

KIC 003836276

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})
003836276-01	OBS	No	501.836278	214.436981	2396.8	5.421	16.6	4.8	0.77	5604	4.22	0.43
003836276-02	OBS	No	367.655422	239.967844	2836.0	3.032	12.5	8.4	0.77	5604	4.28	0.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836276-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003836276-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

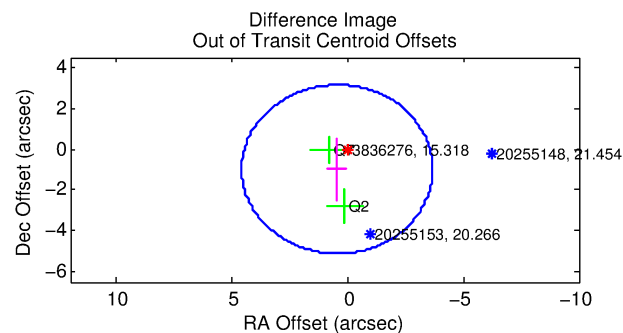
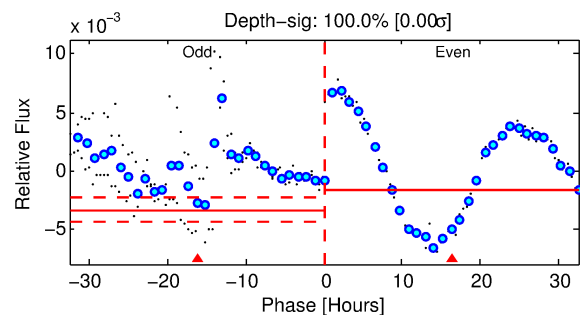
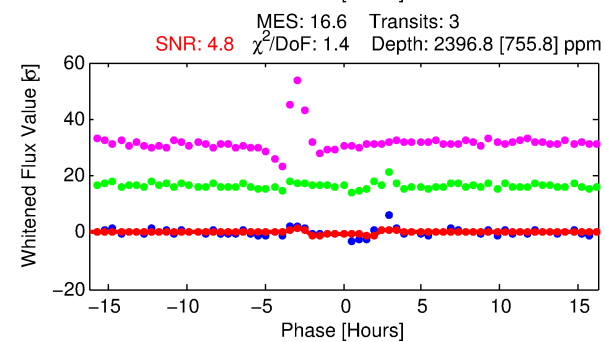
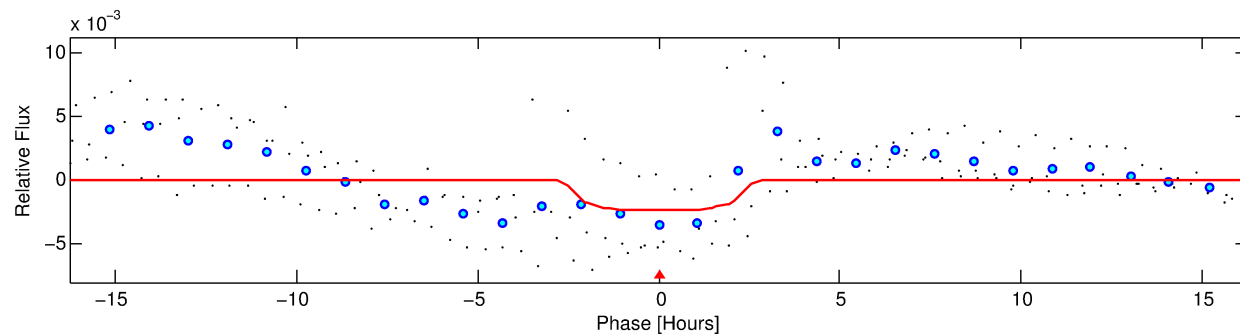
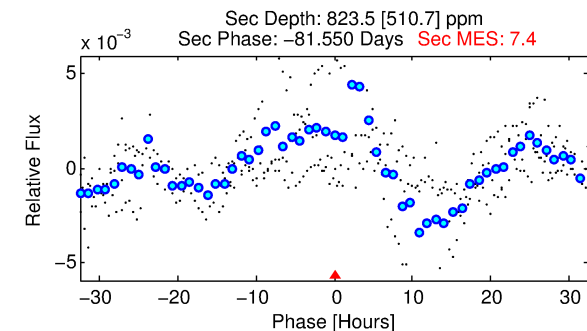
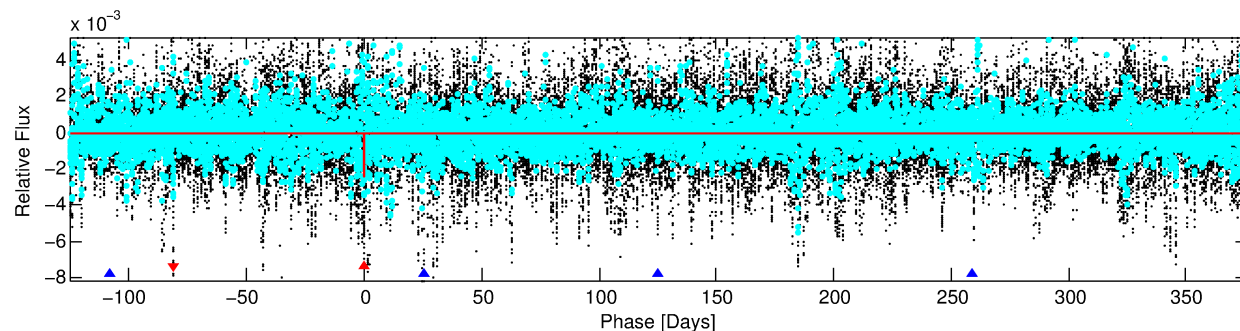
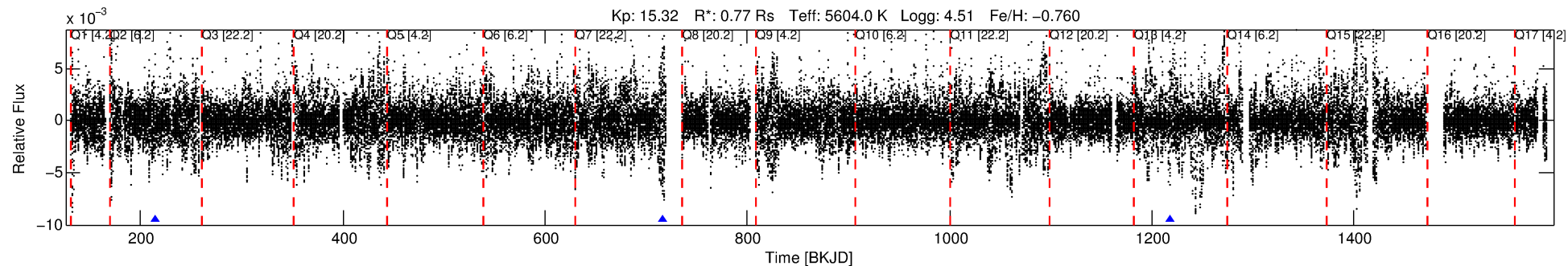
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003836276-01

No Significant Match Found

DV One-Page Summary

KIC: 3836276 Candidate: 1 of 2 Period: 501.836 d



DV Fit Results:

Period = 501.83628 [0.00867] d
Epoch = 214.4370 [0.0110] BKJD
Rp/R* = 0.0502 [0.0116]
a/R* = 463.85 [268.95]
b = 0.82 [0.24]
Seff = 0.43 [0.11]
Teq = 207 [13] K
Rp = 4.22 [1.17] Re
a = 1.0983 [0.1523] AU
Ag = 30694.52 [24630.08] [1.25 σ]
Teffp = 4236 [831] K [4.85 σ]

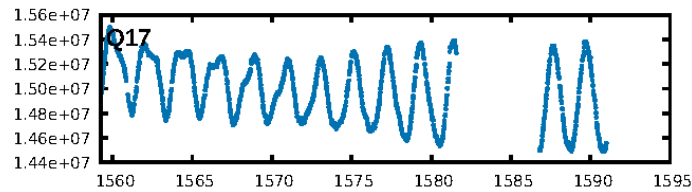
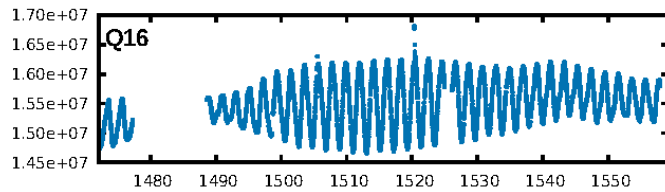
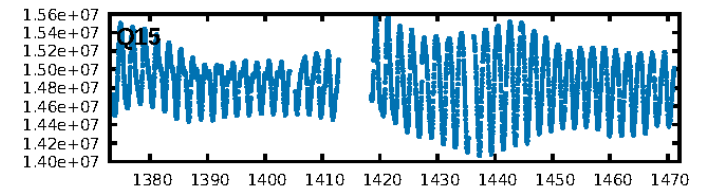
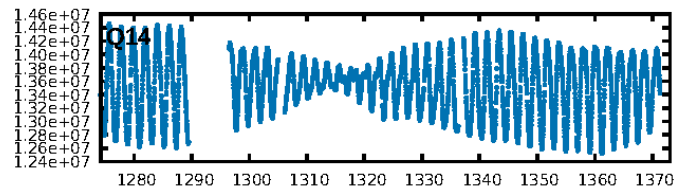
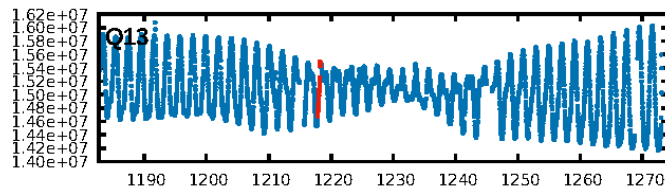
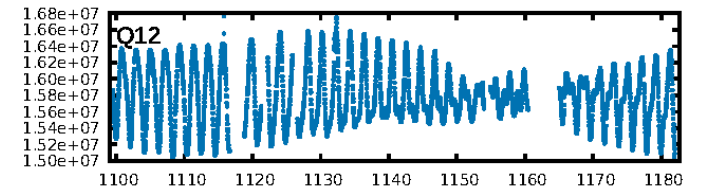
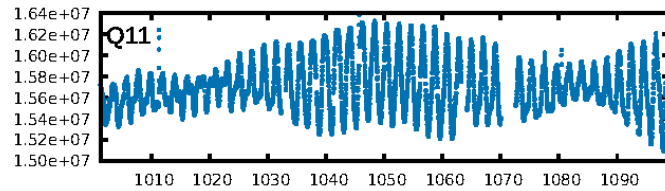
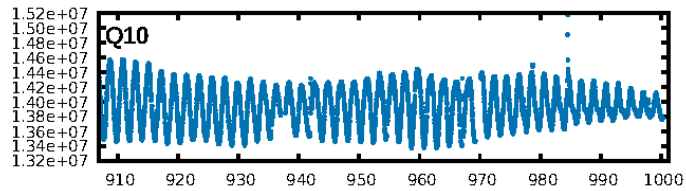
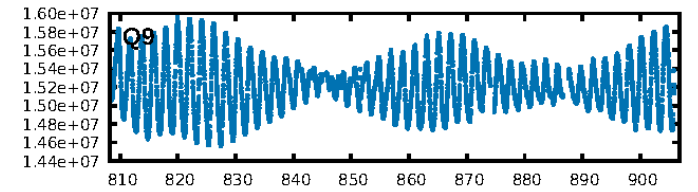
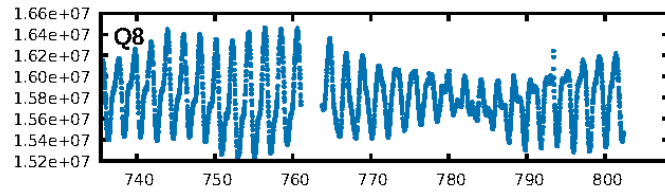
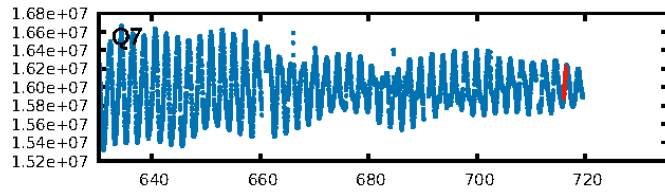
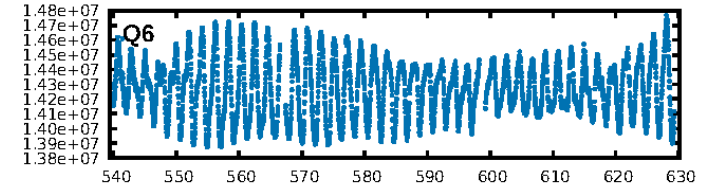
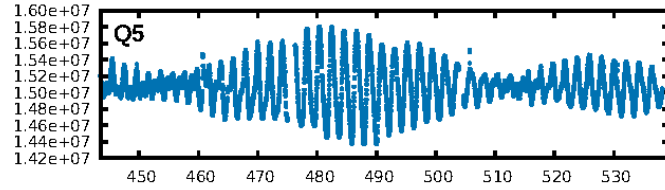
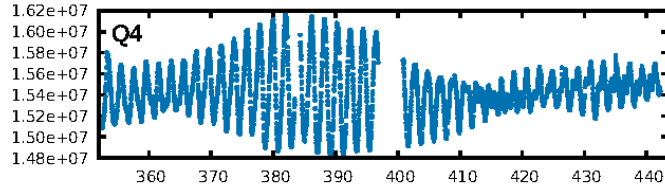
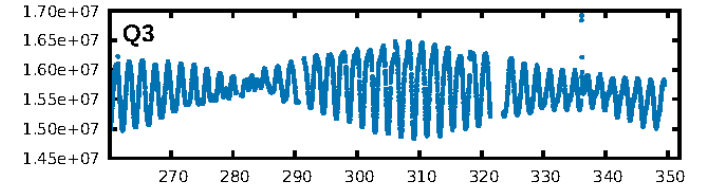
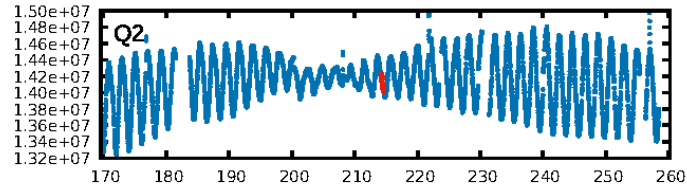
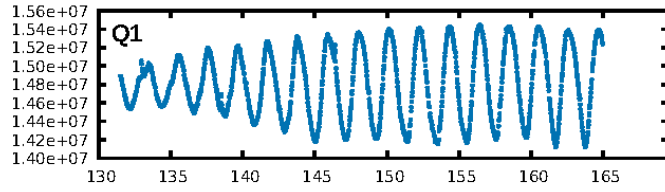
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [518.48 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.2%
ModelChiSquareGof-sig: 71.2%
Bootstrap-pfa: 8.19e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -3.983
Centroid-sig: 66.4%
Centroid-so: 0.286 arcsec [0.34 σ]
OotOffset-rm: 1.083 arcsec [0.79 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.941 arcsec [0.61 σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

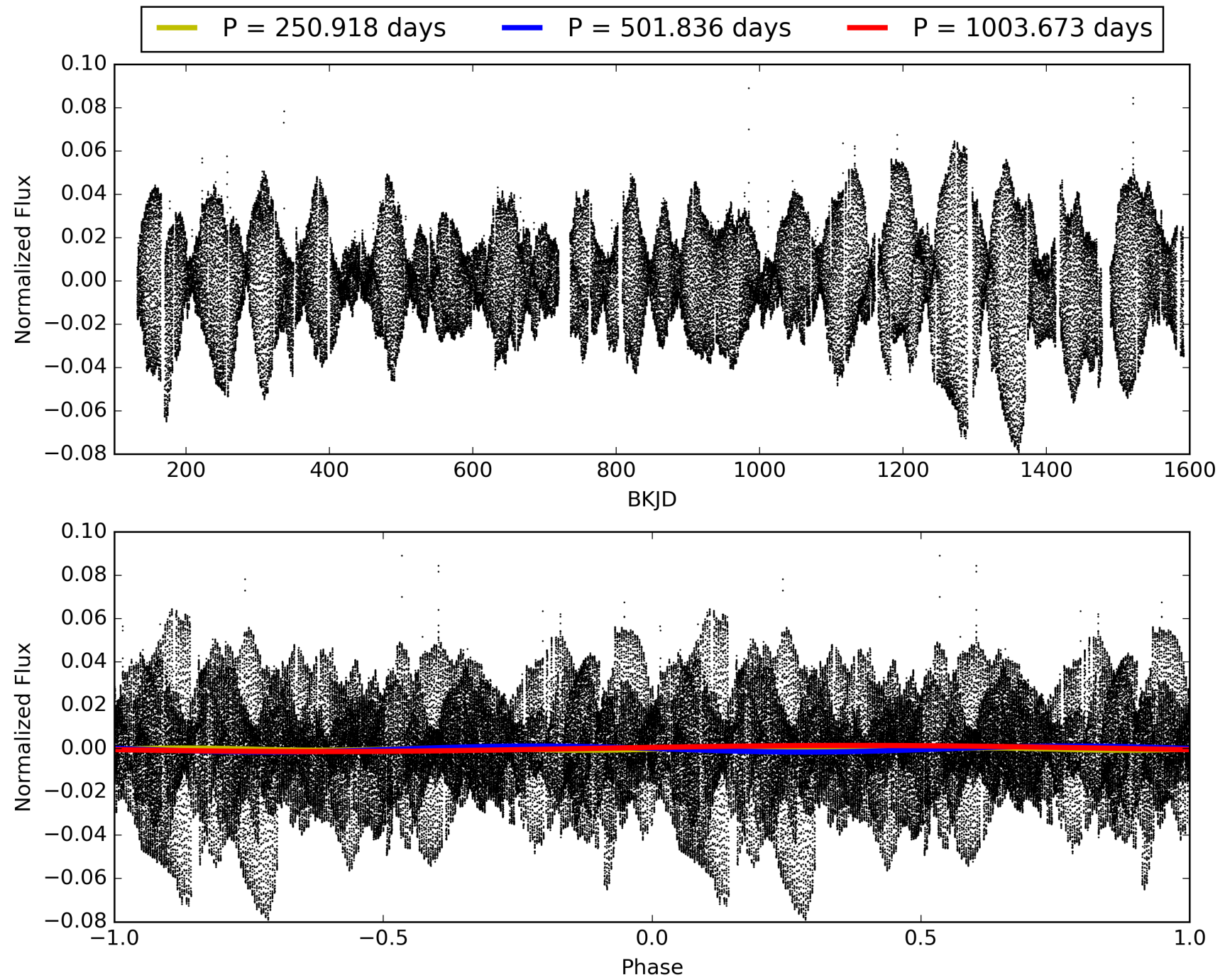
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:14:07 Z

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

TCE 003836276-01, PDC Light Curves

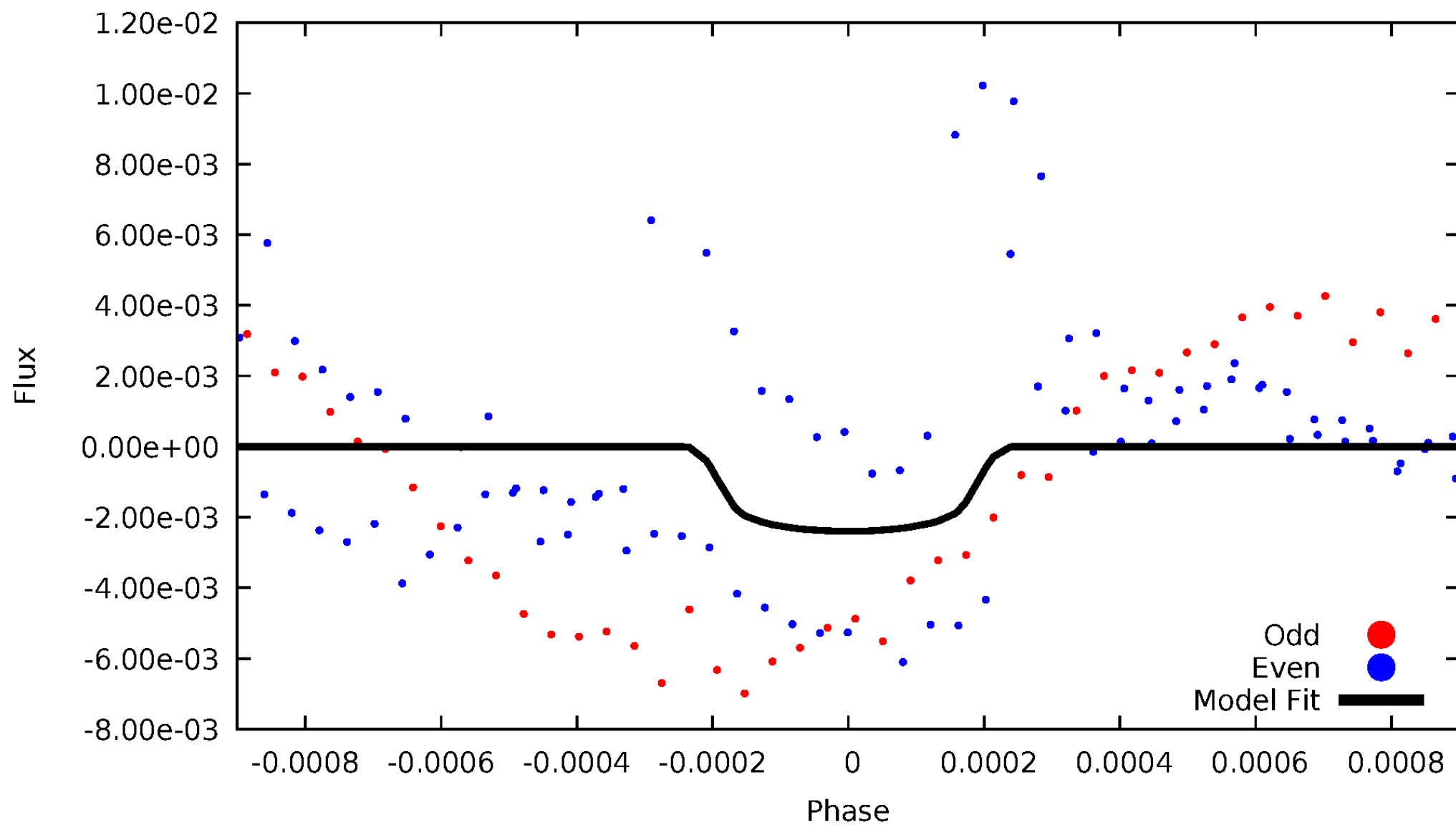


TCE 003836276-01



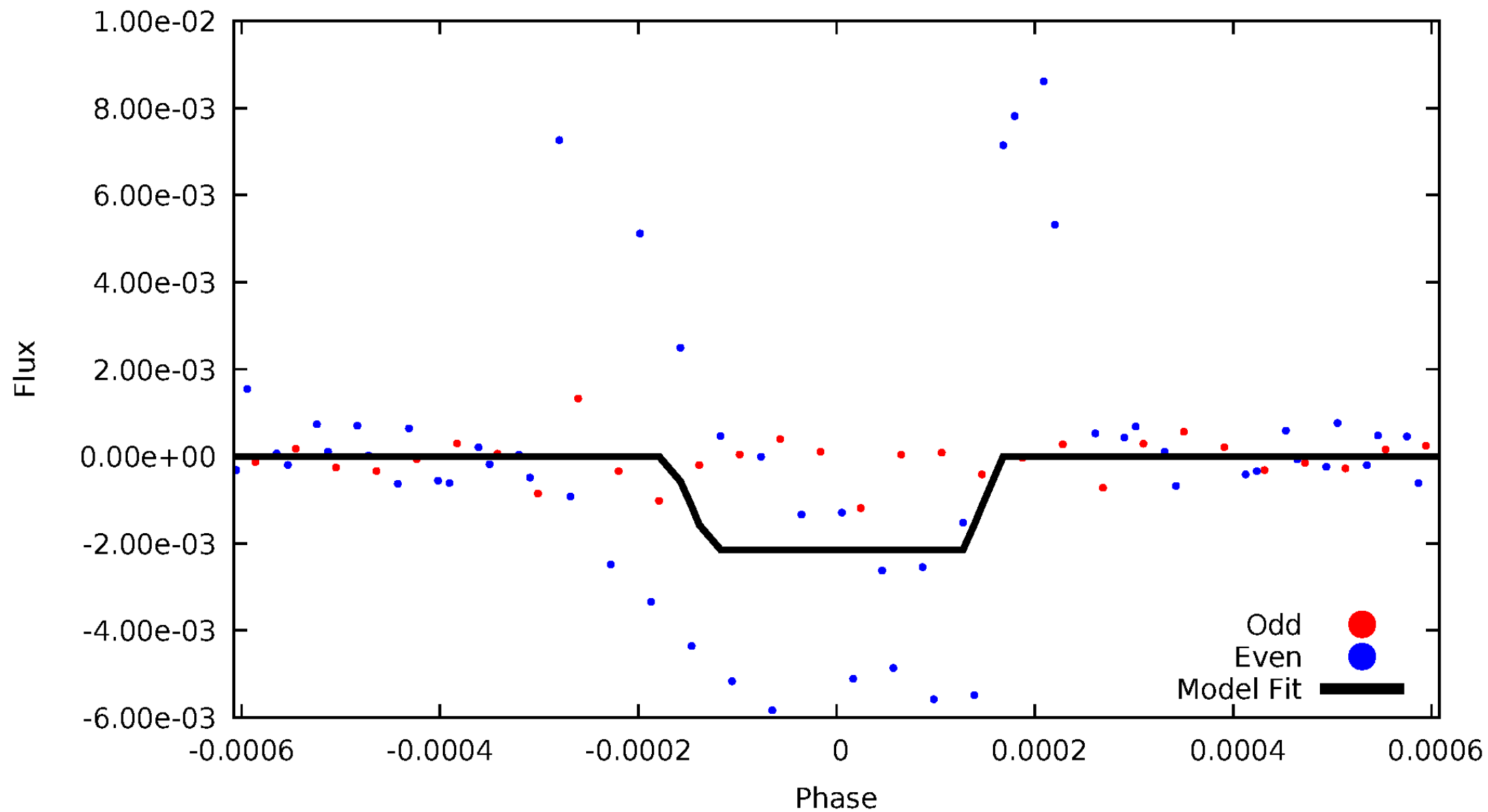
DV Odd/Even

TCE 003836276-01



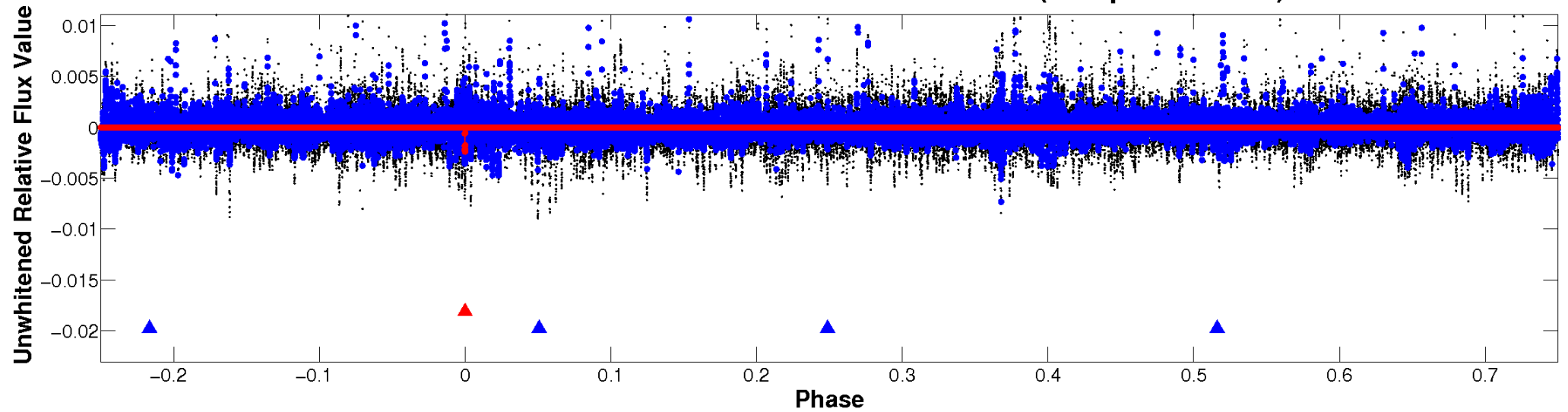
ALT Odd/Even

TCE 003836276-01

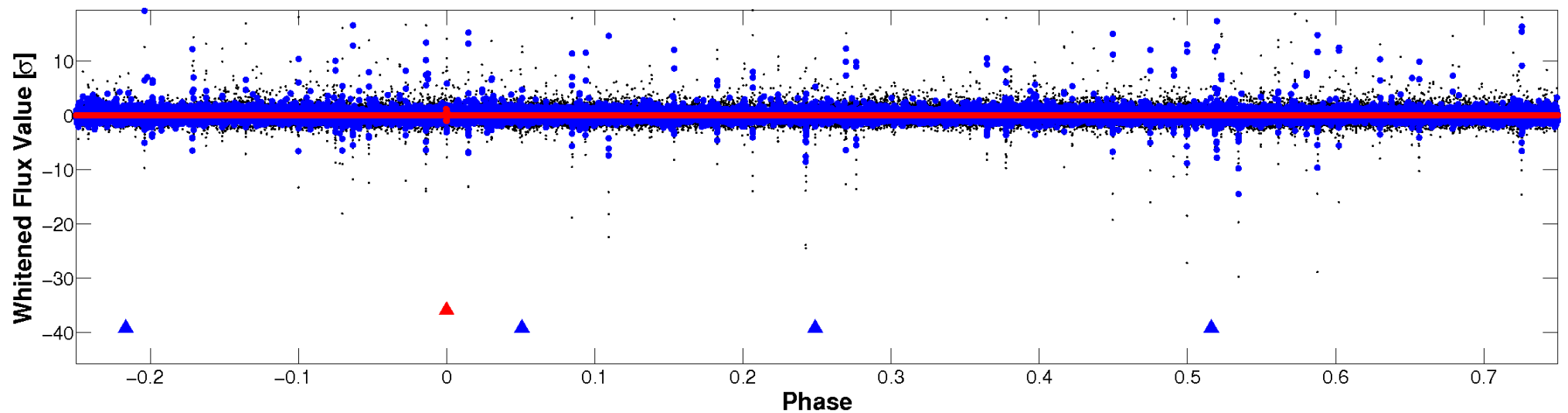


Non-Whitened Vs. Whitened Light Curve

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

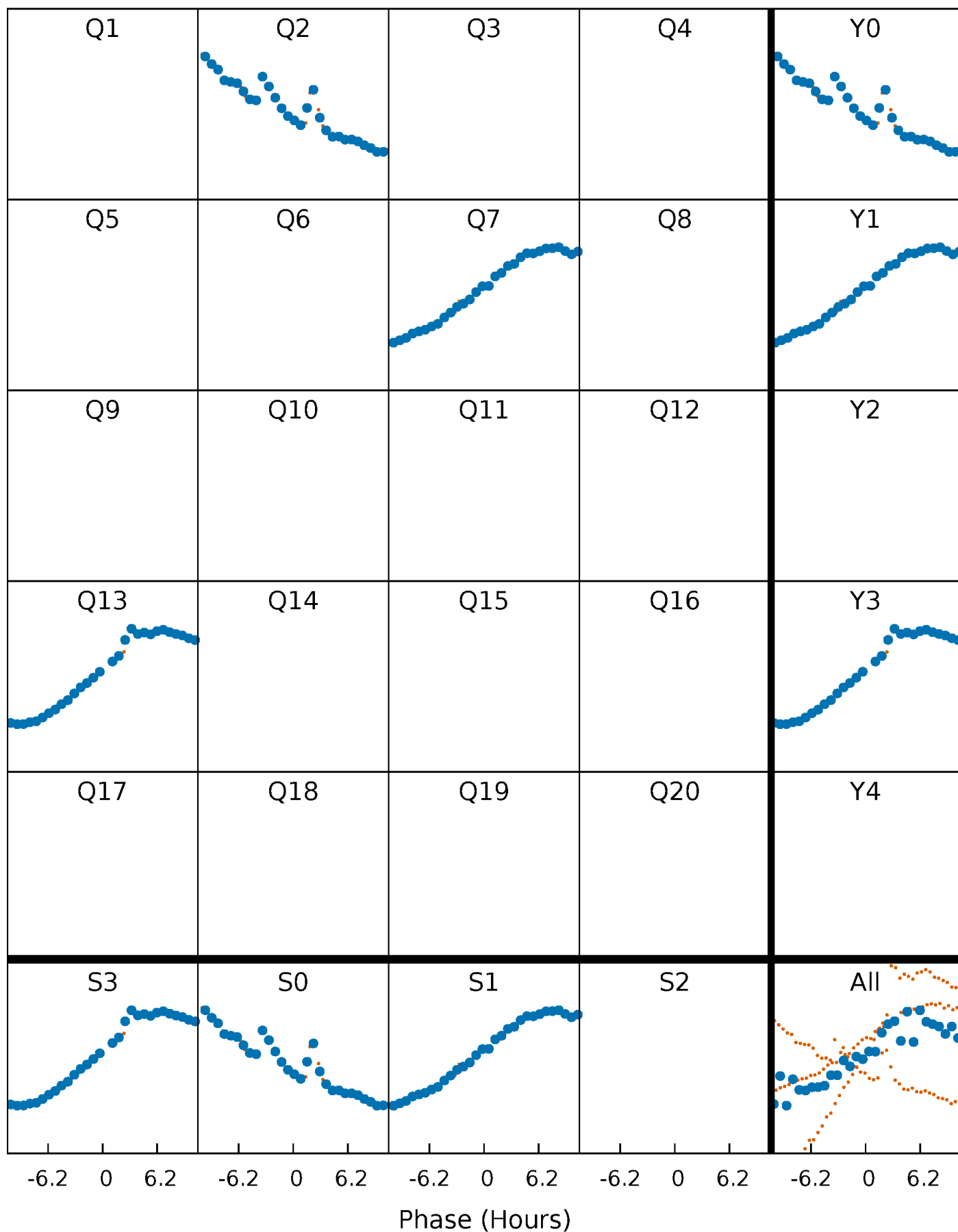


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



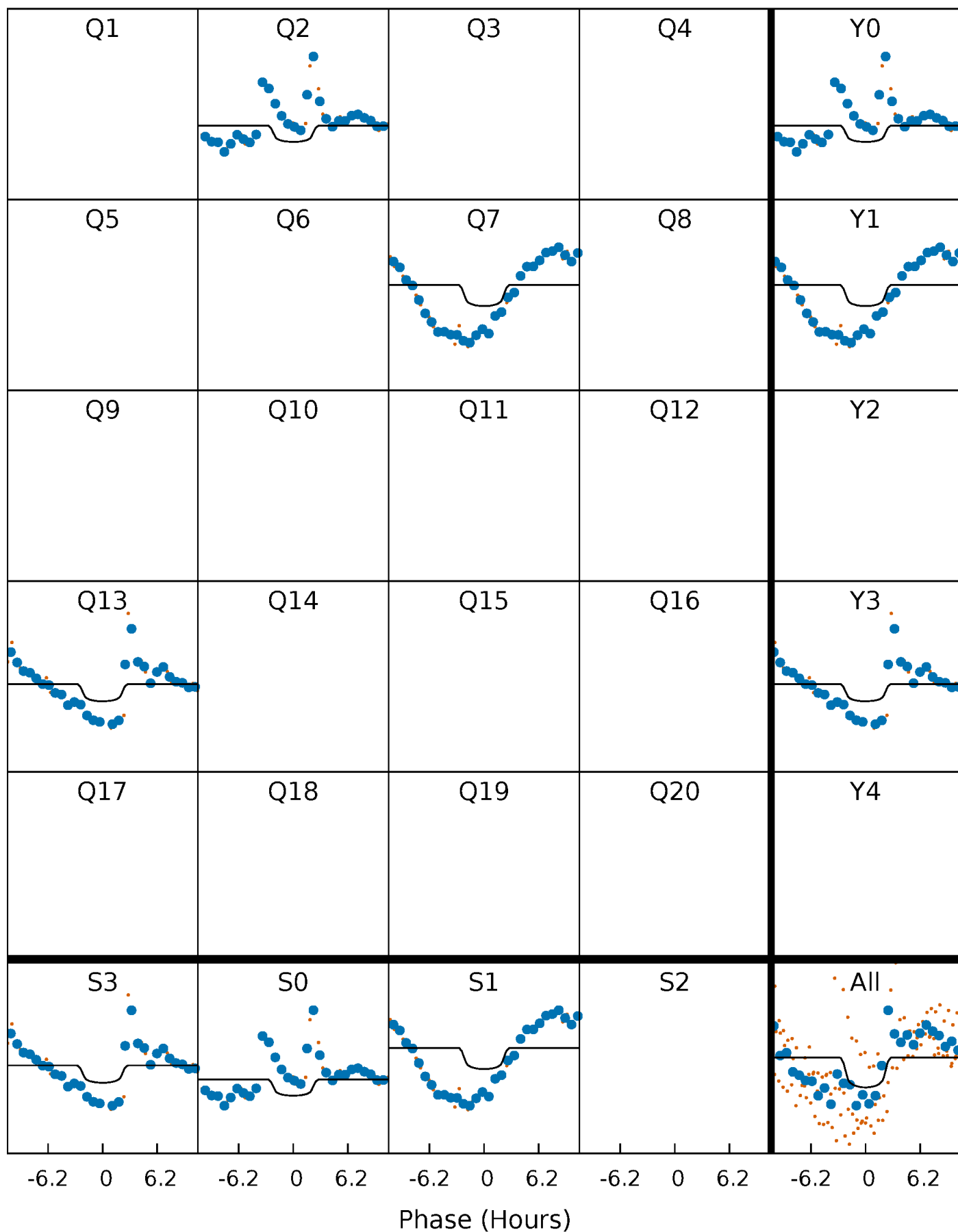
PDC Quarter-Phased Transit Curves

TCE 003836276-01 P=501.836278 Days $T_0=214.436981$ (BKJD)



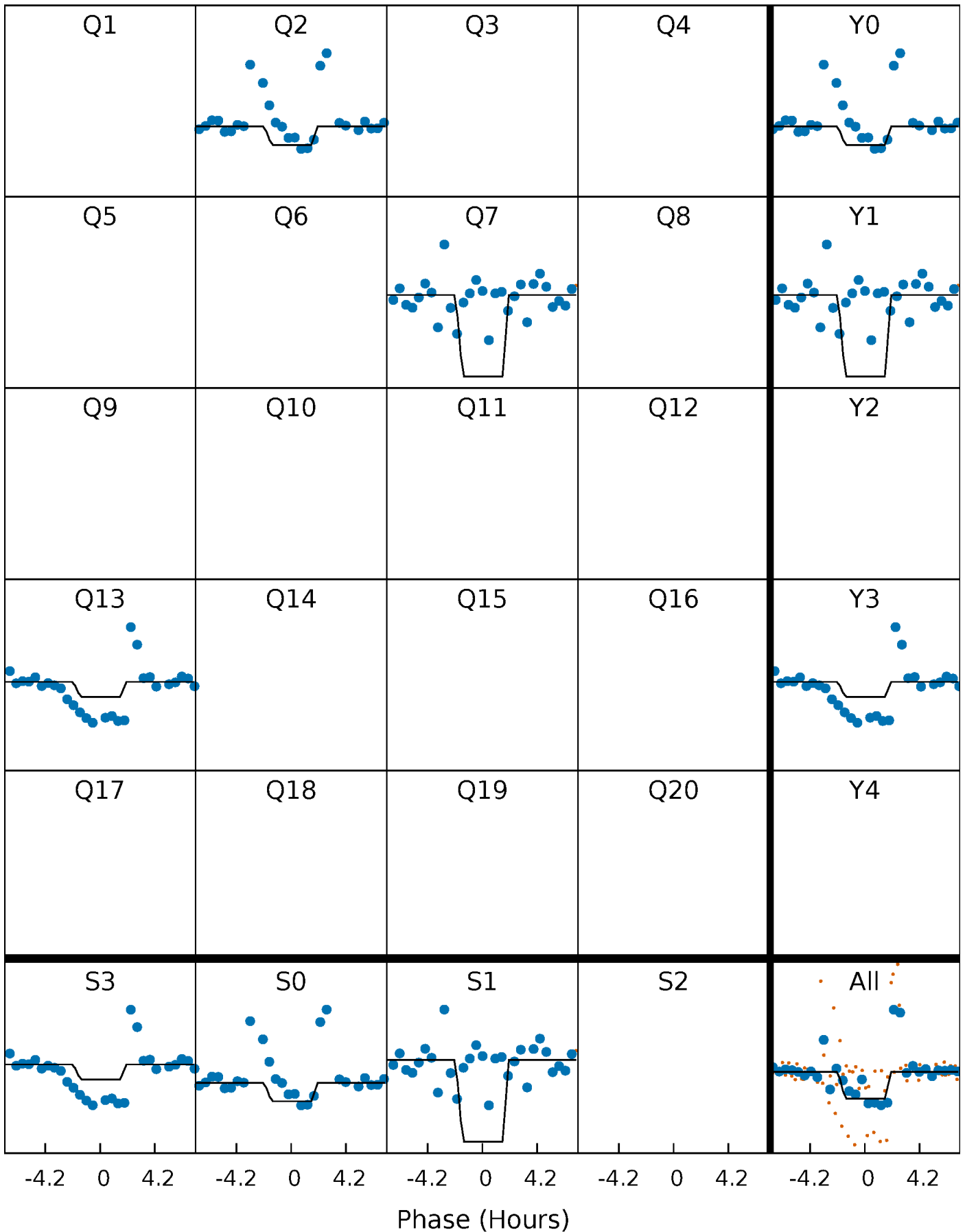
DV Quarter-Phased Transit Curves

TCE 003836276-01 P=501.836278 Days $T_0=214.436981$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

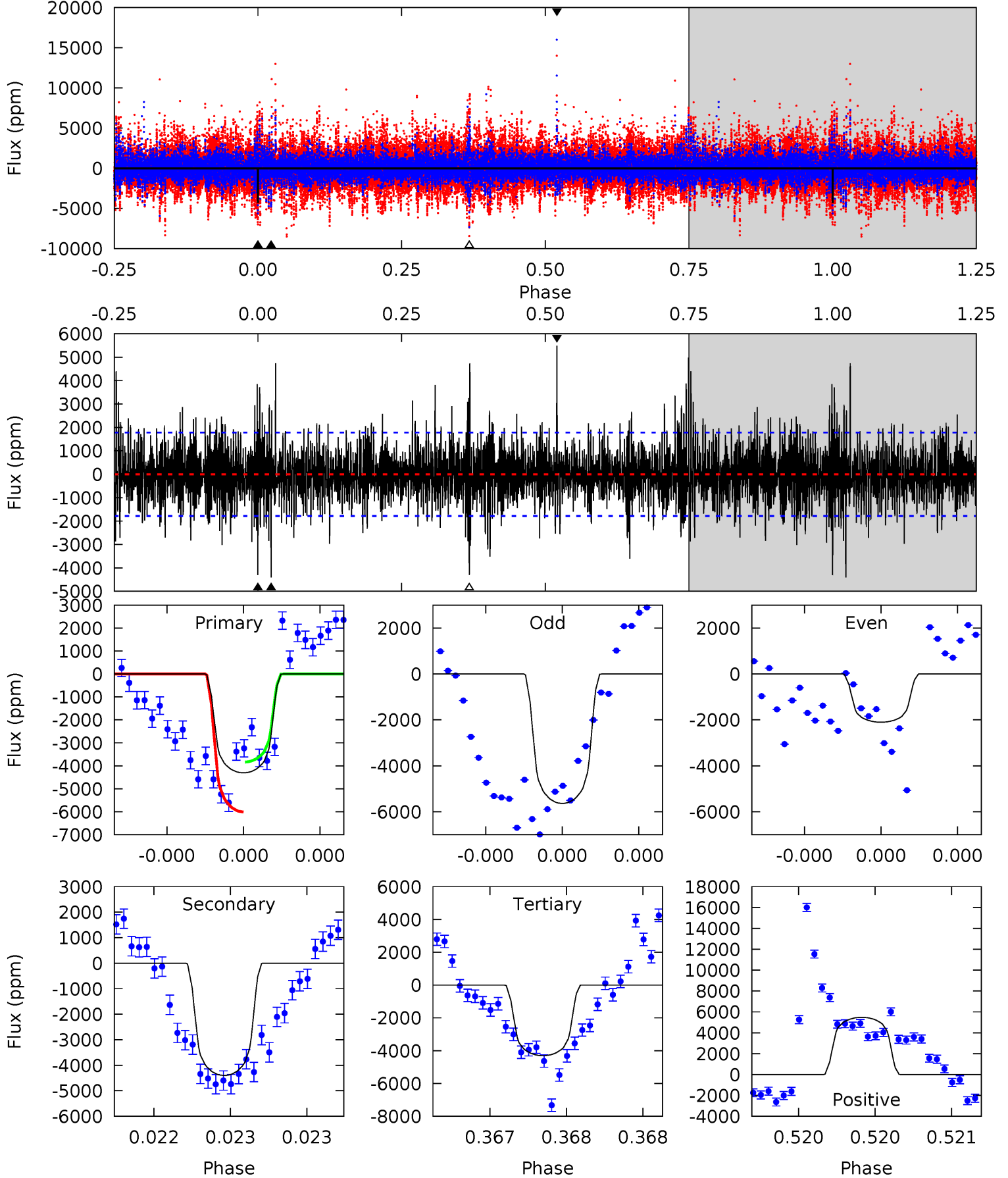
TCE 003836276-01 P=501.855045 Days $T_0=214.431486$ (BKJD)



DV Model-Shift Uniqueness Test

003836276-01, P = 501.836278 Days, E = 214.436981 Days

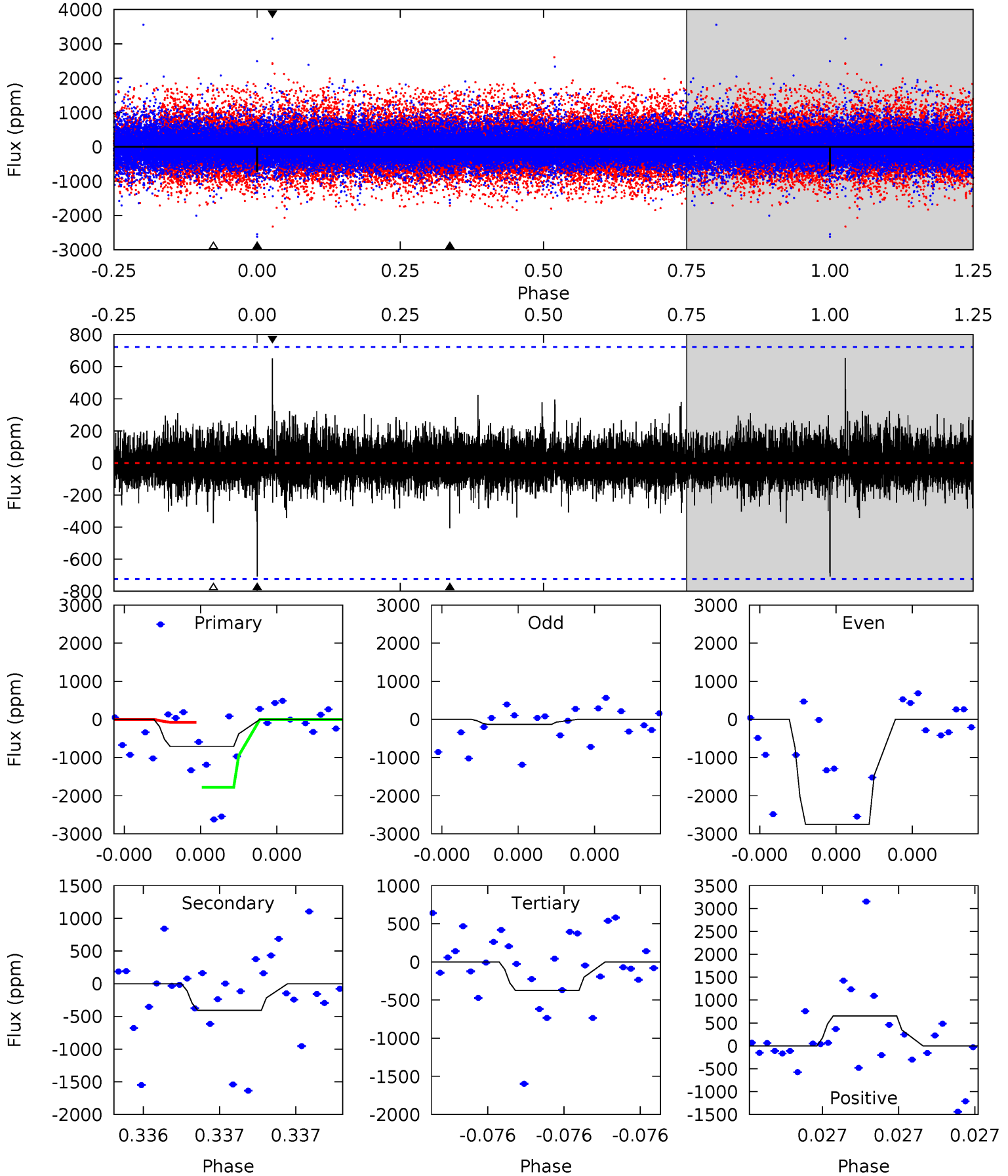
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	13.8	13.5	17.2	5.58	3.49	2.84	-0.00	-3.68	0.30	-3.38	5.21	0.55	0.55	3.27



Alt Model-Shift Uniqueness Test

003836276-01, P = 501.855045 Days, E = 214.431486 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.55	3.19	2.93	5.11	5.67	3.62	0.59	2.62	0.44	0.26	-1.92	11.6	2.00	0.48	6.35



Stellar Parameters For KIC 003836276

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5604^{+183}_{-166}	$4.511^{+0.121}_{-0.121}$	$-0.760^{+0.350}_{-0.300}$	$0.770^{+0.119}_{-0.097}$	$0.701^{+0.091}_{-0.032}$	$2.167^{+0.999}_{-0.750}$
	+3%/-3%	+3%/-3%	+46%/-39%	+15%/-13%	+13%/-5%	+46%/-35%
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 003836276-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4402 ± 319	$4.27^{+1.11}_{-1.02}$	291^{+15}_{-15}	6466^{+1027}_{-700}	$164150^{+115774}_{-60160}$
Alt.	-407 ± 128	$3.93^{+1.12}_{-1.07}$	289^{+17}_{-14}	3997^{+502}_{-403}	17367^{+16836}_{-8059}

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

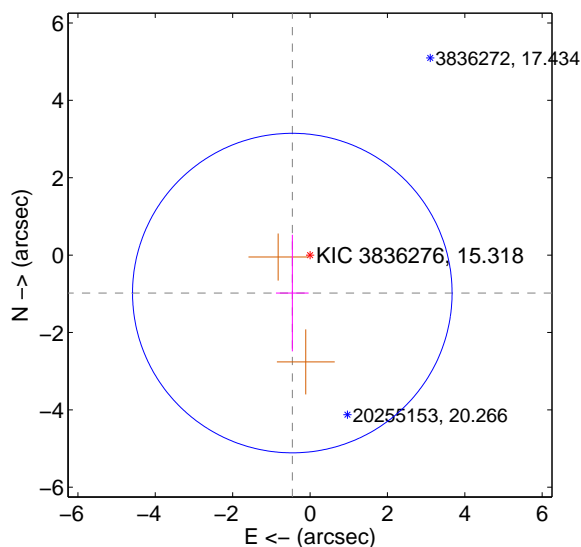
Supplemental centroid analysis for 003836276-01. Kepler magnitude: 15.32. Transit SNR 4.83

There are 0 quarters with good PRF difference image offsets

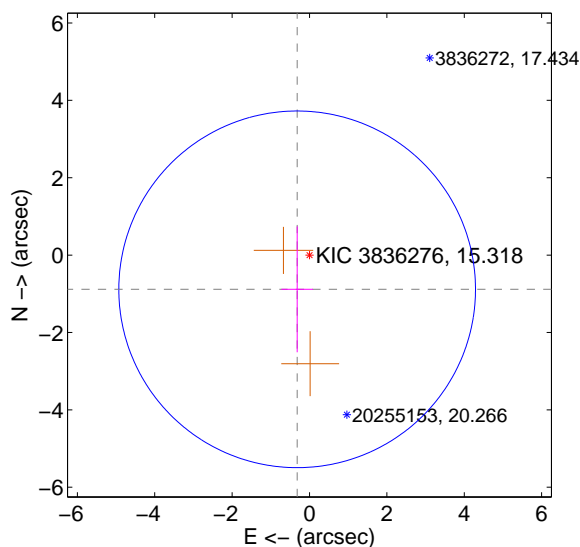
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.083 ± 1.377	0.79	0.458 ± 0.422	-0.981 ± 1.506
PRF-fit source offset from KIC position	0.941 ± 1.536	0.61	0.319 ± 0.408	-0.885 ± 1.627
photometric centroid source offset	0.29 ± 0.84	0.34	-0.08 ± 0.88	-0.27 ± 0.83

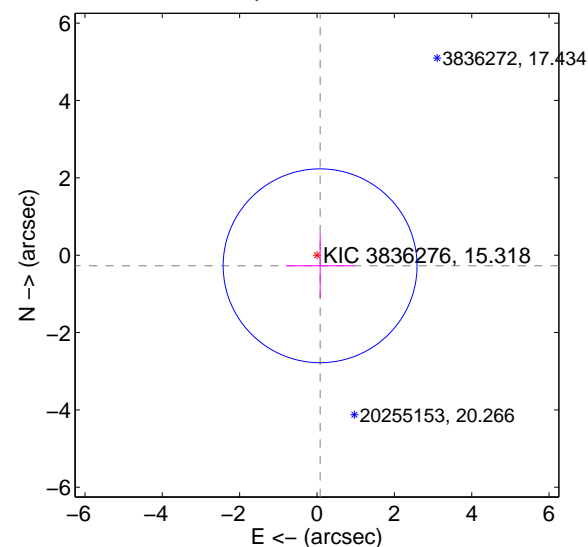
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

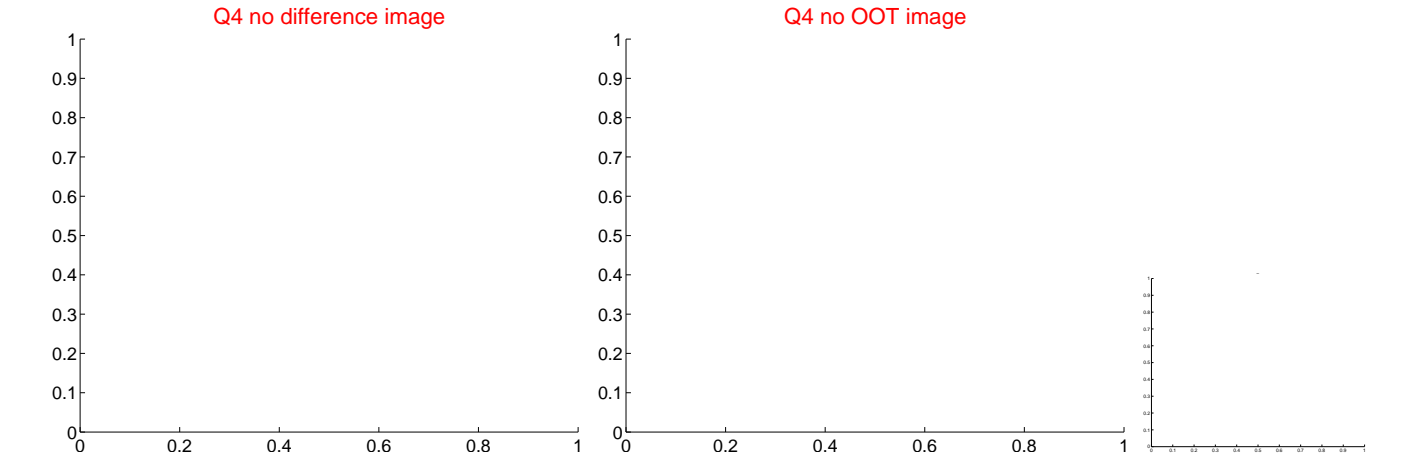
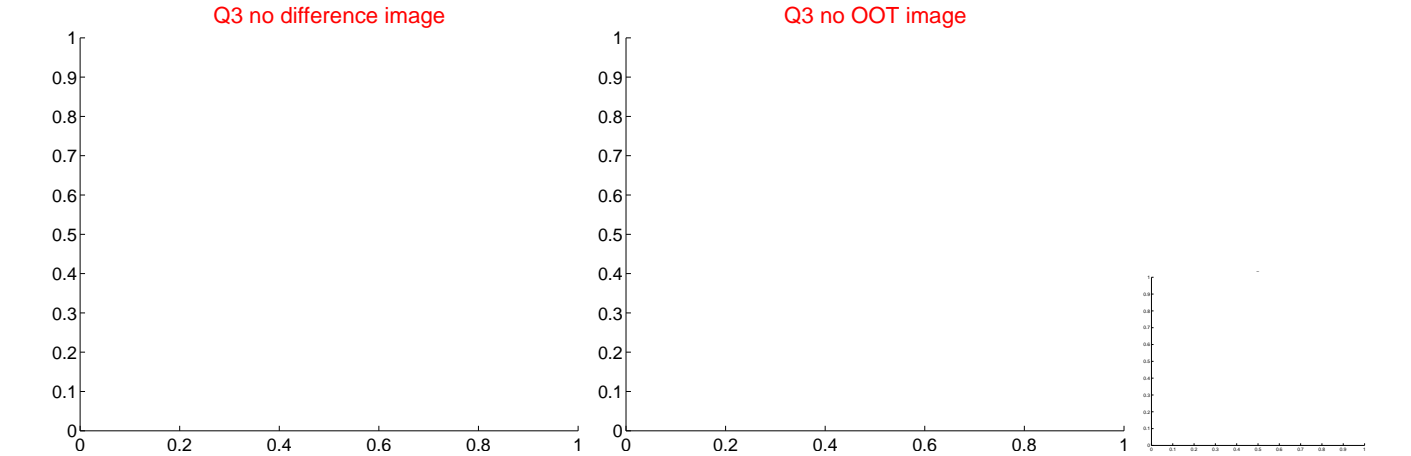
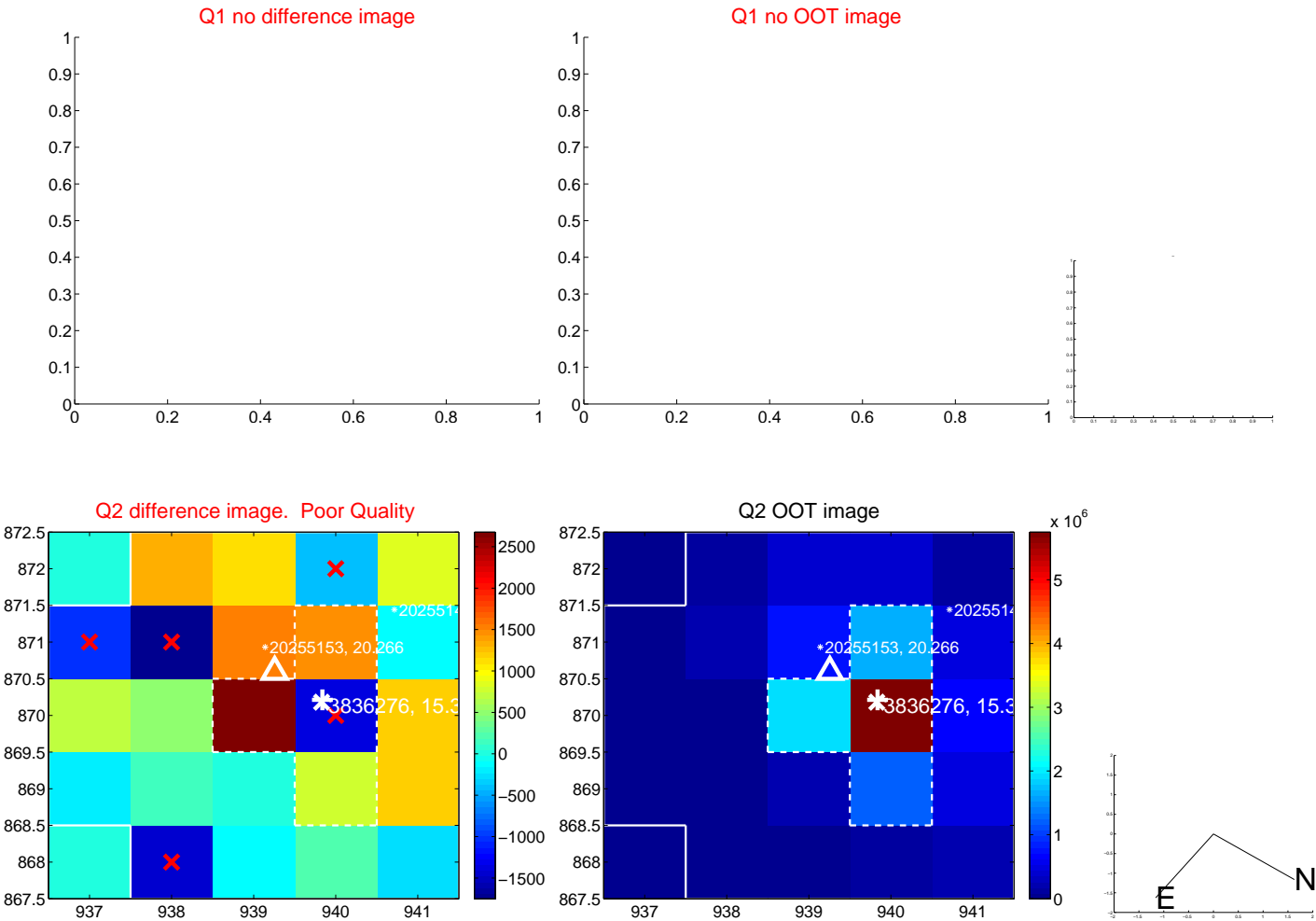


offset from photometric centroids

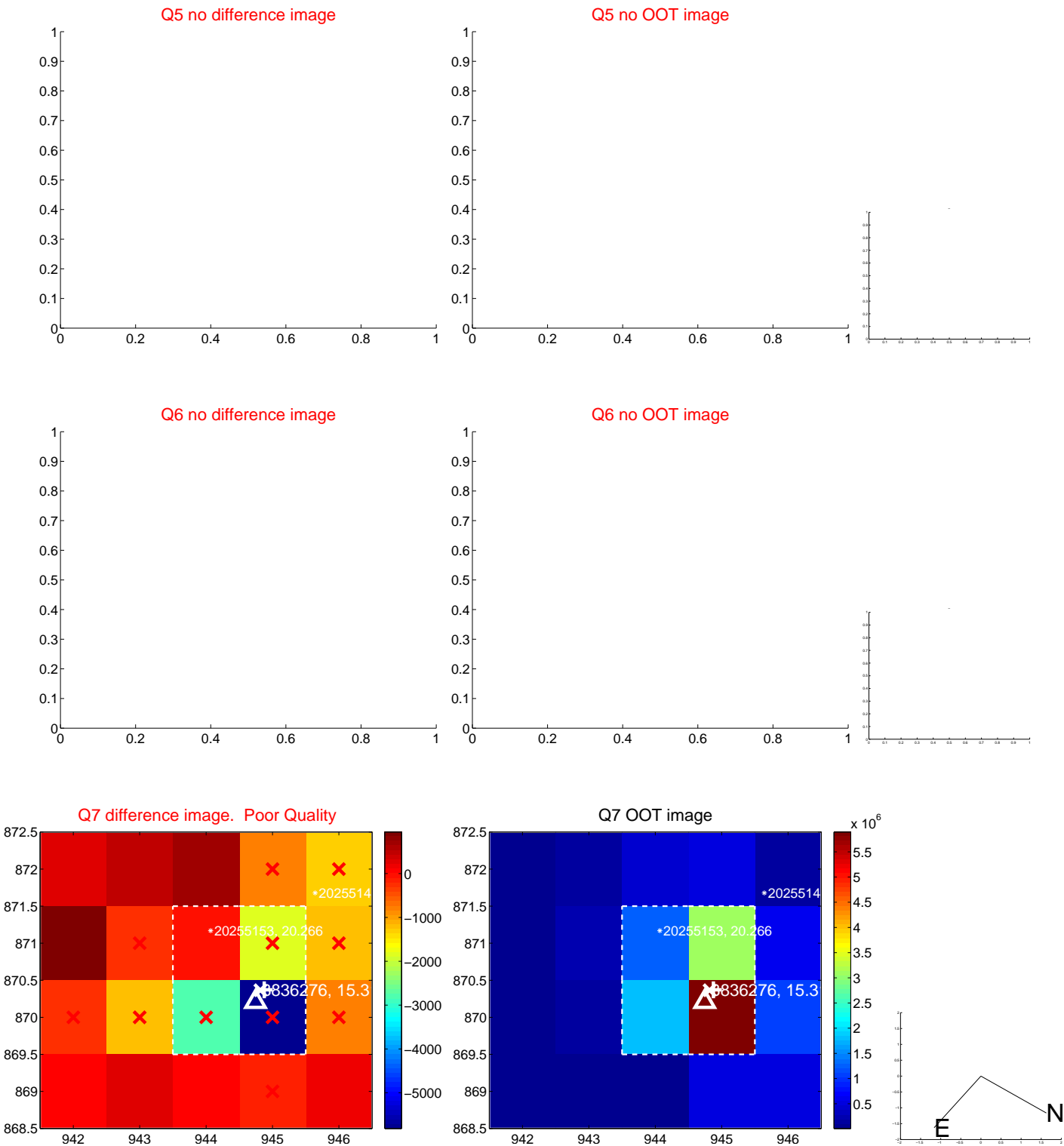


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



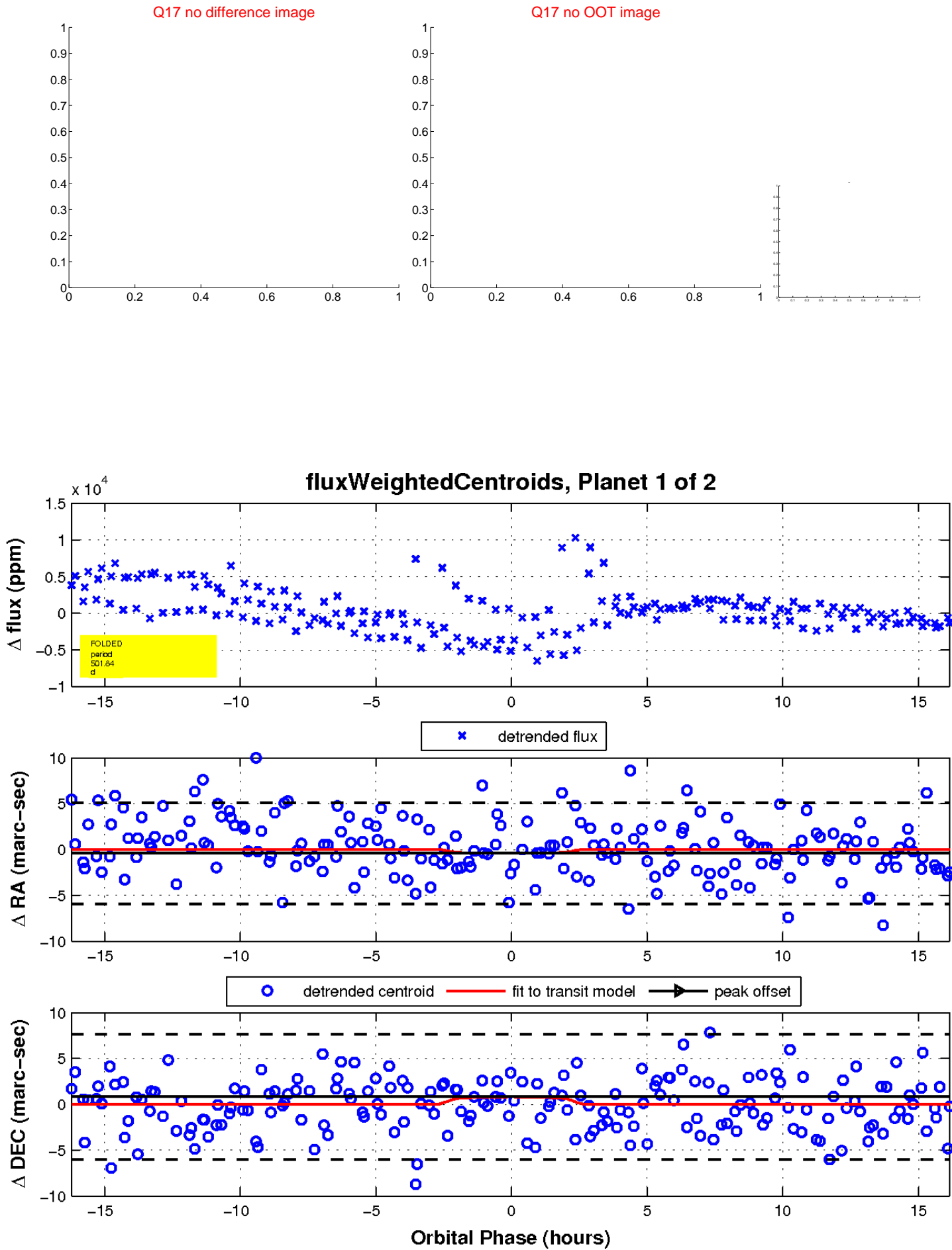
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

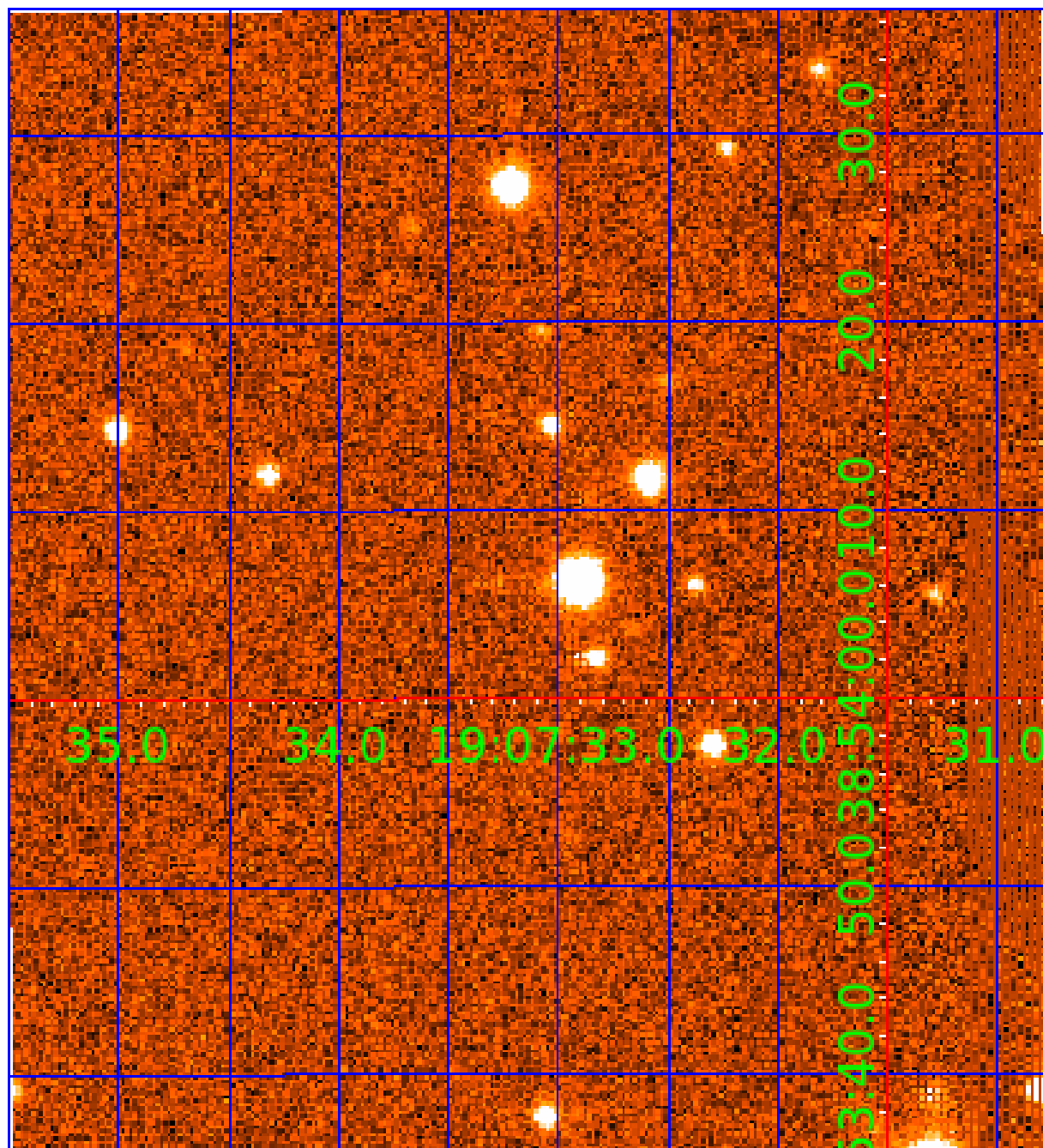


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003836276

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})
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003836276-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

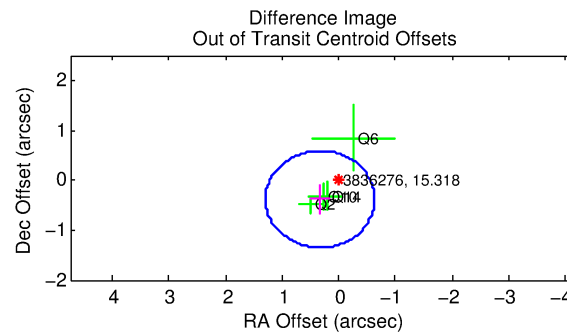
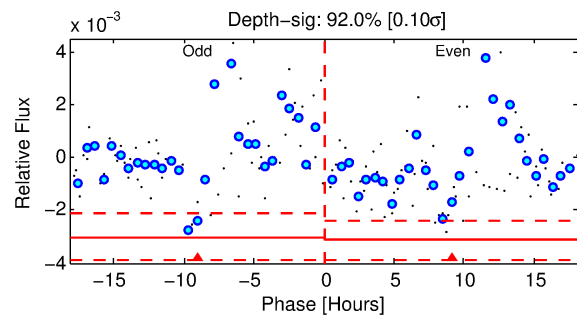
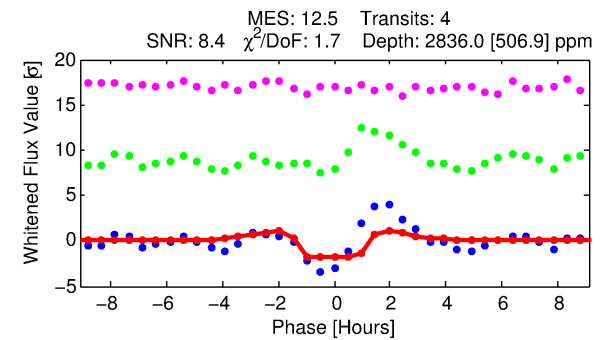
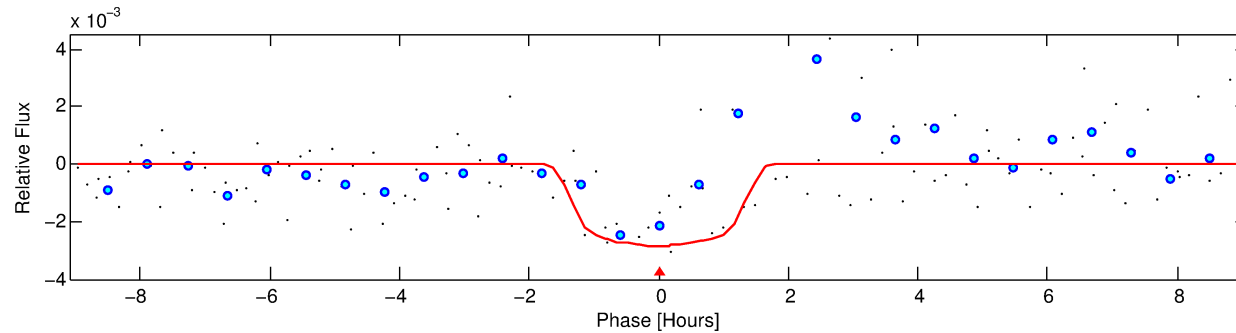
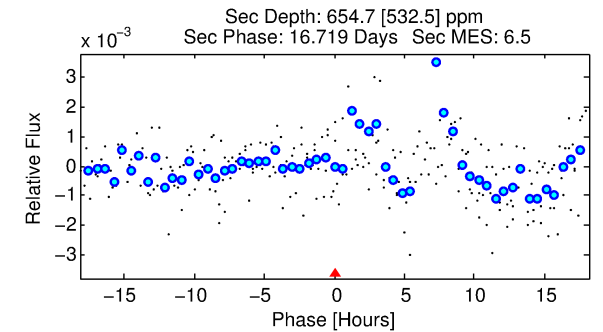
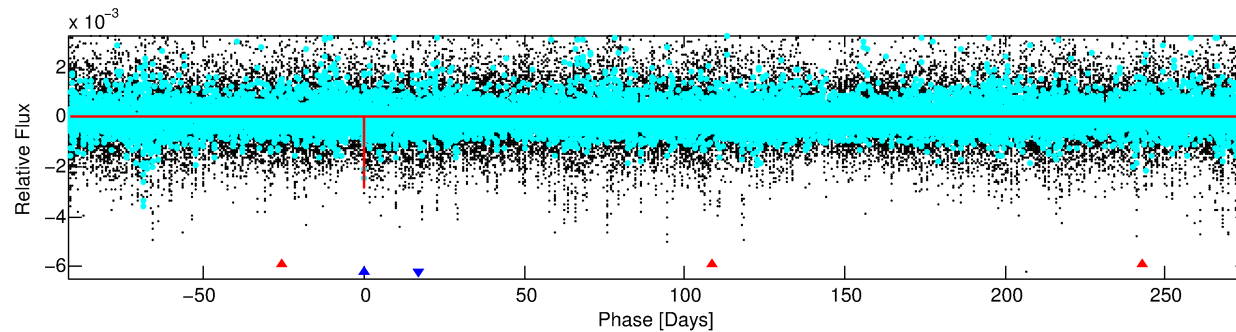
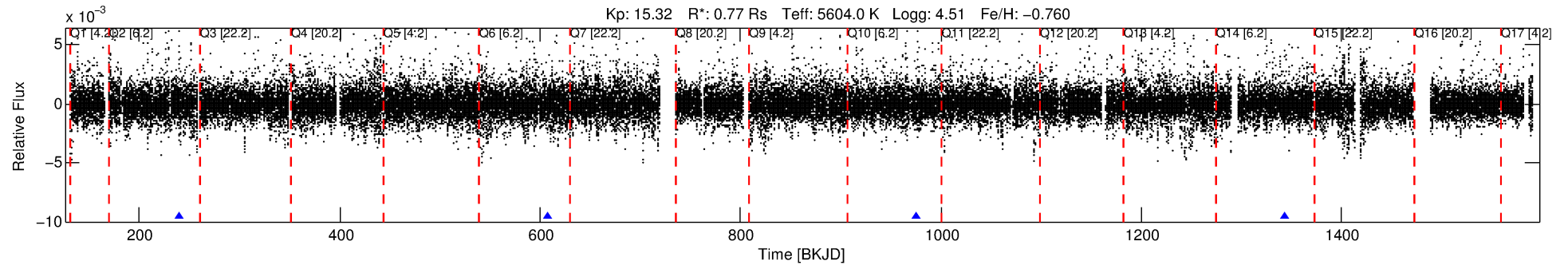
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003836276-02

No Significant Match Found

DV One-Page Summary

KIC: 3836276 Candidate: 2 of 2 Period: 367.655 d



DV Fit Results:

Period = 367.65542 [0.00390] d
Epoch = 239.9678 [0.0069] BKJD
Rp/R* = 0.0510 [0.0285]
a/R* = 797.95 [1973.01]
b = 0.60 [2.64]
Seff = 0.66 [0.16]
Teq = 230 [14] K
Rp = 4.28 [2.48] Re
a = 0.8926 [0.1238] AU
Ag = 15636.72 [21855.83] [0.72σ]
Teffp = 3970 [1377] K [2.72σ]

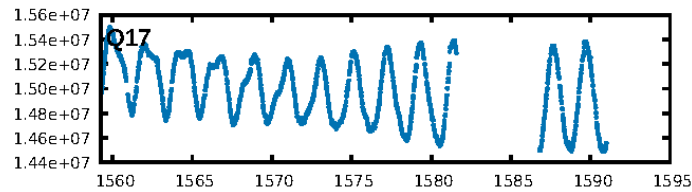
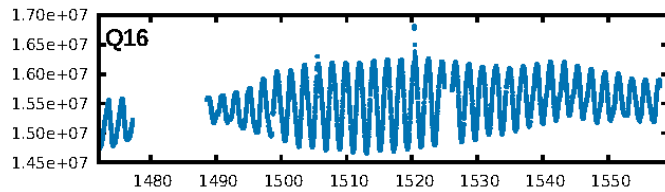
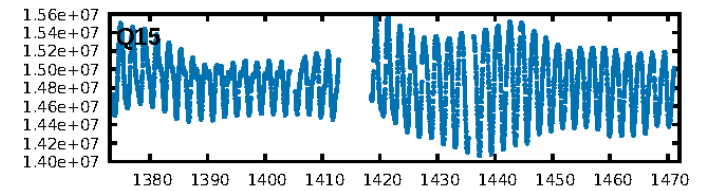
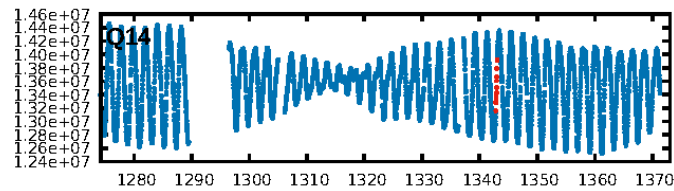
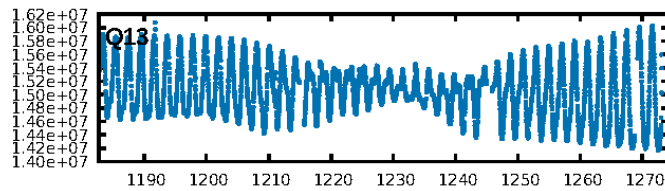
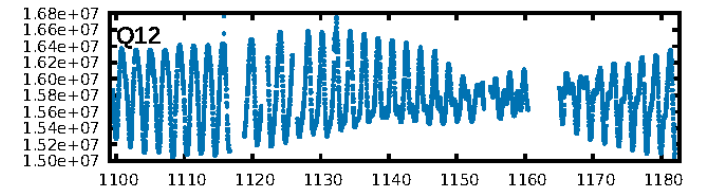
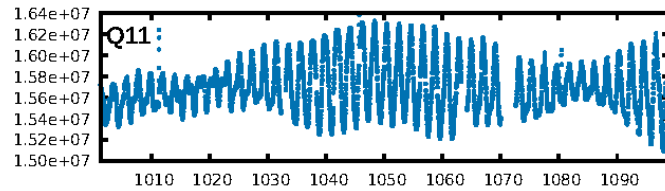
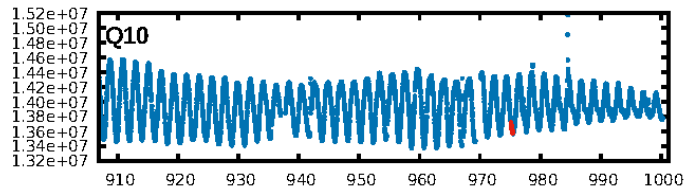
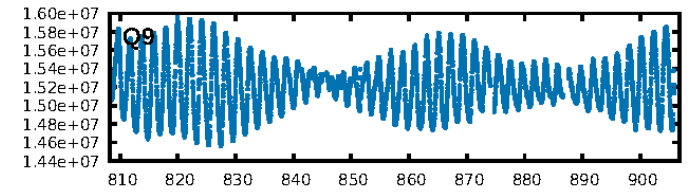
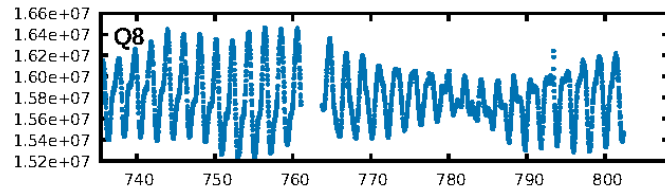
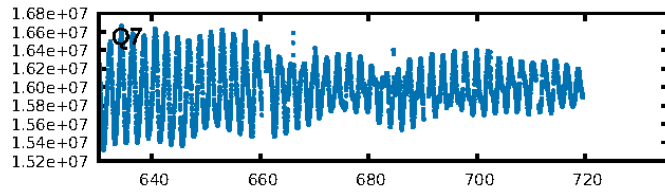
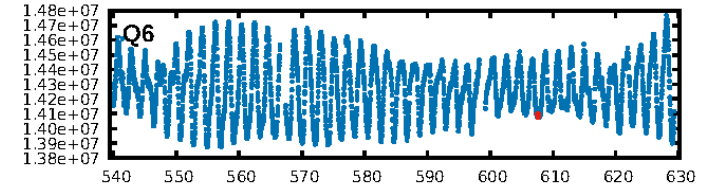
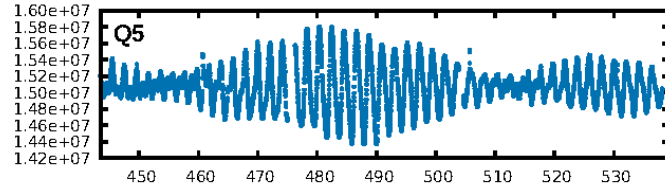
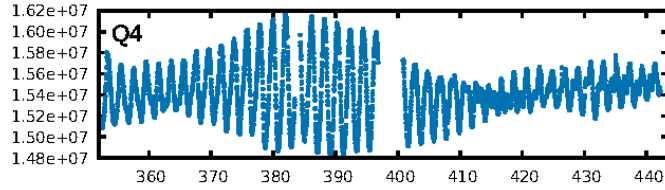
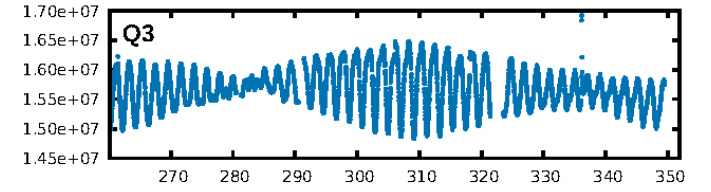
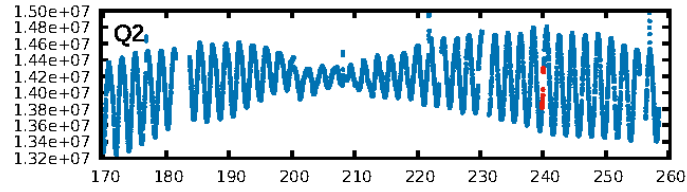
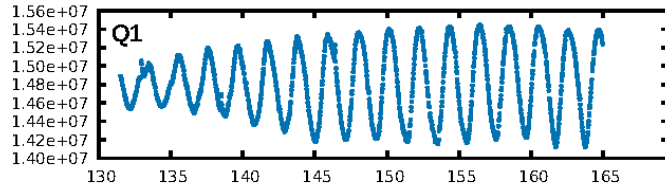
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [518.48σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 12.6%
Bootstrap-pfa: 2.21e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.5985
Centroid-sig: 8.2%
Centroid-so: 0.926 arcsec [1.28σ]
OotOffset-rm: 0.509 arcsec [1.58σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-rm: 0.582 arcsec [2.06σ]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

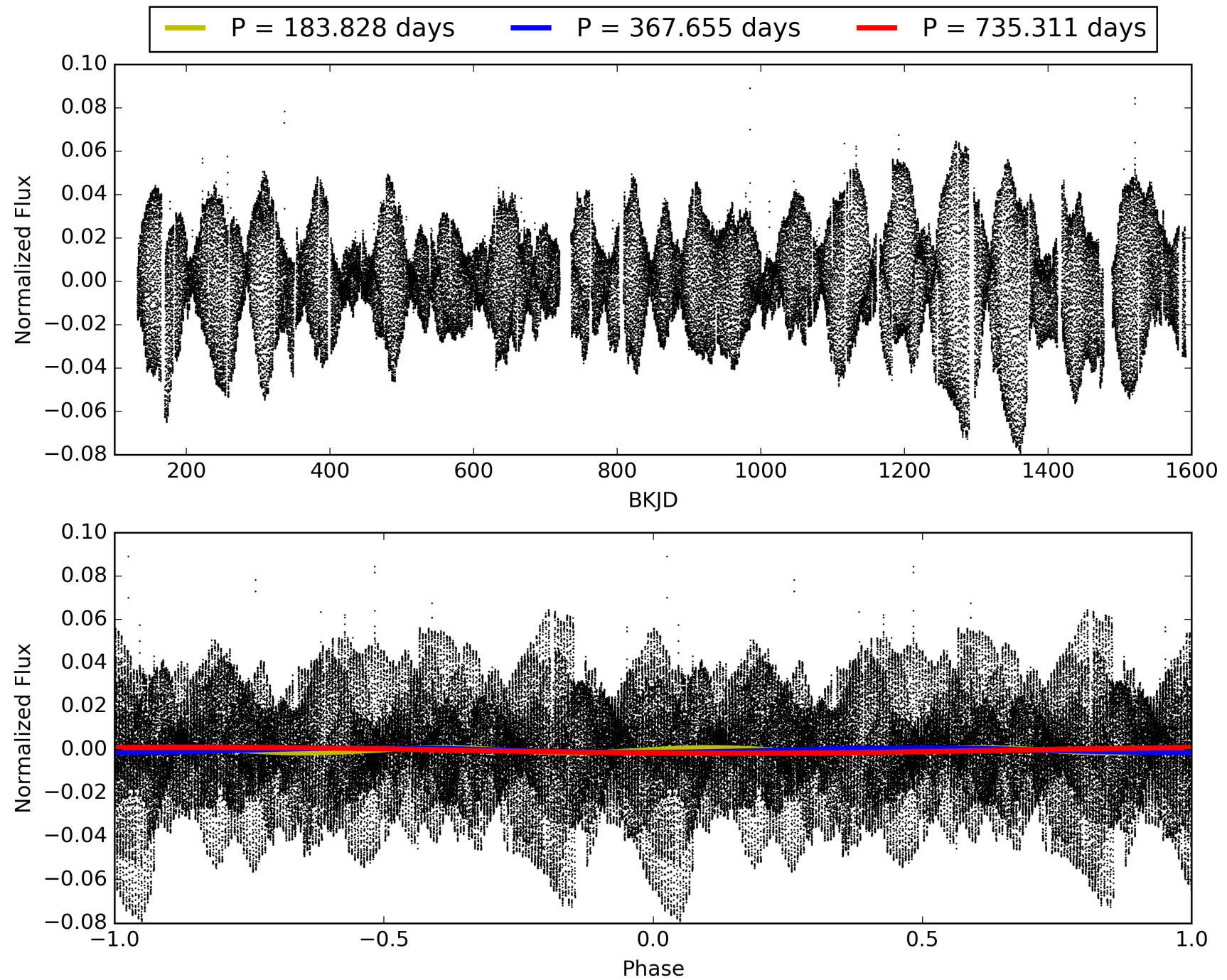
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:14:25 Z

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

TCE 003836276-02, PDC Light Curves

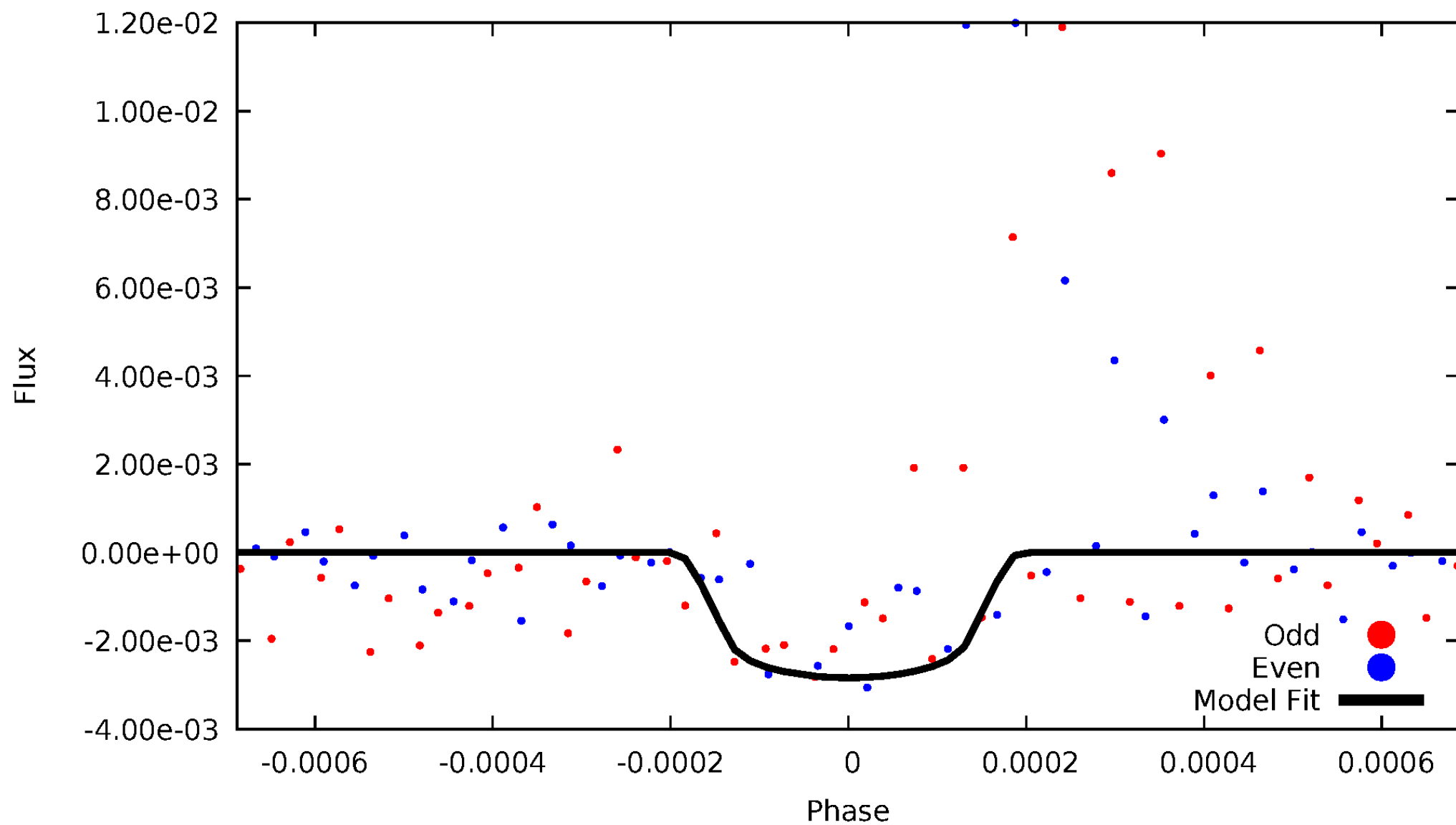


TCE 003836276-02



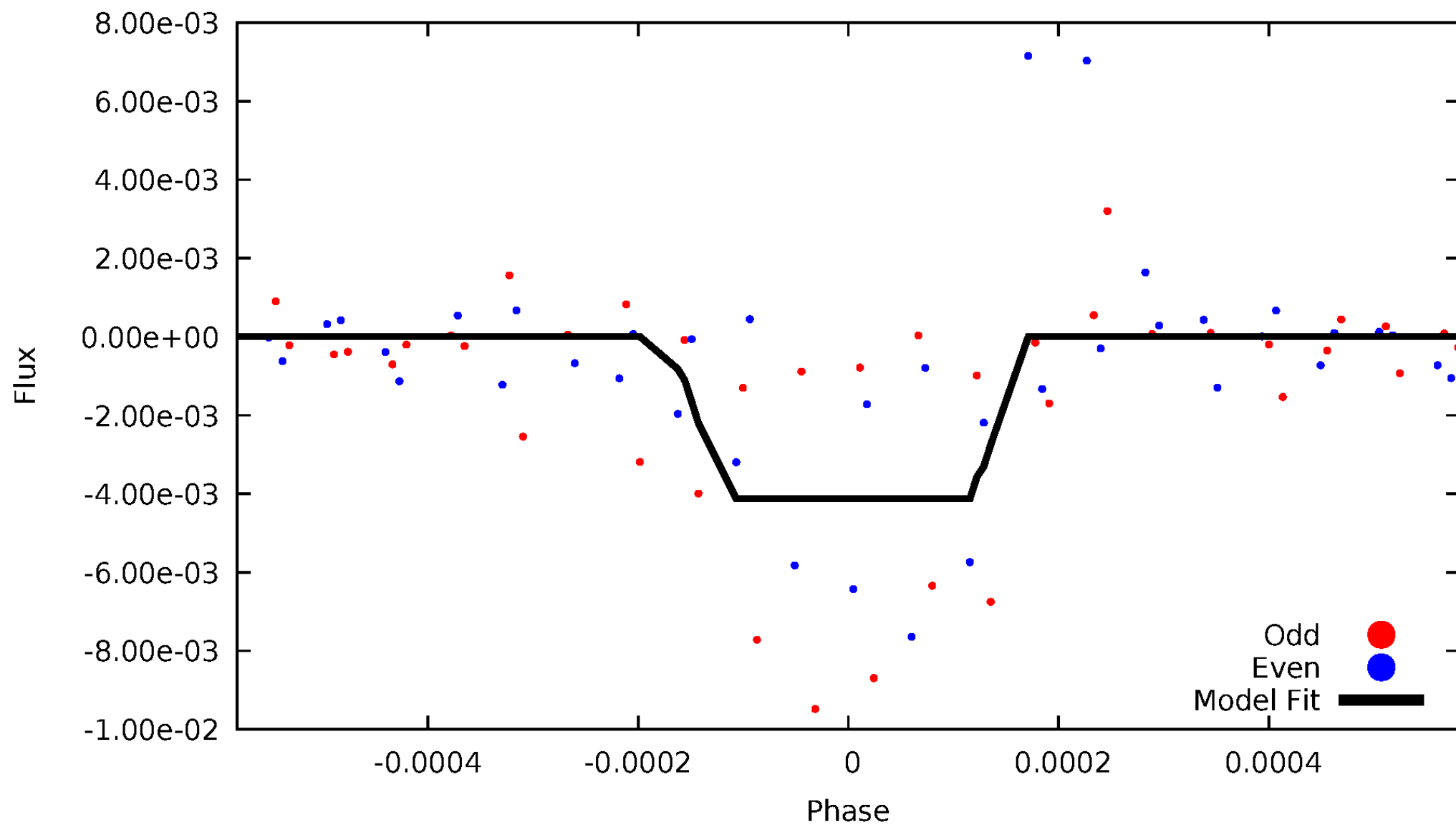
DV Odd/Even

TCE 003836276-02



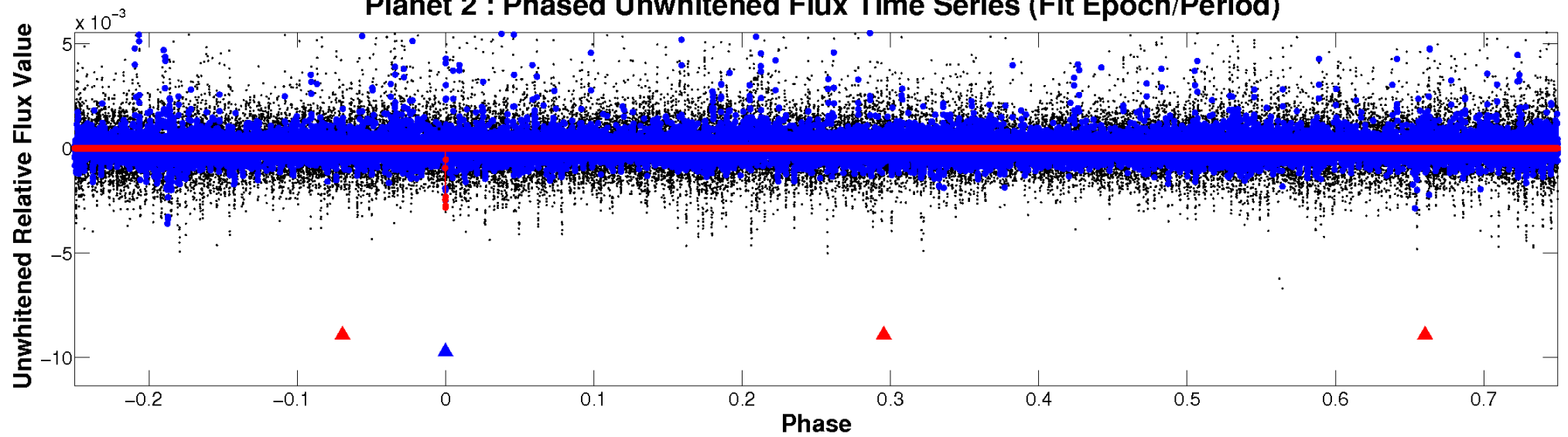
ALT Odd/Even

TCE 003836276-02

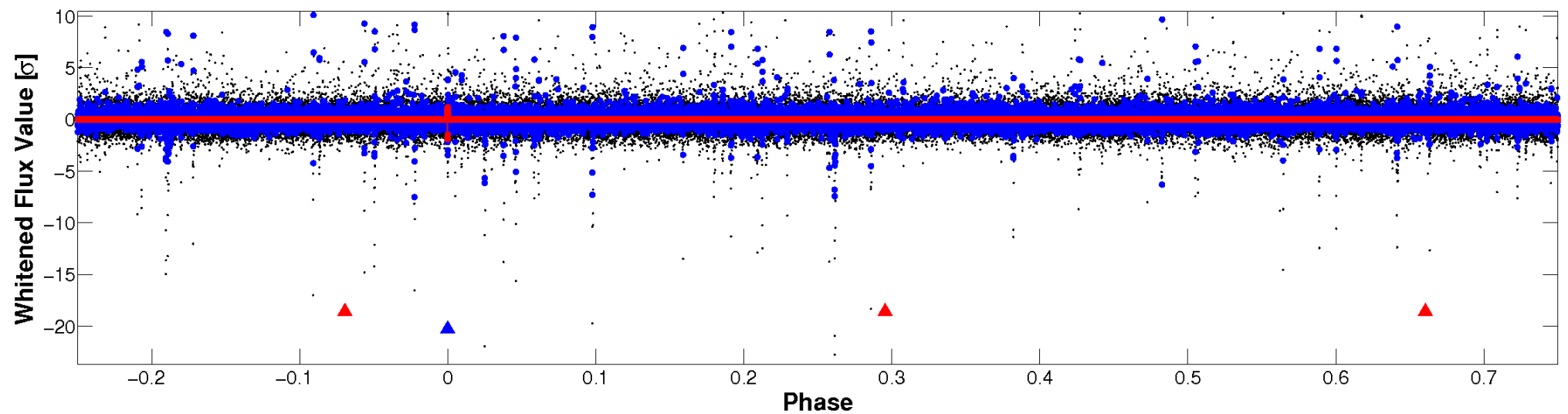


Non-Whitened Vs. Whitened Light Curve

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

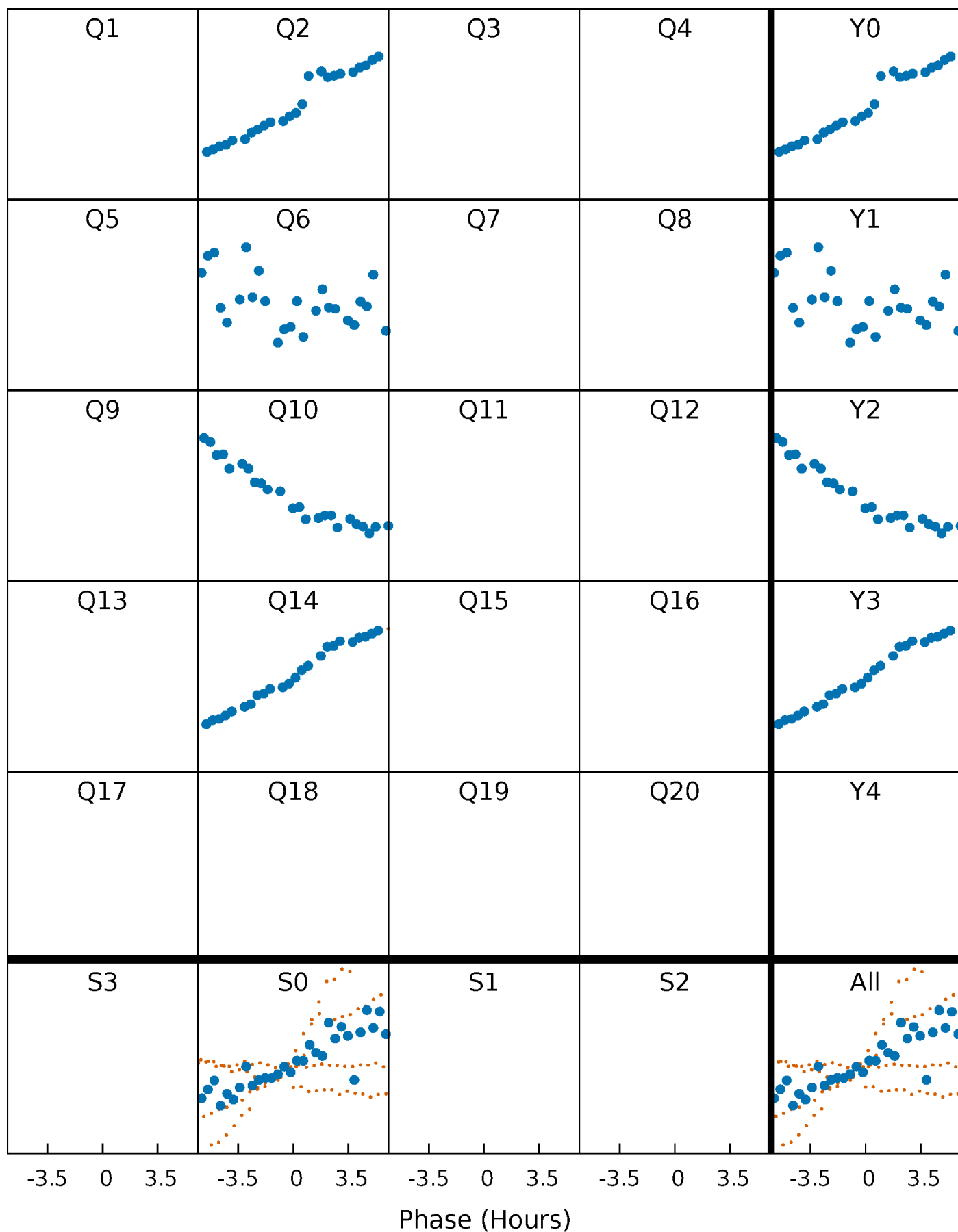


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



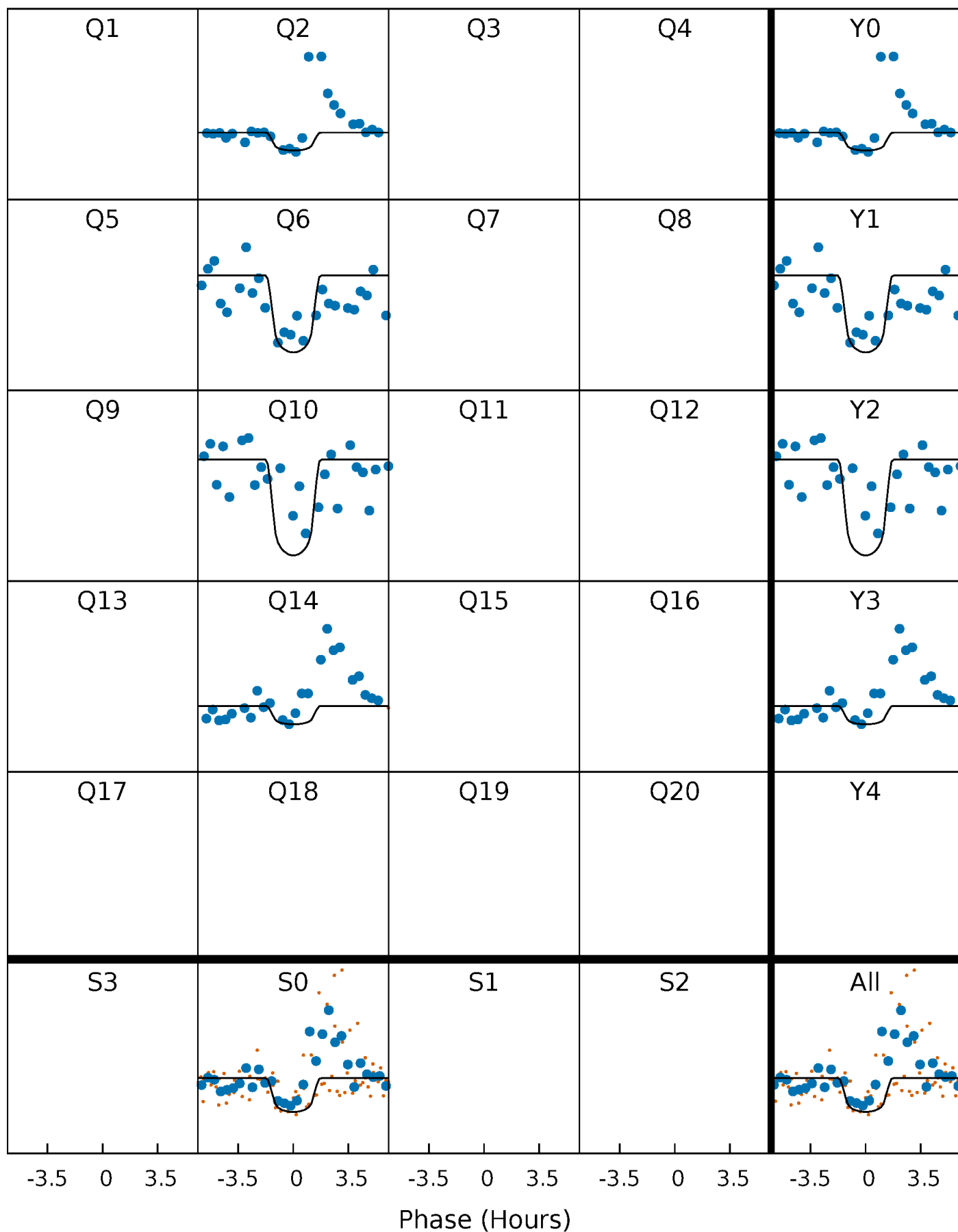
PDC Quarter-Phased Transit Curves

TCE 003836276-02 P=367.655422 Days $T_0=239.967844$ (BKJD)



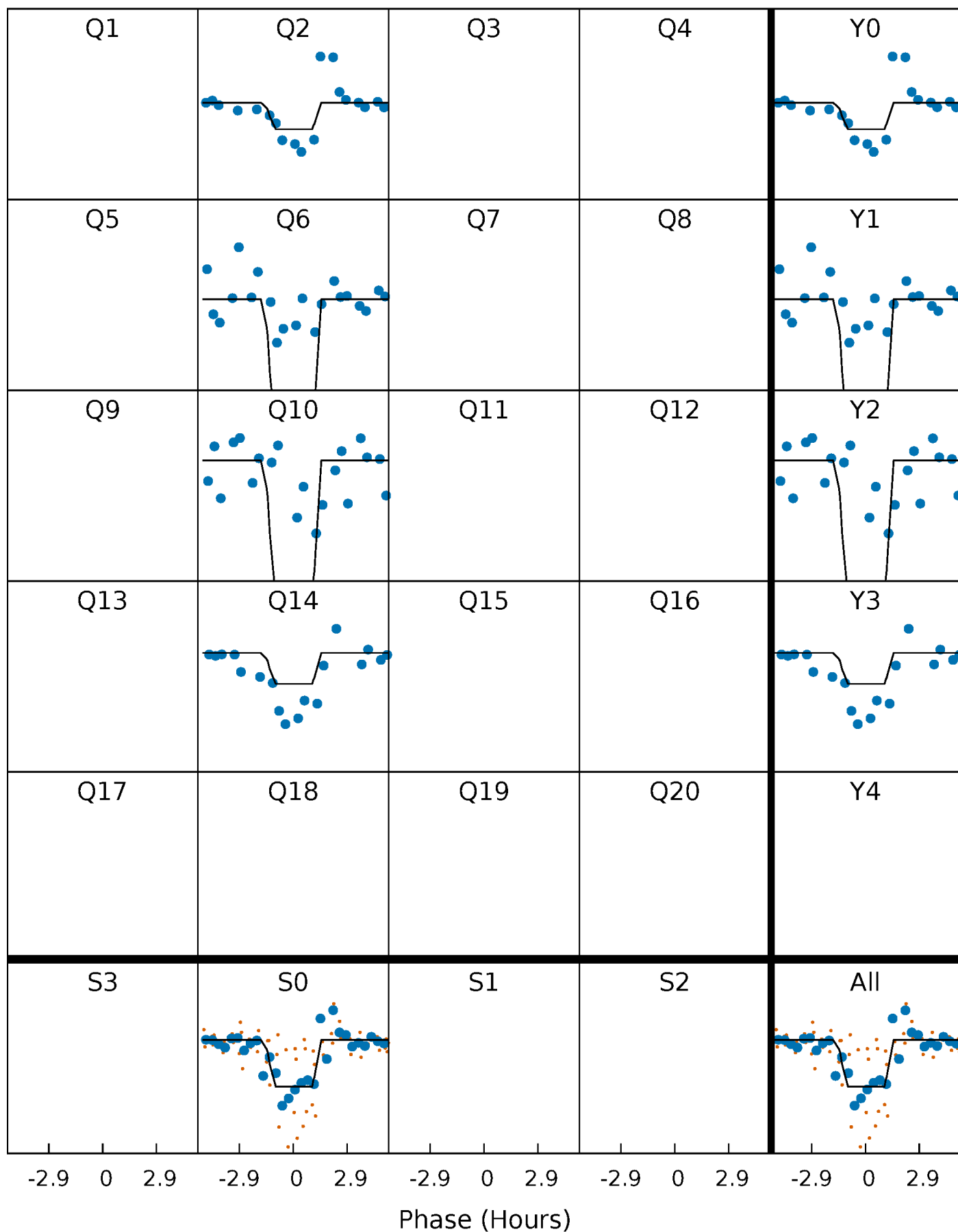
DV Quarter-Phased Transit Curves

TCE 003836276-02 P=367.655422 Days $T_0=239.967844$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

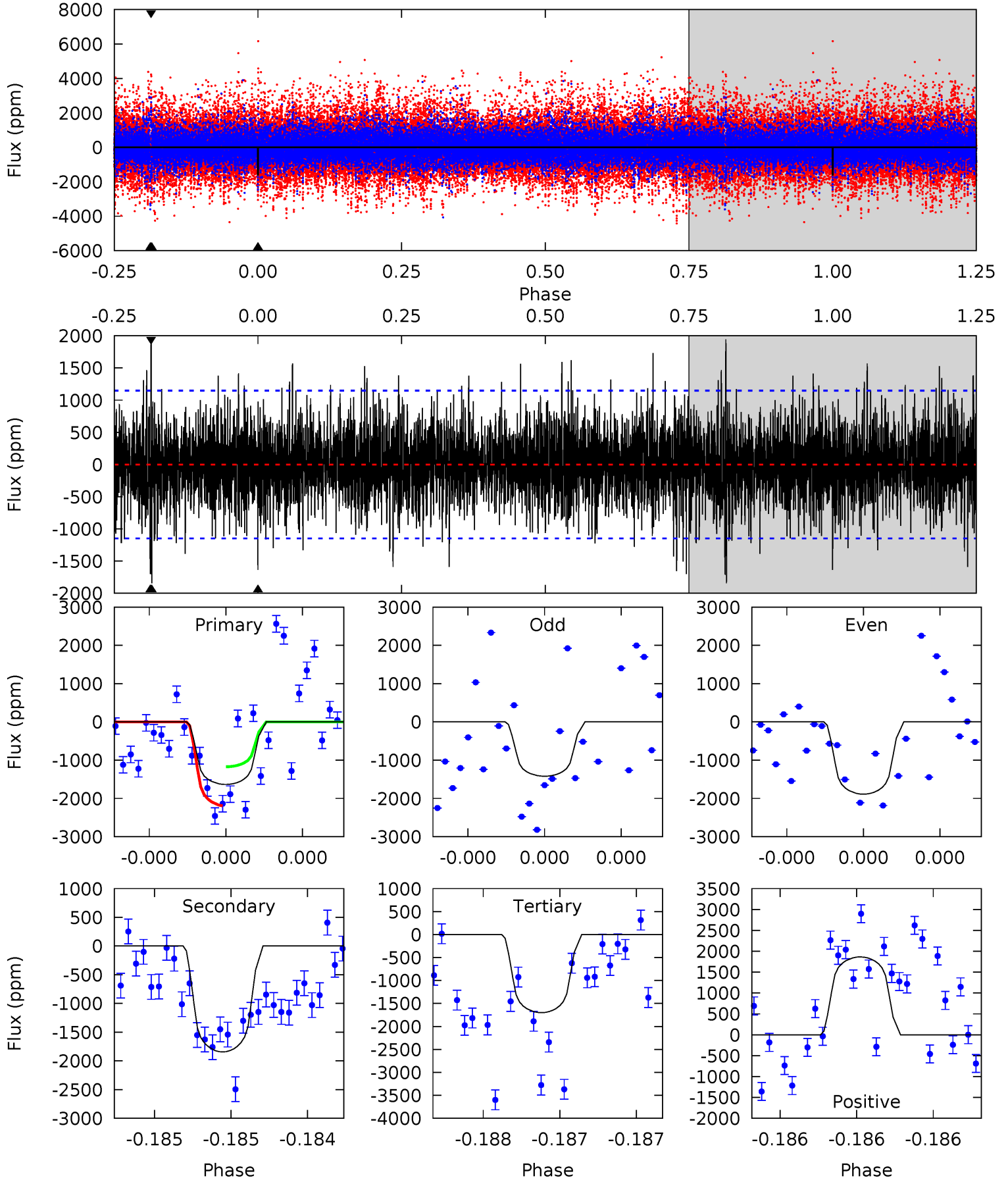
TCE 003836276-02 P=367.659438 Days $T_0=239.953606$ (BKJD)



DV Model-Shift Uniqueness Test

003836276-02, $P = 367.655422$ Days, $E = 239.967844$ Days

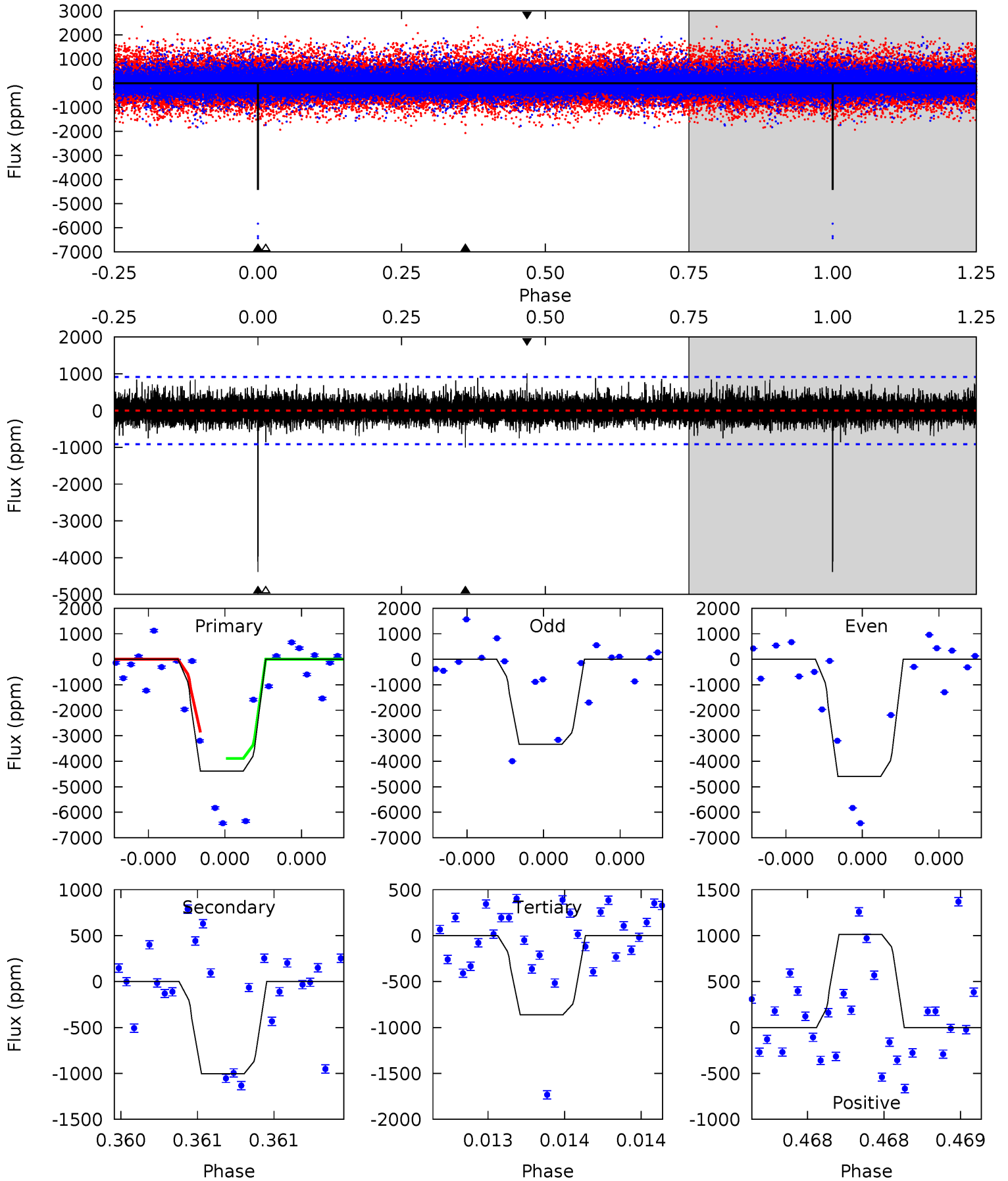
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.00	9.02	8.32	9.12	5.62	3.55	2.08	-0.32	-1.12	0.70	-0.10	0.99	1.14	0.51	2.51



Alt Model-Shift Uniqueness Test

003836276-02, P = 367.659438 Days, E = 239.953606 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.1	6.19	5.31	6.25	5.64	3.59	1.07	21.8	20.8	0.88	-0.06	4.65	1.16	0.19	0



Stellar Parameters For KIC 003836276

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5604^{+183}_{-166}	$4.511^{+0.121}_{-0.121}$	$-0.760^{+0.350}_{-0.300}$	$0.770^{+0.119}_{-0.097}$	$0.701^{+0.091}_{-0.032}$	$2.167^{+0.999}_{-0.750}$
	+3%/-3%	+3%/-3%	+46%/-39%	+15%/-13%	+13%/-5%	+46%/-35%
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 003836276-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1844 ± 204	$4.44^{+2.69}_{-2.17}$	321^{+18}_{-16}	5146^{+1921}_{-888}	$42662^{+109817}_{-26512}$
Alt.	-1004 ± 162	$5.53^{+2.46}_{-2.23}$	321^{+16}_{-15}	4165^{+1040}_{-510}	14643^{+27572}_{-7563}

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 $A_{obs} \gg 1.0$

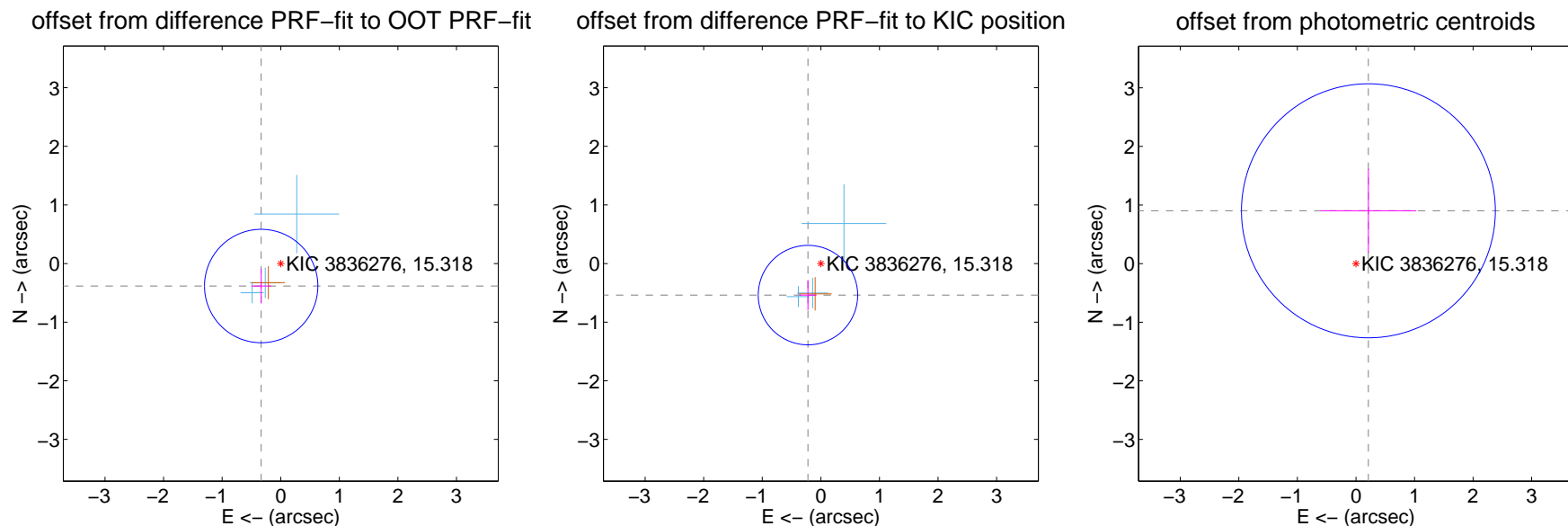
DV Centroid Data

Supplemental centroid analysis for 003836276-02. Kepler magnitude: 15.32. Transit SNR 8.41

There are 3 quarters with good PRF difference image offsets

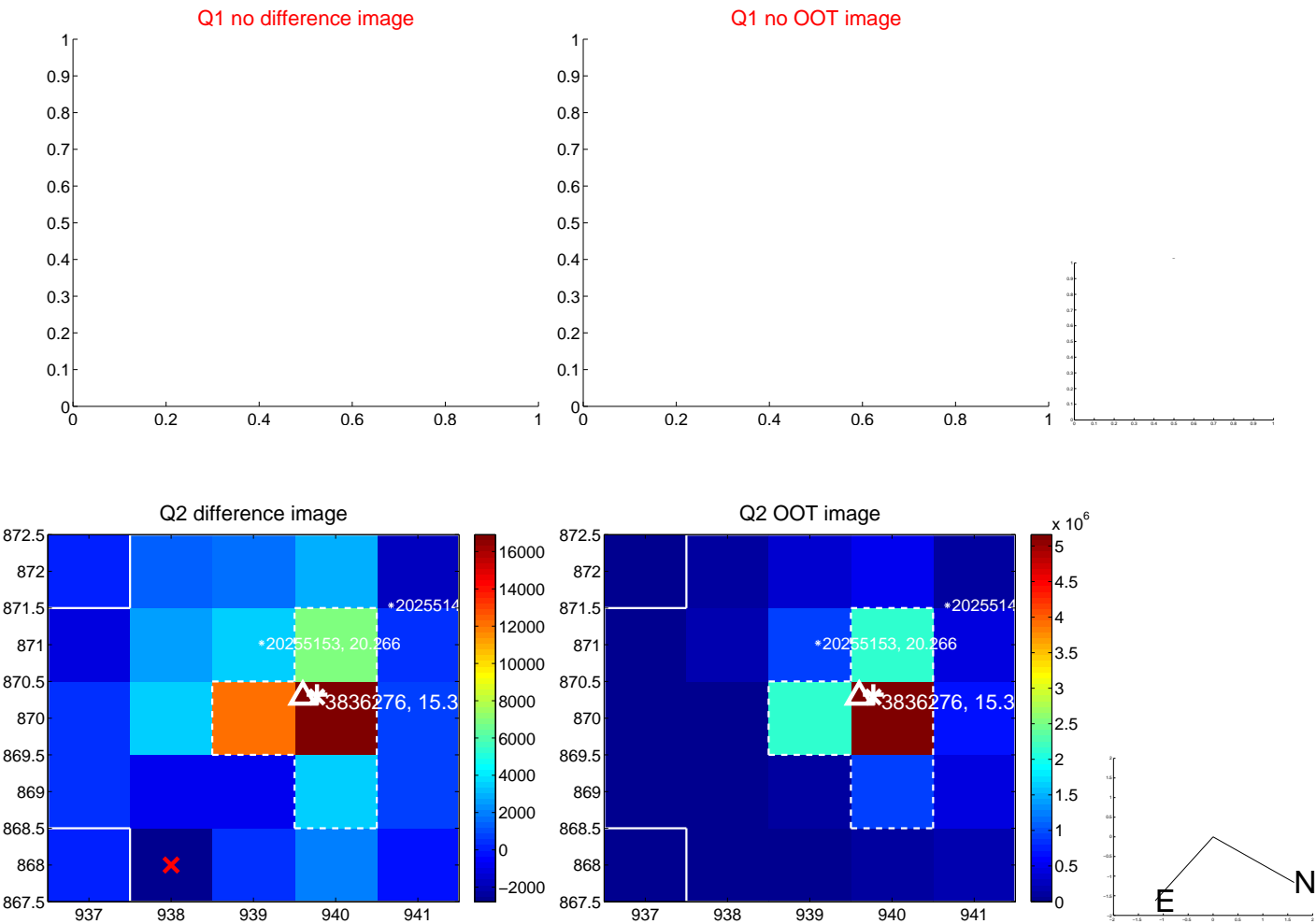
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.509 ± 0.323	1.58	0.334 ± 0.170	-0.384 ± 0.294
PRF-fit source offset from KIC position	0.582 ± 0.283	2.06	0.220 ± 0.146	-0.538 ± 0.254
photometric centroid source offset	0.93 ± 0.72	1.28	-0.21 ± 0.82	0.90 ± 0.72

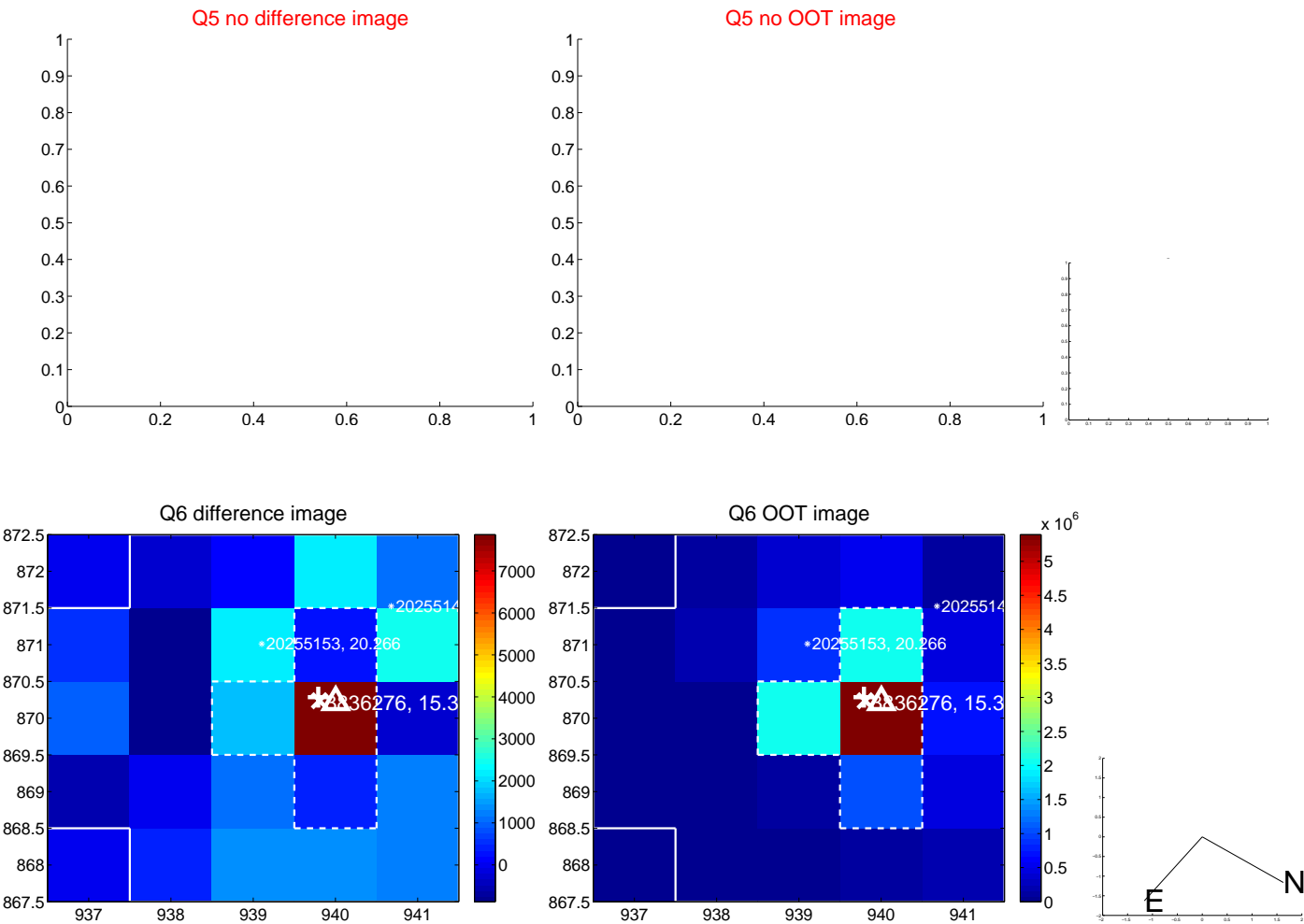


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

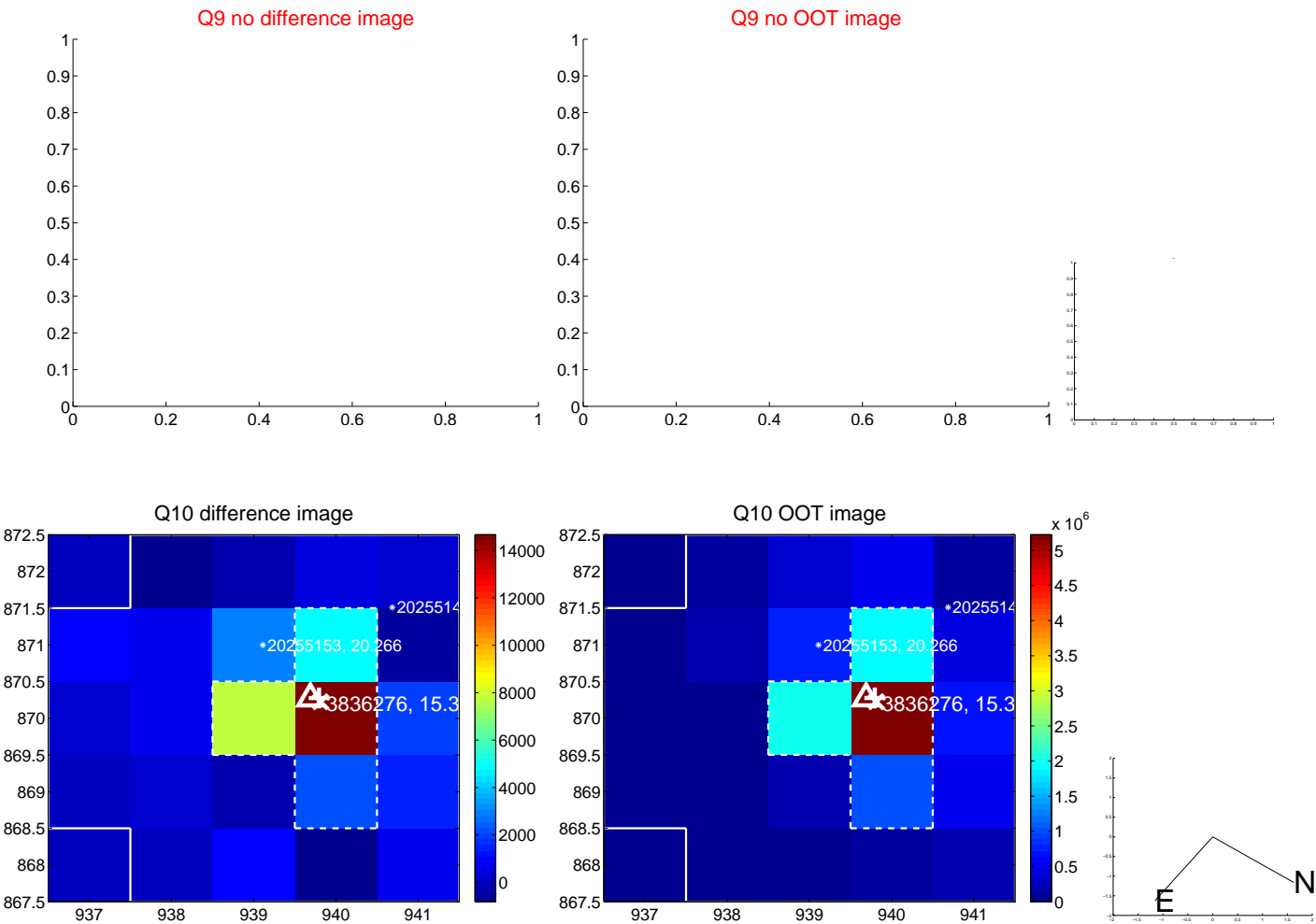
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

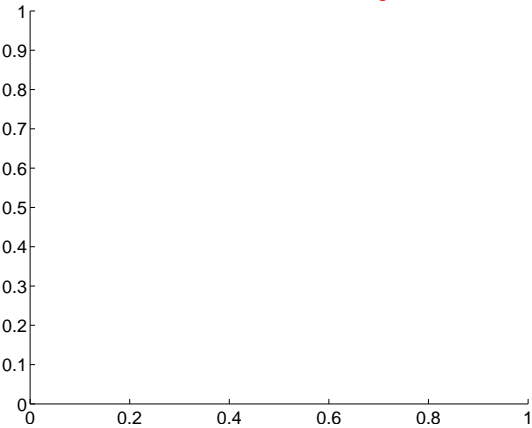


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

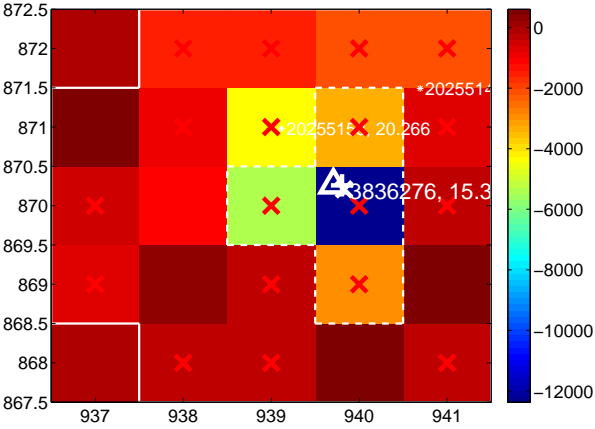
Q13 no difference image



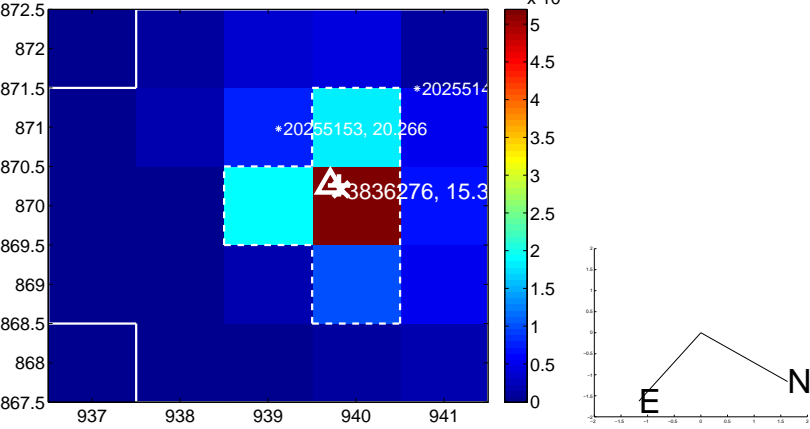
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



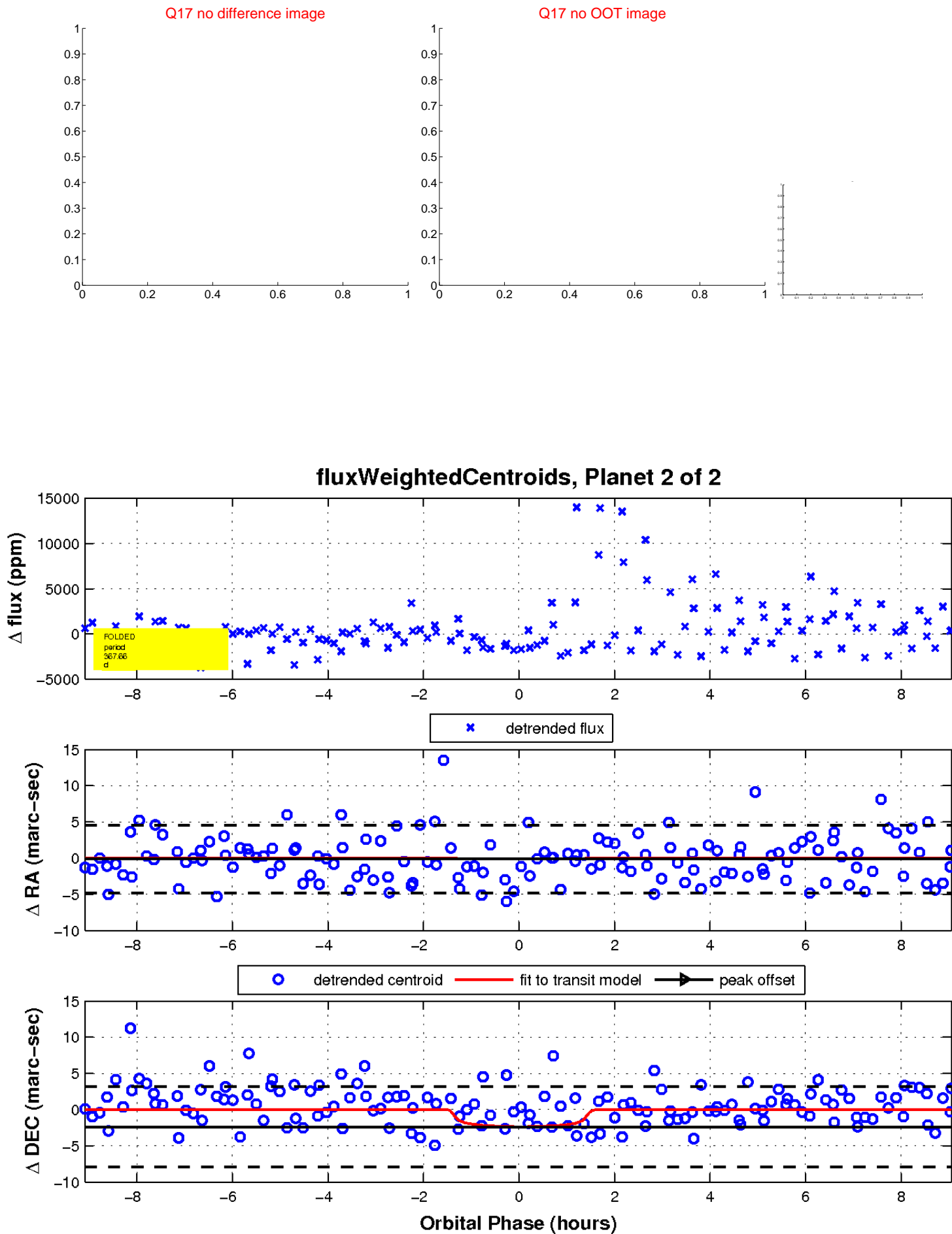
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

