

KIC 009246715

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})
009246715-01	OBS	7601.01	171.276339	166.241495	193648.4	73.994	623.5	2395.1	14.22	4857	831.37	177.29
009246715-02	OBS	No	171.277284	288.253548	117826.1	83.030	249.3	1377.7	14.22	4857	722.95	177.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009246715-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED
009246715-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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 009246715-01

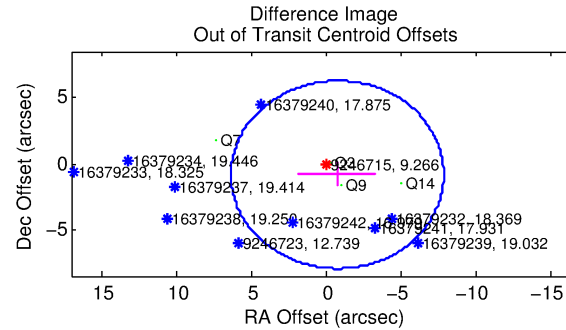
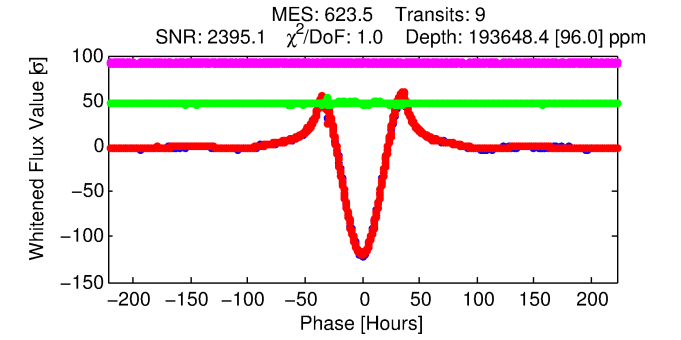
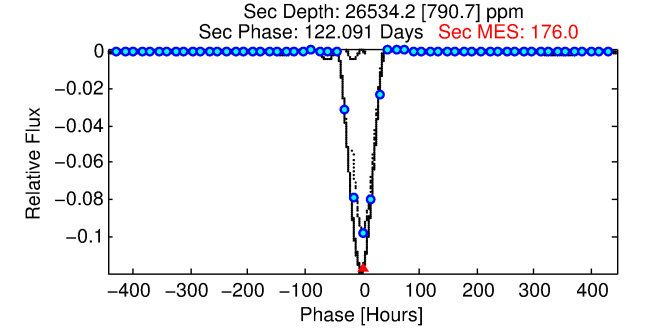
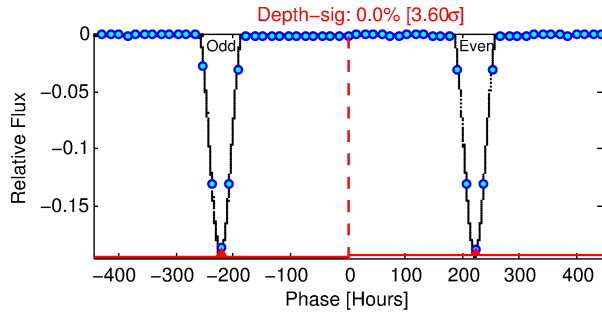
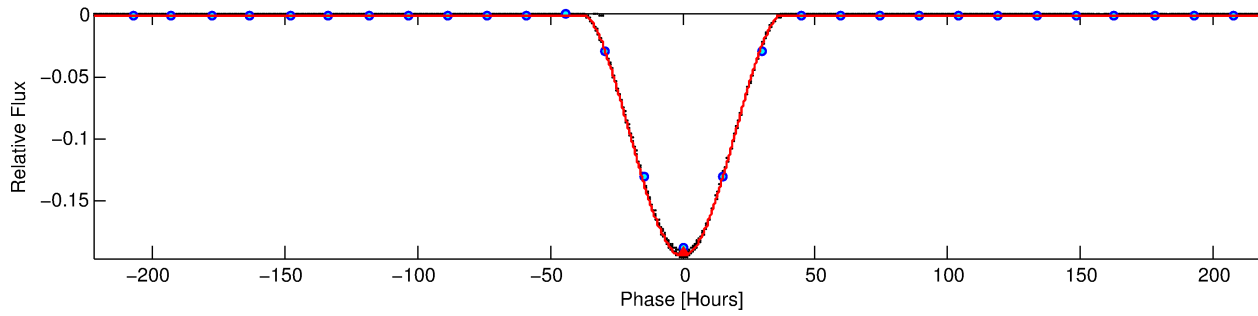
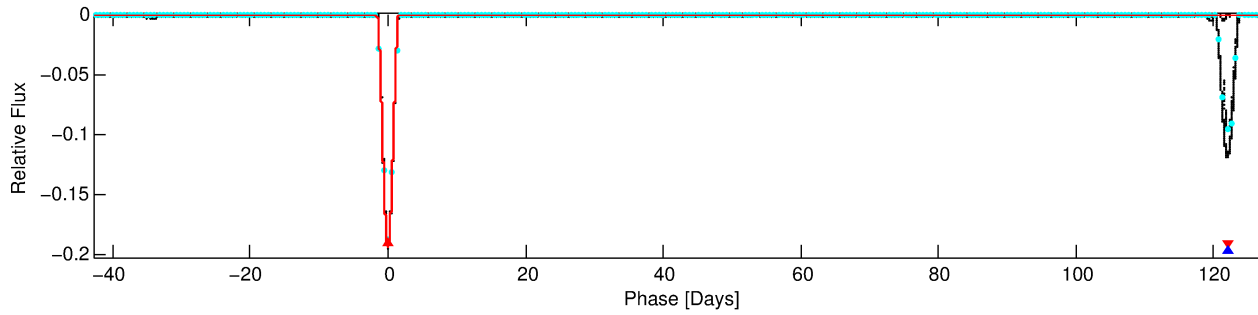
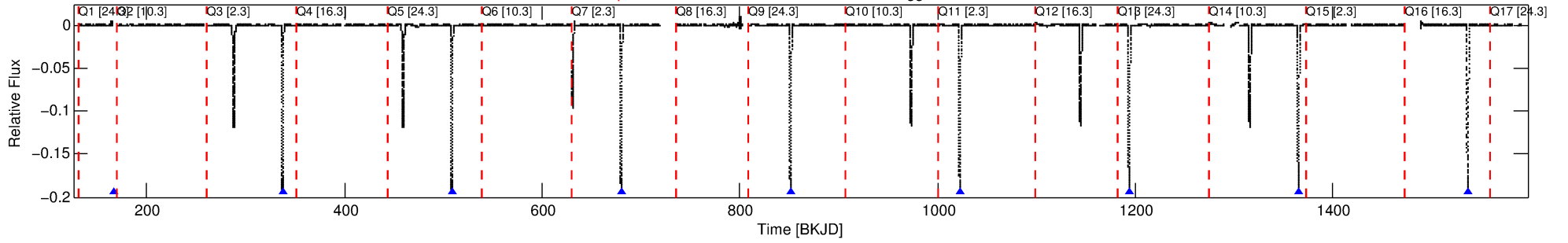
No Significant Match Found

DV One-Page Summary

KIC: 9246715 Candidate: 1 of 2 Period: 171.276 d

KOI: K07601 Corr: No Ephemeris Match

Kp: 9.27 R*: 14.22 Rs Teff: 4857.0 K Logg: 2.42 Fe/H: -0.400



DV Fit Results:

Period = 171.27634 [0.00010] d
Epoch = 166.2415 [0.0005] BKJD
Rp/R* = 0.5358 [0.0211]
a/R* = 23.26 [0.10]
b = 0.80 [0.03]
Seff = 177.29 [130.73]
Teq = 930 [172] K
Rp = 831.37 [400.45] Re
a = 0.7541 [0.3454] AU
Ag = 12.01 [8.82] [1.25σ]
Teffp = 2678 [92] K [8.99σ]

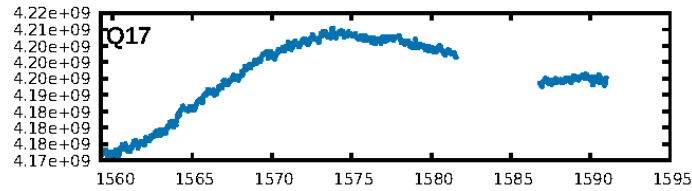
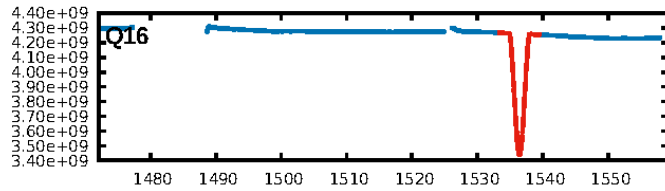
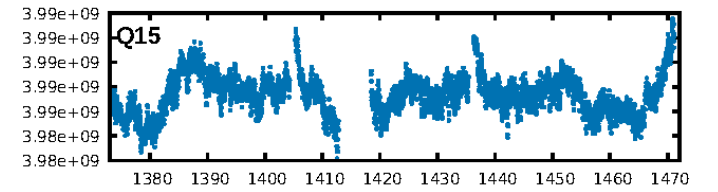
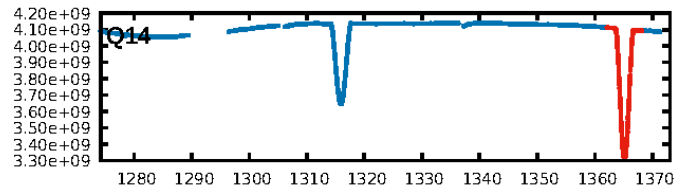
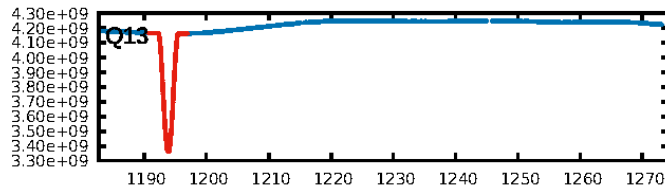
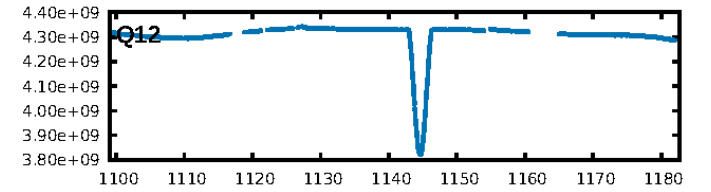
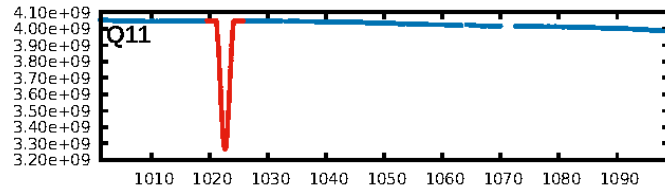
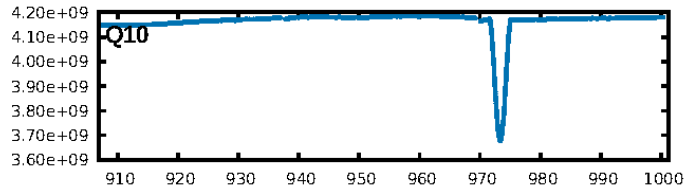
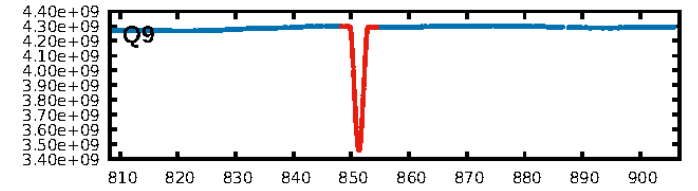
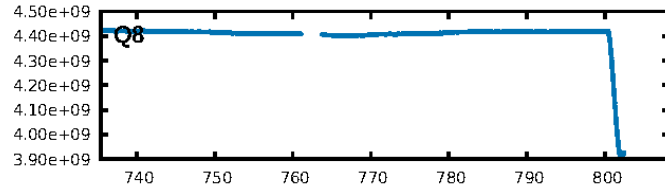
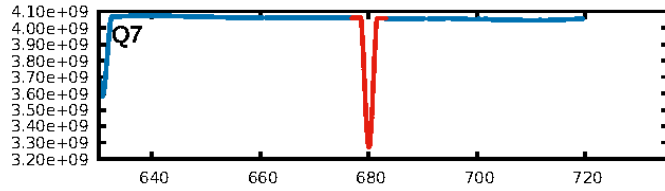
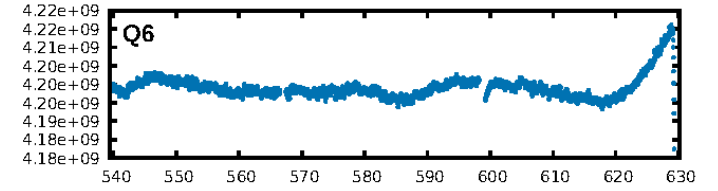
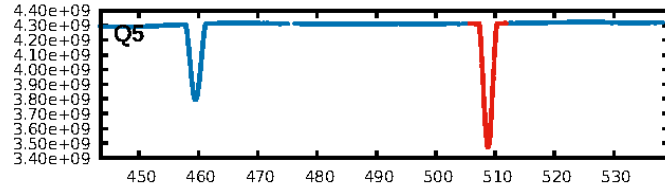
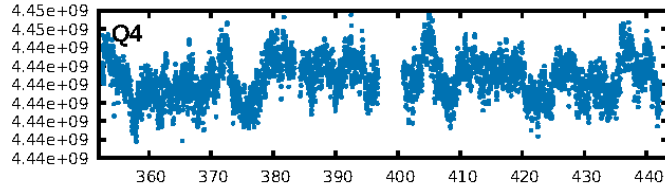
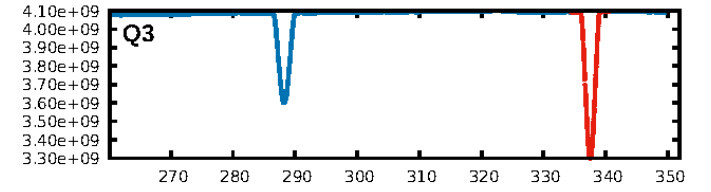
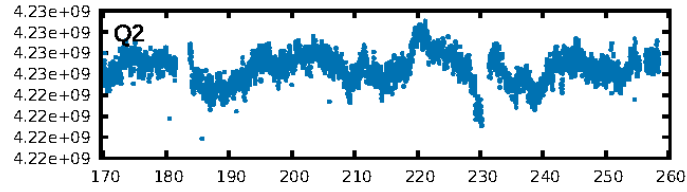
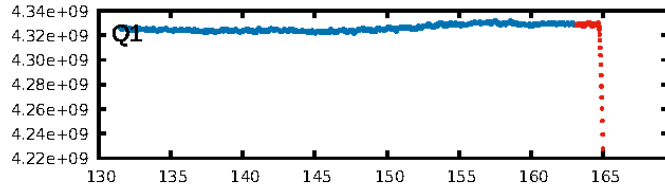
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 0.202 arcsec [34.01σ]
OotOffset-rm: 1.153 arcsec [0.49σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-rm: 0.659 arcsec [0.27σ]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-figm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [4/4]

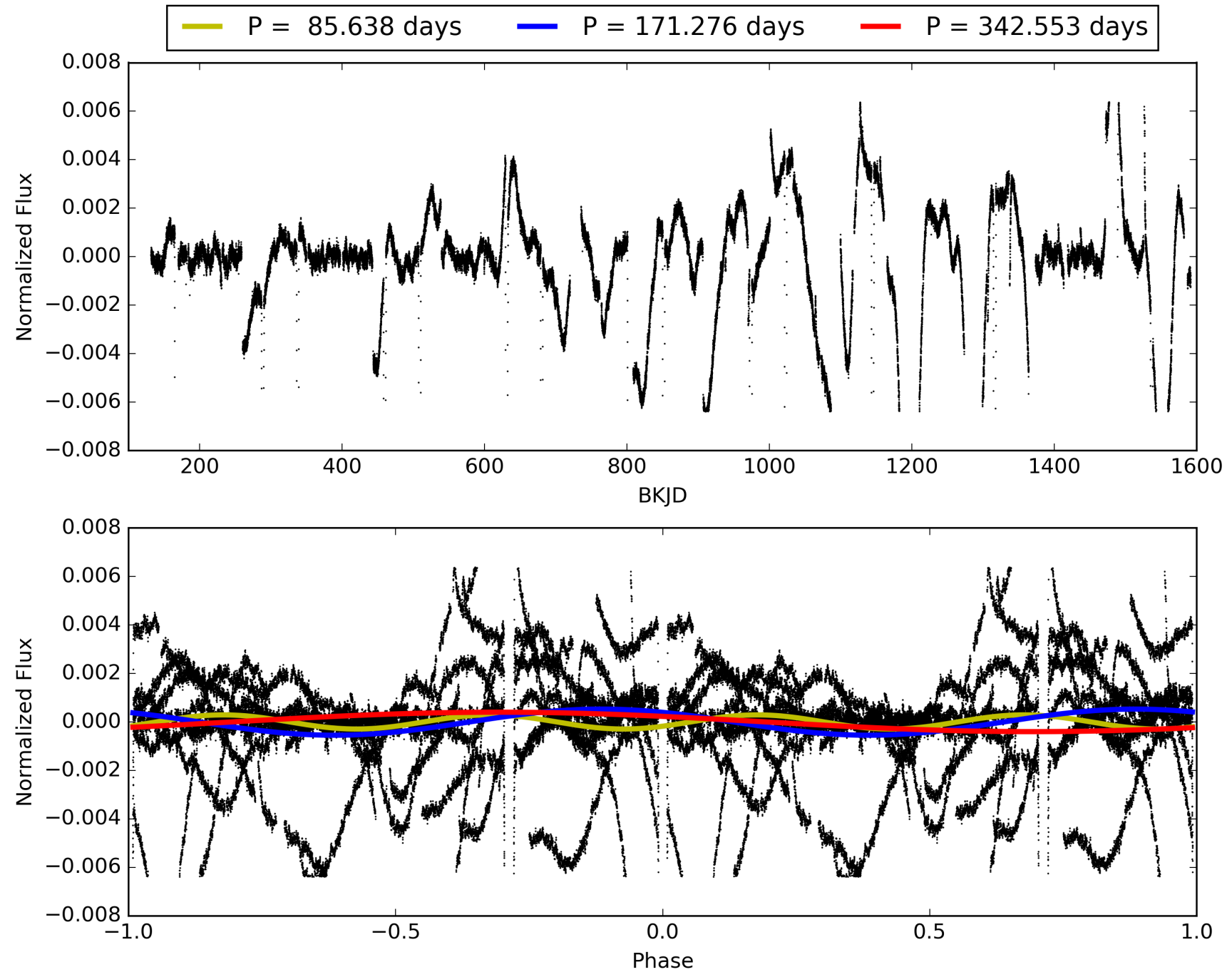
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:07:29 Z

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

TCE 009246715-01, PDC Light Curves

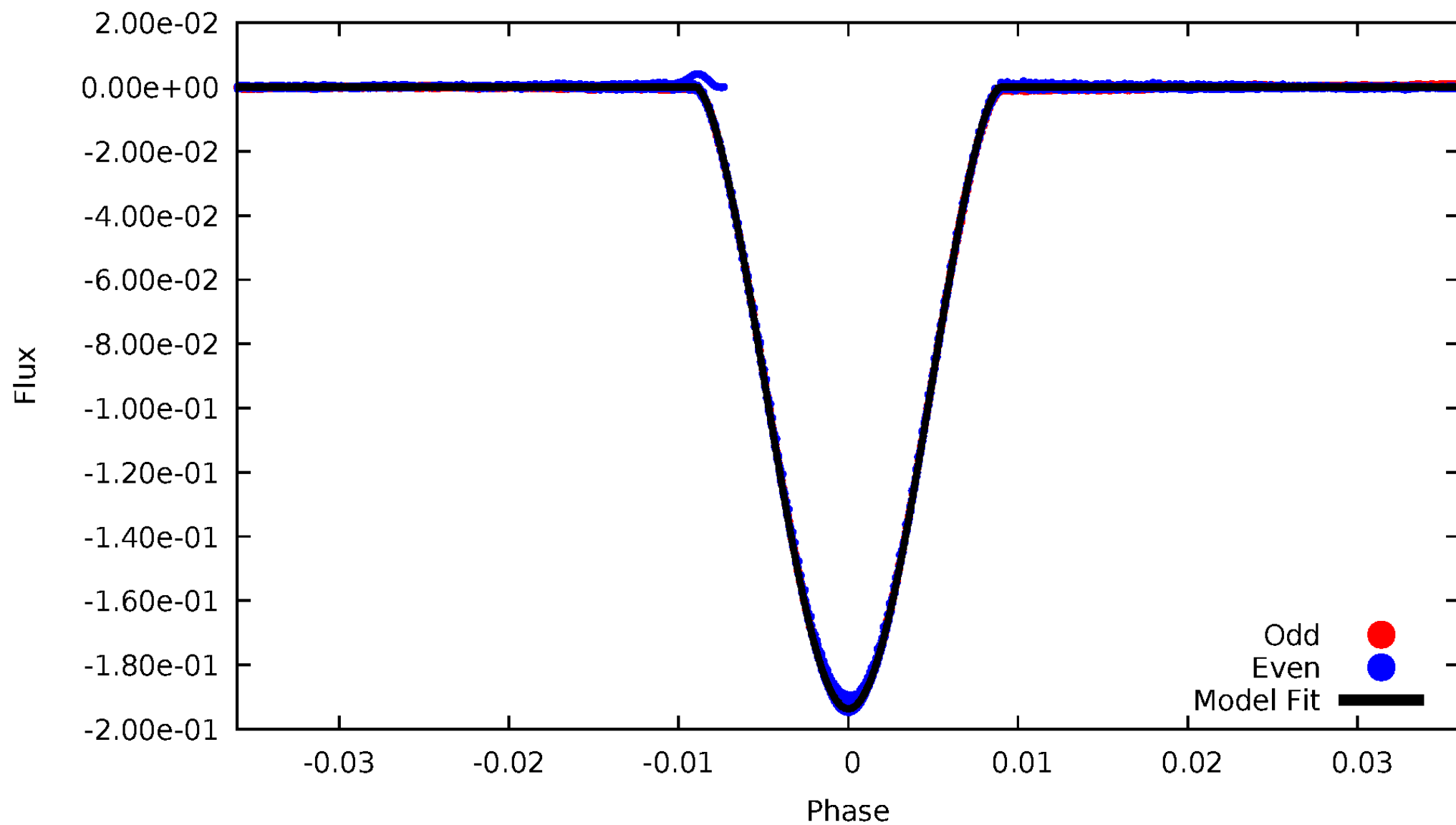


TCE 009246715-01



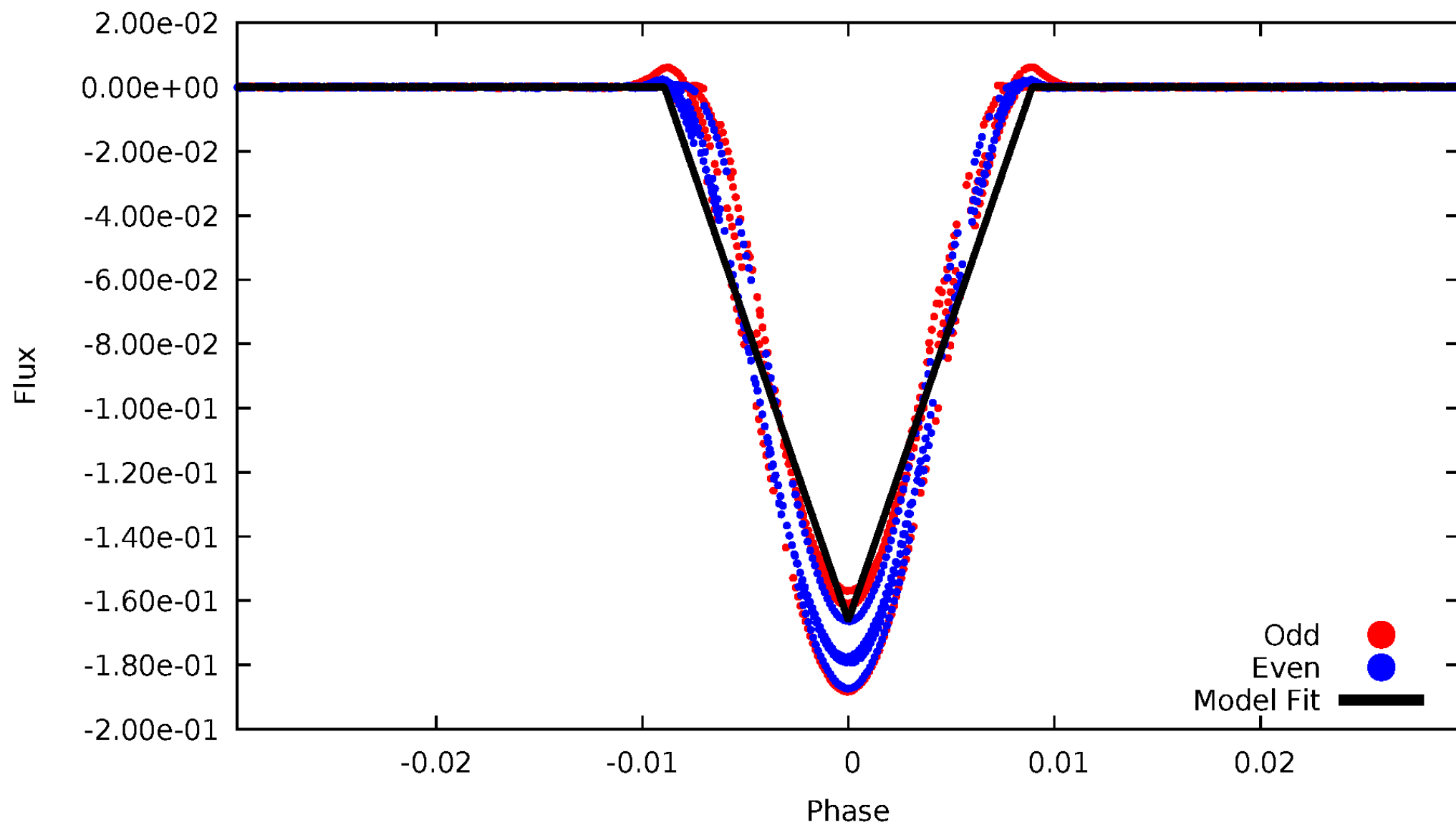
DV Odd/Even

TCE 009246715-01



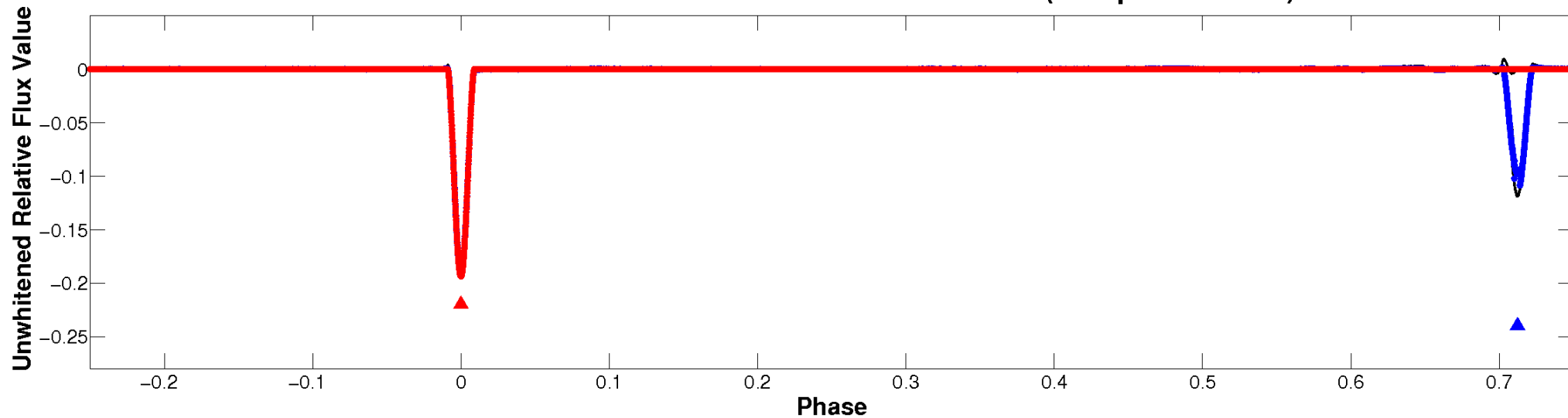
ALT Odd/Even

TCE 009246715-01

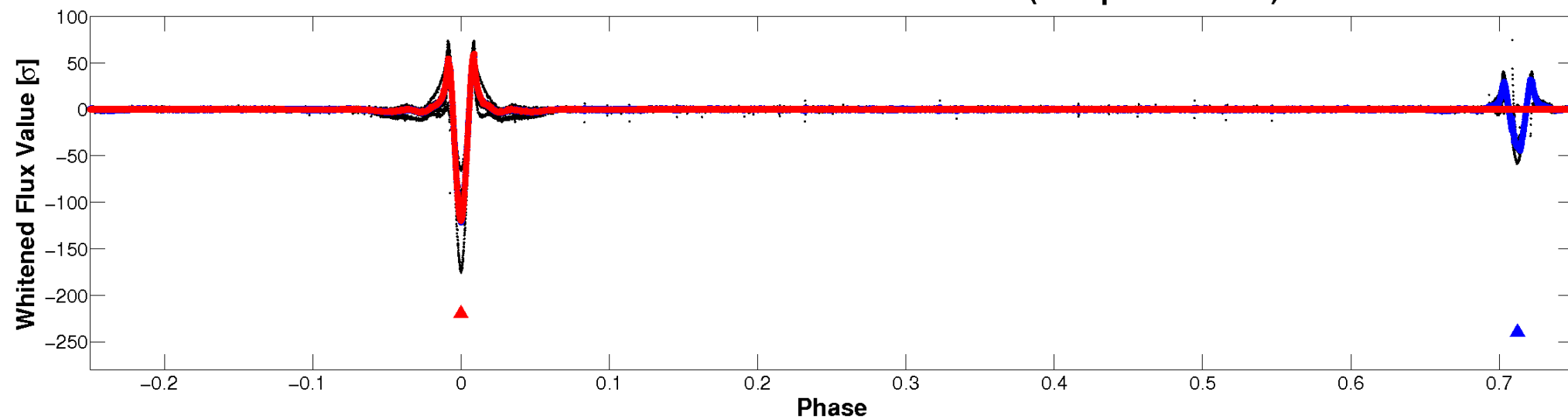


Non-Whitened Vs. Whitened Light Curve

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

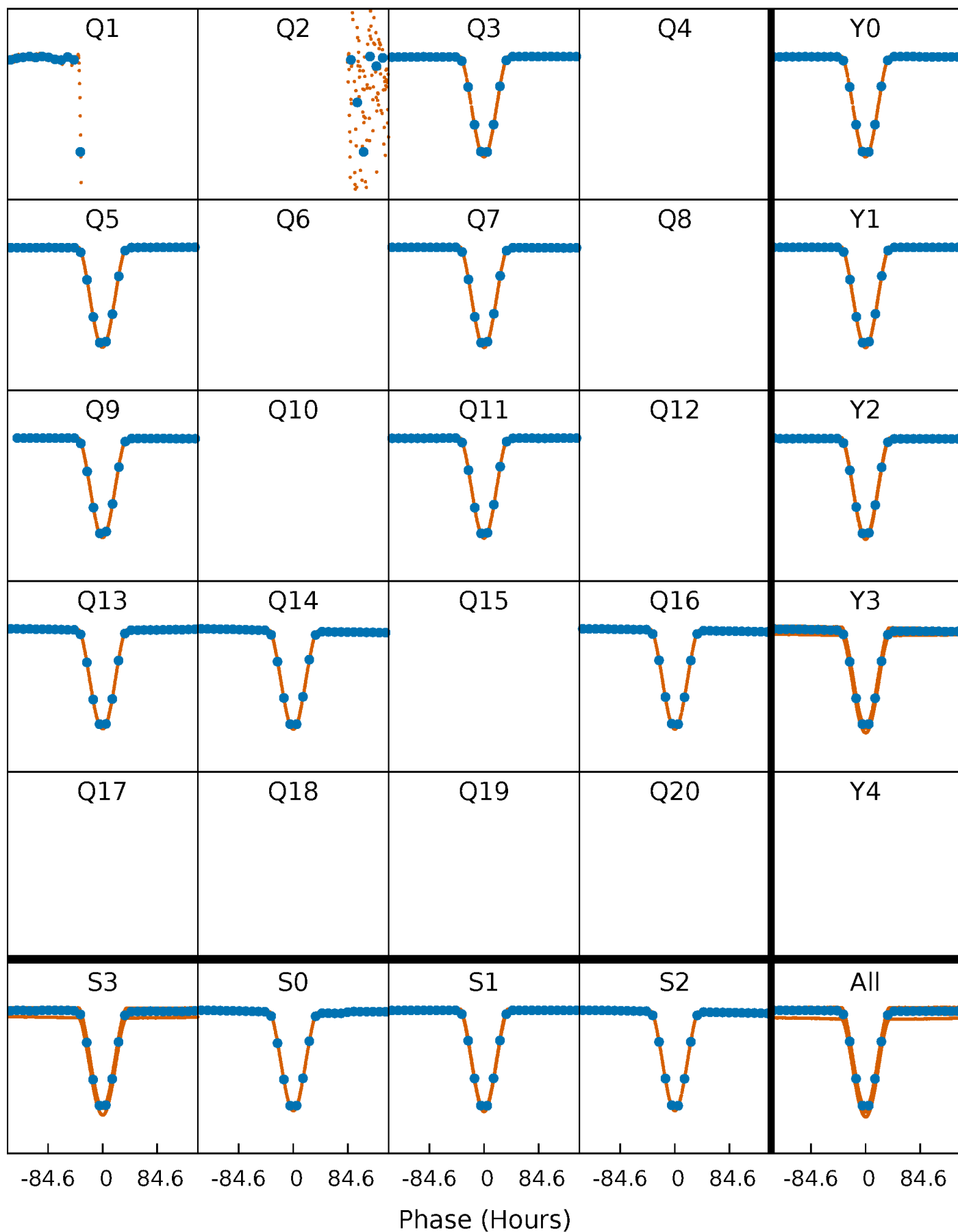


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



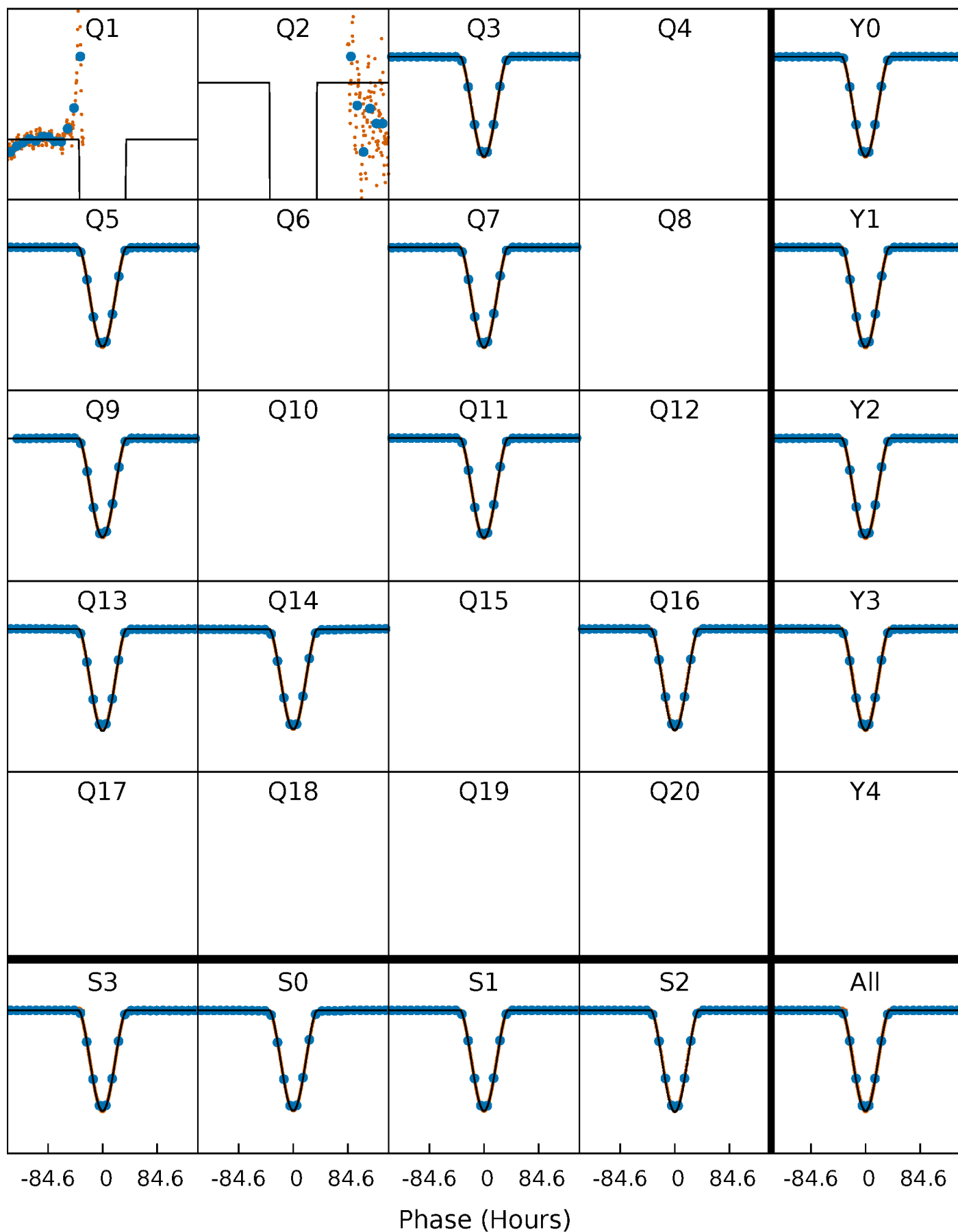
PDC Quarter-Phased Transit Curves

TCE 009246715-01 P=171.276339 Days $T_0=166.241495$ (BKJD)



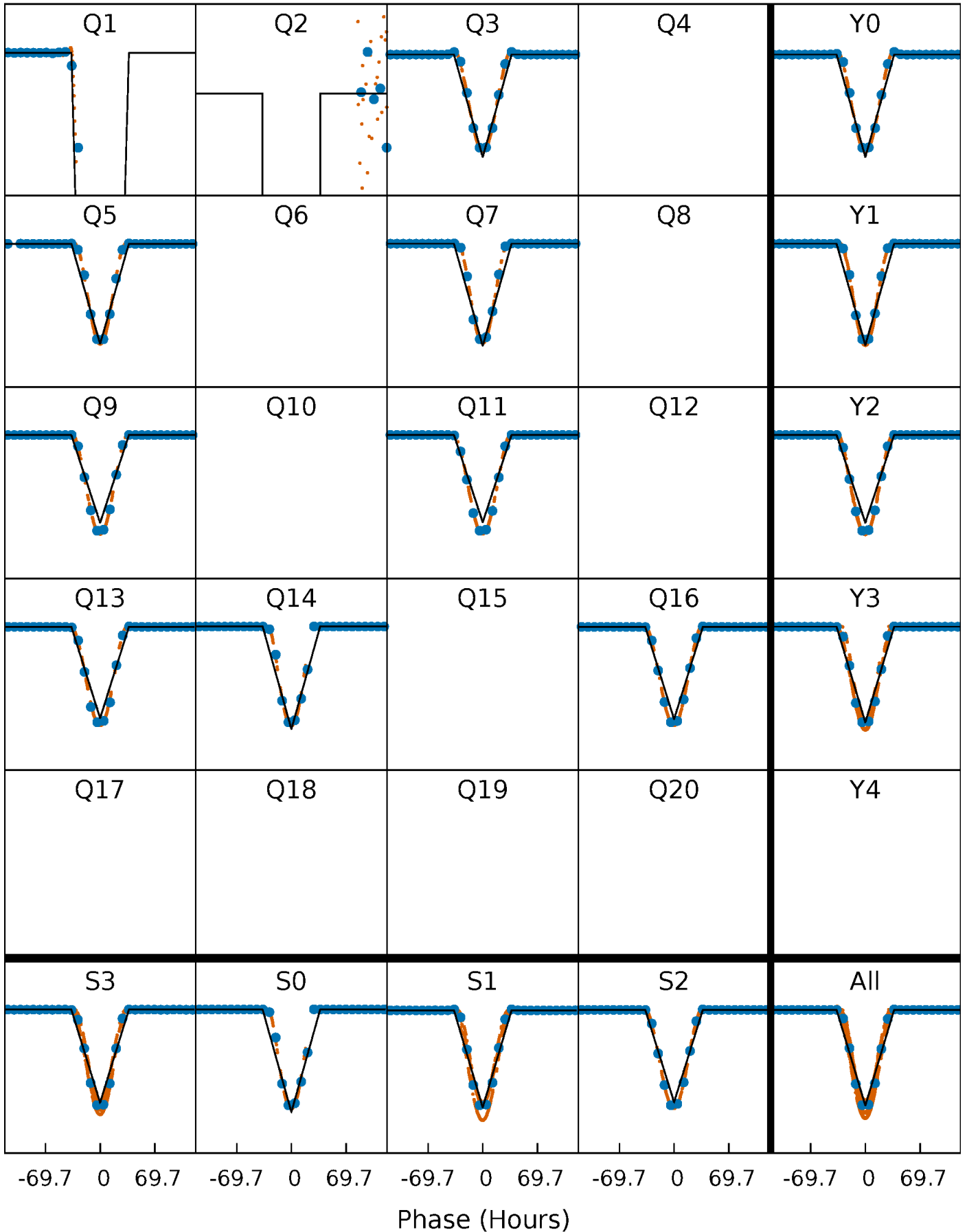
DV Quarter-Phased Transit Curves

TCE 009246715-01 P=171.276339 Days $T_0=166.241495$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

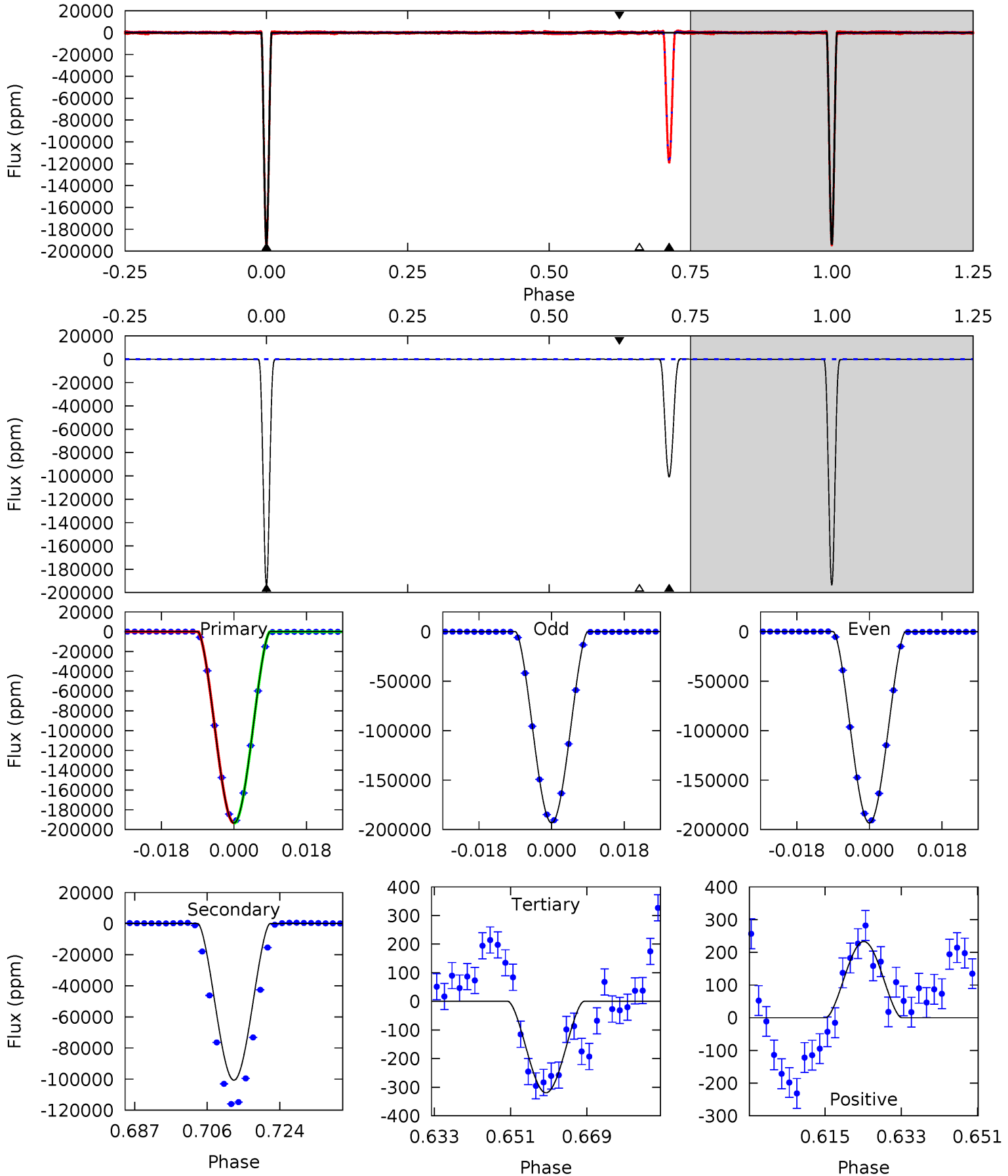
TCE 009246715-01 P=171.280911 Days $T_0=166.227639$ (BKJD)



DV Model-Shift Uniqueness Test

009246715-01, P = 171.276339 Days, E = 166.241495 Days

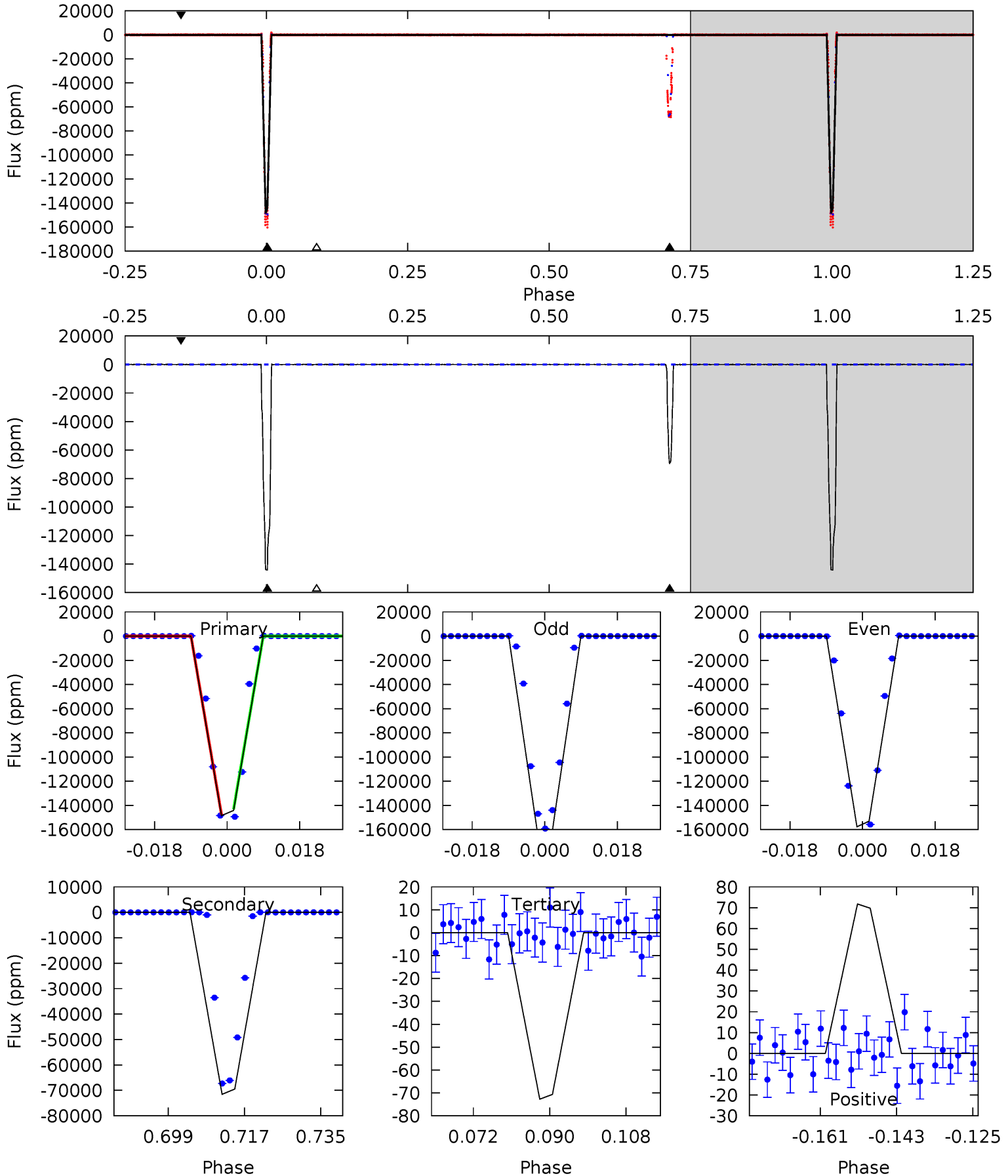
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19202	9997	31.7	23.1	4.91	2.36	10.8	19170	19178	9965	9974	9.52	0.88	0.00	0.43



Alt Model-Shift Uniqueness Test

009246715-01, P = 171.280911 Days, E = 166.227639 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15189	7318	7.44	7.35	4.91	2.37	2.01	15182	15182	7311	7311	1152	1.01	0.00	0



Stellar Parameters For KIC 009246715

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4857^{+116}_{-131}	$2.422^{+0.427}_{-0.183}$	$-0.400^{+0.250}_{-0.250}$	$14.219^{+3.150}_{-6.826}$	$1.950^{+0.904}_{-0.904}$	$0.001^{+0.004}_{-0.000}$
	+2%/-3%	+18%/-8%	+62%/-62%	+22%/-48%	+46%/-46%	+455%/-44%
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 009246715-01 / KOI 7601.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-100676 ± 10	$846.74^{+146.41}_{-211.37}$	1281^{+102}_{-146}	4051^{+109}_{-113}	54^{+32}_{-14}
Alt.	-69472 ± 9	$651.73^{+118.40}_{-186.33}$	1285^{+102}_{-149}	4138^{+119}_{-117}	60^{+39}_{-16}

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

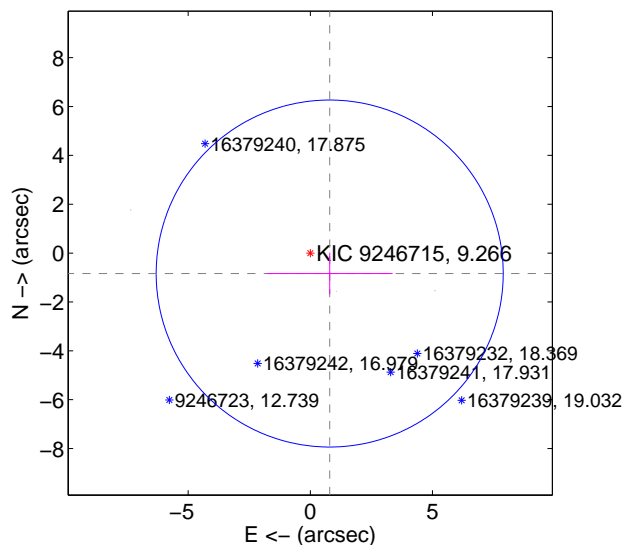
Supplemental centroid analysis for 009246715-01. **Kepler magnitude: 9.27.** Transit SNR 2395.07

There are 0 quarters with good PRF difference image offsets

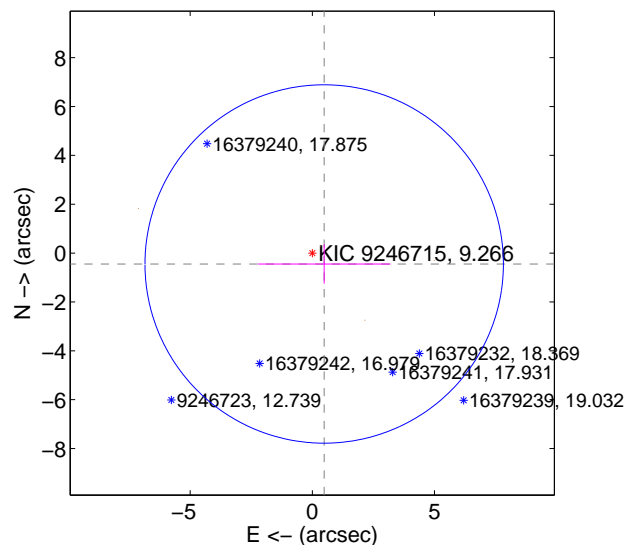
The direct PRF centroid is offset from the target star catalog position by about 1.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.153 ± 2.368	0.49	-0.794 ± 2.574	-0.836 ± 0.851
PRF-fit source offset from KIC position	0.659 ± 2.445	0.27	-0.486 ± 2.712	-0.446 ± 0.805
photometric centroid source offset	0.20 ± 0.01	34.01	0.04 ± 0.01	-0.20 ± 0.01

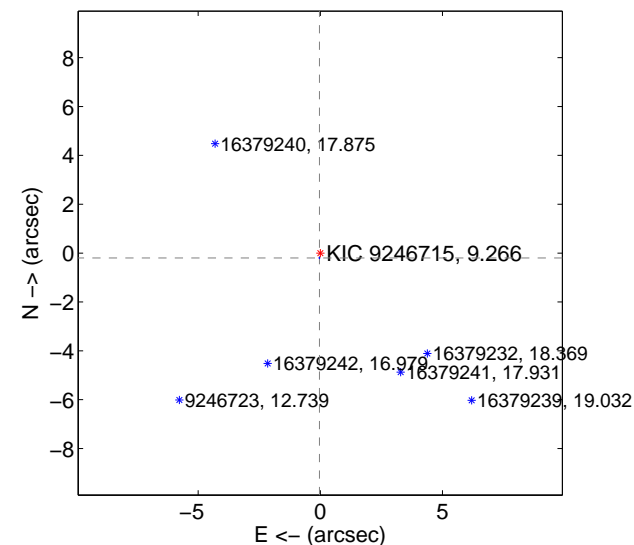
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



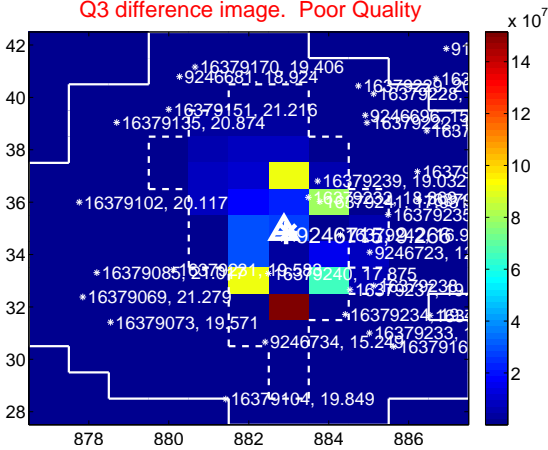
Q2 no difference image



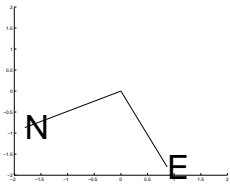
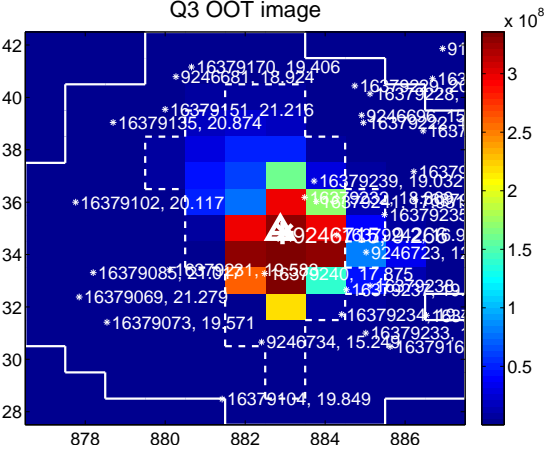
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



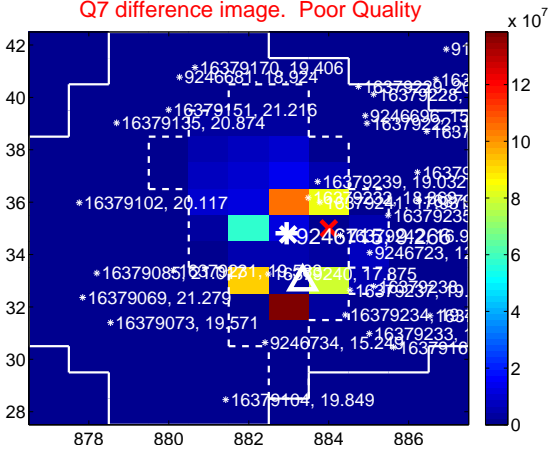
Q6 no difference image



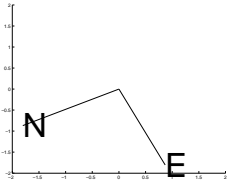
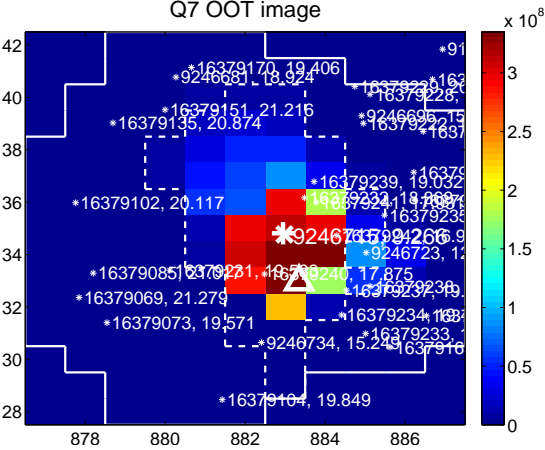
Q6 no OOT image



Q7 difference image. Poor Quality



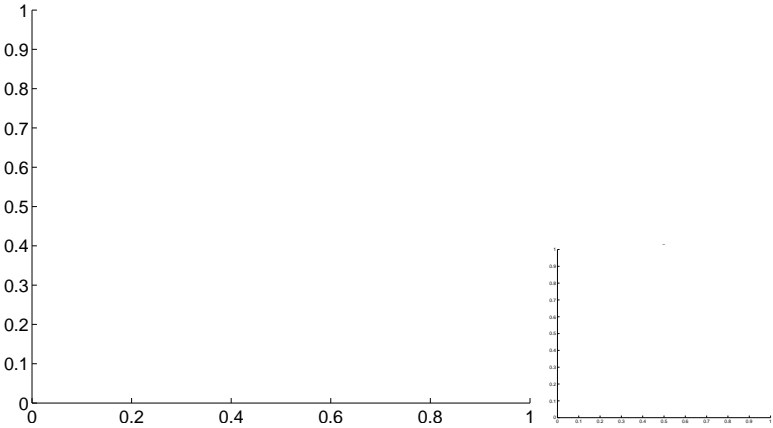
Q7 OOT image



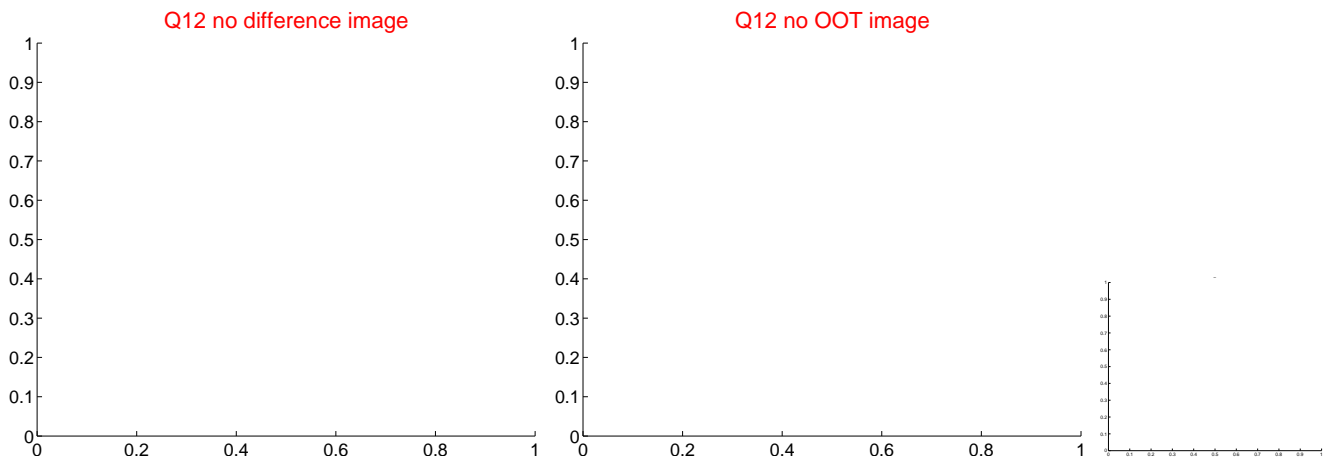
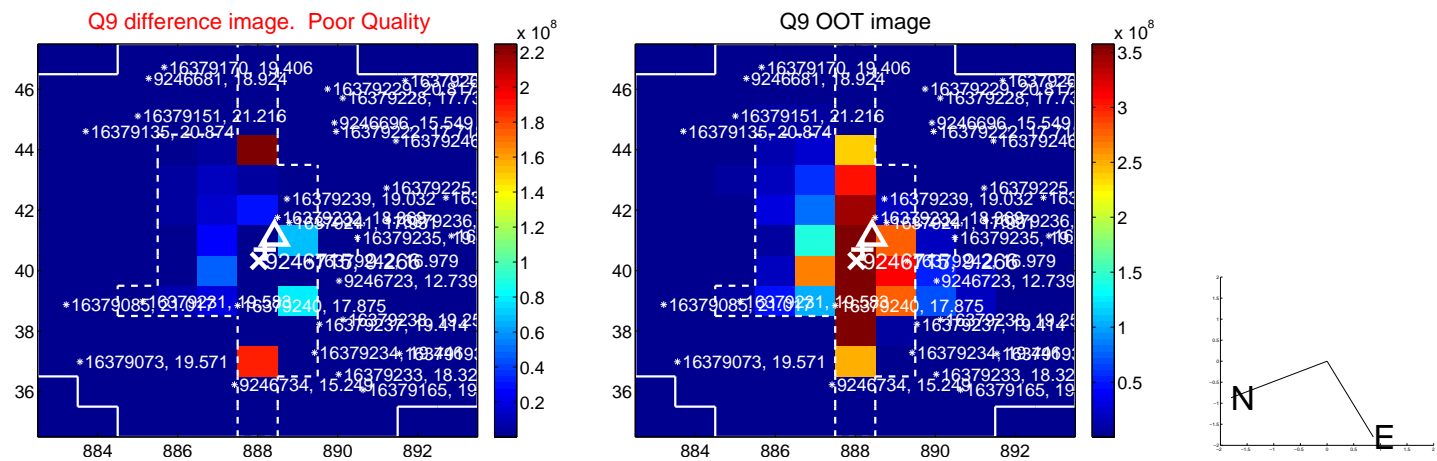
Q8 no difference image



Q8 no OOT image



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

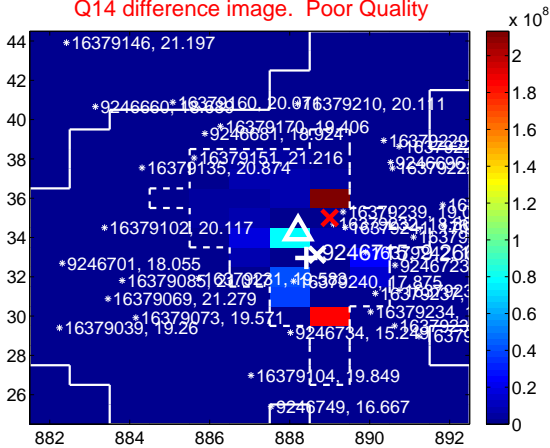
Q13 no difference image



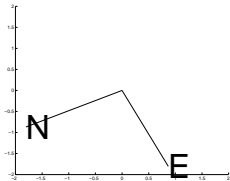
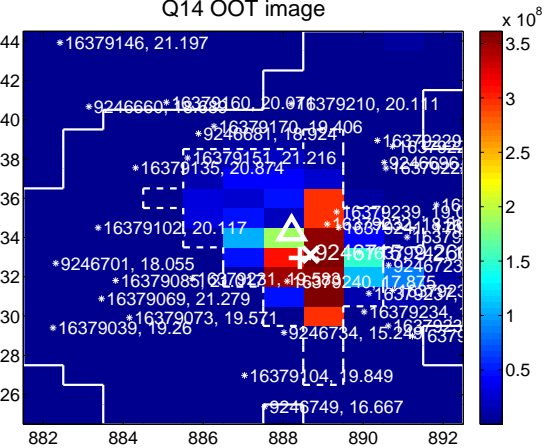
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



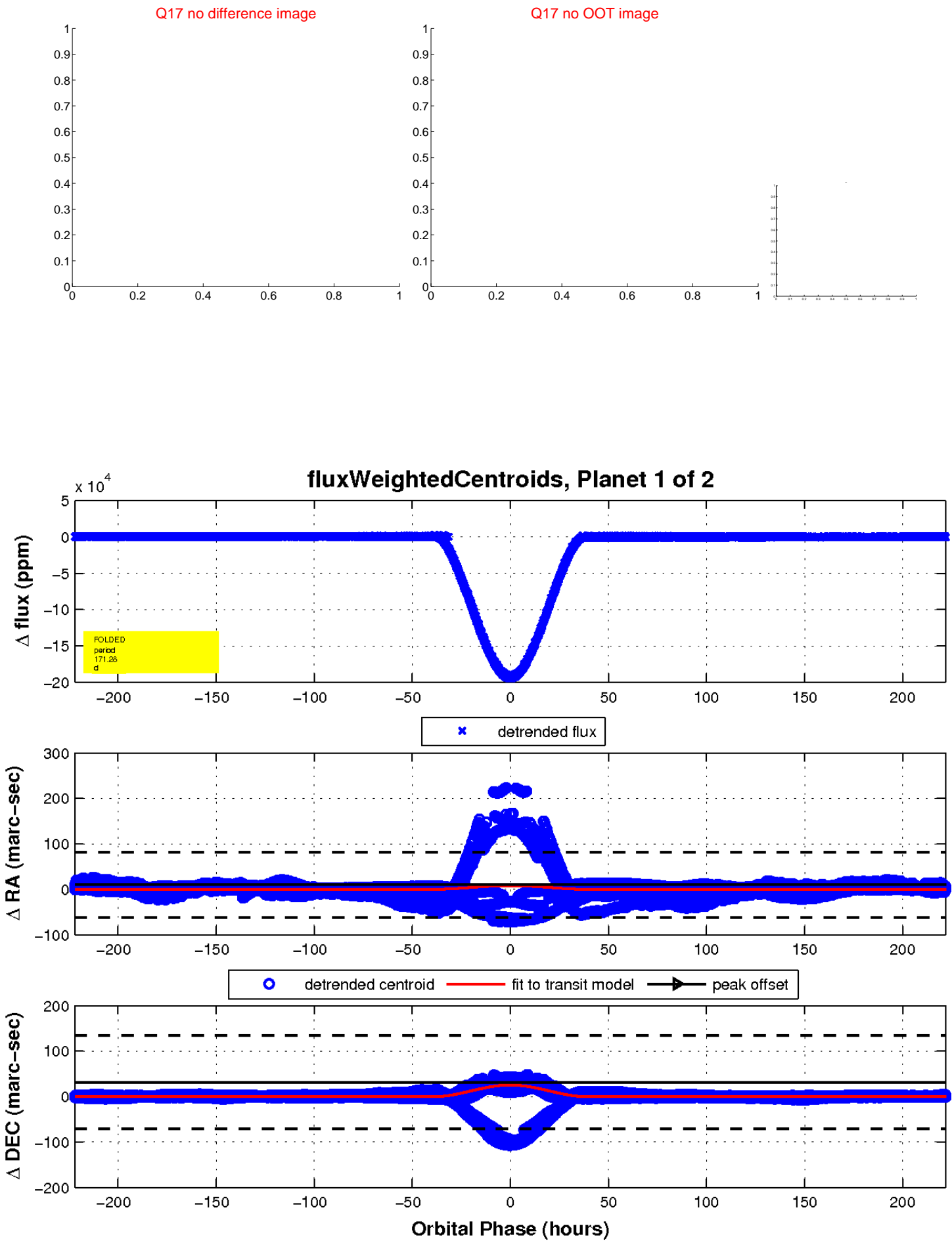
Q16 no difference image



Q16 no OOT image

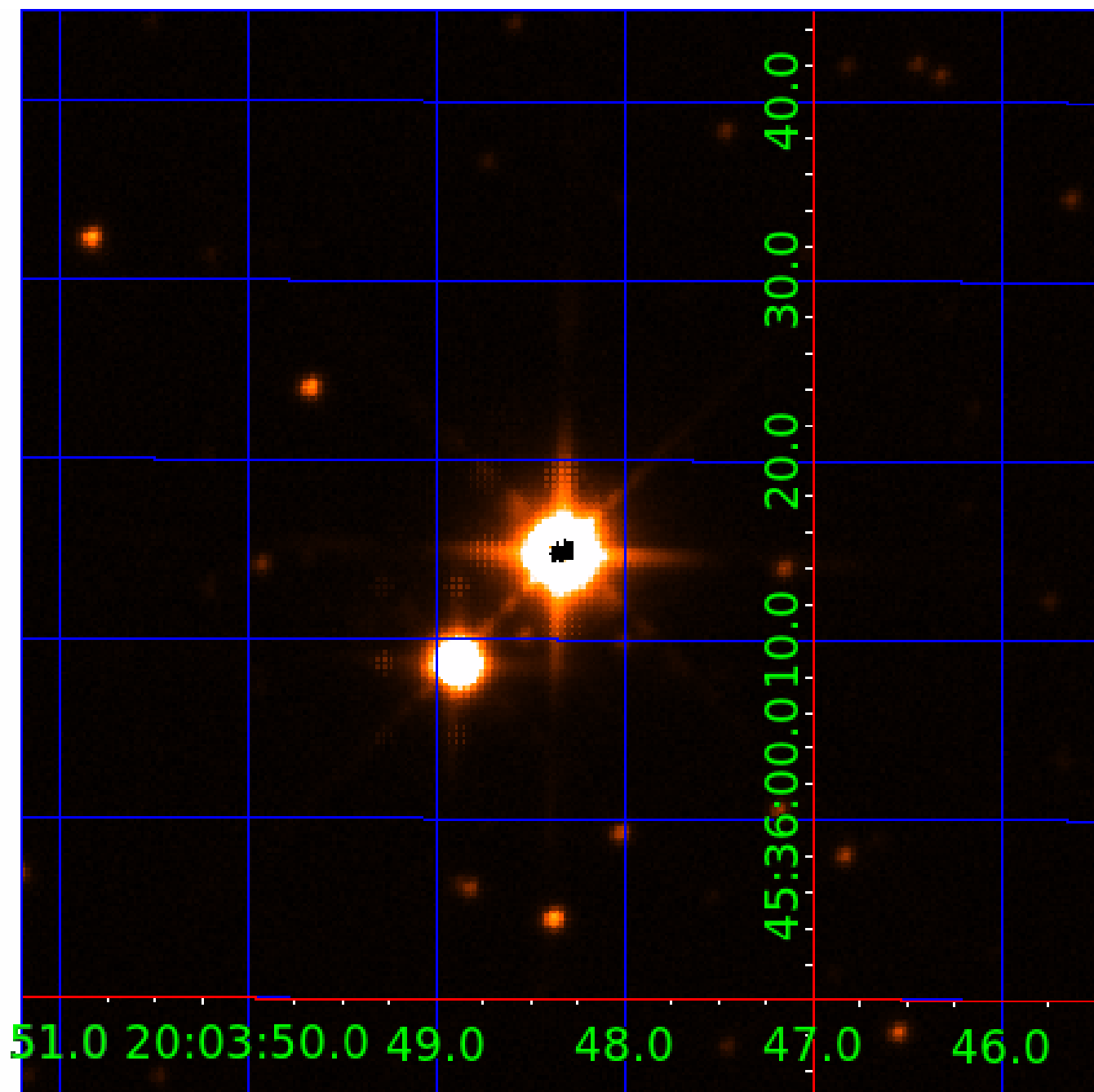


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009246715

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})
009246715-01	OBS	7601.01	171.276339	166.241495	193648.4	73.994	623.5	2395.1	14.22	4857	831.37	177.29
009246715-02	OBS	No	171.277284	288.253548	117826.1	83.030	249.3	1377.7	14.22	4857	722.95	177.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009246715-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED
009246715-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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 009246715-02

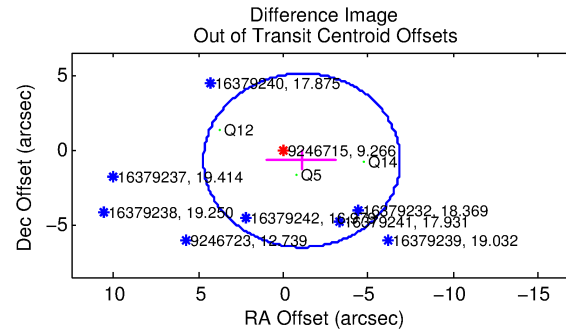
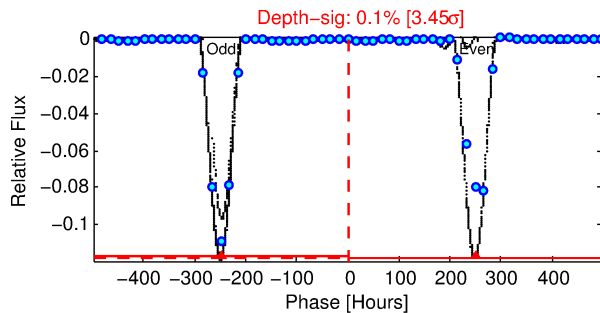
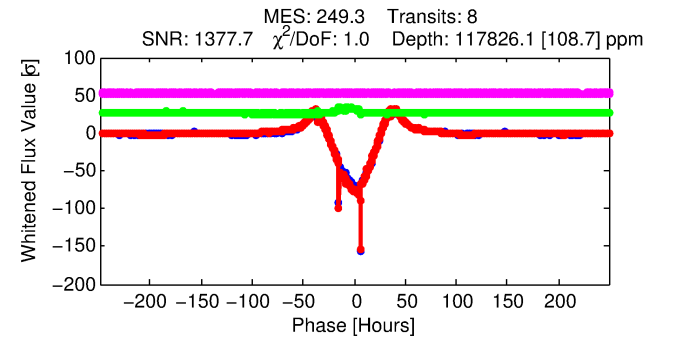
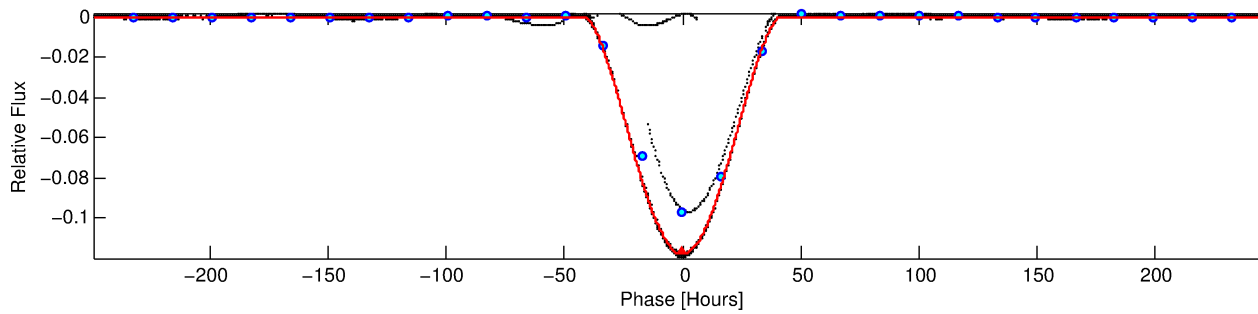
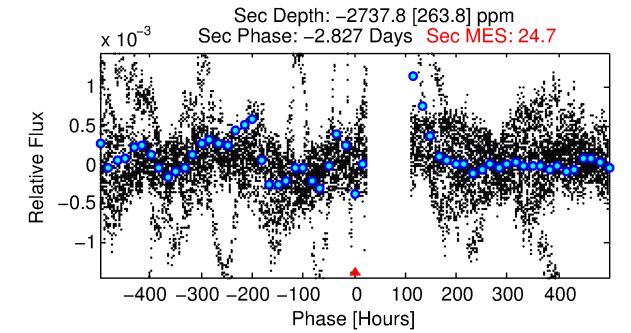
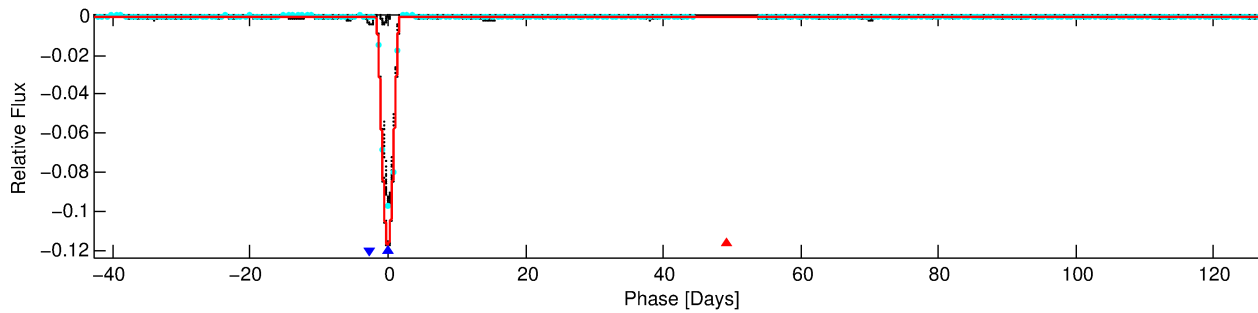
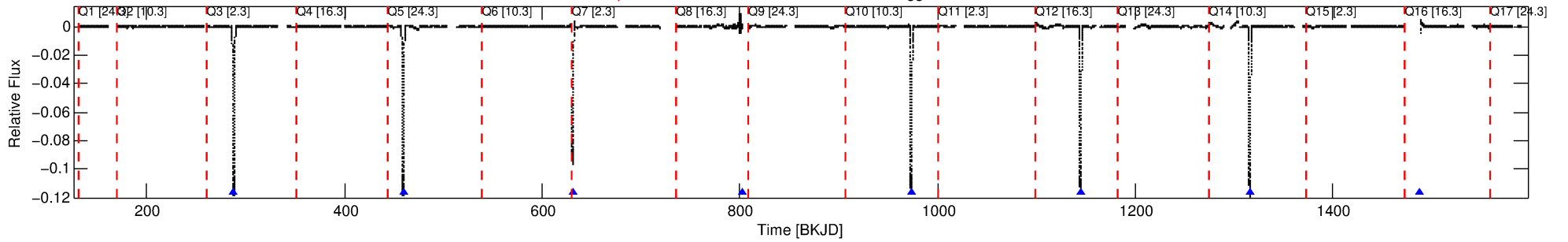
No Significant Match Found

DV One-Page Summary

KIC: 9246715 Candidate: 2 of 2 Period: 171.277 d

KOI: K07601 Corr: No Ephemeris Match

Kp: 9.27 R*: 14.22 Rs Teff: 4857.0 K Logg: 2.42 Fe/H: -0.400



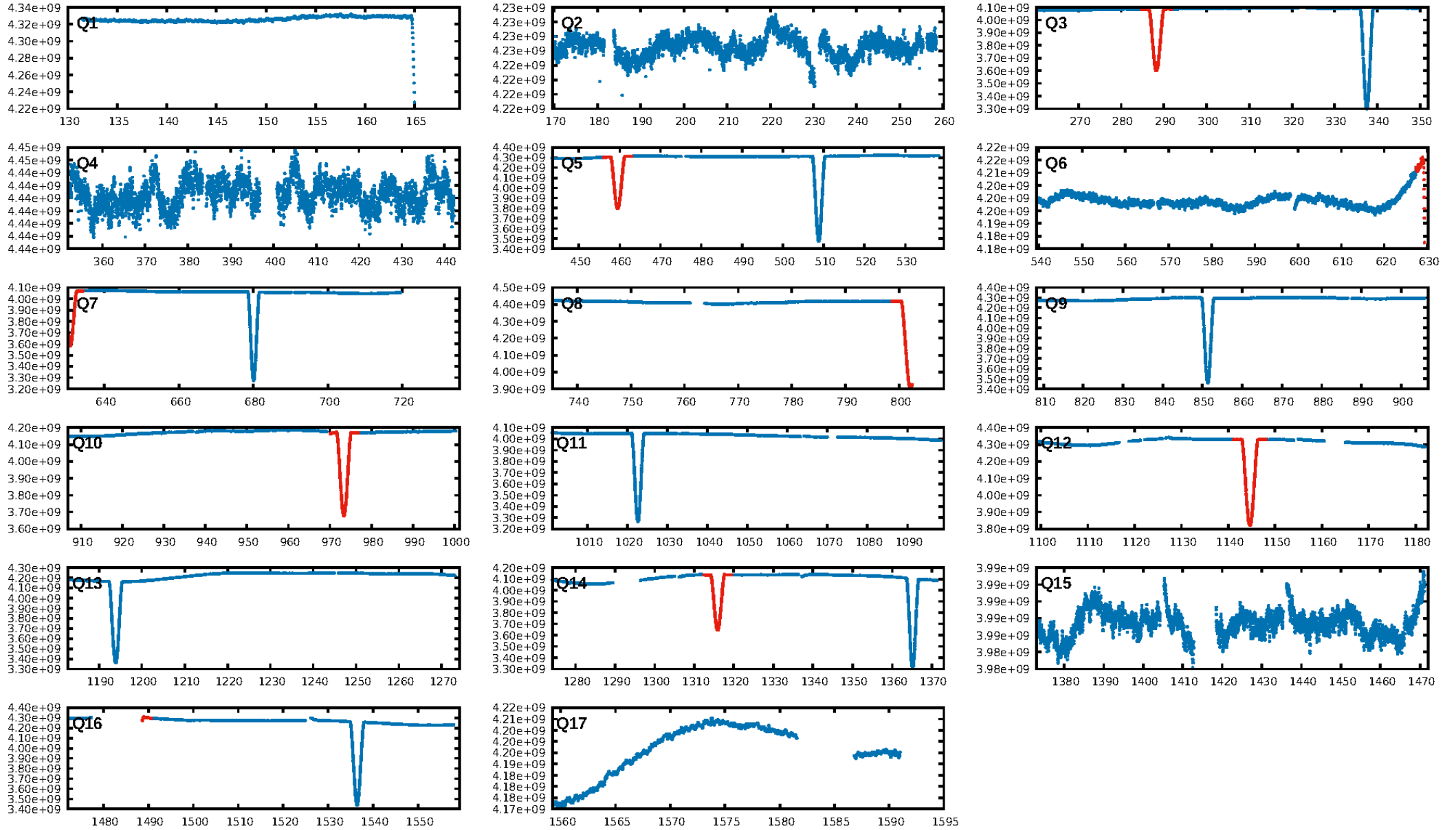
DV Fit Results:

Period = 171.27728 [0.00022] d
Epoch = 288.2535 [0.0007] BKJD
Rp/R* = 0.4659 [0.0288]
a/R* = 18.24 [0.07]
b = 0.90 [0.04]
Seff = 177.29 [130.73]
Teq = 930 [172] K
Rp = 722.95 [349.92] Re
a = 0.7541 [0.3454] AU
Ag = N/A
Teffp = N/A

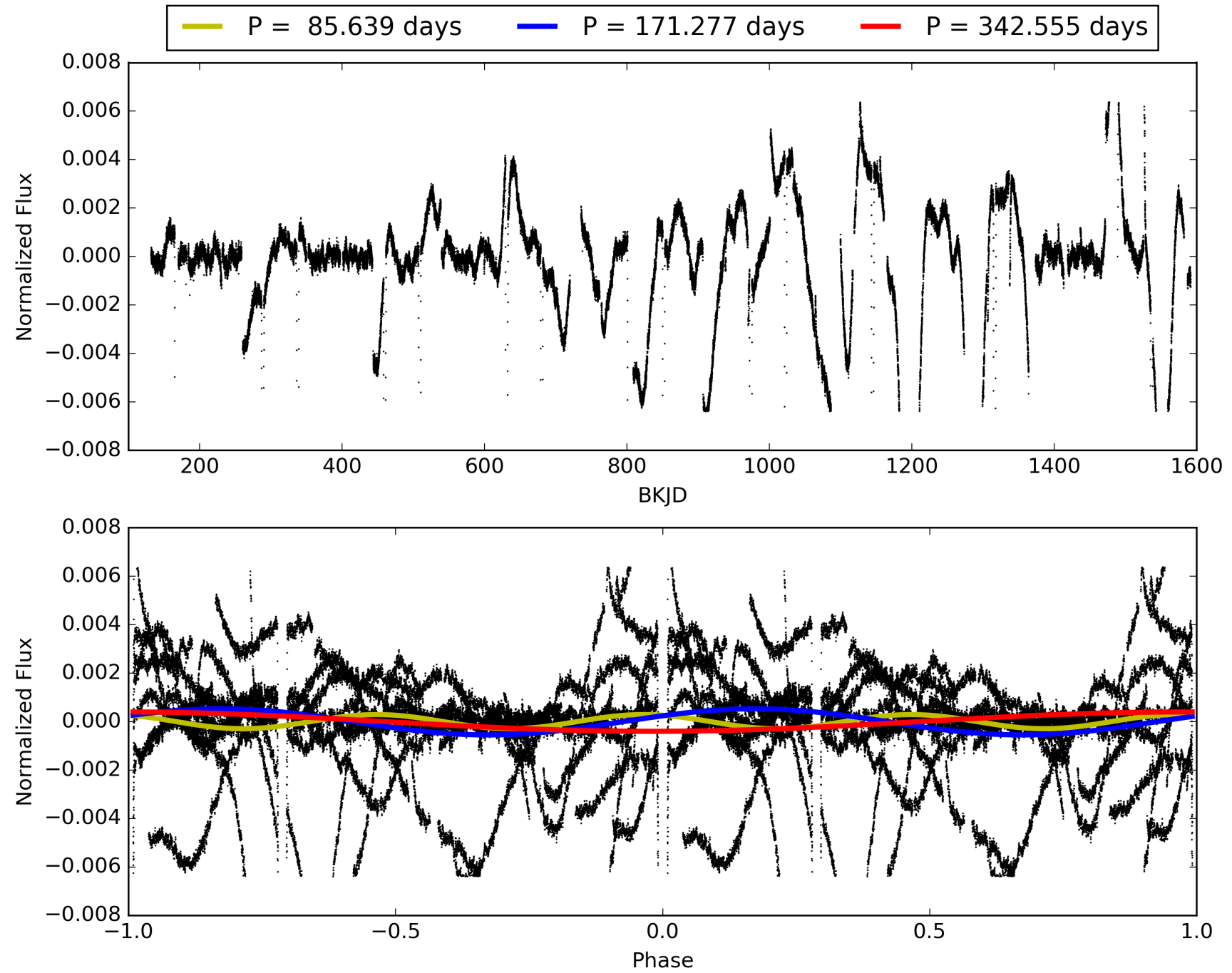
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 0.072 arcsec [10.88σ]
OotOffset-rm: 1.316 arcsec [0.68σ]
KicOffset-rm: 1.776 arcsec [0.74σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009246715-02, PDC Light Curves

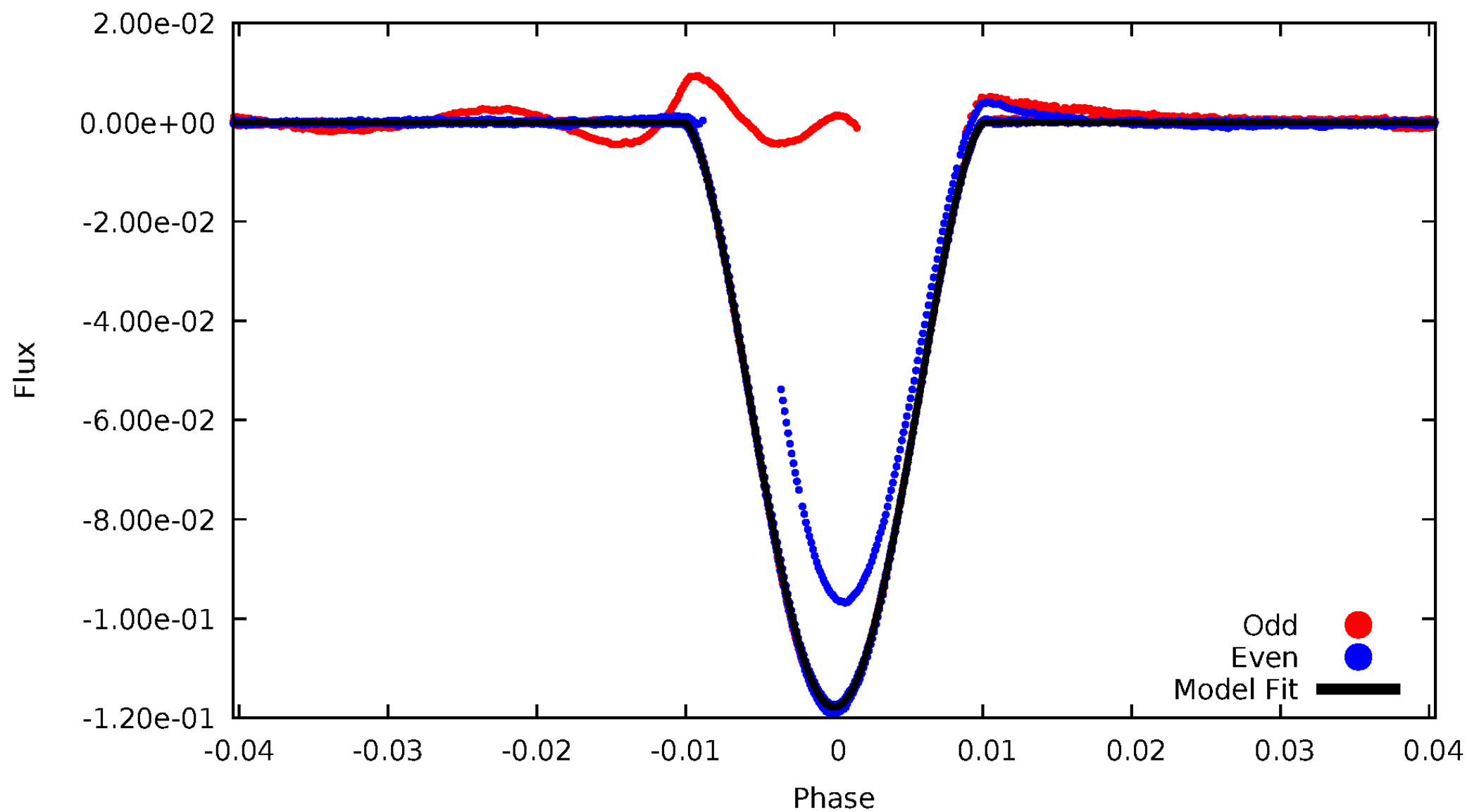


TCE 009246715-02



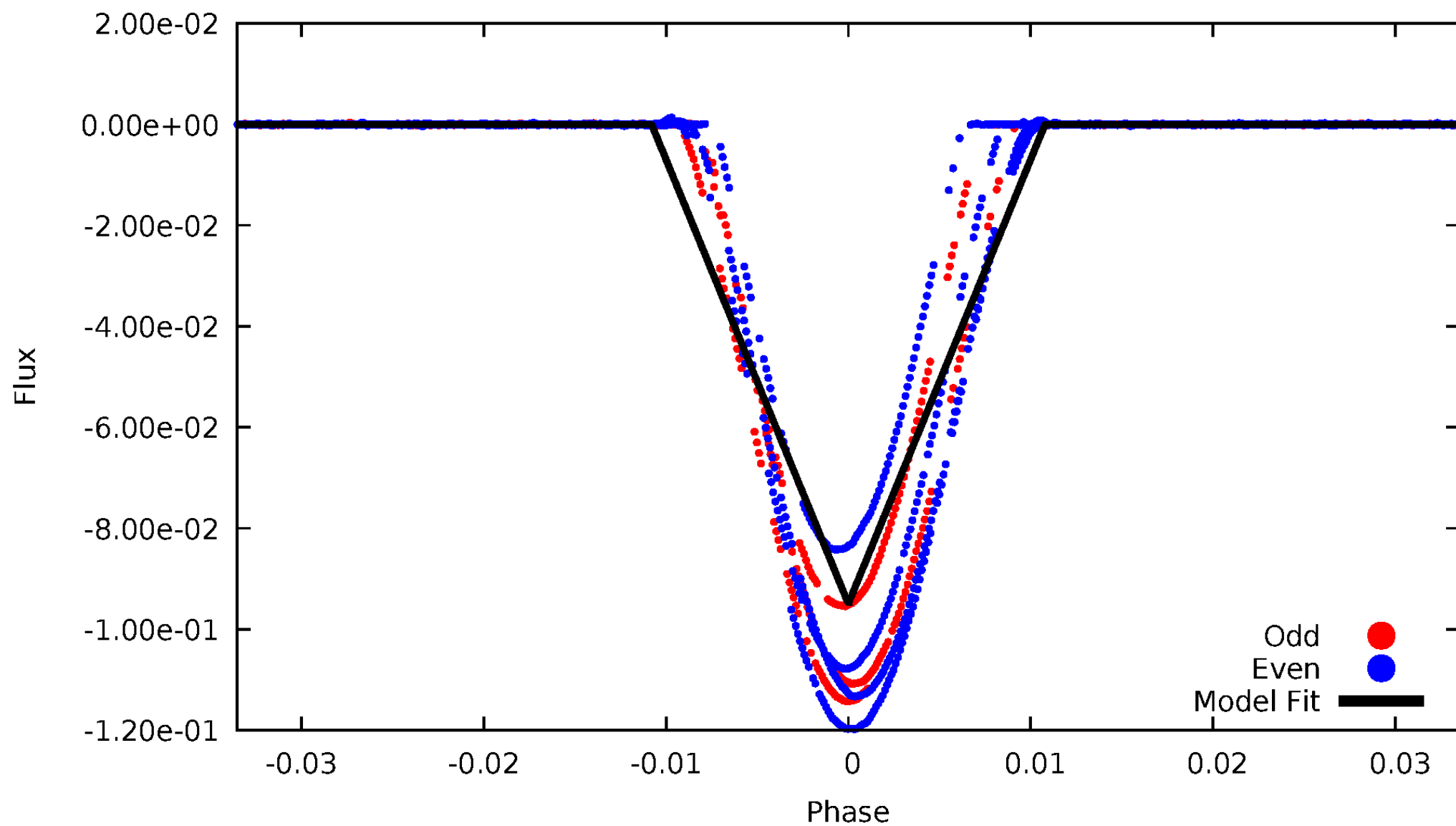
DV Odd/Even

TCE 009246715-02



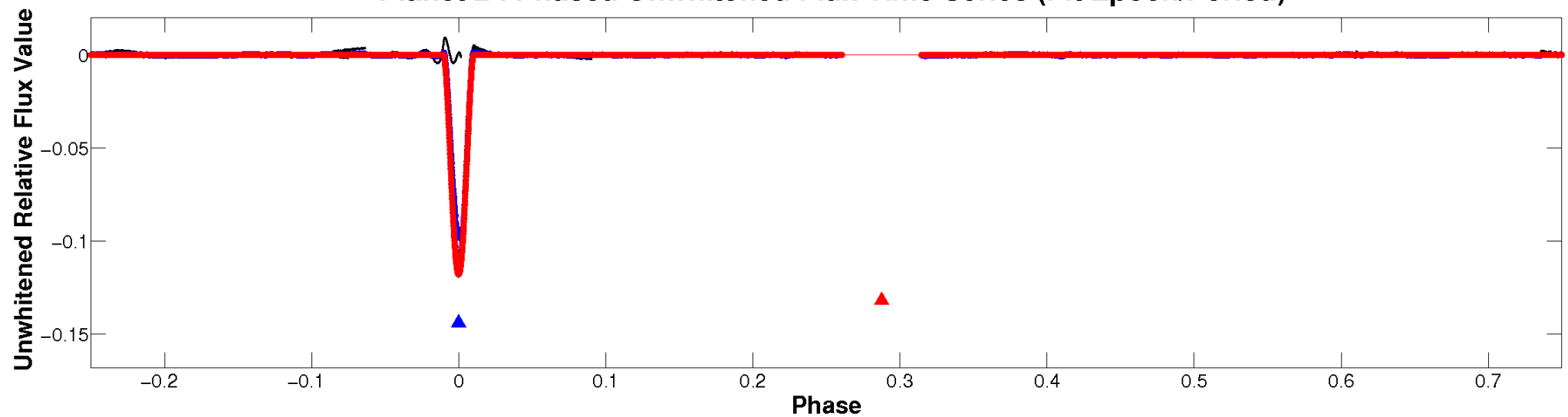
ALT Odd/Even

TCE 009246715-02

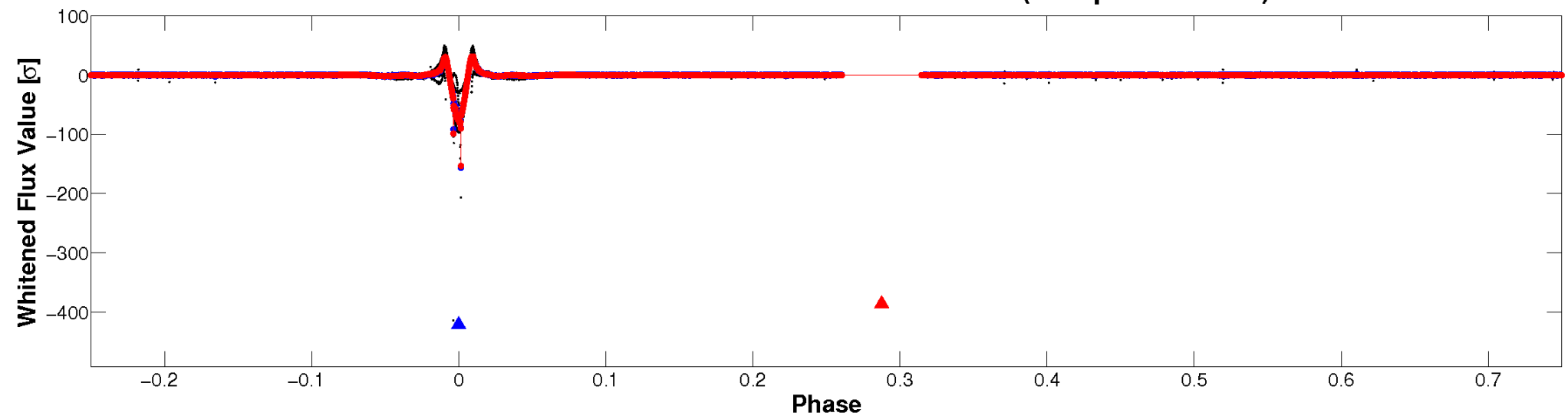


Non-Whitened Vs. Whitened Light Curve

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

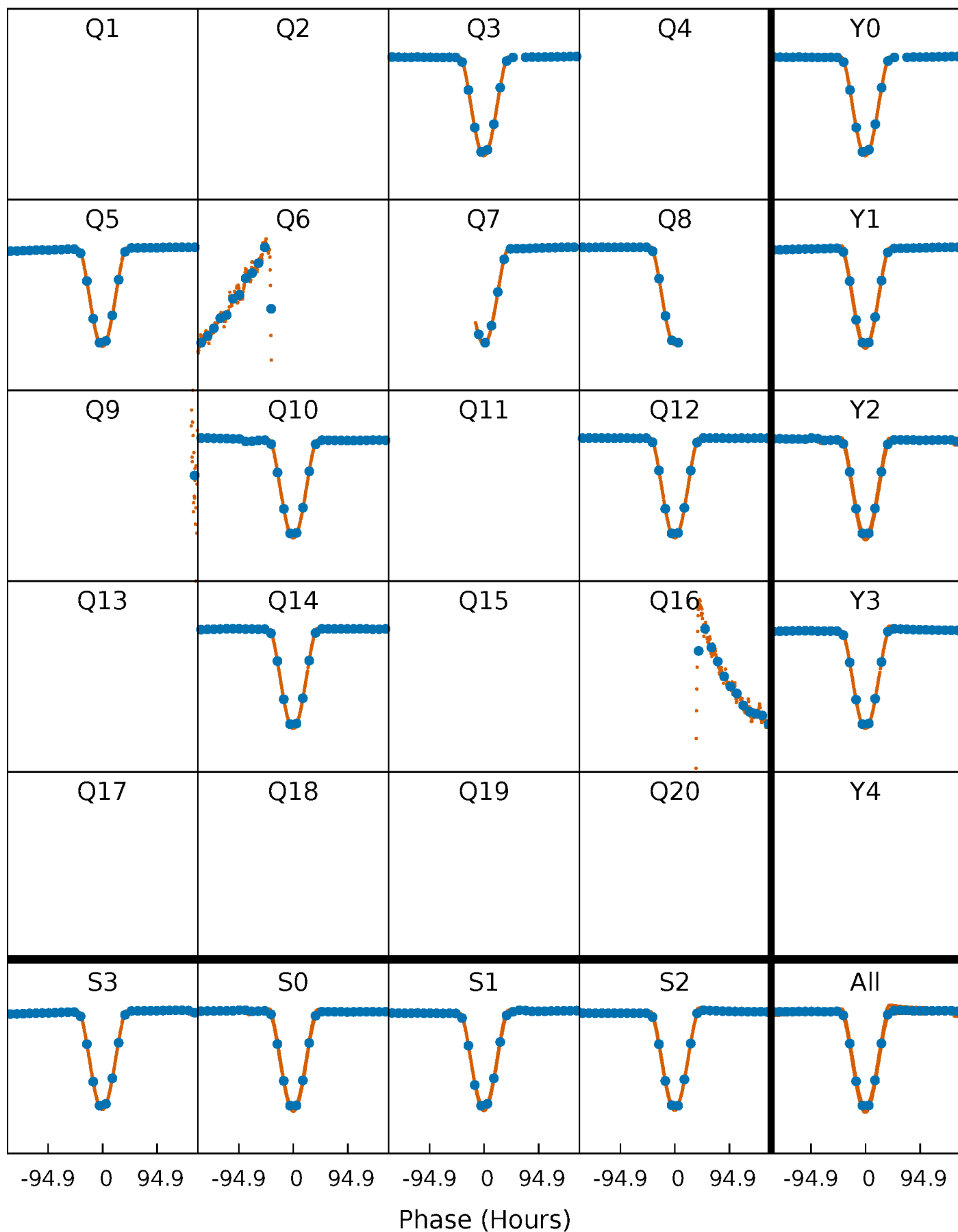


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



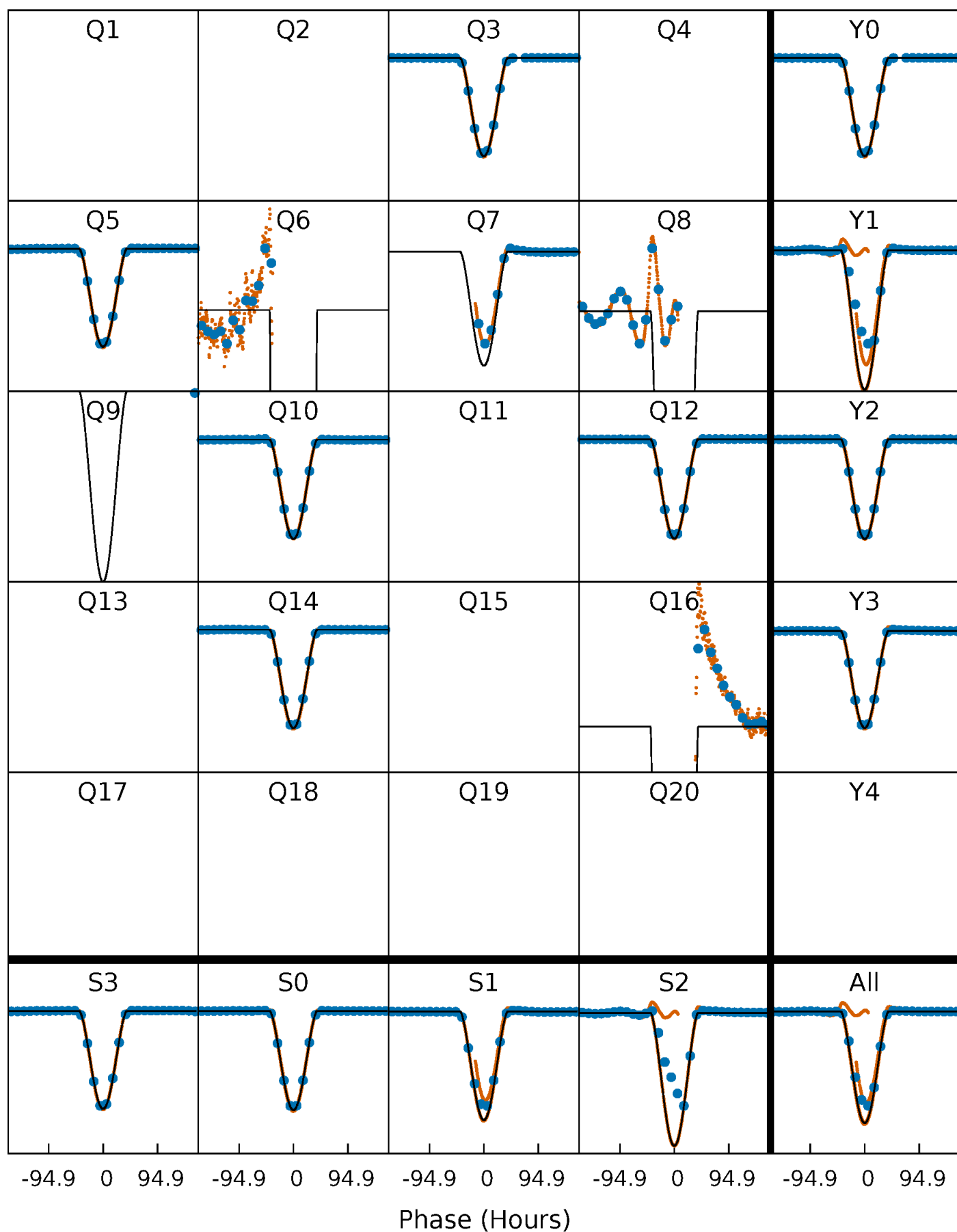
PDC Quarter-Phased Transit Curves

TCE 009246715-02 P=171.277284 Days $T_0=288.253548$ (BKJD)



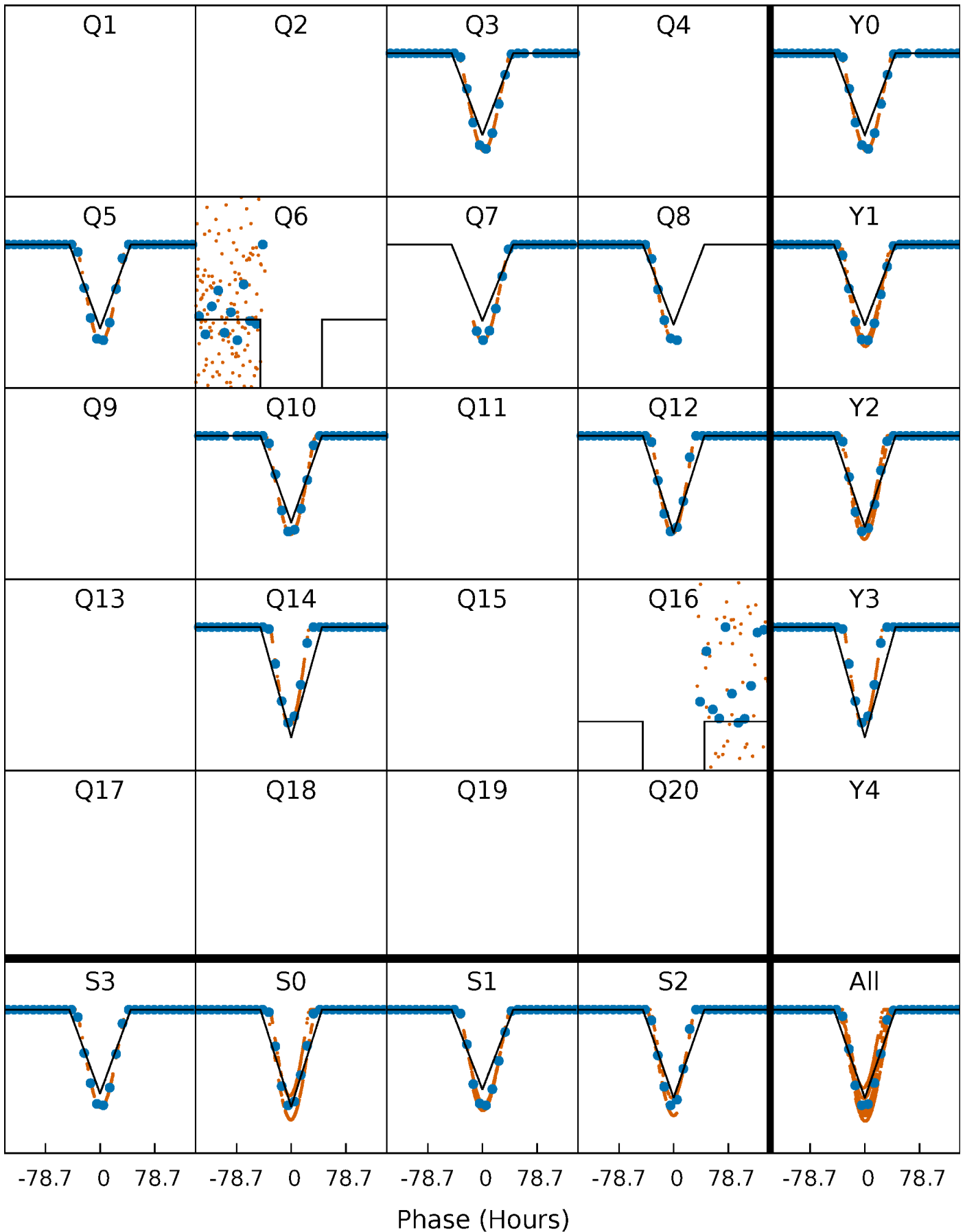
DV Quarter-Phased Transit Curves

TCE 009246715-02 P=171.277284 Days $T_0=288.253548$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

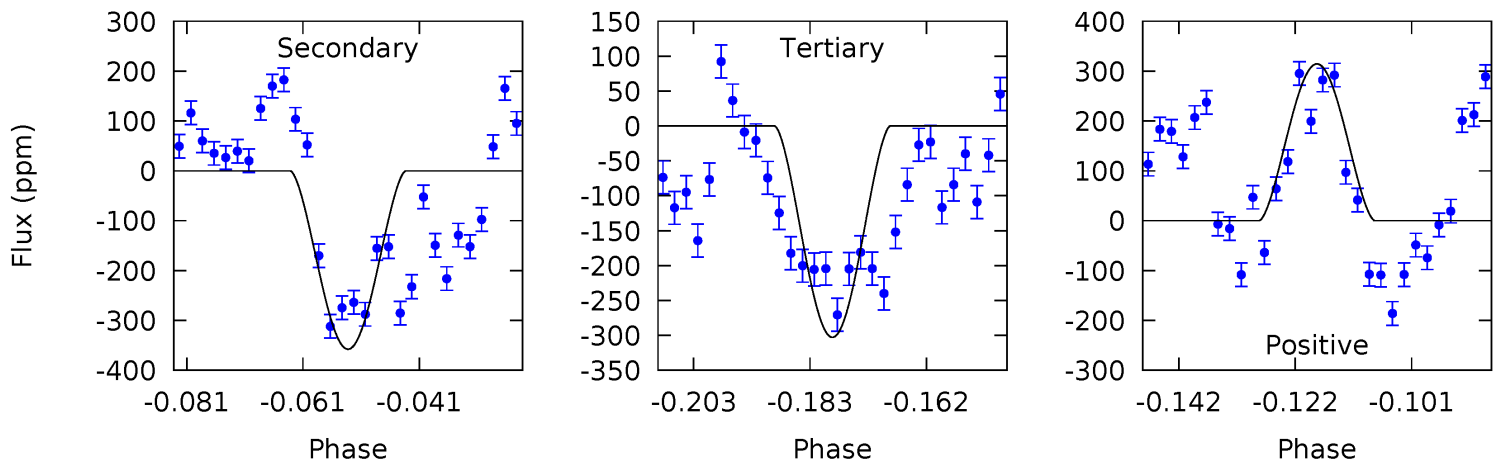
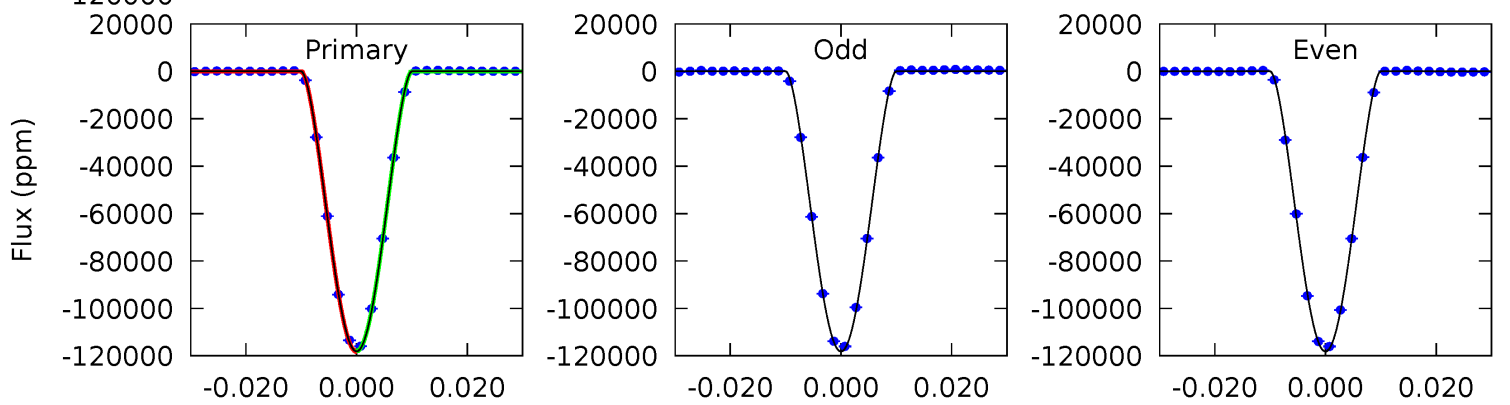
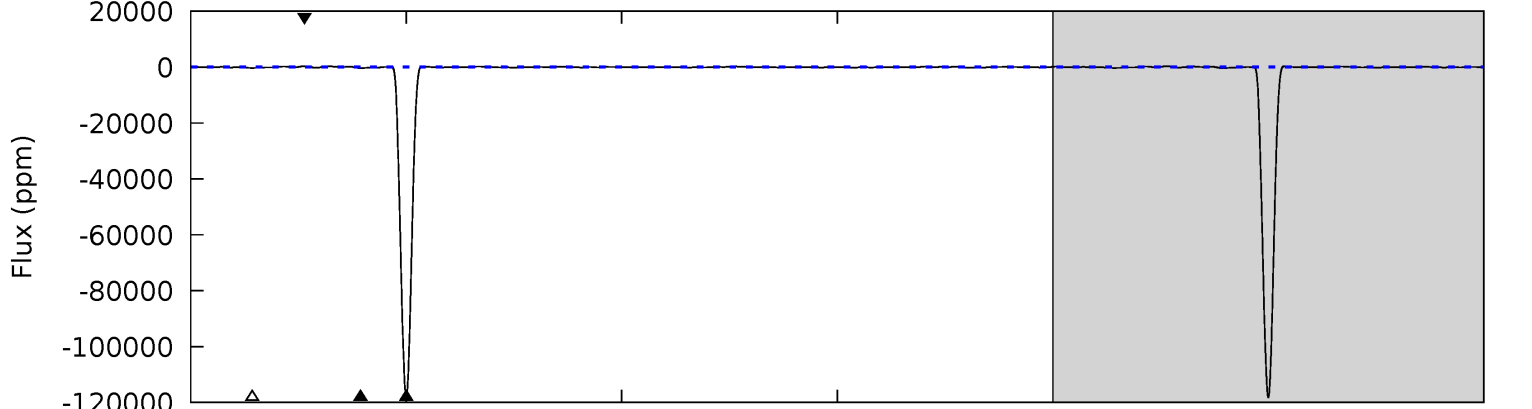
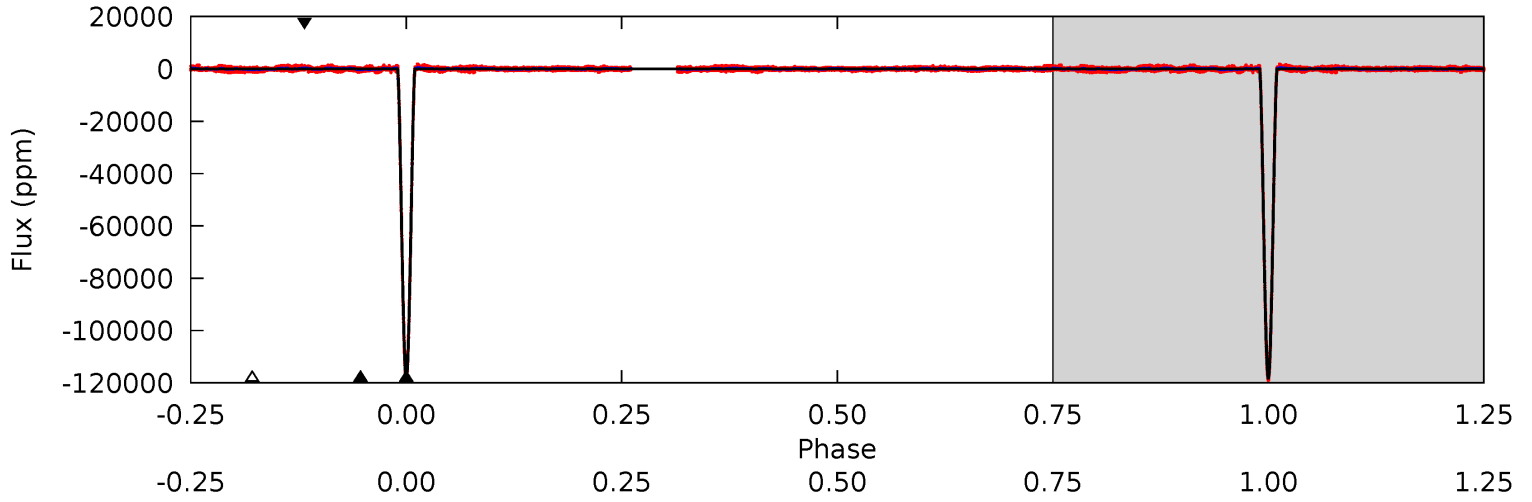
TCE 009246715-02 P=171.308156 Days $T_0=288.156263$ (BKJD)



DV Model-Shift Uniqueness Test

009246715-02, P = 171.277284 Days, E = 116.976264 Days

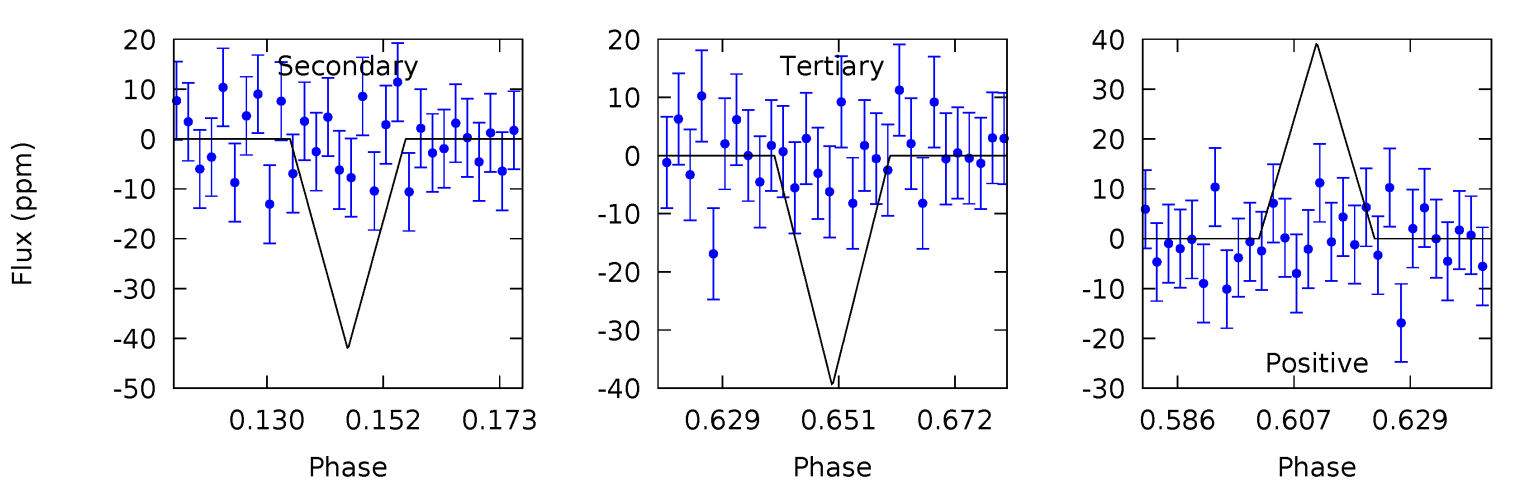
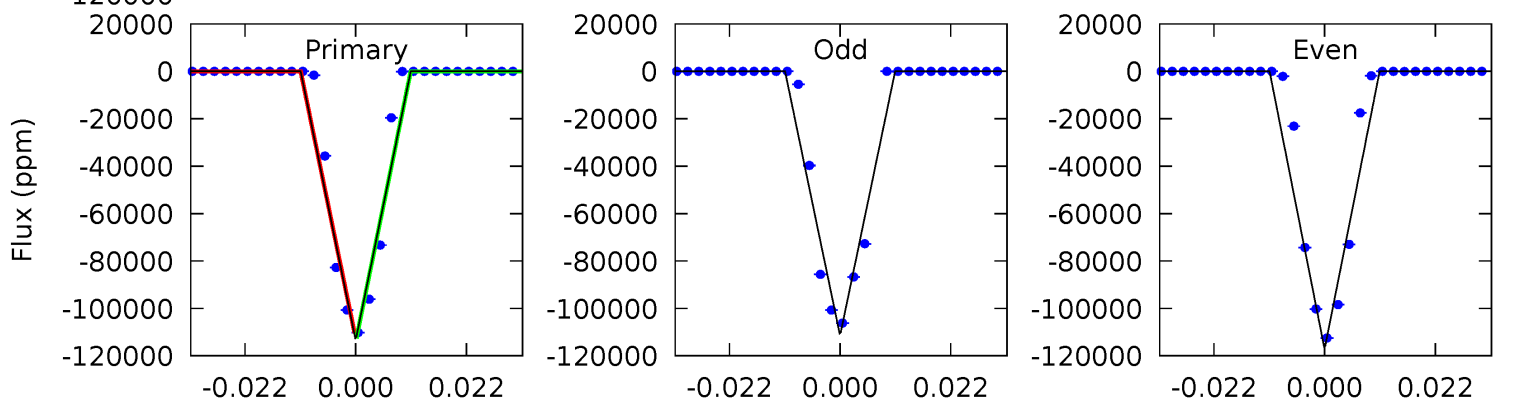
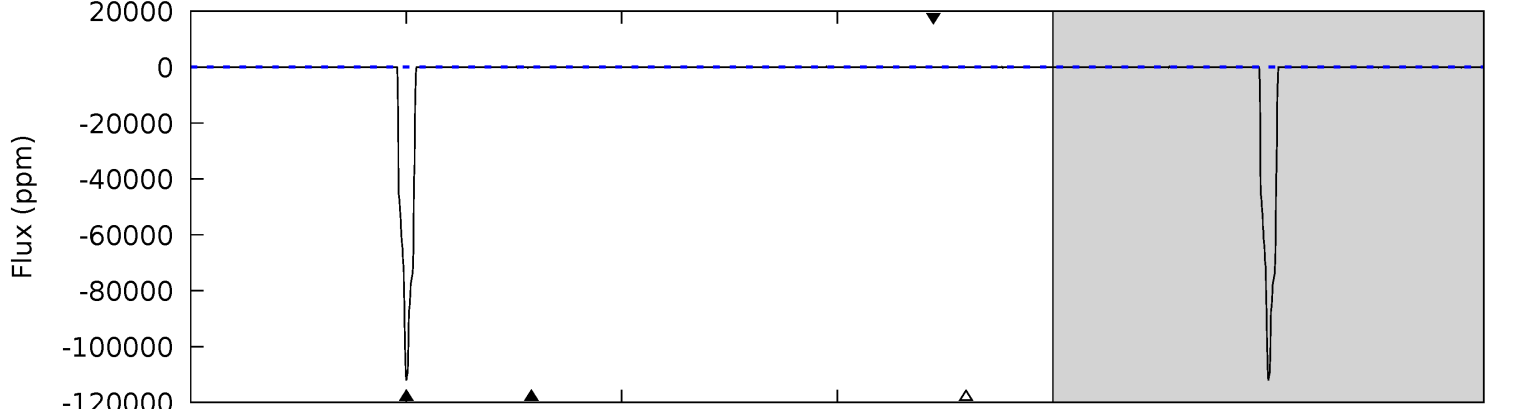
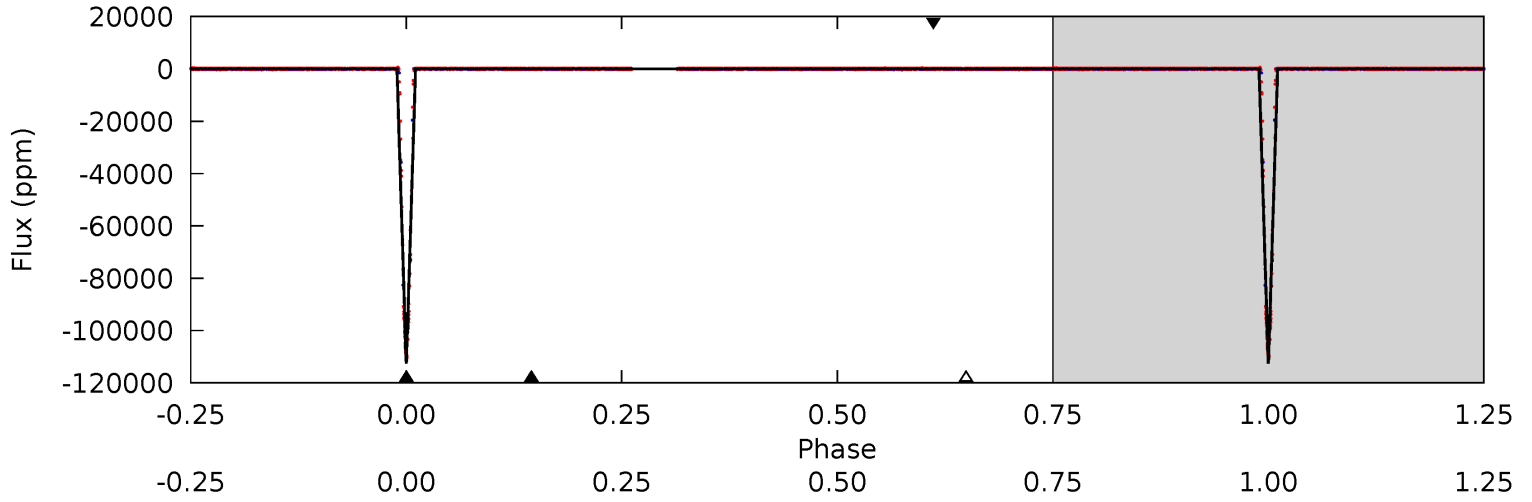
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9982	30.2	25.6	26.6	4.89	2.32	9.34	9956	9955	4.64	3.68	1.00	0.75	0.00	13.1



Alt Model-Shift Uniqueness Test

009246715-02, P = 171.308156 Days, E = 116.848107 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19769	7.36	6.90	6.85	4.88	2.30	1.92	19762	19762	0.45	0.50	566.9	0.84	0.00	0



Stellar Parameters For KIC 009246715

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4857^{+116}_{-131}	$2.422^{+0.427}_{-0.183}$	$-0.400^{+0.250}_{-0.250}$	$14.219^{+3.150}_{-6.826}$	$1.950^{+0.904}_{-0.904}$	$0.001^{+0.004}_{-0.000}$
	+2%/-3%	+18%/-8%	+62%/-62%	+22%/-48%	+46%/-46%	+455%/-44%
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 009246715-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-358 ± 12	$722.33^{+142.21}_{-204.23}$	1271^{+110}_{-139}	-1738^{+3444}_{-179}	$0.236^{+0.153}_{-0.069}$
Alt.	-42 ± 6	$498.38^{+96.67}_{-142.00}$	1273^{+103}_{-149}	-1974^{+129}_{-77}	$0.059^{+0.041}_{-0.019}$

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

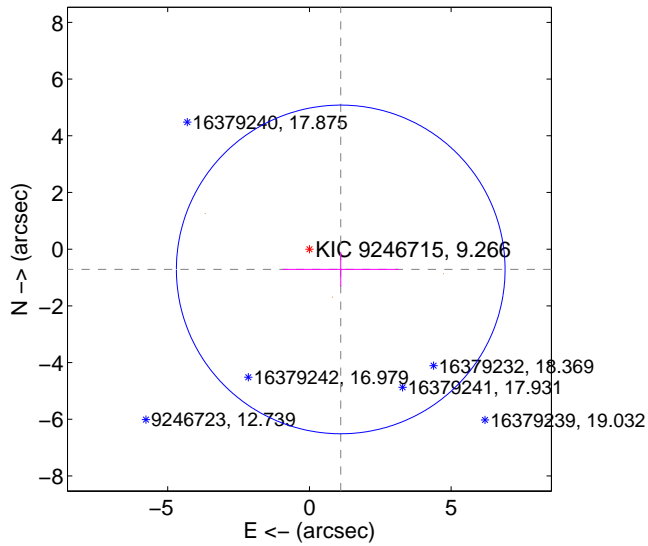
Supplemental centroid analysis for 009246715-02. **Kepler magnitude: 9.27.** Transit SNR 1377.65

There are 0 quarters with good PRF difference image offsets

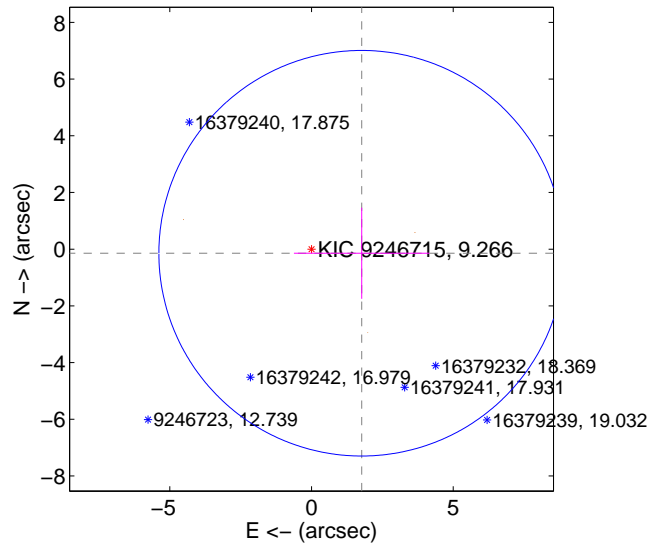
The direct PRF centroid is offset from the target star catalog position by about 1.82 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.316 ± 1.933	0.68	-1.105 ± 2.052	-0.715 ± 0.596
PRF-fit source offset from KIC position	1.776 ± 2.385	0.74	-1.770 ± 2.389	-0.144 ± 1.606
photometric centroid source offset	0.07 ± 0.01	10.88	0.07 ± 0.01	-0.02 ± 0.01

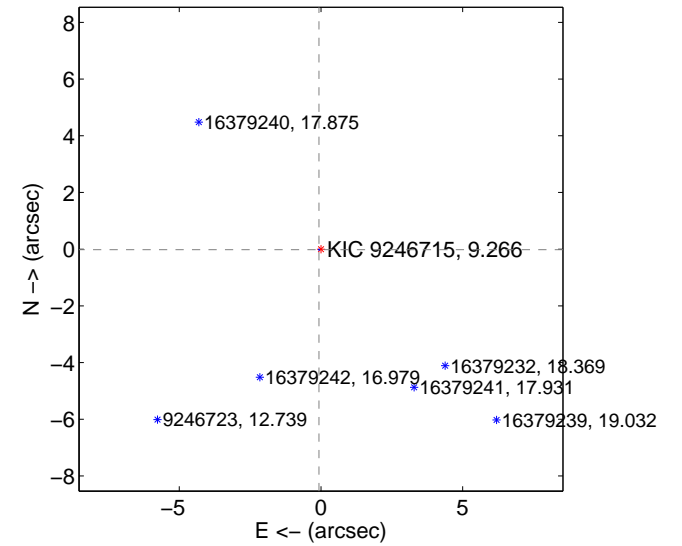
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

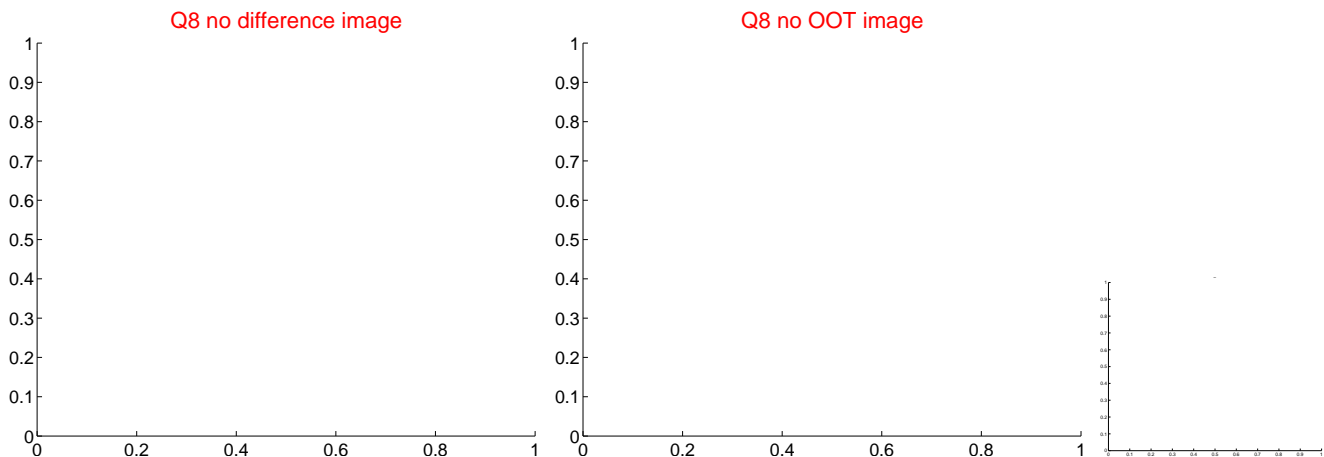
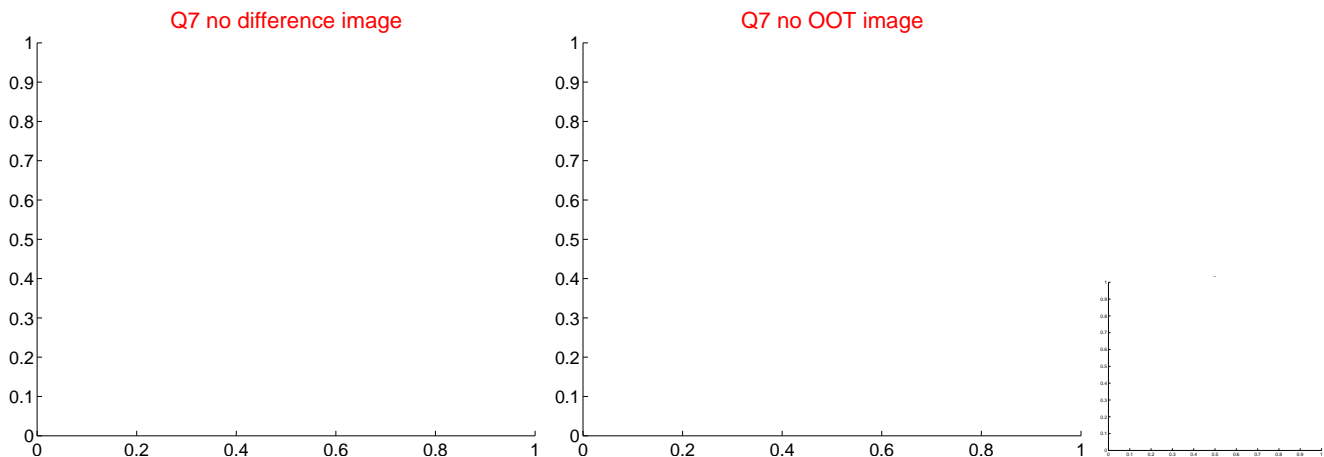
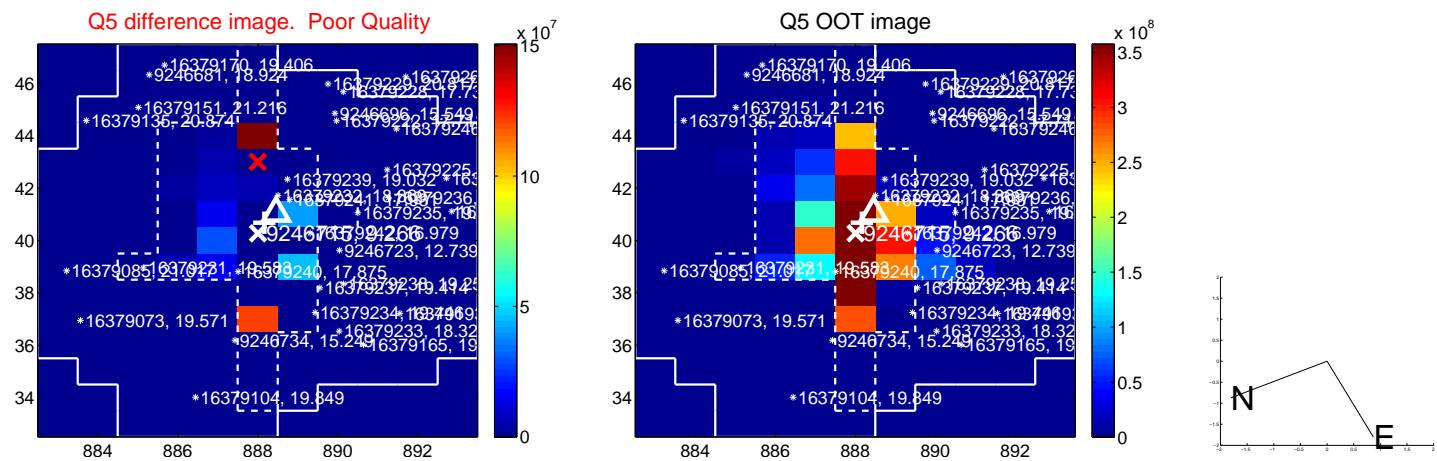


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

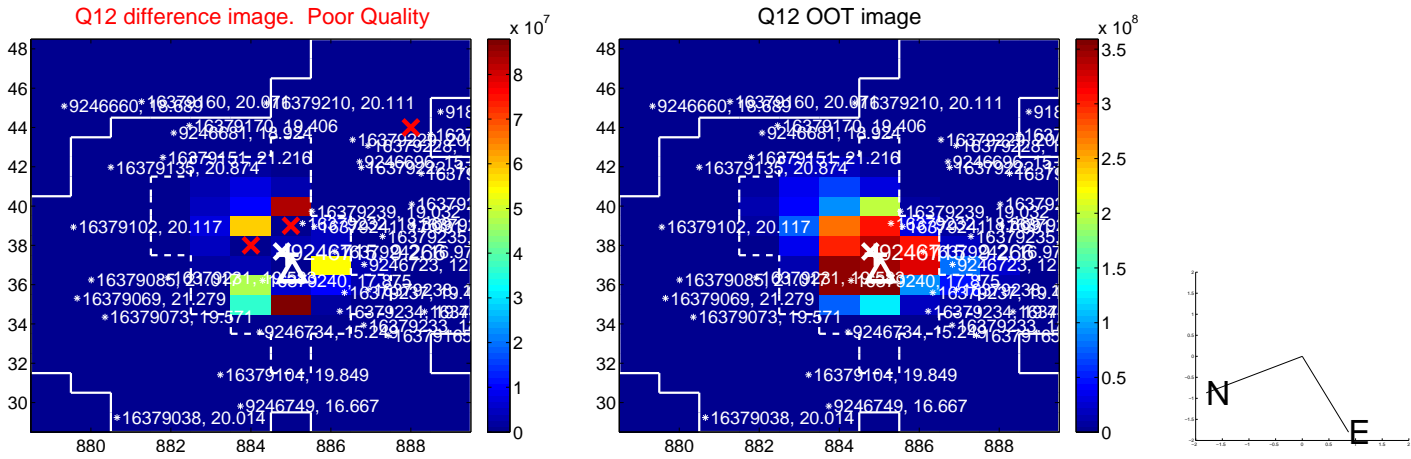
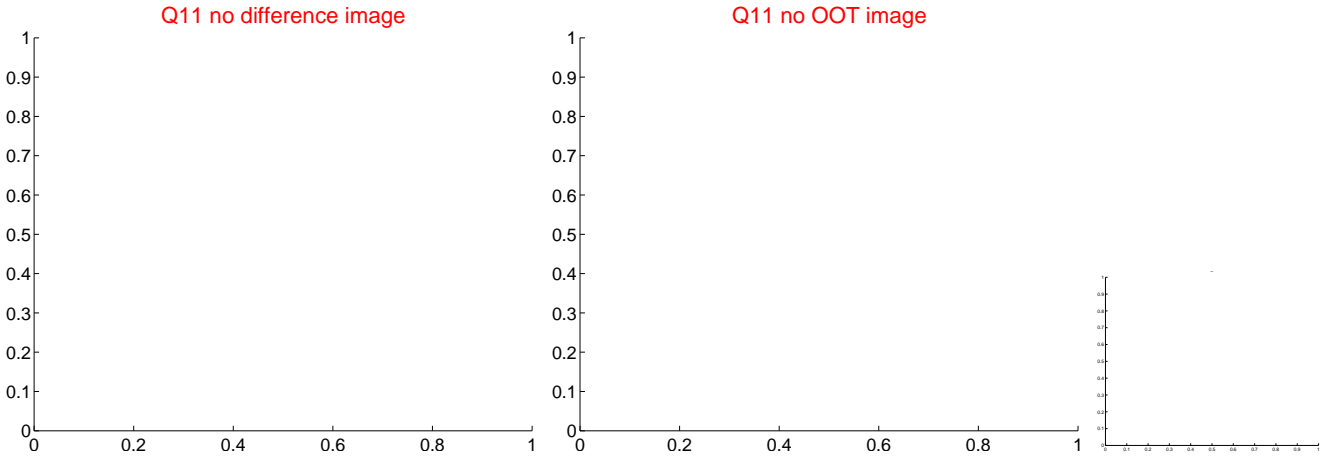
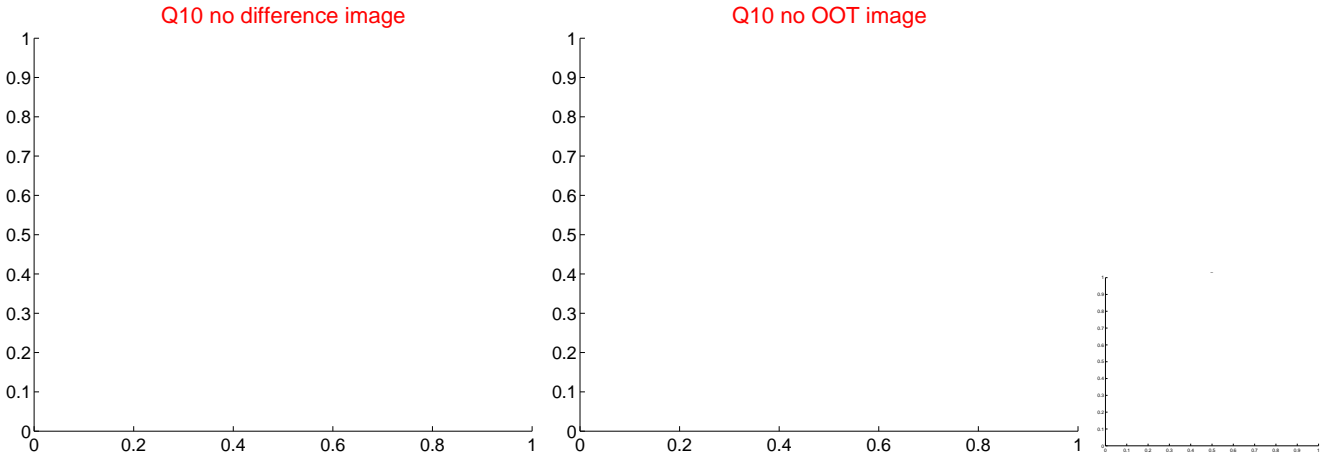
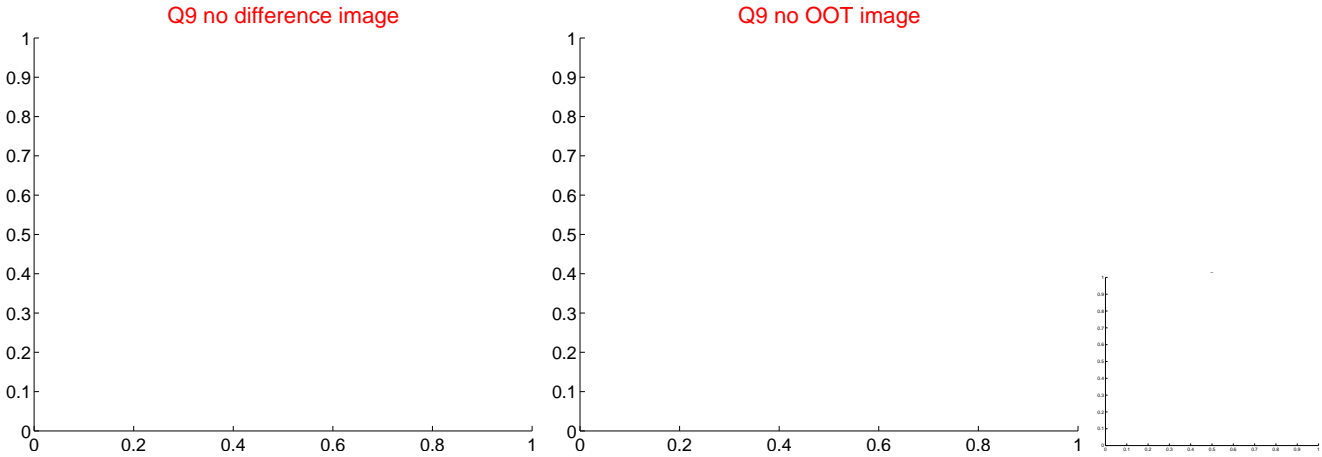
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



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

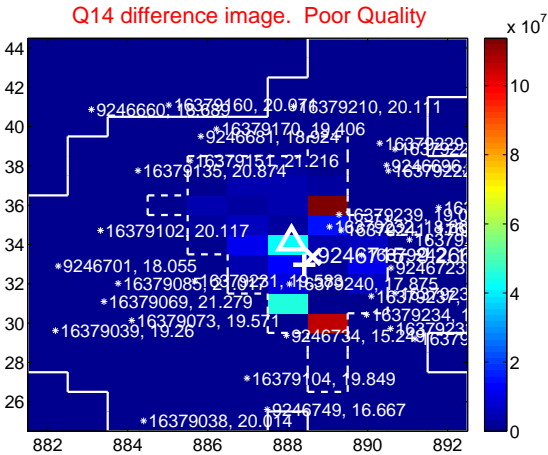
Q13 no difference image



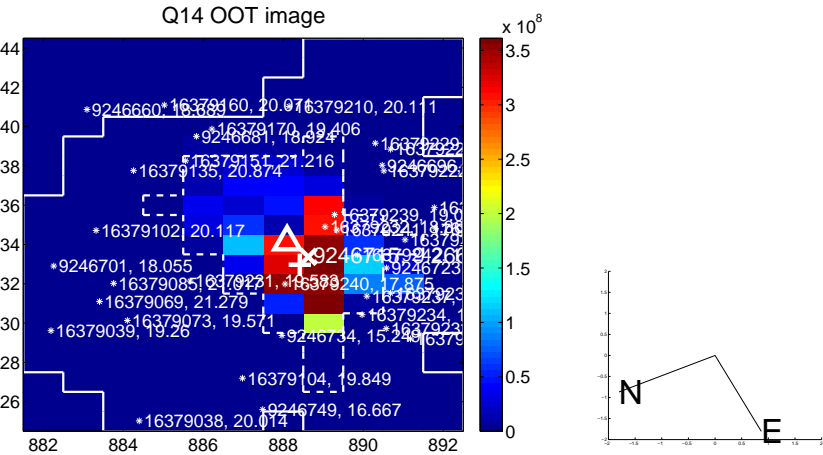
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



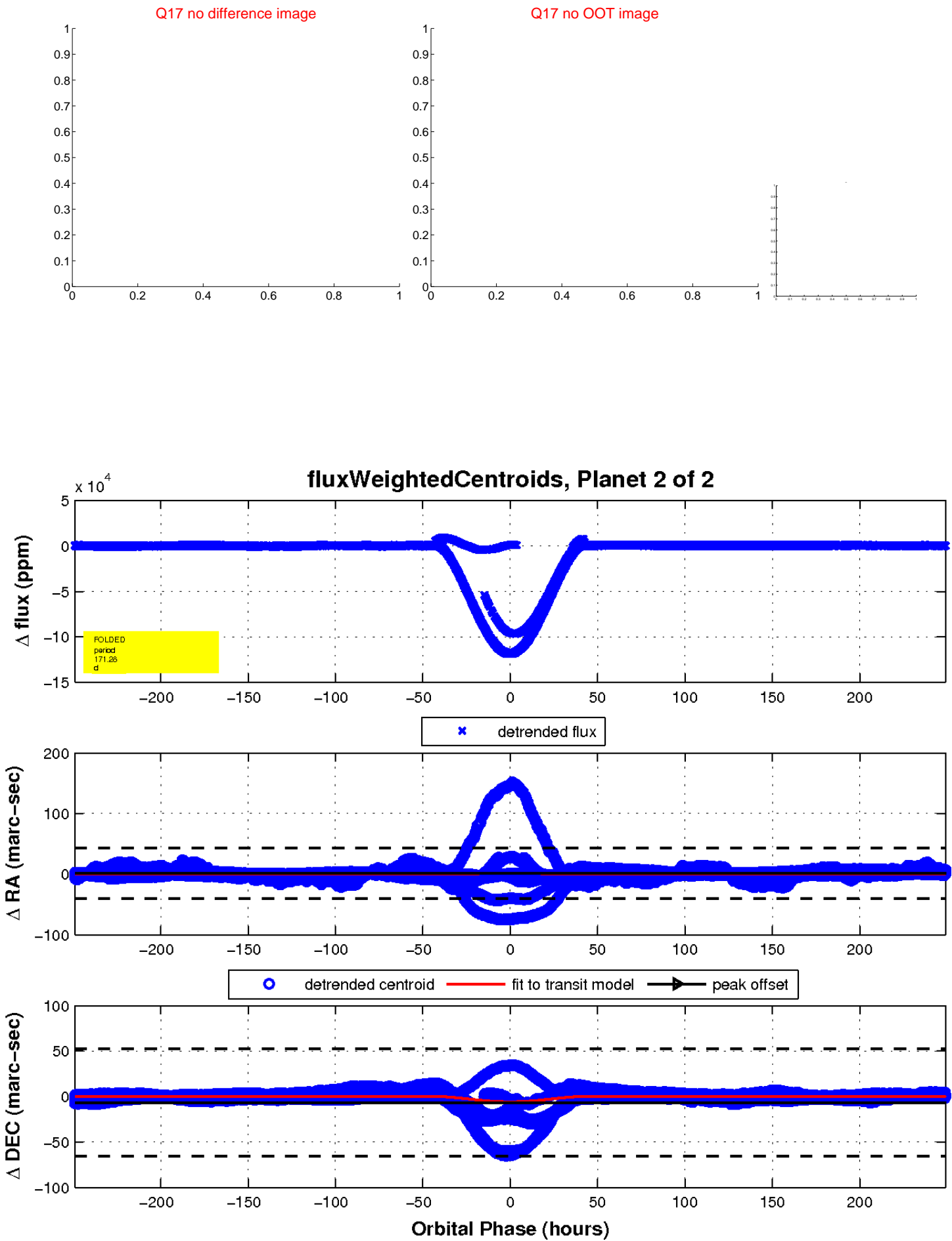
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

