

# KIC 008076634

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008076634-01	OBS	No	493.967610	586.272153	1300.1	7.152	12.3	6.5	0.78	5459	2.96	0.36
008076634-02	OBS	No	511.096832	343.863564	1386.0	7.308	10.2	5.9	0.78	5459	2.88	0.34
008076634-03	OBS	No	279.053513	301.648999	1151.7	5.385	10.6	6.4	0.78	5459	2.79	0.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008076634-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008076634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008076634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

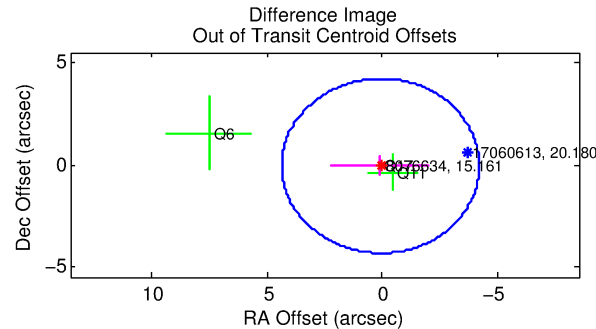
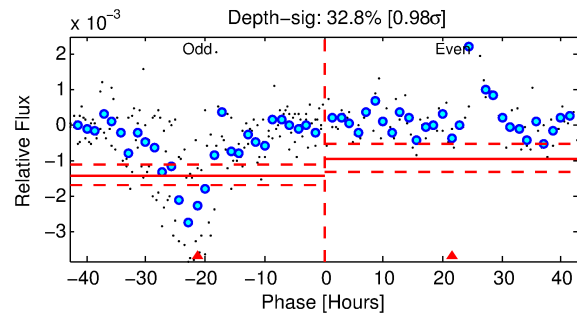
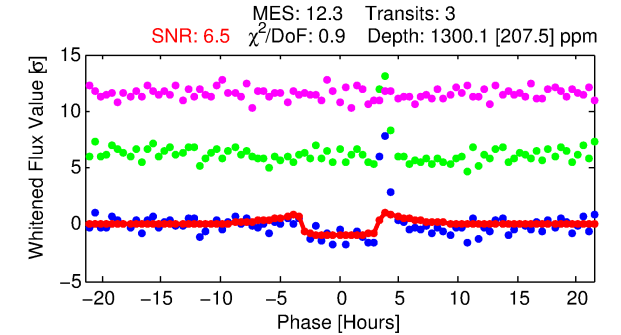
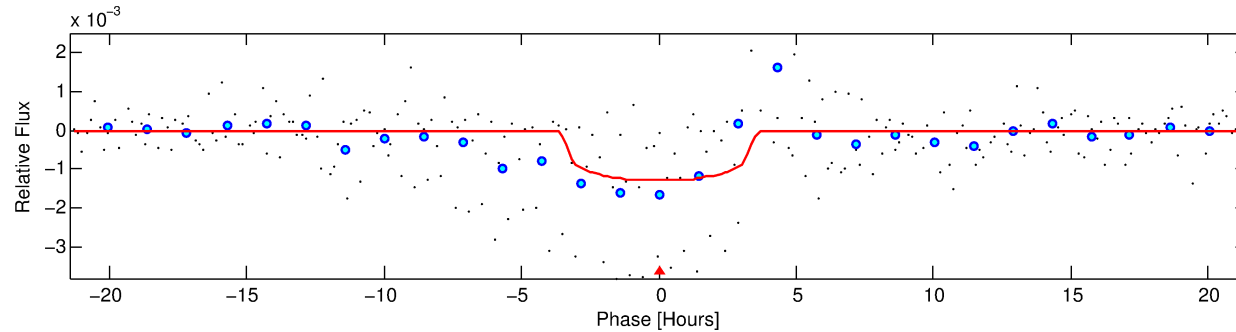
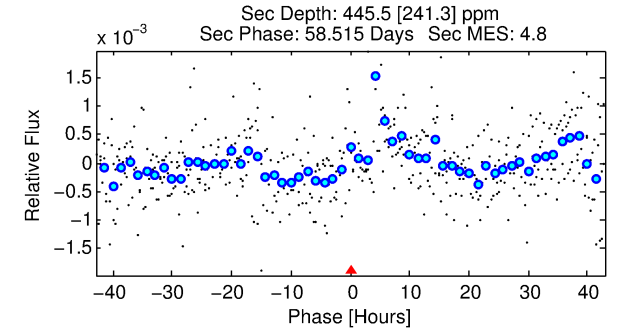
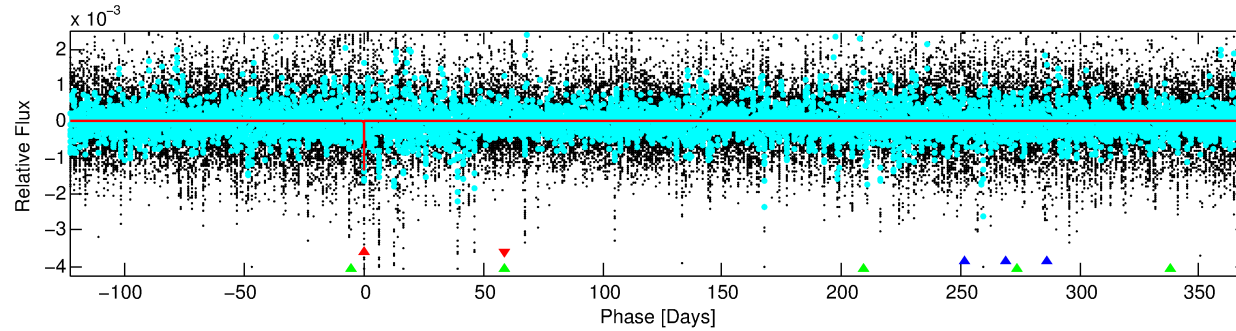
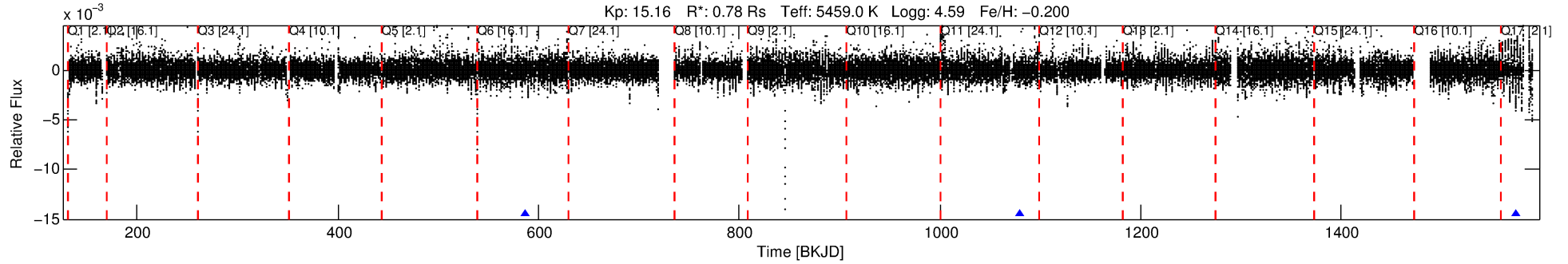
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Ephemeris Match Information For 008076634-01

No Significant Match Found

# DV One-Page Summary

KIC: 8076634 Candidate: 1 of 3 Period: 493.968 d



## DV Fit Results:

Period = 493.96761 [0.00776] d  
Epoch = 586.2722 [0.0110] BKJD  
Rp/R\* = 0.0348 [0.0193]  
a/R\* = 422.21 [919.67]  
b = 0.66 [1.92]  
Seff = 0.36 [0.09]  
Teq = 197 [12] K  
Rp = 2.96 [1.73] Re  
a = 1.1637 [0.1814] AU  
Ag = 37960.54 [47631.80] [0.80σ]  
Teffp = 4252 [1319] K [3.08σ]

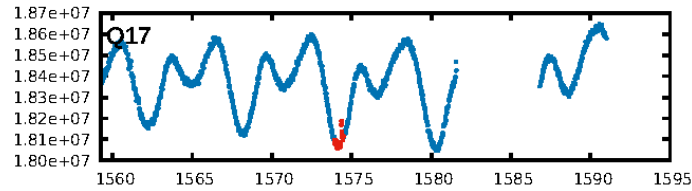
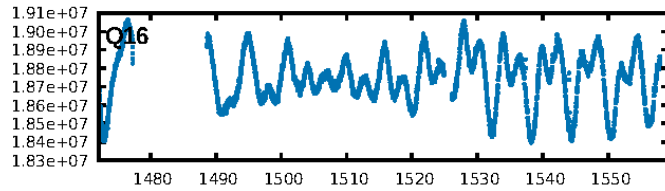
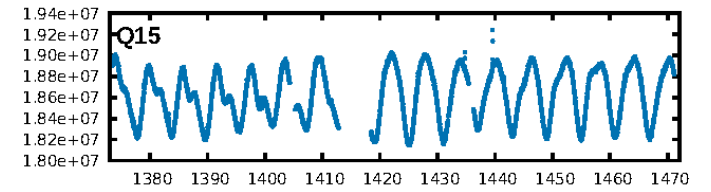
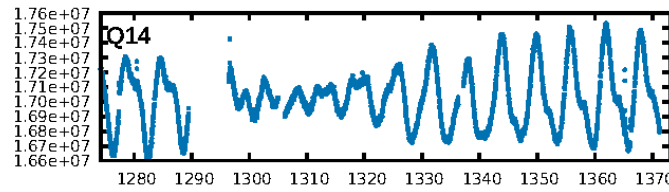
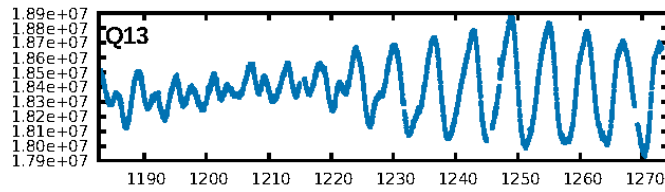
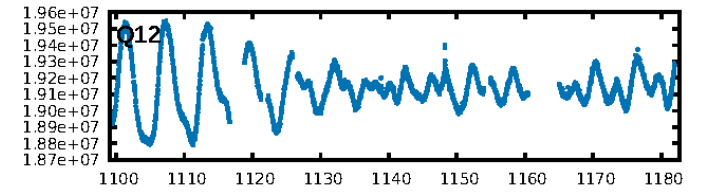
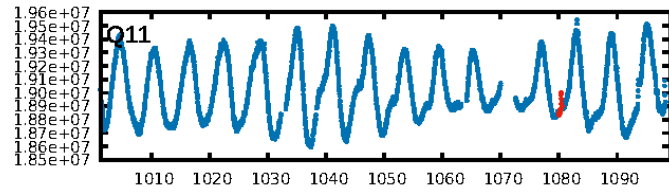
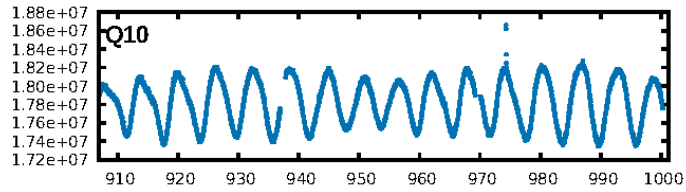
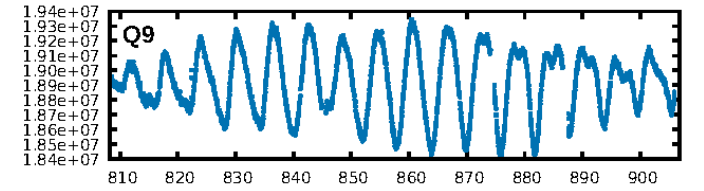
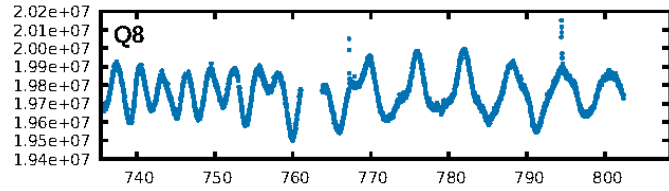
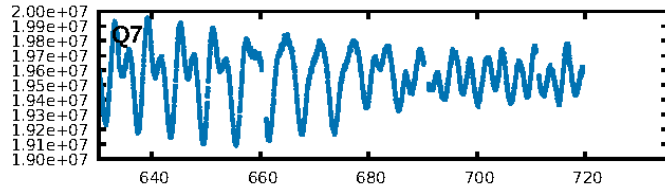
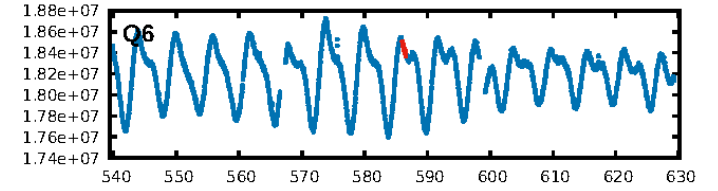
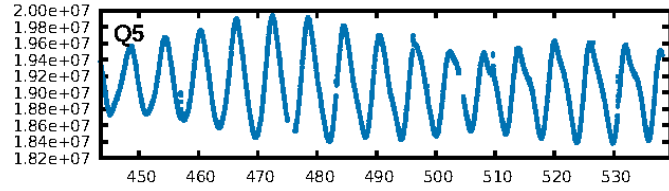
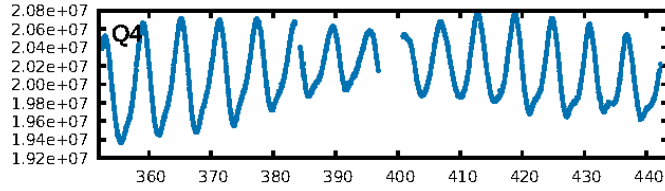
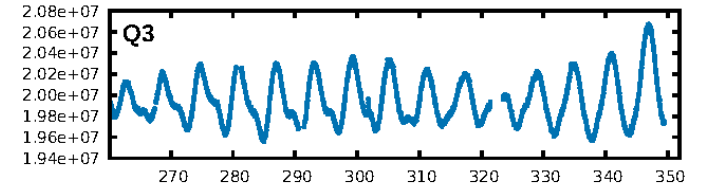
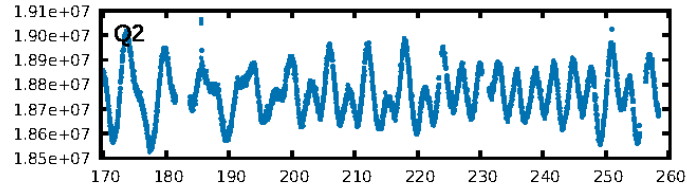
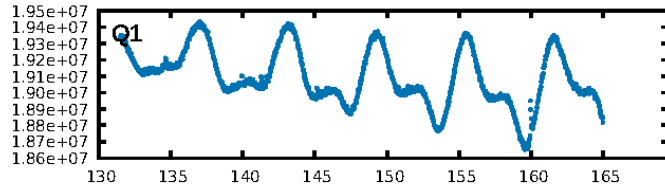
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [576.17σ]  
LongPeriod-sig: 100.0% [40.21σ]  
ModelChiSquare2-sig: 35.0%  
ModelChiSquareGof-sig: 99.8%  
**Bootstrap-pfa: 2.39e-11**  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 1.338  
Centroid-sig: 1.3%  
Centroid-so: 1.539 arcsec [1.61σ]  
OotOffset-rm: 0.103 arcsec [0.07σ]  
KicOffset-rm: 0.155 arcsec [0.08σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

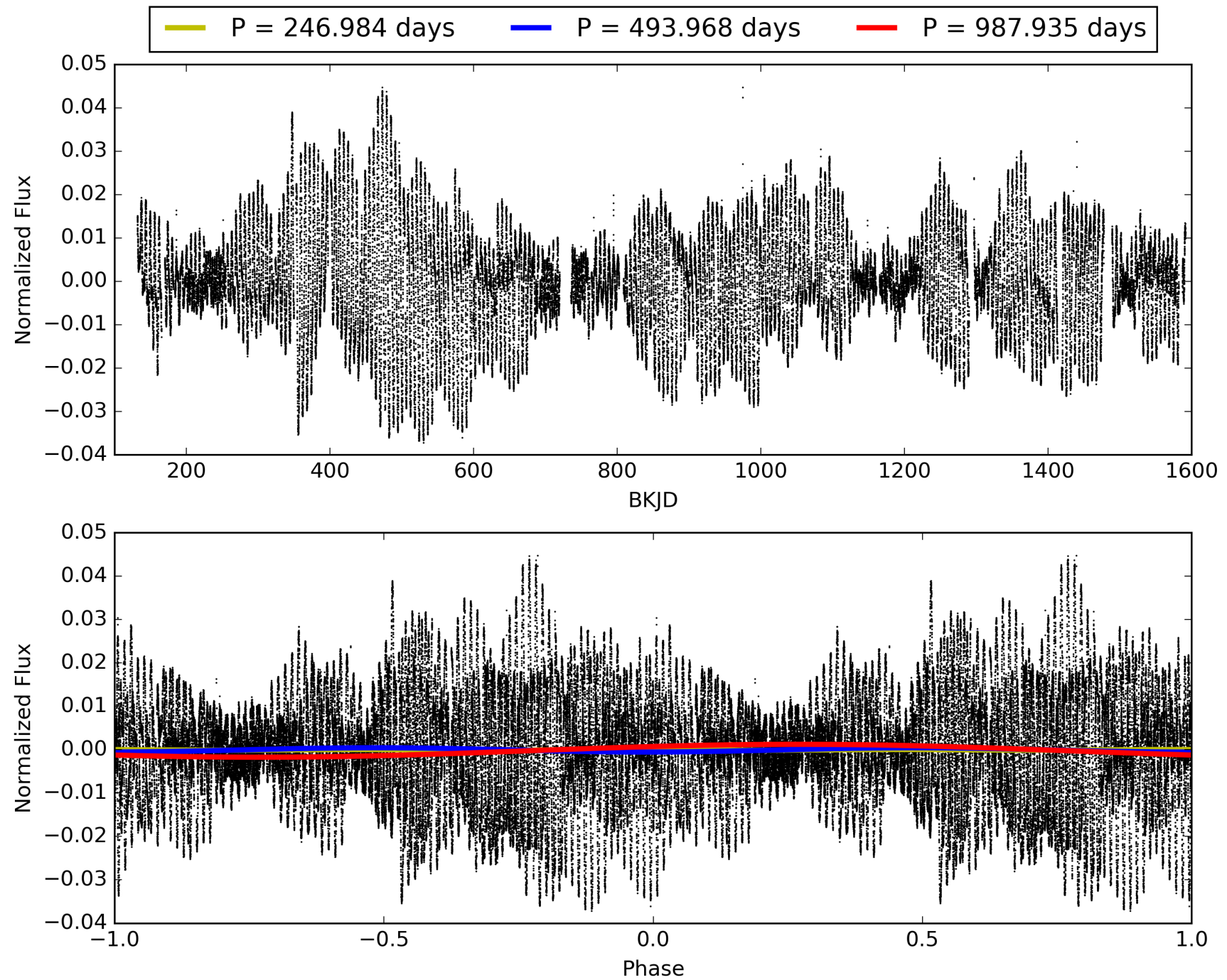
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008076634-01, PDC Light Curves

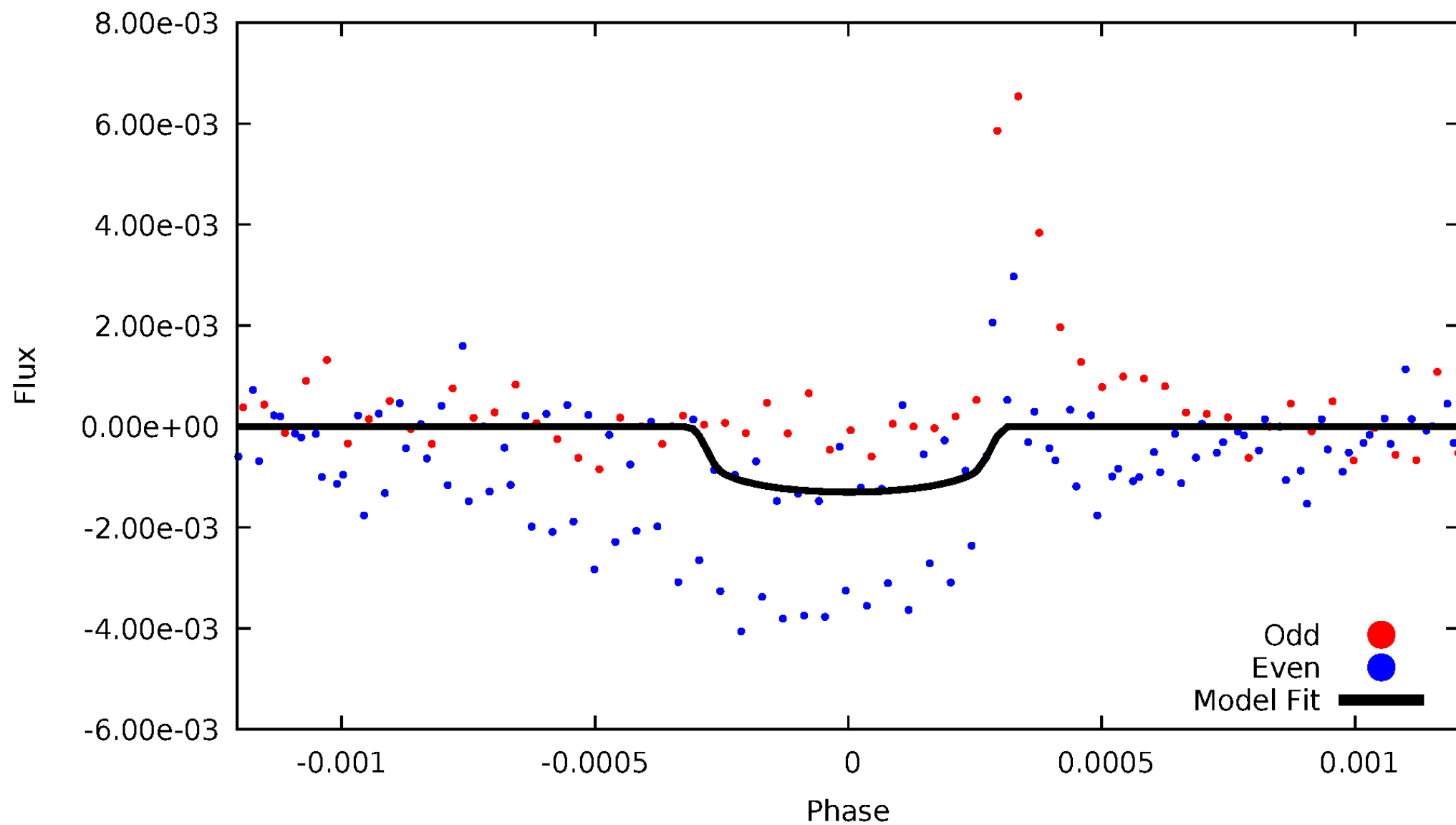


TCE 008076634-01



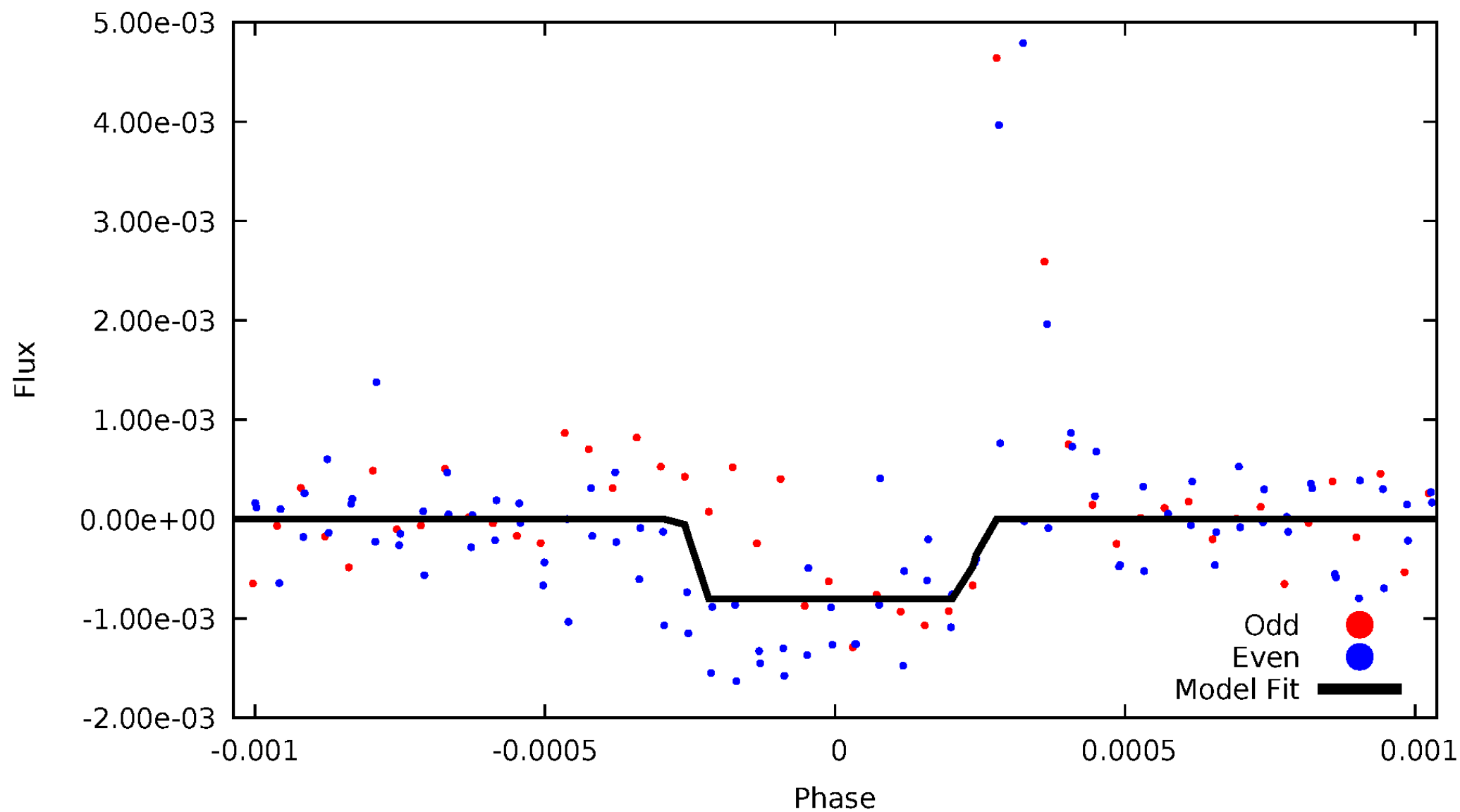
# DV Odd/Even

TCE 008076634-01



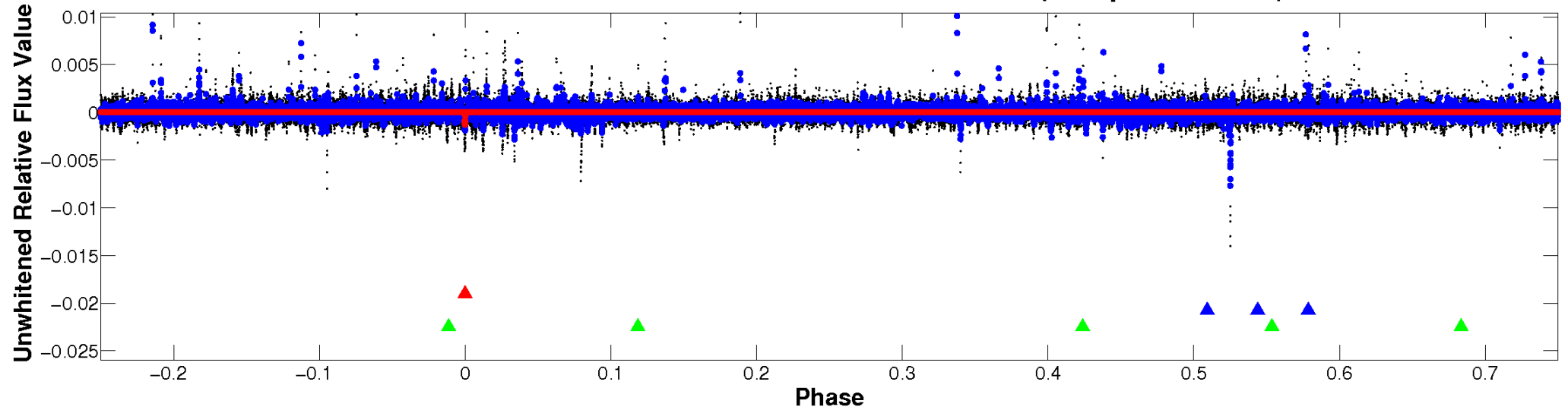
# ALT Odd/Even

TCE 008076634-01

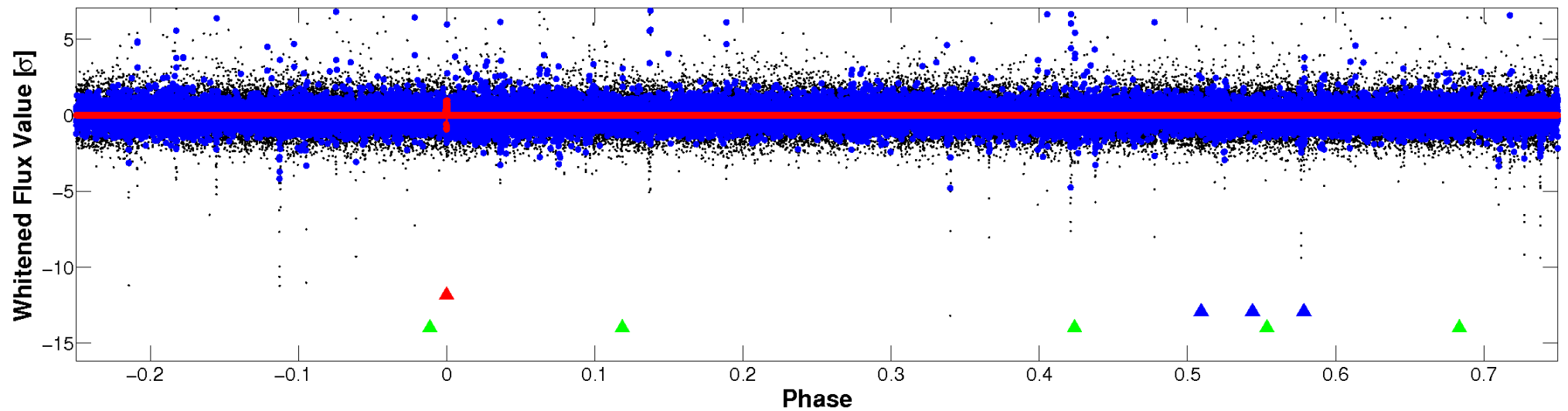


# Non-Whitened Vs. Whitened Light Curve

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

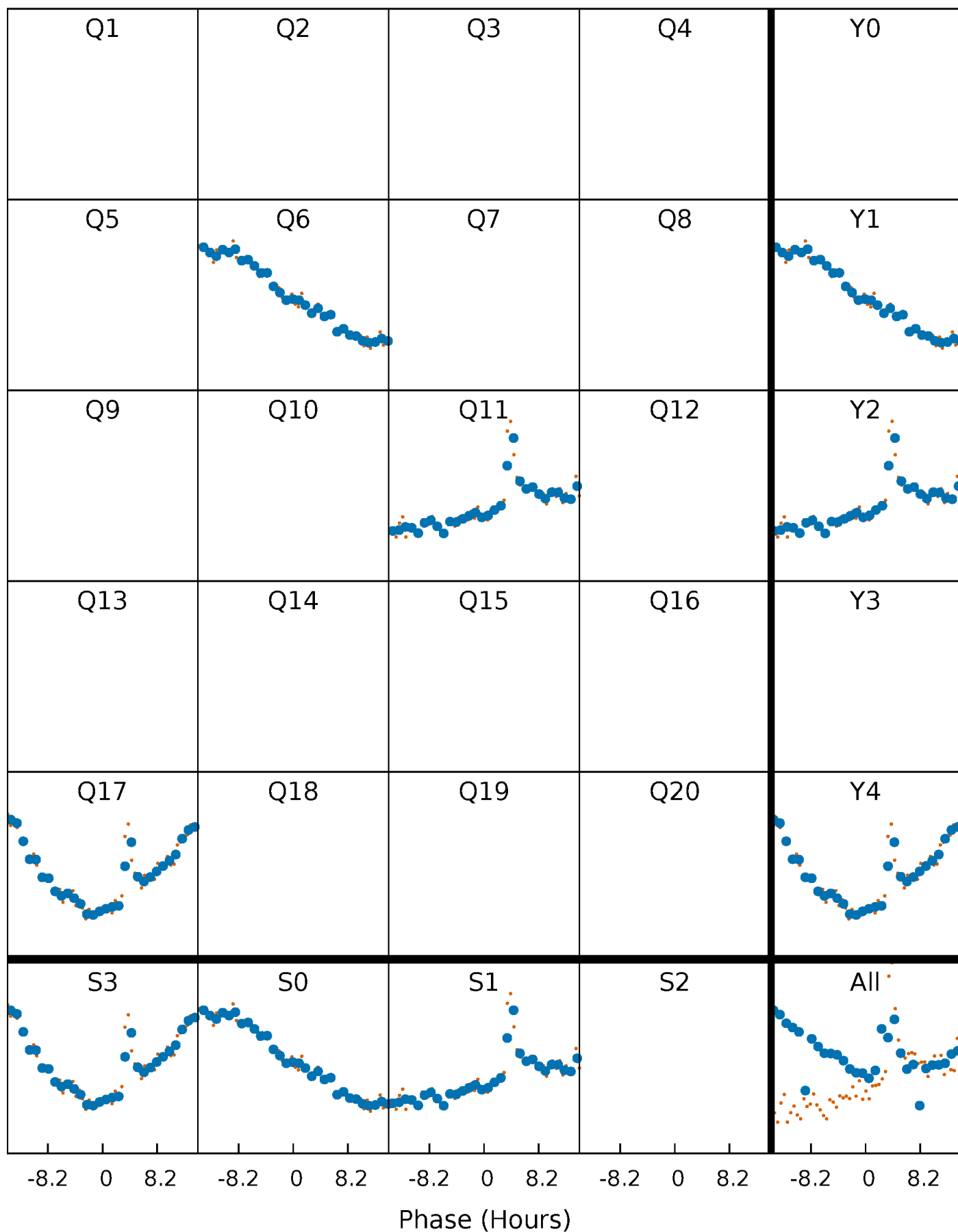


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

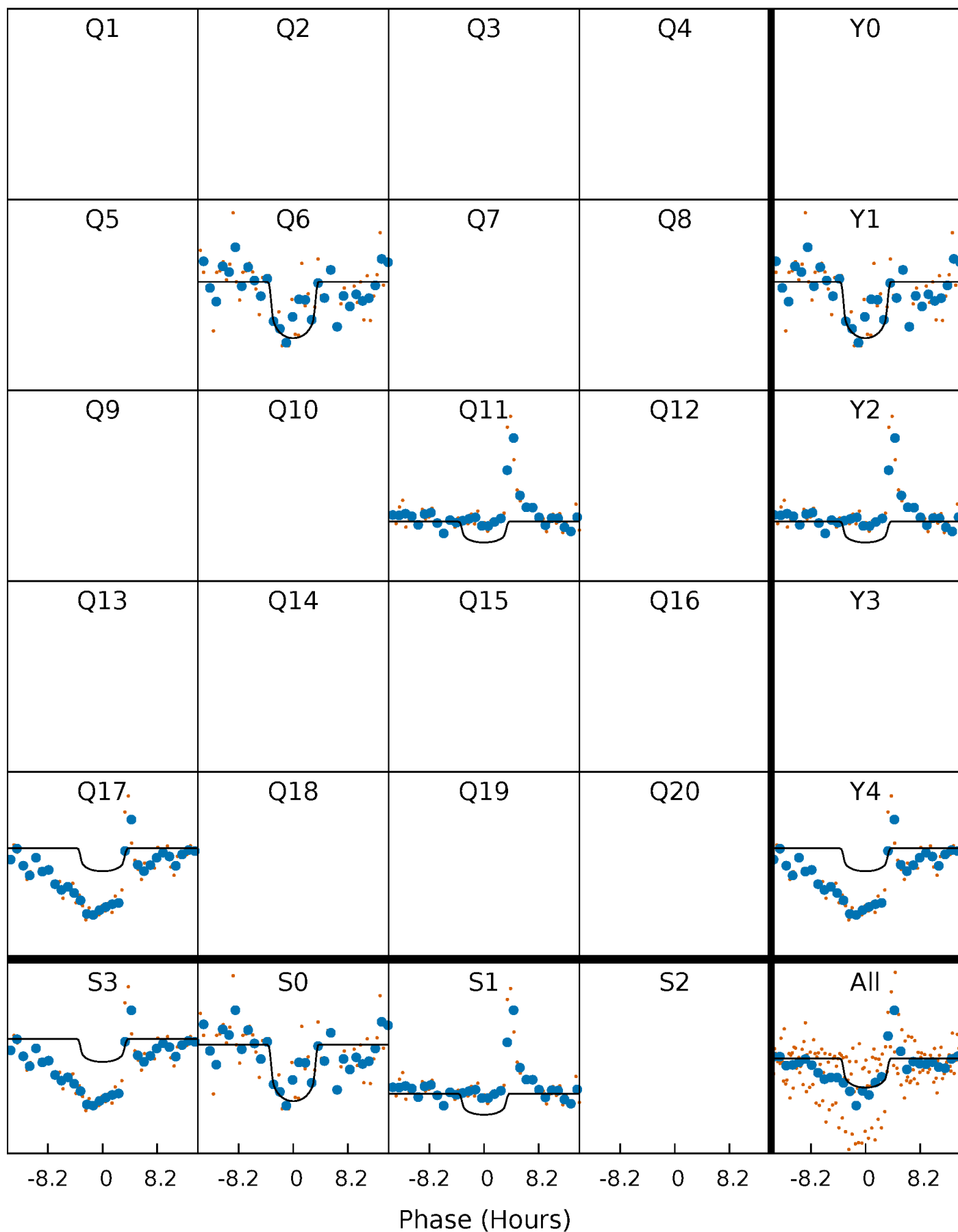
TCE 008076634-01 P=493.967610 Days  $T_0=586.272153$  (BKJD)





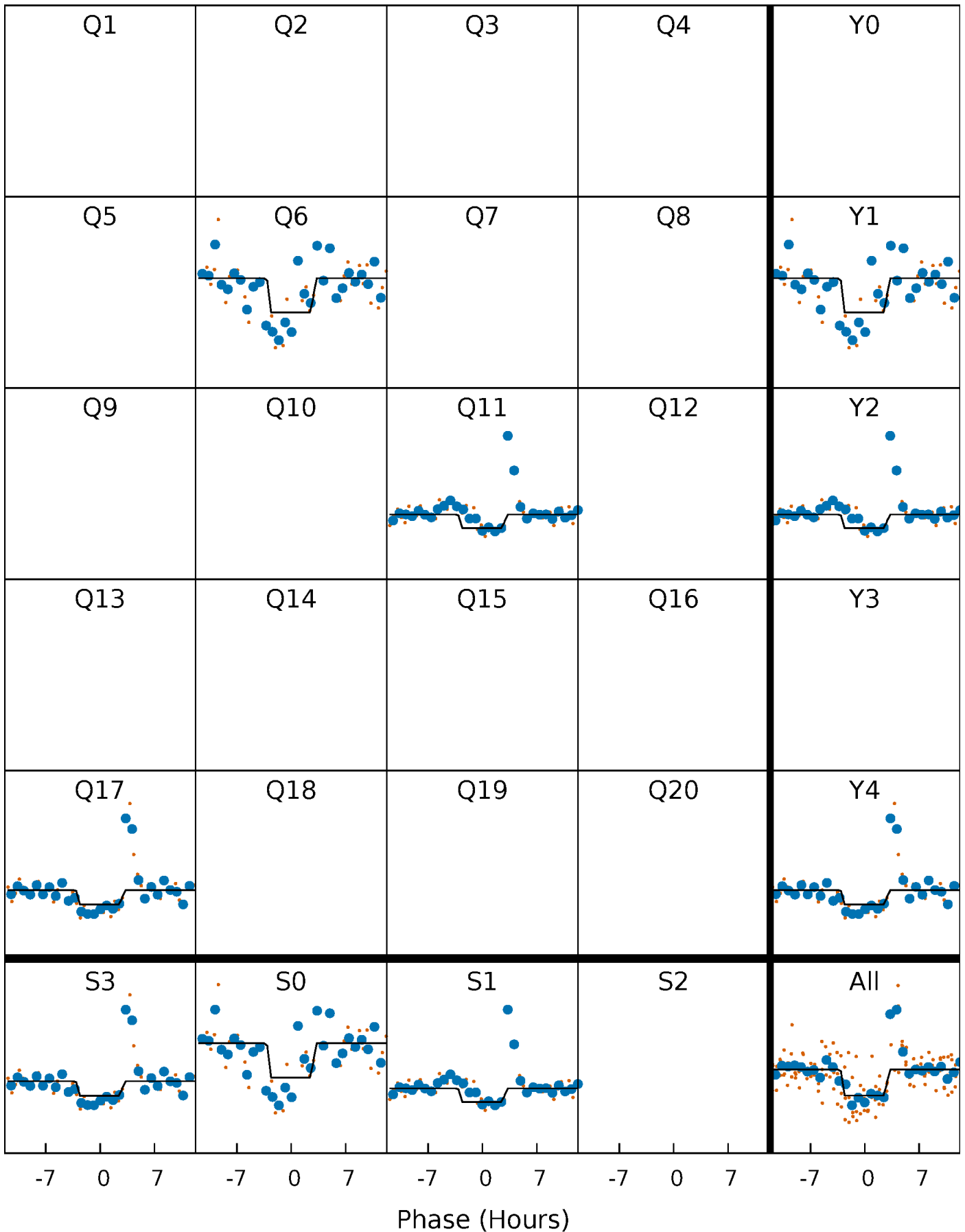
# DV Quarter-Phased Transit Curves

TCE 008076634-01 P=493.967610 Days  $T_0=586.272153$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

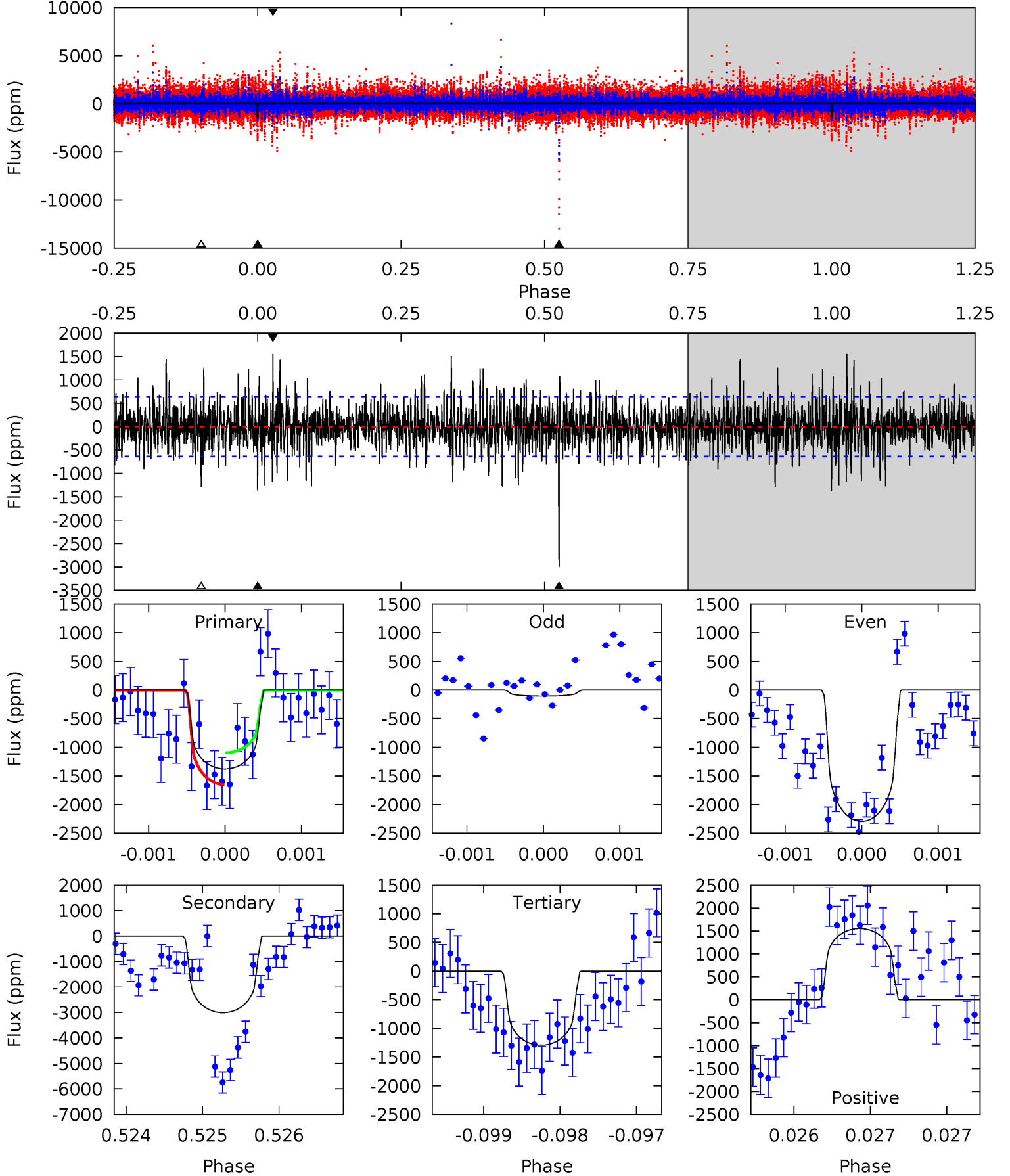
TCE 008076634-01 P=493.960879 Days  $T_0=586.286624$  (BKJD)



# DV Model-Shift Uniqueness Test

008076634-01, P = 493.967610 Days, E = 92.304543 Days

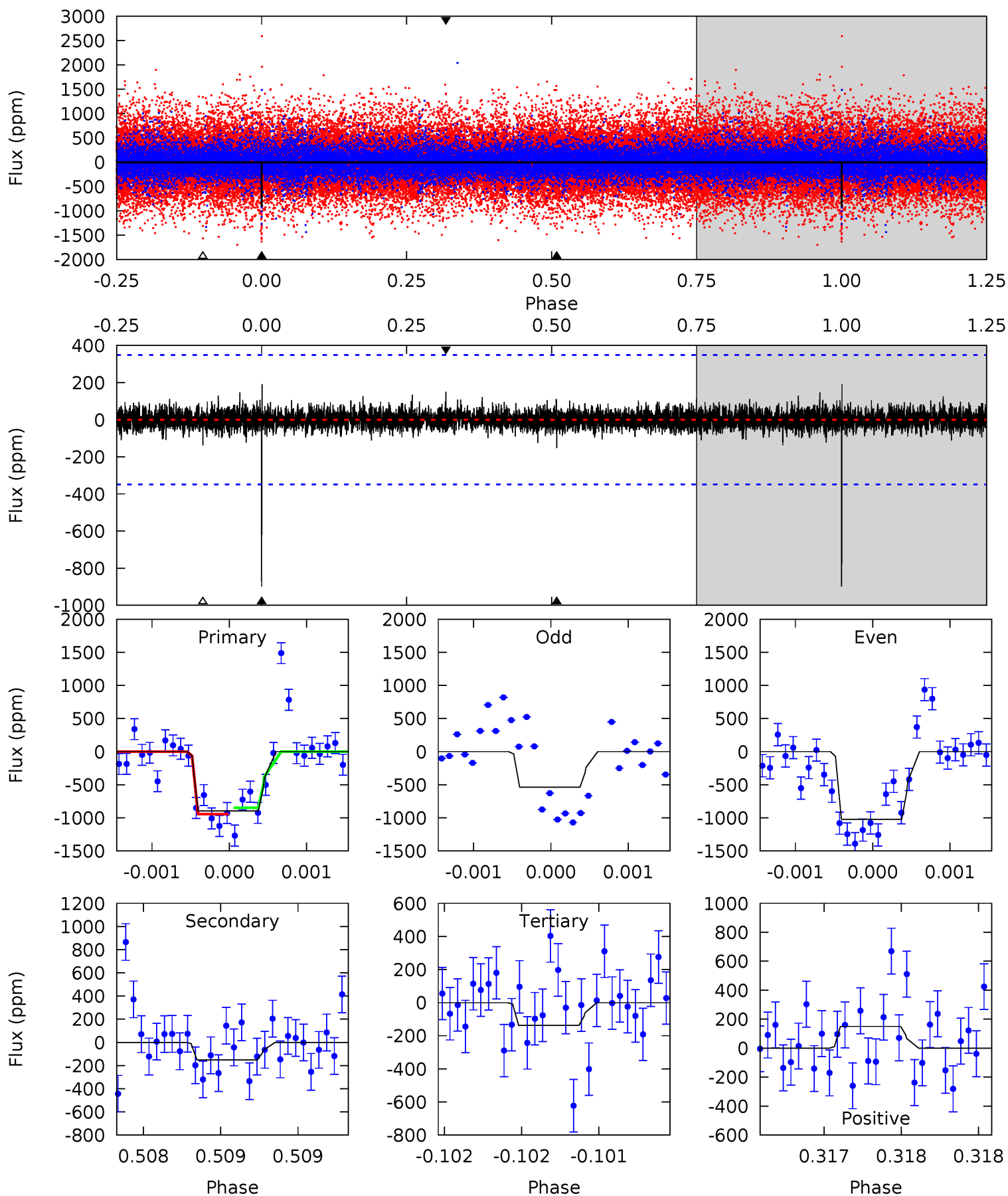
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	26.2	11.2	13.5	5.54	3.42	2.92	0.74	-1.53	14.9	12.6	8.87	1.60	0.34	2.43



# Alt Model-Shift Uniqueness Test

008076634-01,  $P = 493.960879$  Days,  $E = 92.325745$  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
14.3	2.42	2.19	2.39	5.56	3.46	0.47	12.1	11.9	0.23	0.03	3.63	0.96	0.18	0.75



### Stellar Parameters For KIC 008076634

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5459^{+146}_{-162}$	$4.590^{+0.040}_{-0.120}$	$-0.200^{+0.300}_{-0.300}$	$0.779^{+0.147}_{-0.063}$	$0.866^{+0.080}_{-0.098}$	$2.582^{+0.435}_{-0.965}$
	+3%/-3%	+1%/-3%	+150%/-150%	+19%/-8%	+9%/-11%	+17%/-37%
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 008076634-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-3008 \pm 115$	$3.17^{+1.79}_{-1.54}$	$278^{+14}_{-11}$	$6681^{+3642}_{-1299}$	$218949^{+623028}_{-127838}$
Alt.	$-152 \pm 63$	$2.58^{+1.65}_{-1.44}$	$279^{+12}_{-11}$	$3829^{+1401}_{-658}$	$15717^{+59402}_{-10851}$

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

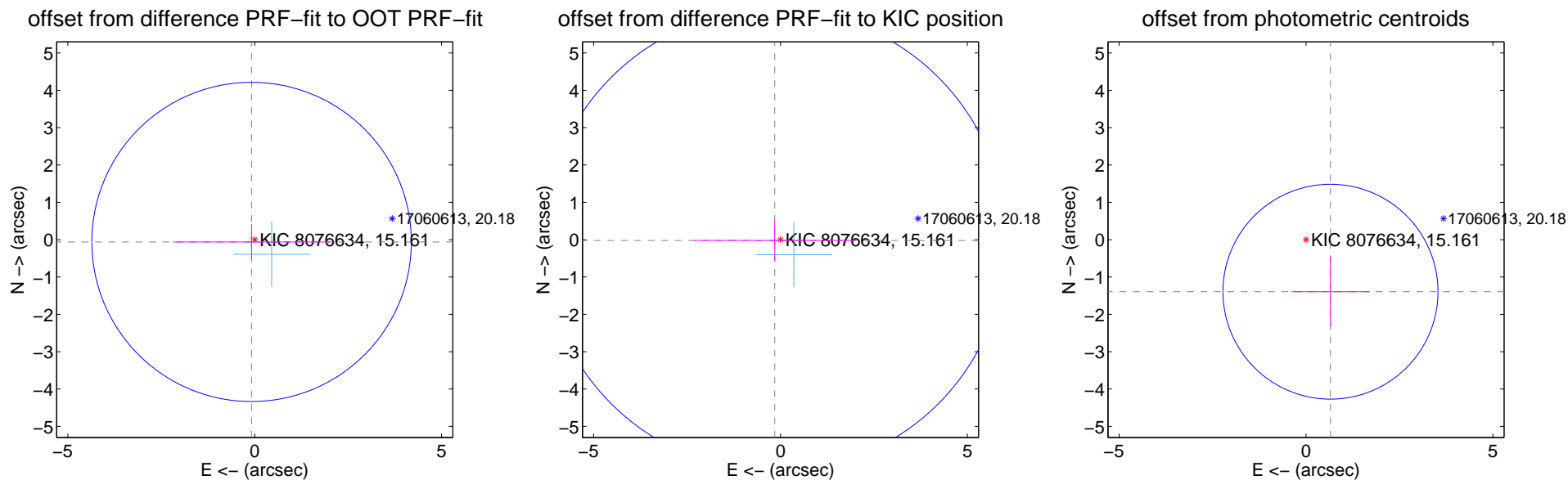
## DV Centroid Data

Supplemental centroid analysis for 008076634-01. Kepler magnitude: 15.16. Transit SNR 6.46

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.103 \pm 1.425$	0.07	$0.084 \pm 2.095$	$-0.061 \pm 0.475$
PRF-fit source offset from KIC position	$0.155 \pm 2.062$	0.08	$0.153 \pm 2.161$	$-0.022 \pm 0.538$
photometric centroid source offset	$1.54 \pm 0.96$	1.61	$-0.65 \pm 1.05$	$-1.39 \pm 0.94$

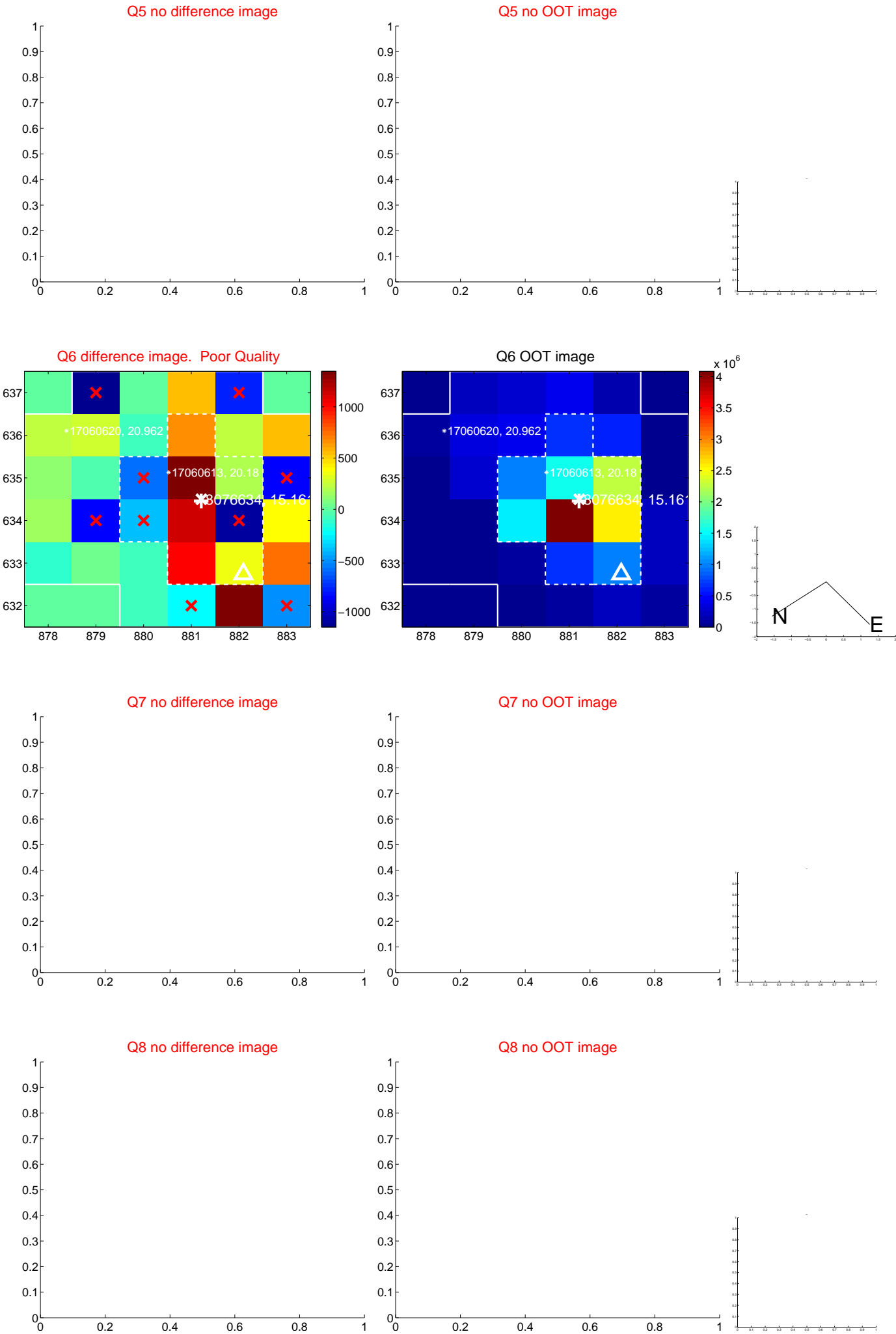


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

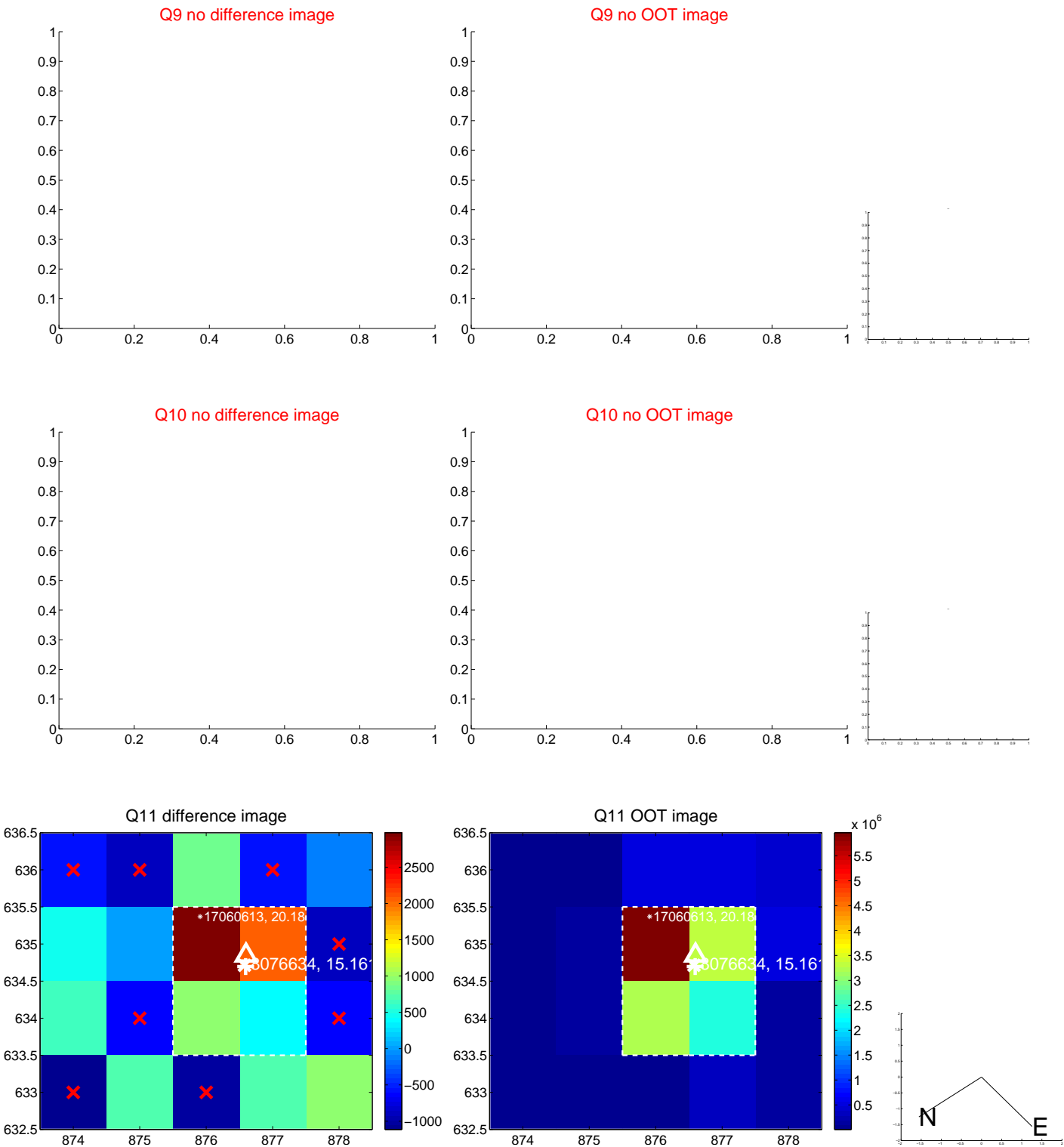


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





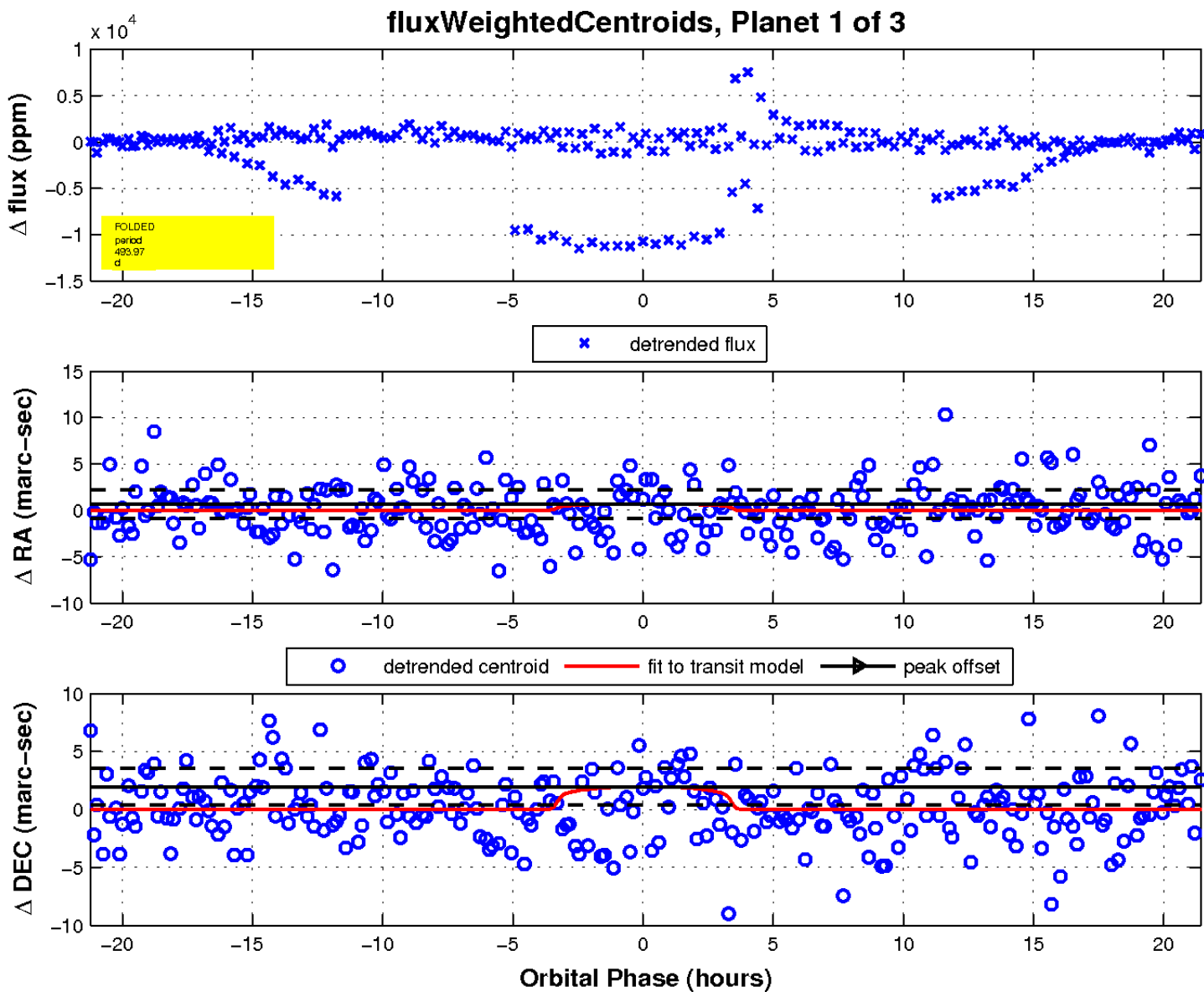
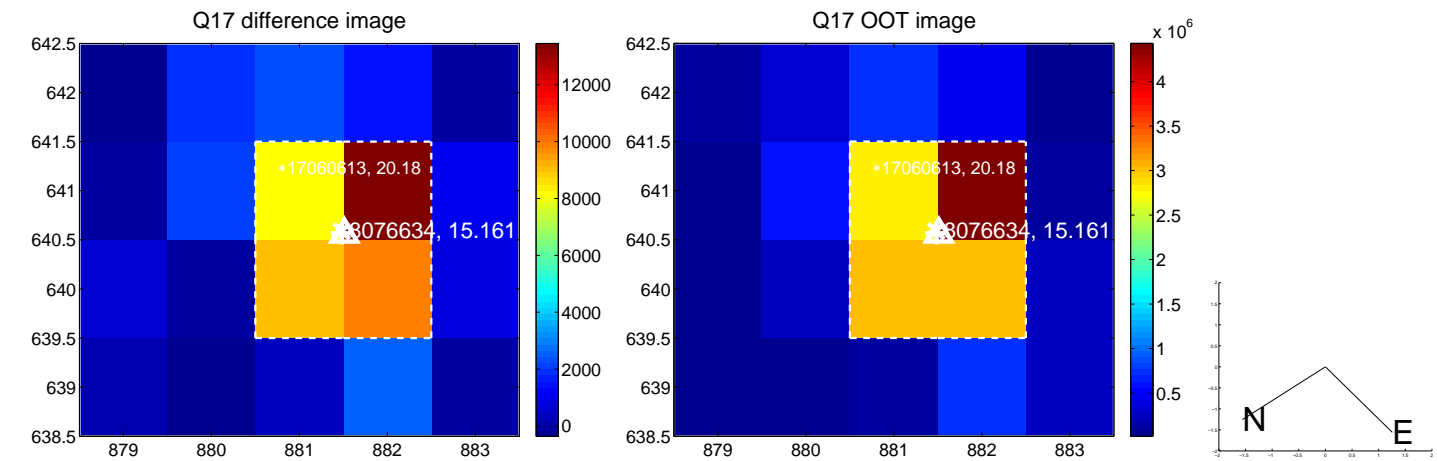
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



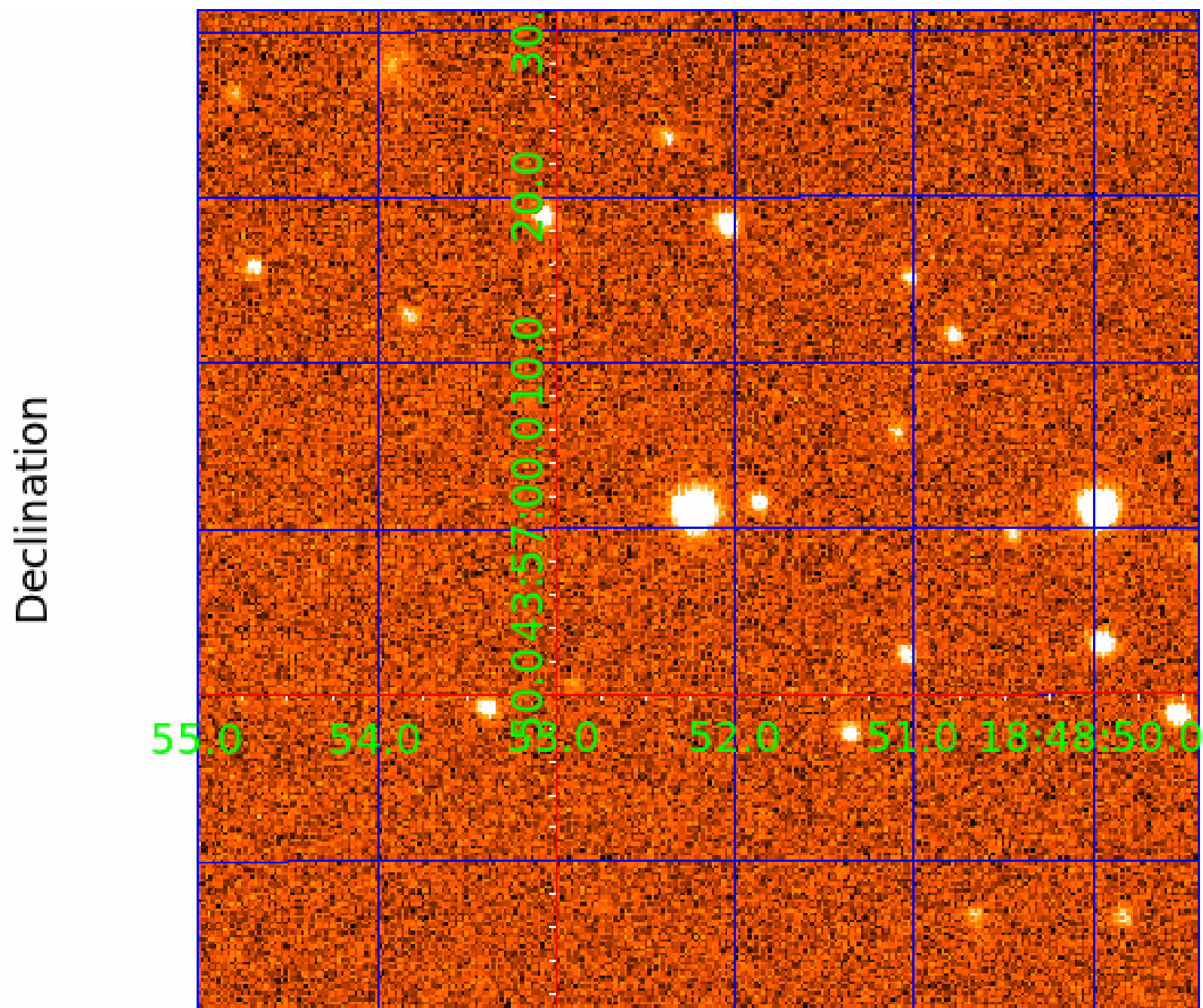
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008076634

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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008076634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008076634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

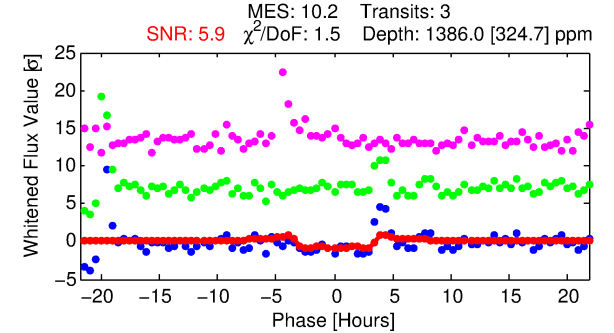
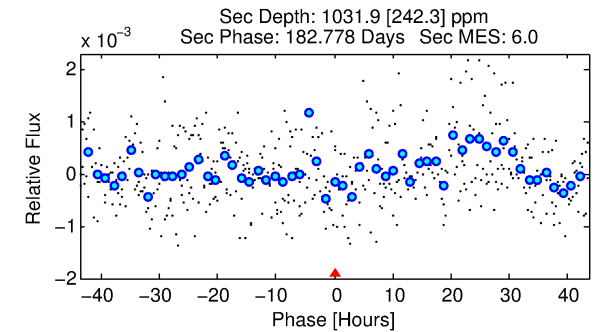
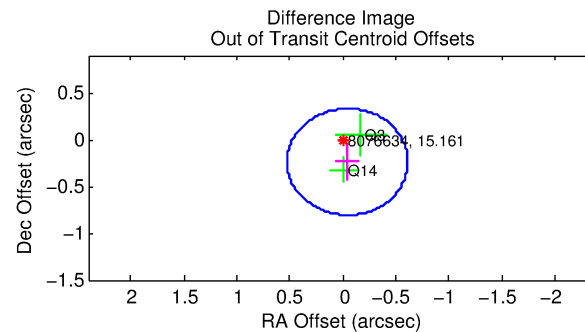
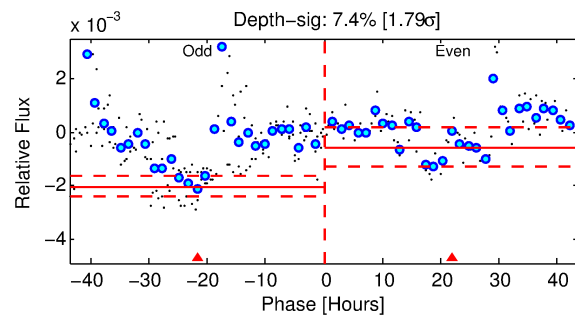
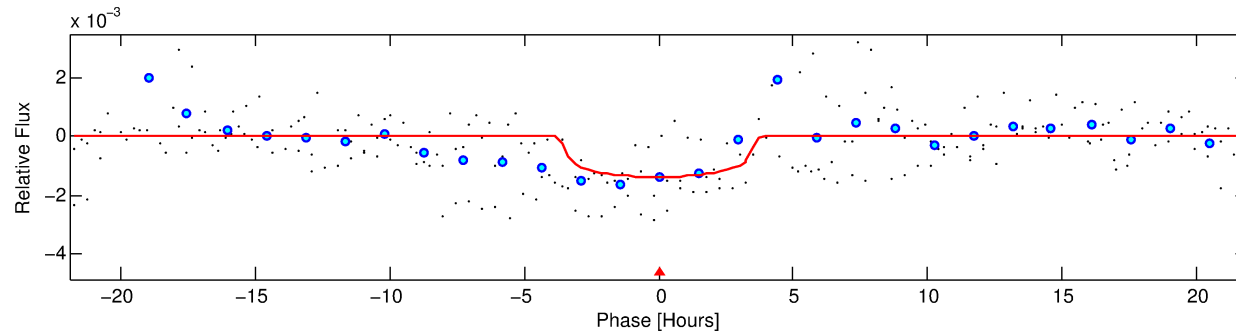
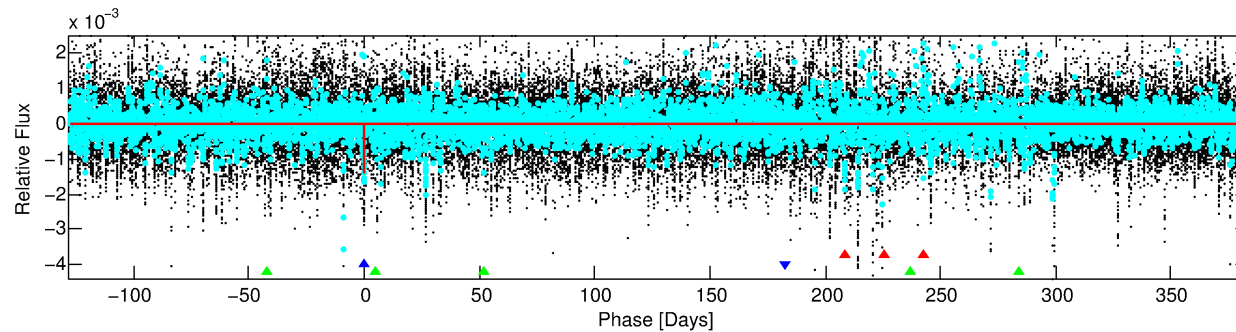
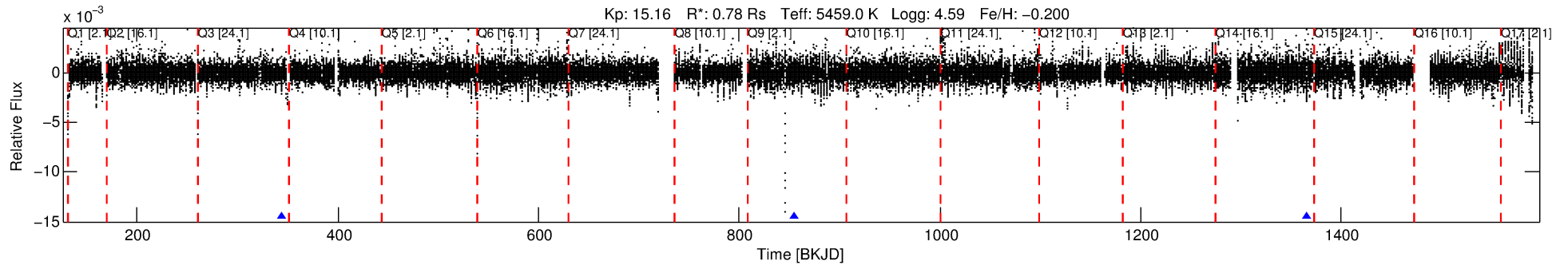
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008076634-02

No Significant Match Found

# DV One-Page Summary

KIC: 8076634 Candidate: 2 of 3 Period: 511.097 d



## DV Fit Results:

Period = 511.09683 [0.01004] d  
Epoch = 343.8636 [0.0116] BKJD  
Rp/R\* = 0.0338 [0.0412]  
a/R\* = 534.10 [2586.40]  
b = 0.26 [17.25]  
Seff = 0.34 [0.09]  
Teq = 195 [12] K  
Rp = 2.88 [3.55] Re  
a = 1.1905 [0.1856] AU  
Ag = 97291.21 [239174.45] [0.41σ]  
Teffp = 5320 [3260] K [1.57σ]

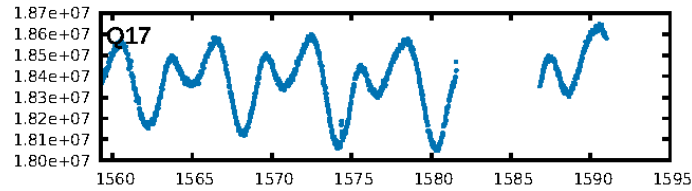
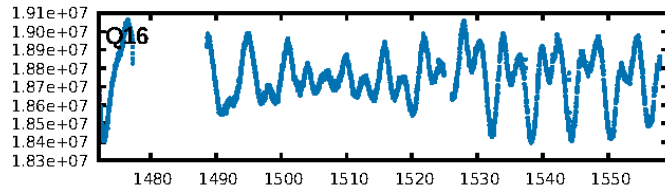
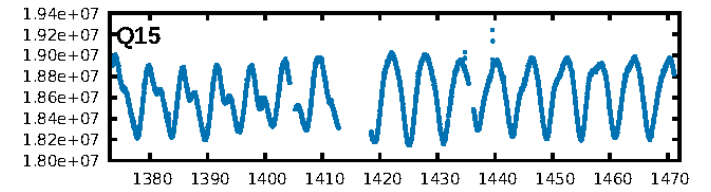
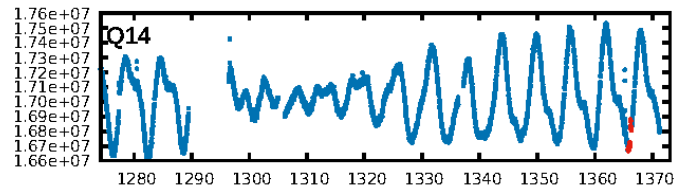
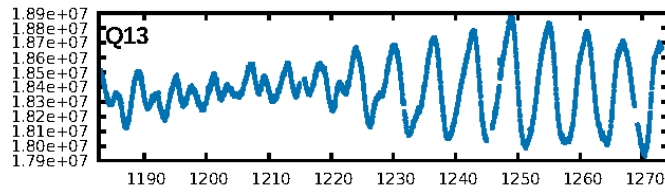
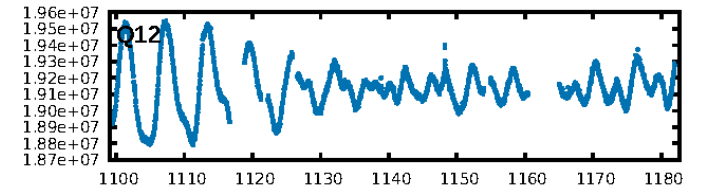
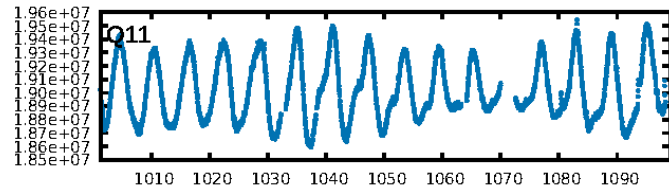
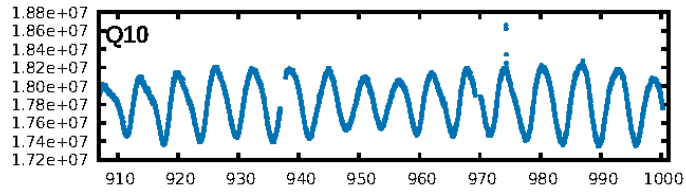
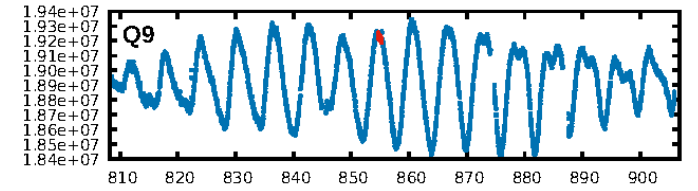
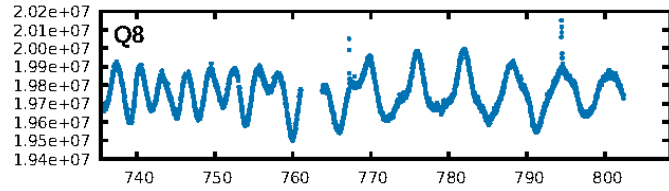
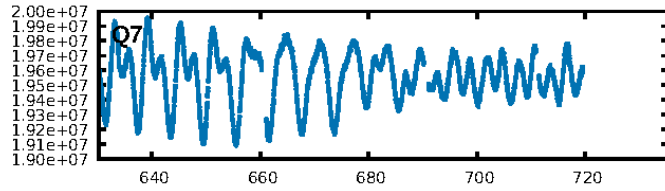
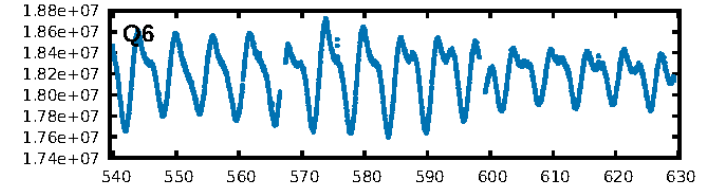
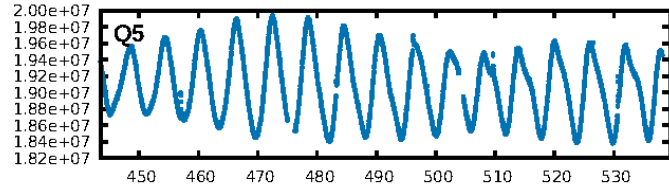
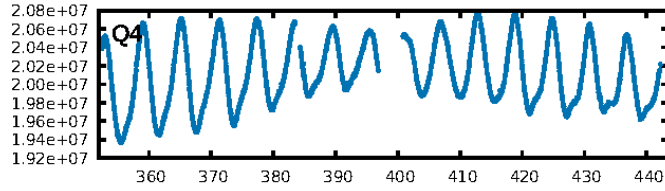
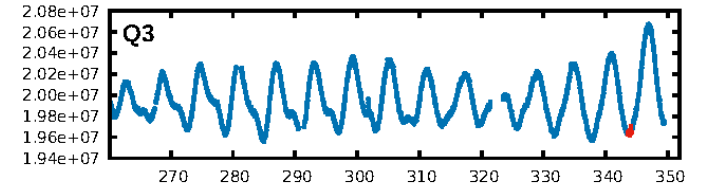
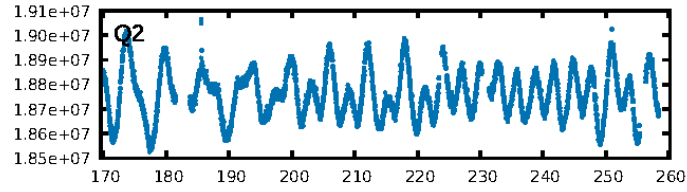
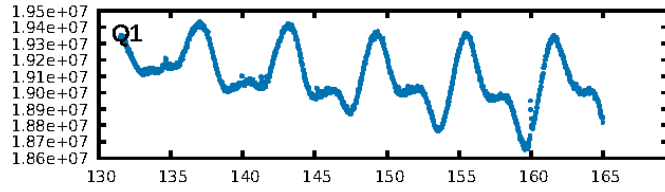
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.21σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 78.8%  
Bootstrap-pfa: 1.10e-08  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.2789  
Centroid-sig: 58.7%  
Centroid-so: 0.855 arcsec [0.82σ]  
OotOffset-rm: 0.242 arcsec [1.28σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 0.222 arcsec [1.47σ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:57:39 Z

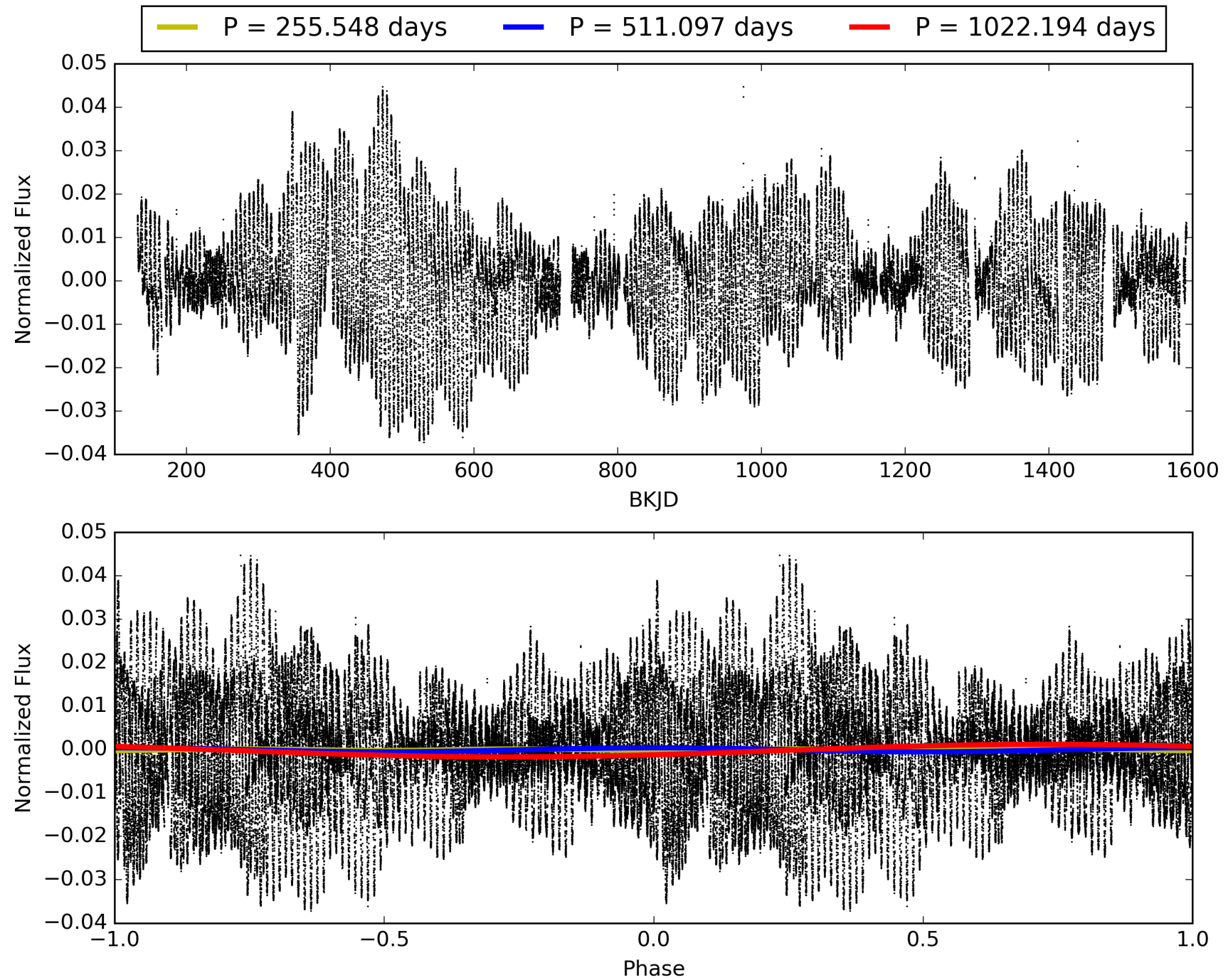
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008076634-02, PDC Light Curves





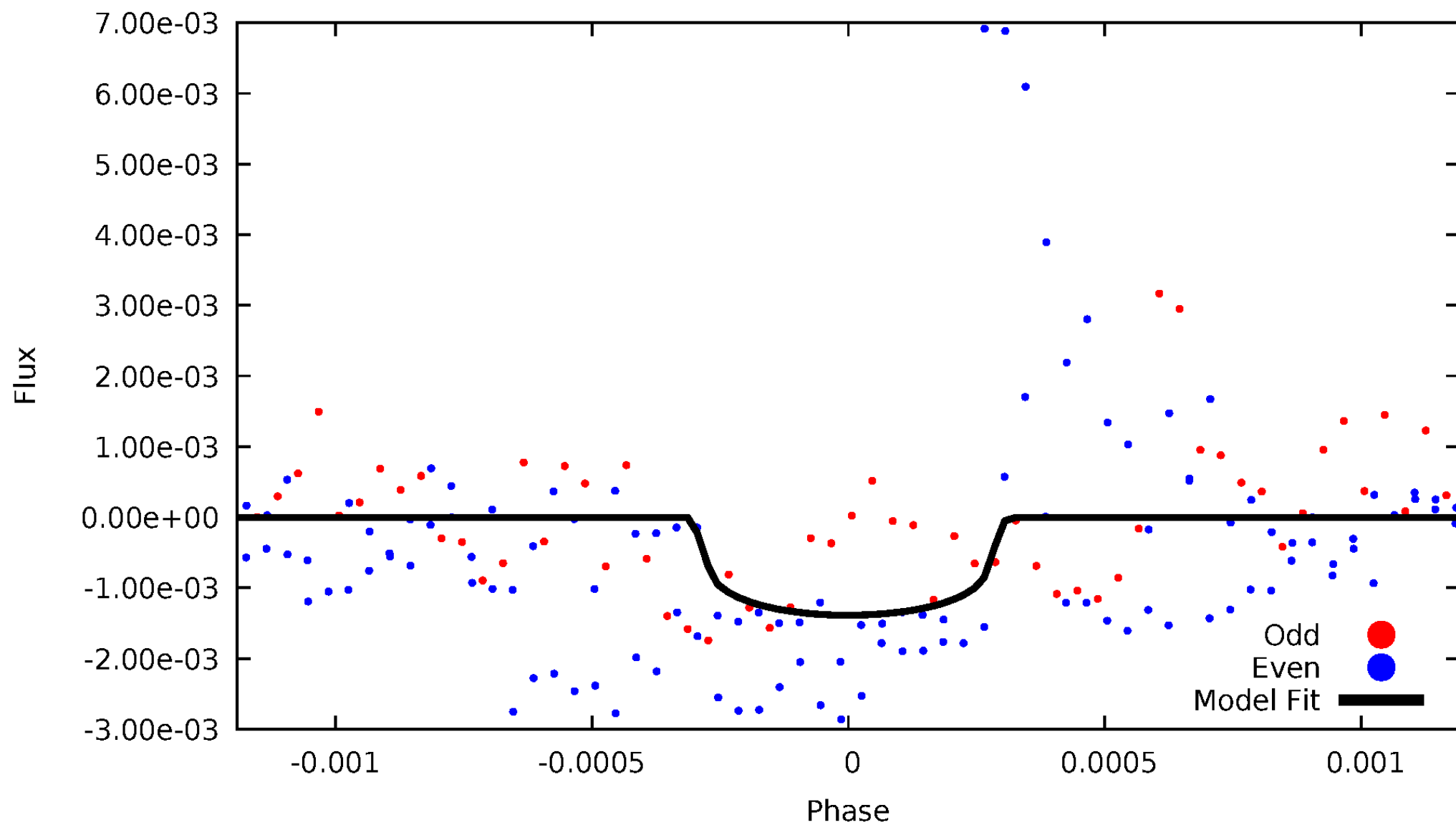
# TCE 008076634-02





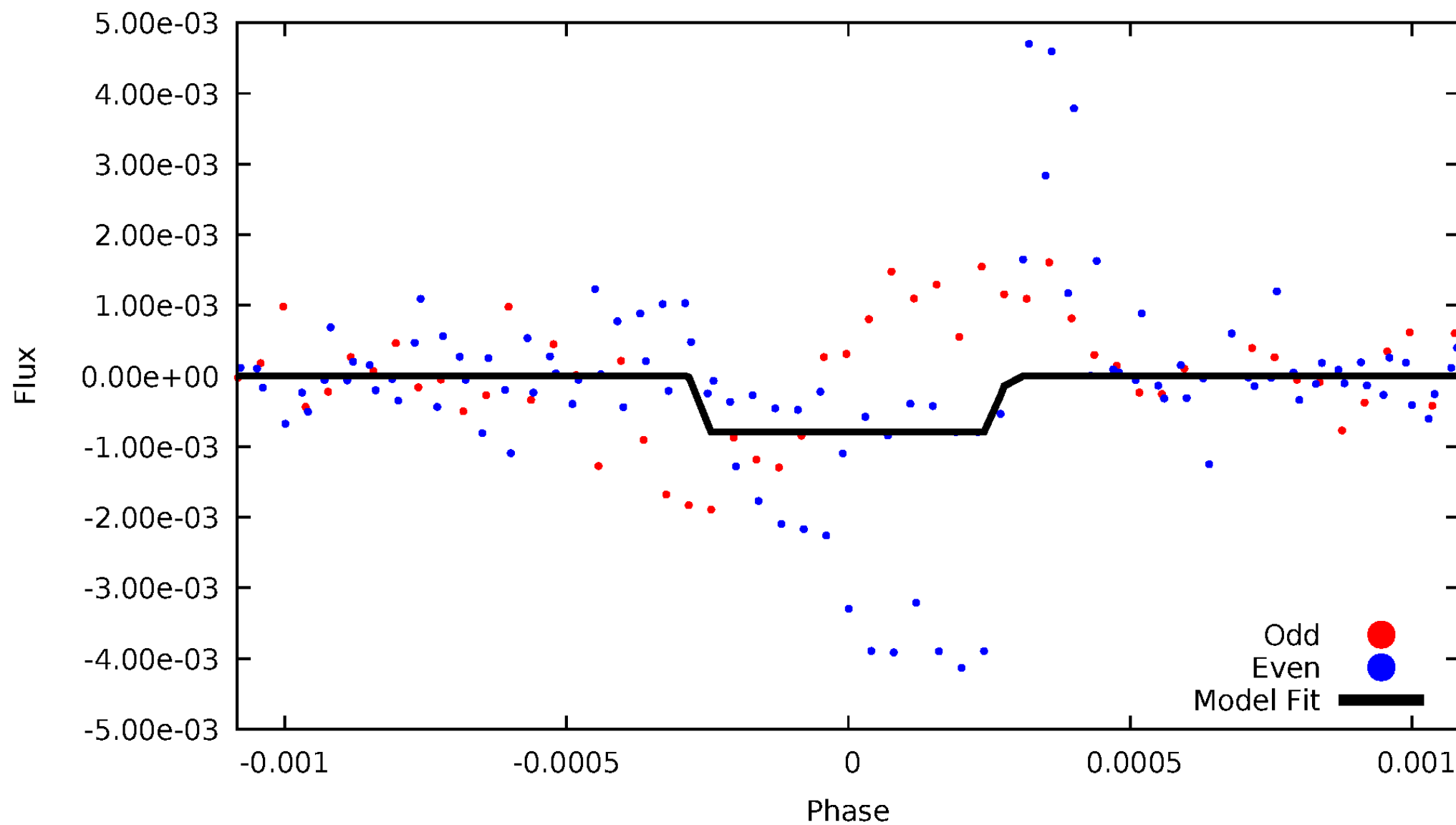
# DV Odd/Even

TCE 008076634-02



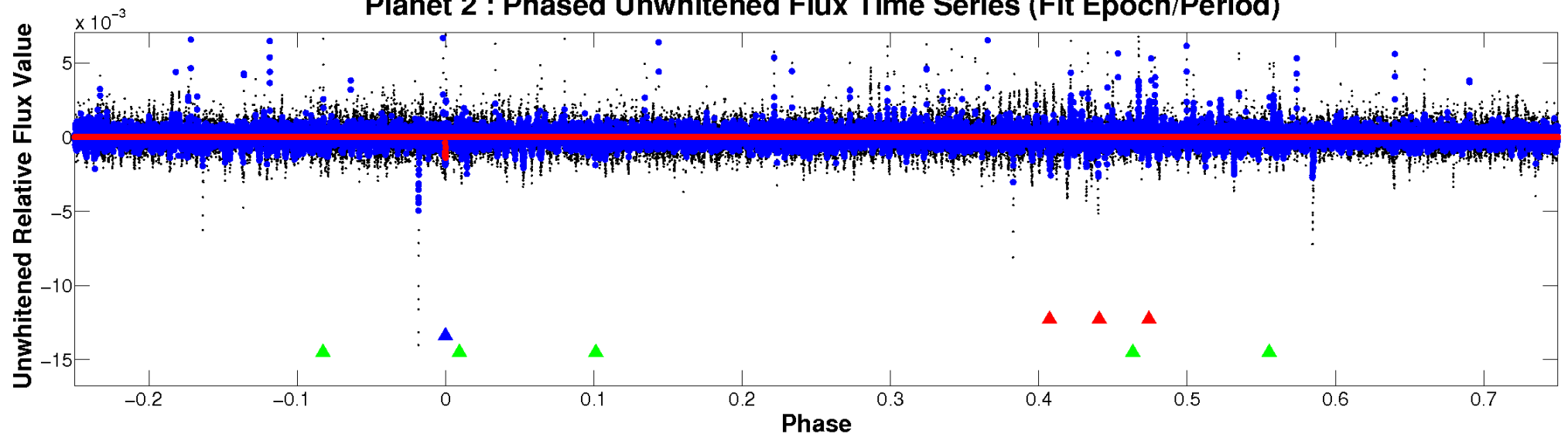
# ALT Odd/Even

TCE 008076634-02

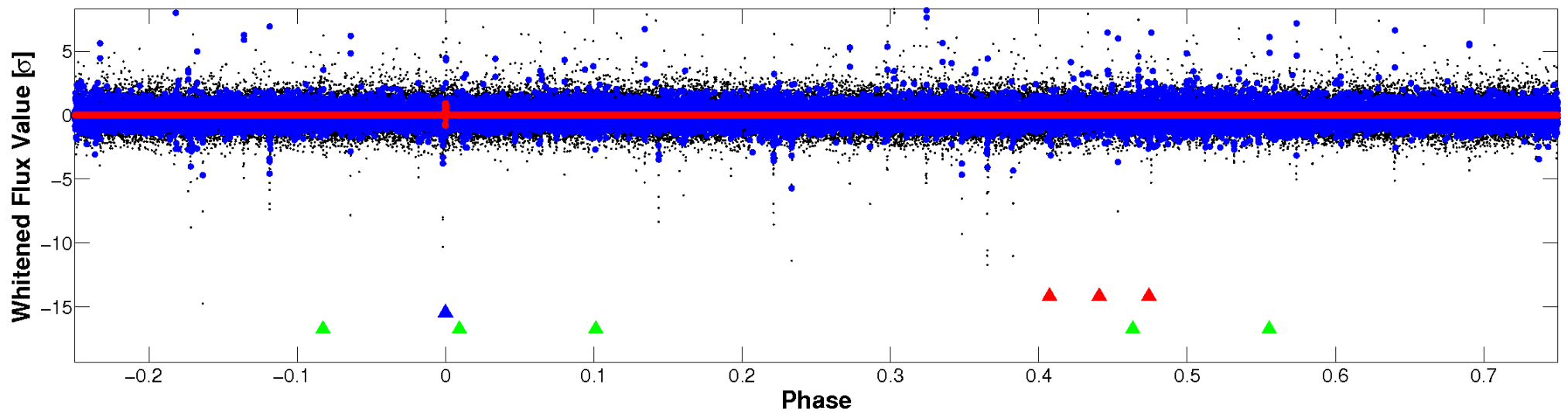


# Non-Whitened Vs. Whitened Light Curve

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

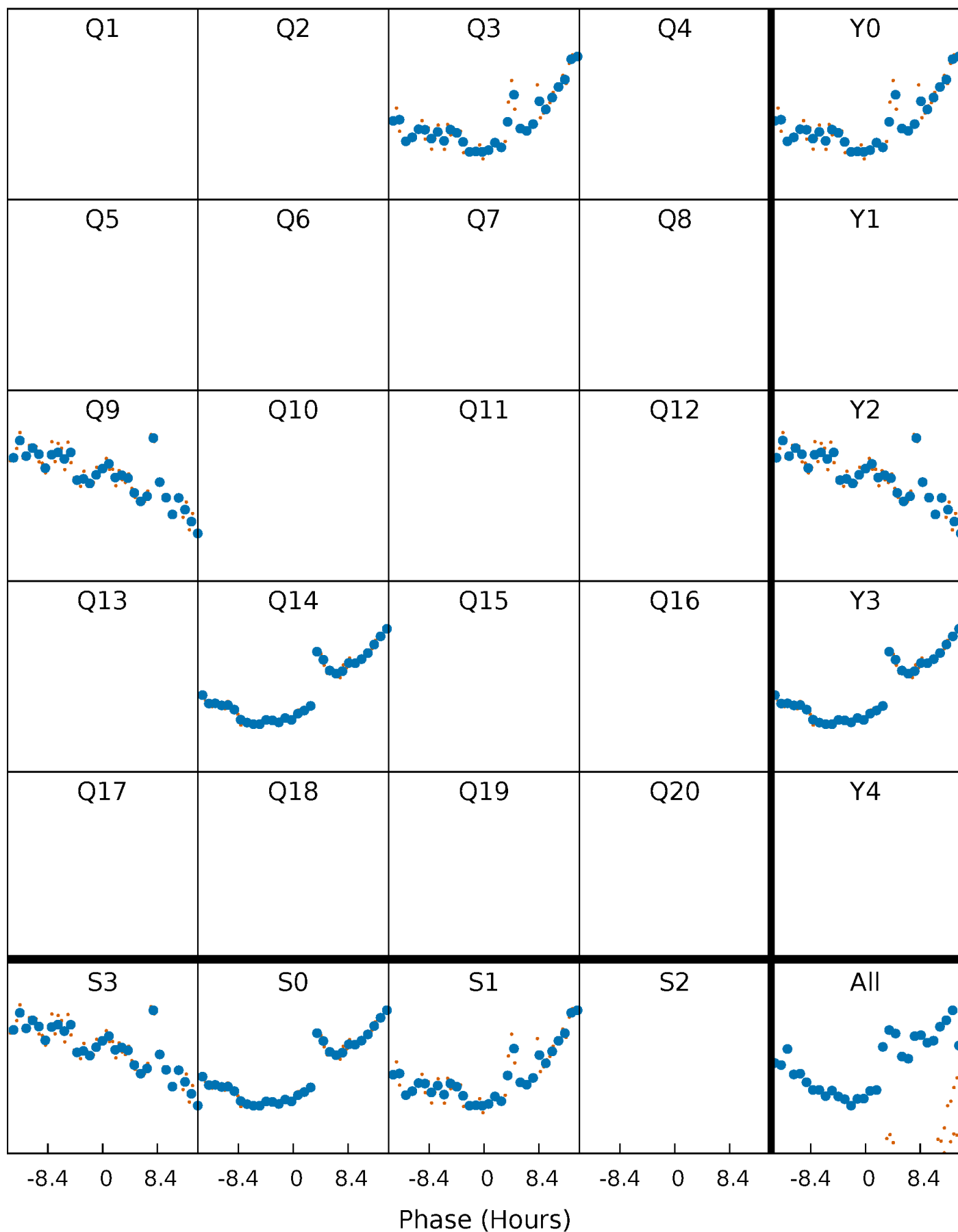


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



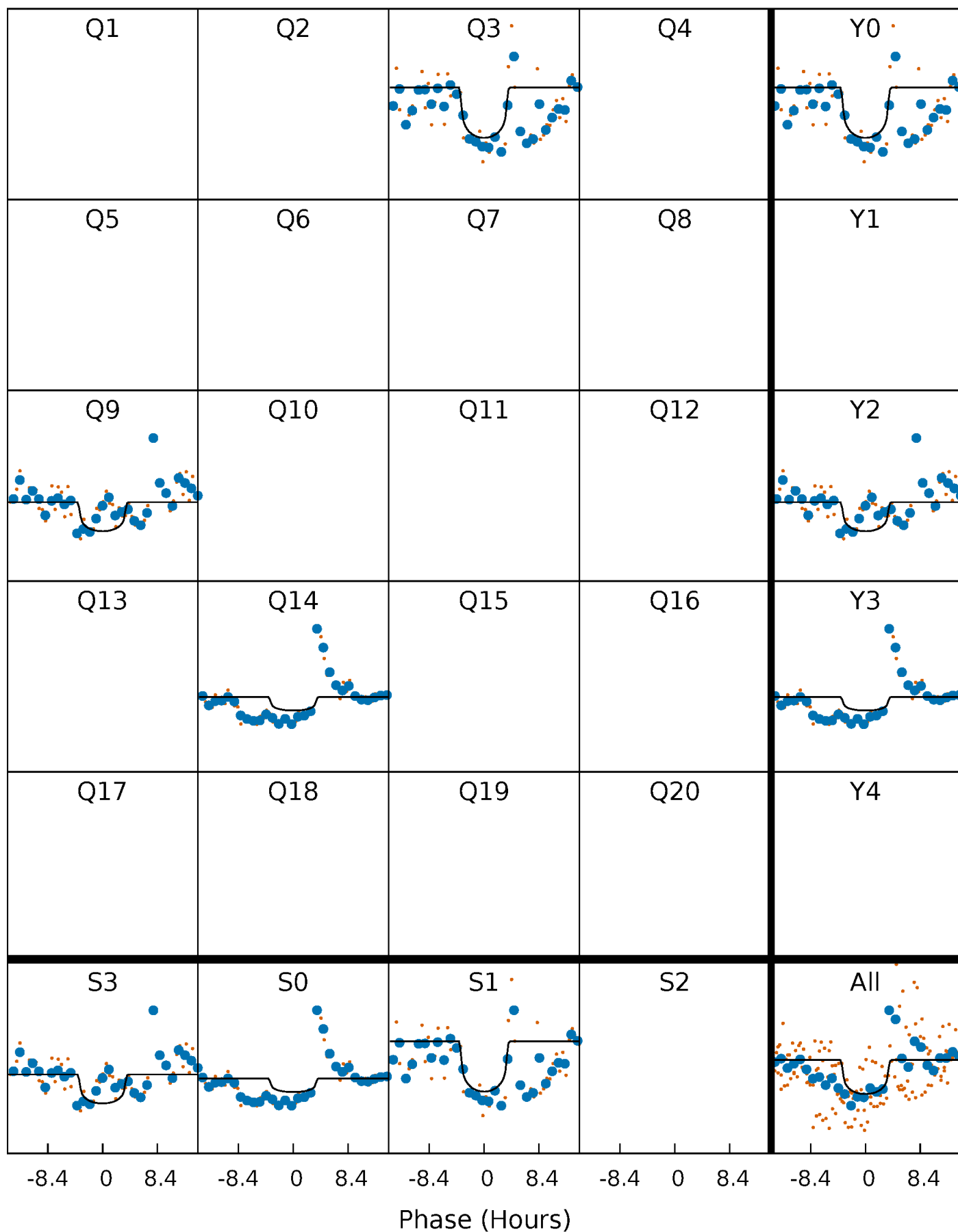
# PDC Quarter-Phased Transit Curves

TCE 008076634-02 P=511.096832 Days  $T_0=343.863564$  (BKJD)



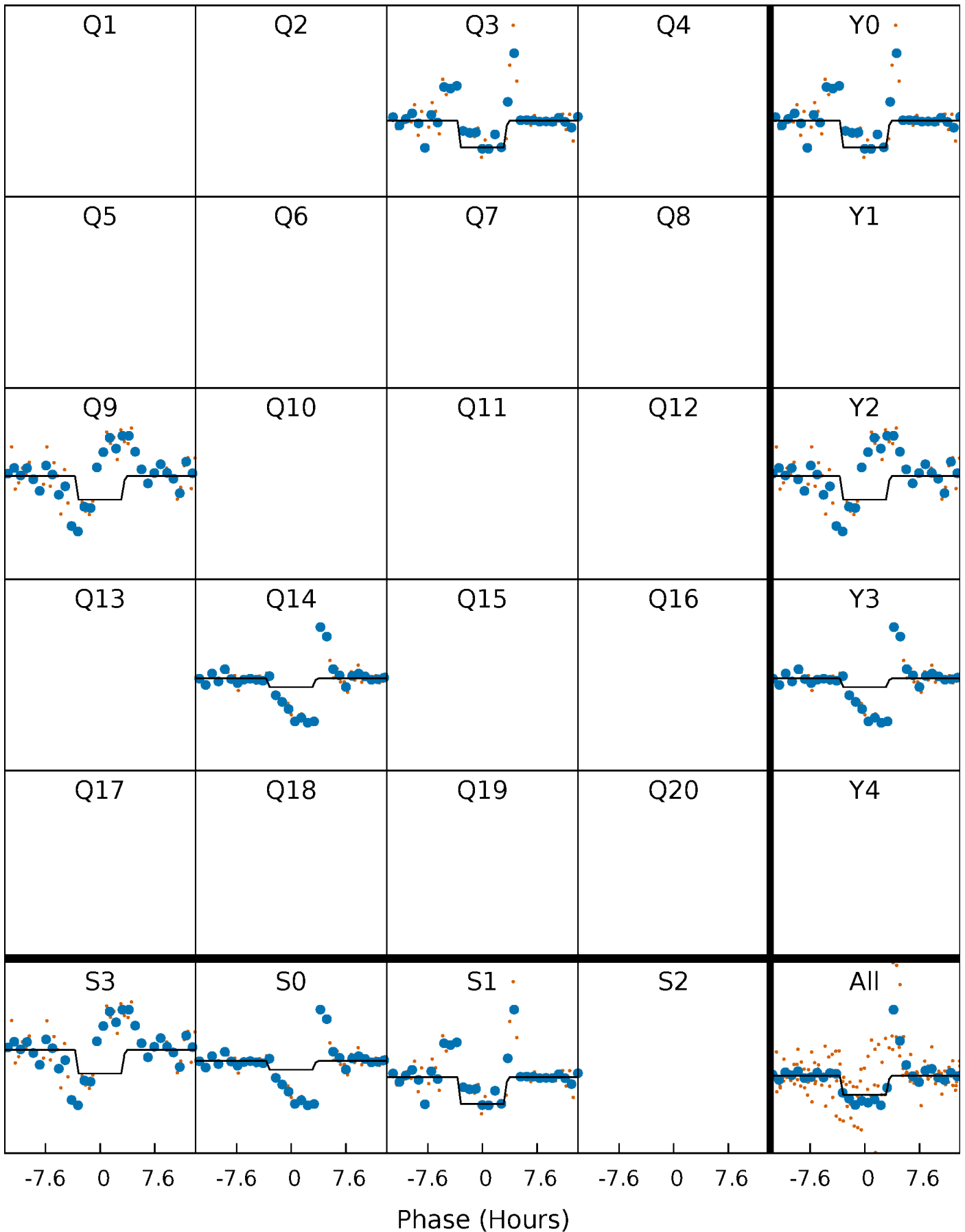
# DV Quarter-Phased Transit Curves

TCE 008076634-02     $P=511.096832$  Days     $T_0=343.863564$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

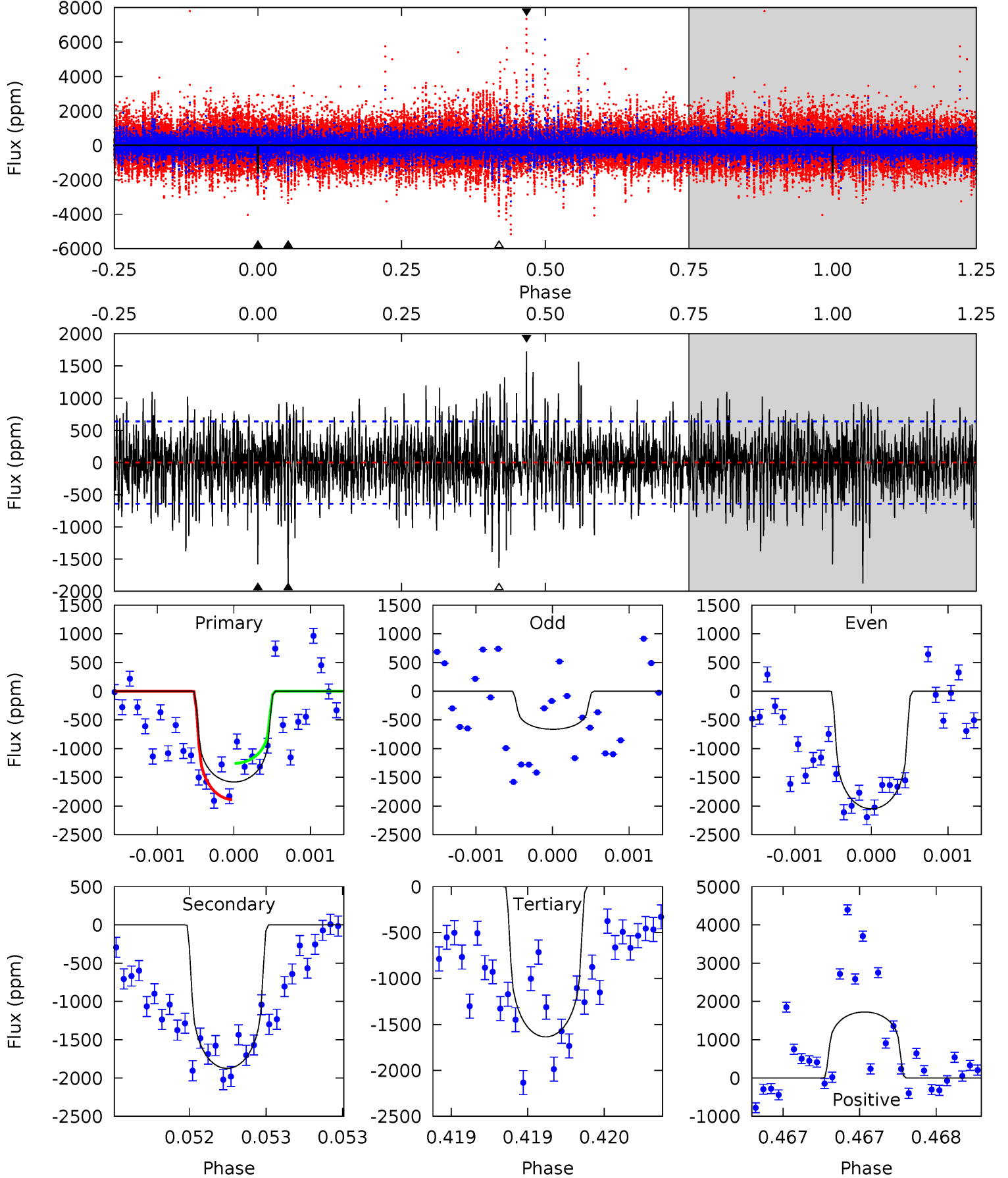
TCE 008076634-02 P=511.084203 Days  $T_0=343.860859$  (BKJD)



# DV Model-Shift Uniqueness Test

008076634-02, P = 511.096832 Days, E = 343.863564 Days

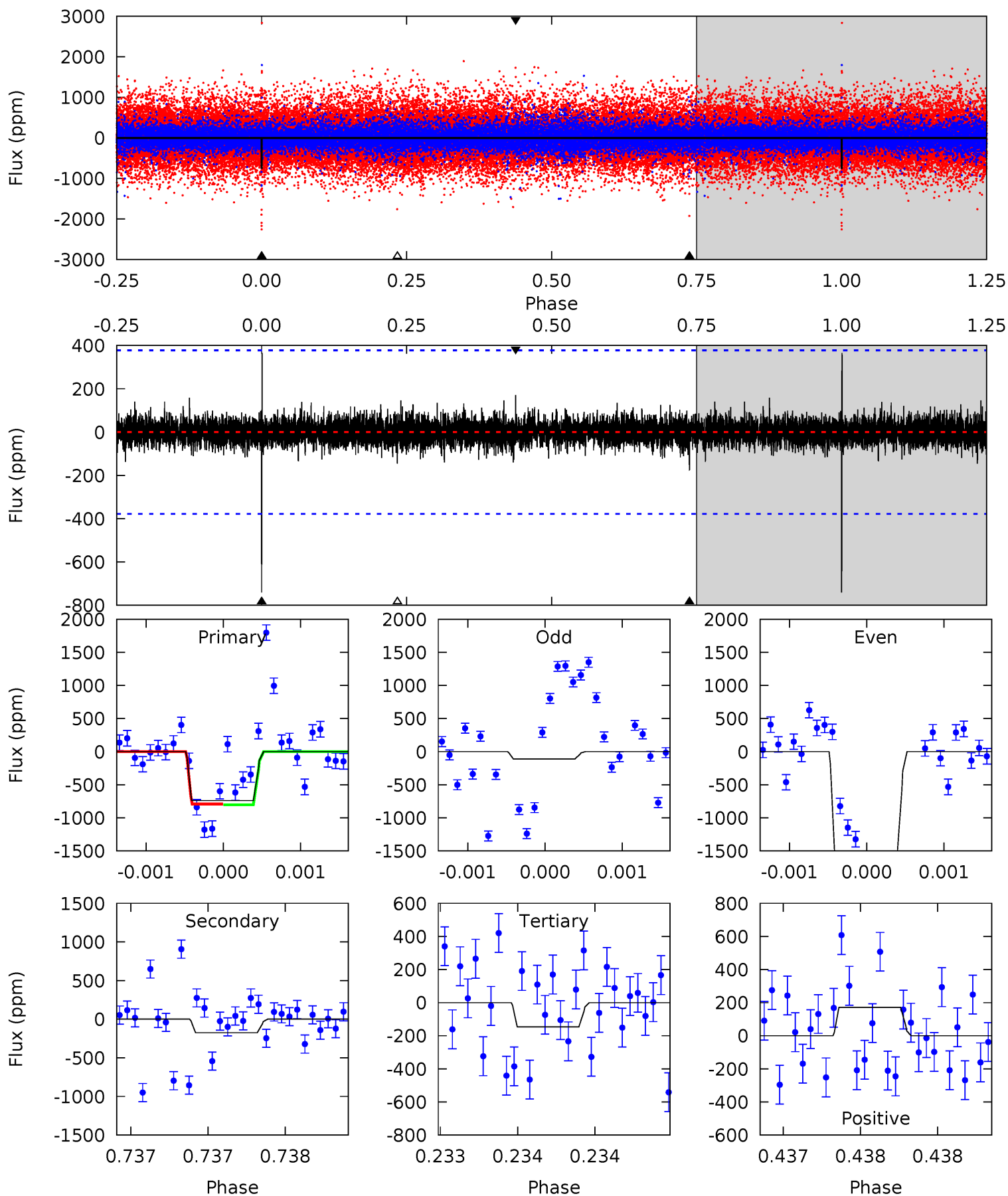
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	16.2	14.2	14.9	5.54	3.43	3.14	-0.47	-1.25	2.06	1.29	5.34	0.85	0.48	2.74



# Alt Model-Shift Uniqueness Test

008076634-02, P = 511.084203 Days, E = 343.860859 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
10.9	2.57	2.14	2.51	5.54	3.43	0.50	8.73	8.36	0.42	0.05	12.4	1.92	0.33	0.08





### Stellar Parameters For KIC 008076634

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5459^{+146}_{-162}$	$4.590^{+0.040}_{-0.120}$	$-0.200^{+0.300}_{-0.300}$	$0.779^{+0.147}_{-0.063}$	$0.866^{+0.080}_{-0.098}$	$2.582^{+0.435}_{-0.965}$
	+3%/-3%	+1%/-3%	+150%/-150%	+19%/-8%	+9%/-11%	+17%/-37%
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 008076634-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1874 \pm 116$	$3.89^{+3.13}_{-2.33}$	$276^{+13}_{-11}$	$5418^{+3598}_{-1170}$	$94114^{+518415}_{-64829}$
Alt.	$-175 \pm 68$	$3.65^{+3.02}_{-2.50}$	$275^{+13}_{-10}$	$3449^{+1834}_{-570}$	$8881^{+76621}_{-6472}$

$T_{\text{max}}$  = 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

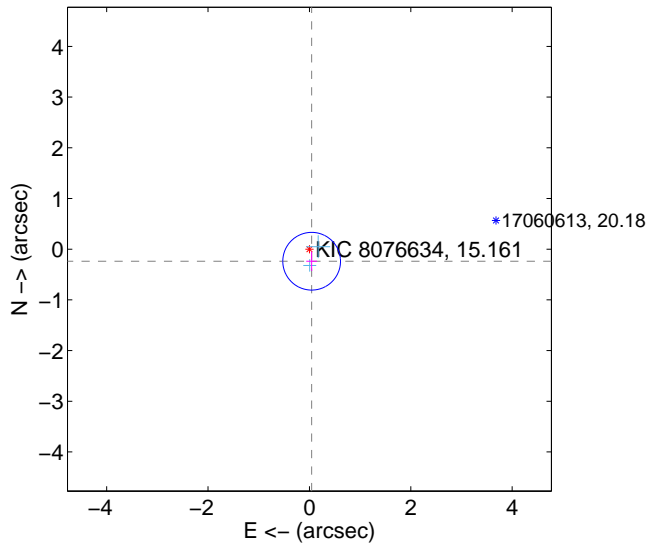
Supplemental centroid analysis for 008076634-02. Kepler magnitude: 15.16. Transit SNR 5.92

There are 2 quarters with good PRF difference image offsets

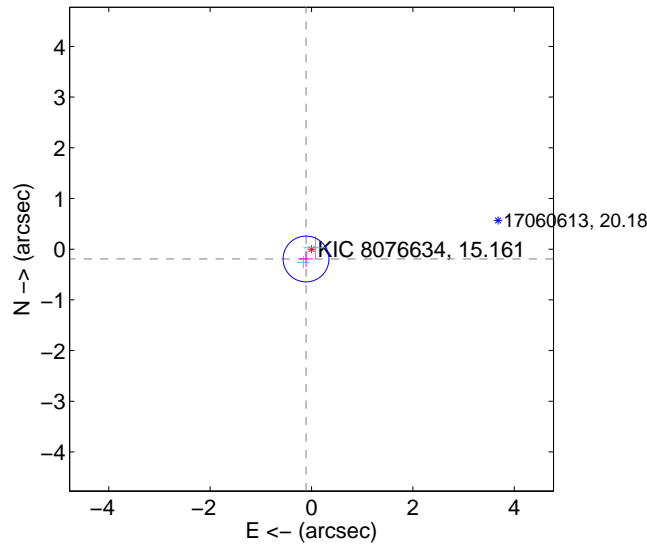
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.242 \pm 0.190$	1.28	$-0.044 \pm 0.105$	$-0.238 \pm 0.192$
PRF-fit source offset from KIC position	$0.222 \pm 0.151$	1.47	$0.108 \pm 0.135$	$-0.194 \pm 0.155$
photometric centroid source offset	$0.85 \pm 1.04$	0.82	$-0.85 \pm 1.04$	$0.02 \pm 0.89$

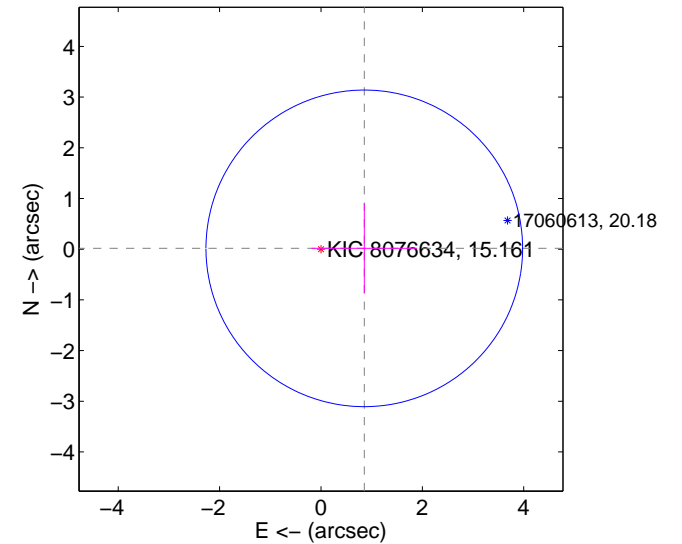
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

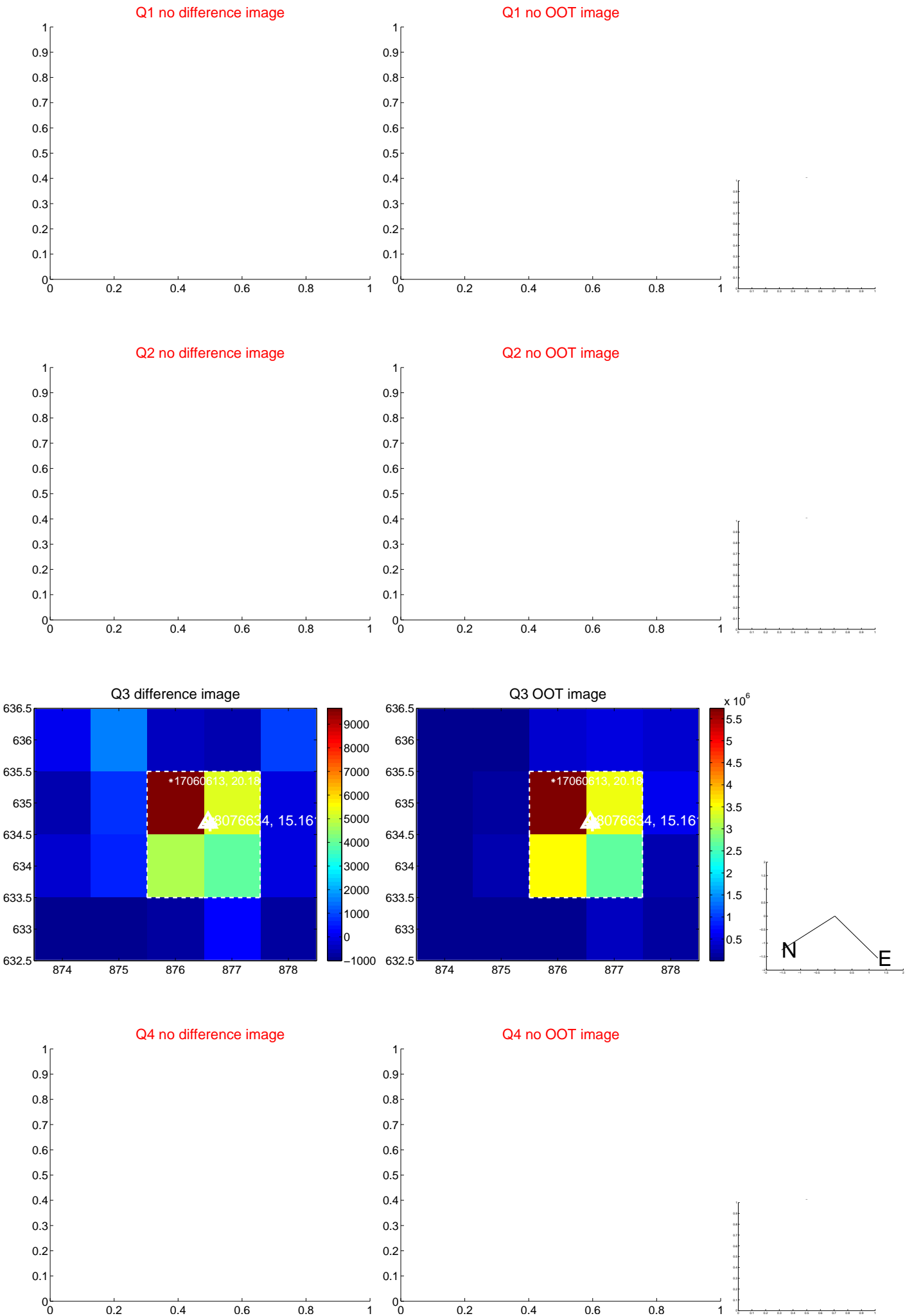


offset from photometric centroids



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.

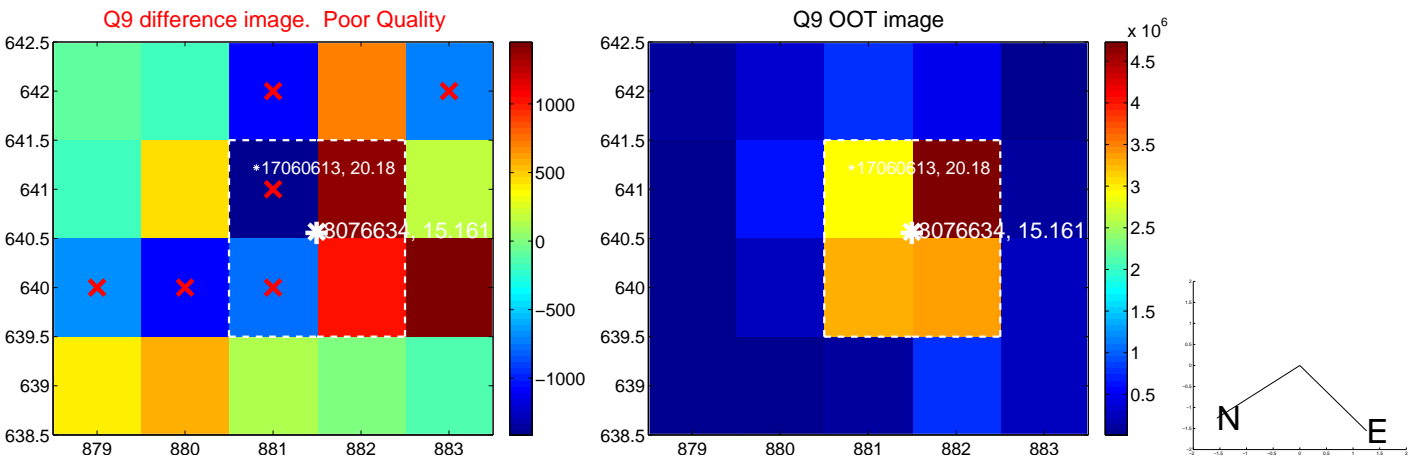
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



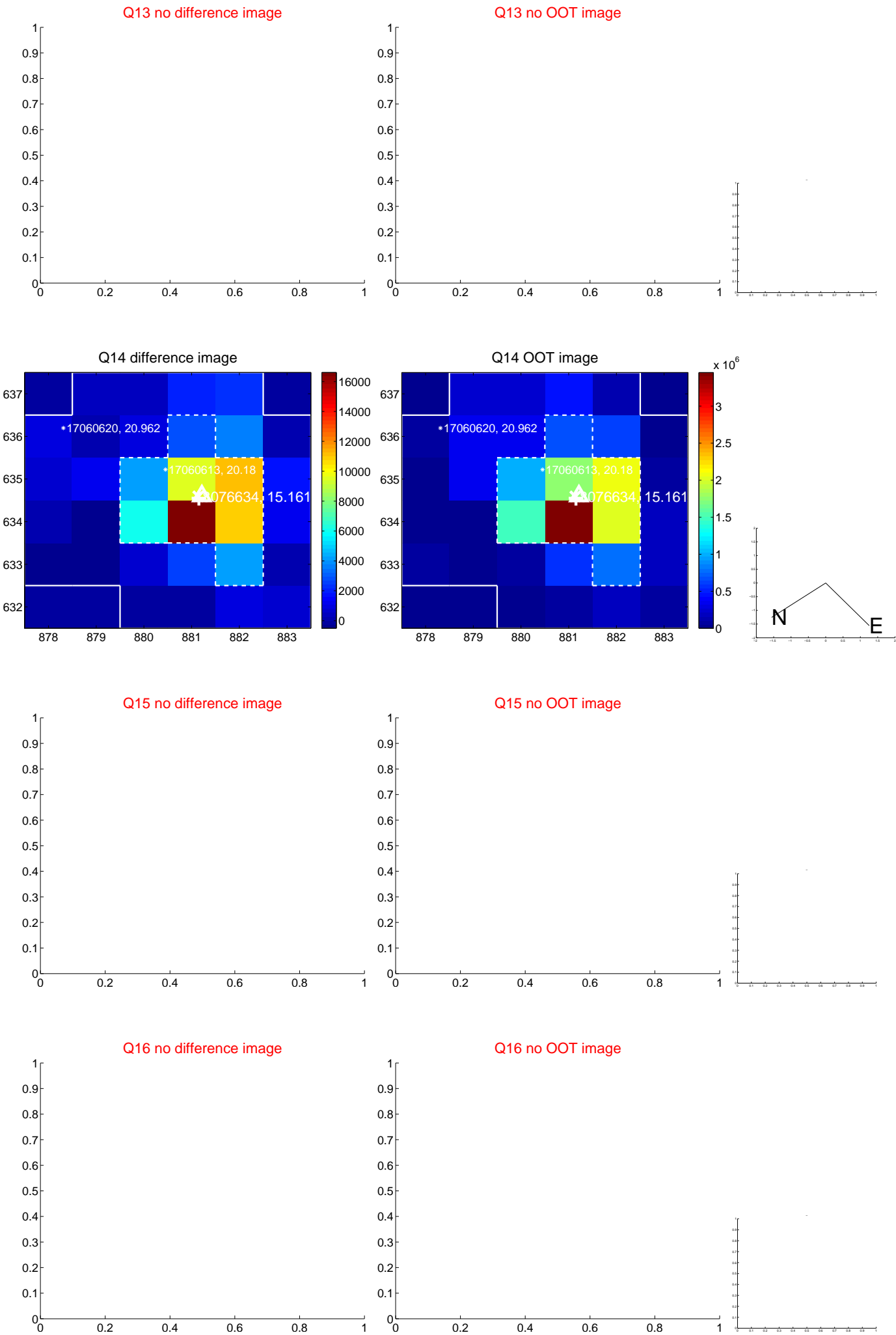
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



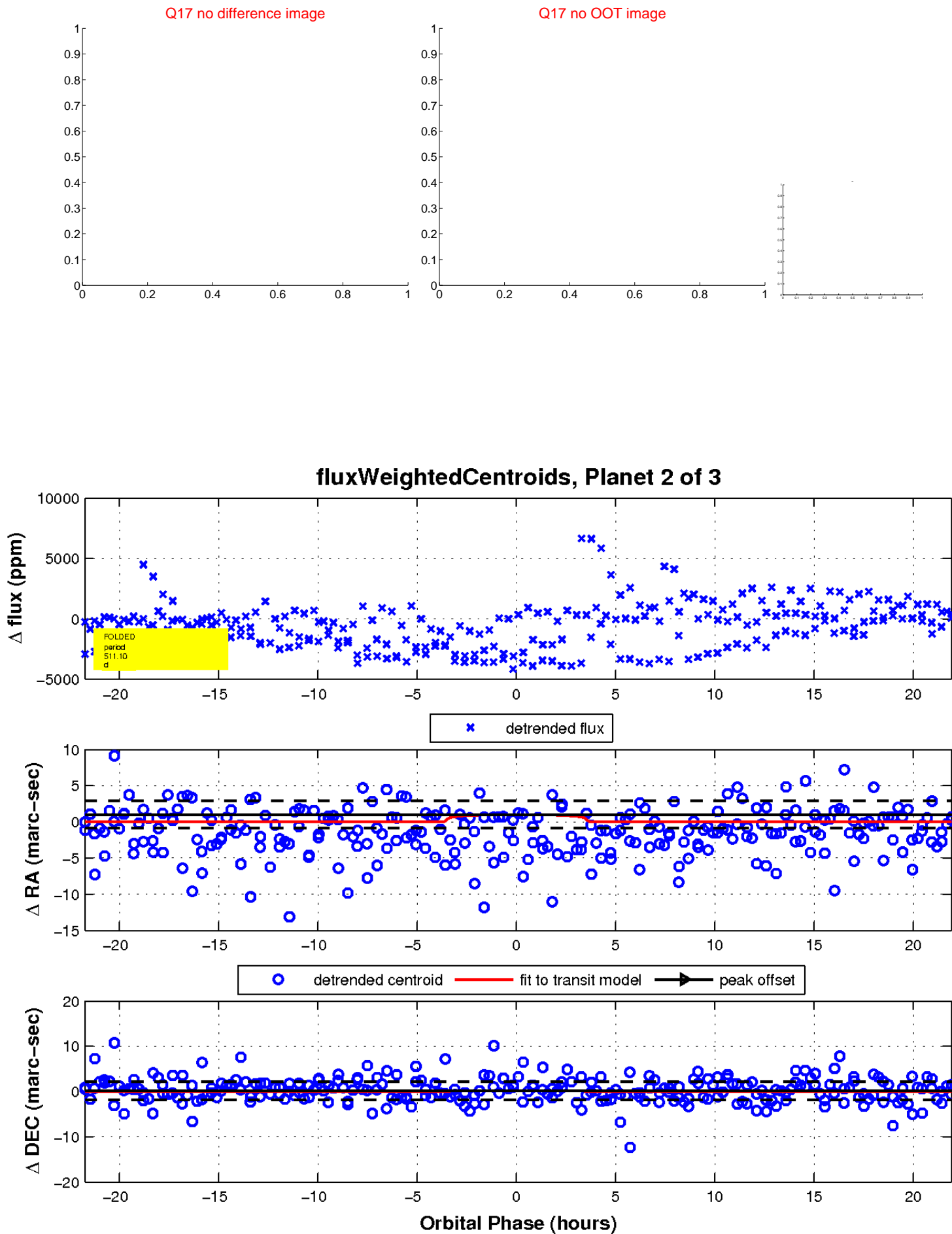
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



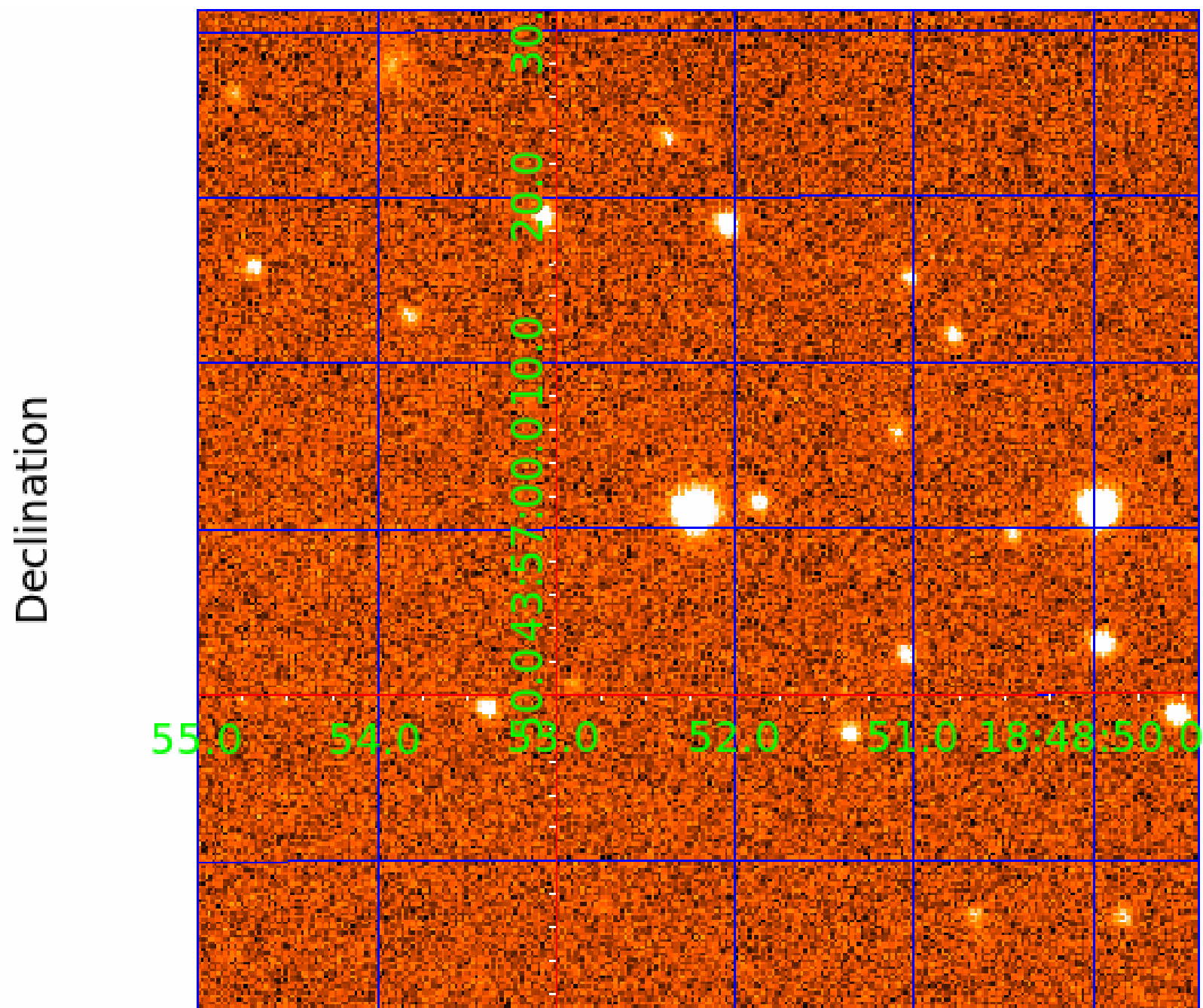
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 008076634

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008076634-01	OBS	No	493.967610	586.272153	1300.1	7.152	12.3	6.5	0.78	5459	2.96	0.36
008076634-02	OBS	No	511.096832	343.863564	1386.0	7.308	10.2	5.9	0.78	5459	2.88	0.34
008076634-03	OBS	No	279.053513	301.648999	1151.7	5.385	10.6	6.4	0.78	5459	2.79	0.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008076634-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008076634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008076634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

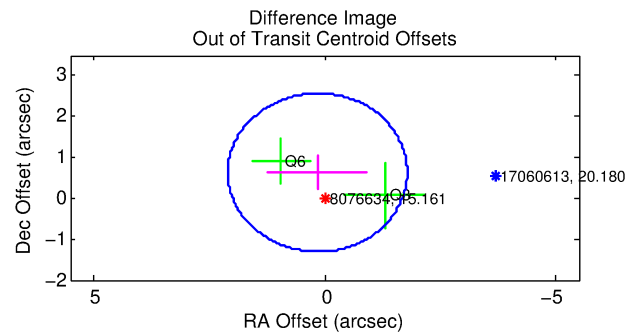
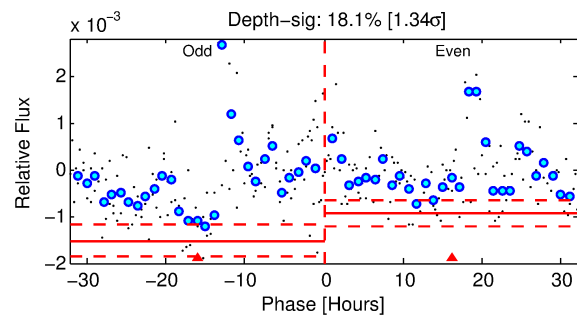
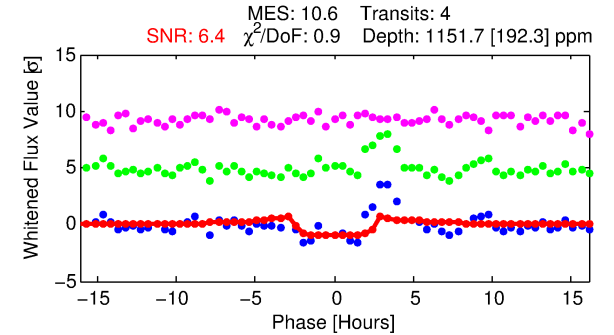
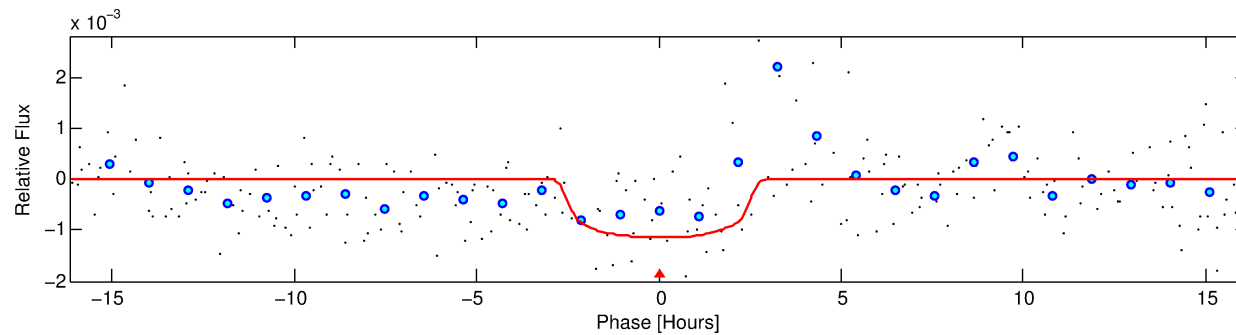
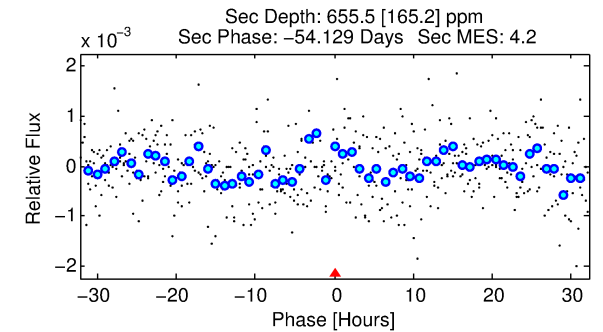
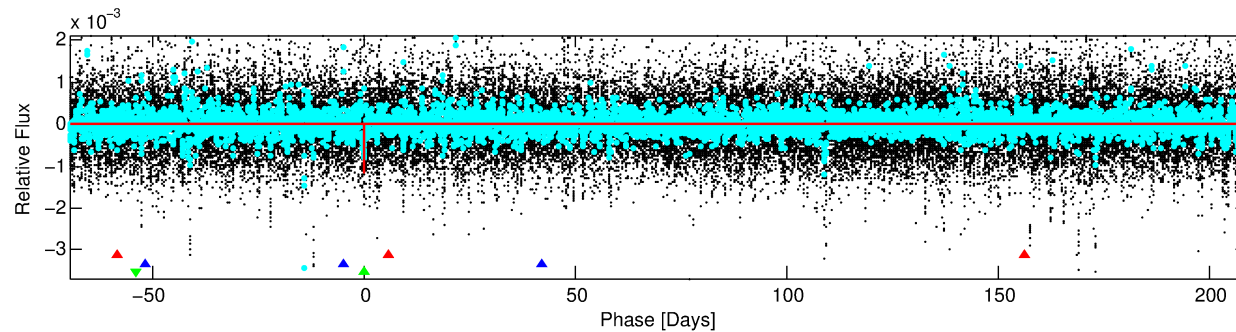
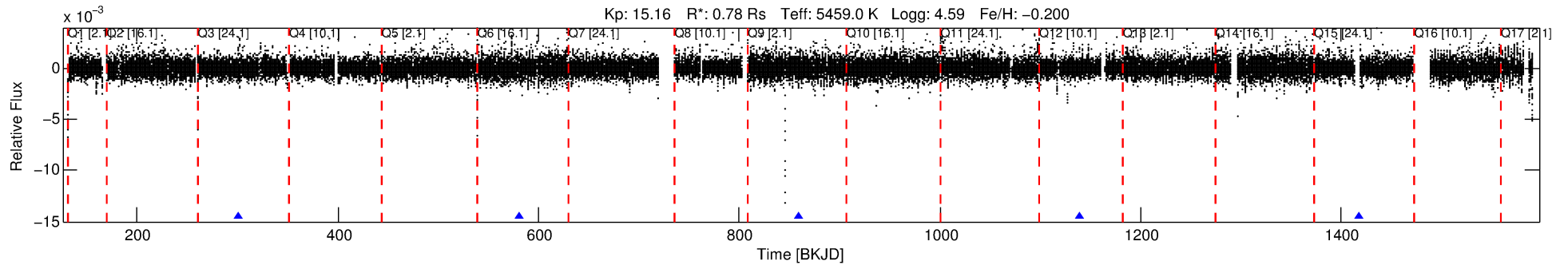
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008076634-03

No Significant Match Found

# DV One-Page Summary

KIC: 8076634 Candidate: 3 of 3 Period: 279.054 d



## DV Fit Results:

Period = 279.05351 [0.00484] d  
Epoch = 301.6490 [0.0106] BKJD  
Rp/R\* = 0.0328 [0.0211]  
a/R\* = 313.62 [800.38]  
b = 0.66 [2.18]  
Seff = 0.76 [0.19]  
Teq = 238 [15] K  
Rp = 2.79 [1.87] Re  
a = 0.7953 [0.1240] AU  
Ag = 29326.37 [39034.52] [0.75σ]  
Teffp = 4823 [1589] K [2.89σ]

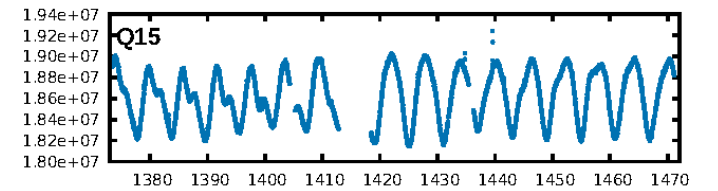
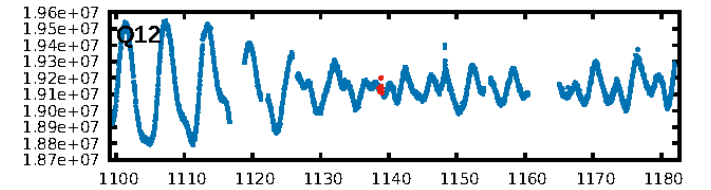
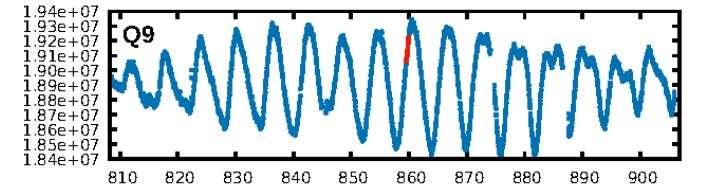
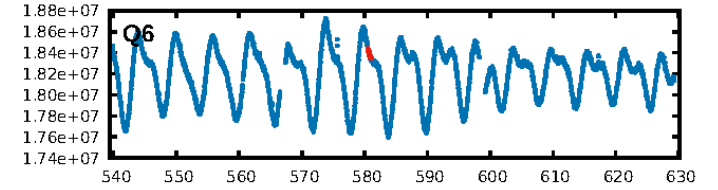
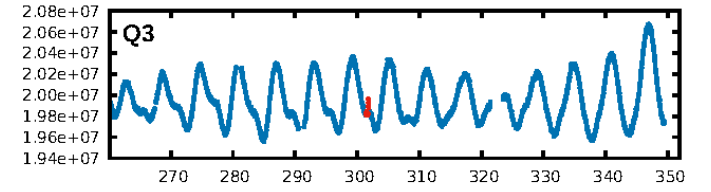
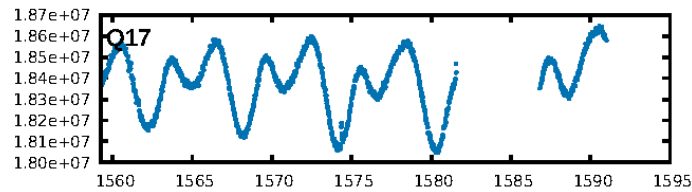
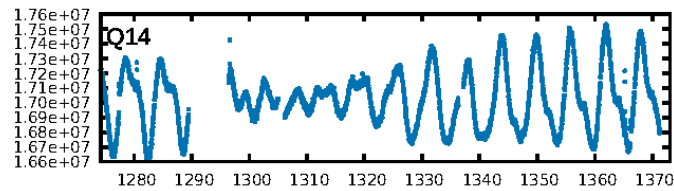
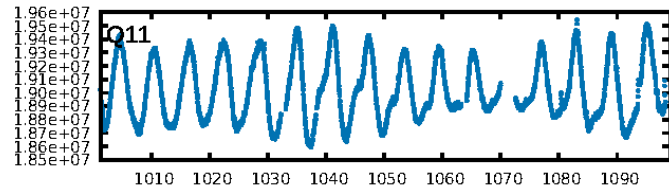
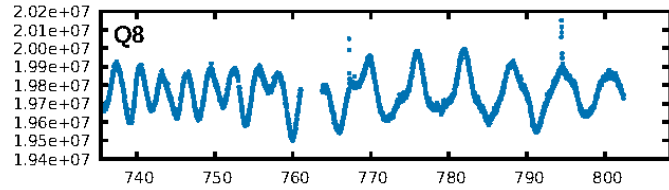
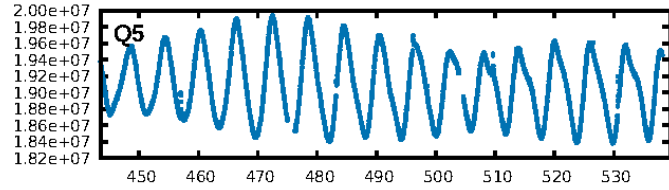
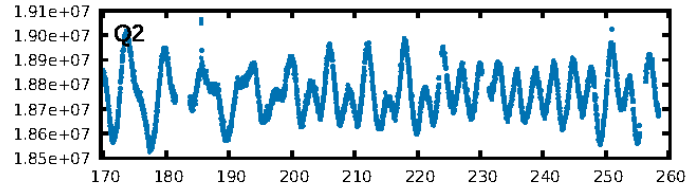
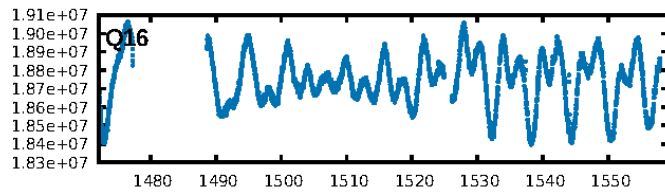
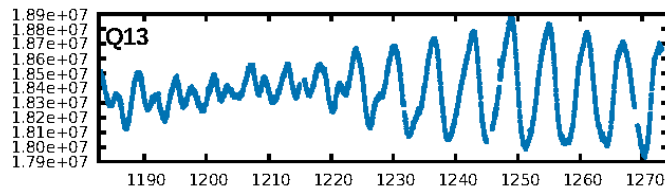
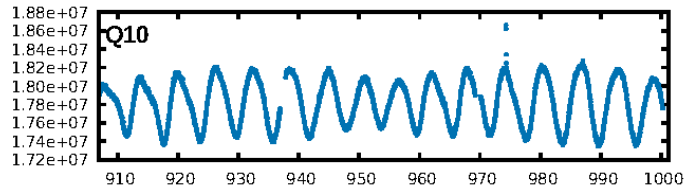
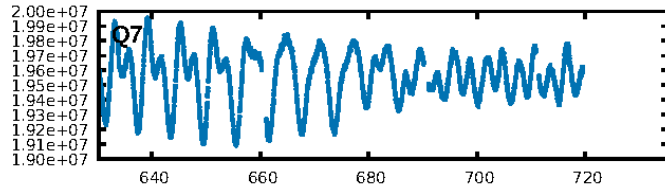
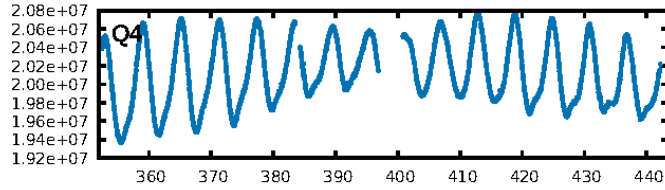
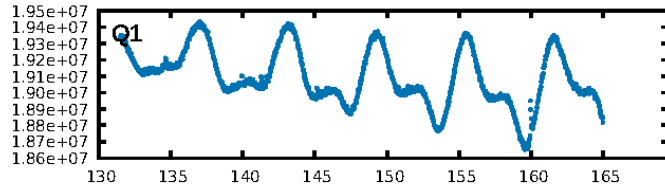
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [576.17σ]  
ModelChiSquare2-sig: 57.2%  
ModelChiSquareGof-sig: 99.8%  
**Bootstrap-pfa: 4.05e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.245  
Centroid-sig: 7.8%  
Centroid-so: 1.775 arcsec [1.55σ]  
OotOffset-rm: 0.649 arcsec [1.00σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 0.748 arcsec [0.92σ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [4/4]

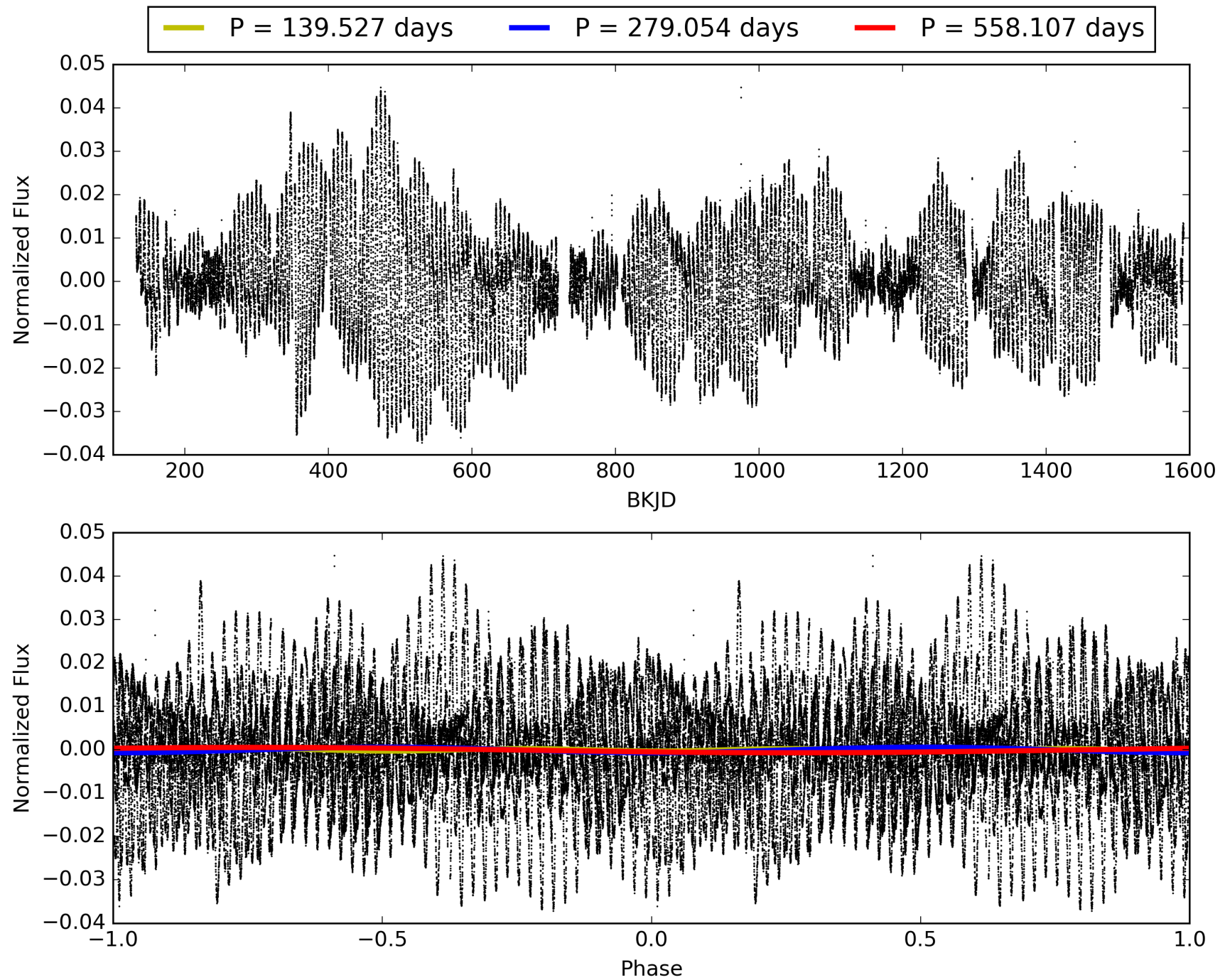
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:57:50 Z

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

# TCE 008076634-03, PDC Light Curves

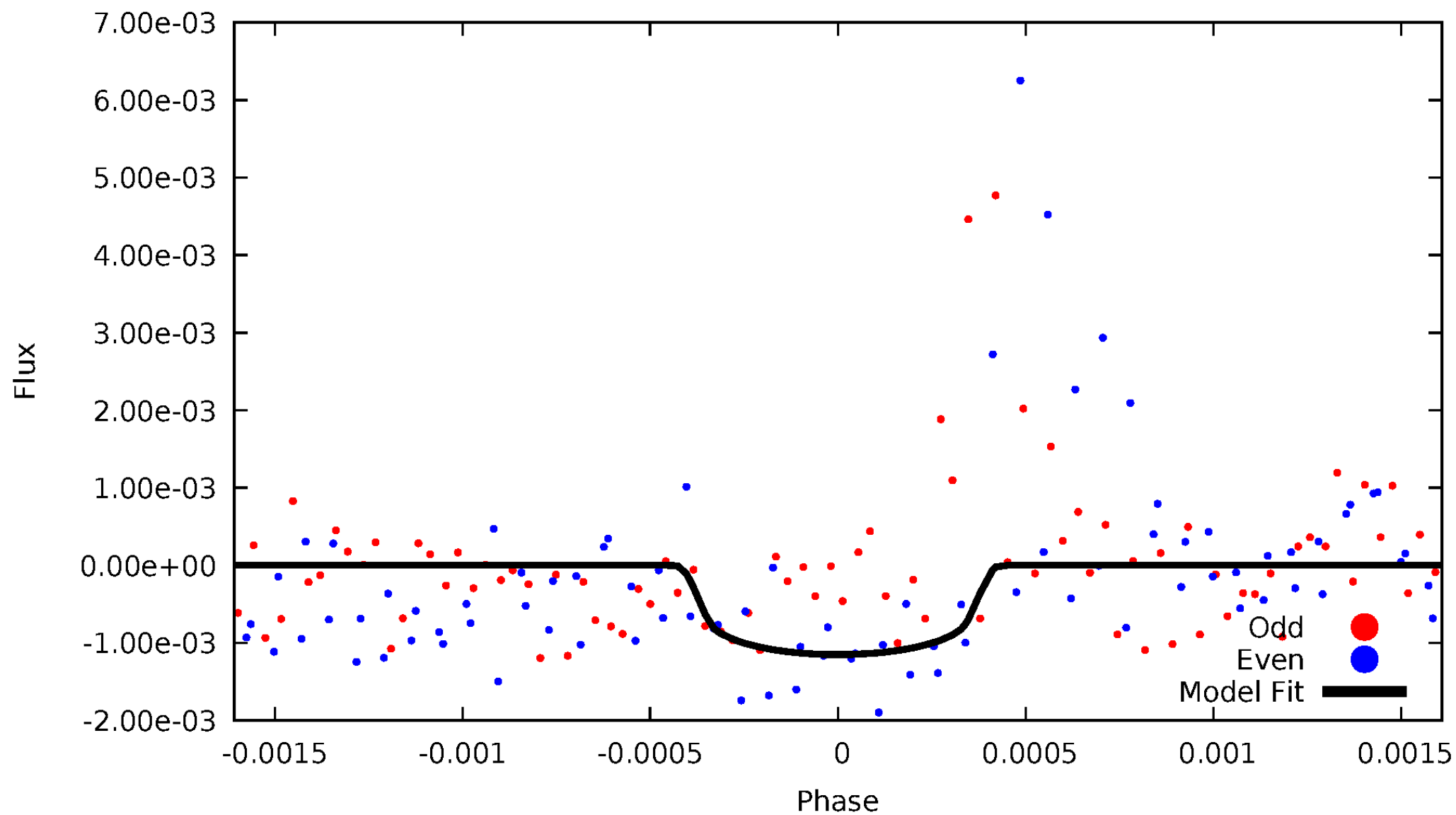


TCE 008076634-03



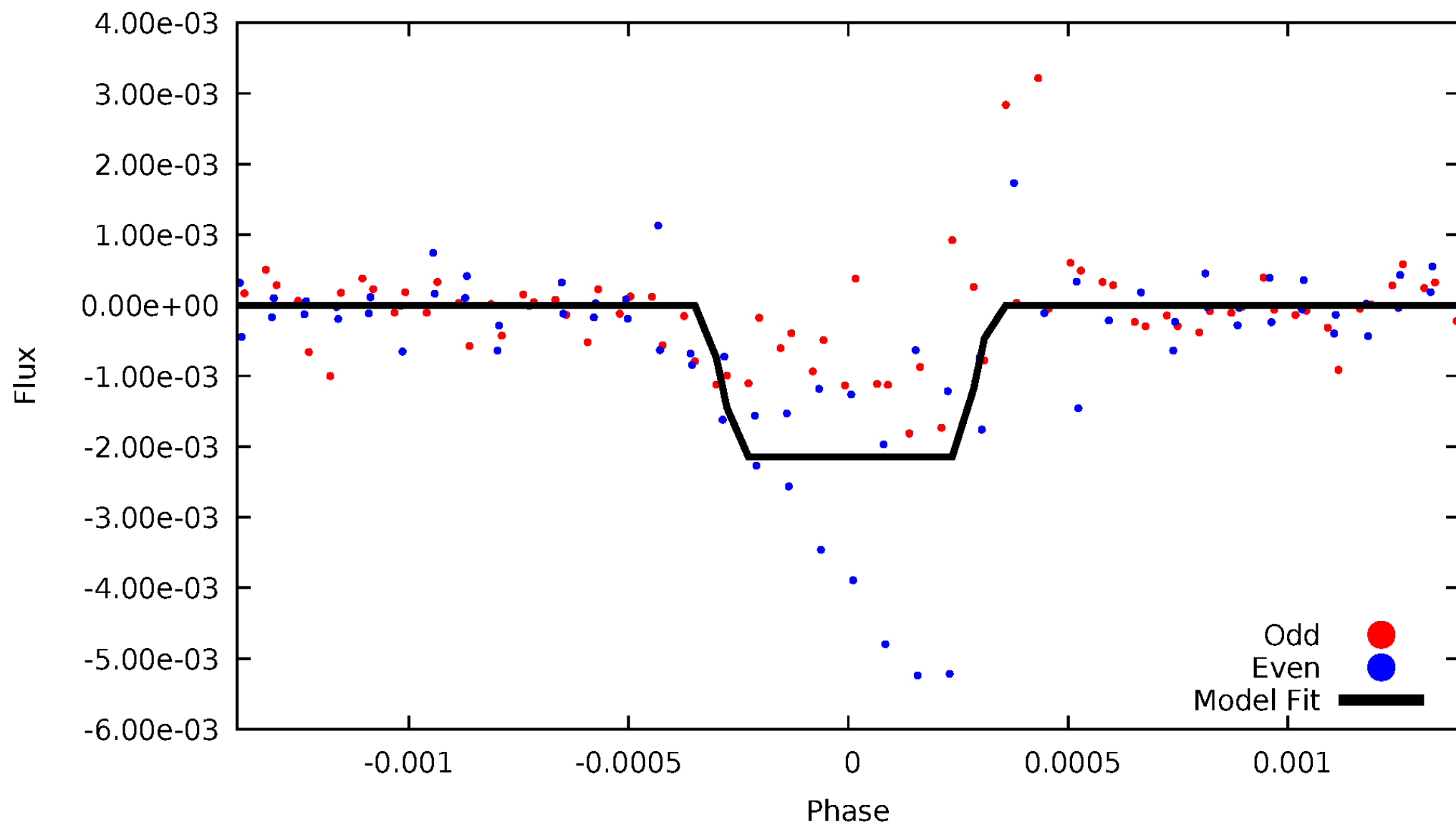
# DV Odd/Even

TCE 008076634-03



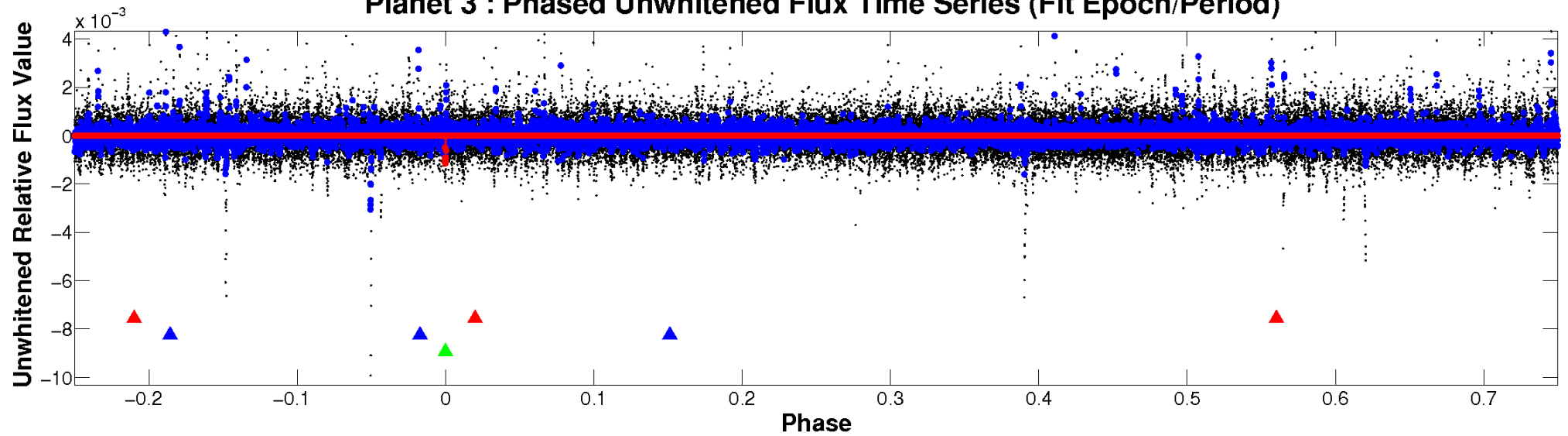
# ALT Odd/Even

TCE 008076634-03

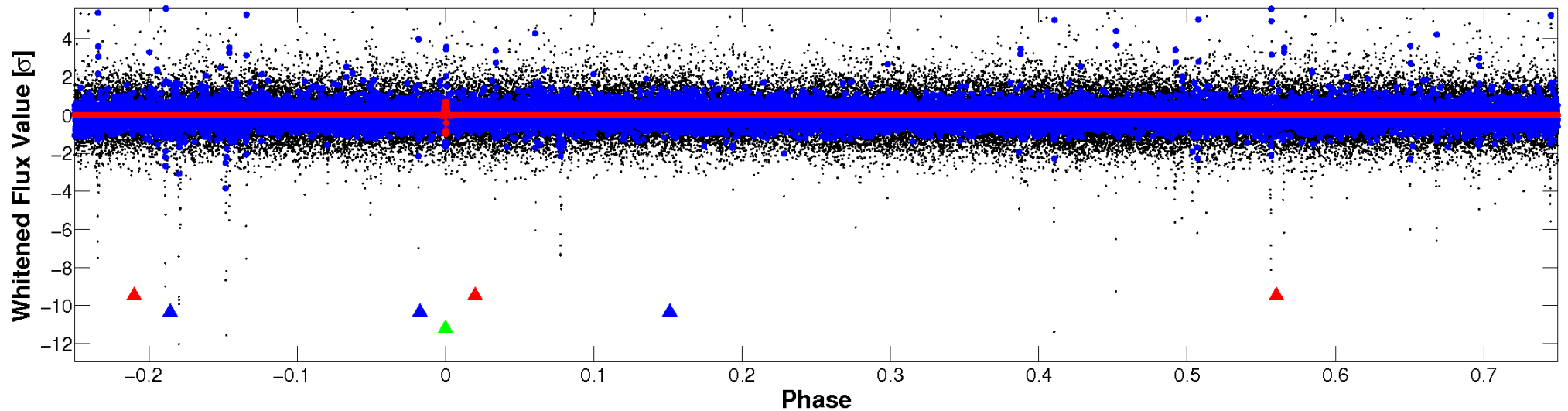


# Non-Whitened Vs. Whitened Light Curve

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



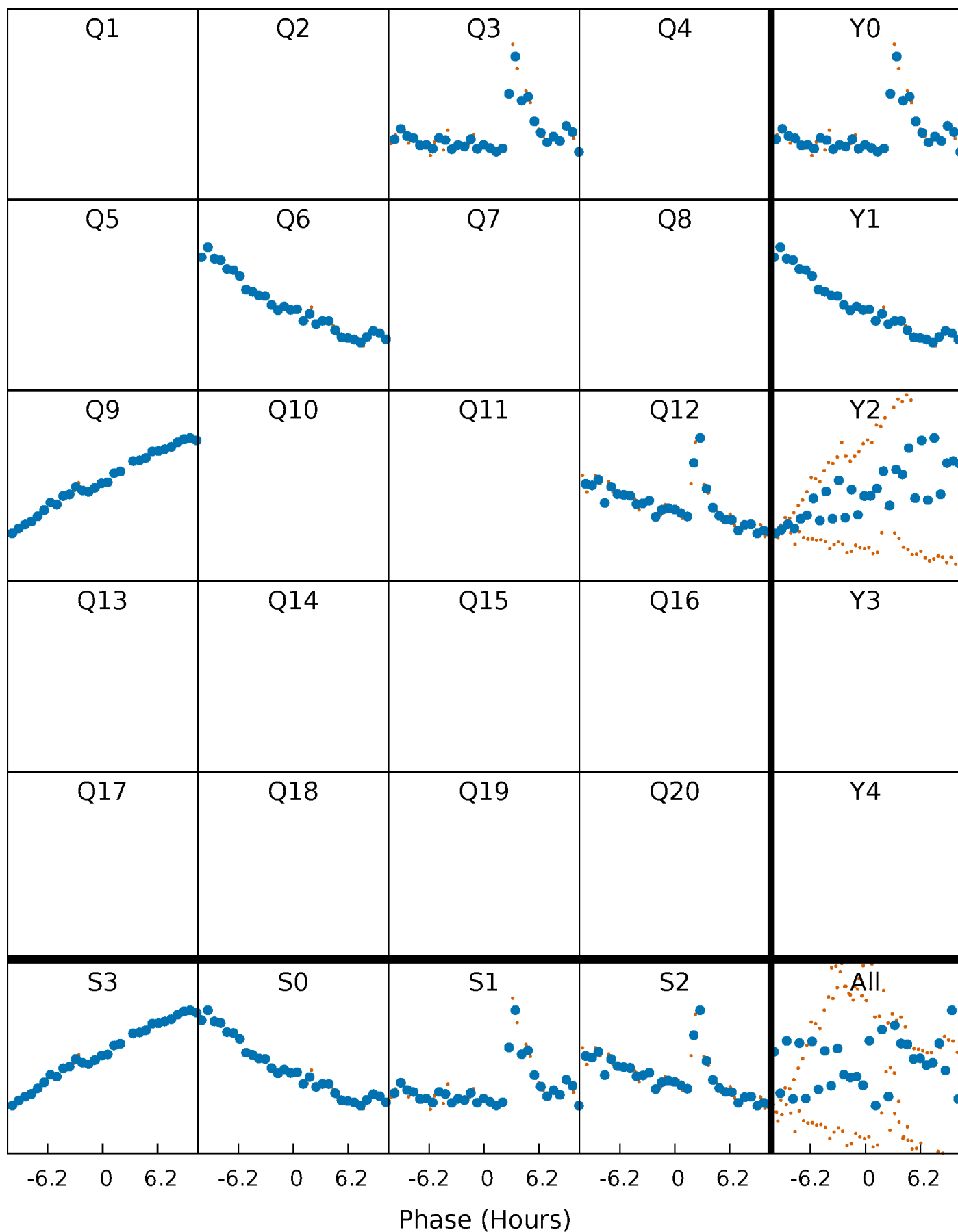
Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

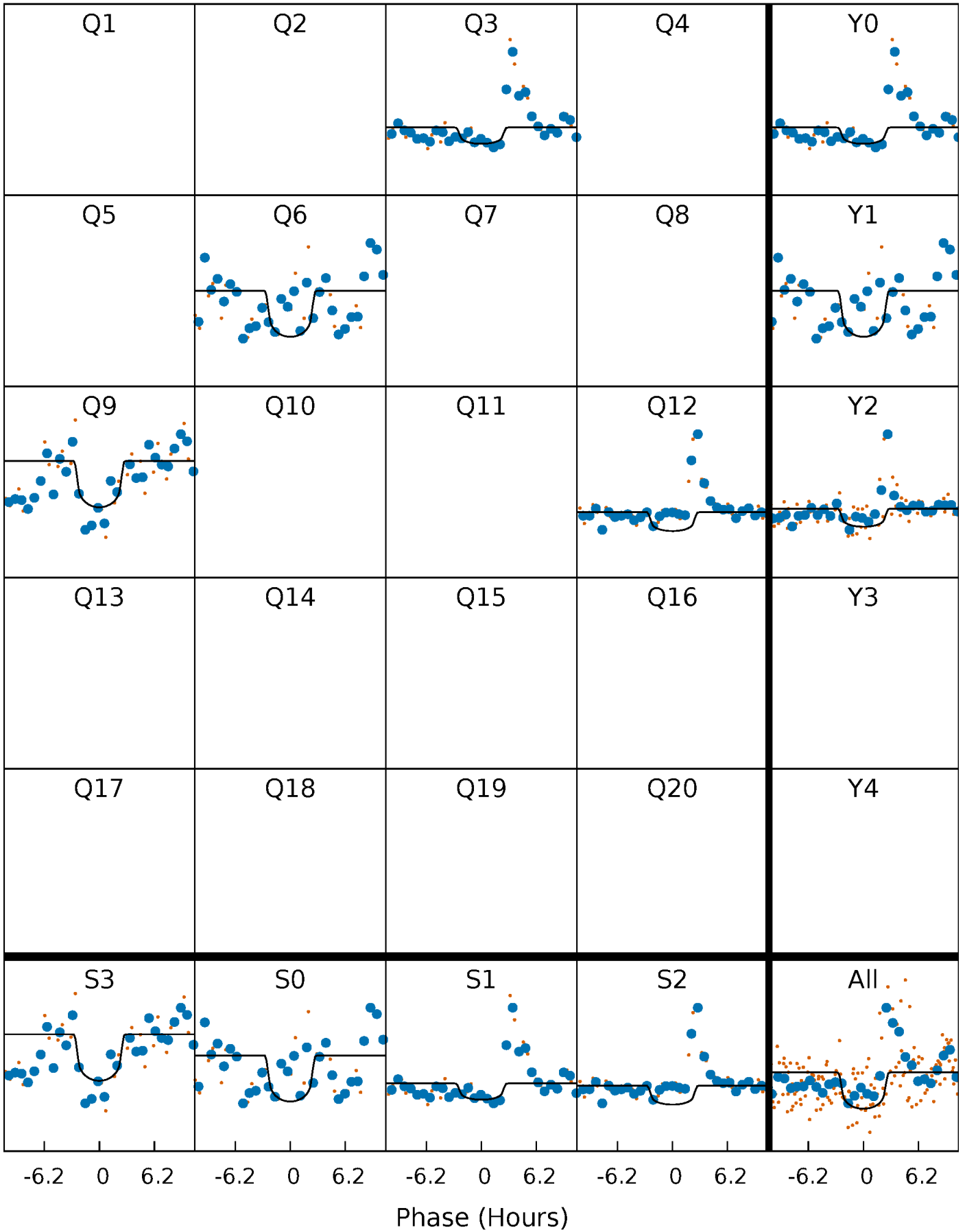
TCE 008076634-03 P=279.053513 Days  $T_0=301.648999$  (BKJD)





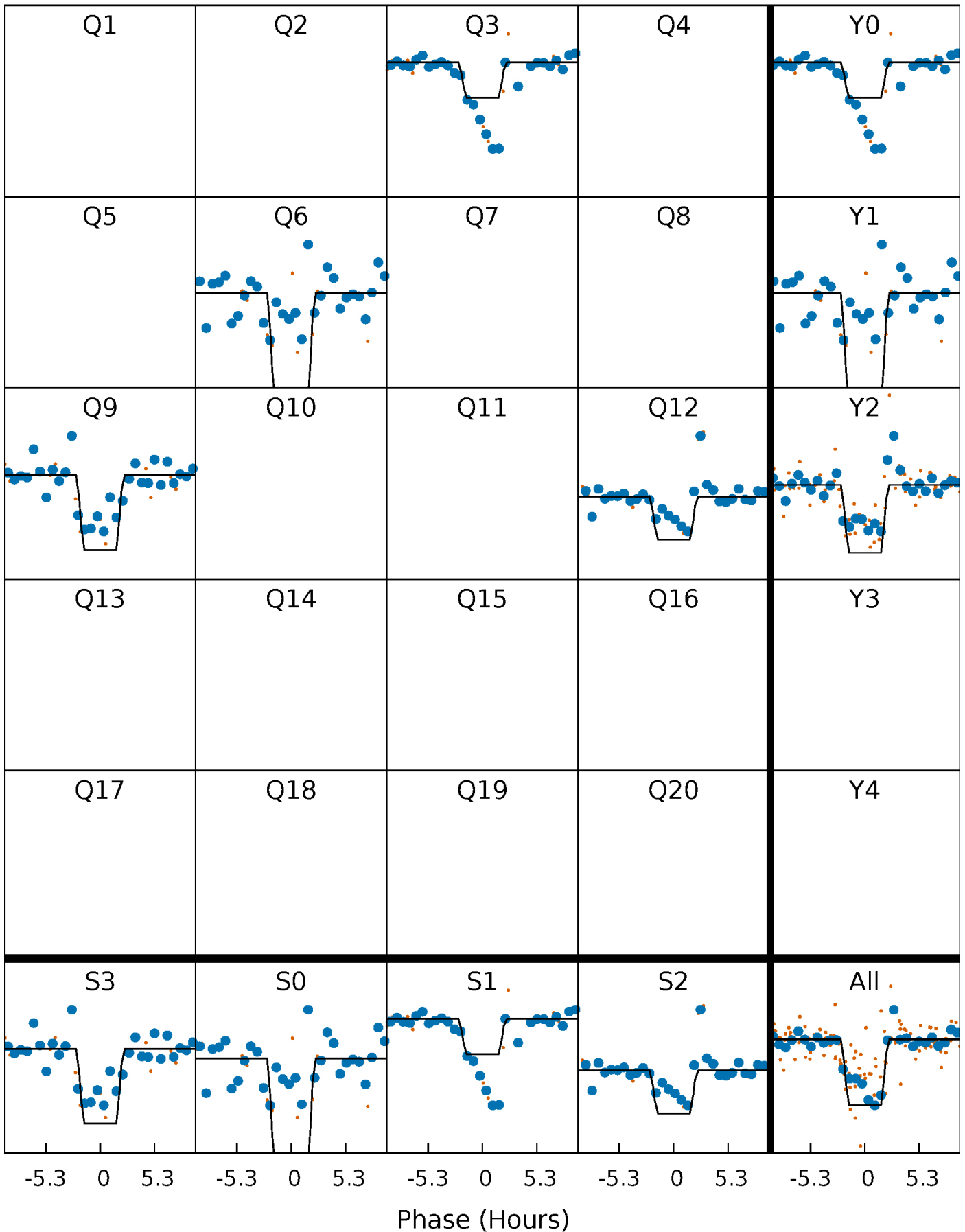
# DV Quarter-Phased Transit Curves

TCE 008076634-03     $P=279.053513$  Days     $T_0=301.648999$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

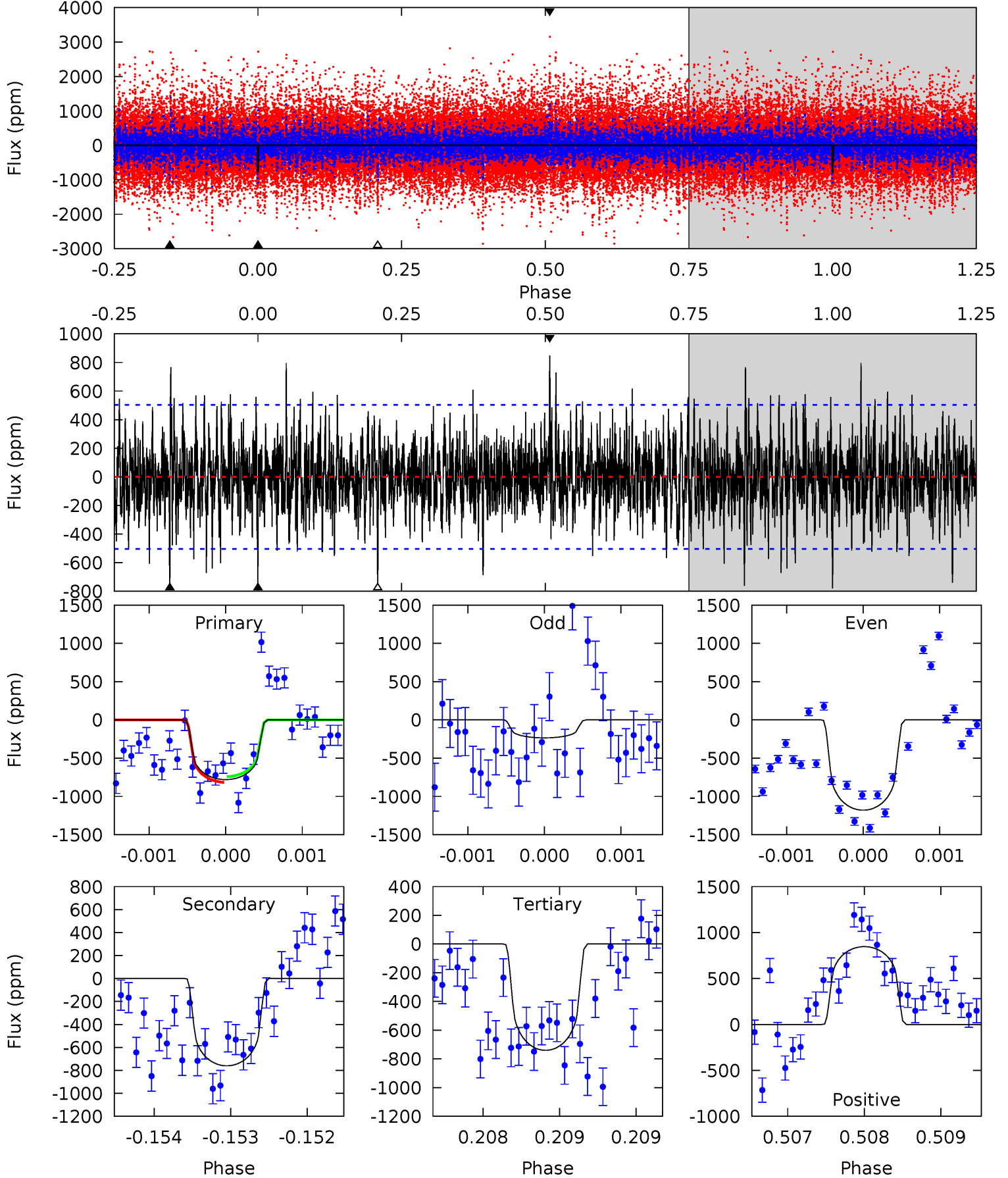
TCE 008076634-03 P=279.042302 Days  $T_0=301.679355$  (BKJD)



# DV Model-Shift Uniqueness Test

008076634-03, P = 279.053513 Days, E = 22.595486 Days

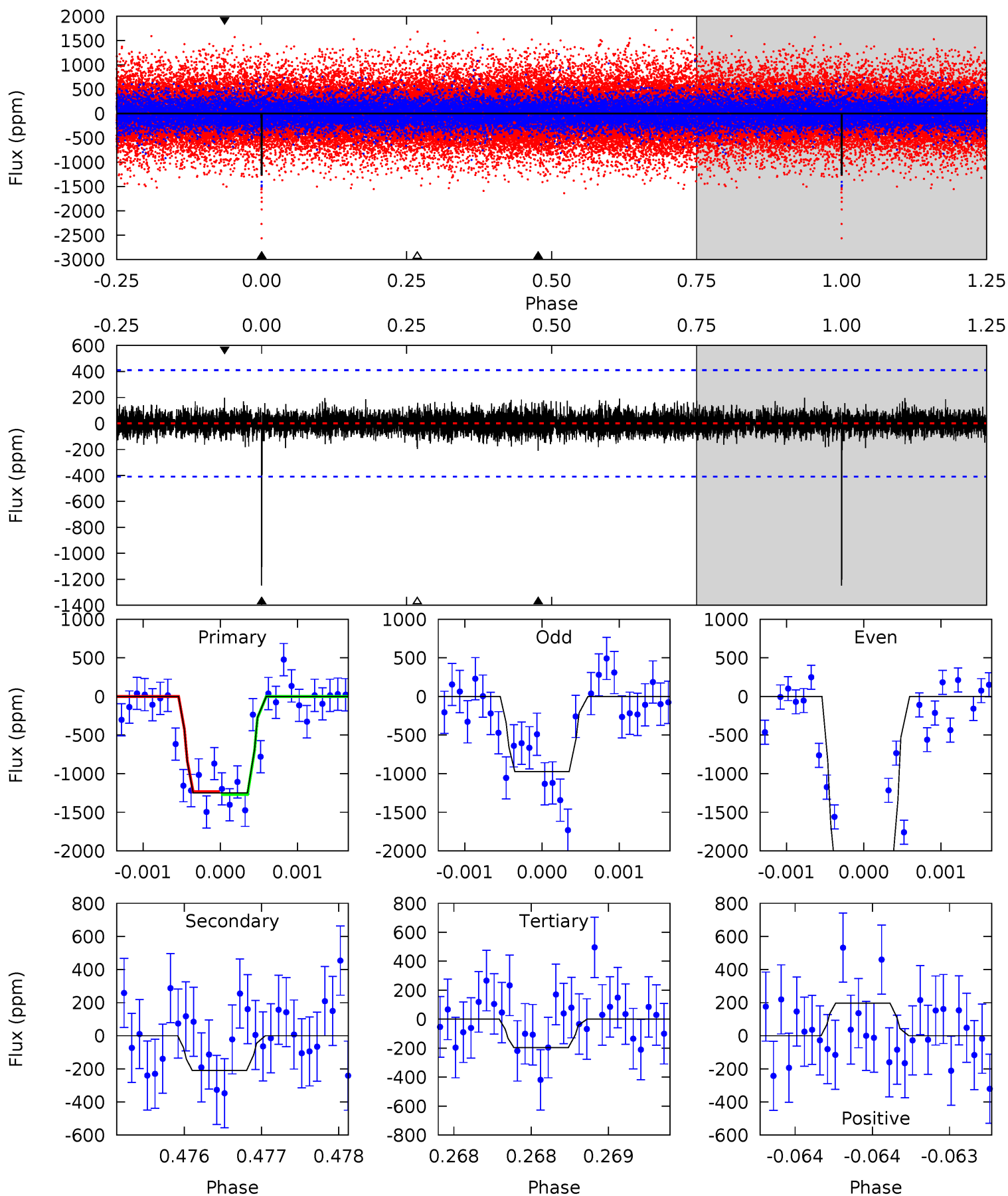
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.49	8.28	8.06	9.22	5.49	3.34	2.05	0.43	-0.73	0.22	-0.94	5.08	0.84	0.52	0.40



# Alt Model-Shift Uniqueness Test

008076634-03, P = 279.042302 Days, E = 22.637053 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
16.8	2.83	2.65	2.65	5.53	3.41	0.68	14.2	14.2	0.17	0.17	10.9	1.31	0.14	0.25



### Stellar Parameters For KIC 008076634

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5459^{+146}_{-162}$	$4.590^{+0.040}_{-0.120}$	$-0.200^{+0.300}_{-0.300}$	$0.779^{+0.147}_{-0.063}$	$0.866^{+0.080}_{-0.098}$	$2.582^{+0.435}_{-0.965}$
	+3%/-3%	+1%/-3%	+150%/-150%	+19%/-8%	+9%/-11%	+17%/-37%
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 008076634-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-760 \pm 92$	$2.98^{+1.80}_{-1.57}$	$337^{+16}_{-13}$	$4971^{+2006}_{-867}$	$29999^{+98607}_{-18680}$
Alt.	$-210 \pm 74$	$4.02^{+2.01}_{-1.83}$	$337^{+15}_{-12}$	$3512^{+807}_{-443}$	$4325^{+10442}_{-2581}$

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

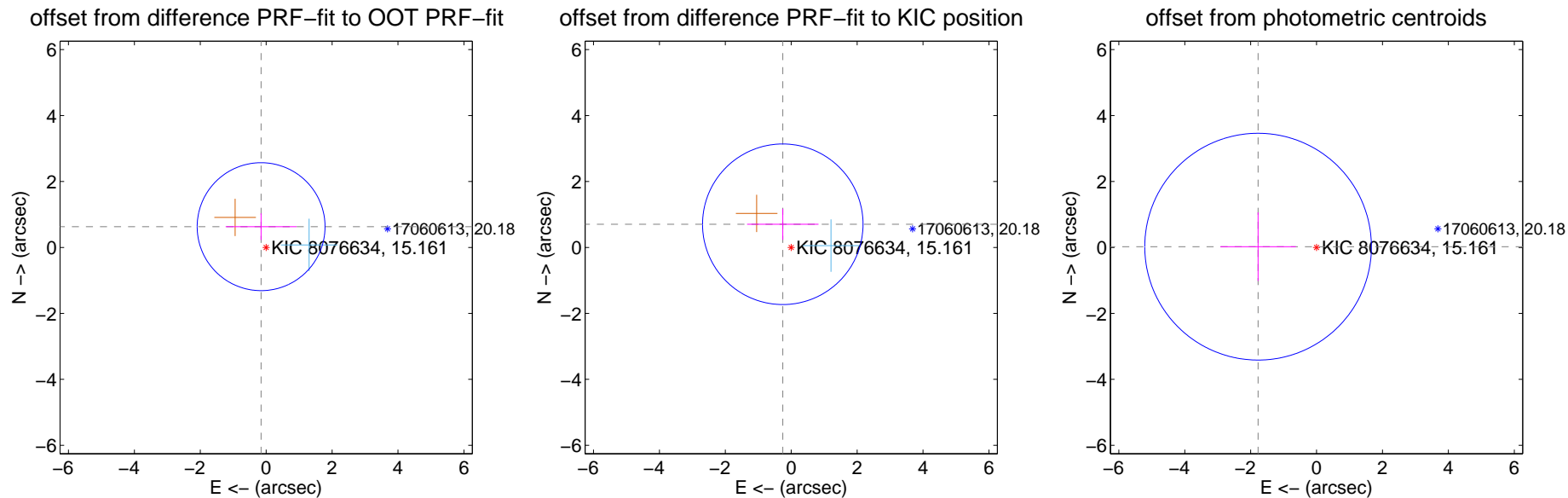
## DV Centroid Data

Supplemental centroid analysis for 008076634-03. Kepler magnitude: 15.16. Transit SNR 6.42

There are 1 quarters with good PRF difference image offsets

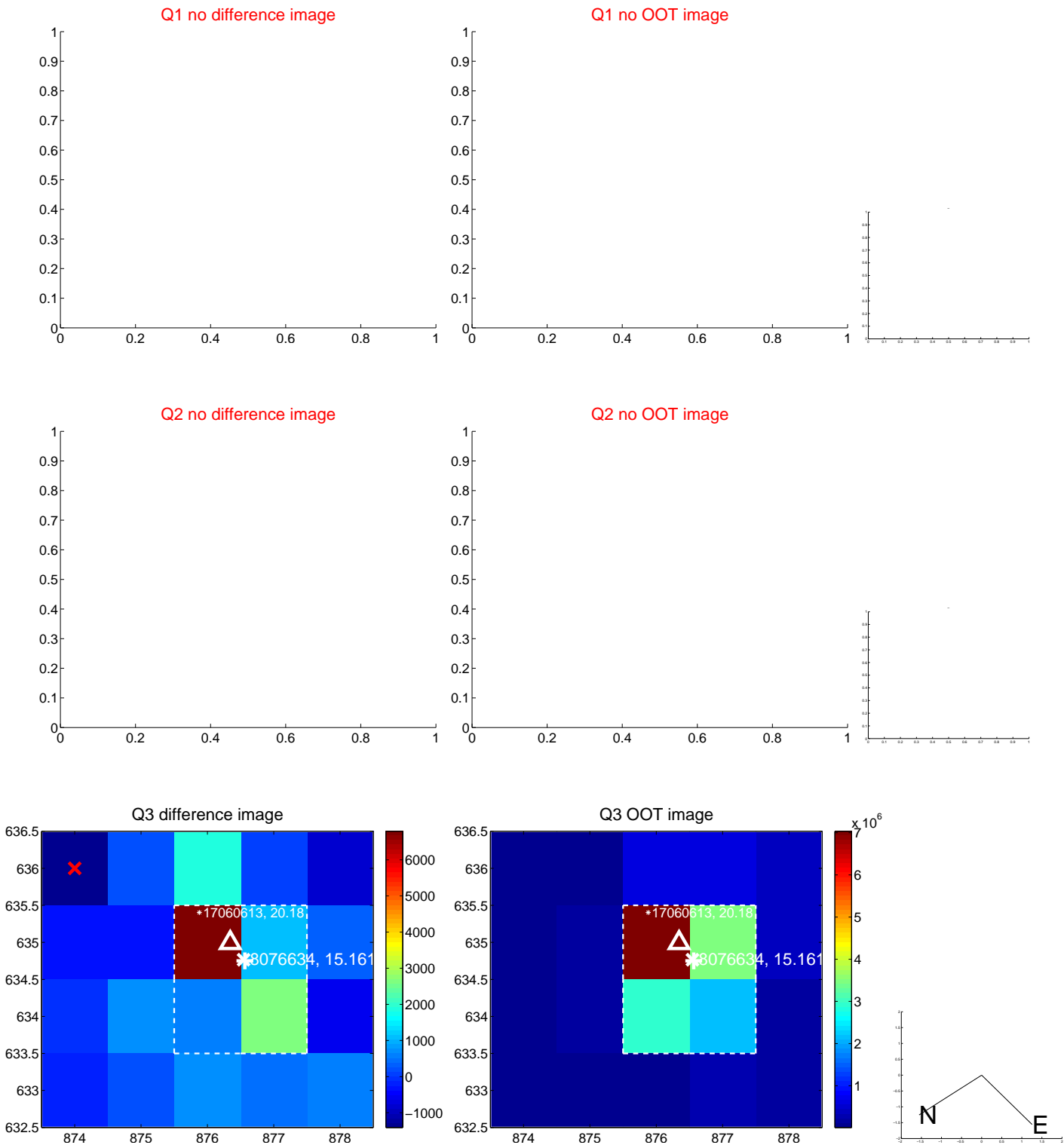
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.649 \pm 0.647$	1.00	$0.154 \pm 1.076$	$0.630 \pm 0.404$
PRF-fit source offset from KIC position	$0.748 \pm 0.812$	0.92	$0.256 \pm 1.083$	$0.703 \pm 0.472$
photometric centroid source offset	$1.78 \pm 1.15$	1.55	$1.78 \pm 1.15$	$0.02 \pm 1.04$



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.

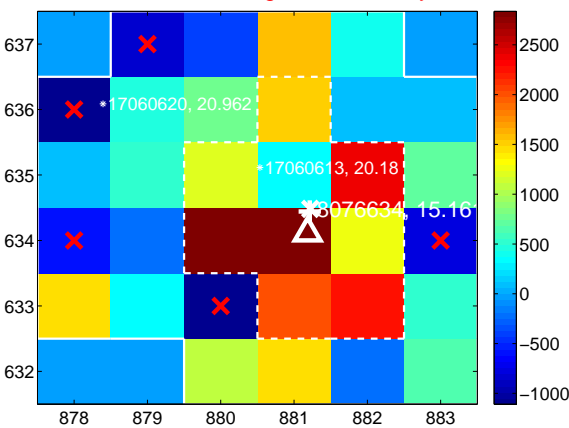
Q5 no difference image



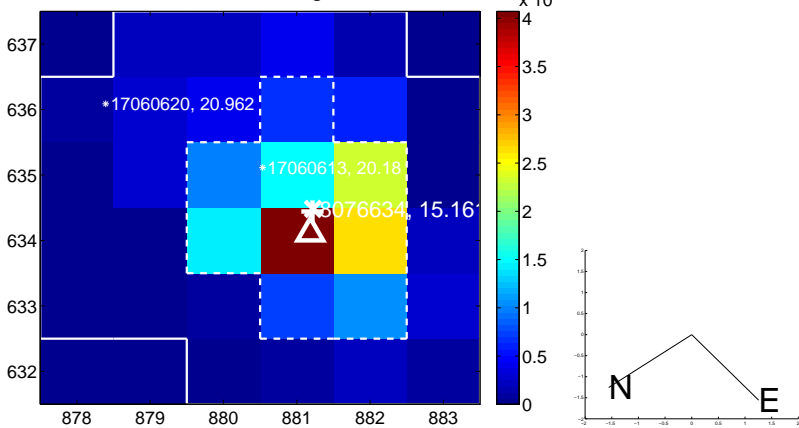
Q5 no OOT image



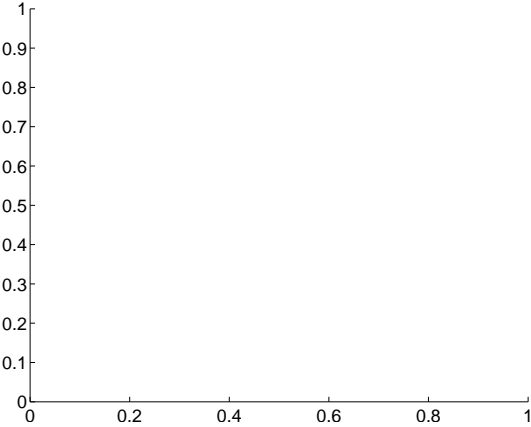
Q6 difference image. Poor Quality



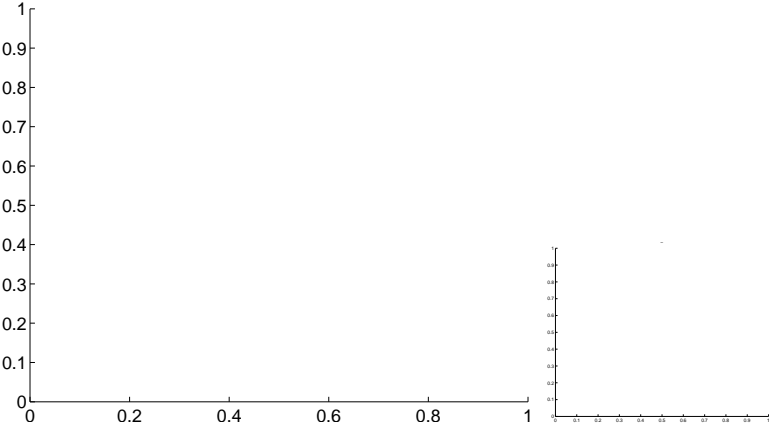
Q6 OOT image



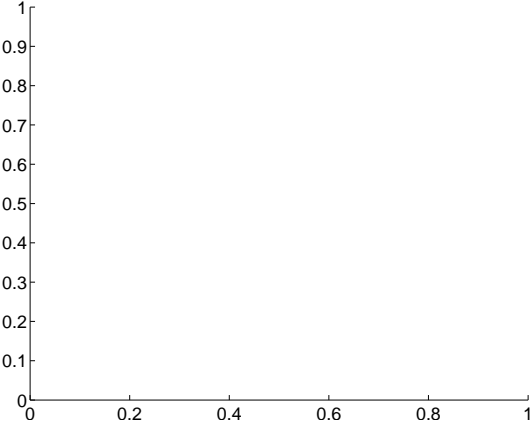
Q7 no difference image



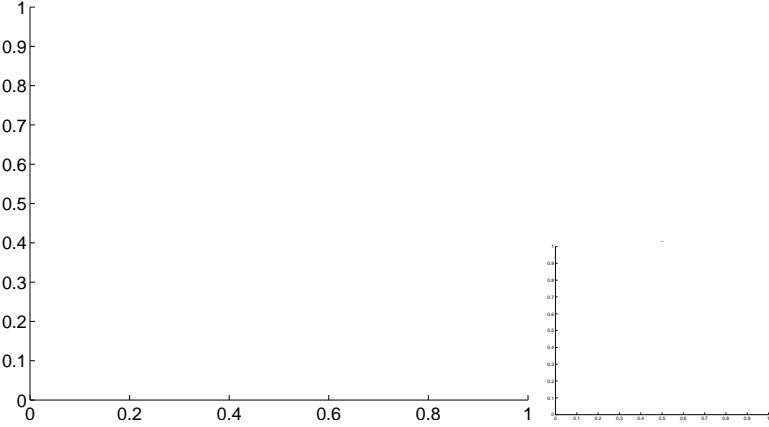
Q7 no OOT image



Q8 no difference image

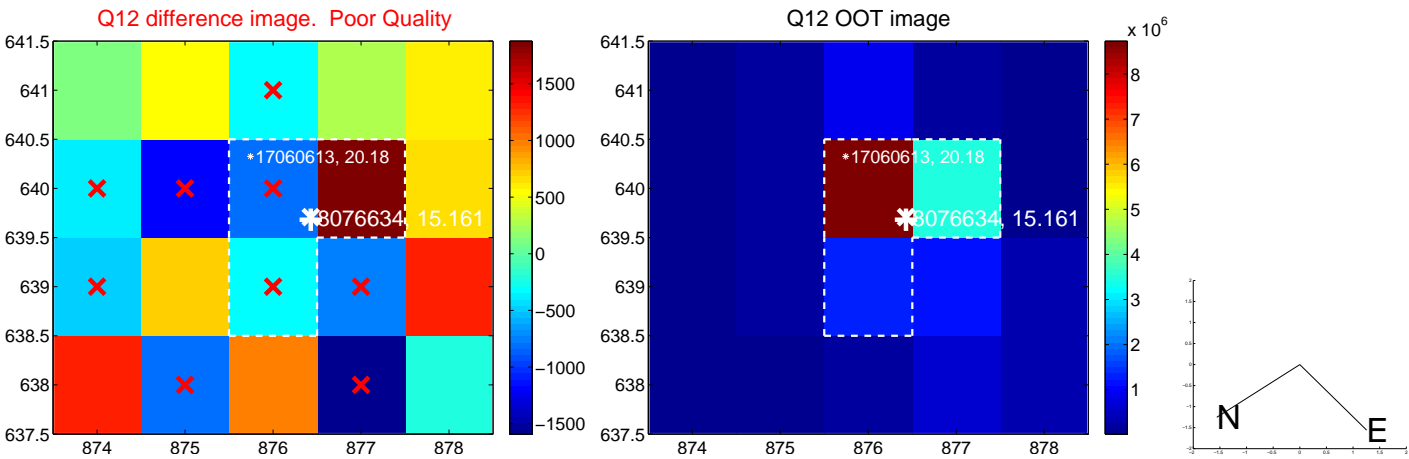
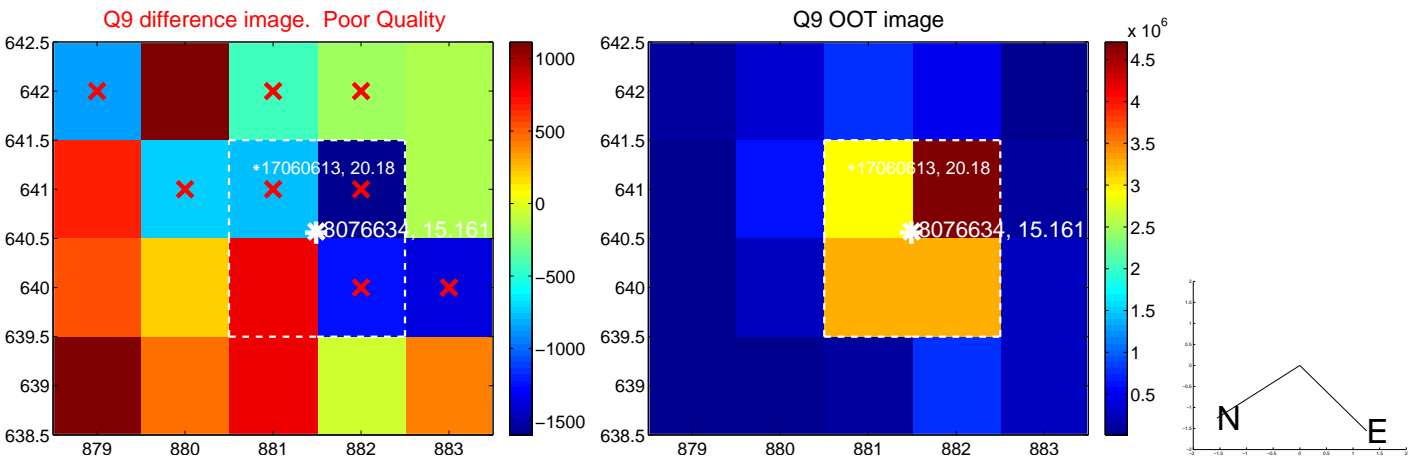


Q8 no OOT image





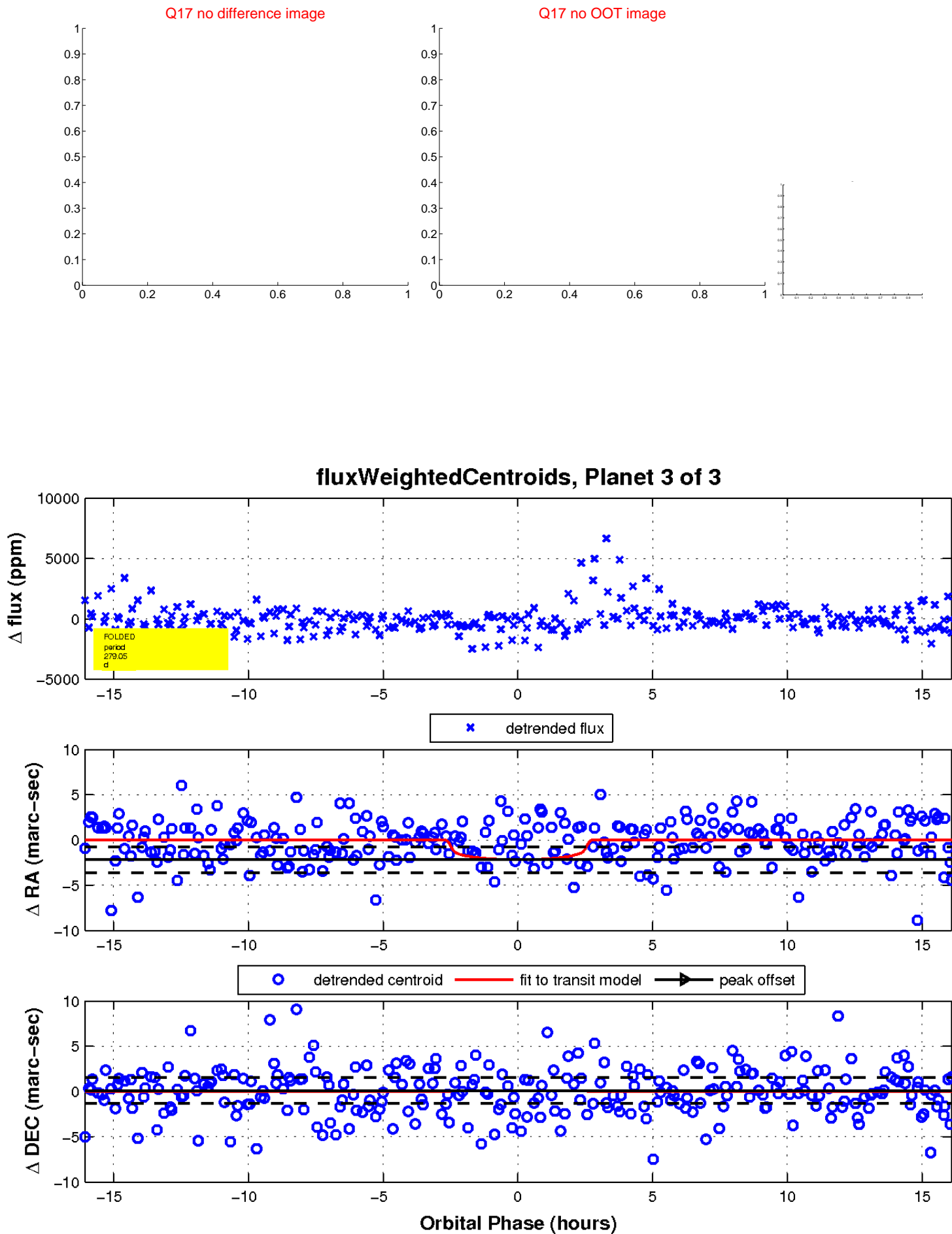
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

