

KIC 010850327

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})
010850327-01	OBS	5833.01	440.169097	470.354461	747.9	11.640	25.6	26.3	1.68	6261	5.73	2.96
010850327-02	OBS	No	203.549461	183.646219	195.5	11.831	8.6	7.5	1.68	6261	3.04	8.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010850327-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
010850327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

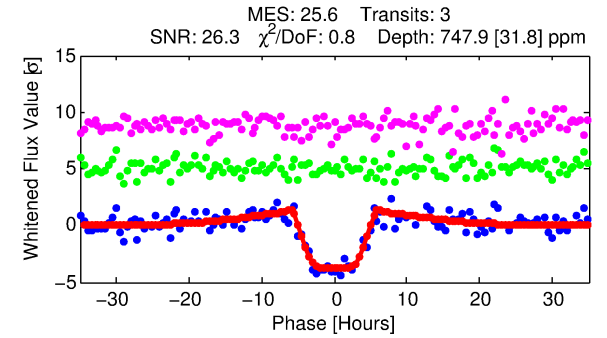
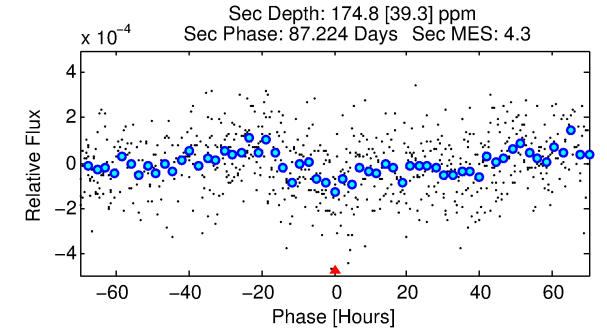
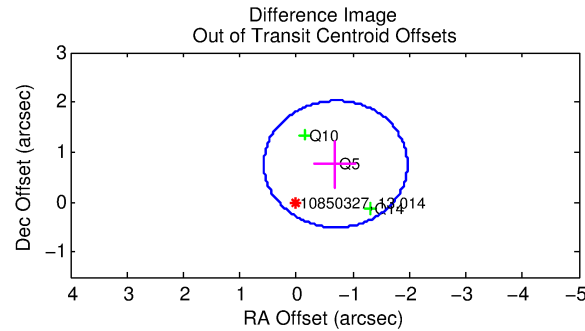
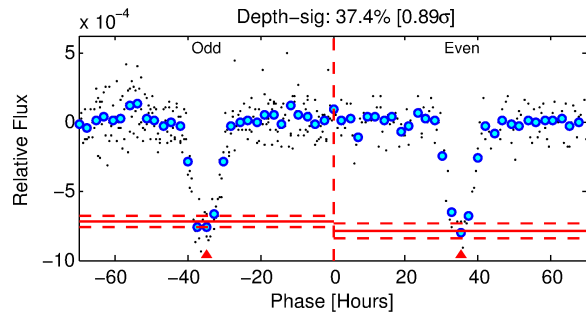
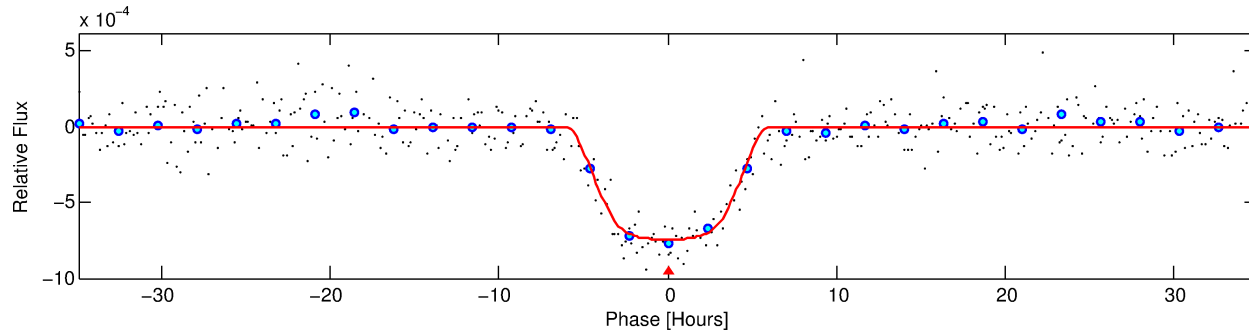
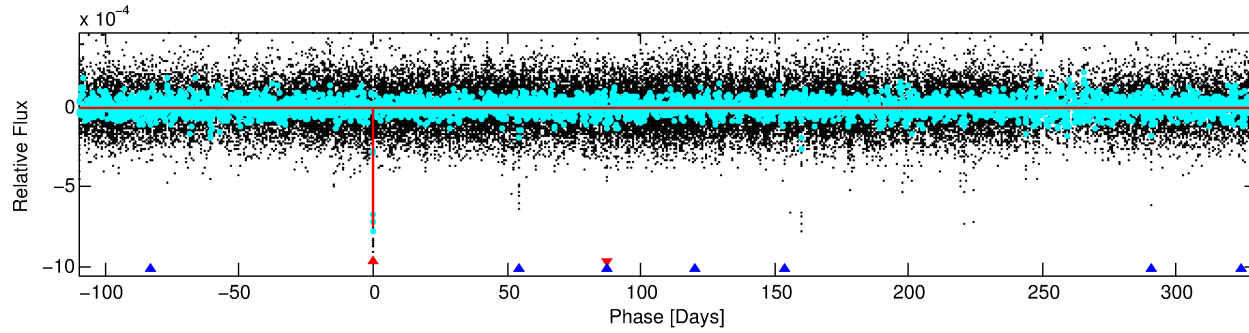
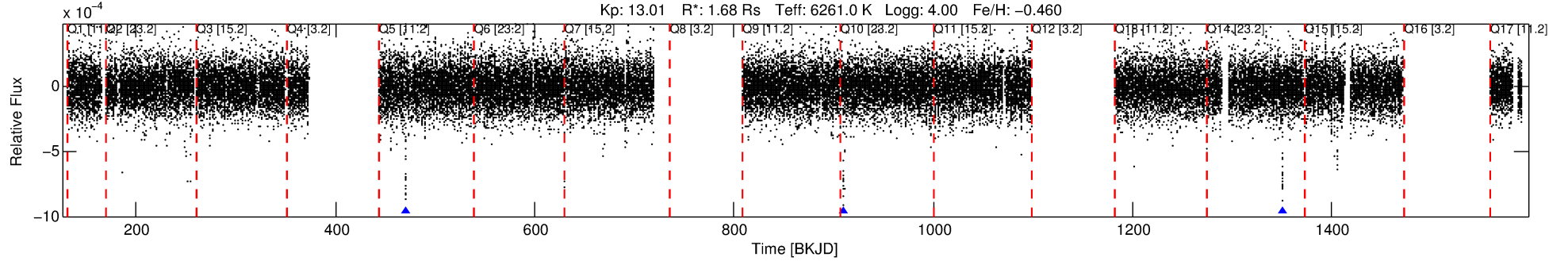
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010850327-01

No Significant Match Found

DV One-Page Summary

KIC: 10850327 Candidate: 1 of 2 Period: 440.169 d
KOI: K05833.01 Corr: 0.975



DV Fit Results:

Period = 440.16910 [0.00499] d
Epoch = 470.3545 [0.0069] BKJD
Rp/R* = 0.0313 [0.0009]
a/R* = 113.91 [8.04]
b = 0.95 [0.01]
Seff = 2.96 [1.46]
Teq = 335 [41] K
Rp = 5.73 [1.83] Re
a = 1.1441 [0.3451] AU
Ag = 3835.77 [2041.19] [1.88σ]
Teffp = 4071 [261] K [14.12σ]

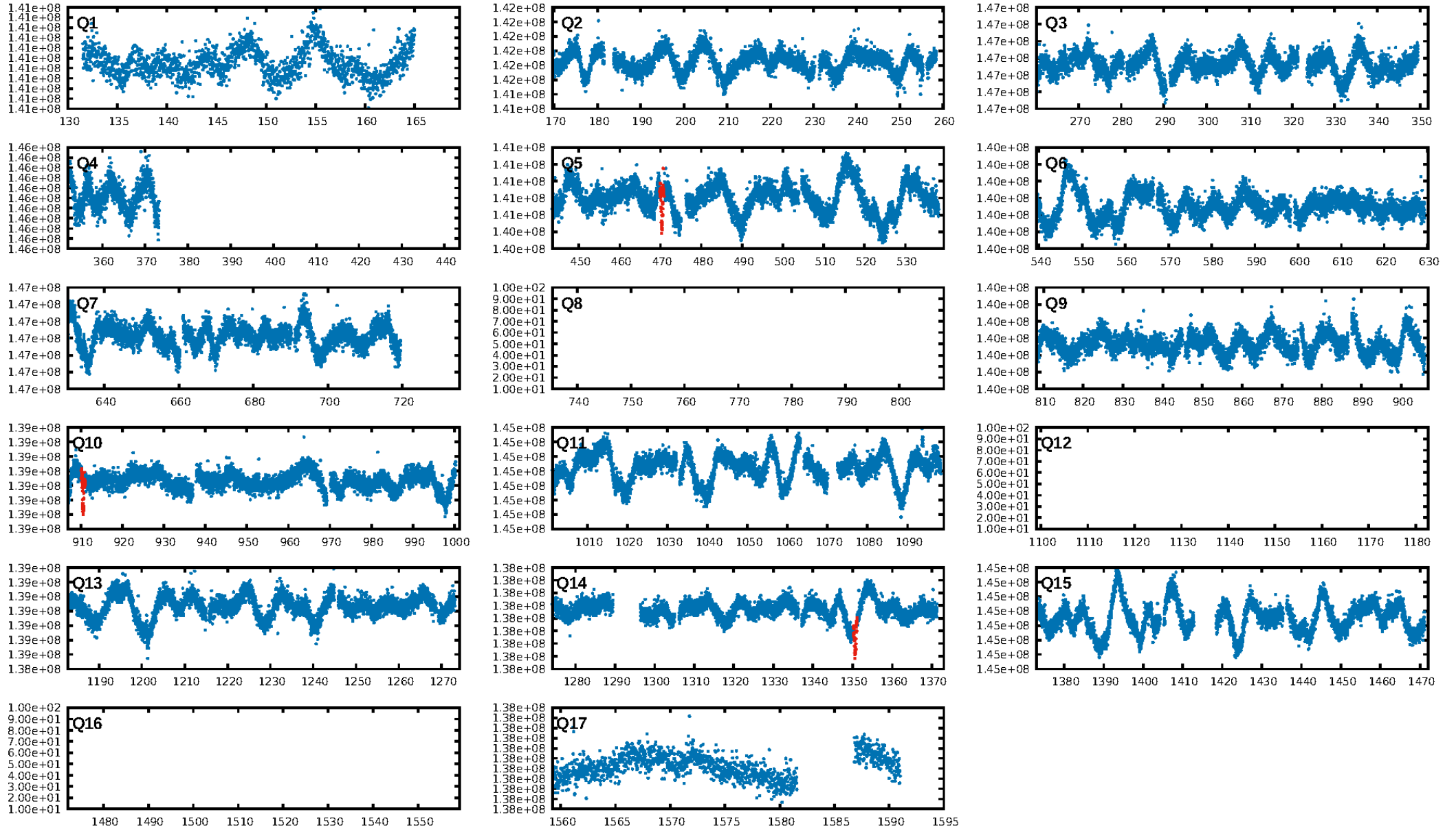
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [342.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 88.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.59e-68
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 8.726
Centroid-sig: 94.4%
Centroid-so: 0.083 arcsec [0.22σ]
OotOffset-rm: 1.031 arcsec [2.44σ]
KicOffset-rm: 0.961 arcsec [2.19σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

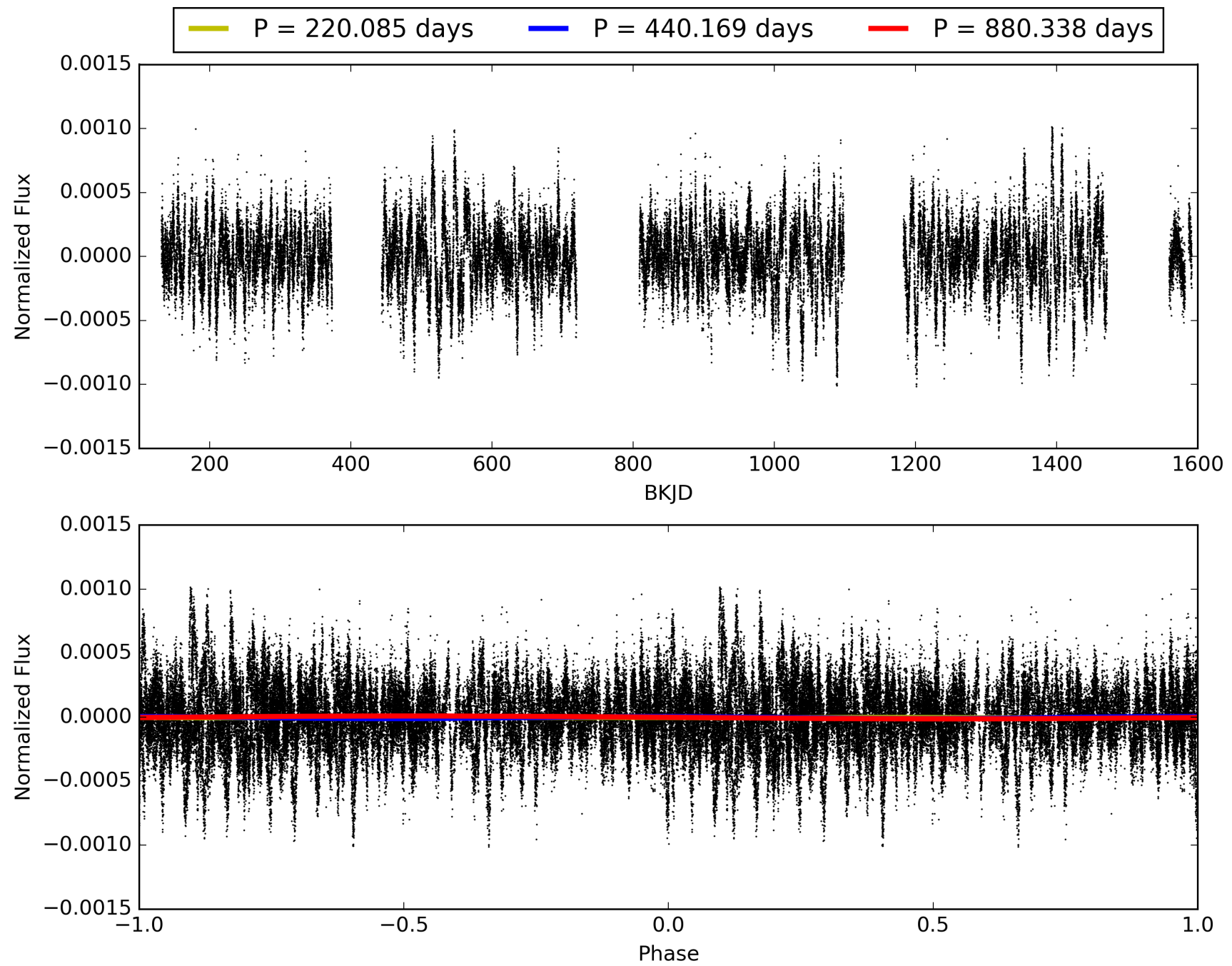
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:07:23 Z

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

TCE 010850327-01, PDC Light Curves

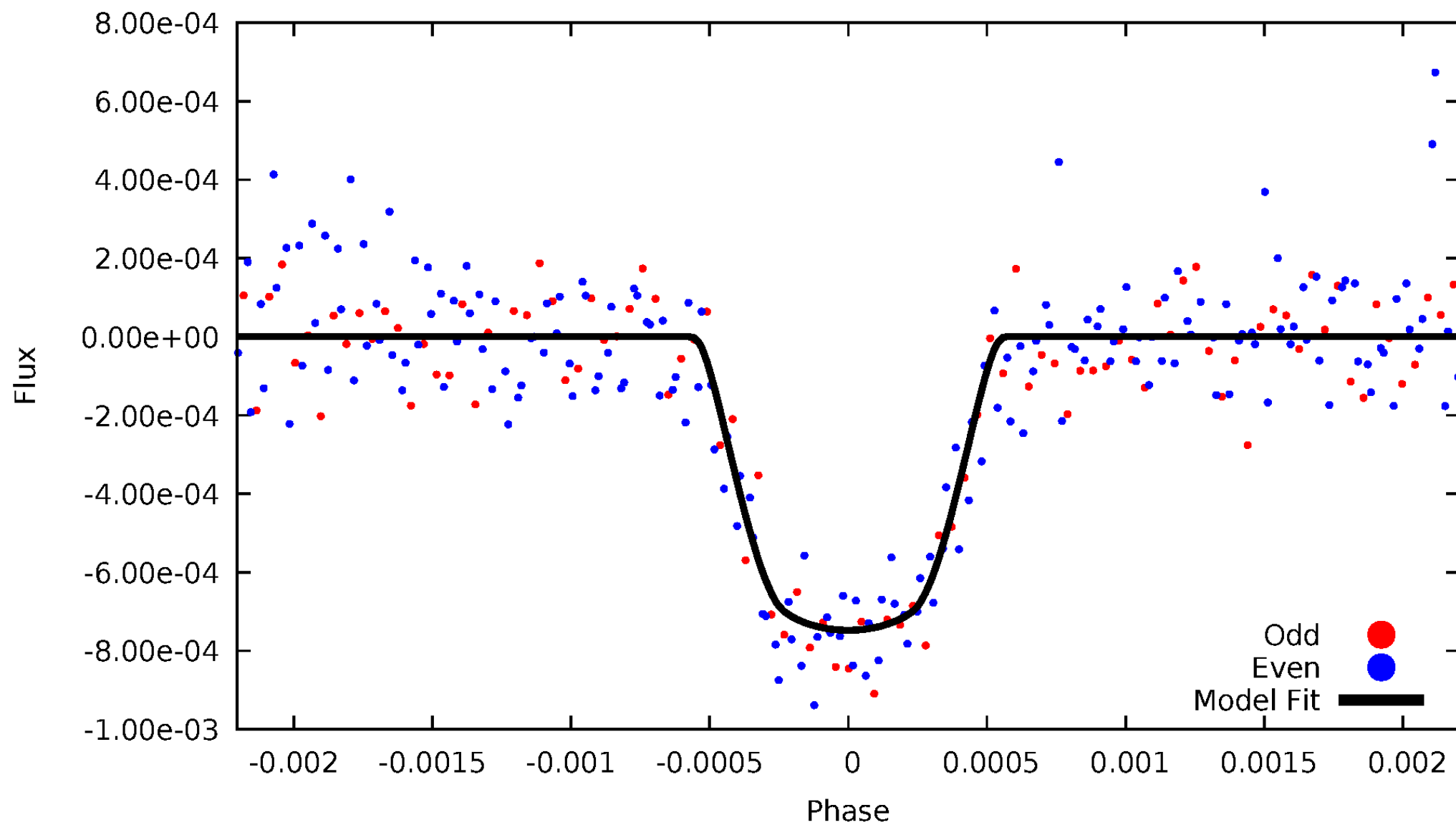


TCE 010850327-01



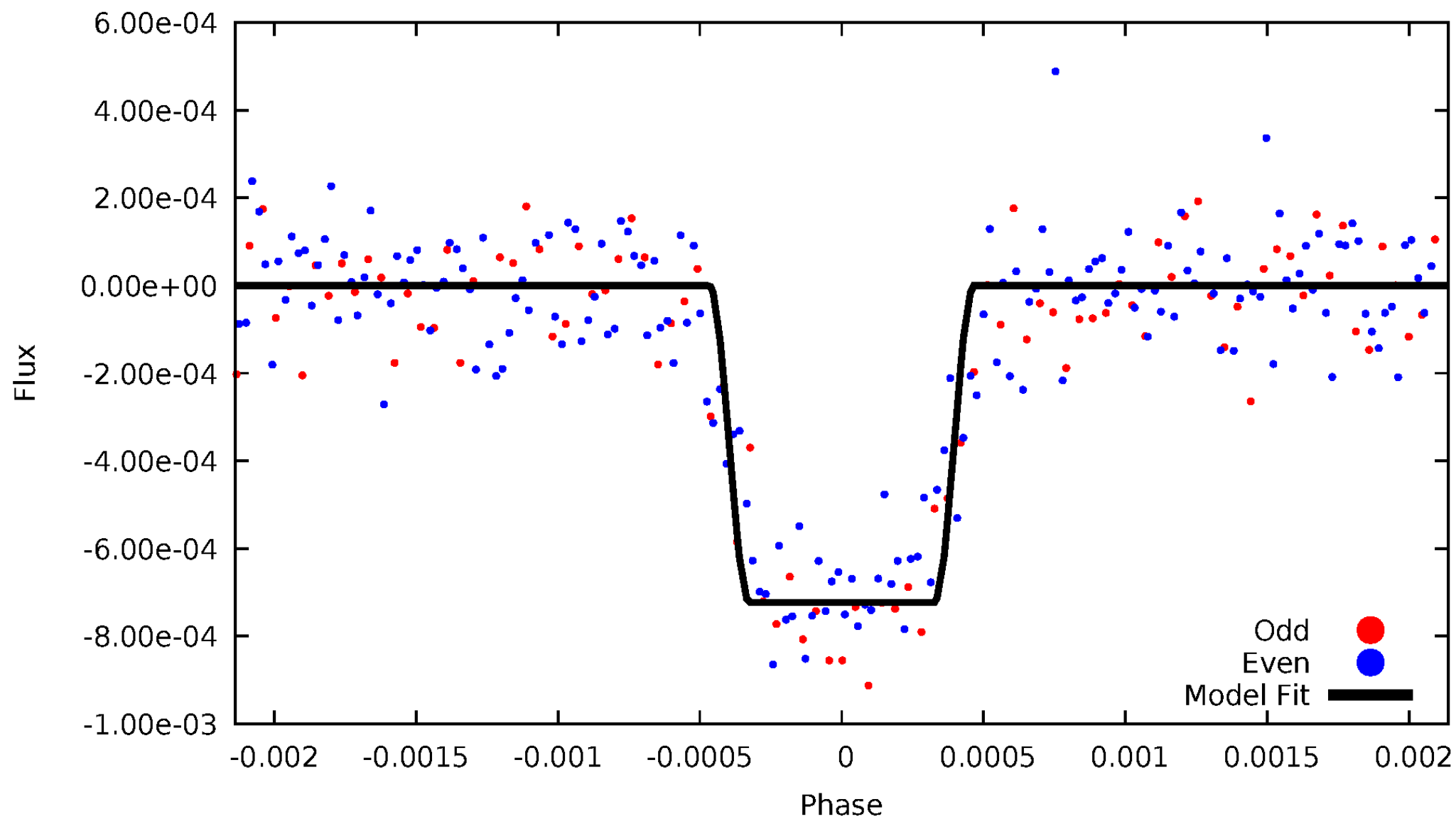
DV Odd/Even

TCE 010850327-01

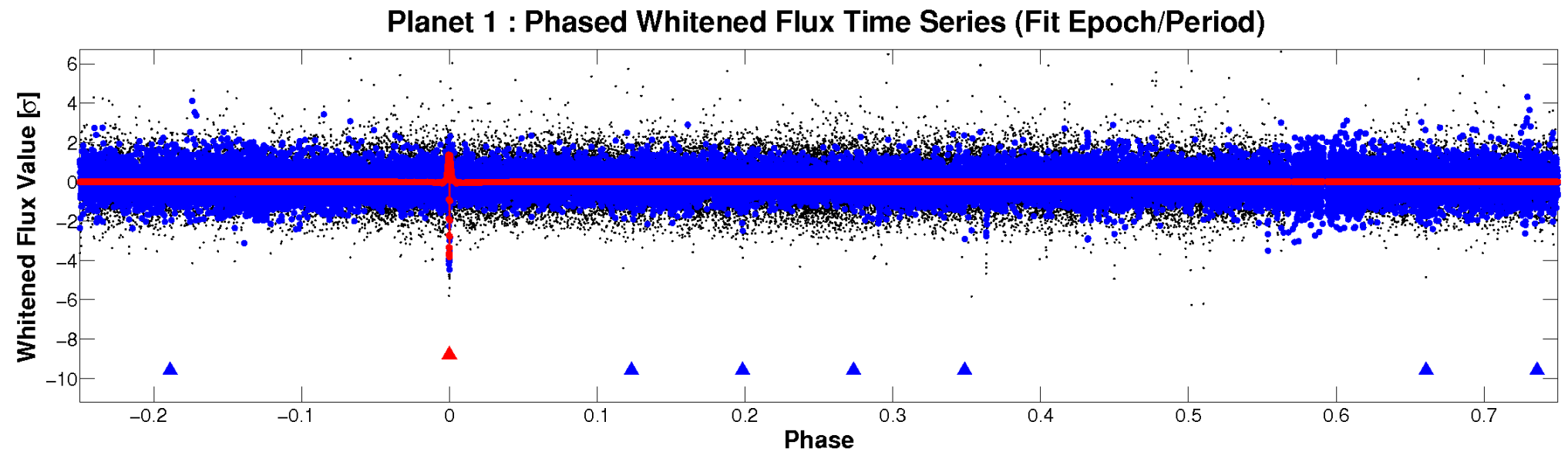
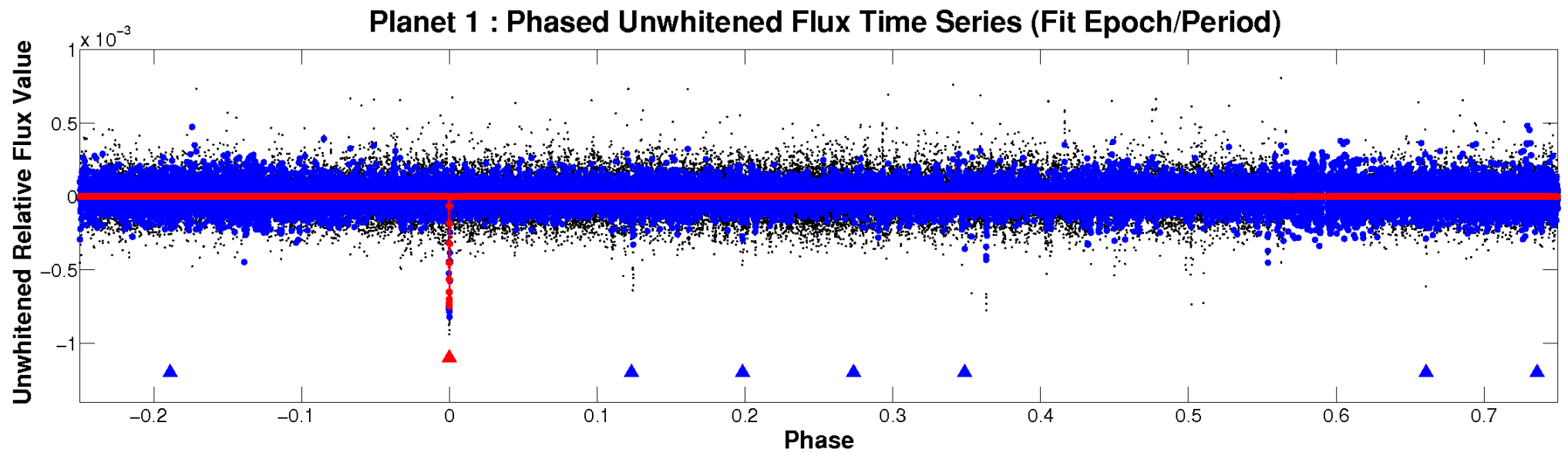


ALT Odd/Even

TCE 010850327-01

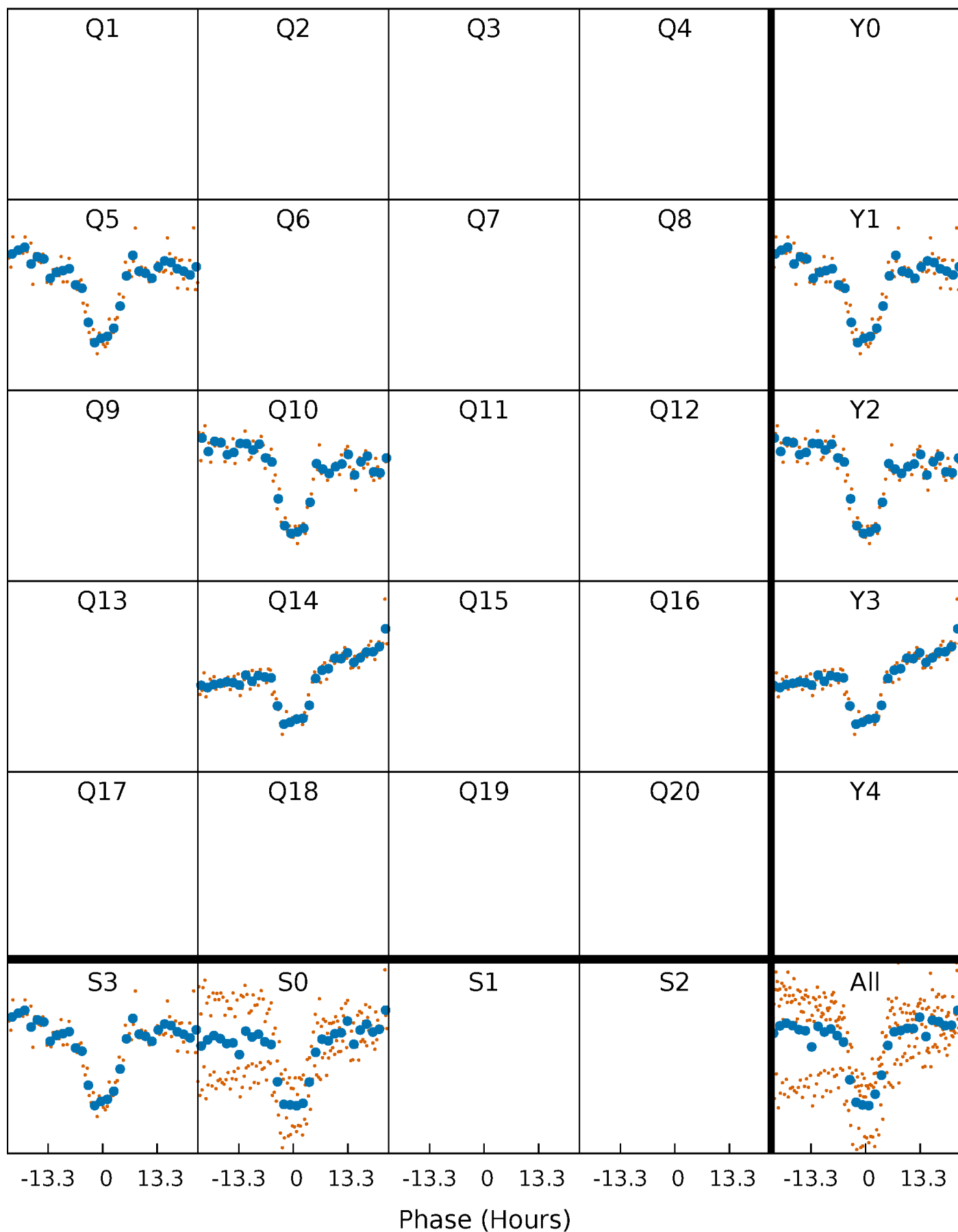


Non-Whitened Vs. Whitened Light Curve



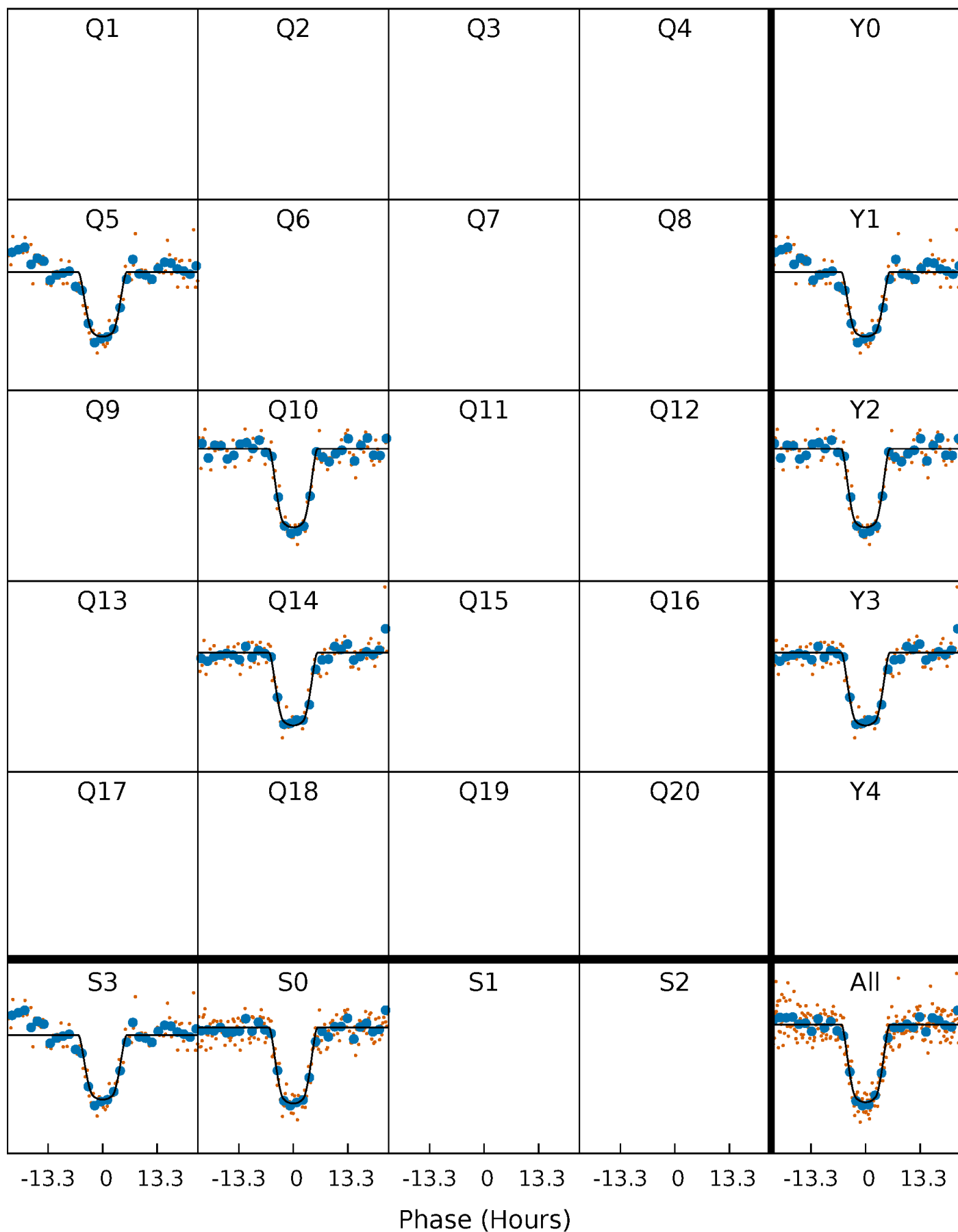
PDC Quarter-Phased Transit Curves

TCE 010850327-01 $P=440.169097$ Days $T_0=470.354461$ (BKJD)



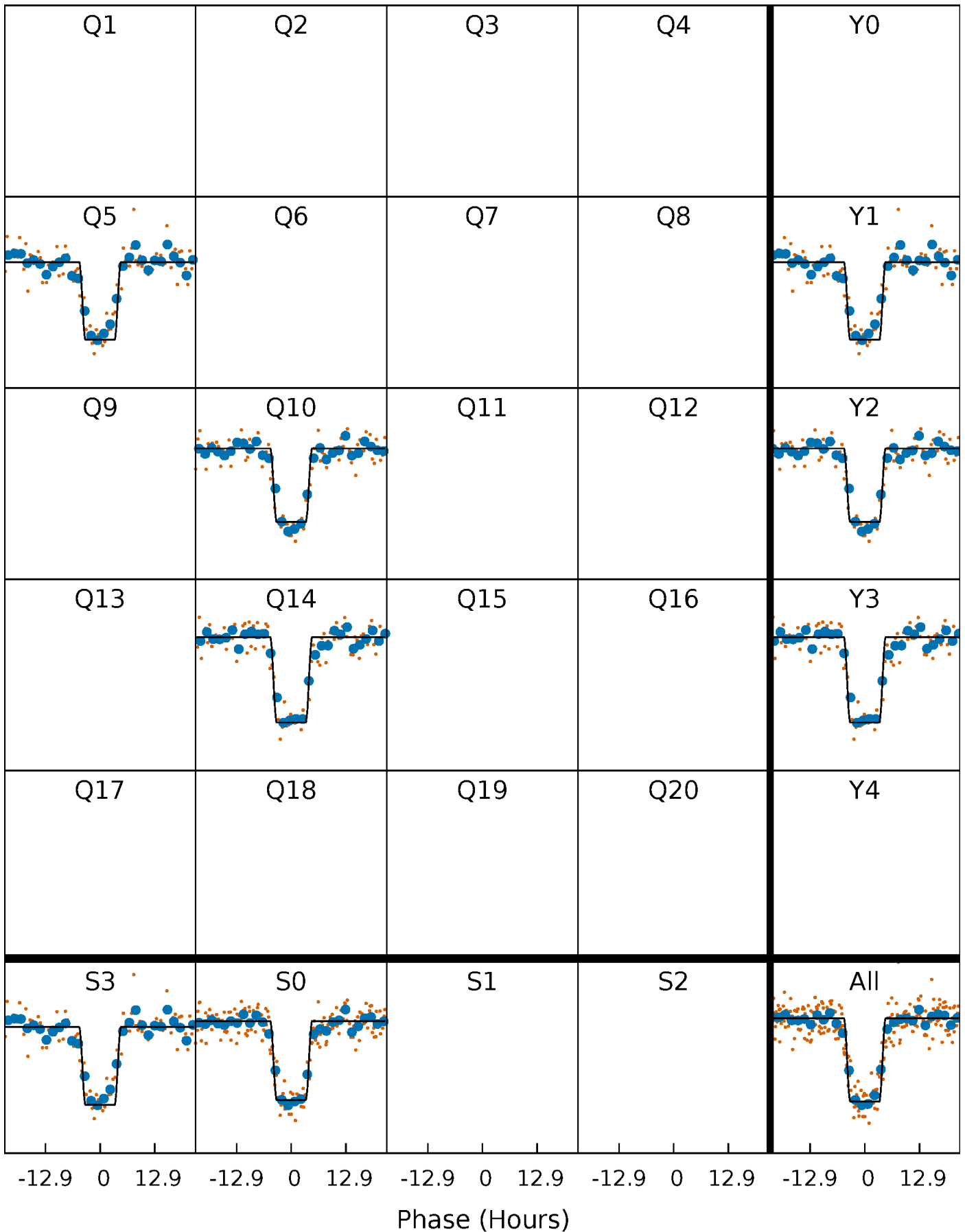
DV Quarter-Phased Transit Curves

TCE 010850327-01 $P=440.169097$ Days $T_0=470.354461$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

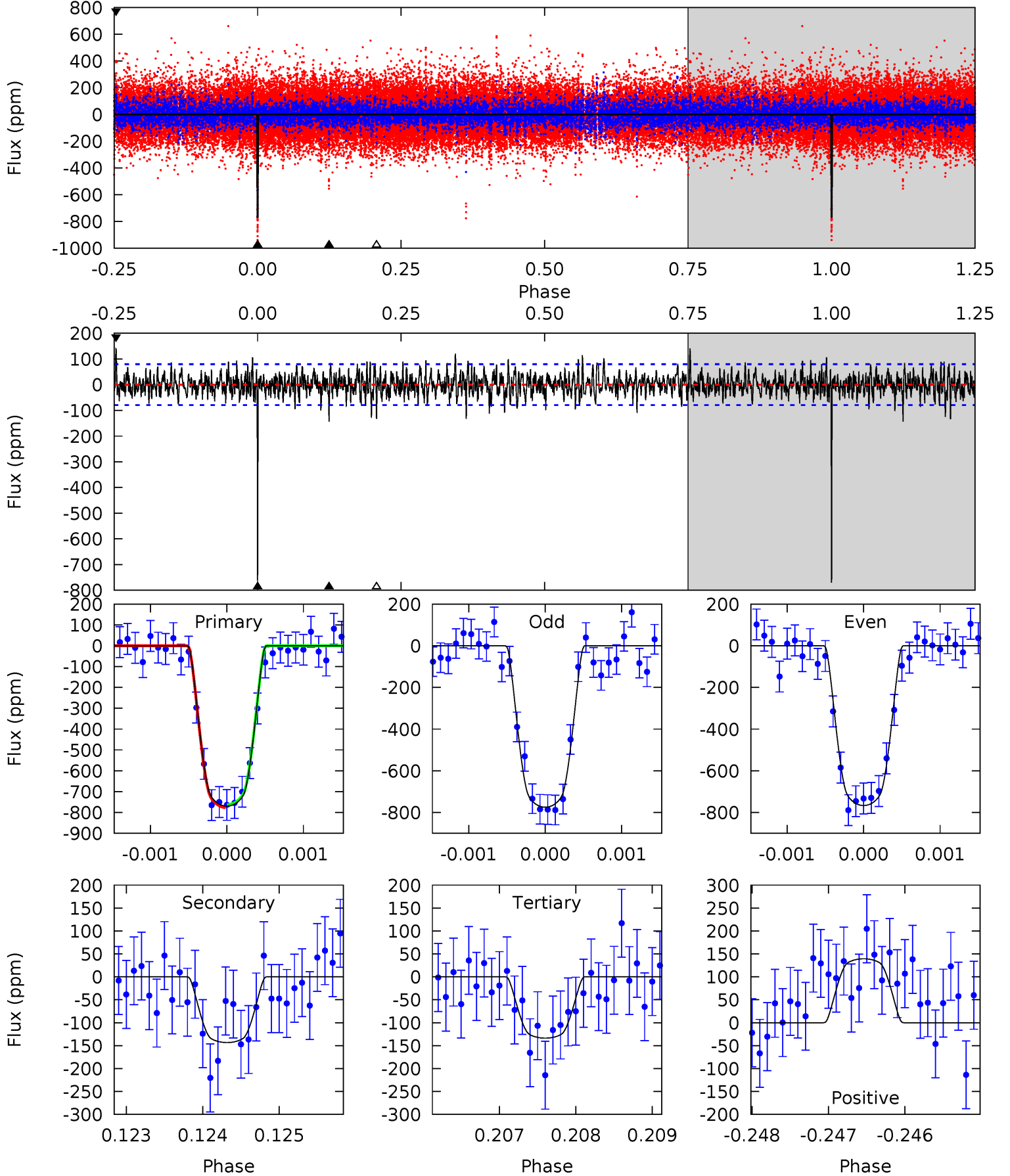
TCE 010850327-01 $P=440.166127$ Days $T_0=470.356764$ (BKJD)



DV Model-Shift Uniqueness Test

010850327-01, $P = 440.169097$ Days, $E = 30.185364$ Days

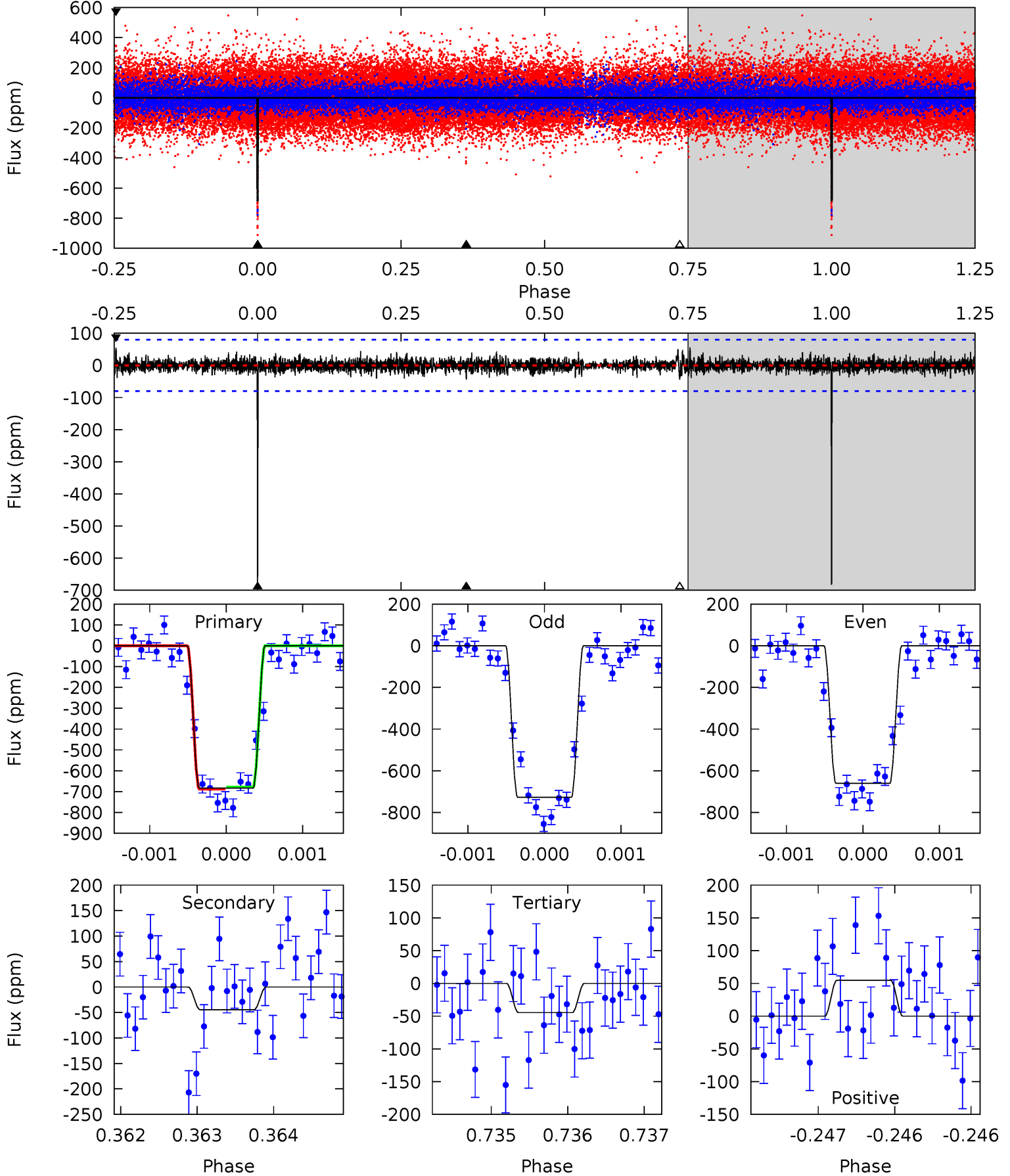
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.6	9.81	9.14	9.53	5.43	3.26	2.27	43.5	43.1	0.66	0.28	0.26	0.99	0.15	0.51



Alt Model-Shift Uniqueness Test

010850327-01, P = 440.166127 Days, E = 30.190637 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.6	3.05	3.04	3.73	5.47	3.31	0.80	43.6	42.9	0.01	-0.68	2.12	1.00	0.07	0.33



Stellar Parameters For KIC 010850327

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6261^{+174}_{-174}	$4.001^{+0.280}_{-0.120}$	$-0.460^{+0.300}_{-0.300}$	$1.679^{+0.328}_{-0.533}$	$1.030^{+0.178}_{-0.146}$	$0.307^{+0.519}_{-0.105}$
	+3%/-3%	+7%/-3%	+65%/-65%	+20%/-32%	+17%/-14%	+169%/-34%
Source	PHO1	FLK73	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 010850327-01 / KOI 5833.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-143 ± 15	$5.60^{+0.83}_{-0.97}$	460^{+31}_{-37}	4151^{+126}_{-123}	3344^{+1434}_{-787}
Alt.	-45 ± 15	$4.84^{+0.63}_{-0.83}$	461^{+29}_{-36}	3572^{+178}_{-223}	1360^{+706}_{-445}

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

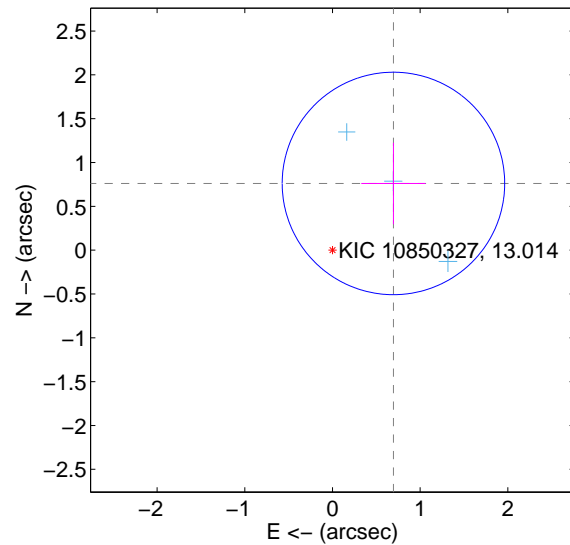
Supplemental centroid analysis for 010850327-01. Kepler magnitude: 13.01. Transit SNR 26.31

There are 3 quarters with good PRF difference image offsets

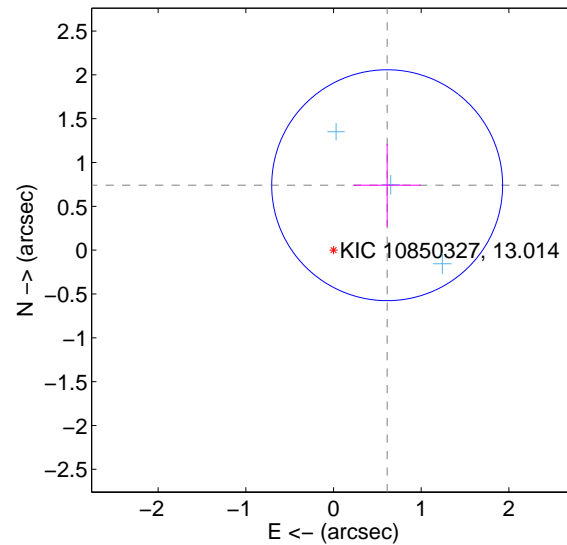
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.031 ± 0.423	2.44	-0.696 ± 0.366	0.761 ± 0.465
PRF-fit source offset from KIC position	0.961 ± 0.439	2.19	-0.612 ± 0.385	0.741 ± 0.473
photometric centroid source offset	0.08 ± 0.38	0.22	0.04 ± 0.42	-0.08 ± 0.37

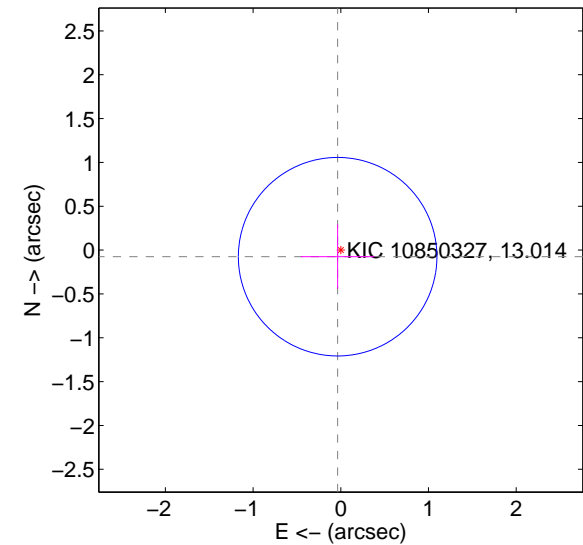
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

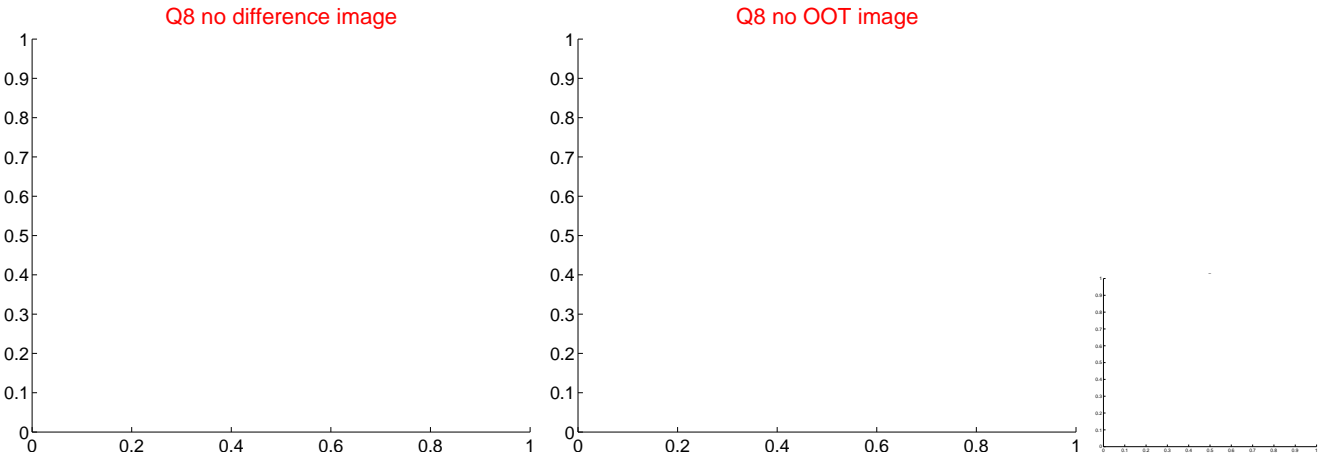
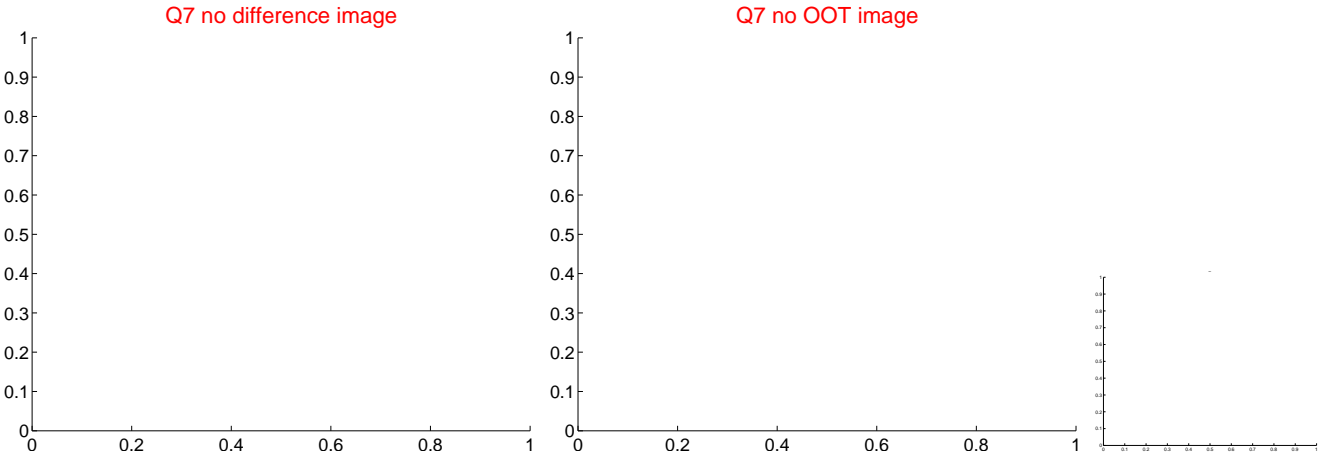
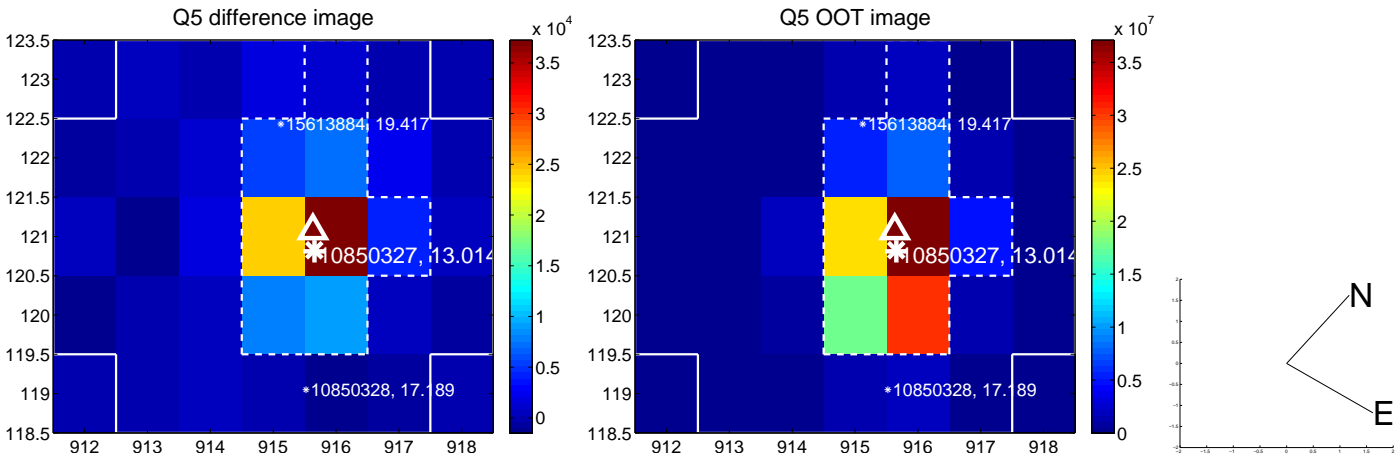


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

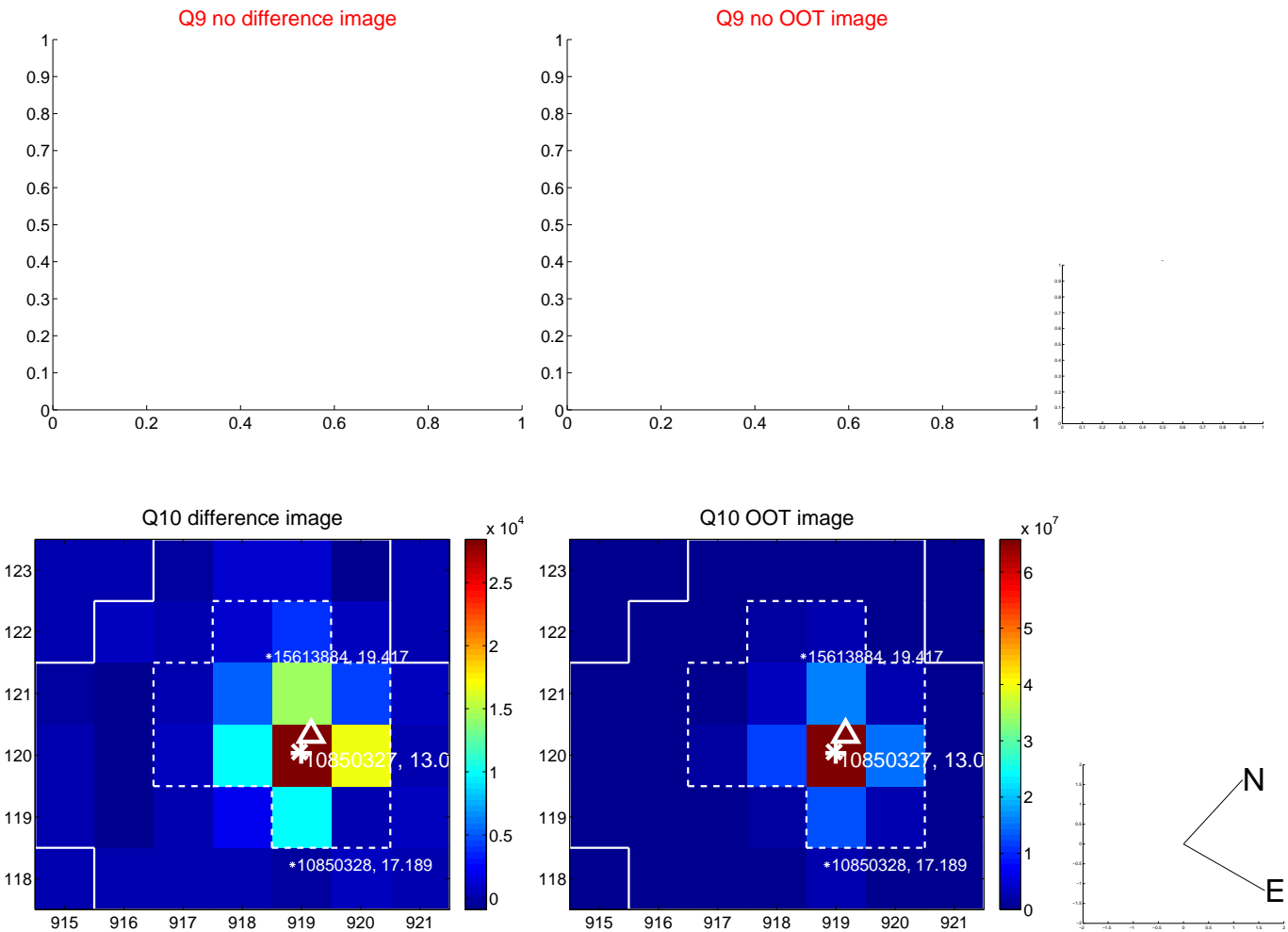
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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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.

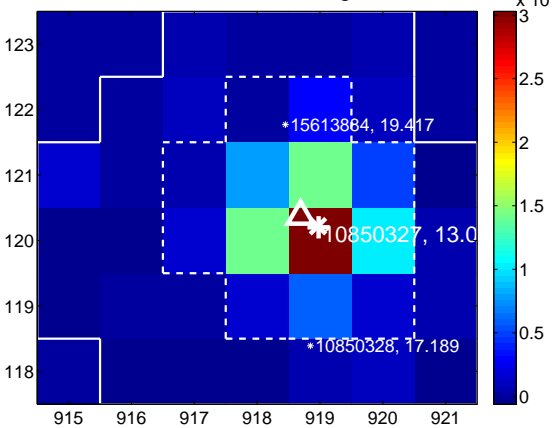
Q13 no difference image



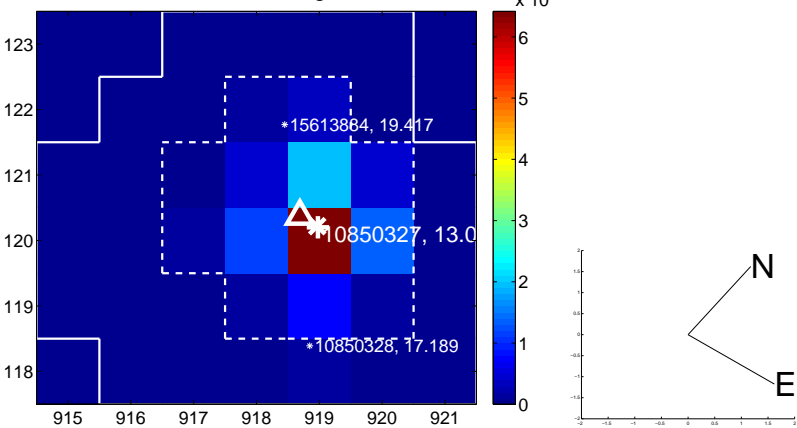
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



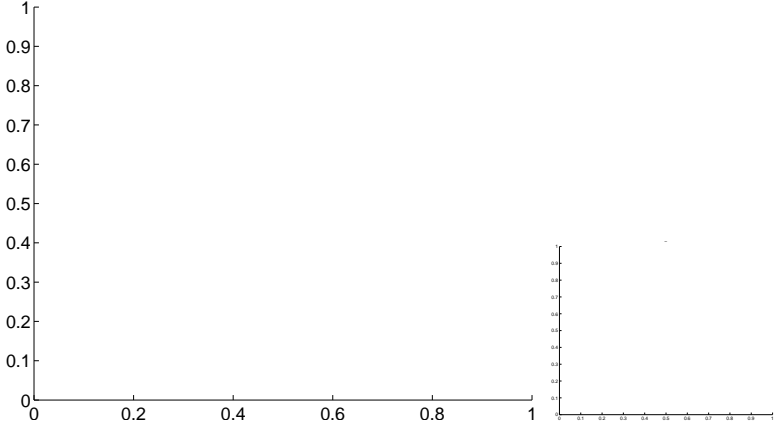
Q15 no OOT image



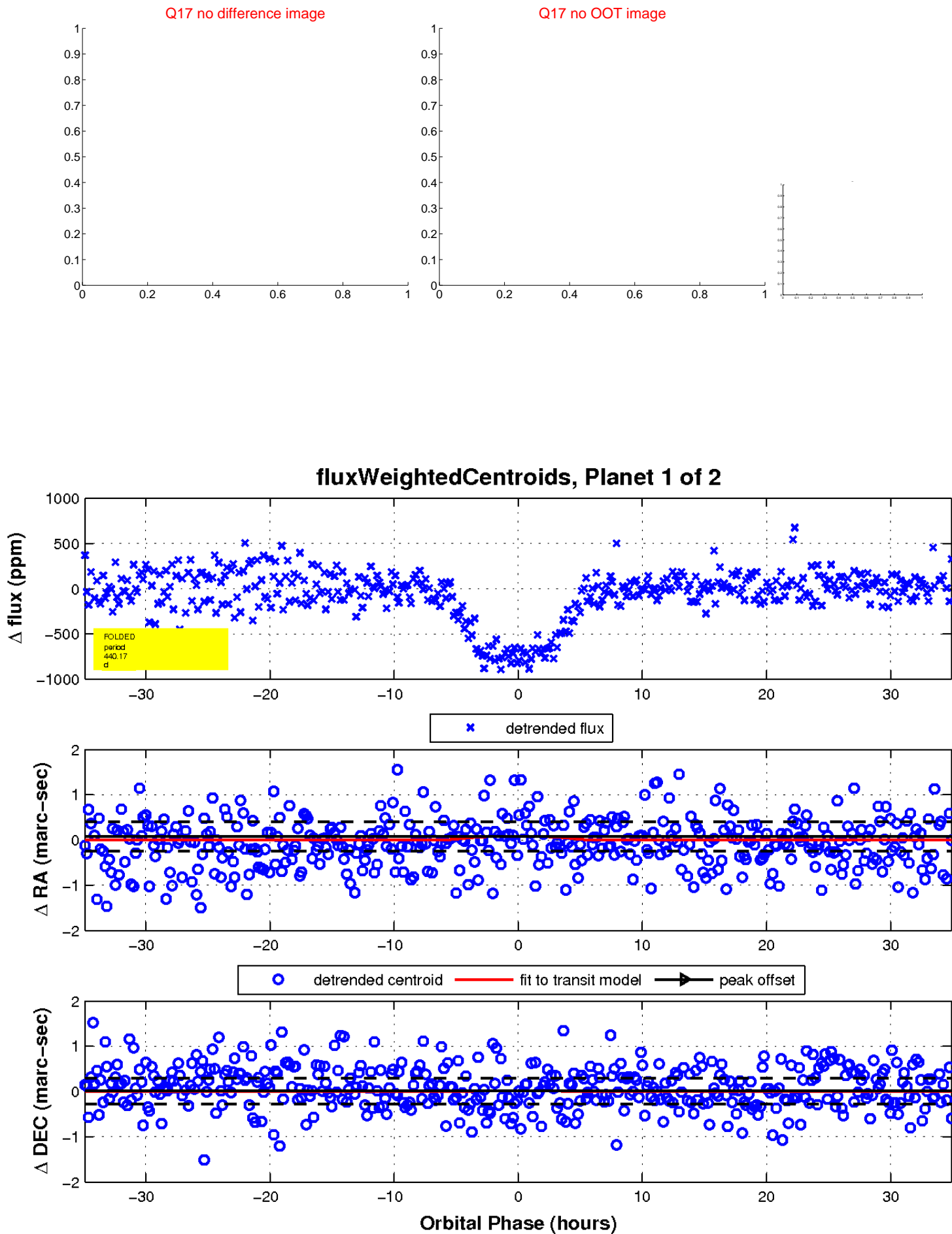
Q16 no difference image



Q16 no OOT image

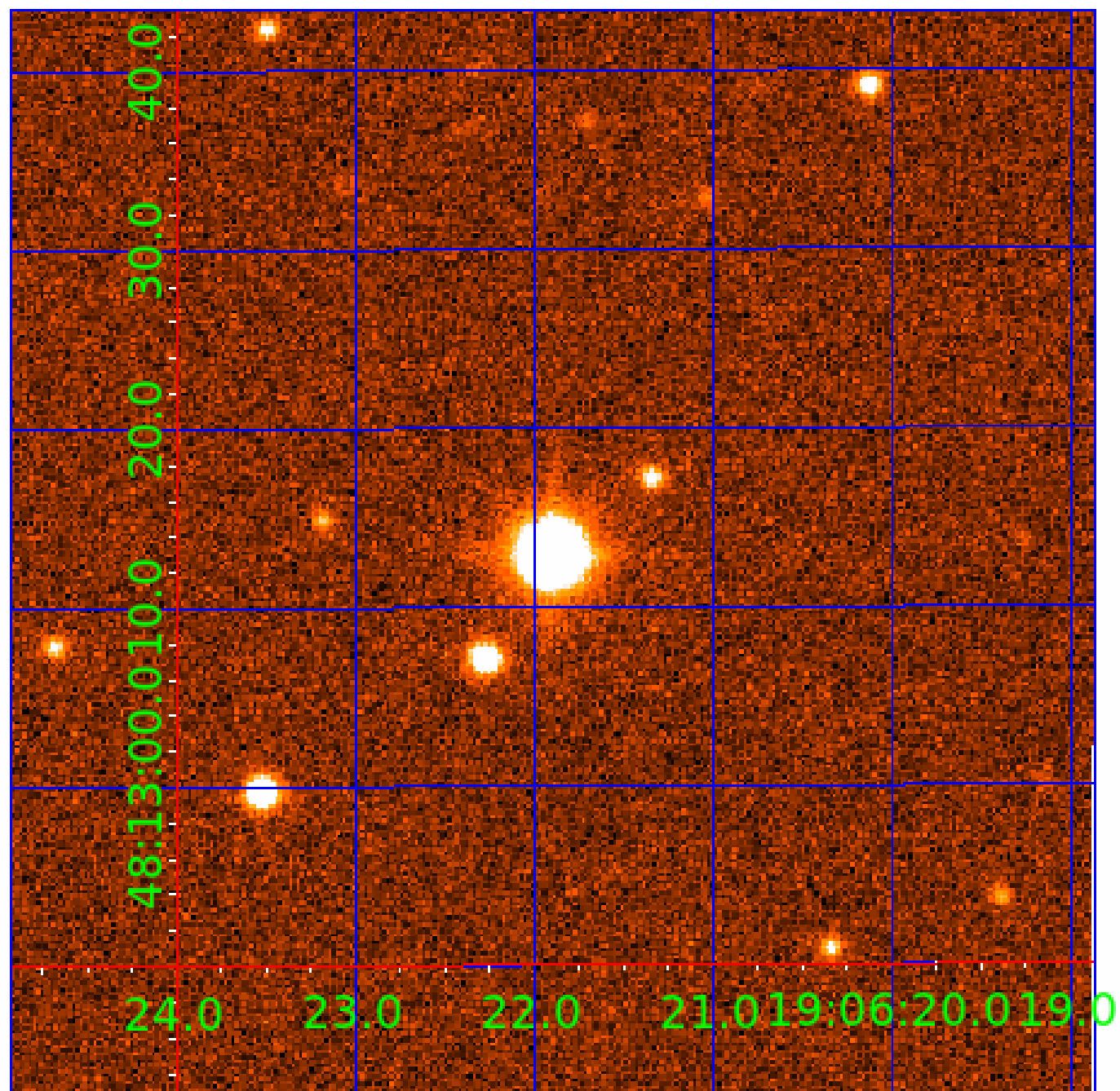


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010850327

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})
010850327-01	OBS	5833.01	440.169097	470.354461	747.9	11.640	25.6	26.3	1.68	6261	5.73	2.96
010850327-02	OBS	No	203.549461	183.646219	195.5	11.831	8.6	7.5	1.68	6261	3.04	8.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010850327-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
010850327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

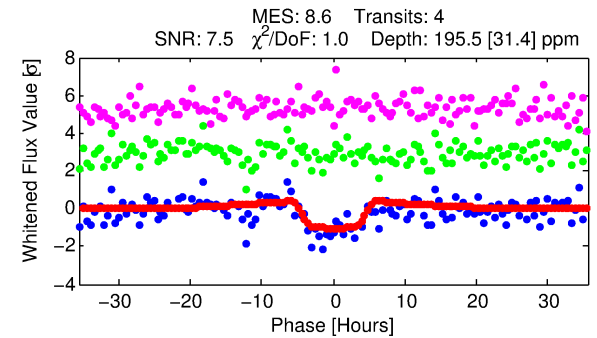
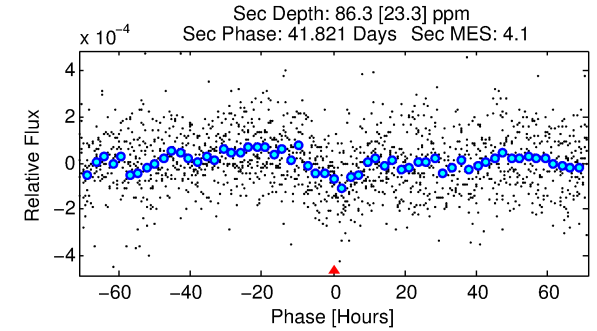
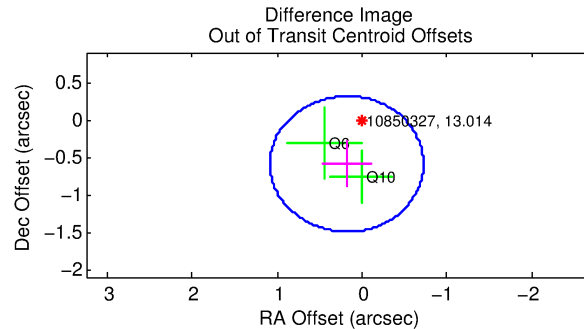
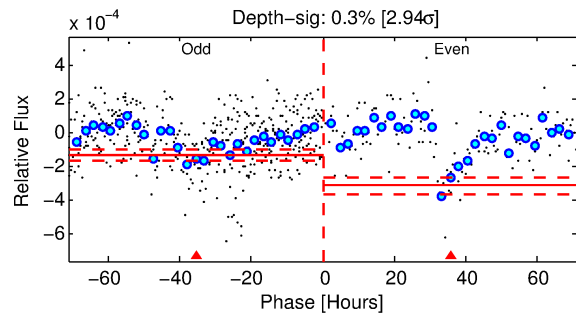
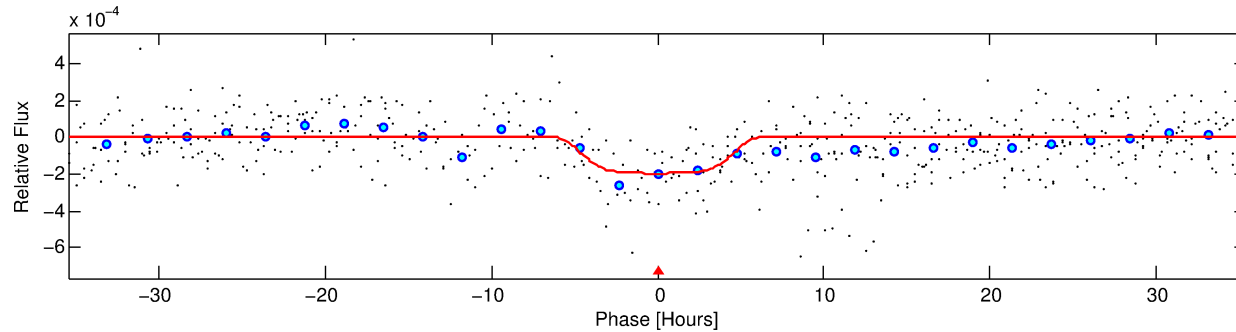
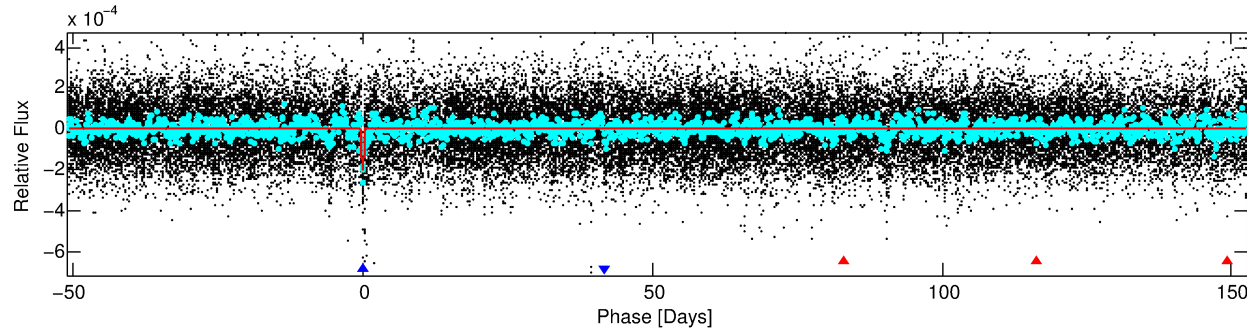
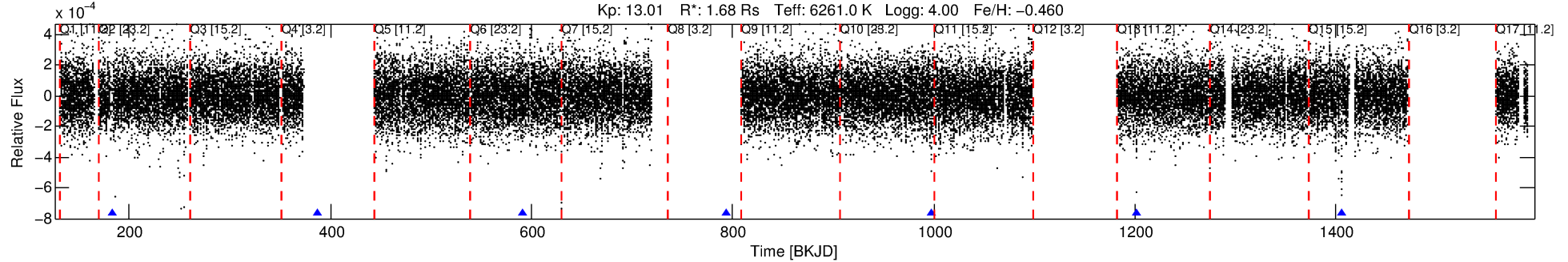
Ephemeris Match Information For 010850327-02

No Significant Match Found

DV One-Page Summary

KIC: 10850327 Candidate: 2 of 2 Period: 203.549 d
KOI: K05833 Corr: No Ephemeris Match

Kp: 13.01 R*: 1.68 Rs Teff: 6261.0 K Logg: 4.00 Fe/H: -0.460



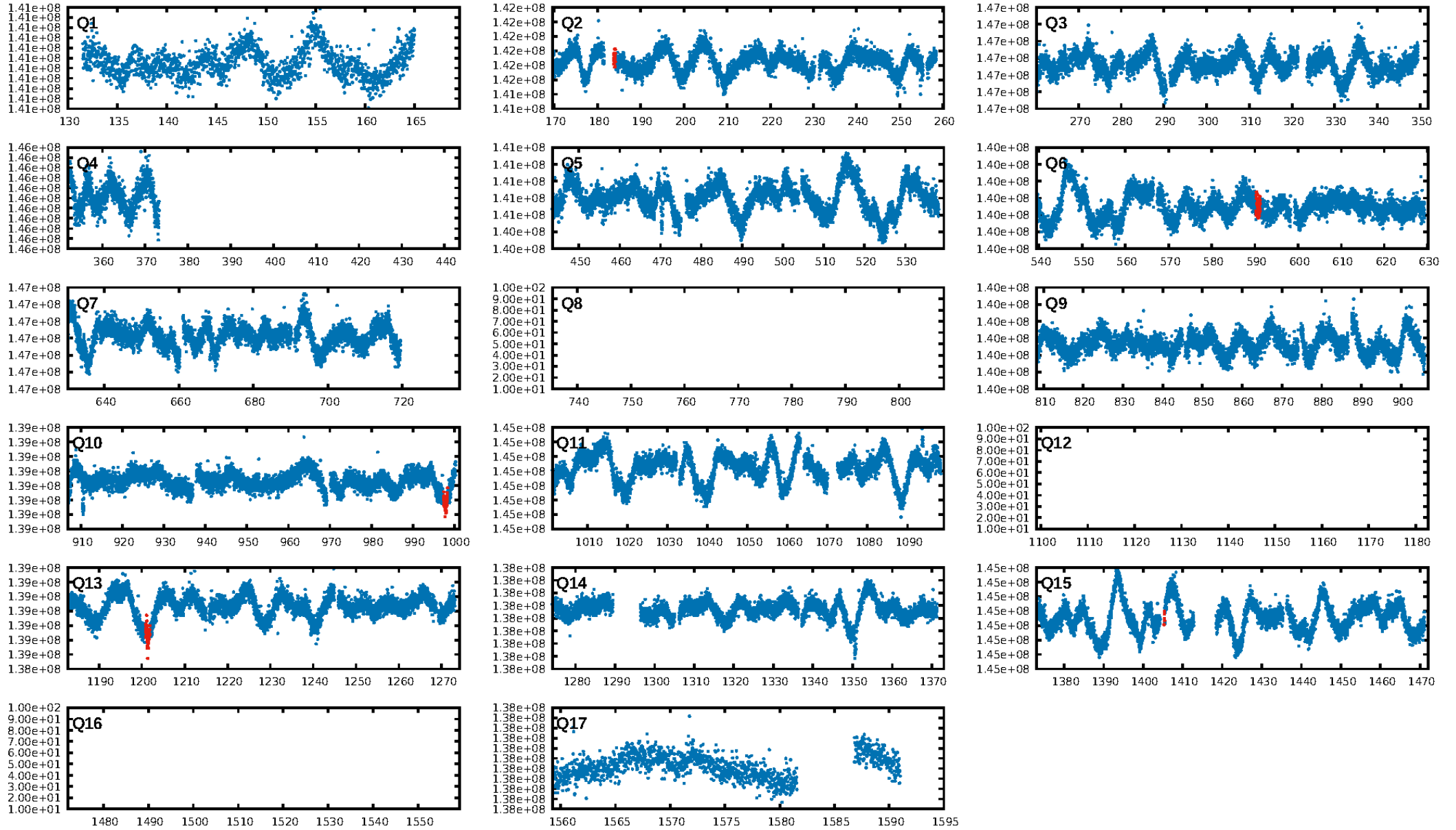
DV Fit Results:

Period = 203.54946 [0.00899] d
Epoch = 183.6462 [0.0332] BKJD
Rp/R* = 0.0166 [0.0018]
a/R* = 39.13 [11.67]
b = 0.97 [0.02]
Seff = 8.29 [4.08]
Teq = 433 [53] K
Rp = 3.05 [1.02] Re
a = 0.6842 [0.2064] AU
Ag = 2397.78 [1413.89] [1.70σ]
Teffp = 4681 [423] K [9.97σ]

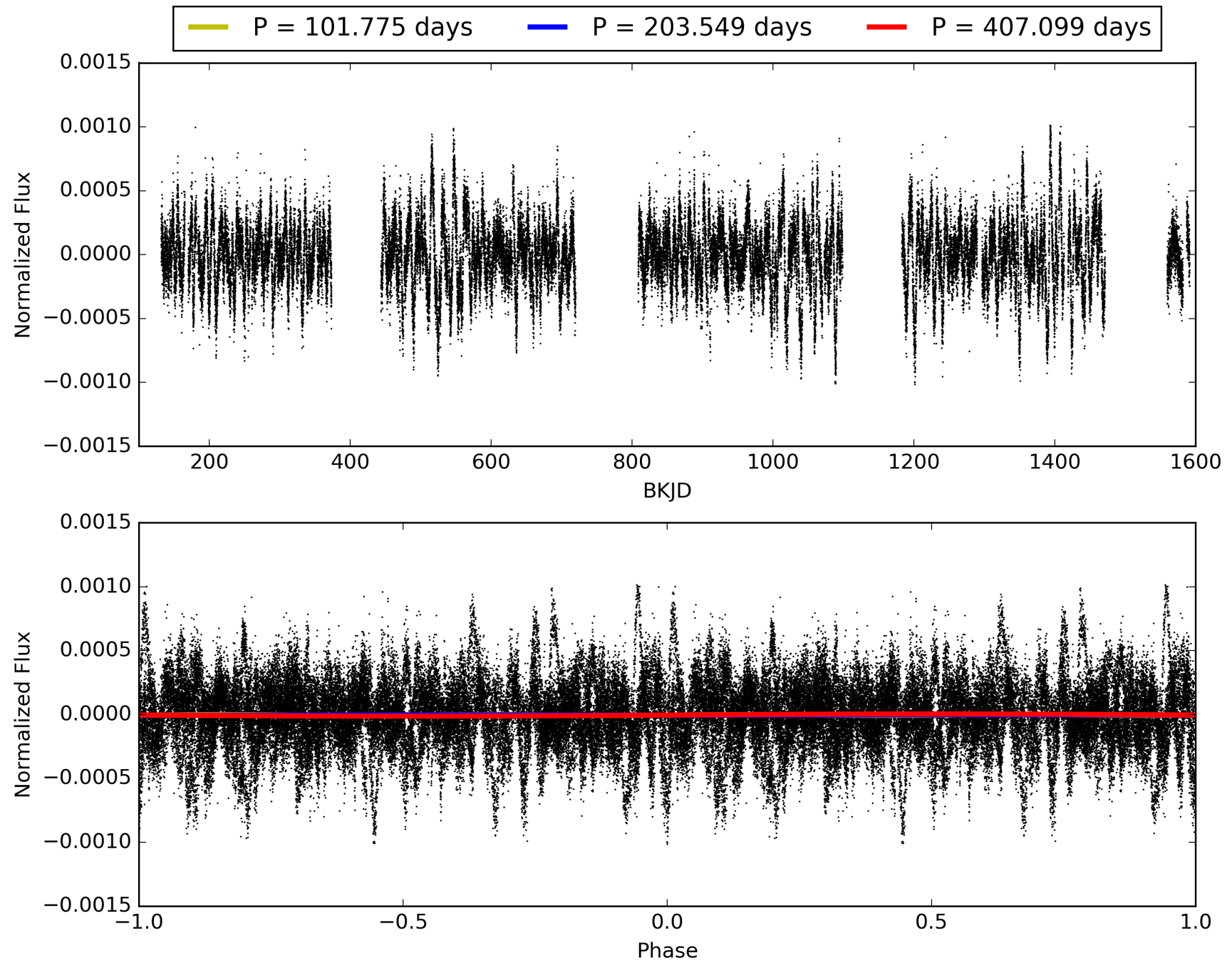
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [342.16σ]
ModelChiSquare2-sig: 1.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.51e-15
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -29.72
Centroid-sig: 44.7%
Centroid-so: 1.654 arcsec [1.06σ]
OotOffset-rm: 0.619 arcsec [2.05σ]
KicOffset-rm: 0.708 arcsec [2.35σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 010850327-02, PDC Light Curves

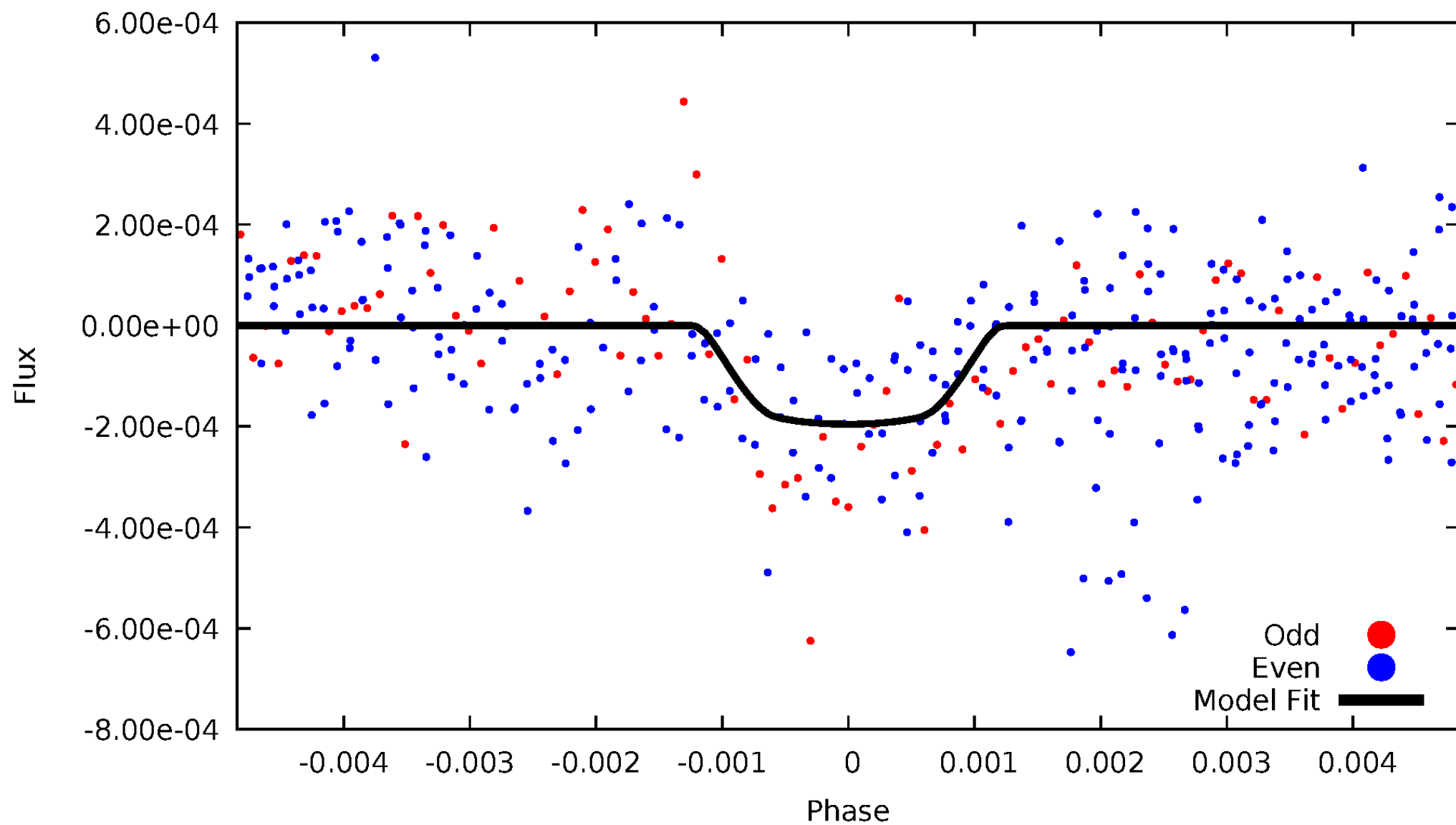


TCE 010850327-02



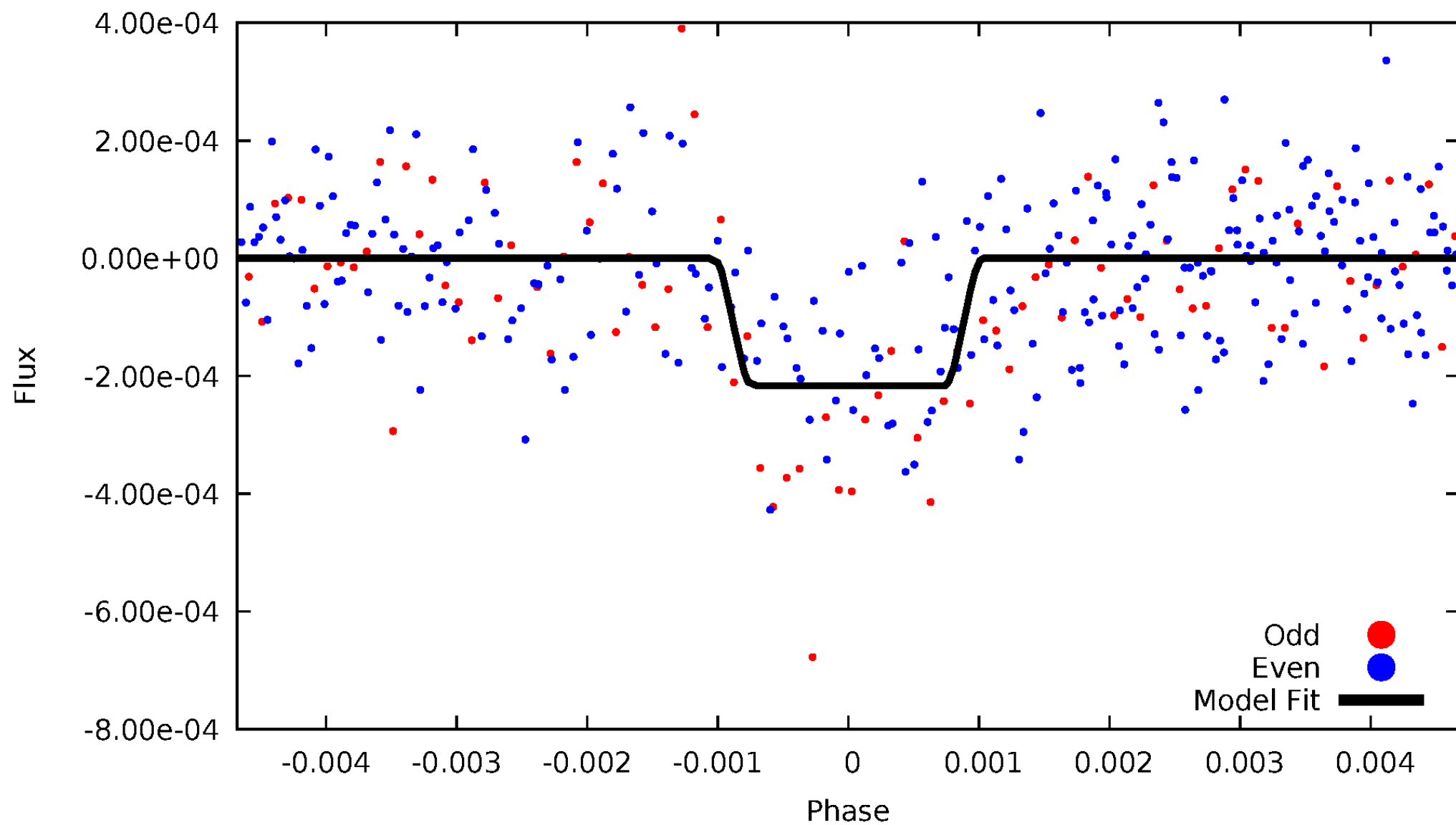
DV Odd/Even

TCE 010850327-02



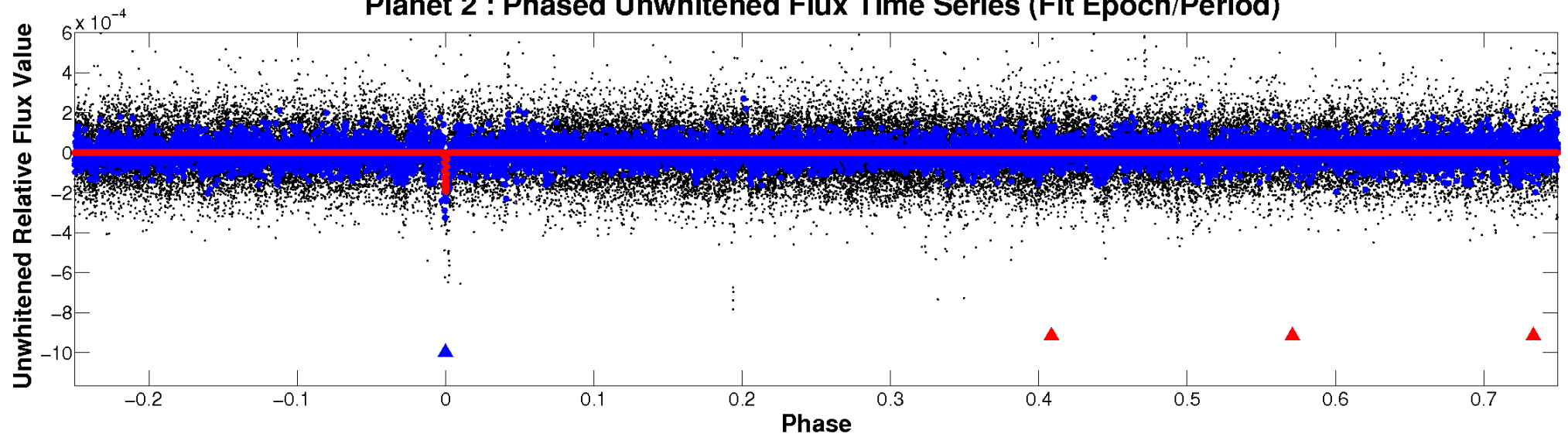
ALT Odd/Even

TCE 010850327-02

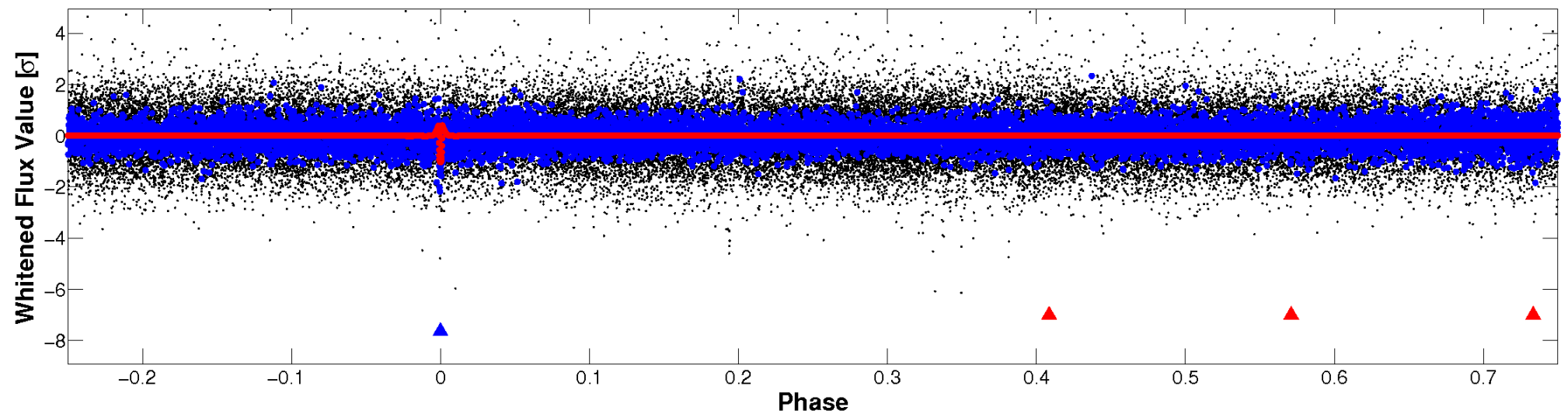


Non-Whitened Vs. Whitened Light Curve

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



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



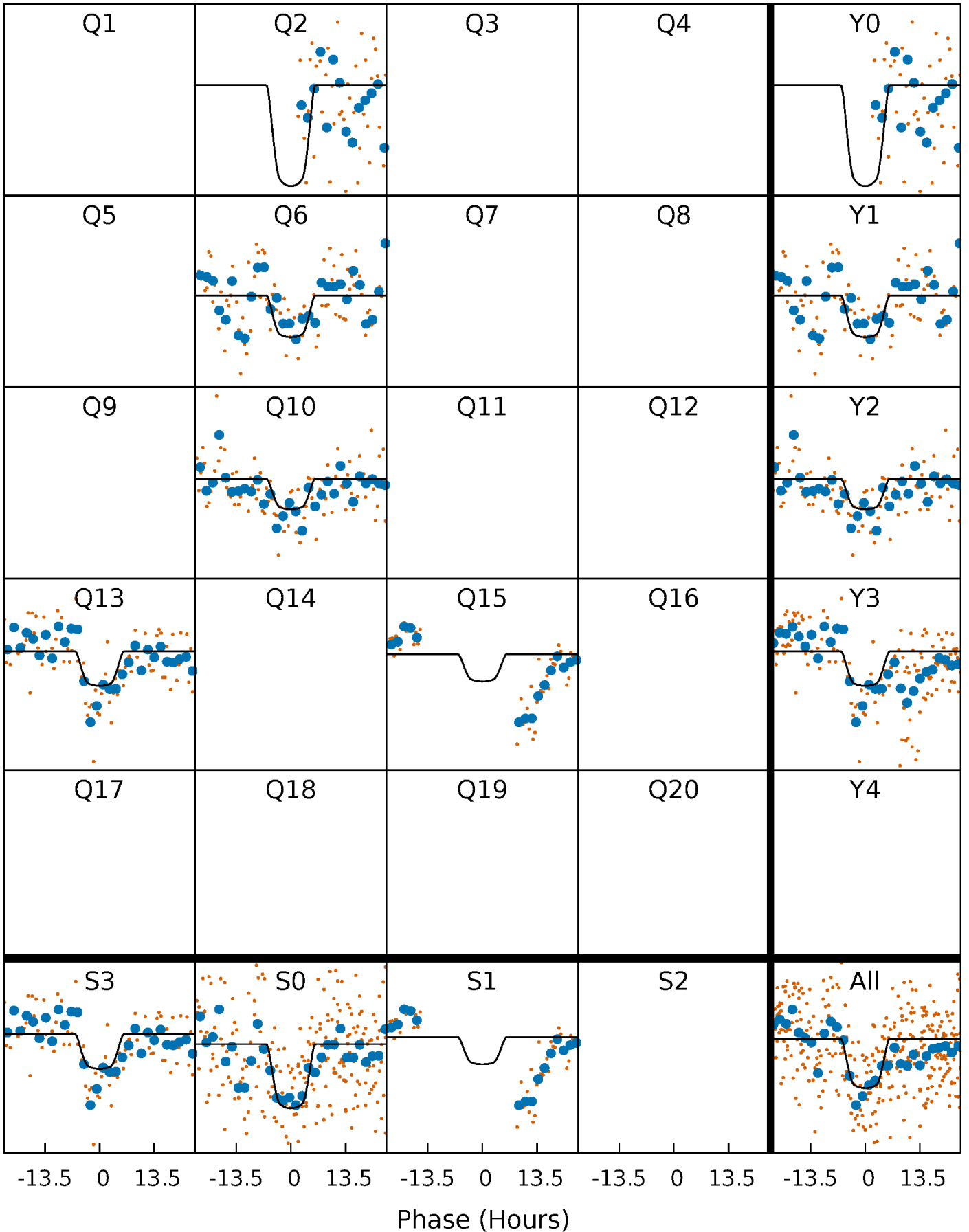
PDC Quarter-Phased Transit Curves

TCE 010850327-02 $P=203.549461$ Days $T_0=183.646219$ (BKJD)



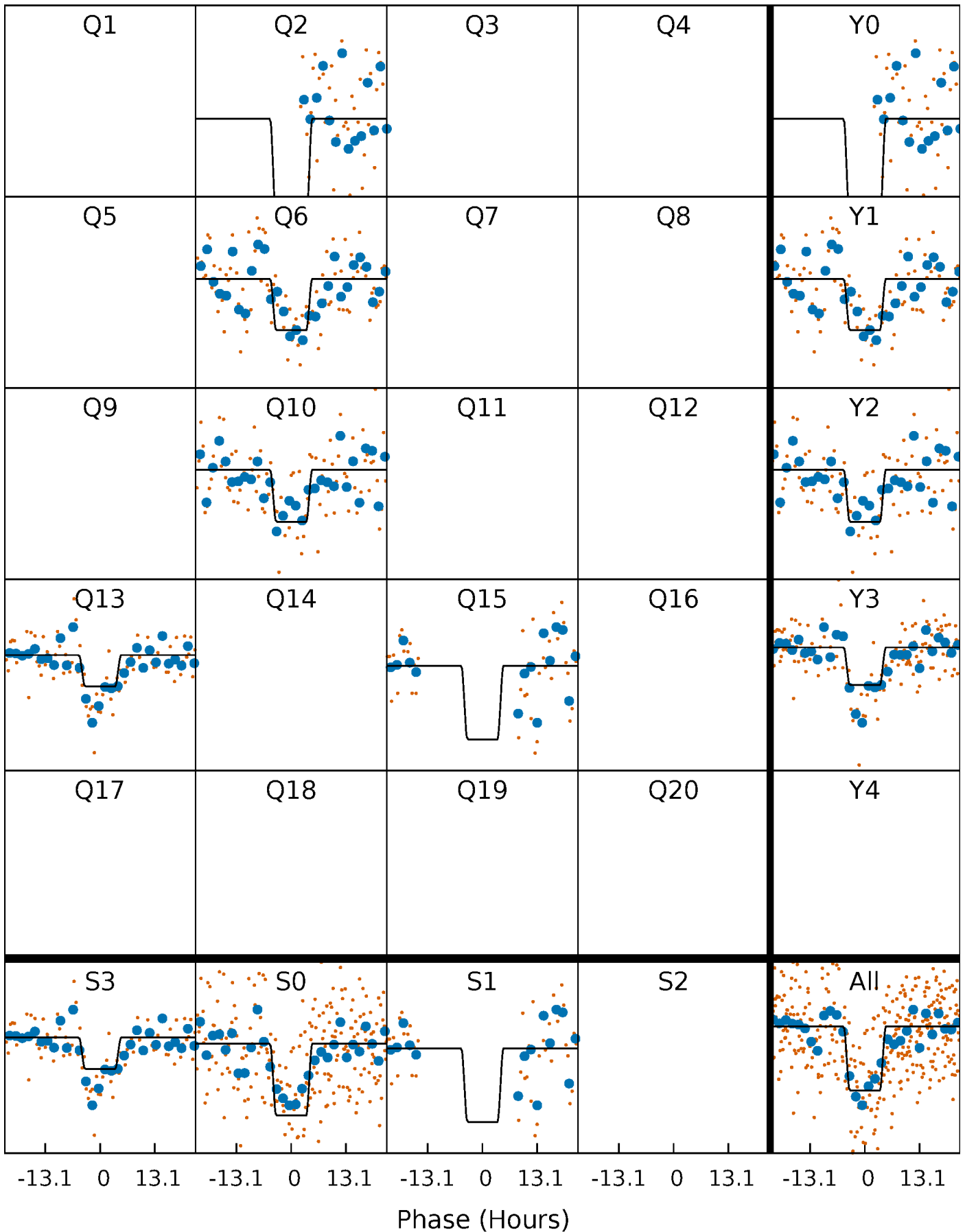
DV Quarter-Phased Transit Curves

TCE 010850327-02 $P=203.549461$ Days $T_0=183.646219$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

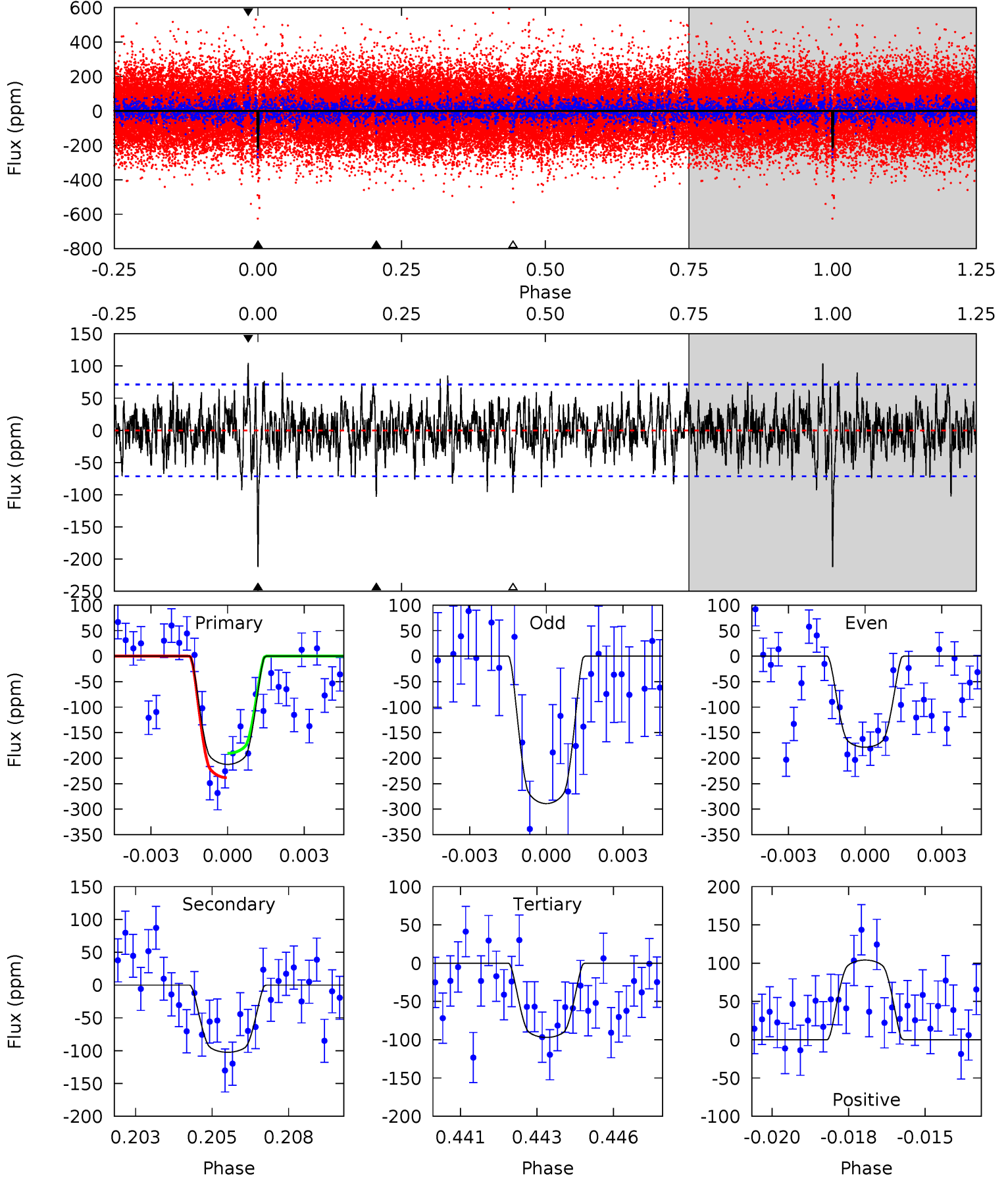
TCE 010850327-02 P=203.552313 Days $T_0=183.626443$ (BKJD)



DV Model-Shift Uniqueness Test

010850327-02, P = 203.549461 Days, E = 183.646219 Days

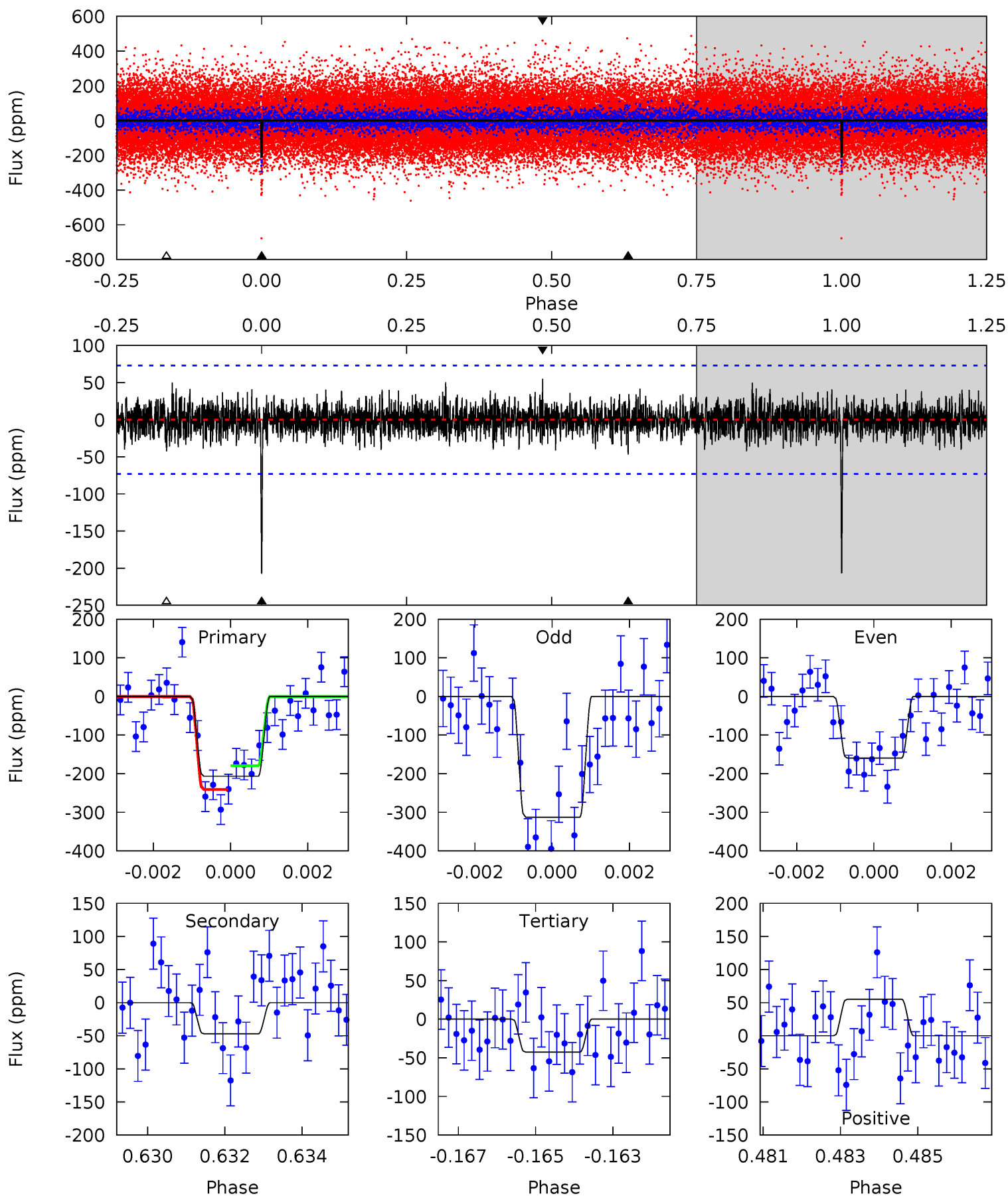
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	7.59	7.19	7.72	5.29	3.02	2.04	8.54	8.01	0.40	-0.12	3.80	0.95	0.33	1.76



Alt Model-Shift Uniqueness Test

010850327-02, P = 203.552313 Days, E = 183.626443 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	3.43	3.10	4.01	5.32	3.09	1.00	12.0	11.0	0.33	-0.58	5.10	0.90	0.21	2.23



Stellar Parameters For KIC 010850327

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6261^{+174}_{-174}	$4.001^{+0.280}_{-0.120}$	$-0.460^{+0.300}_{-0.300}$	$1.679^{+0.328}_{-0.533}$	$1.030^{+0.178}_{-0.146}$	$0.307^{+0.519}_{-0.105}$
	+3%/-3%	+7%/-3%	+65%/-65%	+20%/-32%	+17%/-14%	+169%/-34%
Source	PHO1	FLK73	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 010850327-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-102 ± 13	$2.94^{+0.55}_{-0.53}$	595^{+39}_{-45}	4991^{+289}_{-268}	3117^{+1364}_{-918}
Alt.	-47 ± 14	$2.61^{+0.53}_{-0.49}$	597^{+40}_{-51}	4464^{+367}_{-359}	1783^{+1101}_{-703}

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

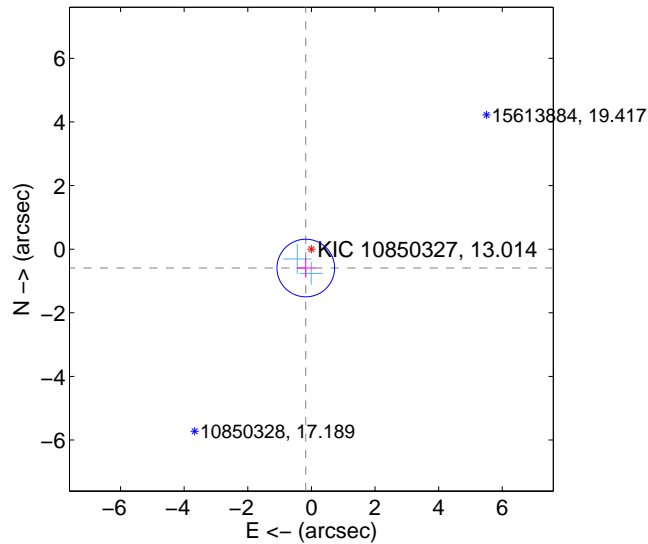
Supplemental centroid analysis for 010850327-02. Kepler magnitude: 13.01. Transit SNR 7.52

There are 2 quarters with good PRF difference image offsets

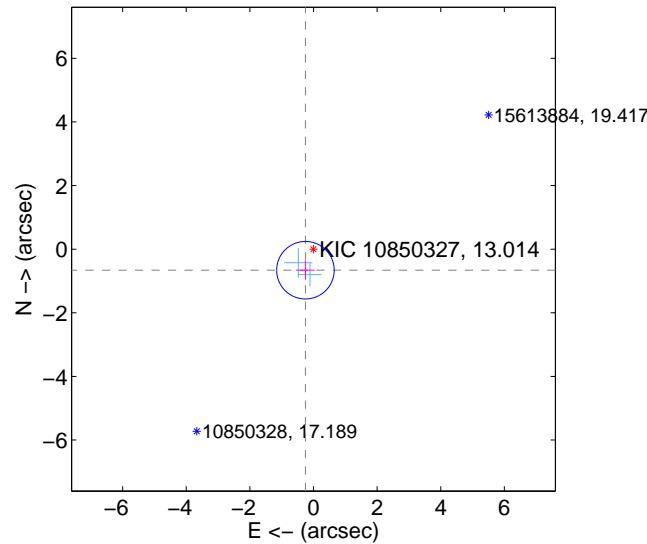
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.619 ± 0.302	2.05	0.177 ± 0.293	-0.593 ± 0.303
PRF-fit source offset from KIC position	0.708 ± 0.301	2.35	0.254 ± 0.293	-0.661 ± 0.303
photometric centroid source offset	1.65 ± 1.56	1.06	1.65 ± 1.56	-0.03 ± 1.37

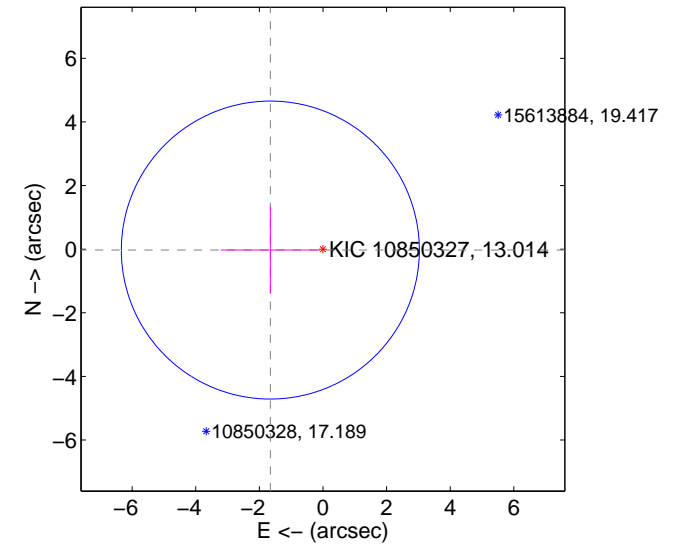
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

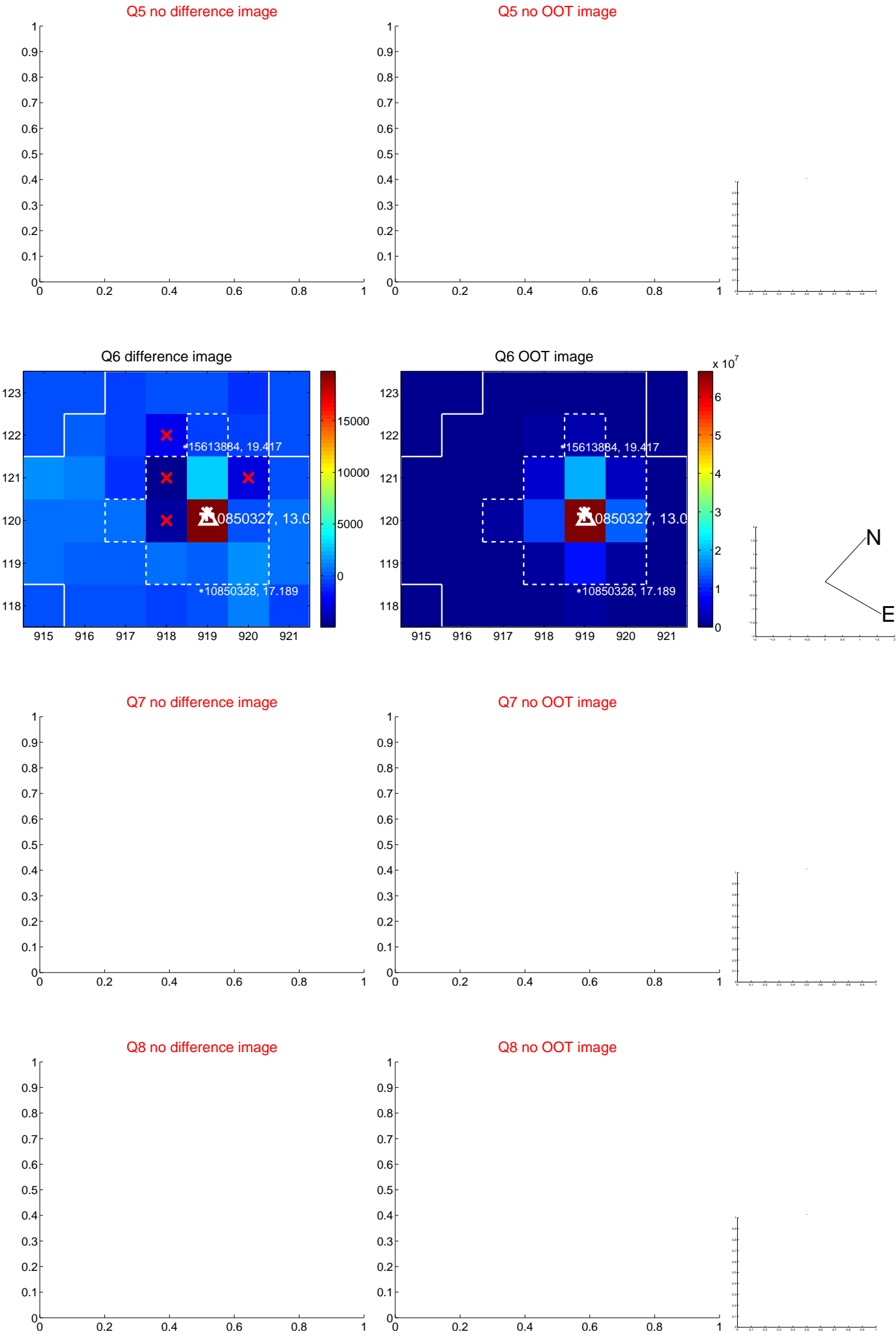


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

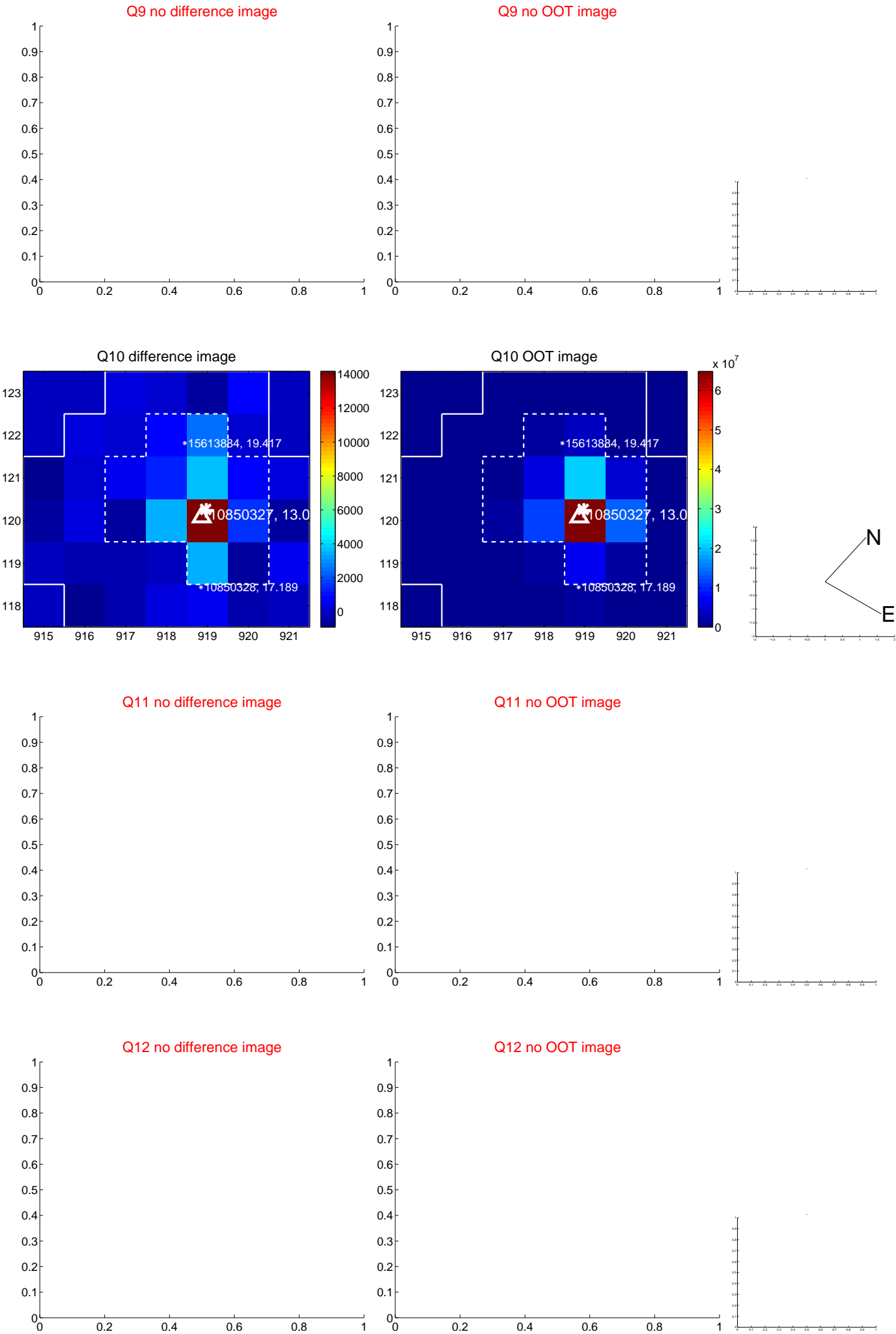
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



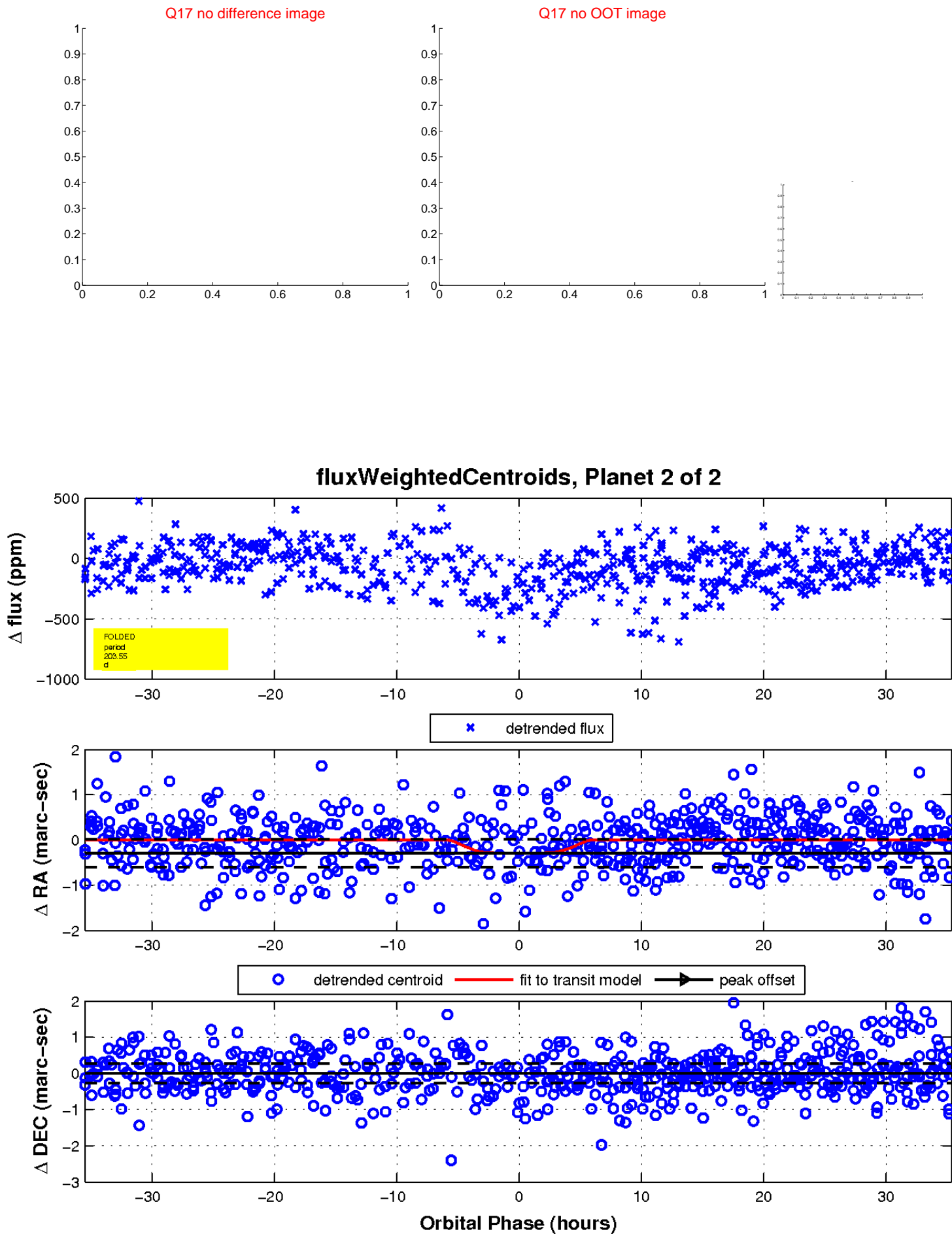
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

