

# KIC 003966262

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003966262-01	OBS	1811.01	4.927065	135.346614	1884.2	3.312	81.8	78.4	0.78	5541	6.50	176.77
003966262-02	OBS	No	4.927050	133.122212	1278.7	3.468	53.4	56.1	0.78	5541	5.39	176.77

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003966262-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
003966262-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

**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.

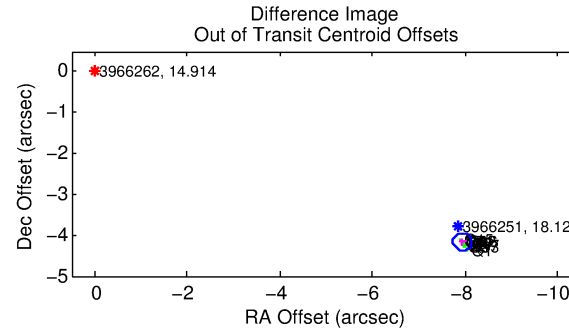
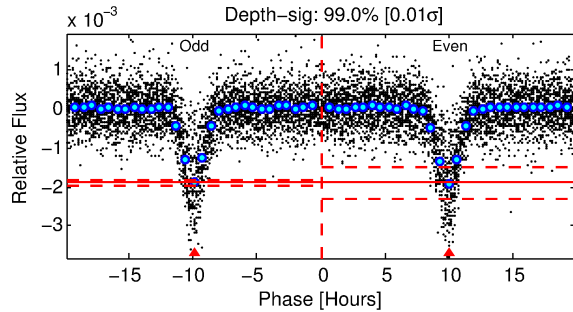
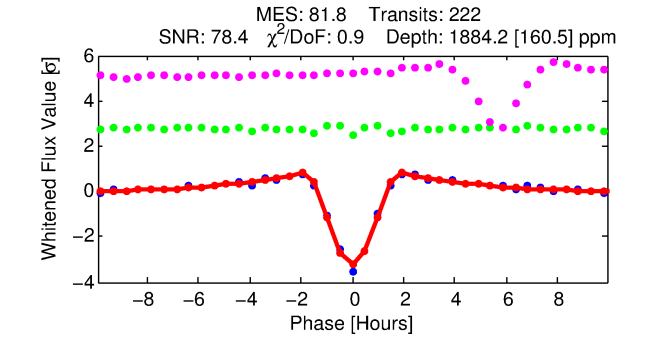
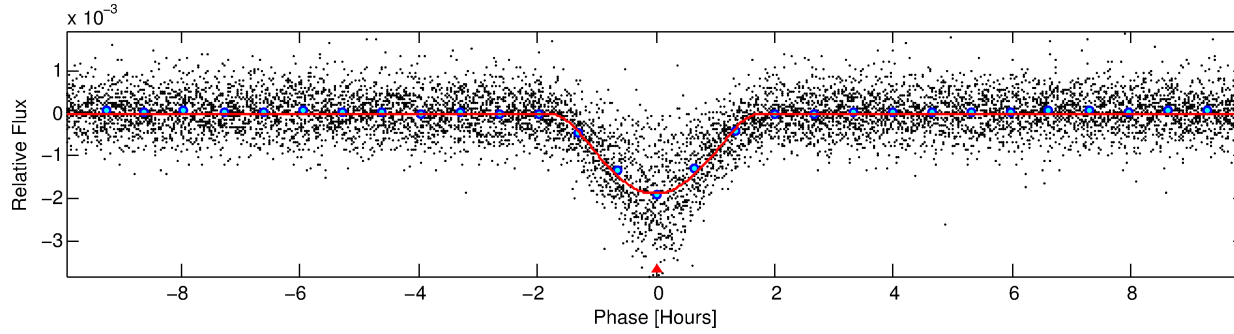
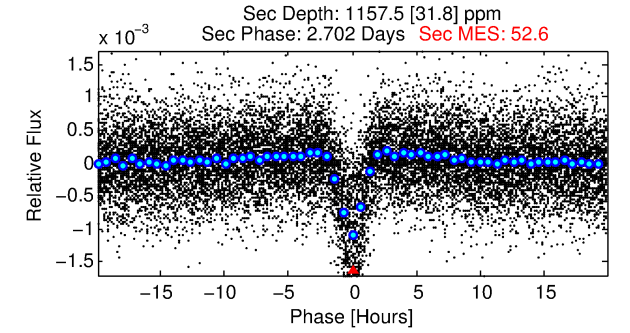
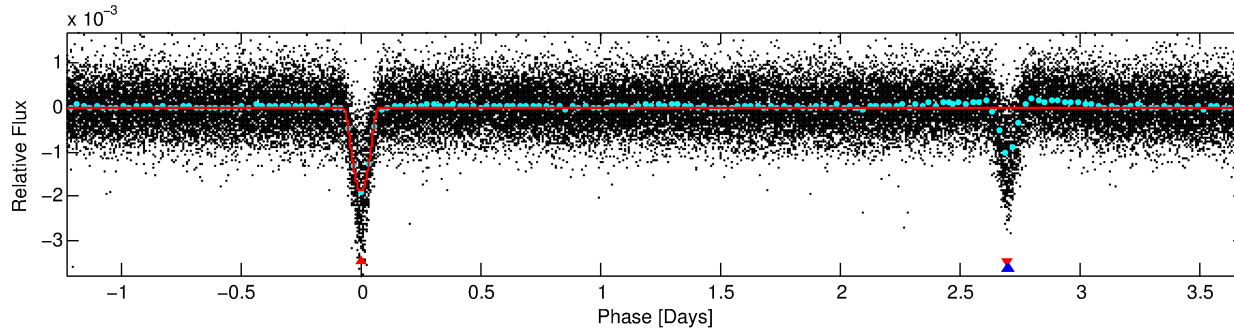
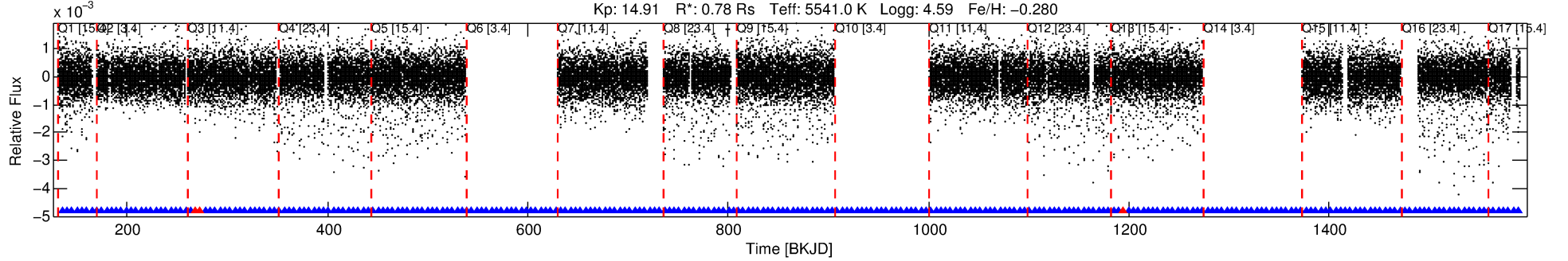
## Ephemeris Match Information For 003966262-01

No Significant Match Found

# DV One-Page Summary

KIC: 3966262 Candidate: 1 of 2 Period: 4.927 d  
KOI: K01811 Corr: No Ephemeris Match

Kp: 14.91 R\*: 0.78 Rs Teff: 5541.0 K Logg: 4.59 Fe/H: -0.280



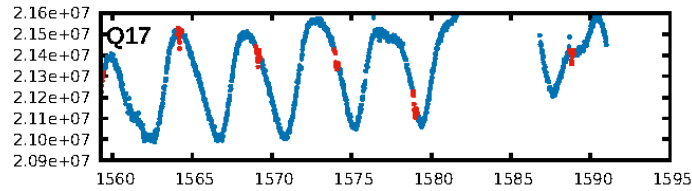
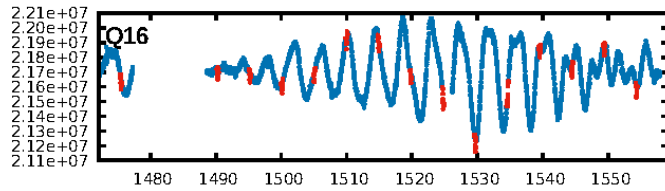
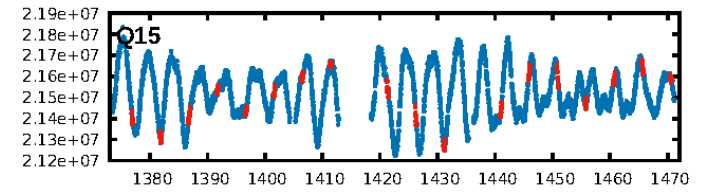
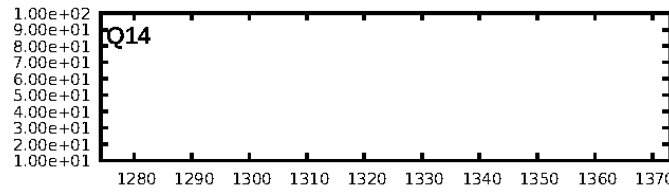
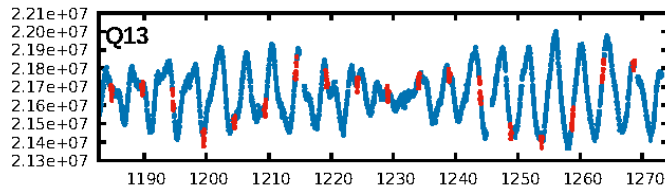
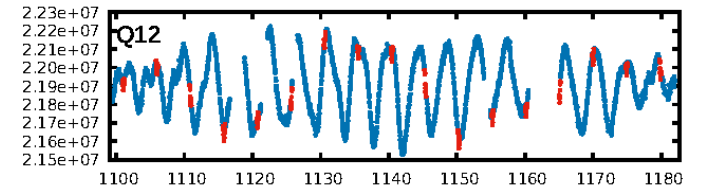
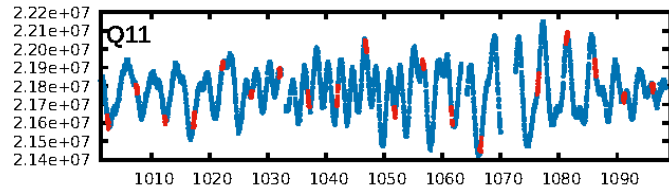
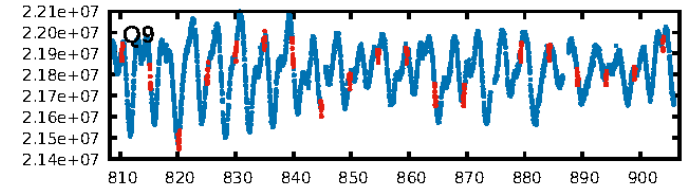
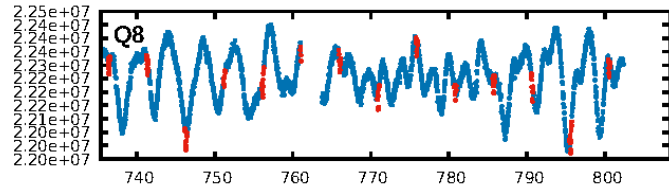
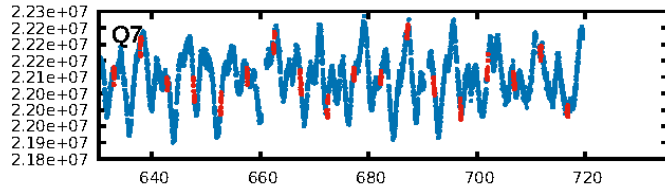
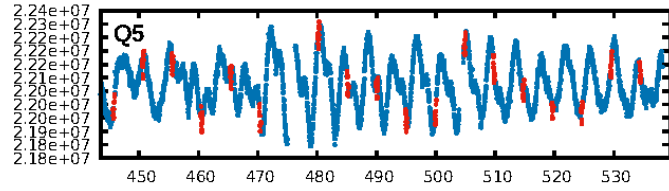
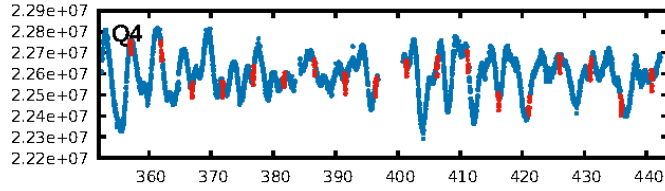
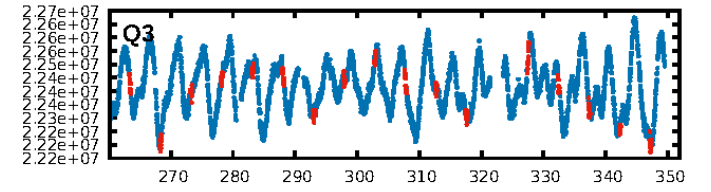
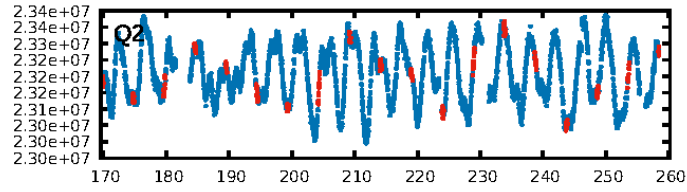
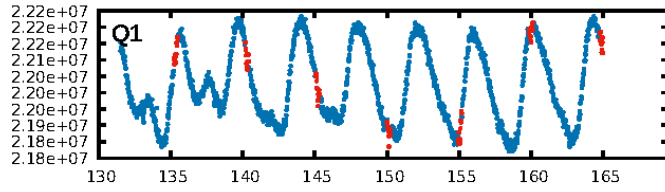
## DV Fit Results:

Period = 4.92707 [0.00000] d  
Epoch = 135.3466 [0.0007] BKJD  
Rp/R\* = 0.0767 [0.0386]  
a/R\* = 4.65 [0.48]  
b = 1.00 [0.06]  
Seff = 176.77 [51.67]  
Teq = 930 [68] K  
Rp = 6.50 [3.58] Re  
a = 0.0537 [0.0099] AU  
Ag = 43.43 [45.22] [0.94σ]  
Teff = 3690 [935] K [2.94σ]

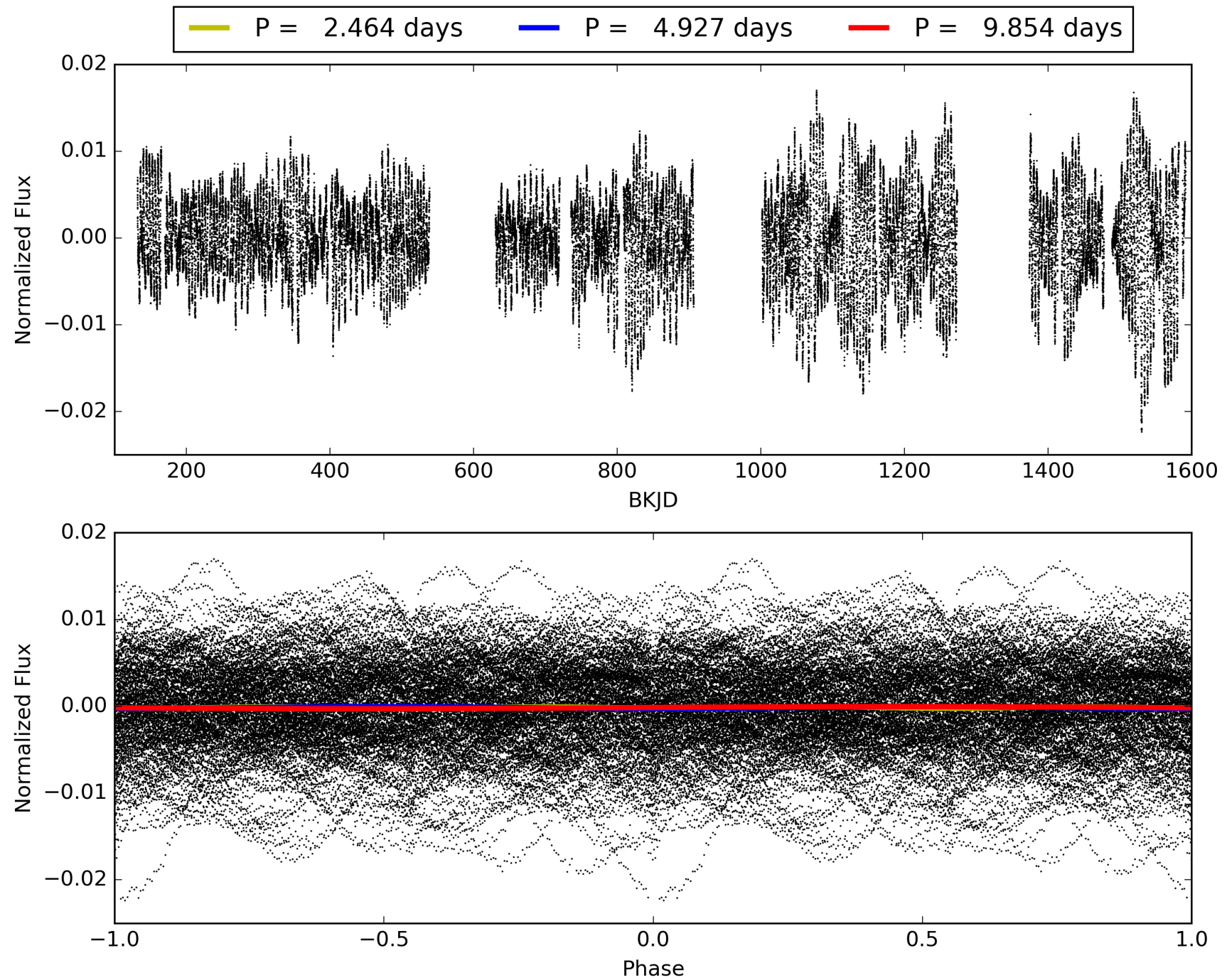
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [206/209]  
GhostDiagnostic-chr: -0.2932  
Centroid-sig: 0.0%  
Centroid-so: 51.300 arcsec [320.12σ]  
OotOffset-rm: 8.966 arcsec [127.81σ]  
KicOffset-rm: 8.996 arcsec [131.10σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003966262-01, PDC Light Curves

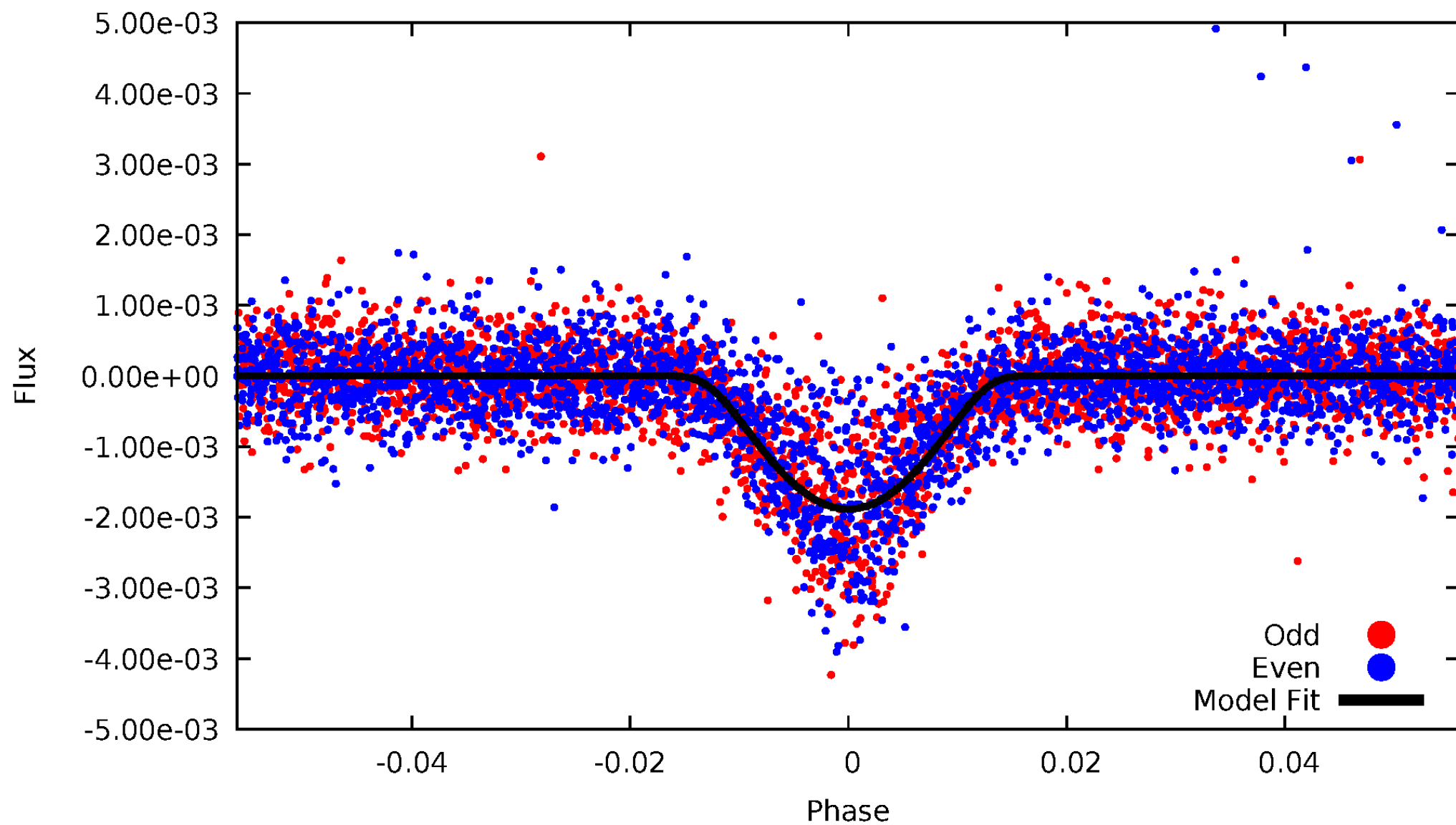


TCE 003966262-01



# DV Odd/Even

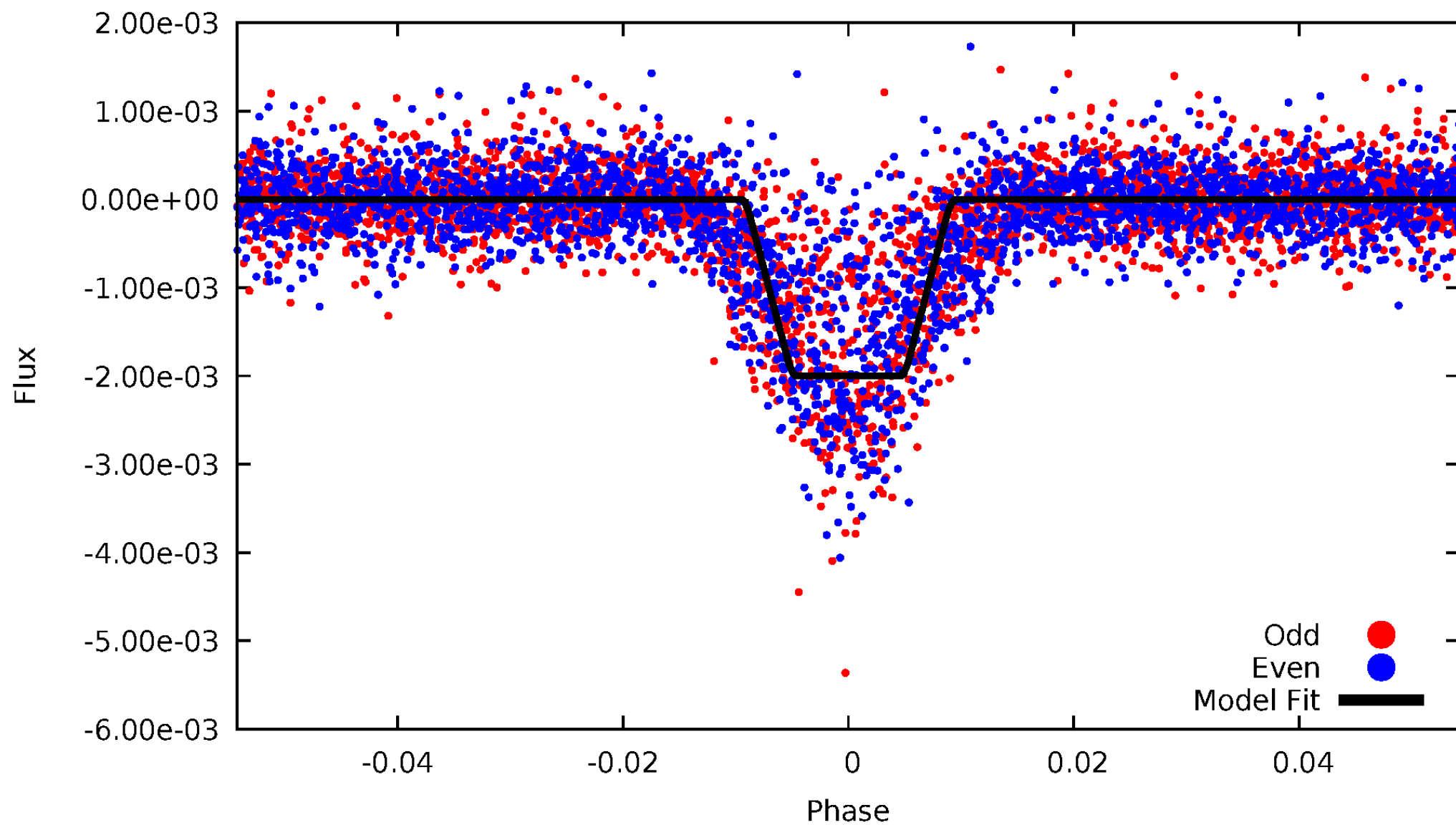
TCE 003966262-01





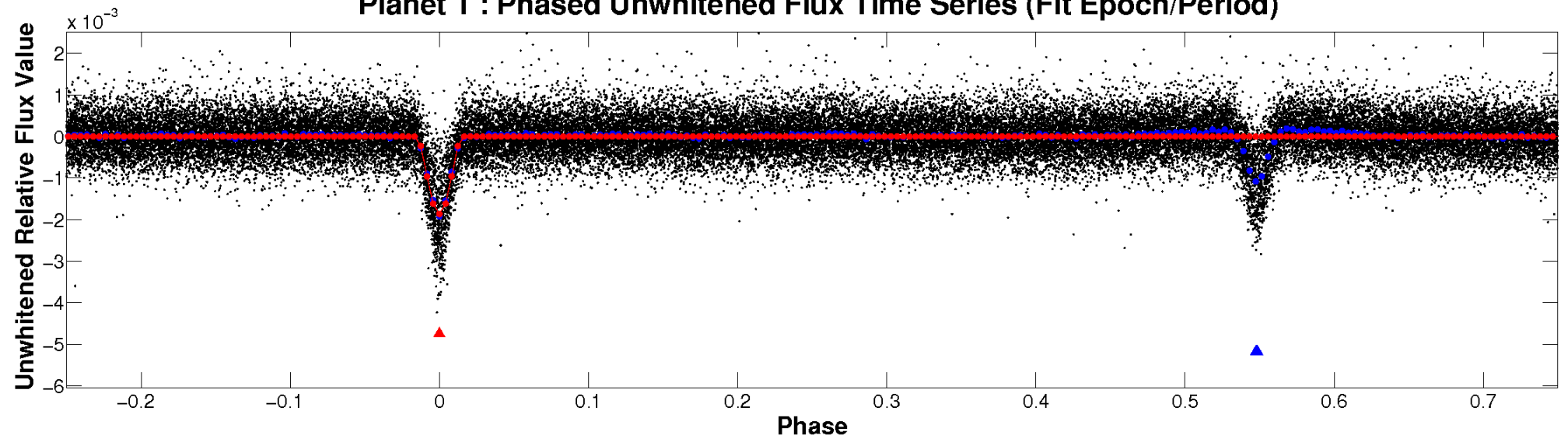
# ALT Odd/Even

TCE 003966262-01

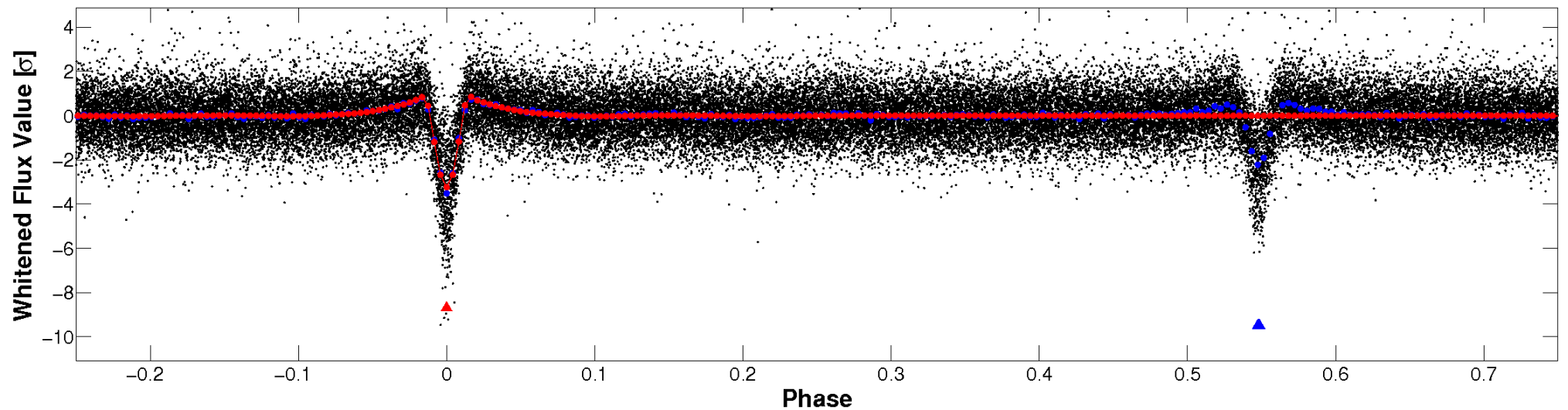


# Non-Whitened Vs. Whitened Light Curve

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

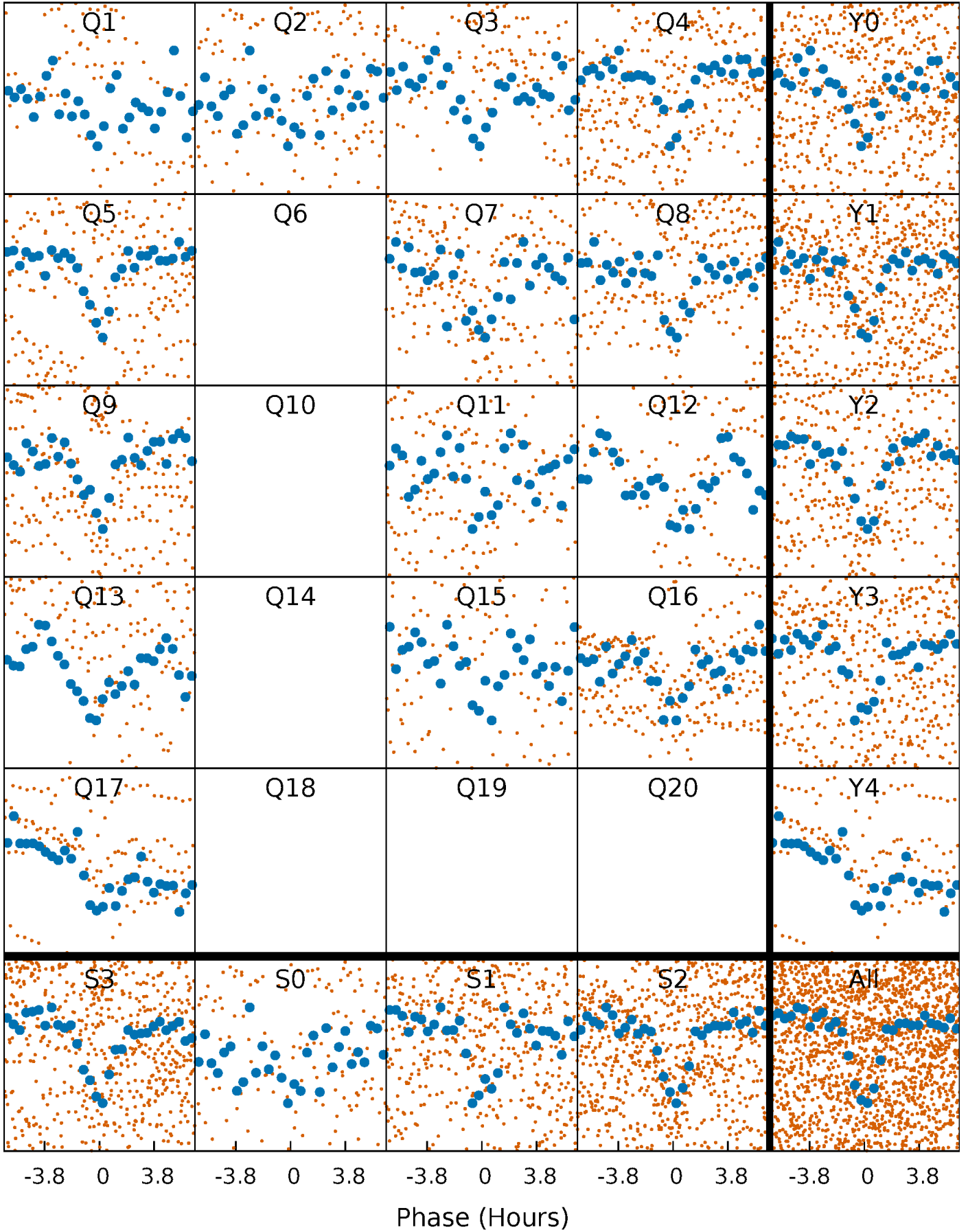


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

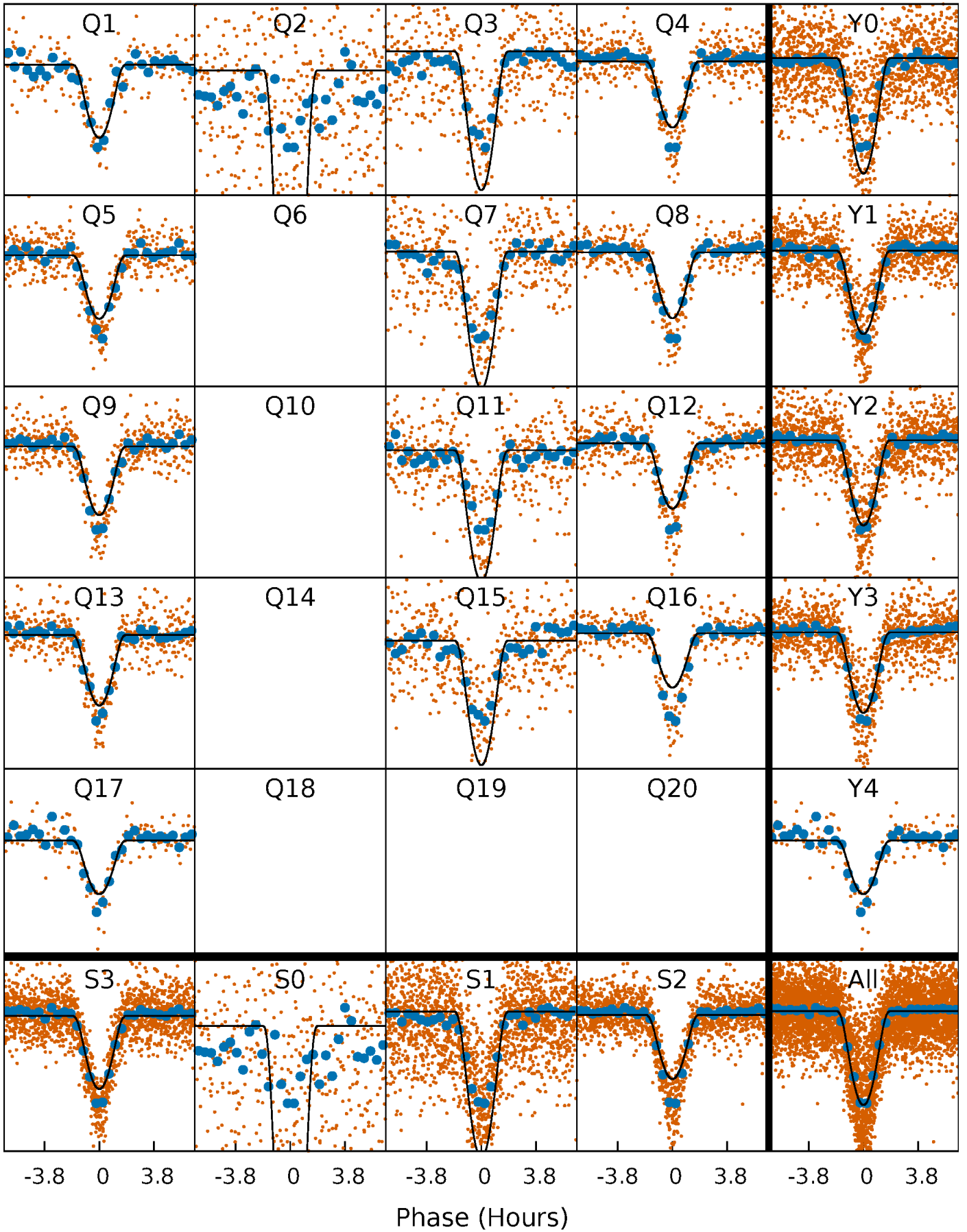
TCE 003966262-01   P= 4.927065 Days    $T_0=135.346614$  (BKJD)





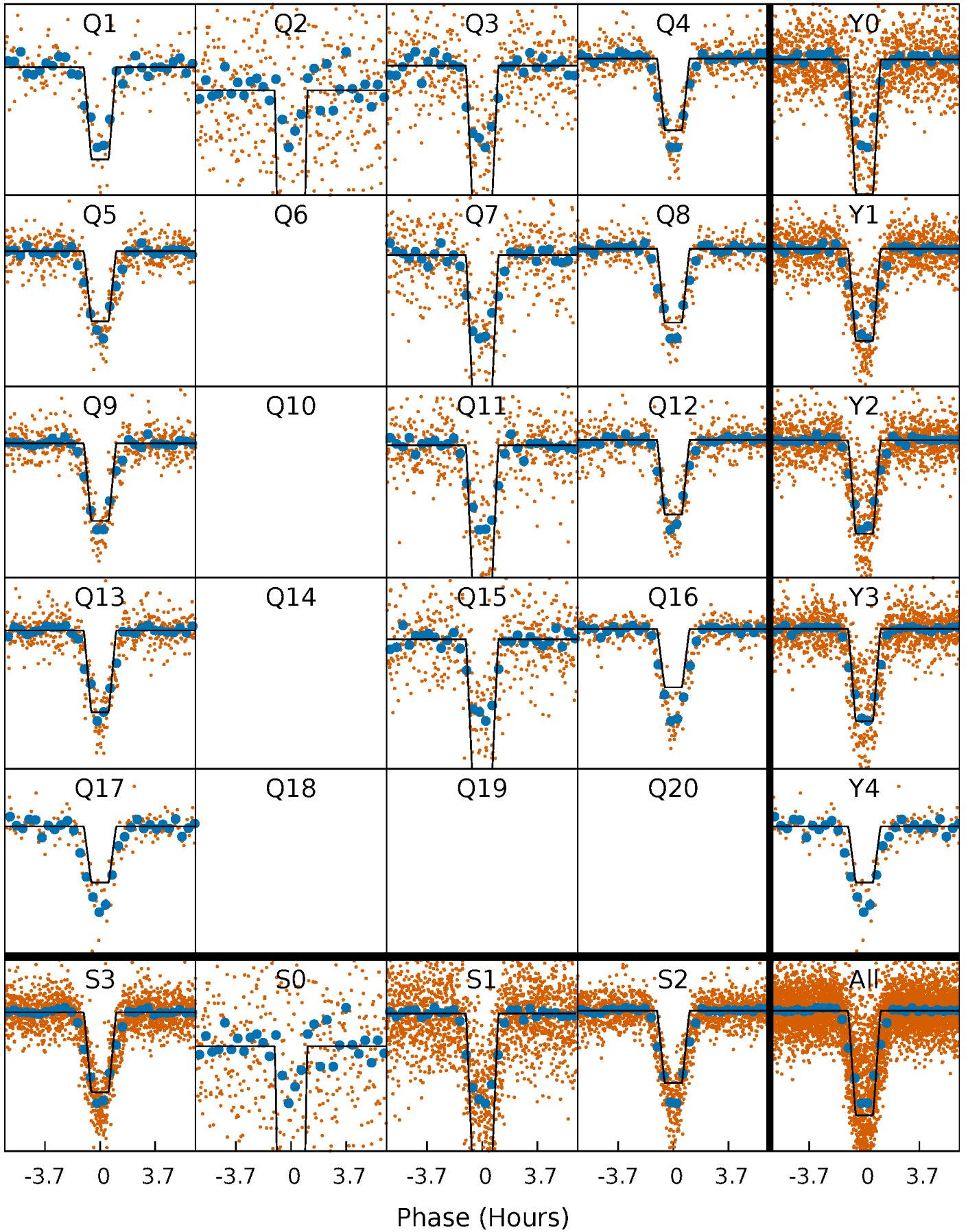
# DV Quarter-Phased Transit Curves

TCE 003966262-01   P= 4.927065 Days    $T_0=135.346614$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

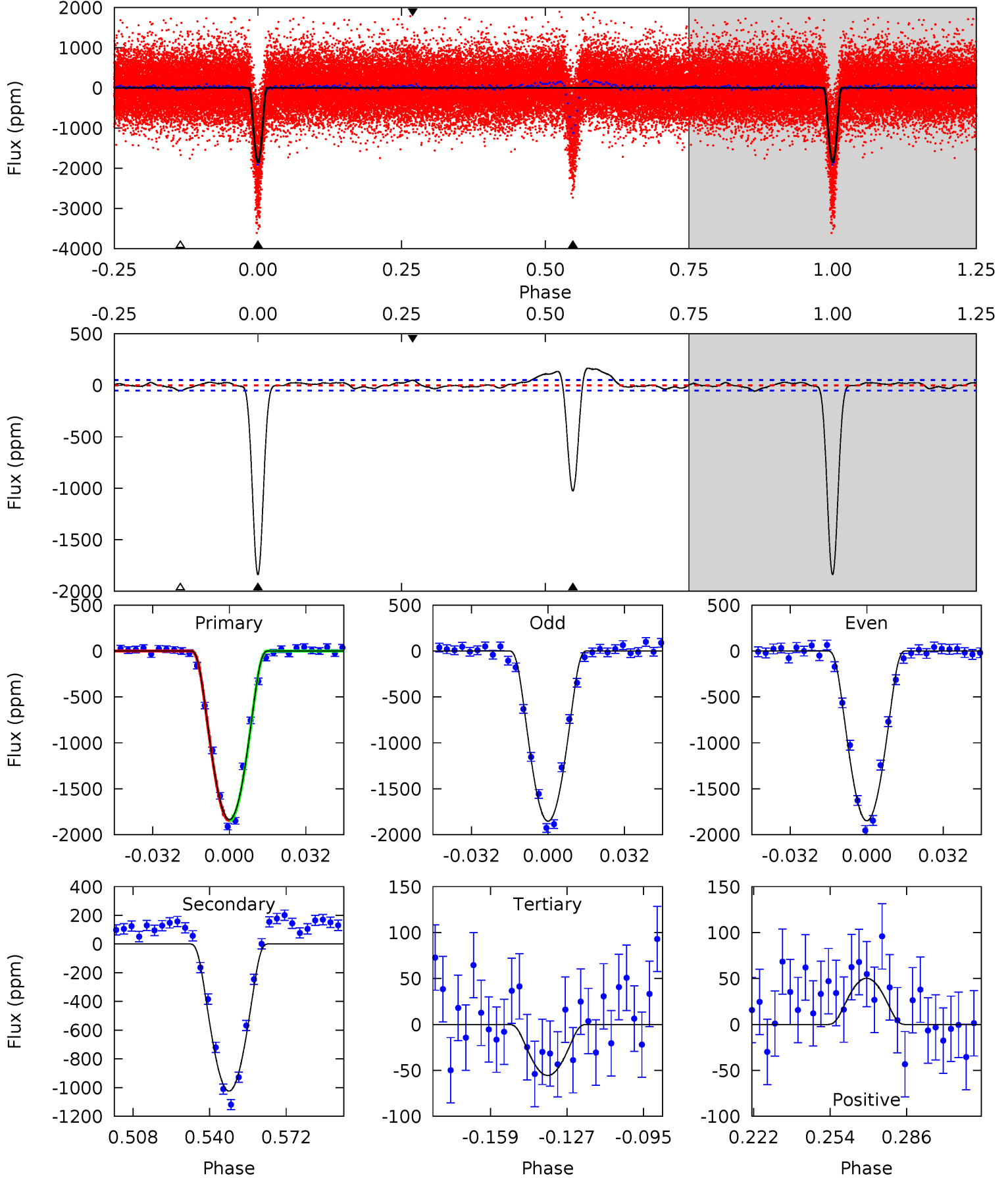
TCE 003966262-01 P= 4.927058 Days  $T_0=135.347839$  (BKJD)



# DV Model-Shift Uniqueness Test

003966262-01, P = 4.927065 Days, E = 130.419549 Days

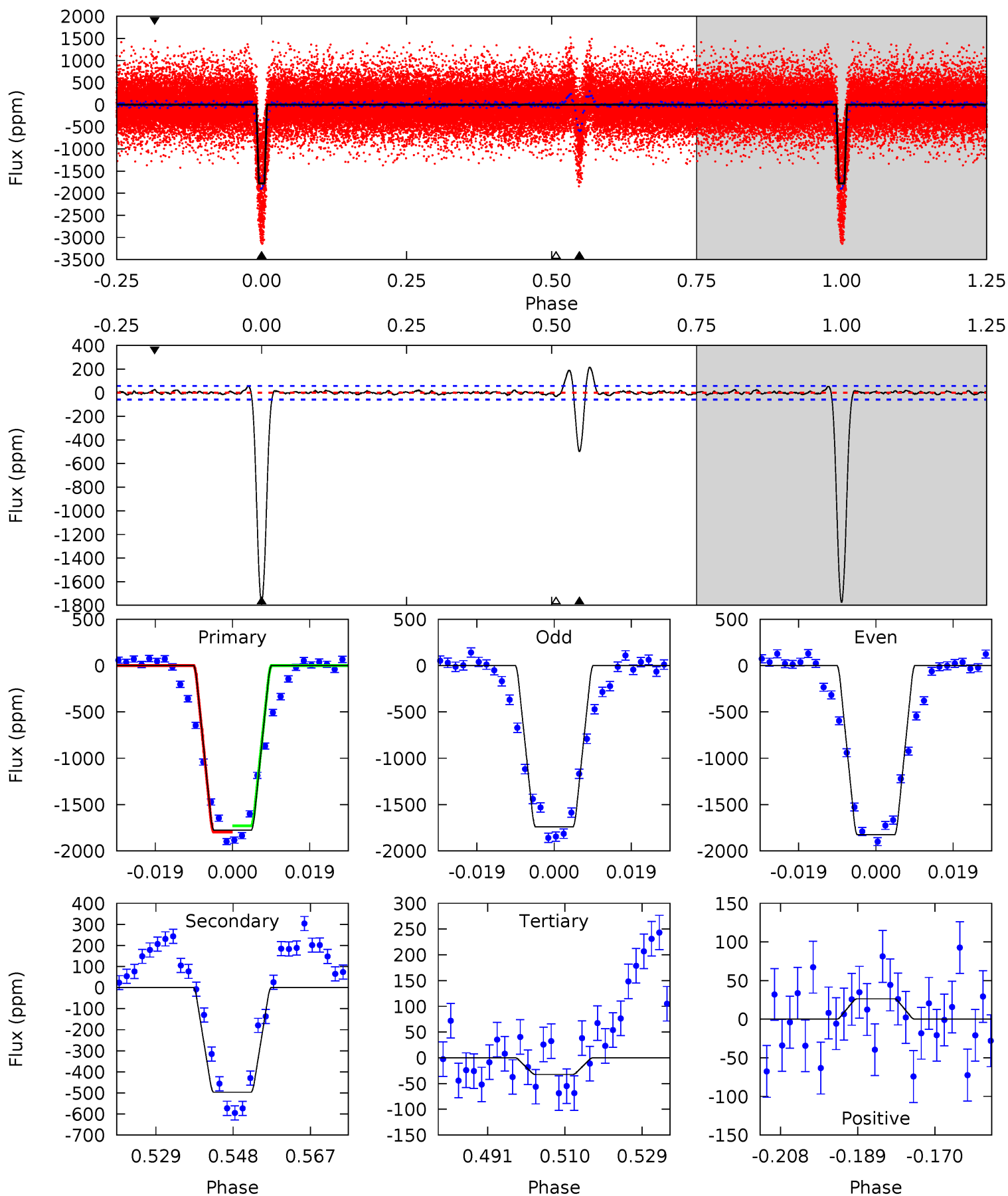
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
170.7	95.2	5.16	4.67	4.80	2.15	3.55	165.6	166.1	90.1	90.6	0.22	0.96	0.08	0.12



# Alt Model-Shift Uniqueness Test

003966262-01, P = 4.927058 Days, E = 130.420781 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
151.1	42.3	2.75	2.24	4.90	2.35	1.84	148.4	148.9	39.5	40.0	3.54	0.94	0.11	2.88



### Stellar Parameters For KIC 003966262

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5541^{+167}_{-167}$	$4.587^{+0.036}_{-0.144}$	$-0.280^{+0.300}_{-0.300}$	$0.777^{+0.173}_{-0.069}$	$0.852^{+0.091}_{-0.091}$	$2.561^{+0.481}_{-1.032}$
	+3%/-3%	+1%/-3%	+107%/-107%	+22%/-9%	+11%/-11%	+19%/-40%
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 003966262-01 / KOI 1811.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1025 \pm 11$	$6.70^{+3.67}_{-3.15}$	$1328^{+75}_{-57}$	$3931^{+1056}_{-530}$	$37^{+88}_{-22}$
Alt.	$-497 \pm 12$	$4.42^{+3.21}_{-2.53}$	$1323^{+67}_{-54}$	$3992^{+1587}_{-646}$	$40^{+174}_{-26}$

$T_{\text{max}}$  = 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

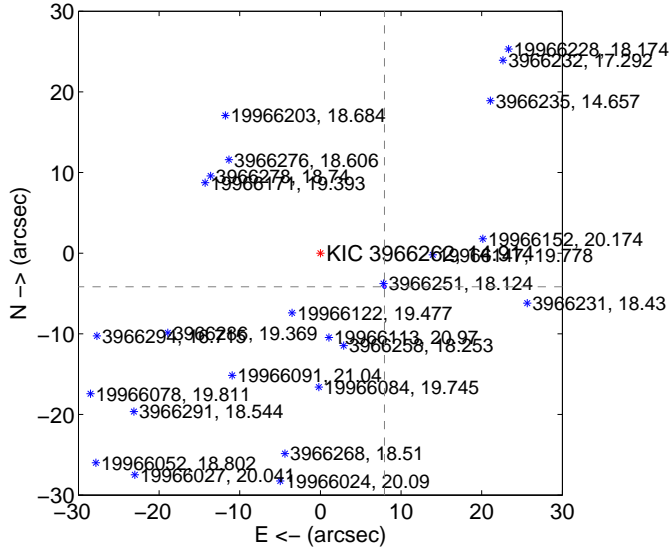
Supplemental centroid analysis for 003966262-01. Kepler magnitude: 14.91. Transit SNR 78.42

There are 14 quarters with good PRF difference image offsets

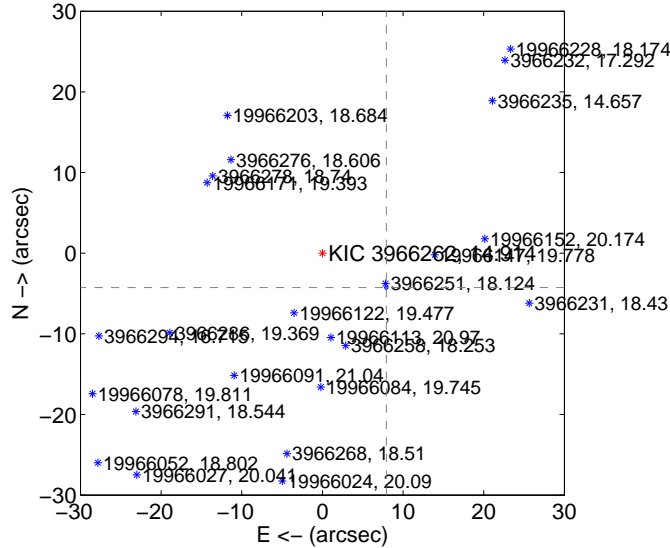
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.966 \pm 0.070$	127.81	$-7.942 \pm 0.068$	$-4.162 \pm 0.070$
PRF-fit source offset from KIC position	$8.996 \pm 0.069$	131.10	$-7.923 \pm 0.068$	$-4.261 \pm 0.068$
photometric centroid source offset	$51.30 \pm 0.16$	320.11	$-44.51 \pm 0.17$	$-25.51 \pm 0.14$

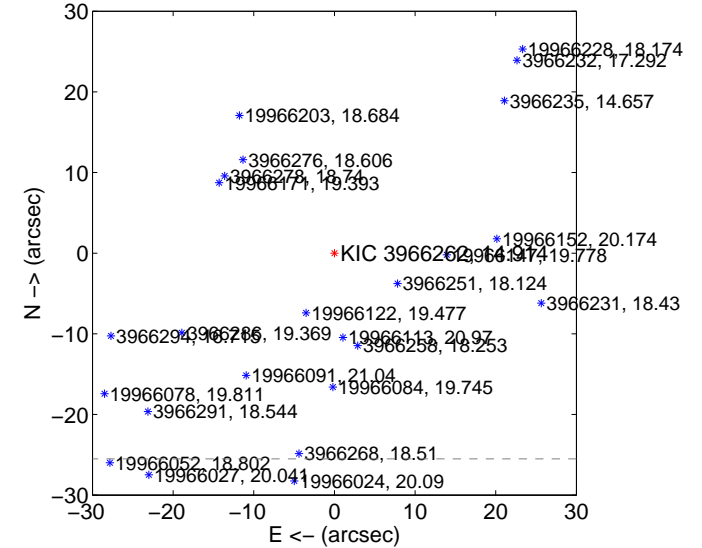
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

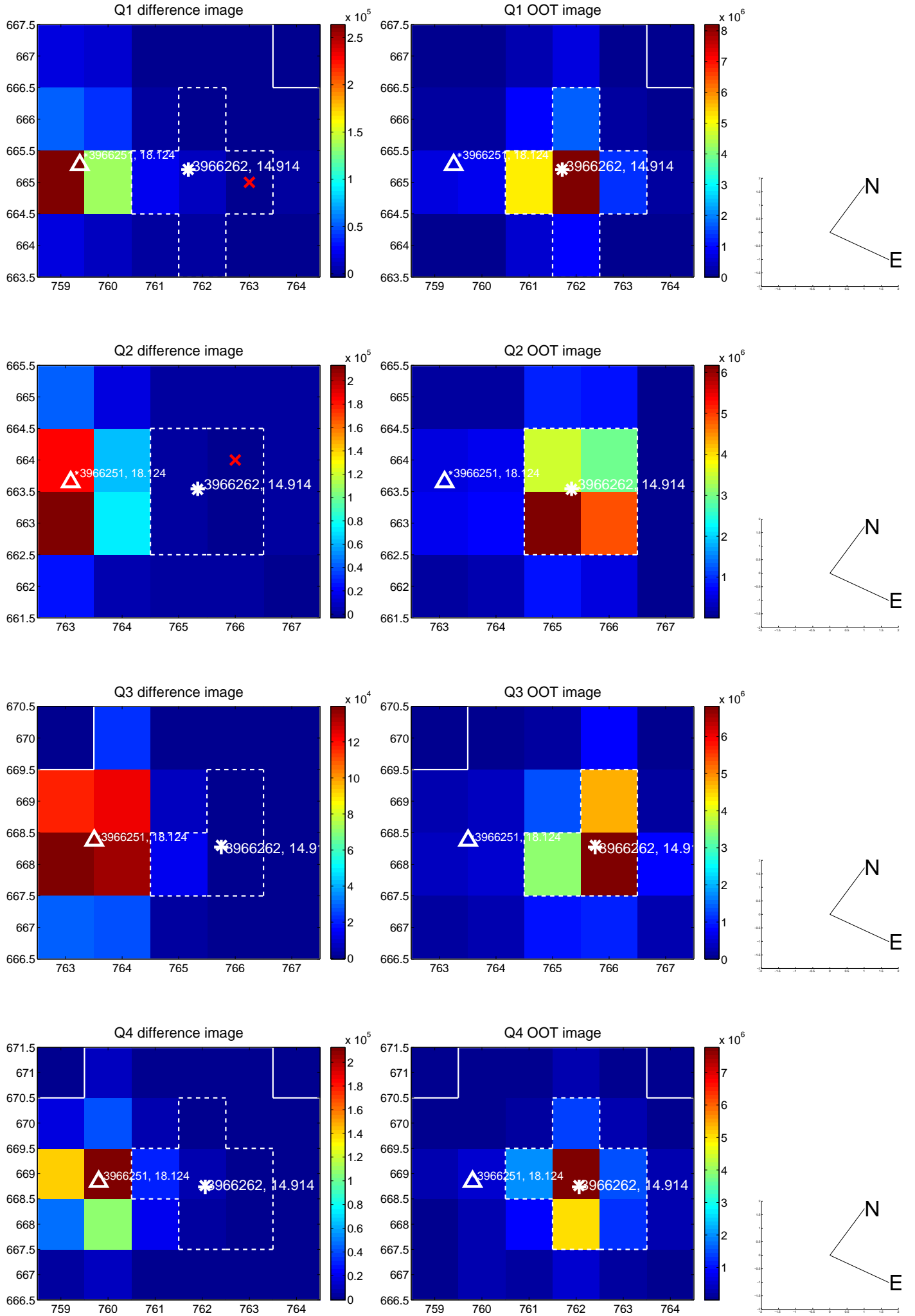


offset from photometric centroids

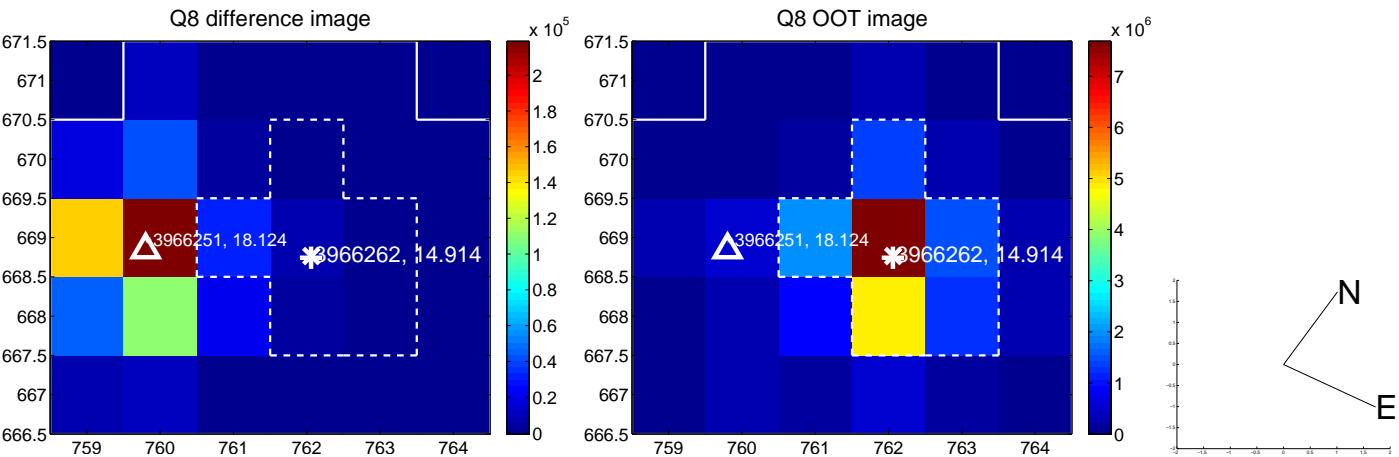
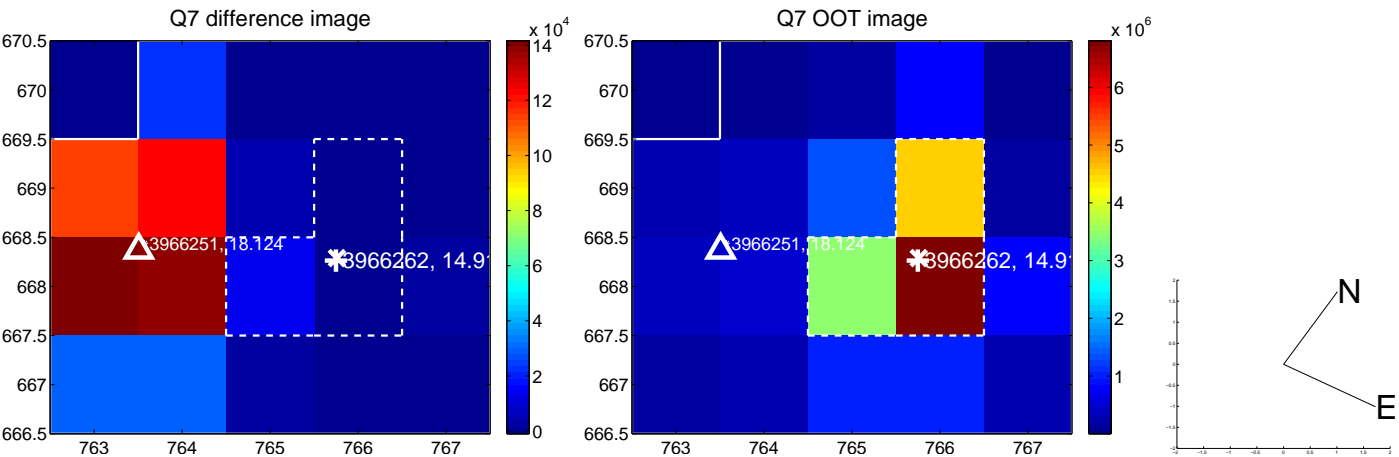
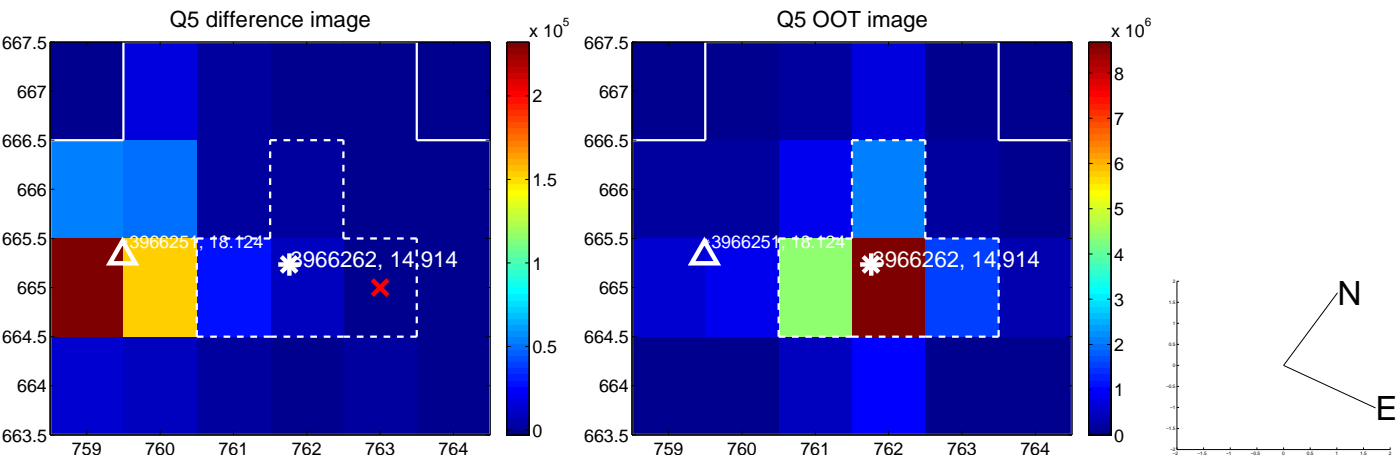


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

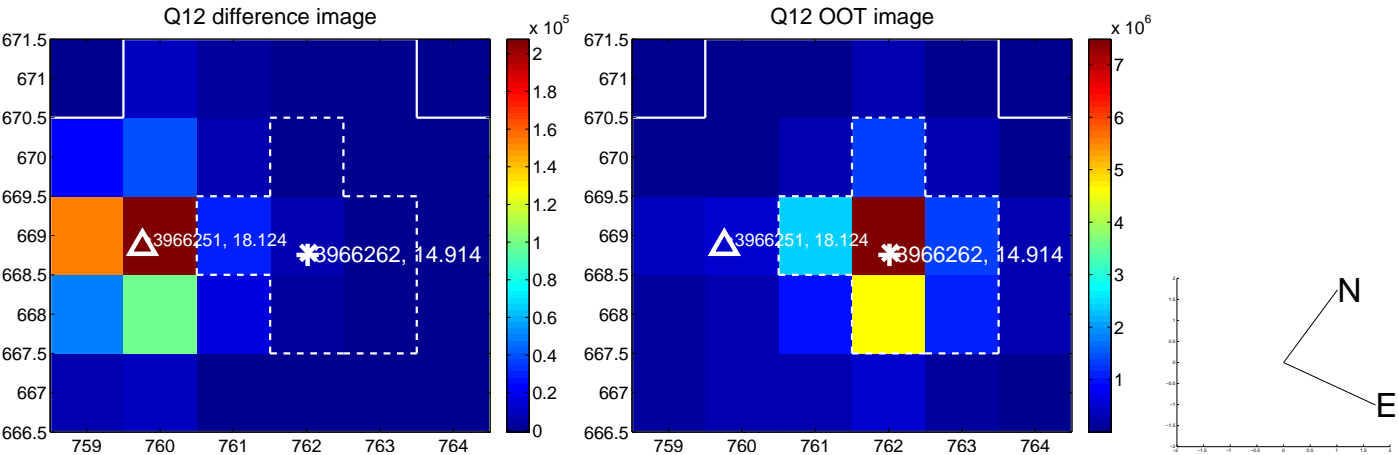
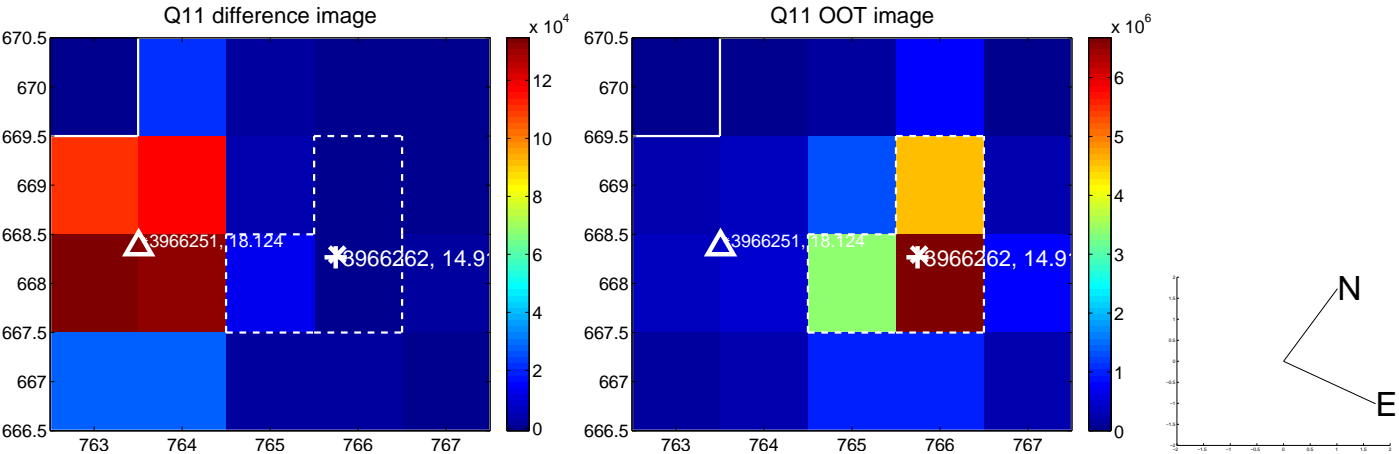
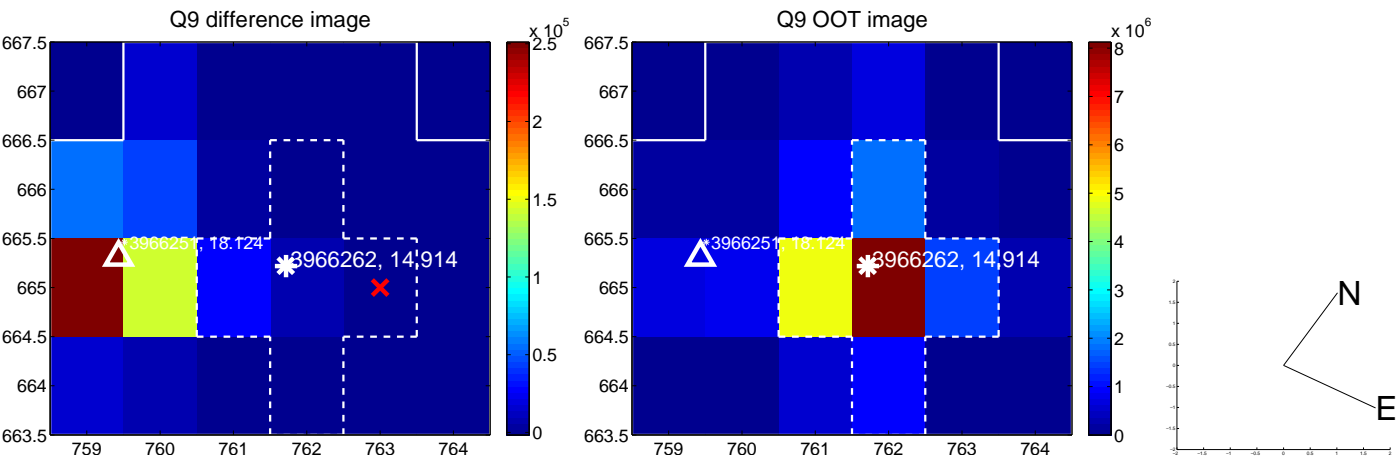
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



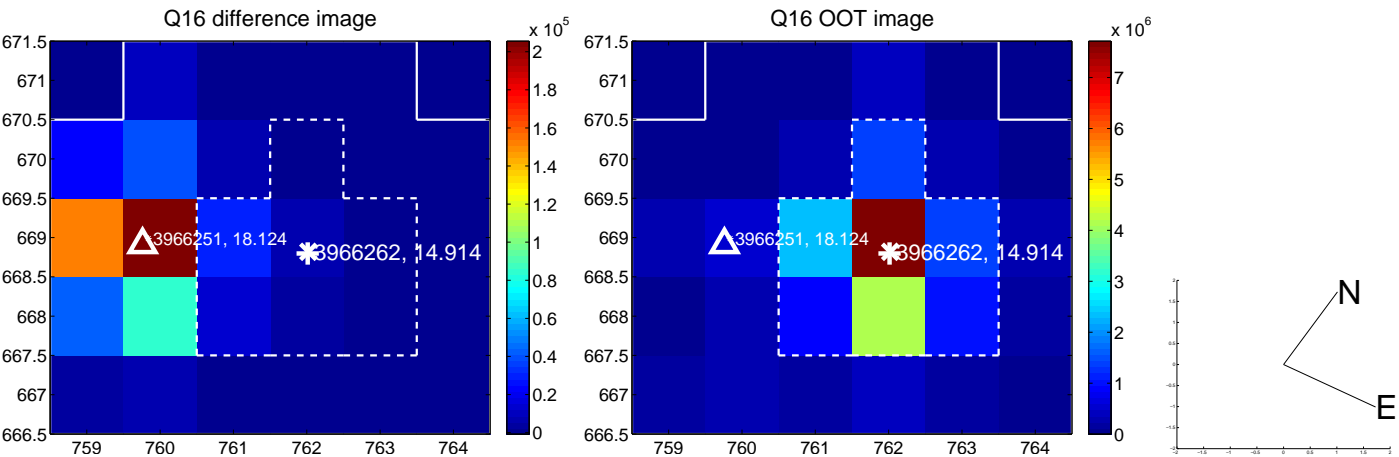
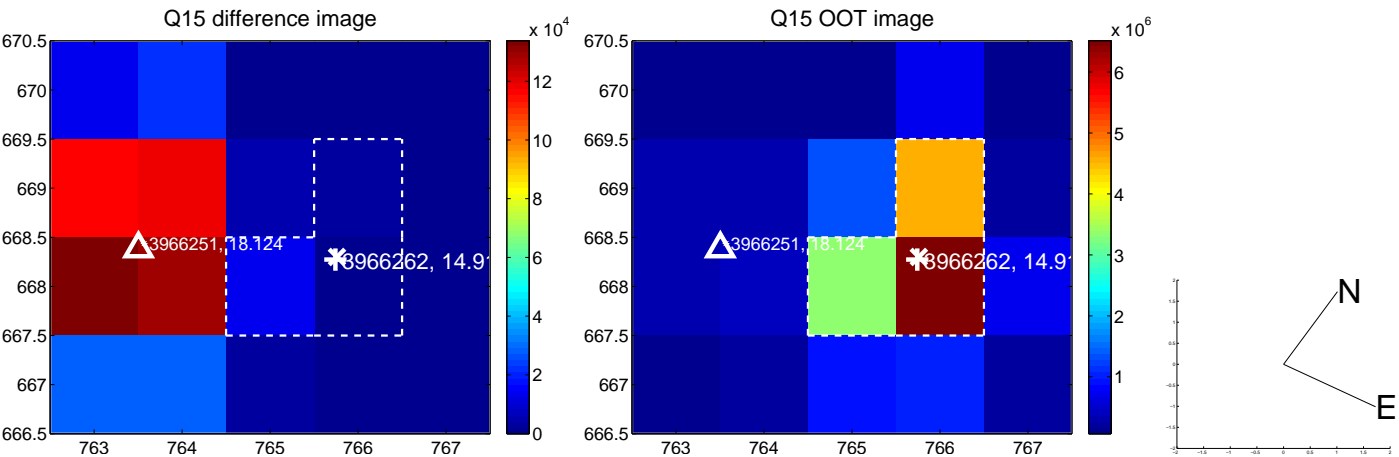
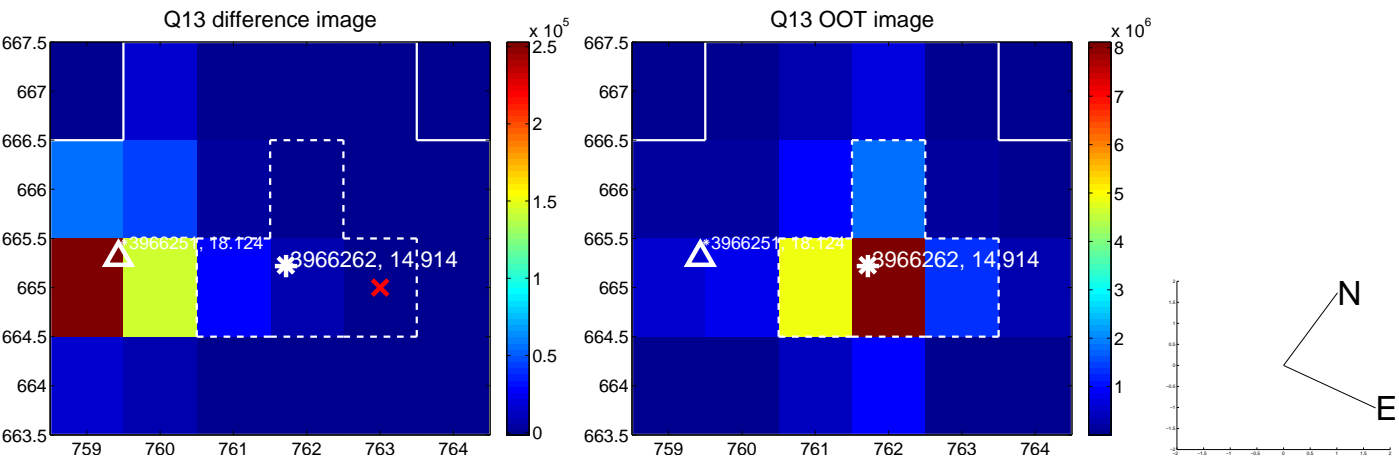
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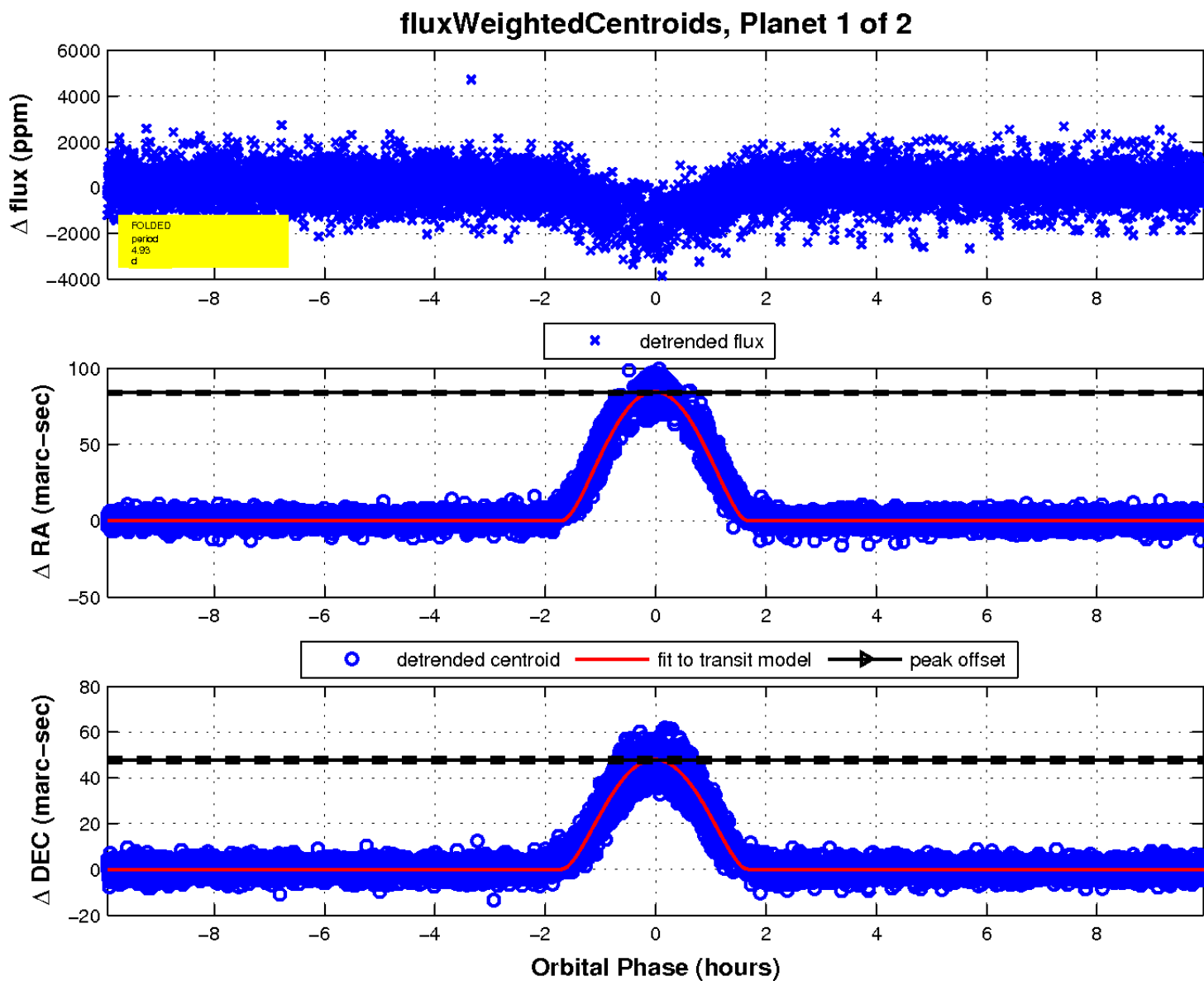
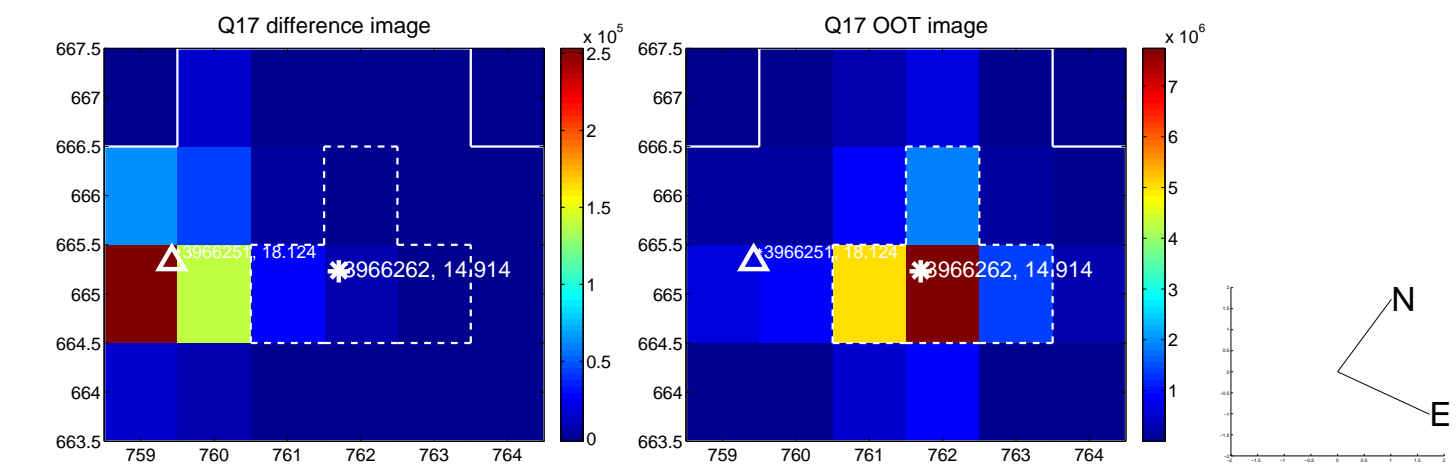


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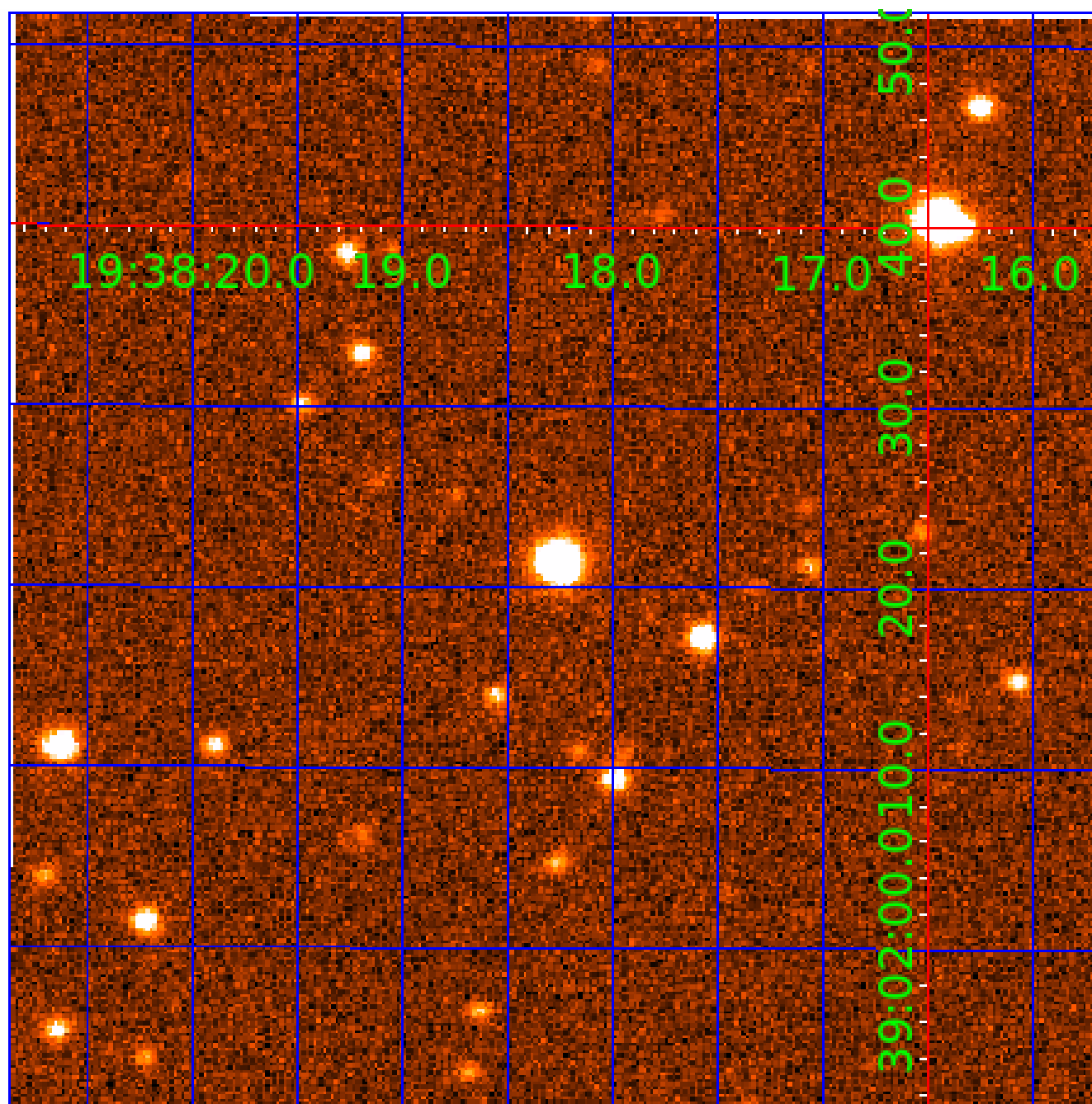


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003966262

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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003966262-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

**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.

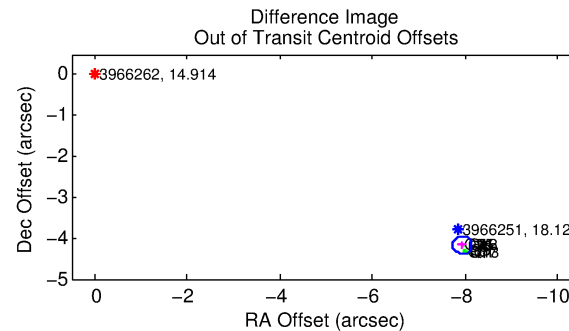
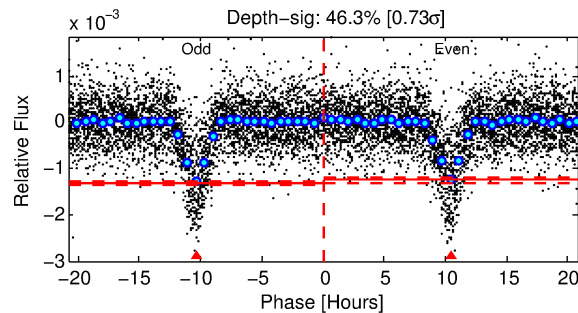
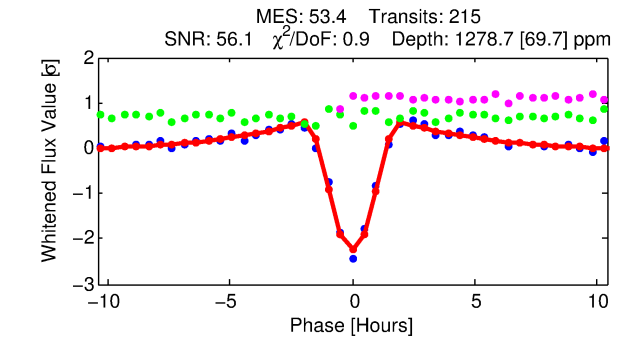
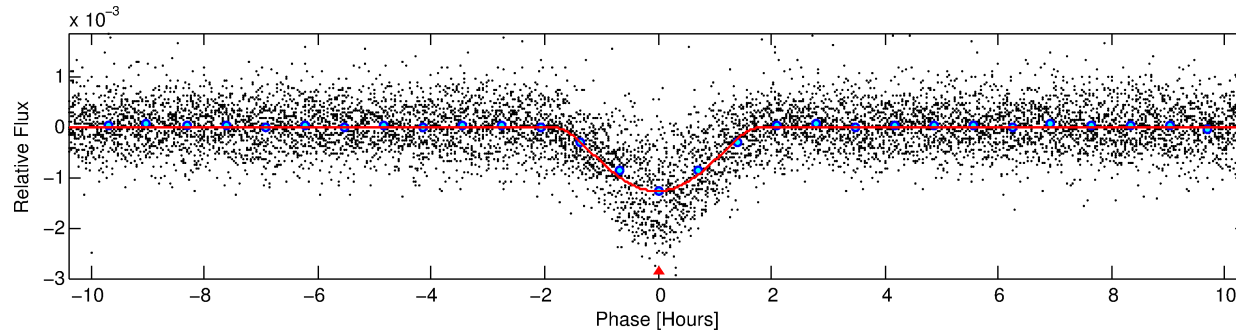
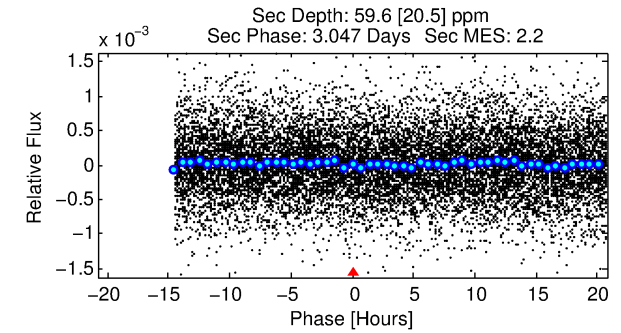
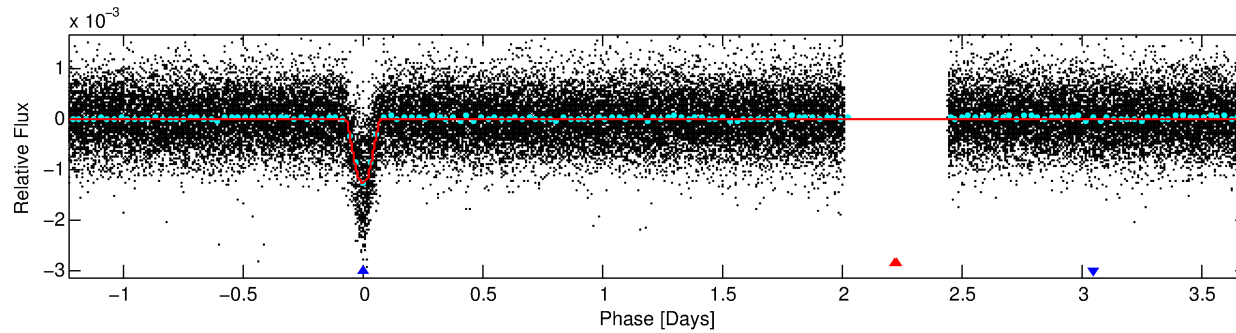
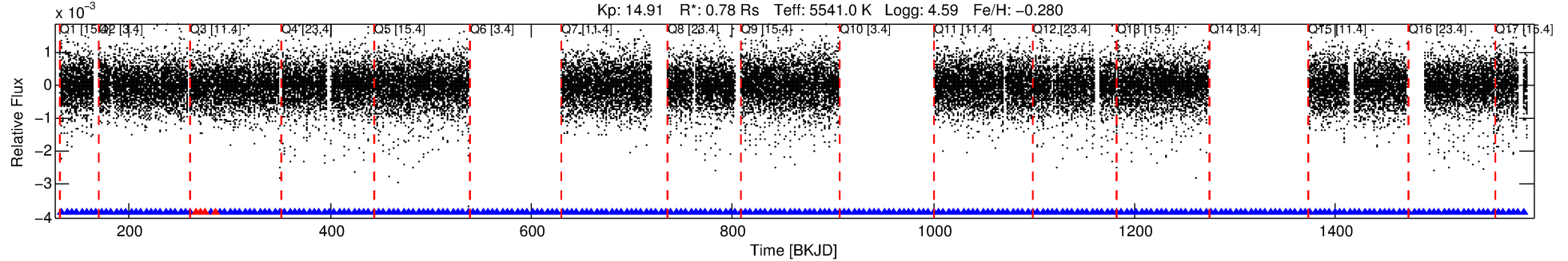
## Ephemeris Match Information For 003966262-02

No Significant Match Found

# DV One-Page Summary

KIC: 3966262 Candidate: 2 of 2 Period: 4.927 d  
KOI: K01811 Corr: No Ephemeris Match

Kp: 14.91 R\*: 0.78 Rs Teff: 5541.0 K Logg: 4.59 Fe/H: -0.280



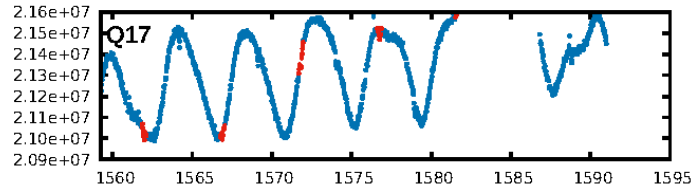
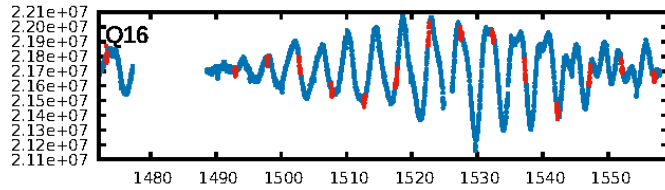
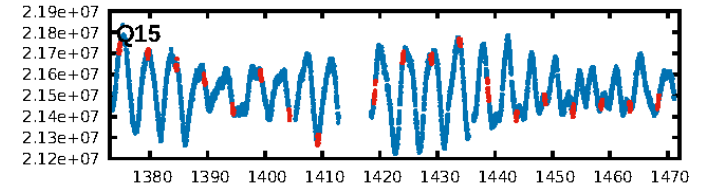
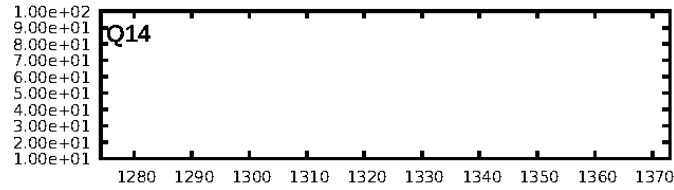
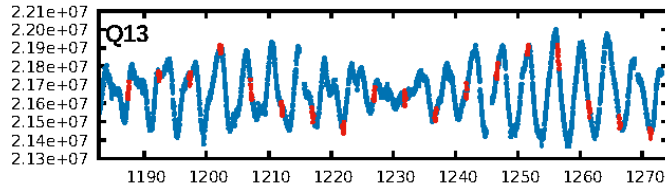
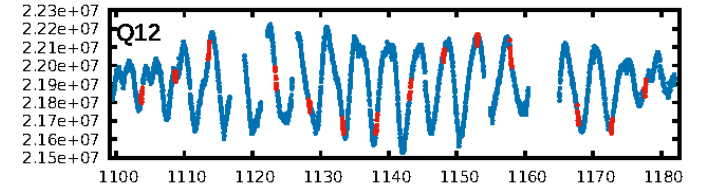
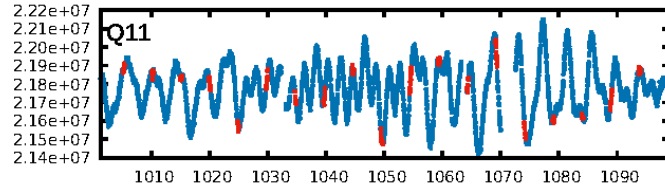
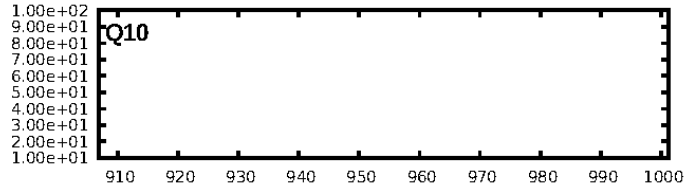
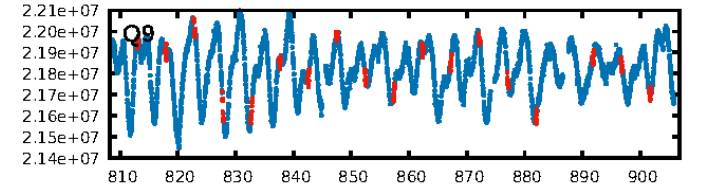
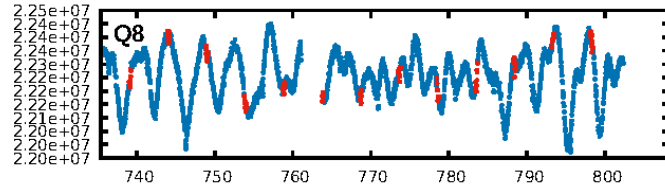
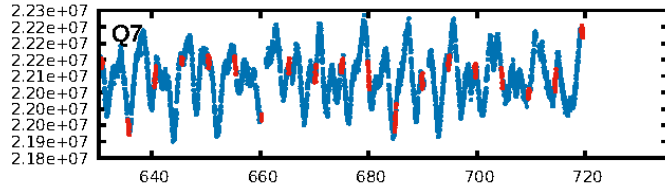
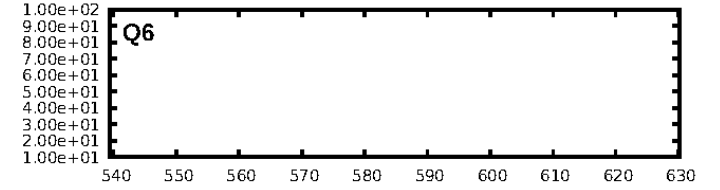
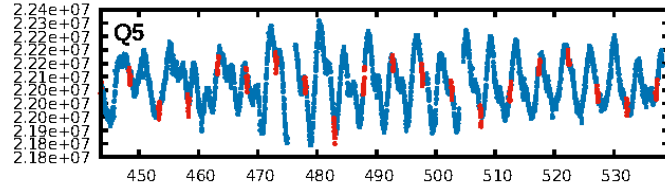
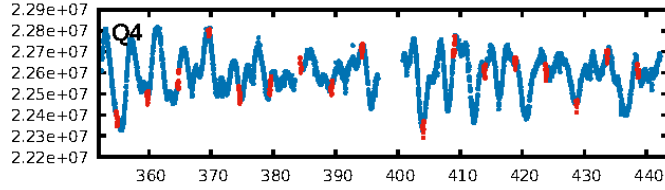
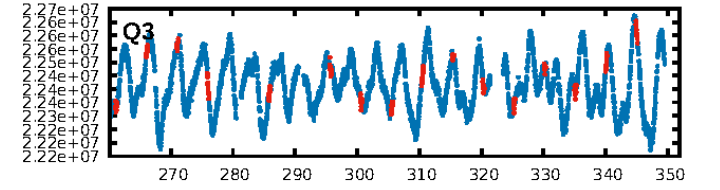
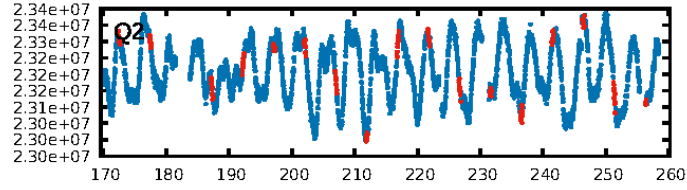
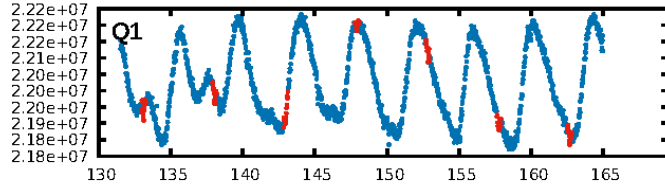
## DV Fit Results:

Period = 4.92705 [0.00001] d  
Epoch = 133.1222 [0.0011] BKJD  
Rp/R\* = 0.0635 [0.0425]  
a/R\* = 4.08 [0.58]  
b = 1.00 [0.06]  
Seff = 176.77 [51.67]  
Teq = 930 [68] K  
Rp = 5.39 [3.80] Re  
a = 0.0537 [0.0099] AU  
Ag = 3.26 [4.59] [0.49σ]  
Teff = 1932 [670] K [1.49σ]

## DV Diagnostic Results:

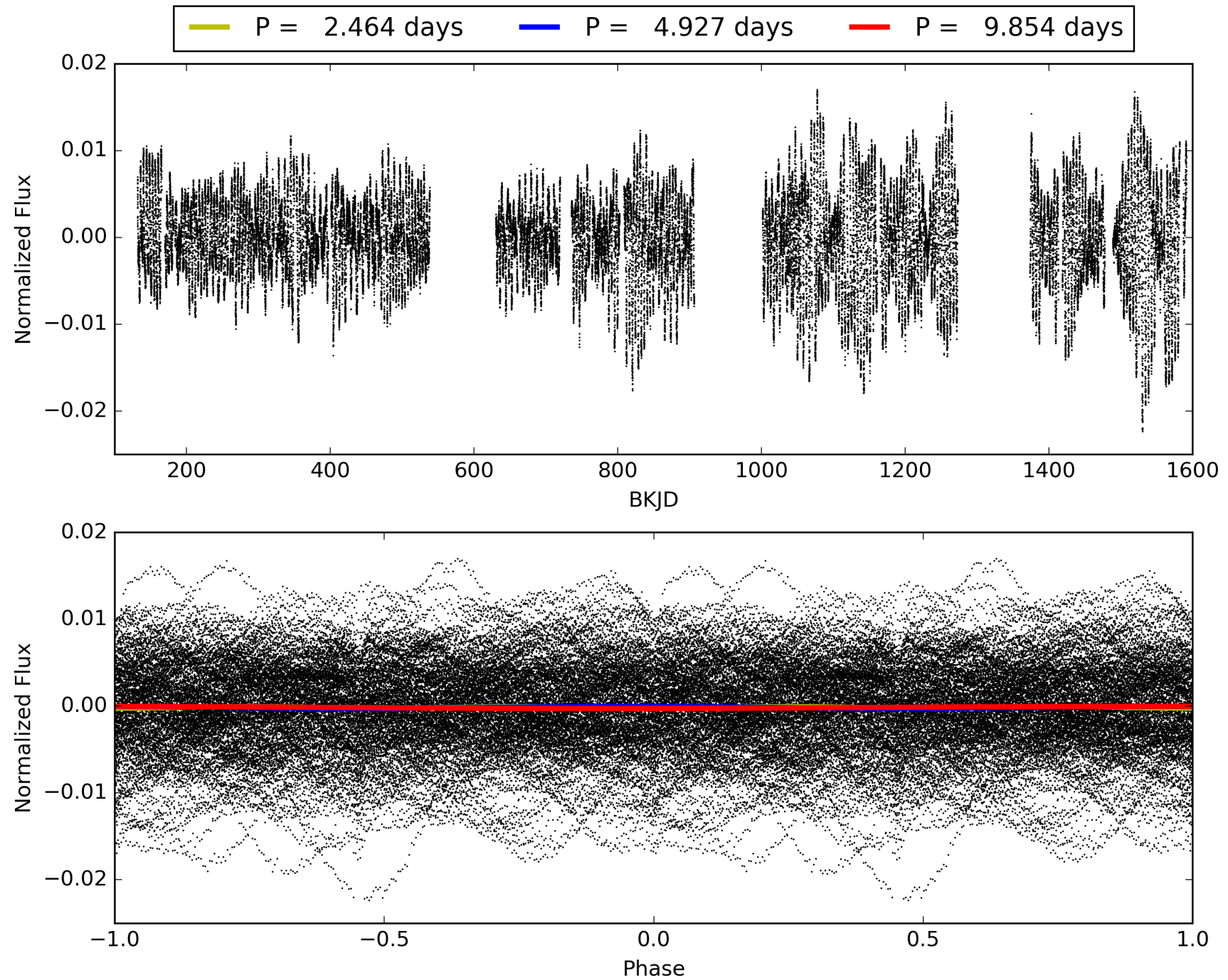
ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.98 [200/204]  
GhostDiagnostic-chr: -0.225  
Centroid-sig: 0.0%  
Centroid-so: 54.559 arcsec [225.61σ]  
OotOffset-rm: 8.967 arcsec [127.73σ]  
KicOffset-rm: 8.996 arcsec [130.34σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003966262-02, PDC Light Curves



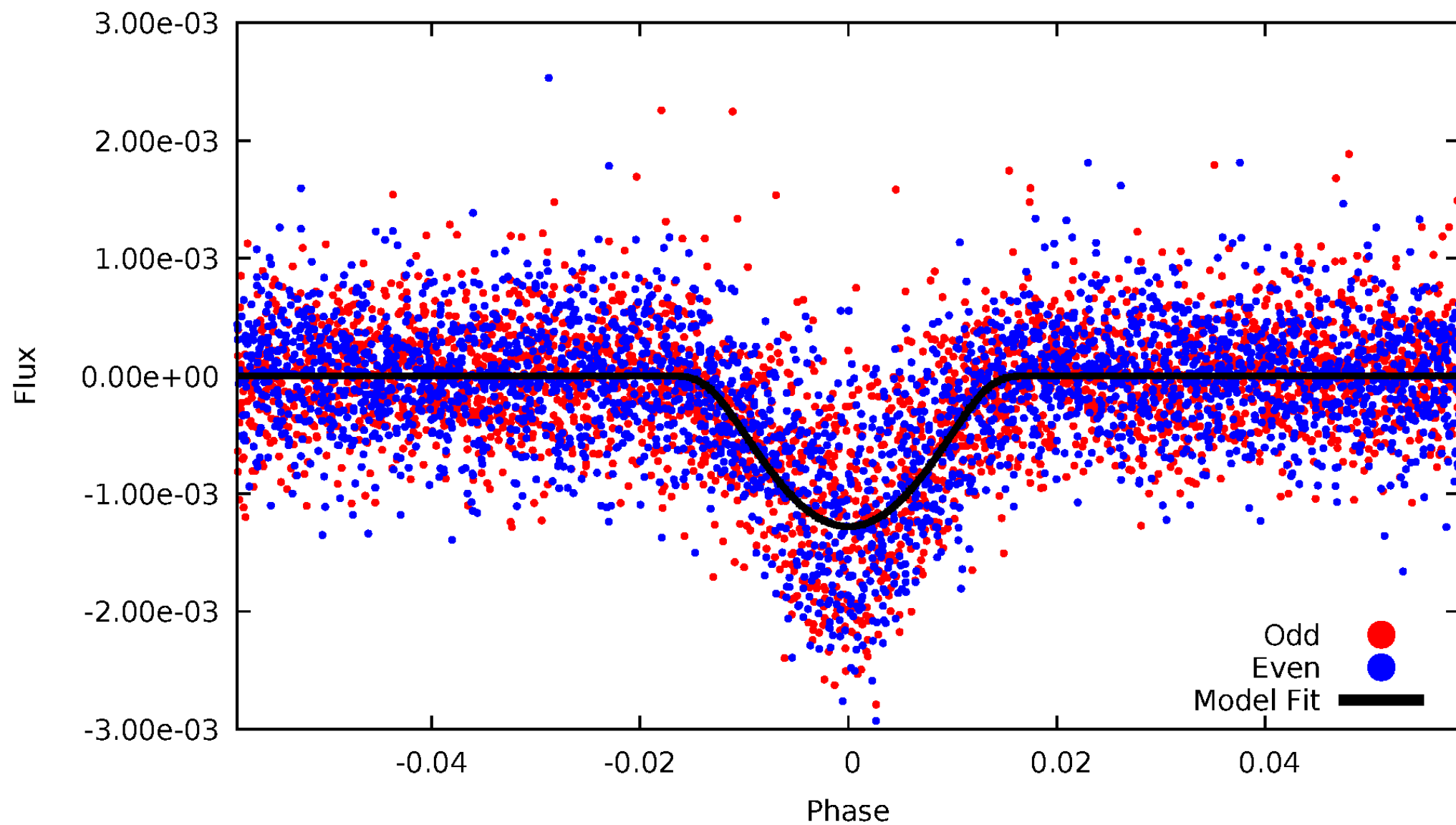


TCE 003966262-02



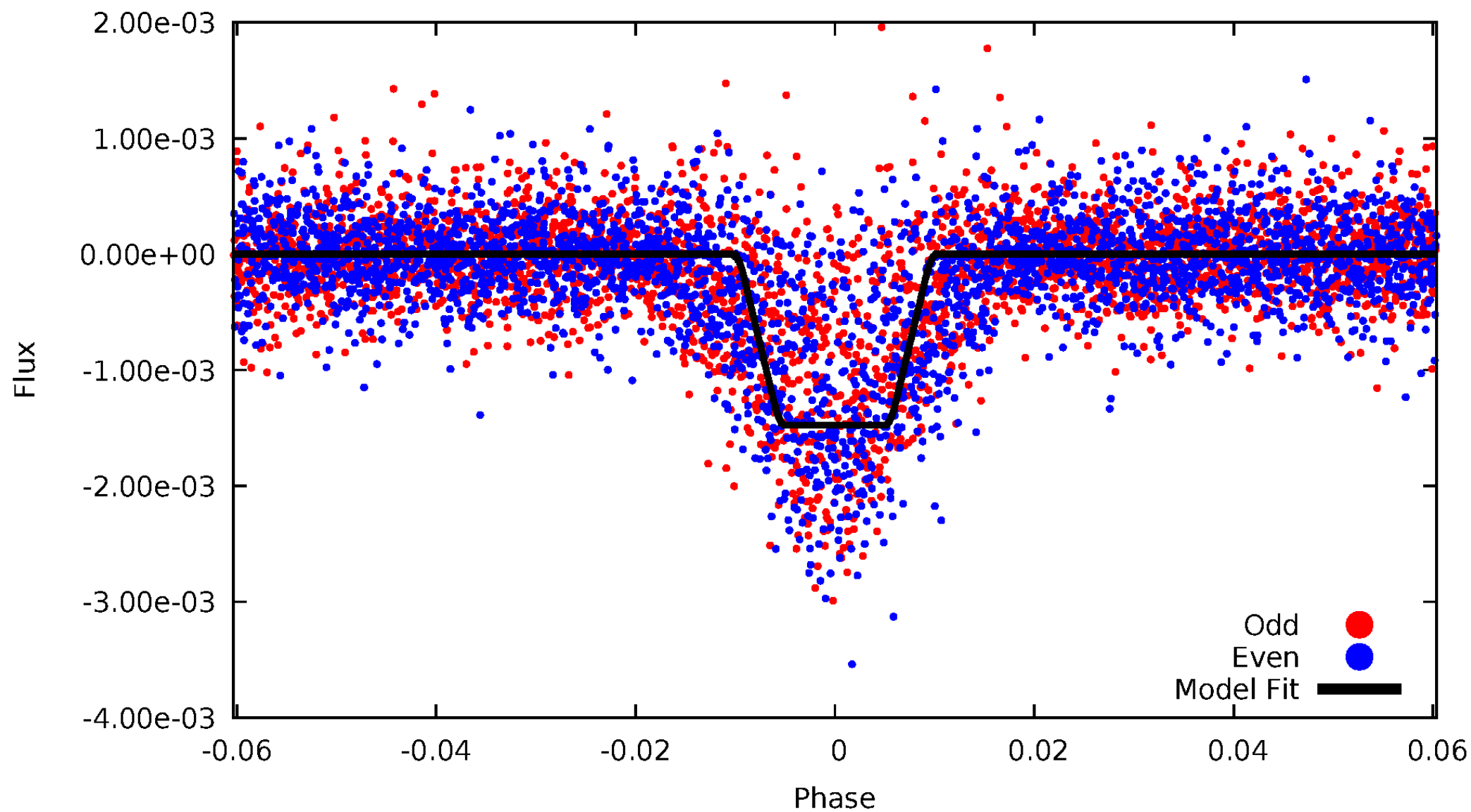
# DV Odd/Even

TCE 003966262-02



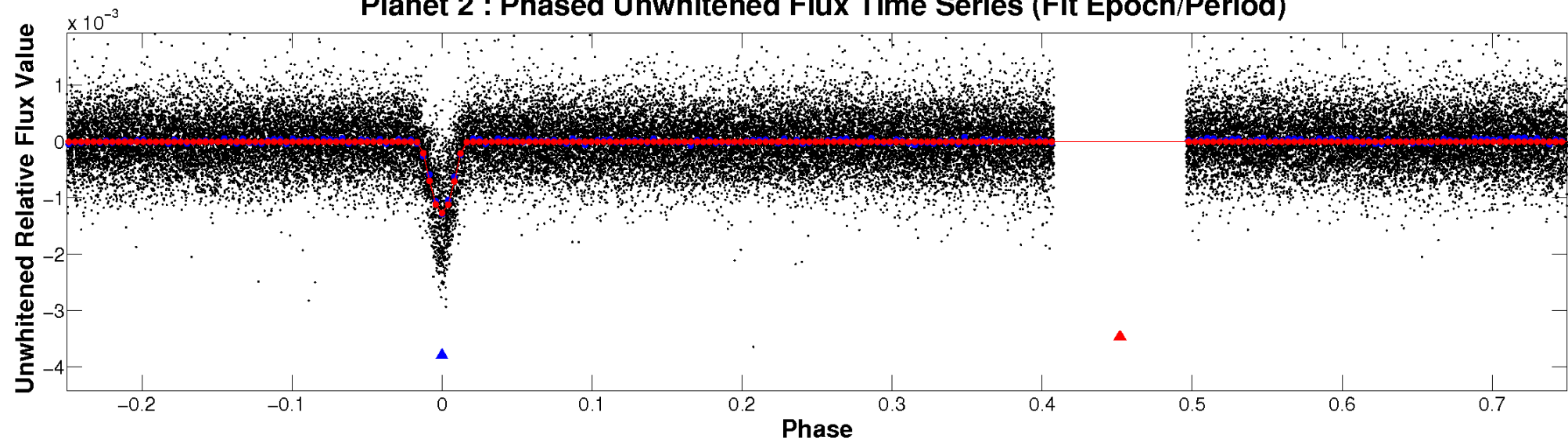
# ALT Odd/Even

TCE 003966262-02

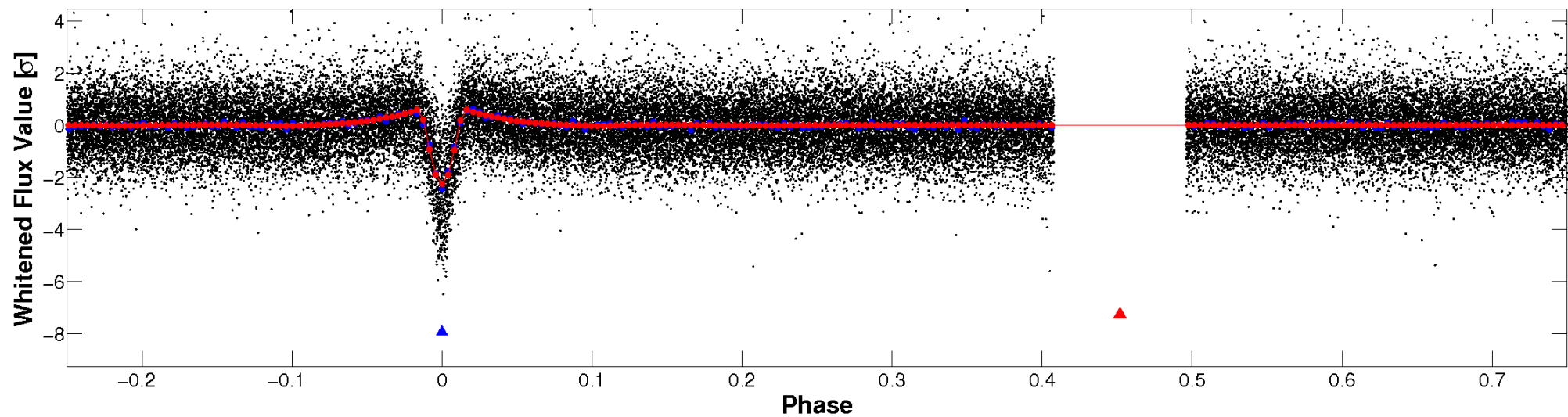


# Non-Whitened Vs. Whitened Light Curve

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

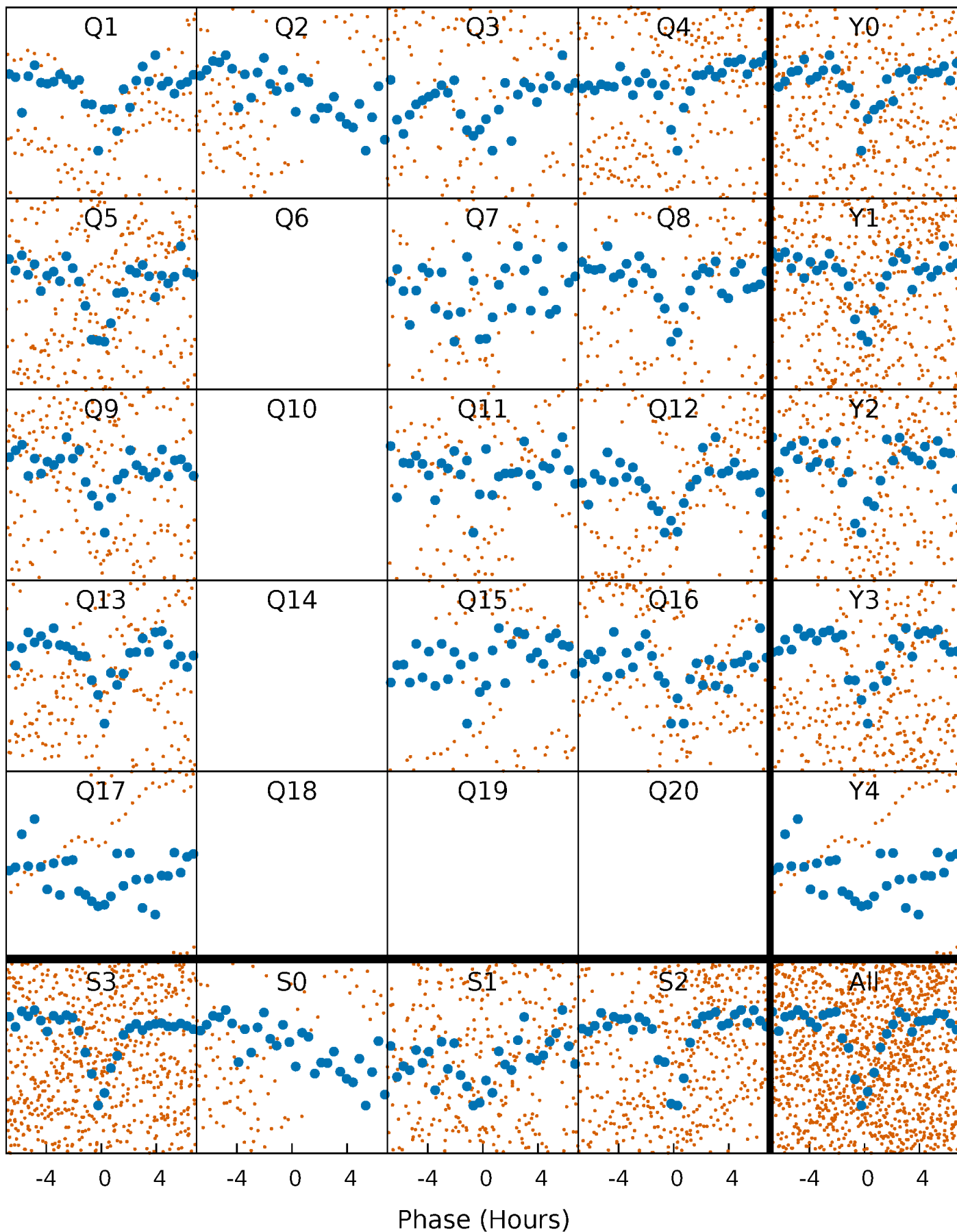


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

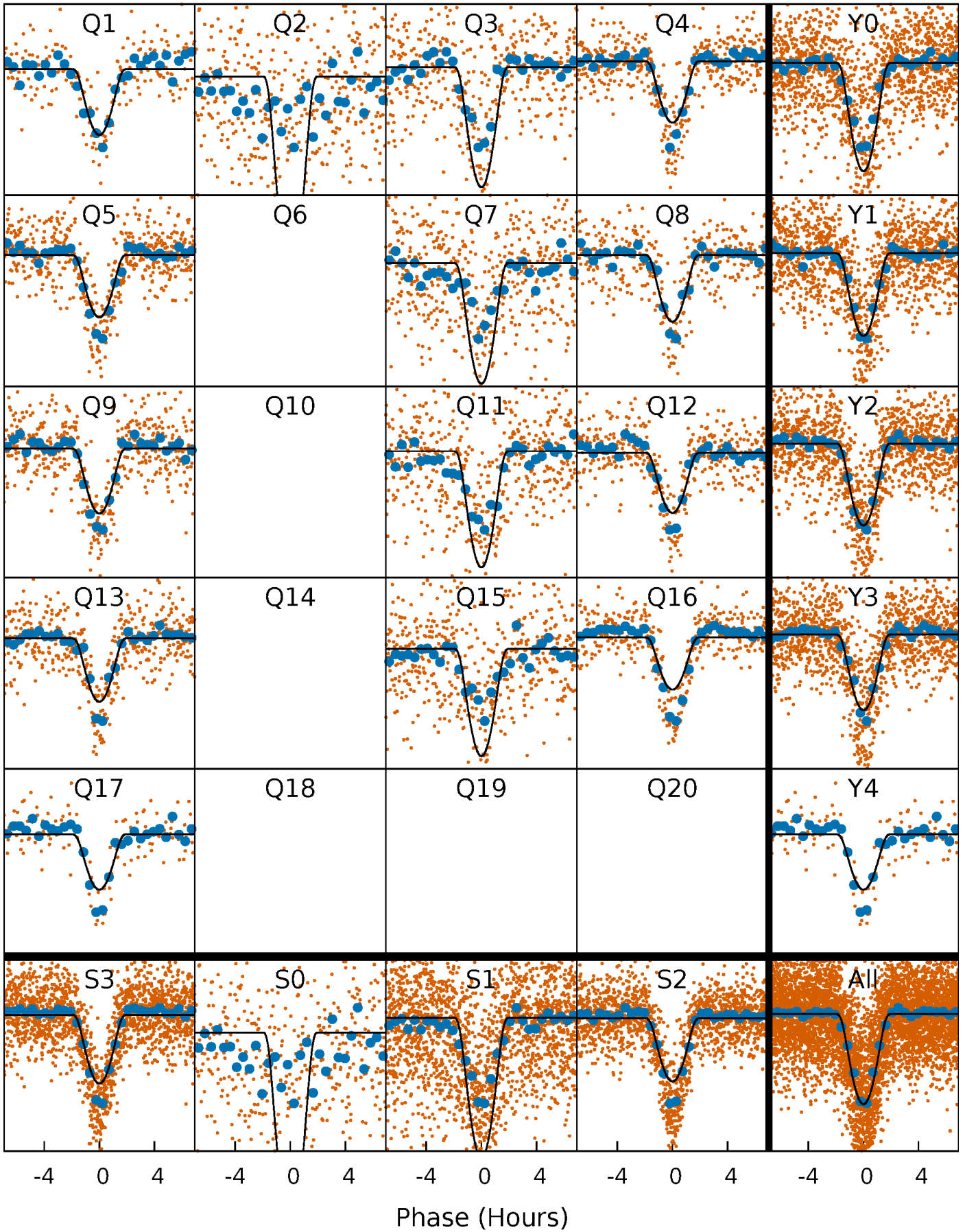
TCE 003966262-02   P= 4.927050 Days    $T_0=133.122212$  (BKJD)





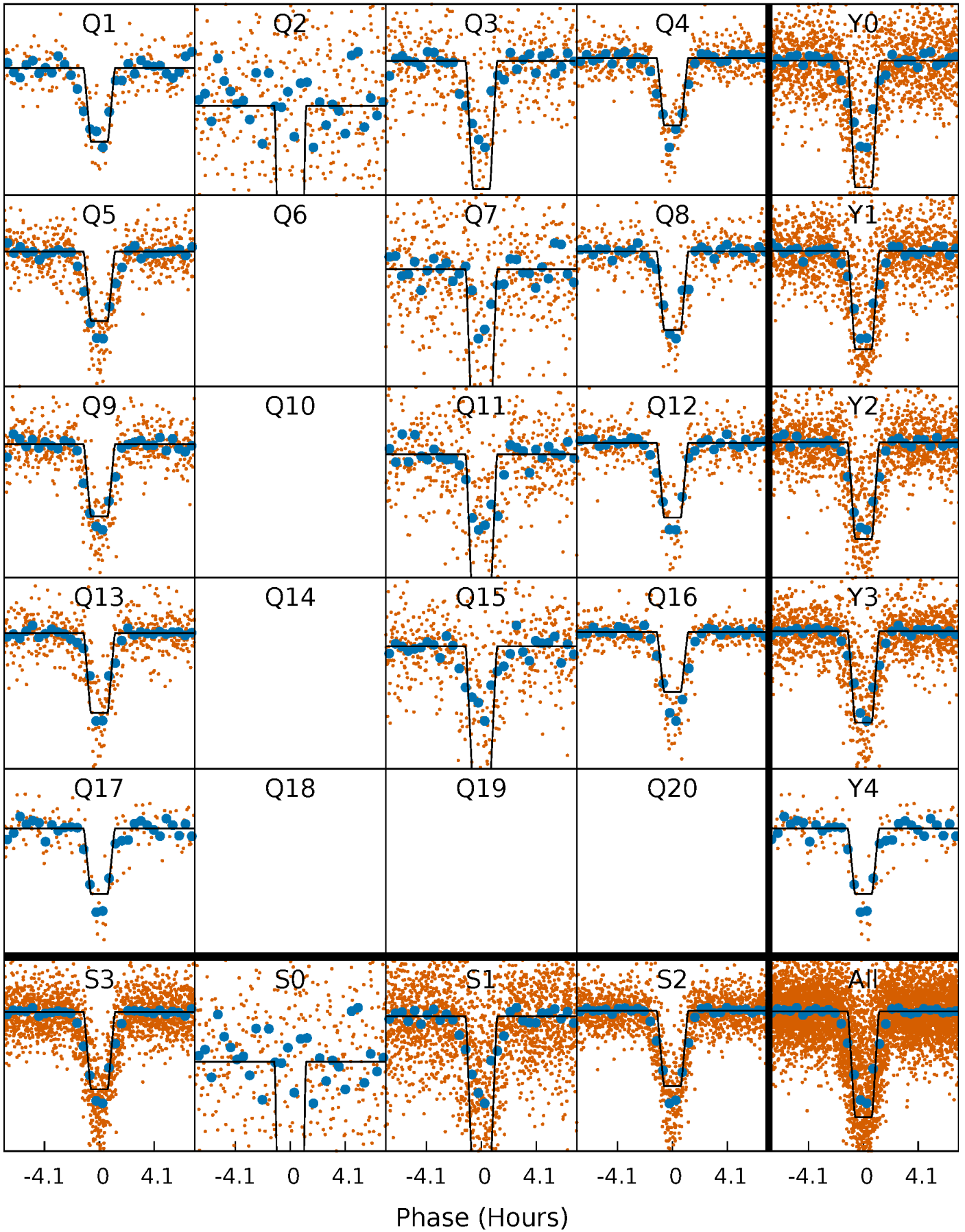
# DV Quarter-Phased Transit Curves

TCE 003966262-02   P= 4.927050 Days    $T_0=133.122212$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

TCE 003966262-02   P= 4.927033 Days    $T_0=133.125238$  (BKJD)

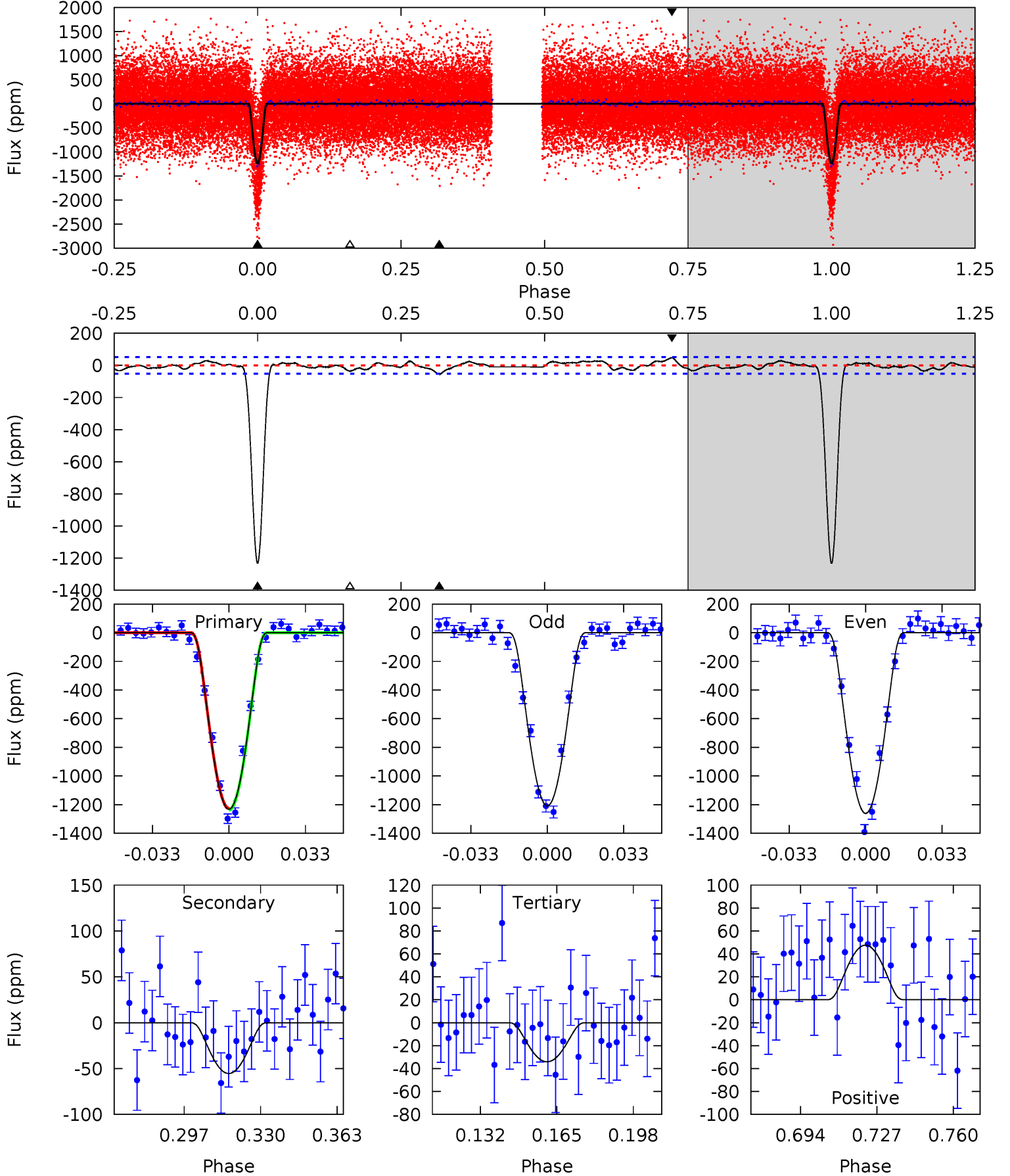




# DV Model-Shift Uniqueness Test

003966262-02, P = 4.927050 Days, E = 128.195162 Days

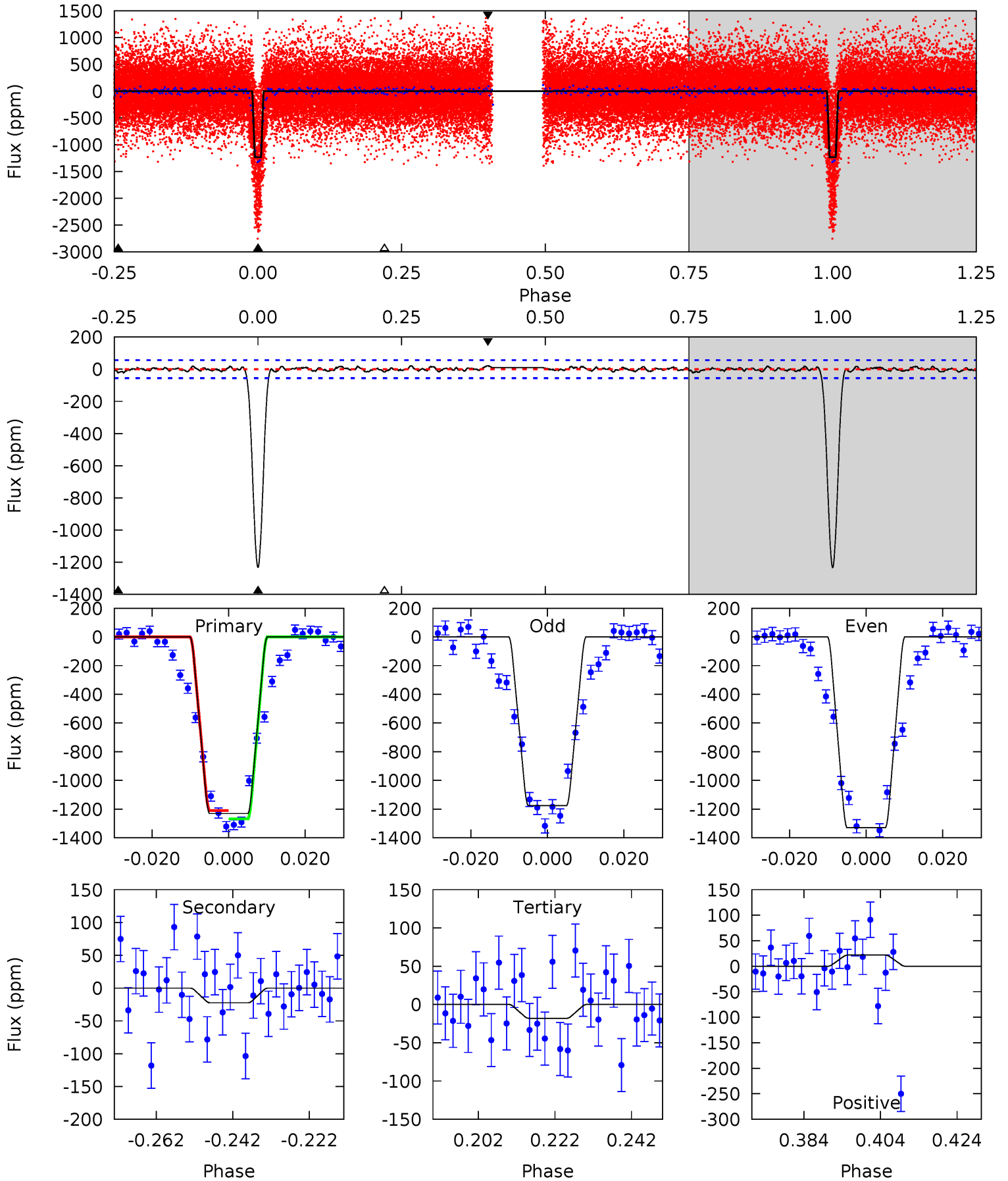
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
114.2	5.14	3.16	4.42	4.79	2.13	1.60	111.0	109.7	1.97	0.72	2.42	0.95	0.04	0.48



# Alt Model-Shift Uniqueness Test

003966262-02, P = 4.927033 Days, E = 128.198205 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
107.2	1.95	1.57	1.90	4.89	2.32	0.69	105.7	105.3	0.37	0.05	6.66	0.93	0.02	2.53



### Stellar Parameters For KIC 003966262

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5541^{+167}_{-167}$	$4.587^{+0.036}_{-0.144}$	$-0.280^{+0.300}_{-0.300}$	$0.777^{+0.173}_{-0.069}$	$0.852^{+0.091}_{-0.091}$	$2.561^{+0.481}_{-1.032}$
	+3%/-3%	+1%/-3%	+107%/-107%	+22%/-9%	+11%/-11%	+19%/-40%
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 003966262-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-55 \pm 11$	$5.76^{+3.67}_{-3.04}$	$1322^{+71}_{-53}$	$2603^{+672}_{-360}$	$2.537^{+9.044}_{-1.603}$
Alt.	$-22 \pm 11$	$4.32^{+3.29}_{-2.64}$	$1327^{+68}_{-57}$	$2470^{+785}_{-535}$	$1.757^{+9.430}_{-1.304}$

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

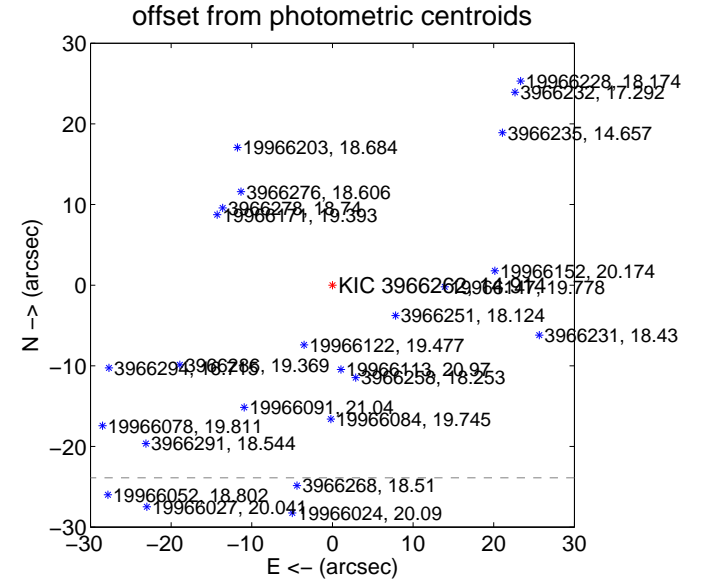
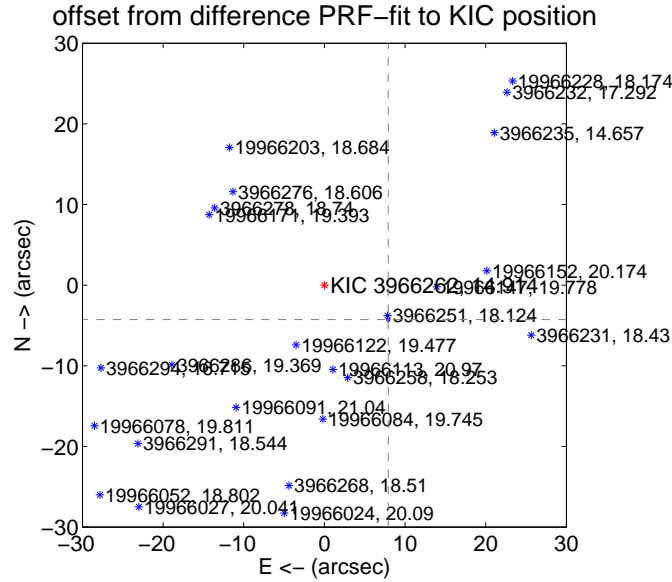
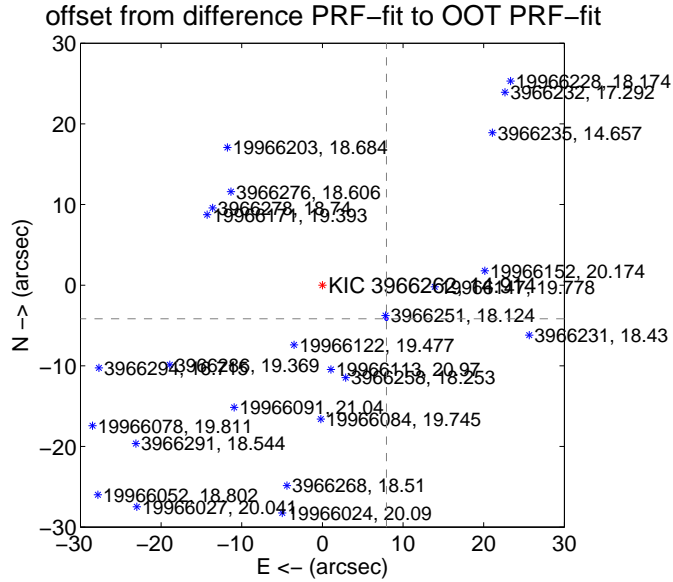
## DV Centroid Data

Supplemental centroid analysis for 003966262-02. Kepler magnitude: 14.91. Transit SNR 56.05

There are 14 quarters with good PRF difference image offsets

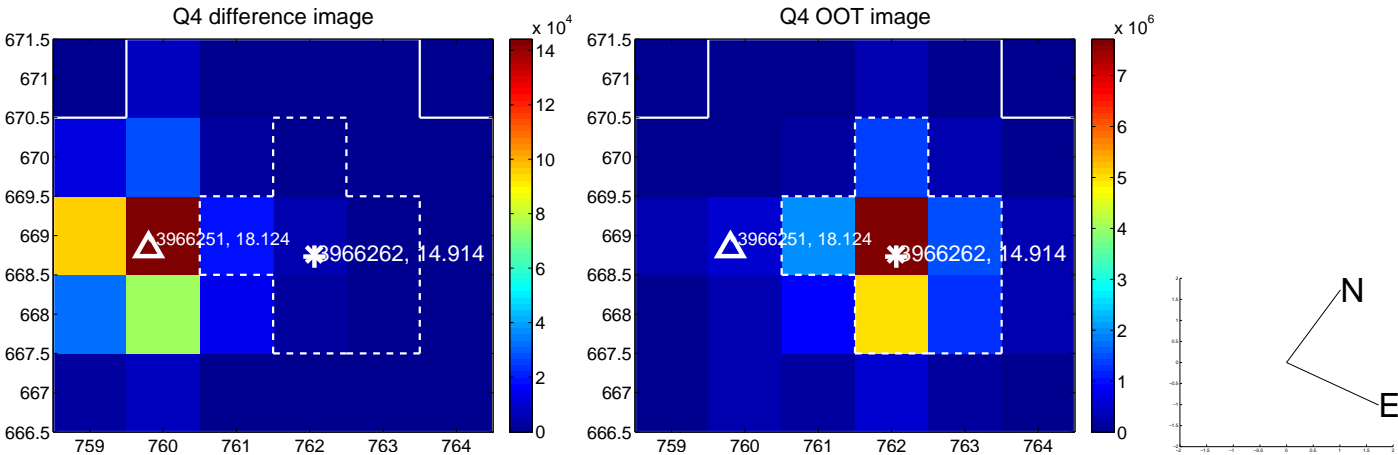
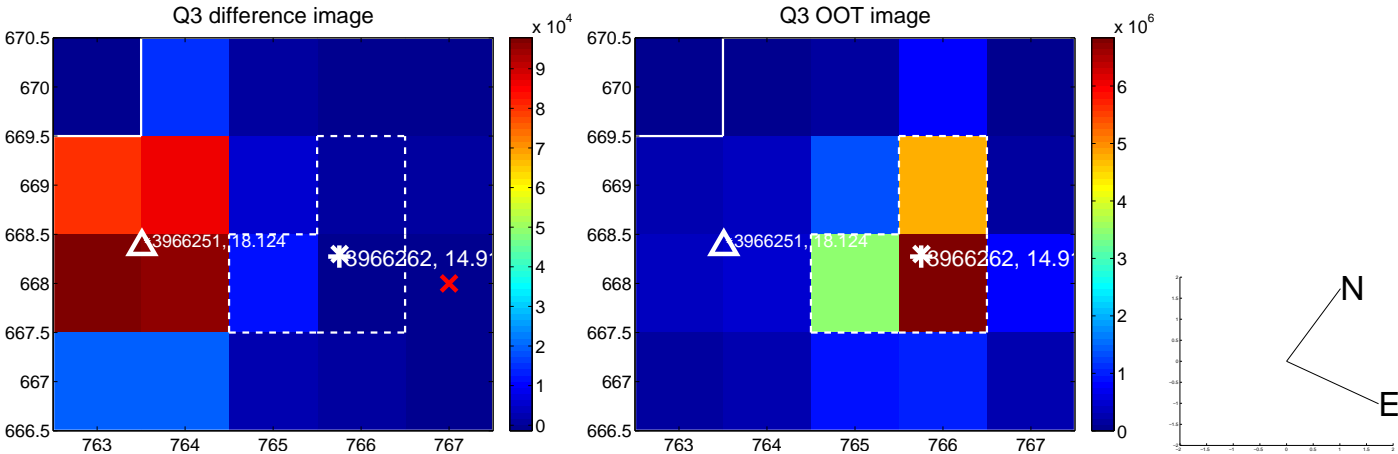
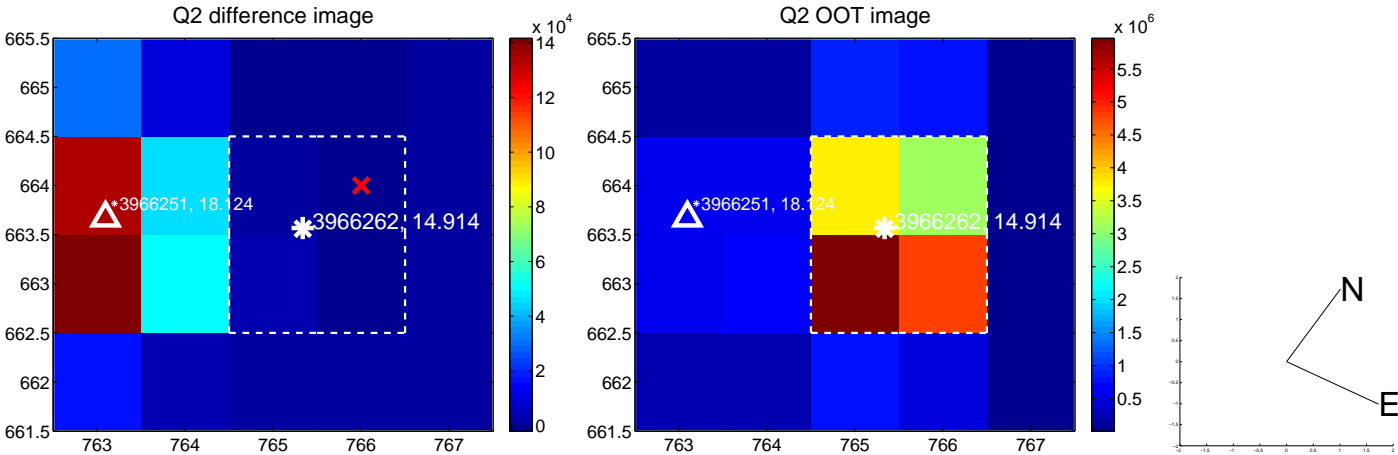
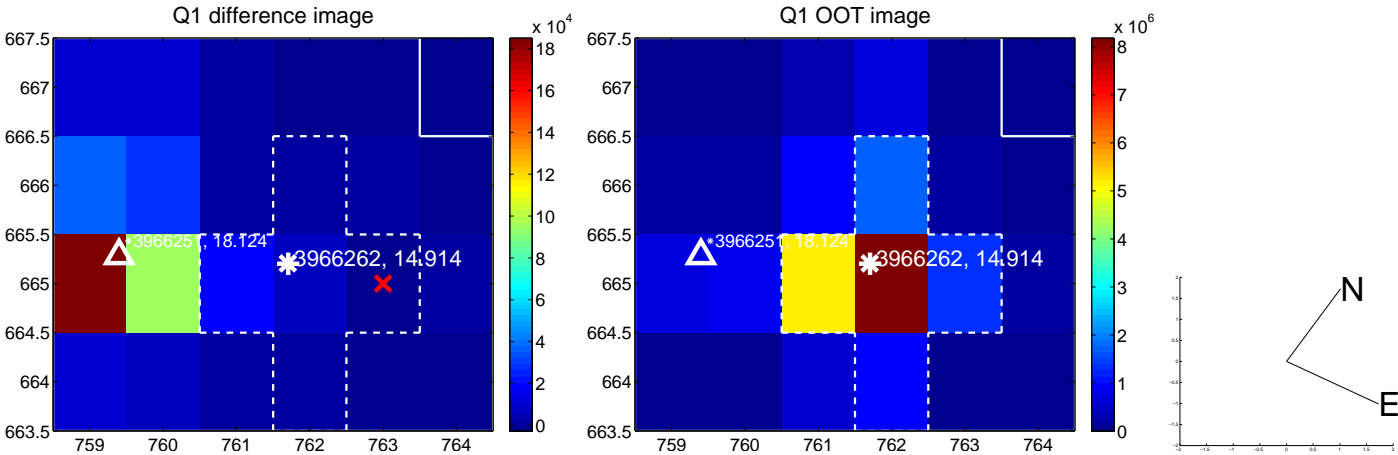
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.967 \pm 0.070$	127.73	$-7.937 \pm 0.068$	$-4.173 \pm 0.070$
PRF-fit source offset from KIC position	$8.996 \pm 0.069$	130.34	$-7.918 \pm 0.068$	$-4.271 \pm 0.069$
photometric centroid source offset	$54.56 \pm 0.24$	225.61	$-49.06 \pm 0.25$	$-23.89 \pm 0.21$

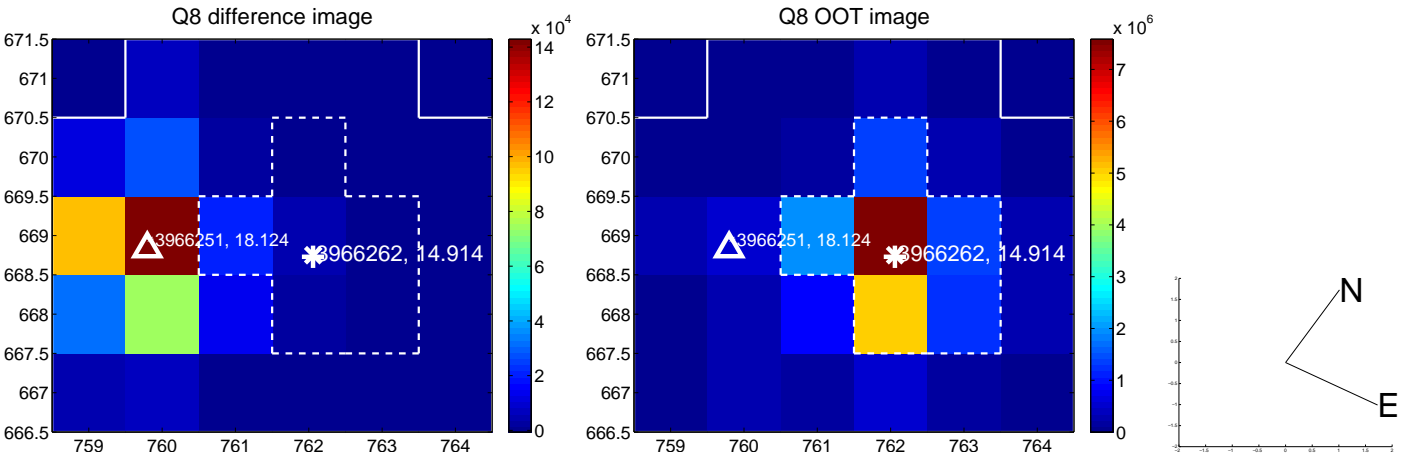
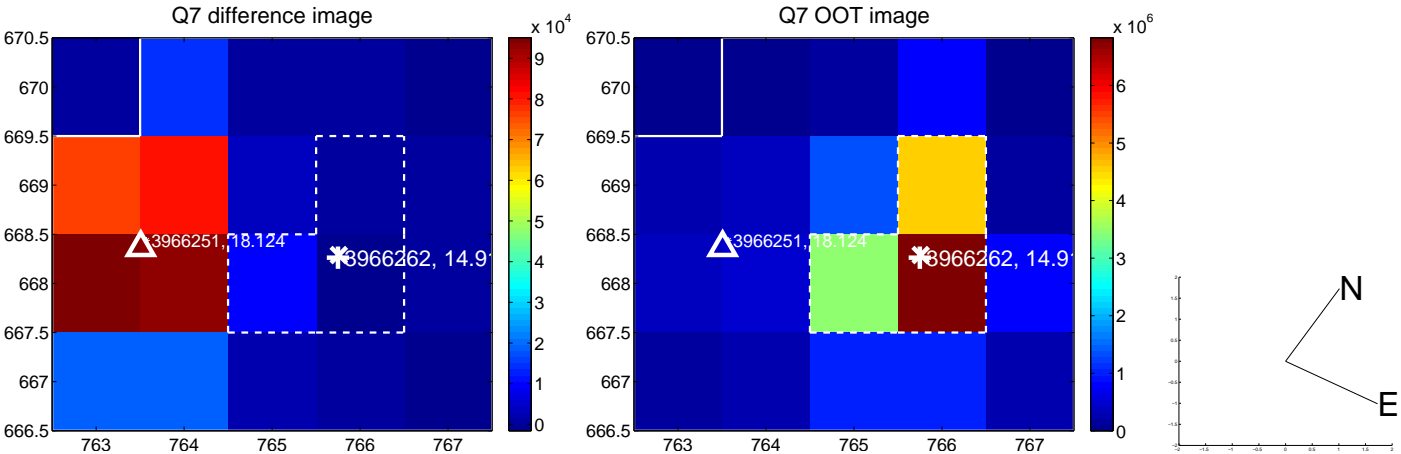
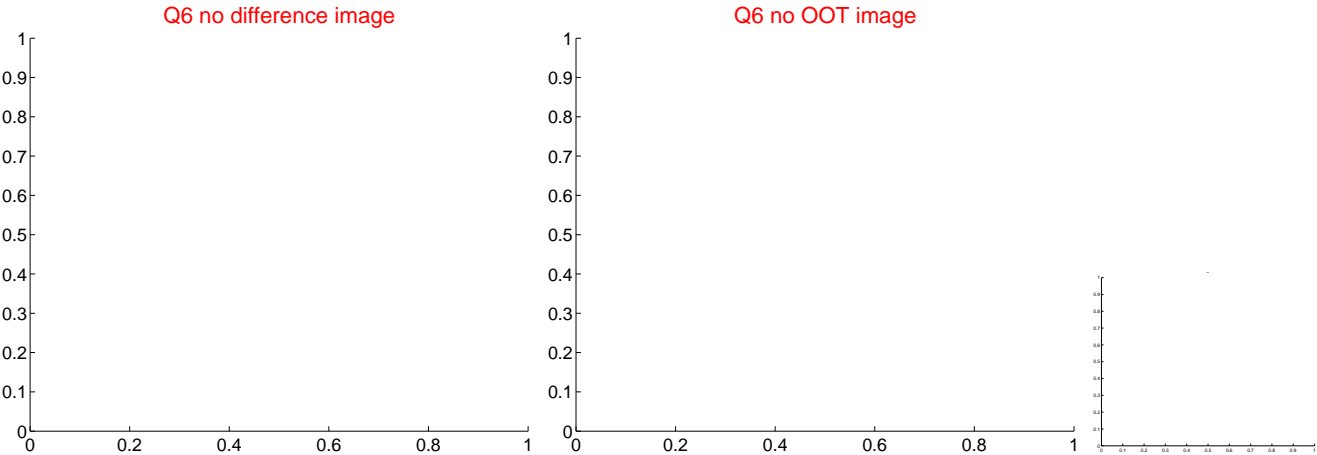
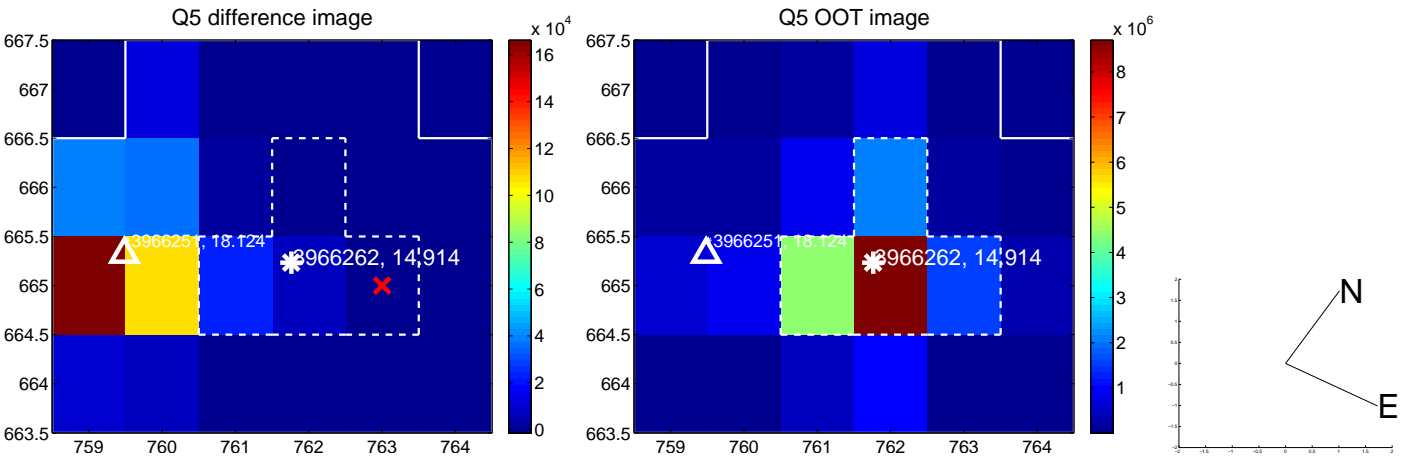


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

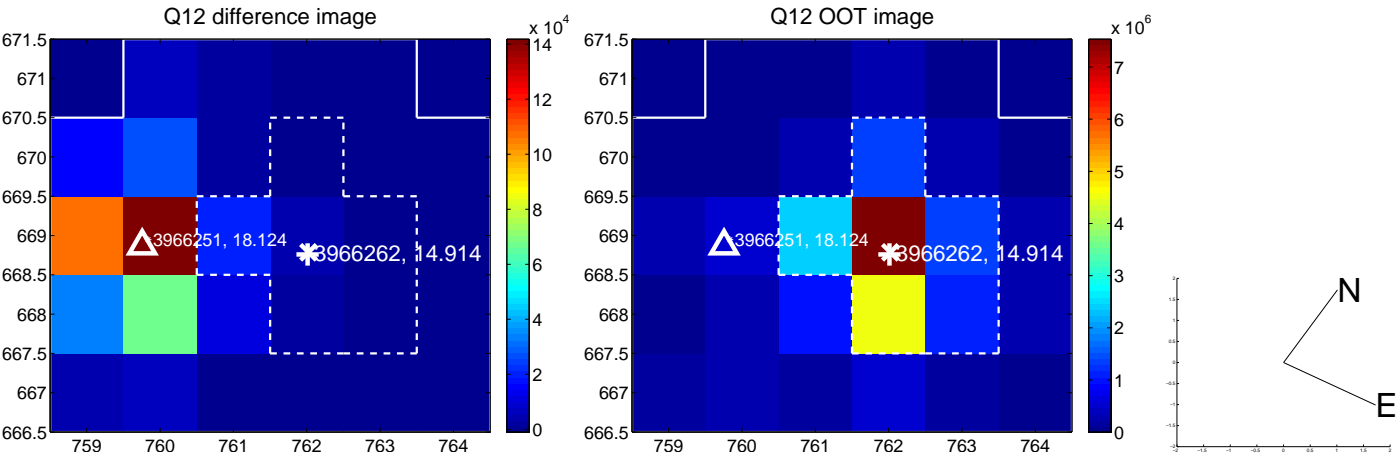
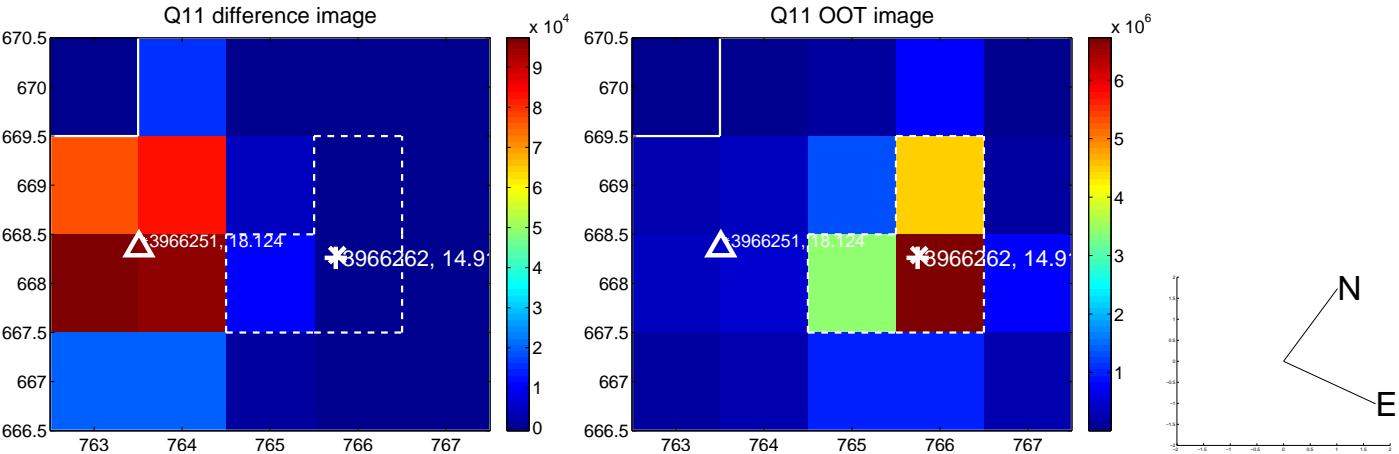
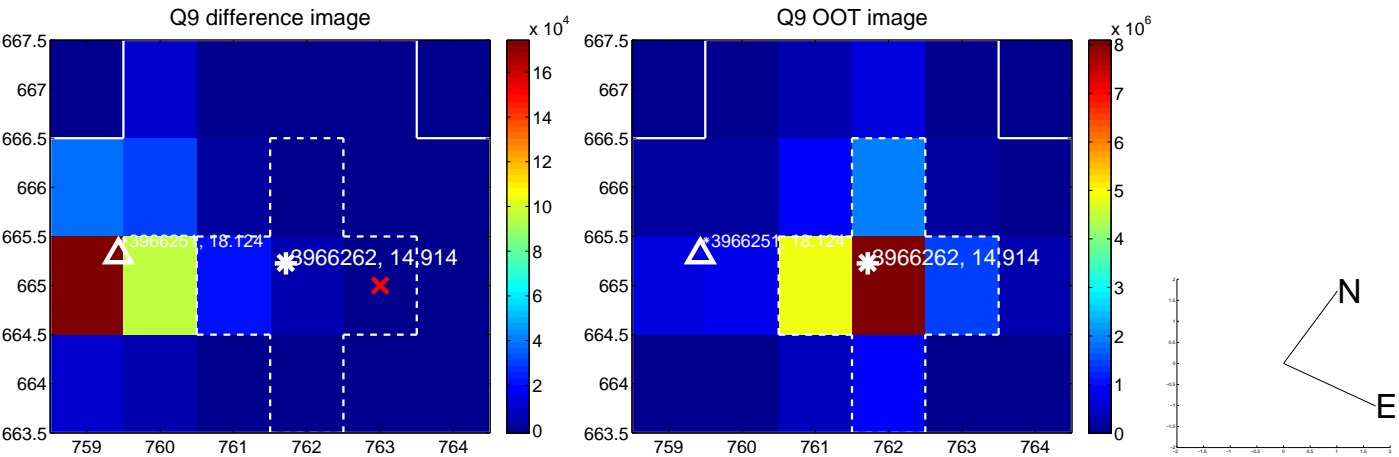


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

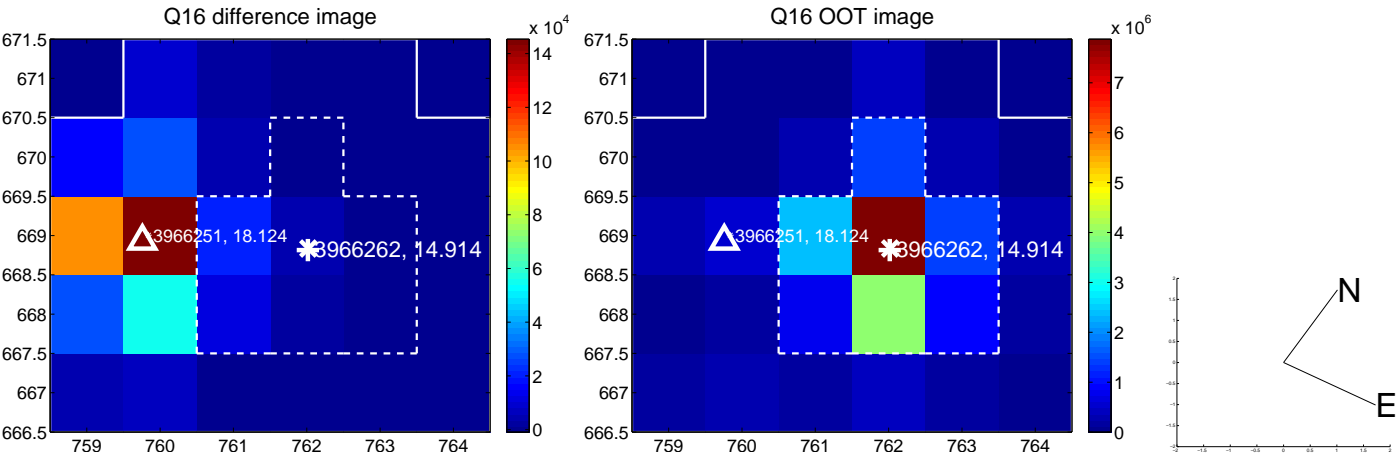
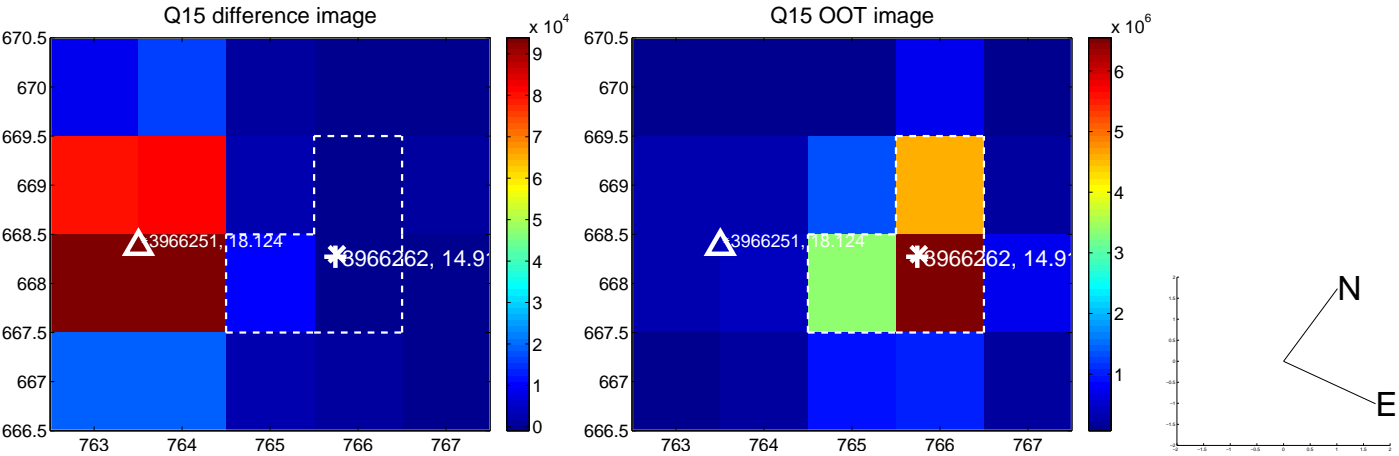
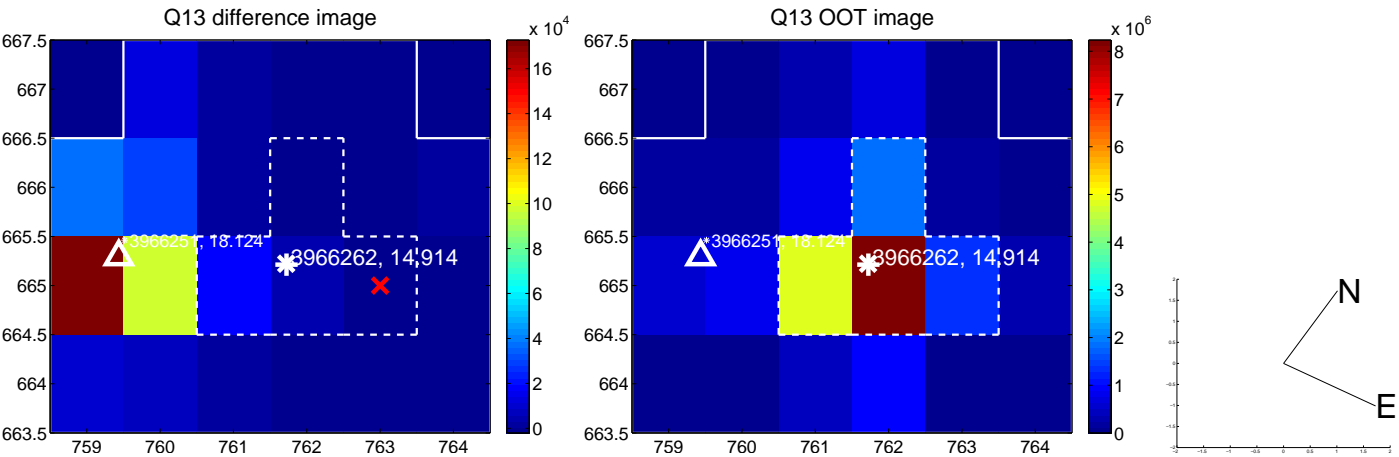




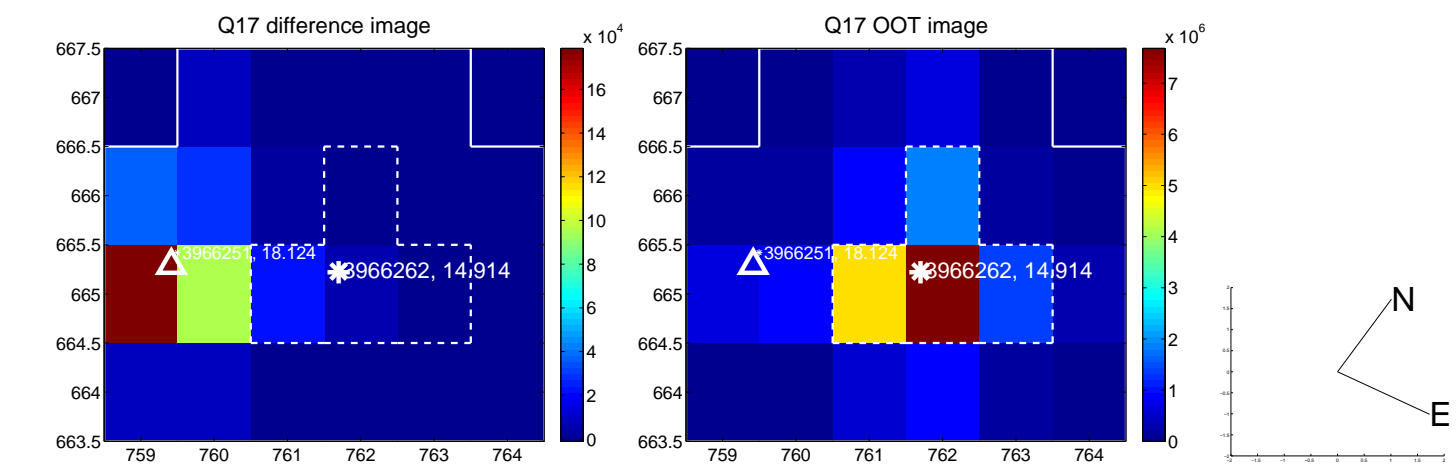
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



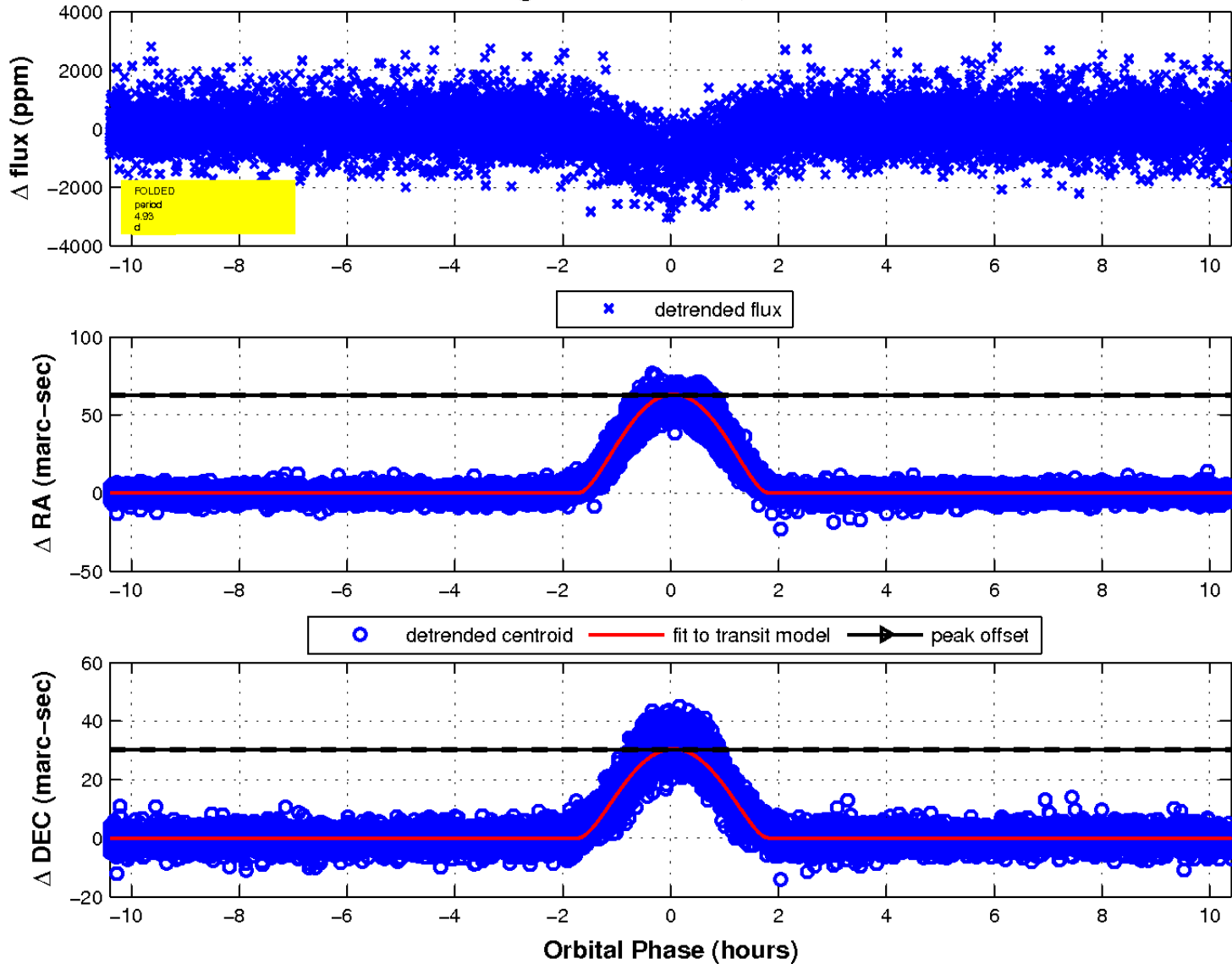
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

