

# KIC 002717423

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002717423-01	OBS	No	284.775562	151.568694	4515.3	4.670	28.7	4.4	0.88	5830	10.88	1.13
002717423-03	OBS	No	249.925481	373.675639	13237.3	5.872	21.8	14.3	0.88	5830	18.01	1.34
002717423-04	OBS	No	360.792995	299.889124	16348.9	3.968	20.6	15.2	0.88	5830	19.91	0.82
002717423-05	OBS	No	393.929631	372.844548	4529.5	9.035	15.0	10.2	0.88	5830	7.06	0.73
002717423-06	OBS	No	0.796418	131.923494	4112.4	1.500	11.2	-1.0	0.88	5830	5.60	2864.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002717423-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
002717423-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

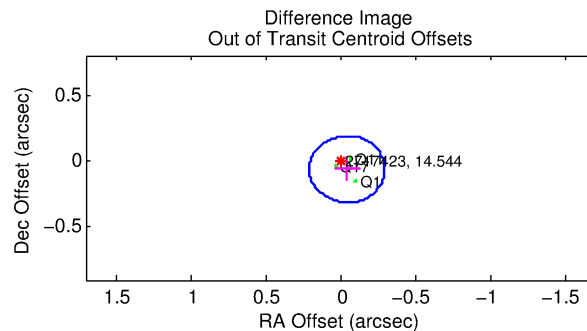
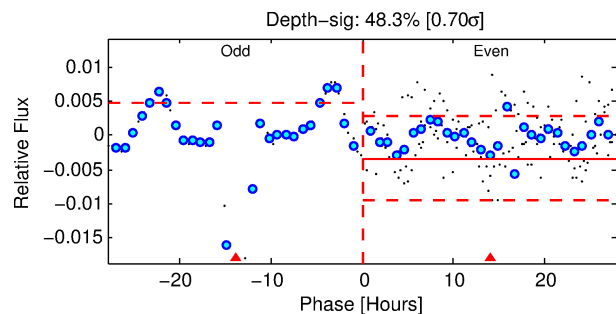
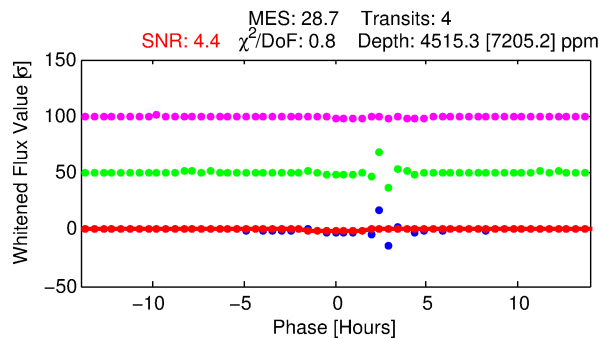
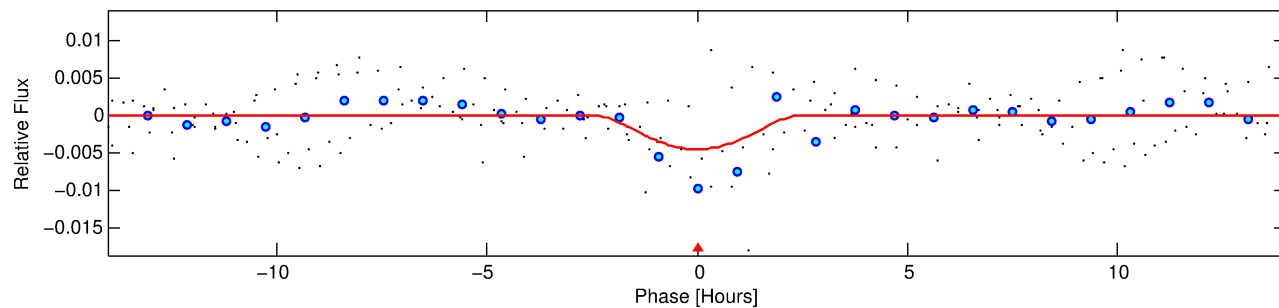
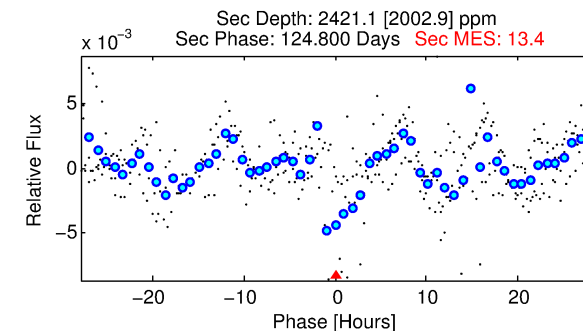
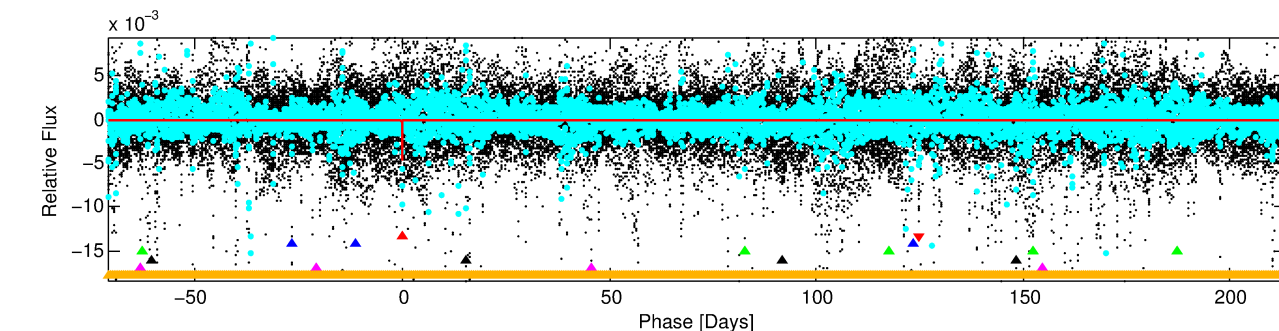
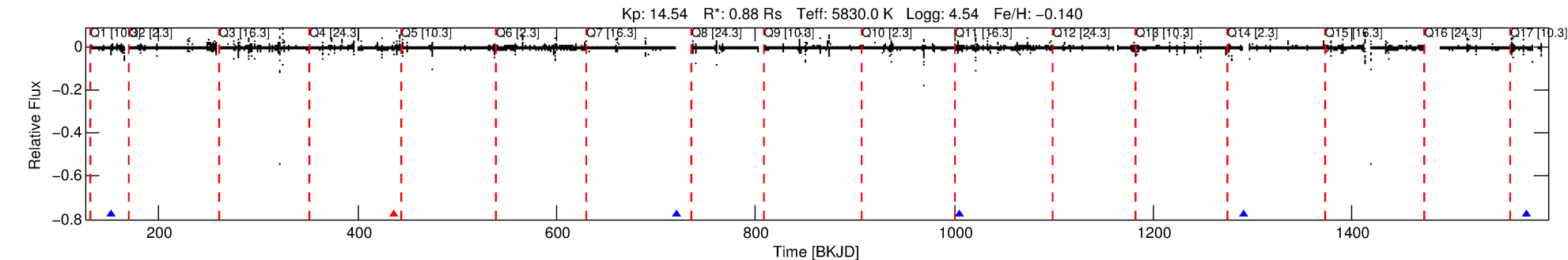
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002717423-01

No Significant Match Found

# DV One-Page Summary

KIC: 2717423 Candidate: 1 of 6 Period: 284.776 d



## DV Fit Results:

Period = 284.77556 [0.01695] d  
Epoch = 151.5687 [0.0507] BKJD  
Rp/R\* = 0.1139 [1.3996]  
a/R\* = 228.61 [516.31]  
b = 1.00 [1.87]  
Seff = 1.13 [0.46]  
Teq = 263 [27] K  
Rp = 10.88 [133.84] Re  
a = 0.8389 [0.2243] AU  
Ag = 7911.87 [194643.48] [0.04σ]  
Teff = 3832 [23568] K [0.15σ]

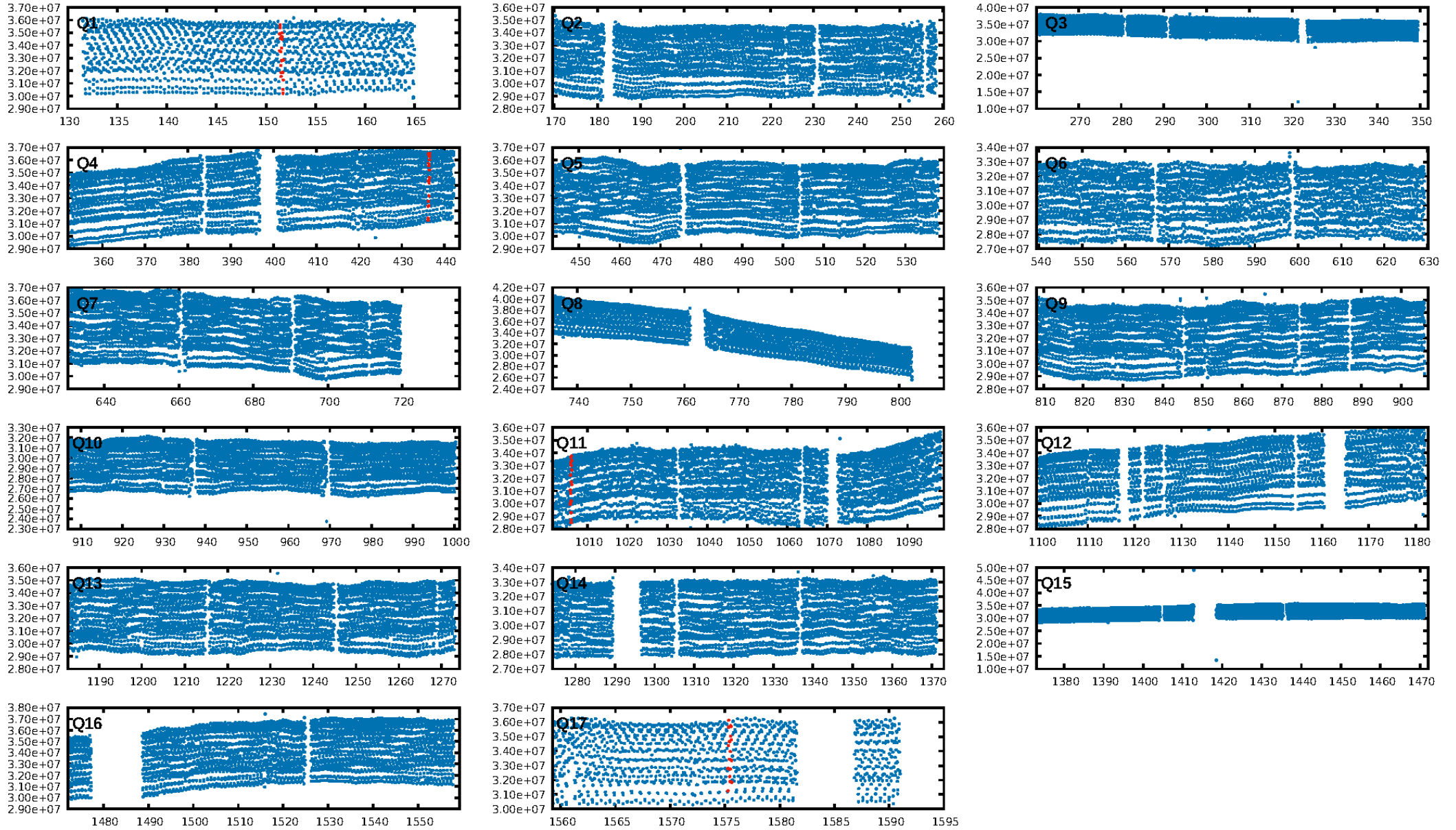
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [111.47σ]  
LongPeriod-sig: 100.0% [297.72σ]  
ModelChiSquare2-sig: 8.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
**RollingBand-fgt: 0.50 [1/2]**  
GhostDiagnostic-chr: 1.298  
Centroid-sig: 71.0%  
**Centroid-so: 0.882 arcsec [3.25σ]**  
OotOffset-rm: 0.077 arcsec [0.92σ]  
KicOffset-rm: 0.274 arcsec [2.99σ]  
OotOffset-st: 0/1/0/2 [3]  
KicOffset-st: 0/1/0/2 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/3]

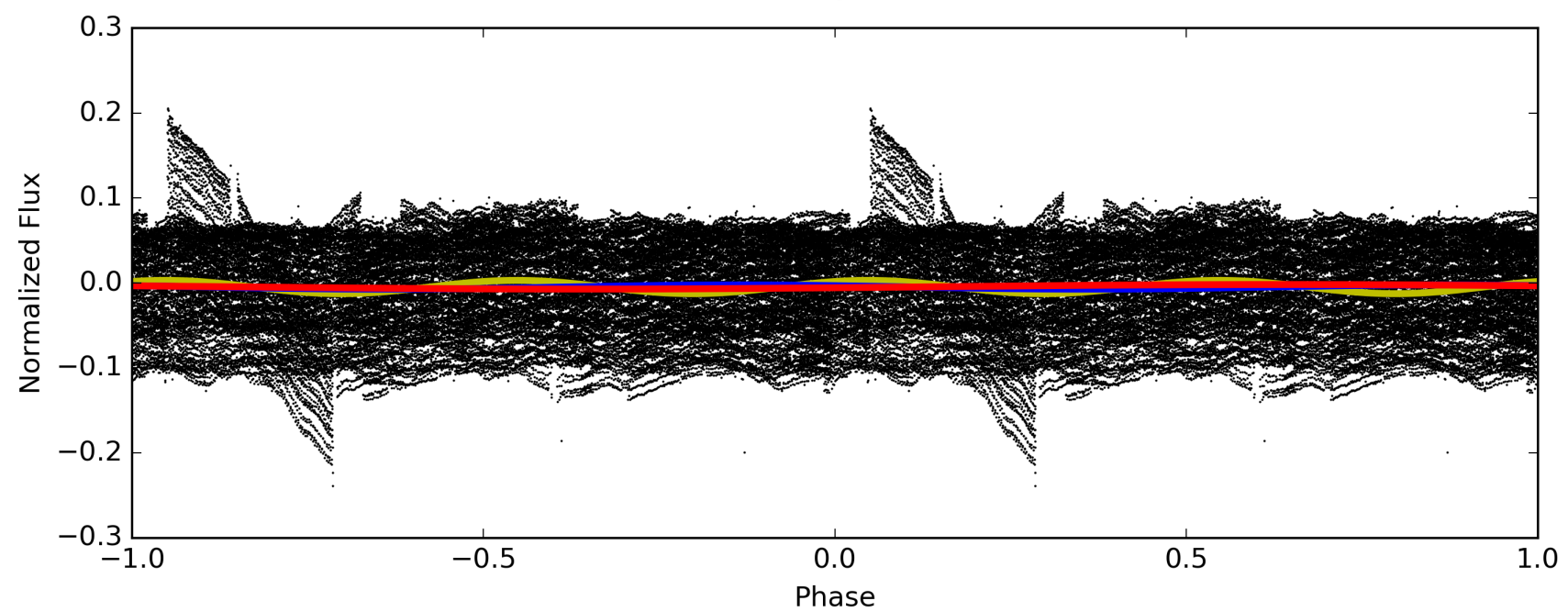
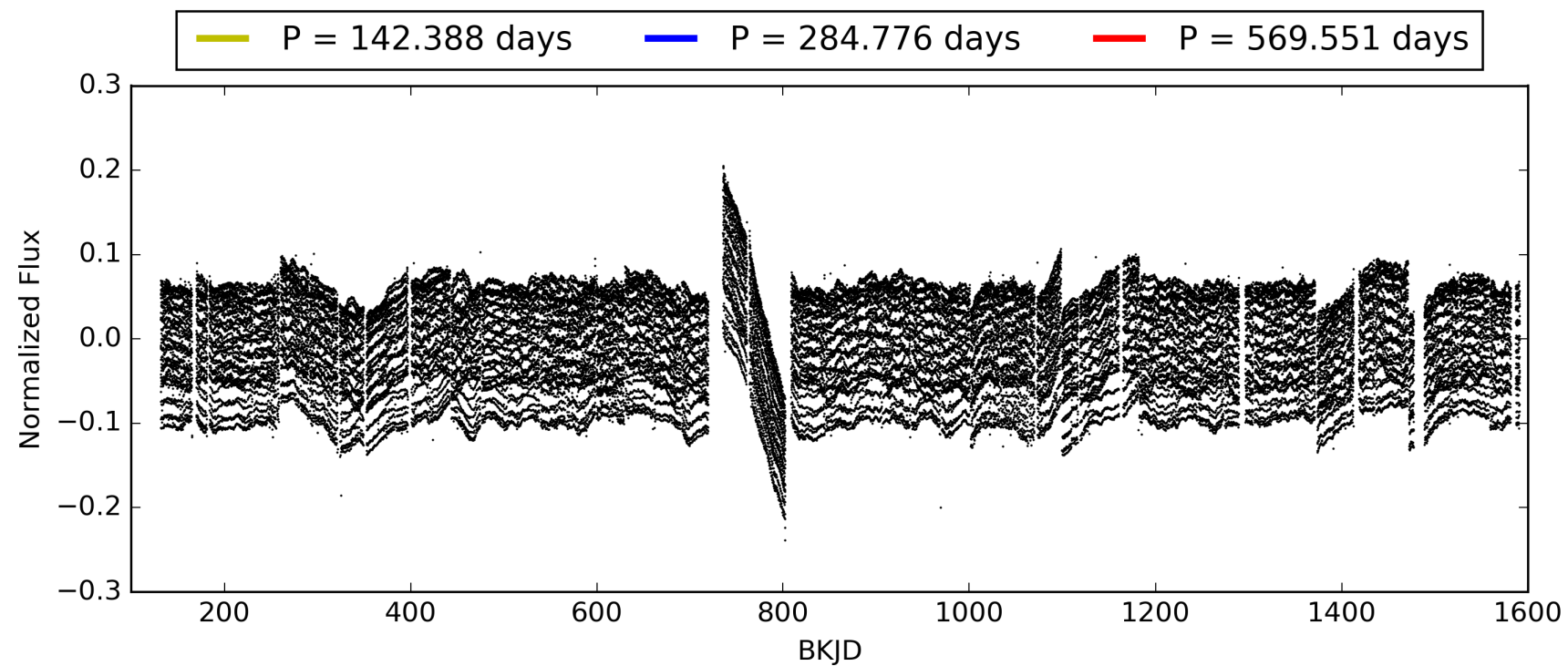
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:26:40 Z

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

# TCE 002717423-01, PDC Light Curves



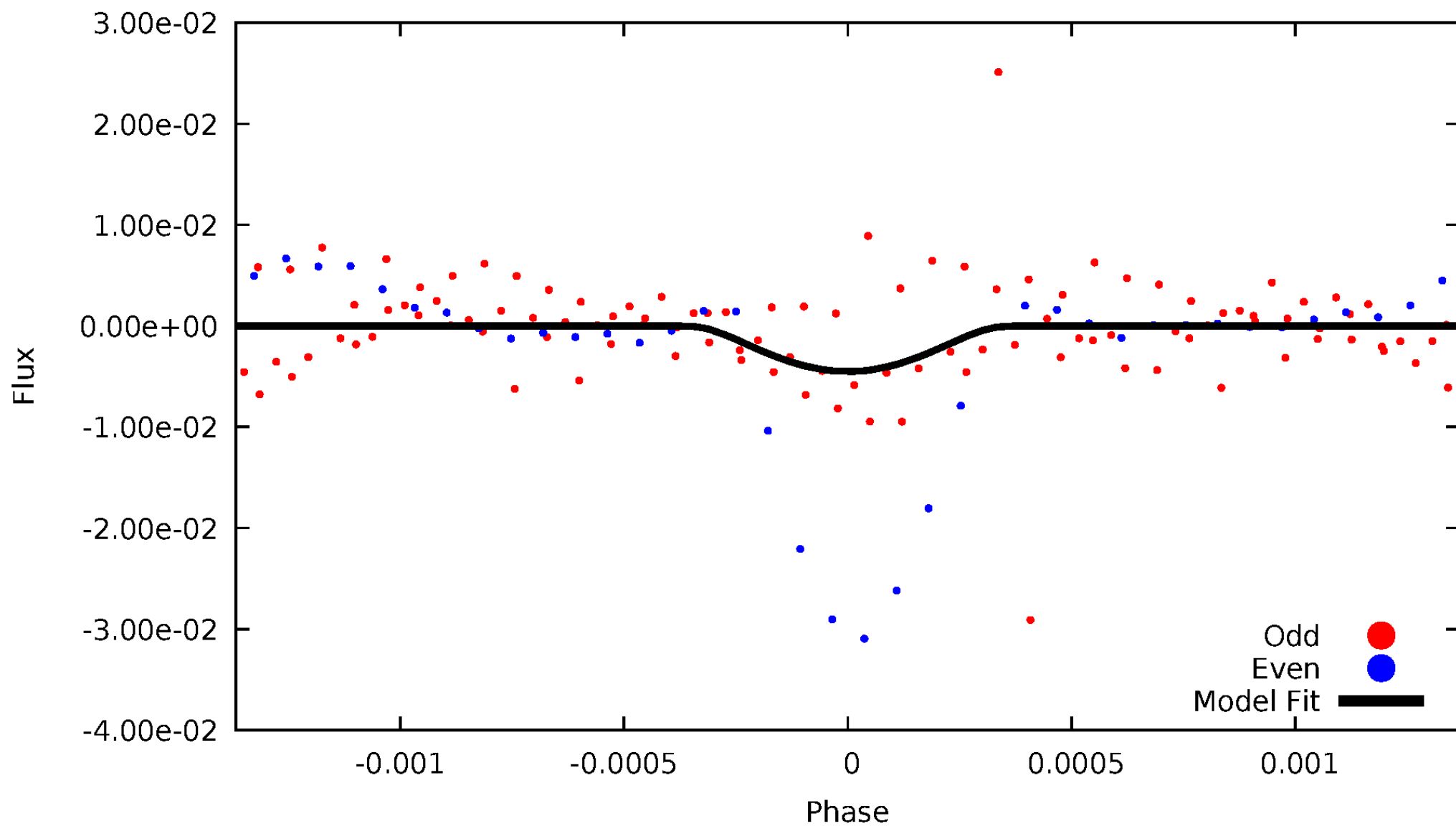
TCE 002717423-01





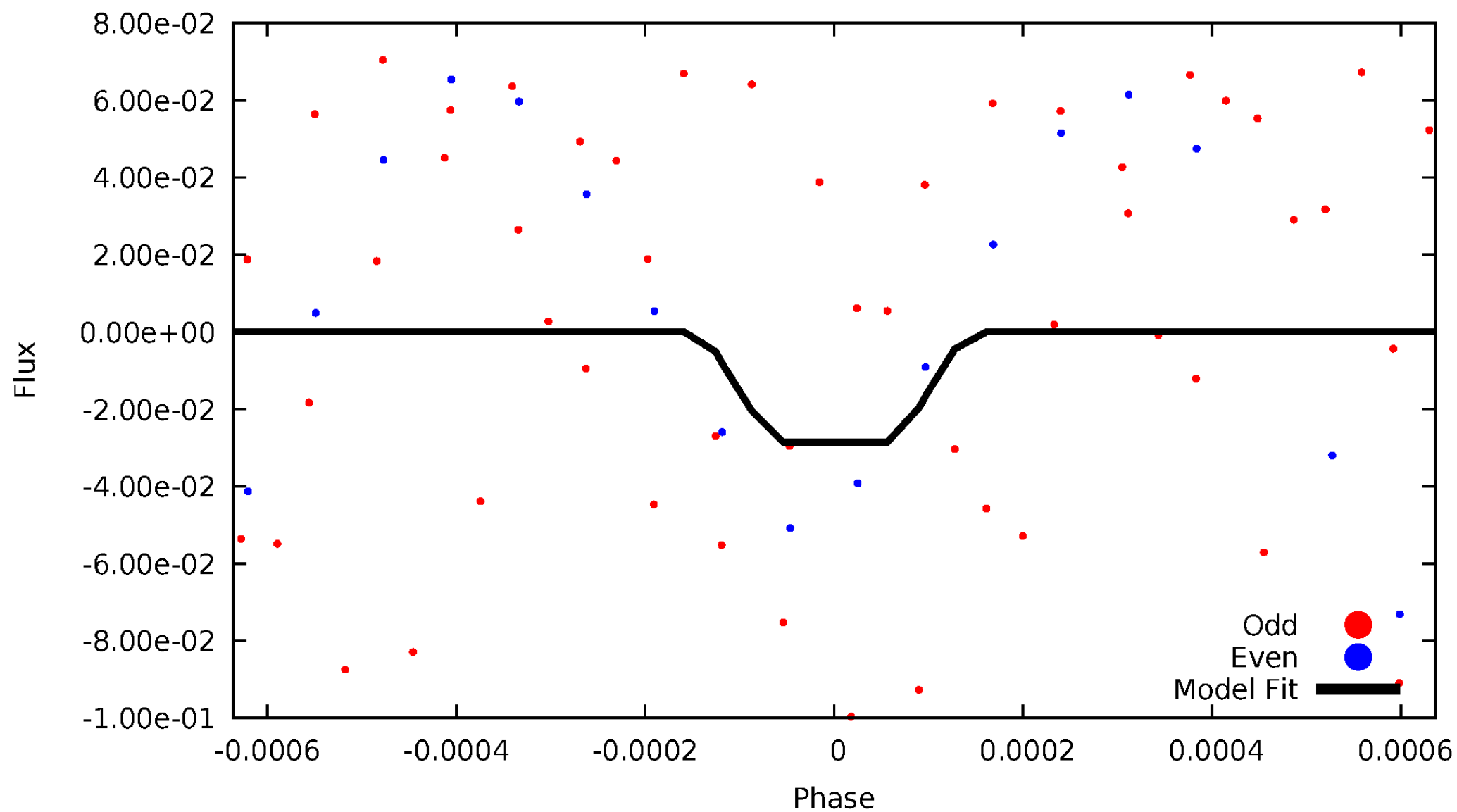
# DV Odd/Even

TCE 002717423-01



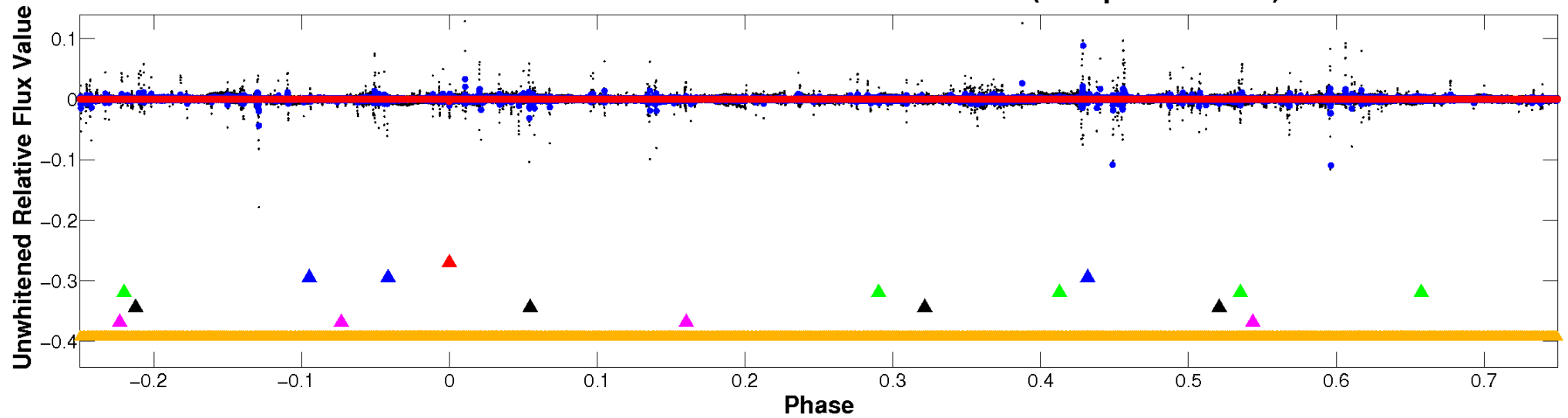
# ALT Odd/Even

TCE 002717423-01

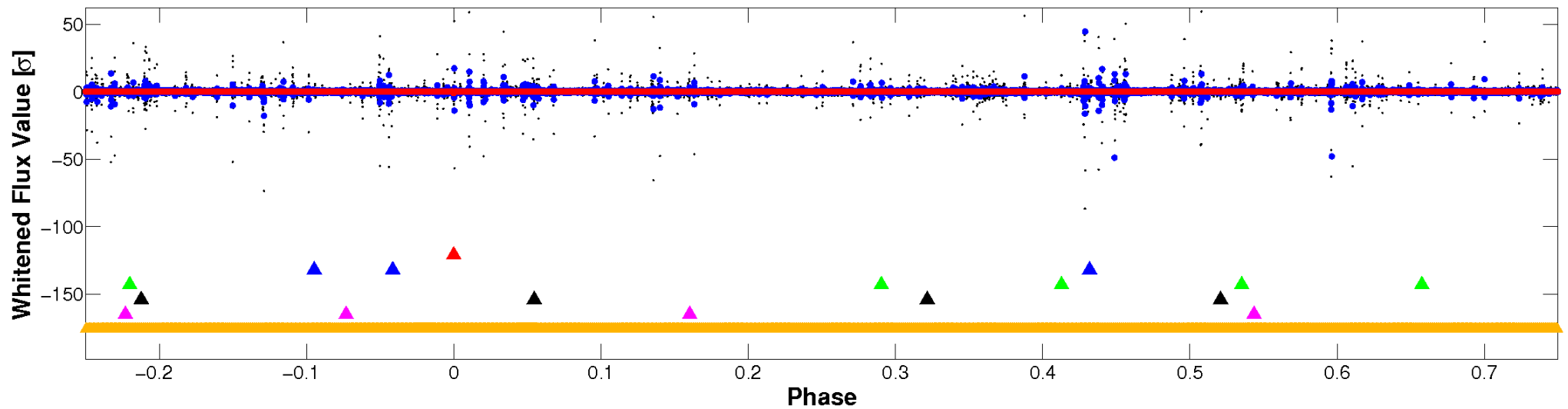


# Non-Whitened Vs. Whitened Light Curve

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

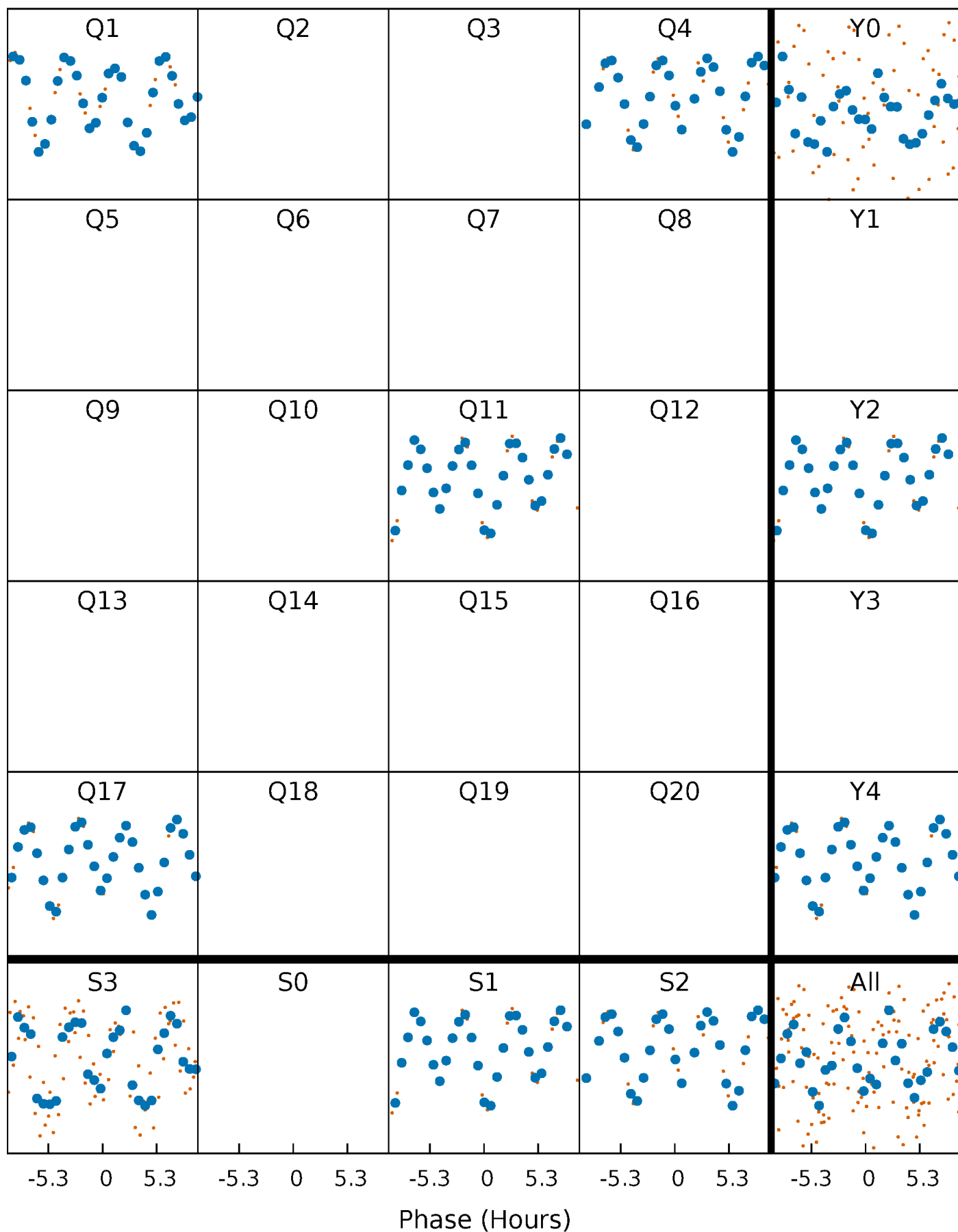


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



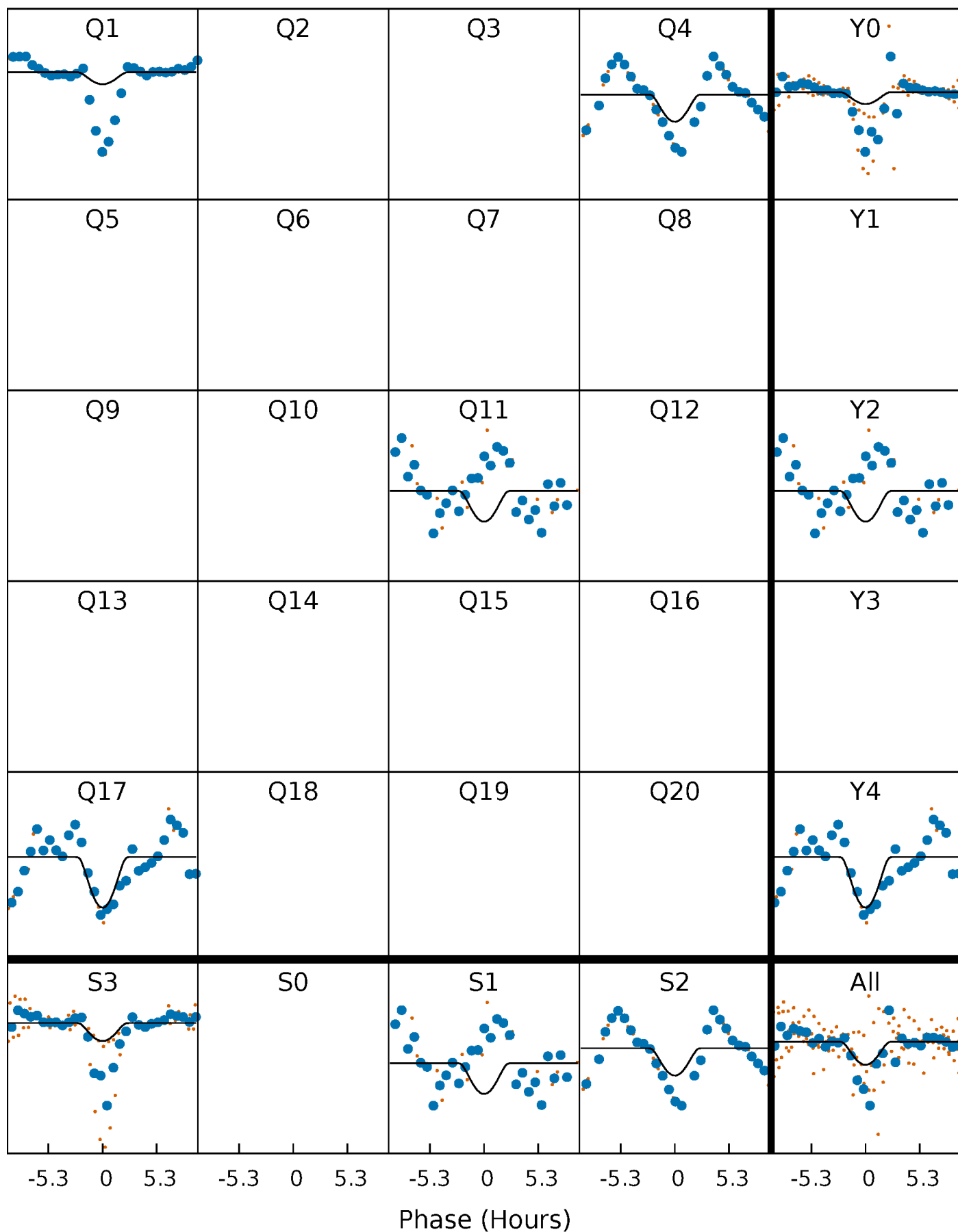
# PDC Quarter-Phased Transit Curves

TCE 002717423-01 P=284.775562 Days  $T_0=151.568694$  (BKJD)



# DV Quarter-Phased Transit Curves

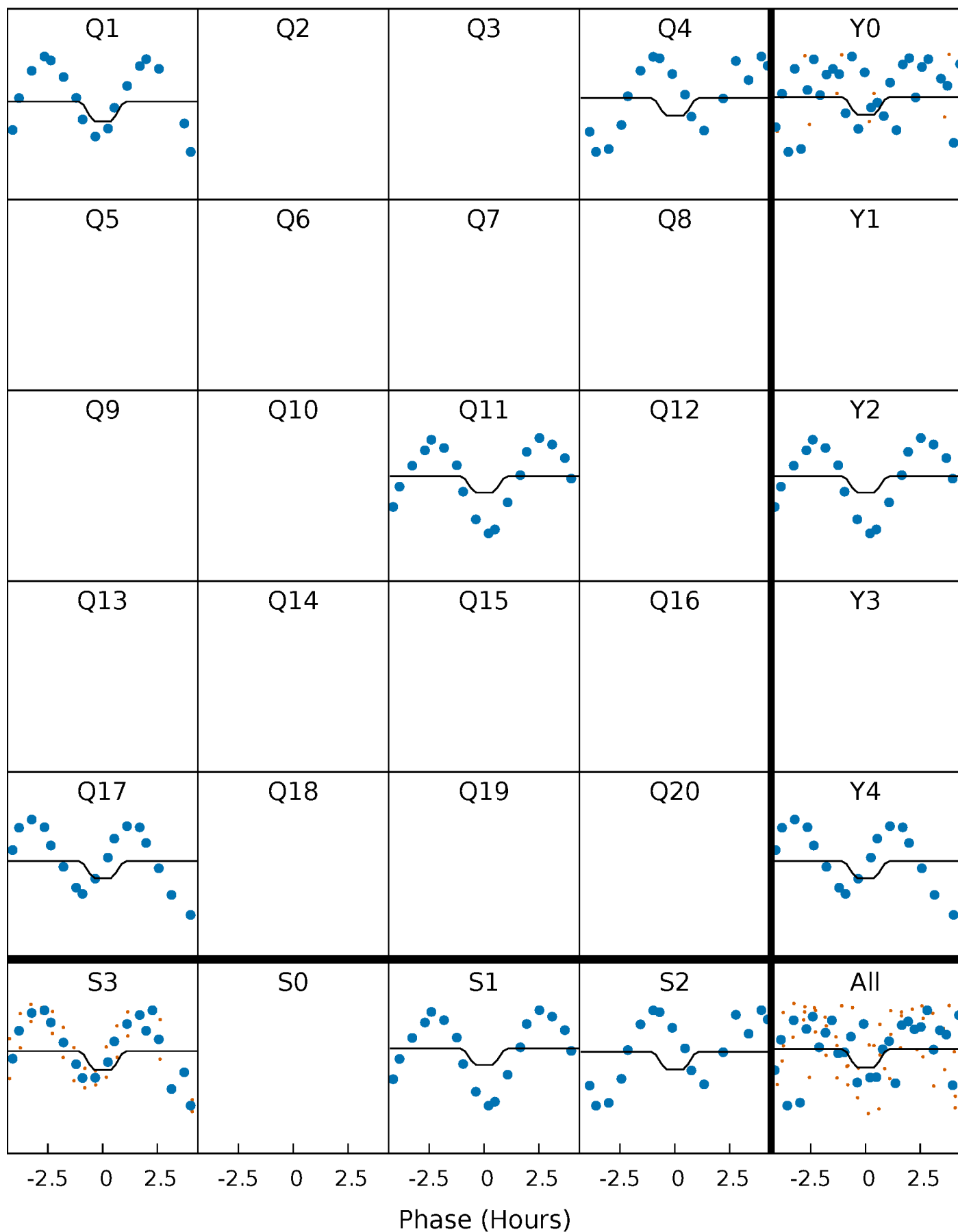
TCE 002717423-01 P=284.775562 Days  $T_0=151.568694$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

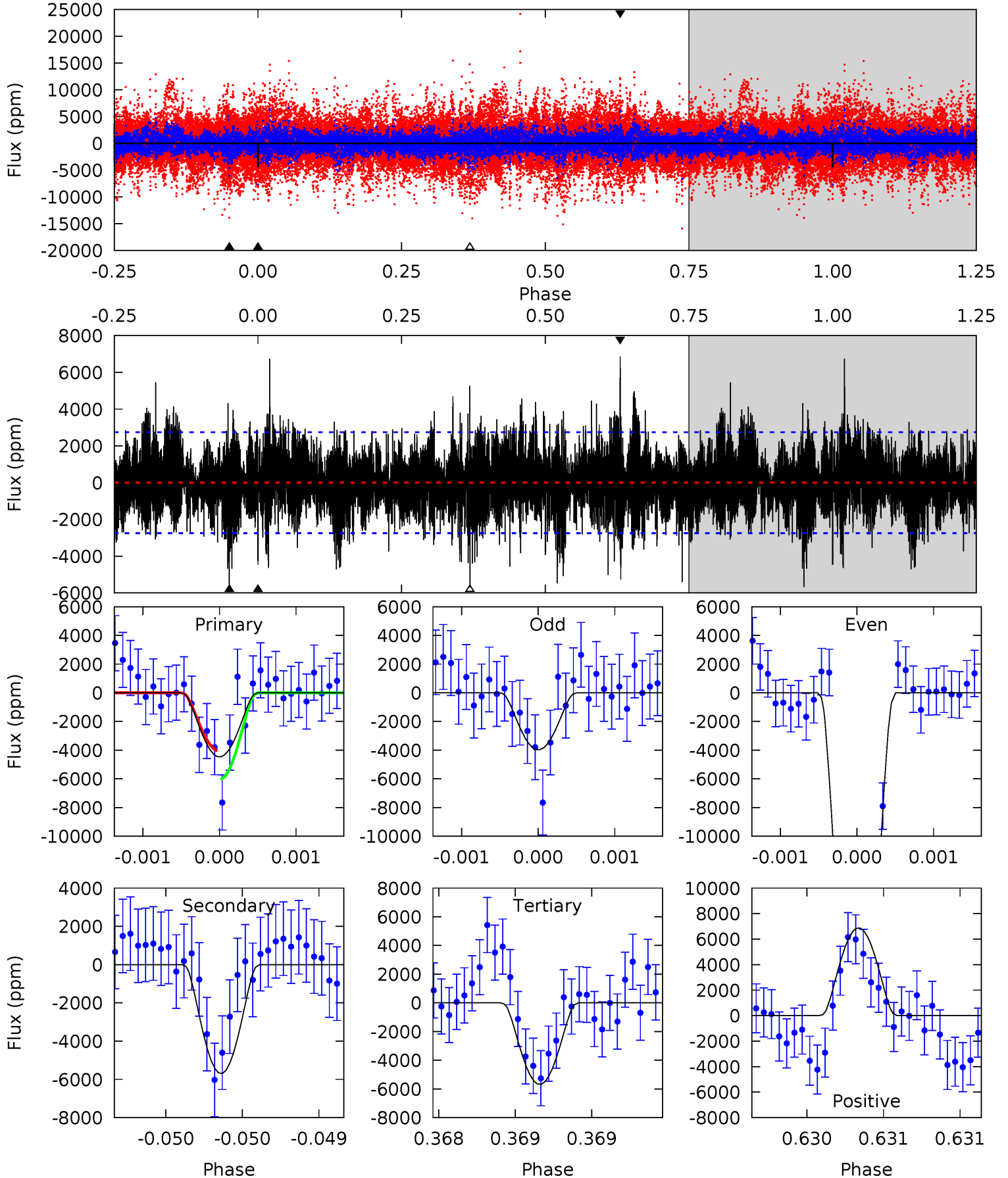
TCE 002717423-01 P=284.790668 Days  $T_0=151.531257$  (BKJD)



# DV Model-Shift Uniqueness Test

002717423-01, P = 284.775562 Days, E = 151.568694 Days

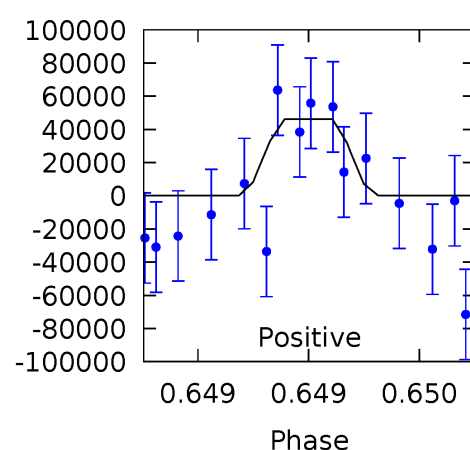
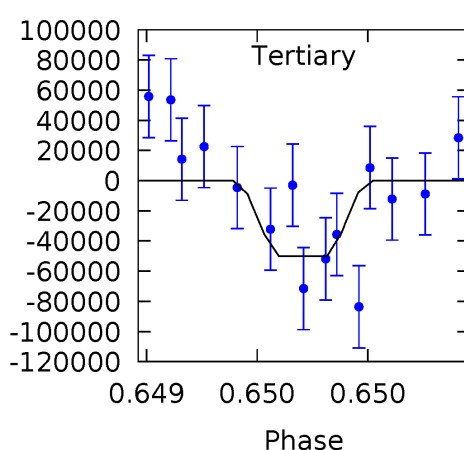
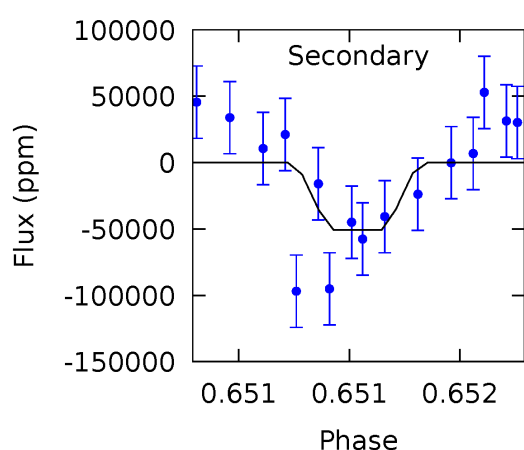
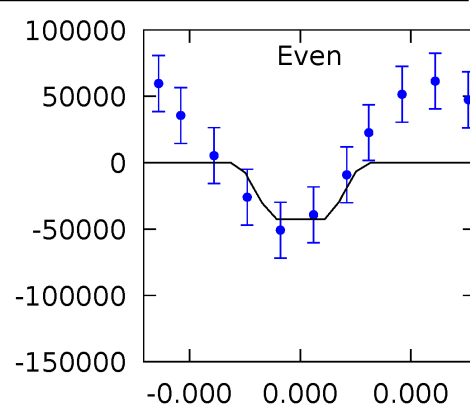
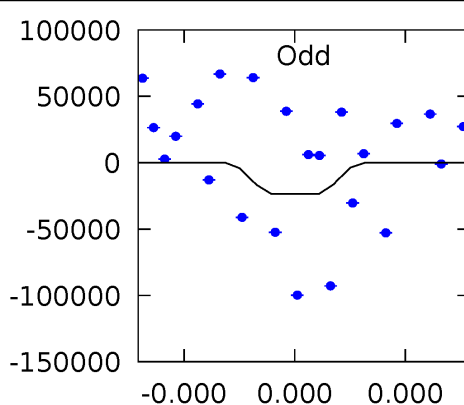
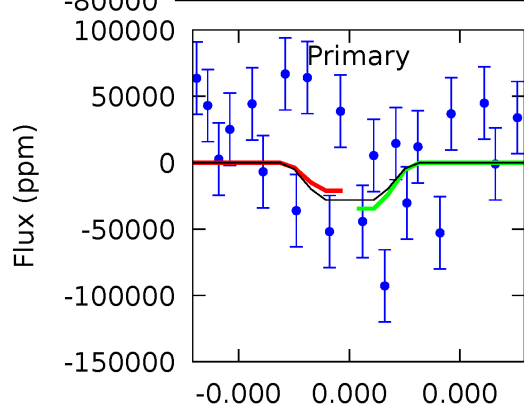
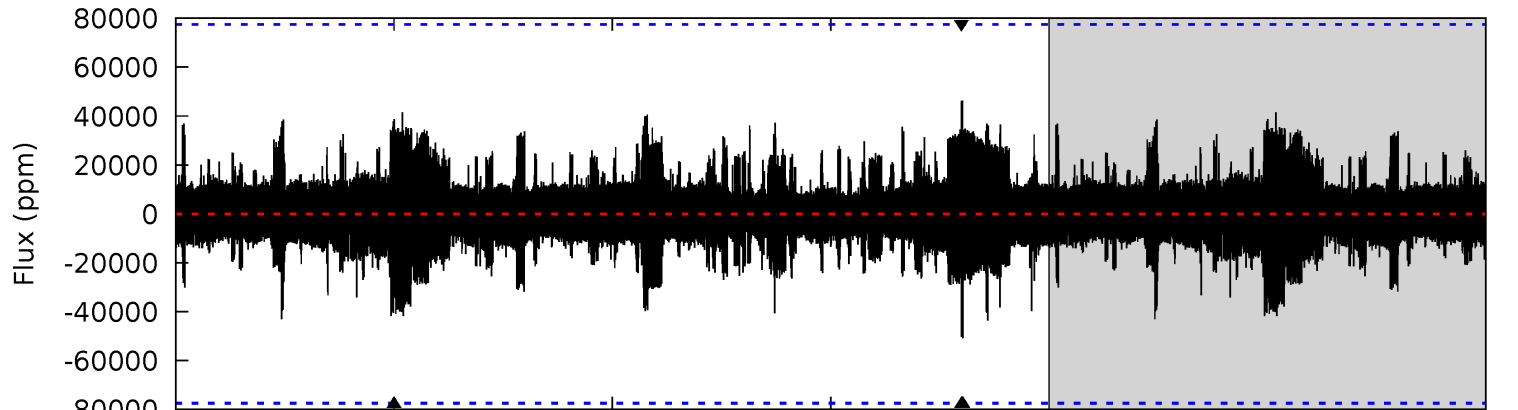
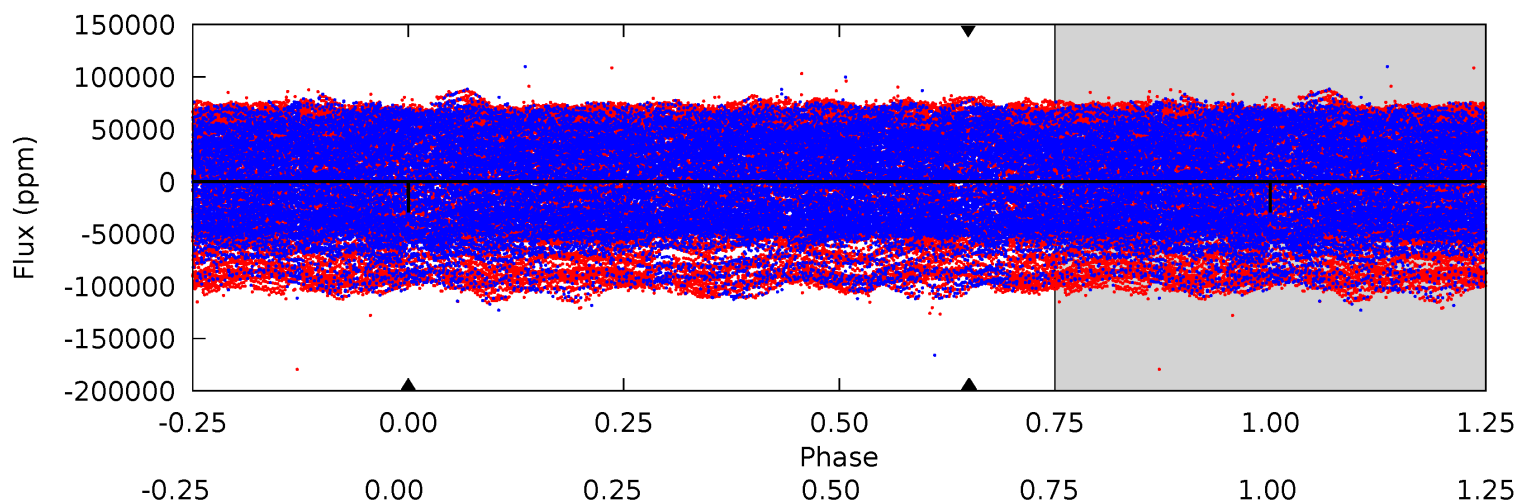
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.94	11.4	11.4	13.8	5.50	3.37	2.87	-2.43	-4.82	0.03	-2.37	21.8	1.33	0.55	1.97



# Alt Model-Shift Uniqueness Test

002717423-01, P = 284.790668 Days, E = 151.531257 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
2.06	3.73	3.69	3.39	5.69	3.66	0.72	-1.62	-1.32	0.05	0.35	0.64	1.15	0.48	0.49



### Stellar Parameters For KIC 002717423

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5830^{+140}_{-175}$	$4.540^{+0.037}_{-0.213}$	$-0.140^{+0.300}_{-0.300}$	$0.876^{+0.278}_{-0.069}$	$0.970^{+0.116}_{-0.116}$	$2.036^{+0.422}_{-1.077}$
	+2%/-3%	+1%/-5%	+214%/-214%	+32%/-8%	+12%/-12%	+21%/-53%
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 002717423-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5686 \pm 499$	$94.44^{+111.25}_{-66.96}$	$376^{+27}_{-17}$	$2531^{+989}_{-431}$	$240^{+2664}_{-190}$
Alt.	$-50789 \pm 13610$	$101.06^{+108.60}_{-70.19}$	$376^{+28}_{-17}$	$3318^{+1835}_{-594}$	$1933^{+18714}_{-1470}$

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

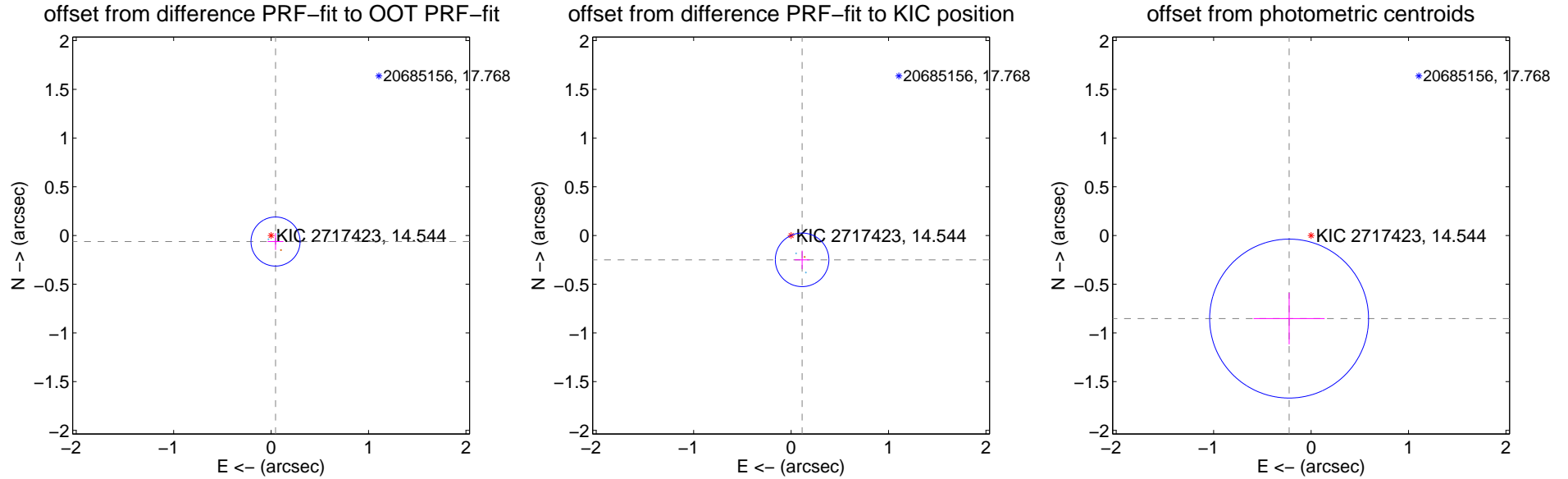
## DV Centroid Data

Supplemental centroid analysis for 002717423-01. Kepler magnitude: 14.54. Transit SNR 4.41

There are 2 quarters with good PRF difference image offsets

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

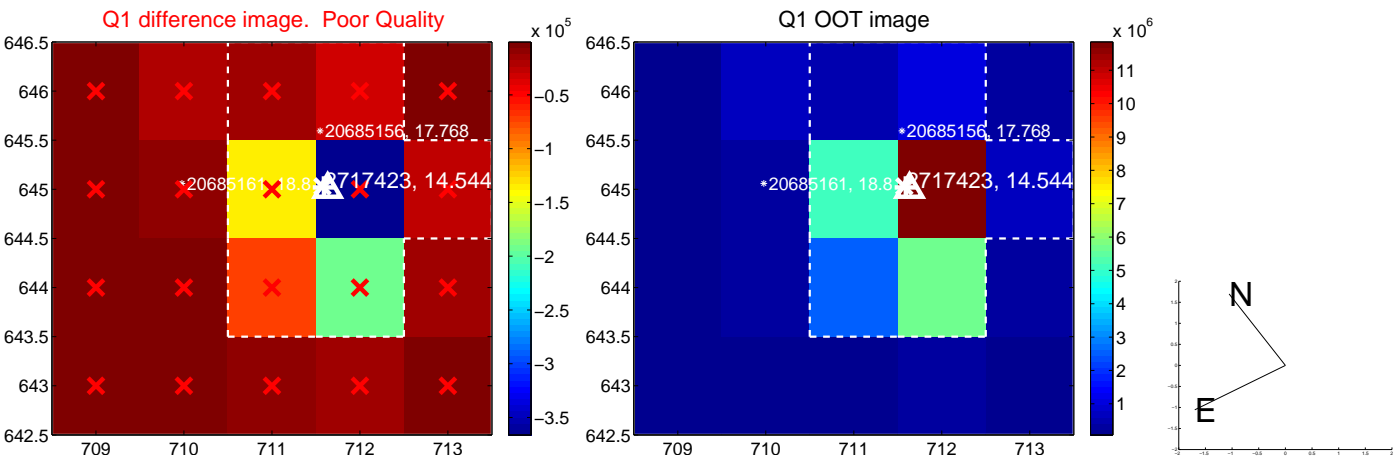
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.077 \pm 0.084$	0.92	$-0.046 \pm 0.081$	$-0.062 \pm 0.086$
PRF-fit source offset from KIC position	$0.274 \pm 0.092$	2.99	$-0.113 \pm 0.077$	$-0.250 \pm 0.094$
photometric centroid source offset	$0.88 \pm 0.27$	3.25	$0.23 \pm 0.36$	$-0.85 \pm 0.26$



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.

Q9 no difference image



Q9 no OOT image



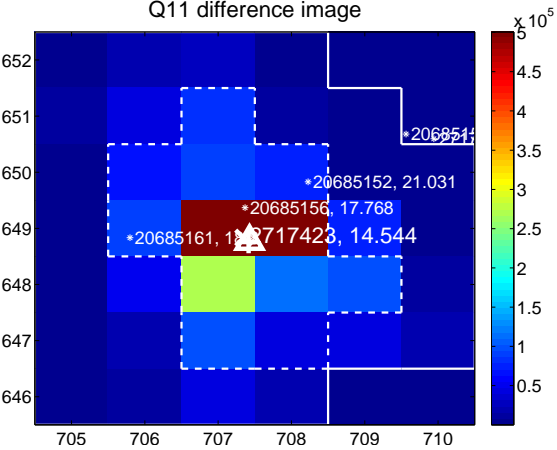
Q10 no difference image



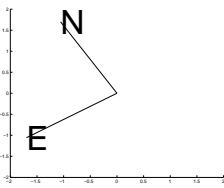
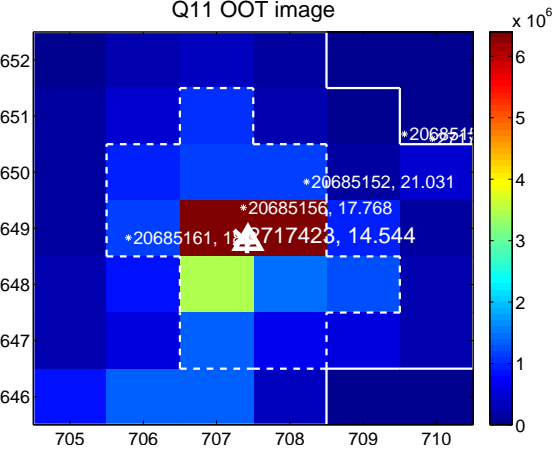
Q10 no OOT image



Q11 difference image



Q11 OOT image



Q12 no difference image



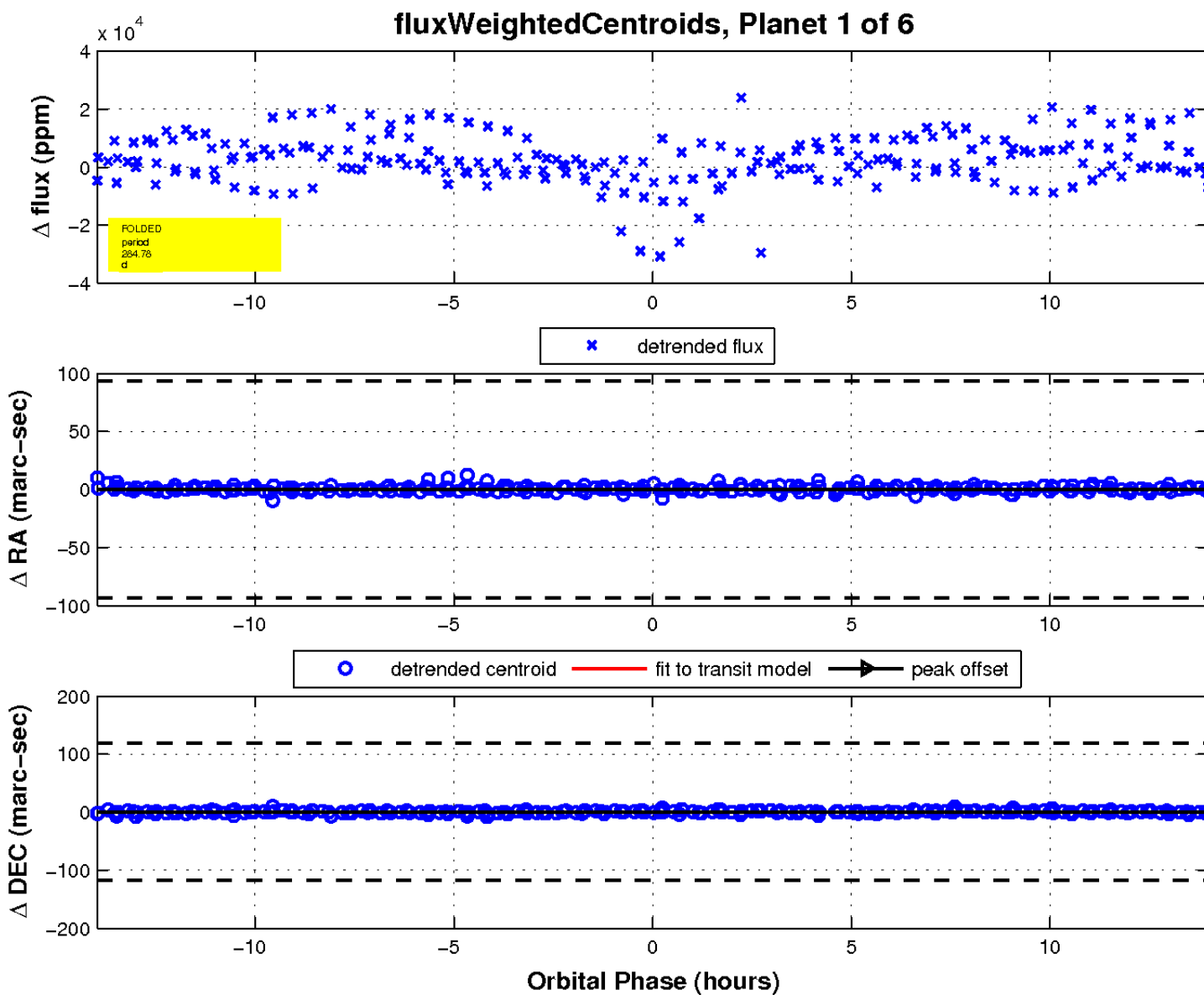
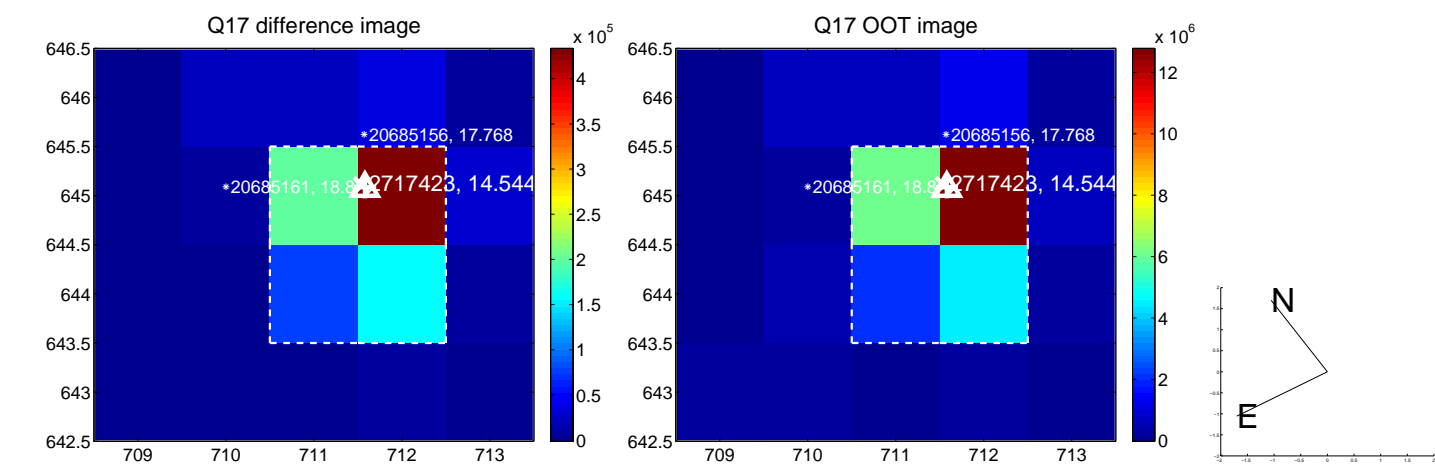
Q12 no OOT image



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



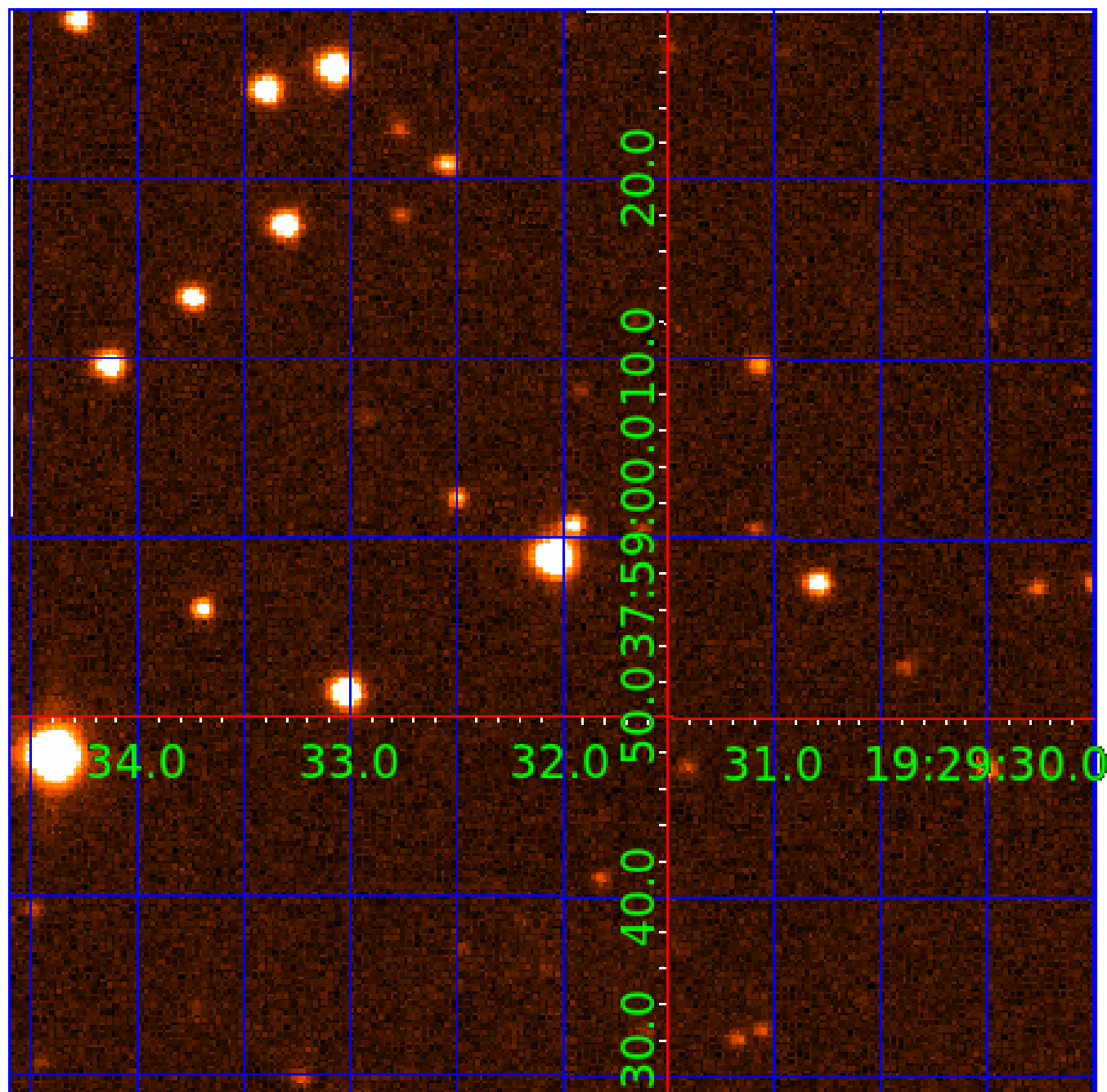
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 002717423

## 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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002717423-05	OBS	No	393.929631	372.844548	4529.5	9.035	15.0	10.2	0.88	5830	7.06	0.73
002717423-06	OBS	No	0.796418	131.923494	4112.4	1.500	11.2	-1.0	0.88	5830	5.60	2864.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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002717423-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
002717423-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

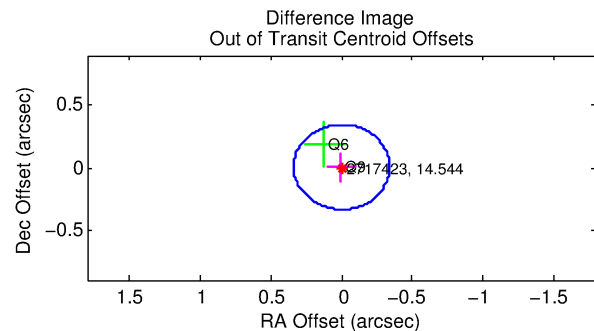
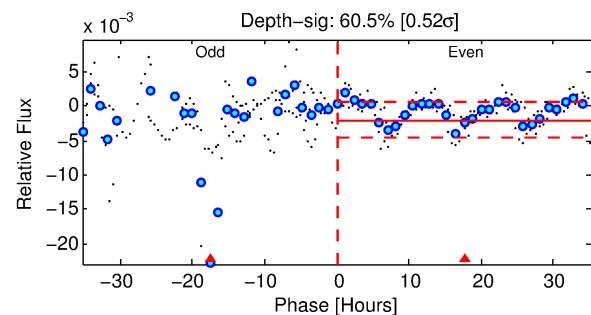
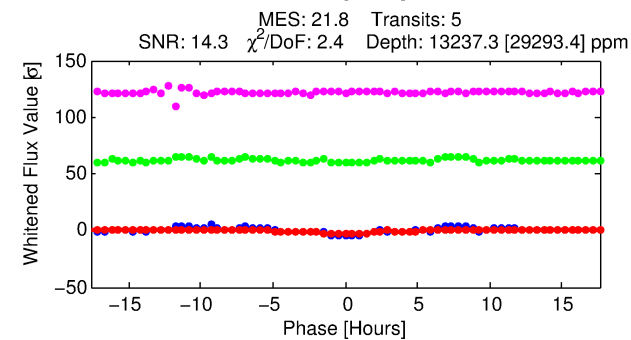
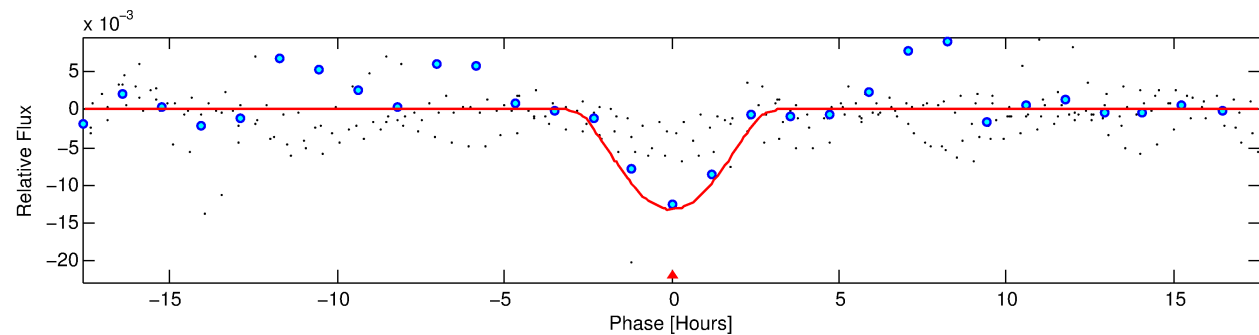
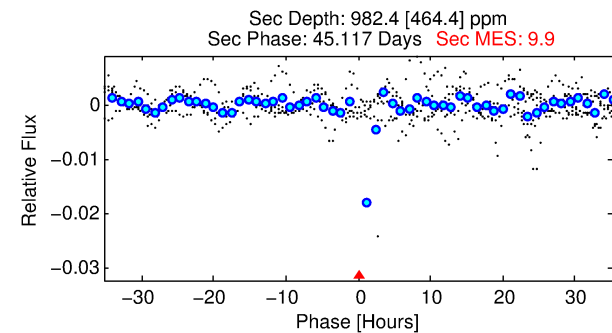
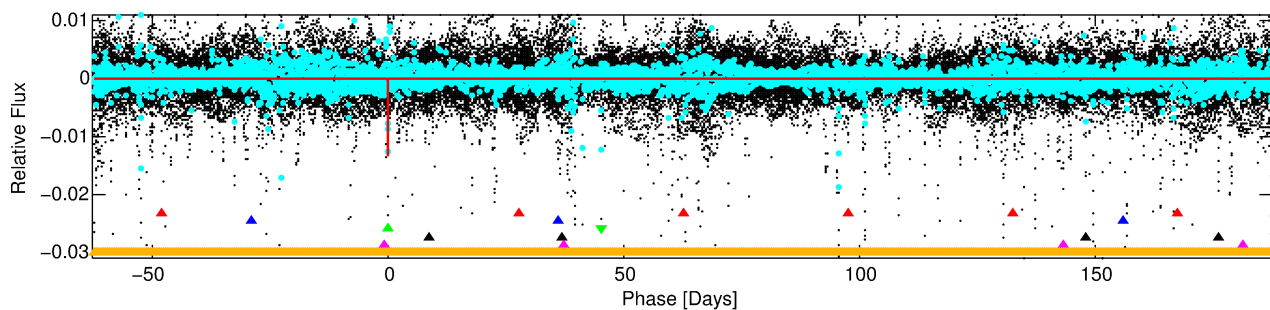
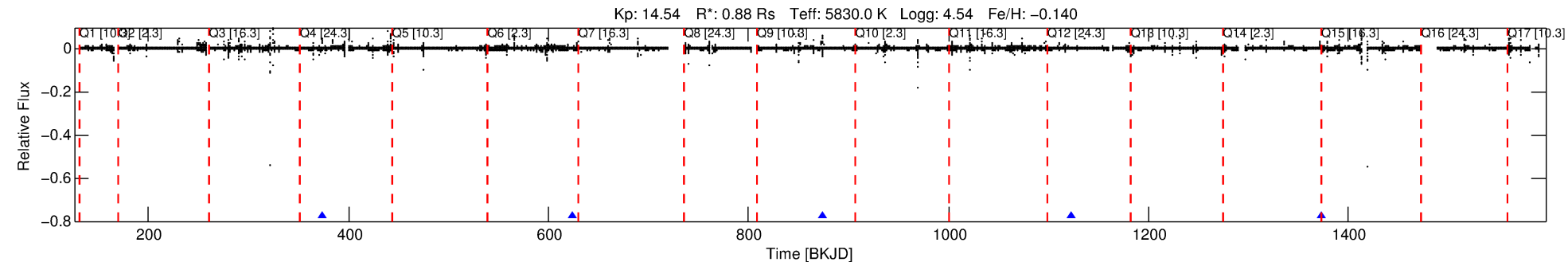
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002717423-03

No Significant Match Found

# DV One-Page Summary

KIC: 2717423 Candidate: 3 of 6 Period: 249.925 d



## DV Fit Results:

Period = 249.92548 [0.00731] d  
Epoch = 373.6756 [0.0136] BKJD  
Rp/R\* = 0.1884 [0.5085]  
a/R\* = 208.79 [66.97]  
b = 1.00 [0.98]  
Seff = 1.34 [0.55]  
Teq = 275 [28] K  
Rp = 18.01 [48.95] Re  
a = 0.7690 [0.2056] AU  
Ag = 984.91 [5350.10] [0.18σ]  
Teffp = 2378 [3221] K [0.65σ]

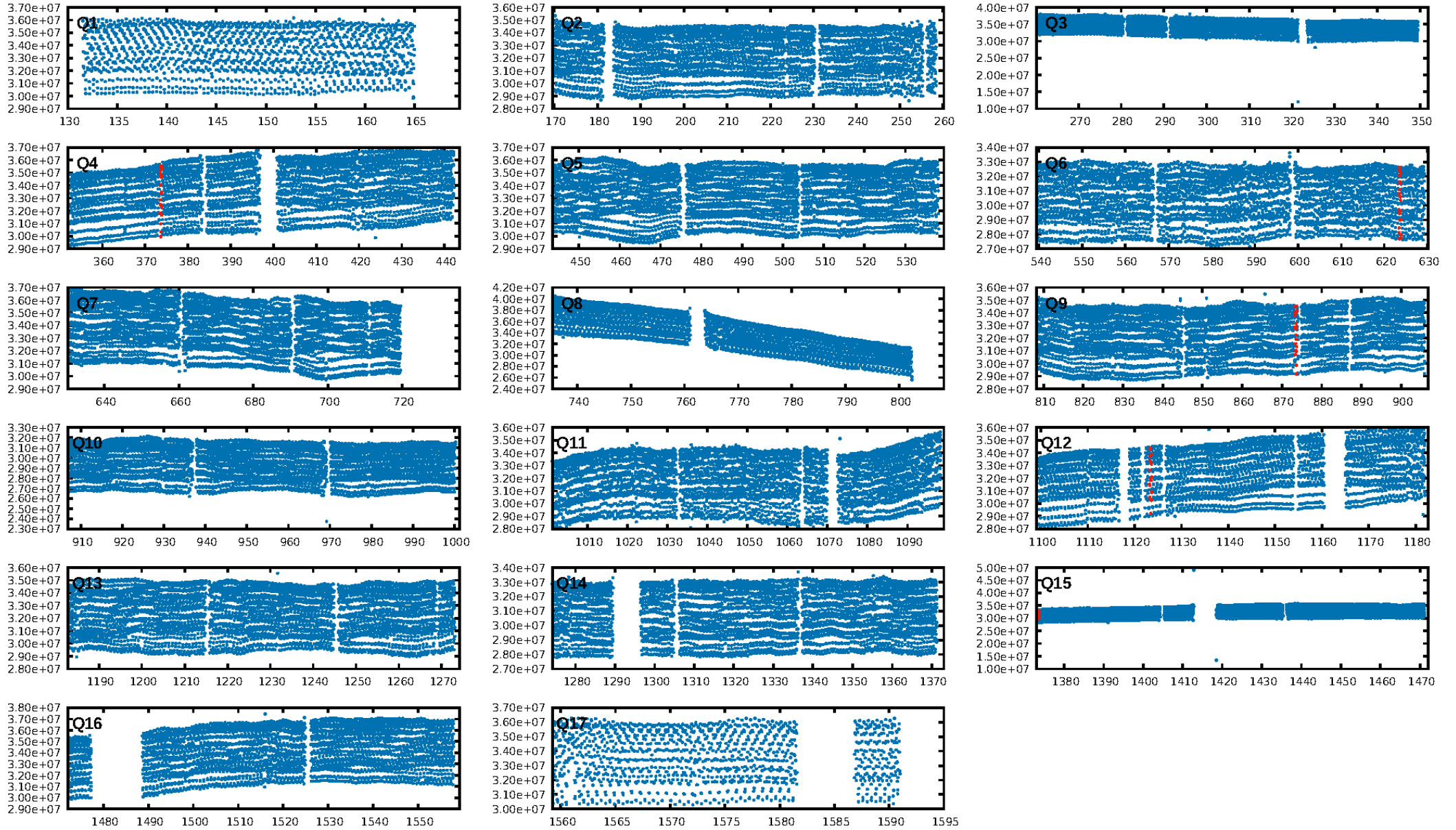
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [986.47σ]  
LongPeriod-sig: 100.0% [111.47σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 13.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.1329  
Centroid-sig: 22.7%  
Centroid-so: 0.694 arcsec [8.26σ]  
OotOffset-rm: 0.004 arcsec [0.03σ]  
KicOffset-rm: 0.074 arcsec [0.66σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/2]

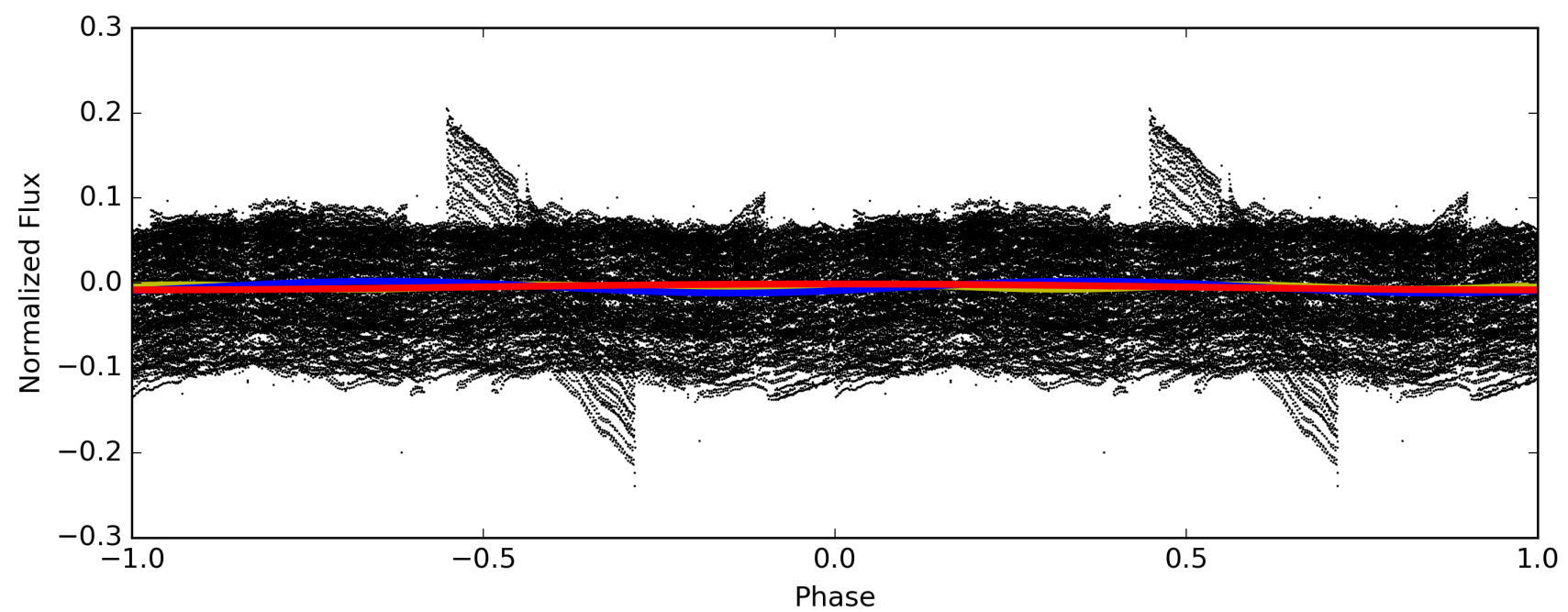
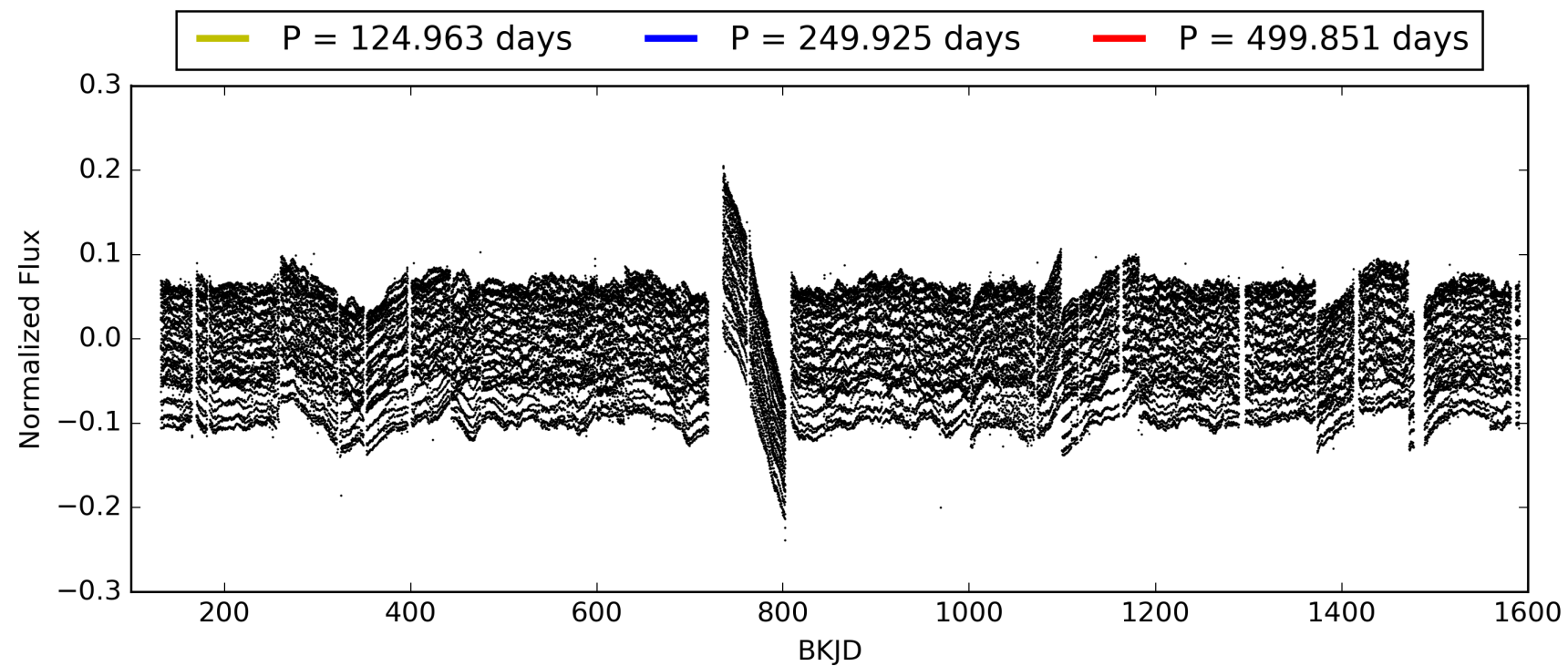
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:27:00 Z

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

# TCE 002717423-03, PDC Light Curves



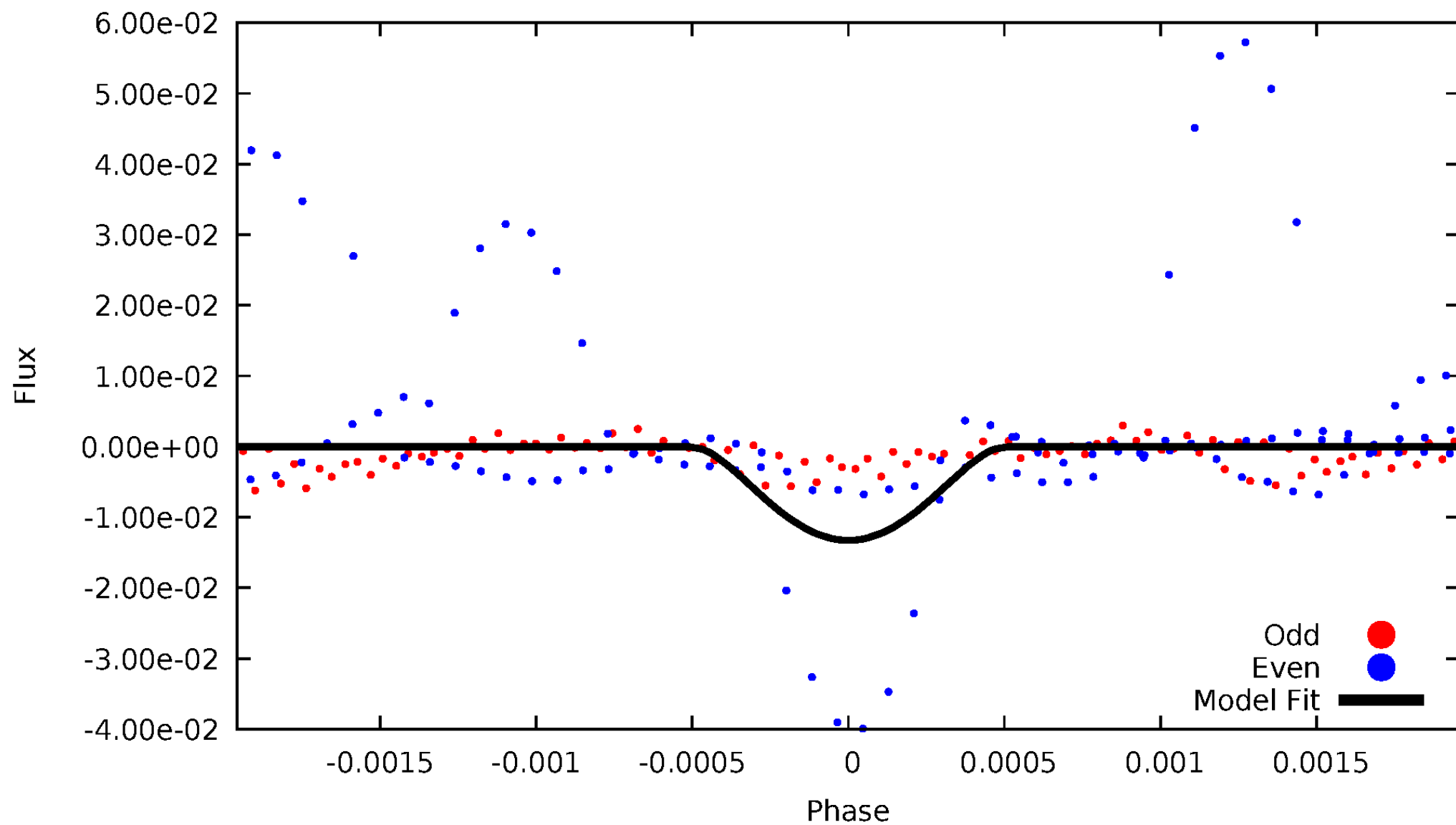
TCE 002717423-03





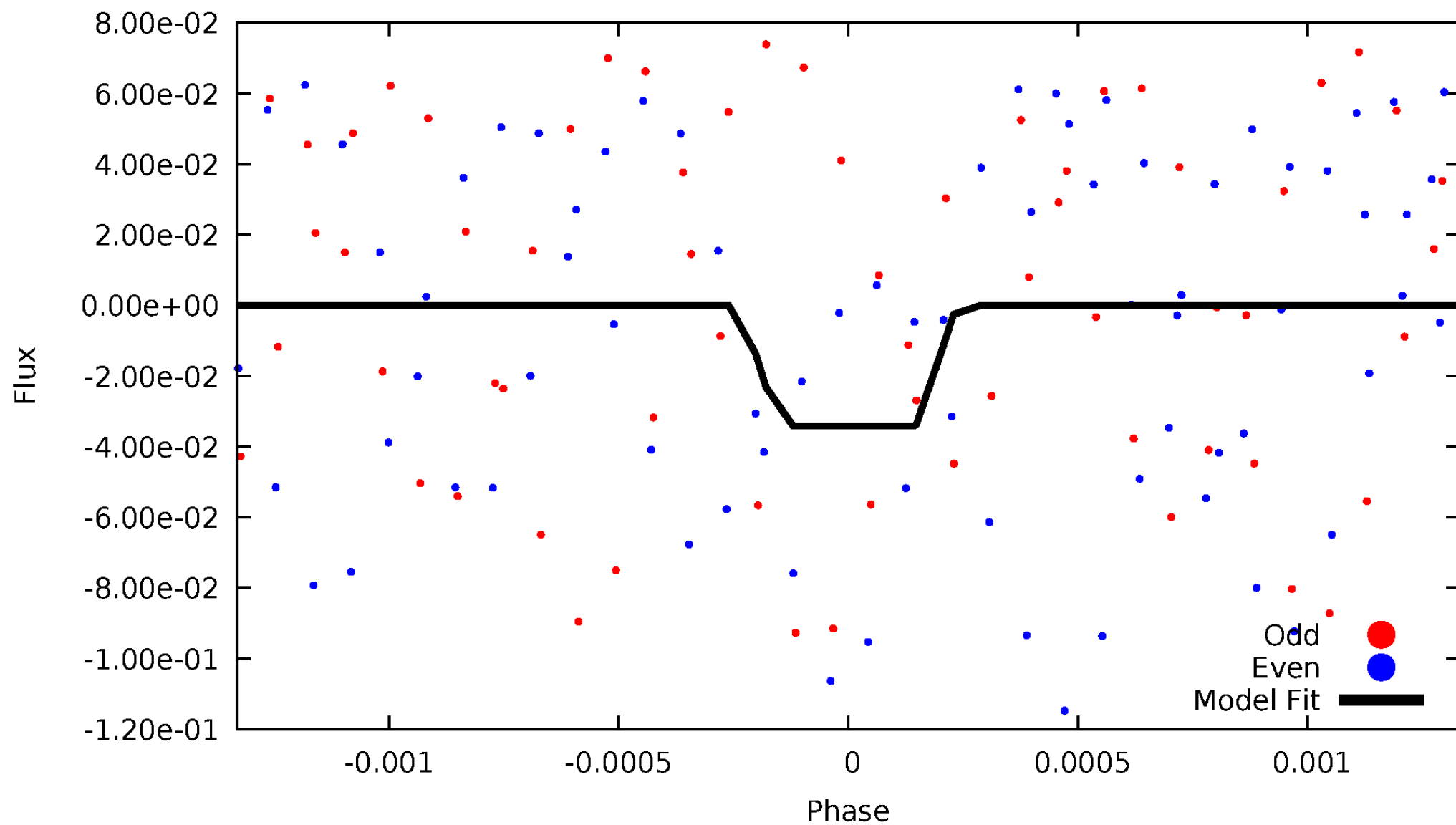
# DV Odd/Even

TCE 002717423-03



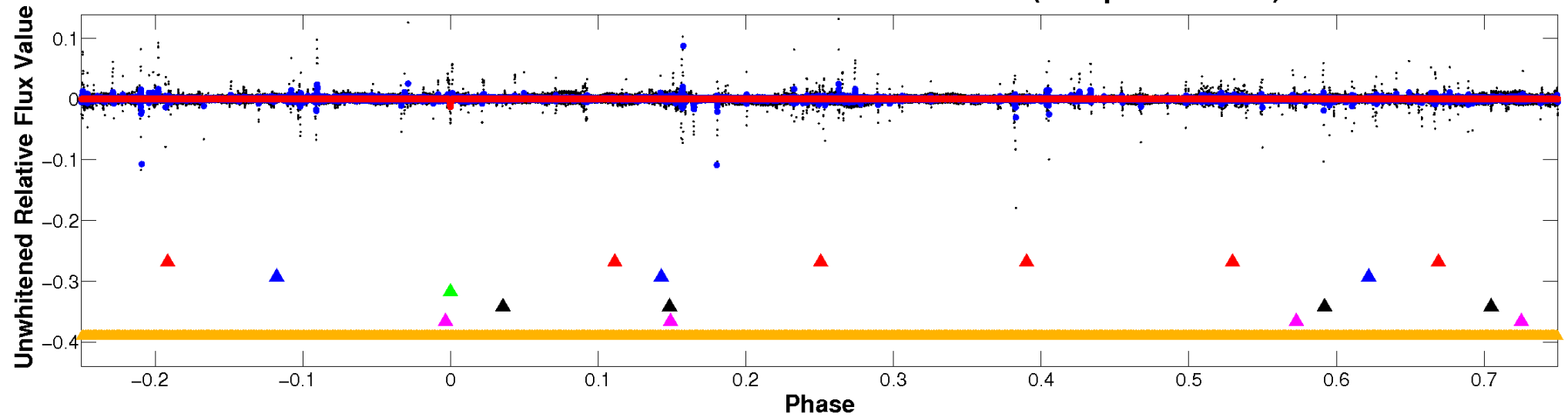
# ALT Odd/Even

TCE 002717423-03

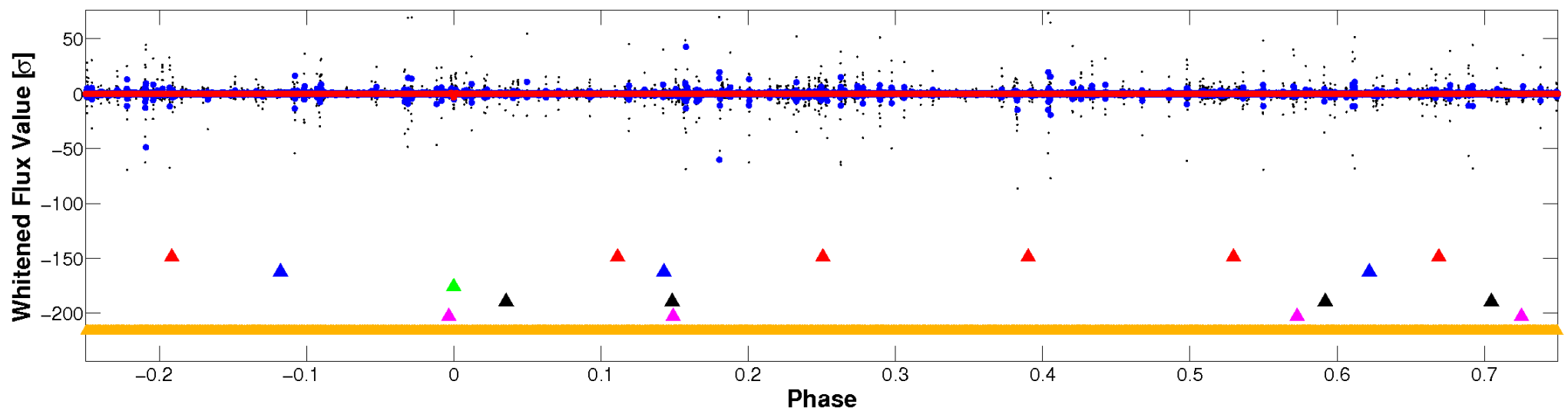


# Non-Whitened Vs. Whitened Light Curve

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

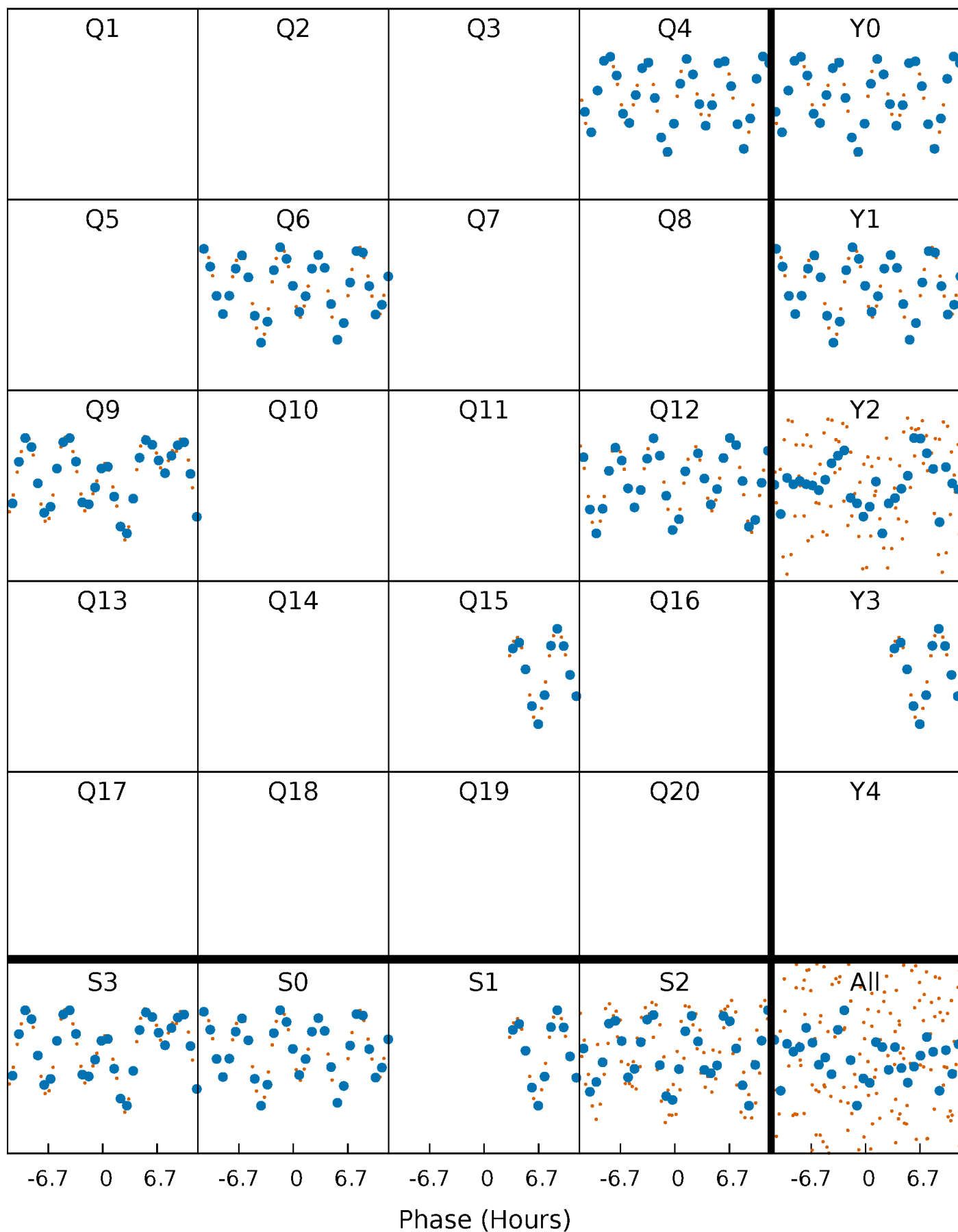


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



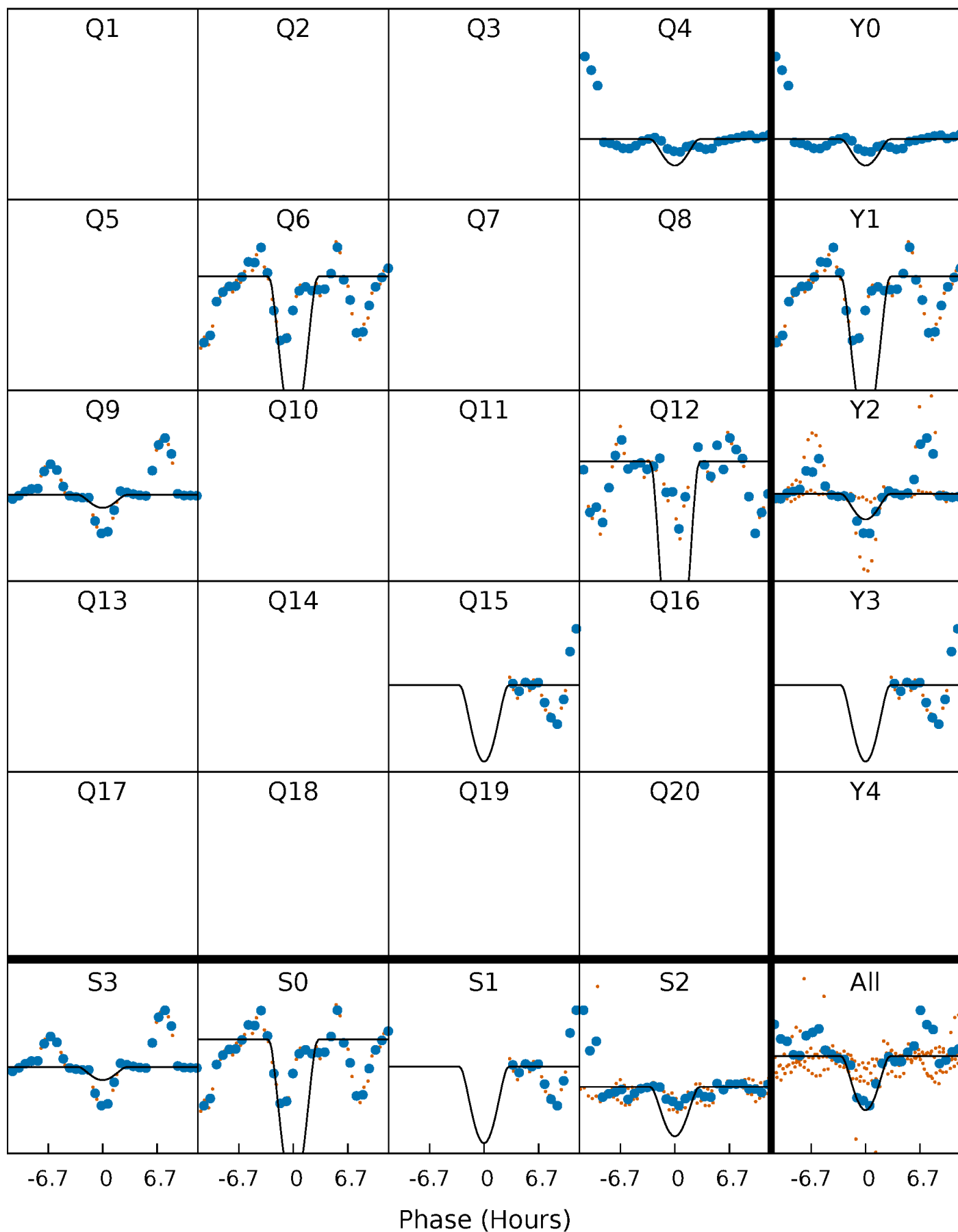
# PDC Quarter-Phased Transit Curves

TCE 002717423-03 P=249.925481 Days  $T_0=373.675639$  (BKJD)



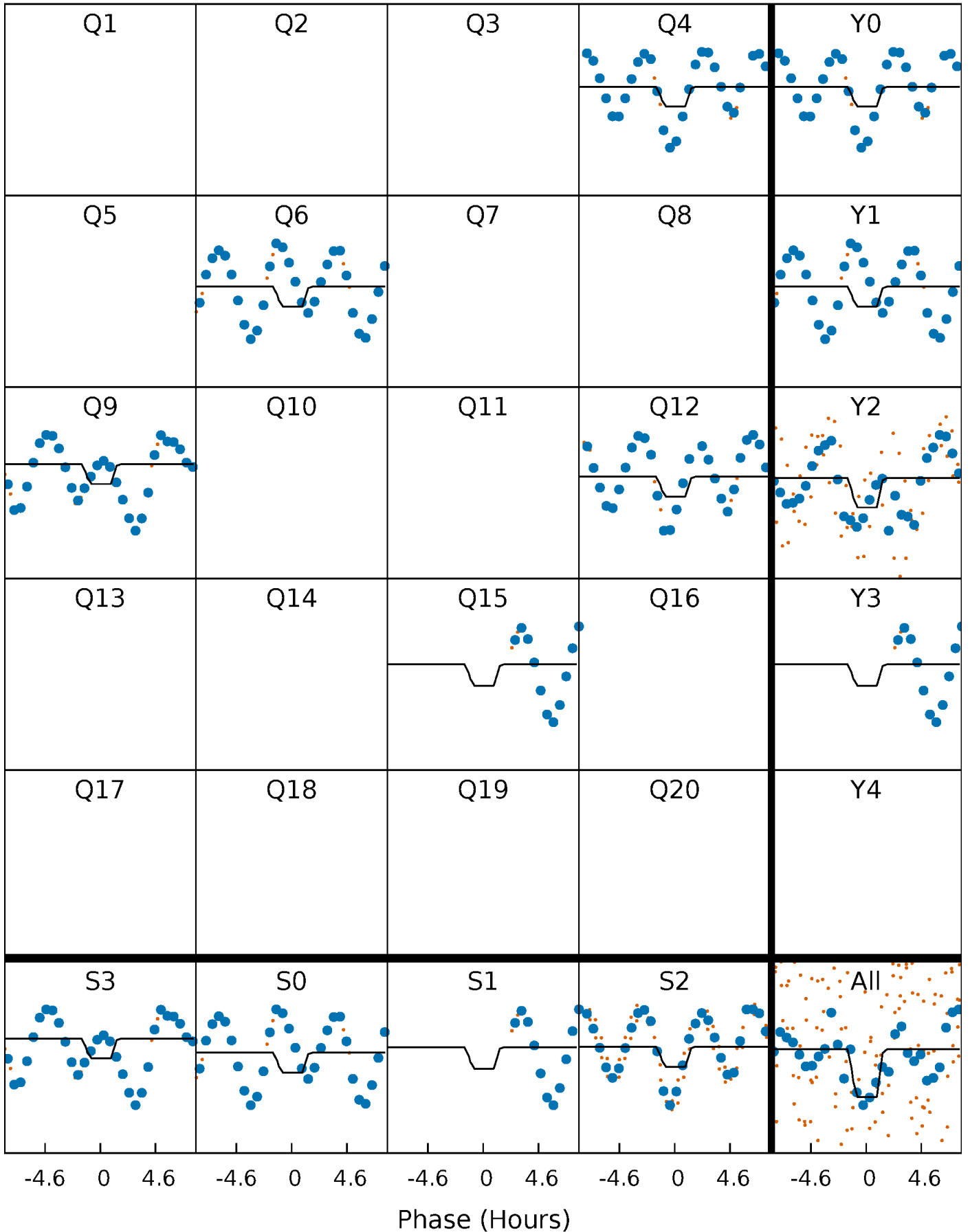
# DV Quarter-Phased Transit Curves

TCE 002717423-03 P=249.925481 Days  $T_0=373.675639$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

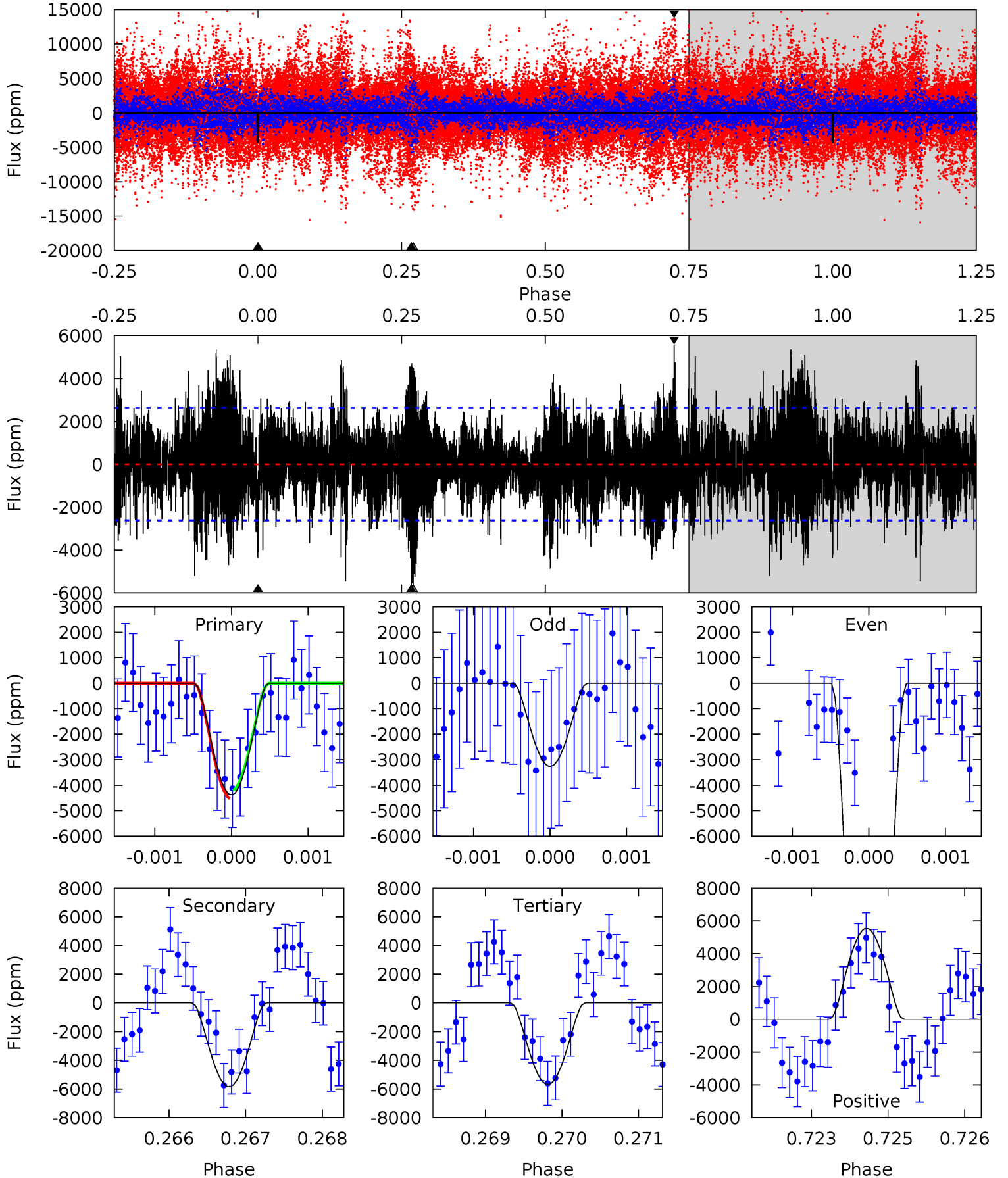
TCE 002717423-03 P=249.943306 Days  $T_0=373.636201$  (BKJD)



# DV Model-Shift Uniqueness Test

002717423-03, P = 249.925481 Days, E = 123.750158 Days

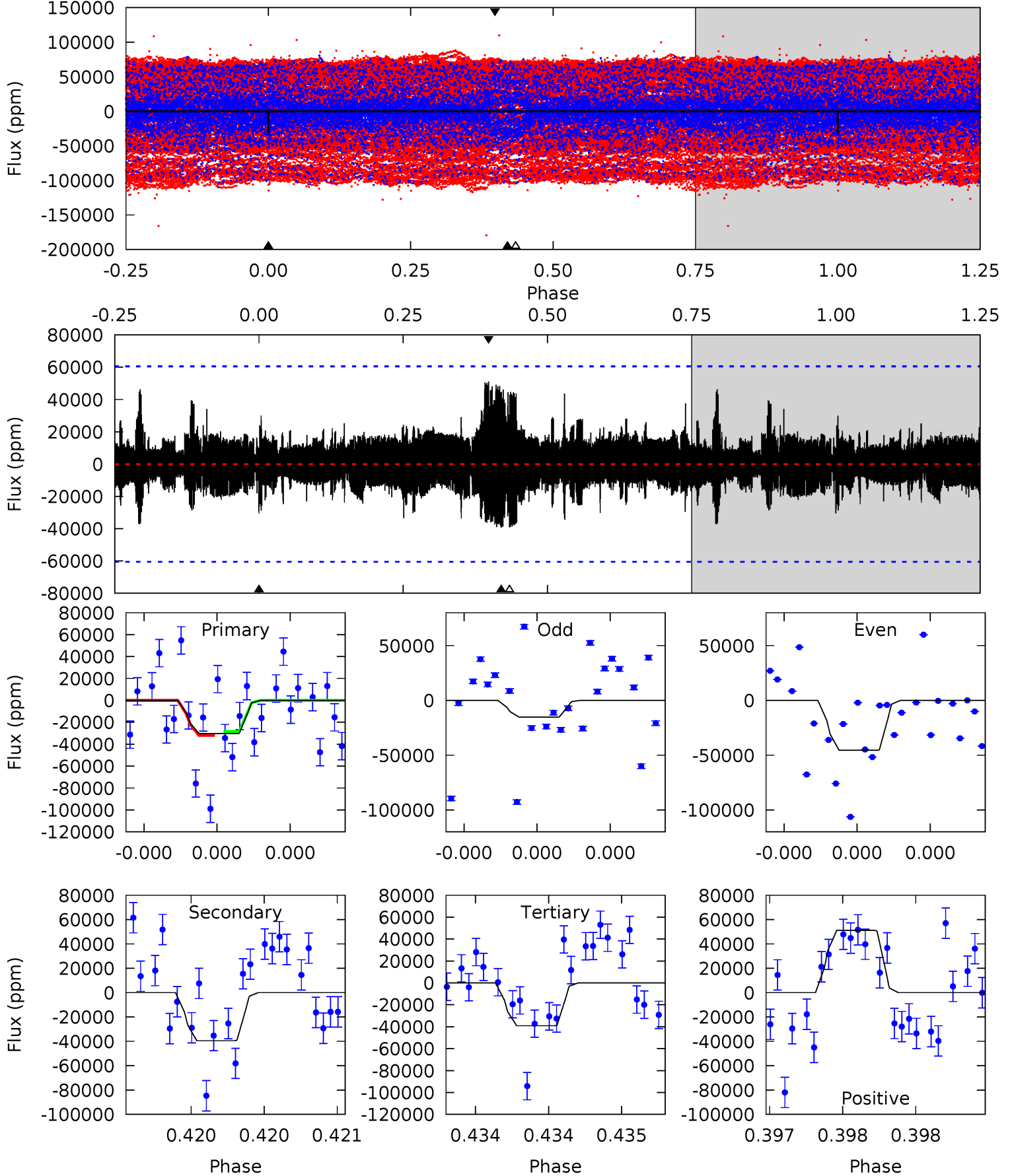
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.07	12.1	11.8	11.5	5.44	3.28	3.04	-2.70	-2.42	0.34	0.62	16.9	2.32	0.49	0.33



# Alt Model-Shift Uniqueness Test

002717423-03, P = 249.943306 Days, E = 123.692895 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
2.80	3.63	3.60	4.71	5.58	3.49	0.92	-0.81	-1.91	0.03	-1.08	1.43	0.83	0.56	0.17





### Stellar Parameters For KIC 002717423

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5830^{+140}_{-175}$	$4.540^{+0.037}_{-0.213}$	$-0.140^{+0.300}_{-0.300}$	$0.876^{+0.278}_{-0.069}$	$0.970^{+0.116}_{-0.116}$	$2.036^{+0.422}_{-1.077}$
	+2%/-3%	+1%/-5%	+214%/-214%	+32%/-8%	+12%/-12%	+21%/-53%
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 002717423-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-5830 \pm 482$	$44.18^{+43.22}_{-30.29}$	$392^{+29}_{-17}$	$3077^{+1380}_{-511}$	$932^{+8955}_{-681}$
Alt.	$-39424 \pm 10851$	$44.35^{+43.11}_{-30.67}$	$393^{+31}_{-19}$	$4234^{+3034}_{-861}$	$6774^{+64692}_{-5065}$

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

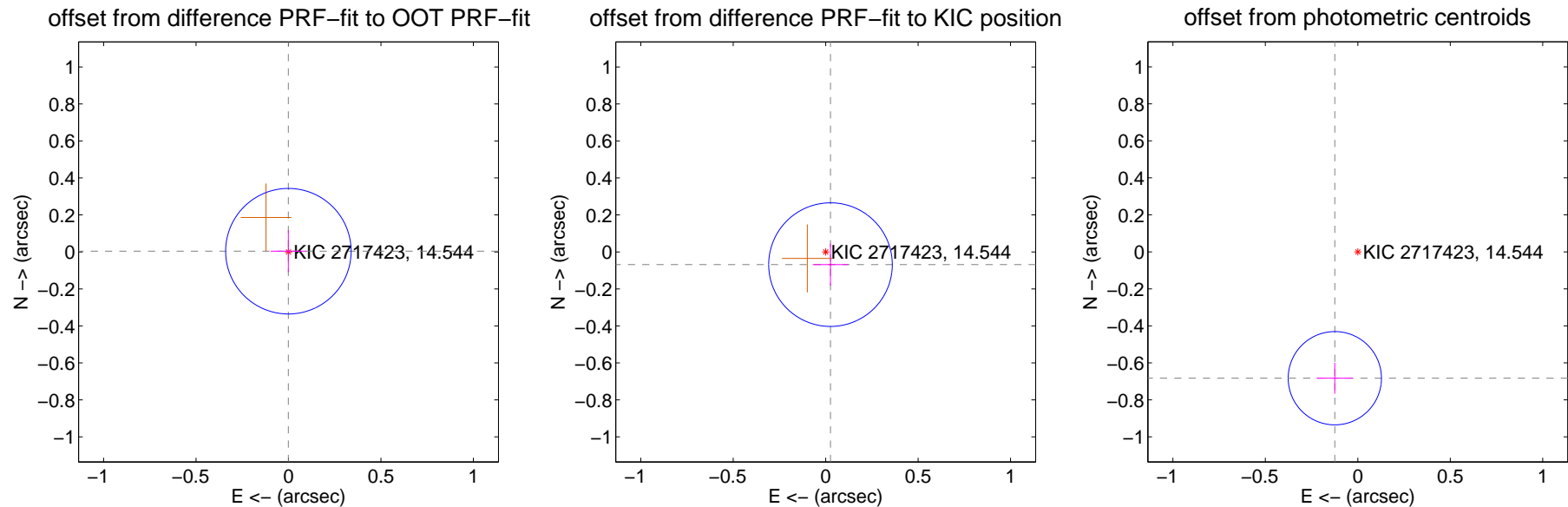
## DV Centroid Data

Supplemental centroid analysis for 002717423-03. Kepler magnitude: 14.54. Transit SNR 14.29

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.004 \pm 0.113$	0.03	$0.001 \pm 0.096$	$0.004 \pm 0.114$
PRF-fit source offset from KIC position	$0.074 \pm 0.111$	0.66	$-0.026 \pm 0.096$	$-0.069 \pm 0.114$
photometric centroid source offset	$0.69 \pm 0.08$	8.26	$0.12 \pm 0.10$	$-0.68 \pm 0.08$

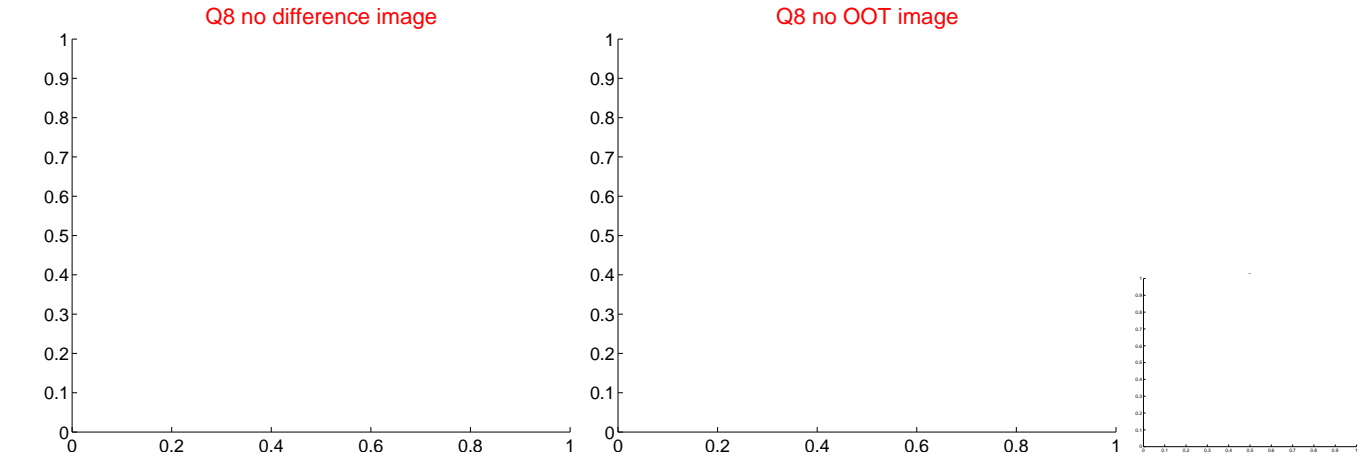
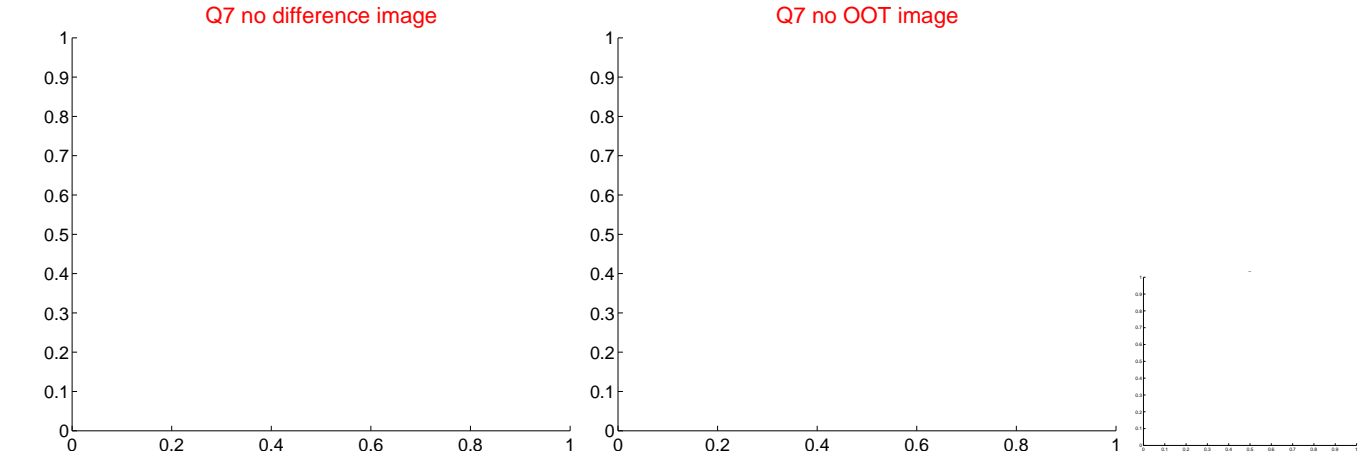
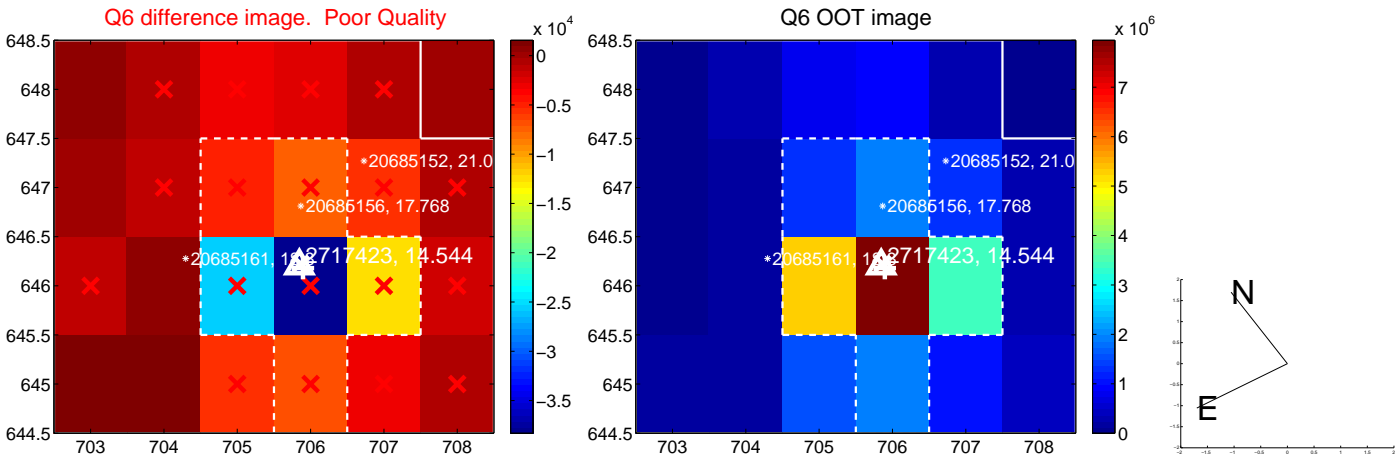
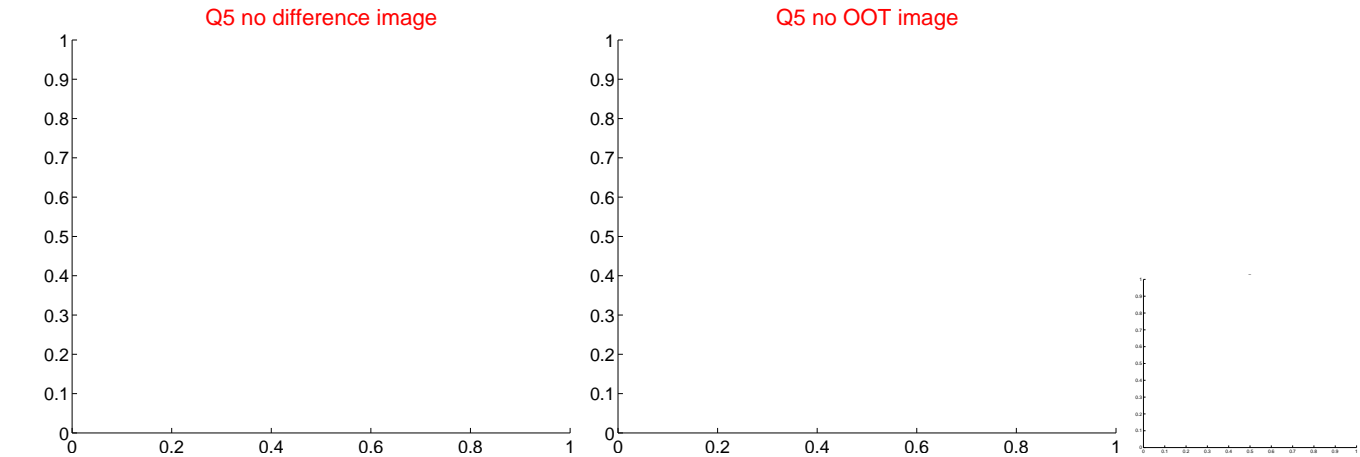


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

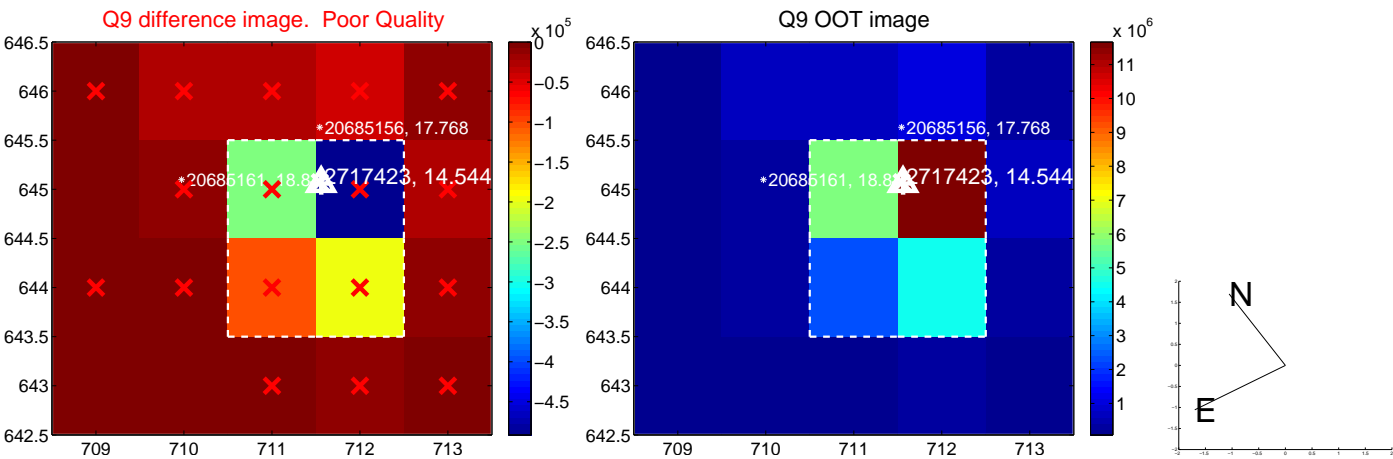
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



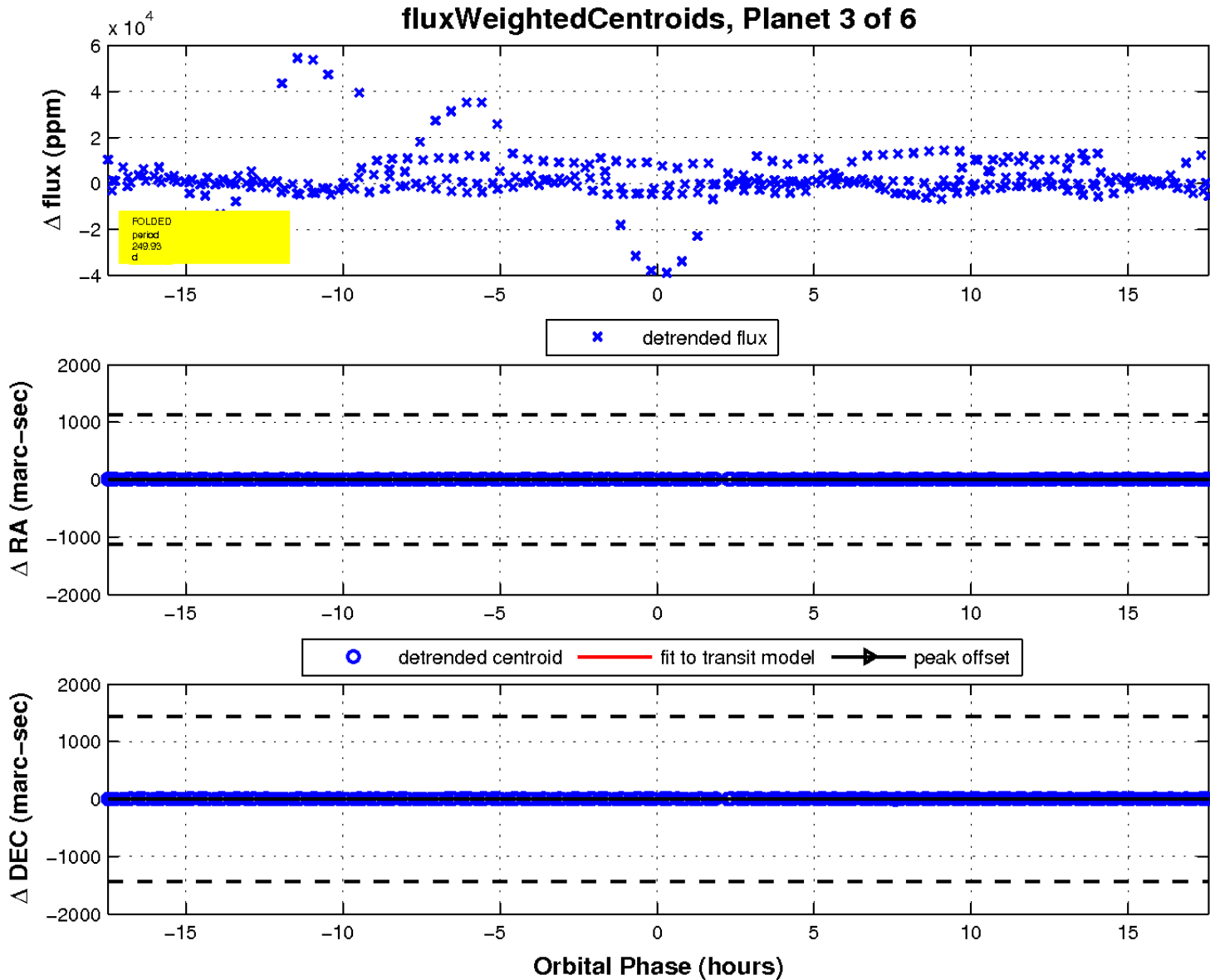
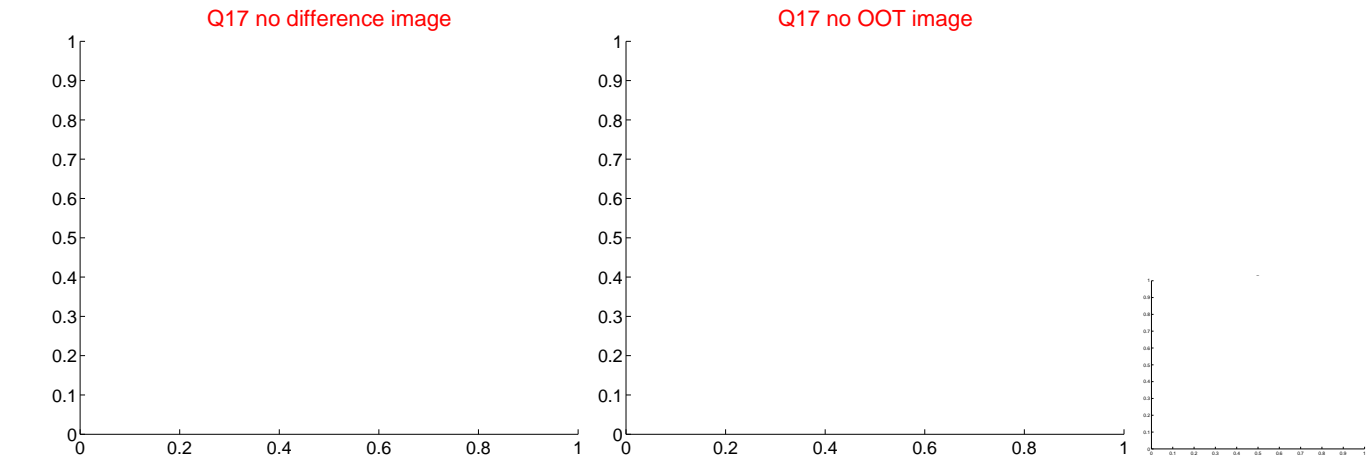
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

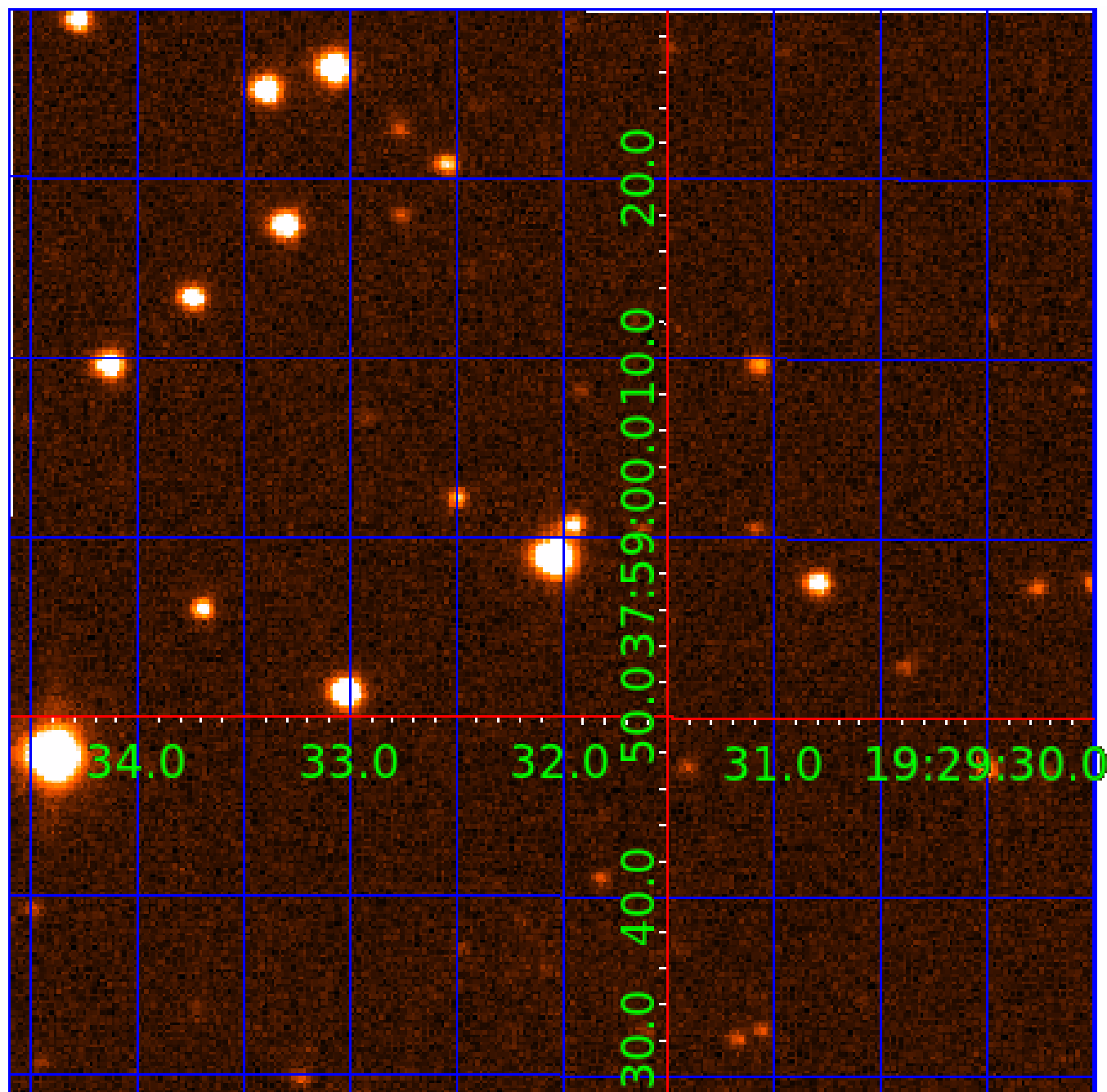


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 002717423

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002717423-01	OBS	No	284.775562	151.568694	4515.3	4.670	28.7	4.4	0.88	5830	10.88	1.13
002717423-03	OBS	No	249.925481	373.675639	13237.3	5.872	21.8	14.3	0.88	5830	18.01	1.34
002717423-04	OBS	No	360.792995	299.889124	16348.9	3.968	20.6	15.2	0.88	5830	19.91	0.82
002717423-05	OBS	No	393.929631	372.844548	4529.5	9.035	15.0	10.2	0.88	5830	7.06	0.73
002717423-06	OBS	No	0.796418	131.923494	4112.4	1.500	11.2	-1.0	0.88	5830	5.60	2864.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002717423-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
002717423-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

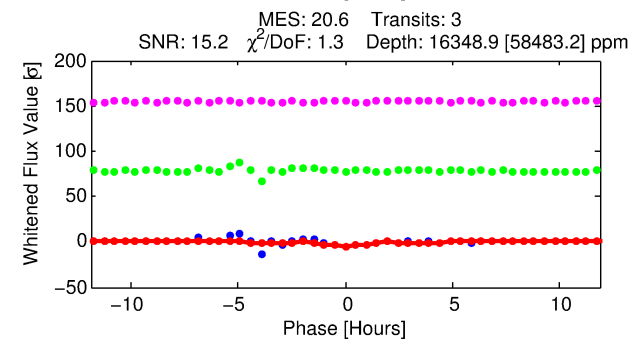
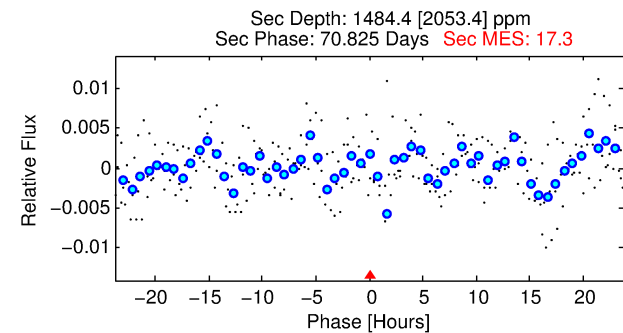
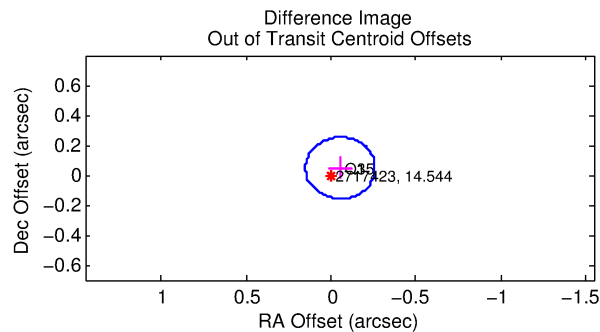
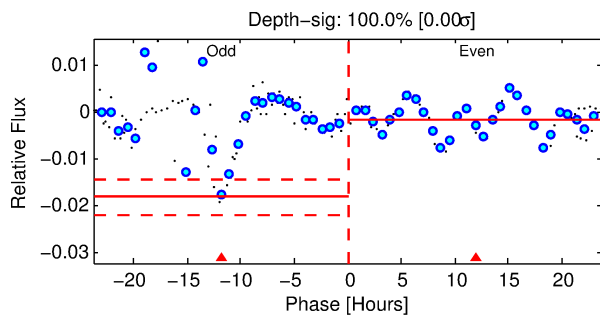
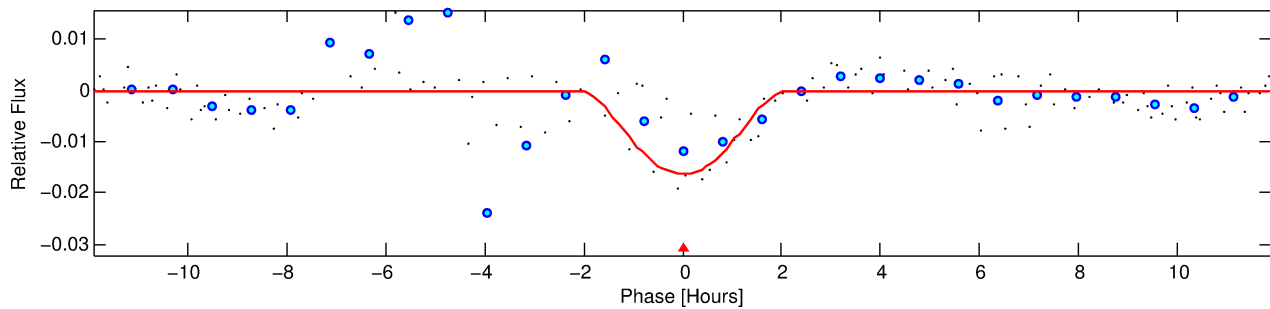
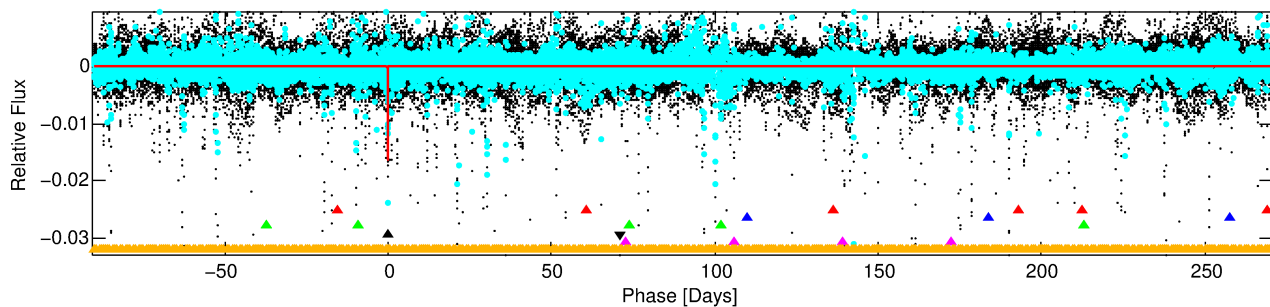
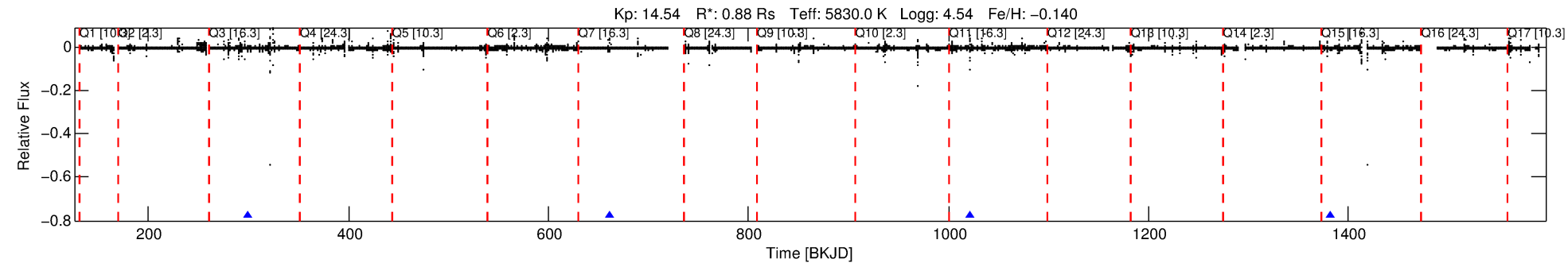
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002717423-04

No Significant Match Found

# DV One-Page Summary

KIC: 2717423 Candidate: 4 of 6 Period: 360.793 d



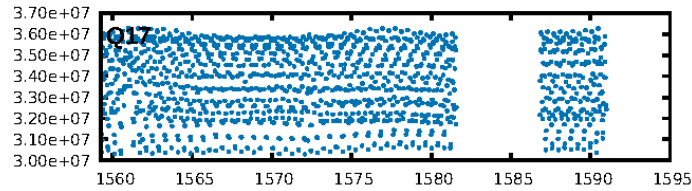
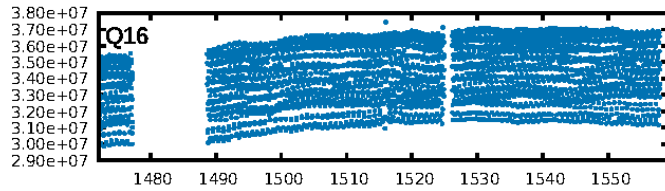
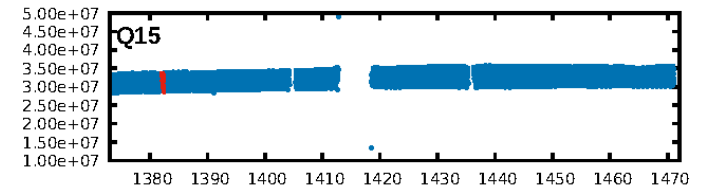
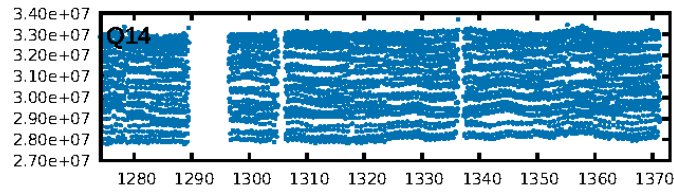
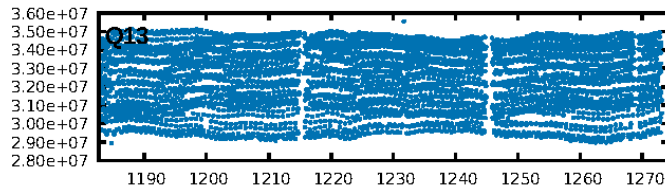
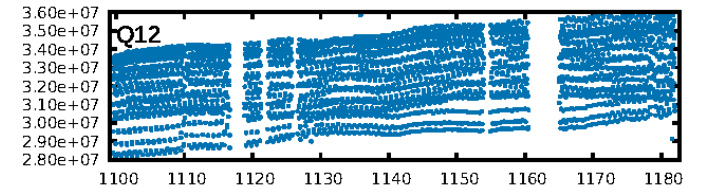
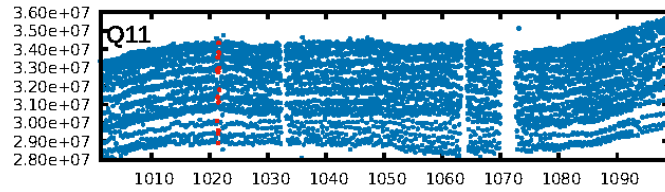
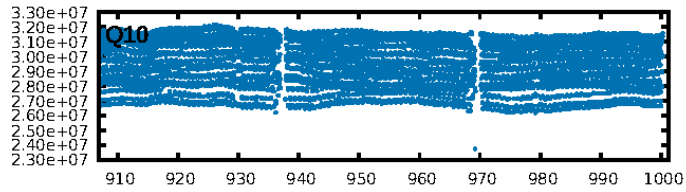
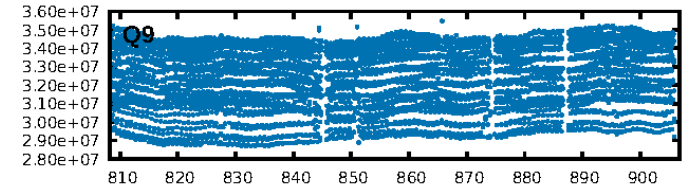
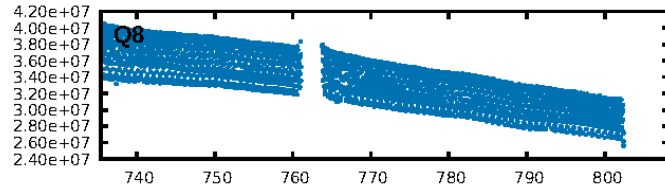
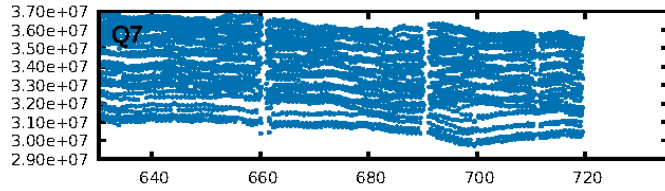
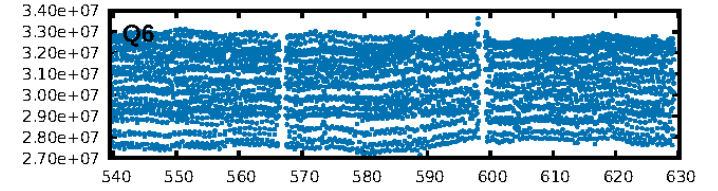
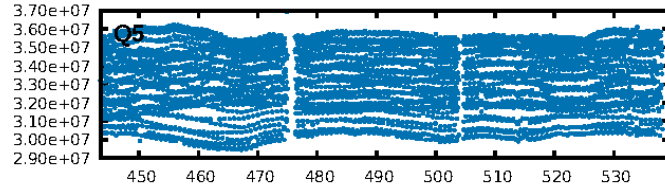
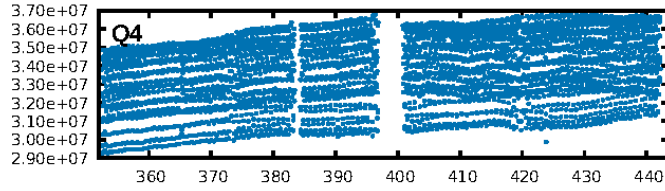
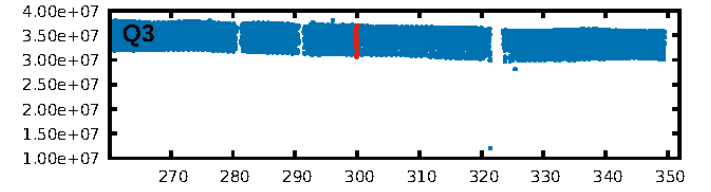
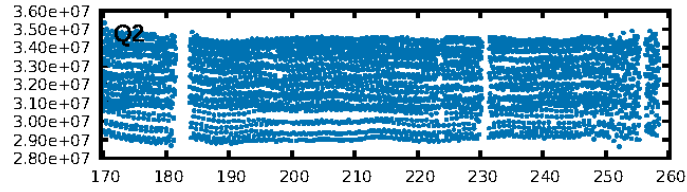
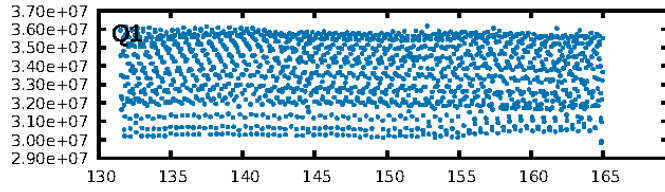
## DV Fit Results:

Period = 360.79300 [0.00574] d  
Epoch = 299.8891 [0.0090] BKJD  
Rp/R\* = 0.2083 [0.8999]  
a/R\* = 471.10 [230.83]  
b = 1.00 [0.76]  
Seff = 0.82 [0.34]  
Teq = 243 [25] K  
Rp = 19.91 [86.26] Re  
a = 0.9822 [0.2626] AU  
Ag = 1987.82 [17415.24] [0.11 $\sigma$ ]  
Teffp = 2508 [5487] K [0.41 $\sigma$ ]

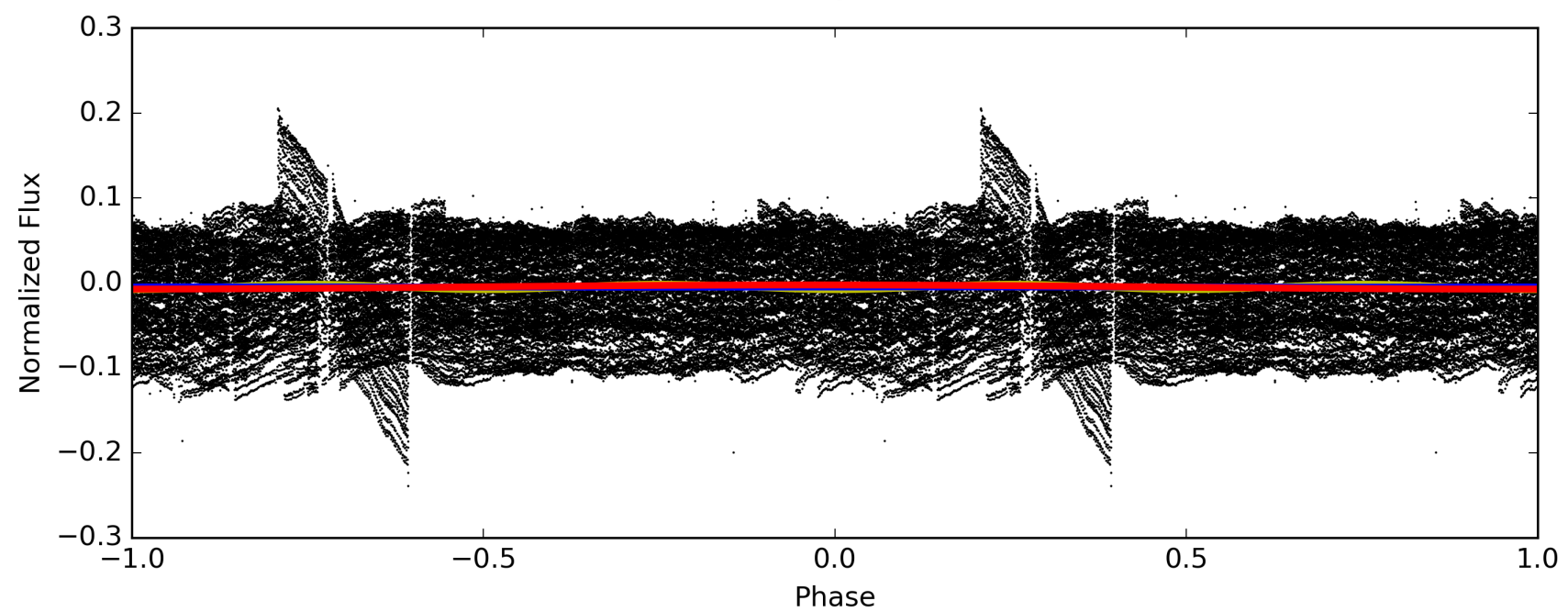
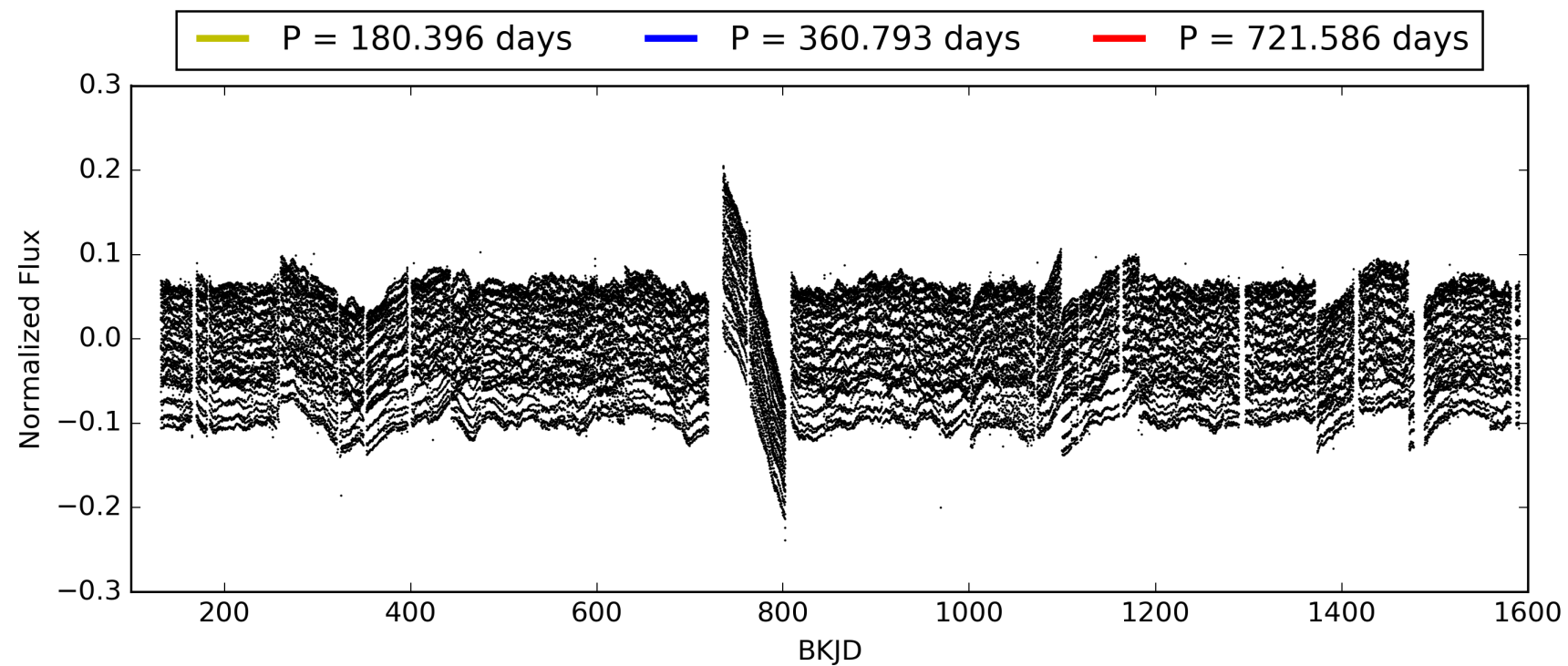
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [297.72 $\sigma$ ]  
LongPeriod-sig: 100.0% [80.59 $\sigma$ ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 25.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -16.63  
Centroid-sig: 5.5%  
Centroid-so: 0.557 arcsec [2.57 $\sigma$ ]  
OotOffset-rm: 0.072 arcsec [1.06 $\sigma$ ]  
KicOffset-rm: 0.186 arcsec [1.55 $\sigma$ ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/2]

# TCE 002717423-04, PDC Light Curves

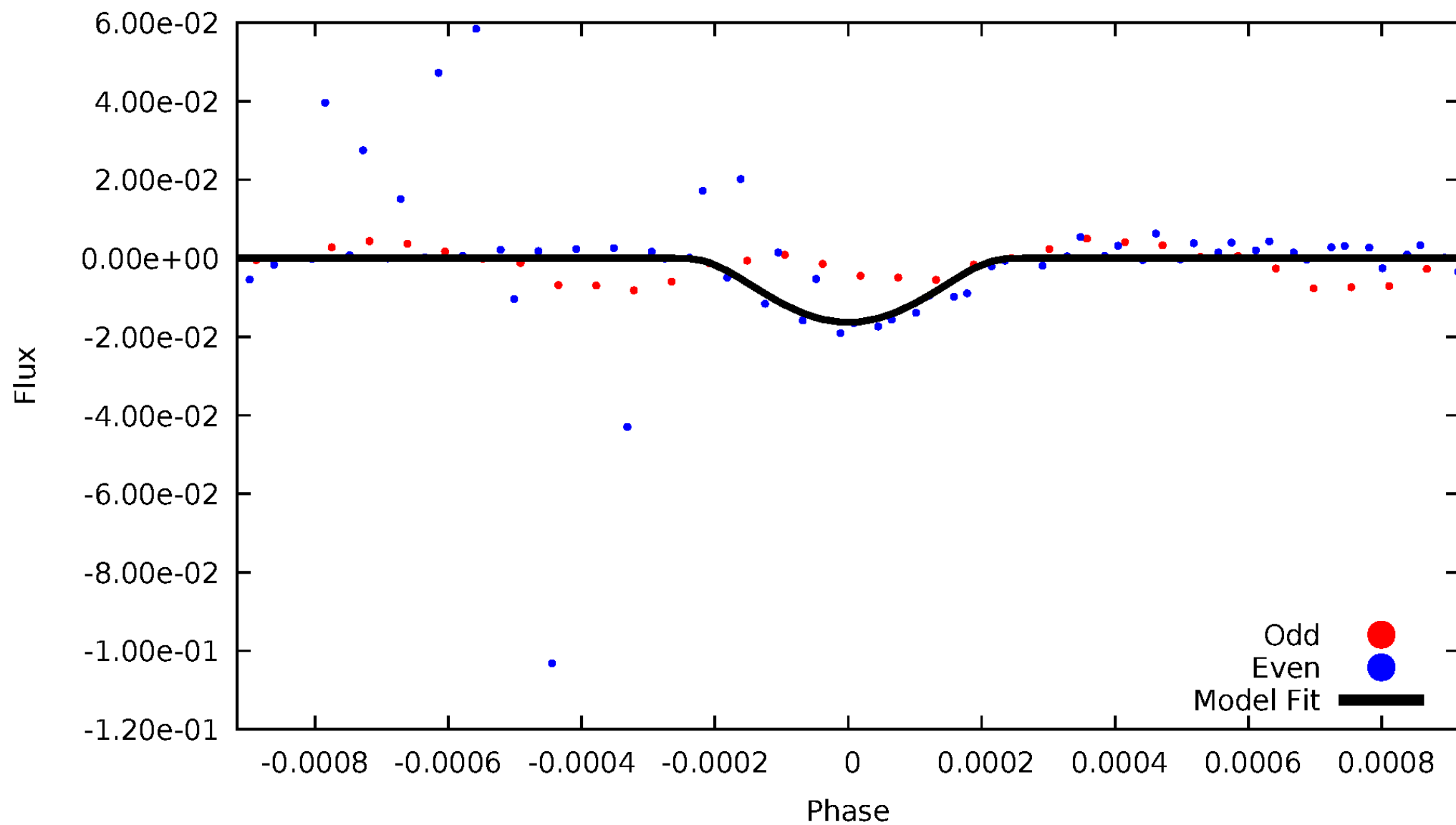


TCE 002717423-04



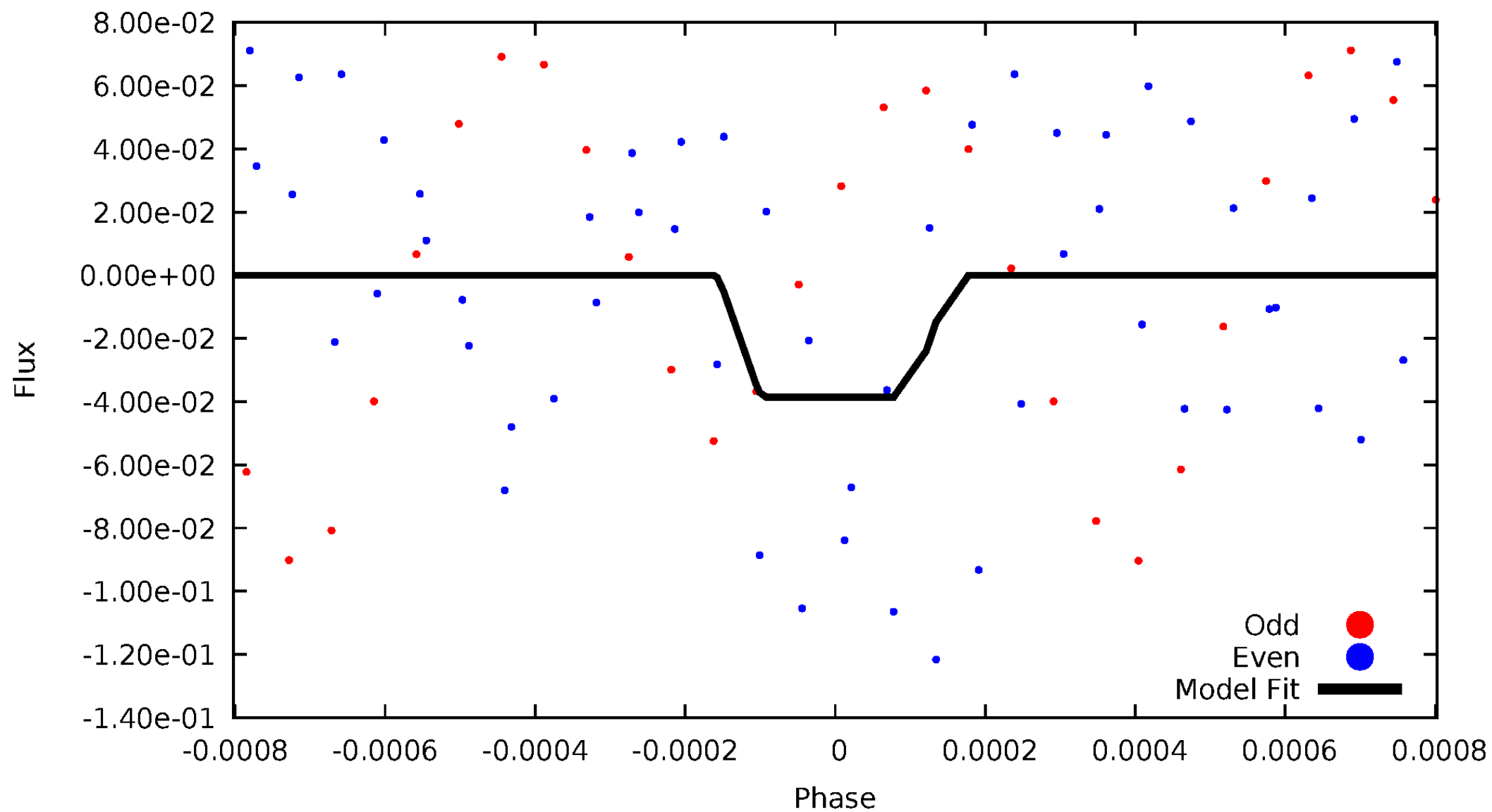
# DV Odd/Even

TCE 002717423-04



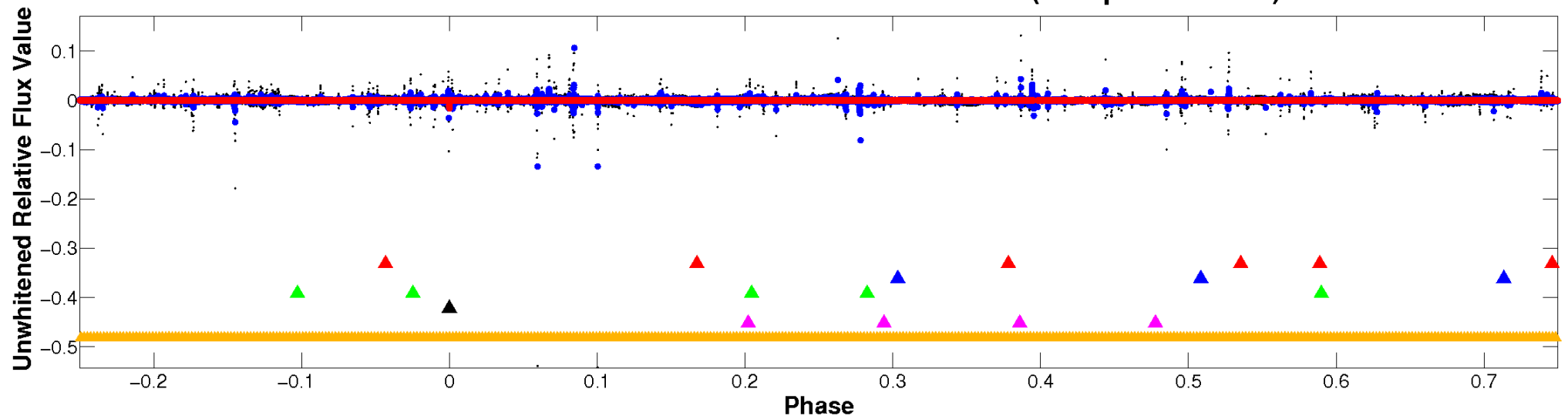
# ALT Odd/Even

TCE 002717423-04

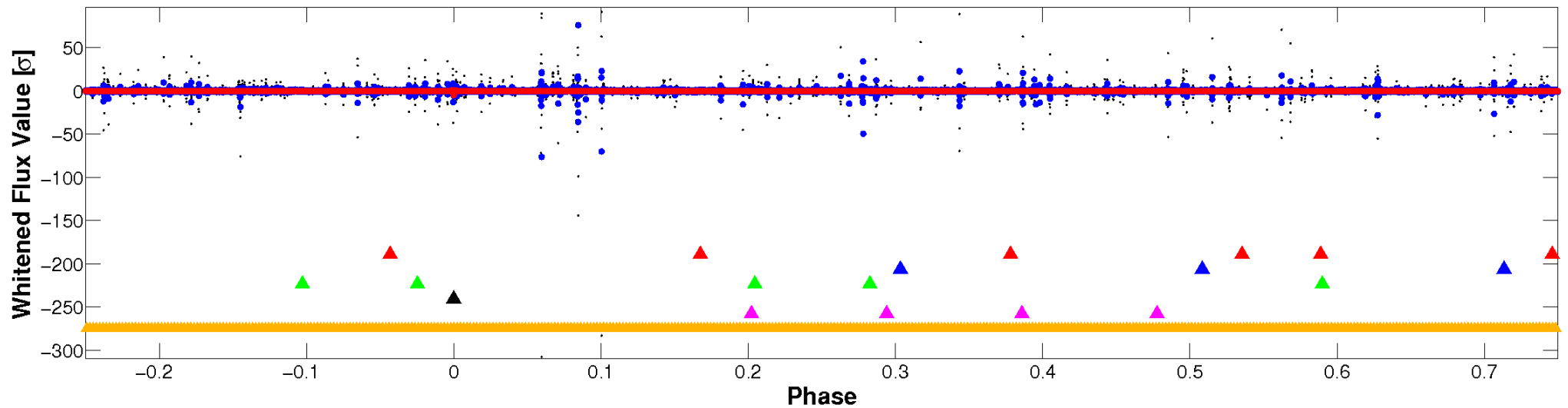


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

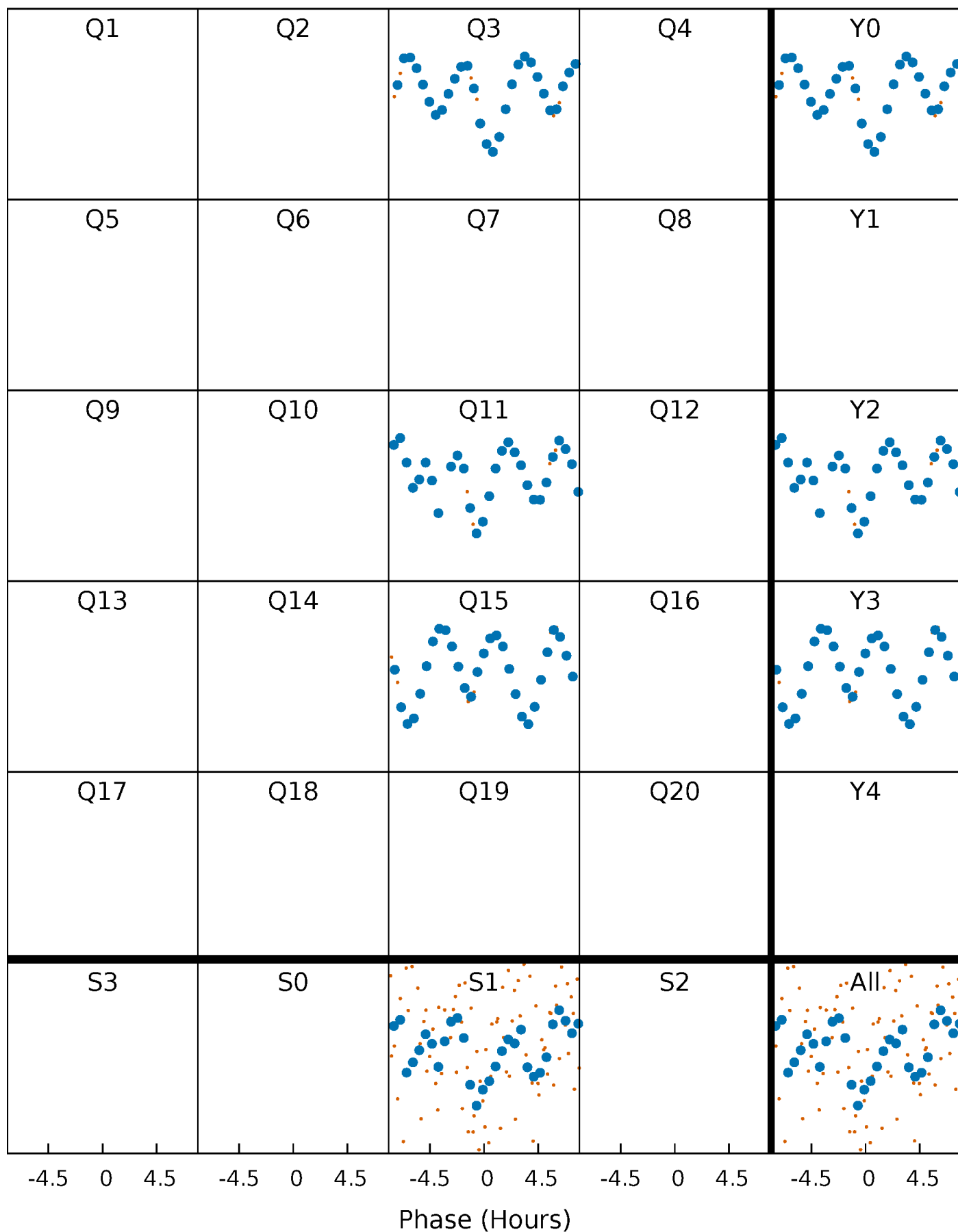


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

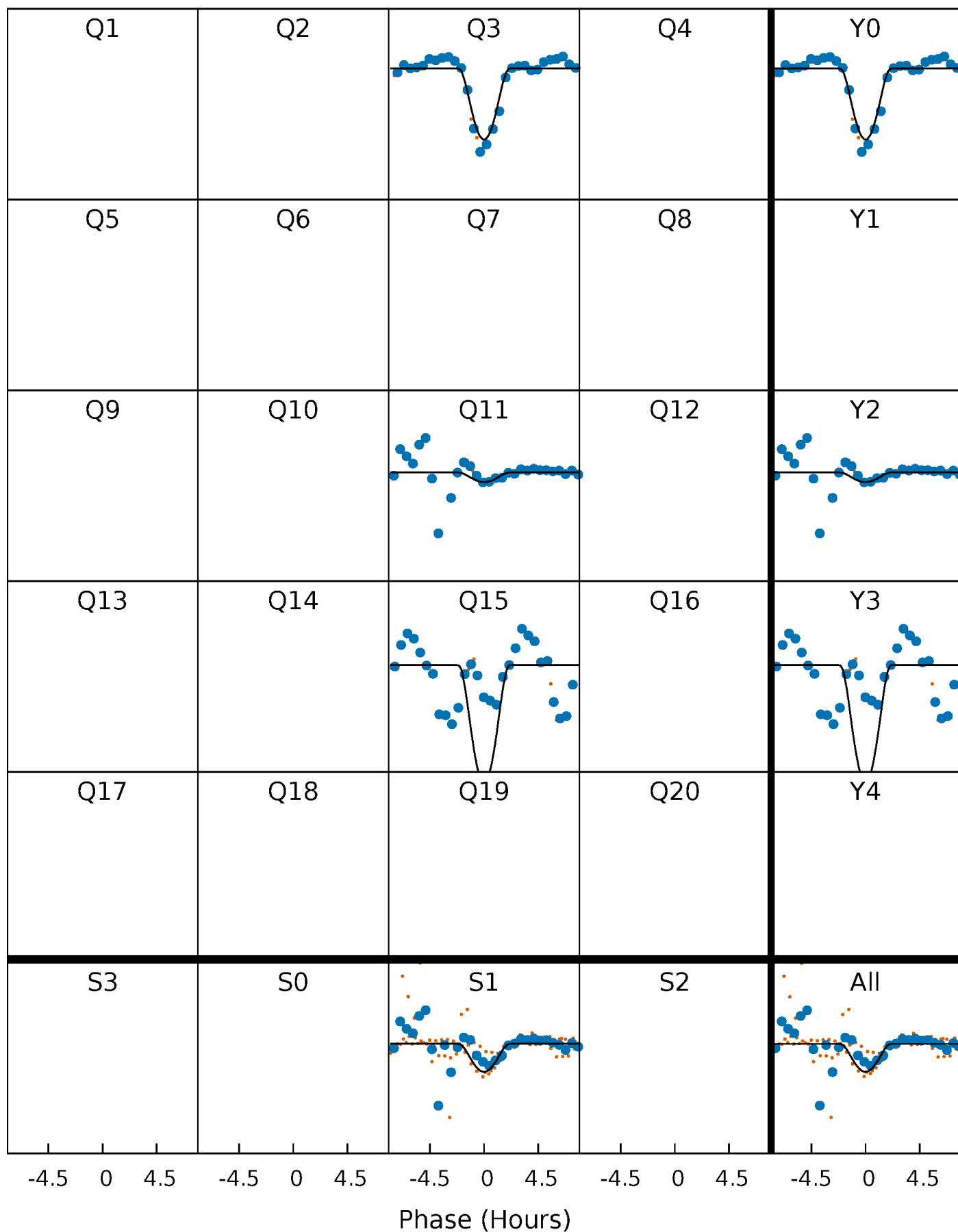
TCE 002717423-04     $P=360.792995$  Days     $T_0=299.889124$  (BKJD)





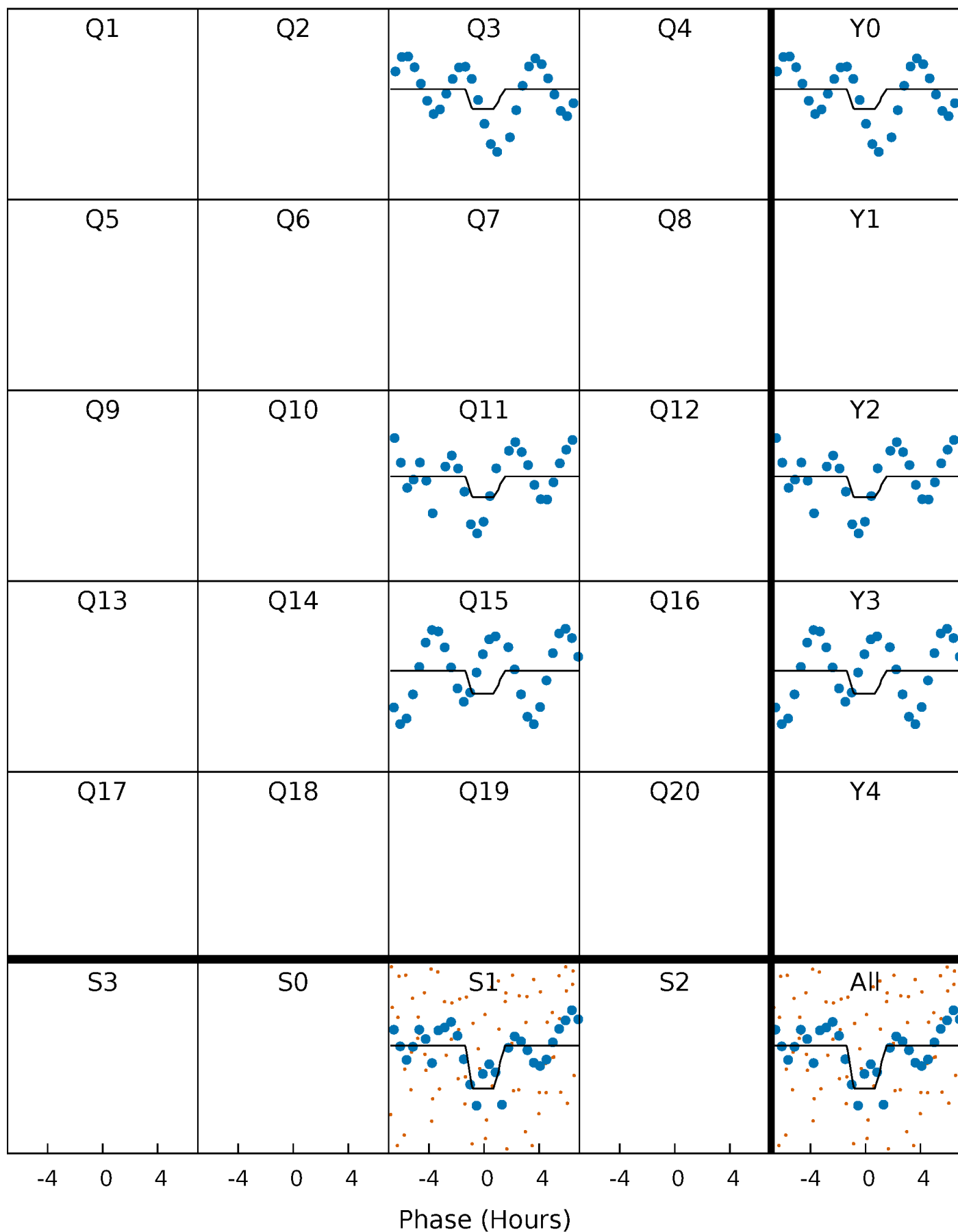
# DV Quarter-Phased Transit Curves

TCE 002717423-04     $P=360.792995$  Days     $T_0=299.889124$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

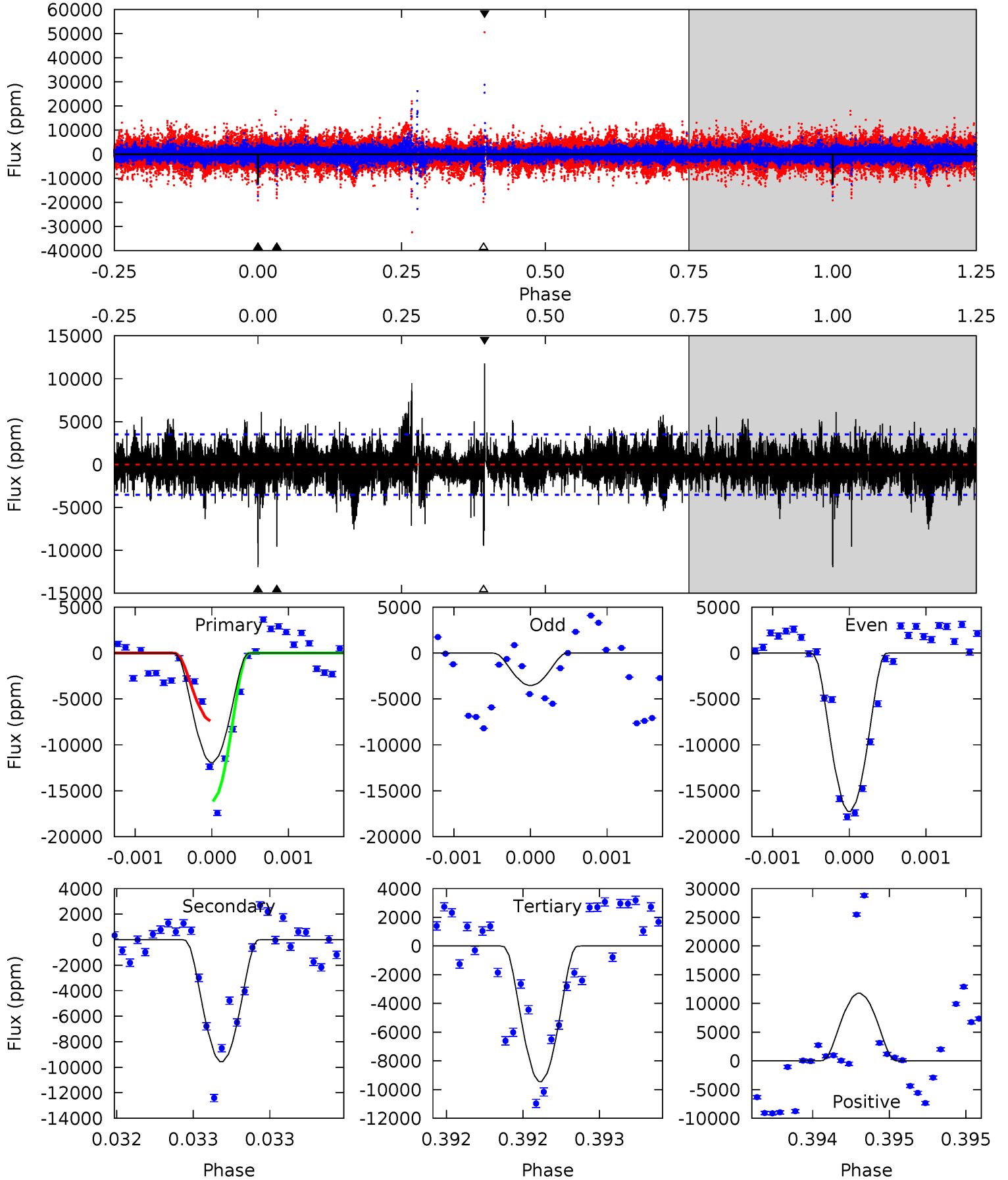
TCE 002717423-04 P=360.798186 Days  $T_0=299.877226$  (BKJD)



# DV Model-Shift Uniqueness Test

002717423-04, P = 360.792995 Days, E = 299.889124 Days

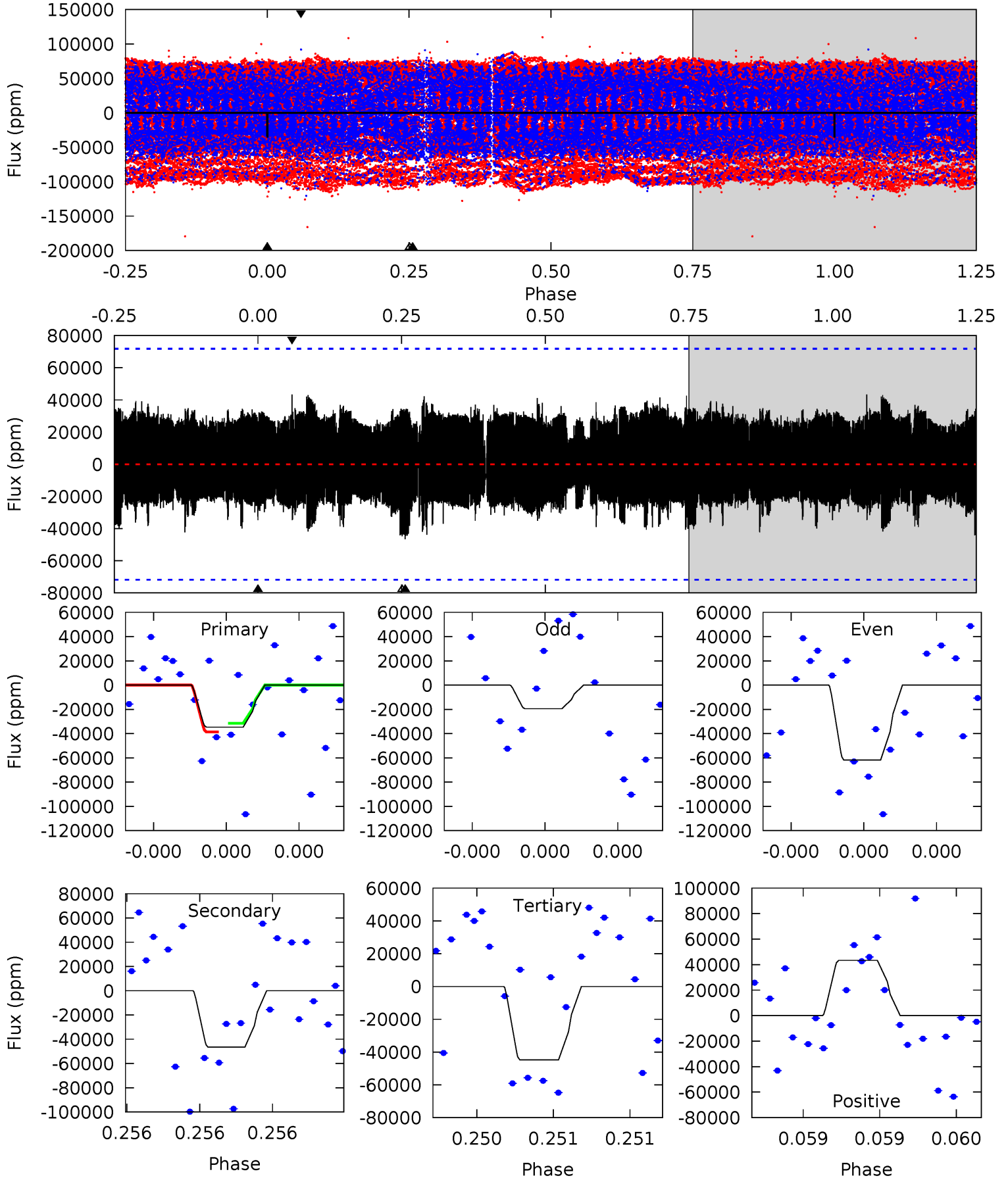
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	15.1	15.0	18.6	5.57	3.48	2.61	3.94	0.26	0.19	-3.49	9.60	1.13	0.50	6.89



# Alt Model-Shift Uniqueness Test

002717423-04, P = 360.798186 Days, E = 299.877226 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
2.73	3.66	3.52	3.41	5.64	3.59	1.18	-0.79	-0.68	0.14	0.25	1.55	0.67	0.48	0.28



### Stellar Parameters For KIC 002717423

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5830^{+140}_{-175}$	$4.540^{+0.037}_{-0.213}$	$-0.140^{+0.300}_{-0.300}$	$0.876^{+0.278}_{-0.069}$	$0.970^{+0.116}_{-0.116}$	$2.036^{+0.422}_{-1.077}$
	+2%/-3%	+1%/-5%	+214%/-214%	+32%/-8%	+12%/-12%	+21%/-53%
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 002717423-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-9576 \pm 632$	$68.79^{+76.37}_{-45.64}$	$347^{+23}_{-15}$	$2918^{+1207}_{-505}$	$1076^{+8428}_{-833}$
Alt.	$-46518 \pm 12724$	$66.68^{+68.82}_{-46.55}$	$346^{+25}_{-14}$	$3743^{+2182}_{-740}$	$5391^{+55403}_{-4114}$

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

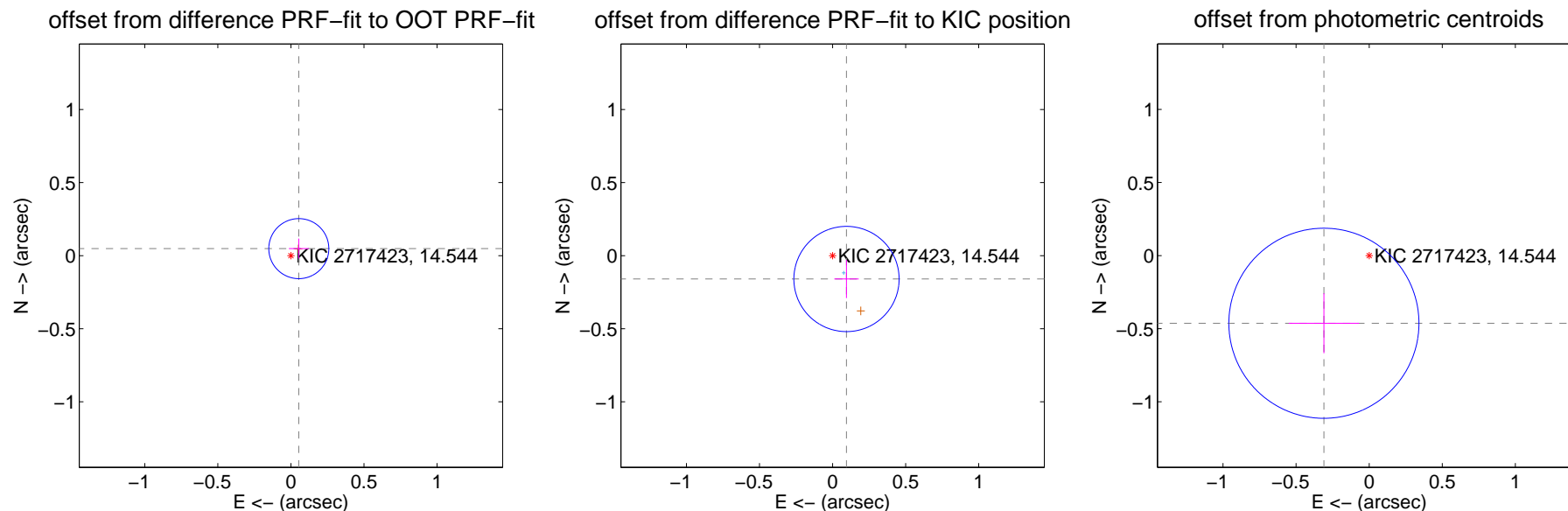
## DV Centroid Data

Supplemental centroid analysis for 002717423-04. Kepler magnitude: 14.54. Transit SNR 15.16

There are 1 quarters with good PRF difference image offsets

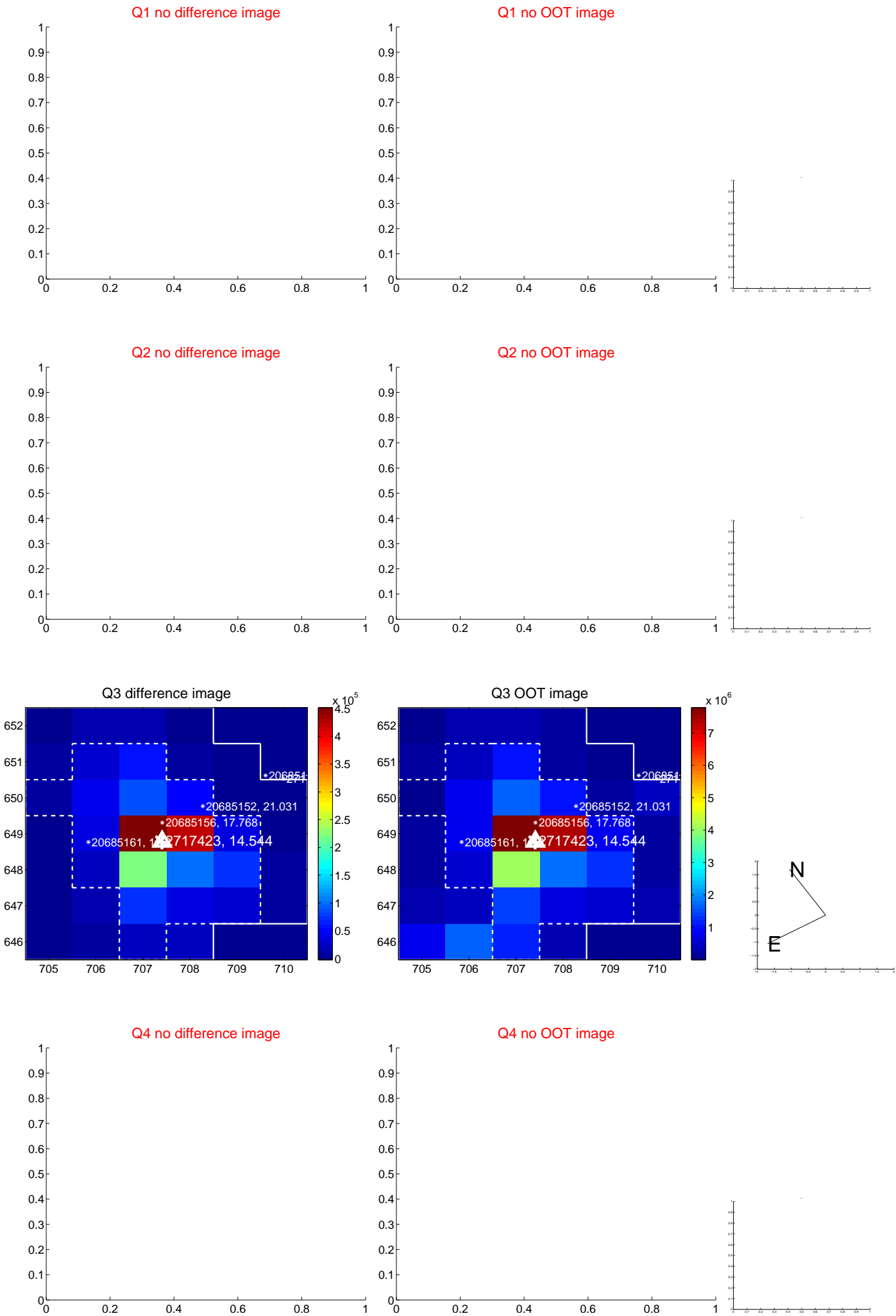
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.072 \pm 0.068$	1.06	$-0.054 \pm 0.068$	$0.048 \pm 0.069$
PRF-fit source offset from KIC position	$0.186 \pm 0.120$	1.55	$-0.095 \pm 0.084$	$-0.160 \pm 0.131$
photometric centroid source offset	$0.56 \pm 0.22$	2.57	$0.31 \pm 0.24$	$-0.46 \pm 0.21$



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.

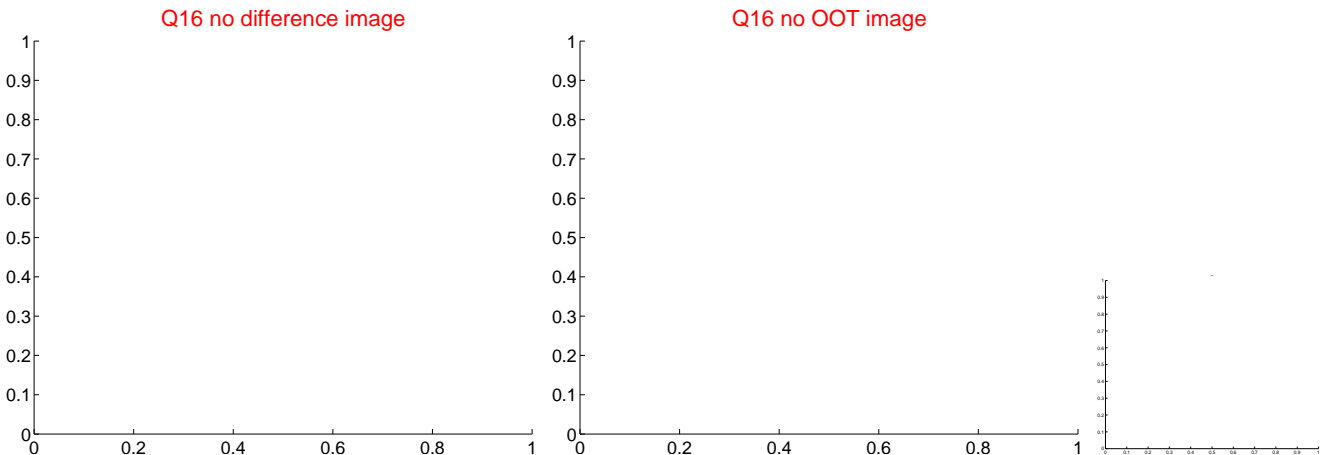
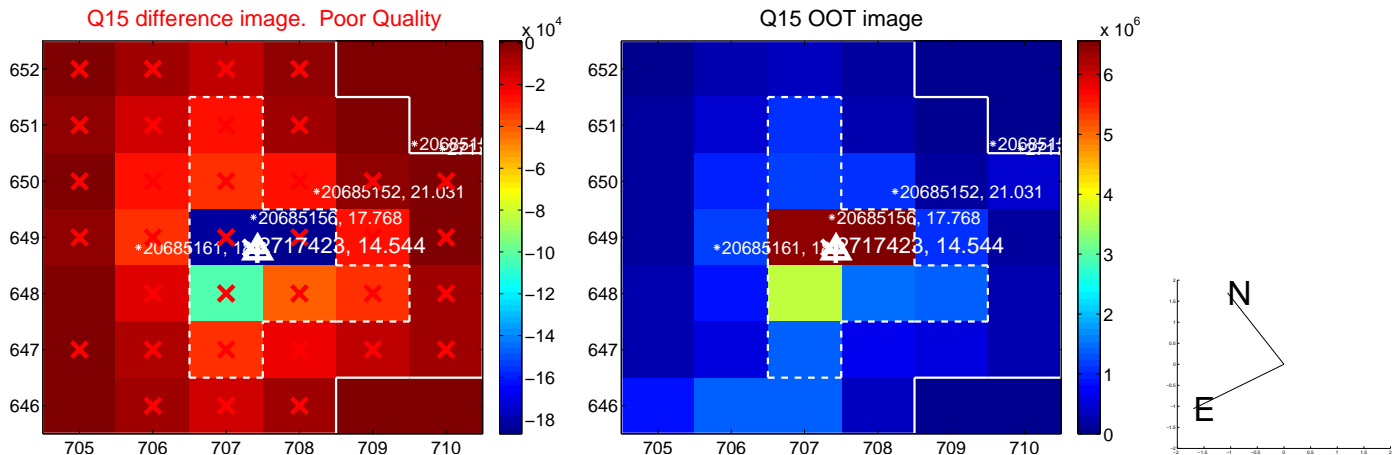
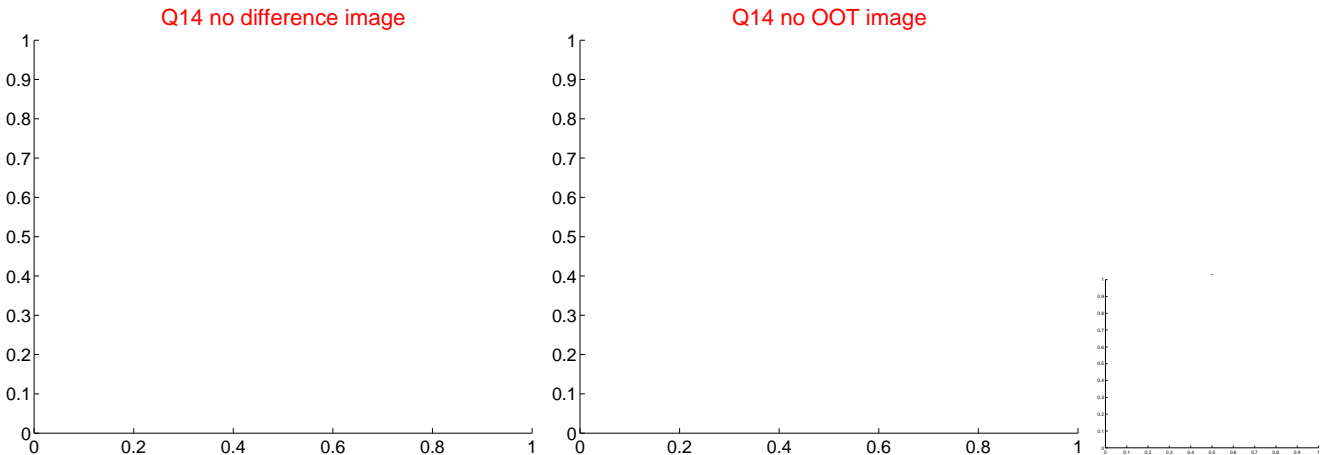
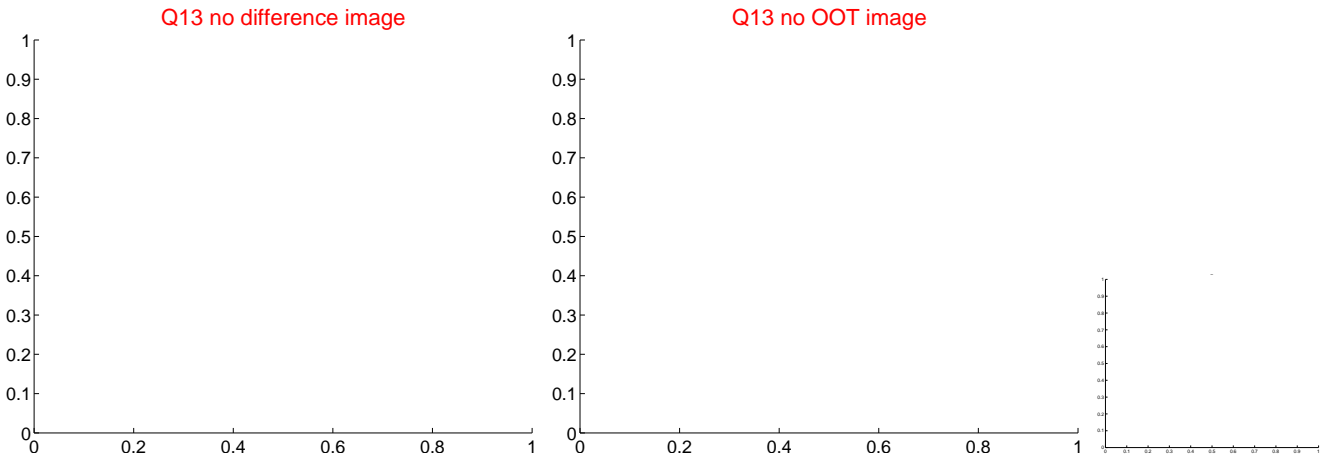




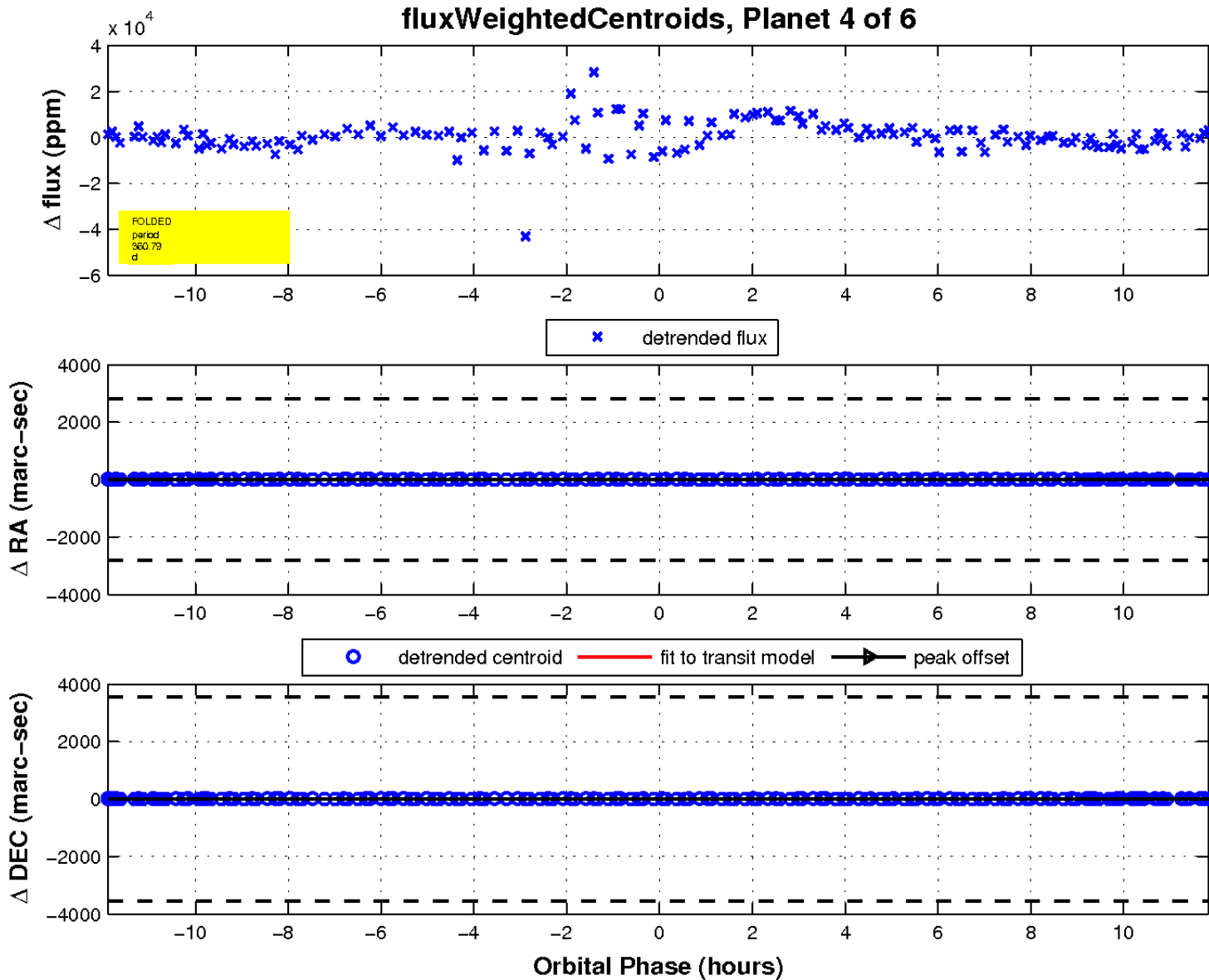
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

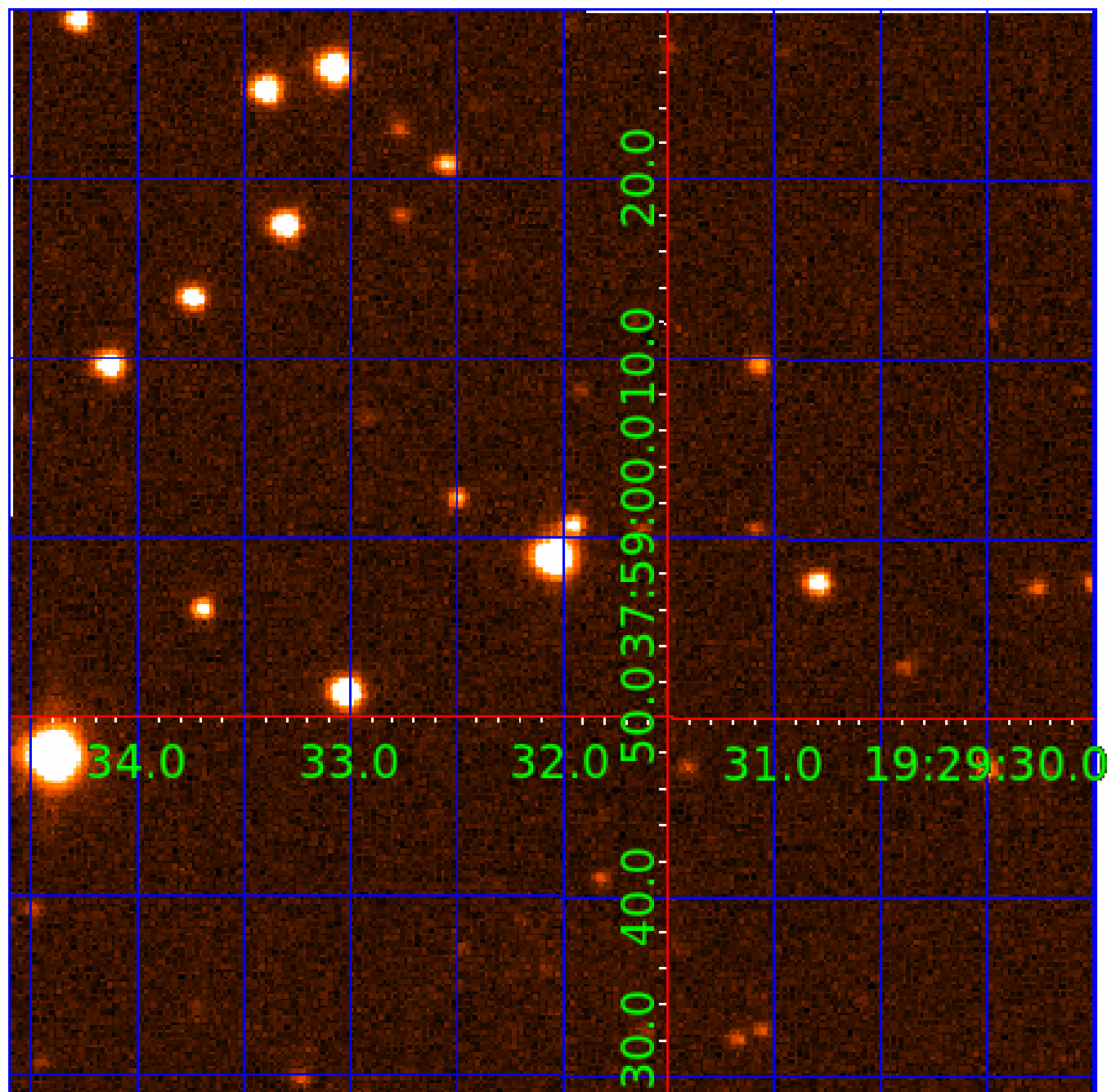


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002717423

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002717423-01	OBS	No	284.775562	151.568694	4515.3	4.670	28.7	4.4	0.88	5830	10.88	1.13
002717423-03	OBS	No	249.925481	373.675639	13237.3	5.872	21.8	14.3	0.88	5830	18.01	1.34
002717423-04	OBS	No	360.792995	299.889124	16348.9	3.968	20.6	15.2	0.88	5830	19.91	0.82
002717423-05	OBS	No	393.929631	372.844548	4529.5	9.035	15.0	10.2	0.88	5830	7.06	0.73
002717423-06	OBS	No	0.796418	131.923494	4112.4	1.500	11.2	-1.0	0.88	5830	5.60	2864.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002717423-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
002717423-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

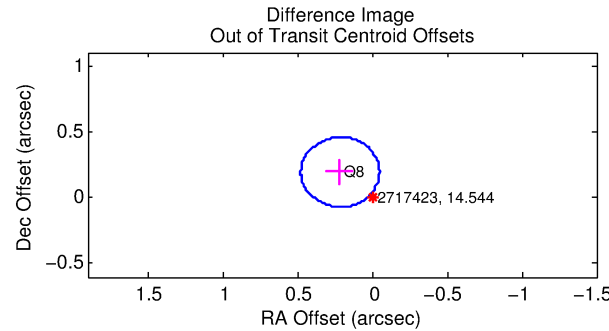
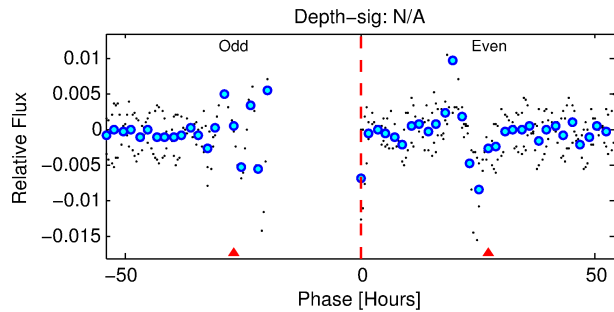
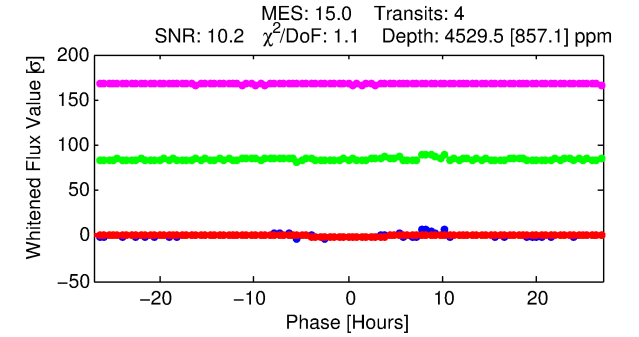
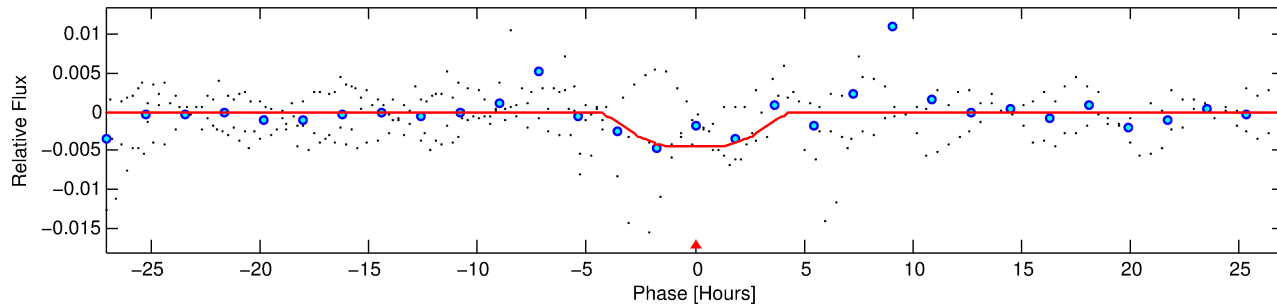
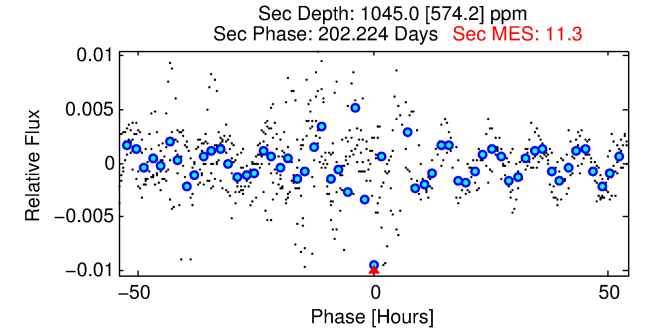
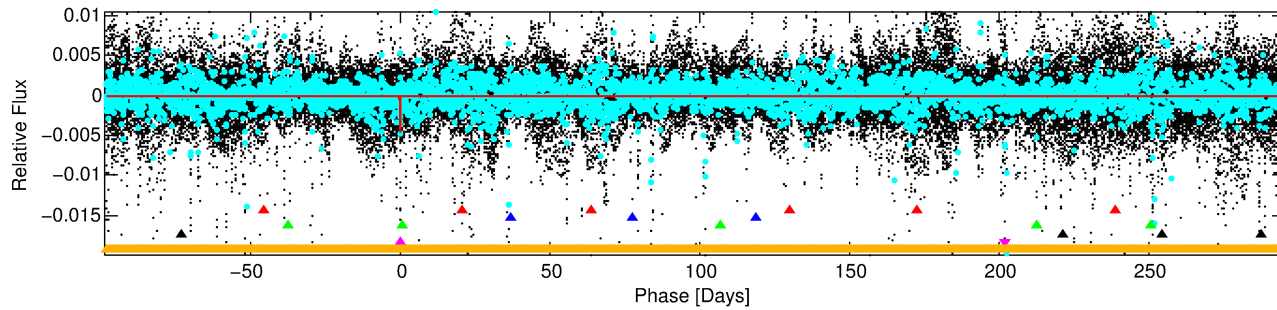
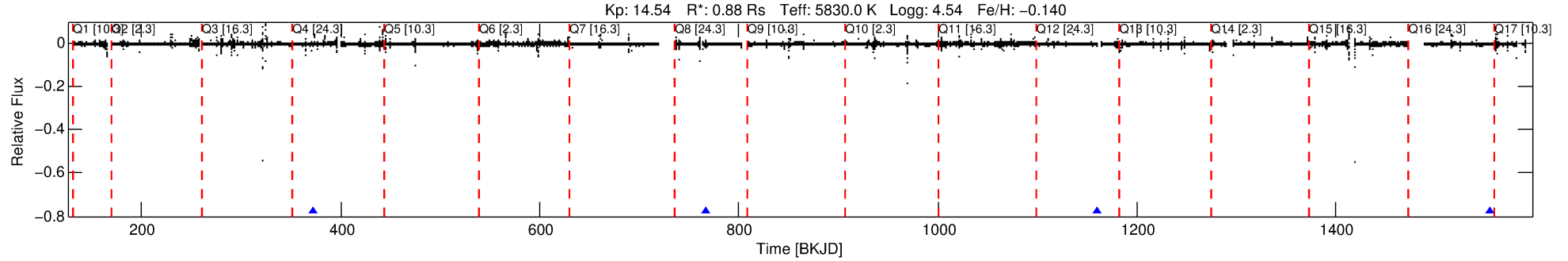
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002717423-05

No Significant Match Found

# DV One-Page Summary

KIC: 2717423 Candidate: 5 of 6 Period: 393.930 d



## DV Fit Results:

Period = 393.92963 [0.01118] d  
Epoch = 372.8445 [0.0225] BKJD  
Rp/R\* = 0.0739 [0.0103]  
a/R\* = 192.80 [36.94]  
b = 0.90 [0.05]  
Seff = 0.73 [0.30]  
Teq = 236 [24] K  
Rp = 7.06 [2.45] Re  
a = 1.0415 [0.2785] AU  
Ag = 12505.80 [9112.67] [1.37σ]  
**Teff = 3857 [605] K [5.98σ]**

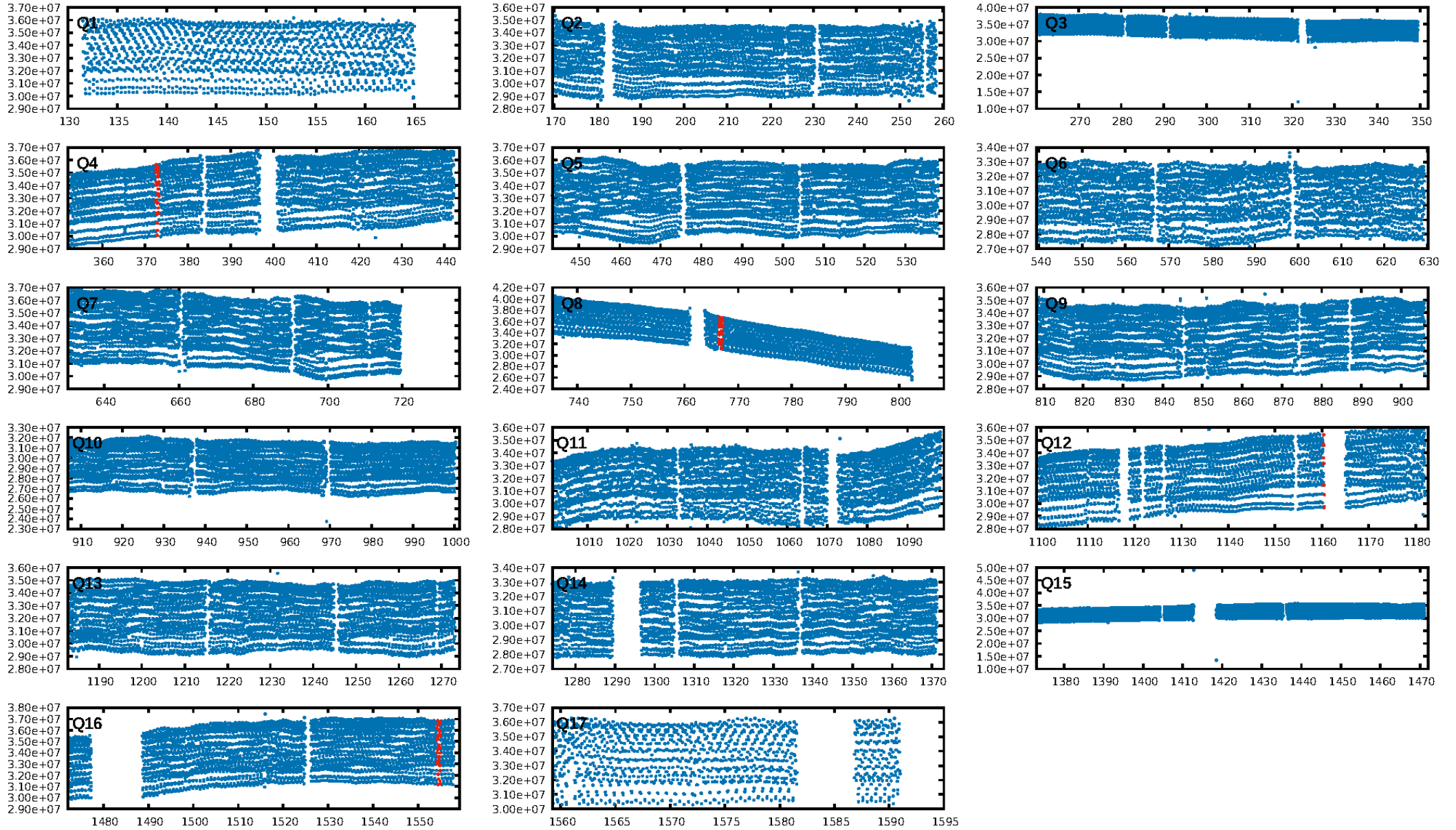
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [80.59σ]  
LongPeriod-sig: 100.0% [83.45σ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
**GhostDiagnostic-chr: 1.86**  
Centroid-sig: 72.1%  
**Centroid-so: 0.807 arcsec [4.62σ]**  
**OotOffset-rm: 0.288 arcsec [3.28σ]**  
KicOffset-rm: 0.193 arcsec [2.20σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 0.00 [0/2]

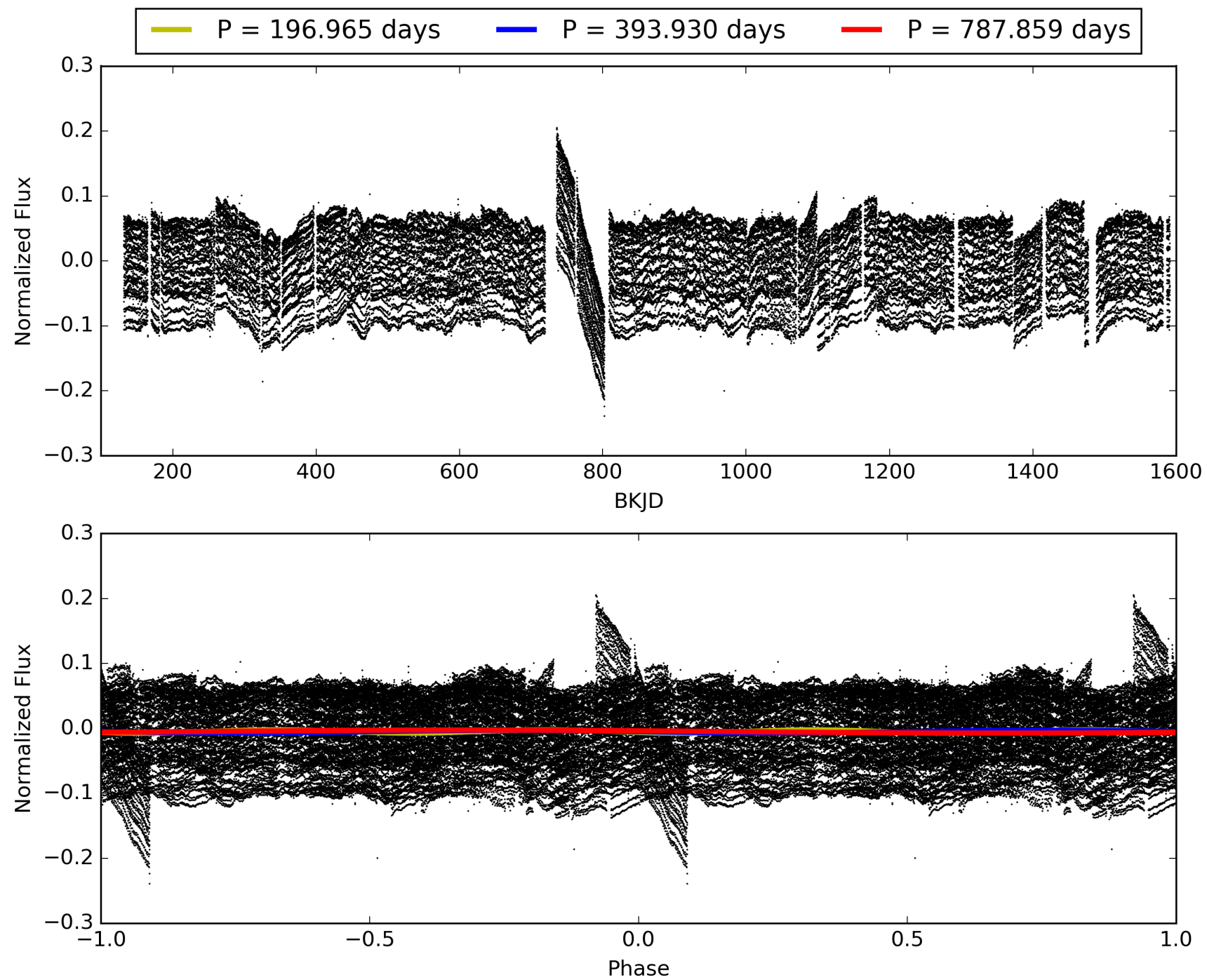
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:27:23 Z

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

# TCE 002717423-05, PDC Light Curves



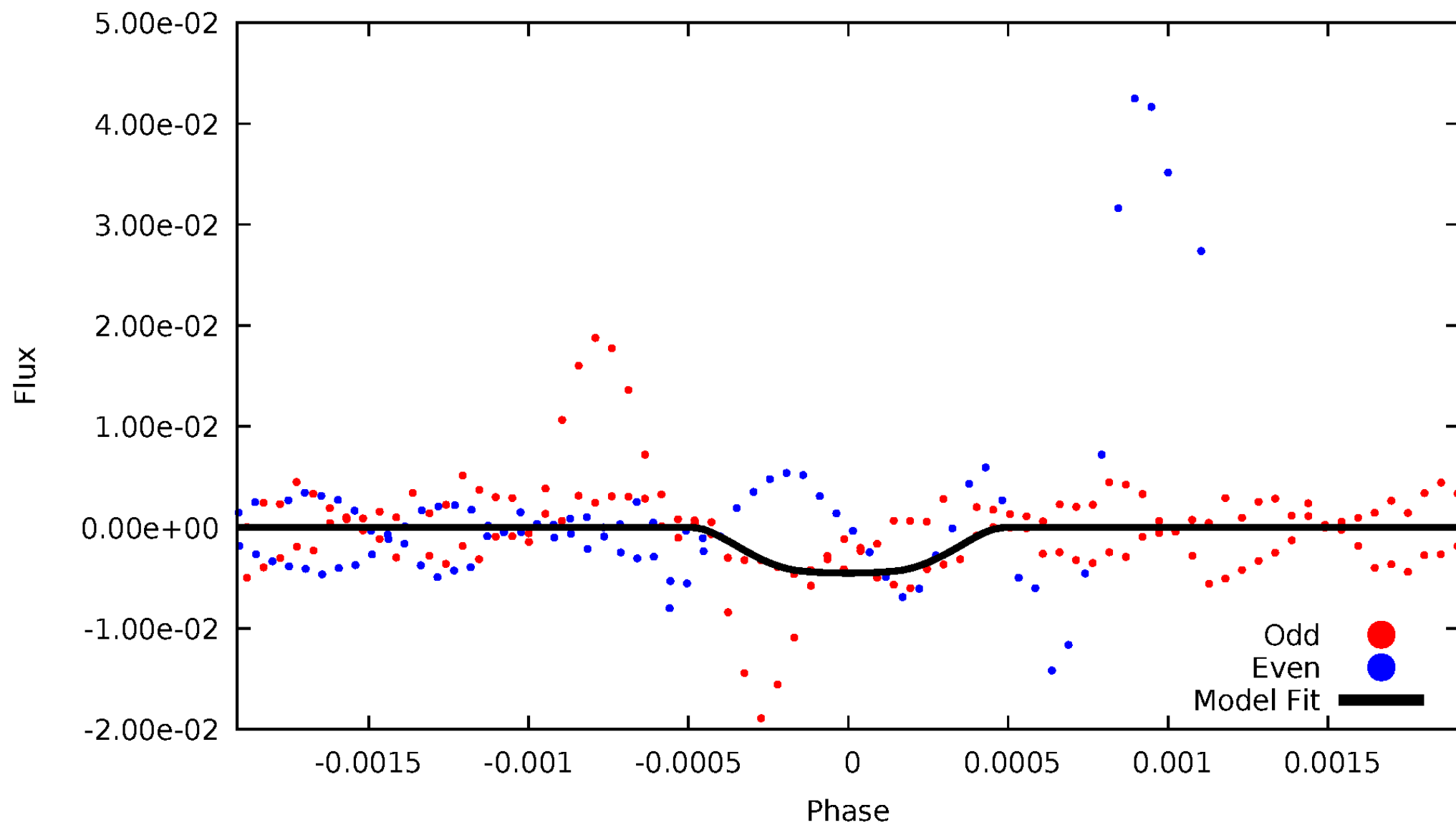
TCE 002717423-05





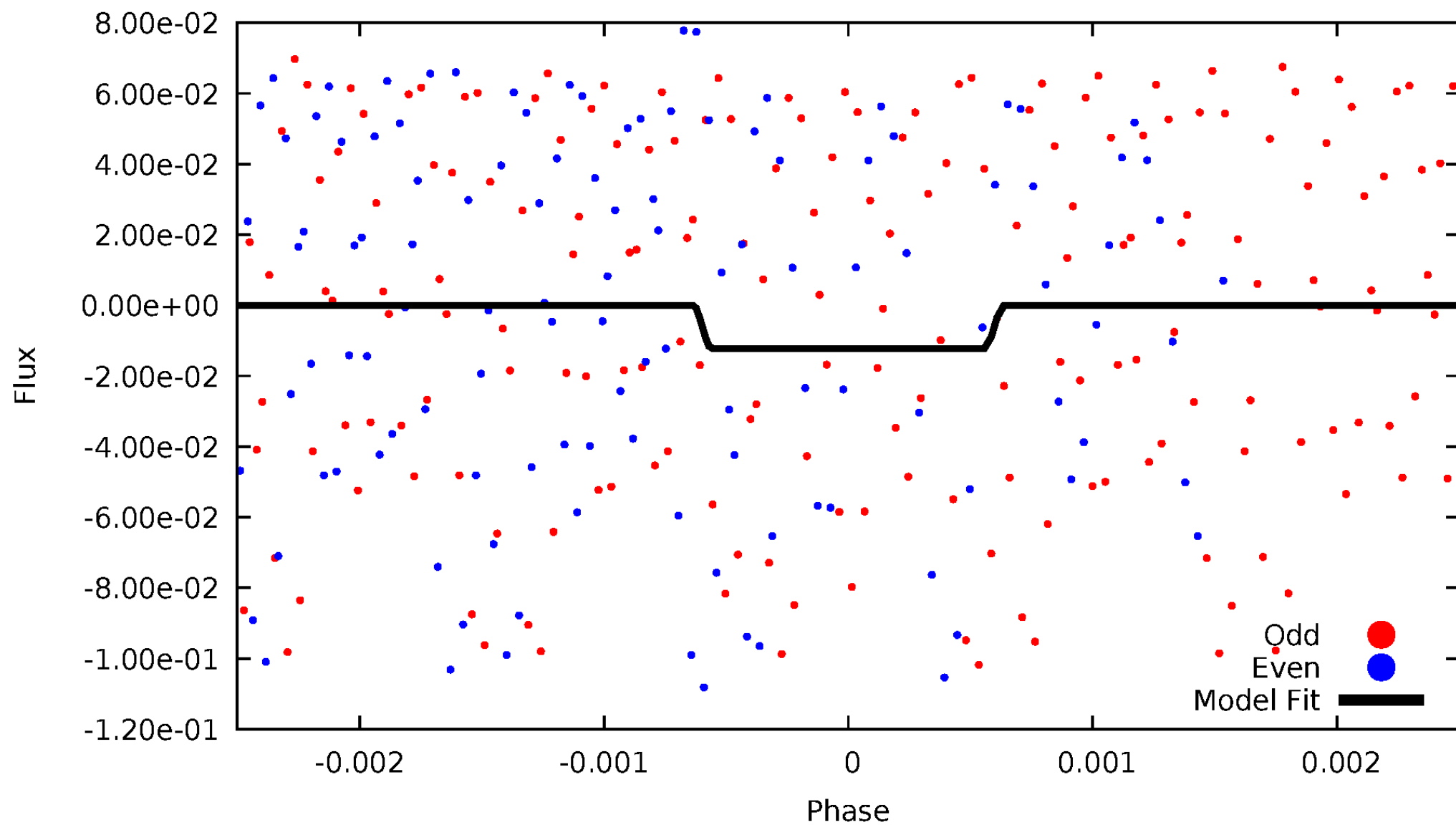
# DV Odd/Even

TCE 002717423-05



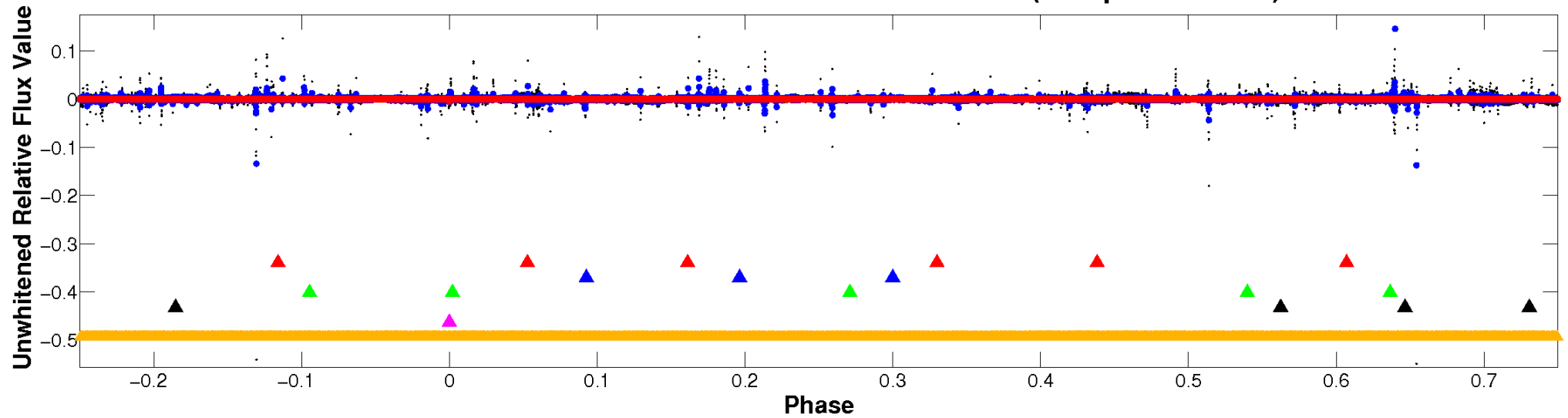
# ALT Odd/Even

TCE 002717423-05

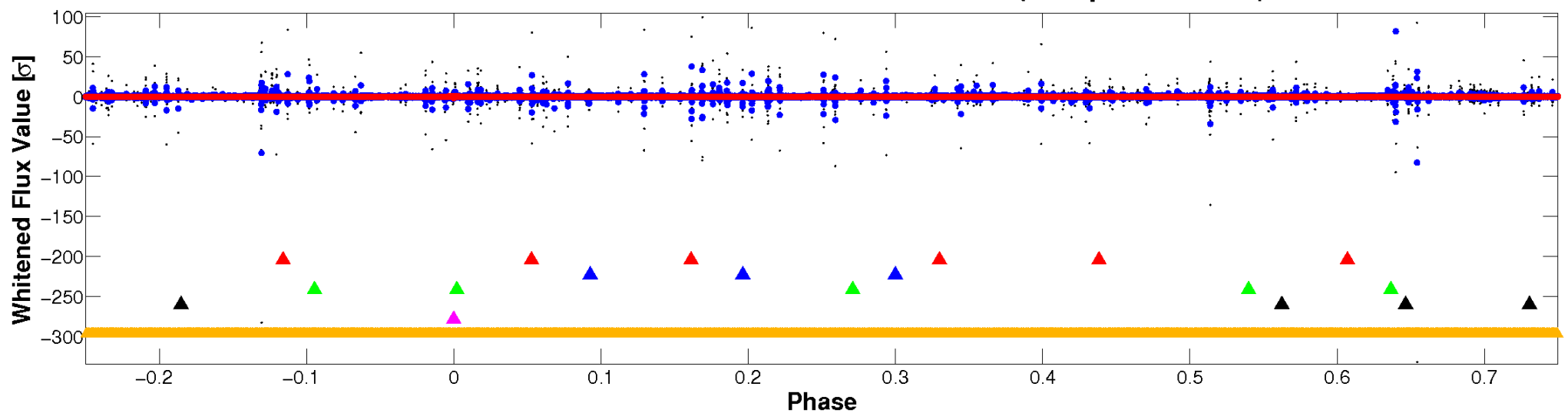


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

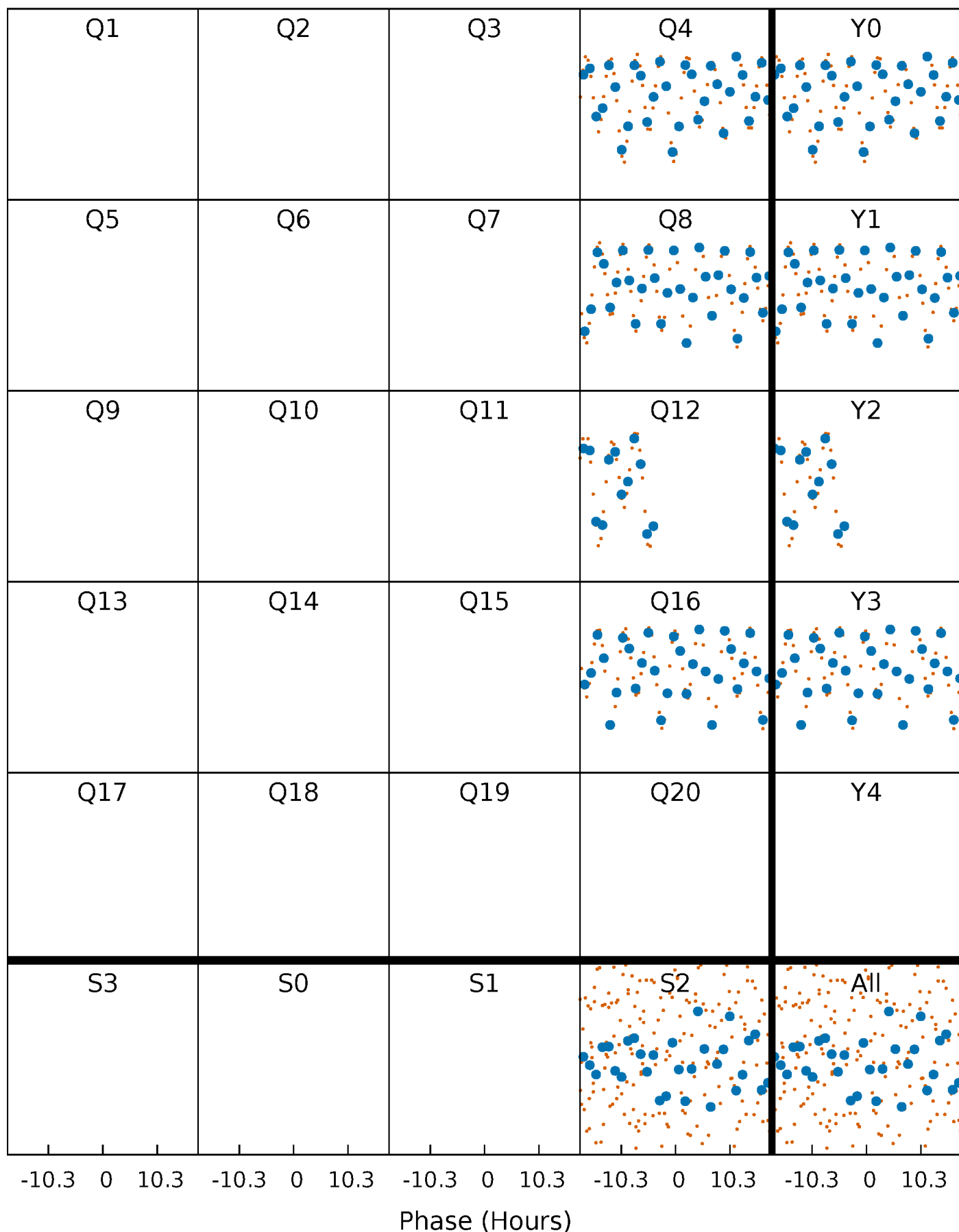


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



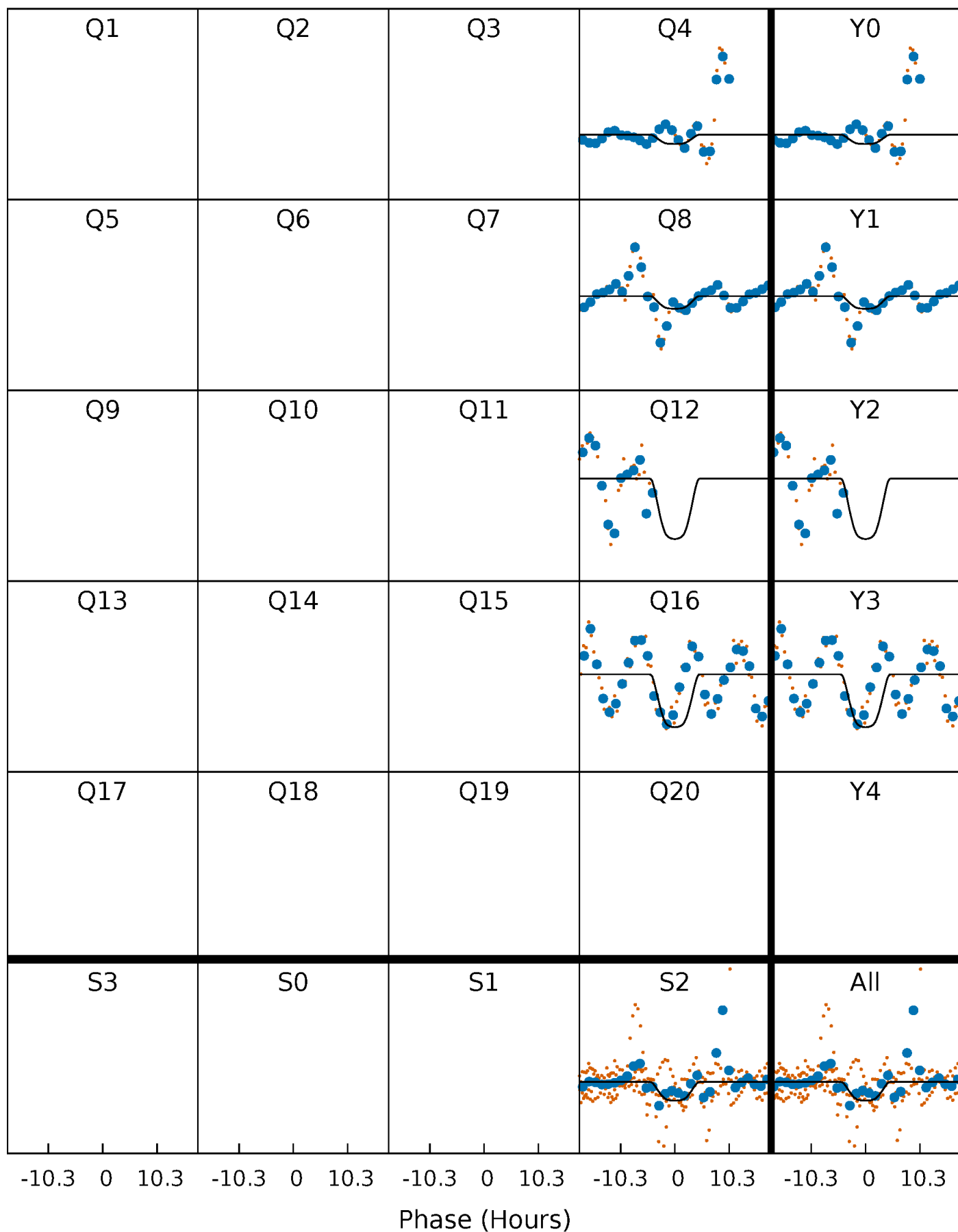
# PDC Quarter-Phased Transit Curves

TCE 002717423-05     $P=393.929631$  Days     $T_0=372.844548$  (BKJD)



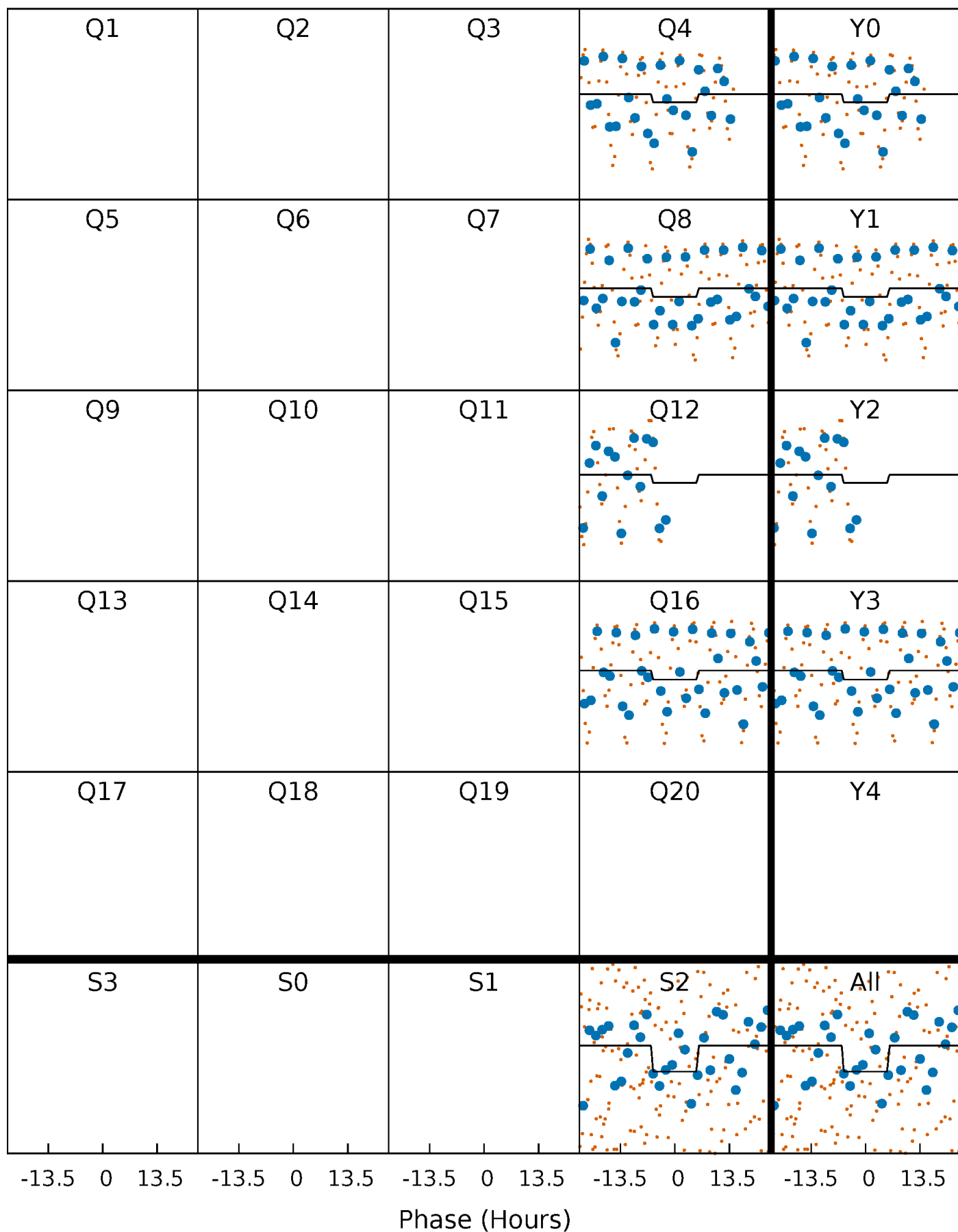
# DV Quarter-Phased Transit Curves

TCE 002717423-05     $P=393.929631$  Days     $T_0=372.844548$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

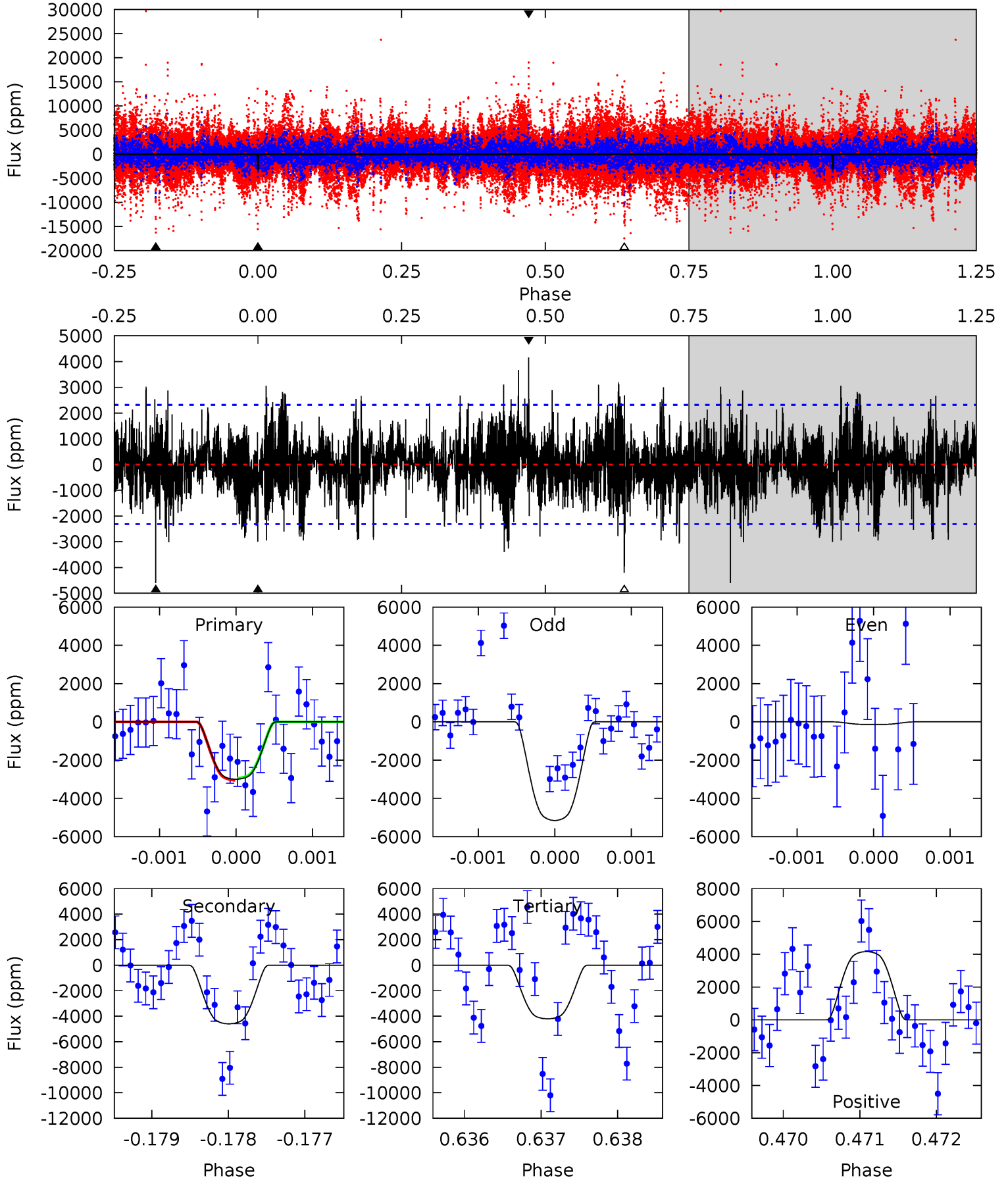
TCE 002717423-05     $P=393.986282$  Days     $T_0=372.674589$  (BKJD)



# DV Model-Shift Uniqueness Test

002717423-05, P = 393.929631 Days, E = 372.844548 Days

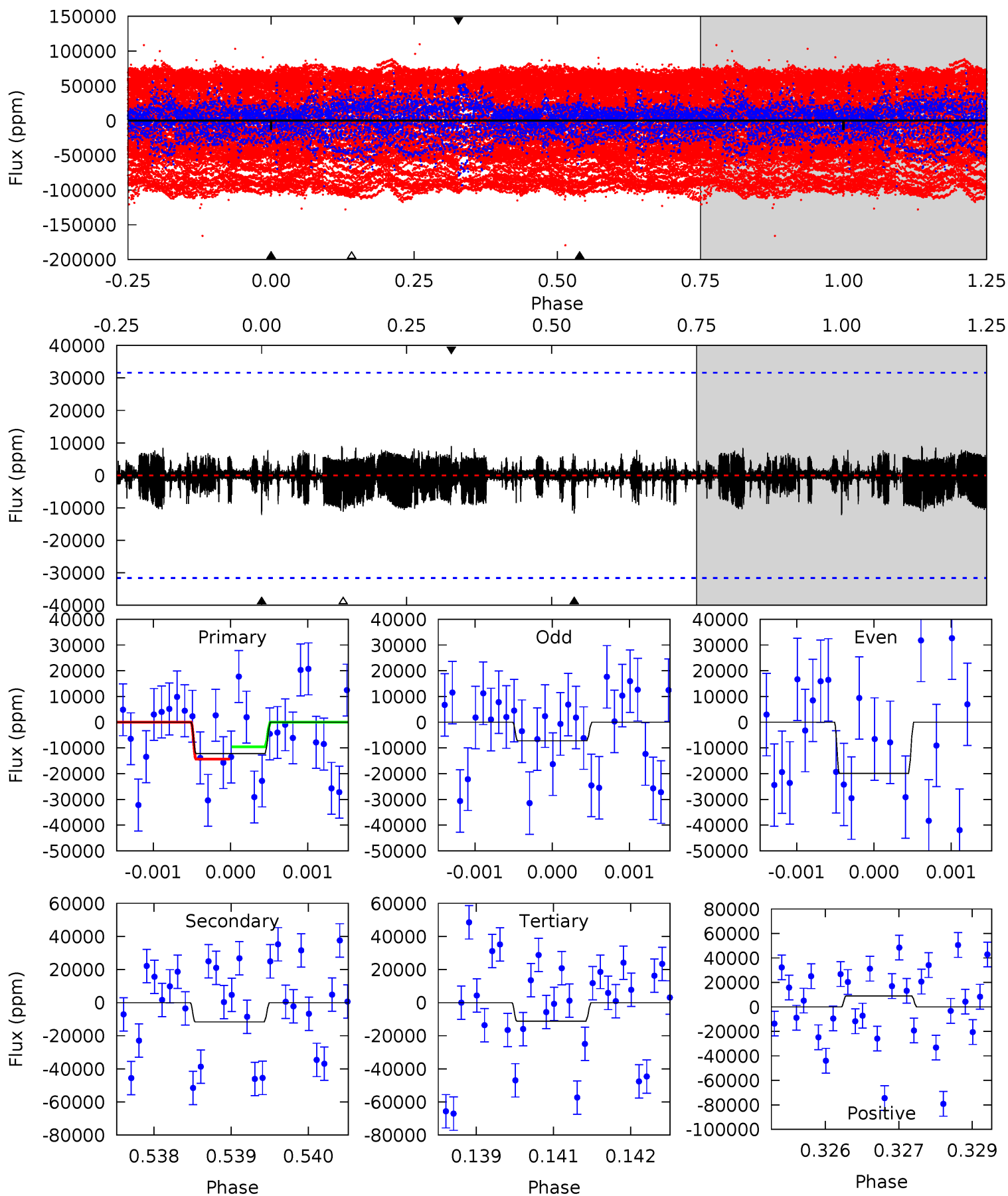
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.06	10.8	9.90	9.80	5.46	3.30	2.08	-2.84	-2.74	0.92	1.03	5.02	1.43	0.48	0.12



# Alt Model-Shift Uniqueness Test

002717423-05, P = 393.986282 Days, E = 372.674589 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
2.09	2.00	1.91	1.54	5.41	3.23	0.44	0.18	0.55	0.09	0.46	1.06	0.98	0.42	0.41





### Stellar Parameters For KIC 002717423

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5830^{+140}_{-175}$	$4.540^{+0.037}_{-0.213}$	$-0.140^{+0.300}_{-0.300}$	$0.876^{+0.278}_{-0.069}$	$0.970^{+0.116}_{-0.116}$	$2.036^{+0.422}_{-1.077}$
	+2%/-3%	+1%/-5%	+214%/-214%	+32%/-8%	+12%/-12%	+21%/-53%
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 002717423-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4595 \pm 424$	$7.42^{+1.53}_{-1.22}$	$337^{+23}_{-15}$	$5605^{+452}_{-390}$	$48797^{+20509}_{-15265}$
Alt.	$-11678 \pm 5839$	$10.96^{+1.83}_{-1.42}$	$336^{+25}_{-15}$	$5747^{+764}_{-872}$	$55520^{+37939}_{-31564}$

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

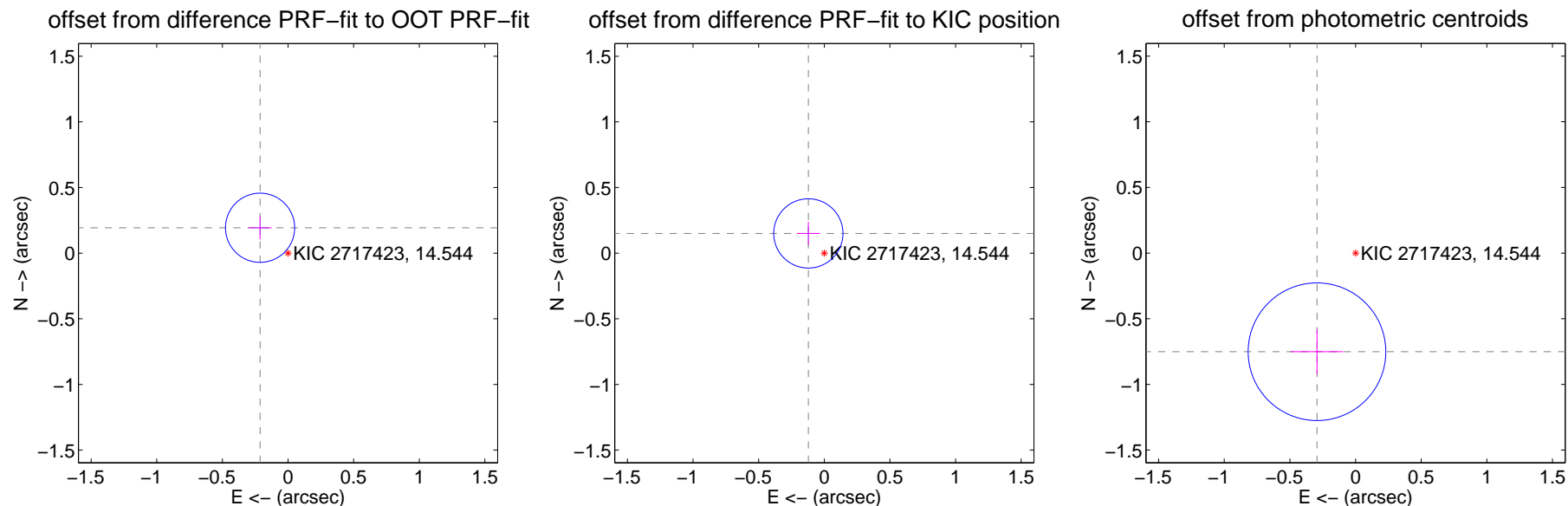
## DV Centroid Data

Supplemental centroid analysis for 002717423-05. Kepler magnitude: 14.54. Transit SNR 10.23

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.288 \pm 0.088$	3.28	$0.213 \pm 0.088$	$0.193 \pm 0.088$
PRF-fit source offset from KIC position	$0.193 \pm 0.088$	2.20	$0.122 \pm 0.088$	$0.150 \pm 0.088$
photometric centroid source offset	$0.81 \pm 0.17$	4.62	$0.29 \pm 0.20$	$-0.75 \pm 0.17$

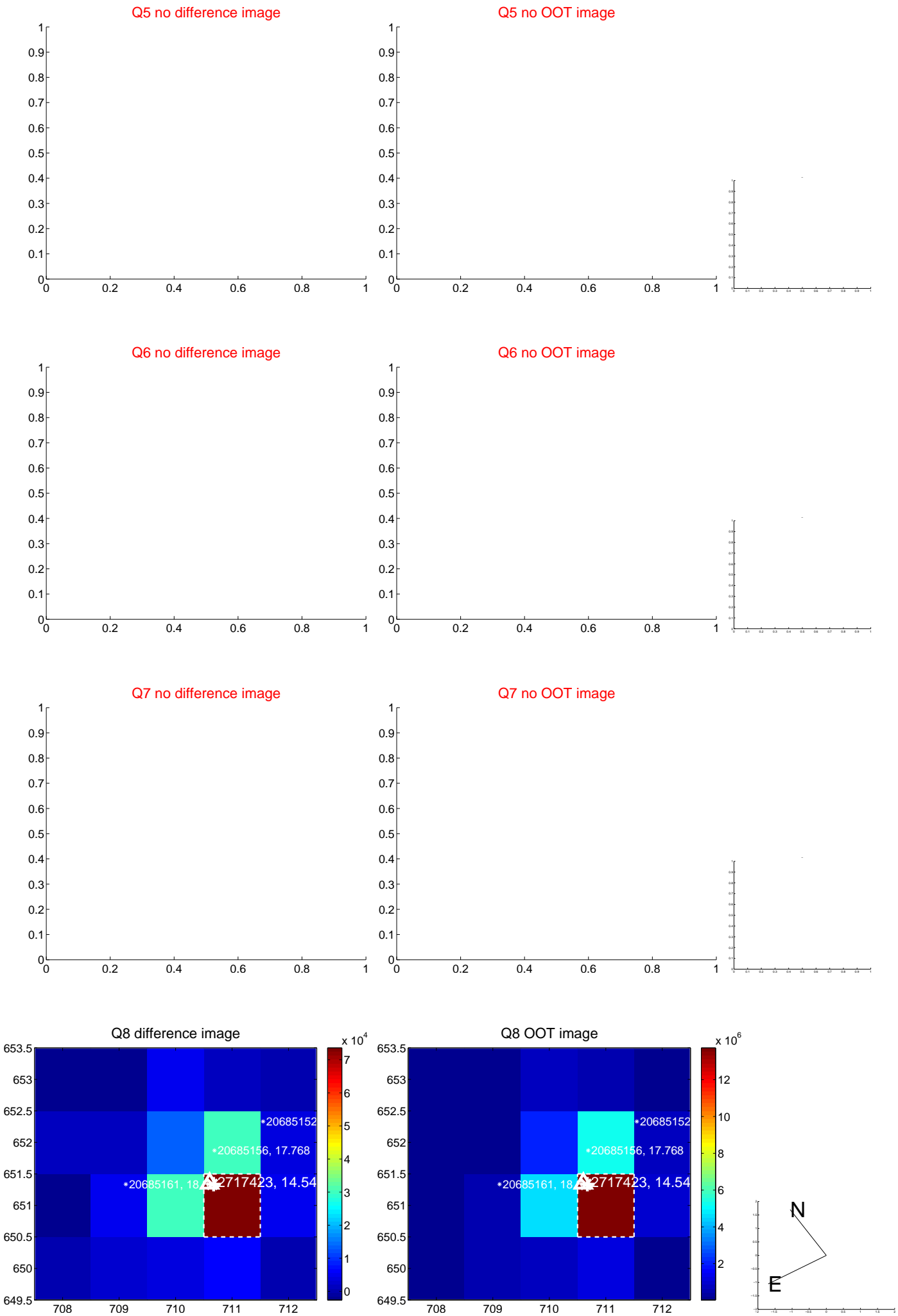


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



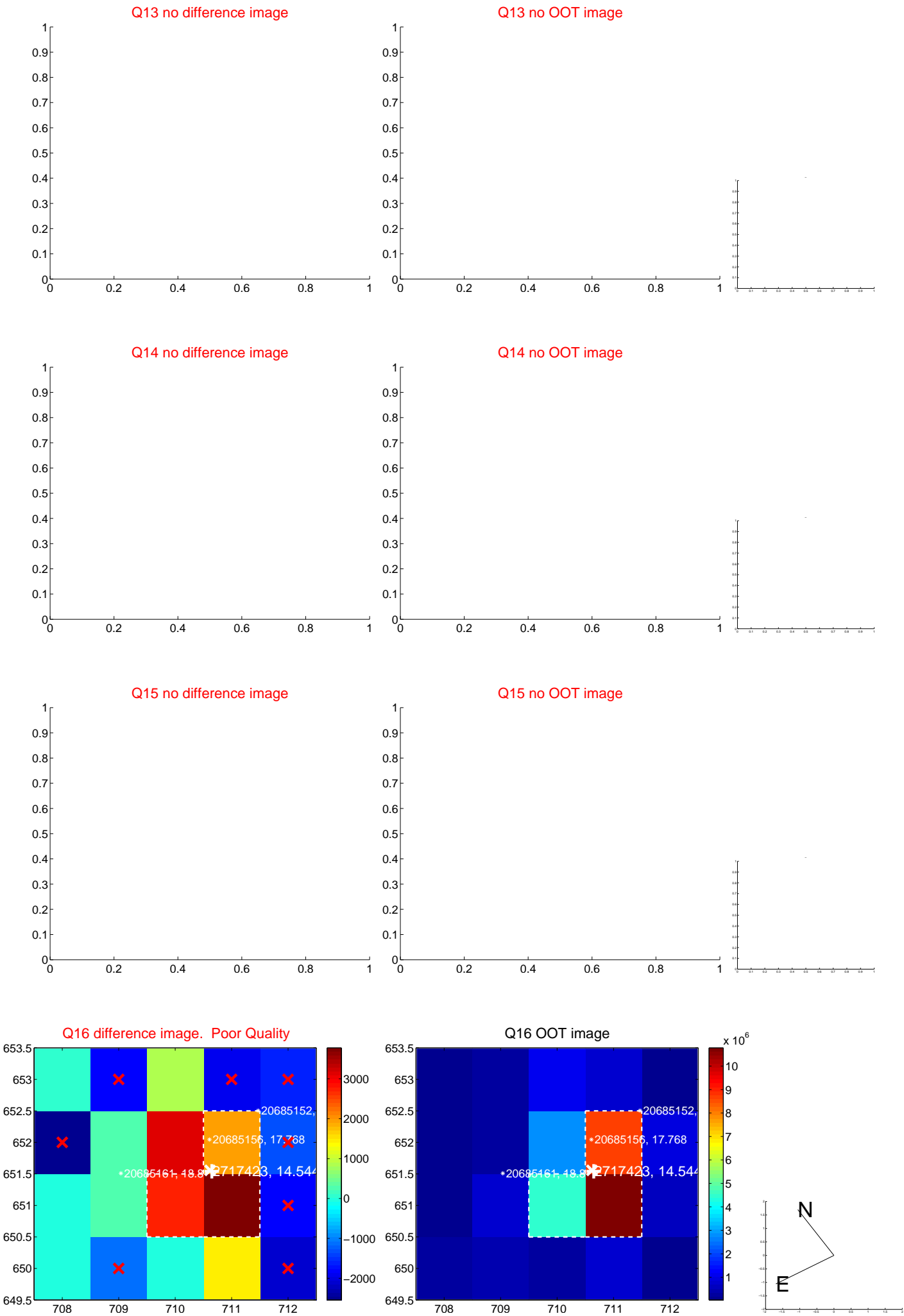
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



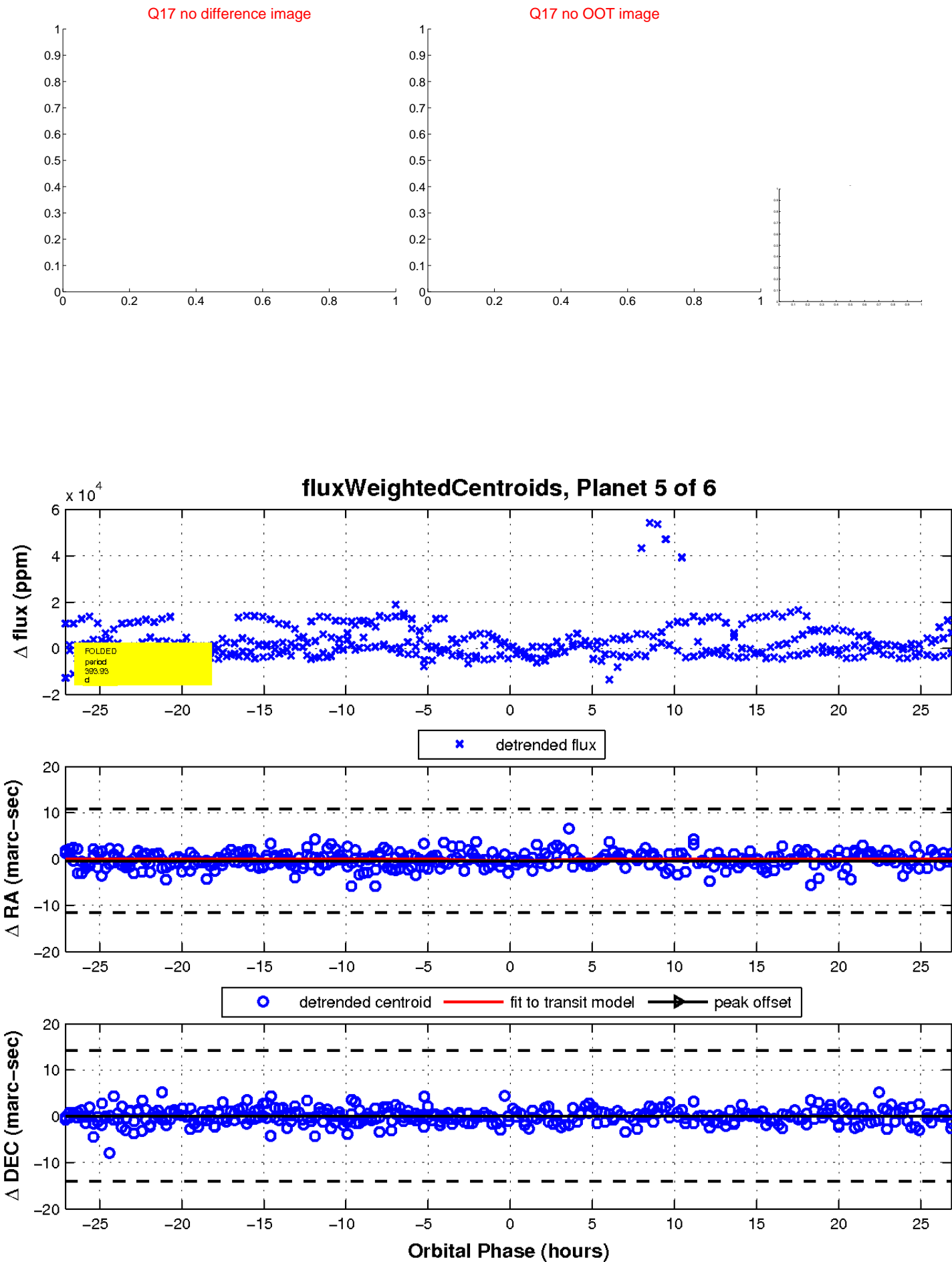
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

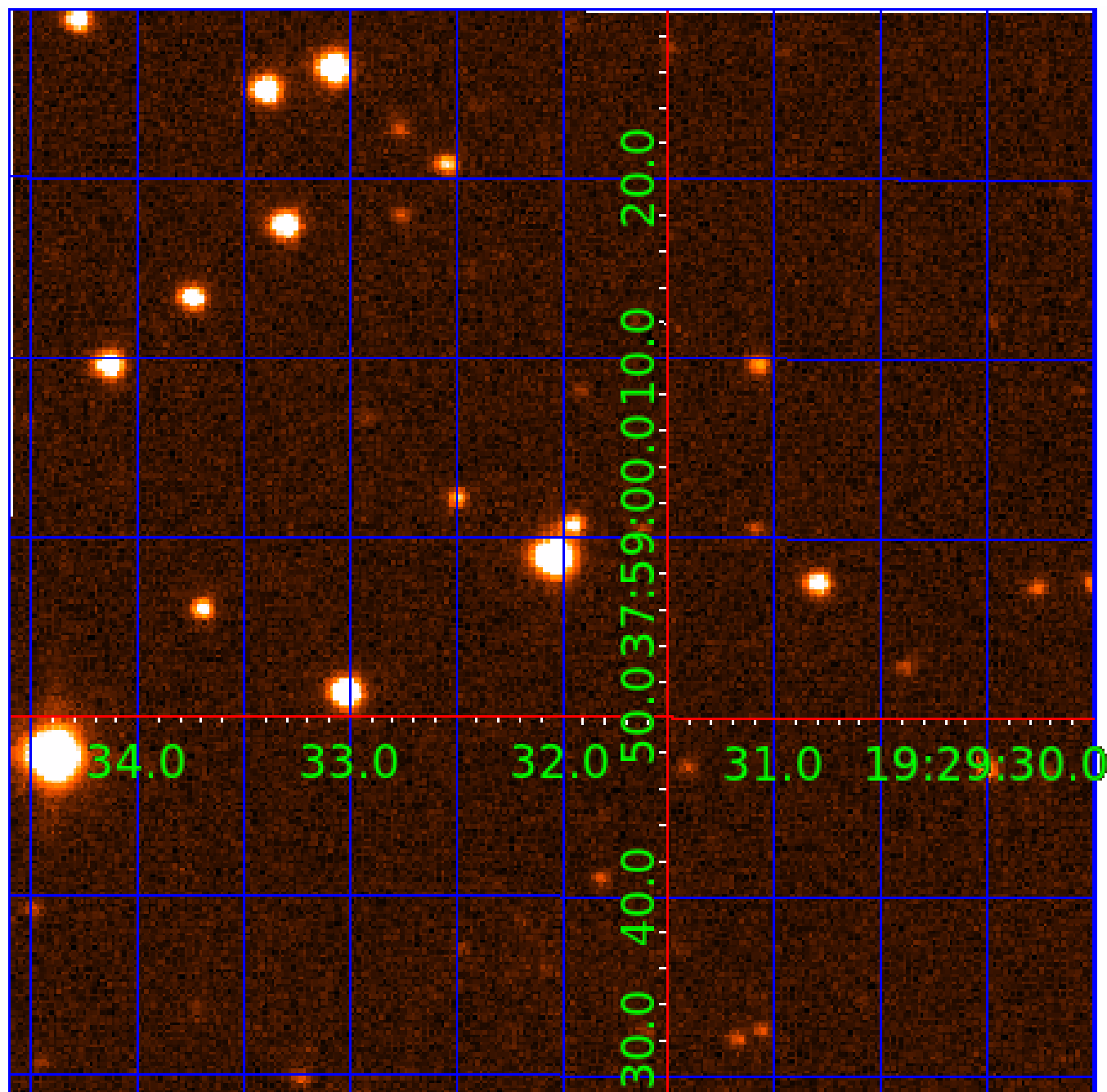


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 002717423

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002717423-01	OBS	No	284.775562	151.568694	4515.3	4.670	28.7	4.4	0.88	5830	10.88	1.13
002717423-03	OBS	No	249.925481	373.675639	13237.3	5.872	21.8	14.3	0.88	5830	18.01	1.34
002717423-04	OBS	No	360.792995	299.889124	16348.9	3.968	20.6	15.2	0.88	5830	19.91	0.82
002717423-05	OBS	No	393.929631	372.844548	4529.5	9.035	15.0	10.2	0.88	5830	7.06	0.73
002717423-06	OBS	No	0.796418	131.923494	4112.4	1.500	11.2	-1.0	0.88	5830	5.60	2864.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002717423-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-03	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
002717423-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002717423-06	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS

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

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

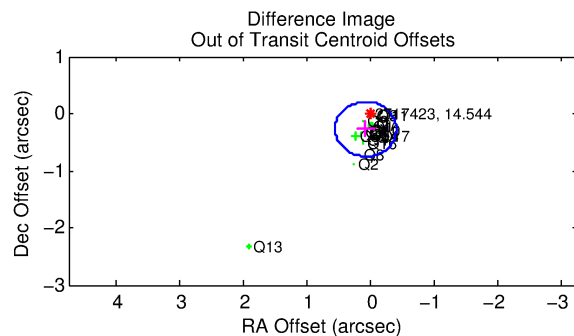
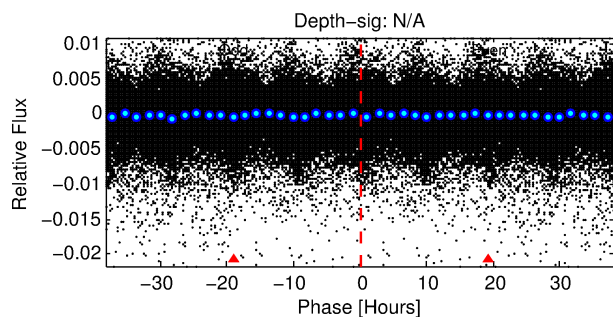
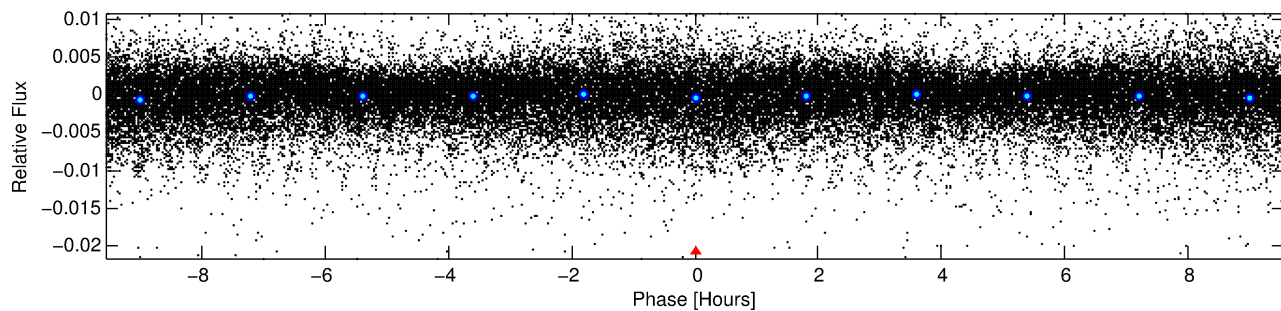
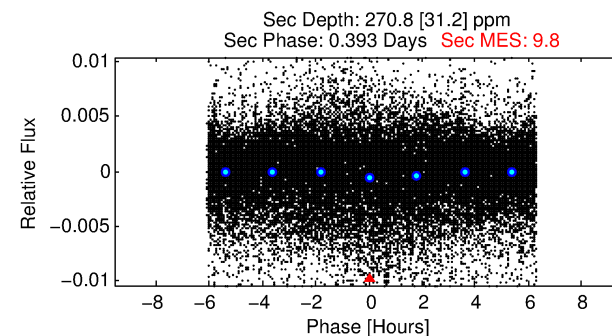
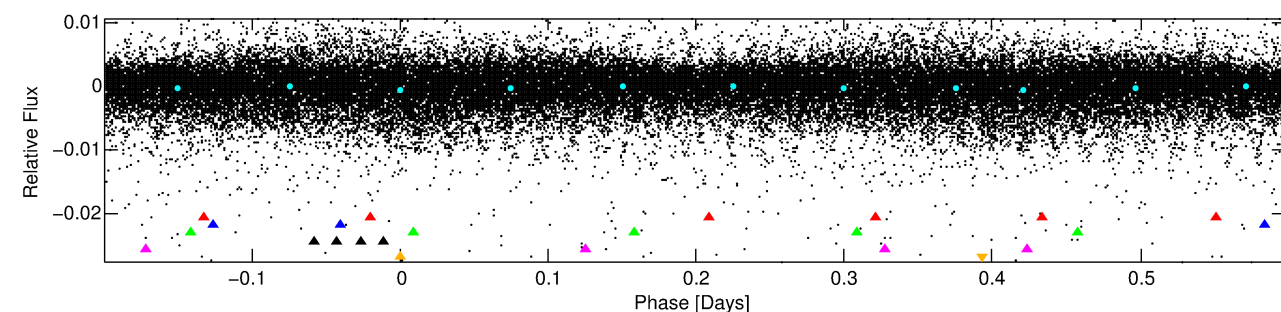
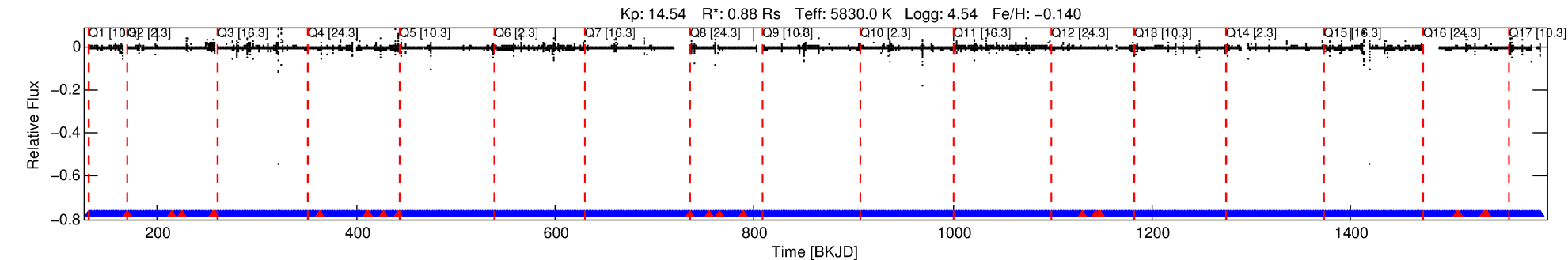
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002717423-06

No Significant Match Found

# DV One-Page Summary

KIC: 2717423 Candidate: 6 of 6 Period: 0.796 d



## TPS TCE Results:

Period = 0.79642 d  
Epoch = 131.9235 BKJD

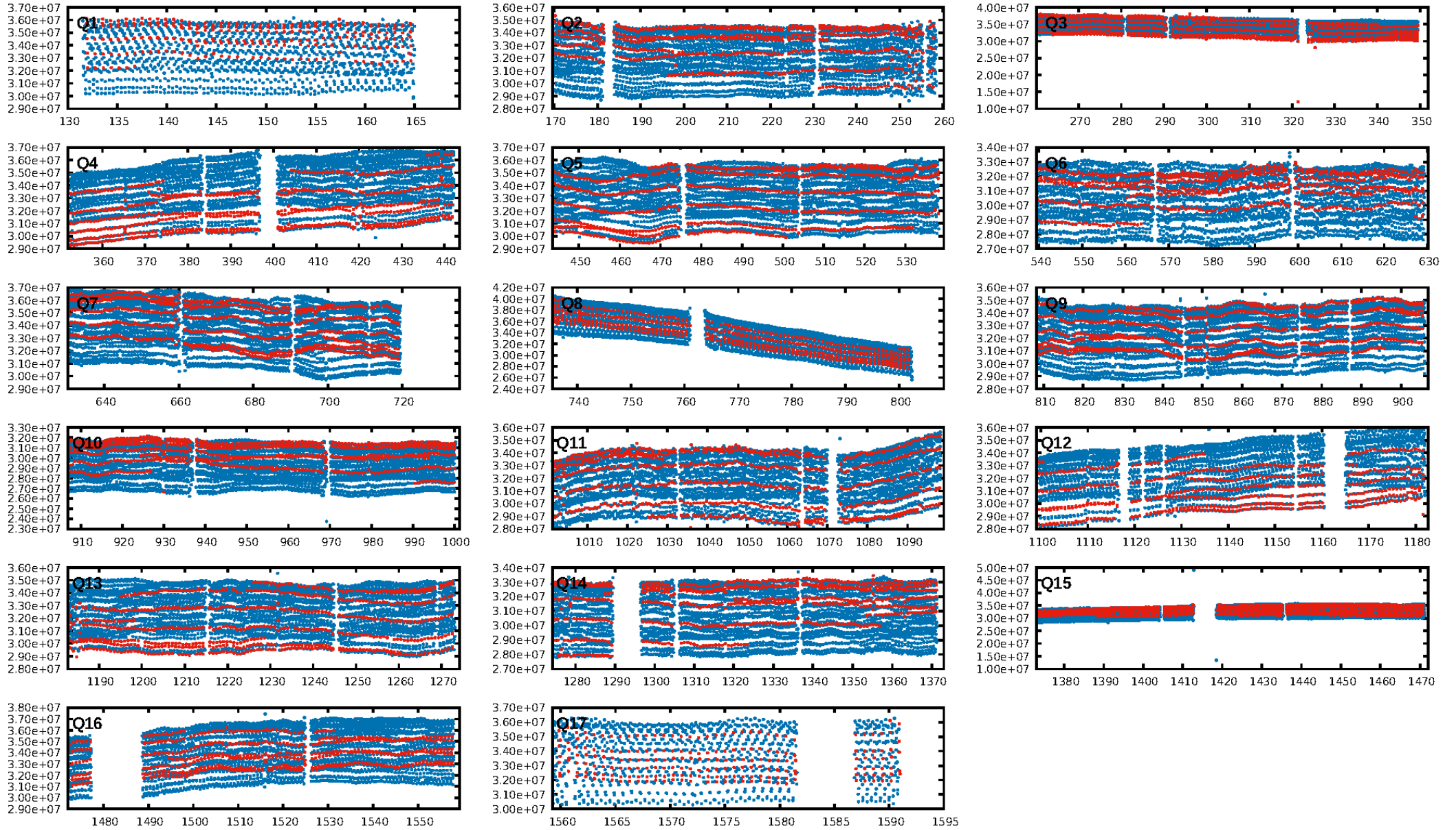
**DV fit results are unavailable**

## DV Diagnostic Results:

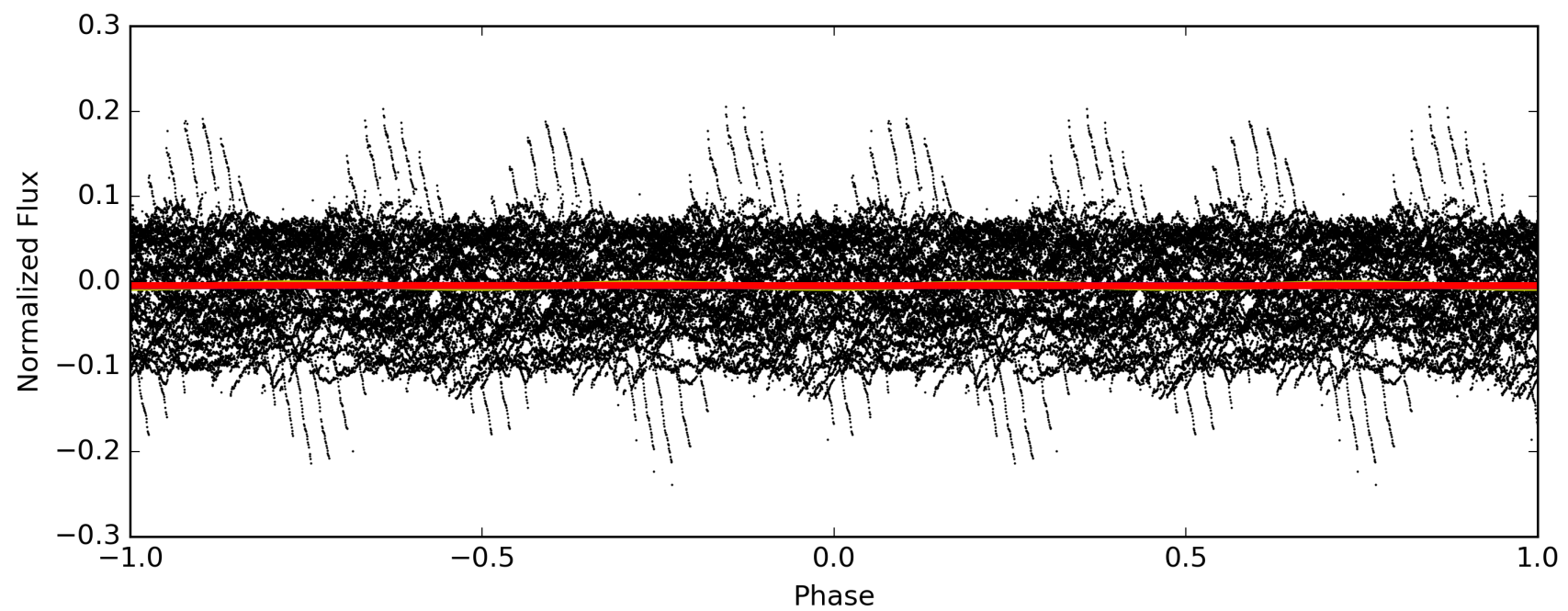
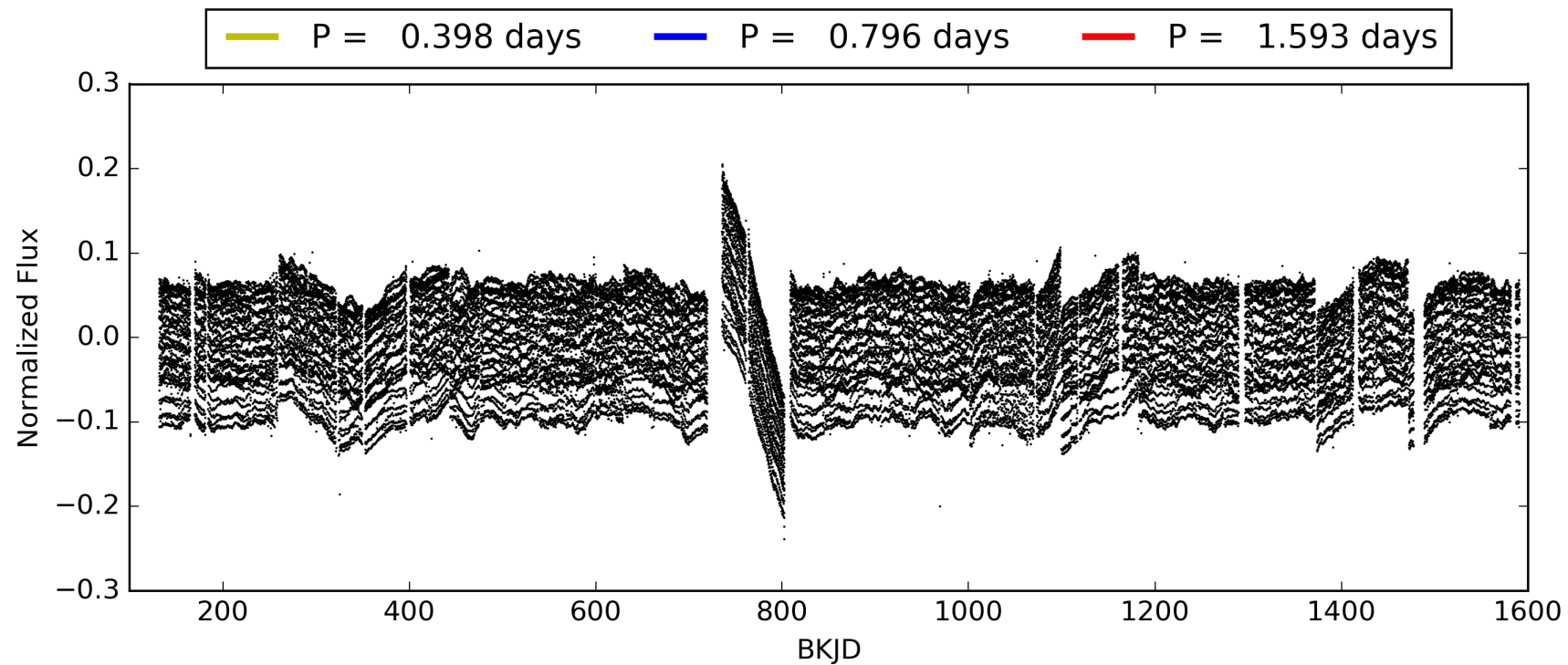
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [986.47σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1589/1614]  
**GhostDiagnostic-chr: -0.7406**

Centroid-sig: 34.9%  
**Centroid-so: 0.769 arcsec [176.66σ]**  
OotOffset-rm: 0.281 arcsec [1.75σ]  
KicOffset-rm: 0.332 arcsec [2.45σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 002717423-06, PDC Light Curves

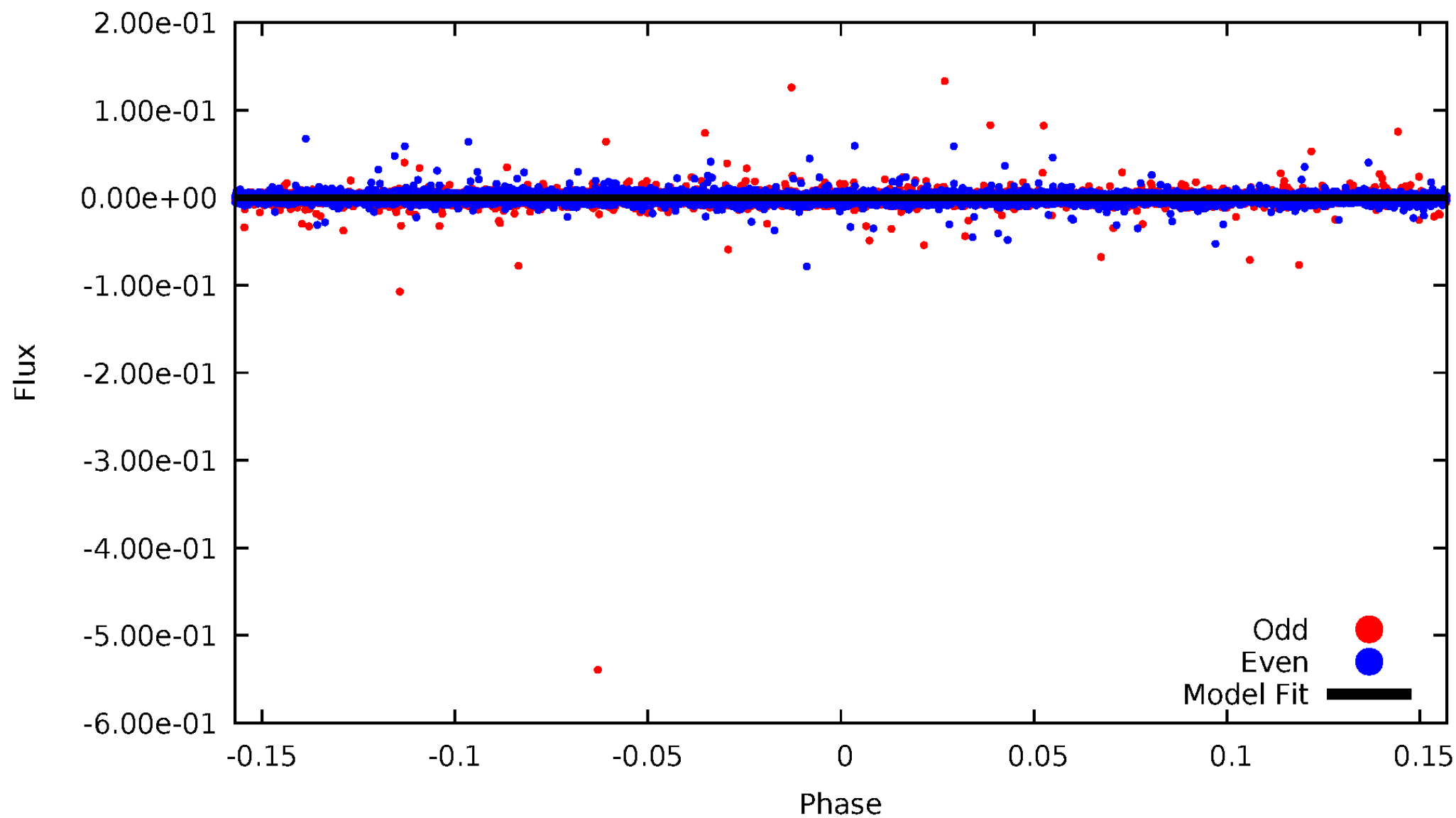


TCE 002717423-06



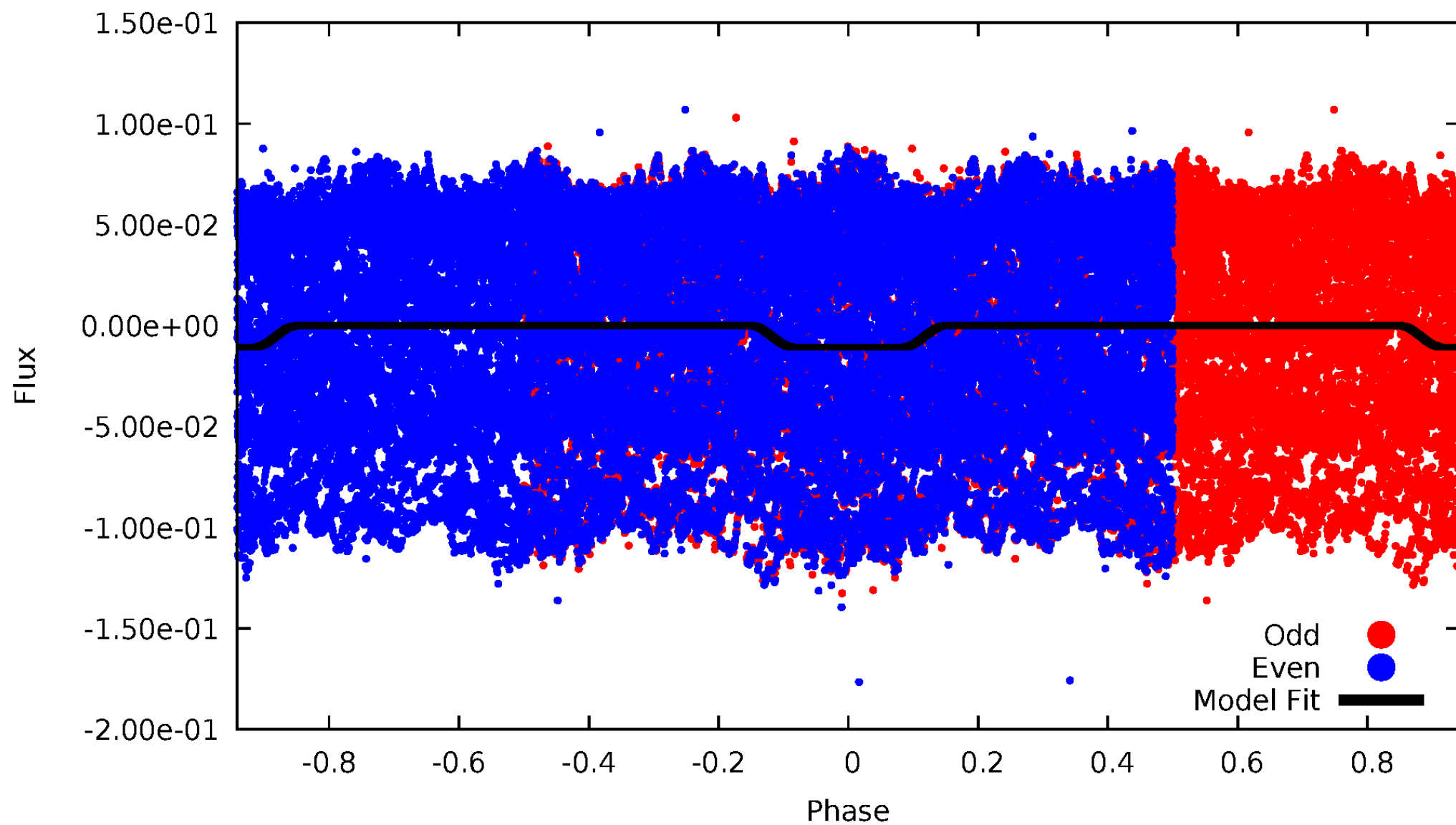
# DV Odd/Even

TCE 002717423-06



# ALT Odd/Even

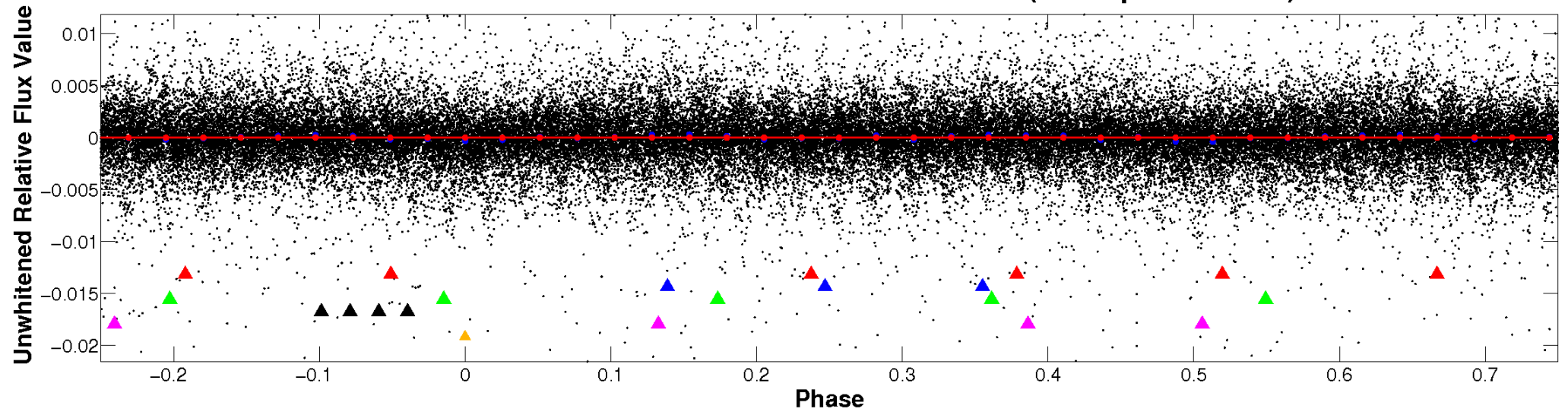
TCE 002717423-06



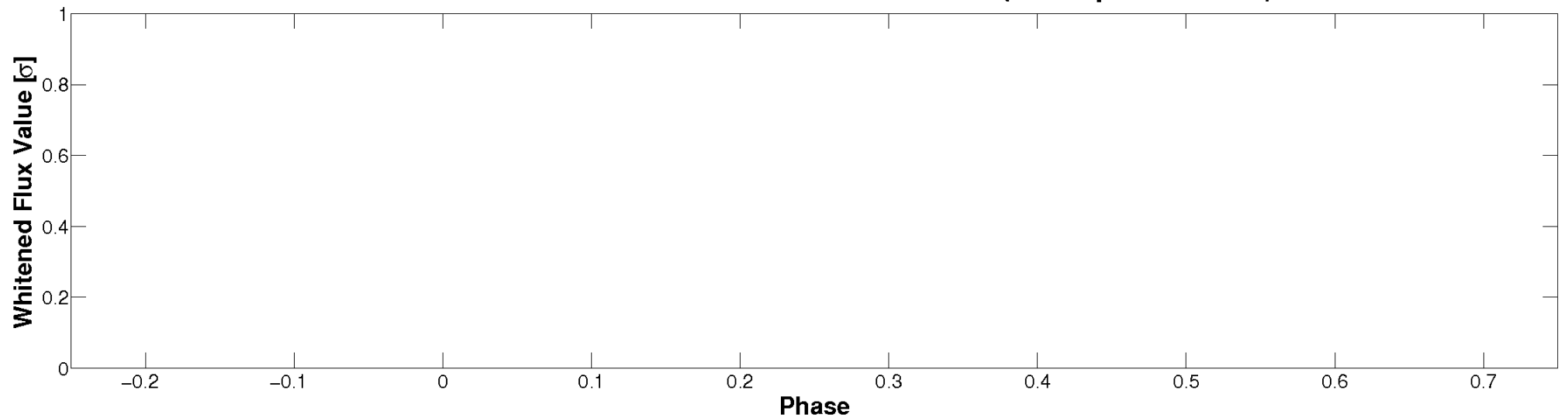


# Non-Whitened Vs. Whitened Light Curve

**Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

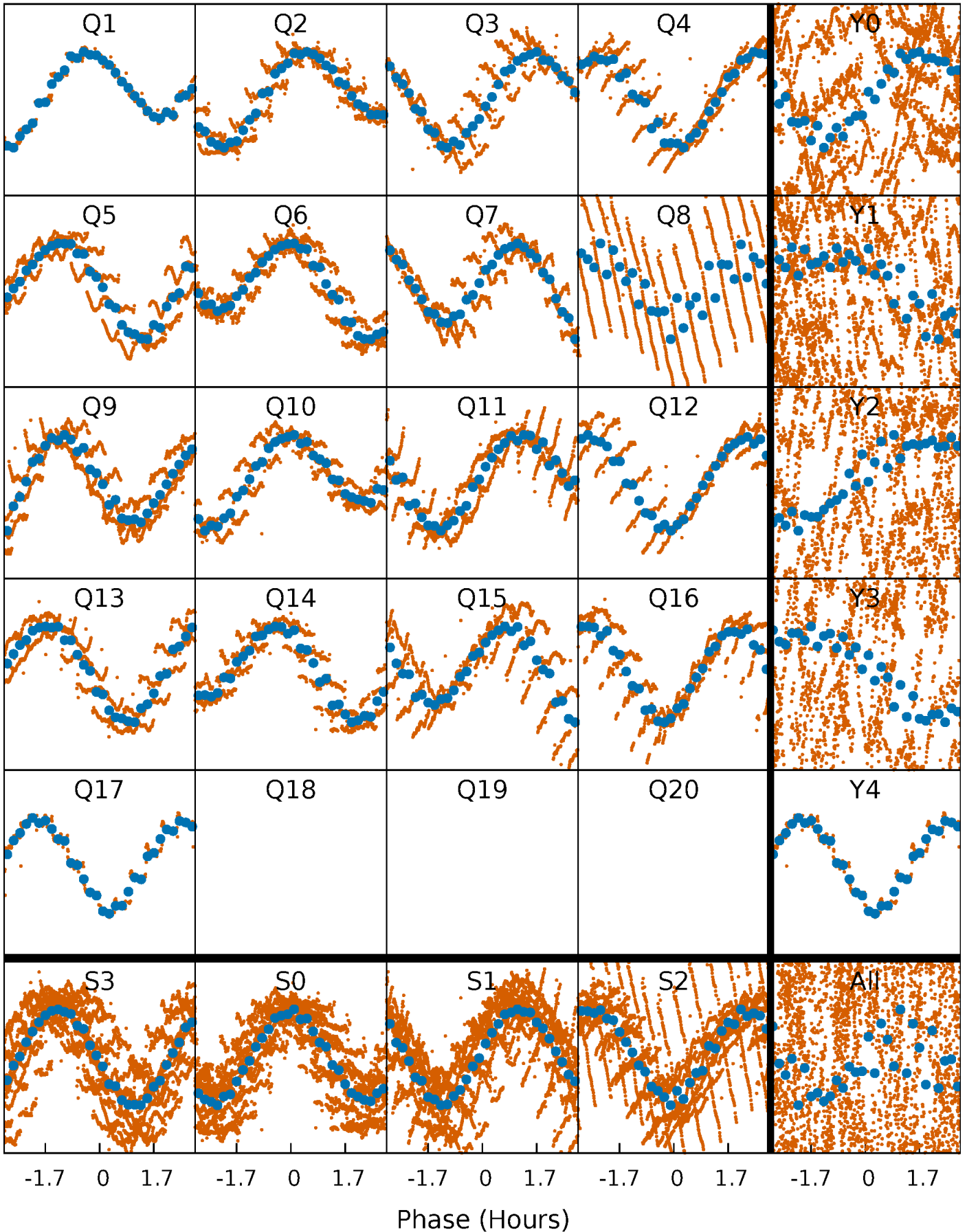


**Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

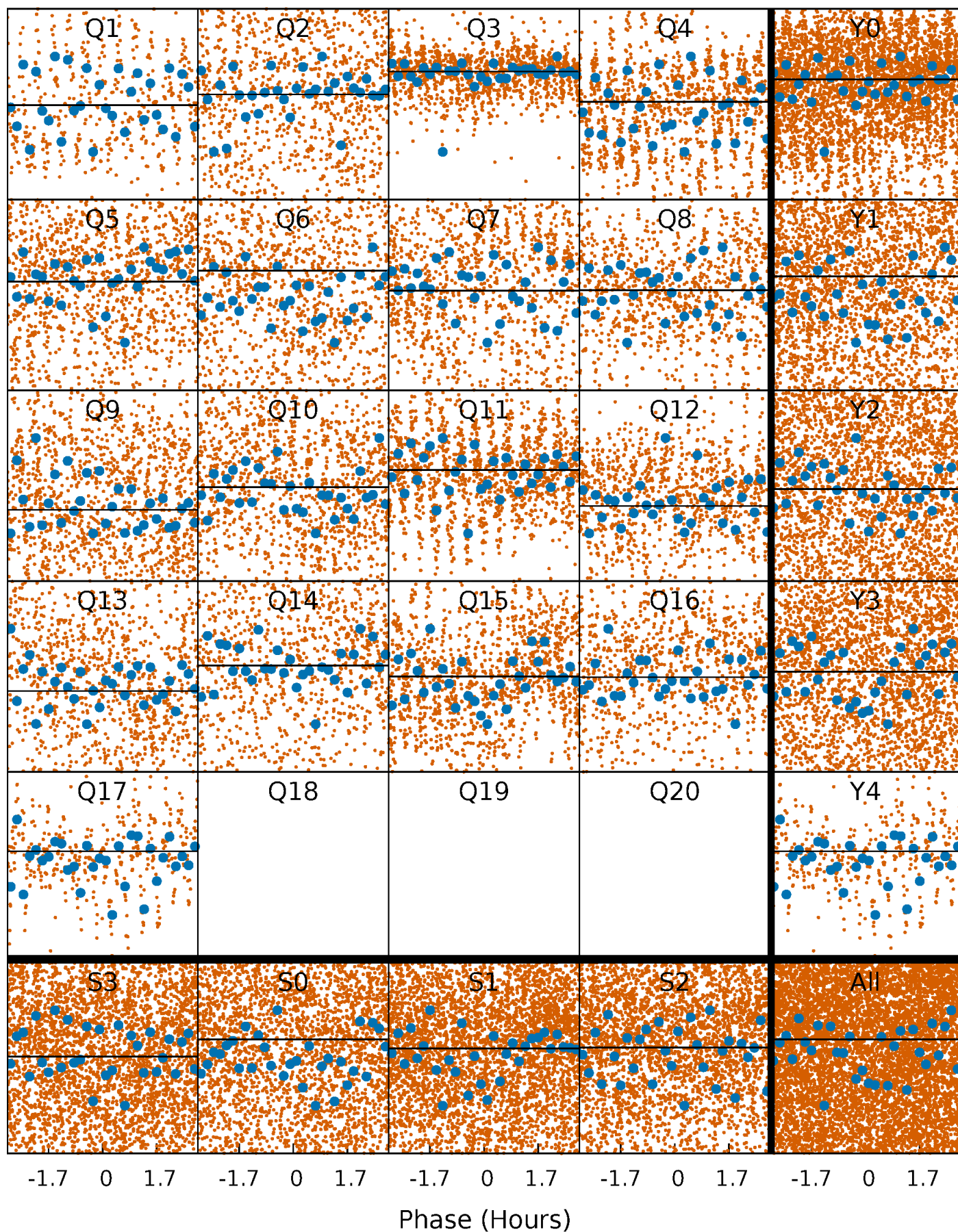
TCE 002717423-06 P= 0.796418 Days  $T_0=131.923494$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 002717423-06   P= 0.796418 Days    $T_0=131.923494$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

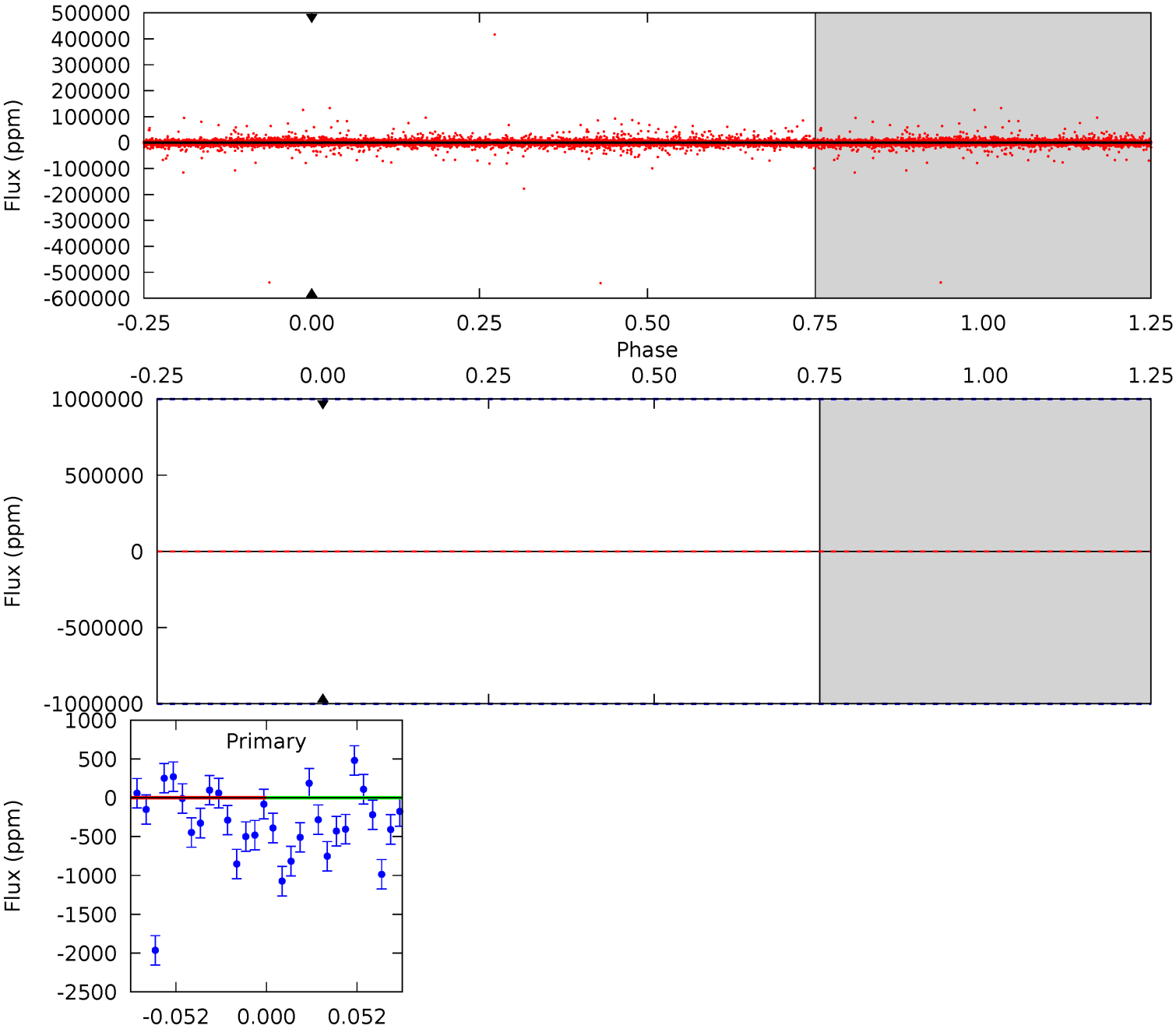
TCE 002717423-06 P= 0.796418 Days  $T_0=131.903416$  (BKJD)



# DV Model-Shift Uniqueness Test

002717423-06, P = 0.796418 Days, E = 131.127076 Days

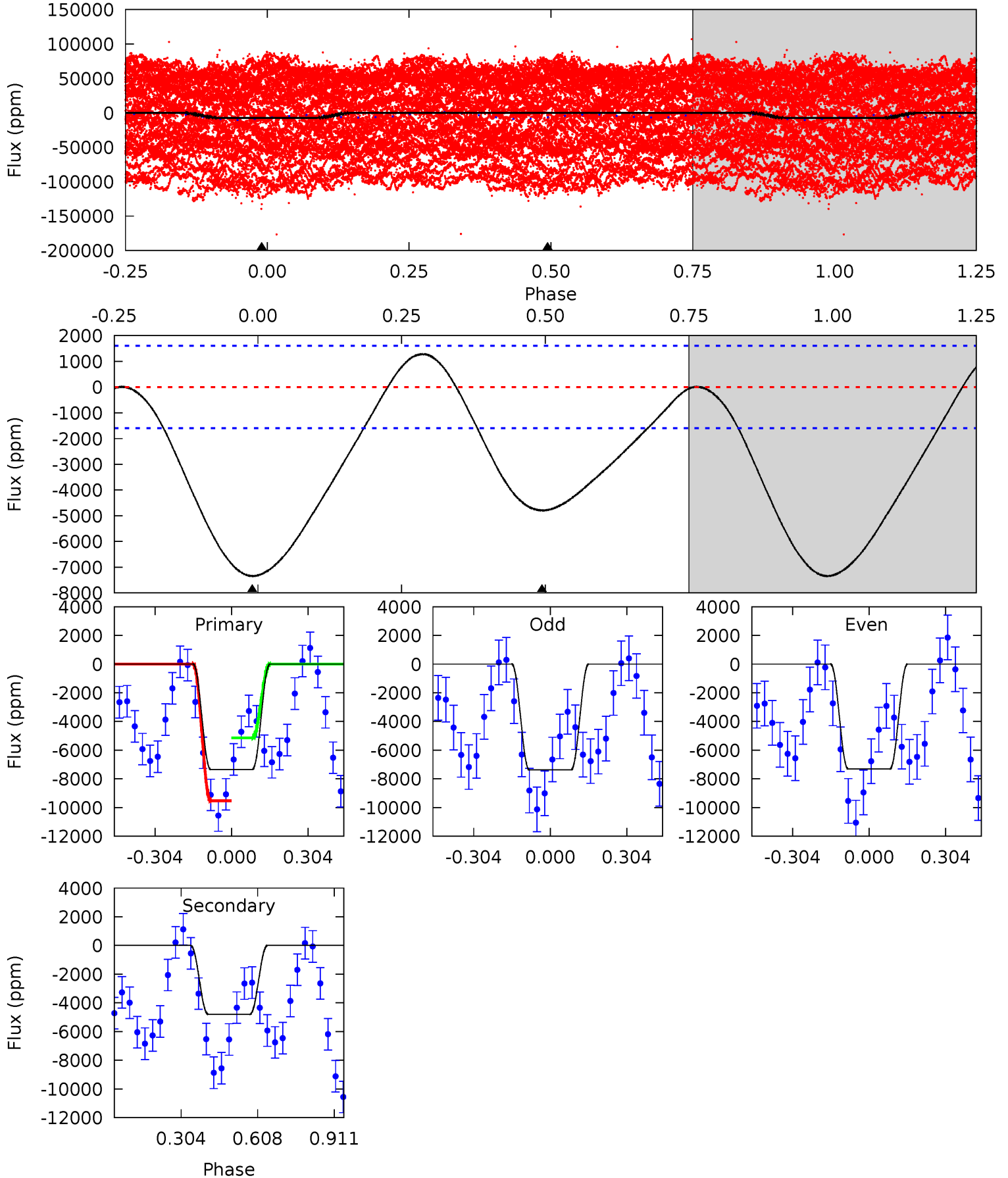
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

002717423-06, P = 0.796418 Days, E = 131.106998 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
19.8	13.0	0	0	4.33	1.03	1.39	19.8	19.8	13.0	13.0	0.10	2.16	0.15	5.75



### Stellar Parameters For KIC 002717423

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5830^{+140}_{-175}$	$4.540^{+0.037}_{-0.213}$	$-0.140^{+0.300}_{-0.300}$	$0.876^{+0.278}_{-0.069}$	$0.970^{+0.116}_{-0.116}$	$2.036^{+0.422}_{-1.077}$
	+2%/-3%	+1%/-5%	+214%/-214%	+32%/-8%	+12%/-12%	+21%/-53%
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 002717423-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$9.84^{+8.56}_{-6.54}$	$2667^{+188}_{-115}$	$4983^{+11010}_{-19099}$	$6.852^{+268.291}_{-220.084}$
Alt.	$-4796 \pm 370$	$12.82^{+9.28}_{-8.00}$	$2667^{+181}_{-116}$	$4414^{+2610}_{-847}$	$4.339^{+26.838}_{-2.853}$

$T_{max}$  = 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

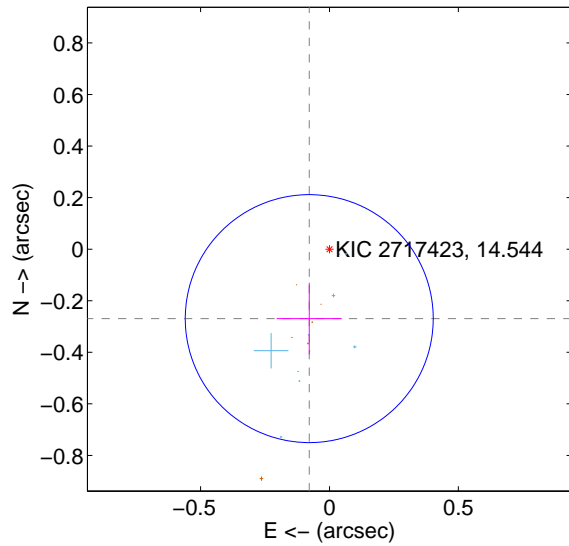
Supplemental centroid analysis for 002717423-06. Kepler magnitude: 14.54. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

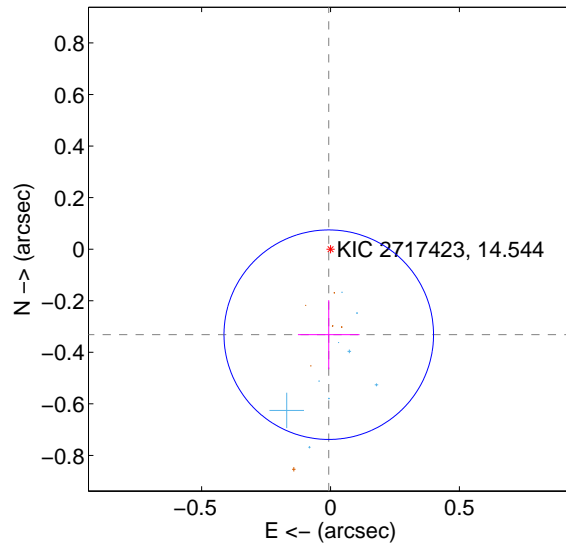
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.281 \pm 0.160$	1.75	$0.078 \pm 0.126$	$-0.269 \pm 0.139$
PRF-fit source offset from KIC position	$0.332 \pm 0.135$	2.45	$0.007 \pm 0.119$	$-0.332 \pm 0.134$
photometric centroid source offset	$0.77 \pm 0.00$	176.66	$0.21 \pm 0.00$	$-0.74 \pm 0.00$

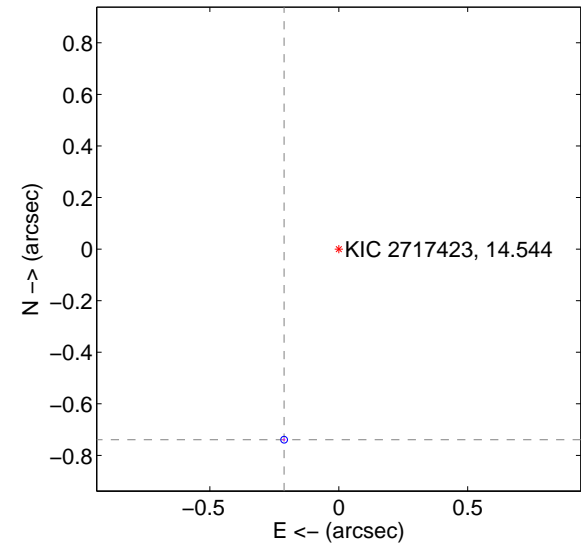
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



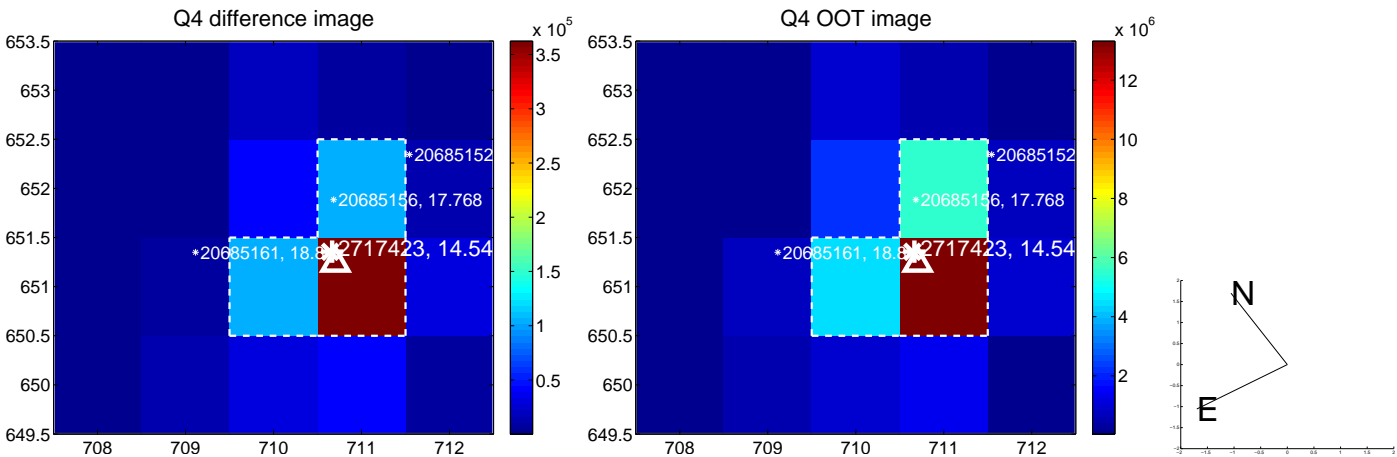
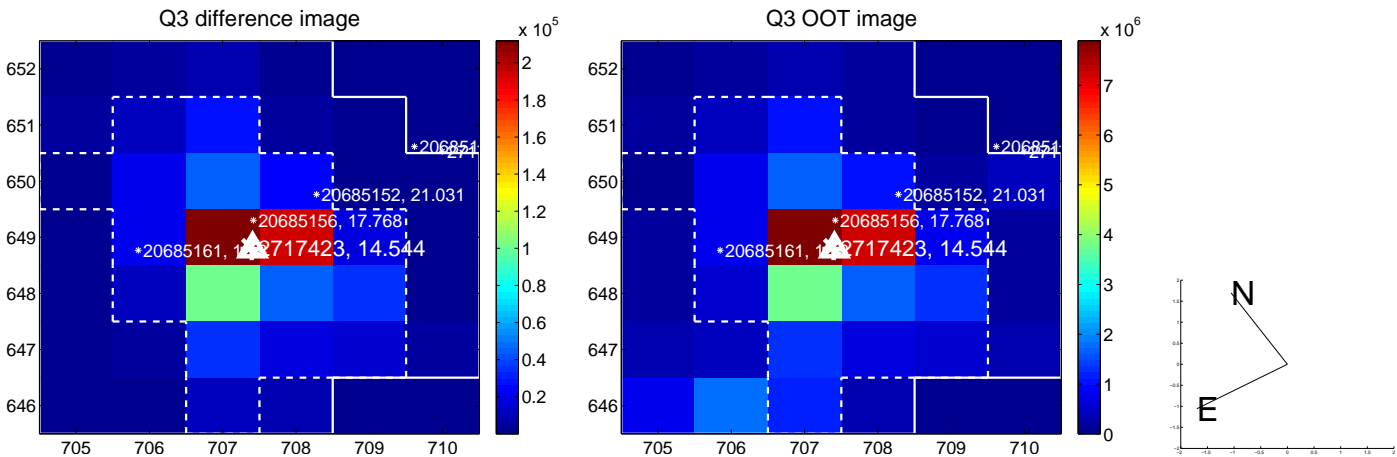
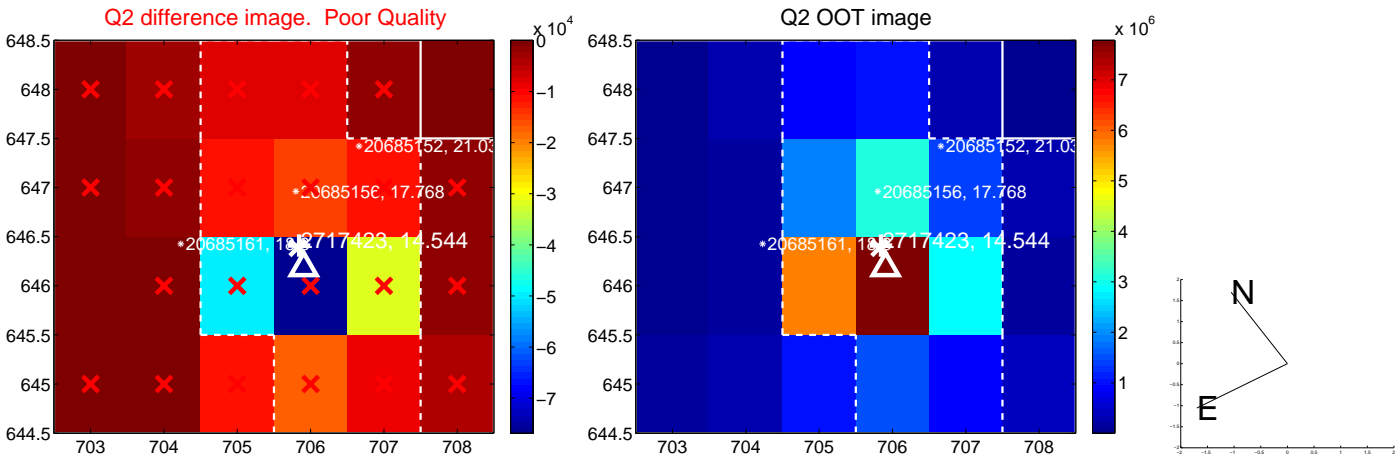
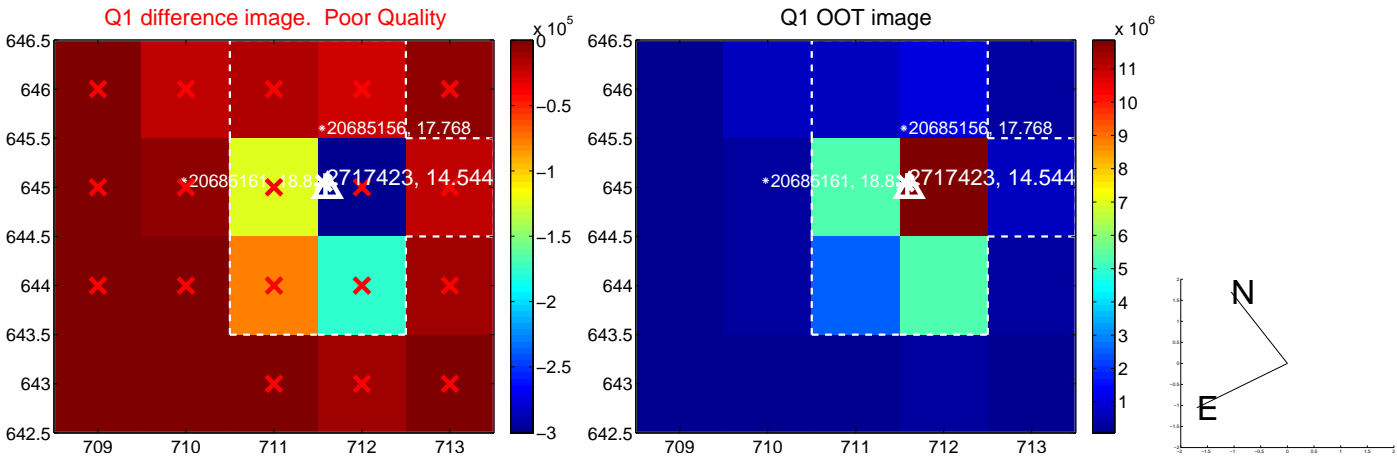
offset from photometric centroids



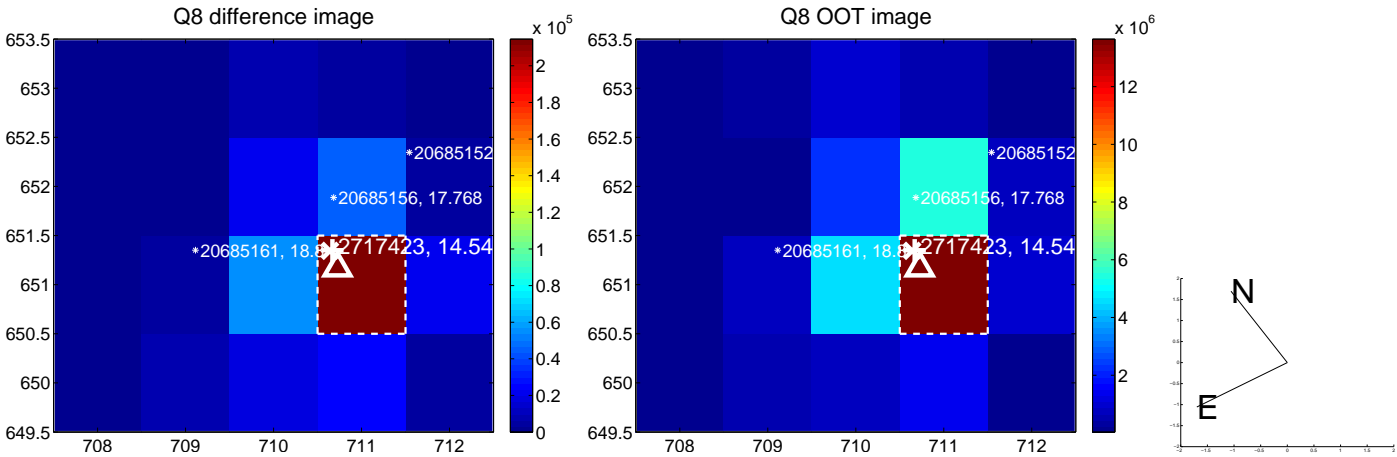
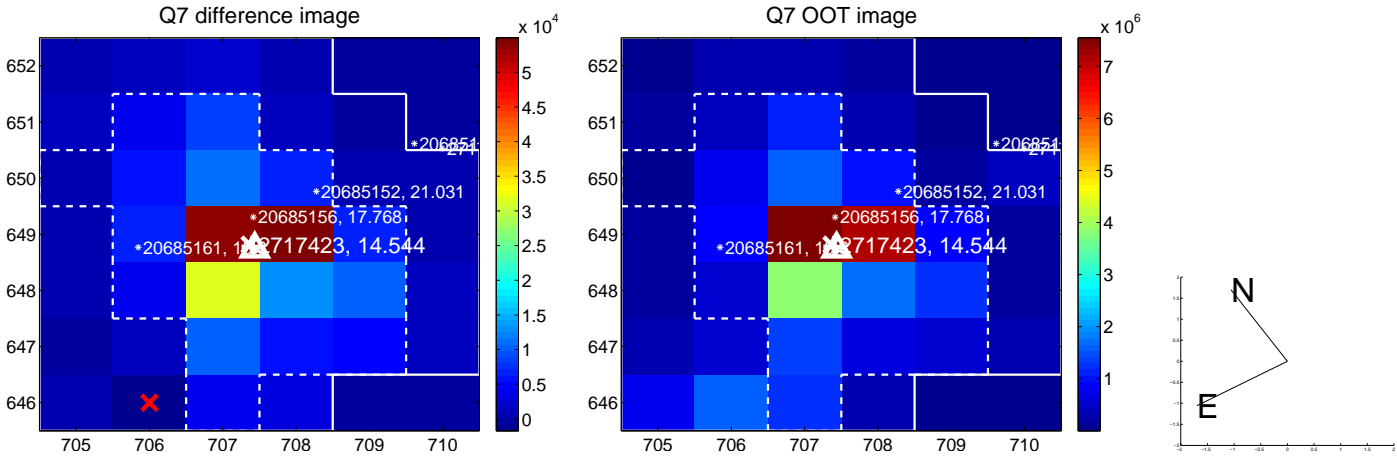
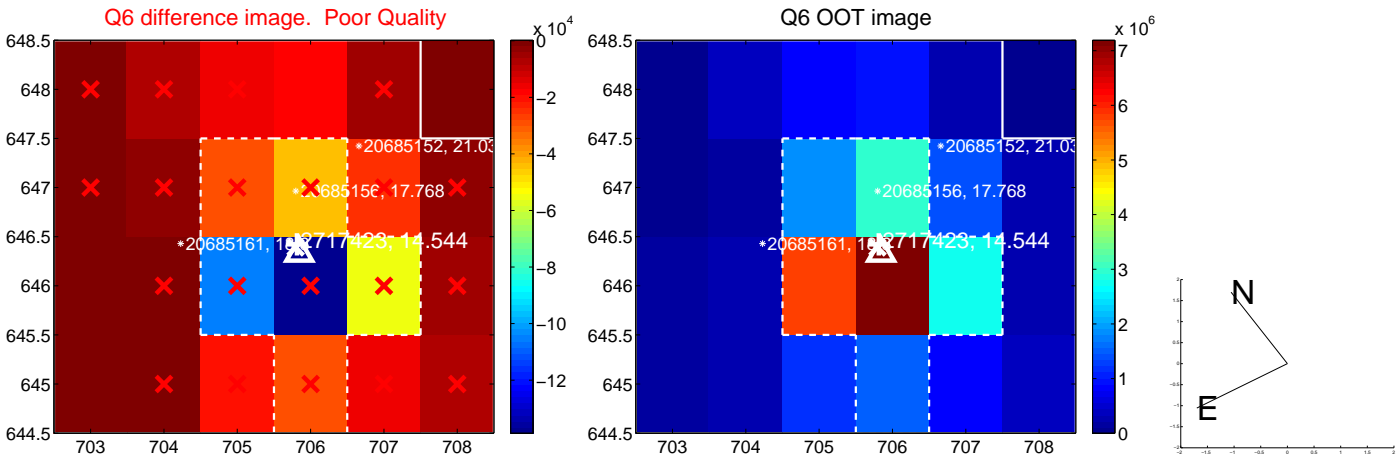
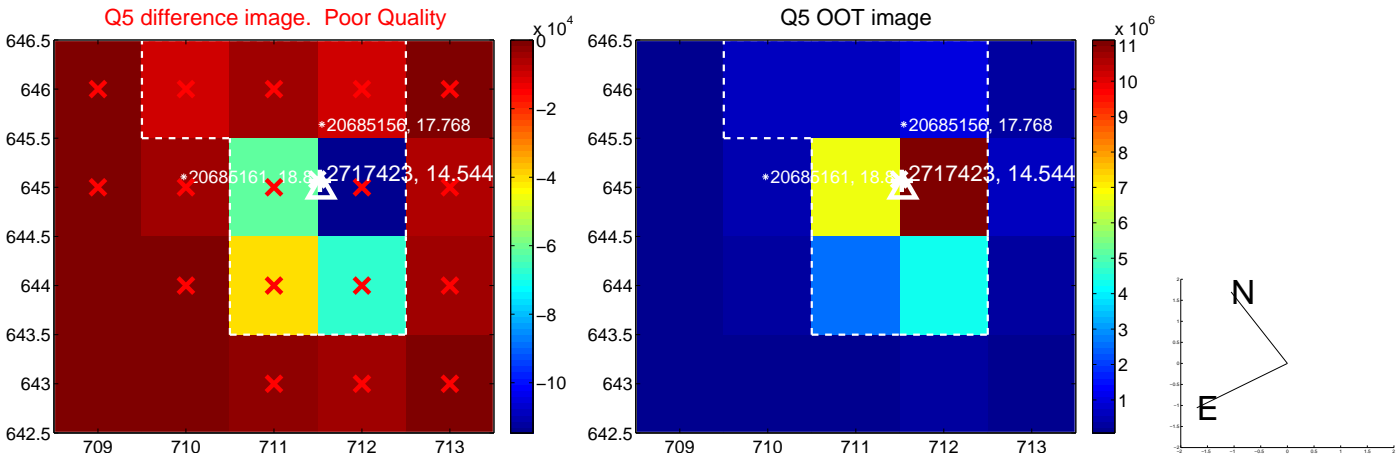
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.



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

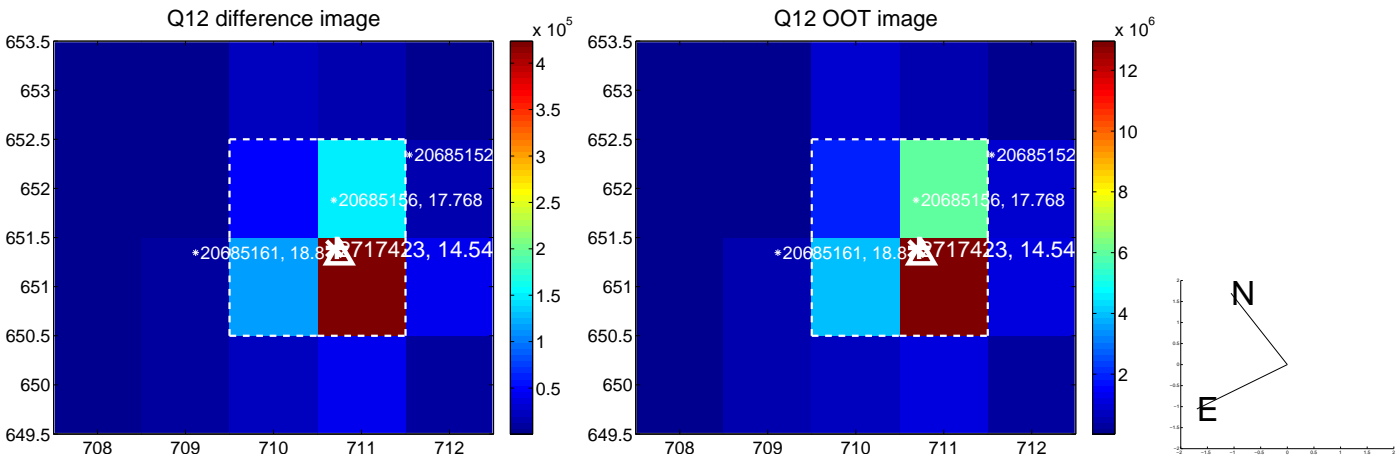
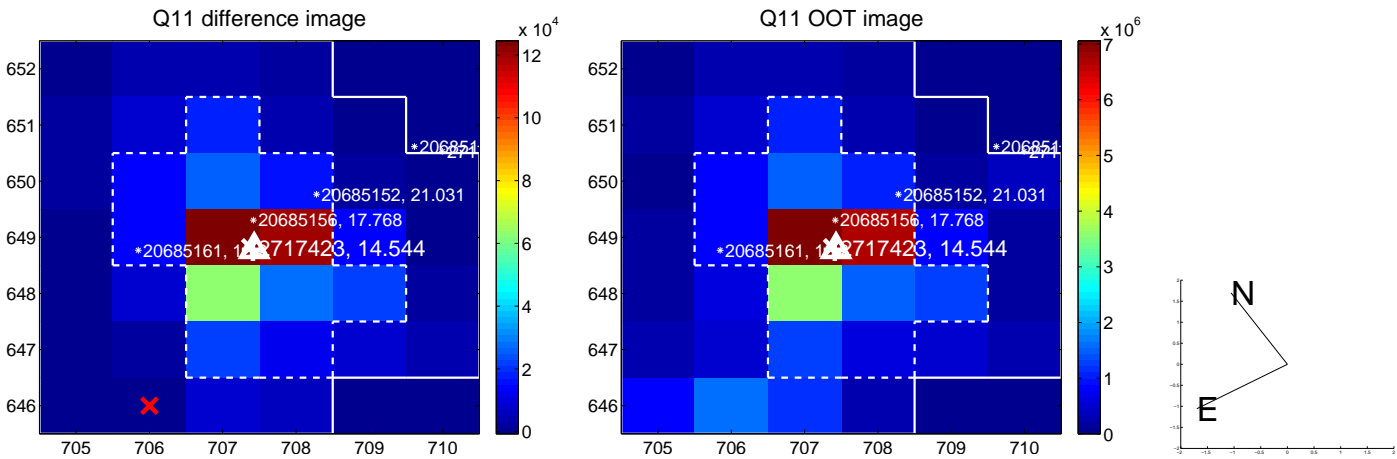
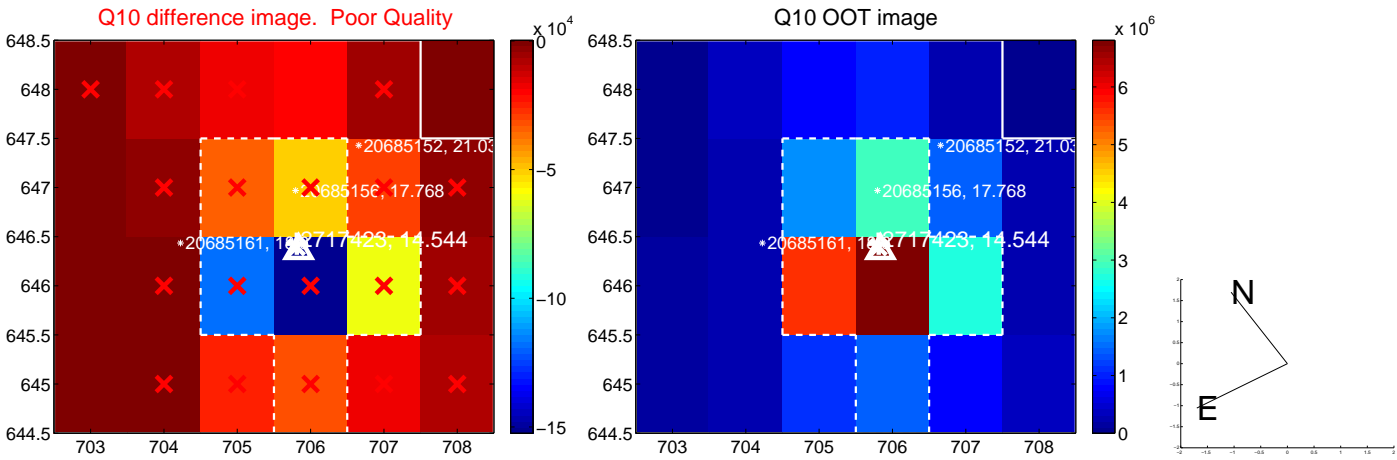
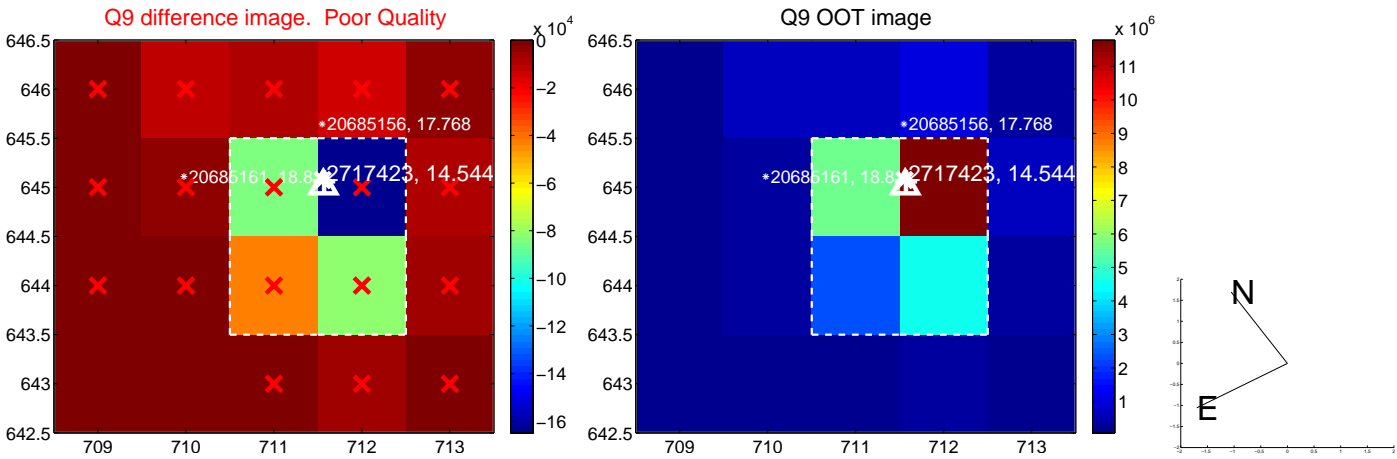


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

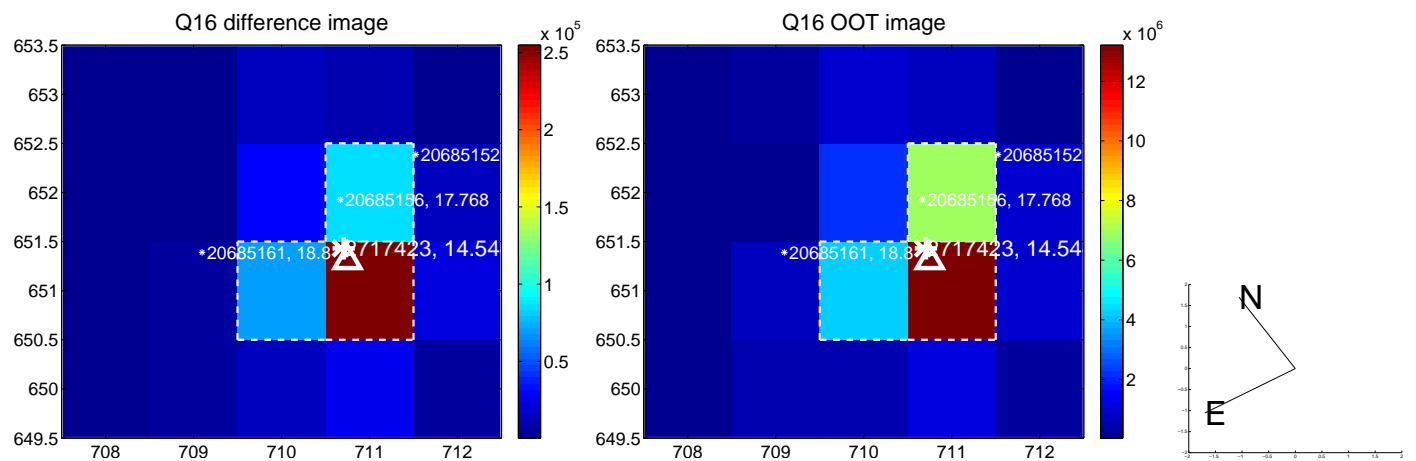
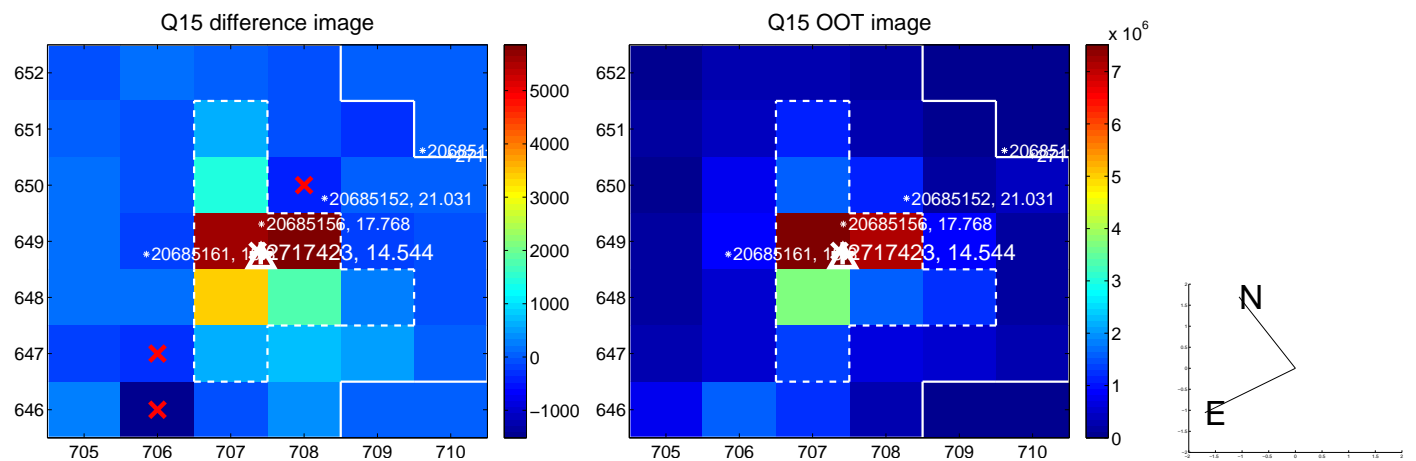
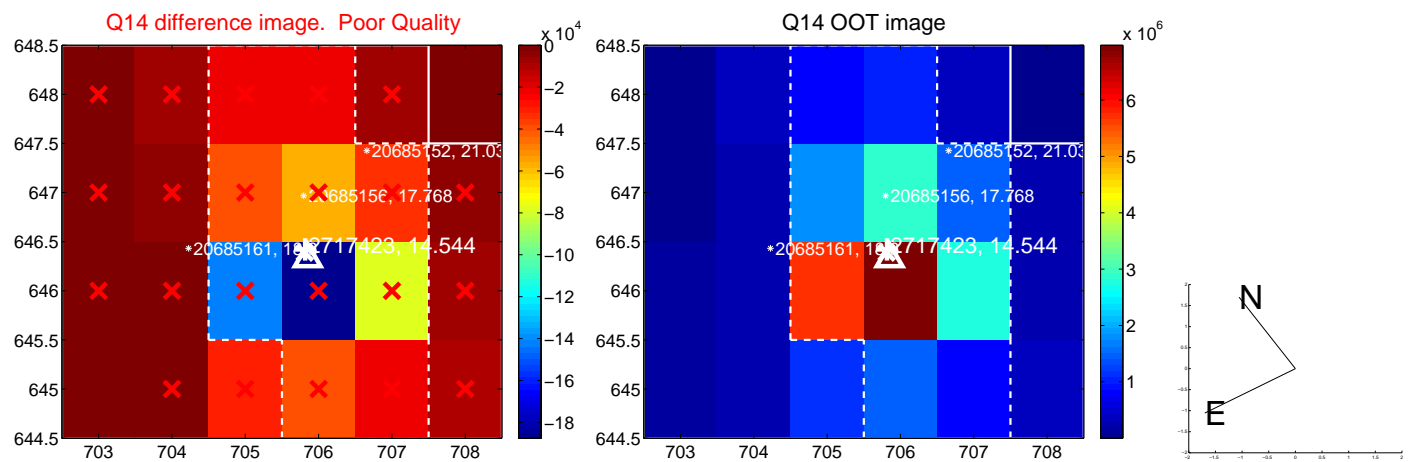
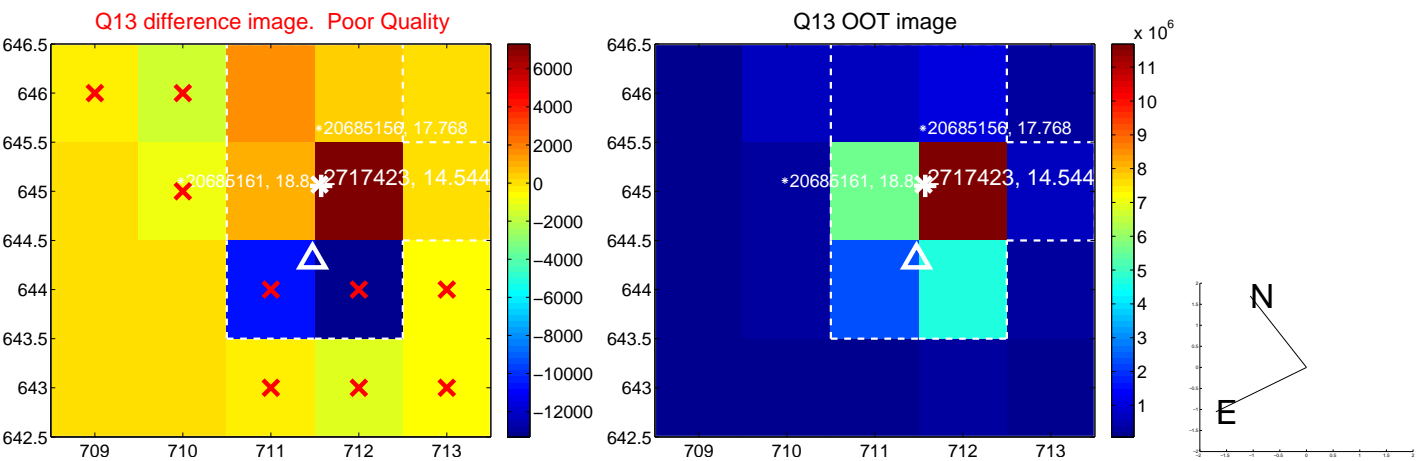




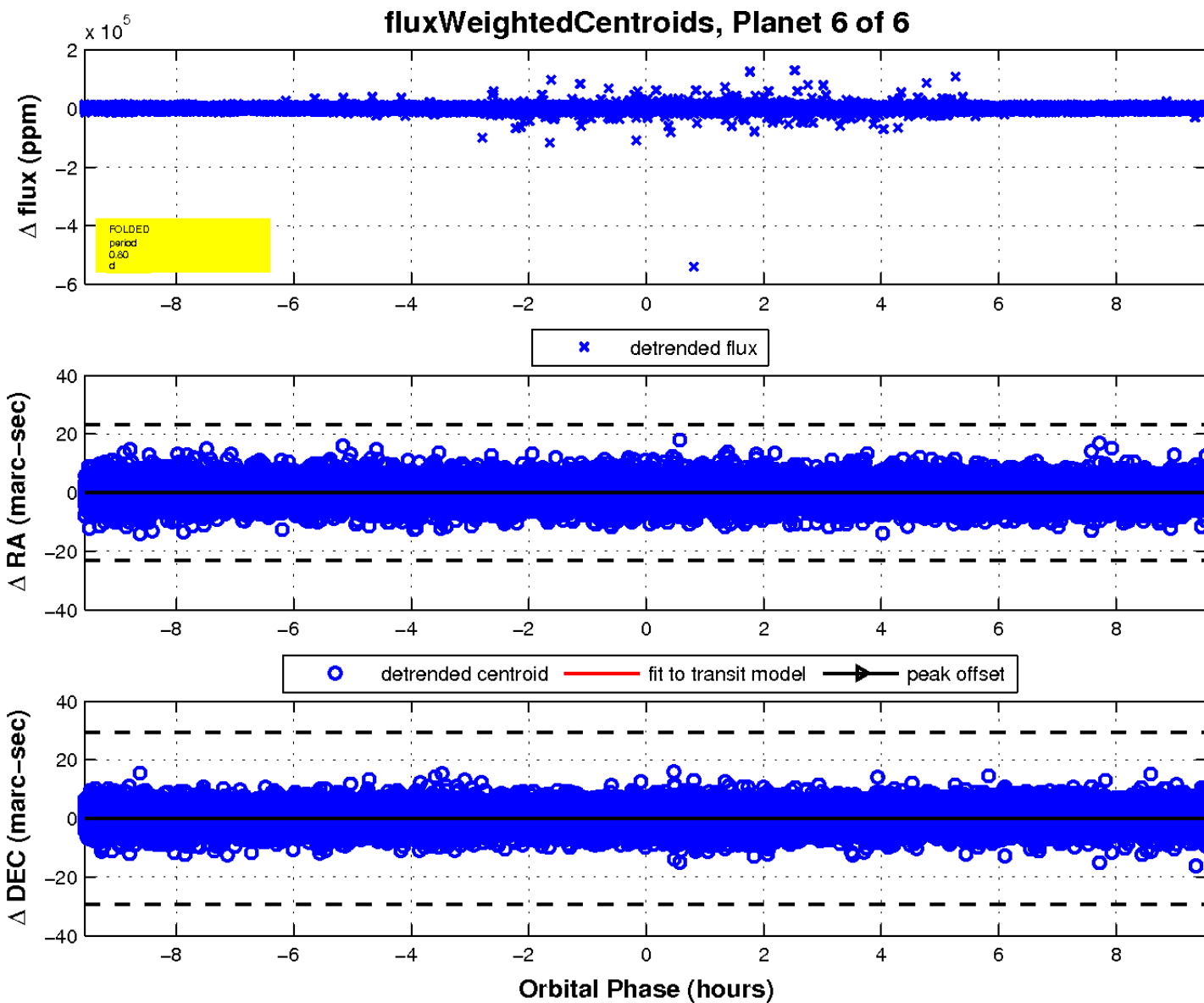
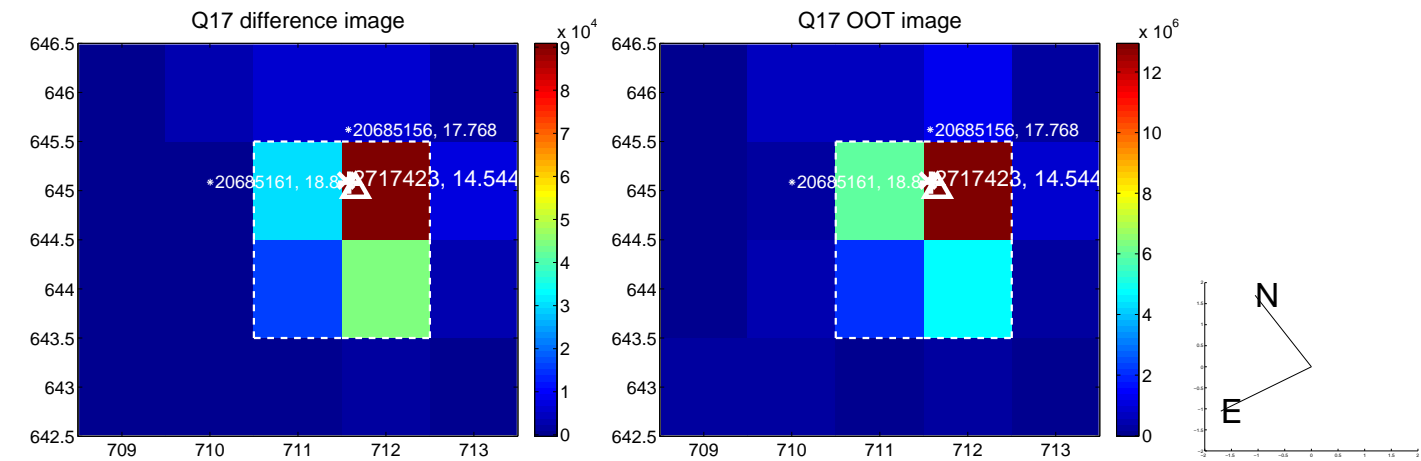
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

