

KIC 004937143

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})
004937143-01	OBS	No	9.848939	139.588183	26126.7	5.320	242.3	247.2	1.31	6938	29.82	390.99
004937143-02	OBS	3715.01	9.848902	135.988918	21834.7	5.677	213.8	204.3	1.31	6938	28.42	390.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004937143-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004937143-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD

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.

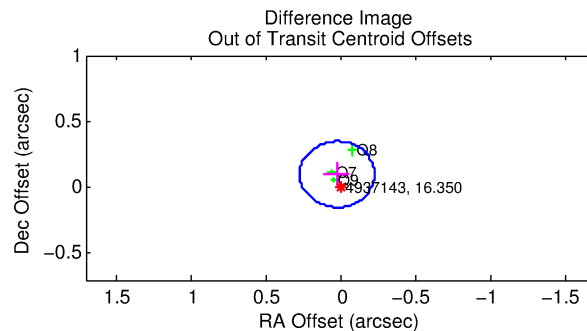
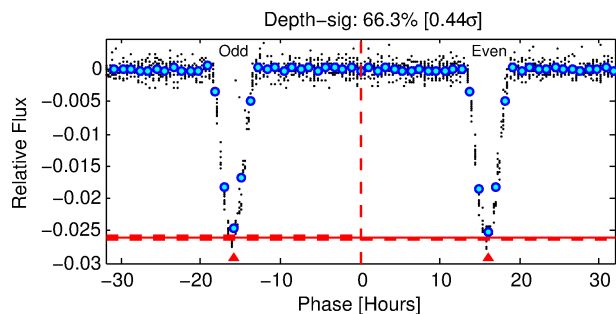
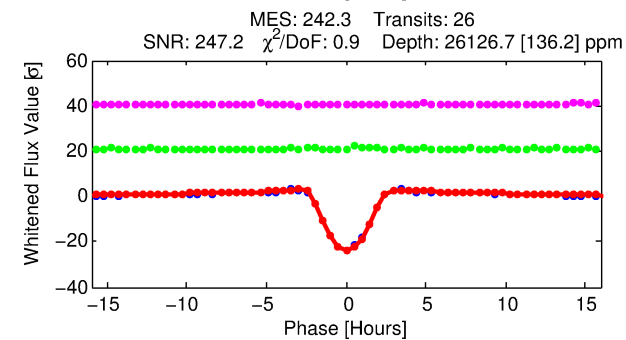
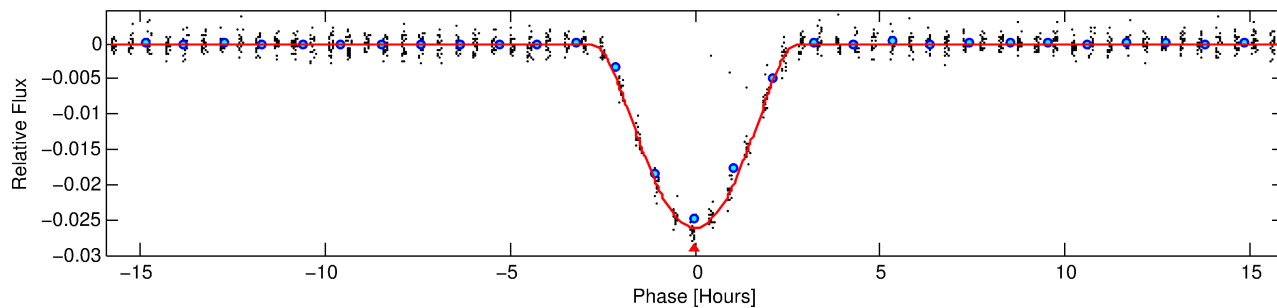
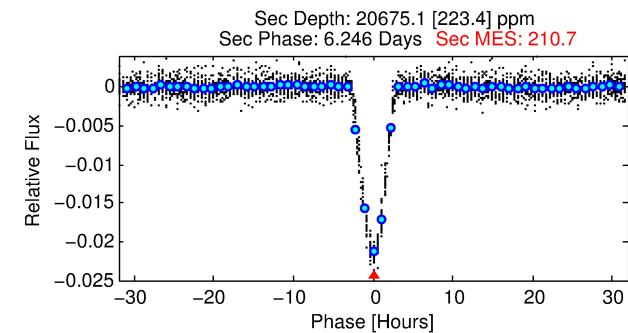
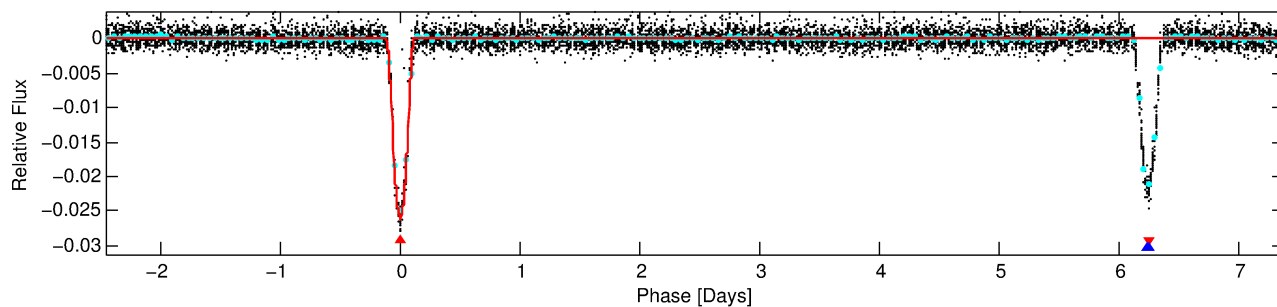
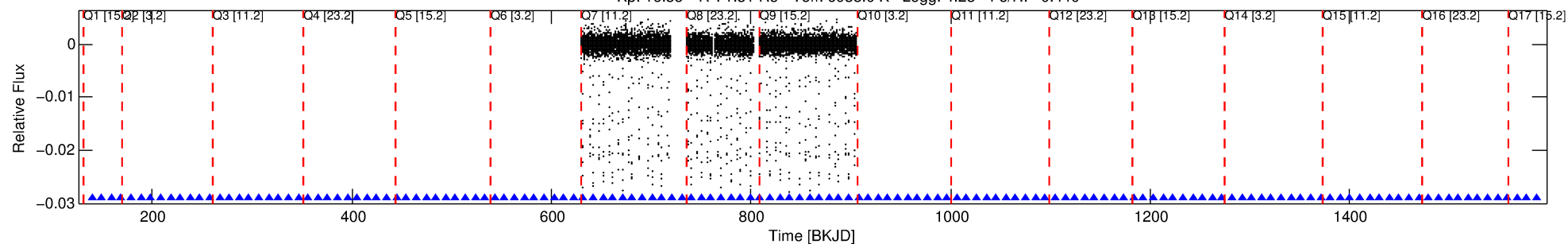
Ephemeris Match Information For 004937143-01

No Significant Match Found

DV One-Page Summary

KIC: 4937143 Candidate: 1 of 2 Period: 9.849 d
KOI: K03715 Corr: No Ephemeris Match

Kp: 16.35 R*: 1.31 Rs Teff: 6938.0 K Logg: 4.28 Fe/H: -0.440



DV Fit Results:

Period = 9.84894 [0.00003] d
Epoch = 139.5882 [0.0020] BKJD
Rp/R* = 0.2086 [0.0211]
a/R* = 10.96 [0.21]
b = 0.93 [0.04]
Seff = 390.98 [157.15]
Teq = 1134 [114] K
Rp = 29.82 [9.40] Re
a = 0.0955 [0.0238] AU
Ag = 116.58 [48.11] [2.40σ]
Teff = 5761 [390] K [11.38σ]

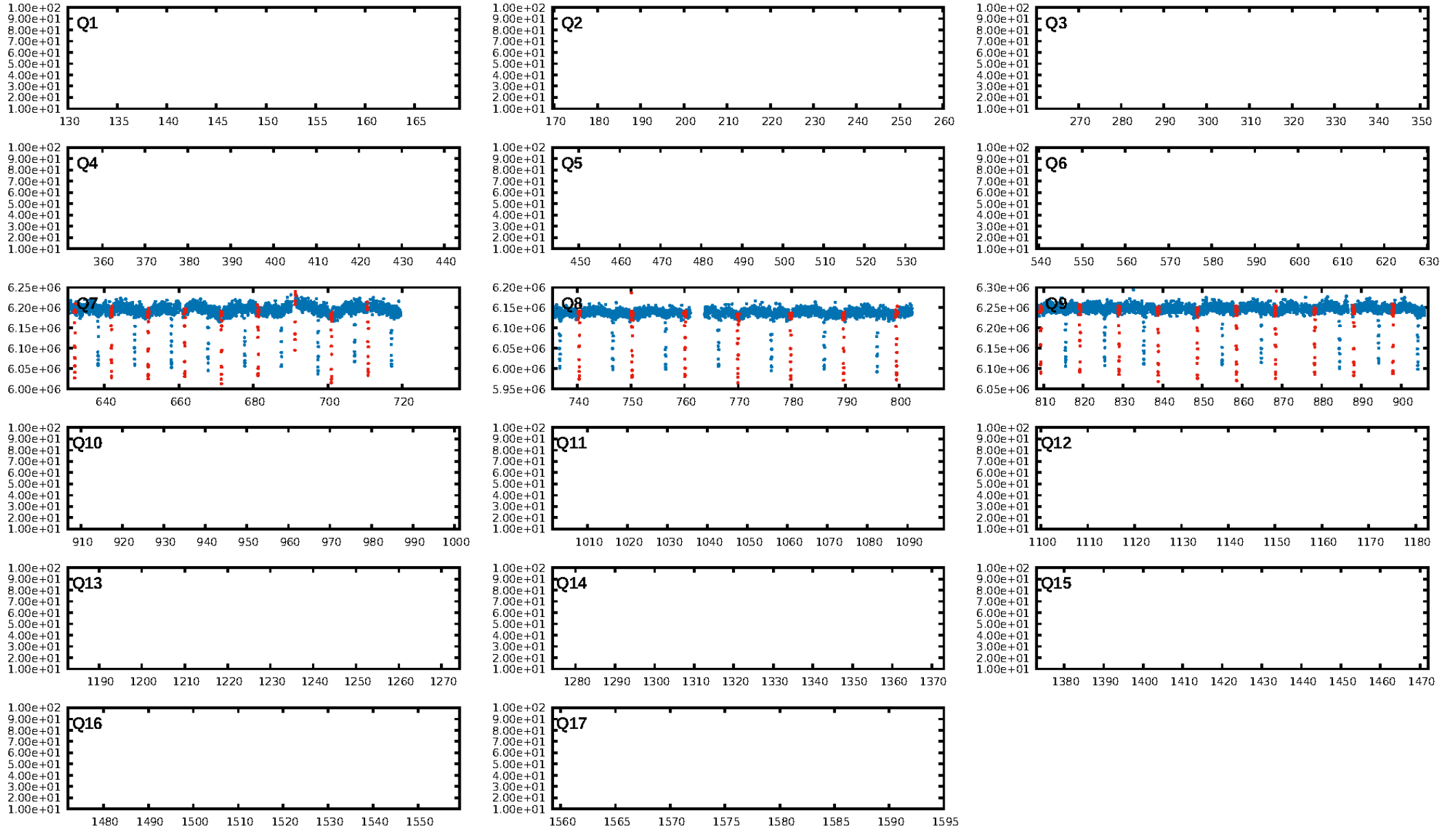
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 71.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [26/26]
GhostDiagnostic-chr: 7.64
Centroid-sig: 0.0%
Centroid-so: 0.241 arcsec [4.23σ]
OotOffset-rm: 0.102 arcsec [1.22σ]
KicOffset-rm: 0.058 arcsec [0.75σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

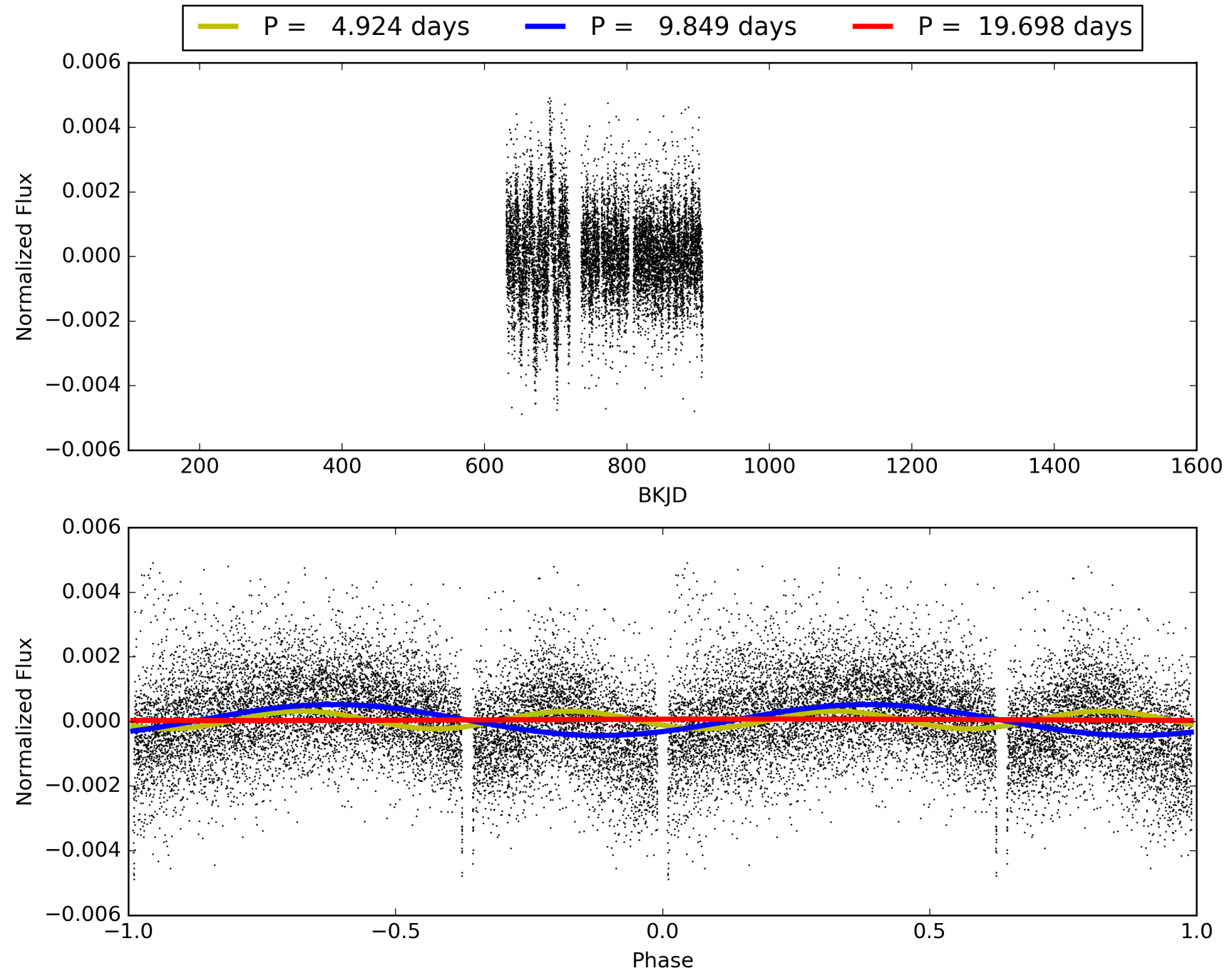
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:05:16 Z

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

TCE 004937143-01, PDC Light Curves

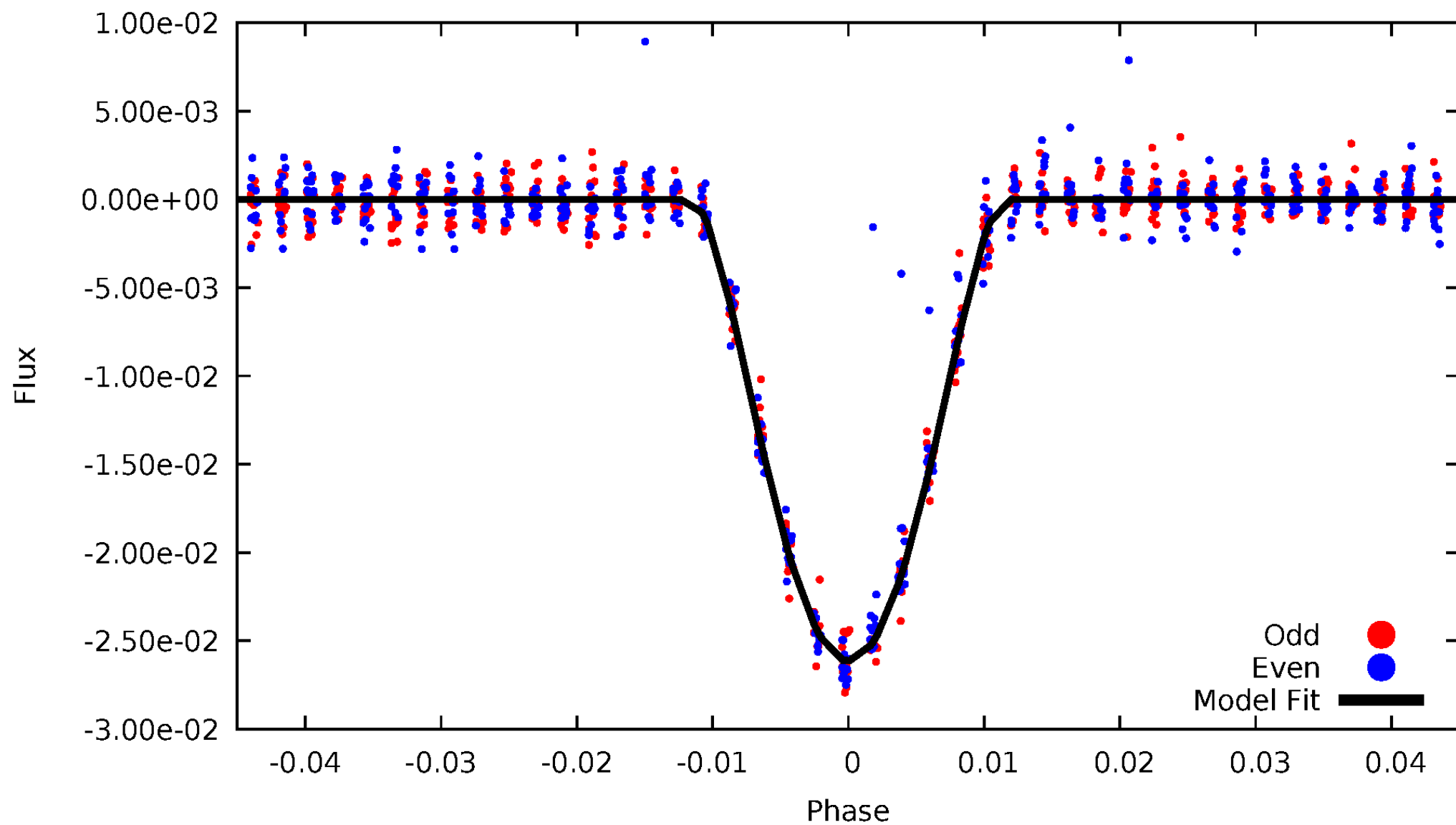


TCE 004937143-01



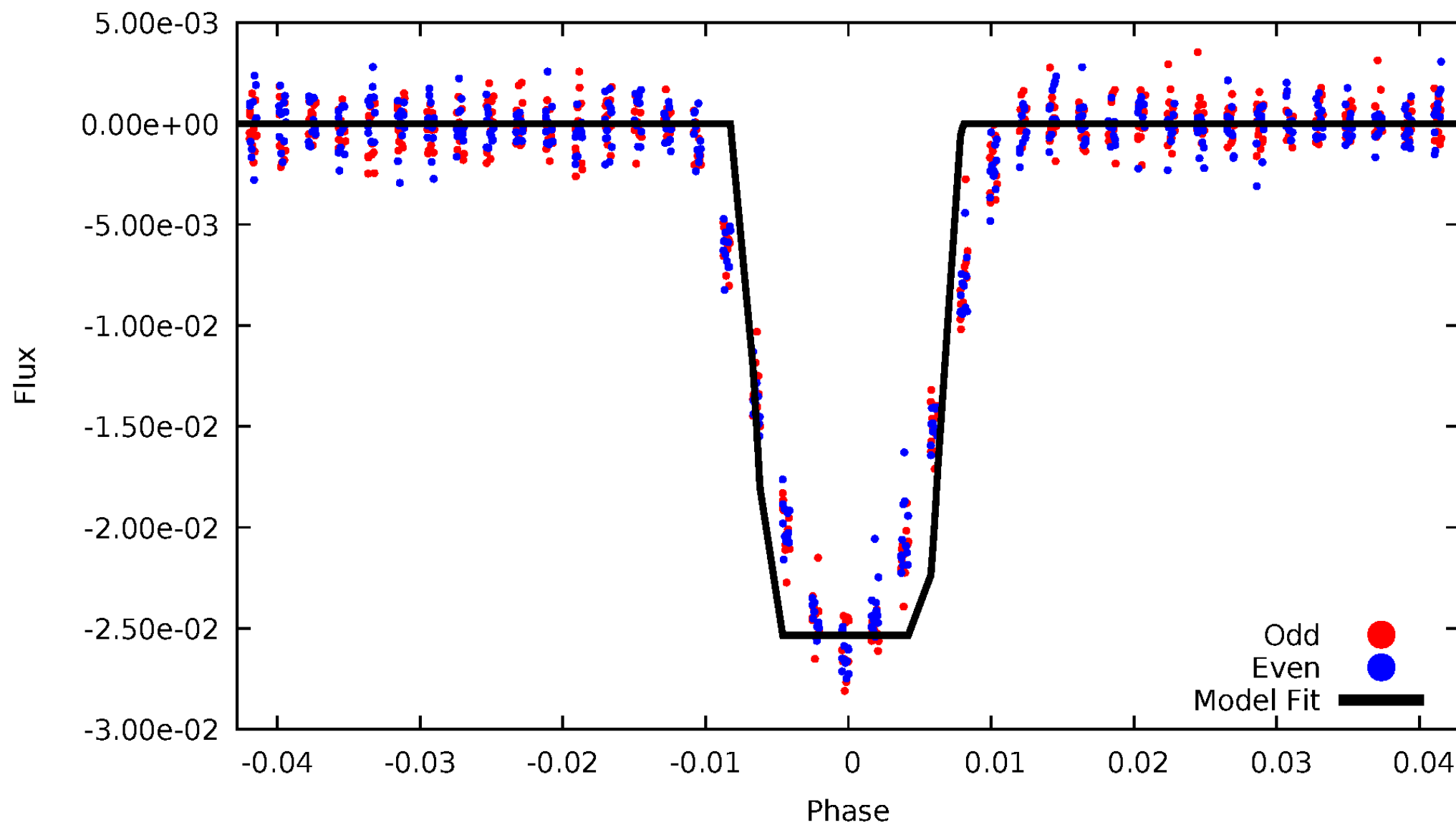
DV Odd/Even

TCE 004937143-01



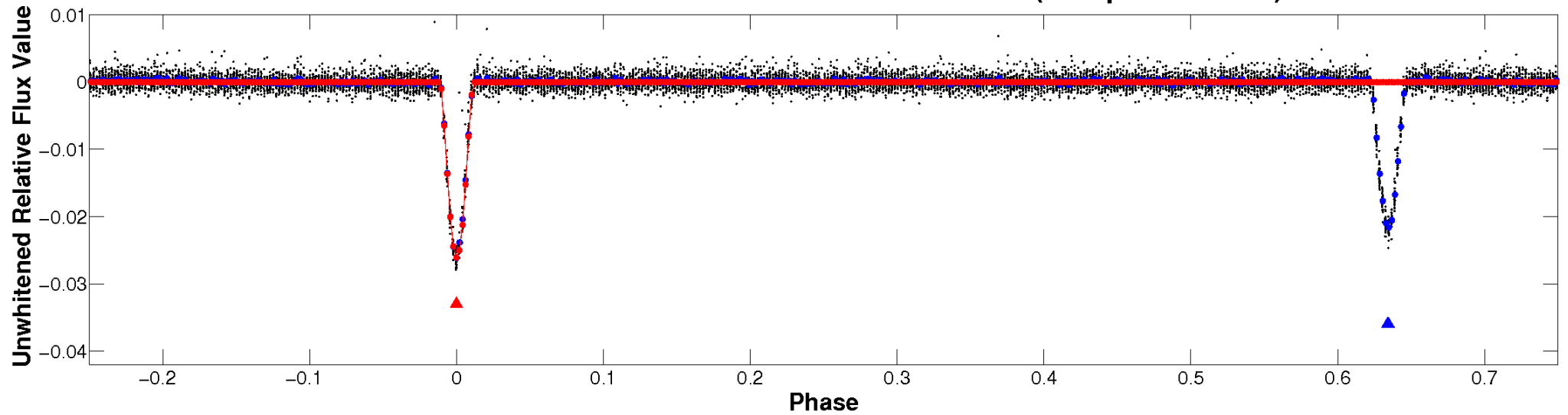
ALT Odd/Even

TCE 004937143-01

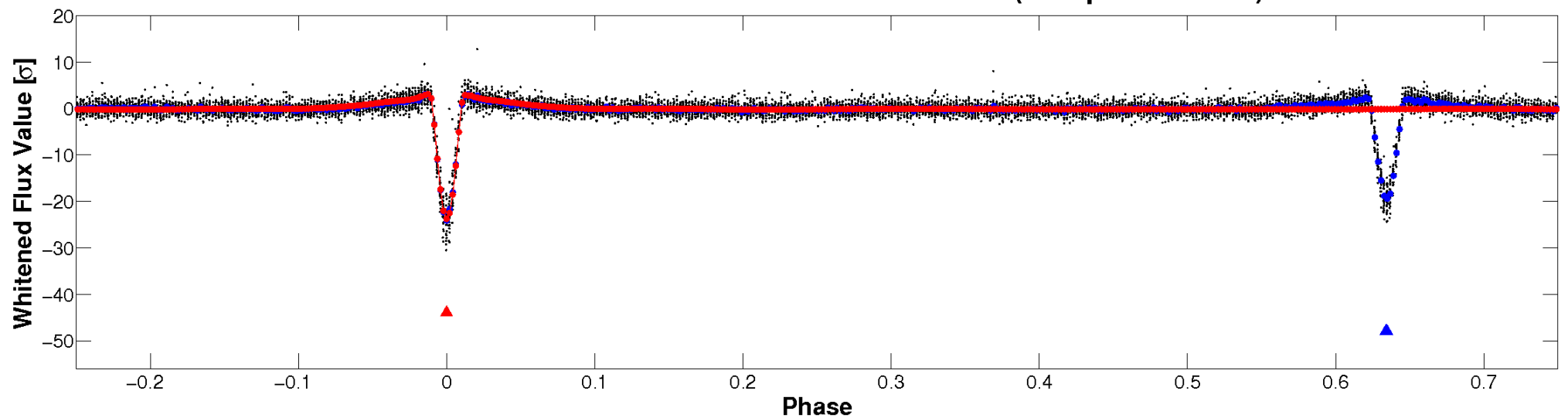


Non-Whitened Vs. Whitened Light Curve

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

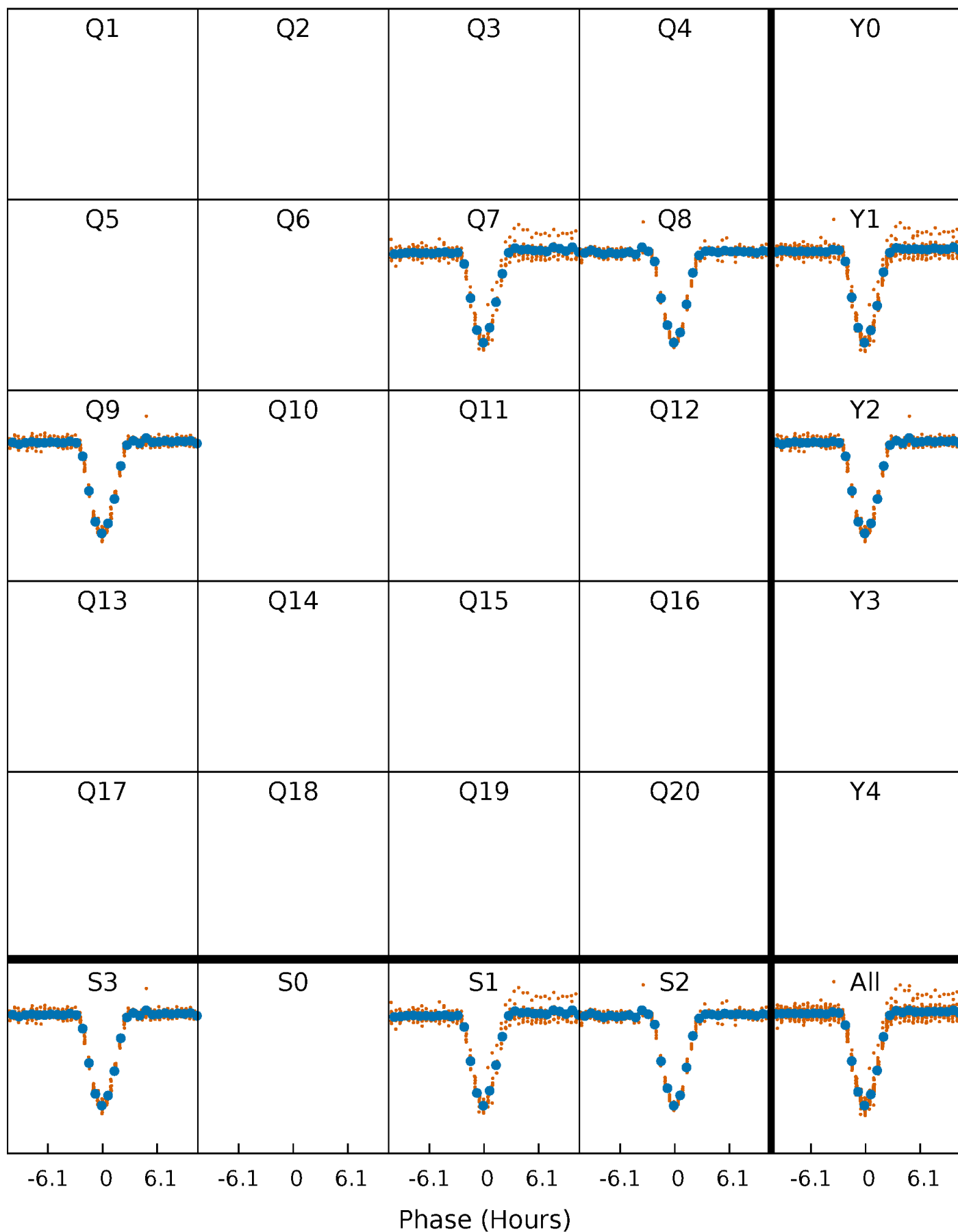


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



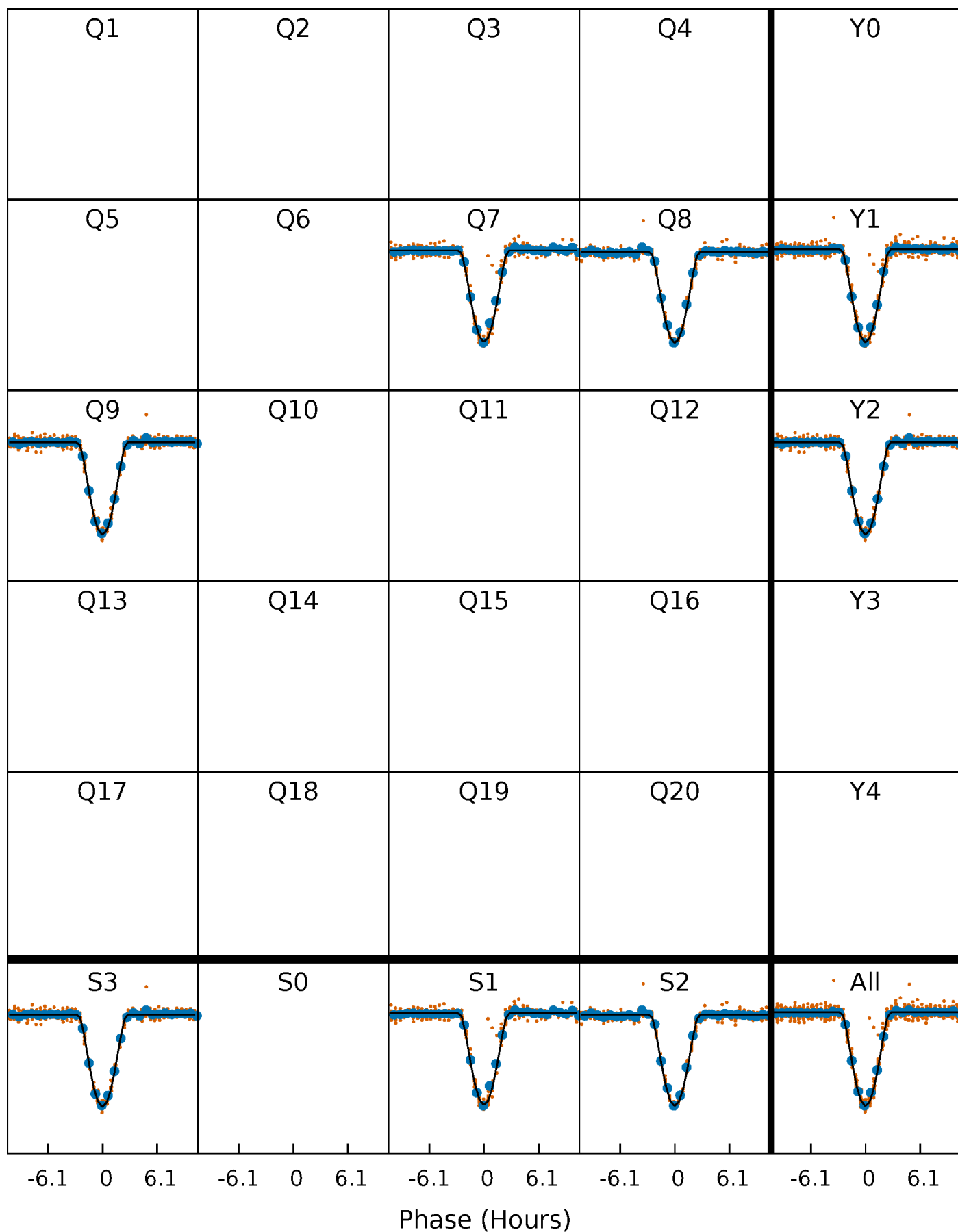
PDC Quarter-Phased Transit Curves

TCE 004937143-01 P= 9.848939 Days $T_0=139.588183$ (BKJD)



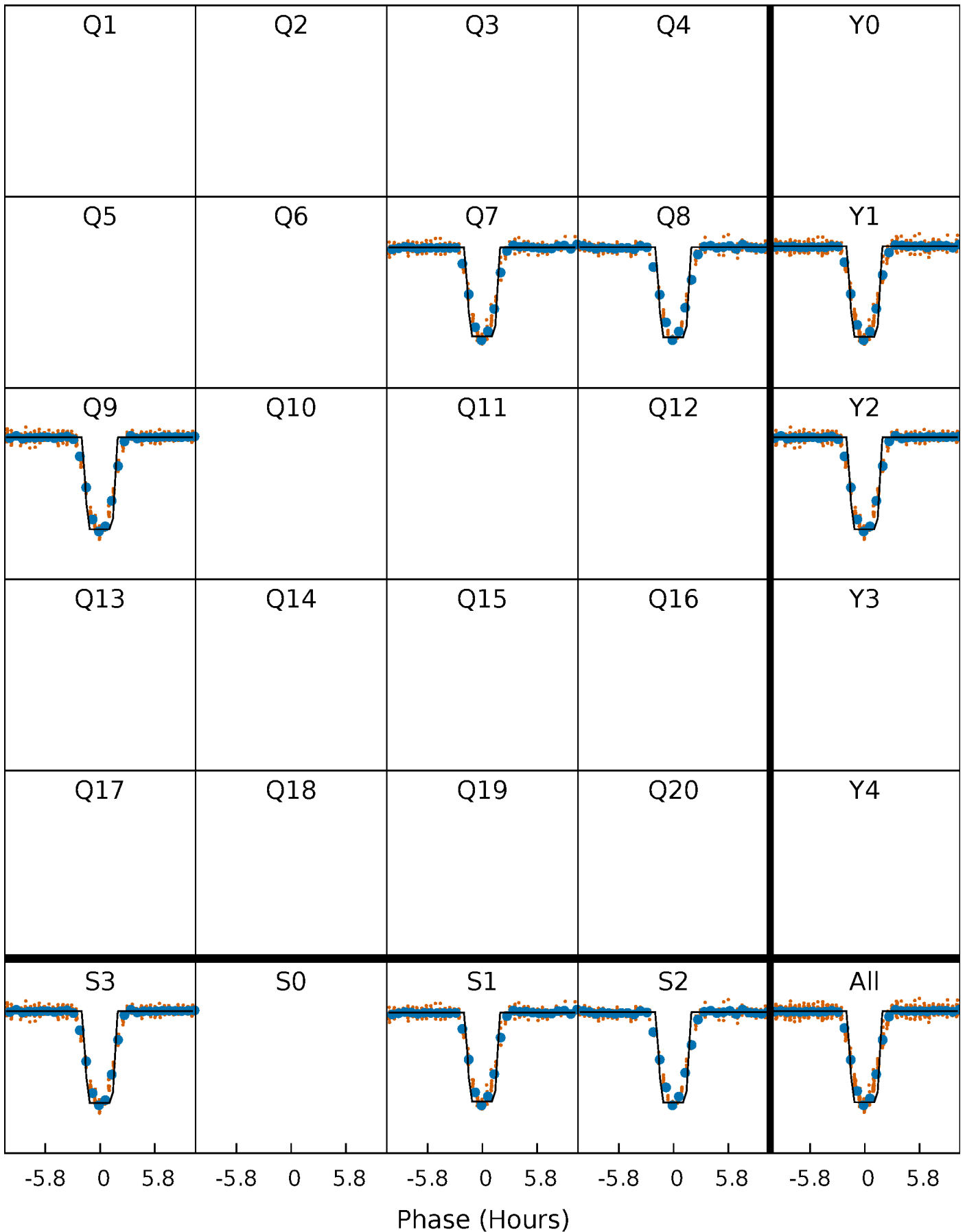
DV Quarter-Phased Transit Curves

TCE 004937143-01 P= 9.848939 Days $T_0=139.588183$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

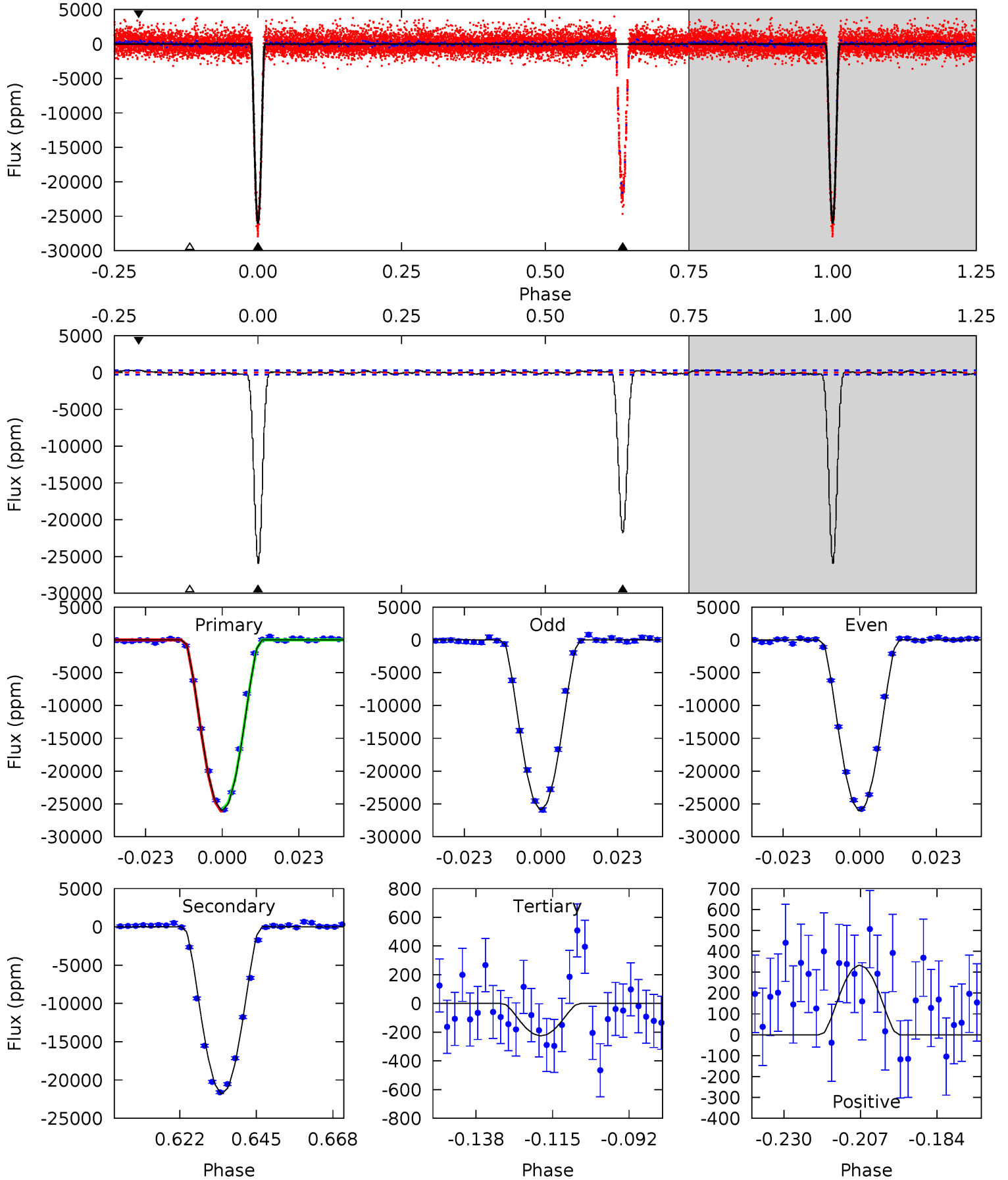
TCE 004937143-01 P= 9.848965 Days $T_0=139.586452$ (BKJD)



DV Model-Shift Uniqueness Test

004937143-01, P = 9.848939 Days, E = 139.588183 Days

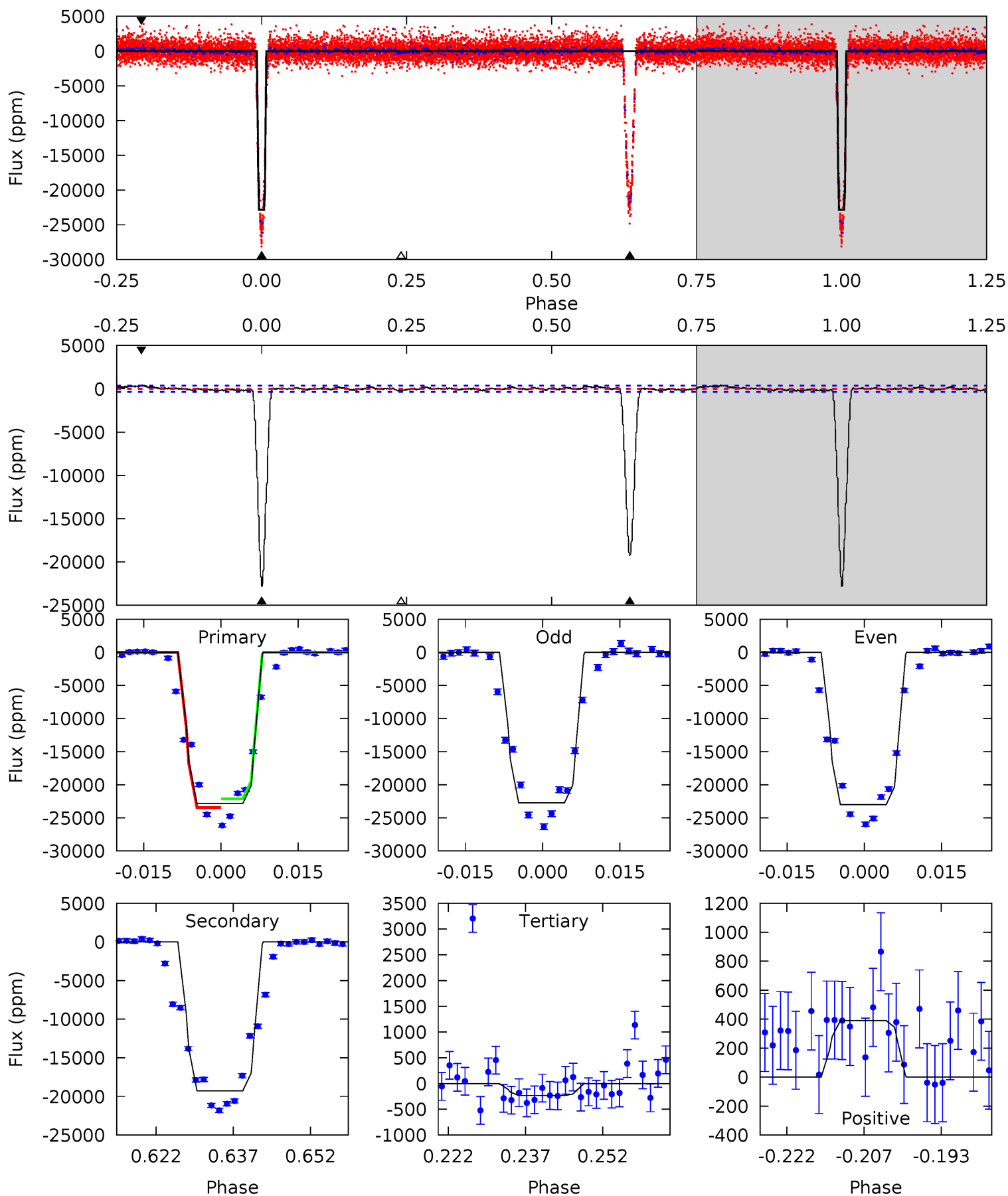
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
438.2	367.2	3.80	5.61	4.86	2.27	2.16	434.4	432.5	363.4	361.6	1.39	0.97	0.01	1.06



Alt Model-Shift Uniqueness Test

004937143-01, P = 9.848965 Days, E = 139.586452 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
305.7	257.9	3.10	5.23	4.95	2.44	1.86	302.6	300.5	254.8	252.6	1.94	1.00	0.02	3.66



Stellar Parameters For KIC 004937143

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6938^{+192}_{-312}	$4.281^{+0.105}_{-0.195}$	$-0.440^{+0.250}_{-0.300}$	$1.310^{+0.391}_{-0.211}$	$1.198^{+0.185}_{-0.166}$	$0.751^{+0.418}_{-0.361}$
	+3%/-4%	+2%/-5%	+57%/-68%	+30%/-16%	+15%/-14%	+56%/-48%
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 004937143-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-21770 ± 59	$30.81^{+5.69}_{-4.54}$	1600^{+123}_{-98}	5807^{+340}_{-336}	117^{+37}_{-32}
Alt.	-19267 ± 75	$23.11^{+4.99}_{-4.06}$	1589^{+114}_{-100}	6422^{+563}_{-481}	181^{+83}_{-55}

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

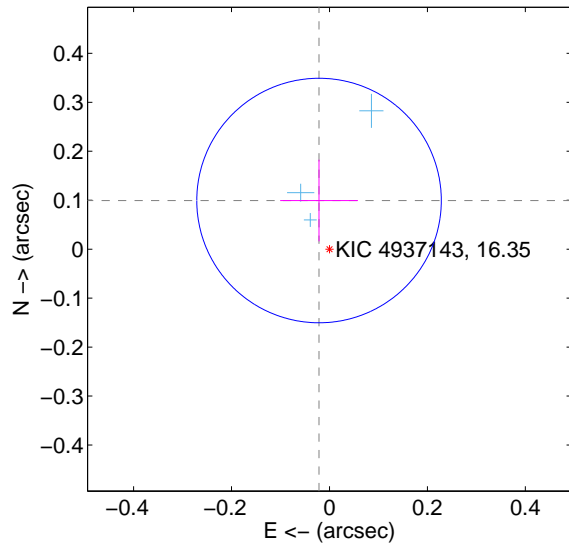
Supplemental centroid analysis for 004937143-01. Kepler magnitude: 16.35. Transit SNR 247.22

There are 3 quarters with good PRF difference image offsets

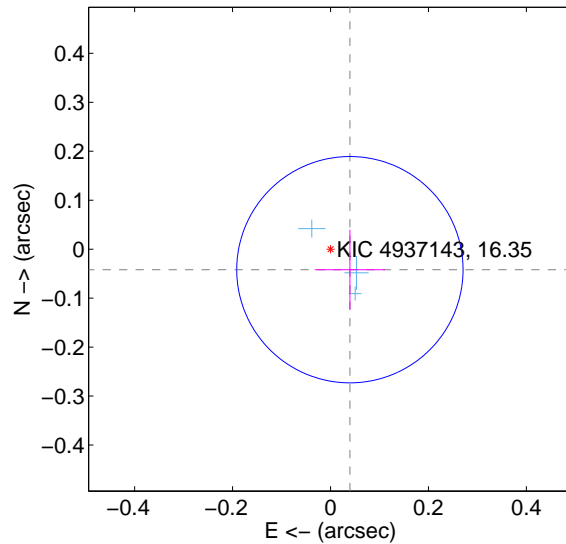
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.102 ± 0.083	1.22	0.021 ± 0.079	0.099 ± 0.083
PRF-fit source offset from KIC position	0.058 ± 0.077	0.75	-0.040 ± 0.072	-0.042 ± 0.081
photometric centroid source offset	0.24 ± 0.06	4.23	0.07 ± 0.06	-0.23 ± 0.06

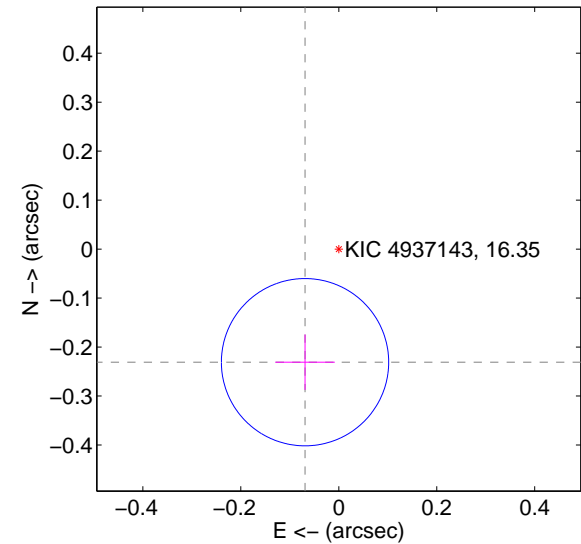
offset from difference PRF-fit to OOT PRF-fit



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.

Q5 no difference image



Q5 no OOT image



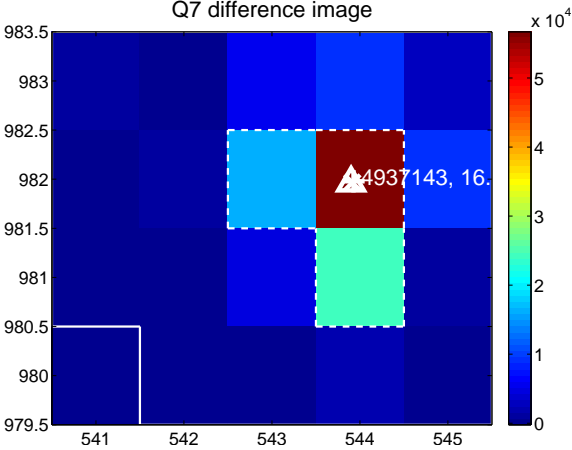
Q6 no difference image



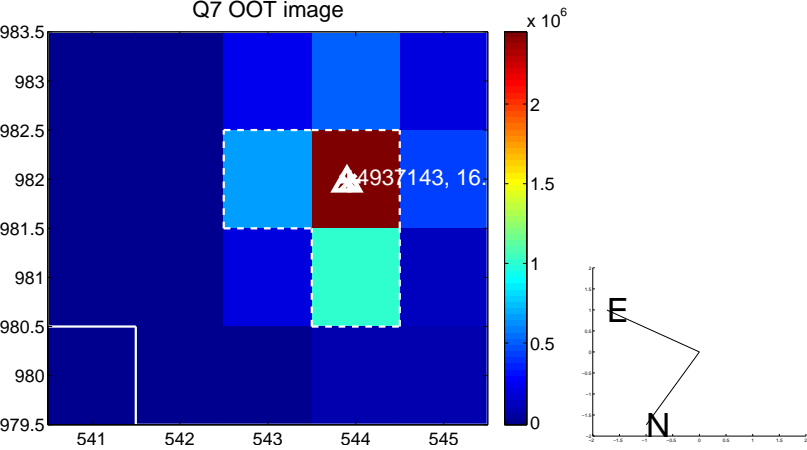
Q6 no OOT image



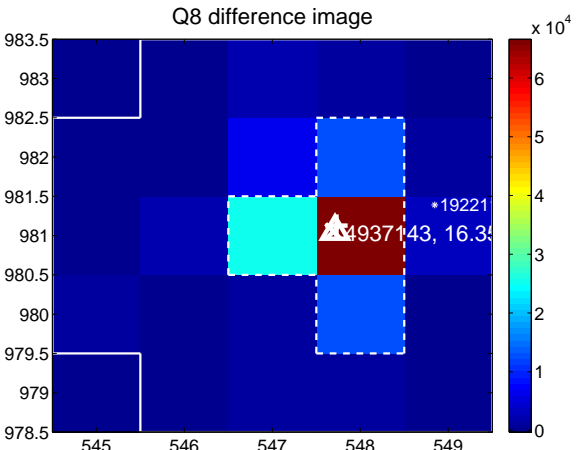
Q7 difference image



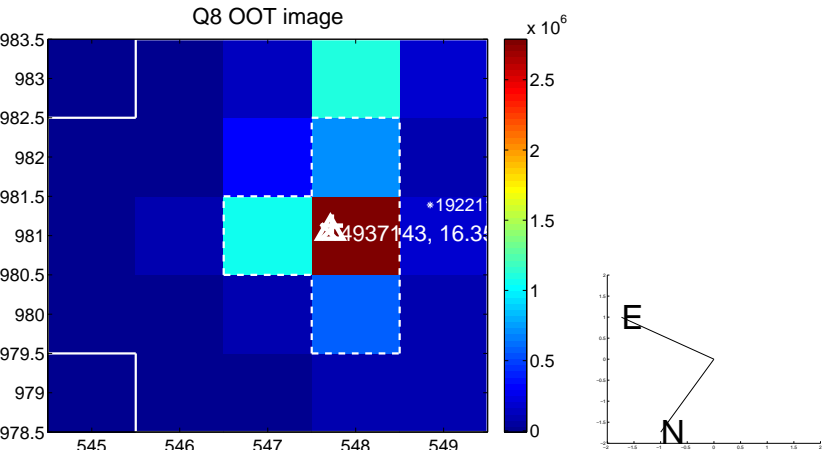
Q7 OOT image



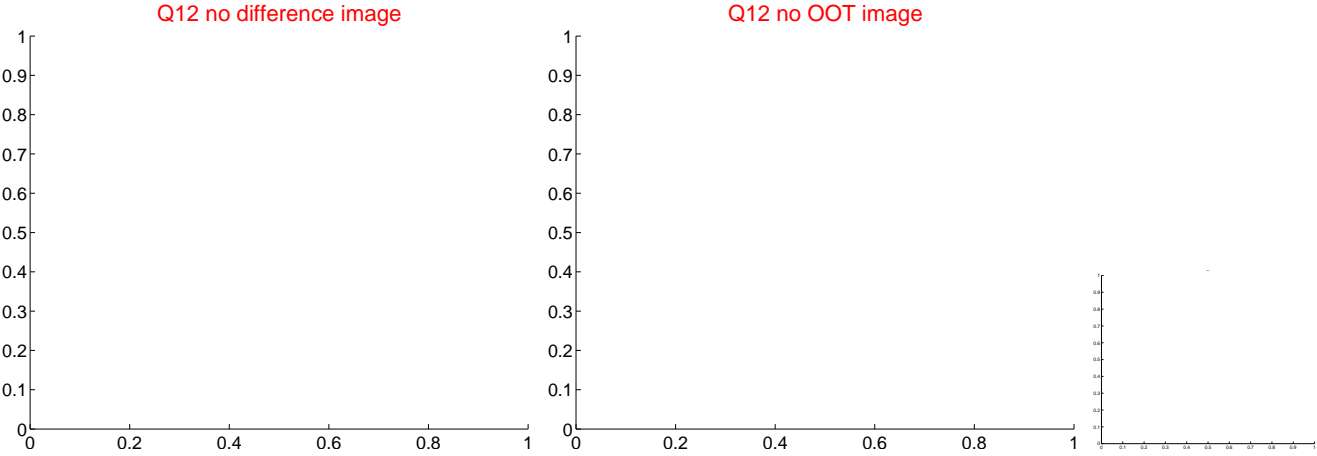
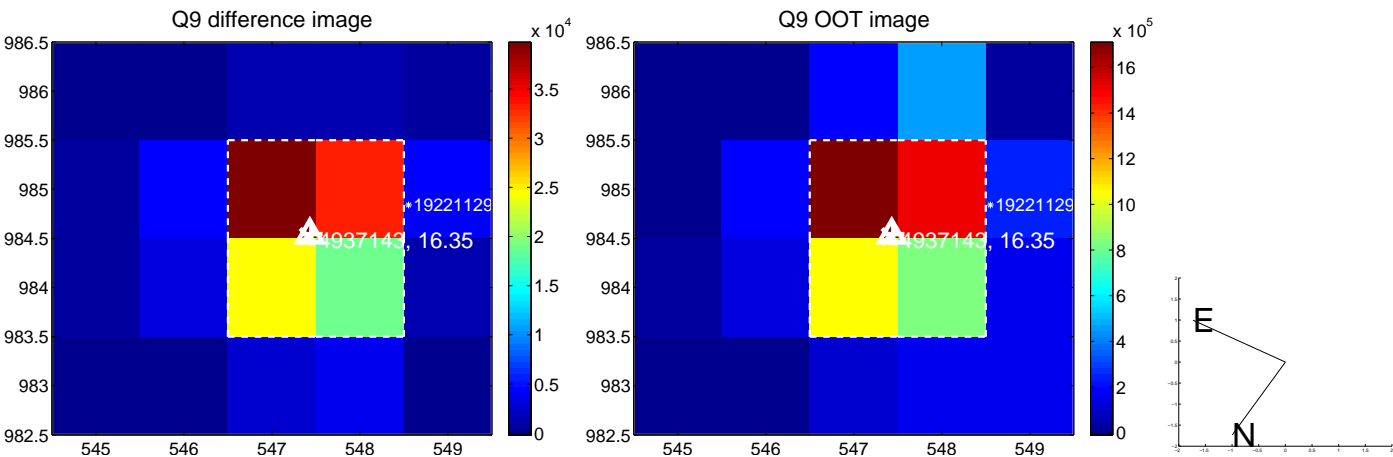
Q8 difference image



Q8 OOT image



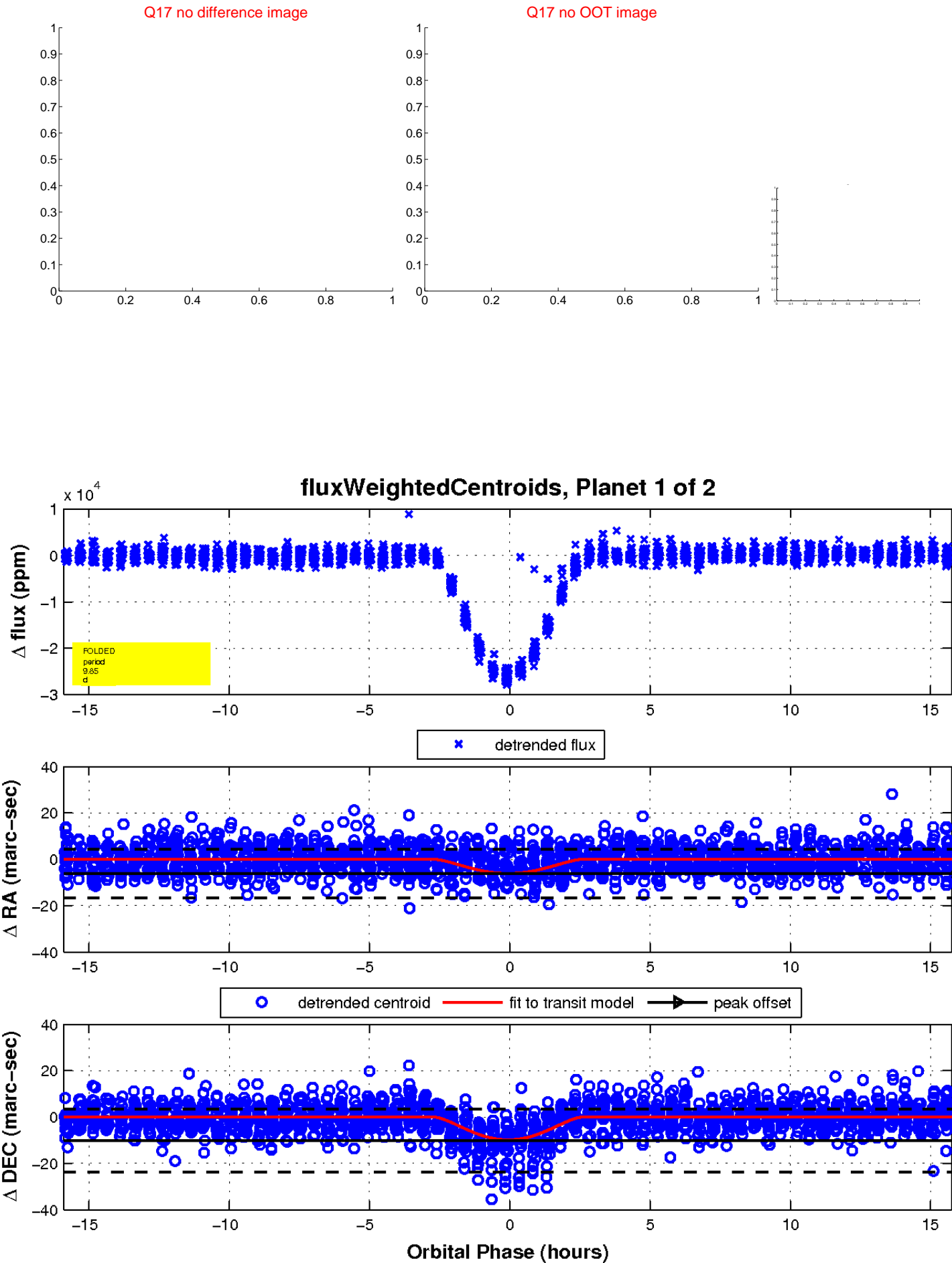
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

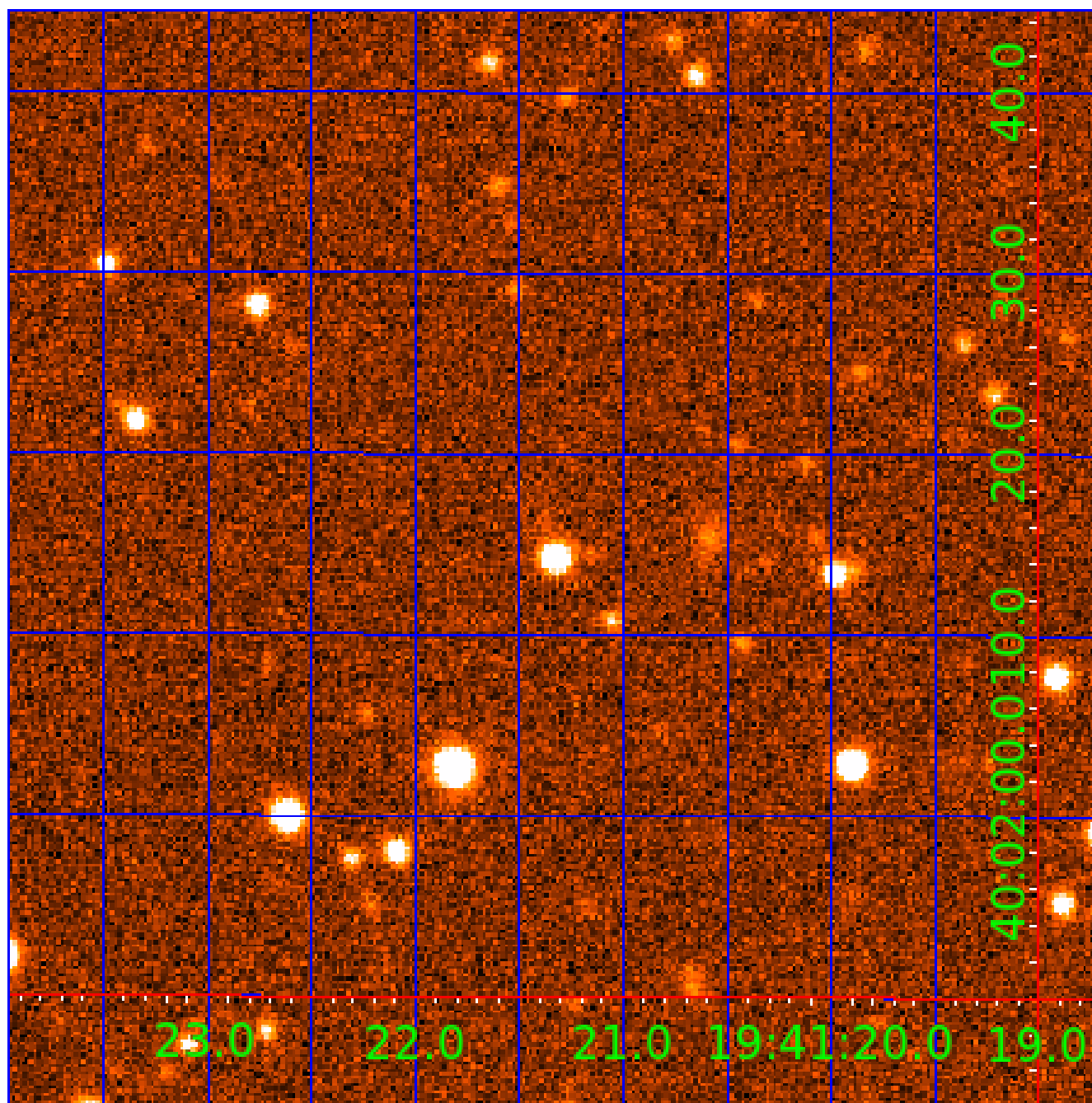


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004937143

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})
004937143-01	OBS	No	9.848939	139.588183	26126.7	5.320	242.3	247.2	1.31	6938	29.82	390.99
004937143-02	OBS	3715.01	9.848902	135.988918	21834.7	5.677	213.8	204.3	1.31	6938	28.42	390.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004937143-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004937143-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD

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.

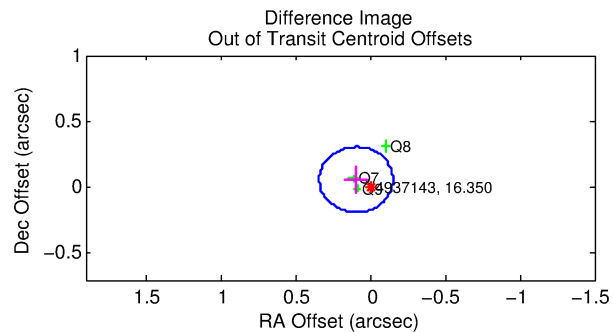
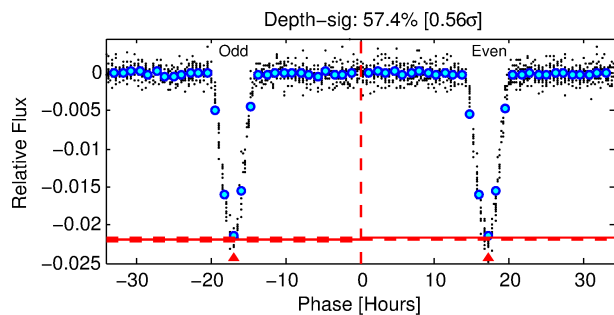
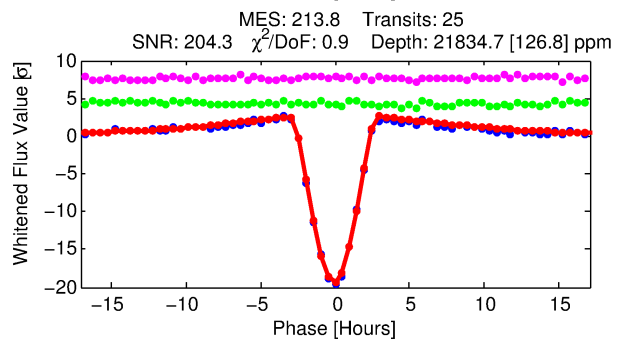
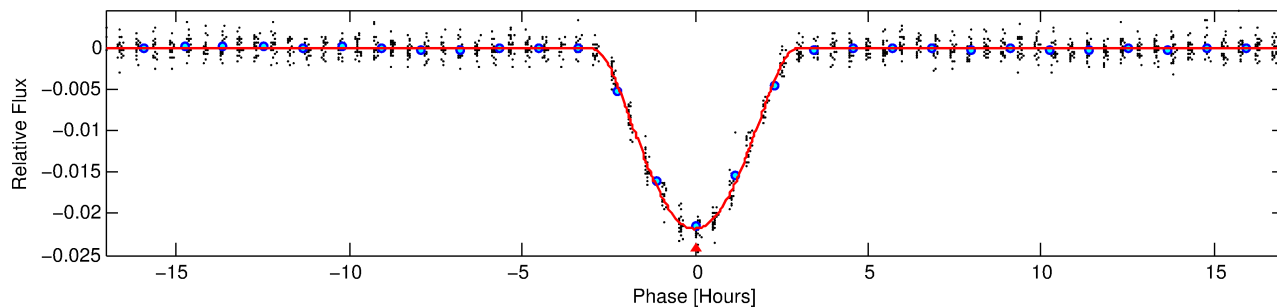
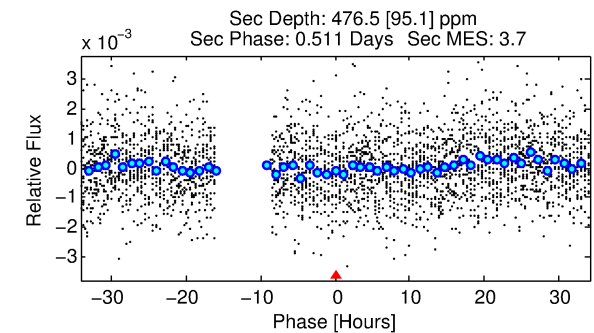
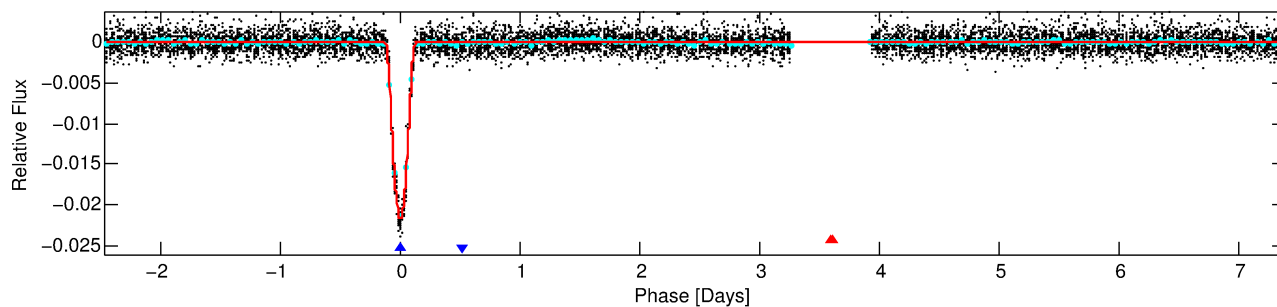
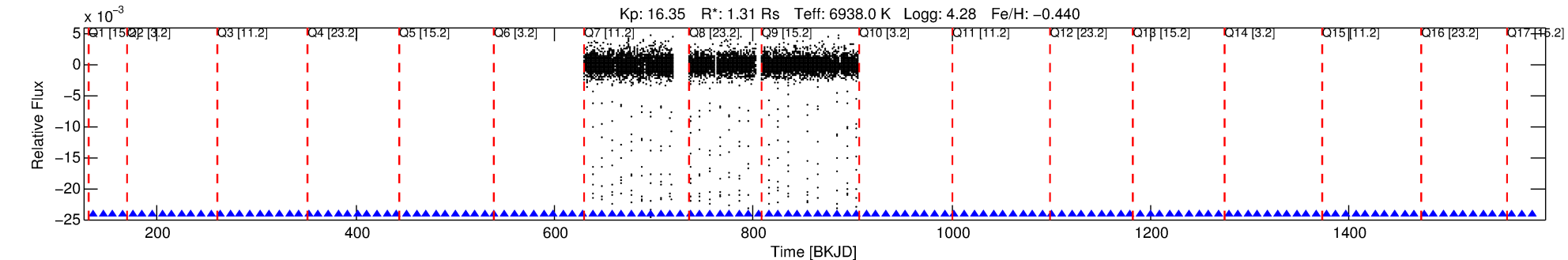
Ephemeris Match Information For 004937143-02

No Significant Match Found

DV One-Page Summary

KIC: 4937143 Candidate: 2 of 2 Period: 9.849 d
KOI: K03715.01 Corr: 0.994

Kp: 16.35 R*: 1.31 Rs Teff: 6938.0 K Logg: 4.28 Fe/H: -0.440



DV Fit Results:

Period = 9.84890 [0.00004] d
Epoch = 135.9889 [0.0026] BKJD
Rp/R* = 0.1988 [0.0272]
a/R* = 9.78 [0.23]
b = 0.95 [0.04]
Seff = 390.99 [157.15]
Teq = 1134 [114] K
Rp = 28.42 [9.34] Re
a = 0.0955 [0.0238] AU
Ag = 2.96 [1.46] [1.34sigma]
Teff = 2299 [221] K [4.69sigma]

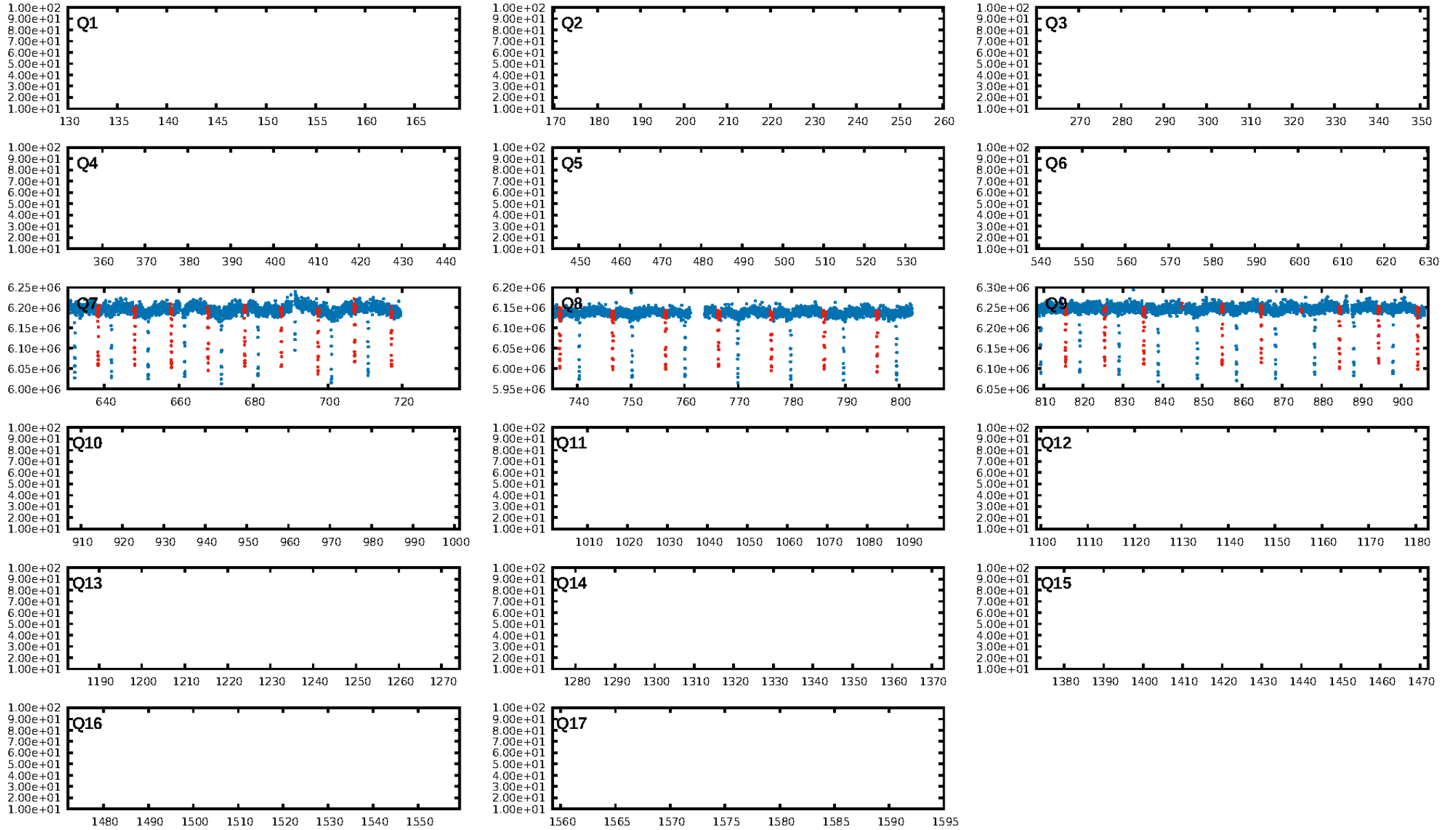
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00sigma]
ModelChiSquare2-sig: 74.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [25/25]
GhostDiagnostic-chr: 6.152
Centroid-sig: 0.0%
Centroid-so: 0.377 arcsec [5.60sigma]
OotOffset-rm: 0.111 arcsec [1.36sigma]
KicOffset-rm: 0.079 arcsec [0.85sigma]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

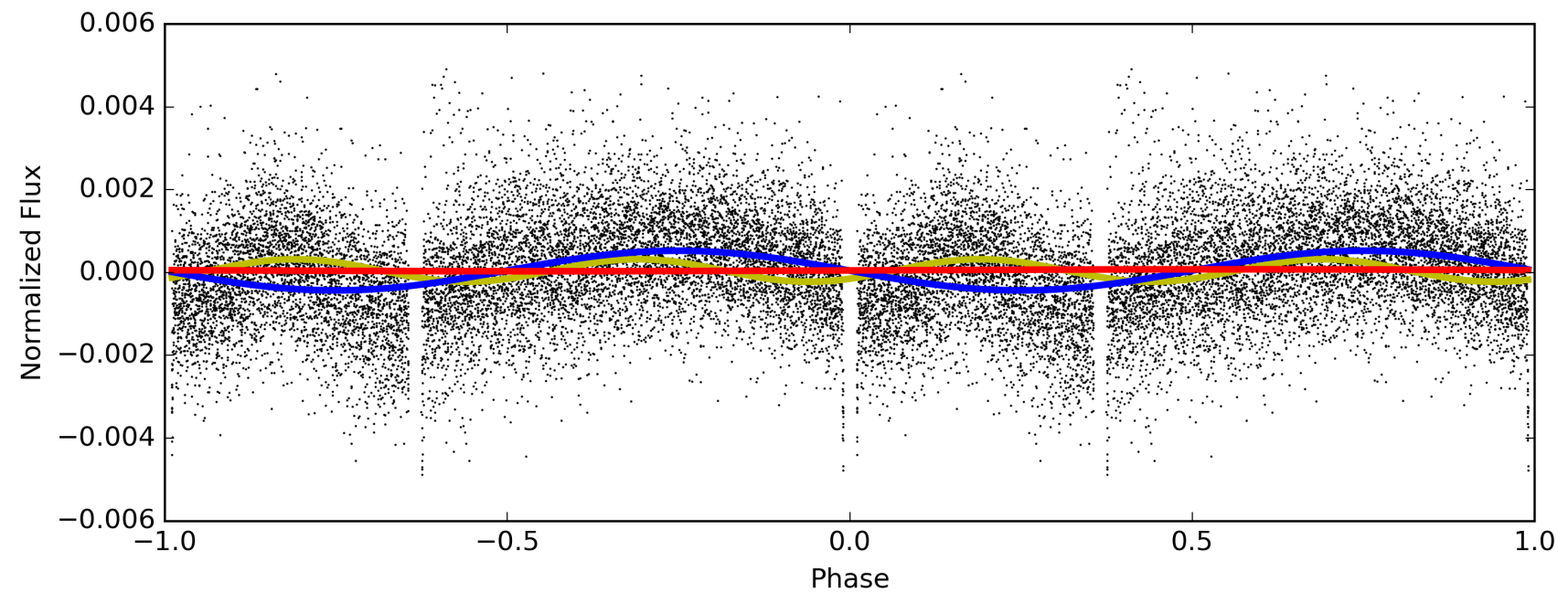
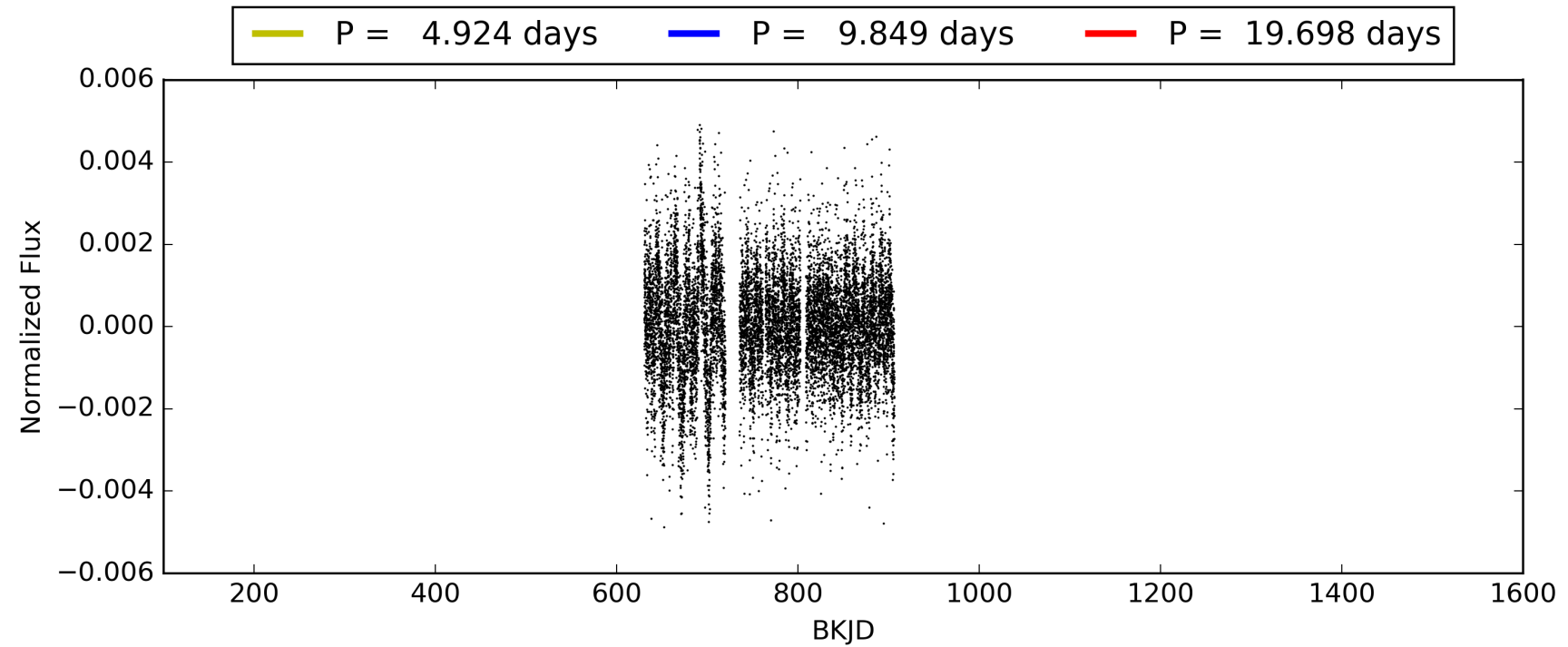
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:05:24 Z

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TCE 004937143-02, PDC Light Curves

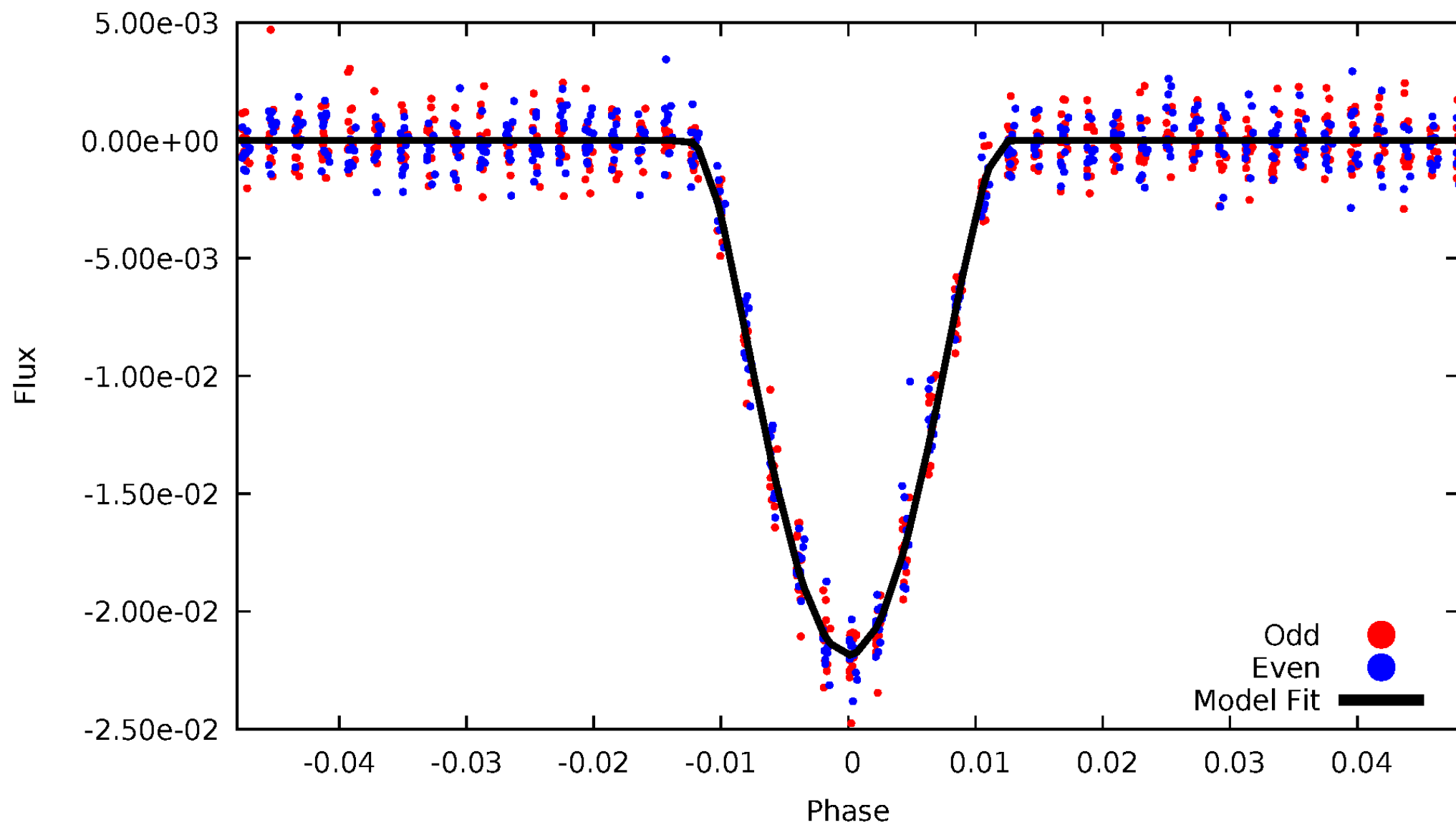


TCE 004937143-02



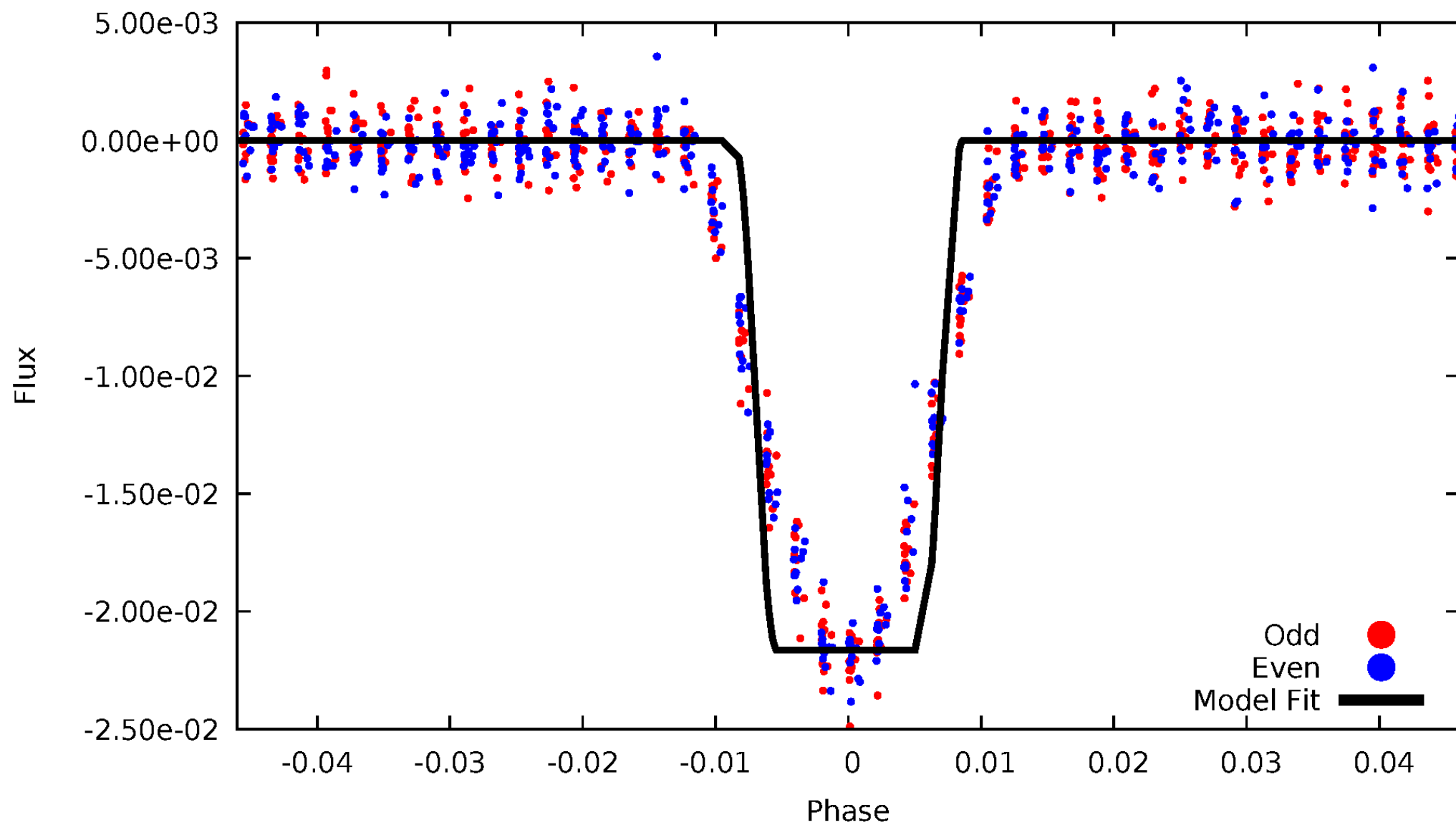
DV Odd/Even

TCE 004937143-02



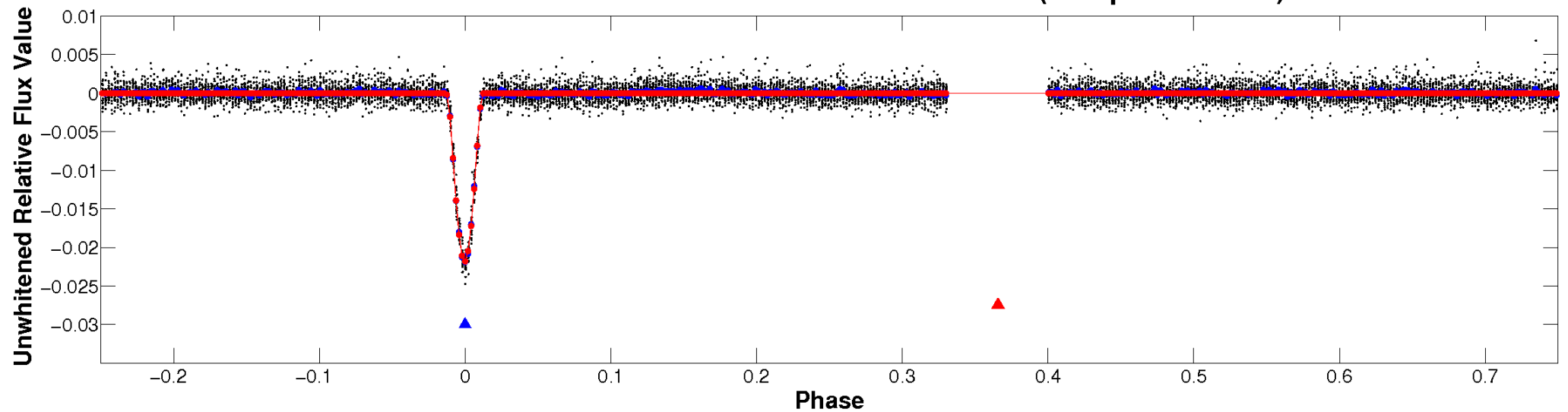
ALT Odd/Even

TCE 004937143-02

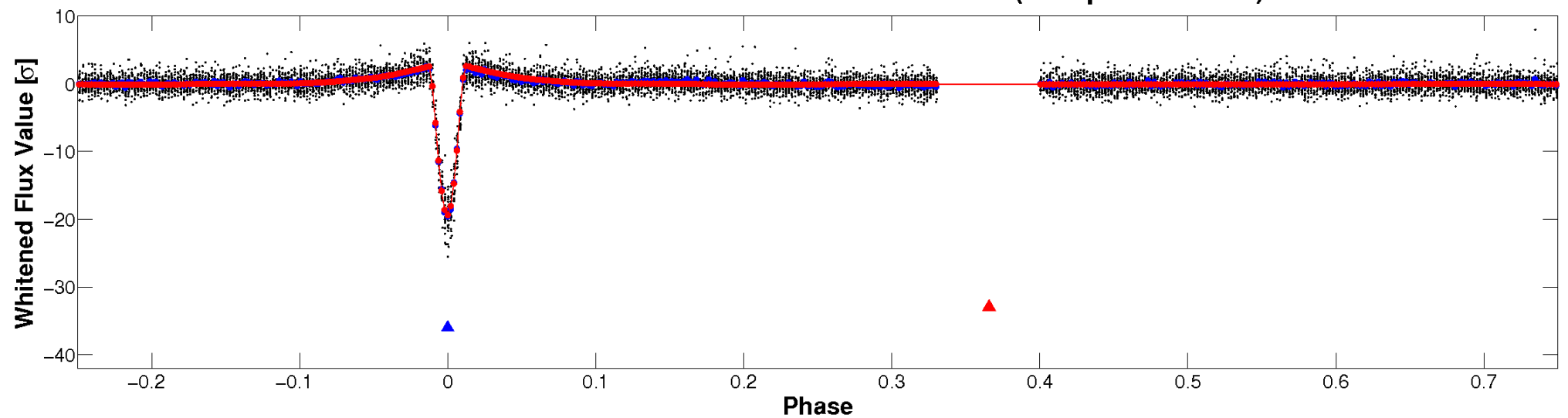


Non-Whitened Vs. Whitened Light Curve

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

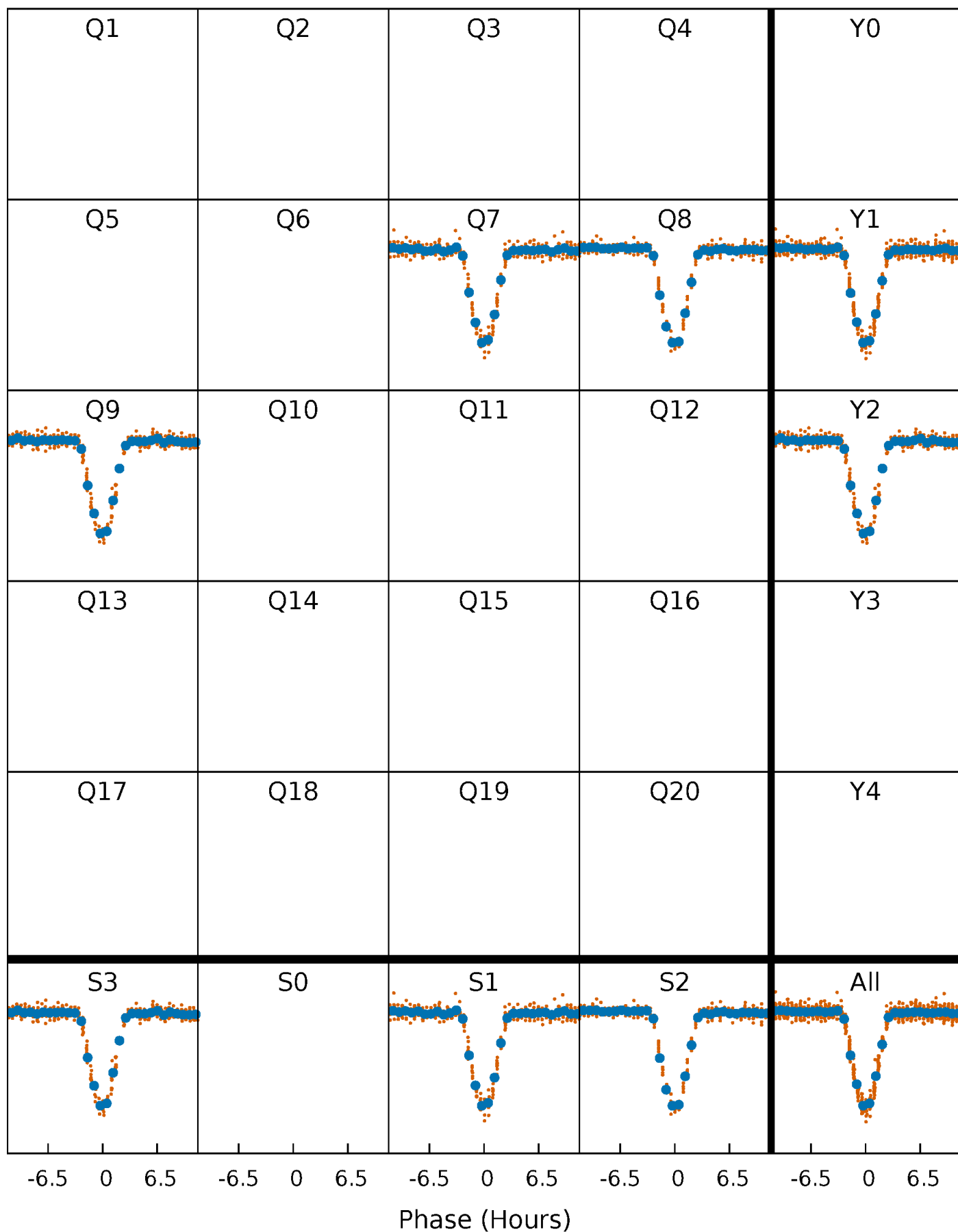


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



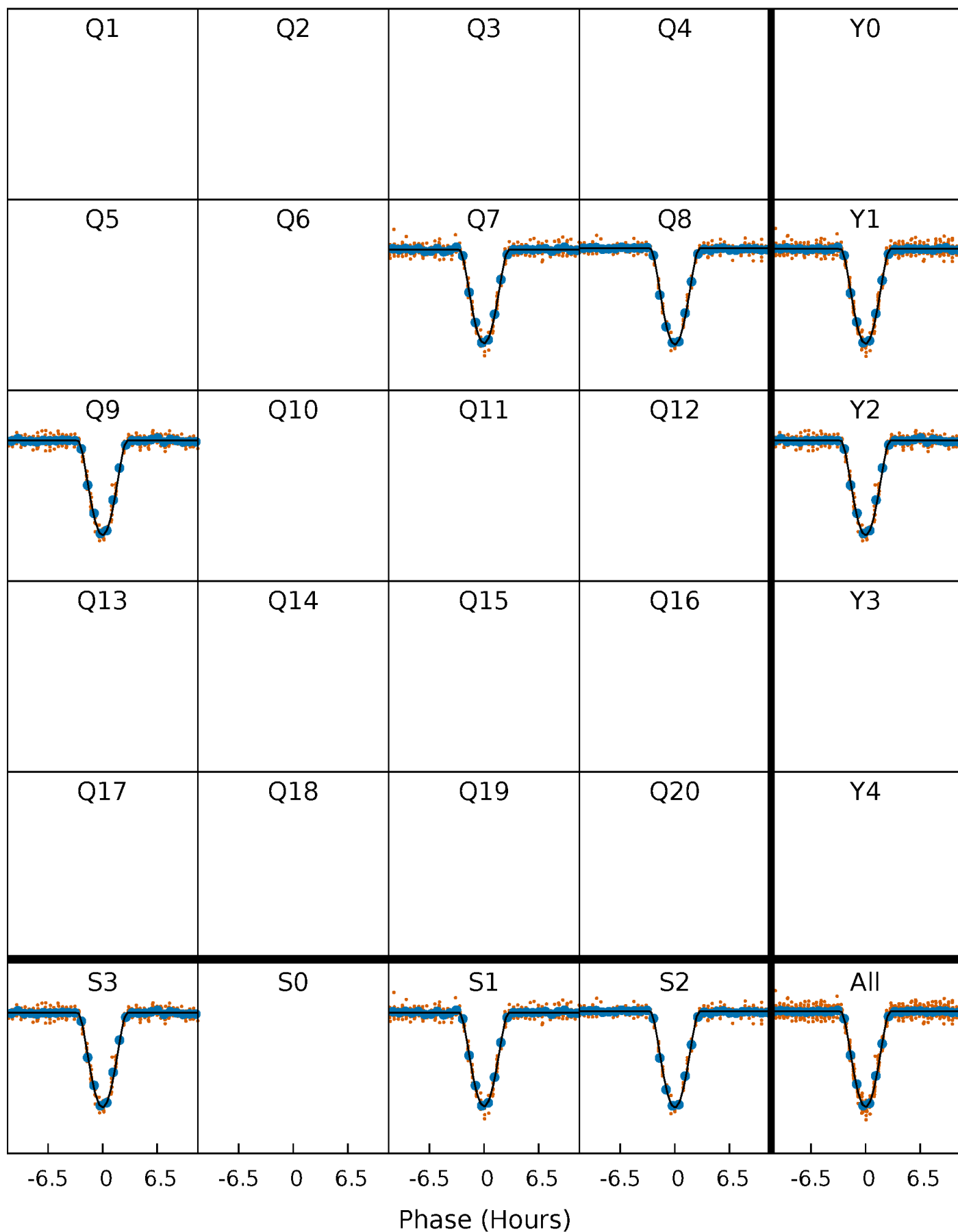
PDC Quarter-Phased Transit Curves

TCE 004937143-02 P= 9.848902 Days $T_0=135.988918$ (BKJD)



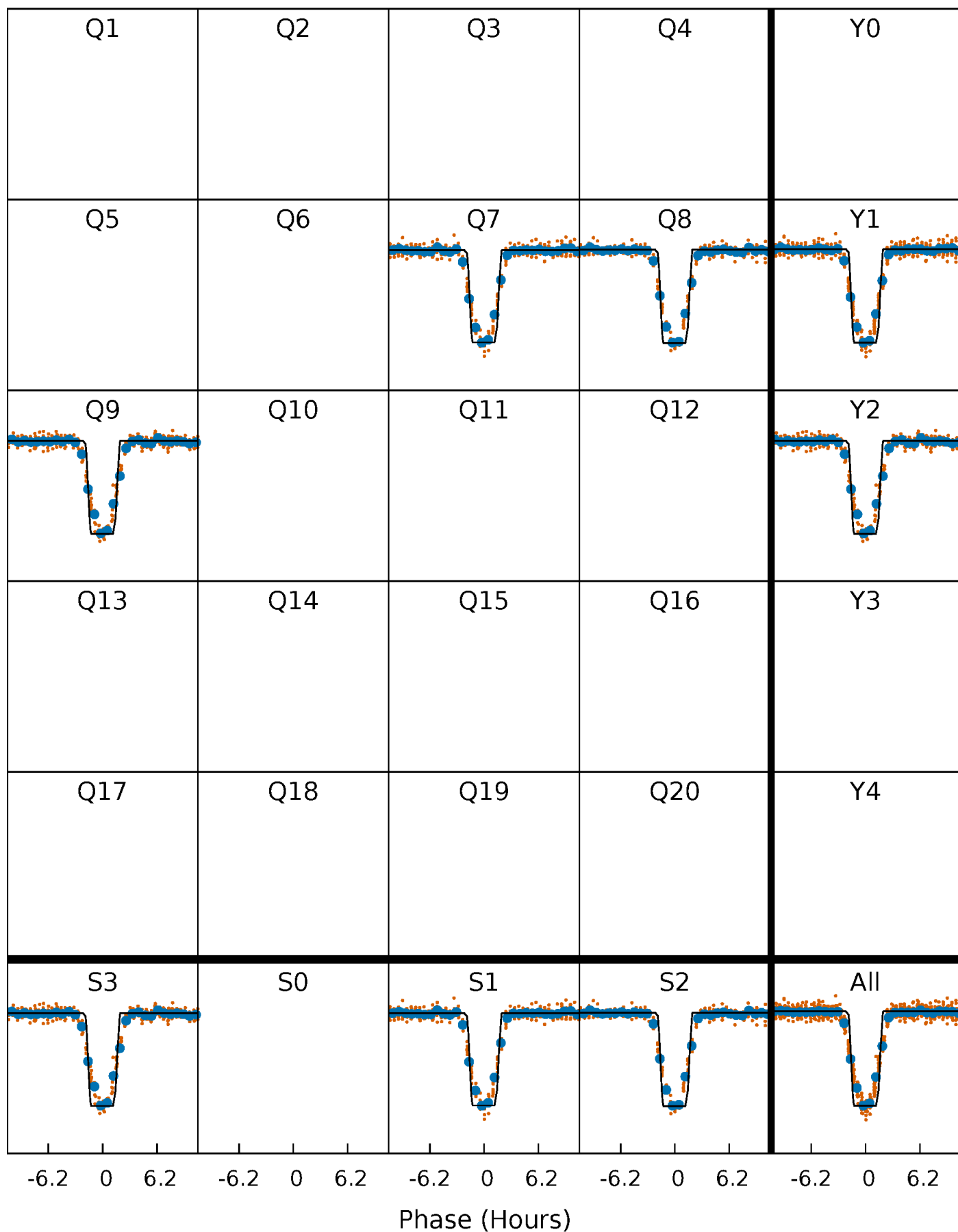
DV Quarter-Phased Transit Curves

TCE 004937143-02 P= 9.848902 Days $T_0=135.988918$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

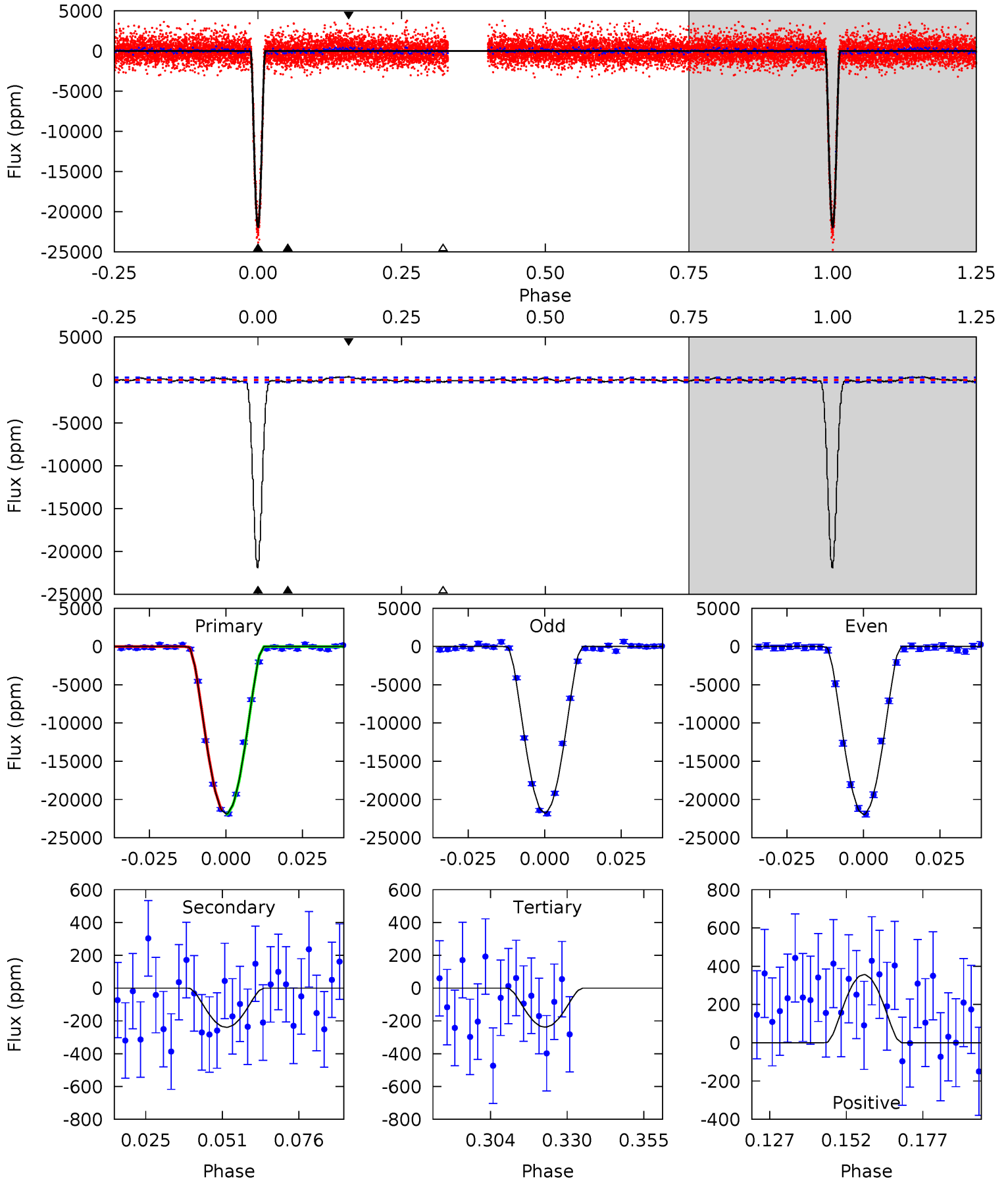
TCE 004937143-02 P= 9.848769 Days $T_0=135.997541$ (BKJD)



DV Model-Shift Uniqueness Test

004937143-02, P = 9.848902 Days, E = 135.988918 Days

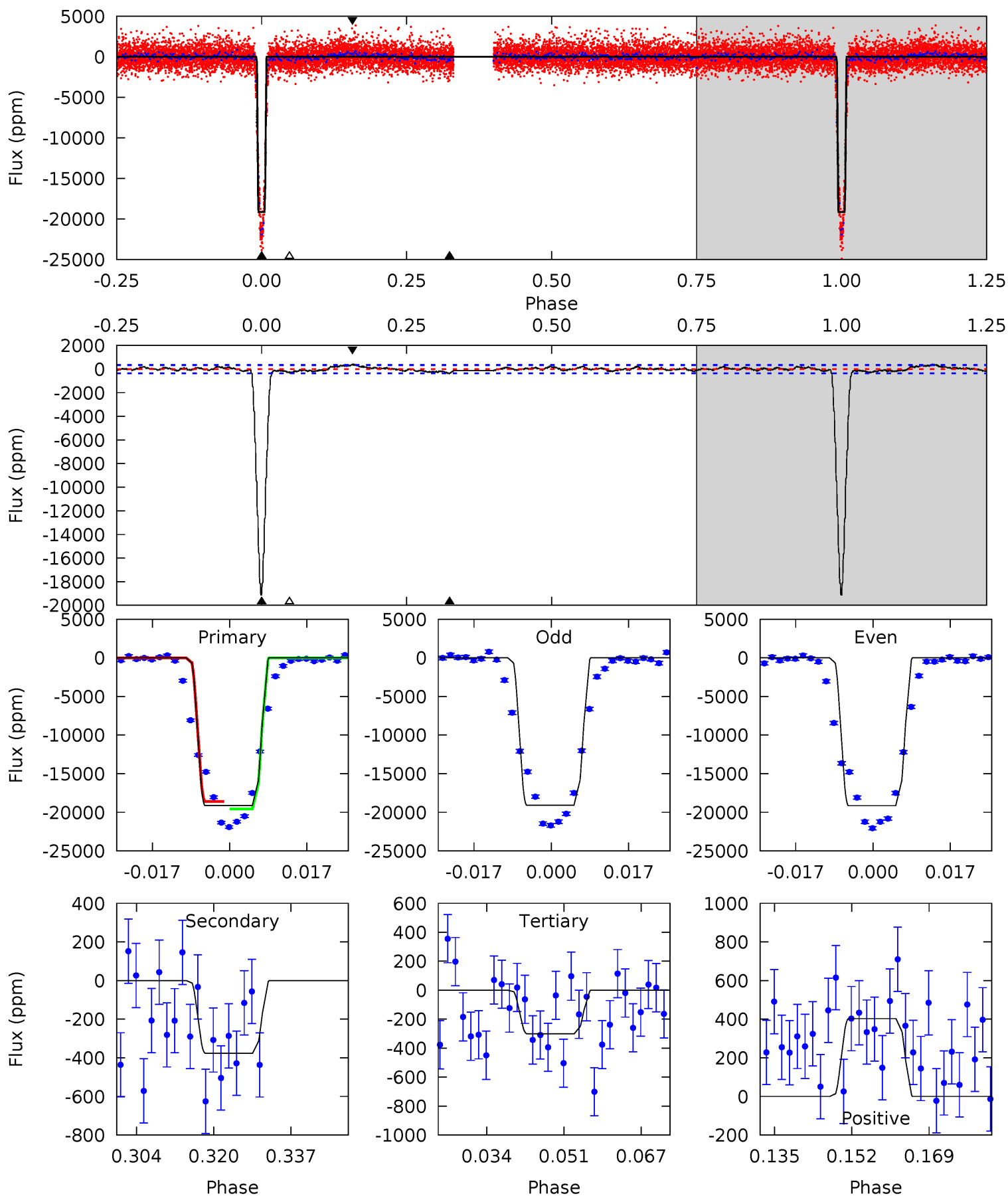
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
386.1	4.22	4.20	6.29	4.84	2.24	2.22	381.9	379.8	0.02	-2.07	1.70	1.00	0.02	4.98



Alt Model-Shift Uniqueness Test

004937143-02, P = 9.848769 Days, E = 135.997541 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
269.3	5.30	4.23	5.68	4.93	2.39	1.81	265.1	263.7	1.07	-0.37	0.44	1.00	0.02	6.89



Stellar Parameters For KIC 004937143

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6938^{+192}_{-312}	$4.281^{+0.105}_{-0.195}$	$-0.440^{+0.250}_{-0.300}$	$1.310^{+0.391}_{-0.211}$	$1.198^{+0.185}_{-0.166}$	$0.751^{+0.418}_{-0.361}$
	+3%/-4%	+2%/-5%	+57%/-68%	+30%/-16%	+15%/-14%	+56%/-48%
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 004937143-02 / KOI 3715.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-239 ± 57	$29.28^{+6.02}_{-5.20}$	1598^{+115}_{-99}	2618^{+168}_{-180}	$1.398^{+0.791}_{-0.519}$
Alt.	-377 ± 71	$21.52^{+4.86}_{-4.62}$	1597^{+119}_{-97}	3084^{+238}_{-193}	$4.056^{+2.553}_{-1.534}$

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

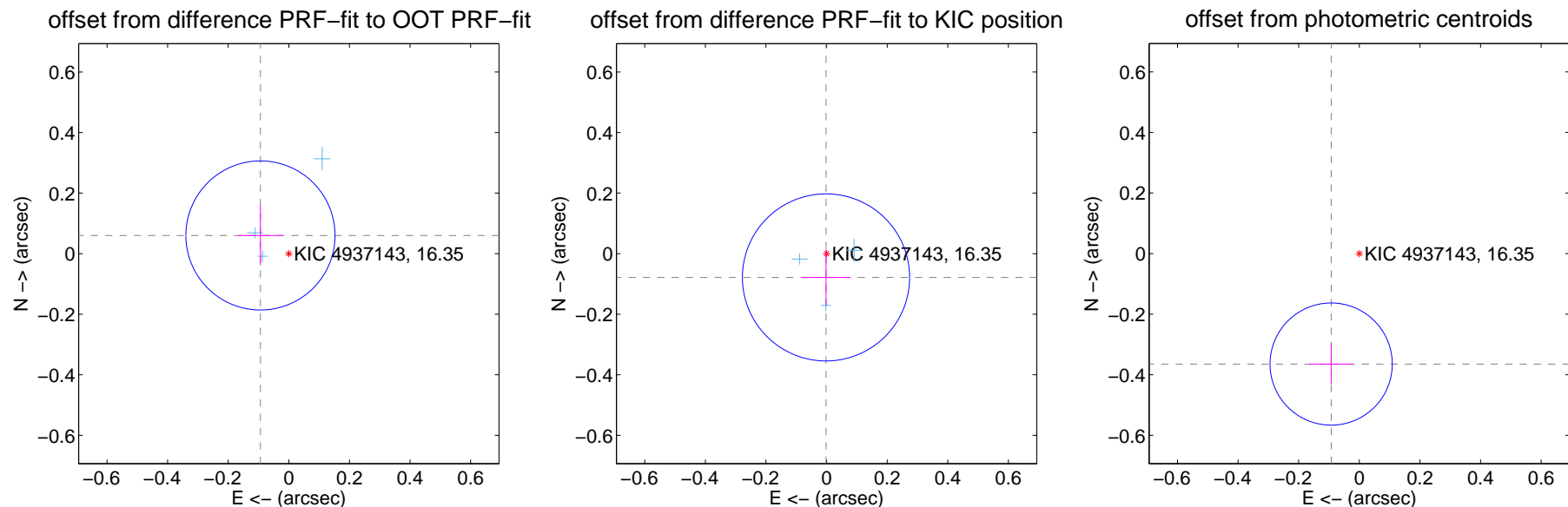
DV Centroid Data

Supplemental centroid analysis for 004937143-02. Kepler magnitude: 16.35. Transit SNR 204.28

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.111 ± 0.082	1.36	0.094 ± 0.074	0.060 ± 0.099
PRF-fit source offset from KIC position	0.079 ± 0.092	0.85	0.002 ± 0.081	-0.079 ± 0.092
photometric centroid source offset	0.38 ± 0.07	5.60	0.09 ± 0.07	-0.36 ± 0.07

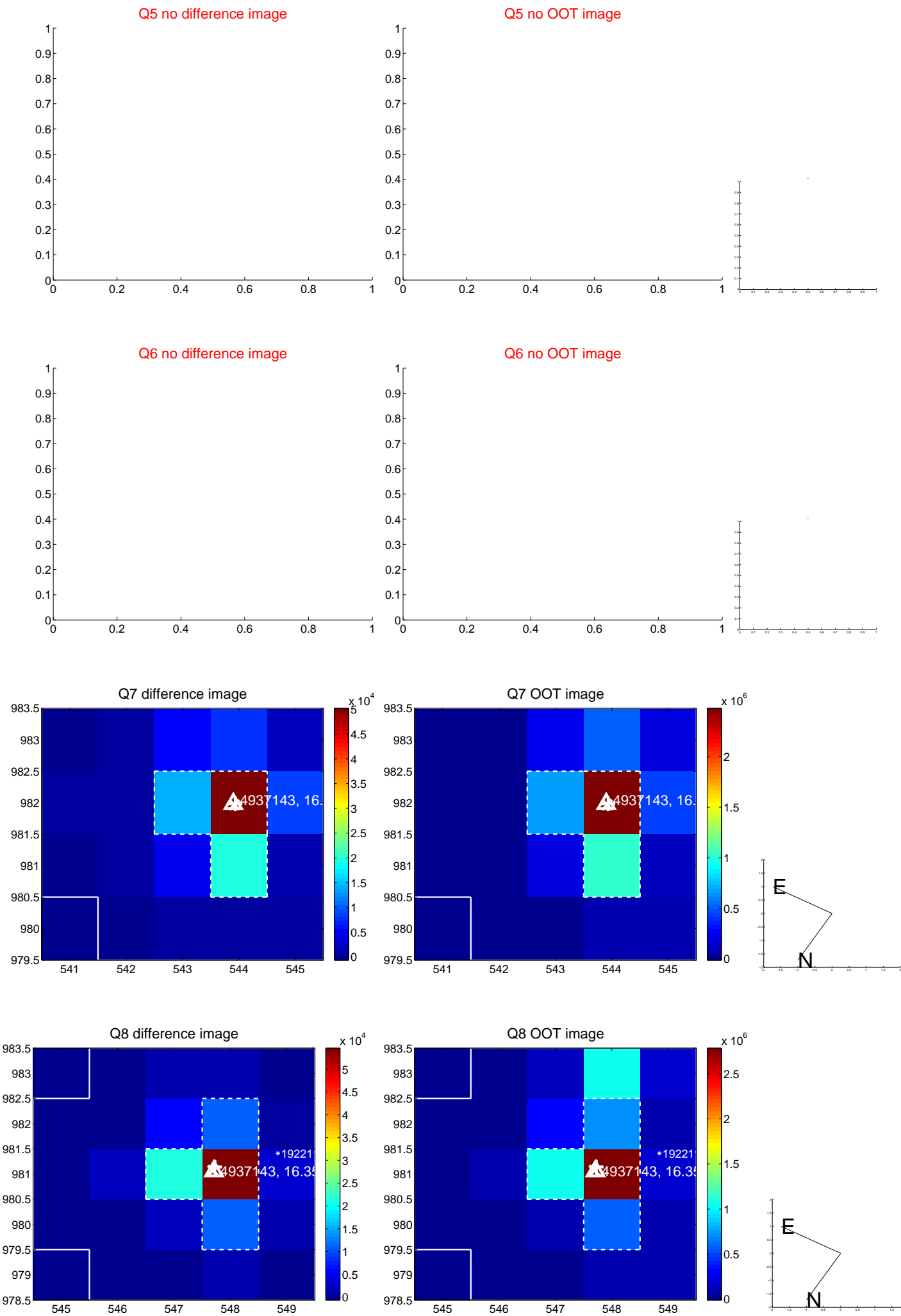


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

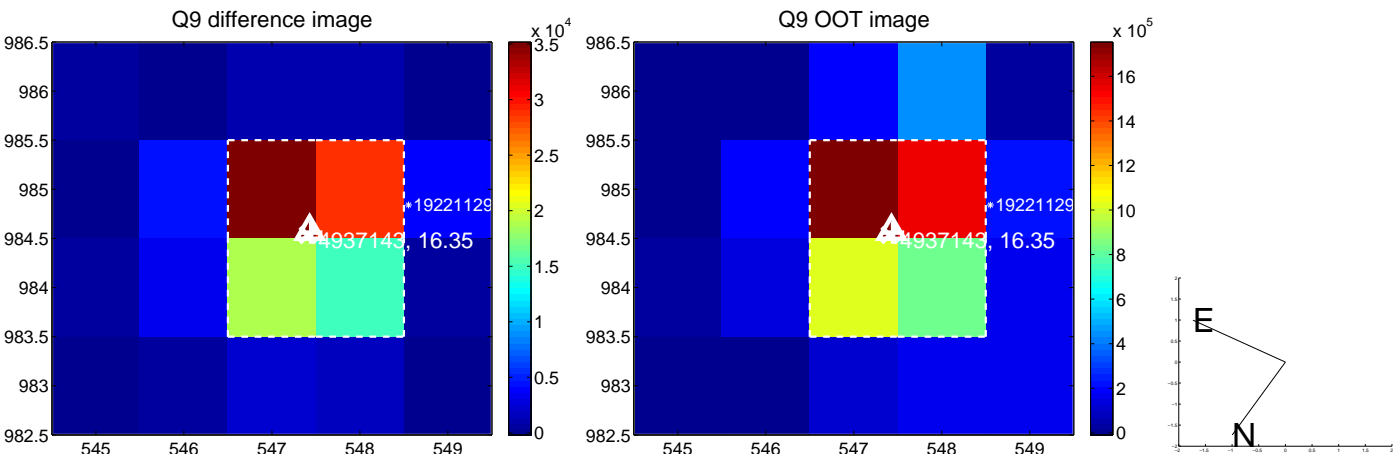
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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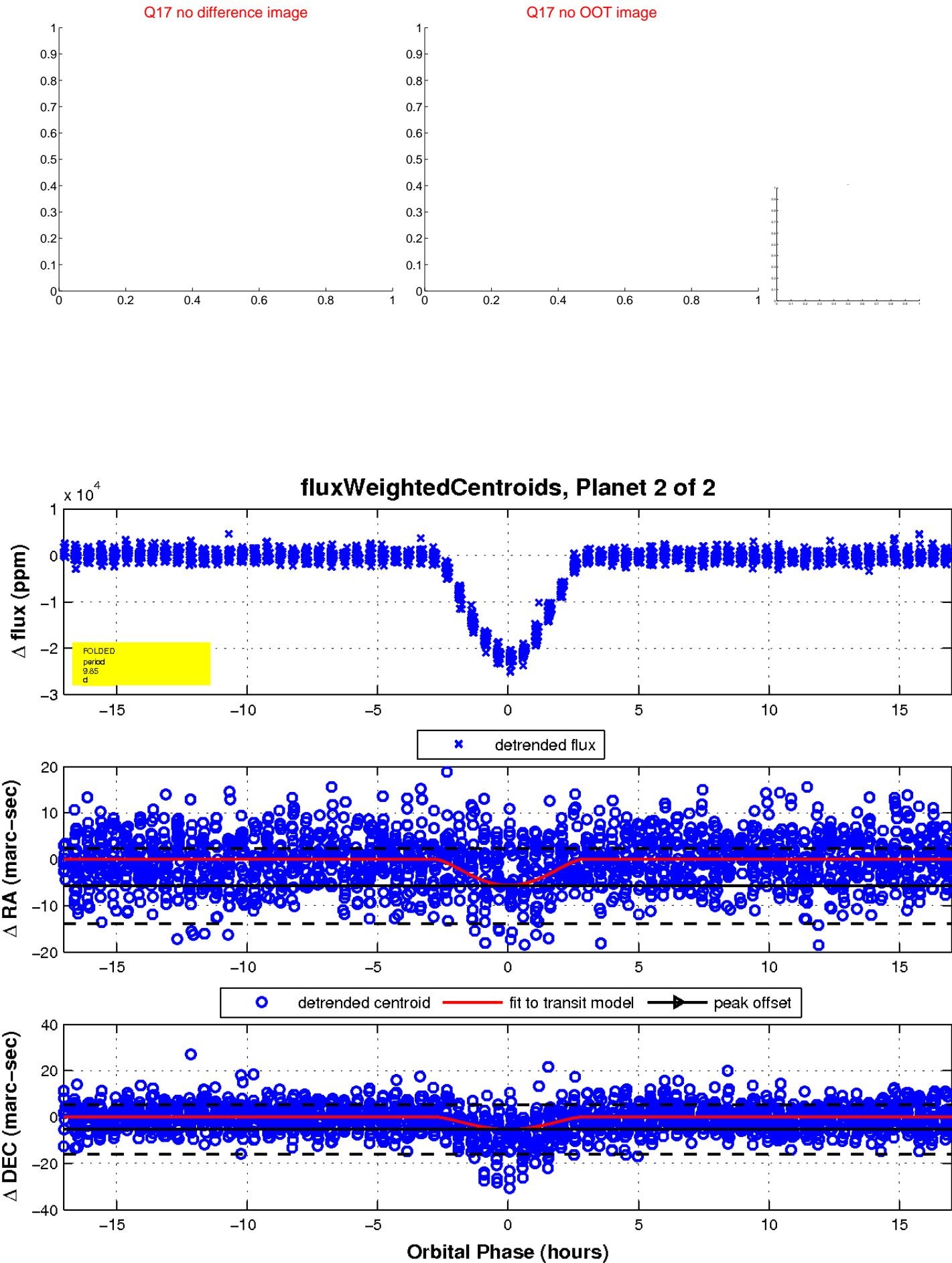
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UKIRT Image

Declination

