

# KIC 006185717

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006185717-01	OBS	6671.01	11.702204	139.431271	28826.6	2.757	2583.0	2342.4	2.13	6148	56.93	560.79
006185717-02	OBS	No	11.702210	133.987821	1058.4	2.156	93.2	90.0	2.13	6148	11.61	560.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006185717-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006185717-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

**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 006185717-01

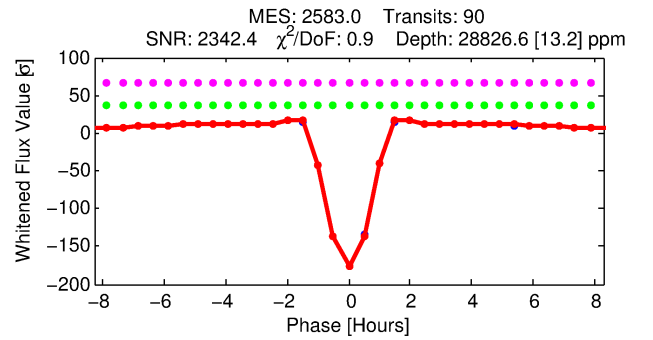
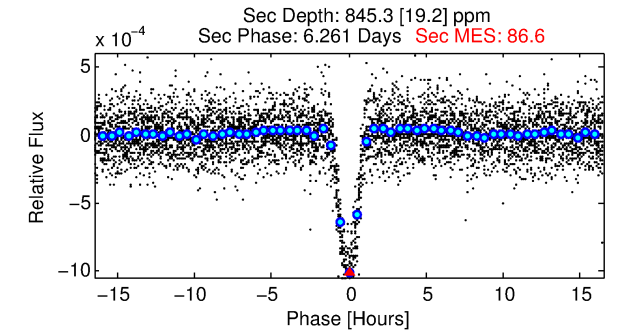
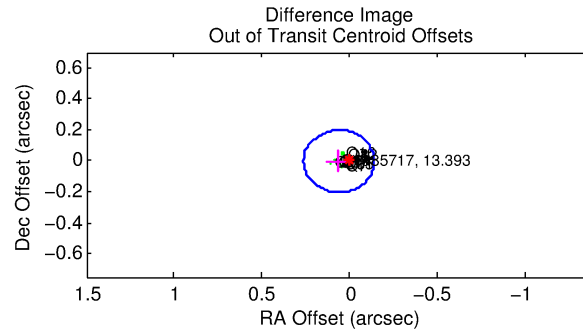
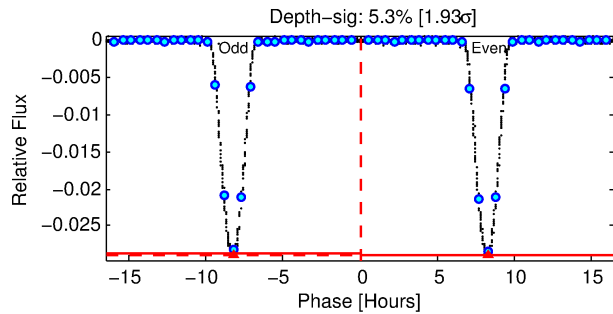
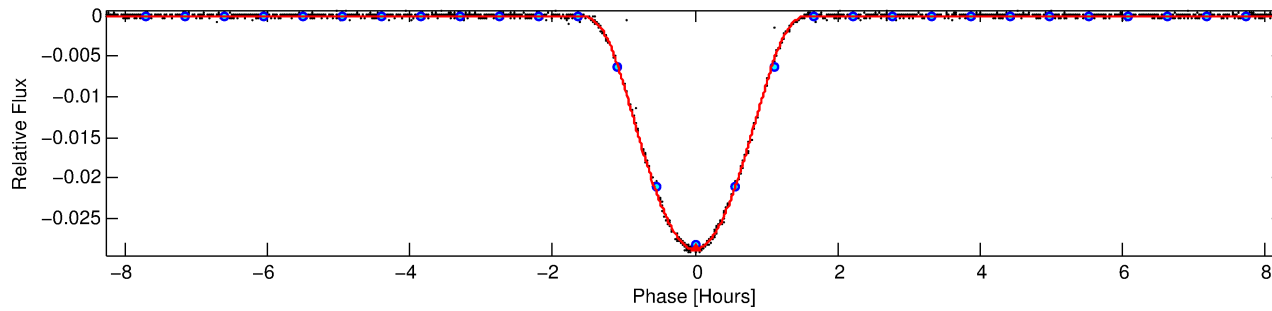
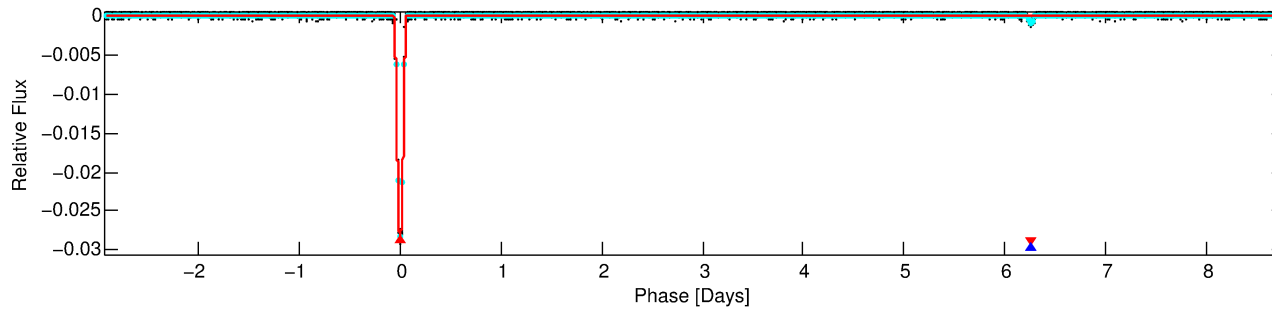
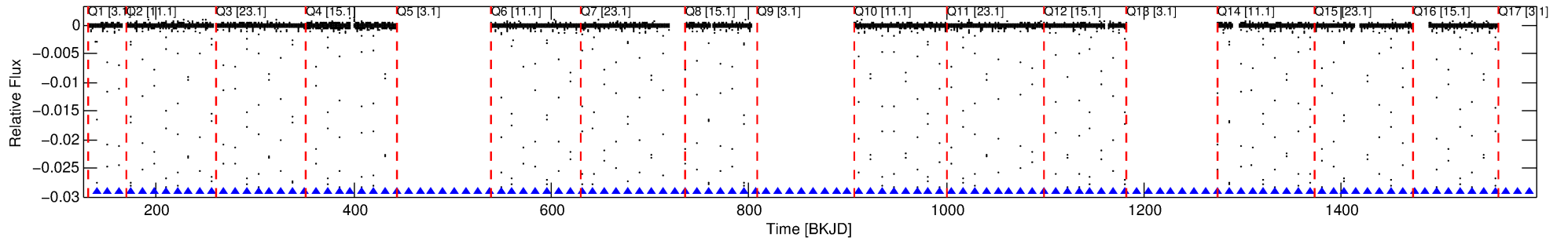
No Significant Match Found

# DV One-Page Summary

KIC: 6185717 Candidate: 1 of 2 Period: 11.702 d

KOI: K06671.01 Corr: 0.999

Kp: 13.39 R\*: 2.13 Rs Teff: 6148.0 K Logg: 3.79 Fe/H: -0.760



## DV Fit Results:

Period = 11.70220 [0.00000] d  
Epoch = 139.4313 [0.0000] BKJD  
Rp/R\* = 0.2446 [0.0052]  
a/R\* = 25.58 [0.06]  
b = 0.96 [0.01]  
Seff = 560.79 [302.49]  
Teq = 1241 [167] K  
Rp = 56.93 [19.66] Re  
a = 0.1019 [0.0336] AU  
Ag = 1.49 [0.79] [0.62σ]  
Teffp = 2120 [69] K [4.85σ]

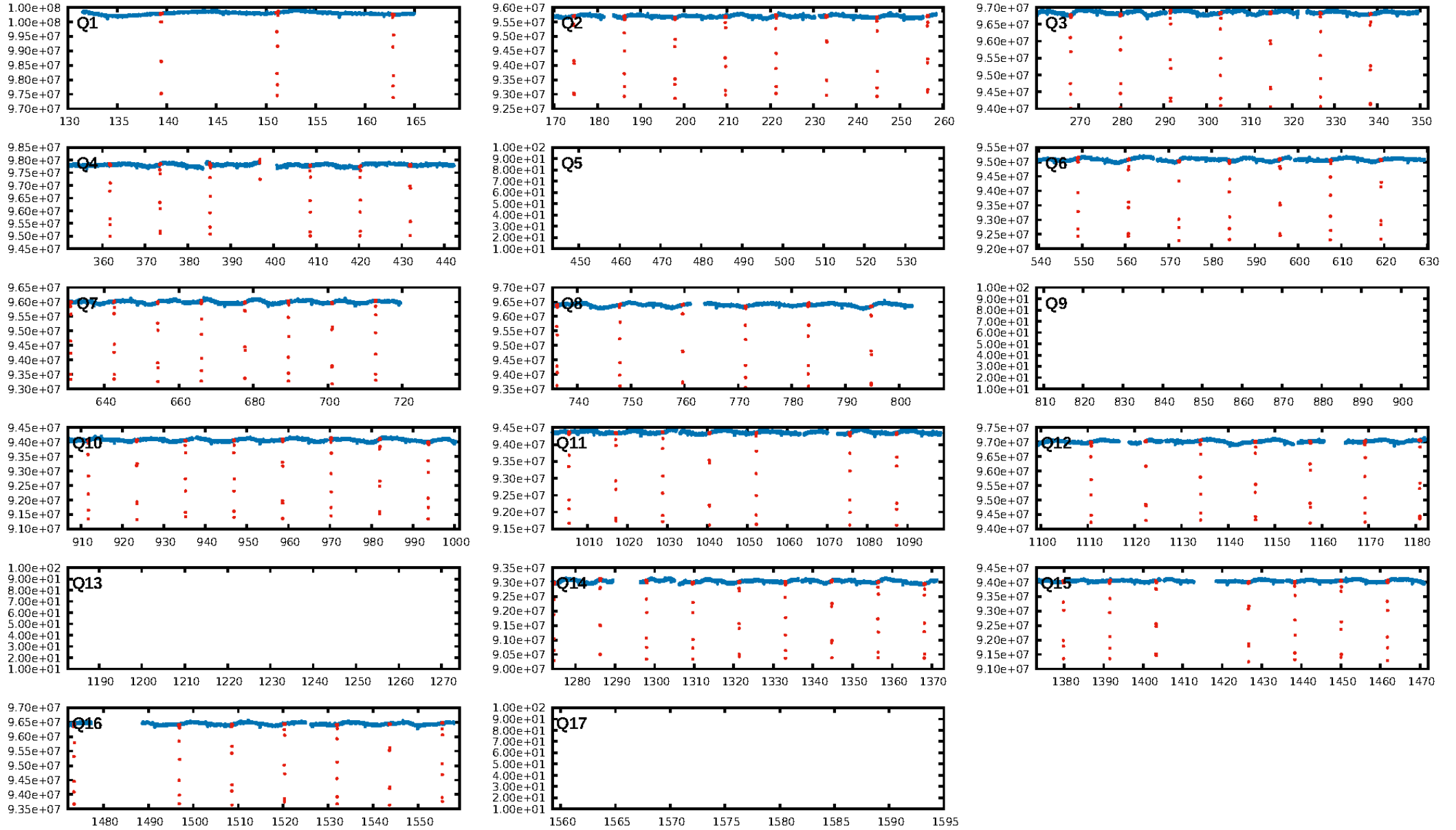
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [87/87]  
GhostDiagnostic-chr: 8.012  
Centroid-sig: 0.0%  
Centroid-so: 0.809 arcsec [150.12σ]  
OotOffset-rm: 0.062 arcsec [0.93σ]  
OotOffset-st: 4/4/4/1 [13]  
KicOffset-rm: 0.080 arcsec [1.19σ]  
KicOffset-st: 4/4/4/1 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

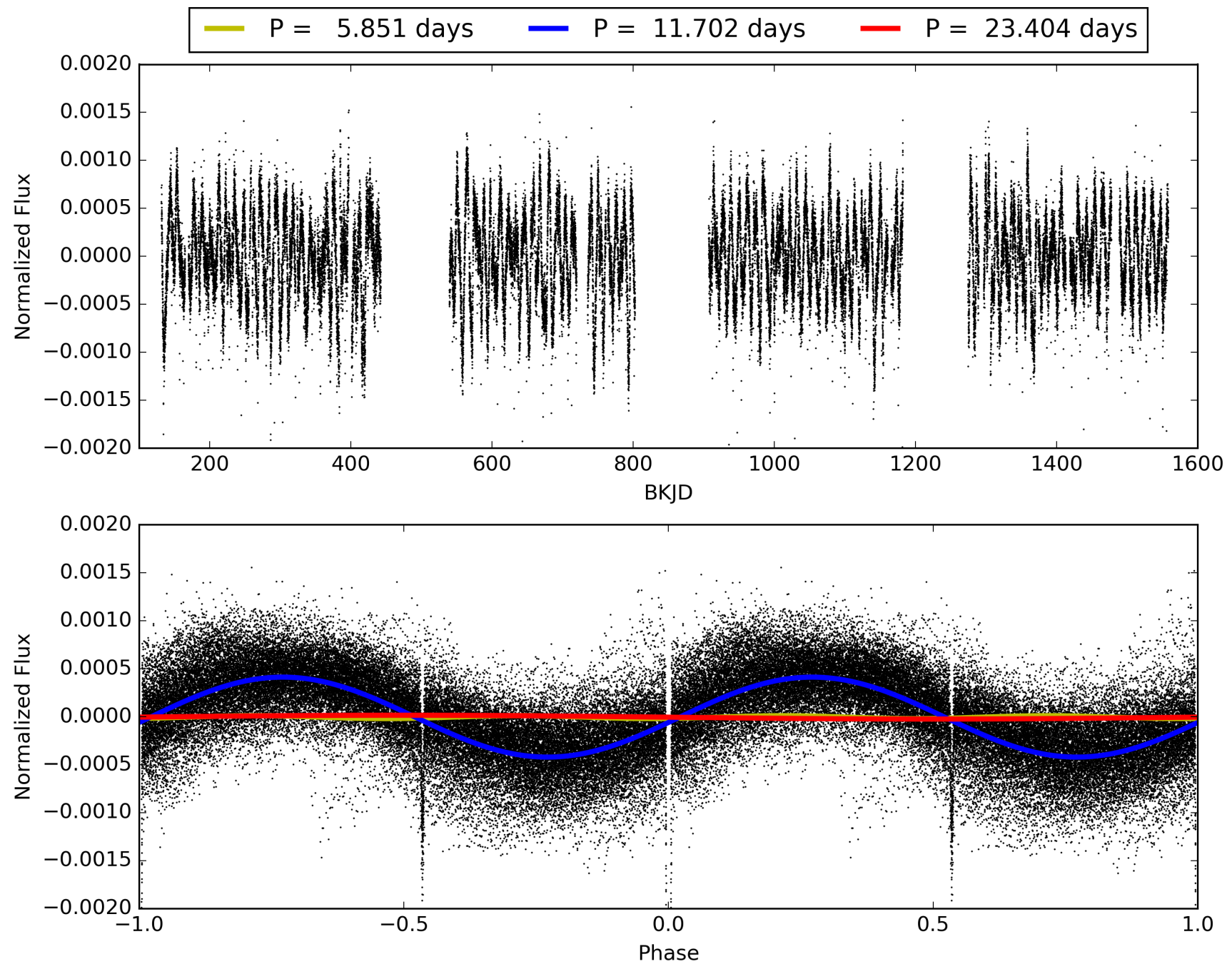
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:58:47 Z

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

# TCE 006185717-01, PDC Light Curves

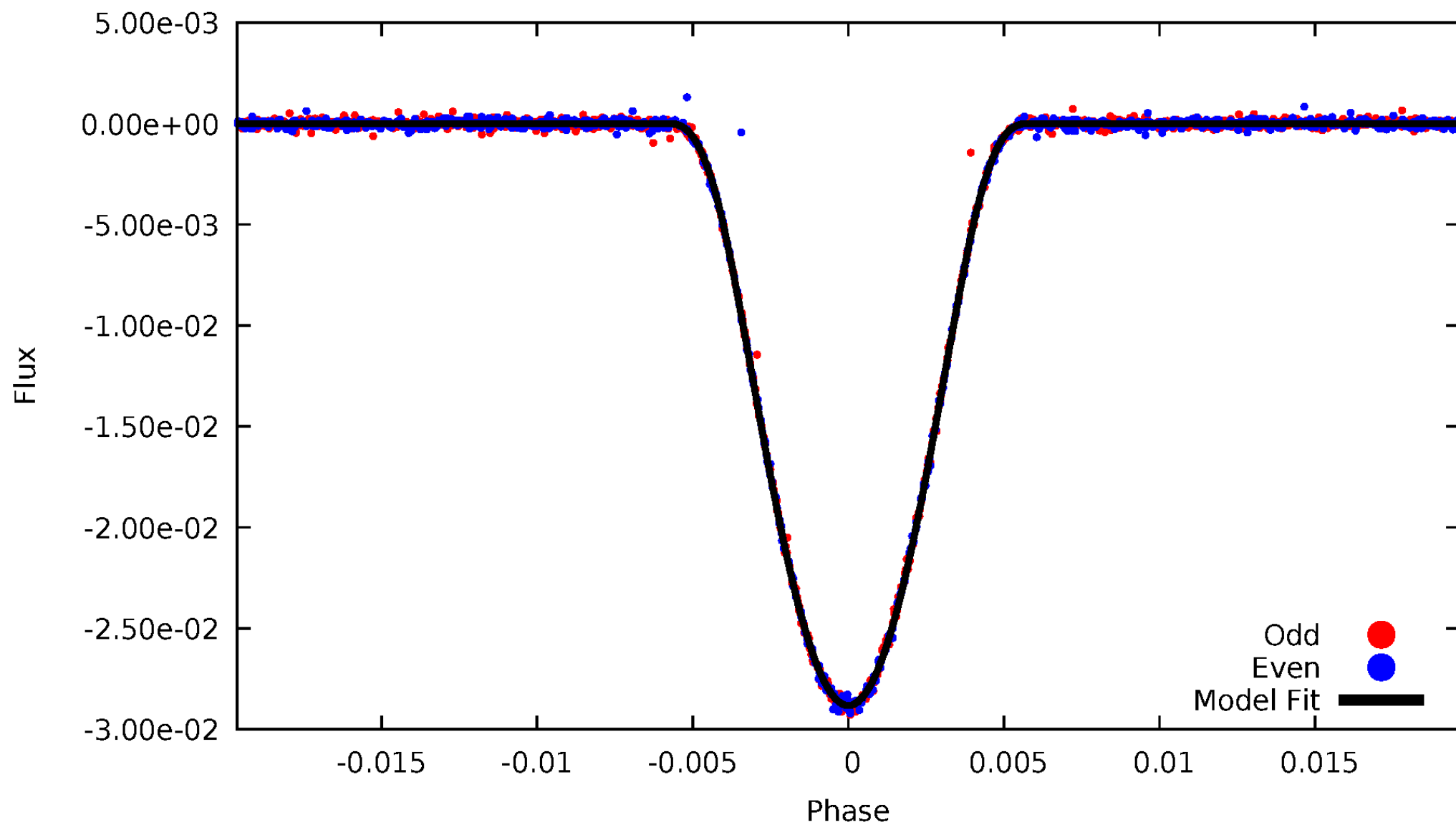


# TCE 006185717-01



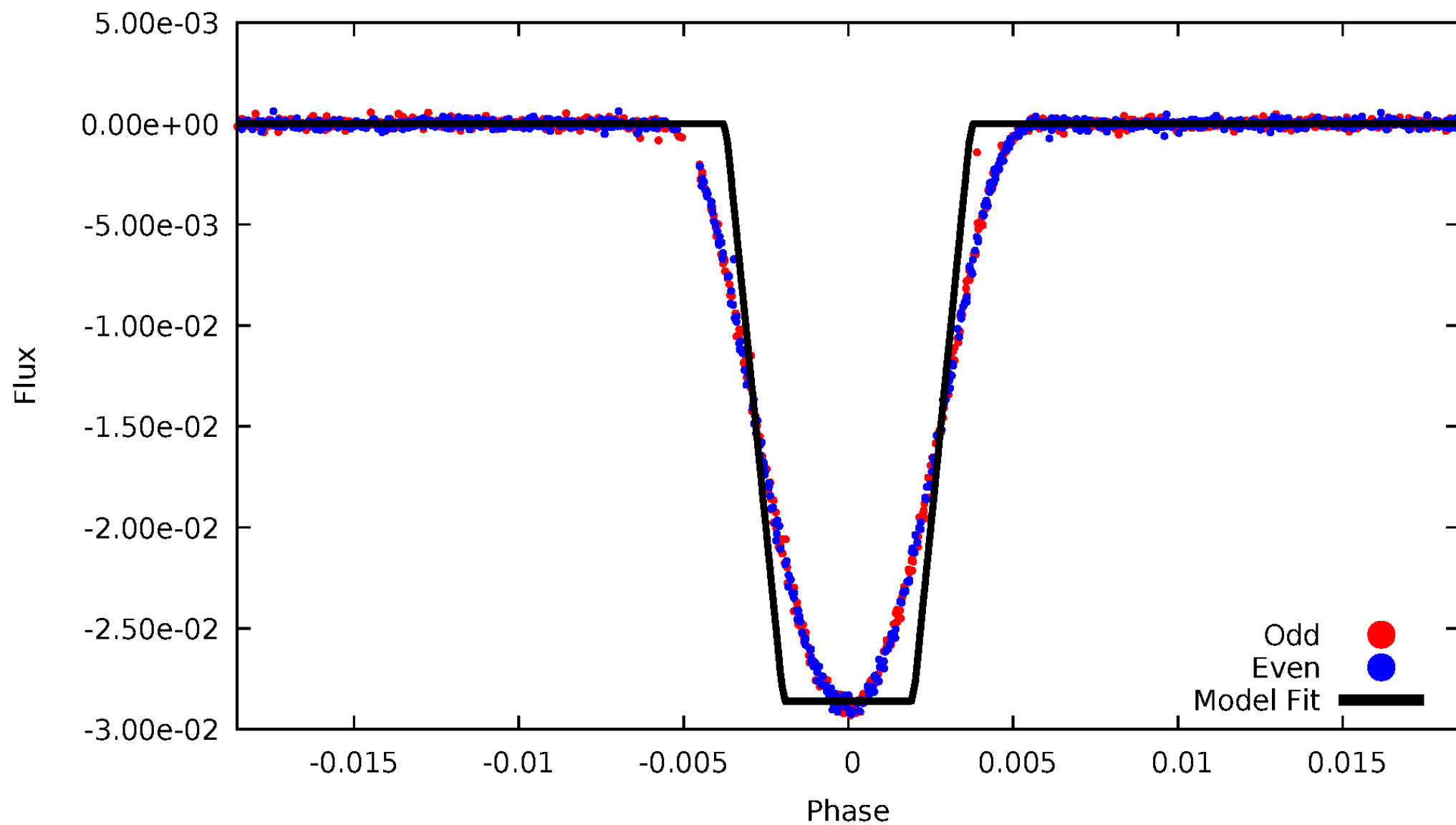
# DV Odd/Even

TCE 006185717-01



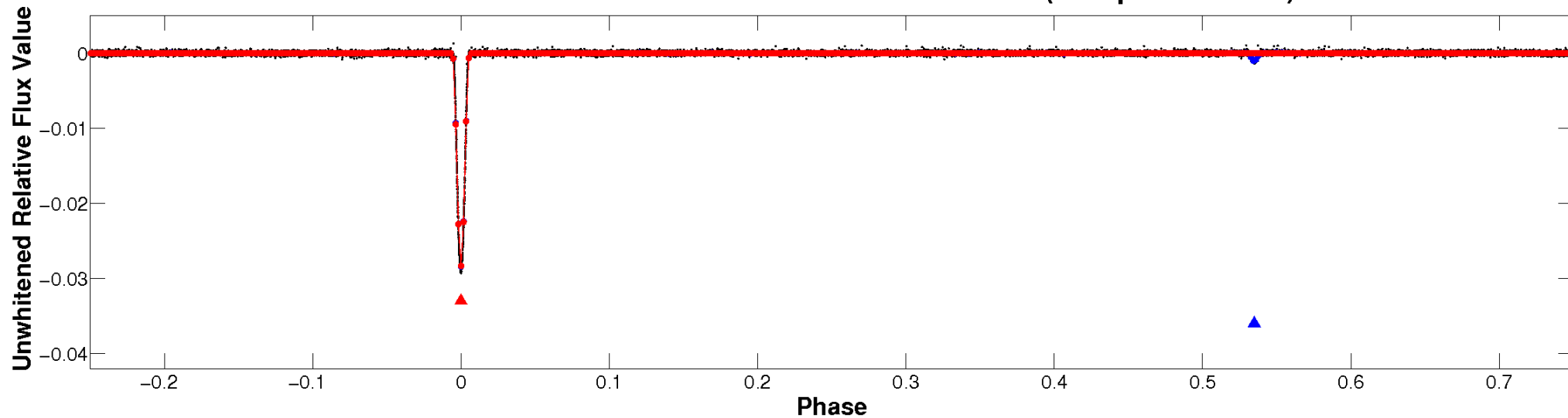
# ALT Odd/Even

TCE 006185717-01

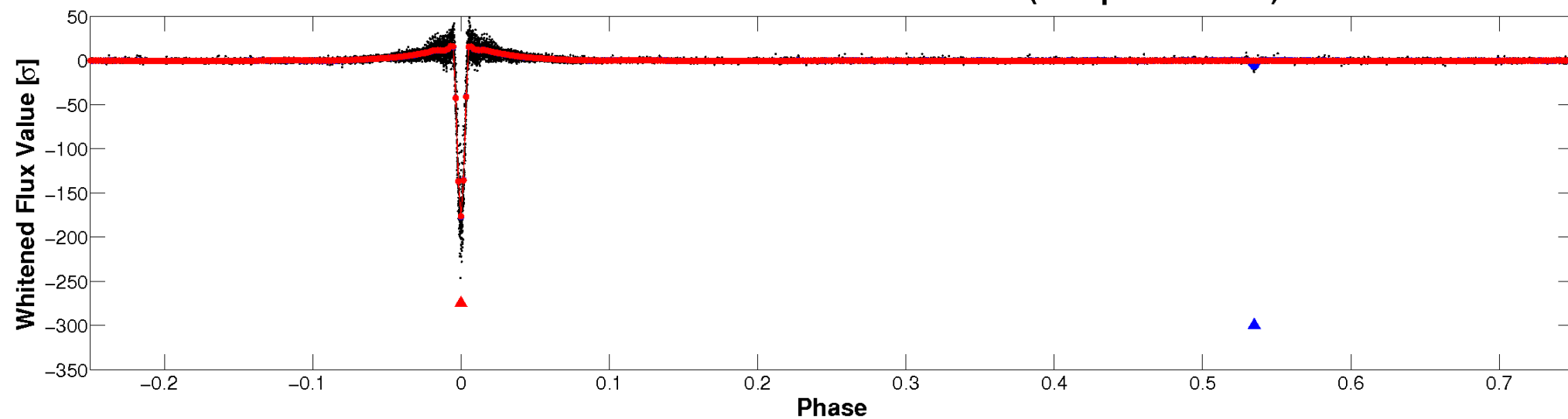


# Non-Whitened Vs. Whitened Light Curve

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

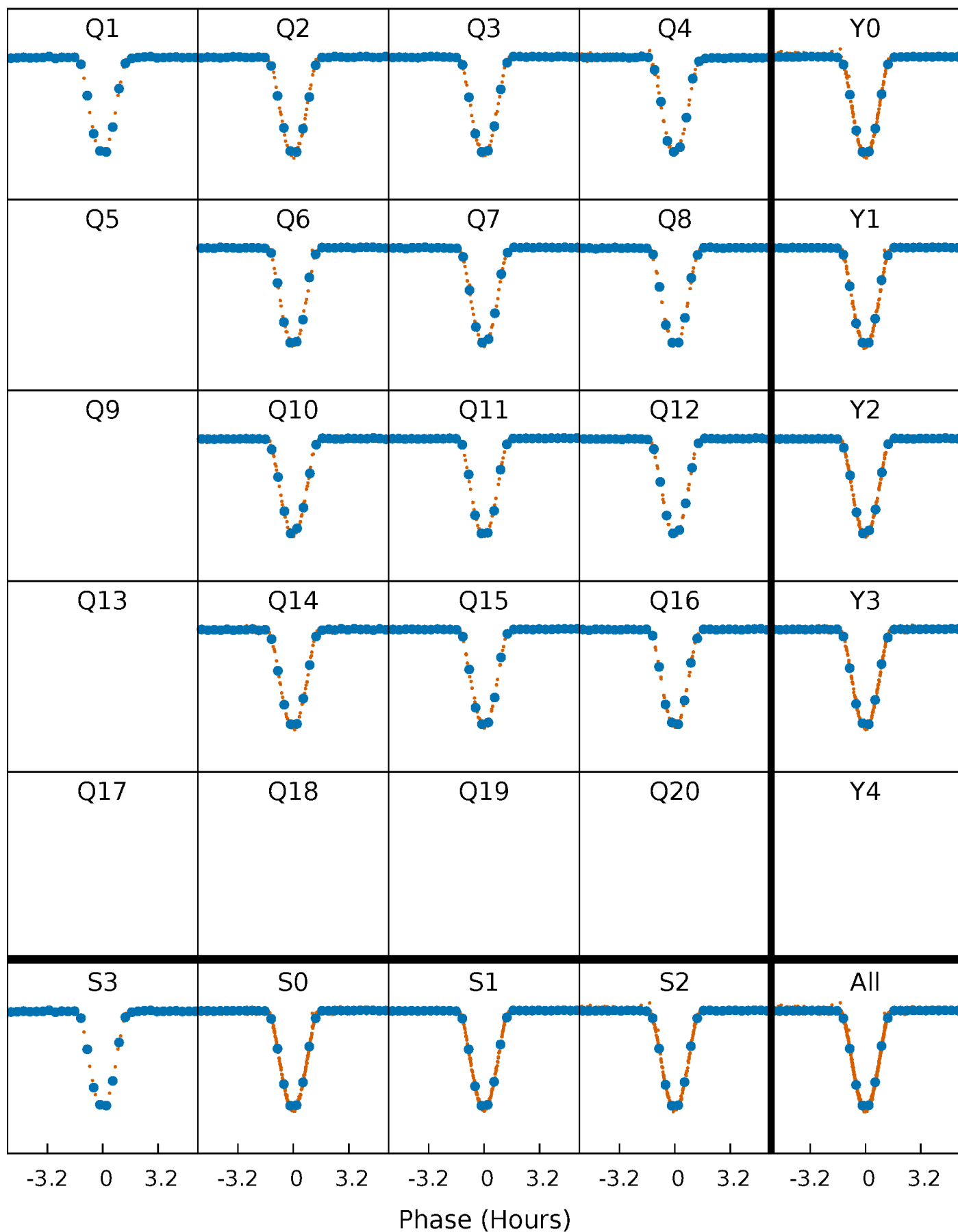


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

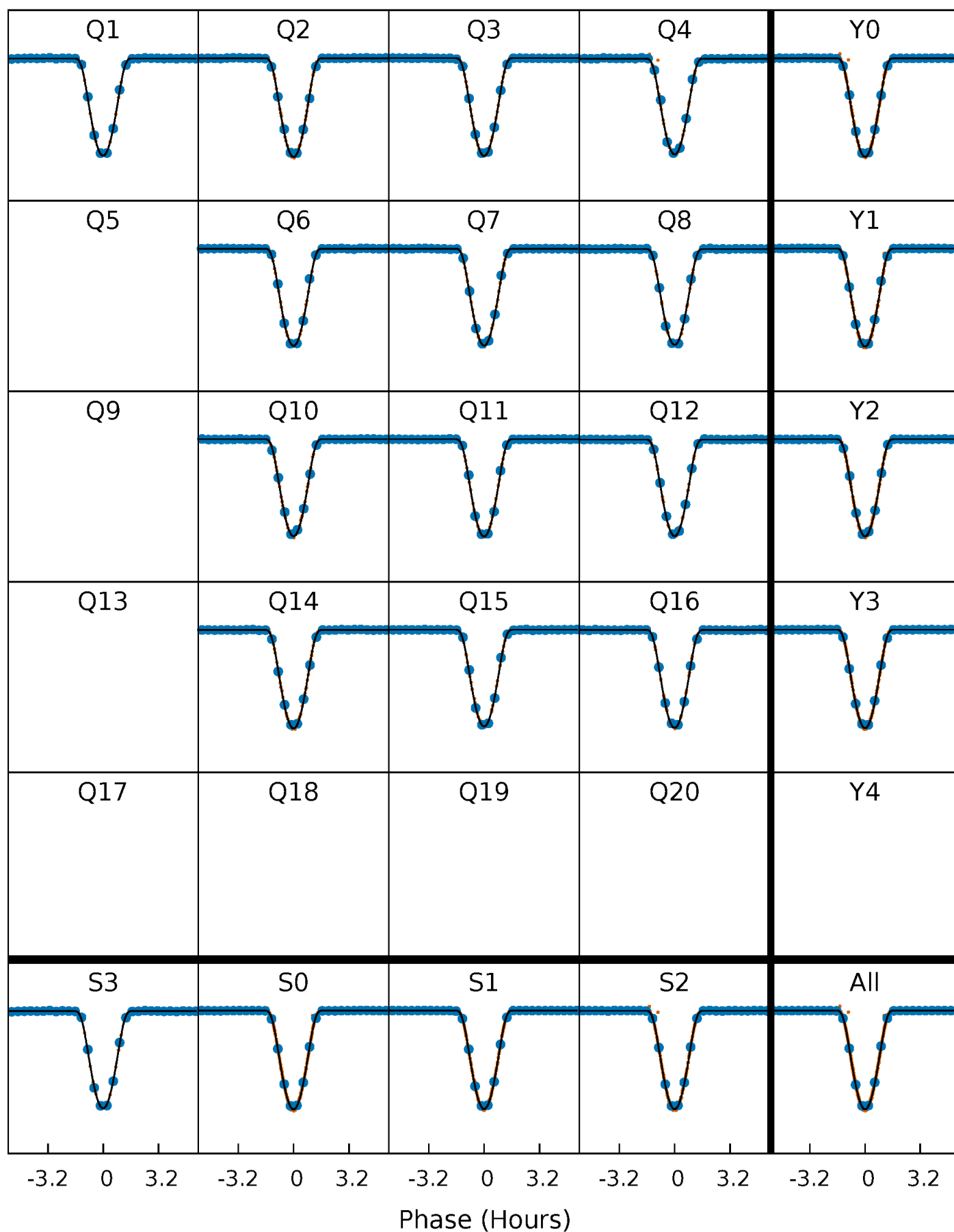
TCE 006185717-01 P= 11.702204 Days  $T_0=139.431271$  (BKJD)





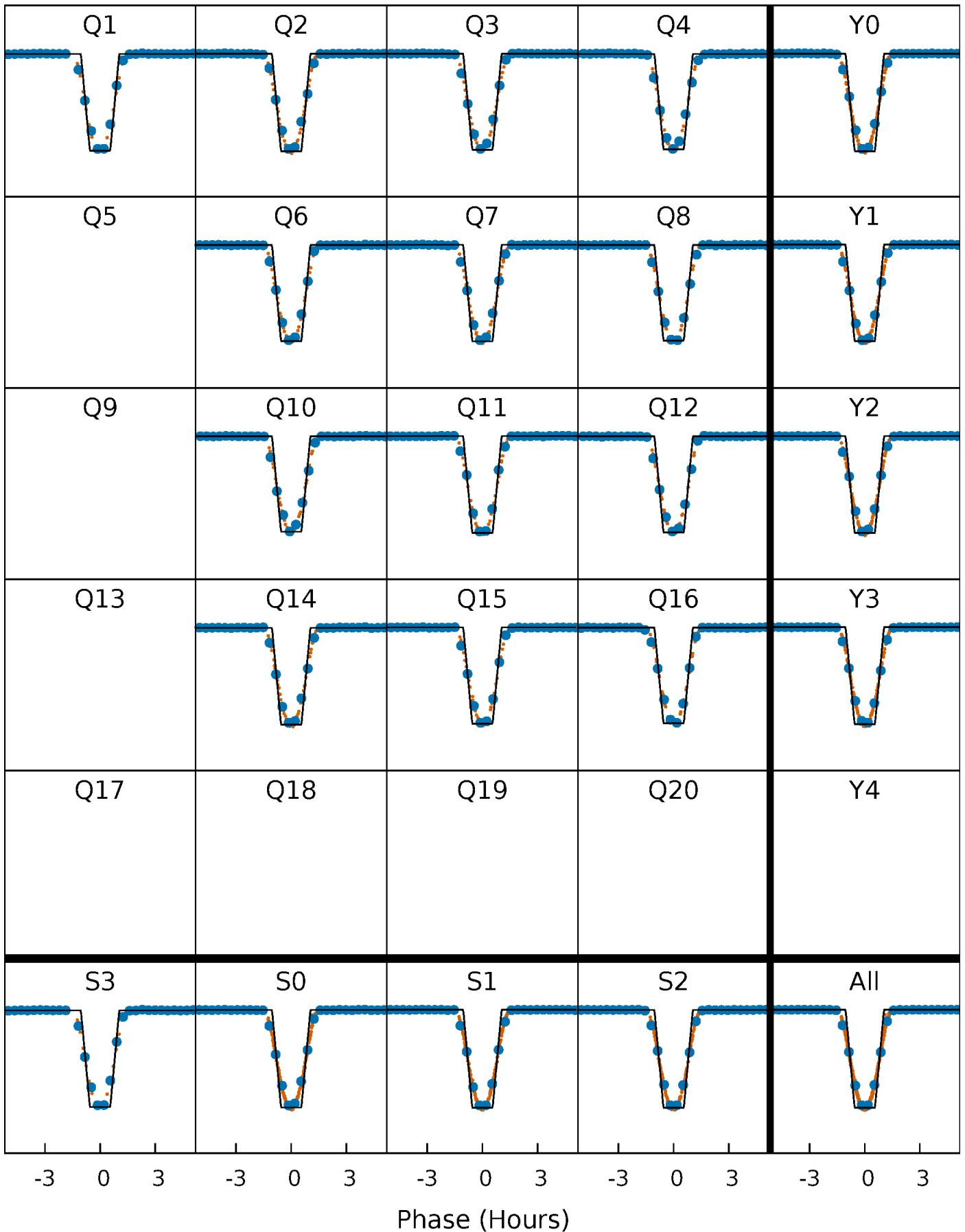
# DV Quarter-Phased Transit Curves

TCE 006185717-01 P= 11.702204 Days  $T_0=139.431271$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

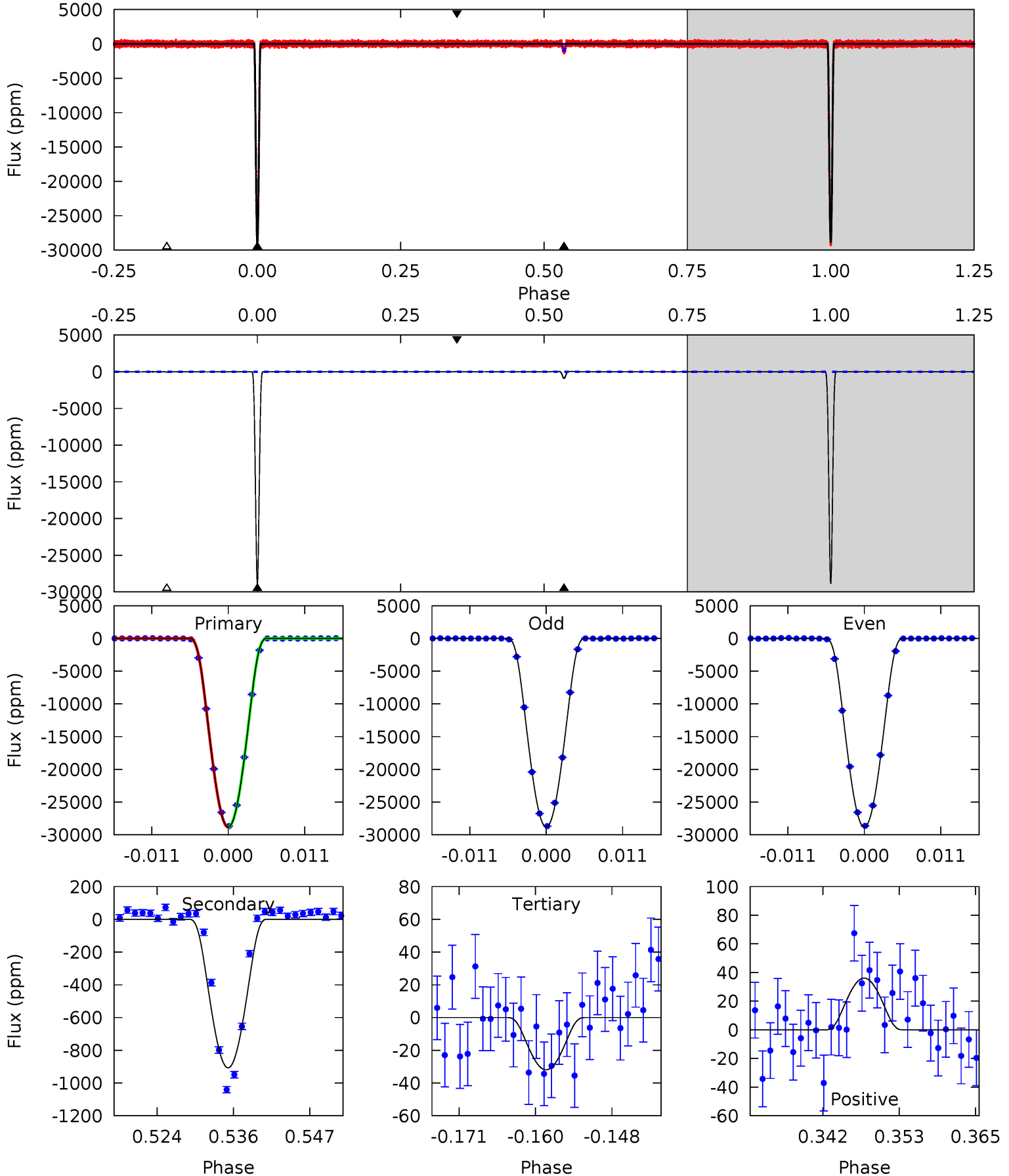
TCE 006185717-01 P= 11.702193 Days  $T_0=139.431946$  (BKJD)



# DV Model-Shift Uniqueness Test

006185717-01, P = 11.702204 Days, E = 127.729067 Days

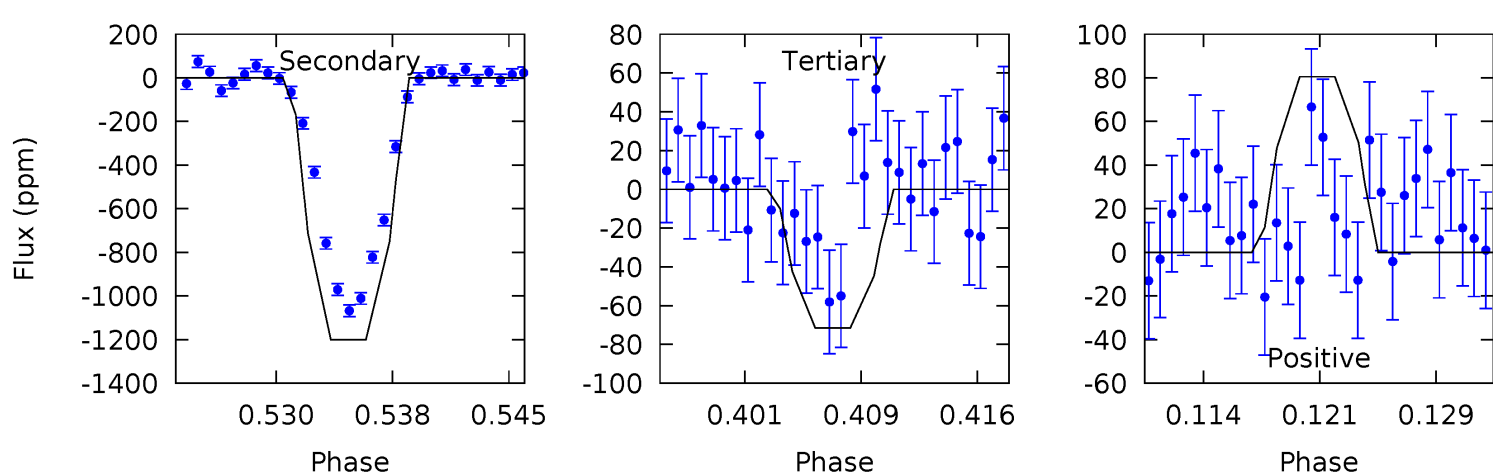
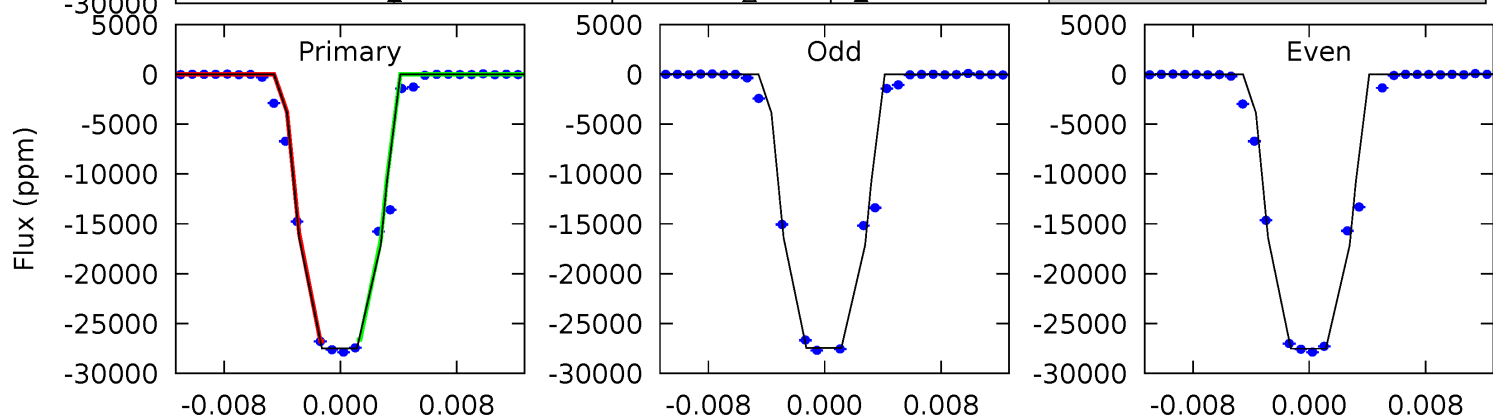
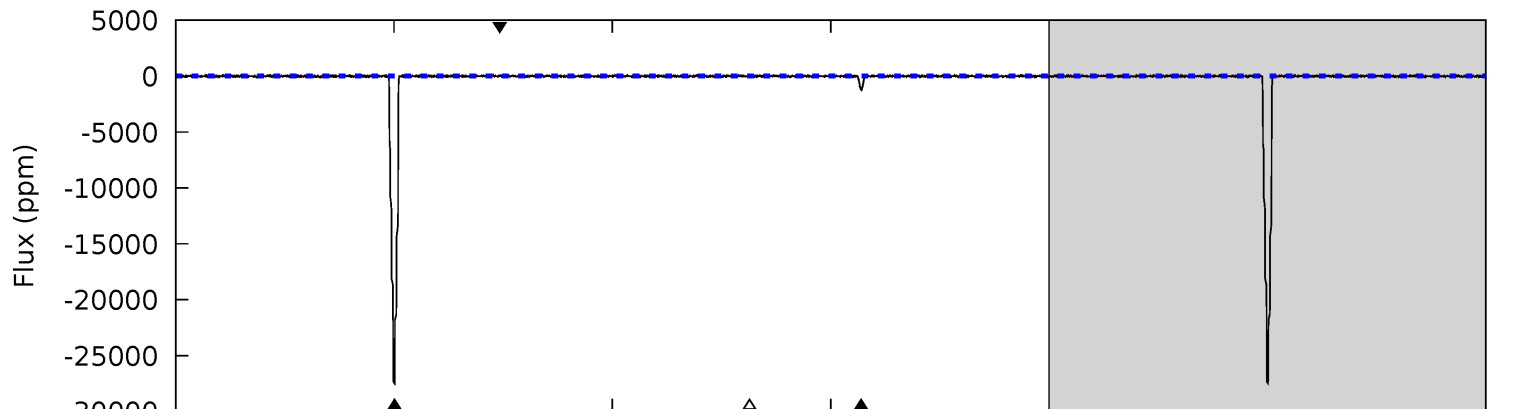
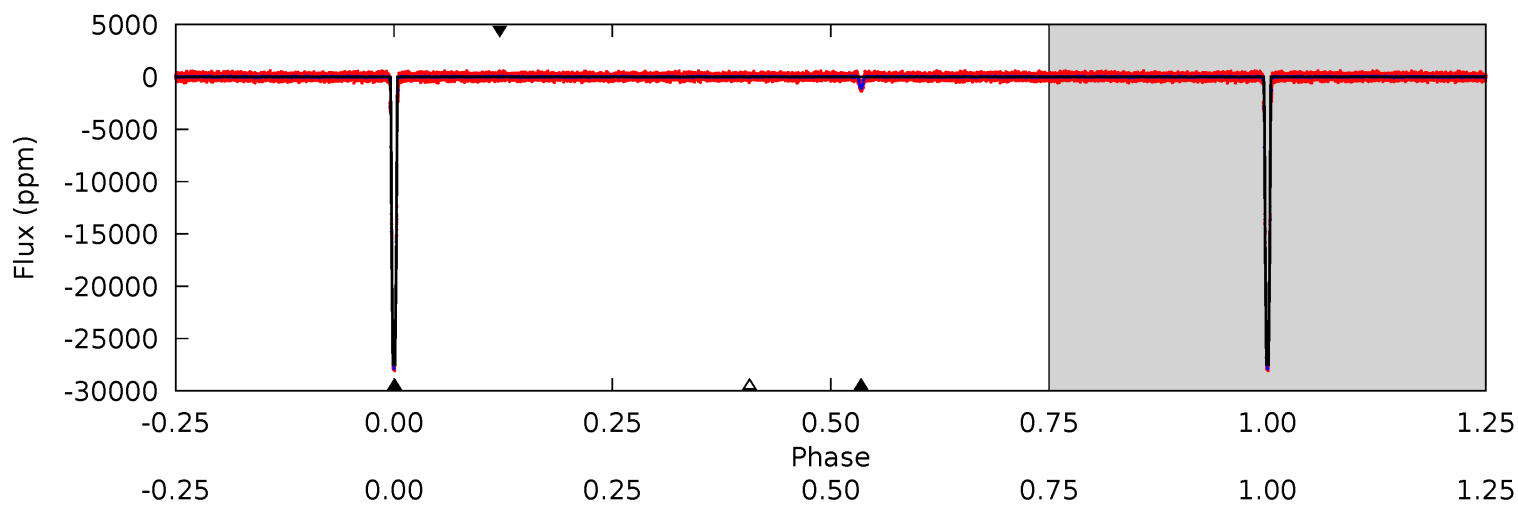
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4753	149.6	5.26	5.95	5.00	2.53	2.14	4748	4747	144.4	143.7	1.50	0.99	0.00	1.30



# Alt Model-Shift Uniqueness Test

006185717-01, P = 11.702193 Days, E = 127.729753 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
1650	72.1	4.29	4.83	5.08	2.67	1.19	1645	1645	67.8	67.2	2.15	0.99	0.00	0



### Stellar Parameters For KIC 006185717

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6148^{+186}_{-149}$	$3.793^{+0.308}_{-0.132}$	$-0.760^{+0.350}_{-0.250}$	$2.133^{+0.429}_{-0.735}$	$1.030^{+0.162}_{-0.178}$	$0.149^{+0.342}_{-0.056}$
	+3%/-2%	+8%/-3%	+46%/-33%	+20%/-34%	+16%/-17%	+229%/-37%
Source	PHO1	FLK73	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 006185717-01 / KOI 6671.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-907 \pm 6$	$56.51^{+7.38}_{-10.26}$	$1724^{+112}_{-157}$	$2800^{+51}_{-47}$	$1.650^{+0.693}_{-0.358}$
Alt.	$-1201 \pm 17$	$38.89^{+5.24}_{-7.10}$	$1719^{+110}_{-160}$	$3297^{+73}_{-59}$	$4.641^{+2.108}_{-1.043}$

$T_{max}$  = 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

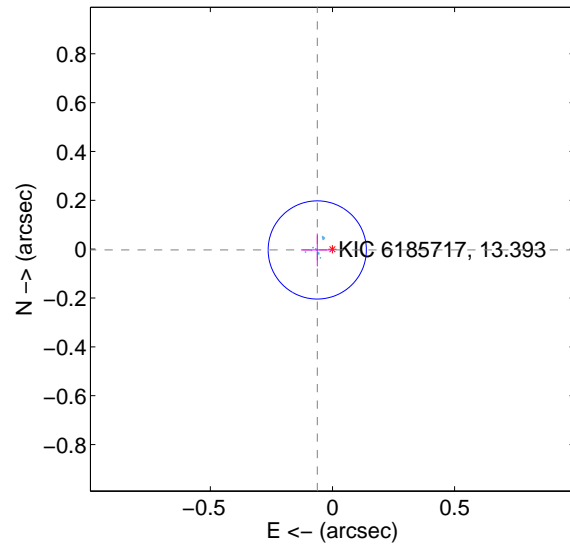
Supplemental centroid analysis for 006185717-01. Kepler magnitude: 13.39. Transit SNR 2342.43

There are 13 quarters with good PRF difference image offsets

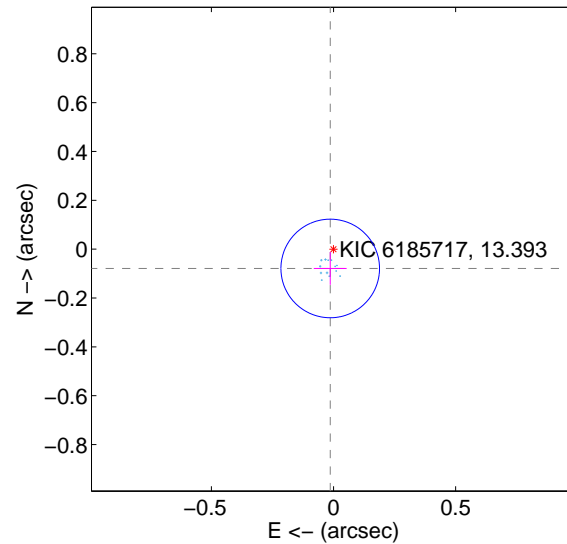
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.062 \pm 0.067$	0.93	$0.062 \pm 0.067$	$-0.003 \pm 0.067$
PRF-fit source offset from KIC position	$0.080 \pm 0.067$	1.19	$0.013 \pm 0.067$	$-0.079 \pm 0.067$
photometric centroid source offset	$0.81 \pm 0.01$	150.12	$-0.80 \pm 0.01$	$-0.12 \pm 0.00$

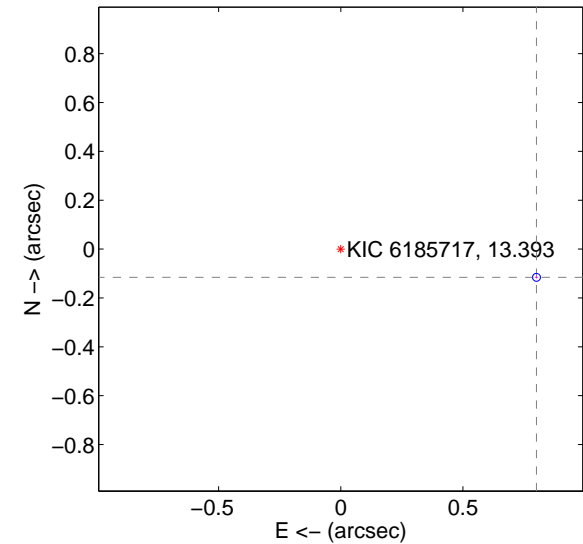
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

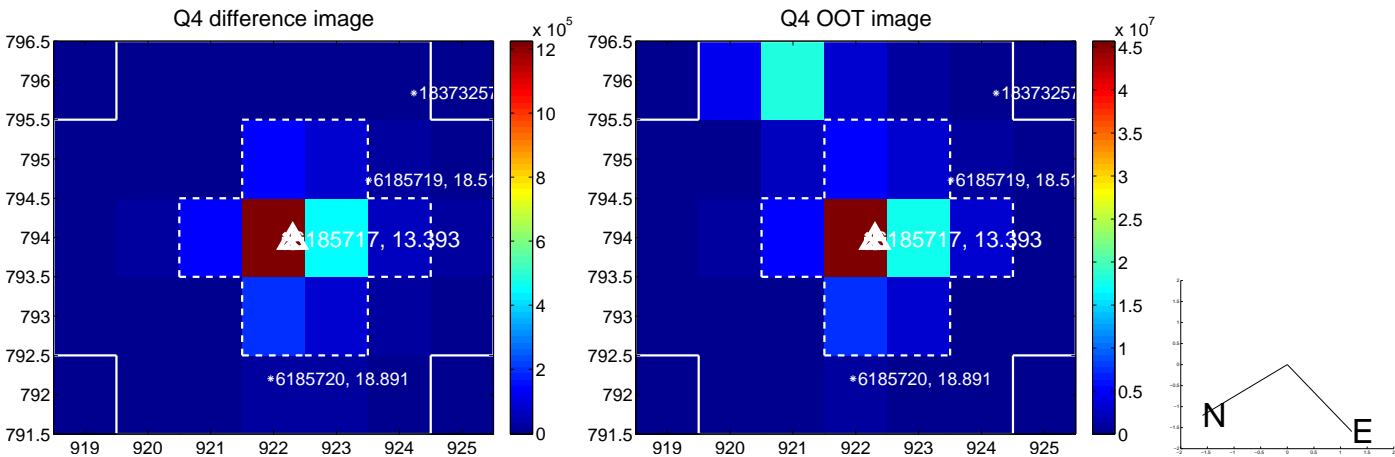
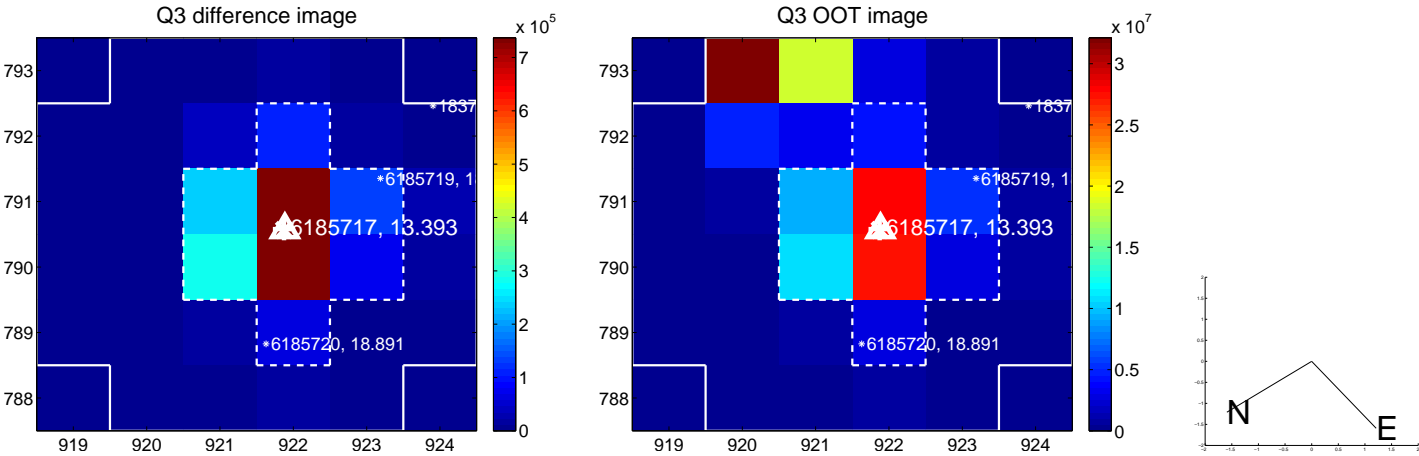
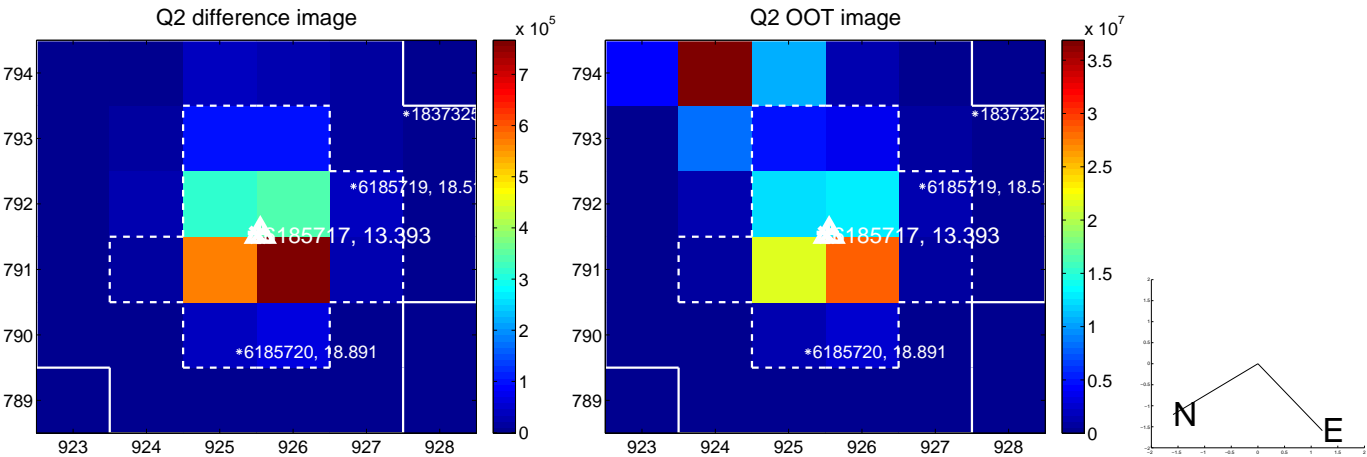
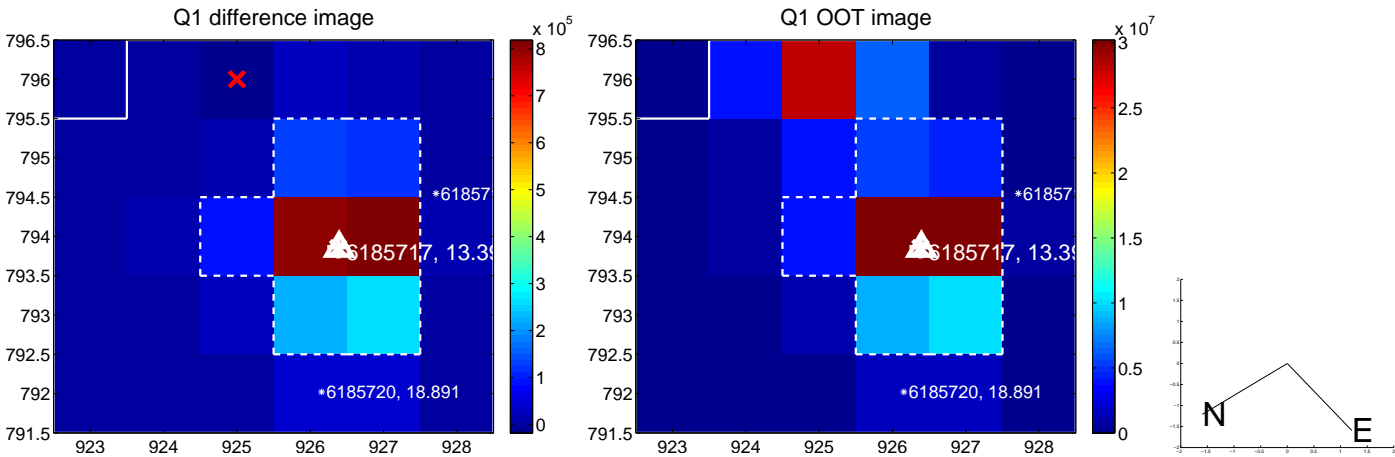


offset from photometric centroids

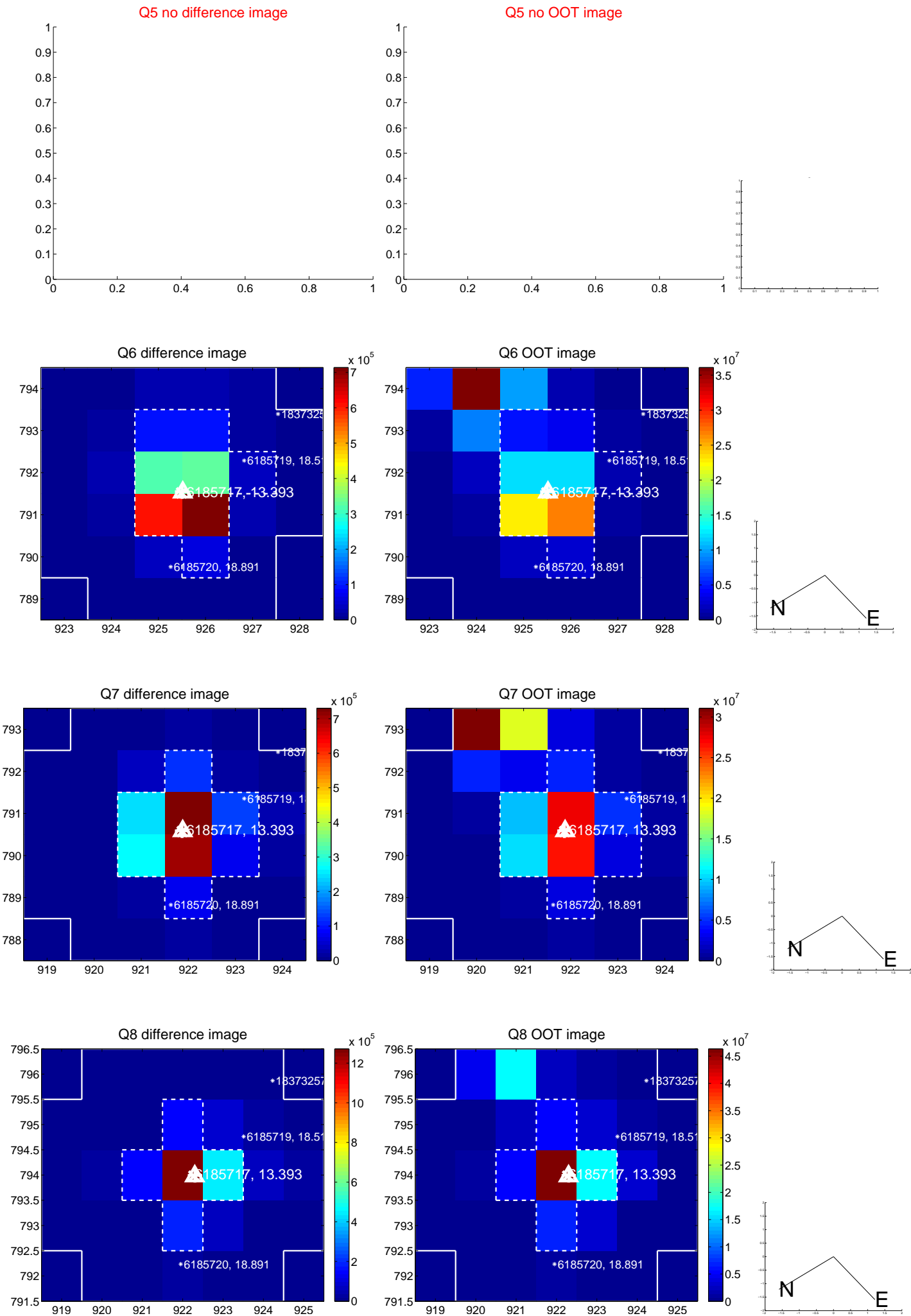


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

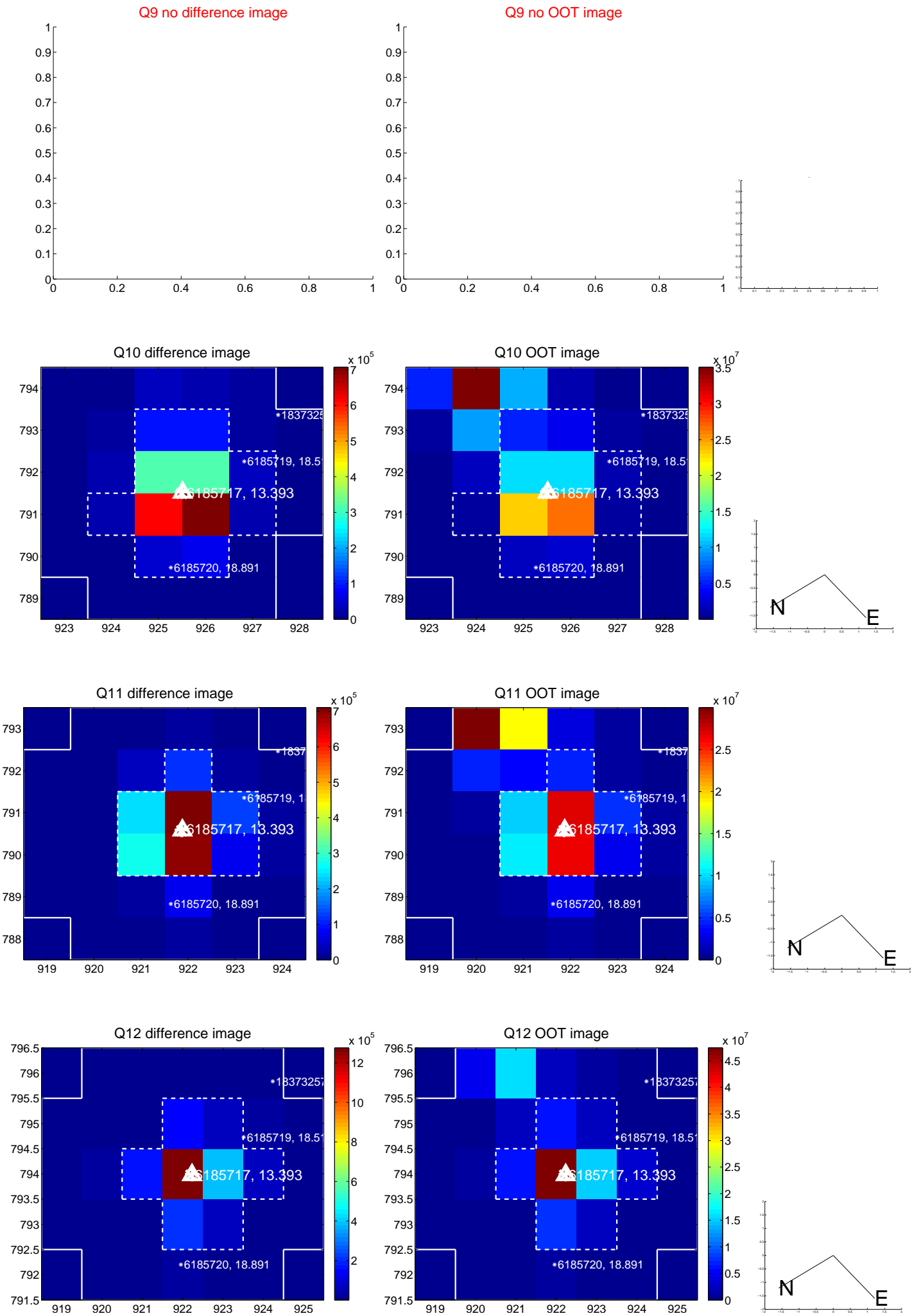


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

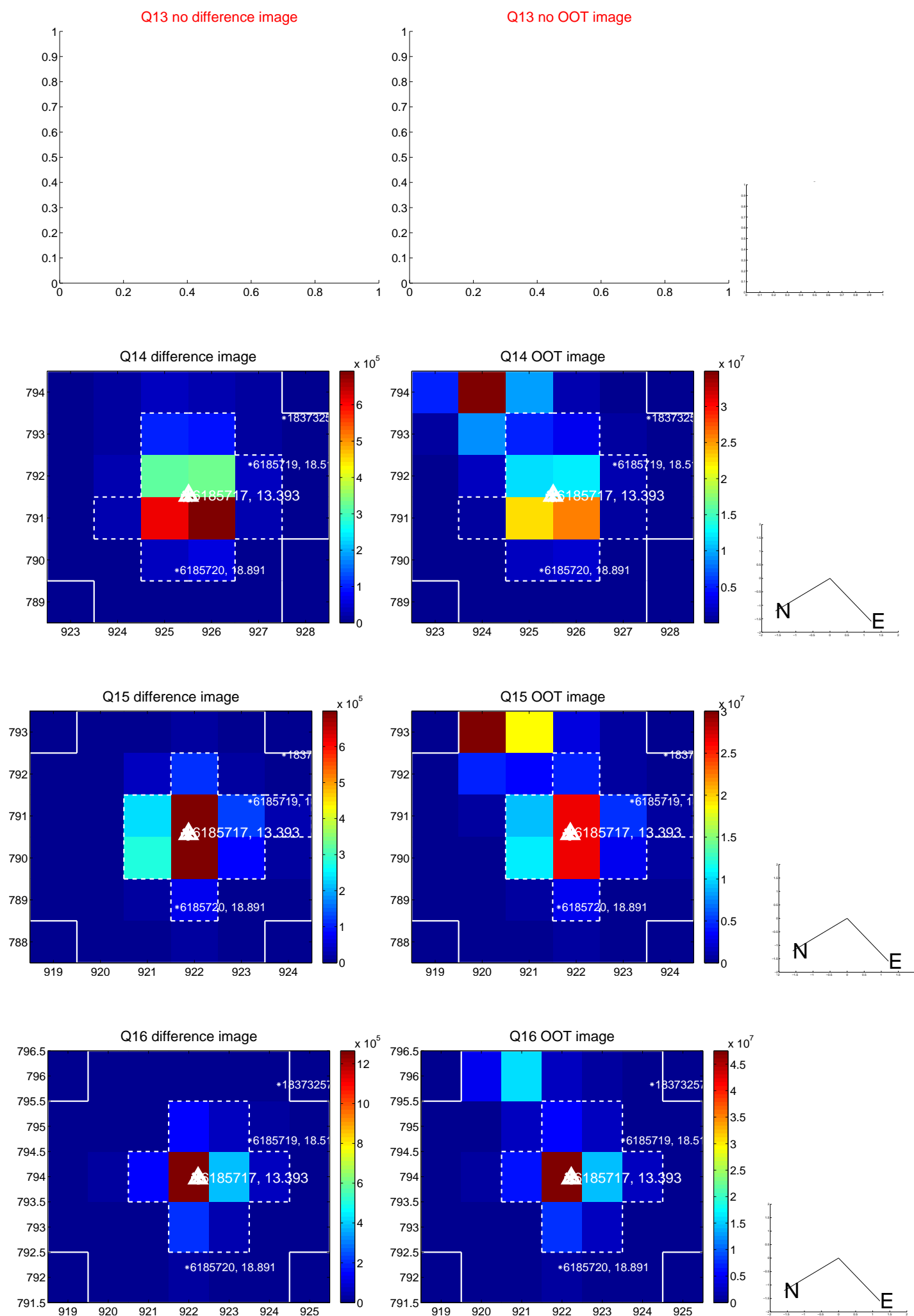




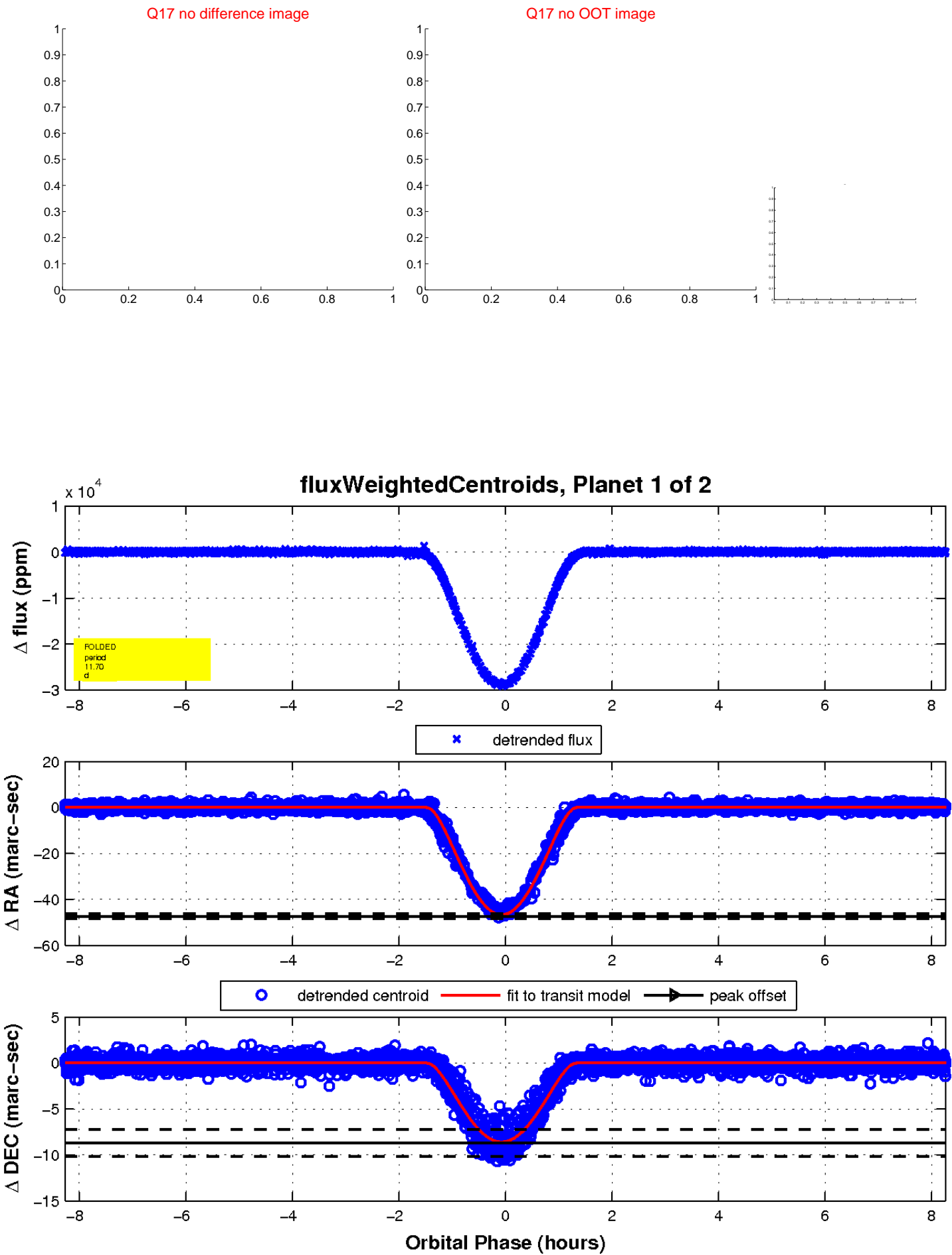
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

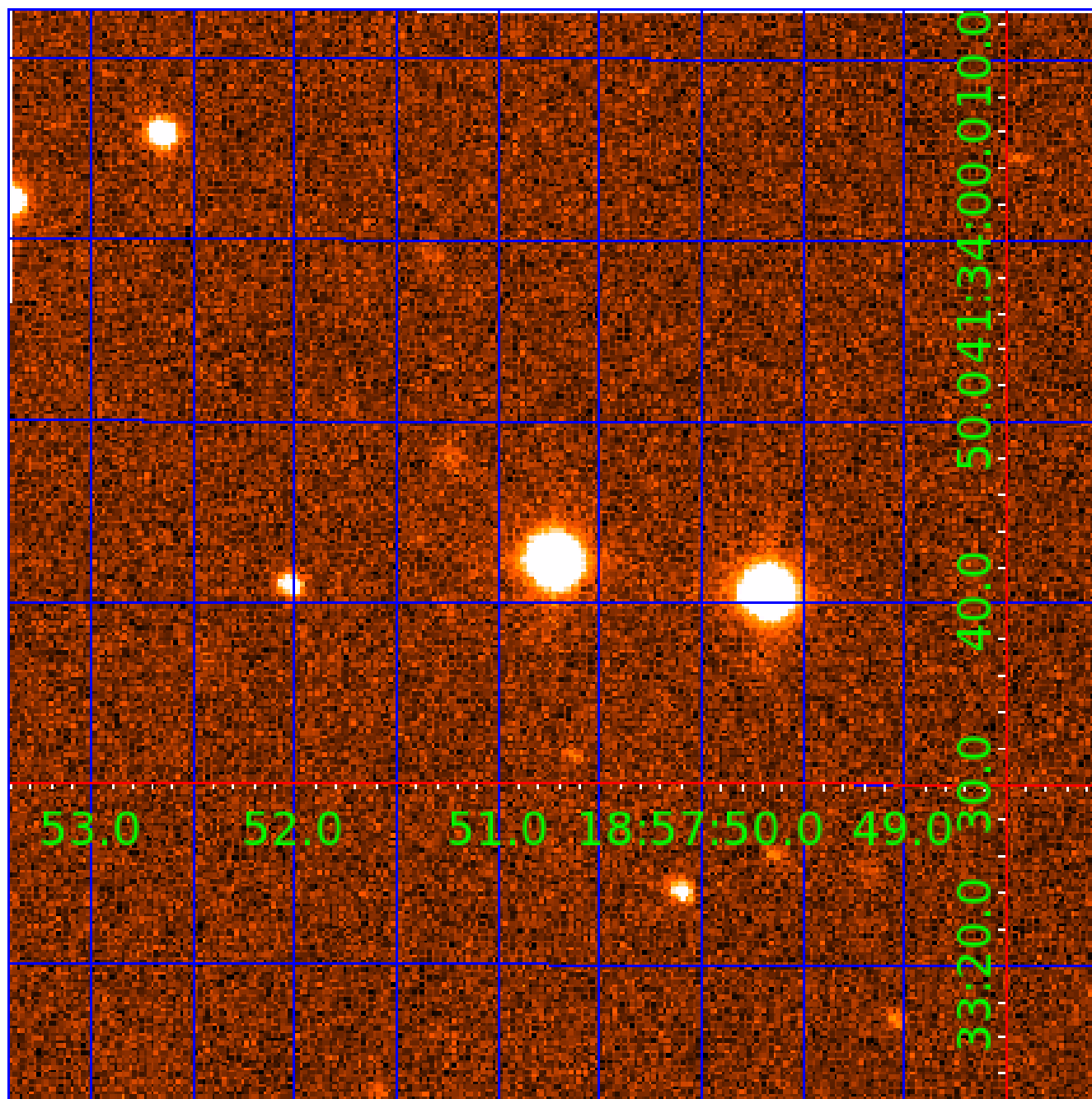


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006185717

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006185717-01	OBS	6671.01	11.702204	139.431271	28826.6	2.757	2583.0	2342.4	2.13	6148	56.93	560.79
006185717-02	OBS	No	11.702210	133.987821	1058.4	2.156	93.2	90.0	2.13	6148	11.61	560.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006185717-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006185717-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

**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 006185717-02

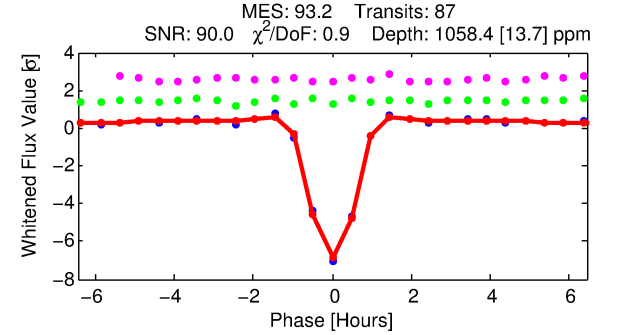
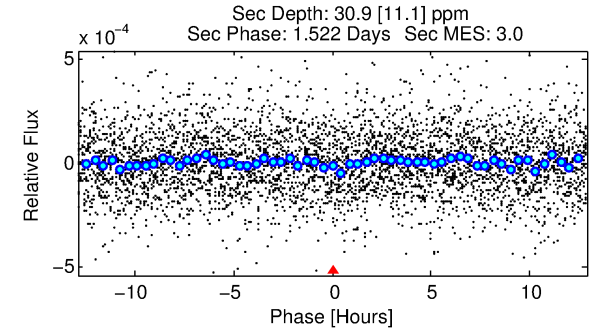
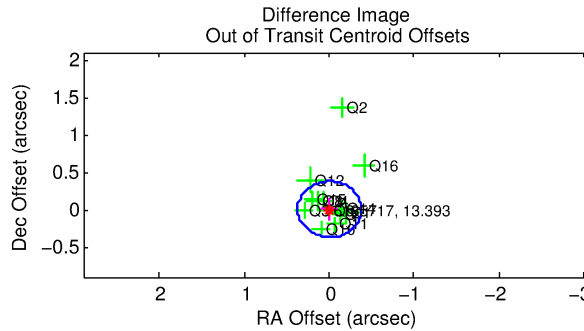
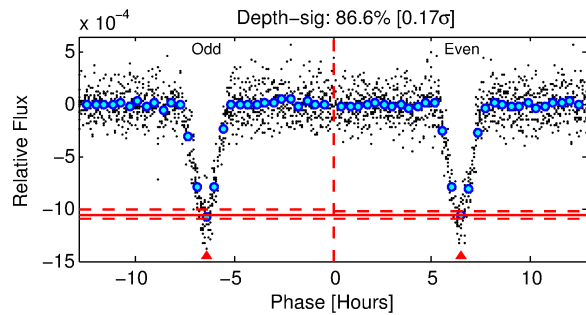
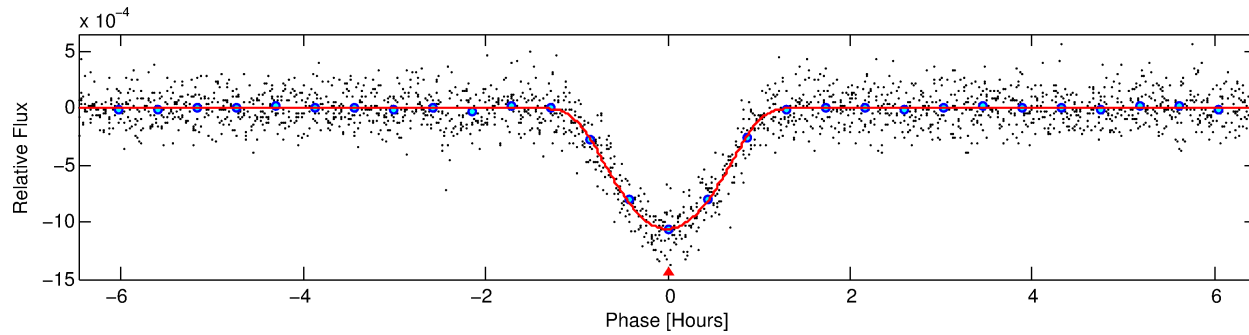
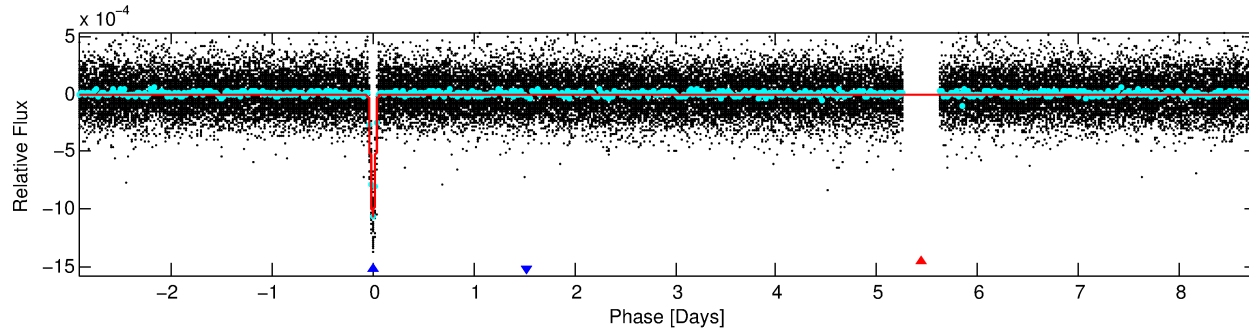
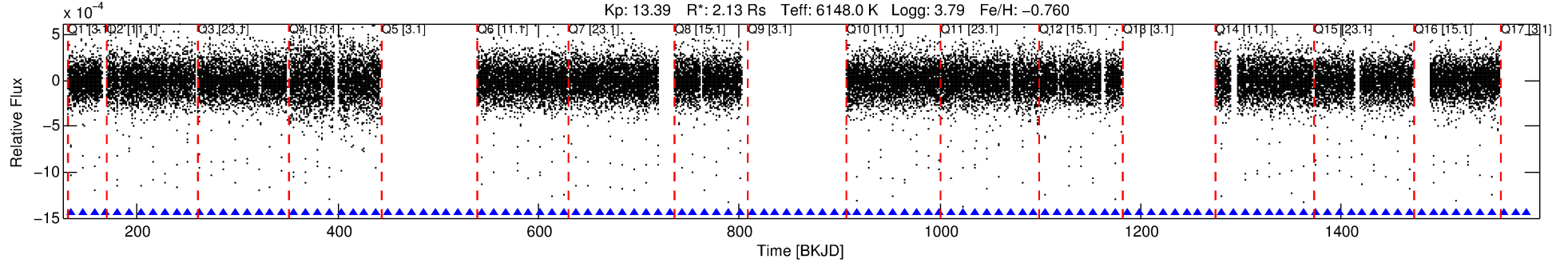
No Significant Match Found

# DV One-Page Summary

KIC: 6185717 Candidate: 2 of 2 Period: 11.702 d

KOI: K06671 Corr: No Ephemeris Match

Kp: 13.39 R\*: 2.13 Rs Teff: 6148.0 K Logg: 3.79 Fe/H: -0.760



## DV Fit Results:

Period = 11.70221 [0.00001] d  
Epoch = 133.9878 [0.0006] BKJD  
Rp/R\* = 0.0499 [0.0182]  
a/R\* = 14.66 [1.62]  
b = 0.99 [0.03]  
Seff = 560.79 [302.49]  
Teq = 1241 [167] K  
Rp = 11.61 [5.82] Re  
a = 0.1019 [0.0336] AU  
Ag = 1.31 [1.26] [0.24σ]  
Teffp = 2051 [421] K [1.79σ]

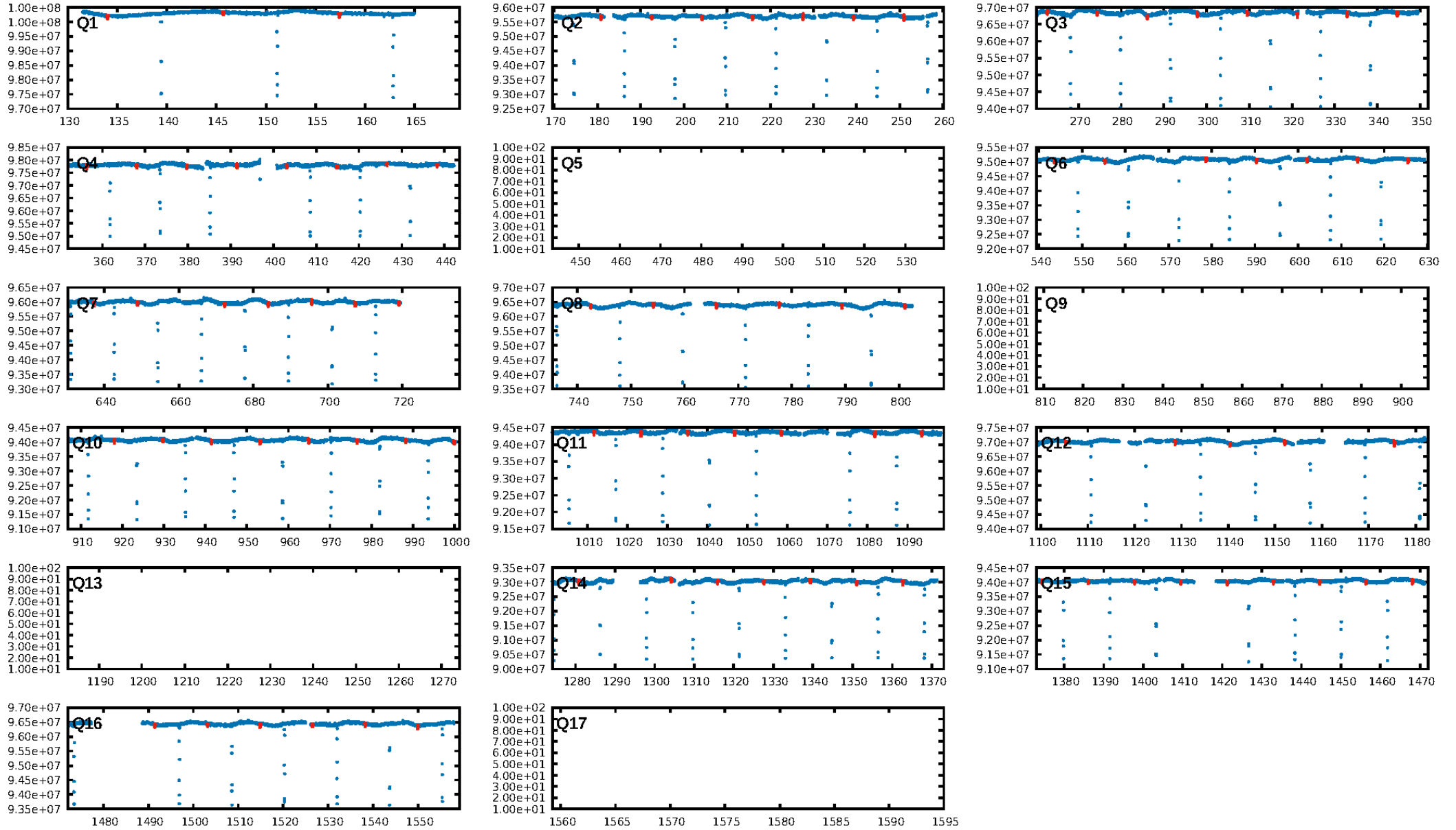
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [84/84]  
GhostDiagnostic-chr: 8.422  
Centroid-sig: 0.0%  
Centroid-so: 0.878 arcsec [5.69σ]  
OotOffset-rm: 0.004 arcsec [0.03σ]  
KicOffset-rm: 0.087 arcsec [0.77σ]  
OotOffset-st: 4/4/4/1 [13]  
KicOffset-st: 4/4/4/1 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

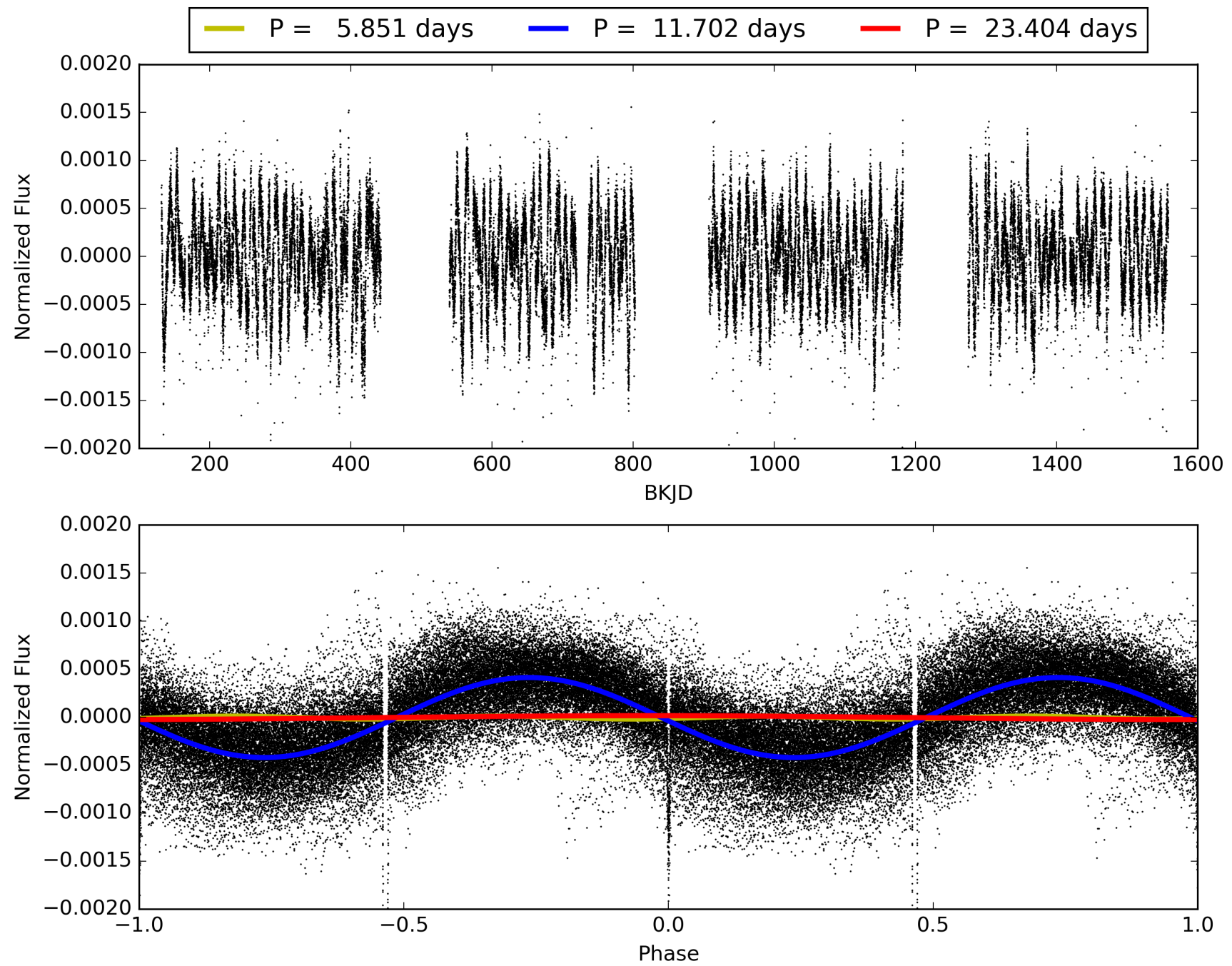
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:58:52 Z

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

# TCE 006185717-02, PDC Light Curves



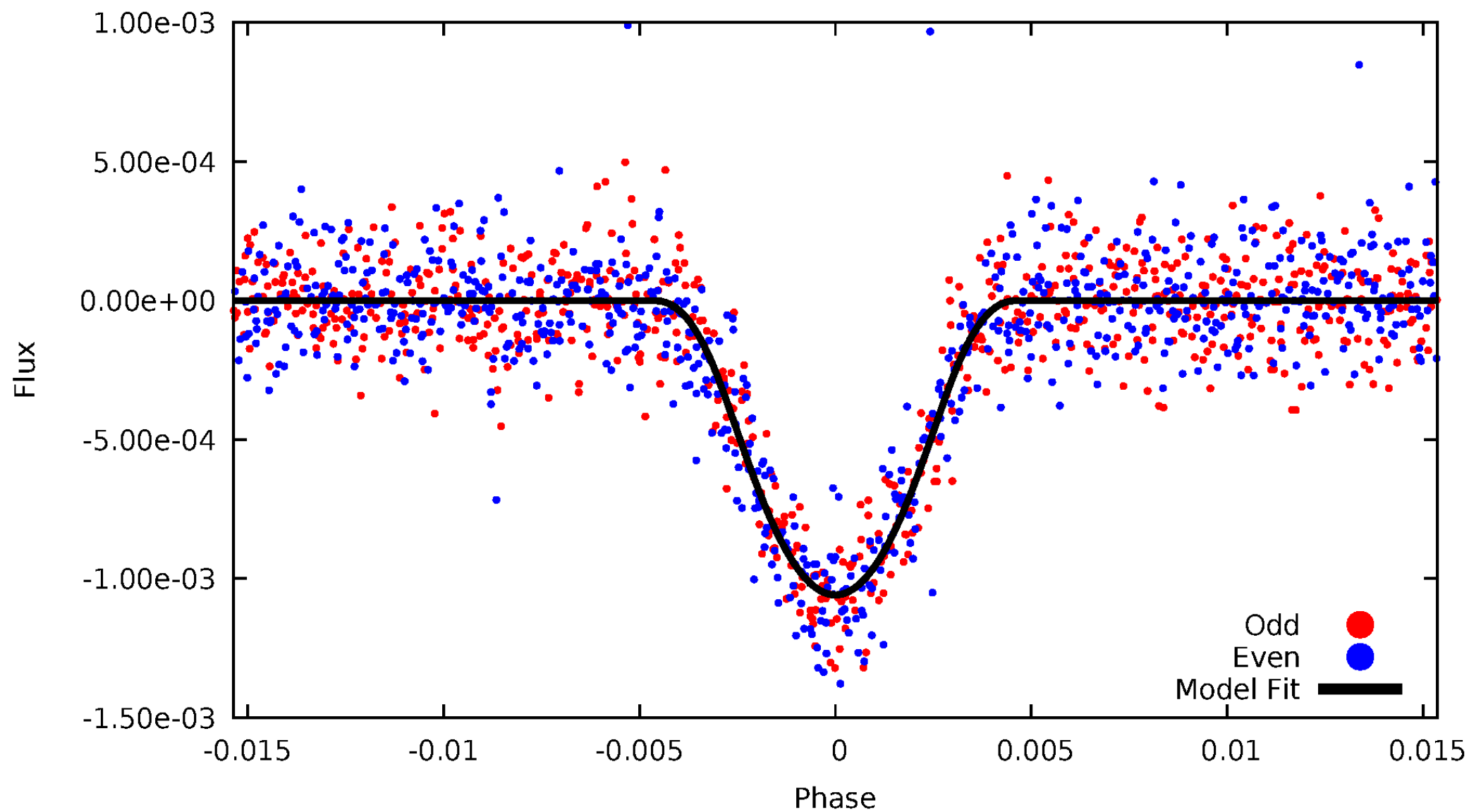
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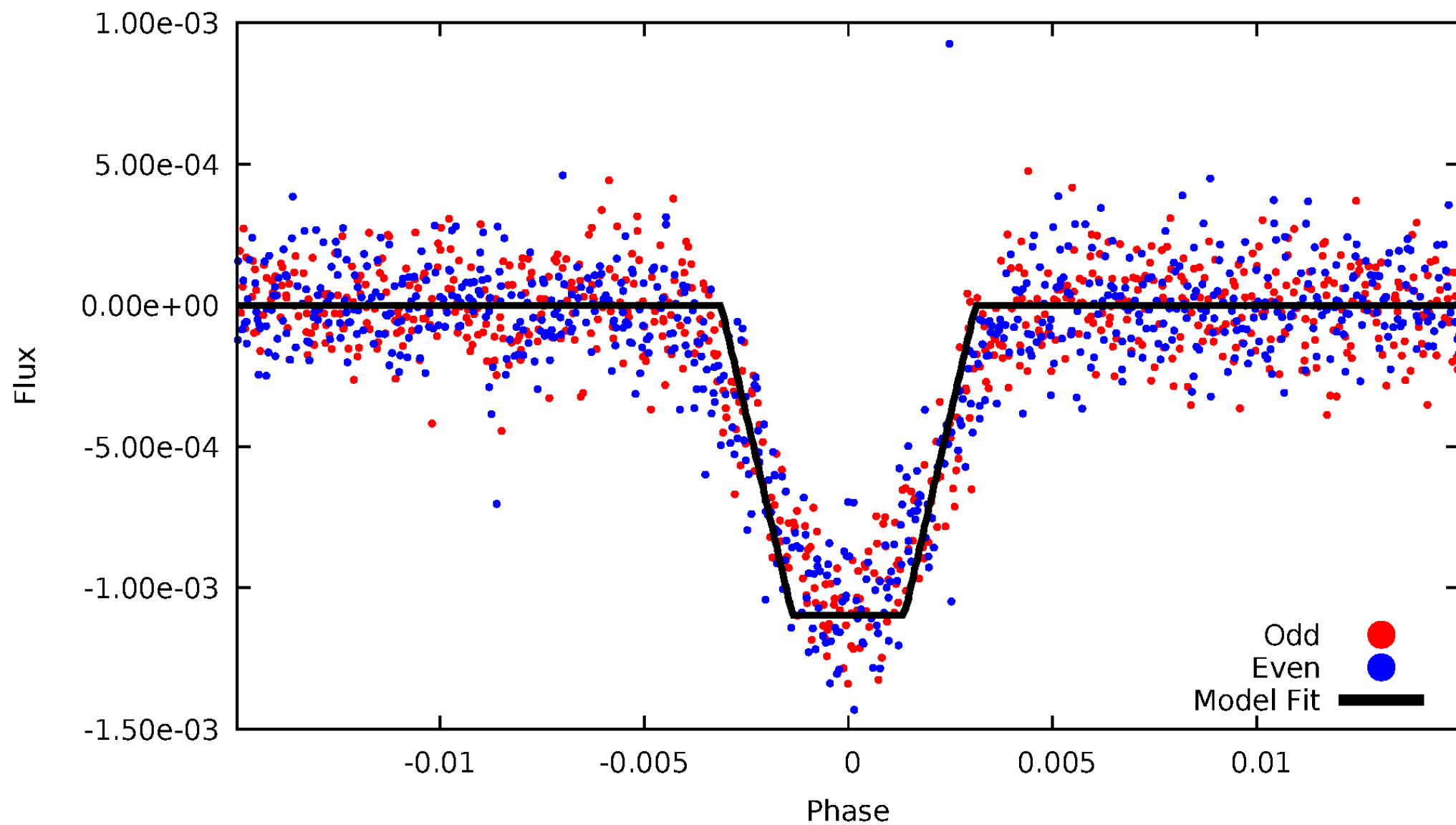
# DV Odd/Even

TCE 006185717-02



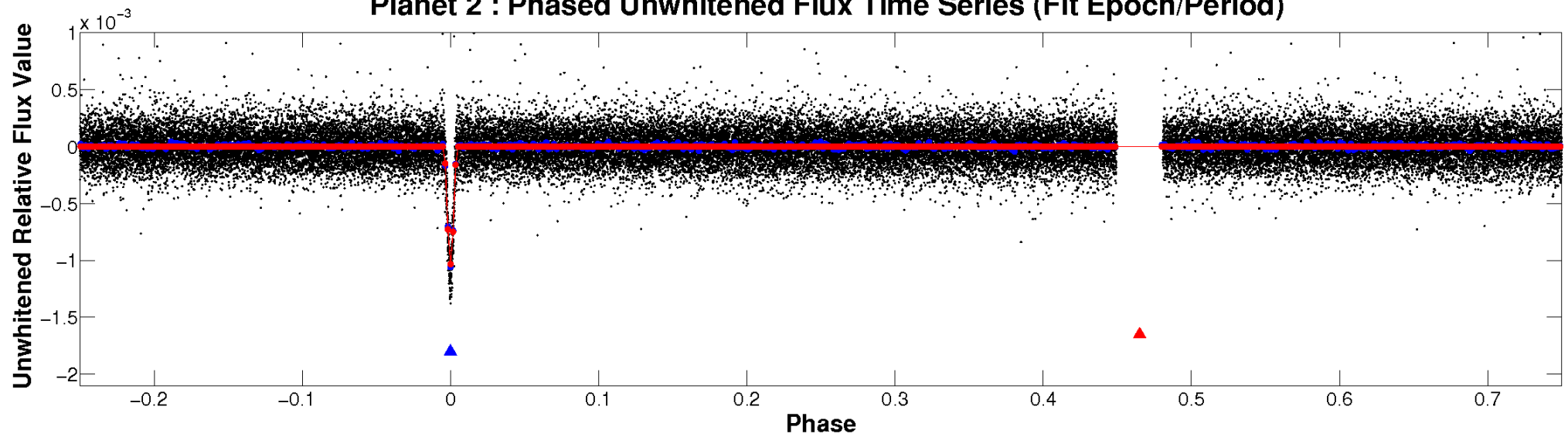
# ALT Odd/Even

TCE 006185717-02

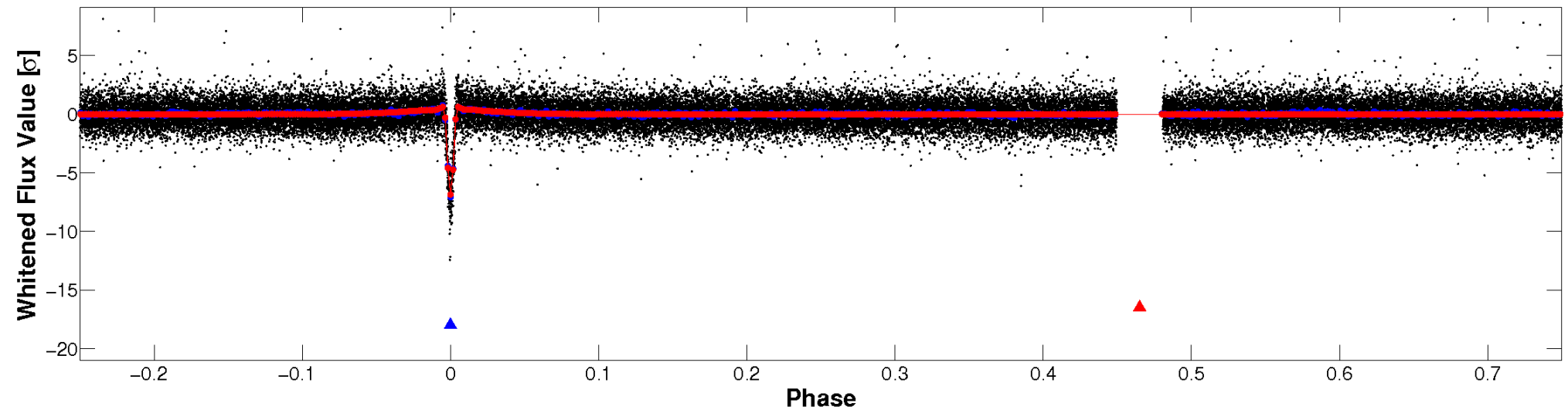


# Non-Whitened Vs. Whitened Light Curve

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

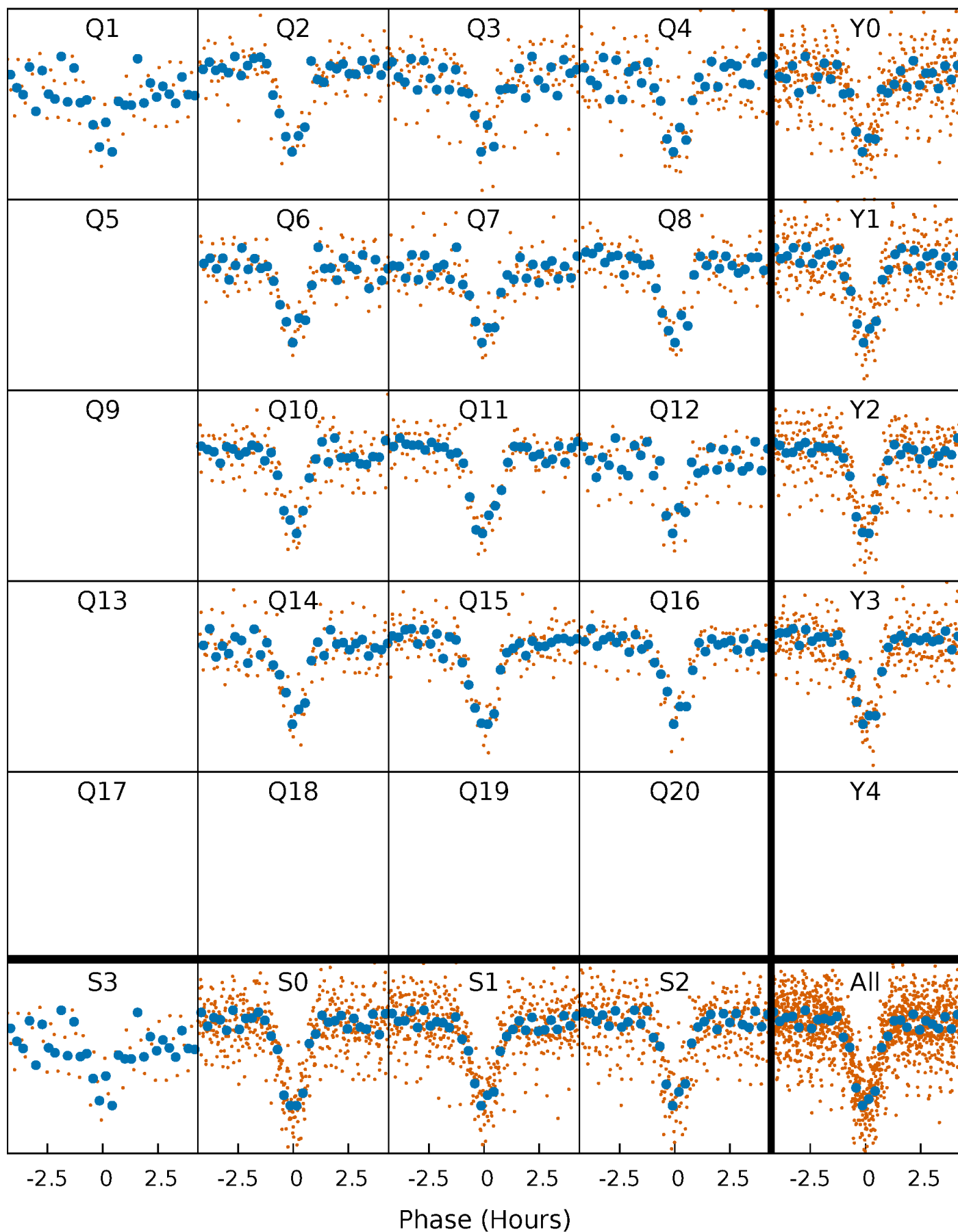


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



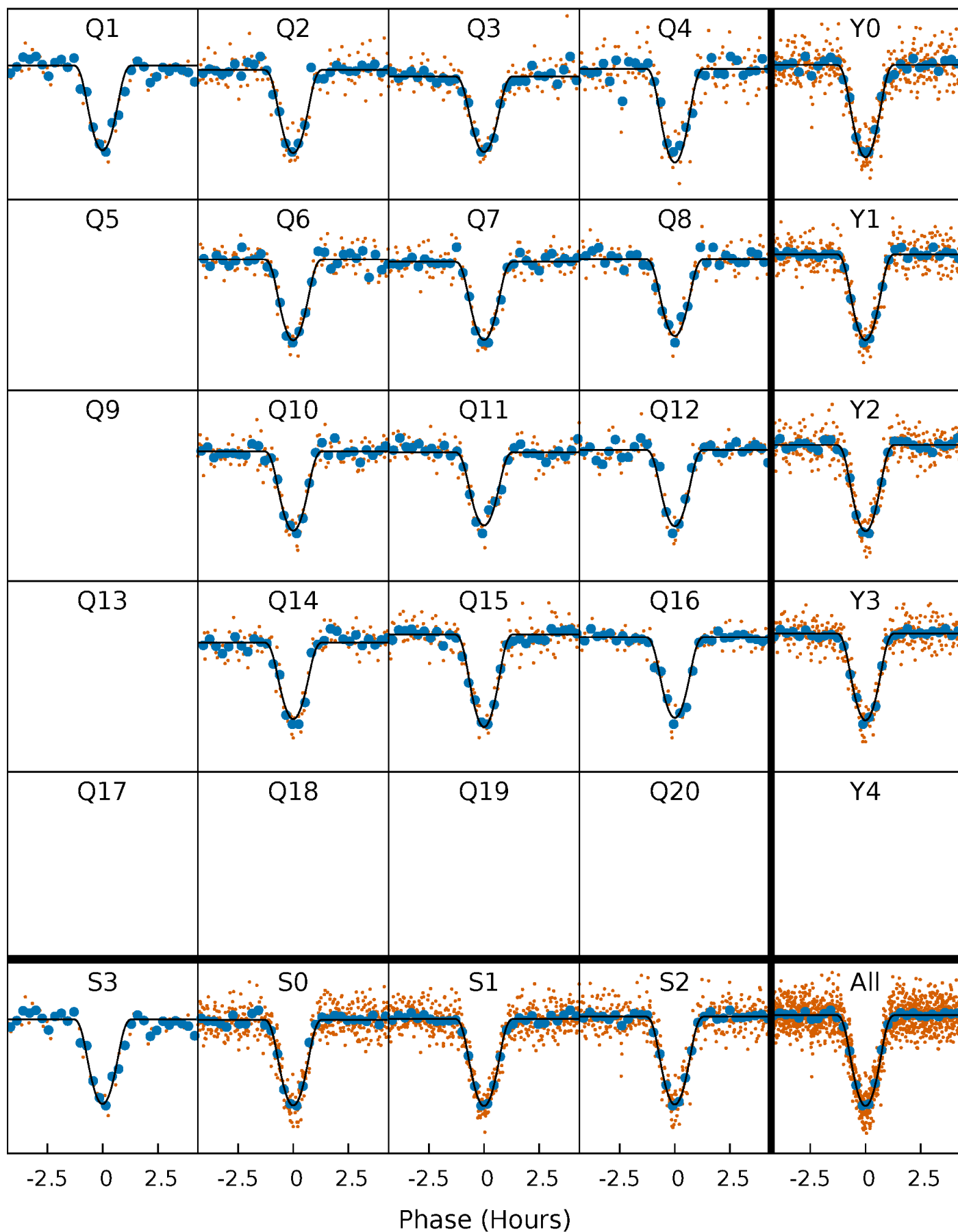
# PDC Quarter-Phased Transit Curves

TCE 006185717-02 P= 11.702210 Days  $T_0=133.987821$  (BKJD)



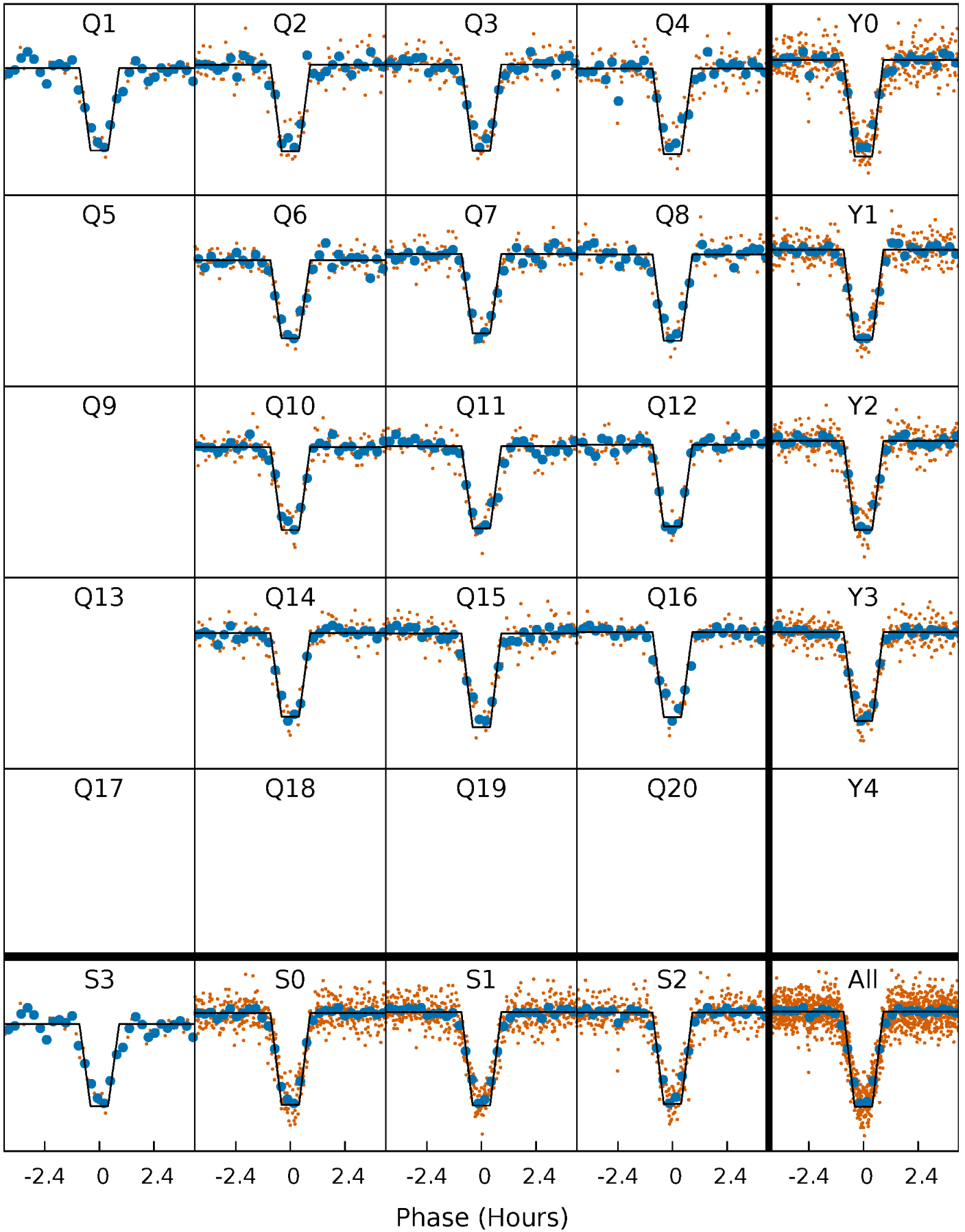
# DV Quarter-Phased Transit Curves

TCE 006185717-02   P= 11.702210 Days    $T_0=133.987821$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

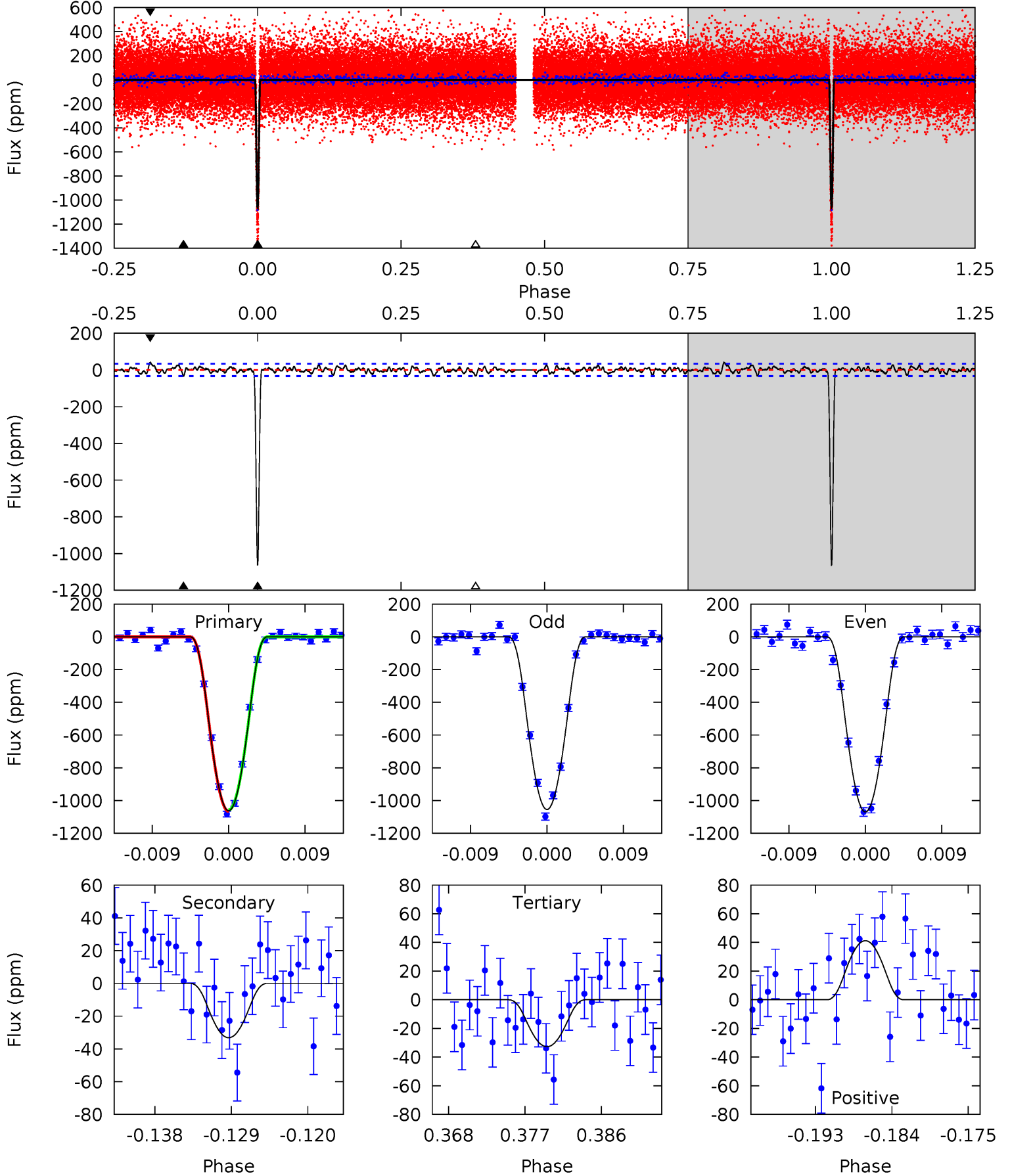
TCE 006185717-02 P= 11.702217 Days  $T_0=133.987136$  (BKJD)



# DV Model-Shift Uniqueness Test

006185717-02, P = 11.702210 Days, E = 122.285611 Days

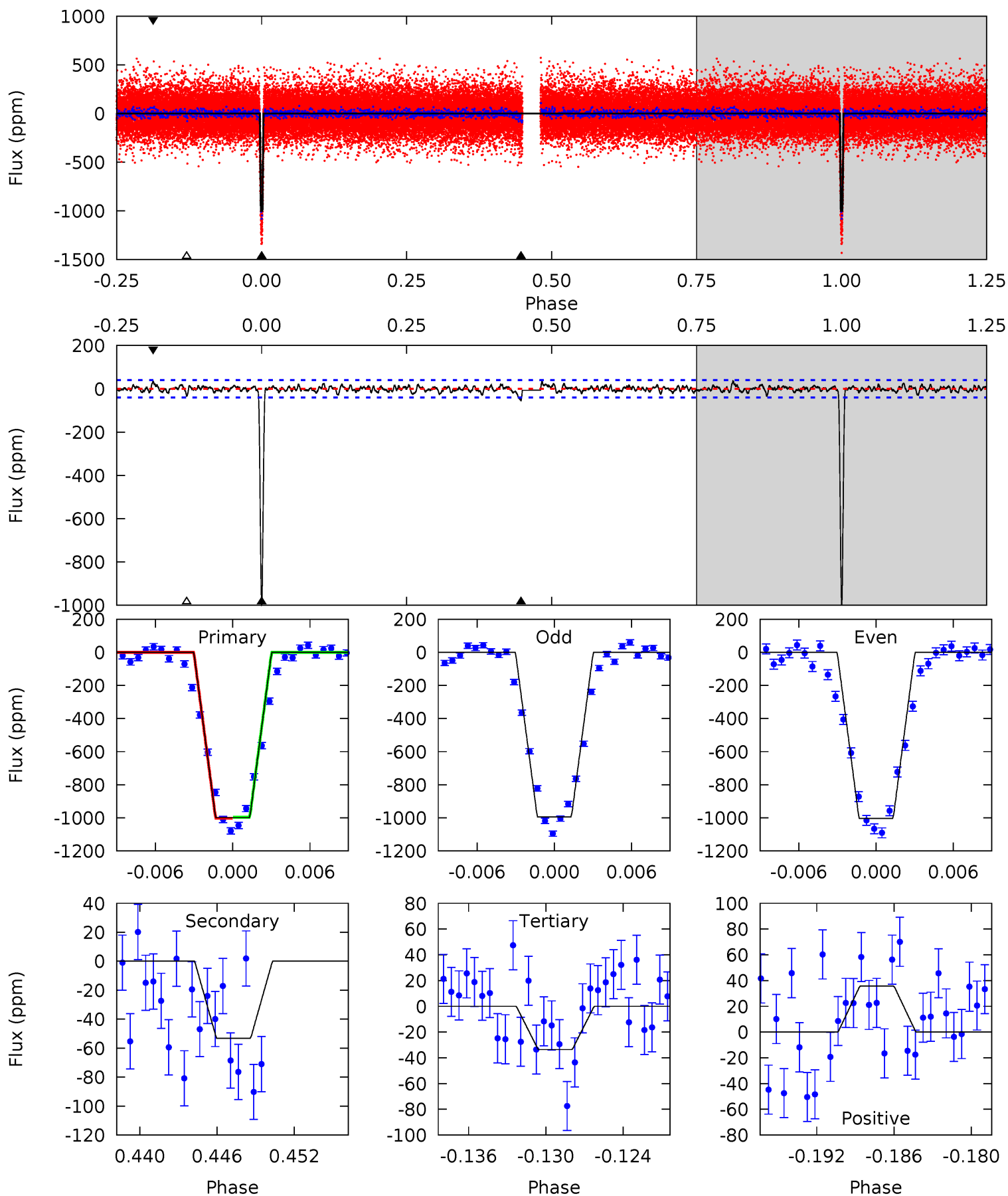
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
157.7	4.93	4.86	6.12	5.04	2.60	1.66	152.9	151.6	0.06	-1.19	1.12	1.00	0.04	0.68



# Alt Model-Shift Uniqueness Test

006185717-02, P = 11.702217 Days, E = 122.284919 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
126.3	6.73	4.24	4.51	5.12	2.74	1.27	122.1	121.8	2.49	2.22	0.61	1.00	0.03	0.33





### Stellar Parameters For KIC 006185717

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6148^{+186}_{-149}$	$3.793^{+0.308}_{-0.132}$	$-0.760^{+0.350}_{-0.250}$	$2.133^{+0.429}_{-0.735}$	$1.030^{+0.162}_{-0.178}$	$0.149^{+0.342}_{-0.056}$
	+3%/-2%	+8%/-3%	+46%/-33%	+20%/-34%	+16%/-17%	+229%/-37%
Source	PHO1	FLK73	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 006185717-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-33 \pm 7$	$11.23^{+4.84}_{-4.28}$	$1721^{+114}_{-156}$	$2731^{+413}_{-320}$	$1.482^{+2.395}_{-0.788}$
Alt.	$-53 \pm 8$	$7.38^{+4.63}_{-3.85}$	$1719^{+116}_{-152}$	$3374^{+968}_{-450}$	$5.662^{+18.663}_{-3.517}$

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

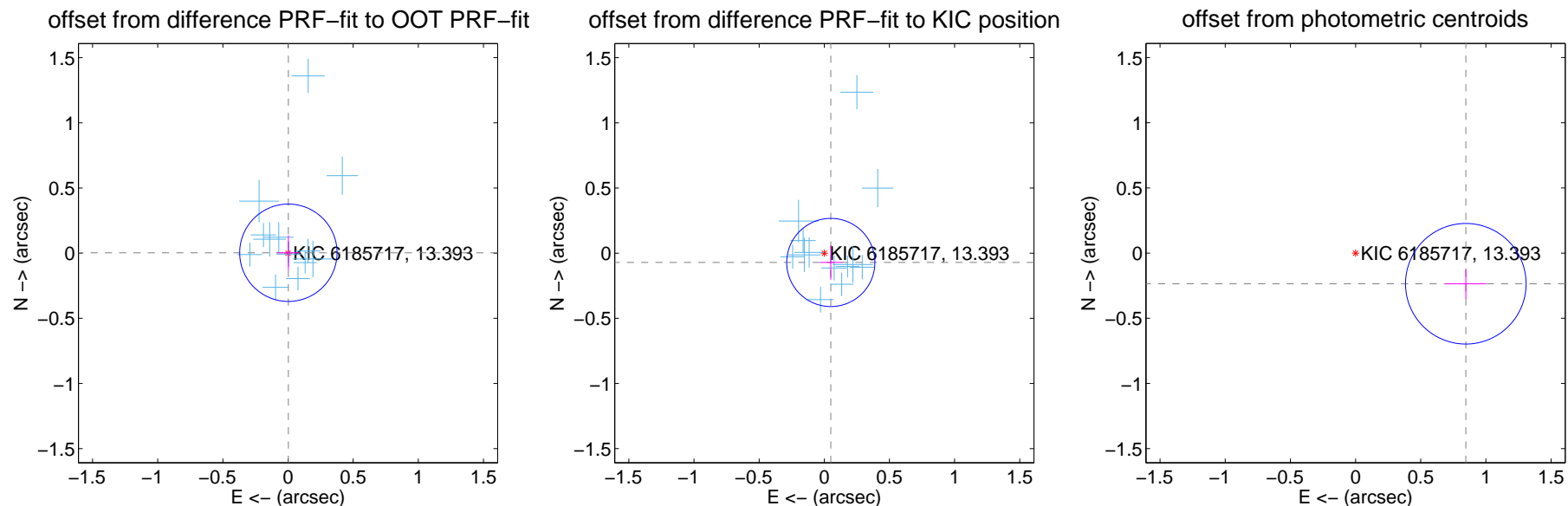
## DV Centroid Data

Supplemental centroid analysis for 006185717-02. Kepler magnitude: 13.39. Transit SNR 89.99

There are 13 quarters with good PRF difference image offsets

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

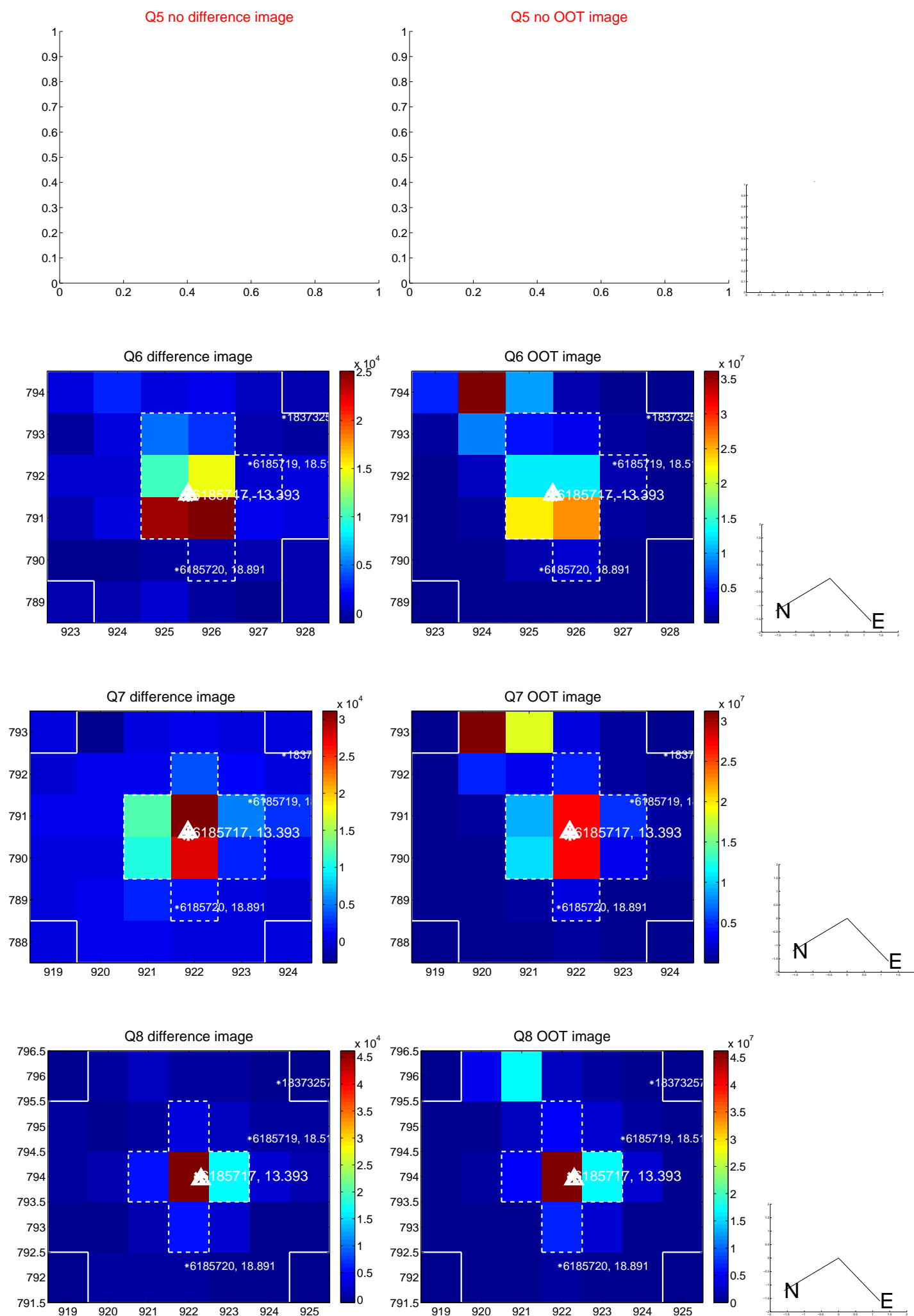
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.004 \pm 0.125$	0.03	$-0.003 \pm 0.087$	$0.003 \pm 0.133$
PRF-fit source offset from KIC position	$0.087 \pm 0.113$	0.77	$-0.050 \pm 0.084$	$-0.072 \pm 0.132$
photometric centroid source offset	$0.88 \pm 0.15$	5.69	$-0.85 \pm 0.16$	$-0.24 \pm 0.12$



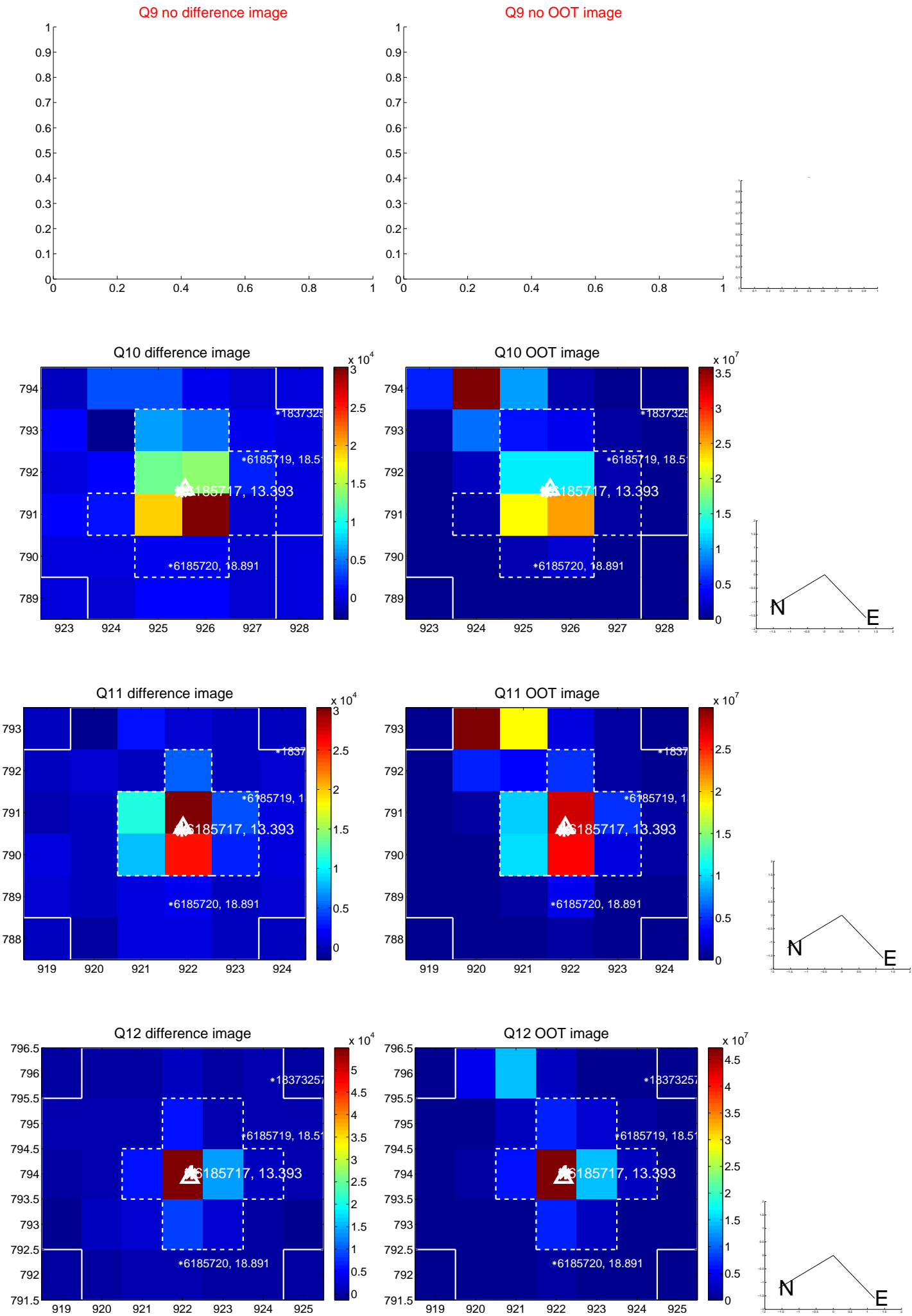
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



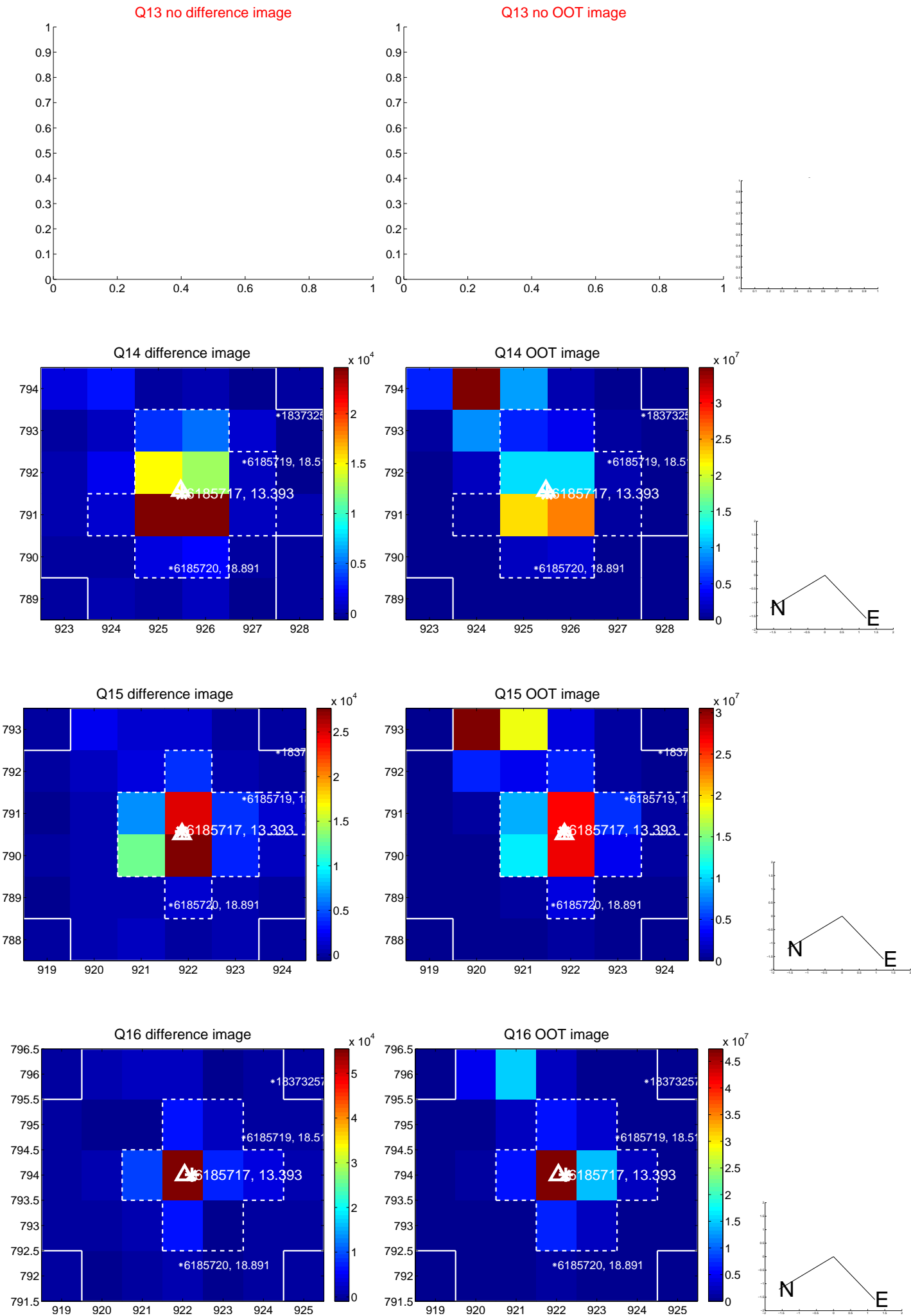
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



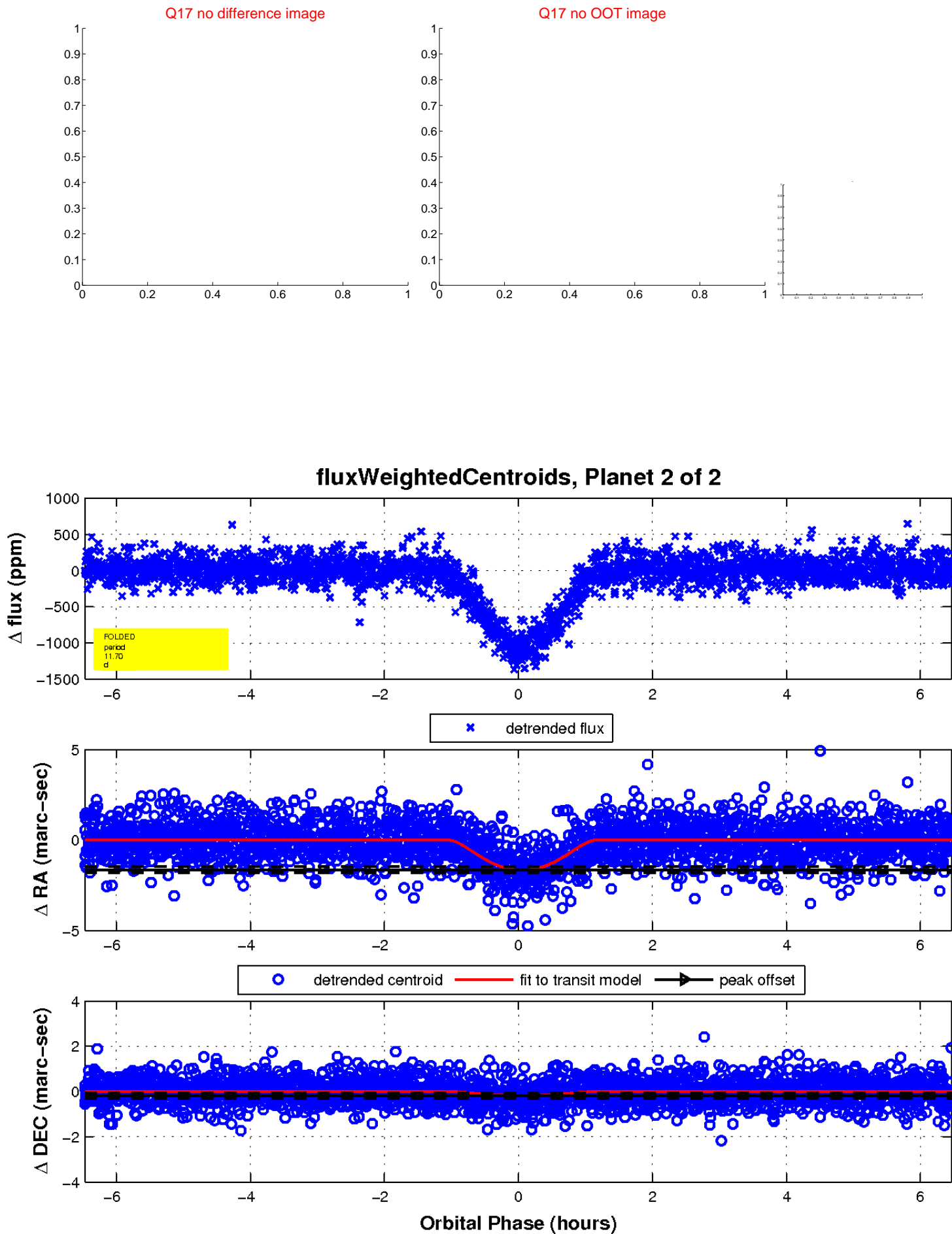
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

