

KIC 004751083

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})
004751083-01	OBS	3691.01	4.532416	135.664157	43461.8	3.304	784.3	746.4	1.28	6306	37.27	737.63
004751083-02	OBS	No	4.532415	133.434411	17155.9	3.266	337.3	319.8	1.28	6306	23.19	737.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004751083-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
004751083-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

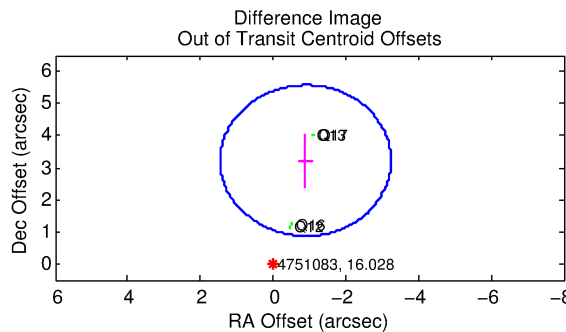
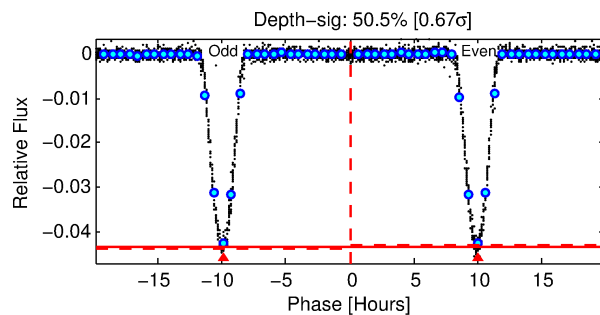
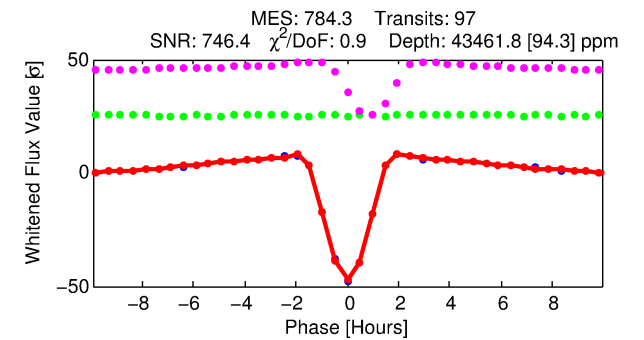
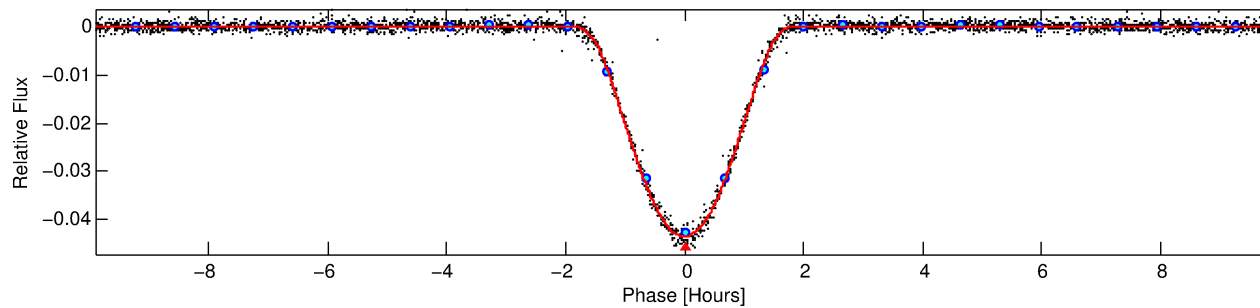
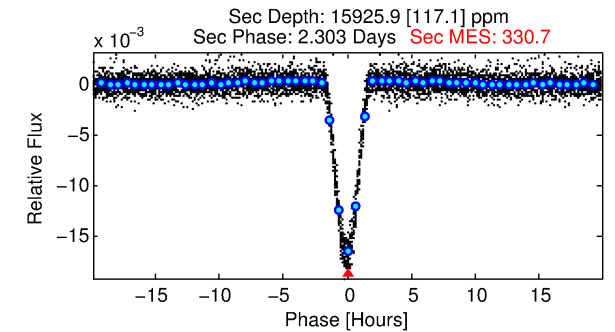
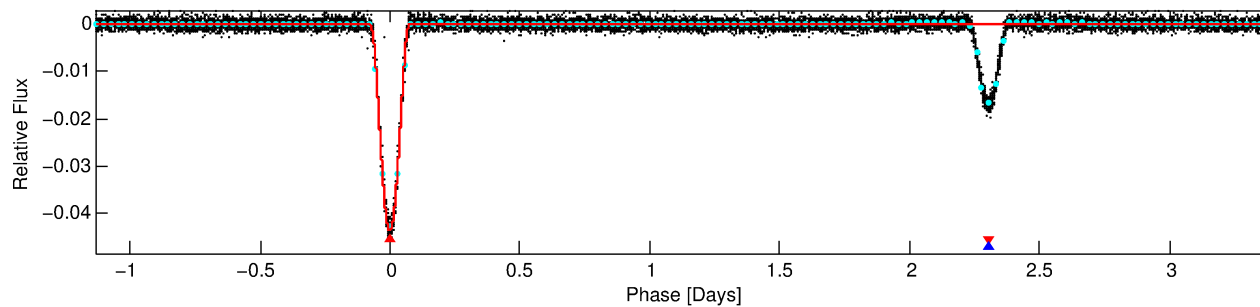
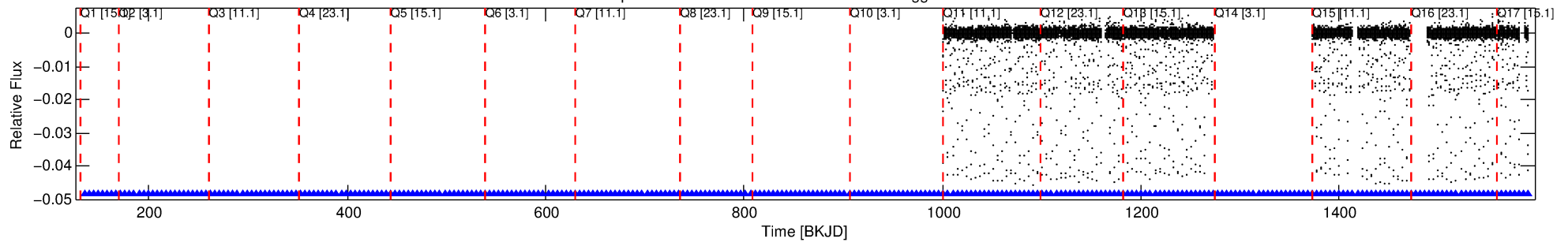
Ephemeris Match Information For 004751083-01

No Significant Match Found

DV One-Page Summary

KIC: 4751083 Candidate: 1 of 2 Period: 4.532 d
KOI: K03691.01 Corr: 0.998

Kp: 16.03 R*: 1.28 Rs Teff: 6306.0 K Logg: 4.28 Fe/H: -0.040



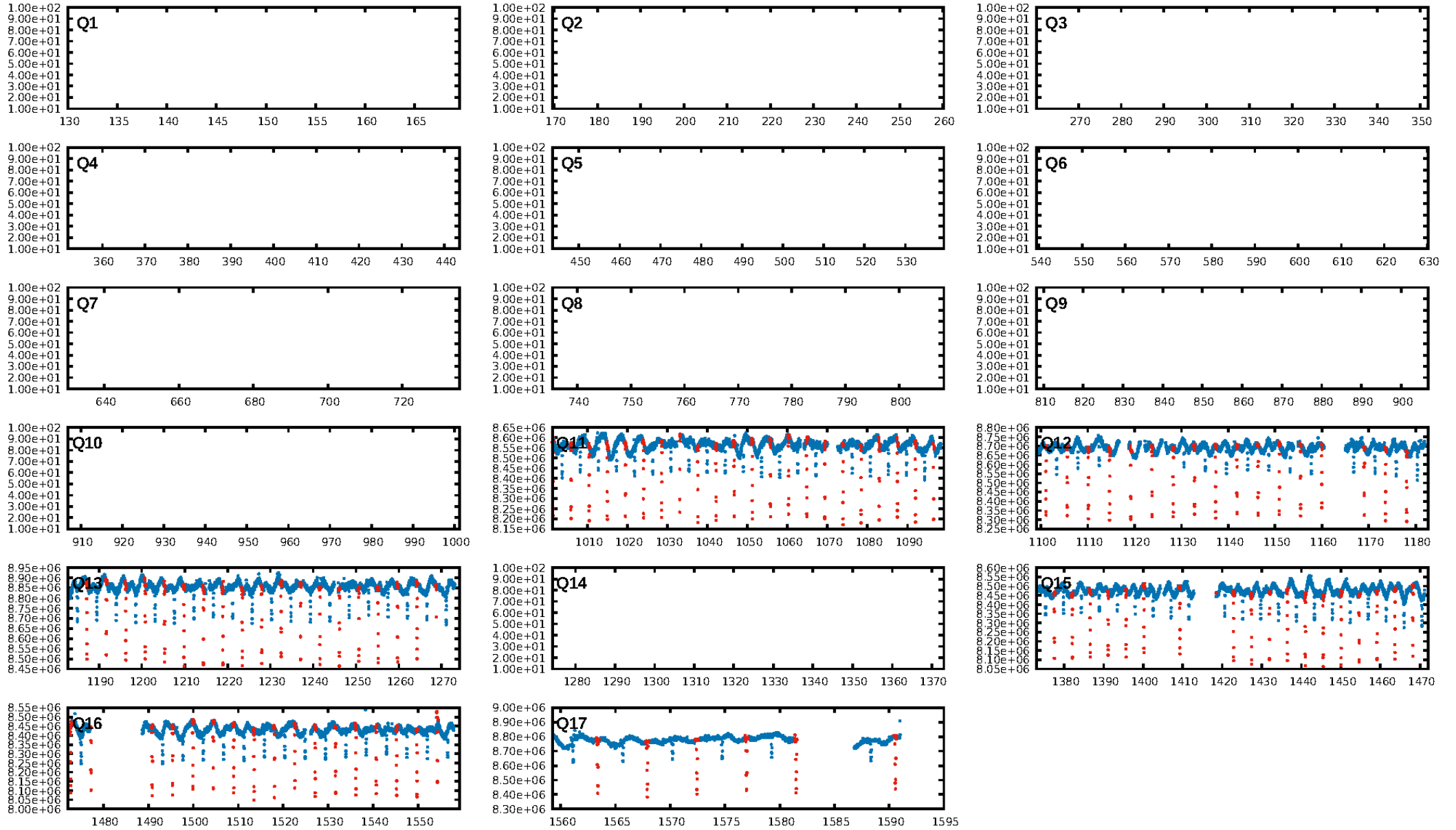
DV Fit Results:

Period = 4.53242 [0.00000] d
Epoch = 135.6642 [0.0002] BKJD
Rp/R* = 0.2666 [0.0107]
a/R* = 9.32 [0.06]
b = 0.91 [0.02]
Seff = 737.63 [299.47]
Teq = 1329 [135] K
Rp = 37.27 [12.43] Re
a = 0.0561 [0.0150] AU
Ag = 19.88 [7.64] [2.47σ]
Teffp = 4338 [189] K [12.97σ]

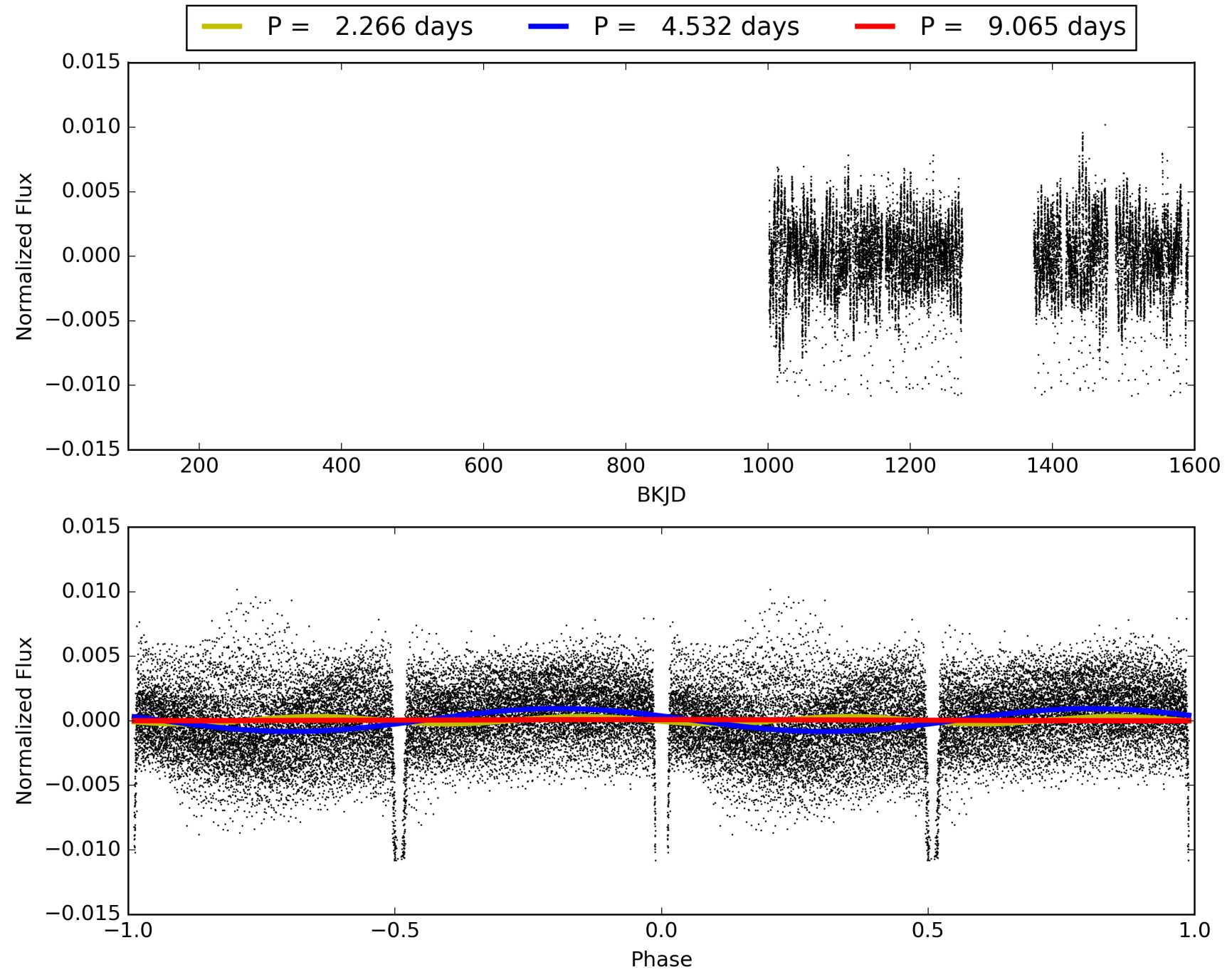
DV Diagnostic Results:

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 [91/91]
GhostDiagnostic-chr: 2.537
Centroid-sig: 0.0%
Centroid-so: 0.800 arcsec [62.90σ]
OotOffset-rm: 3.340 arcsec [4.26σ]
KicOffset-rm: 0.110 arcsec [1.62σ]
OotOffset-st: 0/0/2/2 [4]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 004751083-01, PDC Light Curves

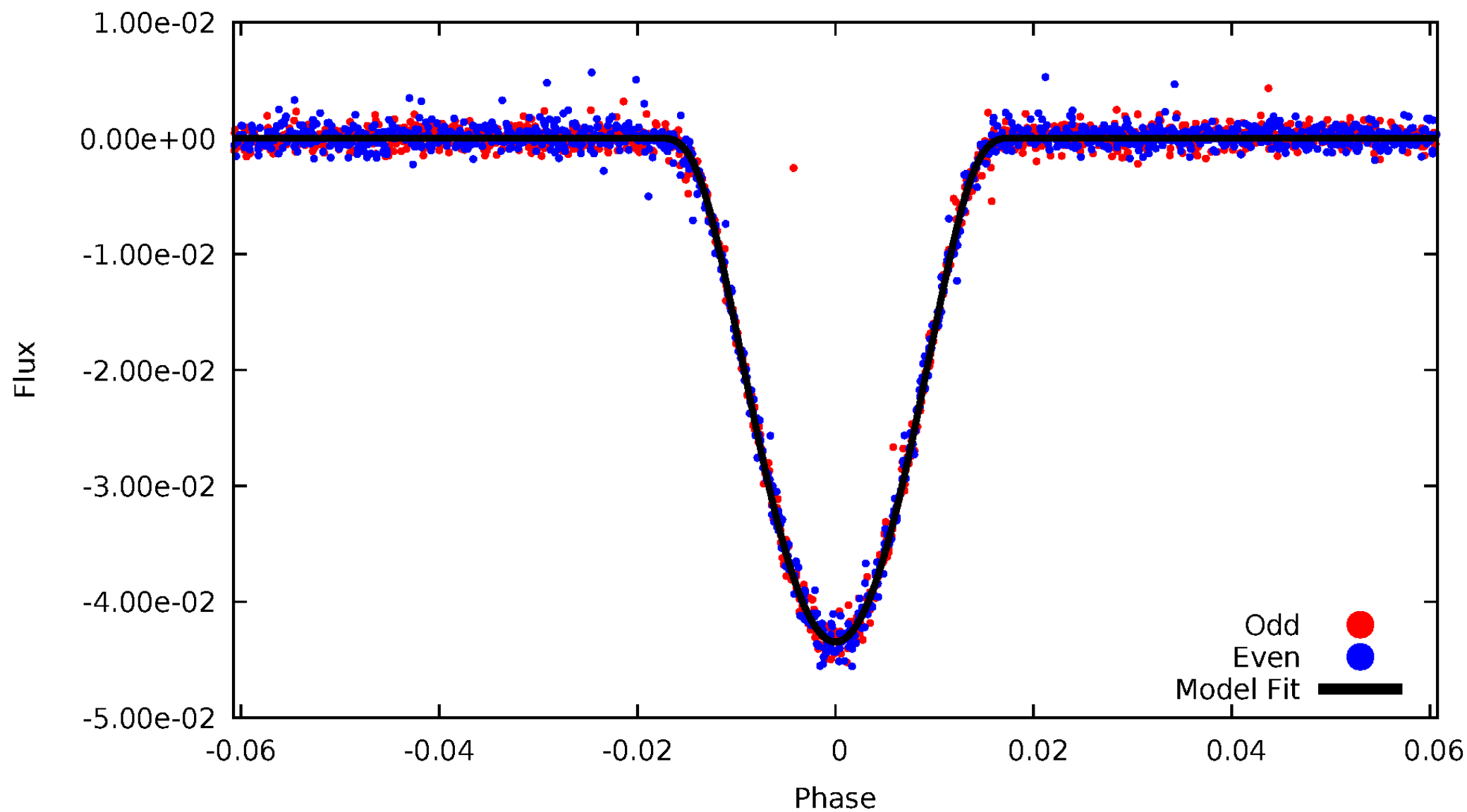


TCE 004751083-01



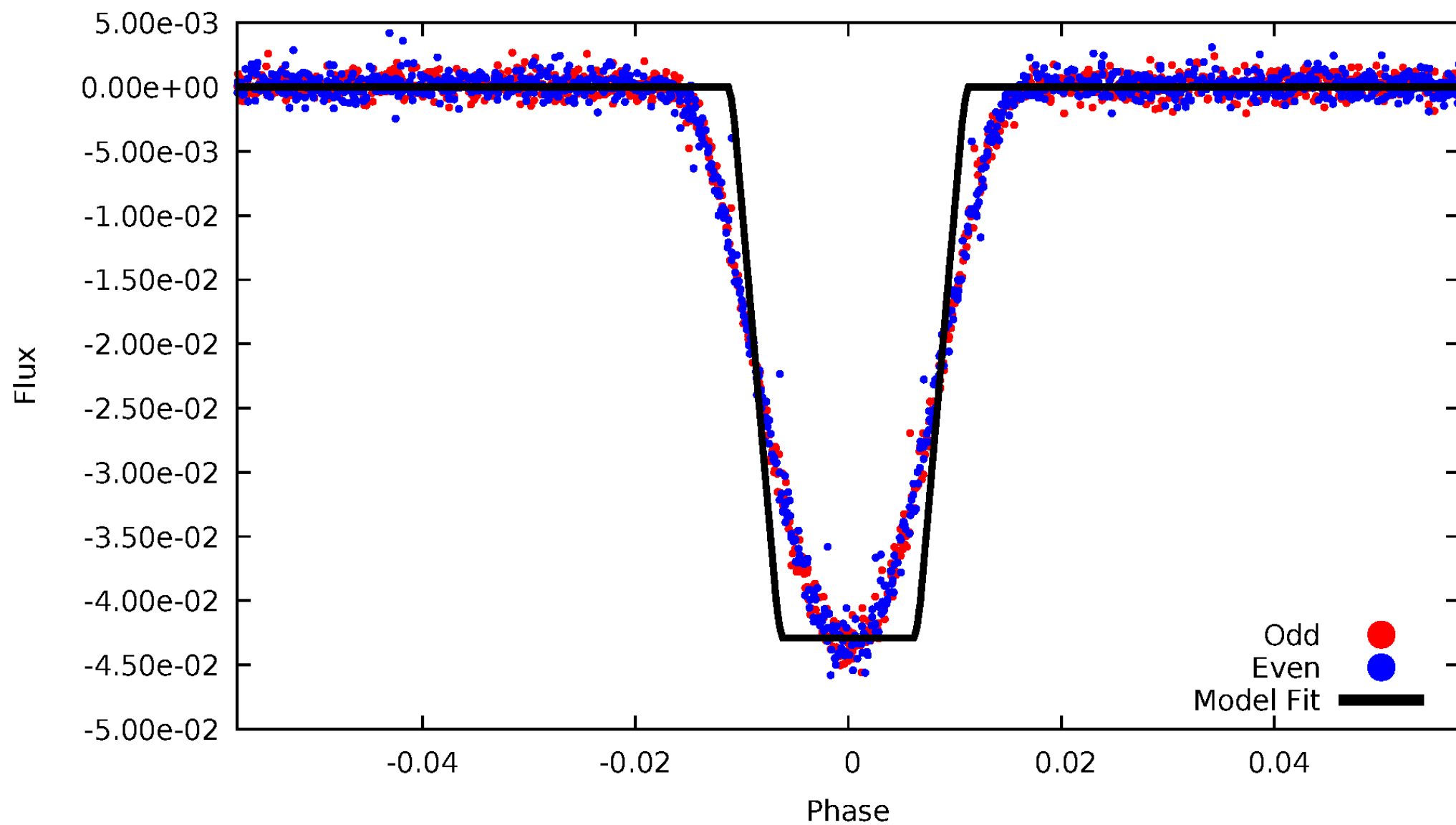
DV Odd/Even

TCE 004751083-01



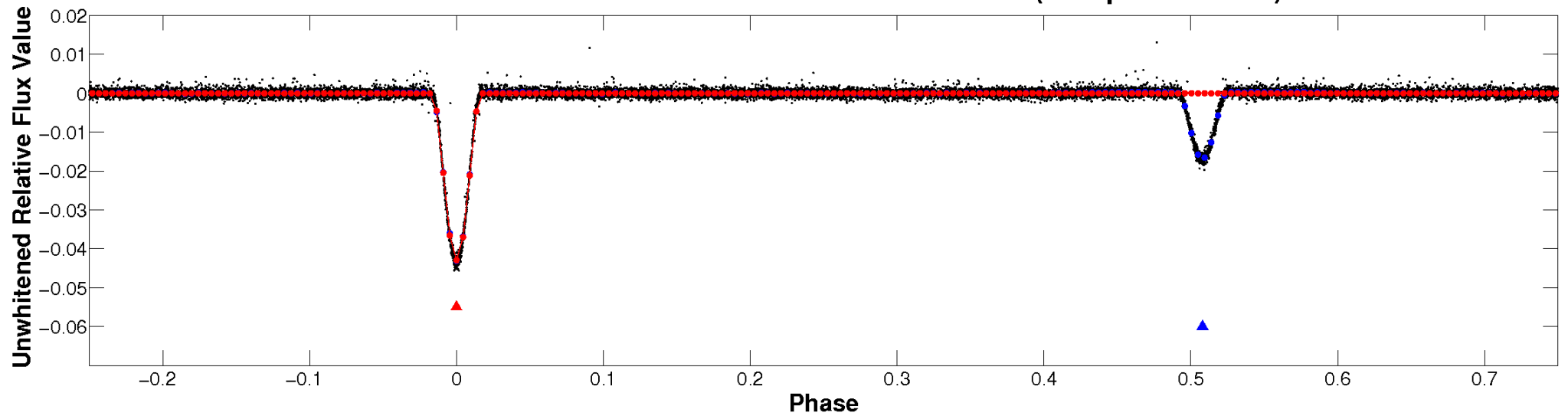
ALT Odd/Even

TCE 004751083-01

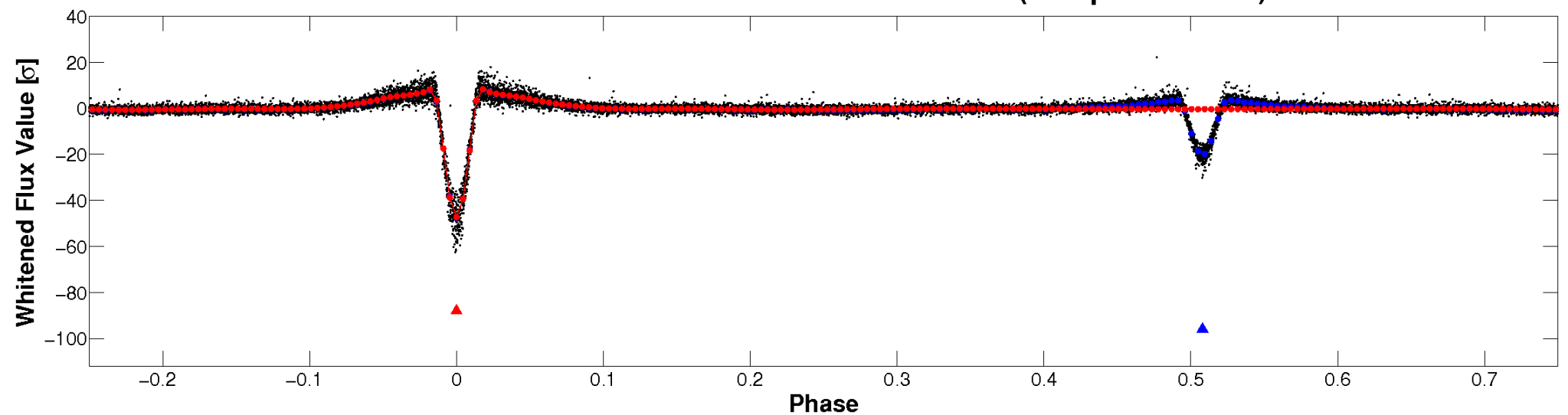


Non-Whitened Vs. Whitened Light Curve

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

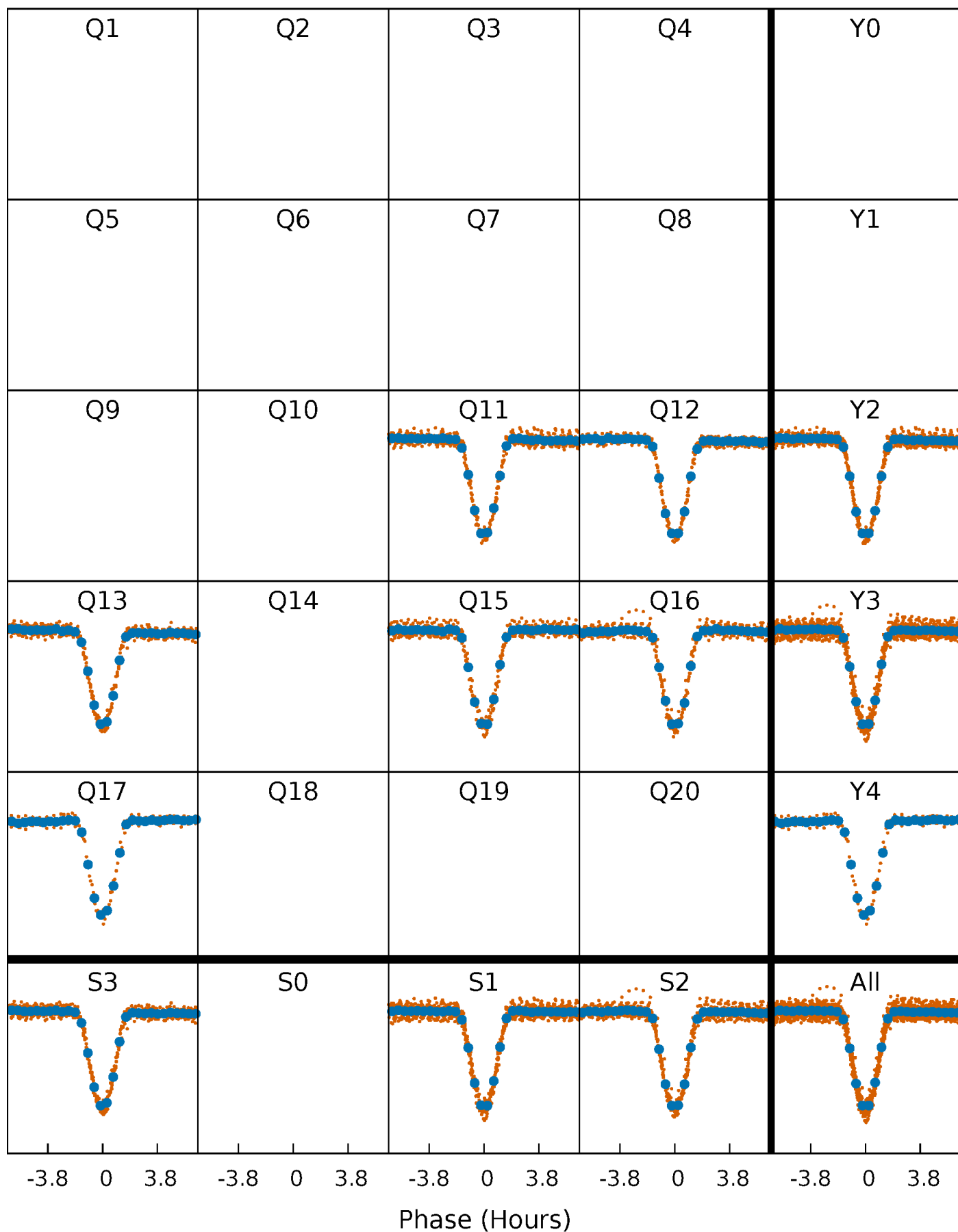


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



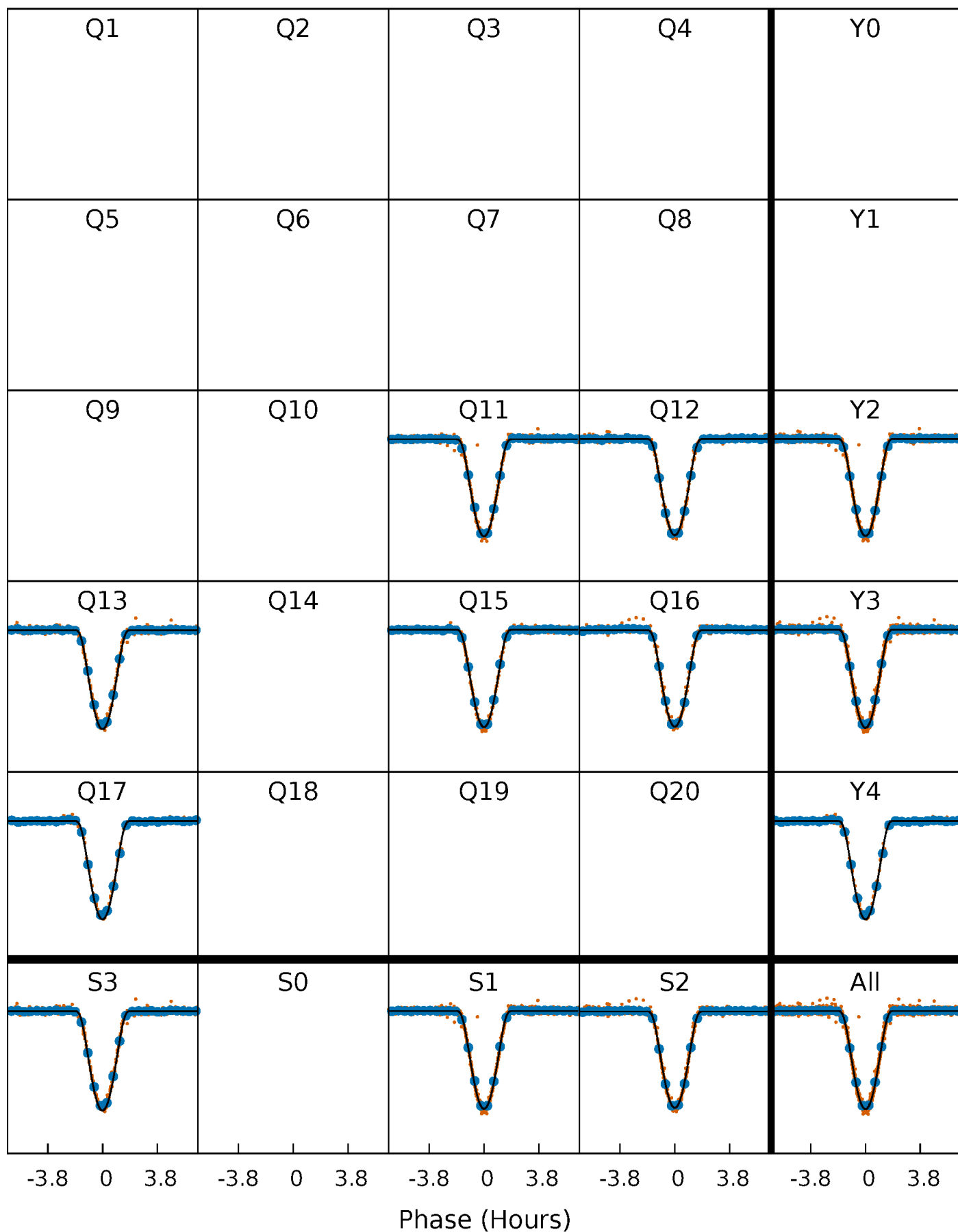
PDC Quarter-Phased Transit Curves

TCE 004751083-01 P= 4.532416 Days $T_0=135.664157$ (BKJD)



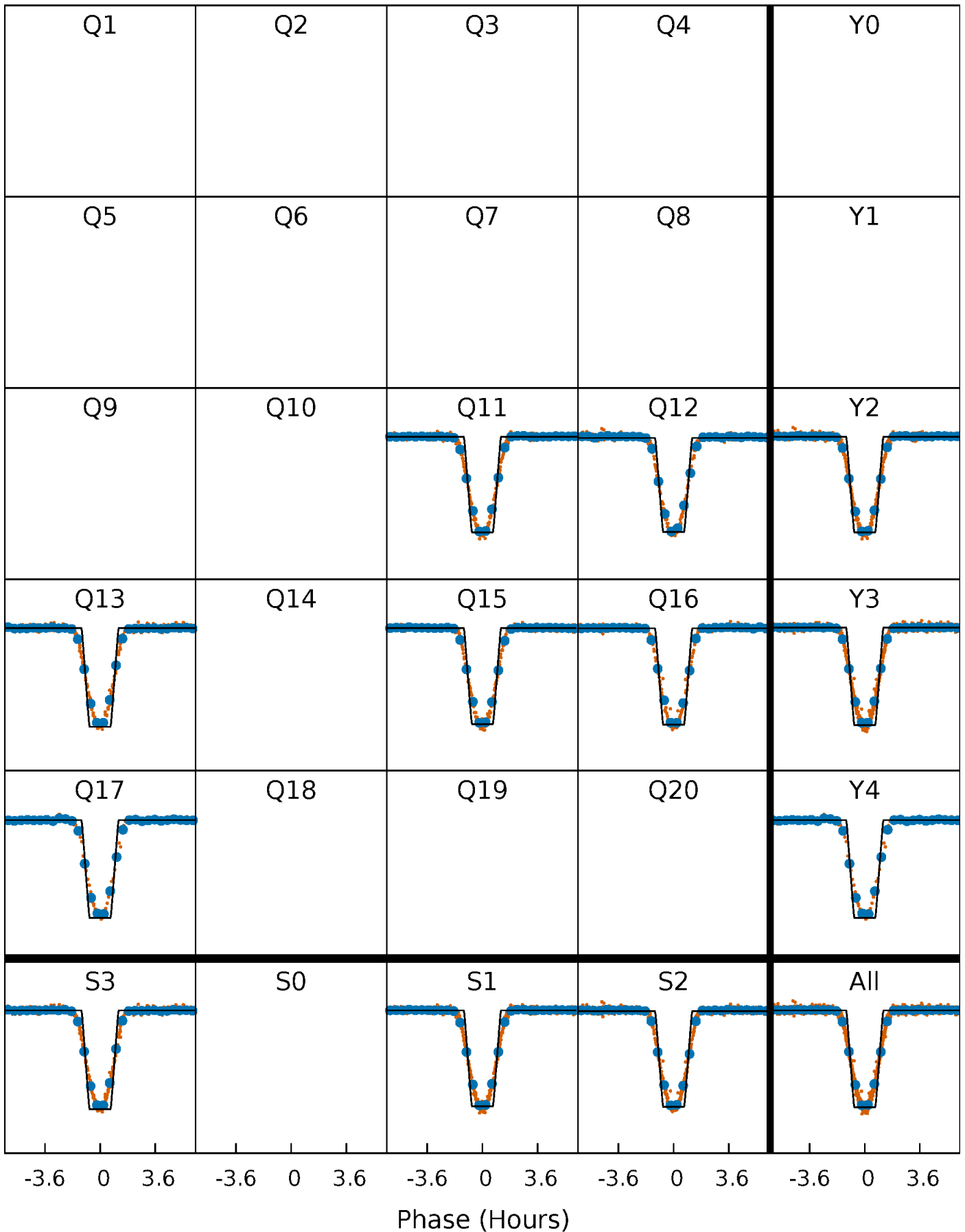
DV Quarter-Phased Transit Curves

TCE 004751083-01 P= 4.532416 Days $T_0=135.664157$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

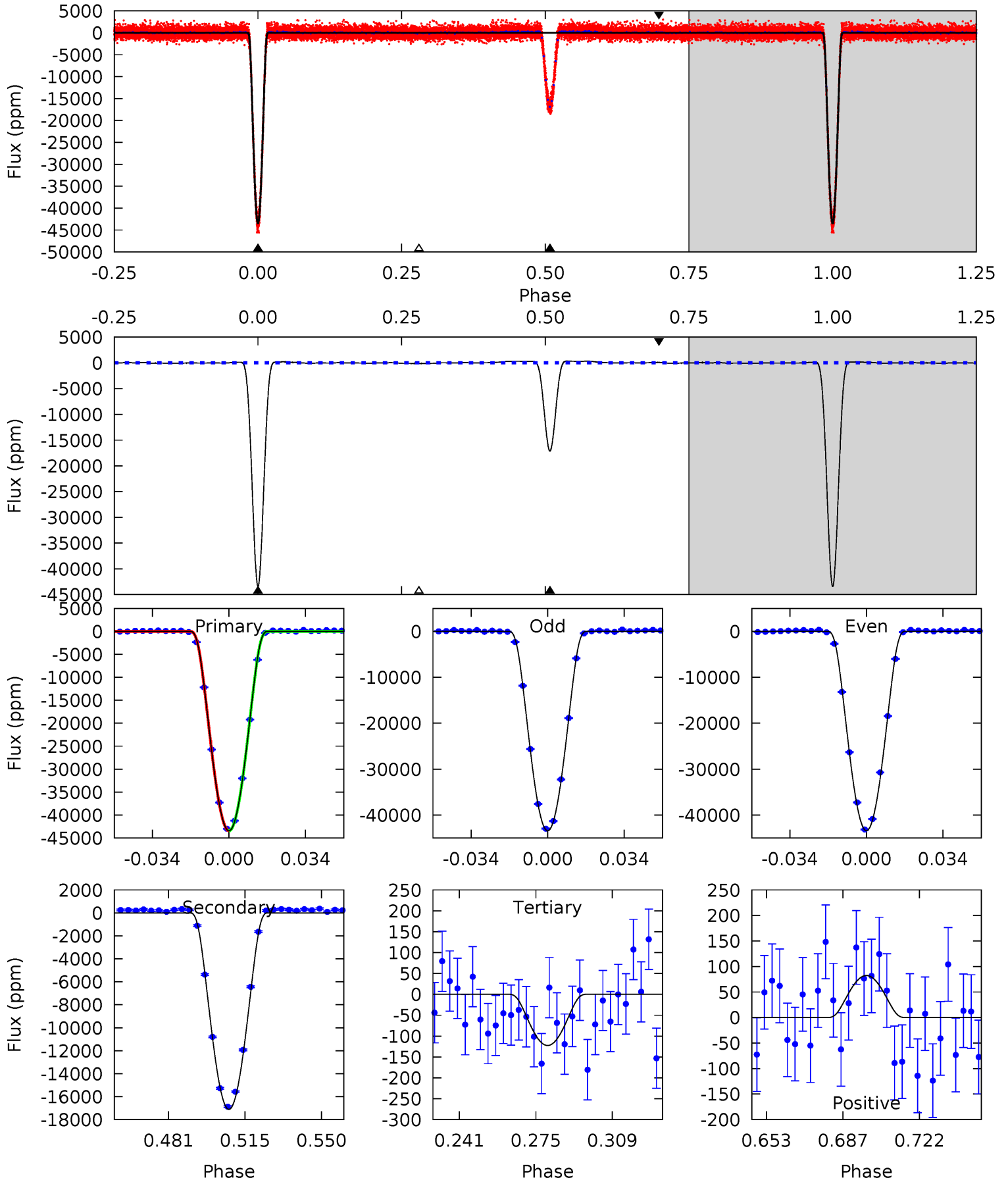
TCE 004751083-01 P= 4.532406 Days $T_0=135.666794$ (BKJD)



DV Model-Shift Uniqueness Test

004751083-01, P = 4.532416 Days, E = 135.664157 Days

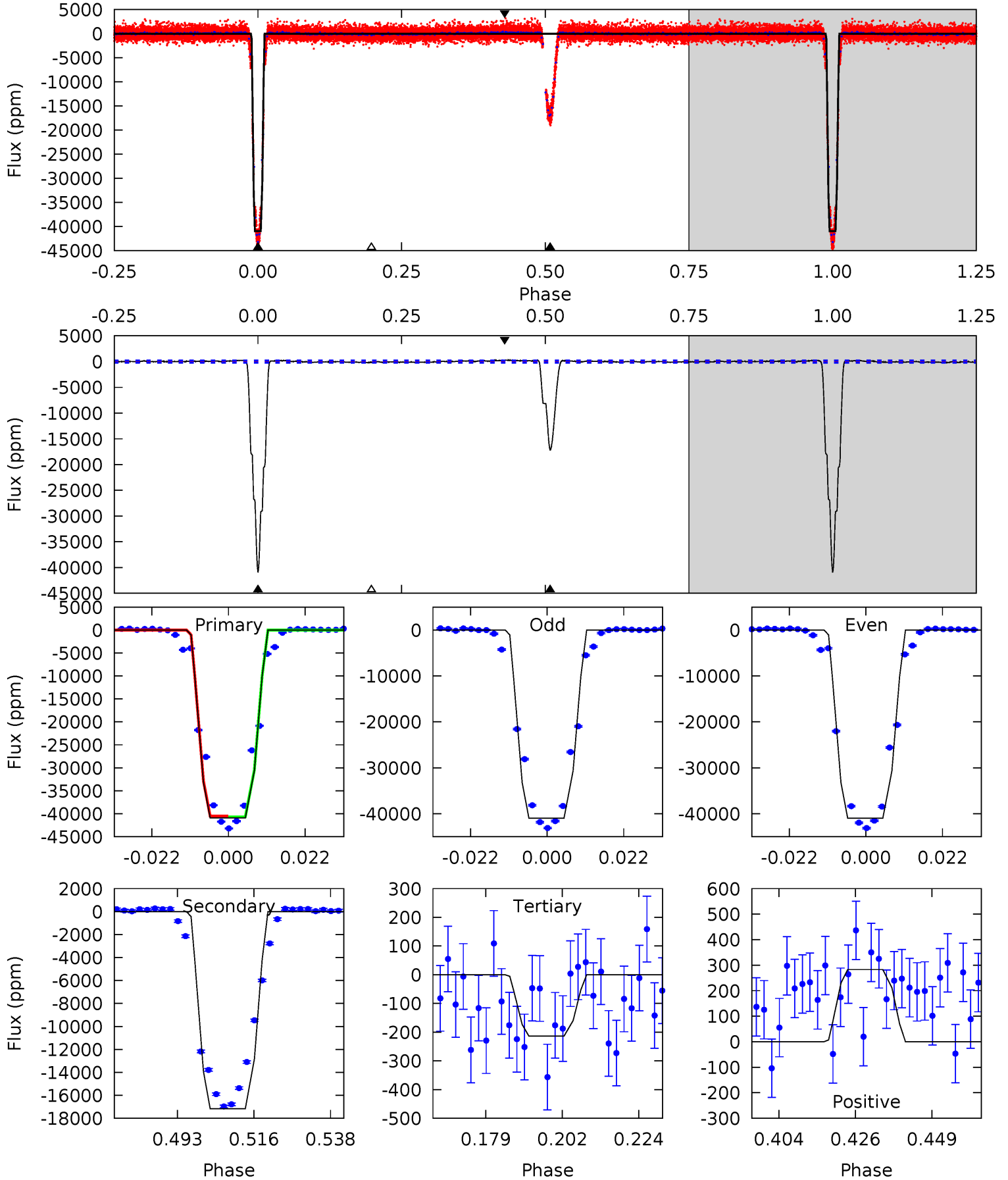
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1566	617.0	4.42	2.97	4.78	2.12	3.93	1561	1563	612.5	614.0	0.33	1.00	0.01	0.24



Alt Model-Shift Uniqueness Test

004751083-01, P = 4.532406 Days, E = 135.666794 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
915.3	383.9	4.78	6.32	4.87	2.28	2.33	910.6	909.0	379.1	377.5	0.39	1.00	0.01	0



Stellar Parameters For KIC 004751083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6306^{+177}_{-243}	$4.283^{+0.132}_{-0.198}$	$-0.040^{+0.250}_{-0.300}$	$1.281^{+0.424}_{-0.228}$	$1.148^{+0.181}_{-0.148}$	$0.768^{+0.500}_{-0.408}$
	+3%/-4%	+3%/-5%	+625%/-750%	+33%/-18%	+16%/-13%	+65%/-53%
Source	KIC0	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 004751083-01 / KOI 3691.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-17112 ± 28	$37.34^{+6.79}_{-4.20}$	1864^{+140}_{-112}	4591^{+133}_{-145}	22^{+6}_{-6}
Alt.	-17165 ± 45	$29.31^{+4.96}_{-3.77}$	1859^{+140}_{-117}	5094^{+173}_{-194}	35^{+10}_{-9}

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 $A_{obs} \gg 1.0$

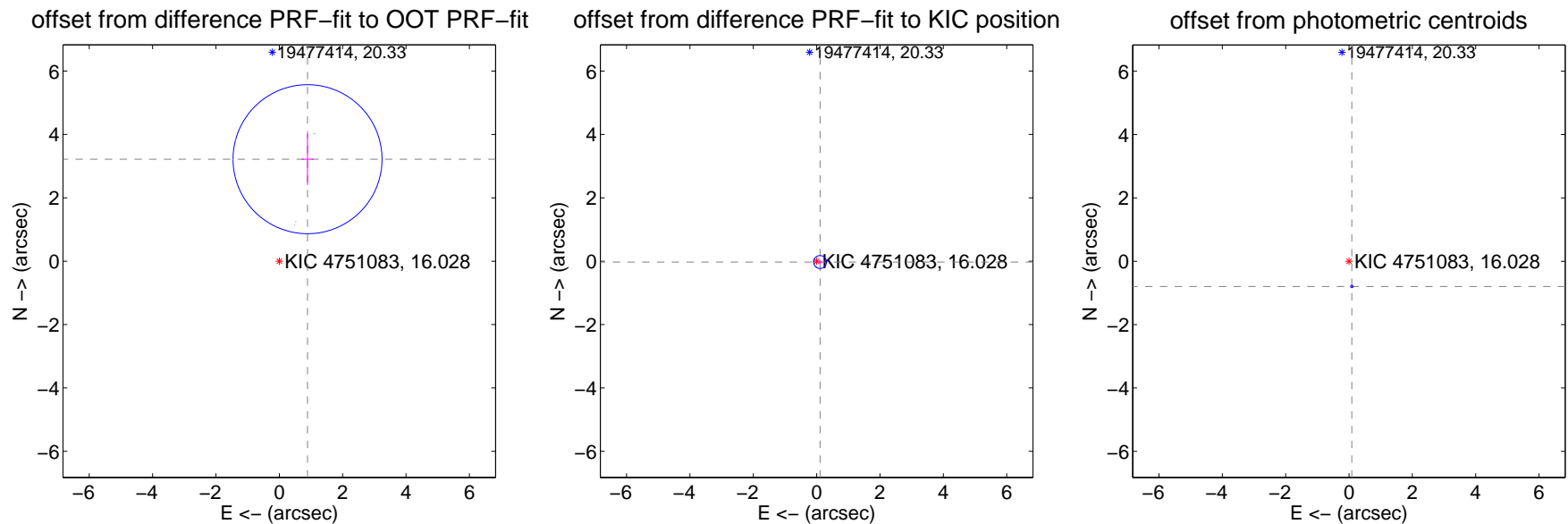
DV Centroid Data

Supplemental centroid analysis for 004751083-01. Kepler magnitude: 16.03. Transit SNR 746.37

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.16 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	3.340 ± 0.784	4.26	-0.891 ± 0.192	3.219 ± 0.812
PRF-fit source offset from KIC position	0.110 ± 0.068	1.62	-0.107 ± 0.068	-0.026 ± 0.069
photometric centroid source offset	0.80 ± 0.01	62.90	-0.09 ± 0.01	-0.80 ± 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.

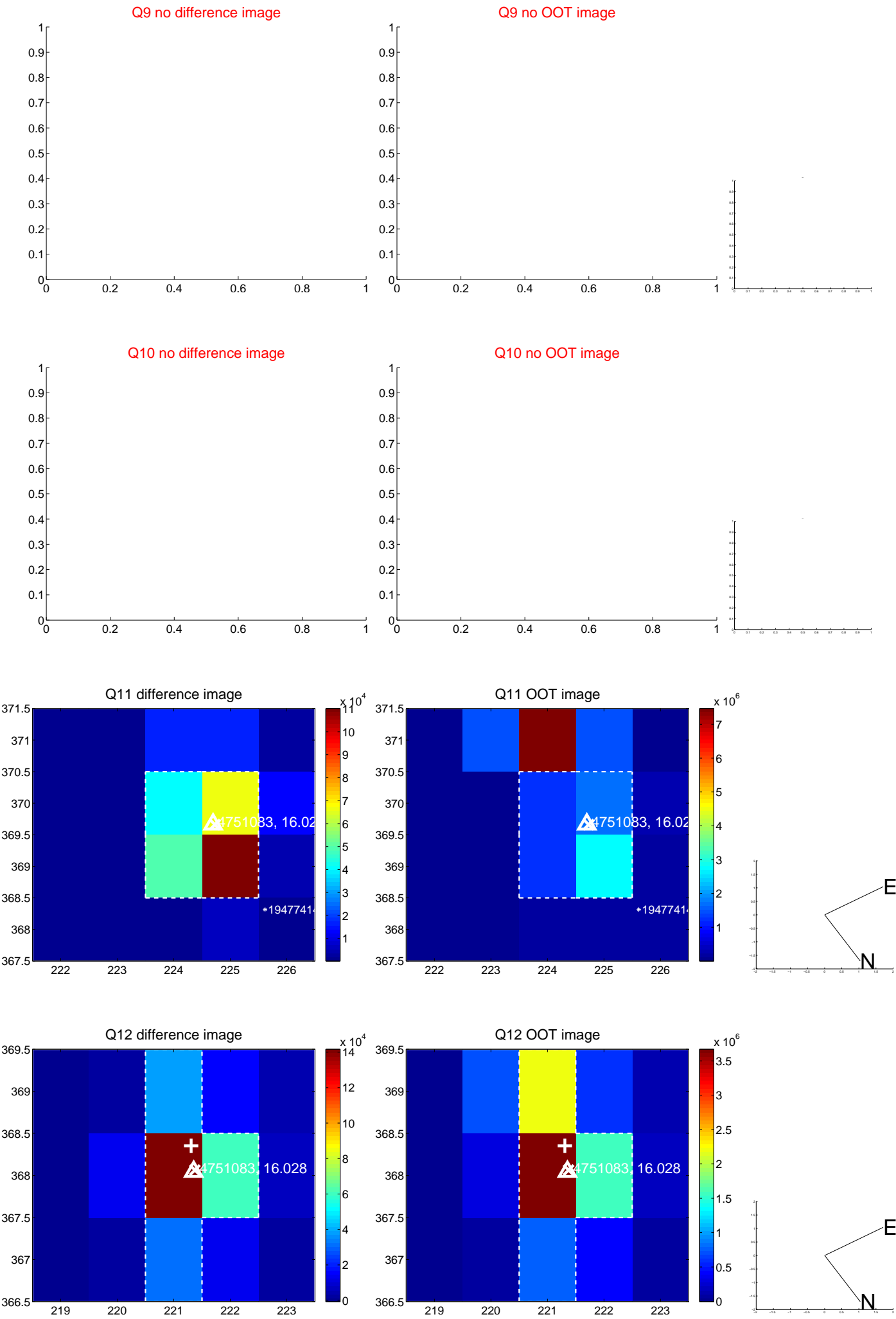
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



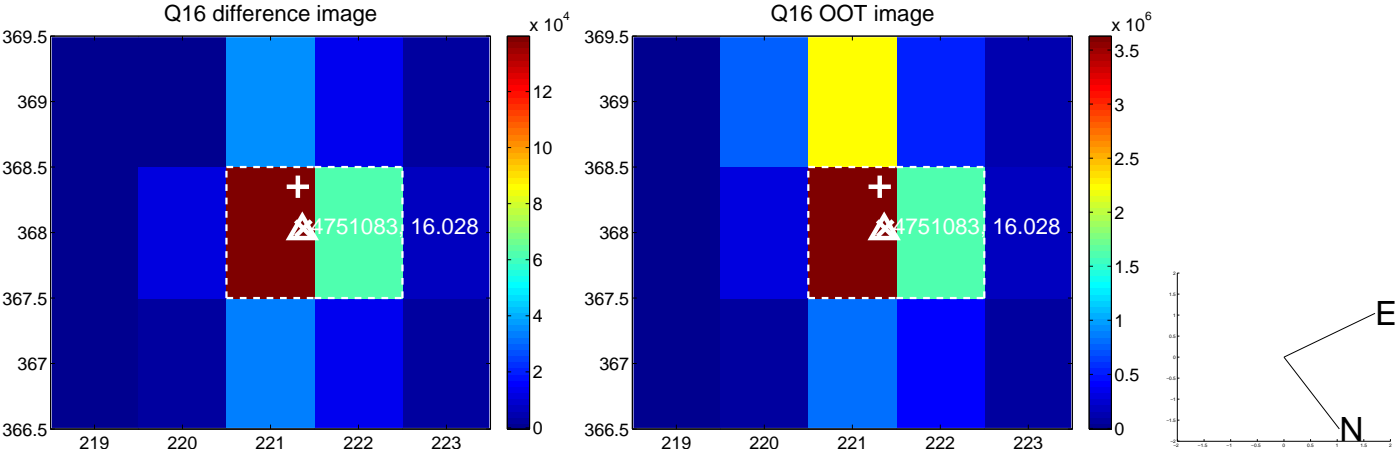
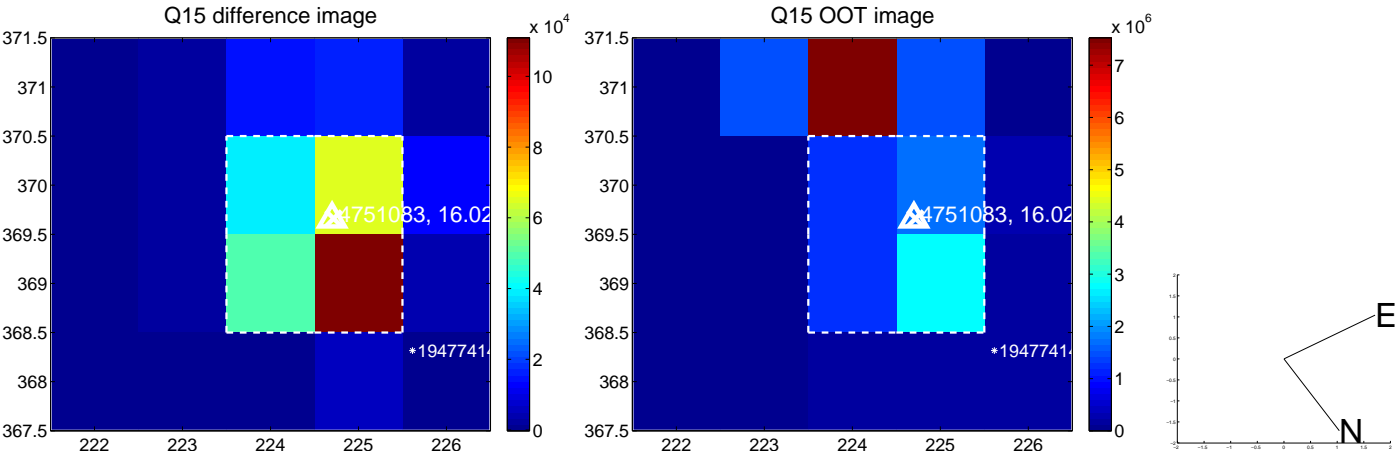
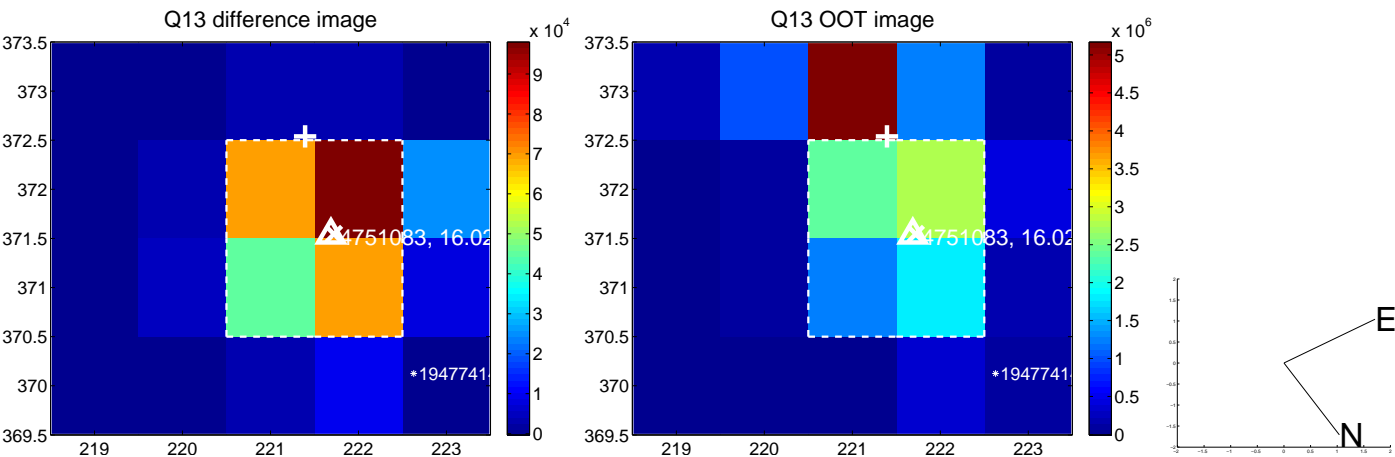
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



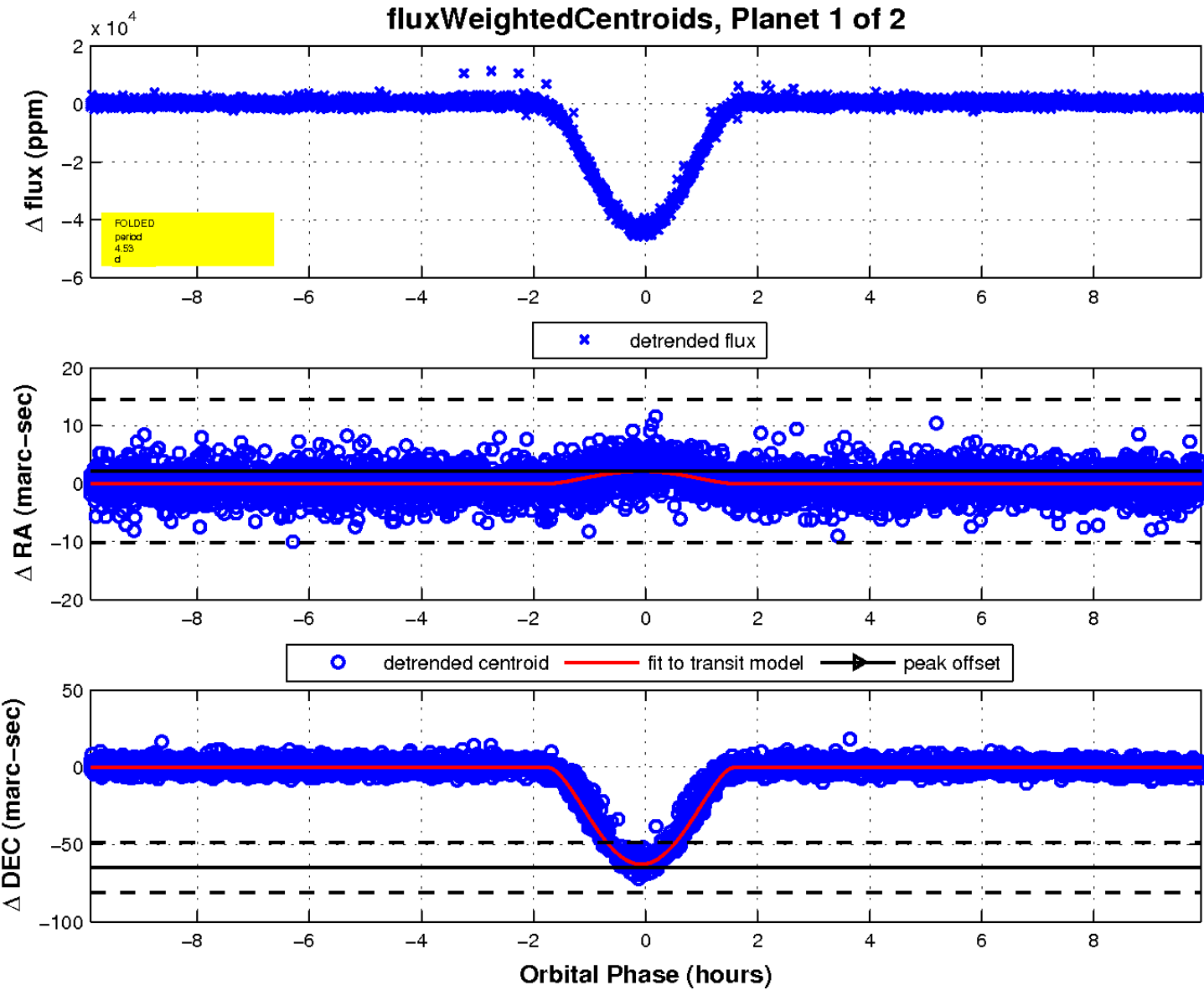
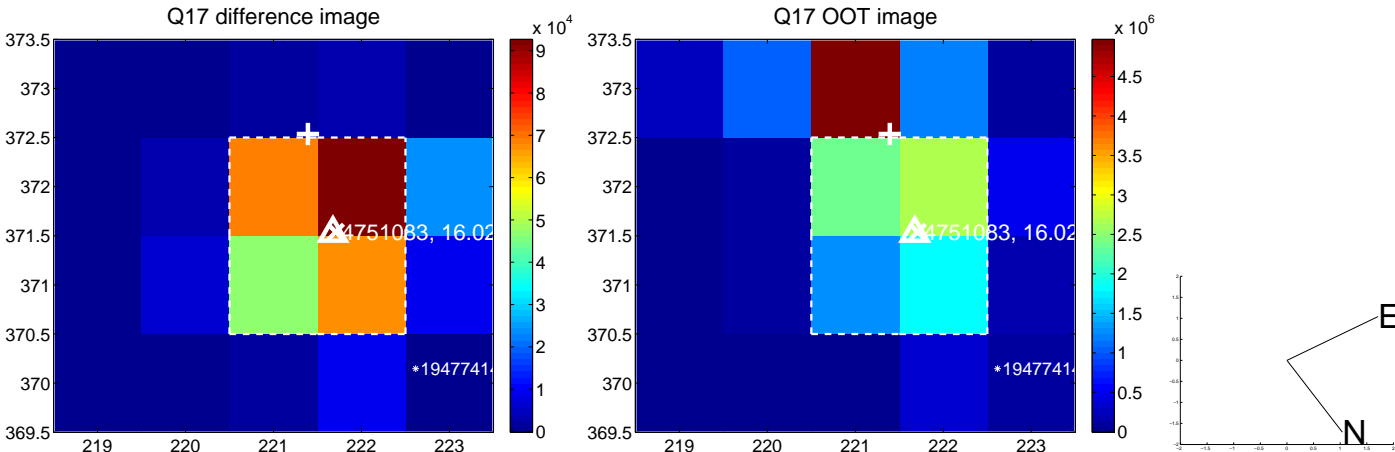
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

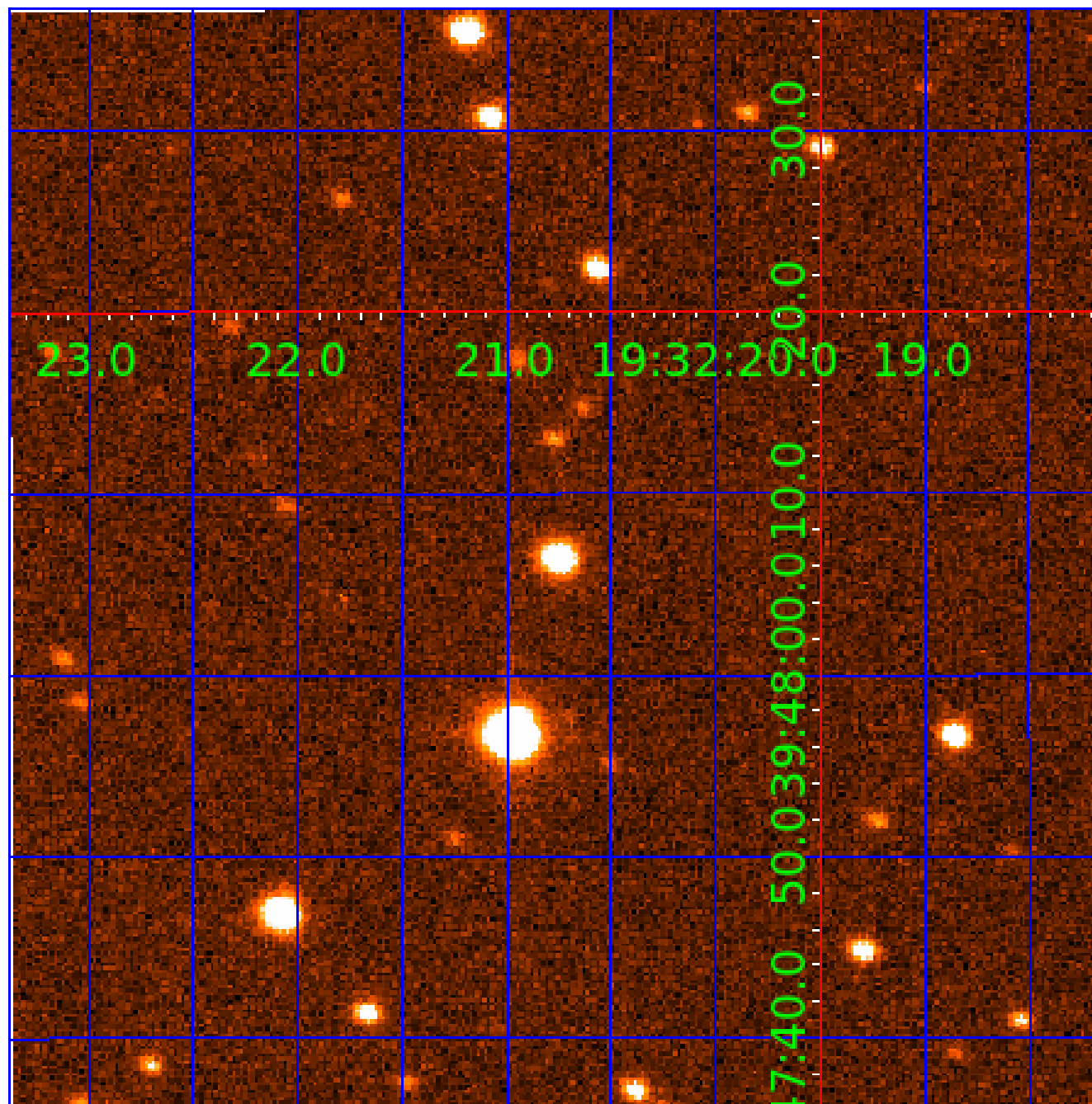


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004751083

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})
004751083-01	OBS	3691.01	4.532416	135.664157	43461.8	3.304	784.3	746.4	1.28	6306	37.27	737.63
004751083-02	OBS	No	4.532415	133.434411	17155.9	3.266	337.3	319.8	1.28	6306	23.19	737.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004751083-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
004751083-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

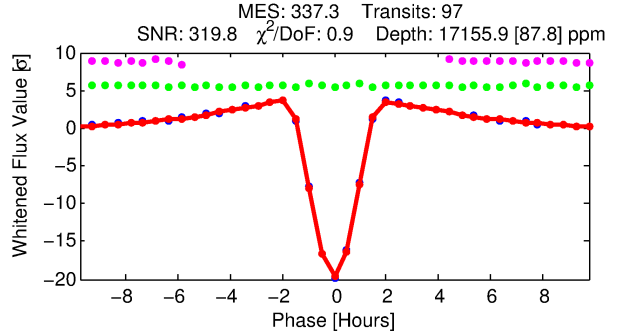
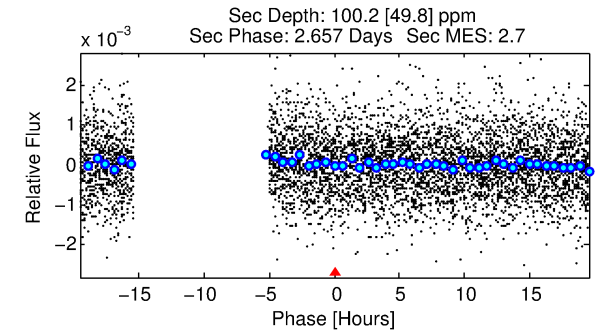
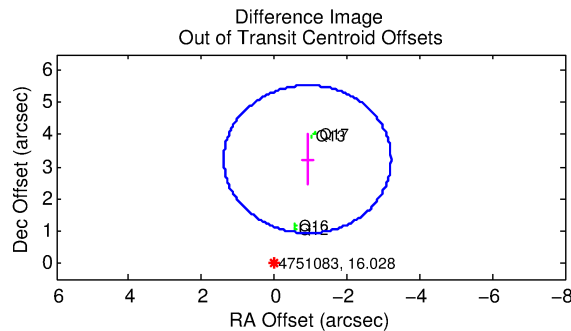
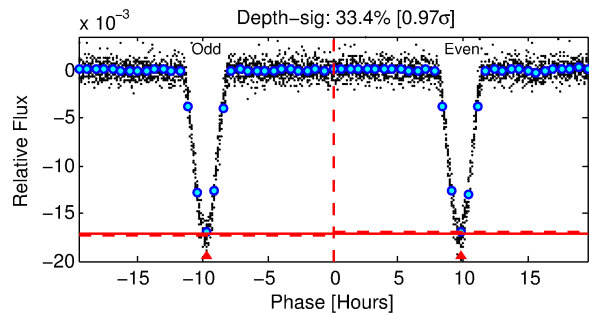
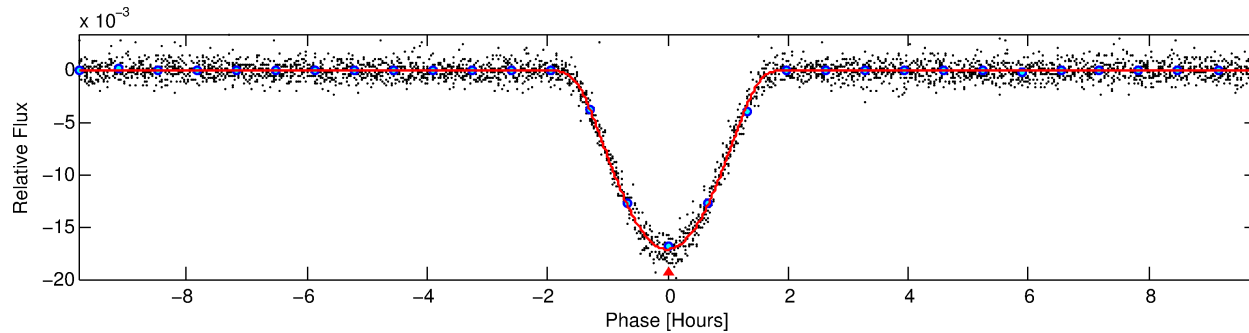
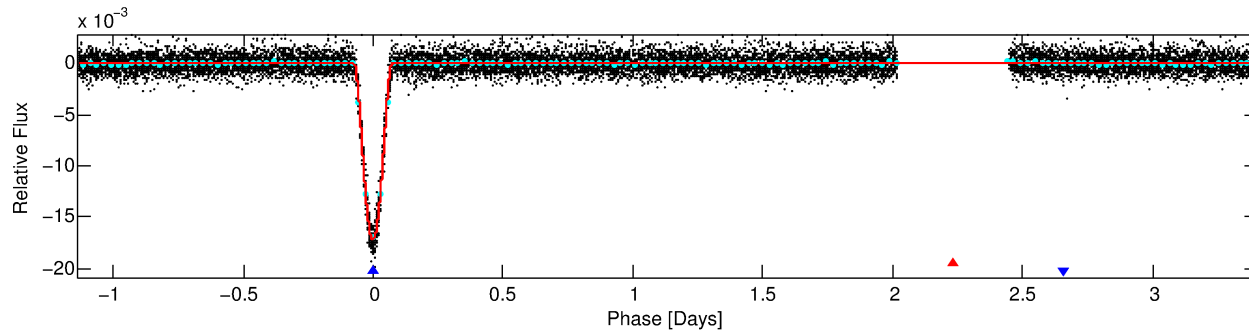
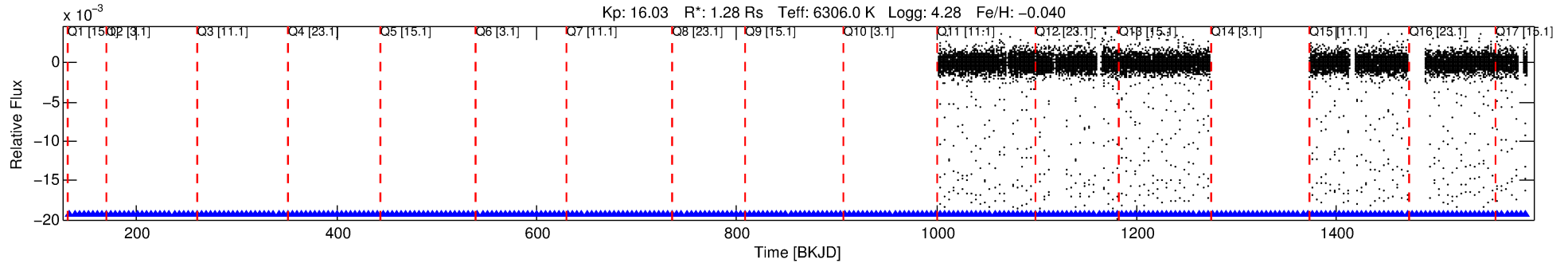
Ephemeris Match Information For 004751083-02

No Significant Match Found

DV One-Page Summary

KIC: 4751083 Candidate: 2 of 2 Period: 4.532 d
KOI: K03691 Corr: No Ephemeris Match

Kp: 16.03 R*: 1.28 Rs Teff: 6306.0 K Logg: 4.28 Fe/H: -0.040



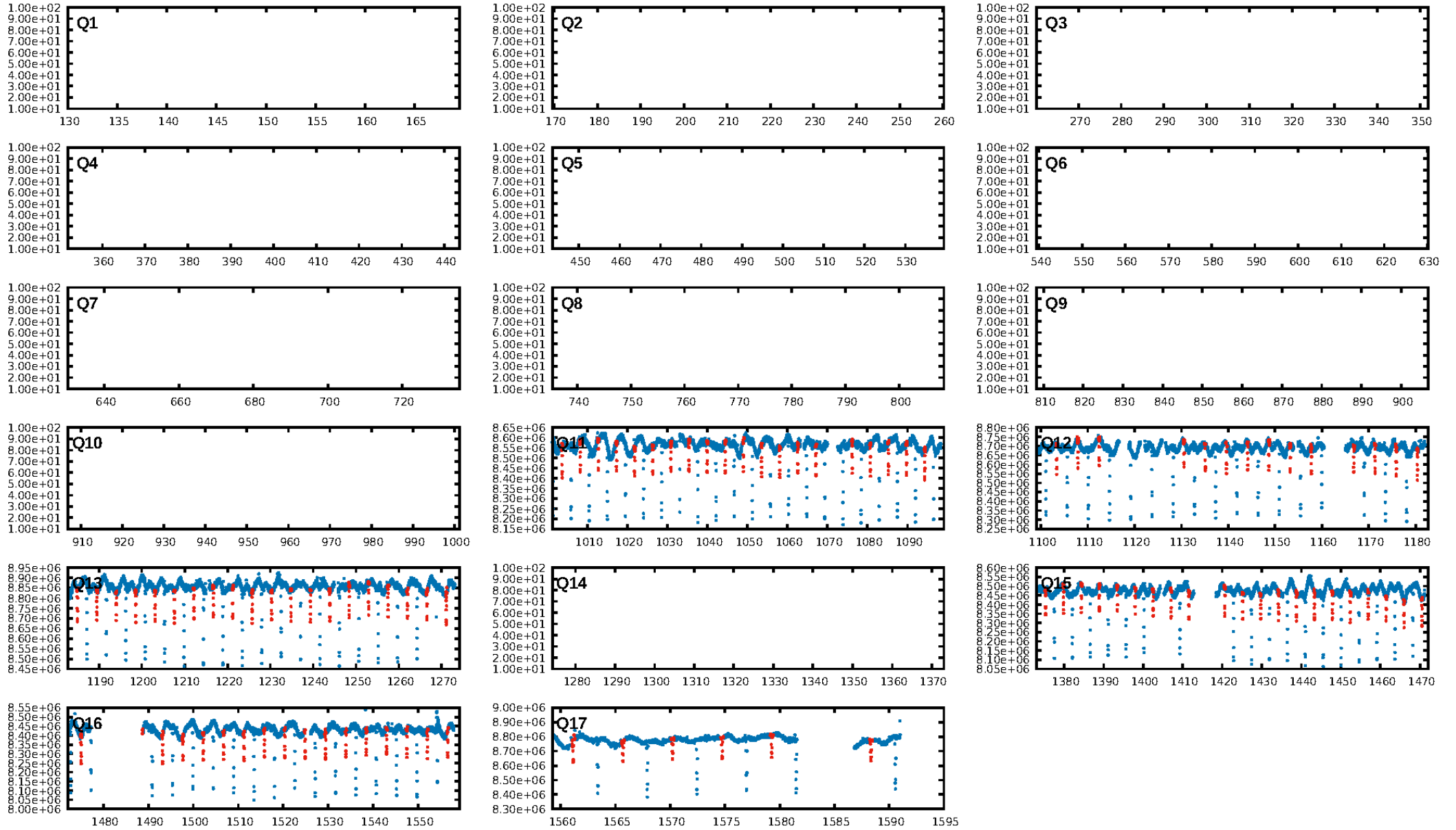
DV Fit Results:

Period = 4.53241 [0.00000] d
Epoch = 133.4344 [0.0004] BKJD
Rp/R* = 0.1659 [0.0105]
a/R* = 7.54 [0.13]
b = 0.93 [0.02]
Seff = 737.63 [299.47]
Teq = 1329 [135] K
Rp = 23.19 [7.82] Re
a = 0.0561 [0.0150] AU
Ag = 0.32 [0.21] [-3.30σ]
Teffp = 1549 [207] K [0.89σ]

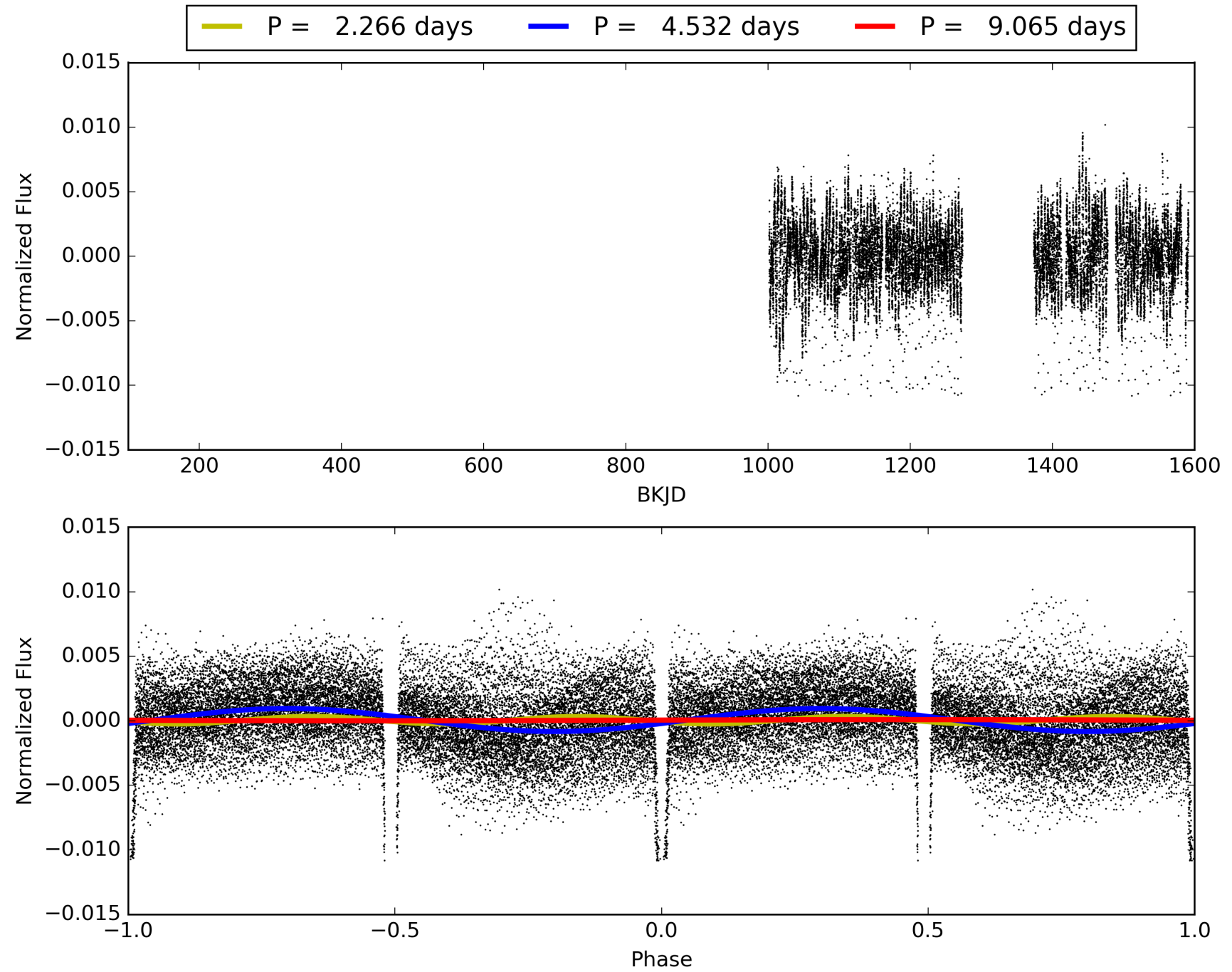
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [91/91]
GhostDiagnostic-chr: 3.281
Centroid-sig: 0.0%
Centroid-so: 0.886 arcsec [28.32σ]
OotOffset-rm: 3.358 arcsec [4.37σ]
KicOffset-rm: 0.154 arcsec [2.21σ]
OotOffset-st: 0/0/2/2 [4]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 004751083-02, PDC Light Curves

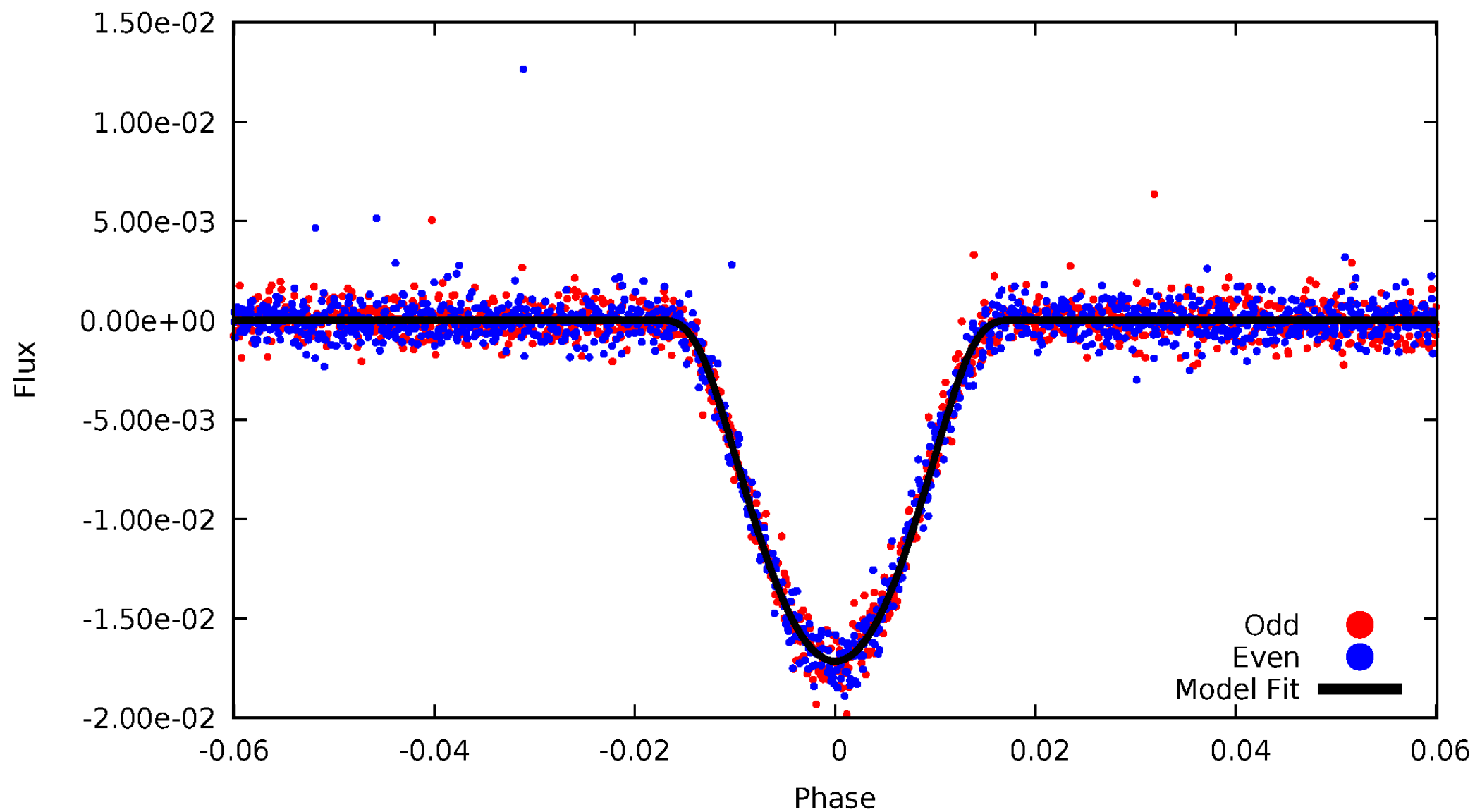


TCE 004751083-02



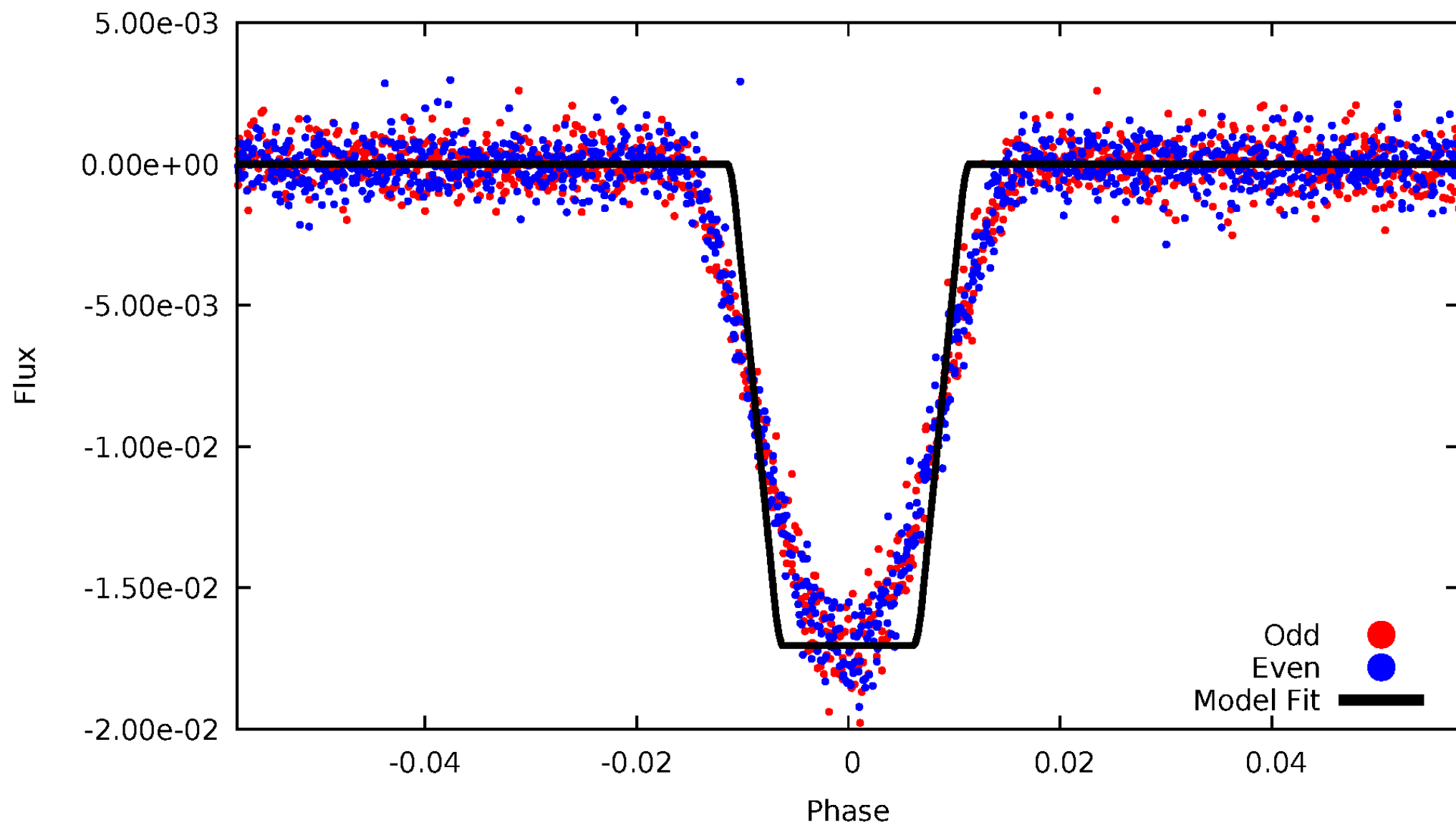
DV Odd/Even

TCE 004751083-02



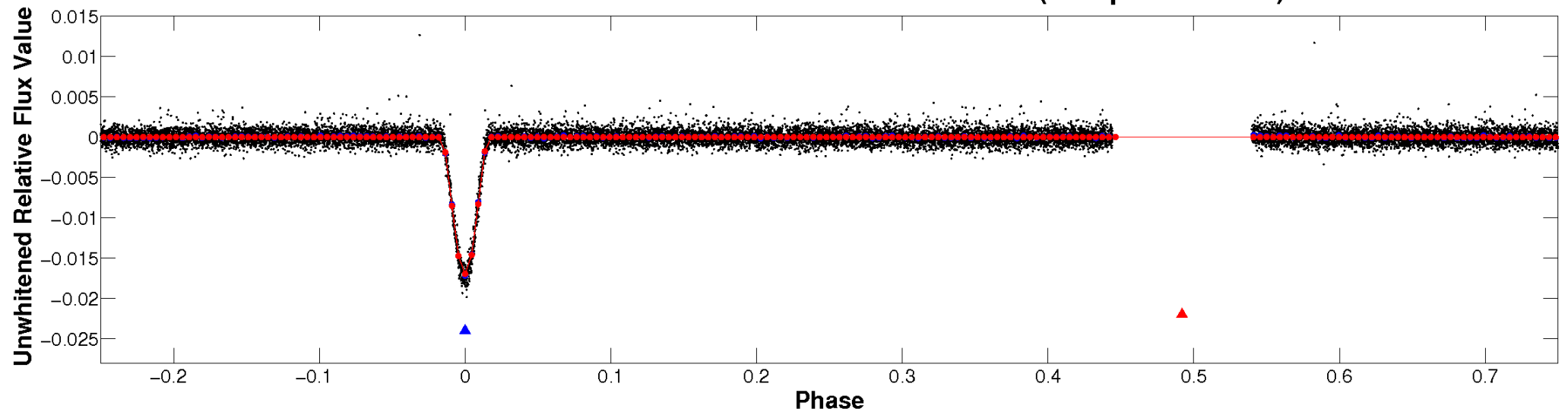
ALT Odd/Even

TCE 004751083-02

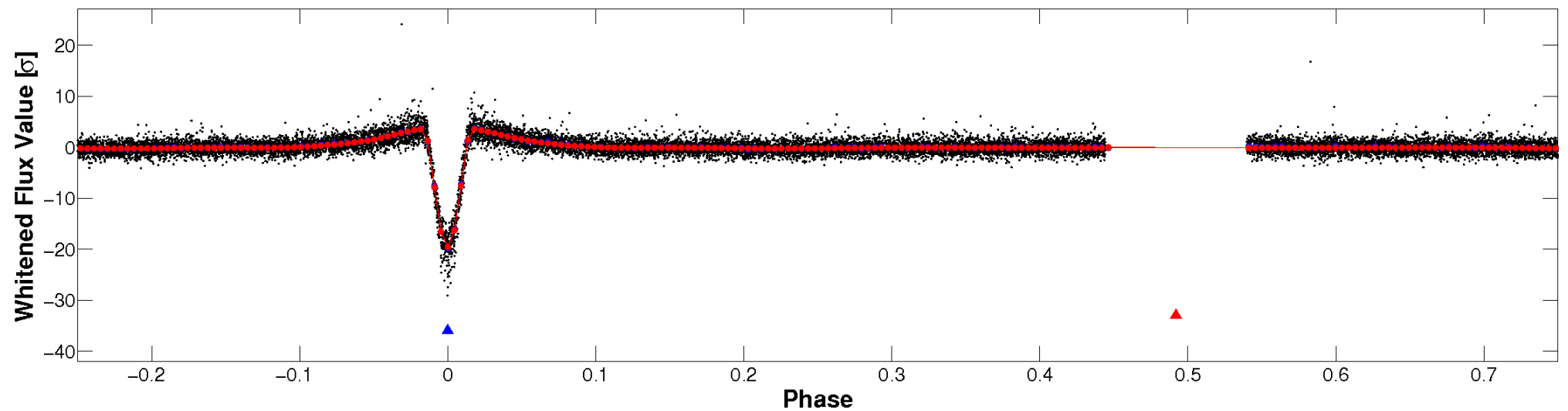


Non-Whitened Vs. Whitened Light Curve

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

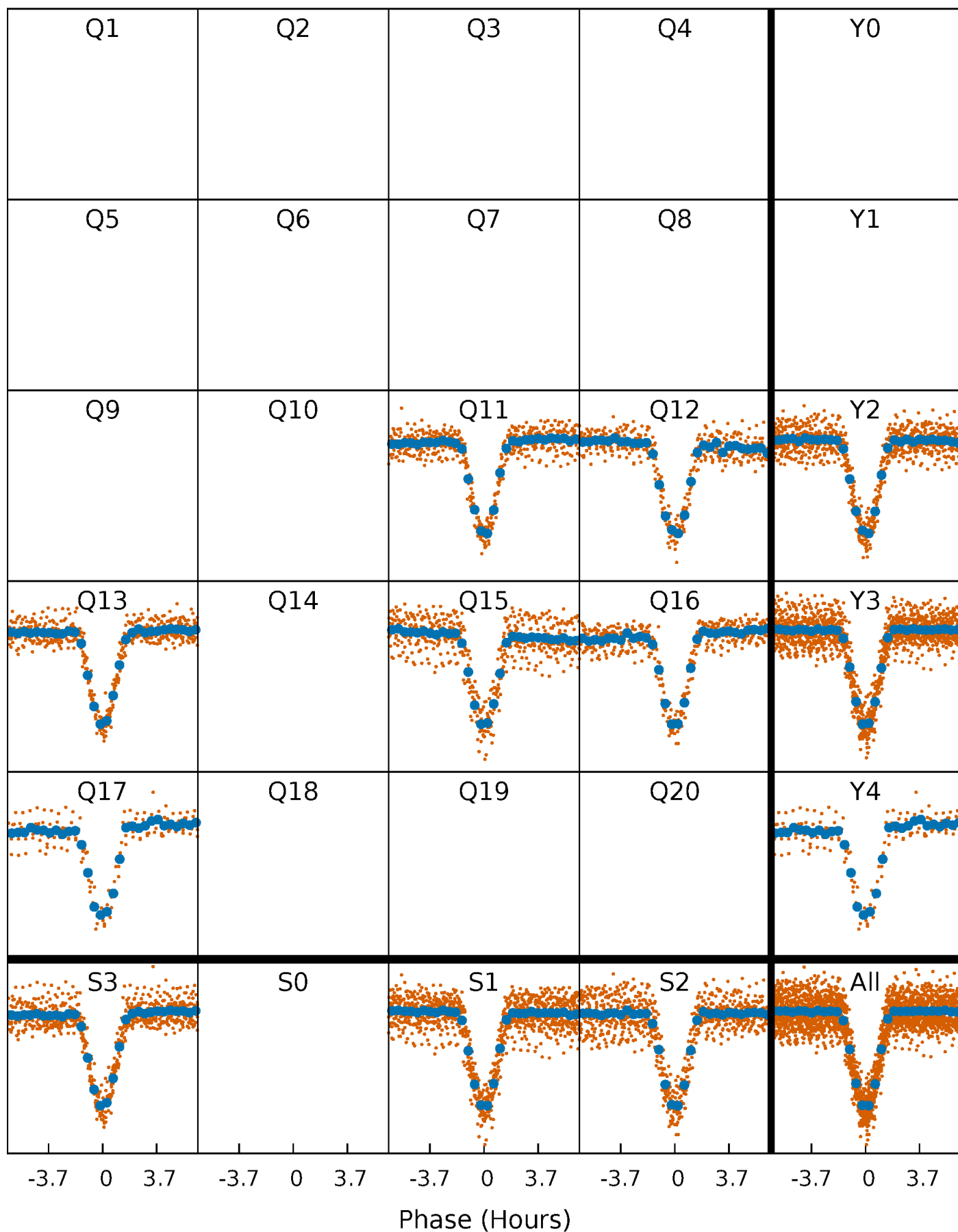


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



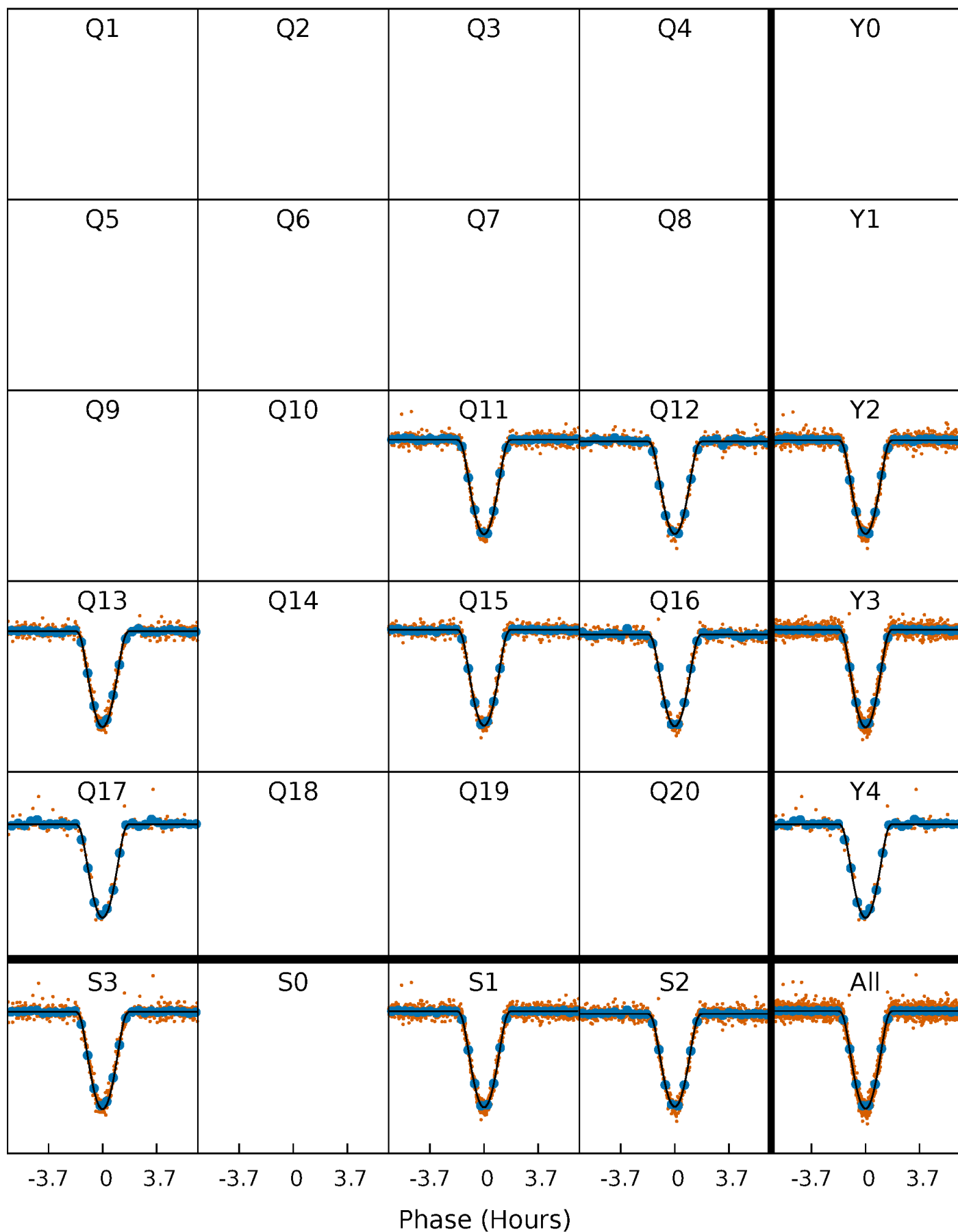
PDC Quarter-Phased Transit Curves

TCE 004751083-02 P= 4.532415 Days $T_0=133.434411$ (BKJD)



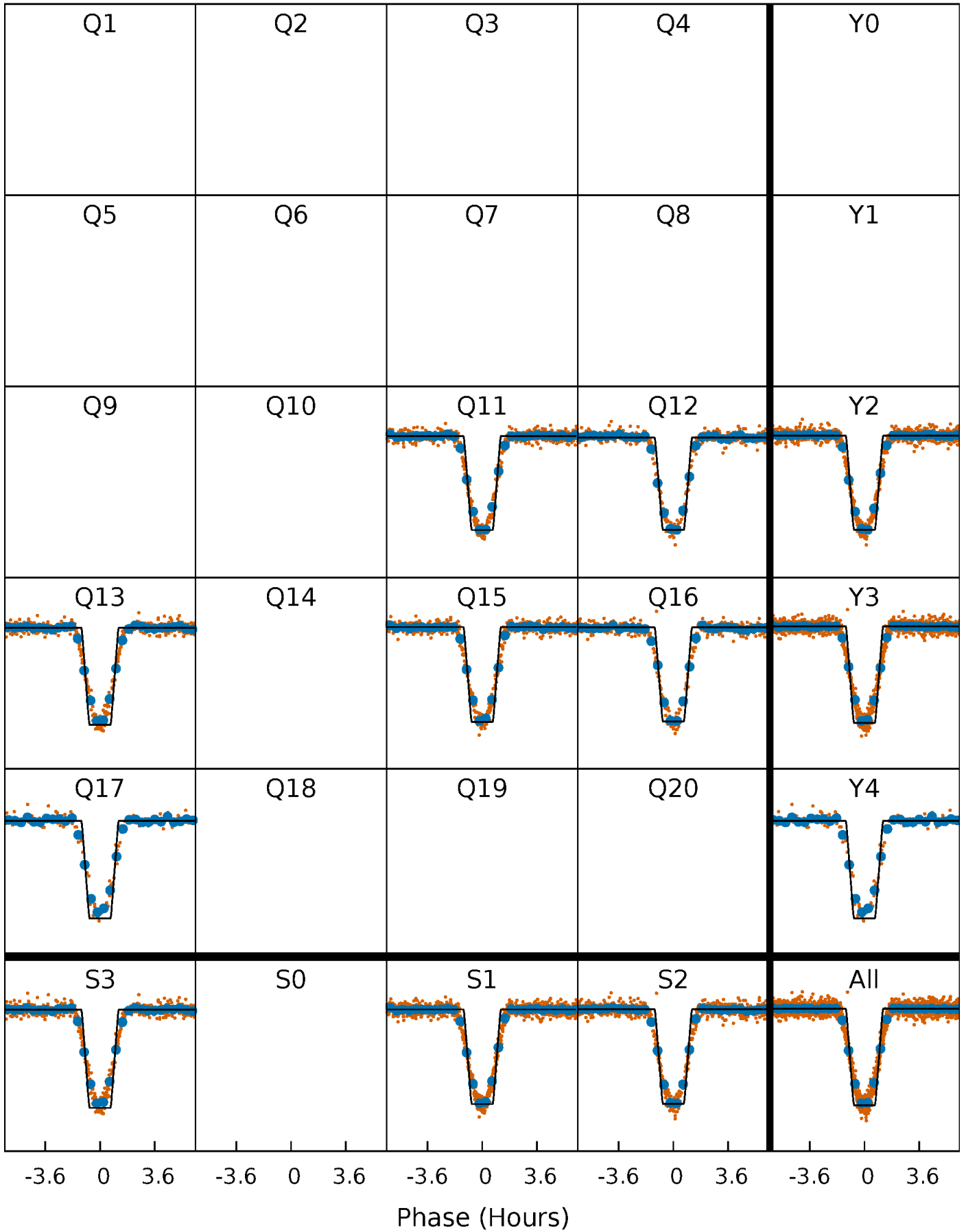
DV Quarter-Phased Transit Curves

TCE 004751083-02 P= 4.532415 Days $T_0=133.434411$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

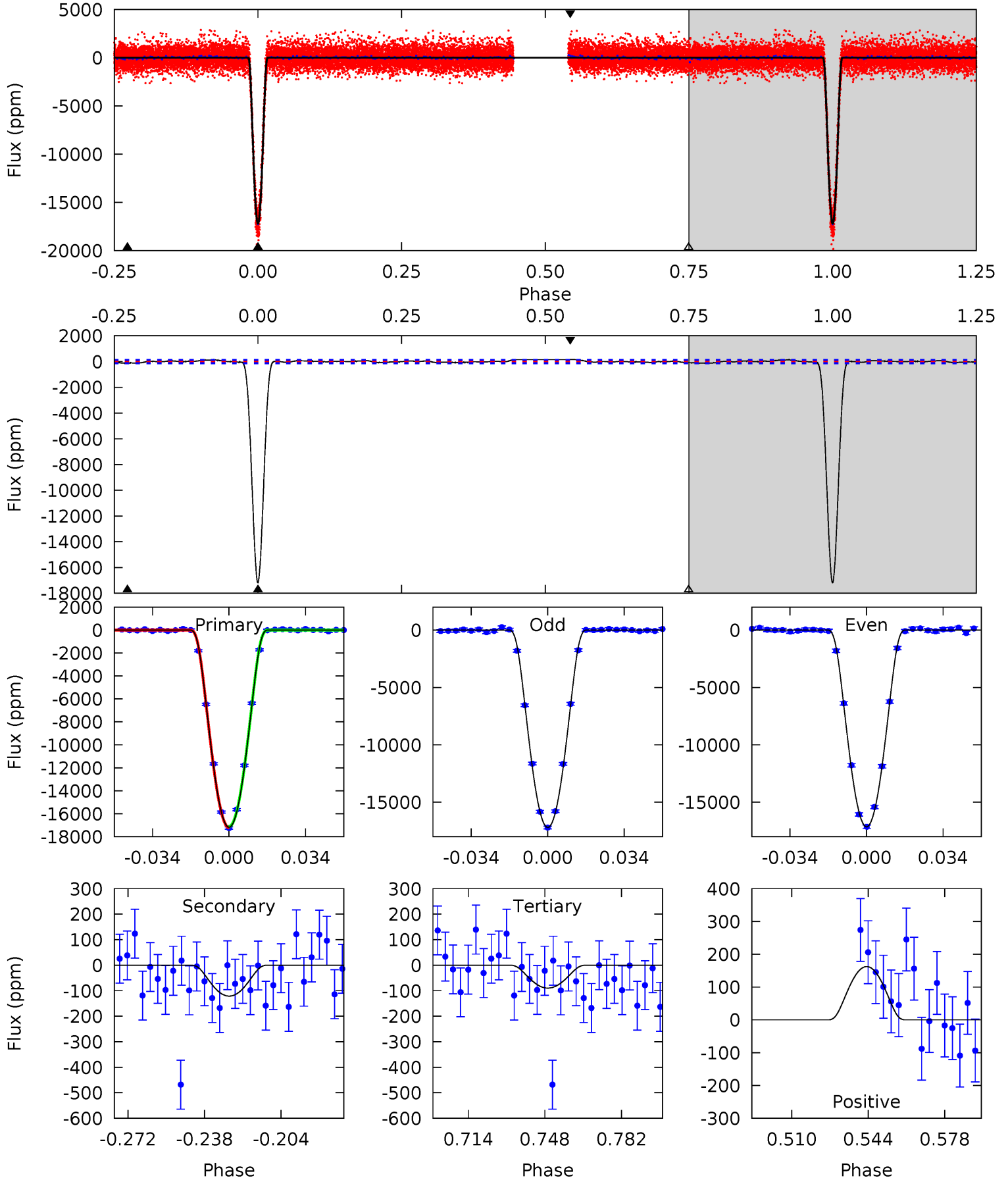
TCE 004751083-02 P= 4.532406 Days $T_0=133.436724$ (BKJD)



DV Model-Shift Uniqueness Test

004751083-02, P = 4.532415 Days, E = 133.434411 Days

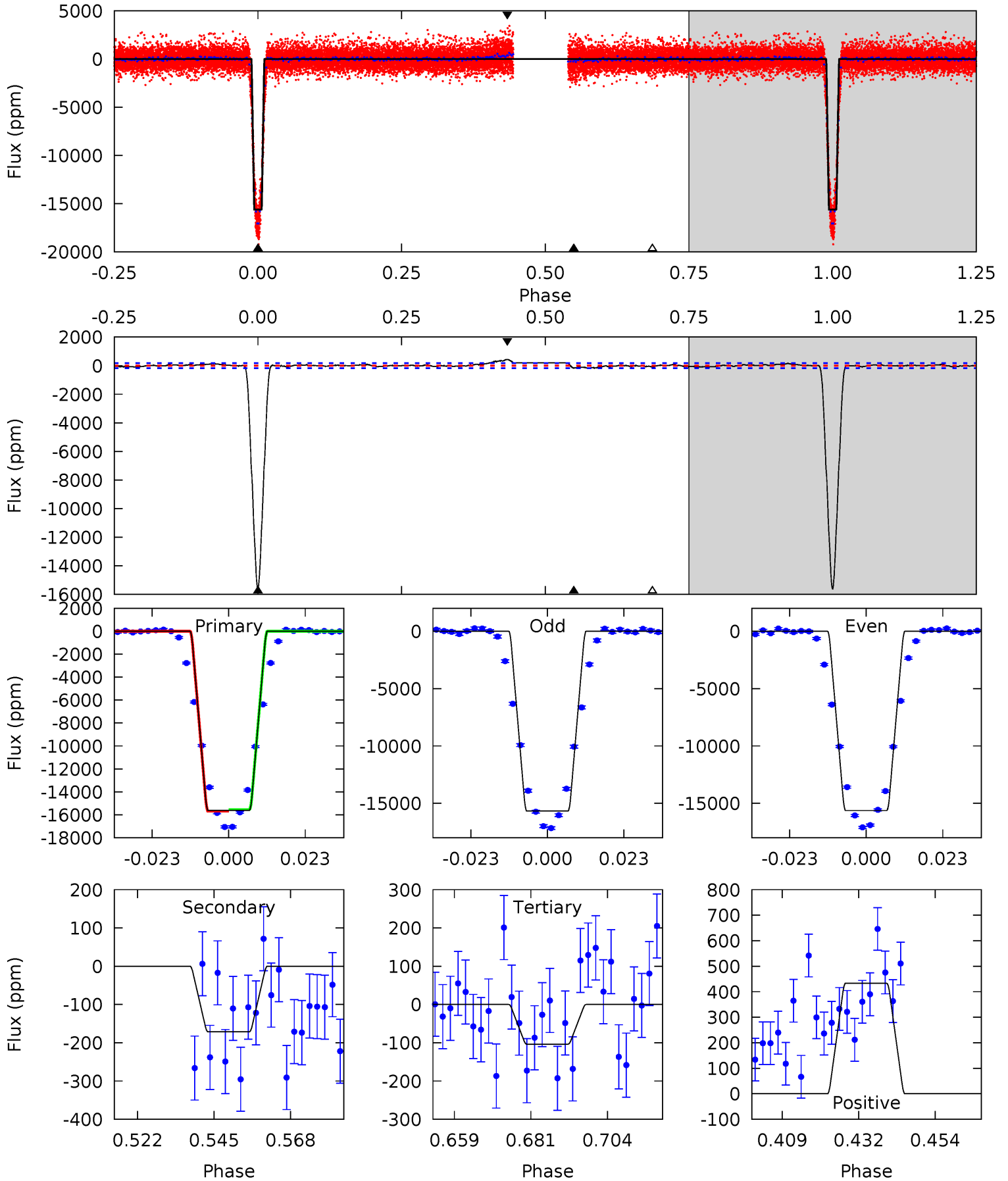
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
626.2	4.42	3.27	5.92	4.79	2.12	1.84	623.0	620.3	1.15	-1.50	1.03	1.00	0.01	1.84



Alt Model-Shift Uniqueness Test

004751083-02, P = 4.532406 Days, E = 133.436724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
440.3	4.83	2.92	12.2	4.87	2.28	2.48	437.3	428.0	1.91	-7.38	0.65	1.01	0.03	1.76



Stellar Parameters For KIC 004751083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6306^{+177}_{-243}	$4.283^{+0.132}_{-0.198}$	$-0.040^{+0.250}_{-0.300}$	$1.281^{+0.424}_{-0.228}$	$1.148^{+0.181}_{-0.148}$	$0.768^{+0.500}_{-0.408}$
	+3%/-4%	+3%/-5%	+625%/-750%	+33%/-18%	+16%/-13%	+65%/-53%
Source	KIC0	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 004751083-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-121 ± 27	$23.31^{+4.35}_{-2.93}$	1850^{+157}_{-105}	2048^{+256}_{-4064}	$0.370^{+0.155}_{-0.119}$
Alt.	-171 ± 35	$18.35^{+3.54}_{-2.43}$	1856^{+158}_{-110}	2603^{+137}_{-180}	$0.861^{+0.359}_{-0.279}$

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

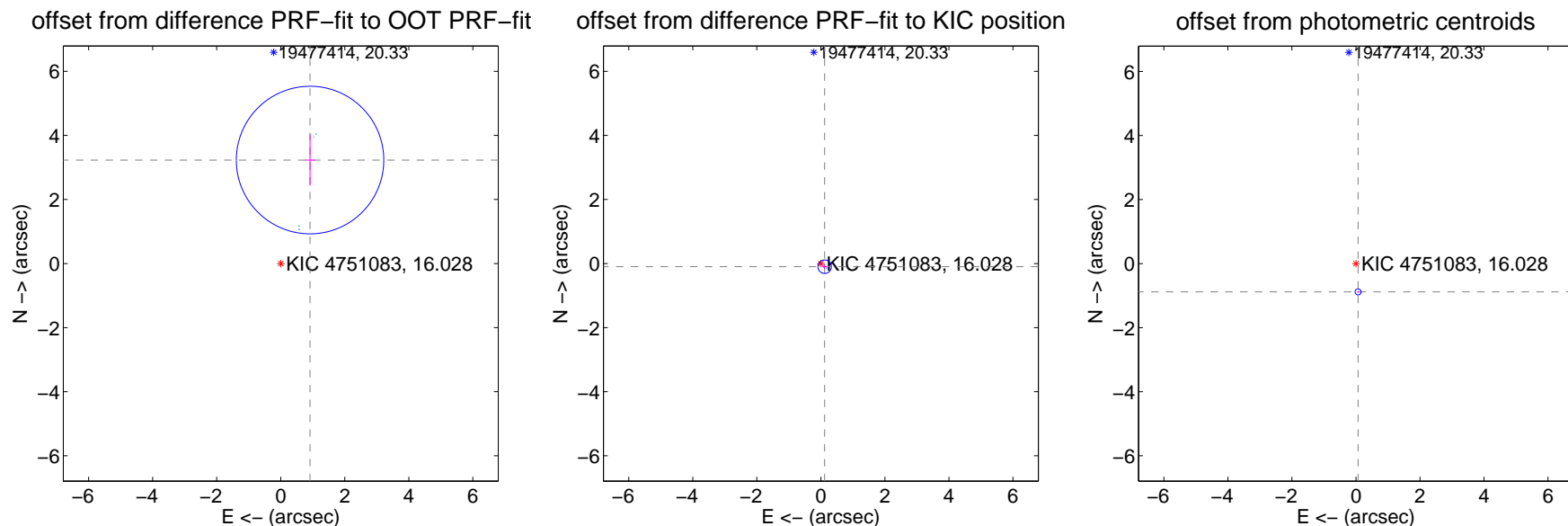
DV Centroid Data

Supplemental centroid analysis for 004751083-02. Kepler magnitude: 16.03. Transit SNR 319.79

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.19 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	3.358 ± 0.768	4.37	-0.915 ± 0.152	3.231 ± 0.797
PRF-fit source offset from KIC position	0.154 ± 0.070	2.21	-0.118 ± 0.068	-0.099 ± 0.072
photometric centroid source offset	0.89 ± 0.03	28.32	-0.07 ± 0.02	-0.88 ± 0.03



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.

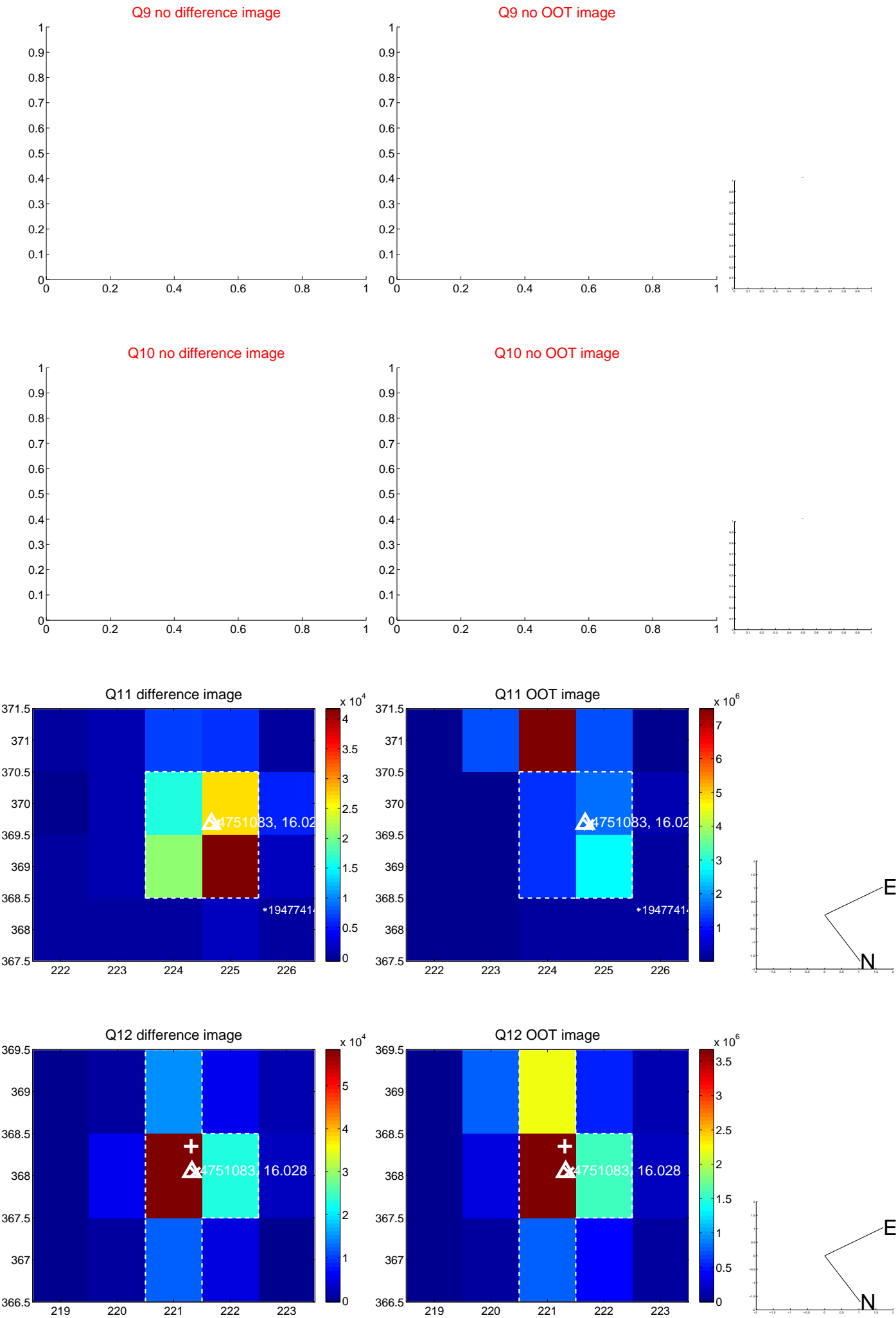
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



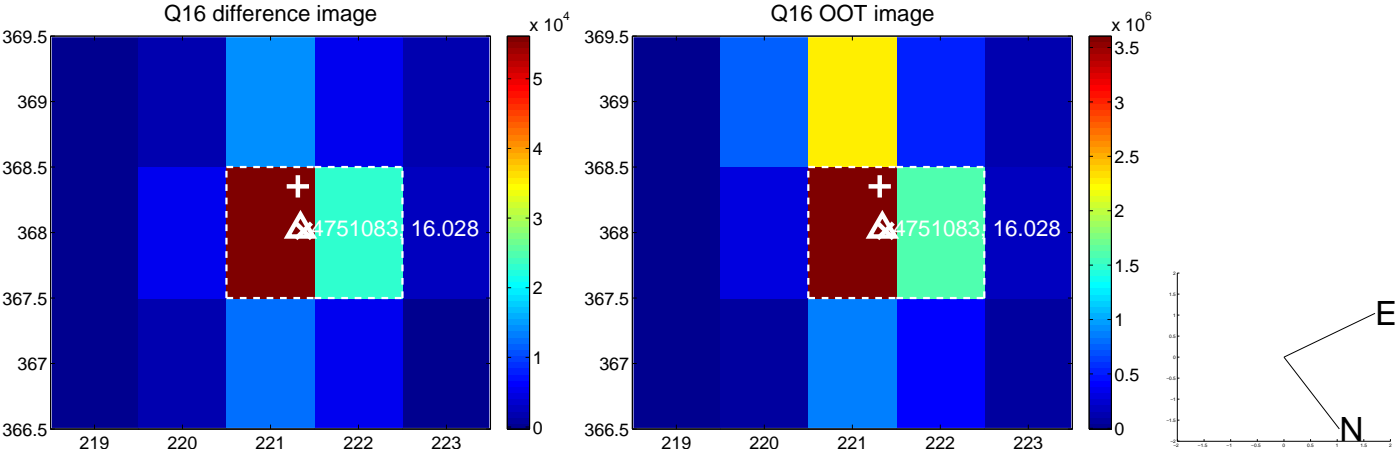
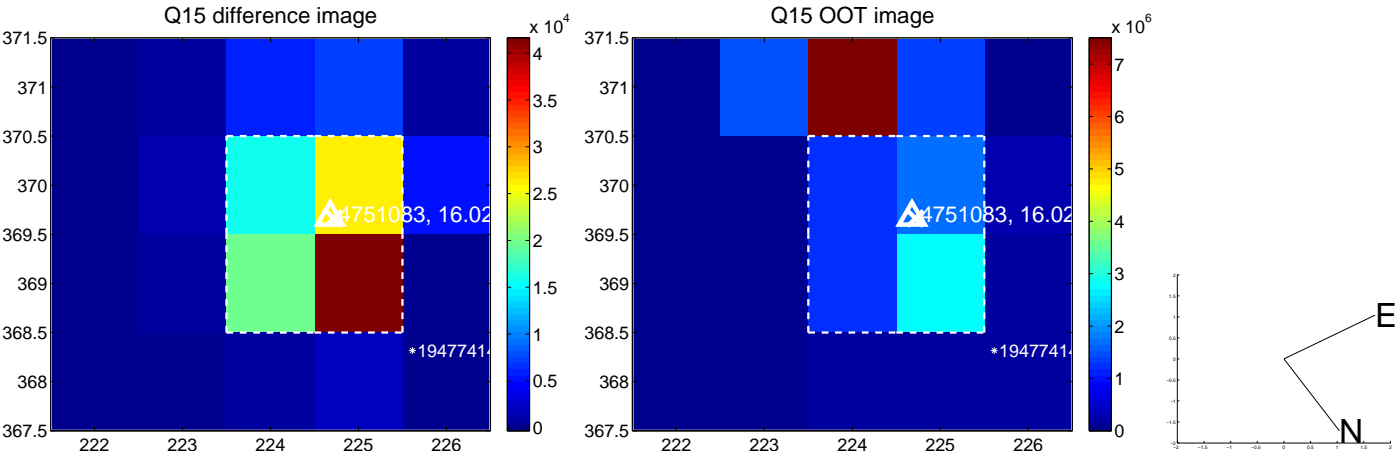
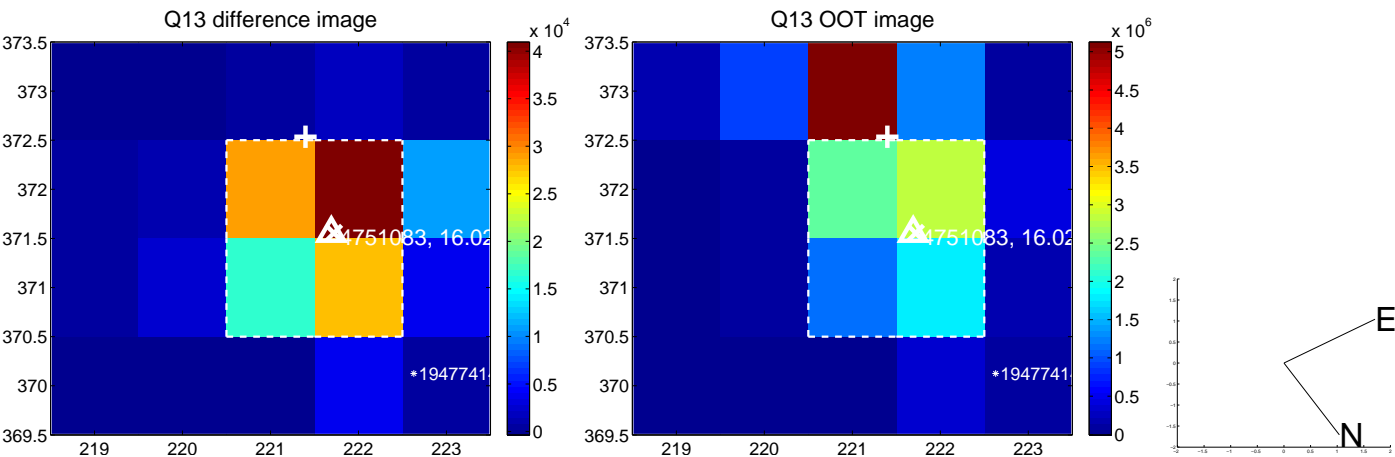
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



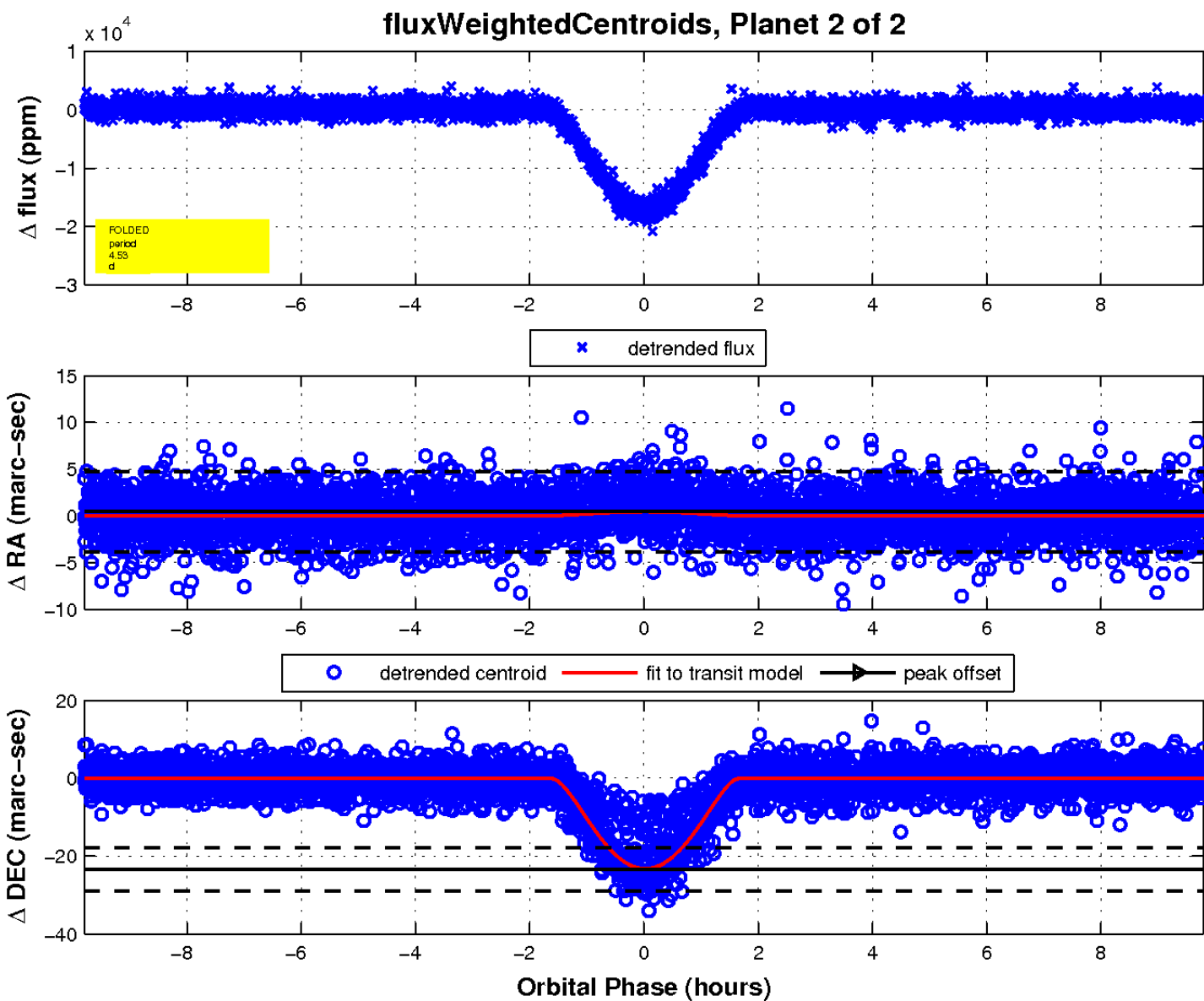
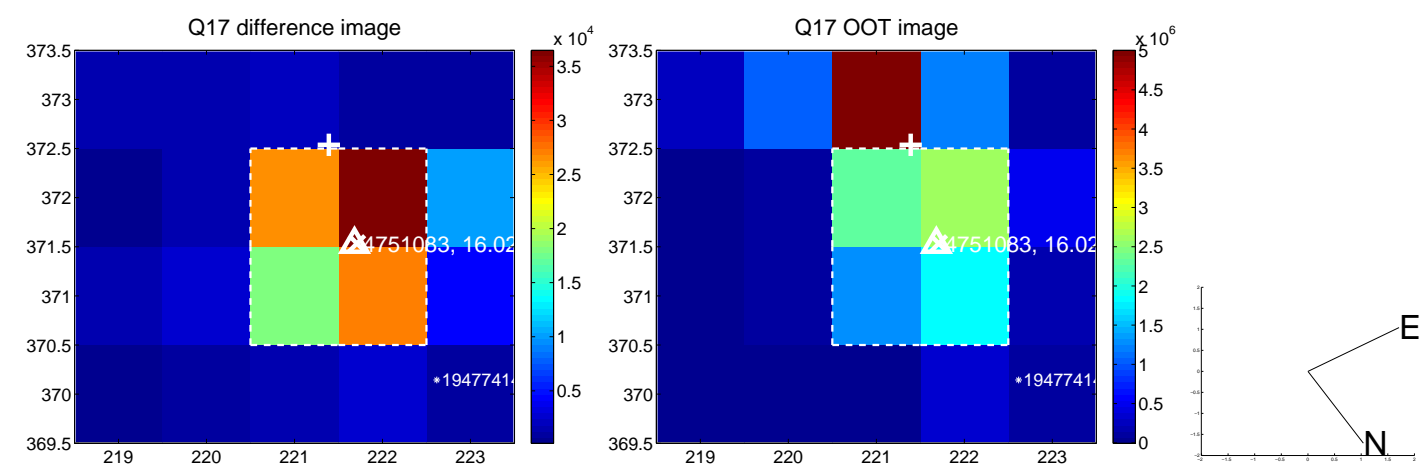
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

