

KIC 000893647

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})
000893647-01	OBS	No	407.101807	318.394868	1871.9	6.663	12.5	6.7	0.70	4856	3.06	0.27
000893647-02	OBS	No	491.470439	532.242287	2744.3	8.641	12.6	9.1	0.70	4856	3.54	0.21
000893647-03	OBS	No	551.919829	467.976563	2108.0	7.048	11.4	7.0	0.70	4856	3.27	0.18
000893647-04	OBS	No	397.411030	523.175722	1452.0	4.062	10.7	5.6	0.70	4856	2.56	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
000893647-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
000893647-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

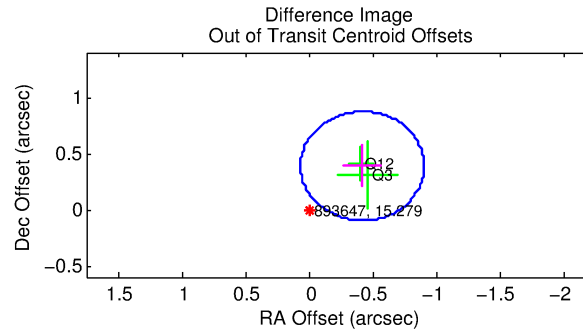
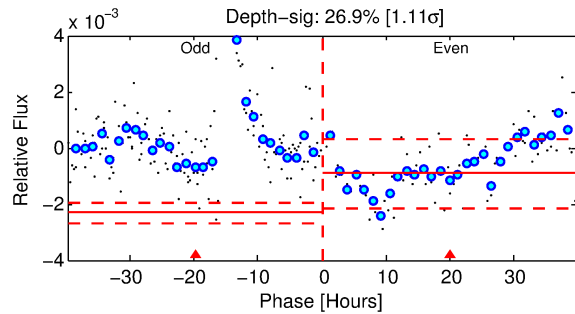
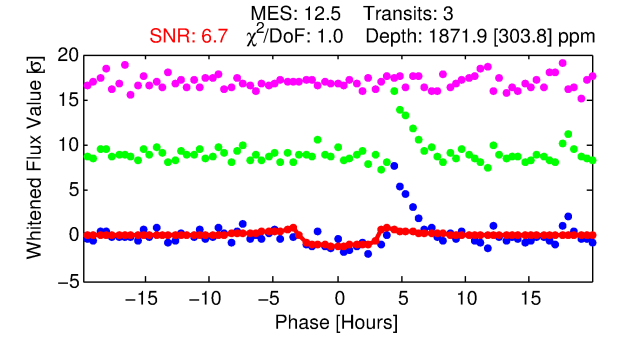
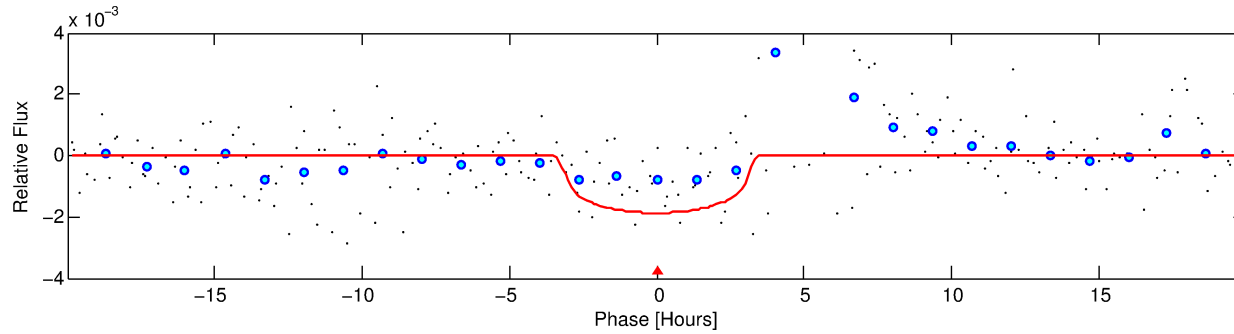
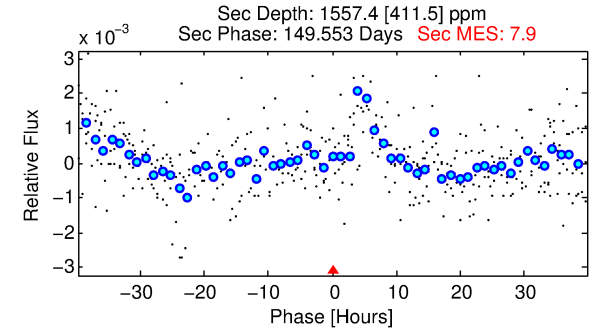
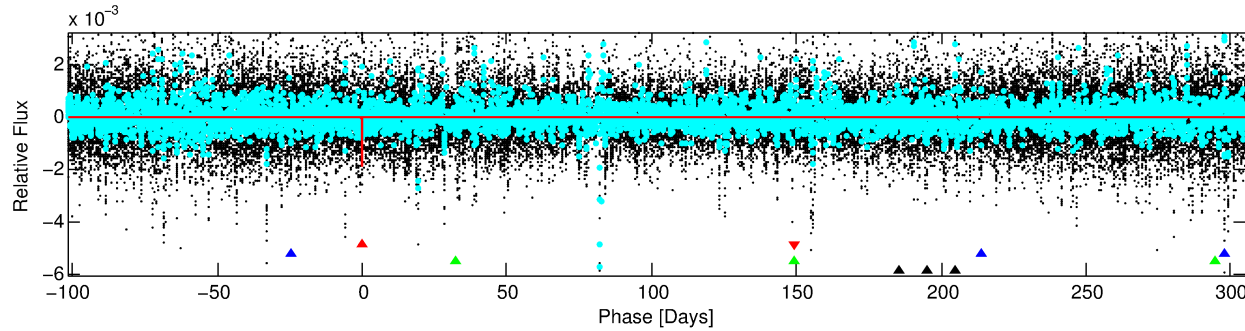
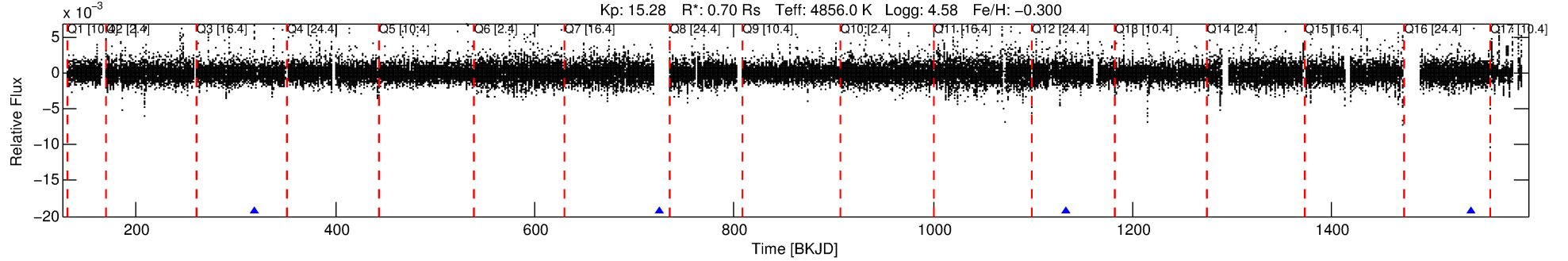
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 000893647-01

No Significant Match Found

DV One-Page Summary

KIC: 893647 Candidate: 1 of 4 Period: 407.102 d



DV Fit Results:

Period = 407.10181 [0.00553] d
Epoch = 318.3949 [0.0113] BKJD
Rp/R* = 0.0403 [0.0366]
a/R* = 413.38 [1244.14]
b = 0.55 [3.93]
Seff = 0.27 [0.04]
Teq = 184 [8] K
Rp = 3.06 [2.79] Re
a = 0.9439 [0.0753] AU
Ag = 81274.64 [149088.51] [0.55 σ]
Teffp = 4802 [2203] K [2.10 σ]

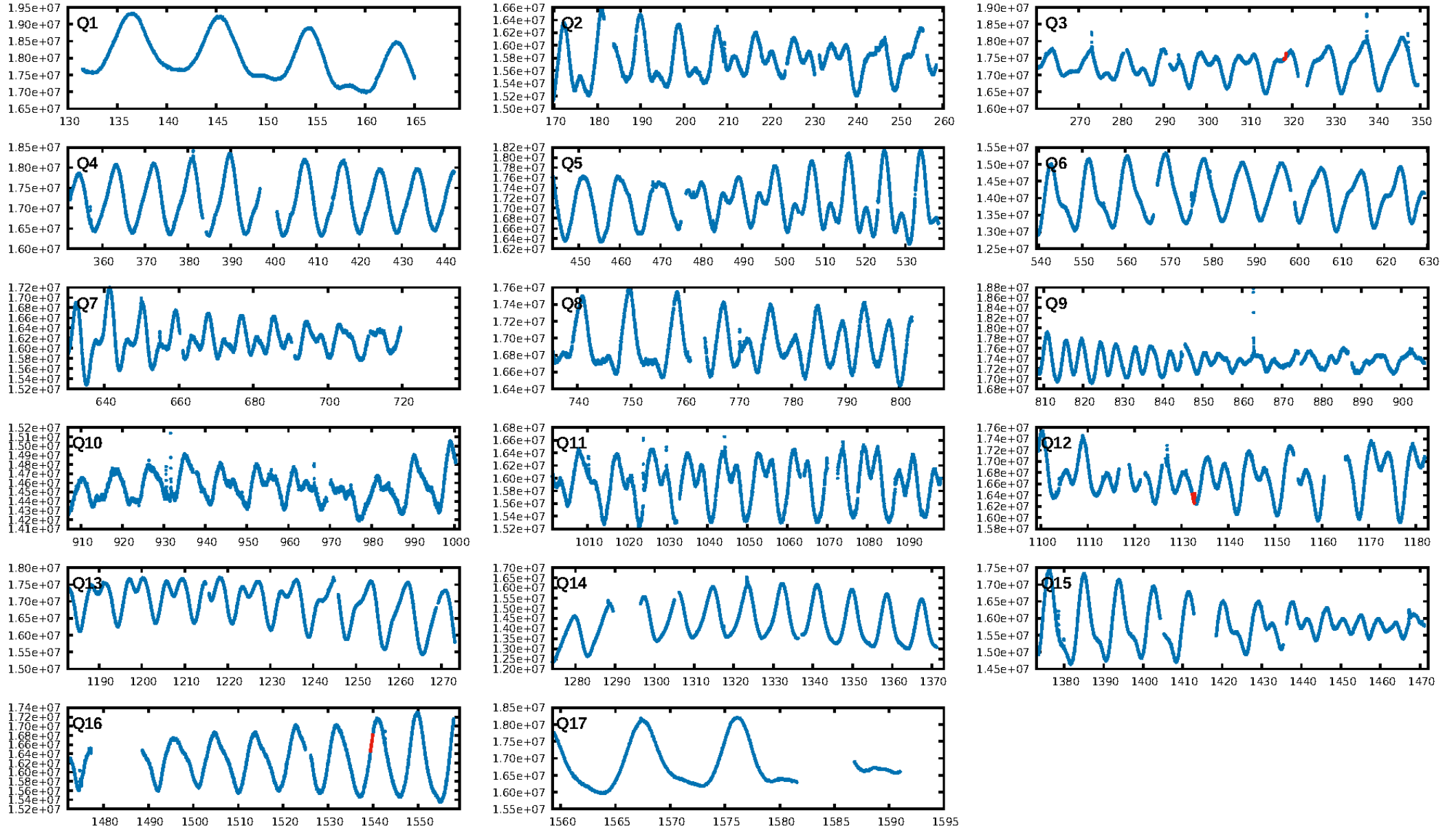
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.80 σ]
LongPeriod-sig: 100.0% [185.56 σ]
ModelChiSquare2-sig: 40.5%
ModelChiSquareGof-sig: 97.7%
Bootstrap-pfa: 3.07e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9057
Centroid-sig: 4.6%
Centroid-so: 0.521 arcsec [0.40 σ]
OotOffset-rm: 0.572 arcsec [3.53 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.546 arcsec [3.42 σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

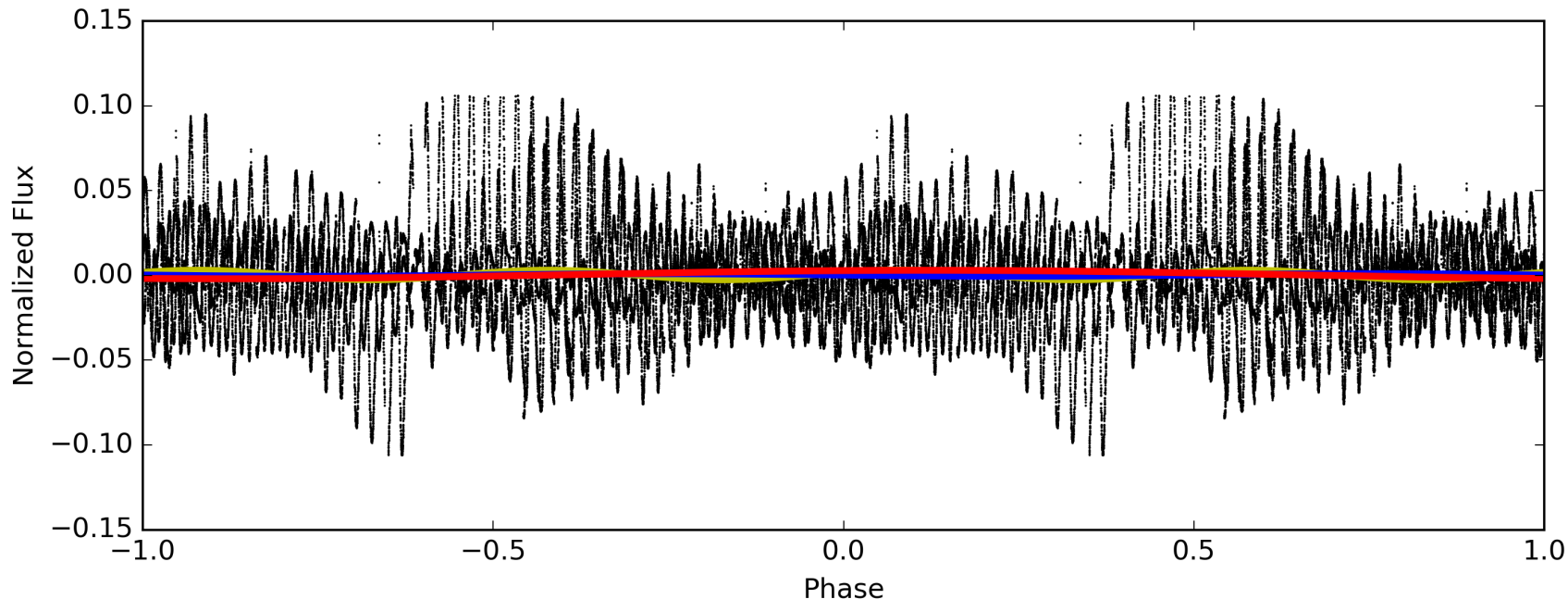
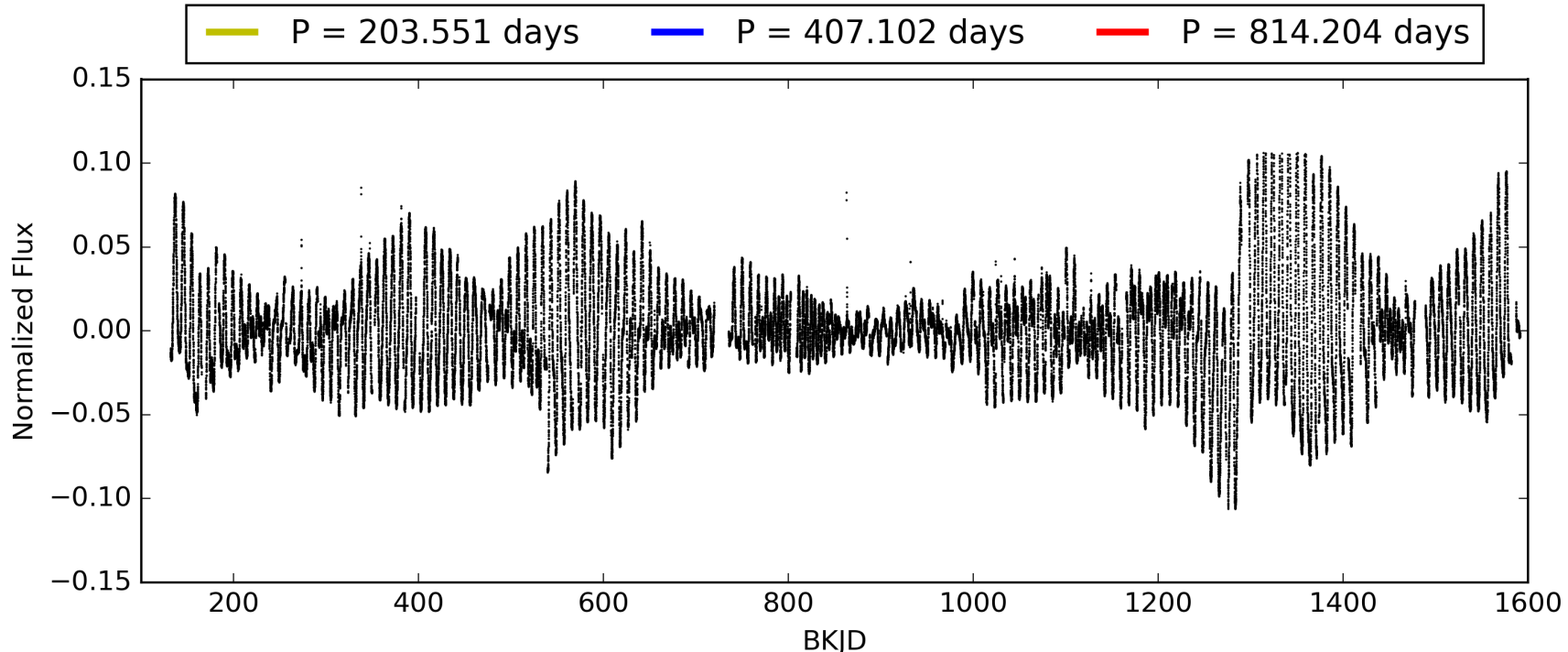
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 000893647-01, PDC Light Curves

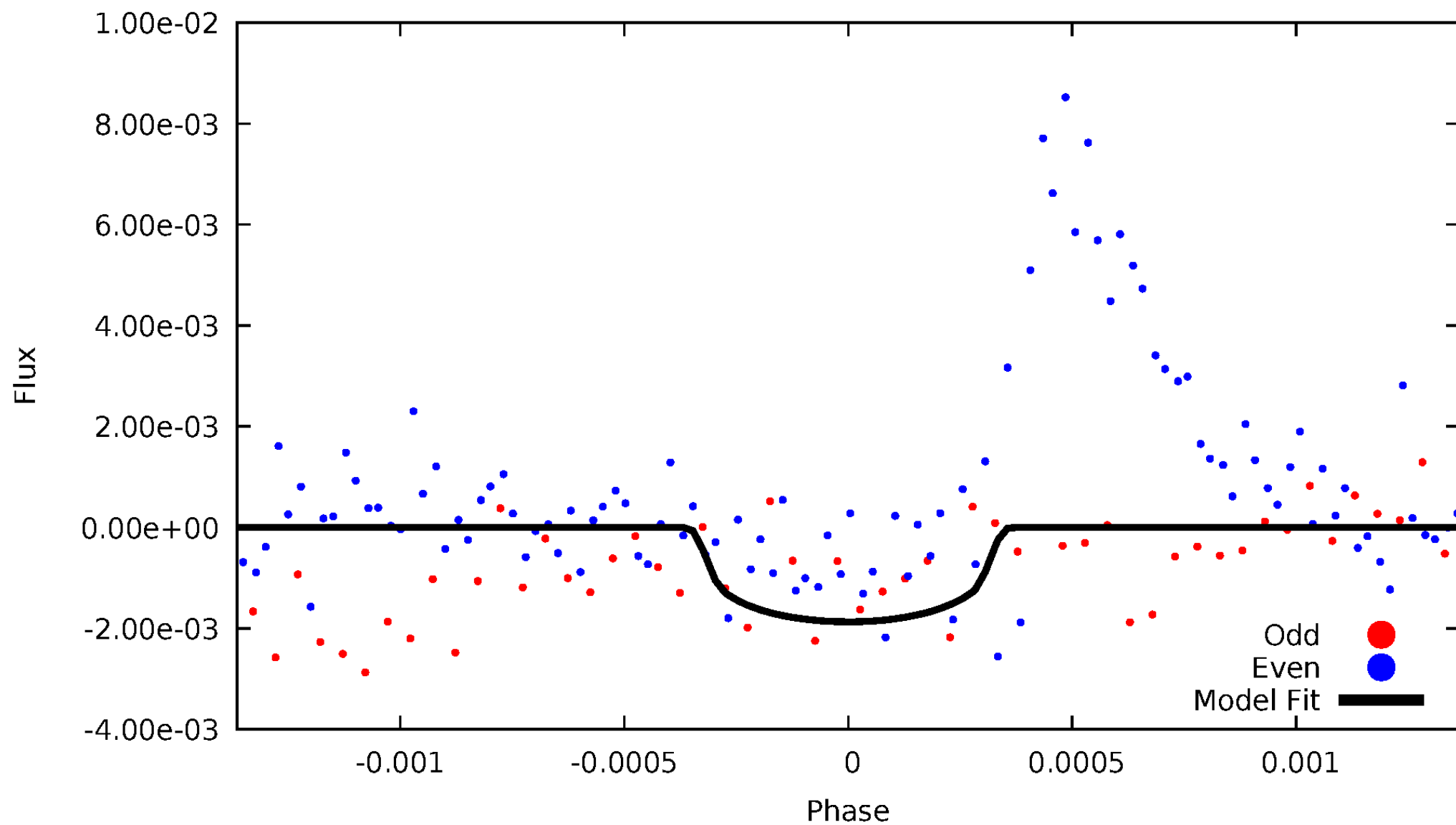


TCE 000893647-01



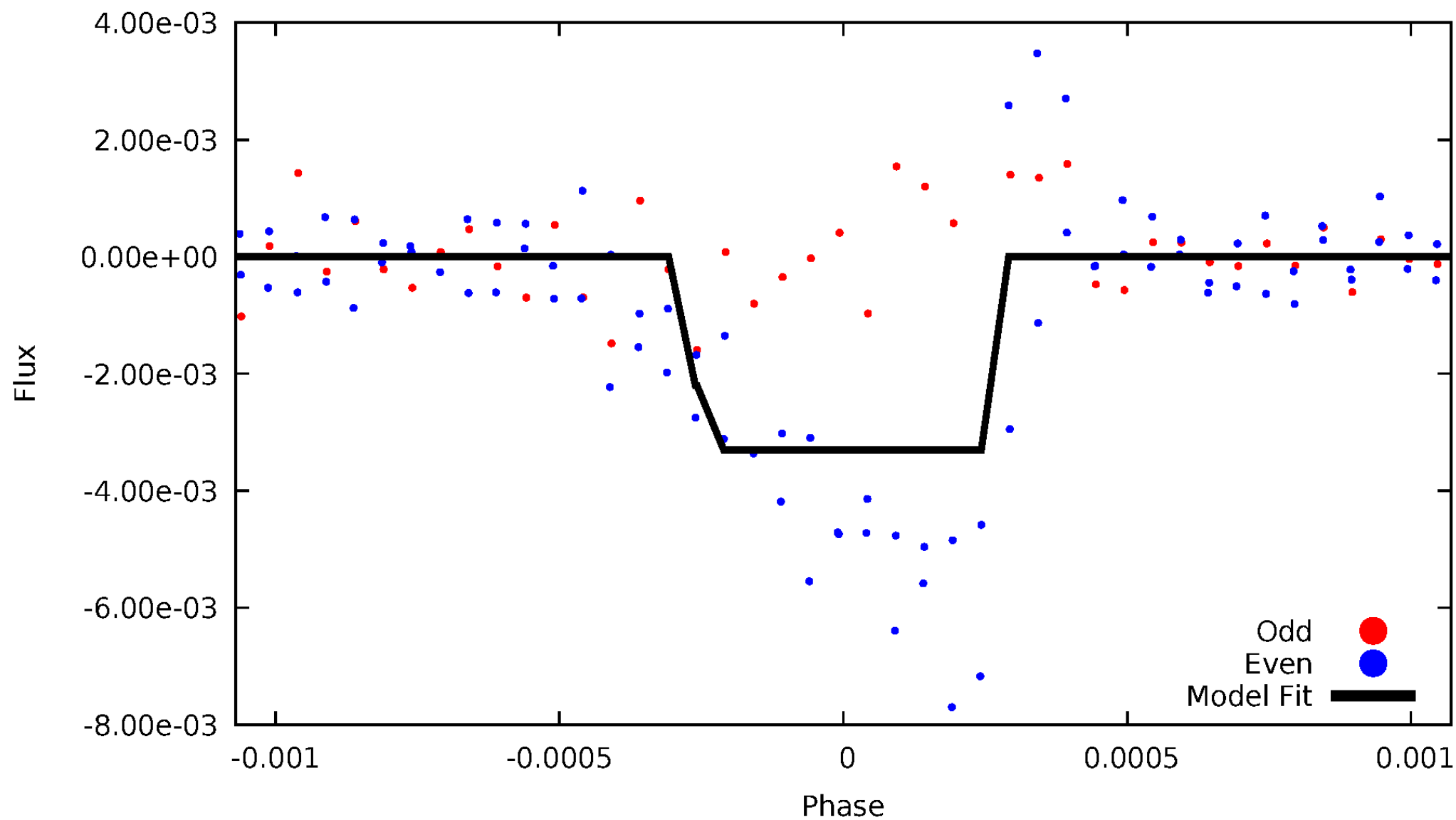
DV Odd/Even

TCE 000893647-01

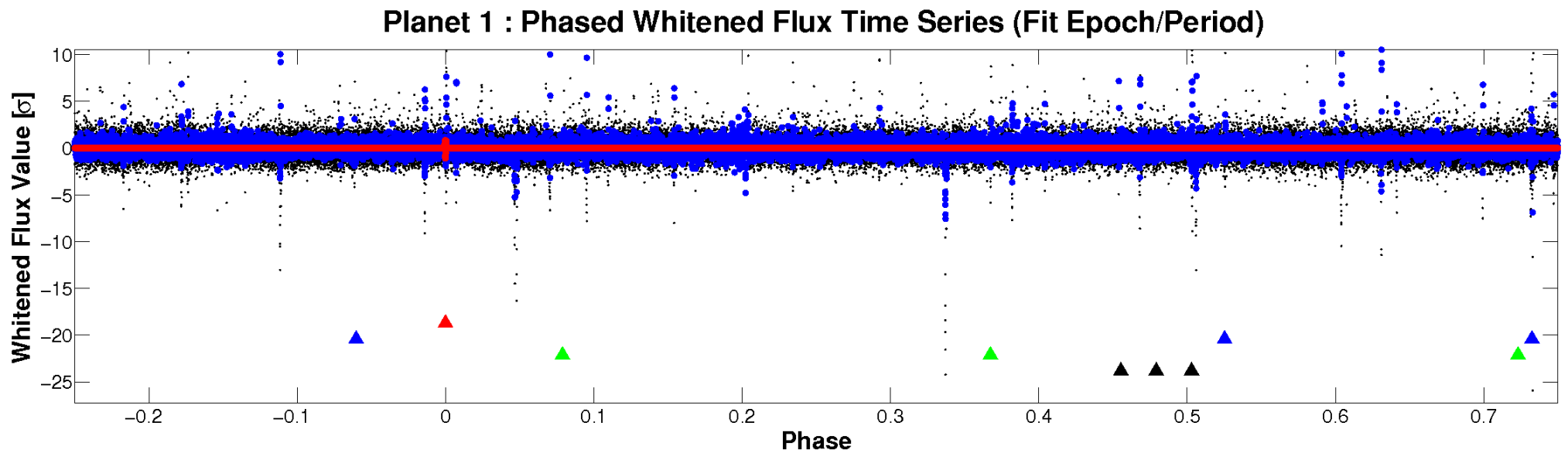
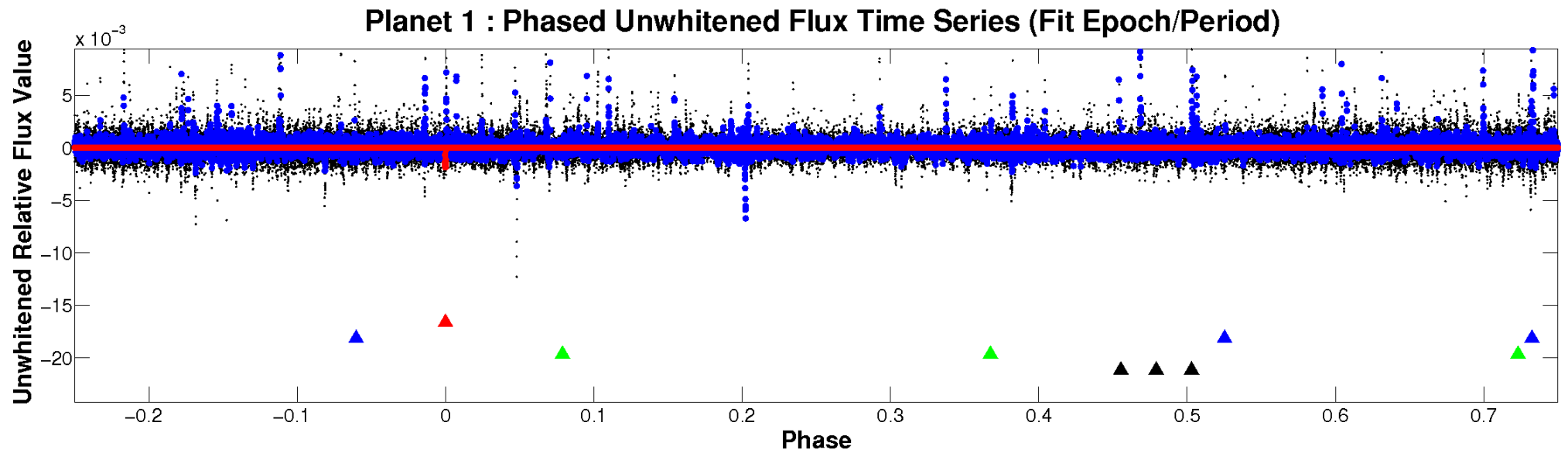


ALT Odd/Even

TCE 000893647-01

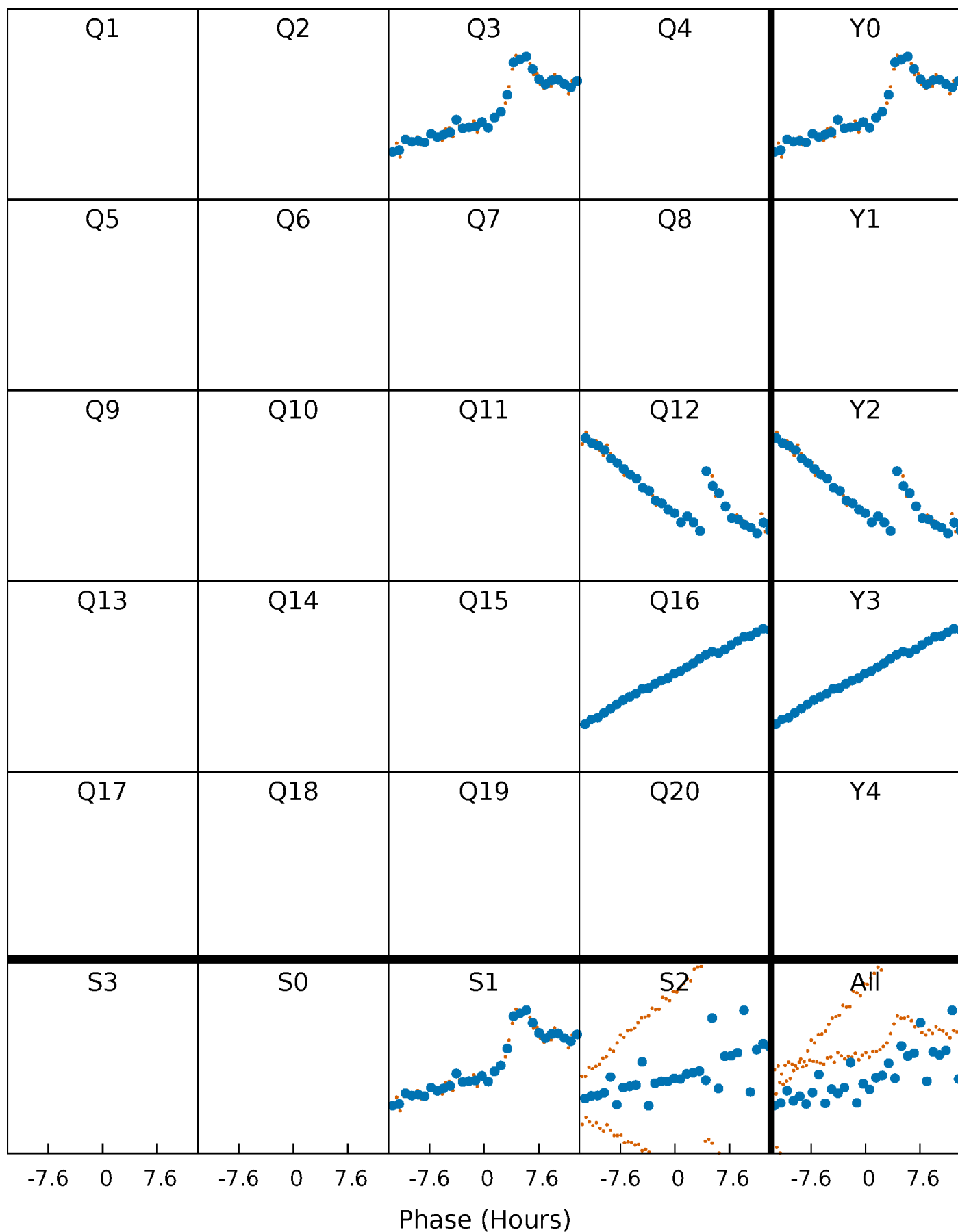


Non-Whitened Vs. Whitened Light Curve



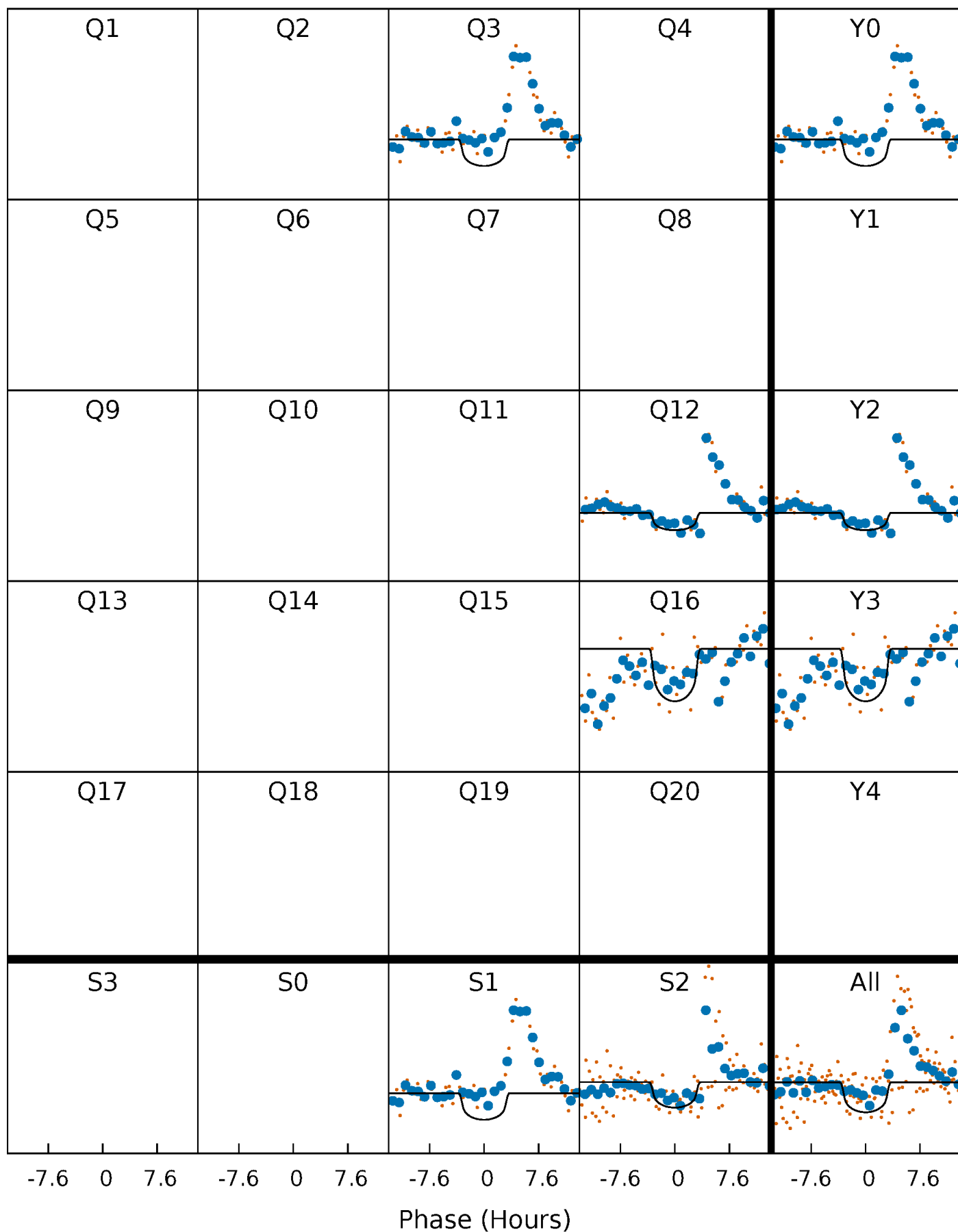
PDC Quarter-Phased Transit Curves

TCE 000893647-01 P=407.101807 Days $T_0=318.394868$ (BKJD)



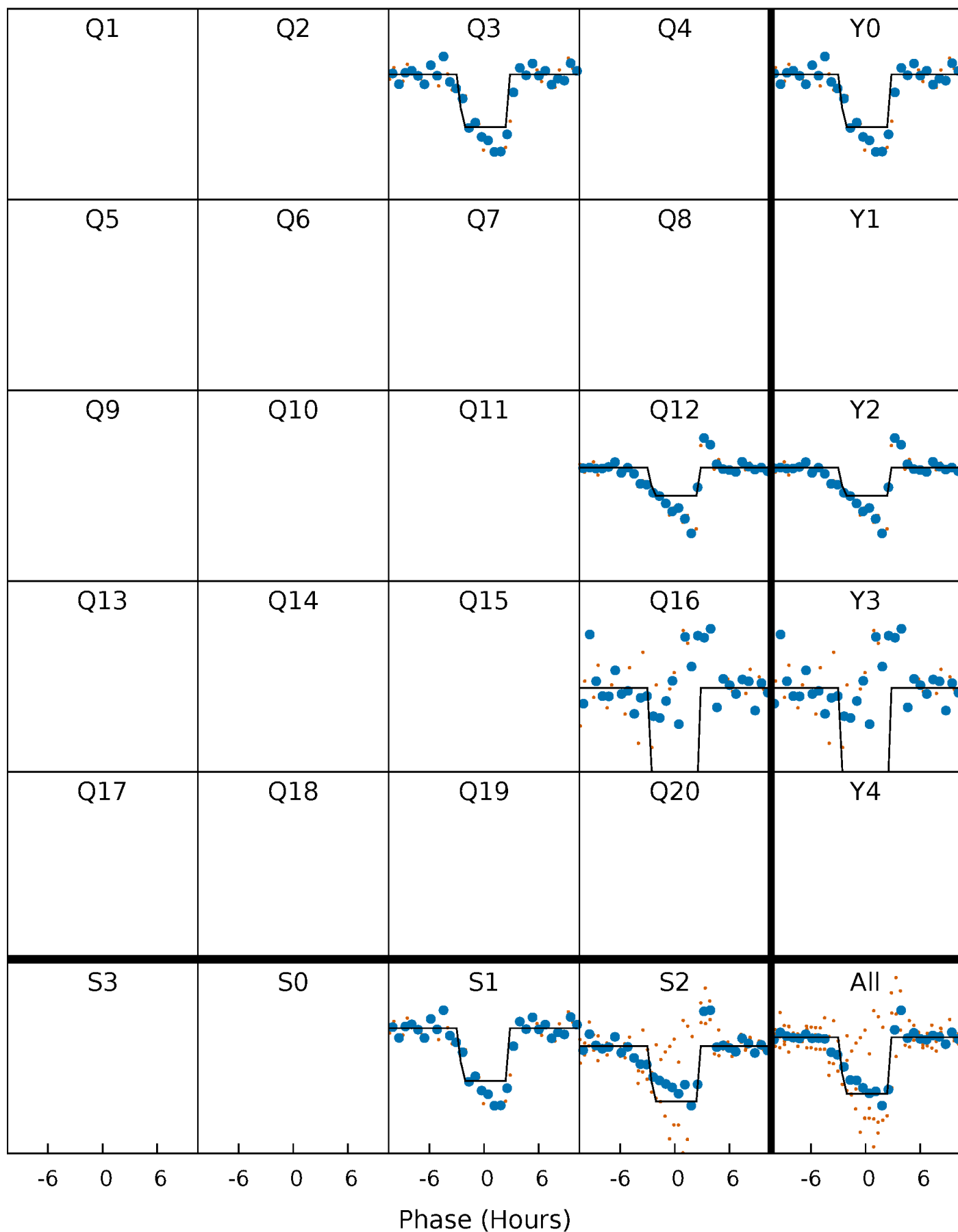
DV Quarter-Phased Transit Curves

TCE 000893647-01 P=407.101807 Days $T_0=318.394868$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

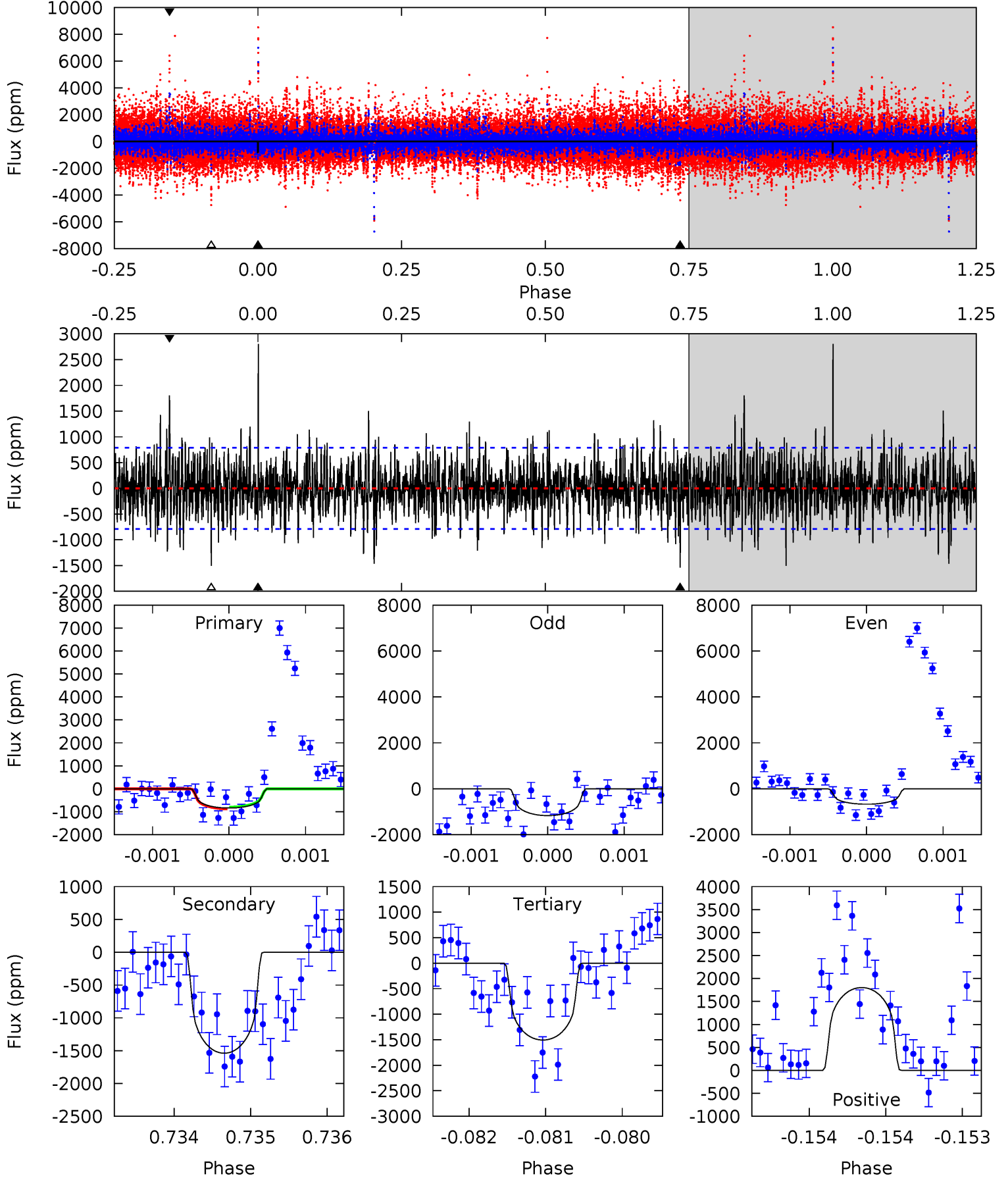
TCE 000893647-01 P=407.118249 Days $T_0=318.420306$ (BKJD)



DV Model-Shift Uniqueness Test

000893647-01, P = 407.101807 Days, E = 318.394868 Days

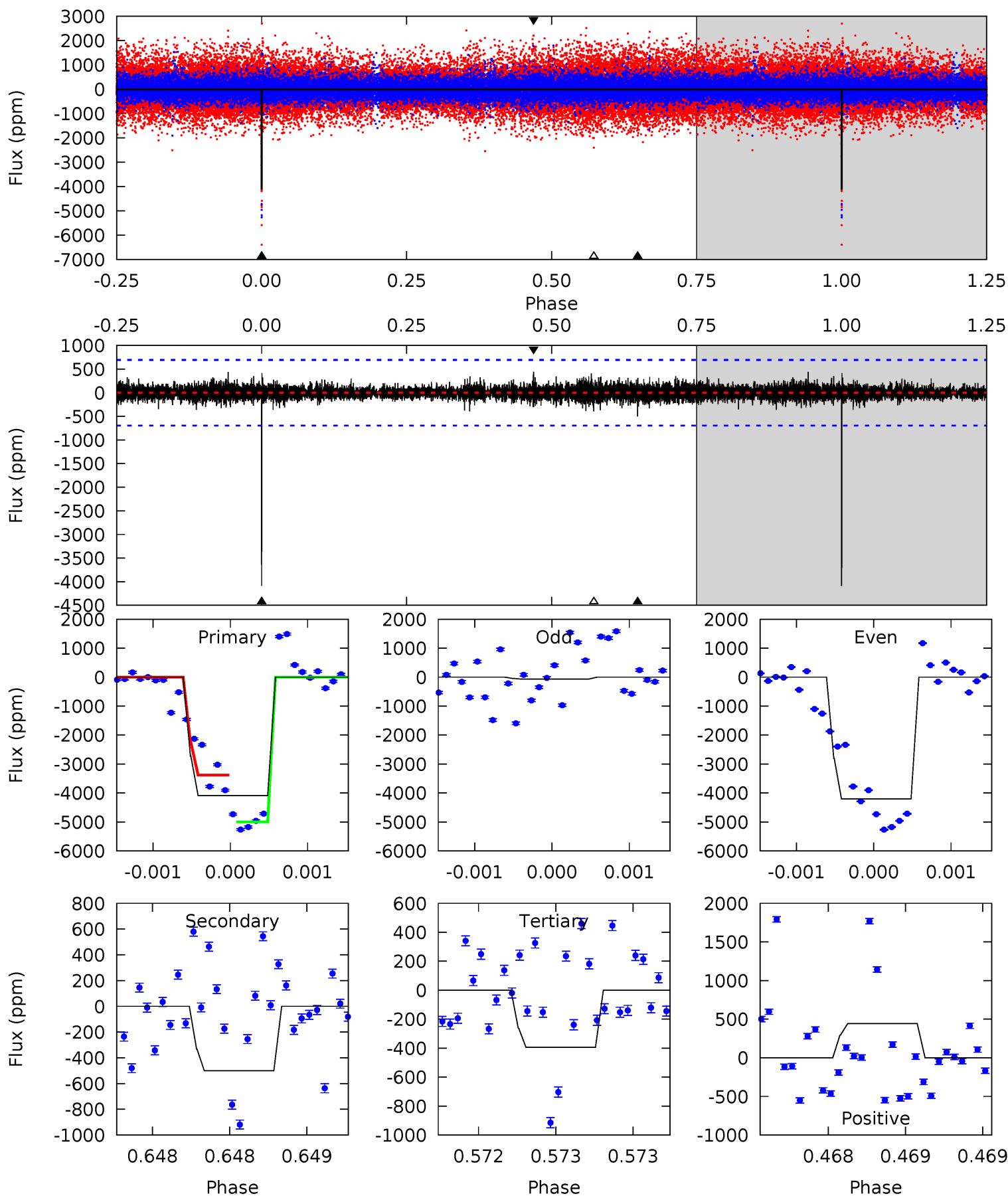
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.85	10.7	10.5	12.6	5.51	3.38	2.57	-4.66	-6.73	0.23	-1.84	1.34	0.72	0.65	0.26



Alt Model-Shift Uniqueness Test

000893647-01, P = 407.118249 Days, E = 318.420306 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.8	4.01	3.15	3.54	5.57	3.48	0.67	29.6	29.2	0.85	0.47	19.8	0.78	0.10	0



Stellar Parameters For KIC 000893647

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4856^{+146}_{-131}	$4.583^{+0.060}_{-0.035}$	$-0.300^{+0.300}_{-0.300}$	$0.696^{+0.062}_{-0.068}$	$0.676^{+0.088}_{-0.047}$	$2.828^{+0.731}_{-0.436}$
	+3%/-3%	+1%/-1%	+100%/-100%	+9%/-10%	+13%/-7%	+26%/-15%
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 000893647-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1539 ± 143	$3.46^{+3.07}_{-2.10}$	256^{+9}_{-9}	4541^{+2396}_{-887}	$62941^{+337444}_{-44478}$
Alt.	-500 ± 125	$4.51^{+2.92}_{-2.32}$	256^{+9}_{-9}	3389^{+978}_{-468}	11655^{+39902}_{-7291}

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

DV Centroid Data

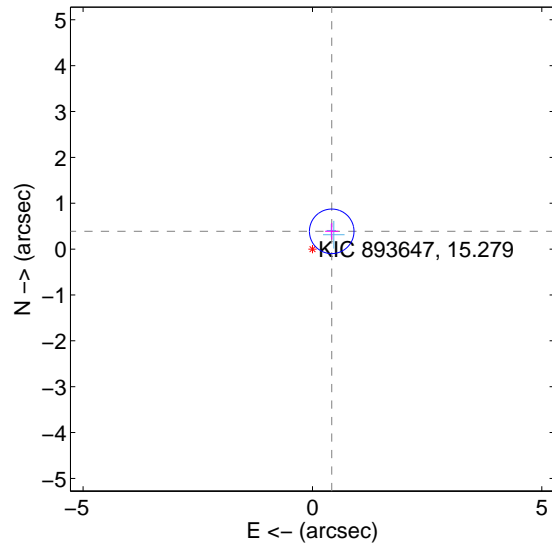
Supplemental centroid analysis for 000893647-01. Kepler magnitude: 15.28. Transit SNR 6.65

There are 2 quarters with good PRF difference image offsets

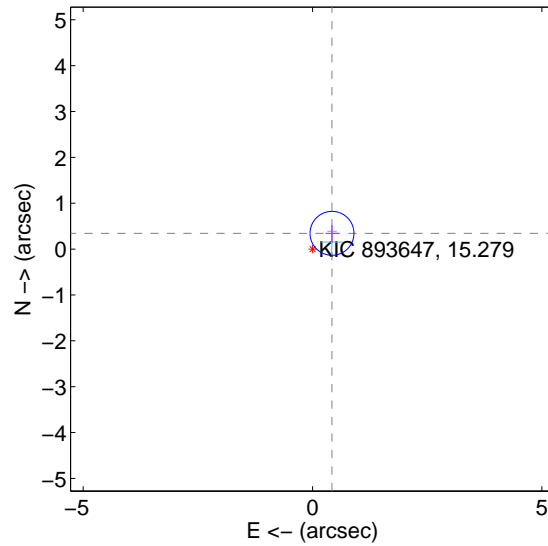
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.572 ± 0.162	3.53	-0.420 ± 0.144	0.388 ± 0.180
PRF-fit source offset from KIC position	0.546 ± 0.160	3.42	-0.424 ± 0.144	0.344 ± 0.180
photometric centroid source offset	0.52 ± 1.29	0.40	-0.49 ± 1.30	0.17 ± 1.24

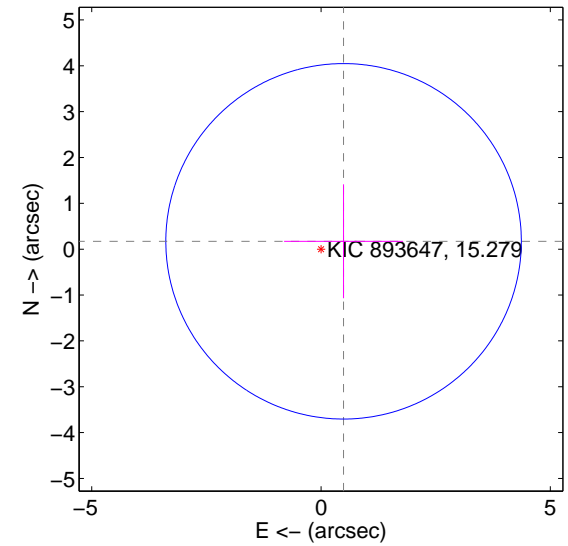
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

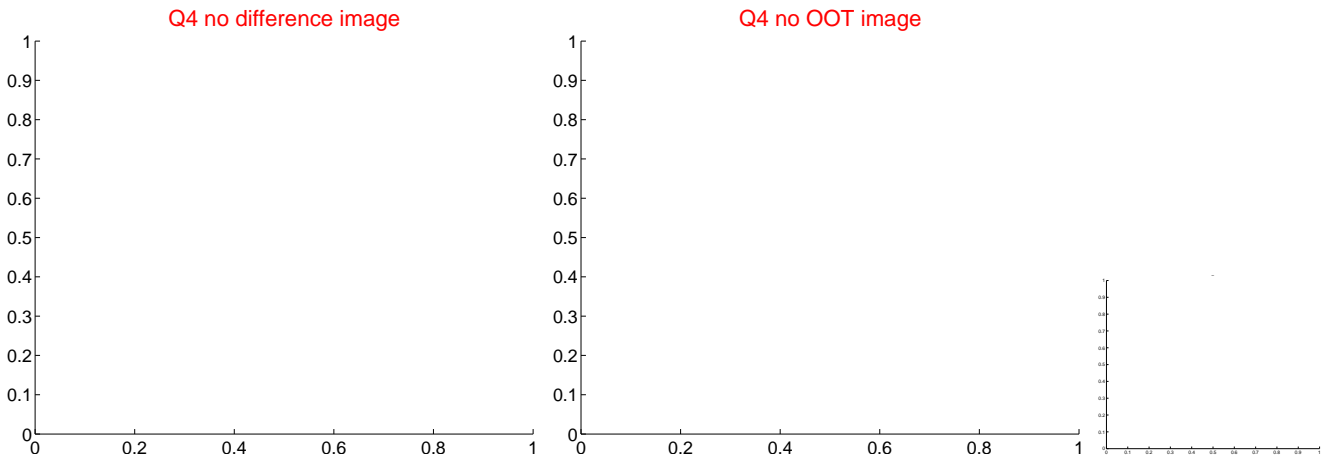
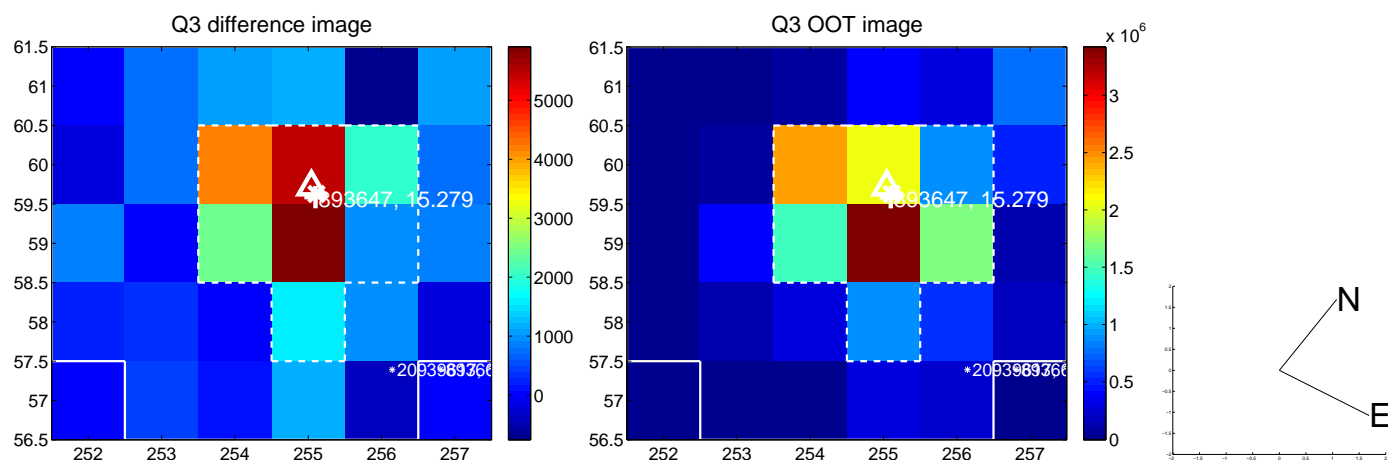
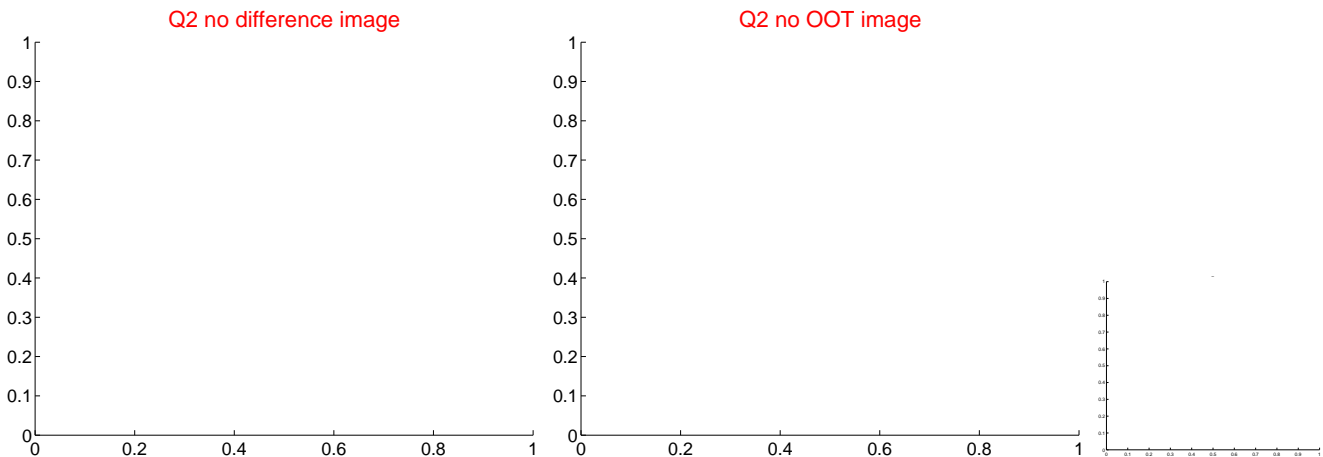


offset from photometric centroids



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- σ uncertainty. Blue circle: three- σ . 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.

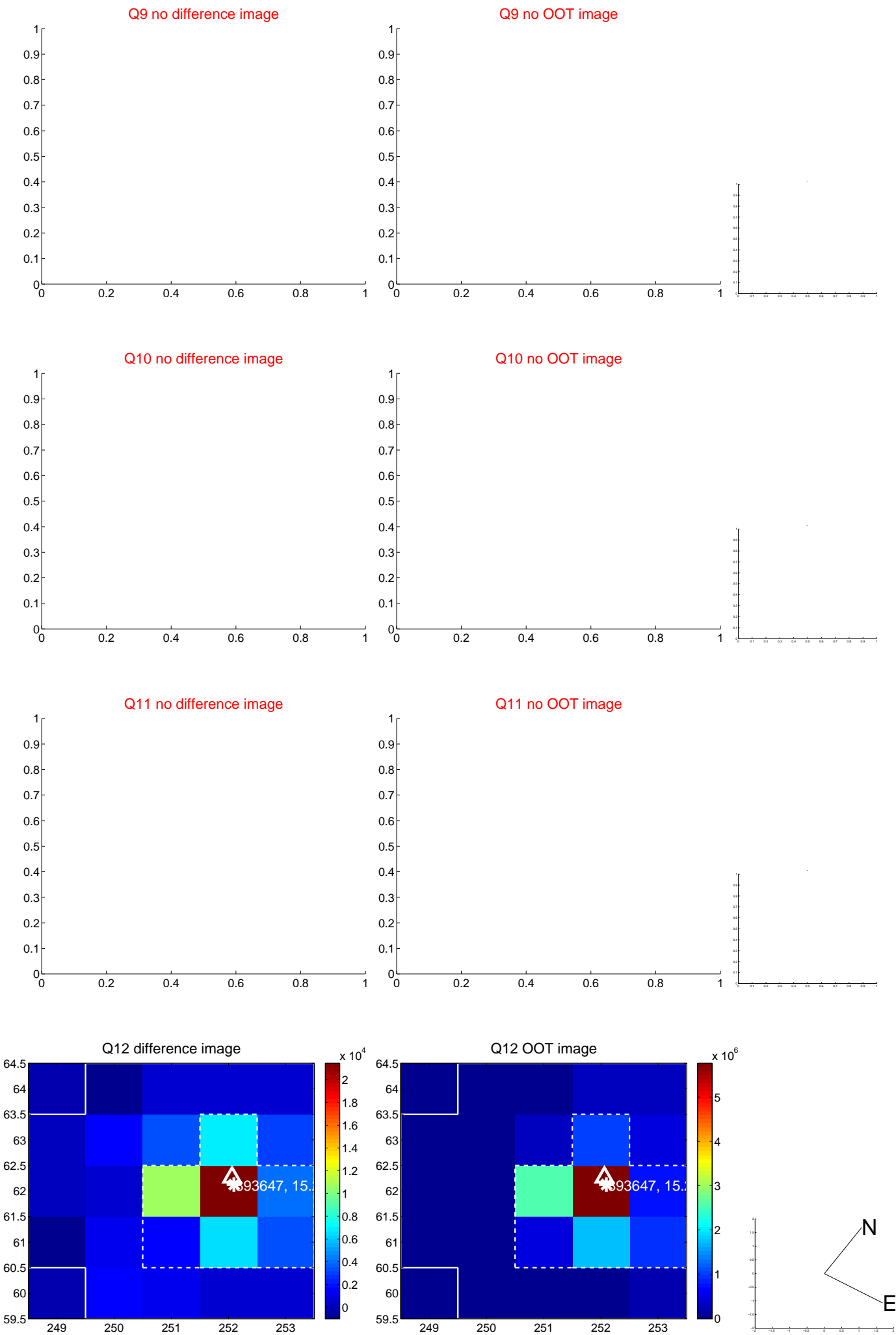
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



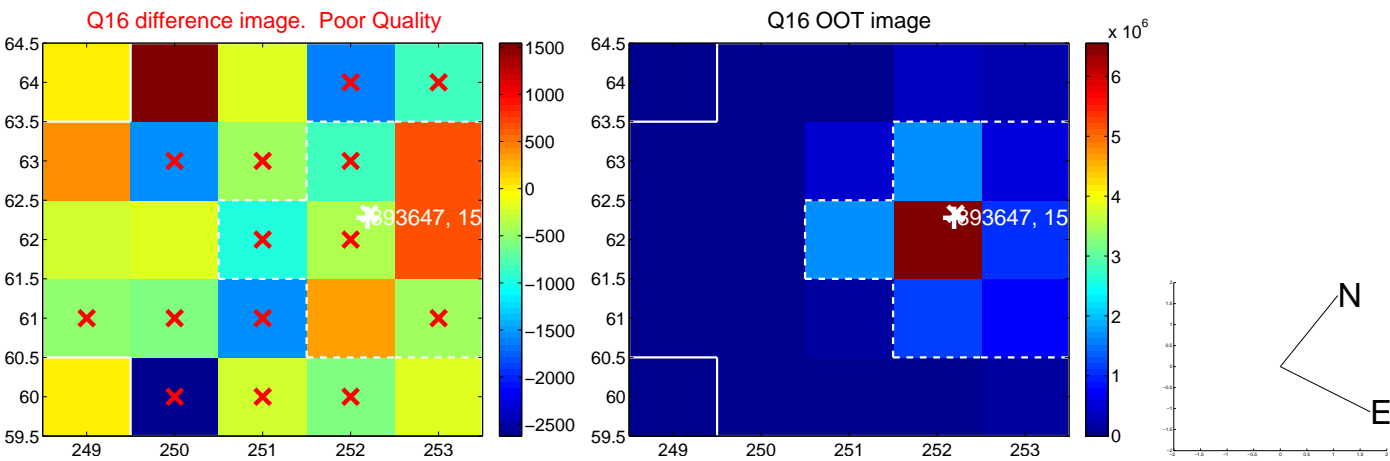
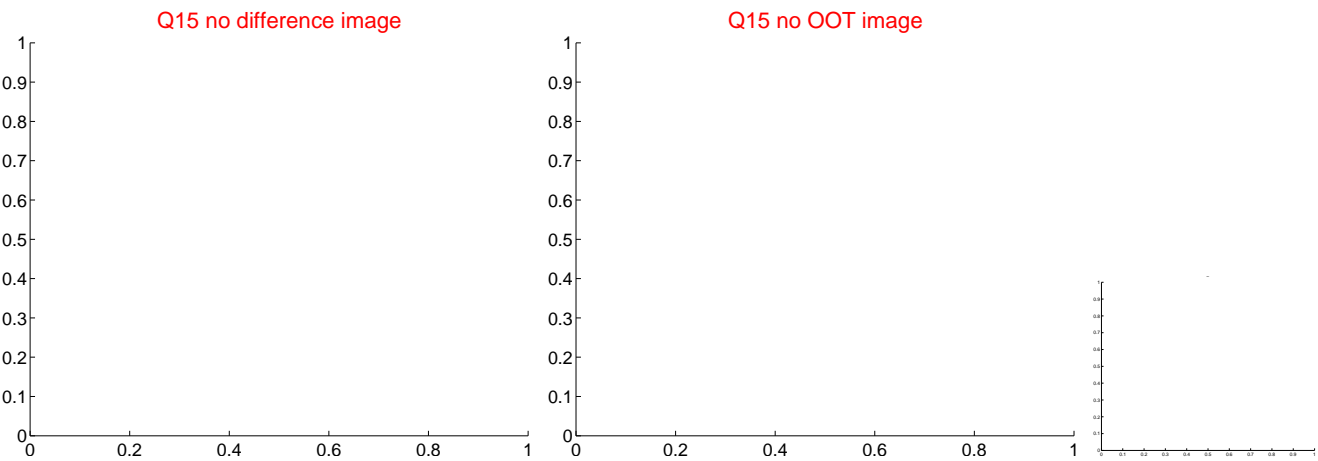
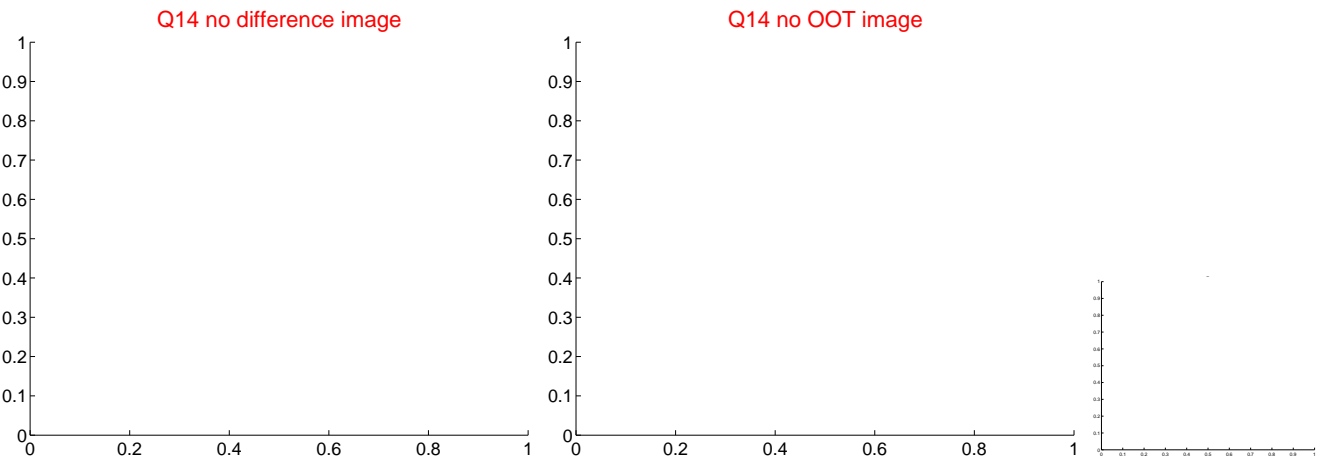
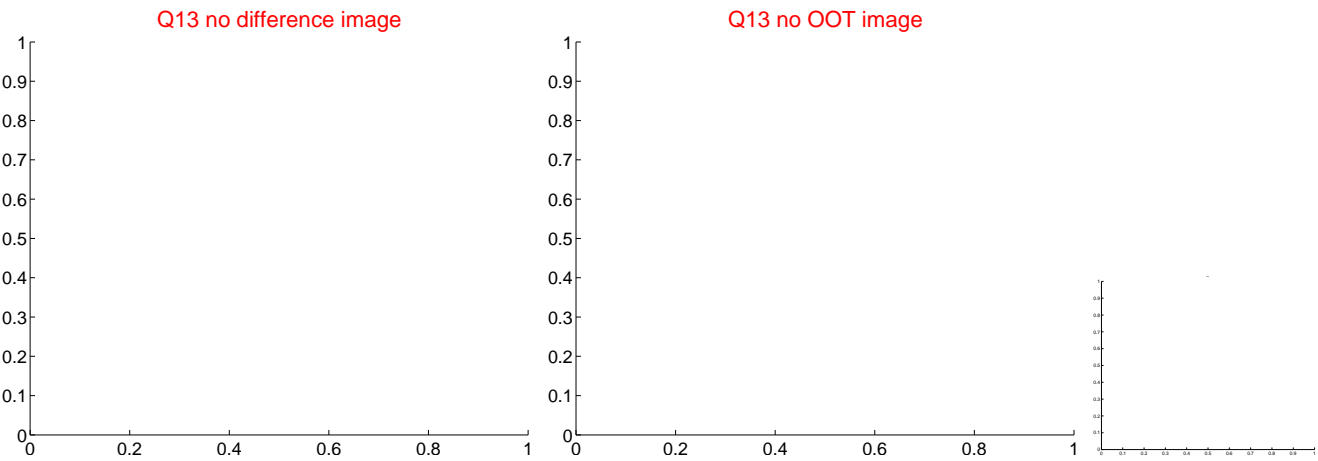
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



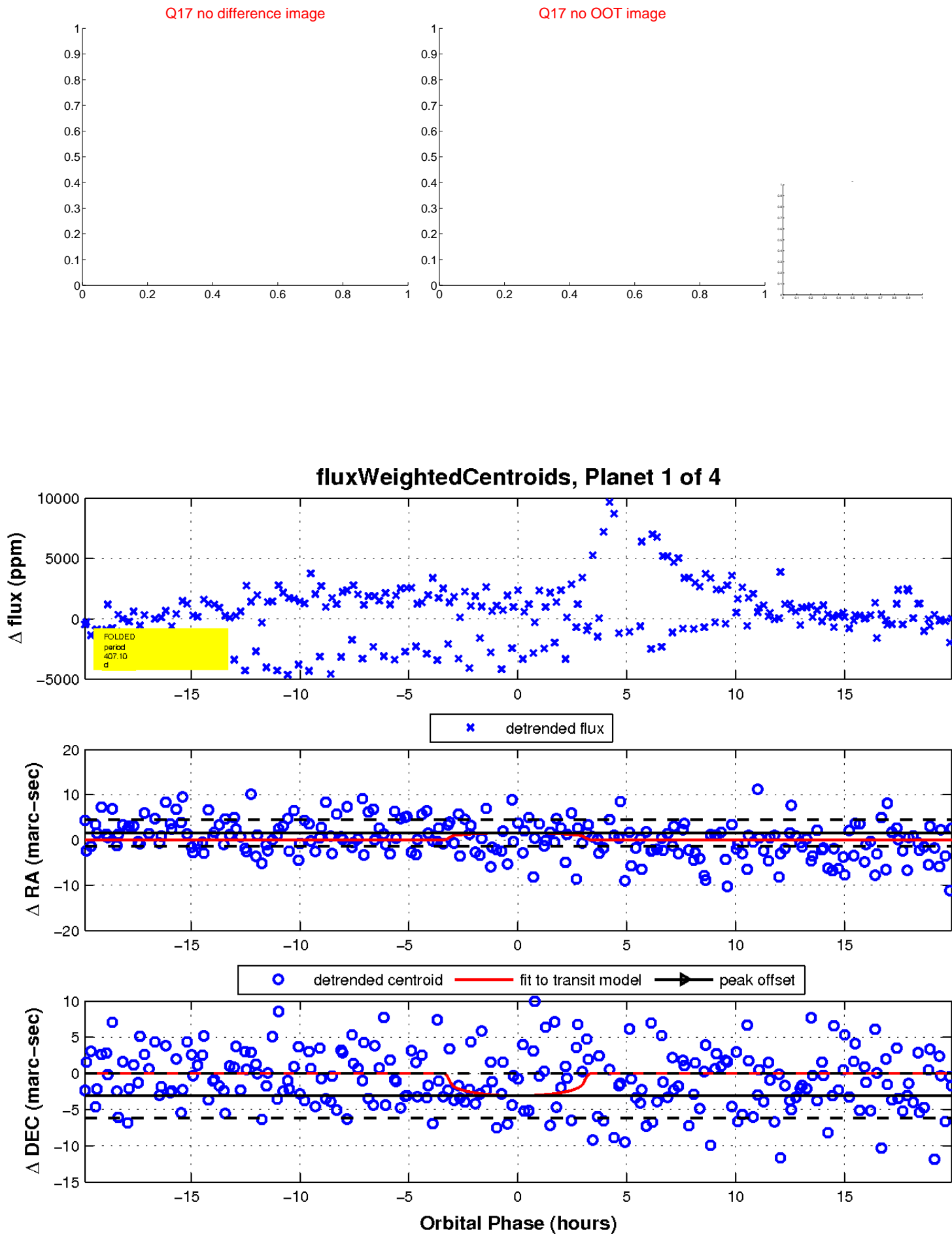
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

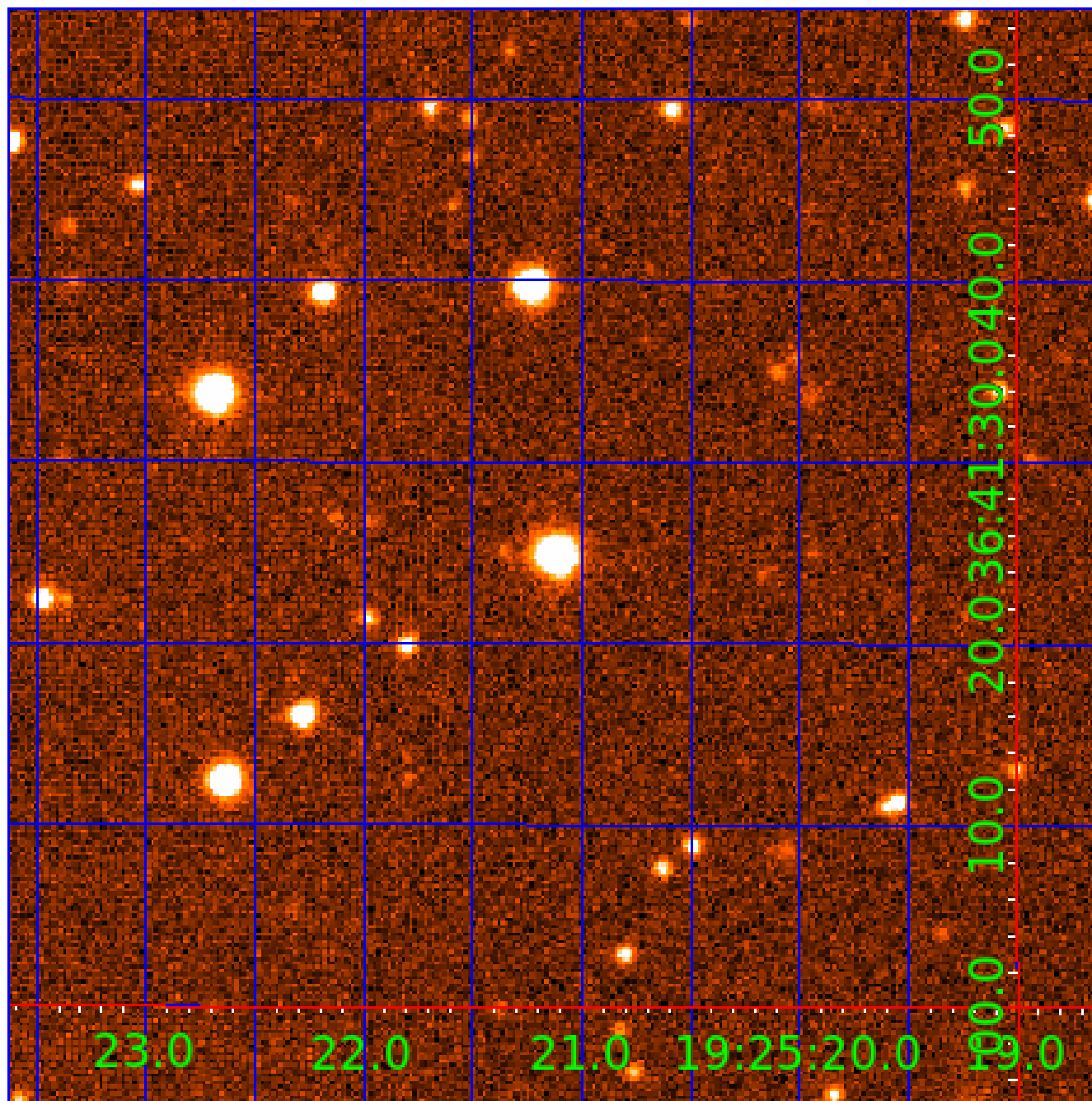


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 000893647

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})
000893647-01	OBS	No	407.101807	318.394868	1871.9	6.663	12.5	6.7	0.70	4856	3.06	0.27
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000893647-03	OBS	No	551.919829	467.976563	2108.0	7.048	11.4	7.0	0.70	4856	3.27	0.18
000893647-04	OBS	No	397.411030	523.175722	1452.0	4.062	10.7	5.6	0.70	4856	2.56	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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000893647-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
000893647-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

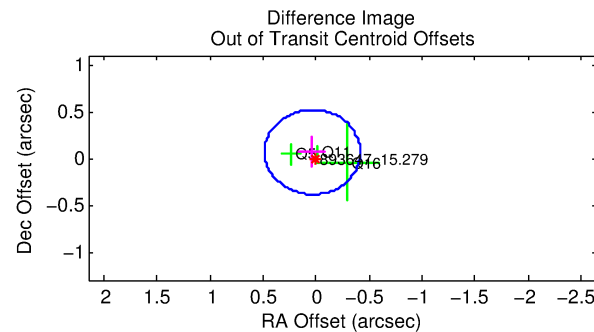
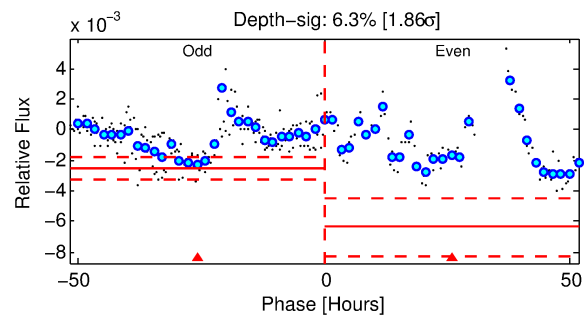
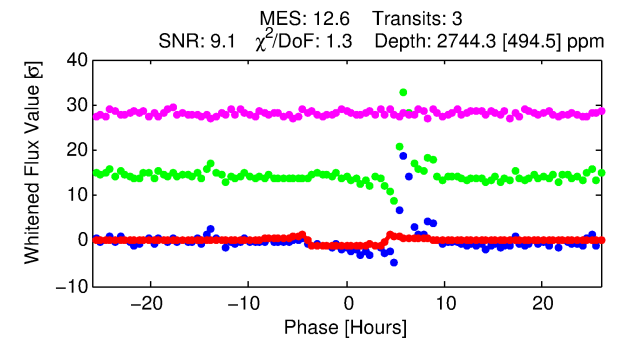
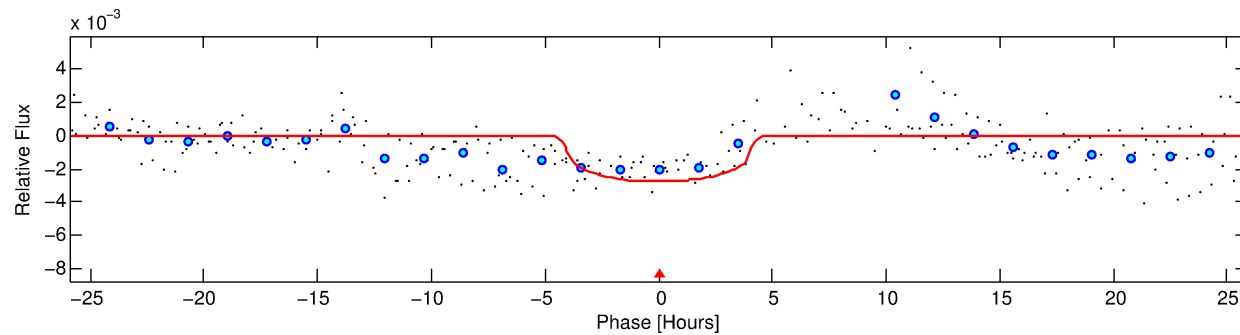
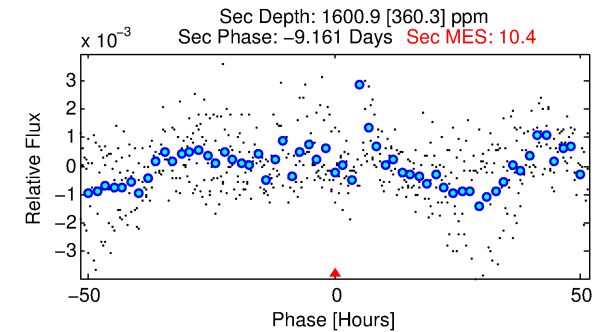
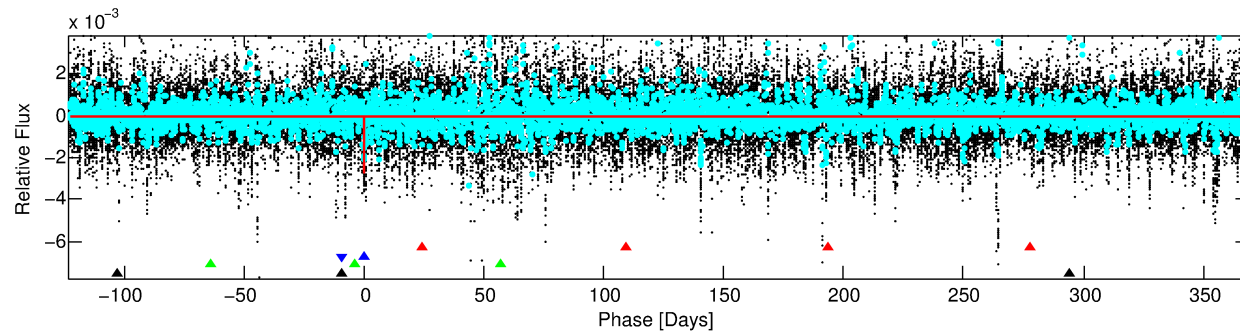
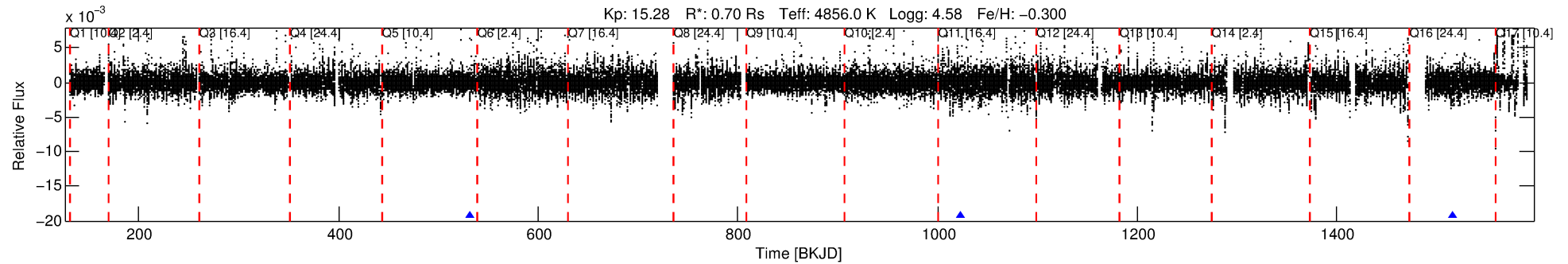
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 000893647-02

No Significant Match Found

DV One-Page Summary

KIC: 893647 Candidate: 2 of 4 Period: 491.470 d



DV Fit Results:

Period = 491.47044 [0.00849] d
Epoch = 532.2423 [0.0097] BKJD
Rp/R* = 0.0466 [0.0465]
a/R* = 448.61 [1470.85]
b = 0.17 [18.93]
Seff = 0.21 [0.03]
Teq = 173 [7] K
Rp = 3.54 [3.55] Re
a = 1.0701 [0.0854] AU
Ag = 80595.53 [162129.41] [0.50 σ]
Teffp = 4501 [2264] K [1.91 σ]

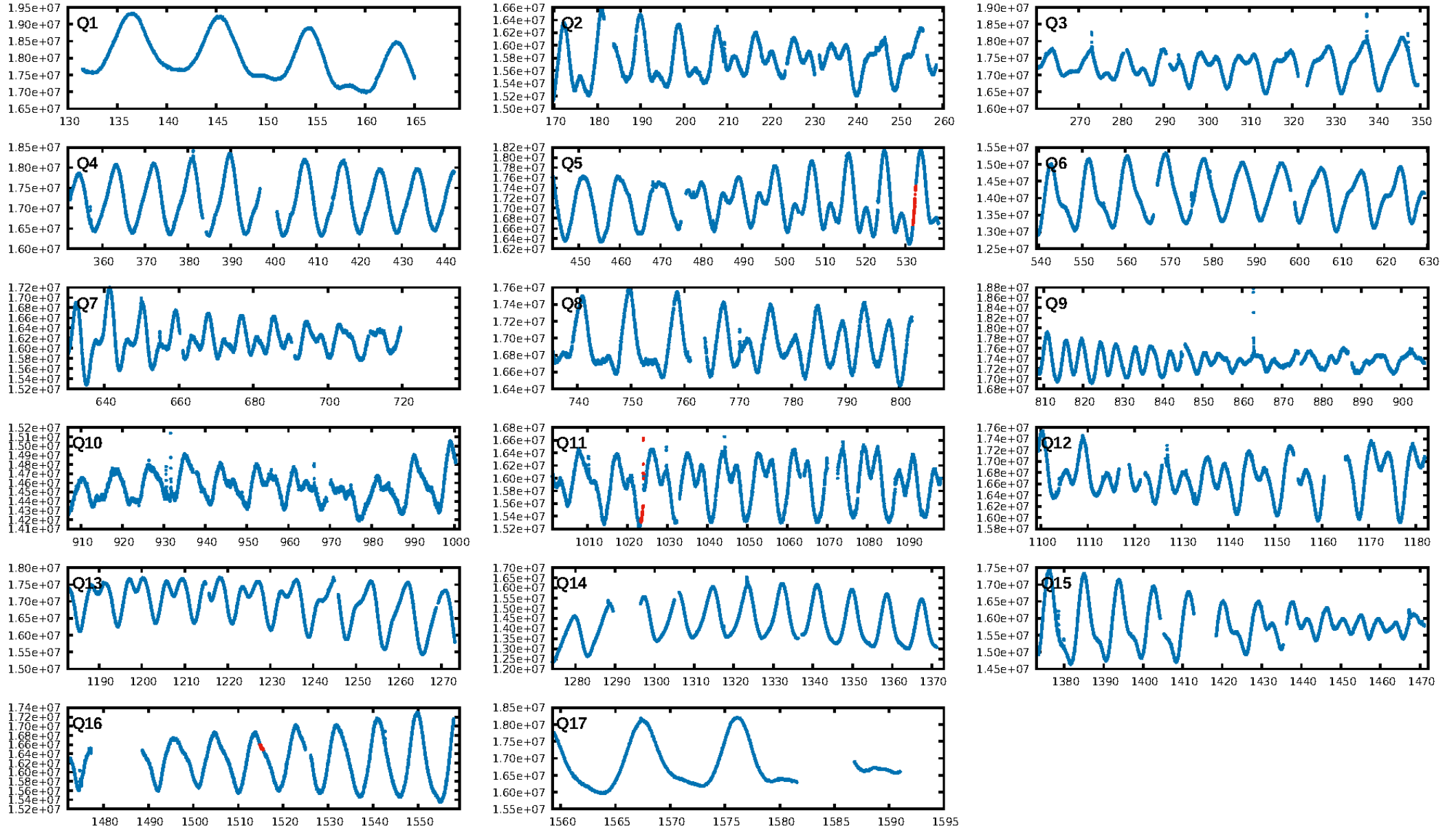
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [185.56 σ]
LongPeriod-sig: 100.0% [130.11 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 67.2%
Bootstrap-pfa: 1.32e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.363
Centroid-sig: 6.2%
Centroid-so: 2.203 arcsec [3.00 σ]
OotOffset-rm: 0.075 arcsec [0.50 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.126 arcsec [1.00 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

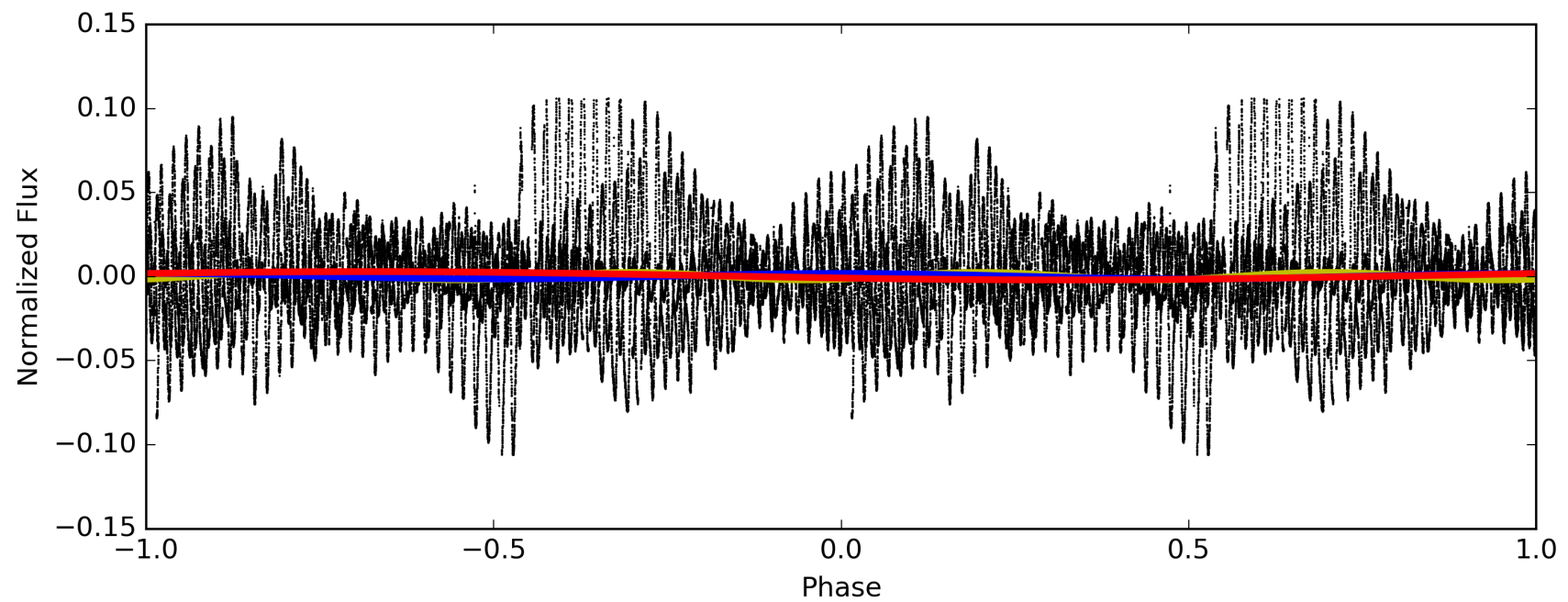
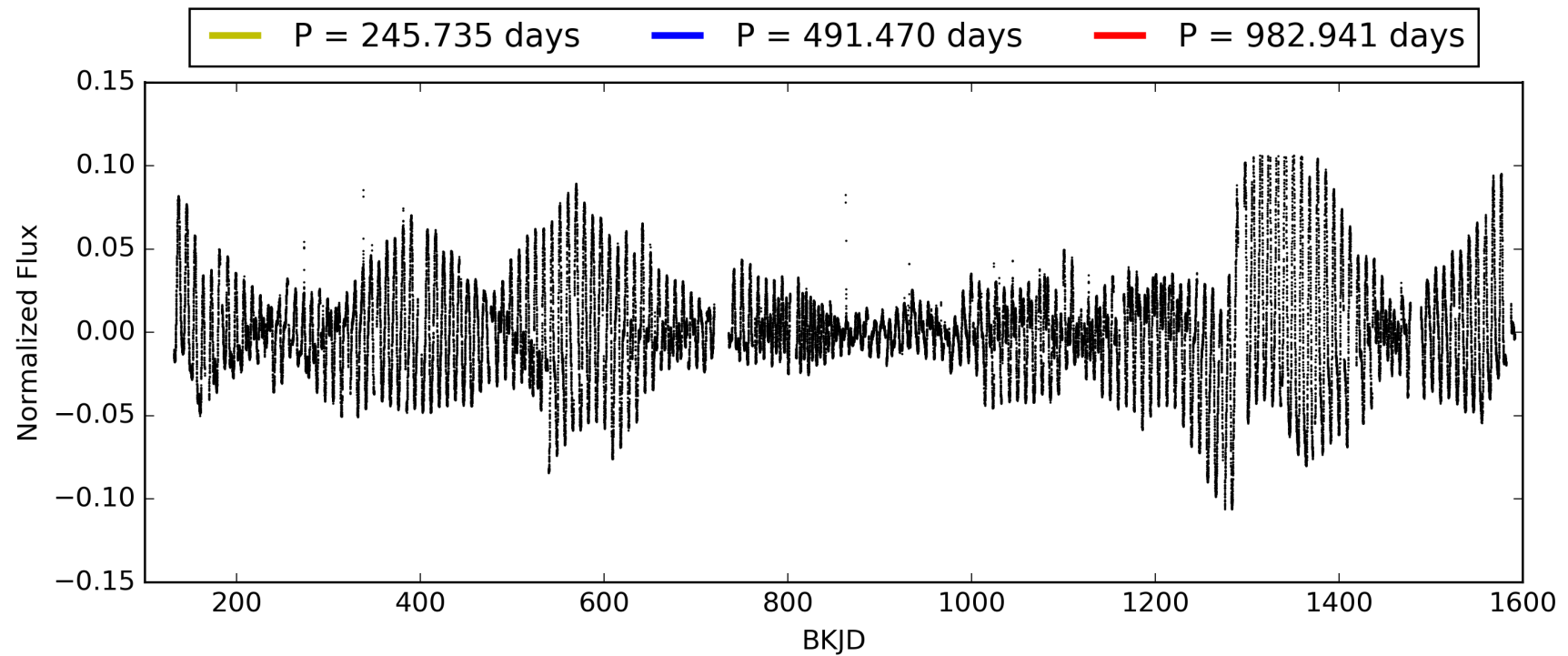
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:10:18 Z

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TCE 000893647-02, PDC Light Curves

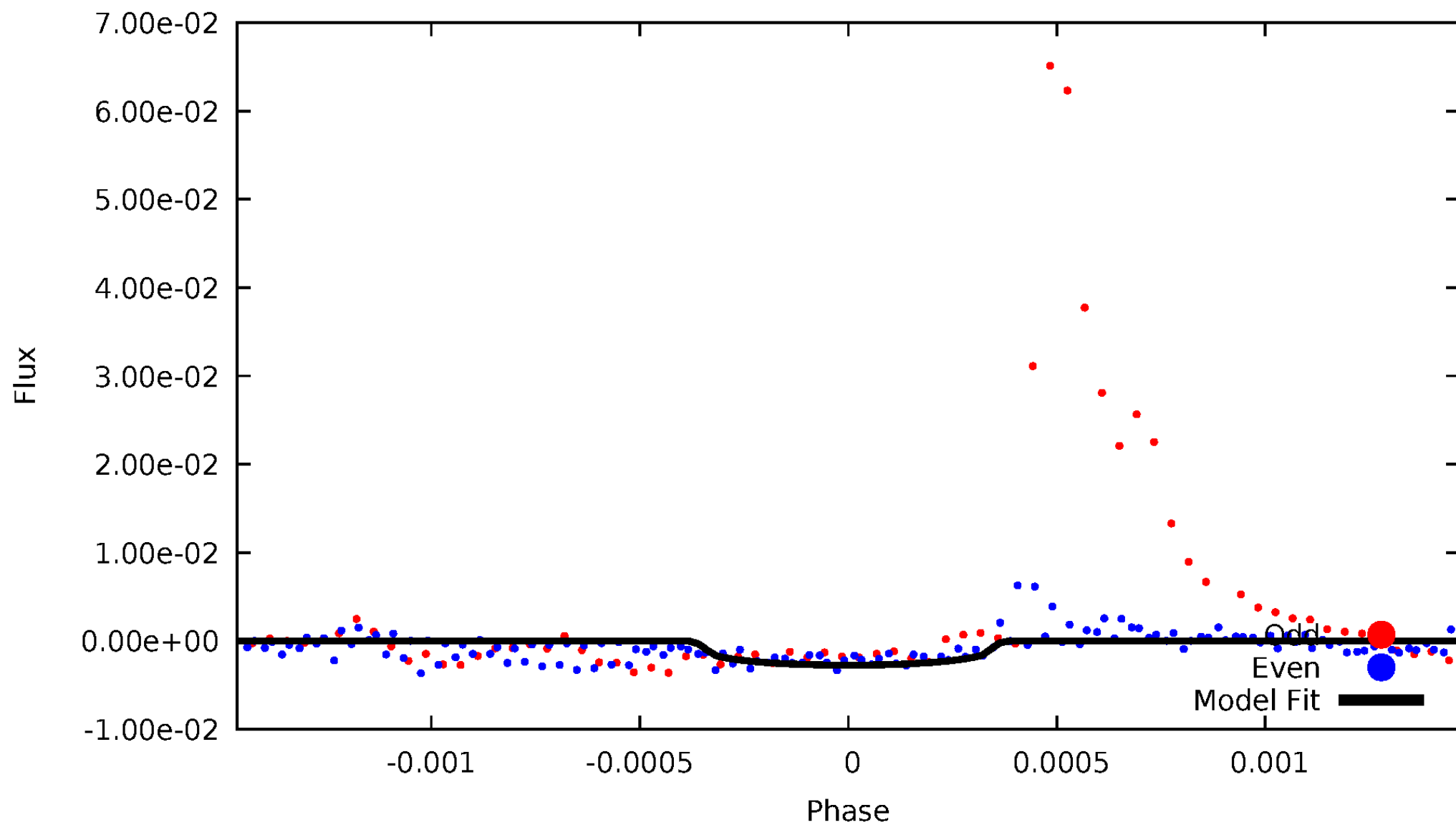


TCE 000893647-02



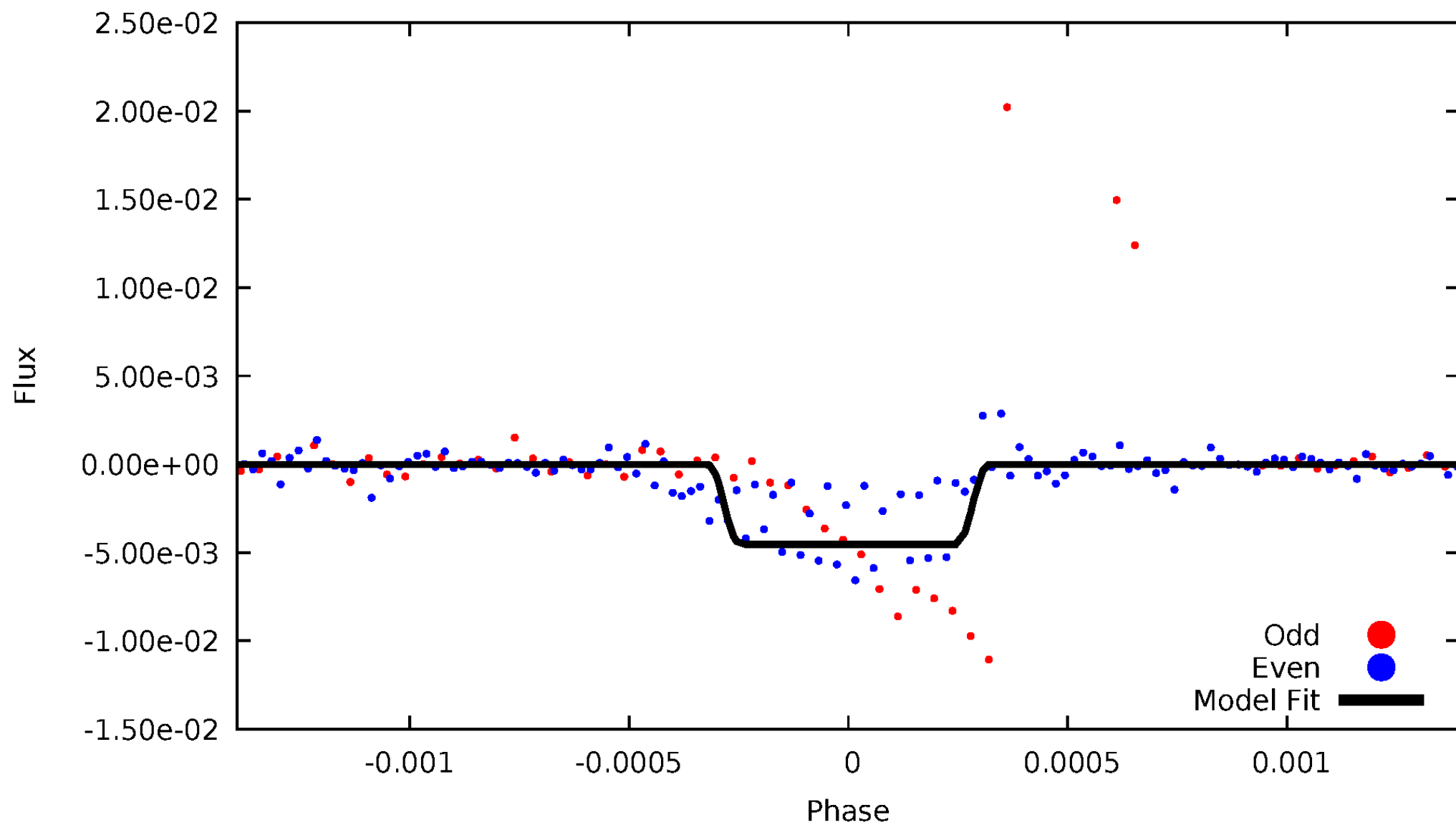
DV Odd/Even

TCE 000893647-02



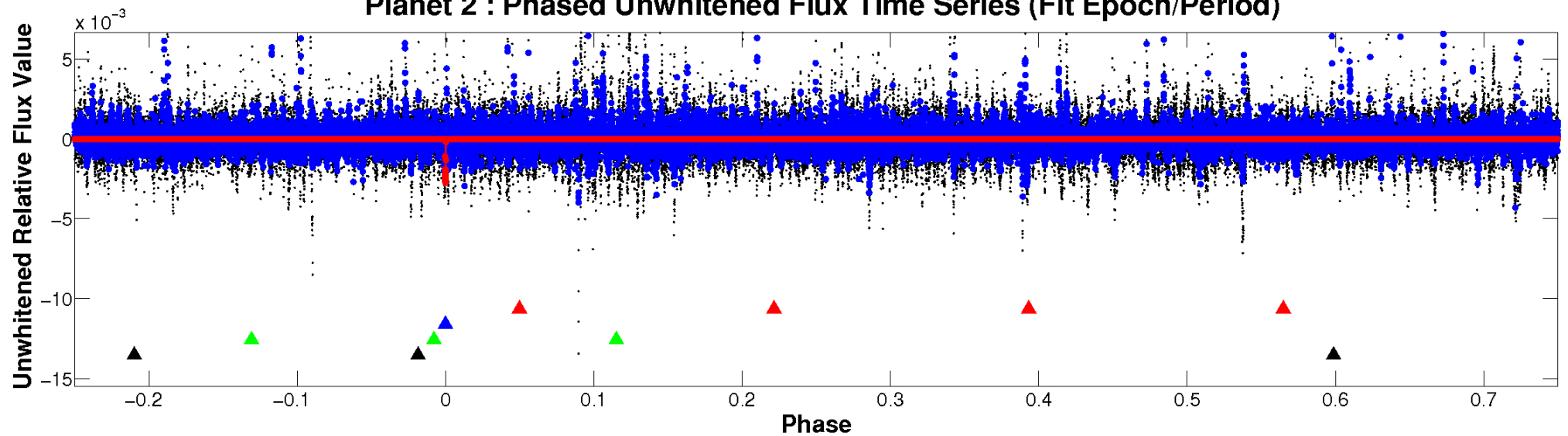
ALT Odd/Even

TCE 000893647-02

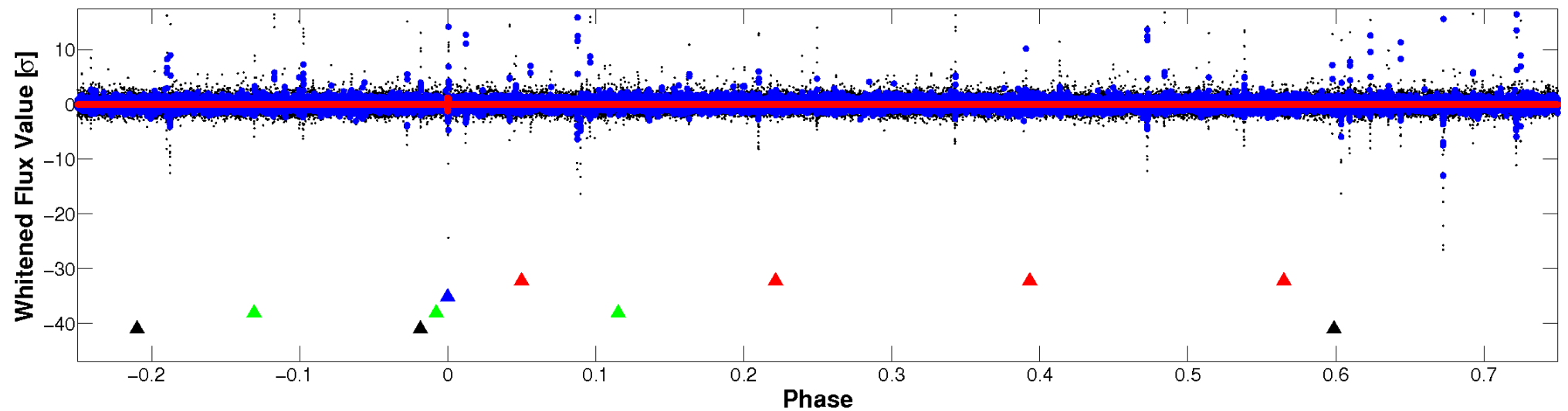


Non-Whitened Vs. Whitened Light Curve

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



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



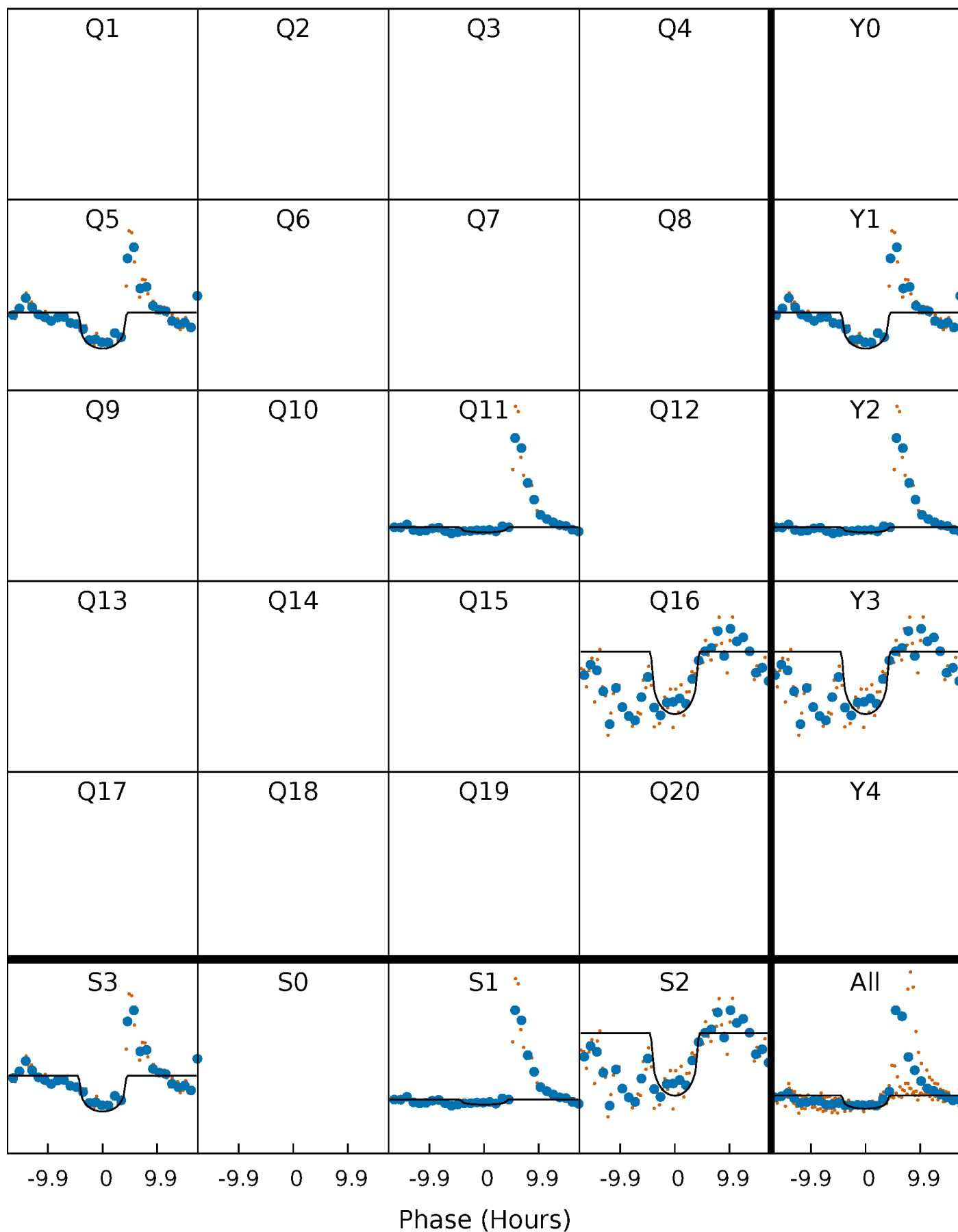
PDC Quarter-Phased Transit Curves

TCE 000893647-02 P=491.470439 Days $T_0=532.242287$ (BKJD)



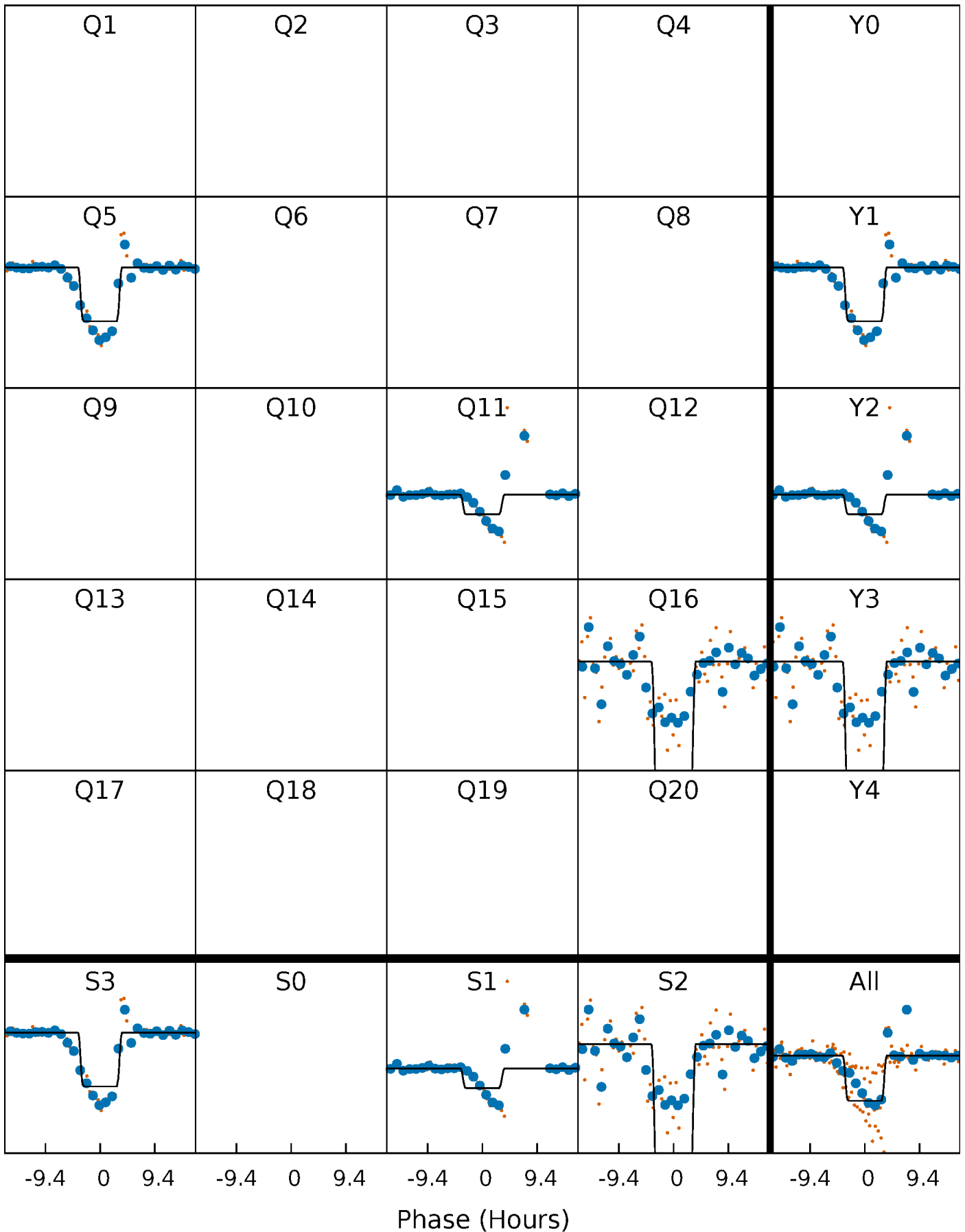
DV Quarter-Phased Transit Curves

TCE 000893647-02 $P=491.470439$ Days $T_0=532.242287$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

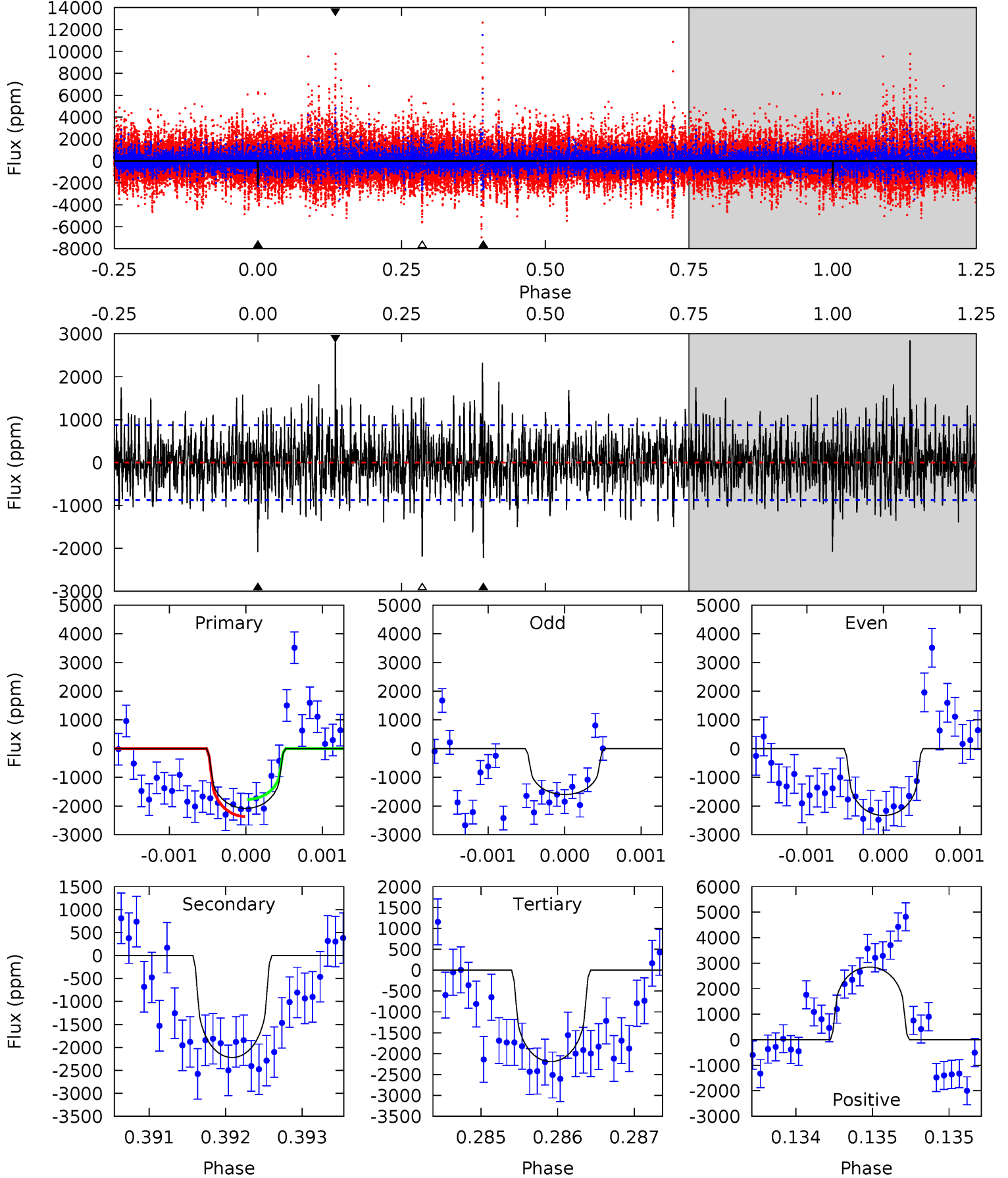
TCE 000893647-02 P=491.461174 Days $T_0=532.290865$ (BKJD)



DV Model-Shift Uniqueness Test

000893647-02, P = 491.470439 Days, E = 40.771848 Days

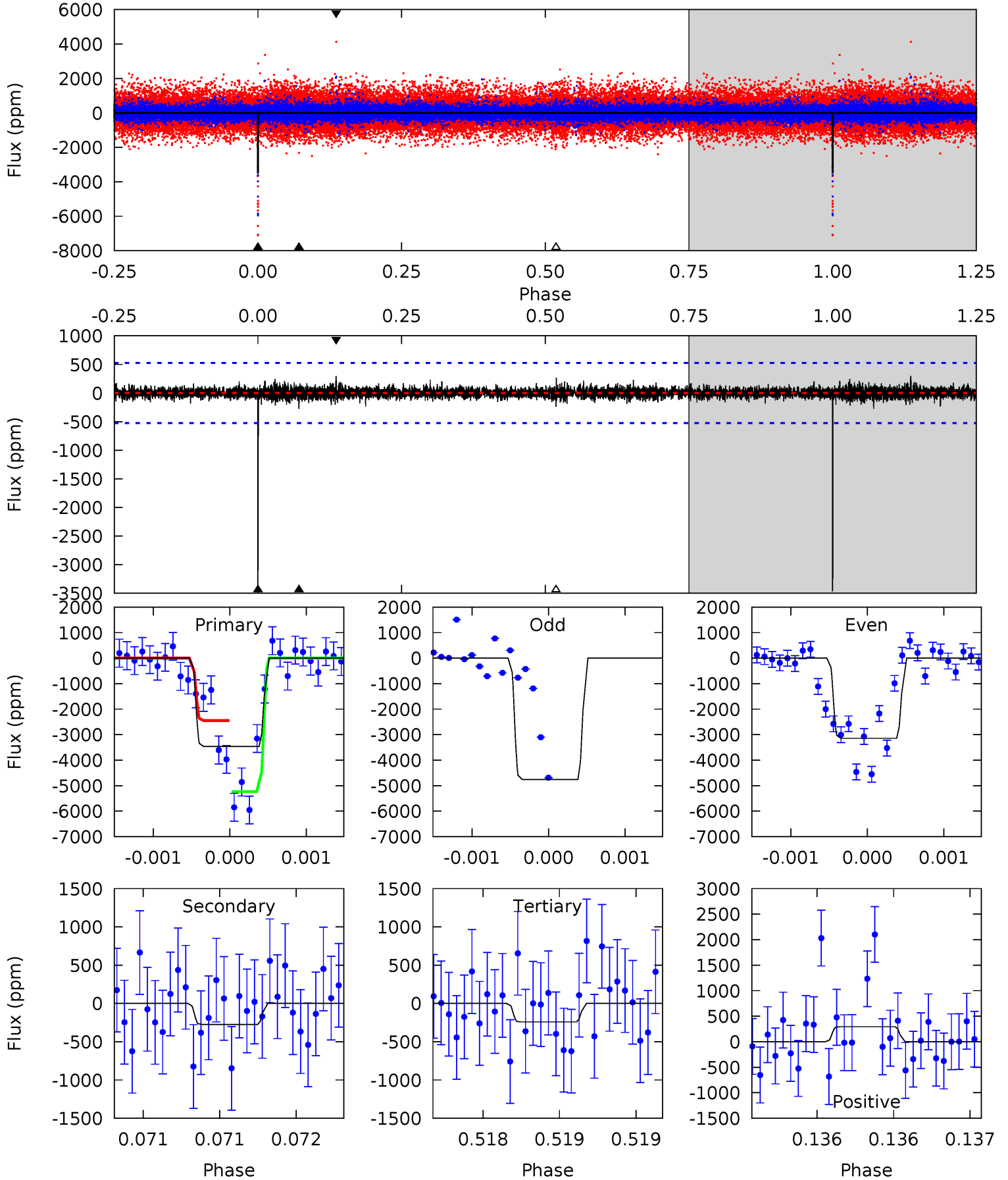
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	14.0	13.8	18.0	5.50	3.37	3.20	-0.69	-4.84	0.19	-3.96	1.67	0.94	0.56	1.86



Alt Model-Shift Uniqueness Test

000893647-02, P = 491.461174 Days, E = 40.829691 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.5	2.88	2.55	3.10	5.53	3.42	0.53	33.9	33.4	0.33	-0.22	9.21	0.80	0.08	14.0



Stellar Parameters For KIC 000893647

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4856^{+146}_{-131}	$4.583^{+0.060}_{-0.035}$	$-0.300^{+0.300}_{-0.300}$	$0.696^{+0.062}_{-0.068}$	$0.676^{+0.088}_{-0.047}$	$2.828^{+0.731}_{-0.436}$
	+3%/-3%	+1%/-1%	+100%/-100%	+9%/-10%	+13%/-7%	+26%/-15%
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 000893647-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2220 ± 159	$4.25^{+3.33}_{-2.63}$	240^{+9}_{-8}	4531^{+2763}_{-852}	$78212^{+480218}_{-53812}$
Alt.	-273 ± 95	$5.51^{+3.45}_{-3.21}$	241^{+9}_{-9}	2953^{+954}_{-403}	5682^{+28174}_{-3739}

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

DV Centroid Data

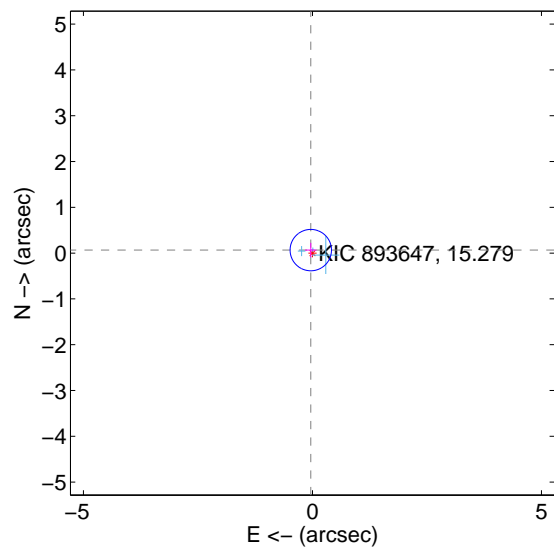
Supplemental centroid analysis for 000893647-02. Kepler magnitude: 15.28. Transit SNR 9.07

There are 3 quarters with good PRF difference image offsets

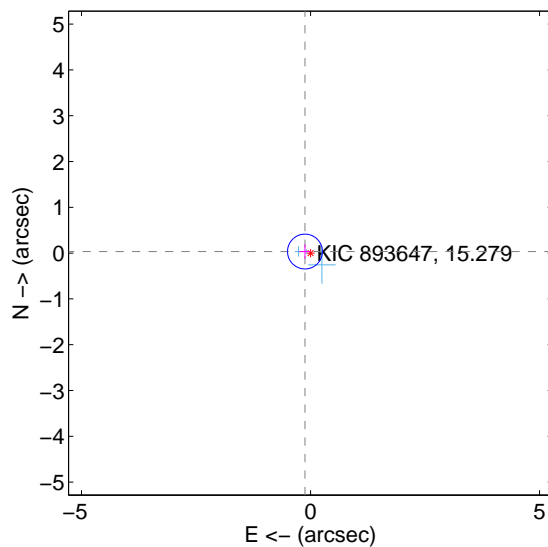
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.151	0.50	0.036 ± 0.124	0.065 ± 0.158
PRF-fit source offset from KIC position	0.126 ± 0.127	1.00	0.122 ± 0.124	0.034 ± 0.158
photometric centroid source offset	2.20 ± 0.73	3.00	-0.63 ± 0.88	-2.11 ± 0.72

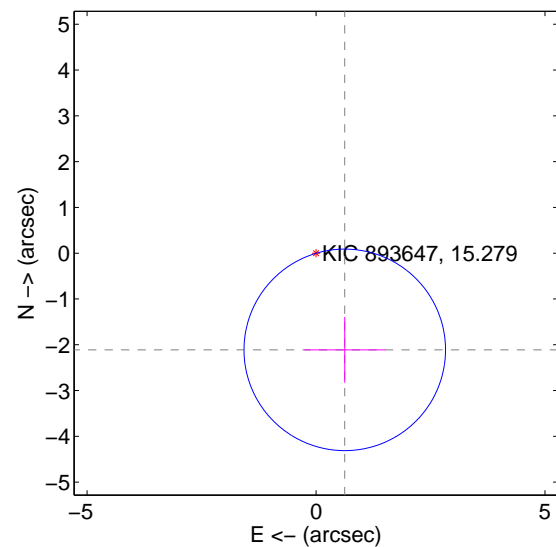
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

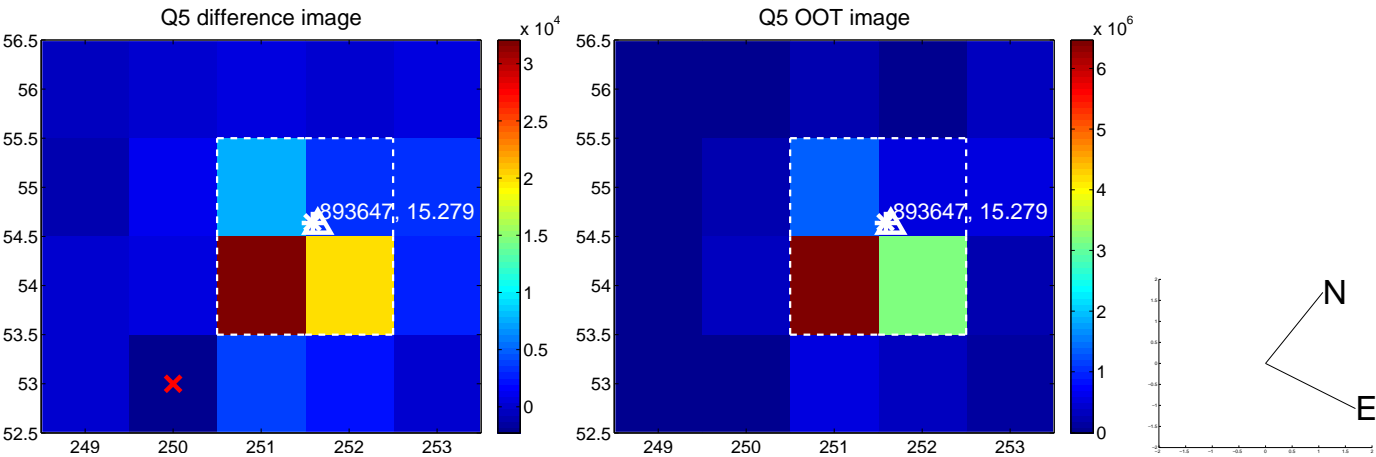


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



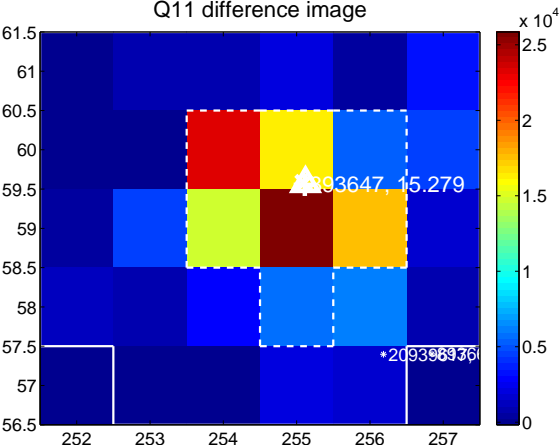
Q10 no difference image



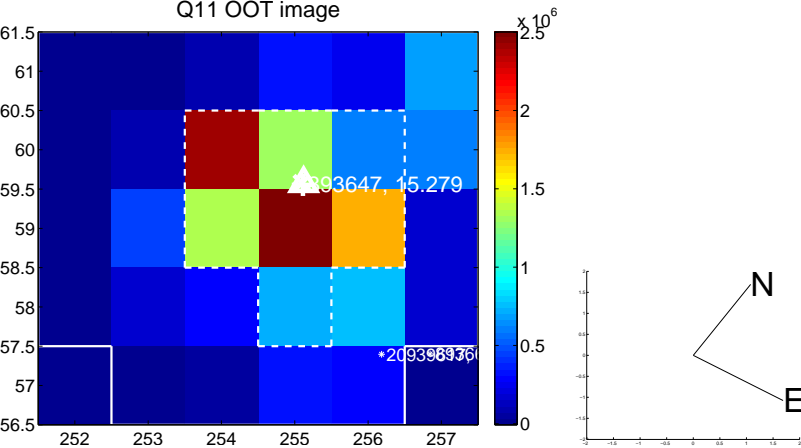
Q10 no OOT image



Q11 difference image



Q11 OOT image



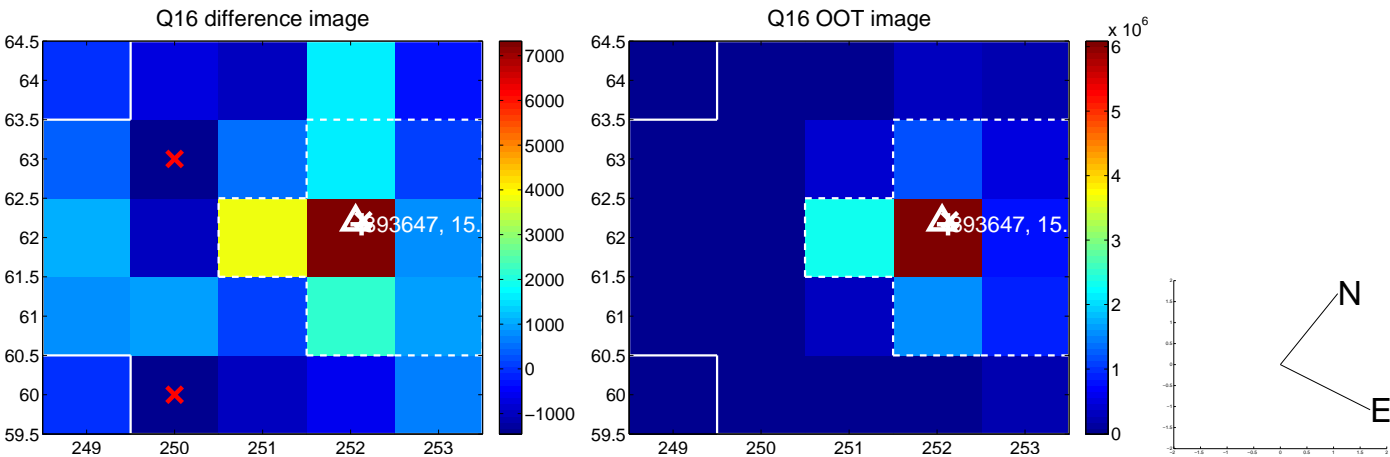
Q12 no difference image



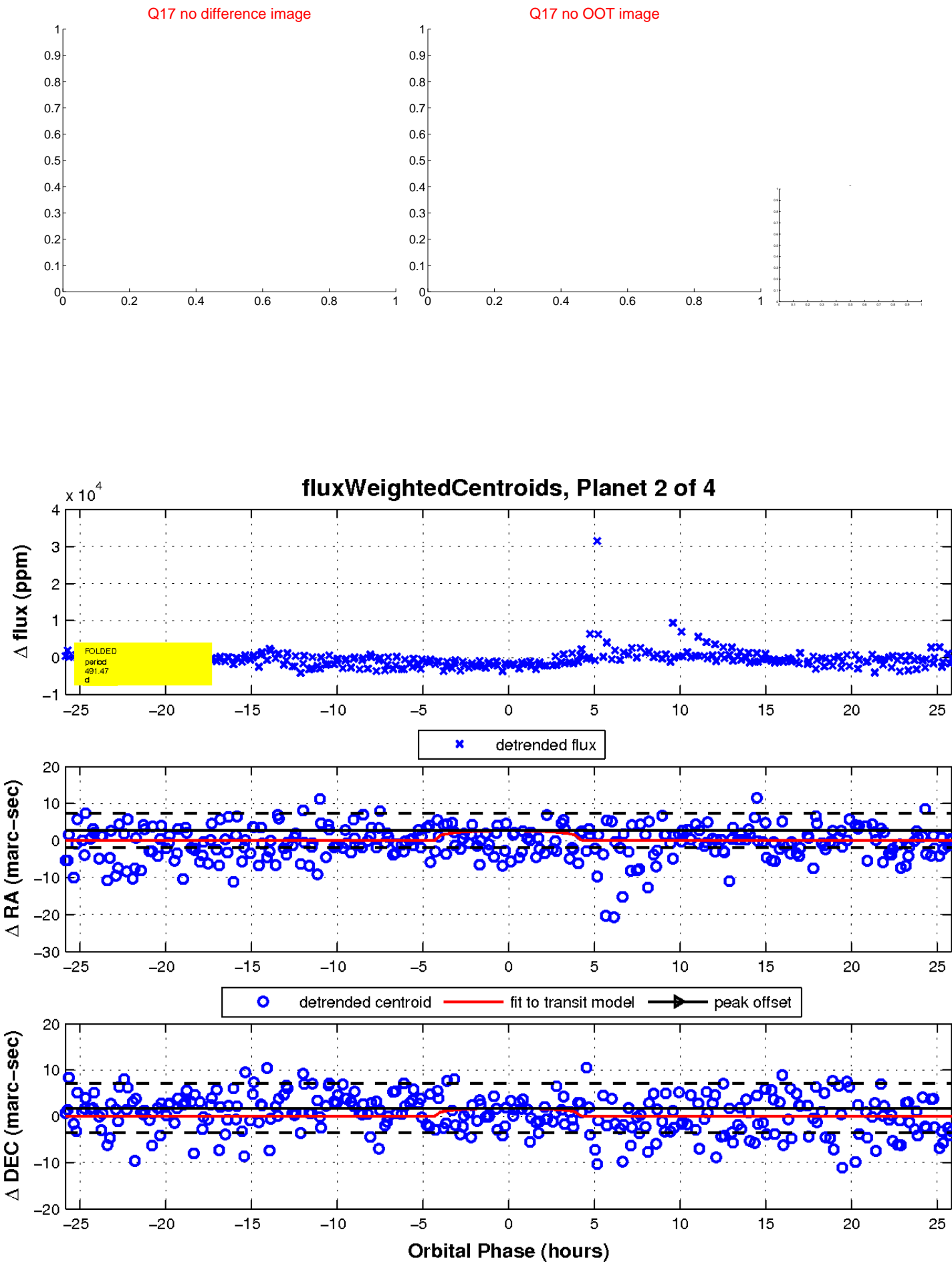
Q12 no OOT image



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

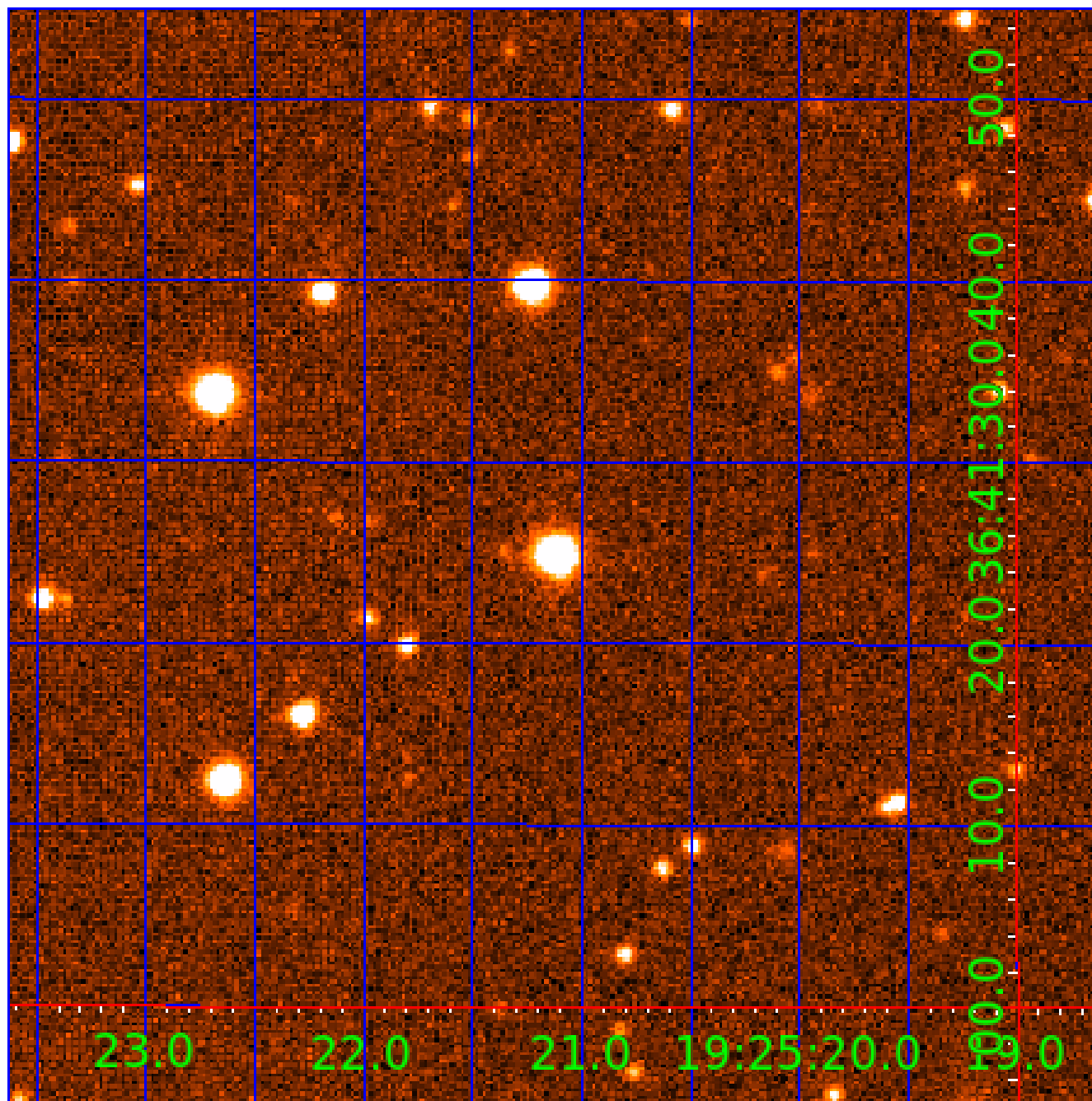


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 000893647

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})
000893647-01	OBS	No	407.101807	318.394868	1871.9	6.663	12.5	6.7	0.70	4856	3.06	0.27
000893647-02	OBS	No	491.470439	532.242287	2744.3	8.641	12.6	9.1	0.70	4856	3.54	0.21
000893647-03	OBS	No	551.919829	467.976563	2108.0	7.048	11.4	7.0	0.70	4856	3.27	0.18
000893647-04	OBS	No	397.411030	523.175722	1452.0	4.062	10.7	5.6	0.70	4856	2.56	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
000893647-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
000893647-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

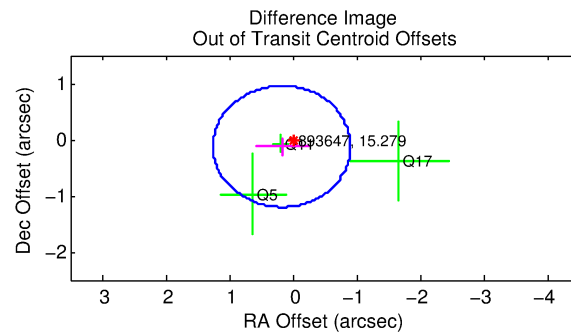
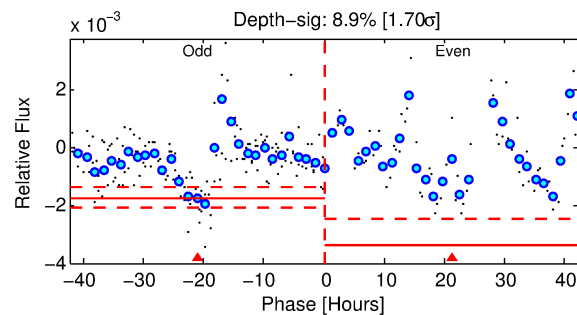
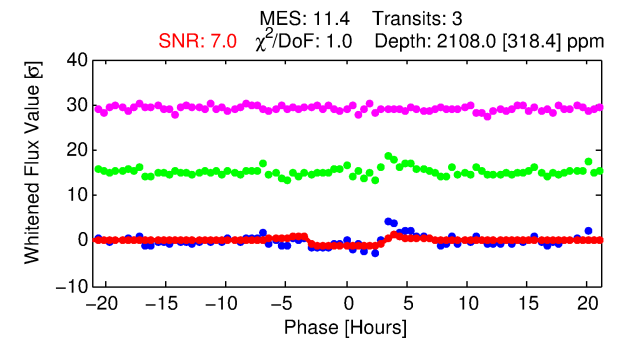
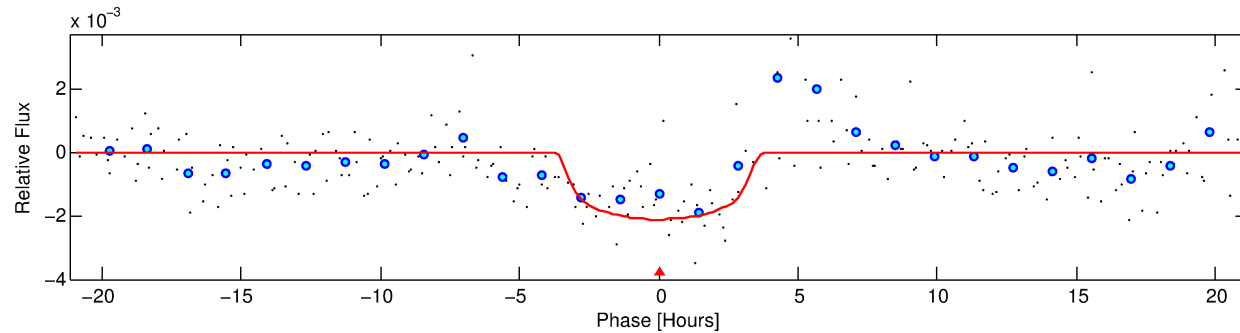
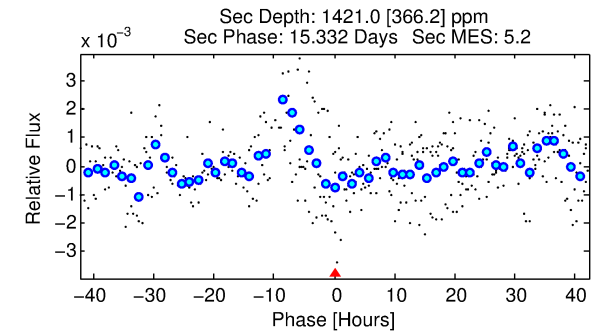
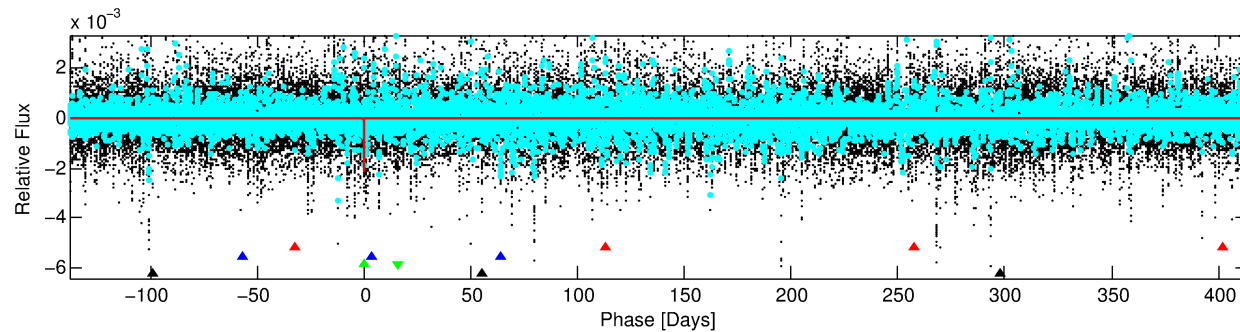
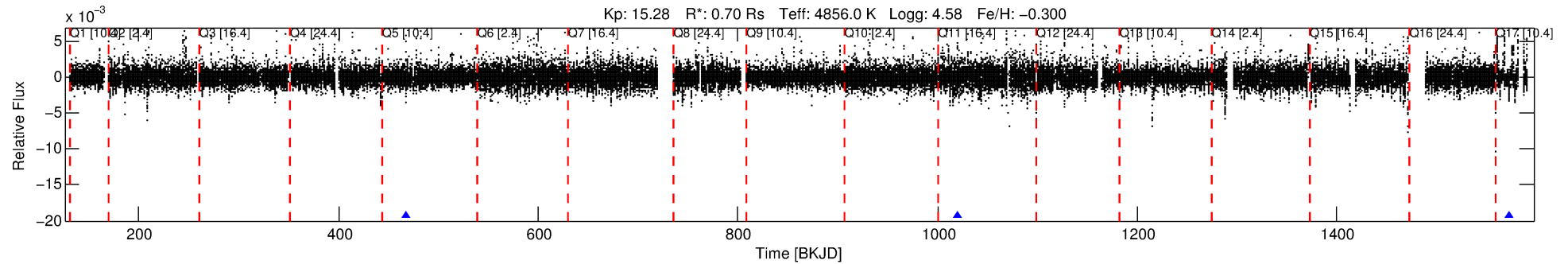
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 000893647-03

No Significant Match Found

DV One-Page Summary

KIC: 893647 Candidate: 3 of 4 Period: 551.920 d



DV Fit Results:

Period = 551.91983 [0.00644] d
Epoch = 467.9766 [0.0083] BKJD
Rp/R* = 0.0430 [0.0231]
a/R* = 525.33 [919.65]
b = 0.56 [2.16]
Seff = 0.18 [0.03]
Teq = 166 [7] K
Rp = 3.27 [1.78] Re
a = 1.1562 [0.0922] AU
Ag = 98011.92 [108709.35] [0.90 σ]
Teffp = 4547 [1262] K [3.47 σ]

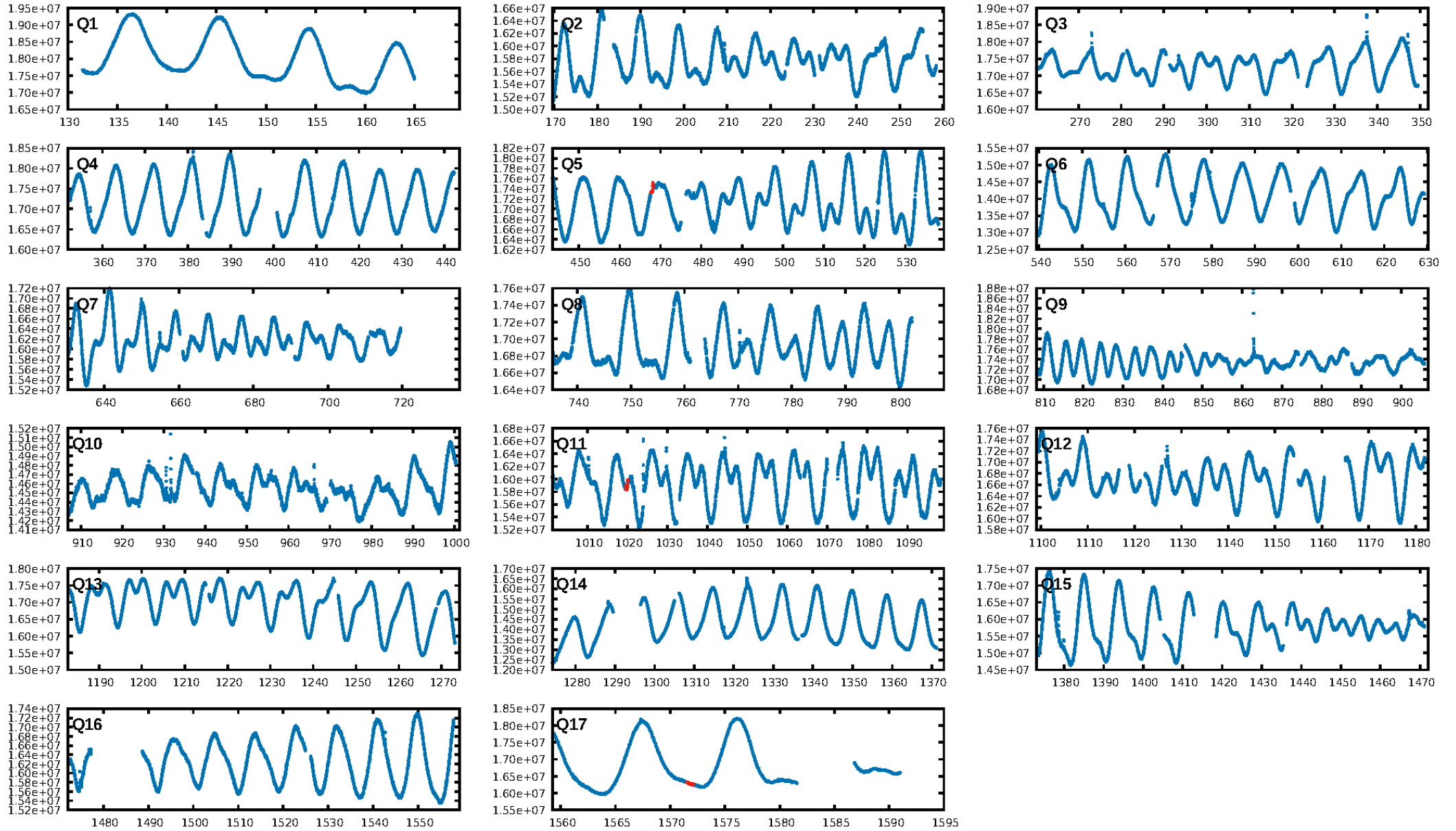
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [130.11 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.1%
ModelChiSquareGof-sig: 85.6%
Bootstrap-pfa: 3.74e-10
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -6.024
Centroid-sig: 11.1%
Centroid-so: 1.811 arcsec [1.78 σ]
OotOffset-rm: 0.214 arcsec [0.59 σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 0.330 arcsec [0.47 σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

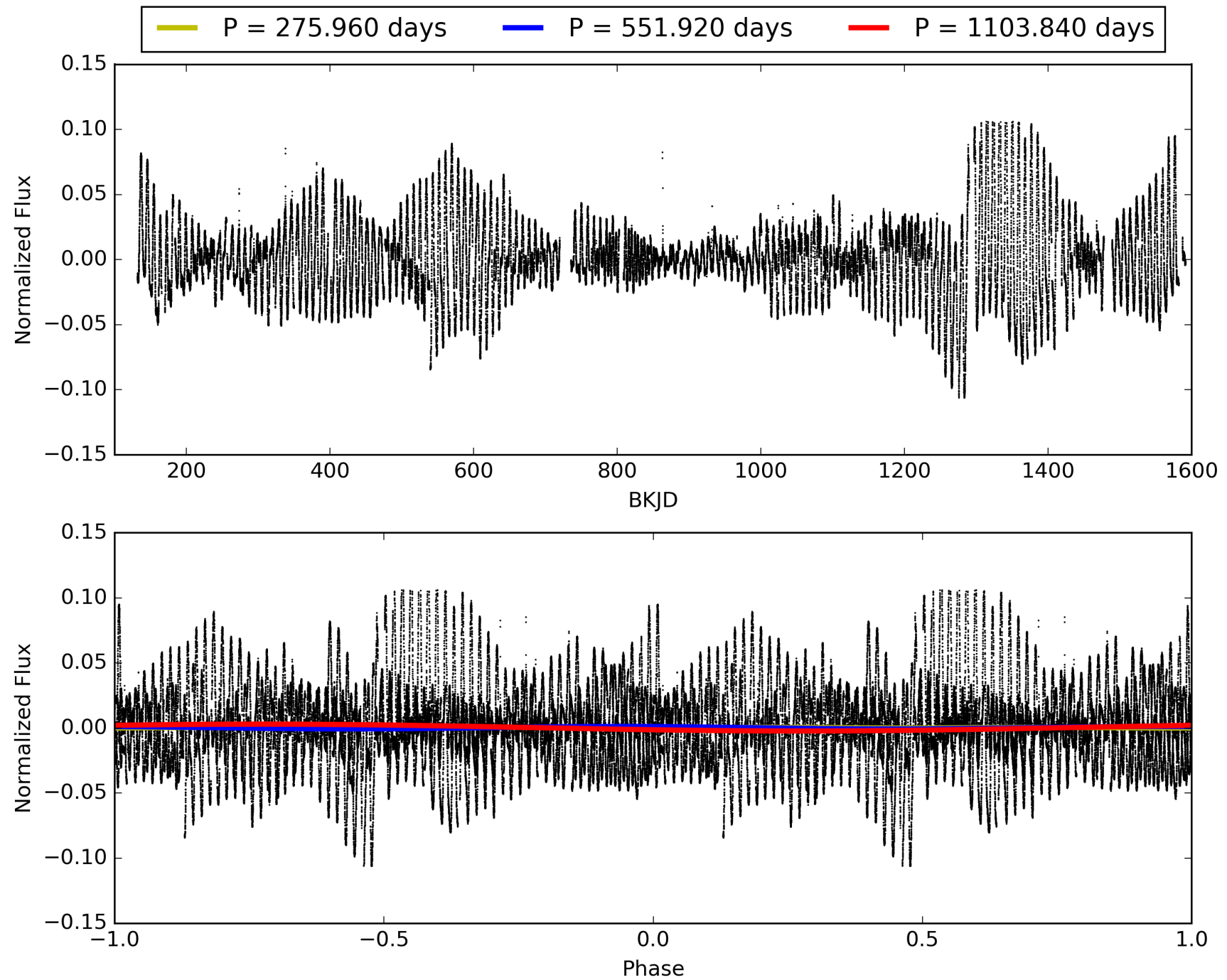
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:10:31 Z

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

TCE 000893647-03, PDC Light Curves

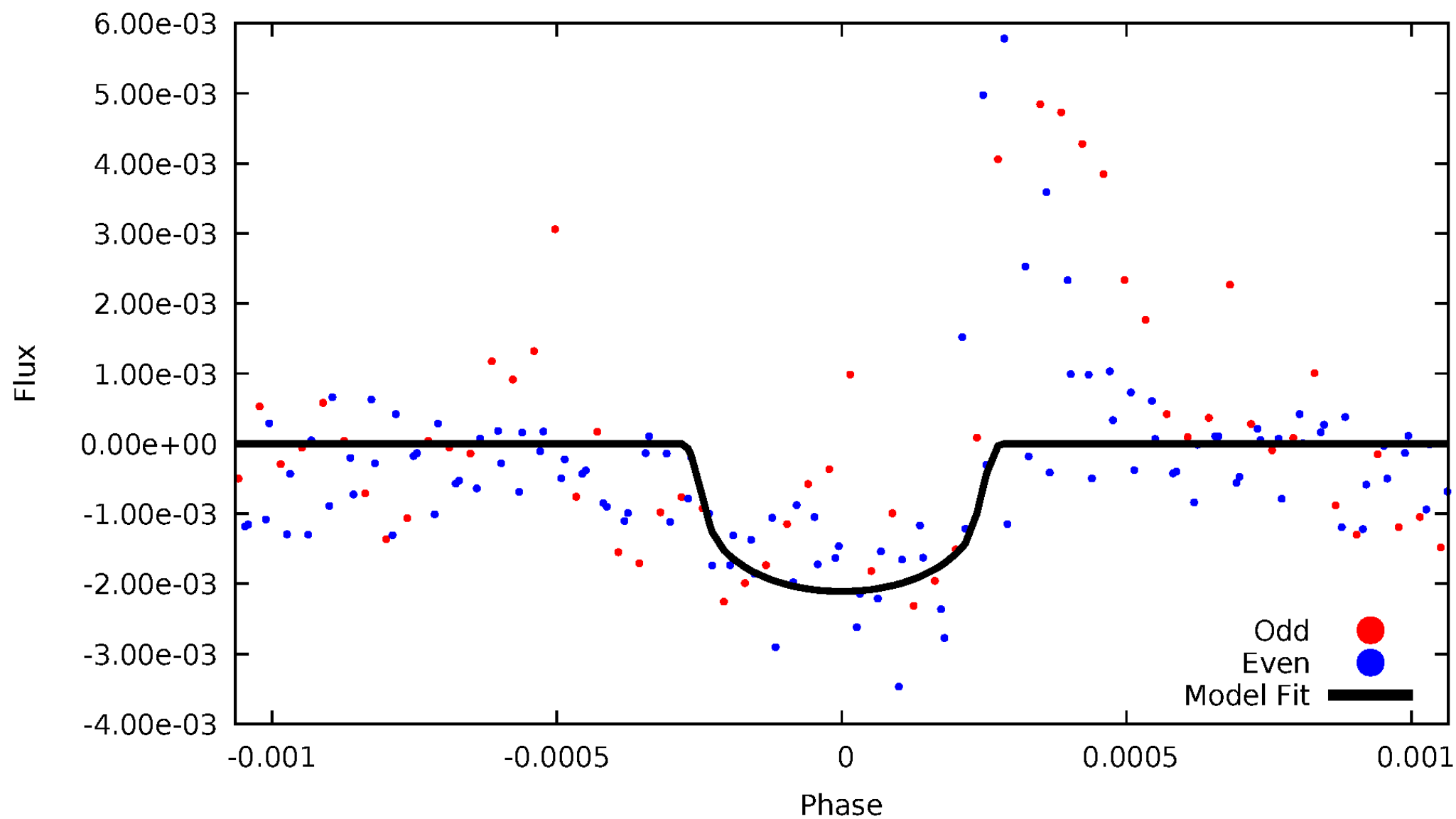


TCE 000893647-03



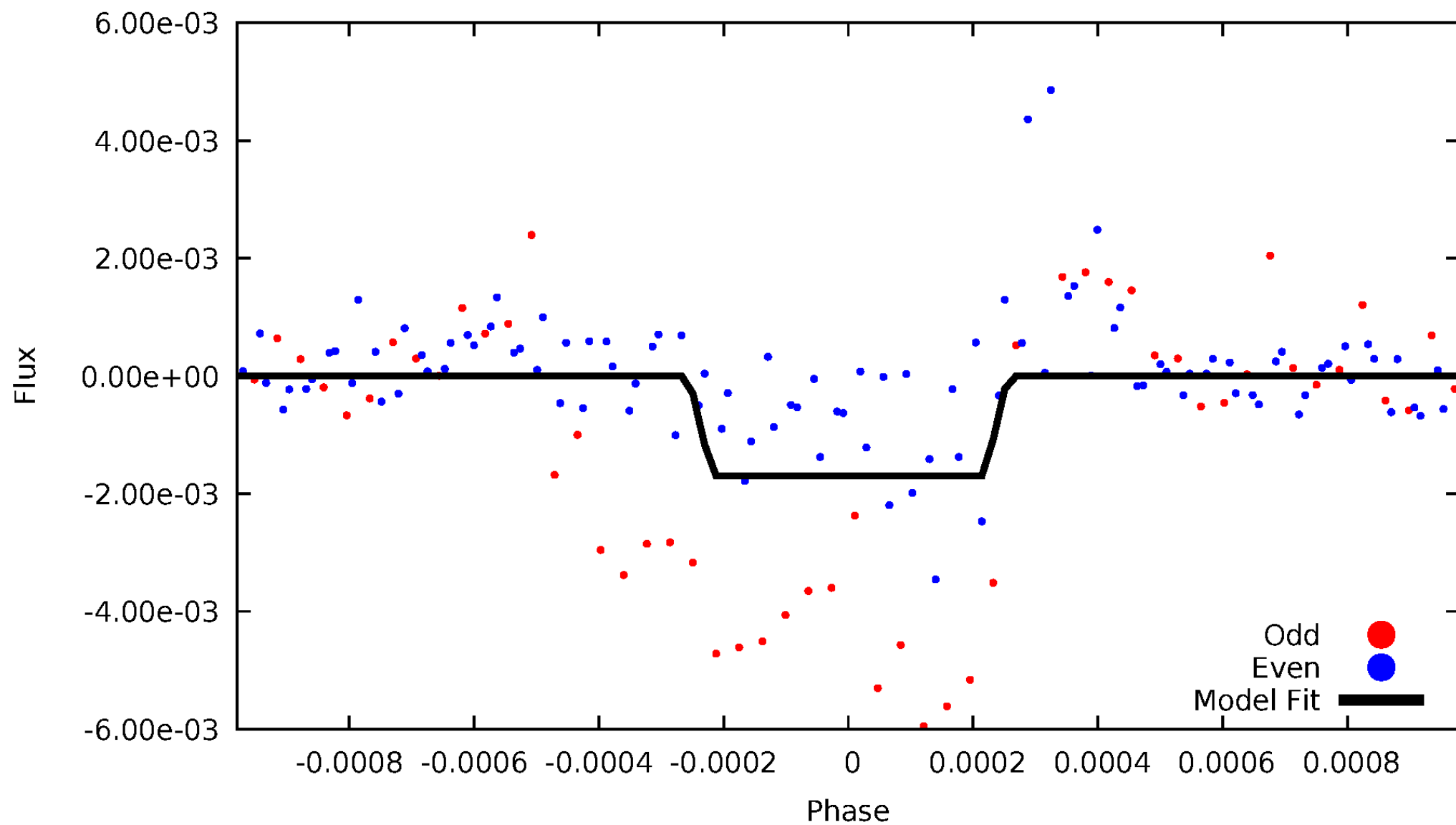
DV Odd/Even

TCE 000893647-03

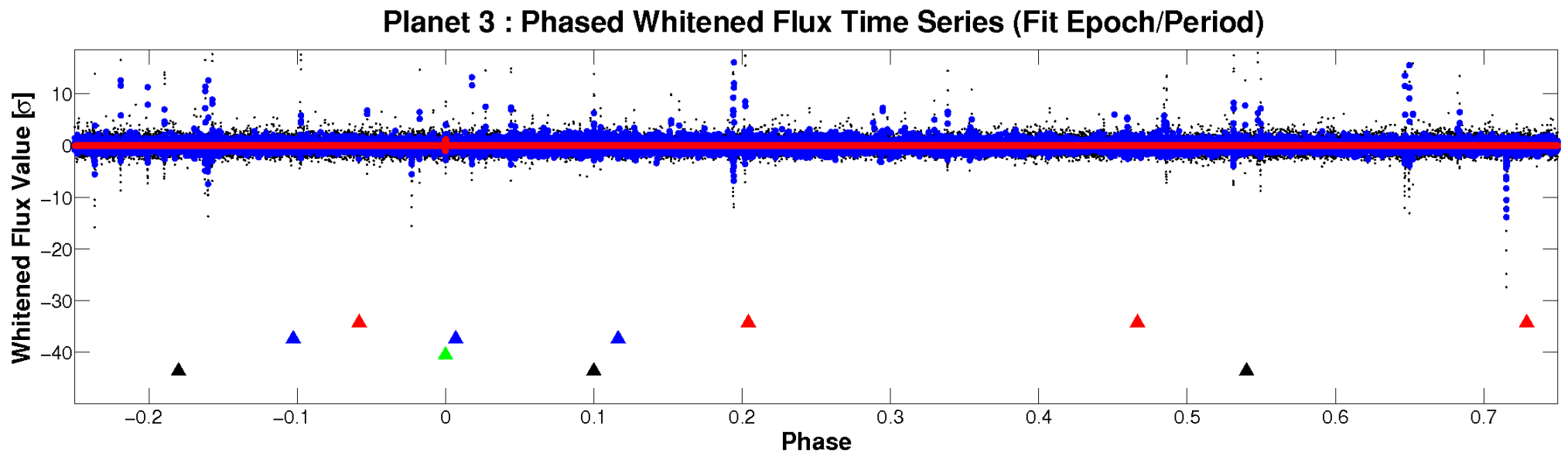
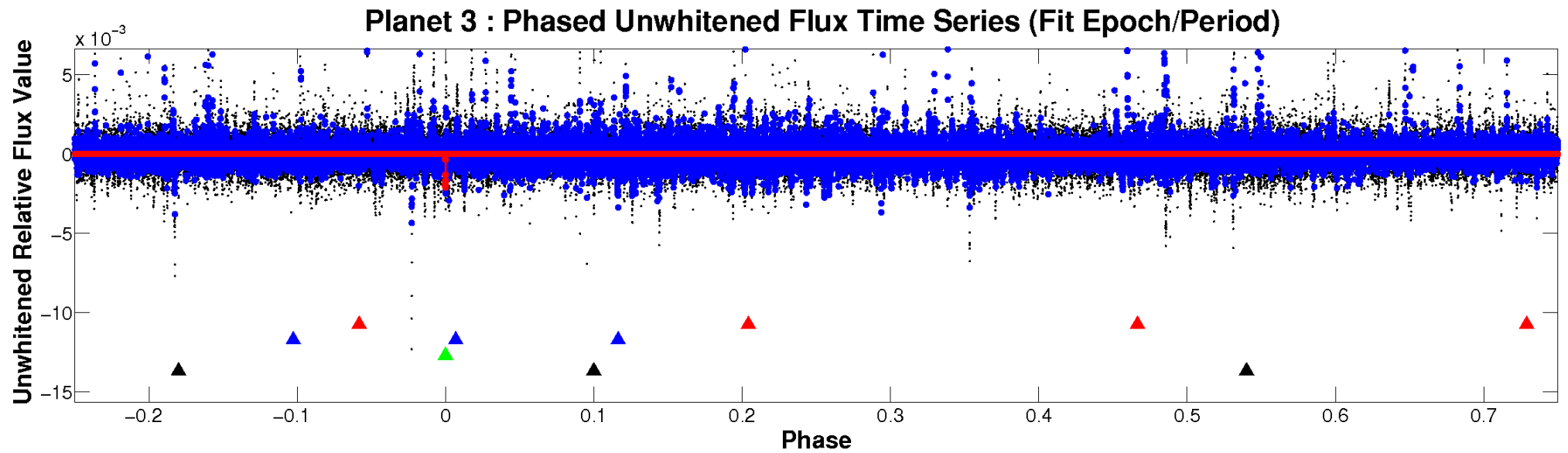


ALT Odd/Even

TCE 000893647-03

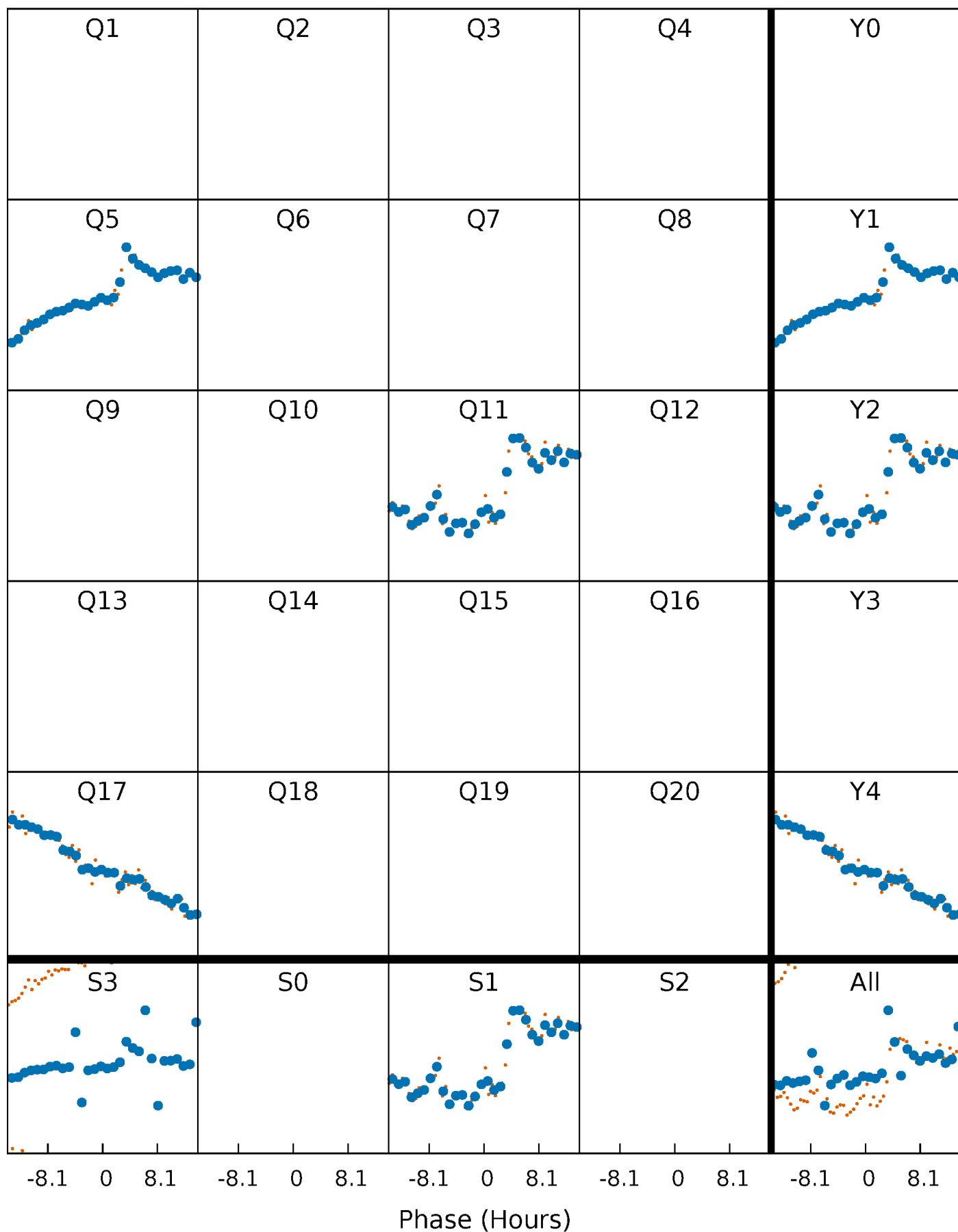


Non-Whitened Vs. Whitened Light Curve



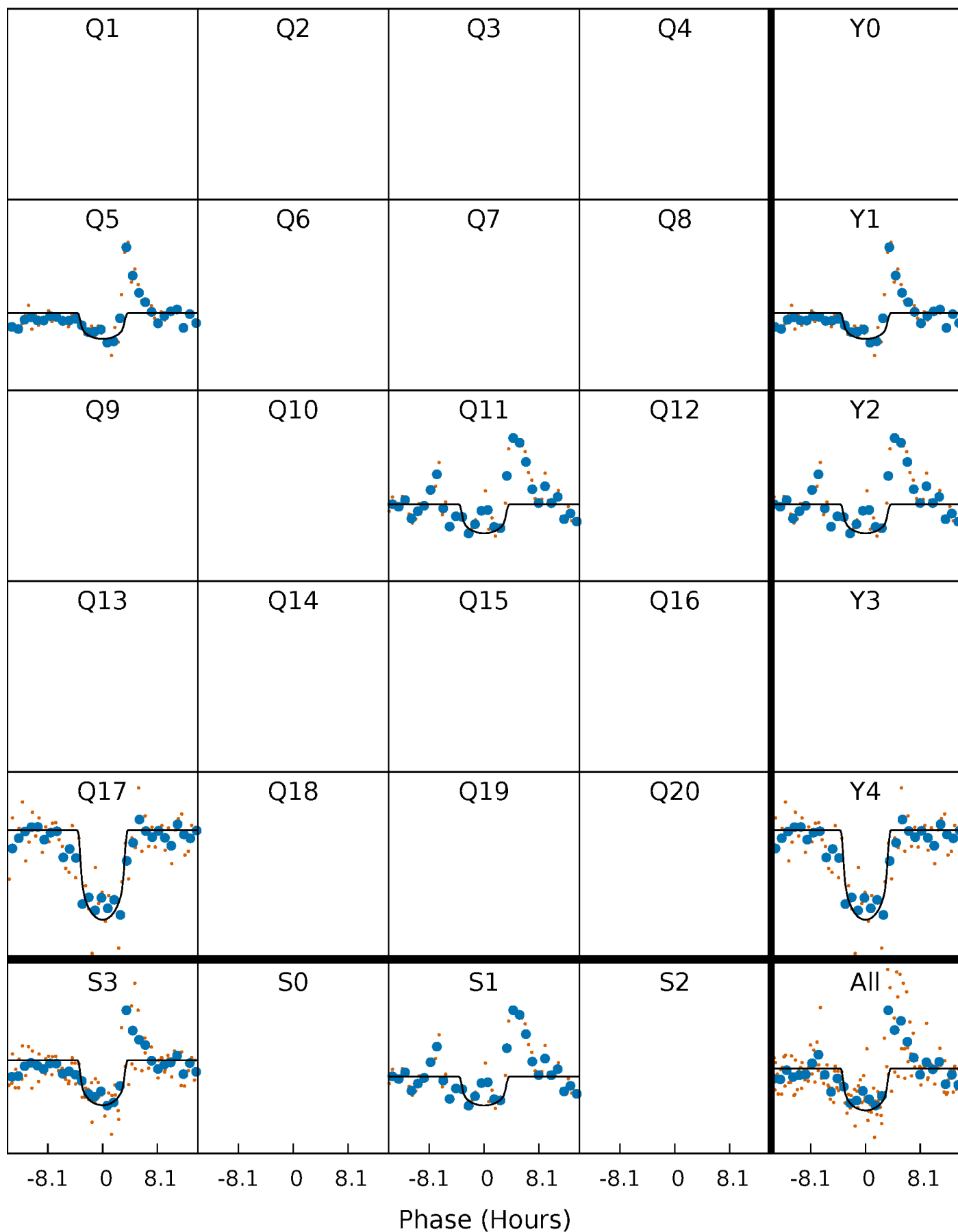
PDC Quarter-Phased Transit Curves

TCE 000893647-03 $P=551.919829$ Days $T_0=467.976563$ (BKJD)



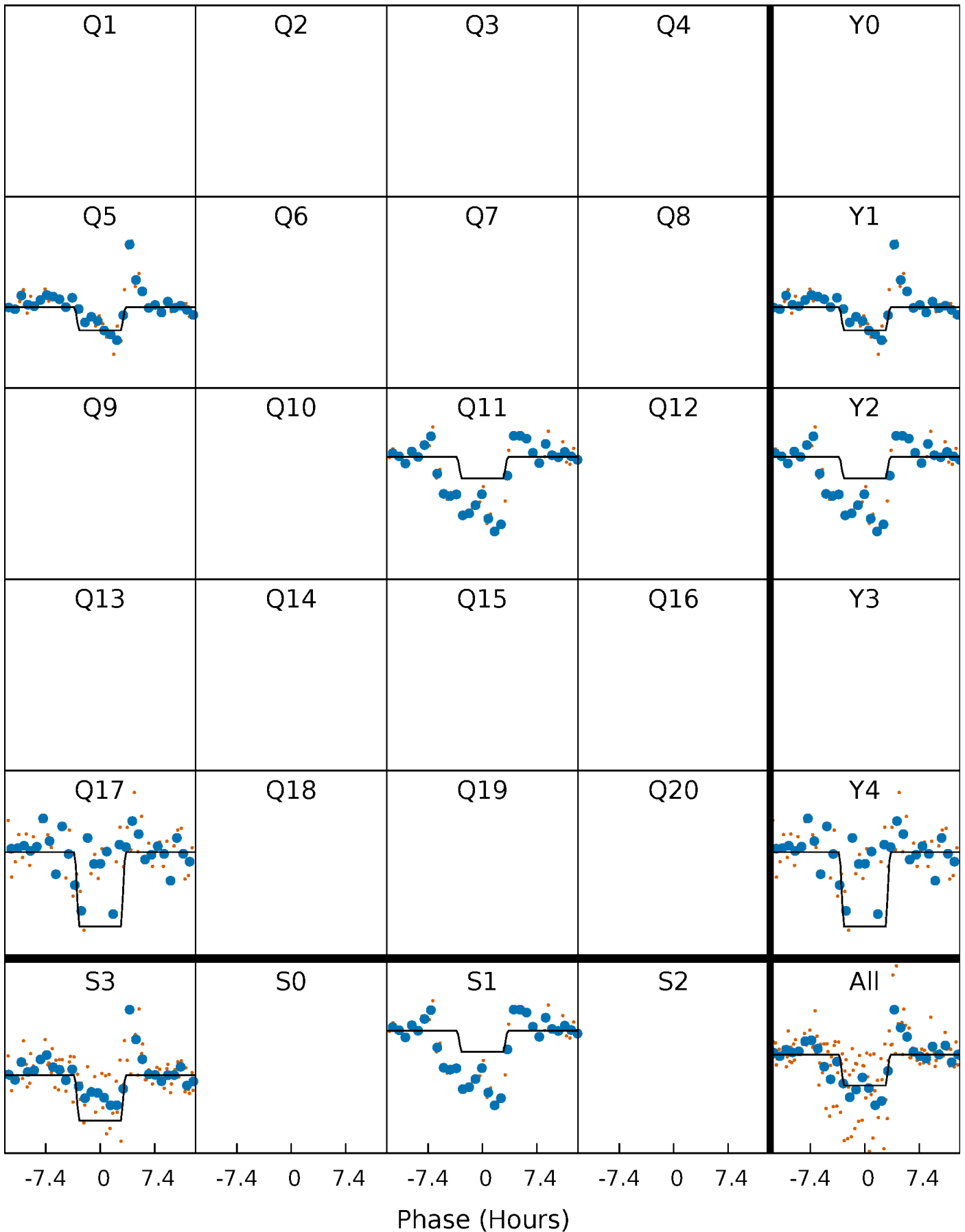
DV Quarter-Phased Transit Curves

TCE 000893647-03 $P=551.919829$ Days $T_0=467.976563$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

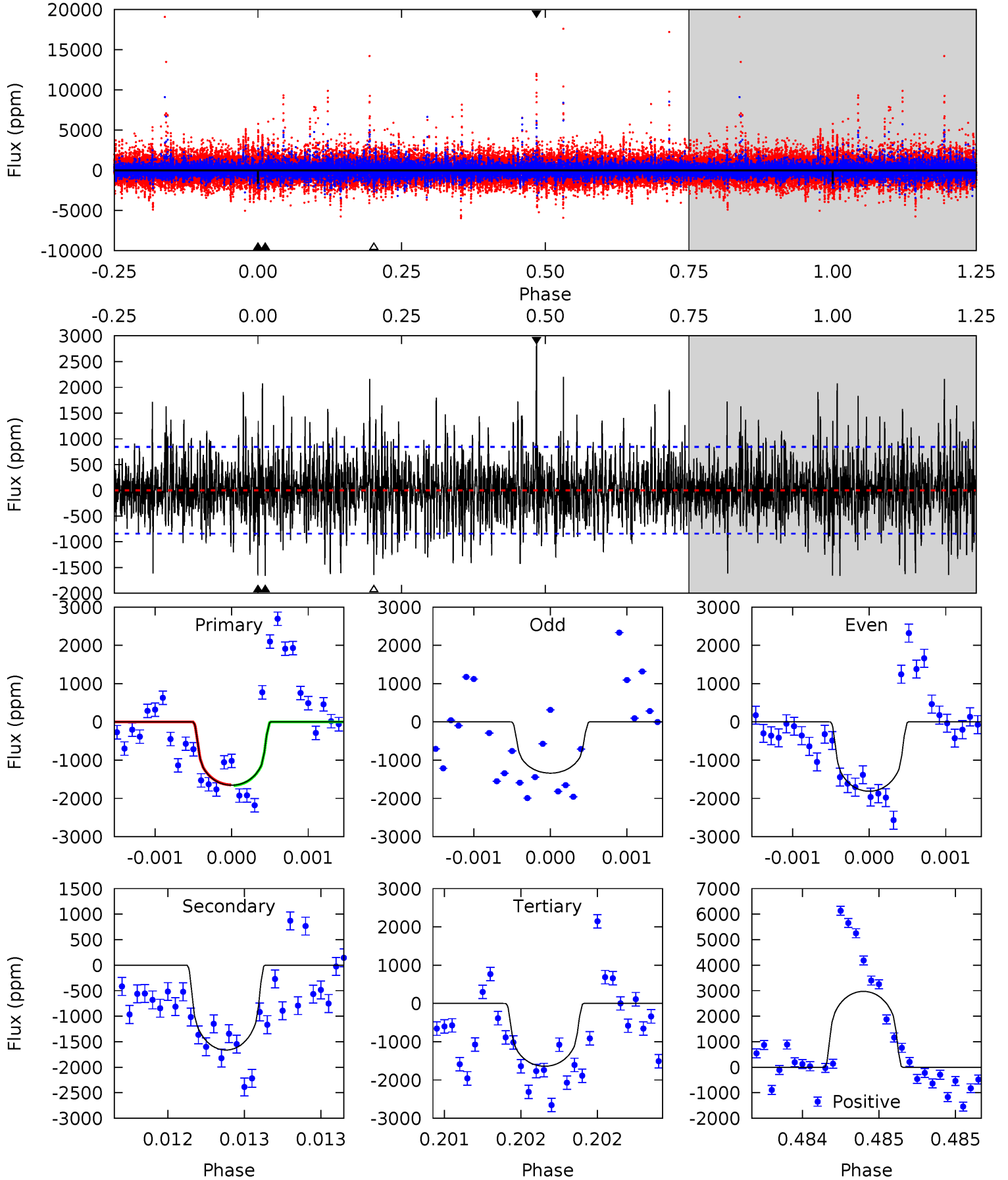
TCE 000893647-03 $P=551.944511$ Days $T_0=467.954654$ (BKJD)



DV Model-Shift Uniqueness Test

000893647-03, P = 551.919829 Days, E = 467.976563 Days

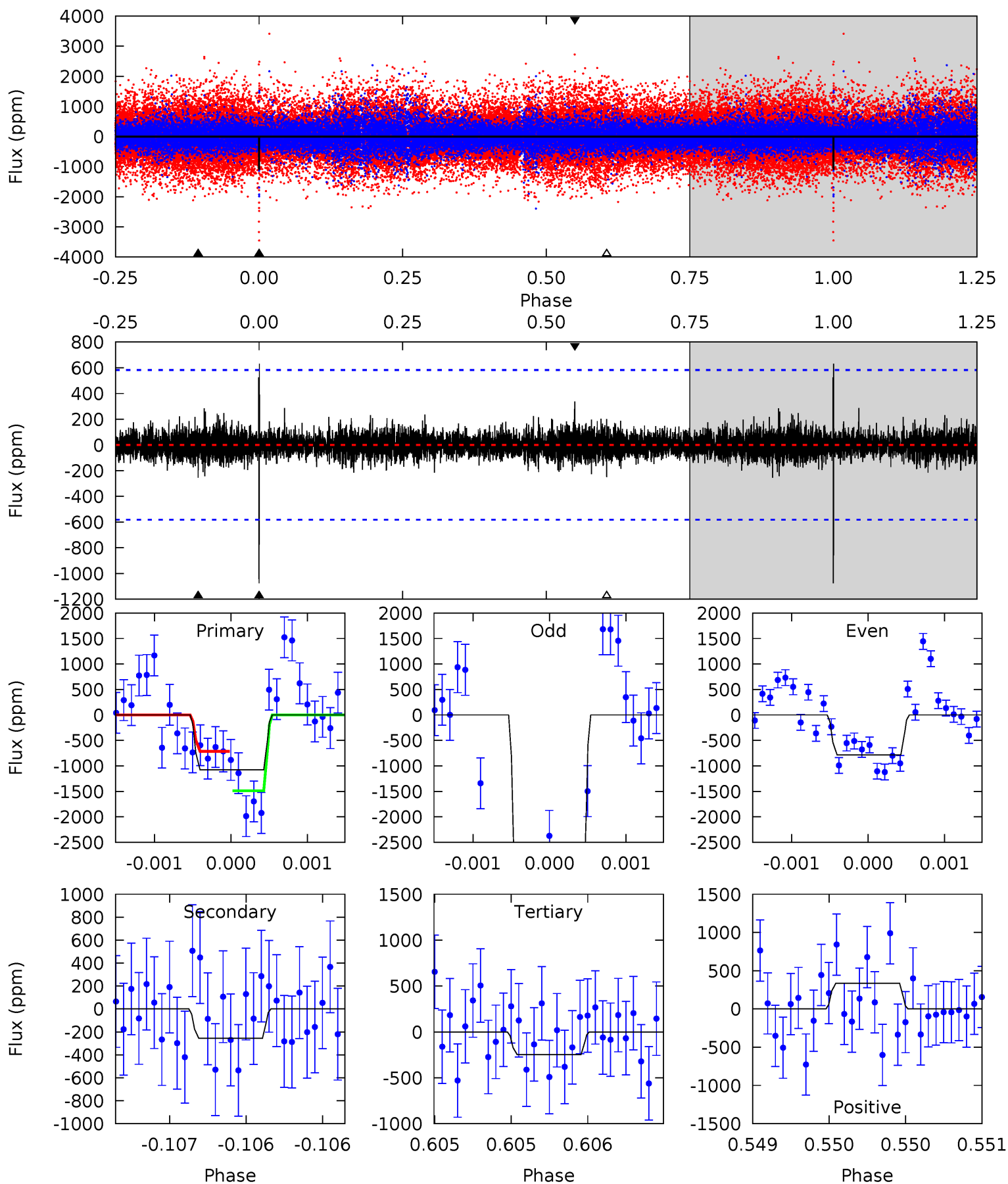
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	11.0	10.8	19.6	5.55	3.45	2.98	0.10	-8.68	0.15	-8.63	1.19	0.99	0.64	0.05



Alt Model-Shift Uniqueness Test

000893647-03, P = 551.944511 Days, E = 467.954654 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	2.44	2.38	3.23	5.57	3.48	0.53	7.91	7.06	0.06	-0.79	20.6	1.53	0.37	3.71



Stellar Parameters For KIC 000893647

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4856^{+146}_{-131}	$4.583^{+0.060}_{-0.035}$	$-0.300^{+0.300}_{-0.300}$	$0.696^{+0.062}_{-0.068}$	$0.676^{+0.088}_{-0.047}$	$2.828^{+0.731}_{-0.436}$
	+3%/-3%	+1%/-1%	+100%/-100%	+9%/-10%	+13%/-7%	+26%/-15%
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 000893647-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1663 ± 152	$3.36^{+1.70}_{-1.56}$	231^{+8}_{-8}	4664^{+1589}_{-645}	$110413^{+276252}_{-61630}$
Alt.	-255 ± 105	$3.19^{+1.76}_{-1.54}$	231^{+8}_{-8}	3382^{+954}_{-461}	17512^{+54467}_{-11170}

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

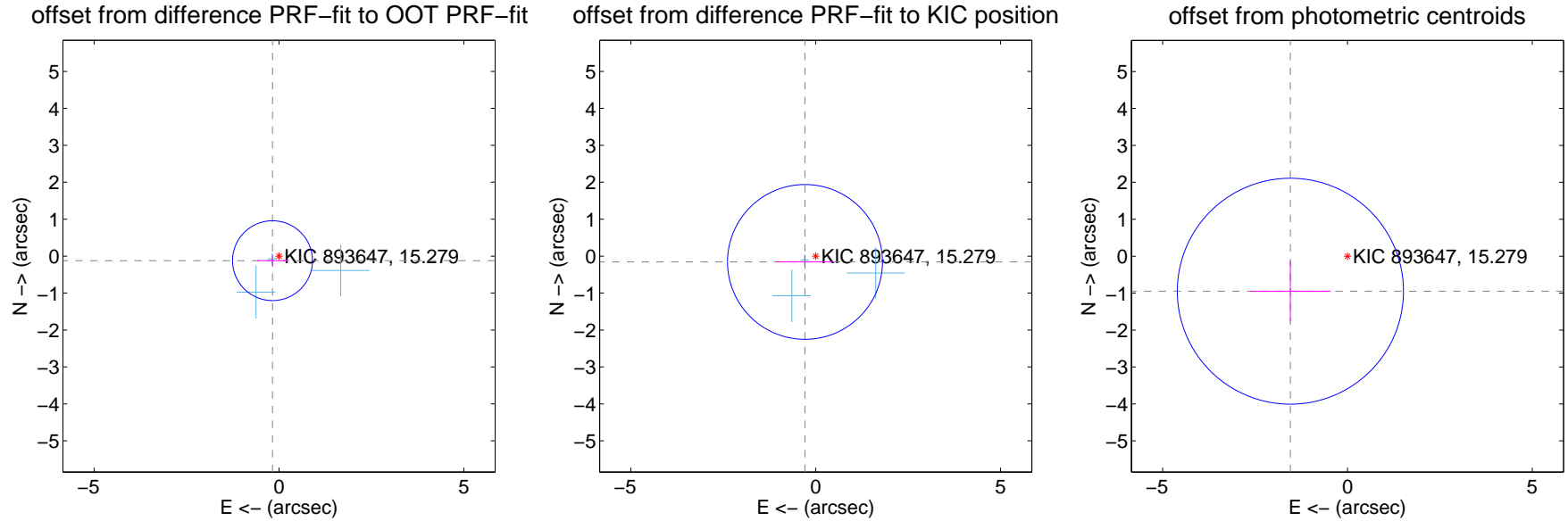
DV Centroid Data

Supplemental centroid analysis for 000893647-03. Kepler magnitude: 15.28. Transit SNR 7.02

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.214 ± 0.360	0.59	0.175 ± 0.412	-0.123 ± 0.152
PRF-fit source offset from KIC position	0.330 ± 0.698	0.47	0.291 ± 0.773	-0.157 ± 0.189
photometric centroid source offset	1.81 ± 1.02	1.78	1.54 ± 1.09	-0.95 ± 0.81

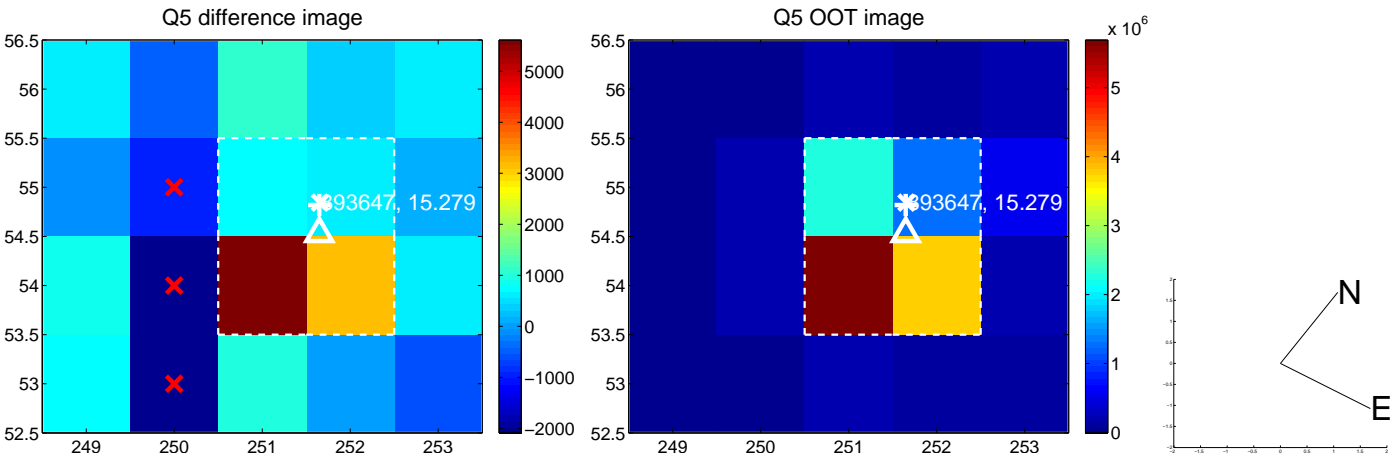


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

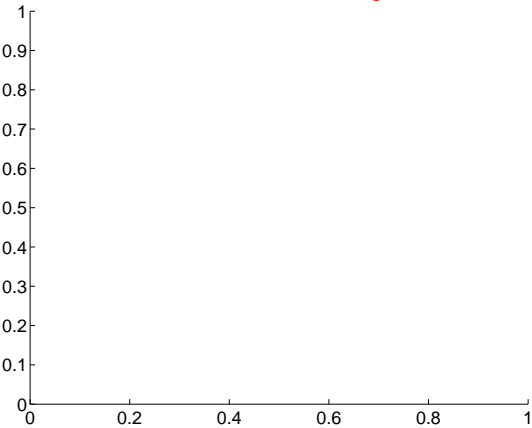
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



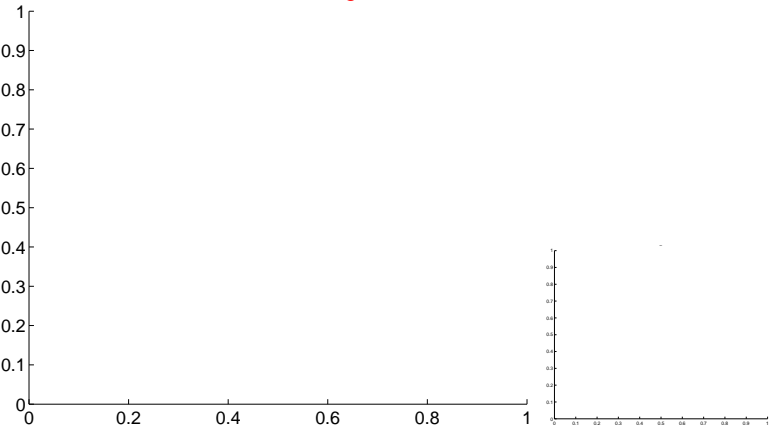
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



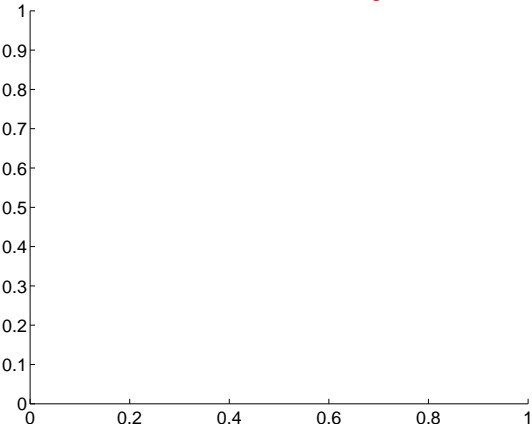
Q6 no difference image



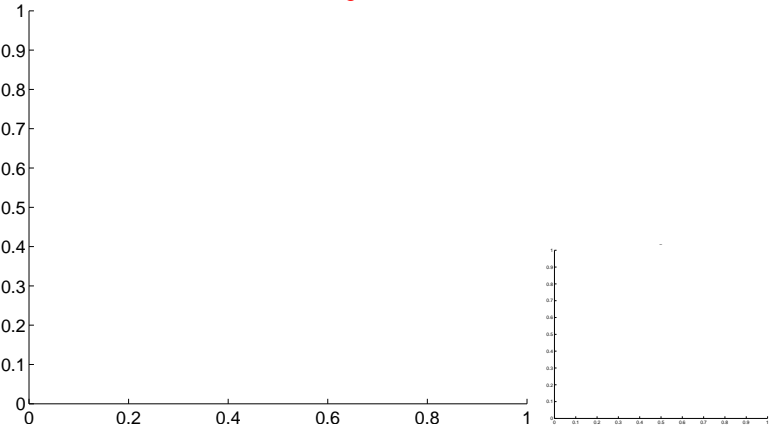
Q6 no OOT image



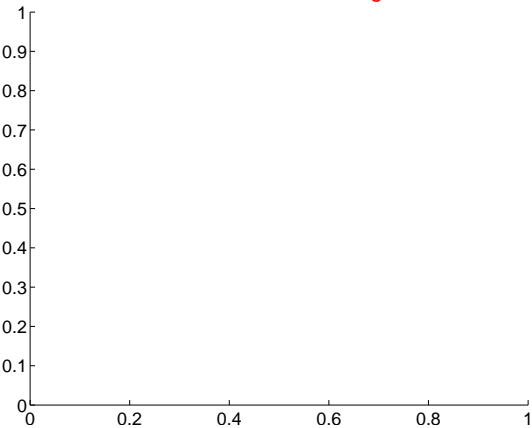
Q7 no difference image



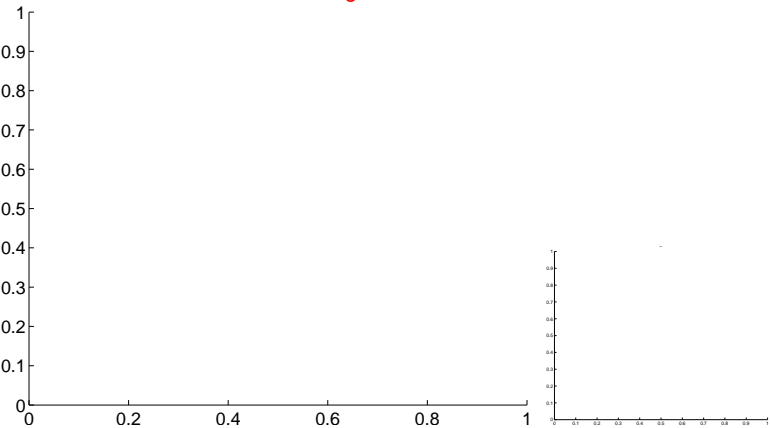
Q7 no OOT image



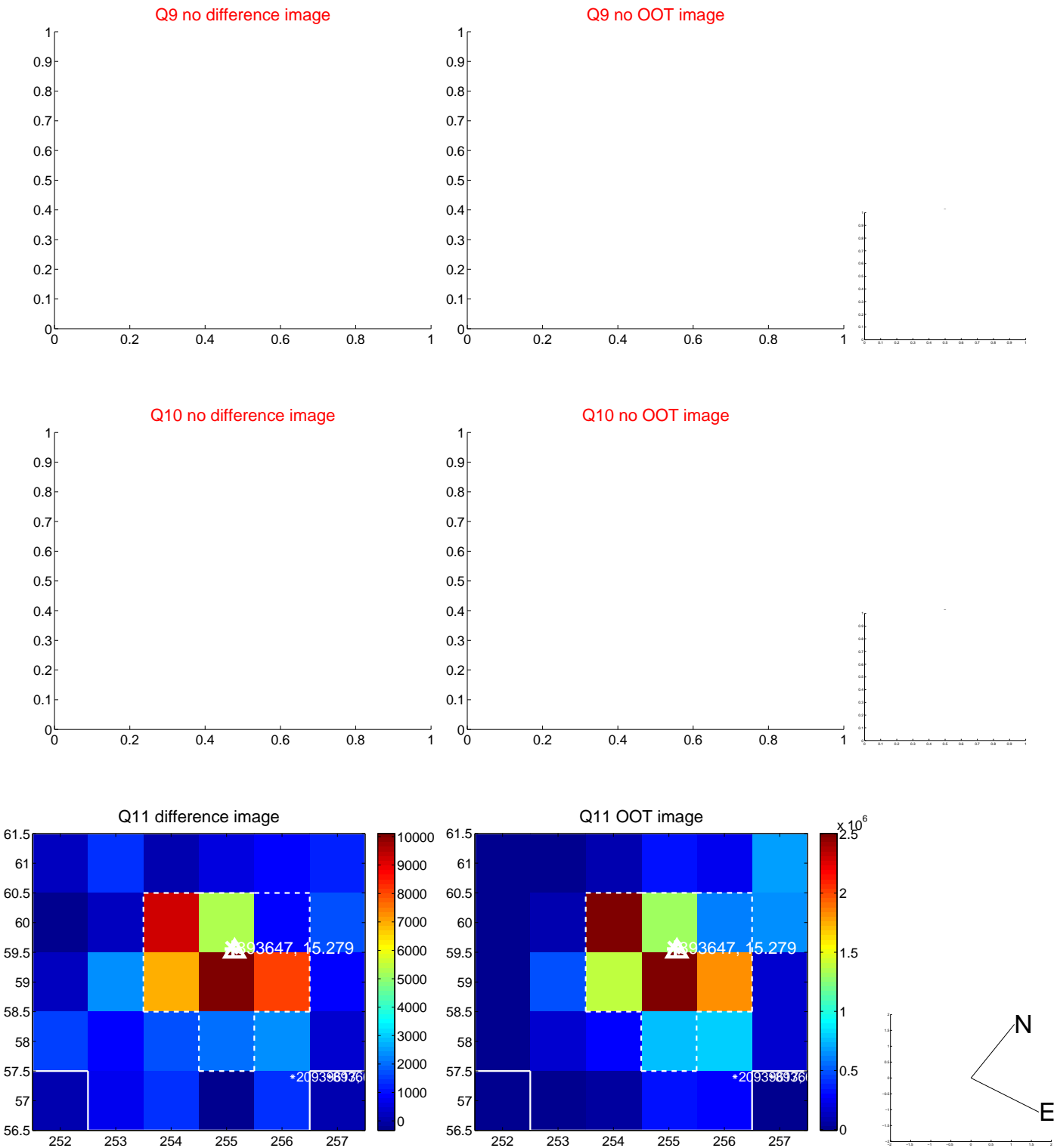
Q8 no difference image



Q8 no OOT image



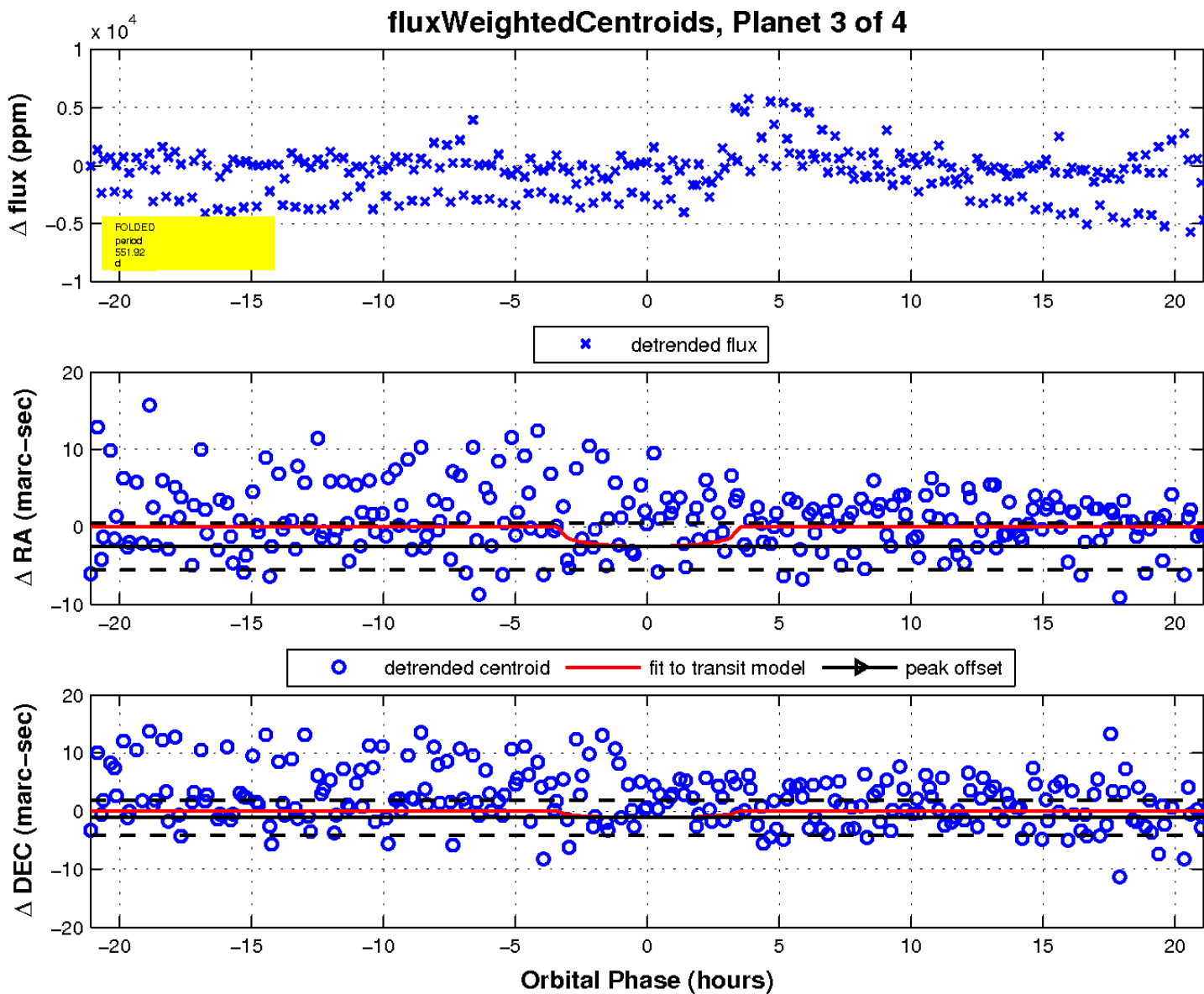
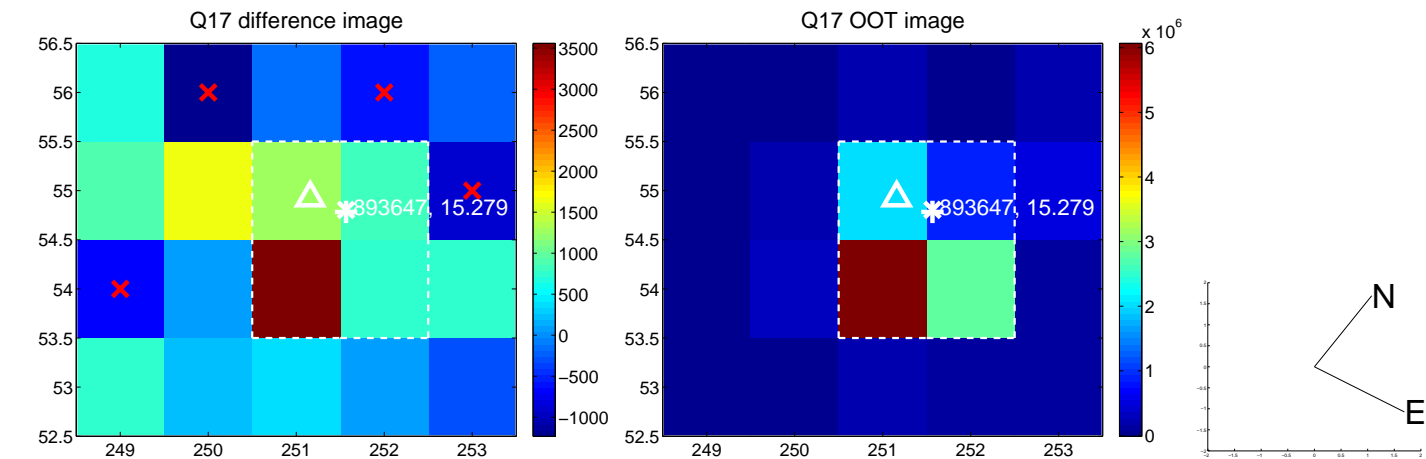
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

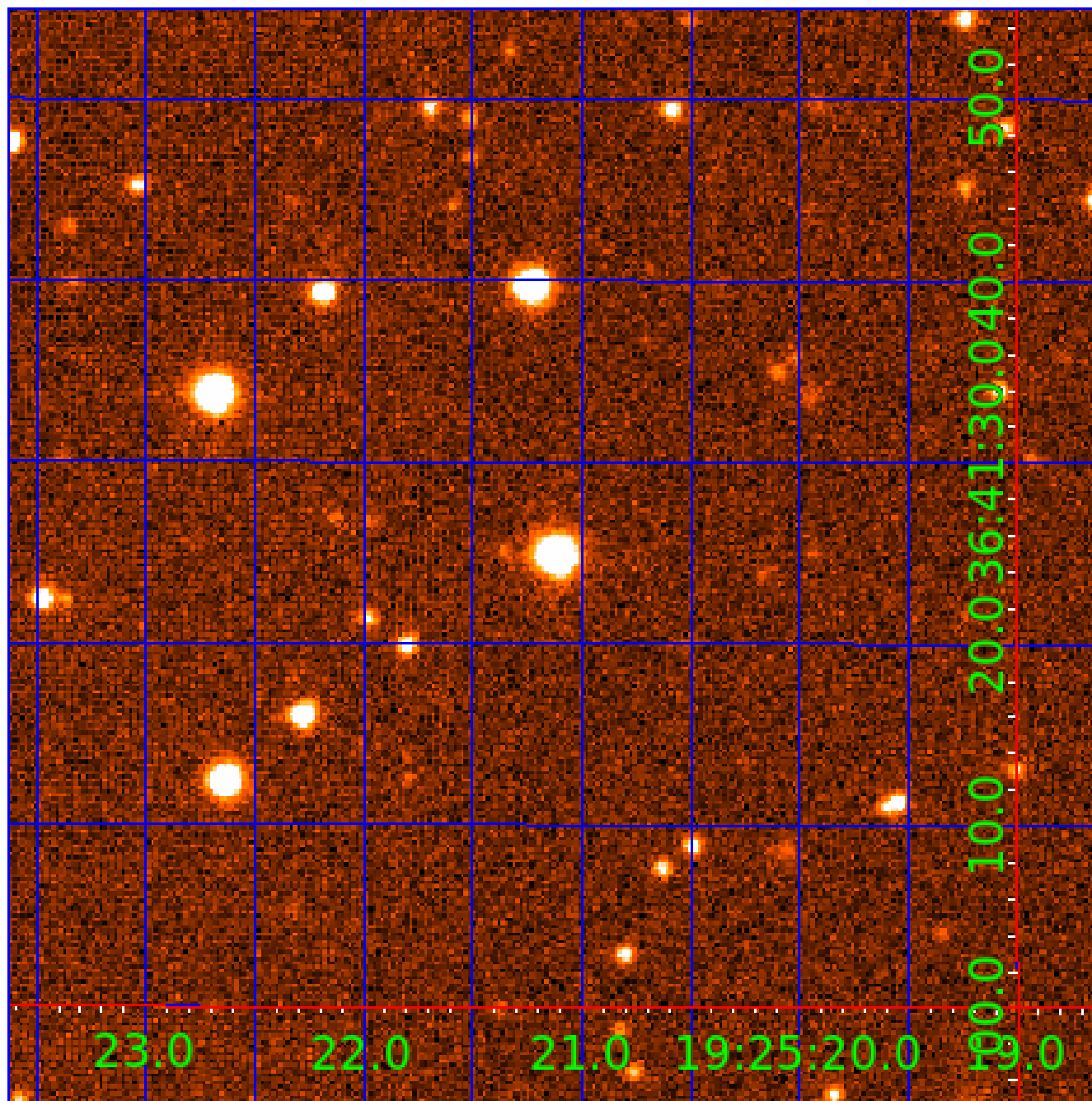


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 000893647

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})
000893647-01	OBS	No	407.101807	318.394868	1871.9	6.663	12.5	6.7	0.70	4856	3.06	0.27
000893647-02	OBS	No	491.470439	532.242287	2744.3	8.641	12.6	9.1	0.70	4856	3.54	0.21
000893647-03	OBS	No	551.919829	467.976563	2108.0	7.048	11.4	7.0	0.70	4856	3.27	0.18
000893647-04	OBS	No	397.411030	523.175722	1452.0	4.062	10.7	5.6	0.70	4856	2.56	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
000893647-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
000893647-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
000893647-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

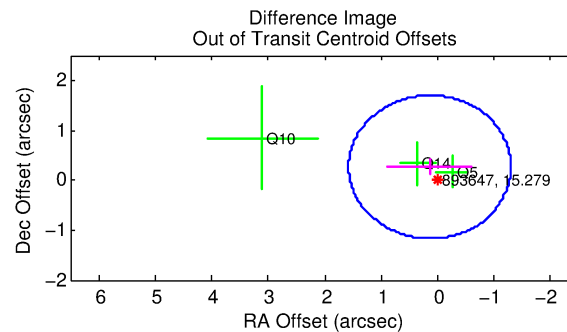
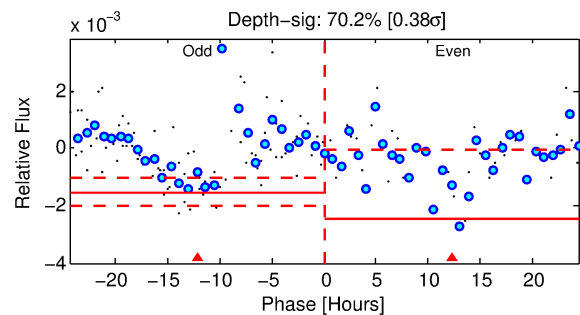
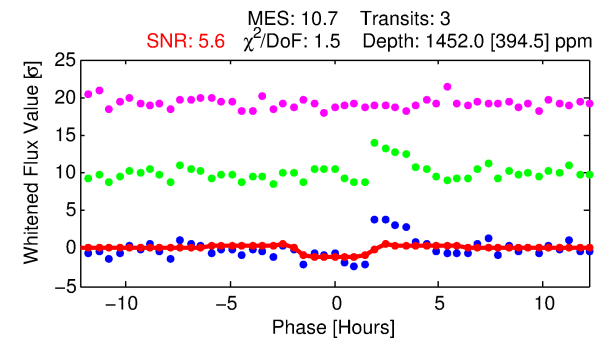
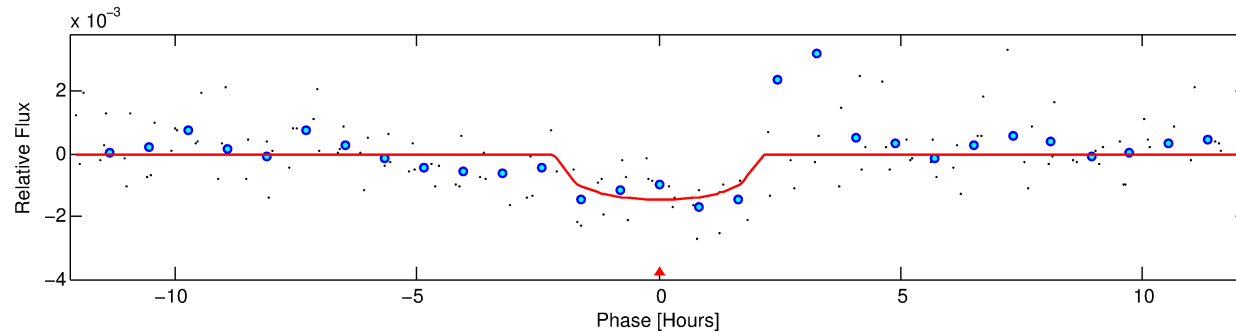
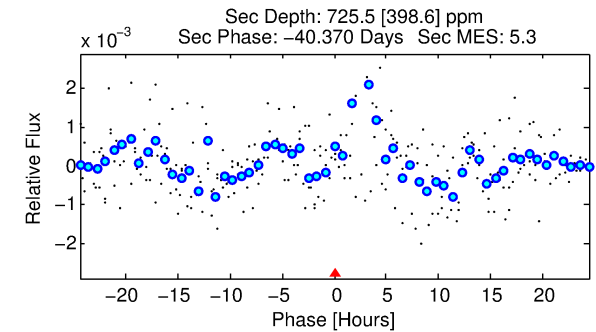
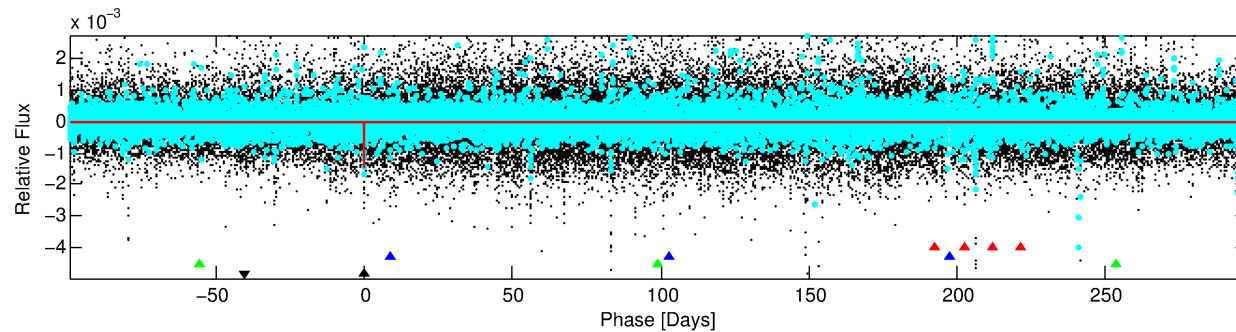
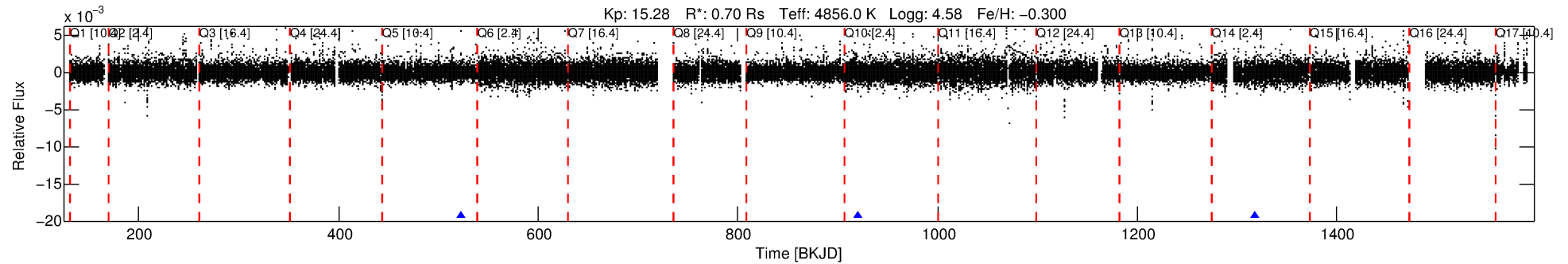
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 000893647-04

No Significant Match Found

DV One-Page Summary

KIC: 893647 Candidate: 4 of 4 Period: 397.411 d



DV Fit Results:

Period = 397.41103 [0.01059] d
Epoch = 523.1757 [0.0129] BKJD
Rp/R* = 0.0338 [0.1639]
a/R* = 772.73 [12509.90]
b = 0.00 [10254.00]
Seff = 0.28 [0.05]
Teq = 185 [8] K
Rp = 2.56 [12.45] Re
a = 0.9288 [0.0741] AU
Ag = 52333.59 [508901.14] [0.10 σ]
Teffp = 4337 [10543] K [0.39 σ]

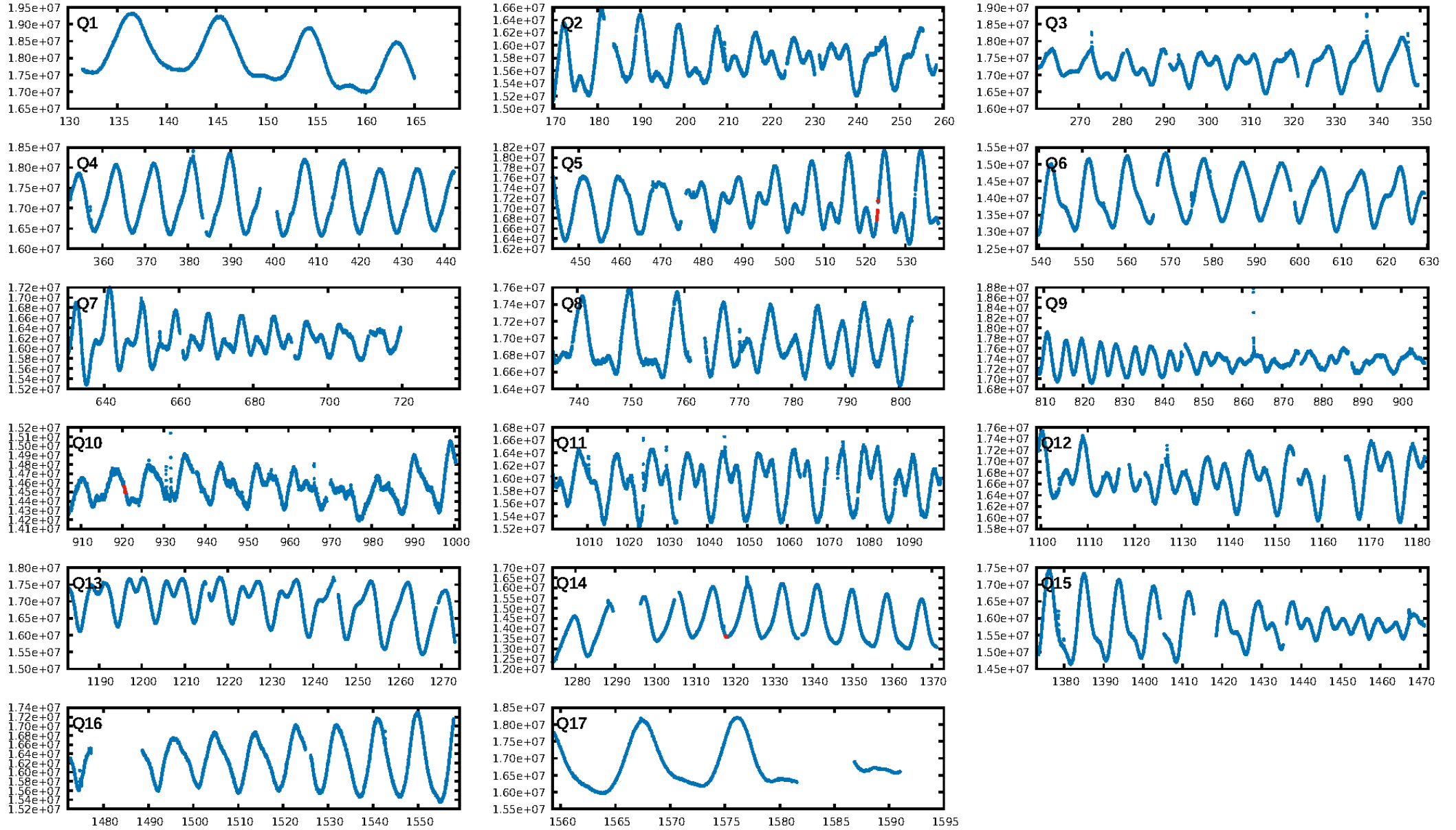
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [29.80 σ]
ModelChiSquare2-sig: 33.1%
ModelChiSquareGof-sig: 50.8%
Bootstrap-pfa: 1.33e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.594
Centroid-sig: 8.0%
Centroid-so: 3.302 arcsec [2.04 σ]
OotOffset-rm: 0.298 arcsec [0.62 σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-rm: 0.327 arcsec [0.63 σ]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

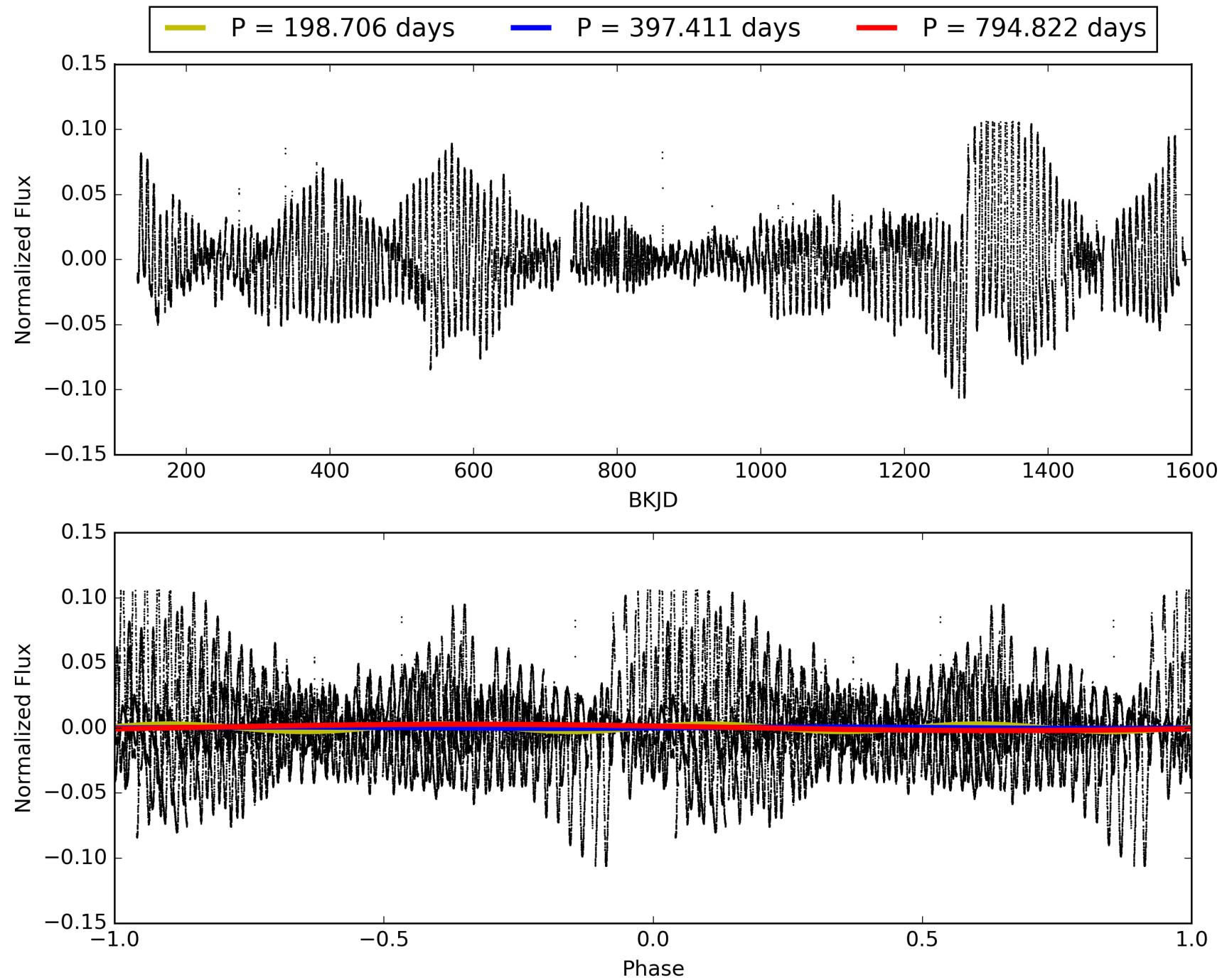
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:10:46 Z

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

TCE 000893647-04, PDC Light Curves

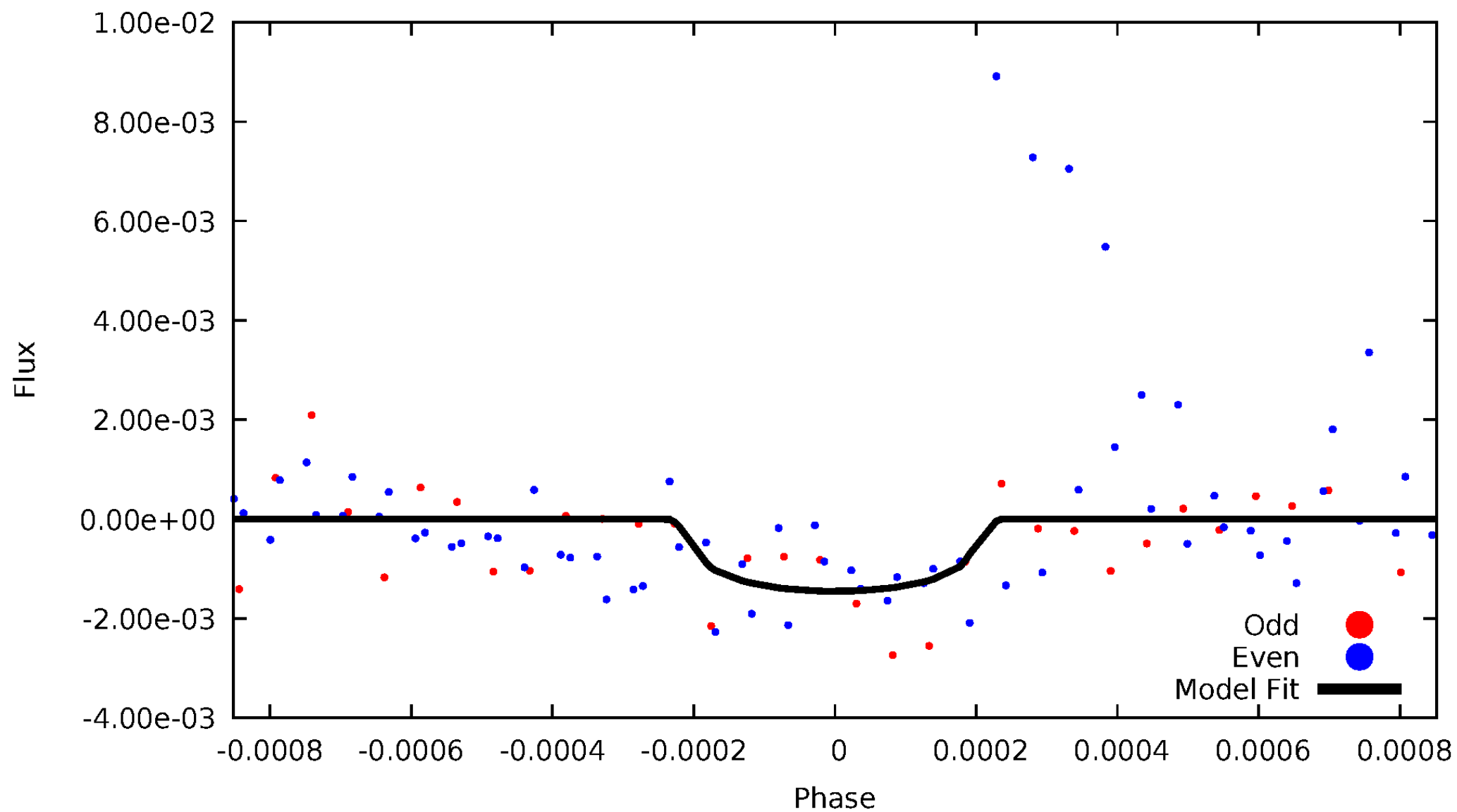


TCE 000893647-04



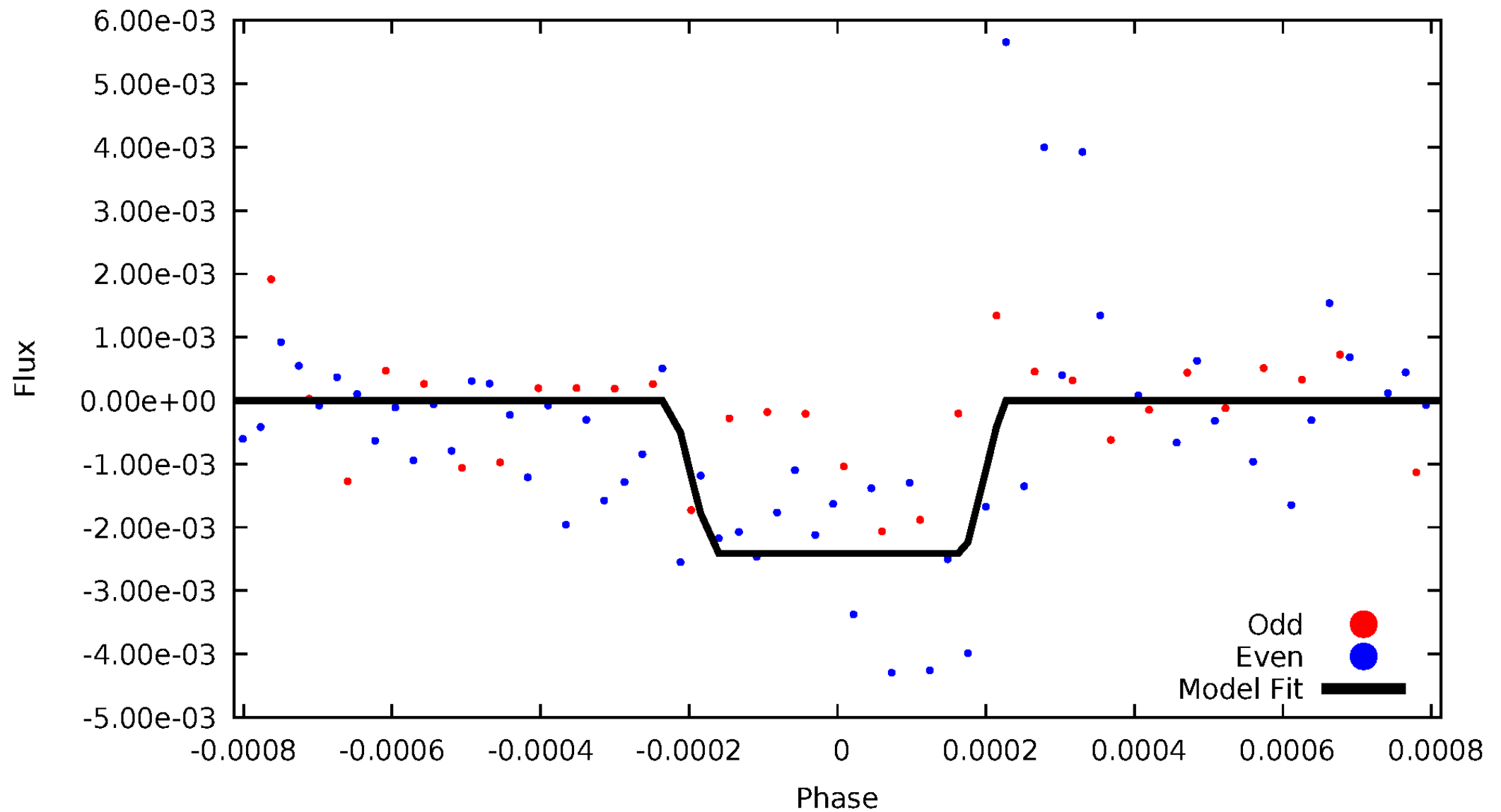
DV Odd/Even

TCE 000893647-04



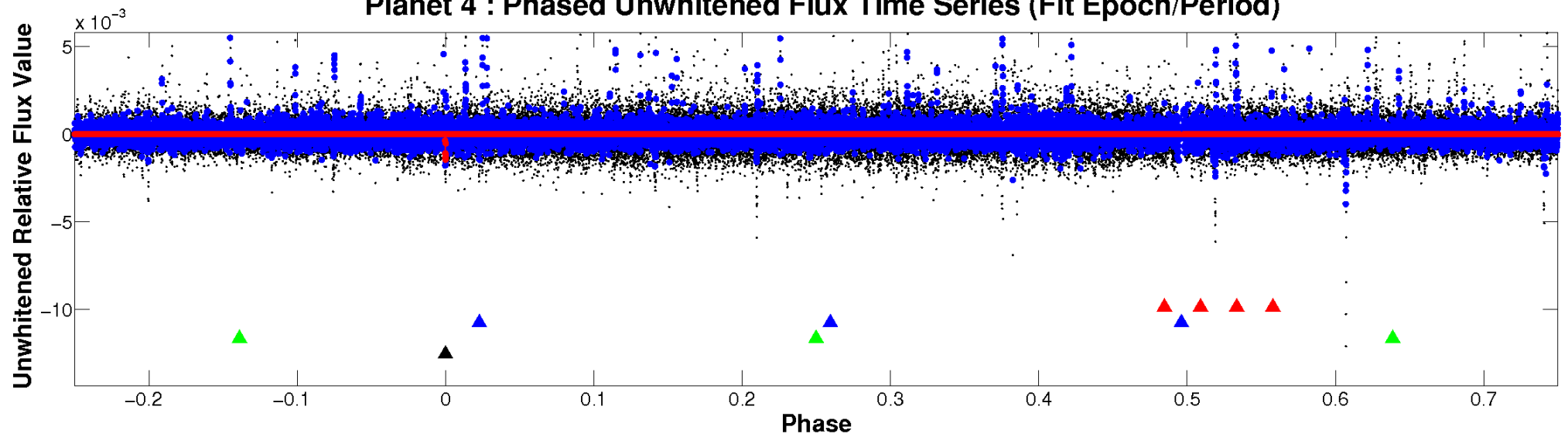
ALT Odd/Even

TCE 000893647-04

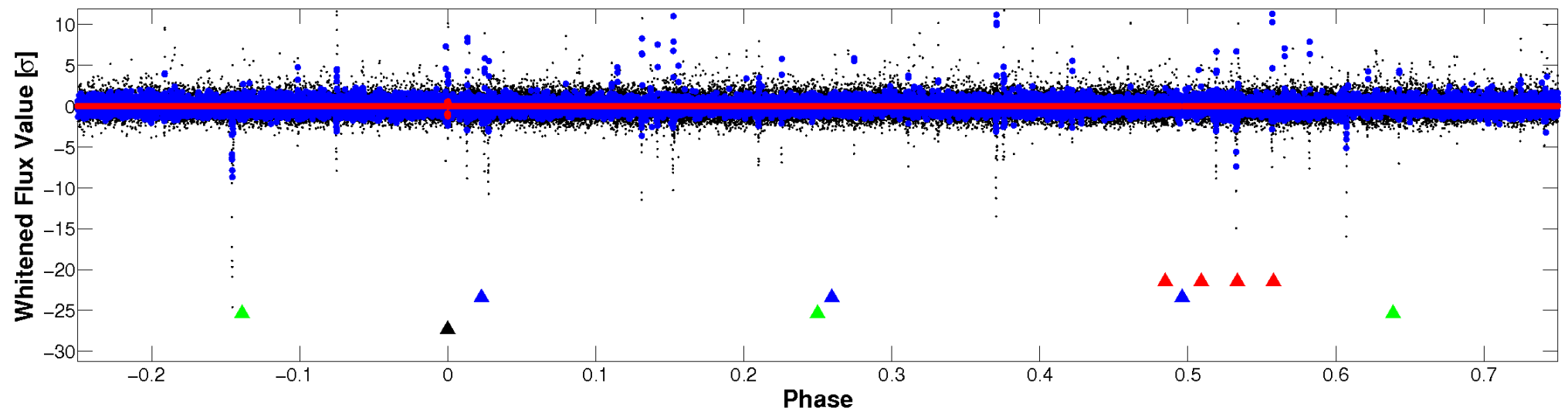


Non-Whitened Vs. Whitened Light Curve

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

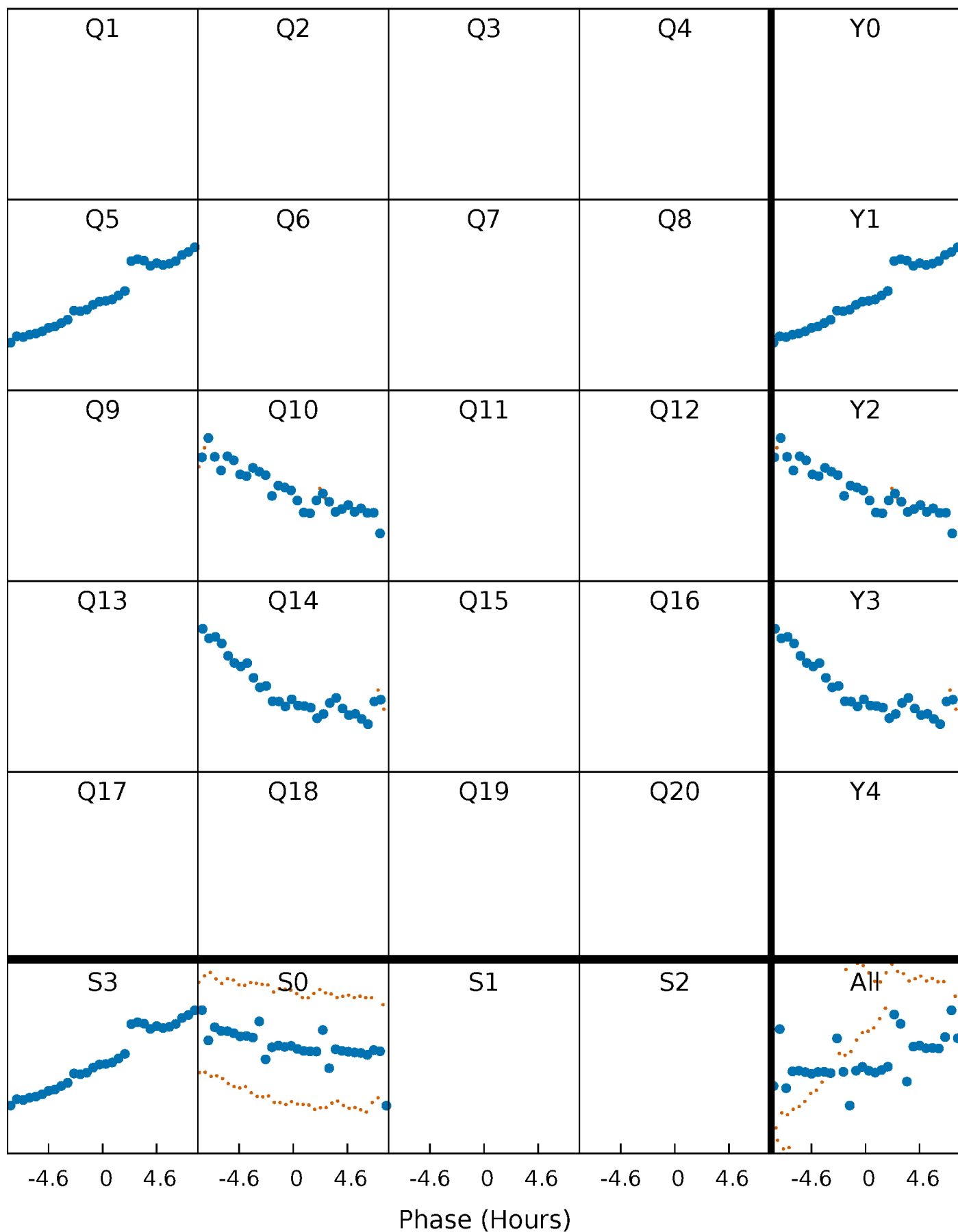


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



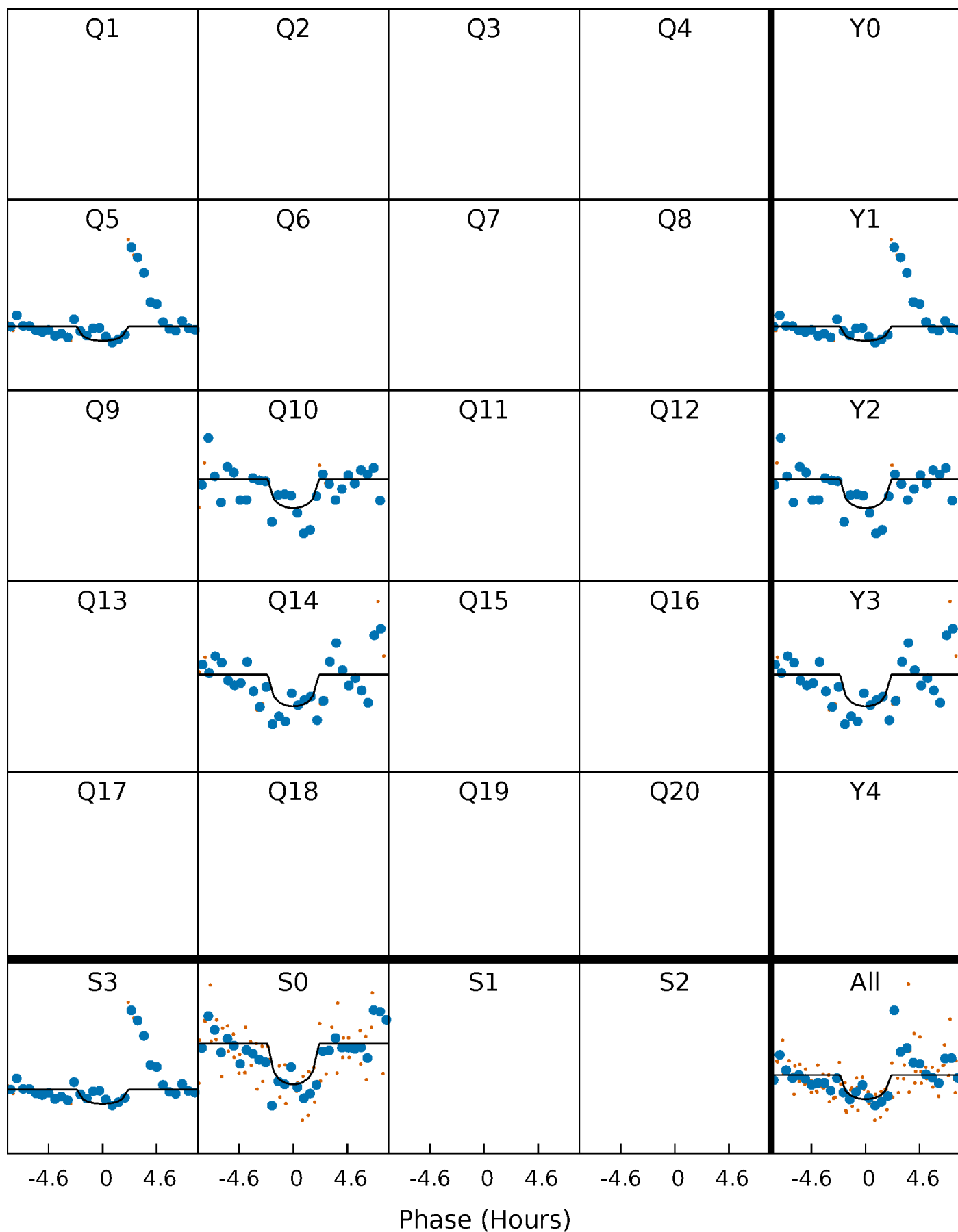
PDC Quarter-Phased Transit Curves

TCE 000893647-04 $P=397.411030$ Days $T_0=523.175722$ (BKJD)



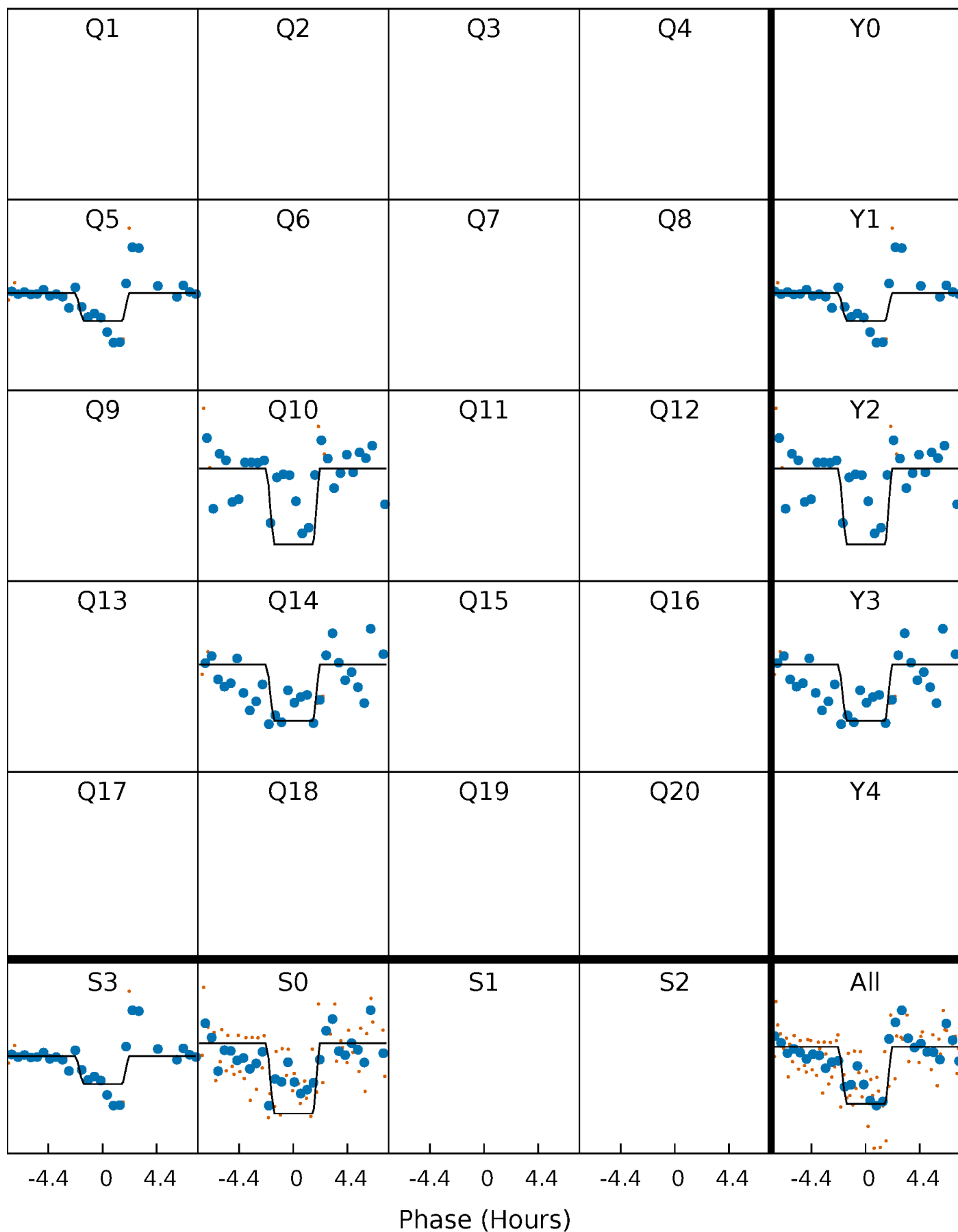
DV Quarter-Phased Transit Curves

TCE 000893647-04 $P=397.411030$ Days $T_0=523.175722$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

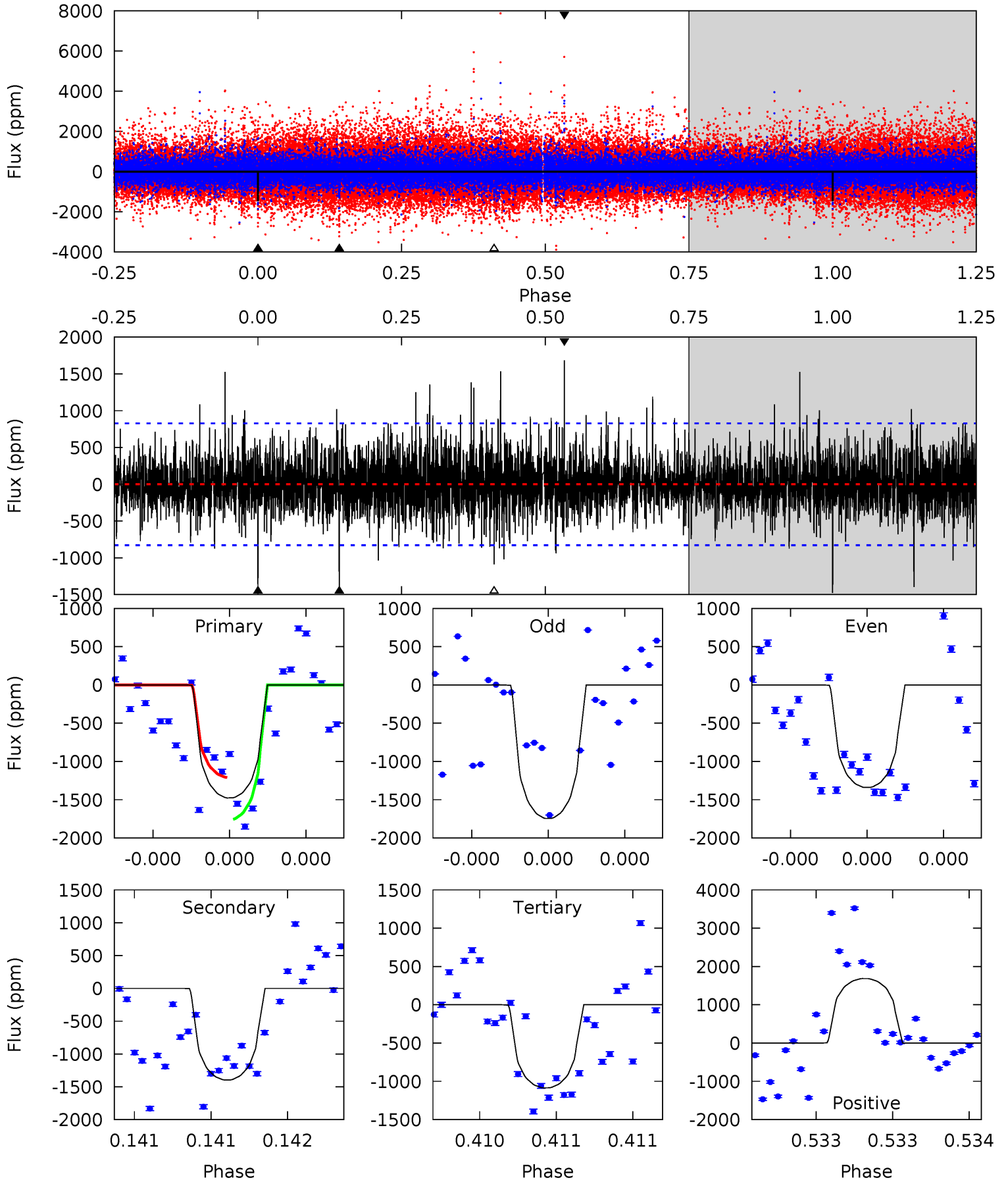
TCE 000893647-04 $P=397.419120$ Days $T_0=523.176353$ (BKJD)



DV Model-Shift Uniqueness Test

000893647-04, P = 397.411030 Days, E = 125.764692 Days

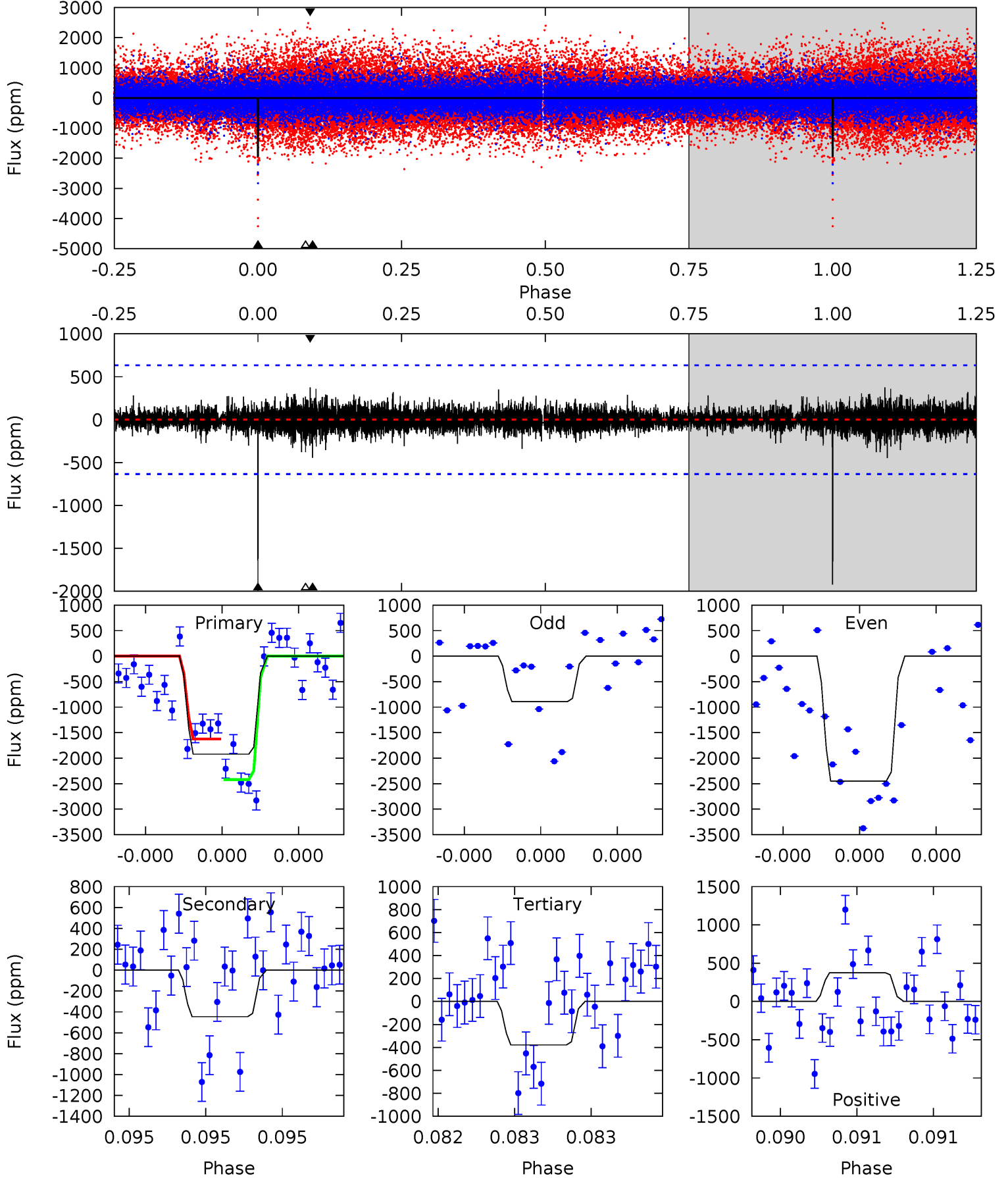
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.94	9.40	7.32	11.3	5.58	3.49	1.81	2.63	-1.41	2.09	-1.94	1.09	0.84	0.53	1.85



Alt Model-Shift Uniqueness Test

000893647-04, P = 397.419120 Days, E = 125.757233 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	3.93	3.34	3.32	5.60	3.52	0.65	13.6	13.7	0.59	0.62	6.78	1.02	0.16	3.48



Stellar Parameters For KIC 000893647

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4856^{+146}_{-131}	$4.583^{+0.060}_{-0.035}$	$-0.300^{+0.300}_{-0.300}$	$0.696^{+0.062}_{-0.068}$	$0.676^{+0.088}_{-0.047}$	$2.828^{+0.731}_{-0.436}$
	+3%/-3%	+1%/-1%	+100%/-100%	+9%/-10%	+13%/-7%	+26%/-15%
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 000893647-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1397 ± 148	$9.03^{+9.36}_{-6.01}$	259^{+8}_{-9}	3271^{+1445}_{-602}	8358^{+62769}_{-6369}
Alt.	-445 ± 113	$9.06^{+9.51}_{-6.14}$	259^{+9}_{-9}	2741^{+1079}_{-431}	2487^{+21214}_{-1896}

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

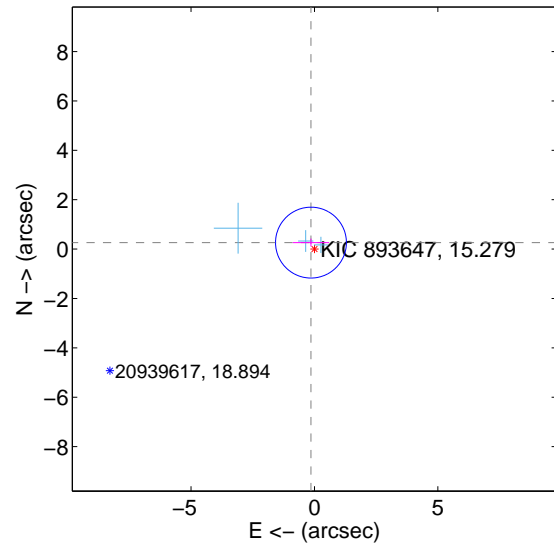
Supplemental centroid analysis for 000893647-04. Kepler magnitude: 15.28. Transit SNR 5.63

There are 3 quarters with good PRF difference image offsets

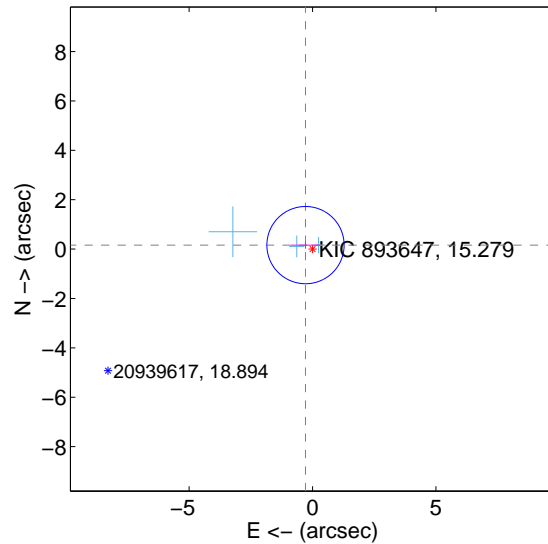
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.298 ± 0.478	0.62	0.141 ± 0.736	0.263 ± 0.160
PRF-fit source offset from KIC position	0.327 ± 0.522	0.63	0.285 ± 0.594	0.161 ± 0.146
photometric centroid source offset	3.30 ± 1.62	2.04	-0.61 ± 1.98	-3.24 ± 1.61

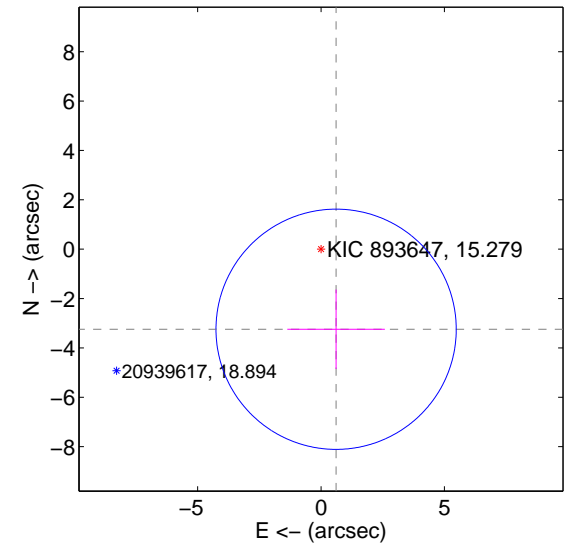
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

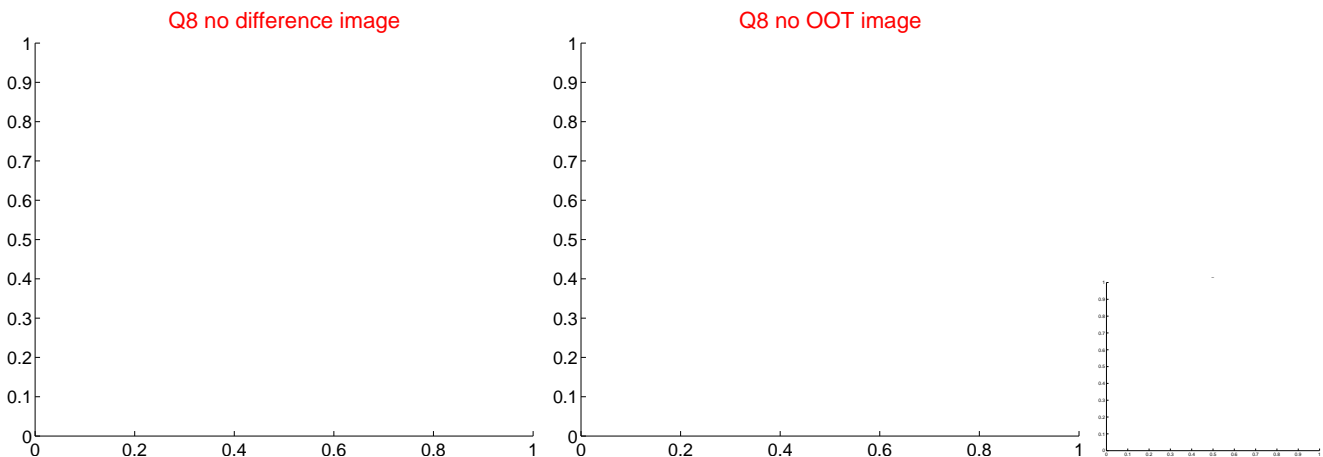
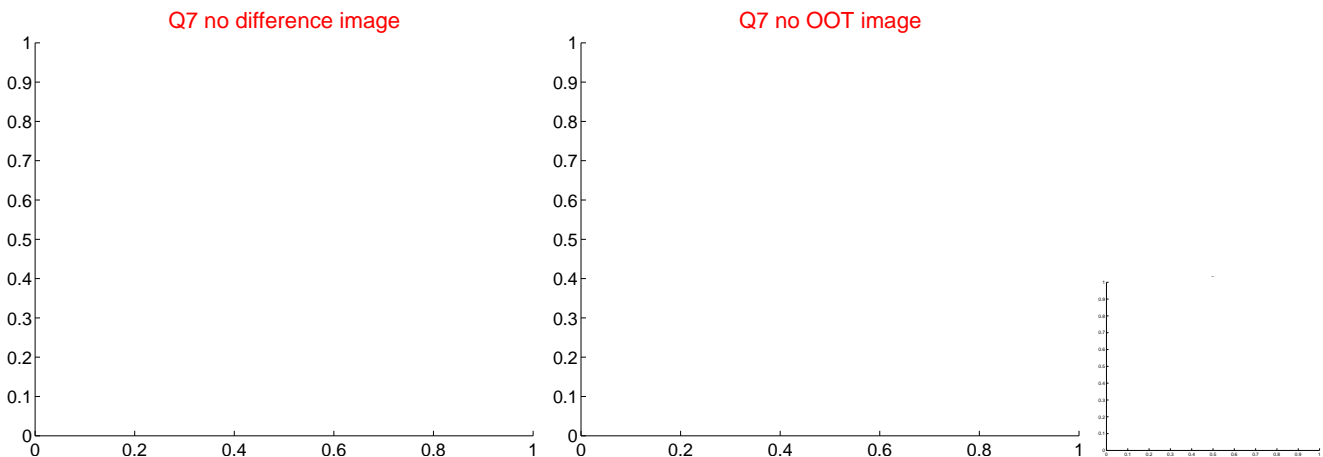
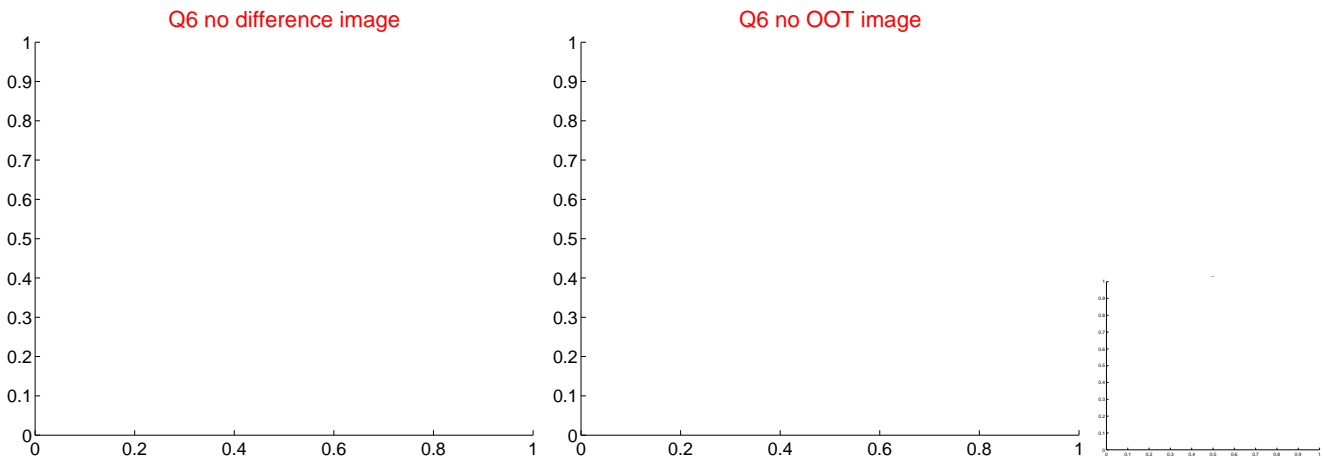
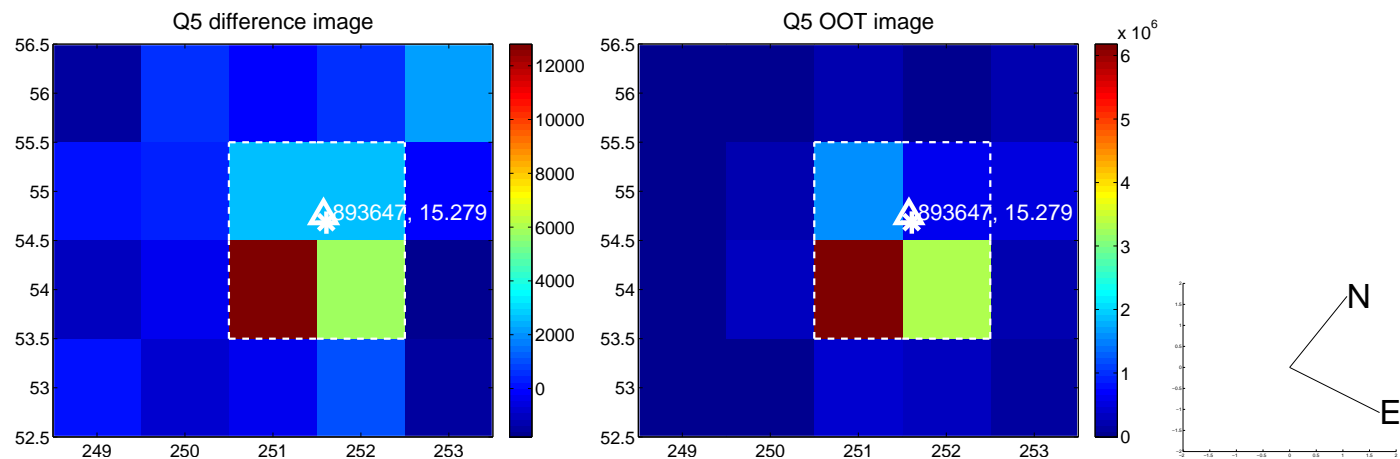


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

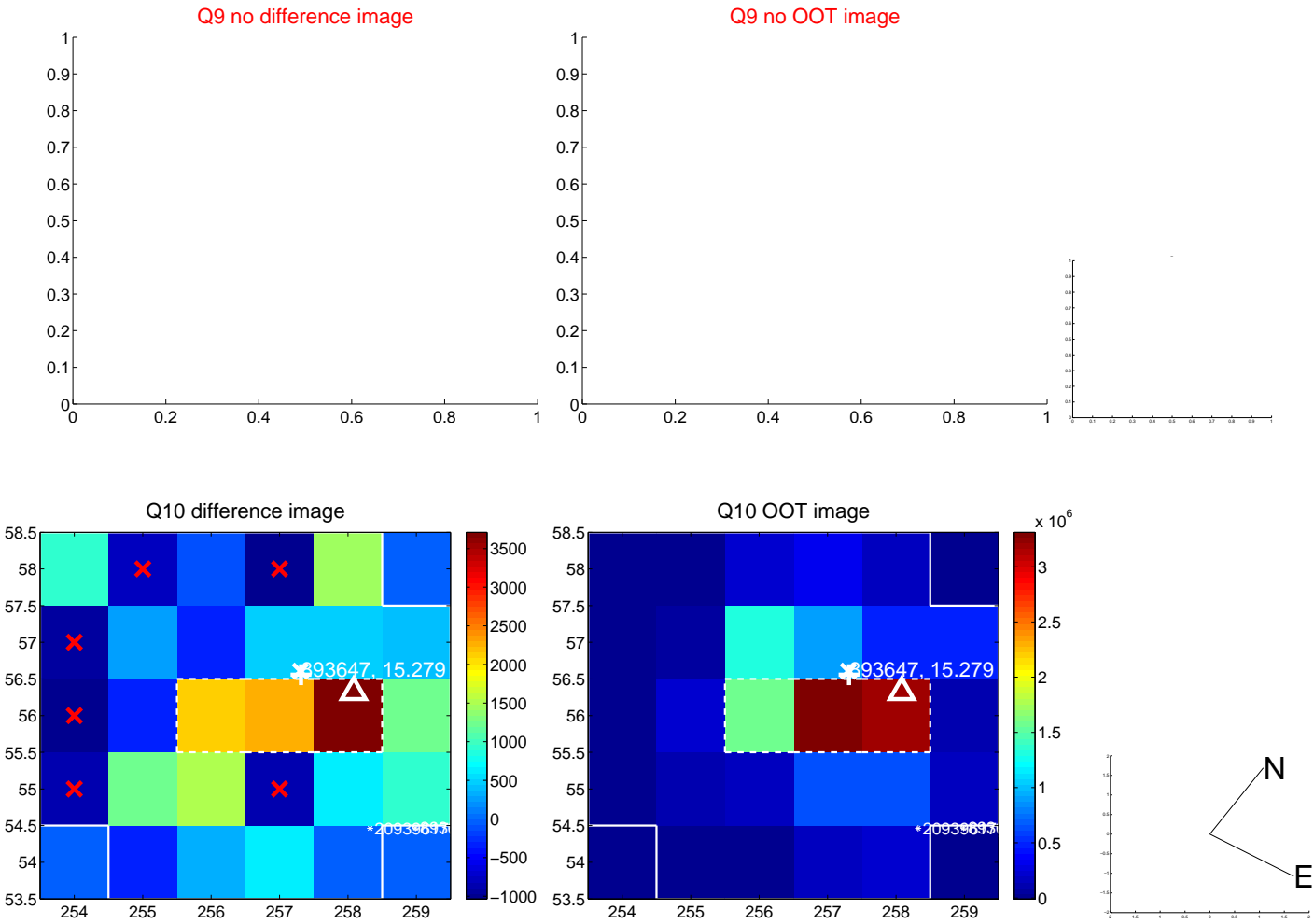
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



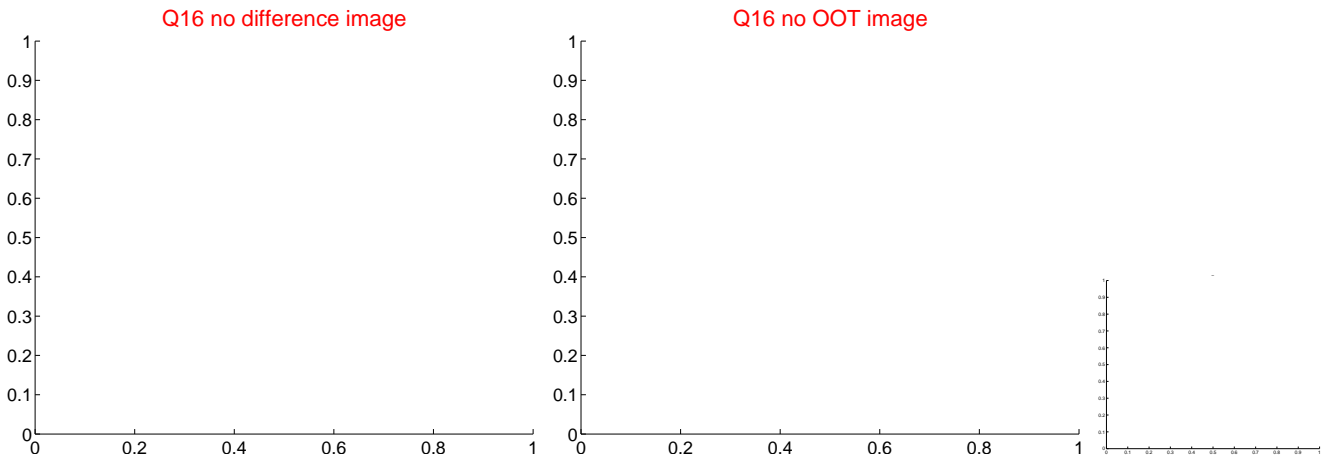
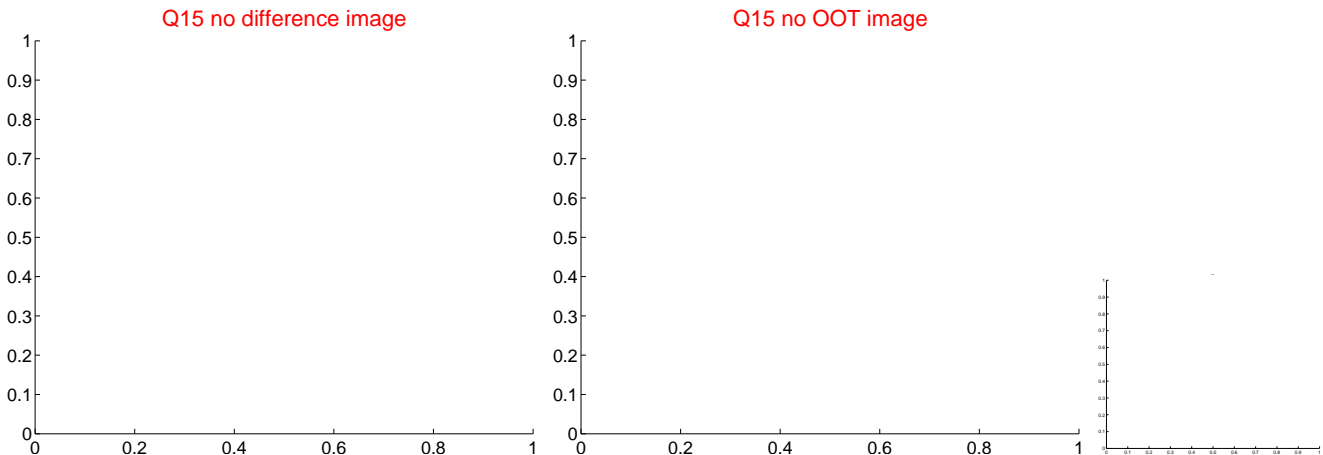
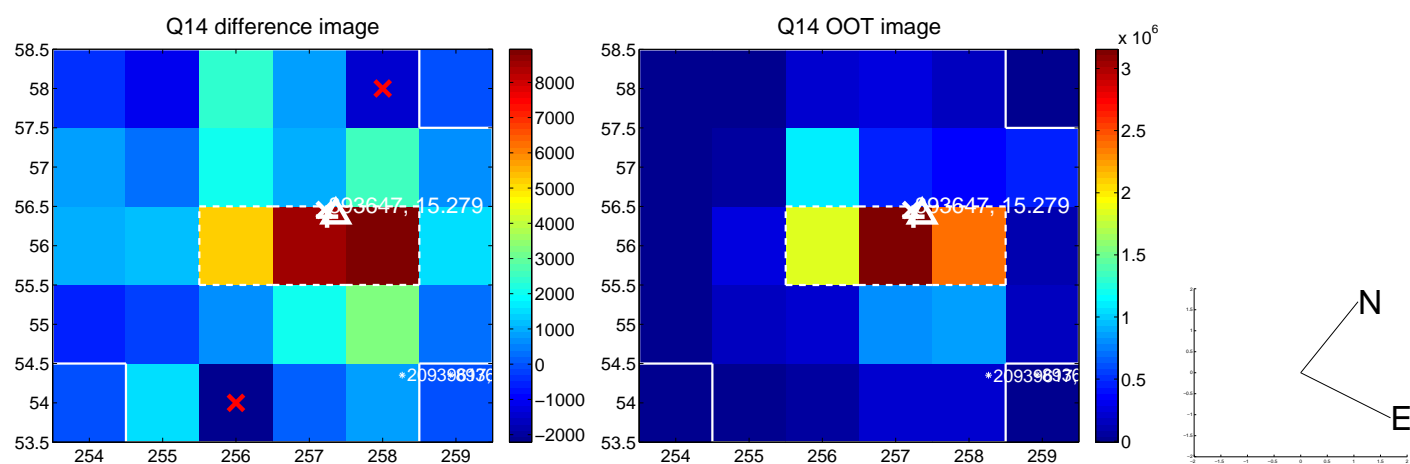
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



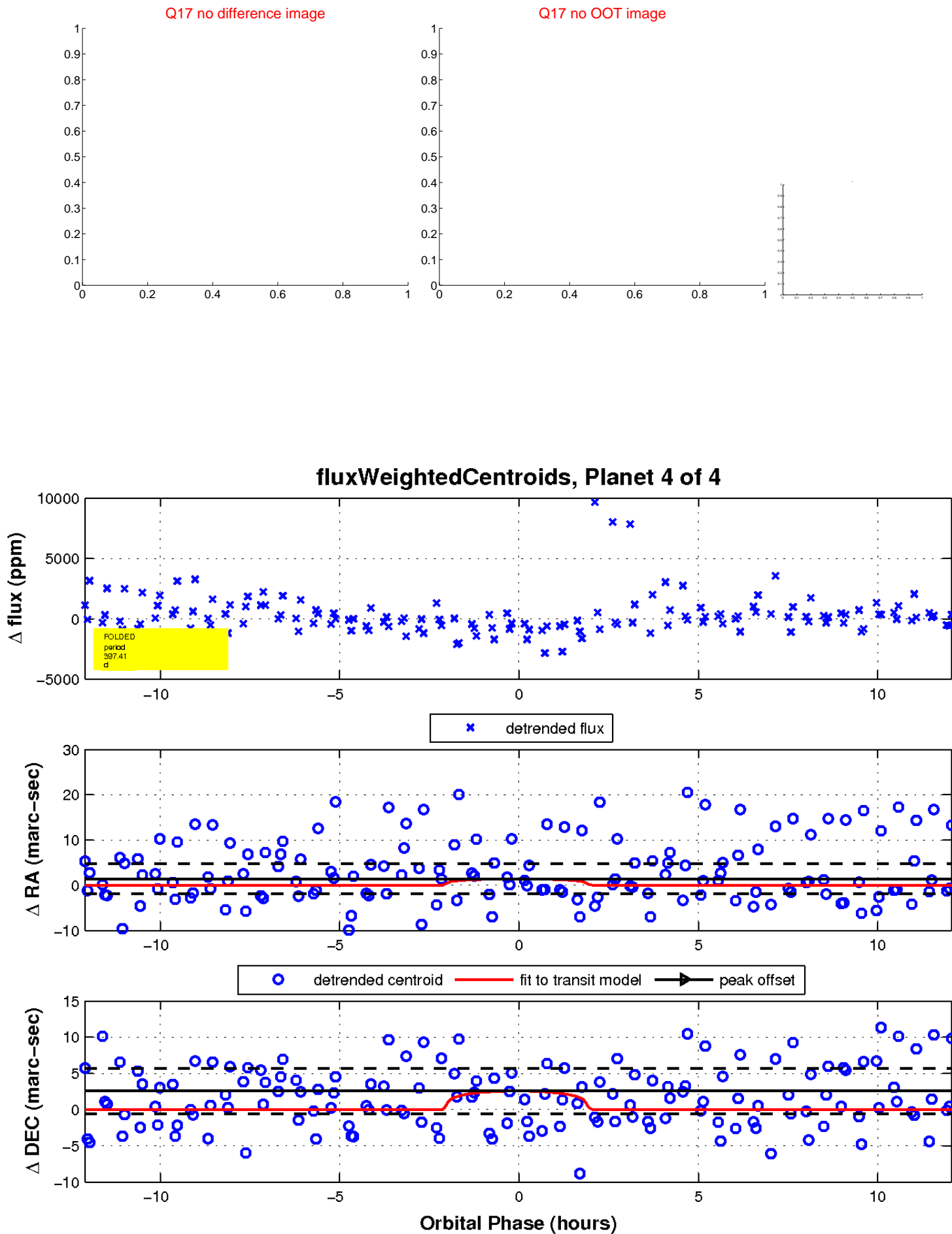
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

