

# KIC 008879915

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008879915-01	OBS	7105.01	1.721318	132.526619	405143.4	2.500	20769.9	-1.0	1.07	5960	58.54	1661.36
008879915-02	OBS	No	6.885098	132.301091	39836.5	15.000	3956.3	-1.0	1.07	5960	21.37	261.66
008879915-03	OBS	No	4.131112	131.861454	3398.1	33.474	1478.3	43.0	1.07	5960	6.73	517.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008879915-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
008879915-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS
008879915-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

**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.

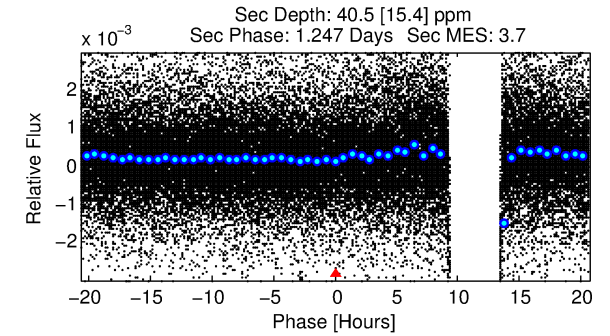
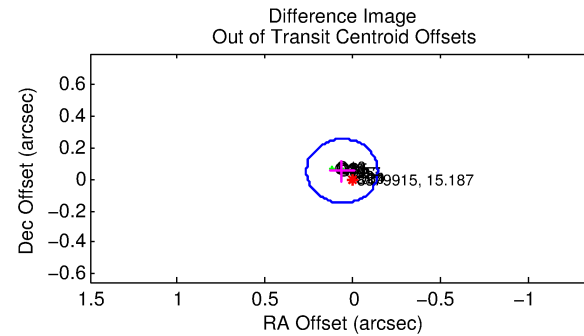
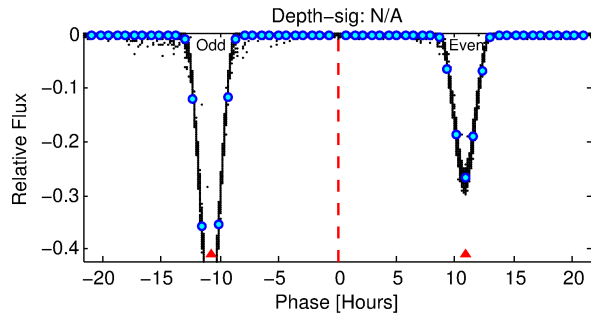
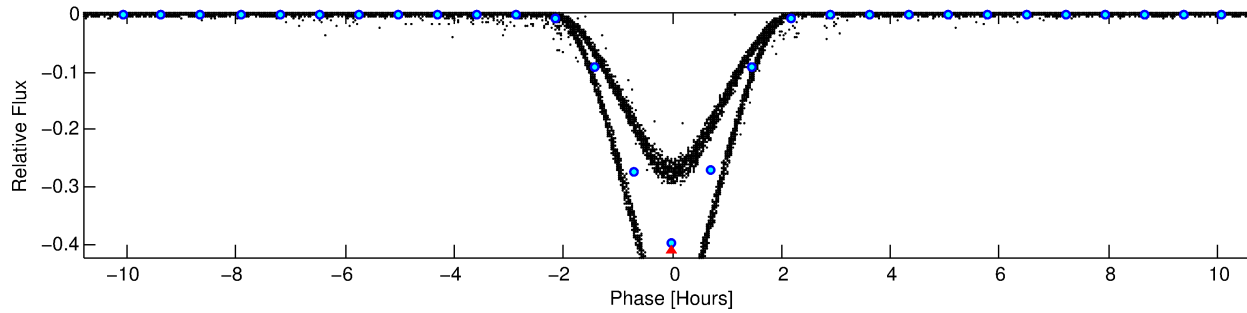
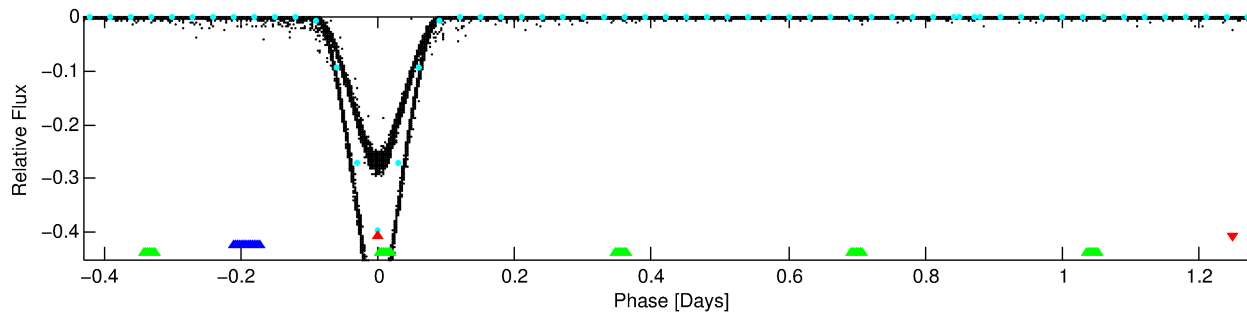
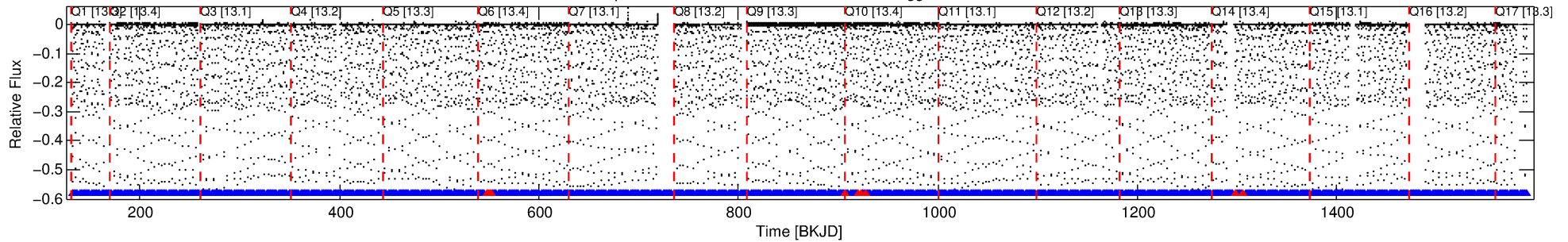
Ephemeris Match Information For 008879915-01

No Significant Match Found

# DV One-Page Summary

KIC: 8879915 Candidate: 1 of 3 Period: 1.721 d  
KOI: K07105.01 Corr: 0.811

Kp: 15.19 R\*: 1.07 Rs Teff: 5960.0 K Logg: 4.37 Fe/H: -0.120



## TPS TCE Results:

Period = 1.72132 d  
Epoch = 132.5266 BKJD

DV fit results are unavailable

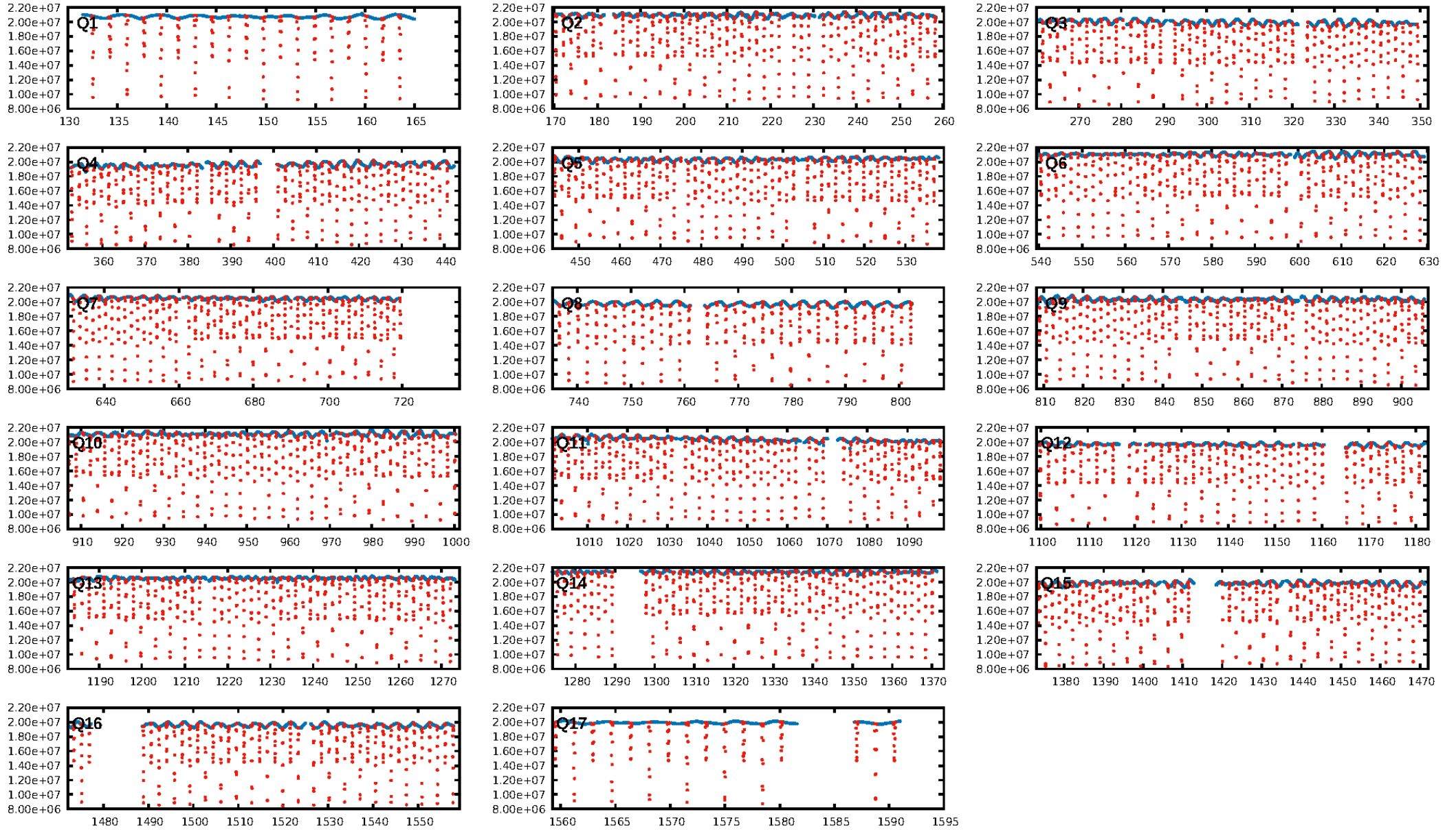
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 91.5% [1.72σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [734/744]  
GhostDiagnostic-chr: 1.73  
Centroid-sig: N/A  
Centroid-so: 0.106 arcsec [179.62σ]  
OotOffset-rm: 0.082 arcsec [1.21σ]  
KicOffset-rm: 0.050 arcsec [0.73σ]  
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]

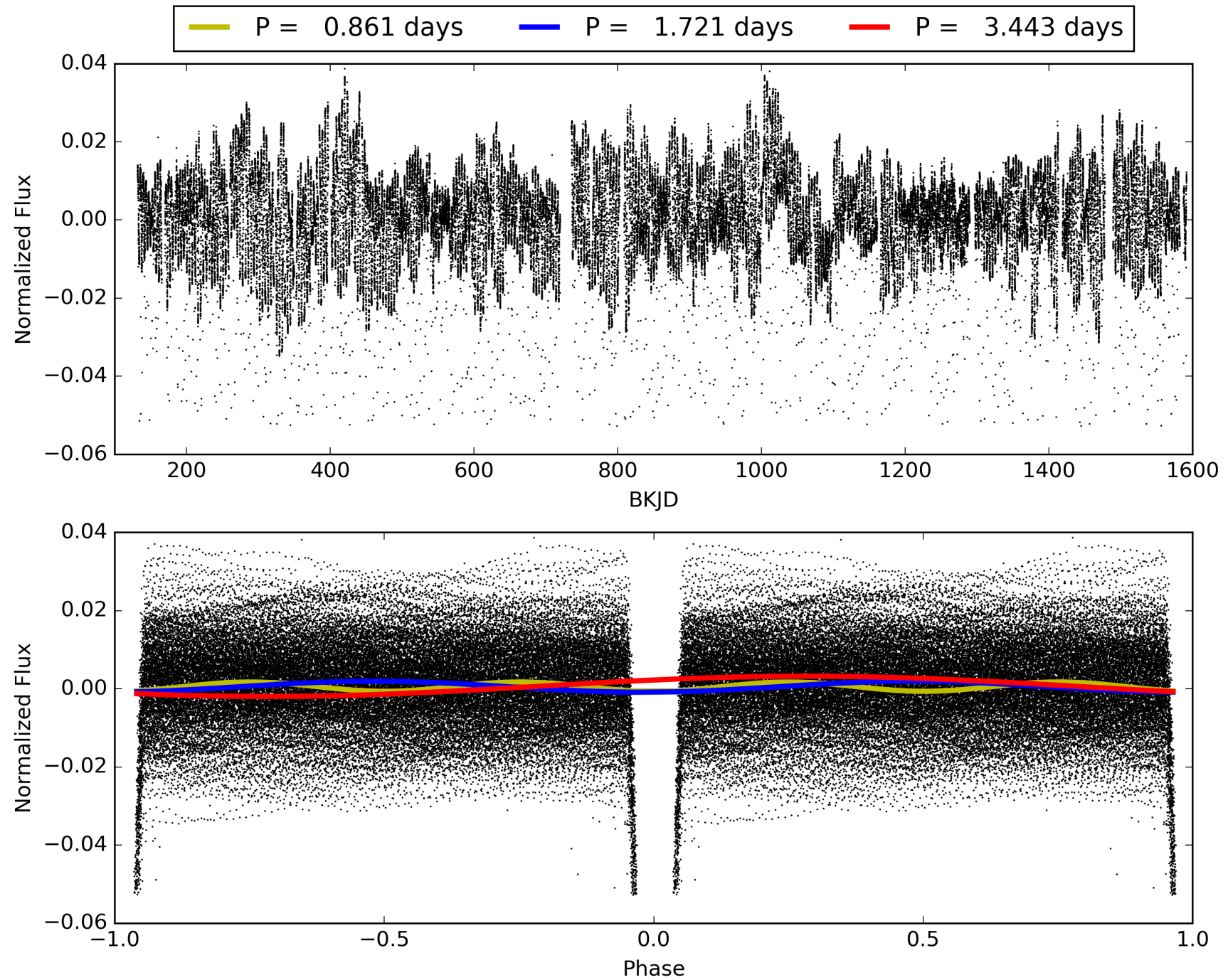
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:27:41 Z

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

# TCE 008879915-01, PDC Light Curves

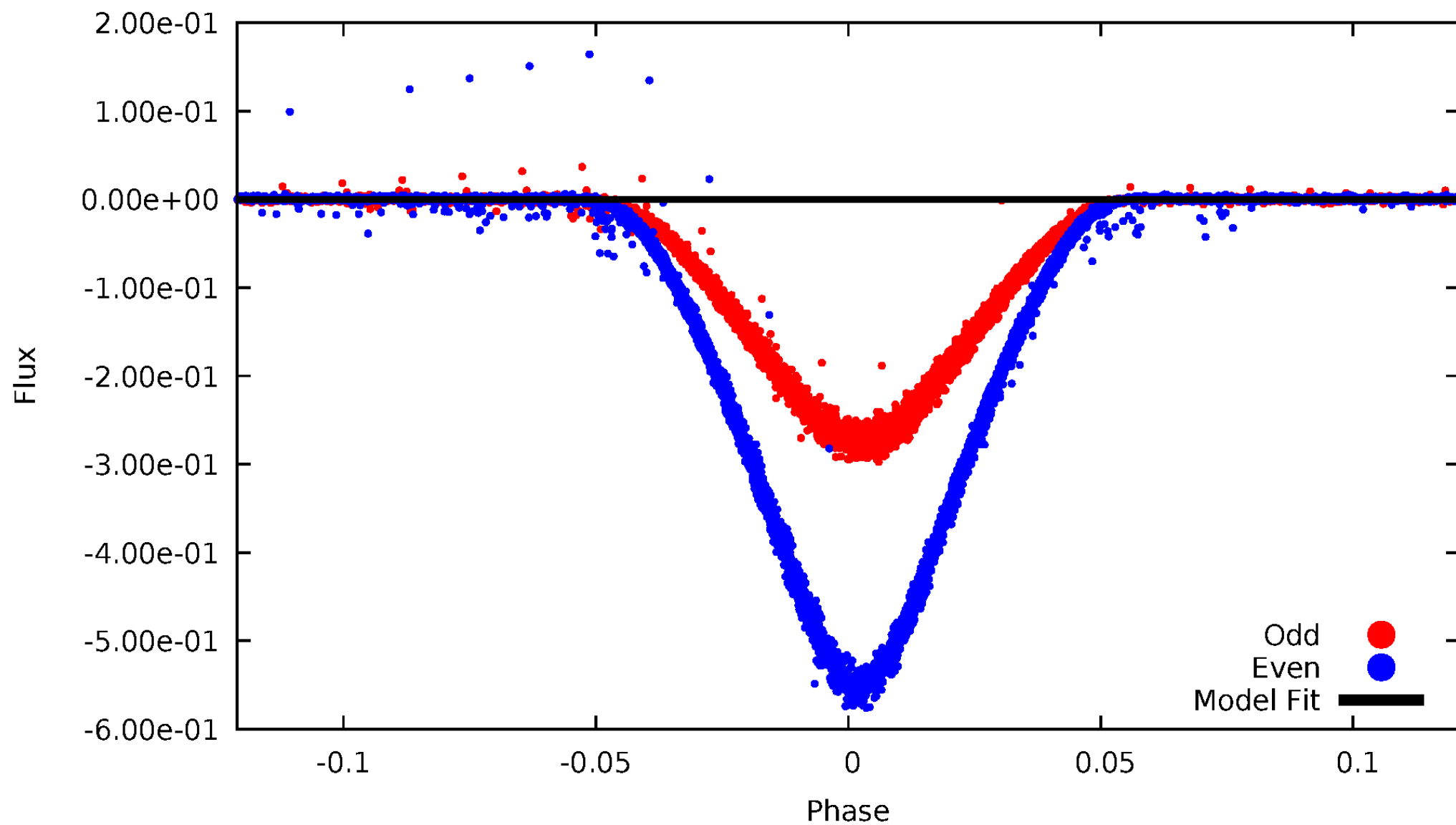


TCE 008879915-01



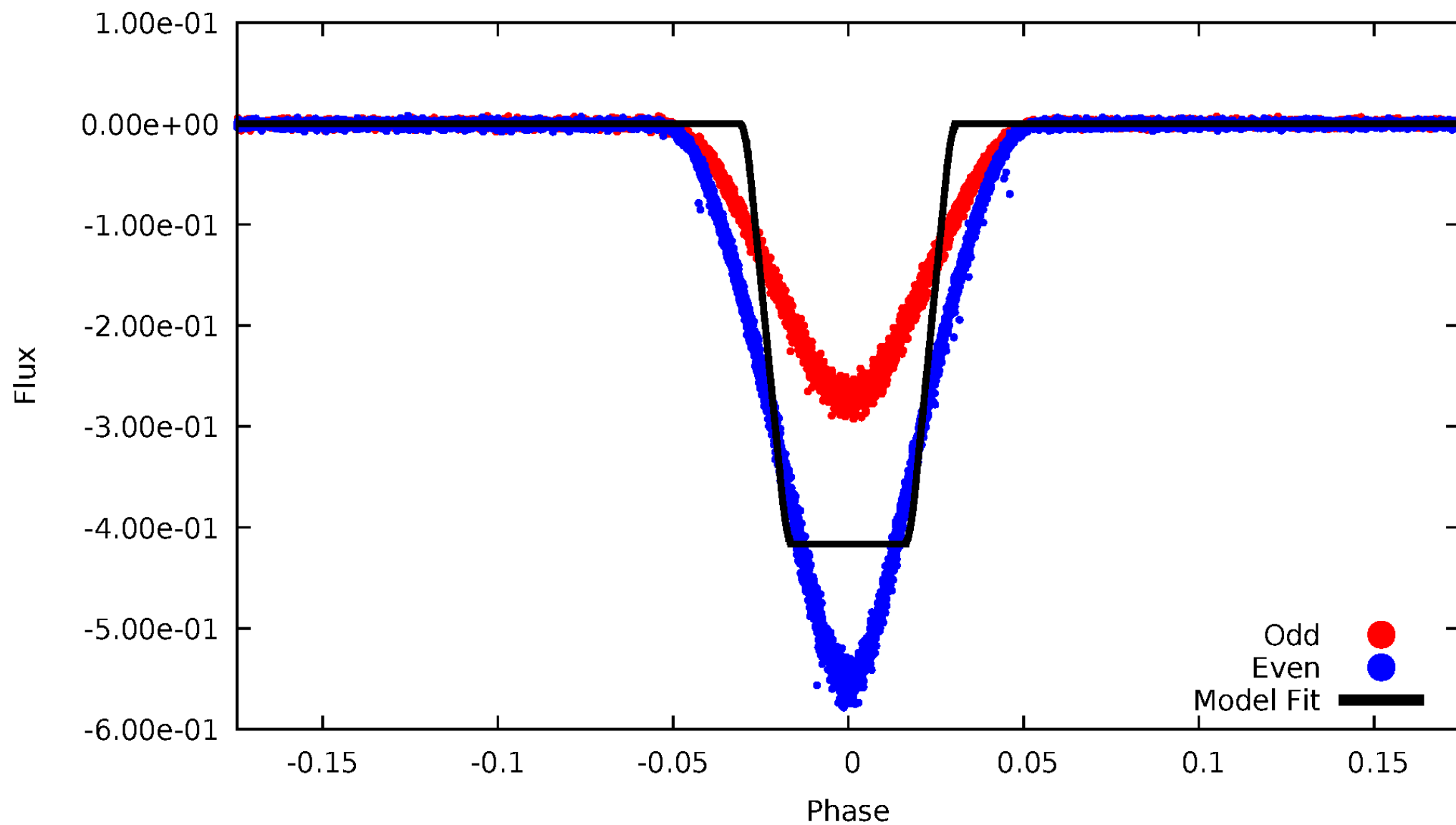
# DV Odd/Even

TCE 008879915-01



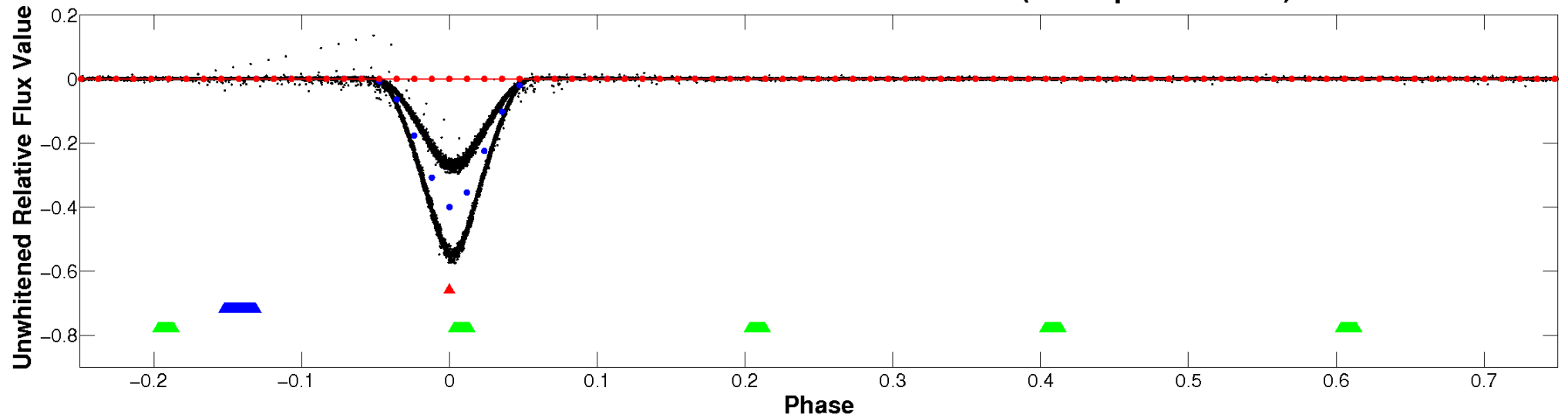
# ALT Odd/Even

TCE 008879915-01



# Non-Whitened Vs. Whitened Light Curve

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



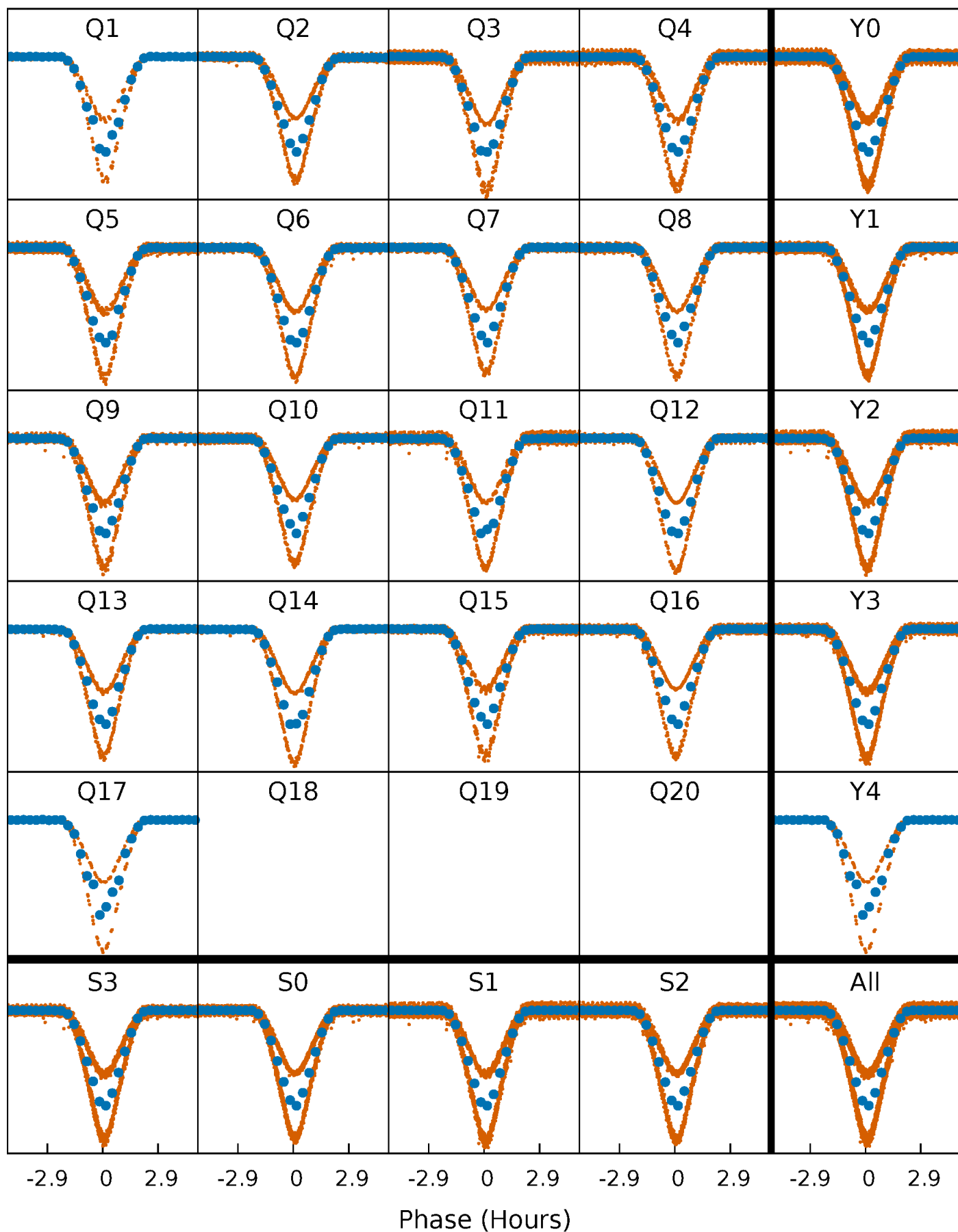
**Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





# PDC Quarter-Phased Transit Curves

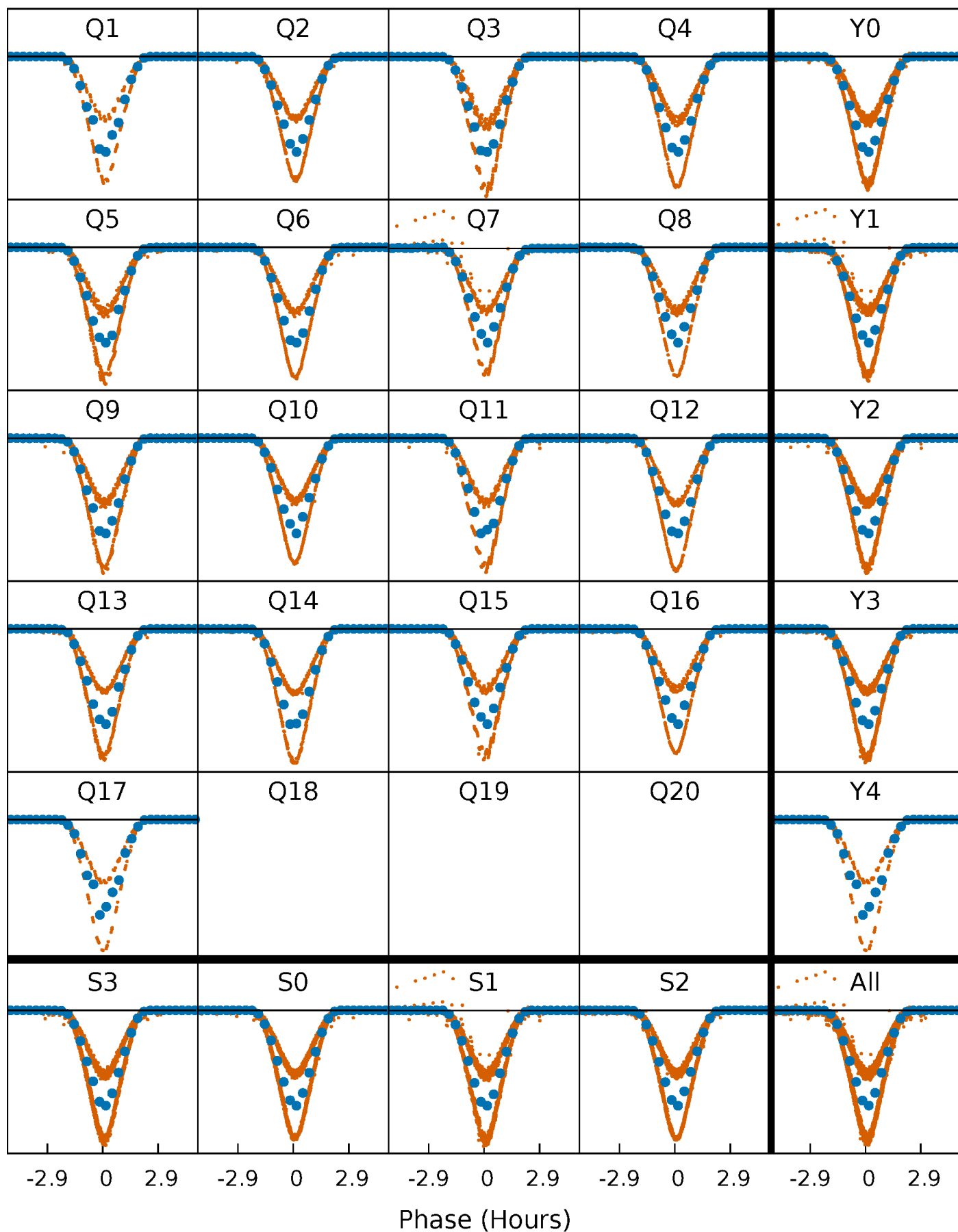
TCE 008879915-01 P= 1.721318 Days  $T_0=132.526619$  (BKJD)





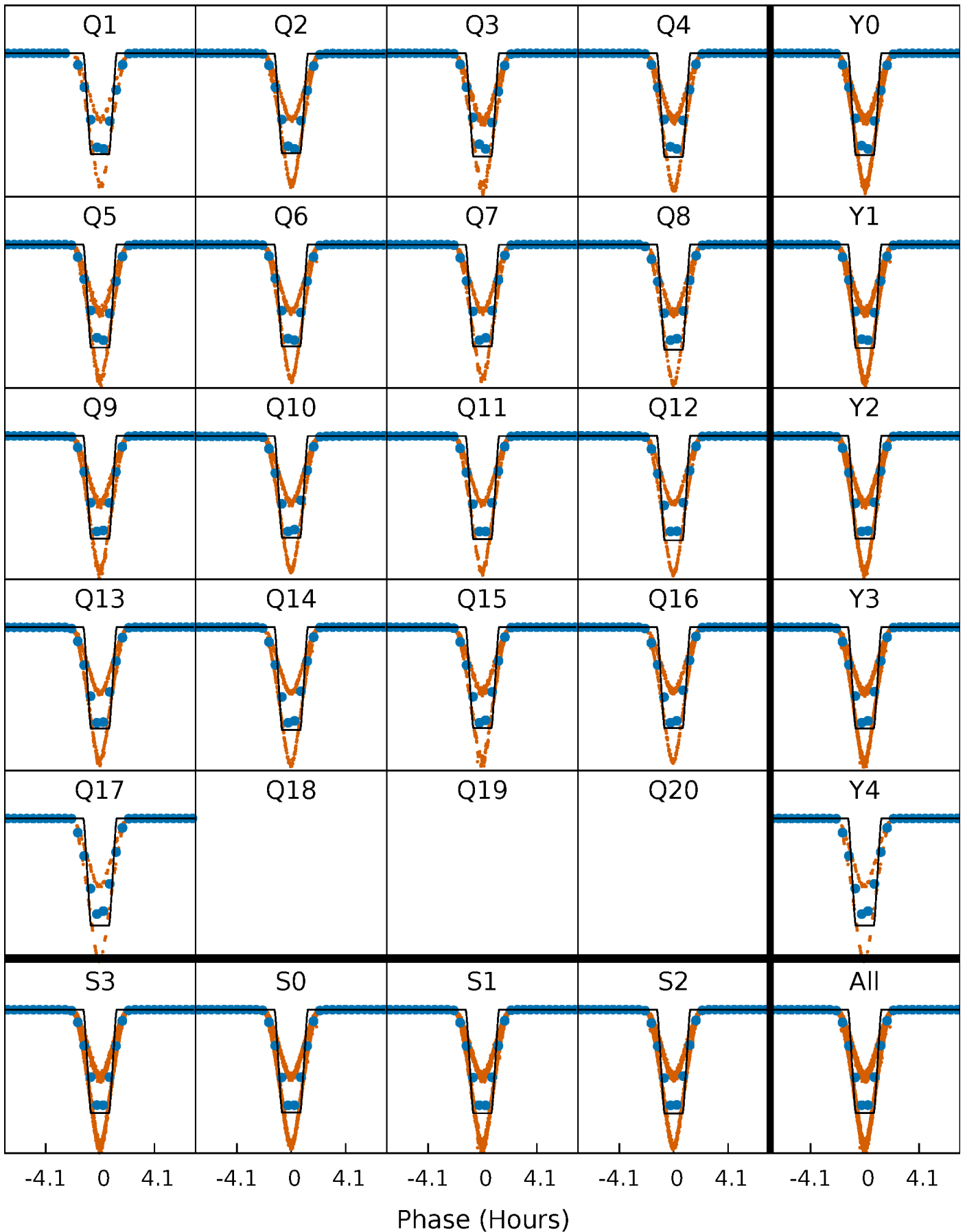
# DV Quarter-Phased Transit Curves

TCE 008879915-01 P= 1.721318 Days  $T_0=132.526619$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

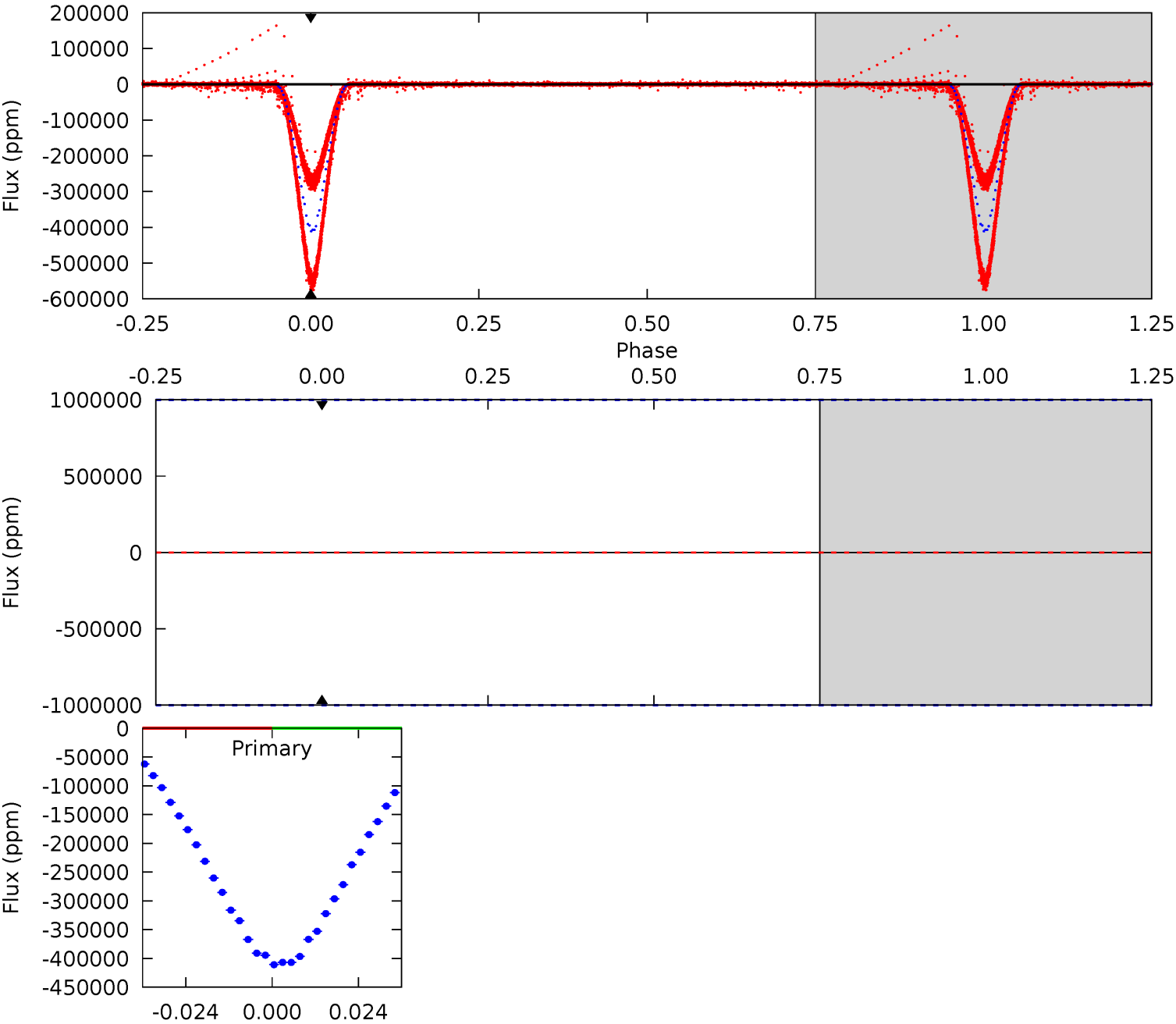
TCE 008879915-01 P= 1.721318 Days  $T_0=132.530460$  (BKJD)



# DV Model-Shift Uniqueness Test

008879915-01, P = 1.721318 Days, E = 130.805301 Days

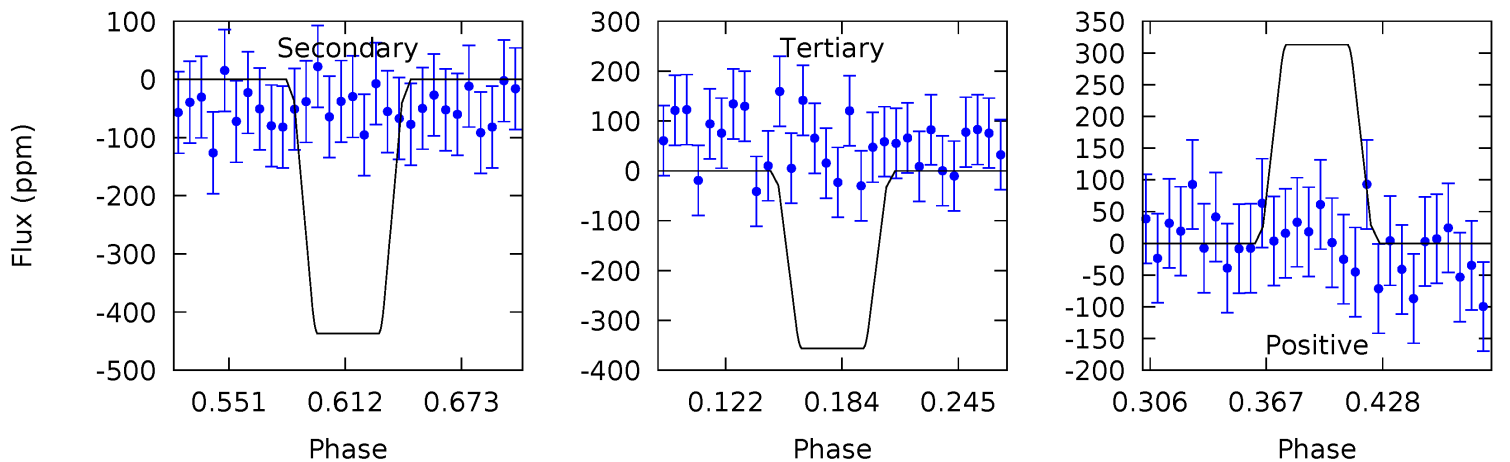
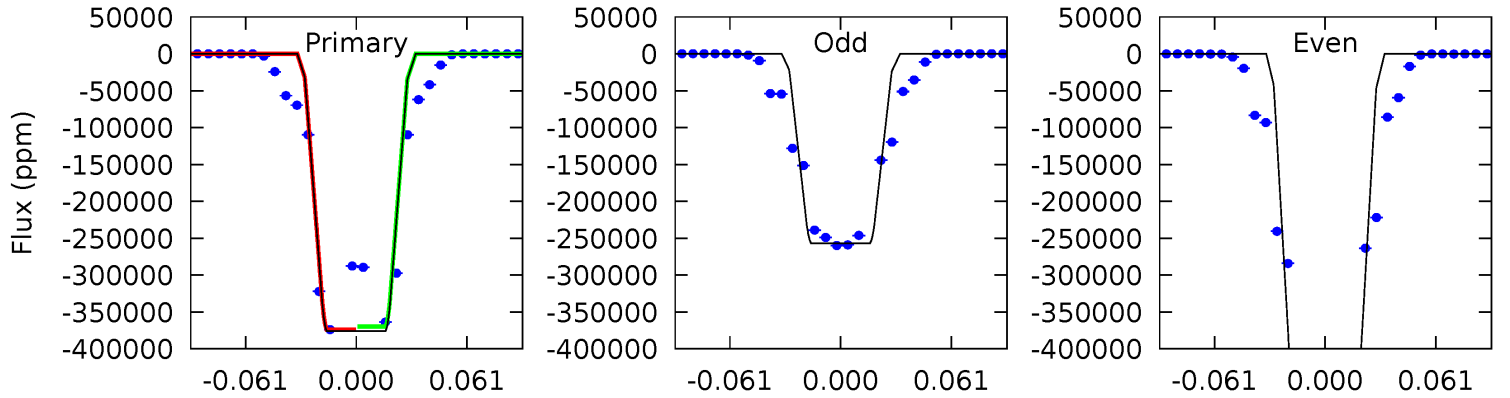
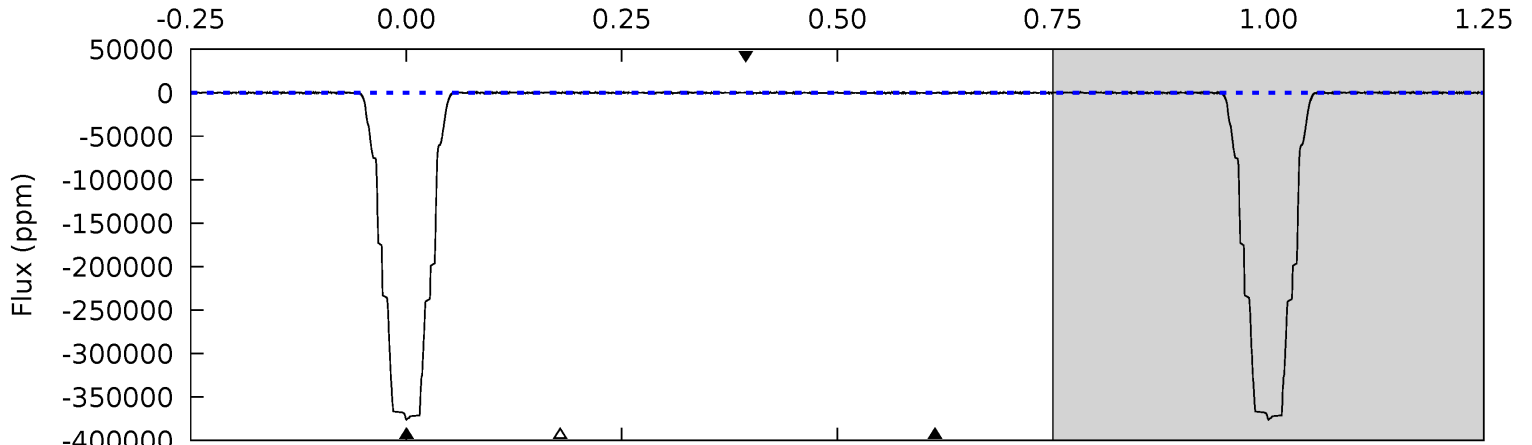
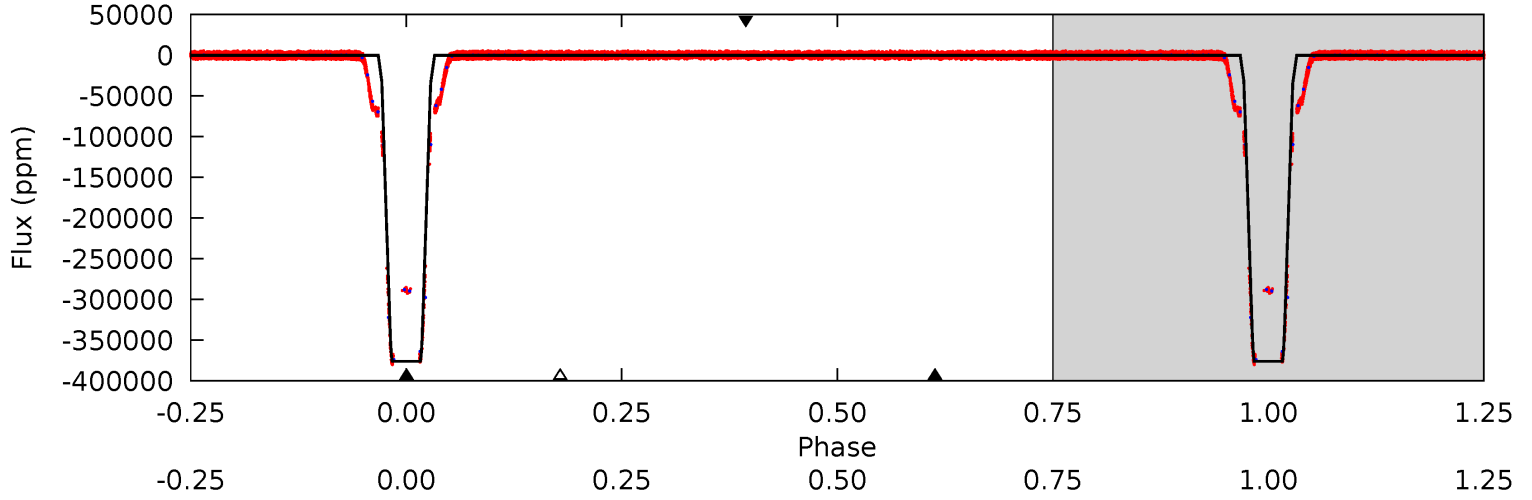
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008879915-01, P = 1.721318 Days, E = 130.809142 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
3422	3.97	3.24	2.85	4.67	1.87	1.02	3418	3419	0.73	1.13	2183	0.89	0.00	0



### Stellar Parameters For KIC 008879915

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5960^{+160}_{-196}$	$4.371^{+0.124}_{-0.186}$	$-0.120^{+0.300}_{-0.300}$	$1.073^{+0.316}_{-0.170}$	$0.986^{+0.145}_{-0.119}$	$1.125^{+0.670}_{-0.572}$
	+3%/-3%	+3%/-4%	+250%/-250%	+29%/-16%	+15%/-12%	+60%/-51%
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 008879915-01 / KOI 7105.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$58.87^{+14.65}_{-13.18}$	$2287^{+167}_{-144}$	$-2626^{+7572}_{-2260}$	$0.074^{+14.143}_{-12.194}$
Alt.	$-437 \pm 110$	$77.18^{+16.55}_{-15.22}$	$2292^{+174}_{-128}$	$-2630^{+88}_{-110}$	$0.031^{+0.021}_{-0.012}$

$T_{max}$  = 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

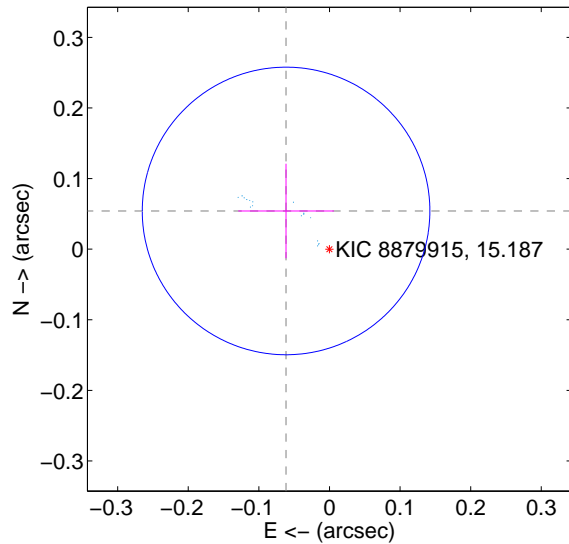
Supplemental centroid analysis for 008879915-01. Kepler magnitude: 15.19. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

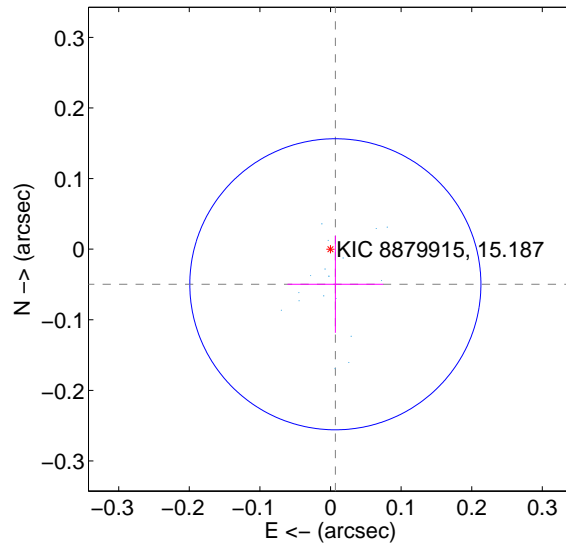
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.082 \pm 0.068$	1.21	$0.061 \pm 0.068$	$0.054 \pm 0.067$
PRF-fit source offset from KIC position	$0.050 \pm 0.069$	0.73	$-0.007 \pm 0.068$	$-0.050 \pm 0.069$
photometric centroid source offset	$0.11 \pm 0.00$	179.62	$-0.04 \pm 0.00$	$0.10 \pm 0.00$

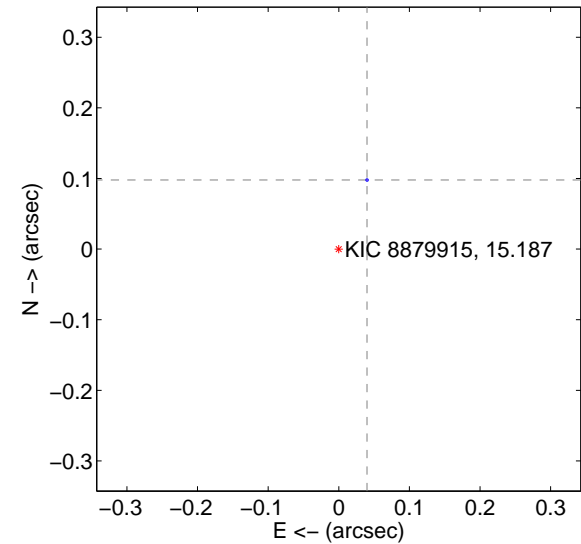
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

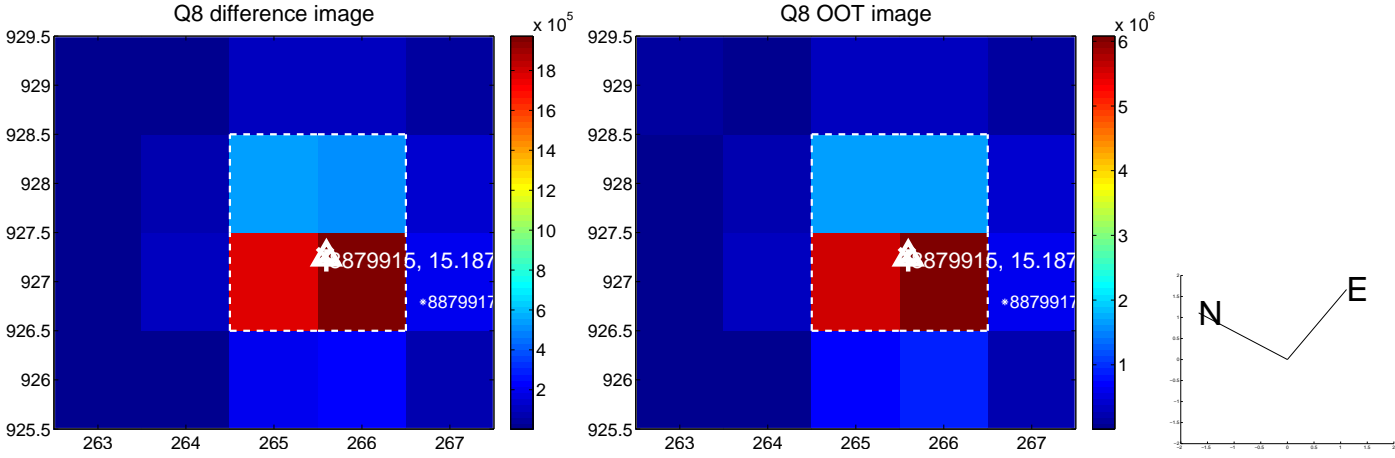
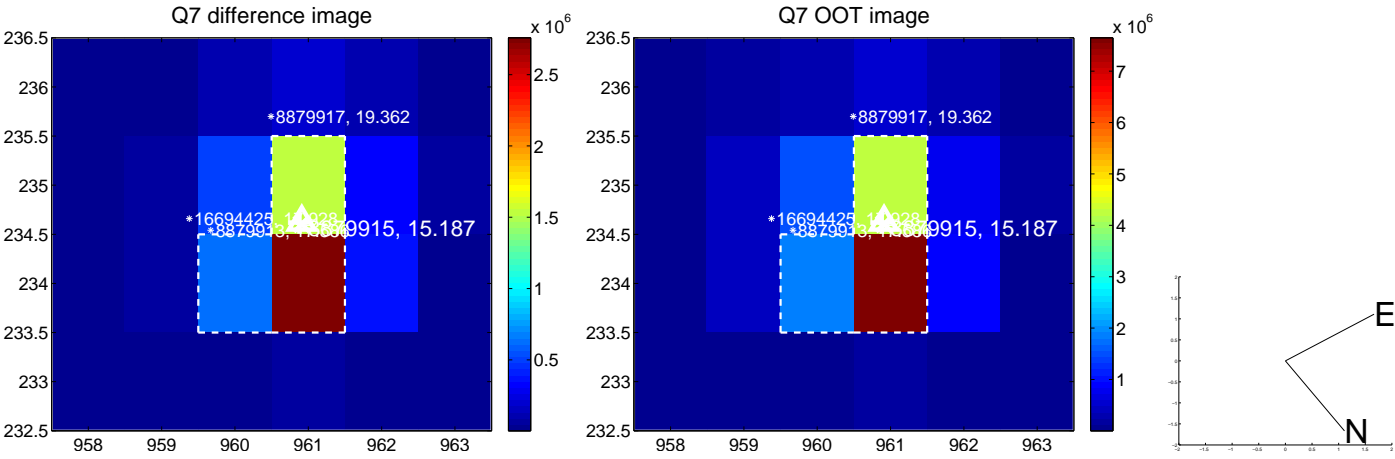
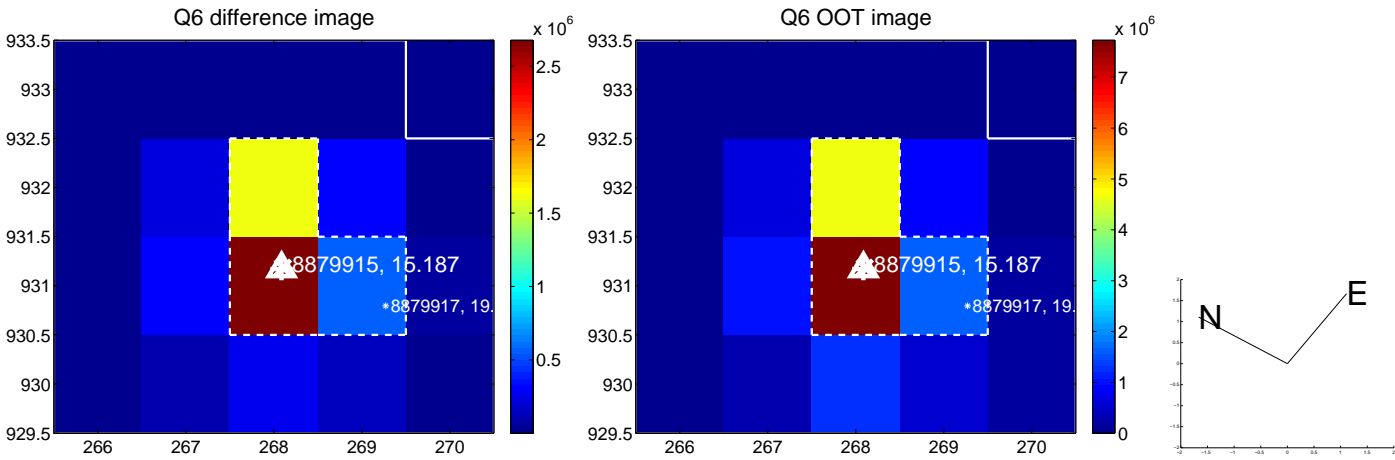
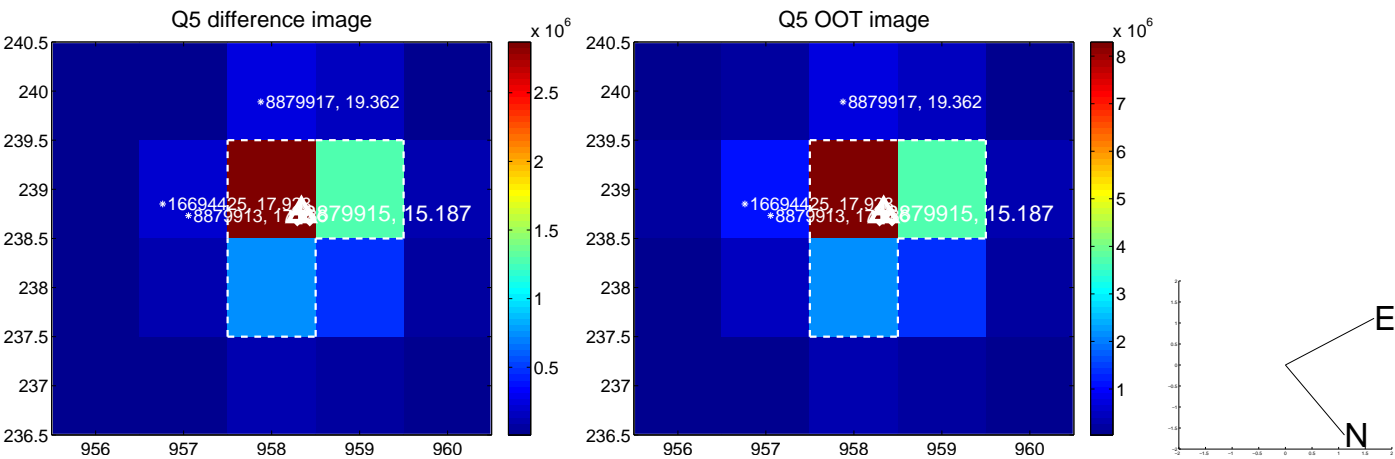


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

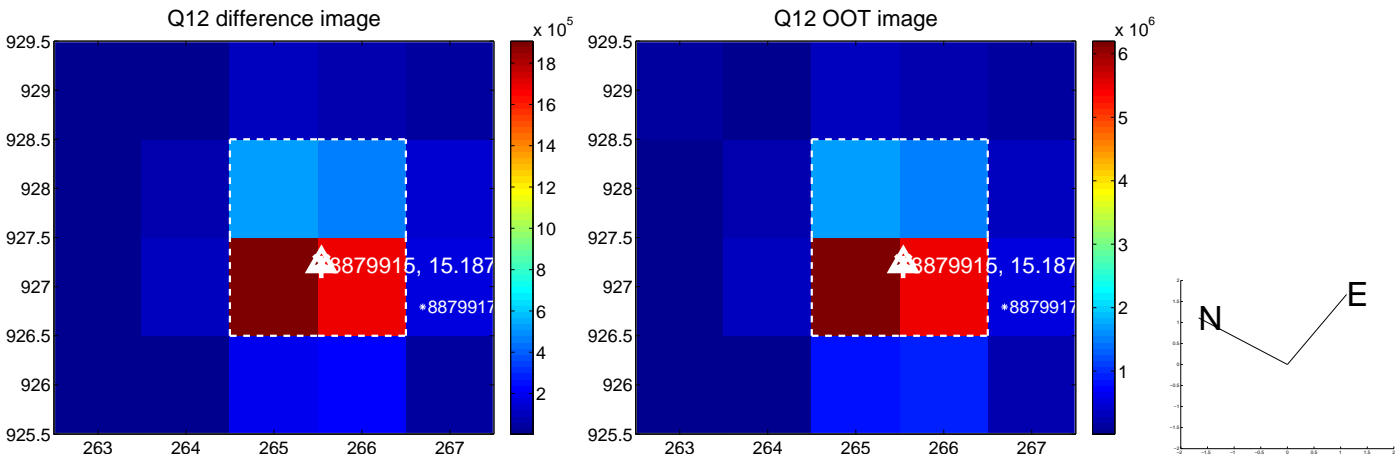
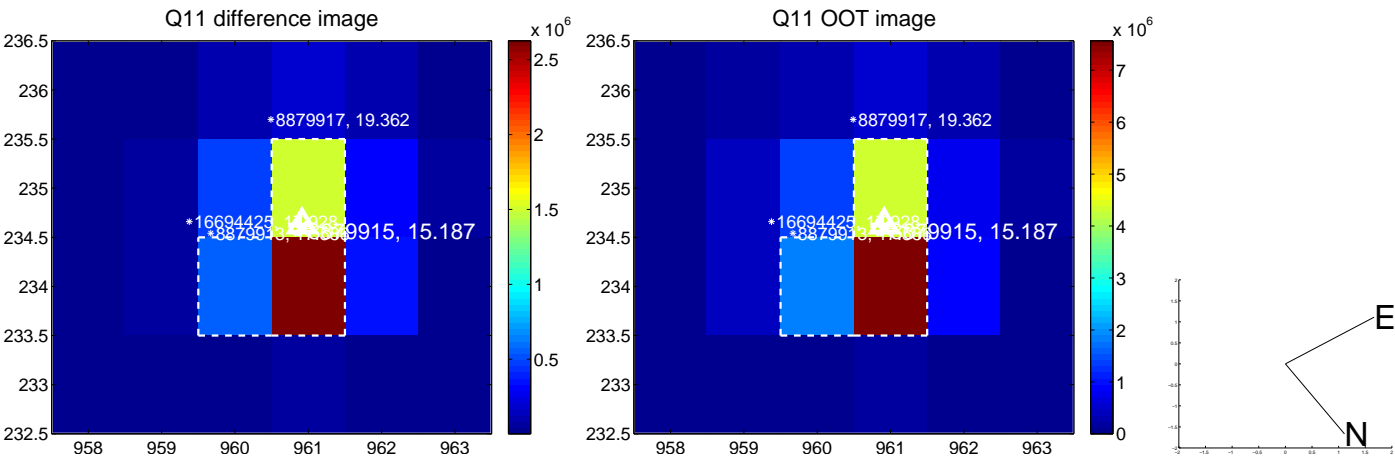
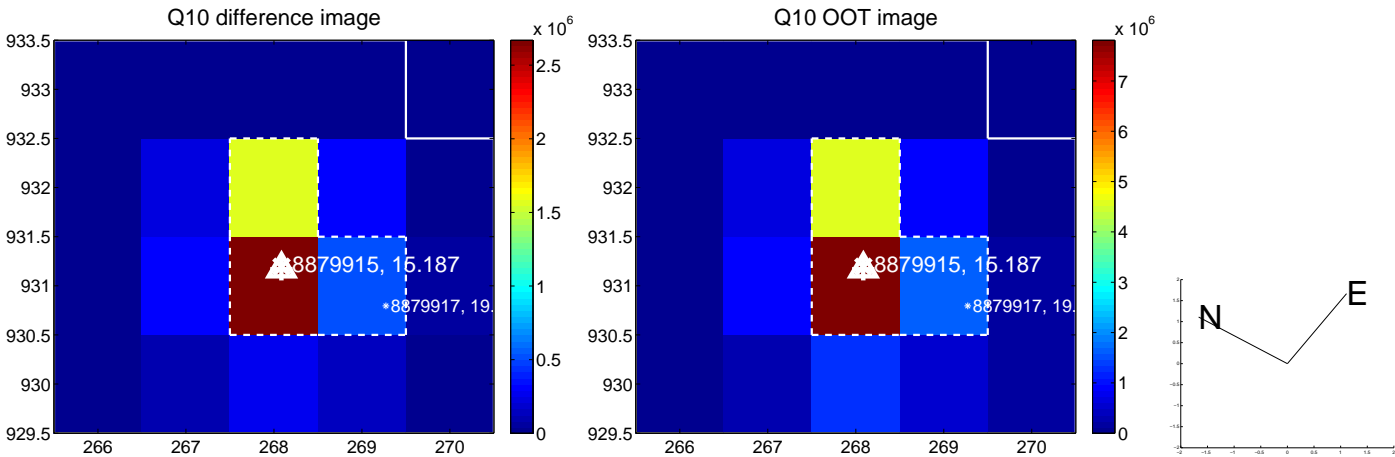
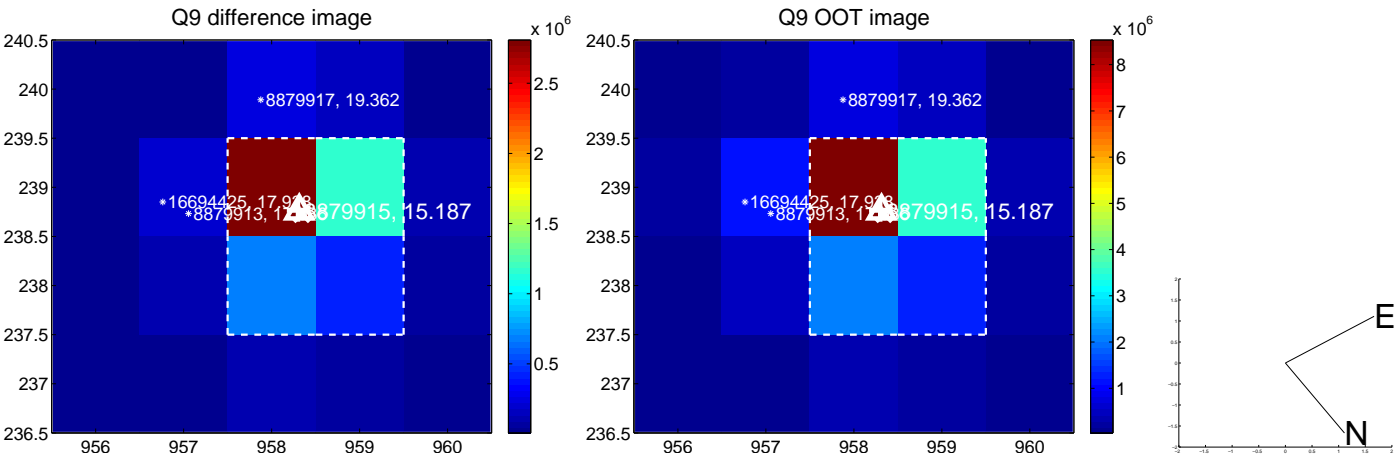




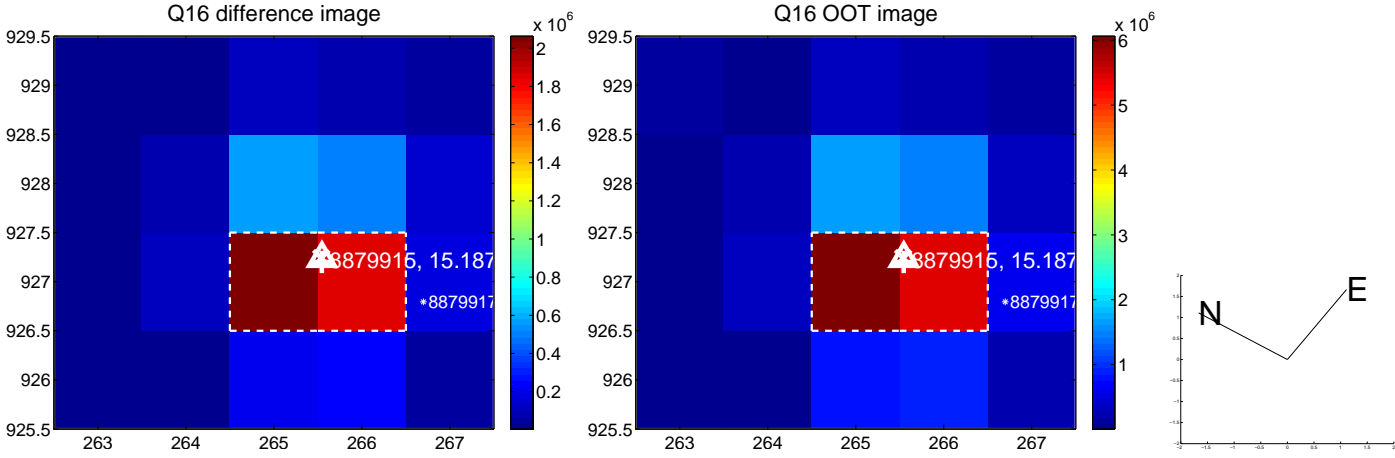
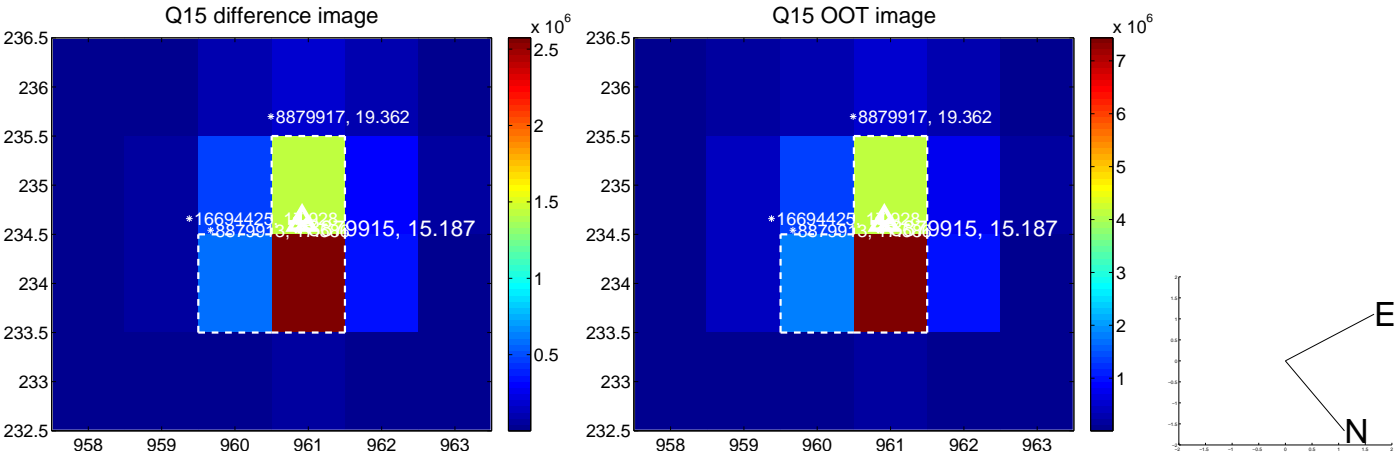
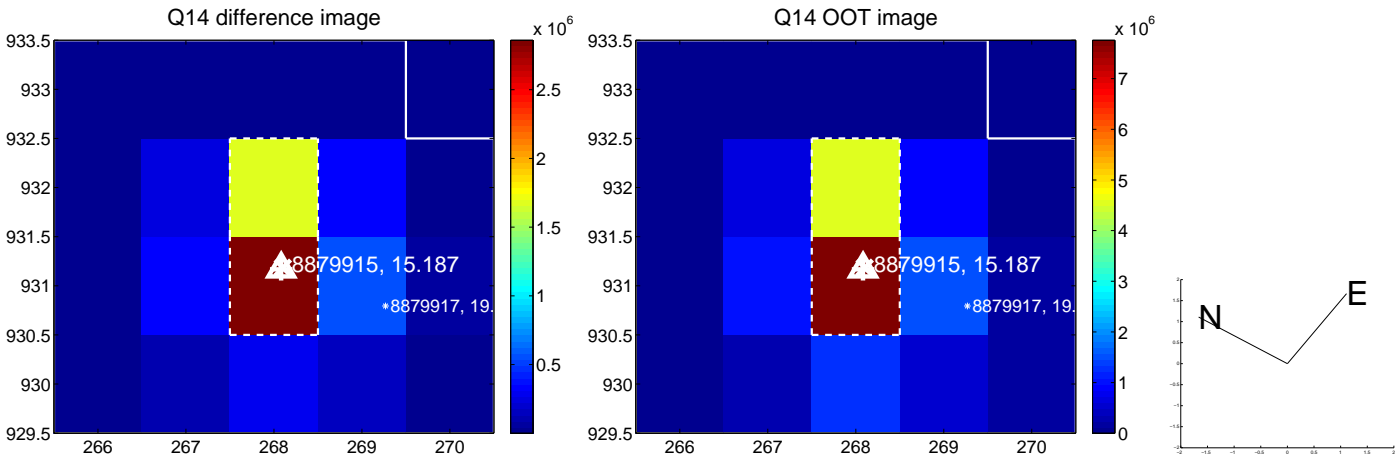
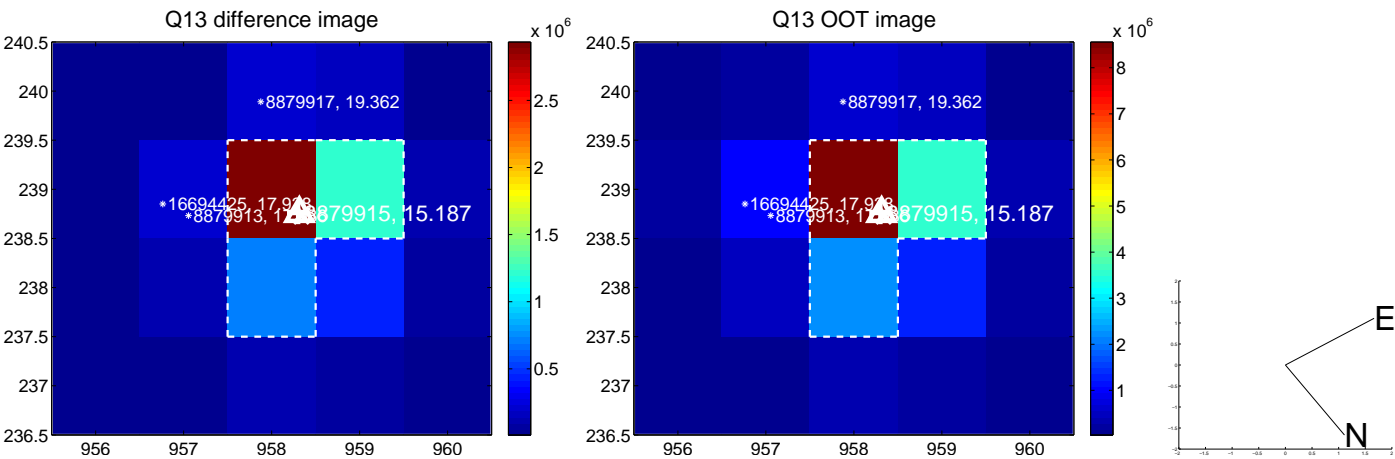
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



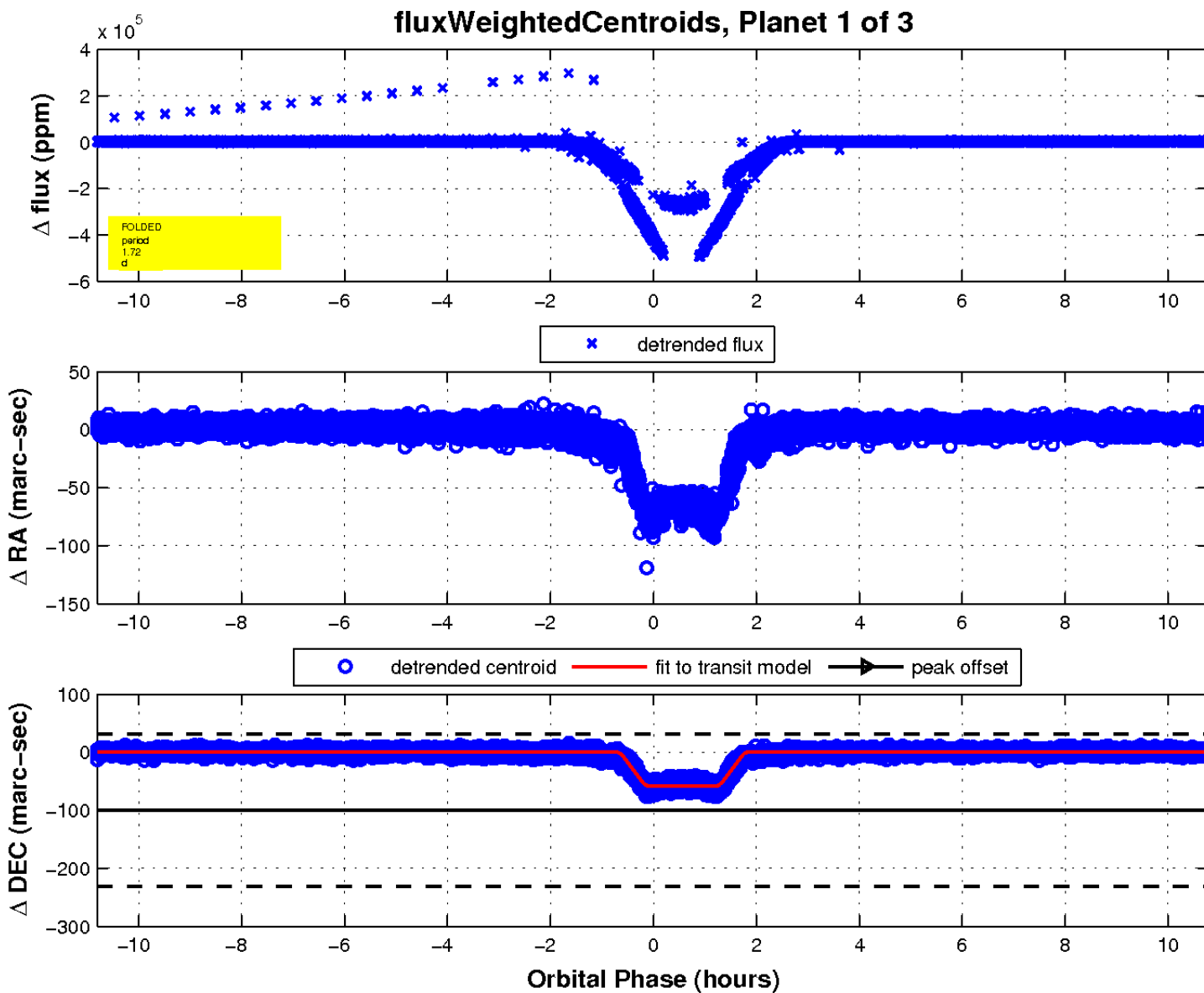
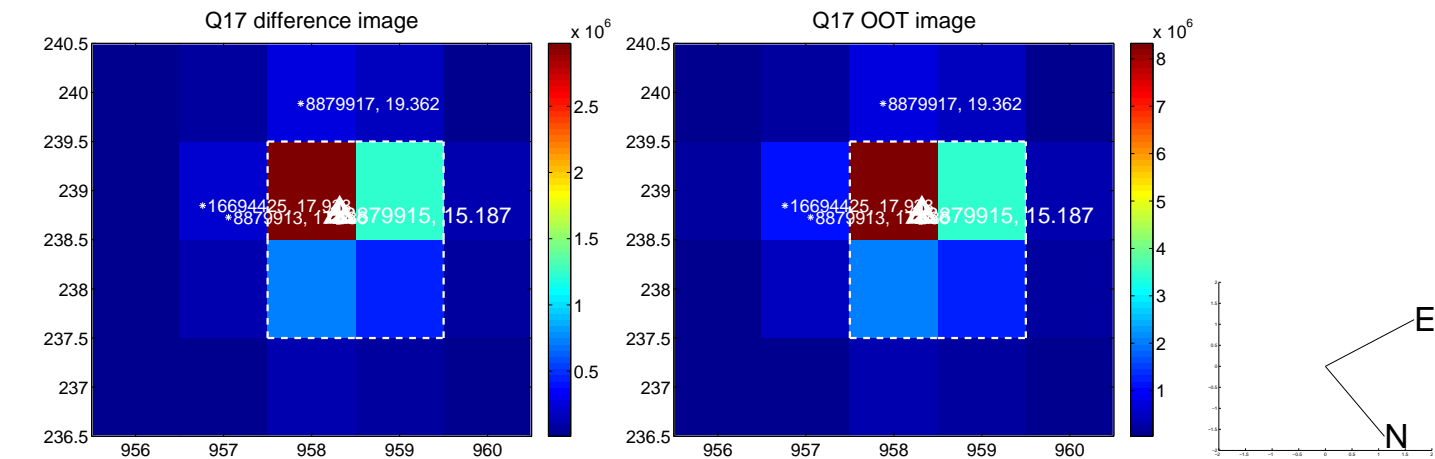
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

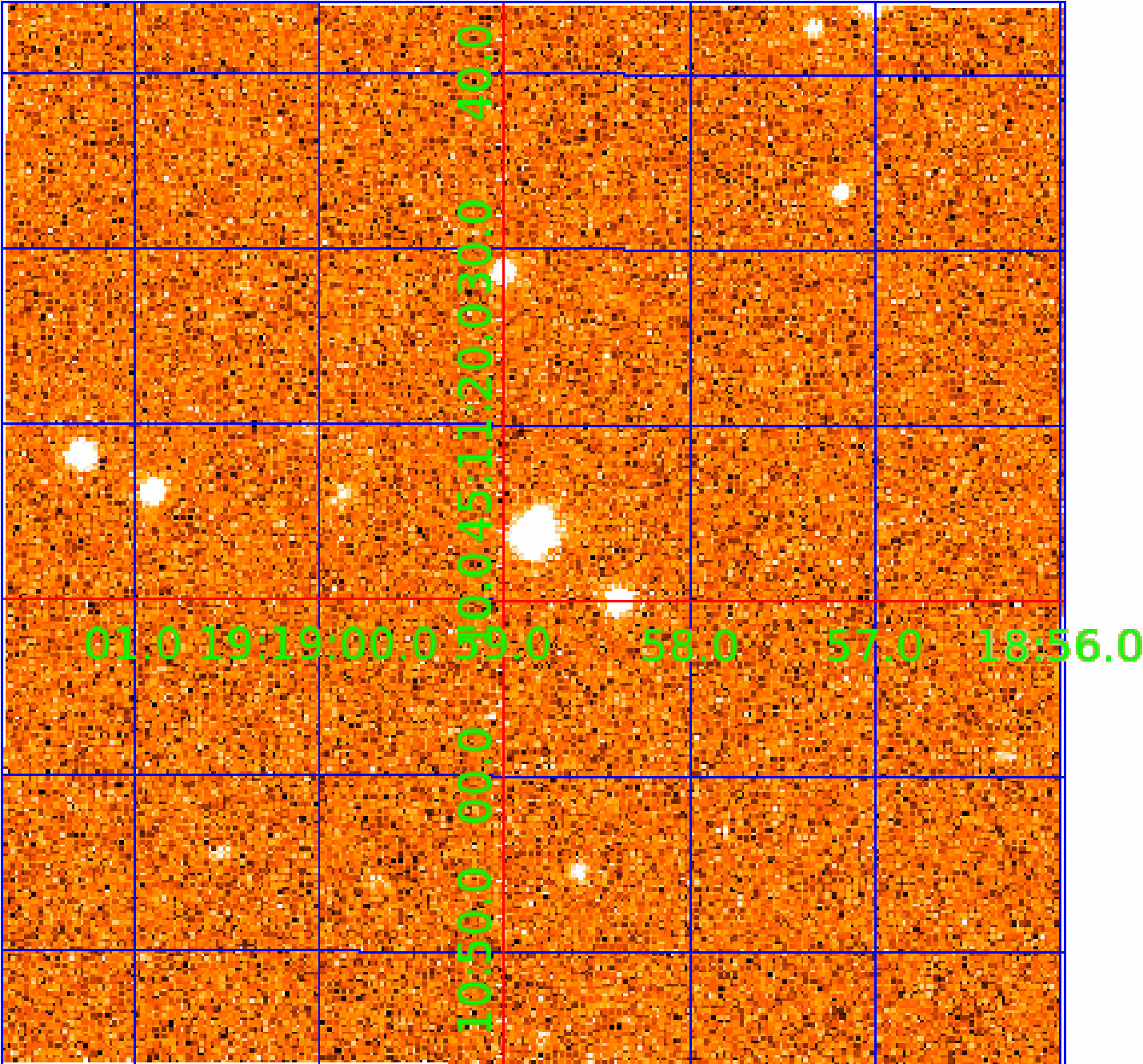


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008879915

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008879915-01	OBS	7105.01	1.721318	132.526619	405143.4	2.500	20769.9	-1.0	1.07	5960	58.54	1661.36
008879915-02	OBS	No	6.885098	132.301091	39836.5	15.000	3956.3	-1.0	1.07	5960	21.37	261.66
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008879915-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
008879915-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS
008879915-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

**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.

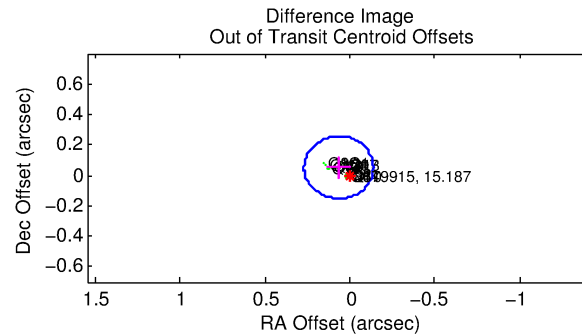
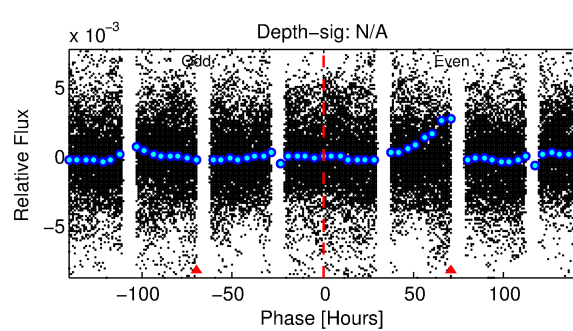
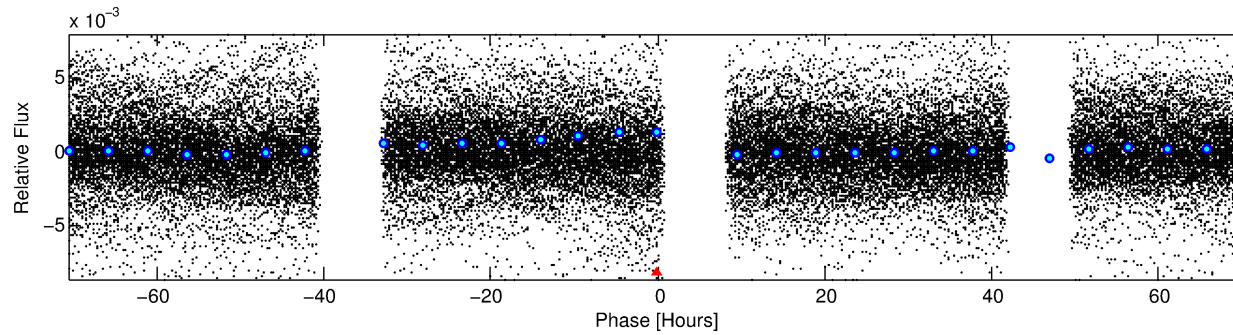
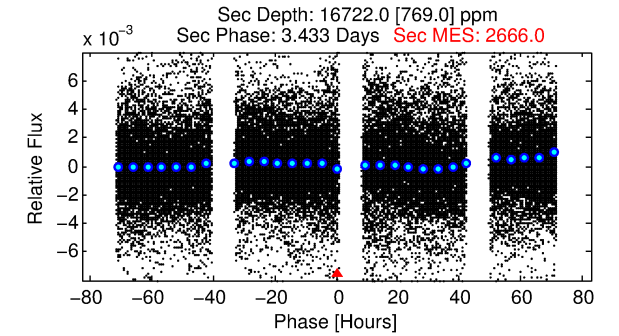
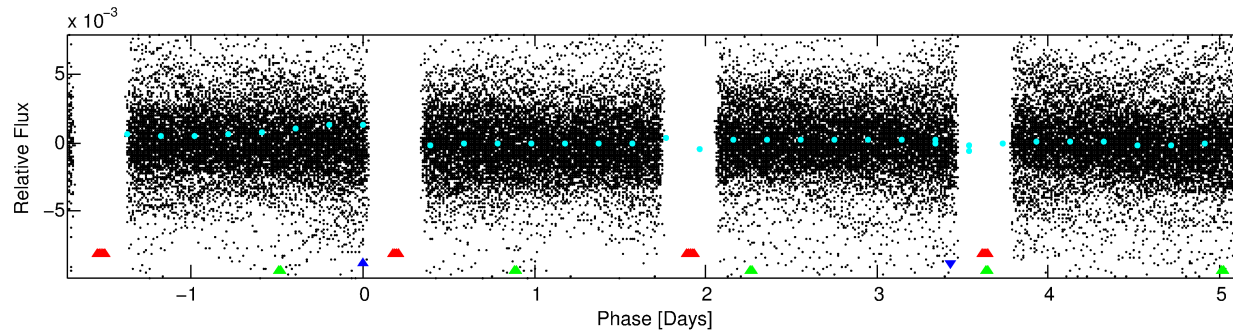
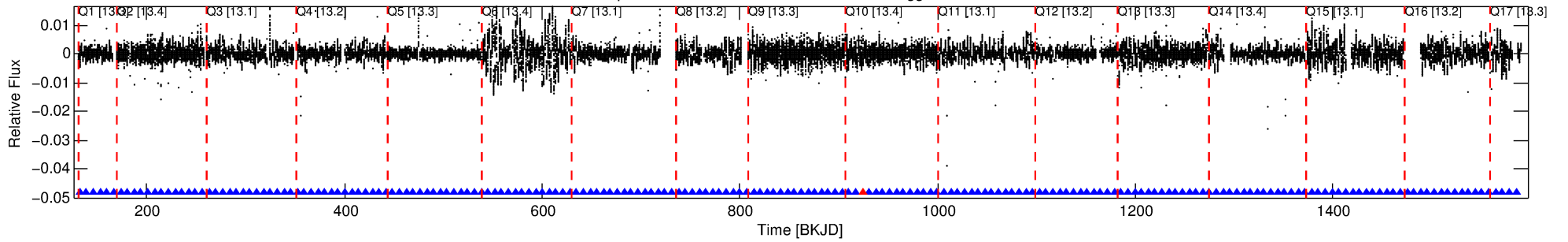
## Ephemeris Match Information For 008879915-02

No Significant Match Found

# DV One-Page Summary

KIC: 8879915 Candidate: 2 of 3 Period: 6.885 d  
KOI: K07105 Corr: No Ephemeris Match

Kp: 15.19 R\*: 1.07 Rs Teff: 5960.0 K Logg: 4.37 Fe/H: -0.120



## TPS TCE Results:

Period = 6.88510 d  
Epoch = 132.3011 BKJD

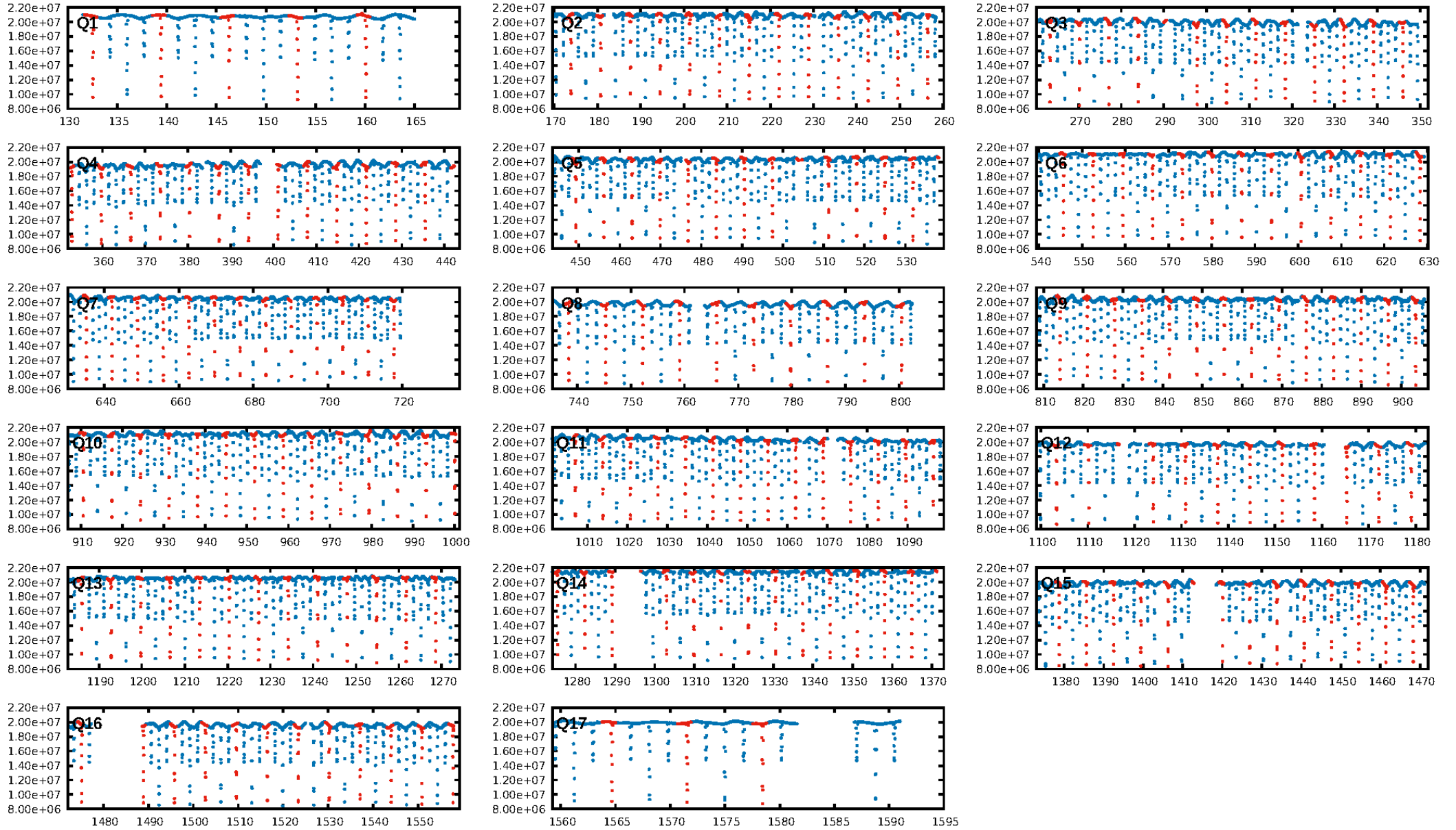
DV fit results are unavailable

## DV Diagnostic Results:

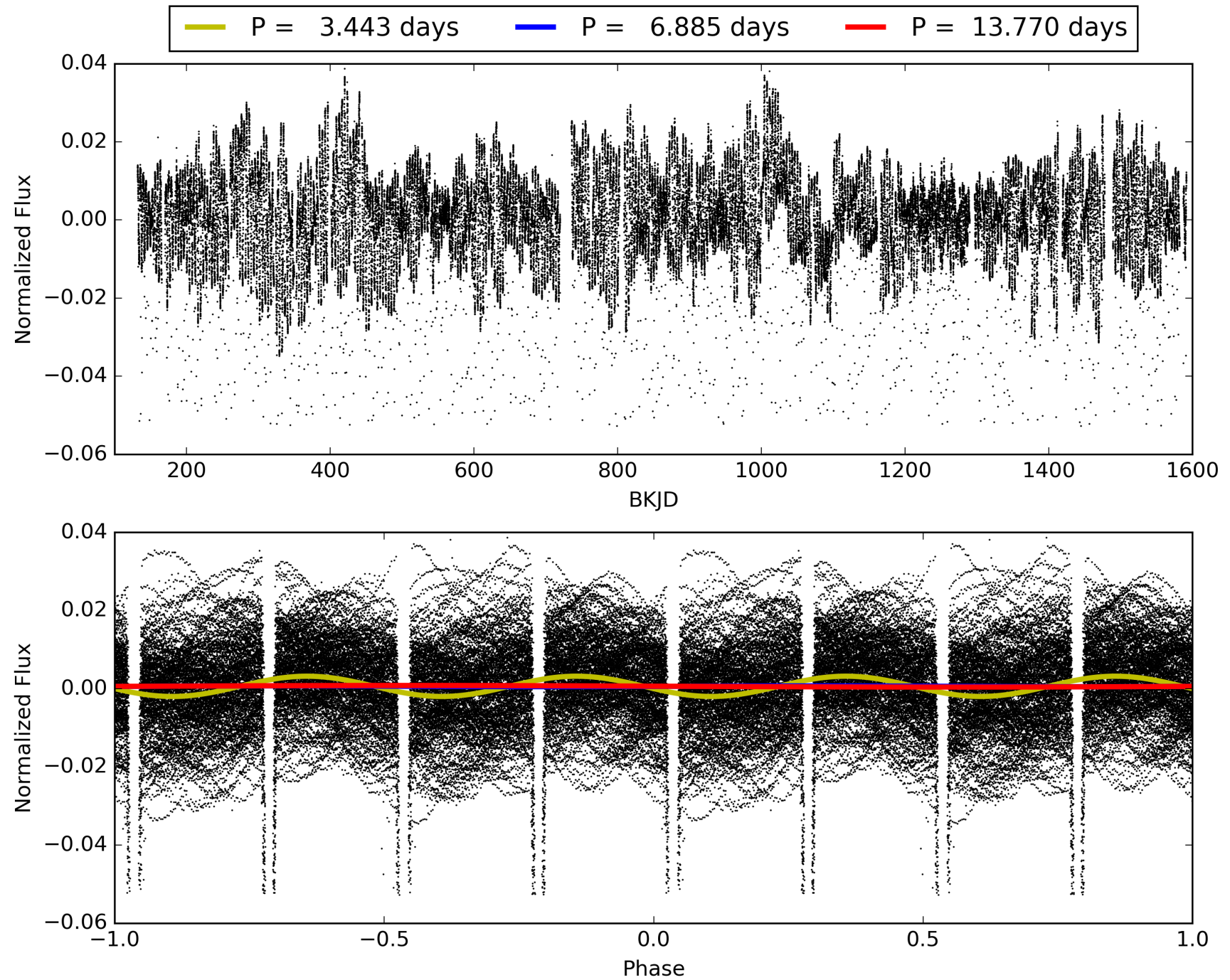
ShortPeriod-sig: 92.8% [1.80σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [196/197]  
GhostDiagnostic-chr: 5.337  
Centroid-sig: N/A  
Centroid-so: 1.600 arcsec [6.44σ]  
OotOffset-rm: 0.085 arcsec [1.25σ]  
KicOffset-rm: 0.053 arcsec [0.77σ]  
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]



# TCE 008879915-02, PDC Light Curves

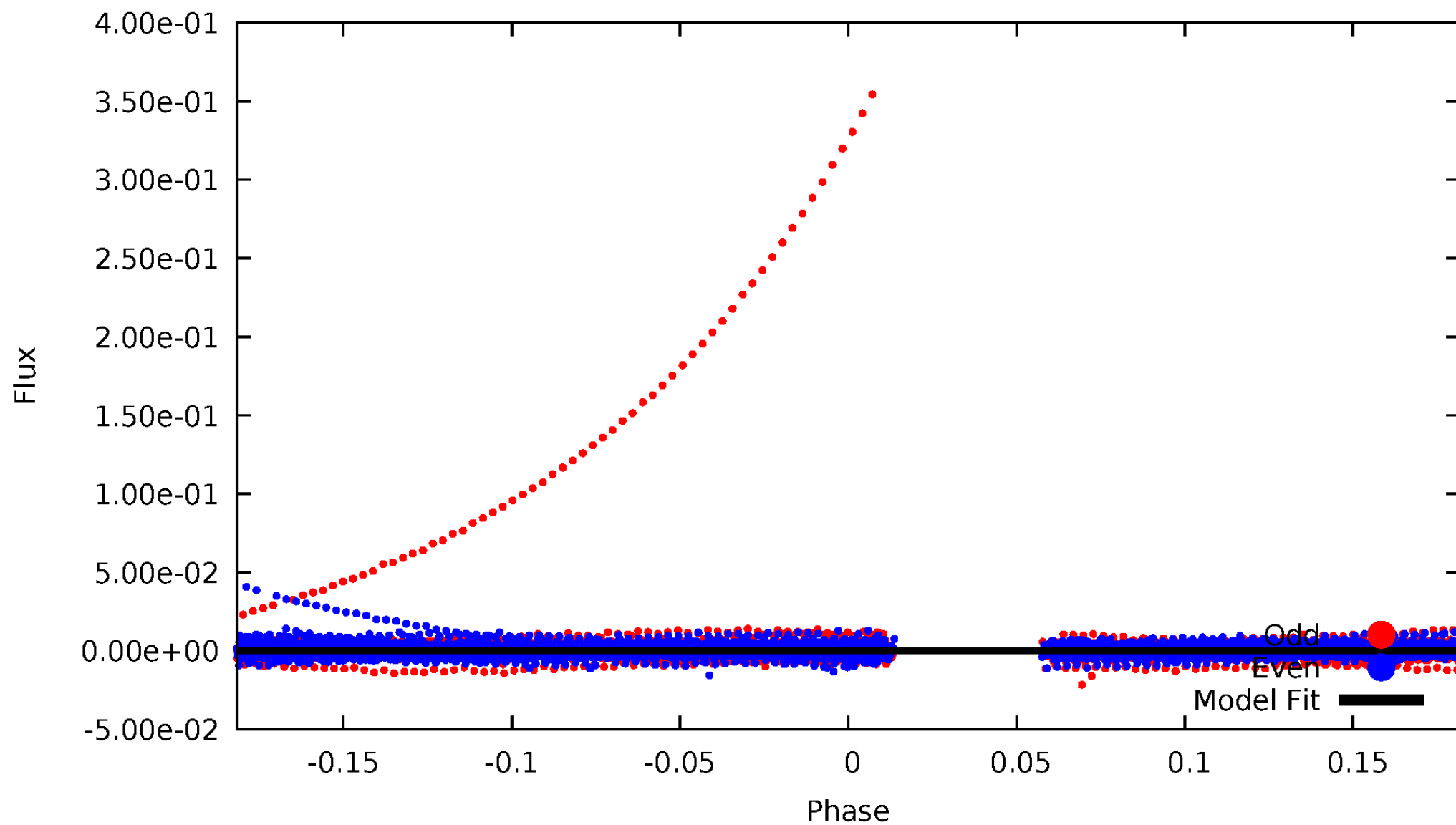


# TCE 008879915-02



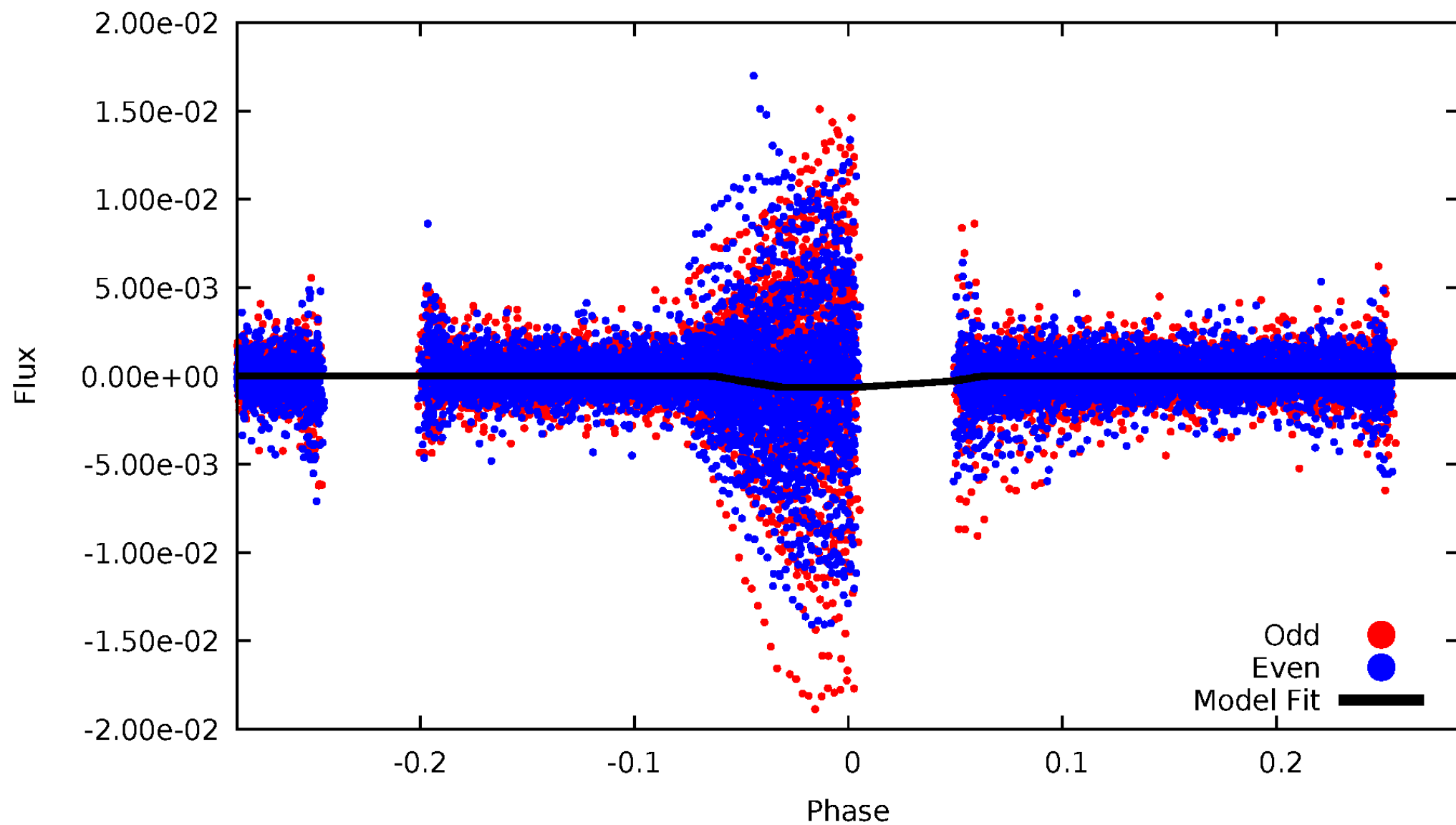
# DV Odd/Even

TCE 008879915-02



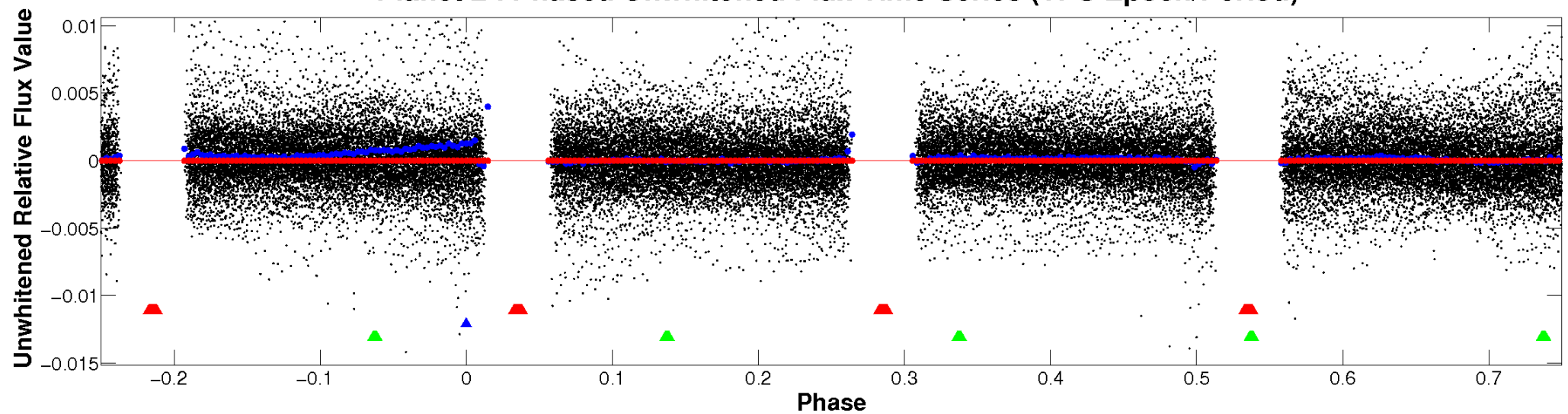
# ALT Odd/Even

TCE 008879915-02

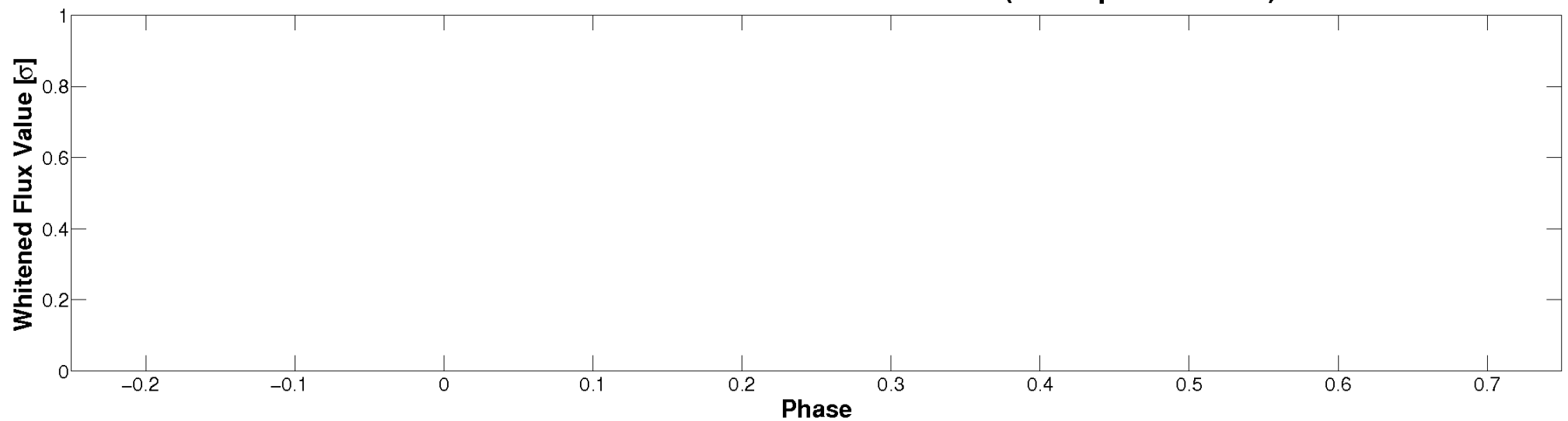


# Non-Whitened Vs. Whitened Light Curve

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

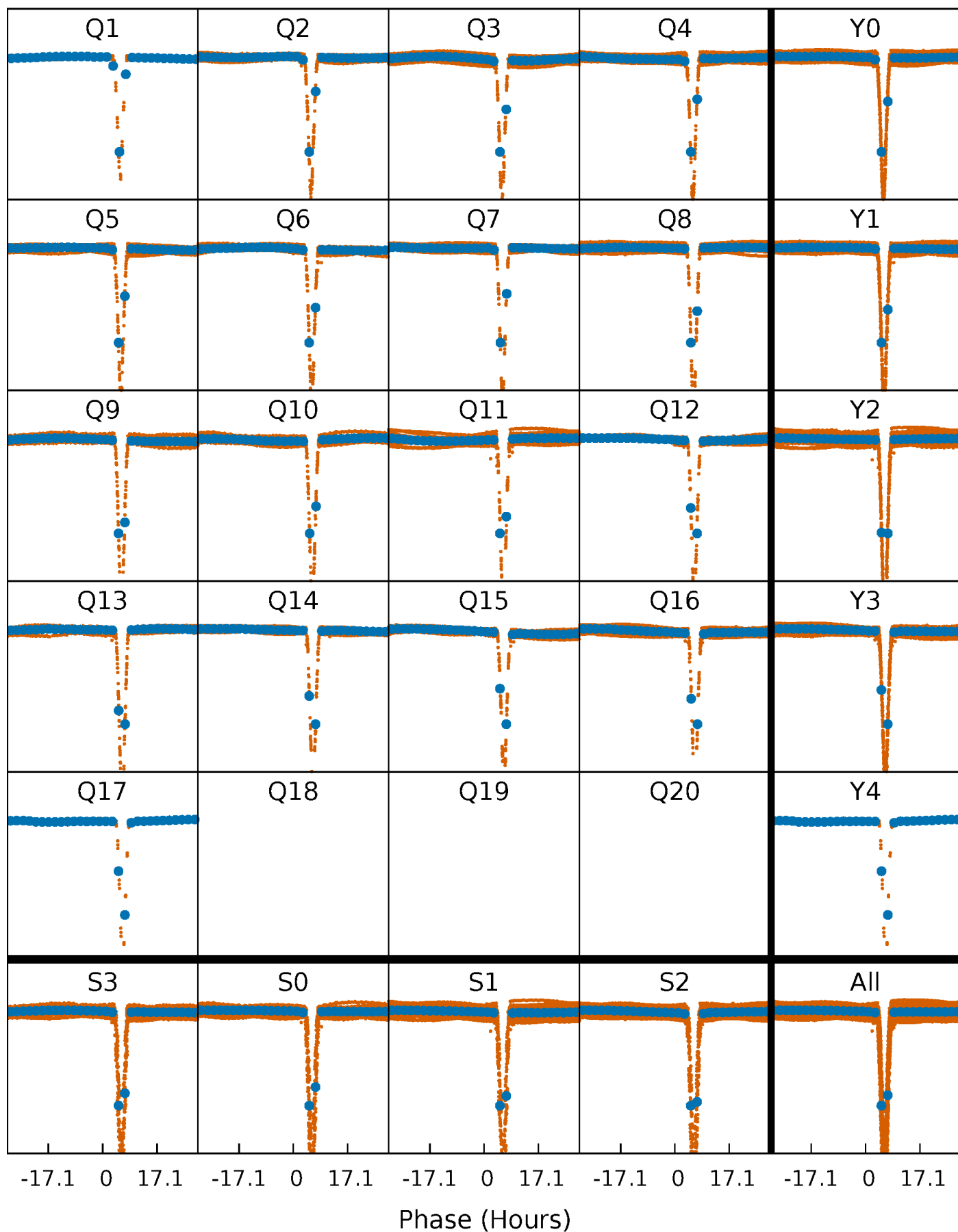


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

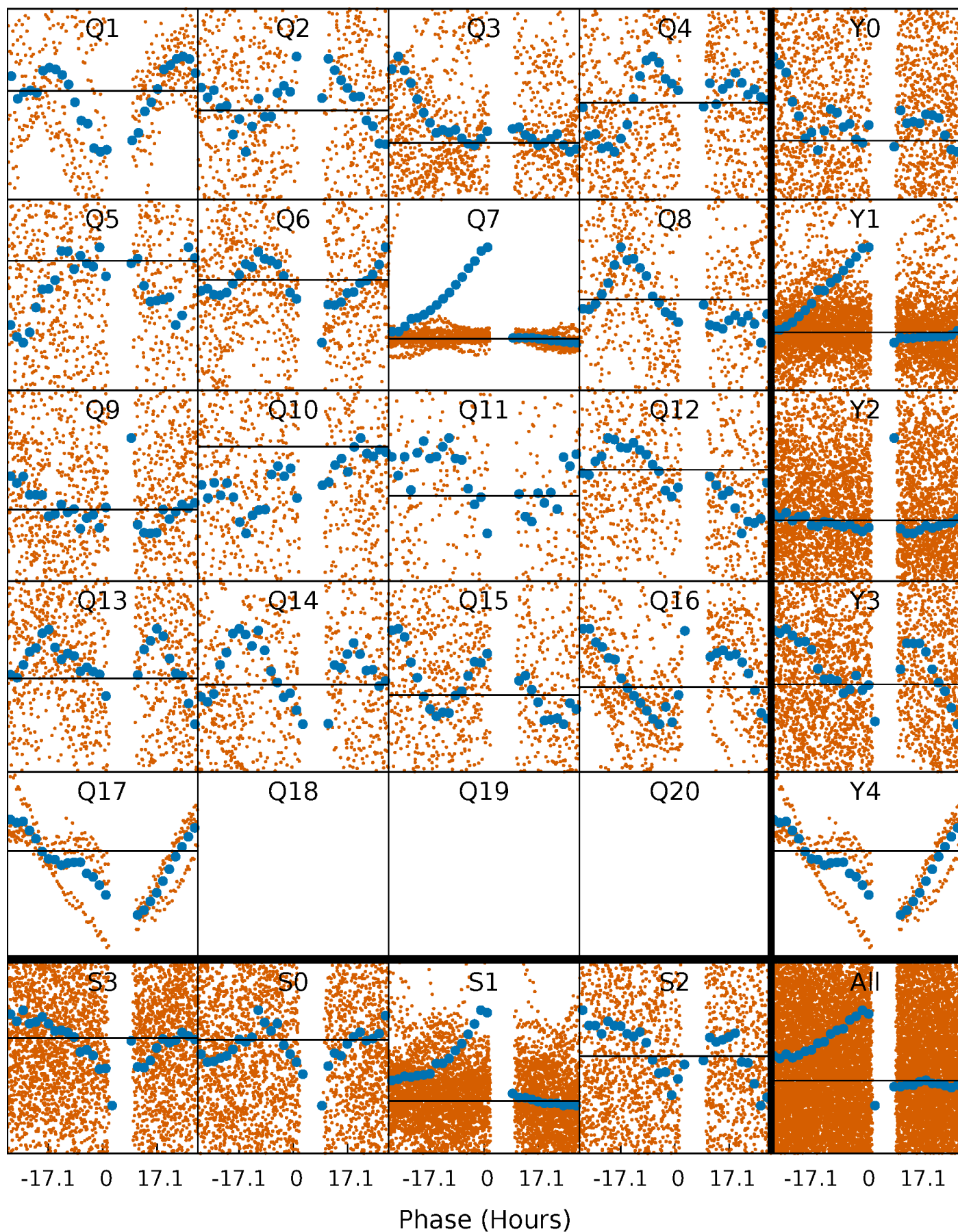
TCE 008879915-02 P= 6.885098 Days  $T_0=132.301092$  (BKJD)





# DV Quarter-Phased Transit Curves

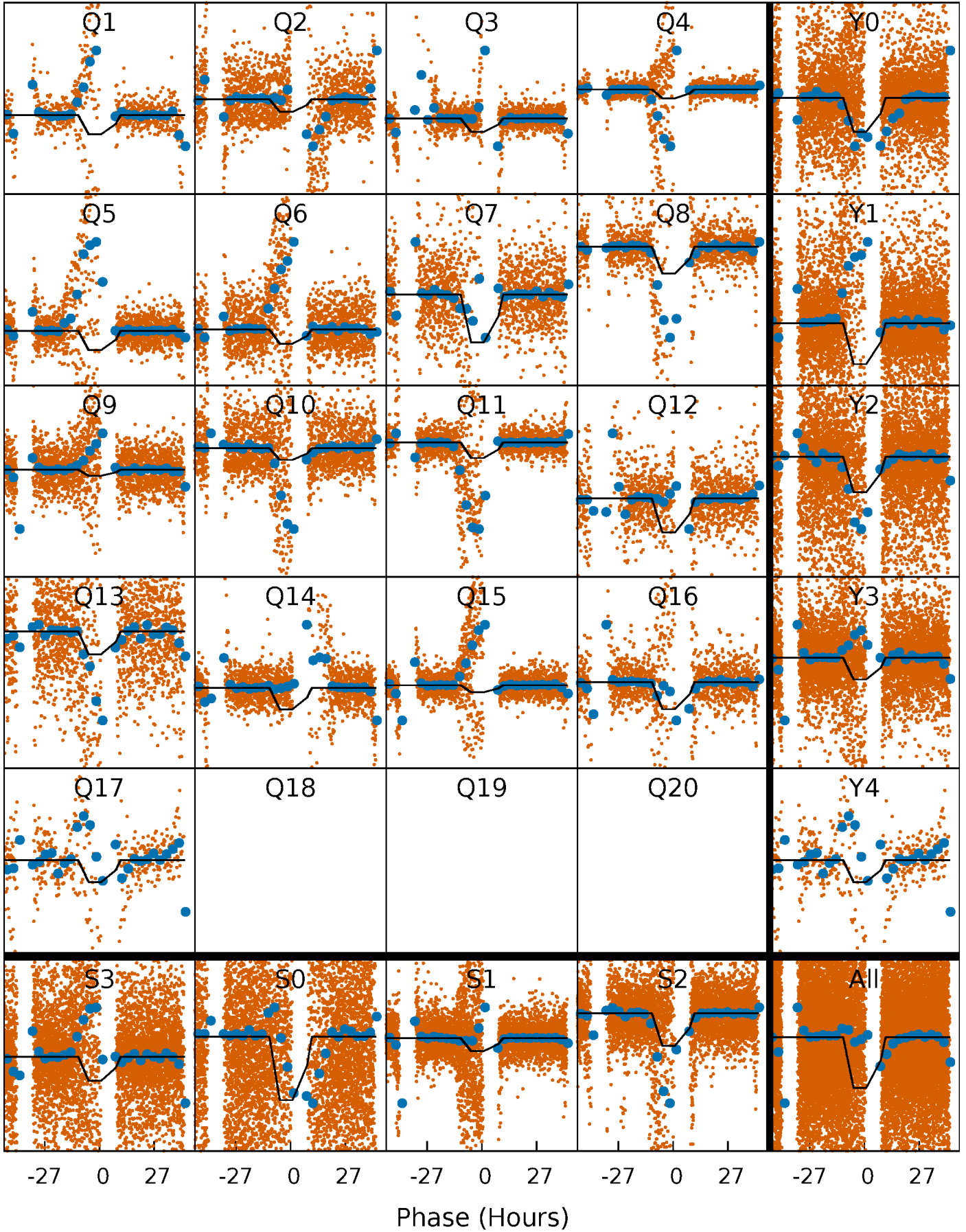
TCE 008879915-02   P= 6.885098 Days    $T_0=132.301092$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

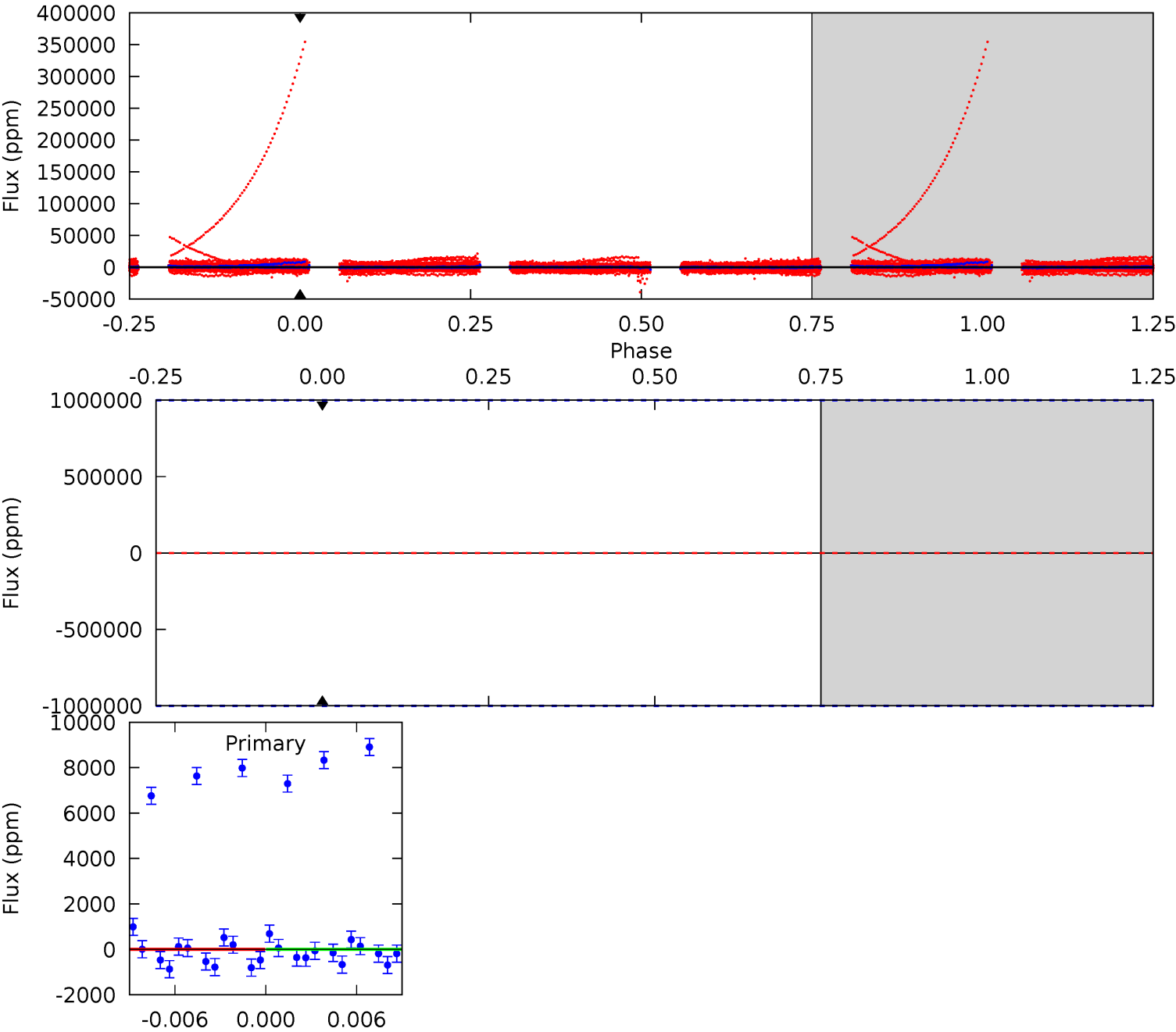
TCE 008879915-02   P= 6.885098 Days    $T_0=132.357631$  (BKJD)



# DV Model-Shift Uniqueness Test

008879915-02, P = 6.885098 Days, E = 125.415994 Days

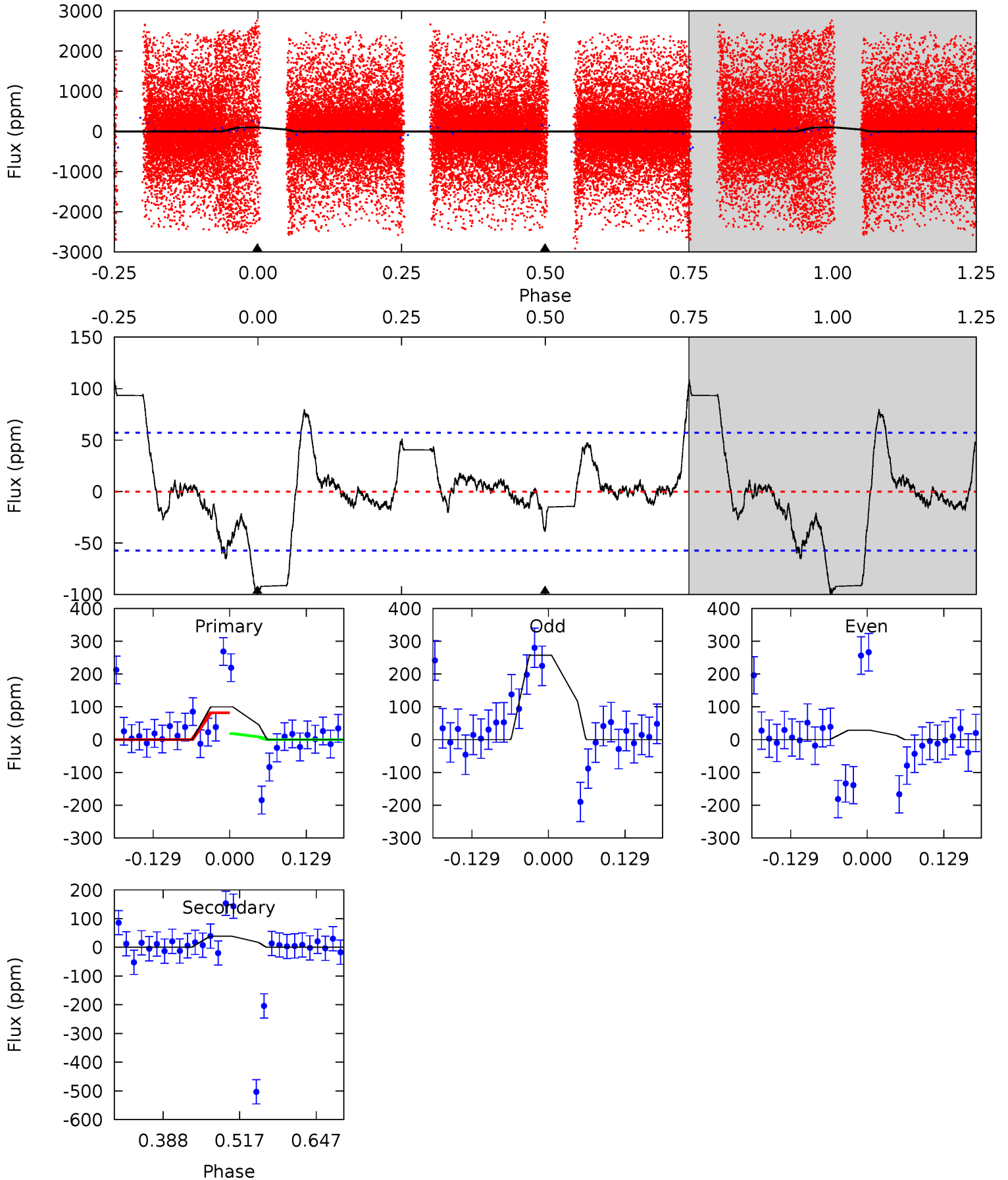
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008879915-02, P = 6.885098 Days, E = 125.472533 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
7.87	3.05	0	0	4.51	1.52	1.54	7.87	7.87	3.05	3.05	9.11	-2.54	0.52	2.10



### Stellar Parameters For KIC 008879915

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5960^{+160}_{-196}$	$4.371^{+0.124}_{-0.186}$	$-0.120^{+0.300}_{-0.300}$	$1.073^{+0.316}_{-0.170}$	$0.986^{+0.145}_{-0.119}$	$1.125^{+0.670}_{-0.572}$
	+3%/-3%	+3%/-4%	+250%/-250%	+29%/-16%	+15%/-12%	+60%/-51%
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 008879915-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$21.50^{+13.40}_{-11.04}$	$1437^{+118}_{-79}$	$3813^{+5554}_{-12385}$	$17^{+916}_{-756}$
Alt.	$-39 \pm 13$	$9.00^{+9.98}_{-5.85}$	$1442^{+103}_{-84}$	$2442^{+962}_{-4078}$	$1.259^{+9.647}_{-0.977}$

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

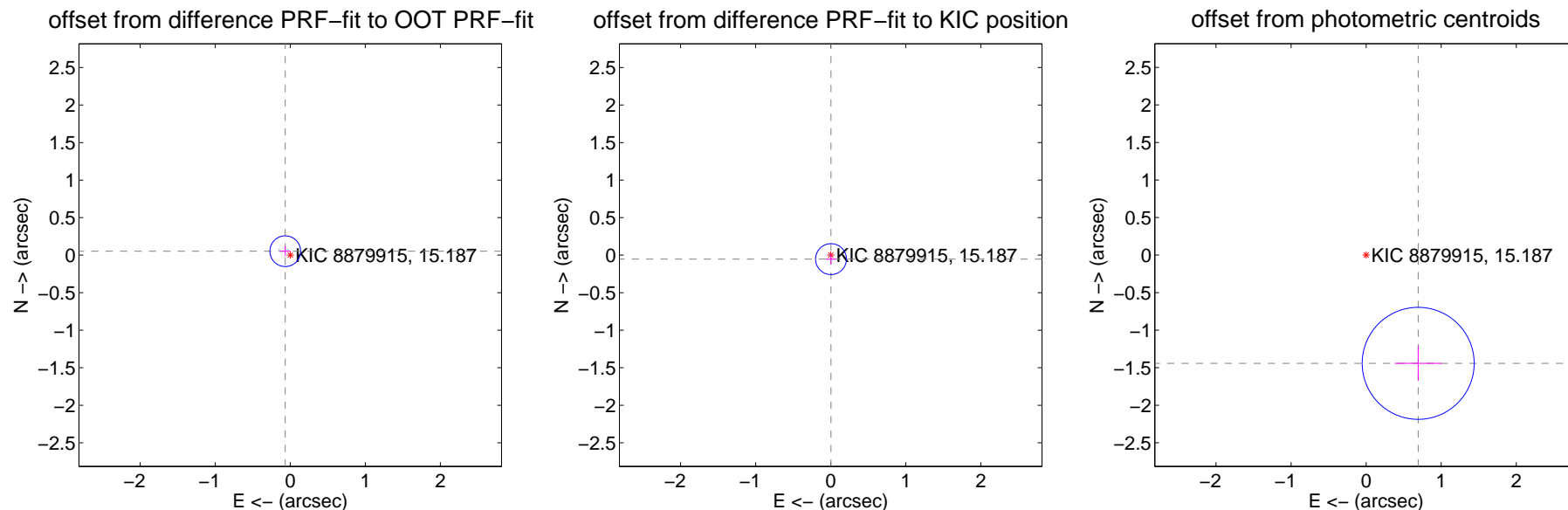
## DV Centroid Data

Supplemental centroid analysis for 008879915-02. Kepler magnitude: 15.19. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

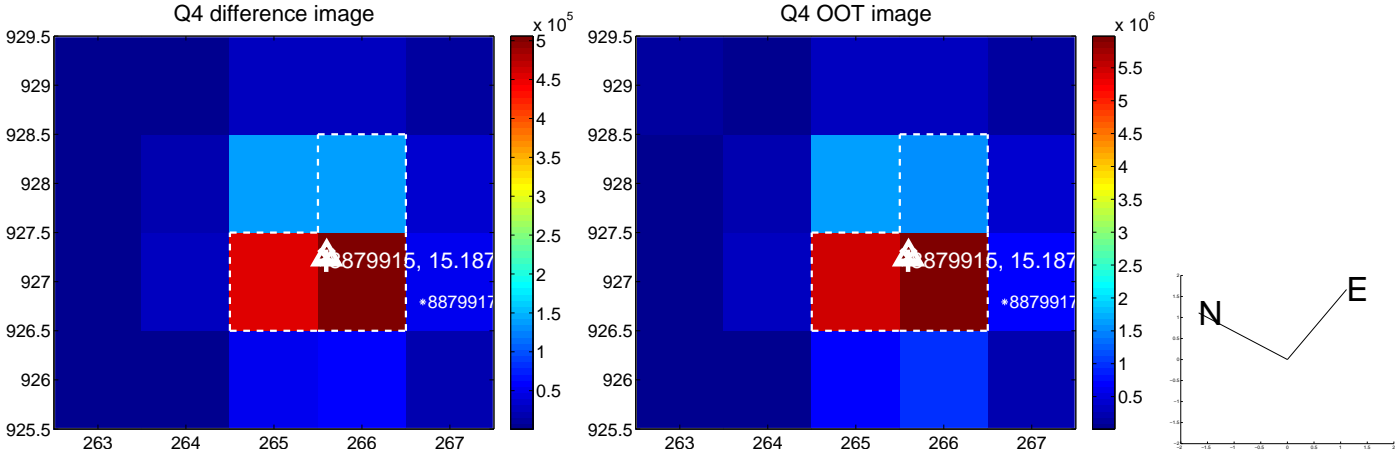
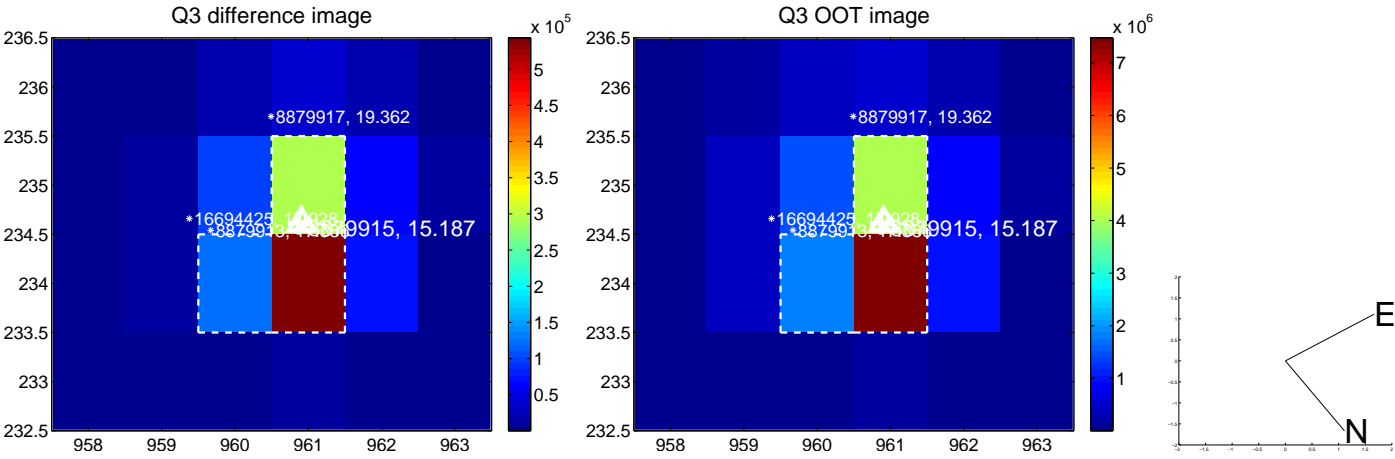
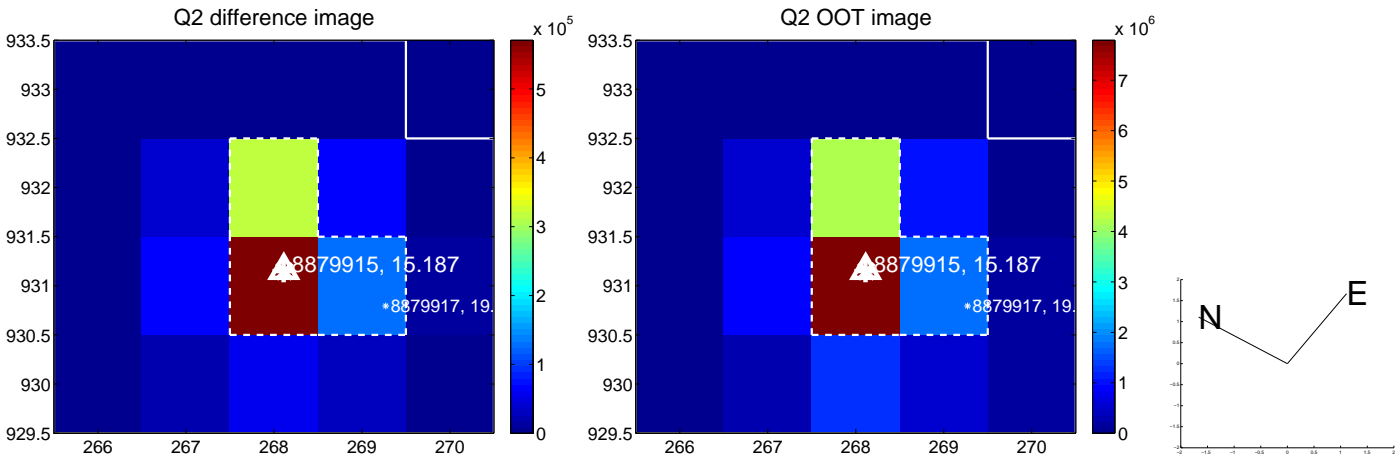
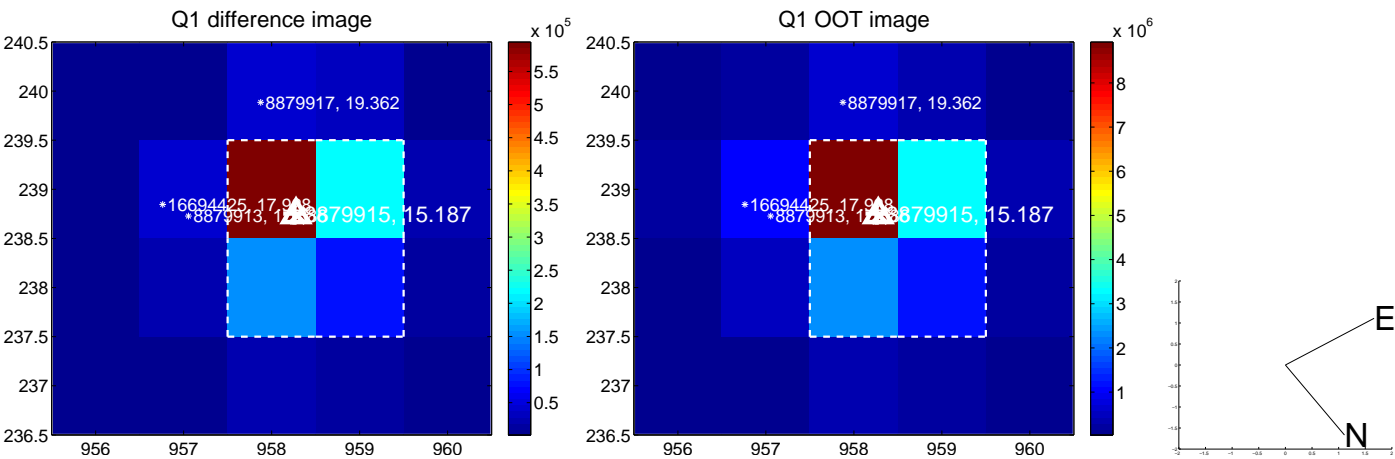
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.085 \pm 0.068$	1.25	$0.067 \pm 0.068$	$0.053 \pm 0.067$
PRF-fit source offset from KIC position	$0.053 \pm 0.069$	0.77	$-0.004 \pm 0.068$	$-0.053 \pm 0.069$
photometric centroid source offset	$1.60 \pm 0.25$	6.44	$-0.69 \pm 0.32$	$-1.44 \pm 0.23$



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.

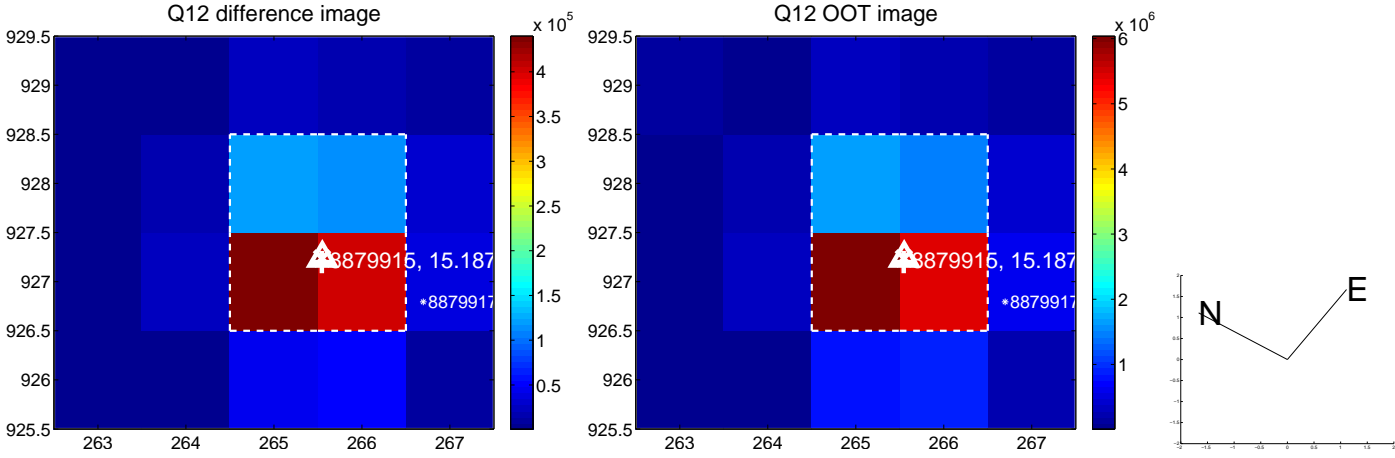
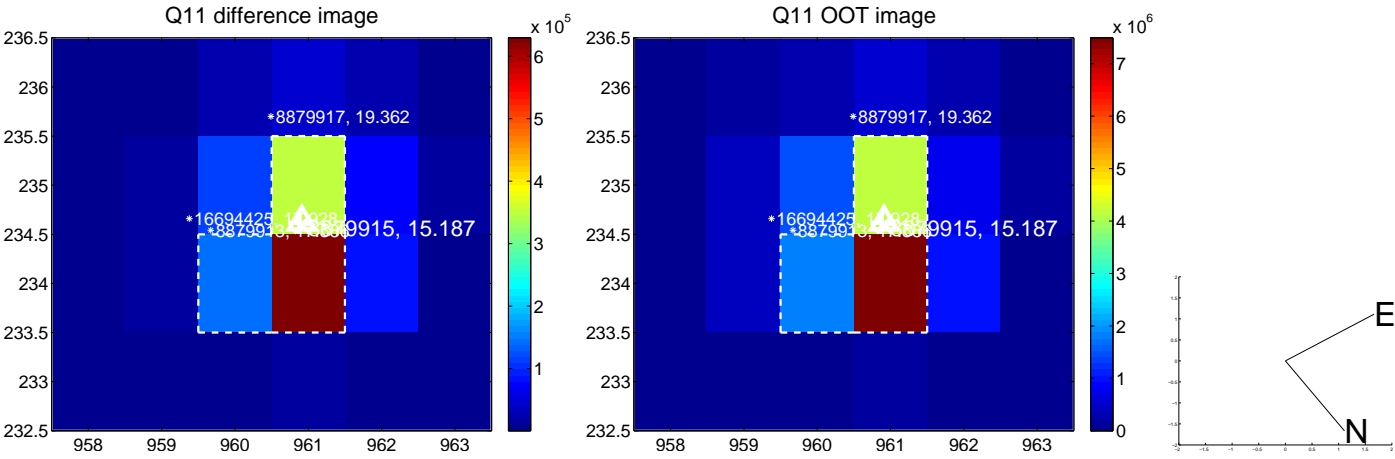
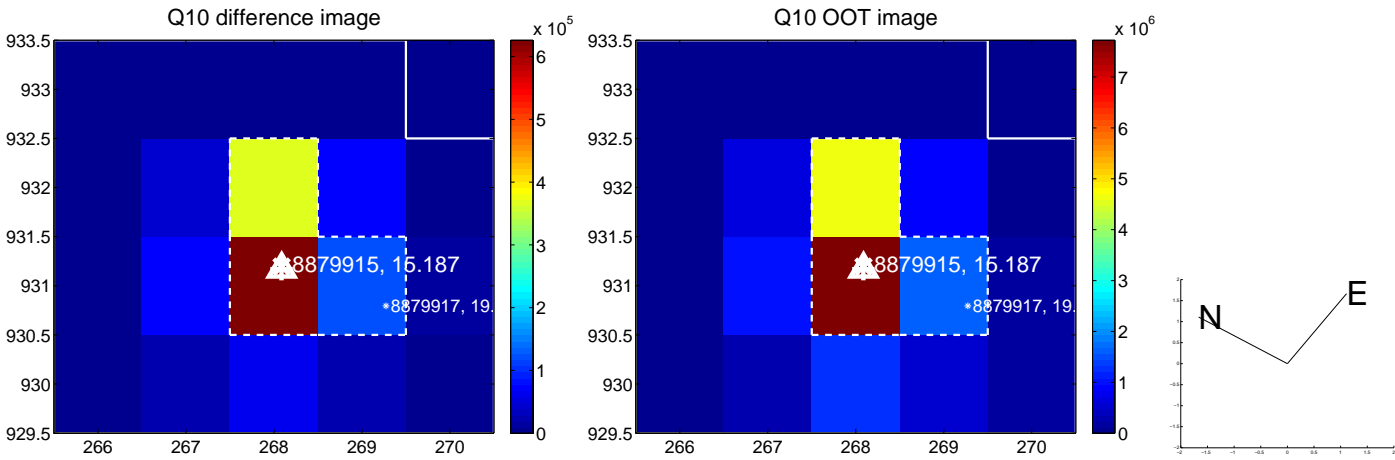
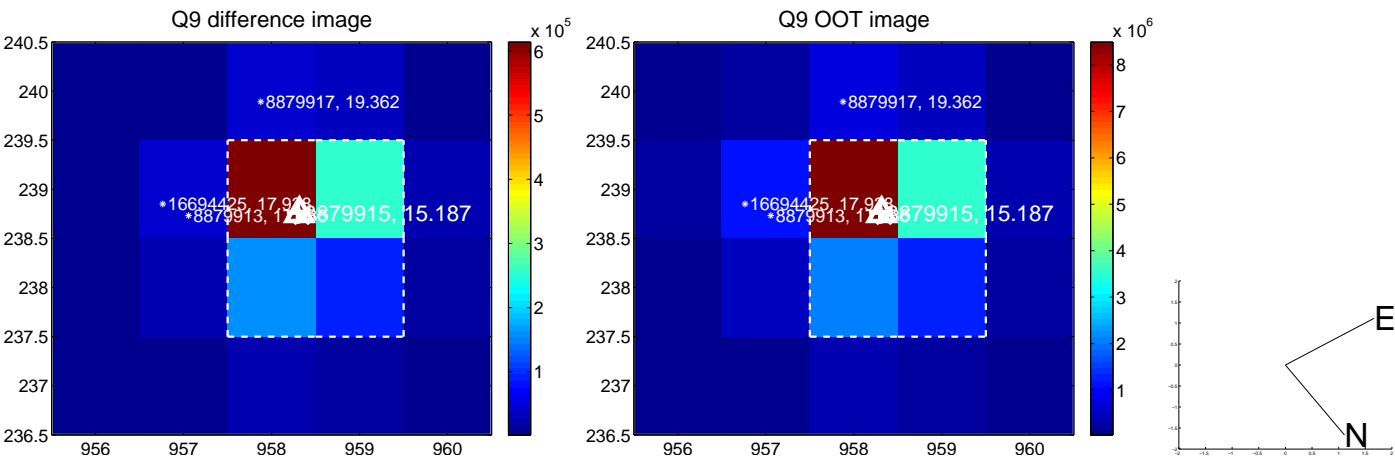
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



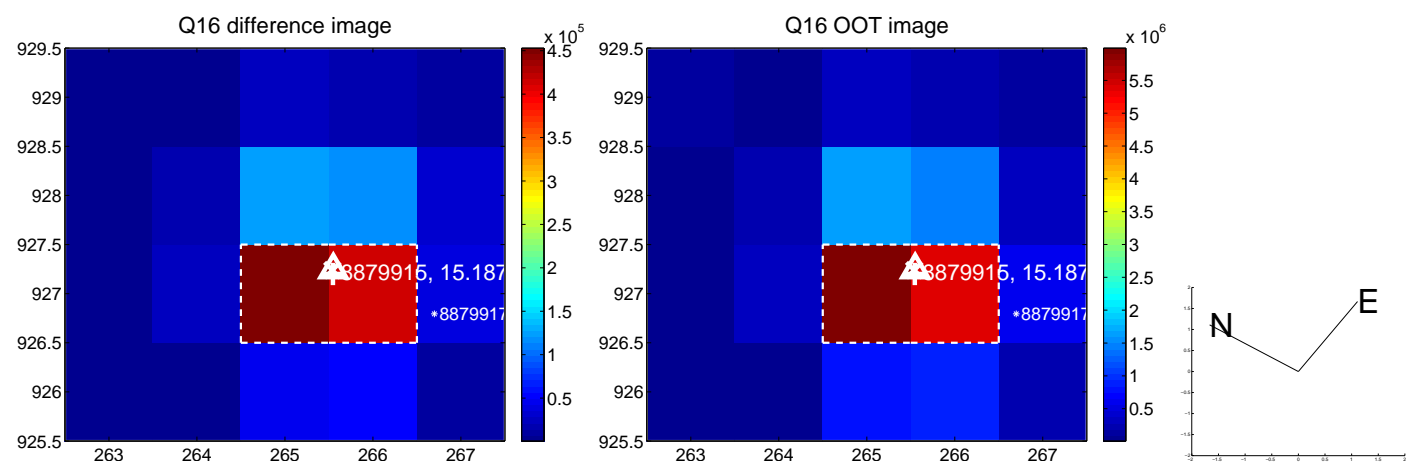
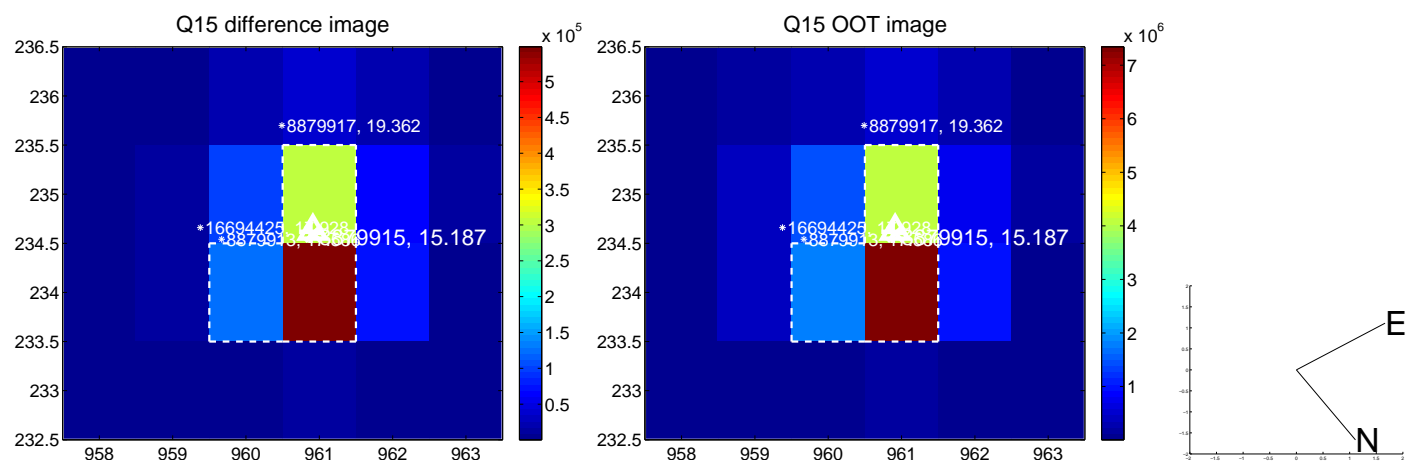
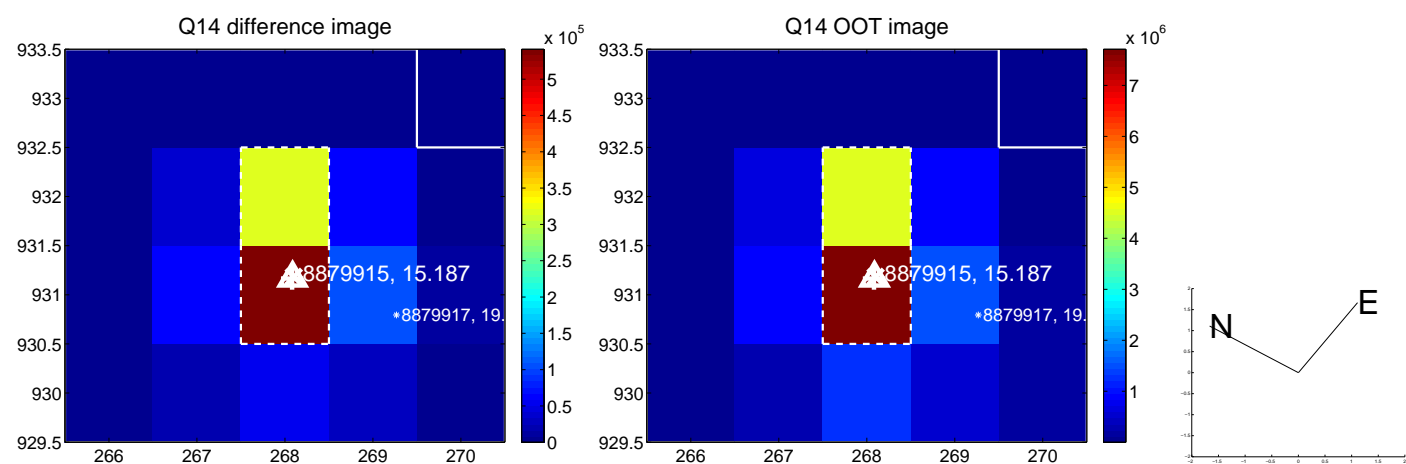
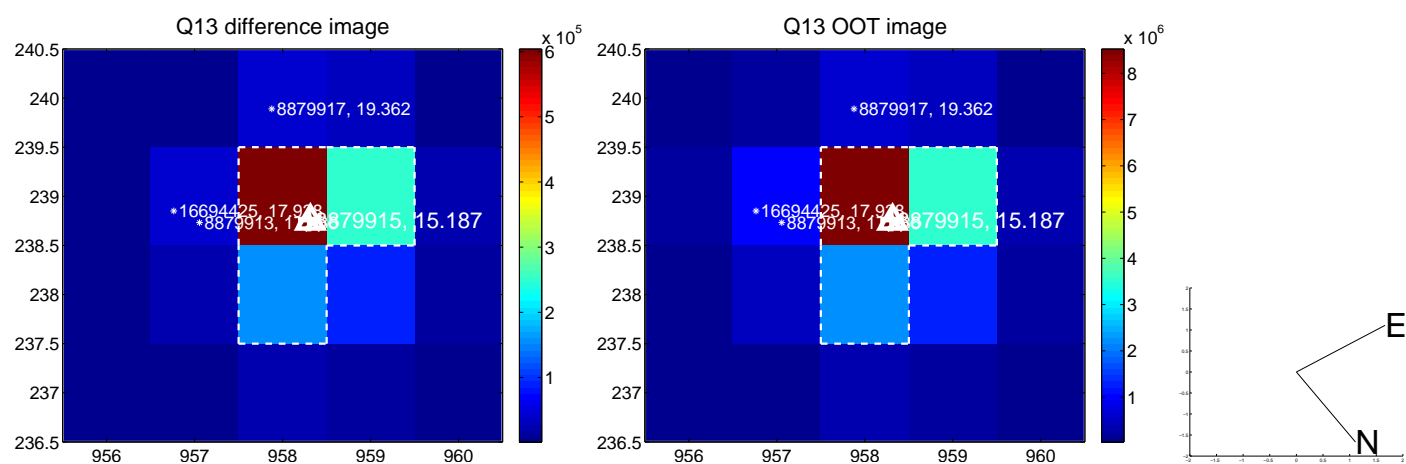




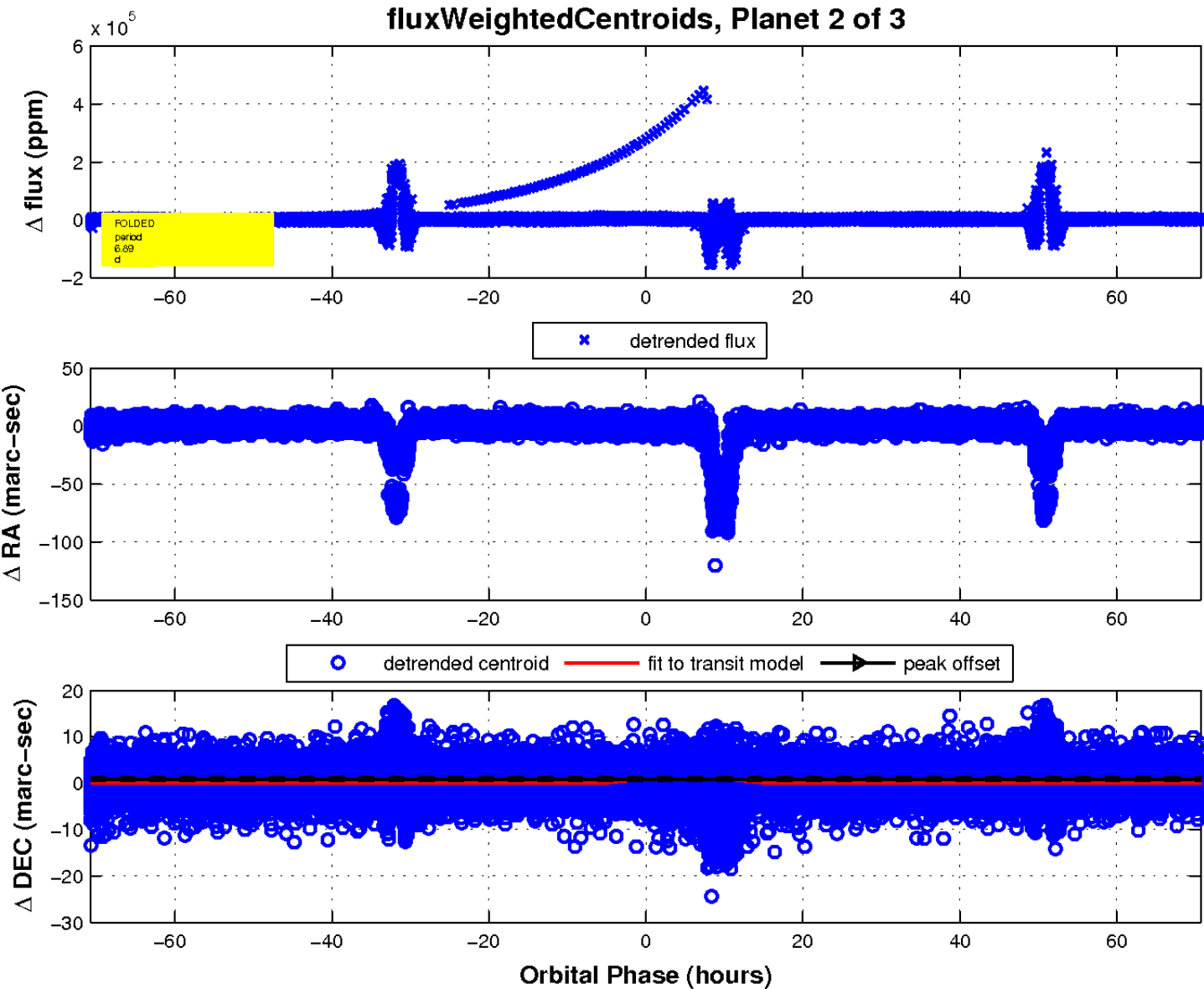
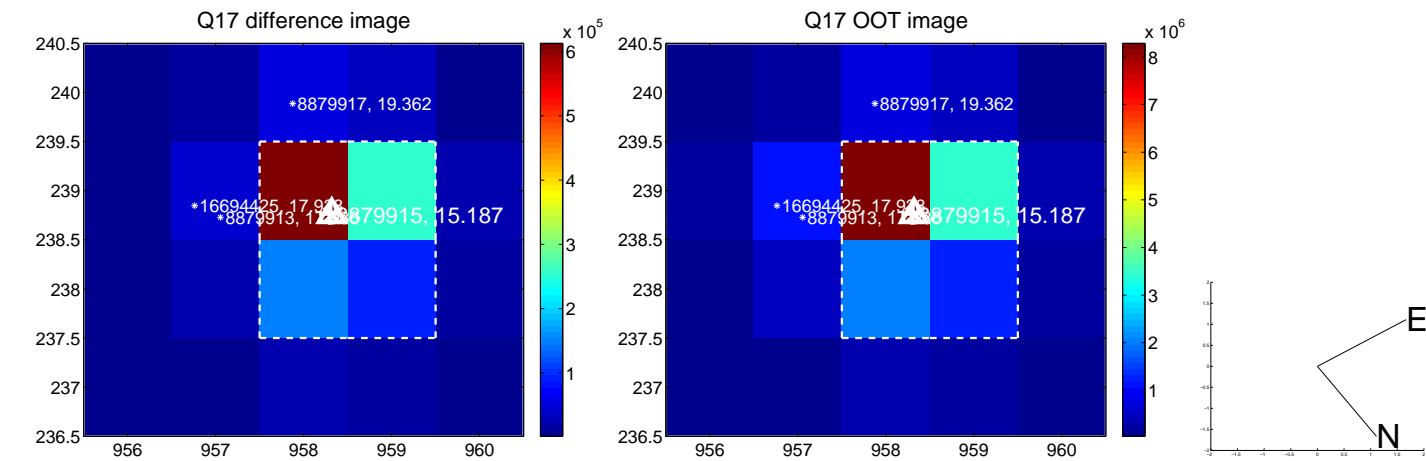
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

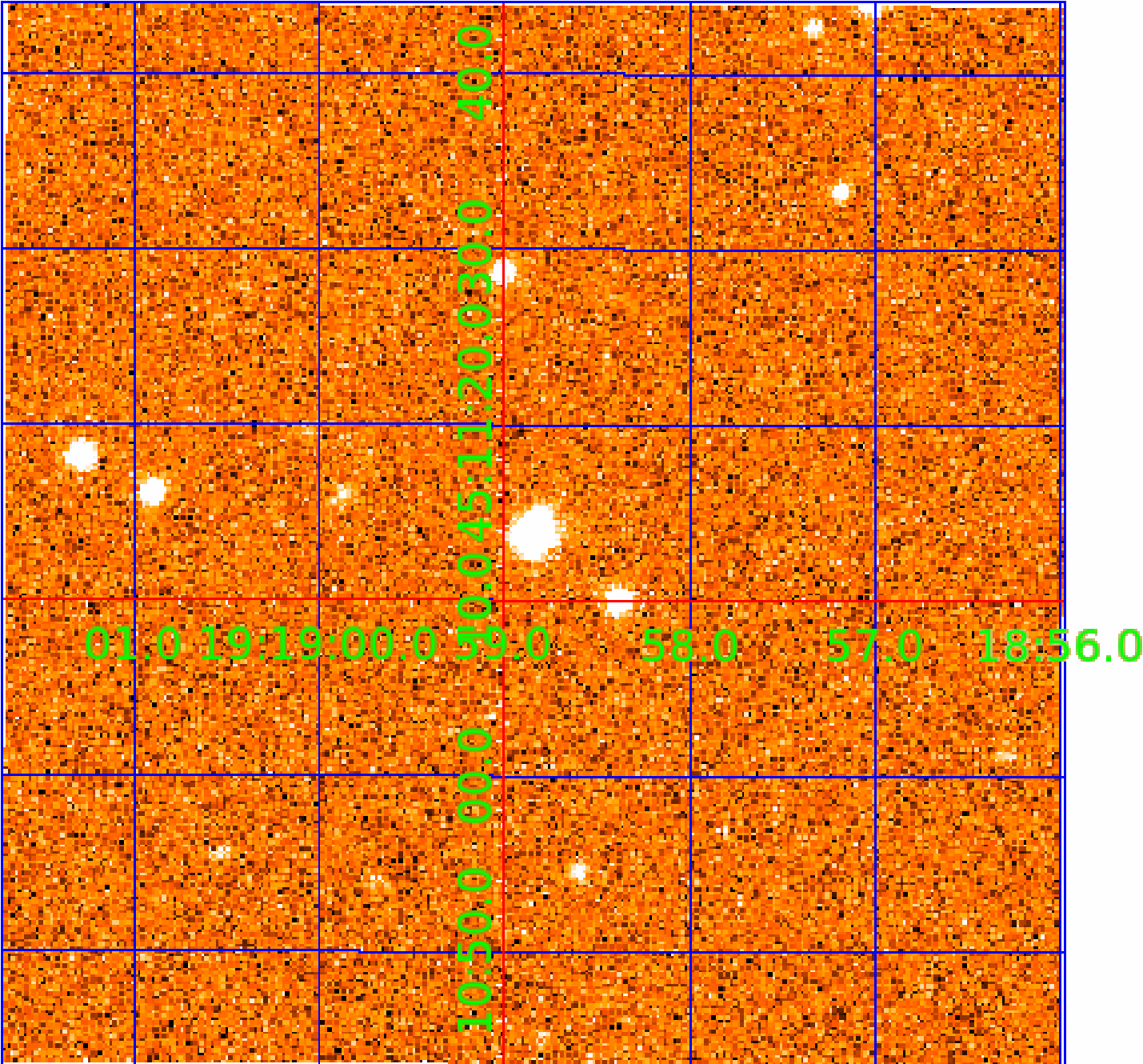


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008879915

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008879915-01	OBS	7105.01	1.721318	132.526619	405143.4	2.500	20769.9	-1.0	1.07	5960	58.54	1661.36
008879915-02	OBS	No	6.885098	132.301091	39836.5	15.000	3956.3	-1.0	1.07	5960	21.37	261.66
008879915-03	OBS	No	4.131112	131.861454	3398.1	33.474	1478.3	43.0	1.07	5960	6.73	517.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008879915-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
008879915-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—RESIDUAL_TCE—CENT_NOFITS
008879915-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

**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.

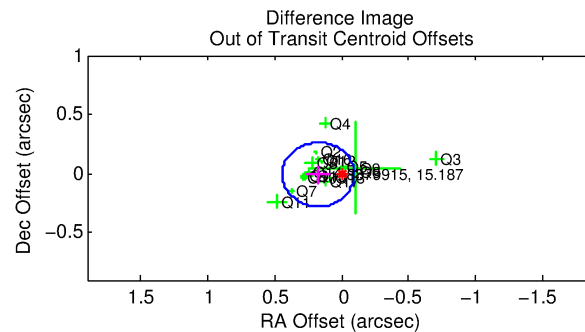
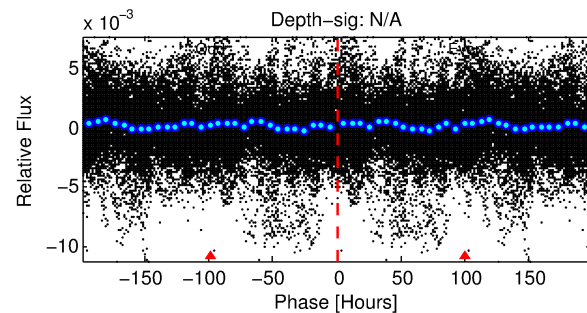
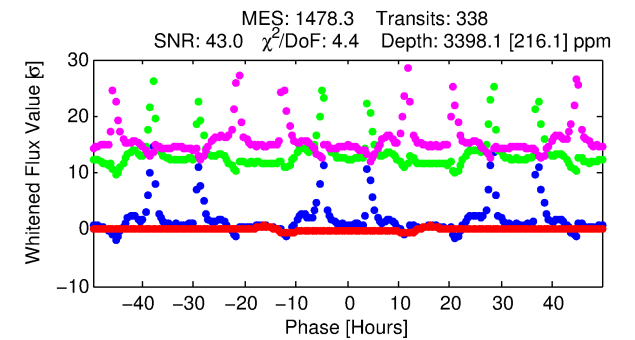
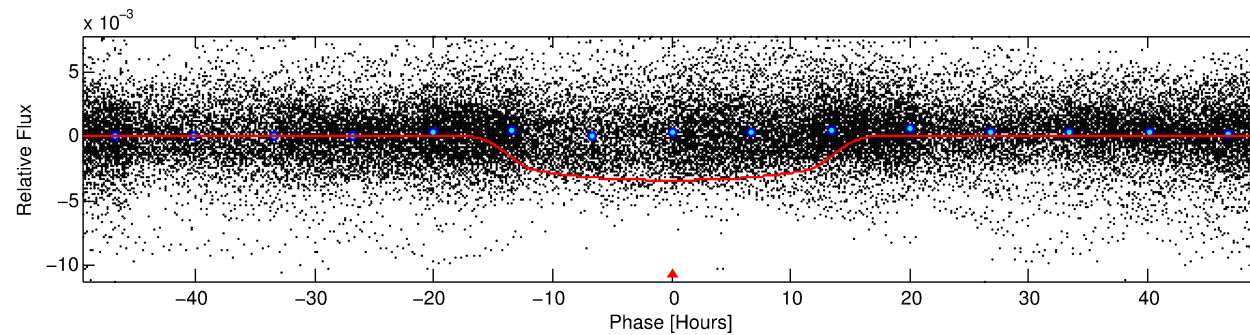
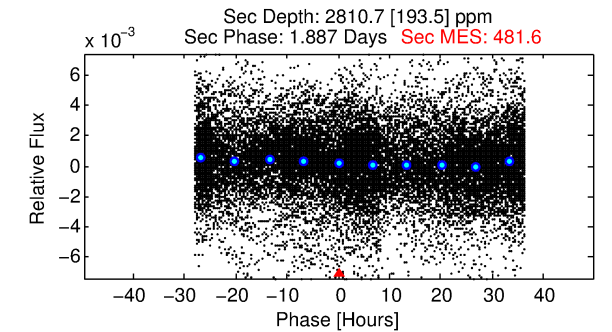
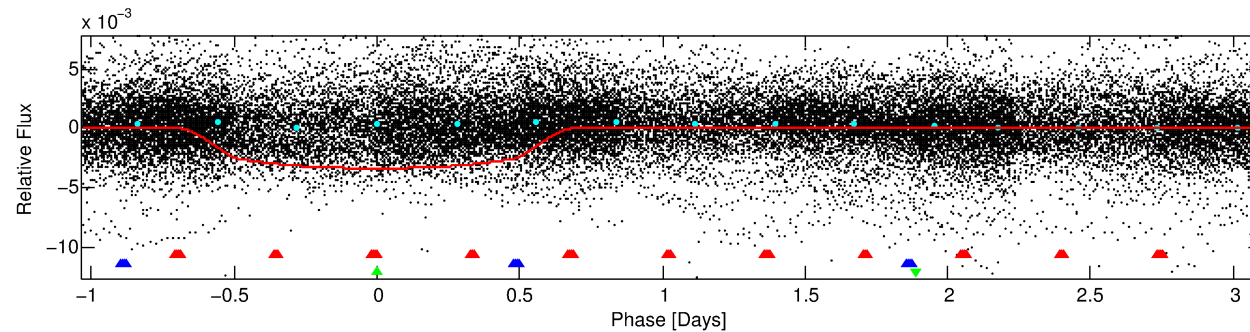
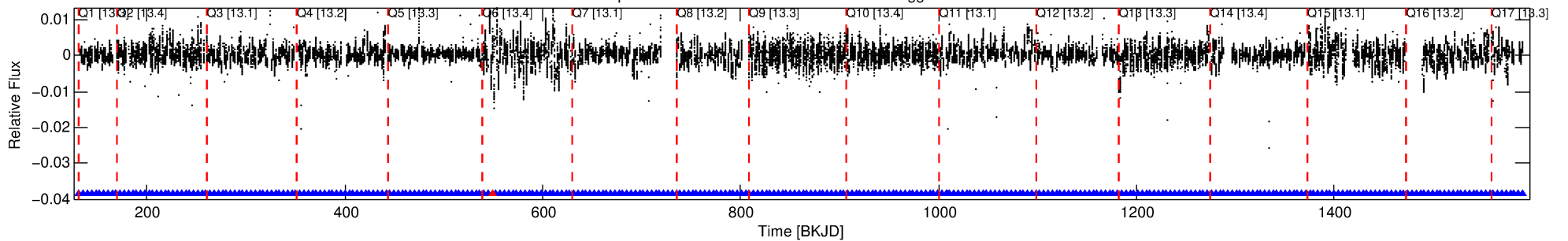
## Ephemeris Match Information For 008879915-03

No Significant Match Found

# DV One-Page Summary

KIC: 8879915 Candidate: 3 of 3 Period: 4.131 d  
KOI: K07105 Corr: No Ephemeris Match

Kp: 15.19 R\*: 1.07 Rs Teff: 5960.0 K Logg: 4.37 Fe/H: -0.120



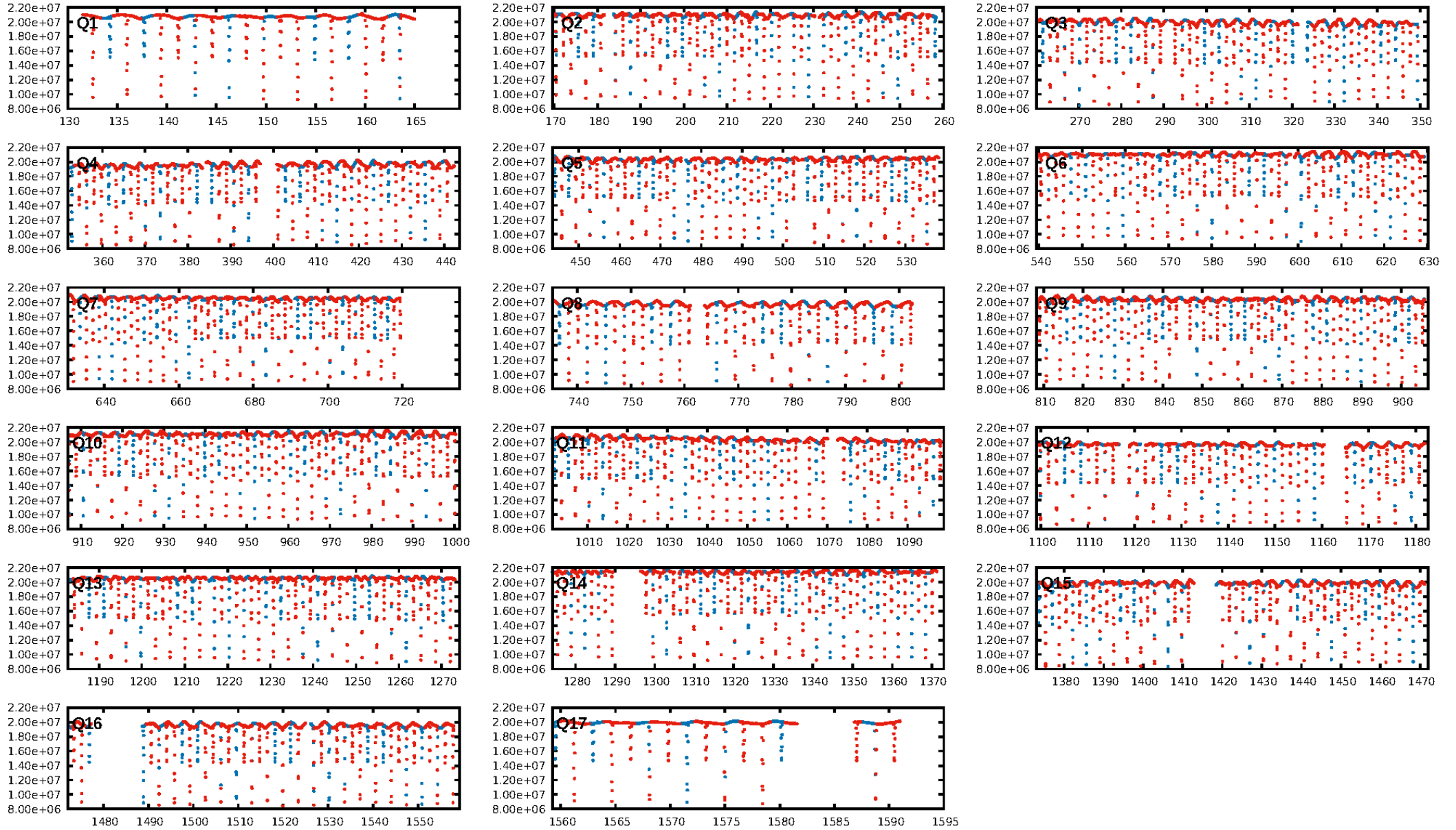
## DV Fit Results:

Period = 4.13111 [0.00004] d  
Epoch = 131.8615 [0.0077] BKJD  
Rp/R\* = 0.0575 [0.0019]  
a/R\* = 1.14 [0.01]  
b = 0.72 [0.02]  
Seff = 517.04 [191.63]  
Teq = 1216 [113] K  
Rp = 6.73 [1.99] Re  
a = 0.0502 [0.0122] AU  
Ag = 86.00 [30.89] [2.75σ]  
Teffp = 5725 [232] K [17.48σ]

## DV Diagnostic Results:

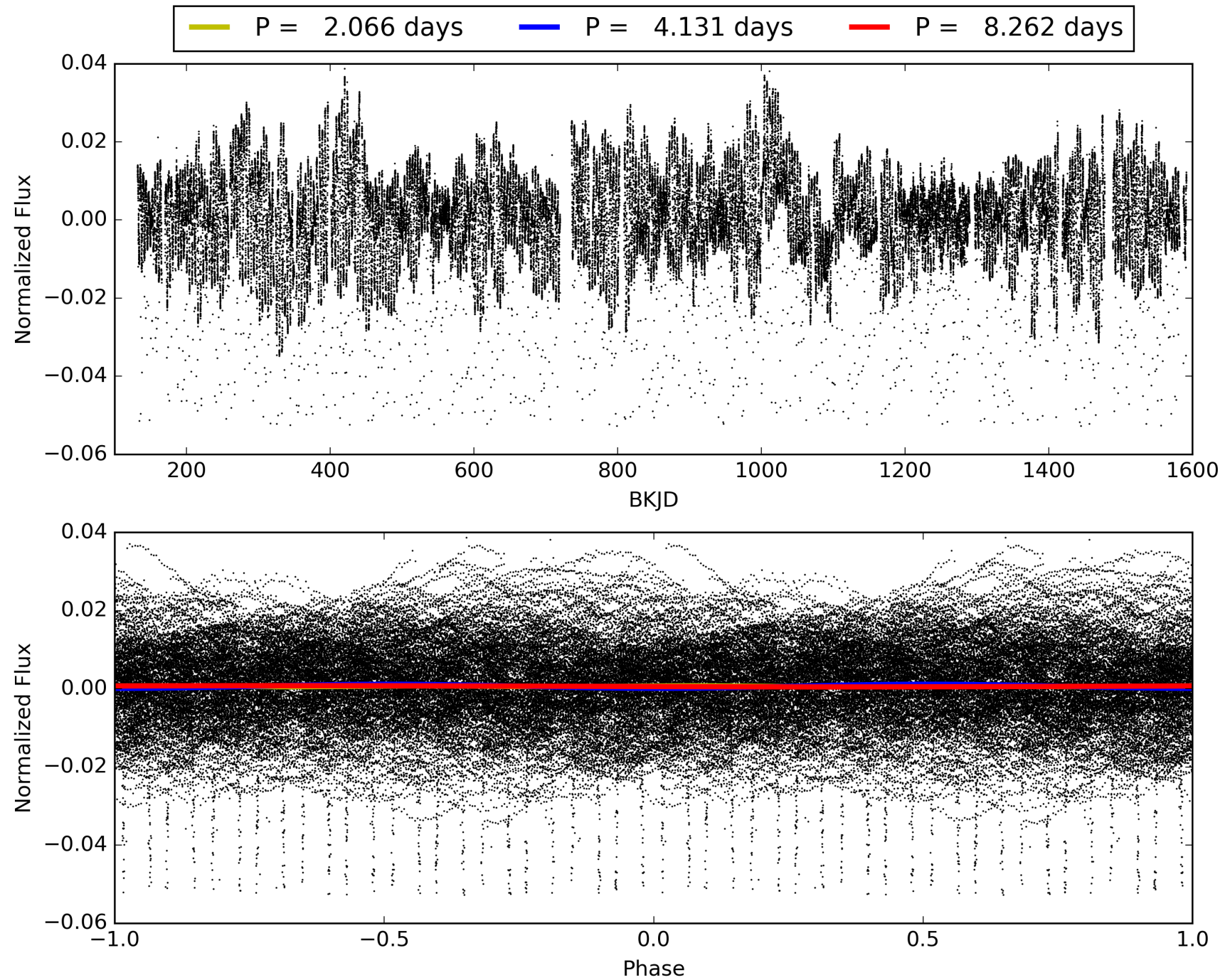
ShortPeriod-sig: 91.5% [1.72σ]  
LongPeriod-sig: 92.8% [1.80σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [322/323]  
GhostDiagnostic-chr: 1.005  
Centroid-sig: N/A  
Centroid-so: 0.295 arcsec [9.42σ]  
OotOffset-rm: 0.175 arcsec [1.95σ]  
KicOffset-rm: 0.091 arcsec [0.97σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.82 [14/17]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 008879915-03, PDC Light Curves





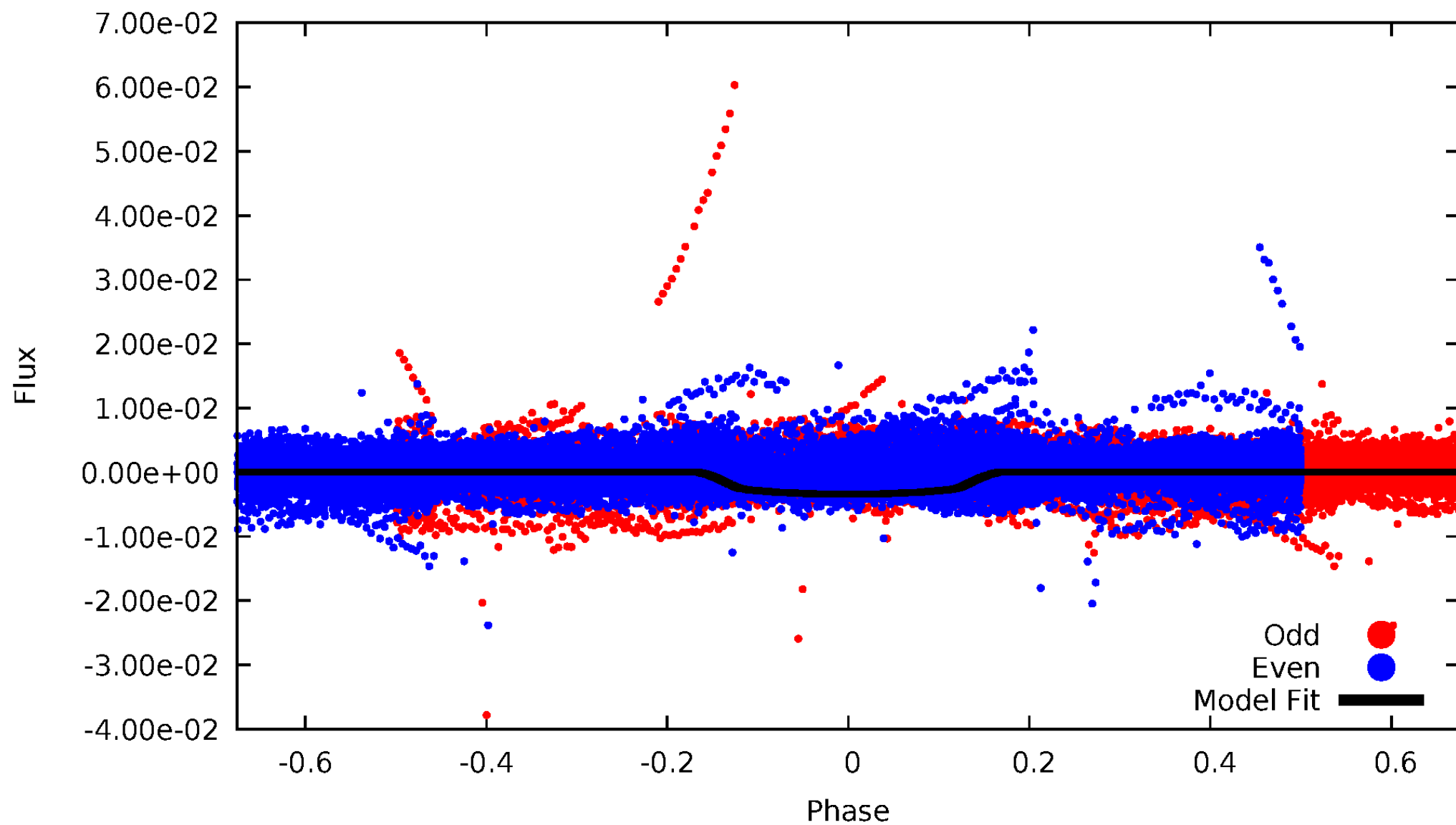
# TCE 008879915-03





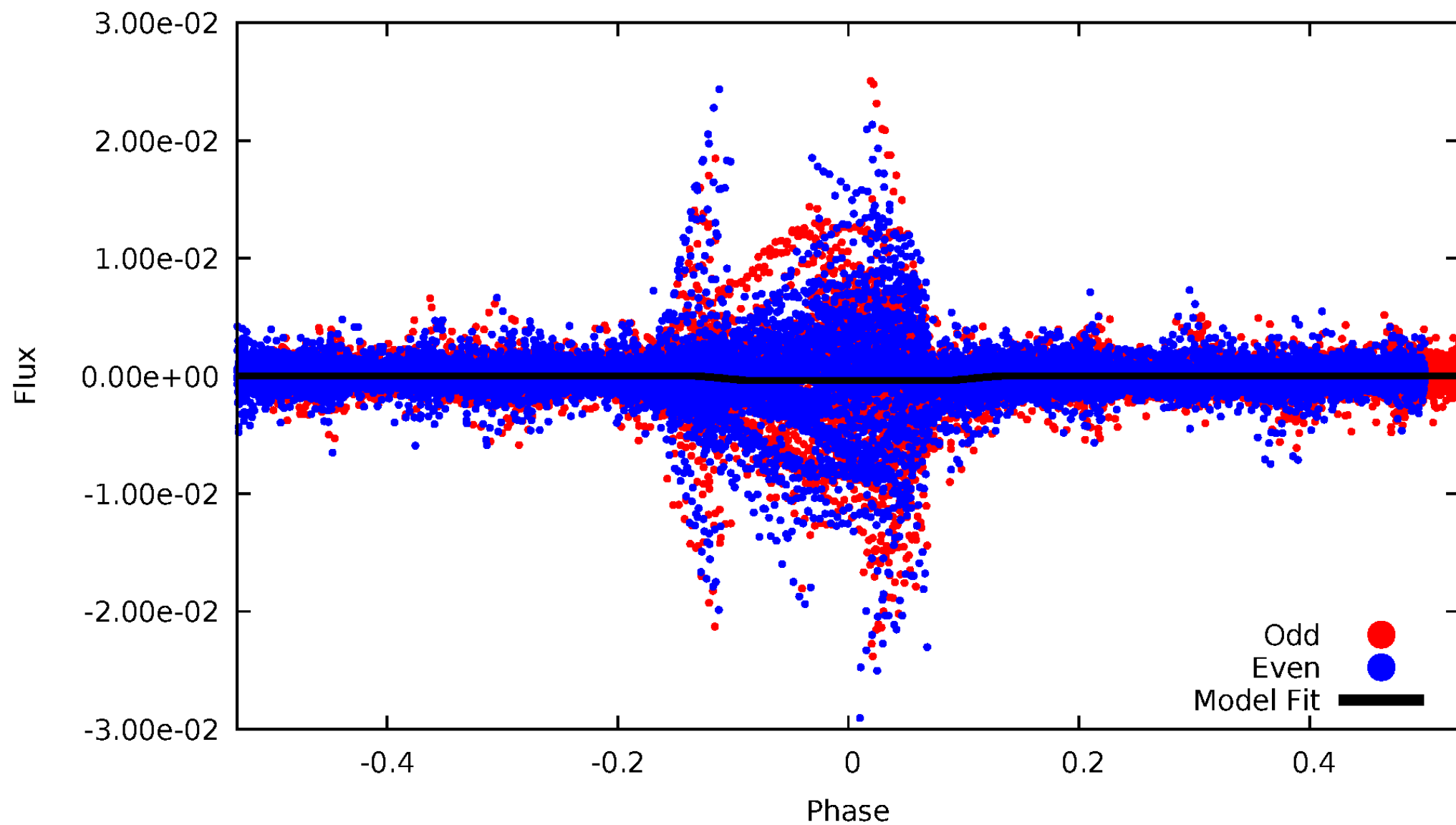
# DV Odd/Even

TCE 008879915-03



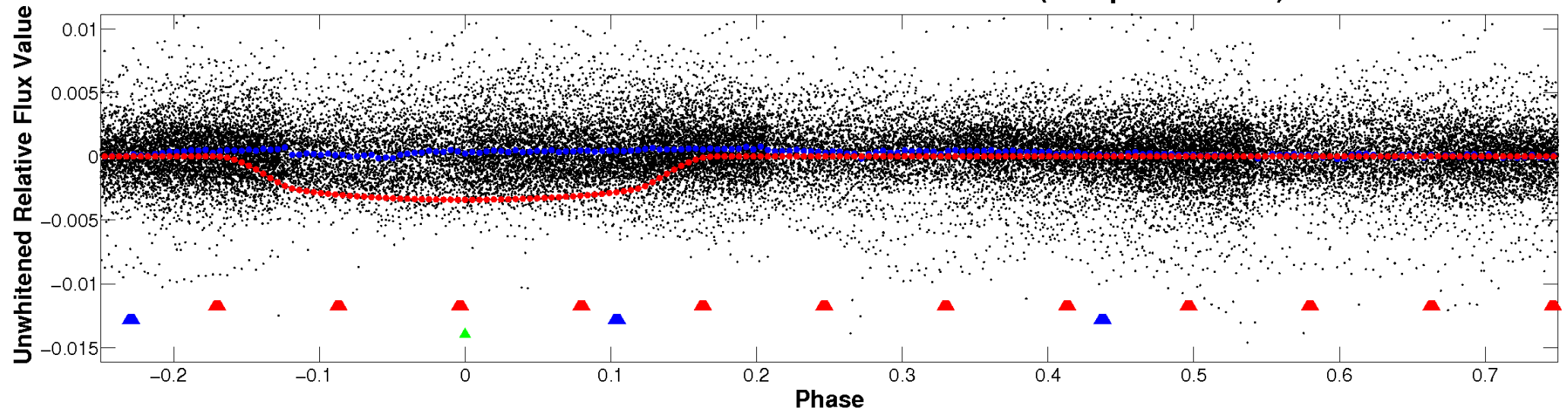
# ALT Odd/Even

TCE 008879915-03

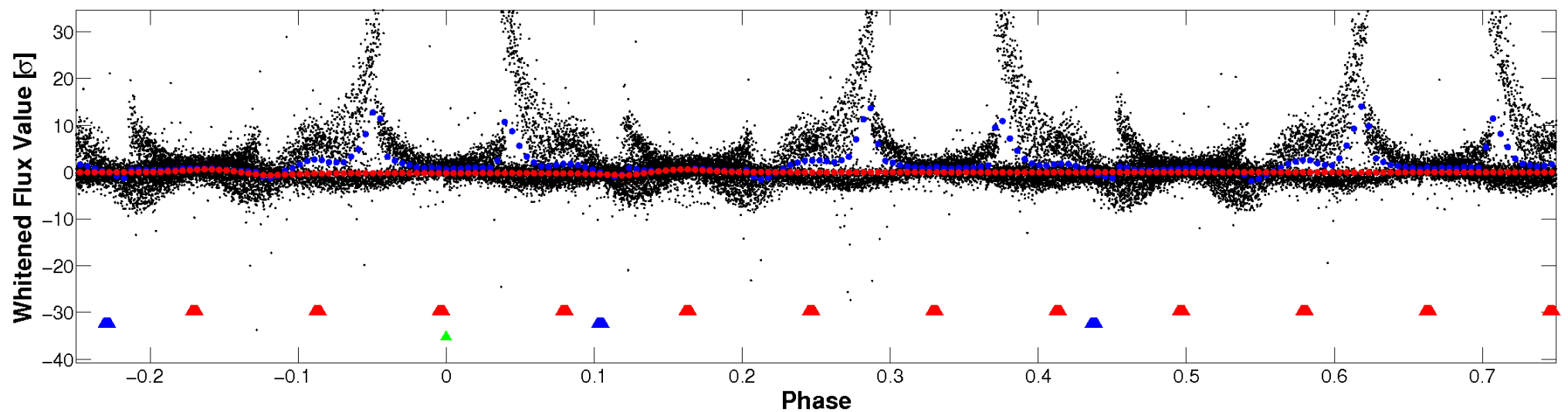


# Non-Whitened Vs. Whitened Light Curve

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

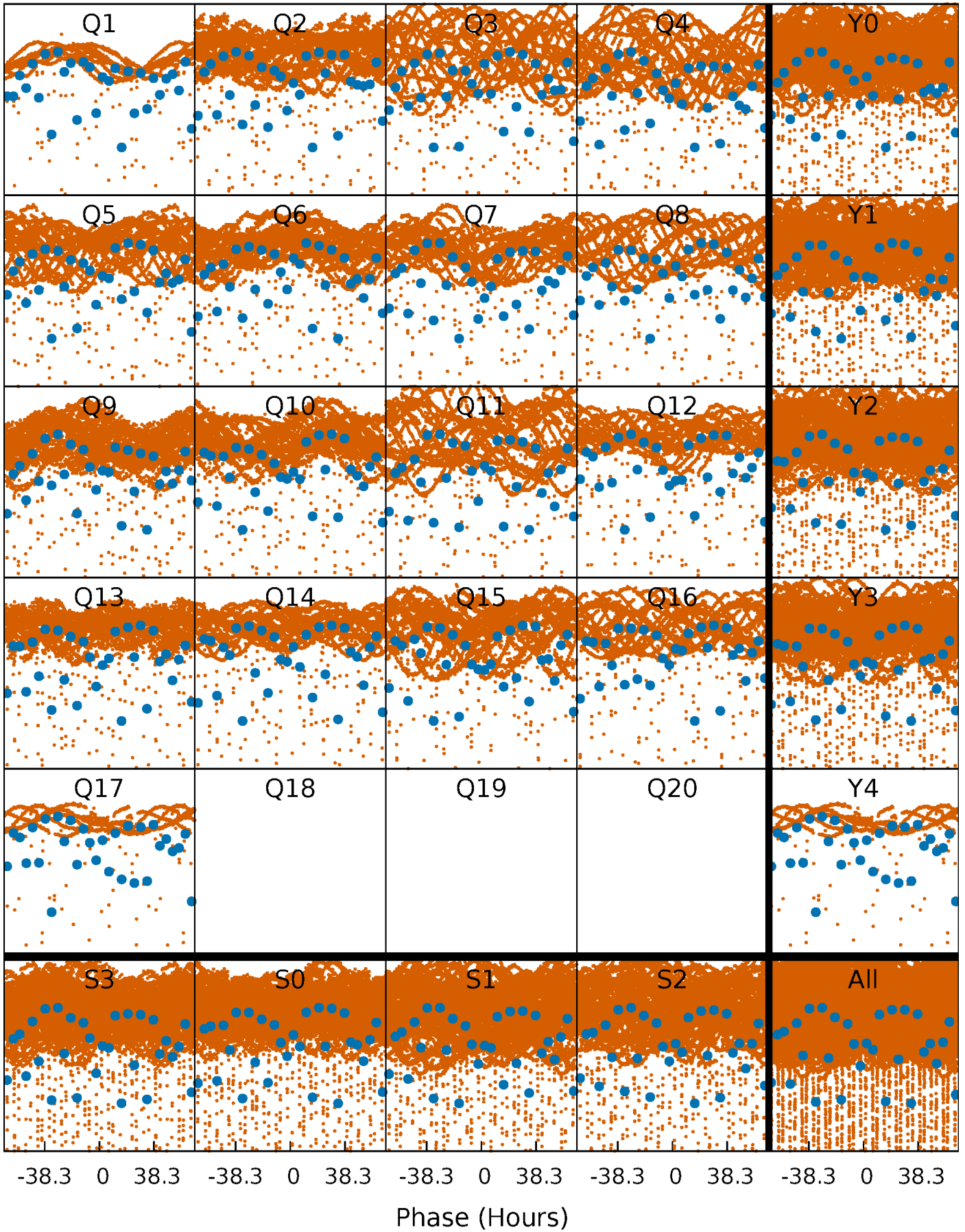


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

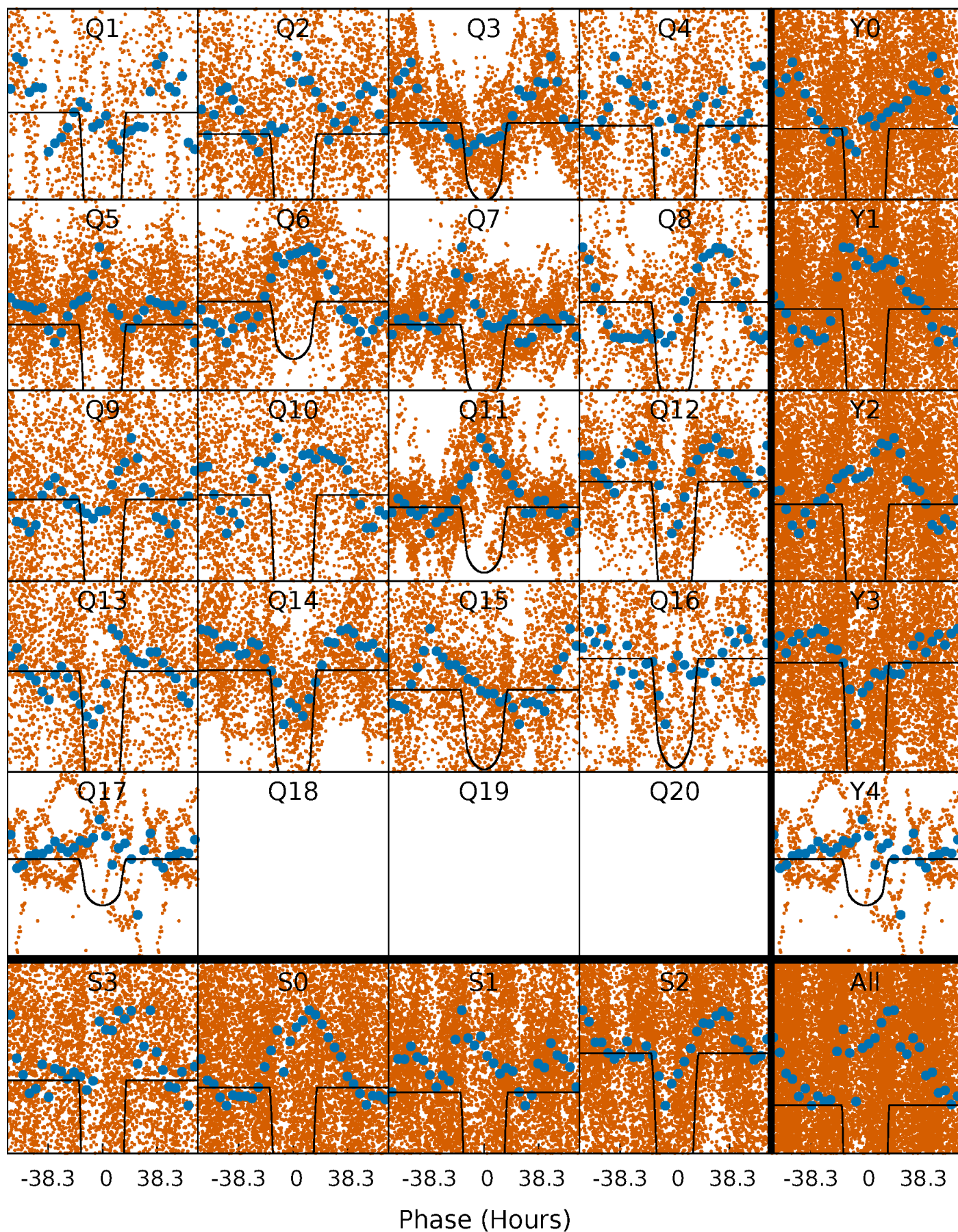
TCE 008879915-03 P= 4.131112 Days  $T_0=131.861454$  (BKJD)





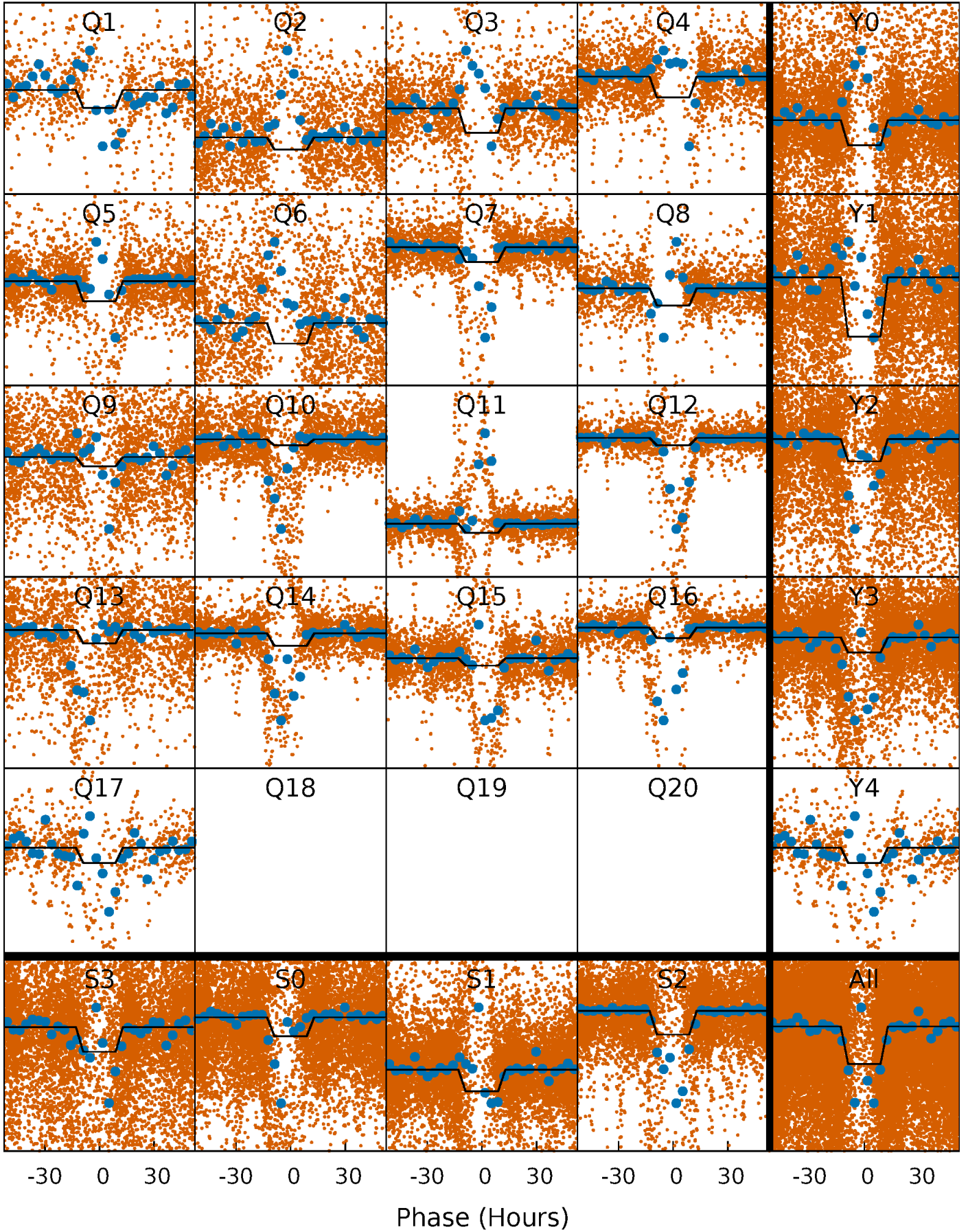
# DV Quarter-Phased Transit Curves

TCE 008879915-03 P= 4.131112 Days  $T_0=131.861454$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008879915-03 P= 4.131316 Days  $T_0=131.759515$  (BKJD)

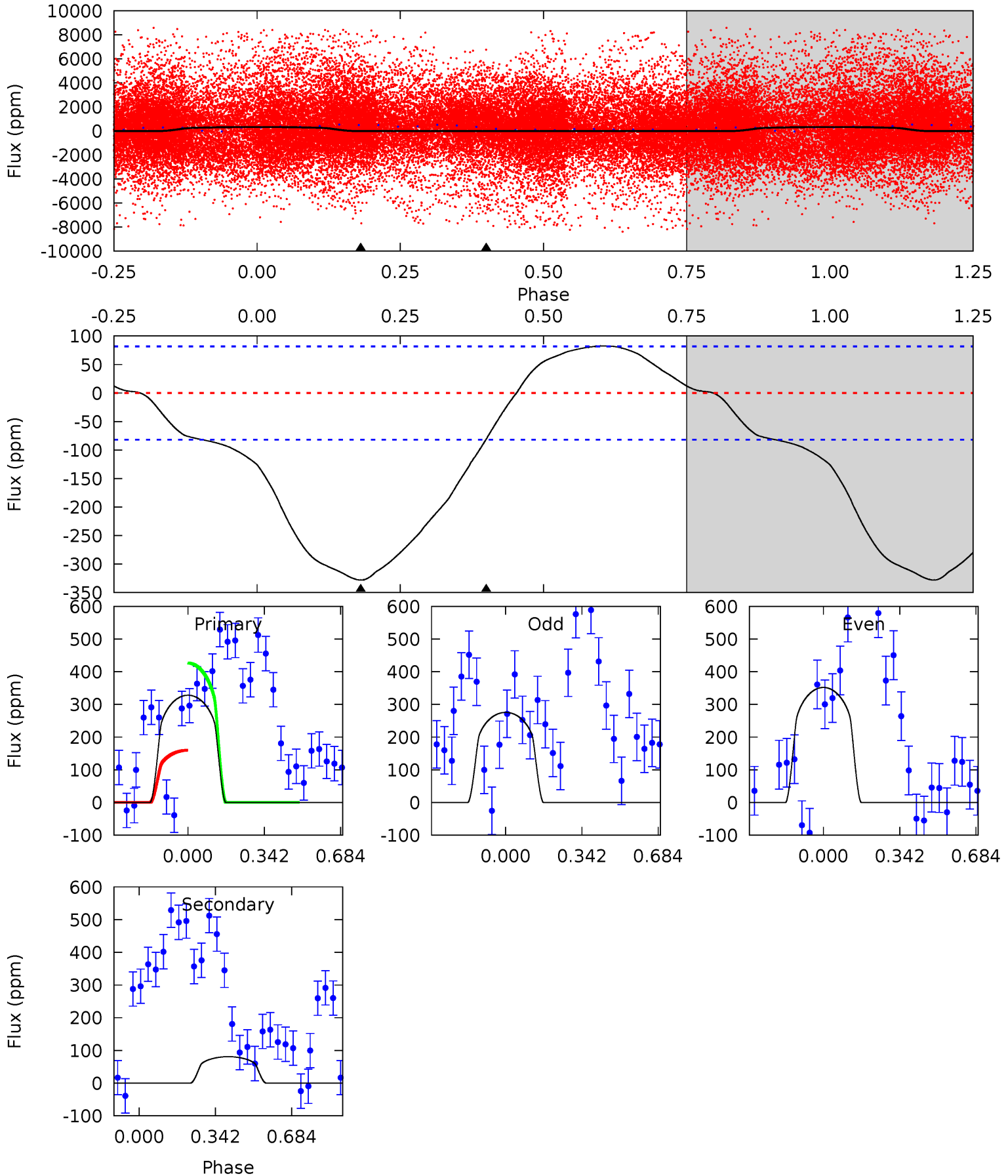




# DV Model-Shift Uniqueness Test

008879915-03, P = 4.131112 Days, E = 131.861454 Days

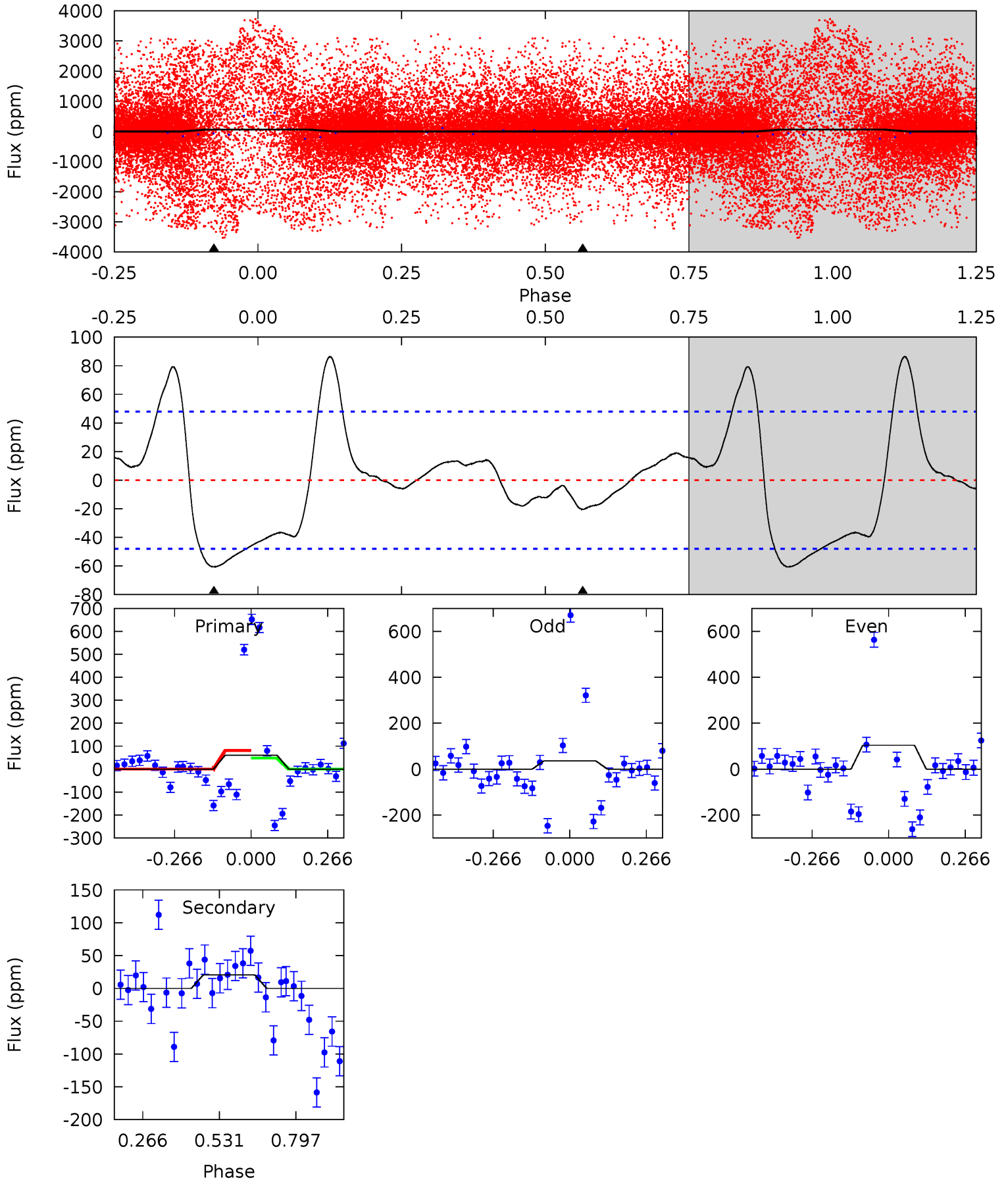
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	4.25	0	0	4.30	0.95	0.80	17.2	17.2	4.25	4.25	1.99	4.27	0.20	6.87



# Alt Model-Shift Uniqueness Test

008879915-03, P = 4.131316 Days, E = 131.759515 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
5.50	1.85	0	0	4.36	1.11	0.31	5.50	5.50	1.85	1.85	3.16	2.92	0.59	1.12





### Stellar Parameters For KIC 008879915

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5960^{+160}_{-196}$	$4.371^{+0.124}_{-0.186}$	$-0.120^{+0.300}_{-0.300}$	$1.073^{+0.316}_{-0.170}$	$0.986^{+0.145}_{-0.119}$	$1.125^{+0.670}_{-0.572}$
	+3%/-3%	+3%/-4%	+250%/-250%	+29%/-16%	+15%/-12%	+60%/-51%
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 008879915-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-81±19	$6.82^{+1.04}_{-0.69}$	$1709^{+124}_{-100}$	$2954^{+124}_{-142}$	$2.308^{+0.877}_{-0.656}$
Alt.	-20±11	$2.28^{+0.41}_{-0.33}$	$1707^{+123}_{-97}$	$3374^{+283}_{-395}$	$5.228^{+3.510}_{-2.850}$

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

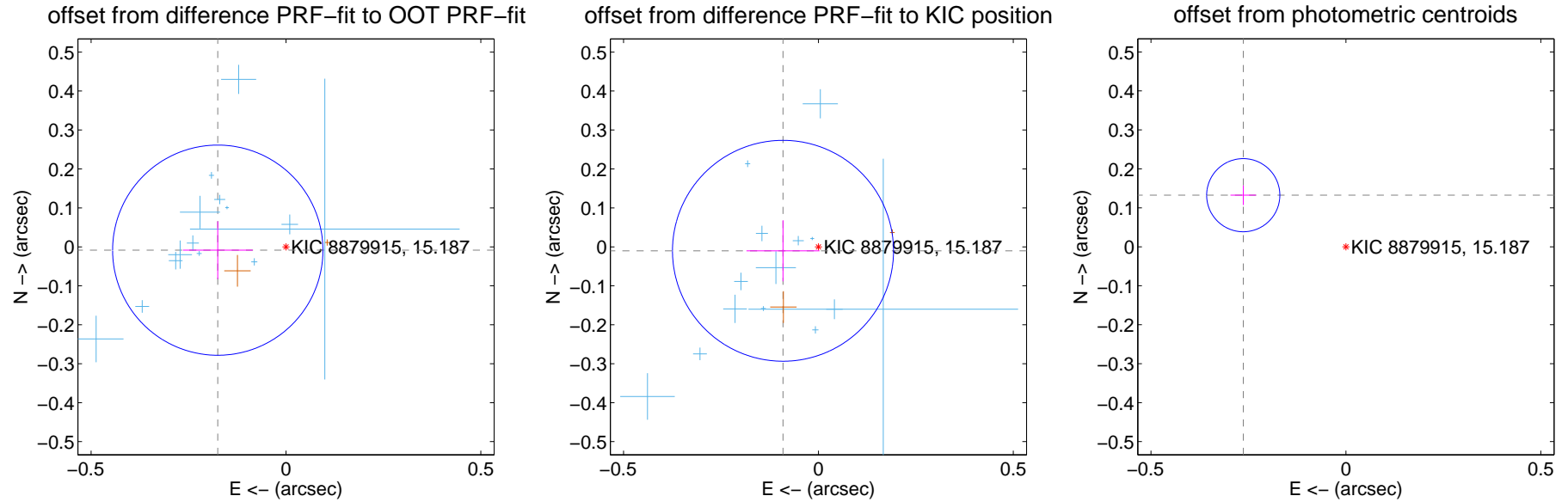
## DV Centroid Data

Supplemental centroid analysis for 008879915-03. Kepler magnitude: 15.19. Transit SNR 43.03

There are 14 quarters with good PRF difference image offsets

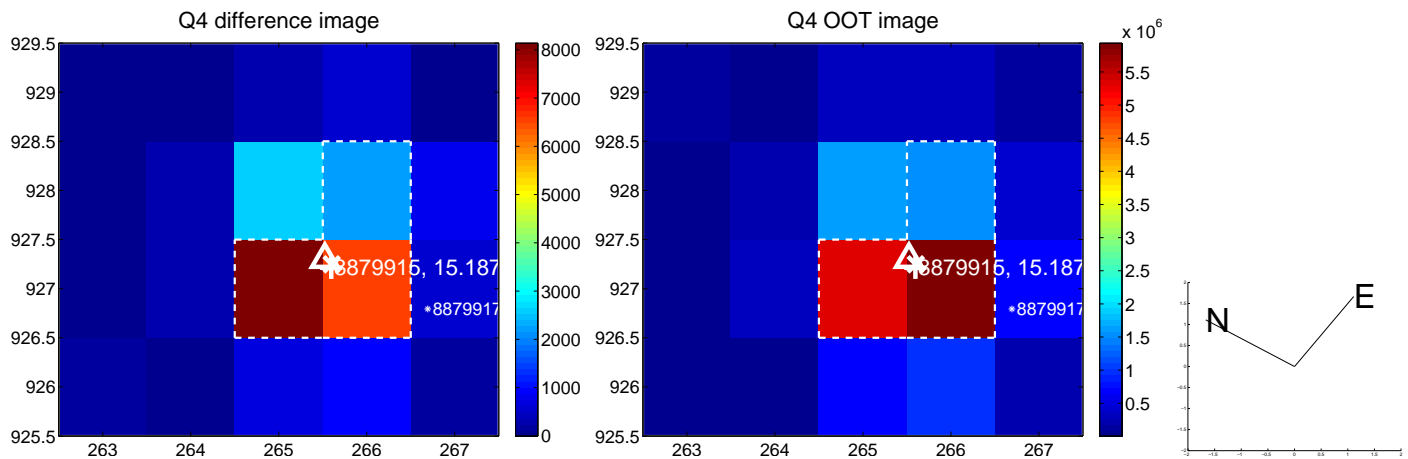
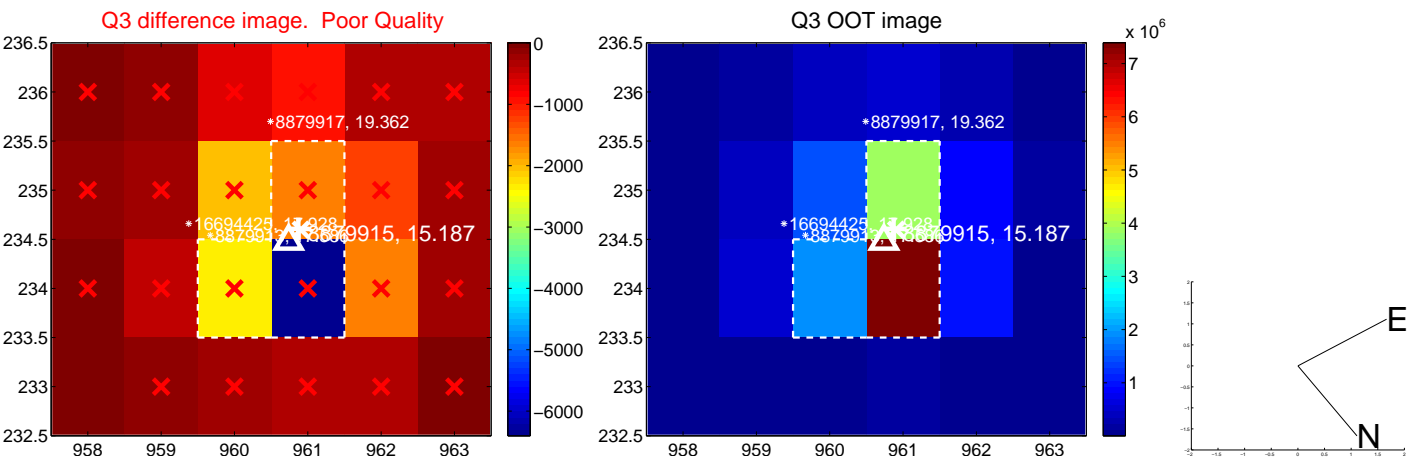
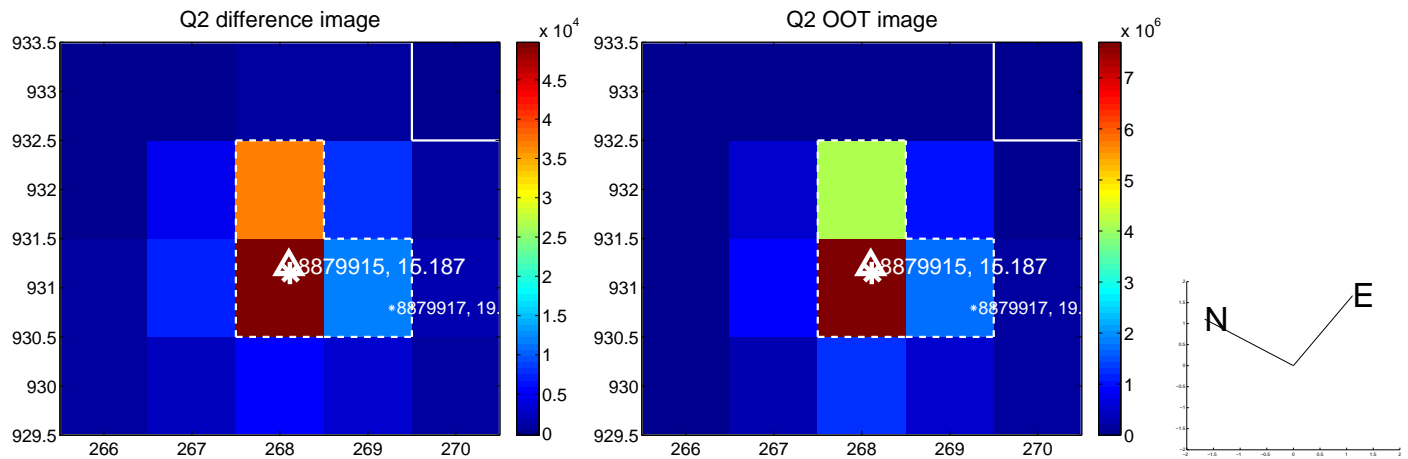
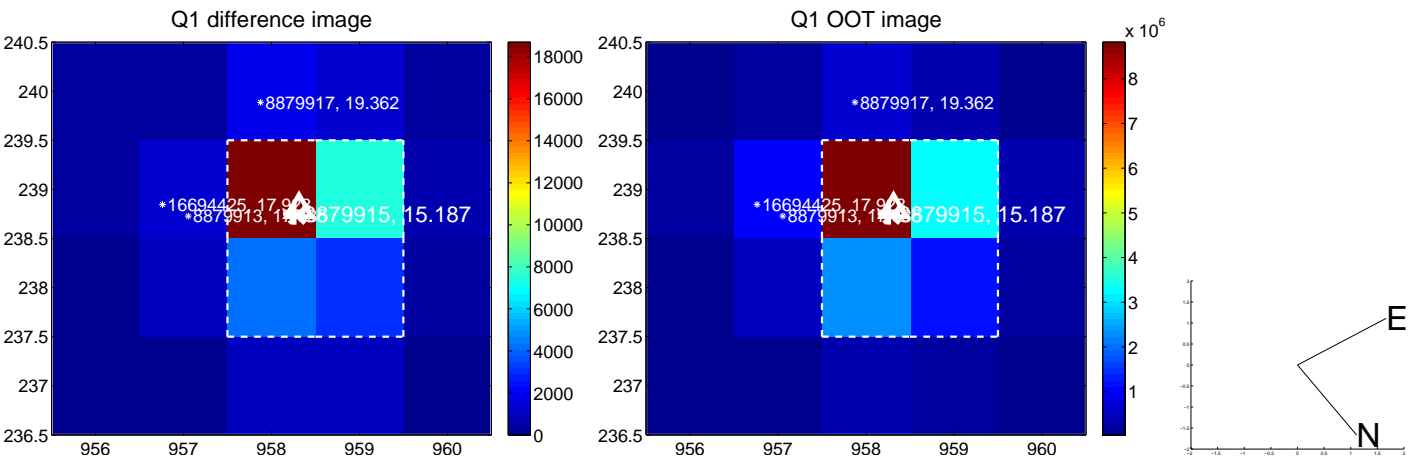
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.175 \pm 0.090$	1.95	$0.175 \pm 0.090$	$-0.009 \pm 0.074$
PRF-fit source offset from KIC position	$0.091 \pm 0.095$	0.97	$0.091 \pm 0.094$	$-0.010 \pm 0.078$
photometric centroid source offset	$0.29 \pm 0.03$	9.42	$0.26 \pm 0.03$	$0.13 \pm 0.03$

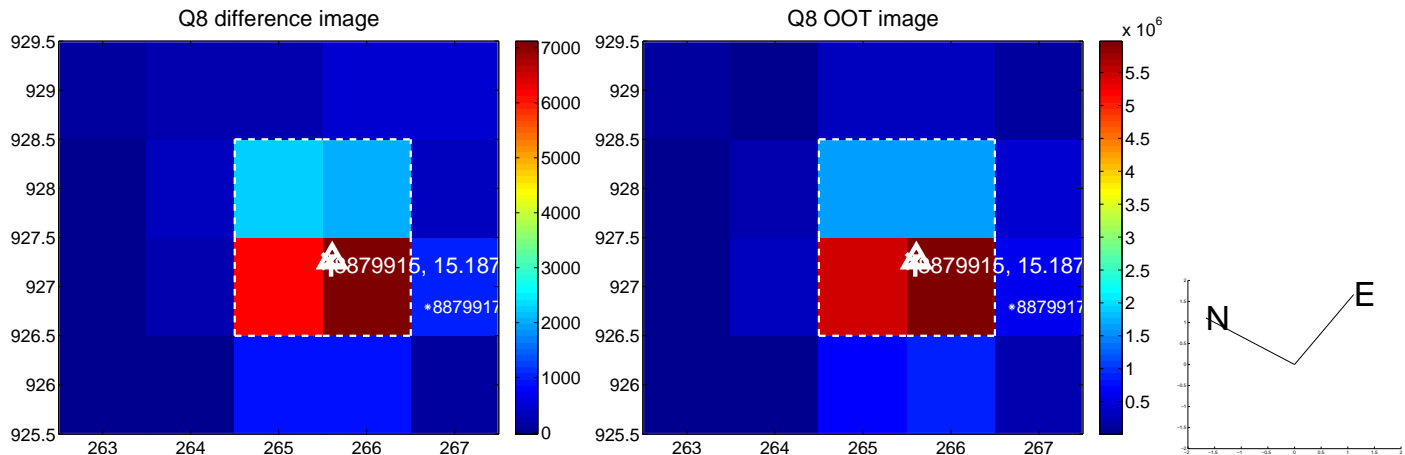
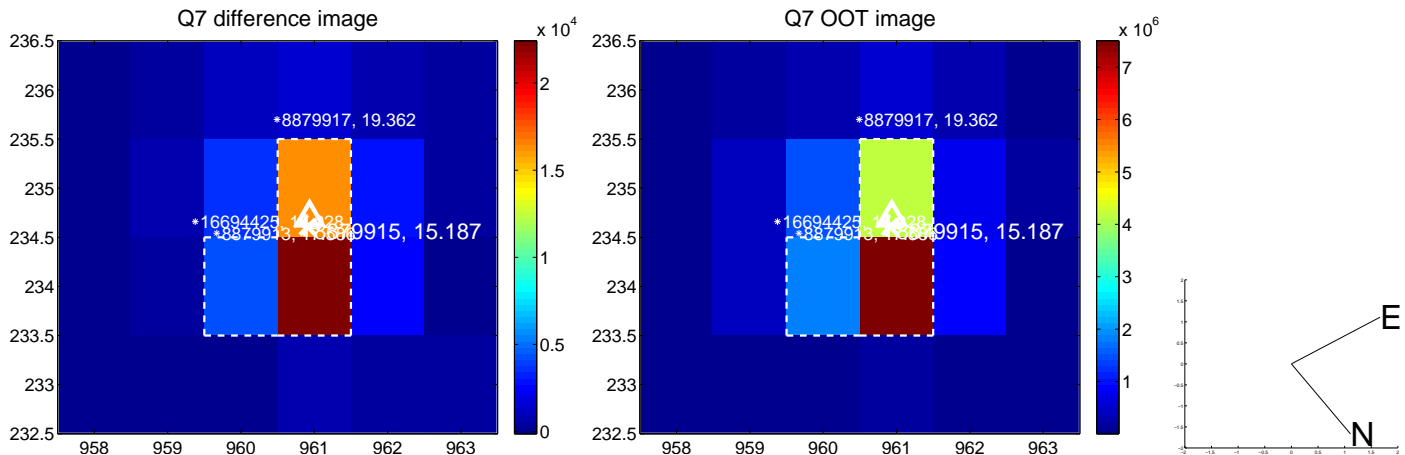
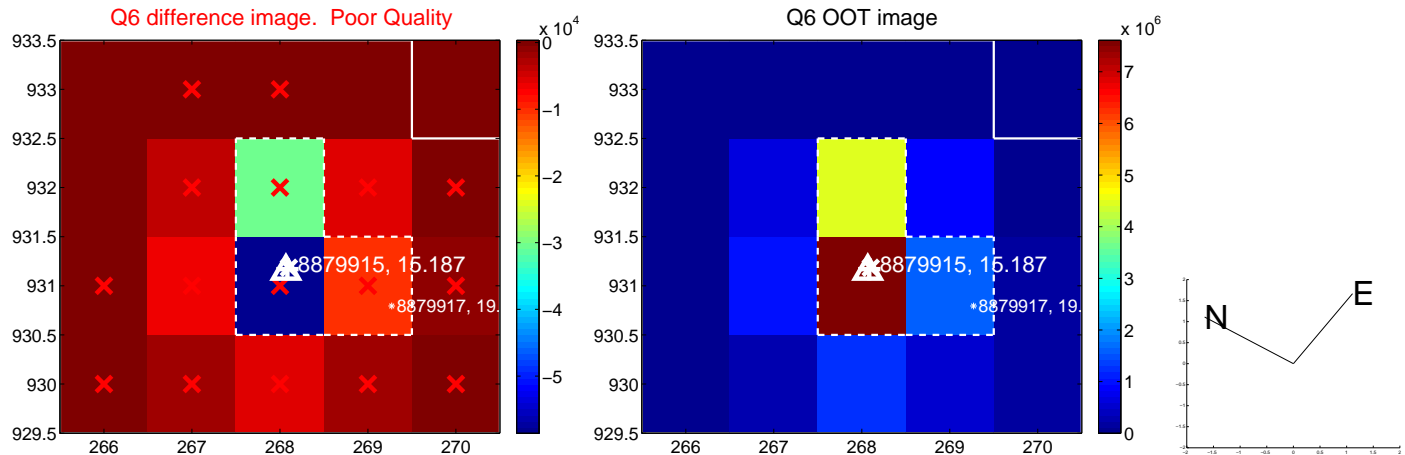
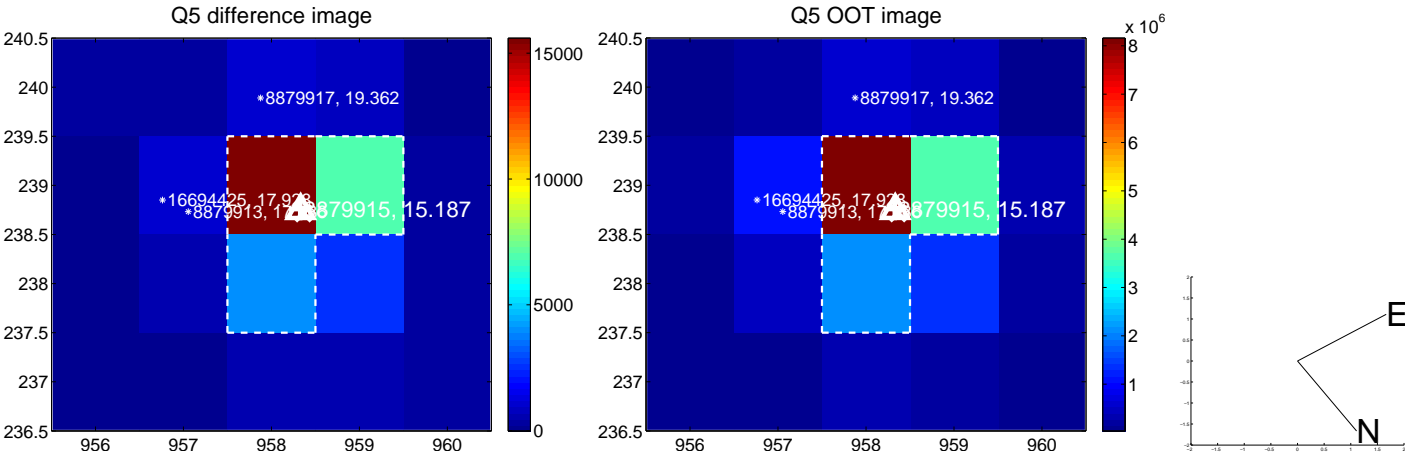


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

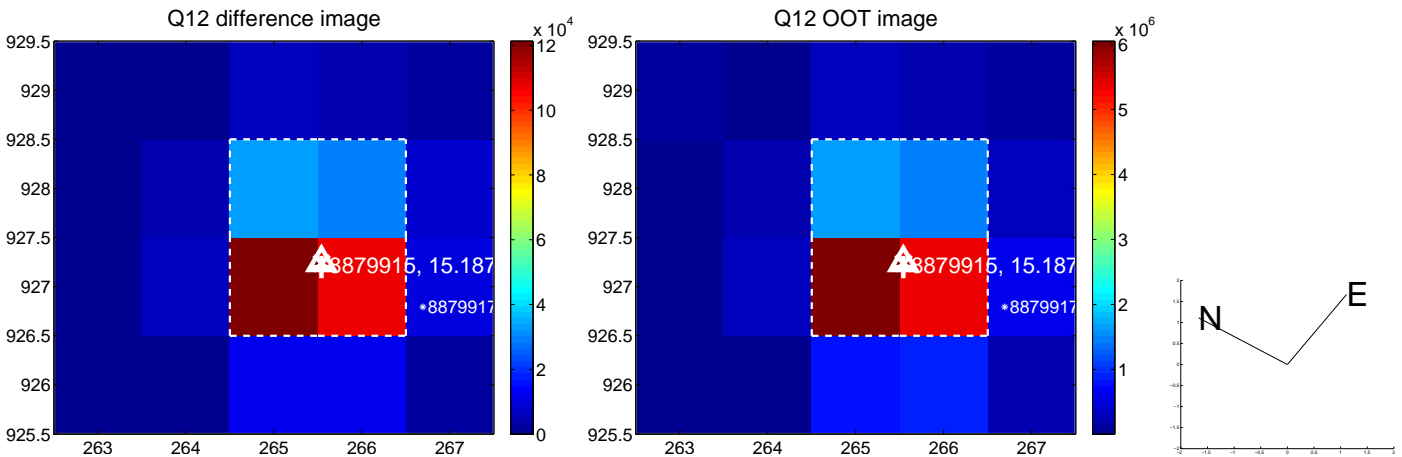
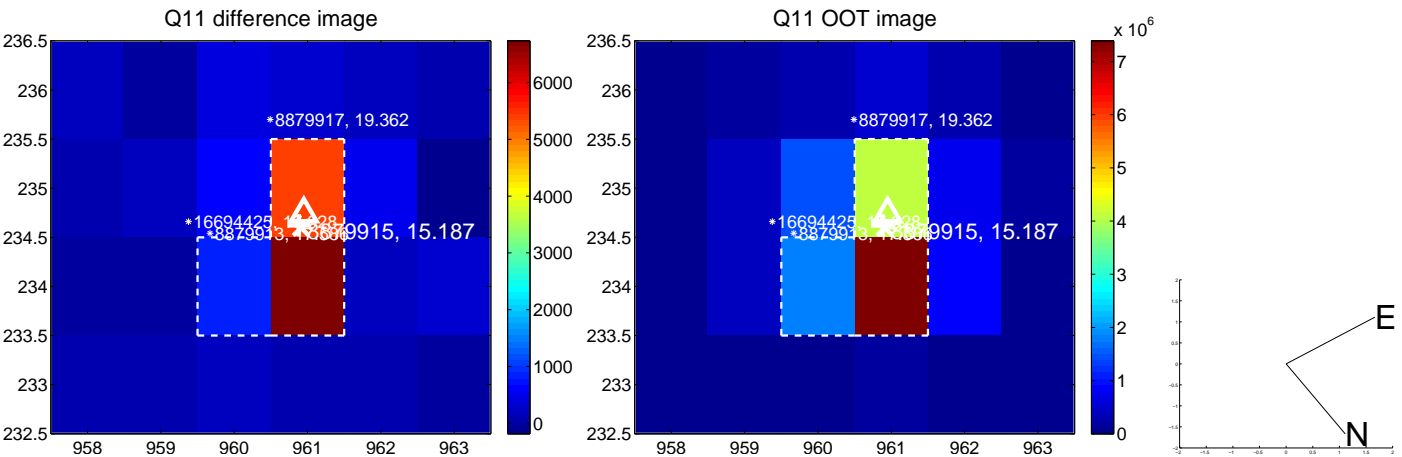
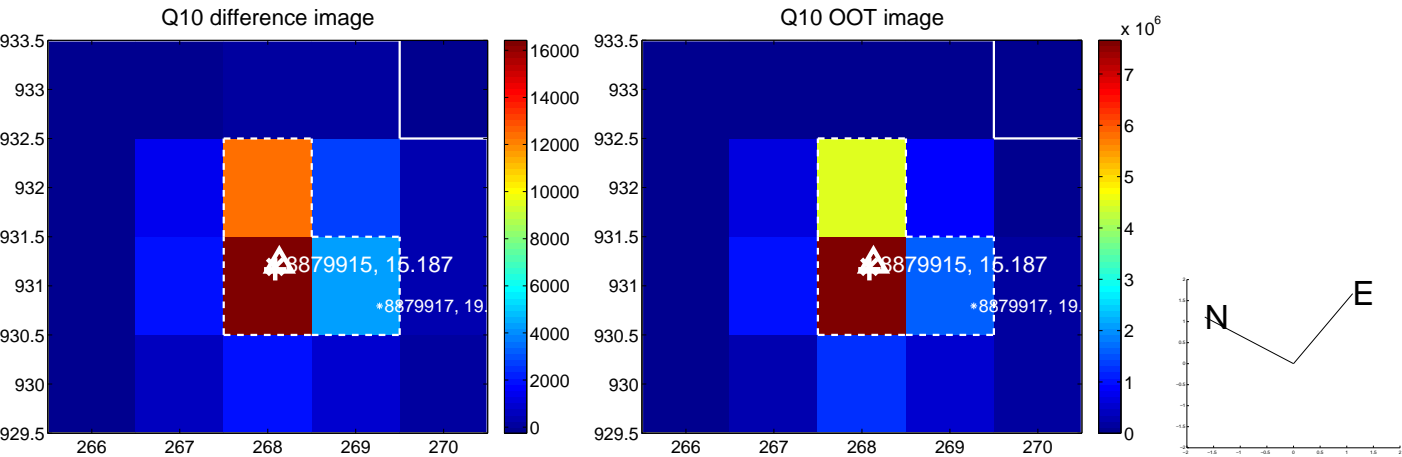
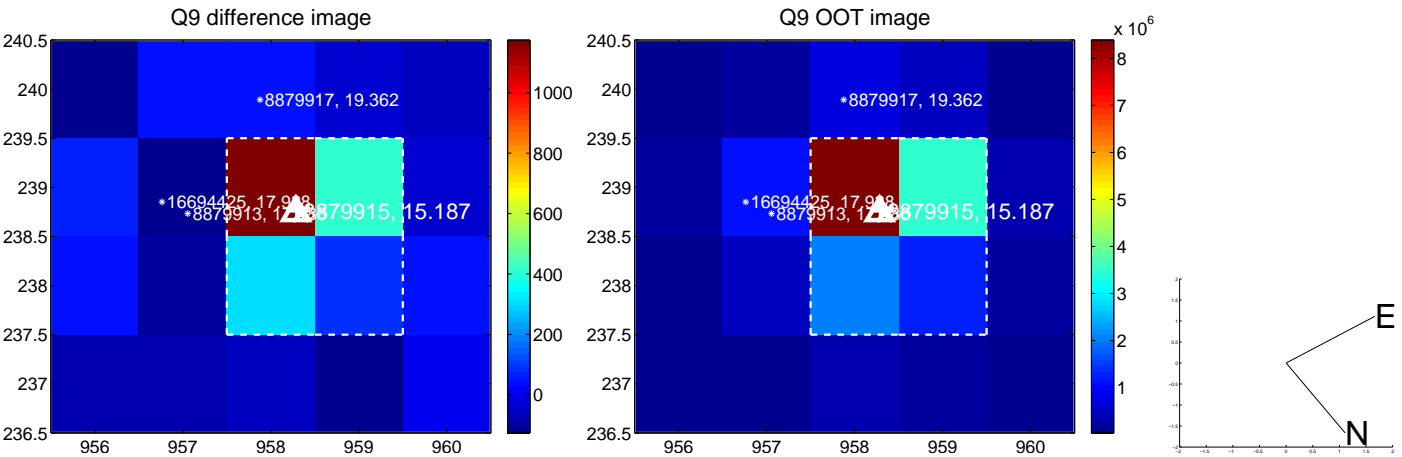
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



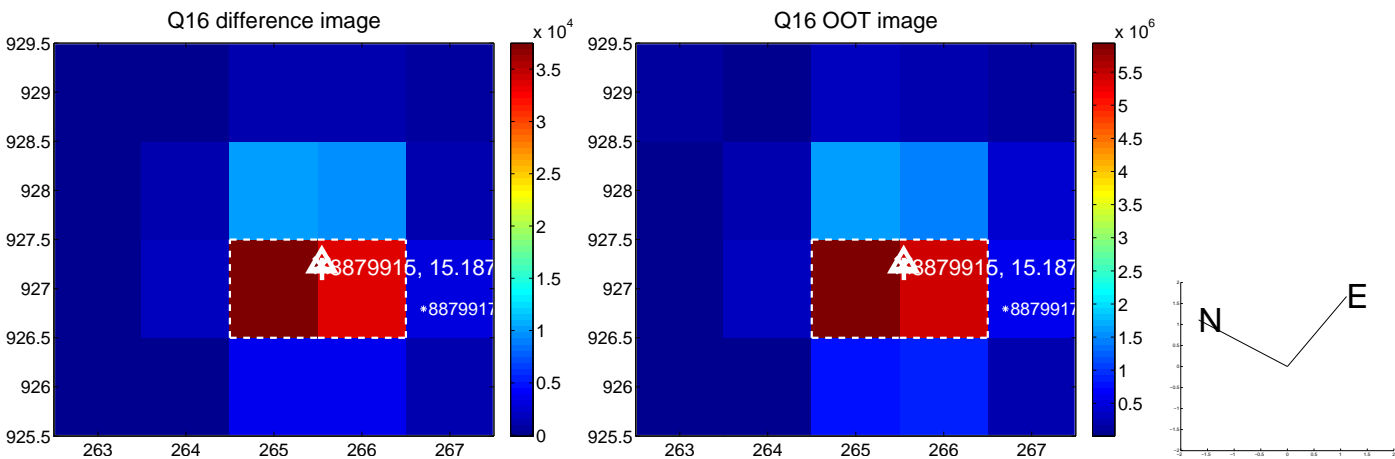
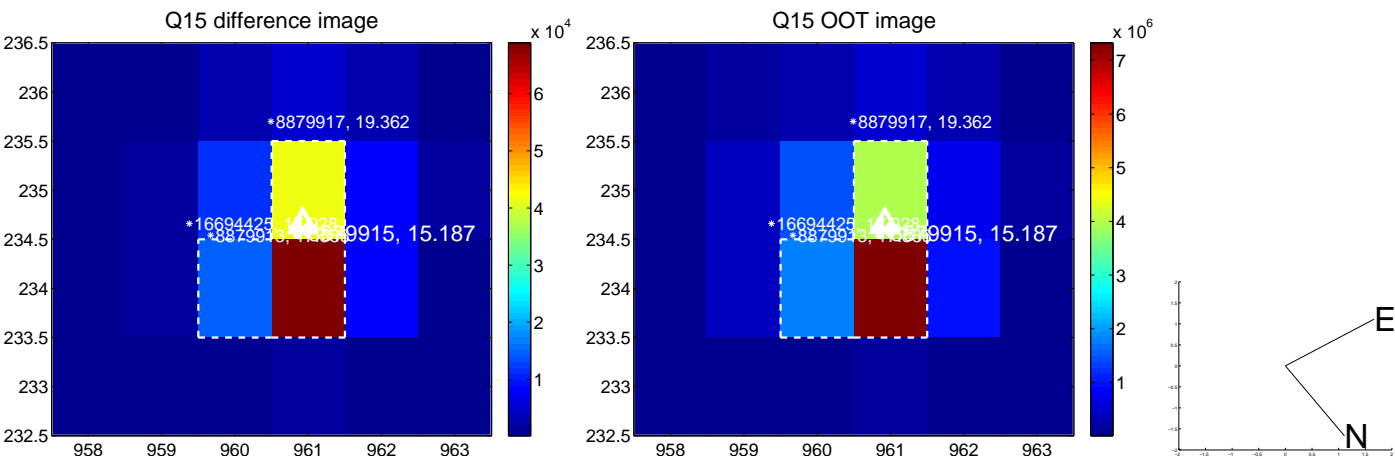
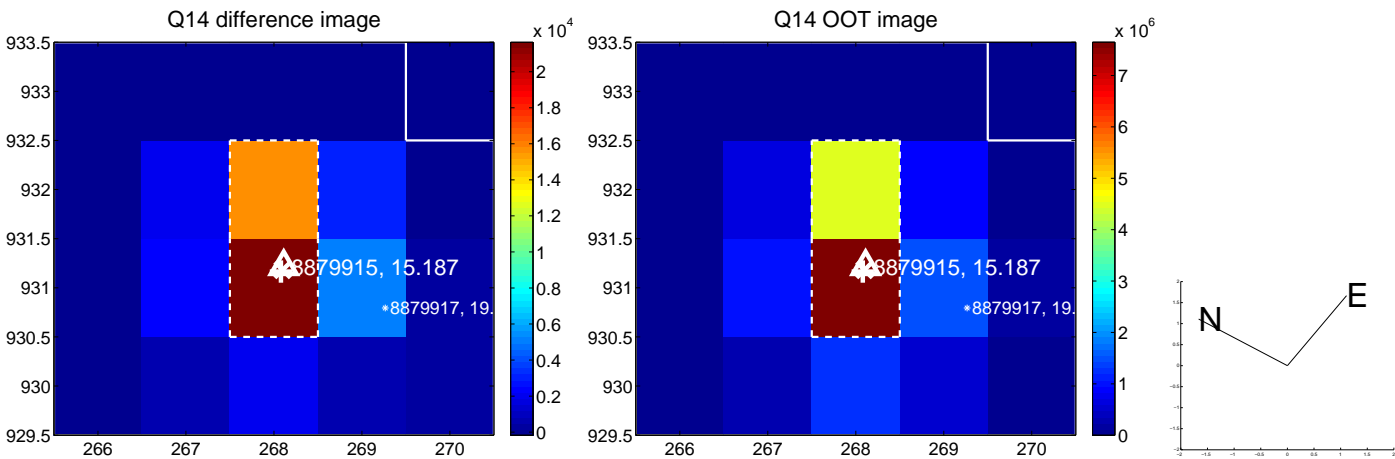
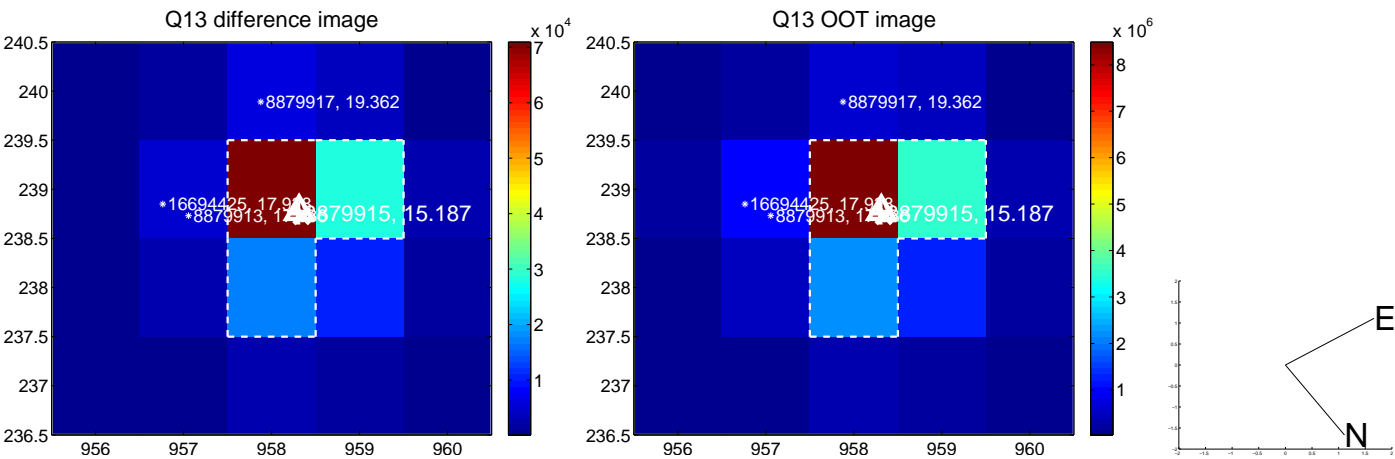
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



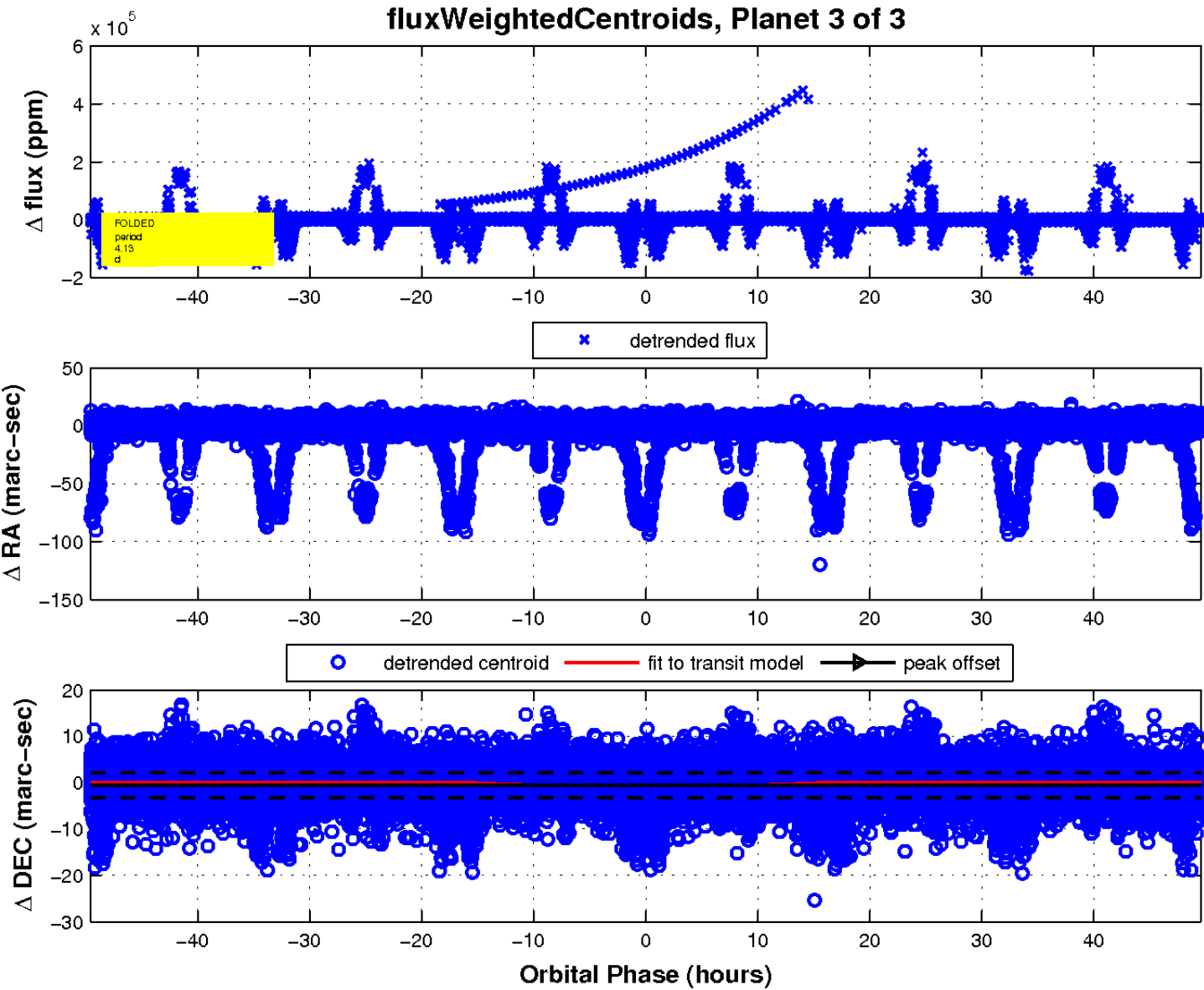
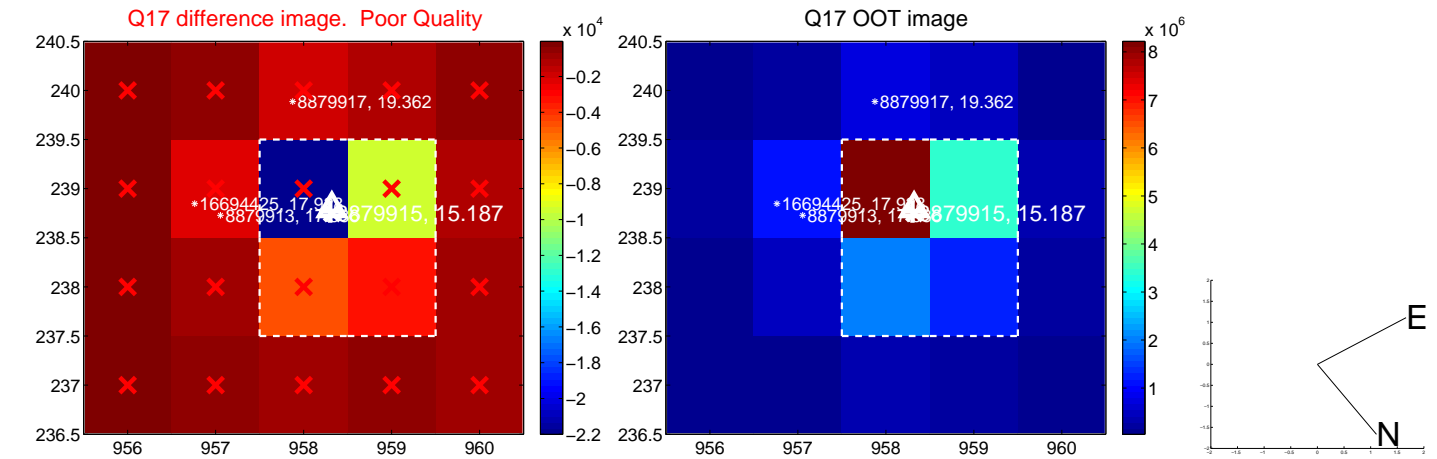
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

