

KIC 002437783

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})
002437783-01	OBS	3745.01	7.453426	131.736529	78523.6	4.125	193.4	141.4	1.00	5780	41.04	179.25
002437783-02	OBS	No	7.453307	135.498201	10356.5	3.988	29.4	29.9	1.00	5780	12.45	179.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002437783-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
002437783-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_KIC_POS—HALO_GHOST

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.

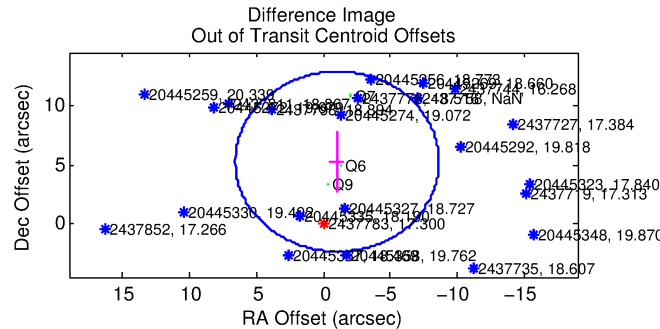
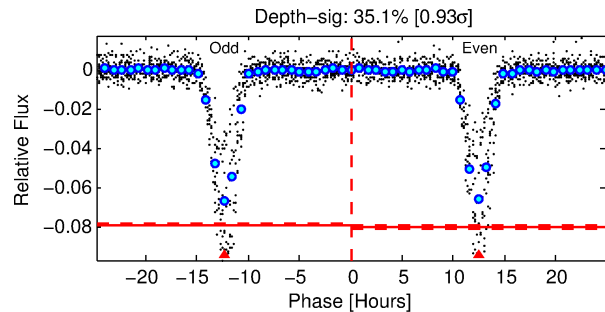
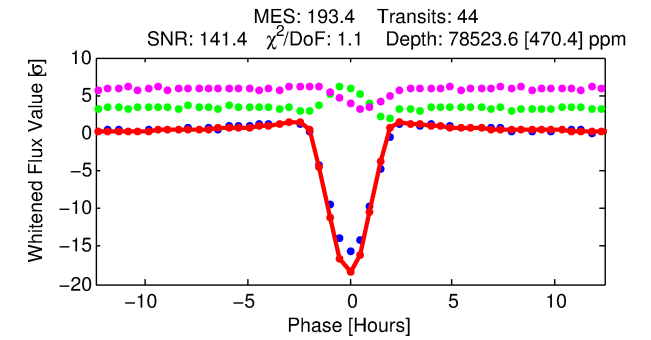
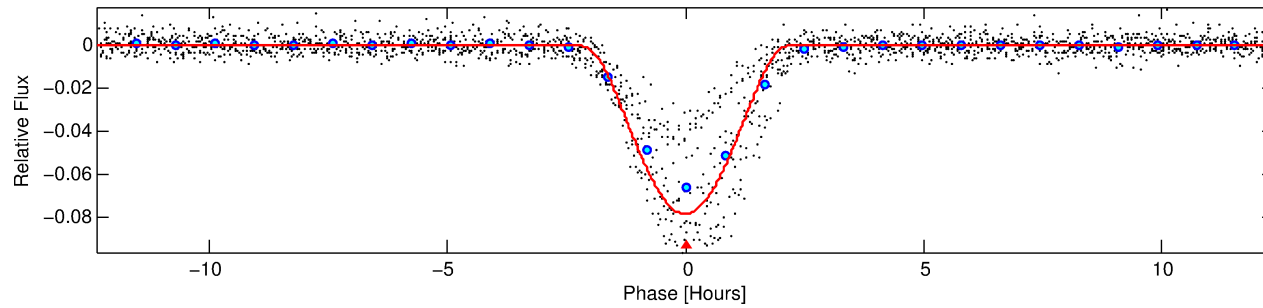
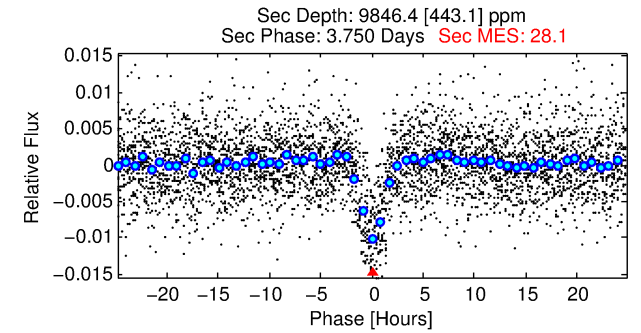
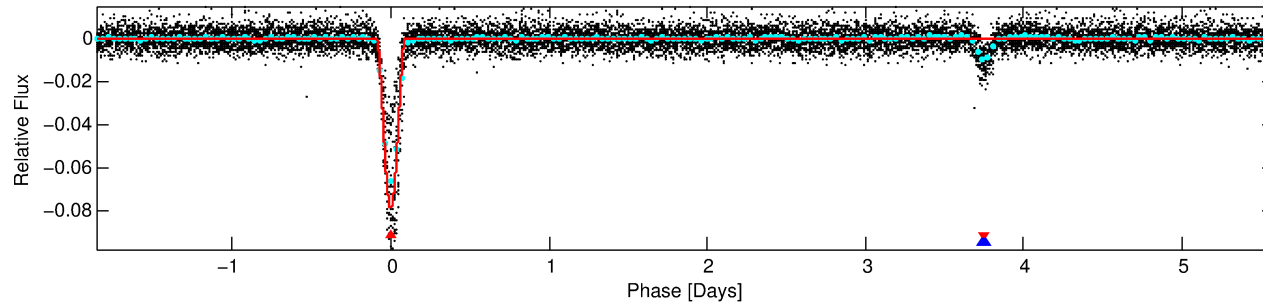
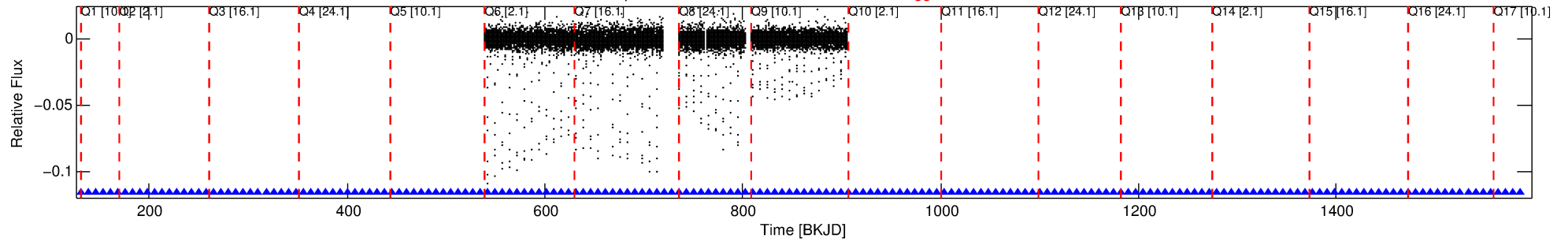
Ephemeris Match Information For 002437783-01

No Significant Match Found

DV One-Page Summary

KIC: 2437783 Candidate: 1 of 2 Period: 7.453 d
KOI: K03745.01 Corr: 0.946

Kp: 17.30 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 7.45343 [0.00002] d
Epoch = 131.7365 [0.0013] BKJD
Rp/R* = 0.3761 [0.1431]
a/R* = 14.29 [0.11]
b = 0.91 [0.21]
Seff = 179.25 [0.00]
Teq = 933 [0] K
Rp = 41.04 [15.61] Re
a = 0.0747 [0.0000] AU
Ag = 17.94 [13.68] [1.24σ]
Teffp = 2969 [566] K [3.60σ]

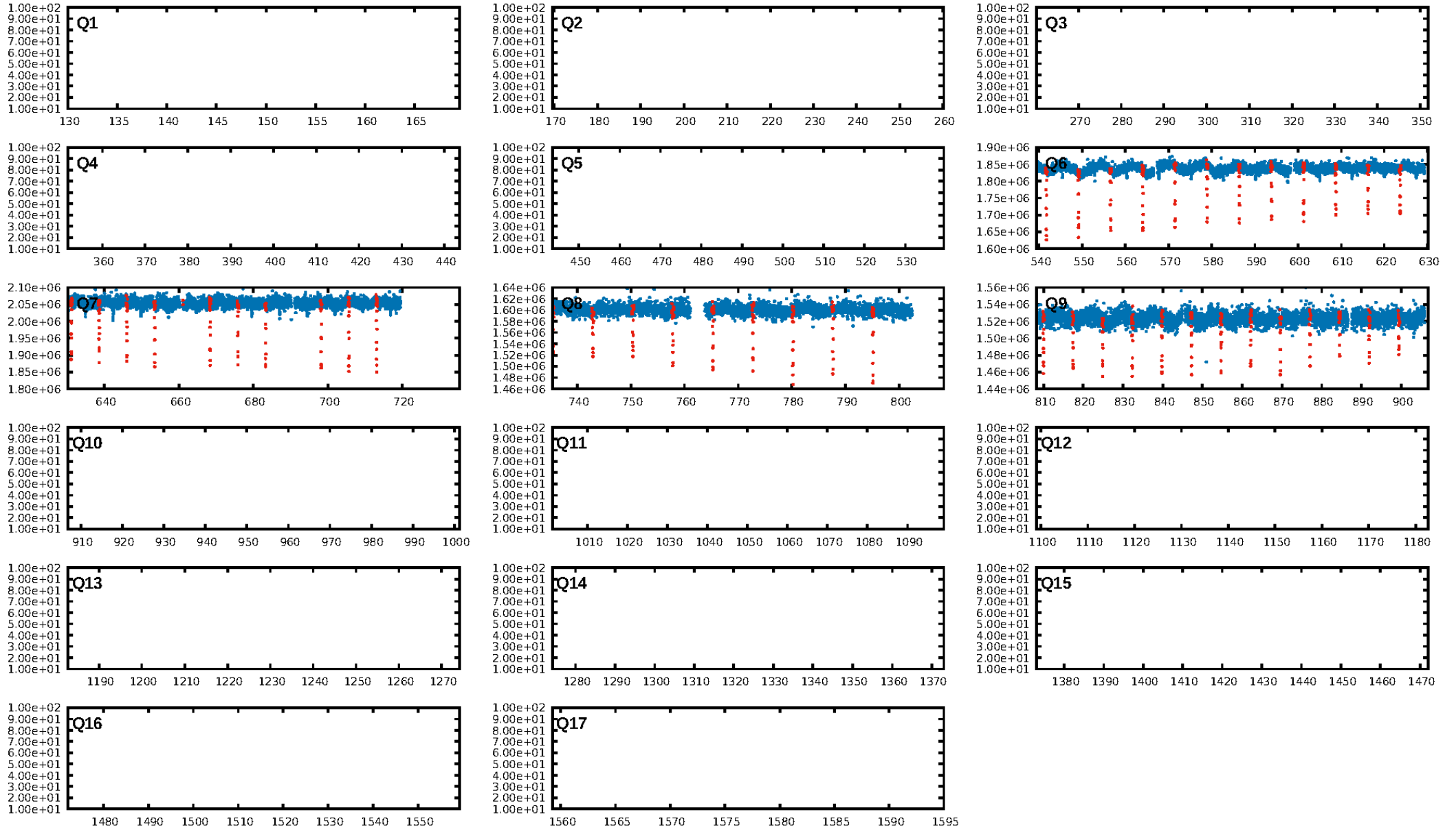
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [44/44]
GhostDiagnostic-chr: -0.1623
Centroid-sig: 0.0%
Centroid-so: 2.249 arcsec [165.35σ]
OotOffset-rm: 5.358 arcsec [2.11σ]
KicOffset-rm: 3.770 arcsec [35.18σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

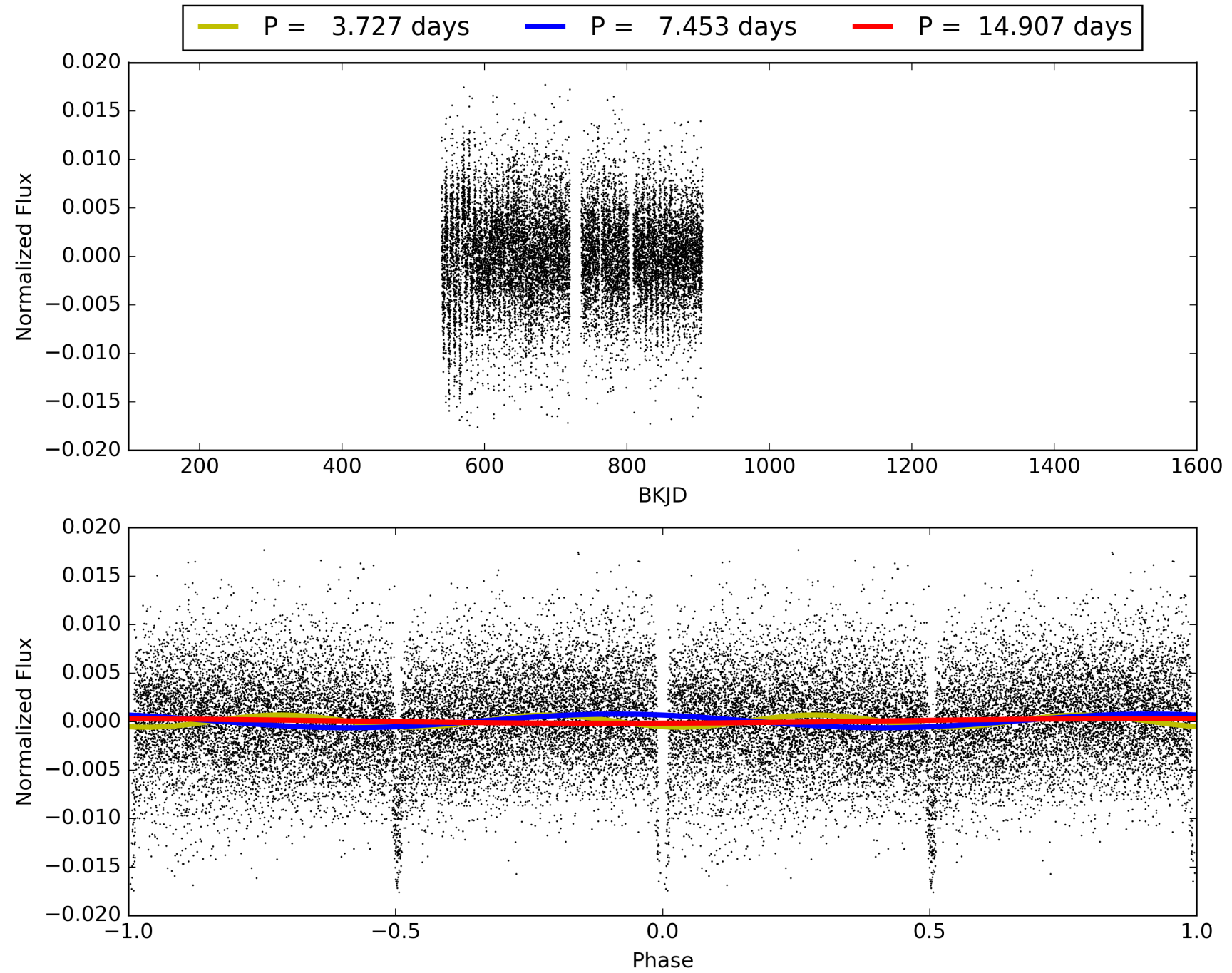
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:15:56 Z

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

TCE 002437783-01, PDC Light Curves

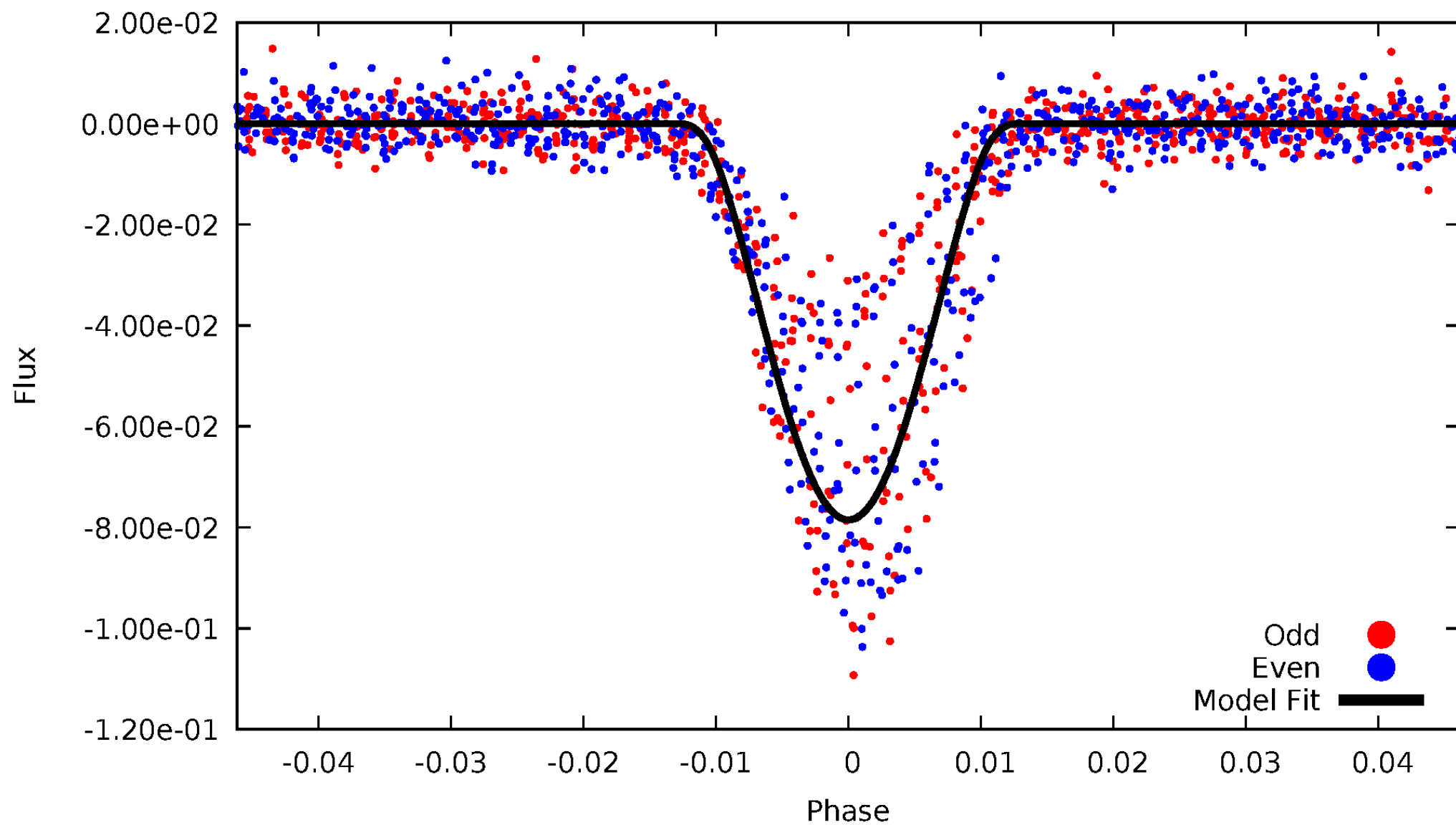


TCE 002437783-01



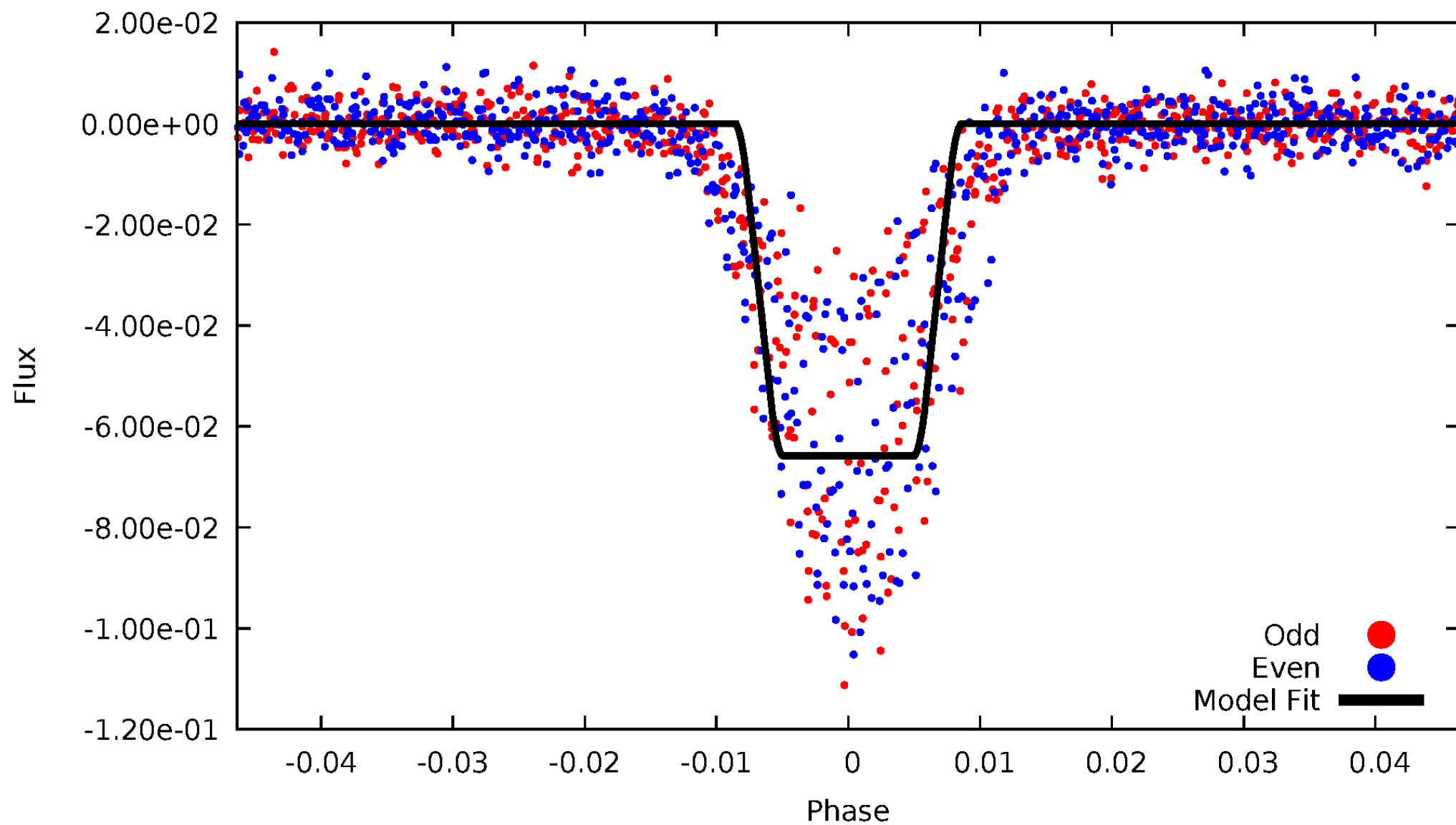
DV Odd/Even

TCE 002437783-01



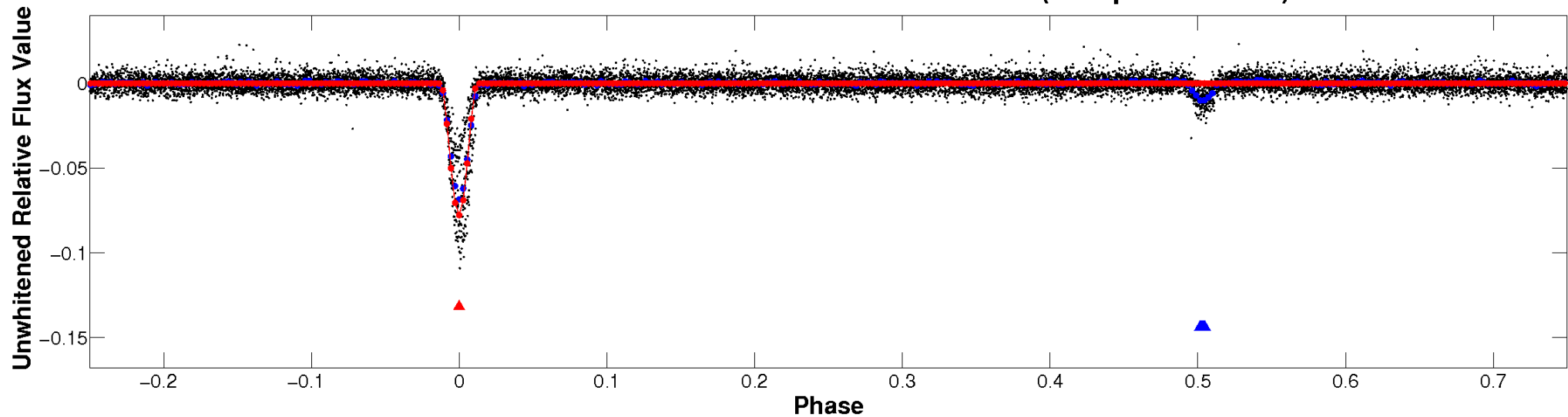
ALT Odd/Even

TCE 002437783-01

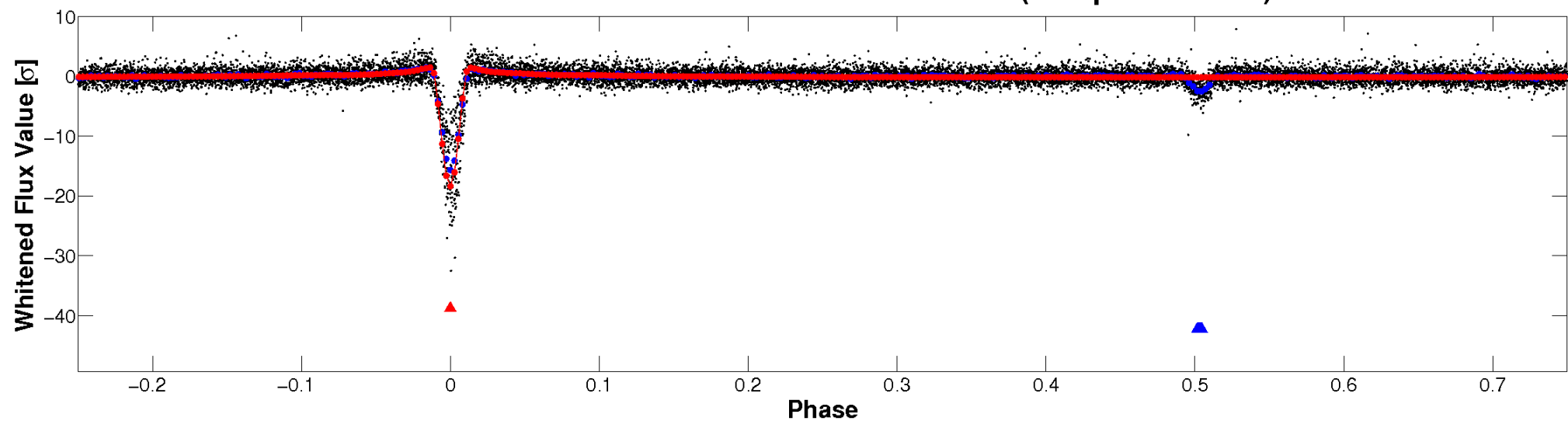


Non-Whitened Vs. Whitened Light Curve

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

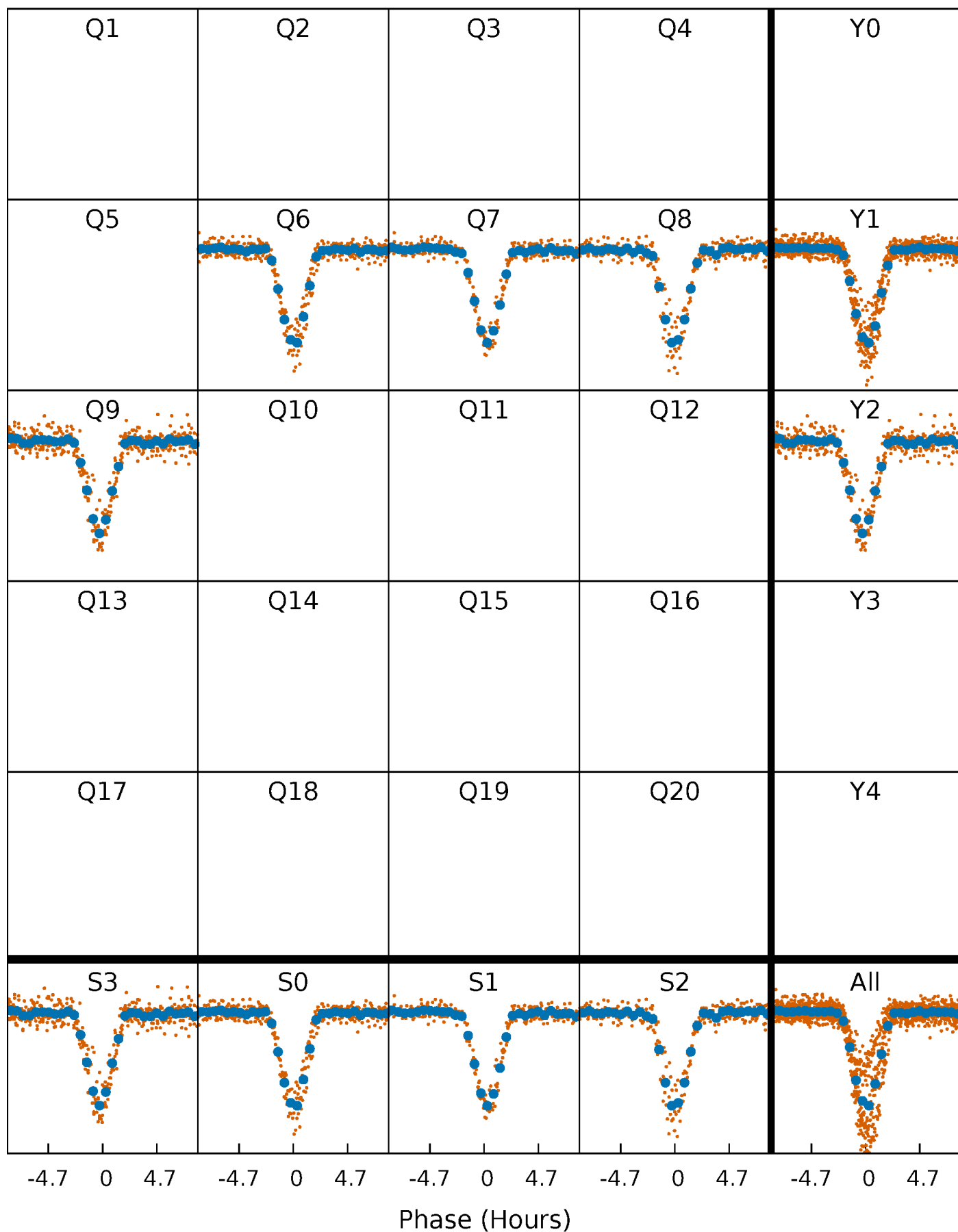


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



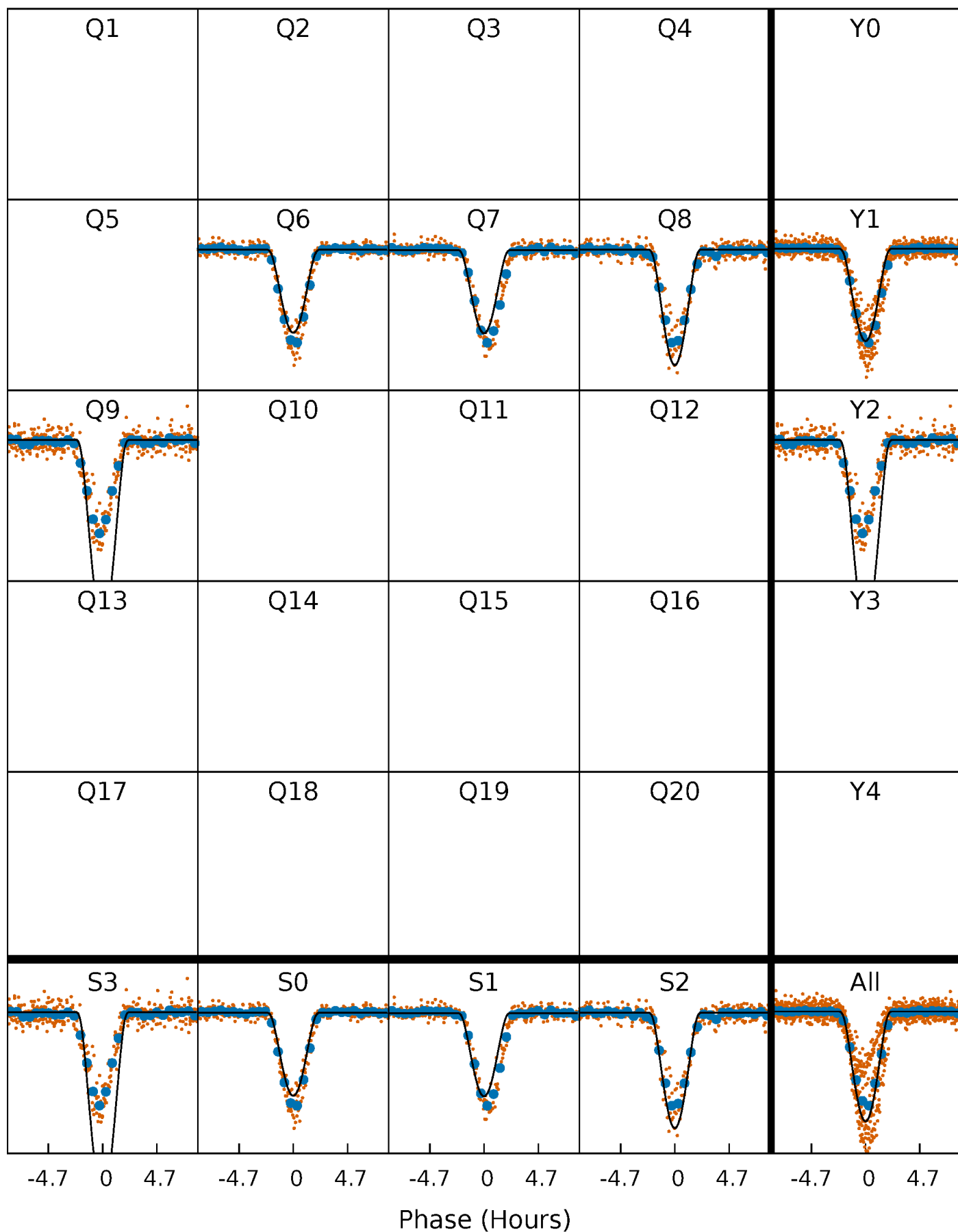
PDC Quarter-Phased Transit Curves

TCE 002437783-01 P= 7.453426 Days $T_0=131.736529$ (BKJD)



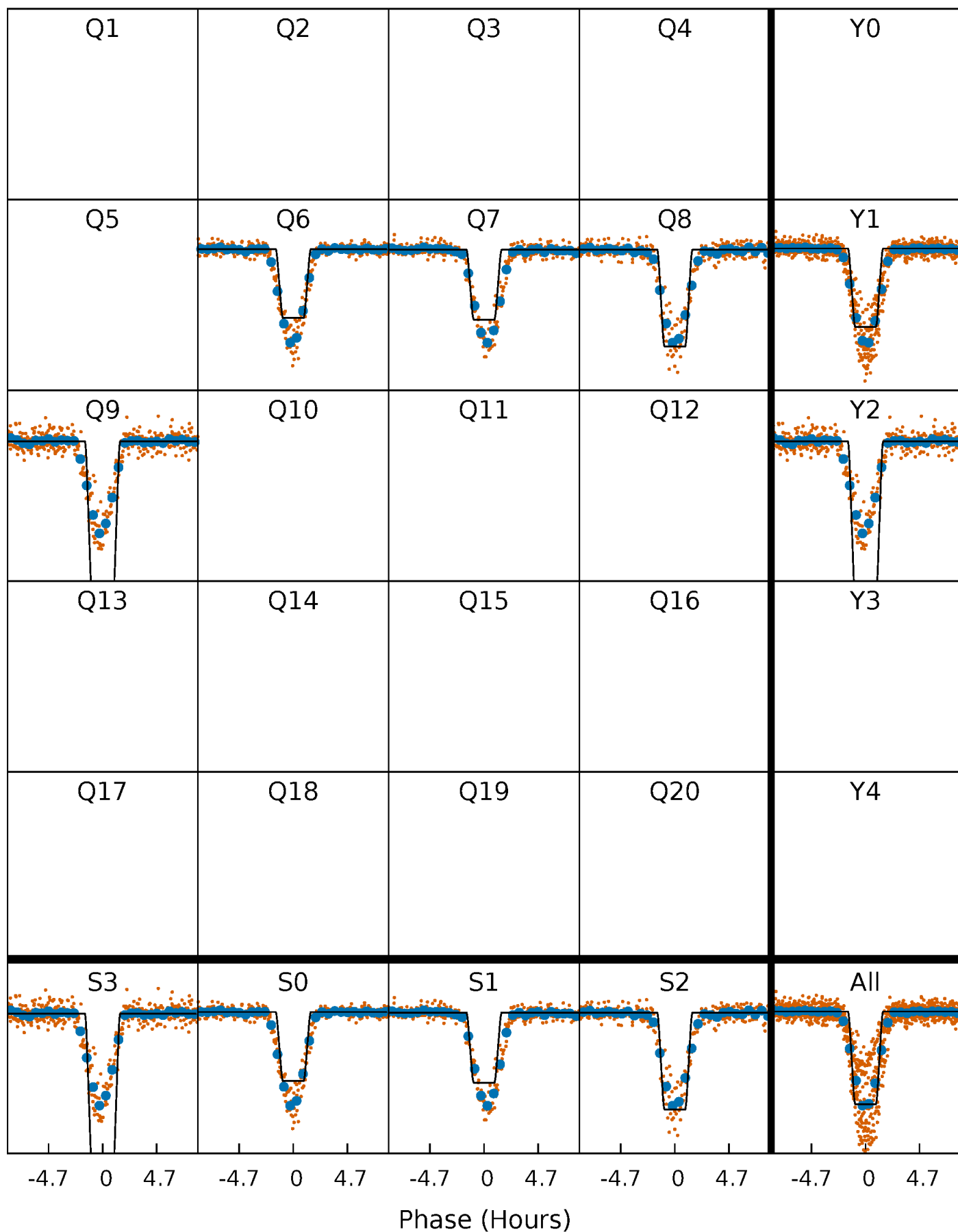
DV Quarter-Phased Transit Curves

TCE 002437783-01 P= 7.453426 Days $T_0=131.736529$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

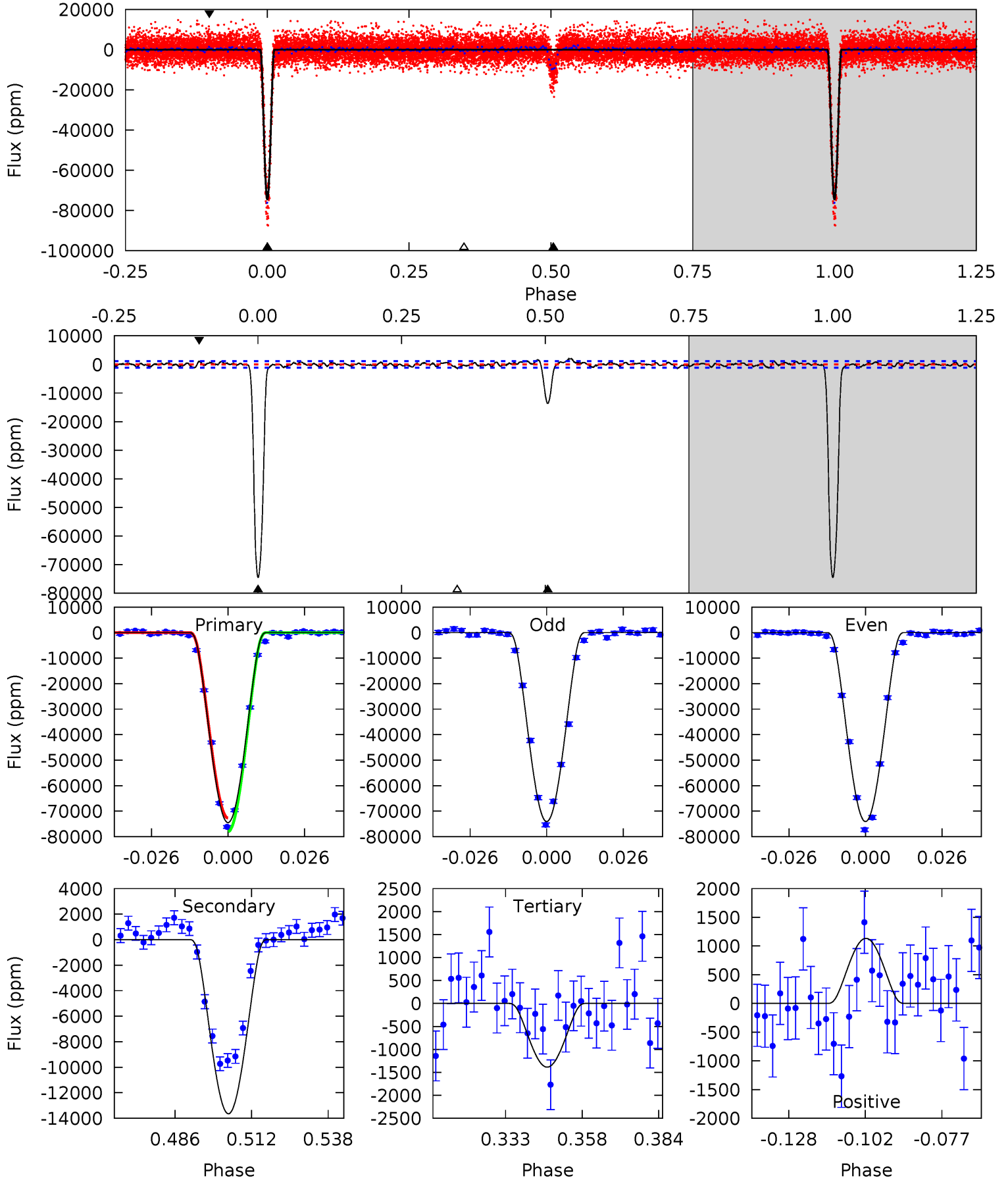
TCE 002437783-01 P= 7.453237 Days $T_0=131.752135$ (BKJD)



DV Model-Shift Uniqueness Test

002437783-01, P = 7.453426 Days, E = 131.736529 Days

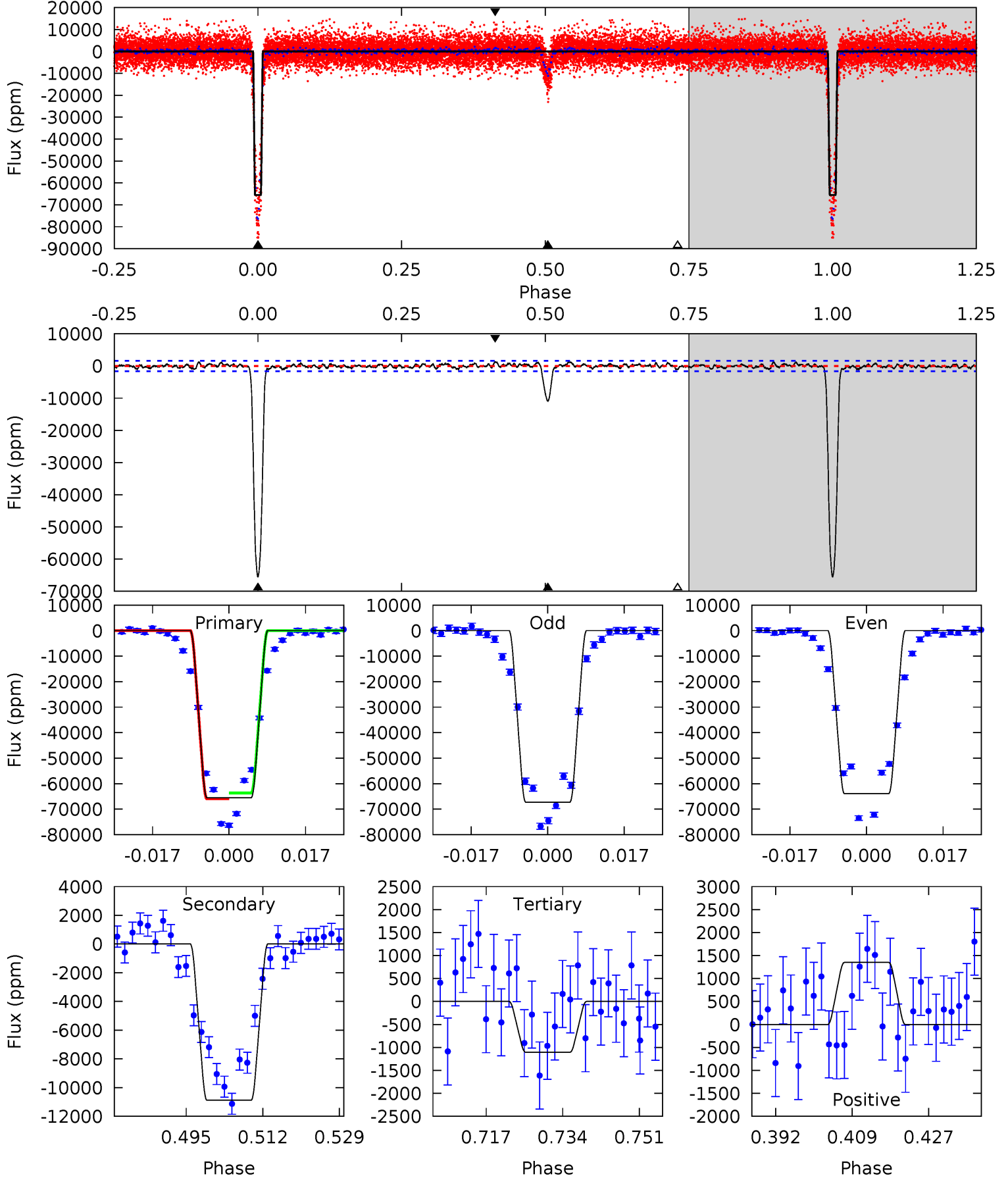
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
321.4	58.9	5.98	4.89	4.84	2.23	2.14	315.5	316.5	52.9	54.0	0.00	0.91	0.03	0



Alt Model-Shift Uniqueness Test

002437783-01, P = 7.453237 Days, E = 131.752135 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
199.3	33.1	3.36	4.11	4.92	2.39	1.30	196.0	195.2	29.7	29.0	4.93	0.91	0.02	3.42



Stellar Parameters For KIC 002437783

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 002437783-01 / KOI 3745.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13647 ± 232	$40.53^{+17.47}_{-15.02}$	1304^{+67}_{-60}	3653^{+656}_{-371}	26^{+38}_{-13}
Alt.	-10885 ± 329	$29.25^{+14.54}_{-14.60}$	1304^{+60}_{-58}	3960^{+1231}_{-520}	39^{+119}_{-22}

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 $A_{obs} \gg 1.0$

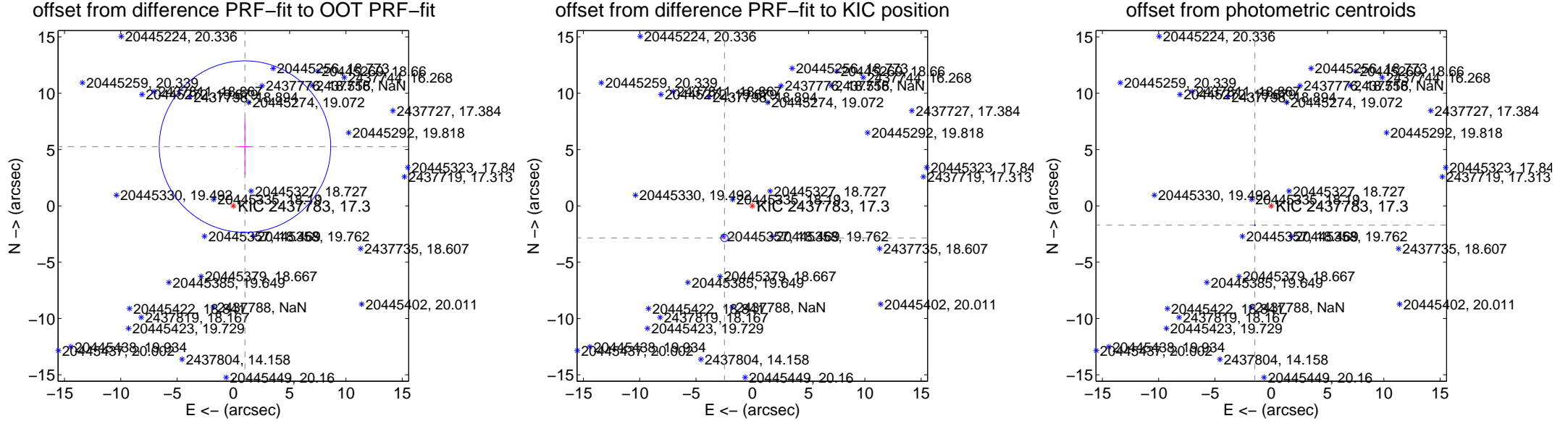
DV Centroid Data

Supplemental centroid analysis for 002437783-01. Kepler magnitude: 17.30. Transit SNR 141.43

There are 4 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 6.86 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.358 ± 2.538	2.11	-1.031 ± 0.473	5.258 ± 2.500
PRF-fit source offset from KIC position	3.770 ± 0.107	35.18	2.468 ± 0.111	-2.850 ± 0.104
photometric centroid source offset	2.25 ± 0.01	165.35	1.46 ± 0.01	-1.71 ± 0.01

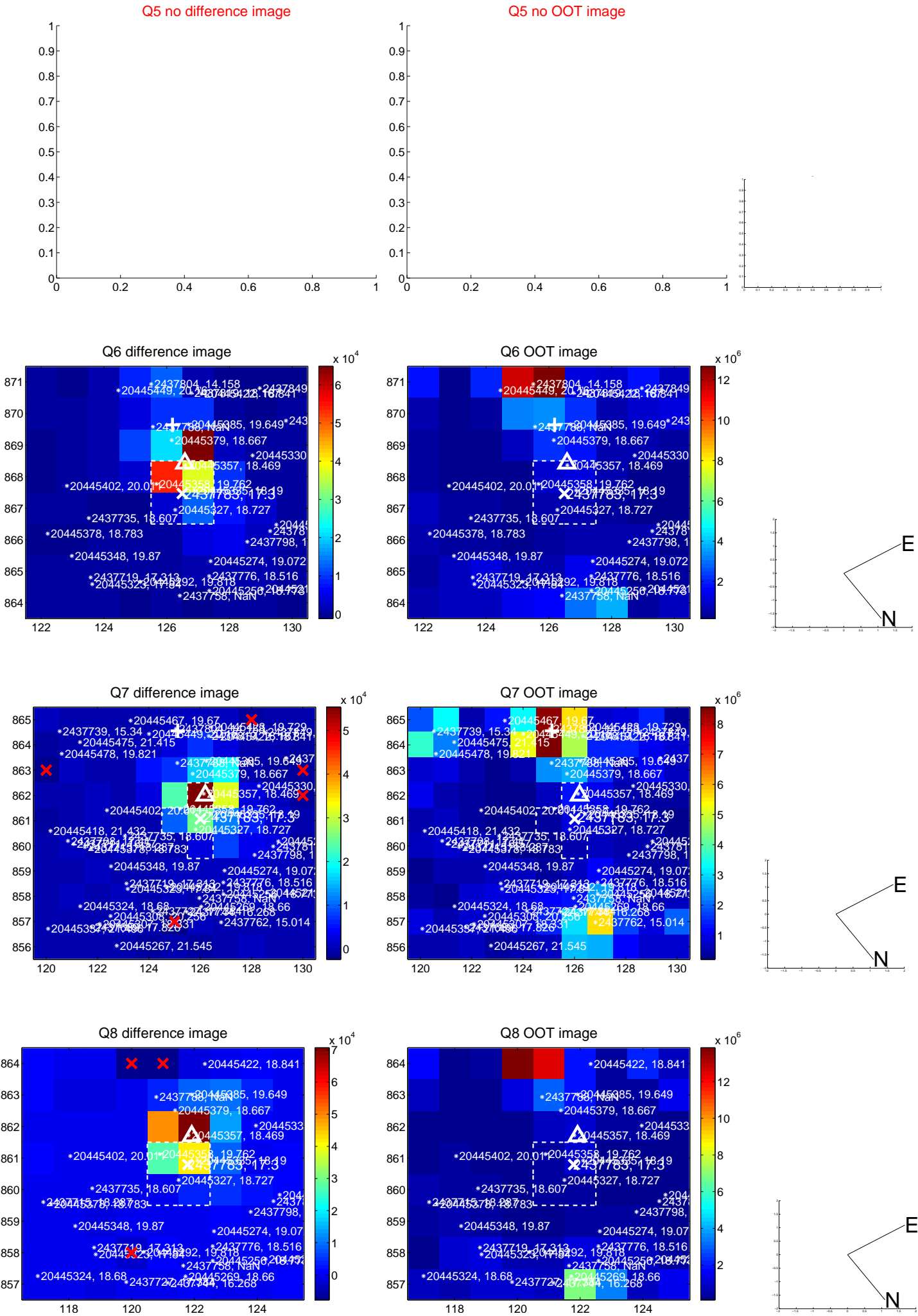


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

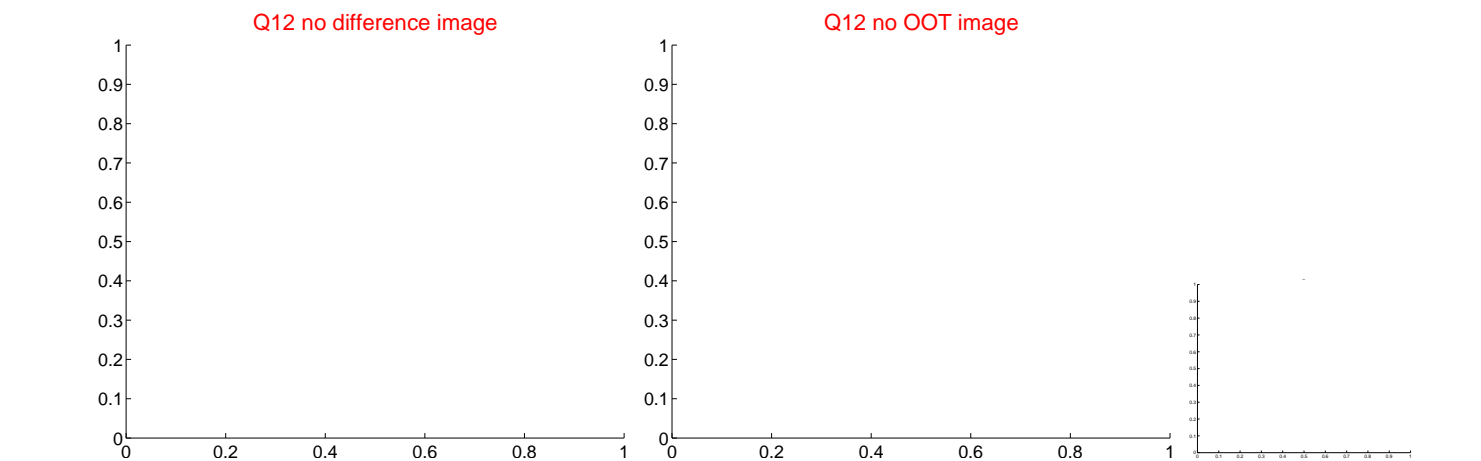
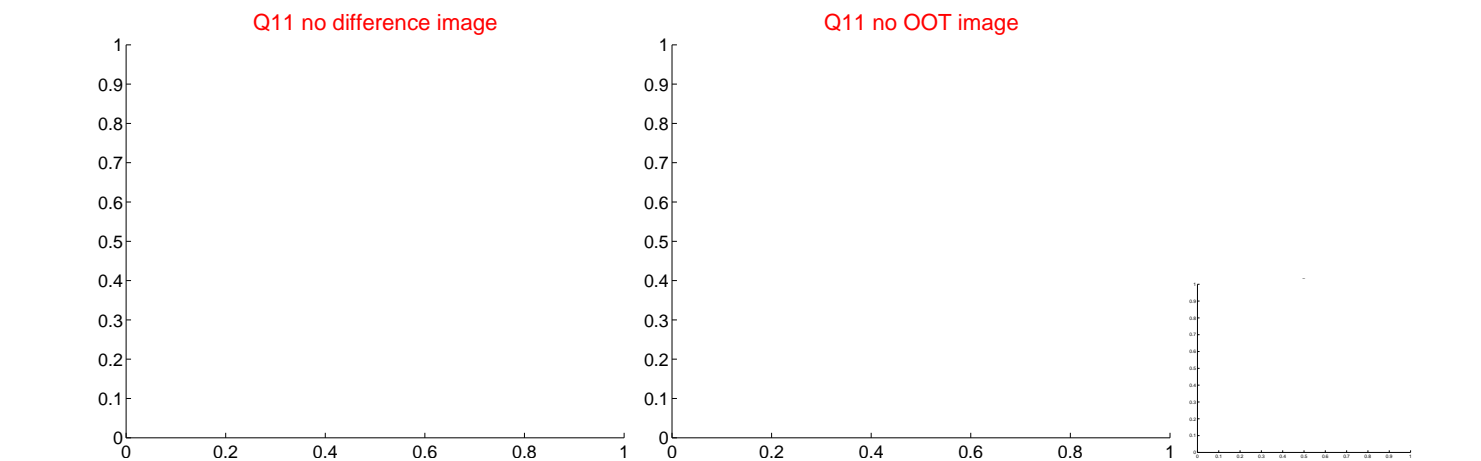
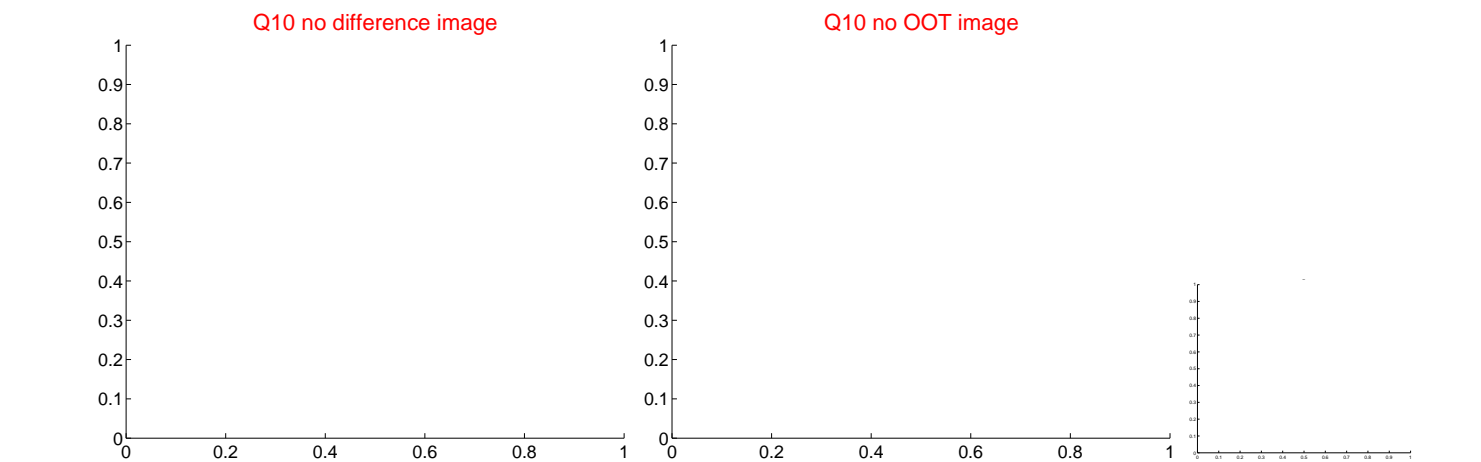
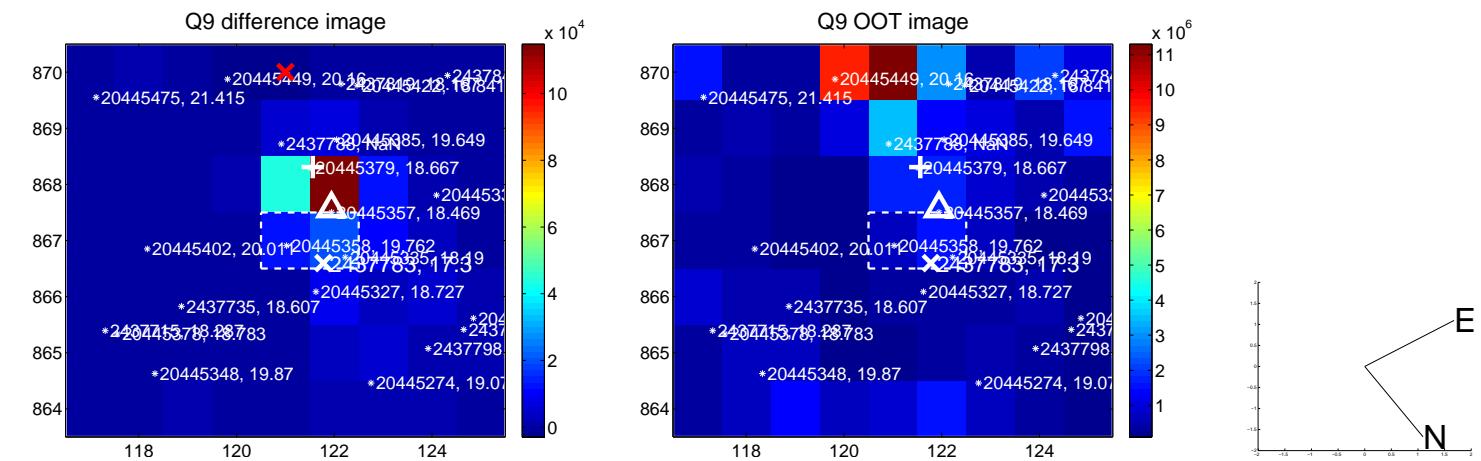
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



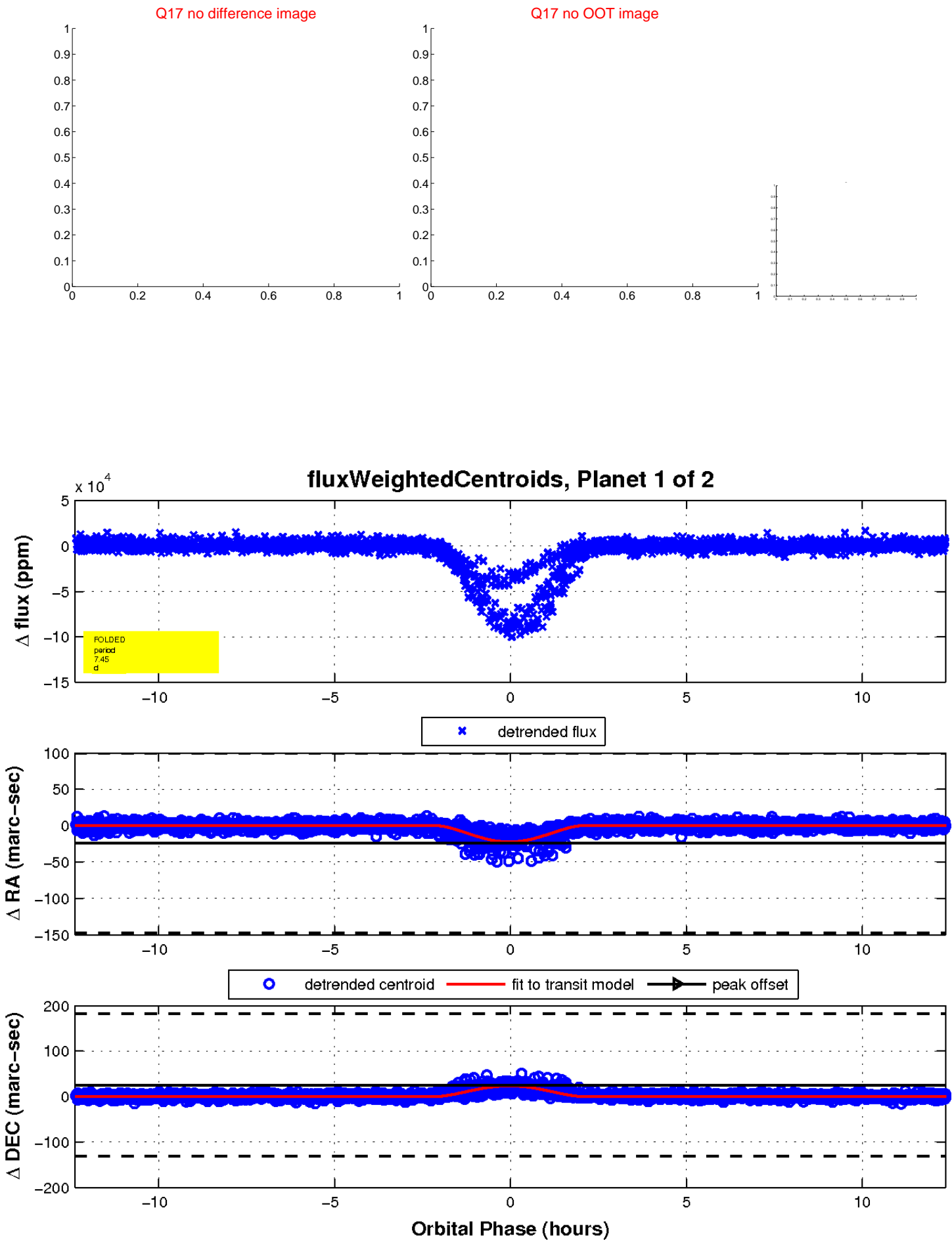
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



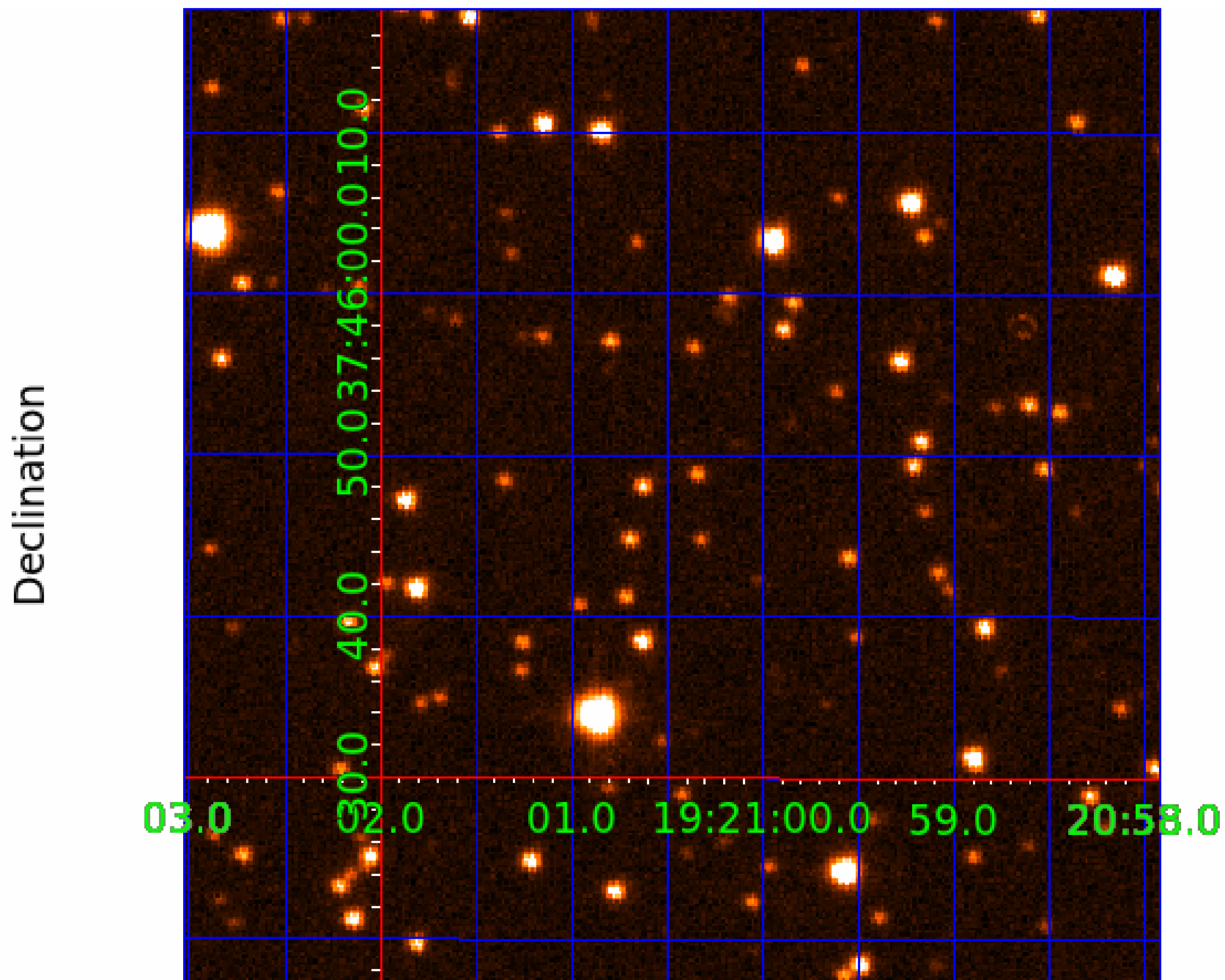
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 002437783

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})
002437783-01	OBS	3745.01	7.453426	131.736529	78523.6	4.125	193.4	141.4	1.00	5780	41.04	179.25
002437783-02	OBS	No	7.453307	135.498201	10356.5	3.988	29.4	29.9	1.00	5780	12.45	179.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002437783-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
002437783-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_KIC_POS—HALO_GHOST

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.

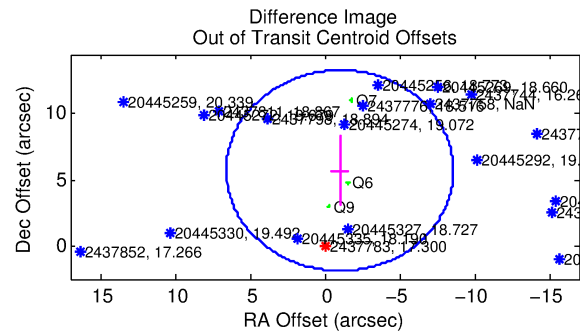
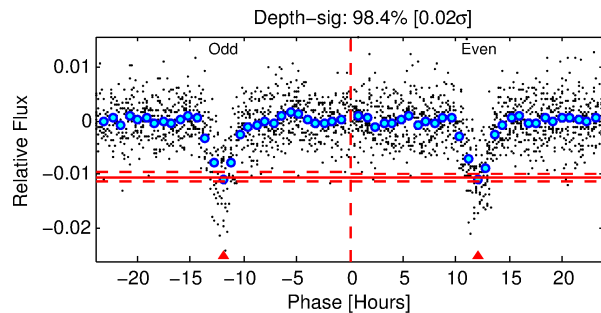
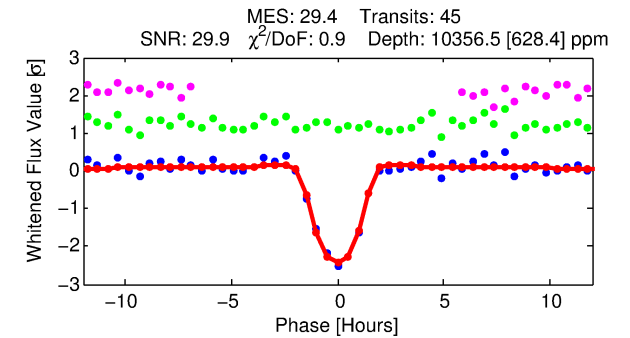
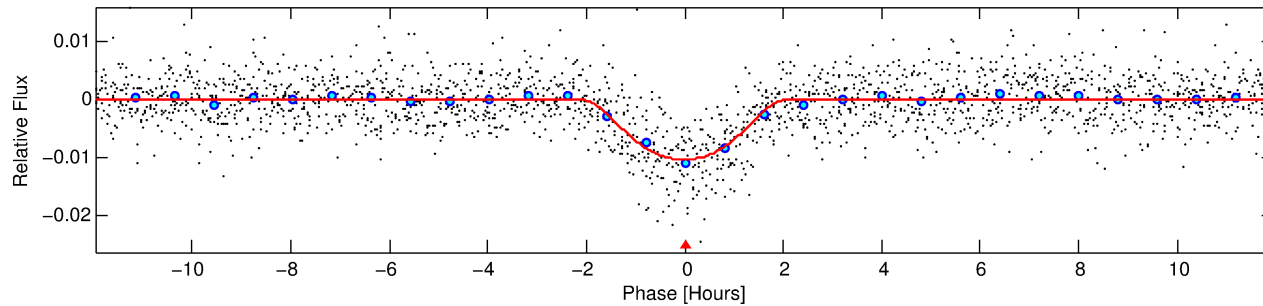
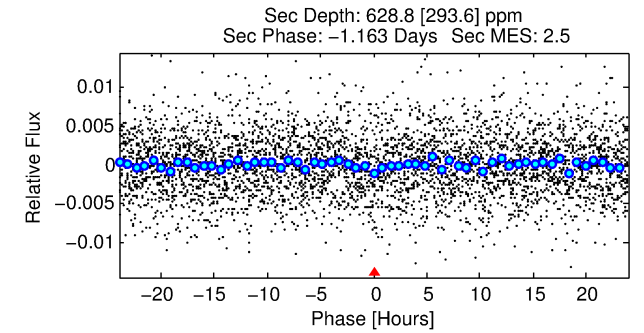
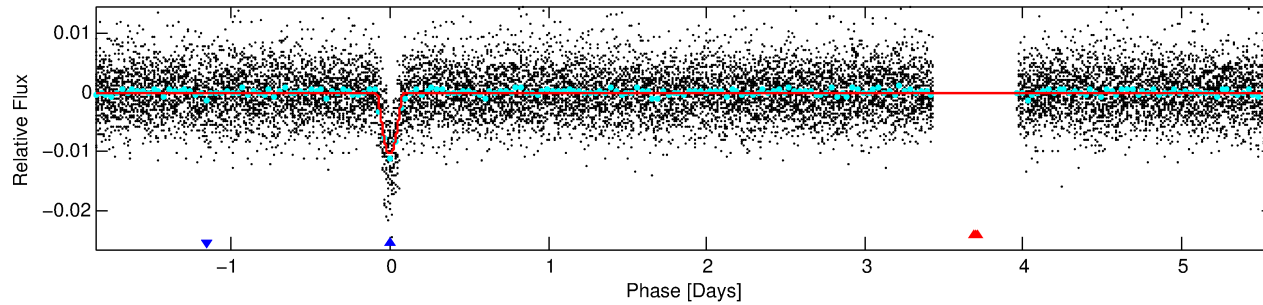
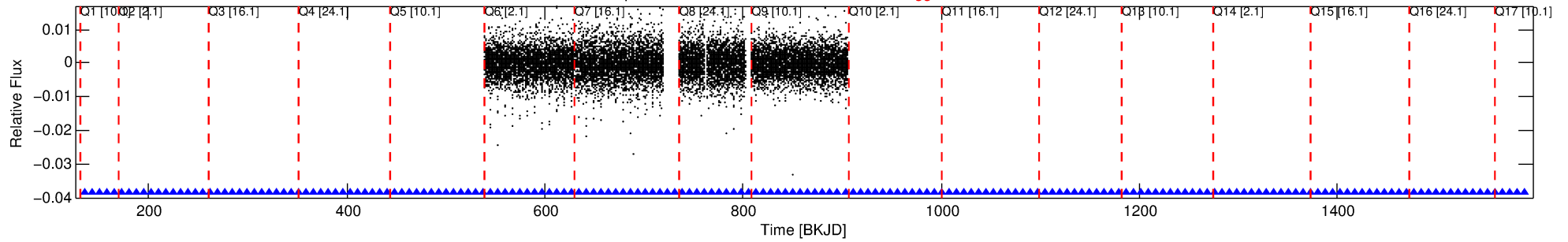
Ephemeris Match Information For 002437783-02

No Significant Match Found

DV One-Page Summary

KIC: 2437783 Candidate: 2 of 2 Period: 7.453 d
KOI: K03745 Corr: No Ephemeris Match

Kp: 17.30 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



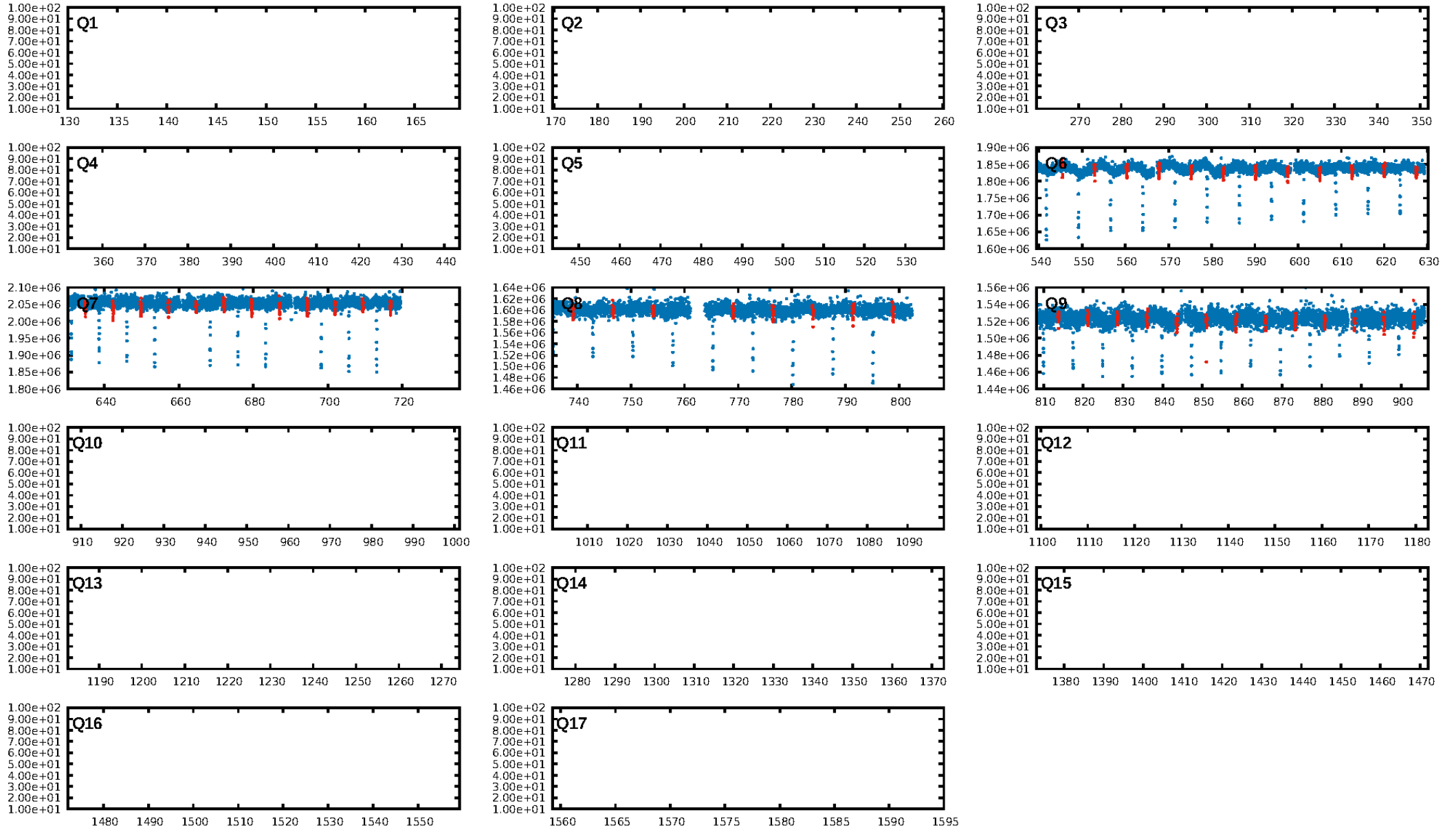
DV Fit Results:

Period = 7.45331 [0.00010] d
Epoch = 135.4982 [0.0080] BKJD
Rp/R* = 0.1141 [0.0167]
a/R* = 9.43 [0.97]
b = 0.90 [0.05]
Seff = 179.26 [0.00]
Teq = 933 [0] K
Rp = 12.45 [1.82] Re
a = 0.0747 [0.0000] AU
Ag = 12.45 [6.86] [1.67σ]
Teffp = 2710 [373] K [4.76σ]

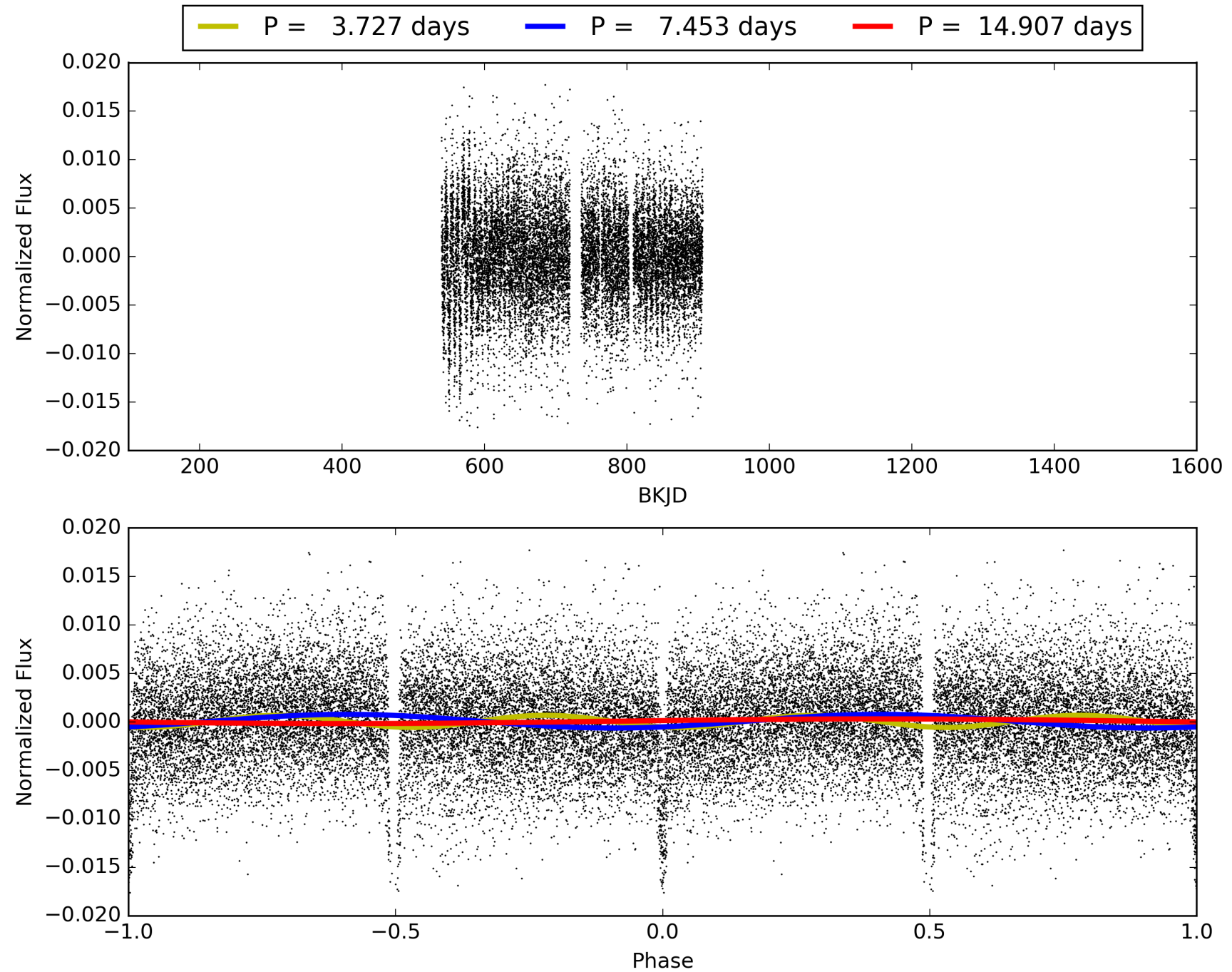
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.20e-186
RollingBand-fgt: 1.00 [45/45]
GhostDiagnostic-chr: 0.0274
Centroid-sig: 0.0%
Centroid-so: 2.107 arcsec [21.86σ]
OotOffset-rm: 5.791 arcsec [2.29σ]
KicOffset-rm: 3.809 arcsec [24.07σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 002437783-02, PDC Light Curves

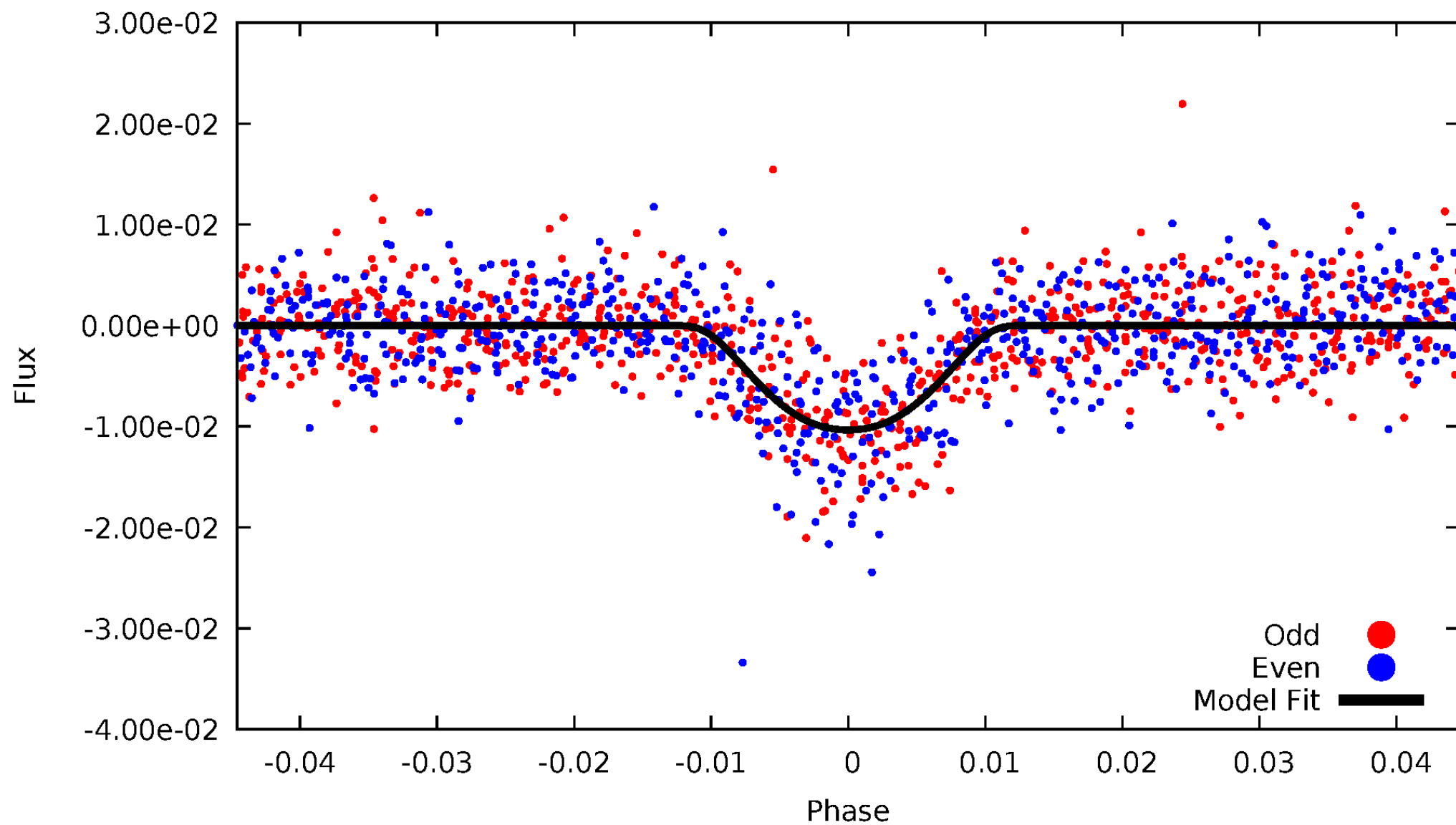


TCE 002437783-02



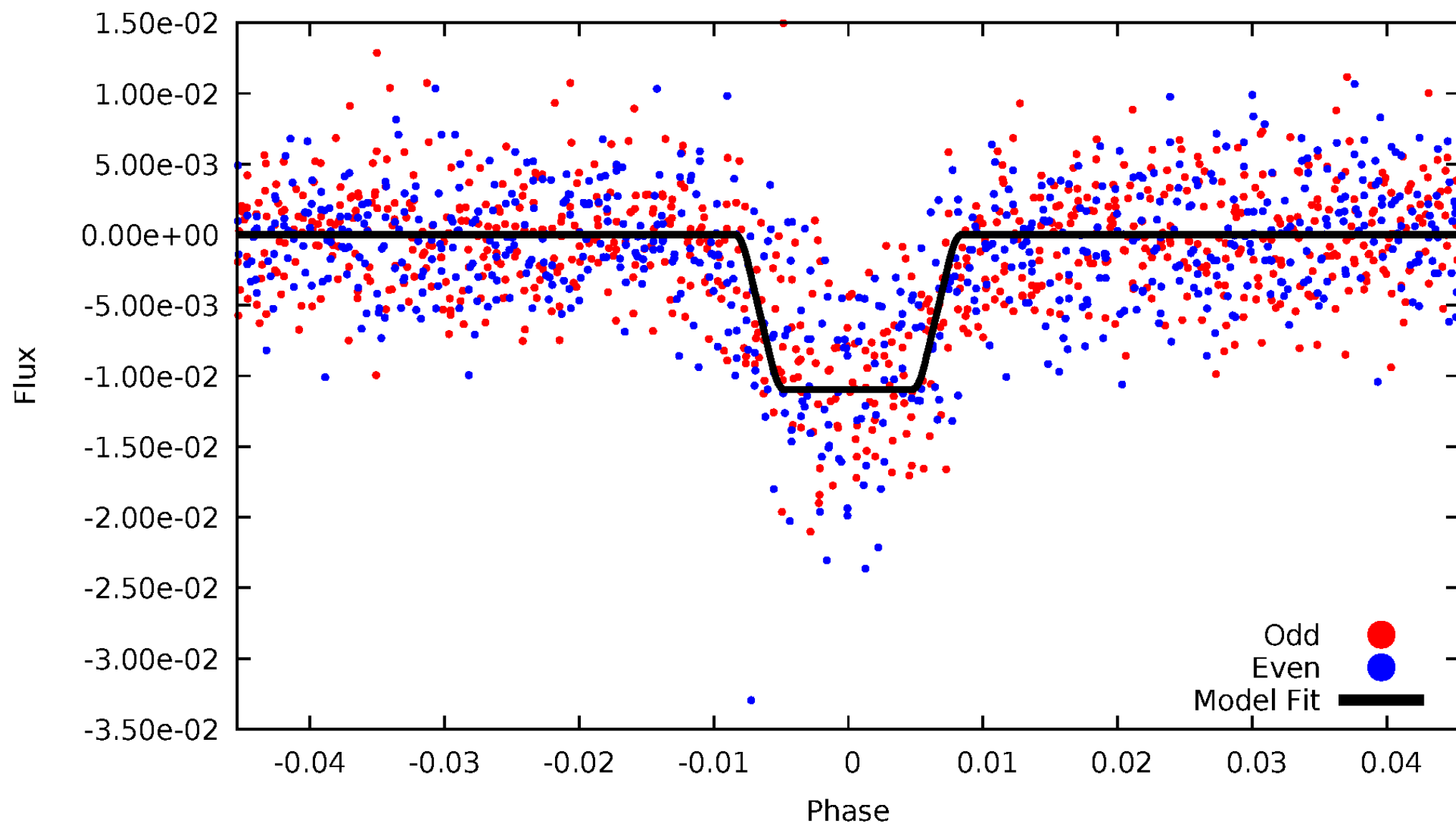
DV Odd/Even

TCE 002437783-02



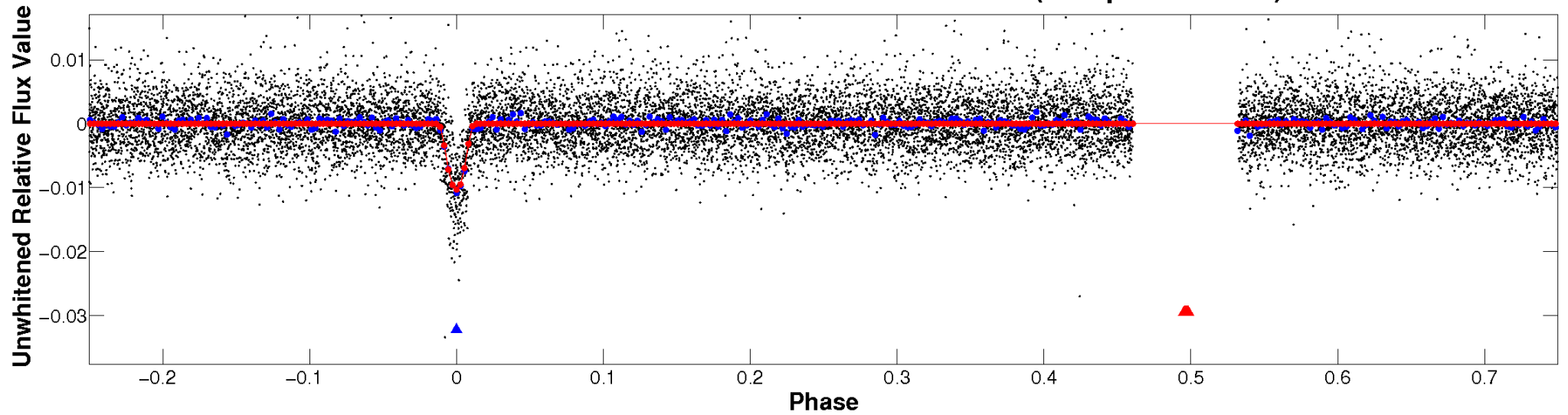
ALT Odd/Even

TCE 002437783-02

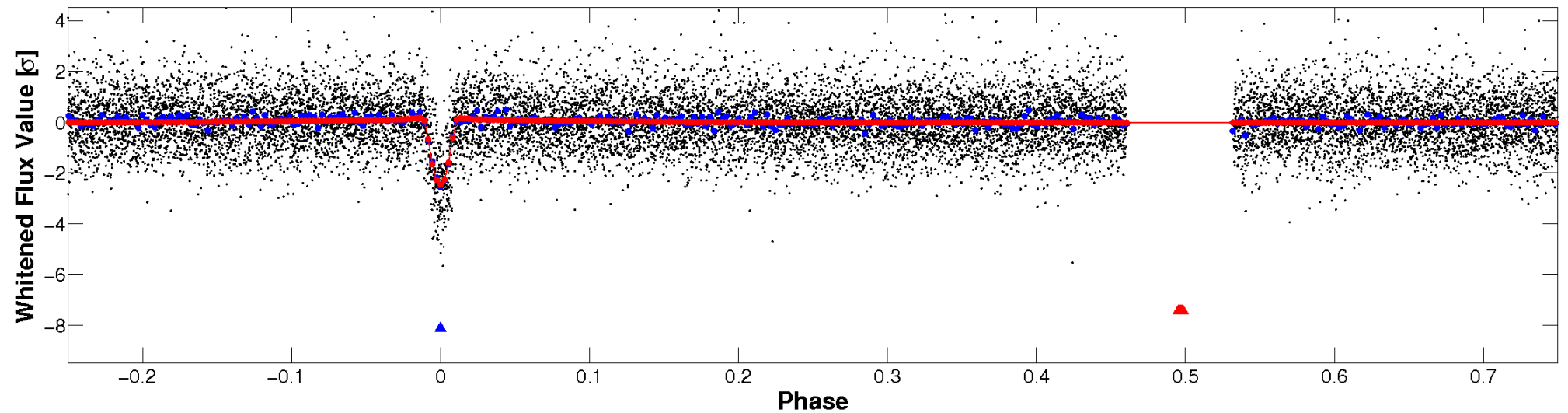


Non-Whitened Vs. Whitened Light Curve

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

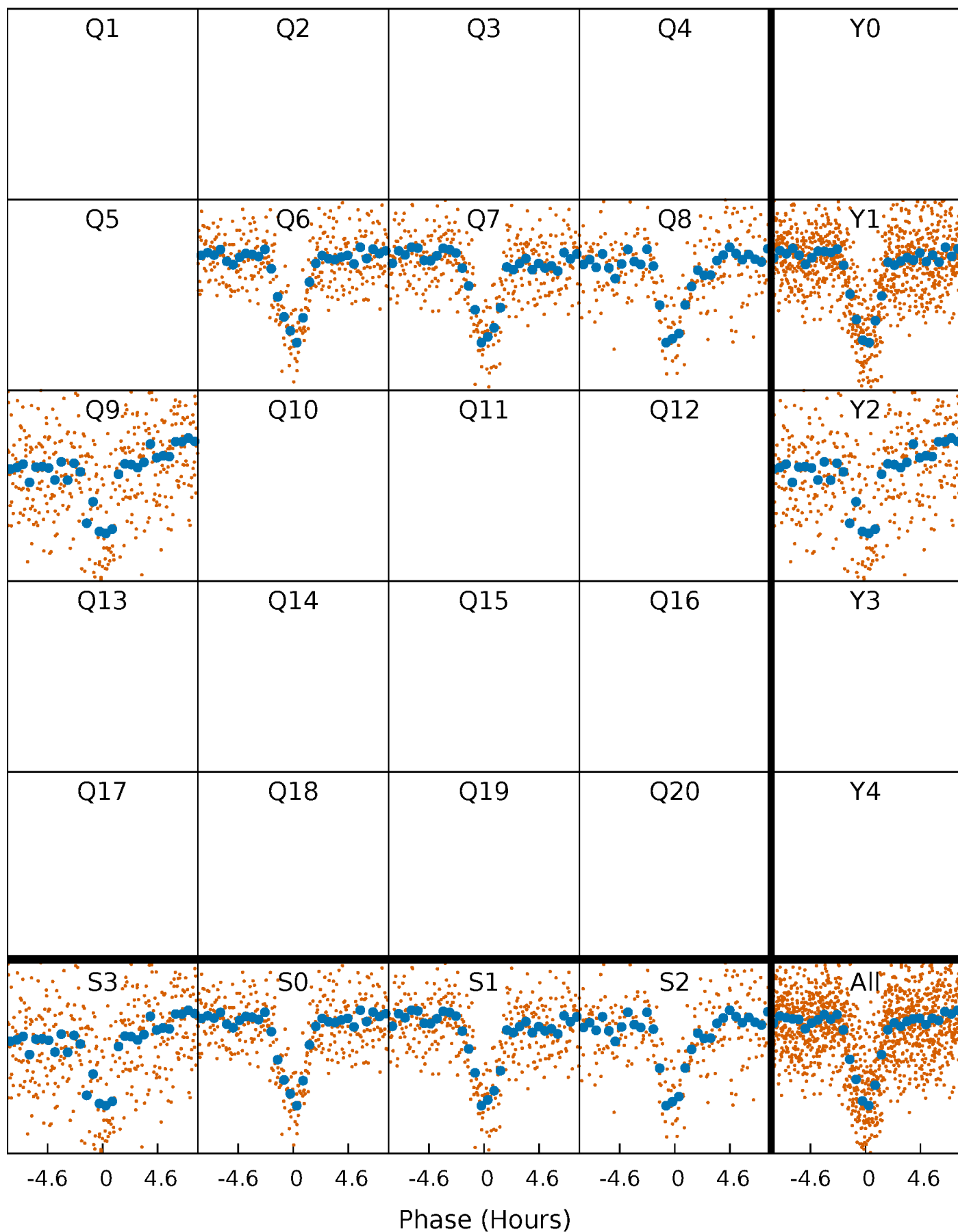


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



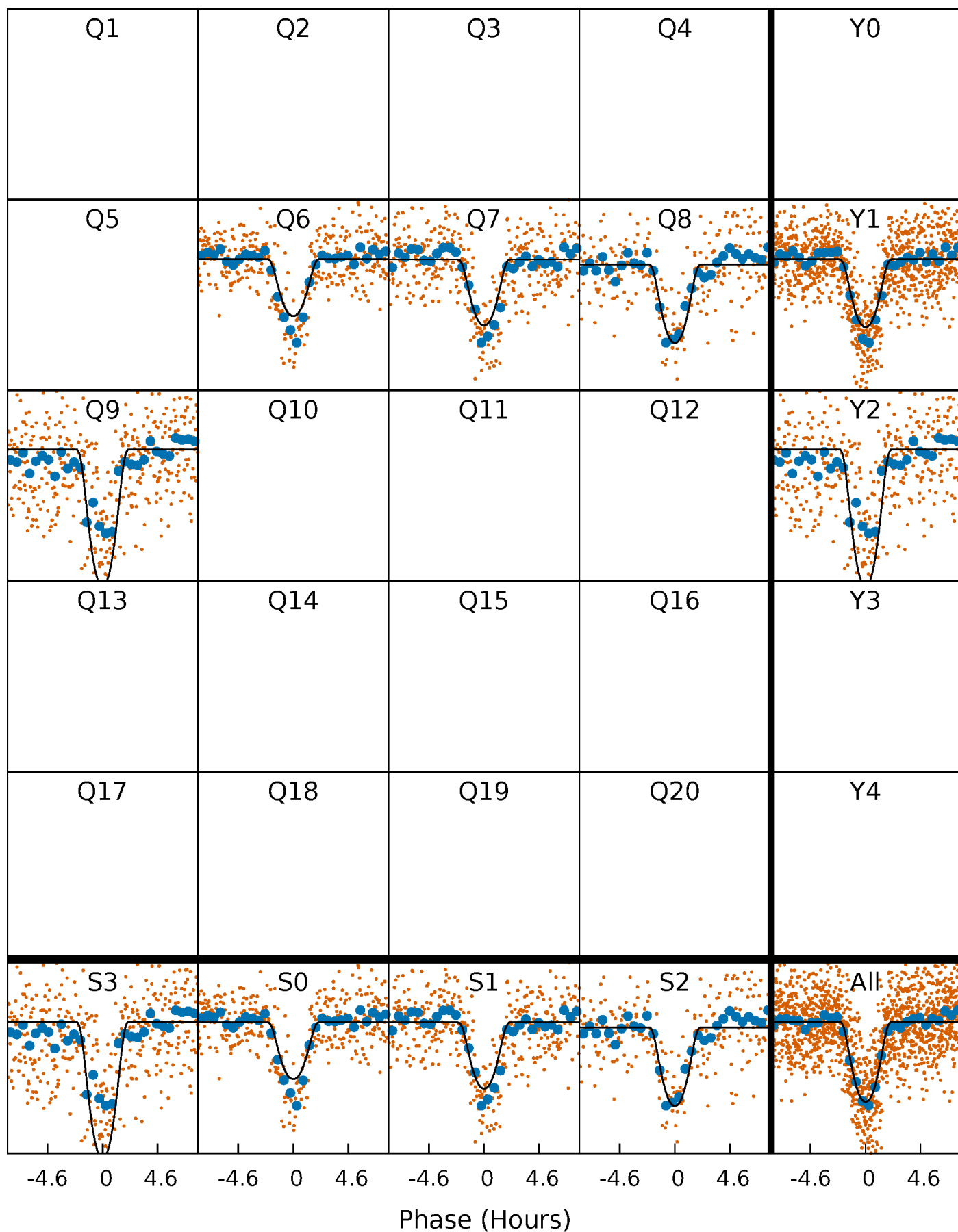
PDC Quarter-Phased Transit Curves

TCE 002437783-02 $P = 7.453307$ Days $T_0 = 135.498201$ (BKJD)



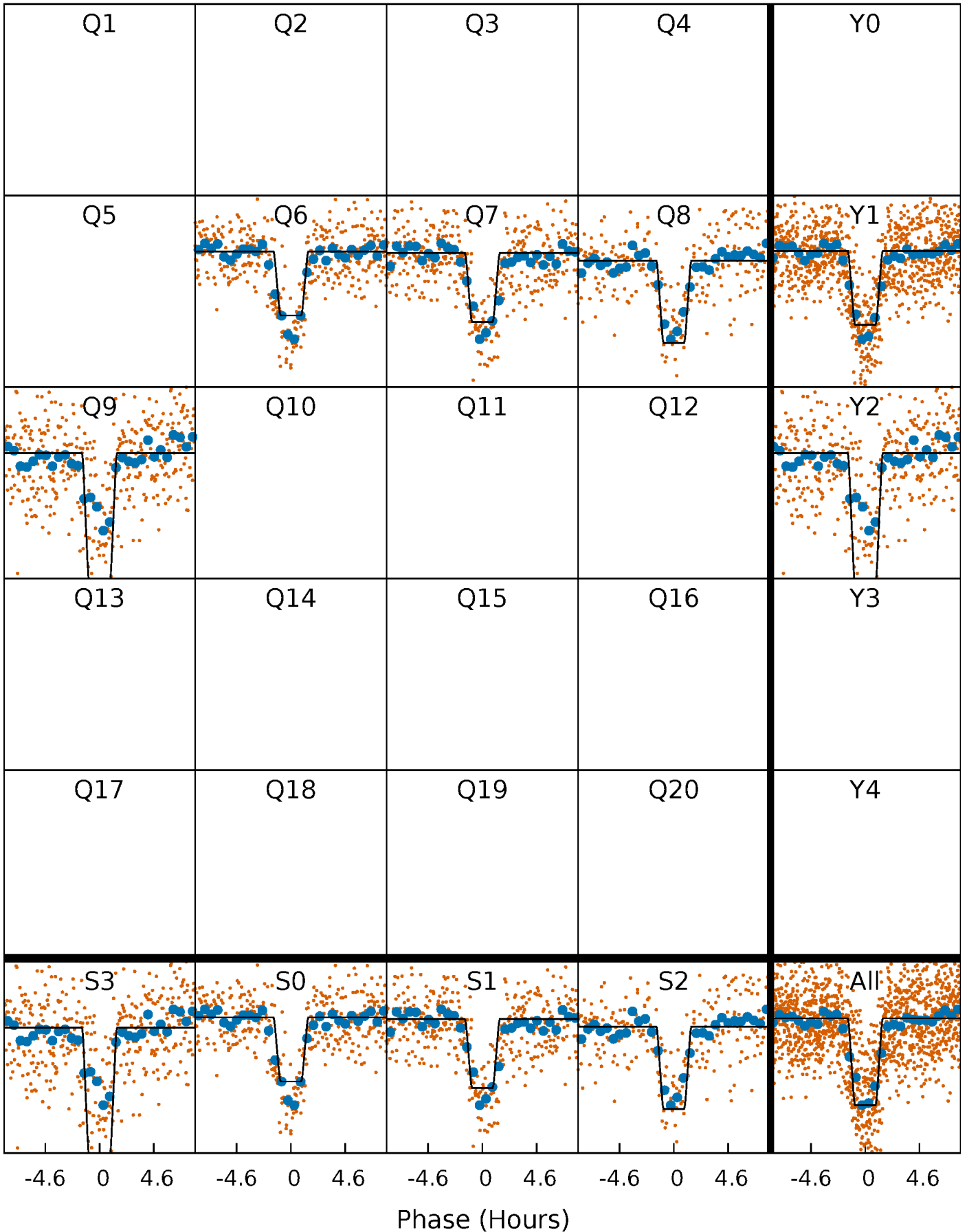
DV Quarter-Phased Transit Curves

TCE 002437783-02 P= 7.453307 Days $T_0=135.498201$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

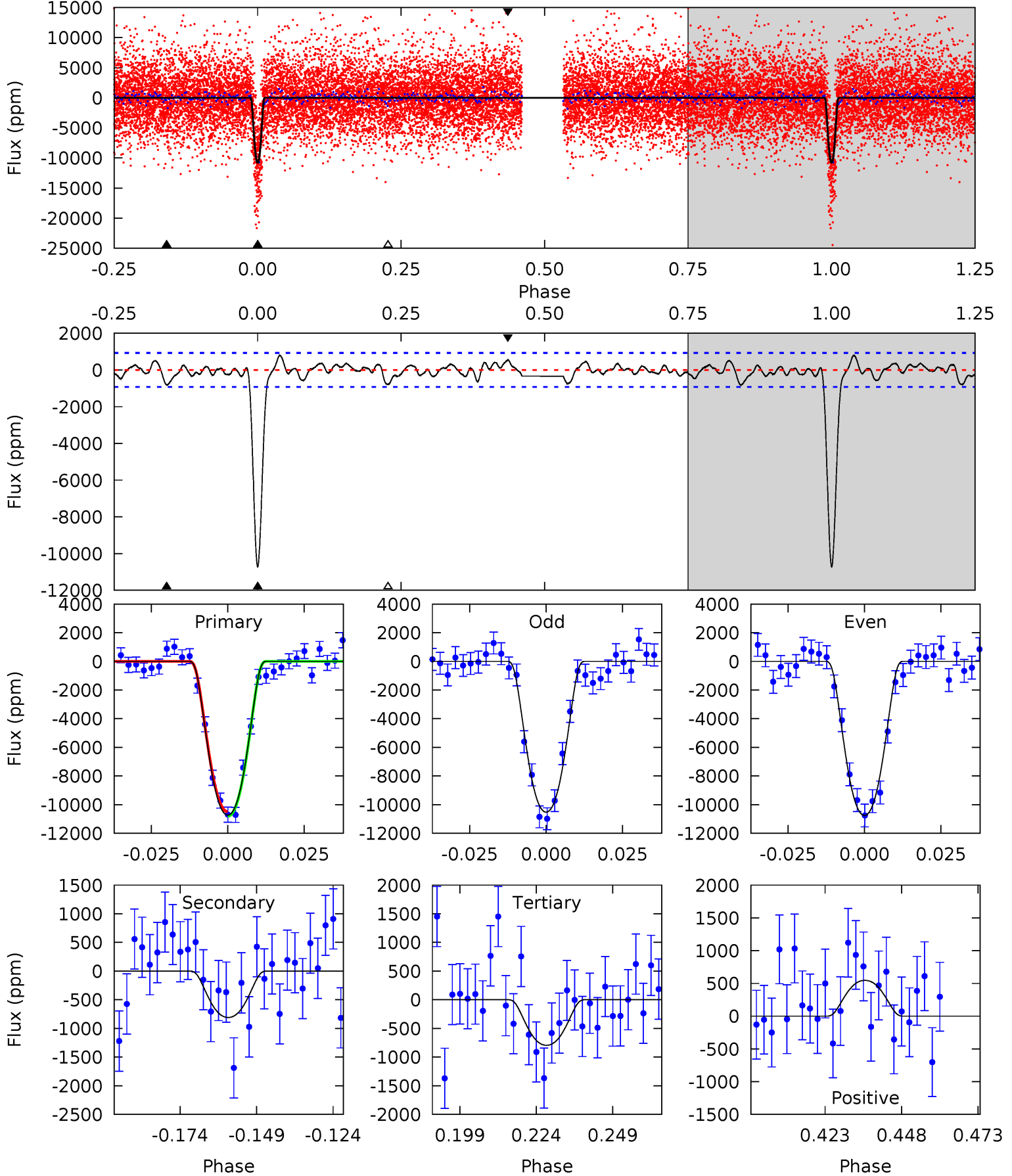
TCE 002437783-02 $P = 7.453130$ Days $T_0 = 135.511498$ (BKJD)



DV Model-Shift Uniqueness Test

002437783-02, P = 7.453307 Days, E = 135.498201 Days

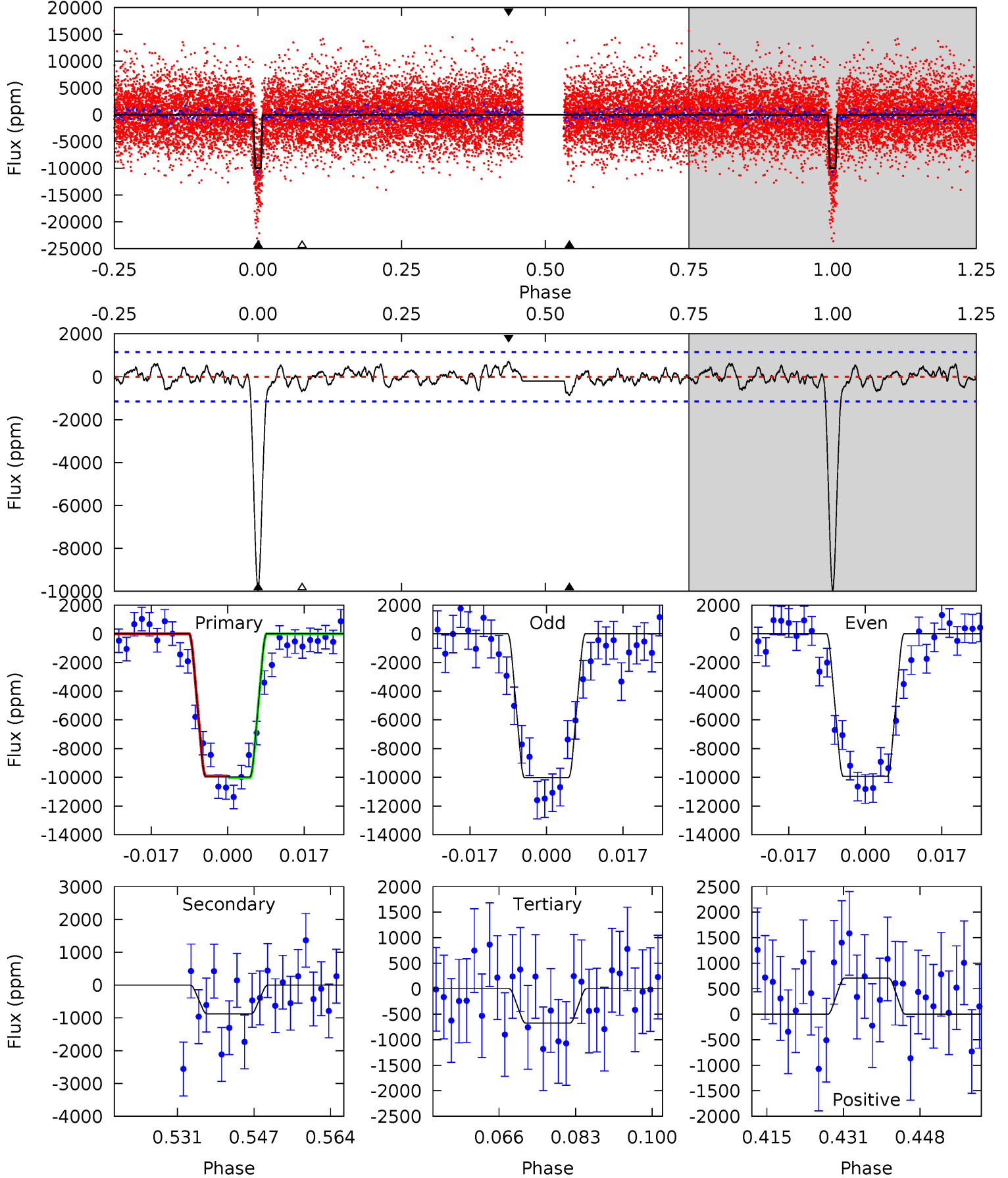
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.1	4.23	4.15	2.86	4.85	2.24	1.36	52.0	53.3	0.08	1.38	0.61	0.93	0.07	0.82



Alt Model-Shift Uniqueness Test

002437783-02, P = 7.453130 Days, E = 135.511498 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.8	3.77	2.89	3.04	4.93	2.40	1.13	39.9	39.8	0.88	0.73	0.18	0.89	0.07	0.28



Stellar Parameters For KIC 002437783

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 002437783-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-809±191	$12.30^{+2.20}_{-1.87}$	1303^{+60}_{-59}	3388^{+241}_{-181}	16^{+8}_{-6}
Alt.	-879±233	$11.38^{+1.99}_{-1.95}$	1305^{+65}_{-65}	3543^{+254}_{-255}	21^{+11}_{-8}

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

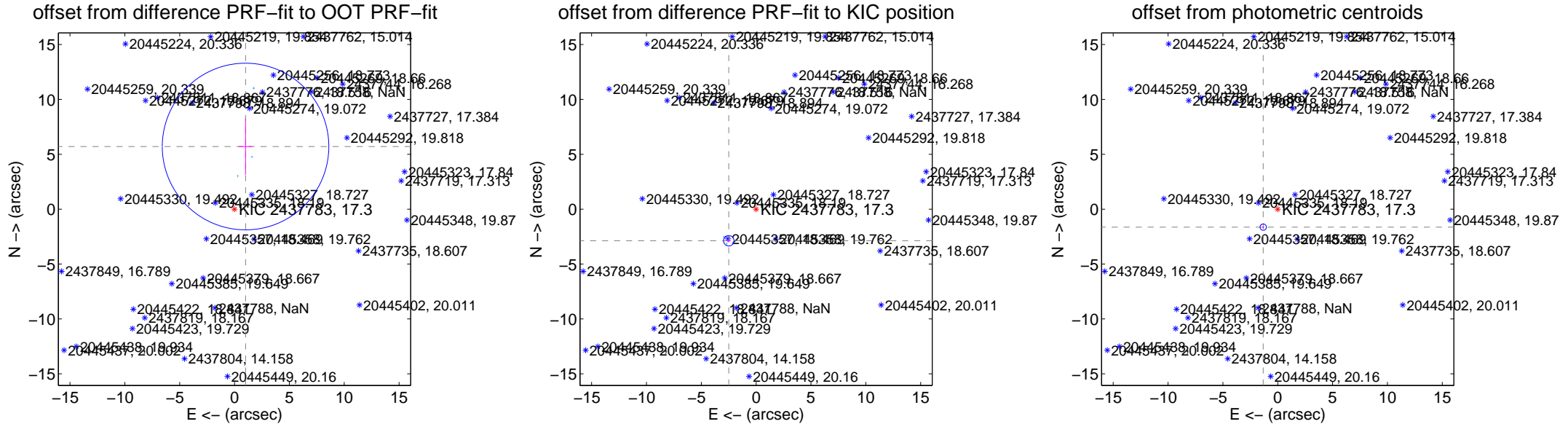
DV Centroid Data

Supplemental centroid analysis for 002437783-02. Kepler magnitude: 17.30. Transit SNR 29.90

There are 4 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 6.84 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.791 ± 2.530	2.29	-1.004 ± 0.611	5.704 ± 2.566
PRF-fit source offset from KIC position	3.809 ± 0.158	24.07	2.494 ± 0.172	-2.879 ± 0.147
photometric centroid source offset	2.11 ± 0.10	21.86	1.32 ± 0.10	-1.64 ± 0.10

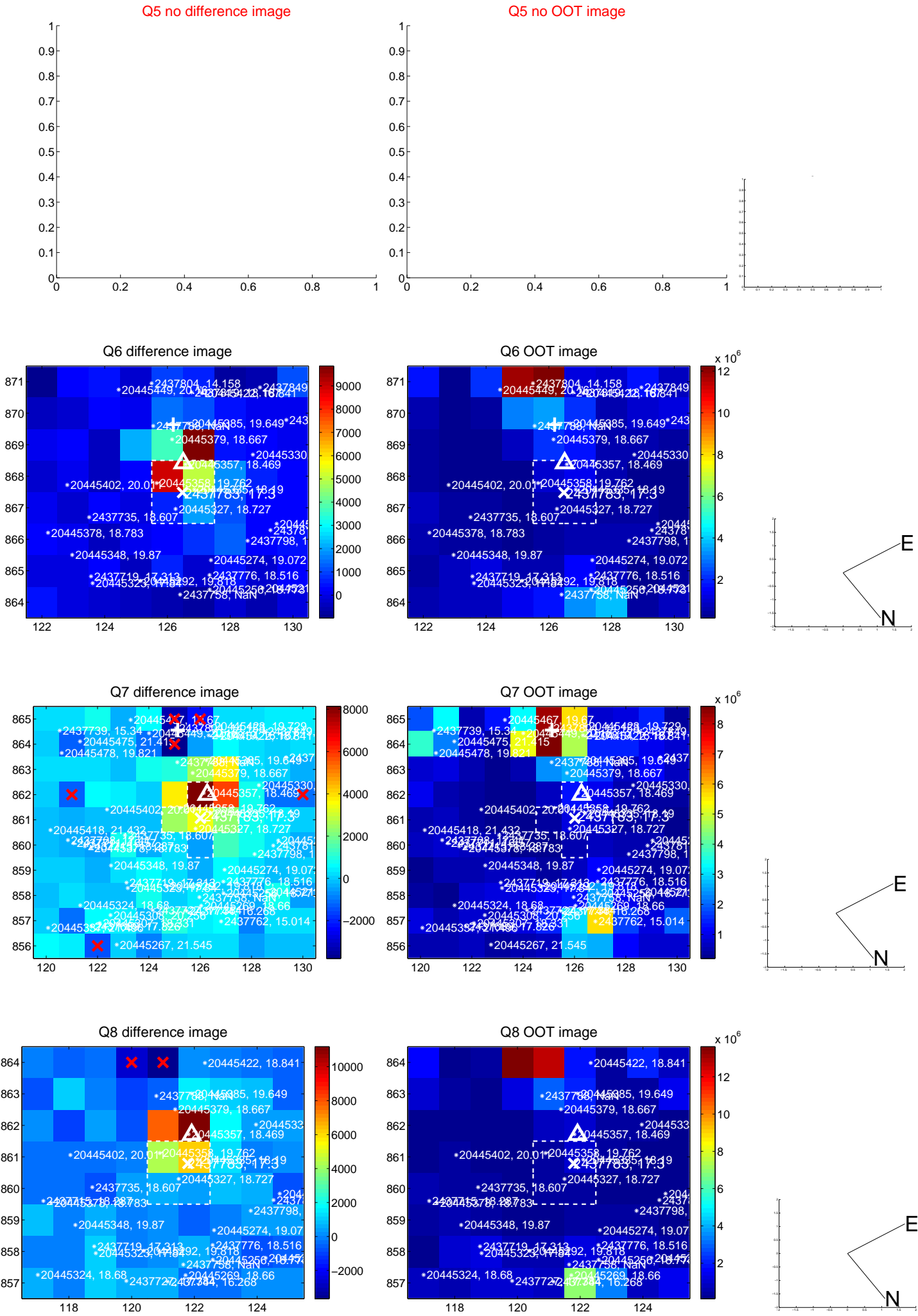


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

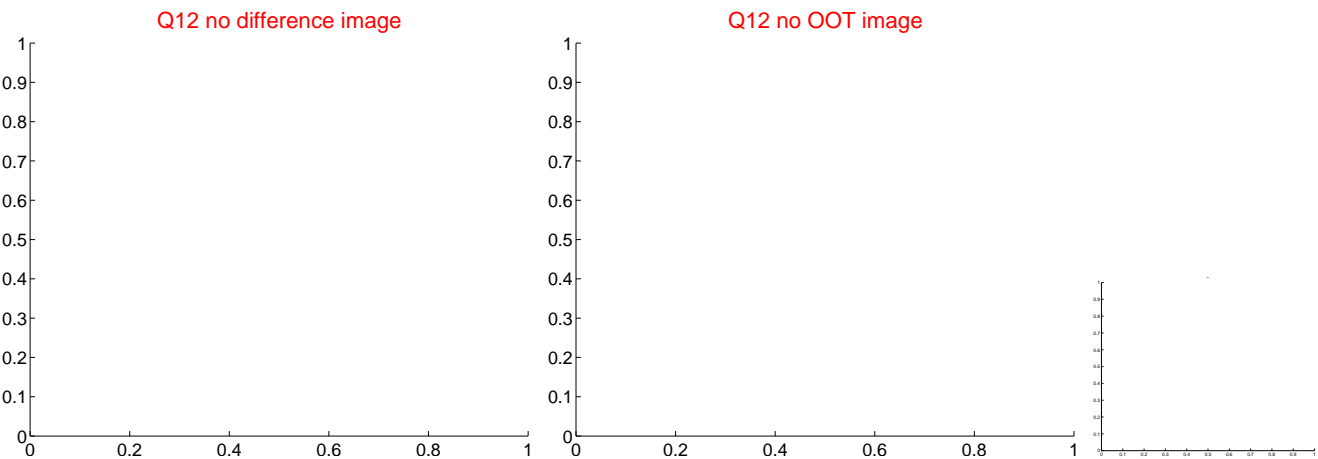
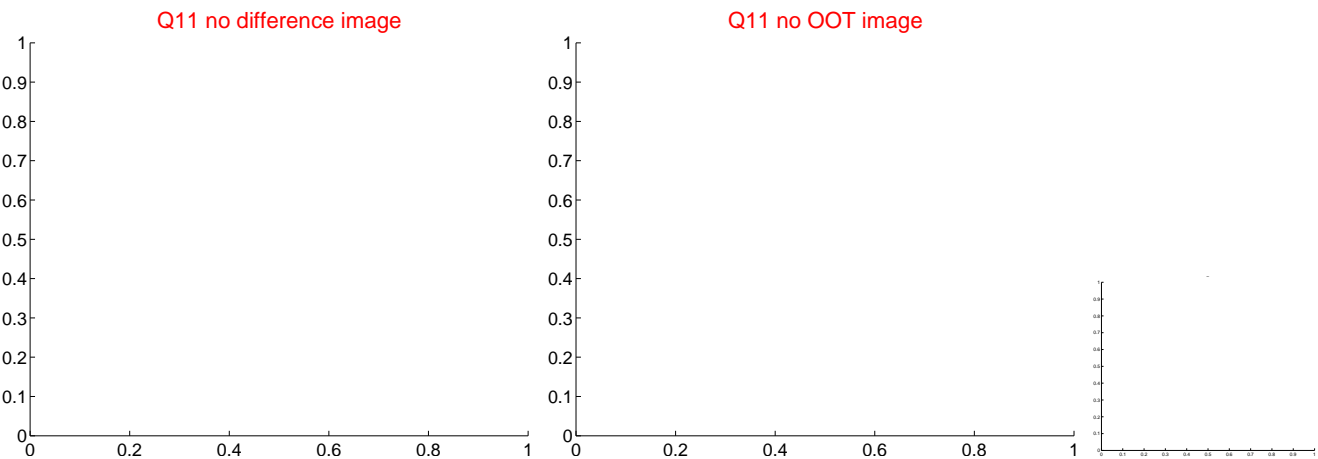
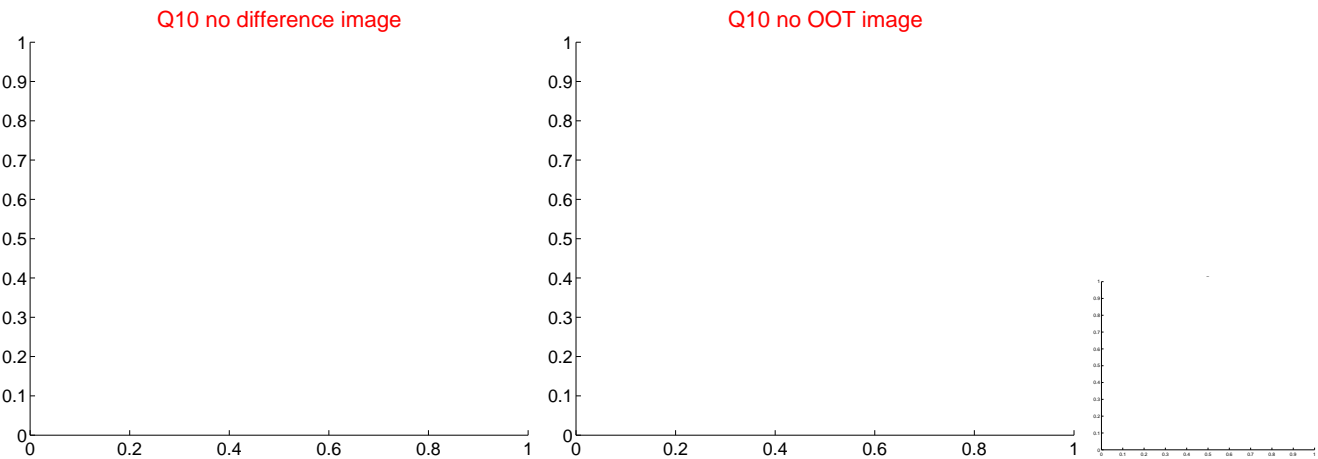
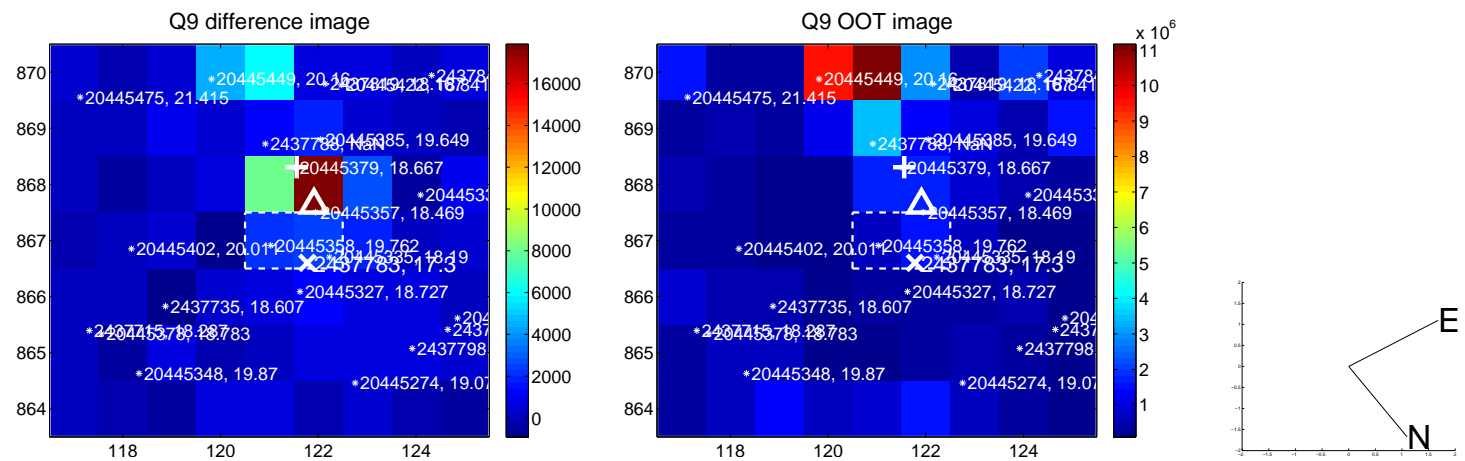
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



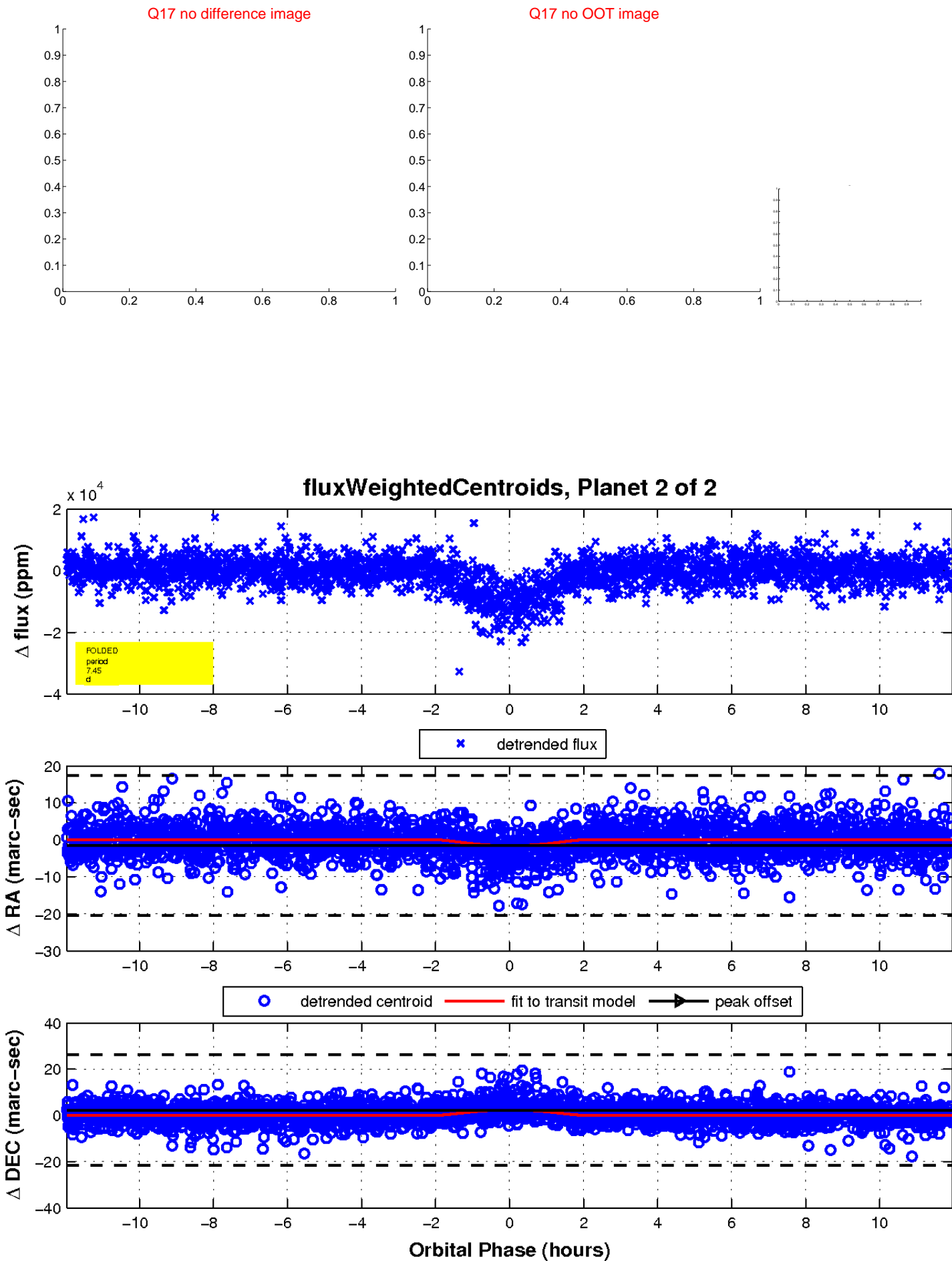
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

