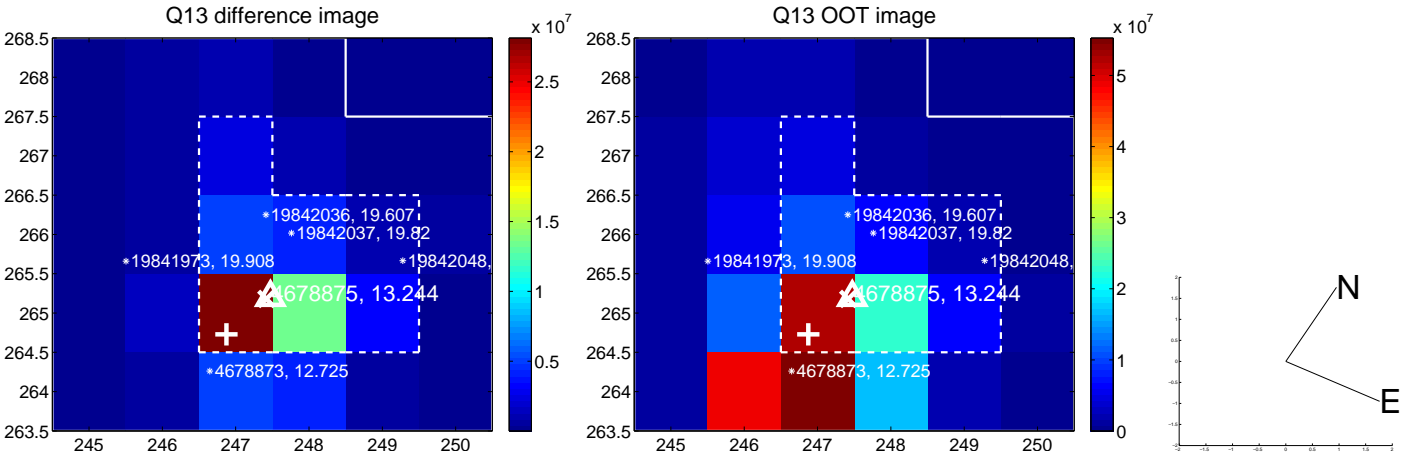




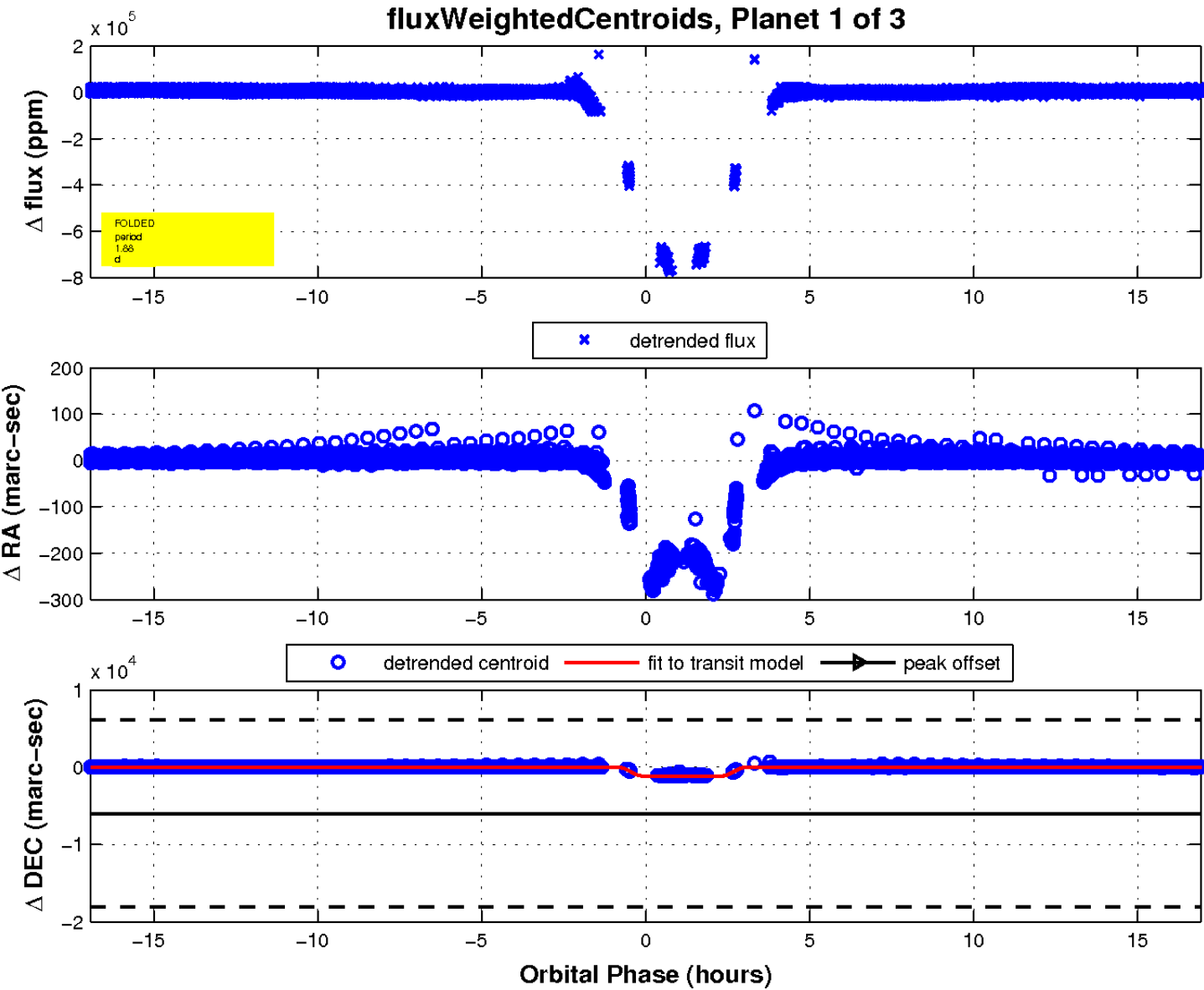
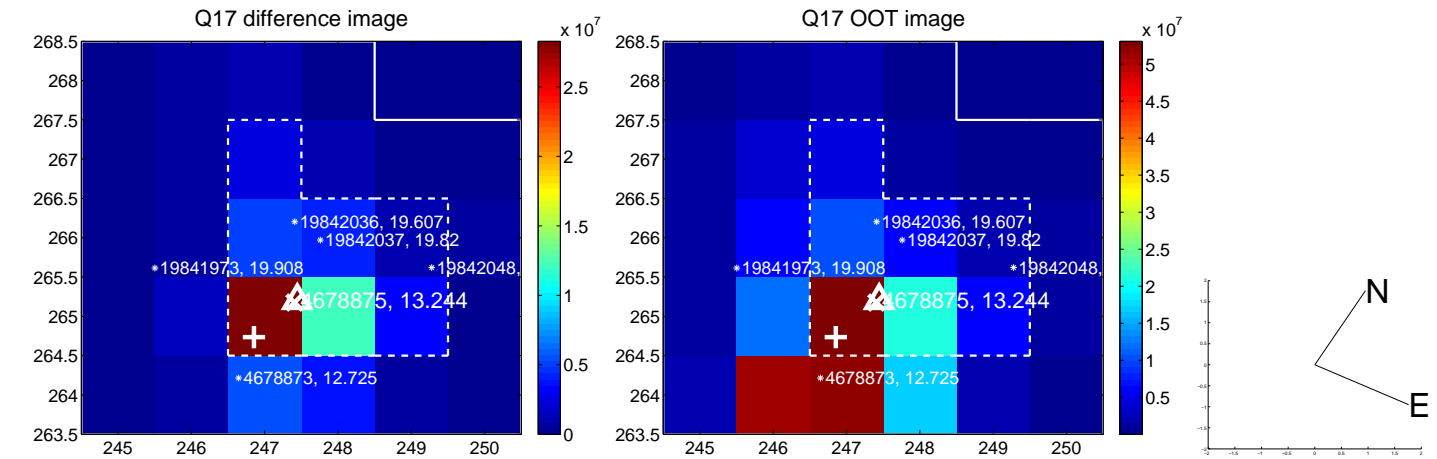
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

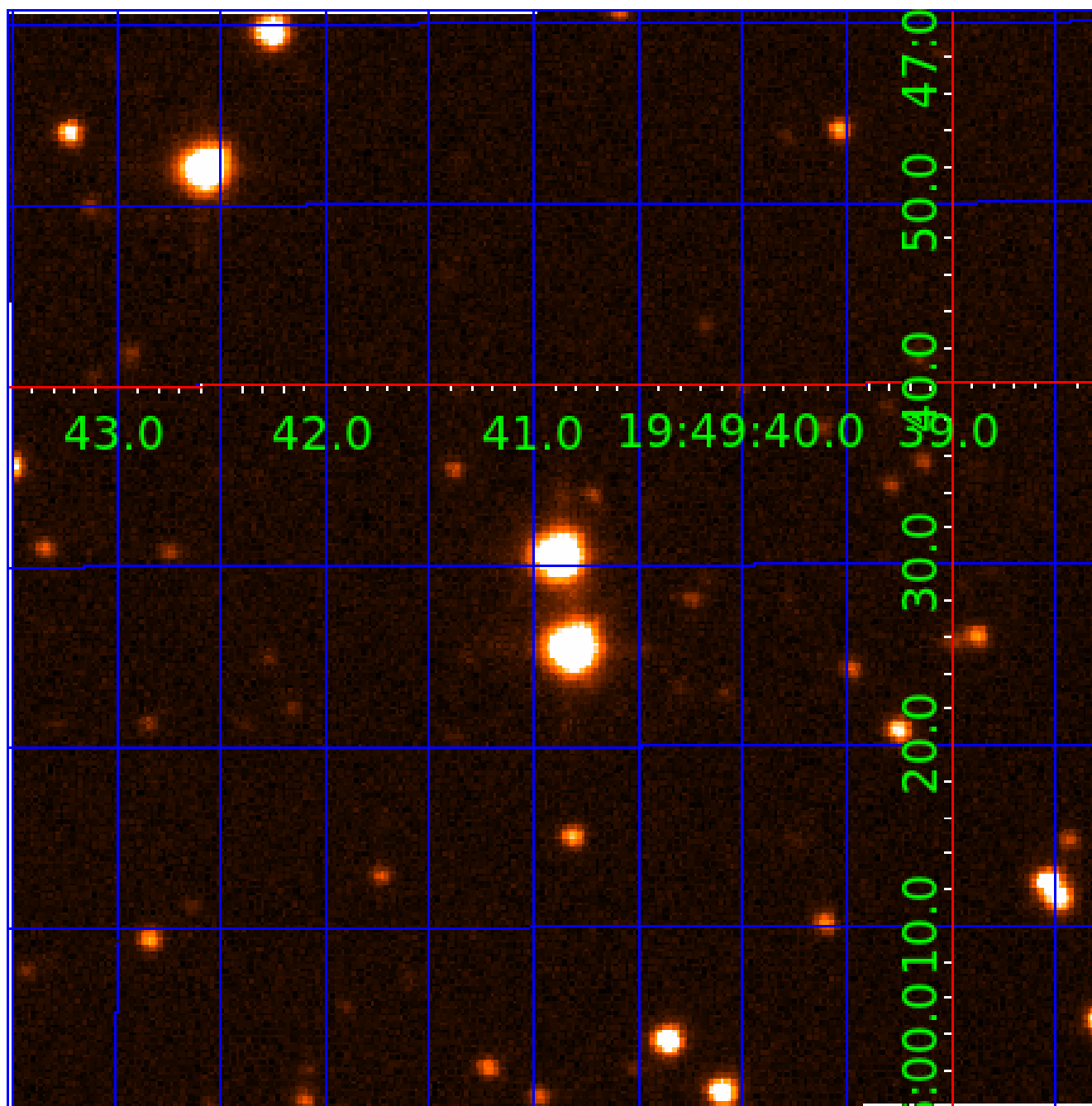


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 004678875

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004678875-01	OBS	3664.01	1.878867	133.077567	801513.1	3.500	4238.2	-1.0	1.24	6569	20.01	2750.90
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004678875-03	OBS	No	5.636621	135.894513	73495.5	4.527	1202.2	401.8	1.24	6569	47.88	635.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004678875-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
004678875-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
004678875-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_KIC_POS

**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.

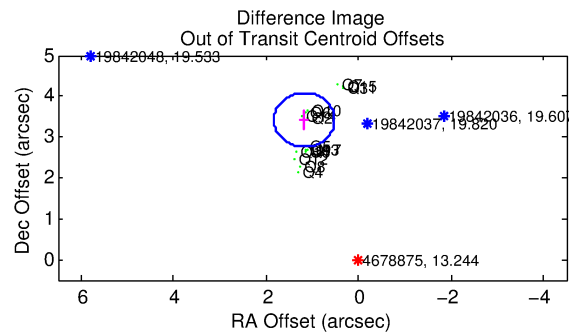
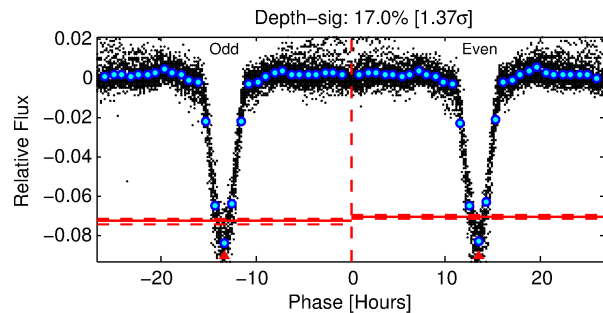
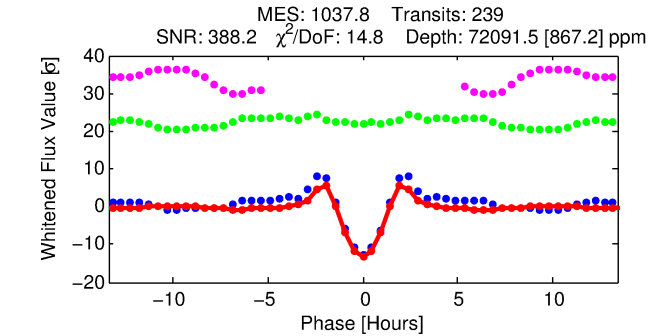
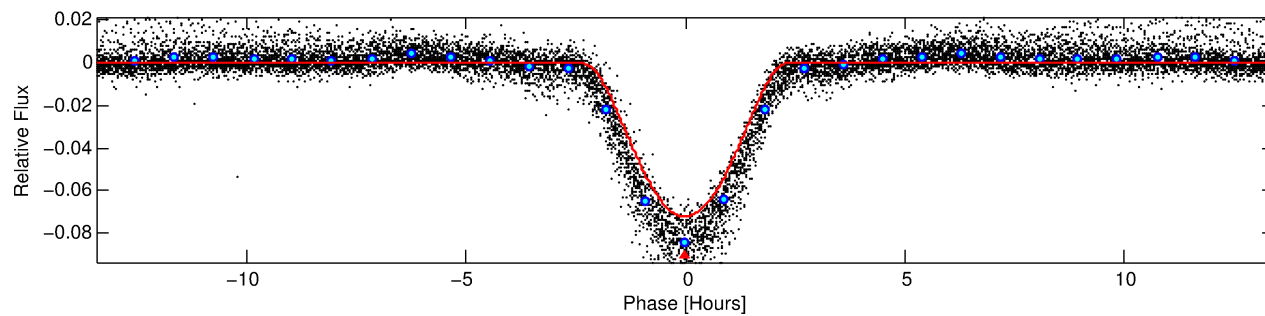
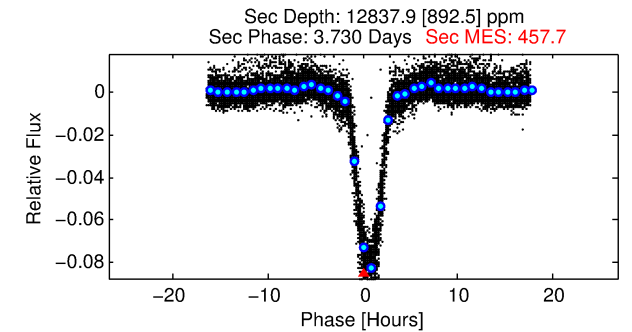
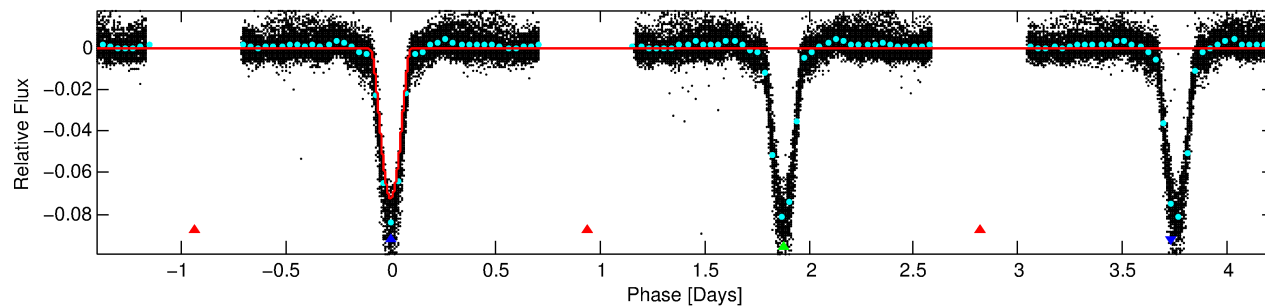
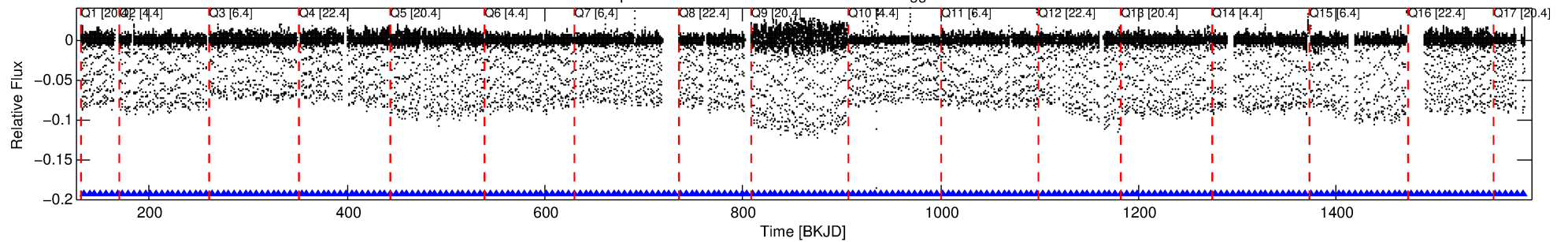
## Ephemeris Match Information For 004678875-02

No Significant Match Found

# DV One-Page Summary

KIC: 4678875 Candidate: 2 of 3 Period: 5.637 d  
KOI: K03664 Corr: No Ephemeris Match

Kp: 13.24 R\*: 1.24 Rs Teff: 6569.0 K Logg: 4.28 Fe/H: -0.420



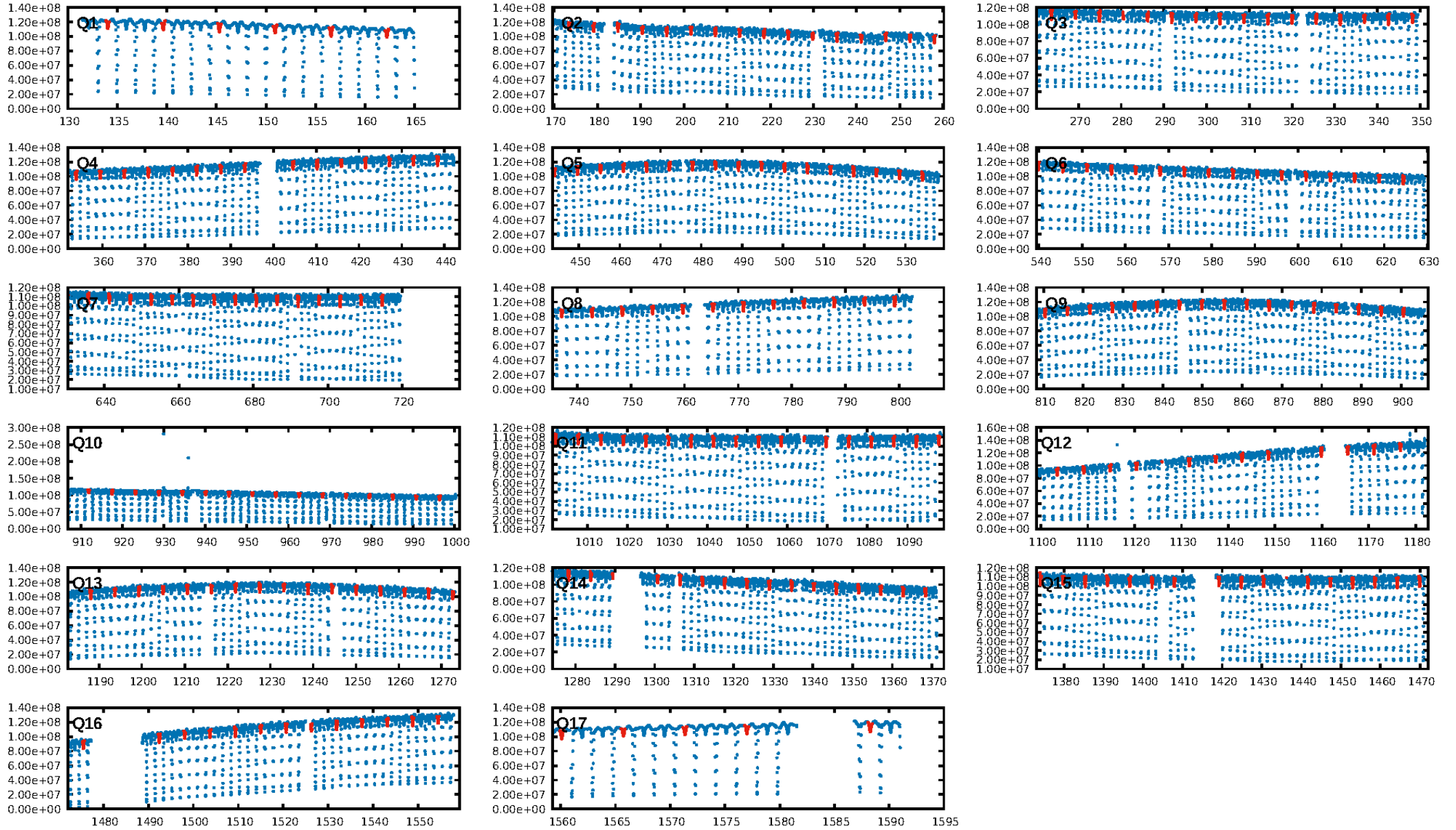
## DV Fit Results:

Period = 5.63662 [0.00000] d  
Epoch = 134.0161 [0.0006] BKJD  
Rp/R\* = 0.3207 [0.0277]  
a/R\* = 9.74 [0.10]  
b = 0.85 [0.05]  
Seff = 635.79 [225.92]  
Teq = 1280 [114] K  
Rp = 43.23 [13.34] Re  
a = 0.0633 [0.0151] AU  
Ag = 15.13 [5.80] [2.44σ]  
Teffp = 3904 [216] K [10.75σ]

## DV Diagnostic Results:

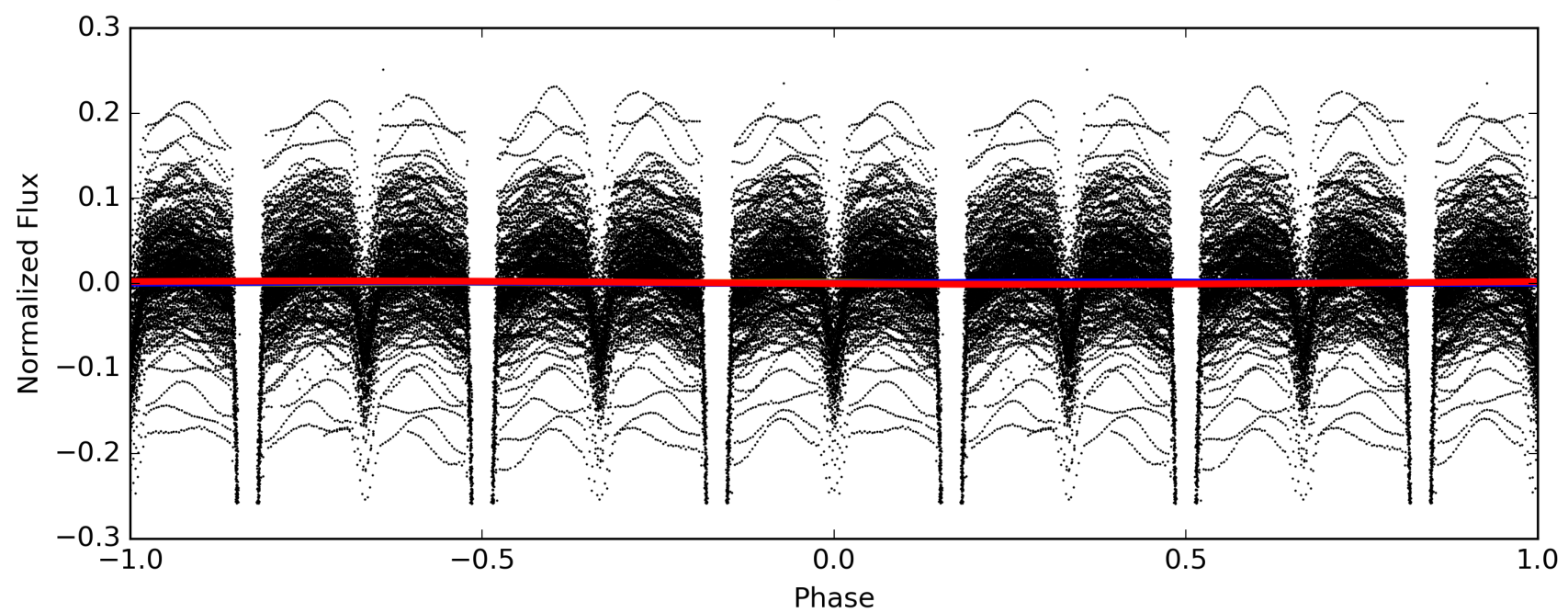
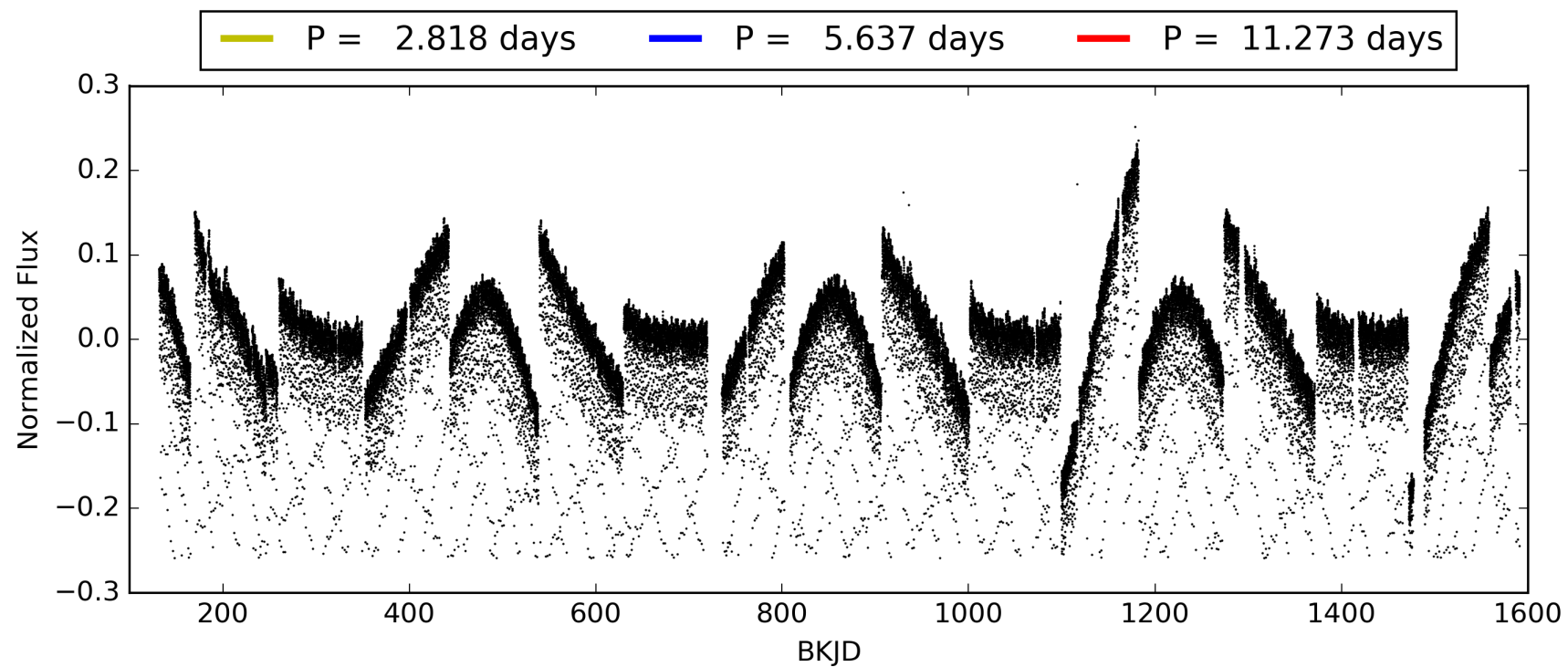
ShortPeriod-sig: 100.0% [15.86σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [228/228]  
GhostDiagnostic-chr: 1.063  
Centroid-sig: N/A  
Centroid-so: 1.520 arcsec [164.57σ]  
OotOffset-rm: 3.615 arcsec [16.41σ]  
KicOffset-rm: 0.160 arcsec [2.32σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
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# TCE 004678875-02, PDC Light Curves





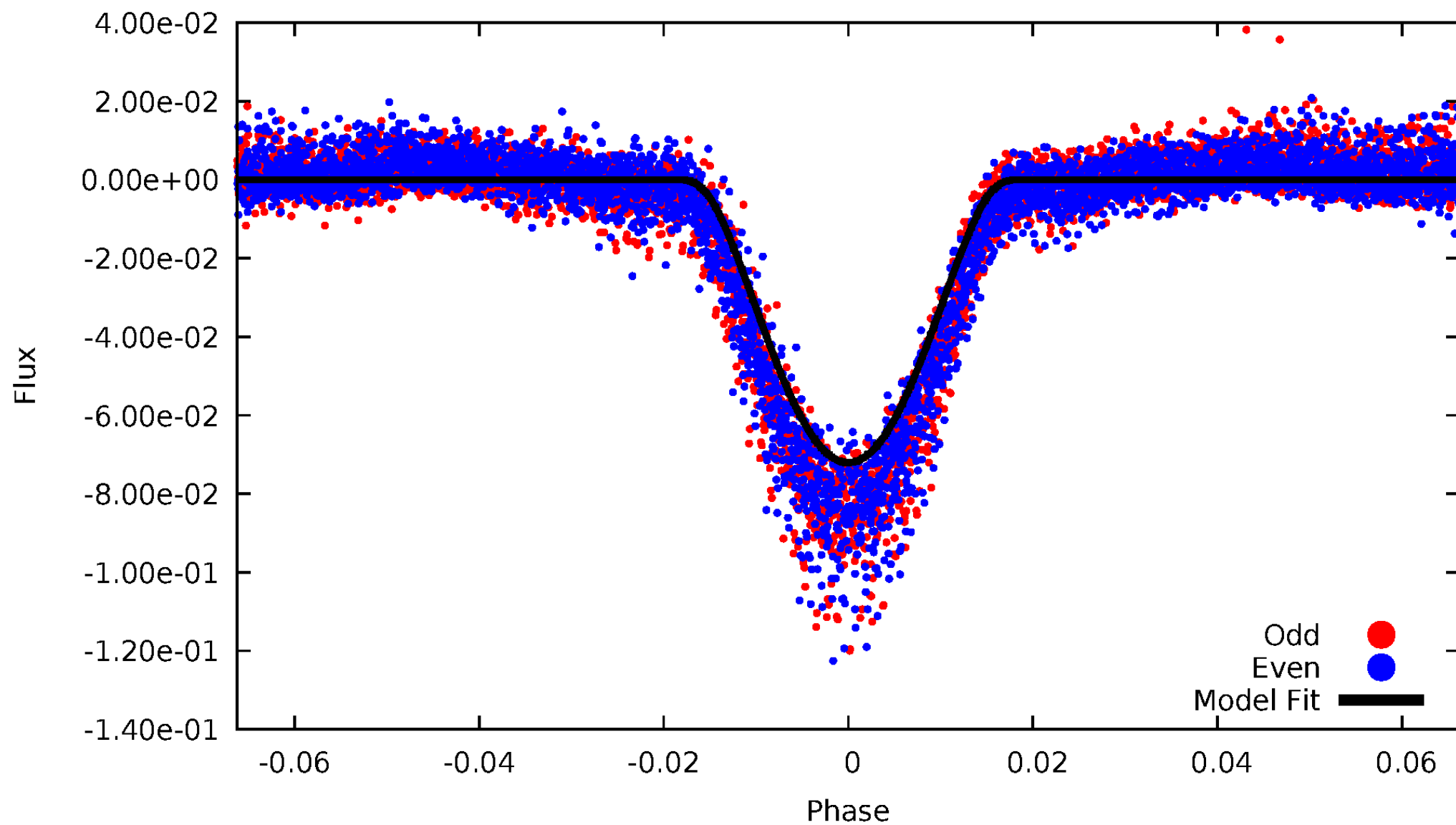
TCE 004678875-02





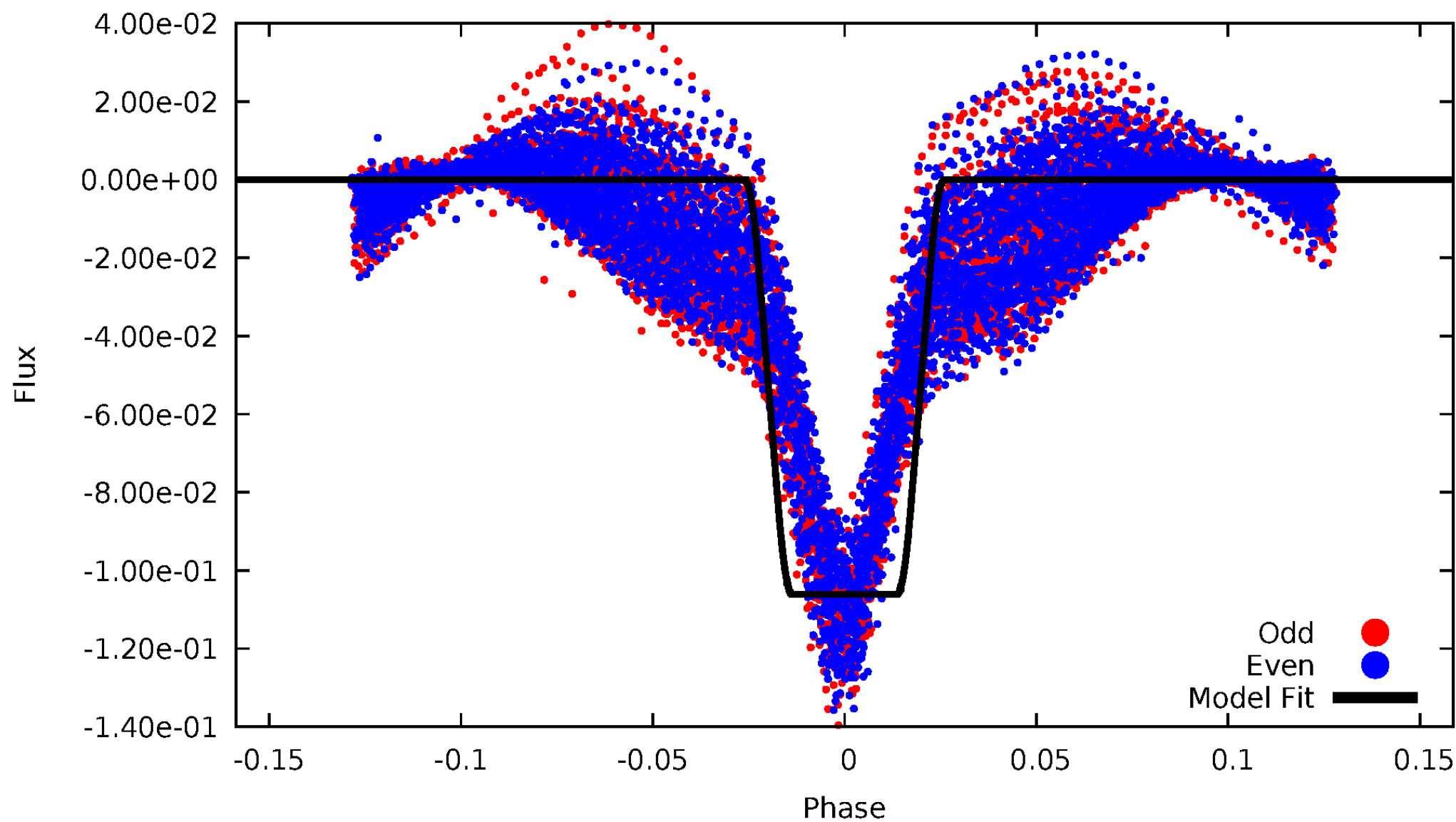
DV Odd/Even

TCE 004678875-02



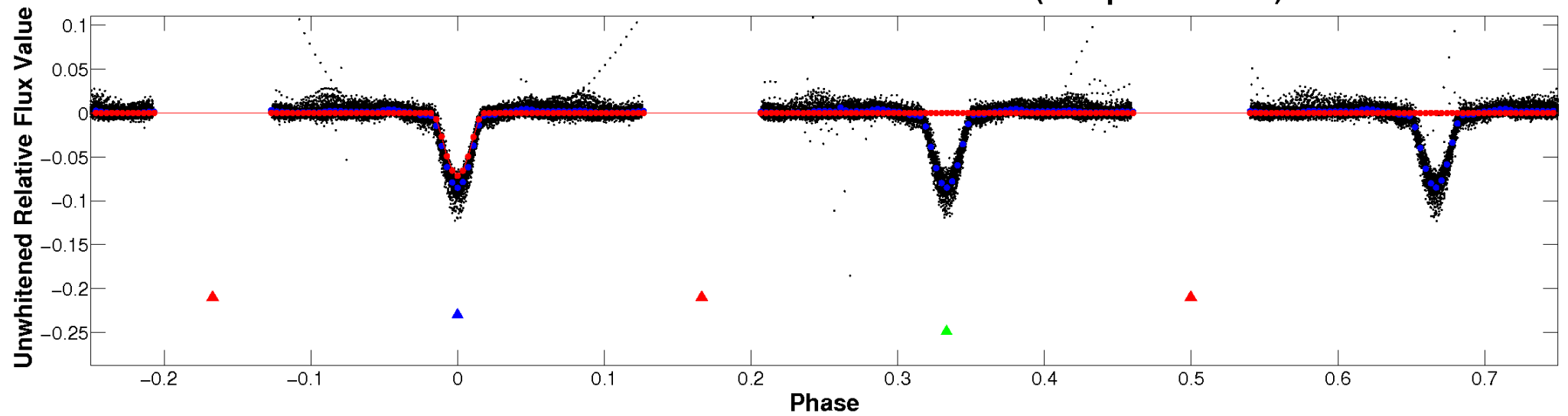
# ALT Odd/Even

TCE 004678875-02

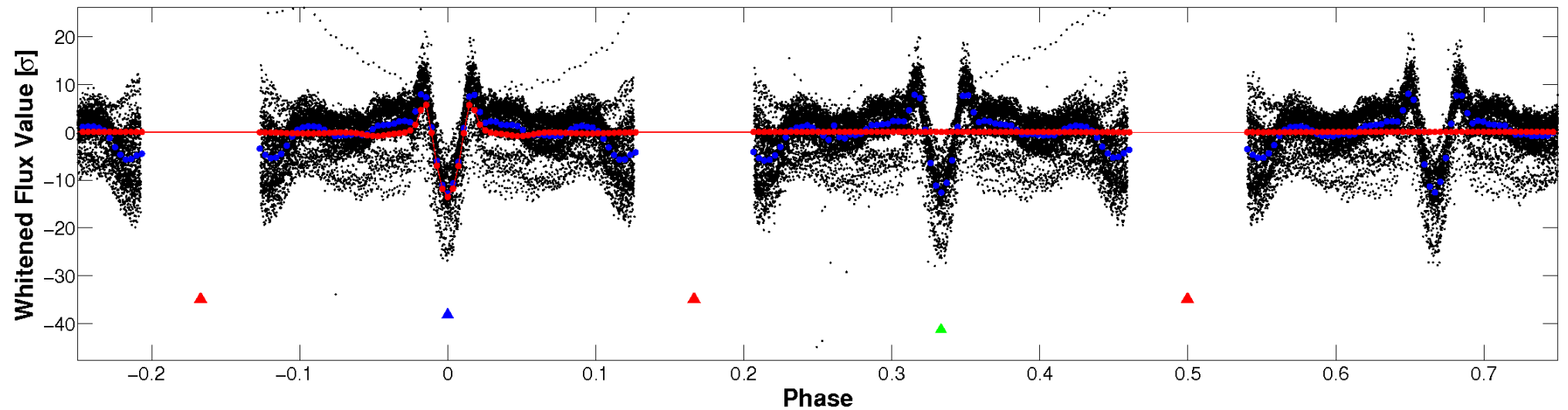


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

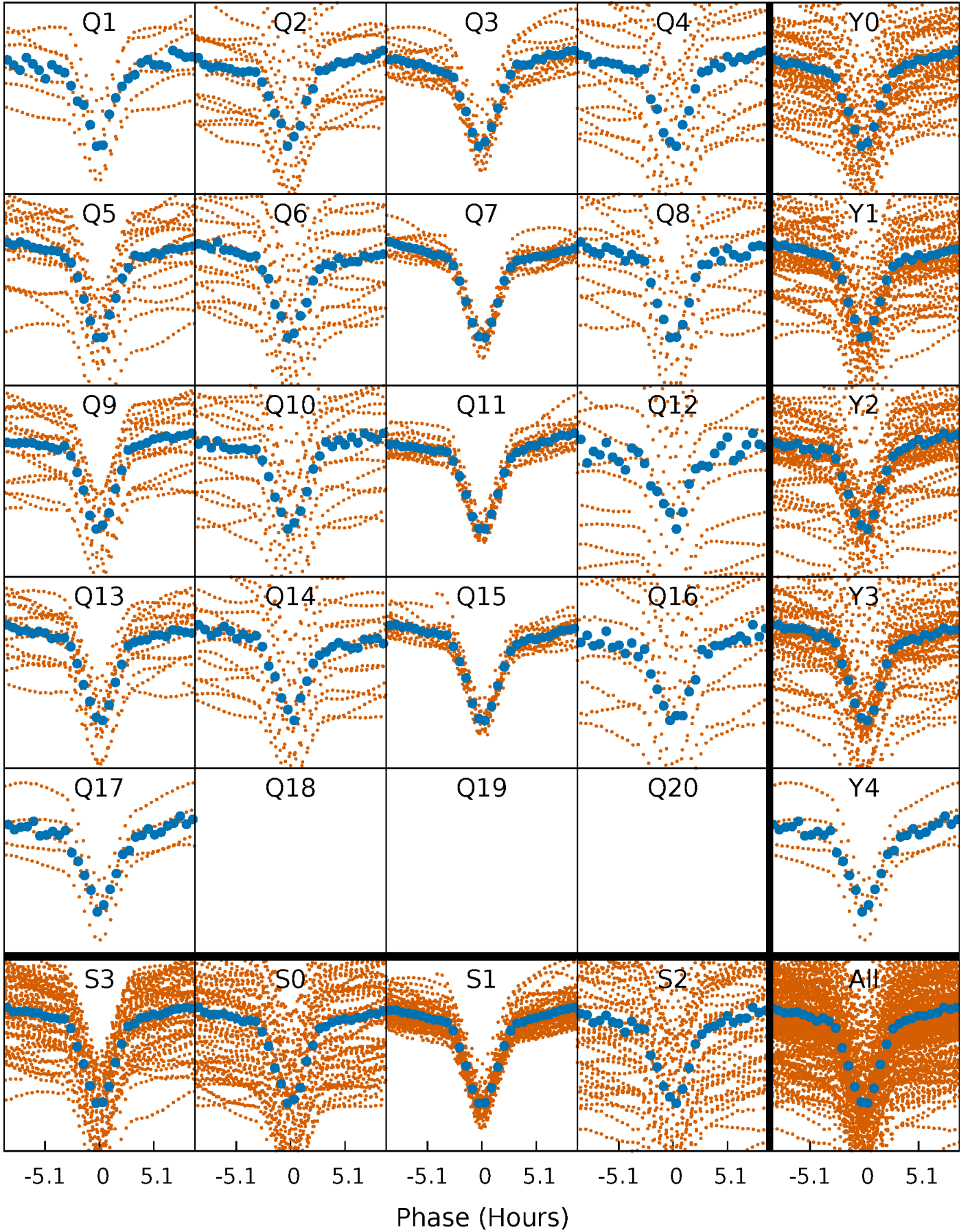


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



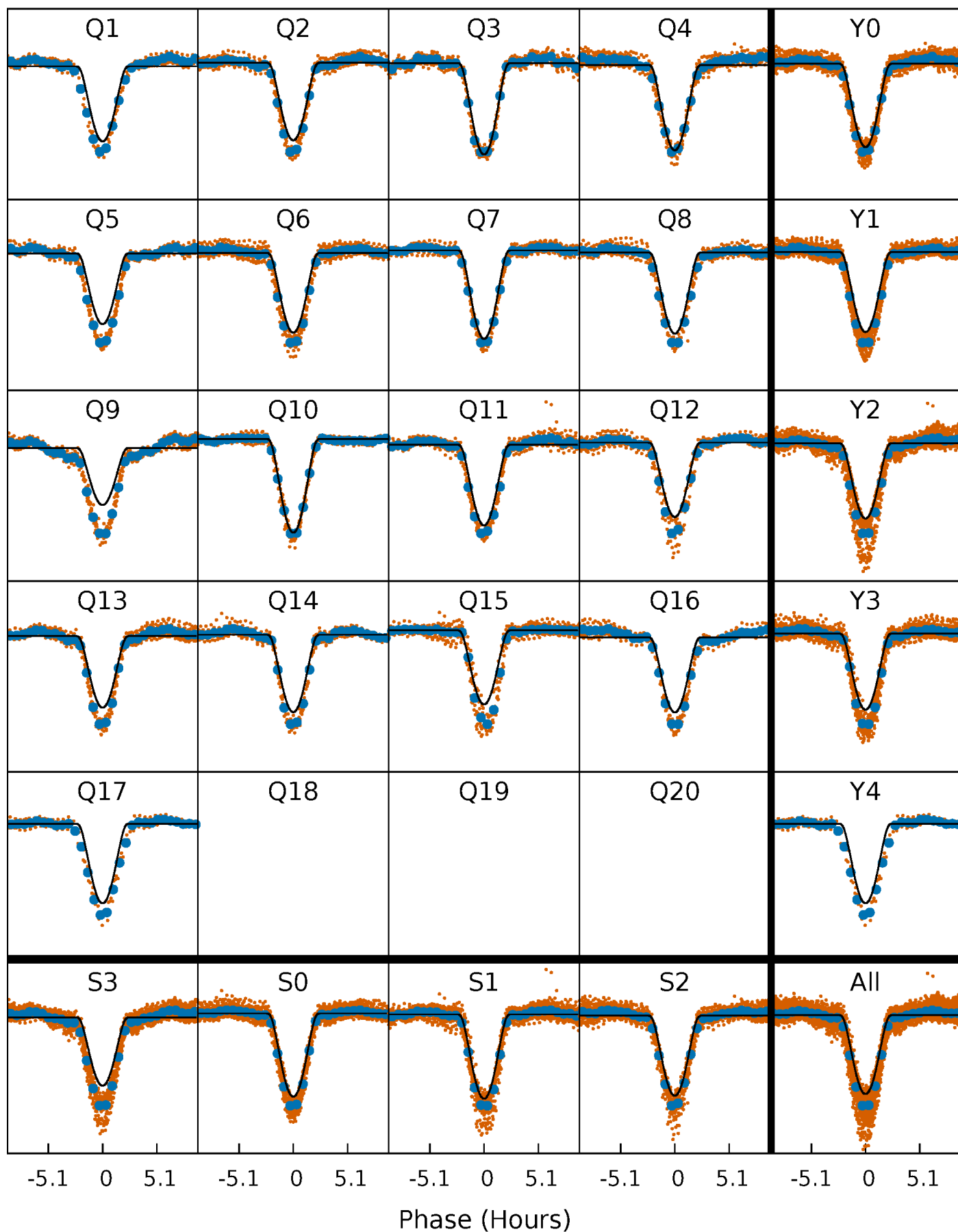
# PDC Quarter-Phased Transit Curves

TCE 004678875-02   P= 5.636619 Days    $T_0=134.016056$  (BKJD)



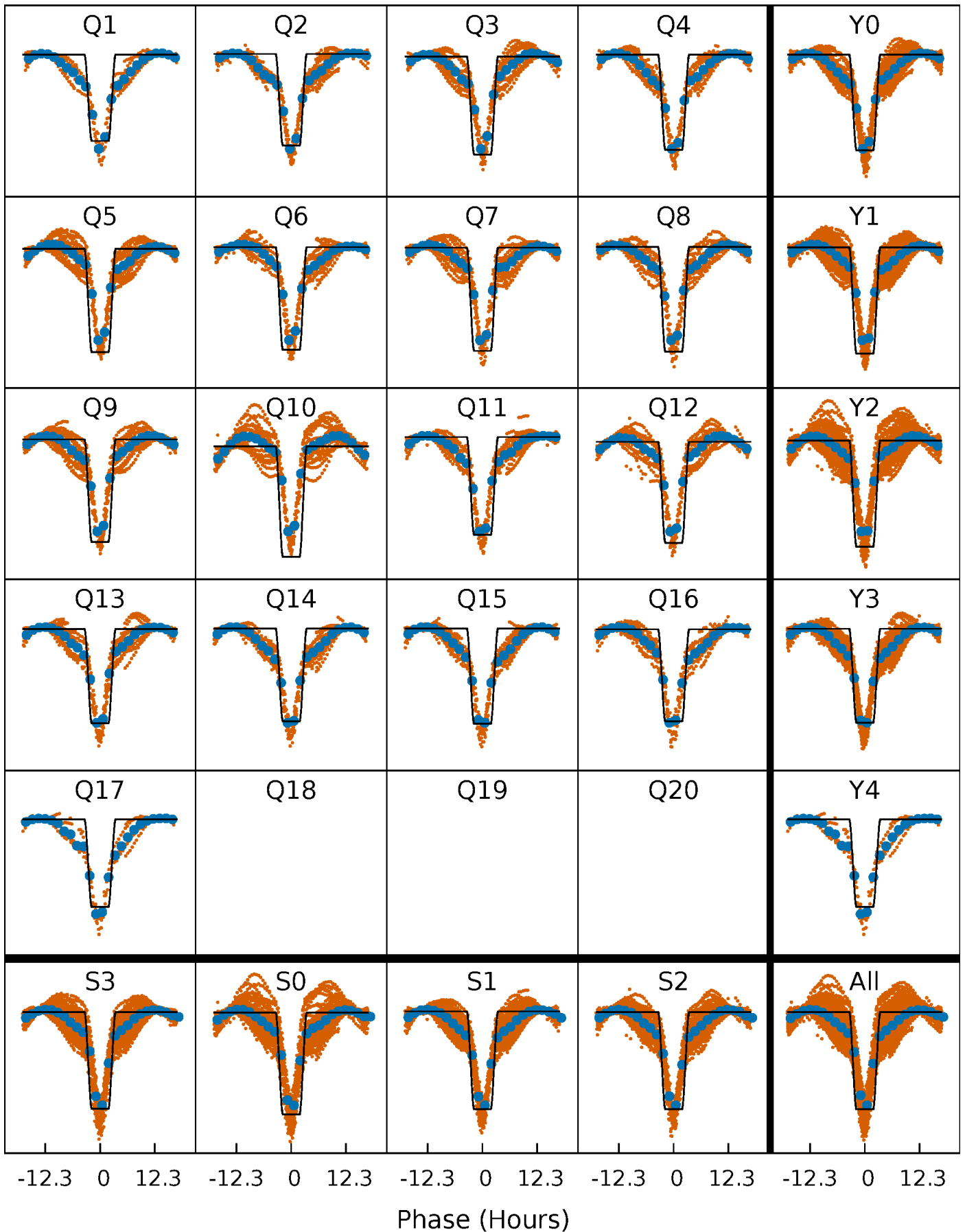
# DV Quarter-Phased Transit Curves

TCE 004678875-02 P= 5.636619 Days  $T_0=134.016056$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

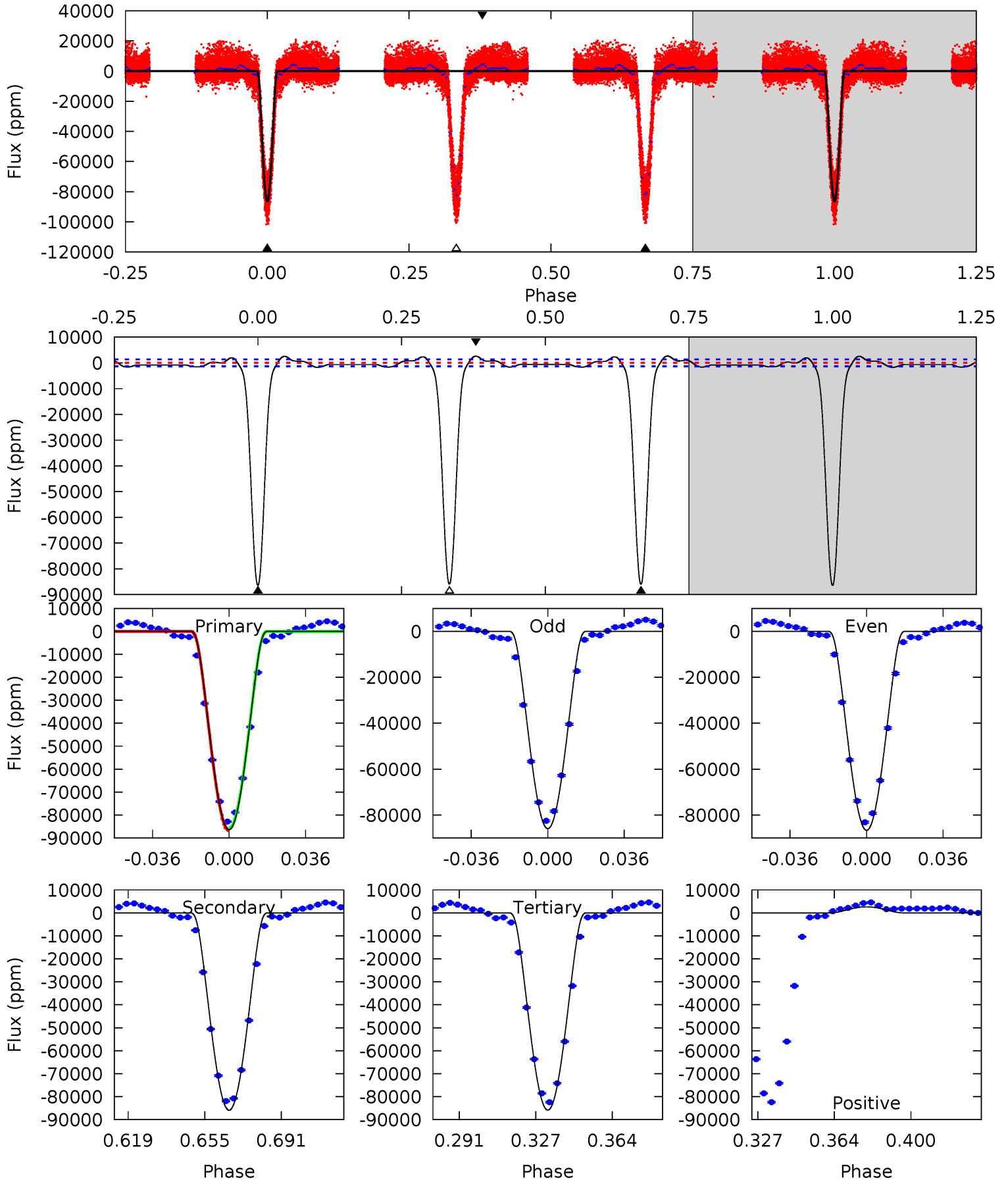
TCE 004678875-02   P= 5.636712 Days    $T_0=134.004395$  (BKJD)



# DV Model-Shift Uniqueness Test

004678875-02, P = 5.636619 Days, E = 128.379437 Days

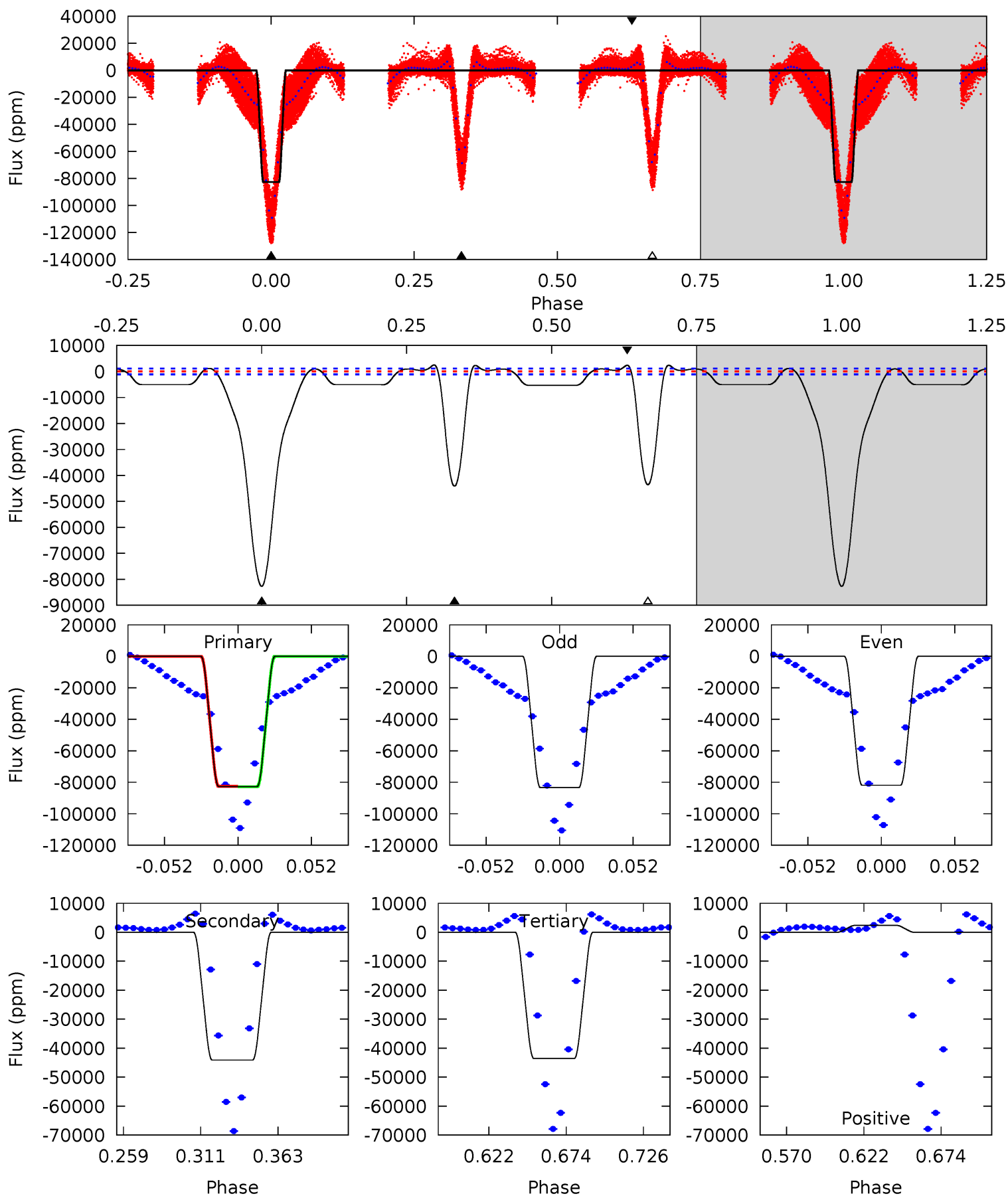
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
302.9	301.4	301.2	9.15	4.77	2.09	49.6	1.72	293.7	0.20	292.2	1.28	1.02	0.03	4.84



# Alt Model-Shift Uniqueness Test

004678875-02, P = 5.636712 Days, E = 128.367683 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
342.3	182.6	180.4	9.90	4.70	1.94	36.2	161.9	332.4	2.28	172.7	3.08	0.99	0.03	0.38





### Stellar Parameters For KIC 004678875

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6569^{+157}_{-196}$	$4.281^{+0.128}_{-0.176}$	$-0.420^{+0.250}_{-0.300}$	$1.235^{+0.366}_{-0.197}$	$1.060^{+0.176}_{-0.122}$	$0.793^{+0.535}_{-0.393}$
	+2%/-3%	+3%/-4%	+60%/-71%	+30%/-16%	+17%/-12%	+67%/-50%
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 004678875-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-85940 \pm 285$	$43.30^{+8.37}_{-5.90}$	$1789^{+127}_{-98}$	$6400^{+370}_{-300}$	$110^{+36}_{-30}$
Alt.	$-44119 \pm 242$	$44.37^{+7.08}_{-5.90}$	$1791^{+125}_{-97}$	$5355^{+258}_{-242}$	$52^{+16}_{-13}$

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

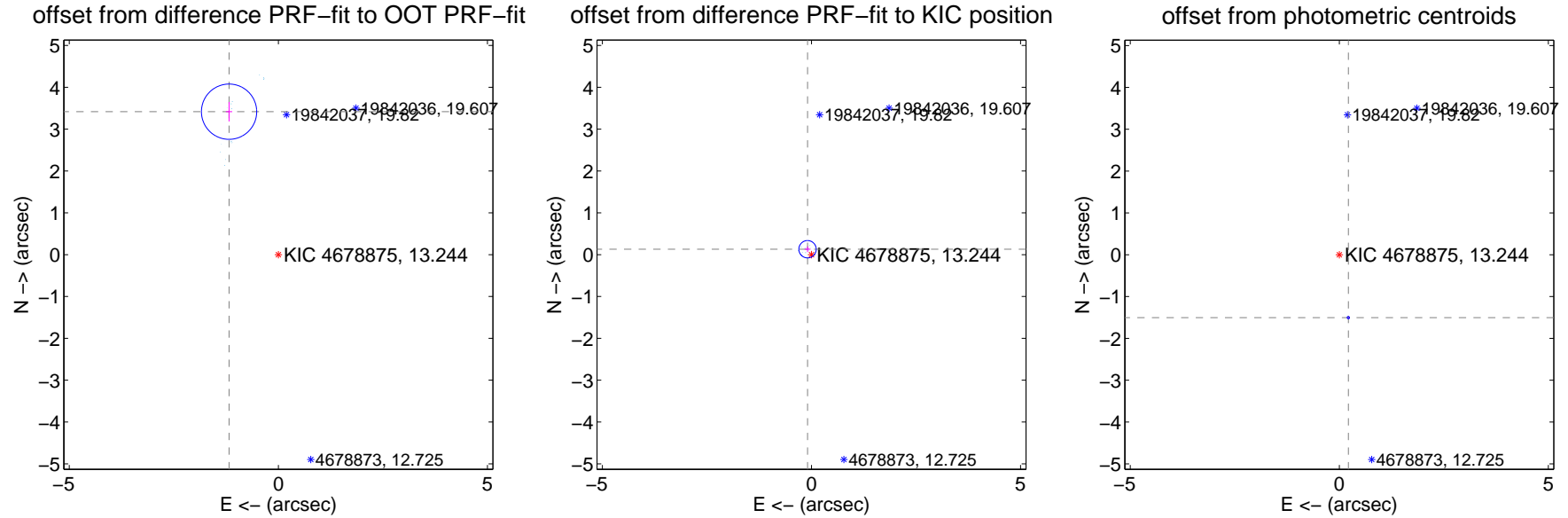
## DV Centroid Data

Supplemental centroid analysis for 004678875-02. Kepler magnitude: 13.24. Transit SNR 388.25

There are 17 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.80 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

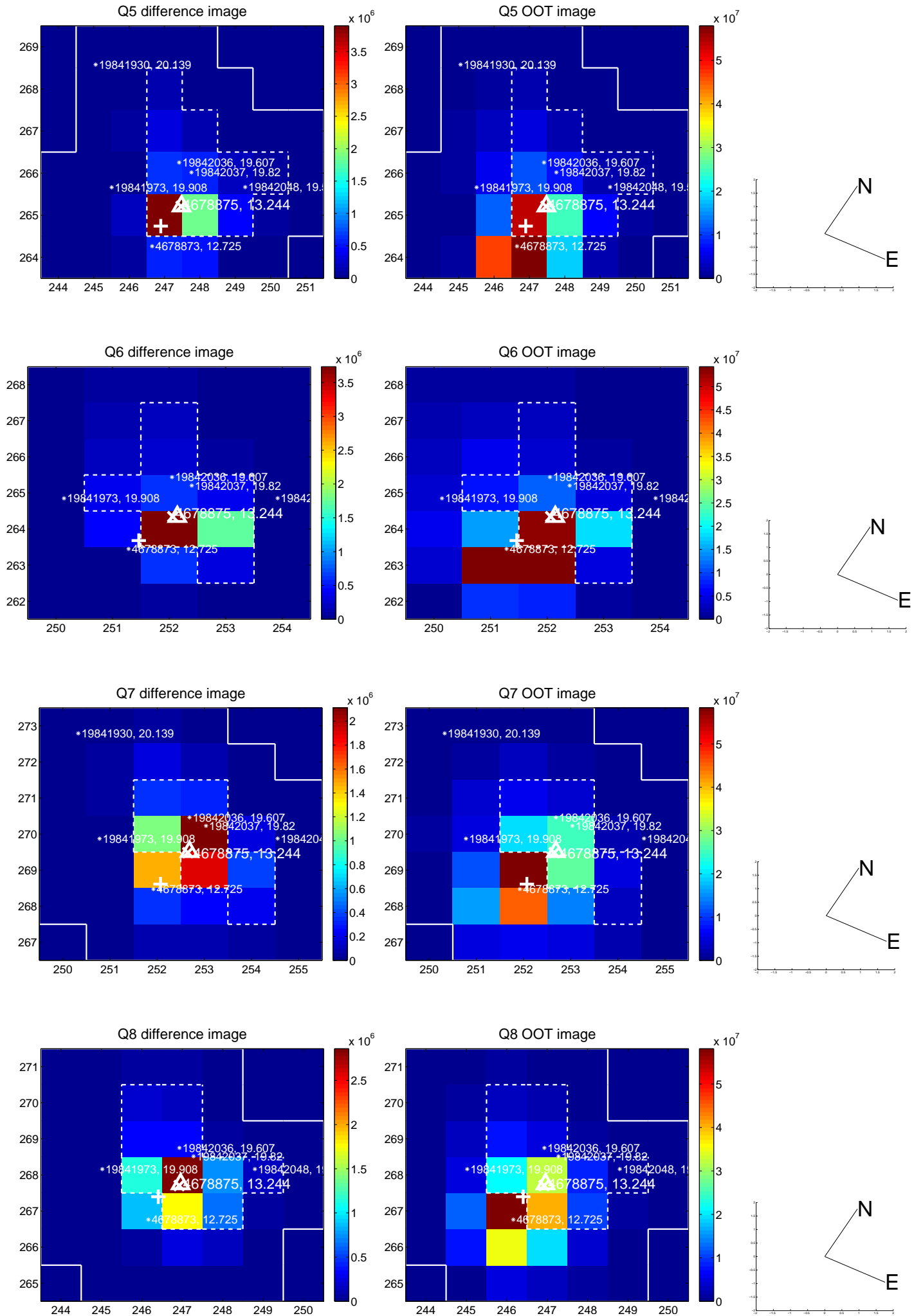
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.615 \pm 0.220$	16.41	$1.179 \pm 0.075$	$3.417 \pm 0.232$
PRF-fit source offset from KIC position	$0.160 \pm 0.069$	2.32	$0.094 \pm 0.071$	$0.130 \pm 0.068$
photometric centroid source offset	$1.52 \pm 0.01$	164.57	$-0.22 \pm 0.00$	$-1.50 \pm 0.01$



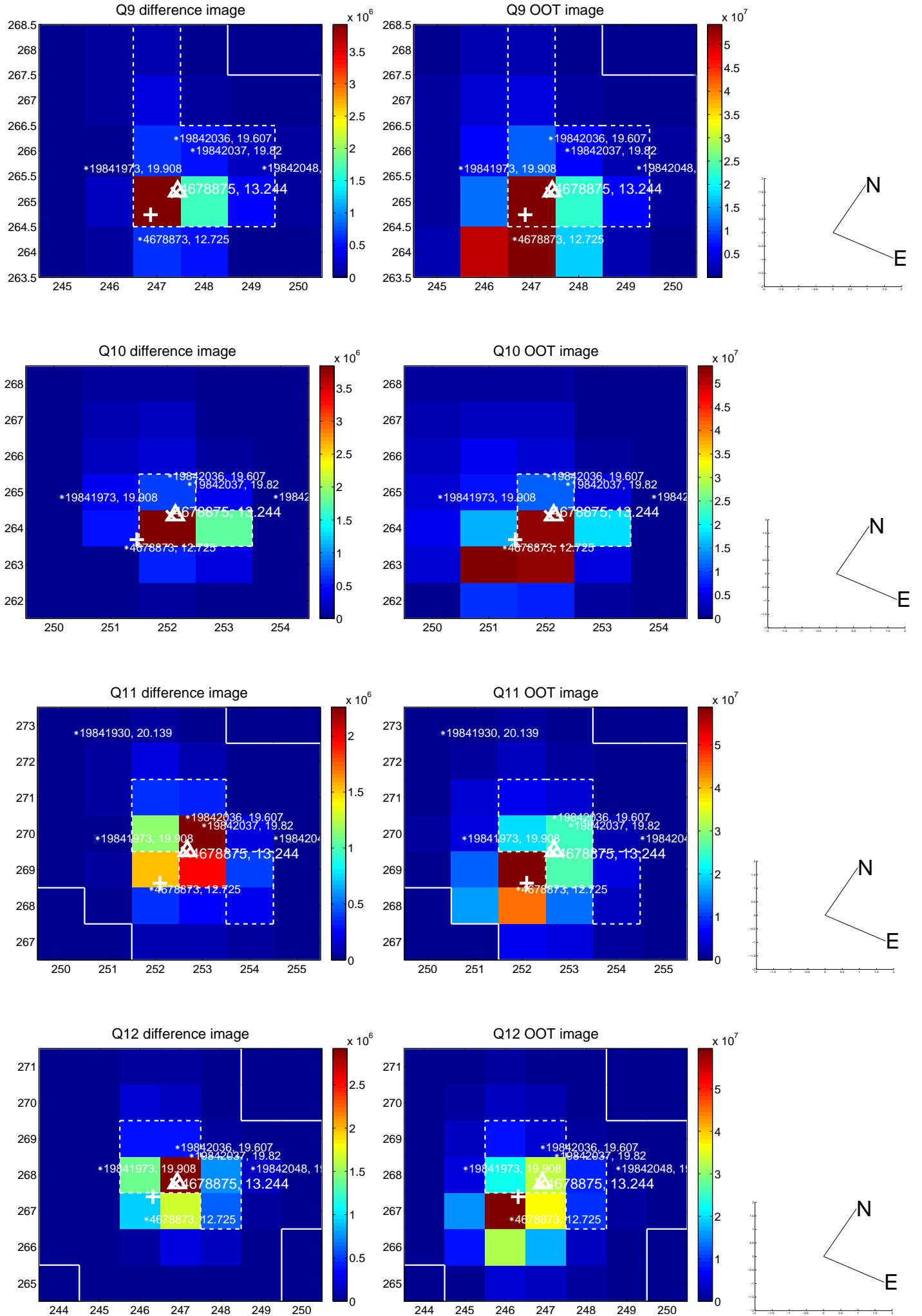
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



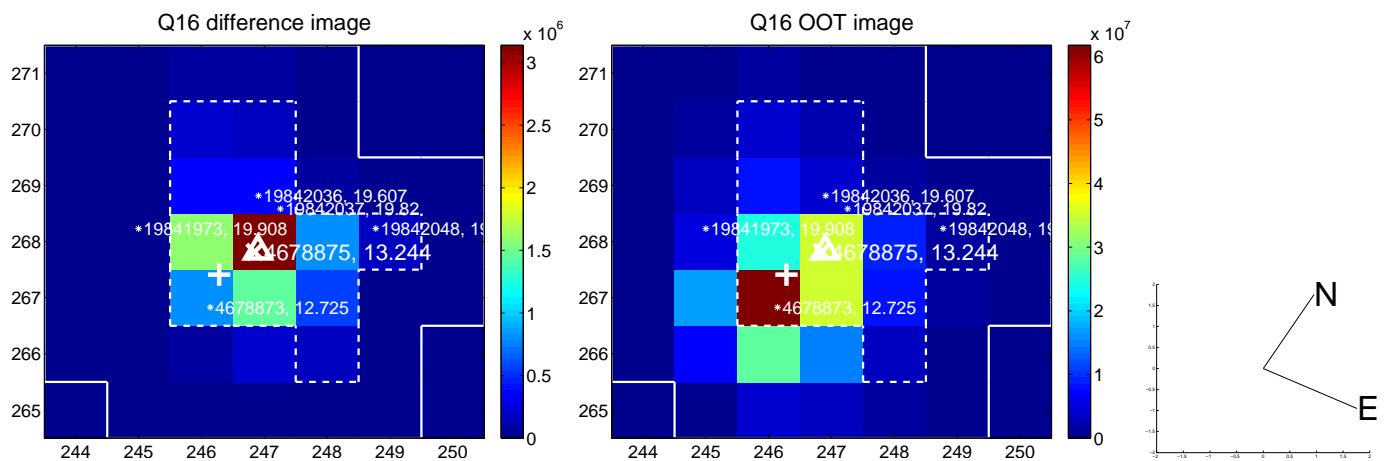
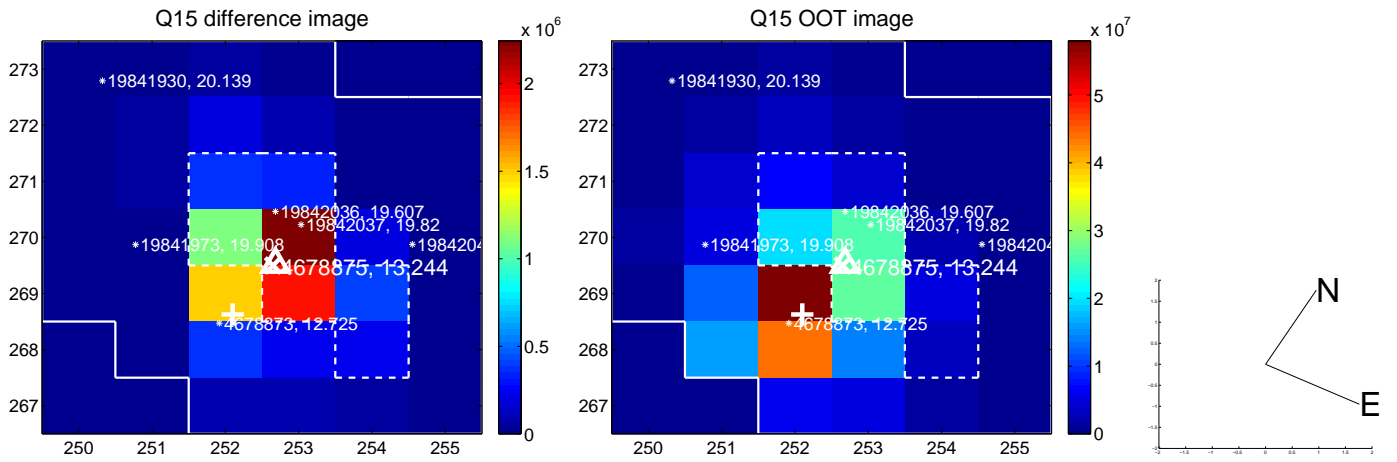
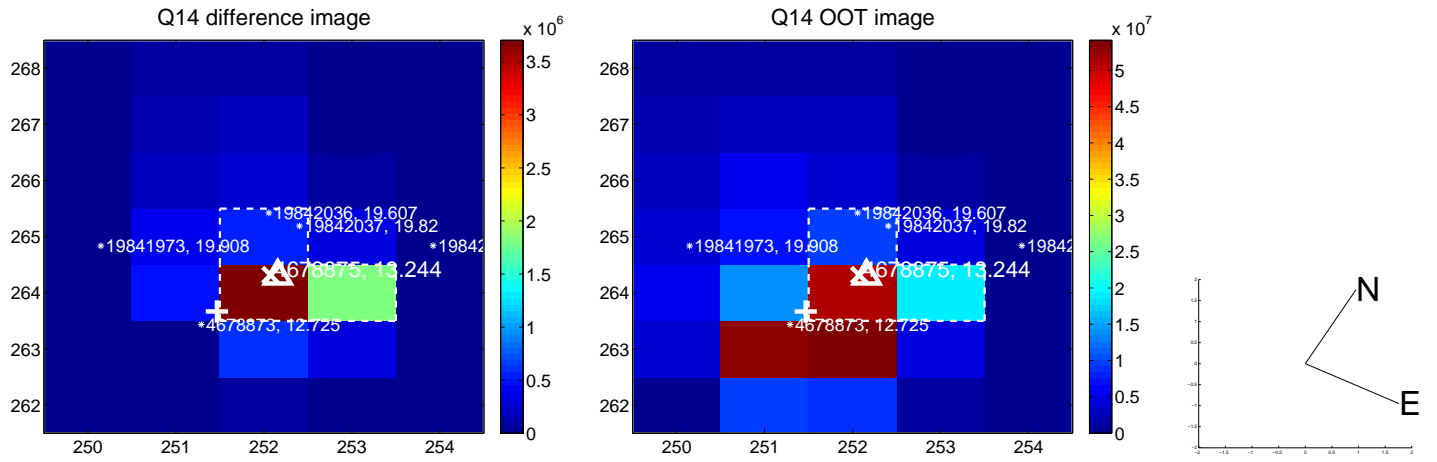
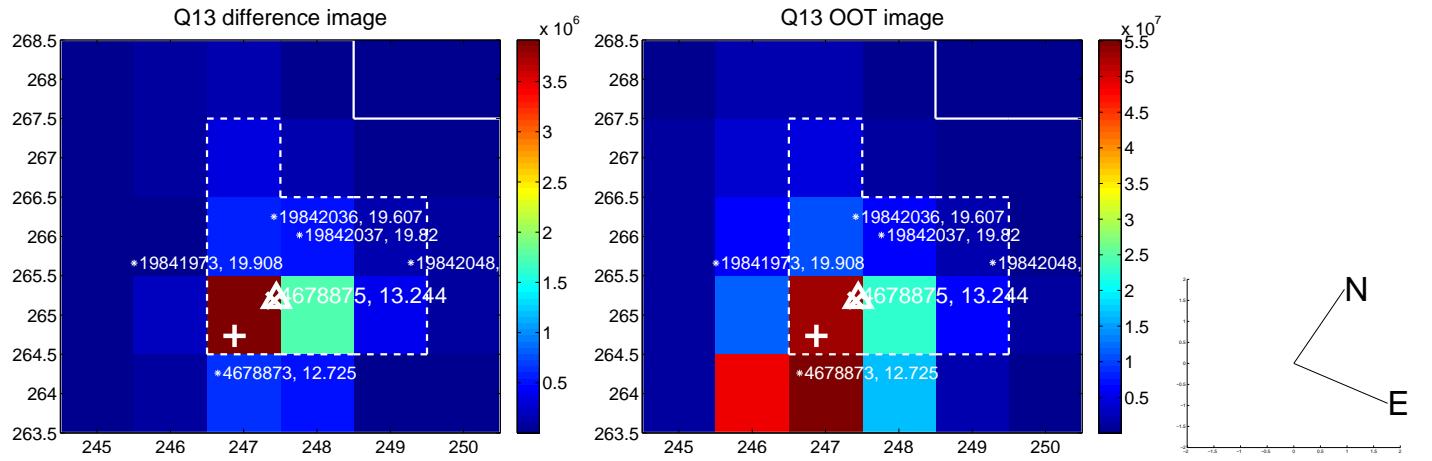
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



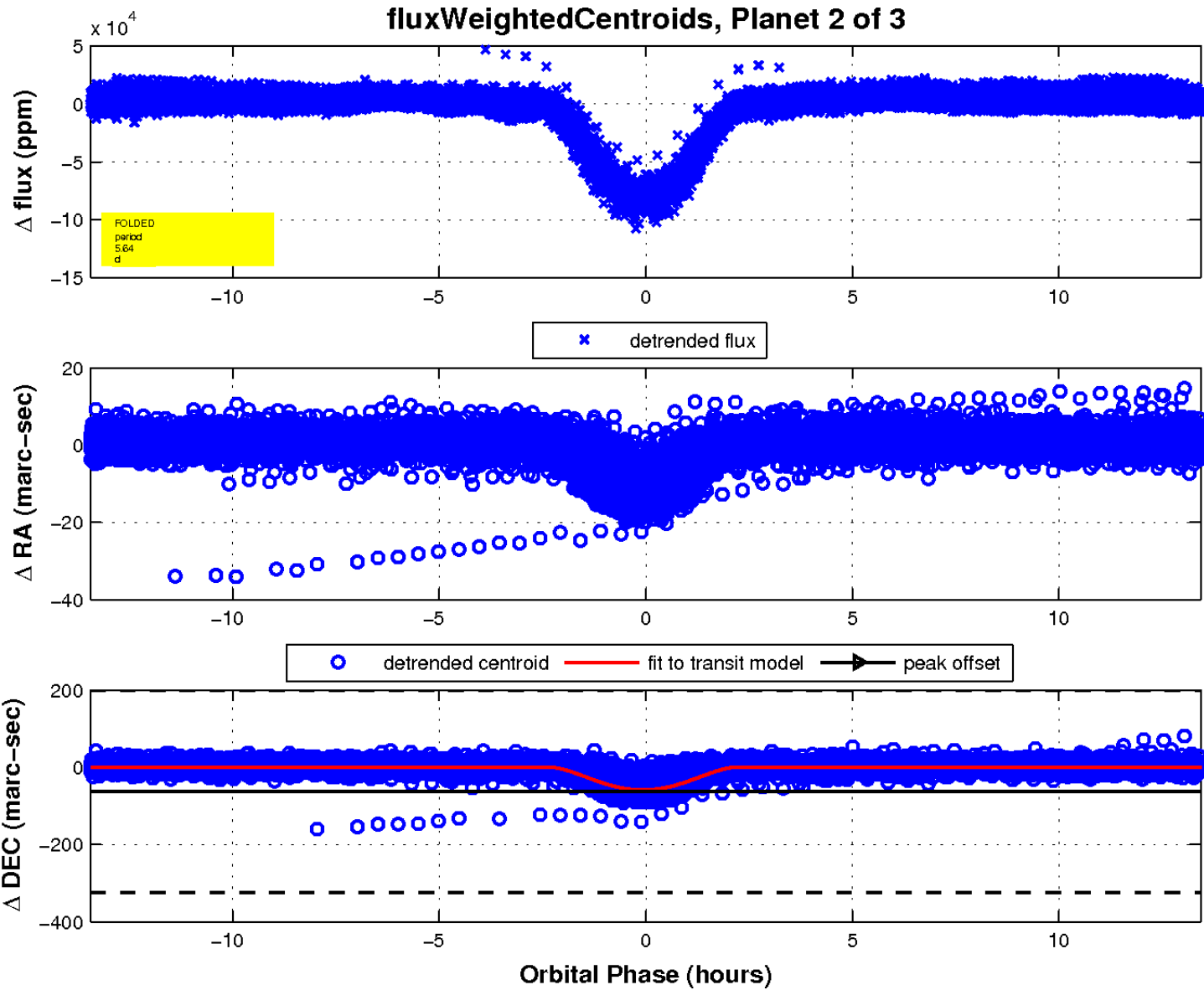
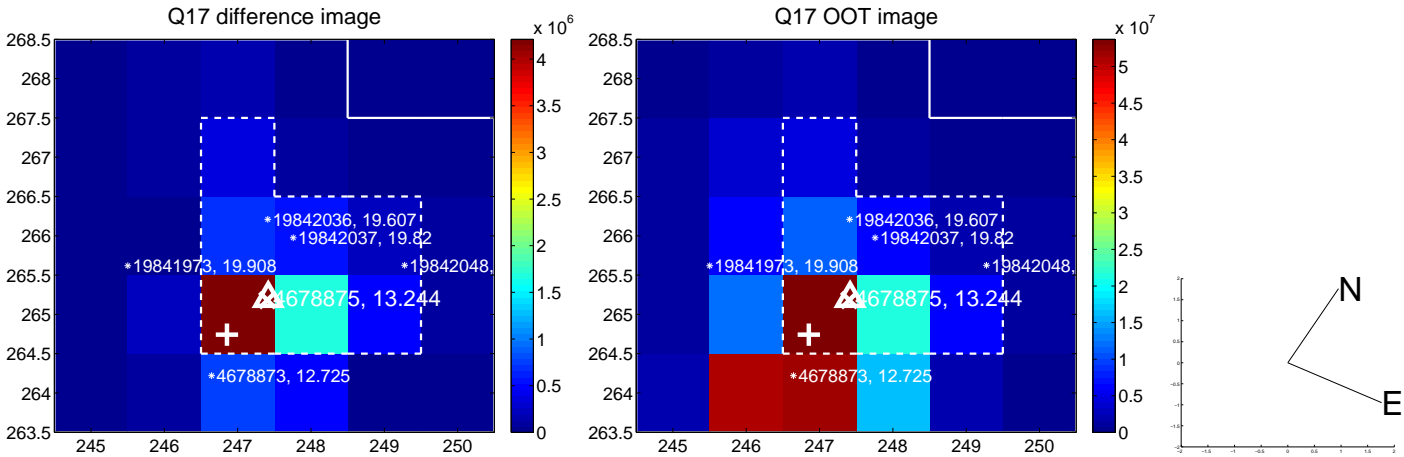
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



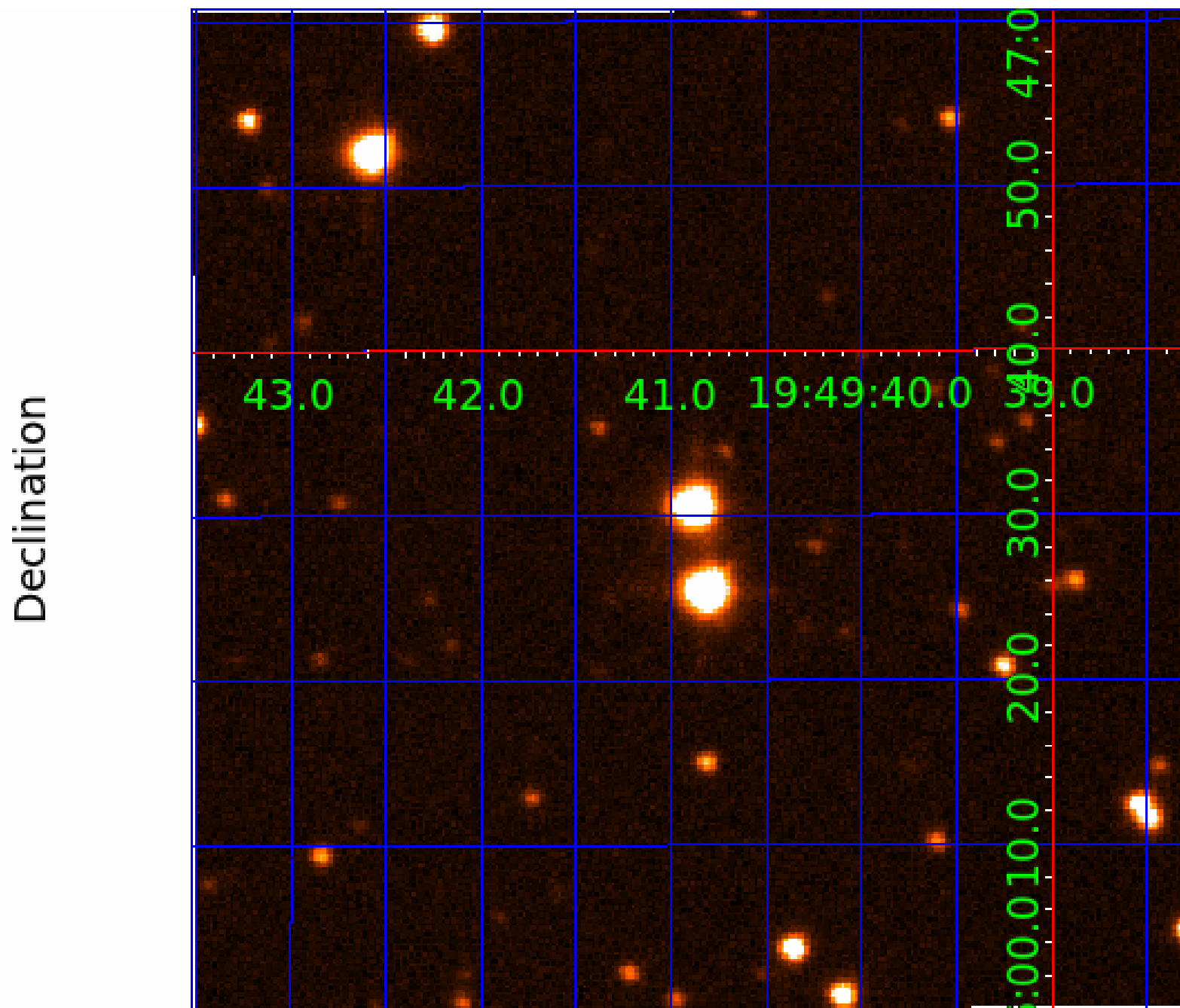
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 004678875

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004678875-01	OBS	3664.01	1.878867	133.077567	801513.1	3.500	4238.2	-1.0	1.24	6569	20.01	2750.90
004678875-02	OBS	No	5.636619	134.016057	72091.5	4.480	1037.8	388.2	1.24	6569	43.23	635.79
004678875-03	OBS	No	5.636621	135.894513	73495.5	4.527	1202.2	401.8	1.24	6569	47.88	635.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004678875-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
004678875-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
004678875-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_KIC_POS

**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.

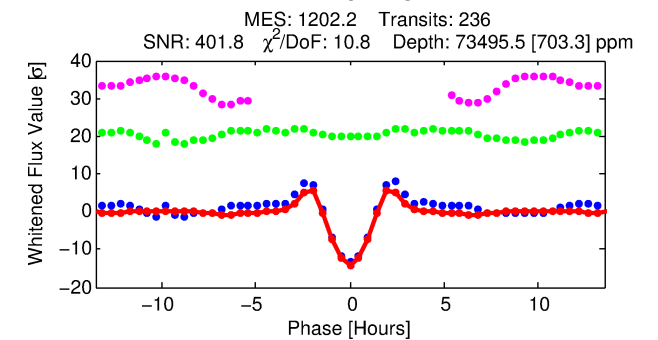
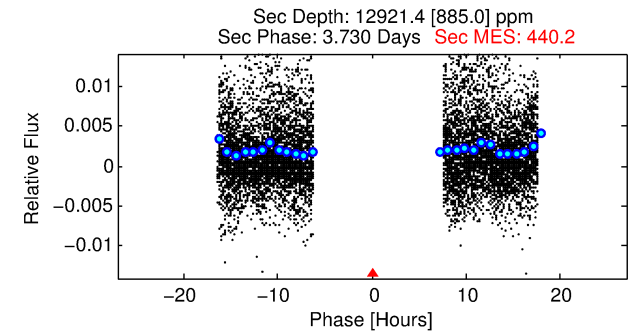
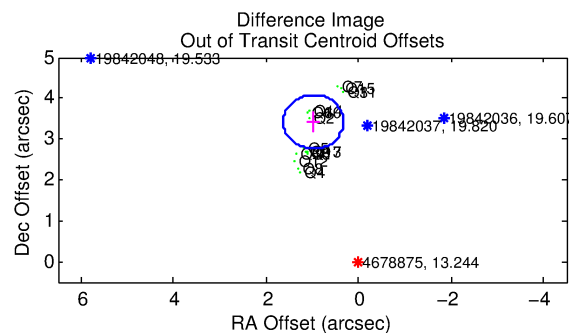
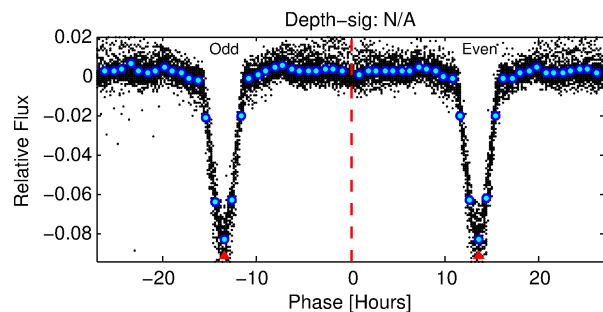
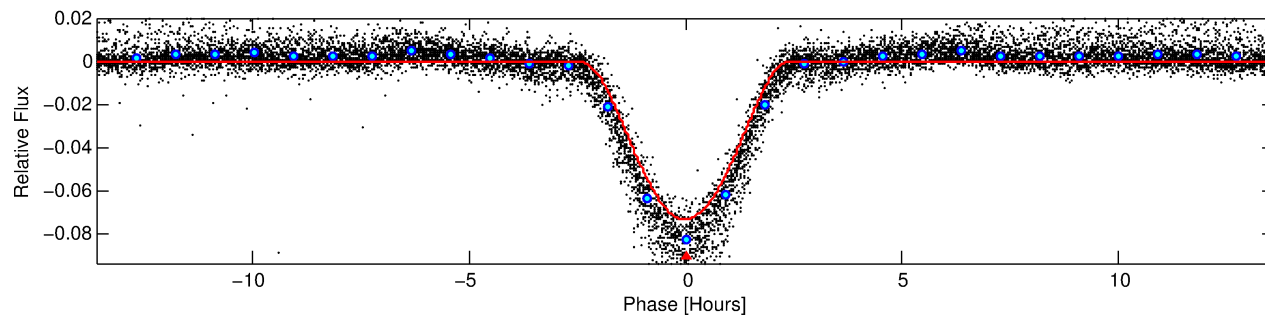
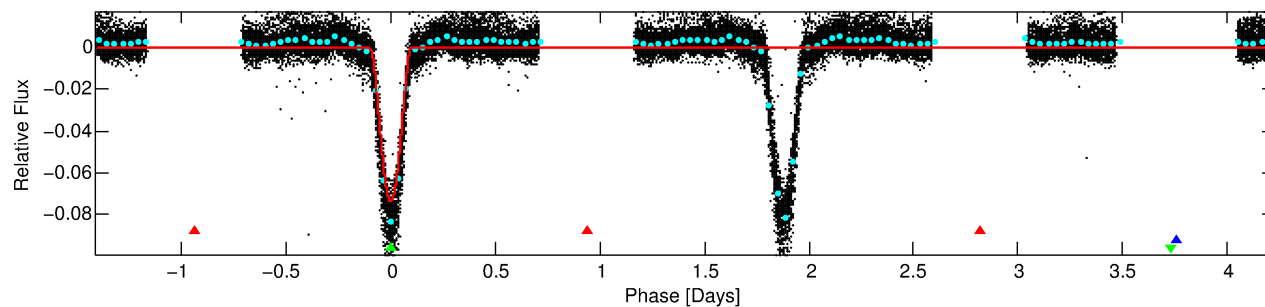
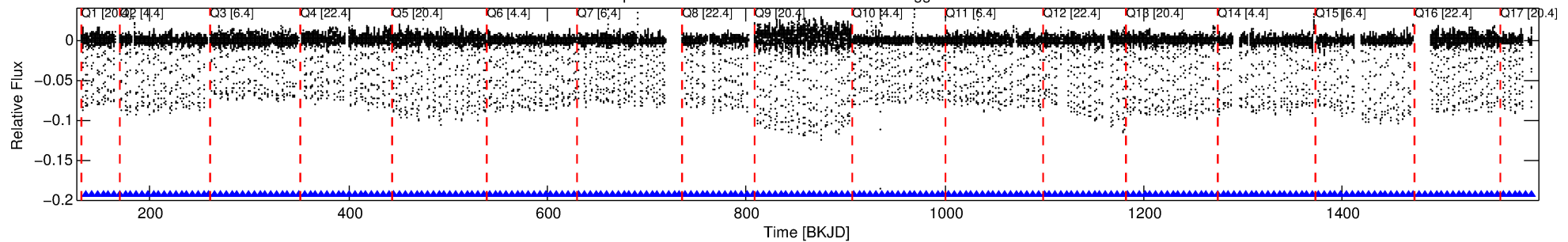
Ephemeris Match Information For 004678875-03

No Significant Match Found

# DV One-Page Summary

KIC: 4678875 Candidate: 3 of 3 Period: 5.637 d  
KOI: K03664 Corr: No Ephemeris Match

Kp: 13.24 R\*: 1.24 Rs Teff: 6569.0 K Logg: 4.28 Fe/H: -0.420



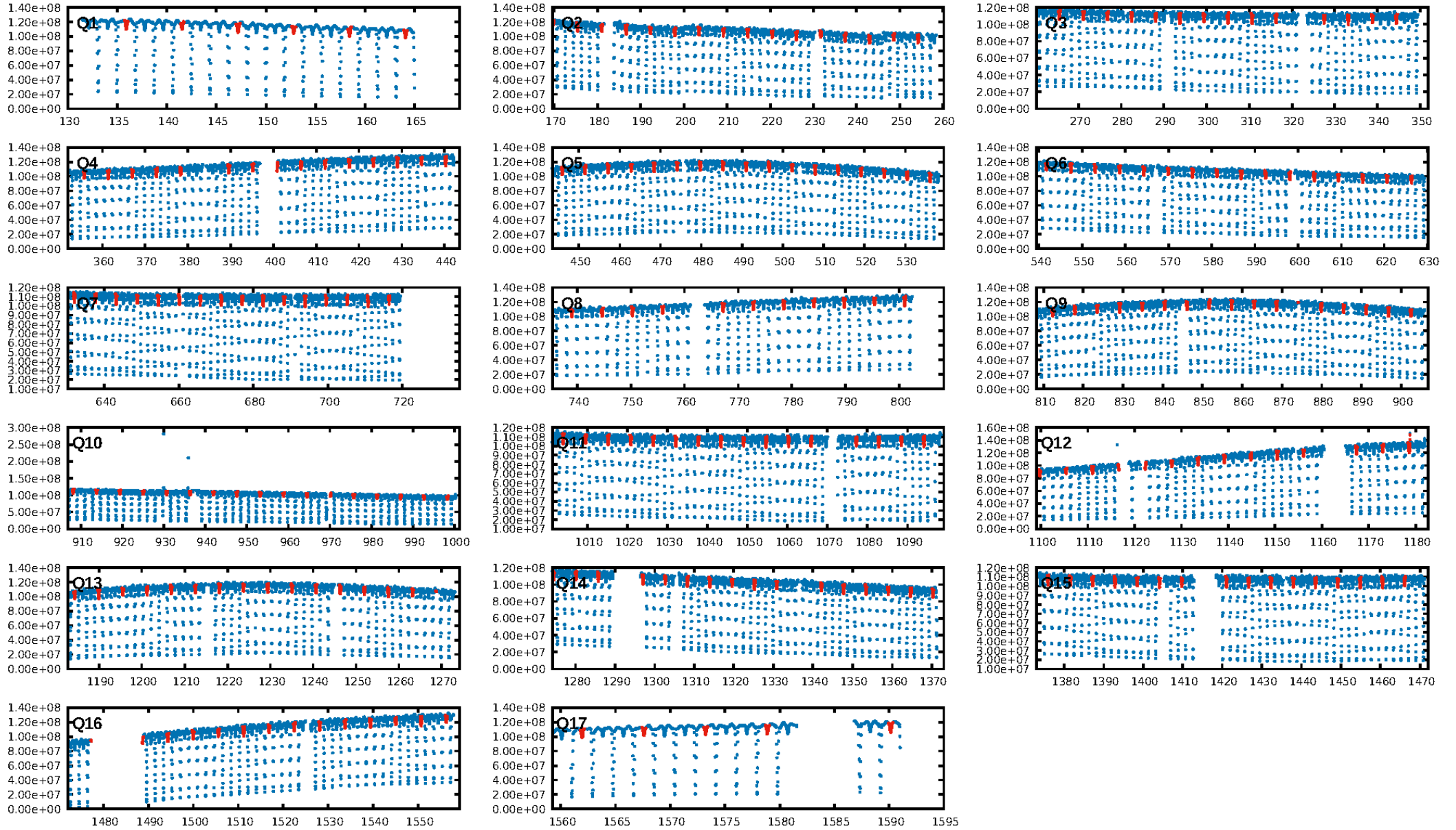
## DV Fit Results:

Period = 5.63662 [0.00000] d  
Epoch = 135.8945 [0.0005] BKJD  
Rp/R\* = 0.3553 [0.0545]  
a/R\* = 9.65 [0.07]  
b = 0.91 [0.08]  
Seff = 635.79 [225.92]  
Teq = 1280 [114] K  
Rp = 47.88 [15.98] Re  
a = 0.0633 [0.0151] AU  
Ag = 12.41 [5.70] [2.00σ]  
Teffp = 3716 [312] K [7.32σ]

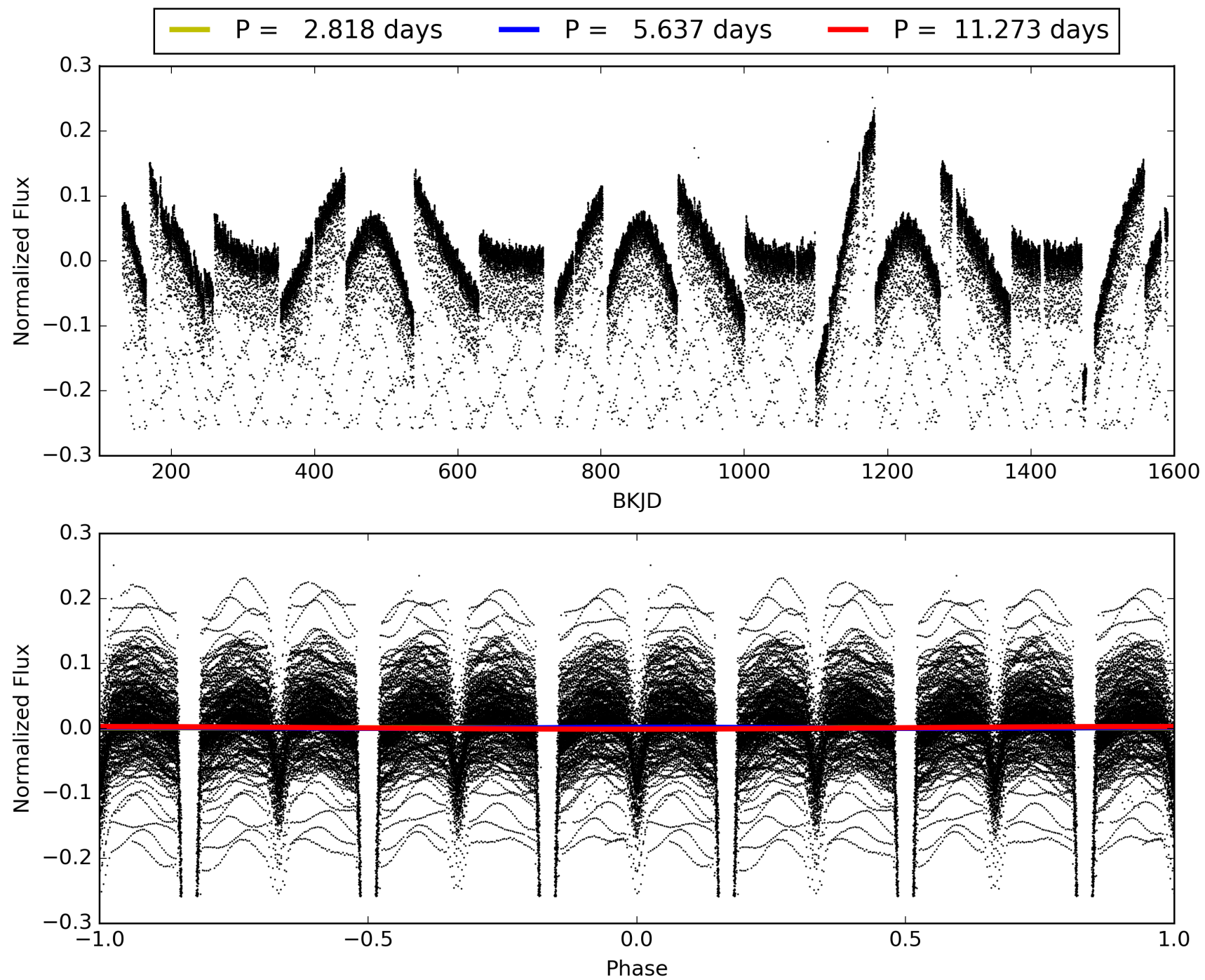
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [225/225]  
GhostDiagnostic-chr: 1.071  
Centroid-sig: N/A  
Centroid-so: 1.500 arcsec [163.71σ]  
OotOffset-rm: 3.558 arcsec [16.27σ]  
KicOffset-rm: 0.178 arcsec [2.57σ]  
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 004678875-03, PDC Light Curves

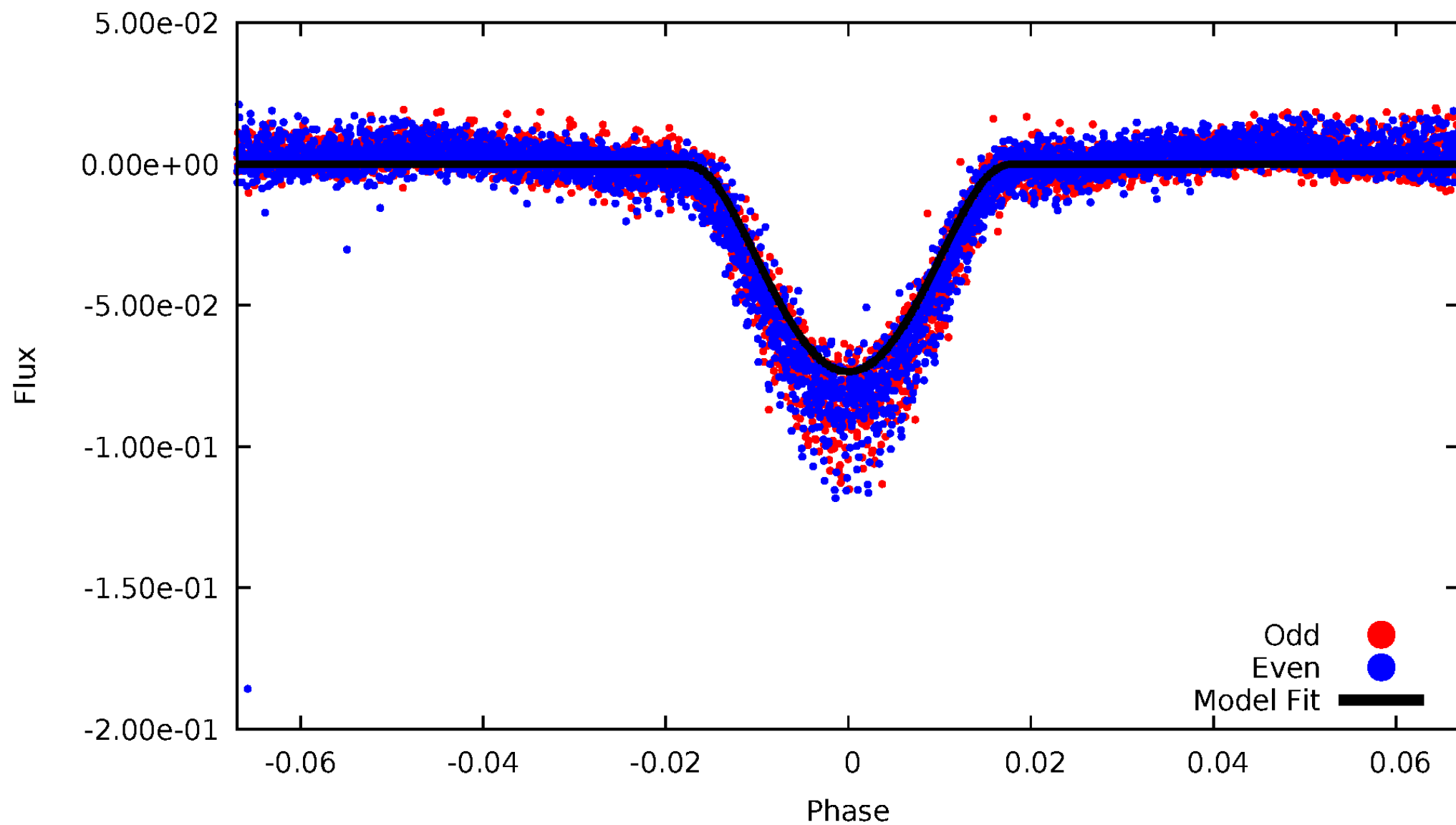


TCE 004678875-03



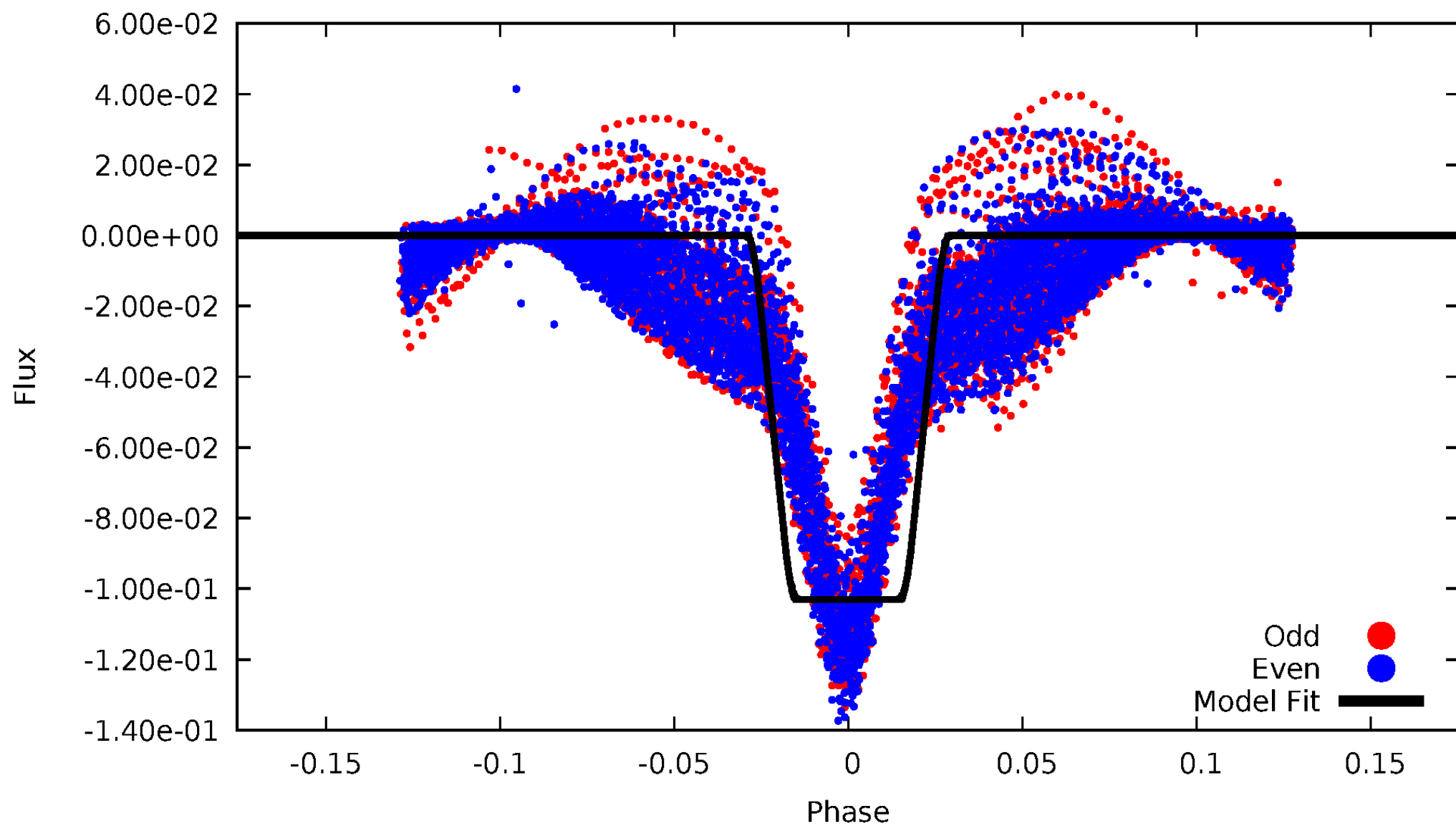
# DV Odd/Even

TCE 004678875-03



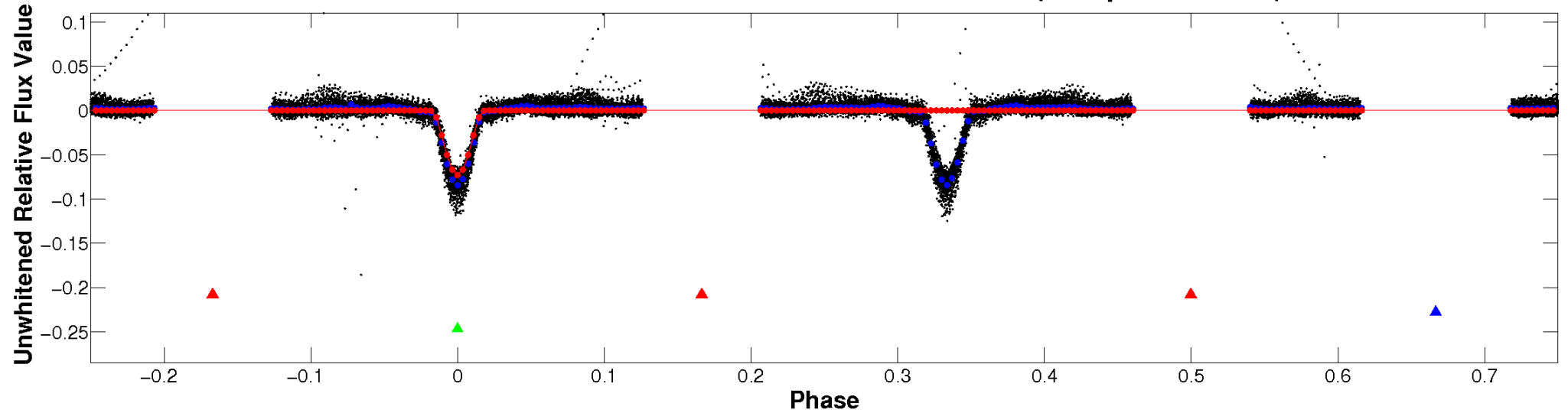
# ALT Odd/Even

TCE 004678875-03

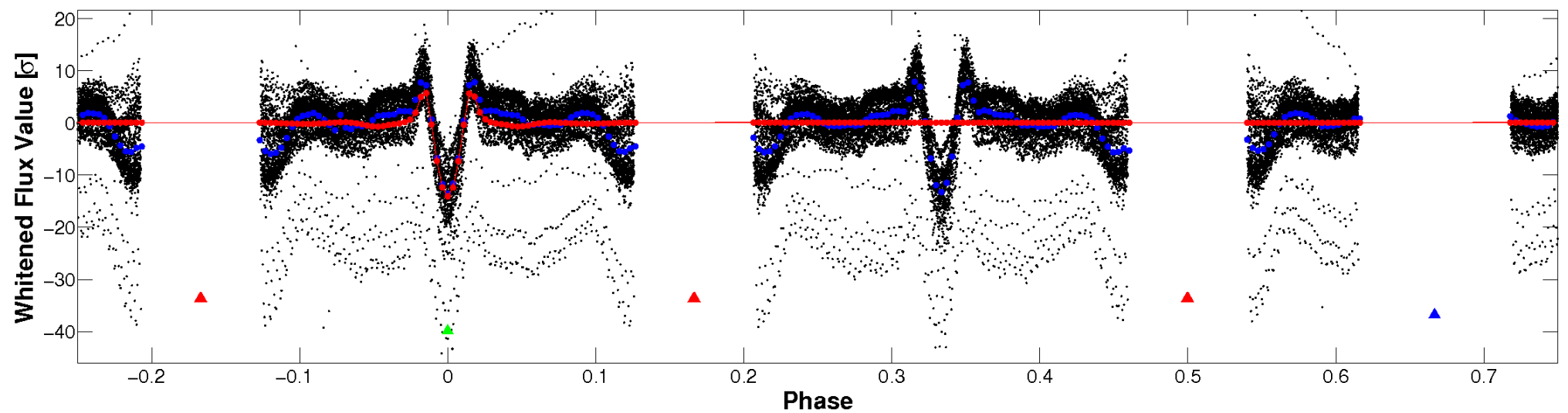


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



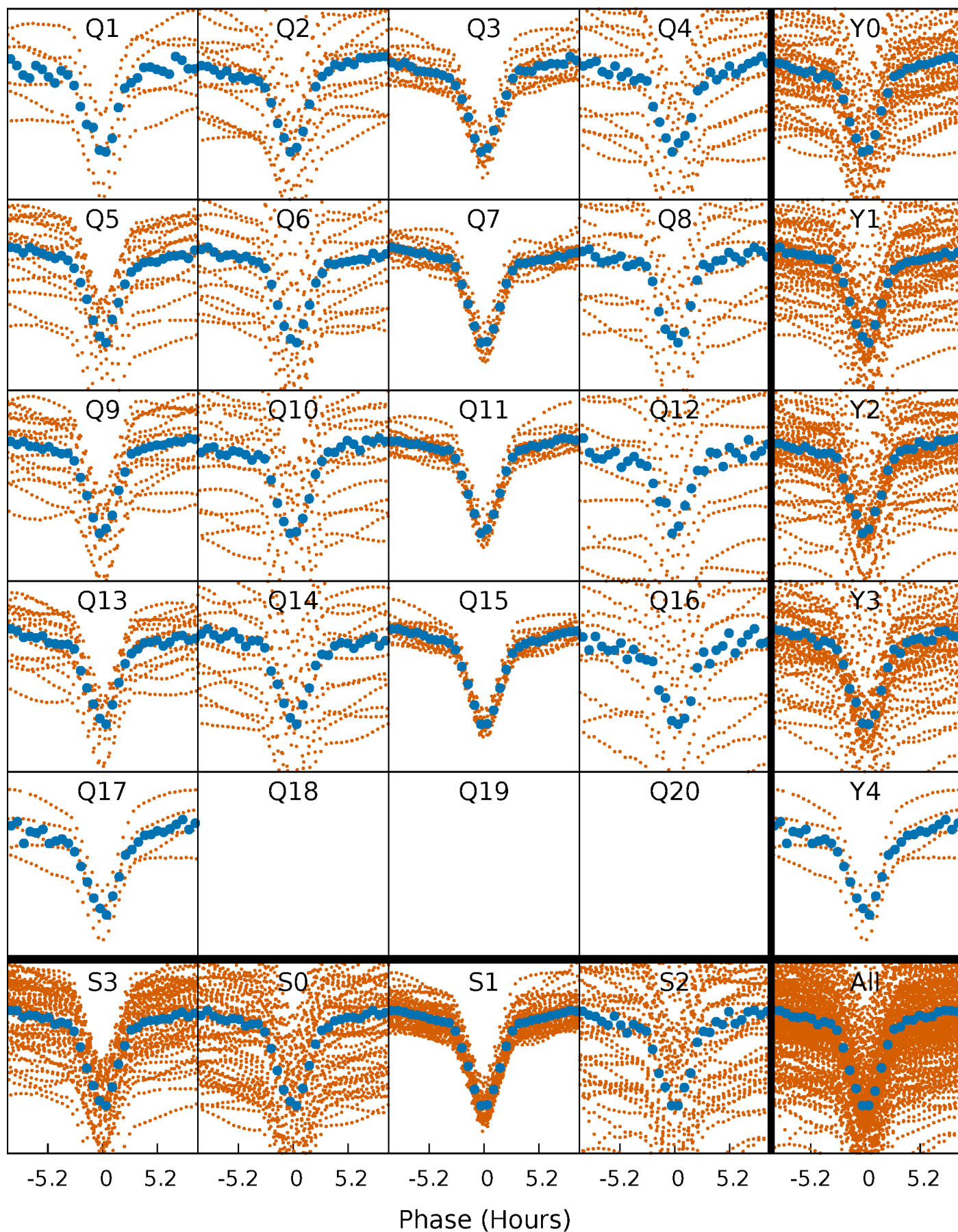
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

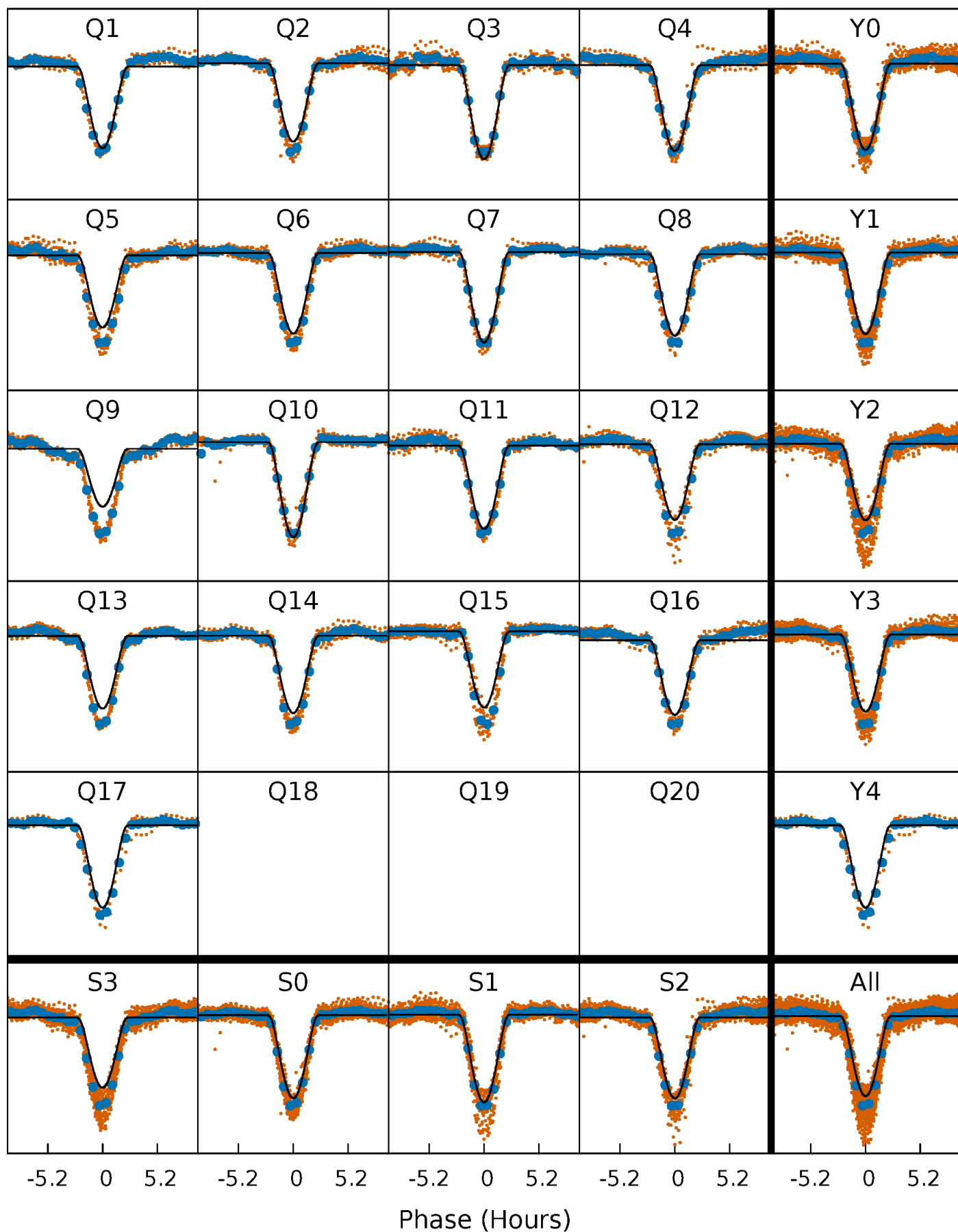
TCE 004678875-03 P= 5.636621 Days  $T_0=135.894513$  (BKJD)





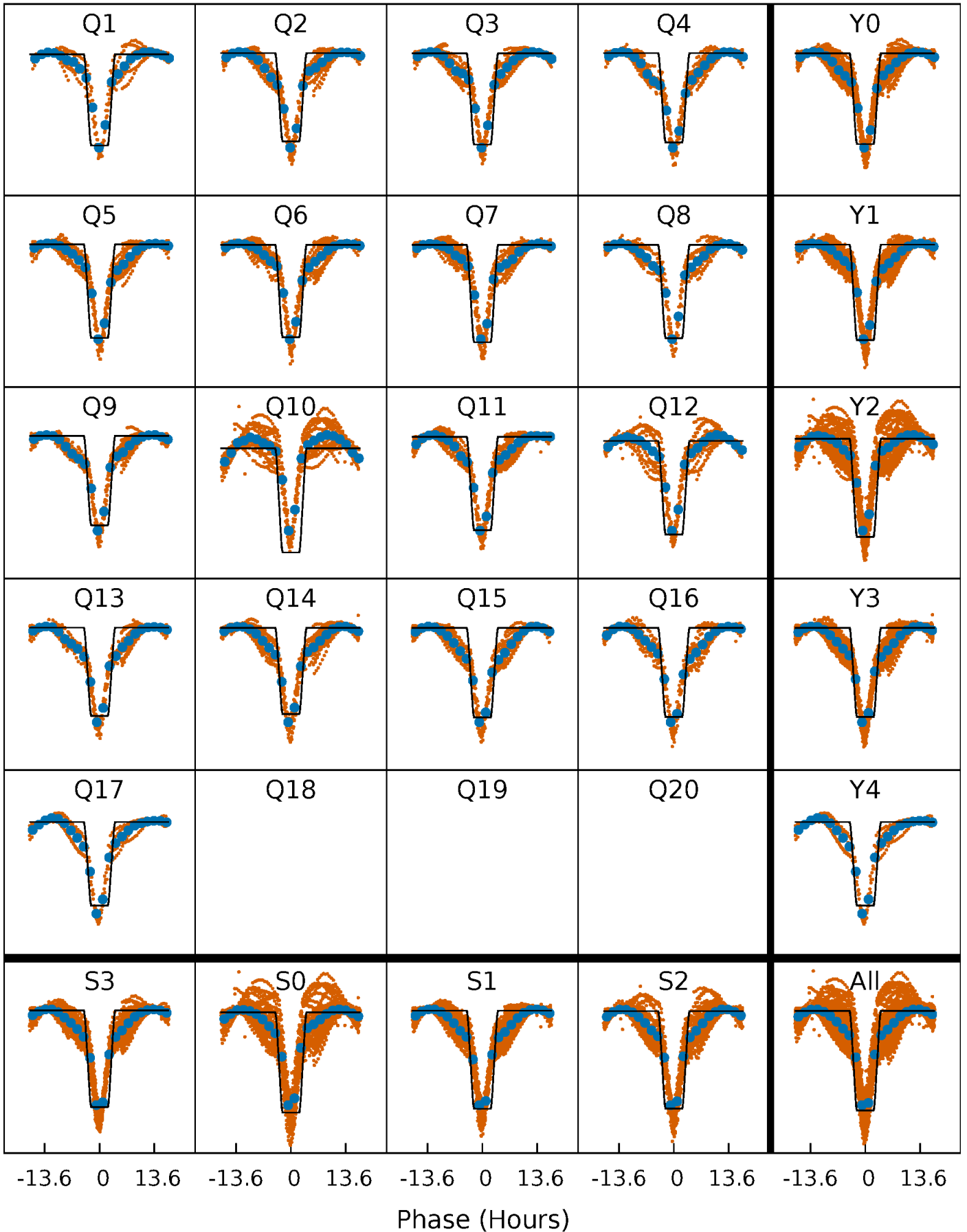
# DV Quarter-Phased Transit Curves

TCE 004678875-03 P= 5.636621 Days  $T_0=135.894513$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

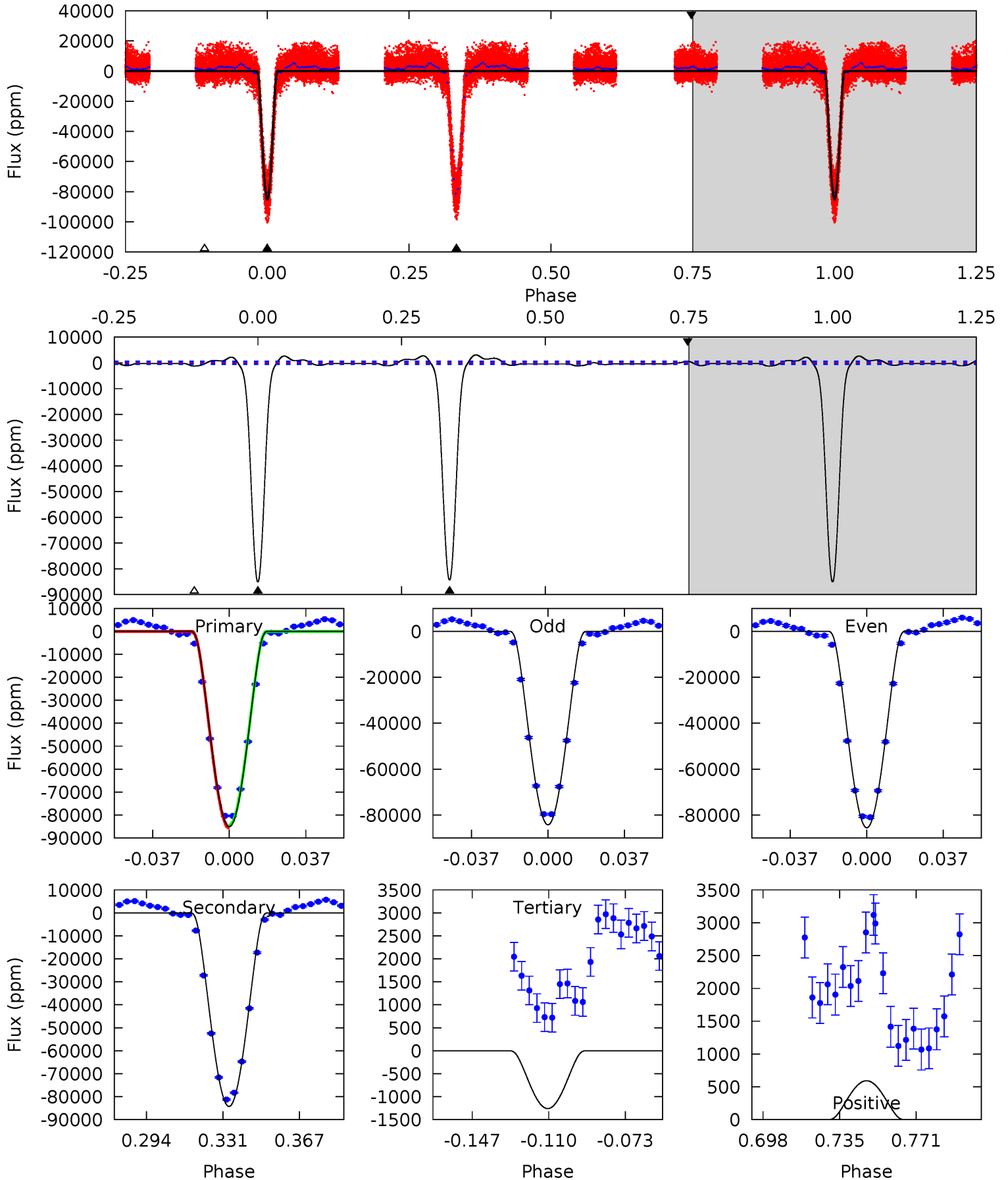
TCE 004678875-03   P= 5.636712 Days    $T_0=135.884735$  (BKJD)



# DV Model-Shift Uniqueness Test

004678875-03, P = 5.636621 Days, E = 130.257892 Days

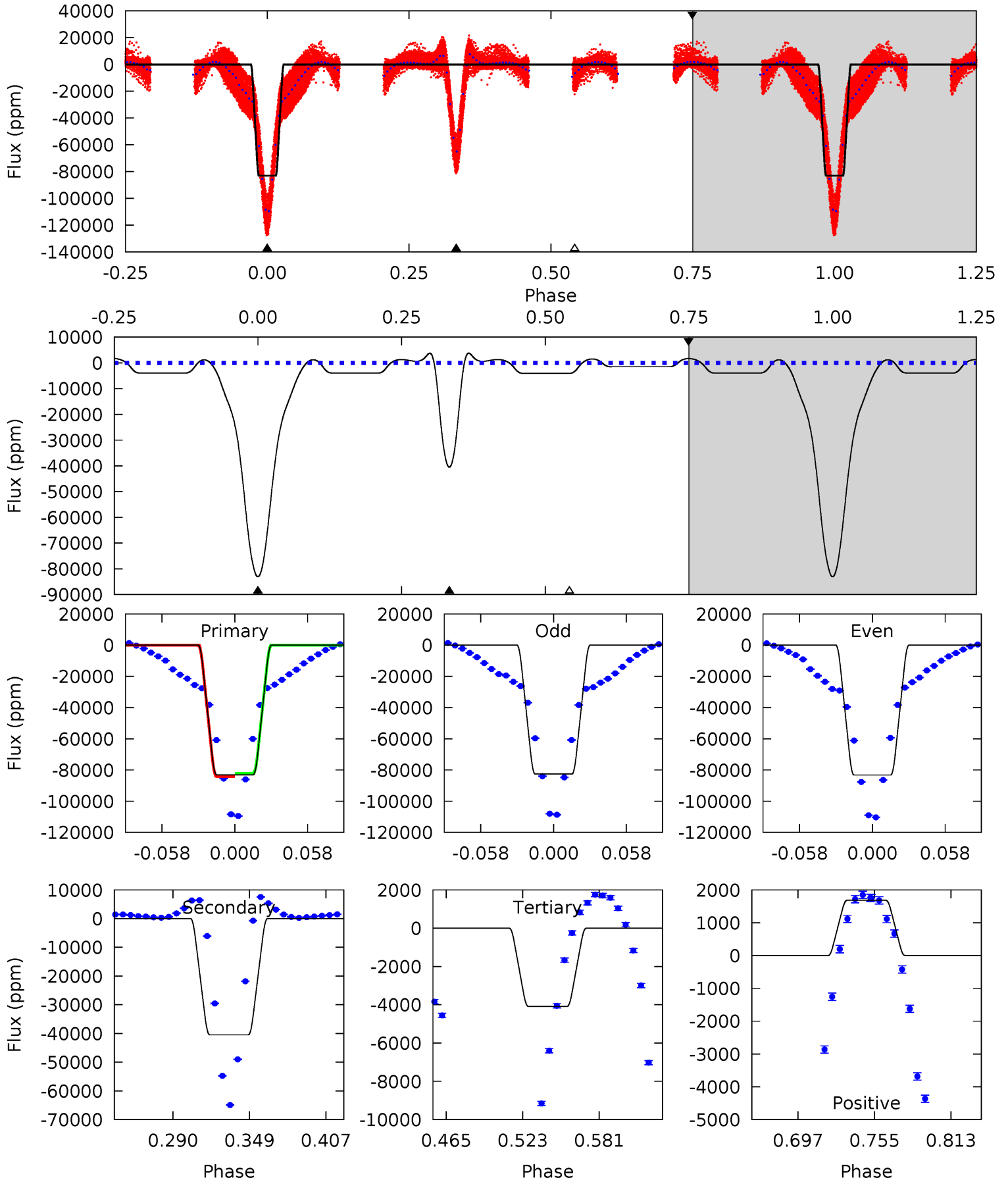
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
791.5	784.5	11.7	5.51	4.77	2.09	10.8	779.8	786.0	772.8	779.0	6.12	1.03	0.04	5.38



# Alt Model-Shift Uniqueness Test

004678875-03, P = 5.636712 Days, E = 130.248023 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
894.6	436.0	44.1	18.1	4.68	1.89	26.8	850.5	876.4	391.9	417.8	3.21	0.97	0.04	0



### Stellar Parameters For KIC 004678875

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6569^{+157}_{-196}$	$4.281^{+0.128}_{-0.176}$	$-0.420^{+0.250}_{-0.300}$	$1.235^{+0.366}_{-0.197}$	$1.060^{+0.176}_{-0.122}$	$0.793^{+0.535}_{-0.393}$
	+2%/-3%	+3%/-4%	+60%/-71%	+30%/-16%	+17%/-12%	+67%/-50%
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 004678875-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-84288 \pm 107$	$48.27^{+10.20}_{-9.13}$	$1797^{+127}_{-105}$	$6065^{+542}_{-455}$	$89^{+41}_{-28}$
Alt.	$-40472 \pm 93$	$42.64^{+10.51}_{-7.53}$	$1796^{+118}_{-111}$	$5317^{+468}_{-386}$	$51^{+23}_{-17}$

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

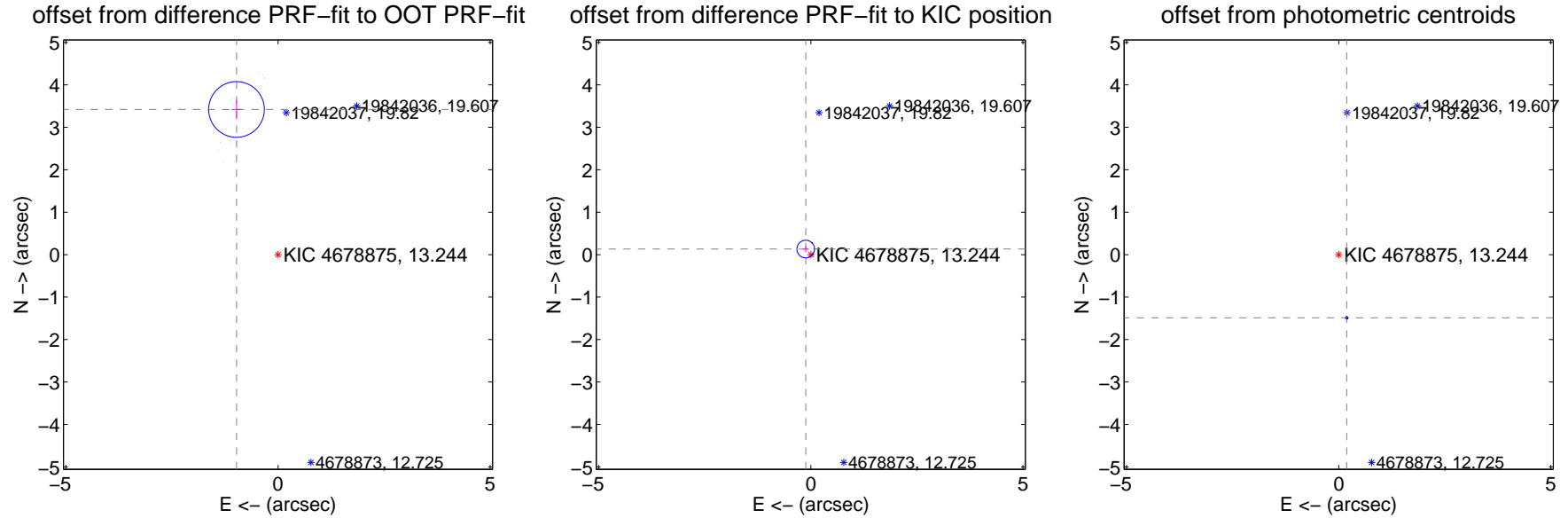
## DV Centroid Data

Supplemental centroid analysis for 004678875-03. Kepler magnitude: 13.24. Transit SNR 401.75

There are 17 quarters with good PRF difference image offsets

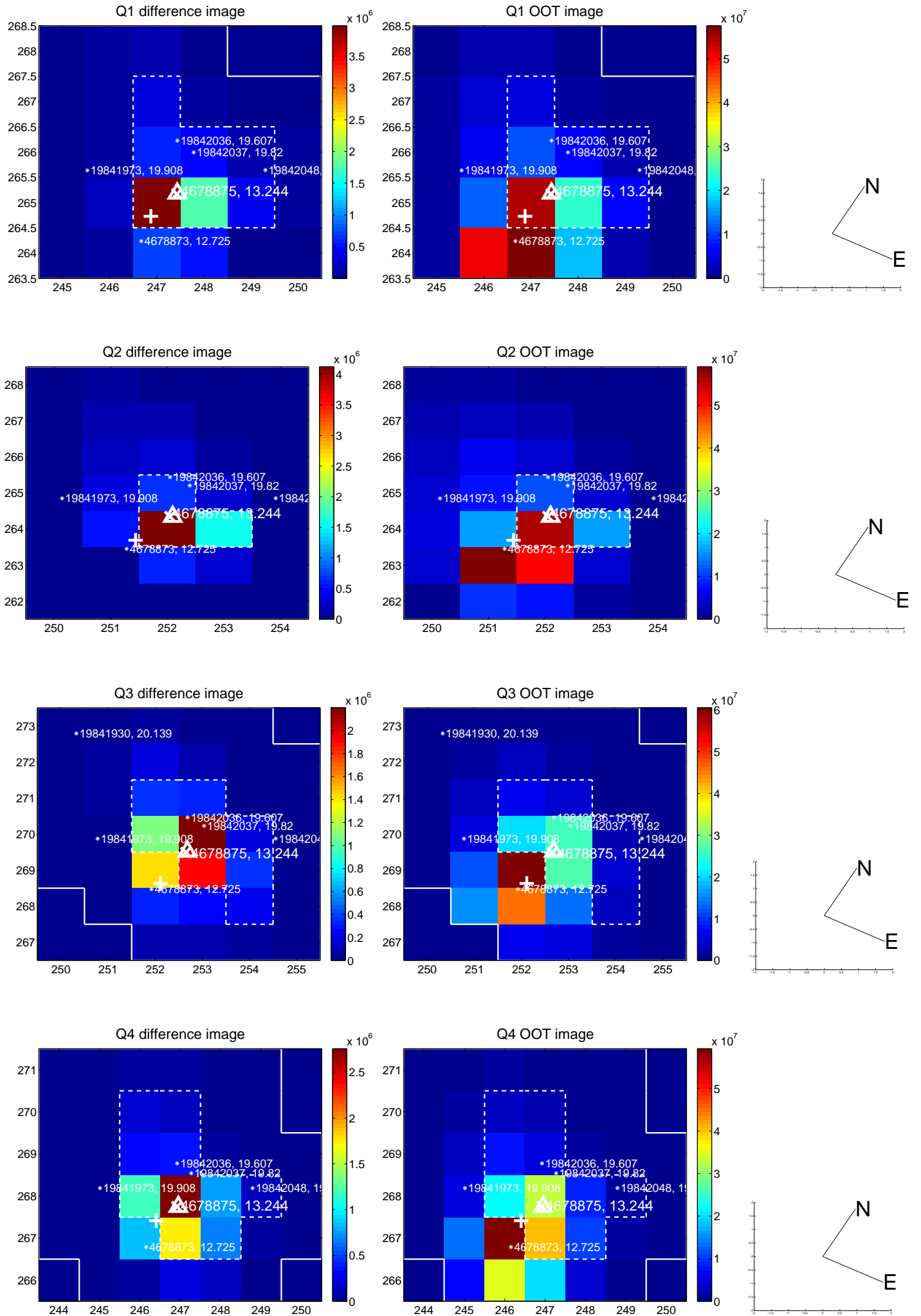
The OOT PRF centroid is offset from the target star catalog position by about 2.79 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.558 \pm 0.219$	<b>16.27</b>	$0.979 \pm 0.119$	$3.421 \pm 0.225$
PRF-fit source offset from KIC position	$0.178 \pm 0.069$	2.57	$0.120 \pm 0.070$	$0.132 \pm 0.067$
photometric centroid source offset	$1.50 \pm 0.01$	<b>163.71</b>	$-0.19 \pm 0.00$	$-1.49 \pm 0.01$

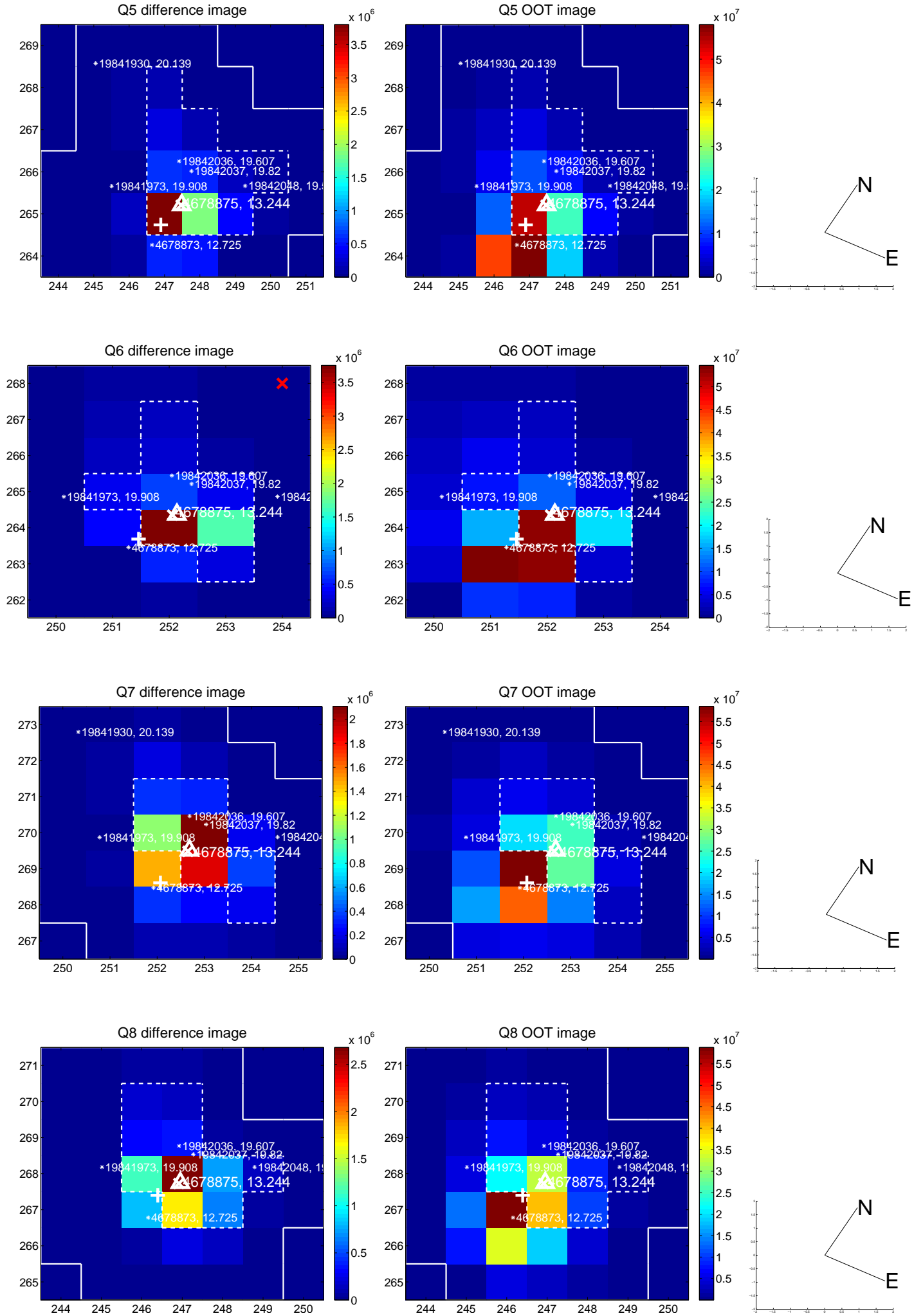


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

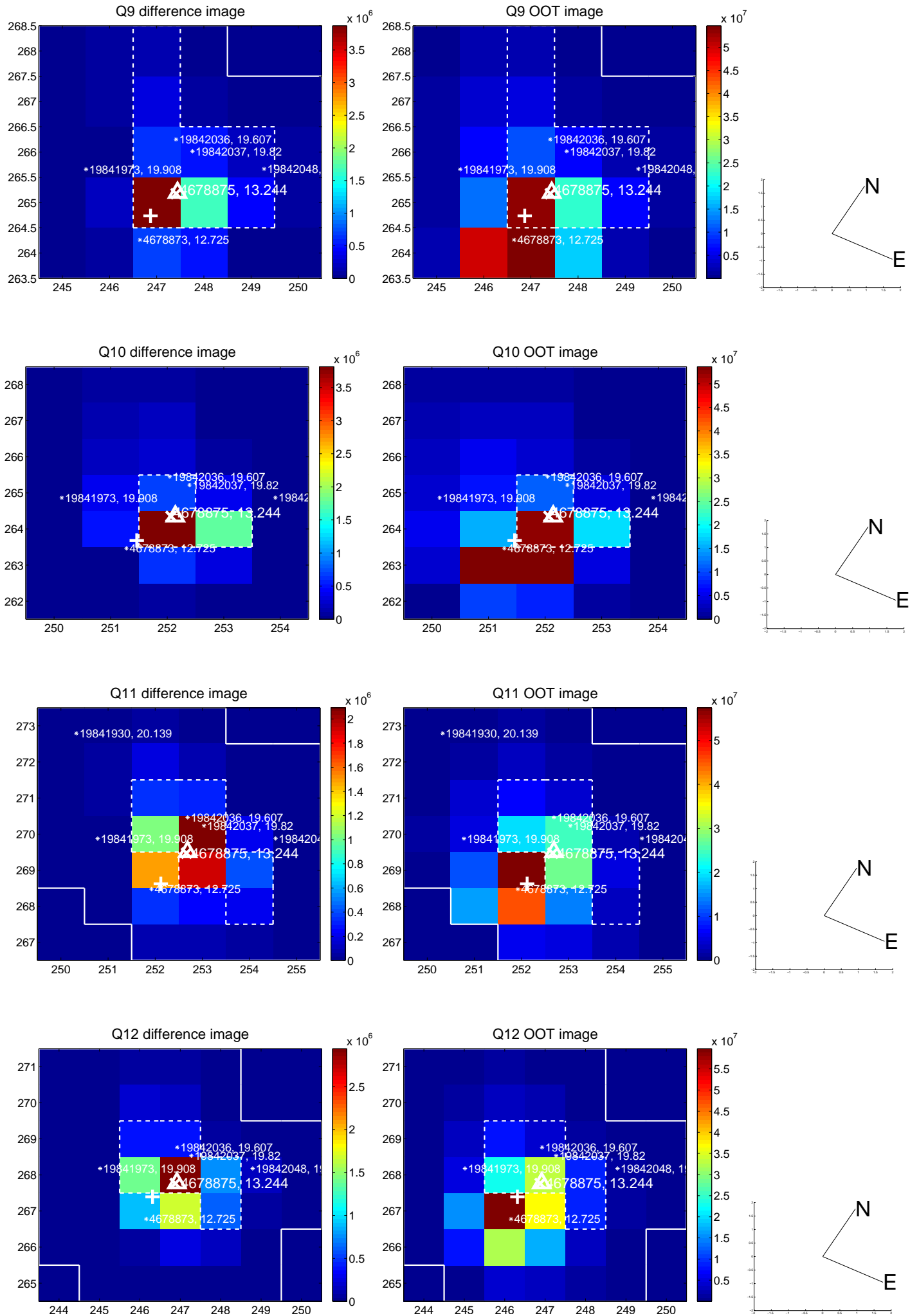


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

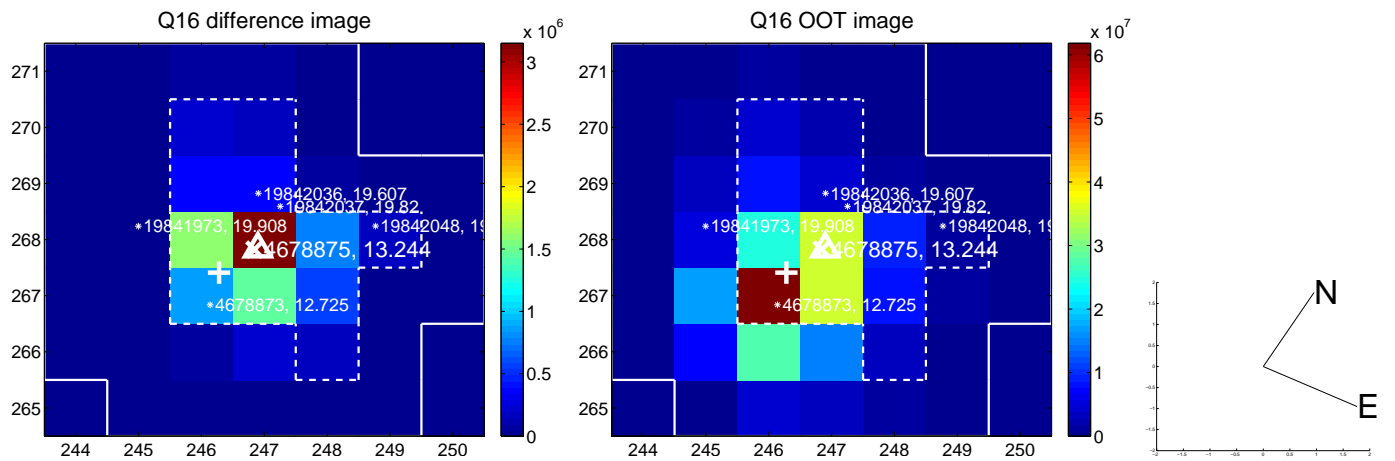
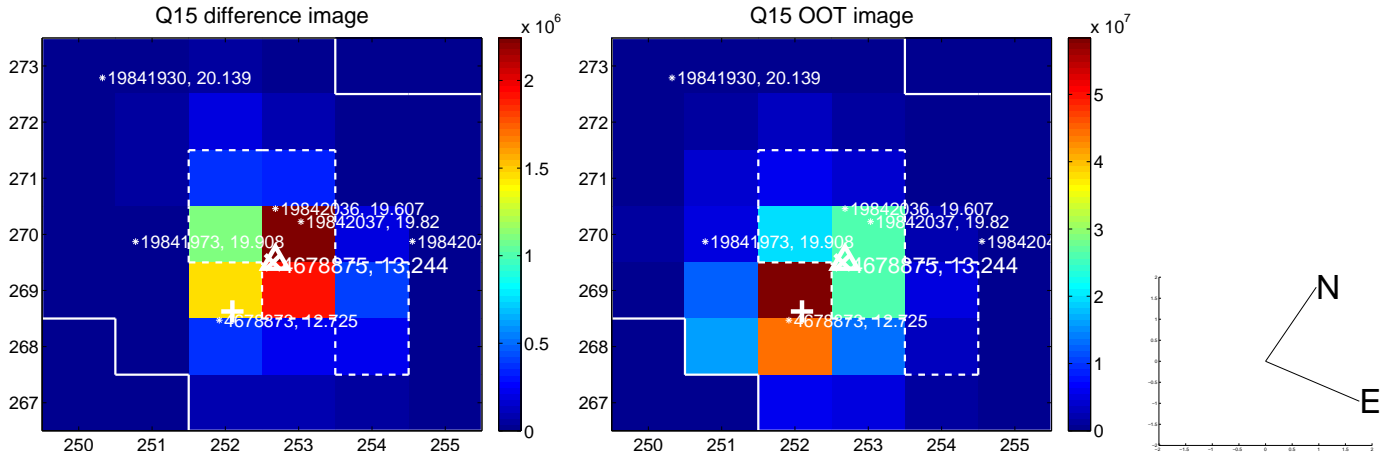
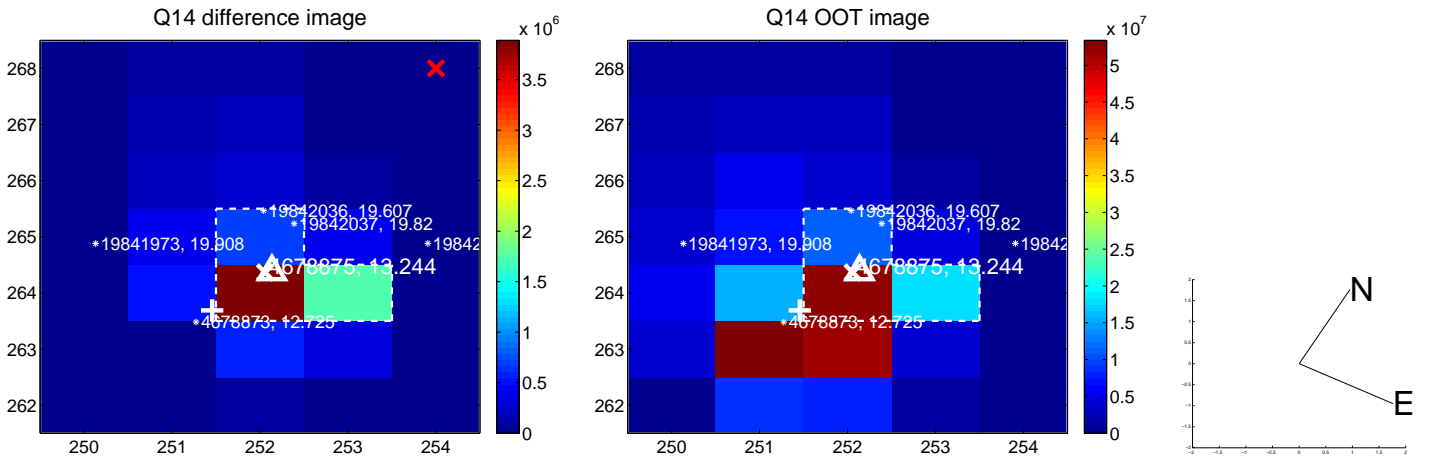
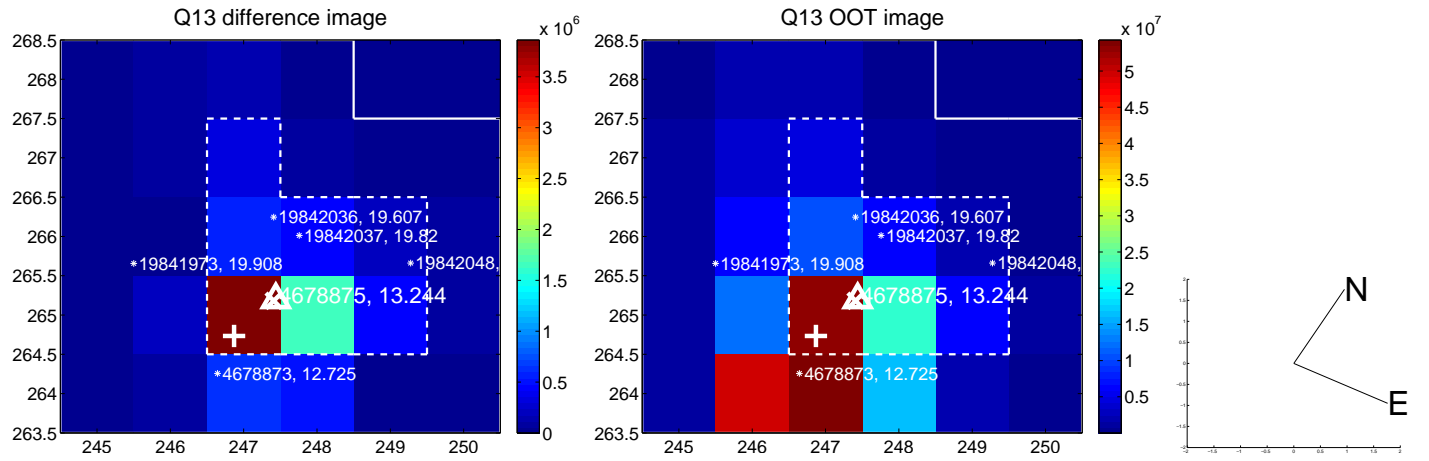




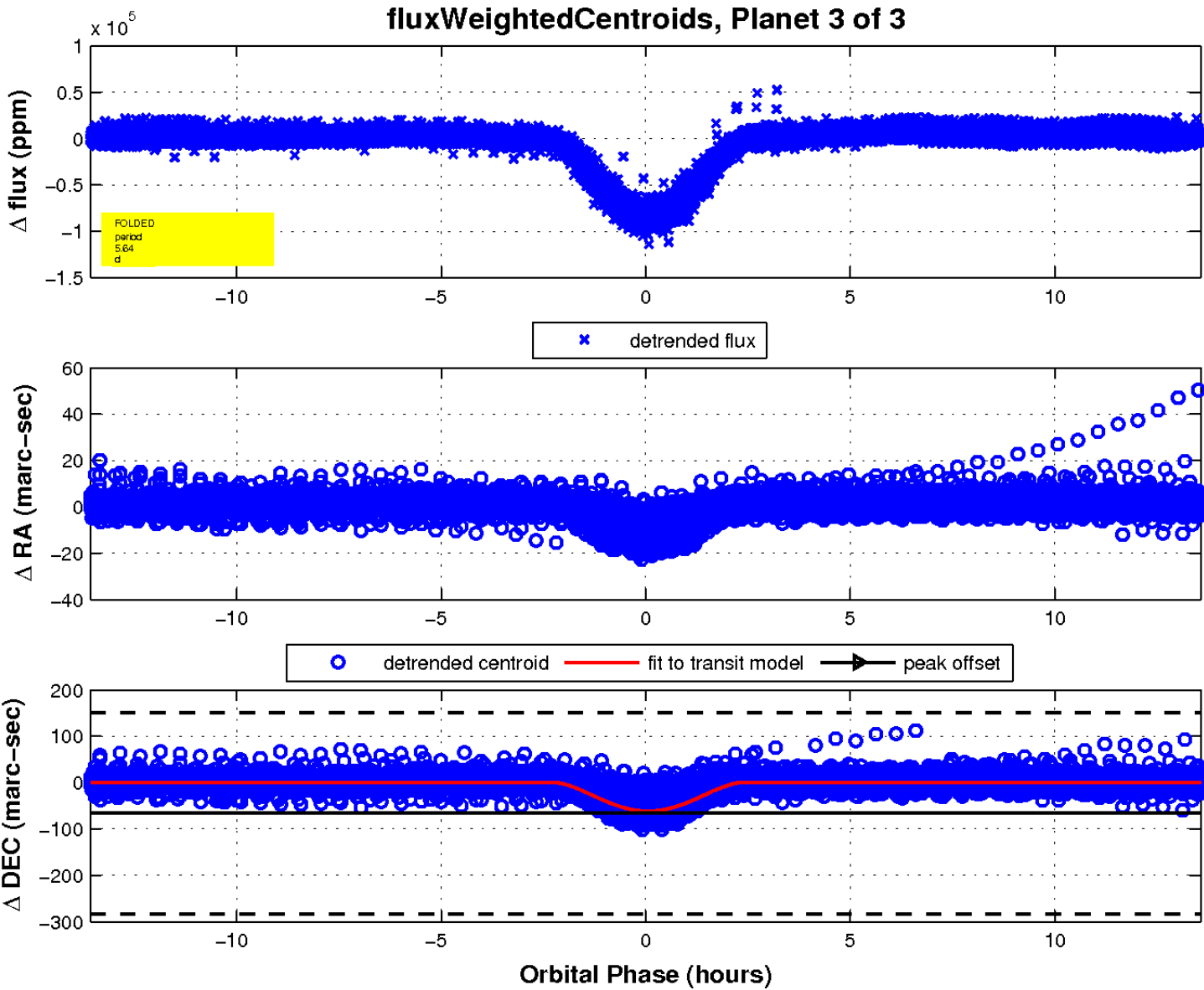
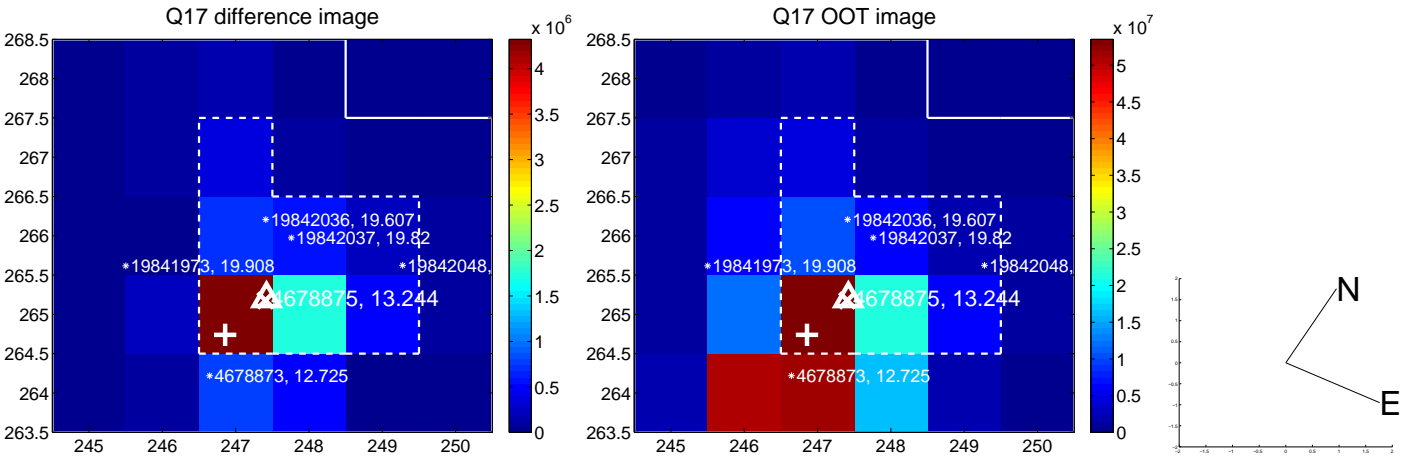
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

