

# KIC 006206751

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006206751-01	OBS	6674.01	1.245339	132.221208	210312.0	4.013	4796.1	2618.6	1.48	6967	83.99	7113.53
006206751-02	OBS	No	1.245352	131.588277	1768.8	3.000	911.2	-1.0	1.48	6967	6.28	7113.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006206751-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006206751-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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.

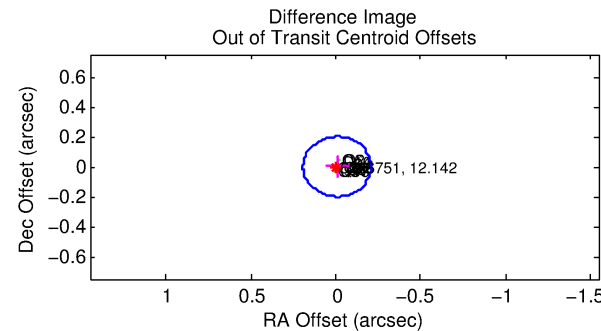
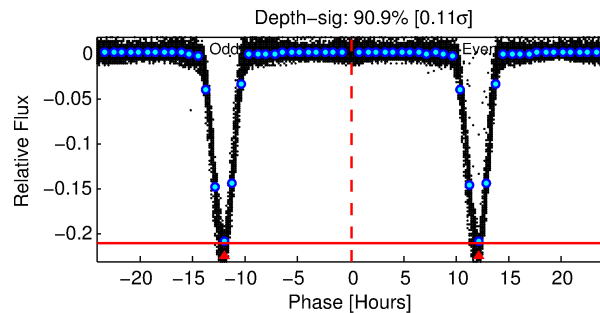
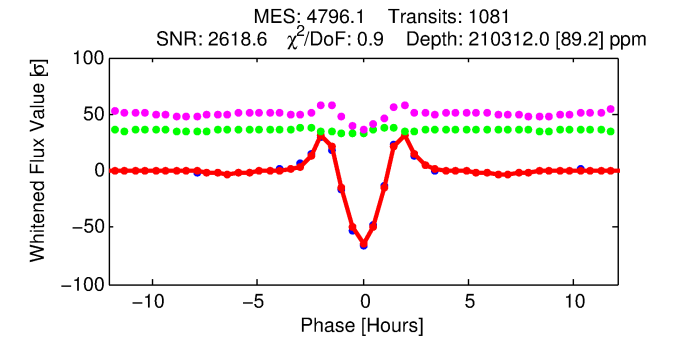
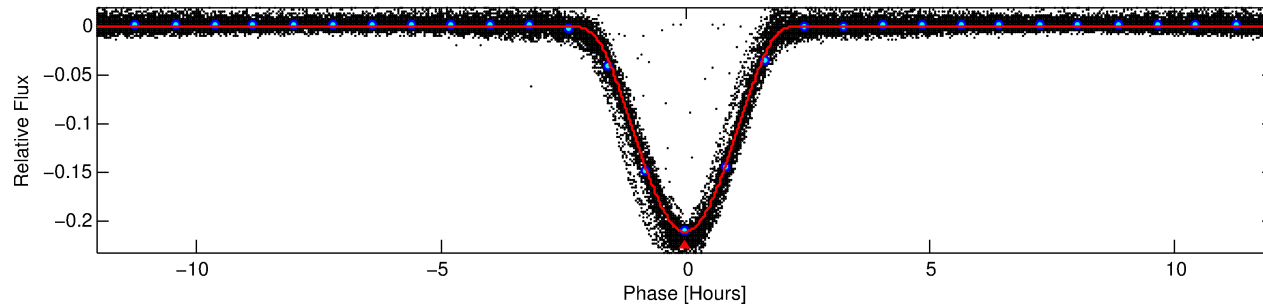
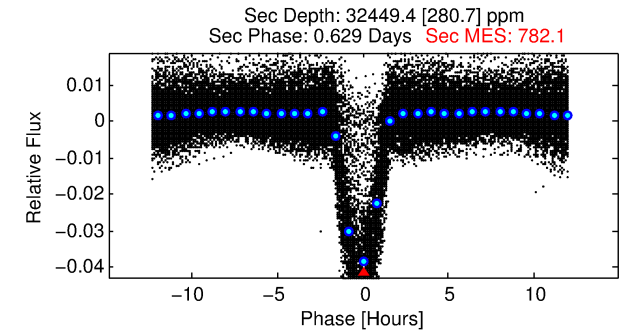
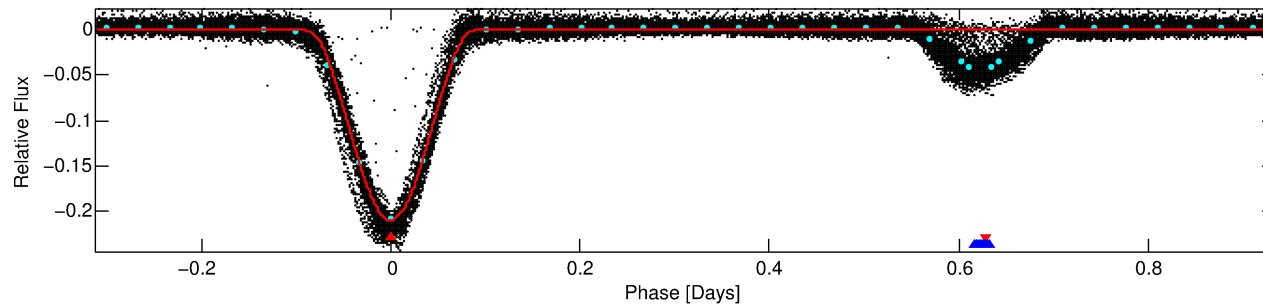
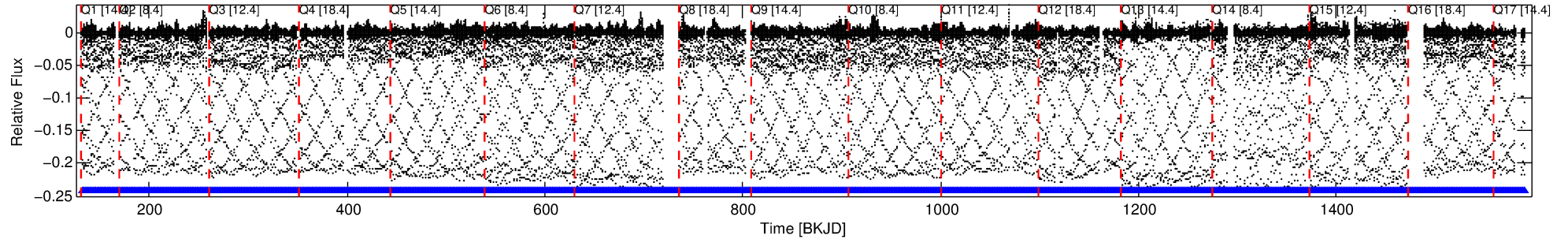
## Ephemeris Match Information For 006206751-01

No Significant Match Found

# DV One-Page Summary

KIC: 6206751 Candidate: 1 of 2 Period: 1.245 d  
KOI: K06674.01 Corr: 0.951

Kp: 12.14 R\*: 1.48 Rs Teff: 6967.0 K Logg: 4.25 Fe/H: 0.020



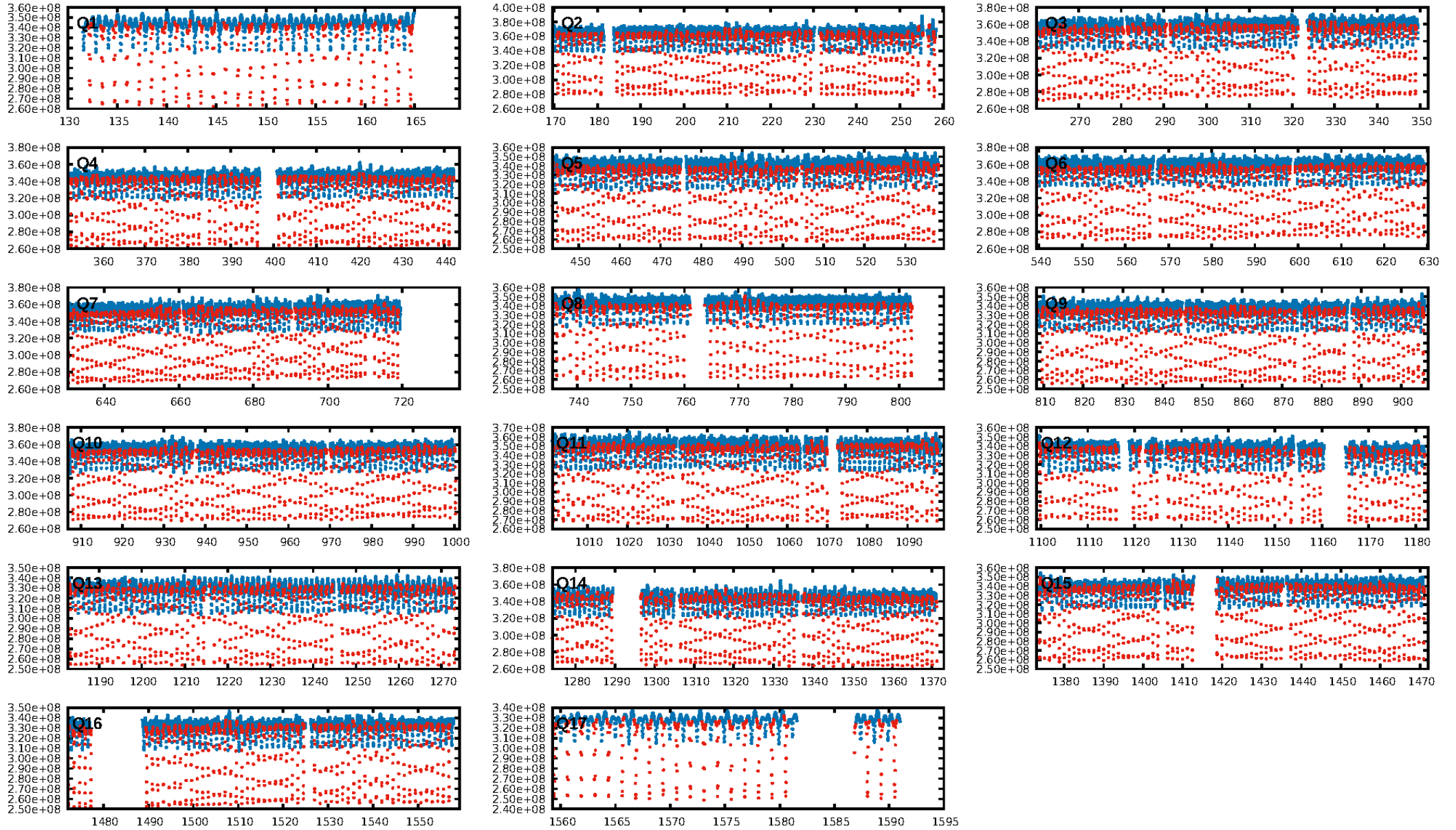
## DV Fit Results:

Period = 1.24534 [0.00000] d  
Epoch = 132.2212 [0.0000] BKJD  
Rp/R\* = 0.5214 [0.0029]  
a/R\* = 3.35 [0.00]  
b = 0.72 [0.01]  
Seff = 7113.53 [1640.03]  
Teff = 2342 [135] K  
Rp = 83.99 [16.68] Re  
a = 0.0254 [0.0041] AU  
Ag = 1.64 [0.37] [1.72 $\sigma$ ]  
**Teffp = 4095 [51] K [12.15 $\sigma$ ]**

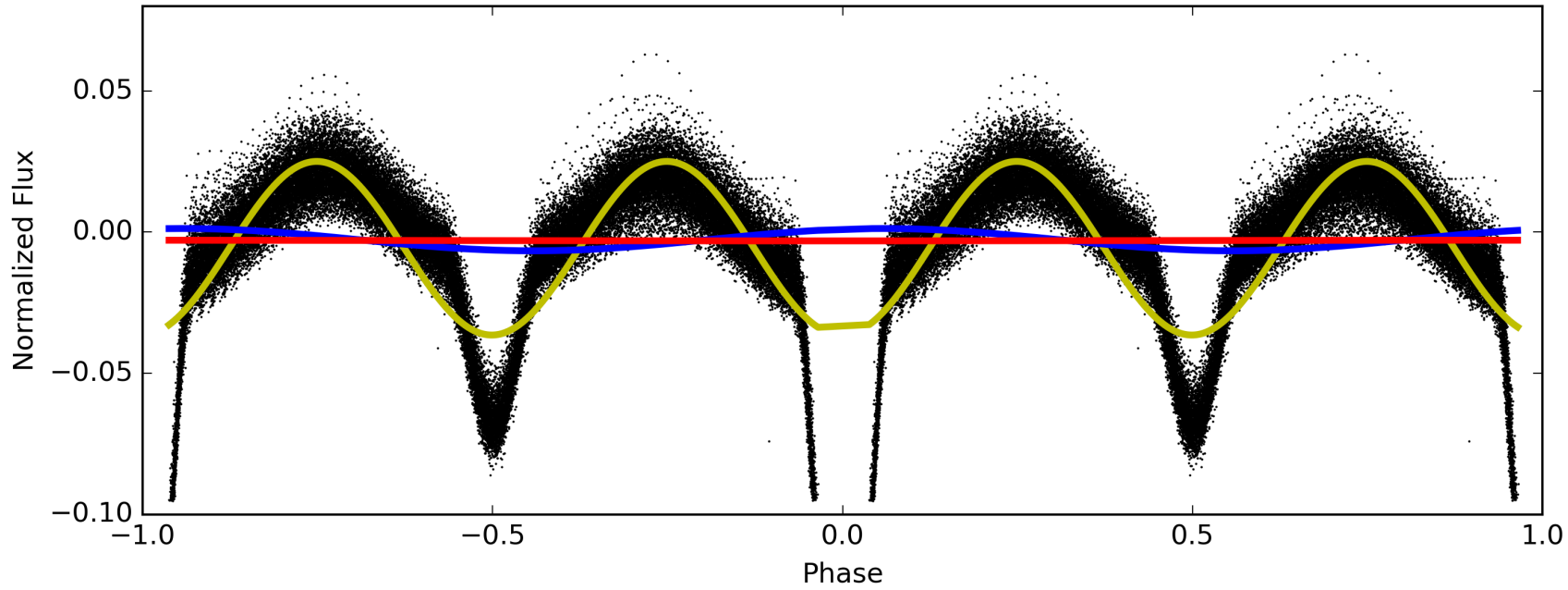
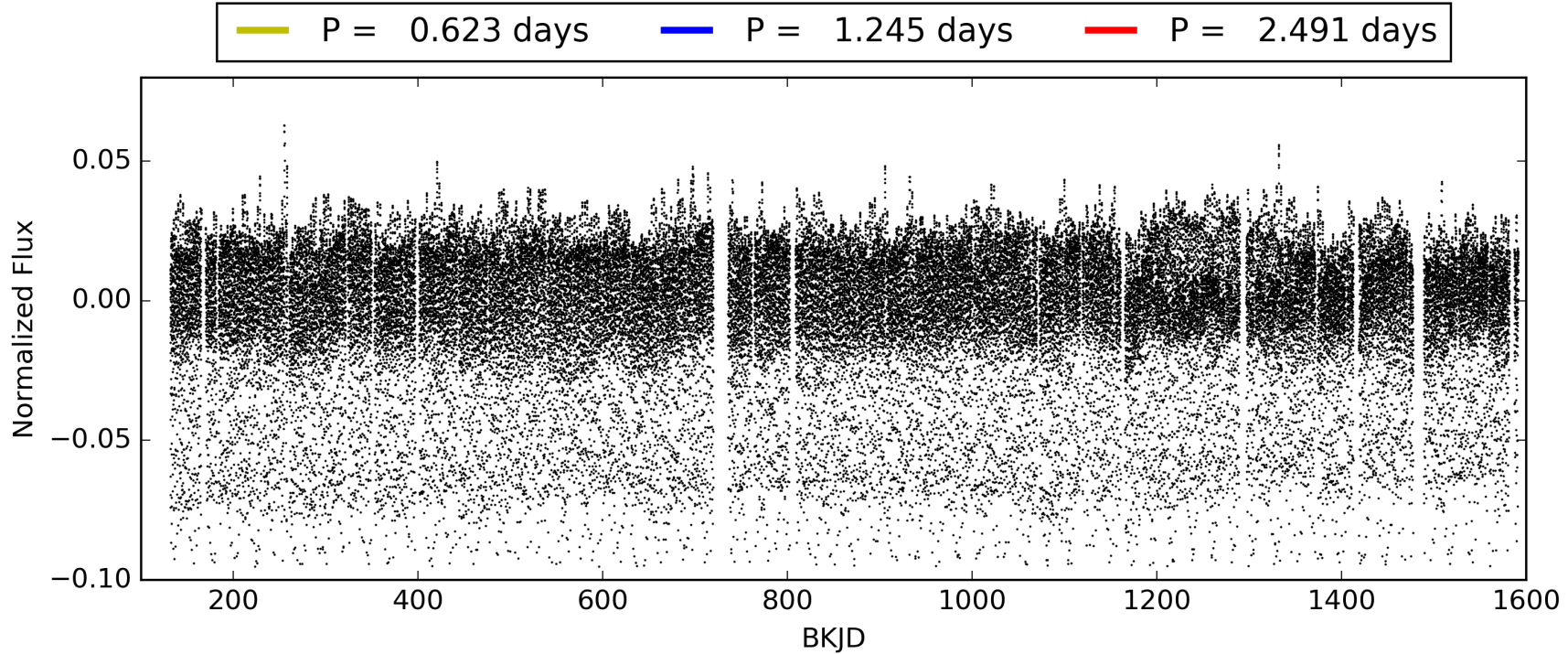
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00 $\sigma$ ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1032/1032]  
GhostDiagnostic-chr: 1.235  
Centroid-sig: 0.0%  
**Centroid-so: 0.155 arcsec [798.48 $\sigma$ ]**  
OotOffset-rm: 0.007 arcsec [0.10 $\sigma$ ]  
KicOffset-rm: 0.174 arcsec [2.58 $\sigma$ ]  
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 006206751-01, PDC Light Curves

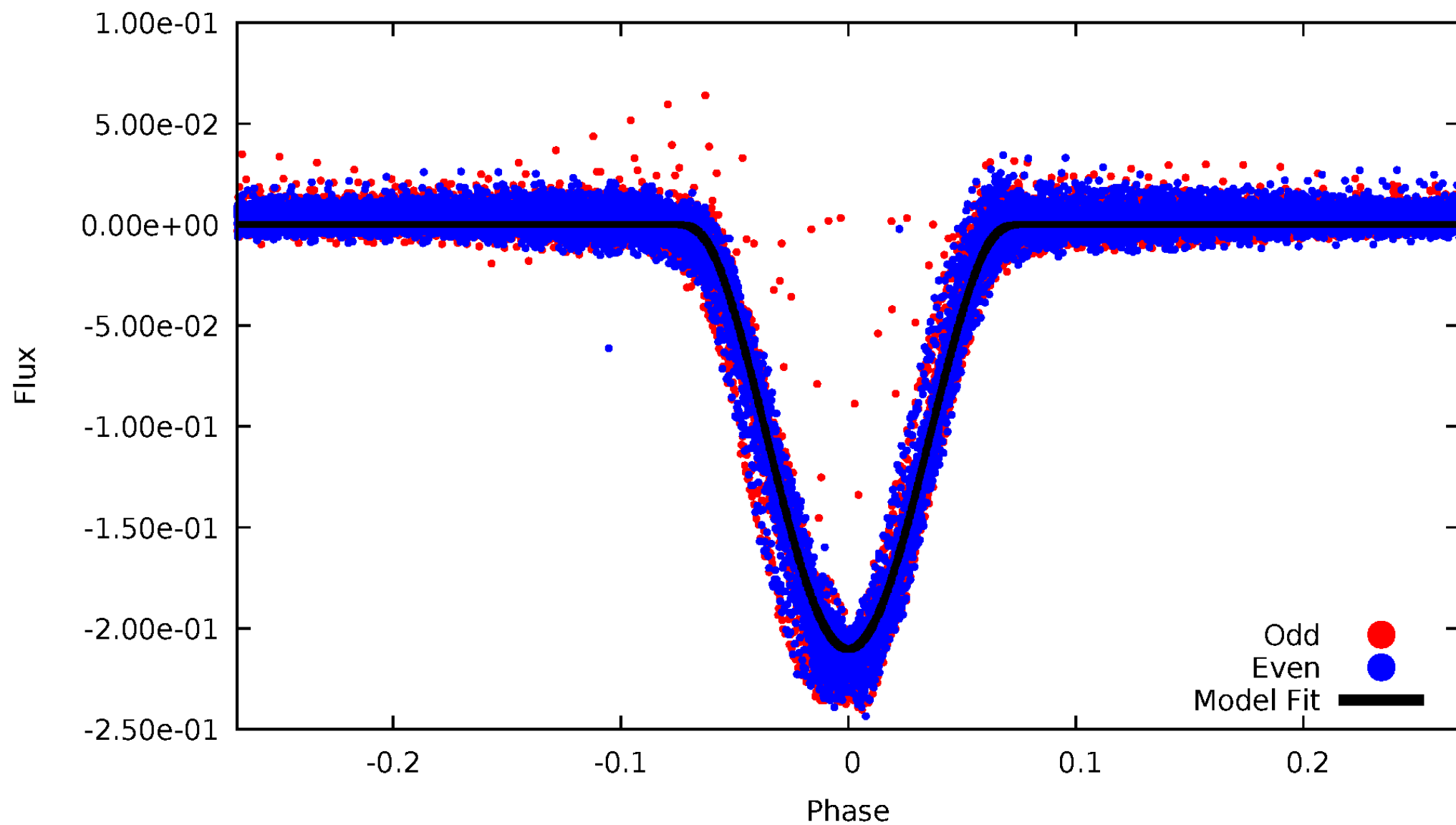


TCE 006206751-01



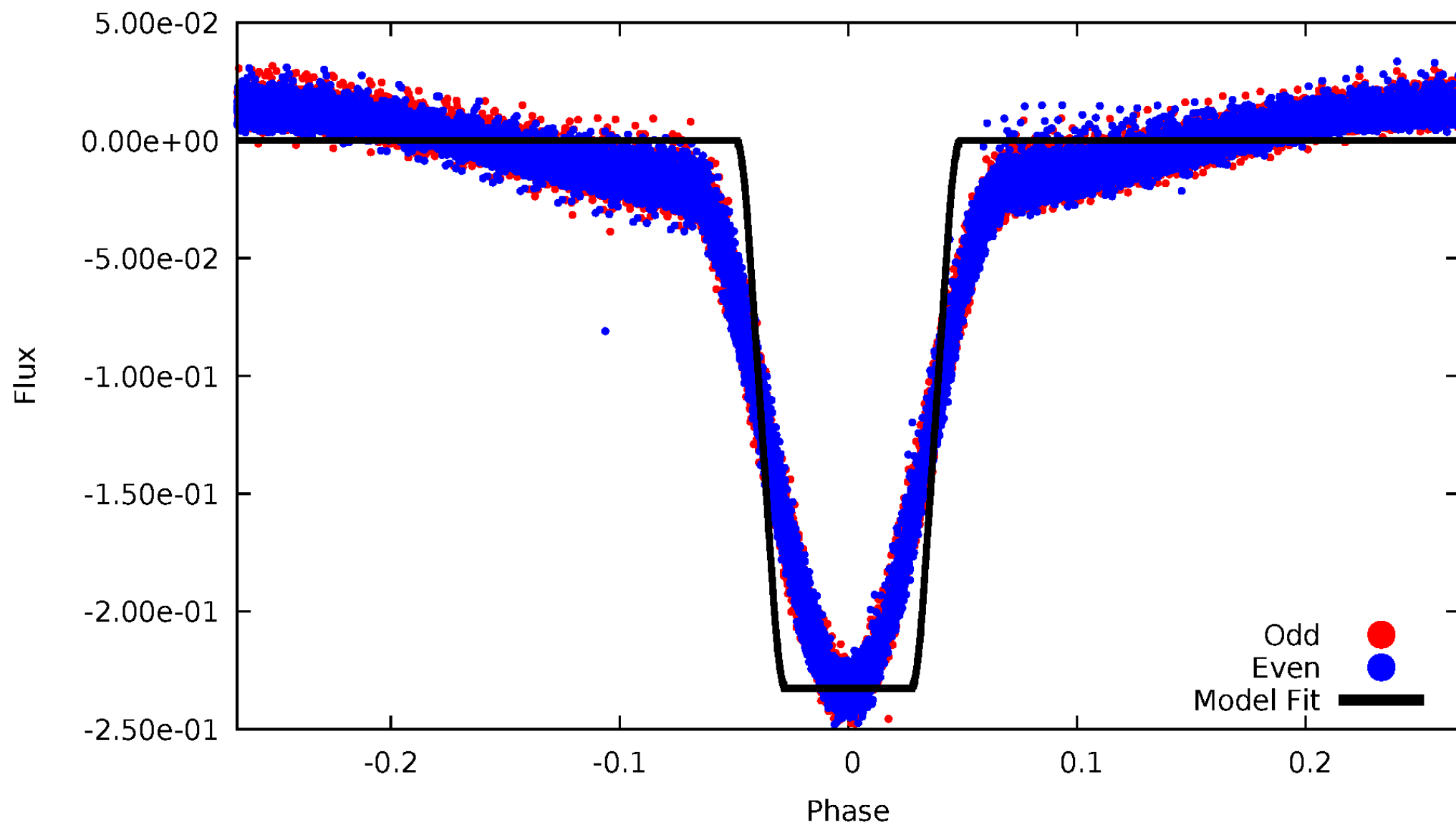
# DV Odd/Even

TCE 006206751-01



# ALT Odd/Even

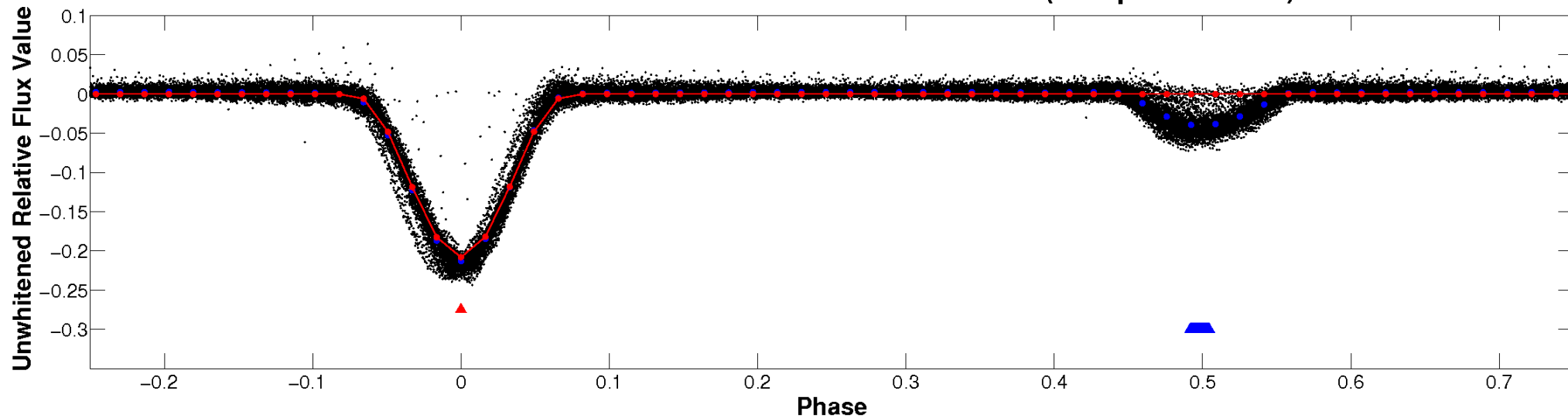
TCE 006206751-01



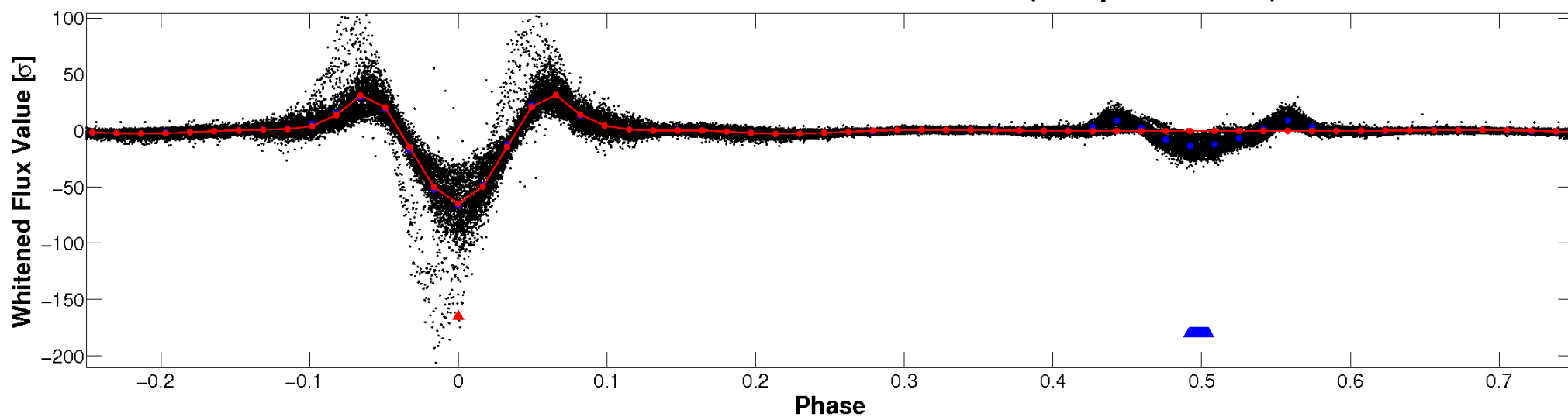


# Non-Whitened Vs. Whitened Light Curve

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

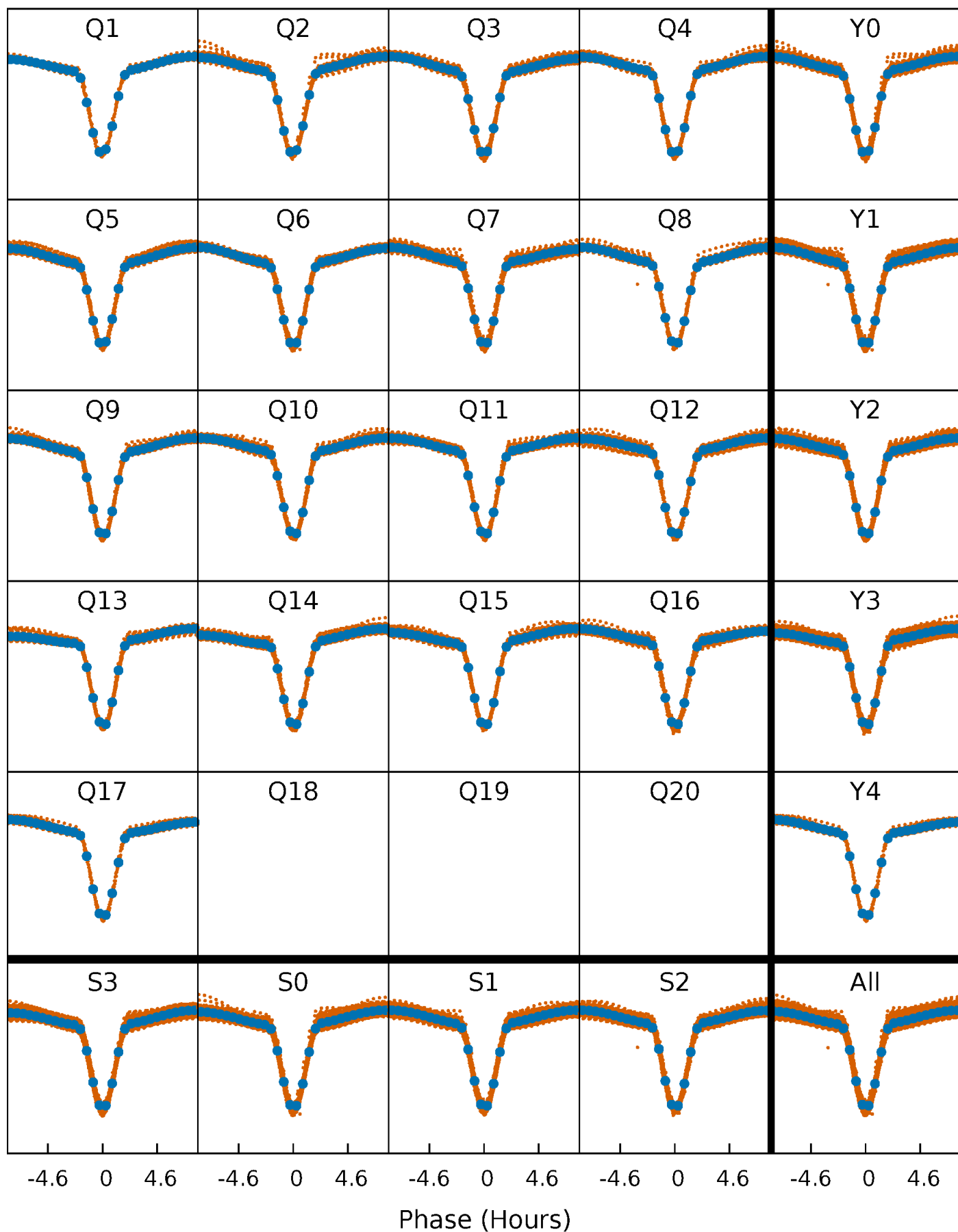


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

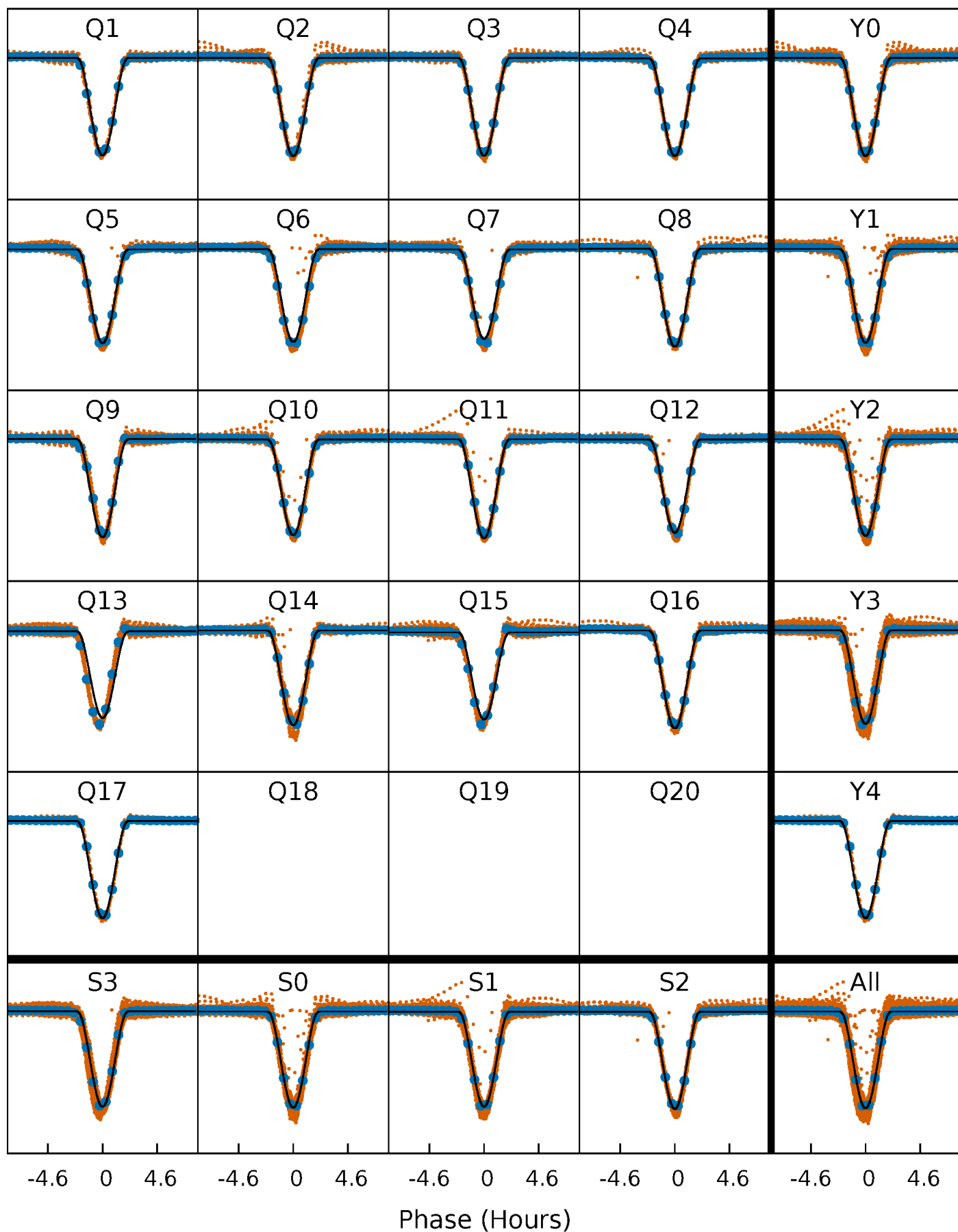
TCE 006206751-01 P= 1.245339 Days  $T_0=132.221208$  (BKJD)





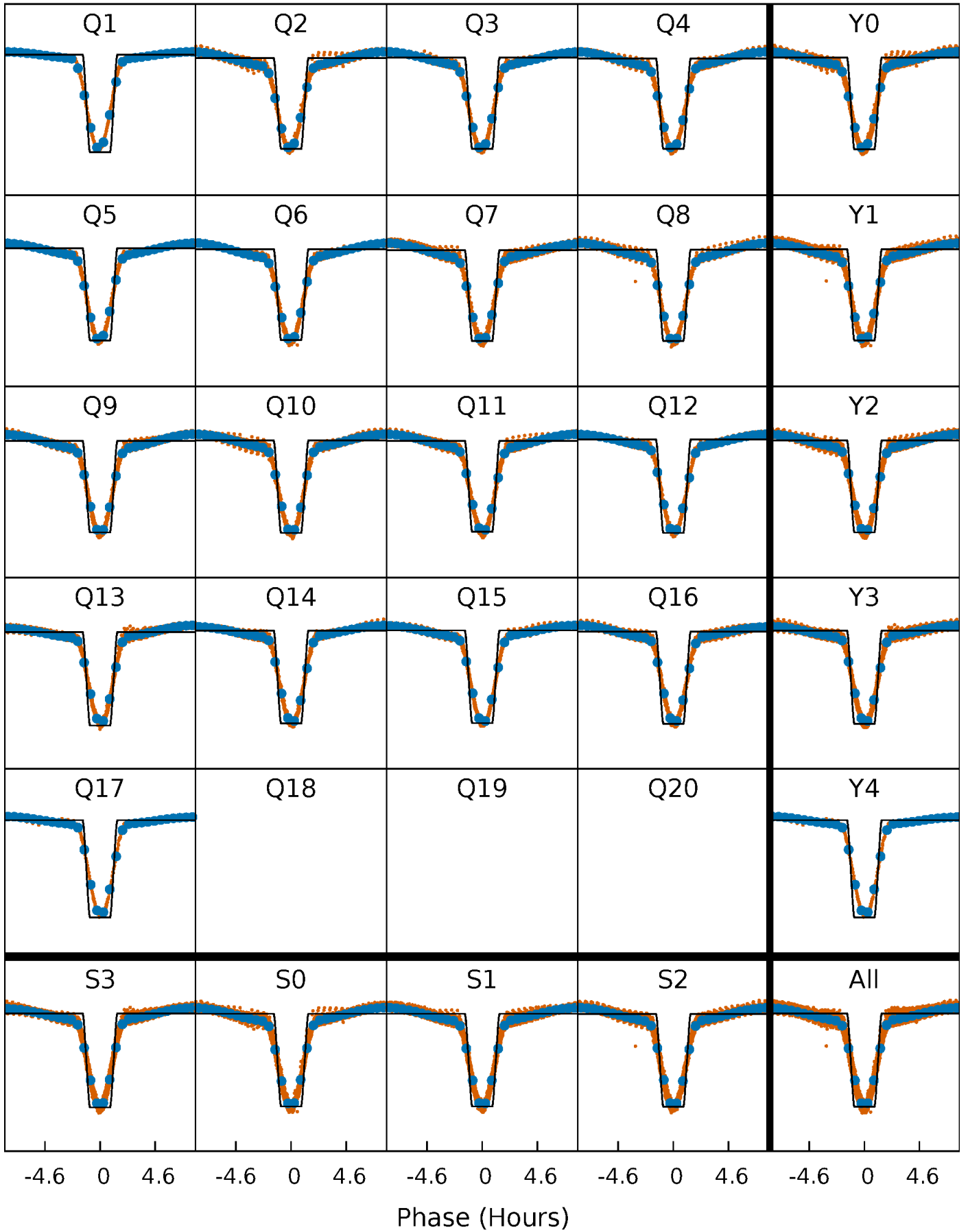
# DV Quarter-Phased Transit Curves

TCE 006206751-01 P= 1.245339 Days  $T_0=132.221208$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

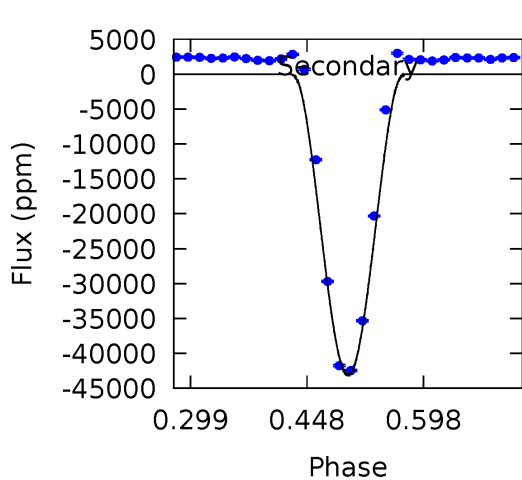
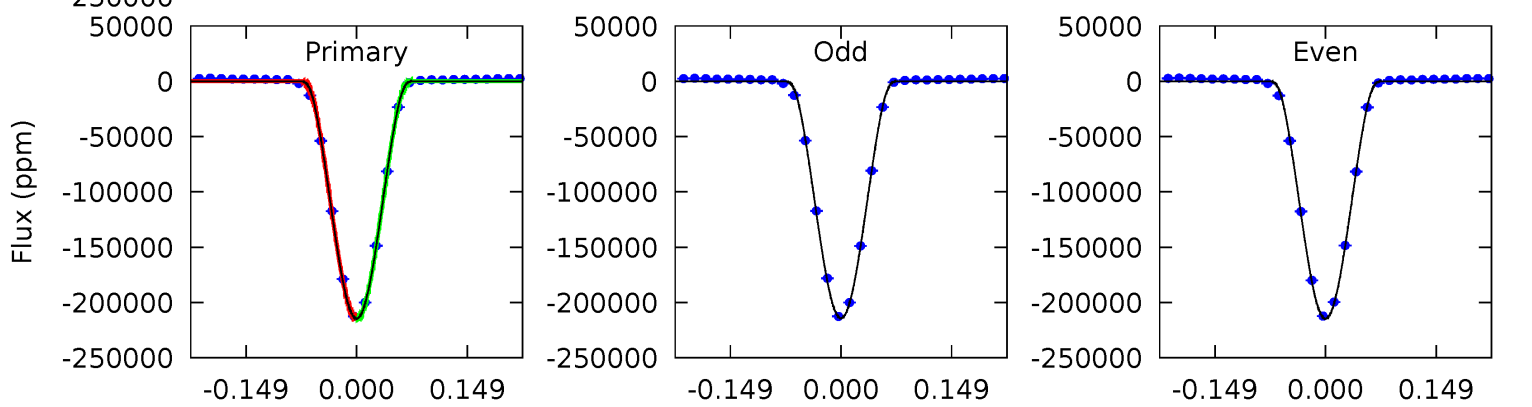
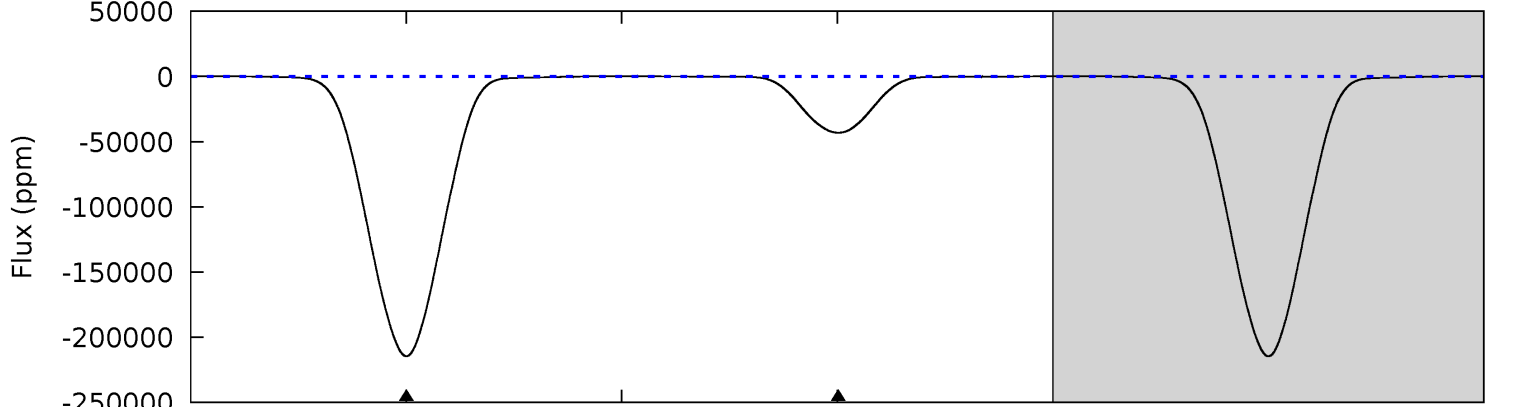
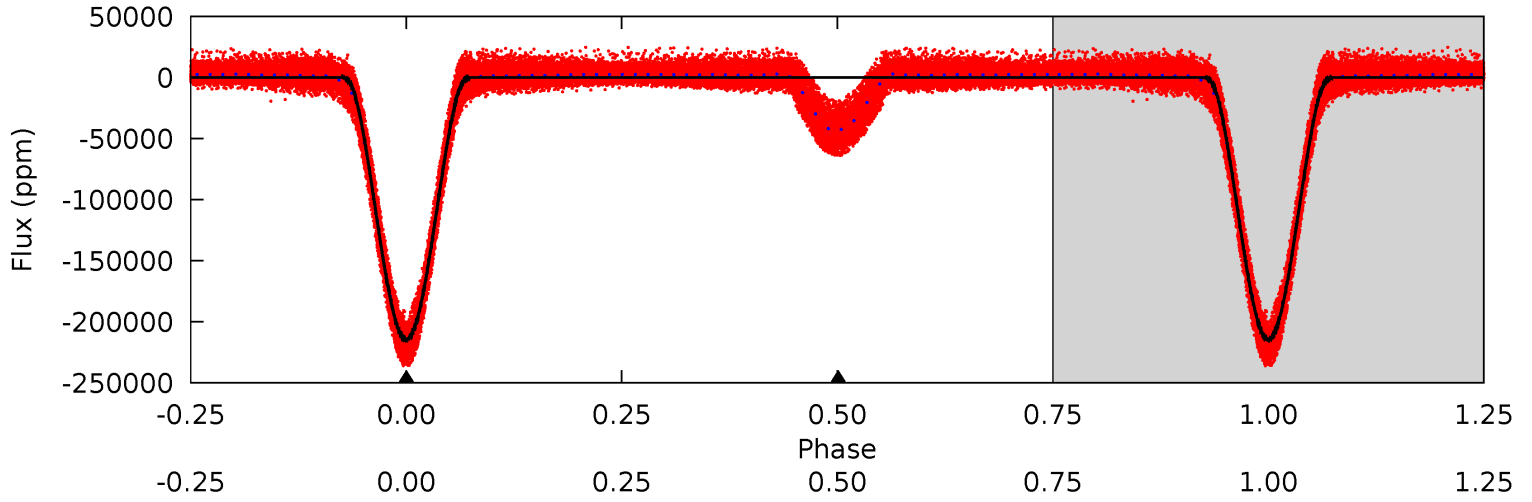
TCE 006206751-01 P= 1.245336 Days  $T_0=132.223905$  (BKJD)



# DV Model-Shift Uniqueness Test

006206751-01, P = 1.245339 Days, E = 130.975869 Days

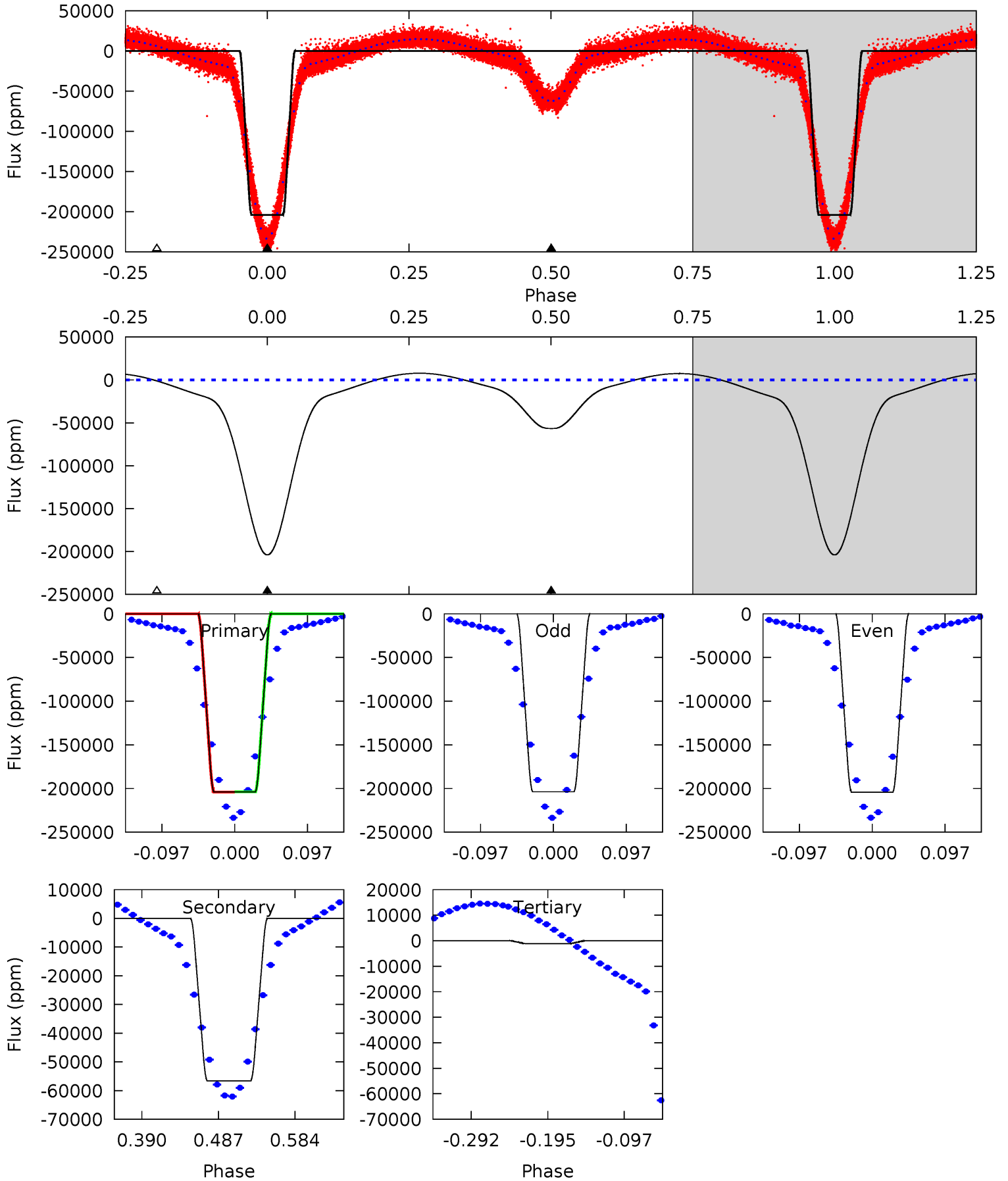
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4137	831.9	0	0	4.48	1.44	4.07	4137	4137	831.9	831.9	4.38	1.00	0.00	9.07



# Alt Model-Shift Uniqueness Test

006206751-01, P = 1.245336 Days, E = 130.978569 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
1511	419.4	8.28	0	4.57	1.66	60.6	1502	1511	411.1	419.4	1.72	1.00	0.04	1.53



### Stellar Parameters For KIC 006206751

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6967^{+76}_{-83}$	$4.250^{+0.042}_{-0.119}$	$0.020^{+0.150}_{-0.150}$	$1.476^{+0.293}_{-0.098}$	$1.414^{+0.111}_{-0.071}$	$0.619^{+0.104}_{-0.230}$
	+1%/-1%	+1%/-3%	+750%/-750%	+20%/-7%	+8%/-5%	+17%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 006206751-01 / KOI 6674.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-43142±52	$84.71^{+8.86}_{-3.54}$	$3294^{+143}_{-75}$	$4453^{+38}_{-44}$	$2.217^{+0.193}_{-0.366}$
Alt.	-56614±135	$77.77^{+7.97}_{-3.10}$	$3291^{+138}_{-85}$	$4919^{+51}_{-47}$	$3.483^{+0.293}_{-0.540}$

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

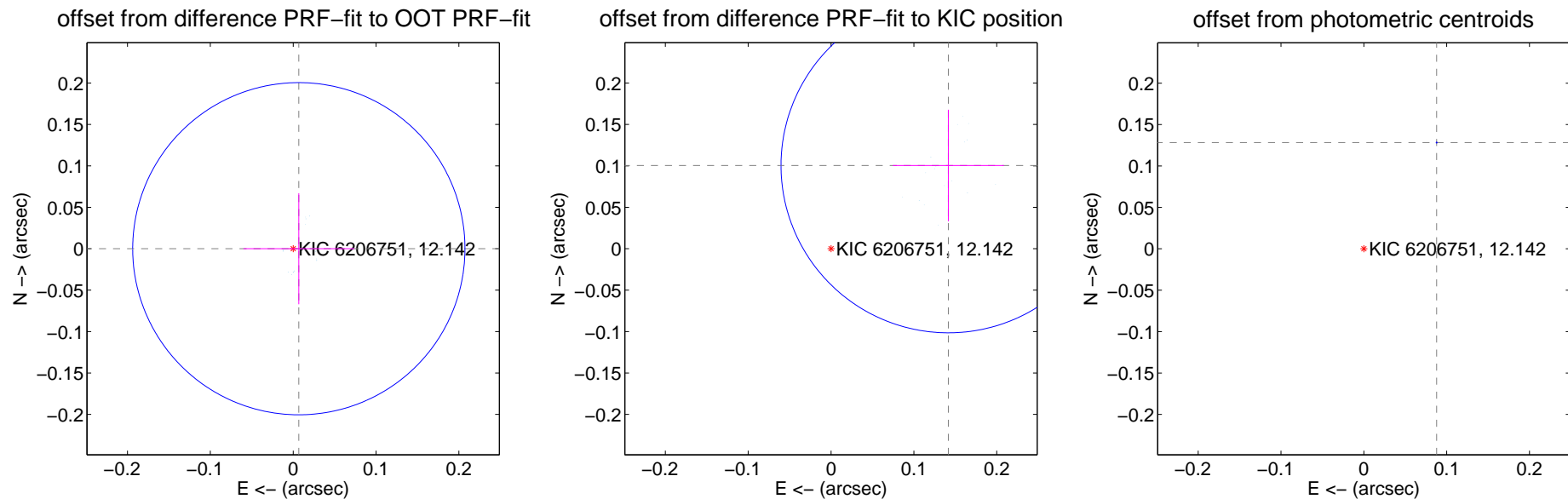
## DV Centroid Data

Supplemental centroid analysis for 006206751-01. Kepler magnitude: 12.14. Transit SNR 2618.57

There are 17 quarters with good PRF difference image offsets

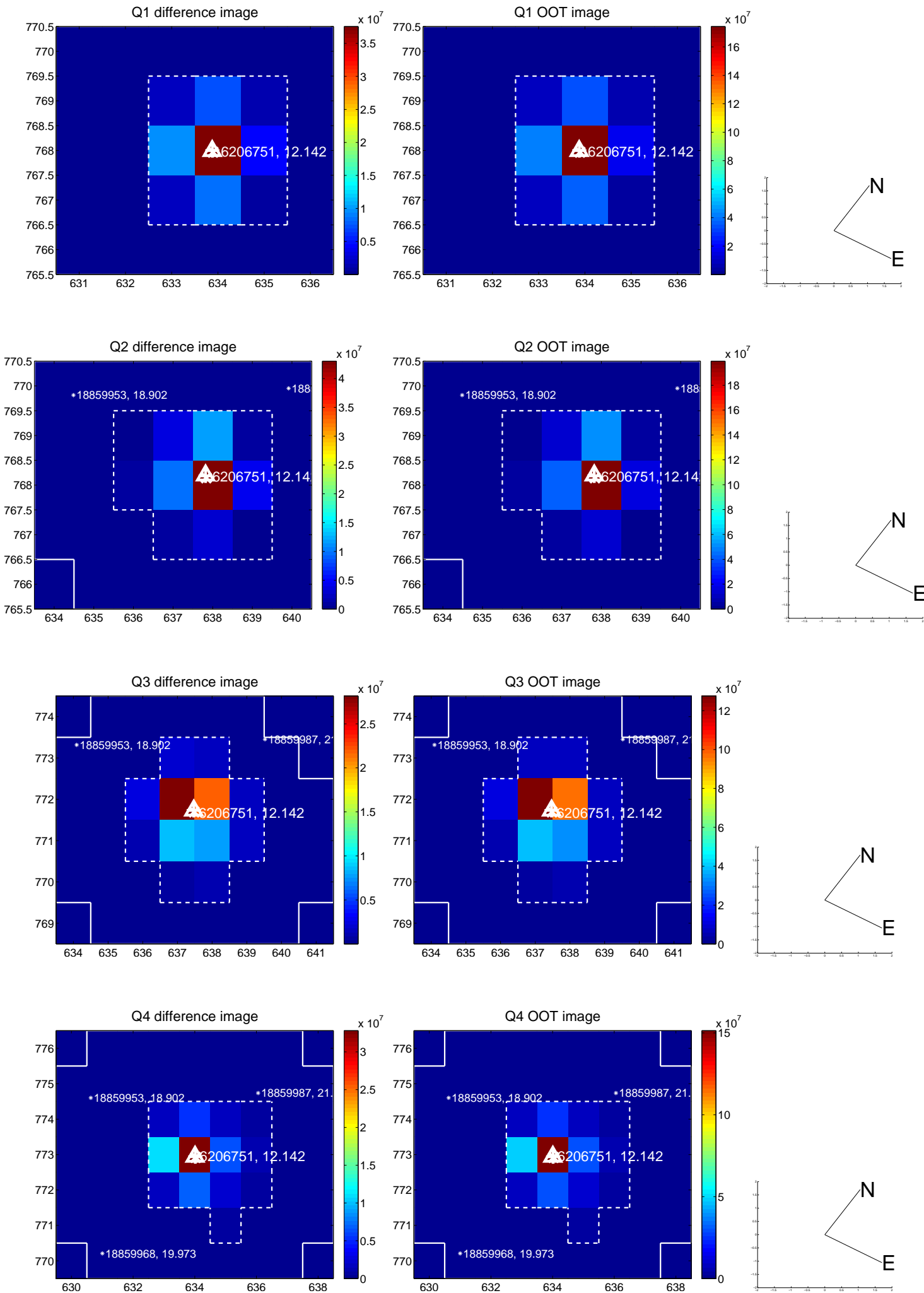
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.007 \pm 0.067$	0.10	$-0.007 \pm 0.067$	$0.000 \pm 0.067$
PRF-fit source offset from KIC position	$0.174 \pm 0.067$	2.58	$-0.142 \pm 0.067$	$0.100 \pm 0.067$
photometric centroid source offset	$0.16 \pm 0.00$	798.48	$-0.09 \pm 0.00$	$0.13 \pm 0.00$



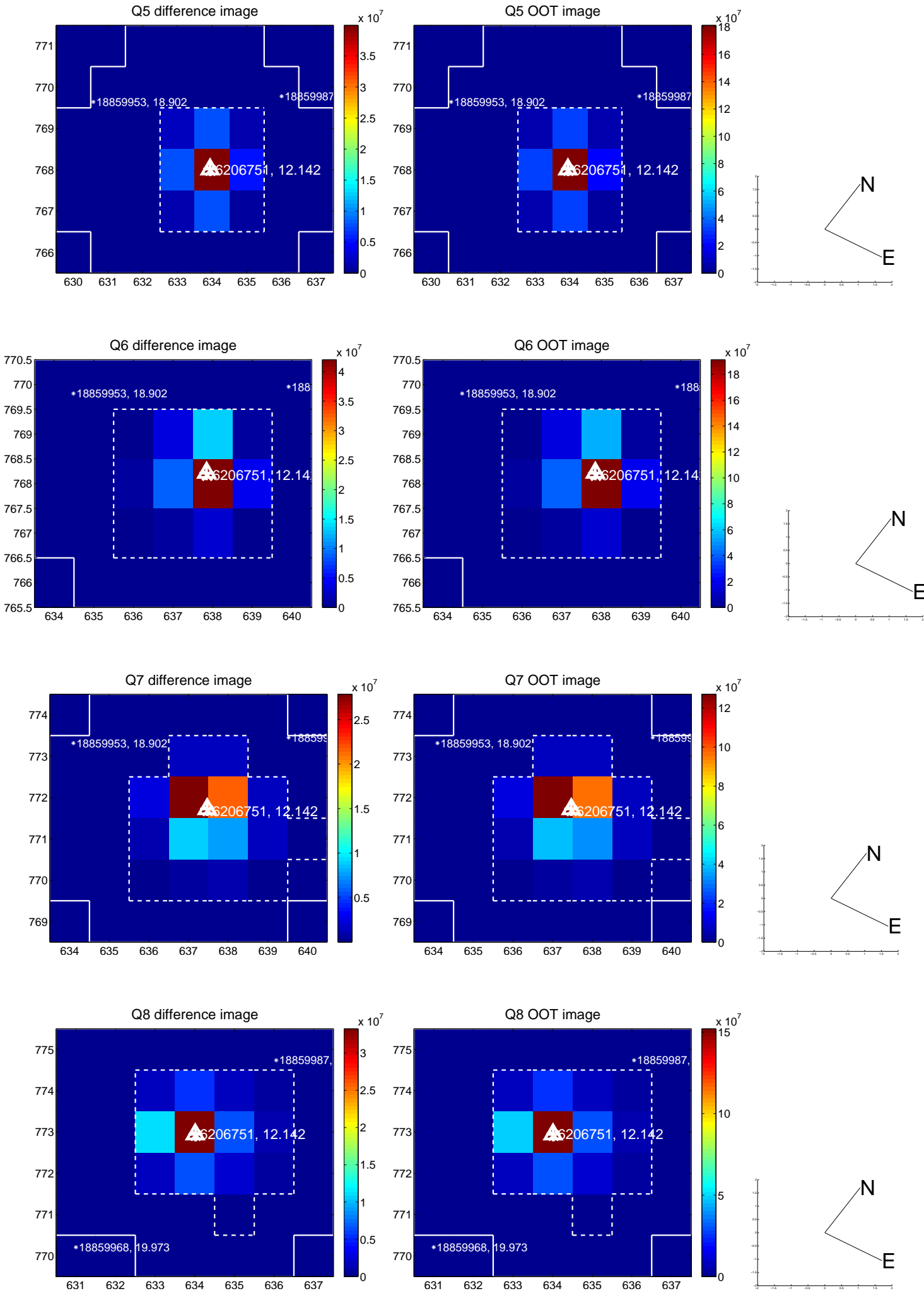
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

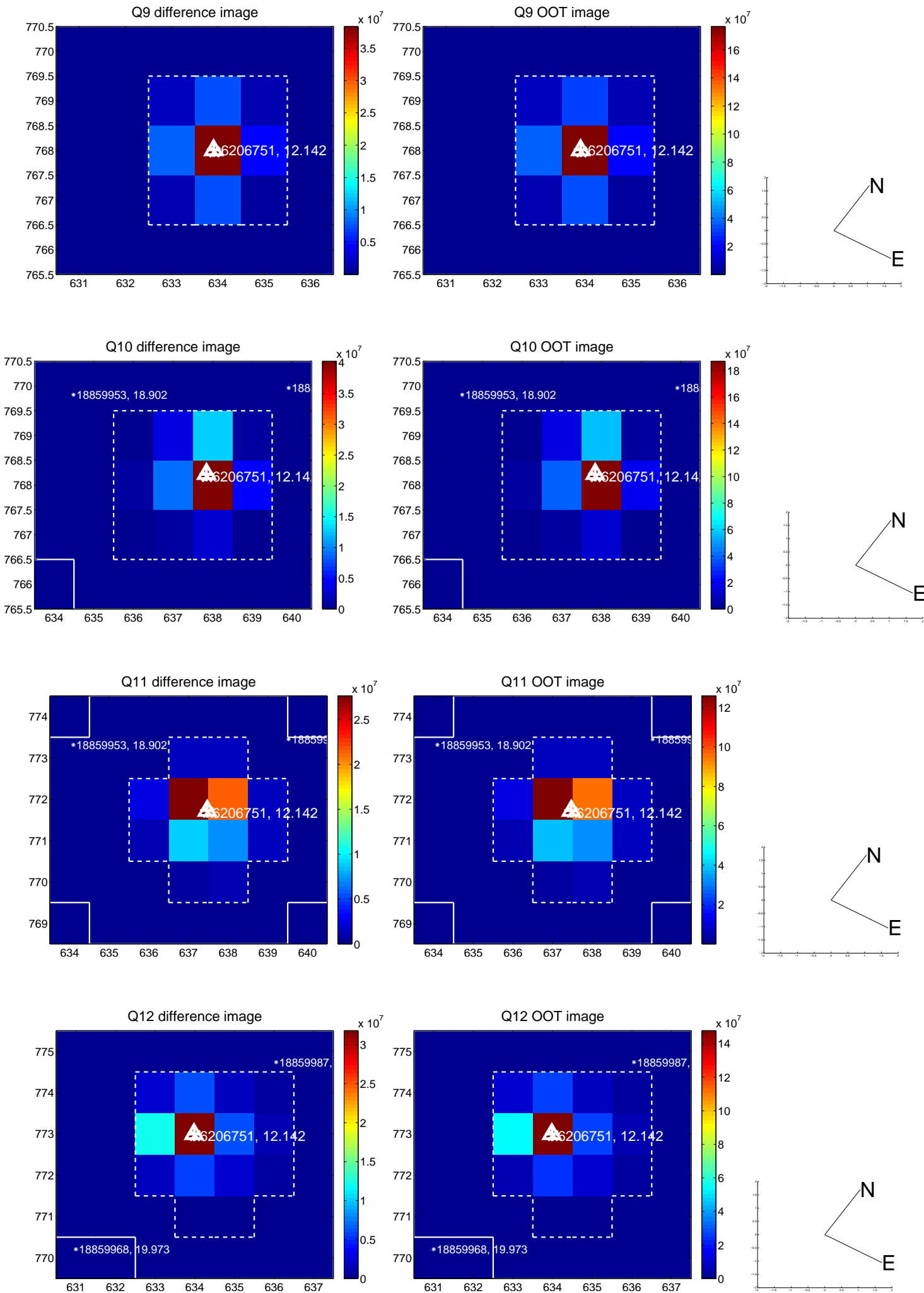




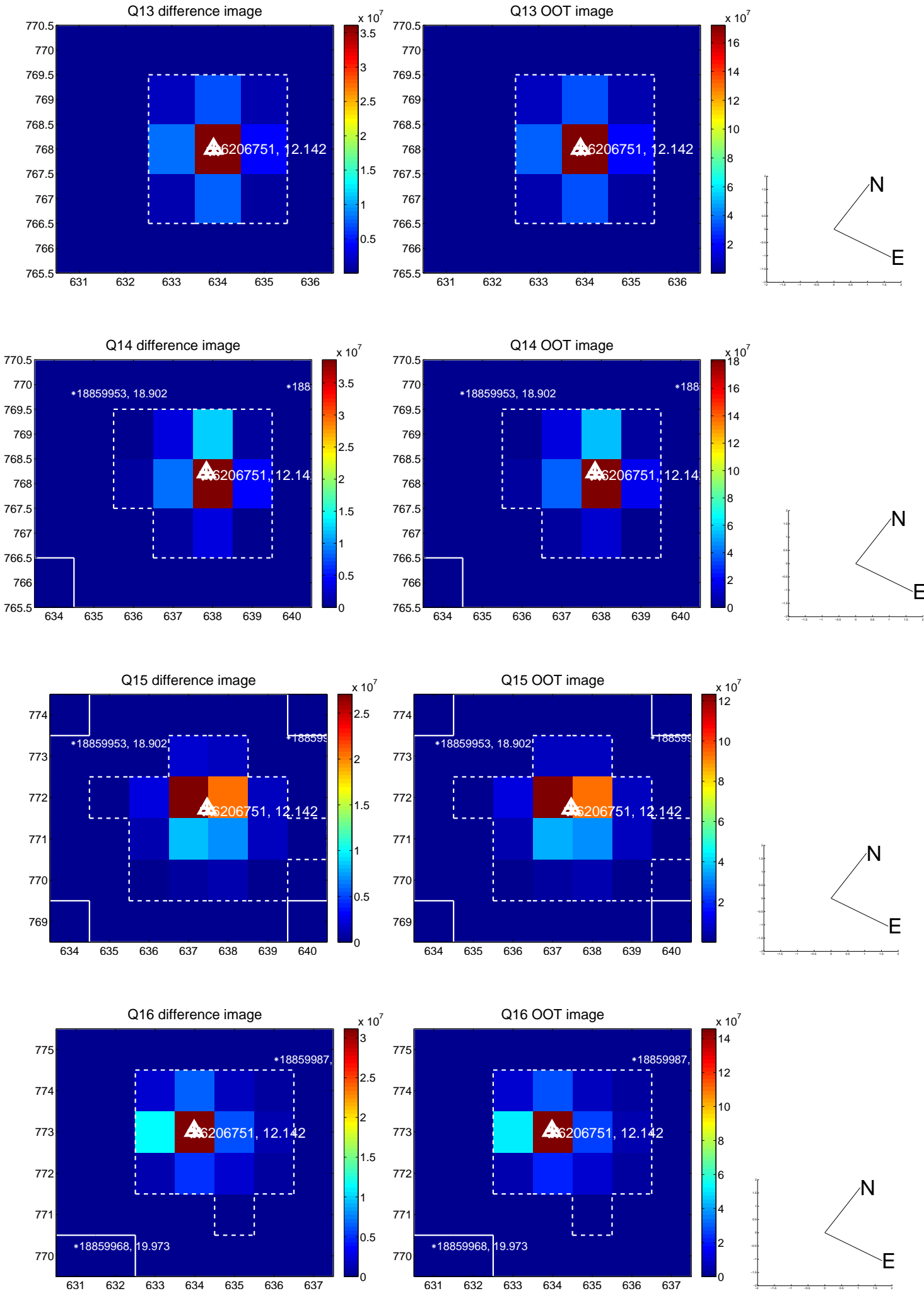
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



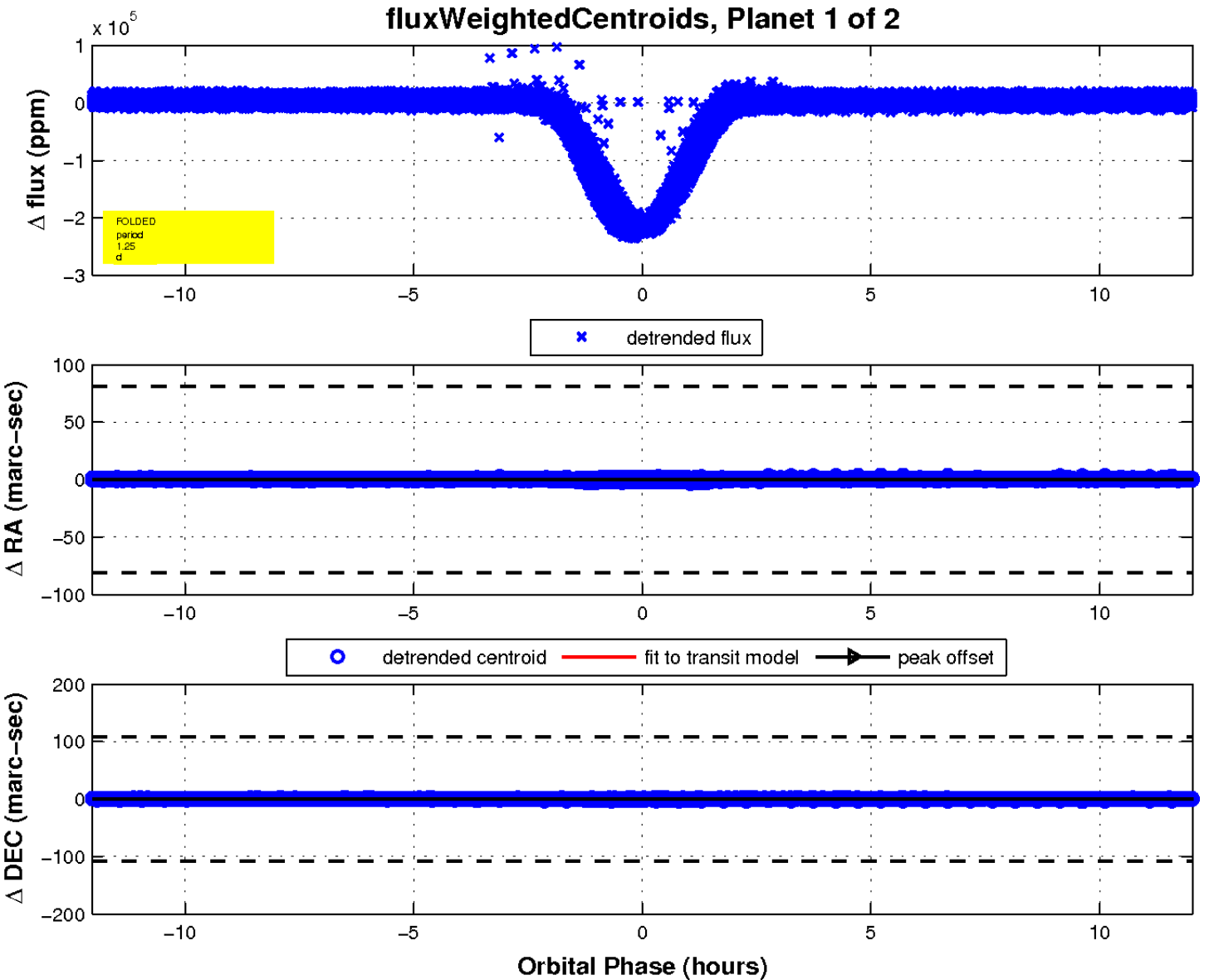
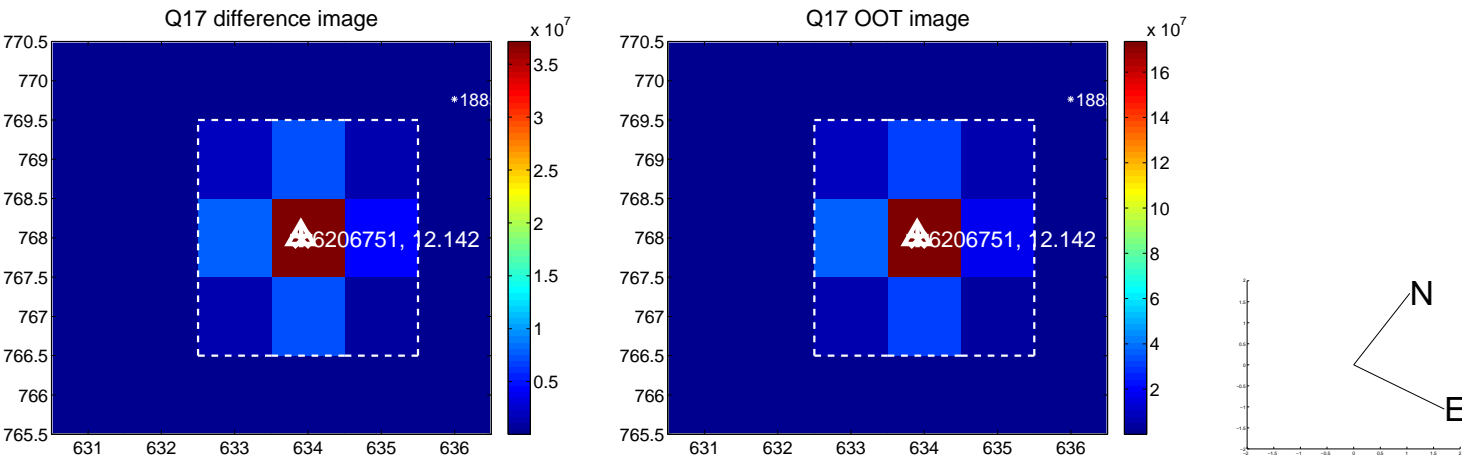
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

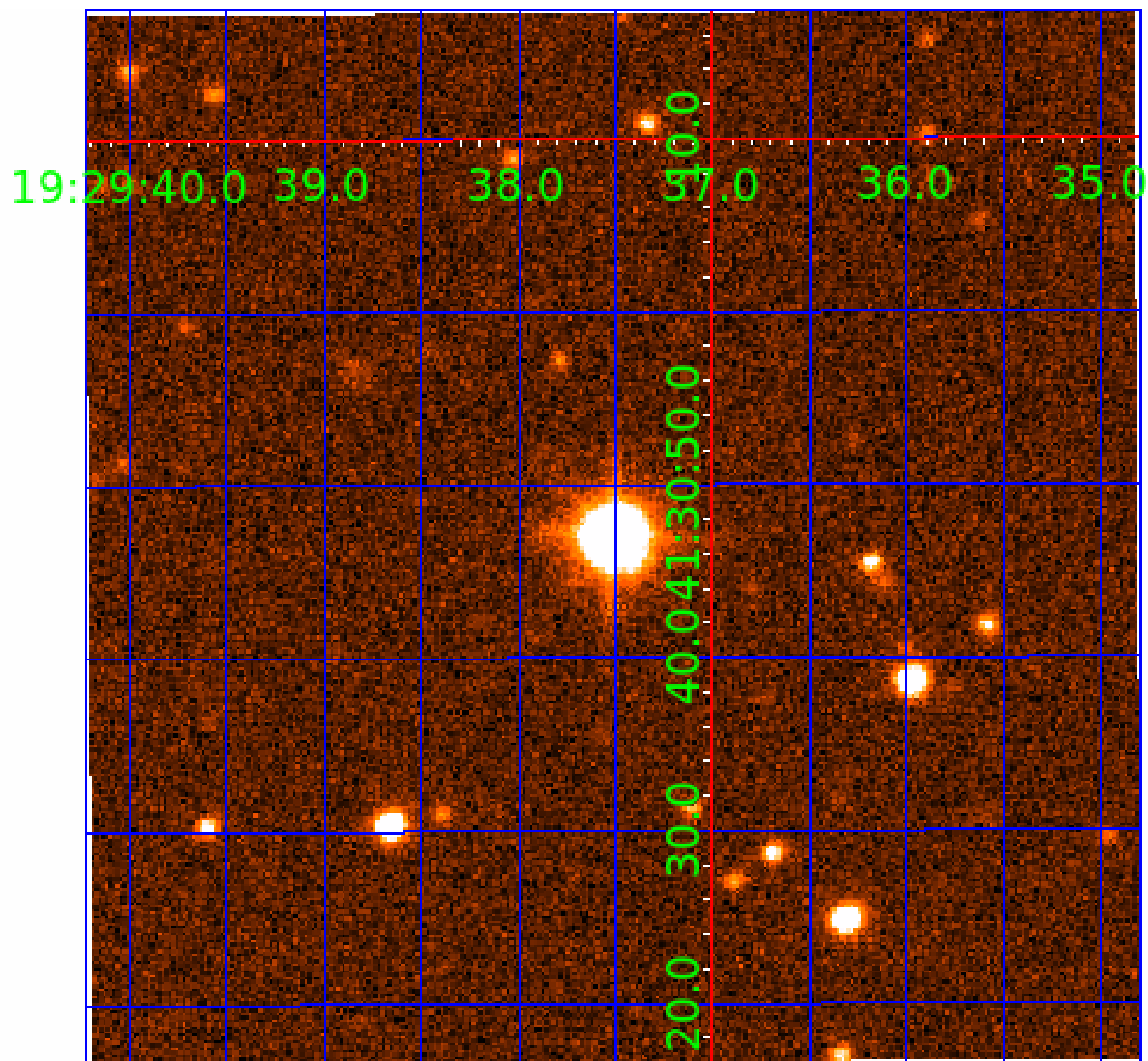


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006206751

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006206751-01	OBS	6674.01	1.245339	132.221208	210312.0	4.013	4796.1	2618.6	1.48	6967	83.99	7113.53
006206751-02	OBS	No	1.245352	131.588277	1768.8	3.000	911.2	-1.0	1.48	6967	6.28	7113.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006206751-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006206751-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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.

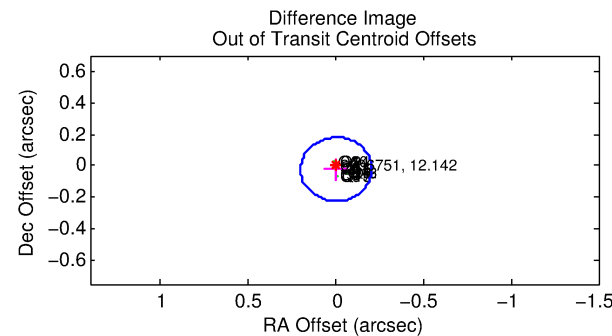
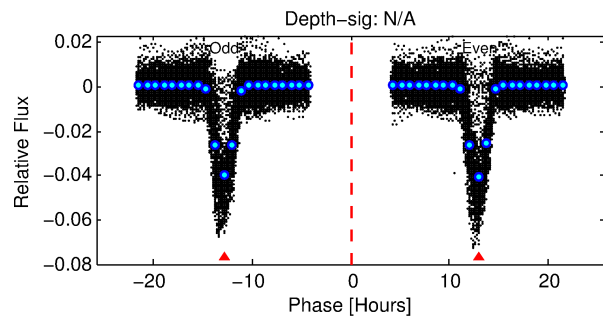
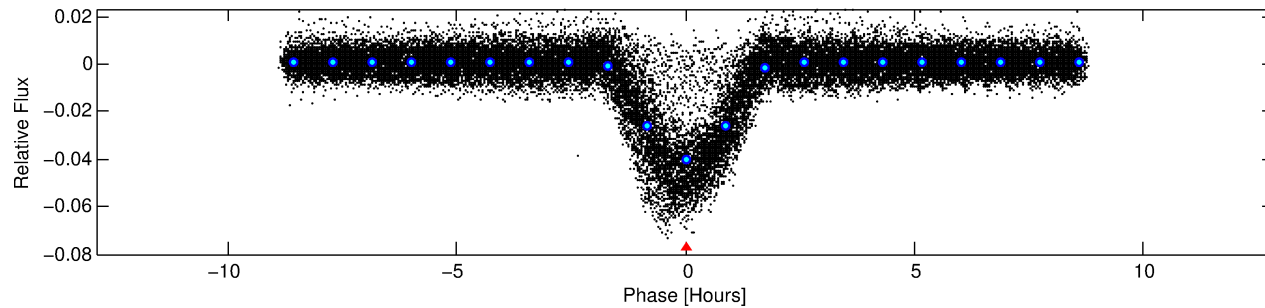
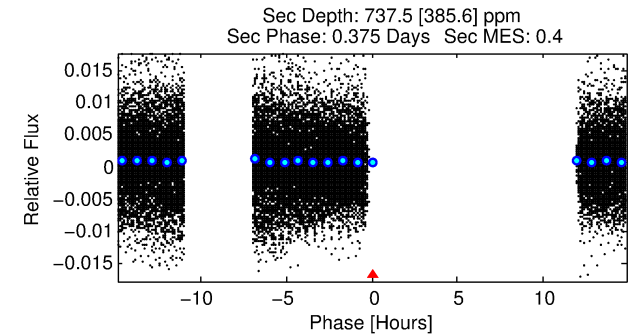
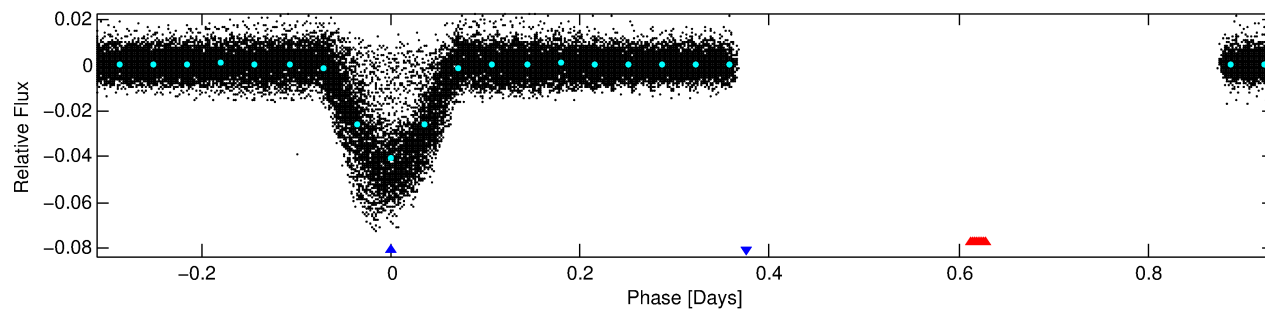
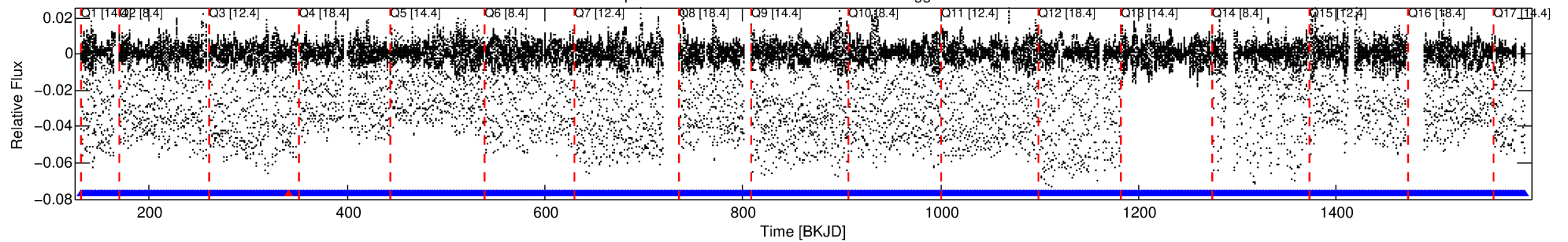
## Ephemeris Match Information For 006206751-02

No Significant Match Found

# DV One-Page Summary

KIC: 6206751 Candidate: 2 of 2 Period: 1.245 d  
KOI: K06674 Corr: No Ephemeris Match

Kp: 12.14 R\*: 1.48 Rs Teff: 6967.0 K Logg: 4.25 Fe/H: 0.020



## TPS TCE Results:

Period = 1.24535 d  
Epoch = 131.5883 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

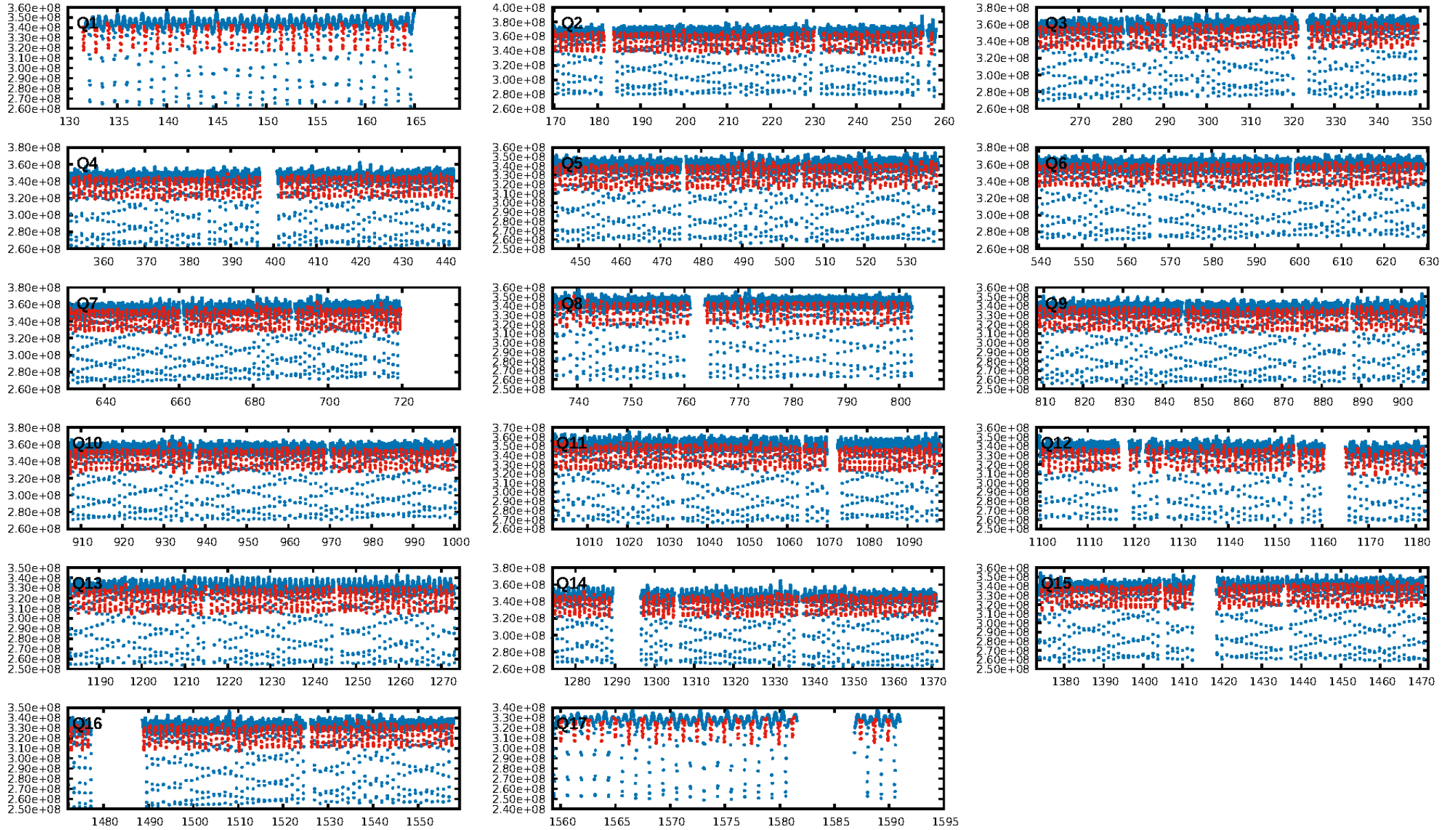
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1028/1029]  
GhostDiagnostic-chr: 1.035  
Centroid-sig: 0.0%  
Centroid-so: 0.151 arcsec [489.06σ]  
OotOffset-rm: 0.022 arcsec [0.33σ]  
KicOffset-rm: 0.165 arcsec [2.46σ]  
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: 03-Feb-2016 09:52:37 Z

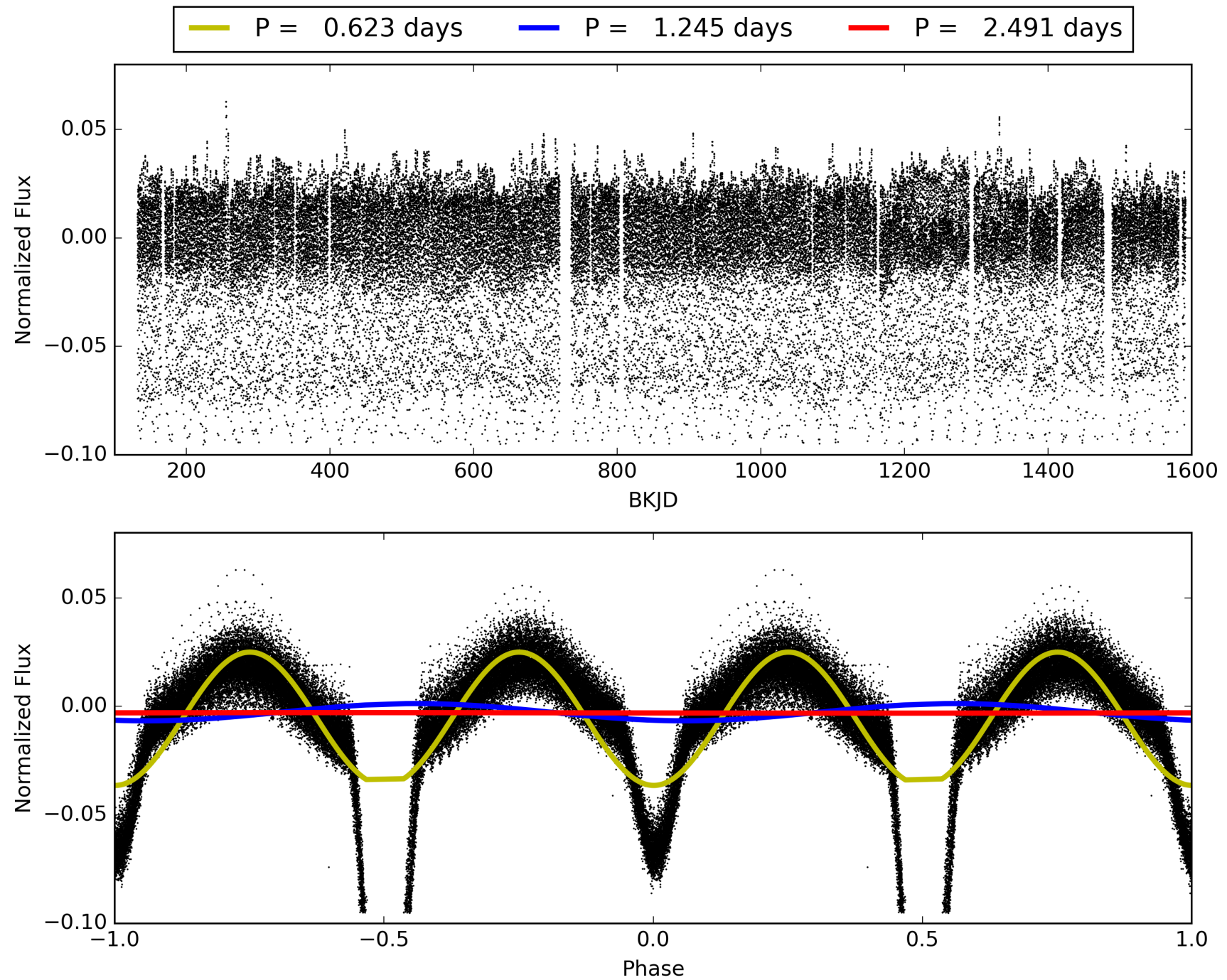
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006206751-02, PDC Light Curves

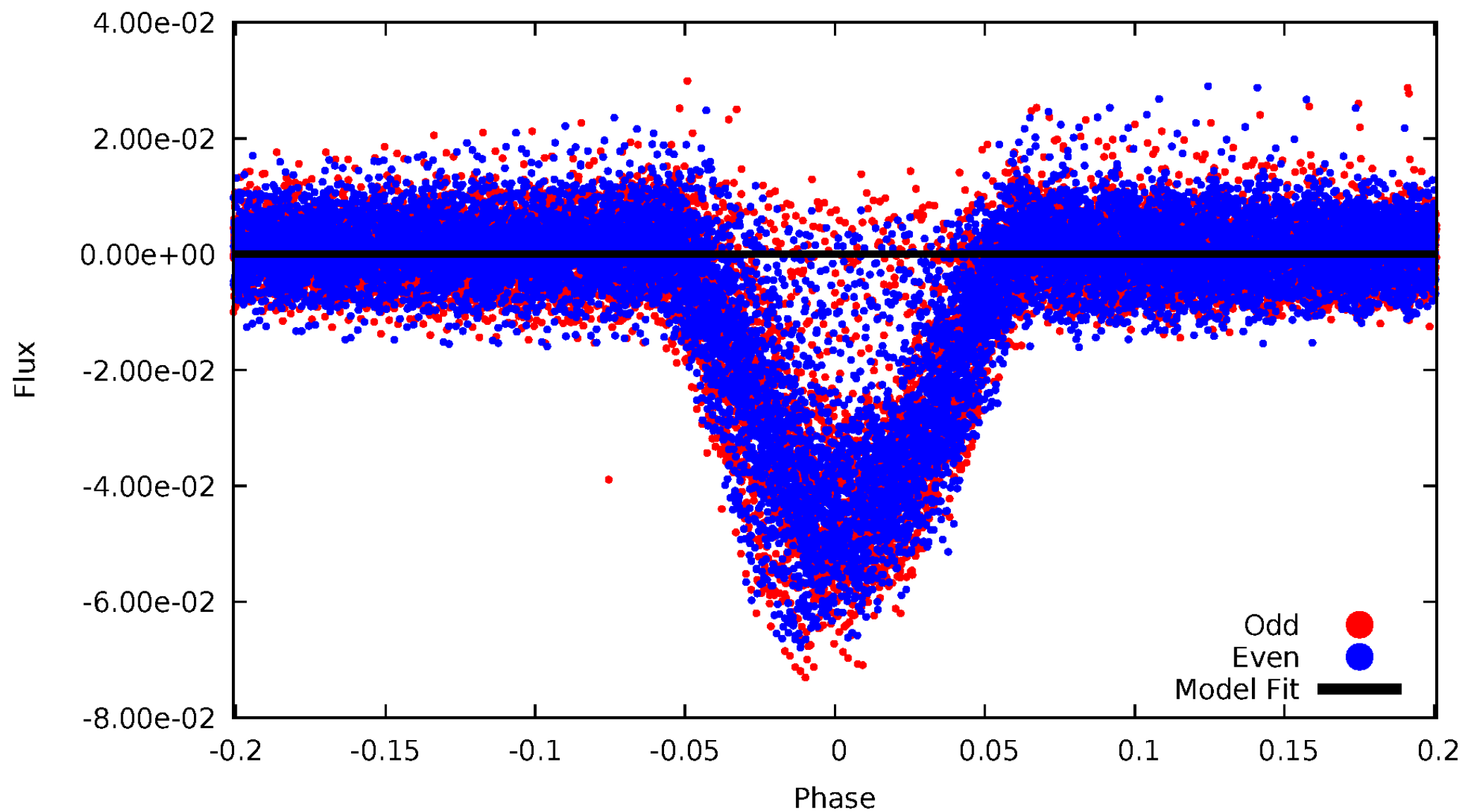


TCE 006206751-02



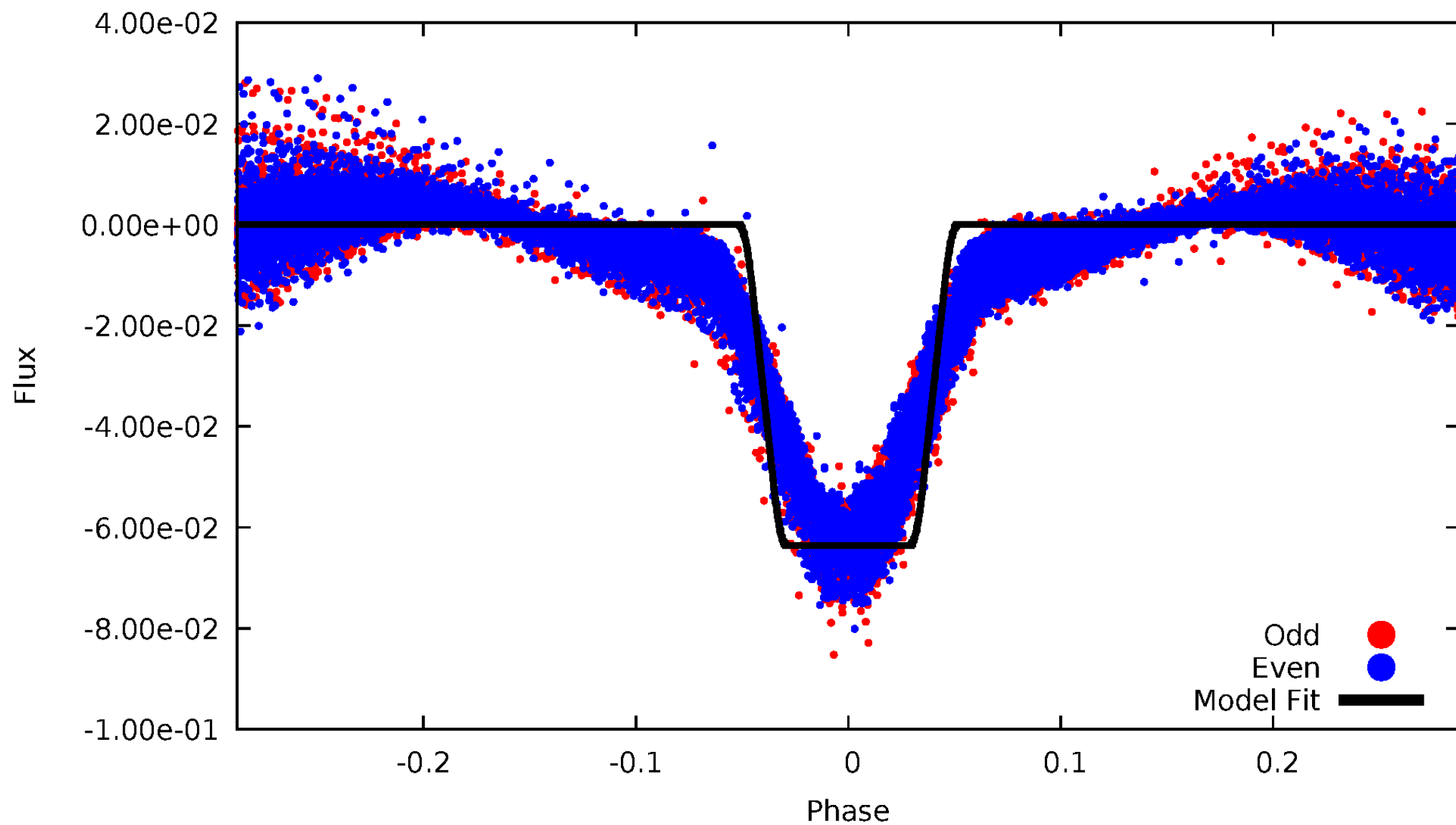
# DV Odd/Even

TCE 006206751-02



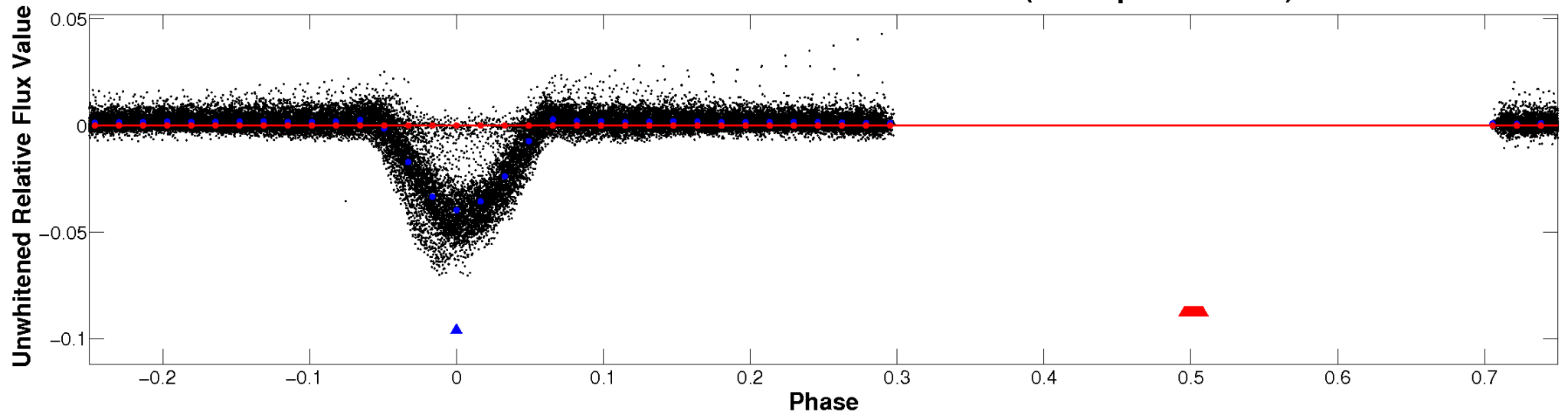
# ALT Odd/Even

TCE 006206751-02

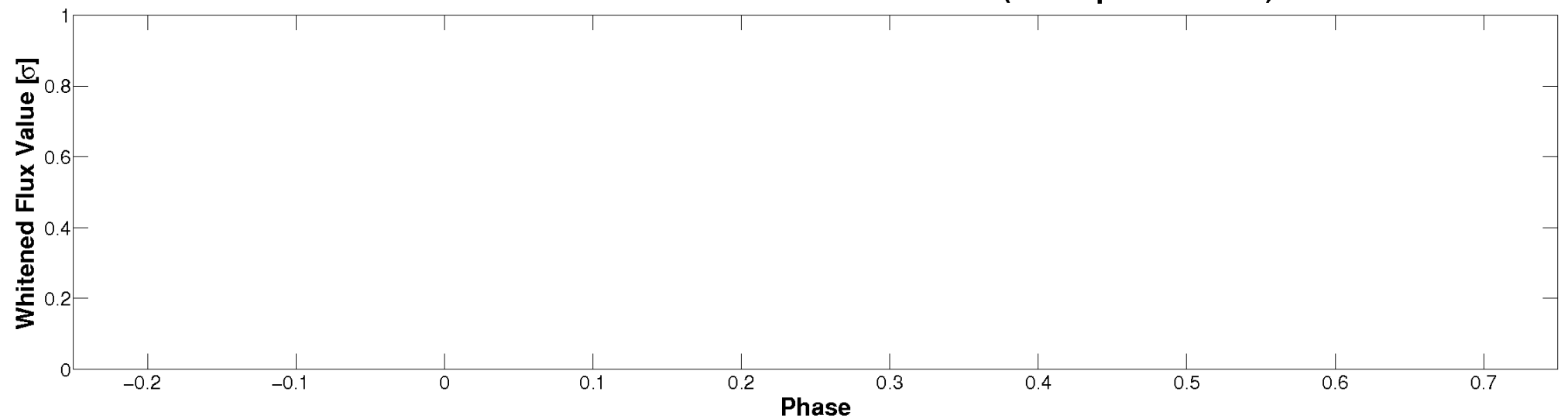


# Non-Whitened Vs. Whitened Light Curve

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

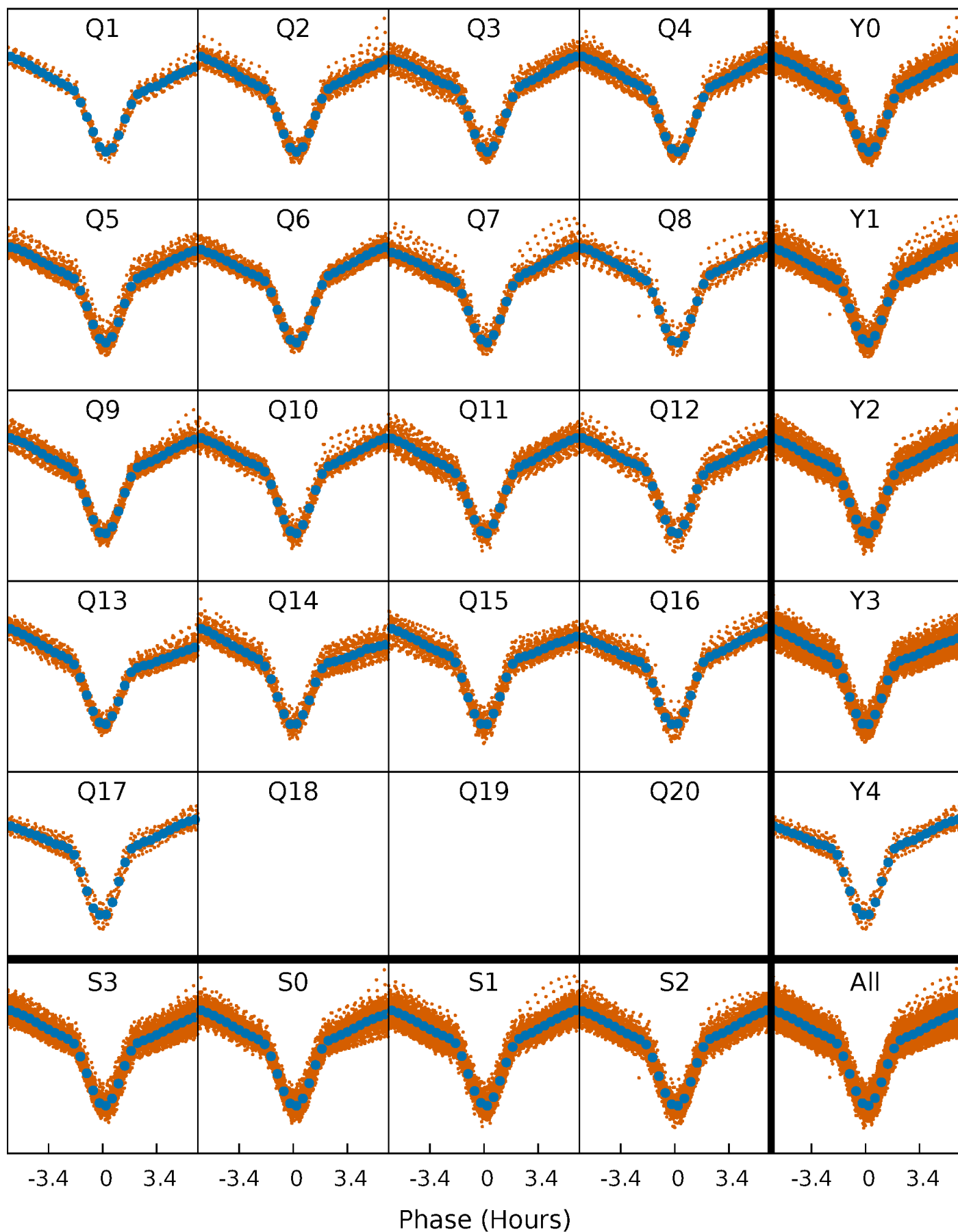


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

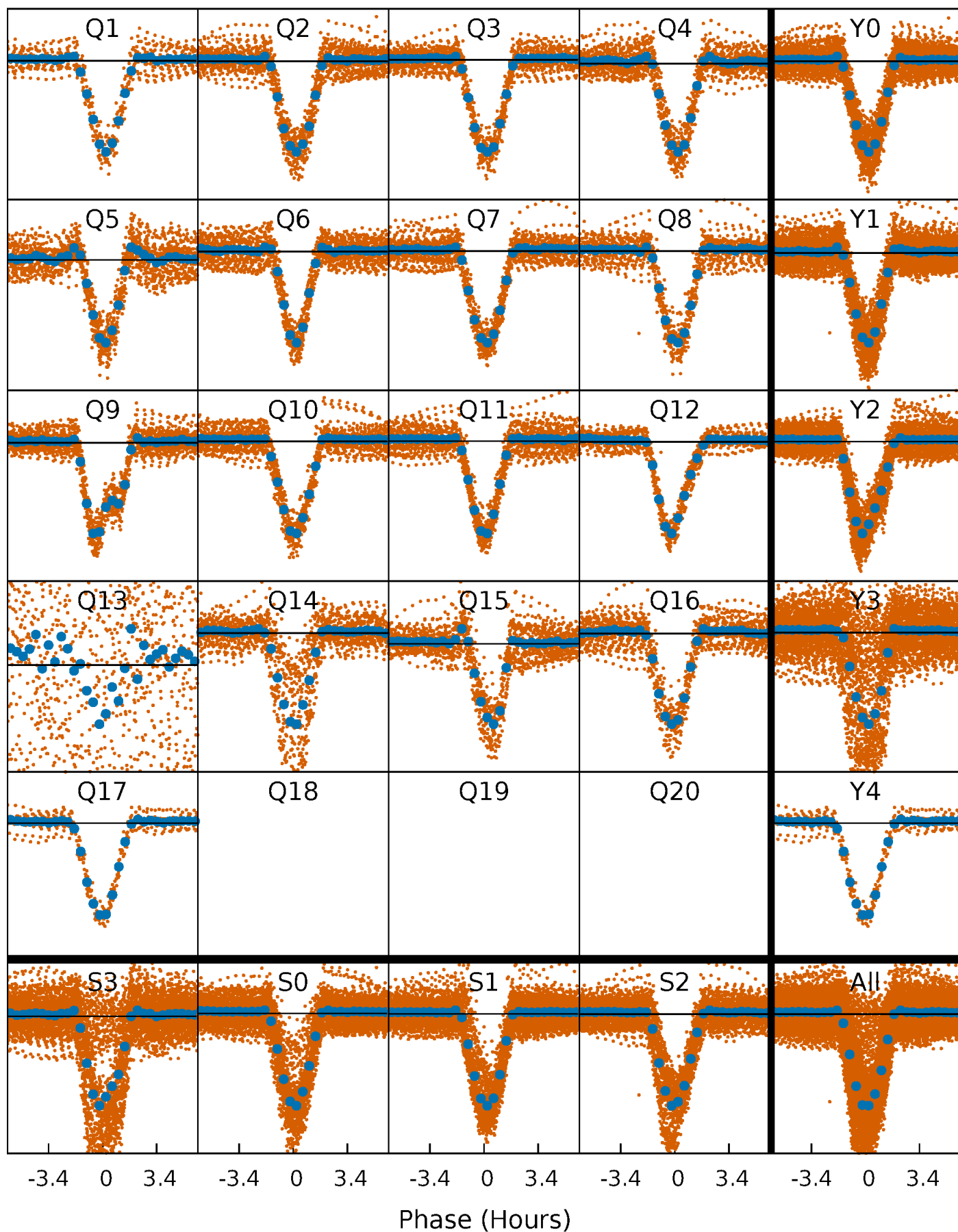
TCE 006206751-02   P= 1.245352 Days    $T_0=131.588277$  (BKJD)





# DV Quarter-Phased Transit Curves

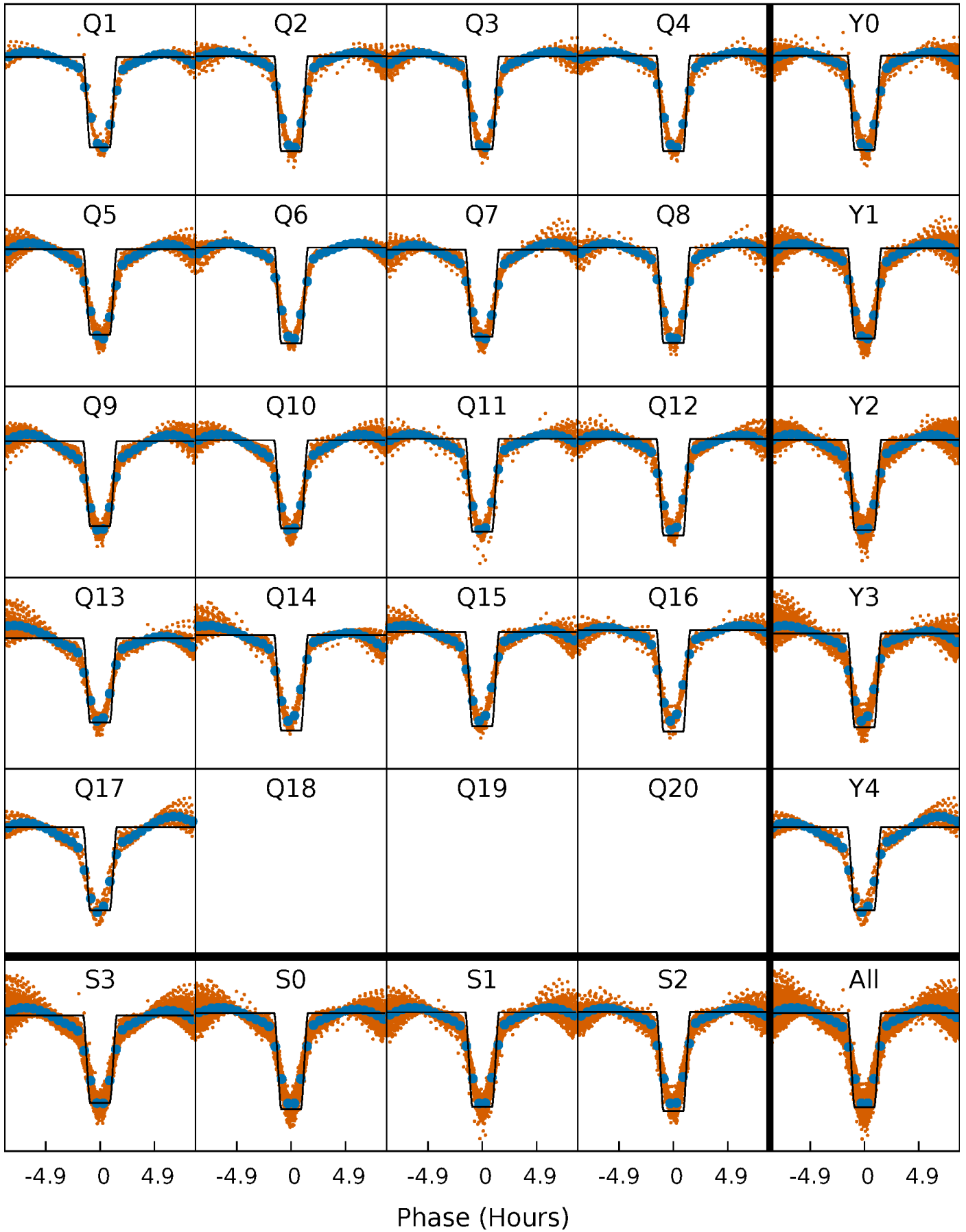
TCE 006206751-02   P= 1.245352 Days    $T_0=131.588277$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

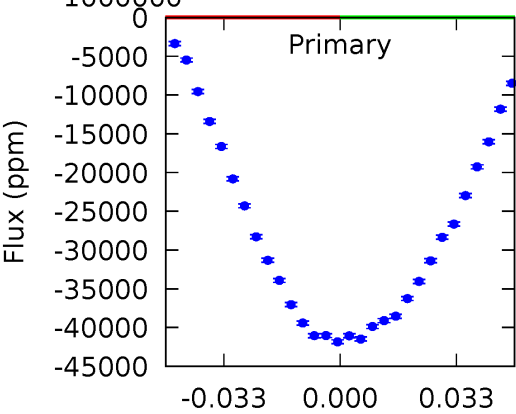
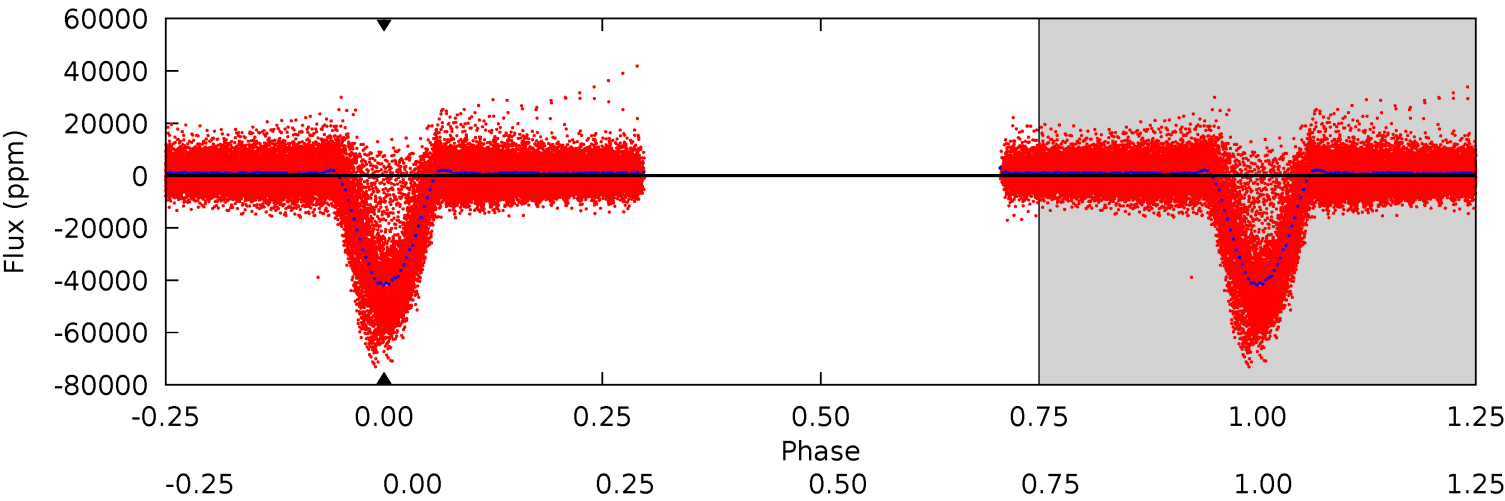
TCE 006206751-02   P= 1.245352 Days    $T_0=131.592231$  (BKJD)



# DV Model-Shift Uniqueness Test

006206751-02, P = 1.245352 Days, E = 130.342925 Days

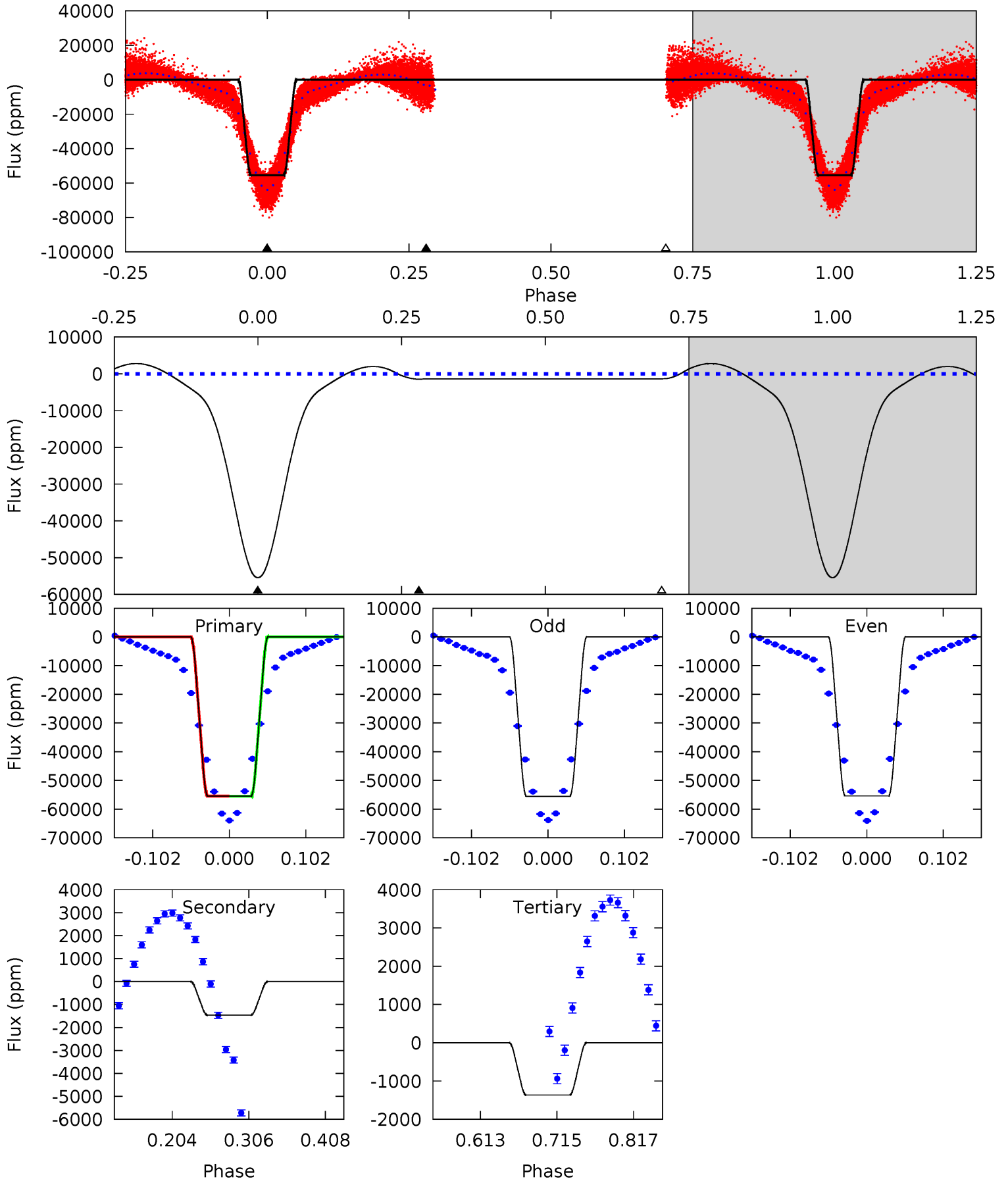
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006206751-02, P = 1.245352 Days, E = 130.346879 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
1132	29.8	27.9	0	4.56	1.63	47.3	1104	1132	1.92	29.8	1.38	1.01	0.05	0.89



### Stellar Parameters For KIC 006206751

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$6967^{+76}_{-83}$	$4.250^{+0.042}_{-0.119}$	$0.020^{+0.150}_{-0.150}$	$1.476^{+0.293}_{-0.098}$	$1.414^{+0.111}_{-0.071}$	$0.619^{+0.104}_{-0.230}$
	+1%/-1%	+1%/-3%	+750%/-750%	+20%/-7%	+8%/-5%	+17%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 006206751-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$13.57^{+12.42}_{-9.15}$	$3301^{+134}_{-88}$	$3682^{+24712}_{-30413}$	$1.007^{+329.559}_{-299.736}$
Alt.	$-1459 \pm 49$	$41.23^{+16.68}_{-14.95}$	$3291^{+134}_{-75}$	$2038^{+1439}_{-4989}$	$0.306^{+0.456}_{-0.152}$

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

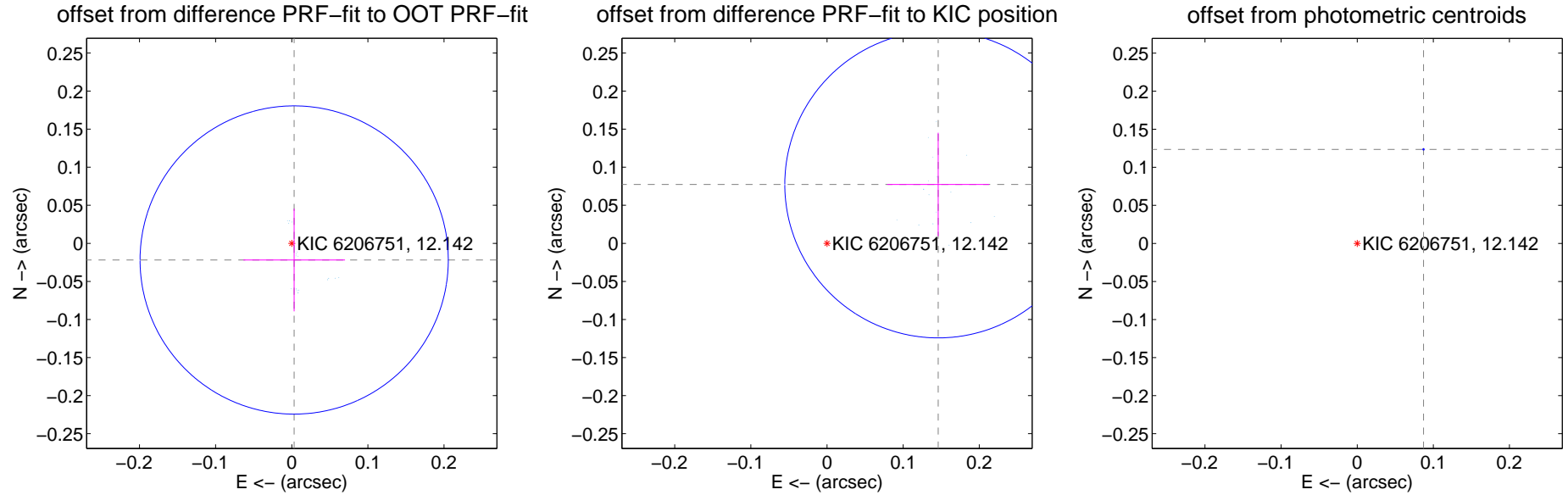
## DV Centroid Data

Supplemental centroid analysis for 006206751-02. Kepler magnitude: 12.14. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

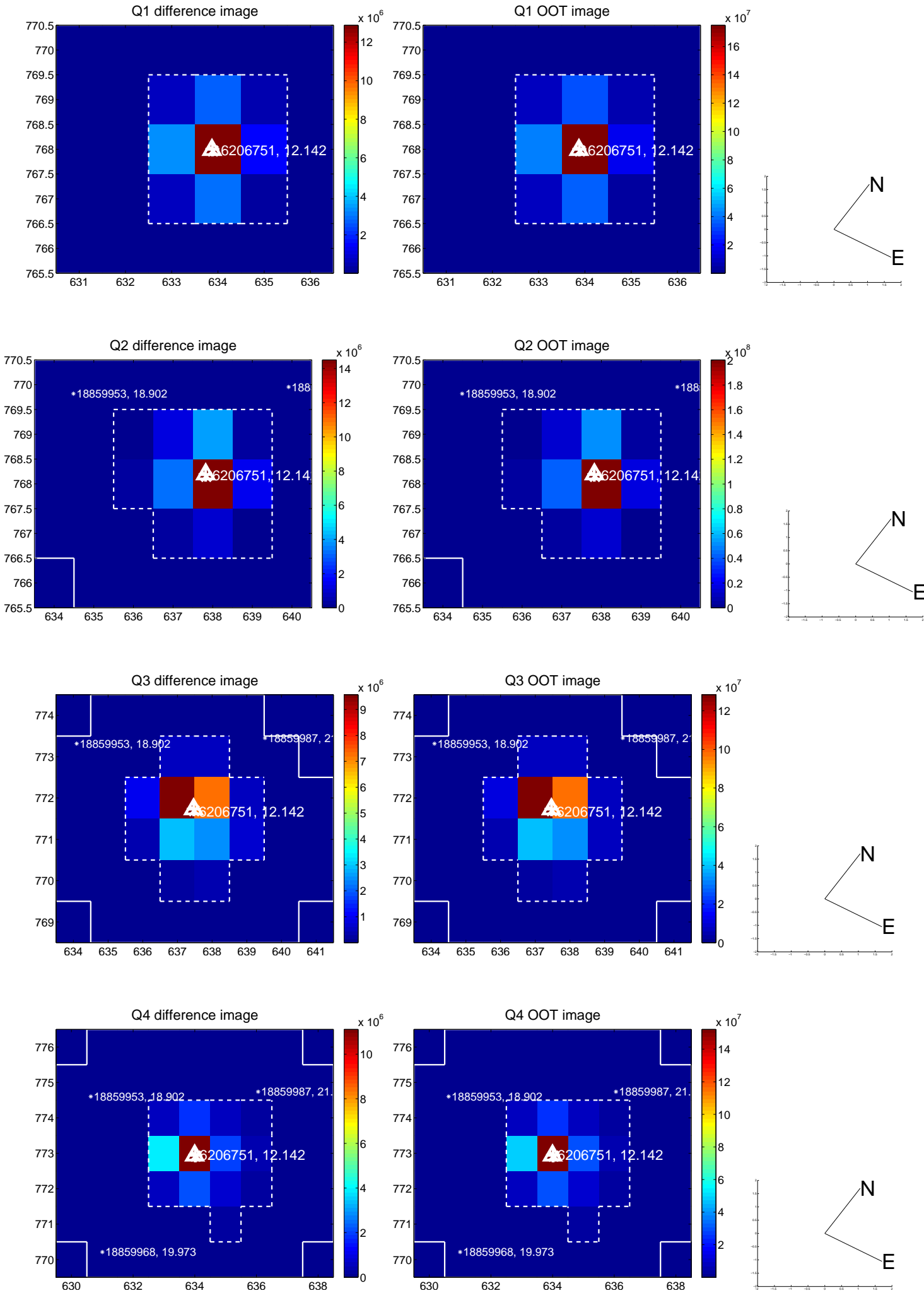
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.022 \pm 0.067$	0.33	$-0.003 \pm 0.067$	$-0.022 \pm 0.067$
PRF-fit source offset from KIC position	$0.165 \pm 0.067$	2.46	$-0.146 \pm 0.067$	$0.077 \pm 0.068$
photometric centroid source offset	$0.15 \pm 0.00$	489.06	$-0.09 \pm 0.00$	$0.12 \pm 0.00$

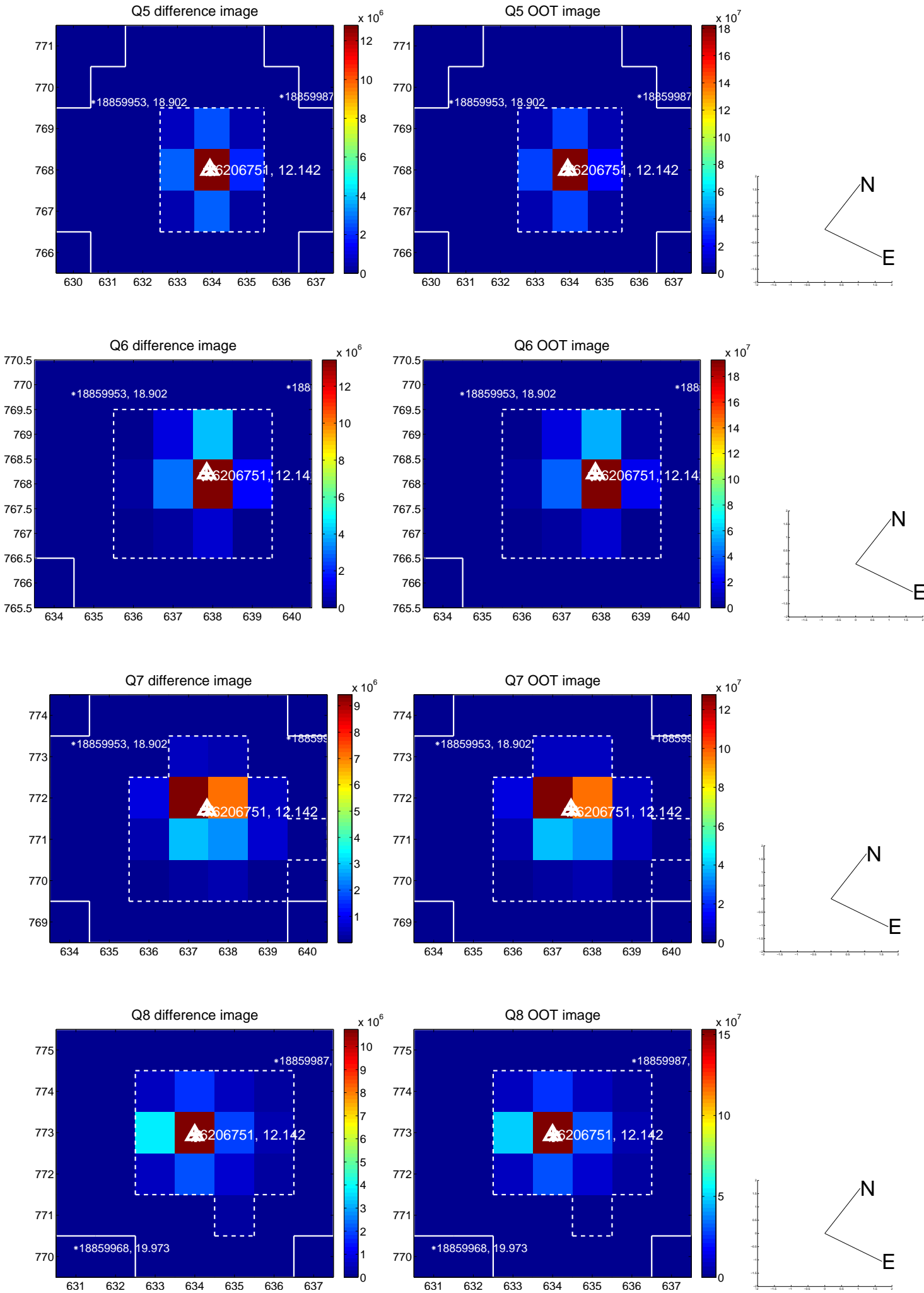


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

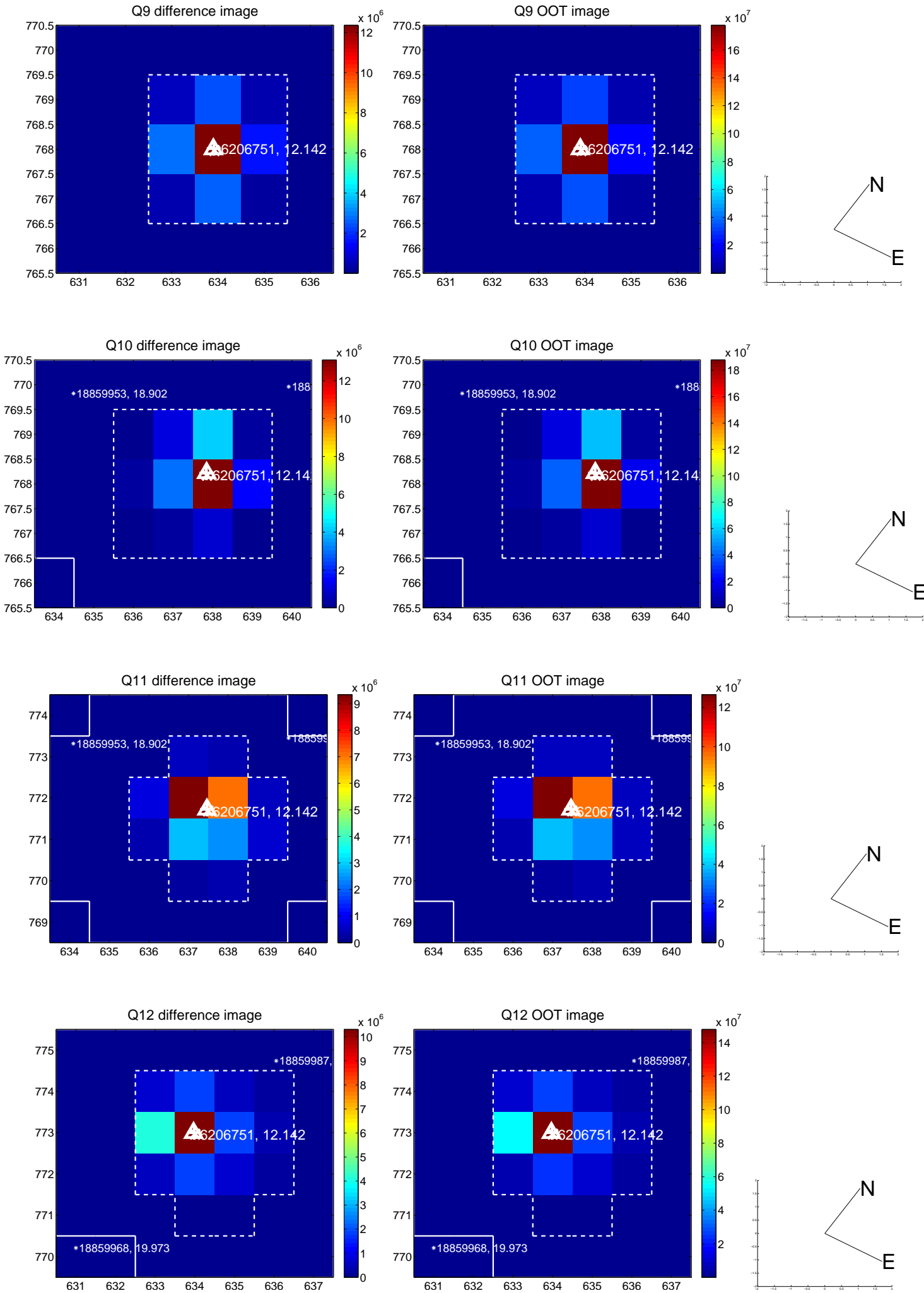


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

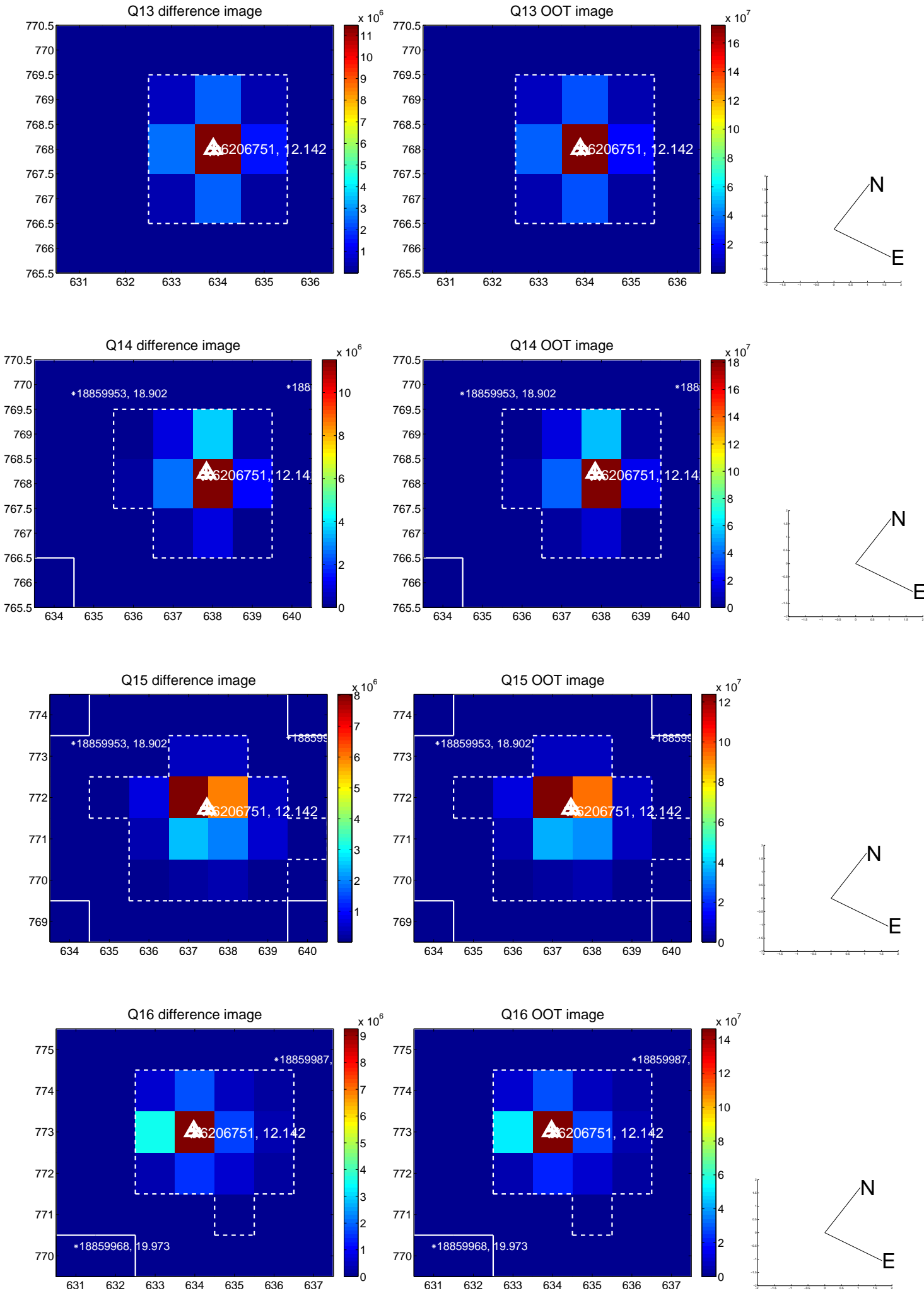




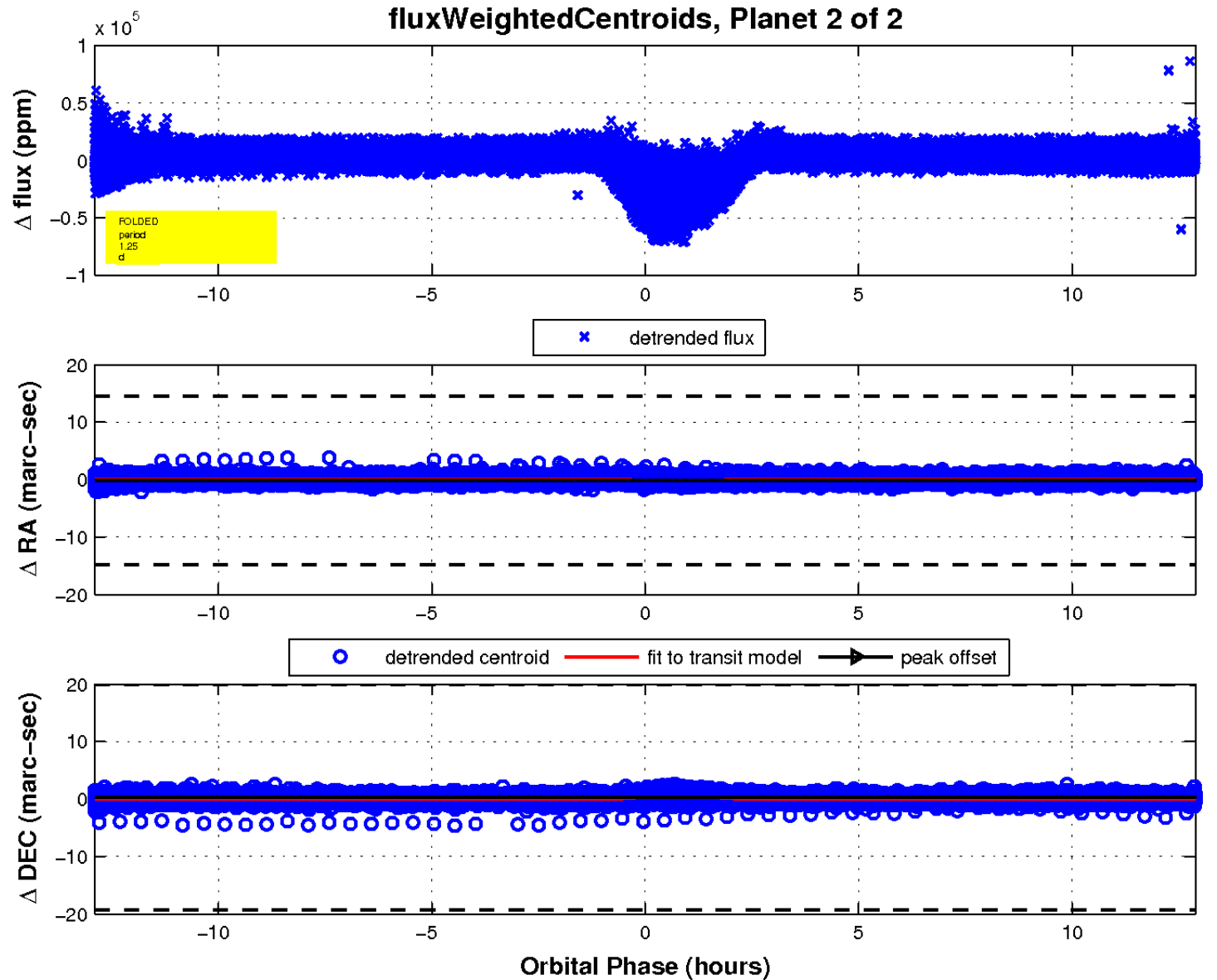
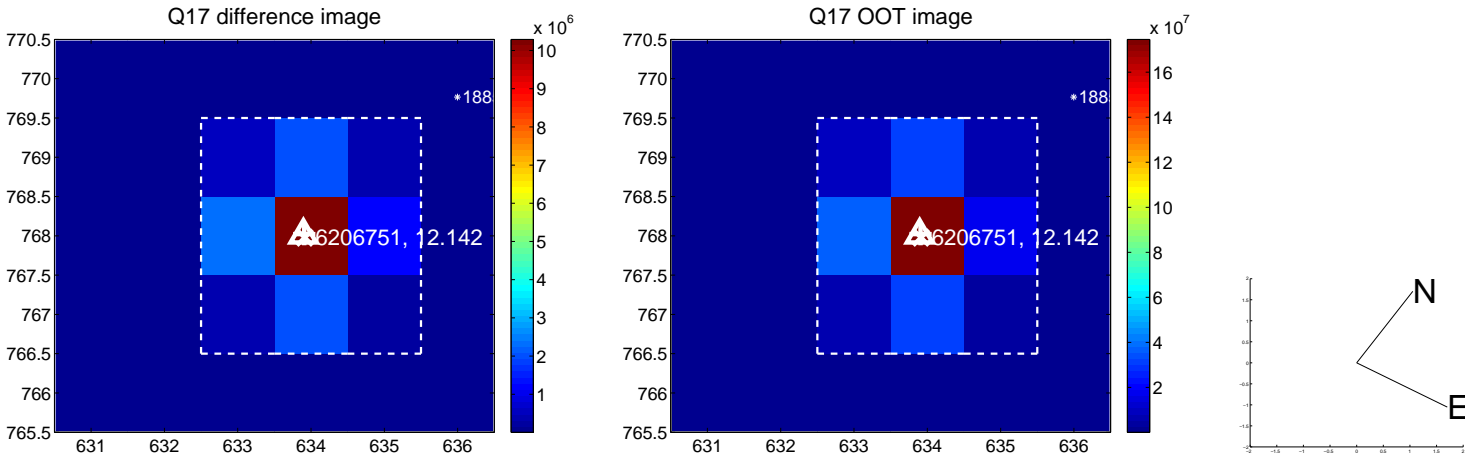
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

