

KIC 008881943

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})
008881943-01	OBS	No	618.283524	296.777283	2191.2	5.689	13.6	7.7	0.67	5238	3.10	0.19
008881943-02	OBS	No	635.682078	274.796460	2499.1	6.280	16.6	6.7	0.67	5238	3.62	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008881943-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008881943-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

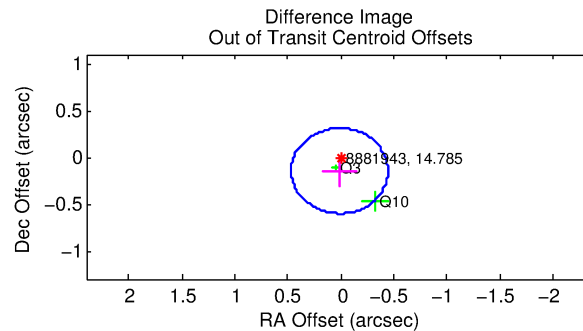
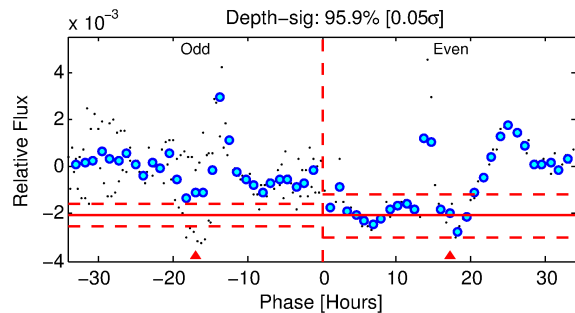
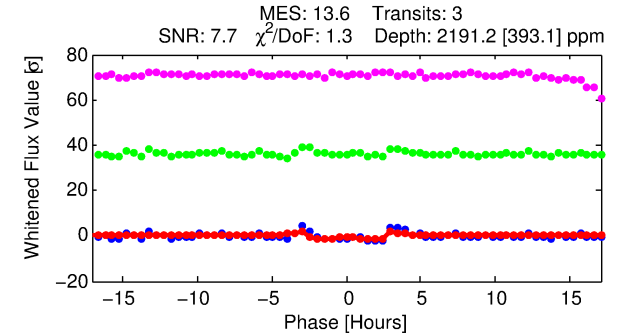
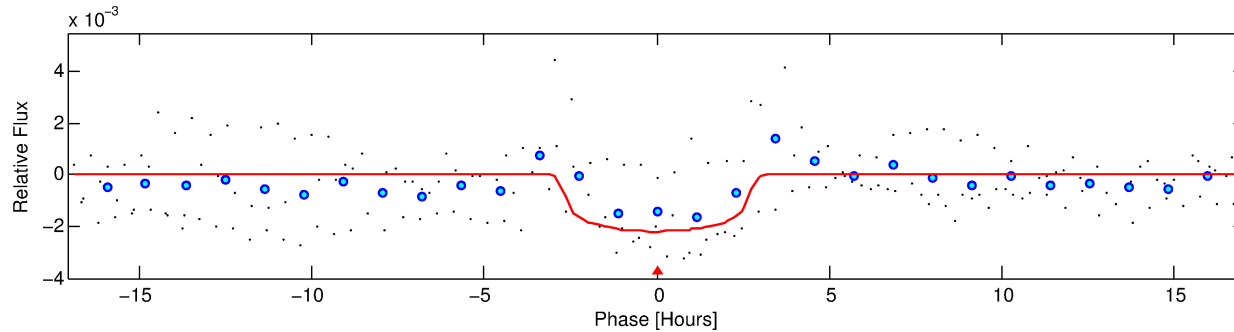
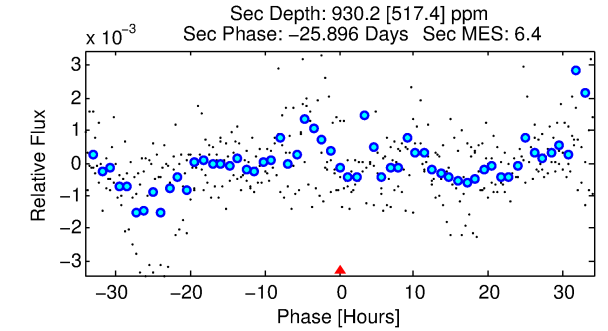
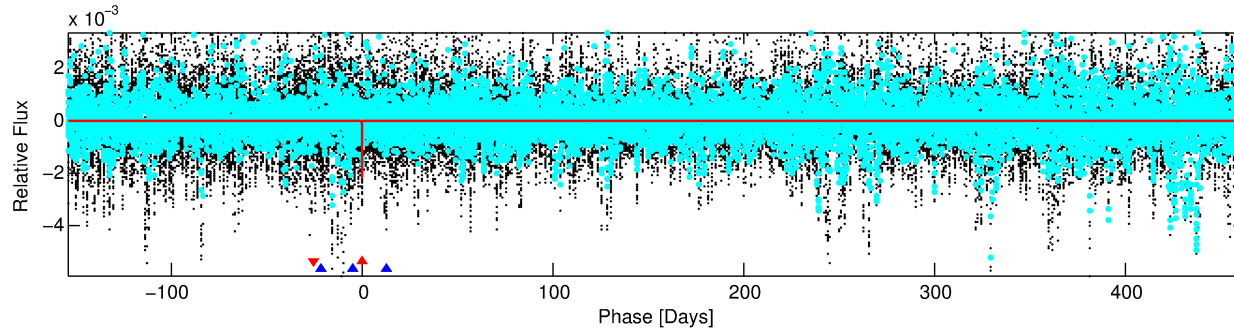
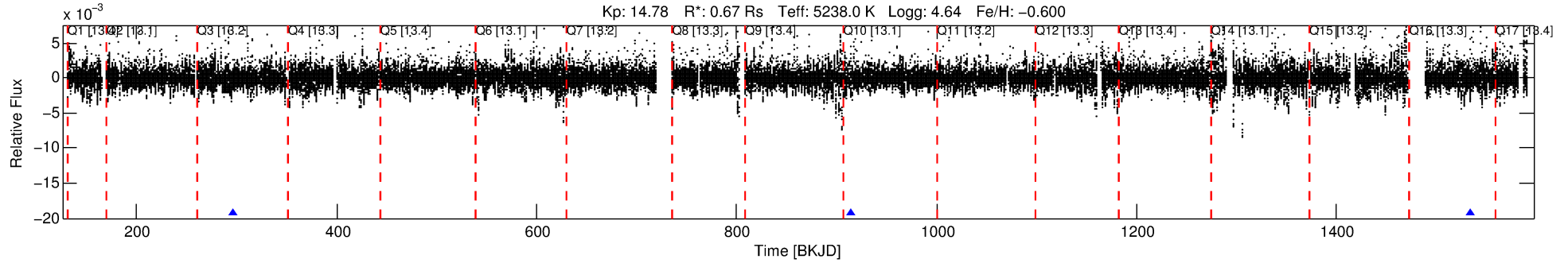
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008881943-01

No Significant Match Found

DV One-Page Summary

KIC: 8881943 Candidate: 1 of 2 Period: 618.284 d



DV Fit Results:

Period = 618.28352 [0.00481] d
Epoch = 296.7773 [0.0064] BKJD
Rp/R* = 0.0424 [0.0219]
a/R* = 845.72 [1628.26]
b = 0.22 [8.30]
Seff = 0.19 [0.03]
Teq = 168 [8] K
Rp = 3.10 [1.65] Re
a = 1.2660 [0.1271] AU
Ag = 85533.79 [100913.87] [0.85 σ]
Teffp = 4442 [1308] K [3.27 σ]

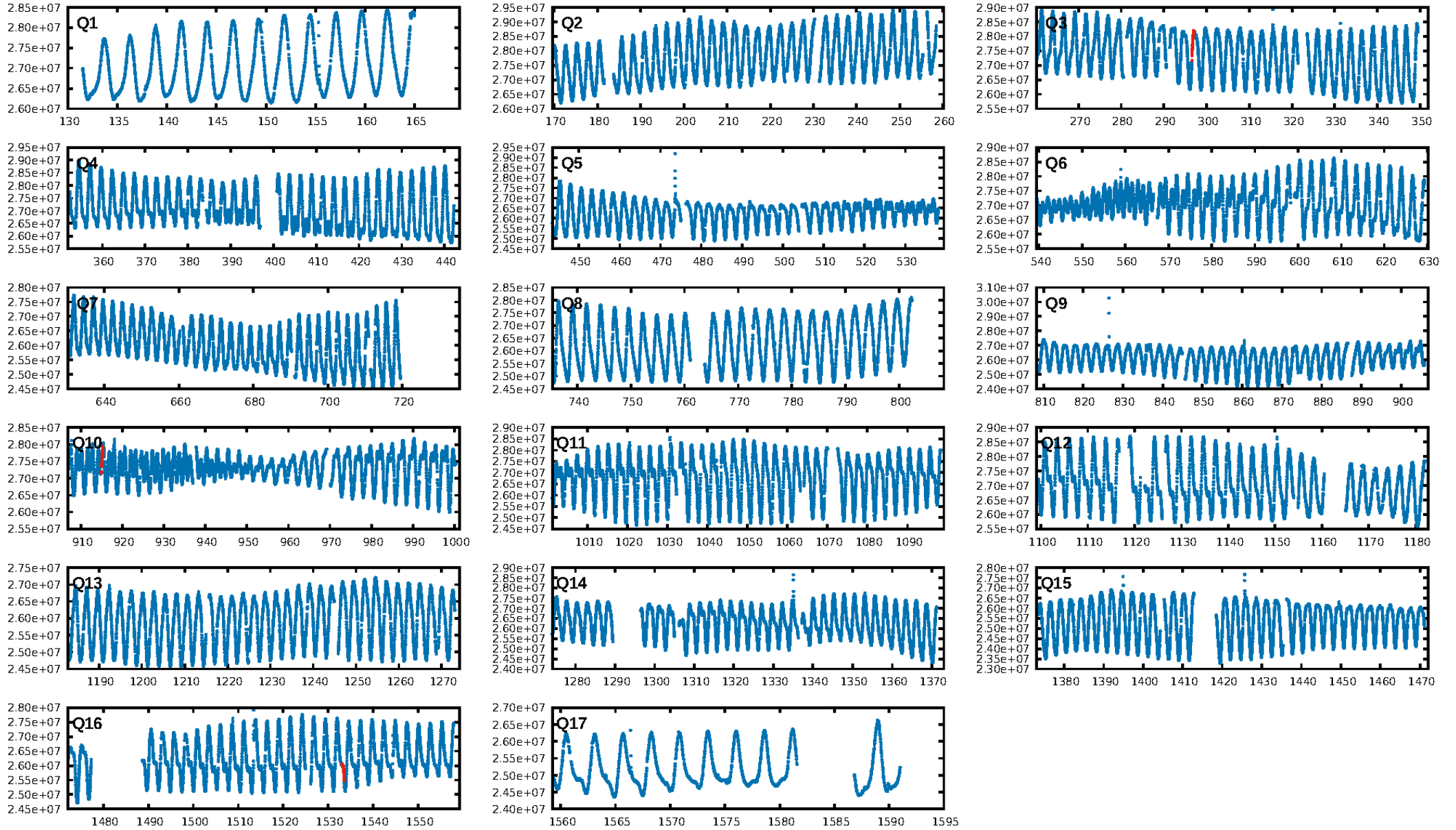
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [49.28 σ]
ModelChiSquare2-sig: 4.3%
ModelChiSquareGof-sig: 41.3%
Bootstrap-pfa: 5.60e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.6955
Centroid-sig: 71.1%
Centroid-so: 0.098 arcsec [0.17 σ]
OotOffset-rm: 0.146 arcsec [0.96 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.019 arcsec [0.14 σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

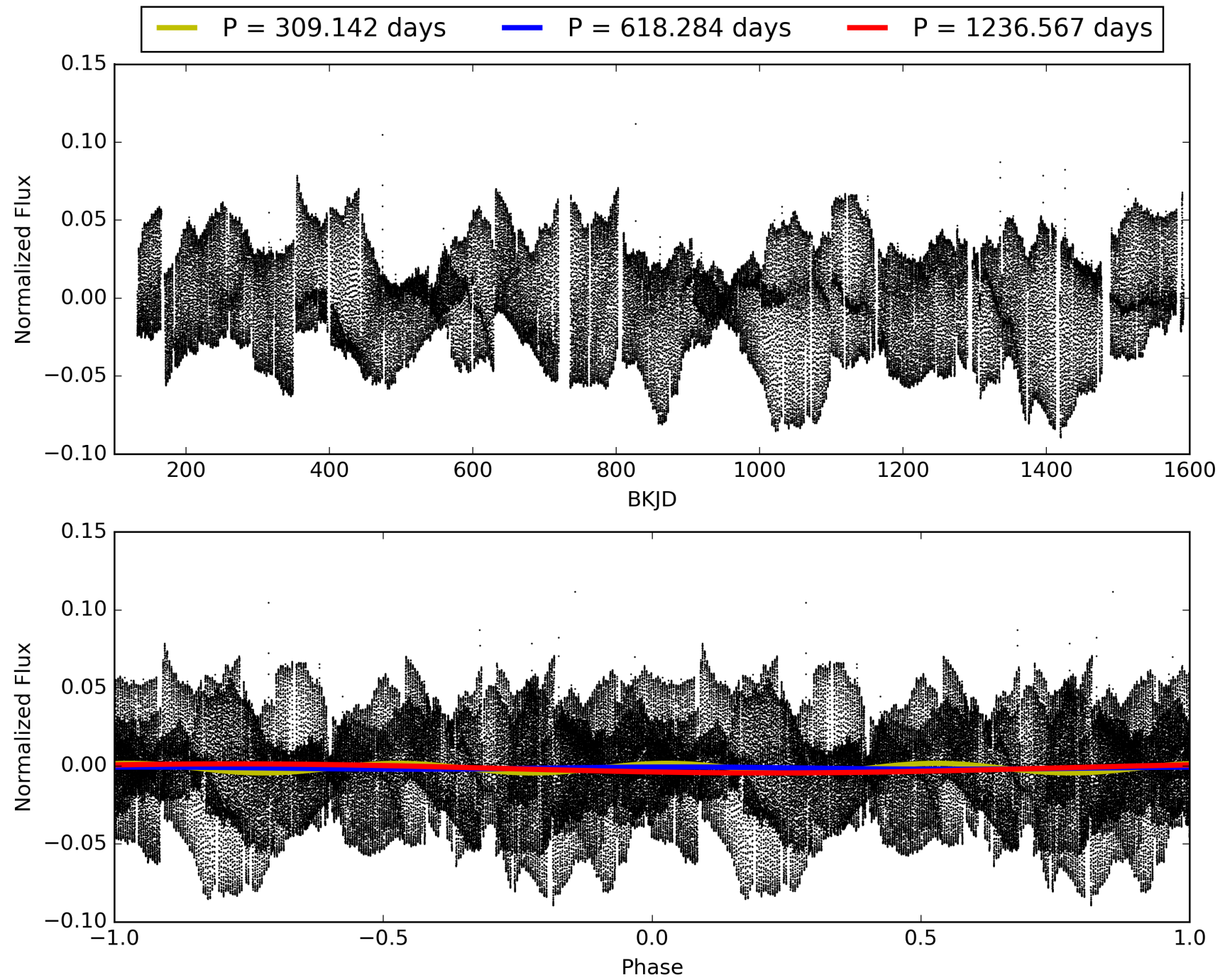
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:33:01 Z

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

TCE 008881943-01, PDC Light Curves

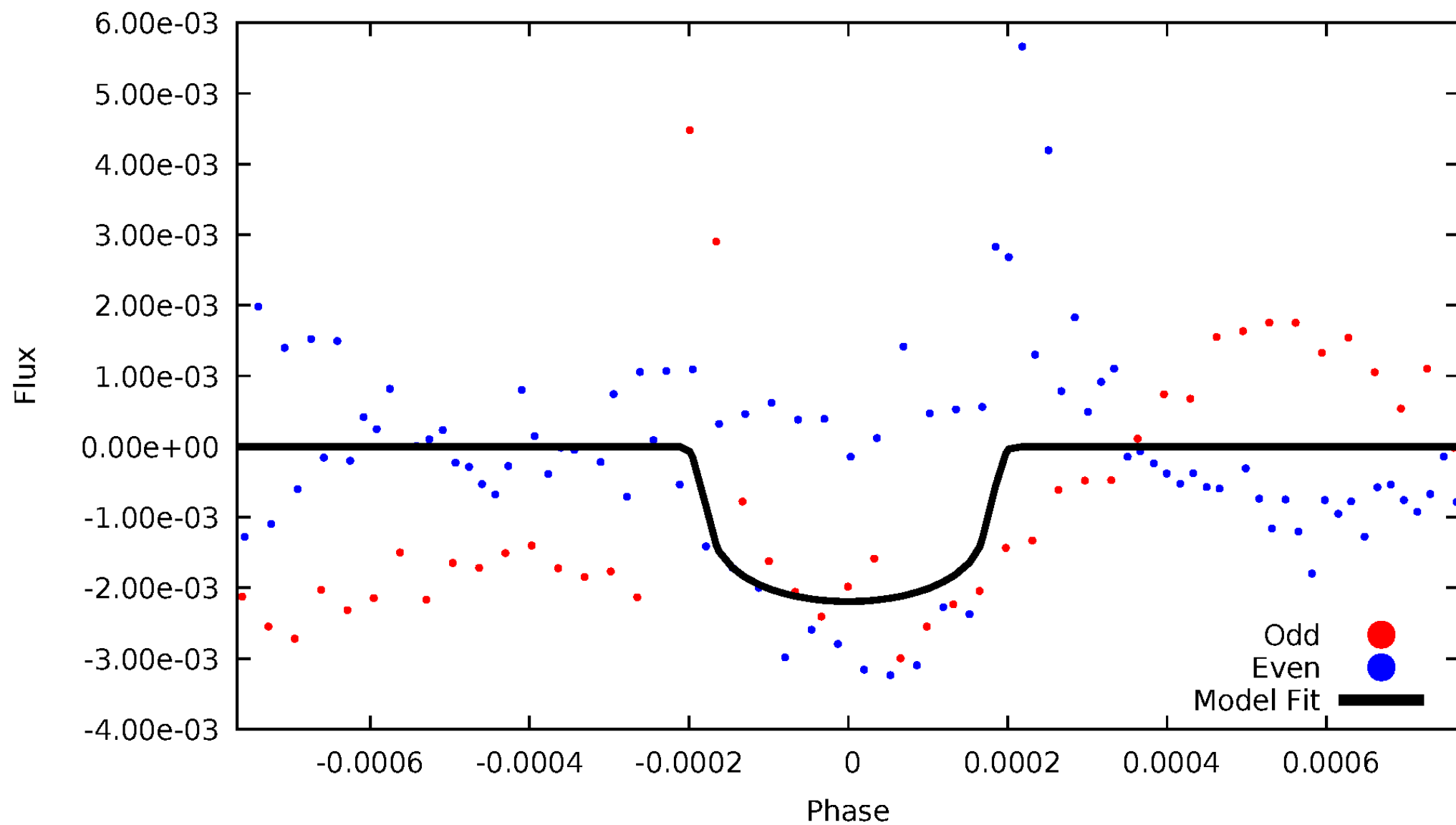


TCE 008881943-01



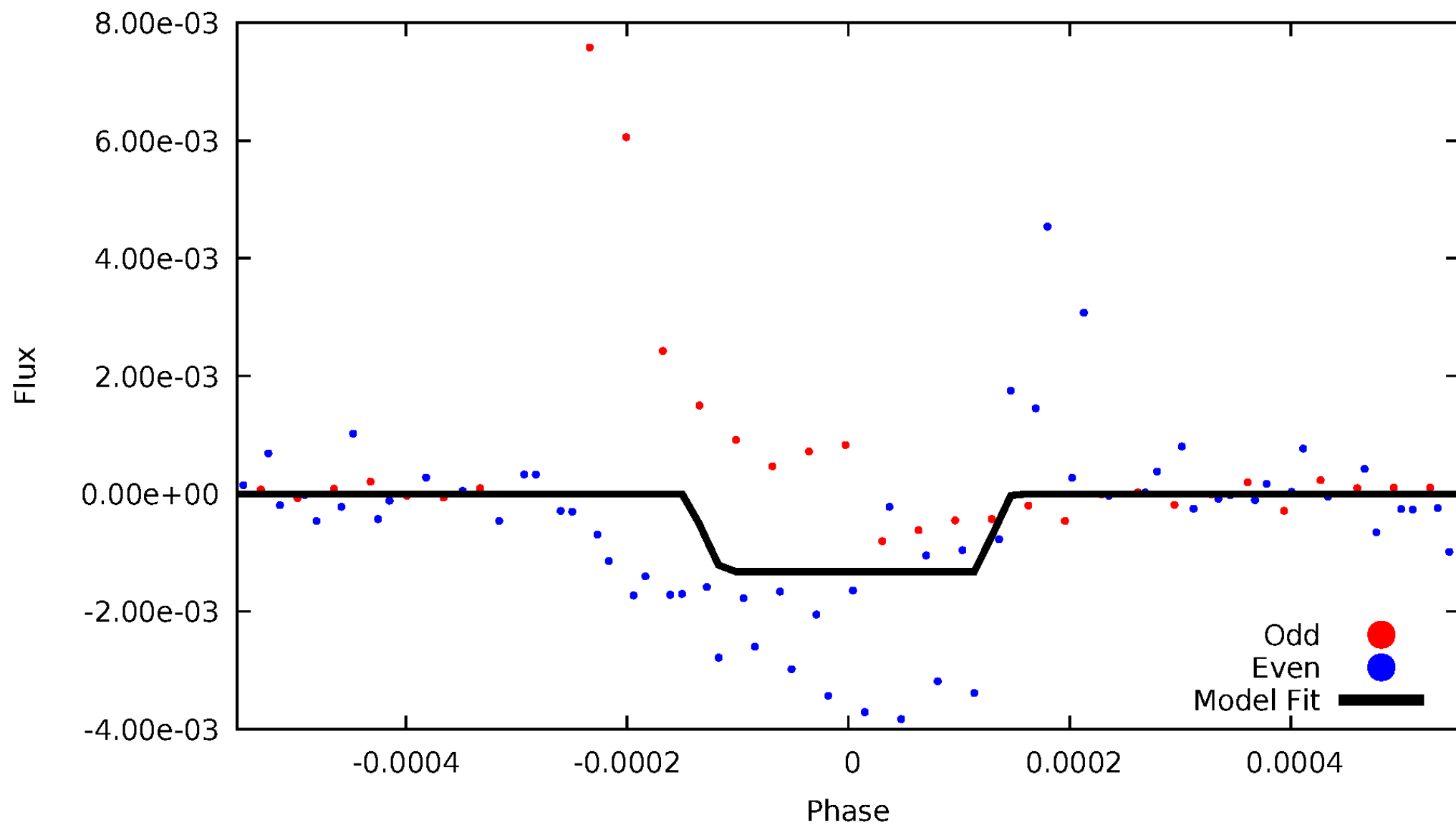
DV Odd/Even

TCE 008881943-01



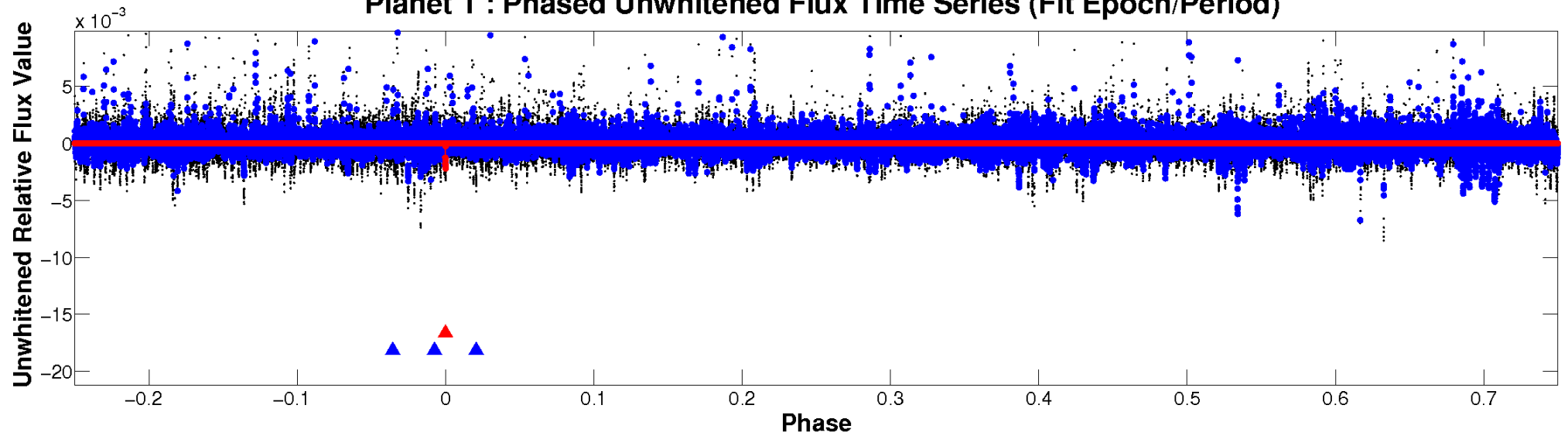
ALT Odd/Even

TCE 008881943-01

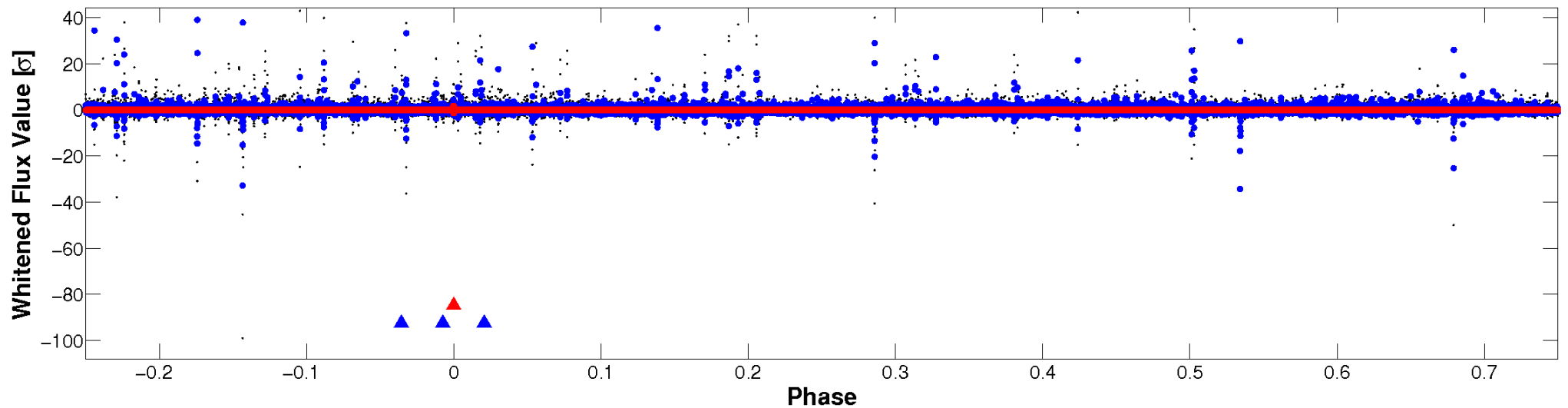


Non-Whitened Vs. Whitened Light Curve

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

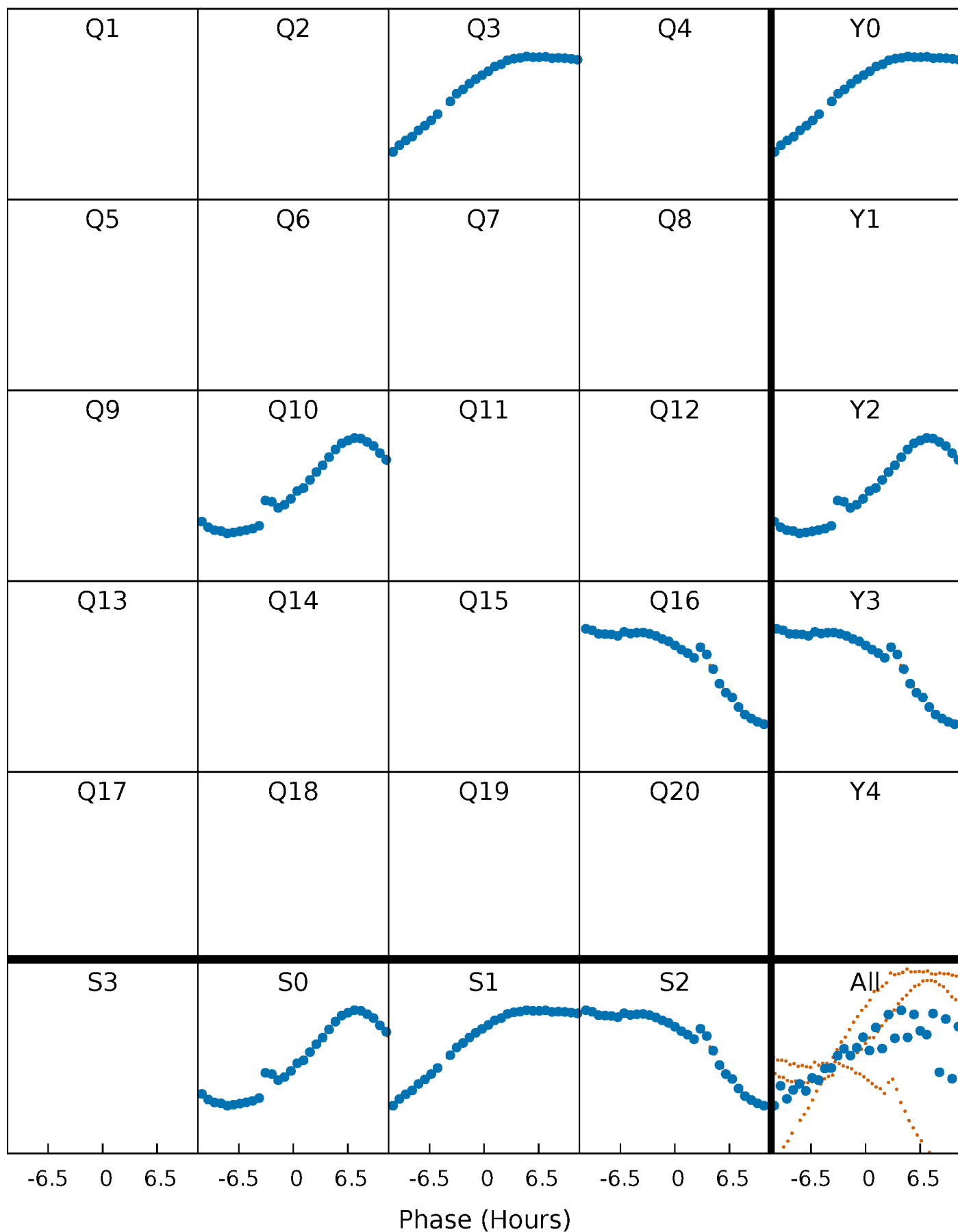


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



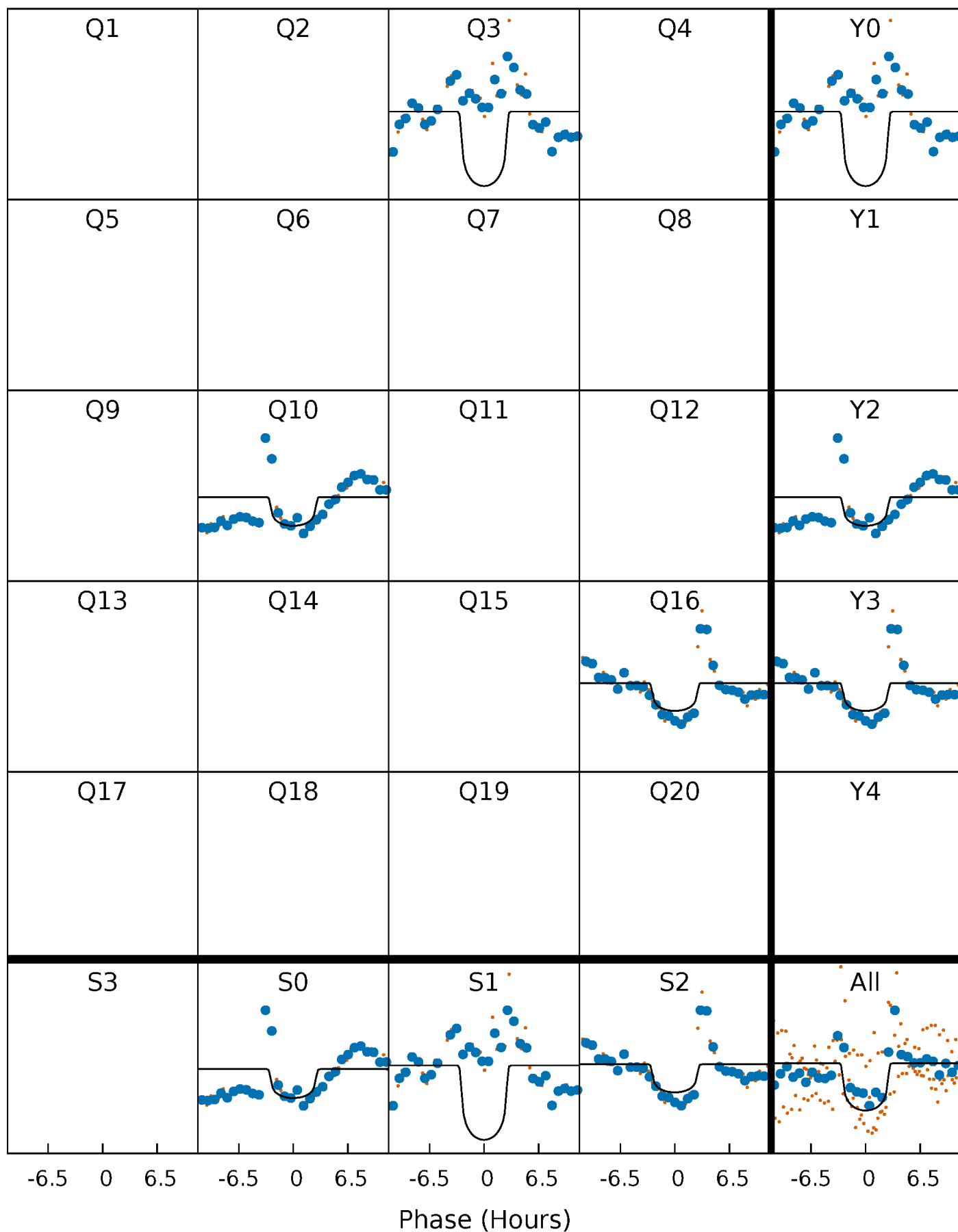
PDC Quarter-Phased Transit Curves

TCE 008881943-01 P=618.283524 Days $T_0=296.777283$ (BKJD)



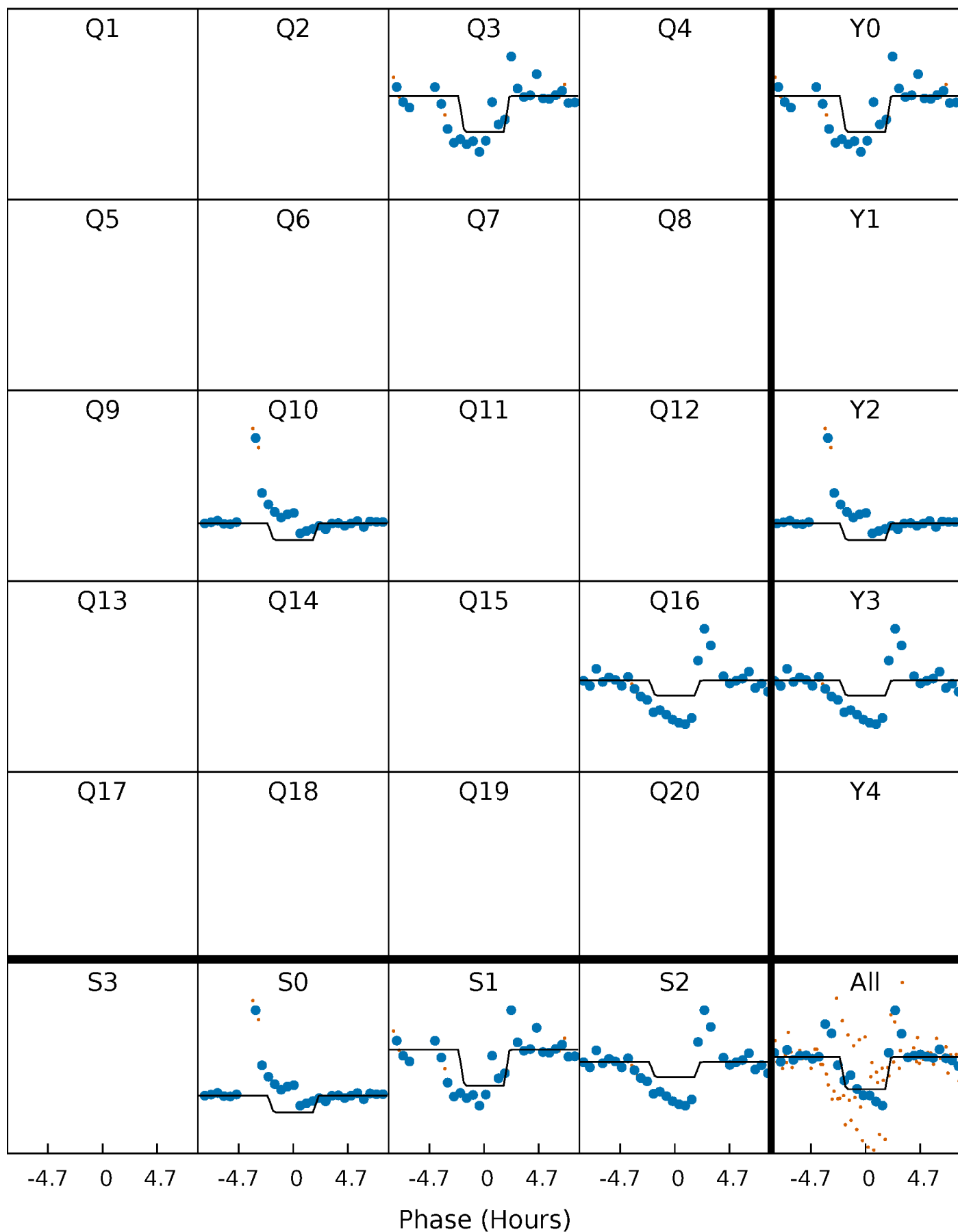
DV Quarter-Phased Transit Curves

TCE 008881943-01 P=618.283524 Days $T_0=296.777283$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

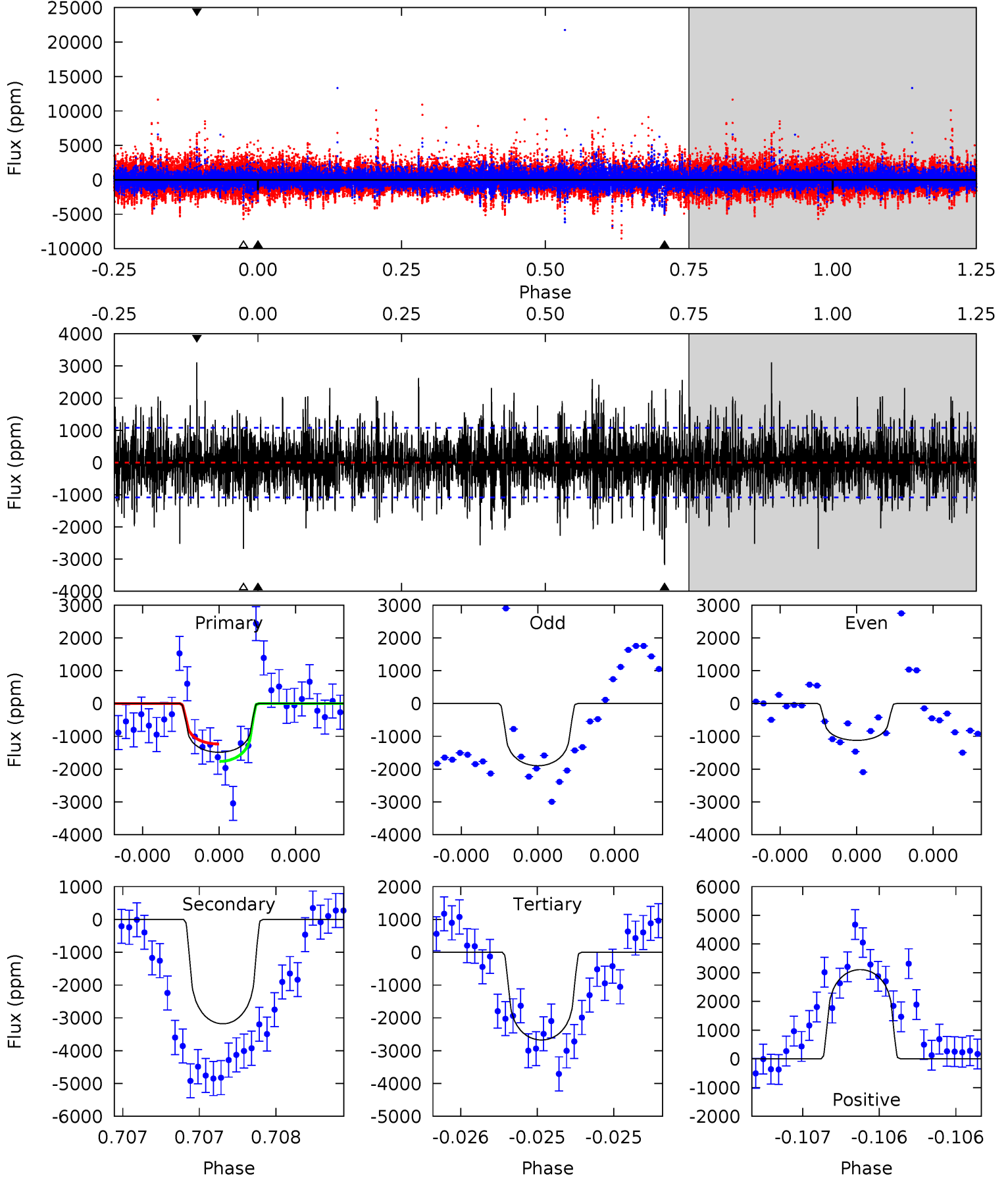
TCE 008881943-01 P=618.285470 Days $T_0=296.796938$ (BKJD)



DV Model-Shift Uniqueness Test

008881943-01, P = 618.283524 Days, E = 296.777283 Days

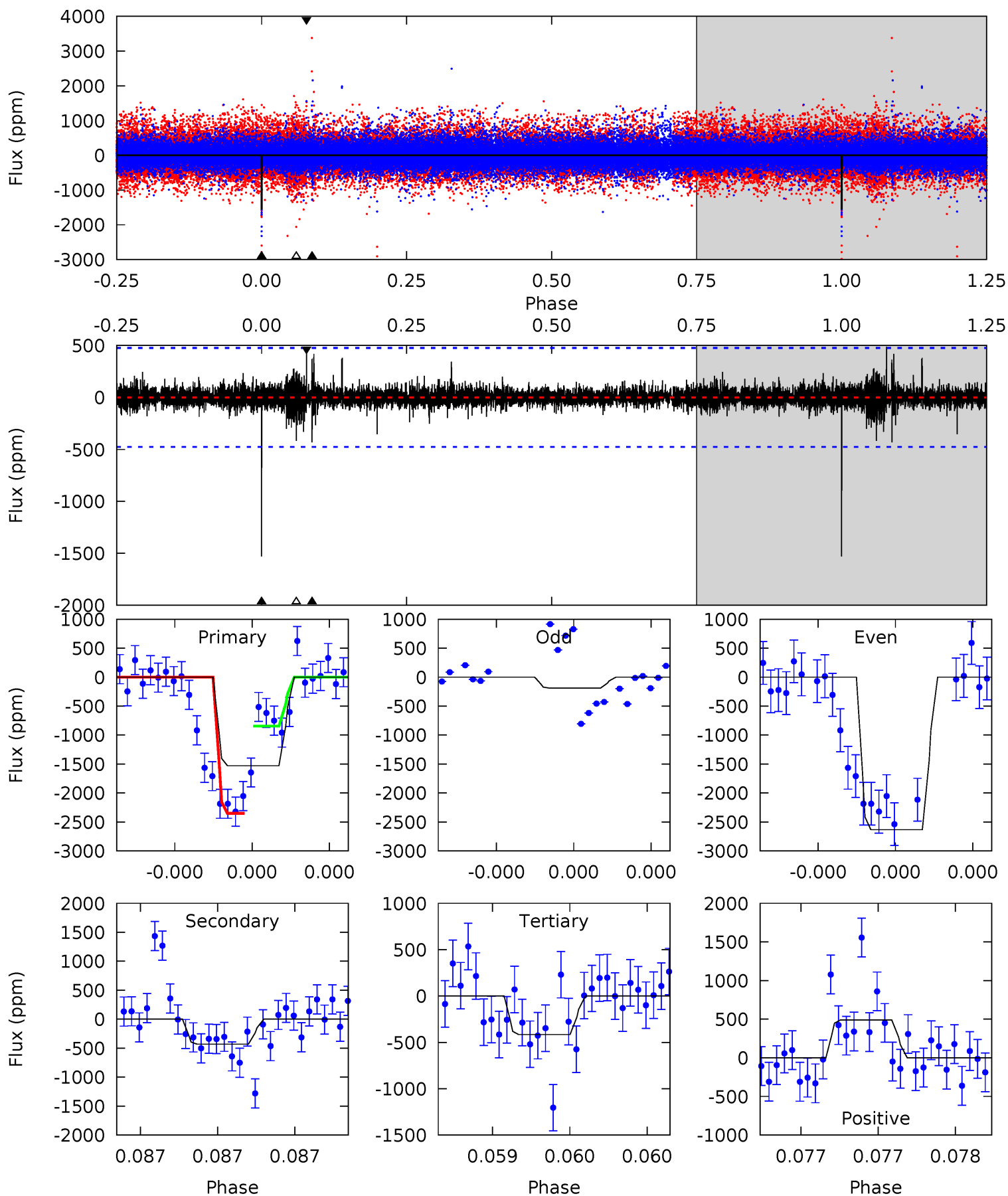
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.72	16.5	13.9	16.1	5.61	3.53	3.25	-6.16	-8.42	2.63	0.37	1.57	0.73	0.49	1.39



Alt Model-Shift Uniqueness Test

008881943-01, P = 618.285470 Days, E = 296.796938 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	5.12	4.95	5.82	5.66	3.62	0.62	13.3	12.4	0.17	-0.70	15.7	1.06	0.24	0



Stellar Parameters For KIC 008881943

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5238^{+157}_{-141}	$4.637^{+0.039}_{-0.066}$	$-0.600^{+0.300}_{-0.300}$	$0.669^{+0.087}_{-0.047}$	$0.707^{+0.069}_{-0.051}$	$3.326^{+0.632}_{-0.762}$
	+3%/-3%	+1%/-1%	+50%/-50%	+13%/-7%	+10%/-7%	+19%/-23%
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 008881943-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3181 ± 193	$3.22^{+1.66}_{-1.51}$	236^{+9}_{-8}	5921^{+2466}_{-1021}	$272244^{+683408}_{-152708}$
Alt.	-430 ± 84	$2.69^{+1.64}_{-1.54}$	236^{+8}_{-9}	4144^{+1811}_{-598}	$50830^{+228468}_{-30695}$

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 $A_{\text{obs}} \gg 1.0$

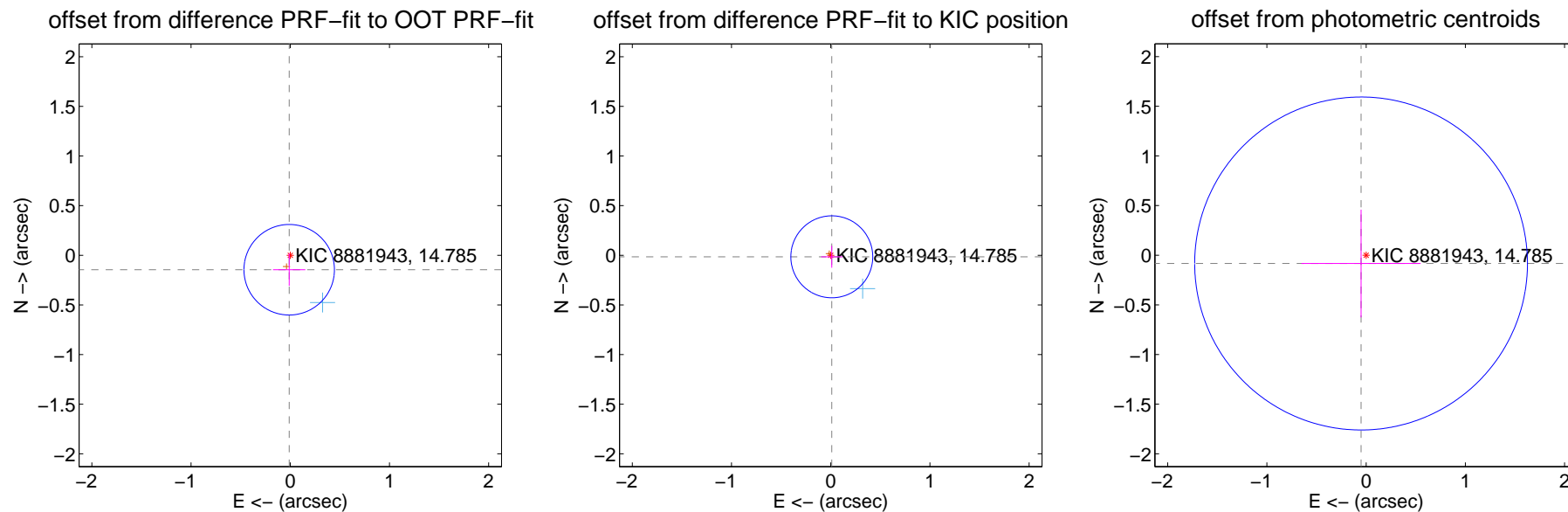
DV Centroid Data

Supplemental centroid analysis for 008881943-01. Kepler magnitude: 14.79. Transit SNR 7.73

There are 1 quarters with good PRF difference image offsets

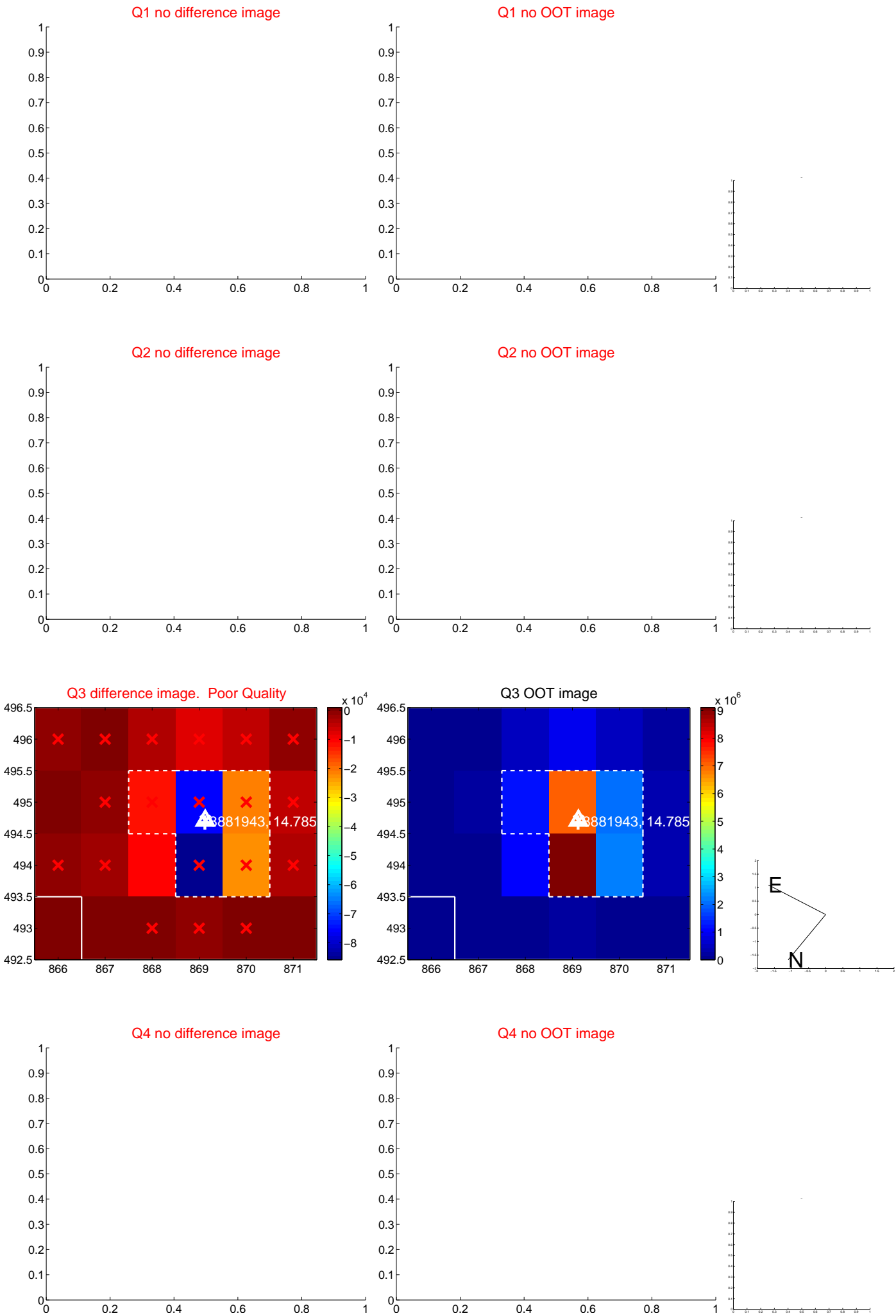
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.146 ± 0.152	0.96	0.011 ± 0.163	-0.146 ± 0.162
PRF-fit source offset from KIC position	0.019 ± 0.138	0.14	-0.011 ± 0.107	-0.015 ± 0.110
photometric centroid source offset	0.10 ± 0.56	0.17	0.05 ± 0.60	-0.08 ± 0.54



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.

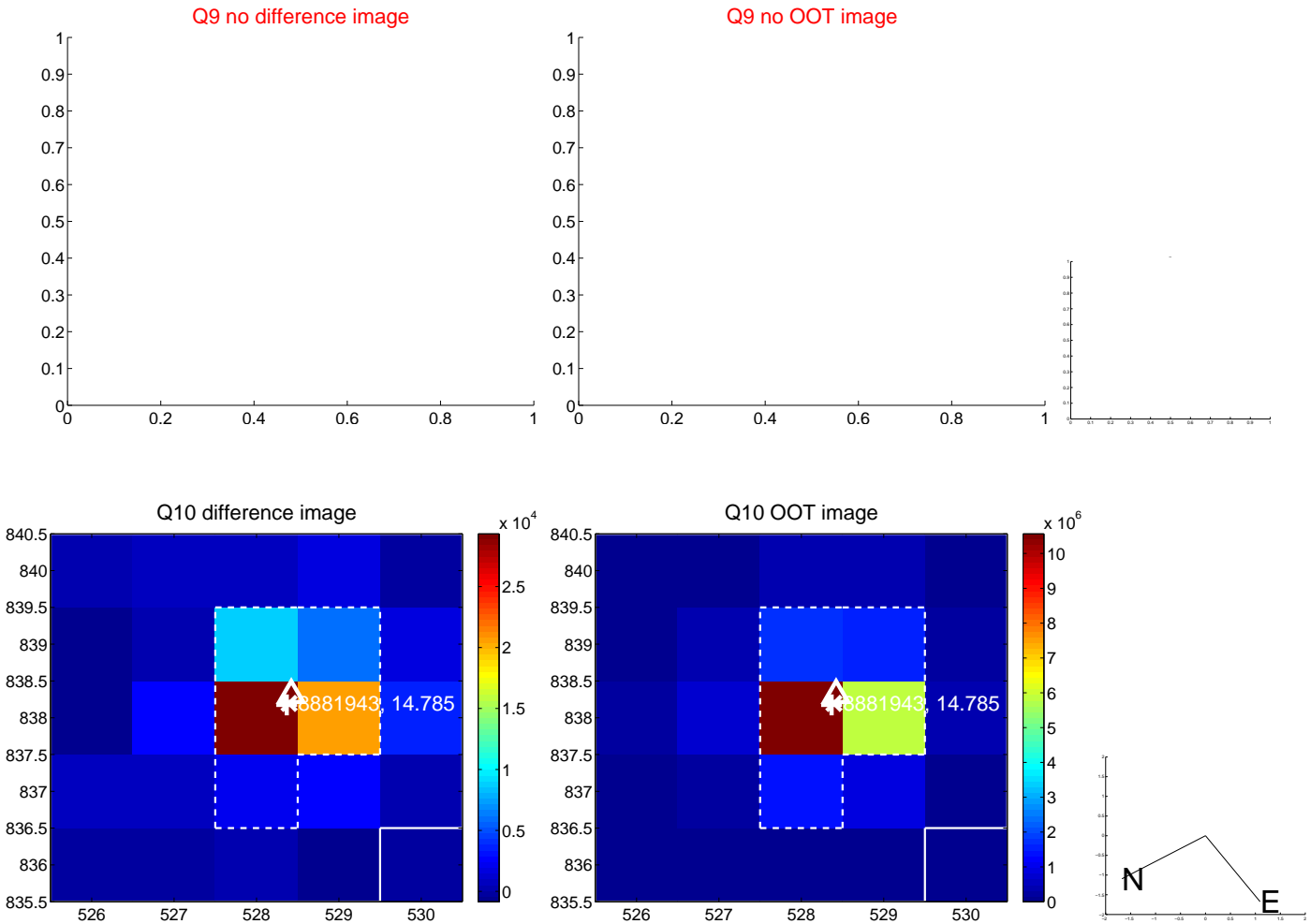
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



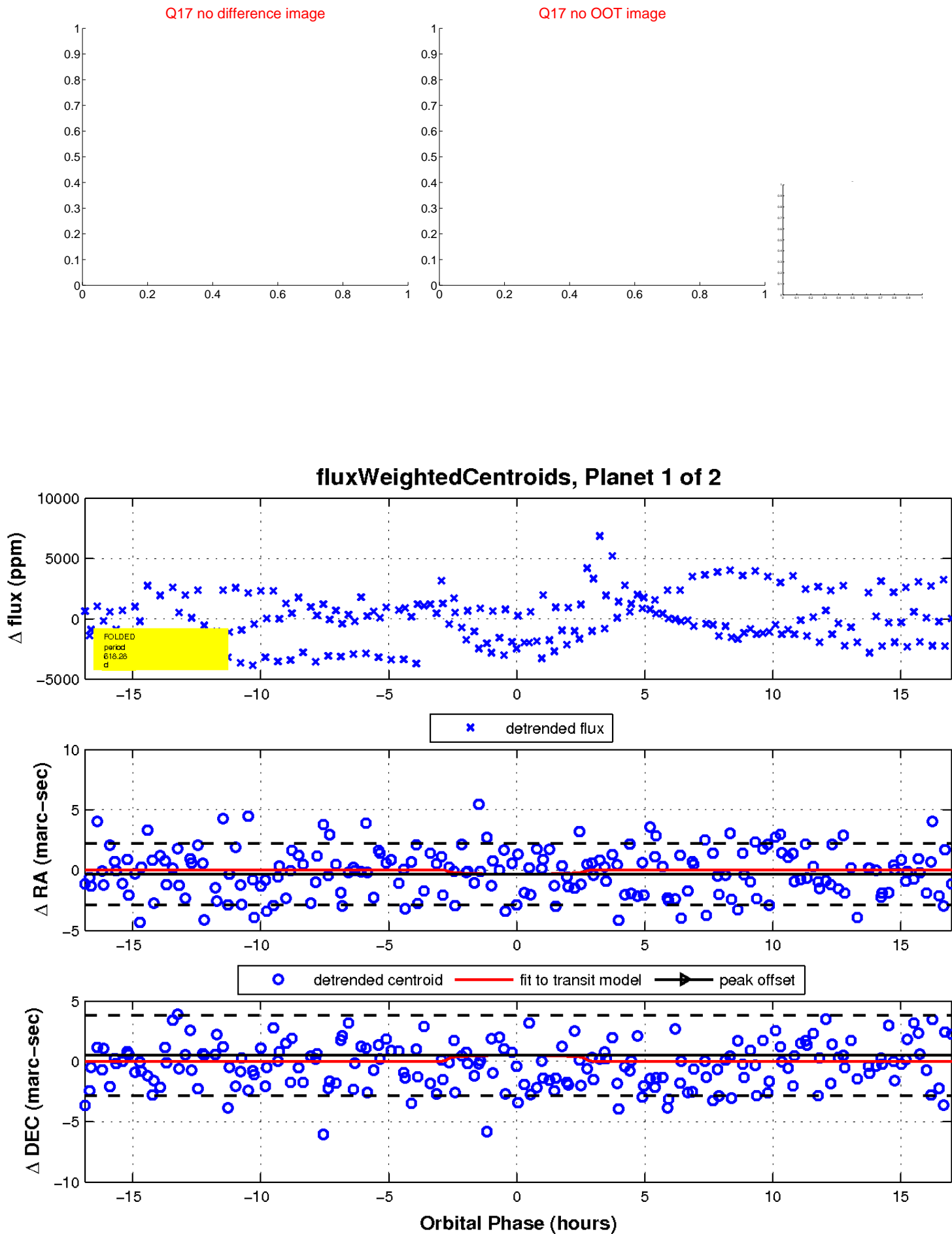
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

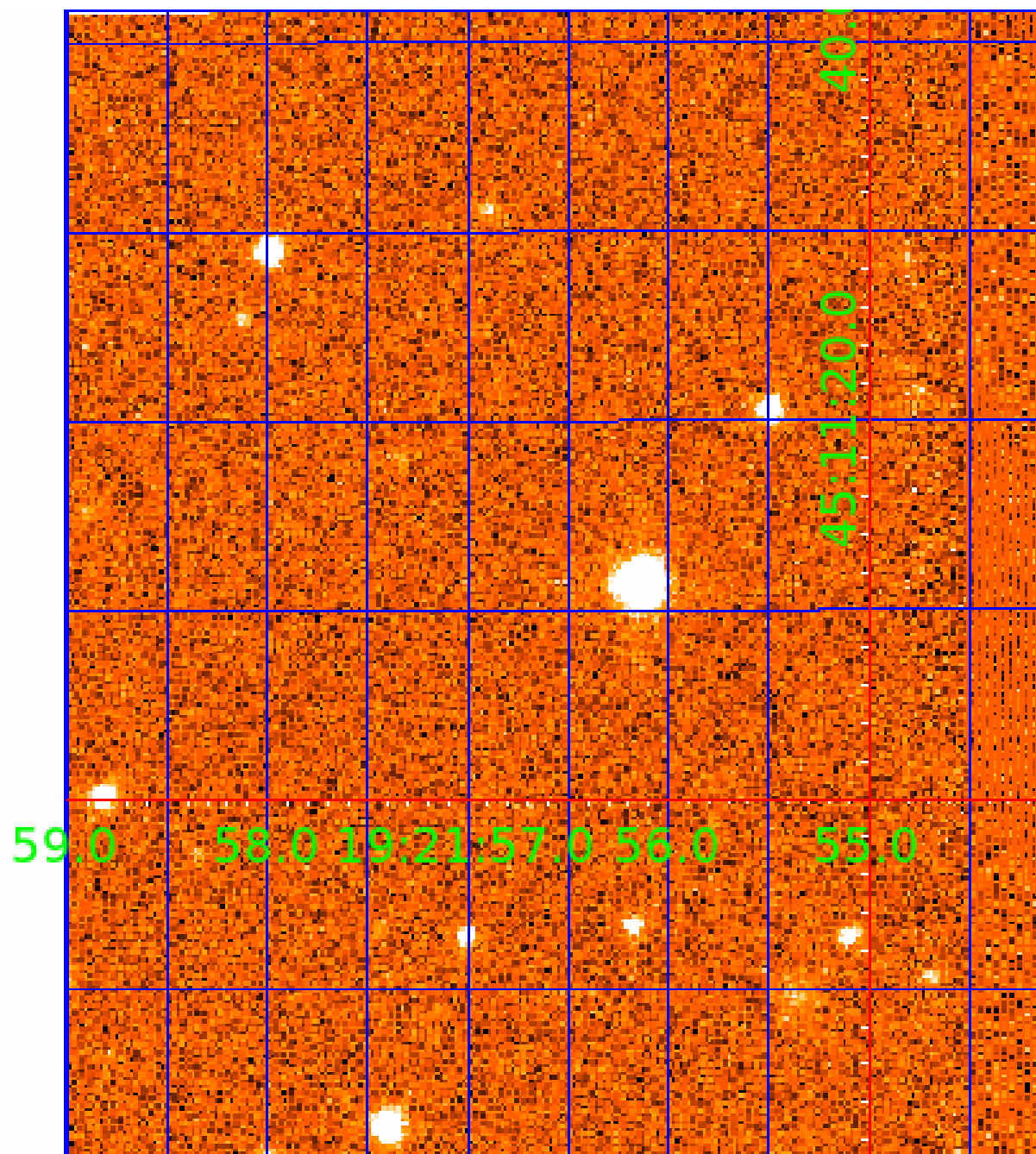


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008881943

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})
008881943-01	OBS	No	618.283524	296.777283	2191.2	5.689	13.6	7.7	0.67	5238	3.10	0.19
008881943-02	OBS	No	635.682078	274.796460	2499.1	6.280	16.6	6.7	0.67	5238	3.62	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008881943-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008881943-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

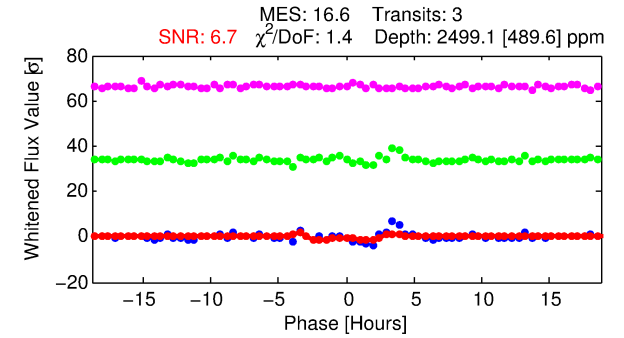
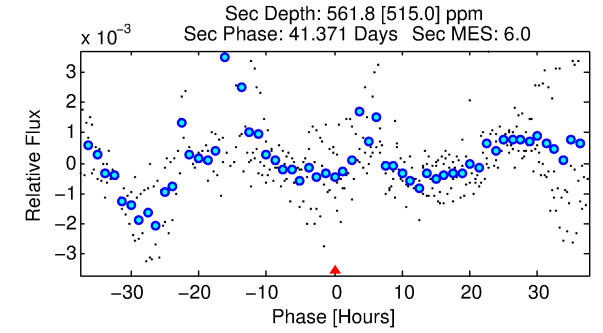
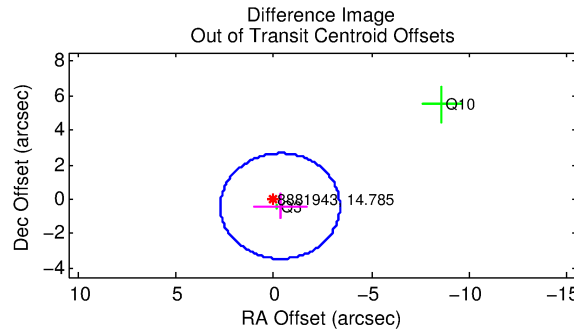
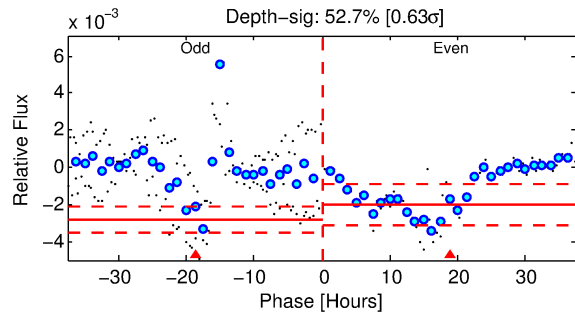
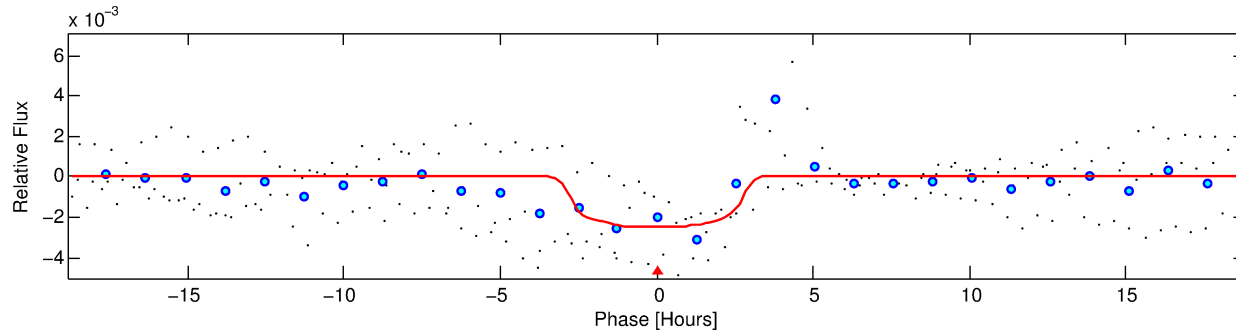
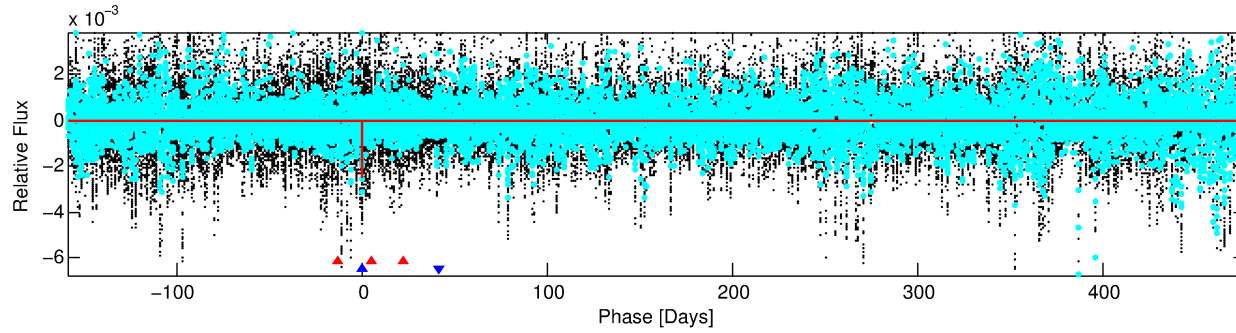
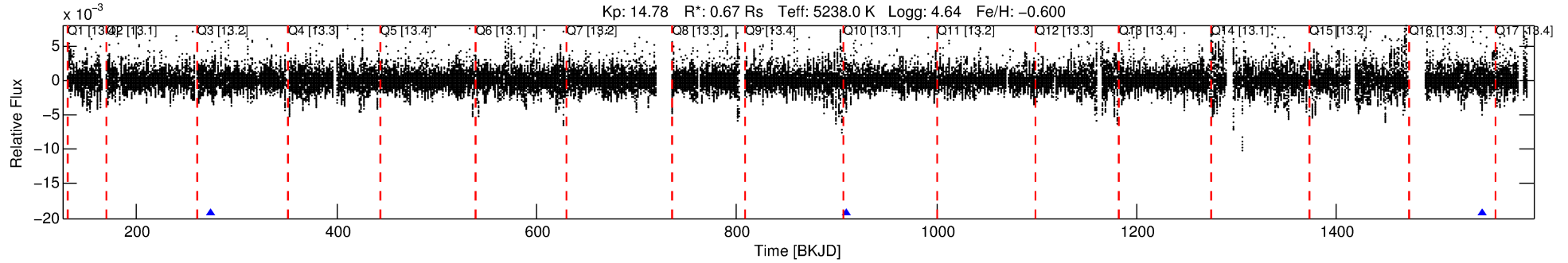
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008881943-02

No Significant Match Found

DV One-Page Summary

KIC: 8881943 Candidate: 2 of 2 Period: 635.682 d



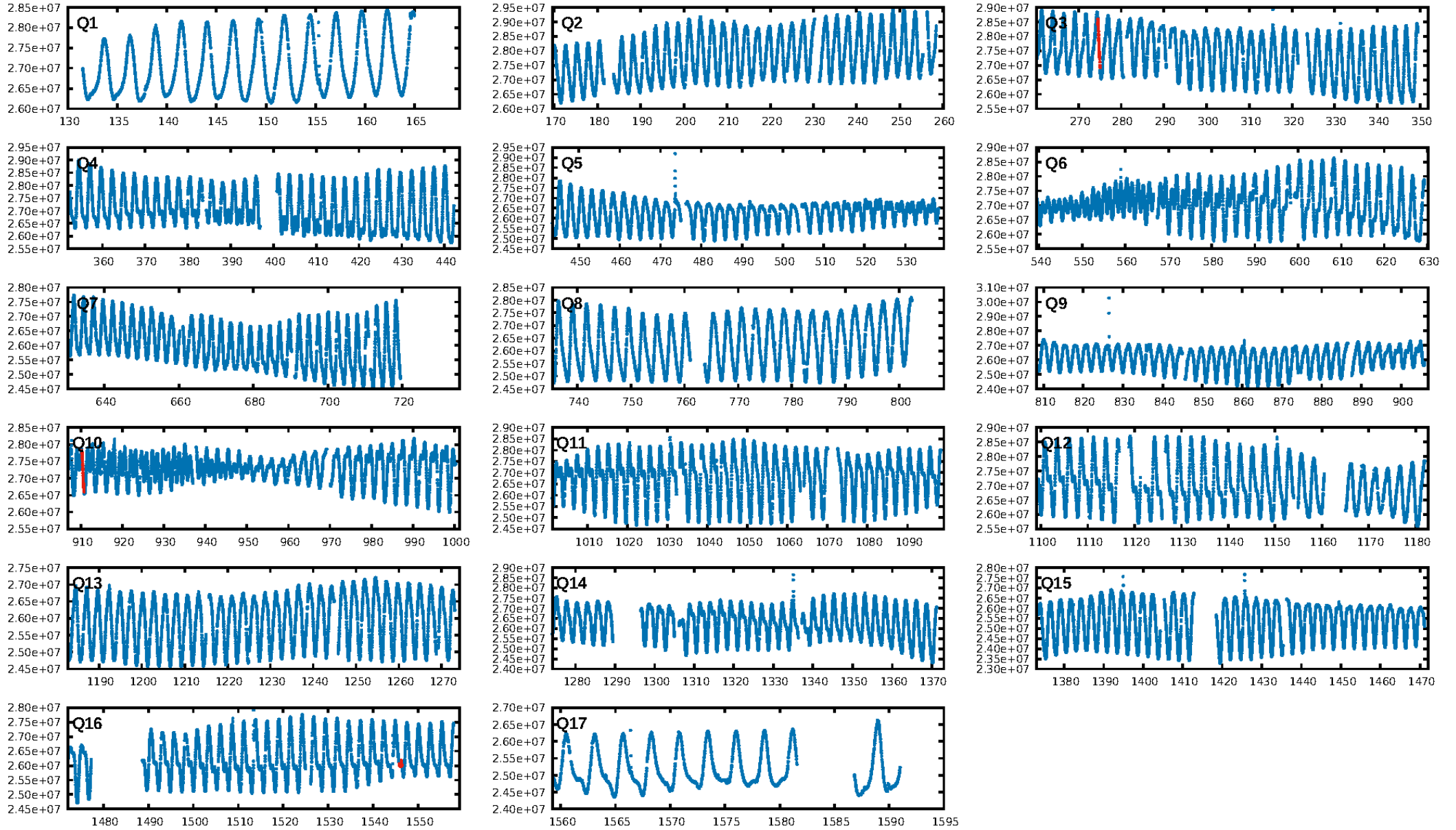
DV Fit Results:

Period = 635.68208 [0.00540] d
Epoch = 274.7965 [0.0075] BKJD
Rp/R* = 0.0495 [0.0095]
a/R* = 577.68 [328.31]
b = 0.74 [0.35]
Seff = 0.18 [0.03]
Teq = 166 [7] K
Rp = 3.62 [0.84] Re
a = 1.2897 [0.1295] AU
Ag = 39291.73 [39420.99] [1.00σ]
Teffp = 3623 [907] K [3.81σ]

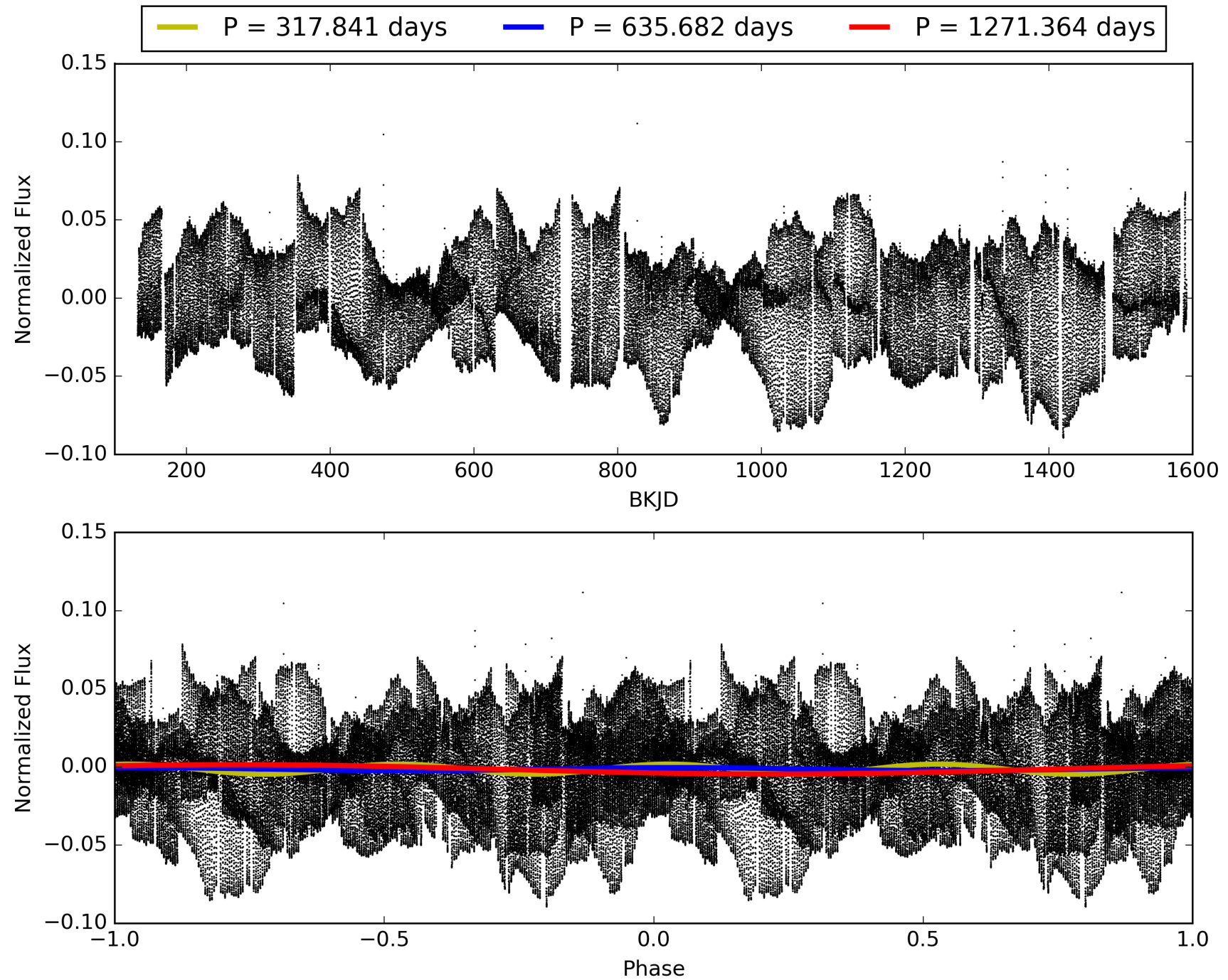
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.28σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 93.4%
ModelChiSquareGof-sig: 45.2%
Bootstrap-pfa: 7.22e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.8773
Centroid-sig: 32.4%
Centroid-so: 0.586 arcsec [1.27σ]
OotOffset-rm: 0.514 arcsec [0.51σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.427 arcsec [0.38σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 008881943-02, PDC Light Curves

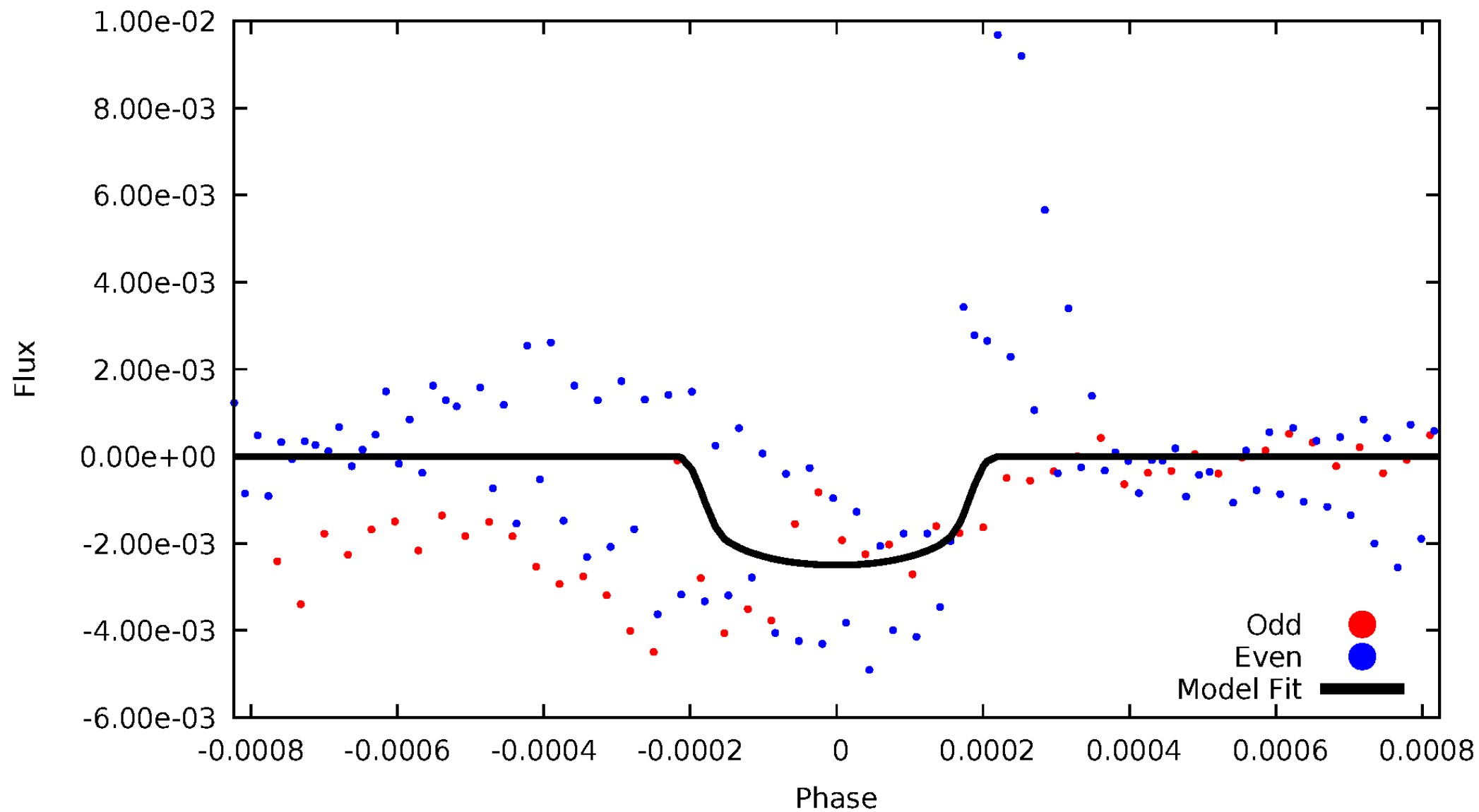


TCE 008881943-02



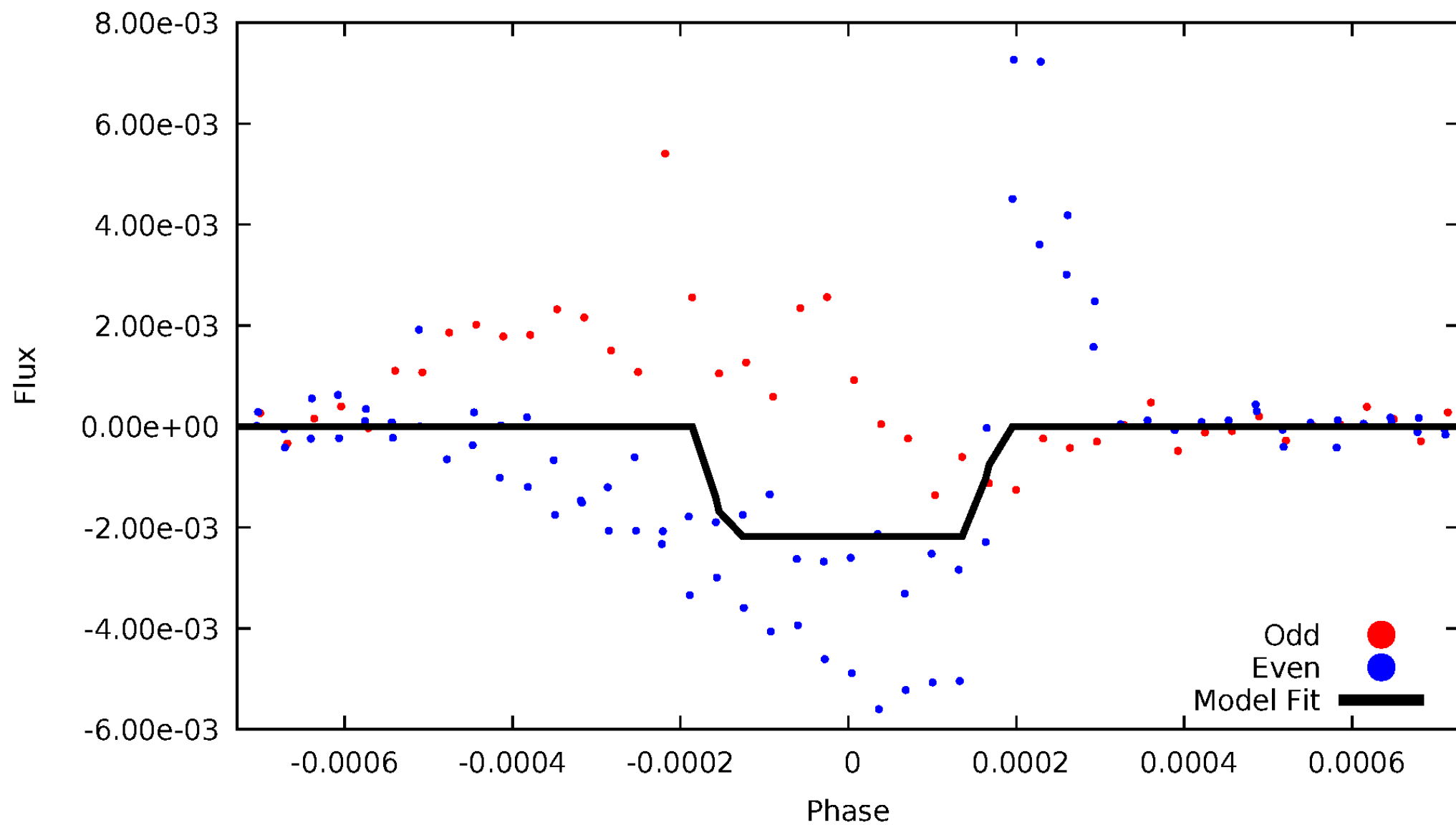
DV Odd/Even

TCE 008881943-02



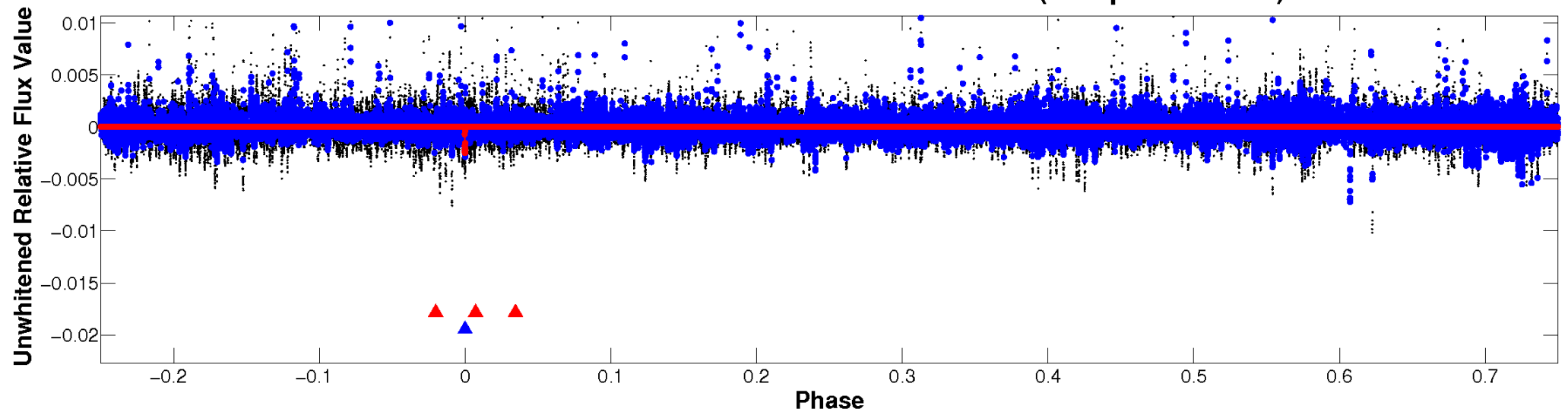
ALT Odd/Even

TCE 008881943-02

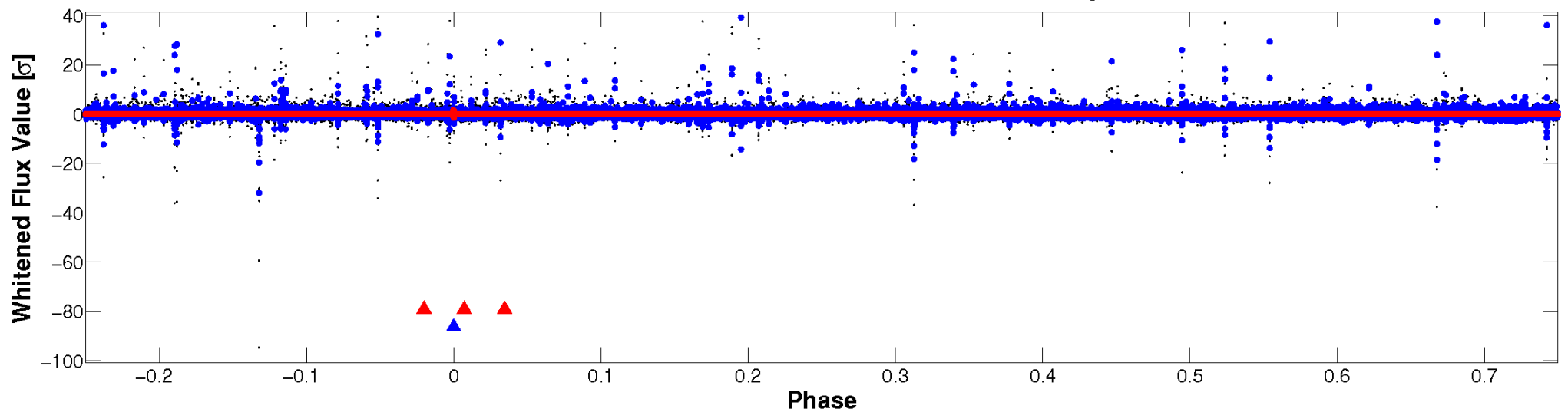


Non-Whitened Vs. Whitened Light Curve

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

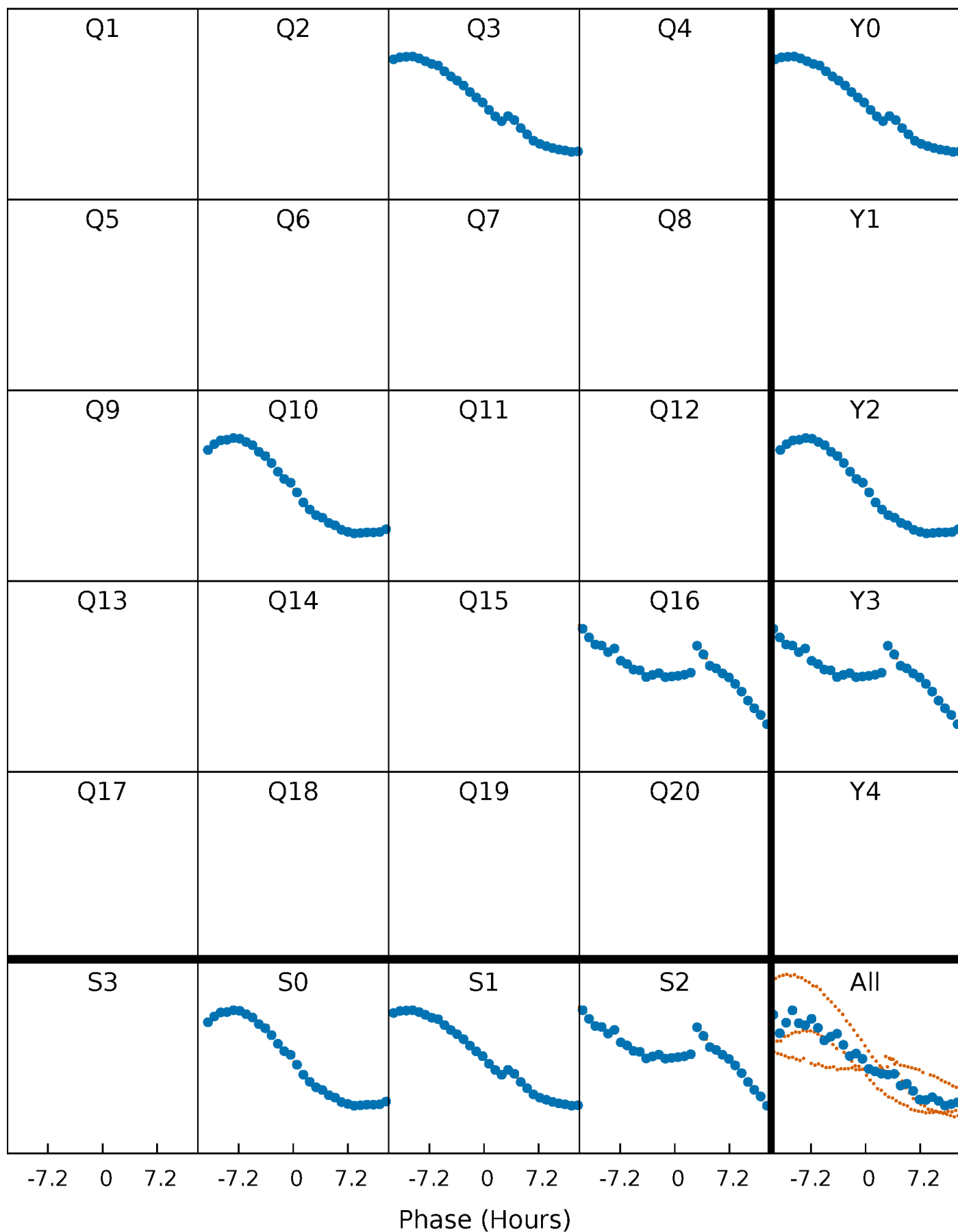


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



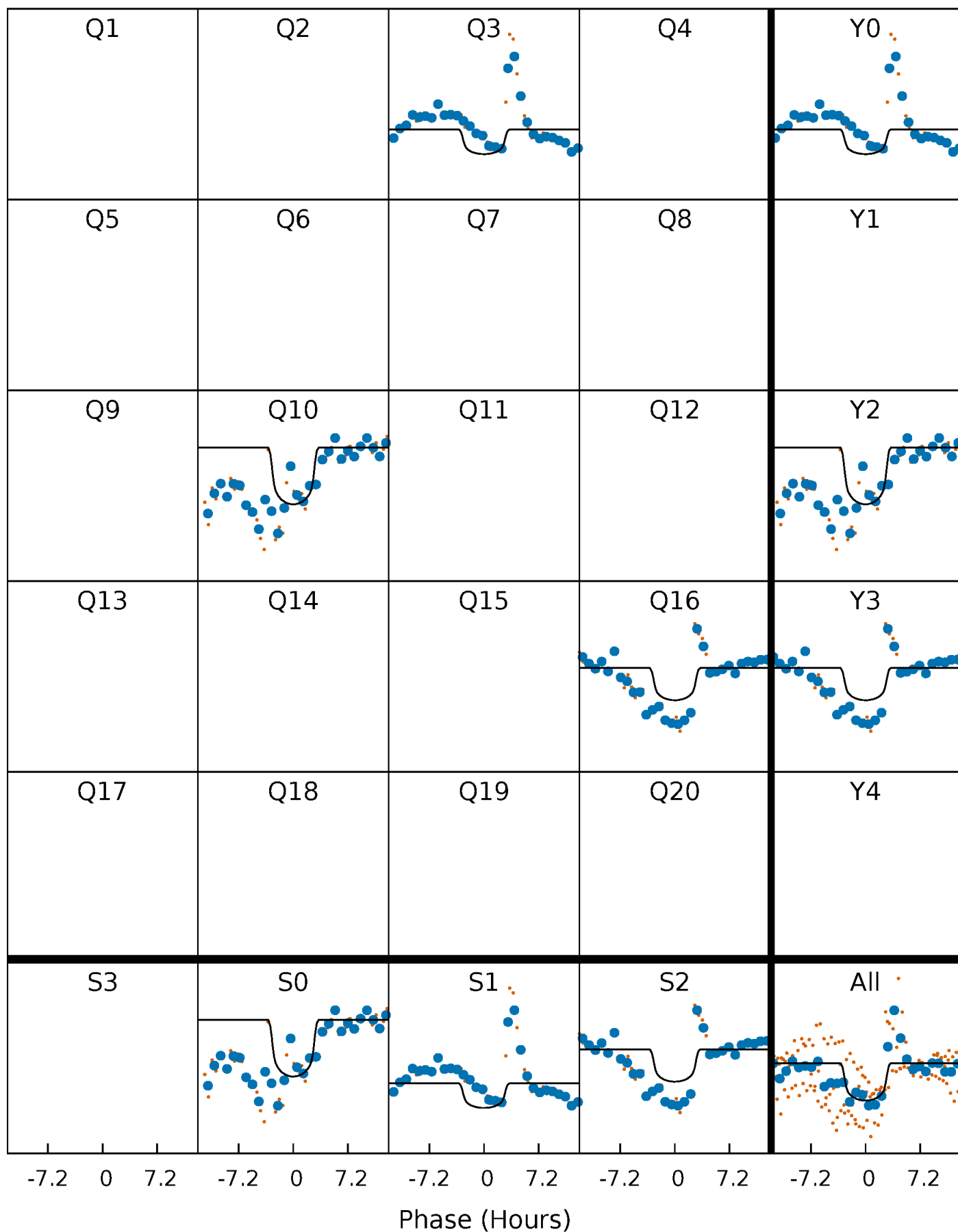
PDC Quarter-Phased Transit Curves

TCE 008881943-02 $P=635.682078$ Days $T_0=274.796460$ (BKJD)



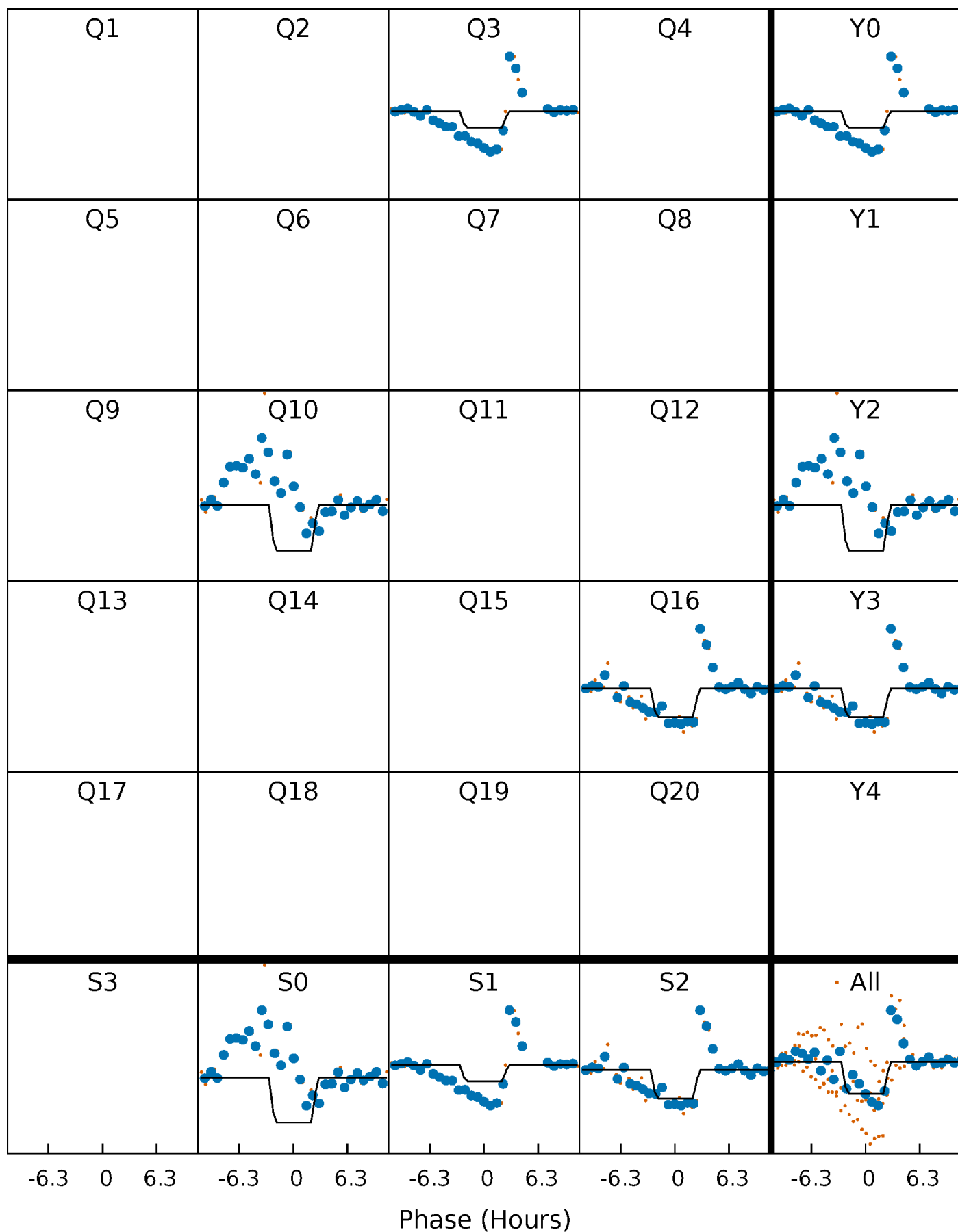
DV Quarter-Phased Transit Curves

TCE 008881943-02 P=635.682078 Days $T_0=274.796460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

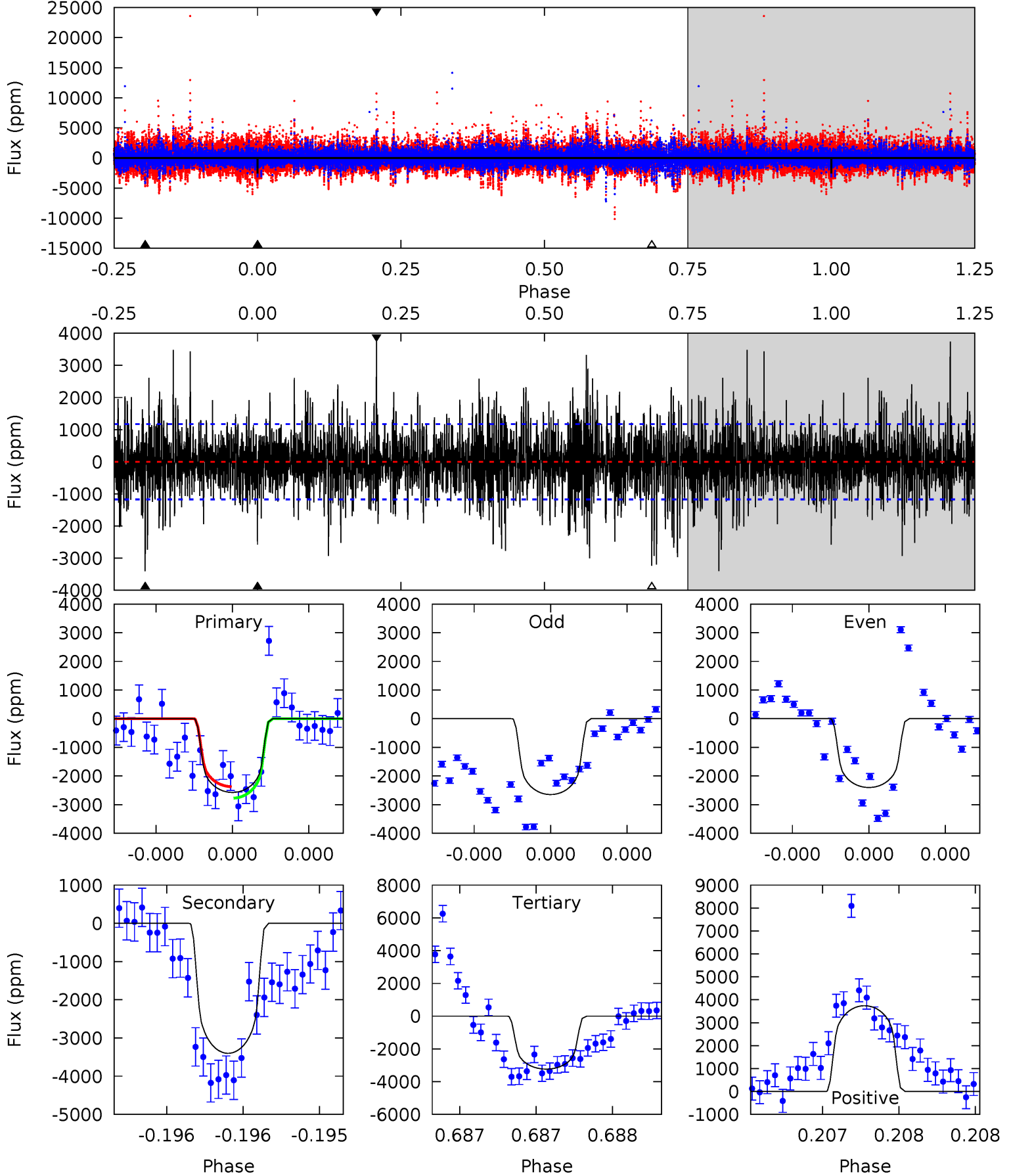
TCE 008881943-02 P=635.667618 Days $T_0=274.811223$ (BKJD)



DV Model-Shift Uniqueness Test

008881943-02, P = 635.682078 Days, E = 274.796460 Days

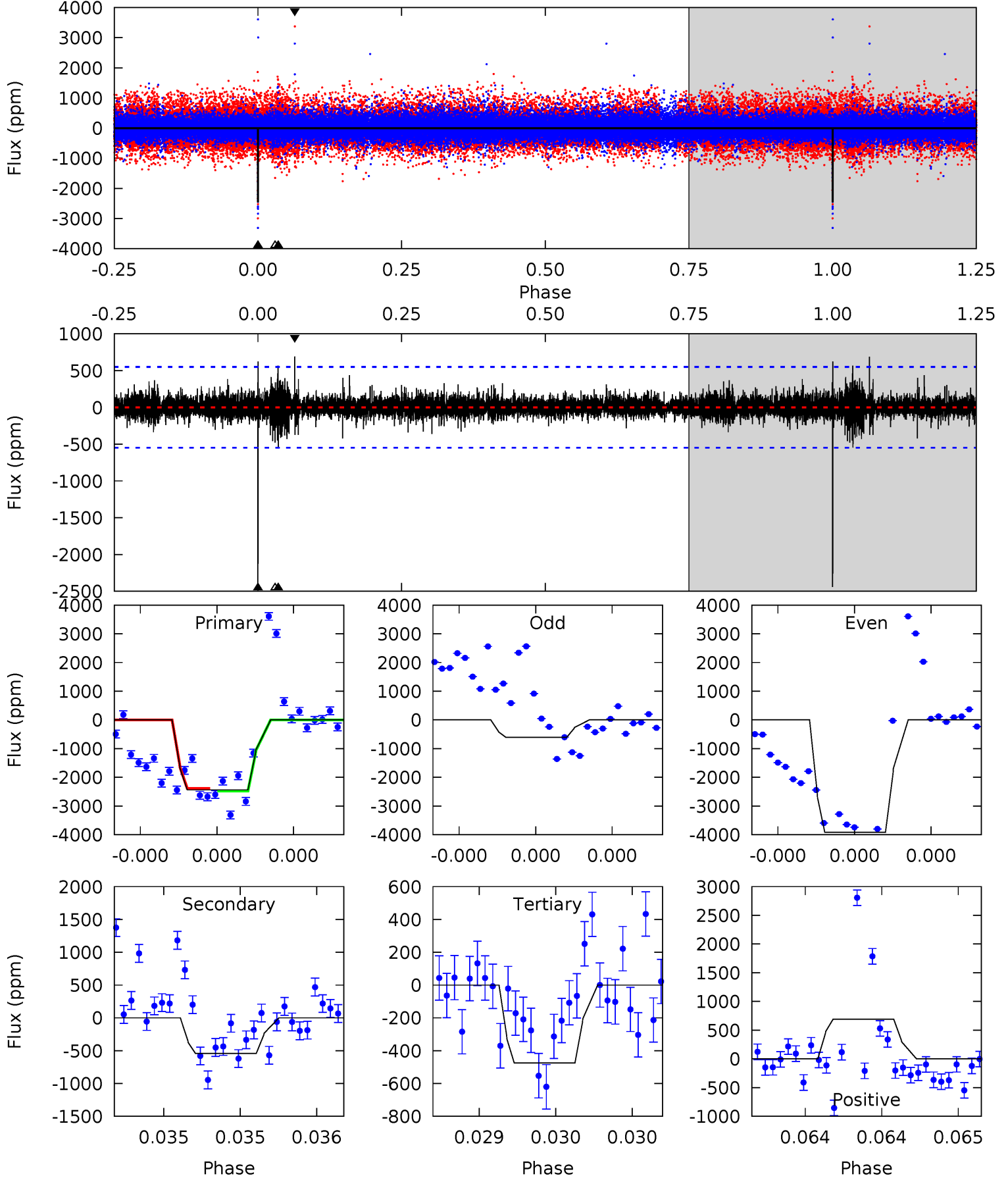
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	16.2	15.4	17.8	5.60	3.52	3.61	-3.16	-5.56	0.79	-1.61	0.48	0.94	0.52	0.96



Alt Model-Shift Uniqueness Test

008881943-02, P = 635.667618 Days, E = 274.811223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	5.60	4.89	7.10	5.65	3.60	0.78	20.2	18.0	0.71	-1.50	21.8	0.86	0.22	0



Stellar Parameters For KIC 008881943

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5238^{+157}_{-141}	$4.637^{+0.039}_{-0.066}$	$-0.600^{+0.300}_{-0.300}$	$0.669^{+0.087}_{-0.047}$	$0.707^{+0.069}_{-0.051}$	$3.326^{+0.632}_{-0.762}$
	+3%/-3%	+1%/-1%	+50%/-50%	+13%/-7%	+10%/-7%	+19%/-23%
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 008881943-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3401 ± 210	$3.67^{+0.74}_{-0.69}$	234^{+8}_{-8}	5622^{+660}_{-462}	$229131^{+125667}_{-69733}$
Alt.	-544 ± 97	$3.48^{+0.77}_{-0.70}$	234^{+9}_{-8}	3979^{+341}_{-298}	41108^{+25038}_{-14685}

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 $A_{obs} \gg 1.0$

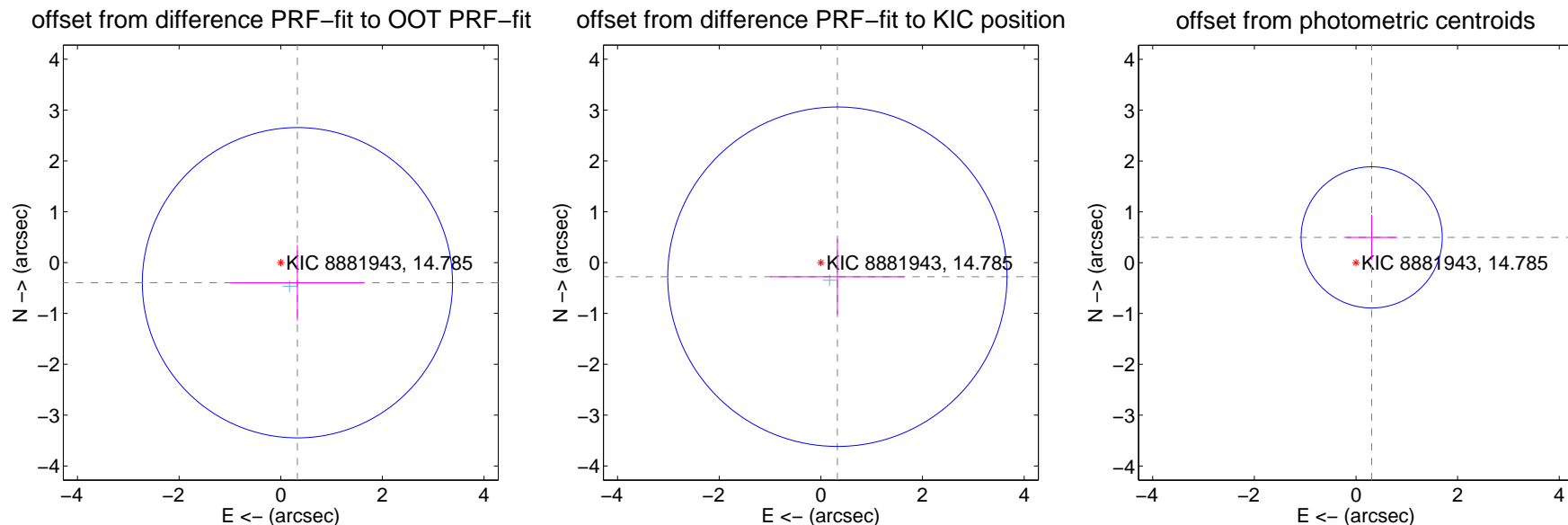
DV Centroid Data

Supplemental centroid analysis for 008881943-02. Kepler magnitude: 14.79. Transit SNR 6.66

There are 1 quarters with good PRF difference image offsets

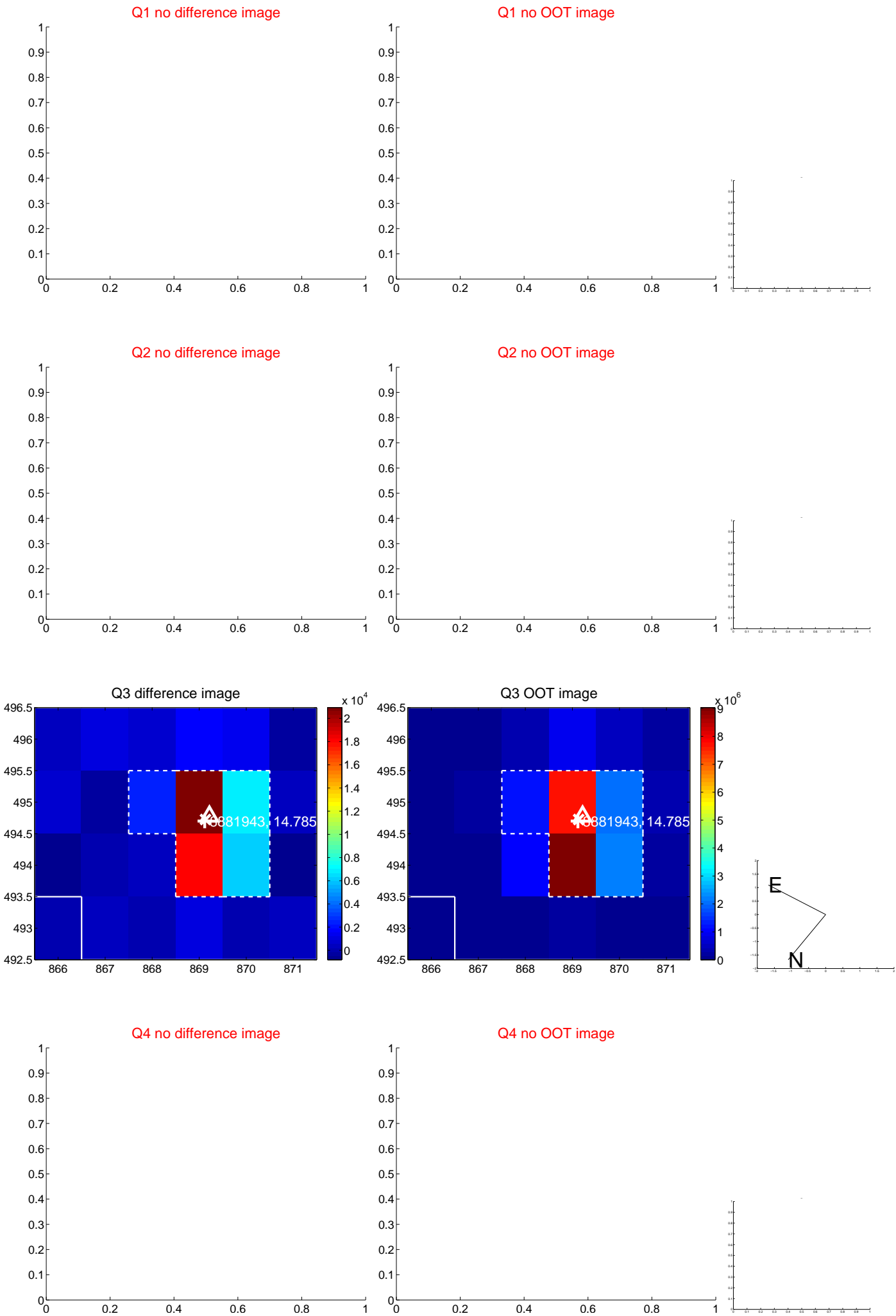
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.514 ± 1.017	0.51	-0.328 ± 1.318	-0.396 ± 0.744
PRF-fit source offset from KIC position	0.427 ± 1.113	0.38	-0.325 ± 1.318	-0.278 ± 0.746
photometric centroid source offset	0.59 ± 0.46	1.27	-0.31 ± 0.50	0.50 ± 0.45



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.

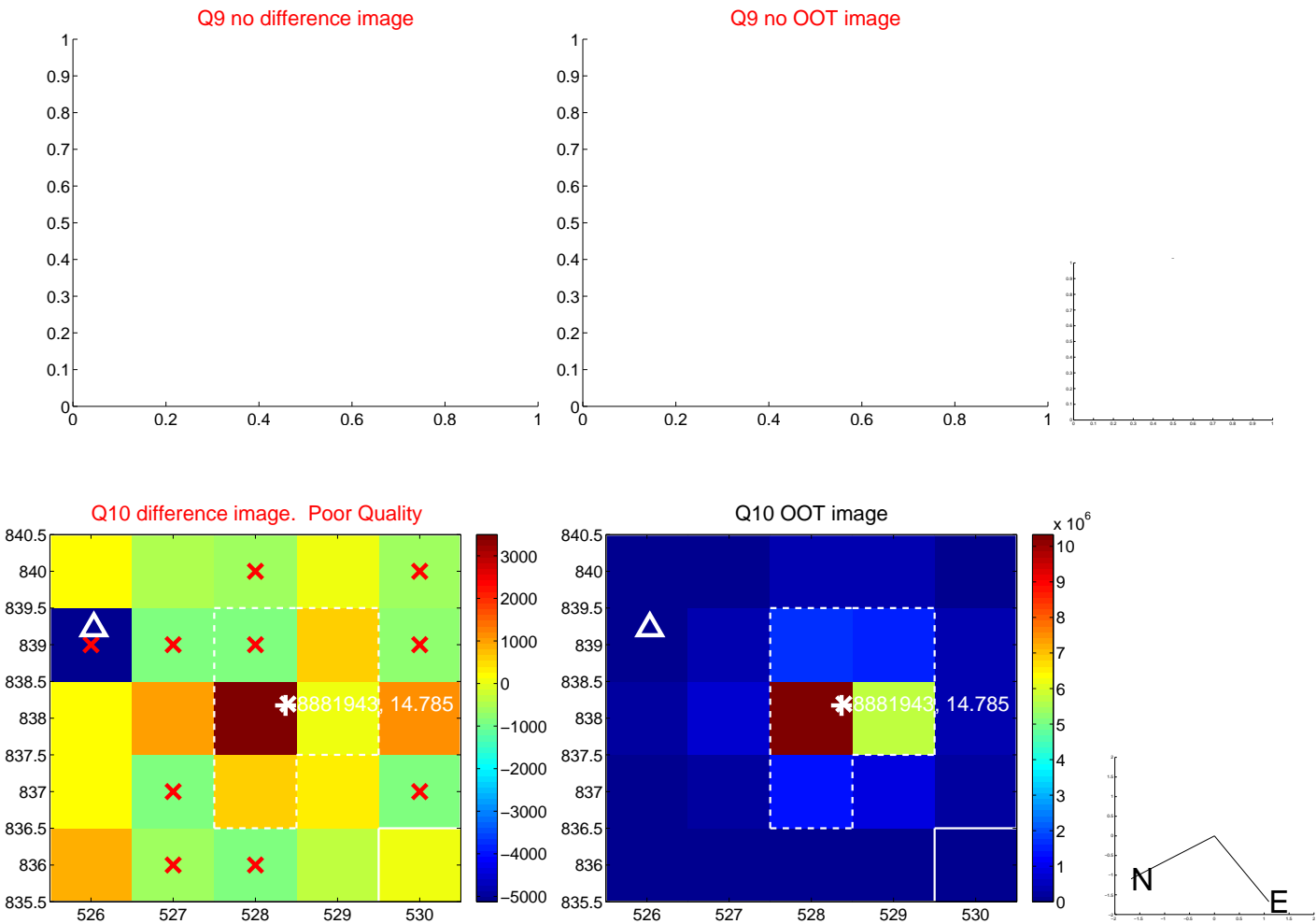
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

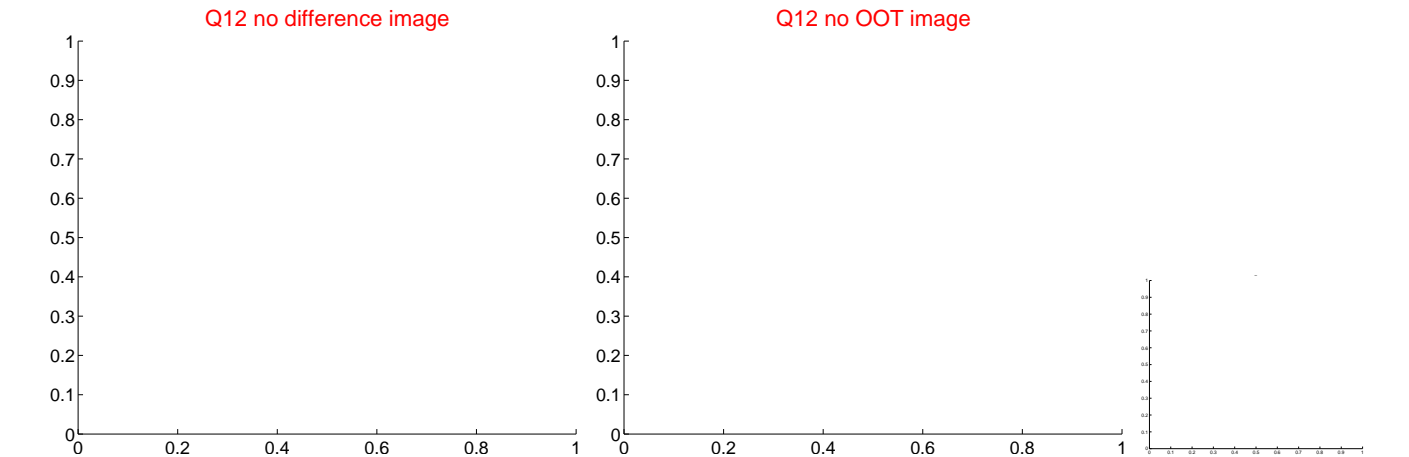
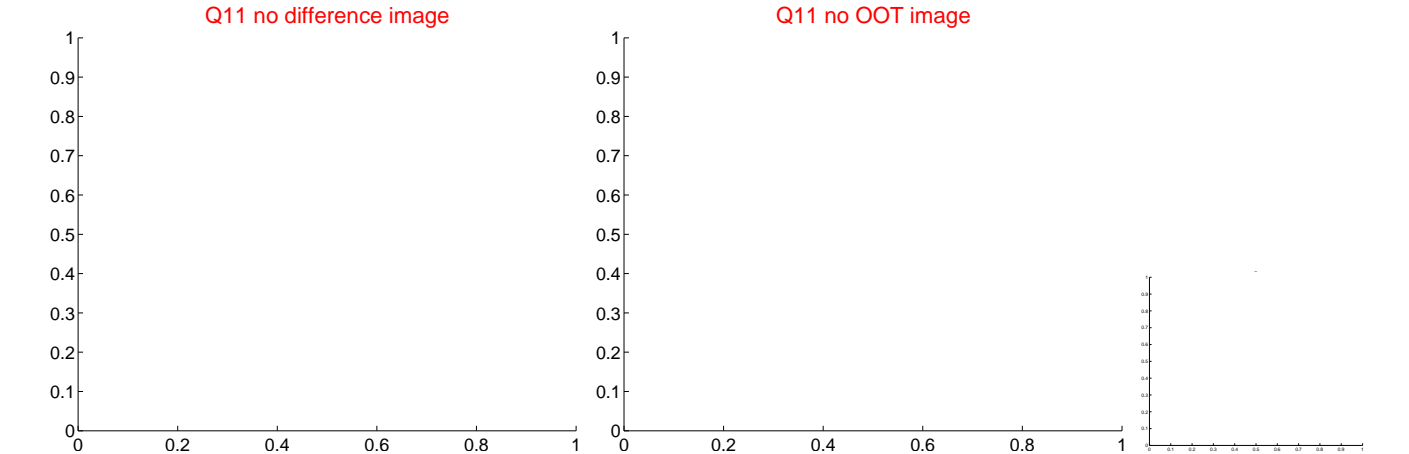


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



Q10 difference image. Poor Quality

Q10 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.

