

# KIC 008894773

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008894773-01	OBS	No	291.069985	218.892654	1497.8	7.011	12.3	7.2	3.38	4946	15.79	9.08
008894773-02	OBS	No	465.532009	141.381902	1459.2	3.489	13.3	6.9	3.38	4946	12.65	4.86
008894773-03	OBS	No	423.348190	346.137902	1394.4	26.048	10.5	4.2	3.38	4946	13.25	5.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008894773-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008894773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008894773-03	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

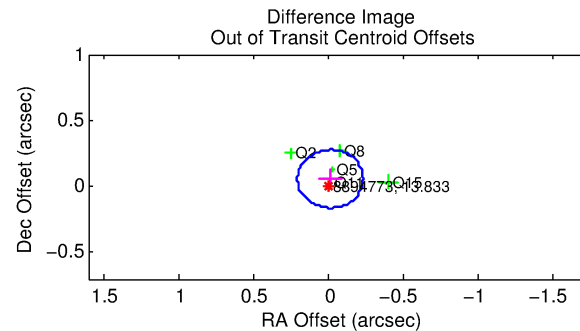
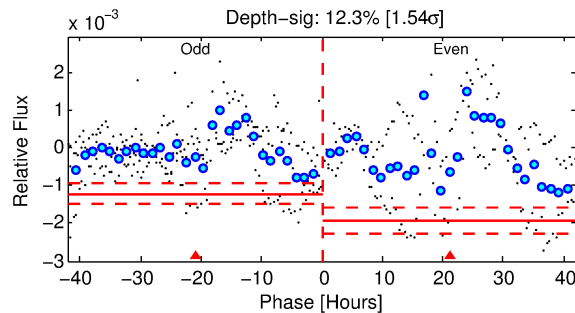
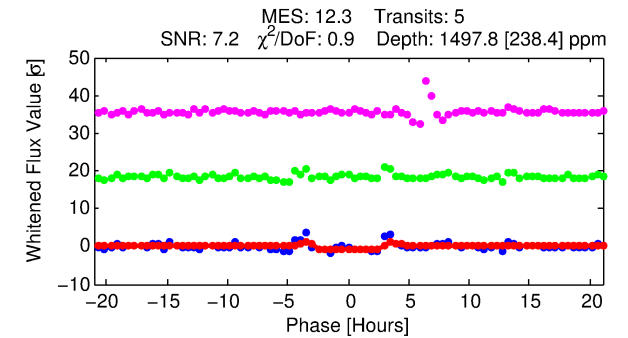
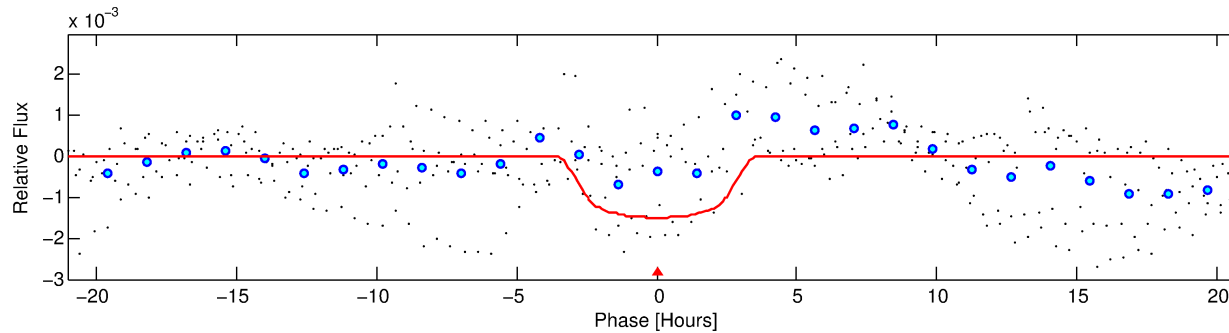
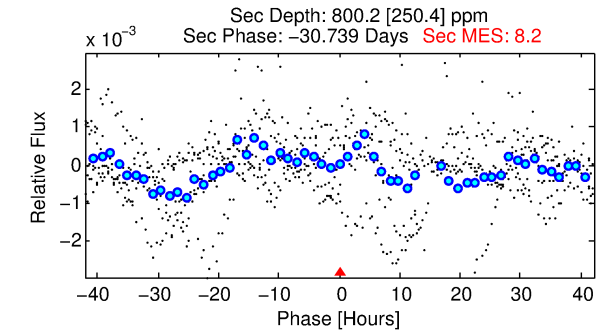
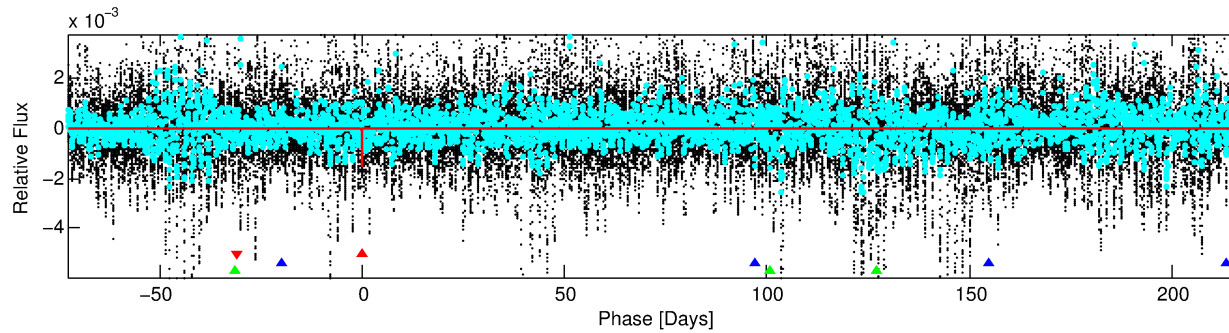
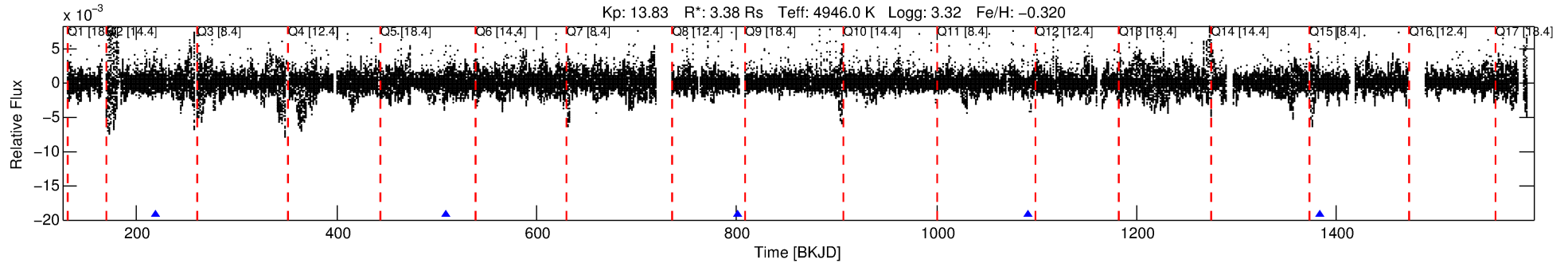
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008894773-01

No Significant Match Found

# DV One-Page Summary

KIC: 8894773 Candidate: 1 of 3 Period: 291.070 d



## DV Fit Results:

Period = 291.06998 [0.00331] d  
Epoch = 218.8927 [0.0075] BKJD  
Rp/R\* = 0.0429 [0.0040]  
a/R\* = 169.71 [23.59]  
b = 0.90 [0.03]  
Seff = 9.08 [18.11]  
Teq = 443 [221] K  
Rp = 15.79 [13.19] Re  
a = 0.8203 [0.9058] AU  
Ag = 1187.52 [2401.87] [0.49 $\sigma$ ]  
Teffp = 4018 [389] K [8.00 $\sigma$ ]

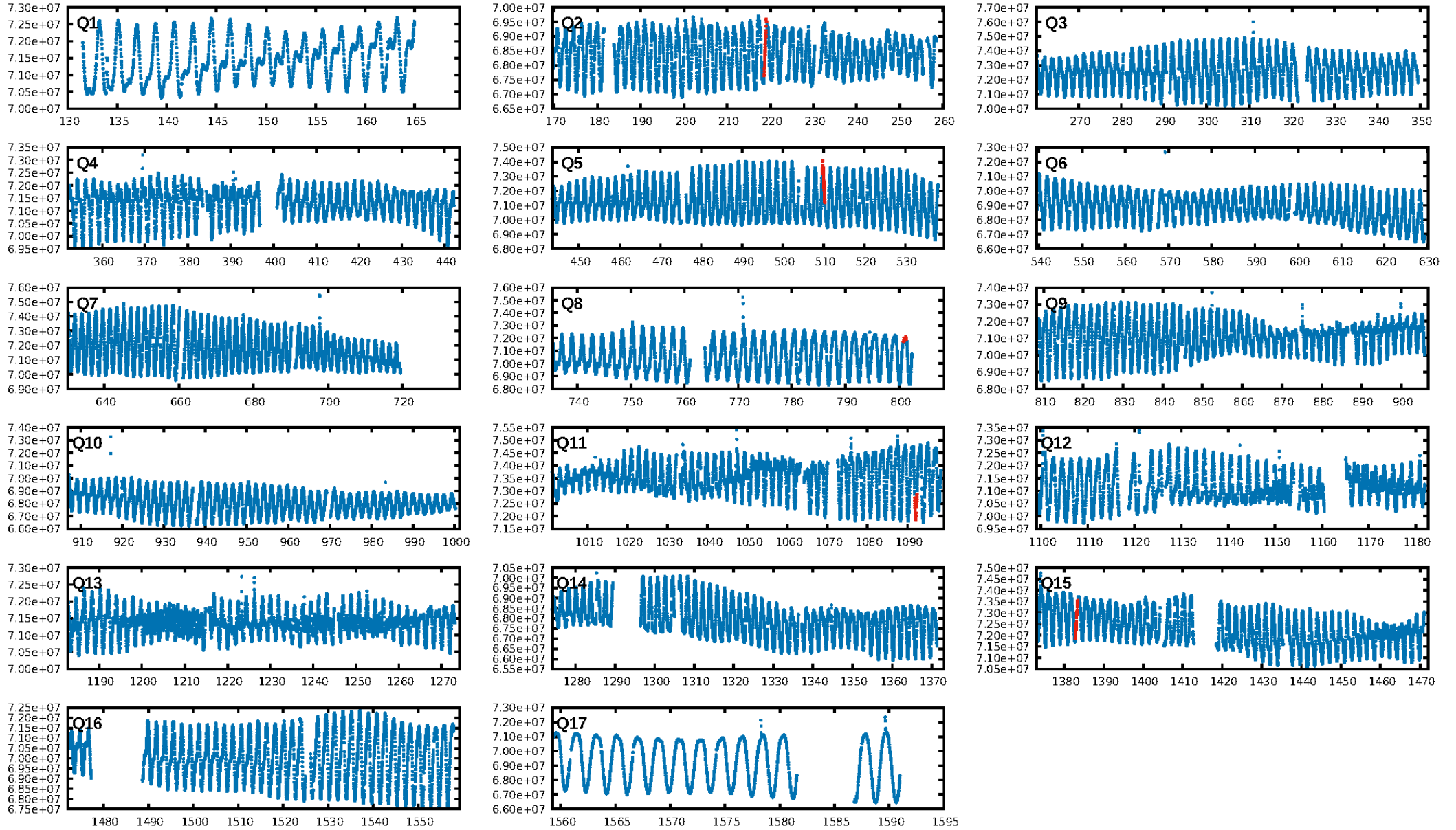
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [117.69 $\sigma$ ]  
ModelChiSquare2-sig: 40.3%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 2.91e-09  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.9685  
Centroid-sig: 7.4%  
Centroid-so: 0.245 arcsec [0.62 $\sigma$ ]  
OotOffset-rm: 0.060 arcsec [0.82 $\sigma$ ]  
KicOffset-rm: 0.084 arcsec [1.11 $\sigma$ ]  
OotOffset-st: 1/2/1/1 [5]  
KicOffset-st: 1/2/1/1 [5]  
DiffImageQuality-fgm: 0.20 [1/5]  
DiffImageOverlap-fno: 1.00 [5/5]

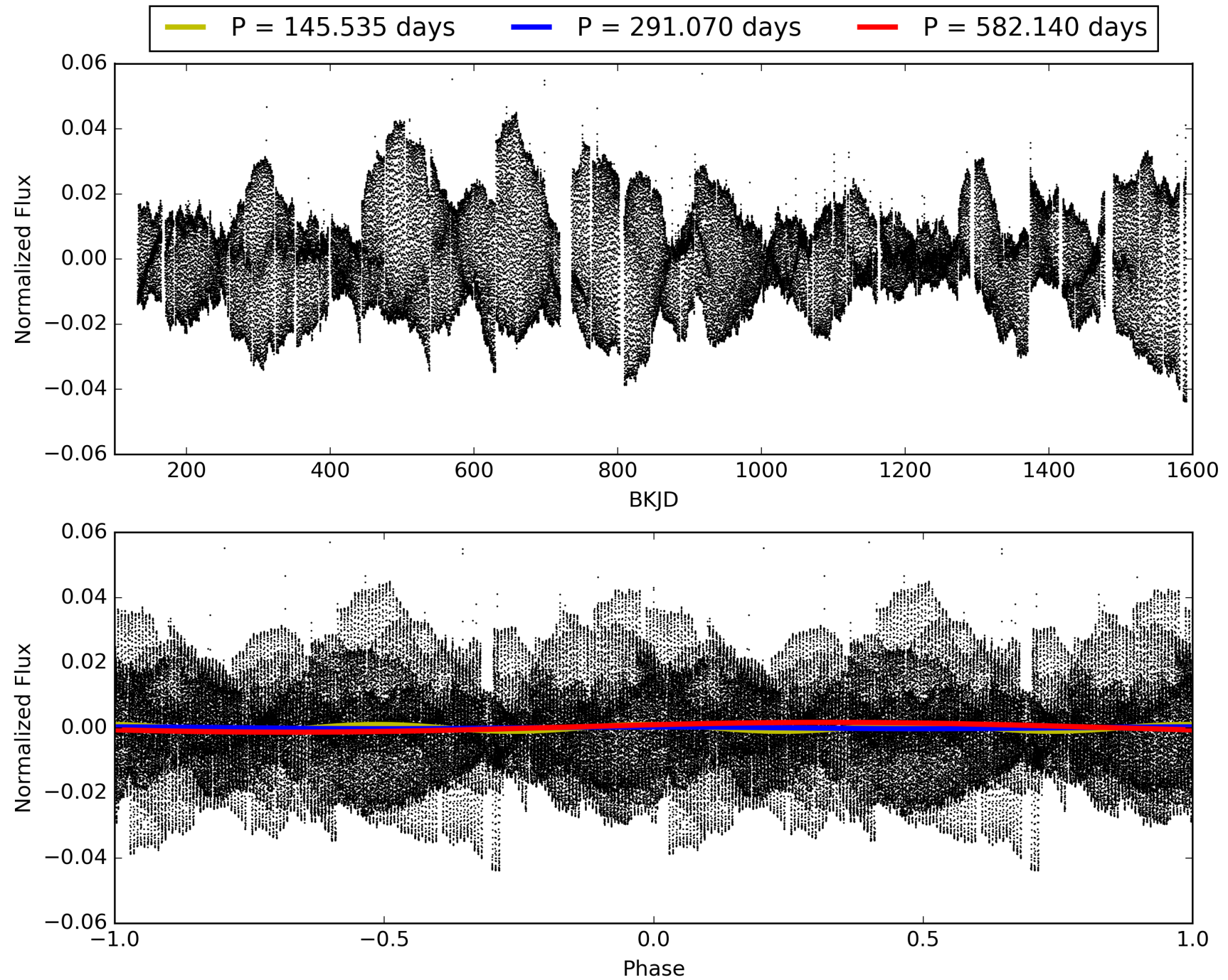
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 20:52:09 Z

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

# TCE 008894773-01, PDC Light Curves

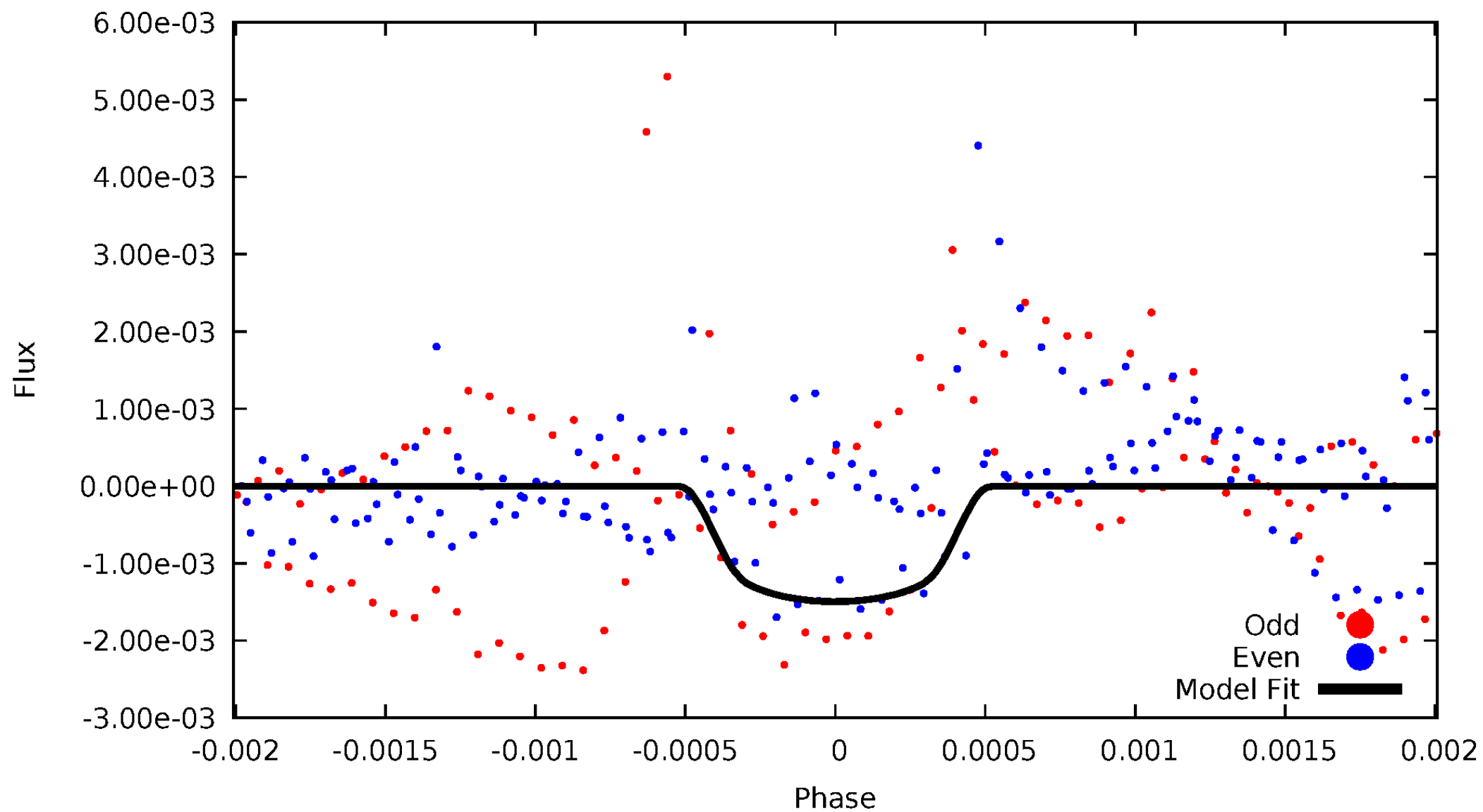


TCE 008894773-01



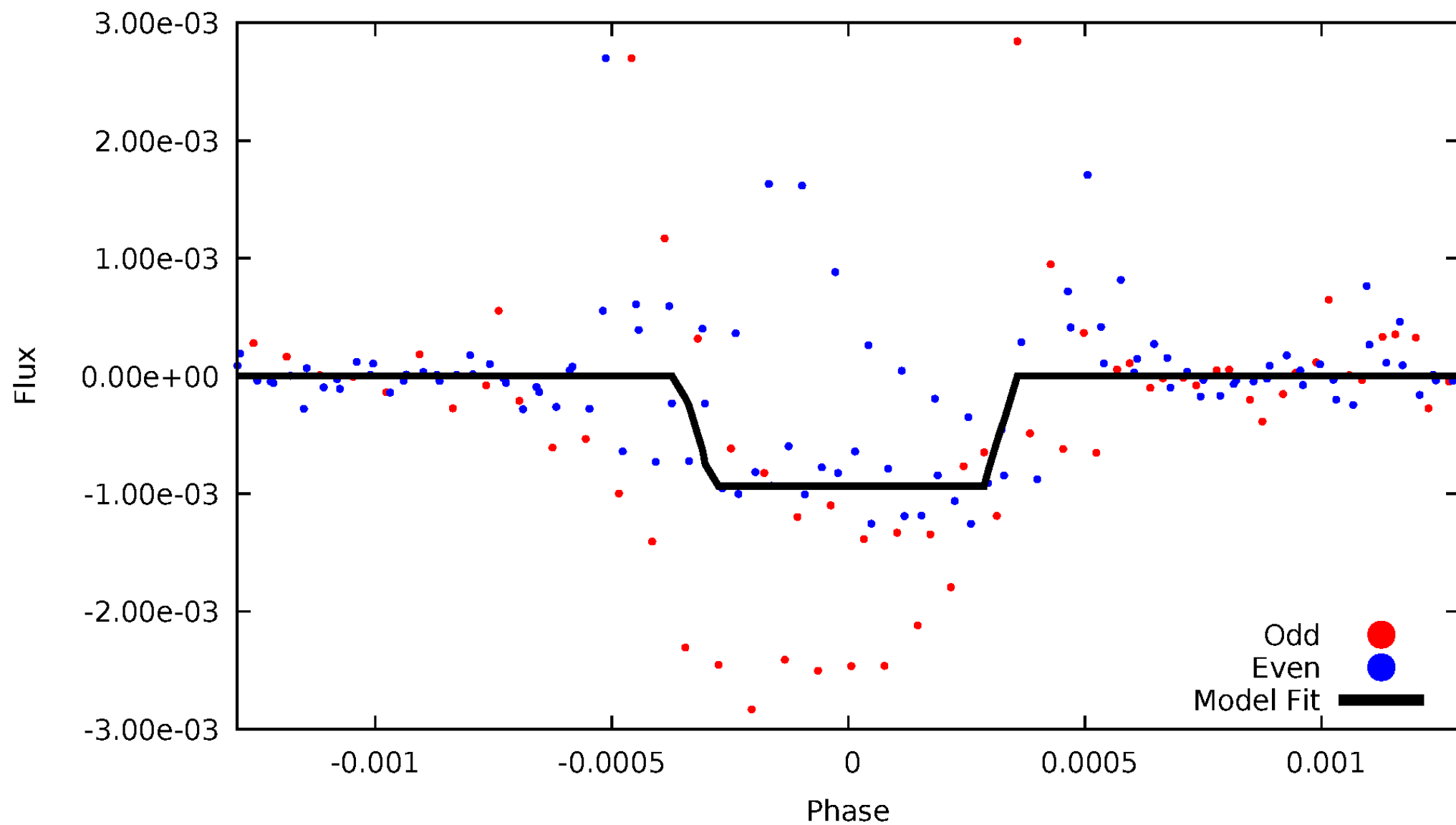
# DV Odd/Even

TCE 008894773-01

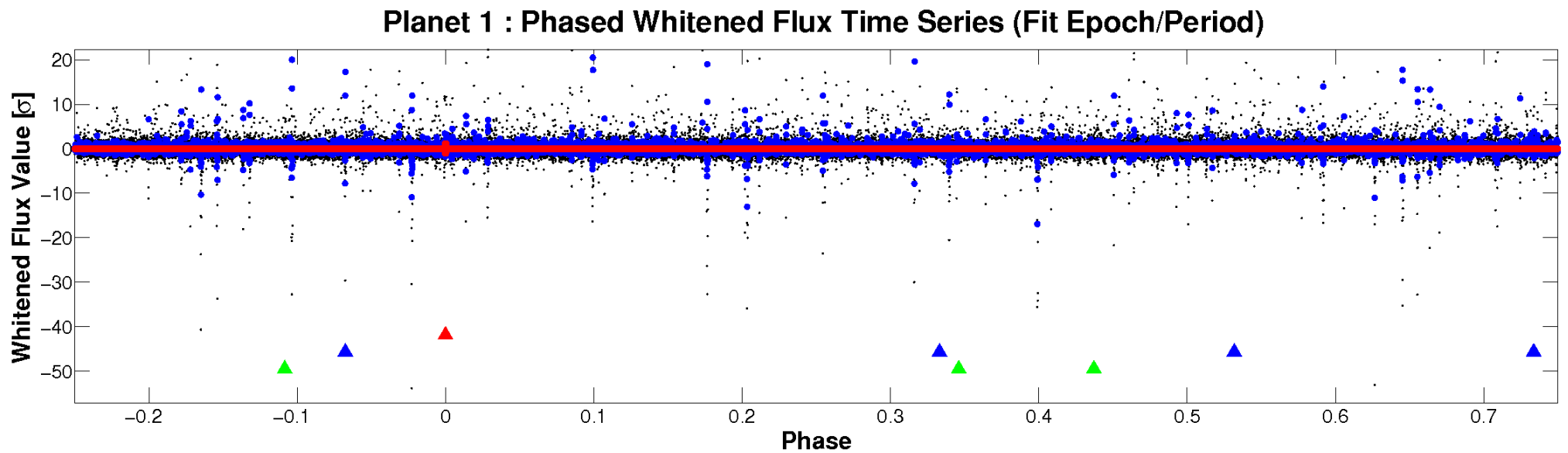
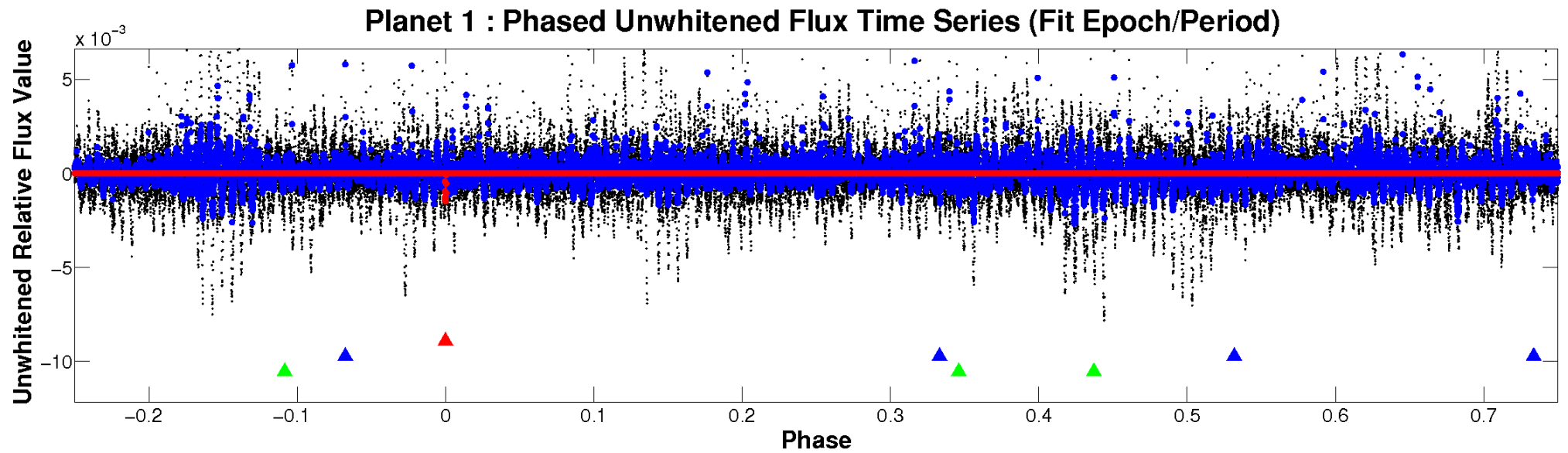


# ALT Odd/Even

TCE 008894773-01



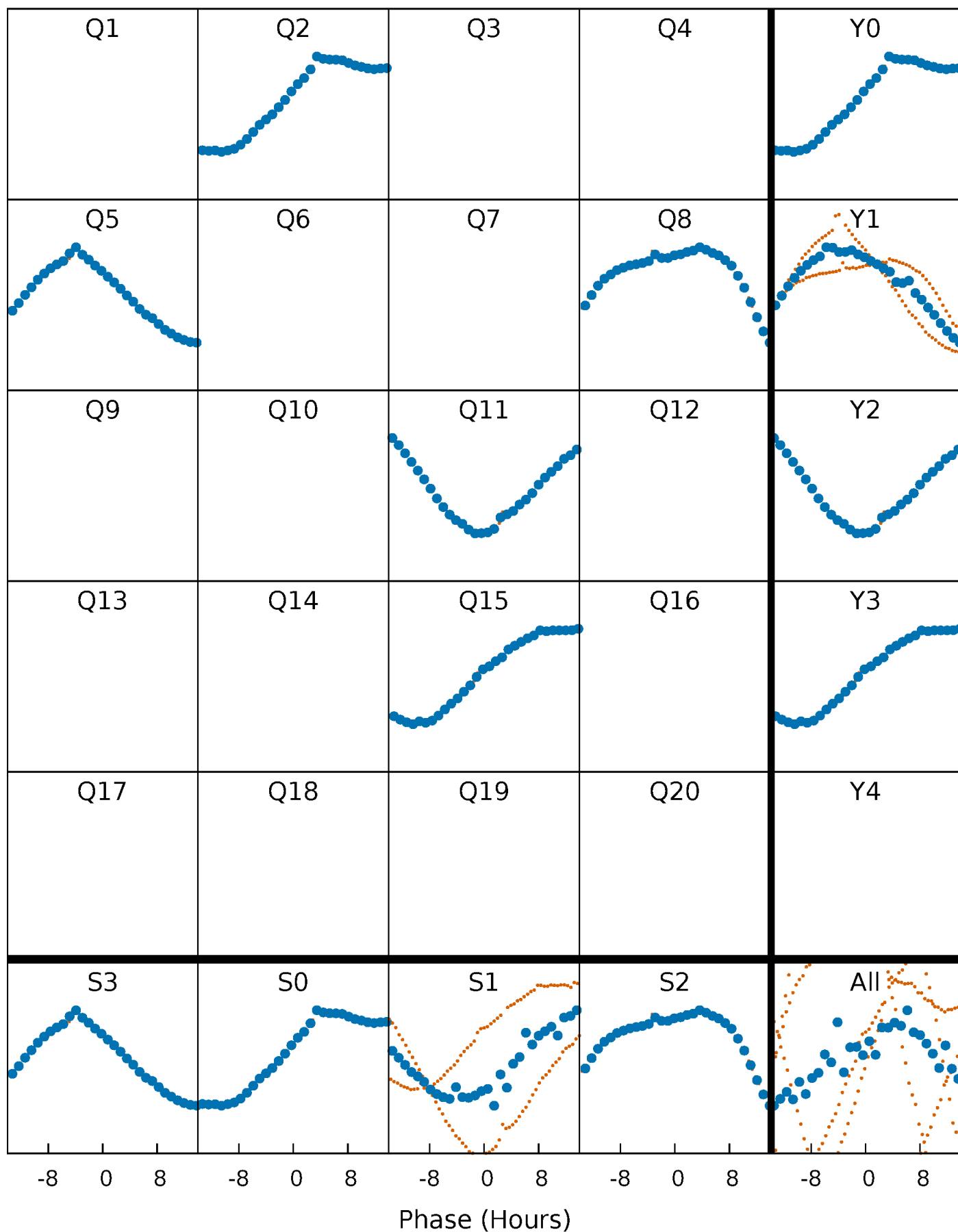
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

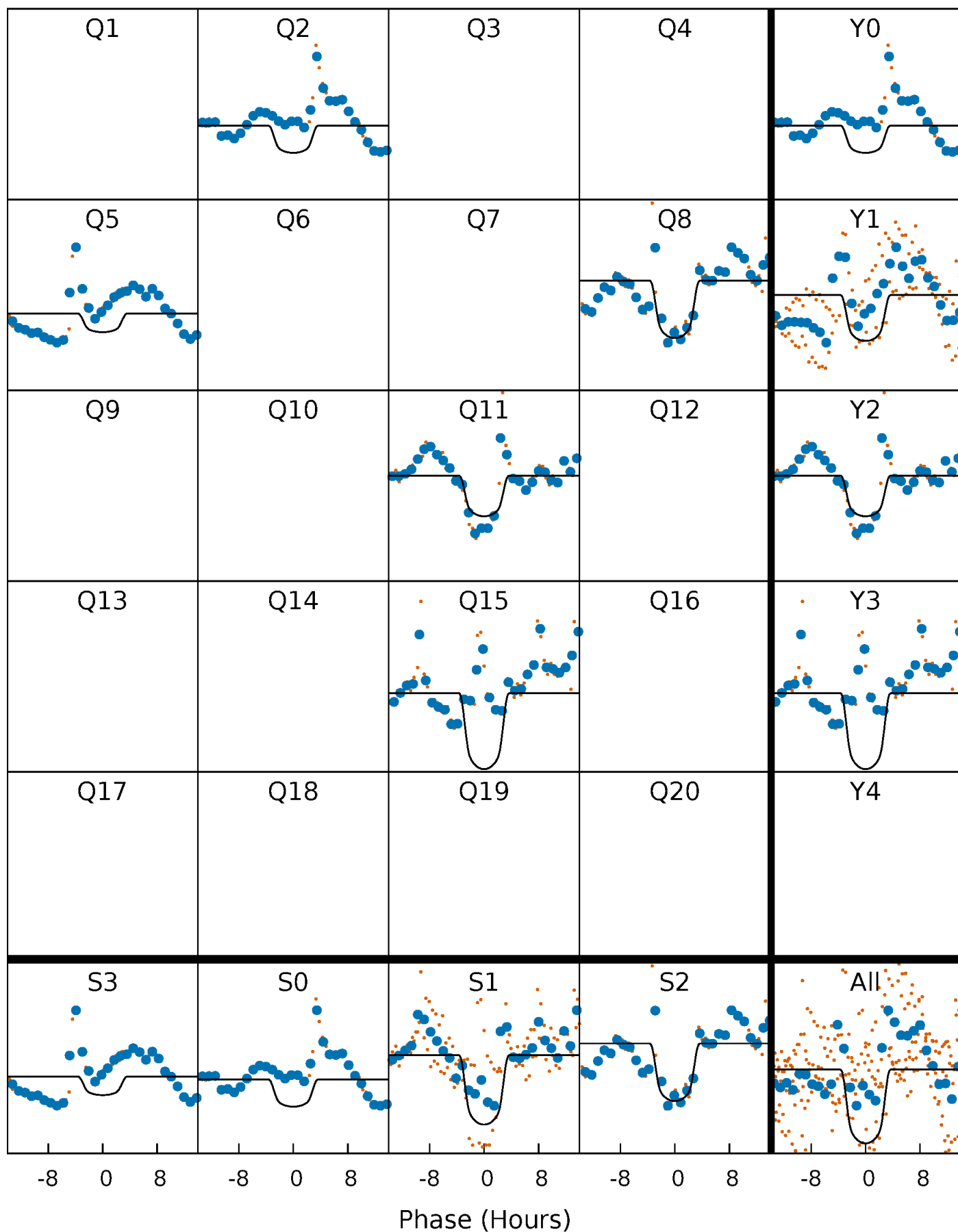
TCE 008894773-01 P=291.069985 Days  $T_0=218.892654$  (BKJD)





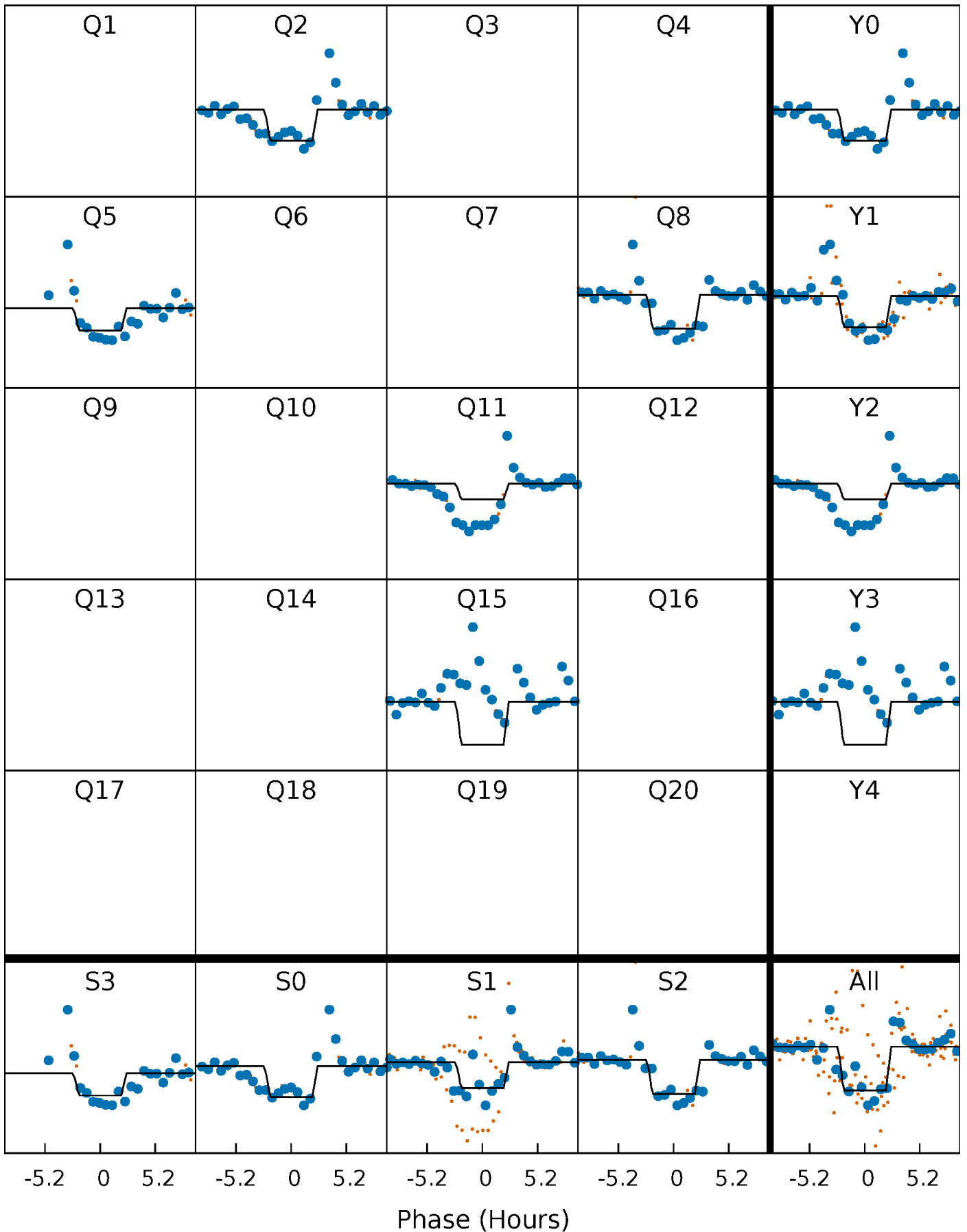
# DV Quarter-Phased Transit Curves

TCE 008894773-01 P=291.069985 Days  $T_0=218.892654$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

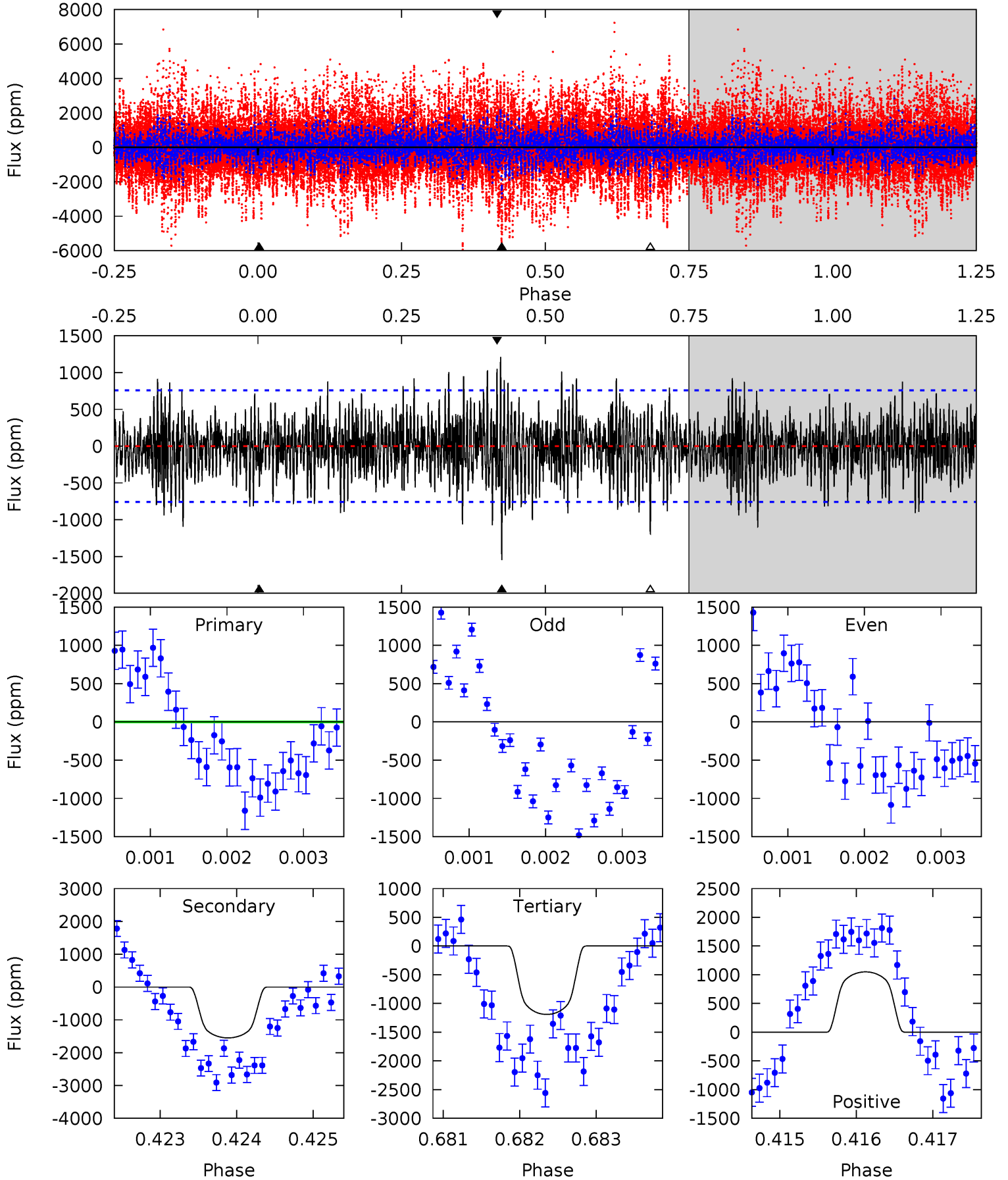
TCE 008894773-01 P=291.069251 Days  $T_0=218.904633$  (BKJD)



# DV Model-Shift Uniqueness Test

008894773-01, P = 291.069985 Days, E = 218.892654 Days

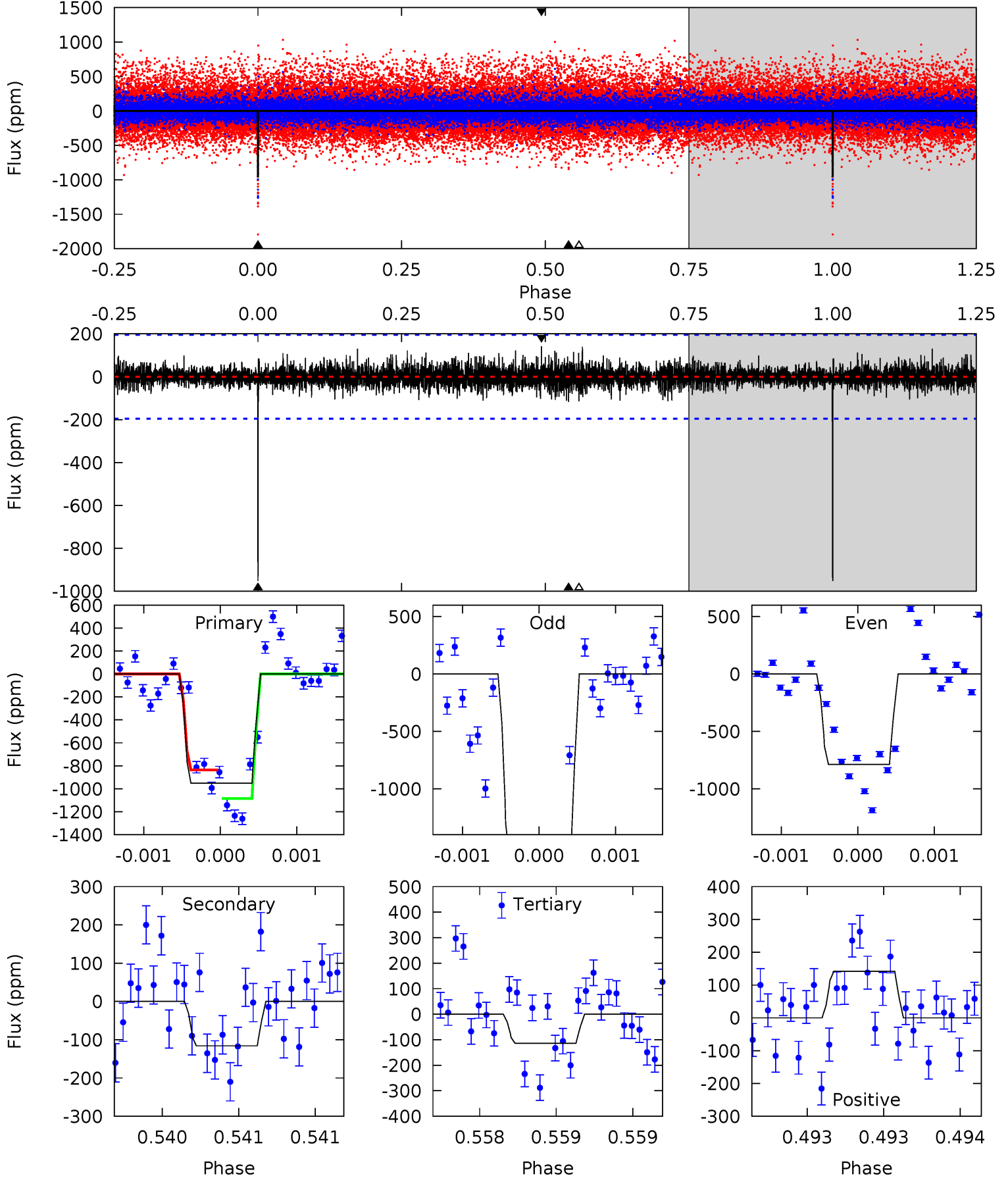
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.92	11.1	8.54	7.53	5.44	3.28	2.34	-5.62	-4.60	2.56	3.58	0.49	-2.70	0.44	1.23



# Alt Model-Shift Uniqueness Test

008894773-01, P = 291.069251 Days, E = 218.904633 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
26.8	3.27	3.20	3.99	5.52	3.39	0.86	23.6	22.8	0.06	-0.72	12.6	0.93	0.13	3.46



### Stellar Parameters For KIC 008894773

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4946^{+118}_{-163}$	$3.320^{+1.245}_{-0.332}$	$-0.320^{+0.250}_{-0.300}$	$3.376^{+2.101}_{-2.802}$	$0.868^{+0.240}_{-0.240}$	$0.032^{+3.178}_{-0.019}$
	+2%/-3%	+38%/-10%	+78%/-94%	+62%/-83%	+28%/-28%	+10006%/-61%
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 008894773-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1549 \pm 140$	$15.00^{+5.58}_{-6.23}$	$601^{+106}_{-139}$	$4774^{+263}_{-228}$	$2544^{+4689}_{-1172}$
Alt.	$-116 \pm 36$	$10.24^{+4.58}_{-4.40}$	$593^{+103}_{-148}$	$3403^{+214}_{-228}$	$411^{+834}_{-230}$

$T_{\text{max}}$  = 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

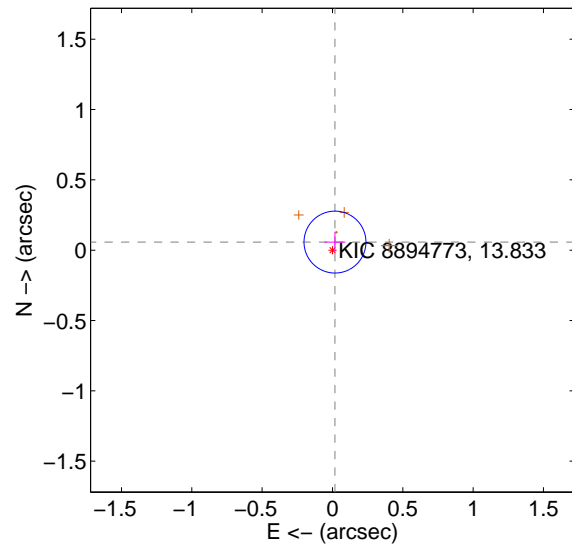
Supplemental centroid analysis for 008894773-01. Kepler magnitude: 13.83. Transit SNR 7.18

There are 1 quarters with good PRF difference image offsets

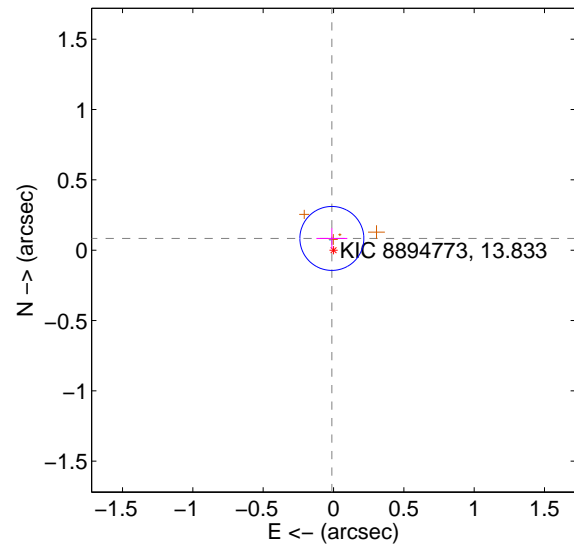
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.060 \pm 0.073$	0.82	$-0.018 \pm 0.074$	$0.058 \pm 0.073$
PRF-fit source offset from KIC position	$0.084 \pm 0.076$	1.11	$0.012 \pm 0.110$	$0.083 \pm 0.073$
photometric centroid source offset	$0.24 \pm 0.40$	0.62	$-0.05 \pm 0.24$	$0.24 \pm 0.40$

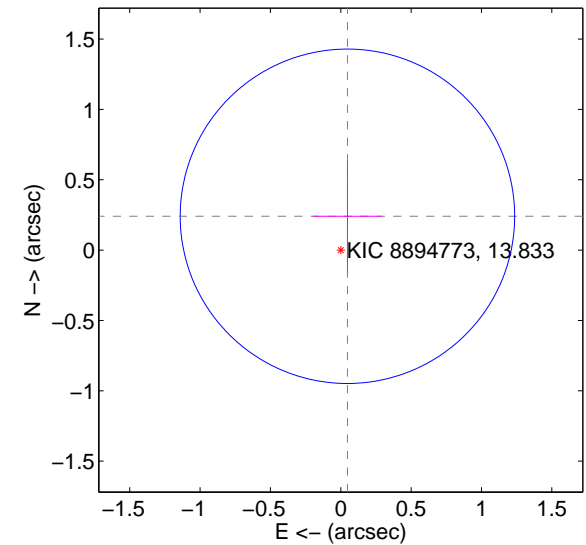
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

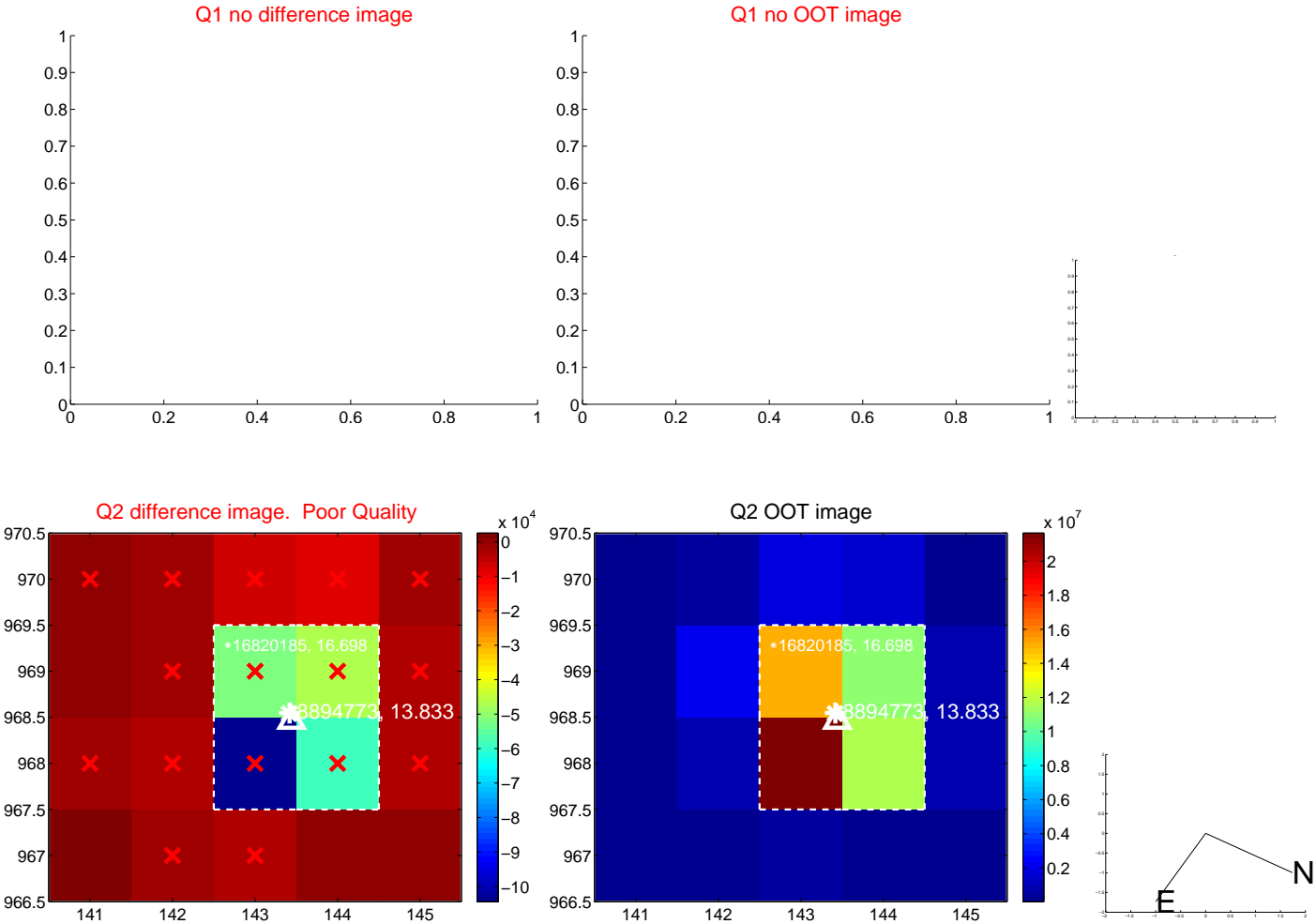


offset from photometric centroids



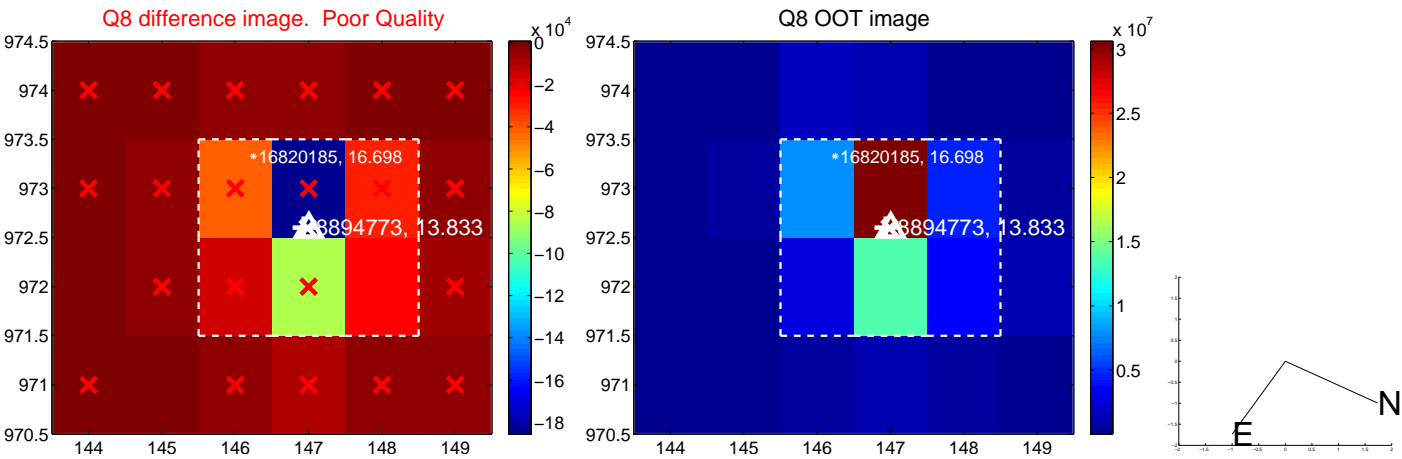
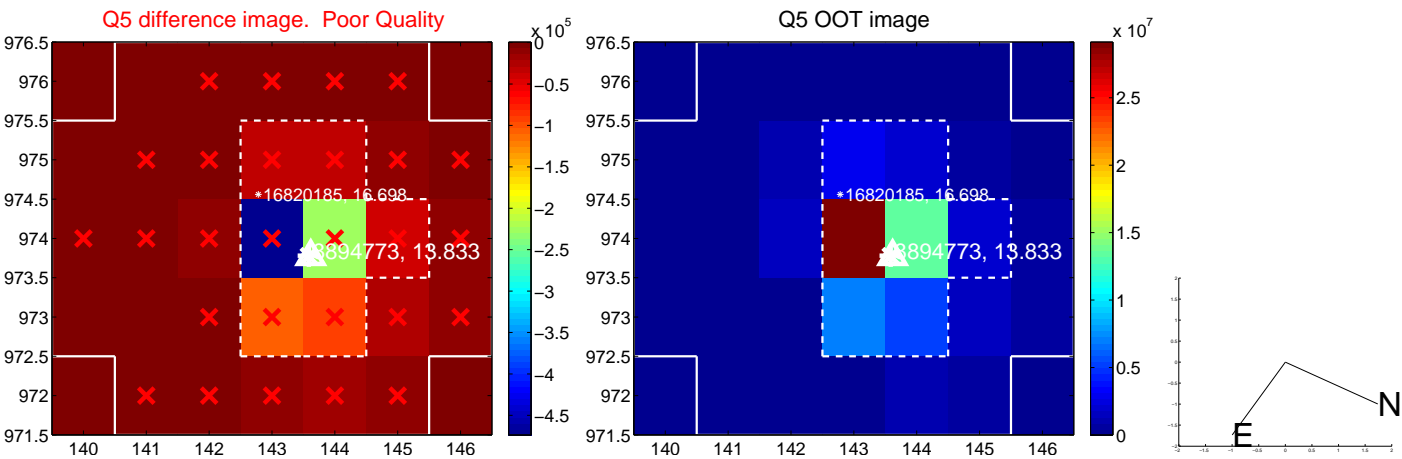
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

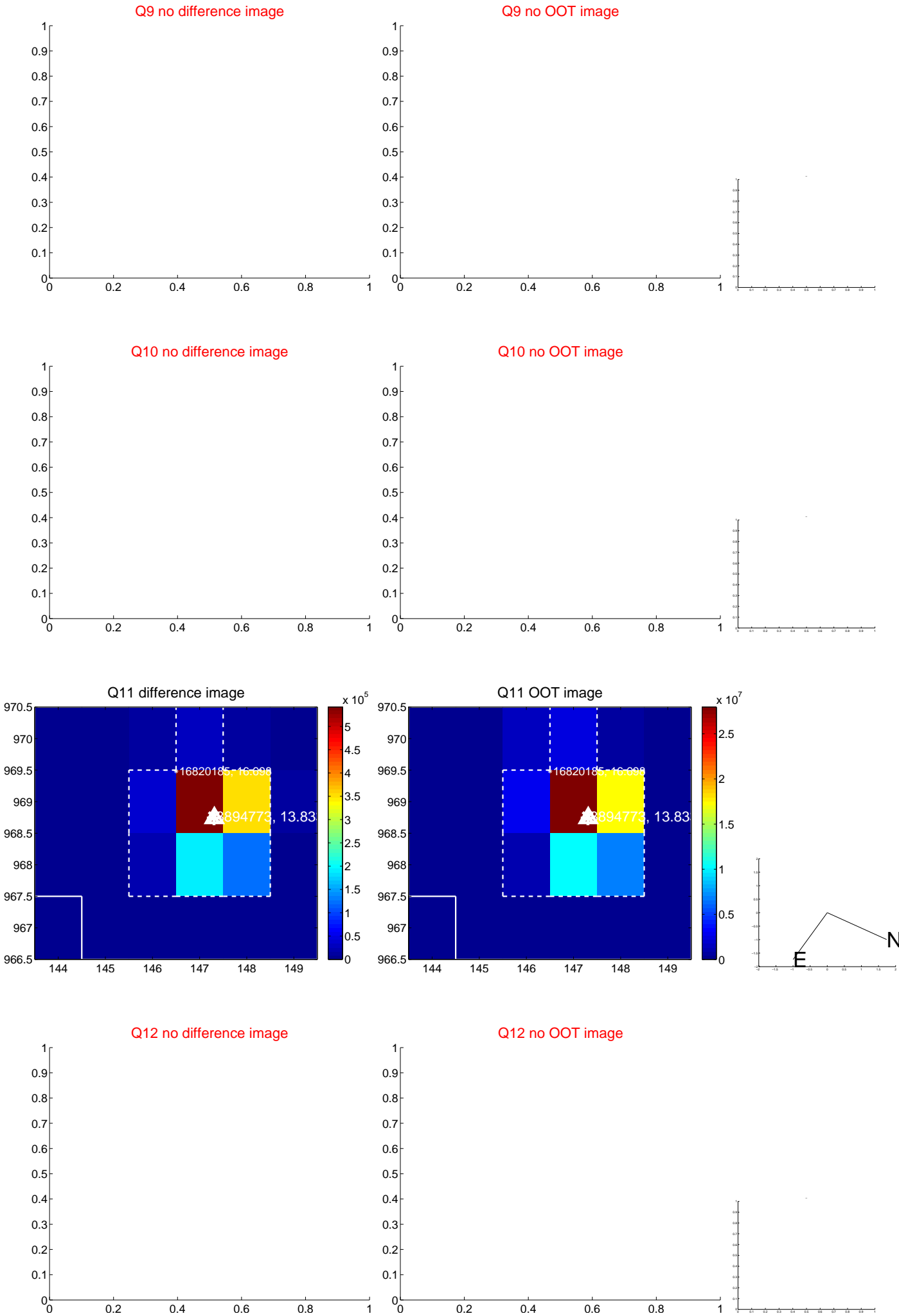




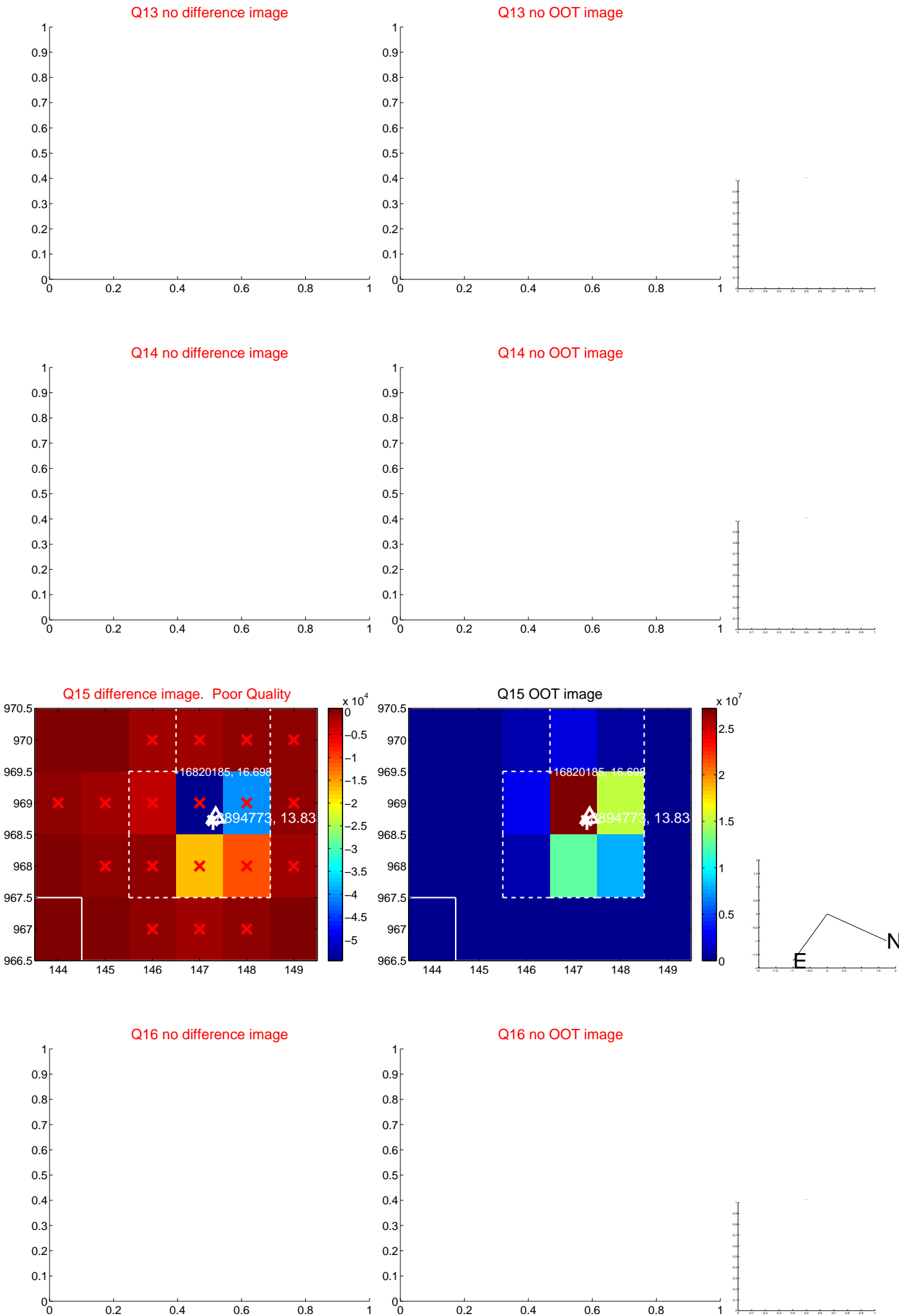
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



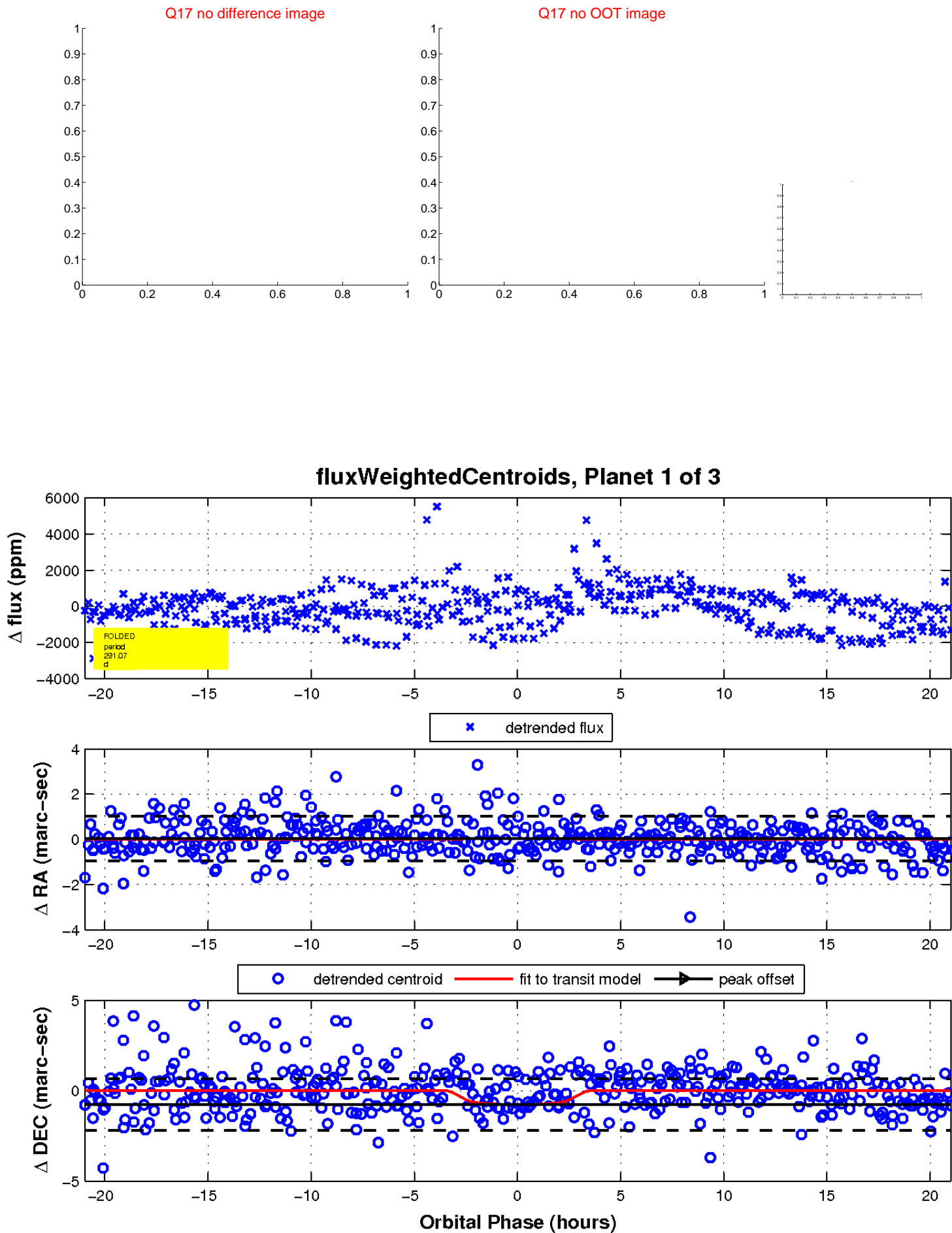
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



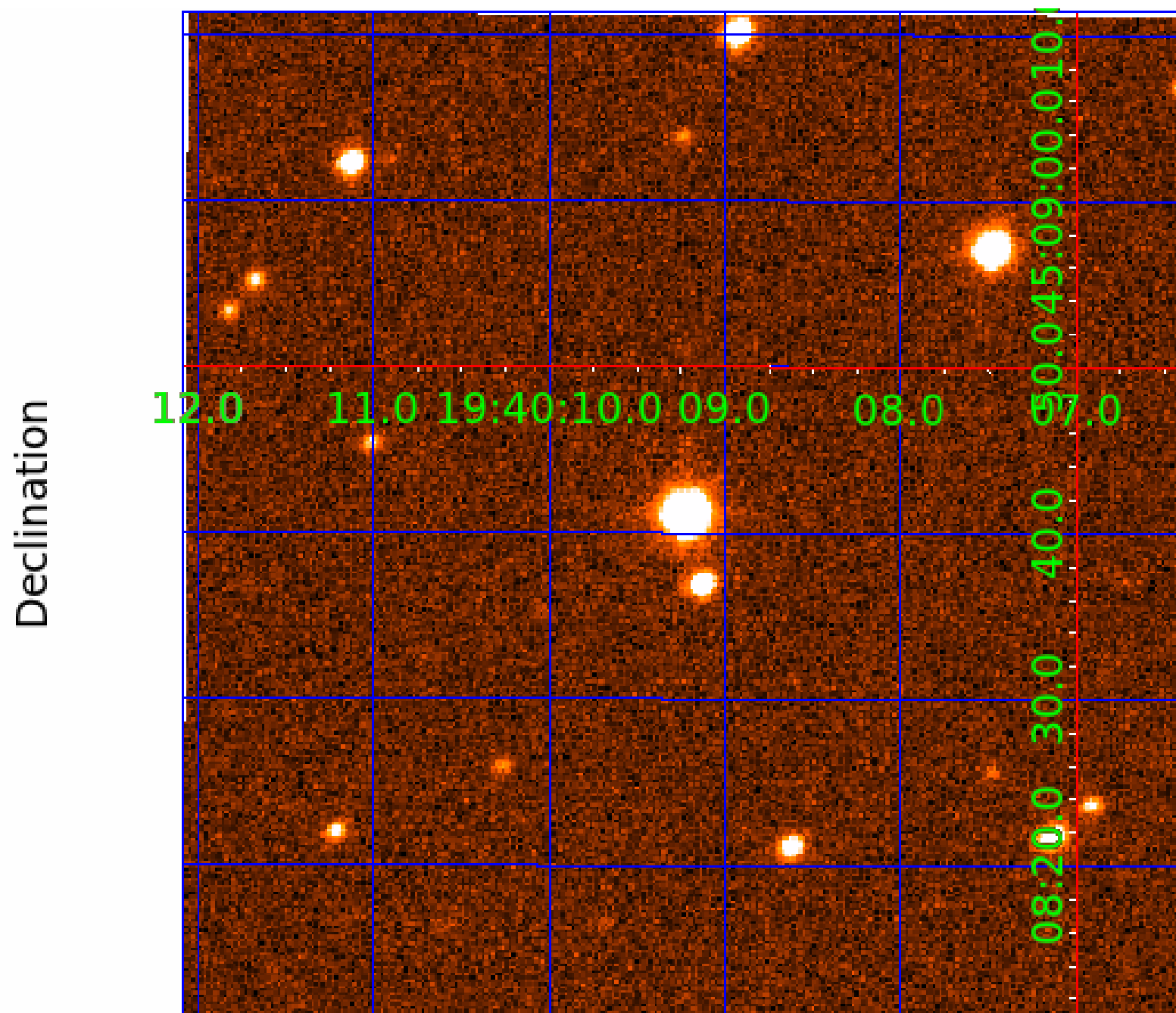
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008894773

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008894773-01	OBS	No	291.069985	218.892654	1497.8	7.011	12.3	7.2	3.38	4946	15.79	9.08
008894773-02	OBS	No	465.532009	141.381902	1459.2	3.489	13.3	6.9	3.38	4946	12.65	4.86
008894773-03	OBS	No	423.348190	346.137902	1394.4	26.048	10.5	4.2	3.38	4946	13.25	5.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008894773-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008894773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008894773-03	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

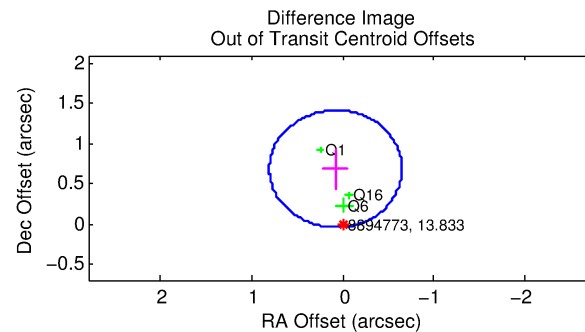
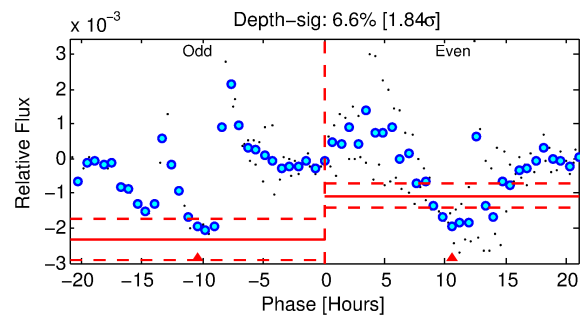
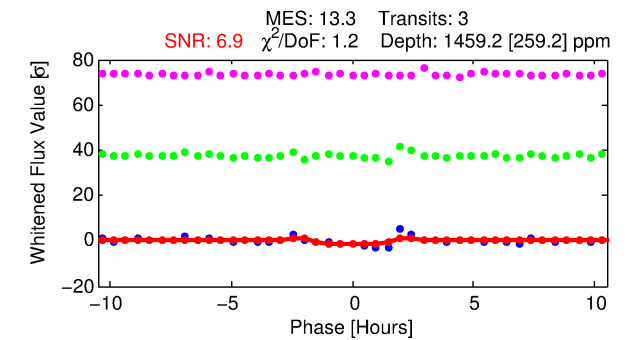
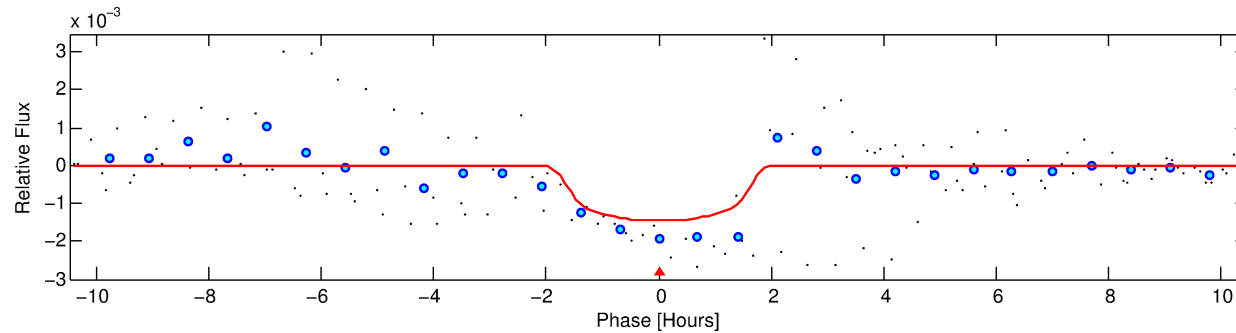
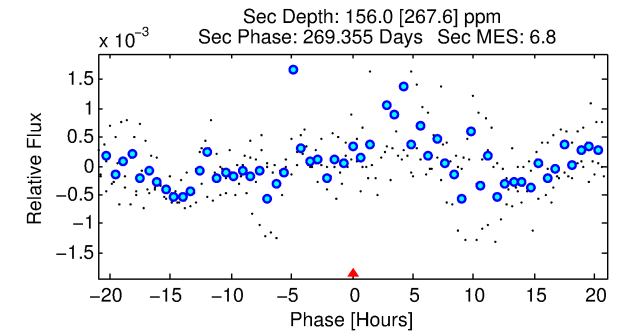
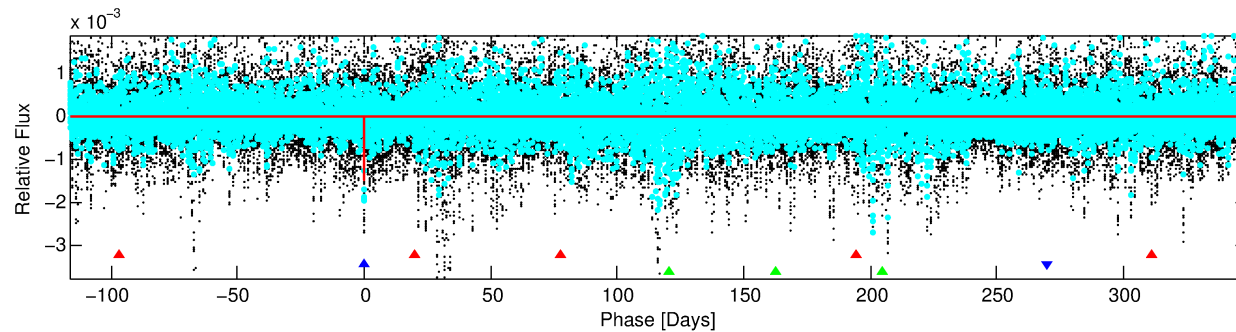
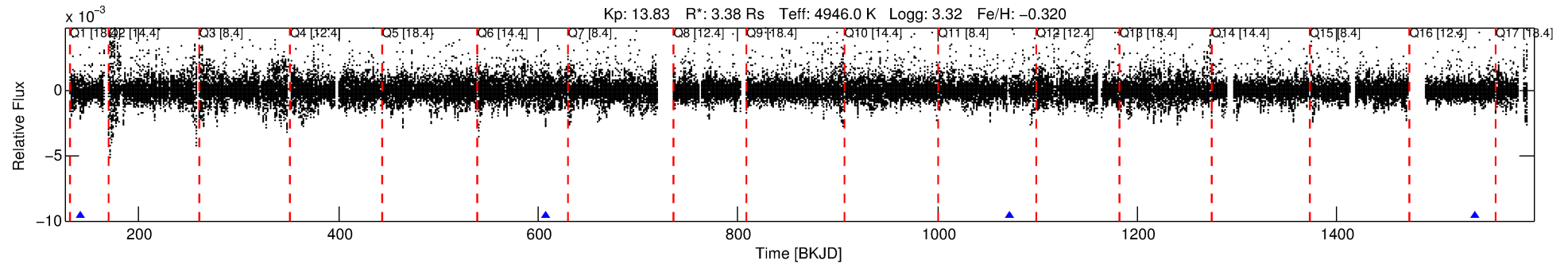
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008894773-02

No Significant Match Found

# DV One-Page Summary

KIC: 8894773 Candidate: 2 of 3 Period: 465.532 d



## DV Fit Results:

Period = 465.53201 [0.00293] d  
Epoch = 141.3819 [0.0058] BKJD  
Rp/R\* = 0.0343 [0.0866]  
a/R\* = 1017.53 [8936.79]  
b = 0.27 [30.43]  
Seff = 4.86 [9.68]  
Teq = 379 [189] K  
Rp = 12.65 [33.57] Re  
a = 1.1218 [1.2387] AU  
Ag = 674.69 [3835.12] [0.18 $\sigma$ ]  
Teffp = 2983 [3972] K [0.65 $\sigma$ ]

## DV Diagnostic Results:

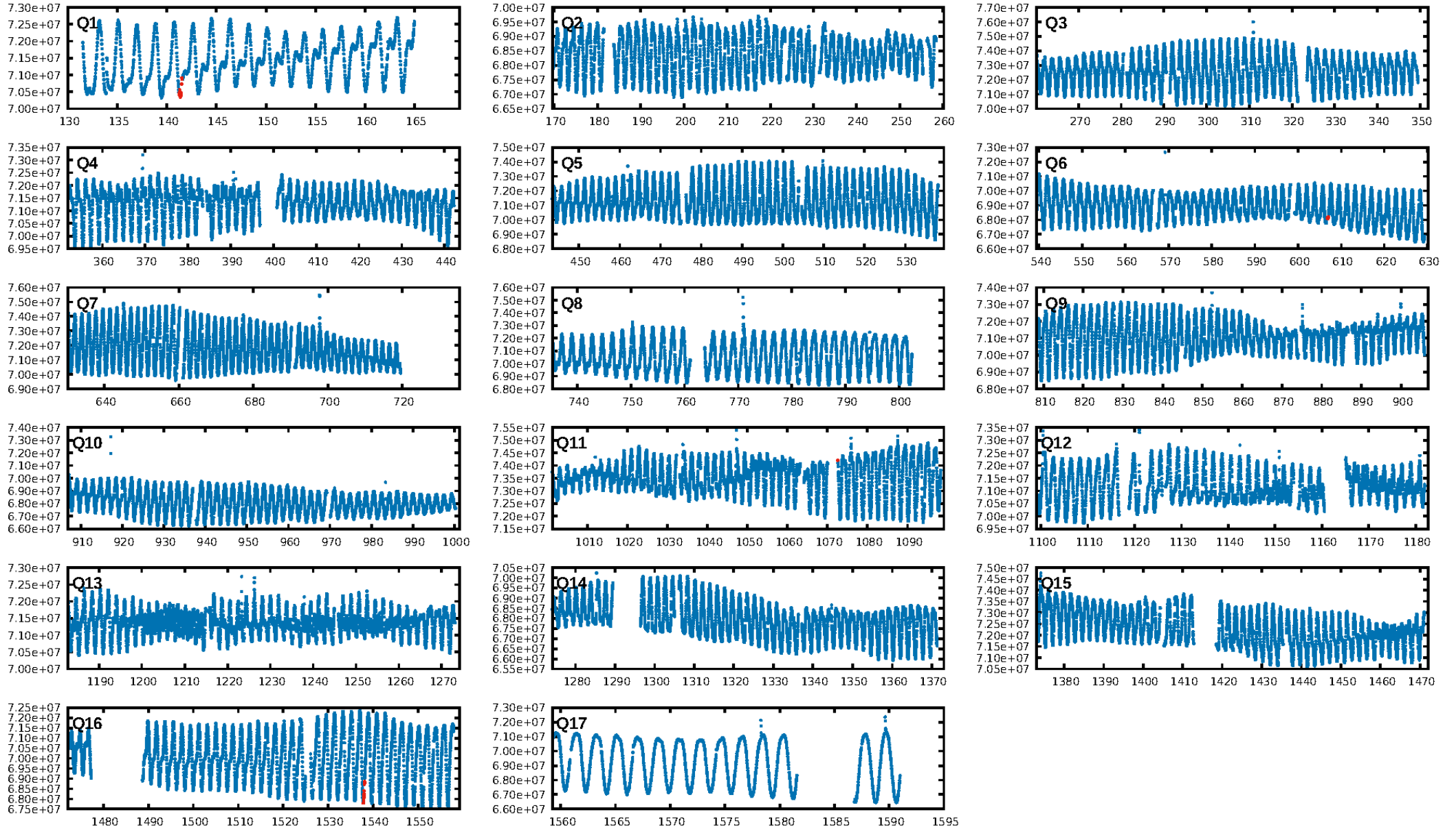
ShortPeriod-sig: 100.0% [38.52 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 22.8%  
ModelChiSquareGof-sig: 95.2%  
Bootstrap-pfa: 1.61e-10  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.6297  
Centroid-sig: 0.3%  
Centroid-so: 0.871 arcsec [1.32 $\sigma$ ]  
OotOffset-rm: 0.688 arcsec [2.83 $\sigma$ ]  
KicOffset-rm: 0.627 arcsec [2.41 $\sigma$ ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 20:52:27 Z

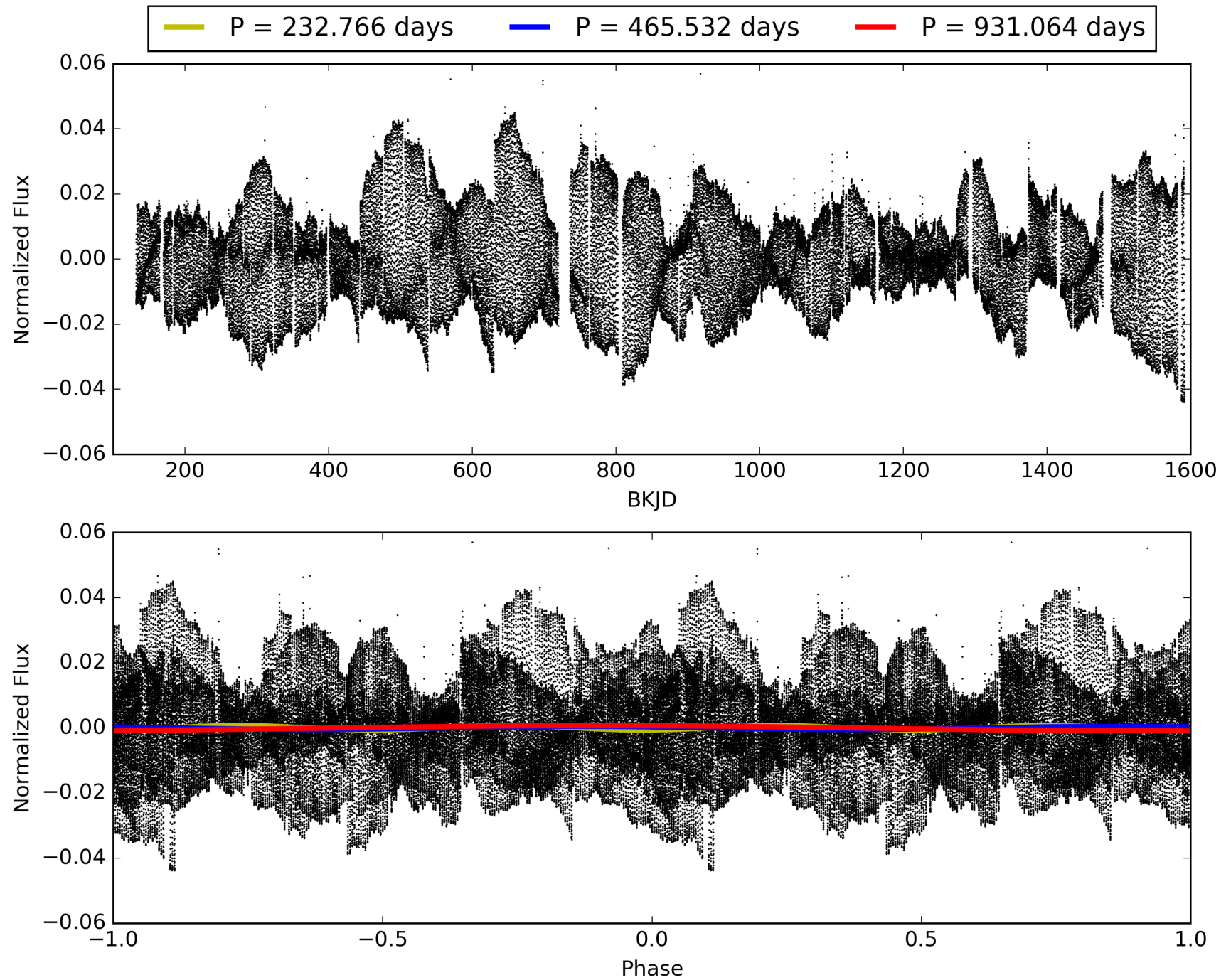
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008894773-02, PDC Light Curves

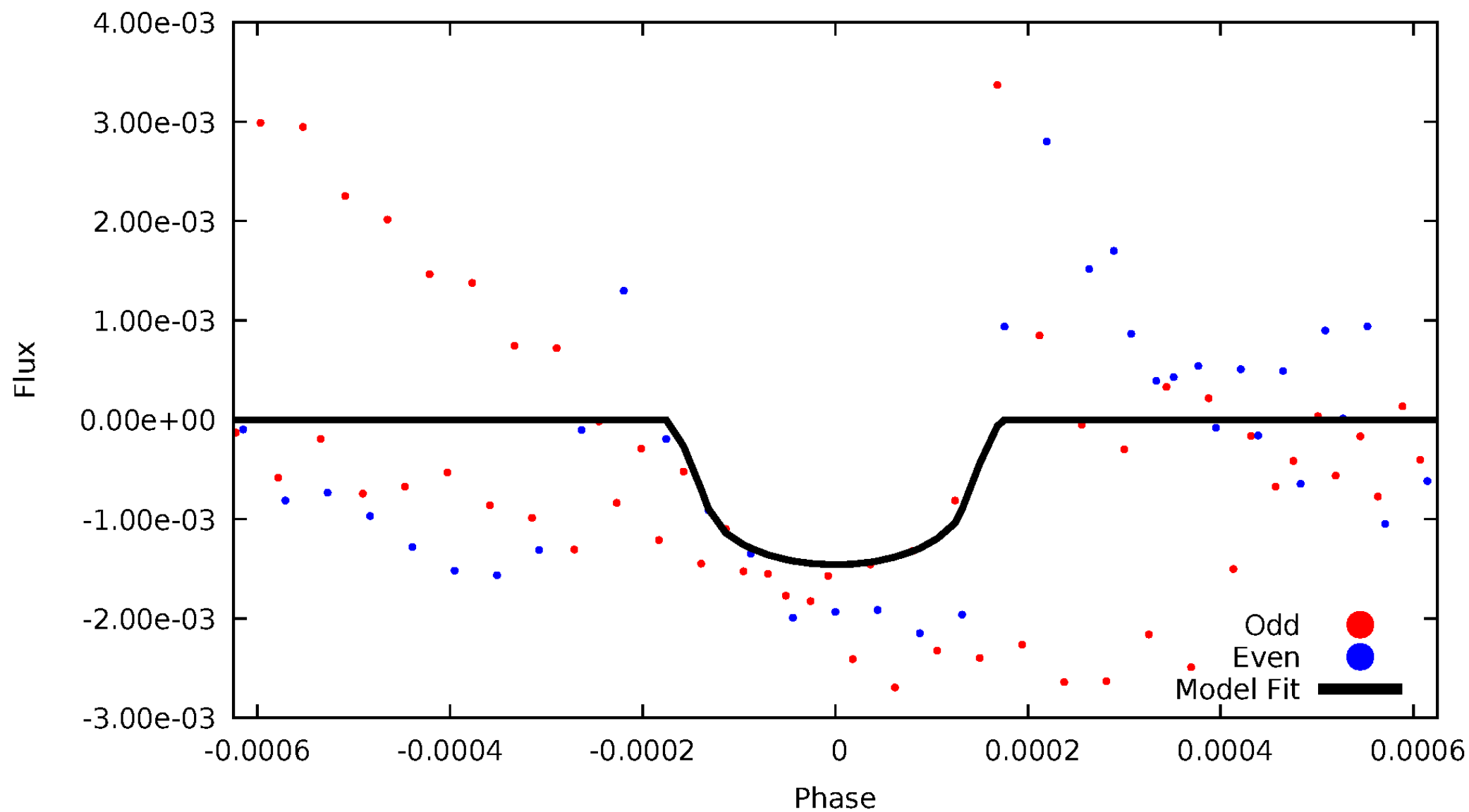


TCE 008894773-02



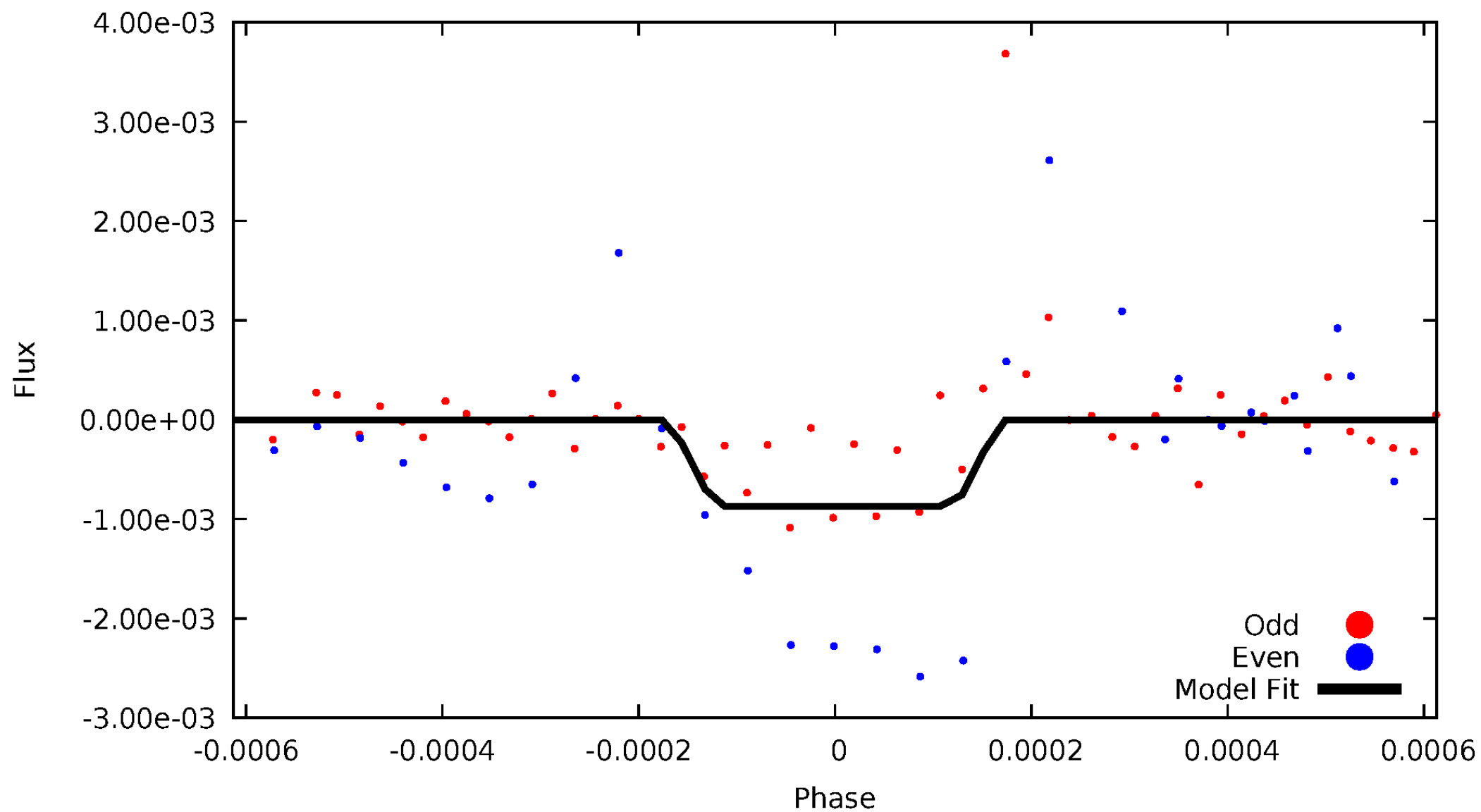
# DV Odd/Even

TCE 008894773-02



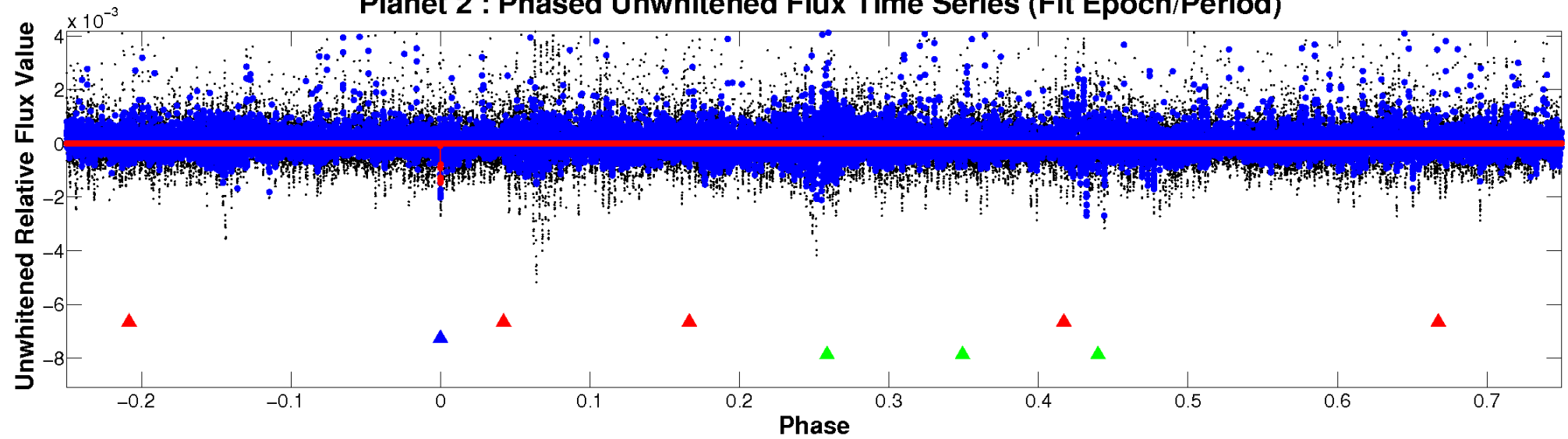
# ALT Odd/Even

TCE 008894773-02

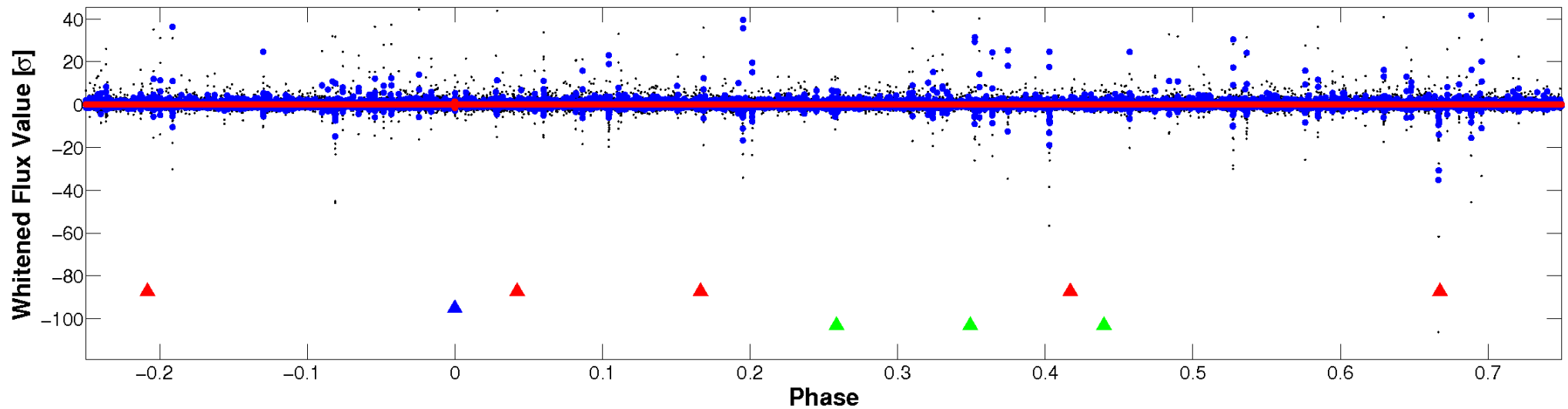


# Non-Whitened Vs. Whitened Light Curve

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

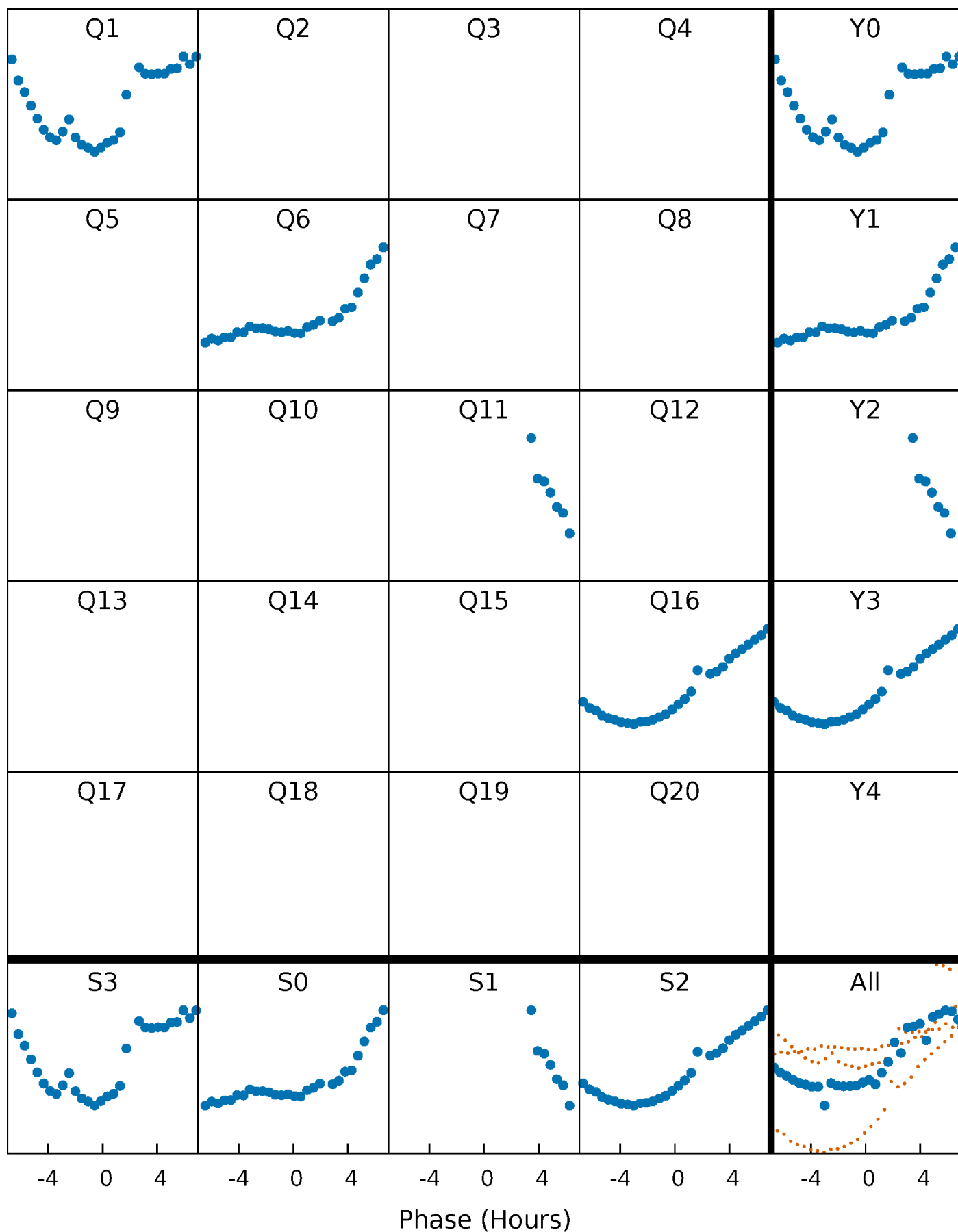


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



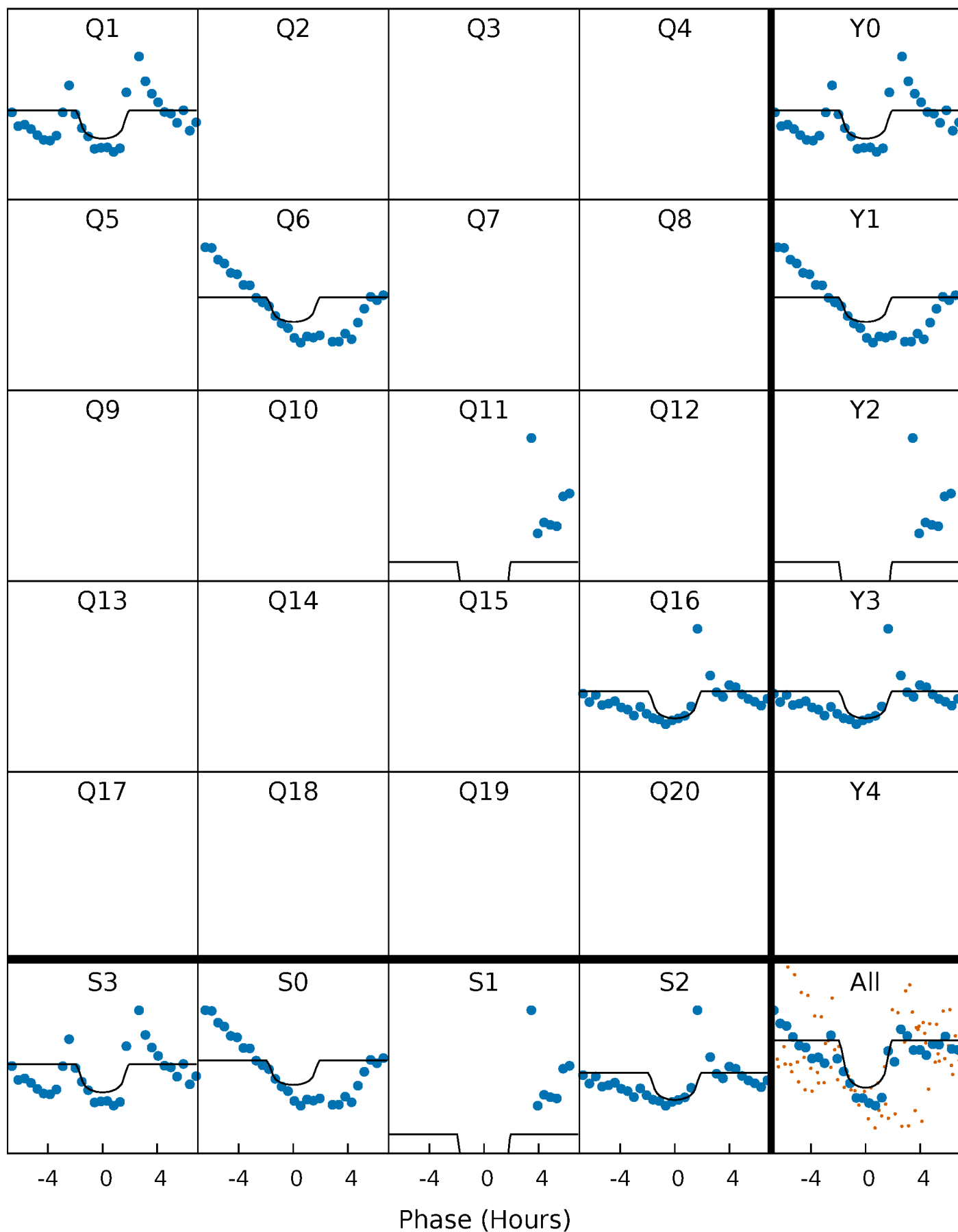
# PDC Quarter-Phased Transit Curves

TCE 008894773-02 P=465.532009 Days  $T_0=141.381902$  (BKJD)



# DV Quarter-Phased Transit Curves

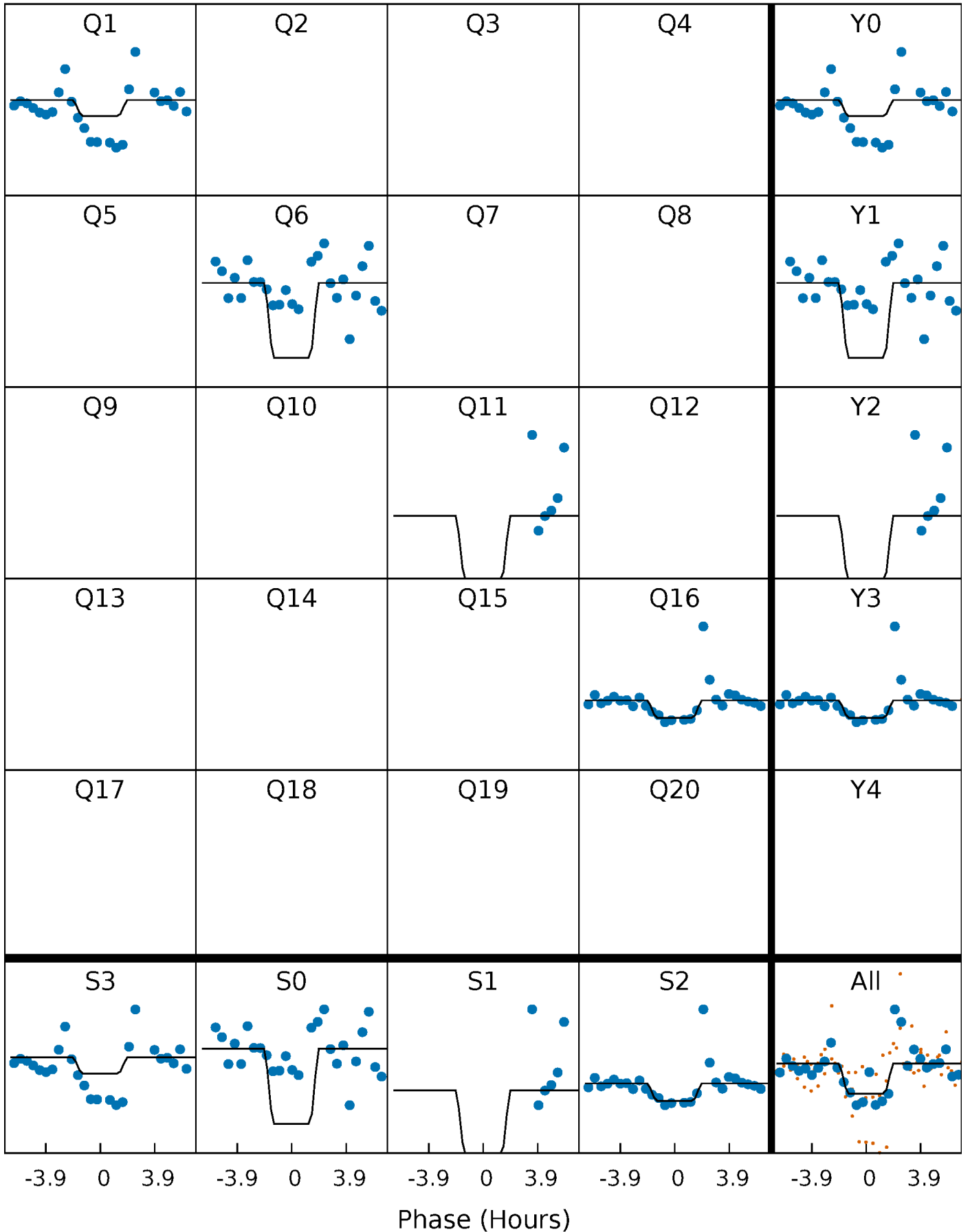
TCE 008894773-02 P=465.532009 Days  $T_0=141.381902$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

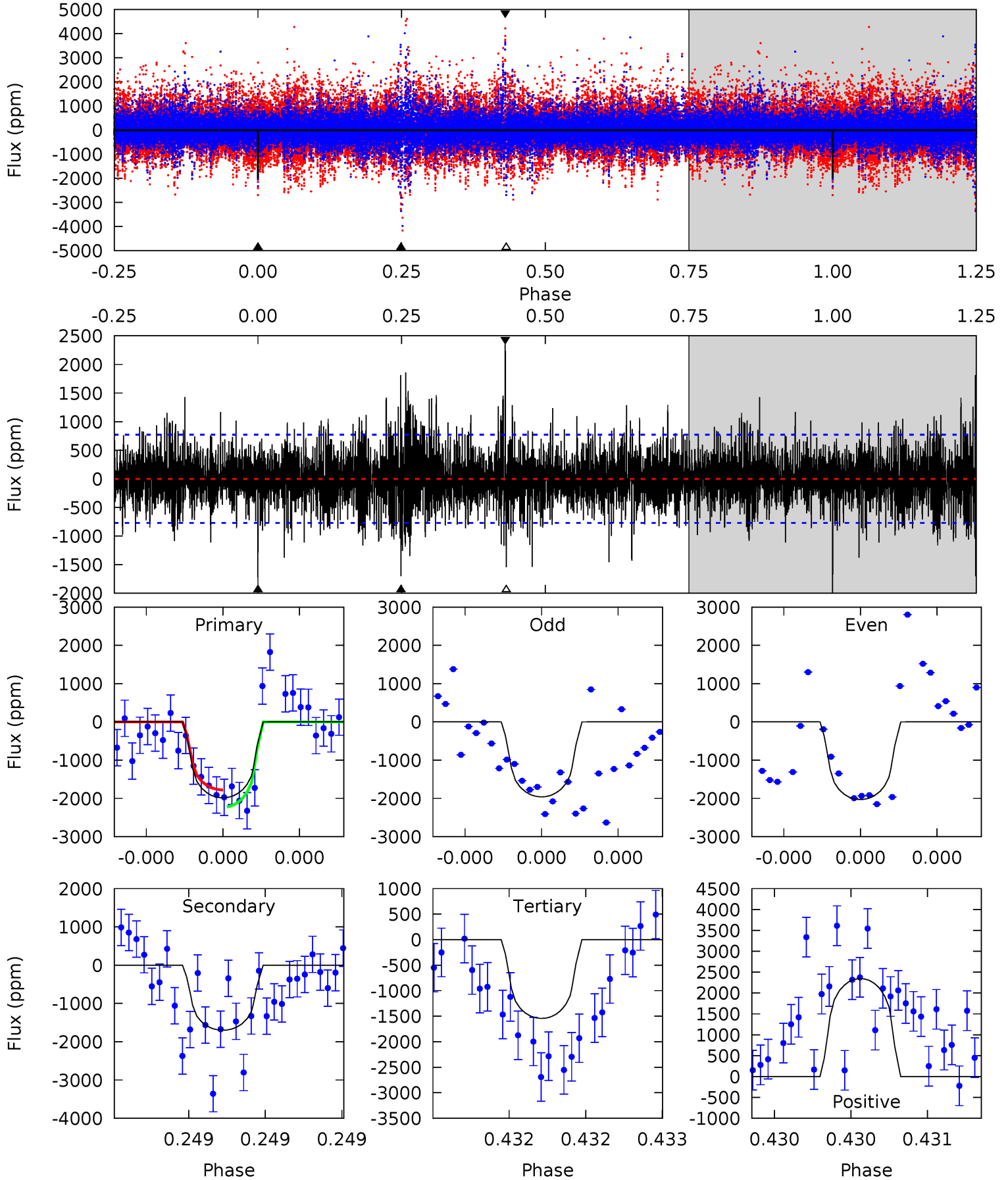
TCE 008894773-02 P=465.530986 Days  $T_0=141.382326$  (BKJD)



# DV Model-Shift Uniqueness Test

008894773-02, P = 465.532009 Days, E = 141.381902 Days

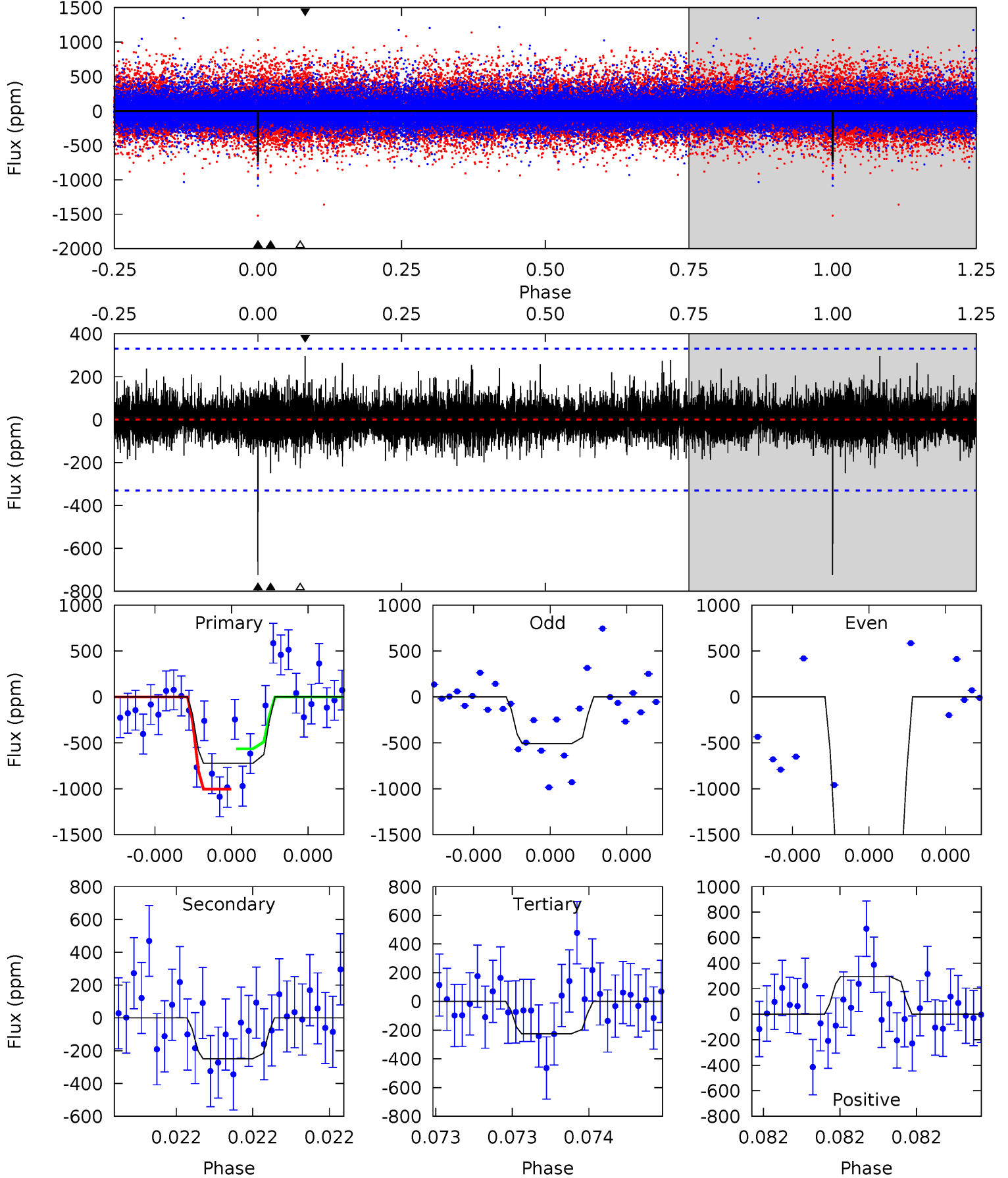
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	12.4	11.3	17.2	5.64	3.59	2.64	3.22	-2.65	1.14	-4.73	0.17	0.97	0.54	1.63



# Alt Model-Shift Uniqueness Test

008894773-02, P = 465.530986 Days, E = 141.382326 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
12.4	4.28	3.86	5.07	5.66	3.61	0.92	8.53	7.32	0.41	-0.80	15.8	1.21	0.29	3.76



### Stellar Parameters For KIC 008894773

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4946^{+118}_{-163}$	$3.320^{+1.245}_{-0.332}$	$-0.320^{+0.250}_{-0.300}$	$3.376^{+2.101}_{-2.802}$	$0.868^{+0.240}_{-0.240}$	$0.032^{+3.178}_{-0.019}$
	+2%/-3%	+38%/-10%	+78%/-94%	+62%/-83%	+28%/-28%	+10006%/-61%
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 008894773-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1700 \pm 137$	$22.36^{+29.79}_{-15.26}$	$511^{+98}_{-121}$	$4036^{+2157}_{-873}$	$2382^{+19971}_{-1955}$
Alt.	$-250 \pm 58$	$20.15^{+30.21}_{-14.05}$	$507^{+81}_{-127}$	$2990^{+1313}_{-507}$	$428^{+4696}_{-360}$

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

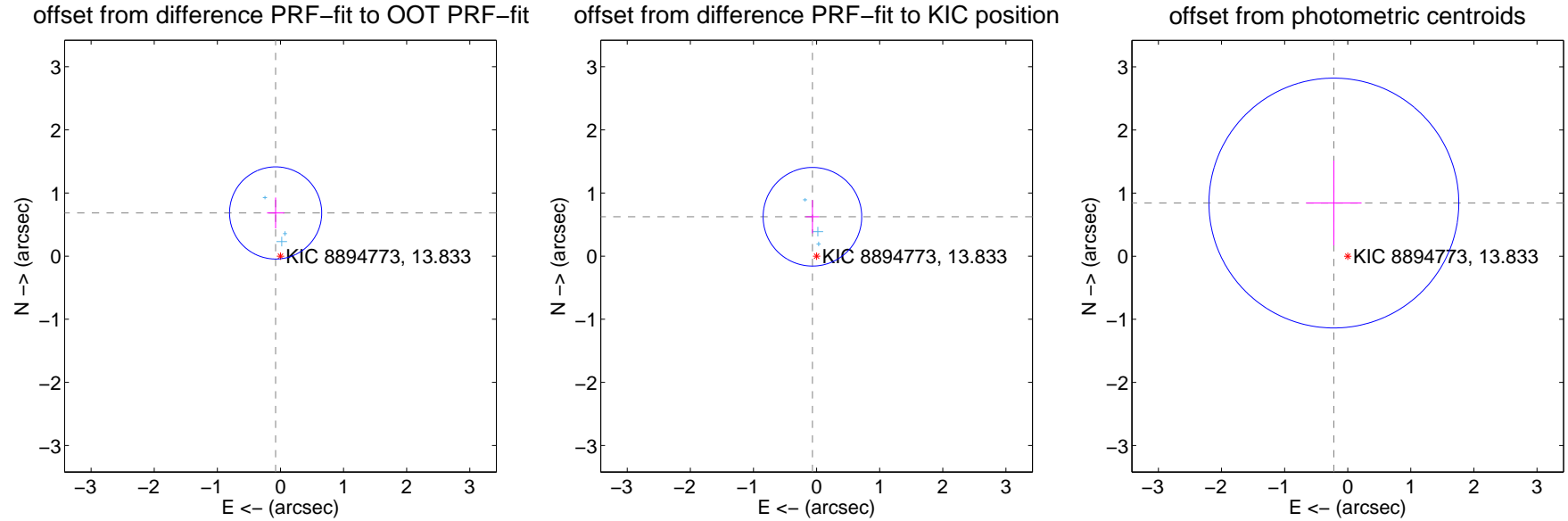
## DV Centroid Data

Supplemental centroid analysis for 008894773-02. Kepler magnitude: 13.83. Transit SNR 6.88

There are 3 quarters with good PRF difference image offsets

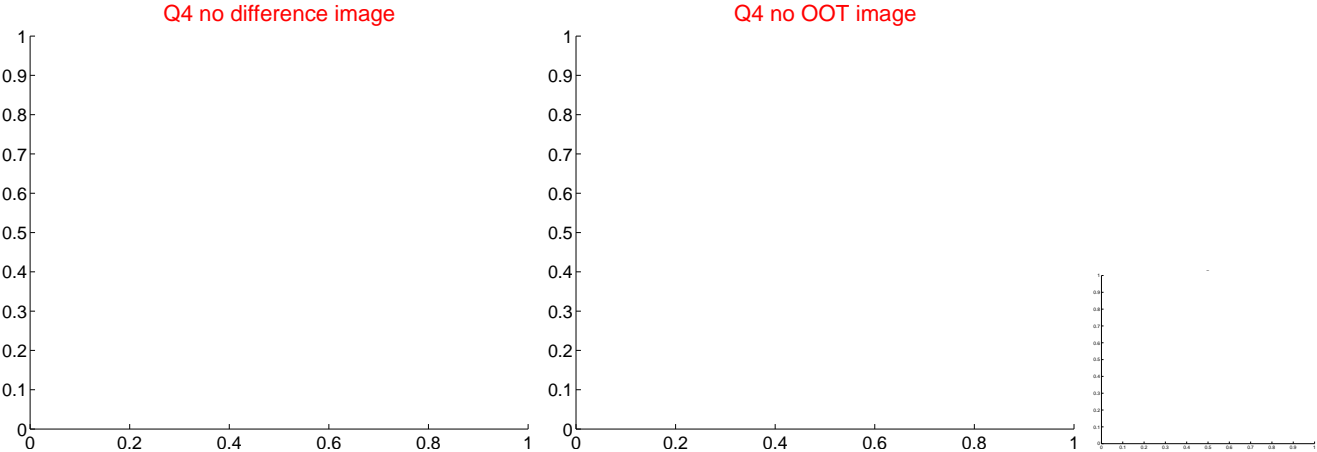
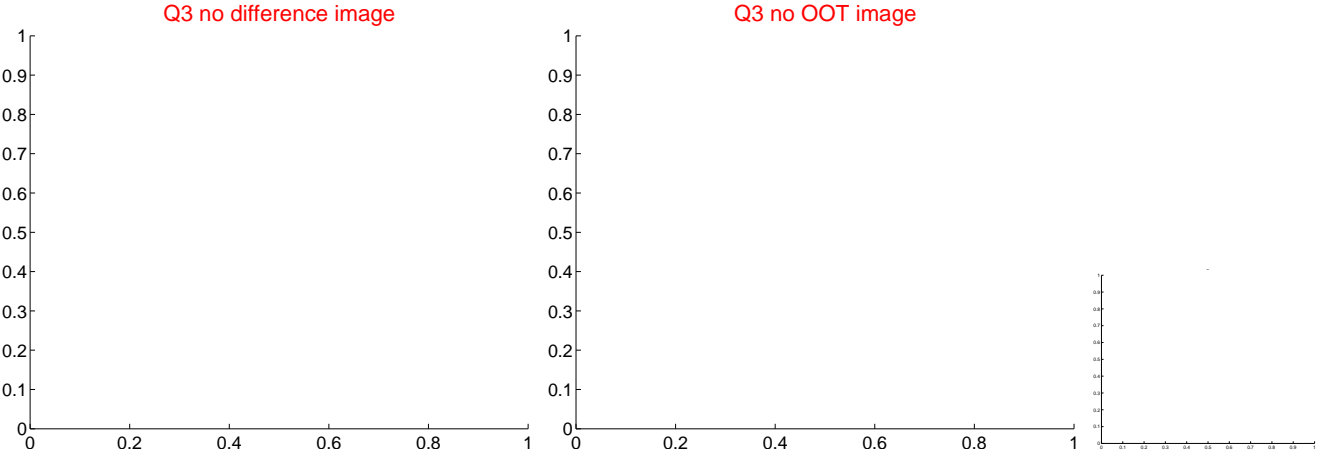
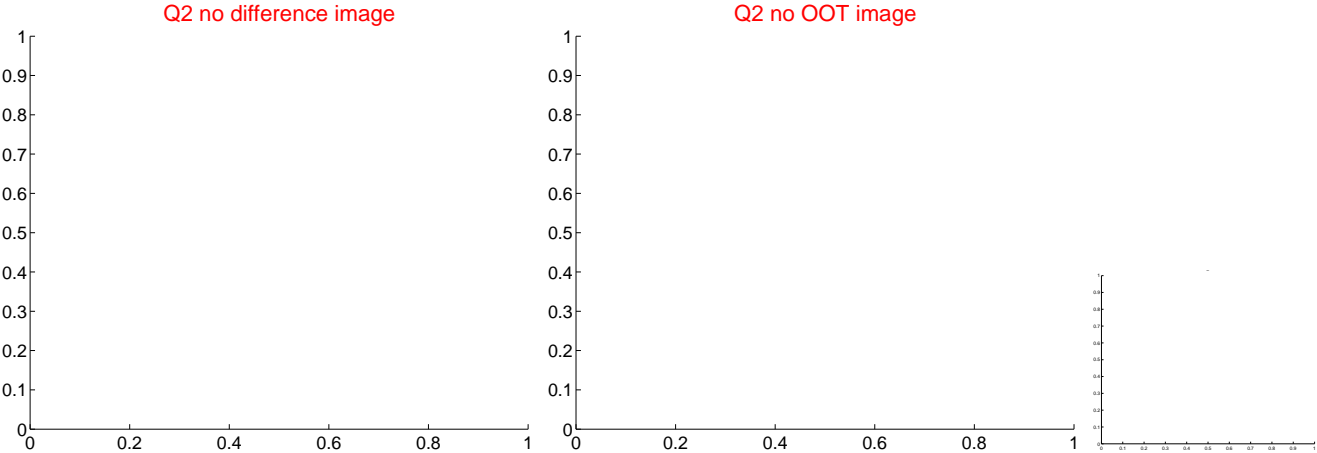
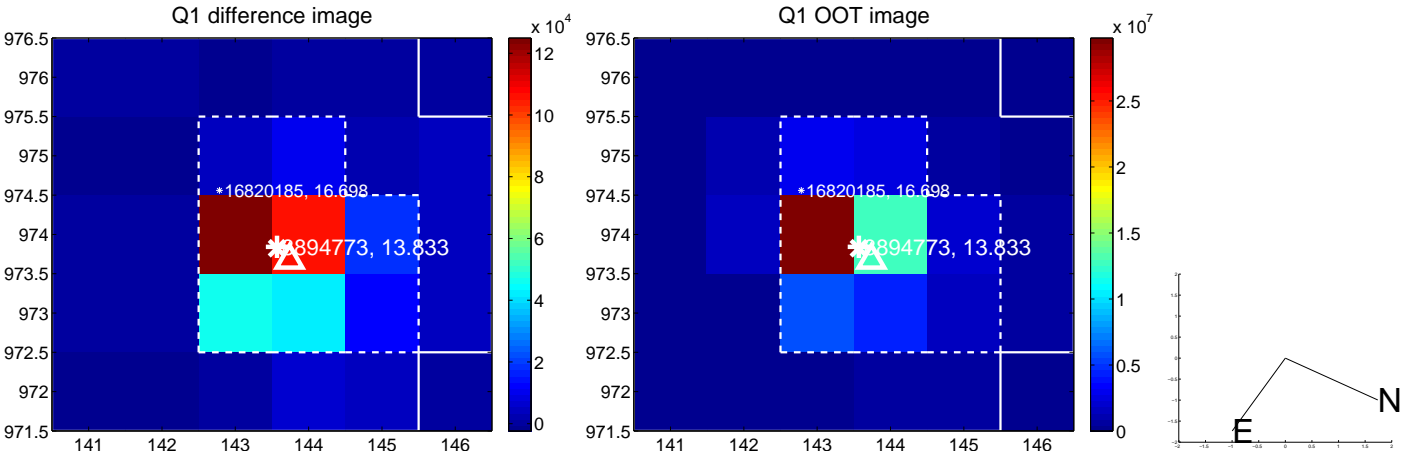
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.688 \pm 0.243$	2.83	$0.076 \pm 0.137$	$0.684 \pm 0.244$
PRF-fit source offset from KIC position	$0.627 \pm 0.260$	2.41	$0.066 \pm 0.106$	$0.624 \pm 0.262$
photometric centroid source offset	$0.87 \pm 0.66$	1.32	$0.22 \pm 0.44$	$0.84 \pm 0.67$



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.

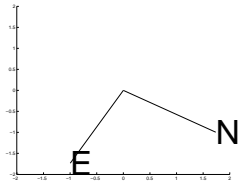
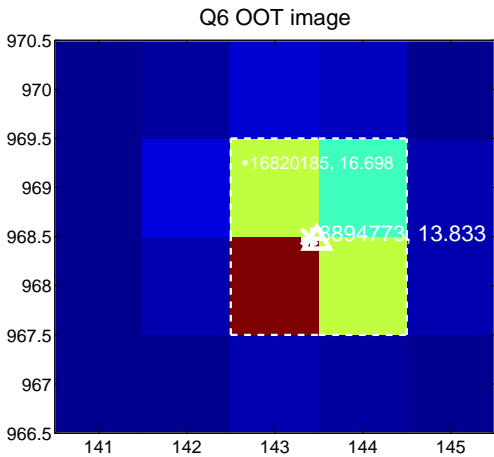
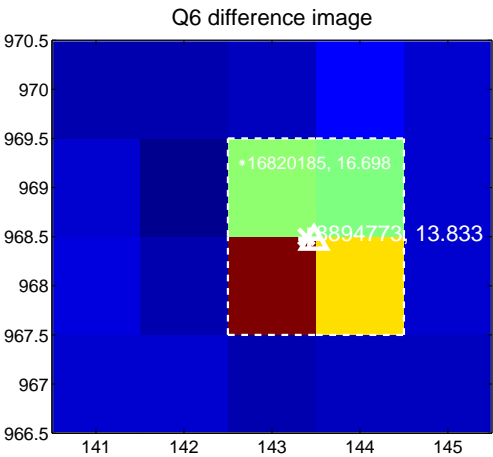


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

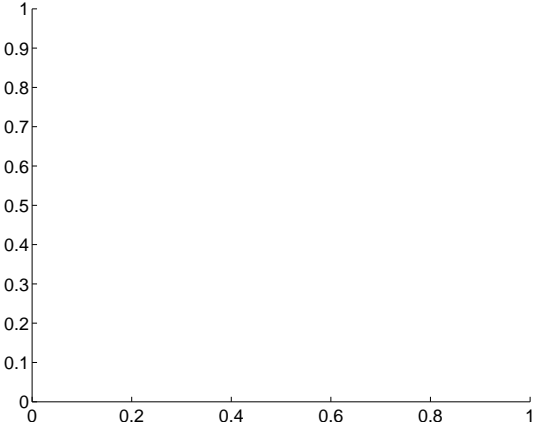
Q5 no difference image



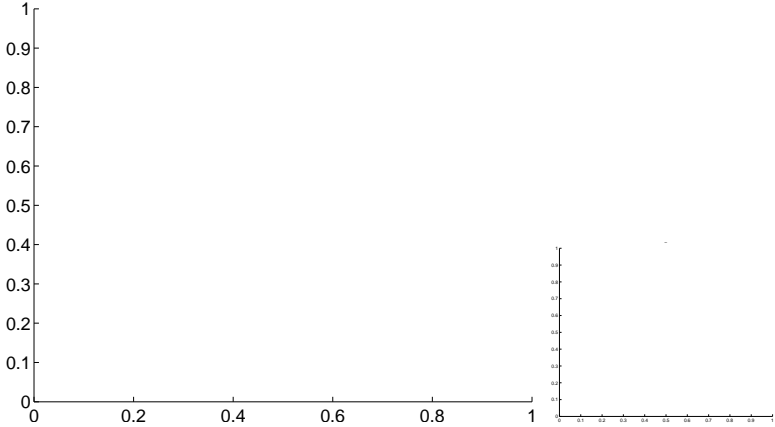
Q5 no OOT image



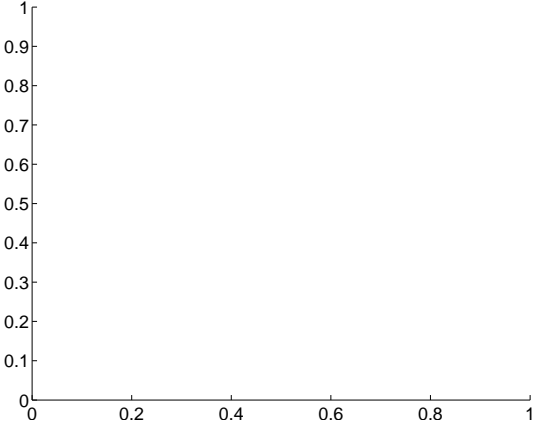
Q7 no difference image



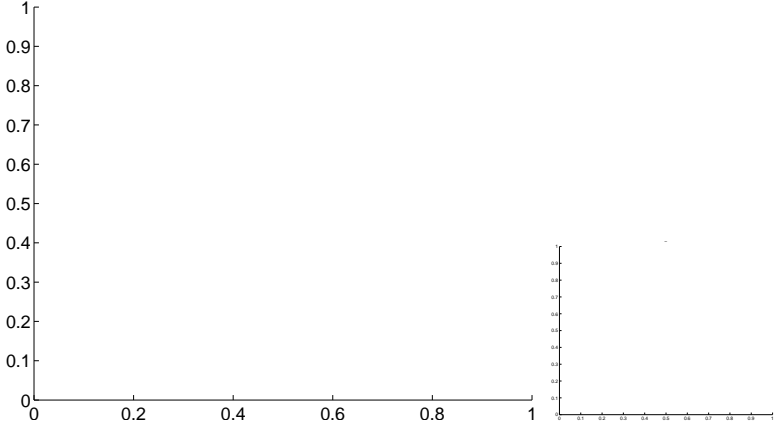
Q7 no OOT image



Q8 no difference image



Q8 no OOT image

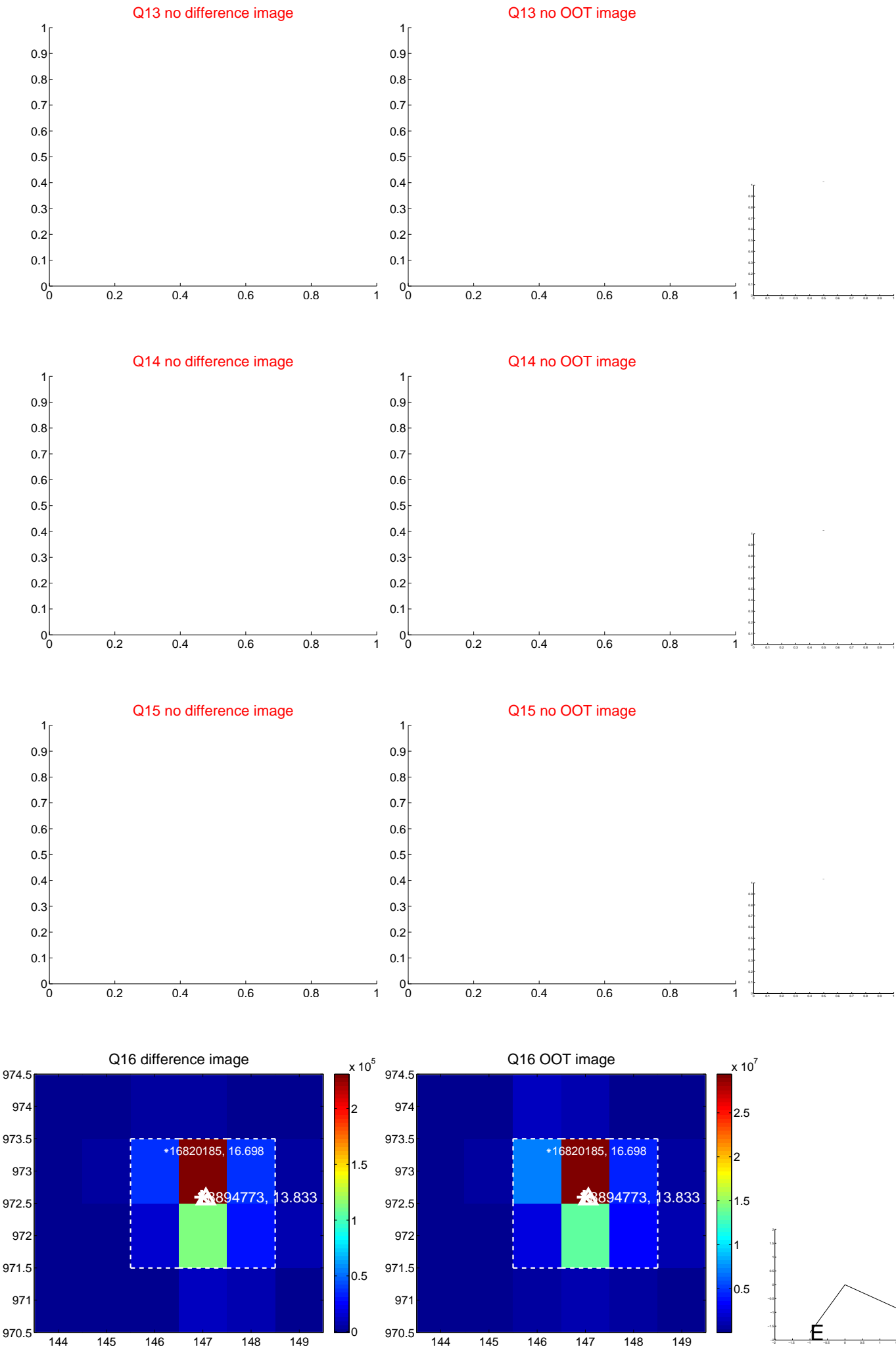




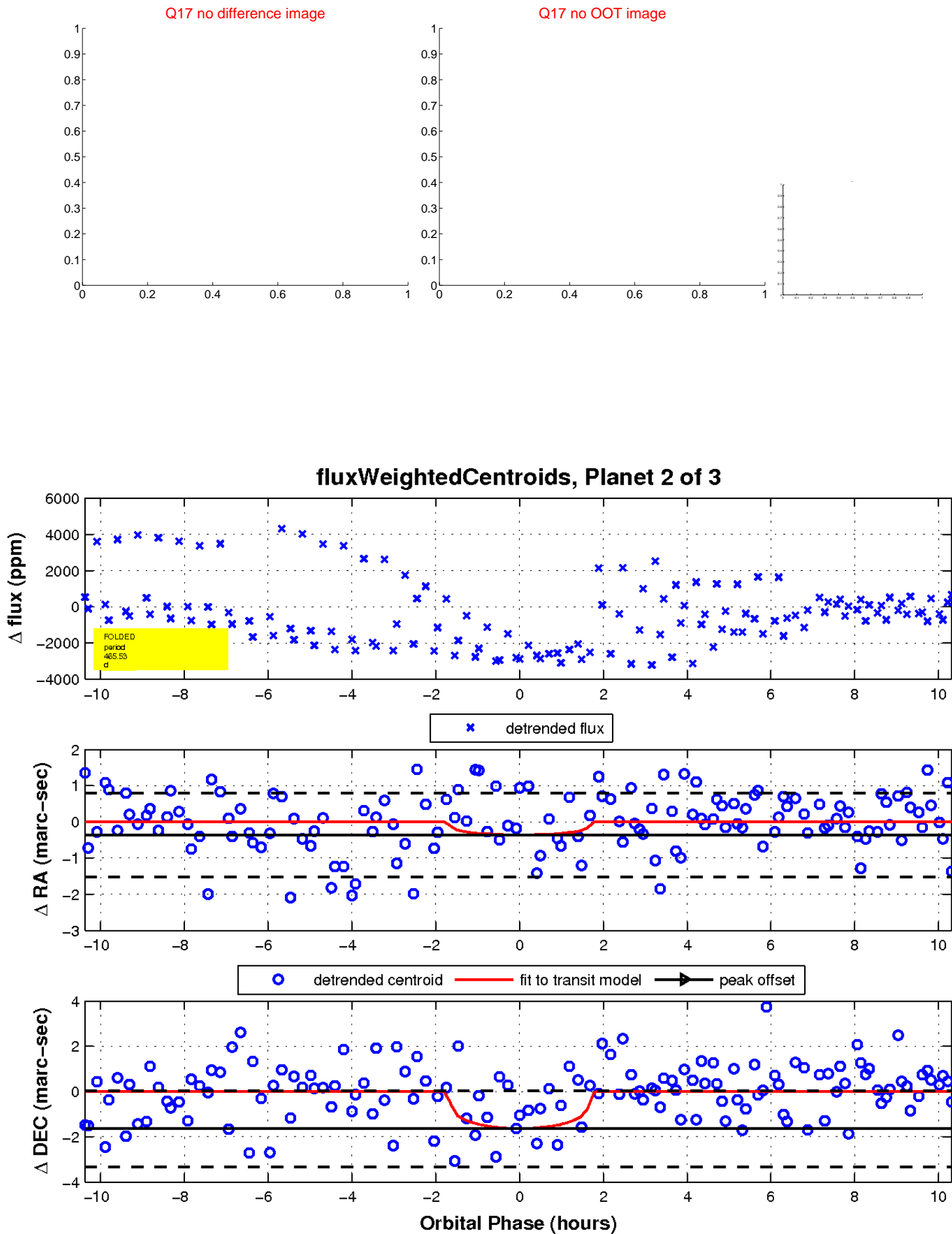
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

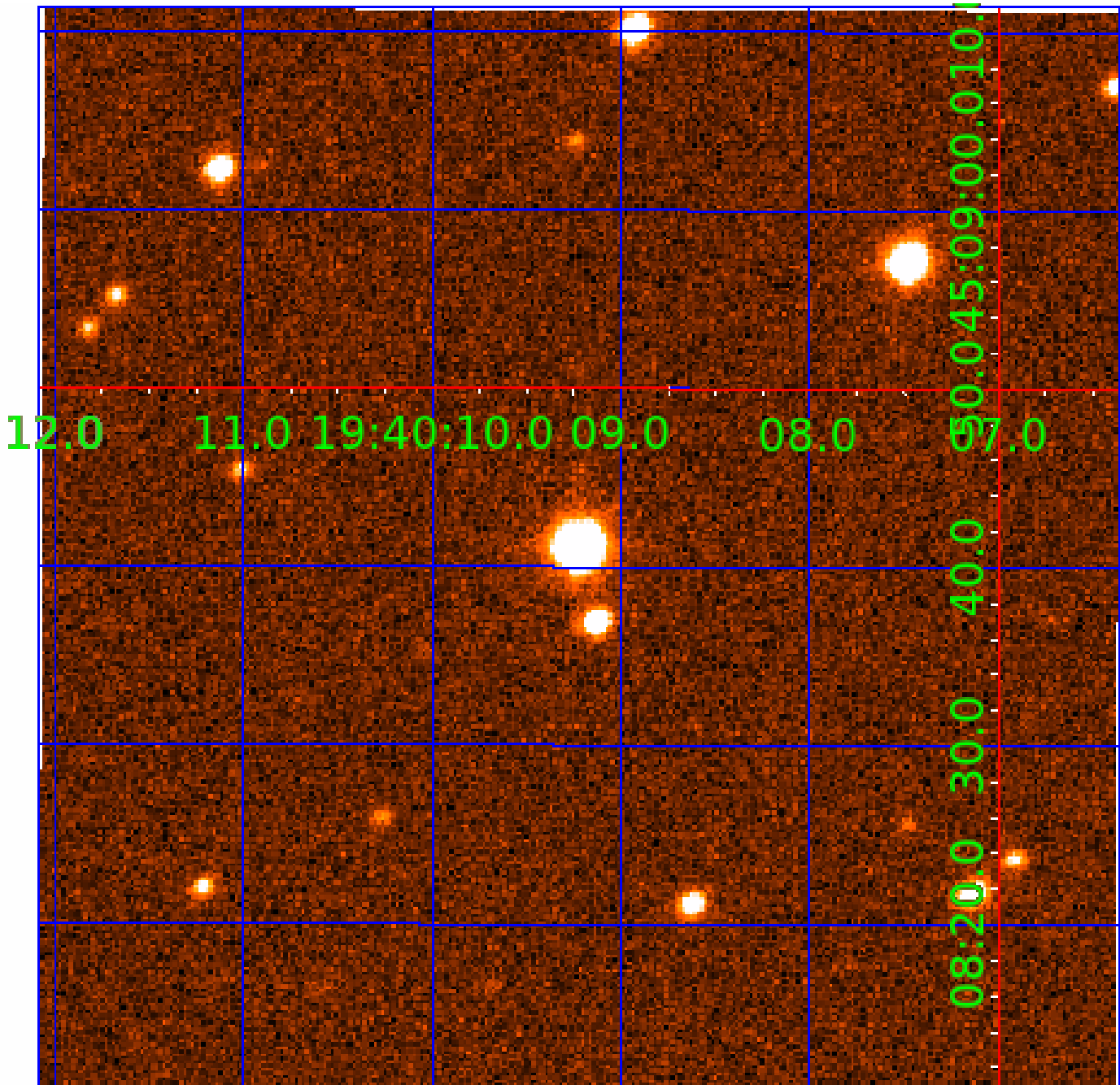


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008894773

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008894773-01	OBS	No	291.069985	218.892654	1497.8	7.011	12.3	7.2	3.38	4946	15.79	9.08
008894773-02	OBS	No	465.532009	141.381902	1459.2	3.489	13.3	6.9	3.38	4946	12.65	4.86
008894773-03	OBS	No	423.348190	346.137902	1394.4	26.048	10.5	4.2	3.38	4946	13.25	5.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008894773-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008894773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV
008894773-03	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

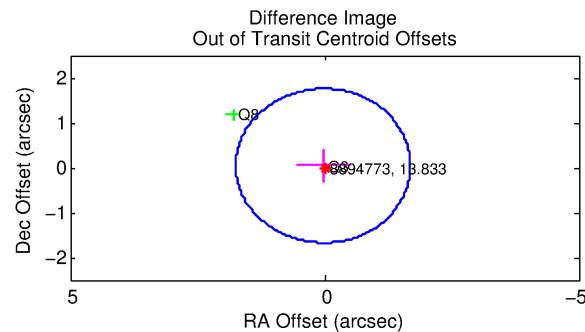
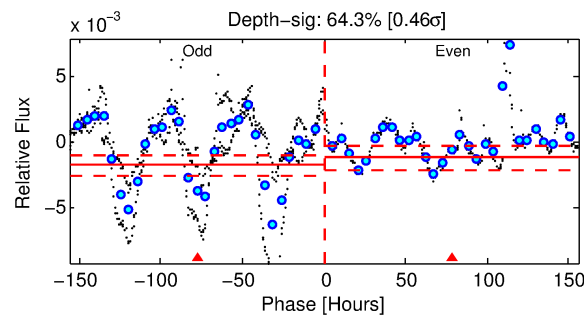
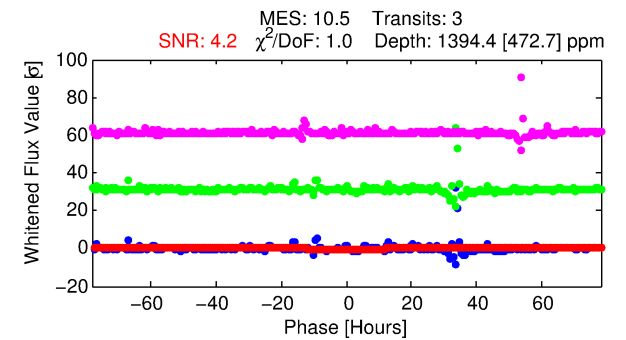
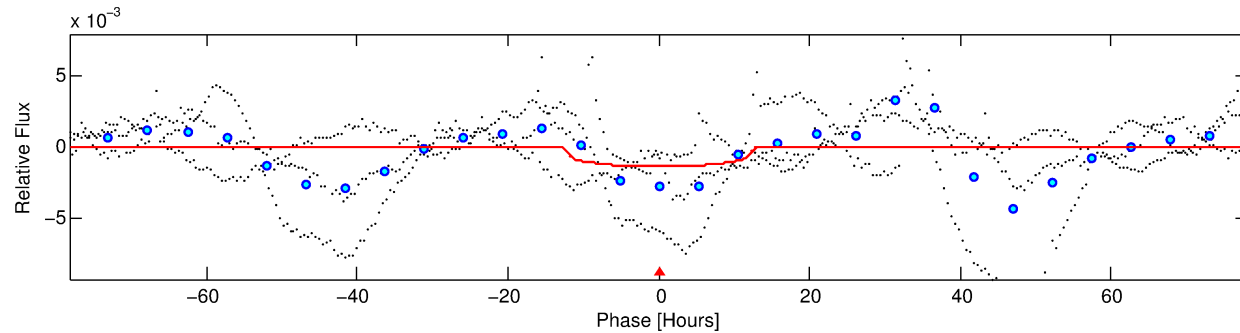
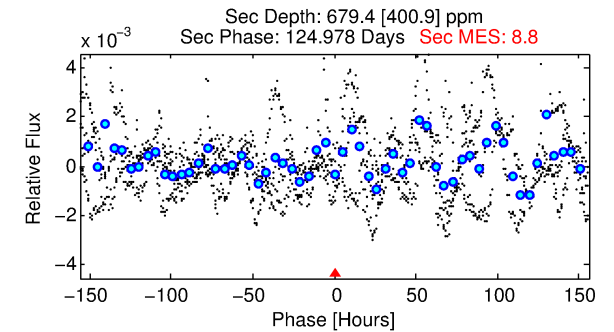
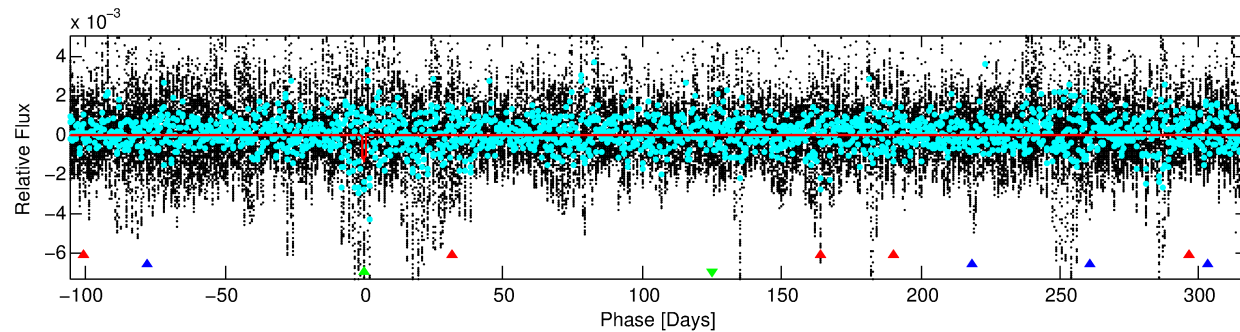
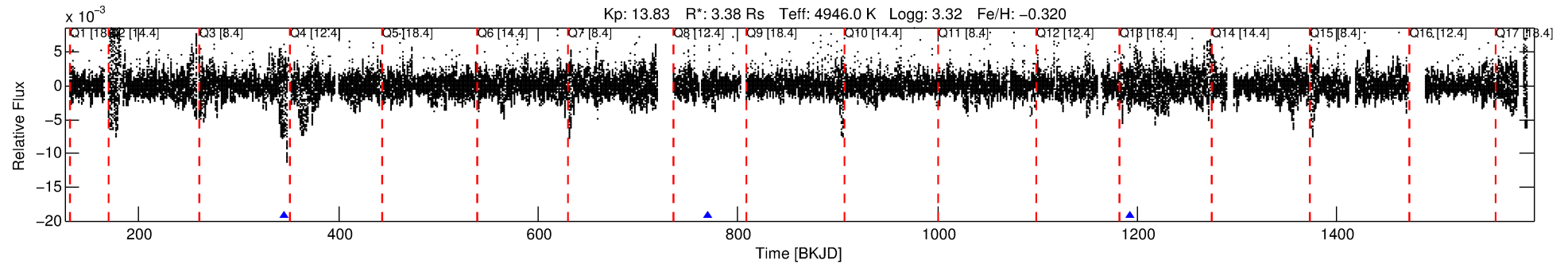
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008894773-03

No Significant Match Found

# DV One-Page Summary

KIC: 8894773 Candidate: 3 of 3 Period: 423.348 d



## DV Fit Results:

Period = 423.34819 [0.01701] d  
Epoch = 346.1379 [0.0234] BKJD  
Rp/R\* = 0.0360 [0.0070]  
a/R\* = 99.05 [28.56]  
b = 0.66 [0.25]  
Seff = 5.51 [10.99]  
Teq = 391 [195] K  
Rp = 13.25 [11.30] Re  
a = 1.0530 [1.1627] AU  
Ag = 2359.34 [4982.42] [0.47 $\sigma$ ]  
**Teffp = 4210 [758] K [4.88 $\sigma$ ]**

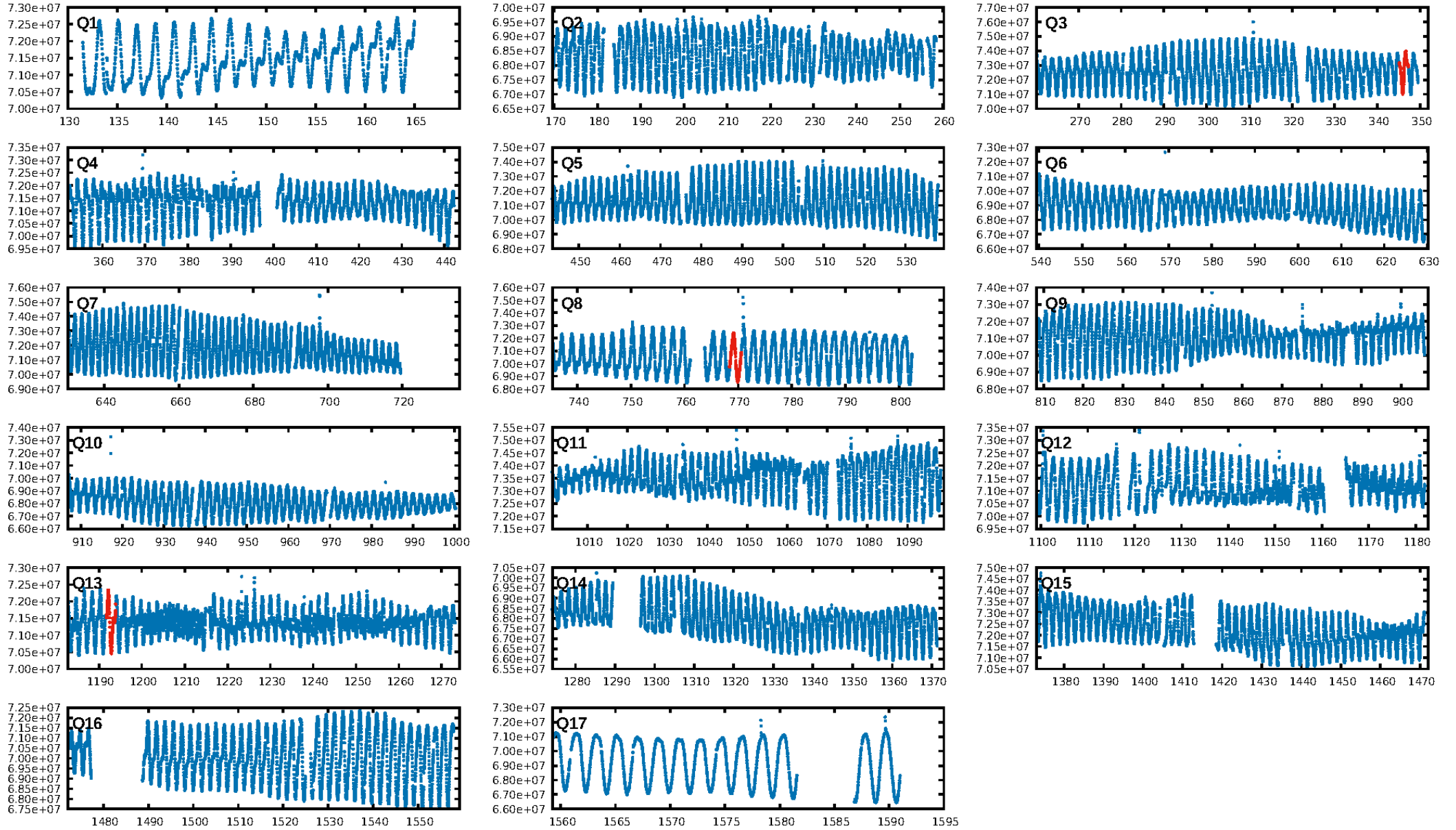
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.69 $\sigma$ ]  
LongPeriod-sig: 100.0% [38.52 $\sigma$ ]  
ModelChiSquare2-sig: 19.7%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.90e-07**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -2.027**  
Centroid-sig: 41.2%  
Centroid-so: 0.102 arcsec [0.56 $\sigma$ ]  
OotOffset-rm: 0.052 arcsec [0.09 $\sigma$ ]  
KicOffset-rm: 0.062 arcsec [0.10 $\sigma$ ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 20:52:36 Z

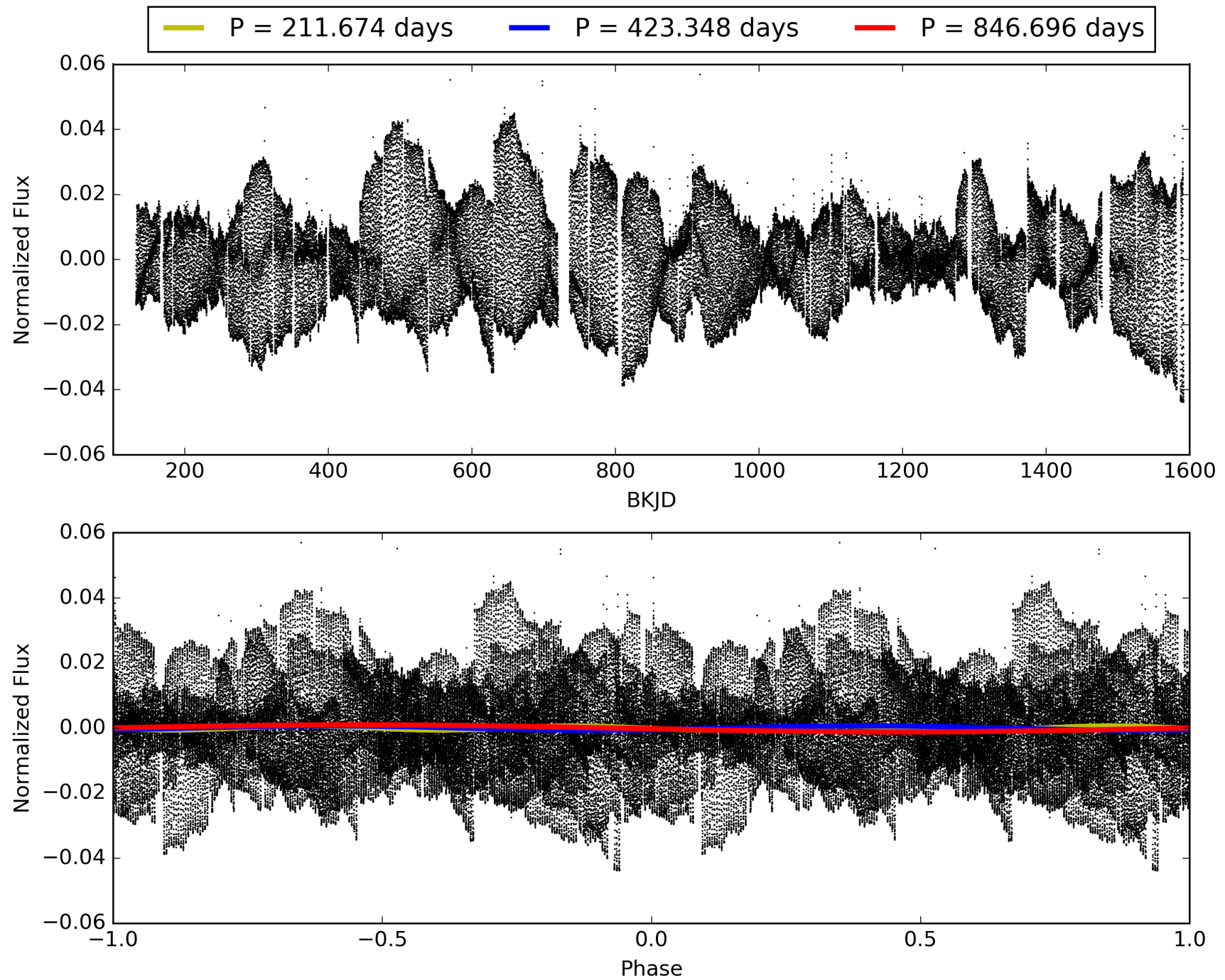
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008894773-03, PDC Light Curves





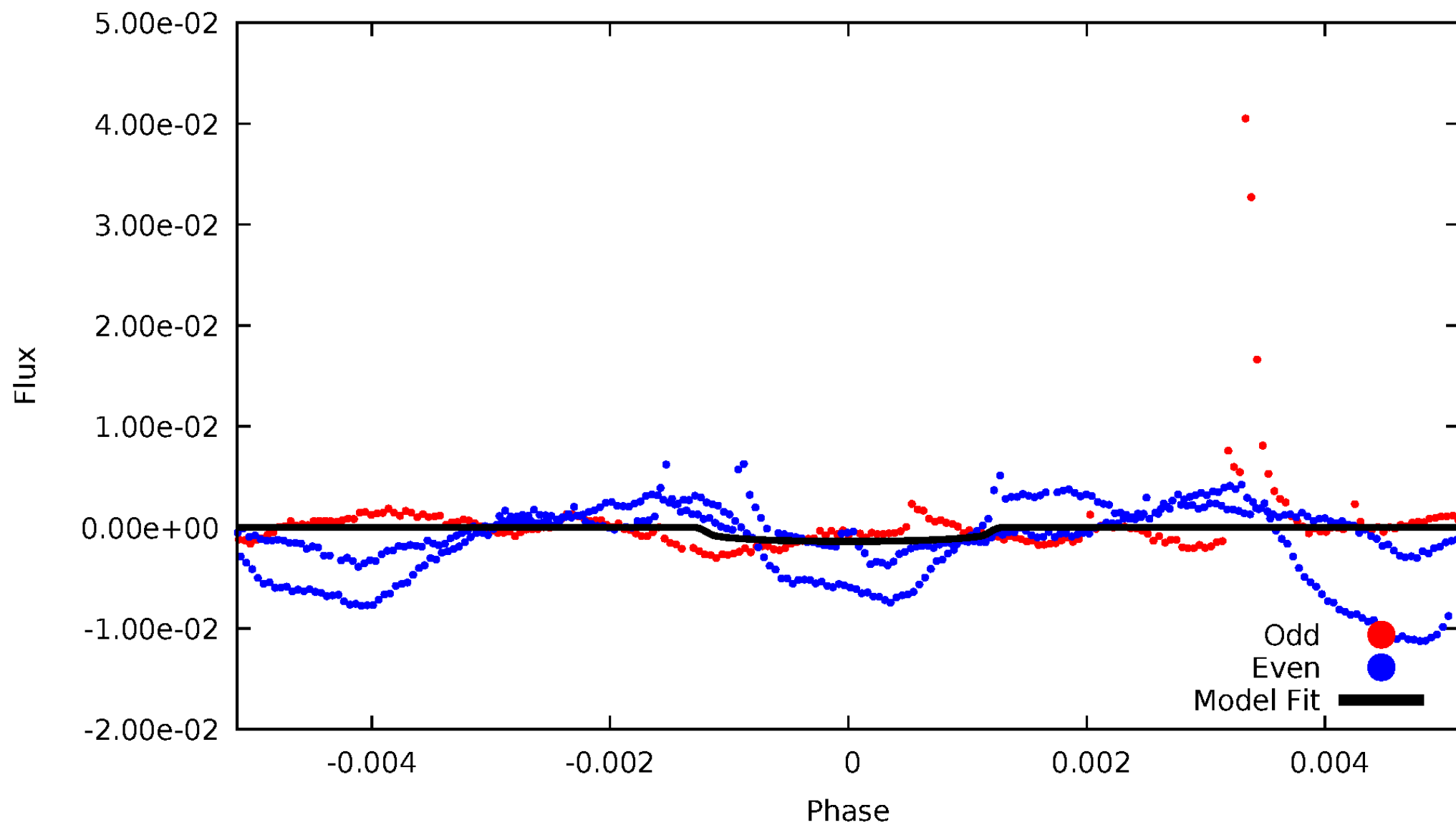
TCE 008894773-03





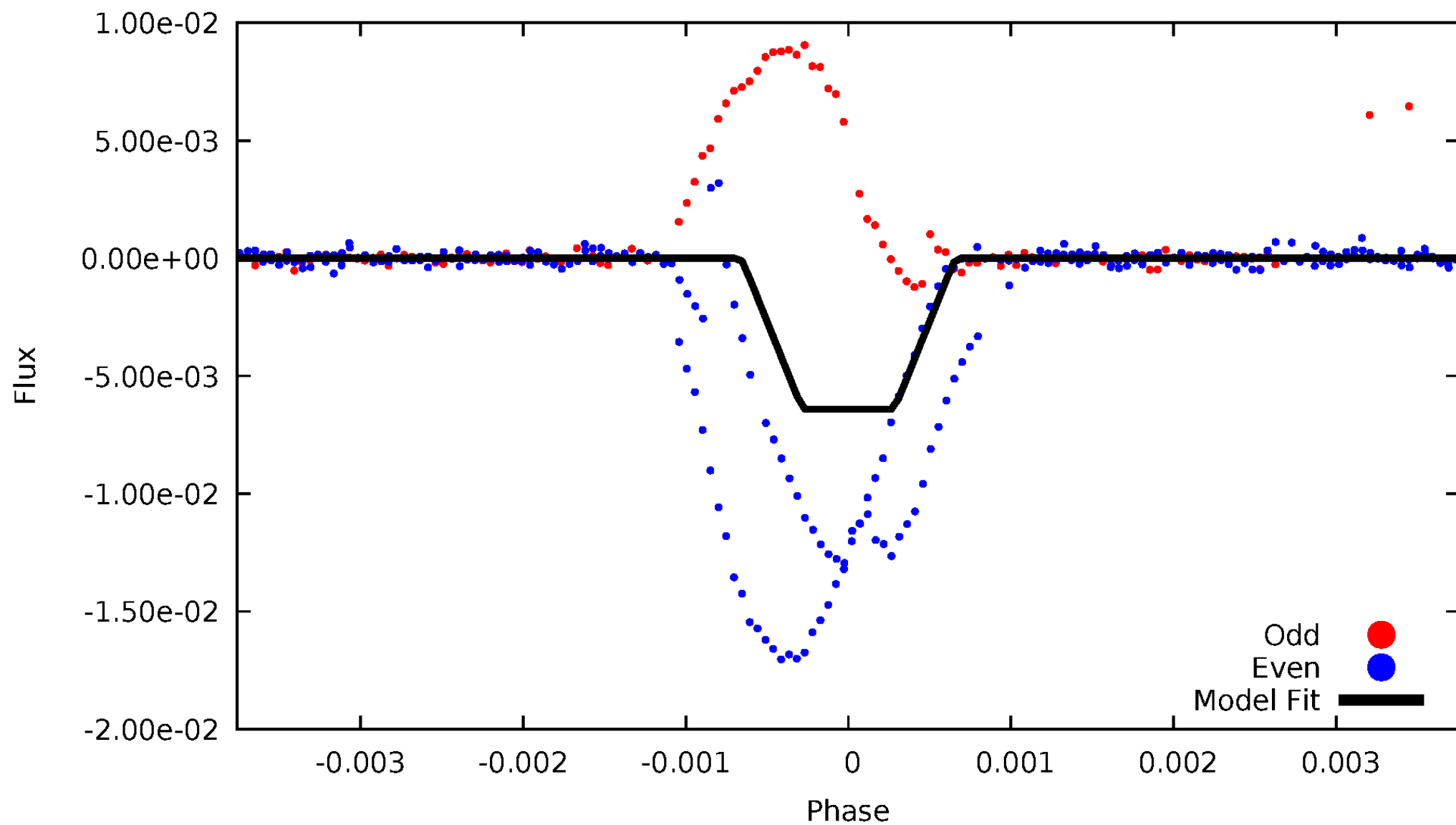
# DV Odd/Even

TCE 008894773-03

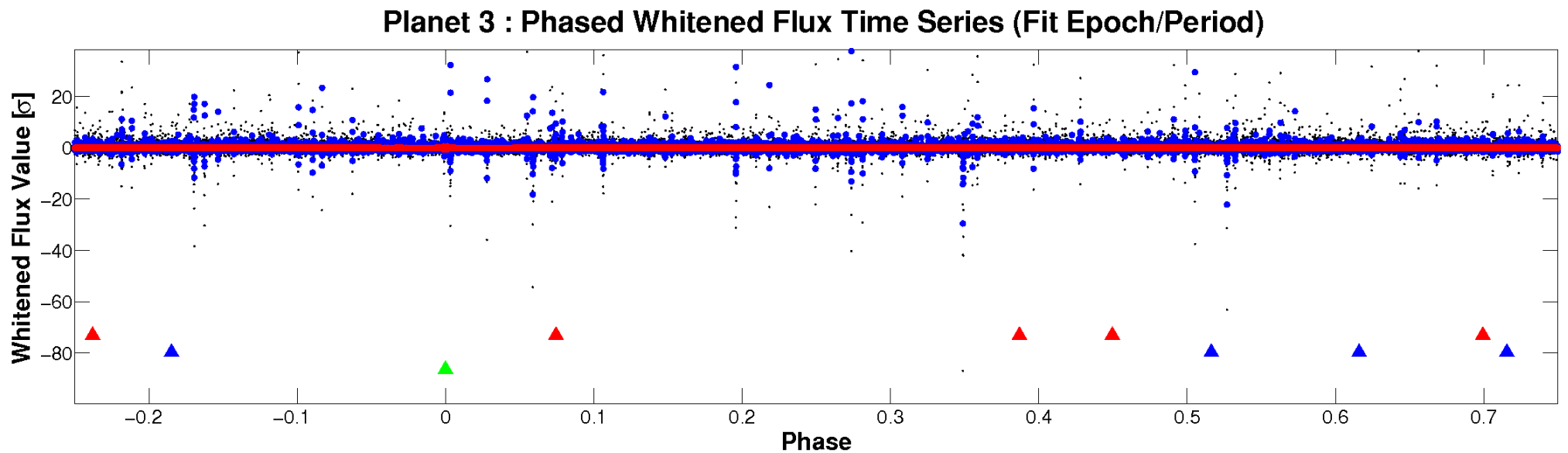
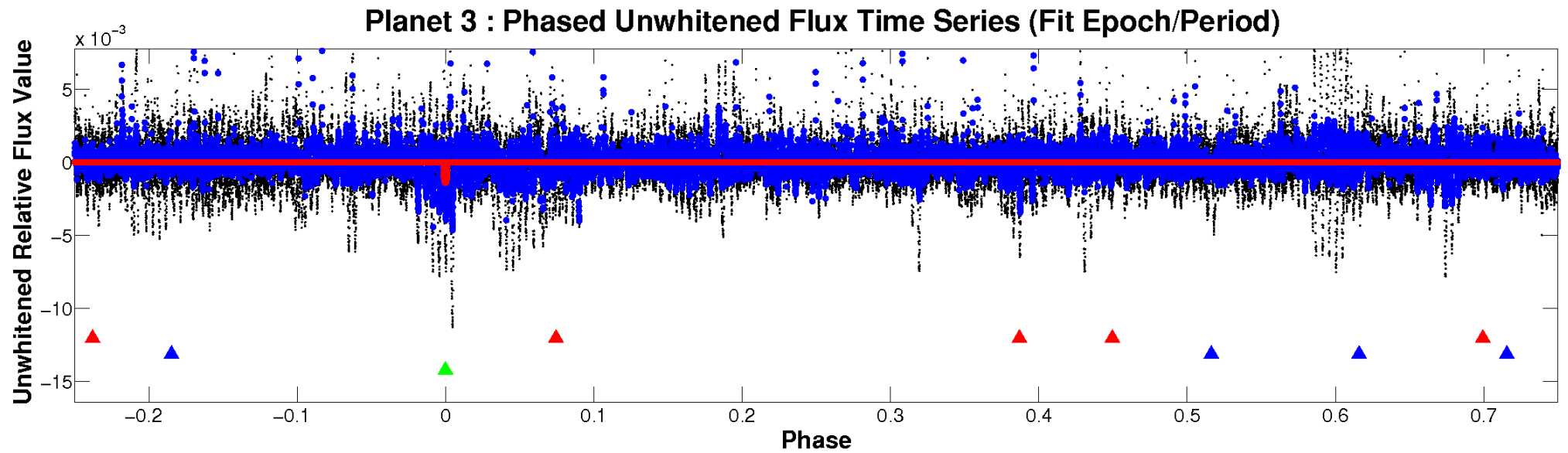


# ALT Odd/Even

TCE 008894773-03

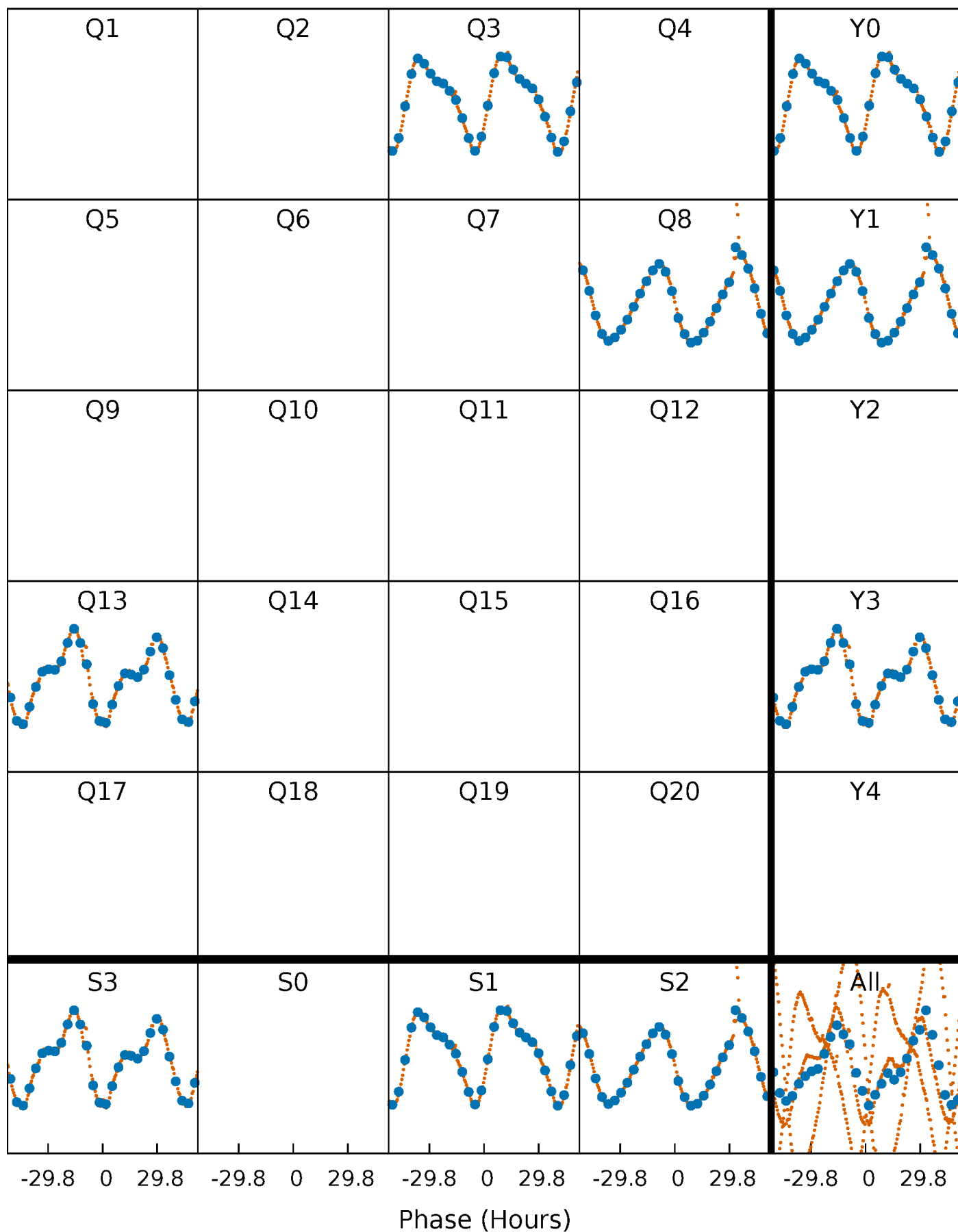


# Non-Whitened Vs. Whitened Light Curve



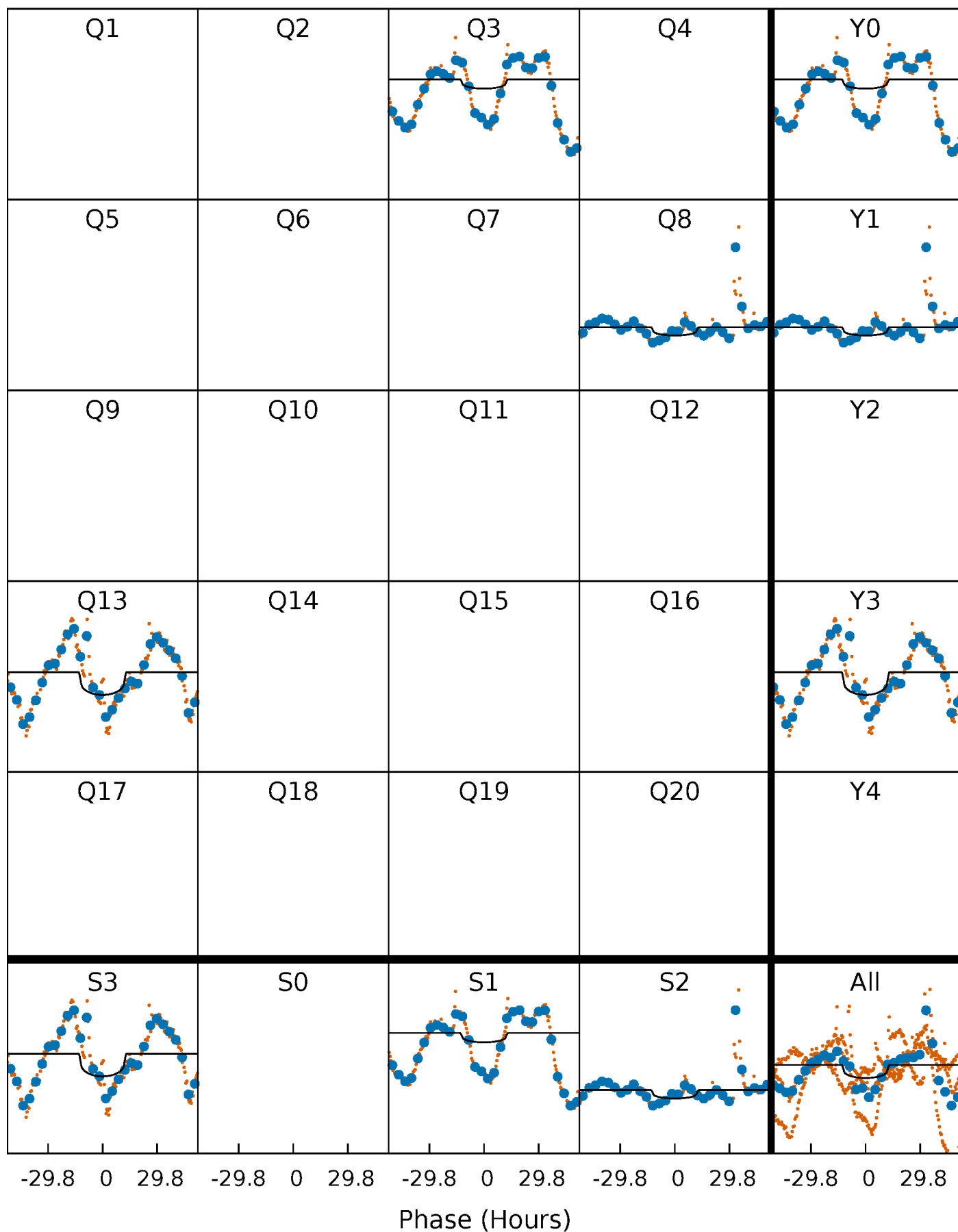
# PDC Quarter-Phased Transit Curves

TCE 008894773-03     $P=423.348190$  Days     $T_0=346.137902$  (BKJD)



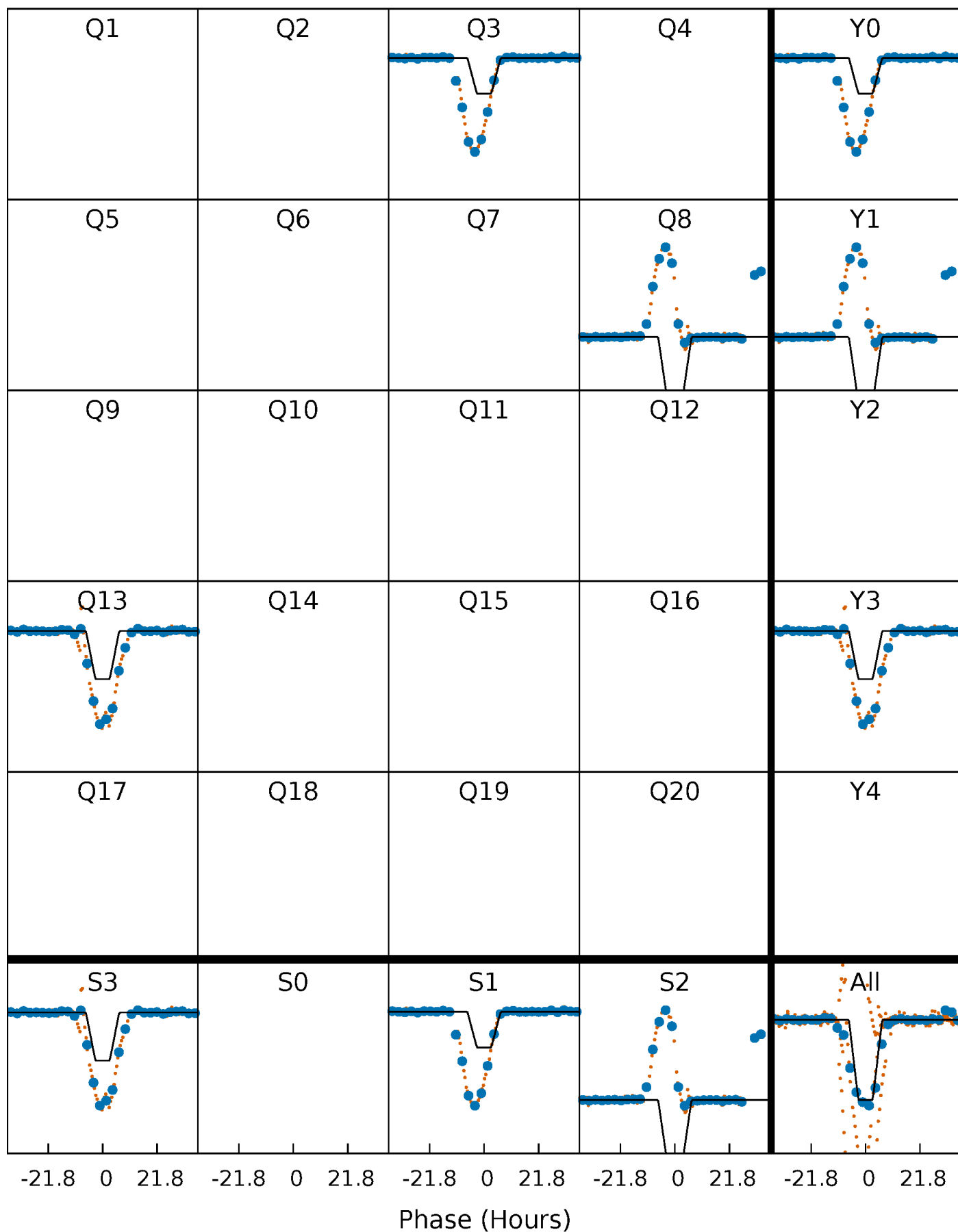
# DV Quarter-Phased Transit Curves

TCE 008894773-03     $P=423.348190$  Days     $T_0=346.137902$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

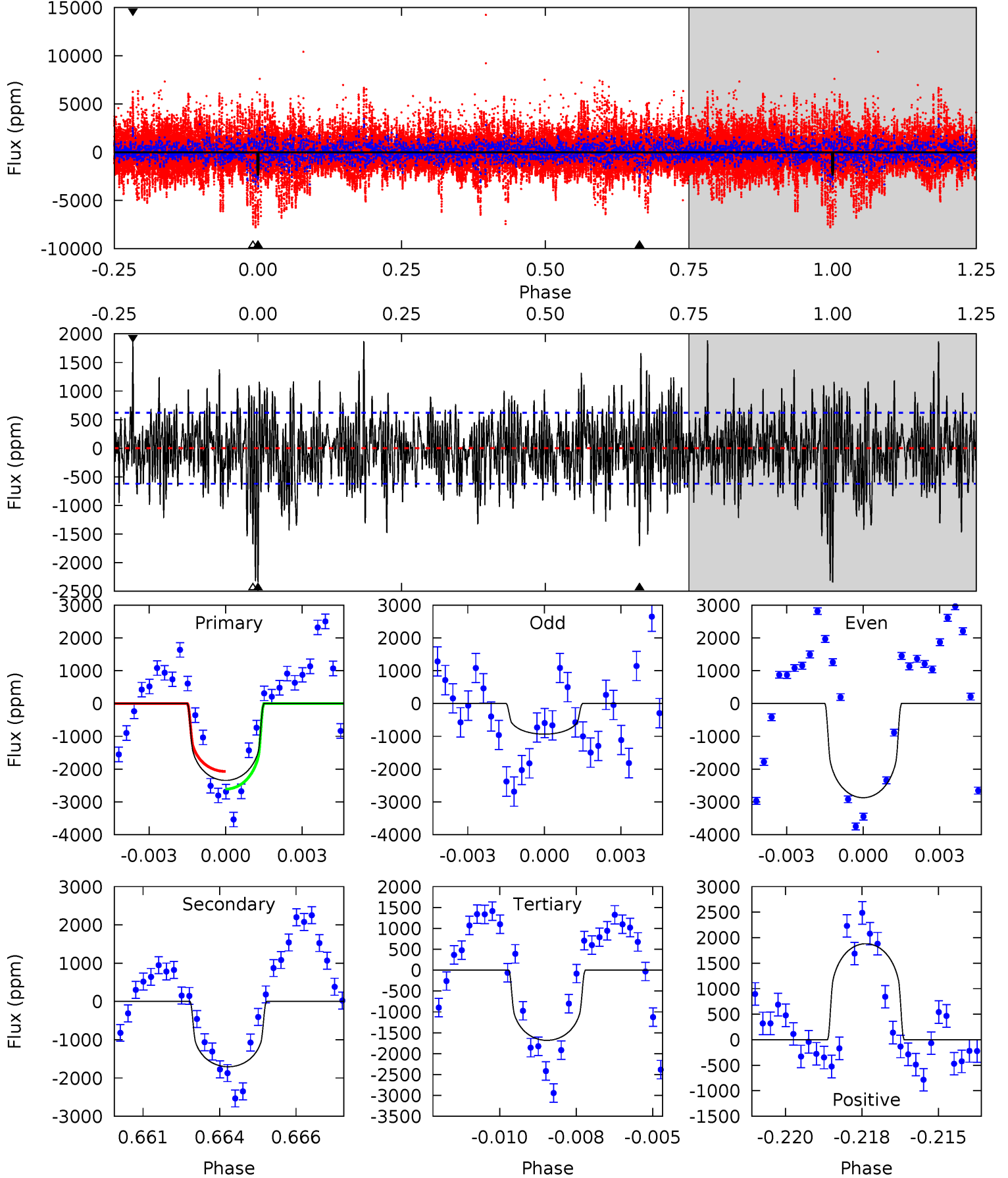
TCE 008894773-03     $P=423.301629$  Days     $T_0=346.197405$  (BKJD)



# DV Model-Shift Uniqueness Test

008894773-03, P = 423.348190 Days, E = 346.137902 Days

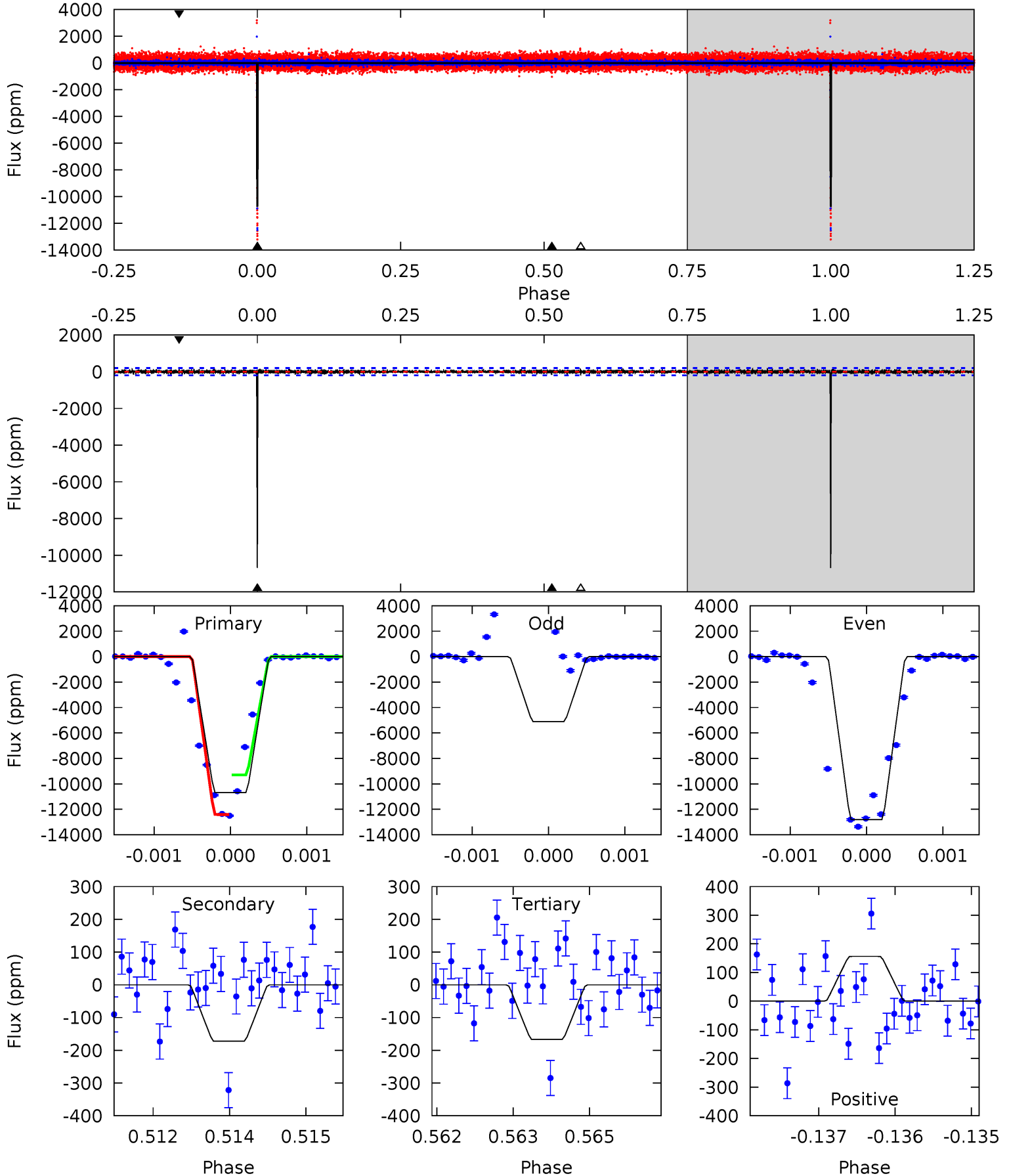
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	14.5	14.3	16.0	5.28	3.01	4.20	5.65	3.95	0.21	-1.50	7.09	1.83	0.45	2.32



# Alt Model-Shift Uniqueness Test

008894773-03, P = 423.301629 Days, E = 346.197405 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
289.7	4.67	4.52	4.23	5.40	3.21	0.94	285.2	285.5	0.15	0.43	131.4	0.55	0.01	42.2





### Stellar Parameters For KIC 008894773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4946^{+118}_{-163}$	$3.320^{+1.245}_{-0.332}$	$-0.320^{+0.250}_{-0.300}$	$3.376^{+2.101}_{-2.802}$	$0.868^{+0.240}_{-0.240}$	$0.032^{+3.178}_{-0.019}$
	+2%/-3%	+38%/-10%	+78%/-94%	+62%/-83%	+28%/-28%	+10006%/-61%
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 008894773-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1706 \pm 117$	$11.99^{+5.68}_{-5.25}$	$524^{+95}_{-122}$	$5210^{+588}_{-399}$	$7512^{+14463}_{-4193}$
Alt.	$-172 \pm 37$	$28.15^{+11.19}_{-12.37}$	$533^{+90}_{-132}$	$2728^{+109}_{-125}$	$131^{+279}_{-66}$

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

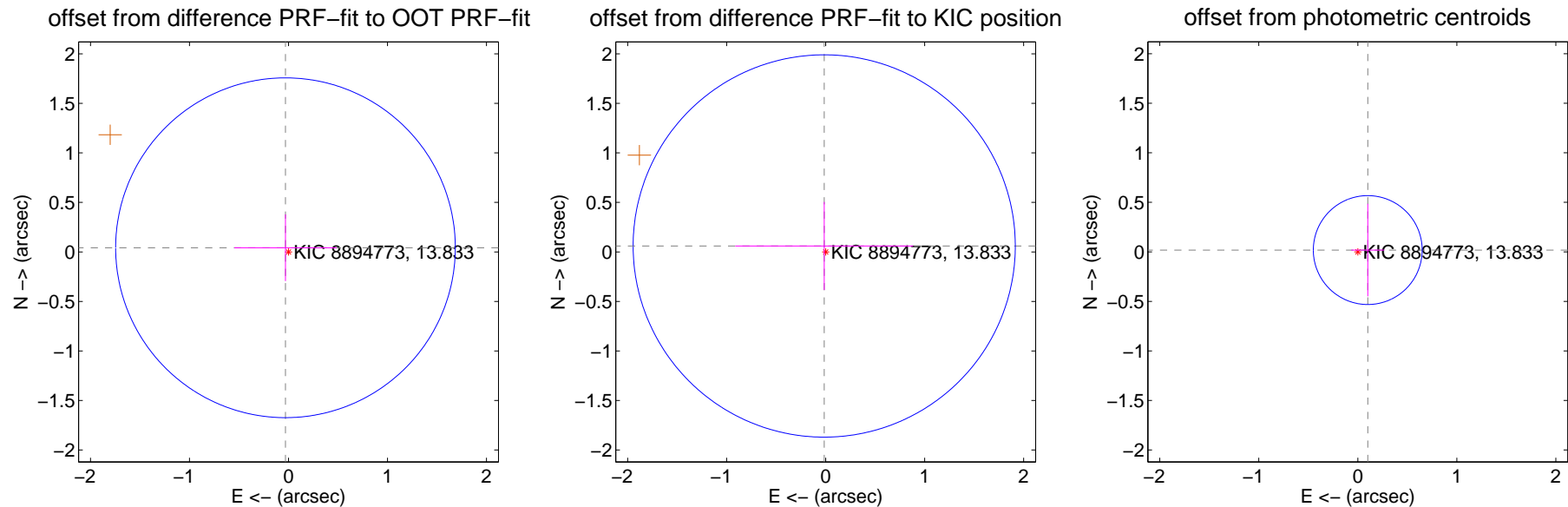
## DV Centroid Data

Supplemental centroid analysis for 008894773-03. Kepler magnitude: 13.83. Transit SNR 4.19

There are 1 quarters with good PRF difference image offsets

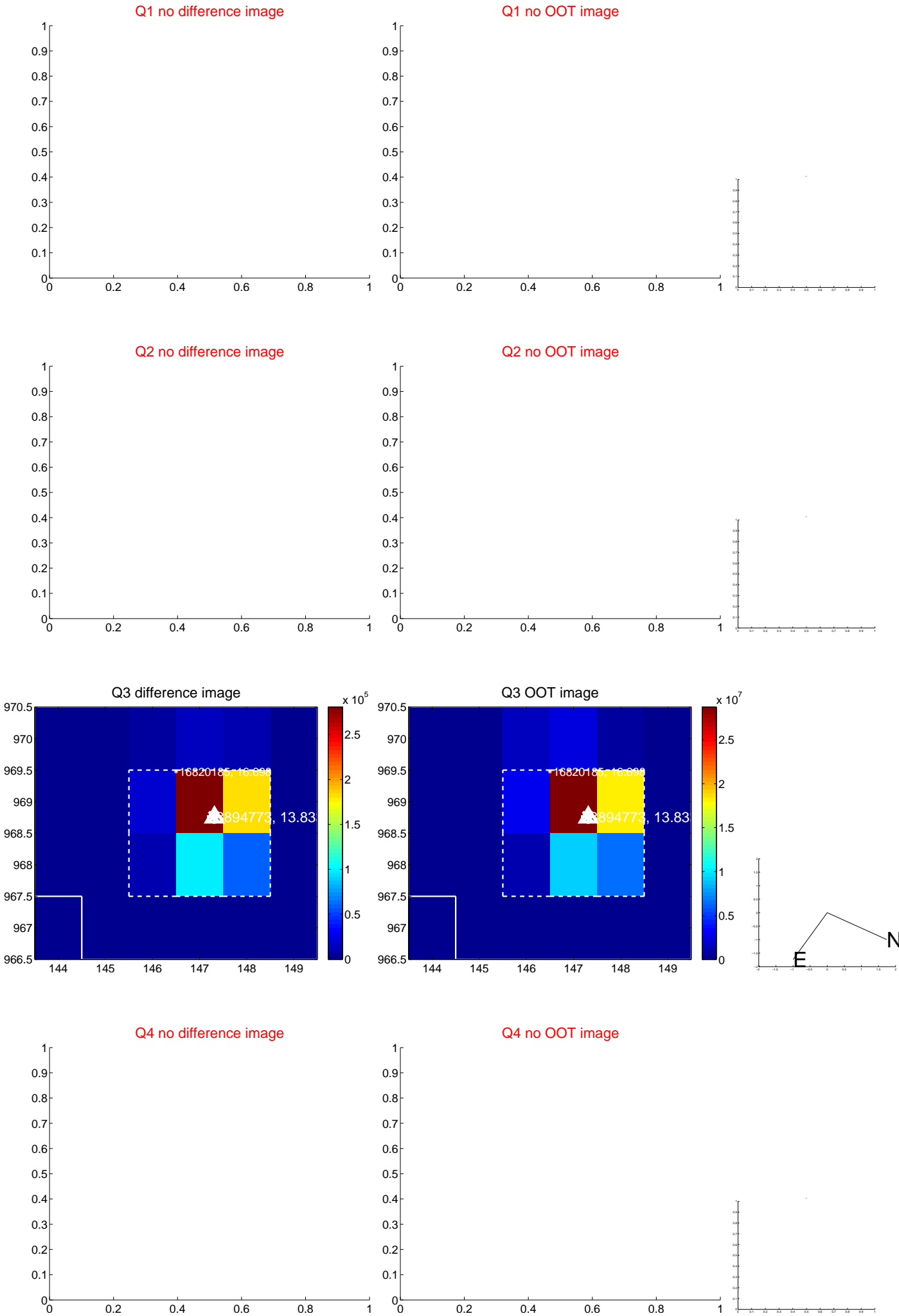
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.052 \pm 0.572$	0.09	$0.030 \pm 0.516$	$0.042 \pm 0.337$
PRF-fit source offset from KIC position	$0.062 \pm 0.643$	0.10	$0.015 \pm 0.898$	$0.060 \pm 0.445$
photometric centroid source offset	$0.10 \pm 0.18$	0.56	$-0.10 \pm 0.17$	$0.02 \pm 0.47$

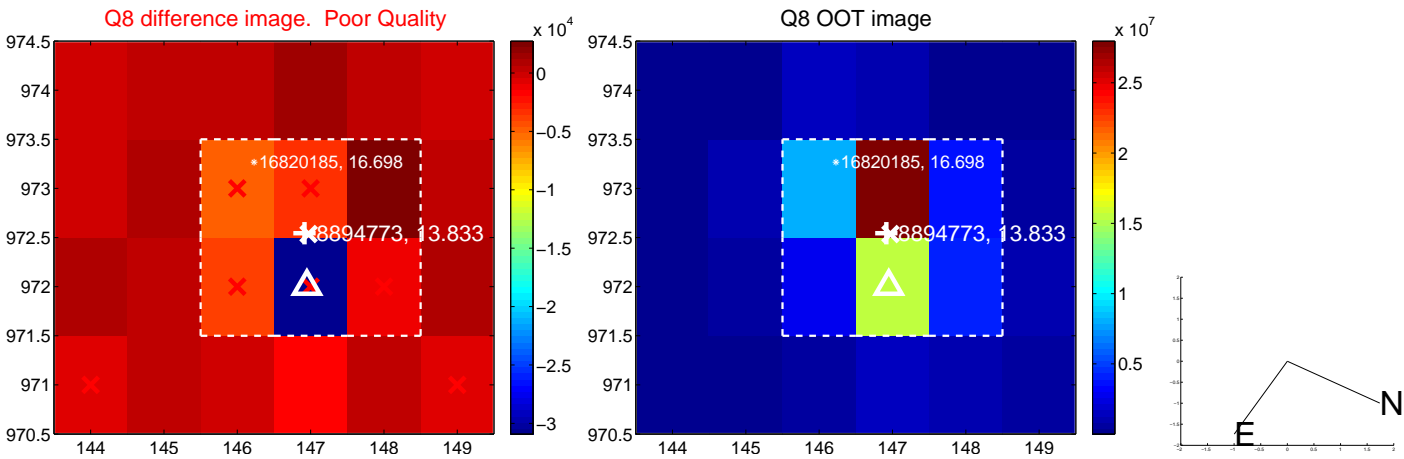
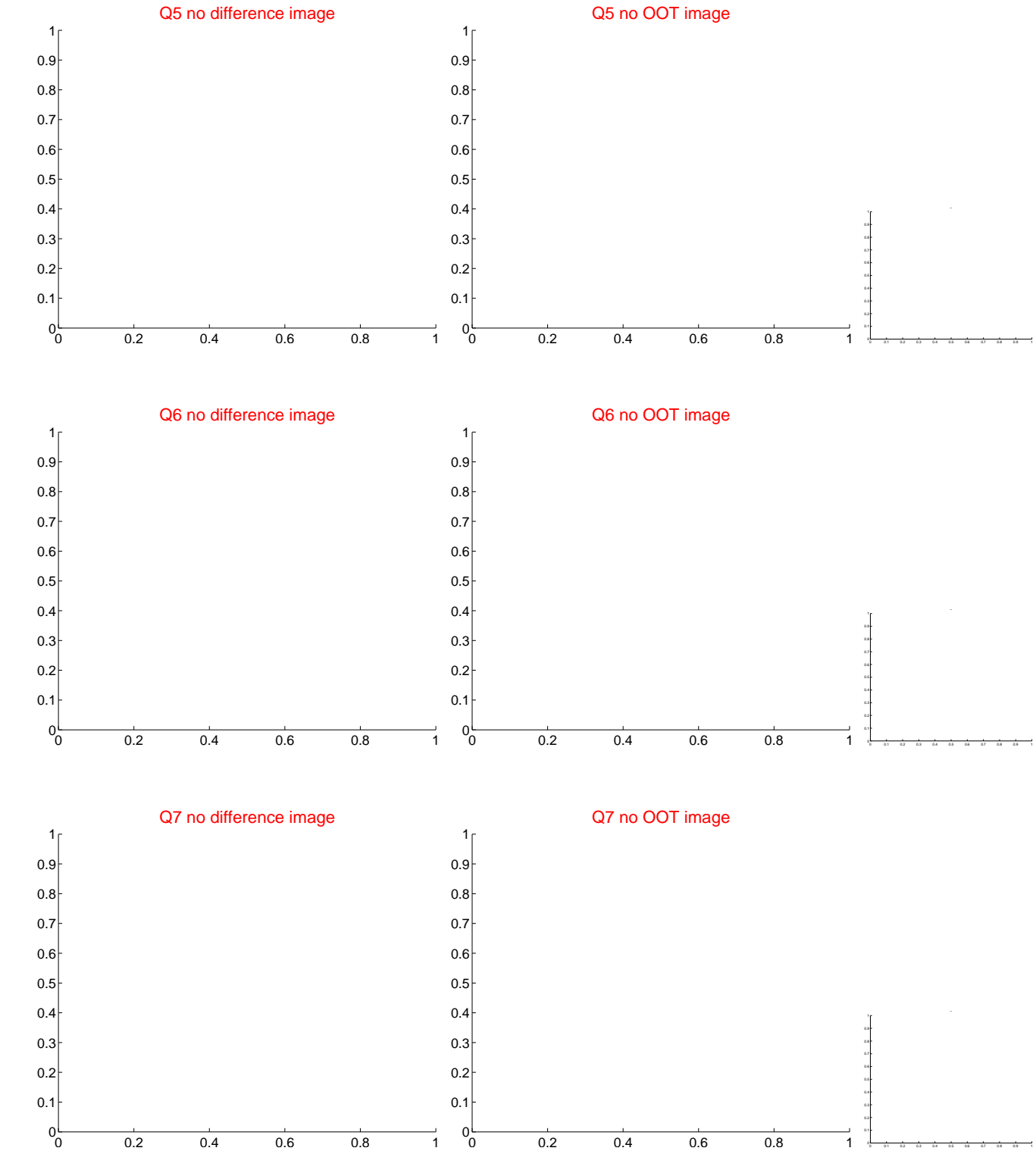


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



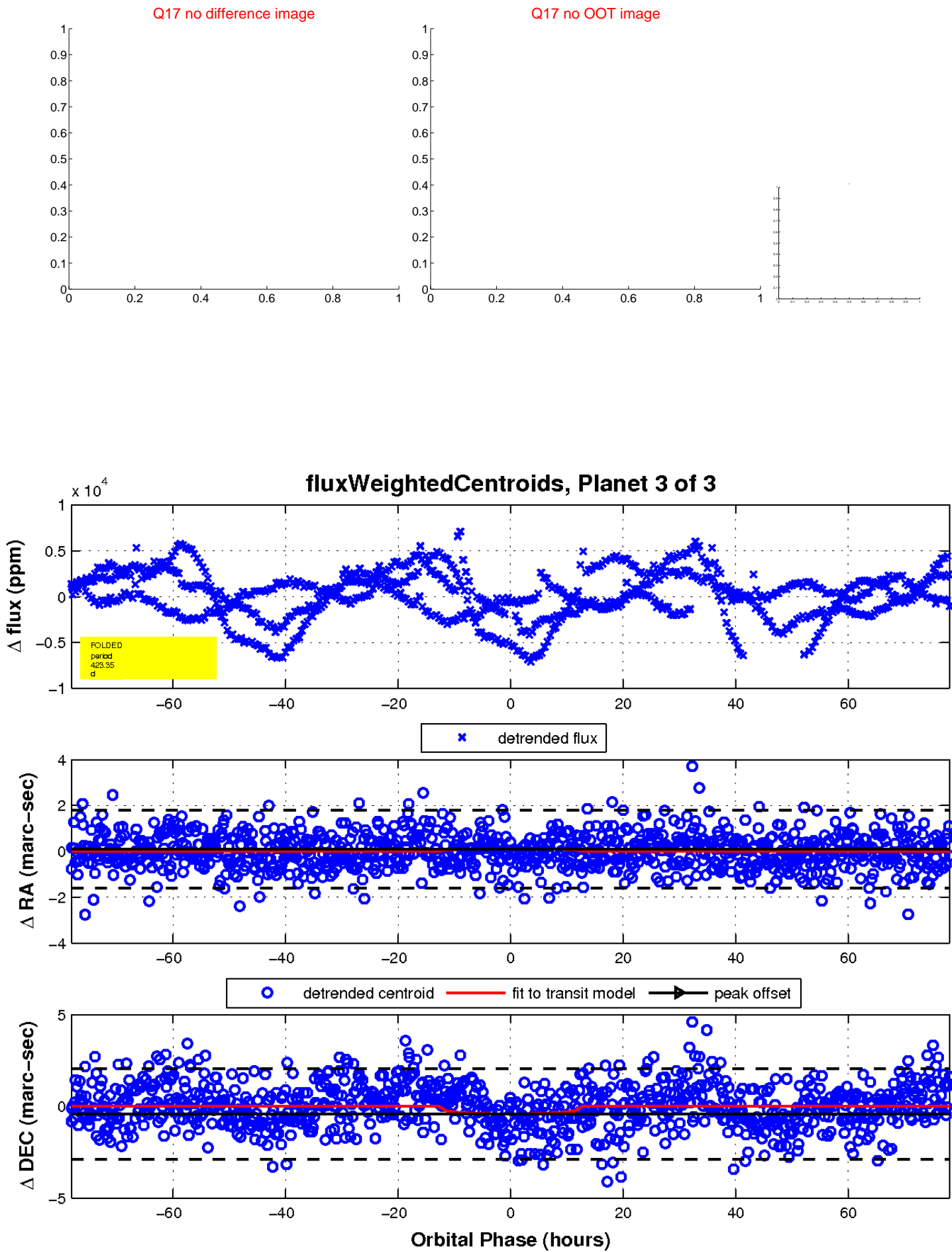
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

