

KIC 009214712

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})
009214712-01	OBS	6064.01	265.299654	316.919527	95834.3	8.935	847.6	629.0	0.86	5873	38.32	1.25
009214712-02	OBS	6064.02	265.299695	326.262676	4912.2	4.659	32.6	29.9	0.86	5873	7.13	1.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009214712-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009214712-02	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.

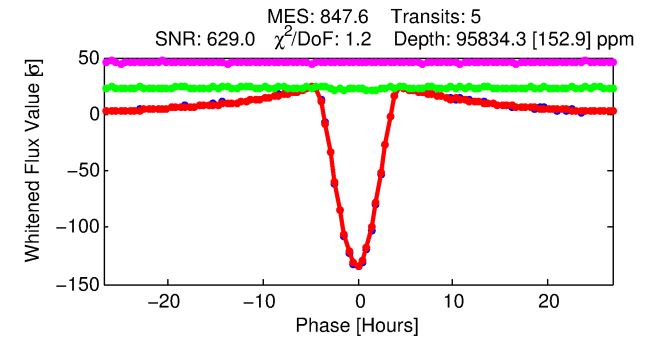
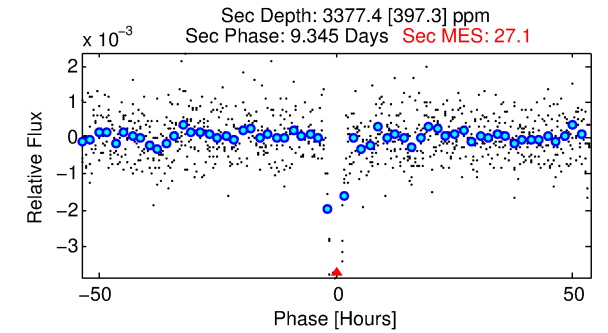
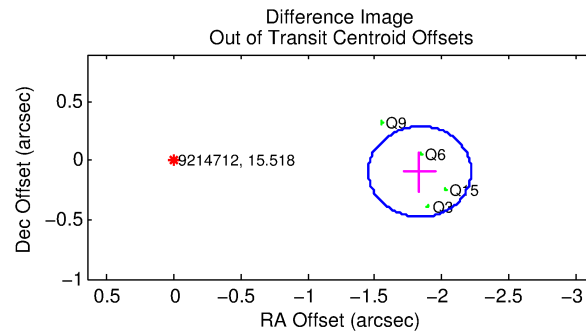
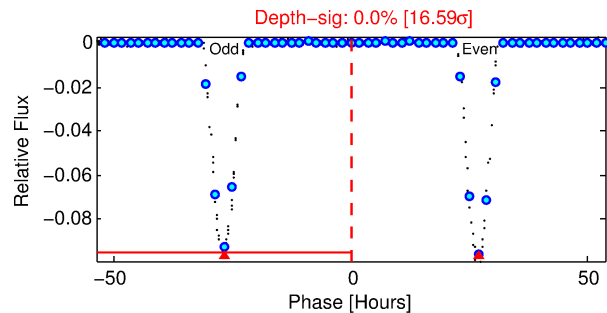
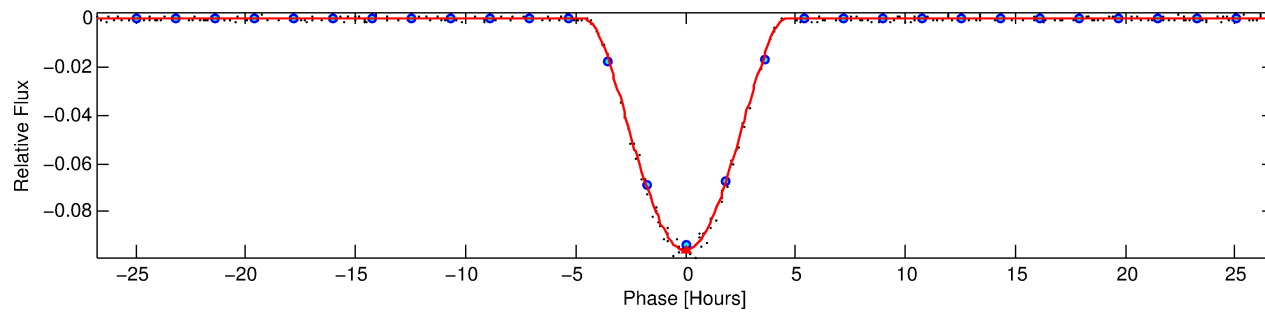
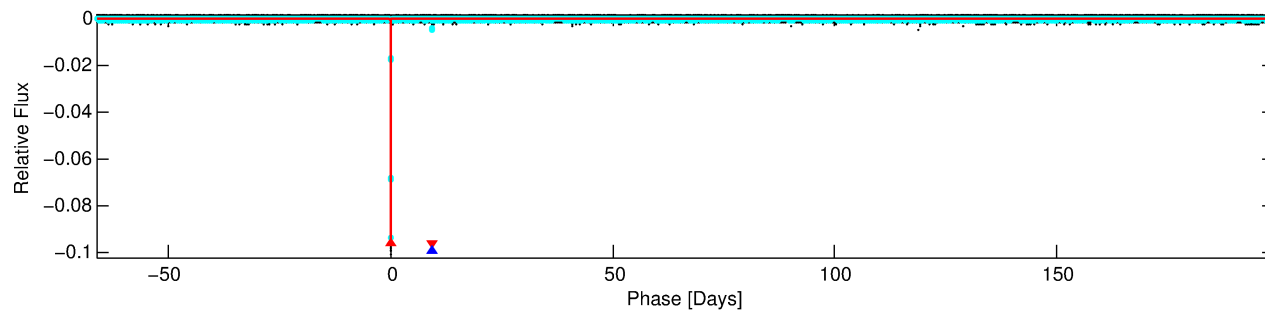
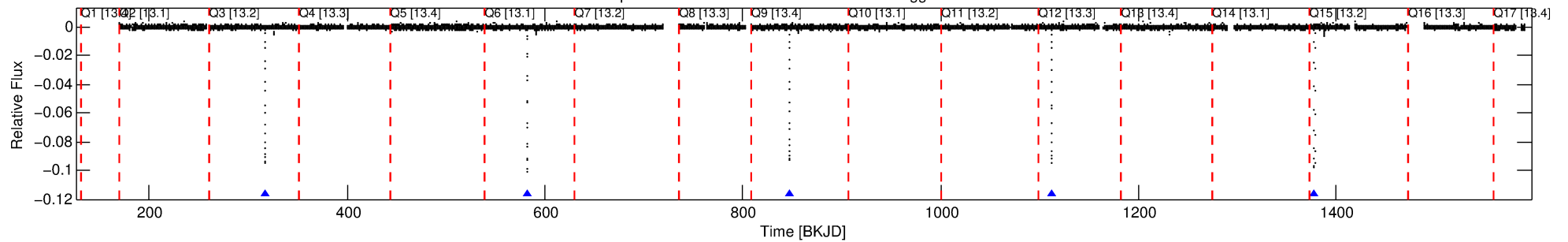
Ephemeris Match Information For 009214712-01

No Significant Match Found

DV One-Page Summary

KIC: 9214712 Candidate: 1 of 2 Period: 265.300 d
KOI: K06064.01 Corr: 0.999

Kp: 15.52 R*: 0.86 Rs Teff: 5873.0 K Logg: 4.55 Fe/H: -0.220



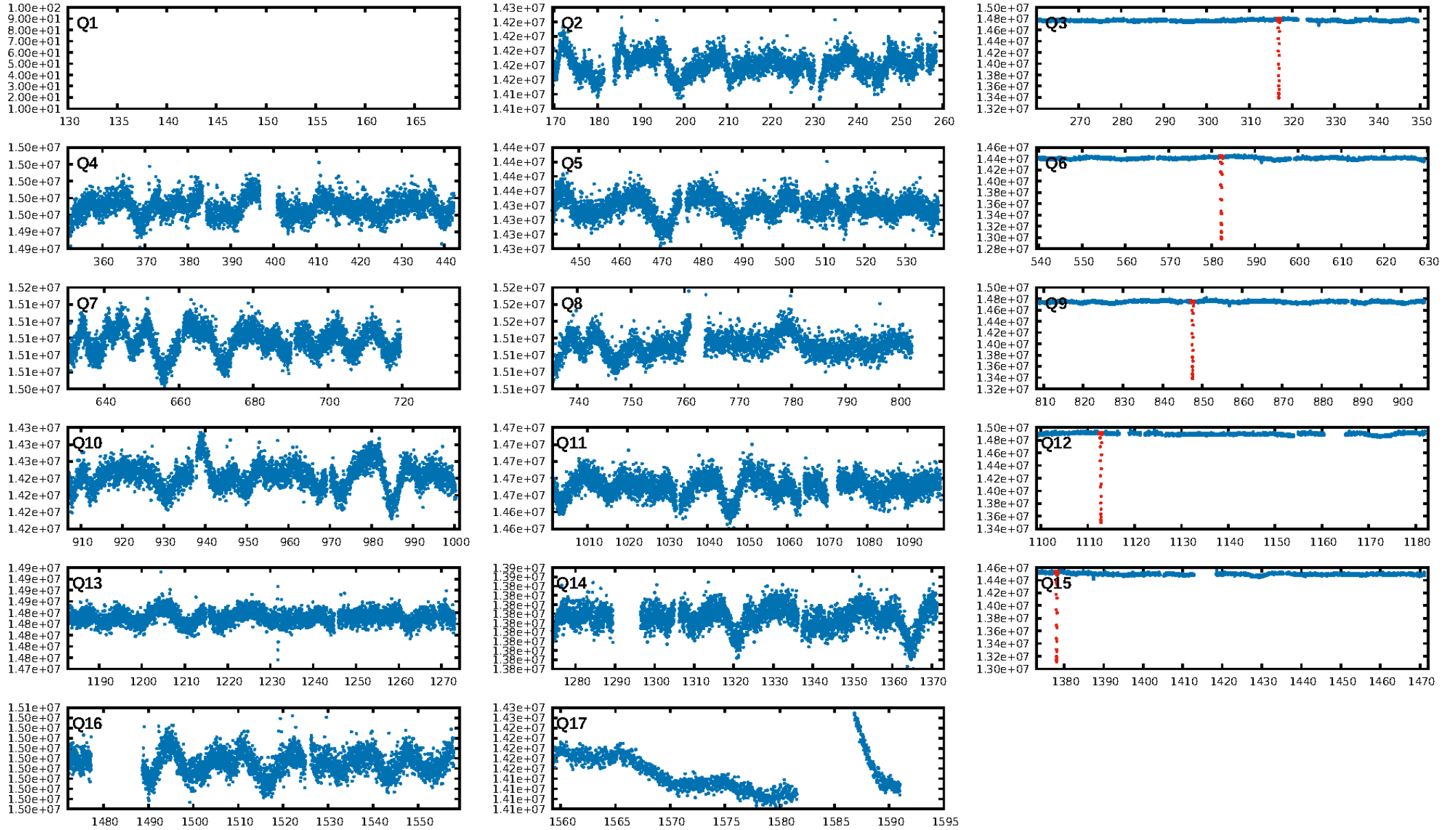
DV Fit Results:

Period = 265.29965 [0.00010] d
Epoch = 316.9195 [0.0002] BKJD
Rp/R* = 0.4069 [0.0417]
a/R* = 246.22 [0.44]
b = 0.89 [0.06]
Seff = 1.25 [0.45]
Teff = 270 [24] K
Rp = 38.32 [10.73] Re
a = 0.7965 [0.1795] AU
Ag = 802.91 [329.60] [2.43σ]
Teffp = 2220 [147] K [13.11σ]

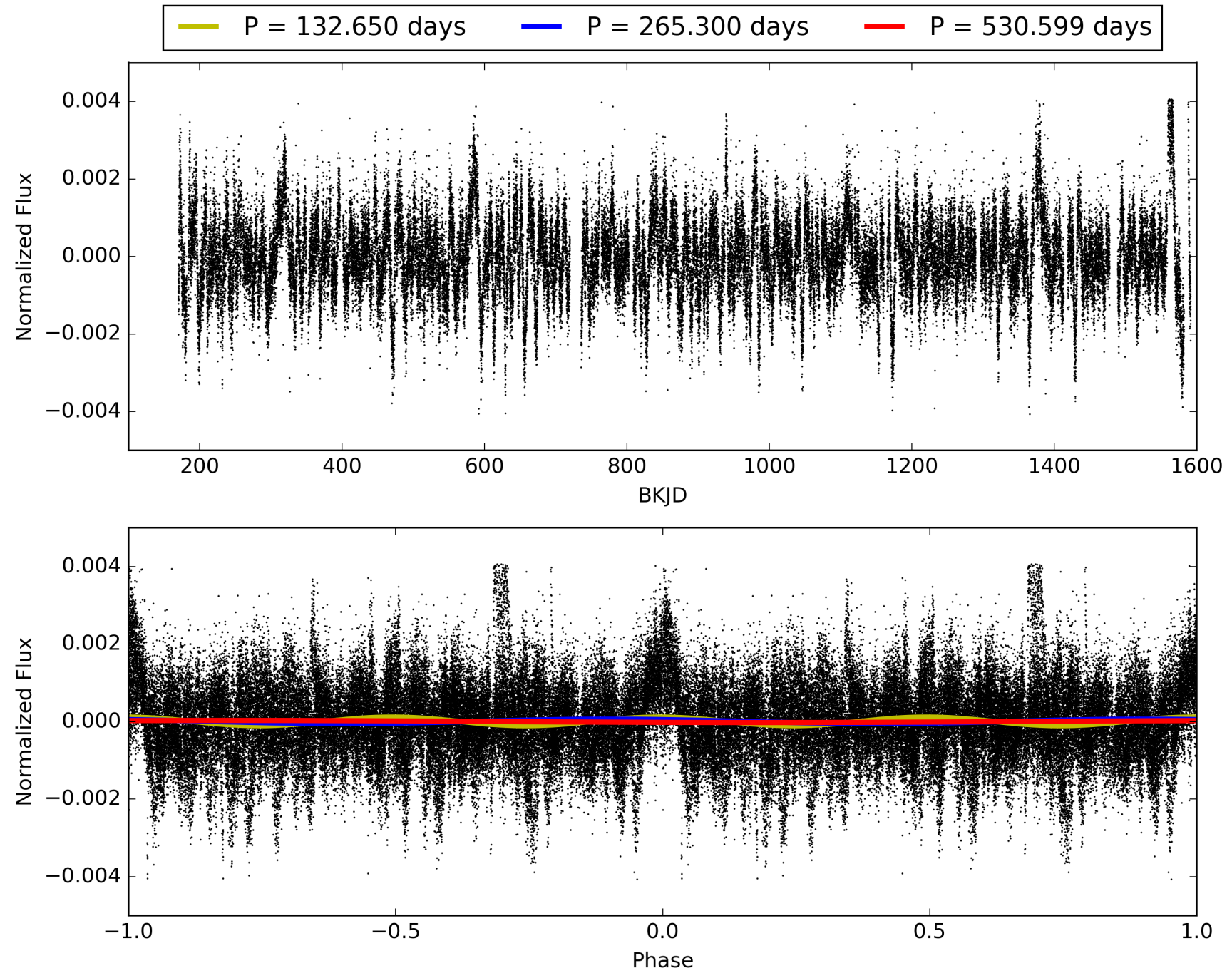
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.3%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.08
Centroid-sig: 0.0%
Centroid-so: 0.890 arcsec [119.82σ]
OotOffset-rm: 1.838 arcsec [14.38σ]
KicOffset-rm: 0.120 arcsec [1.74σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 009214712-01, PDC Light Curves

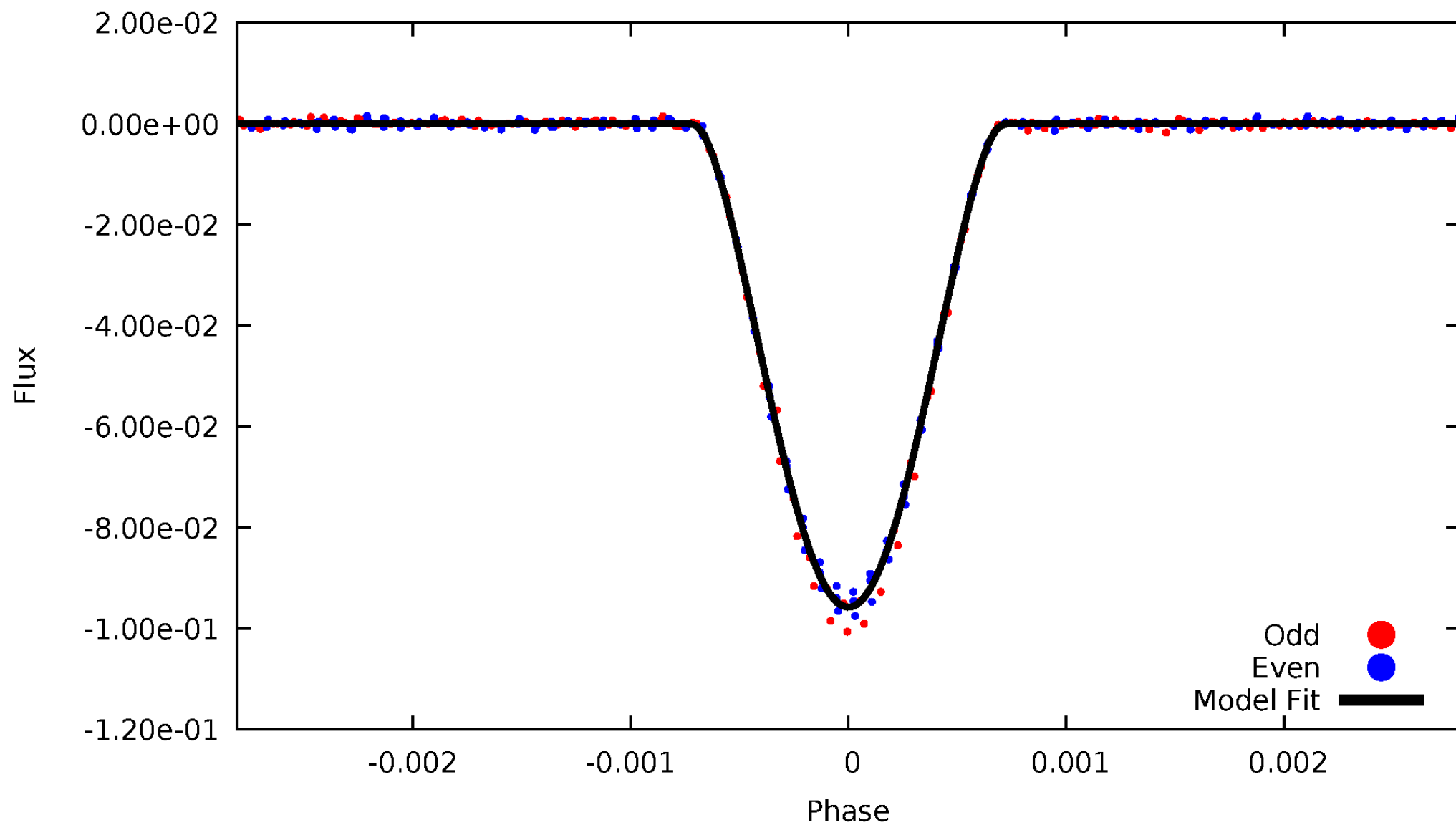


TCE 009214712-01



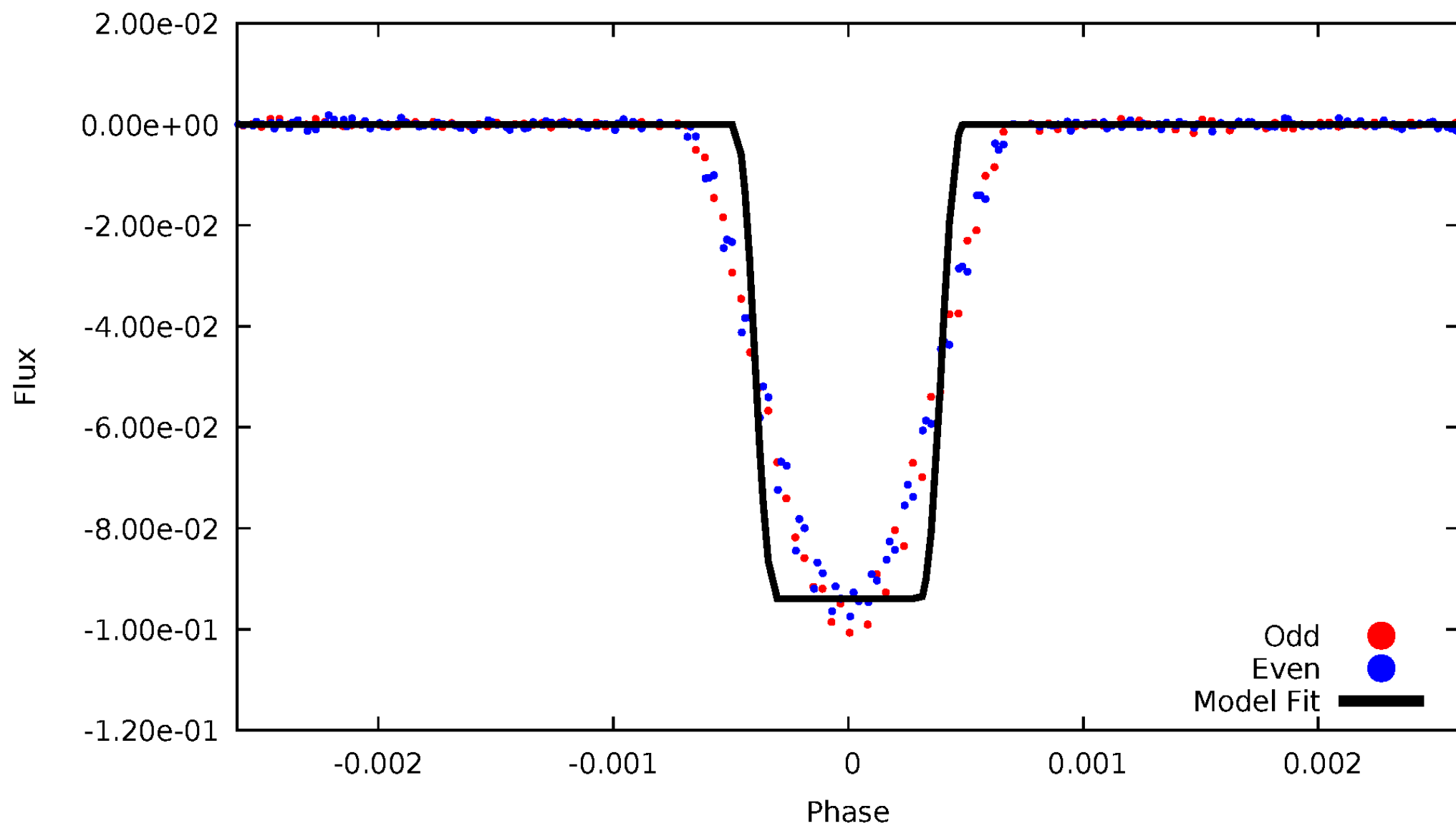
DV Odd/Even

TCE 009214712-01



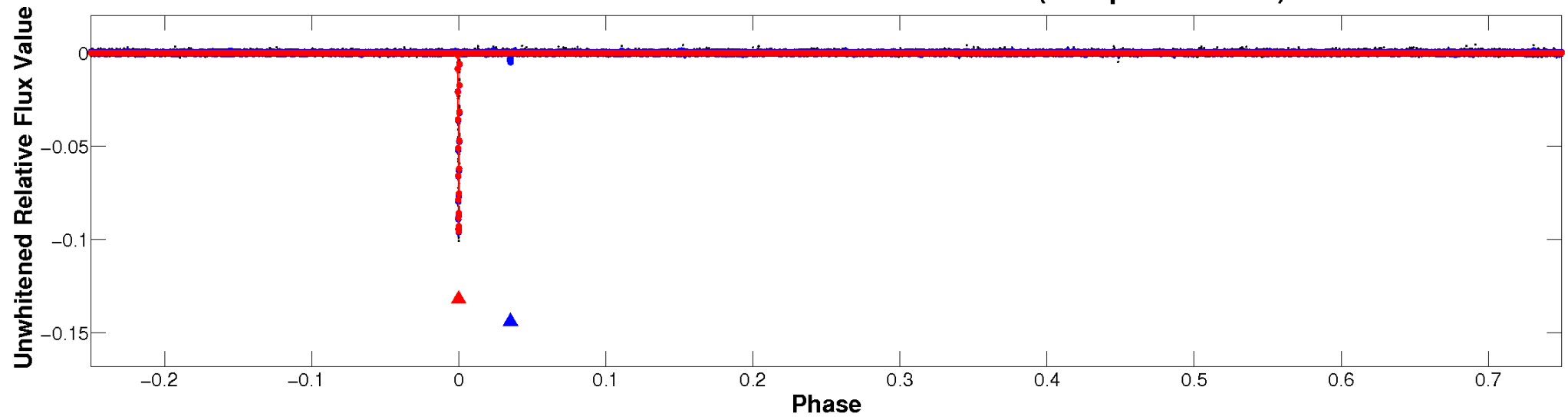
ALT Odd/Even

TCE 009214712-01

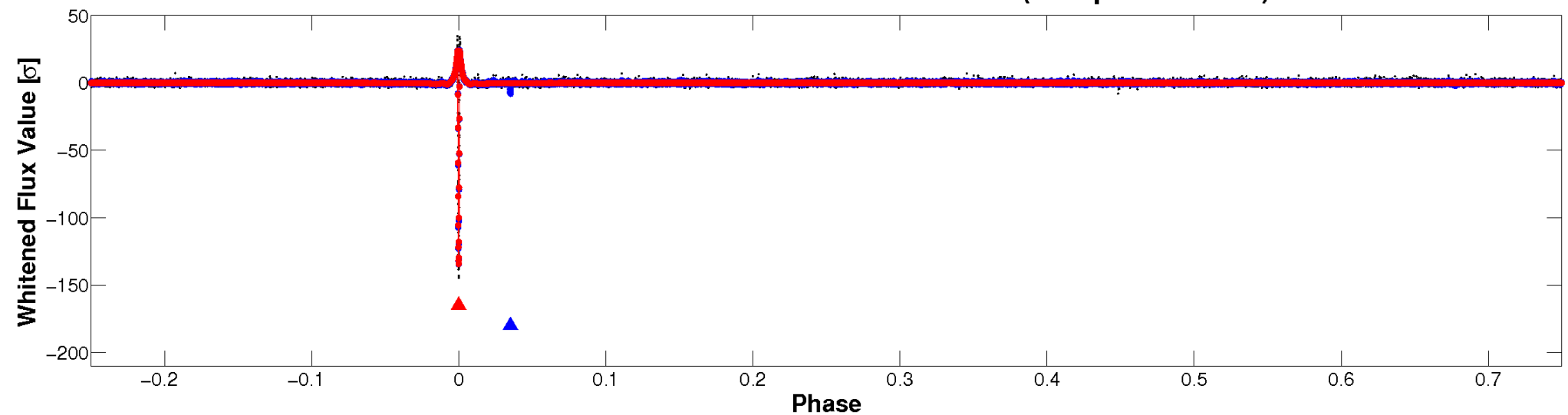


Non-Whitened Vs. Whitened Light Curve

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

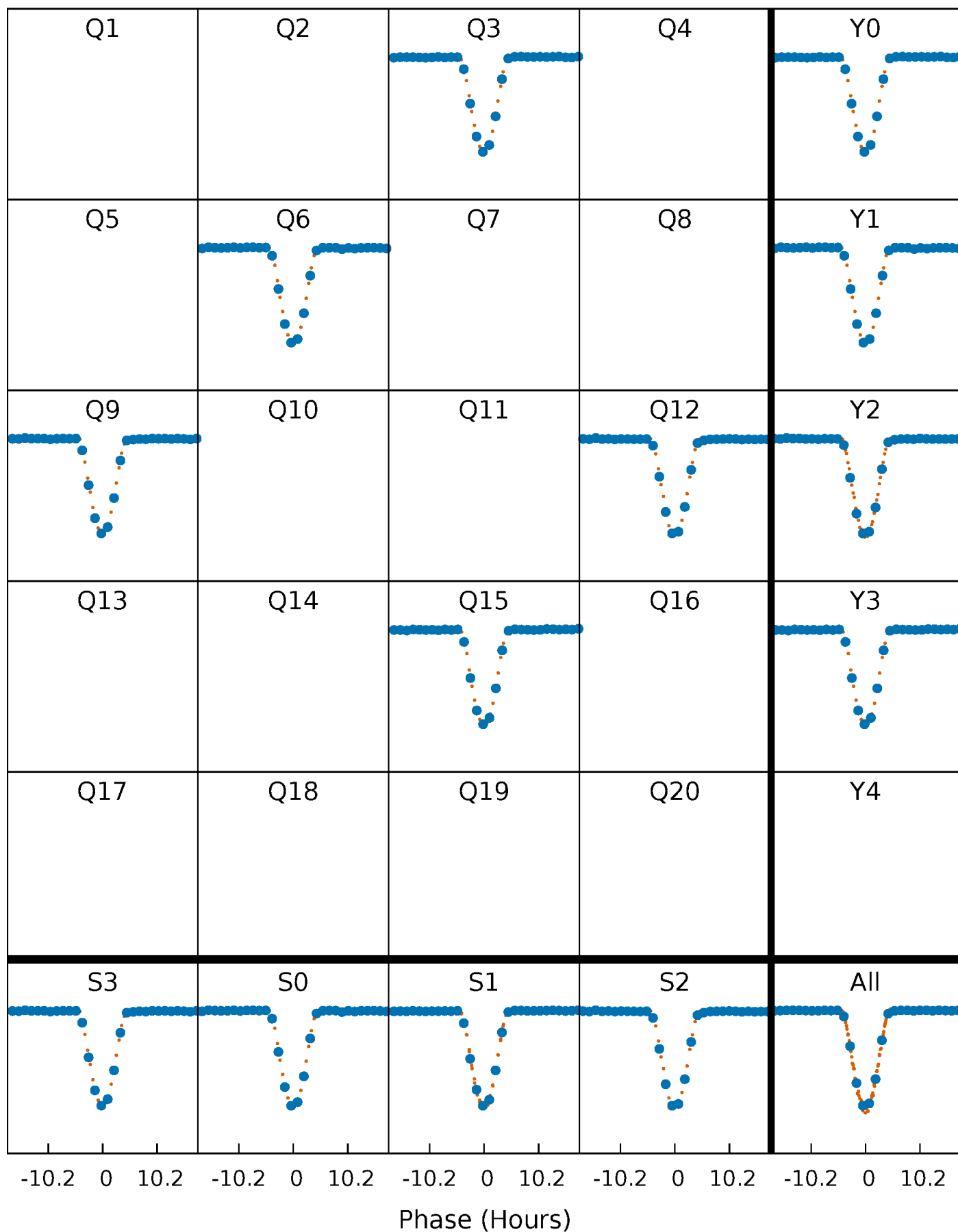


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



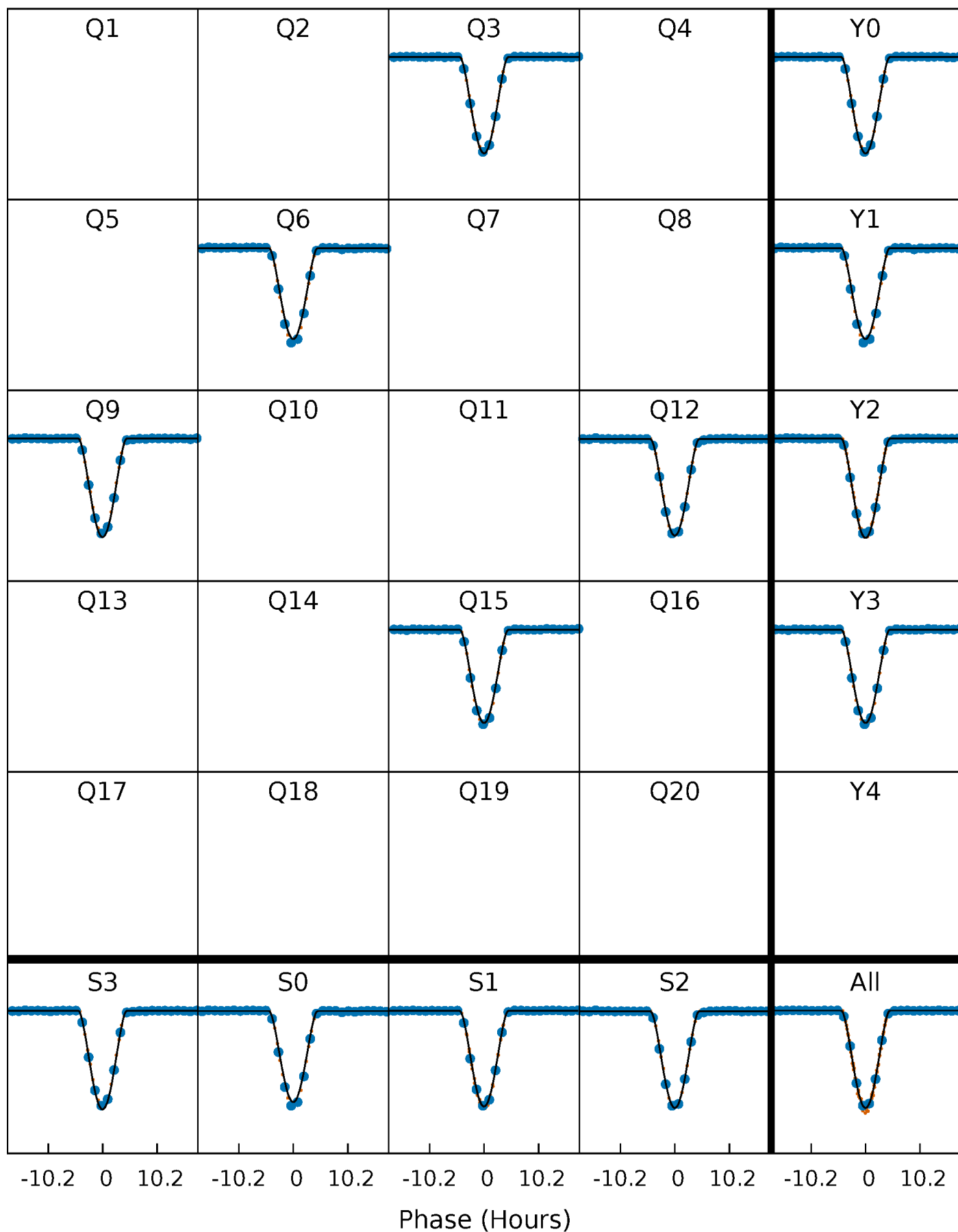
PDC Quarter-Phased Transit Curves

TCE 009214712-01 P=265.299654 Days $T_0=316.919527$ (BKJD)



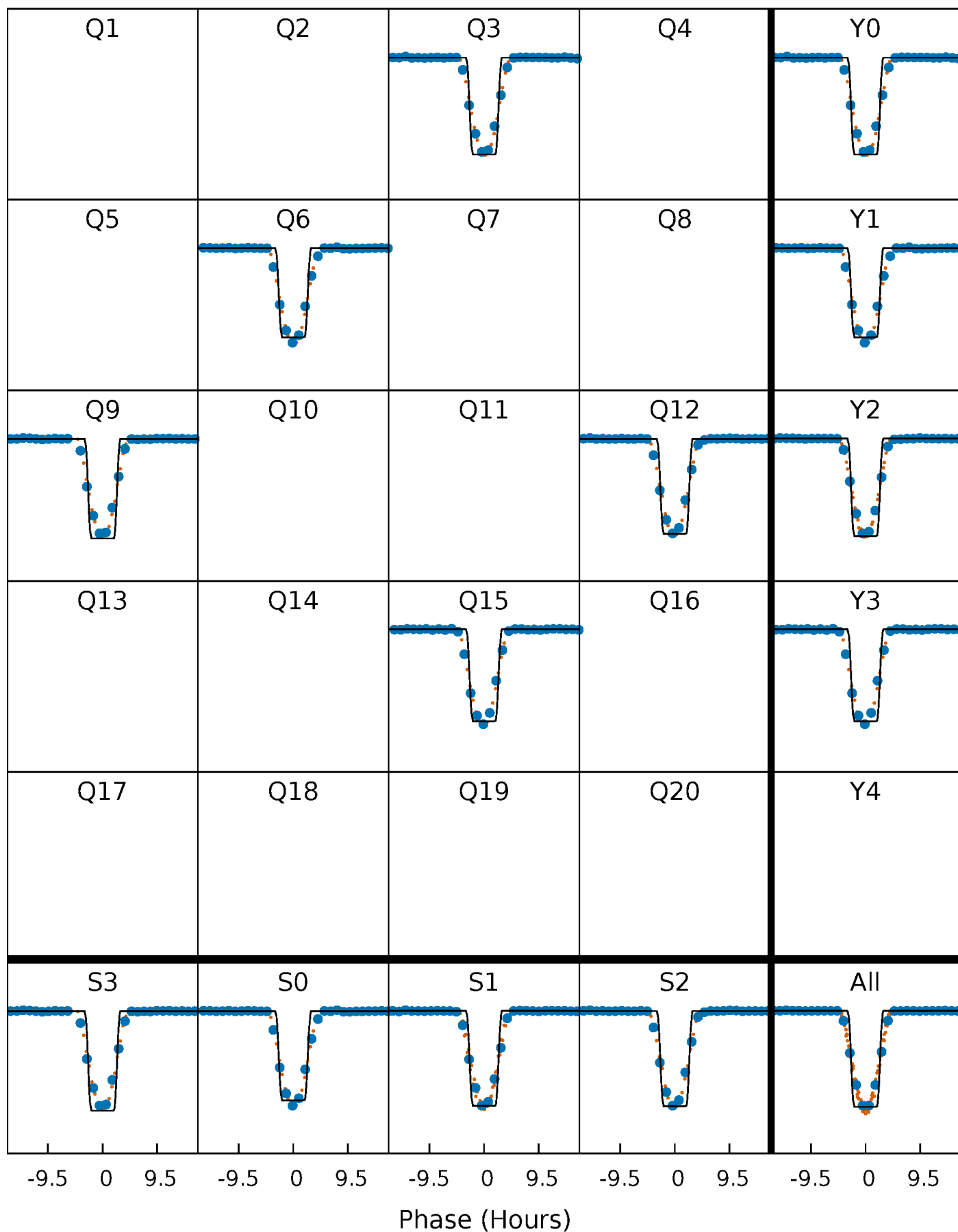
DV Quarter-Phased Transit Curves

TCE 009214712-01 P=265.299654 Days $T_0=316.919527$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

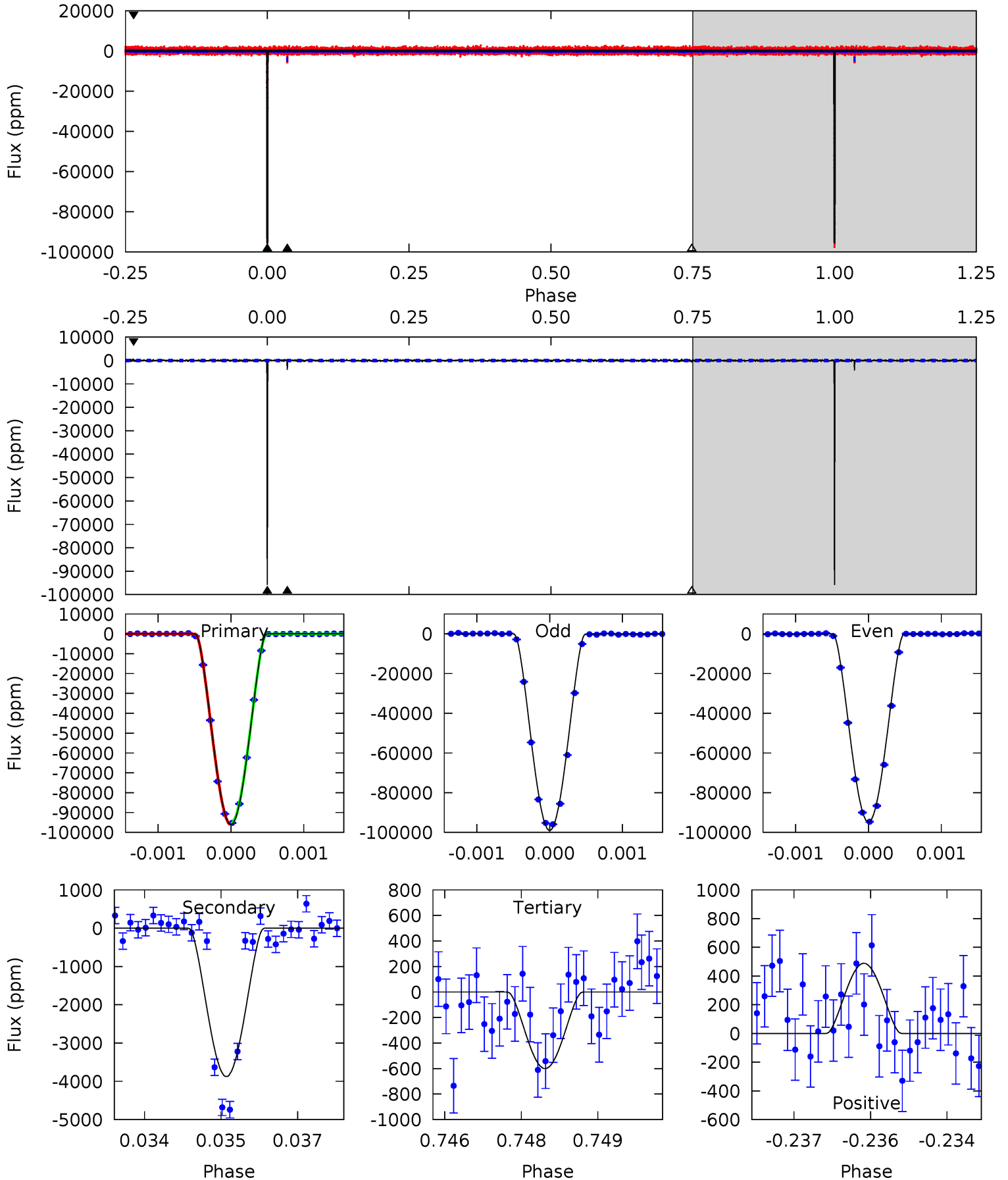
TCE 009214712-01 P=265.302532 Days $T_0=316.913986$ (BKJD)



DV Model-Shift Uniqueness Test

009214712-01, P = 265.299654 Days, E = 51.619873 Days

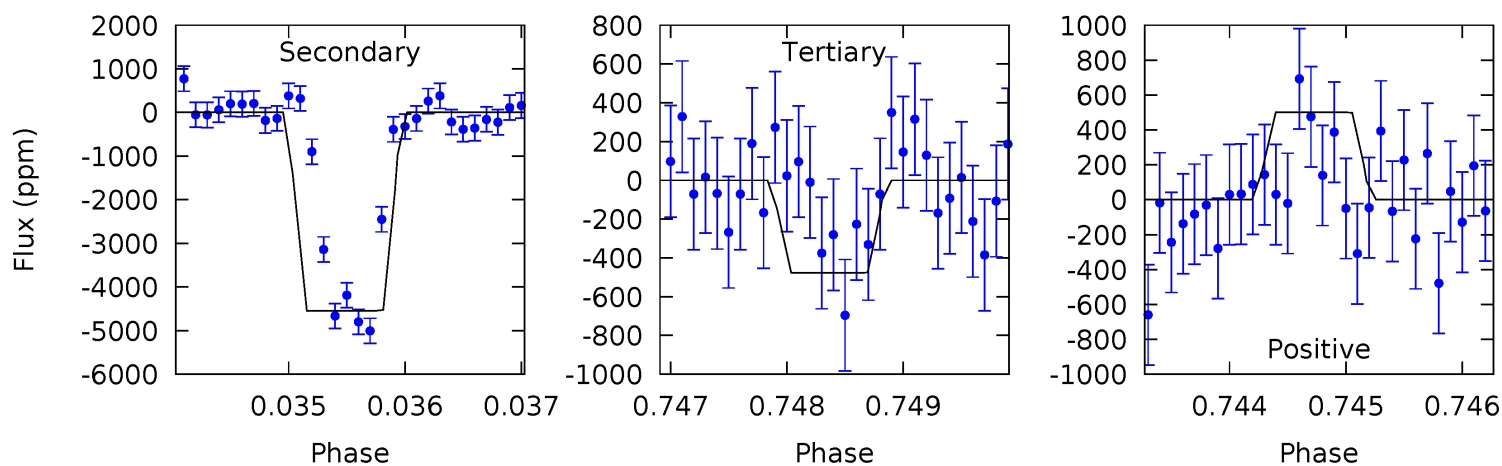
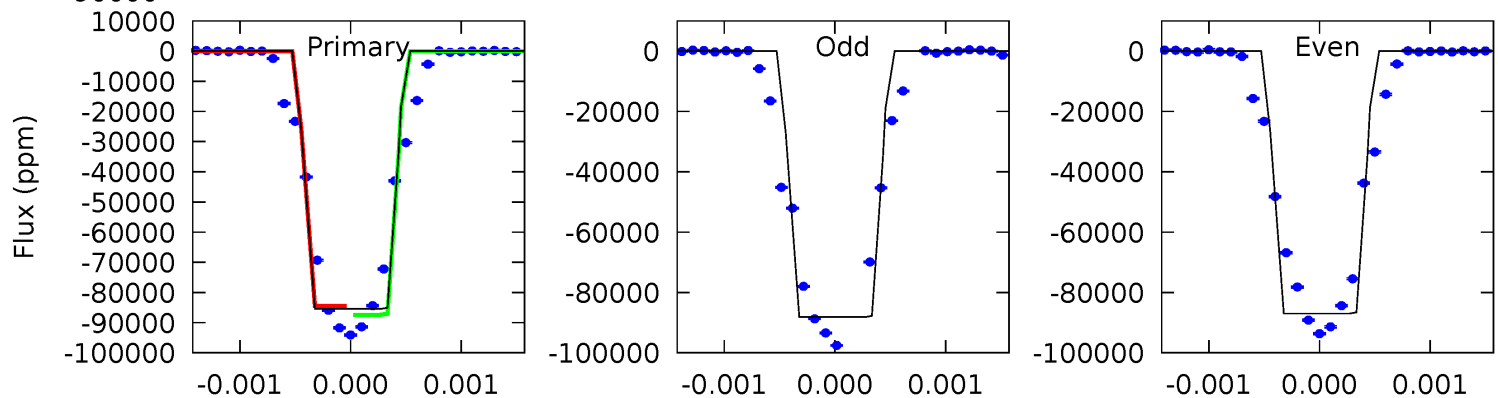
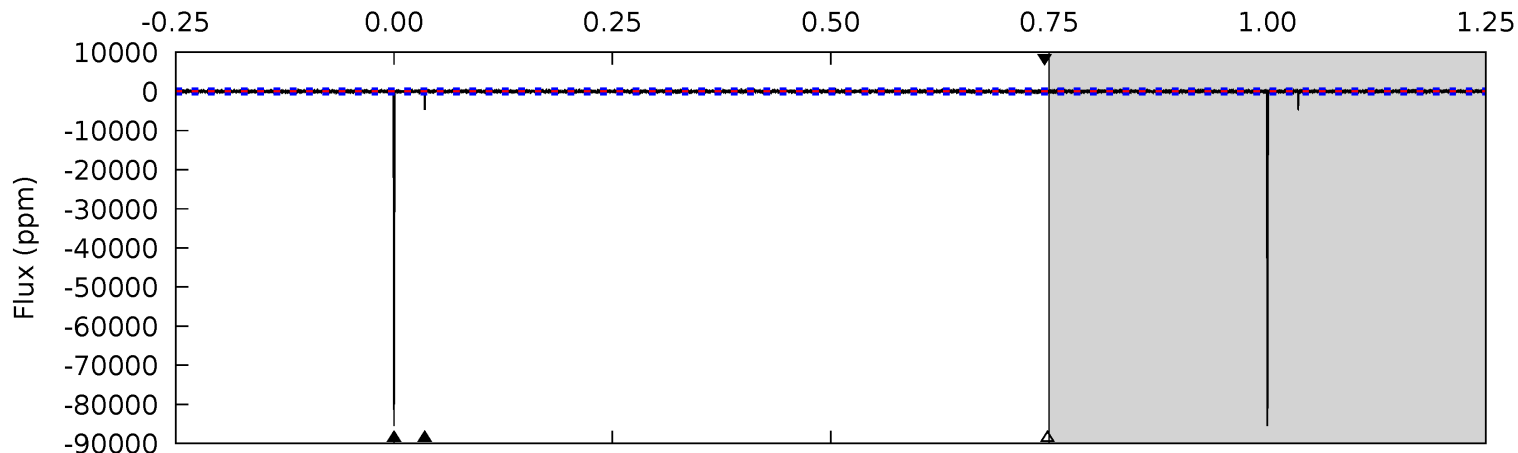
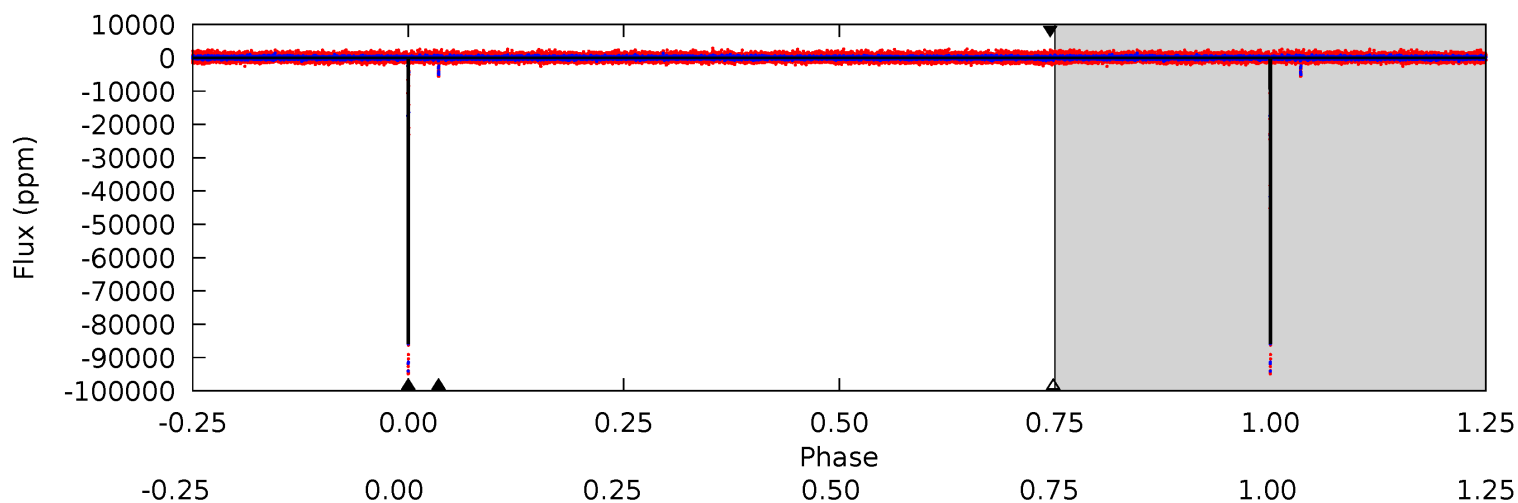
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1406	56.8	8.79	7.16	5.38	3.18	2.03	1397	1399	48.0	49.6	31.8	1.01	0.01	0



Alt Model-Shift Uniqueness Test

009214712-01, P = 265.302532 Days, E = 51.611454 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
725.2	38.6	4.05	4.25	5.46	3.31	1.09	721.1	720.9	34.5	34.3	5.72	1.01	0.01	12.2



Stellar Parameters For KIC 009214712

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5873^{+139}_{-174}	$4.547^{+0.033}_{-0.187}$	$-0.220^{+0.300}_{-0.300}$	$0.863^{+0.225}_{-0.075}$	$0.954^{+0.107}_{-0.119}$	$2.094^{+0.473}_{-0.950}$
	+2%/-3%	+1%/-4%	+136%/-136%	+26%/-9%	+11%/-12%	+23%/-45%
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 009214712-01 / KOI 6064.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3870 ± 68	$40.19^{+6.78}_{-5.14}$	386^{+26}_{-16}	2971^{+102}_{-98}	813^{+252}_{-193}
Alt.	-4547 ± 118	$30.00^{+6.08}_{-4.69}$	385^{+23}_{-16}	3308^{+160}_{-140}	1722^{+652}_{-495}

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 $A_{obs} \gg 1.0$

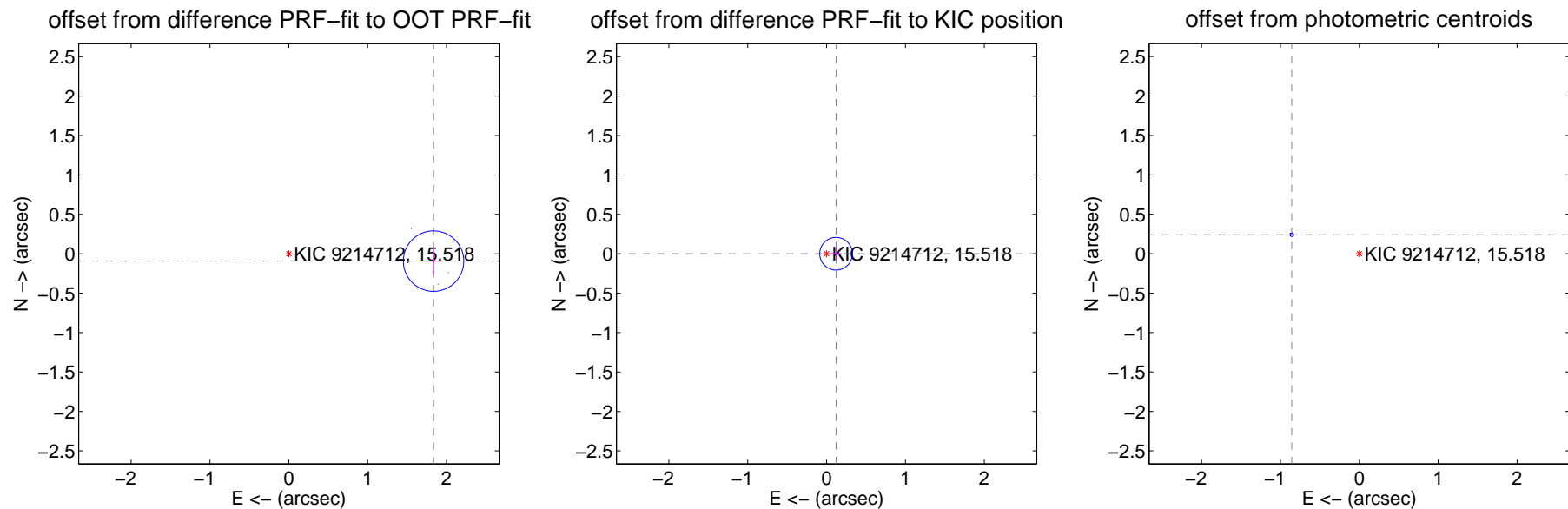
DV Centroid Data

Supplemental centroid analysis for 009214712-01. Kepler magnitude: 15.52. Transit SNR 629.03

There are 4 quarters with good PRF difference image offsets

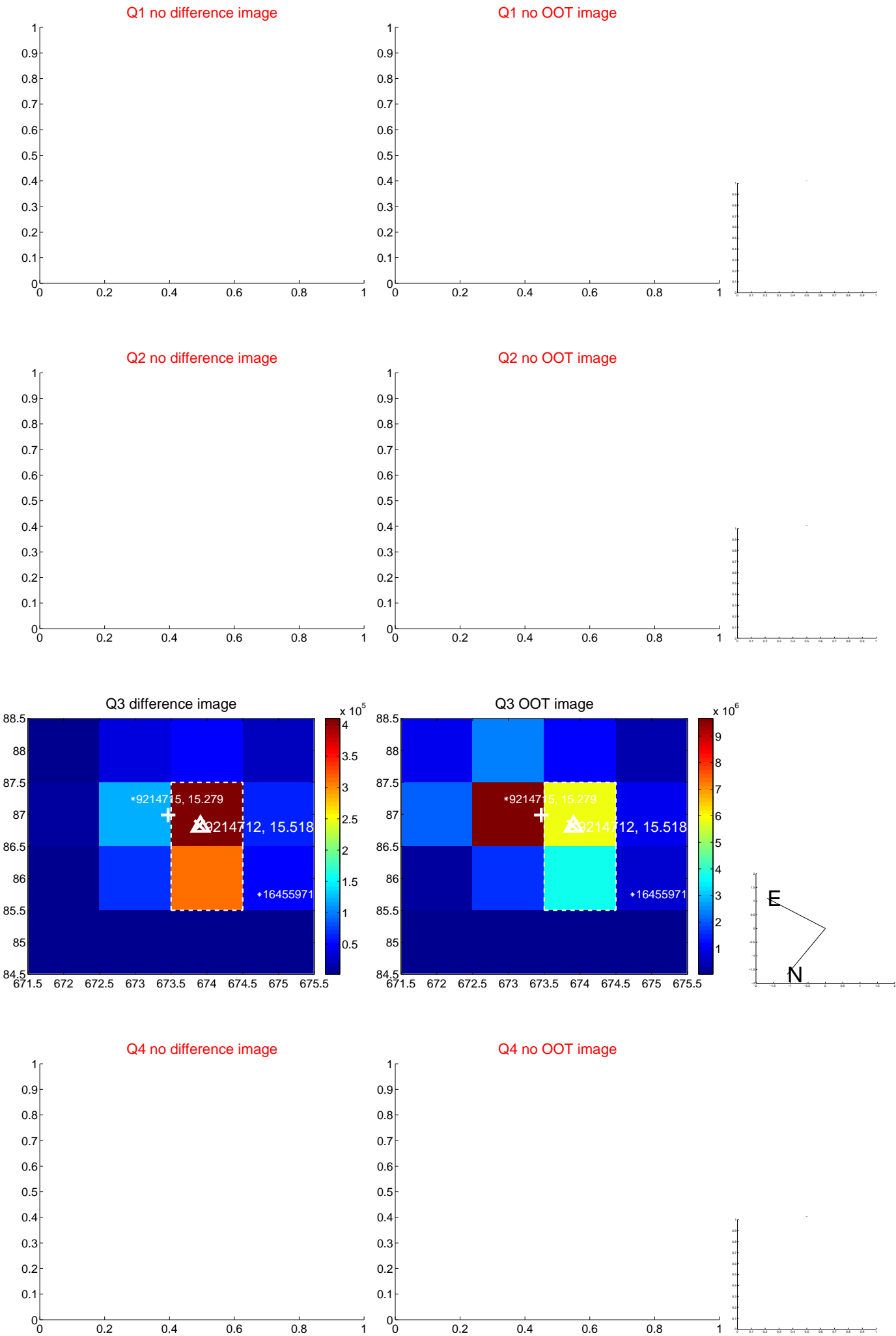
The direct PRF centroid is offset from the target star catalog position by about 1.95 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.838 ± 0.128	14.38	-1.836 ± 0.122	-0.093 ± 0.164
PRF-fit source offset from KIC position	0.120 ± 0.069	1.74	-0.120 ± 0.069	0.001 ± 0.075
photometric centroid source offset	0.89 ± 0.01	119.82	0.86 ± 0.01	0.24 ± 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.

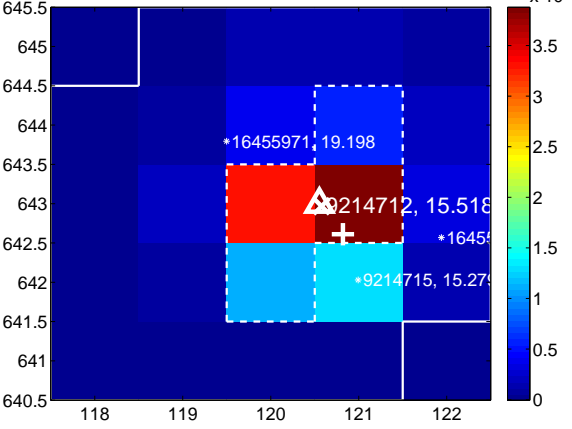
Q5 no difference image



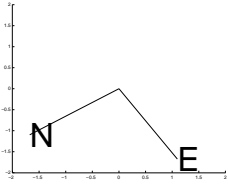
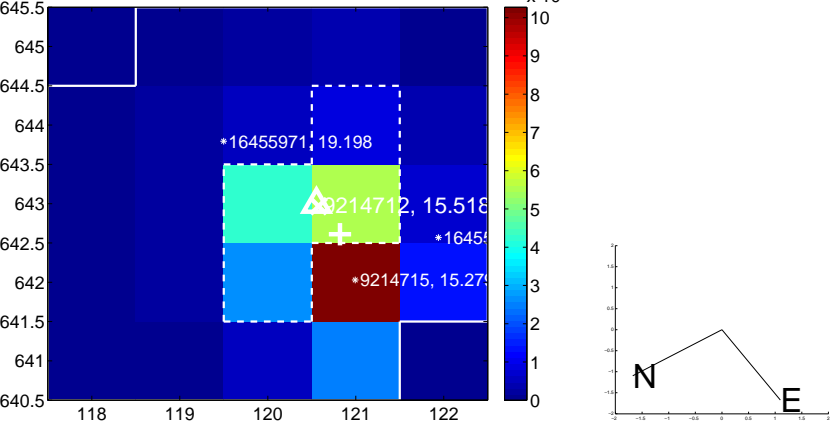
Q5 no OOT image



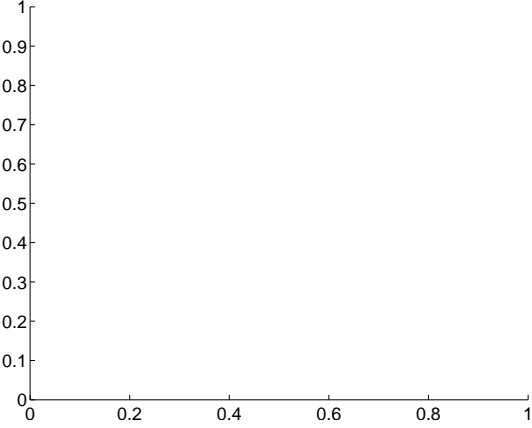
Q6 difference image



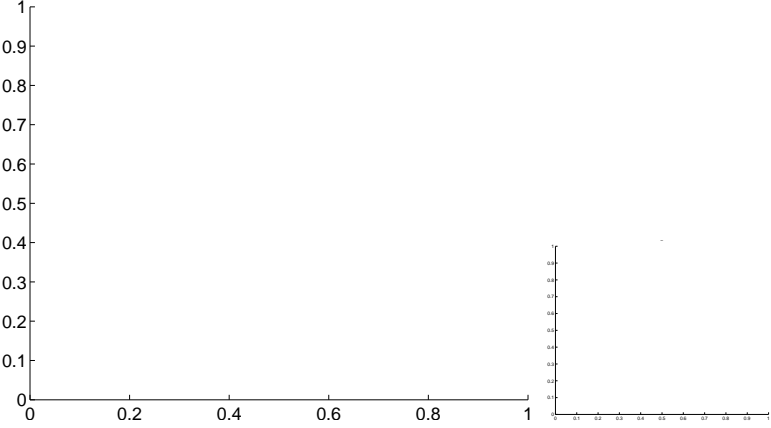
Q6 OOT image



Q7 no difference image



Q7 no OOT image



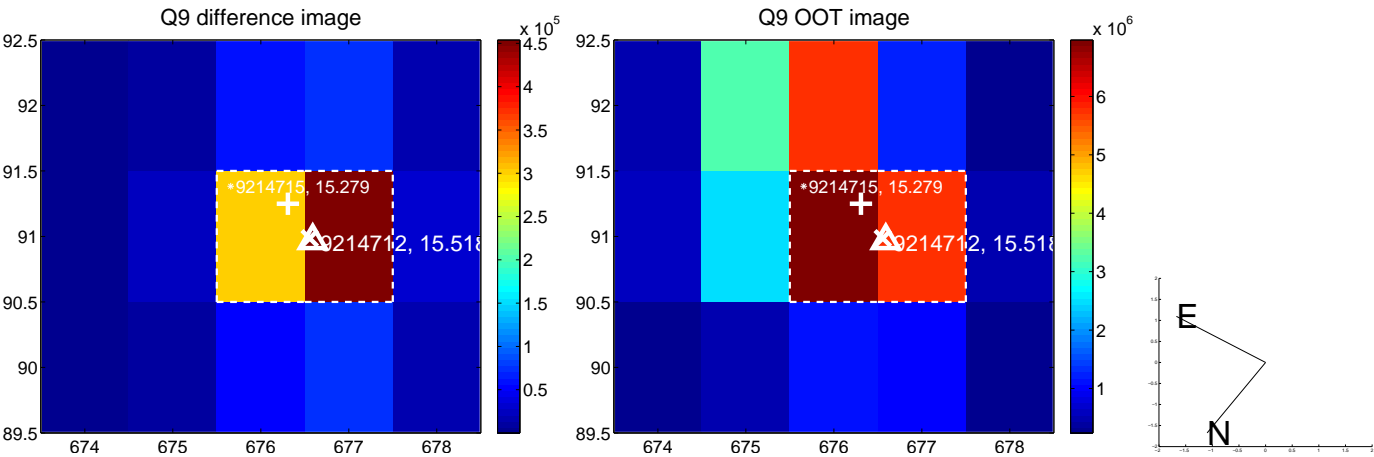
Q8 no difference image



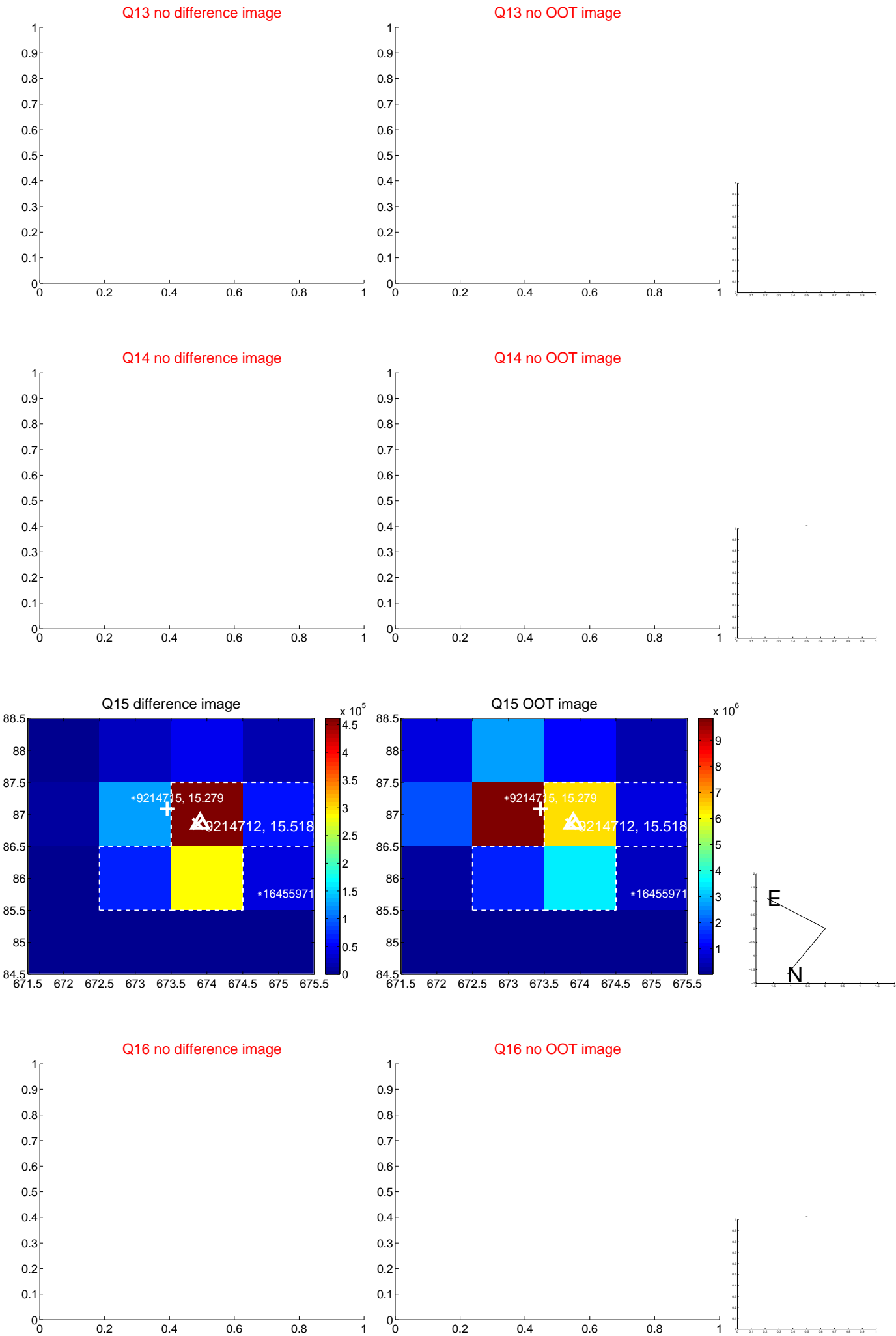
Q8 no OOT image



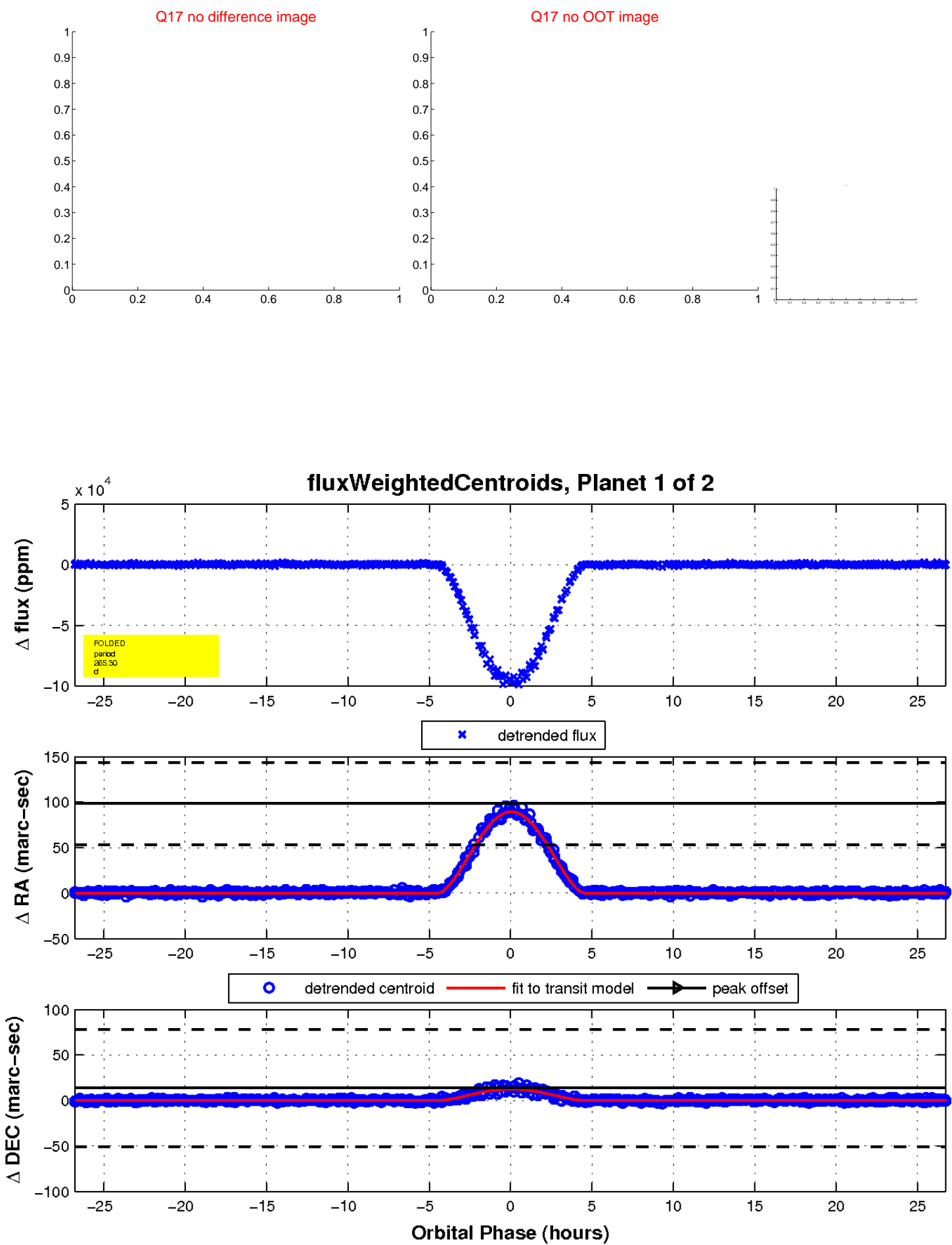
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

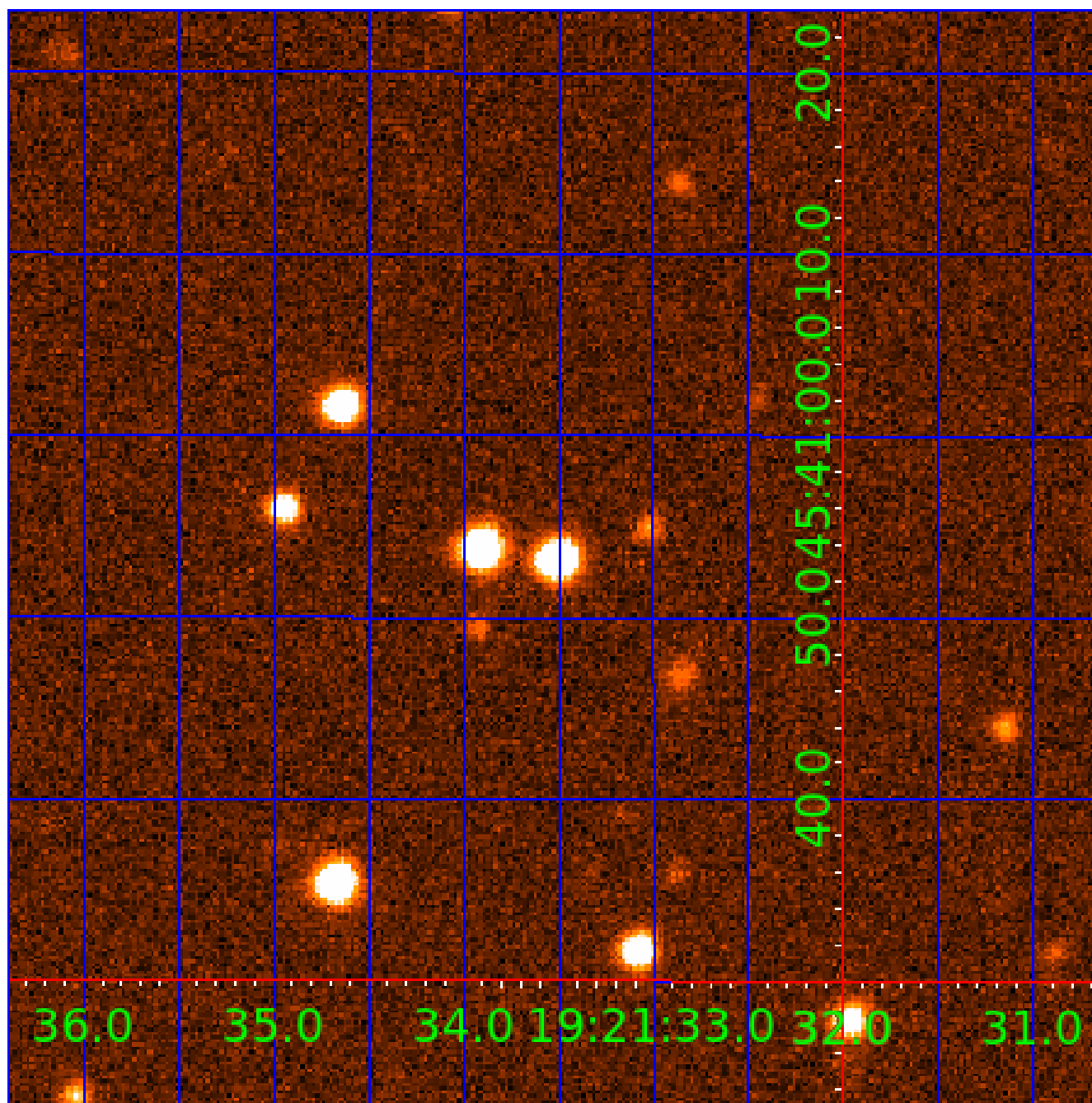


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009214712

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})
009214712-01	OBS	6064.01	265.299654	316.919527	95834.3	8.935	847.6	629.0	0.86	5873	38.32	1.25
009214712-02	OBS	6064.02	265.299695	326.262676	4912.2	4.659	32.6	29.9	0.86	5873	7.13	1.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009214712-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009214712-02	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.

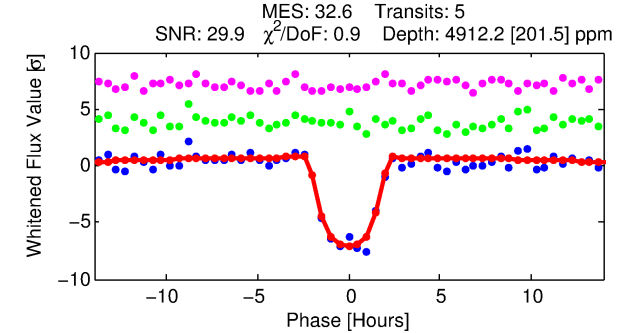
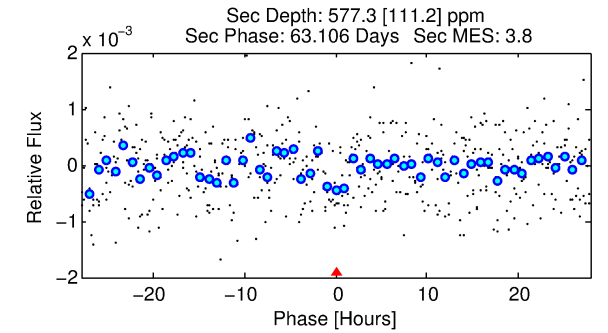
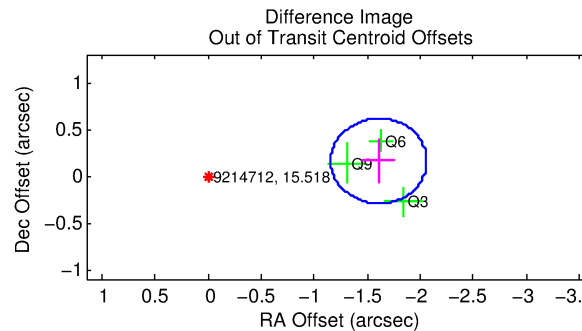
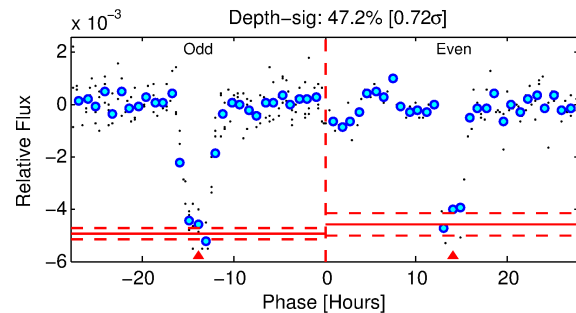
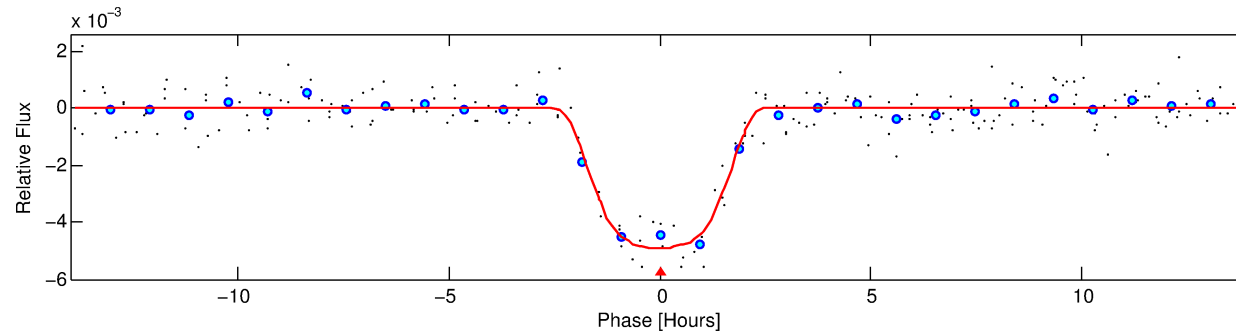
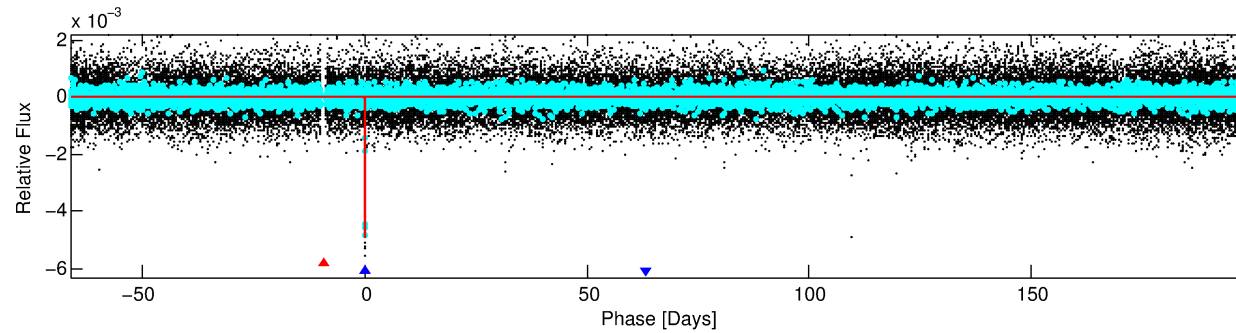
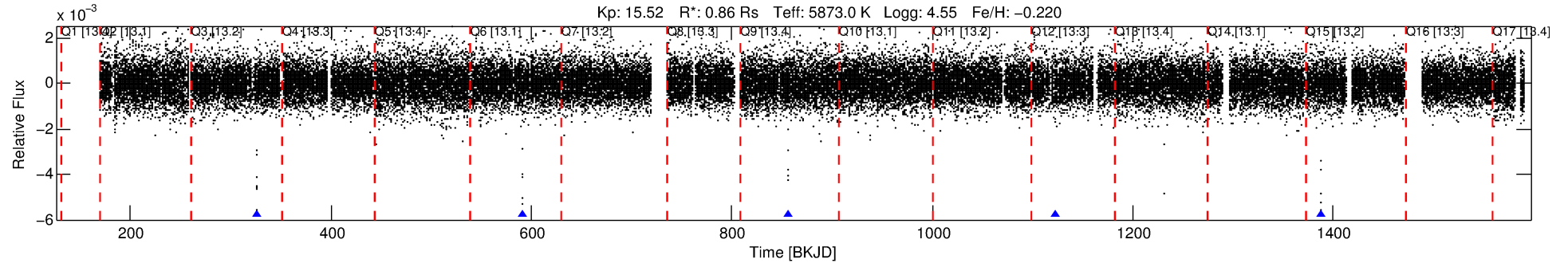
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009214712-02

No Significant Match Found

DV One-Page Summary

KIC: 9214712 Candidate: 2 of 2 Period: 265.300 d
KOI: K06064.02 Corr: 0.985



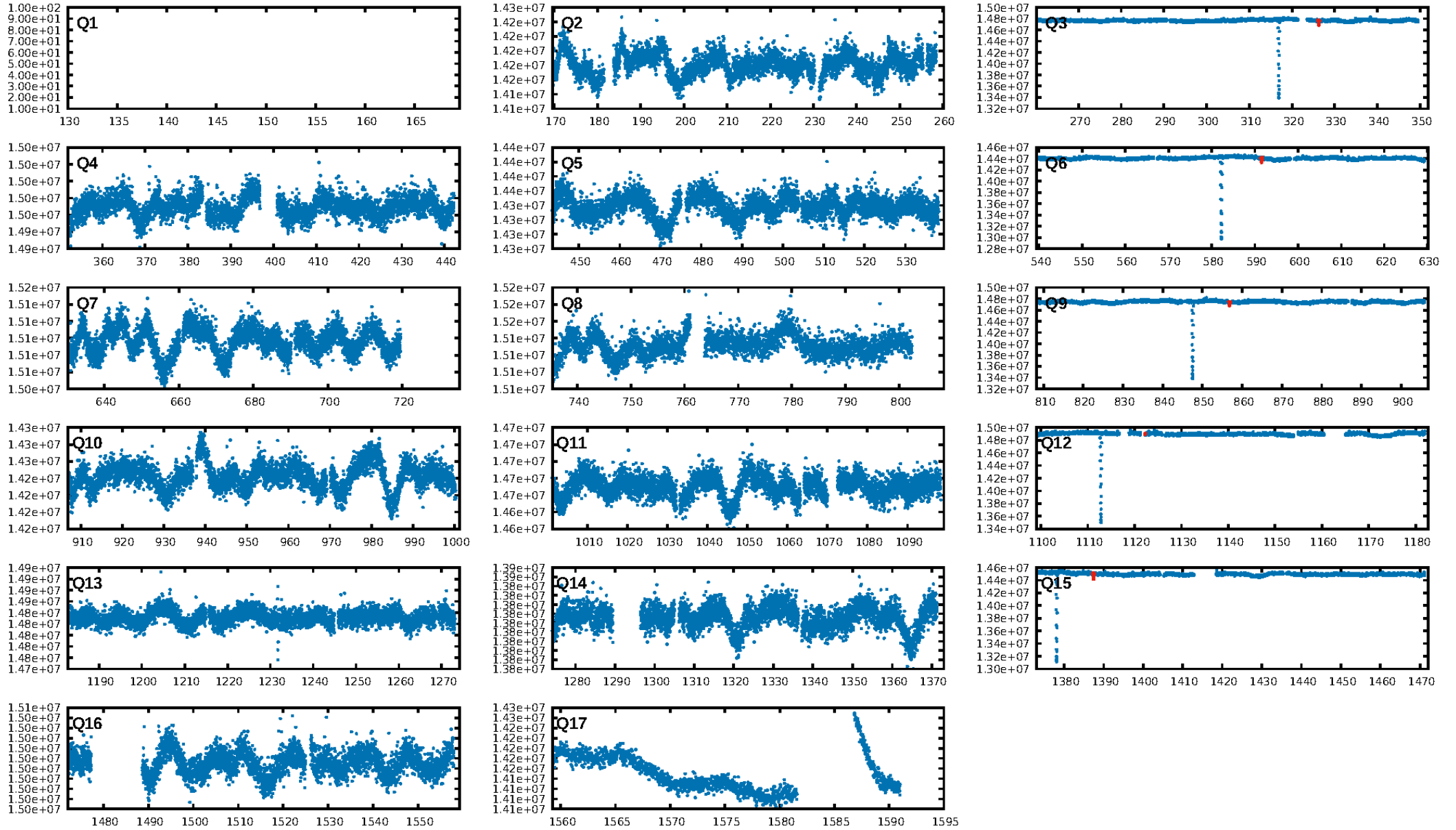
DV Fit Results:

Period = 265.29970 [0.00113] d
Epoch = 326.2627 [0.0028] BKJD
Rp/R* = 0.0758 [0.0026]
a/R* = 262.17 [21.59]
b = 0.89 [0.02]
Seff = 1.25 [0.45]
Teq = 270 [24] K
Rp = 7.13 [1.88] Re
a = 0.7965 [0.1795] AU
Ag = 3958.11 [1555.71] [2.54σ]
Teff = 3307 [196] K [15.42σ]

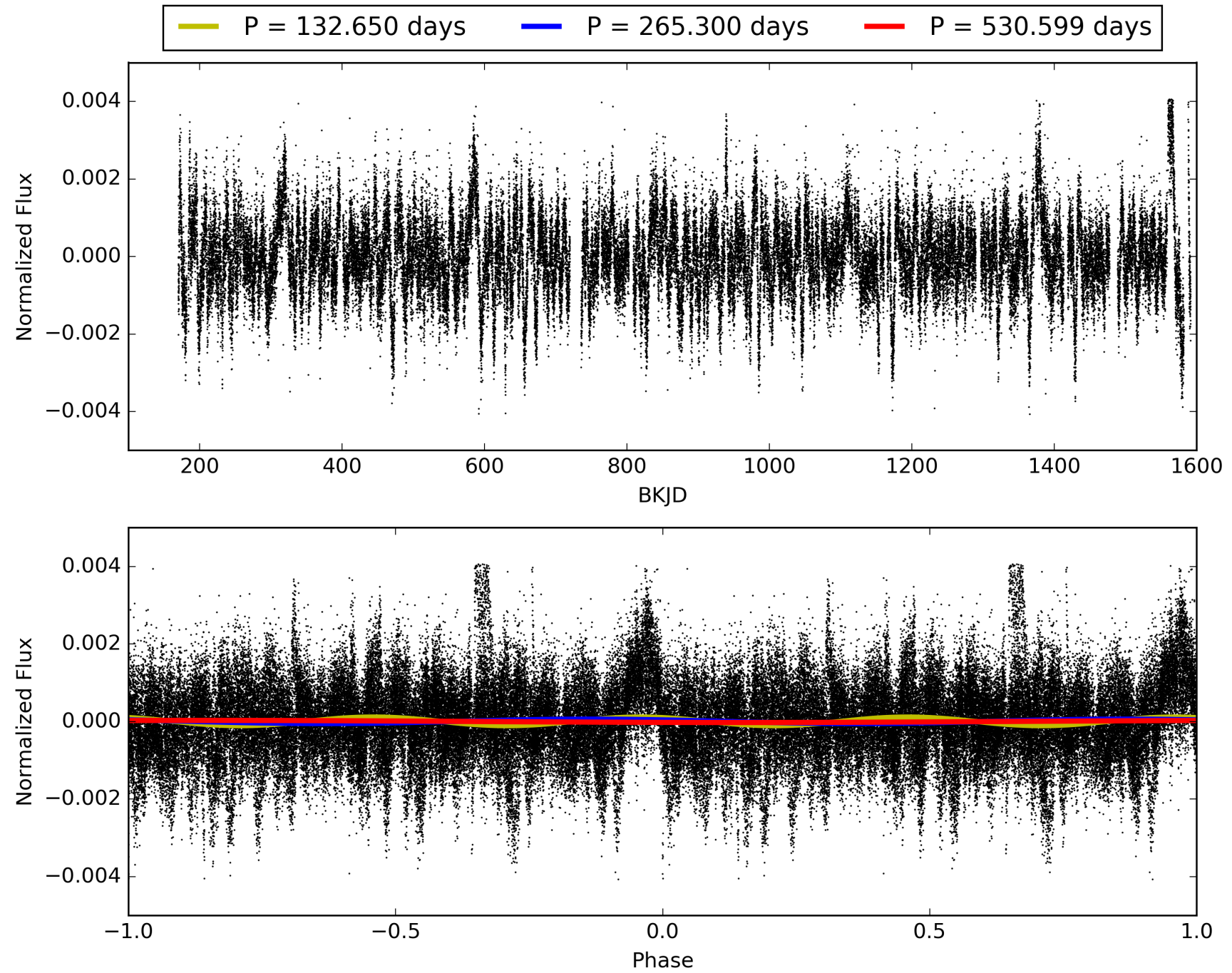
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.36e-113
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.681
Centroid-sig: 0.0%
Centroid-so: 0.930 arcsec [5.14σ]
OotOffset-rm: 1.616 arcsec [10.68σ]
KicOffset-rm: 0.282 arcsec [1.71σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009214712-02, PDC Light Curves

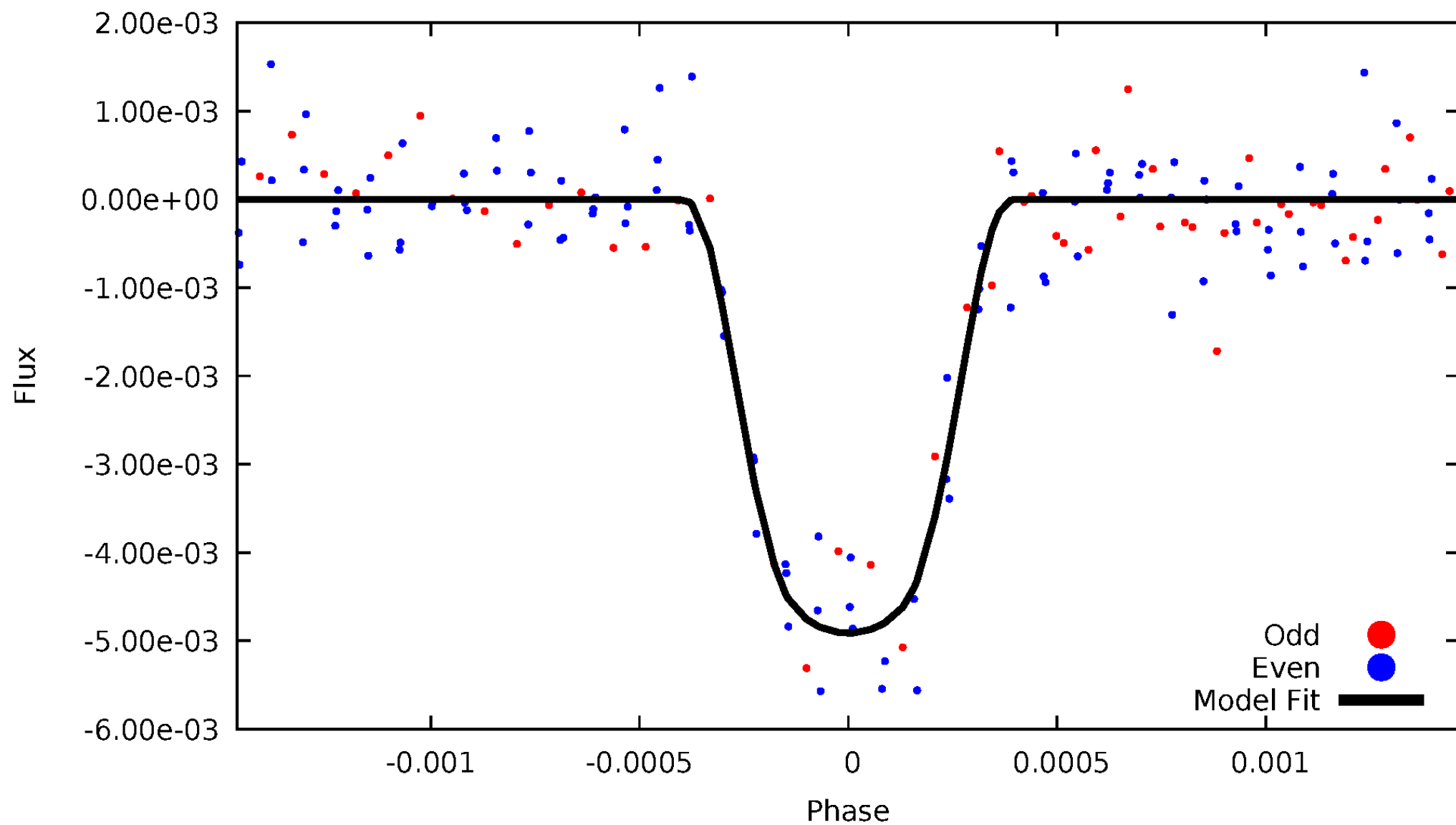


TCE 009214712-02



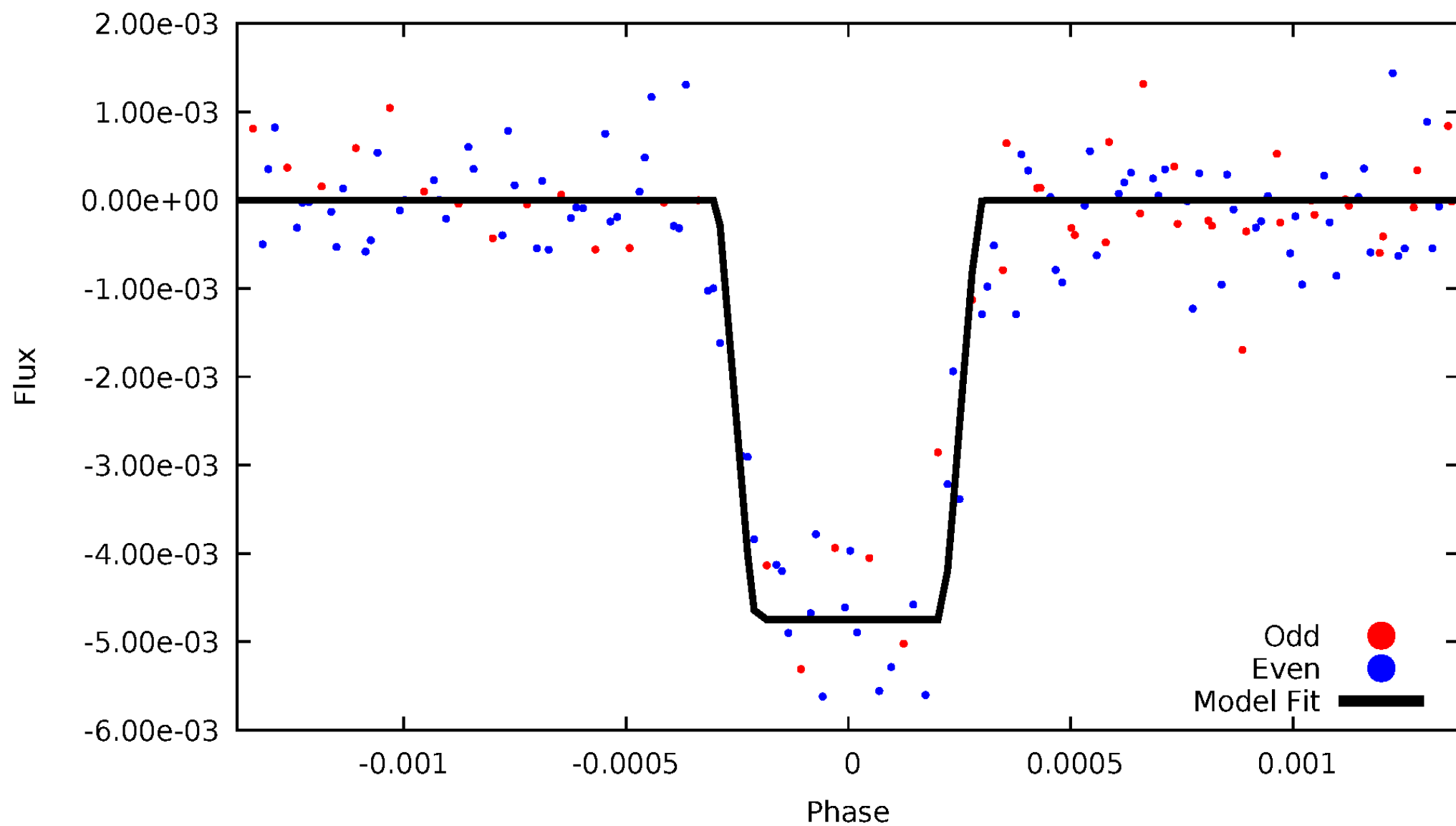
DV Odd/Even

TCE 009214712-02



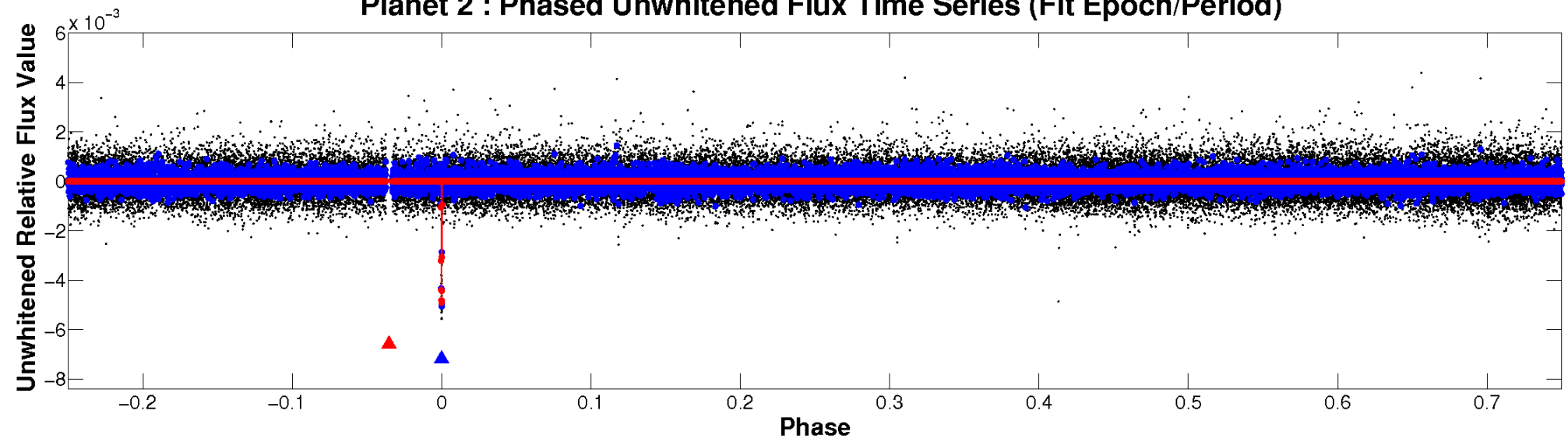
ALT Odd/Even

TCE 009214712-02

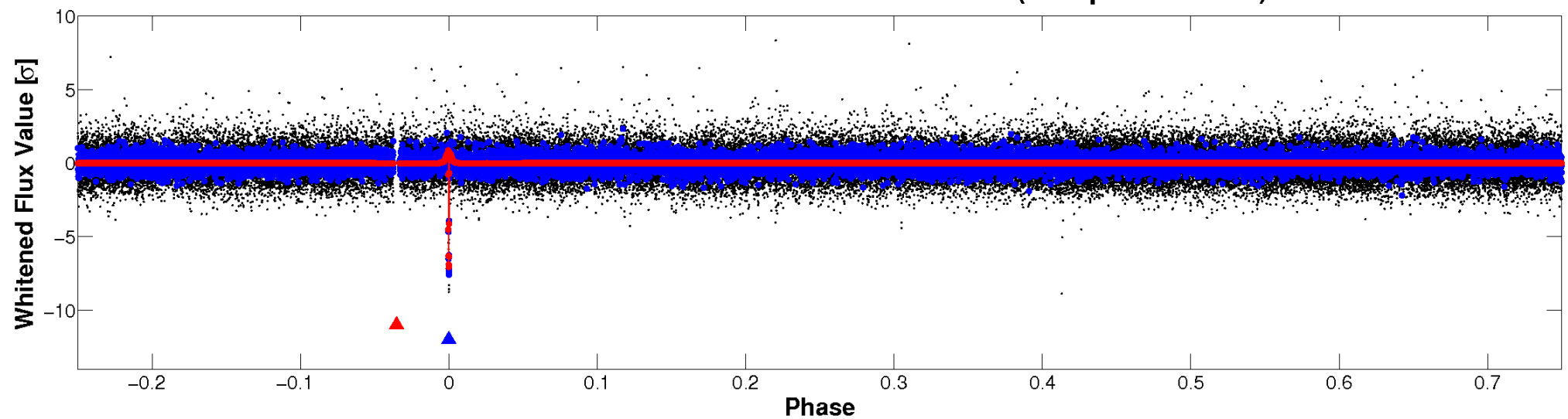


Non-Whitened Vs. Whitened Light Curve

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

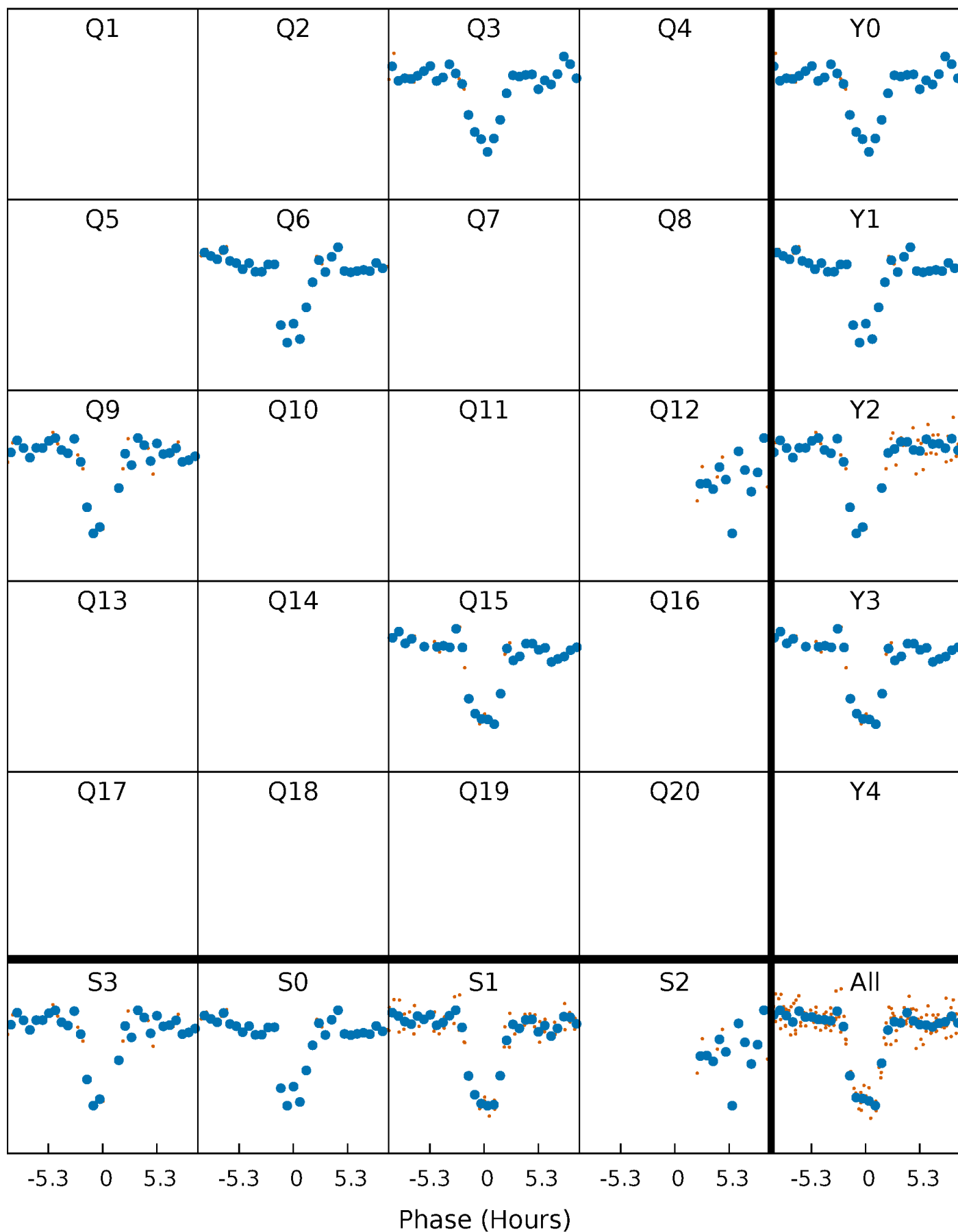


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



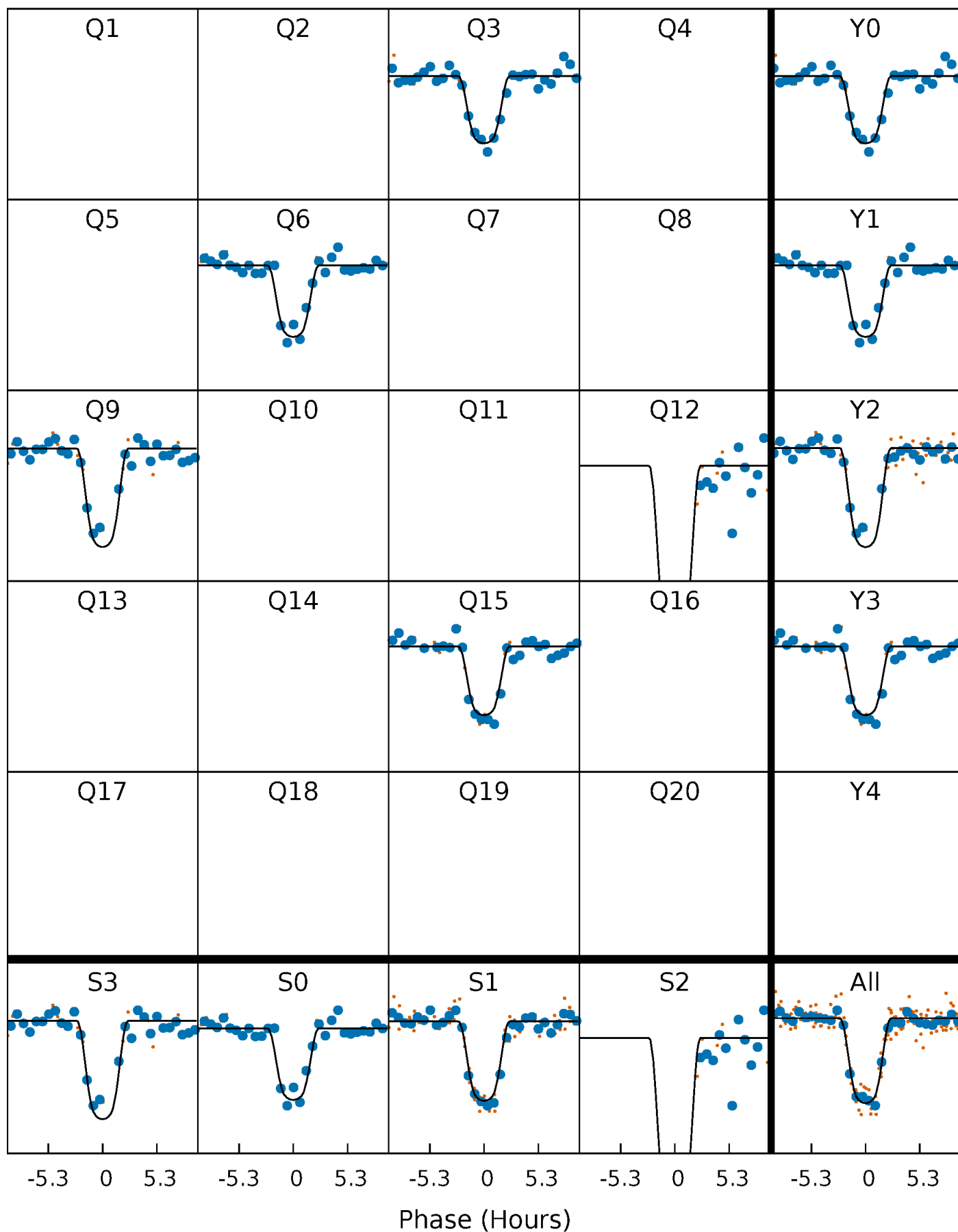
PDC Quarter-Phased Transit Curves

TCE 009214712-02 $P=265.299695$ Days $T_0=326.262676$ (BKJD)



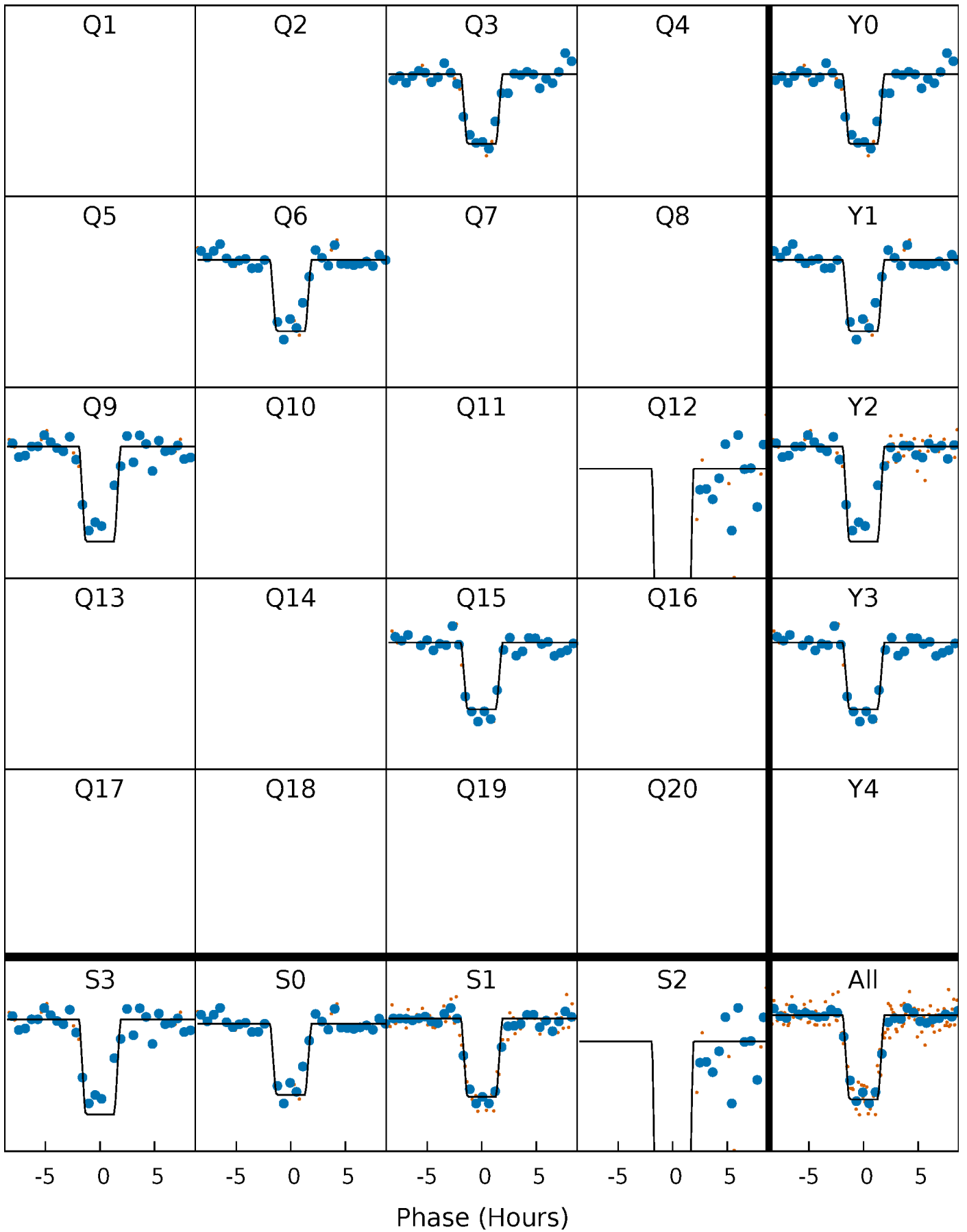
DV Quarter-Phased Transit Curves

TCE 009214712-02 $P=265.299695$ Days $T_0=326.262676$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

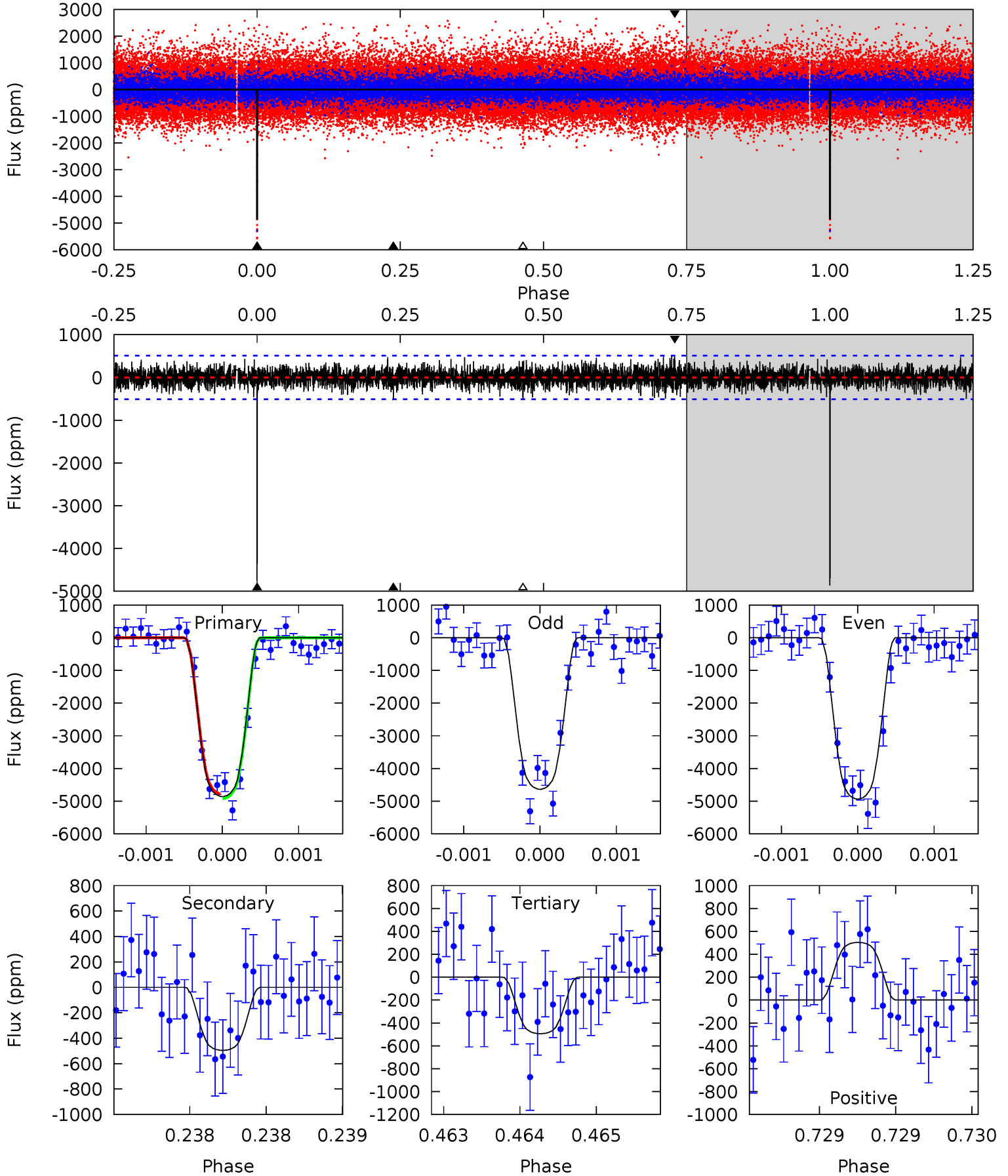
TCE 009214712-02 P=265.298362 Days $T_0=326.265652$ (BKJD)



DV Model-Shift Uniqueness Test

009214712-02, $P = 265.299695$ Days, $E = 60.962981$ Days

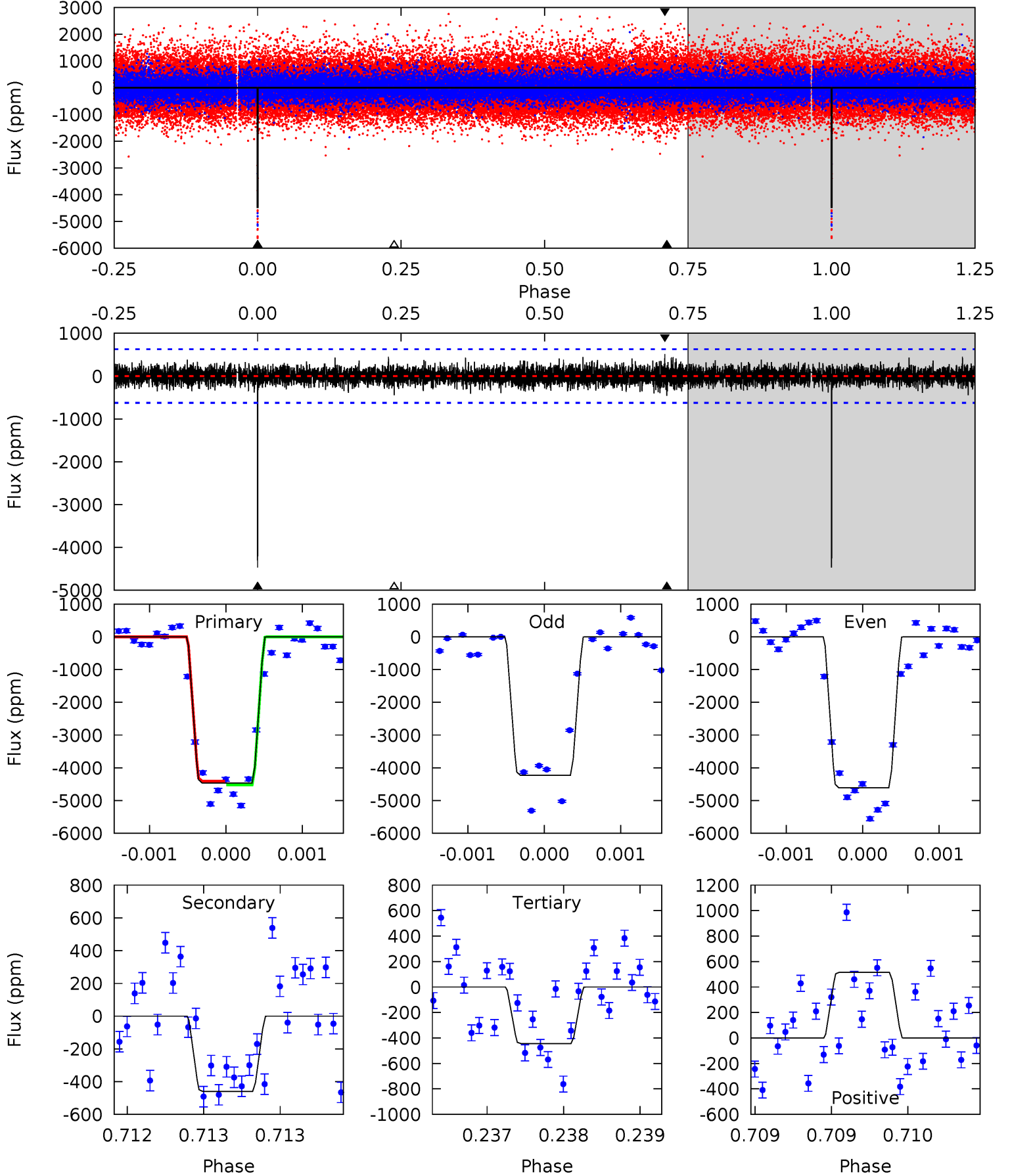
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.5	5.36	5.34	5.44	5.49	3.35	1.49	47.1	47.0	0.02	-0.09	1.40	1.00	0.09	0.78



Alt Model-Shift Uniqueness Test

009214712-02, $P = 265.298362$ Days, $E = 60.967290$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.5	4.06	3.93	4.56	5.54	3.44	1.06	35.6	35.0	0.13	-0.50	1.49	1.00	0.10	0.49



Stellar Parameters For KIC 009214712

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5873^{+139}_{-174}	$4.547^{+0.033}_{-0.187}$	$-0.220^{+0.300}_{-0.300}$	$0.863^{+0.225}_{-0.075}$	$0.954^{+0.107}_{-0.119}$	$2.094^{+0.473}_{-0.950}$
	+2%/-3%	+1%/-4%	+136%/-136%	+26%/-9%	+11%/-12%	+23%/-45%
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 009214712-02 / KOI 6064.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-496 ± 93	$7.35^{+1.09}_{-0.56}$	385^{+24}_{-16}	3606^{+136}_{-128}	2983^{+807}_{-779}
Alt.	-459 ± 113	$6.70^{+0.96}_{-0.58}$	386^{+23}_{-18}	3682^{+160}_{-179}	3339^{+1079}_{-1036}

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 $A_{obs} \gg 1.0$

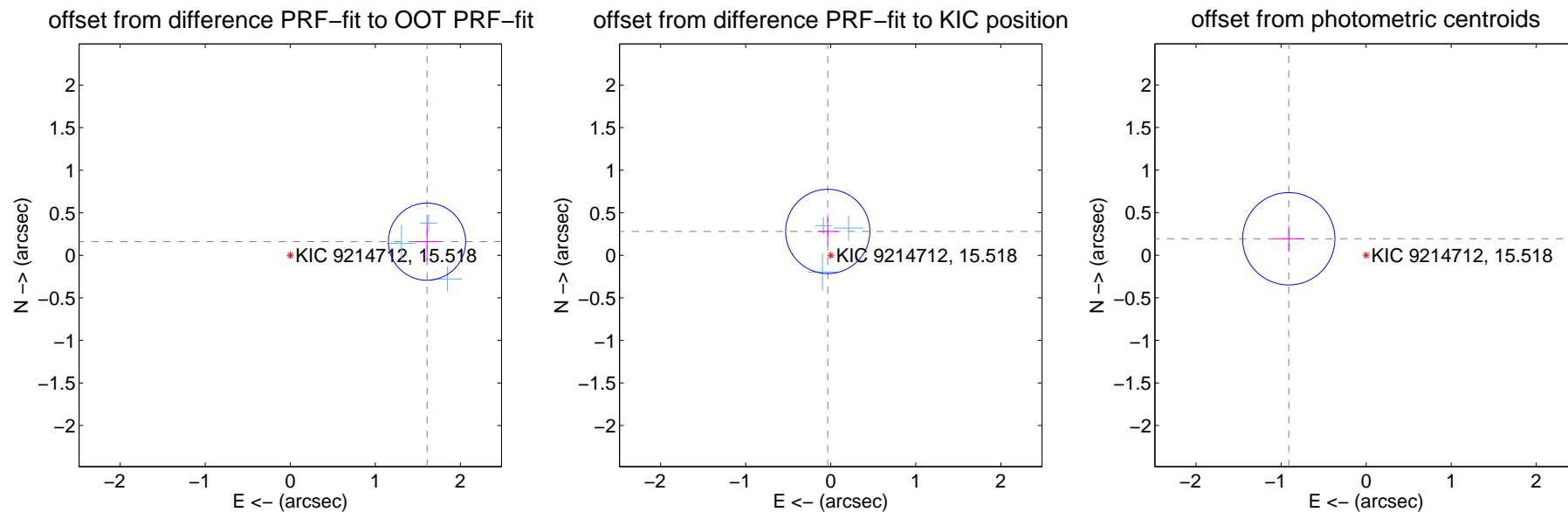
DV Centroid Data

Supplemental centroid analysis for 009214712-02. Kepler magnitude: 15.52. Transit SNR 29.93

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.616 ± 0.151	10.68	-1.608 ± 0.150	0.160 ± 0.230
PRF-fit source offset from KIC position	0.282 ± 0.165	1.71	0.035 ± 0.120	0.280 ± 0.166
photometric centroid source offset	0.93 ± 0.18	5.14	0.91 ± 0.18	0.19 ± 0.15



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



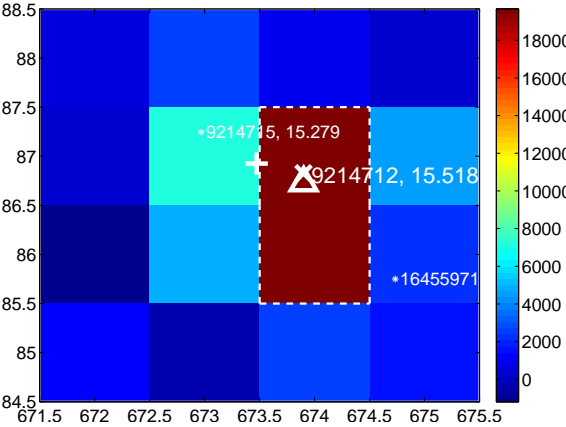
Q2 no difference image



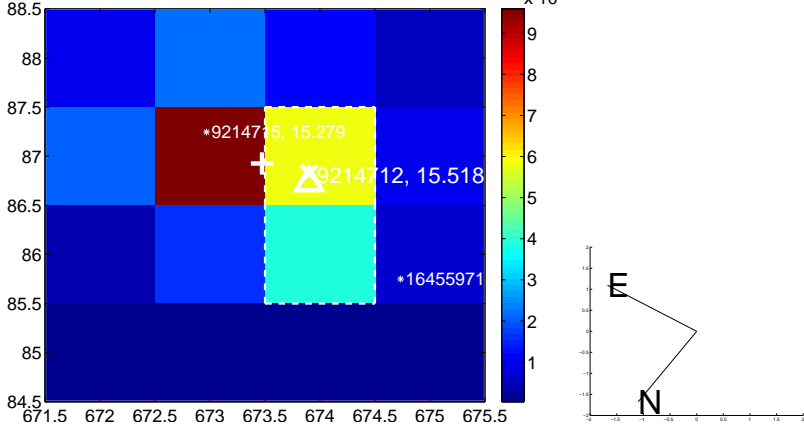
Q2 no OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image

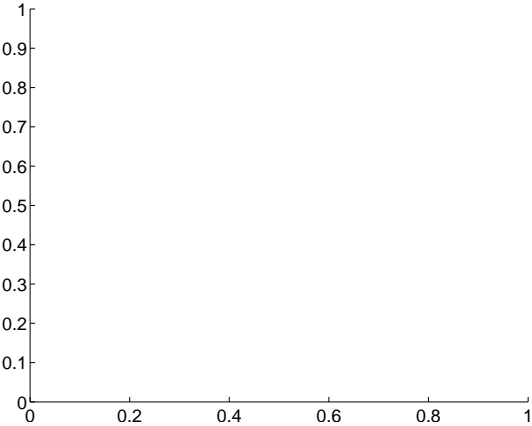


Q4 no OOT image

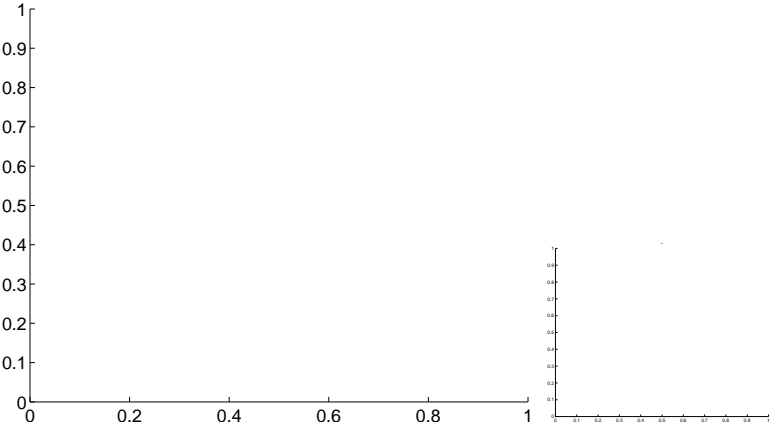


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

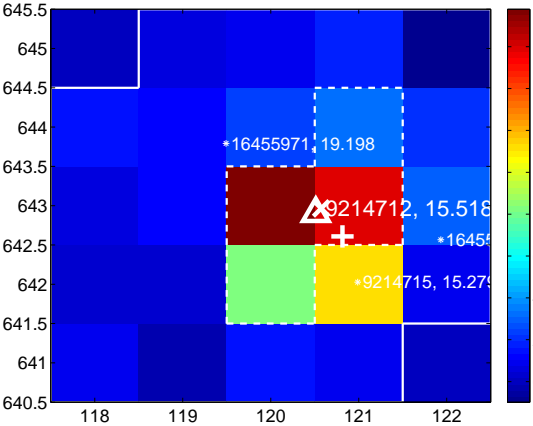
Q5 no difference image



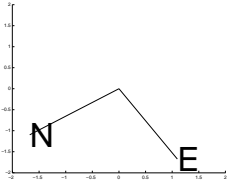
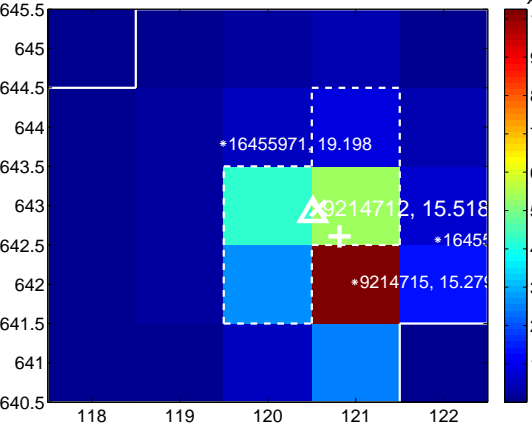
Q5 no OOT image



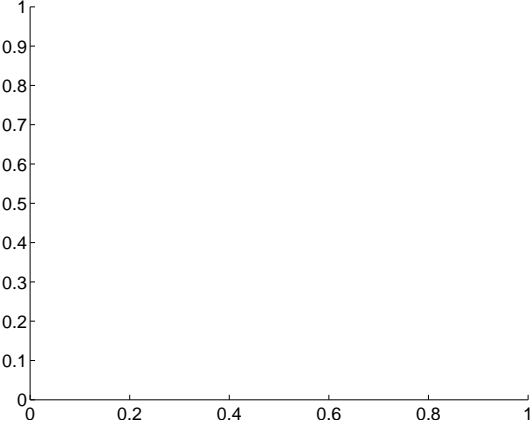
Q6 difference image



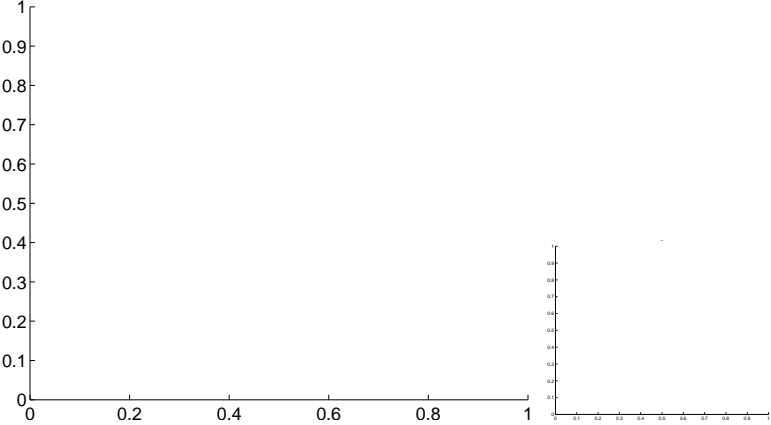
Q6 OOT image



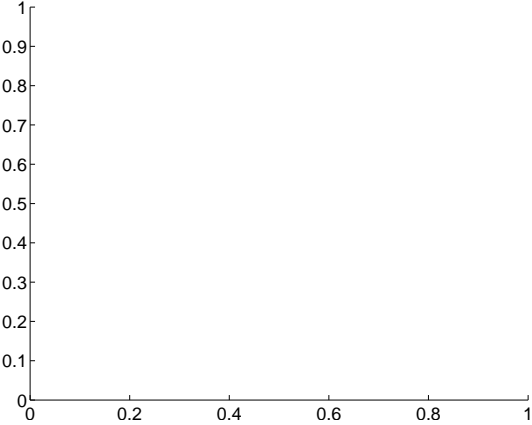
Q7 no difference image



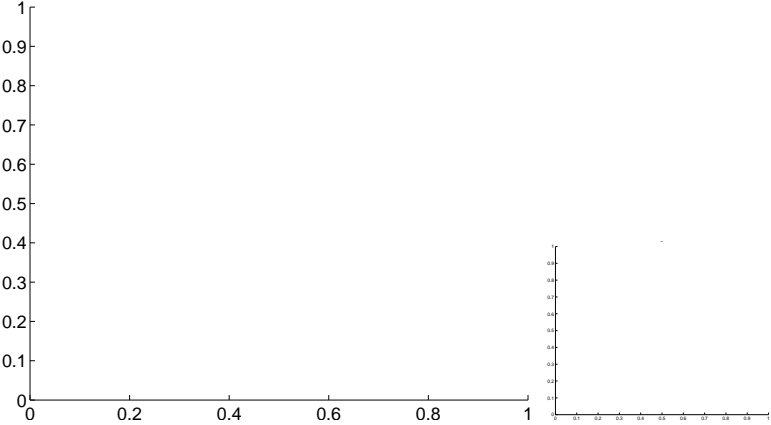
Q7 no OOT image



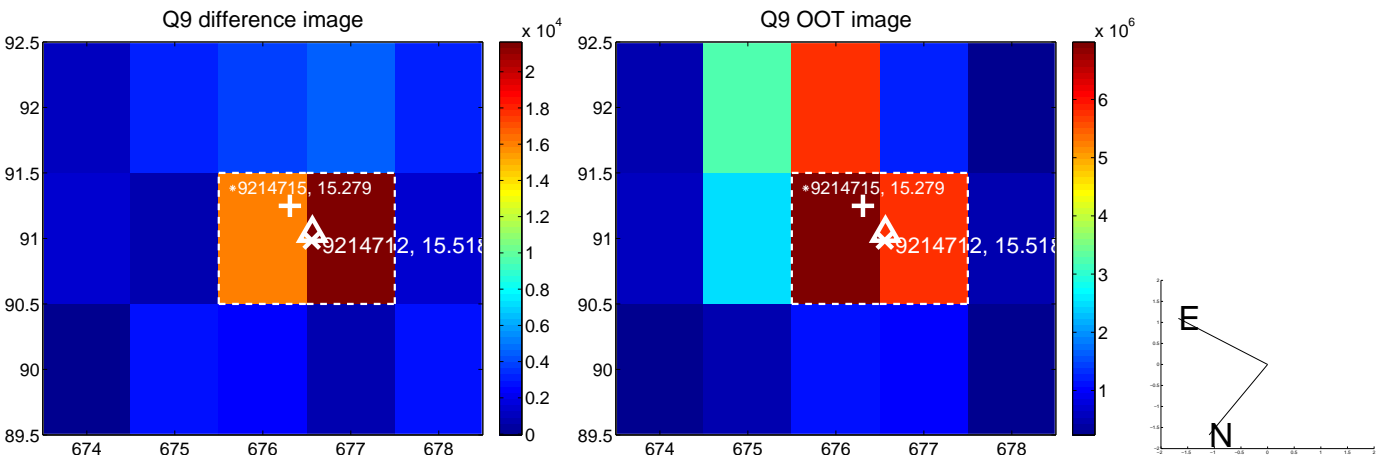
Q8 no difference image



Q8 no OOT image



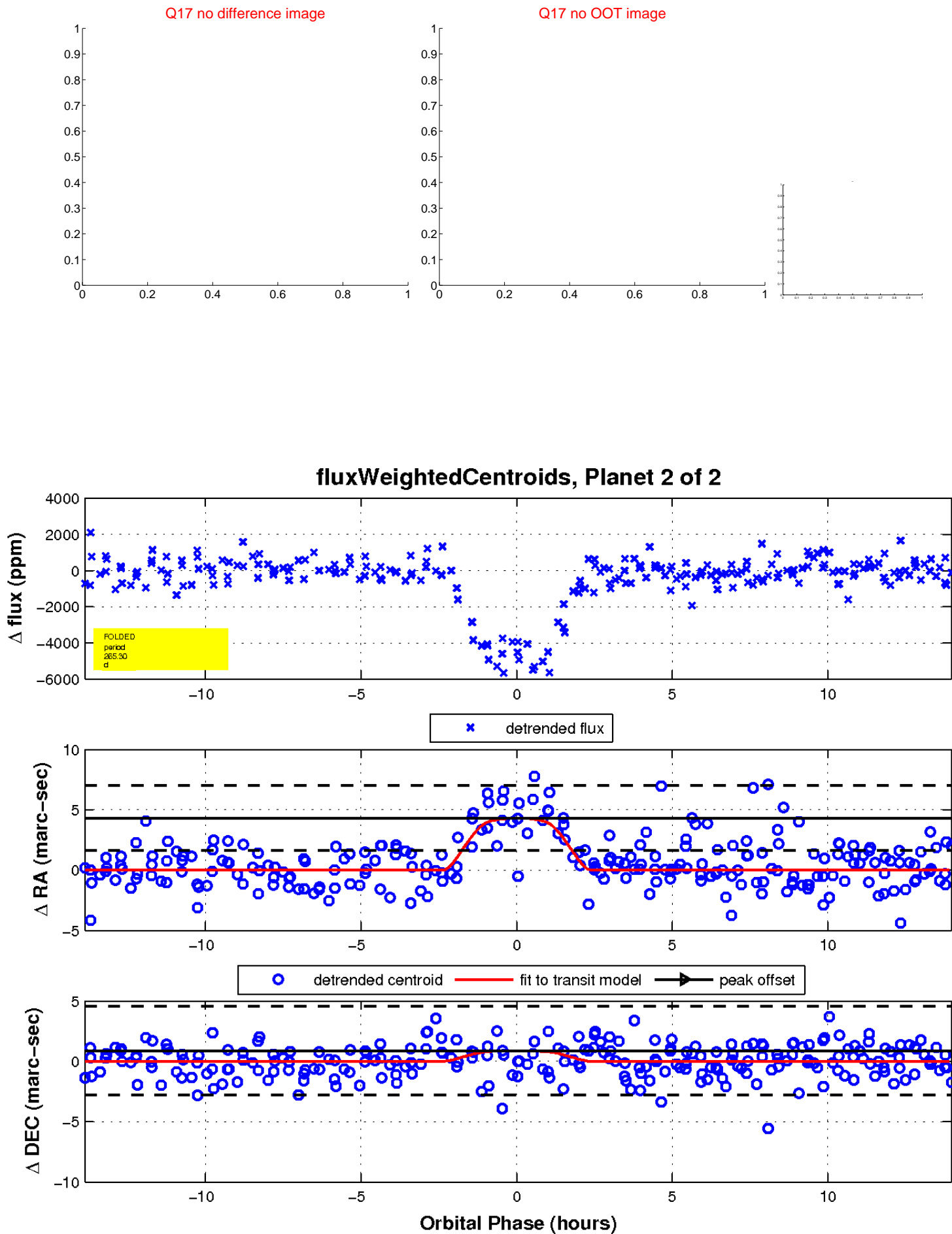
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \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

