

# KIC 008191611

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008191611-01	OBS	No	0.677491	131.734154	1.1	3.478	13.9	0.2	1.36	6688	0.17	13005.10
008191611-02	OBS	No	0.677495	132.035456	376.9	1.009	18.5	33.6	1.36	6688	3.10	13005.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008191611-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008191611-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

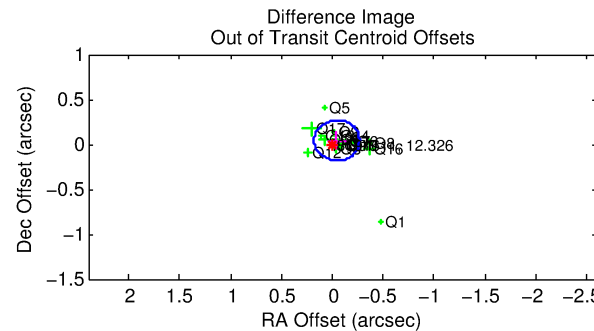
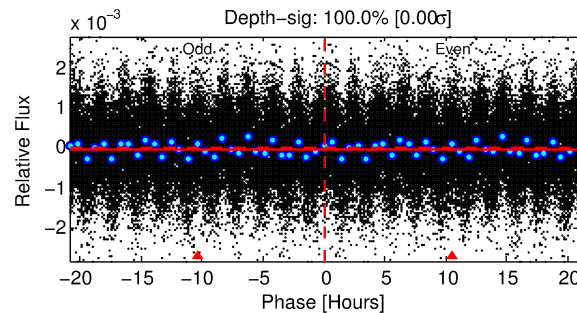
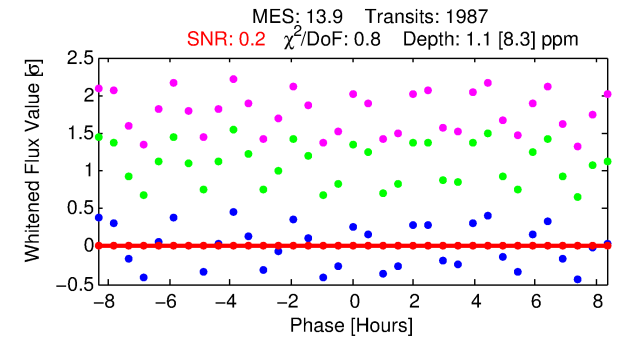
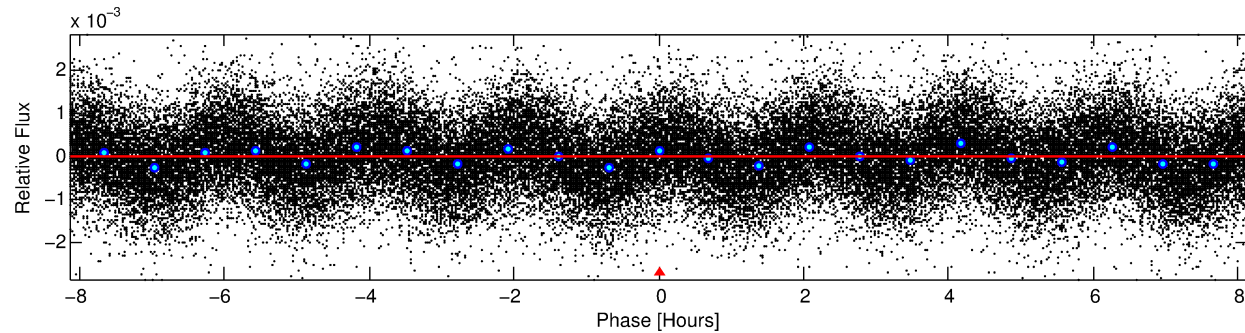
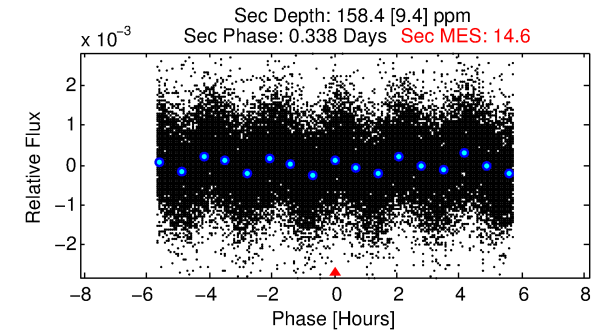
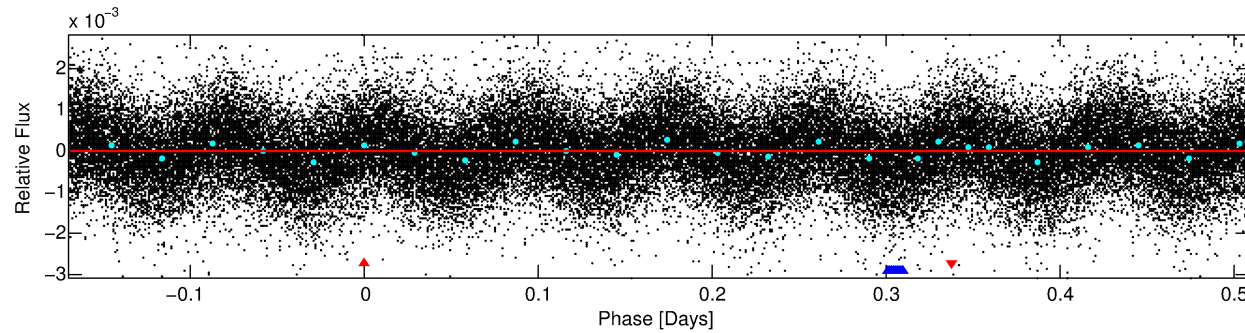
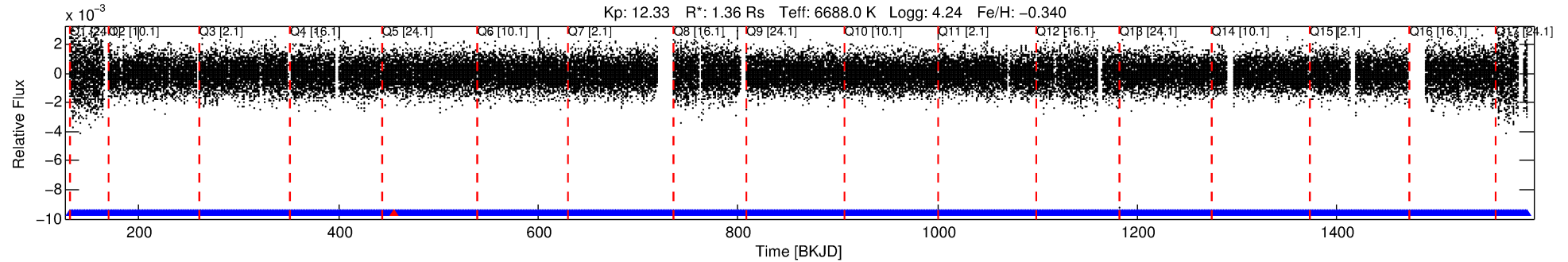
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008191611-01

No Significant Match Found

# DV One-Page Summary

KIC: 8191611 Candidate: 1 of 2 Period: 0.677 d



## DV Fit Results:

Period = 0.67749 [0.00062] d  
Epoch = 131.7342 [0.2251] BKJD  
Rp/R\* = 0.0011 [0.0062]  
a/R\* = 1.14 [6.47]  
b = 0.90 [5.18]  
Seff = 13005.10 [4876.08]  
Teq = 2723 [255] K  
Rp = 0.17 [0.92] Re  
a = 0.0160 [0.0039] AU  
Ag = 787.91 [8595.49] [0.09σ]  
Teffp = 22306 [60809] K [0.32σ]

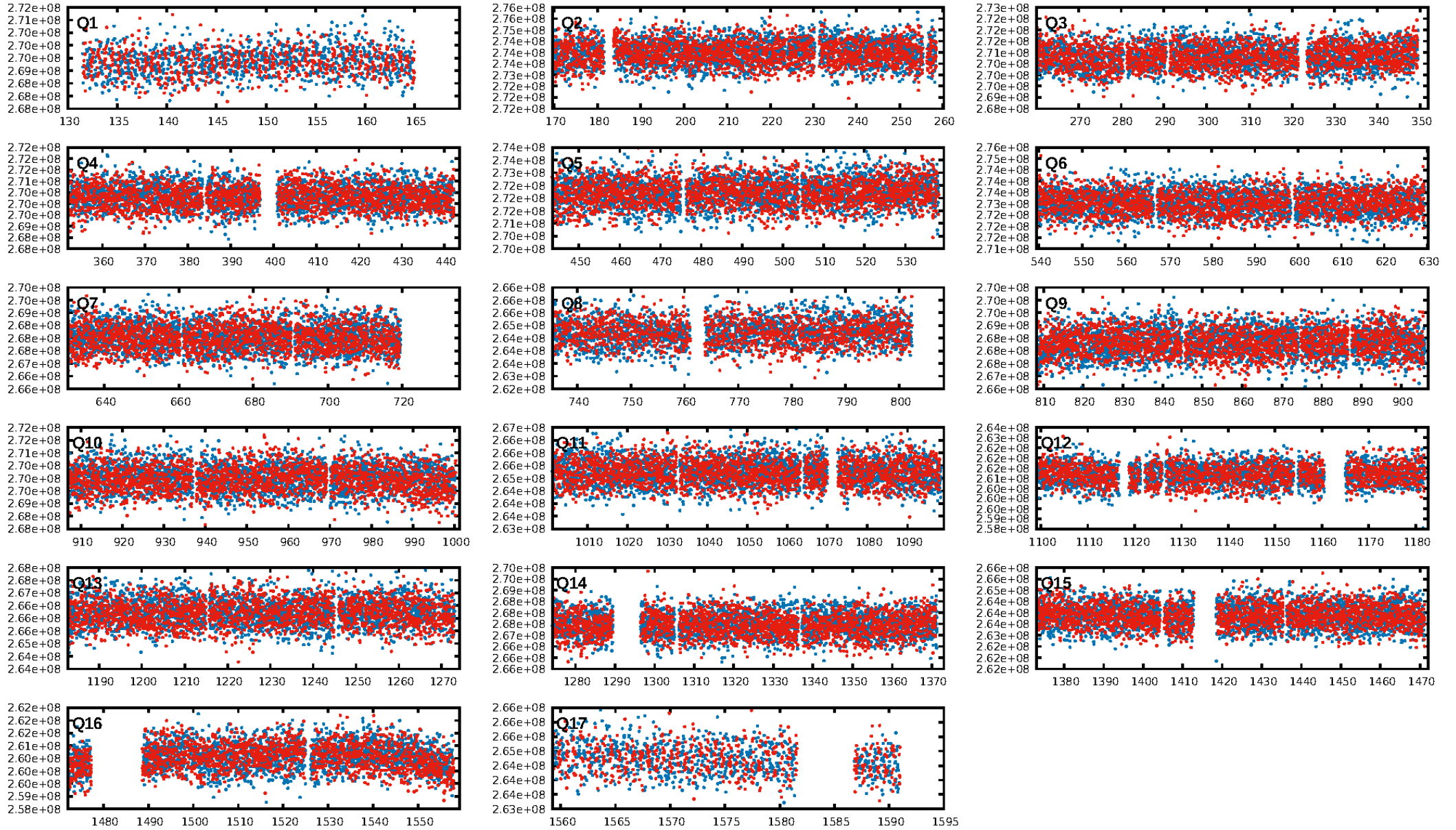
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00σ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.31e-98  
RollingBand-fgt: 1.00 [1895/1896]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.059 arcsec [0.78σ]  
KicOffset-rm: 0.206 arcsec [2.62σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:31:08 Z

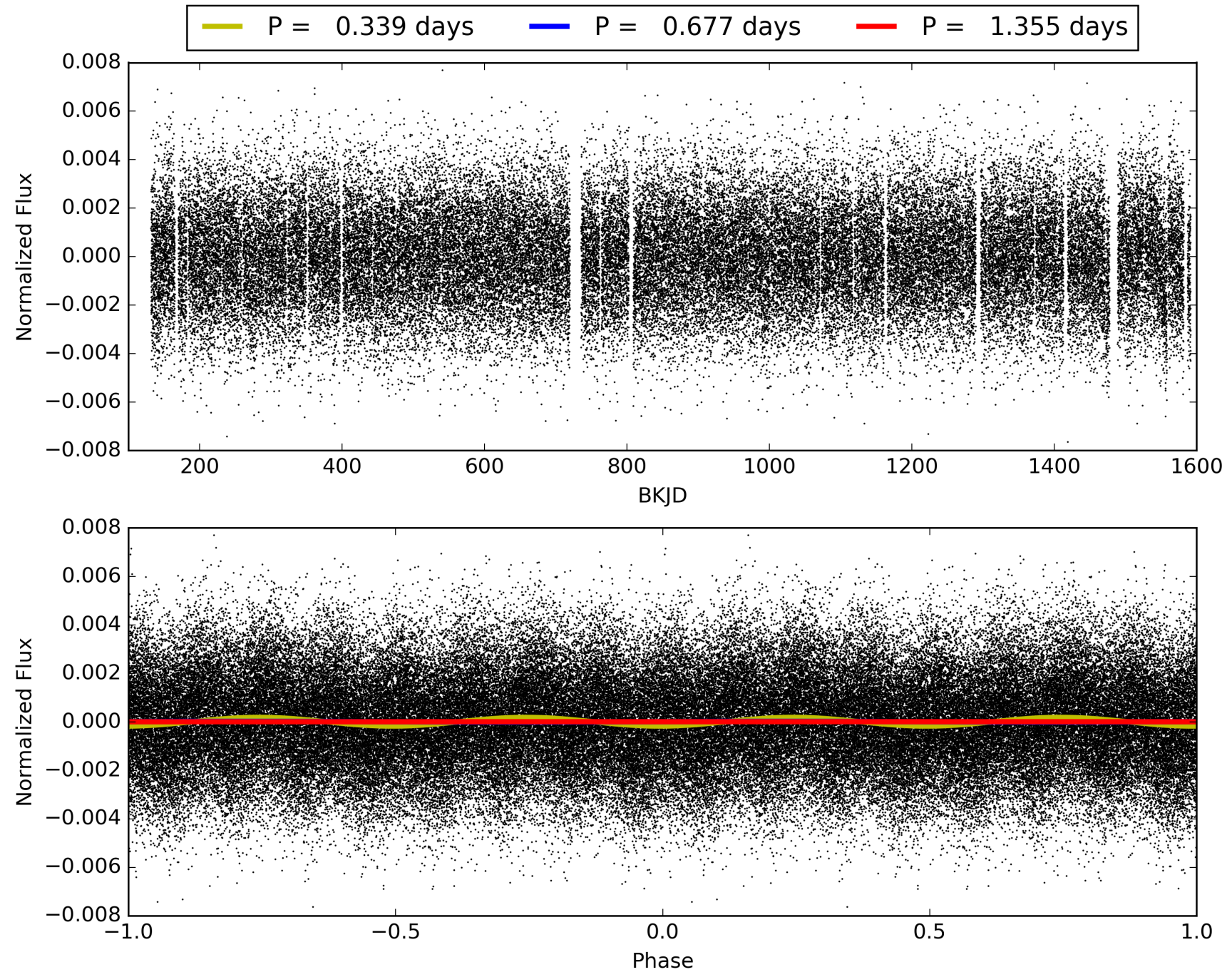
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008191611-01, PDC Light Curves



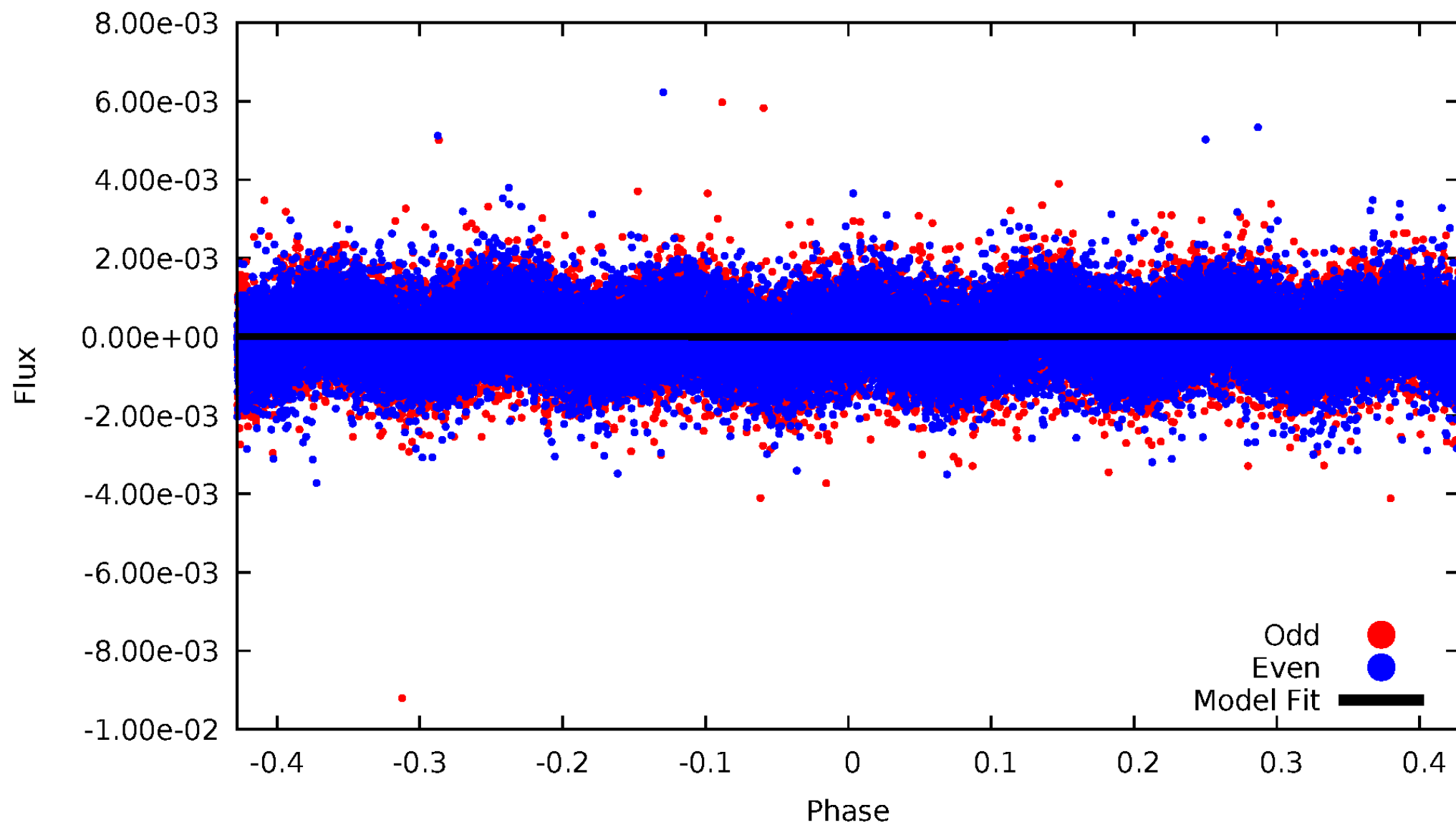


# TCE 008191611-01



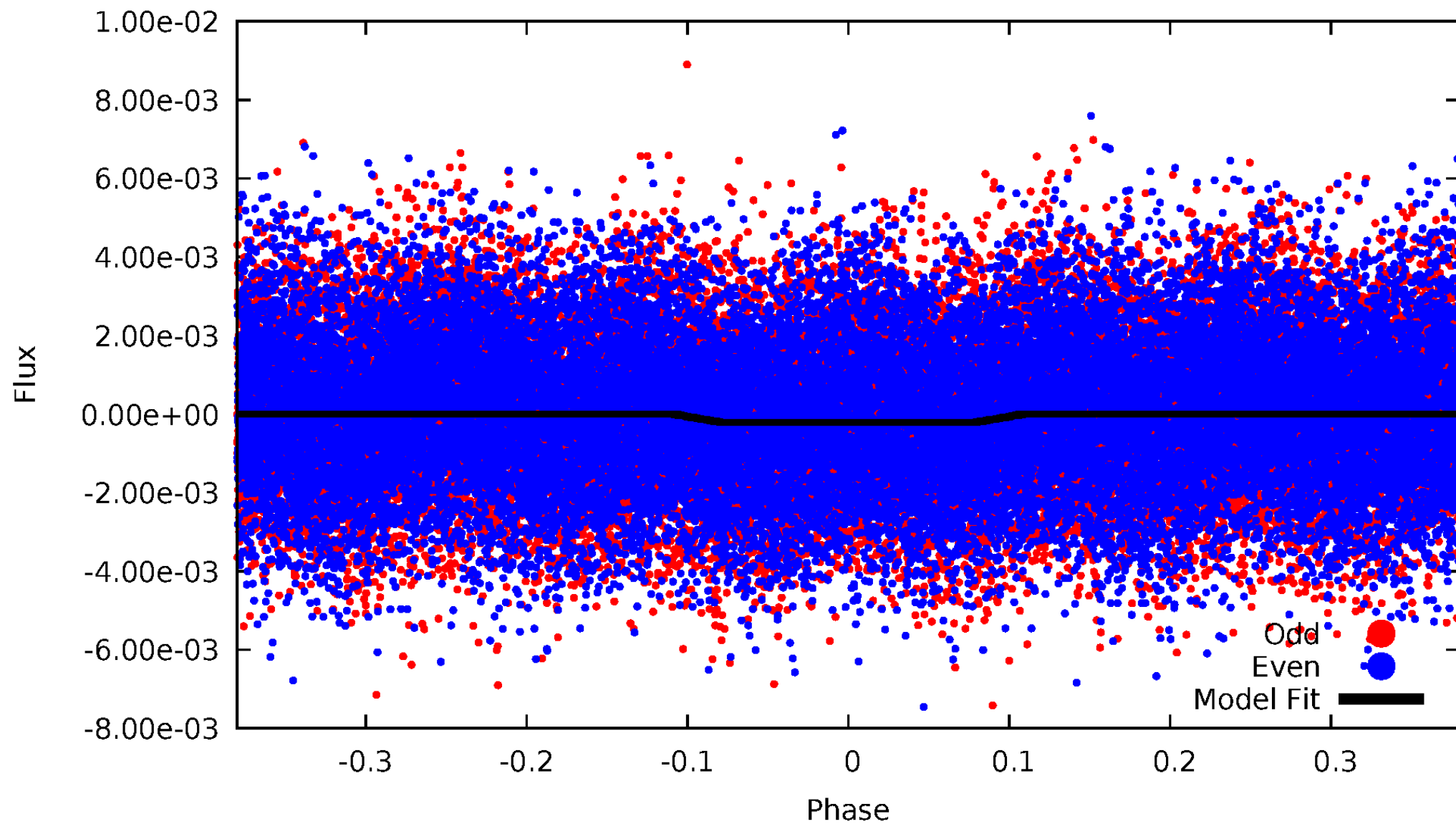
# DV Odd/Even

TCE 008191611-01



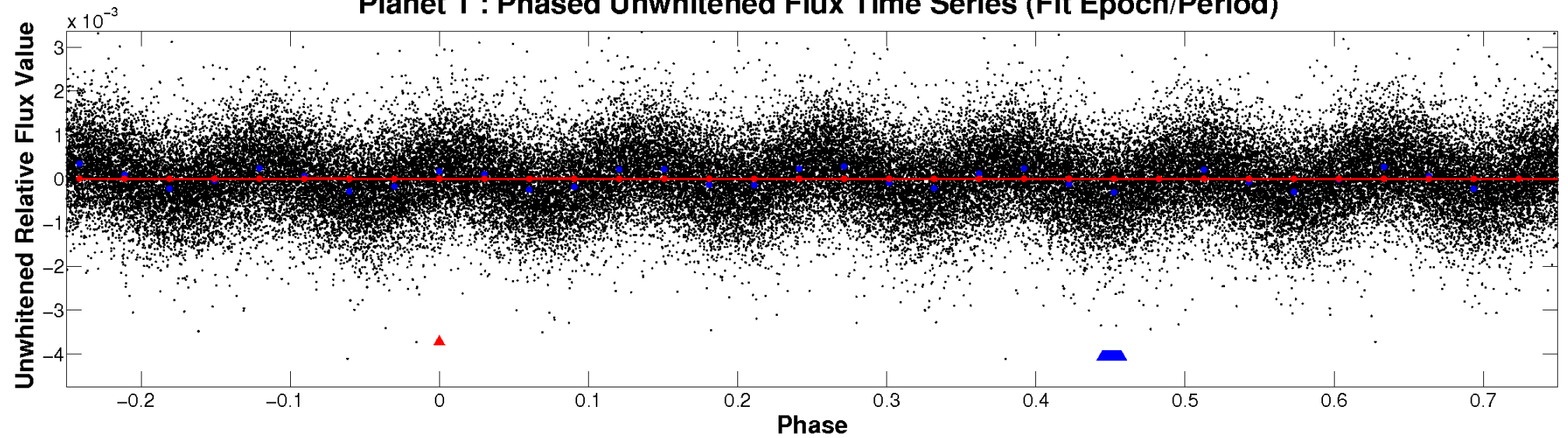
# ALT Odd/Even

TCE 008191611-01

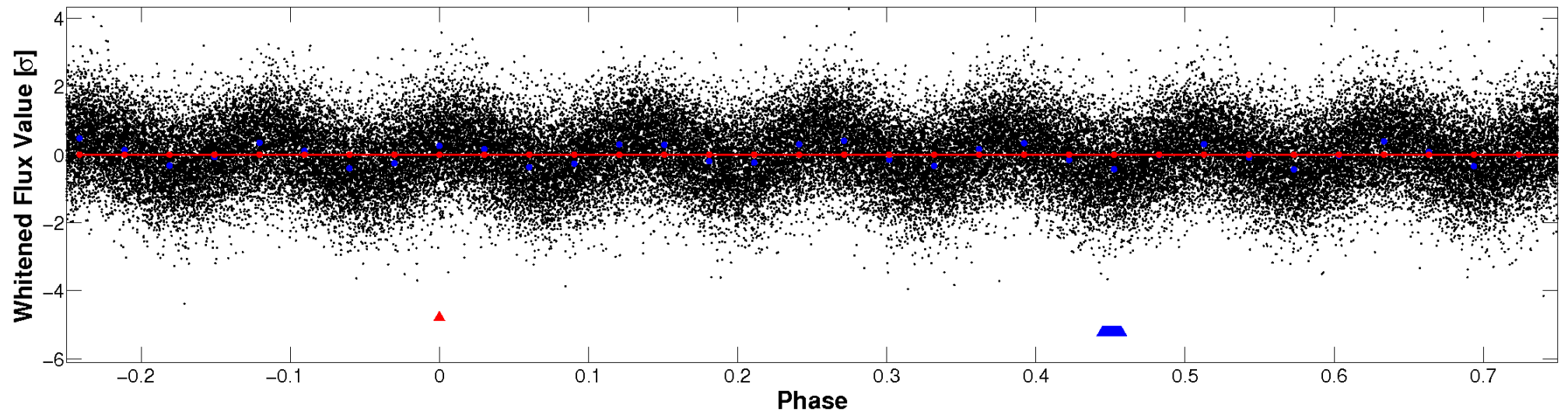


# Non-Whitened Vs. Whitened Light Curve

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



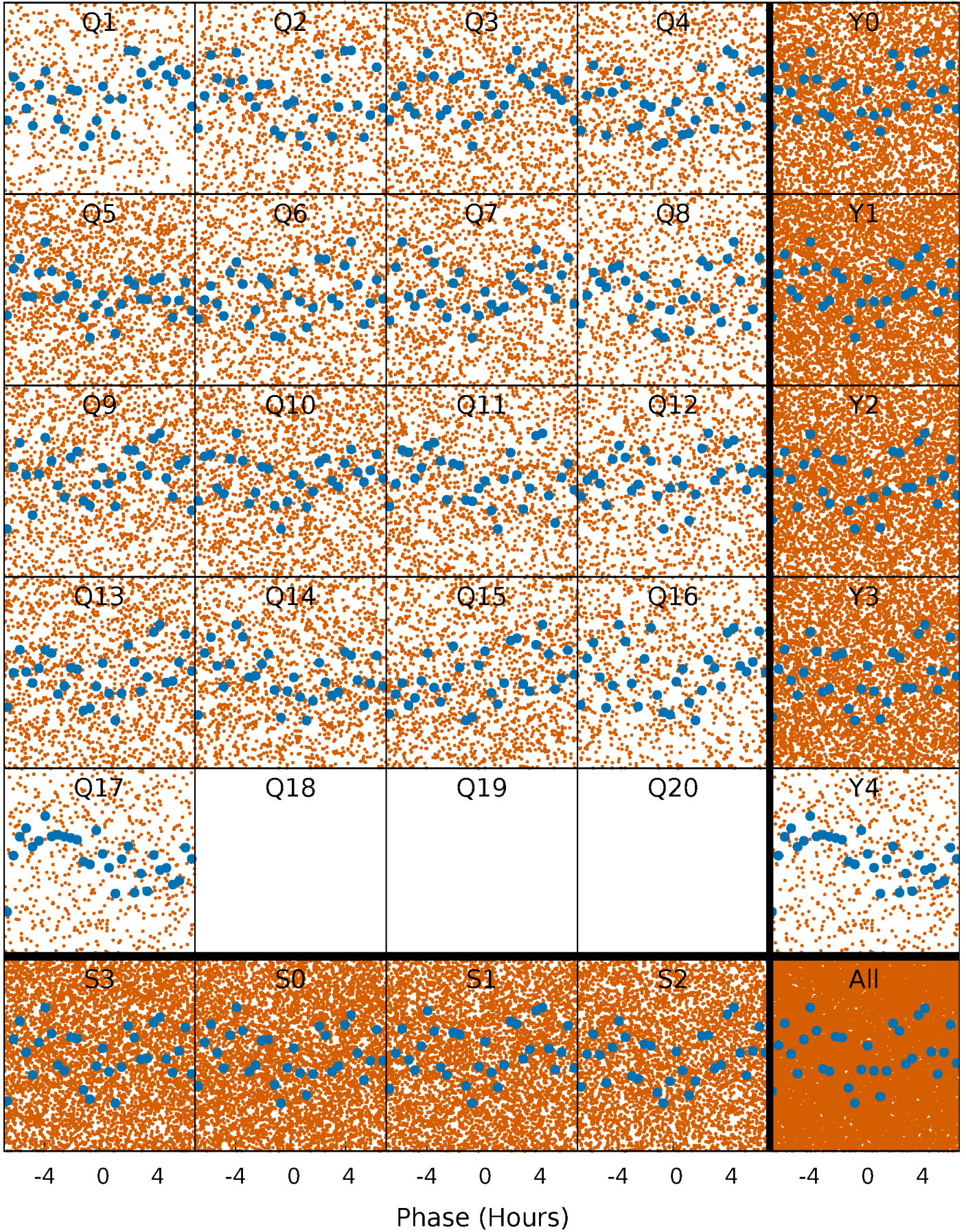
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

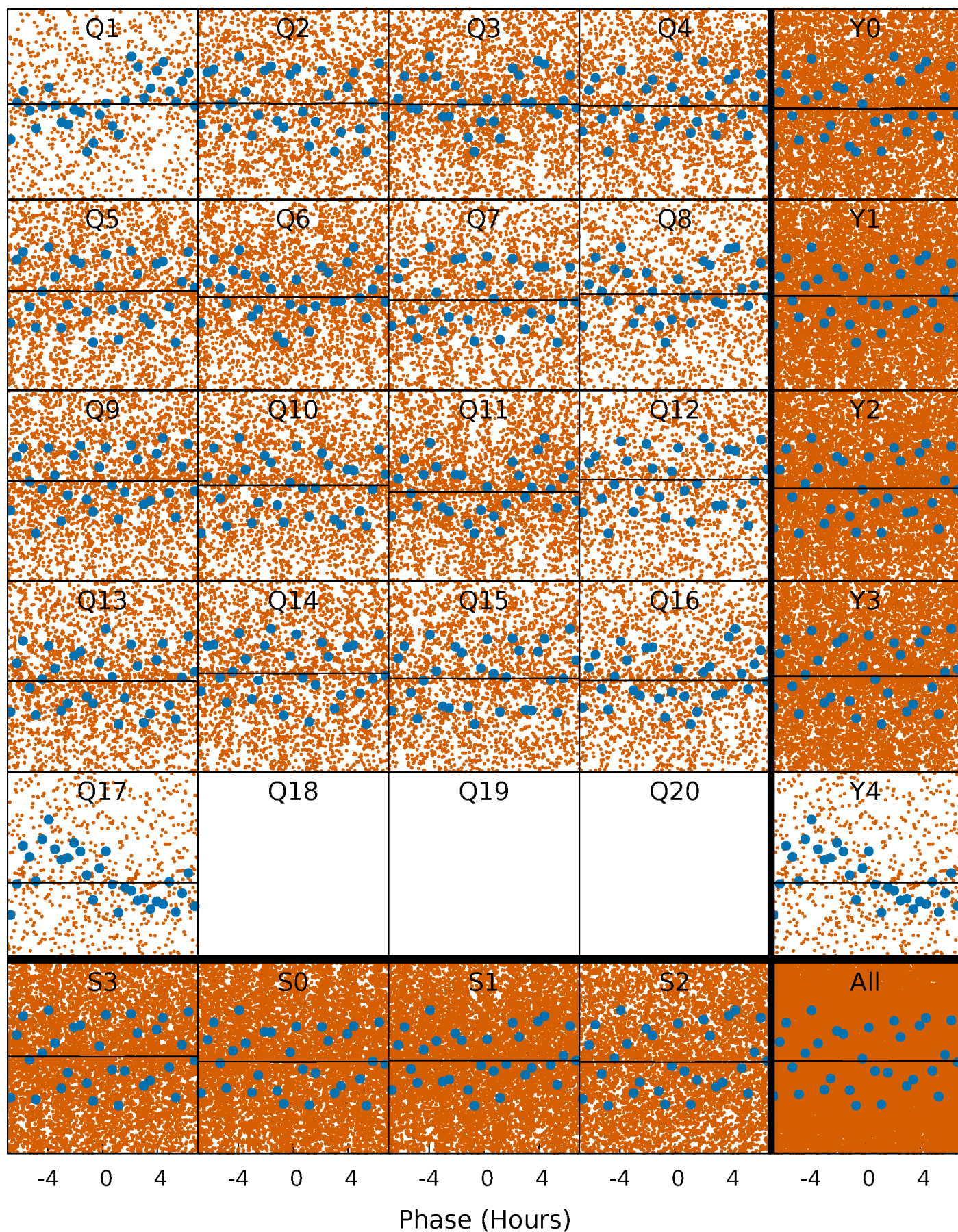
TCE 008191611-01 P= 0.677491 Days  $T_0=131.734154$  (BKJD)





# DV Quarter-Phased Transit Curves

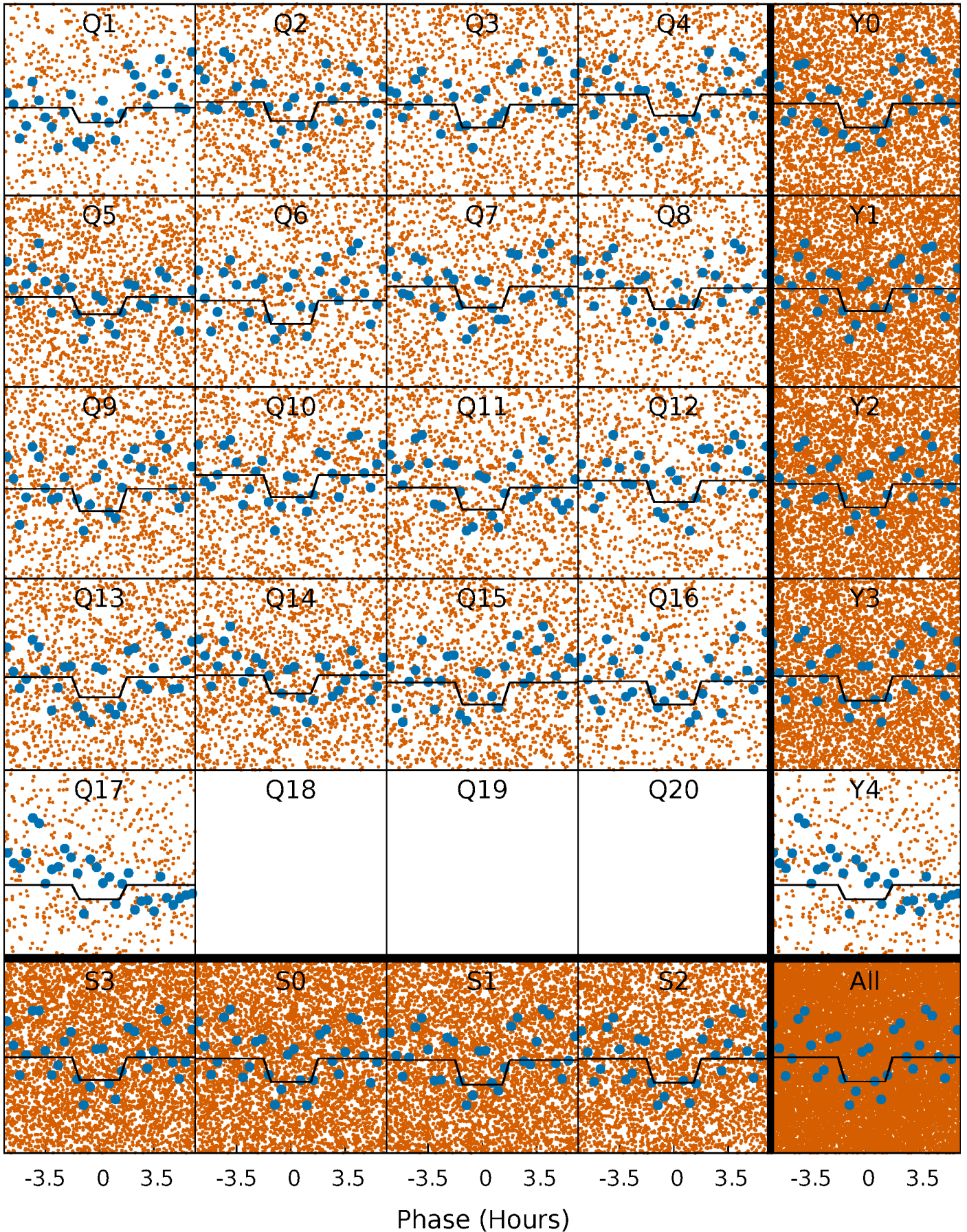
TCE 008191611-01 P= 0.677491 Days  $T_0=131.734154$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

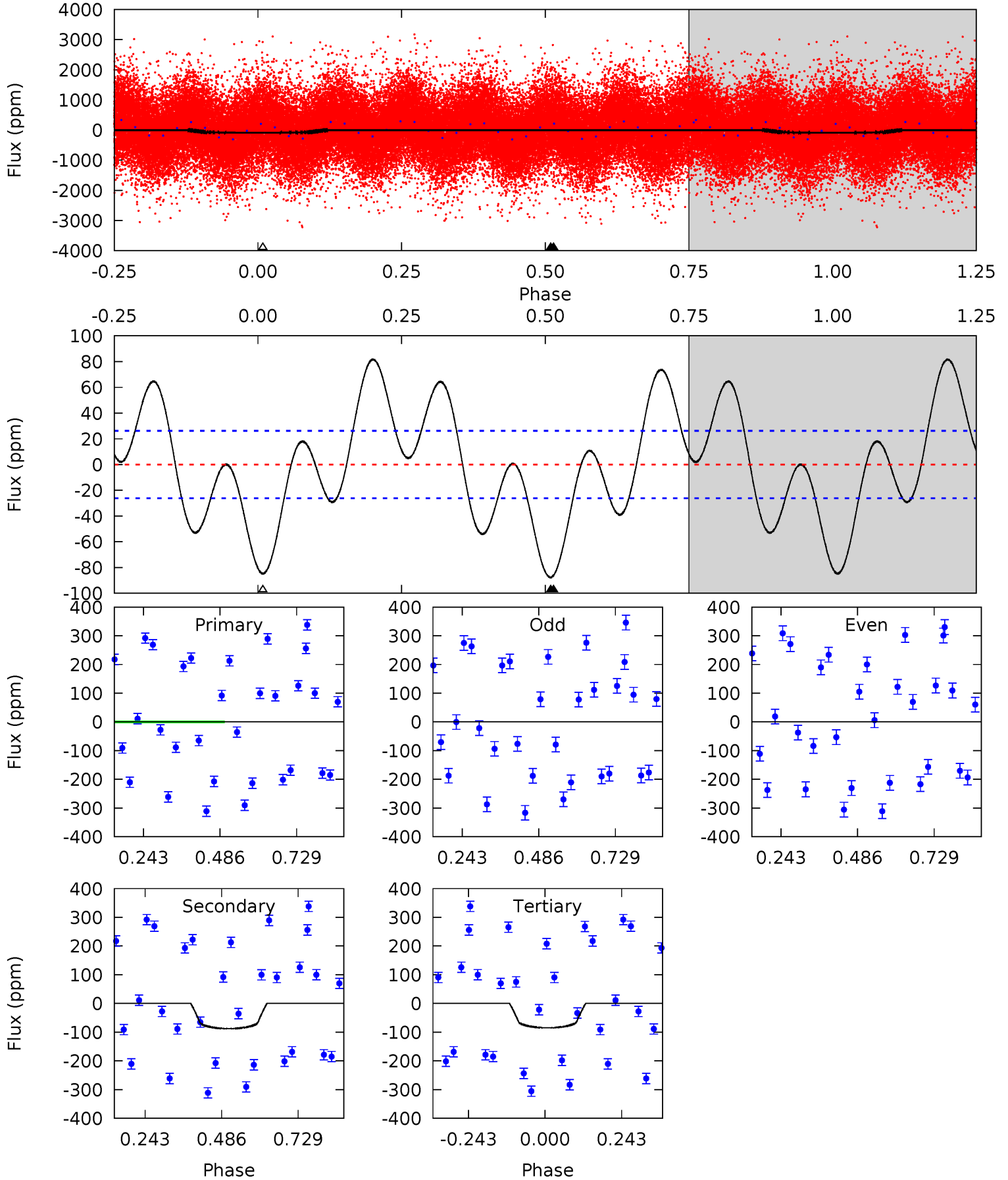
TCE 008191611-01 P= 0.677493 Days  $T_0=131.738943$  (BKJD)



# DV Model-Shift Uniqueness Test

008191611-01, P = 0.677491 Days, E = 131.056663 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
14.4	14.7	14.1	0	4.37	1.17	7.15	0.24	14.4	0.51	14.7	0.85	1.19	0.48	5.18

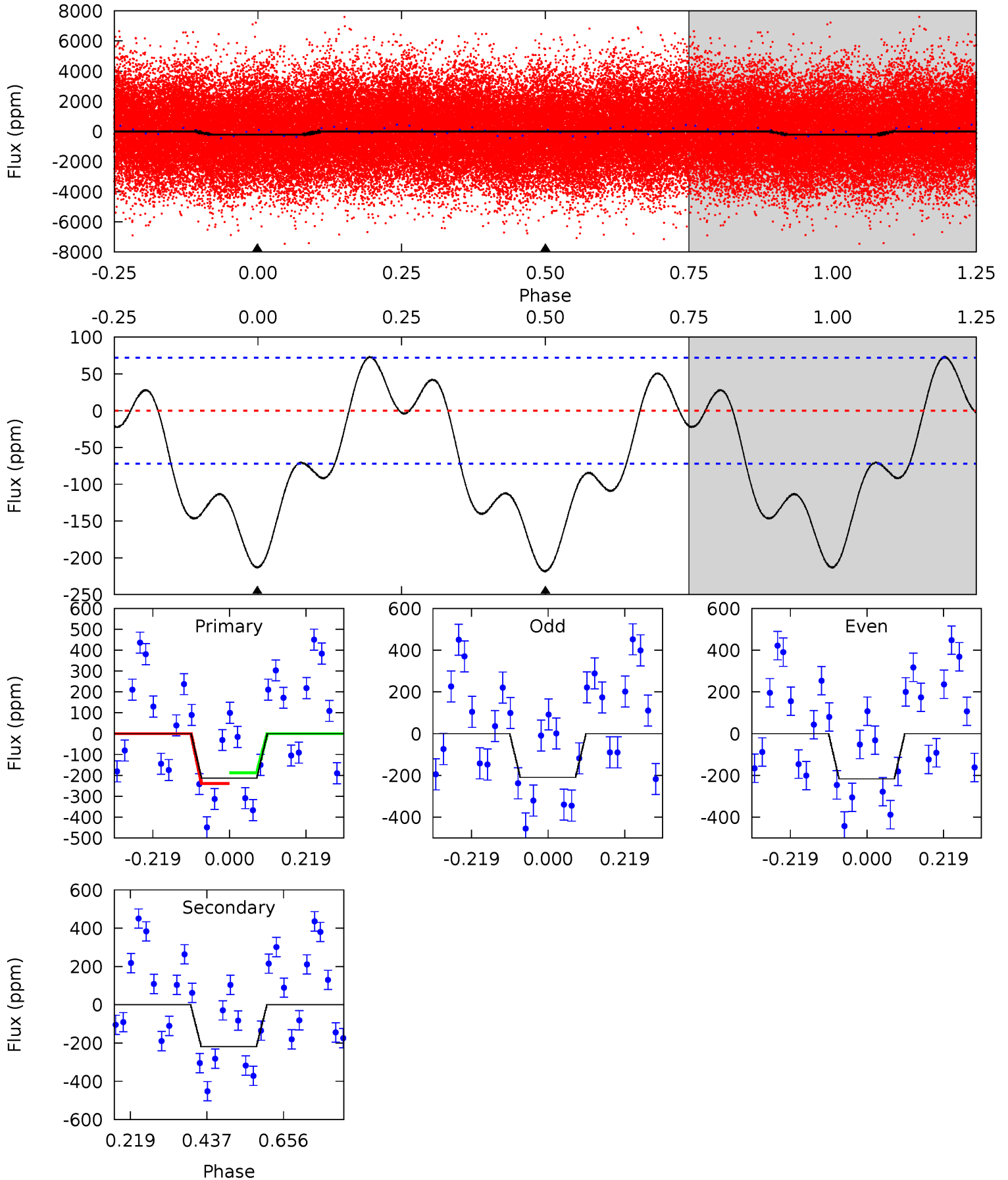




# Alt Model-Shift Uniqueness Test

008191611-01, P = 0.677493 Days, E = 131.061450 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
13.0	13.3	0	0	4.40	1.23	1.01	13.0	13.0	13.3	13.3	0.22	1.00	0.25	1.58



### Stellar Parameters For KIC 008191611

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6688^{+152}_{-203}$	$4.244^{+0.128}_{-0.192}$	$-0.340^{+0.250}_{-0.300}$	$1.361^{+0.403}_{-0.268}$	$1.189^{+0.178}_{-0.178}$	$0.665^{+0.482}_{-0.326}$
	+2%/-3%	+3%/-5%	+74%/-88%	+30%/-20%	+15%/-15%	+73%/-49%
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 008191611-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-88 \pm 6$	$0.71^{+0.74}_{-0.51}$	$3827^{+275}_{-227}$	$10385^{+30774}_{-3745}$	$25^{+288}_{-19}$
Alt.	$-219 \pm 16$	$2.22^{+1.03}_{-0.94}$	$3823^{+271}_{-237}$	$6595^{+2531}_{-1141}$	$6.261^{+12.106}_{-3.340}$

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

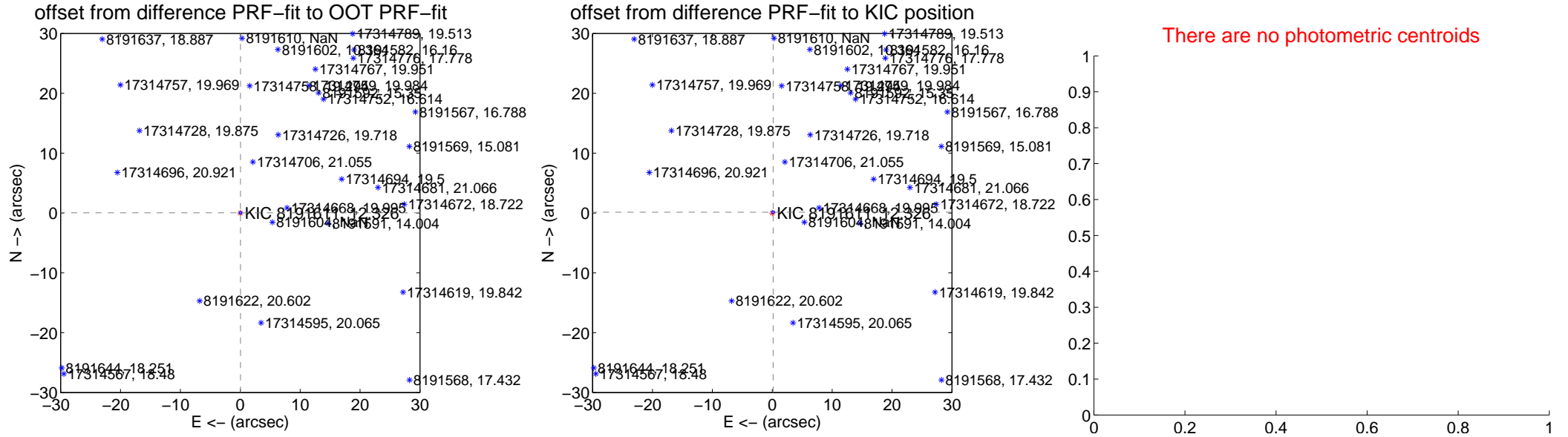
## DV Centroid Data

Supplemental centroid analysis for 008191611-01. Kepler magnitude: 12.33. Transit SNR 0.16

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

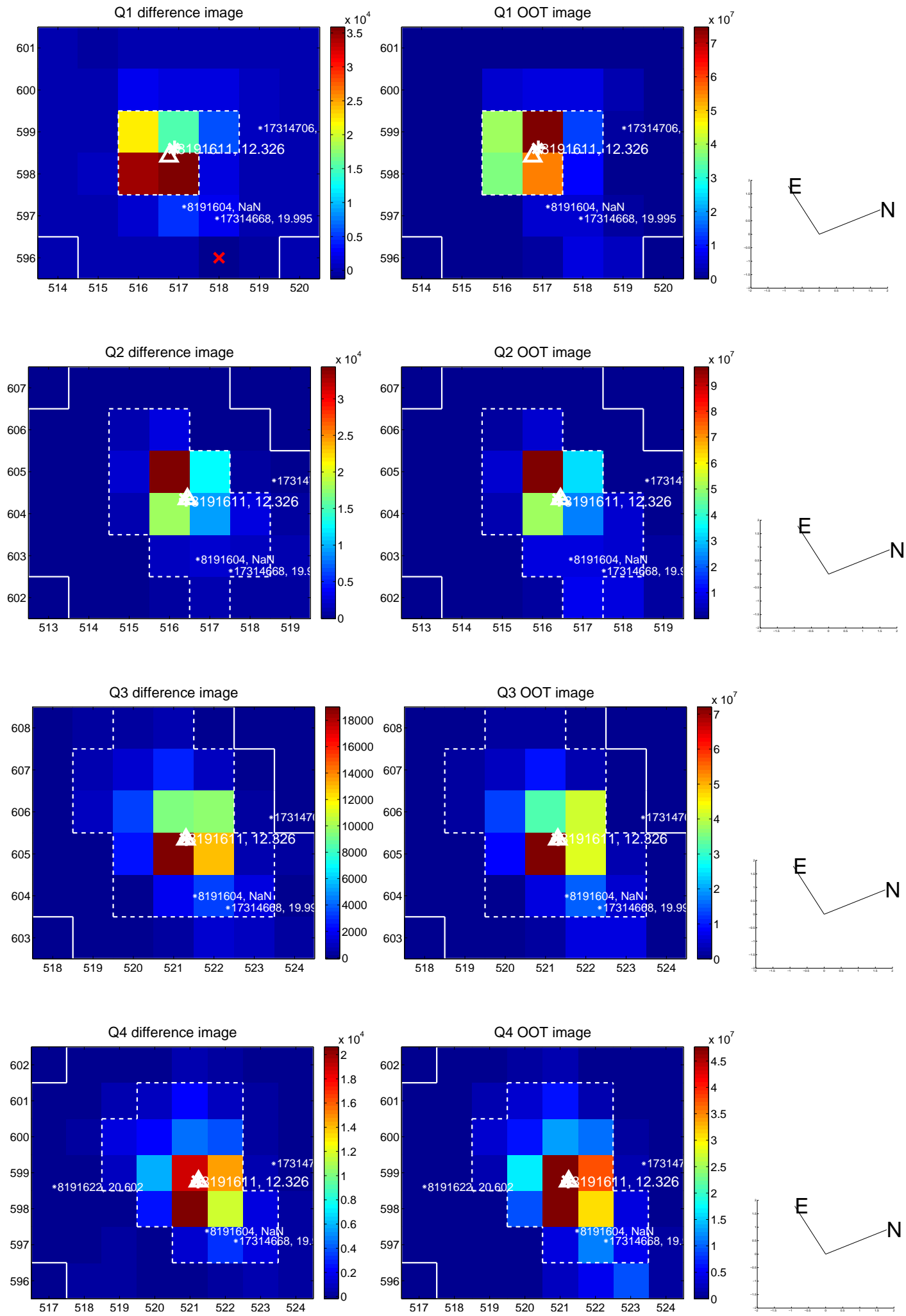
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.059 \pm 0.075$	0.78	$-0.042 \pm 0.080$	$0.041 \pm 0.088$
PRF-fit source offset from KIC position	$0.206 \pm 0.079$	2.62	$-0.152 \pm 0.084$	$0.139 \pm 0.071$
photometric centroid source offset	—	—	—	—



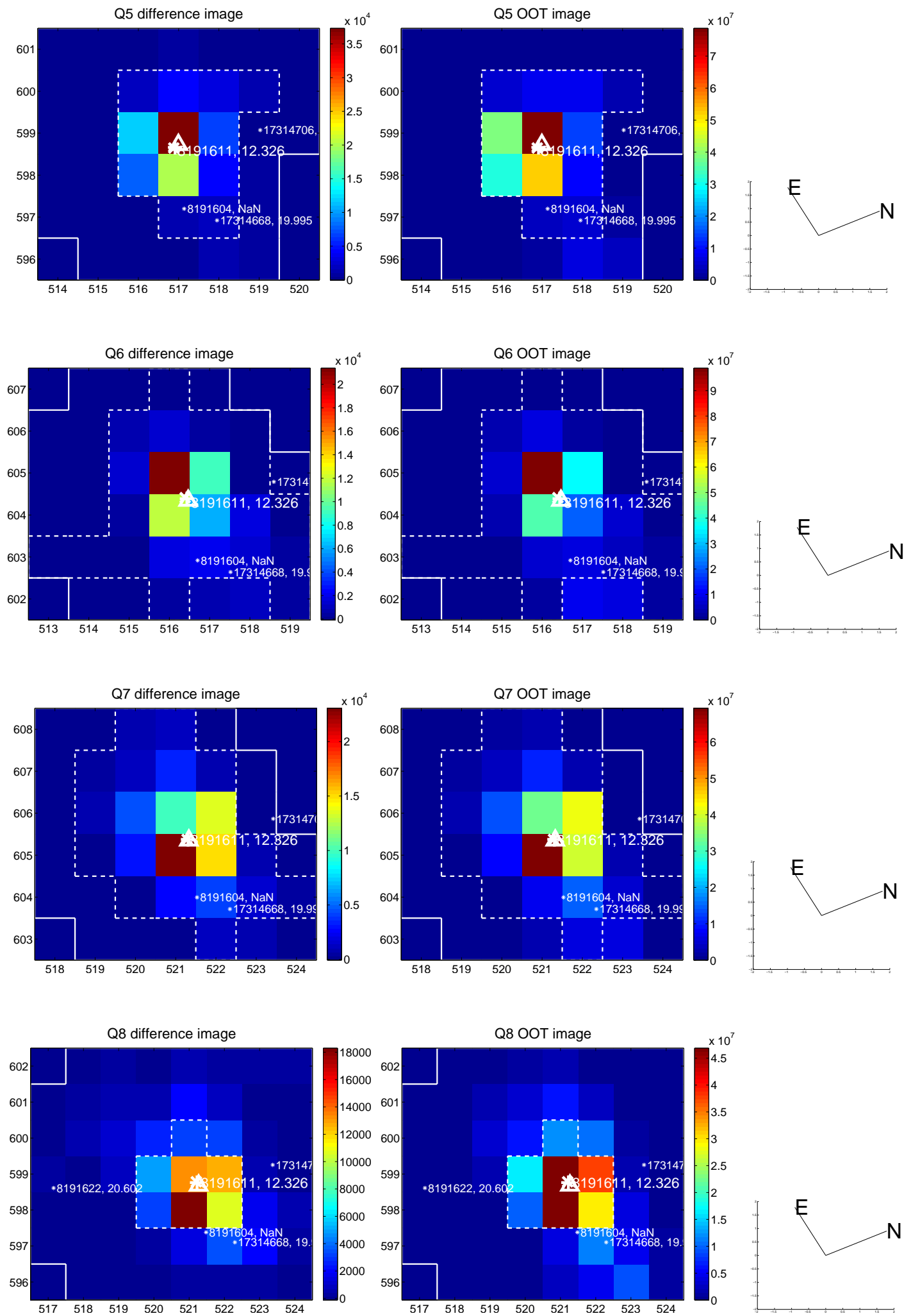
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.



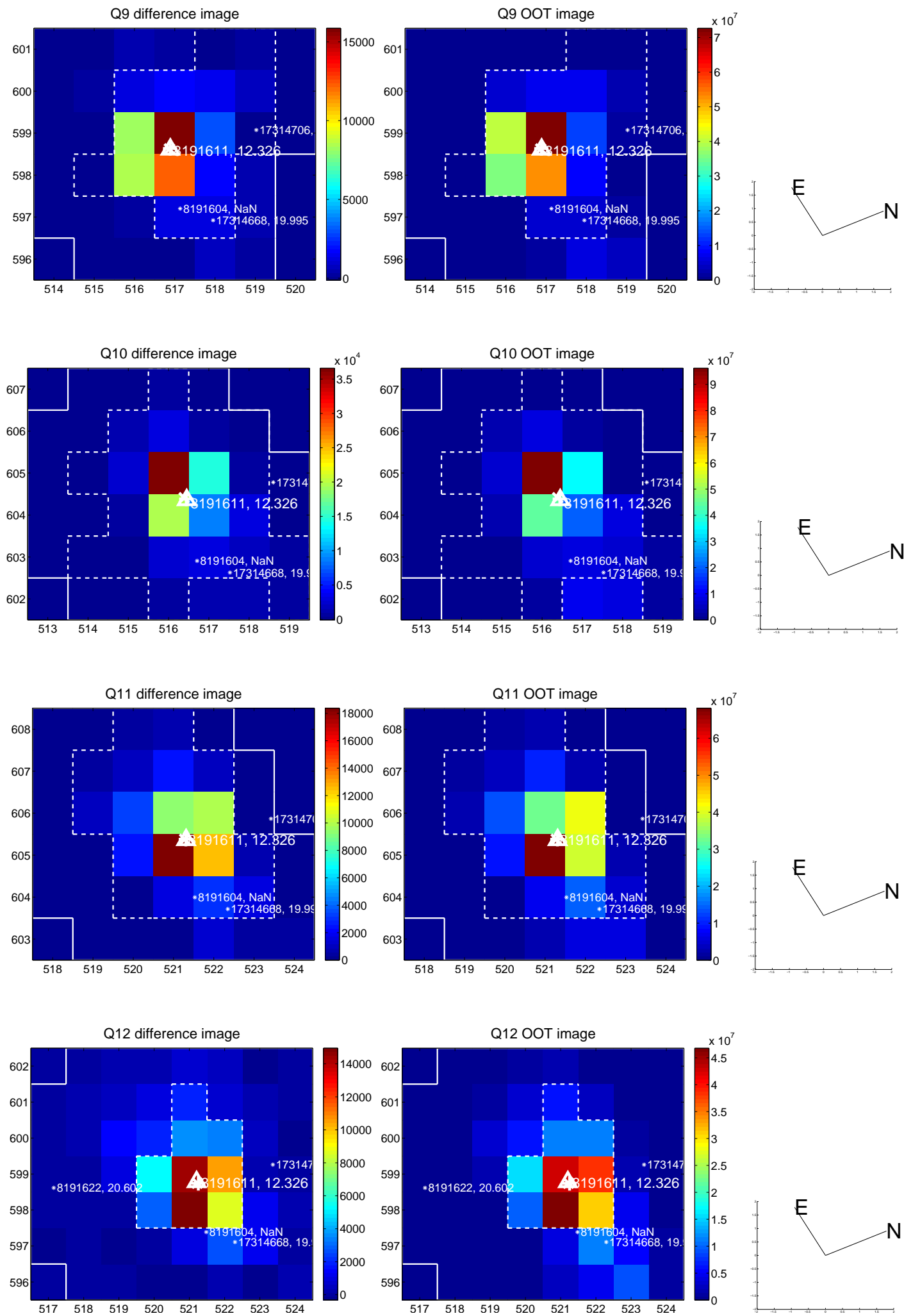
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

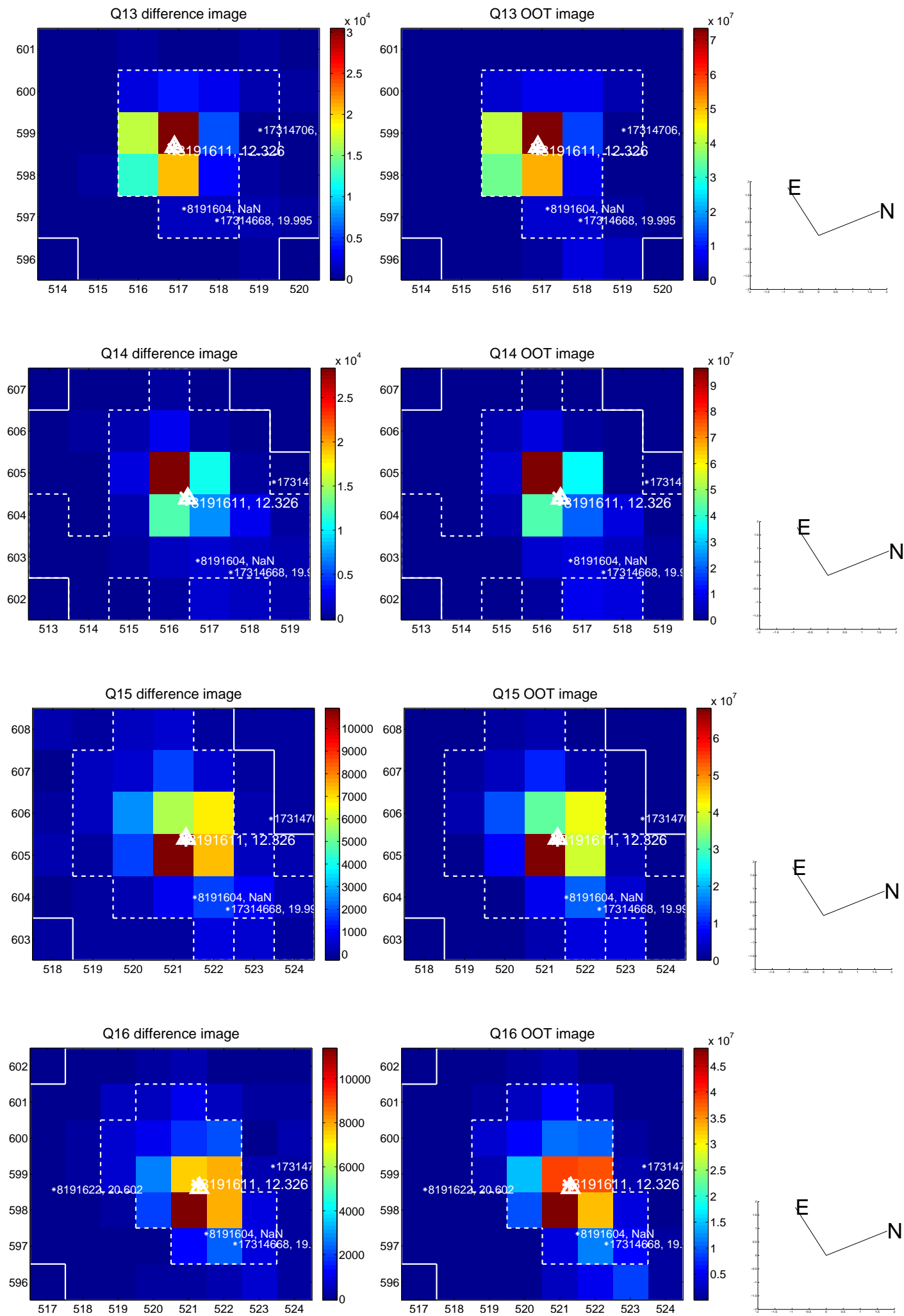


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

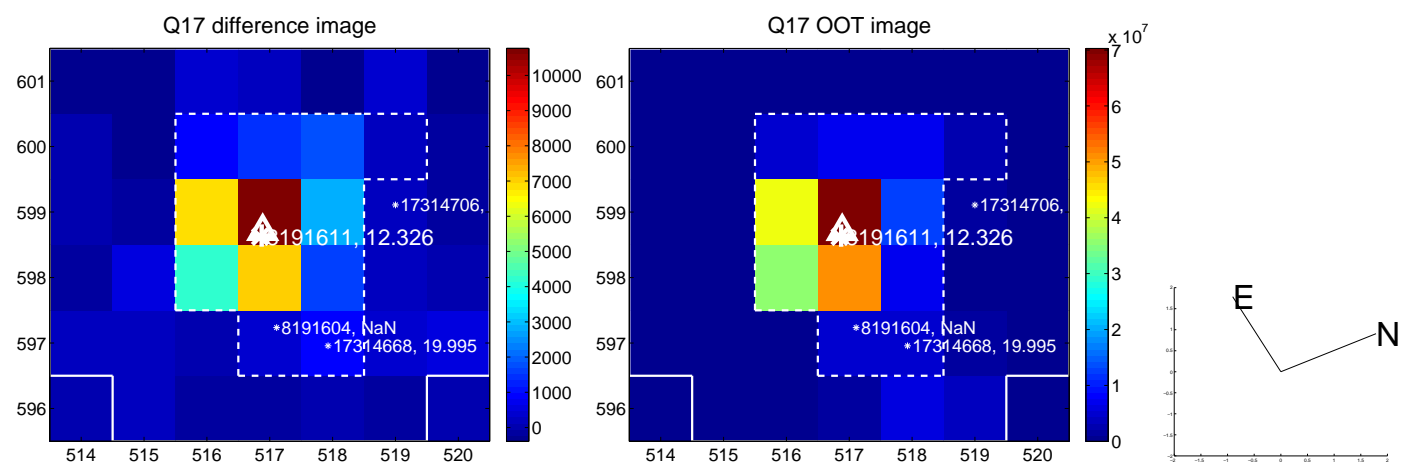




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

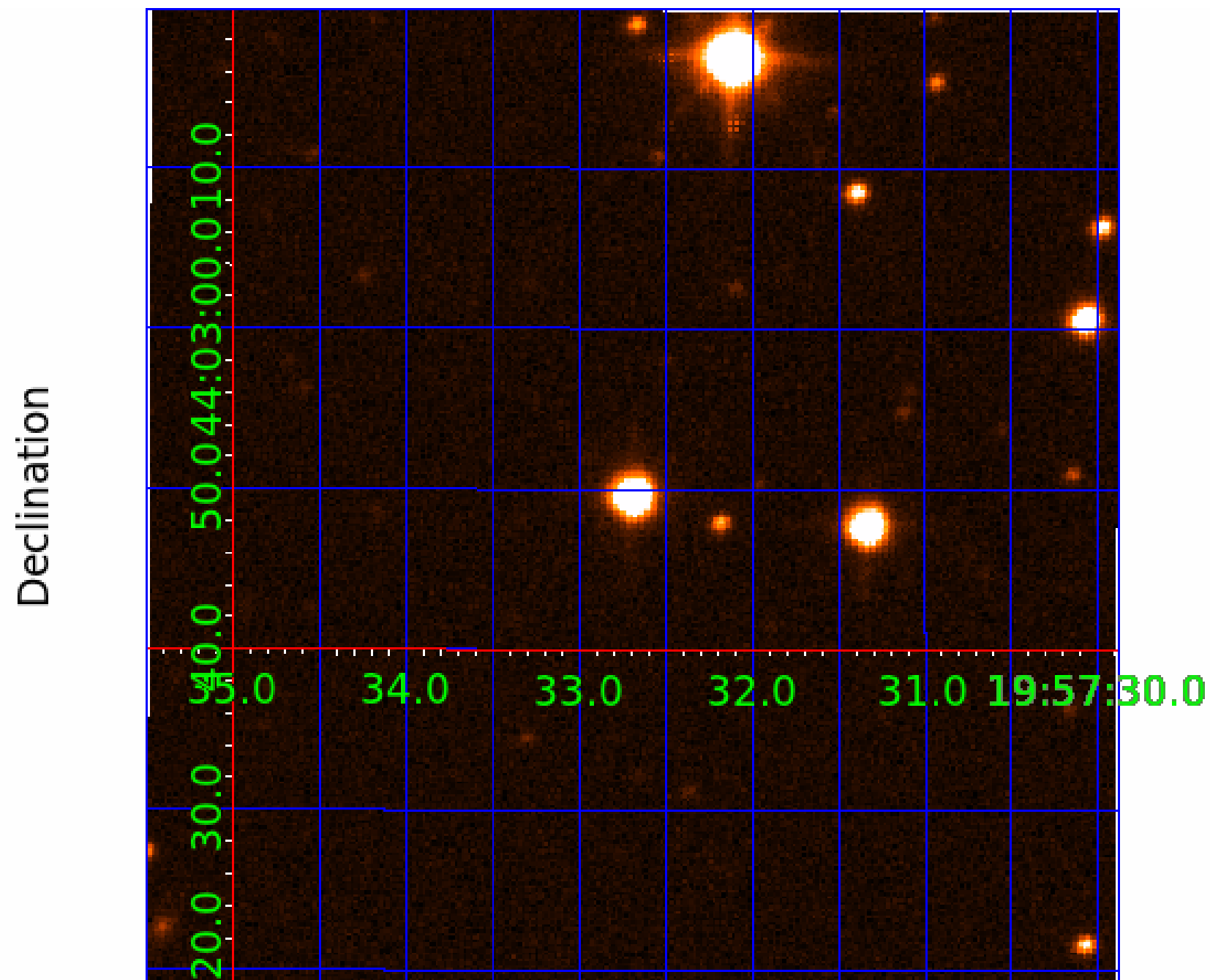


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



# KIC 008191611

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008191611-01	OBS	No	0.677491	131.734154	1.1	3.478	13.9	0.2	1.36	6688	0.17	13005.10
008191611-02	OBS	No	0.677495	132.035456	376.9	1.009	18.5	33.6	1.36	6688	3.10	13005.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008191611-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
008191611-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

**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.

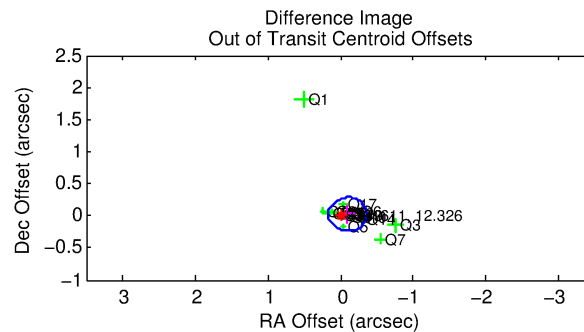
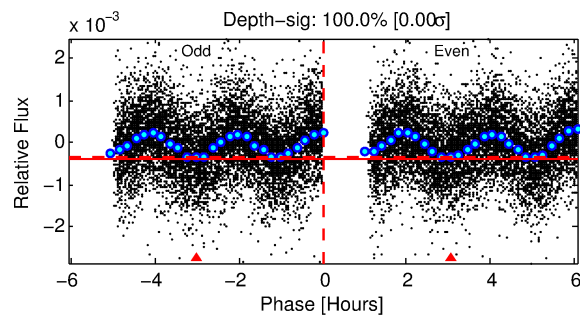
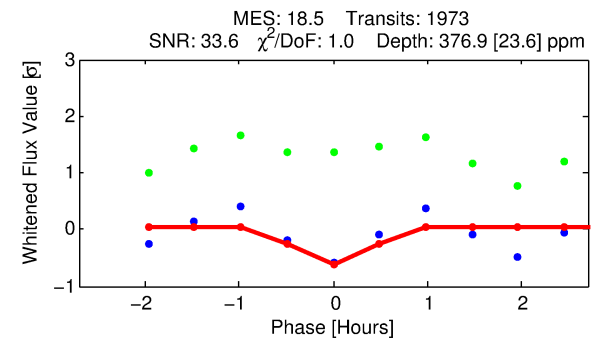
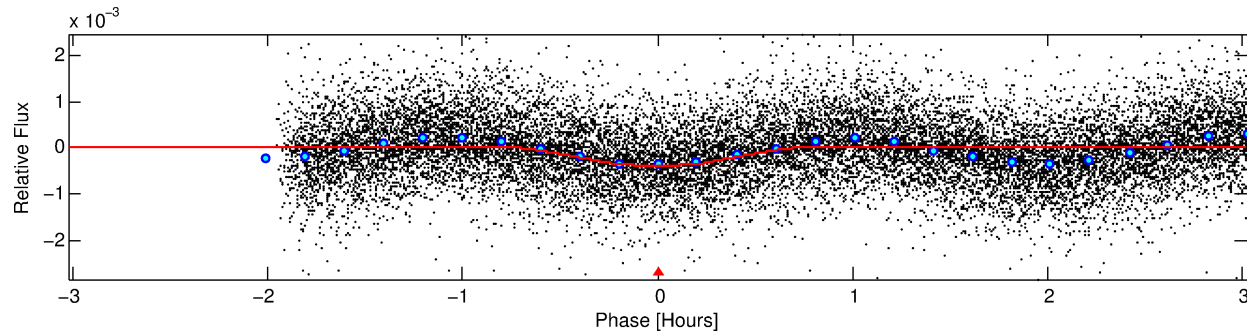
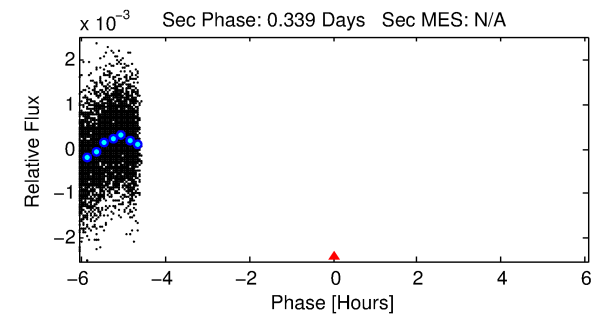
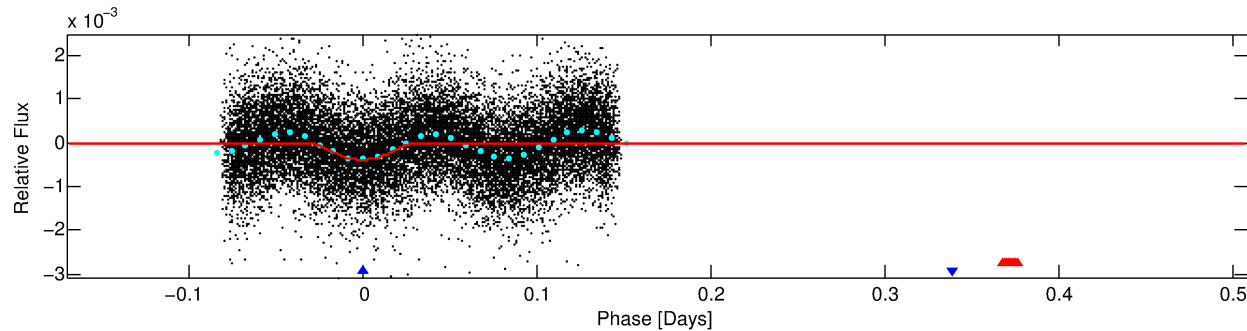
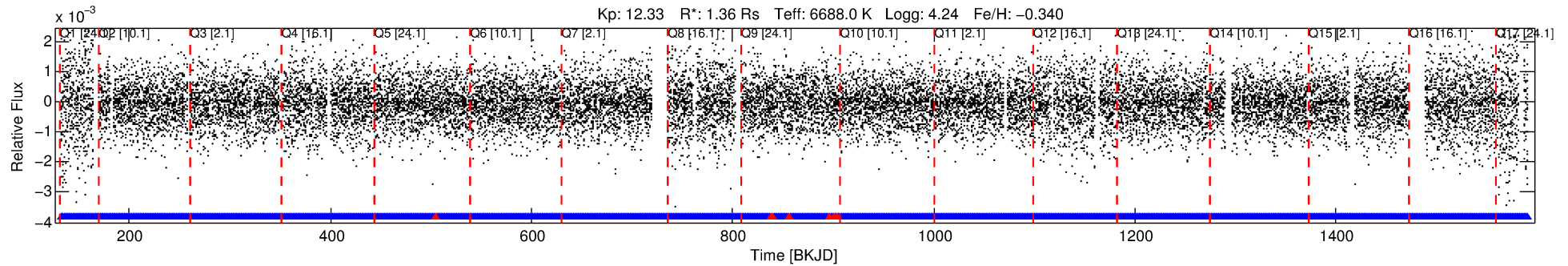
## Ephemeris Match Information For 008191611-02

No Significant Match Found



# DV One-Page Summary

KIC: 8191611 Candidate: 2 of 2 Period: 0.677 d



## DV Fit Results:

Period = 0.67749 [0.00000] d  
Epoch = 132.0355 [0.0006] BKJD  
Rp/R\* = 0.0209 [0.0044]  
a/R\* = 2.65 [2.72]  
b = 0.90 [0.26]  
Seff = 13005.00 [4876.01]  
Teq = 2723 [255] K  
Rp = 3.10 [1.13] Re  
a = 0.0160 [0.0039] AU

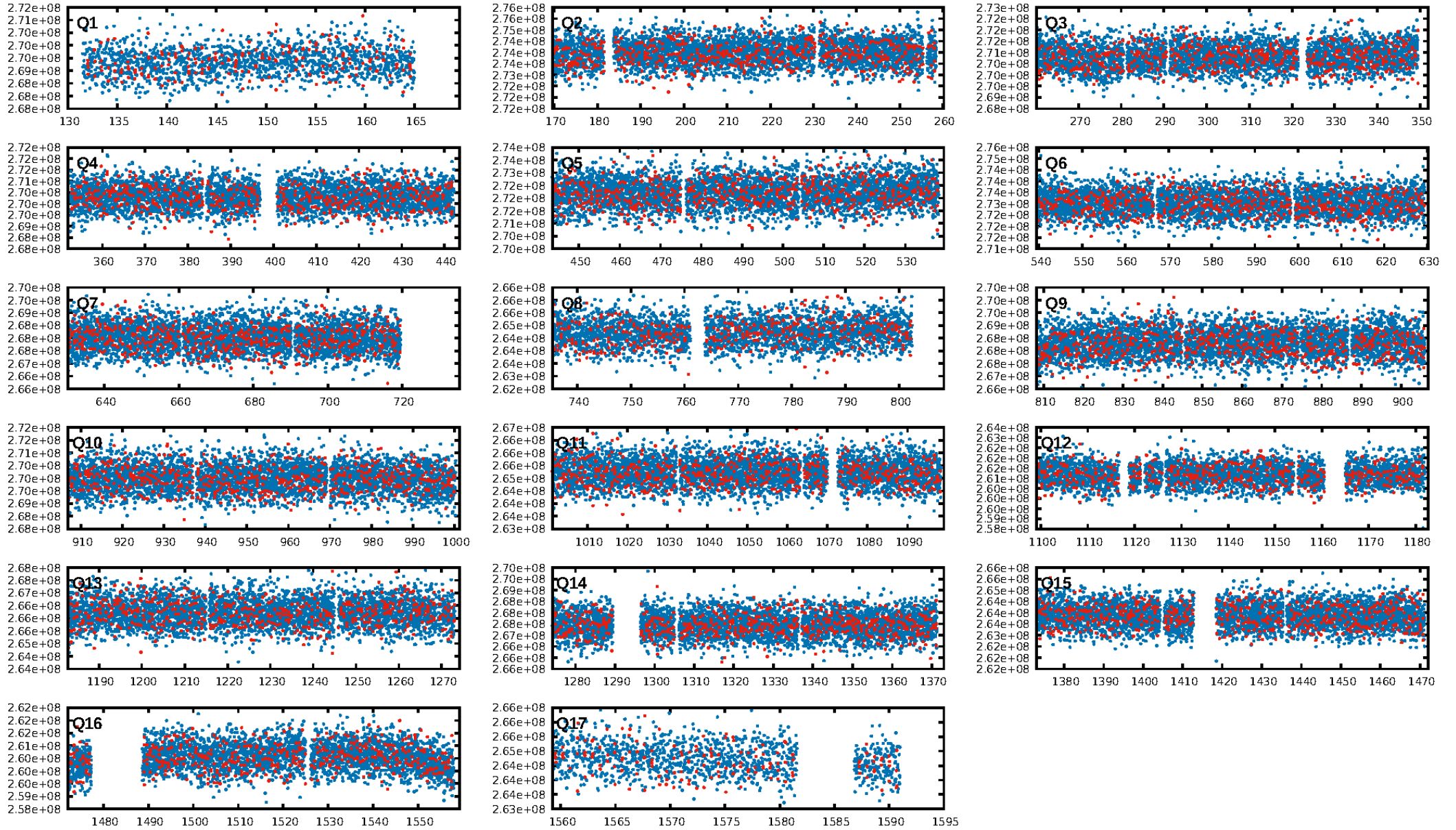
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.84e-142  
RollingBand-fgt: 1.00 [1877/1885]  
GhostDiagnostic-chr: 3.724  
Centroid-sig: 0.2%  
Centroid-so: 0.334 arcsec [4.64σ]  
OotOffset-rm: 0.101 arcsec [1.16σ]  
KicOffset-rm: 0.226 arcsec [2.68σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:31:20 Z

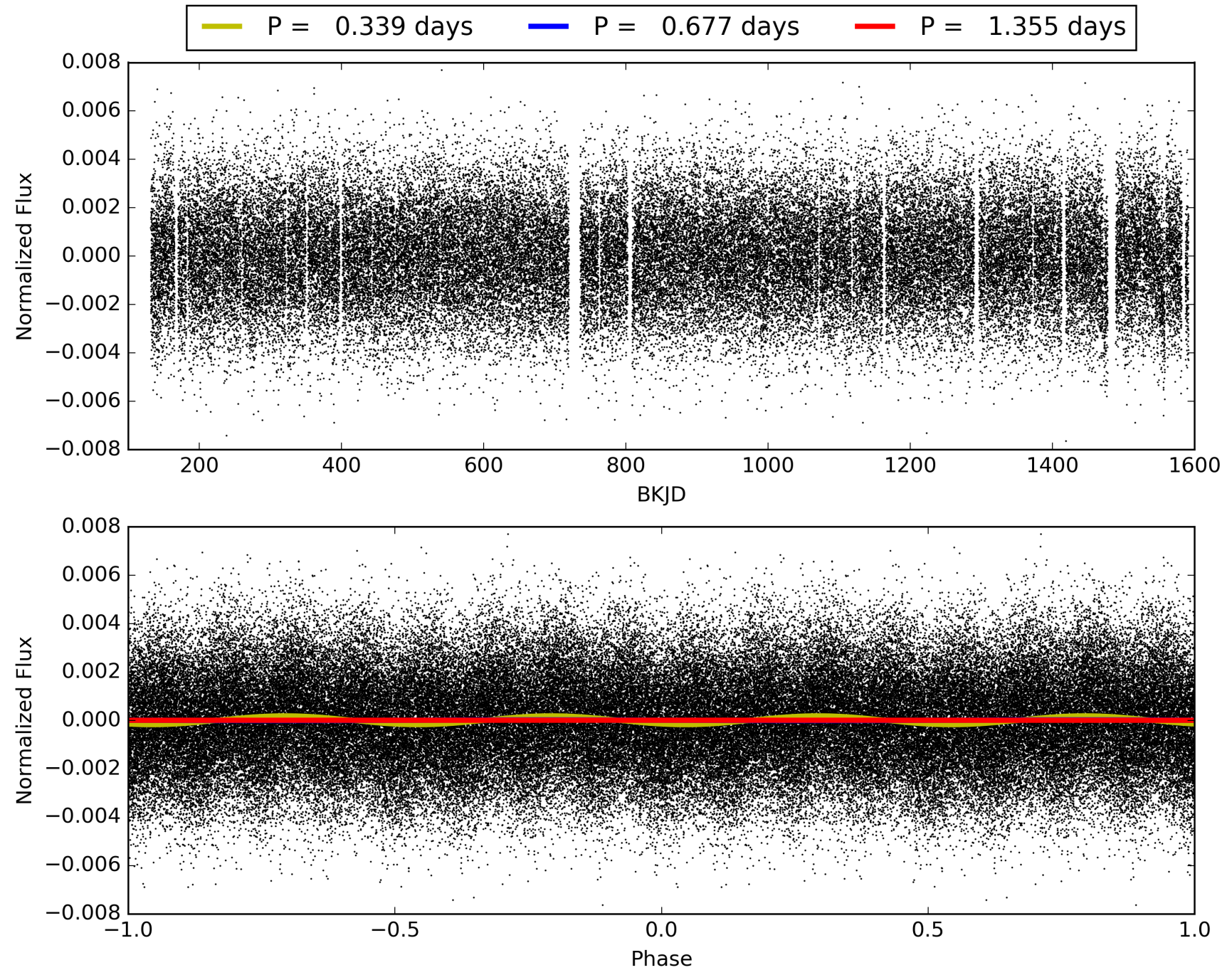
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008191611-02, PDC Light Curves



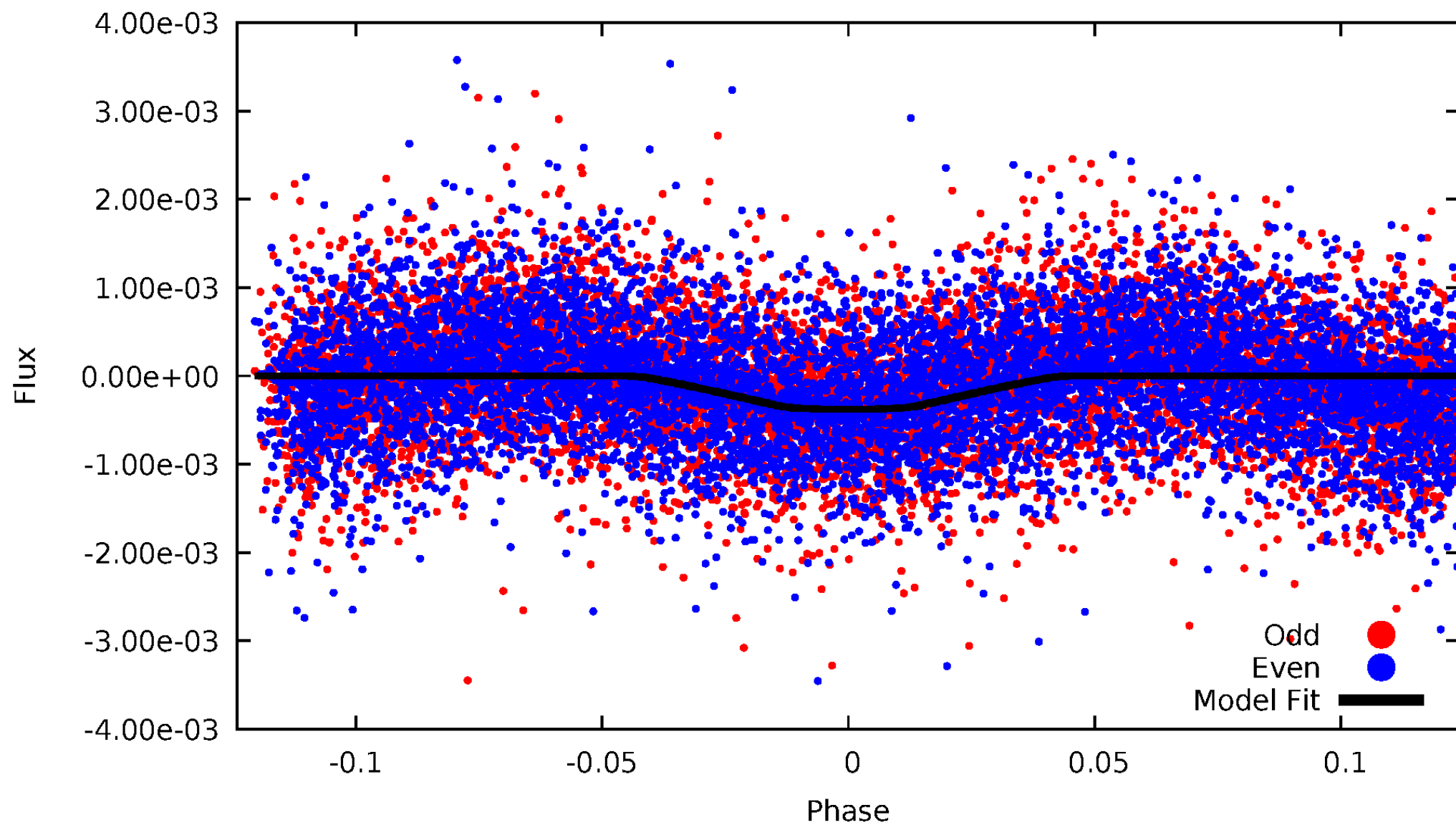


# TCE 008191611-02



DV Odd/Even

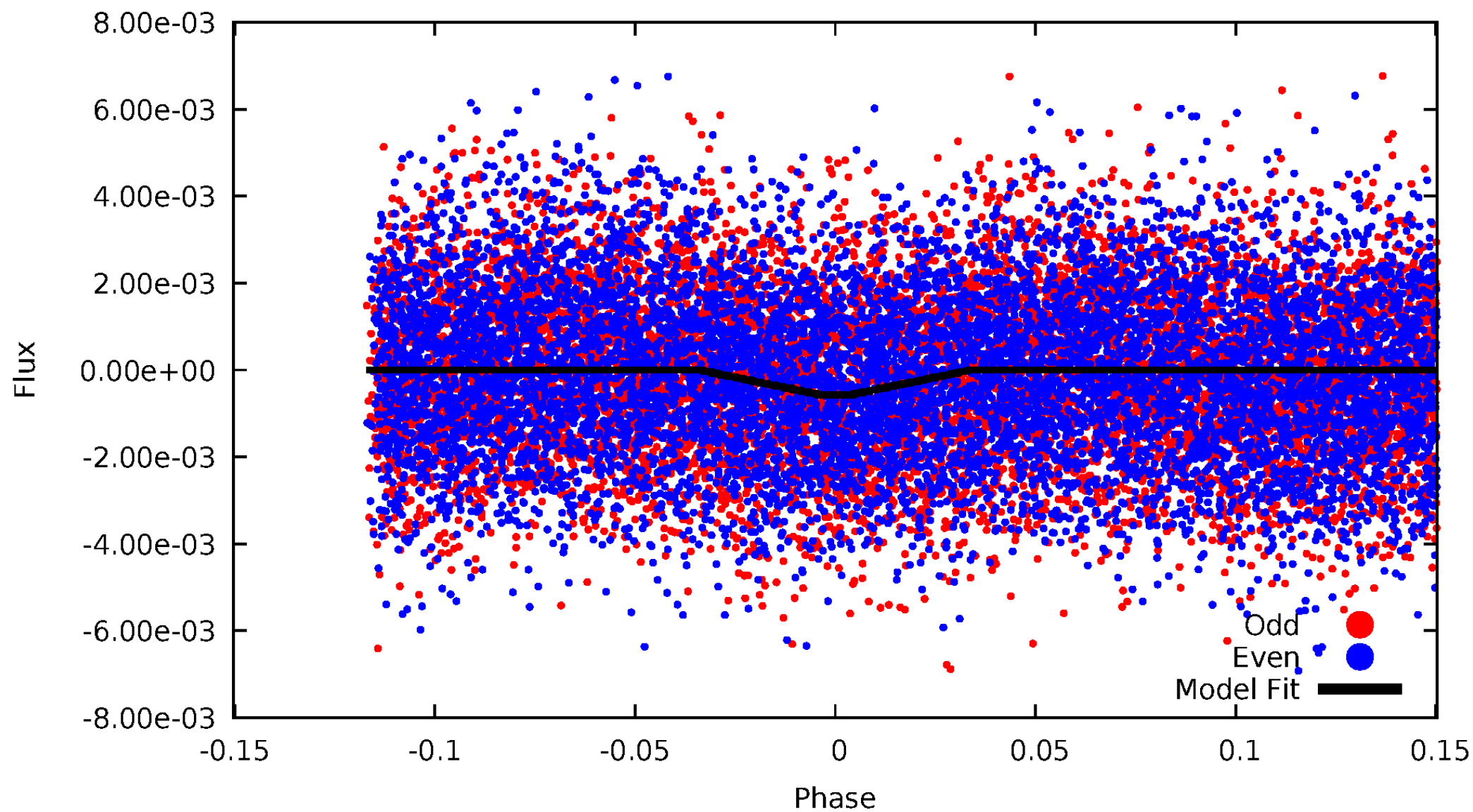
TCE 008191611-02





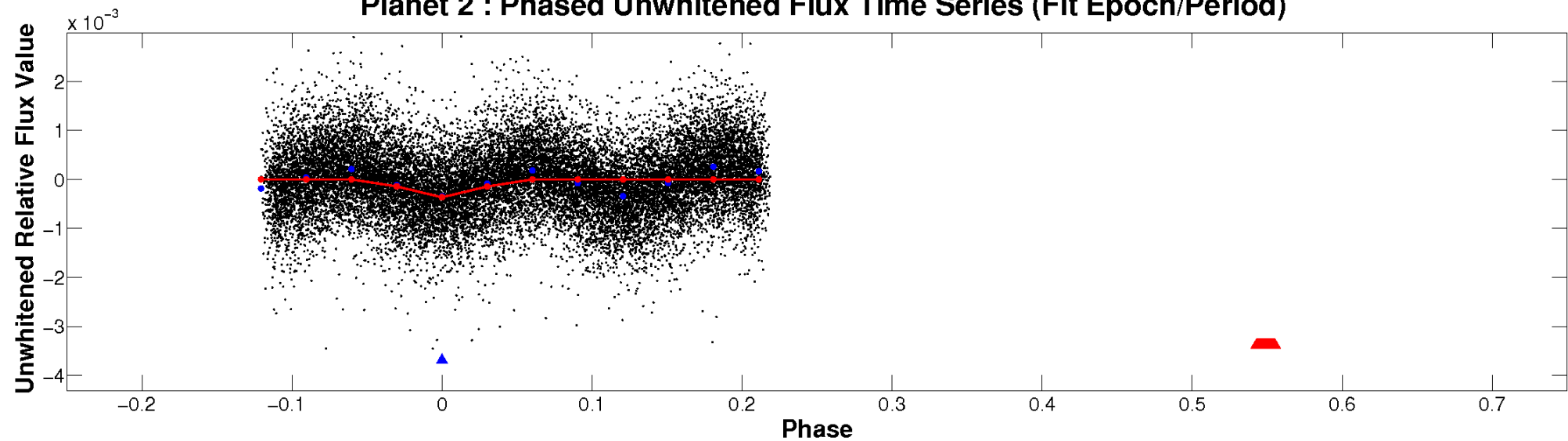
# ALT Odd/Even

TCE 008191611-02

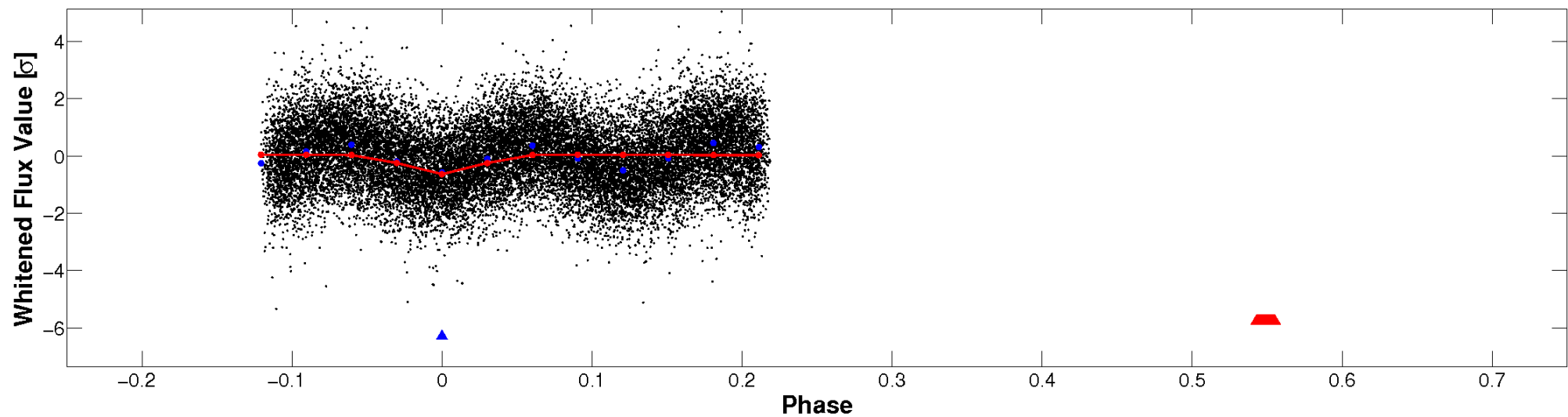


# Non-Whitened Vs. Whitened Light Curve

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

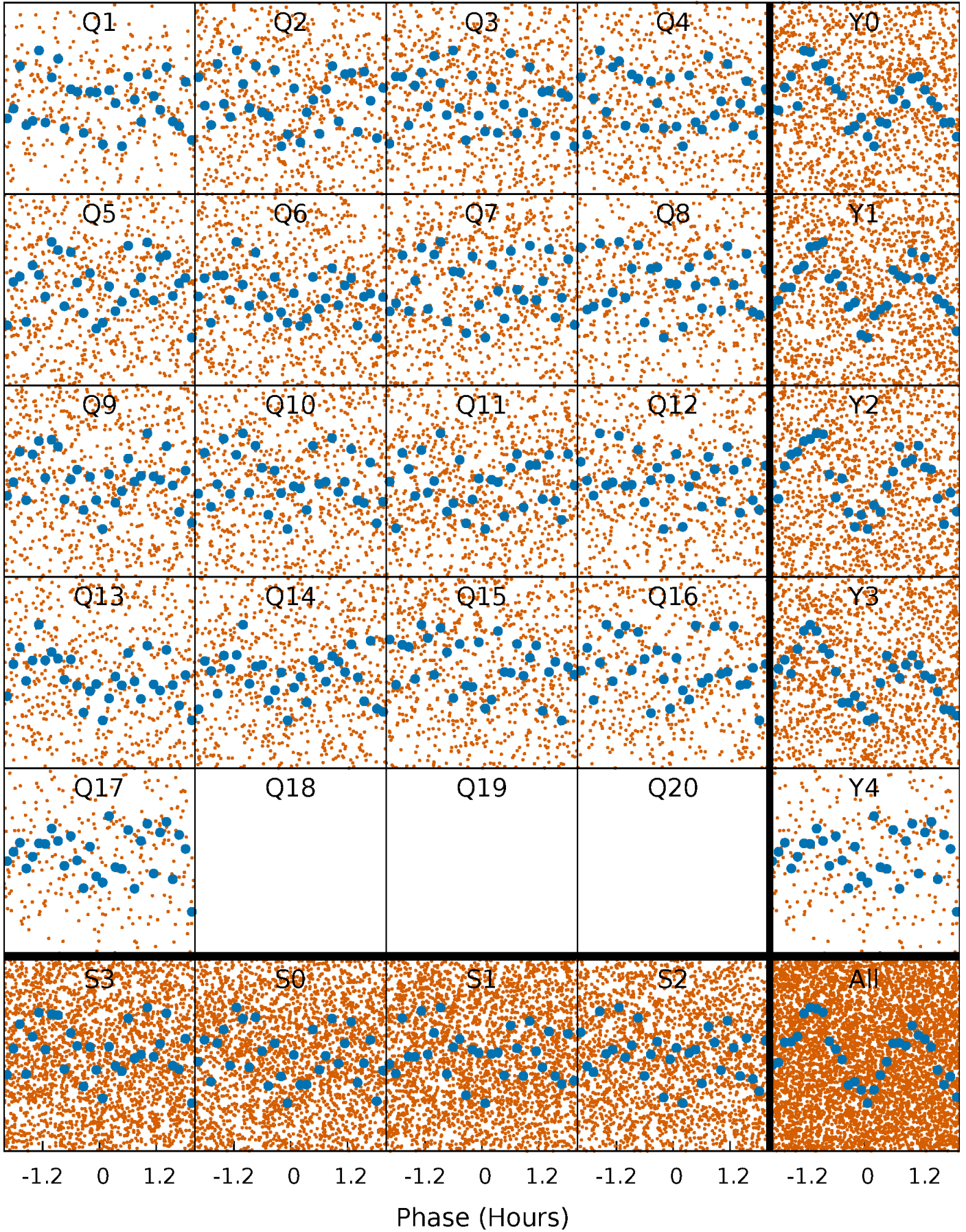


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

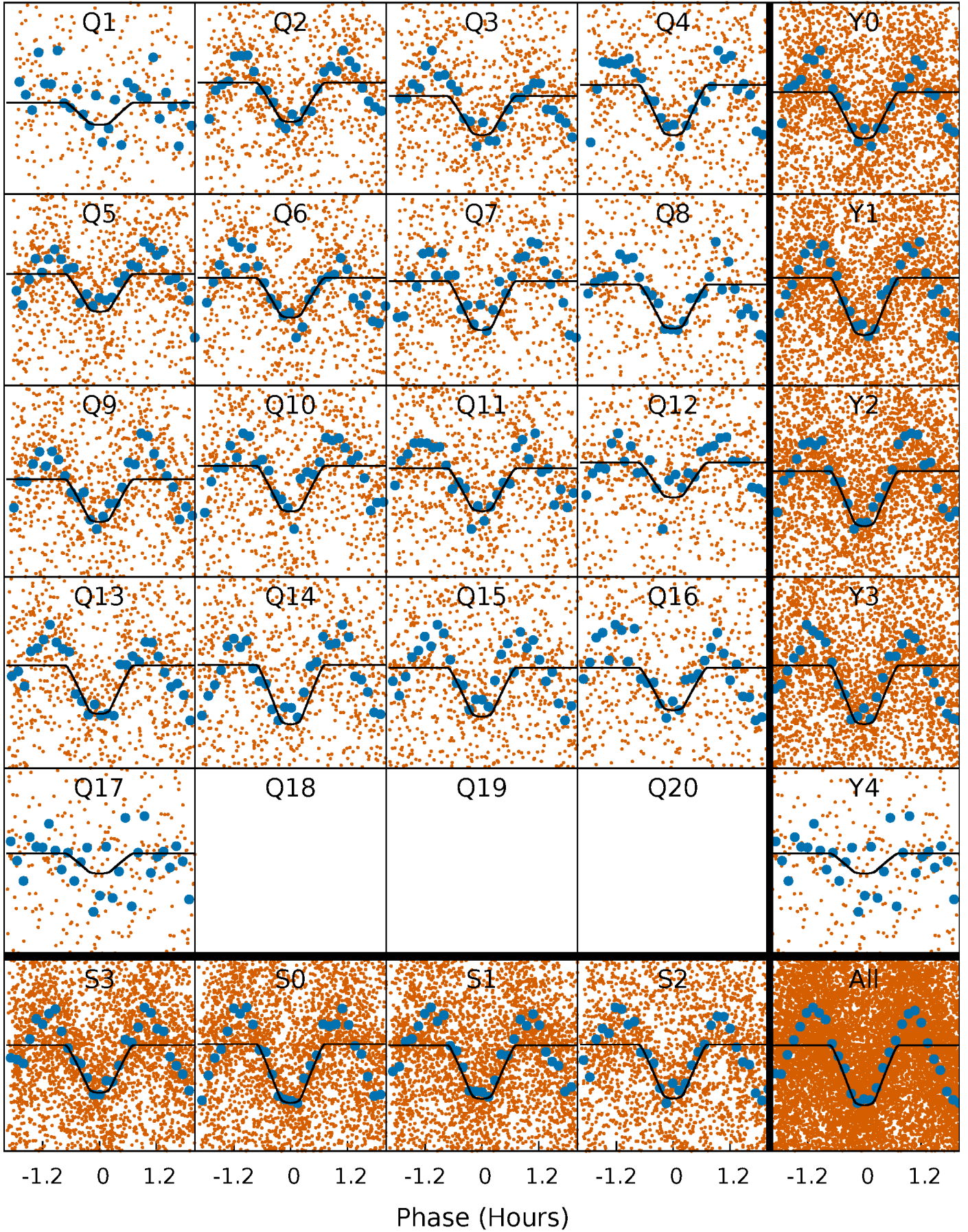
TCE 008191611-02 P= 0.677495 Days  $T_0=132.035456$  (BKJD)





# DV Quarter-Phased Transit Curves

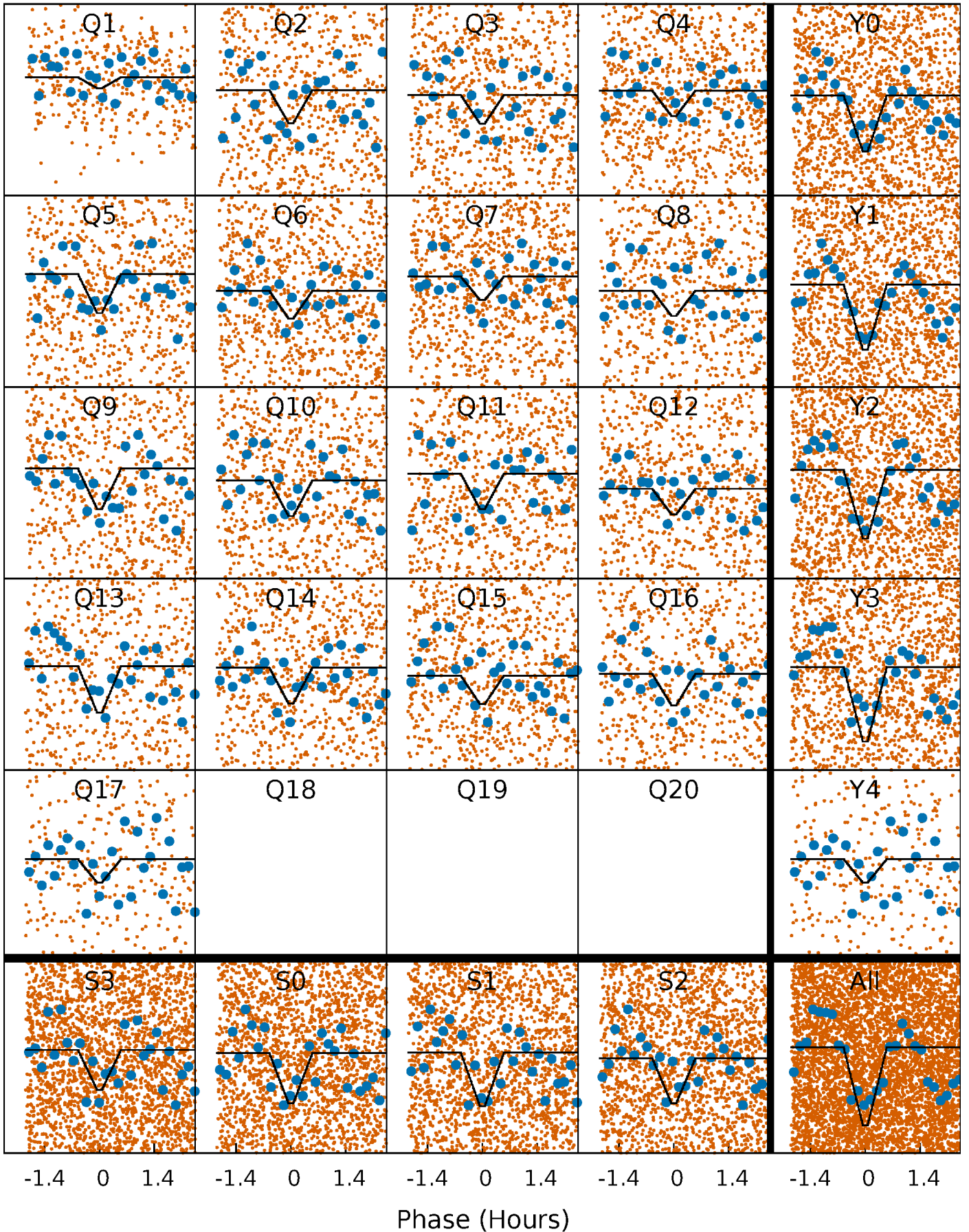
TCE 008191611-02     $P = 0.677495$  Days     $T_0 = 132.035456$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

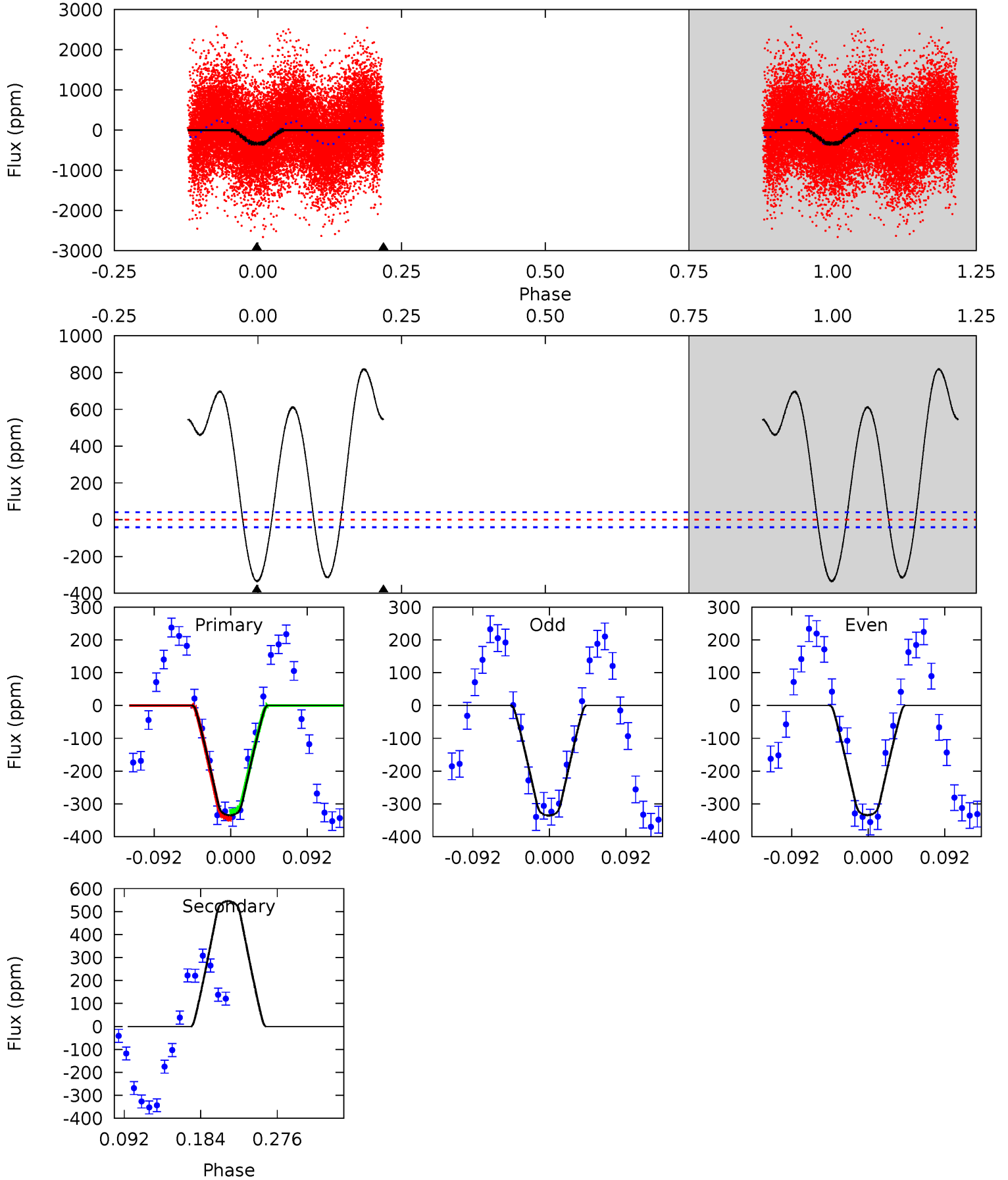
TCE 008191611-02 P= 0.677493 Days  $T_0=132.037187$  (BKJD)



# DV Model-Shift Uniqueness Test

008191611-02, P = 0.677495 Days, E = 131.357961 Days

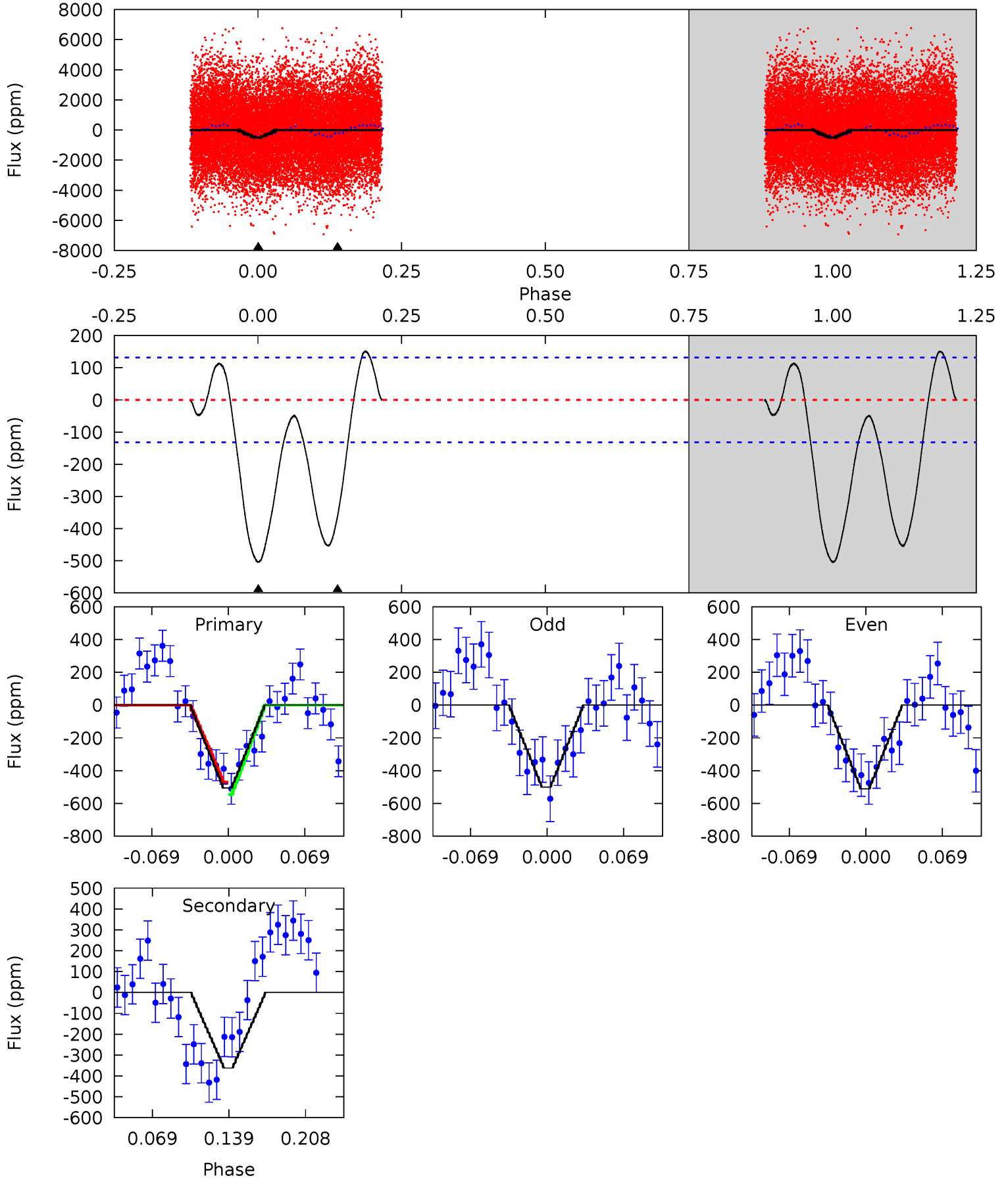
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.3	-60.7	0	0	4.58	1.68	37.2	37.3	37.3	-60.7	-60.7	0.07	1.02	0.71	1.20



# Alt Model-Shift Uniqueness Test

008191611-02, P = 0.677493 Days, E = 131.359694 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
17.9	12.8	0	0	4.64	1.82	1.89	17.9	17.9	12.8	12.8	0.18	1.02	0.23	1.32



### Stellar Parameters For KIC 008191611

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6688^{+152}_{-203}$	$4.244^{+0.128}_{-0.192}$	$-0.340^{+0.250}_{-0.300}$	$1.361^{+0.403}_{-0.268}$	$1.189^{+0.178}_{-0.178}$	$0.665^{+0.482}_{-0.326}$
	+2%/-3%	+3%/-5%	+74%/-88%	+30%/-20%	+15%/-15%	+73%/-49%
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 008191611-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$546 \pm 9$	$3.17^{+0.84}_{-0.77}$	$3827^{+299}_{-226}$	$-7156^{+676}_{-1055}$	$-7.560^{+2.704}_{-5.578}$
Alt.	$-362 \pm 28$	$3.59^{+0.88}_{-0.74}$	$3844^{+255}_{-244}$	$5846^{+676}_{-533}$	$3.920^{+2.394}_{-1.390}$

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



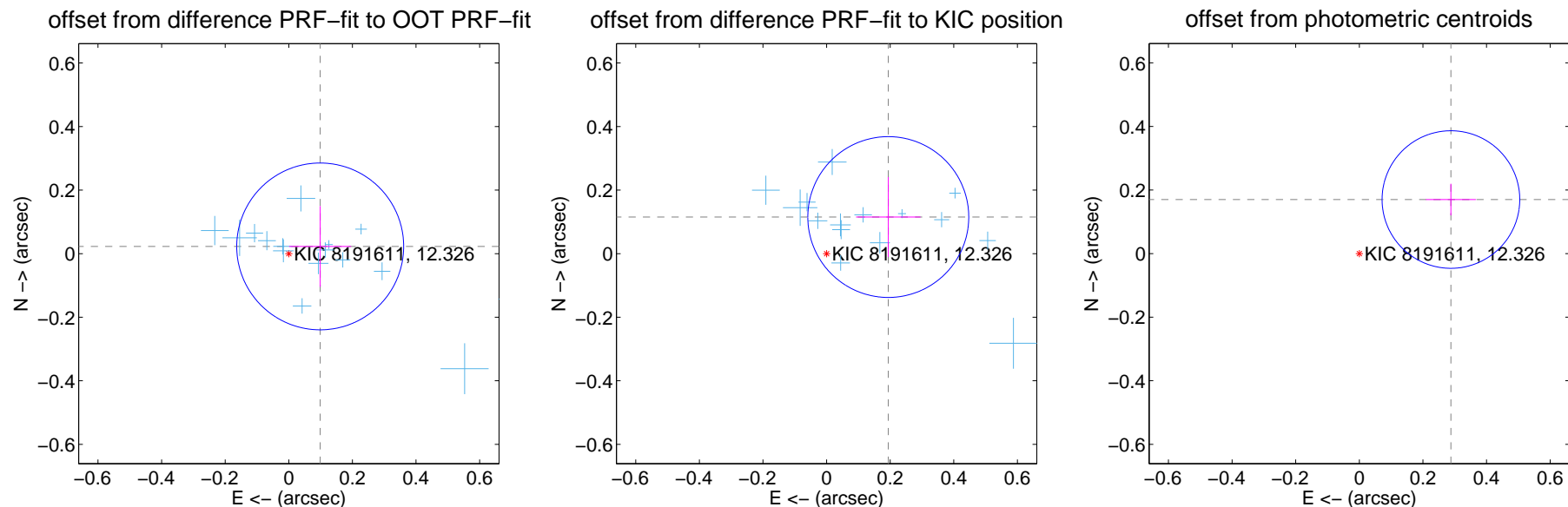
## DV Centroid Data

Supplemental centroid analysis for 008191611-02. Kepler magnitude: 12.33. Transit SNR 33.56

There are 16 quarters with good PRF difference image offsets

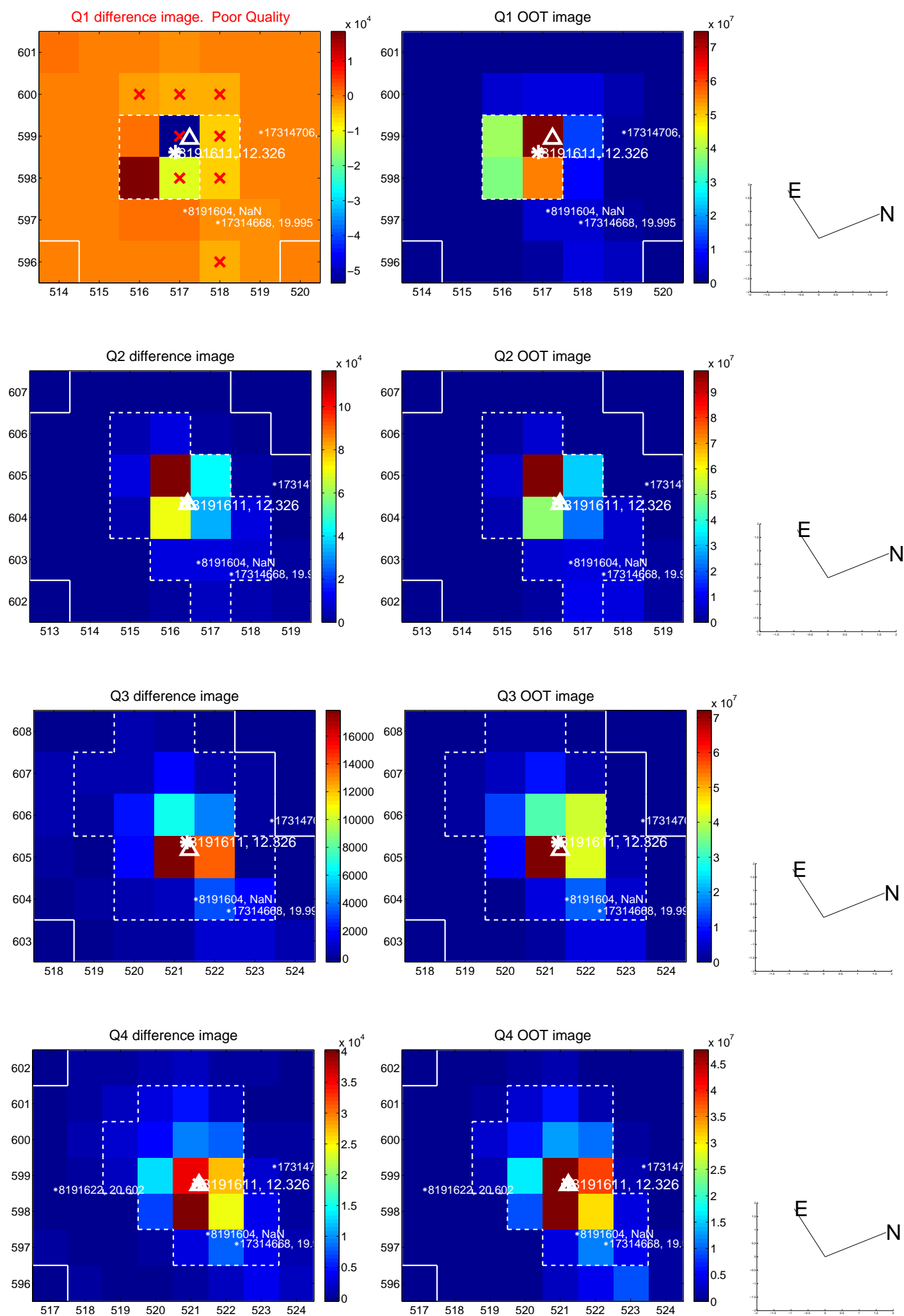
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.101 \pm 0.087$	1.16	$-0.099 \pm 0.097$	$0.023 \pm 0.127$
PRF-fit source offset from KIC position	$0.226 \pm 0.084$	2.68	$-0.194 \pm 0.101$	$0.115 \pm 0.126$
photometric centroid source offset	$0.33 \pm 0.07$	4.64	$-0.29 \pm 0.08$	$0.17 \pm 0.05$

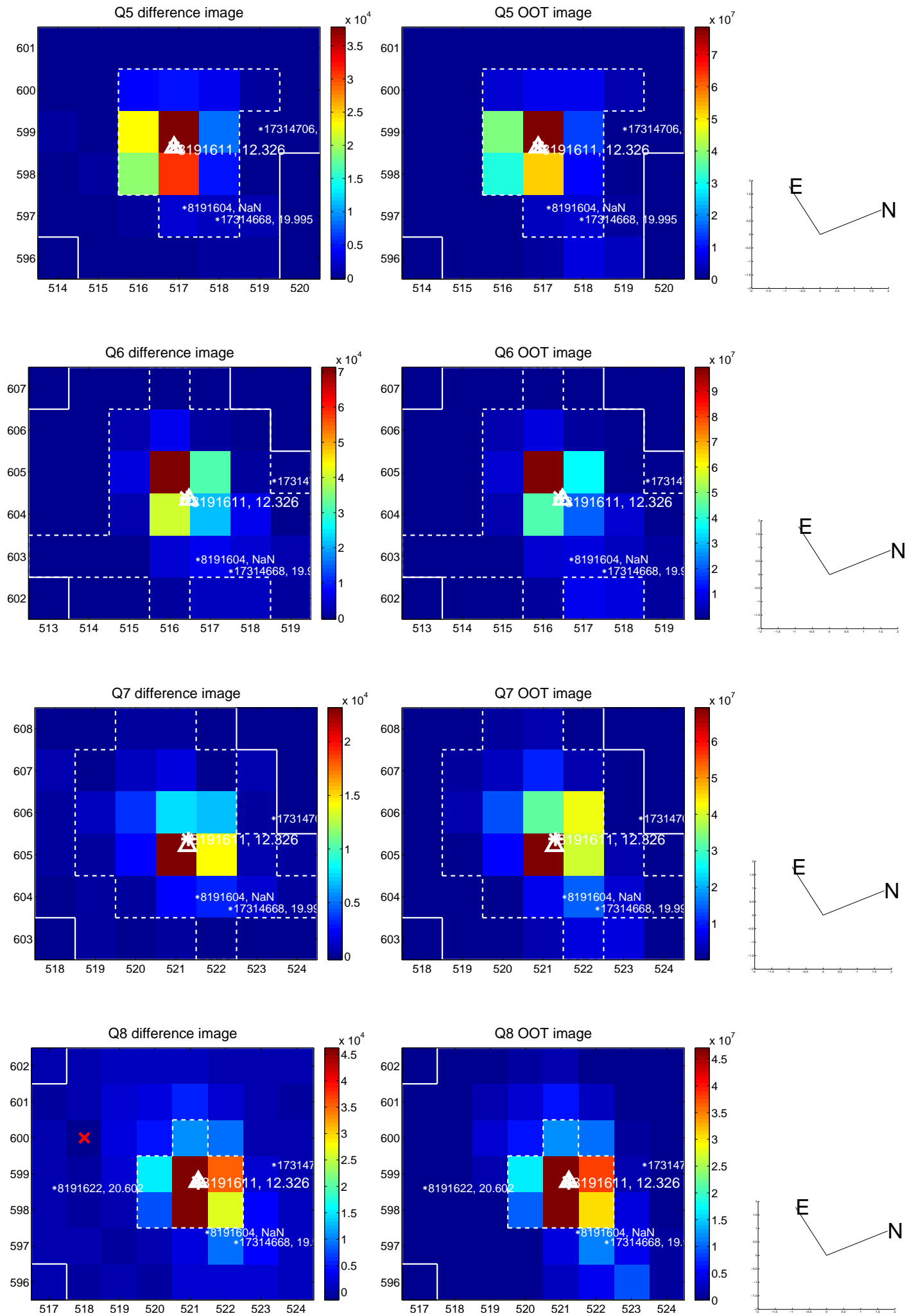


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

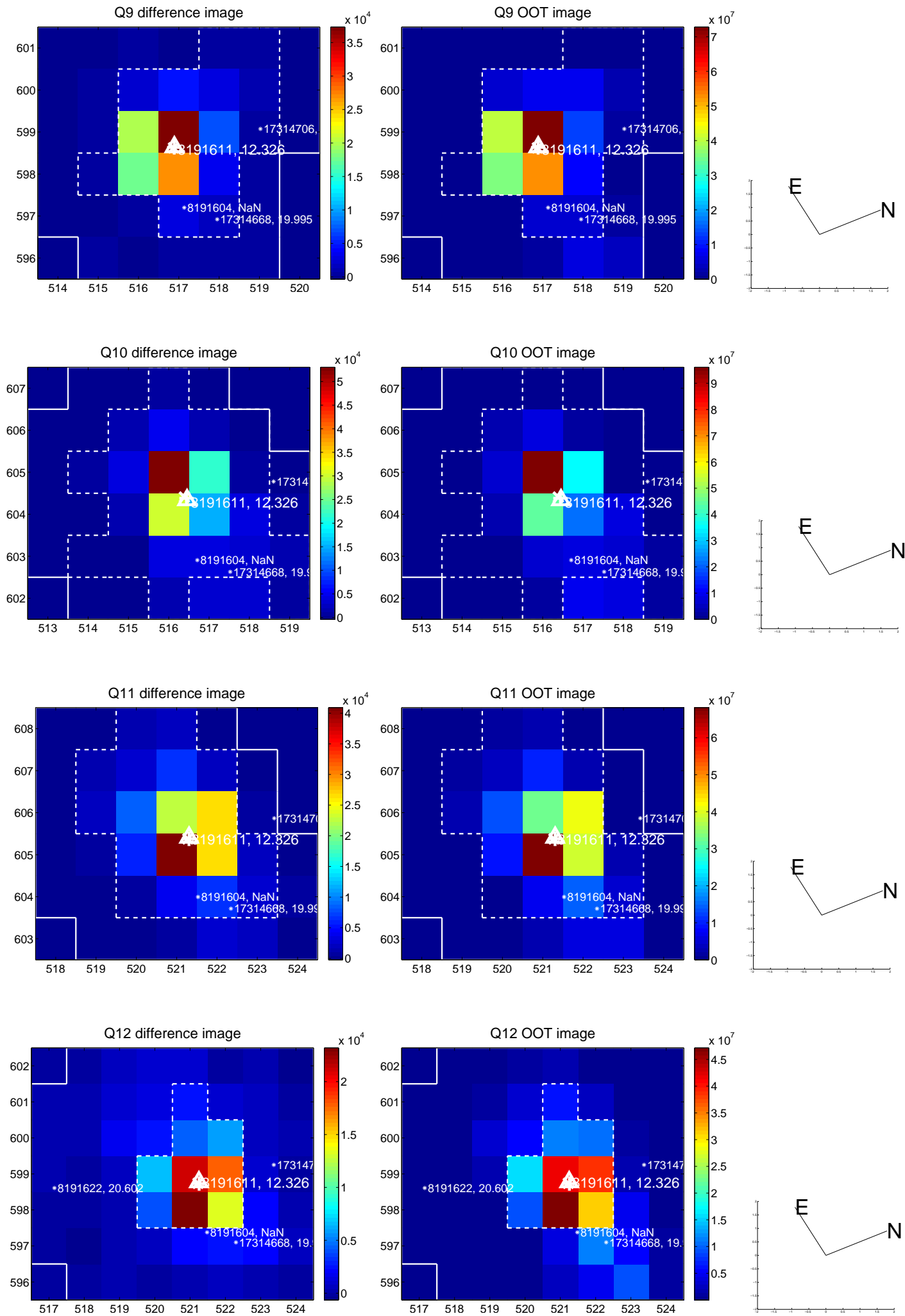
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



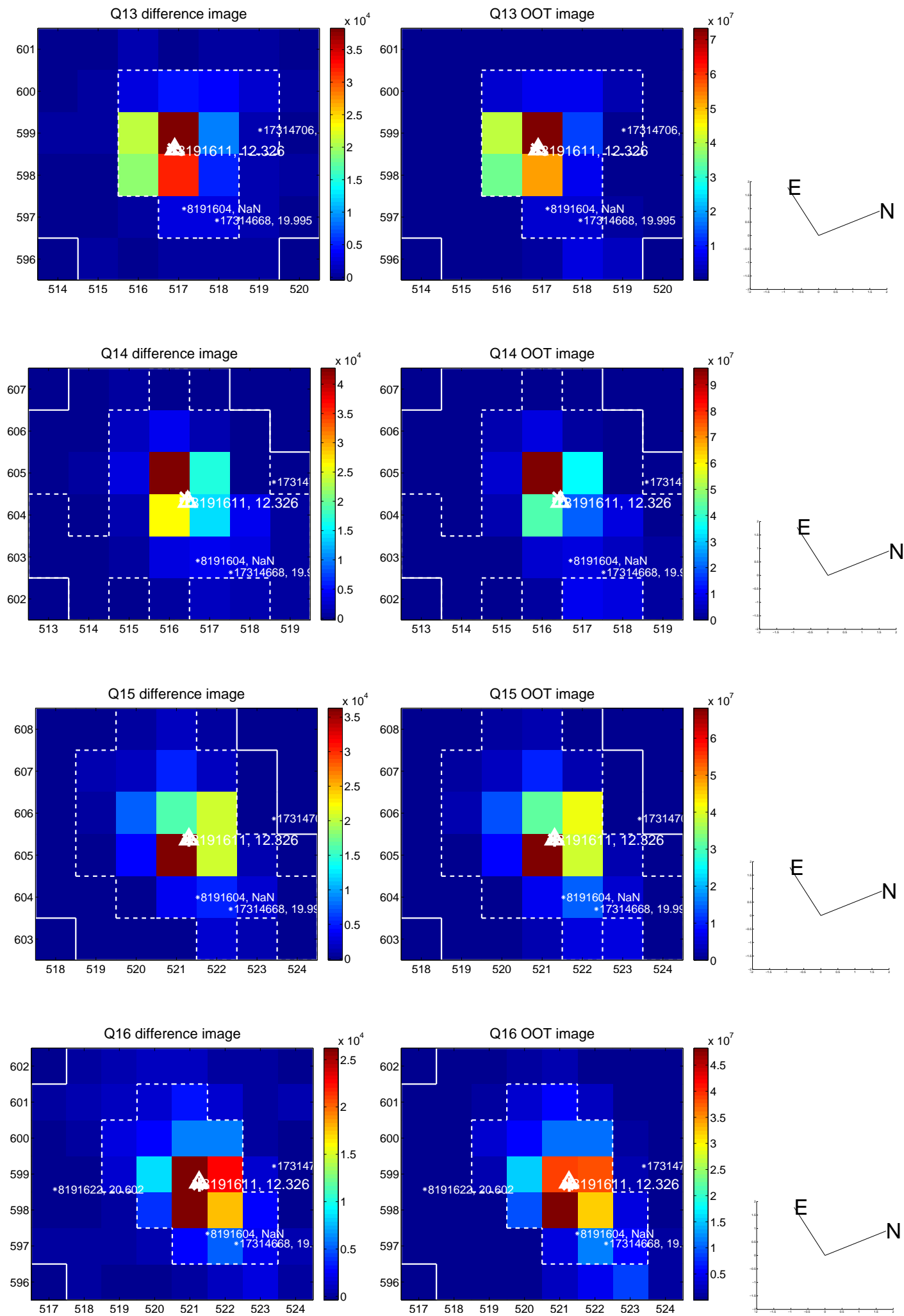
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

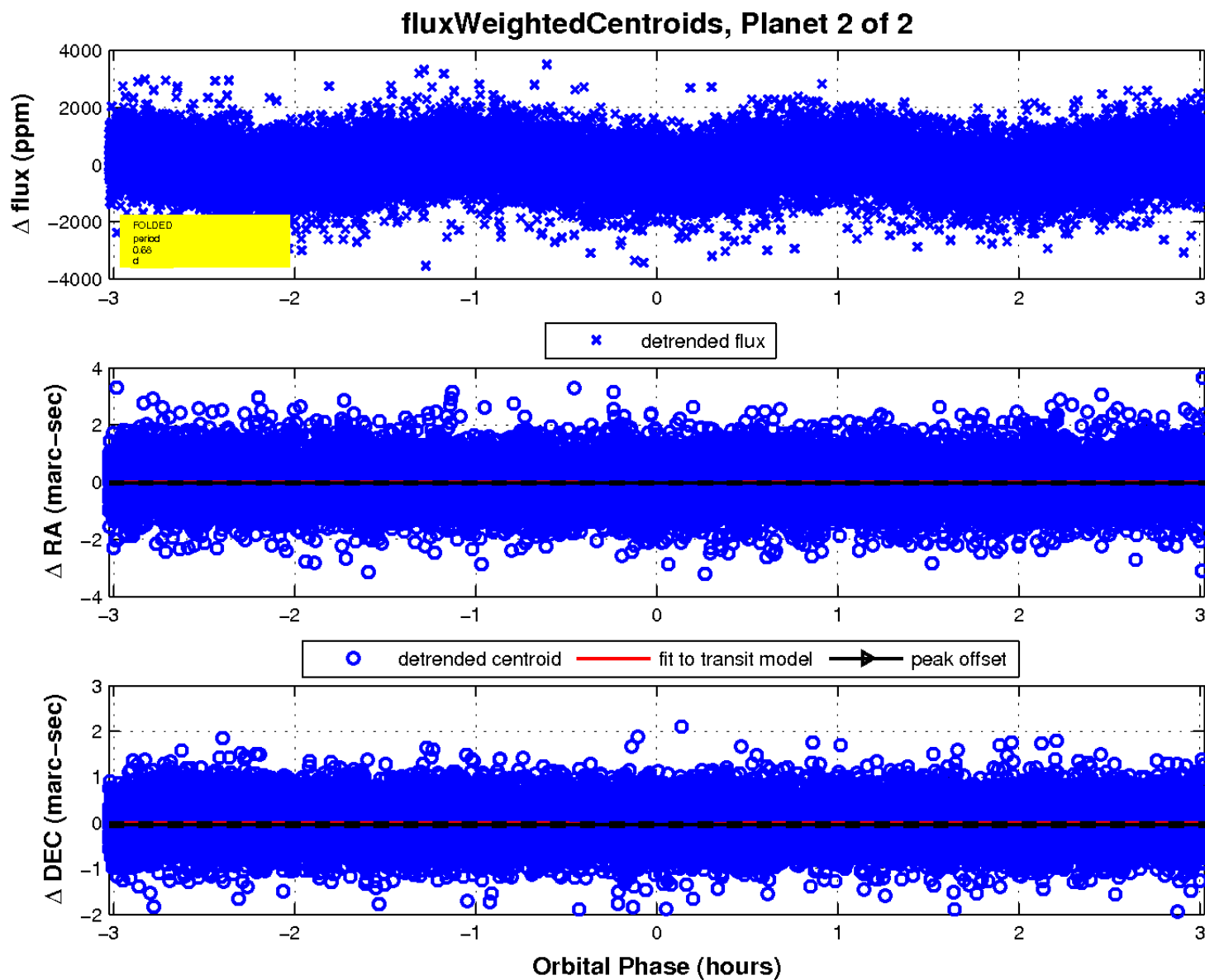
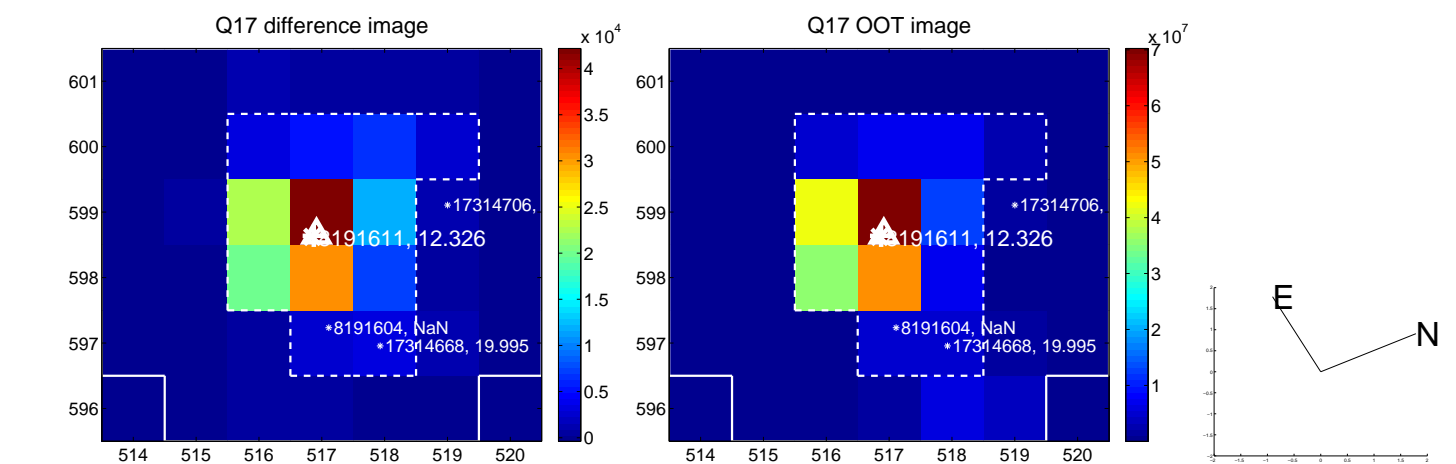


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

