

# KIC 008885014

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008885014-01	OBS	No	375.210596	140.299807	562.3	19.072	8.6	8.3	1.13	6353	3.21	1.63
008885014-02	OBS	No	376.467193	133.607580	579.7	12.854	8.6	8.3	1.13	6353	3.17	1.62
008885014-03	OBS	No	374.951612	133.813164	1507.5	80.925	16.9	20.8	1.13	6353	8.26	1.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008885014-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008885014-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008885014-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

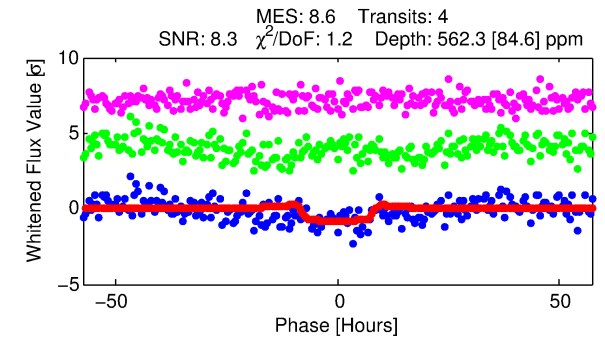
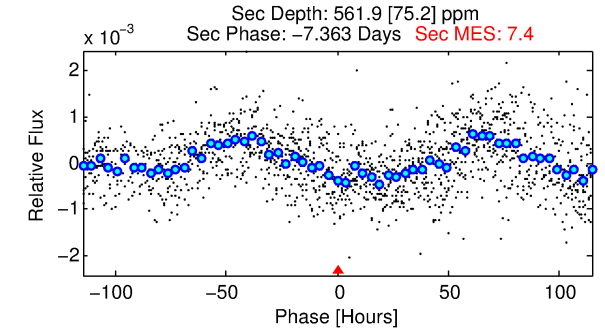
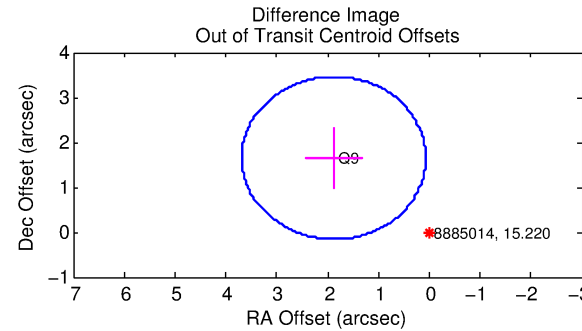
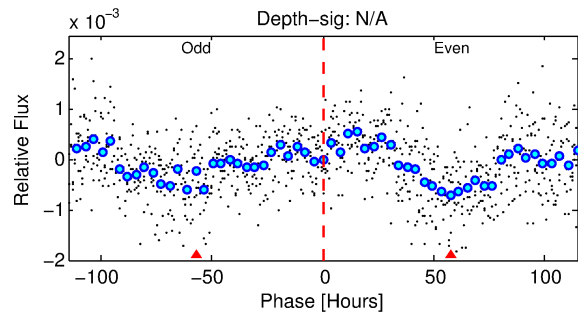
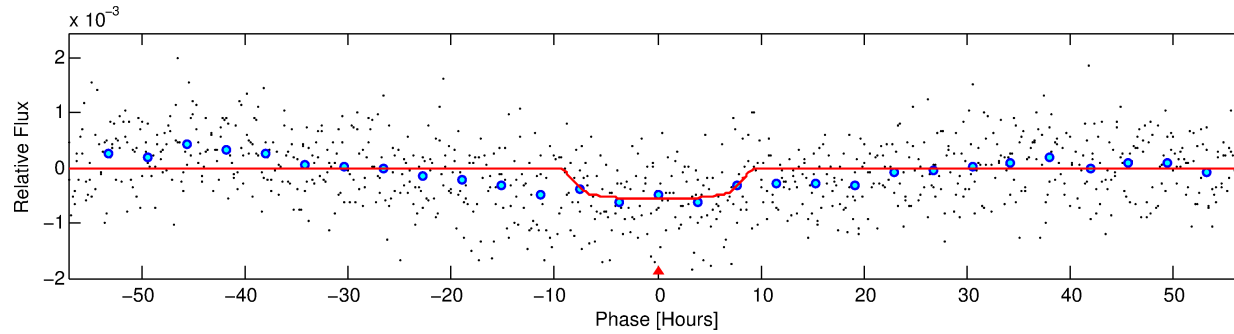
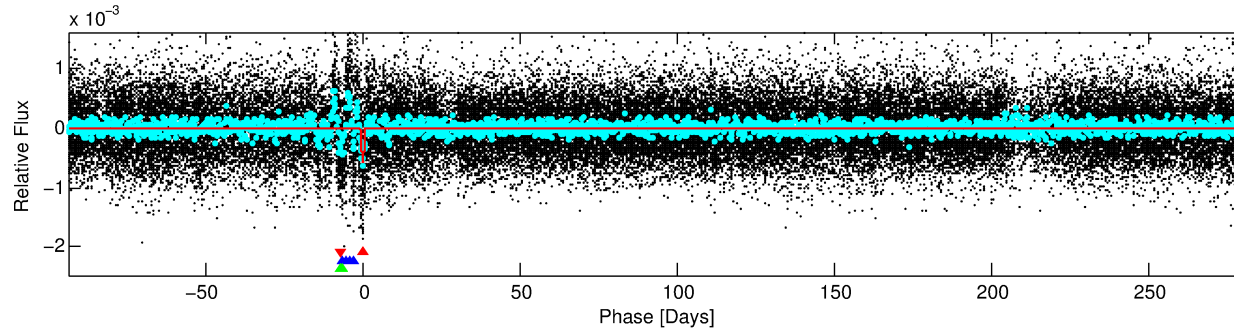
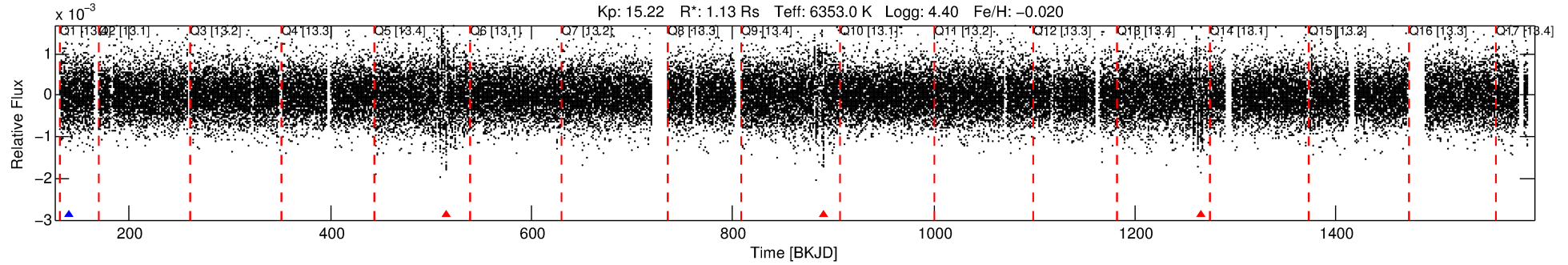
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008885014-01

No Significant Match Found

# DV One-Page Summary

KIC: 8885014 Candidate: 1 of 3 Period: 375.211 d



## DV Fit Results:

Period = 375.21060 [0.01902] d  
Epoch = 140.2998 [0.0367] BKJD  
Rp/R\* = 0.0259 [0.0031]  
a/R\* = 68.79 [30.11]  
b = 0.92 [0.08]  
Seff = 1.63 [0.68]  
Teq = 288 [30] K  
Rp = 3.21 [1.16] Re  
a = 1.0731 [0.3002] AU  
Ag = 34601.71 [16591.25] [2.09σ]  
Teff = 6076 [465] K [12.43σ]

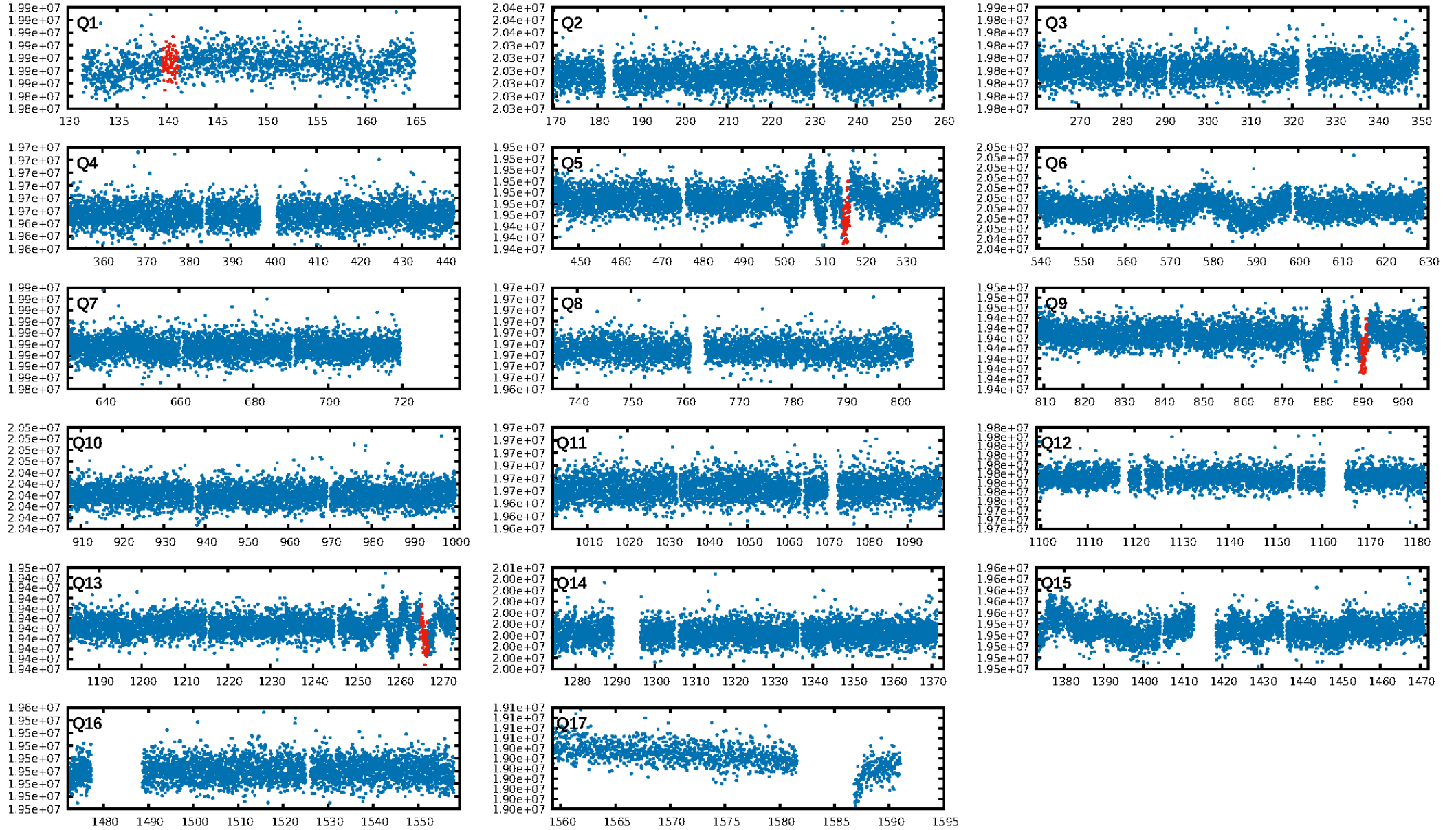
## DV Diagnostic Results:

ShortPeriod-sig: 6.0% [0.07σ]  
LongPeriod-sig: 81.0% [1.31σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 89.4%  
Bootstrap-pfa: 3.85e-18  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: -2.48  
Centroid-sig: 33.1%  
Centroid-so: 1.271 arcsec [0.92σ]  
OotOffset-rm: 2.497 arcsec [4.14σ]  
KicOffset-rm: 2.502 arcsec [4.18σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [4/4]

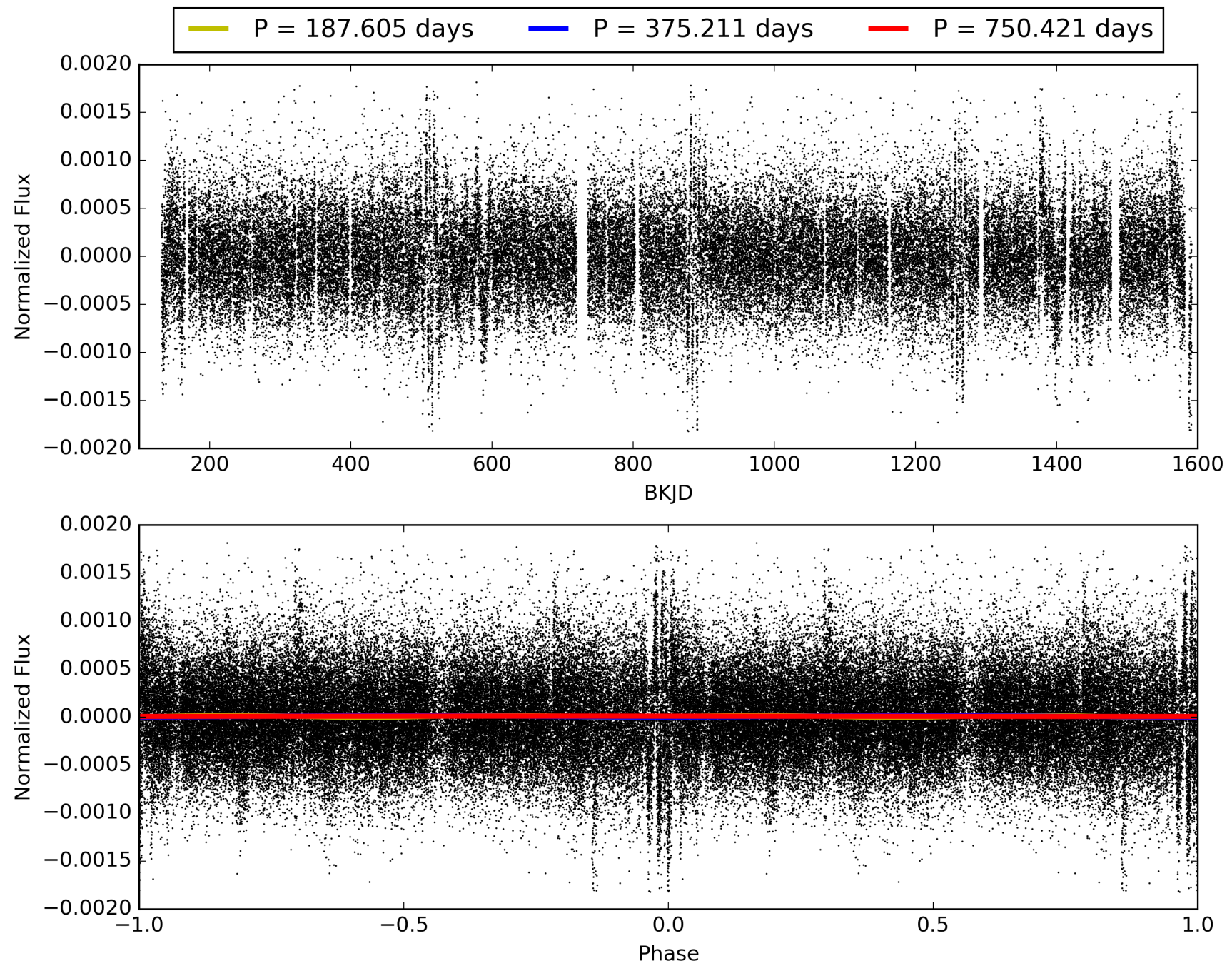
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:53:59 Z

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

# TCE 008885014-01, PDC Light Curves

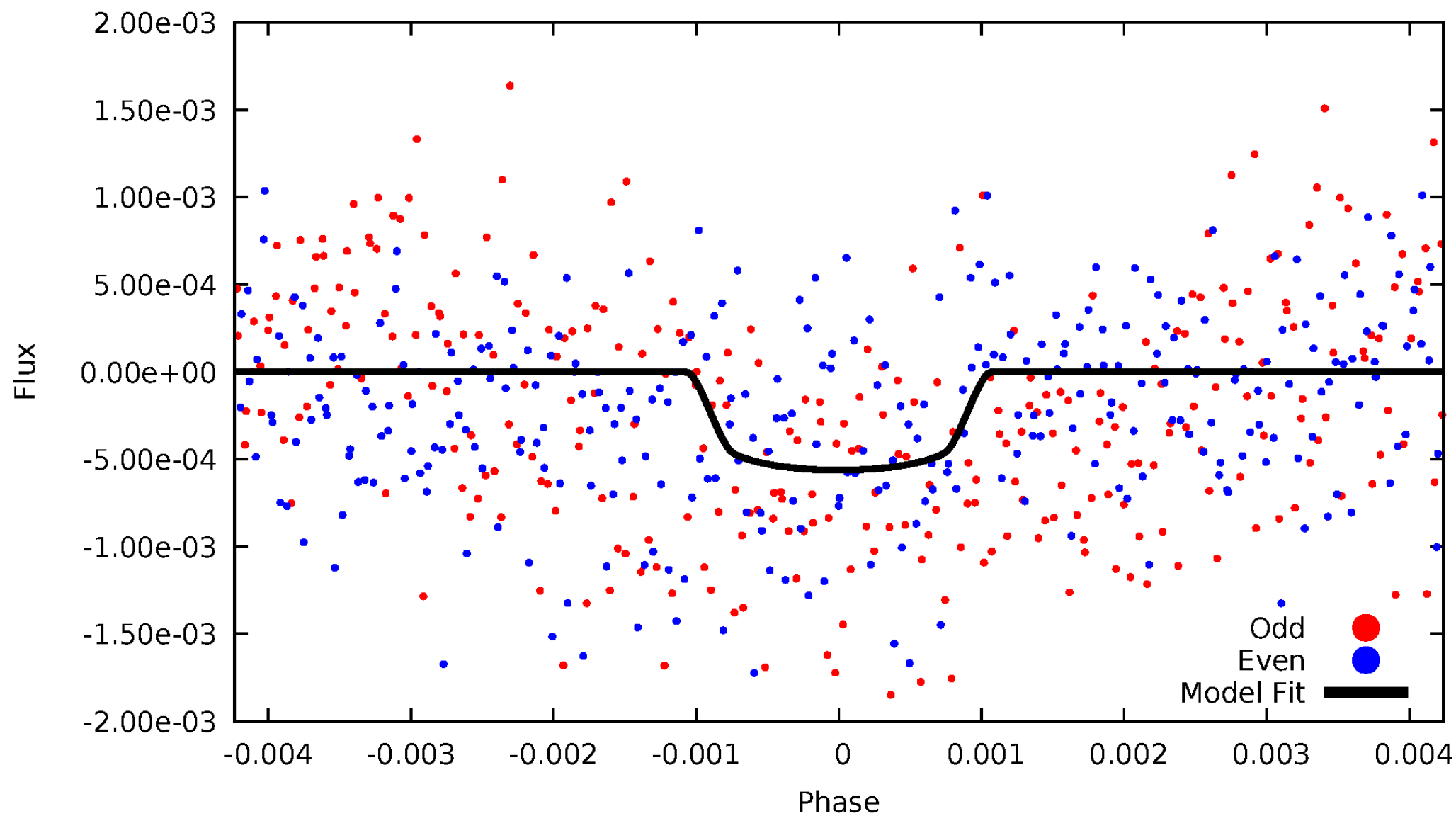


# TCE 008885014-01



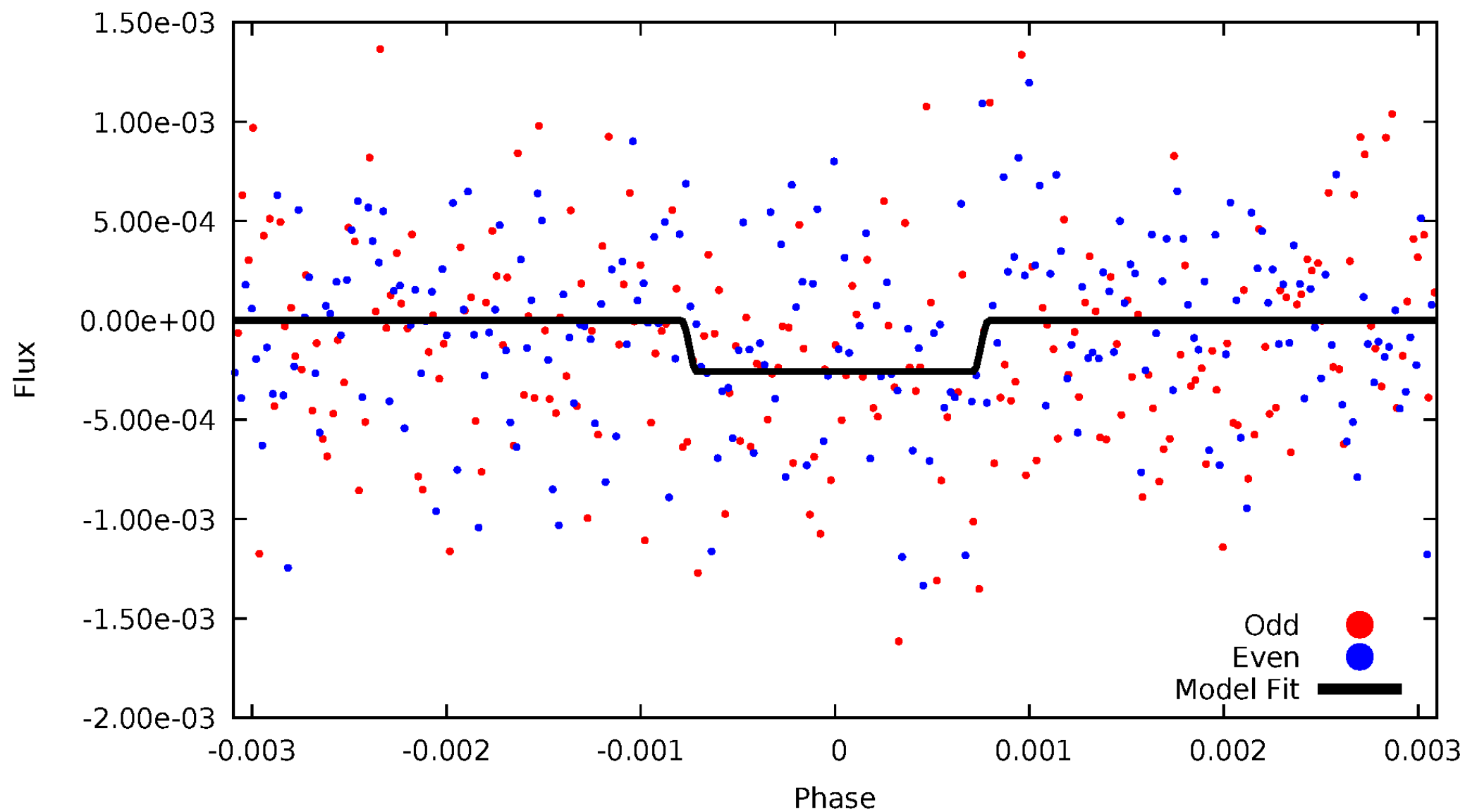
# DV Odd/Even

TCE 008885014-01



# ALT Odd/Even

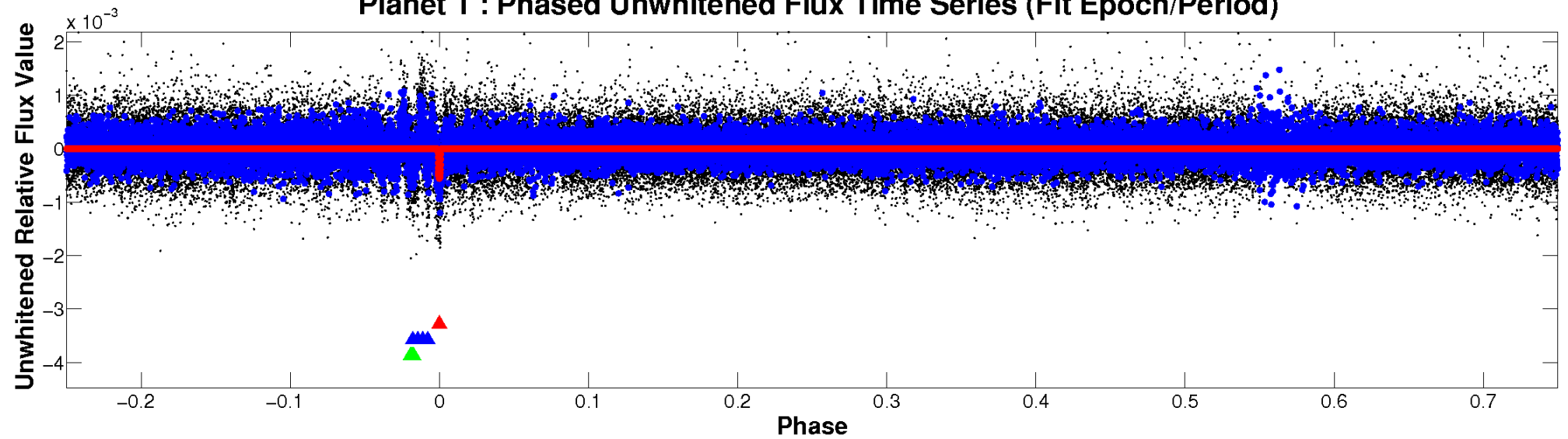
TCE 008885014-01



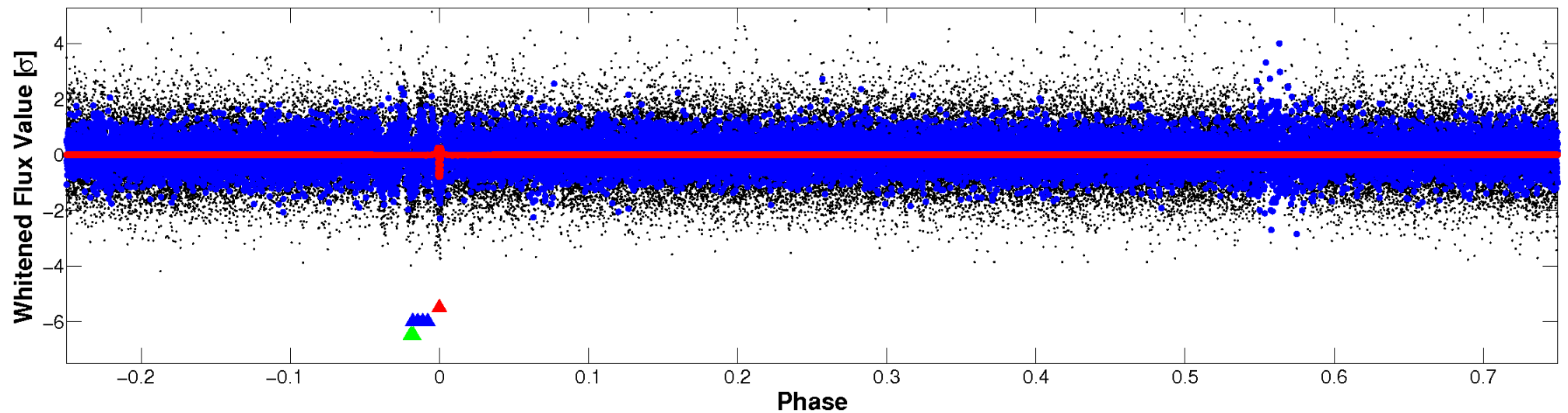


# Non-Whitened Vs. Whitened Light Curve

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

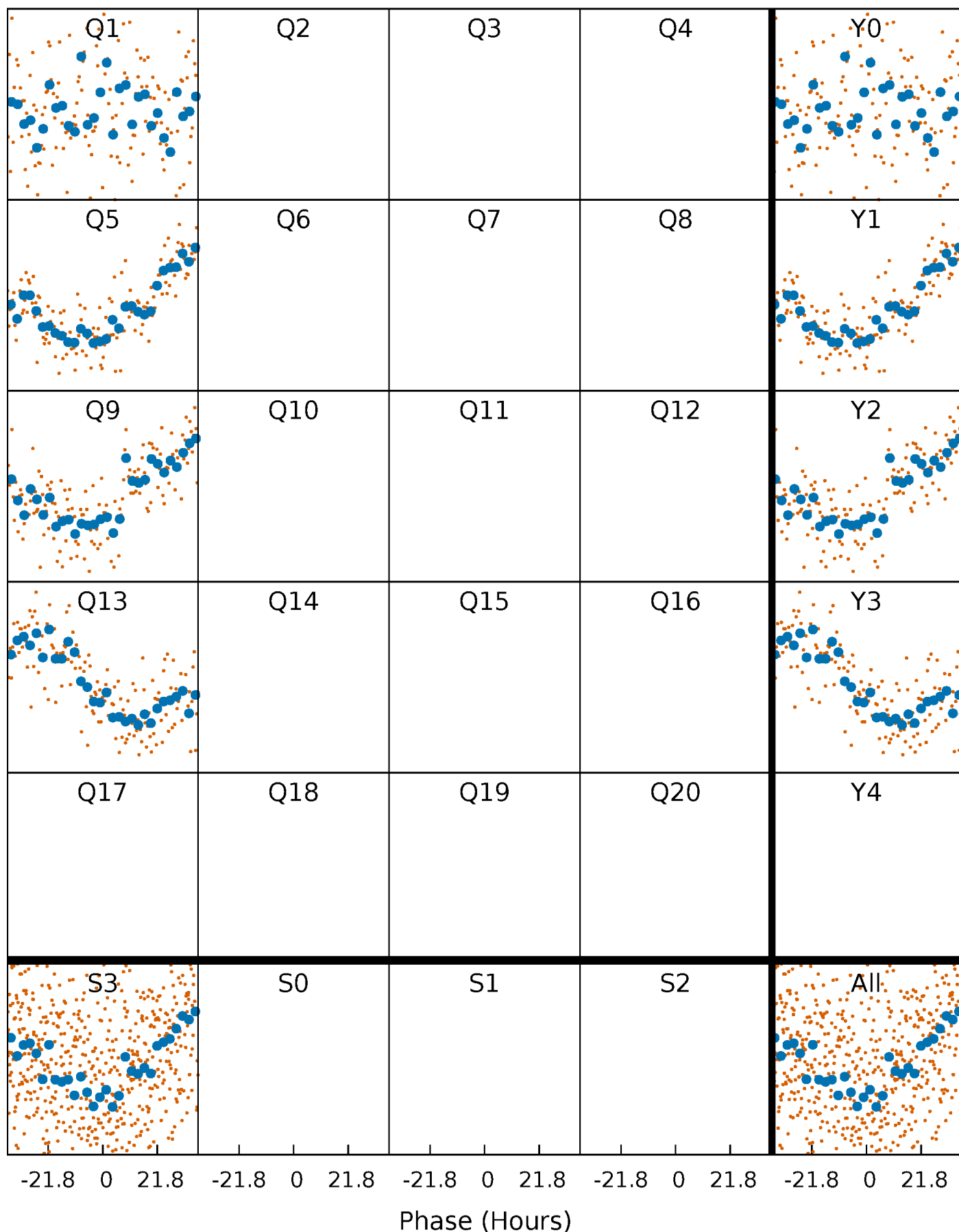


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

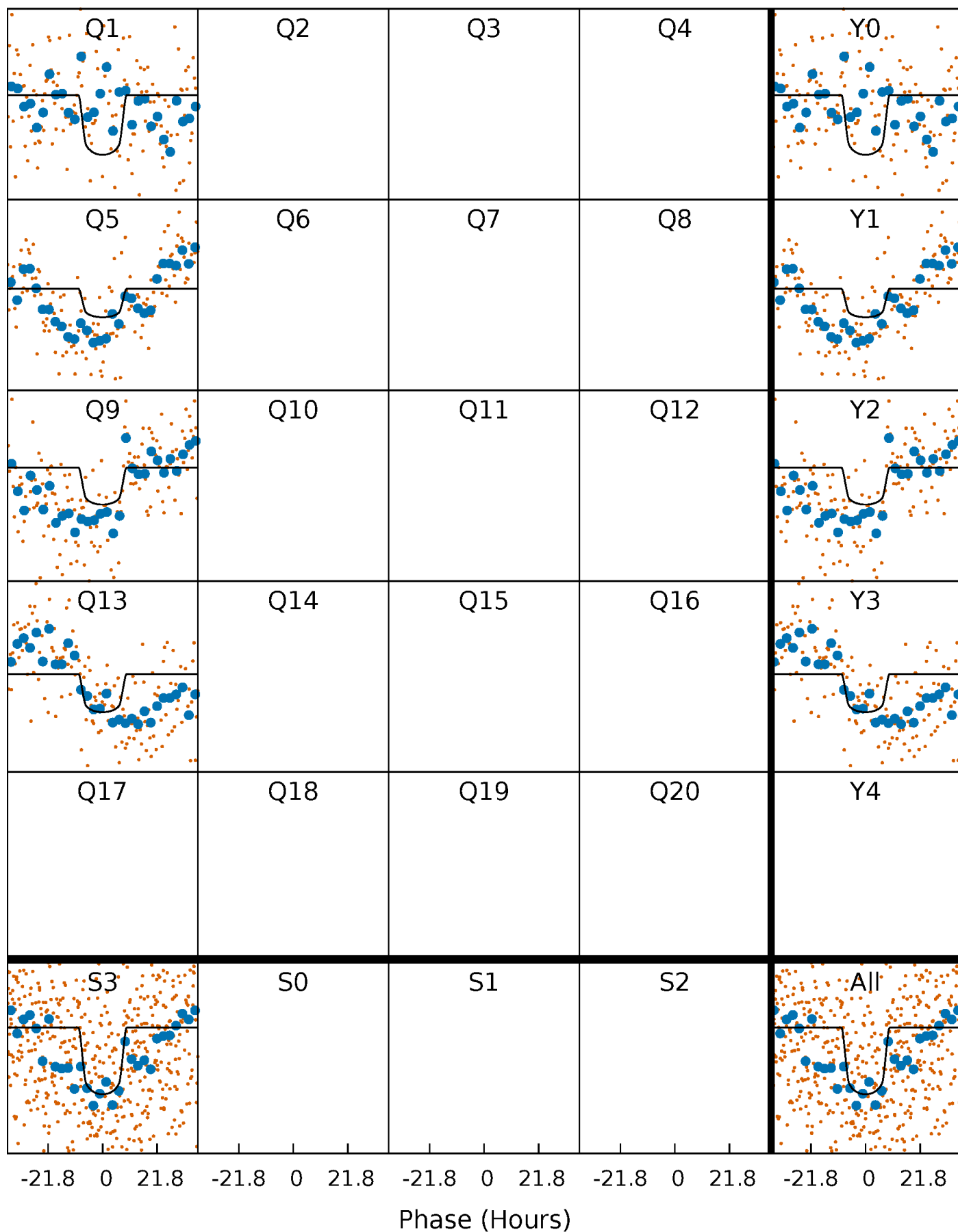
TCE 008885014-01 P=375.210596 Days  $T_0=140.299807$  (BKJD)





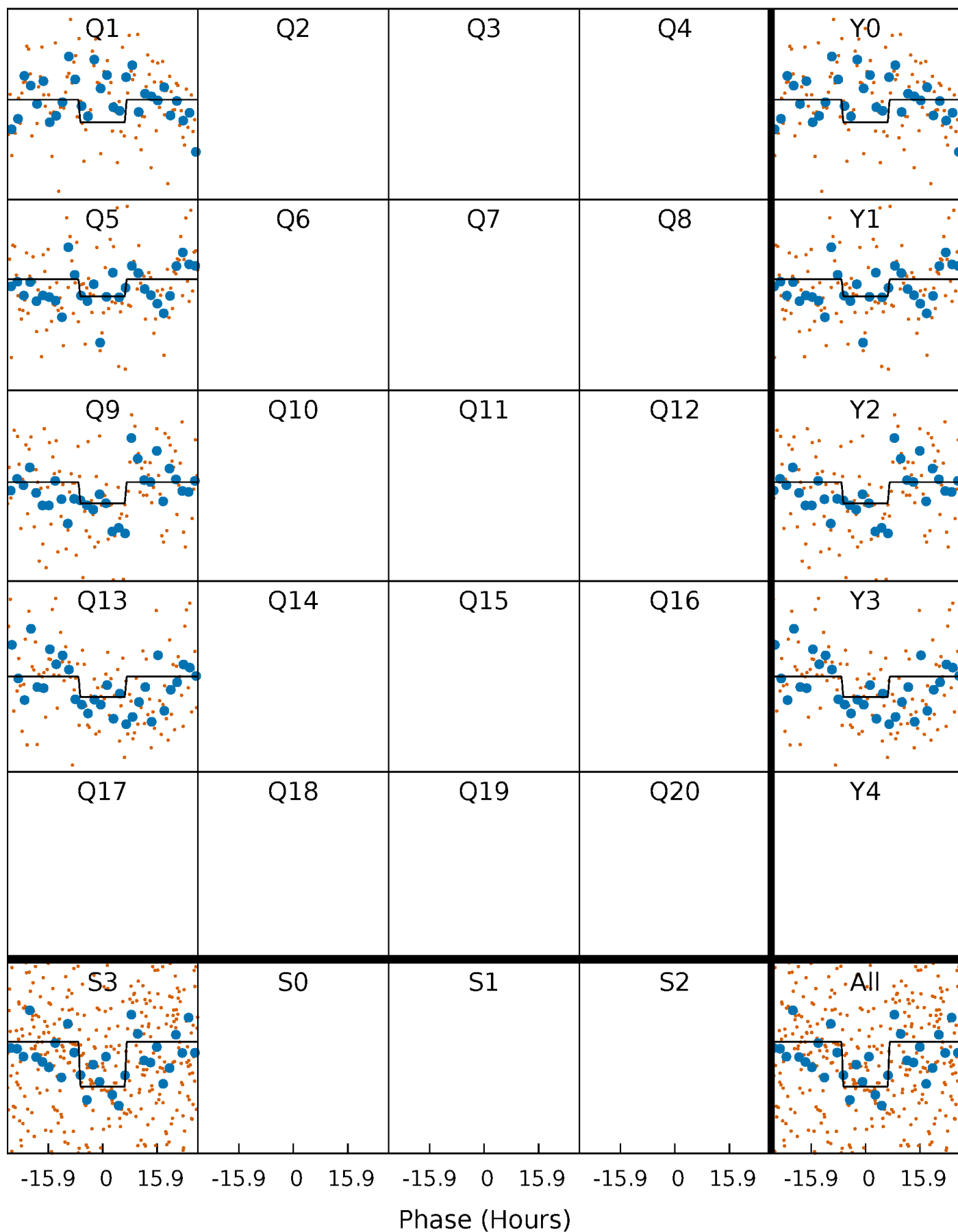
# DV Quarter-Phased Transit Curves

TCE 008885014-01 P=375.210596 Days  $T_0=140.299807$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

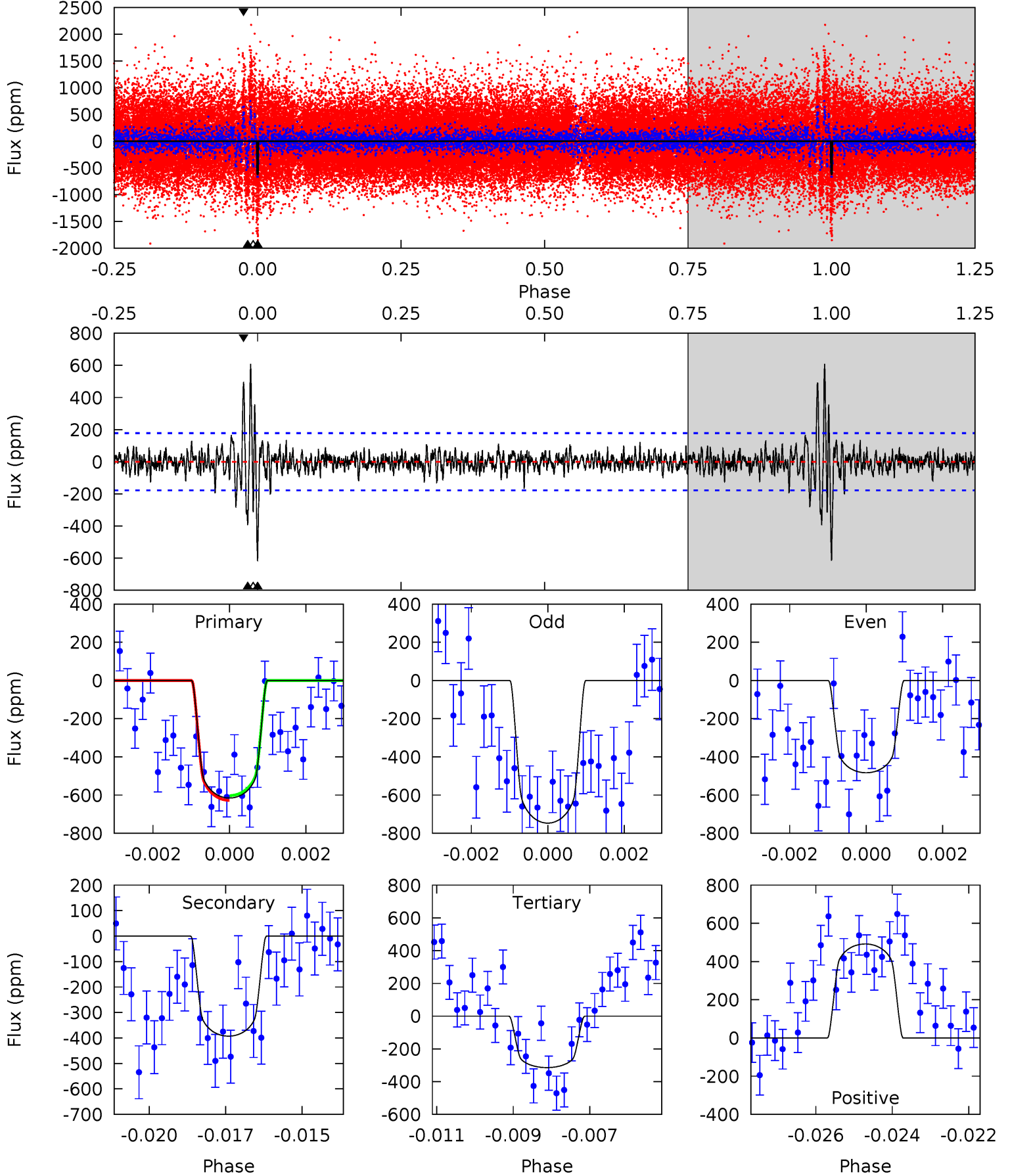
TCE 008885014-01 P=375.207840 Days  $T_0=140.321362$  (BKJD)



# DV Model-Shift Uniqueness Test

008885014-01, P = 375.210596 Days, E = 140.299807 Days

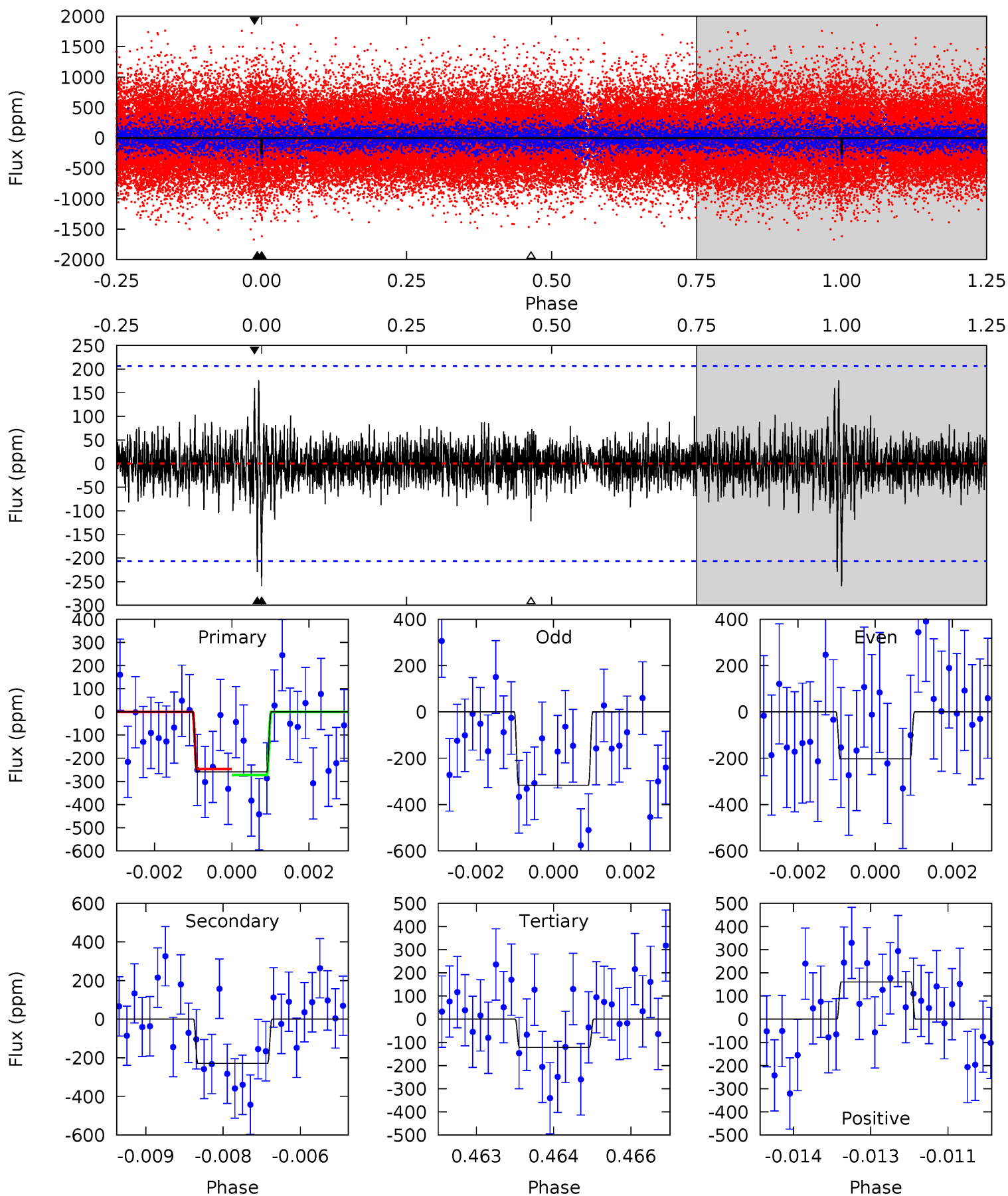
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	11.7	9.37	14.7	5.31	3.07	1.88	8.98	3.68	2.34	-2.96	3.95	0.85	0.50	0.37



# Alt Model-Shift Uniqueness Test

008885014-01, P = 375.207840 Days, E = 140.321362 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
6.75	5.96	3.17	4.17	5.37	3.16	0.79	3.58	2.57	2.79	1.79	1.49	0.81	0.41	0.33



### Stellar Parameters For KIC 008885014

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+157}_{-224}$	$4.397^{+0.070}_{-0.210}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.389}_{-0.130}$	$1.174^{+0.169}_{-0.152}$	$1.133^{+0.343}_{-0.620}$
	+2%/-4%	+2%/-5%	+1250%/-1500%	+34%/-11%	+14%/-13%	+30%/-55%
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 008885014-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-393 \pm 34$	$3.30^{+0.67}_{-0.52}$	$406^{+35}_{-18}$	$5574^{+365}_{-339}$	$22330^{+8909}_{-6619}$
Alt.	$-229 \pm 38$	$2.04^{+0.54}_{-0.41}$	$410^{+29}_{-21}$	$6206^{+743}_{-632}$	$34247^{+20488}_{-13122}$

$T_{\text{max}}$  = 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

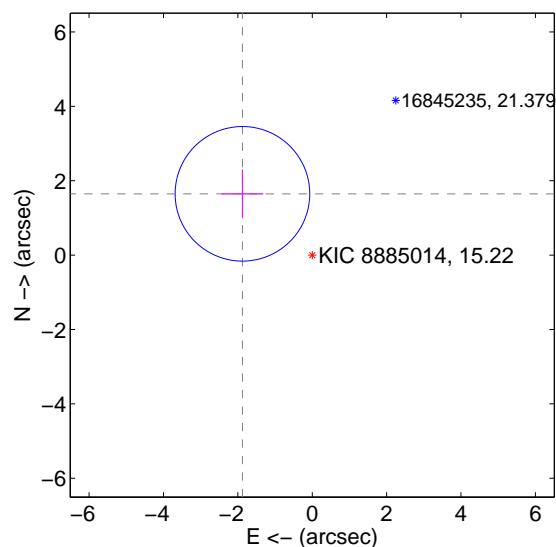
Supplemental centroid analysis for 008885014-01. Kepler magnitude: 15.22. Transit SNR 8.32

There are 1 quarters with good PRF difference image offsets

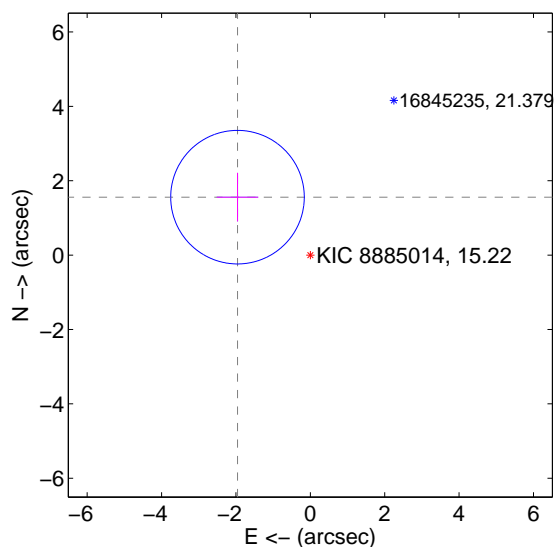
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.497 <math>\pm</math> 0.603</b>	<b>4.14</b>	1.877 $\pm$ 0.560	1.648 $\pm$ 0.655
PRF-fit source offset from KIC position	<b>2.502 <math>\pm</math> 0.599</b>	<b>4.18</b>	1.958 $\pm$ 0.560	1.558 $\pm$ 0.655
photometric centroid source offset	1.27 $\pm$ 1.38	0.92	0.85 $\pm$ 1.48	0.94 $\pm$ 1.29

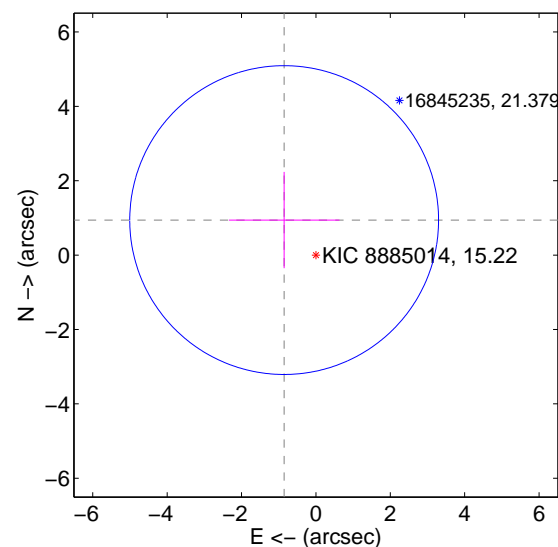
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



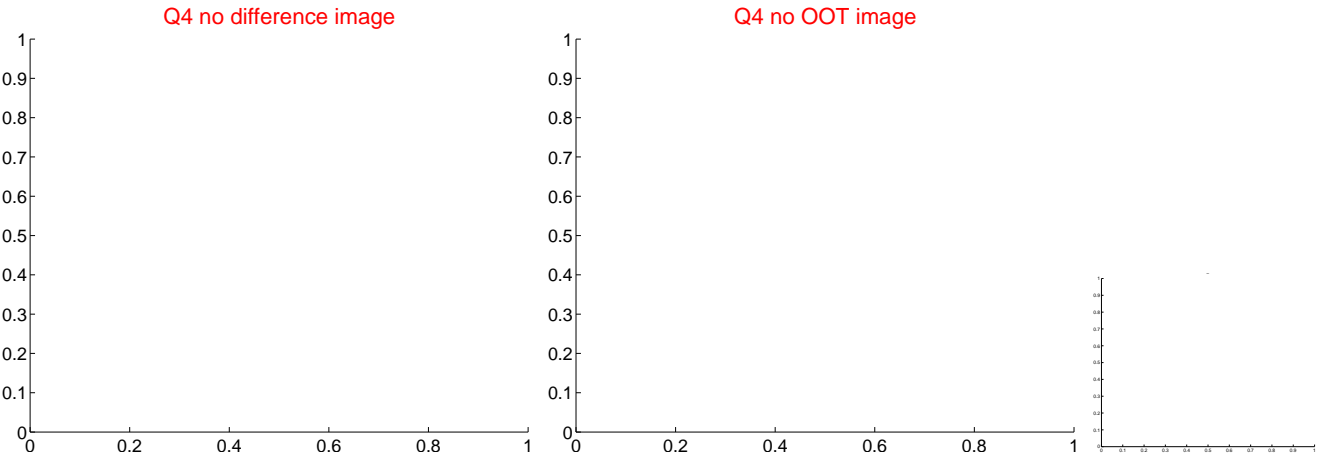
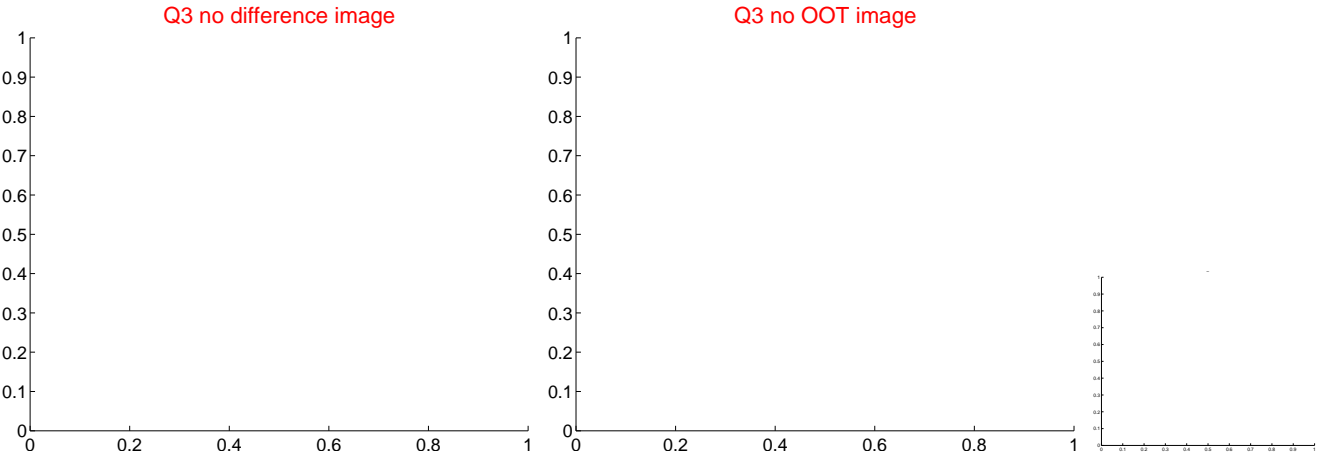
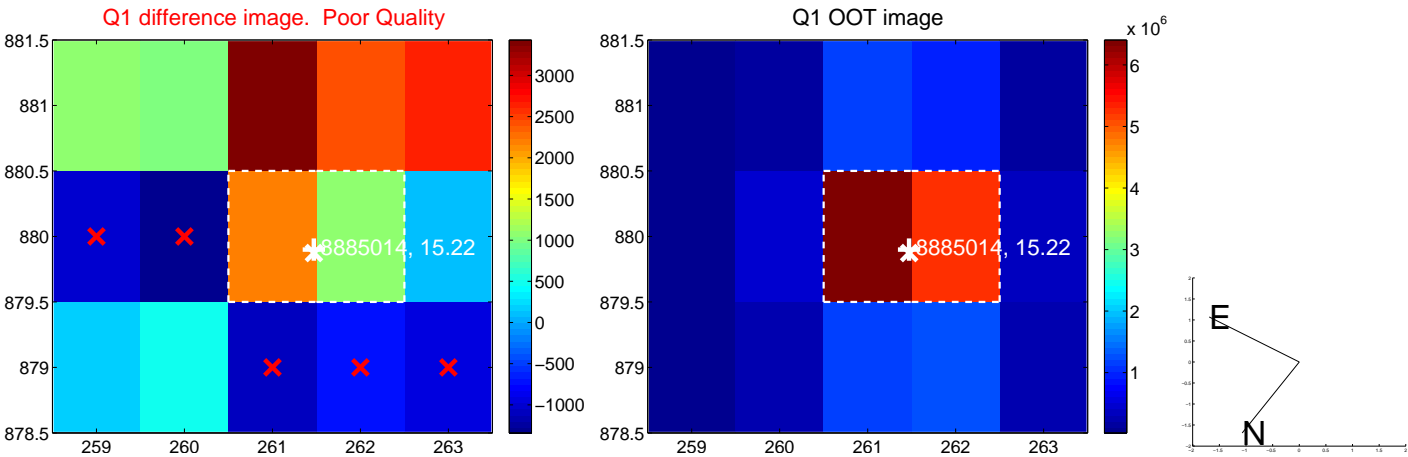
offset from photometric centroids



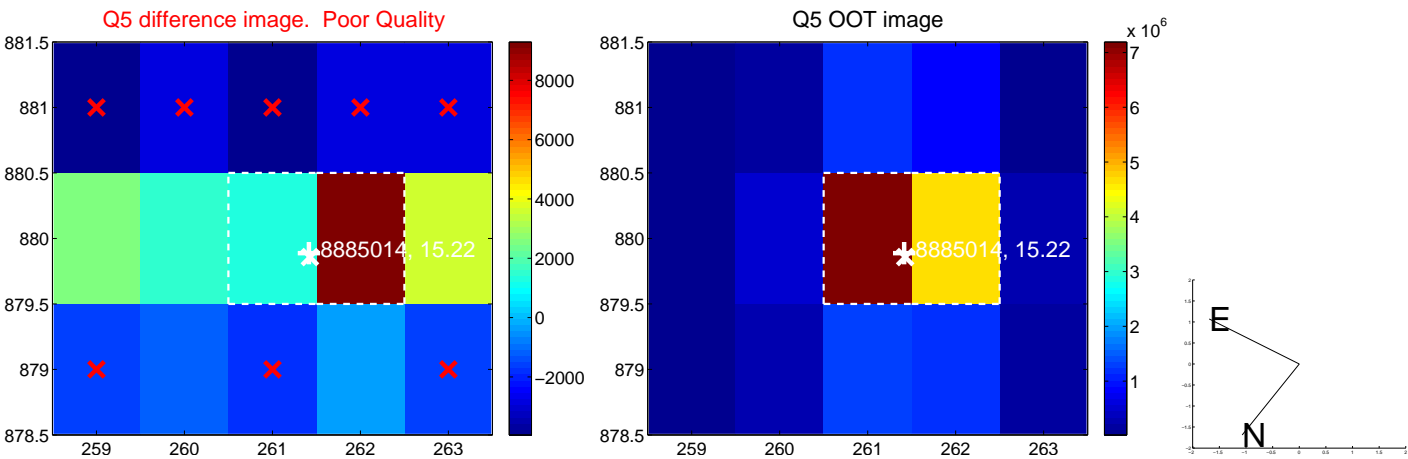
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



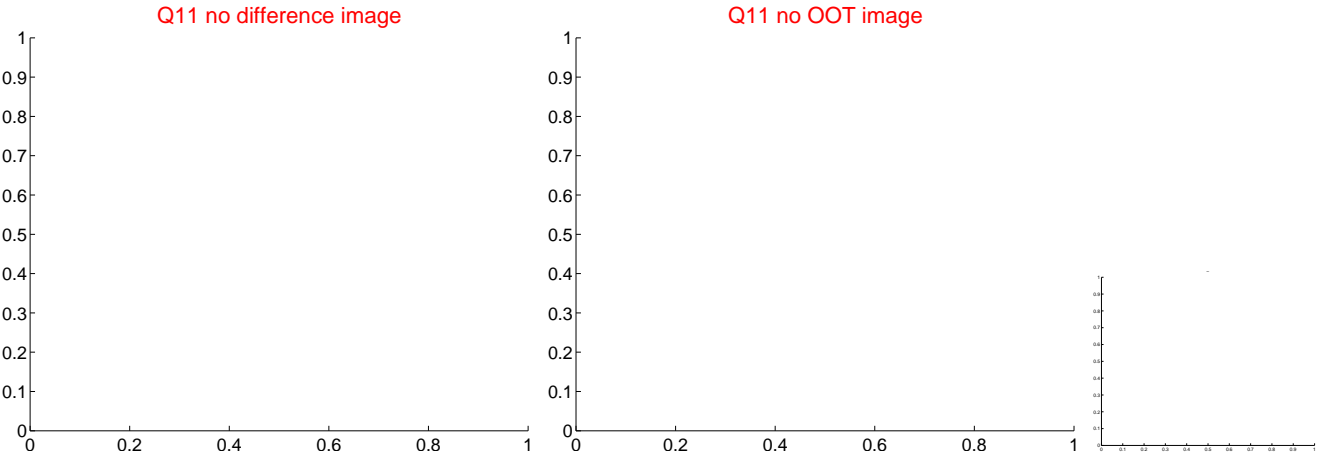
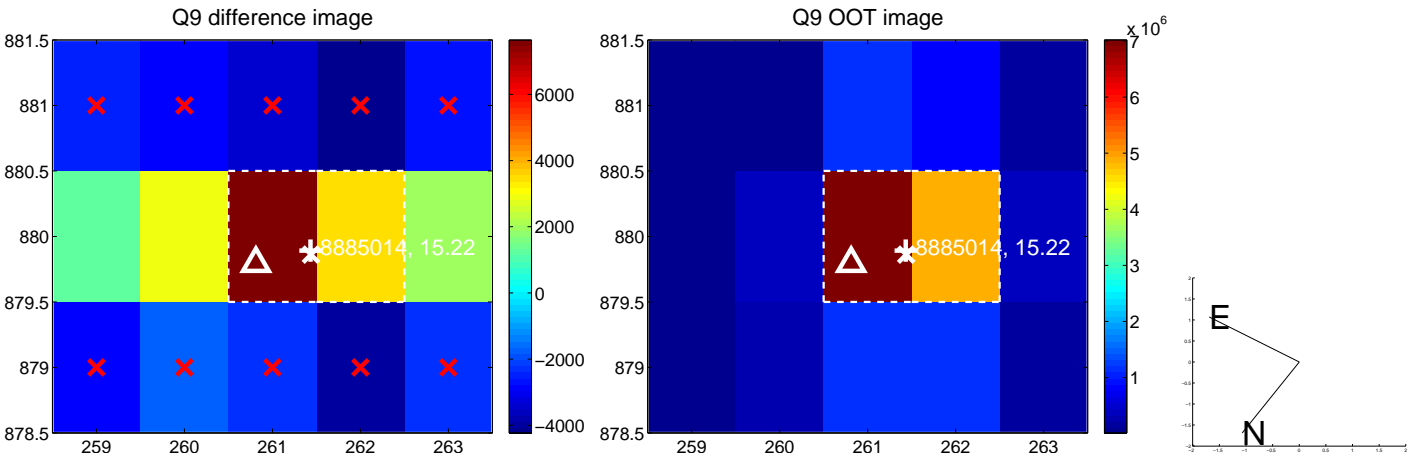
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



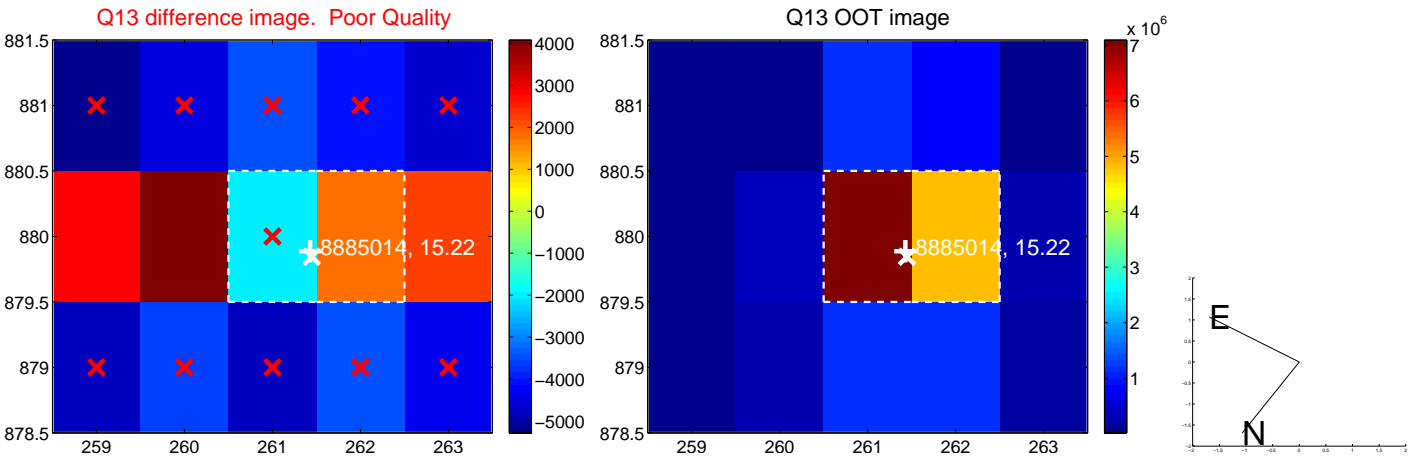
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



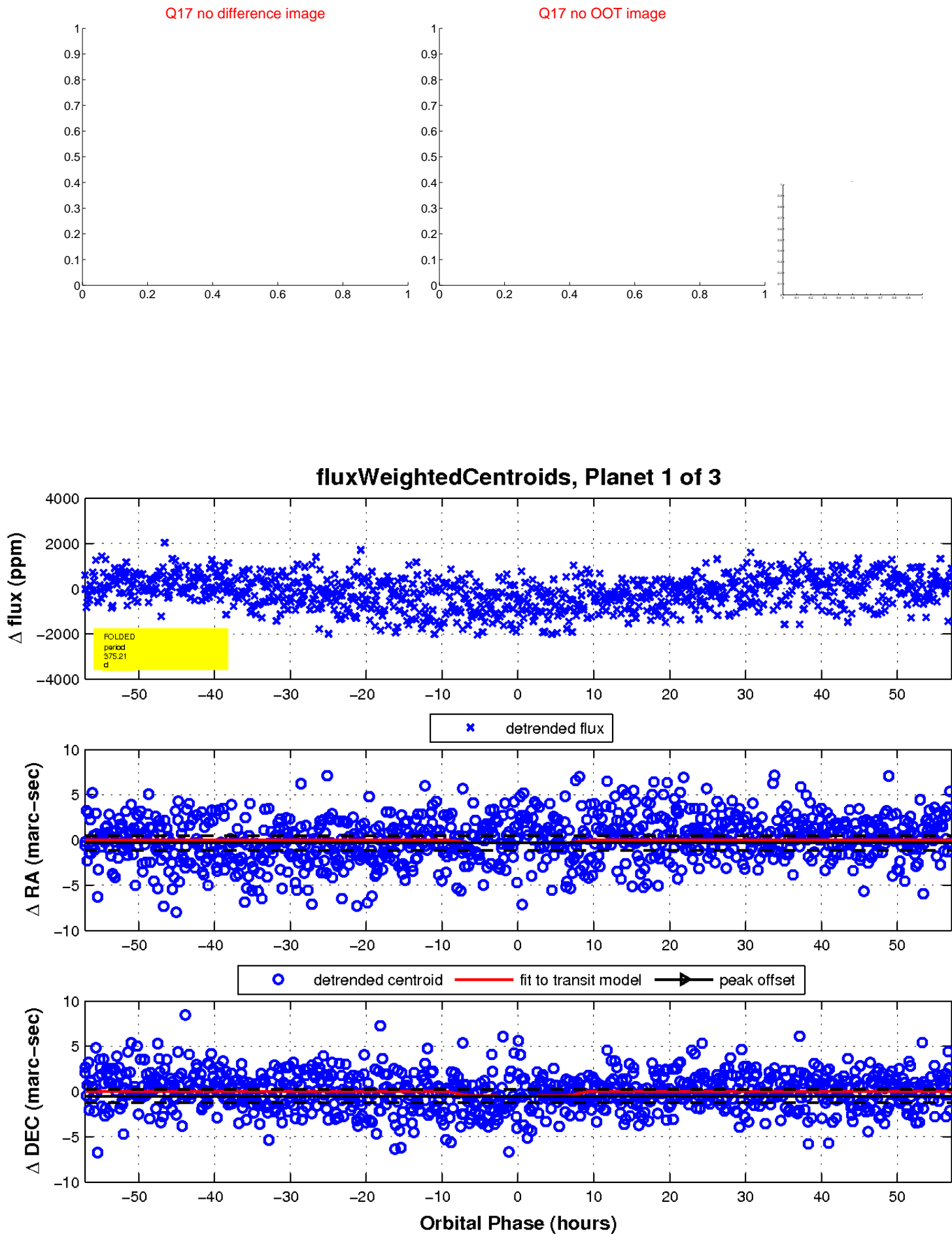
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

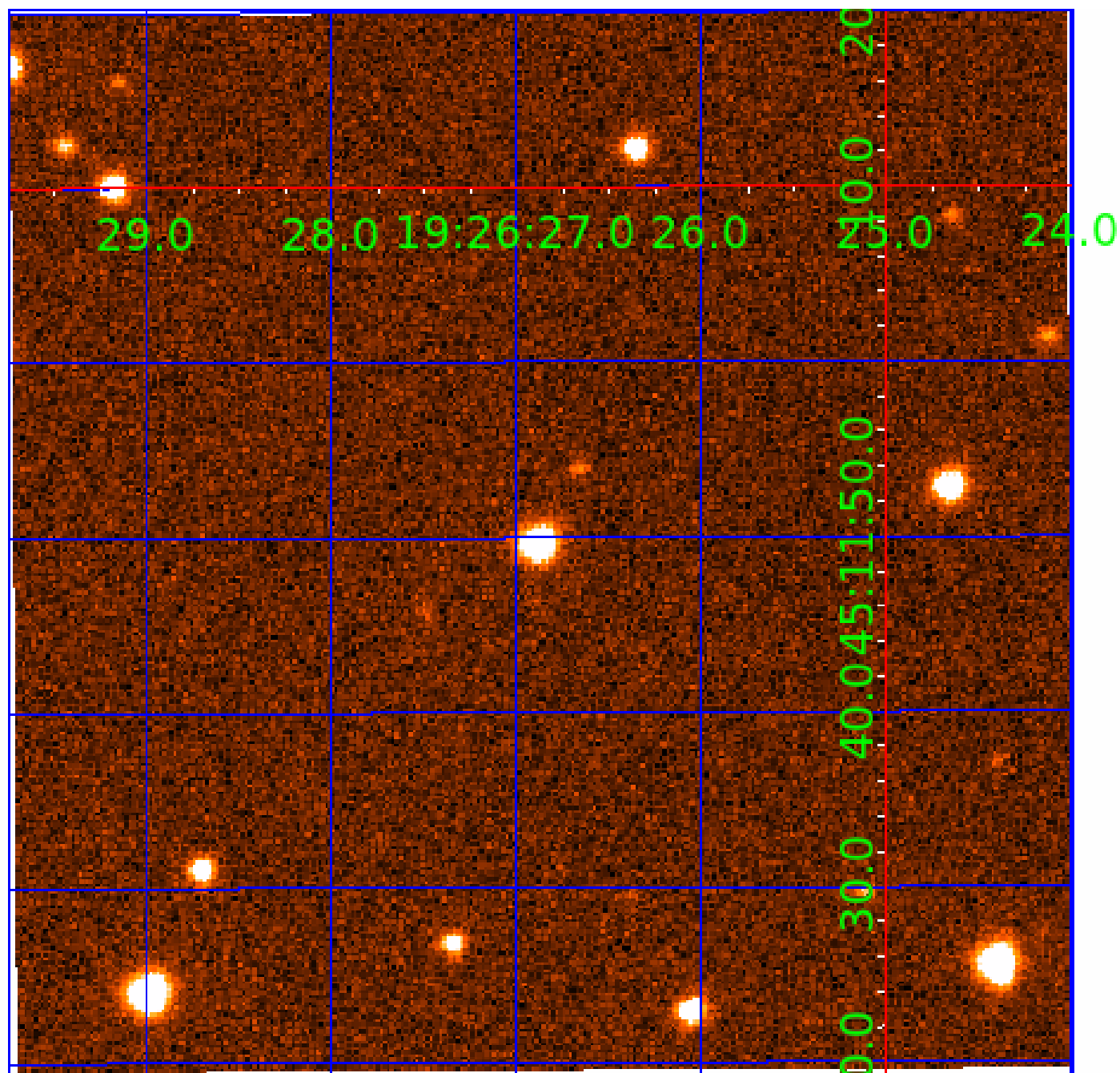


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008885014

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008885014-01	OBS	No	375.210596	140.299807	562.3	19.072	8.6	8.3	1.13	6353	3.21	1.63
008885014-02	OBS	No	376.467193	133.607580	579.7	12.854	8.6	8.3	1.13	6353	3.17	1.62
008885014-03	OBS	No	374.951612	133.813164	1507.5	80.925	16.9	20.8	1.13	6353	8.26	1.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008885014-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008885014-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008885014-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

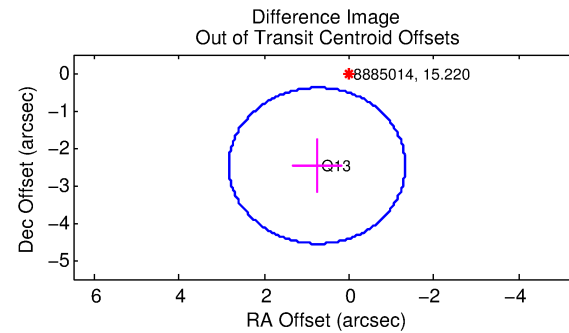
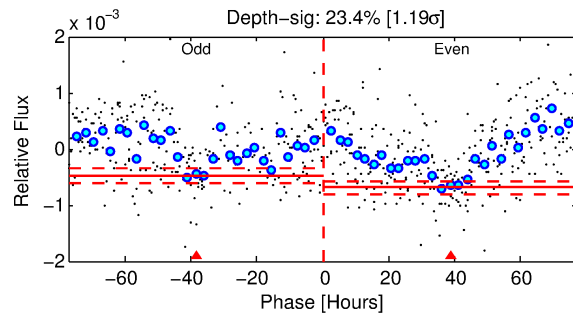
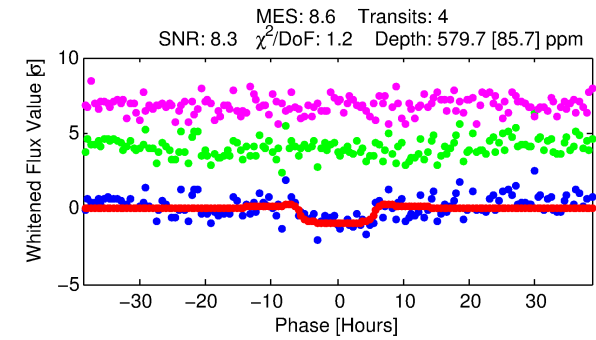
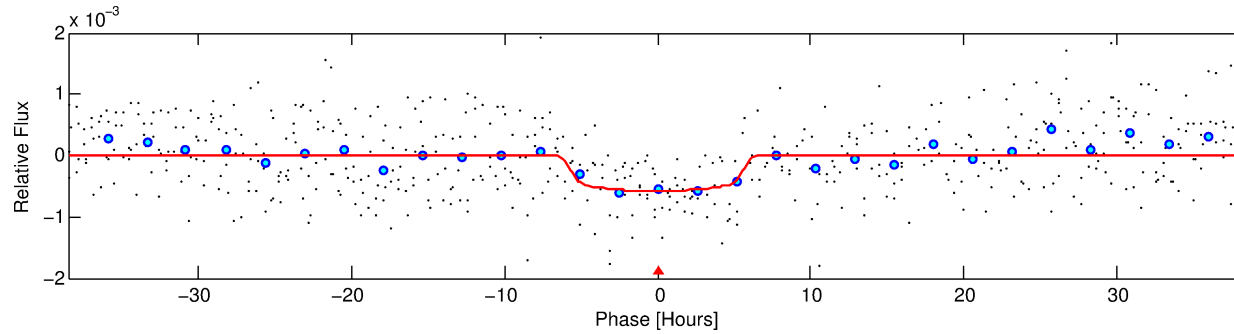
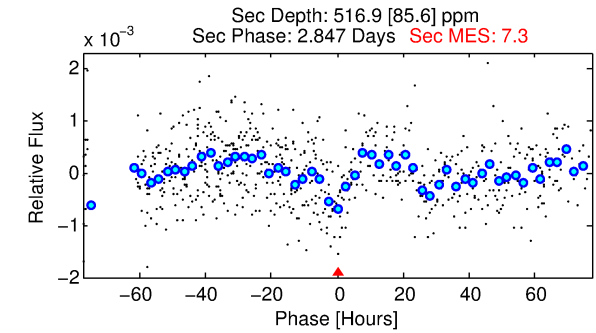
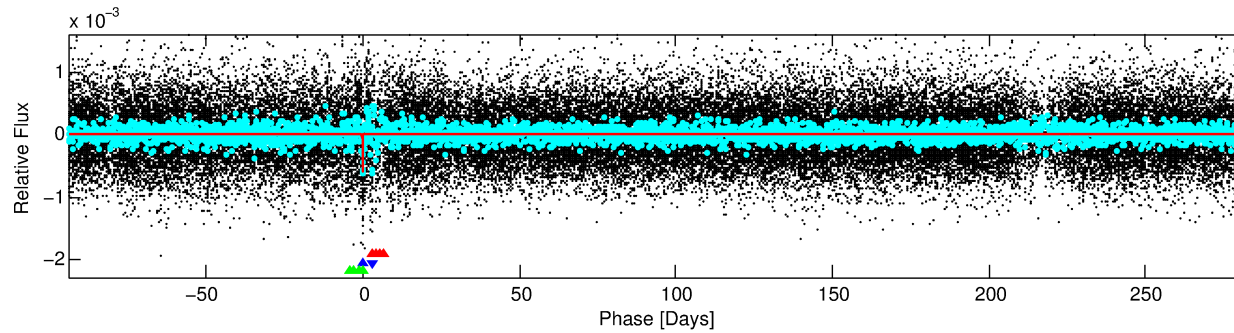
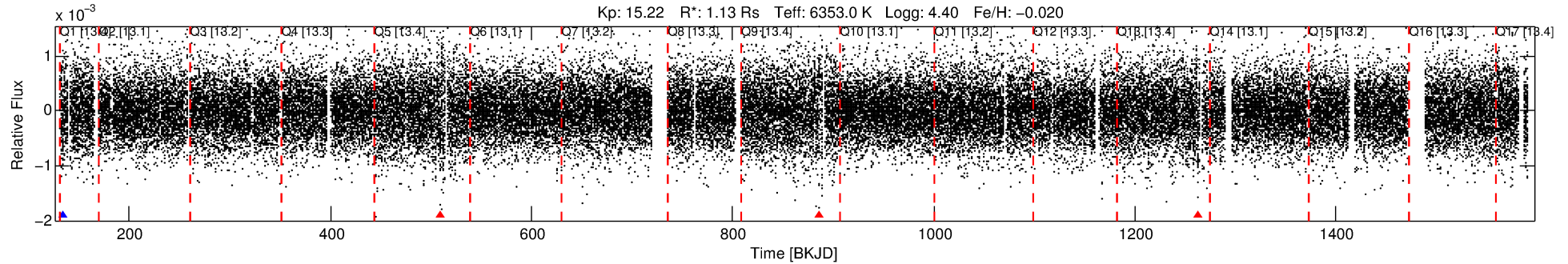
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008885014-02

No Significant Match Found

# DV One-Page Summary

KIC: 8885014 Candidate: 2 of 3 Period: 376.467 d



## DV Fit Results:

Period = 376.46719 [0.01300] d  
Epoch = 133.6076 [0.0252] BKJD  
Rp/R\* = 0.0256 [0.0043]  
a/R\* = 115.53 [88.85]  
b = 0.89 [0.19]  
Seff = 1.62 [0.68]  
Teq = 288 [30] K  
Rp = 3.17 [1.21] Re  
a = 1.0755 [0.3009] AU  
Ag = 32805.45 [17873.08] [1.84σ]  
**Teffp = 5988 [600] K [9.49σ]**

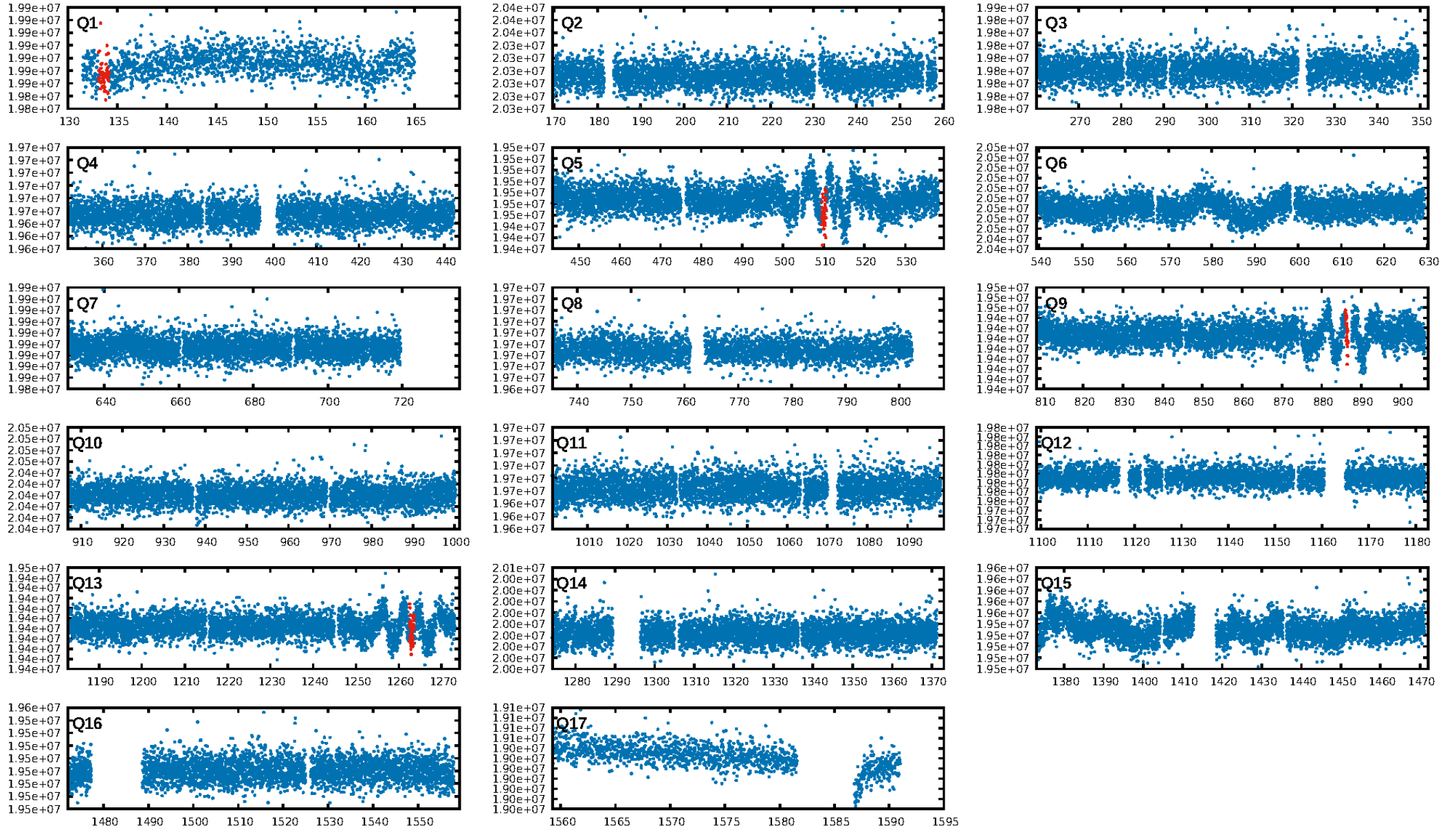
## DV Diagnostic Results:

ShortPeriod-sig: 81.0% [1.31σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.26e-18  
**RollingBand-fgt: 0.00 [0/3]**  
**GhostDiagnostic-chr: 0.7276**  
Centroid-sig: 47.0%  
Centroid-so: 1.165 arcsec [0.72σ]  
**OotOffset-rm: 2.585 arcsec [3.72σ]**  
**KicOffset-rm: 2.721 arcsec [3.94σ]**  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.33 [1/3]

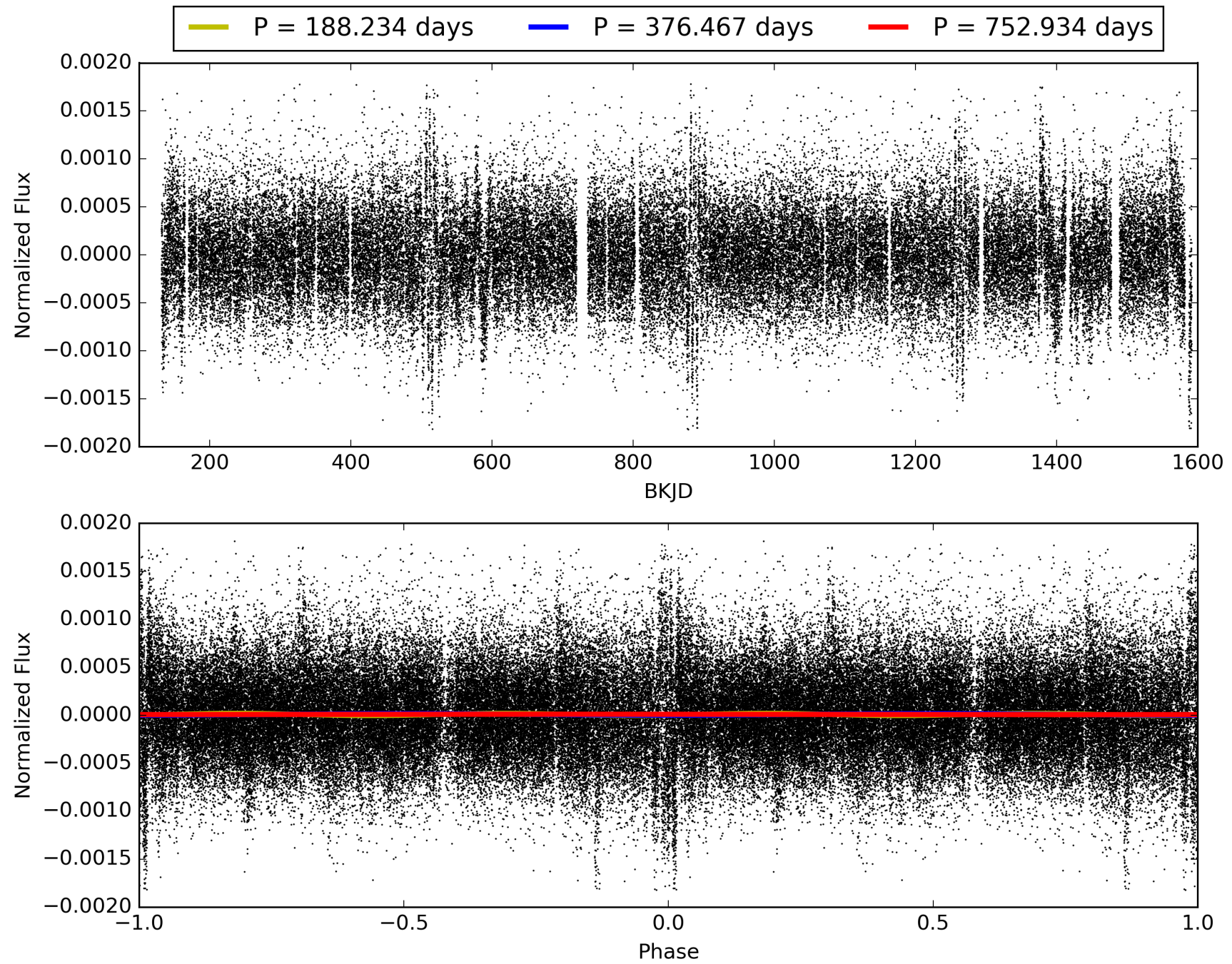
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:54:08 Z

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

# TCE 008885014-02, PDC Light Curves

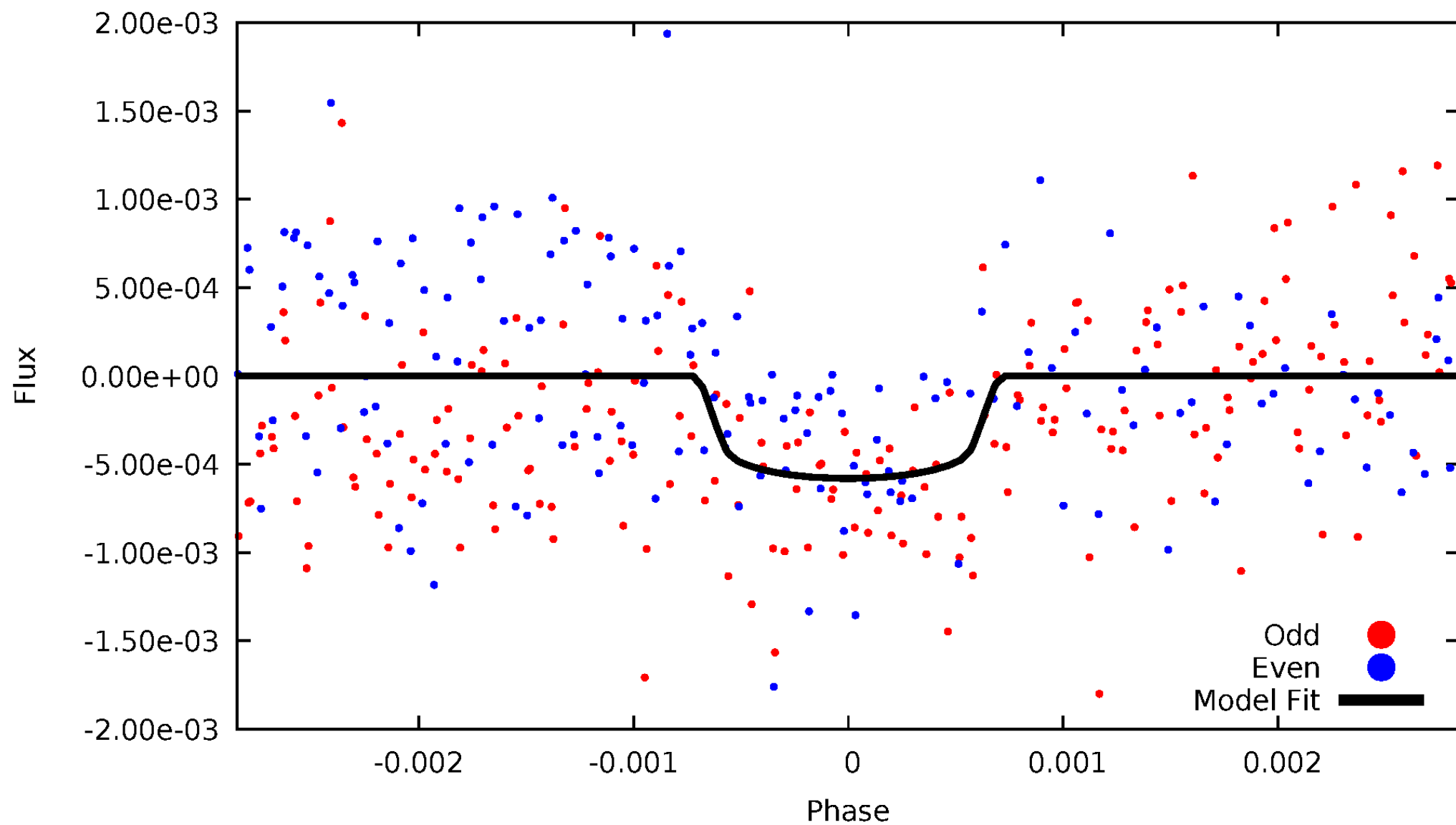


TCE 008885014-02



# DV Odd/Even

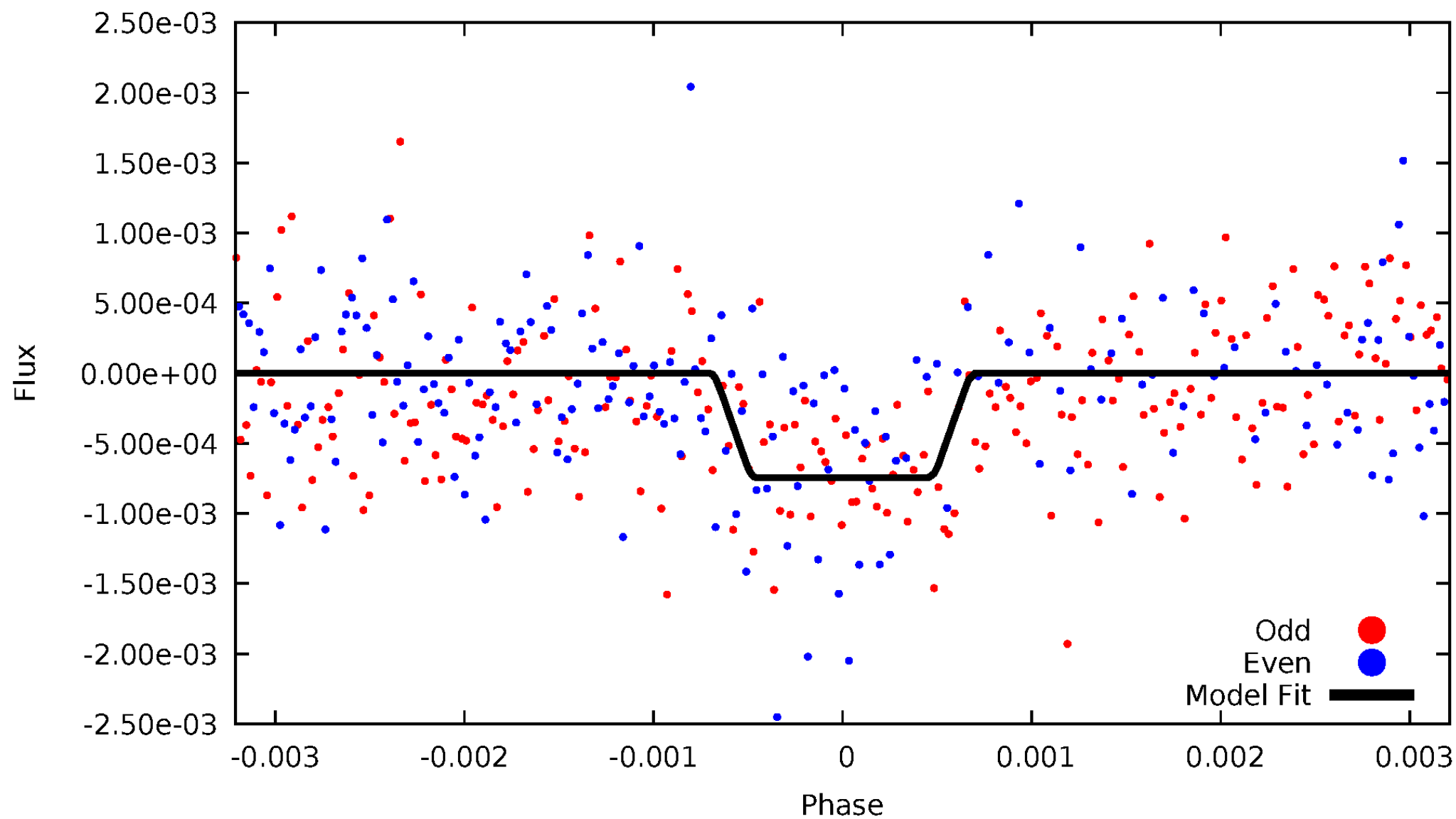
TCE 008885014-02





# ALT Odd/Even

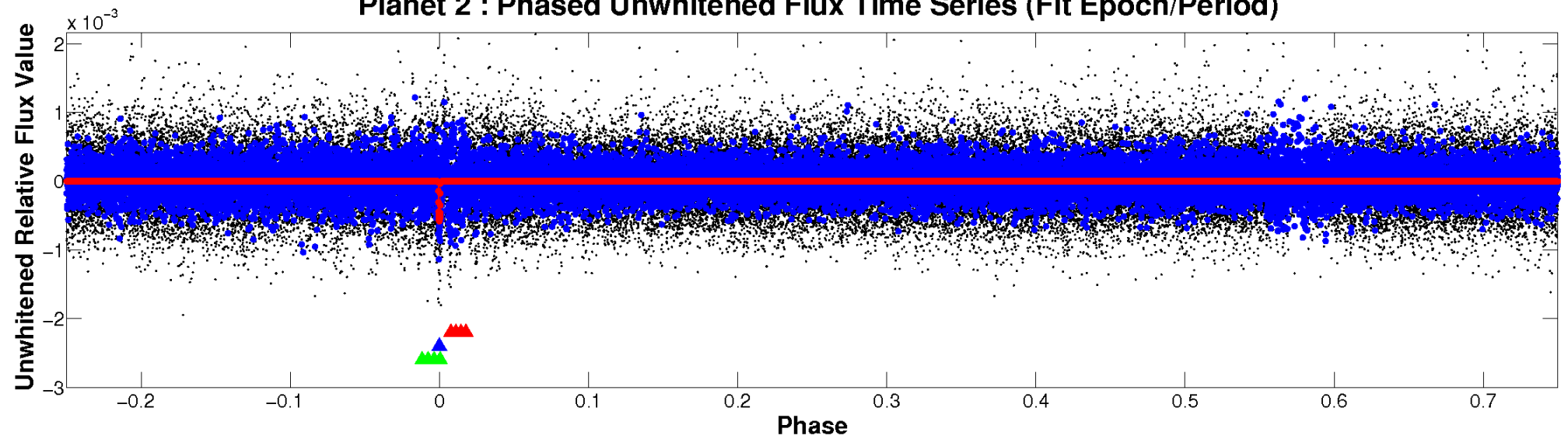
TCE 008885014-02



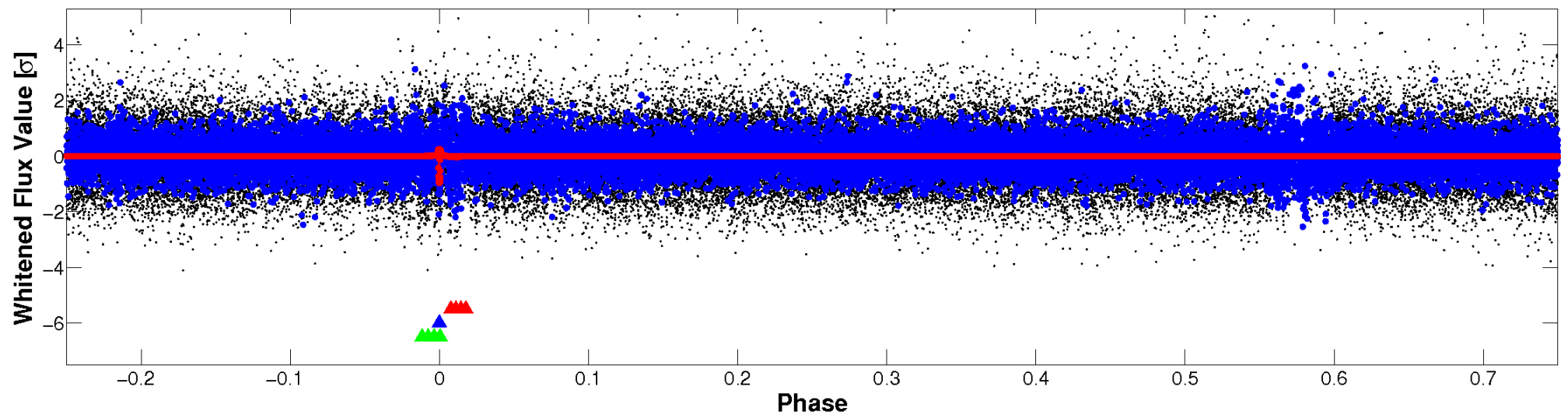


# Non-Whitened Vs. Whitened Light Curve

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



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



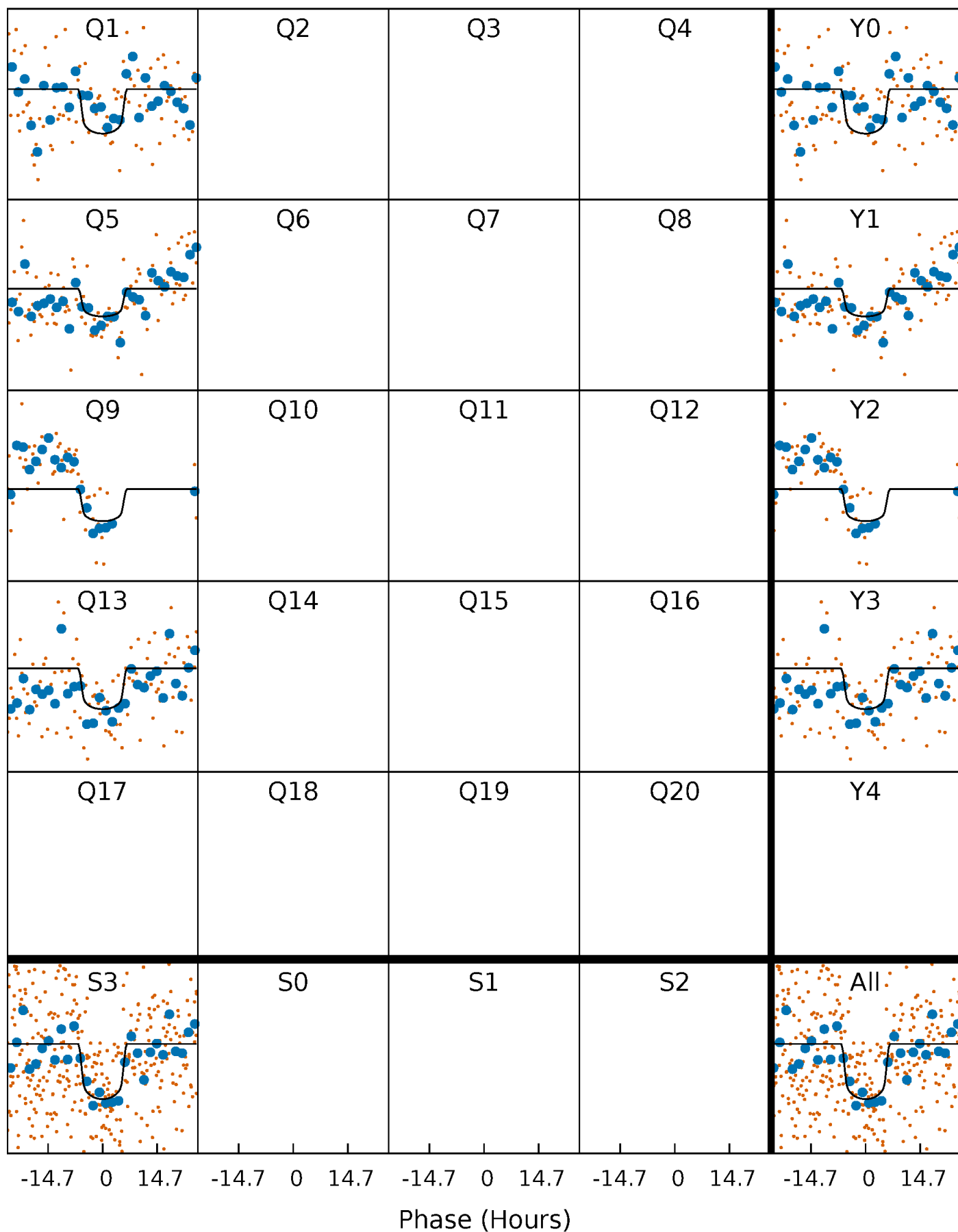
# PDC Quarter-Phased Transit Curves

TCE 008885014-02     $P=376.467193$  Days     $T_0=133.607580$  (BKJD)



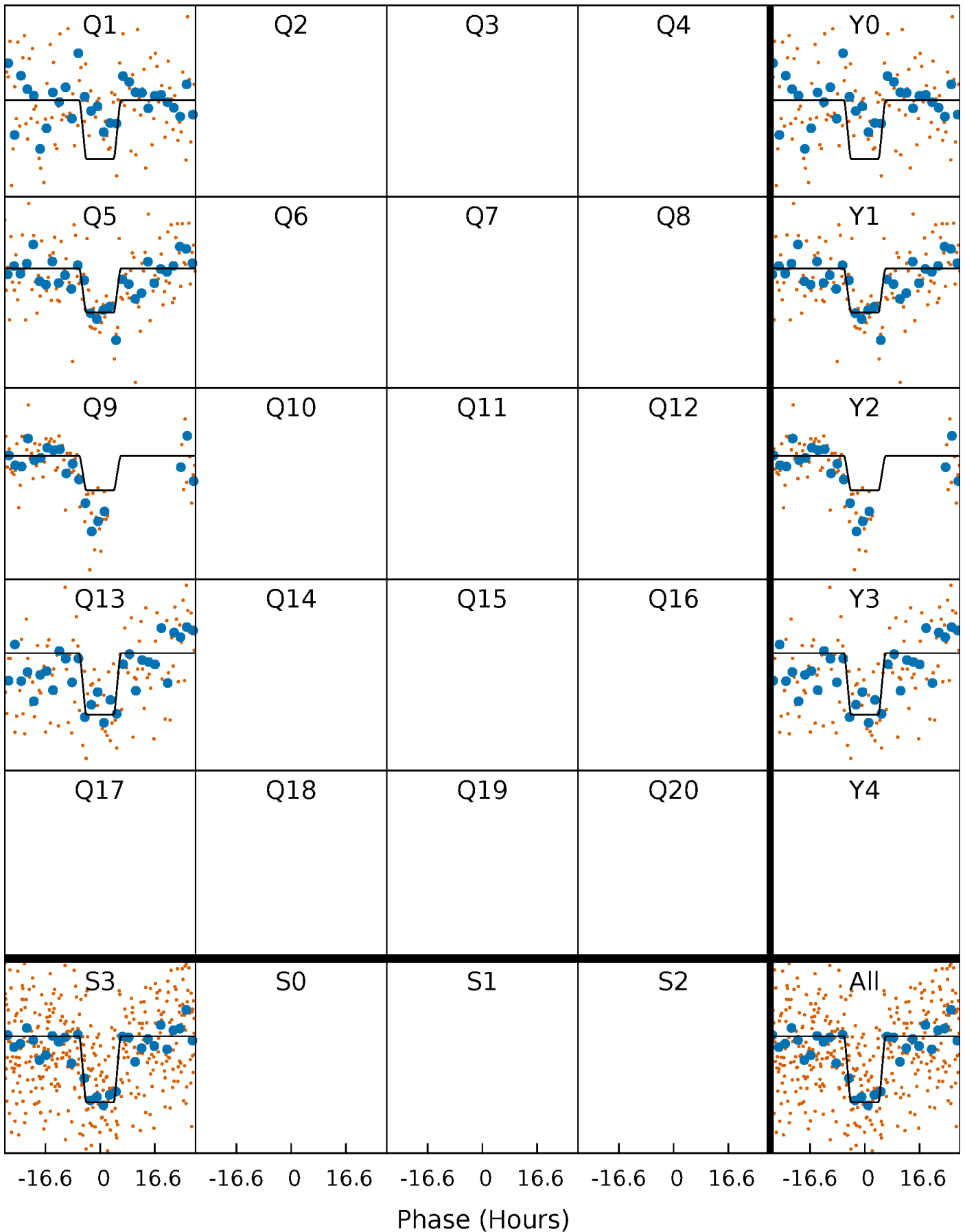
# DV Quarter-Phased Transit Curves

TCE 008885014-02   P=376.467193 Days    $T_0=133.607580$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

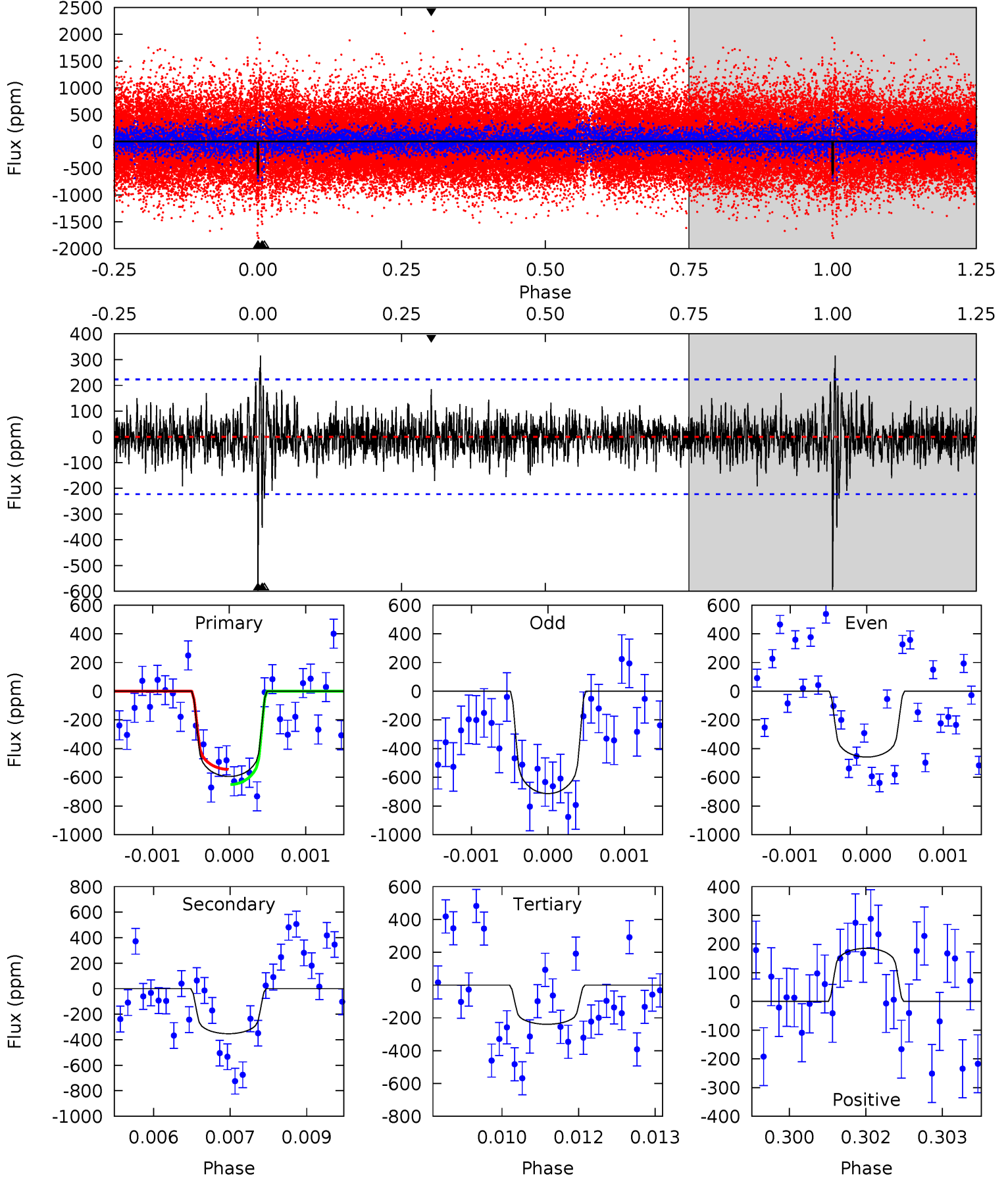
TCE 008885014-02 P=376.474721 Days  $T_0=133.592421$  (BKJD)



# DV Model-Shift Uniqueness Test

008885014-02, P = 376.467193 Days, E = 133.607580 Days

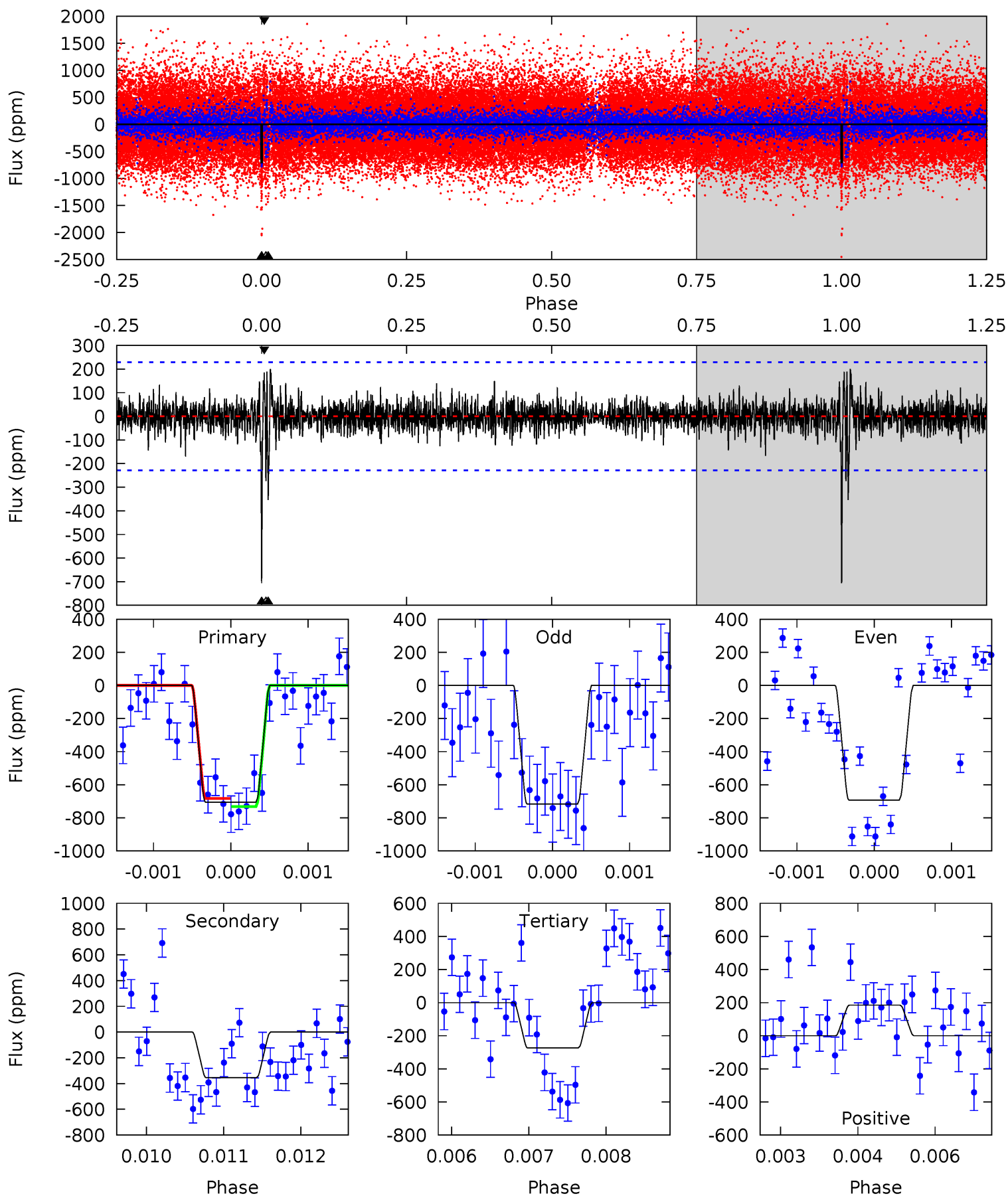
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	8.53	5.78	4.47	5.38	3.18	1.28	8.59	9.90	2.75	4.05	3.07	0.88	0.35	1.28



# Alt Model-Shift Uniqueness Test

008885014-02, P = 376.474721 Days, E = 133.592421 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
16.6	8.34	6.46	4.36	5.39	3.20	0.97	10.2	12.3	1.88	3.97	0.29	1.04	0.22	0.58





### Stellar Parameters For KIC 008885014

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6353^{+157}_{-224}$	$4.397^{+0.070}_{-0.210}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.389}_{-0.130}$	$1.174^{+0.169}_{-0.152}$	$1.133^{+0.343}_{-0.620}$
	+2%/-4%	+2%/-5%	+1250%/-1500%	+34%/-11%	+14%/-13%	+30%/-55%
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 008885014-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-353 \pm 41$	$3.25^{+0.76}_{-0.59}$	$407^{+33}_{-19}$	$5482^{+498}_{-394}$	$20839^{+10380}_{-6838}$
Alt.	$-354 \pm 42$	$3.49^{+0.79}_{-0.61}$	$408^{+33}_{-20}$	$5305^{+478}_{-406}$	$18115^{+8725}_{-6259}$

$T_{max}$  = 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

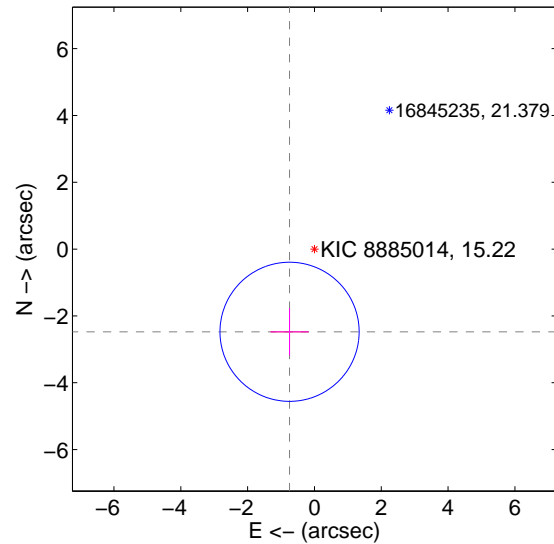
Supplemental centroid analysis for 008885014-02. Kepler magnitude: 15.22. Transit SNR 8.28

There are 0 quarters with good PRF difference image offsets

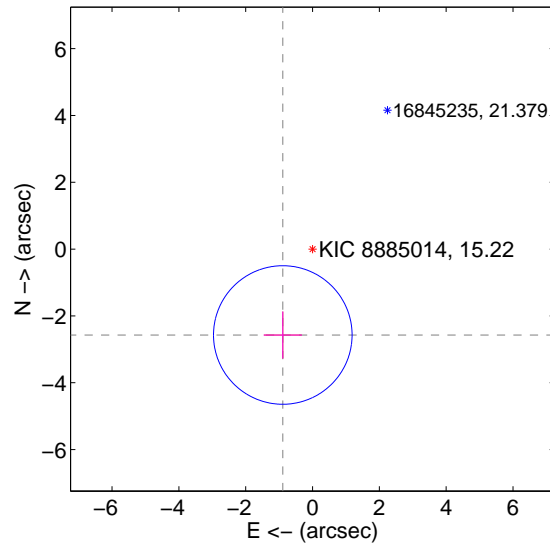
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.585 \pm 0.694$	3.72	$0.745 \pm 0.571$	$-2.475 \pm 0.704$
PRF-fit source offset from KIC position	$2.721 \pm 0.691$	3.94	$0.890 \pm 0.571$	$-2.571 \pm 0.704$
photometric centroid source offset	$1.16 \pm 1.62$	0.72	$0.86 \pm 1.73$	$-0.79 \pm 1.49$

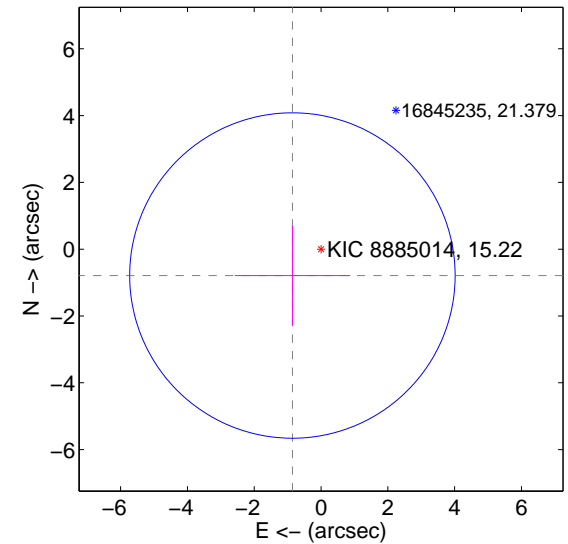
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

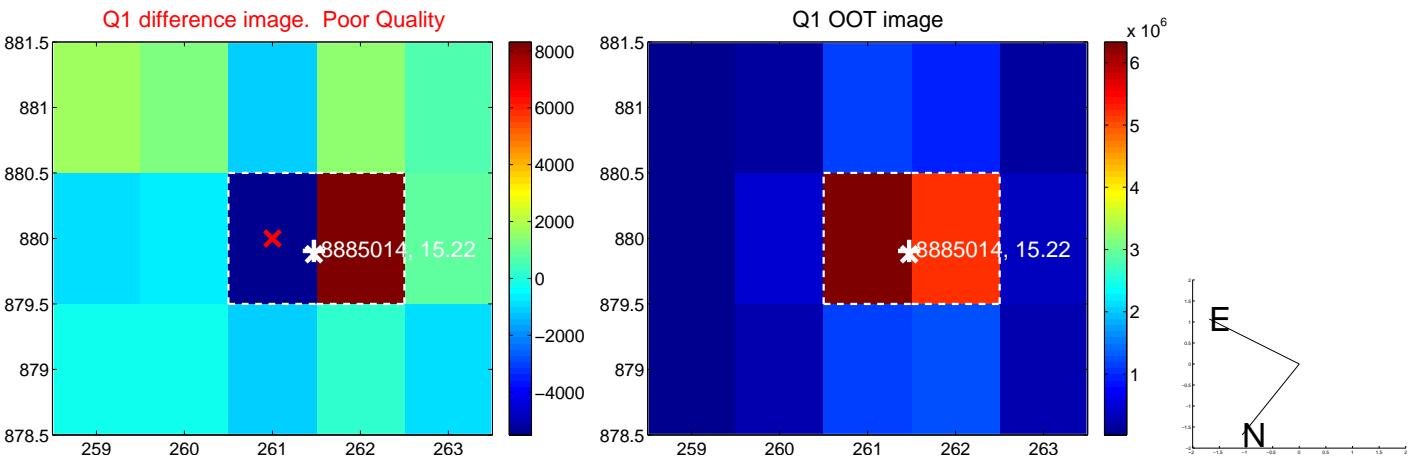


offset from photometric centroids

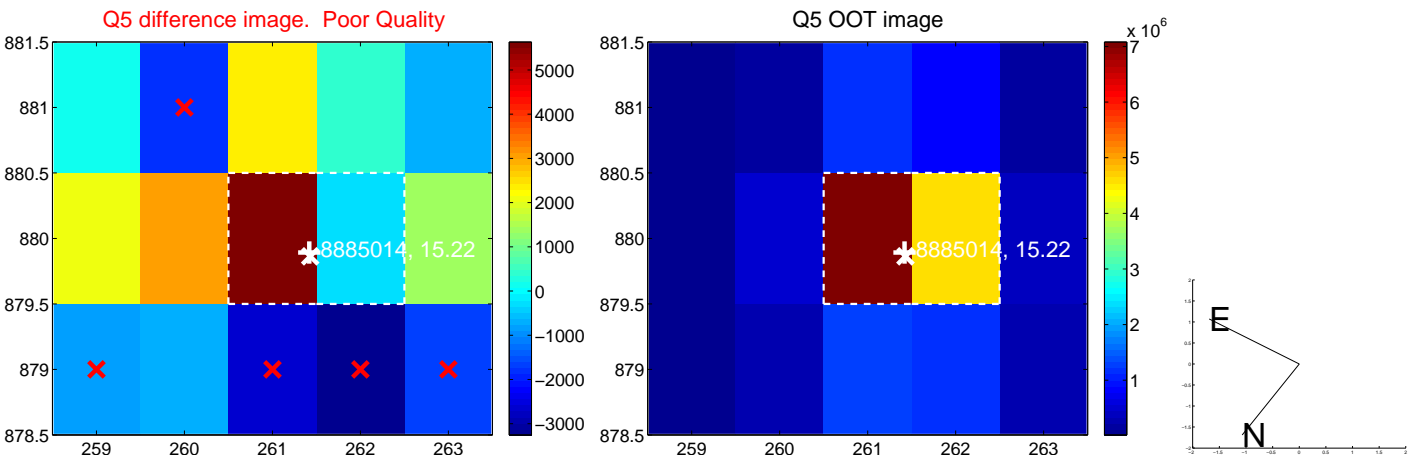


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



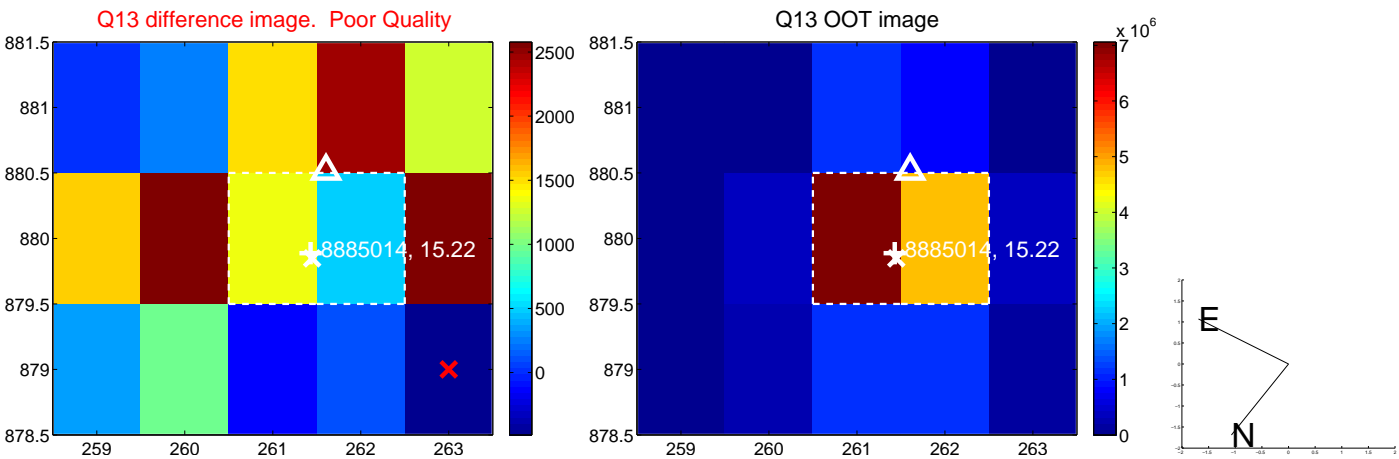
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



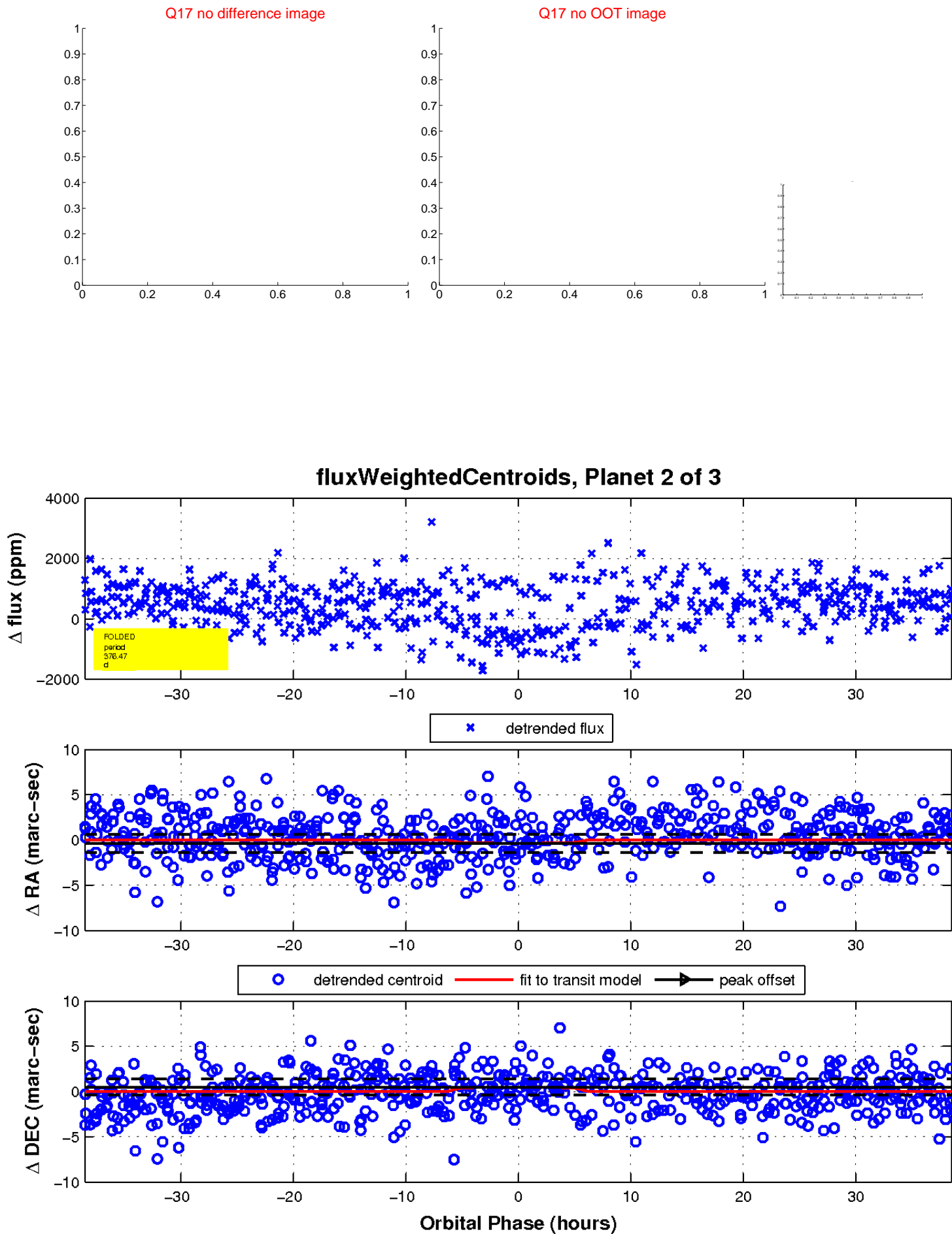
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

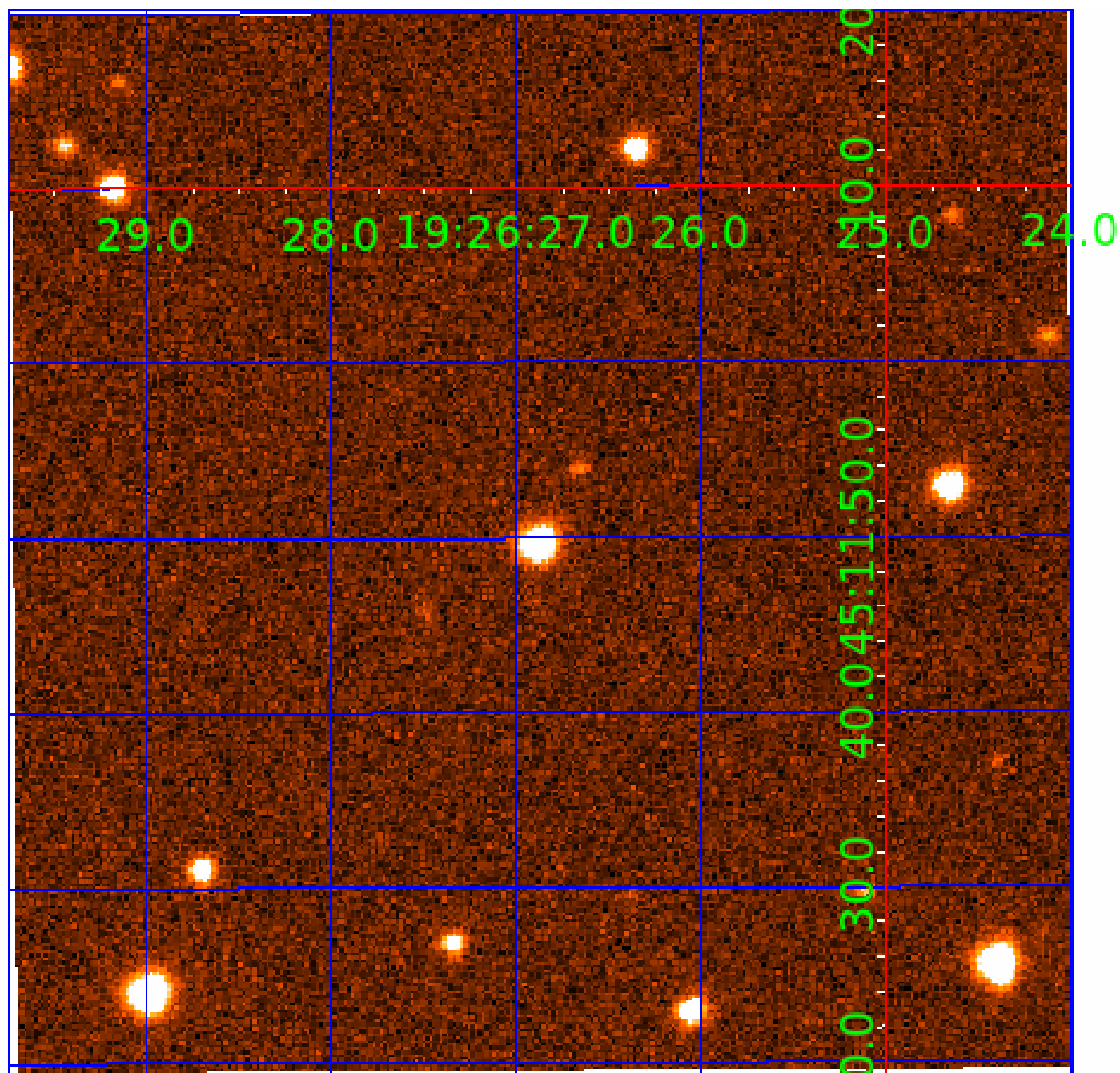


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008885014

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008885014-01	OBS	No	375.210596	140.299807	562.3	19.072	8.6	8.3	1.13	6353	3.21	1.63
008885014-02	OBS	No	376.467193	133.607580	579.7	12.854	8.6	8.3	1.13	6353	3.17	1.62
008885014-03	OBS	No	374.951612	133.813164	1507.5	80.925	16.9	20.8	1.13	6353	8.26	1.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008885014-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
008885014-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008885014-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

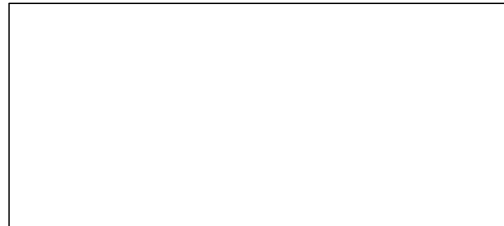
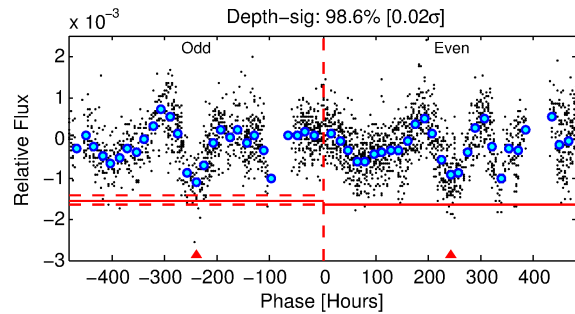
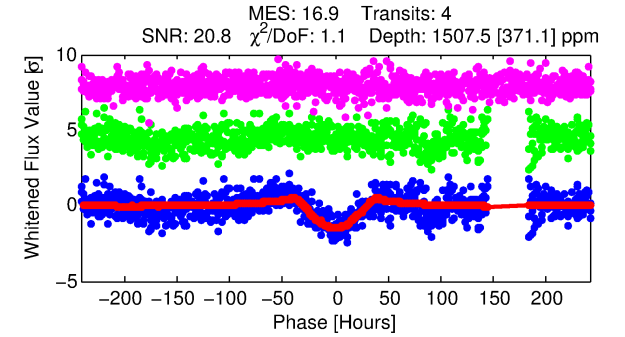
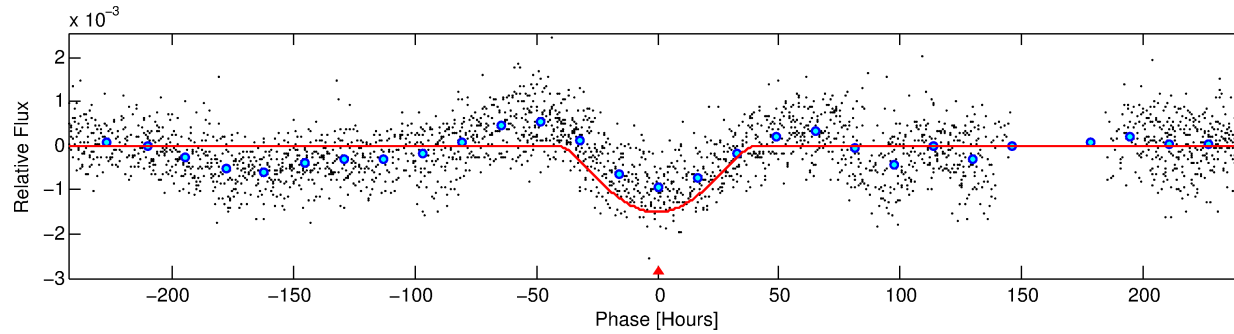
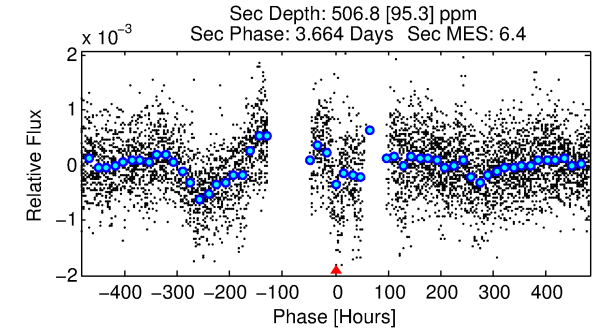
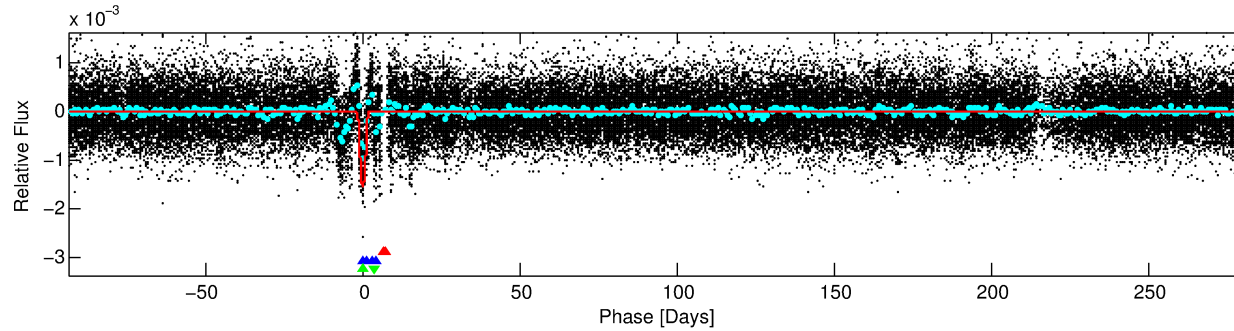
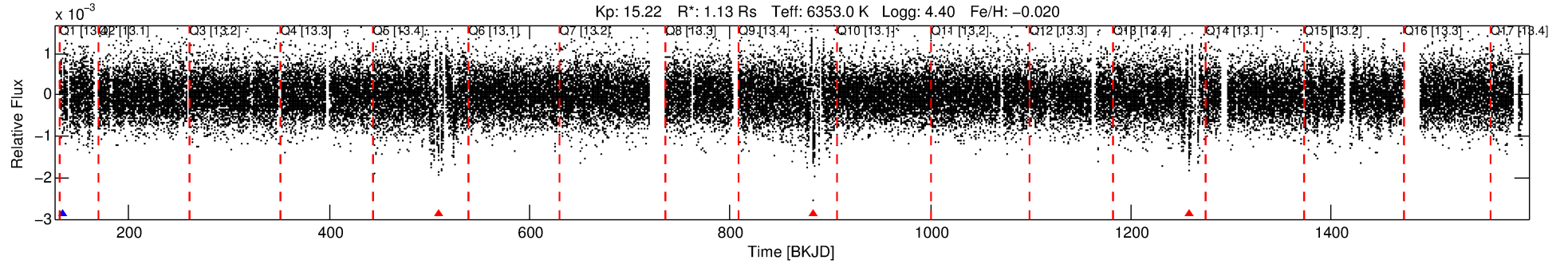
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008885014-03

No Significant Match Found

# DV One-Page Summary

KIC: 8885014 Candidate: 3 of 3 Period: 374.952 d



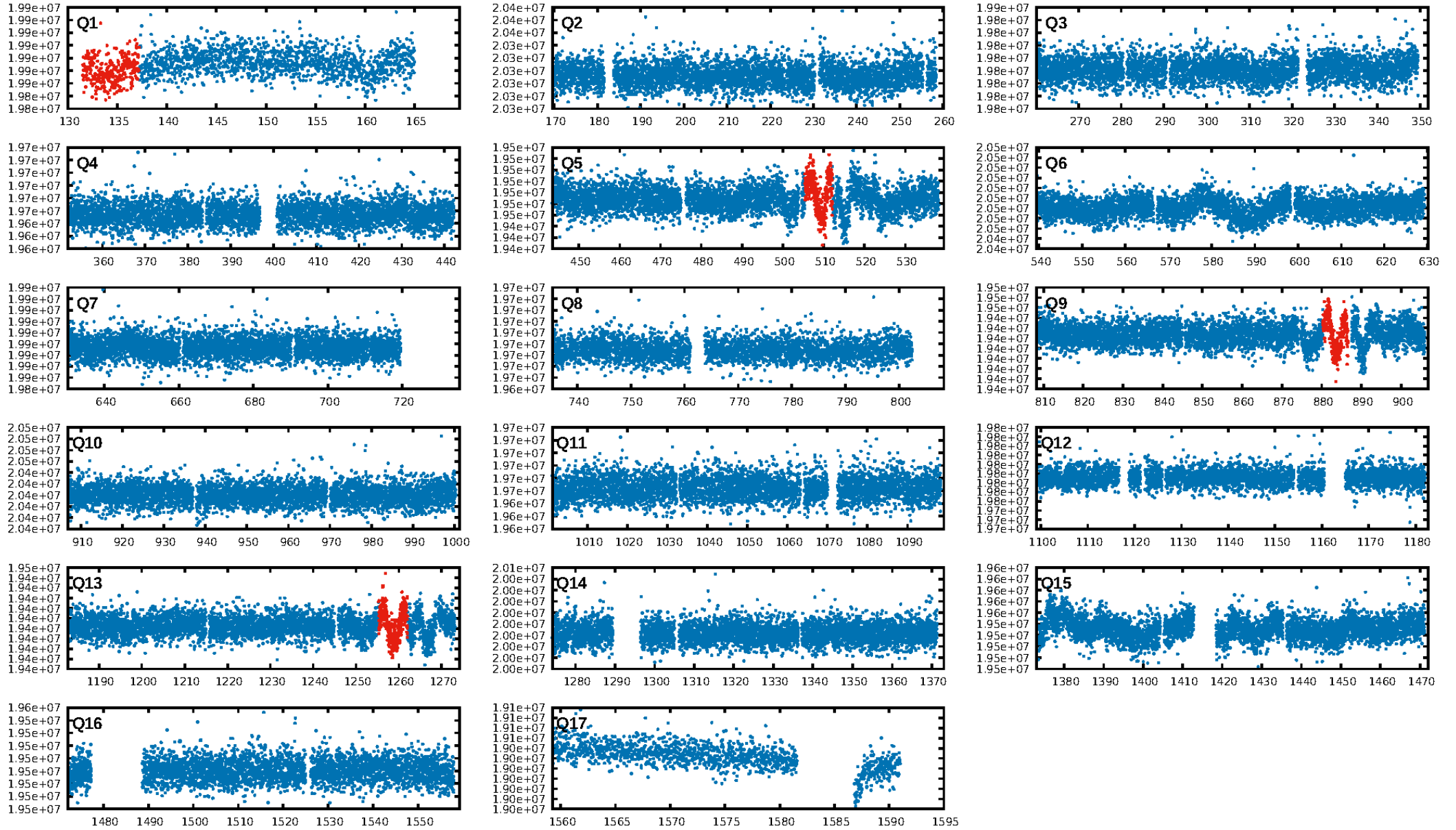
## DV Fit Results:

Period = 374.95161 [0.03702] d  
Epoch = 133.8132 [0.0779] BKJD  
Rp/R\* = 0.0668 [0.0800]  
a/R\* = 13.19 [3.53]  
b = 1.00 [0.10]  
Seff = 1.63 [0.68]  
Teq = 288 [30] K  
Rp = 8.26 [10.29] Re  
a = 1.0726 [0.3001] AU  
Ag = 4698.63 [11441.91] [0.41σ]  
Teffp = 3689 [2220] K [1.53σ]

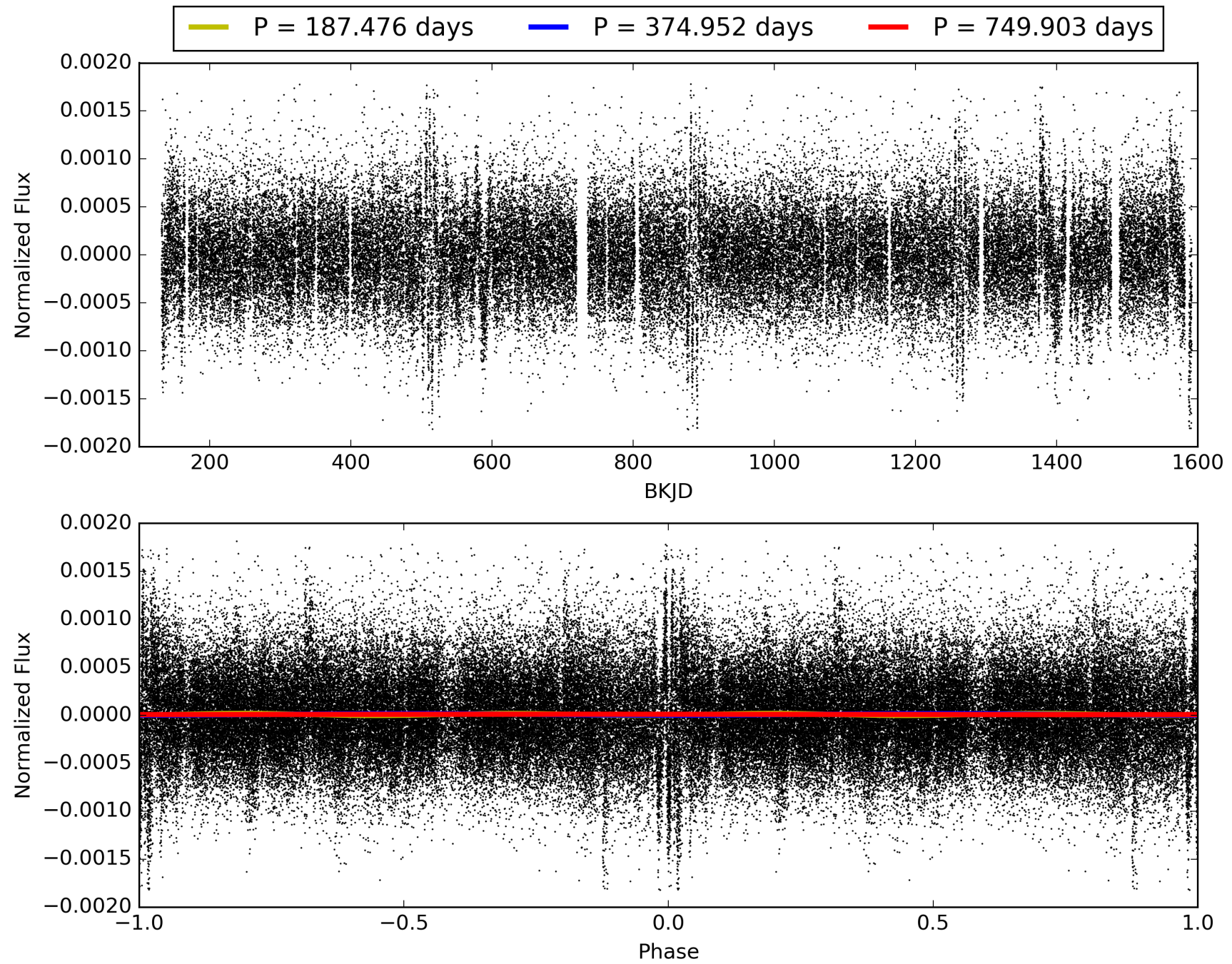
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 6.0% [0.07σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: 1.33e-56  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: 1.915  
Centroid-sig: 0.0%  
Centroid-so: 1.177 arcsec [2.92σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 0.00 [0/1]

# TCE 008885014-03, PDC Light Curves

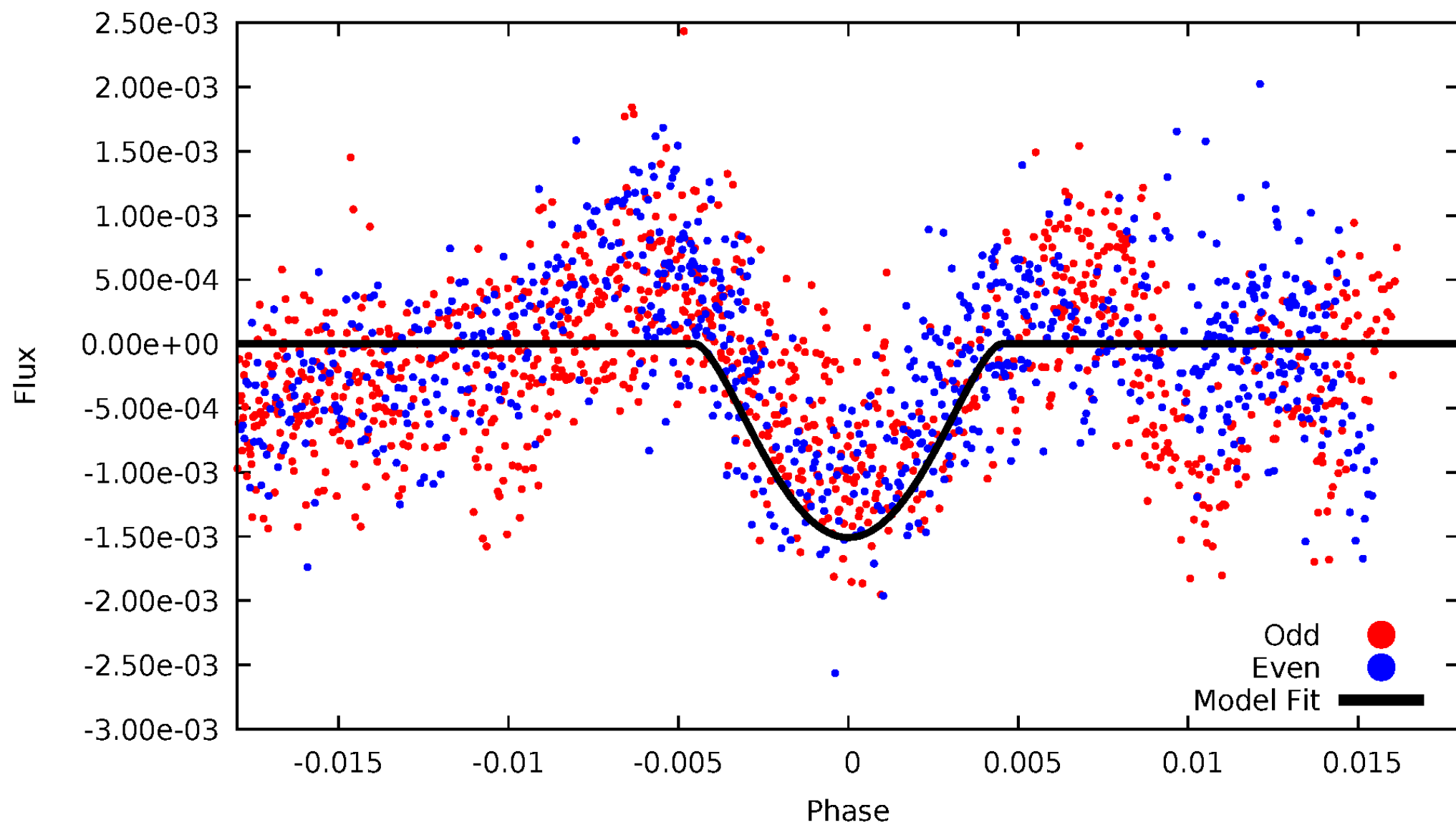


TCE 008885014-03



# DV Odd/Even

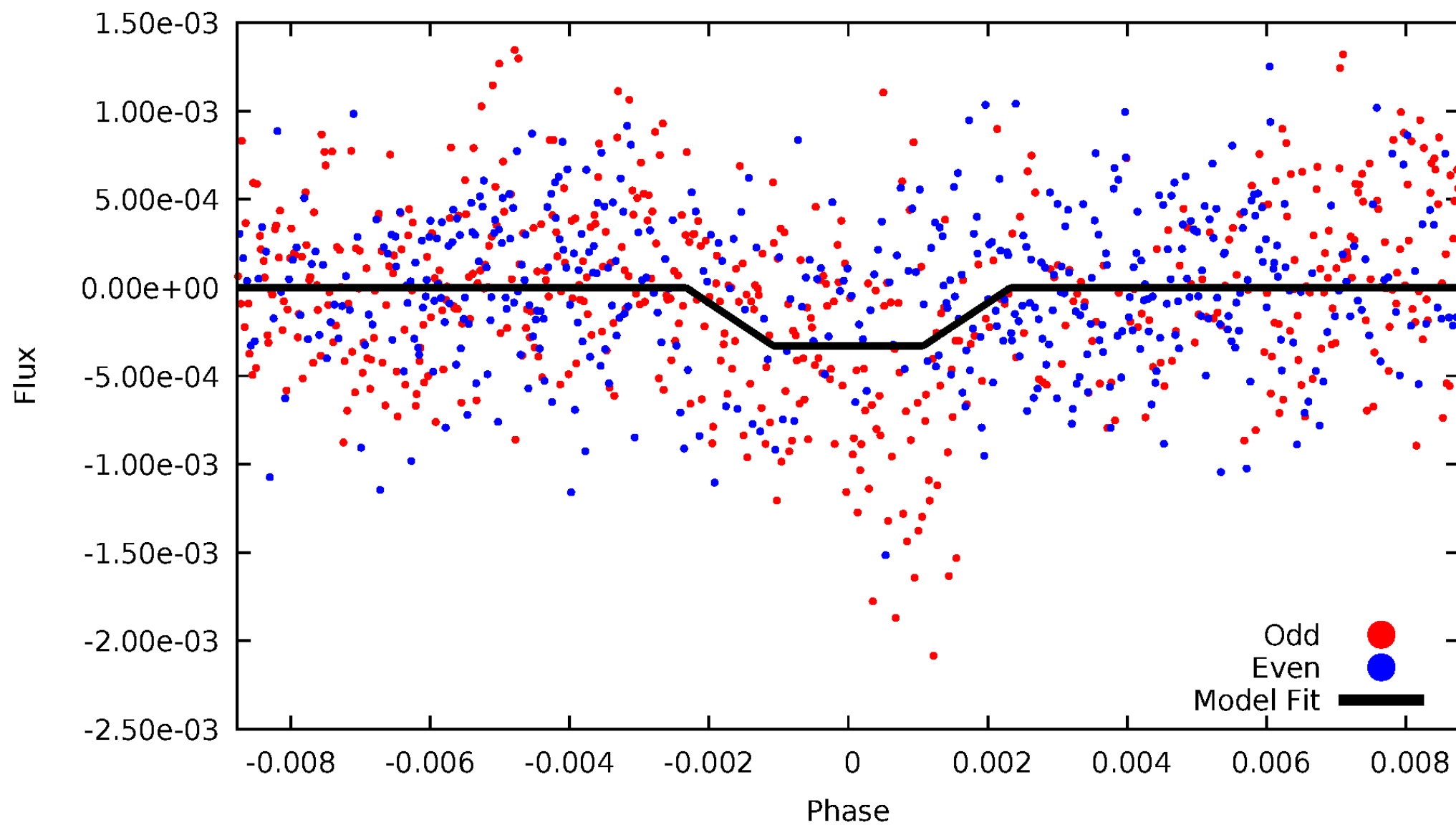
TCE 008885014-03





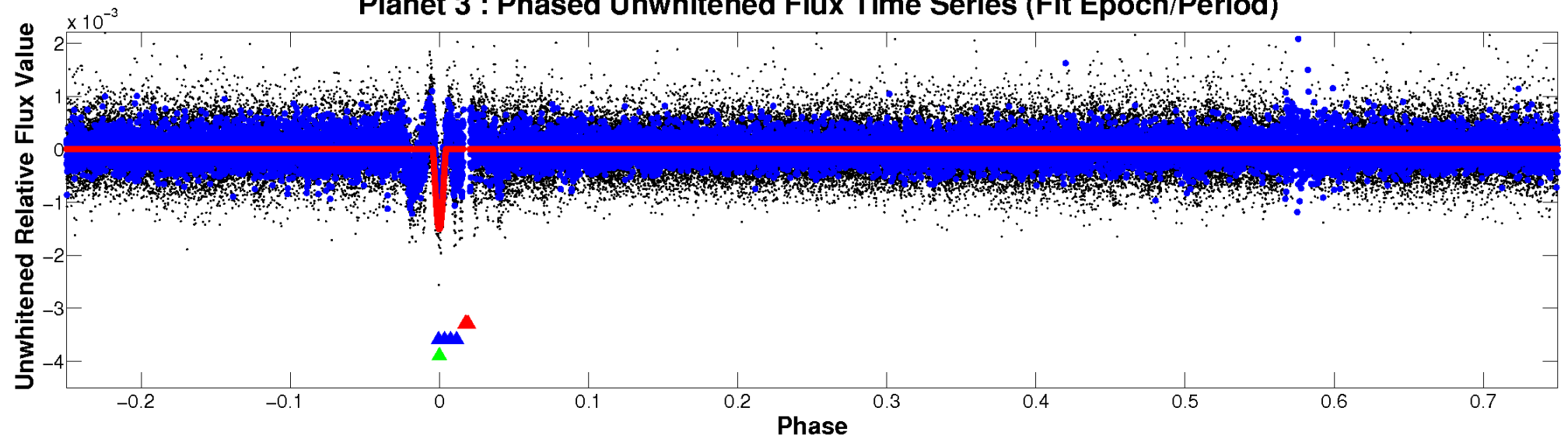
# ALT Odd/Even

TCE 008885014-03

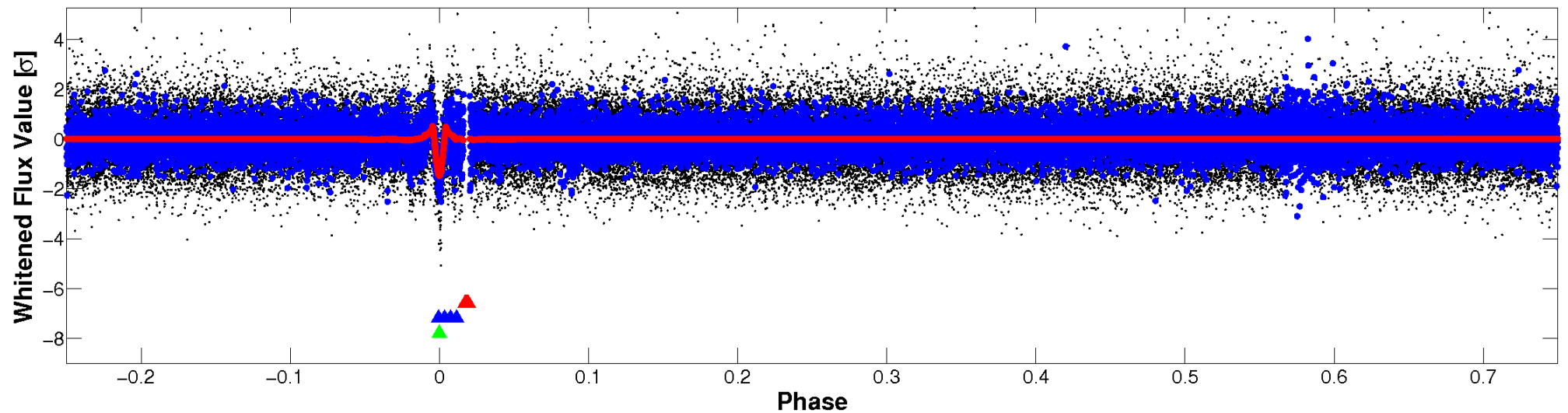


# Non-Whitened Vs. Whitened Light Curve

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

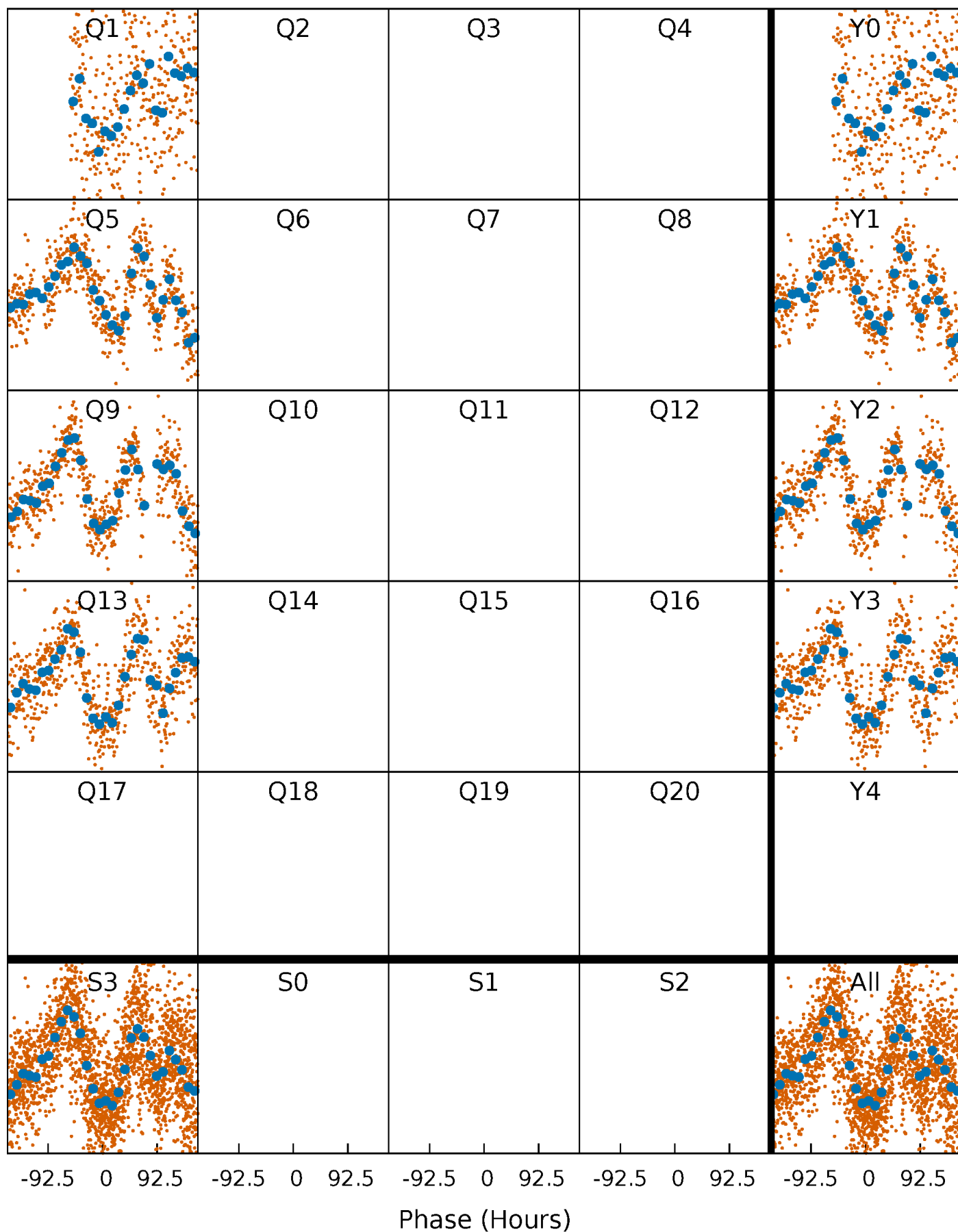


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

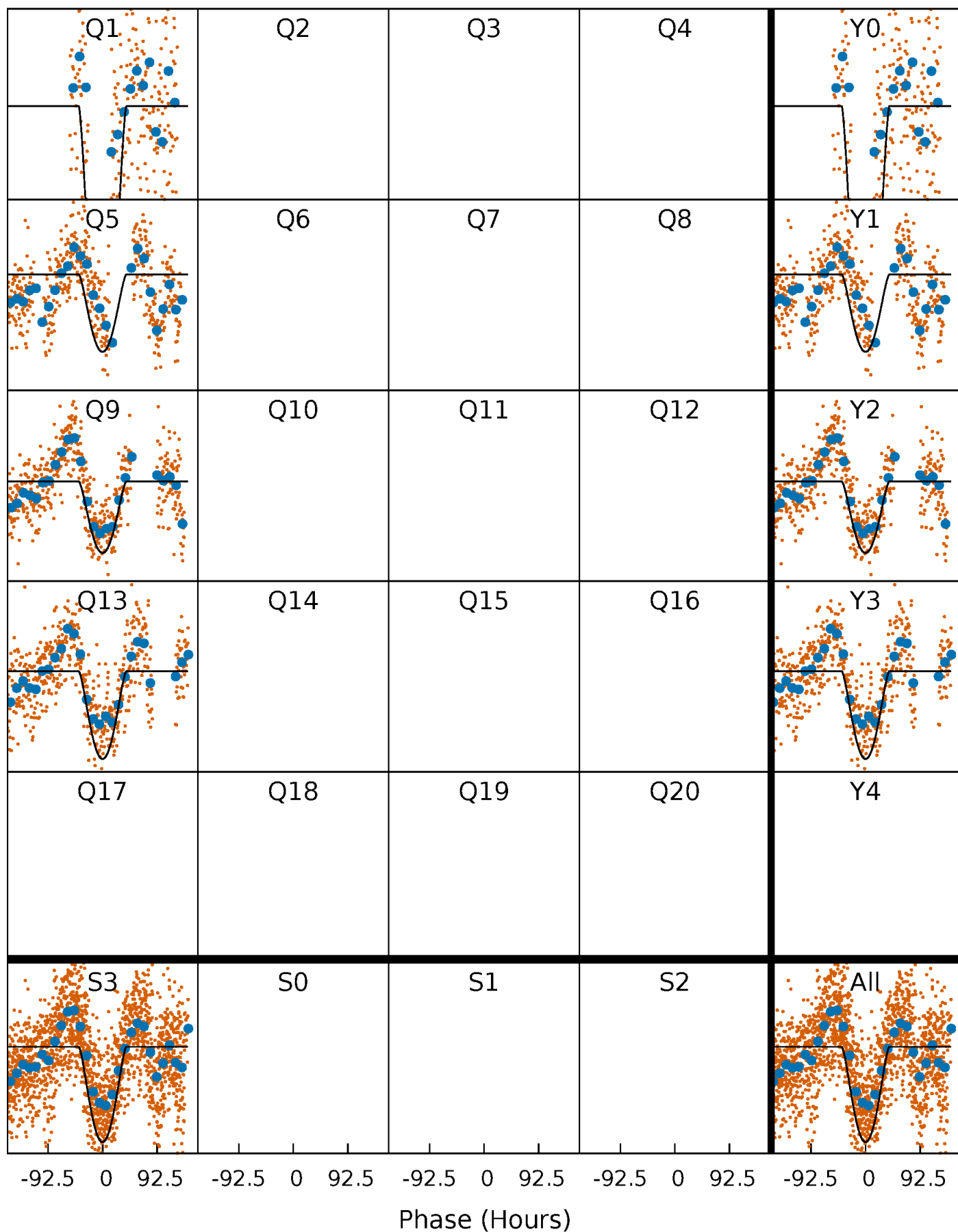
TCE 008885014-03 P=374.951612 Days  $T_0=133.813164$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008885014-03 P=374.951612 Days  $T_0=133.813164$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

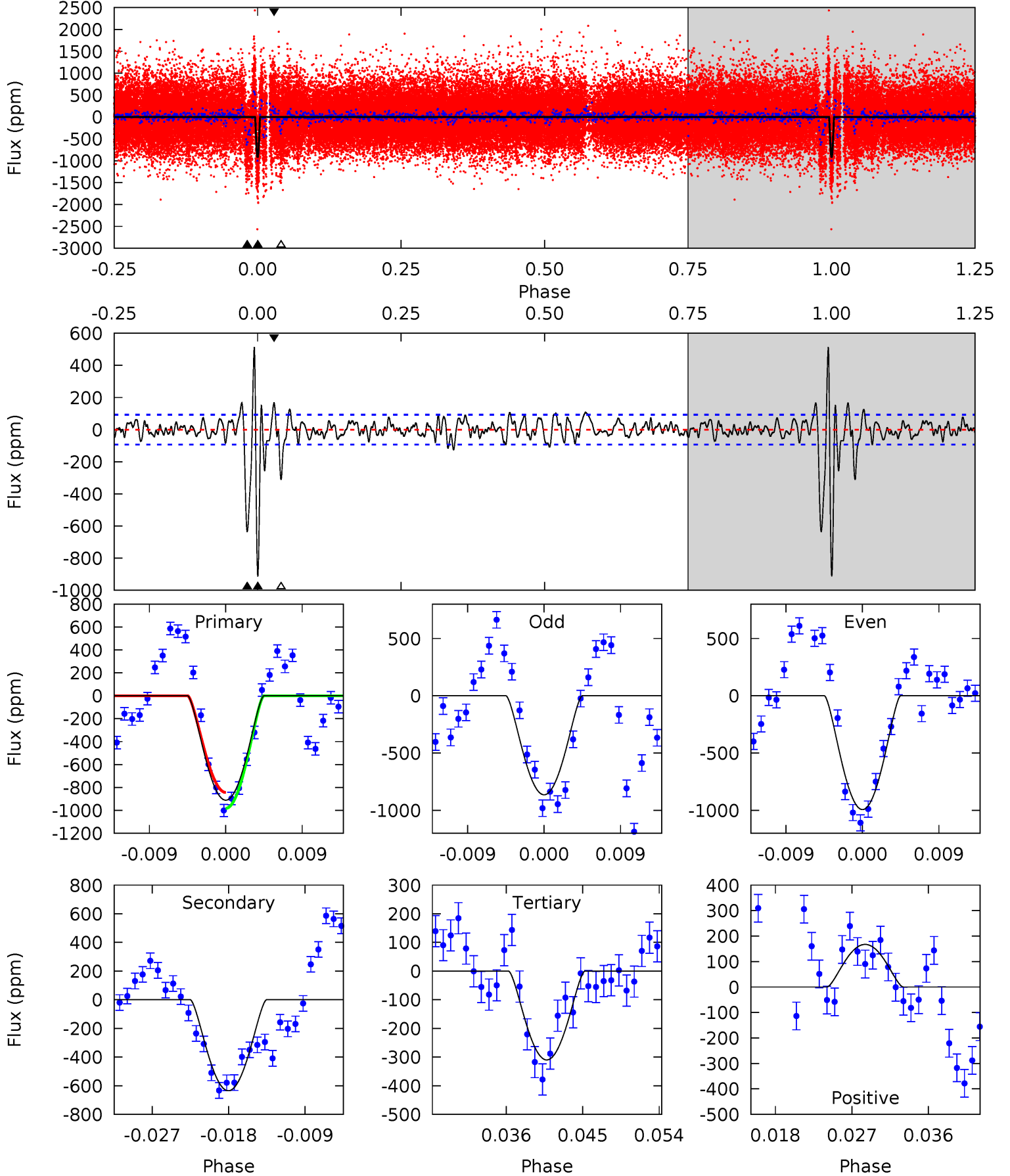
TCE 008885014-03 P=374.703812 Days  $T_0=133.963271$  (BKJD)



# DV Model-Shift Uniqueness Test

008885014-03, P = 374.951612 Days, E = 133.813164 Days

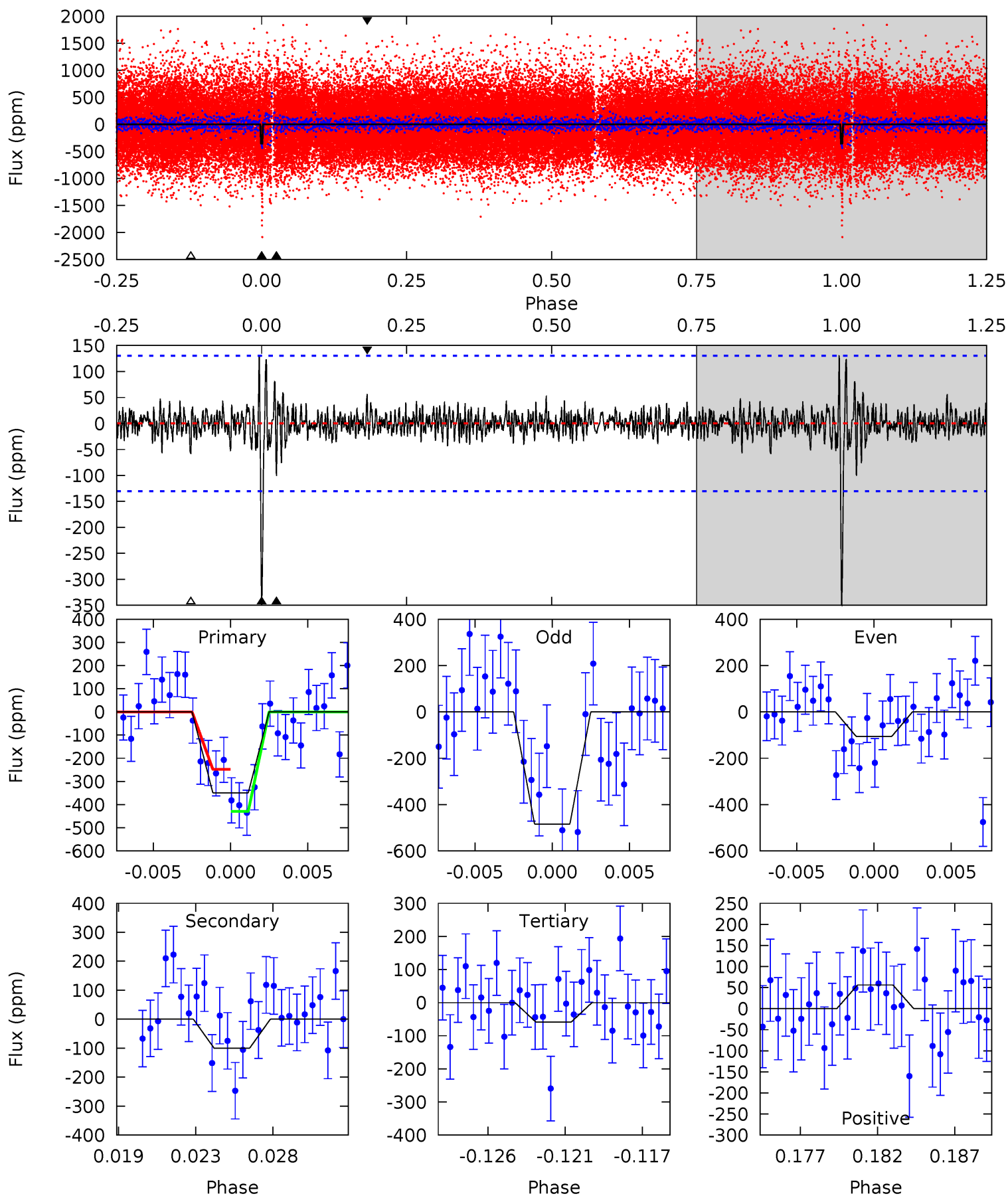
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.5	34.5	16.9	9.09	5.05	2.61	2.71	32.7	40.5	17.7	25.4	3.51	0.90	0.36	3.75



# Alt Model-Shift Uniqueness Test

008885014-03, P = 374.703812 Days, E = 133.963271 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
13.9	3.98	2.32	2.22	5.17	2.83	0.73	11.6	11.7	1.66	1.76	7.36	1.29	0.27	3.58



### Stellar Parameters For KIC 008885014

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+157}_{-224}$	$4.397^{+0.070}_{-0.210}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.389}_{-0.130}$	$1.174^{+0.169}_{-0.152}$	$1.133^{+0.343}_{-0.620}$
	+2%/-4%	+2%/-5%	+1250%/-1500%	+34%/-11%	+14%/-13%	+30%/-55%
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 008885014-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-635 \pm 18$	$10.51^{+9.88}_{-6.61}$	$409^{+30}_{-23}$	$3846^{+1941}_{-687}$	$3544^{+23634}_{-2604}$
Alt.	$-100 \pm 25$	$8.02^{+7.85}_{-5.62}$	$408^{+31}_{-21}$	$3162^{+1562}_{-555}$	$993^{+9725}_{-753}$

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

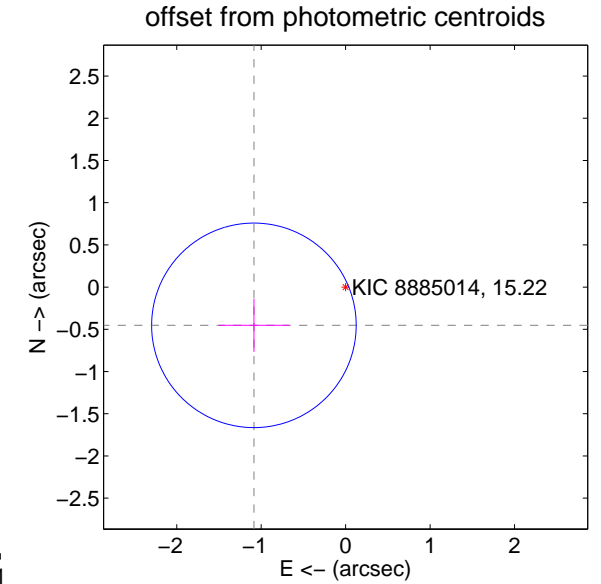
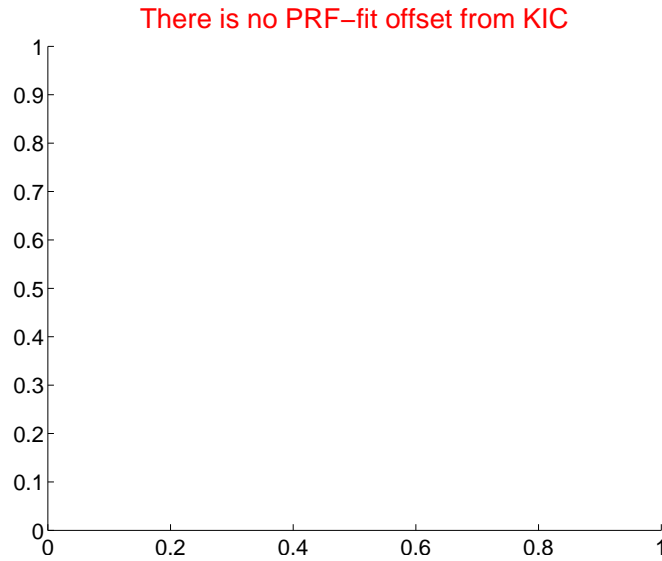
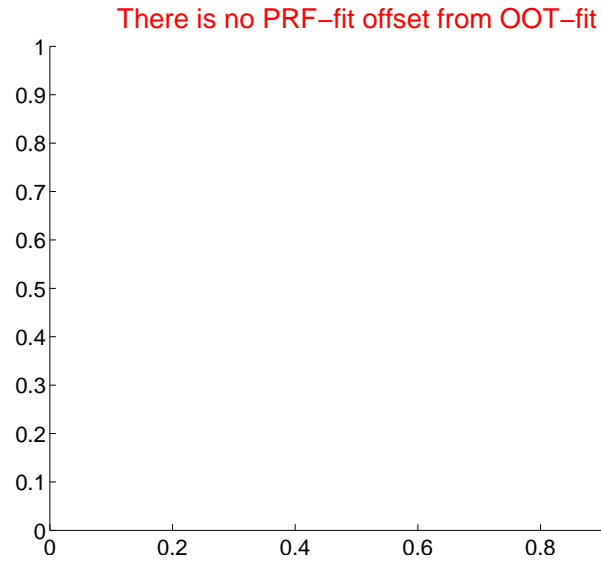
## DV Centroid Data

Supplemental centroid analysis for 008885014-03. Kepler magnitude: 15.22. Transit SNR 20.84

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$1.18 \pm 0.40$	2.92	$1.09 \pm 0.42$	$-0.45 \pm 0.31$



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.

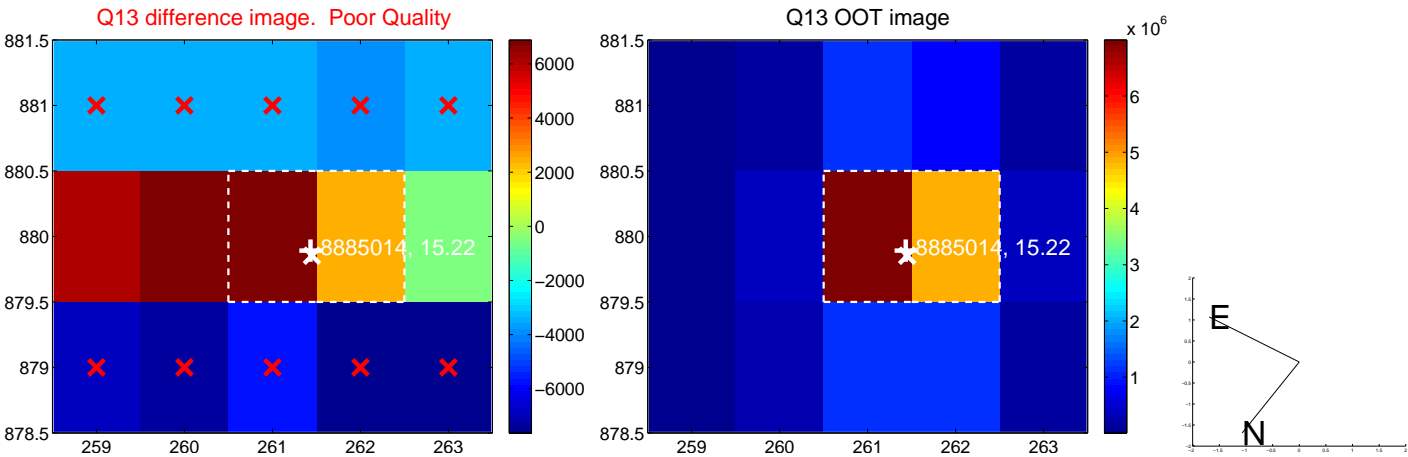




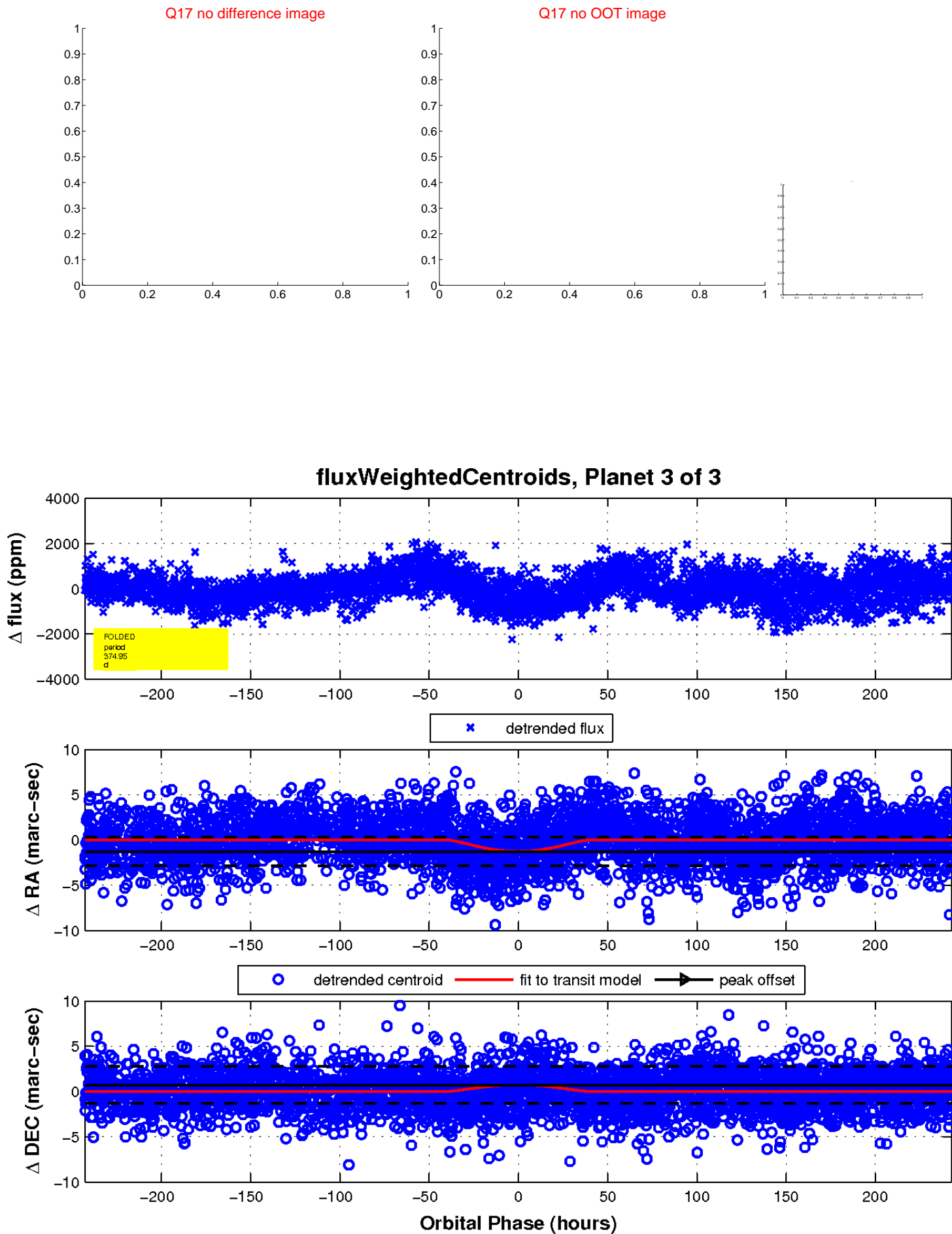
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

