

KIC 006422367

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})
006422367-01	OBS	No	372.486873	208.372853	789.4	3.332	8.6	8.7	0.73	5344	2.20	0.48
006422367-02	OBS	No	355.179115	234.337472	967.4	3.218	8.7	9.3	0.73	5344	4.22	0.52
006422367-03	OBS	No	372.498641	247.344778	1055.3	3.312	8.4	9.3	0.73	5344	4.59	0.48
006422367-04	OBS	No	350.849388	225.666660	798.3	3.986	7.7	7.7	0.73	5344	3.05	0.53
006422367-05	OBS	No	363.840342	221.351267	726.8	2.910	7.1	7.8	0.73	5344	2.36	0.50
006422367-06	OBS	No	394.155050	178.034964	807.1	2.337	7.5	8.1	0.73	5344	2.25	0.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006422367-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-02	OBS	FP	0.00	1	0	0	0	MOD_TER_DV—MOD_TER_ALT
006422367-03	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
006422367-04	OBS	FP	0.03	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

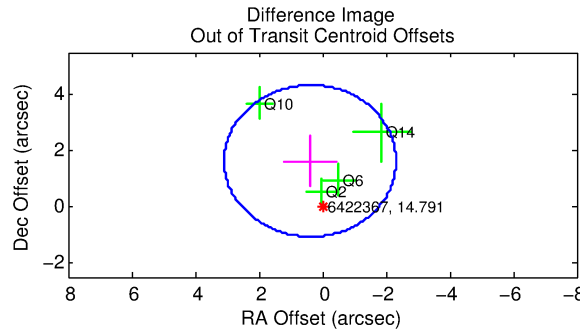
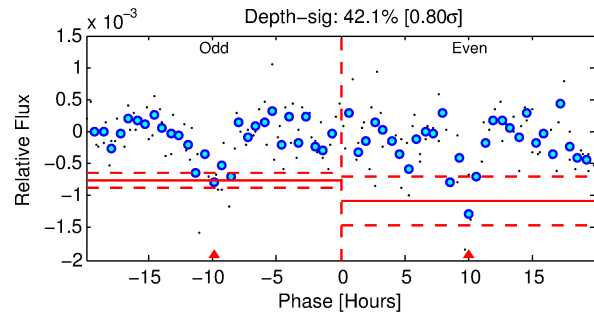
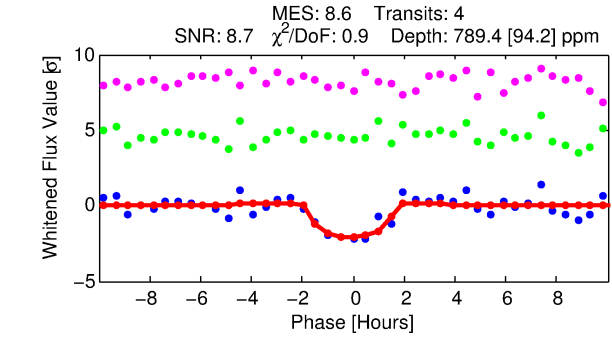
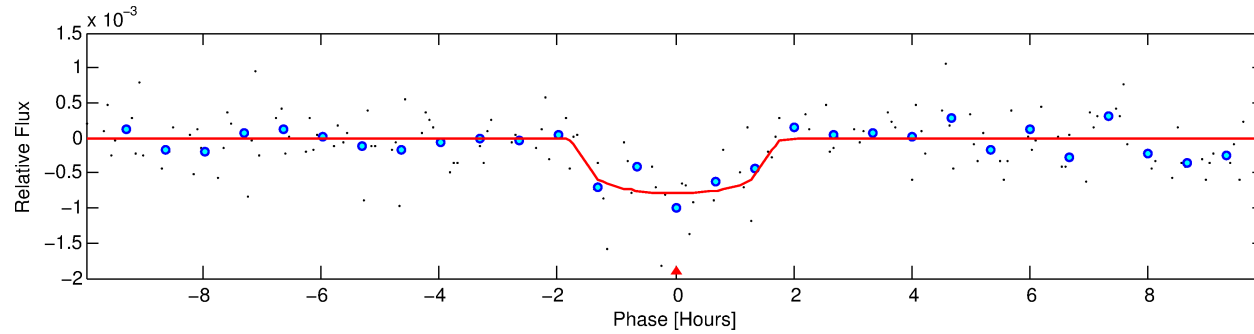
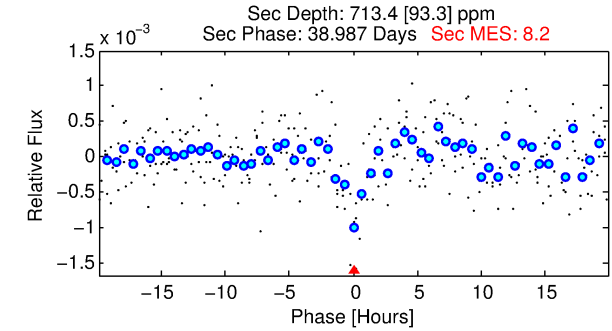
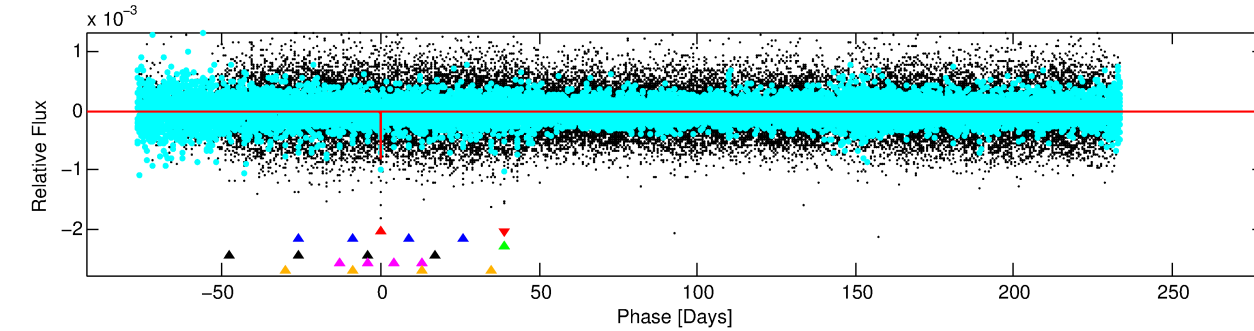
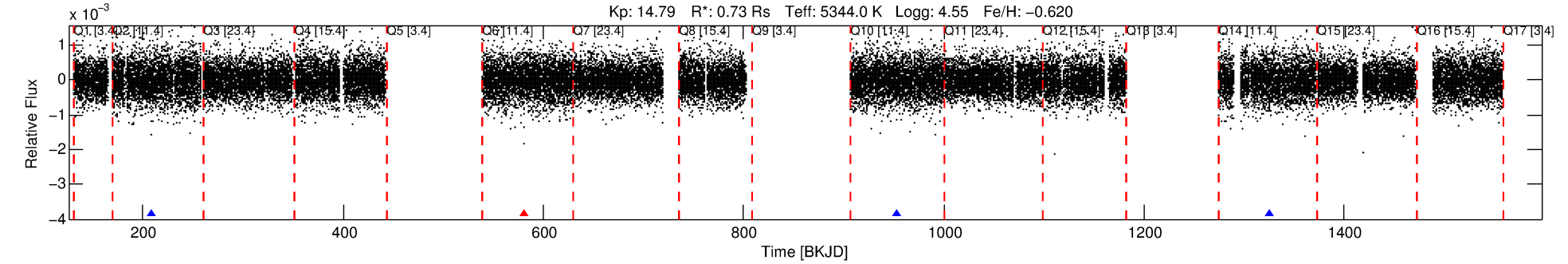
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006422367-01

No Significant Match Found

DV One-Page Summary

KIC: 6422367 Candidate: 1 of 6 Period: 372.487 d
KOI: K00559 Corr: No Ephemeris Match



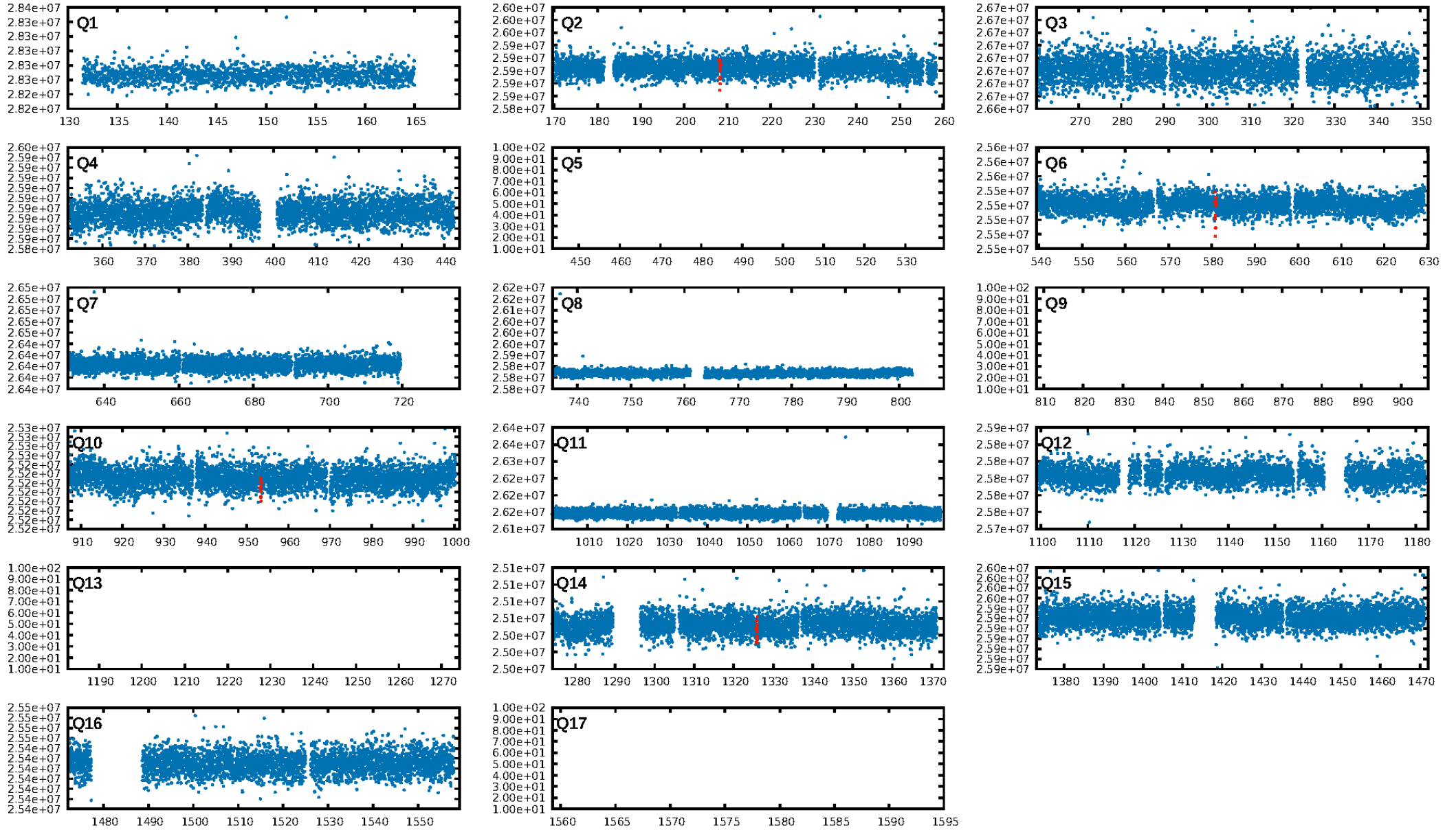
DV Fit Results:

Period = 372.48687 [0.00426] d
Epoch = 208.3729 [0.0080] BKJD
Rp/R* = 0.0277 [0.0325]
a/R* = 621.33 [3069.75]
b = 0.73 [3.28]
Seff = 0.48 [0.10]
Teq = 213 [11] K
Rp = 2.20 [2.60] Re
a = 0.8937 [0.0988] AU
Ag = 64535.17 [152022.21] [0.42 σ]
Teff = 5244 [3084] K [1.63 σ]

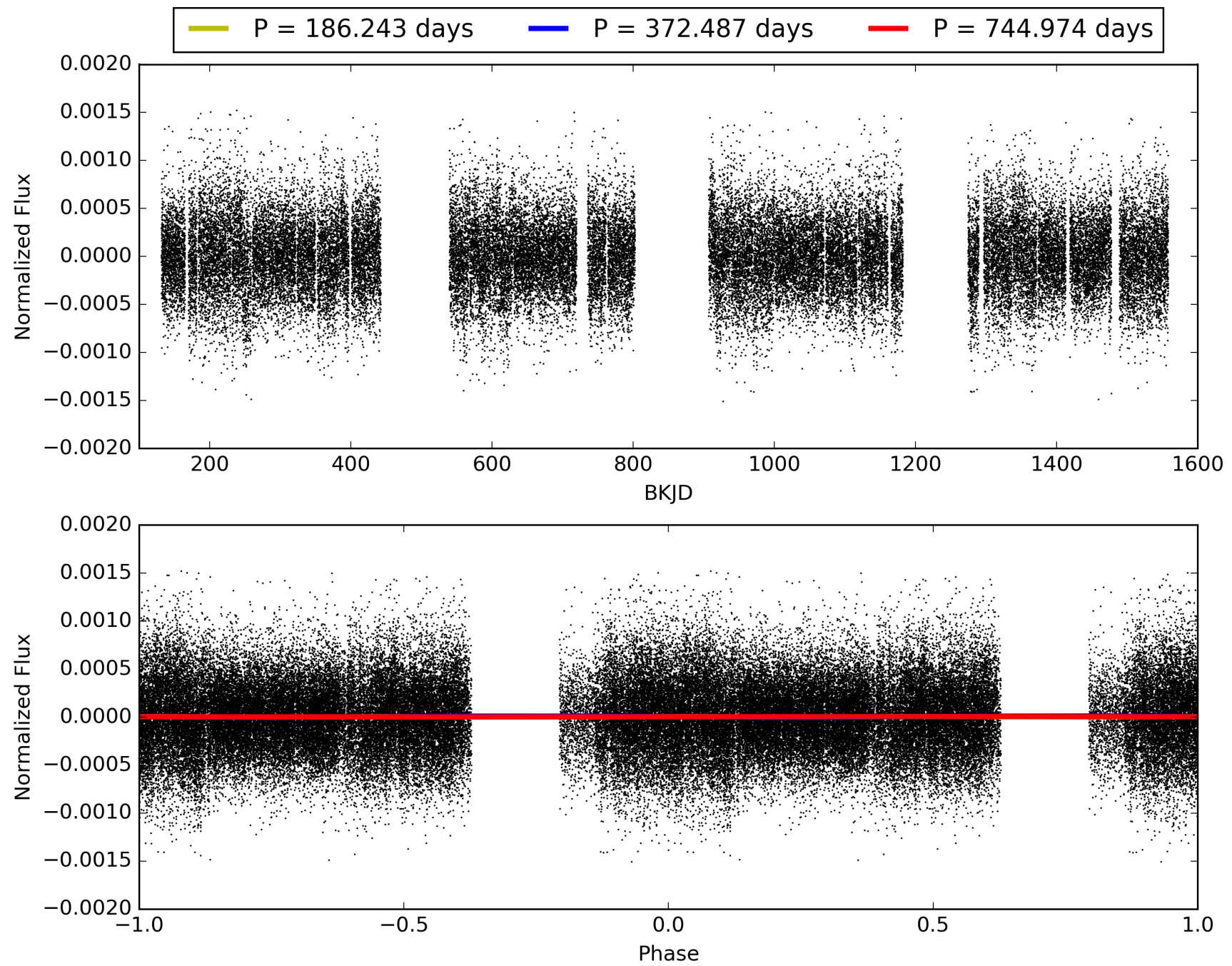
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.91 σ]
LongPeriod-sig: 4.8% [0.06 σ]
ModelChiSquare2-sig: 78.8%
ModelChiSquareGof-sig: 97.2%
Bootstrap-pfa: 2.89e-13
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 2.272
Centroid-sig: 0.7%
Centroid-so: 3.169 arcsec [1.95 σ]
OotOffset-rm: 1.677 arcsec [1.86 σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-rm: 1.746 arcsec [1.86 σ]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 006422367-01, PDC Light Curves

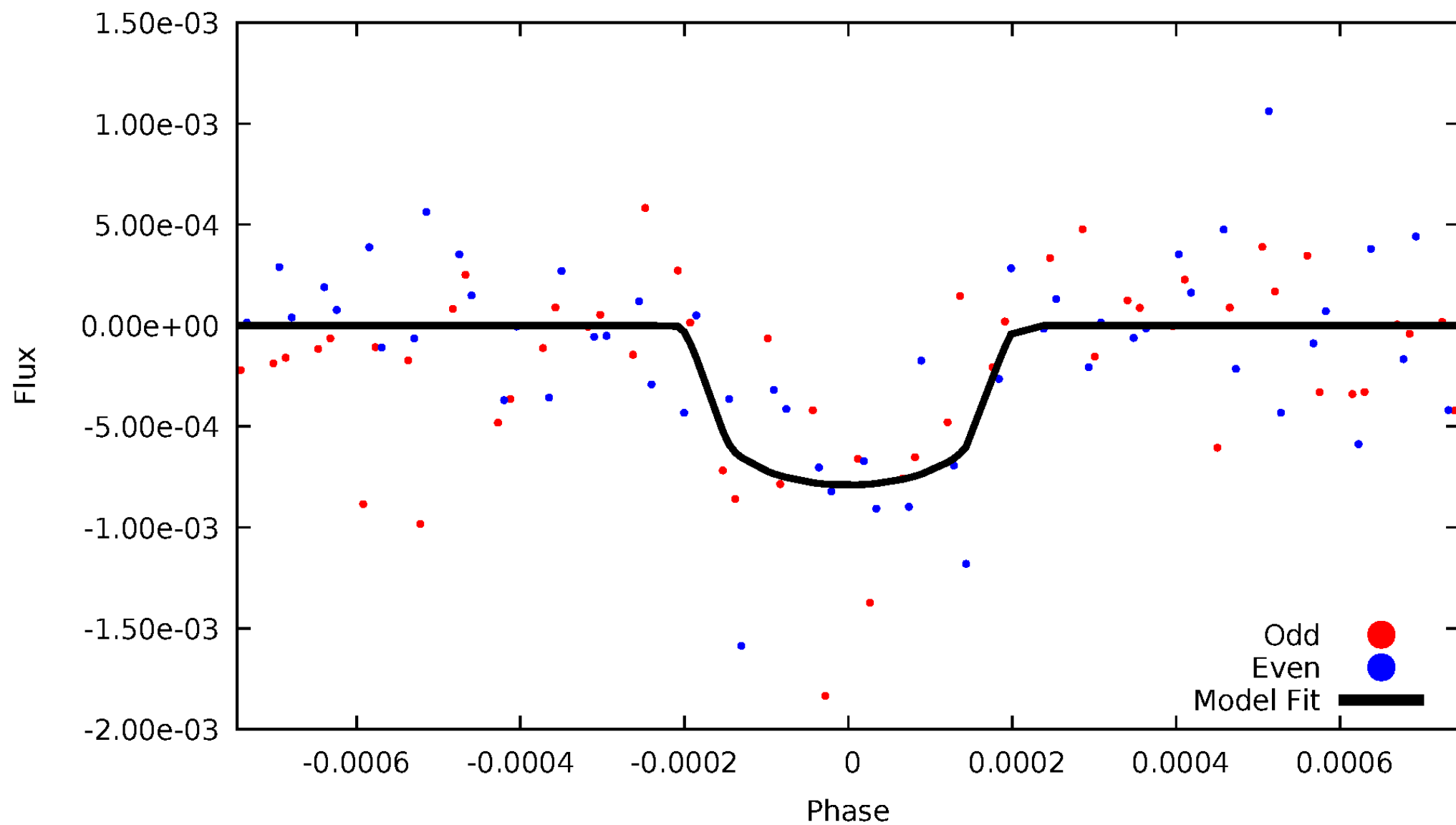


TCE 006422367-01



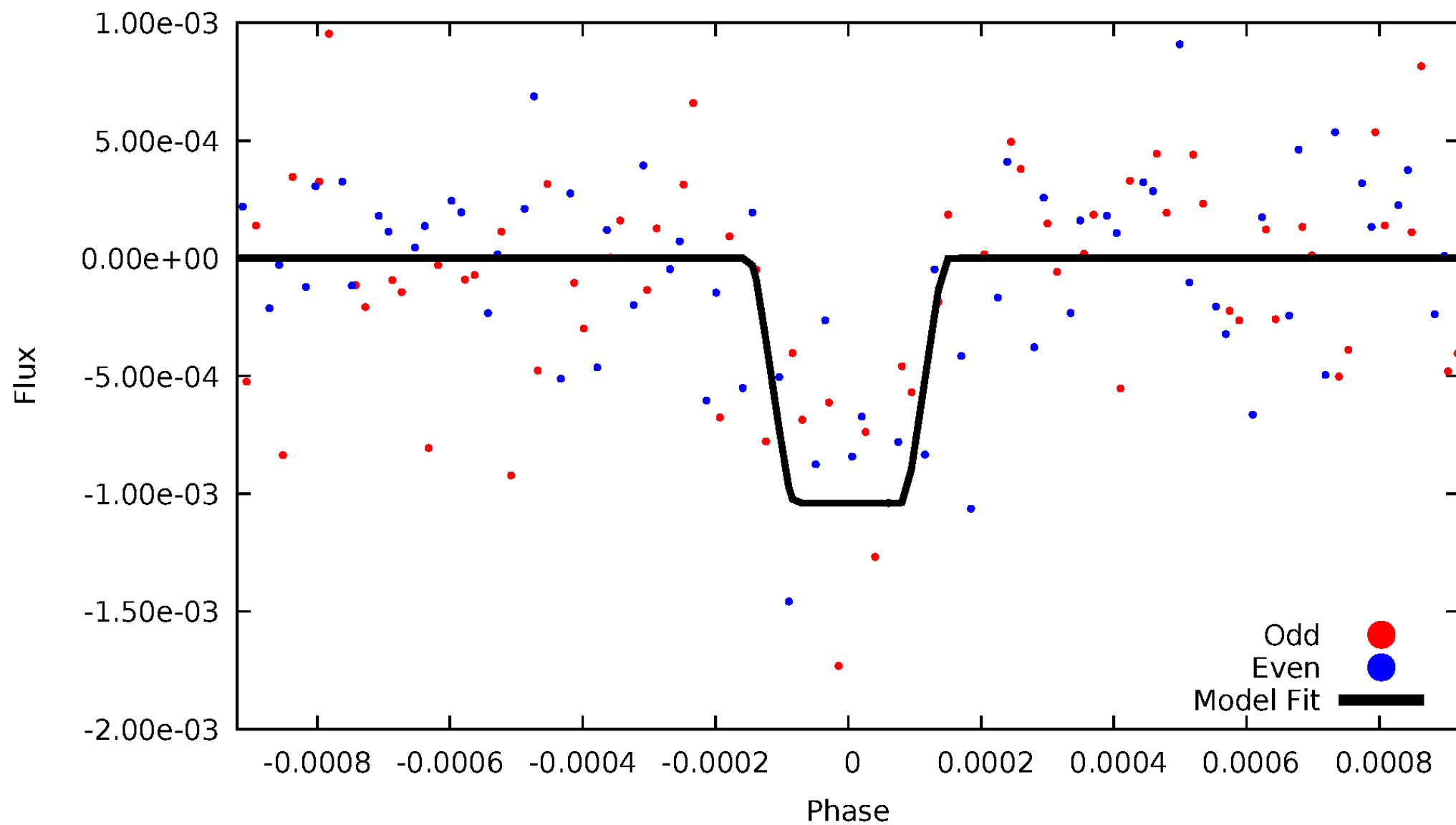
DV Odd/Even

TCE 006422367-01



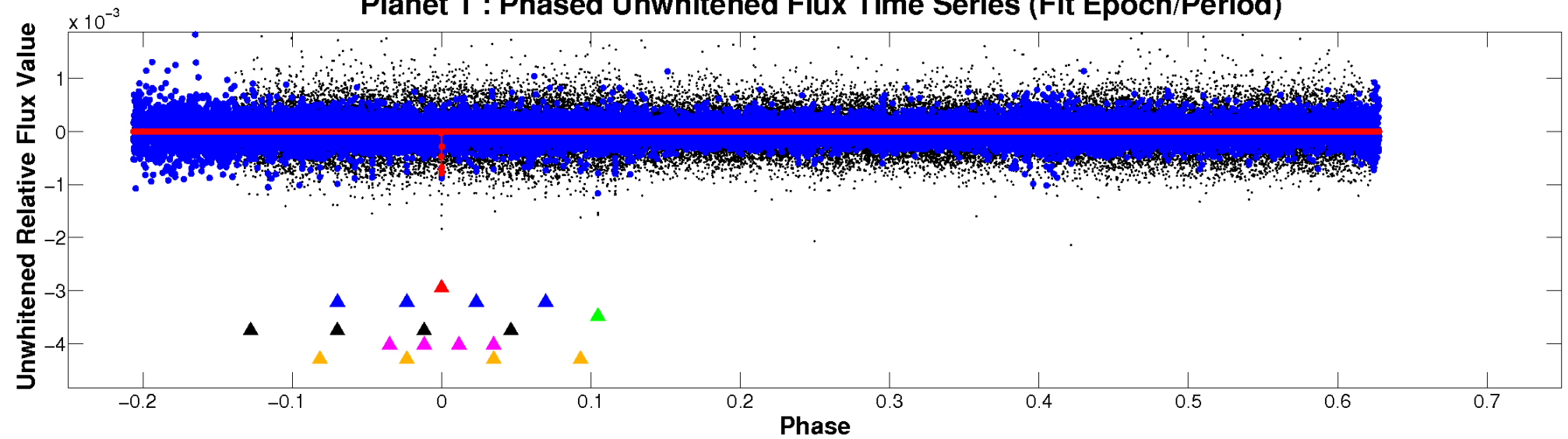
ALT Odd/Even

TCE 006422367-01

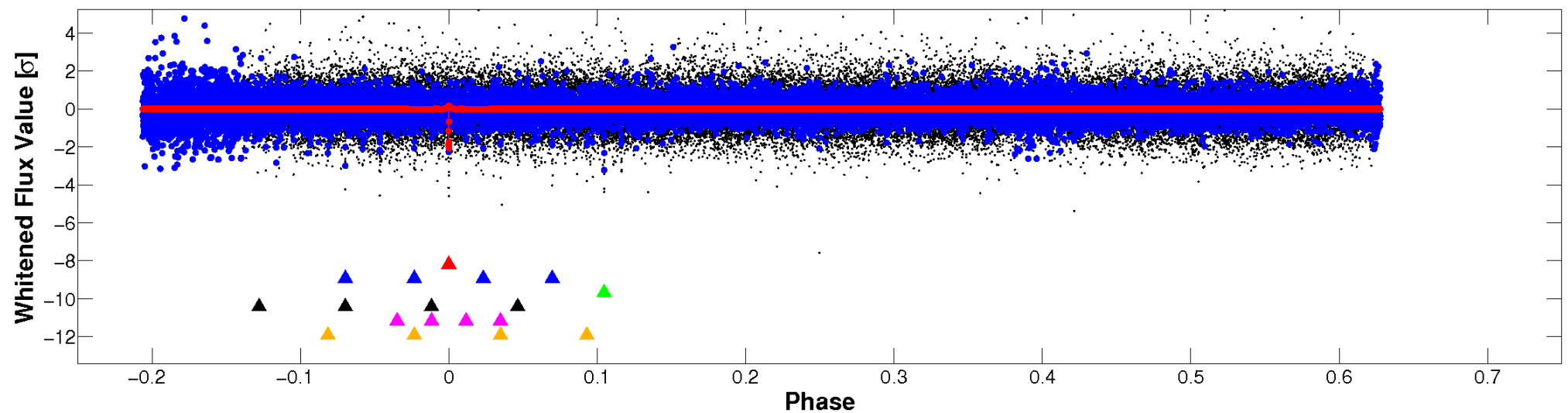


Non-Whitened Vs. Whitened Light Curve

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

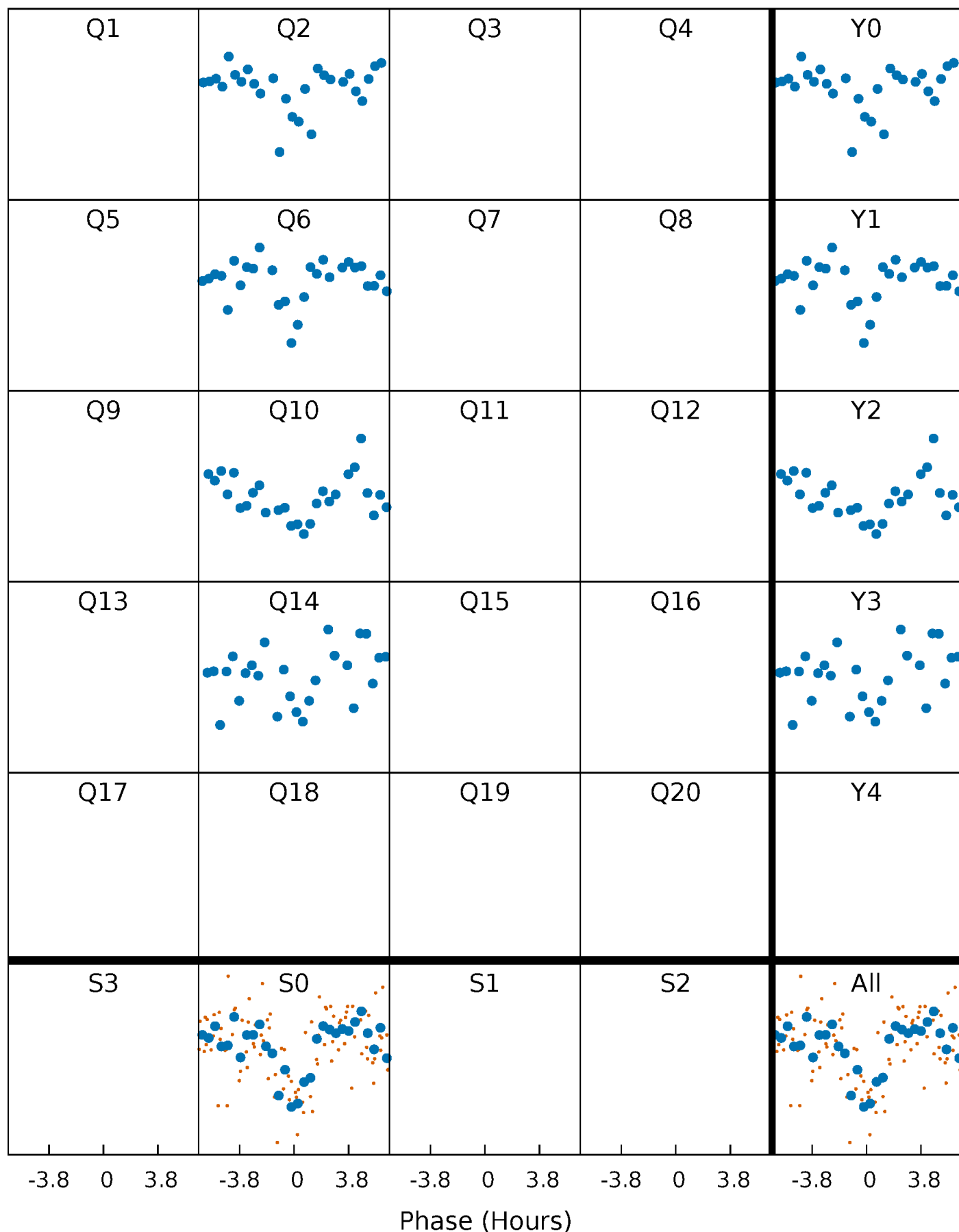


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



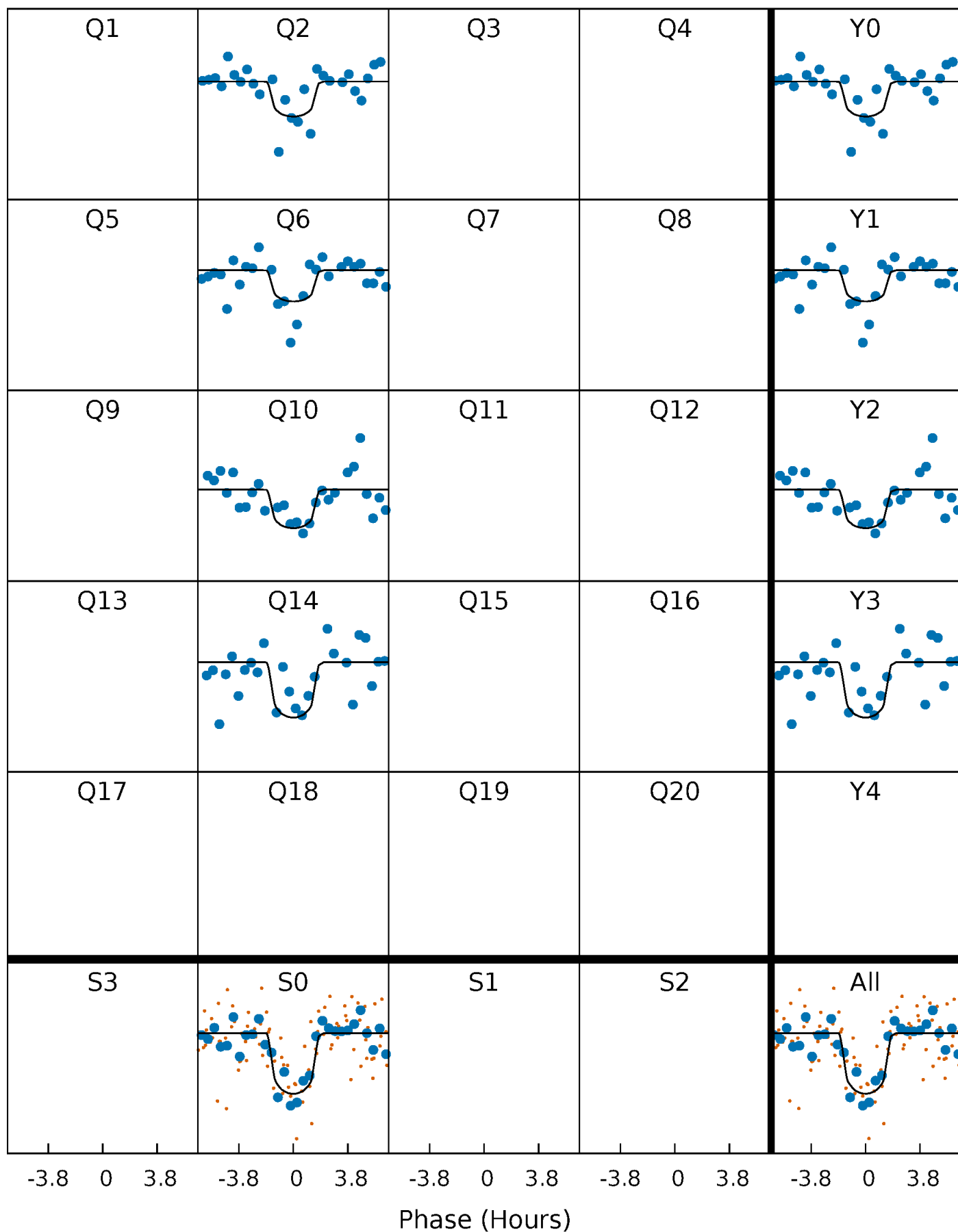
PDC Quarter-Phased Transit Curves

TCE 006422367-01 P=372.486873 Days $T_0=208.372853$ (BKJD)



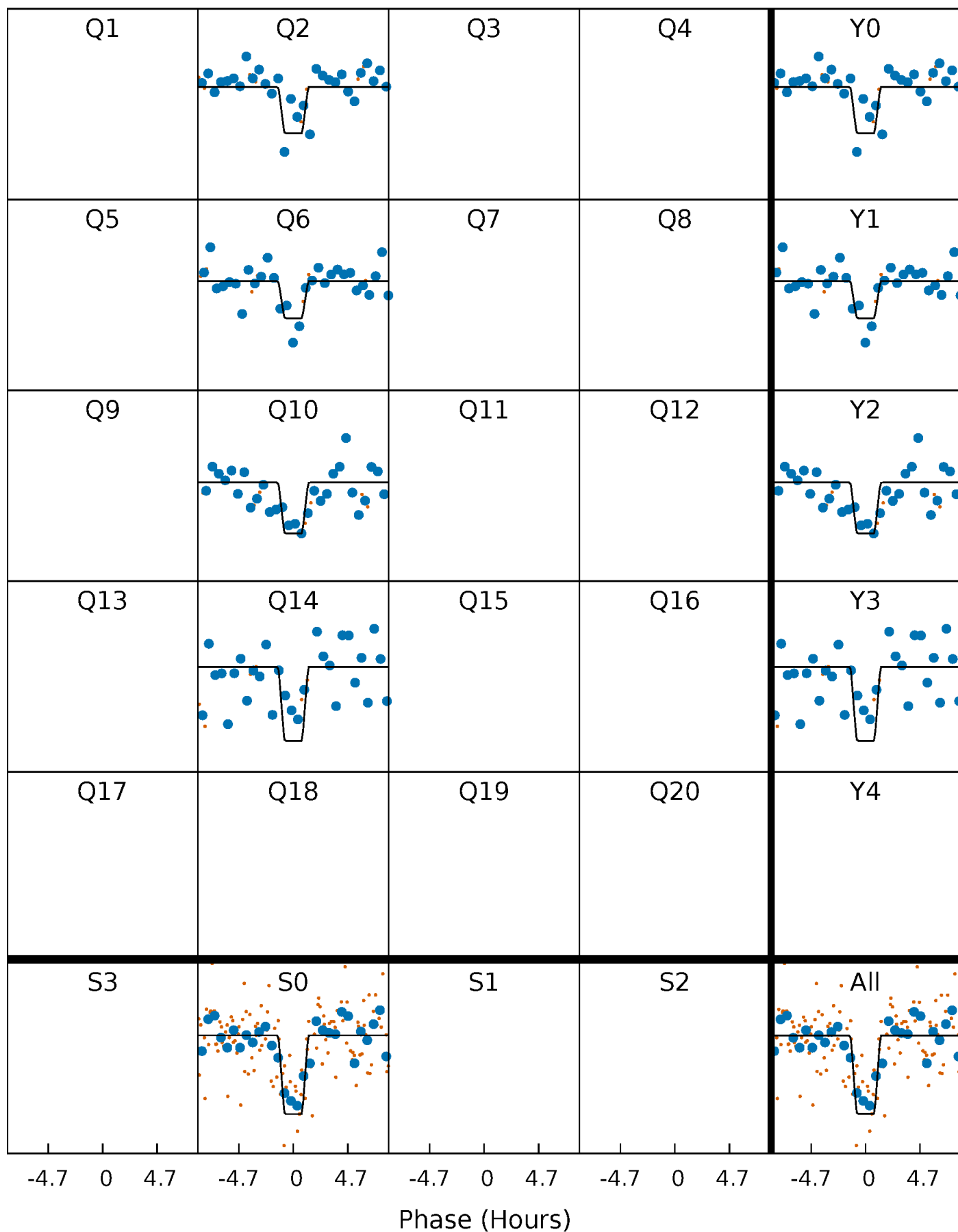
DV Quarter-Phased Transit Curves

TCE 006422367-01 P=372.486873 Days $T_0=208.372853$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

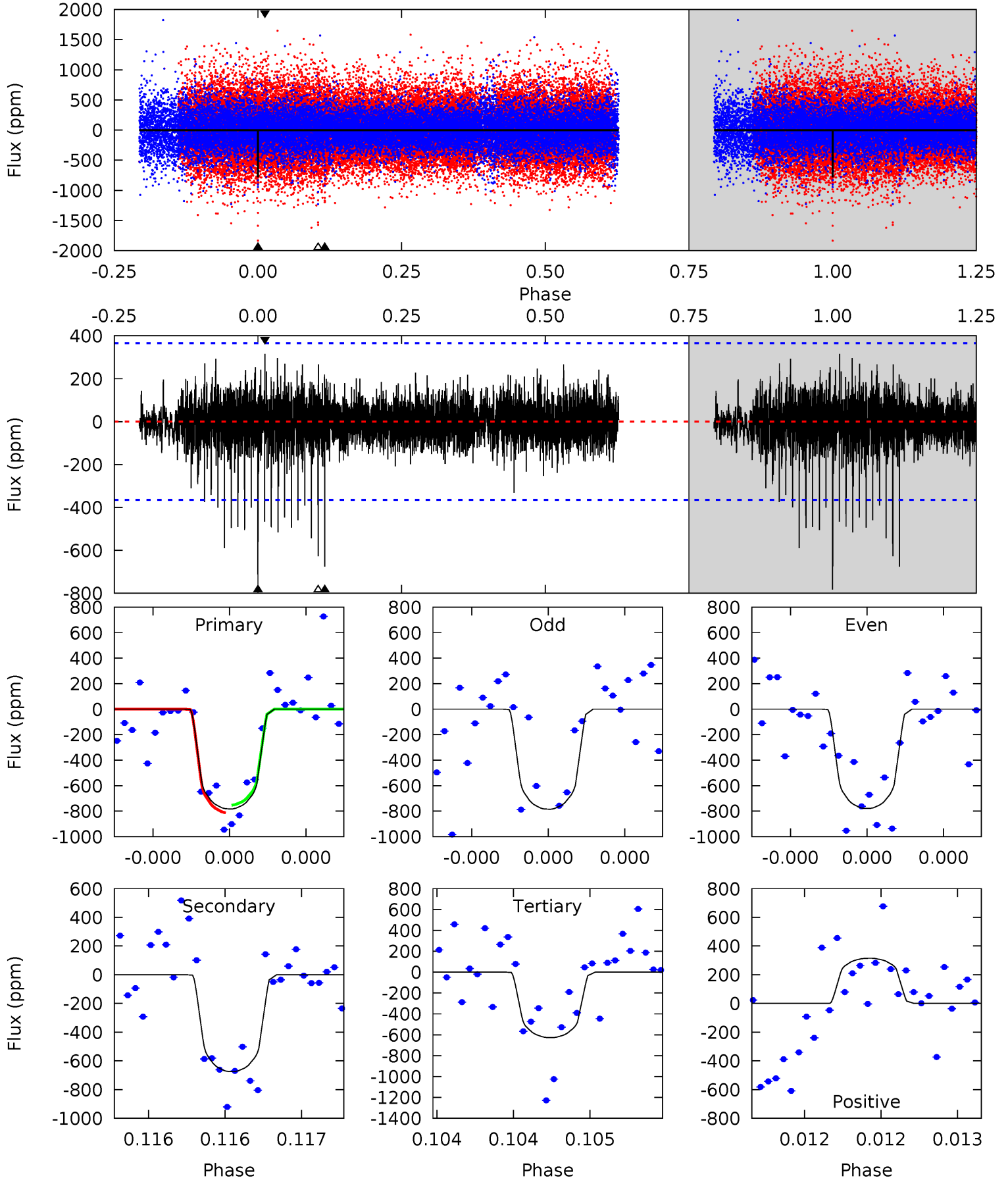
TCE 006422367-01 P=372.496988 Days $T_0=208.357590$ (BKJD)



DV Model-Shift Uniqueness Test

006422367-01, P = 372.486873 Days, E = 208.372853 Days

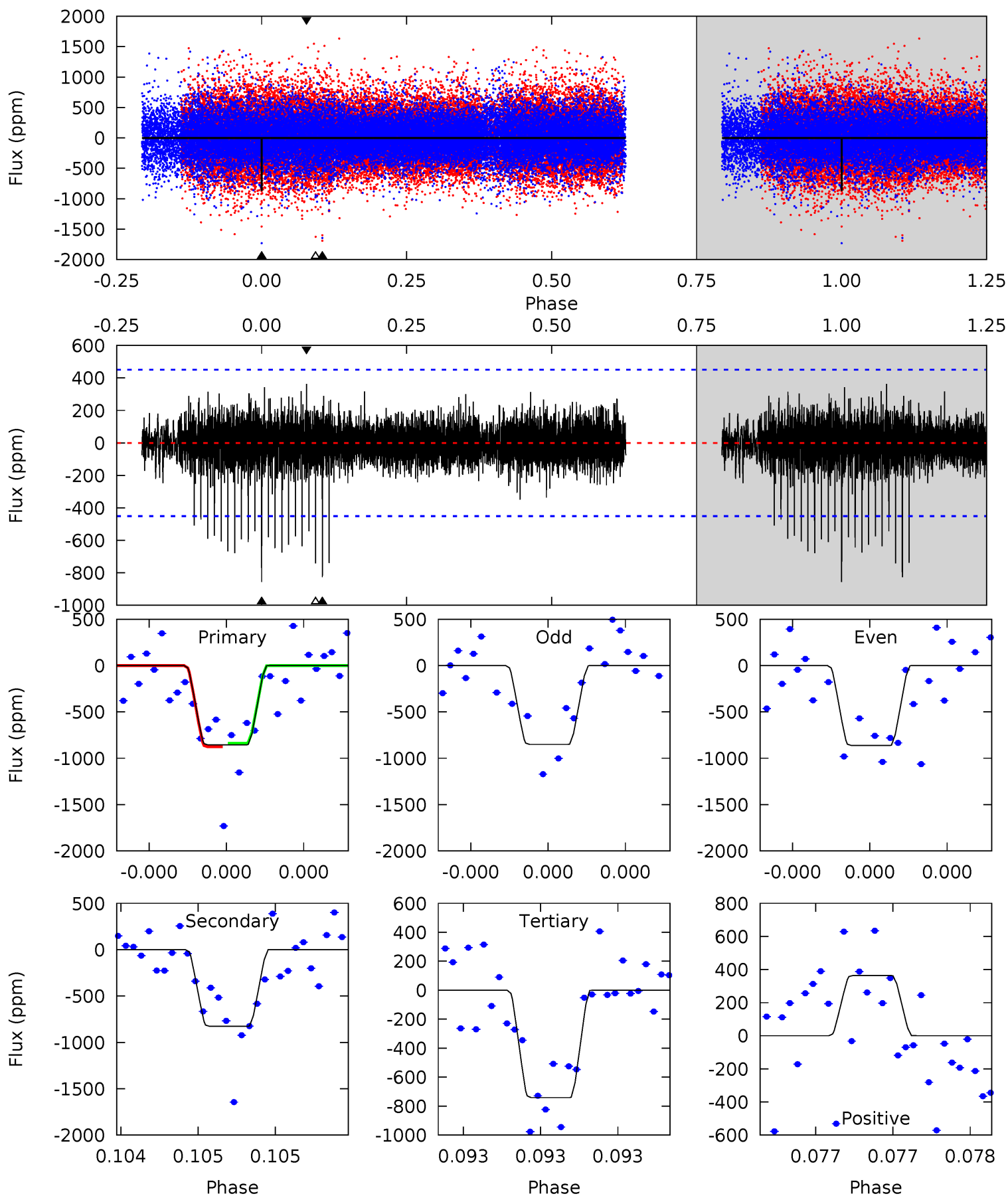
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	10.4	9.64	4.84	5.61	3.54	1.26	2.38	7.18	0.73	5.53	0.04	1.00	0.29	0.46



Alt Model-Shift Uniqueness Test

006422367-01, P = 372.496988 Days, E = 208.357590 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	10.4	9.33	4.57	5.67	3.63	1.22	1.44	6.20	1.07	5.82	0.07	0.99	0.30	0.25



Stellar Parameters For KIC 006422367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5344^{+160}_{-160}	$4.550^{+0.096}_{-0.072}$	$-0.620^{+0.350}_{-0.300}$	$0.728^{+0.090}_{-0.082}$	$0.686^{+0.090}_{-0.032}$	$2.502^{+0.940}_{-0.576}$
	+3%/-3%	+2%/-2%	+56%/-48%	+12%/-11%	+13%/-5%	+38%/-23%
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 006422367-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-675 ± 65	$2.88^{+2.31}_{-1.89}$	297^{+13}_{-13}	4648^{+3107}_{-896}	$36948^{+246775}_{-25932}$
Alt.	-826 ± 79	$3.10^{+2.32}_{-1.99}$	296^{+12}_{-12}	4716^{+2922}_{-903}	$39067^{+267697}_{-26229}$

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

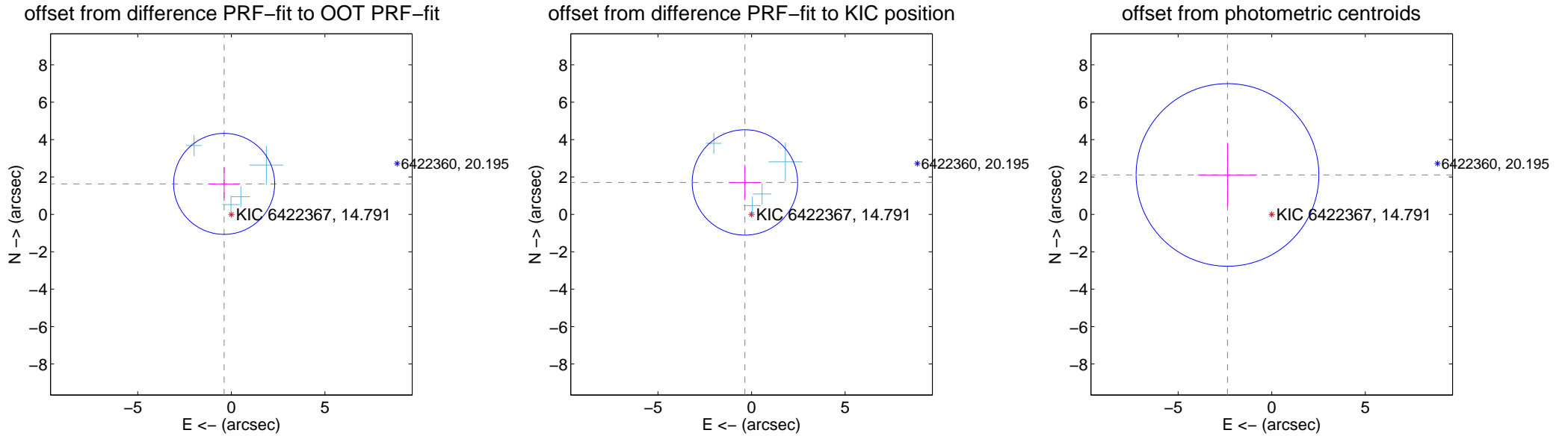
DV Centroid Data

Supplemental centroid analysis for 006422367-01. Kepler magnitude: 14.79. Transit SNR 8.74

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.677 ± 0.900	1.86	0.385 ± 0.849	1.632 ± 0.903
PRF-fit source offset from KIC position	1.746 ± 0.939	1.86	0.353 ± 0.867	1.710 ± 0.942
photometric centroid source offset	3.17 ± 1.63	1.95	2.36 ± 1.58	2.11 ± 1.68



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.

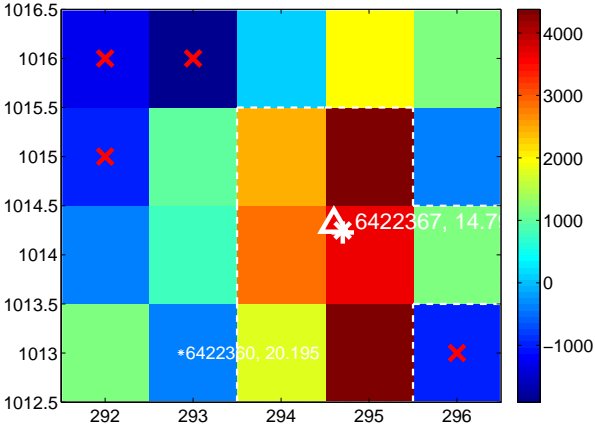
Q1 no difference image



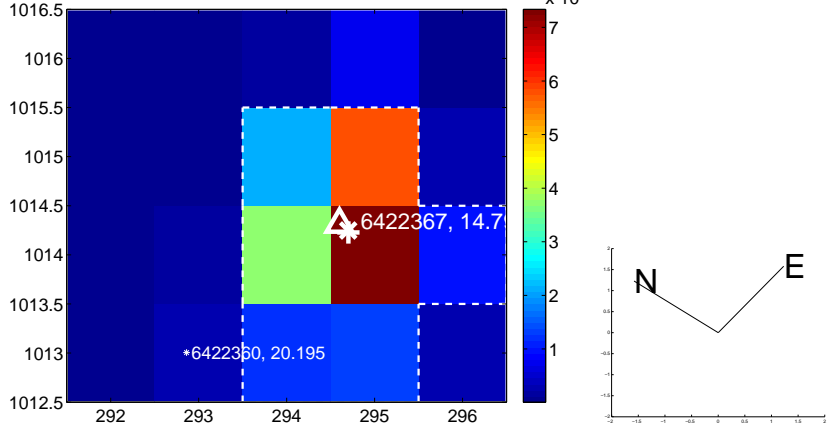
Q1 no OOT image



Q2 difference image



Q2 OOT image



Q3 no difference image



Q3 no 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.

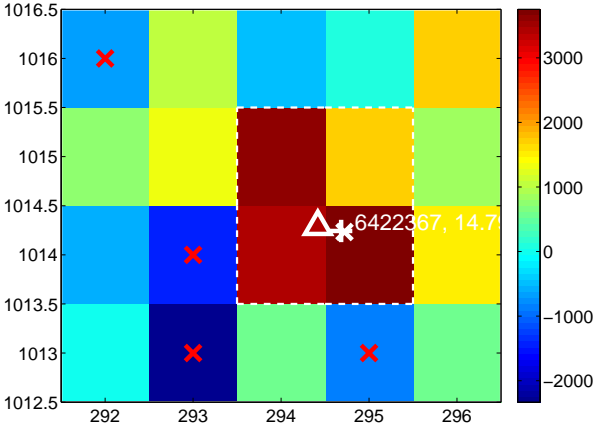
Q5 no difference image



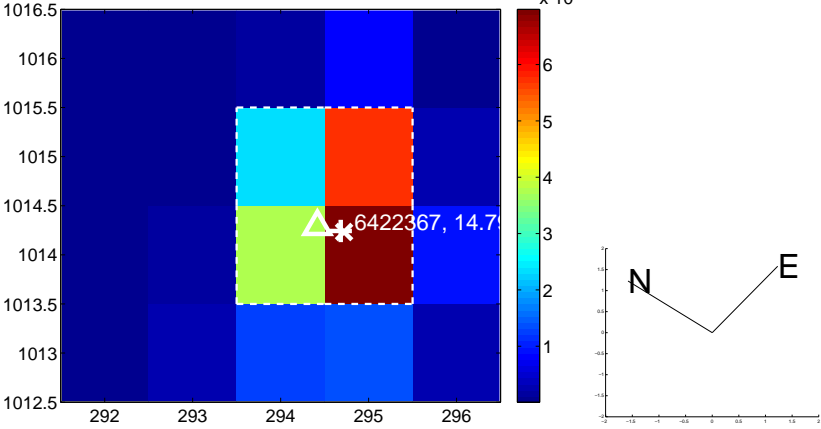
Q5 no OOT image



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.

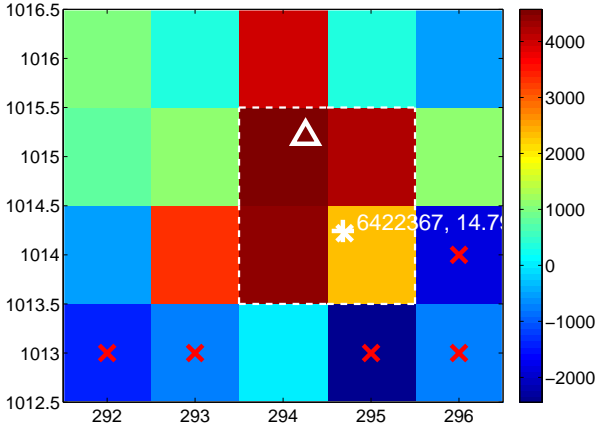
Q9 no difference image



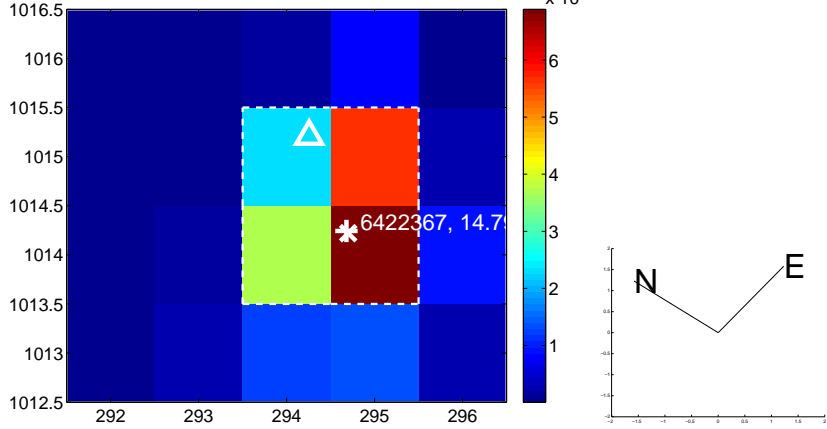
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

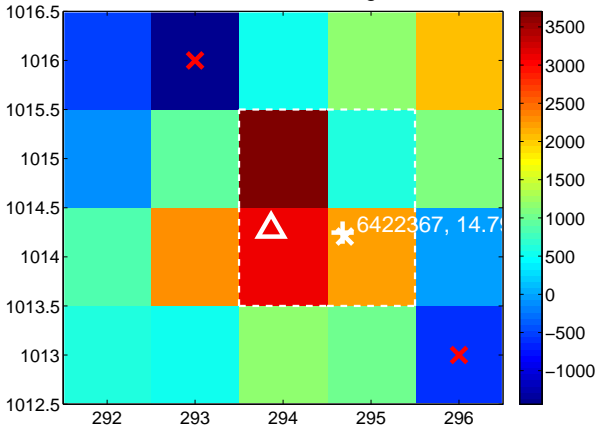
Q13 no difference image



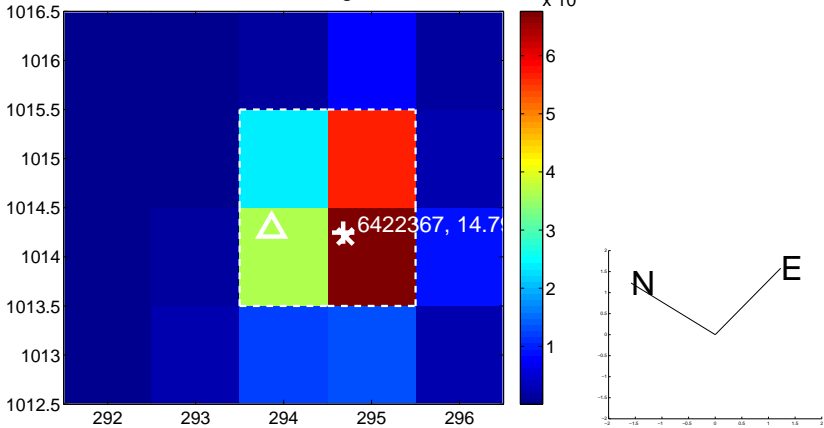
Q13 no OOT image



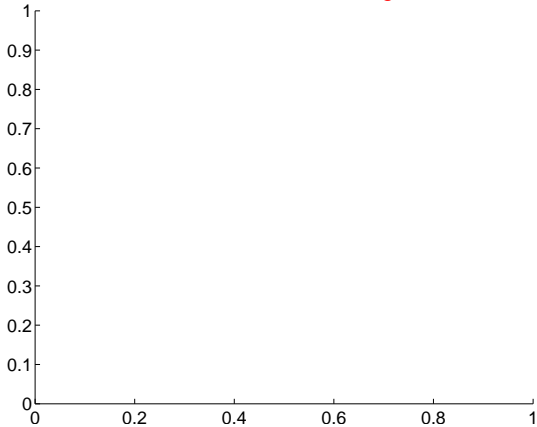
Q14 difference image



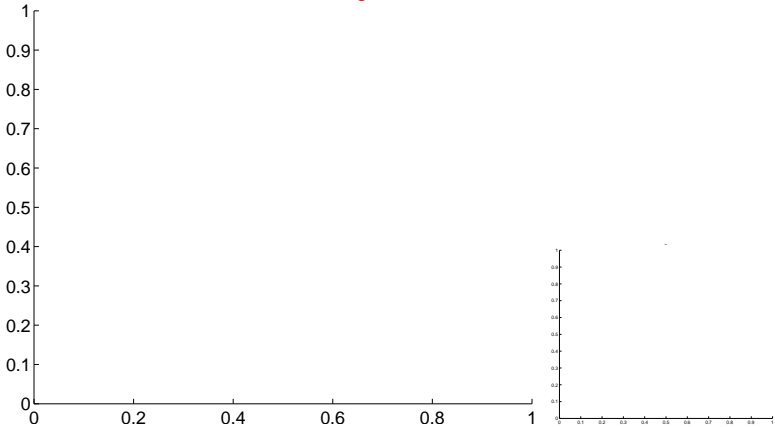
Q14 OOT image



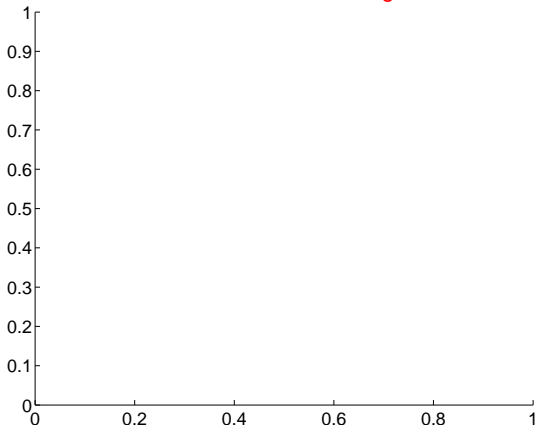
Q15 no difference image



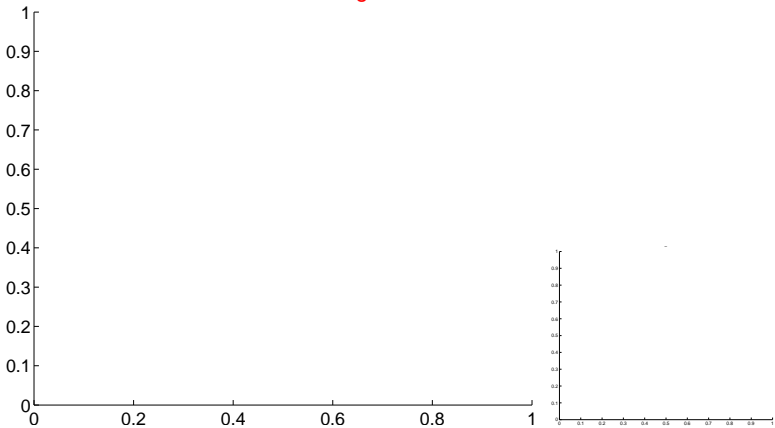
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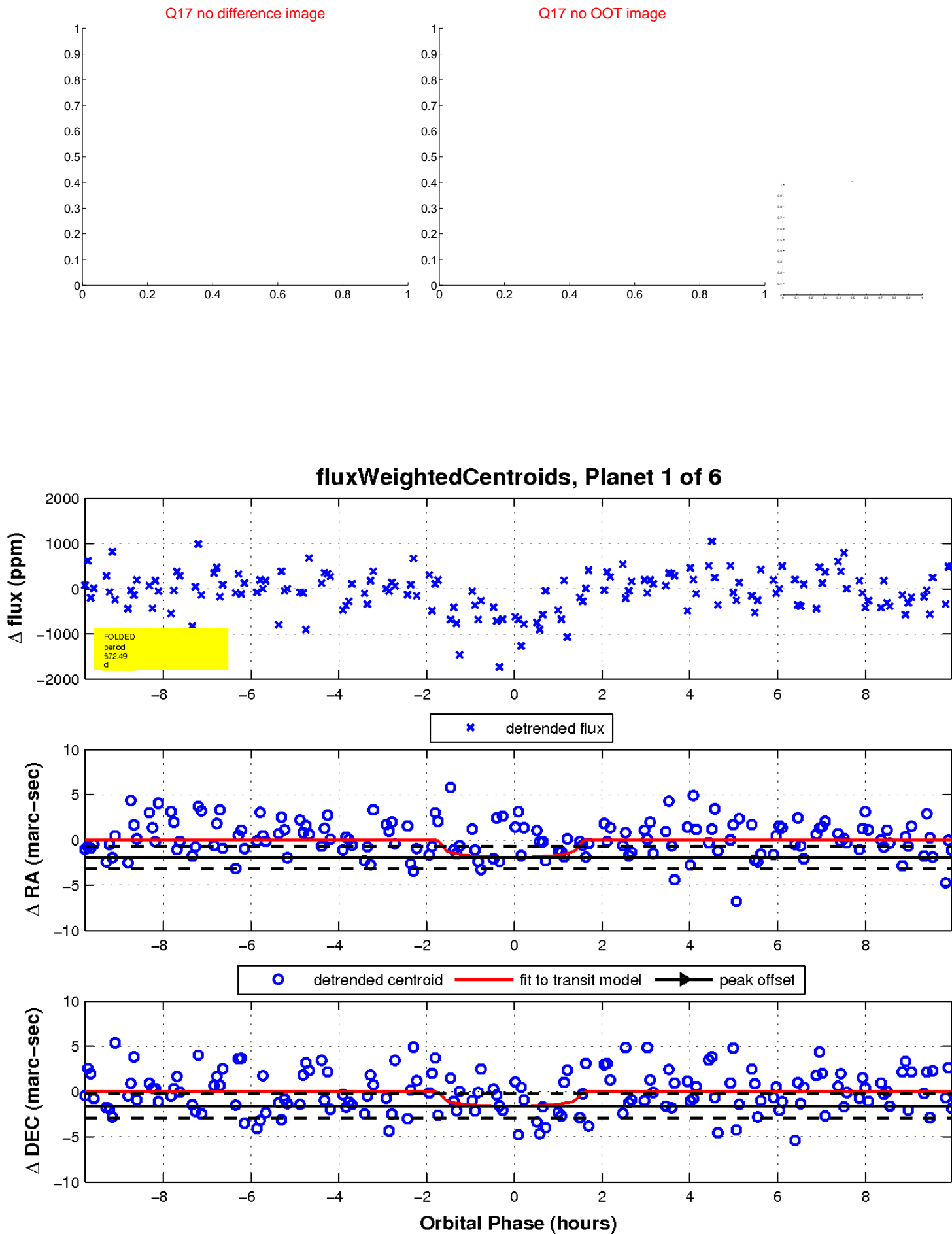
Q16 no difference image



Q16 no OOT image

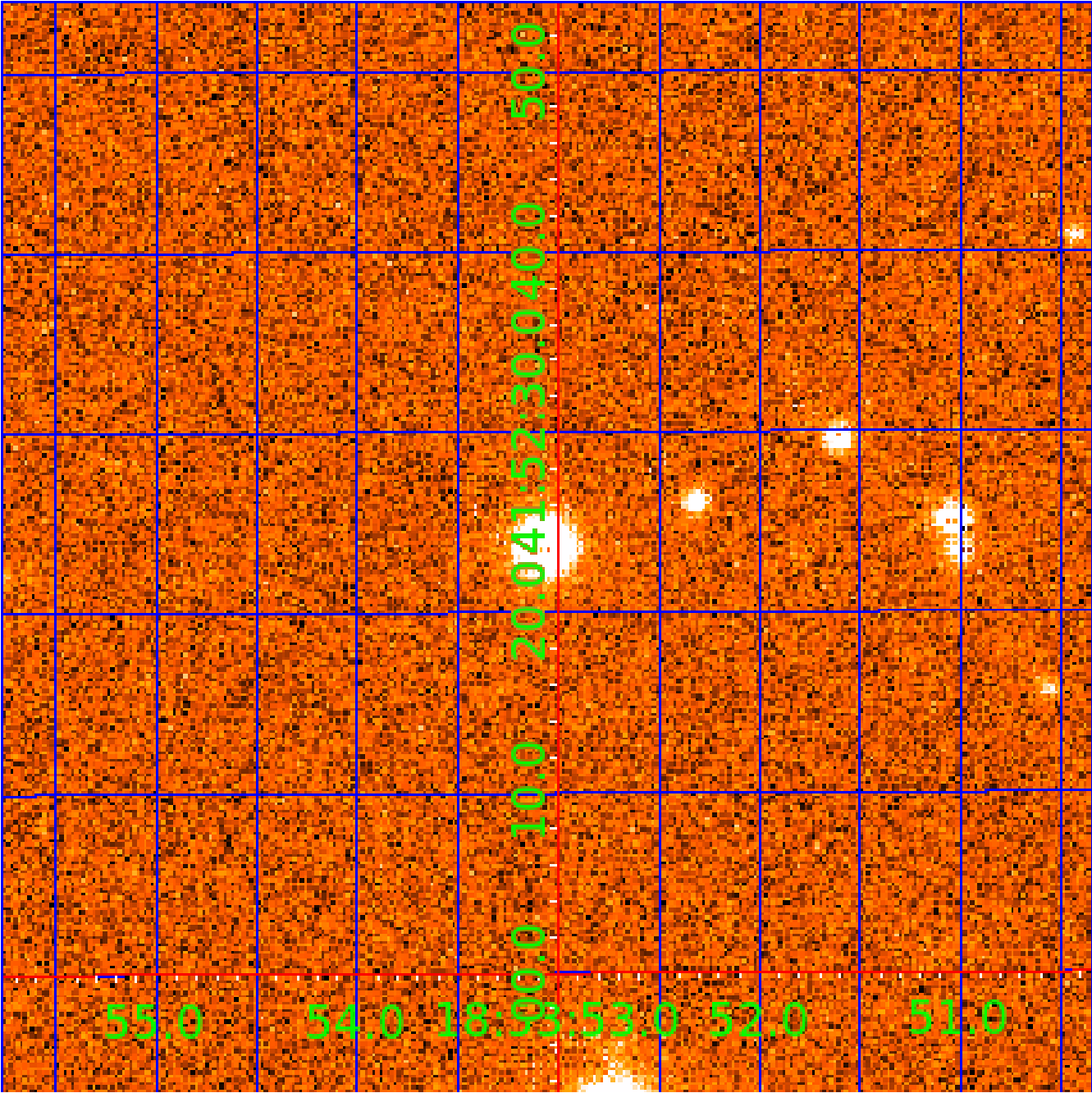


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006422367

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})
006422367-01	OBS	No	372.486873	208.372853	789.4	3.332	8.6	8.7	0.73	5344	2.20	0.48
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Robovetter Results

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006422367-02	OBS	FP	0.00	1	0	0	0	MOD_TER_DV—MOD_TER_ALT
006422367-03	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
006422367-04	OBS	FP	0.03	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

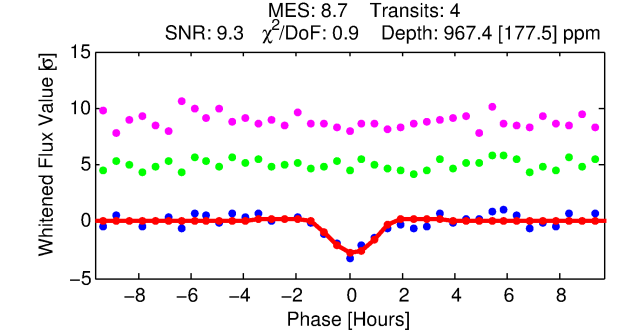
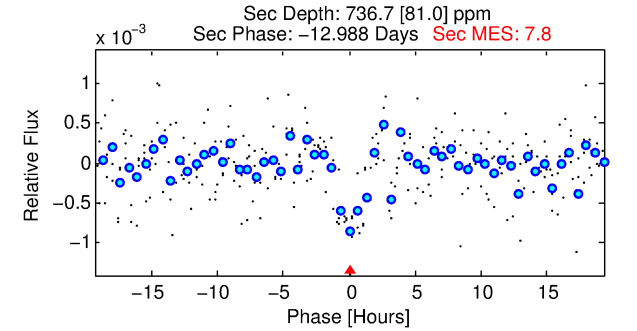
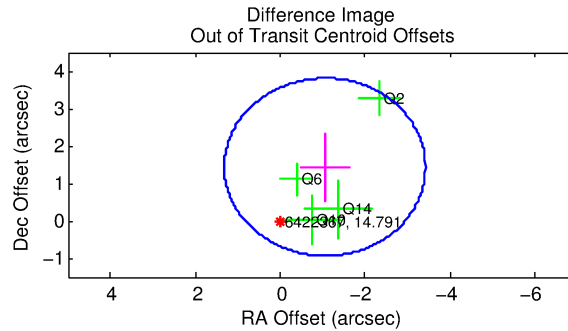
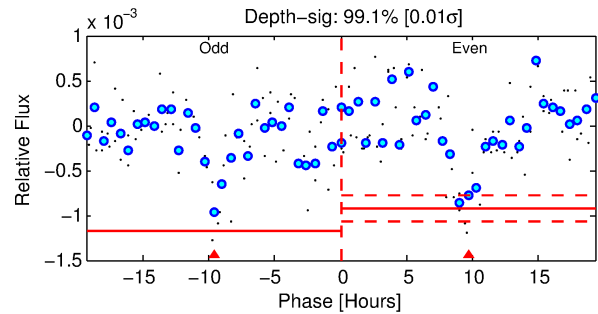
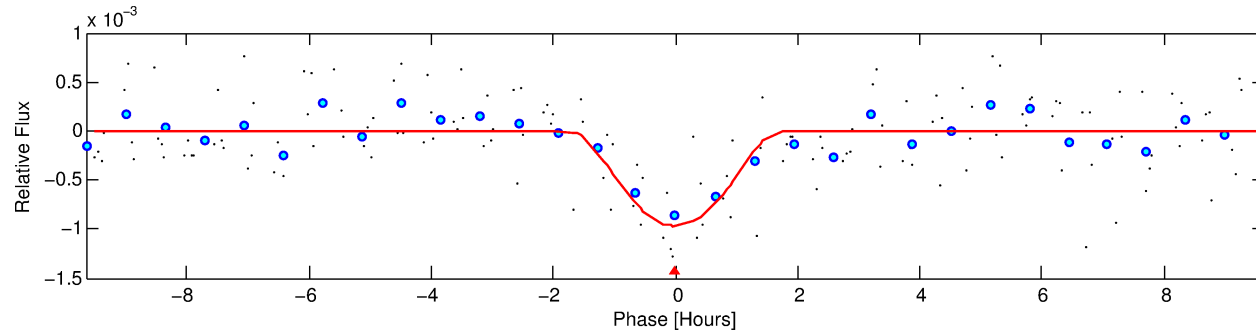
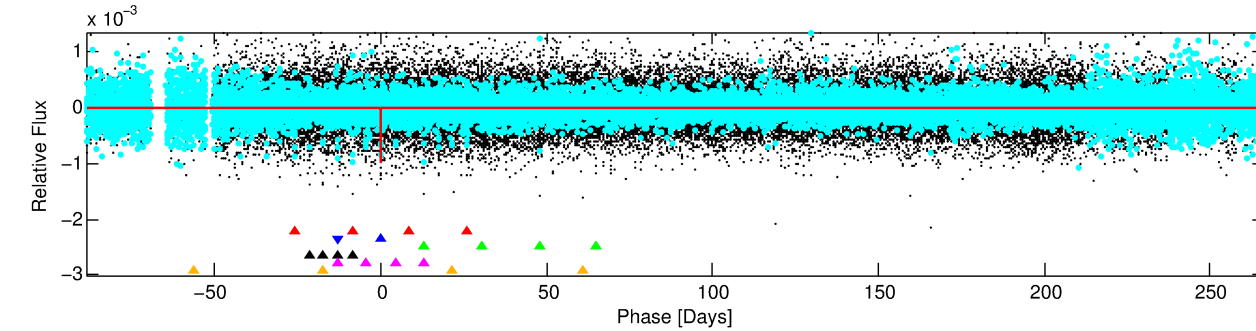
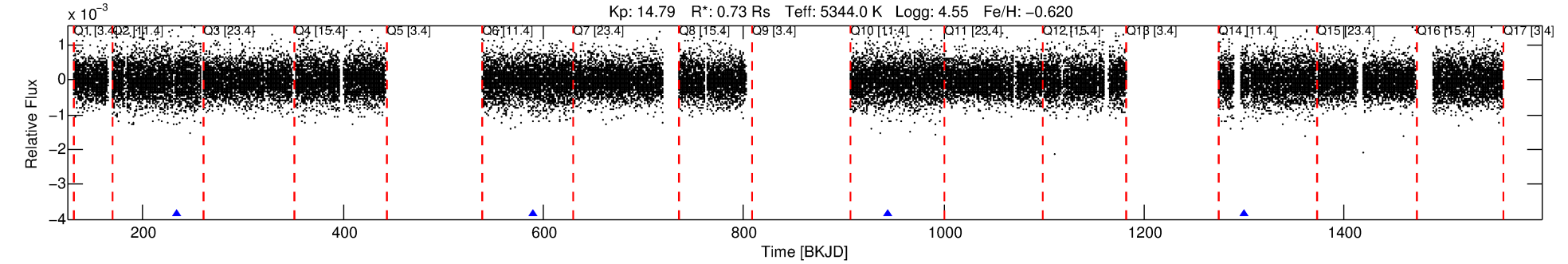
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006422367-02

No Significant Match Found

DV One-Page Summary

KIC: 6422367 Candidate: 2 of 6 Period: 355.179 d
KOI: K00559 Corr: No Ephemeris Match



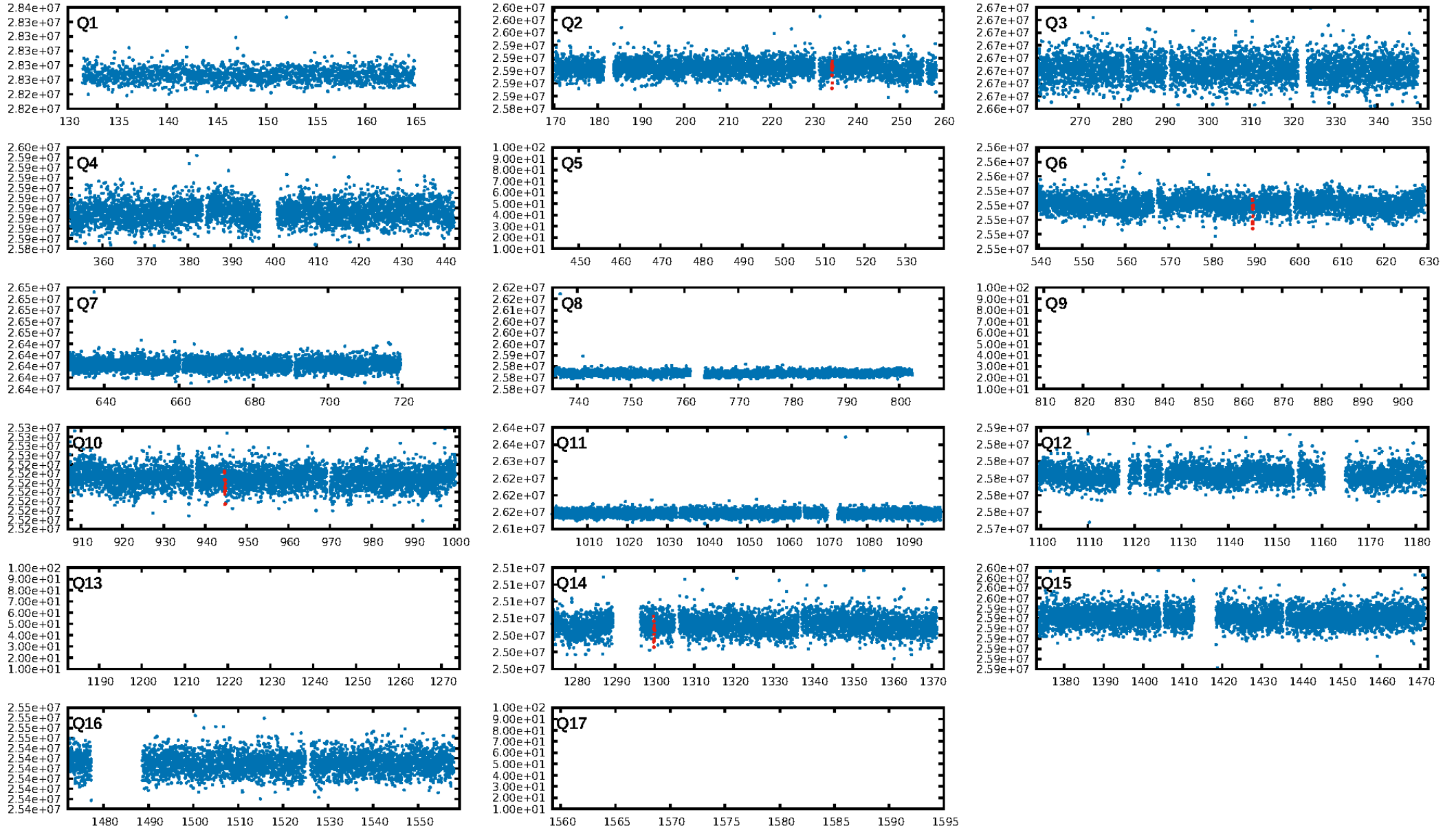
DV Fit Results:

Period = 355.17911 [0.00382] d
Epoch = 234.3375 [0.0066] BKJD
Rp/R* = 0.0531 [0.2285]
a/R* = 290.92 [322.94]
b = 1.00 [0.35]
Seff = 0.52 [0.11]
Teq = 216 [11] K
Rp = 4.22 [18.16] Re
a = 0.8658 [0.0957] AU
Ag = 17064.43 [146864.73] [0.12σ]
Teffp = 3820 [8219] K [0.44σ]

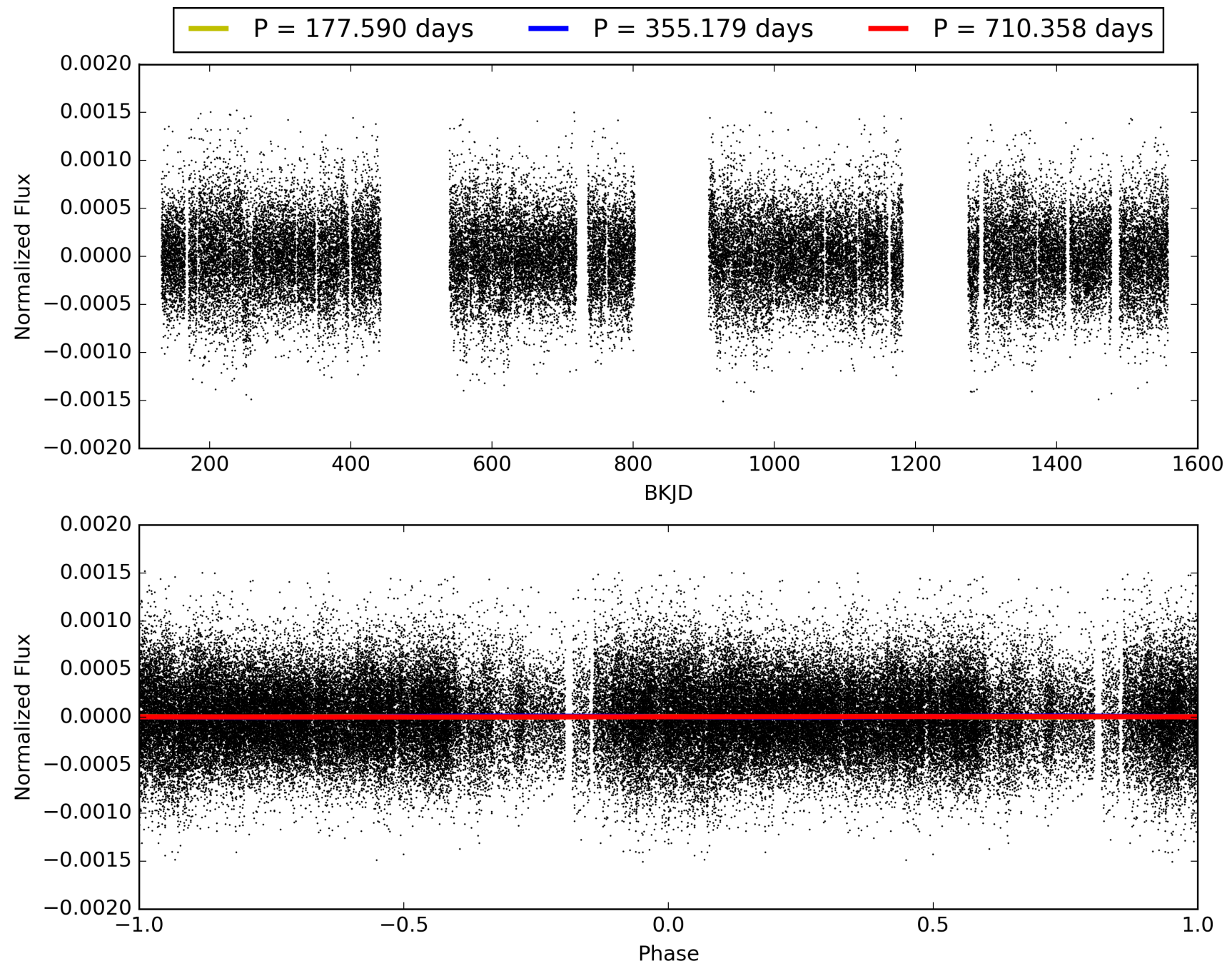
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.28σ]
LongPeriod-sig: 100.0% [47.91σ]
ModelChiSquare2-sig: 57.5%
ModelChiSquareGof-sig: 87.6%
Bootstrap-pfa: 1.18e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.404
Centroid-sig: 1.1%
Centroid-so: 2.705 arcsec [1.52σ]
OotOffset-rm: 1.784 arcsec [2.26σ]
KicOffset-rm: 1.857 arcsec [2.57σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 006422367-02, PDC Light Curves

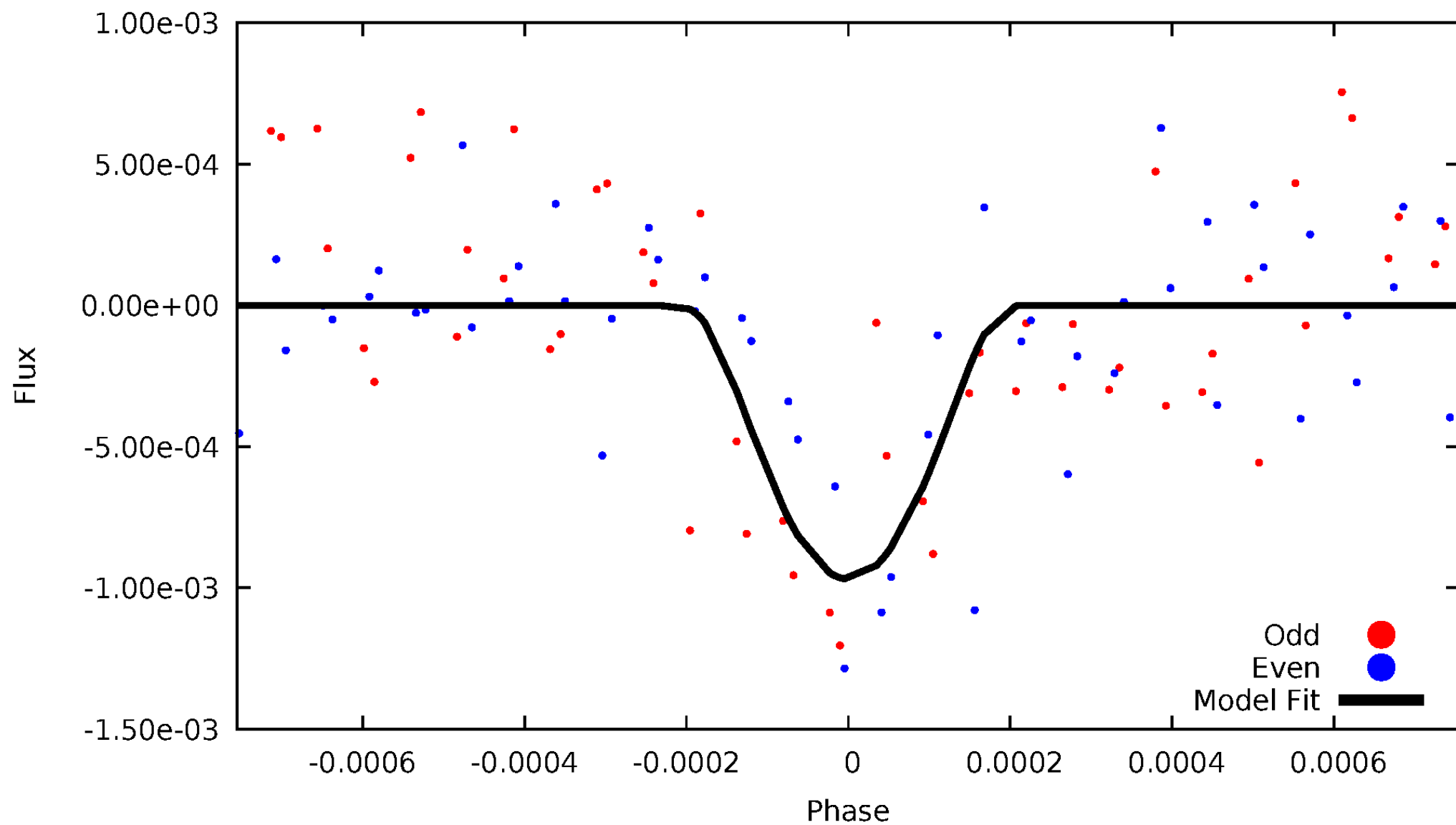


TCE 006422367-02



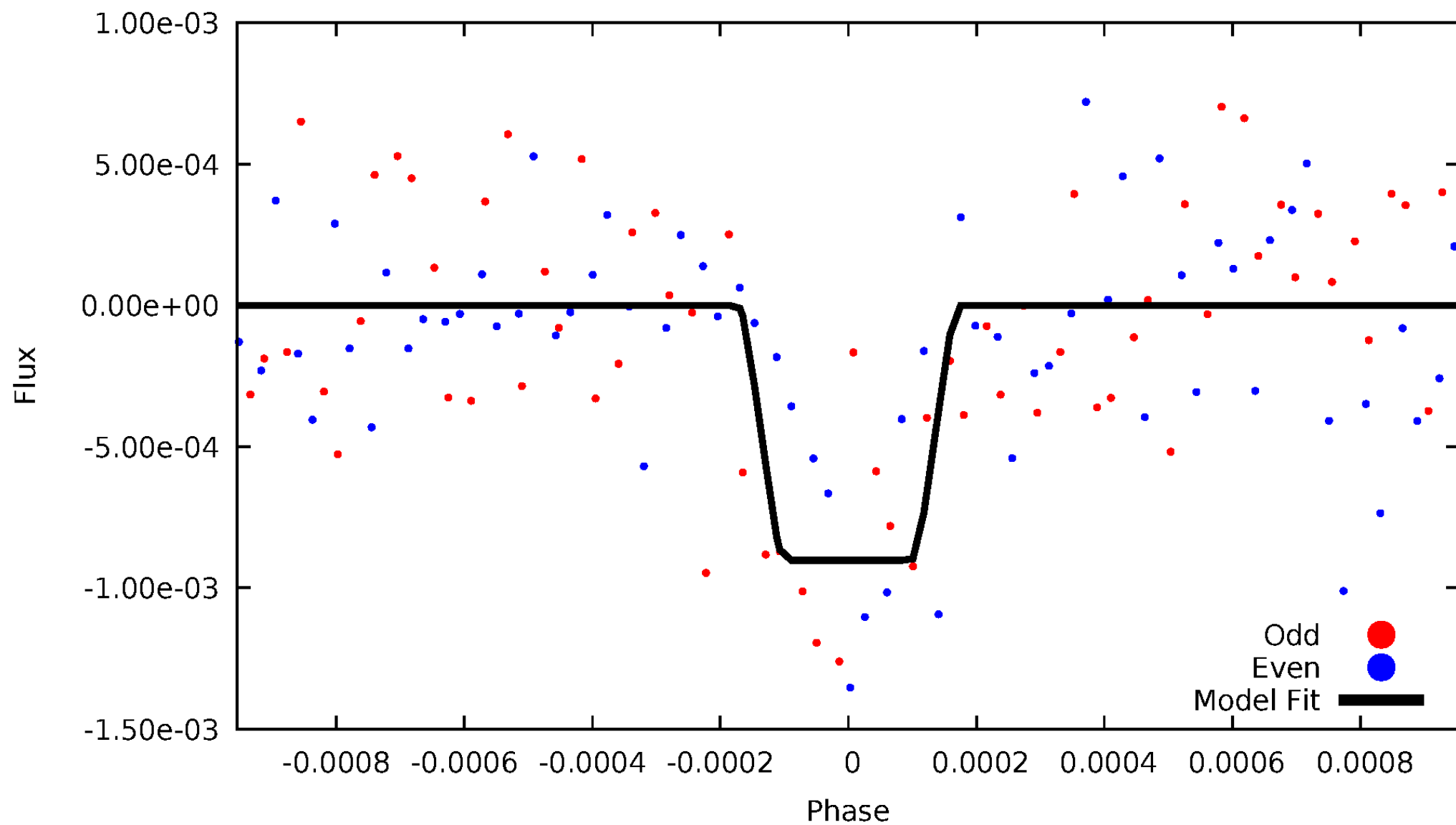
DV Odd/Even

TCE 006422367-02



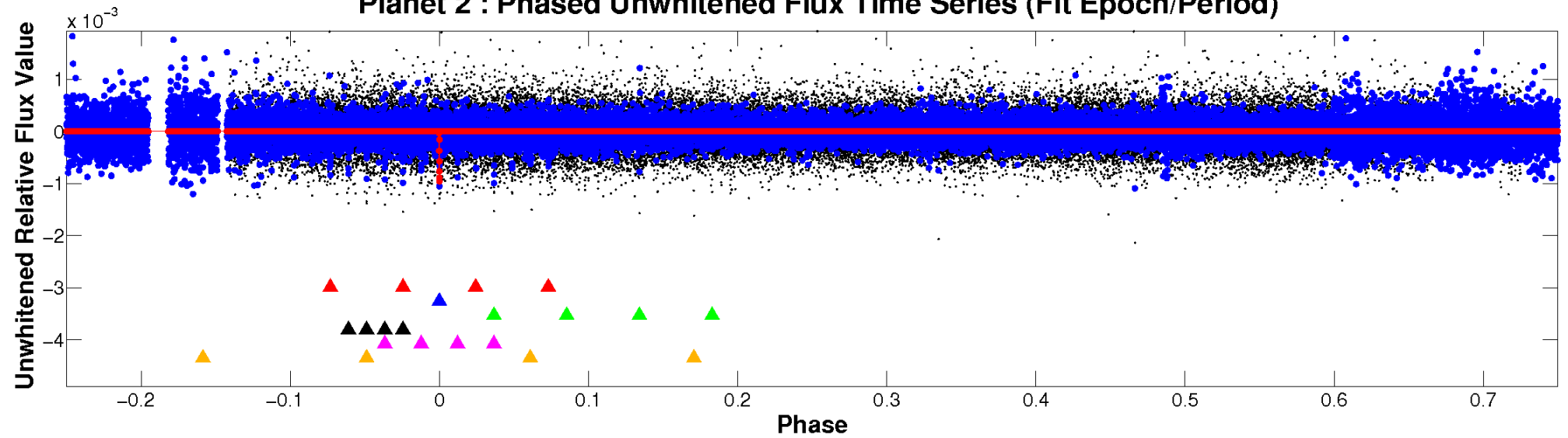
ALT Odd/Even

TCE 006422367-02

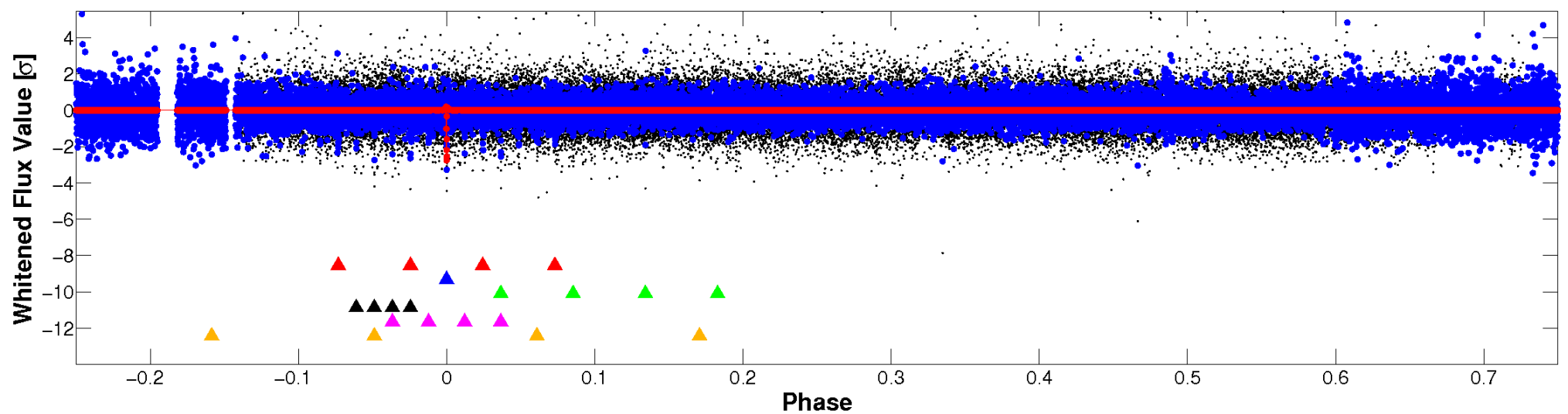


Non-Whitened Vs. Whitened Light Curve

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

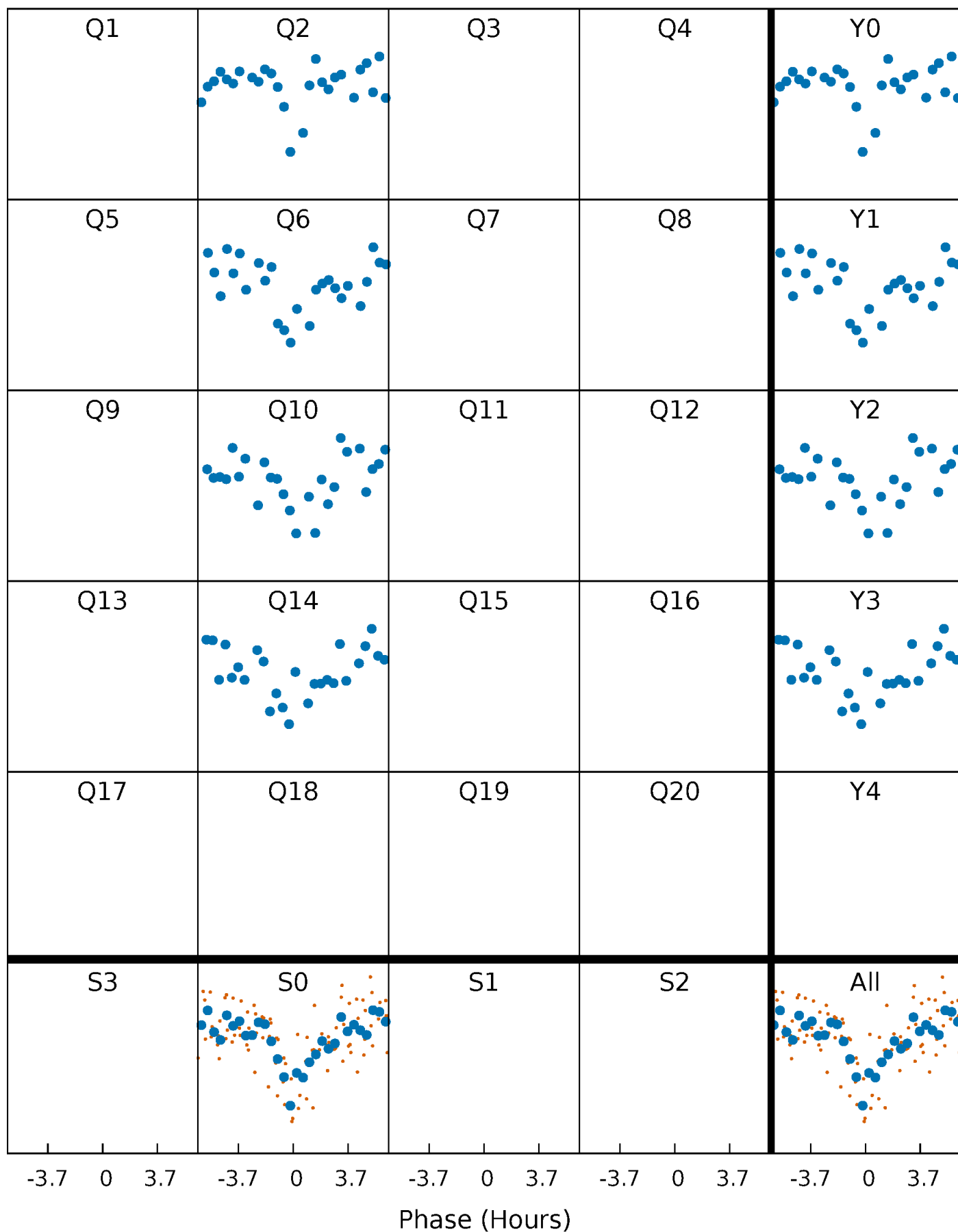


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



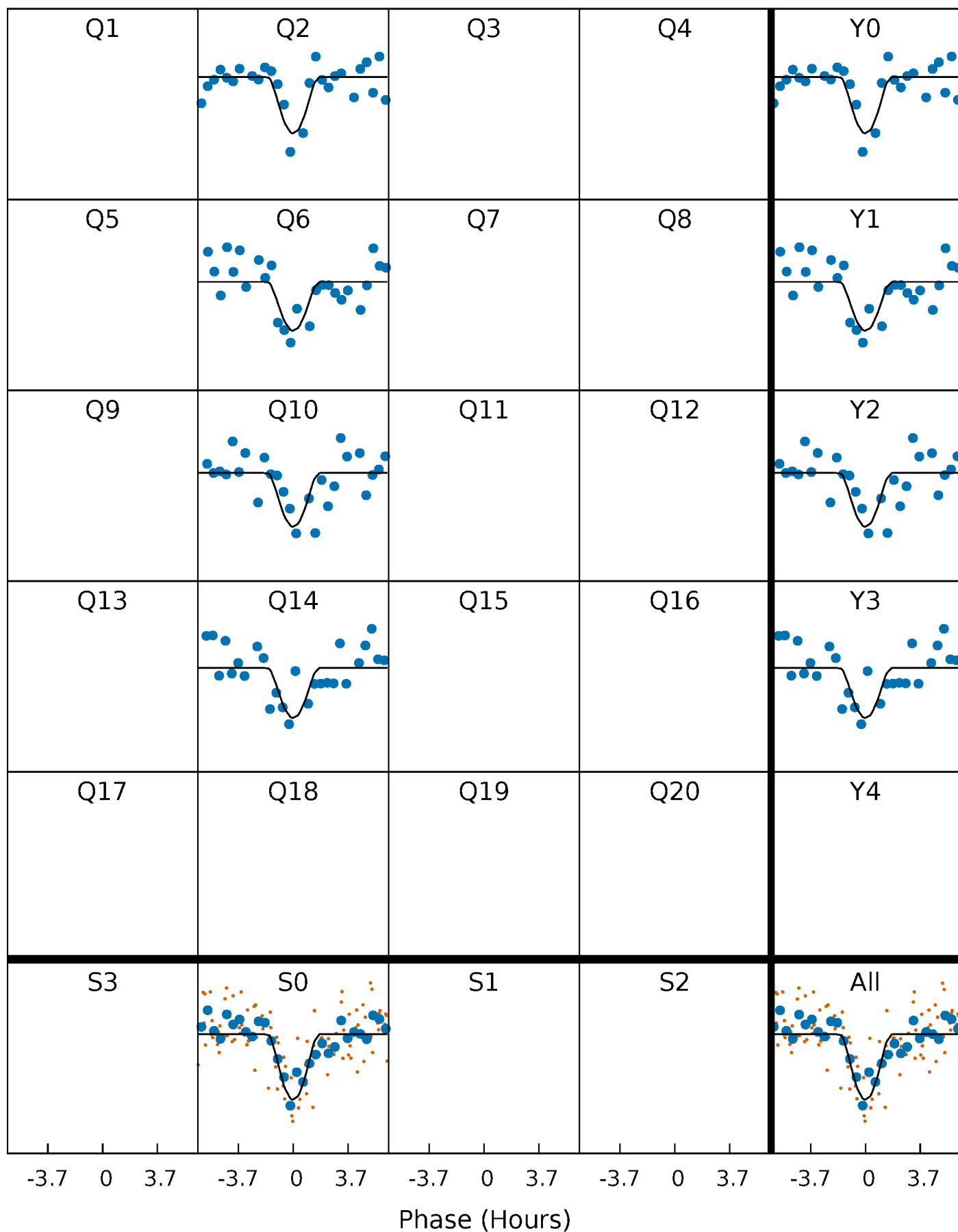
PDC Quarter-Phased Transit Curves

TCE 006422367-02 P=355.179115 Days $T_0=234.337472$ (BKJD)



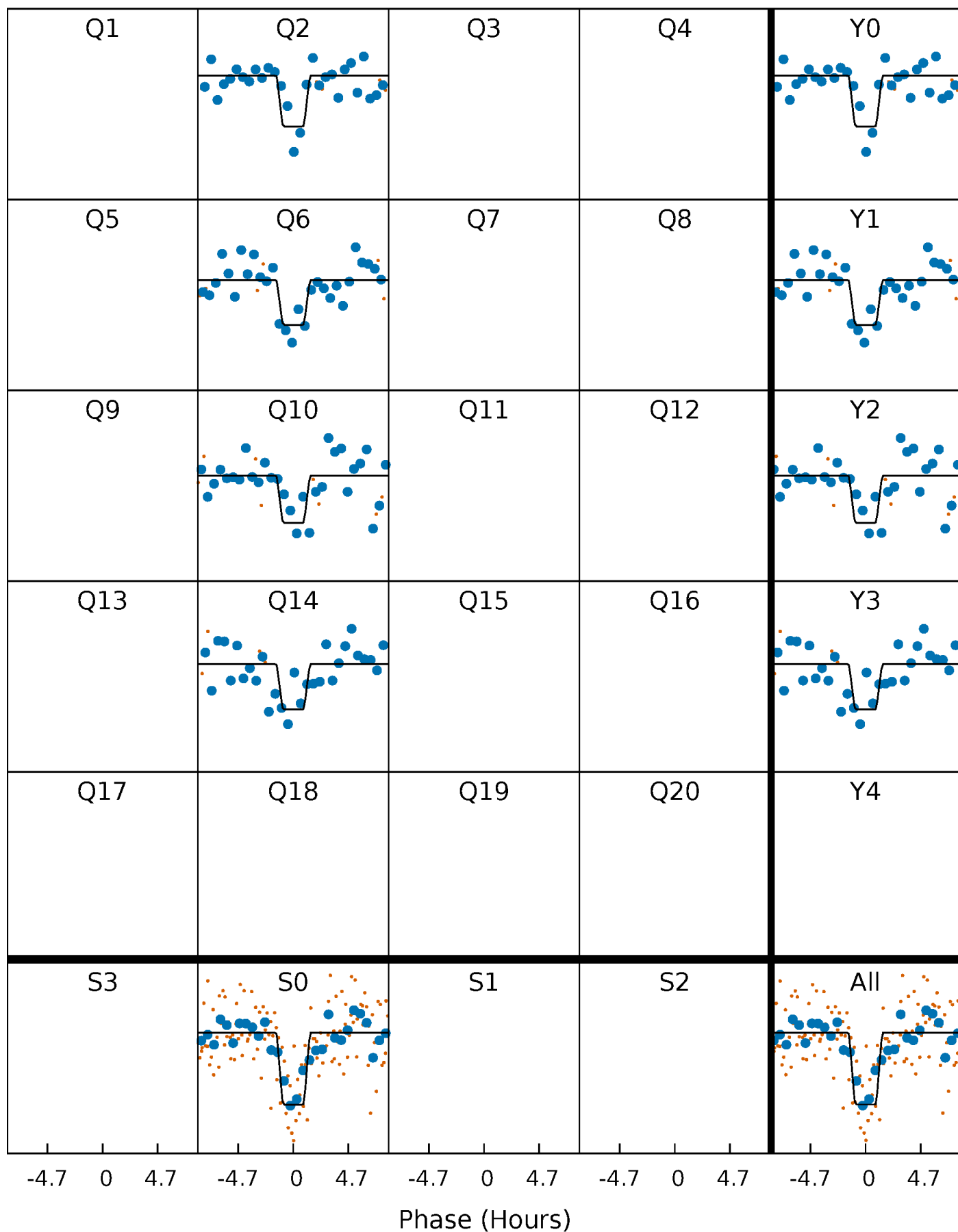
DV Quarter-Phased Transit Curves

TCE 006422367-02 P=355.179115 Days $T_0=234.337472$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

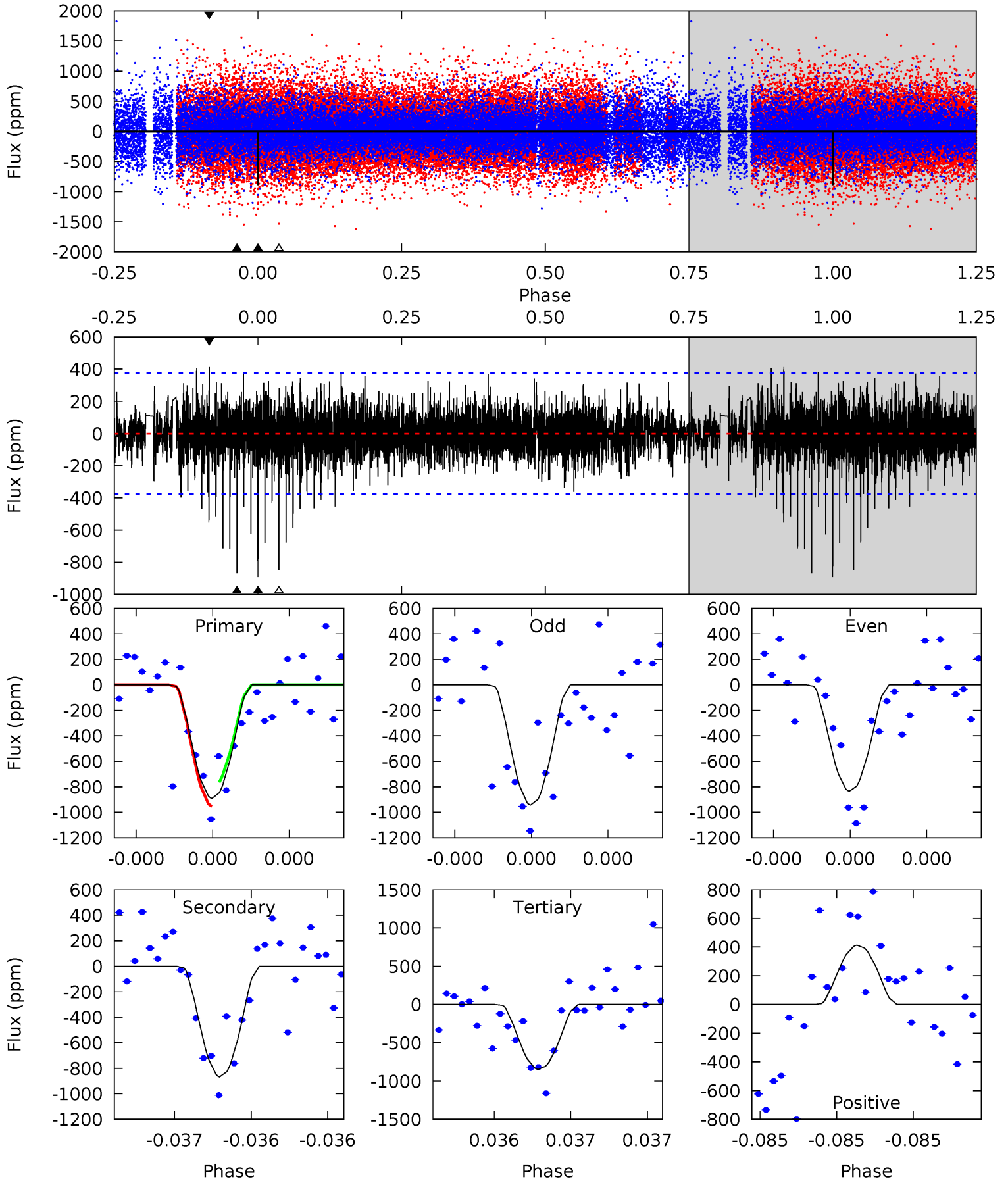
TCE 006422367-02 P=355.183184 Days $T_0=234.334724$ (BKJD)



DV Model-Shift Uniqueness Test

006422367-02, P = 355.179115 Days, E = 234.337472 Days

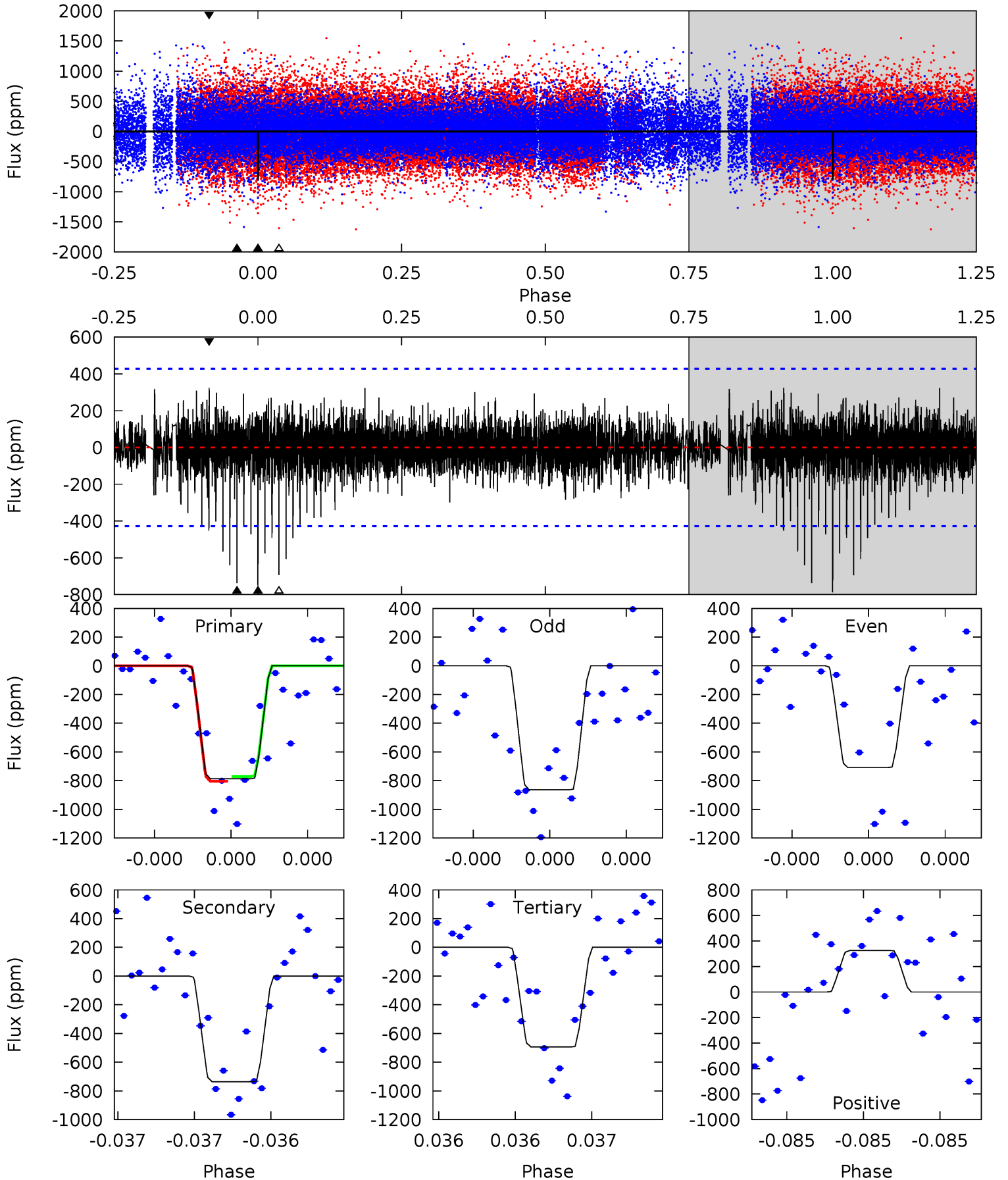
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	12.9	12.6	6.14	5.61	3.53	1.57	0.64	7.10	0.30	6.76	0.81	1.07	0.32	1.39



Alt Model-Shift Uniqueness Test

006422367-02, P = 355.183184 Days, E = 234.334724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	9.72	9.16	4.29	5.65	3.59	1.17	1.23	6.10	0.56	5.43	1.03	1.08	0.29	0.22



Stellar Parameters For KIC 006422367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5344^{+160}_{-160}	$4.550^{+0.096}_{-0.072}$	$-0.620^{+0.350}_{-0.300}$	$0.728^{+0.090}_{-0.082}$	$0.686^{+0.090}_{-0.032}$	$2.502^{+0.940}_{-0.576}$
	+3%/-3%	+2%/-2%	+56%/-48%	+12%/-11%	+13%/-5%	+38%/-23%
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 006422367-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-868 ± 67	$13.55^{+13.87}_{-9.10}$	301^{+13}_{-13}	2913^{+1216}_{-479}	2027^{+15631}_{-1554}
Alt.	-737 ± 76	$12.62^{+14.28}_{-9.35}$	301^{+13}_{-13}	2905^{+1557}_{-514}	1926^{+27063}_{-1500}

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 $A_{obs} \gg 1.0$

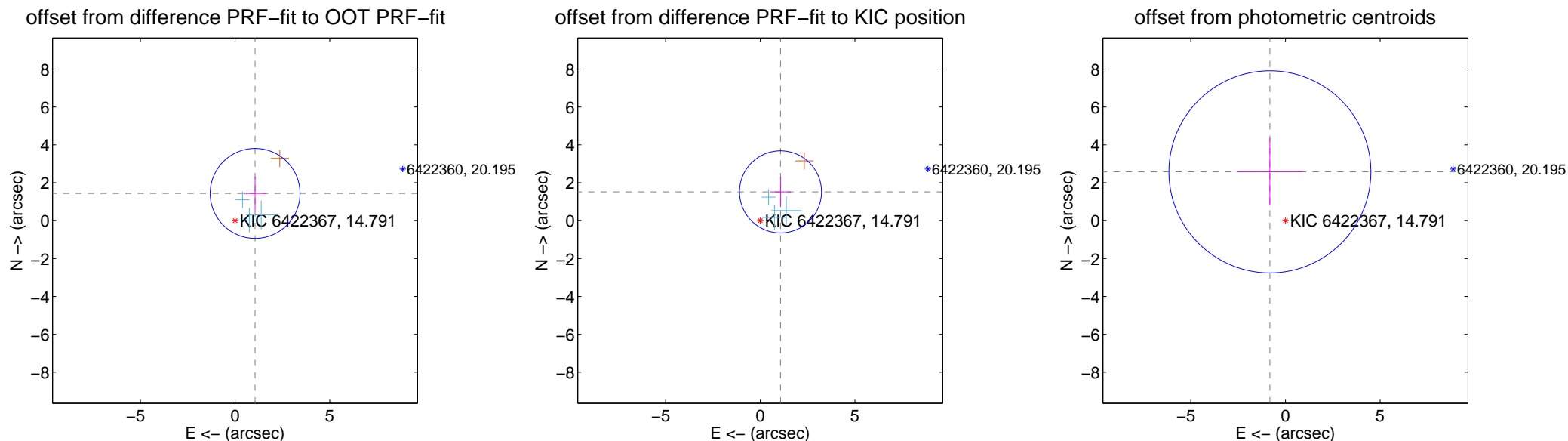
DV Centroid Data

Supplemental centroid analysis for 006422367-02. Kepler magnitude: 14.79. Transit SNR 9.27

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.784 ± 0.791	2.26	-1.058 ± 0.562	1.437 ± 0.891
PRF-fit source offset from KIC position	1.857 ± 0.722	2.57	-1.069 ± 0.540	1.519 ± 0.797
photometric centroid source offset	2.70 ± 1.78	1.52	0.82 ± 1.72	2.58 ± 1.78



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.

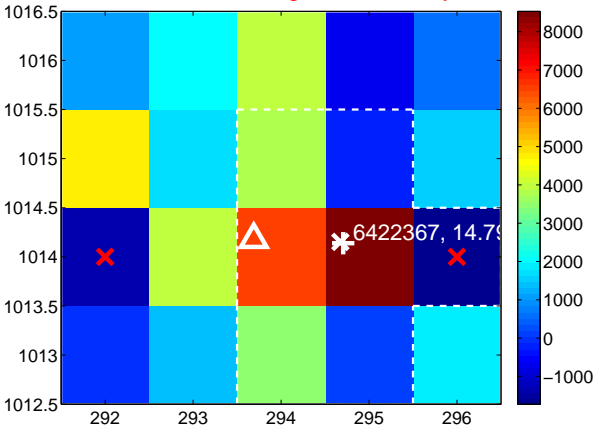
Q1 no difference image



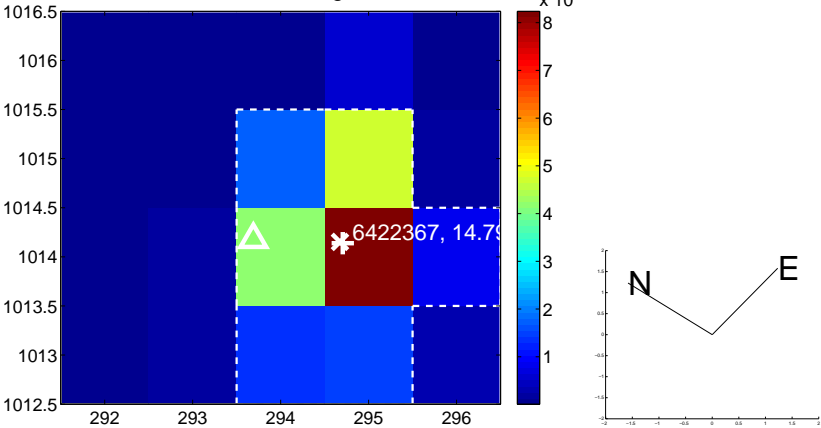
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



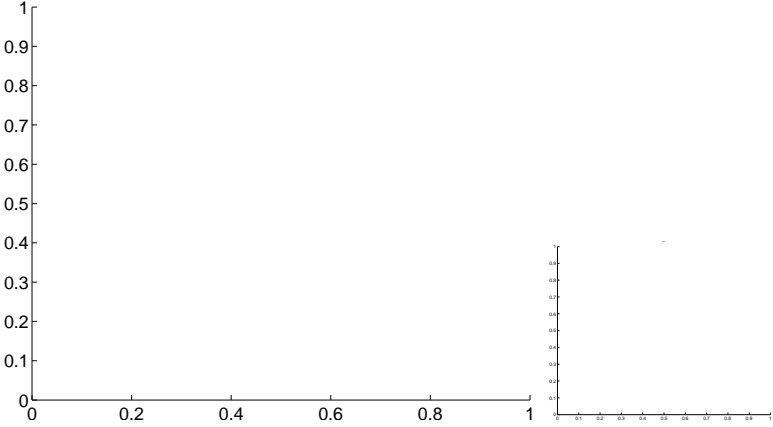
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

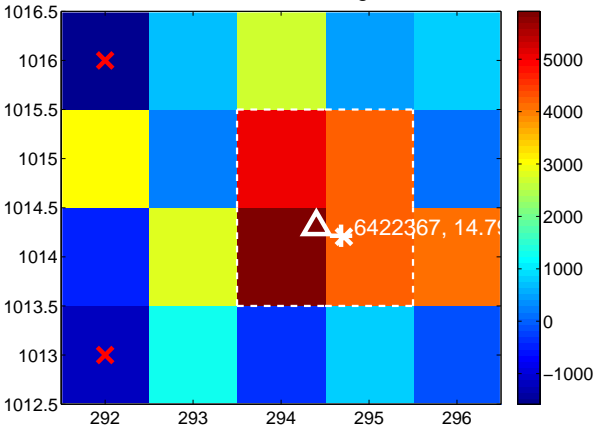
Q5 no difference image



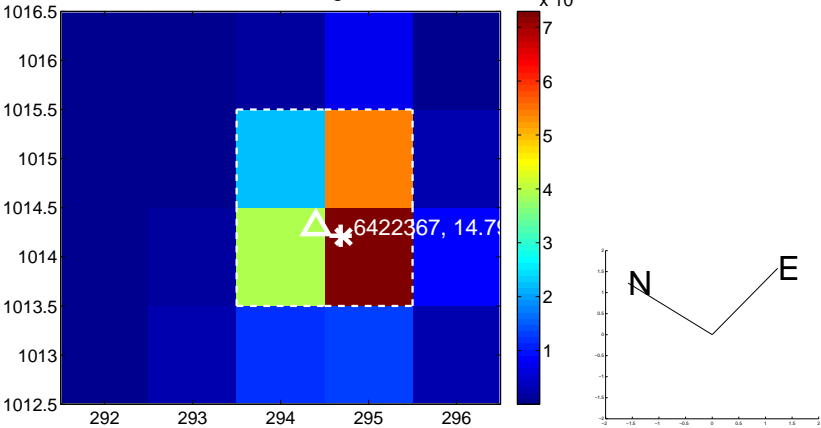
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



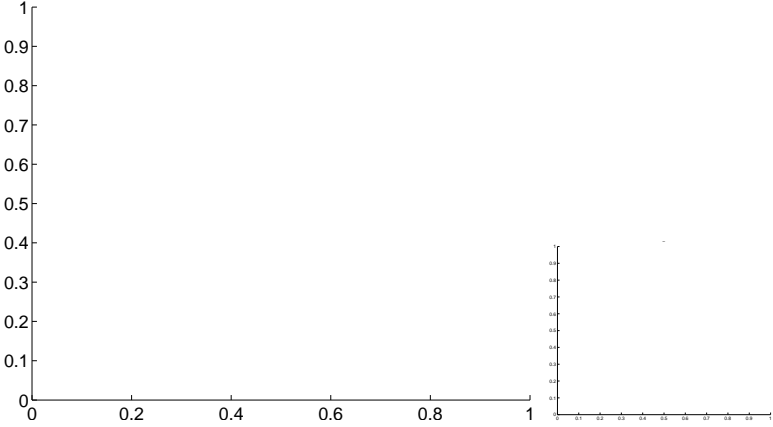
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

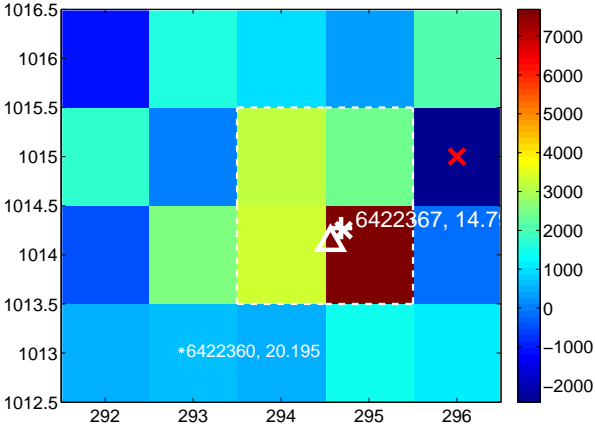
Q9 no difference image



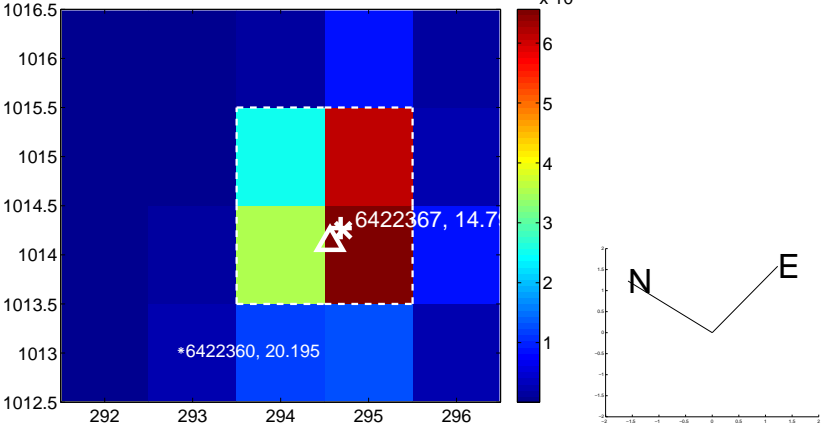
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

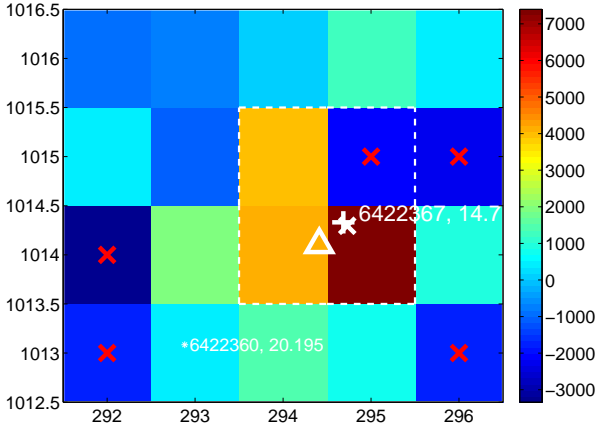
Q13 no difference image



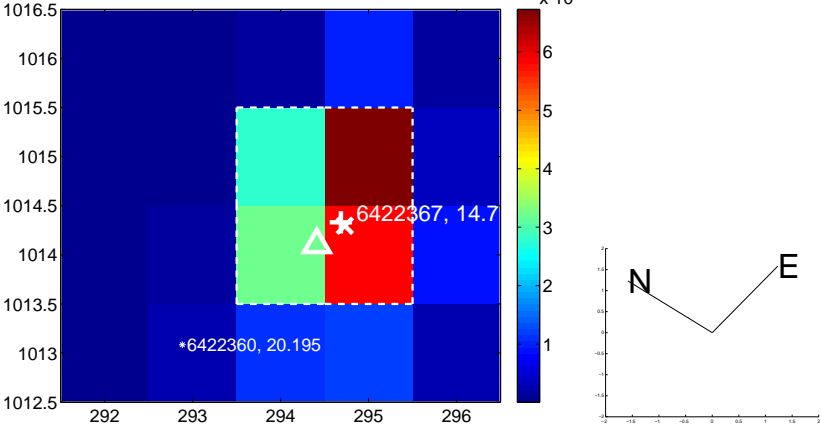
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



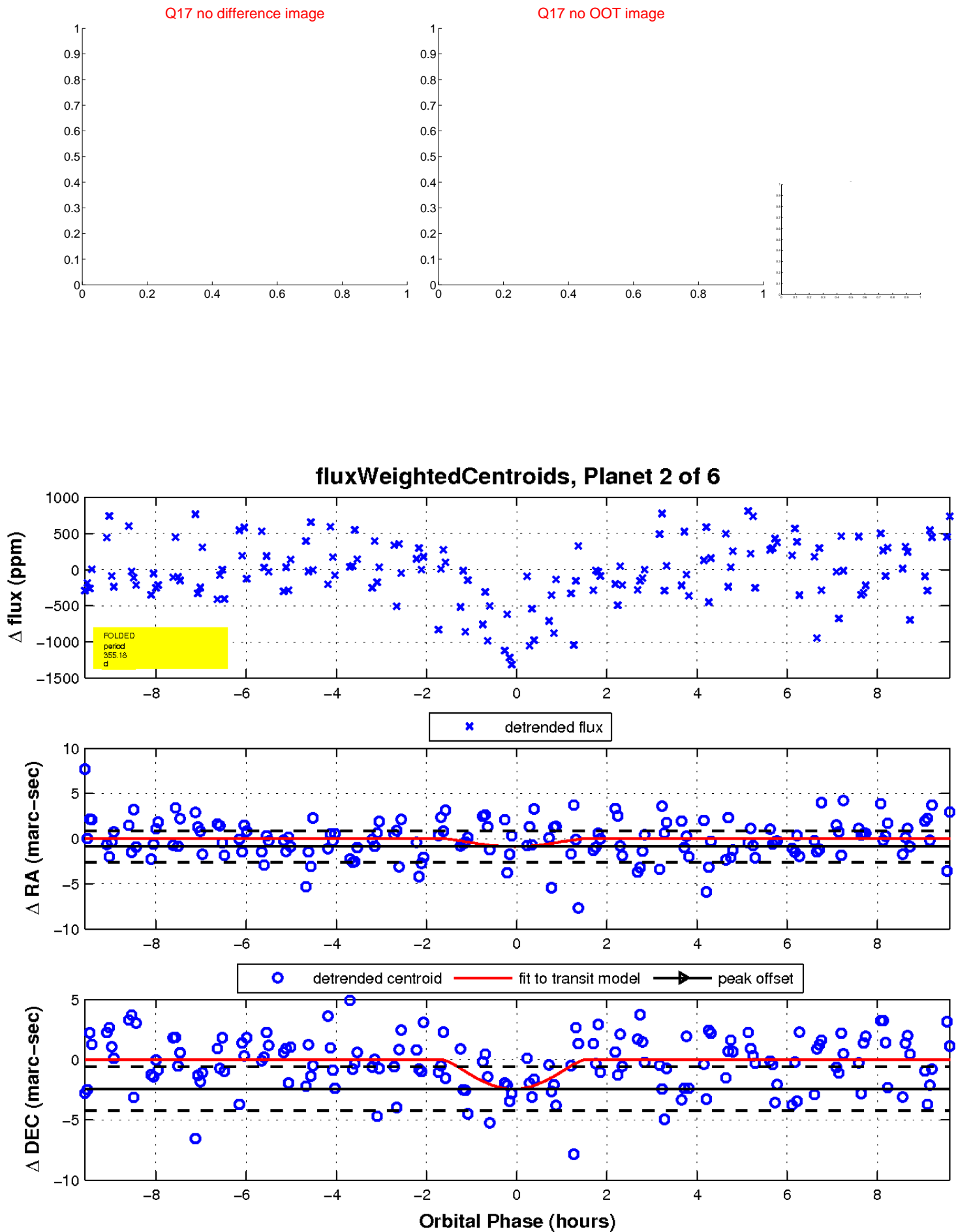
Q16 no difference image



Q16 no OOT image

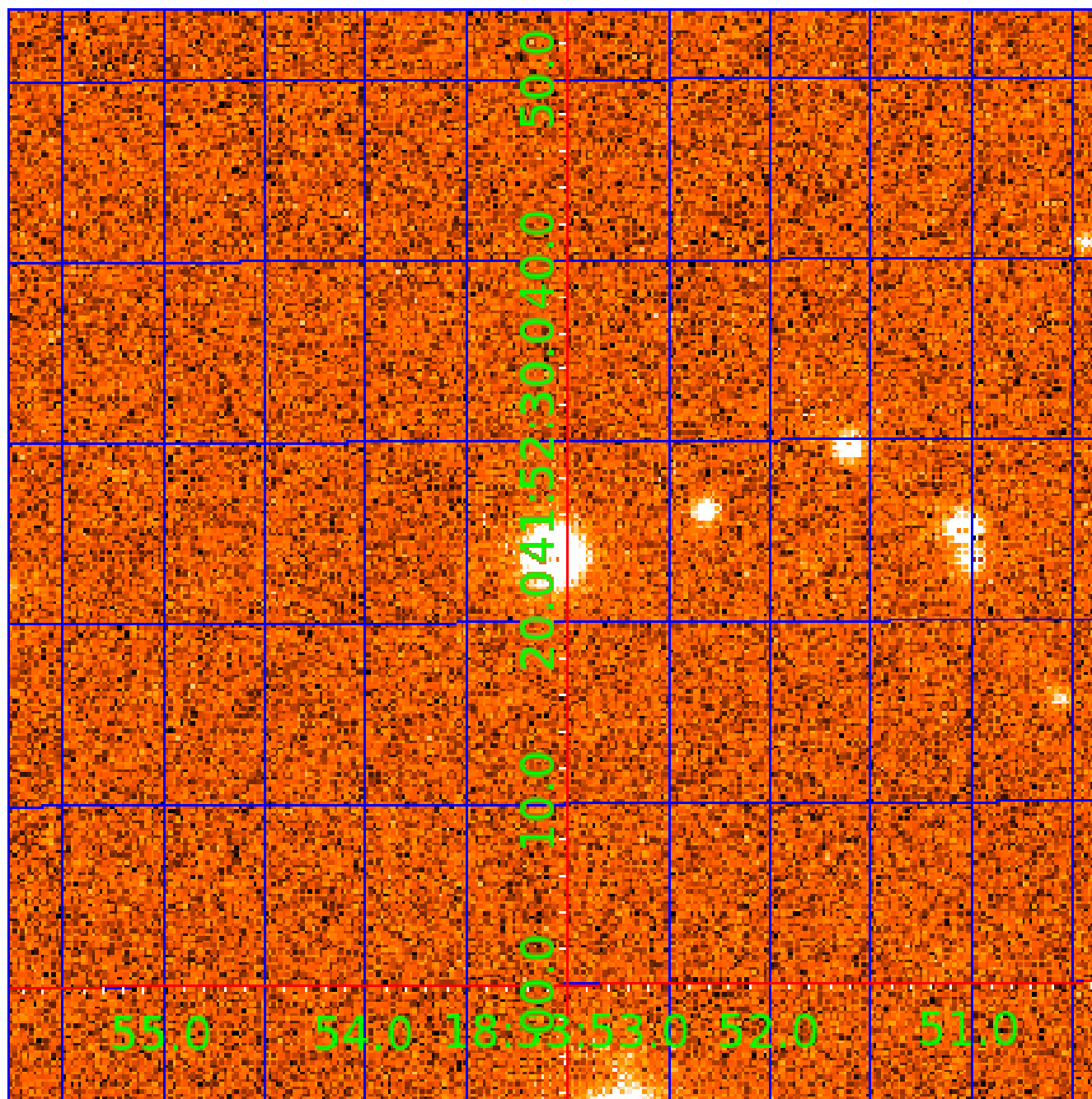


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006422367

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})
006422367-01	OBS	No	372.486873	208.372853	789.4	3.332	8.6	8.7	0.73	5344	2.20	0.48
006422367-02	OBS	No	355.179115	234.337472	967.4	3.218	8.7	9.3	0.73	5344	4.22	0.52
006422367-03	OBS	No	372.498641	247.344778	1055.3	3.312	8.4	9.3	0.73	5344	4.59	0.48
006422367-04	OBS	No	350.849388	225.666660	798.3	3.986	7.7	7.7	0.73	5344	3.05	0.53
006422367-05	OBS	No	363.840342	221.351267	726.8	2.910	7.1	7.8	0.73	5344	2.36	0.50
006422367-06	OBS	No	394.155050	178.034964	807.1	2.337	7.5	8.1	0.73	5344	2.25	0.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006422367-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-02	OBS	FP	0.00	1	0	0	0	MOD_TER_DV—MOD_TER_ALT
006422367-03	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
006422367-04	OBS	FP	0.03	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

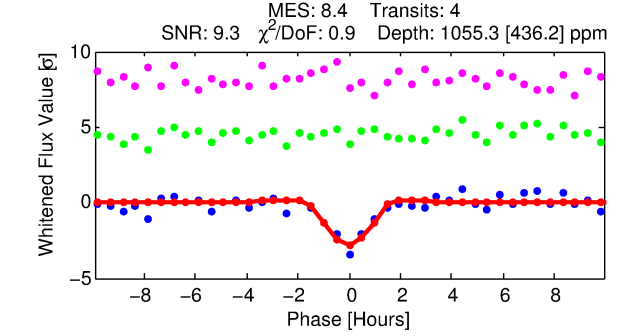
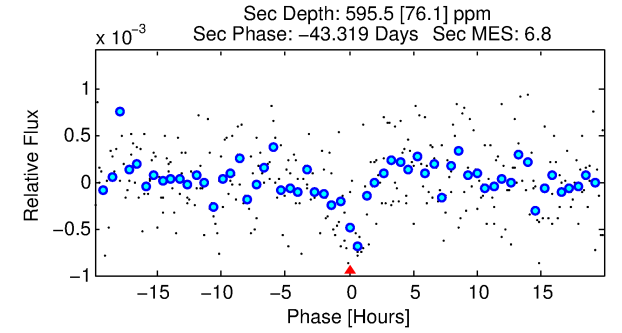
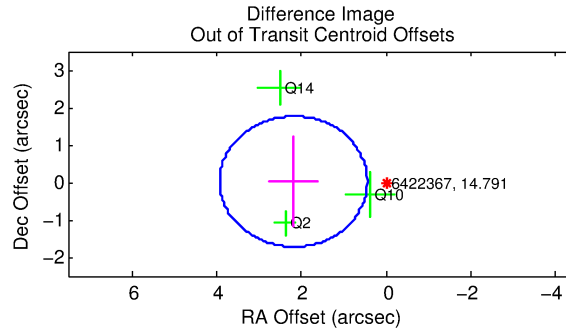
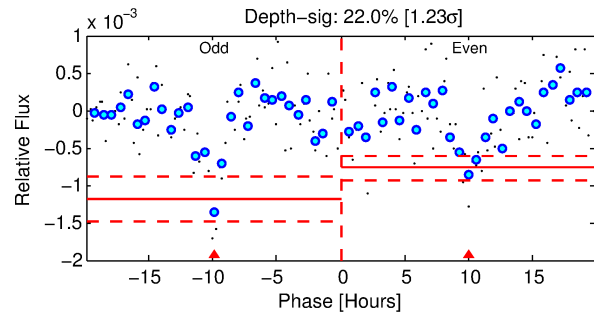
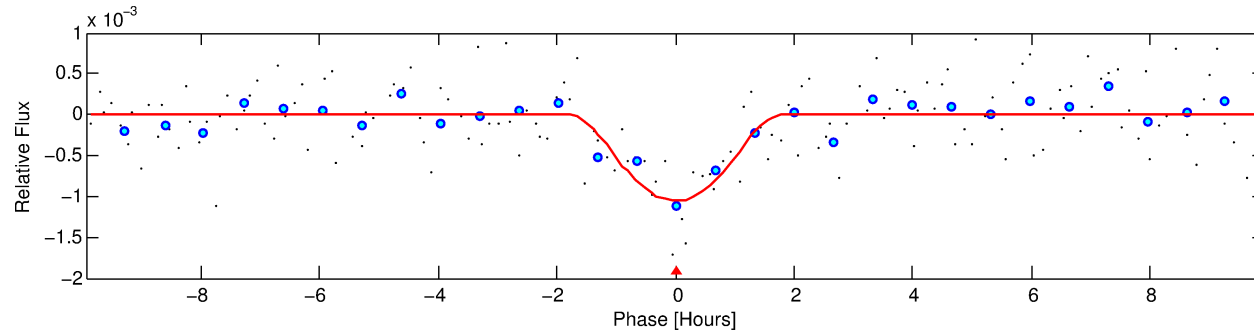
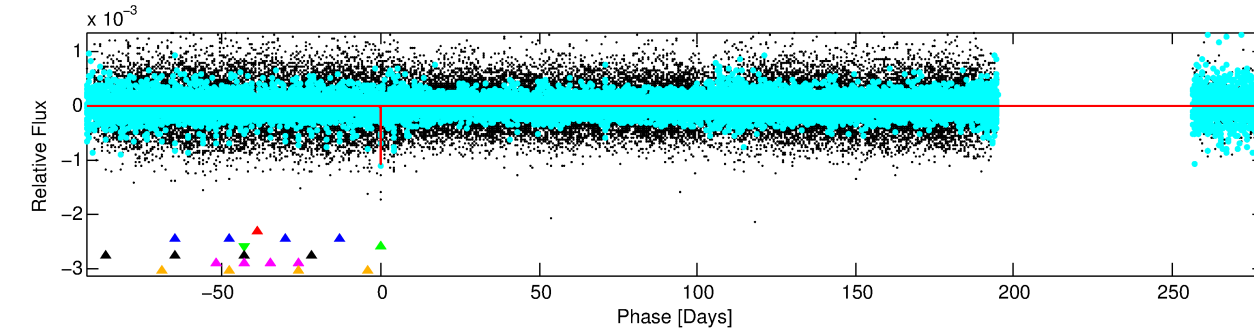
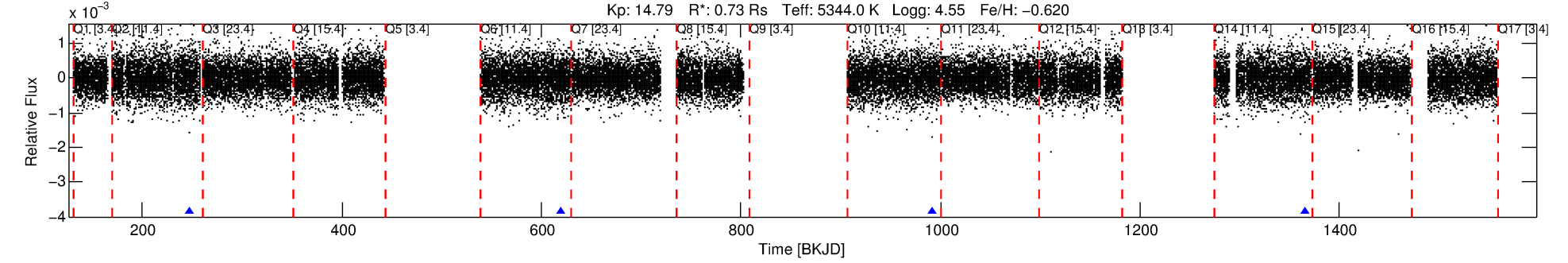
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006422367-03

No Significant Match Found

DV One-Page Summary

KIC: 6422367 Candidate: 3 of 6 Period: 372.499 d
KOI: K00559 Corr: No Ephemeris Match



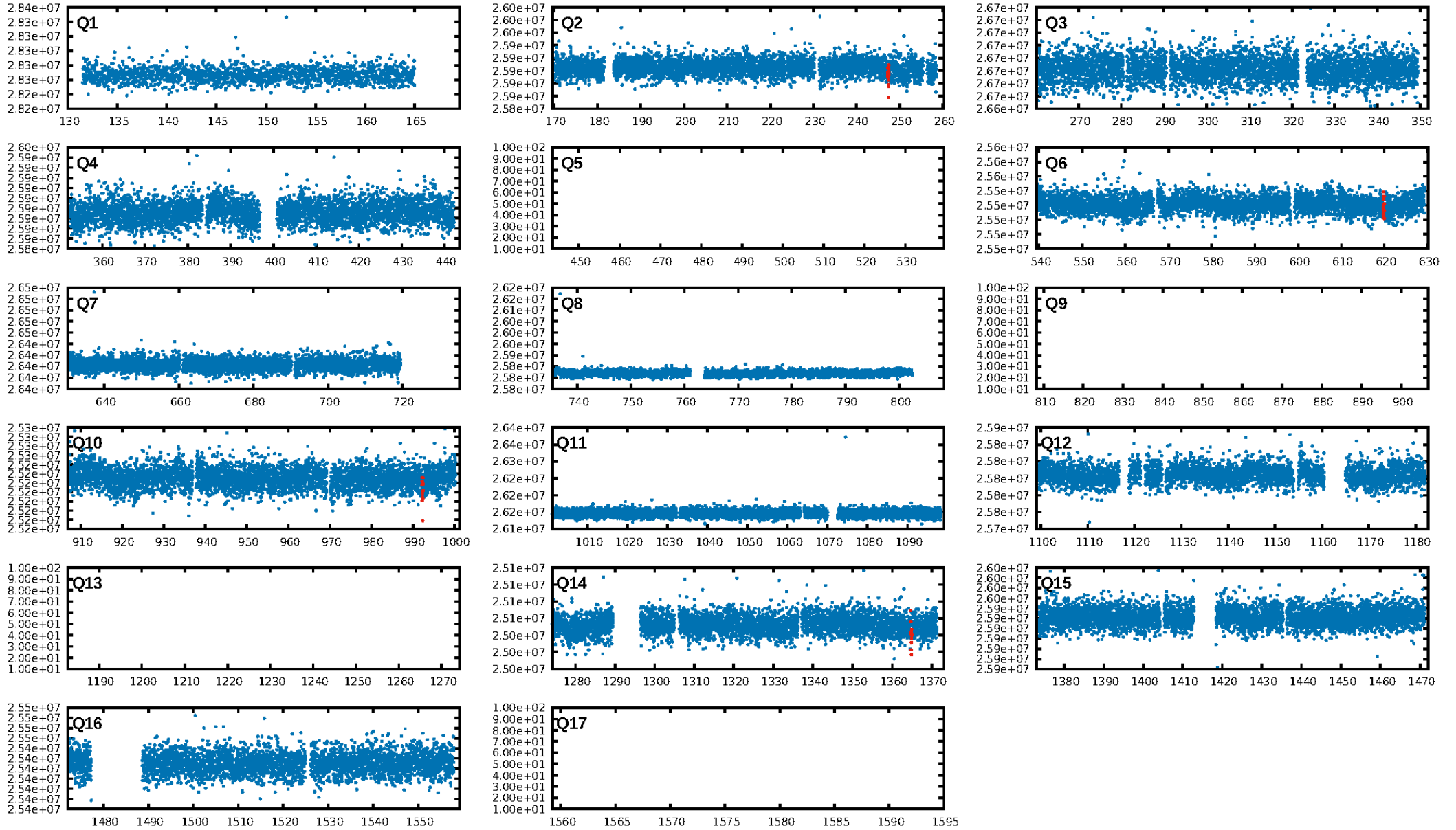
DV Fit Results:

Period = 372.49864 [0.00368] d
Epoch = 247.3448 [0.0066] BKJD
Rp/R* = 0.0578 [0.3431]
a/R* = 299.80 [423.78]
b = 1.00 [0.51]
Seff = 0.48 [0.10]
Teq = 213 [11] K
Rp = 4.60 [27.26] Re
a = 0.8937 [0.0988] AU
Ag = 12393.09 [147037.54] [0.08 σ]
Teffp = 3471 [10295] K [0.32 σ]

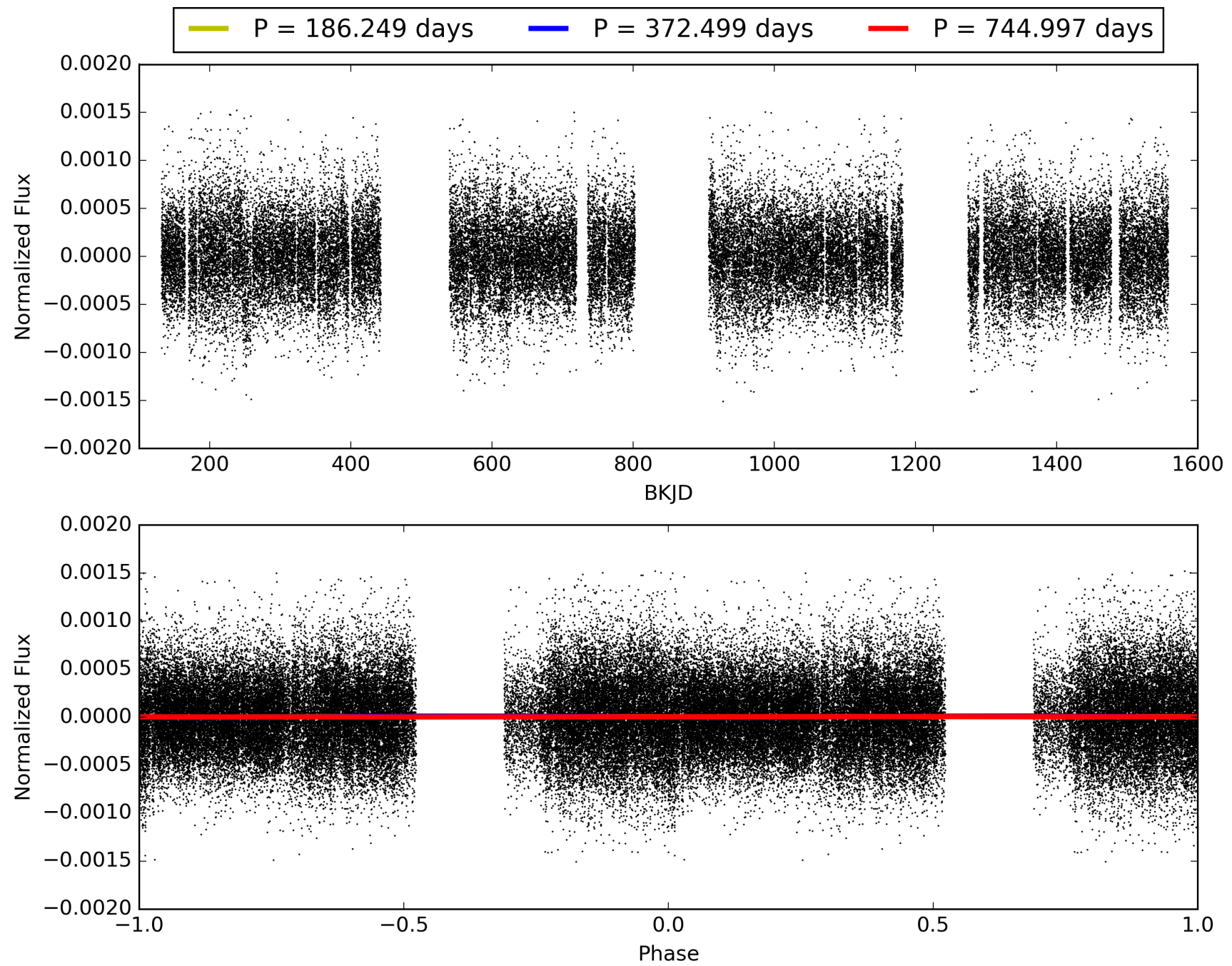
DV Diagnostic Results:

ShortPeriod-sig: 4.8% [0.06 σ]
LongPeriod-sig: 100.0% [128.22 σ]
ModelChiSquare2-sig: 23.5%
ModelChiSquareGof-sig: 96.2%
Bootstrap-pfa: 7.31e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -4.892
Centroid-sig: 55.8%
Centroid-so: 0.959 arcsec [0.63 σ]
OotOffset-rm: 2.183 arcsec [3.76 σ]
KicOffset-rm: 2.443 arcsec [4.90 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 006422367-03, PDC Light Curves

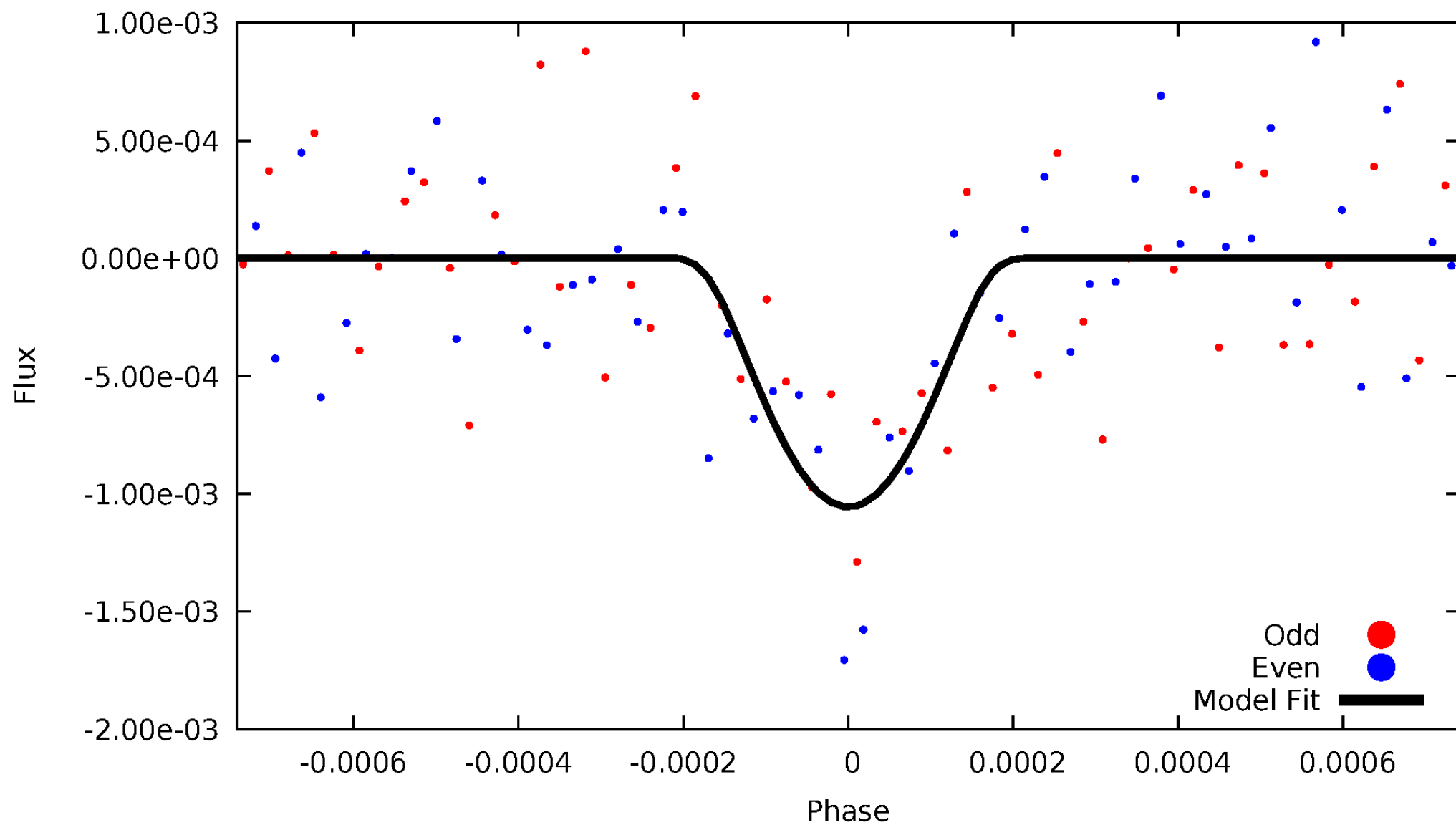


TCE 006422367-03



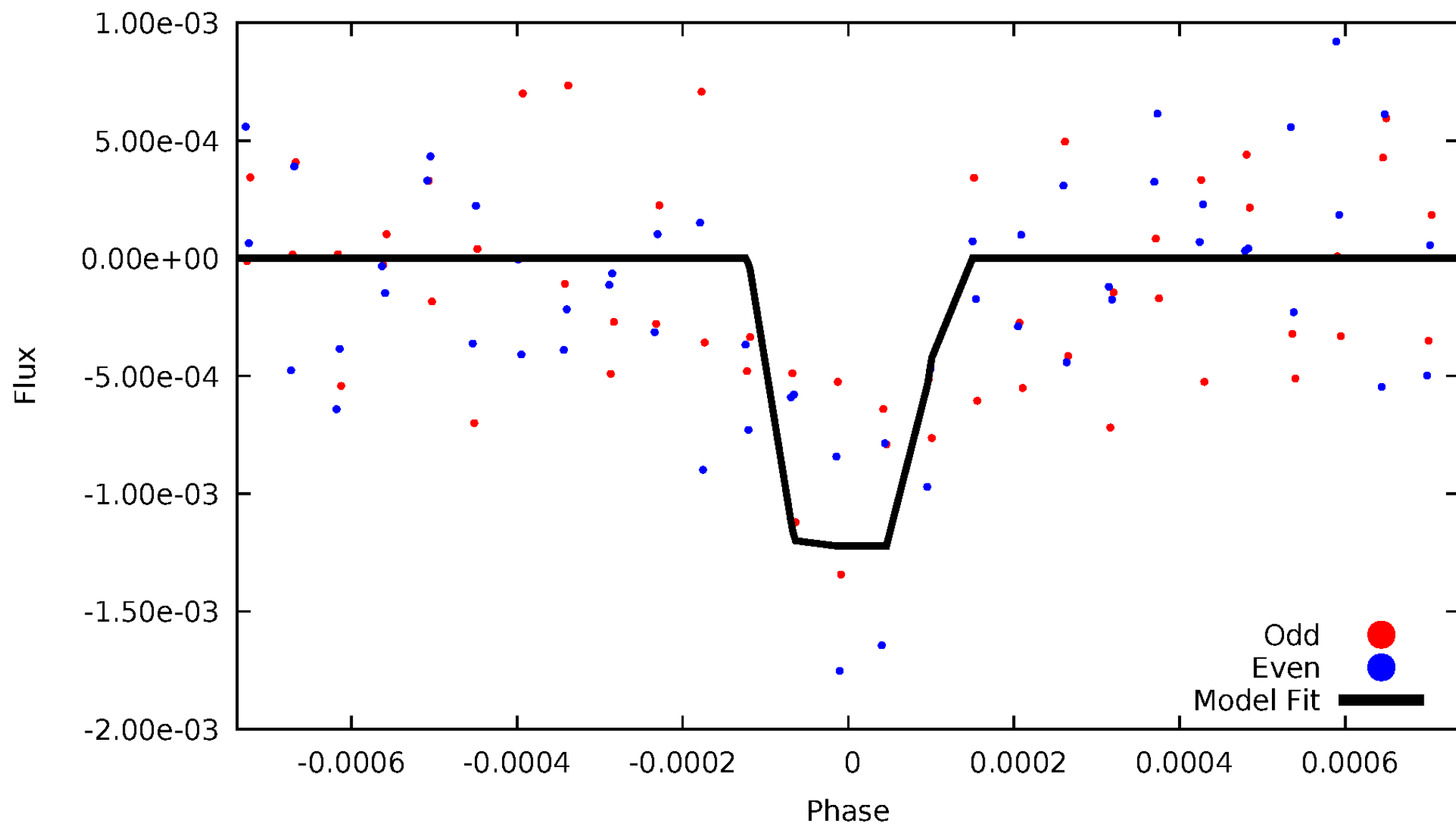
DV Odd/Even

TCE 006422367-03



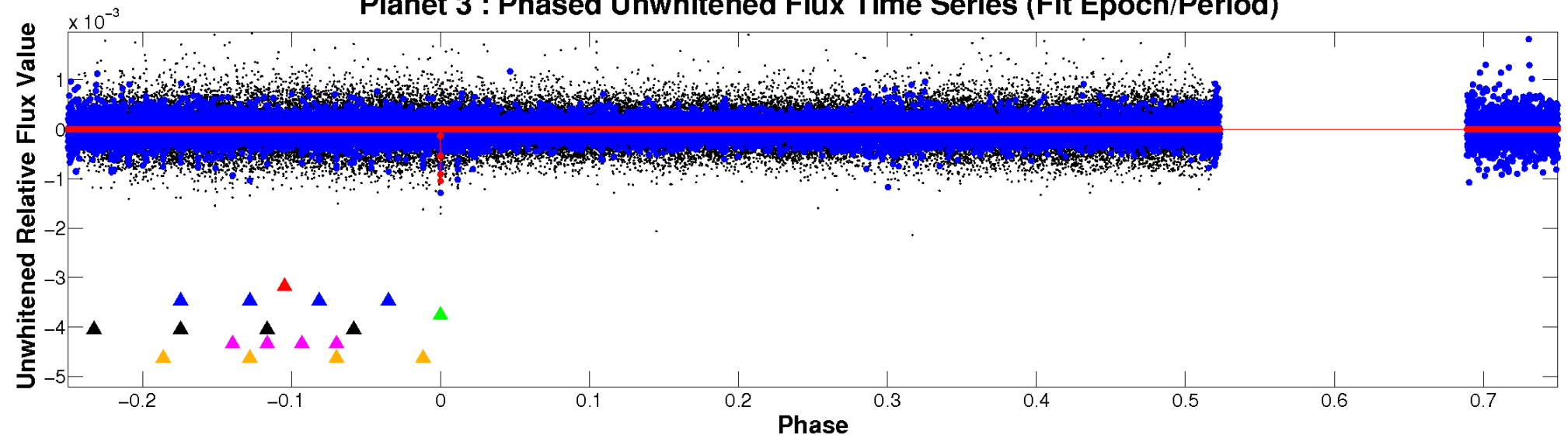
ALT Odd/Even

TCE 006422367-03

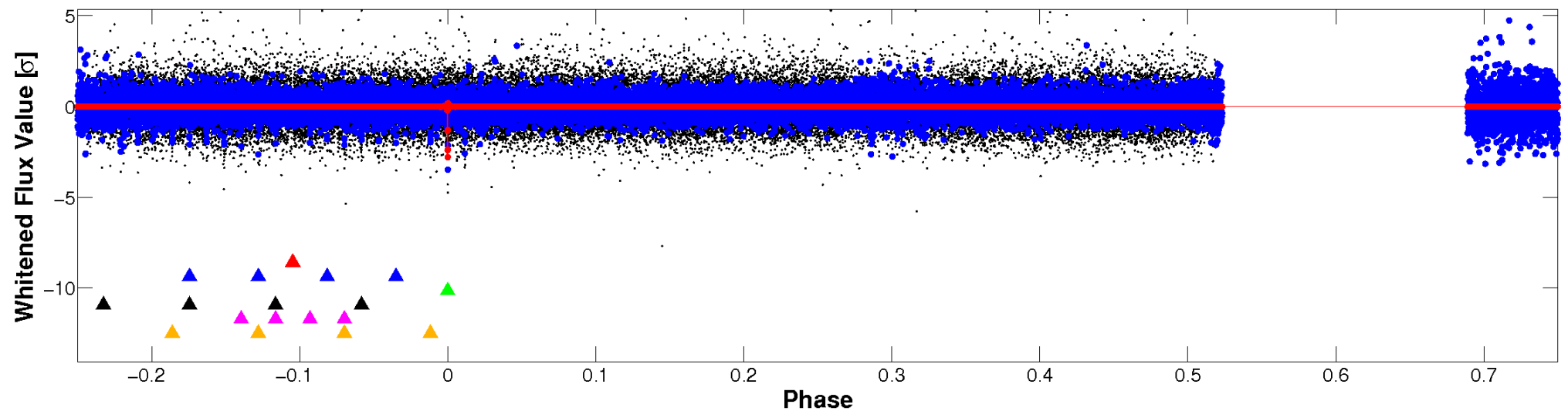


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

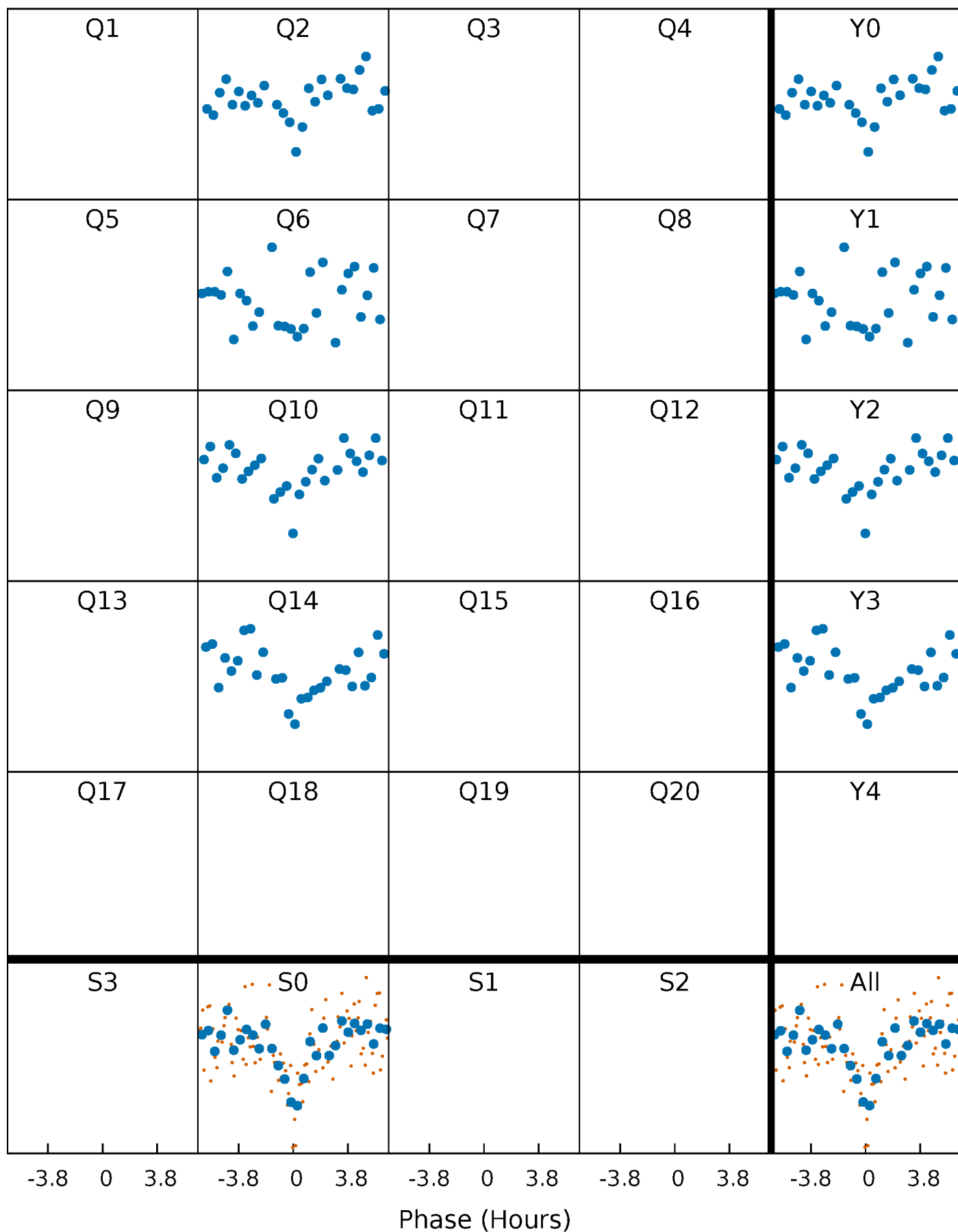


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



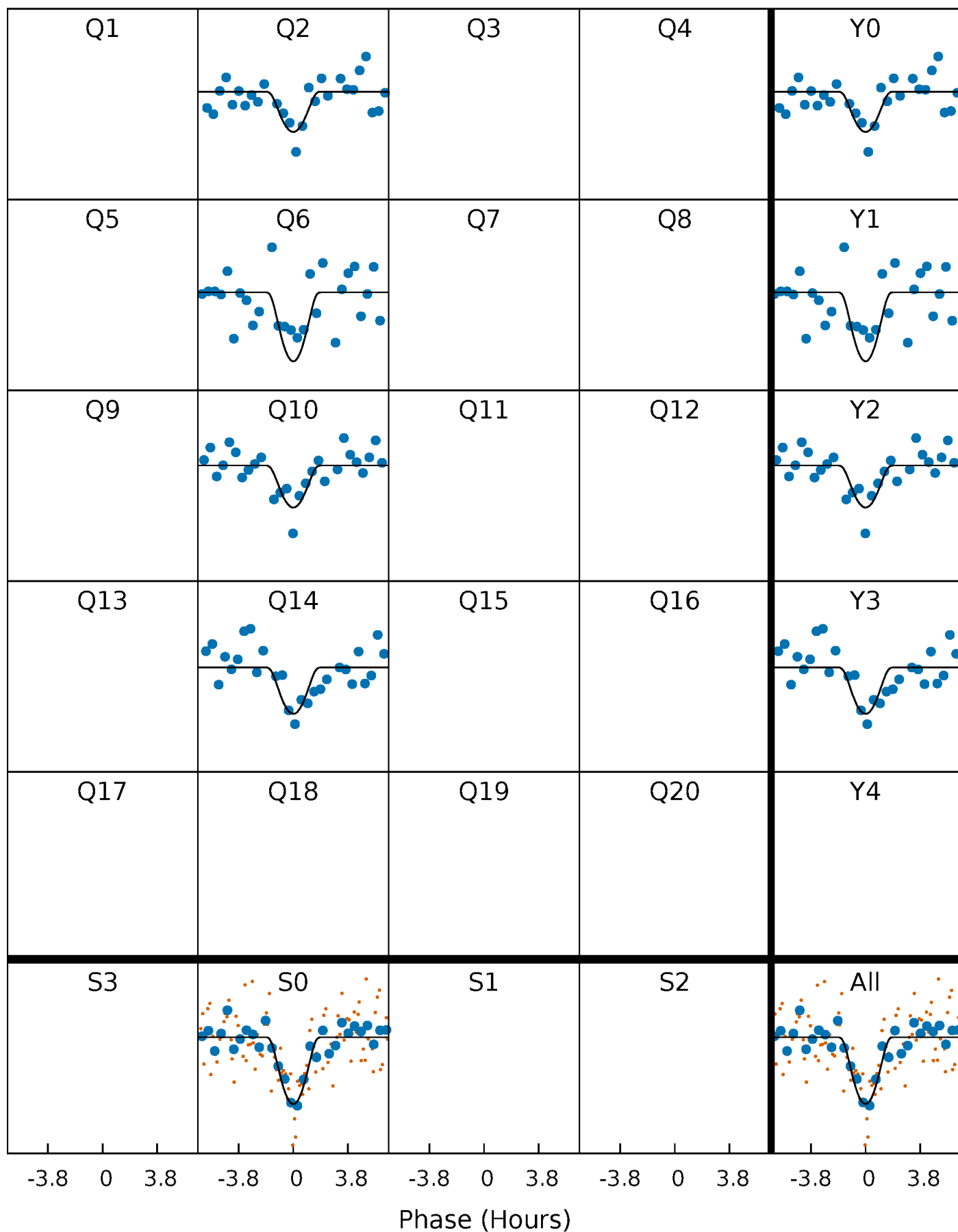
PDC Quarter-Phased Transit Curves

TCE 006422367-03 P=372.498641 Days $T_0=247.344778$ (BKJD)



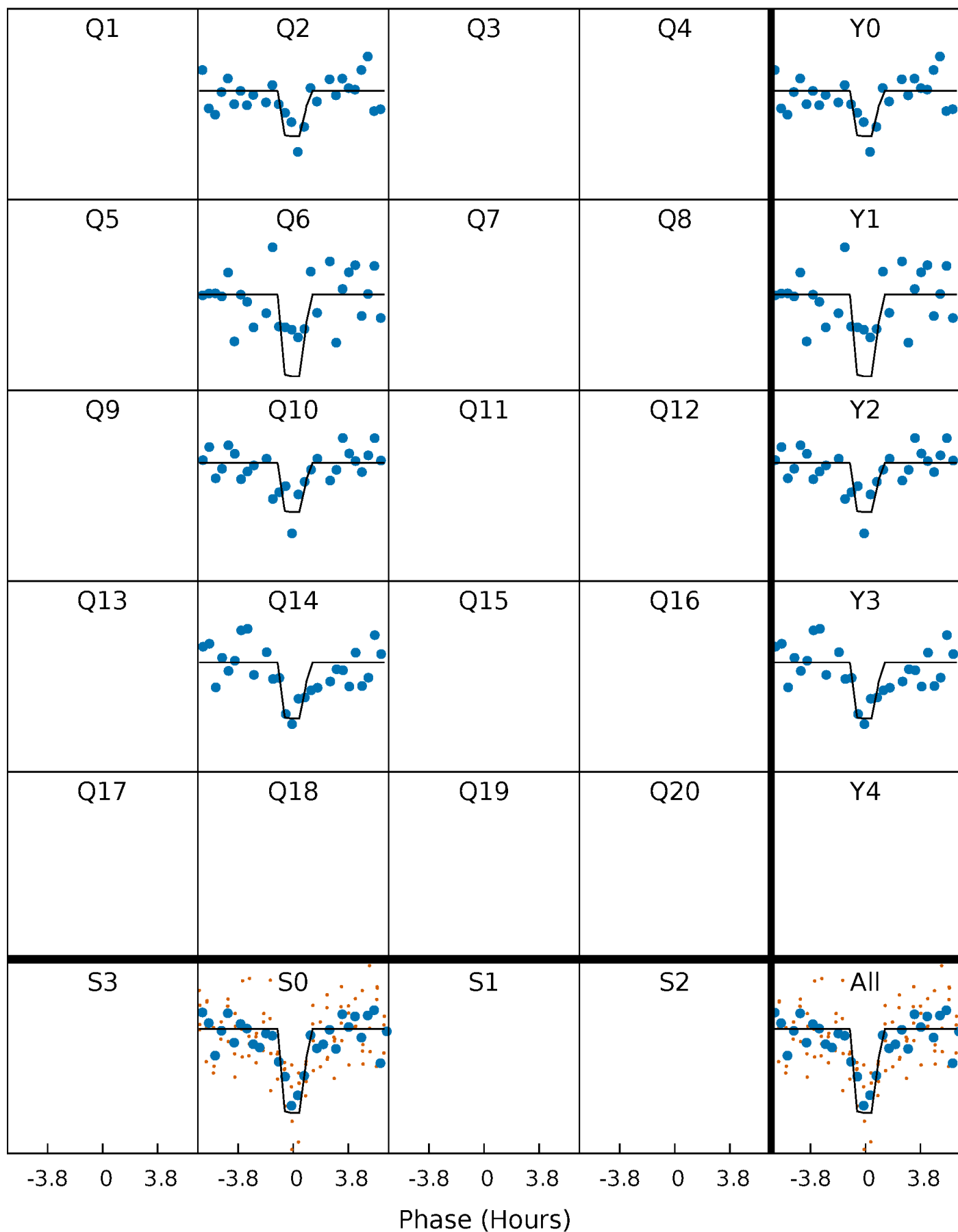
DV Quarter-Phased Transit Curves

TCE 006422367-03 P=372.498641 Days $T_0=247.344778$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

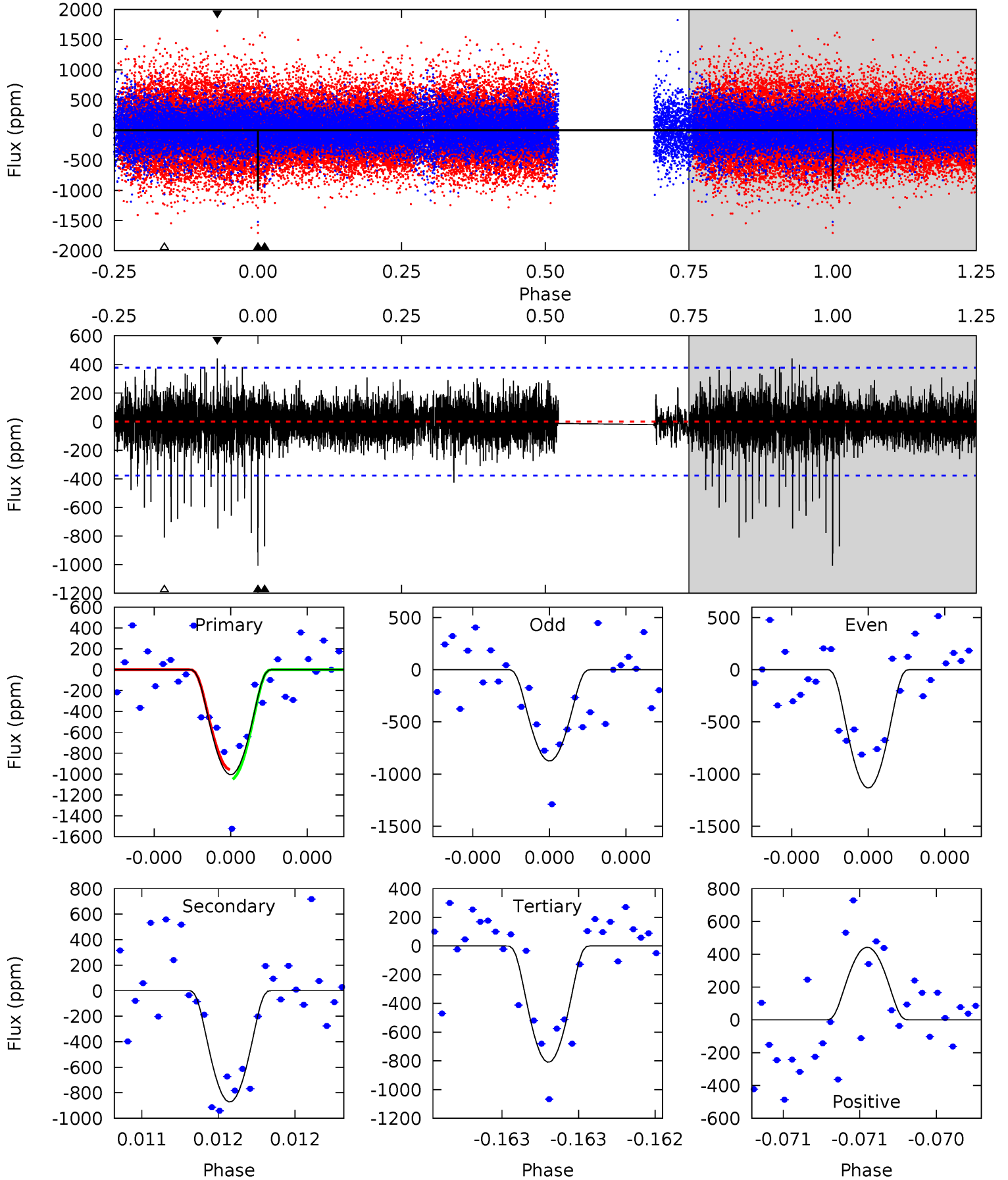
TCE 006422367-03 P=372.503799 Days $T_0=247.336619$ (BKJD)



DV Model-Shift Uniqueness Test

006422367-03, P = 372.498641 Days, E = 247.344778 Days

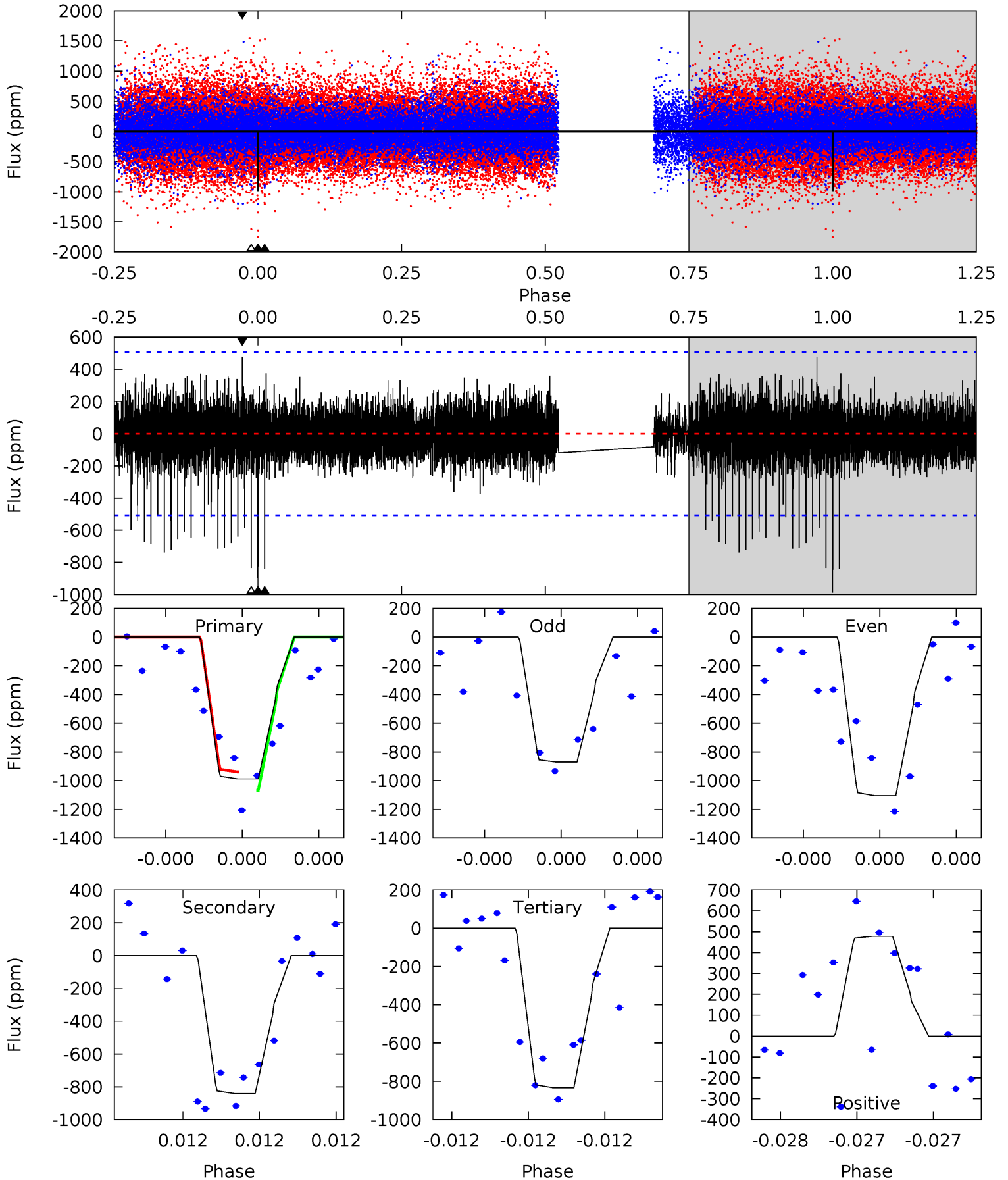
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	13.0	12.0	6.58	5.61	3.54	1.57	2.92	8.38	0.93	6.38	1.92	0.92	0.31	0.66



Alt Model-Shift Uniqueness Test

006422367-03, P = 372.503799 Days, E = 247.336619 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	9.47	9.39	5.38	5.71	3.69	1.21	1.74	5.75	0.09	4.09	1.32	0.89	0.33	0.72



Stellar Parameters For KIC 006422367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5344^{+160}_{-160}	$4.550^{+0.096}_{-0.072}$	$-0.620^{+0.350}_{-0.300}$	$0.728^{+0.090}_{-0.082}$	$0.686^{+0.090}_{-0.032}$	$2.502^{+0.940}_{-0.576}$
	+3%/-3%	+2%/-2%	+56%/-48%	+12%/-11%	+13%/-5%	+38%/-23%
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 006422367-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-871 \pm 67	$20.47^{+22.45}_{-13.98}$	297^{+12}_{-14}	2619^{+1039}_{-429}	943^{+8476}_{-733}
Alt.	-841 \pm 89	$19.47^{+21.81}_{-13.13}$	296^{+12}_{-13}	2636^{+982}_{-425}	1025^{+8140}_{-801}

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

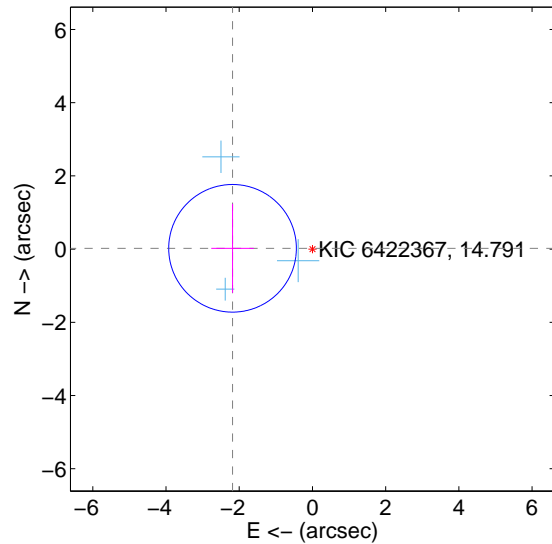
Supplemental centroid analysis for 006422367-03. Kepler magnitude: 14.79. Transit SNR 9.33

There are 3 quarters with good PRF difference image offsets

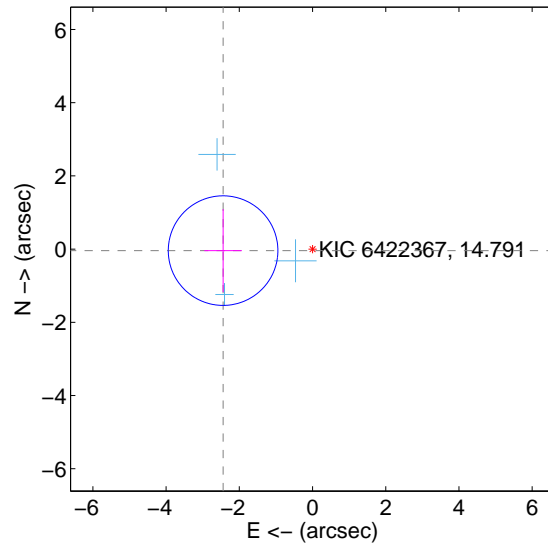
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.183 ± 0.581	3.76	2.182 ± 0.581	0.021 ± 1.214
PRF-fit source offset from KIC position	2.443 ± 0.499	4.90	2.443 ± 0.512	-0.041 ± 1.134
photometric centroid source offset	0.96 ± 1.52	0.63	0.94 ± 1.51	-0.21 ± 1.62

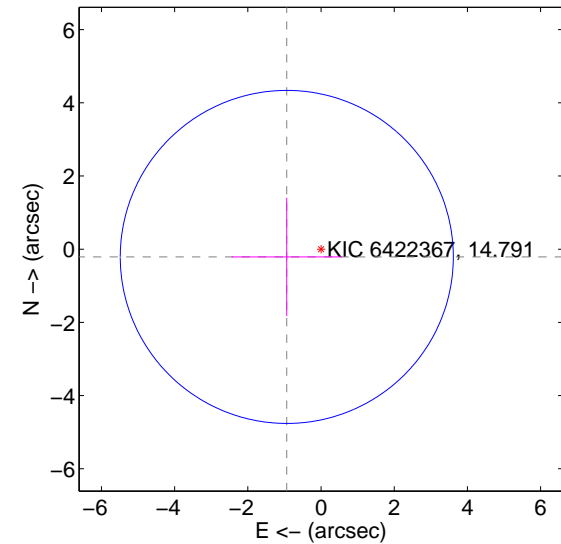
offset from difference PRF-fit to OOT PRF-fit



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

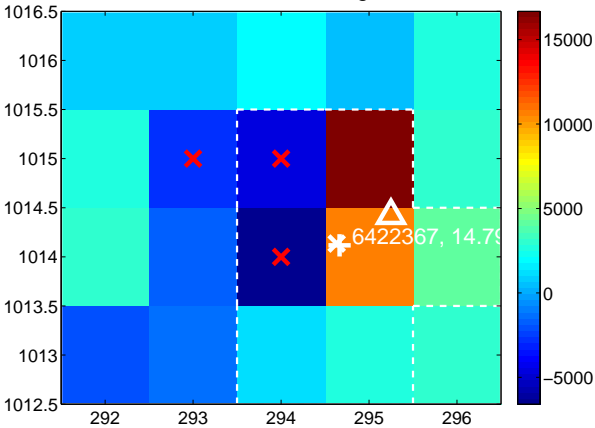
Q1 no difference image



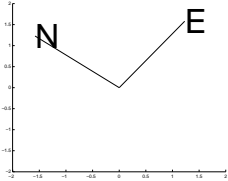
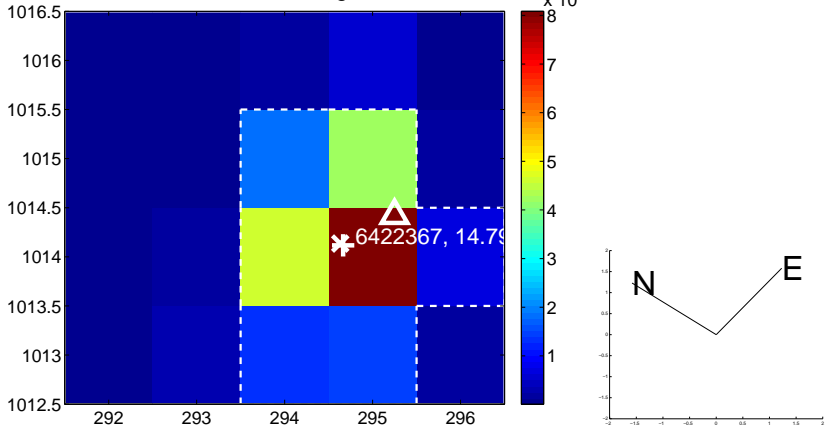
Q1 no OOT image



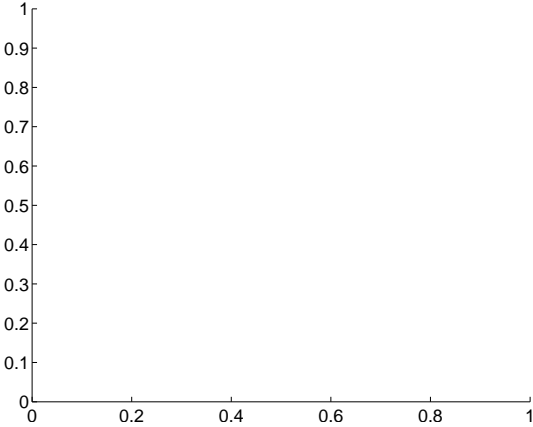
Q2 difference image



Q2 OOT image



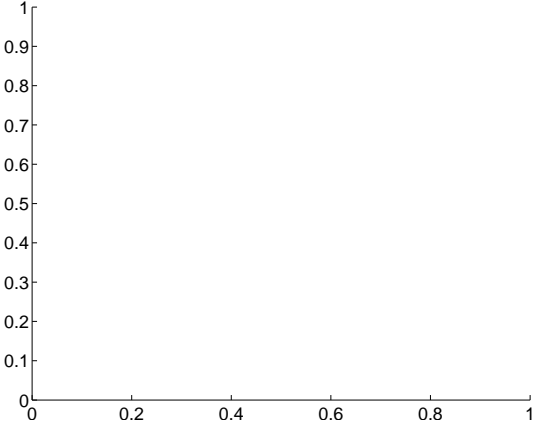
Q3 no difference image



Q3 no 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.

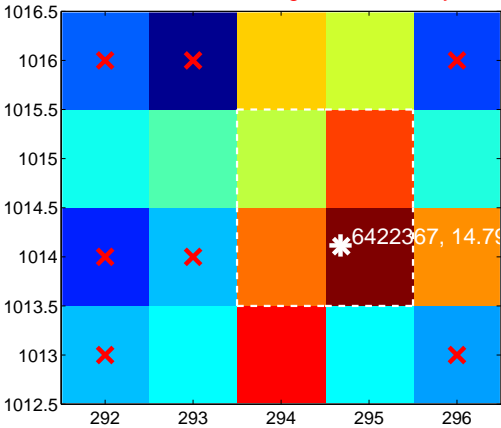
Q5 no difference image



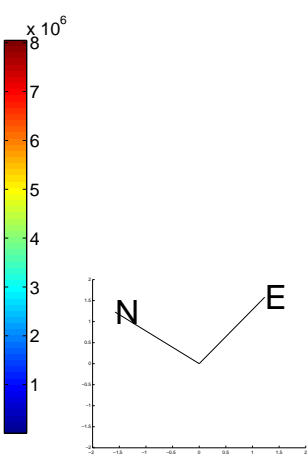
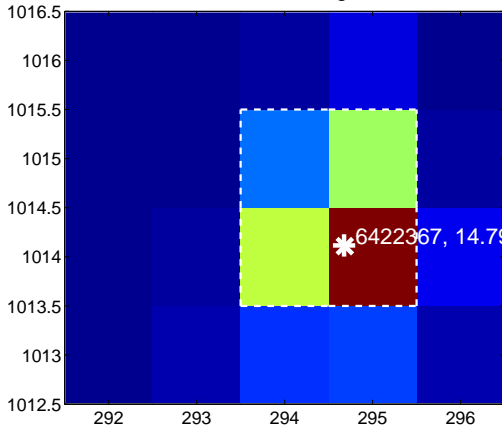
Q5 no OOT image



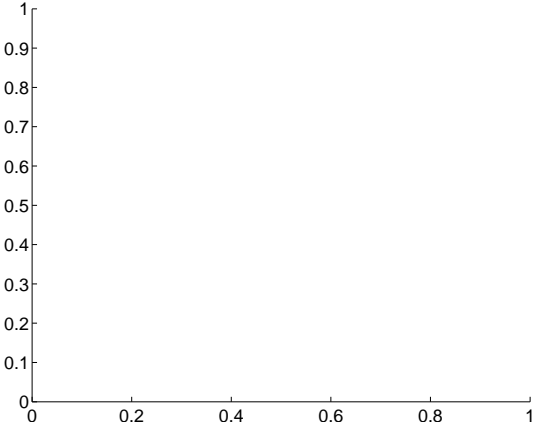
Q6 difference image. Poor Quality



Q6 OOT image



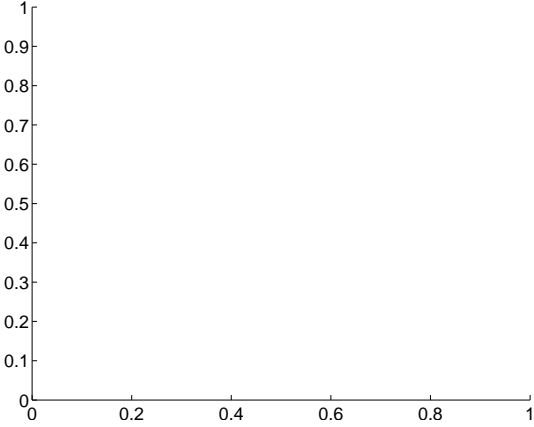
Q7 no difference image



Q7 no OOT image



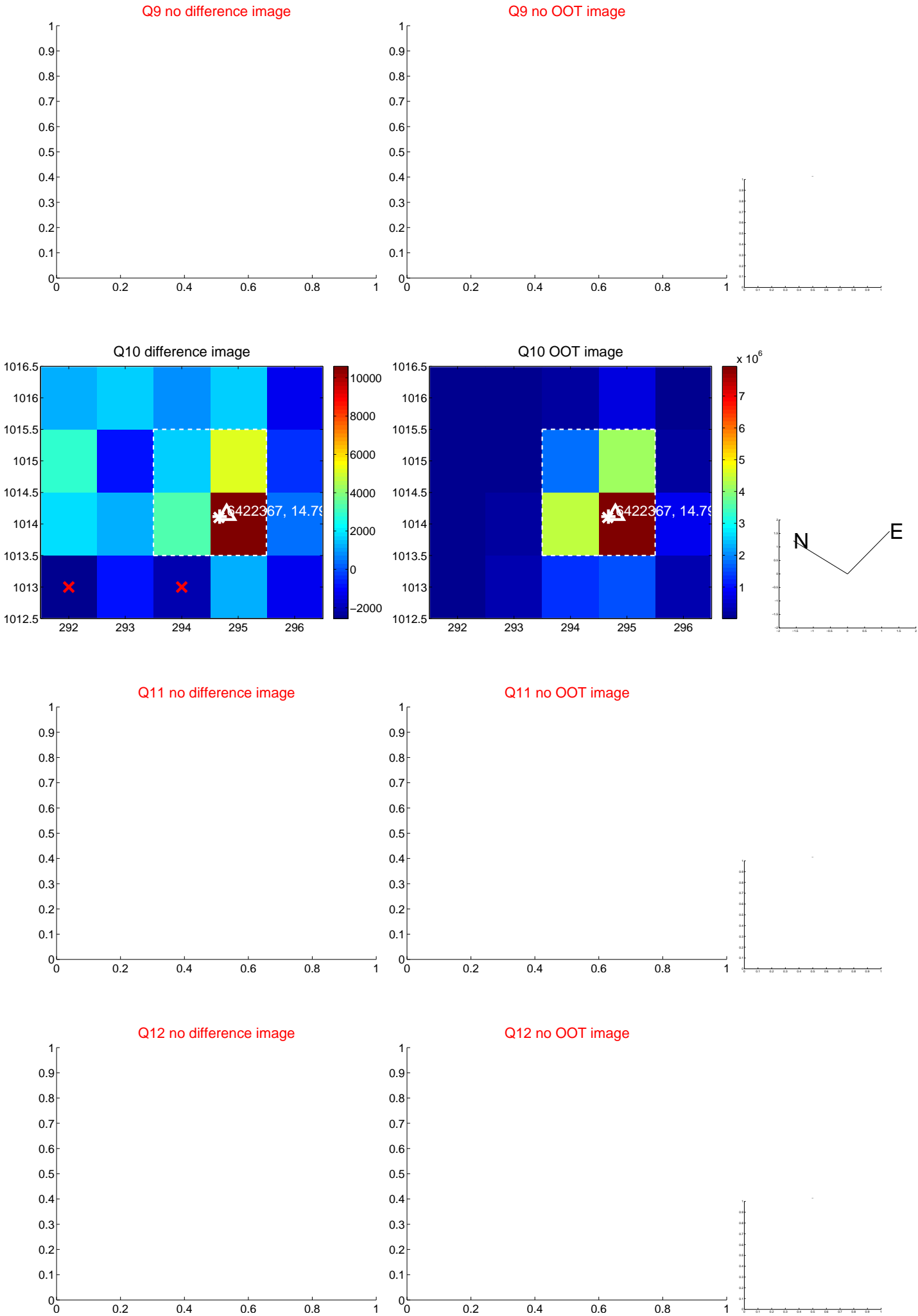
Q8 no difference image



Q8 no OOT image

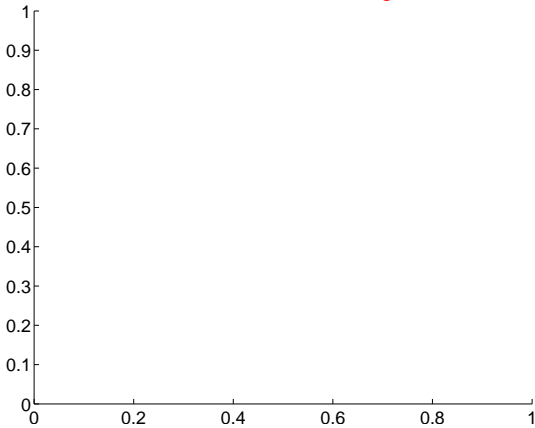


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

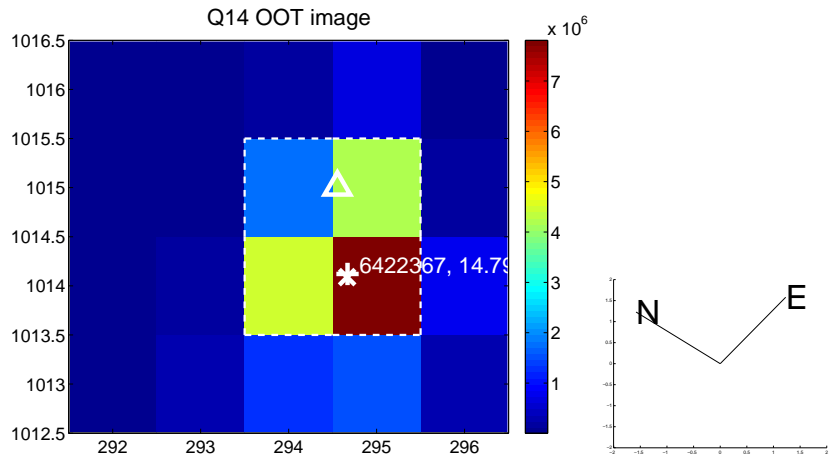
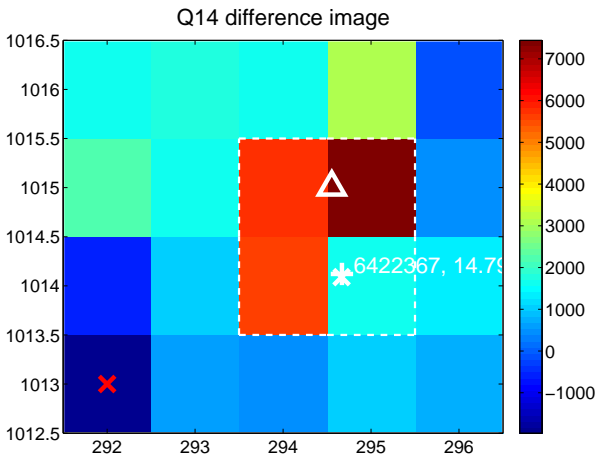
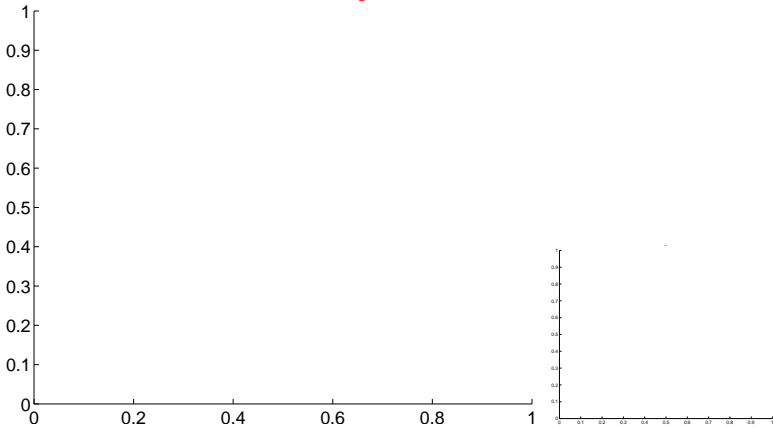


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

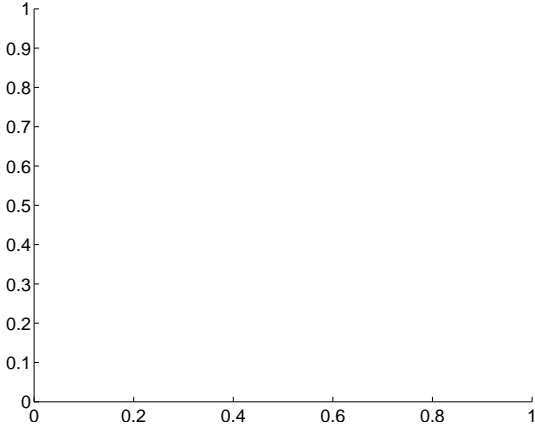
Q13 no difference image



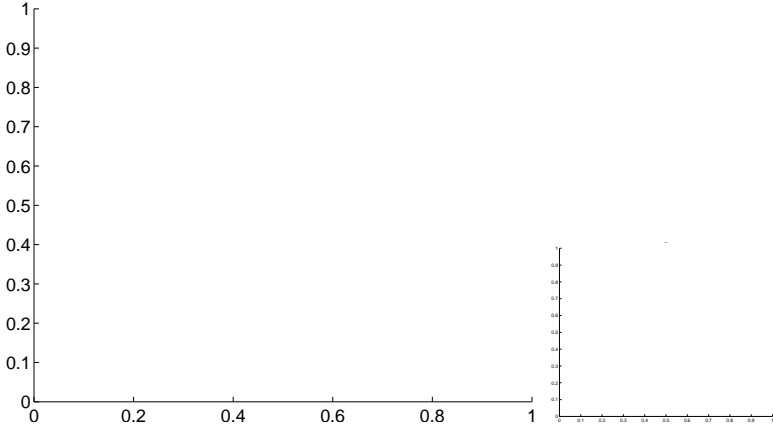
Q13 no OOT image



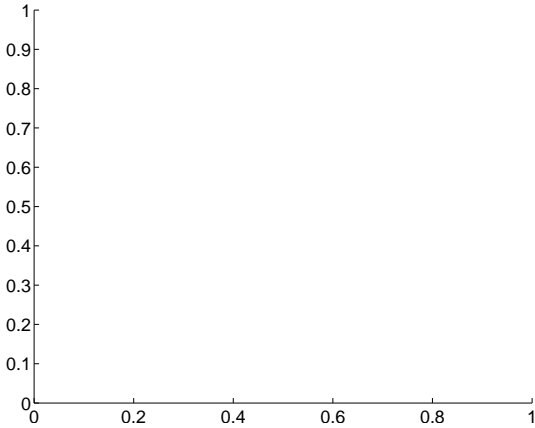
Q15 no difference image



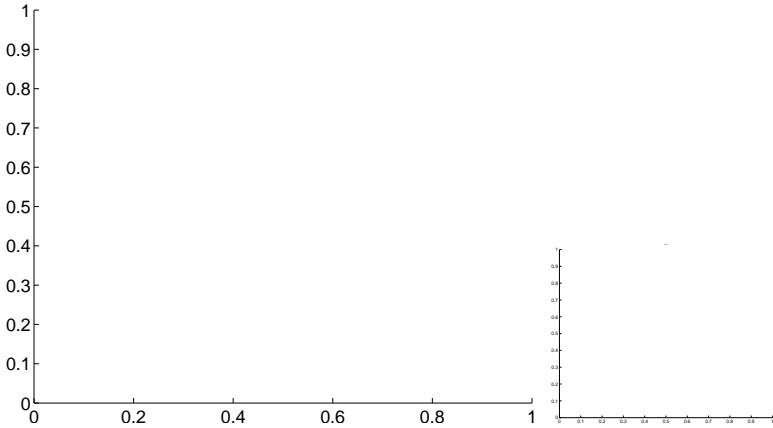
Q15 no OOT image



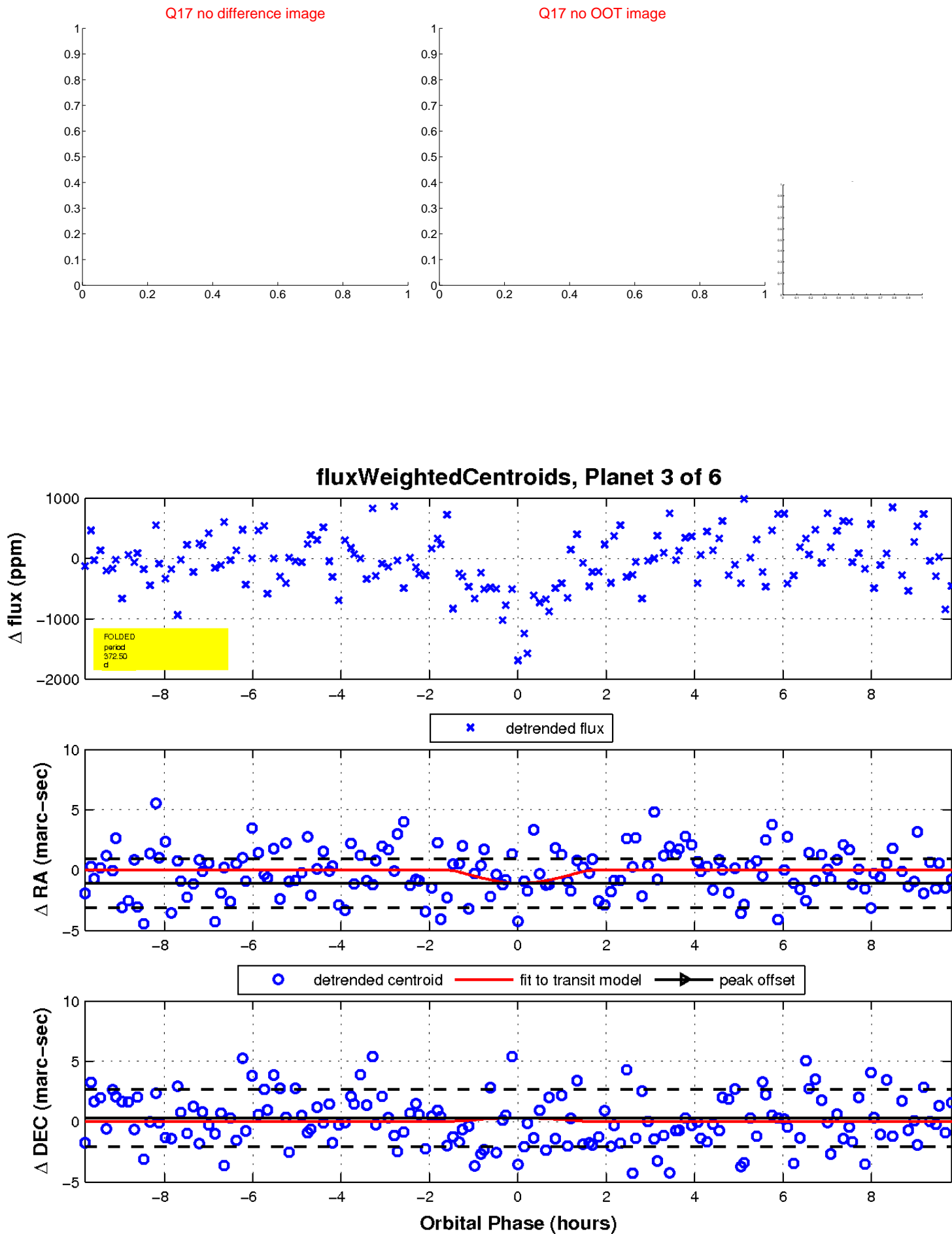
Q16 no difference image



Q16 no OOT image

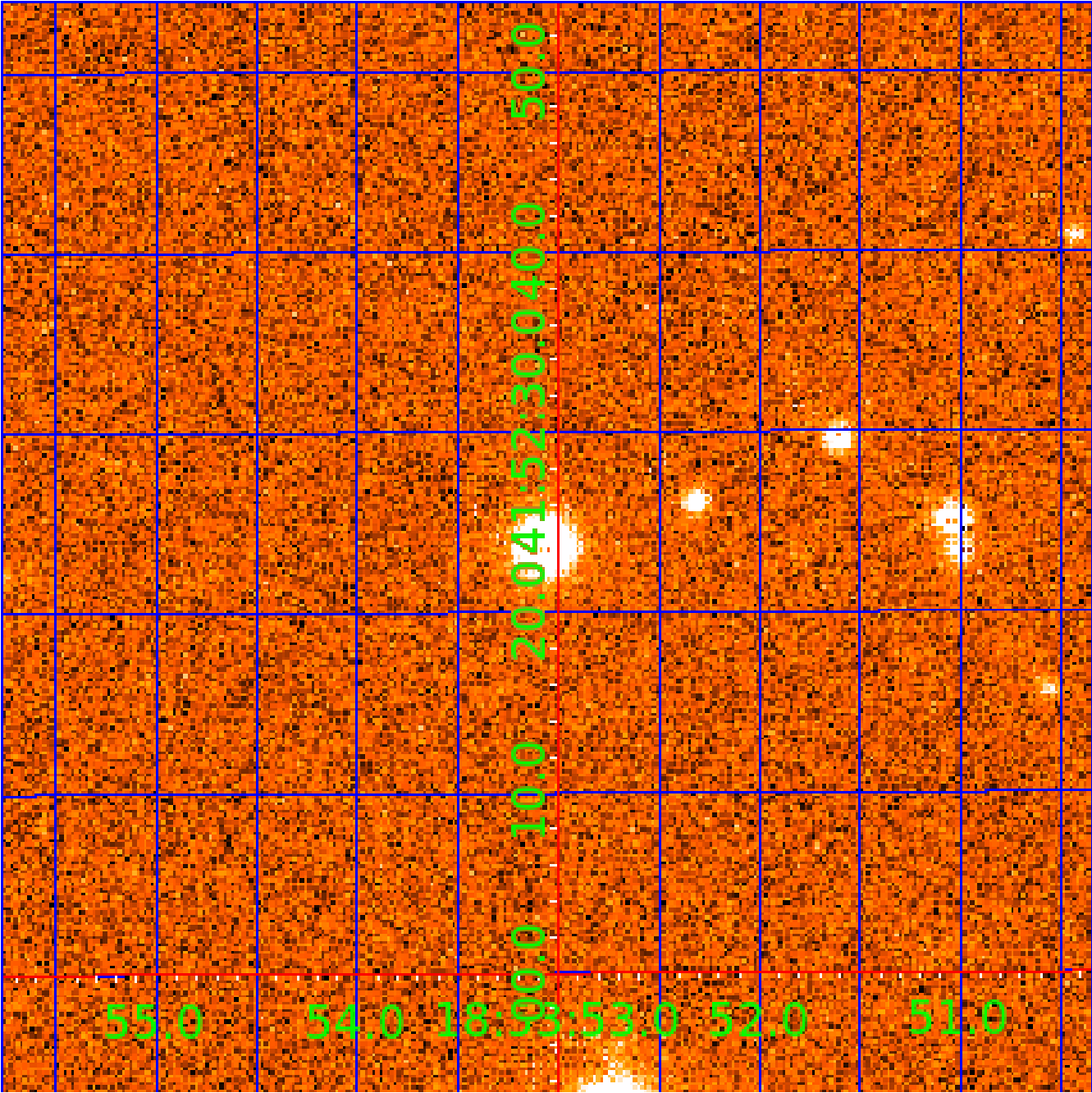


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006422367

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})
006422367-01	OBS	No	372.486873	208.372853	789.4	3.332	8.6	8.7	0.73	5344	2.20	0.48
006422367-02	OBS	No	355.179115	234.337472	967.4	3.218	8.7	9.3	0.73	5344	4.22	0.52
006422367-03	OBS	No	372.498641	247.344778	1055.3	3.312	8.4	9.3	0.73	5344	4.59	0.48
006422367-04	OBS	No	350.849388	225.666660	798.3	3.986	7.7	7.7	0.73	5344	3.05	0.53
006422367-05	OBS	No	363.840342	221.351267	726.8	2.910	7.1	7.8	0.73	5344	2.36	0.50
006422367-06	OBS	No	394.155050	178.034964	807.1	2.337	7.5	8.1	0.73	5344	2.25	0.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006422367-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-02	OBS	FP	0.00	1	0	0	0	MOD_TER_DV—MOD_TER_ALT
006422367-03	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
006422367-04	OBS	FP	0.03	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

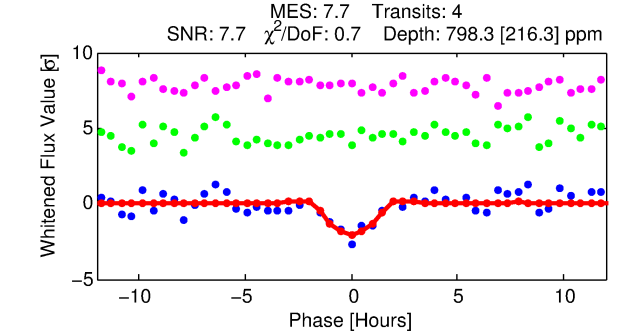
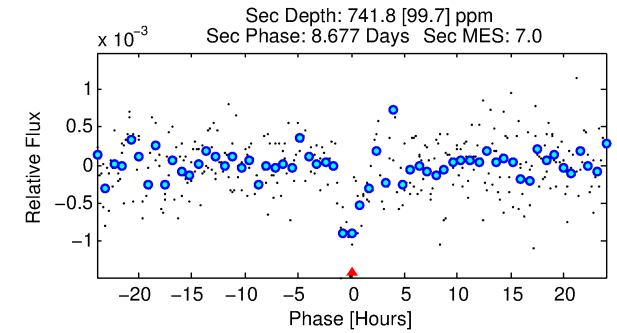
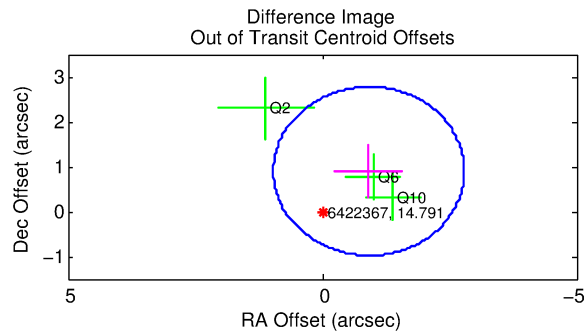
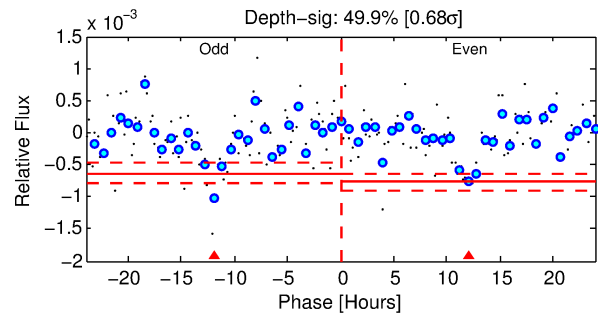
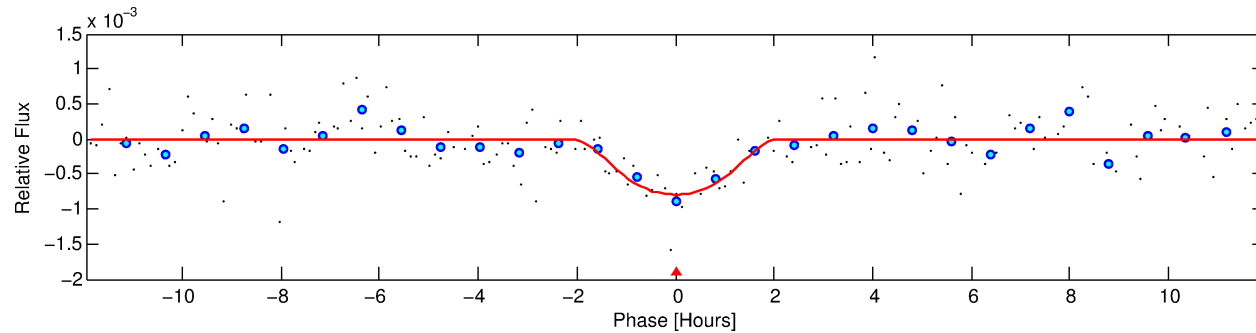
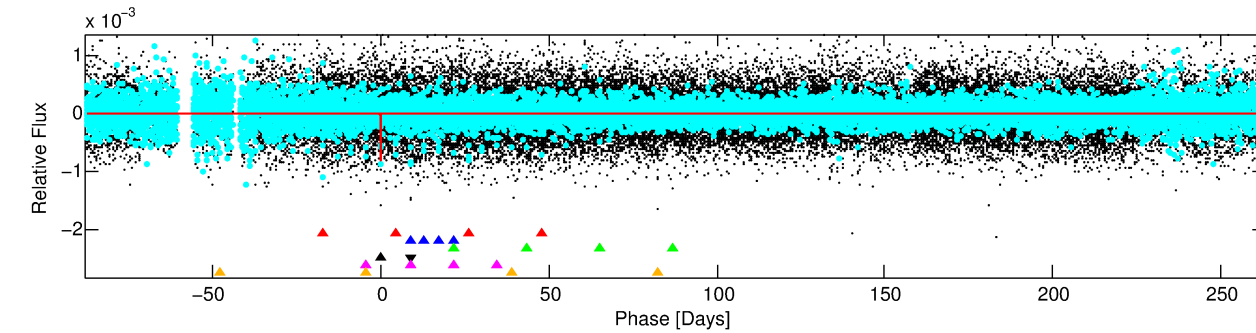
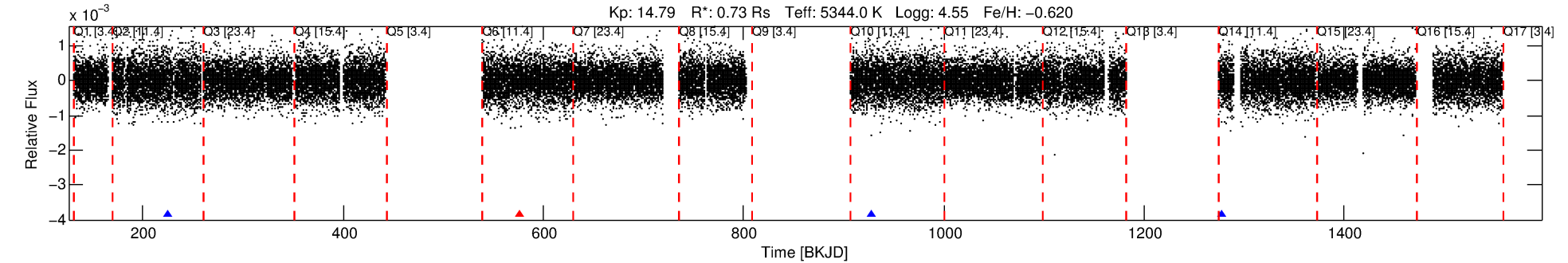
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006422367-04

No Significant Match Found

DV One-Page Summary

KIC: 6422367 Candidate: 4 of 6 Period: 350.849 d
KOI: K00559 Corr: No Ephemeris Match



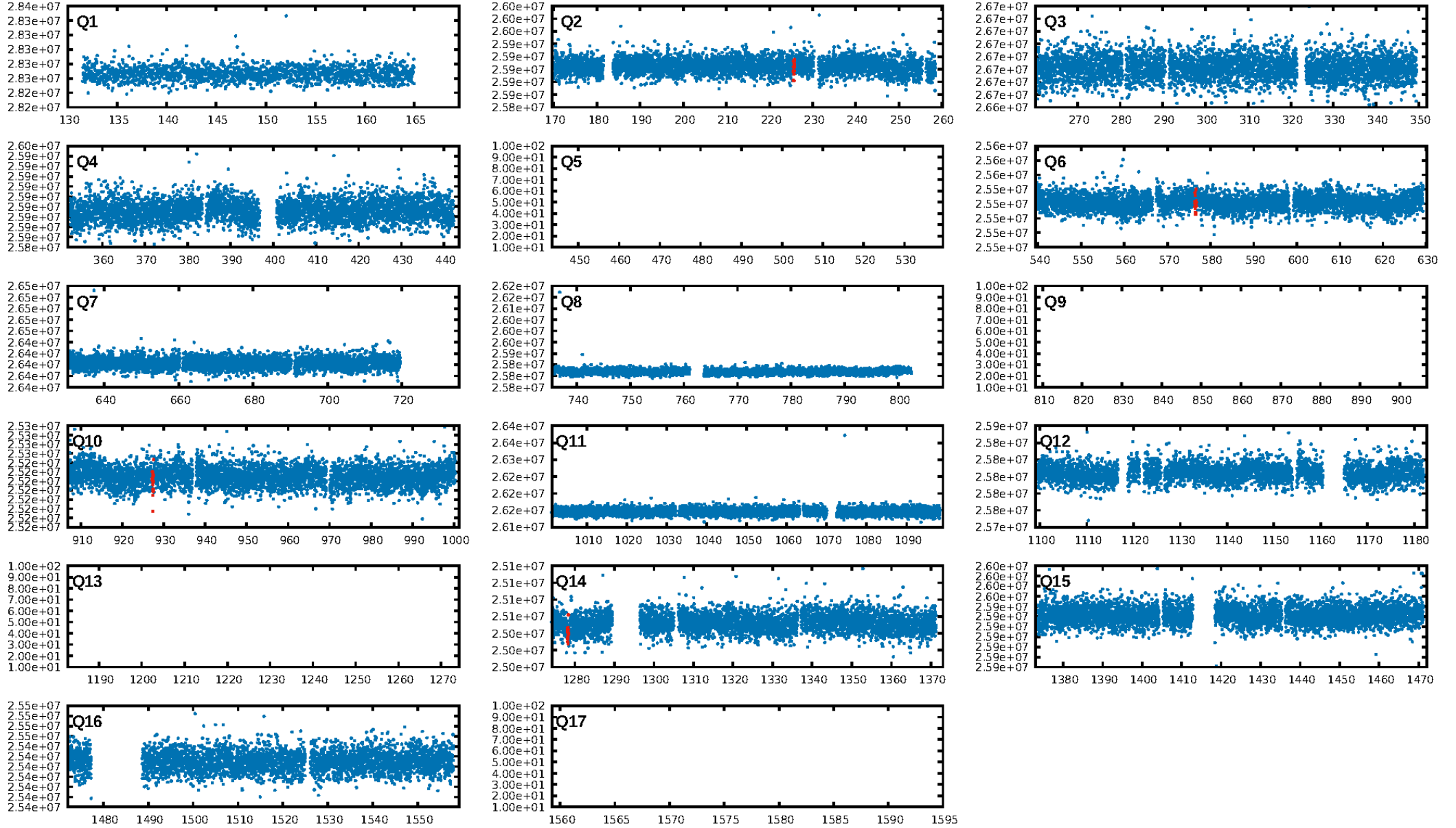
DV Fit Results:

Period = 350.84939 [0.00560] d
Epoch = 225.6667 [0.0099] BKJD
Rp/R* = 0.0384 [0.0447]
a/R* = 235.97 [131.96]
b = 0.98 [0.10]
Seff = 0.53 [0.11]
Teq = 217 [11] K
Rp = 3.05 [3.57] R_e
a = 0.8587 [0.0949] AU
Ag = 32290.27 [75461.93] [0.43 σ]
Teffp = 4499 [2625] K [1.63 σ]

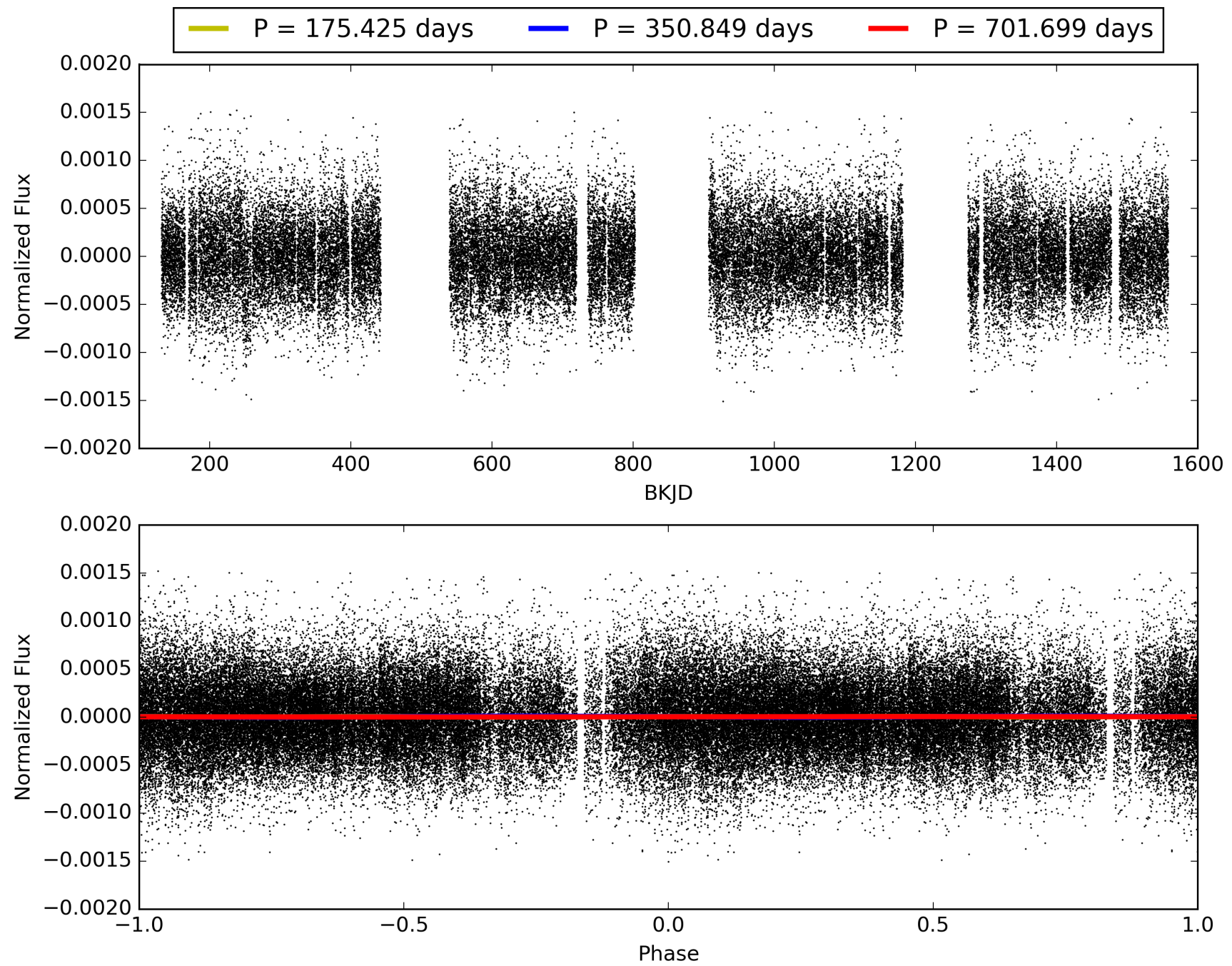
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [20.28 σ]
ModelChiSquare2-sig: 88.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.14e-11
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 2.57
Centroid-sig: 65.2%
Centroid-so: 1.055 arcsec [0.57 σ]
OotOffset-rm: 1.281 arcsec [2.05 σ]
KicOffset-rm: 1.396 arcsec [2.35 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 006422367-04, PDC Light Curves

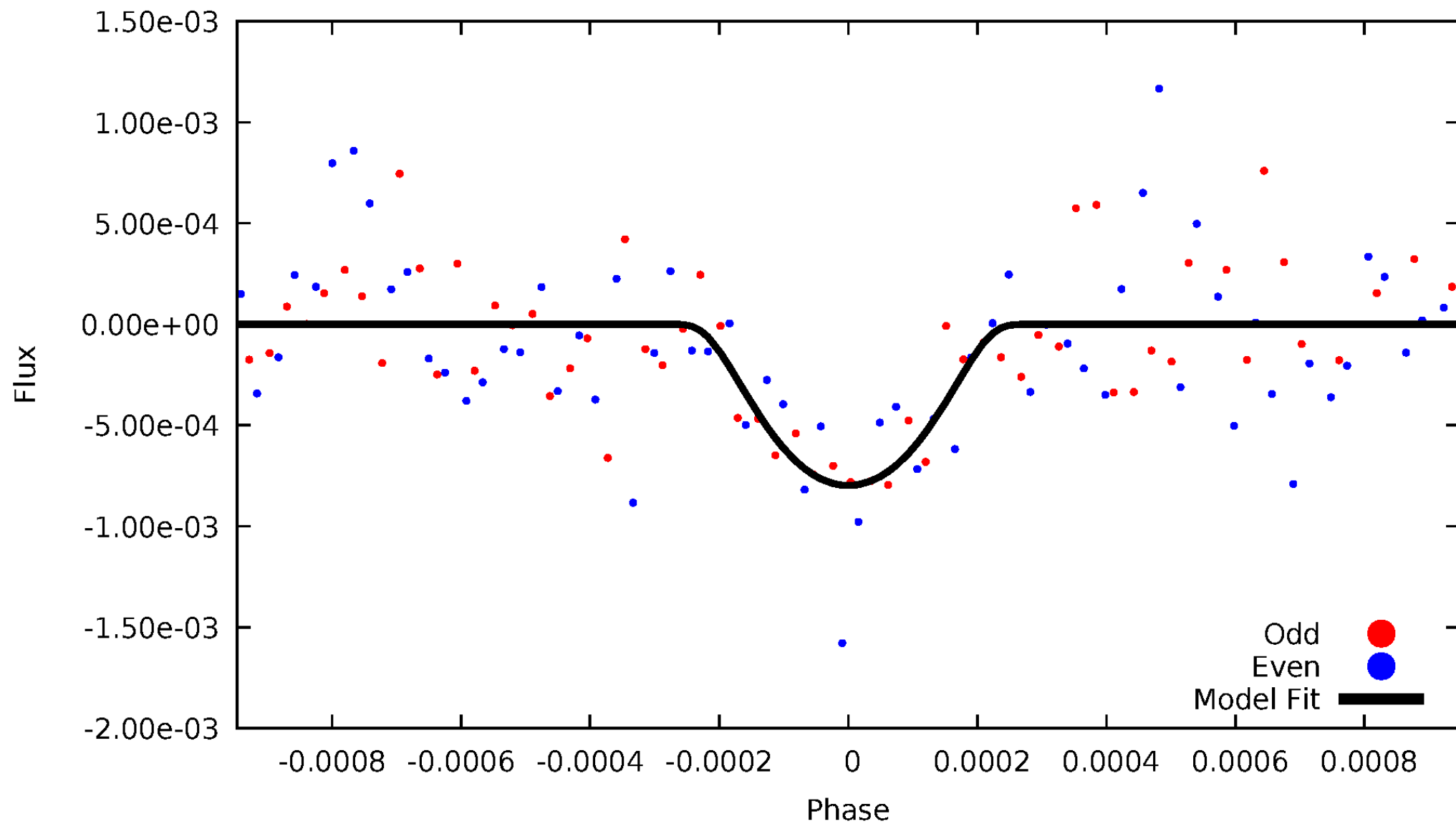


TCE 006422367-04



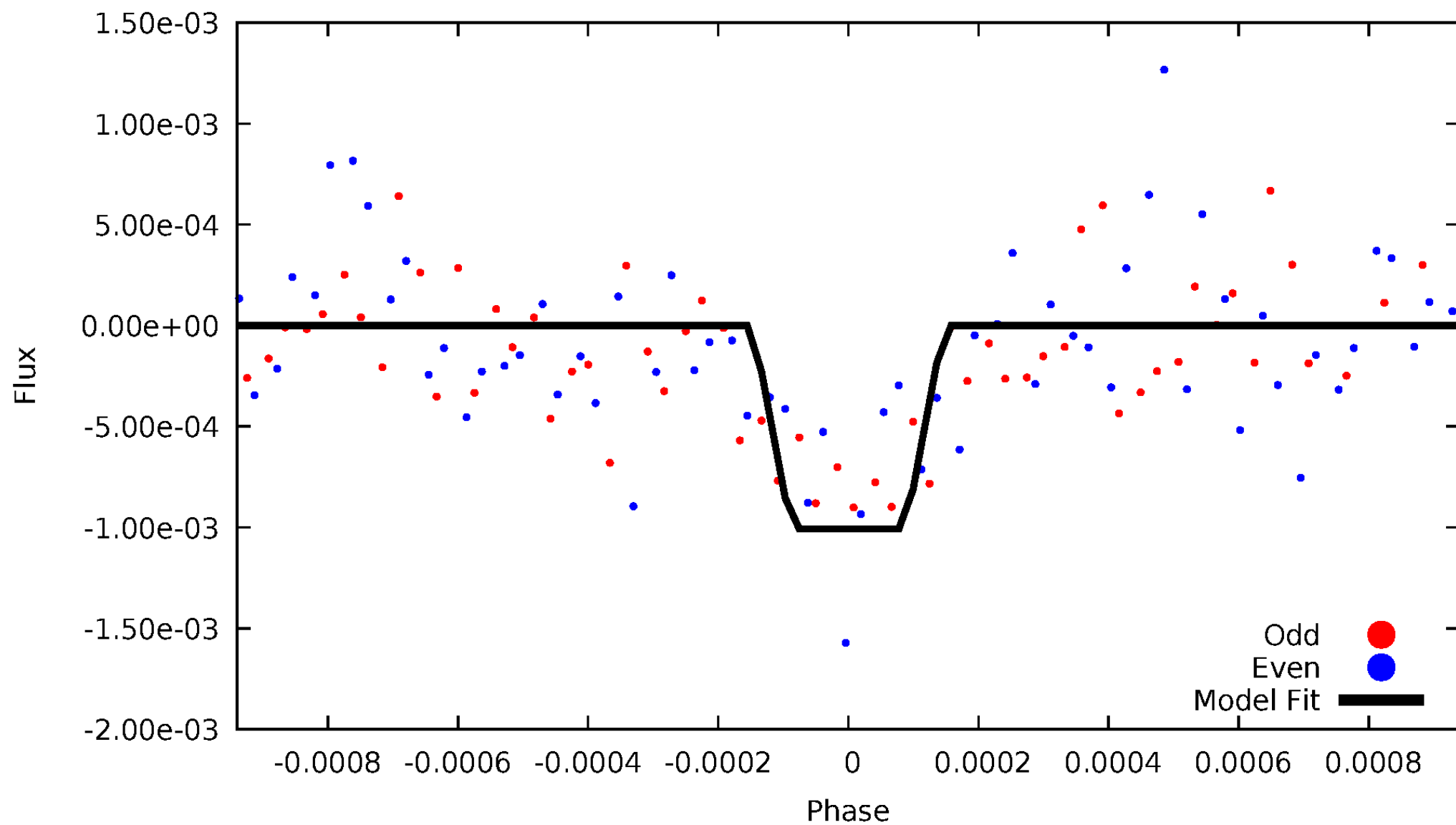
DV Odd/Even

TCE 006422367-04



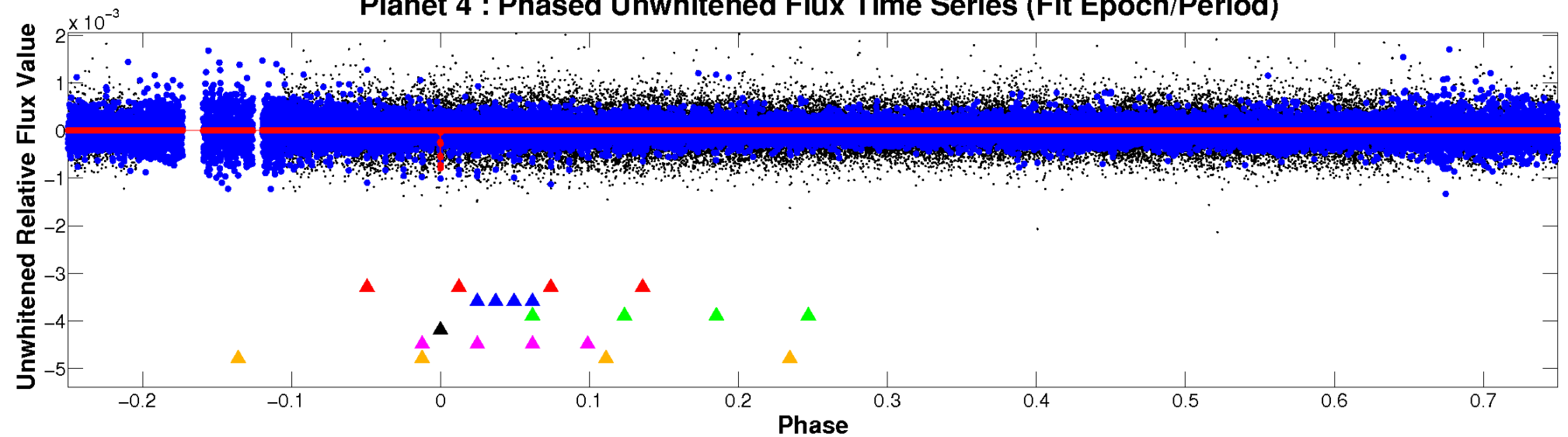
ALT Odd/Even

TCE 006422367-04

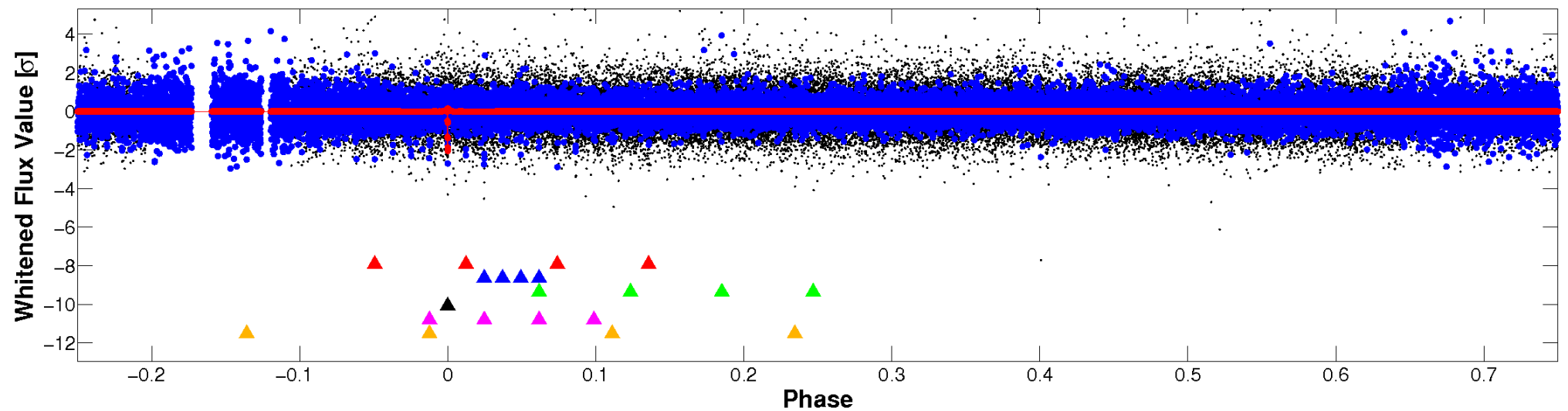


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

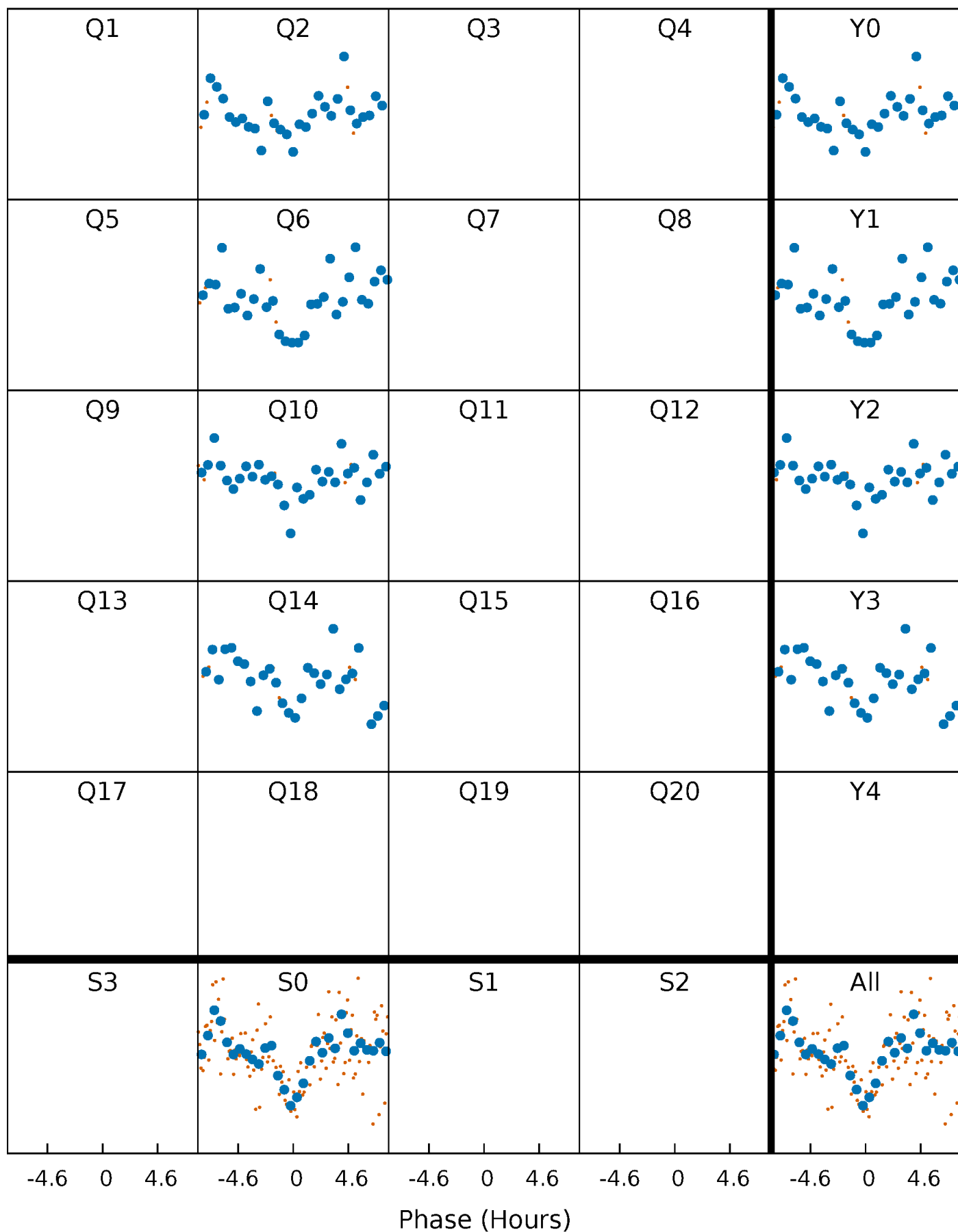


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



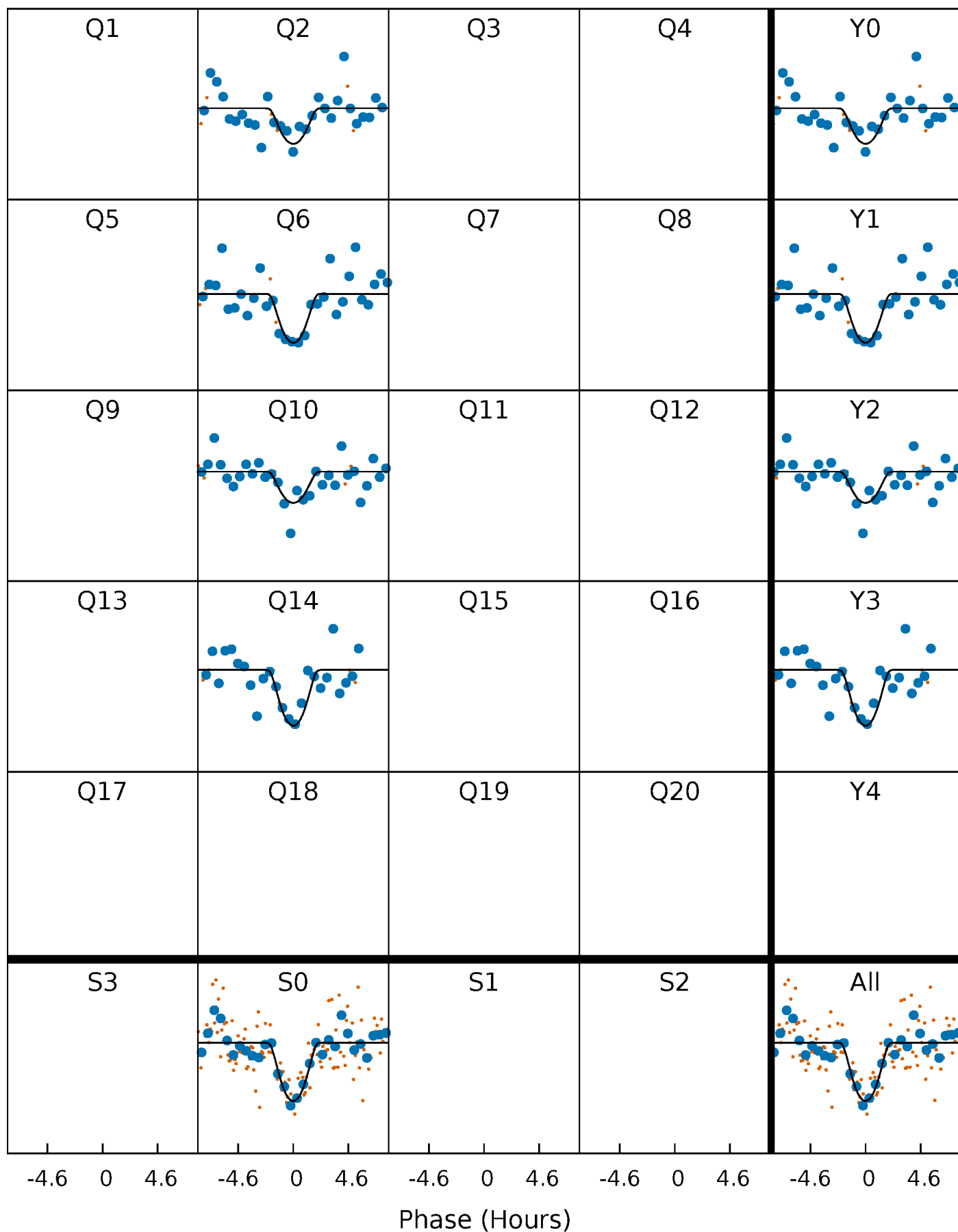
PDC Quarter-Phased Transit Curves

TCE 006422367-04 $P=350.849388$ Days $T_0=225.666660$ (BKJD)



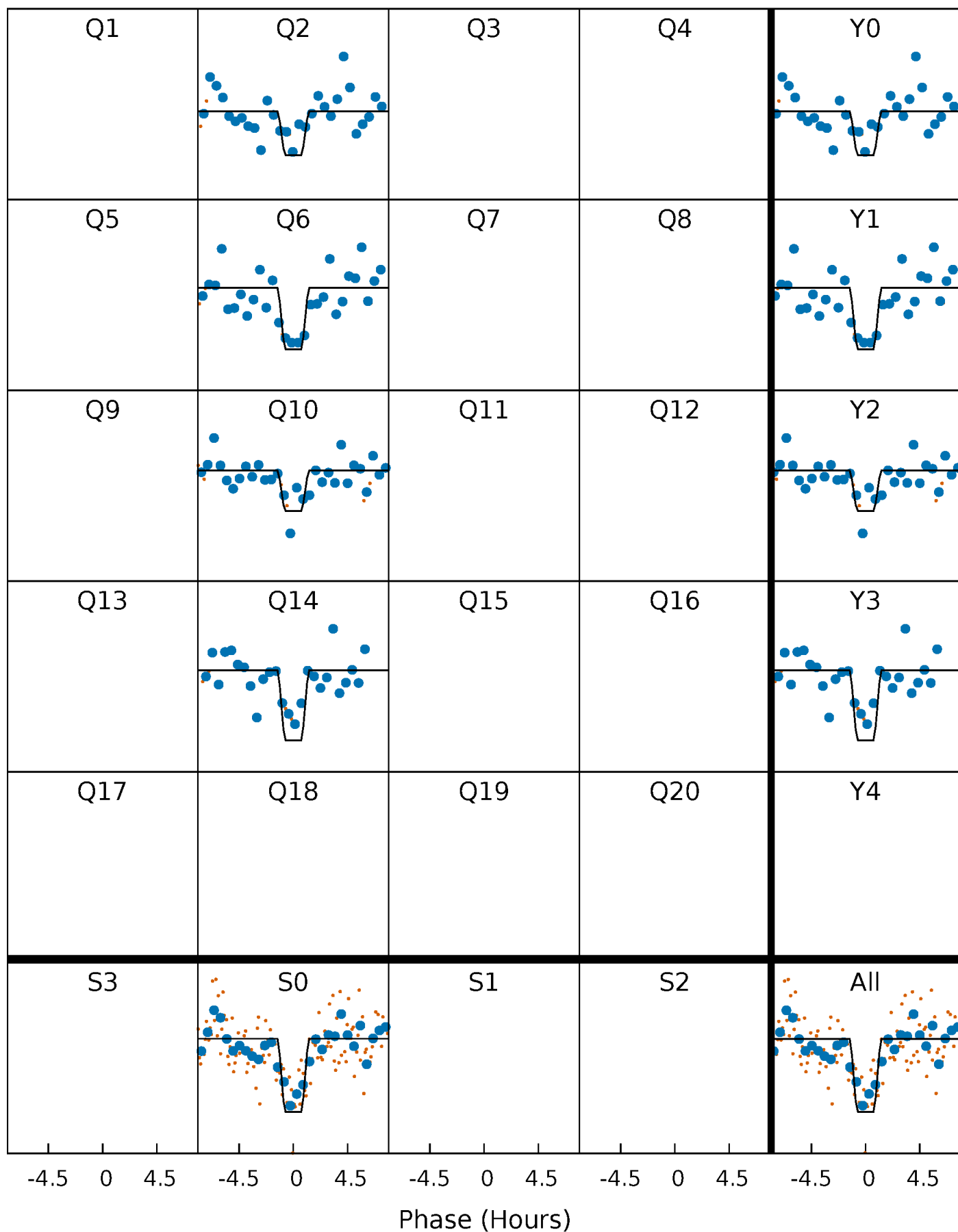
DV Quarter-Phased Transit Curves

TCE 006422367-04 $P=350.849388$ Days $T_0=225.666660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

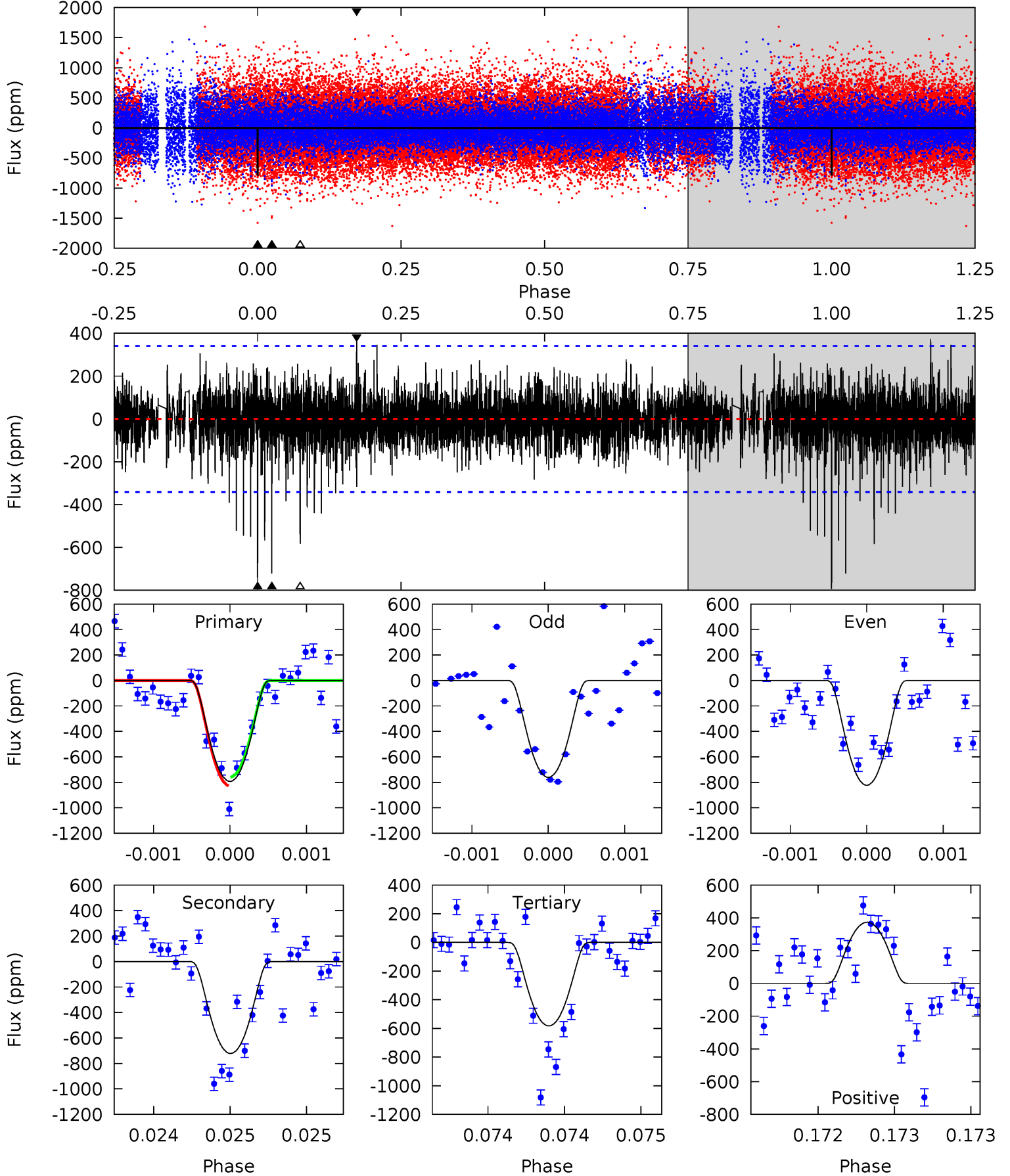
TCE 006422367-04 $P=350.849077$ Days $T_0=225.665329$ (BKJD)



DV Model-Shift Uniqueness Test

006422367-04, P = 350.849388 Days, E = 225.666660 Days

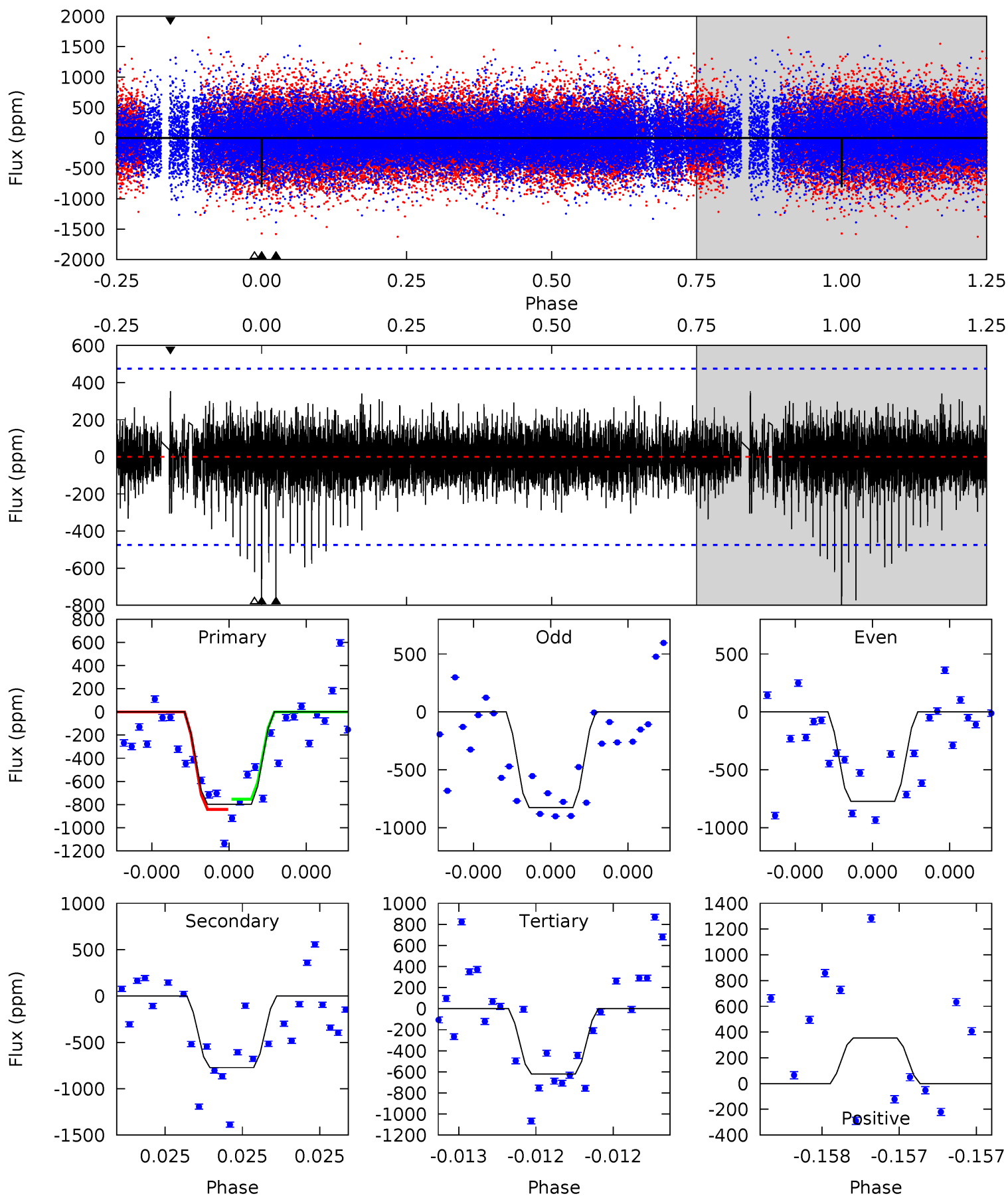
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	11.8	9.53	6.11	5.57	3.48	1.46	3.44	6.86	2.27	5.70	0.52	1.02	0.32	0.55



Alt Model-Shift Uniqueness Test

006422367-04, P = 350.849077 Days, E = 225.665329 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.55	9.23	7.42	4.23	5.68	3.64	1.12	2.12	5.32	1.81	5.00	0.32	0.97	0.31	0.53



Stellar Parameters For KIC 006422367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5344^{+160}_{-160}	$4.550^{+0.096}_{-0.072}$	$-0.620^{+0.350}_{-0.300}$	$0.728^{+0.090}_{-0.082}$	$0.686^{+0.090}_{-0.032}$	$2.502^{+0.940}_{-0.576}$
	+3%/-3%	+2%/-2%	+56%/-48%	+12%/-11%	+13%/-5%	+38%/-23%
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 006422367-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-722 ± 61	$3.89^{+3.30}_{-2.39}$	302^{+13}_{-13}	4181^{+2100}_{-757}	$19574^{+107498}_{-13788}$
Alt.	-772 ± 84	$3.61^{+2.80}_{-2.41}$	302^{+14}_{-14}	4398^{+2850}_{-859}	$24578^{+197640}_{-17173}$

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 $A_{obs} \gg 1.0$

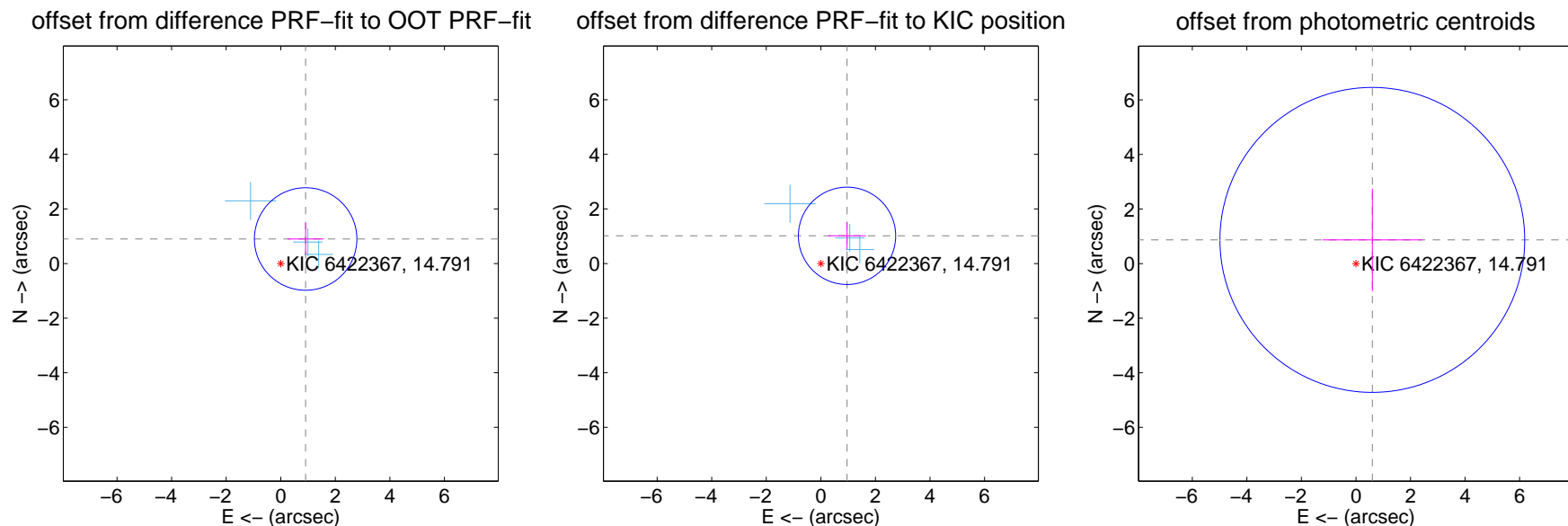
DV Centroid Data

Supplemental centroid analysis for 006422367-04. Kepler magnitude: 14.79. Transit SNR 7.73

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.281 ± 0.626	2.05	-0.912 ± 0.663	0.899 ± 0.585
PRF-fit source offset from KIC position	1.396 ± 0.594	2.35	-0.959 ± 0.687	1.015 ± 0.496
photometric centroid source offset	1.06 ± 1.86	0.57	-0.60 ± 1.83	0.87 ± 1.88



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.

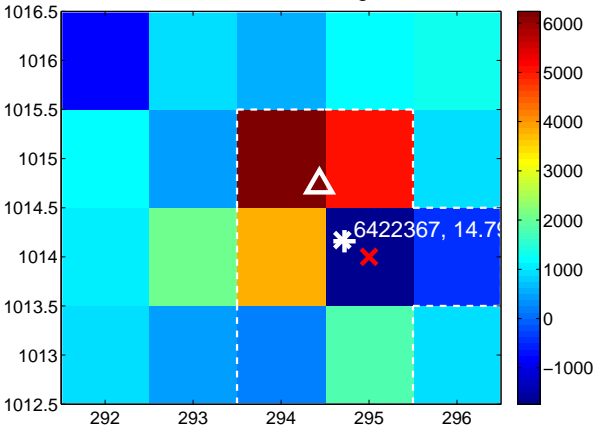
Q1 no difference image



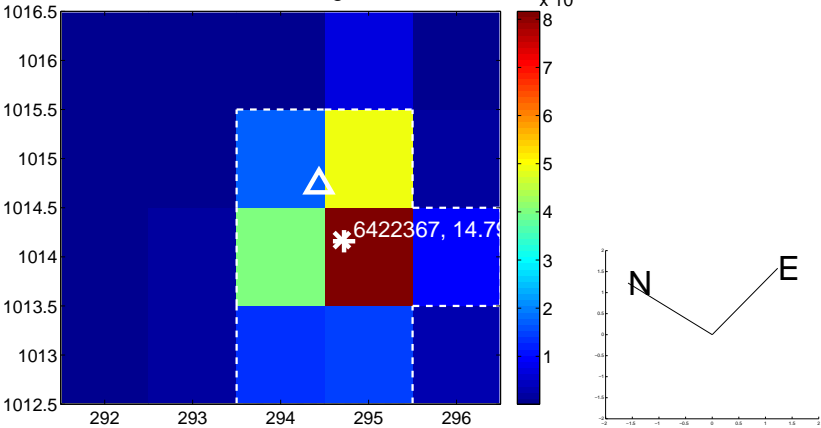
Q1 no OOT image



Q2 difference image



Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image

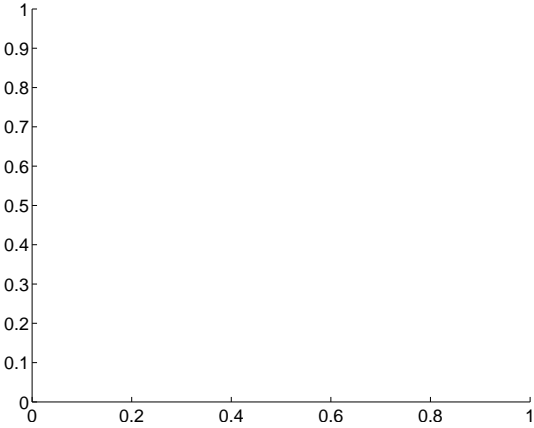


Q4 no OOT image

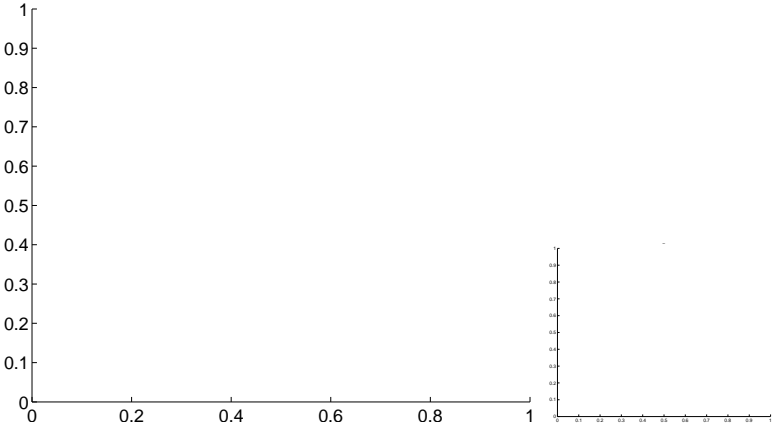


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

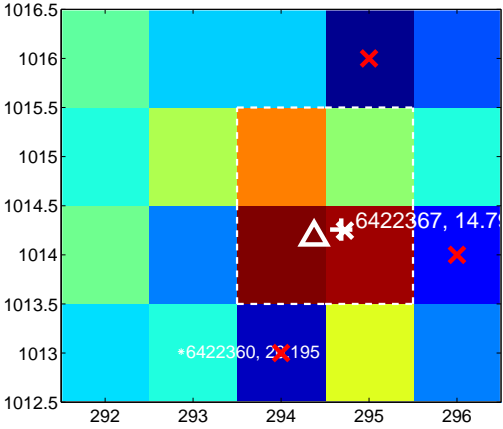
Q5 no difference image



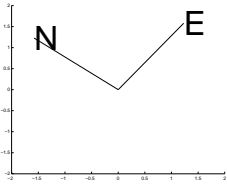
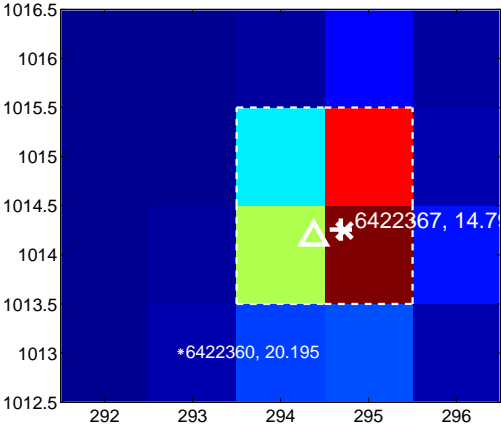
Q5 no OOT image



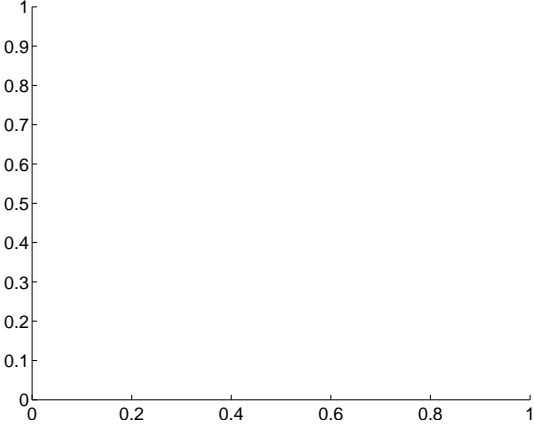
Q6 difference image



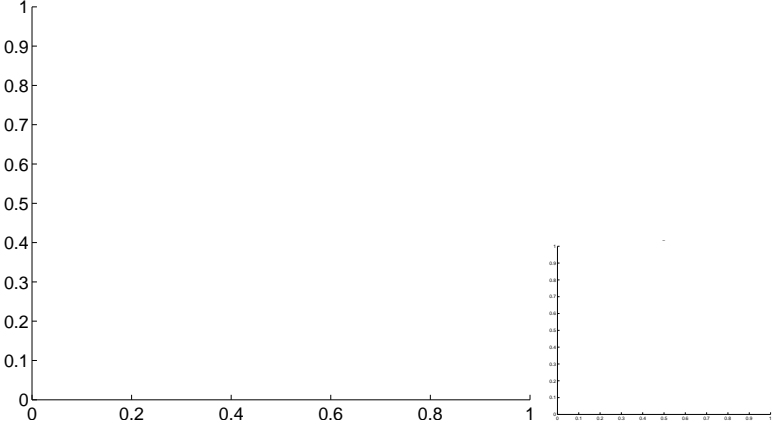
Q6 OOT image



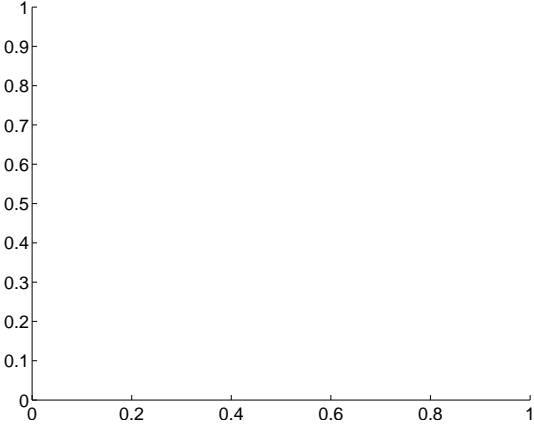
Q7 no difference image



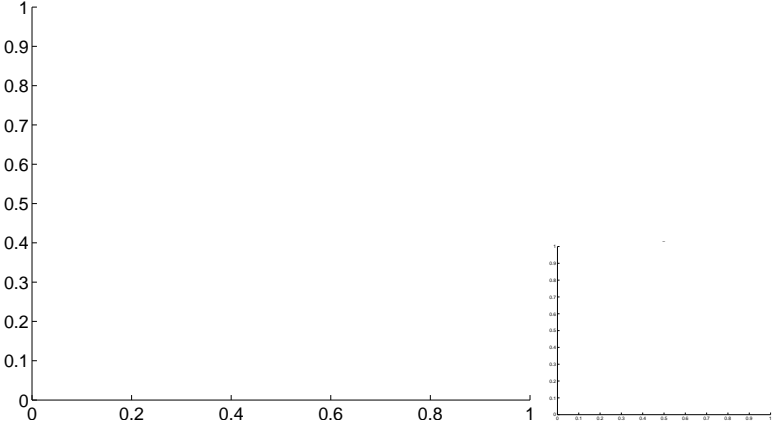
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

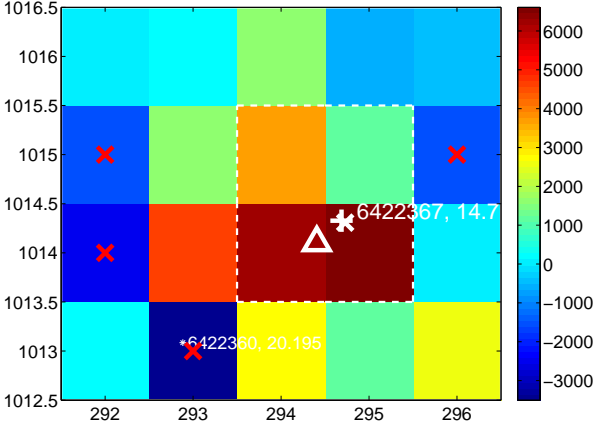
Q9 no difference image



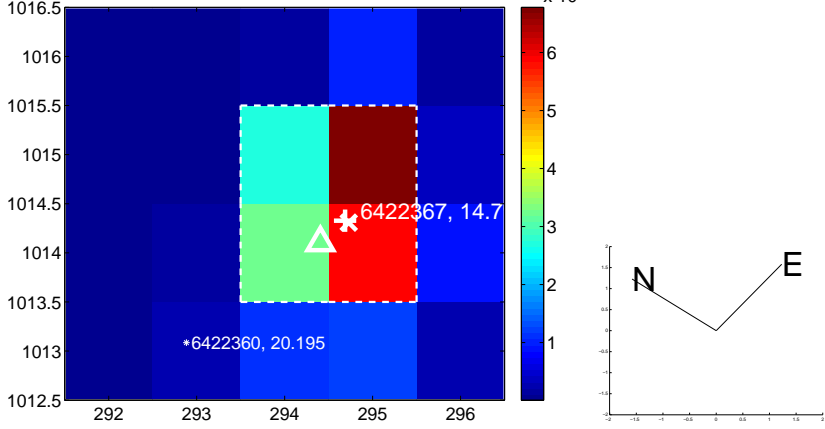
Q9 no OOT image



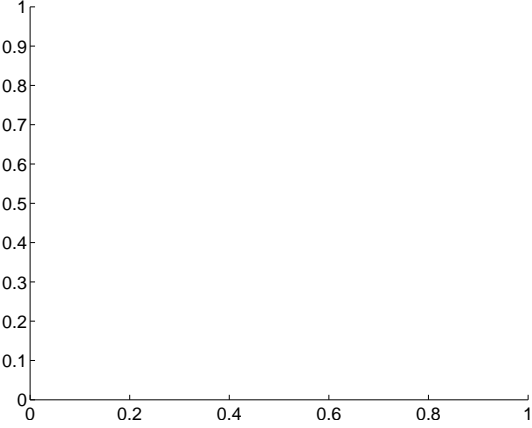
Q10 difference image



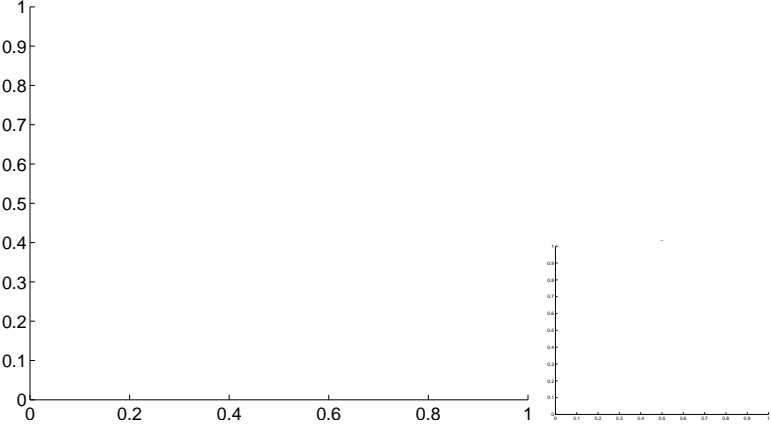
Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



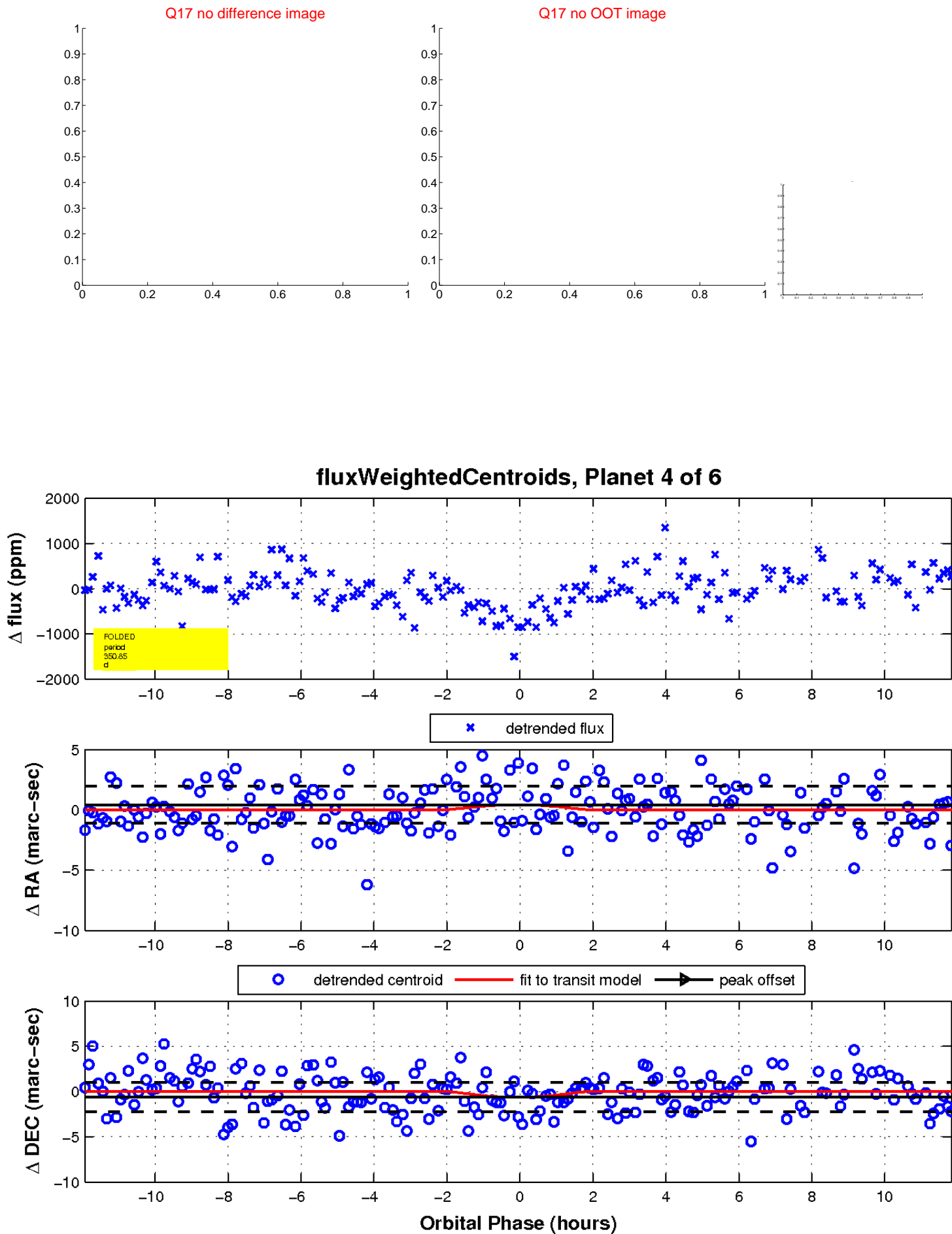
Q12 no OOT image



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

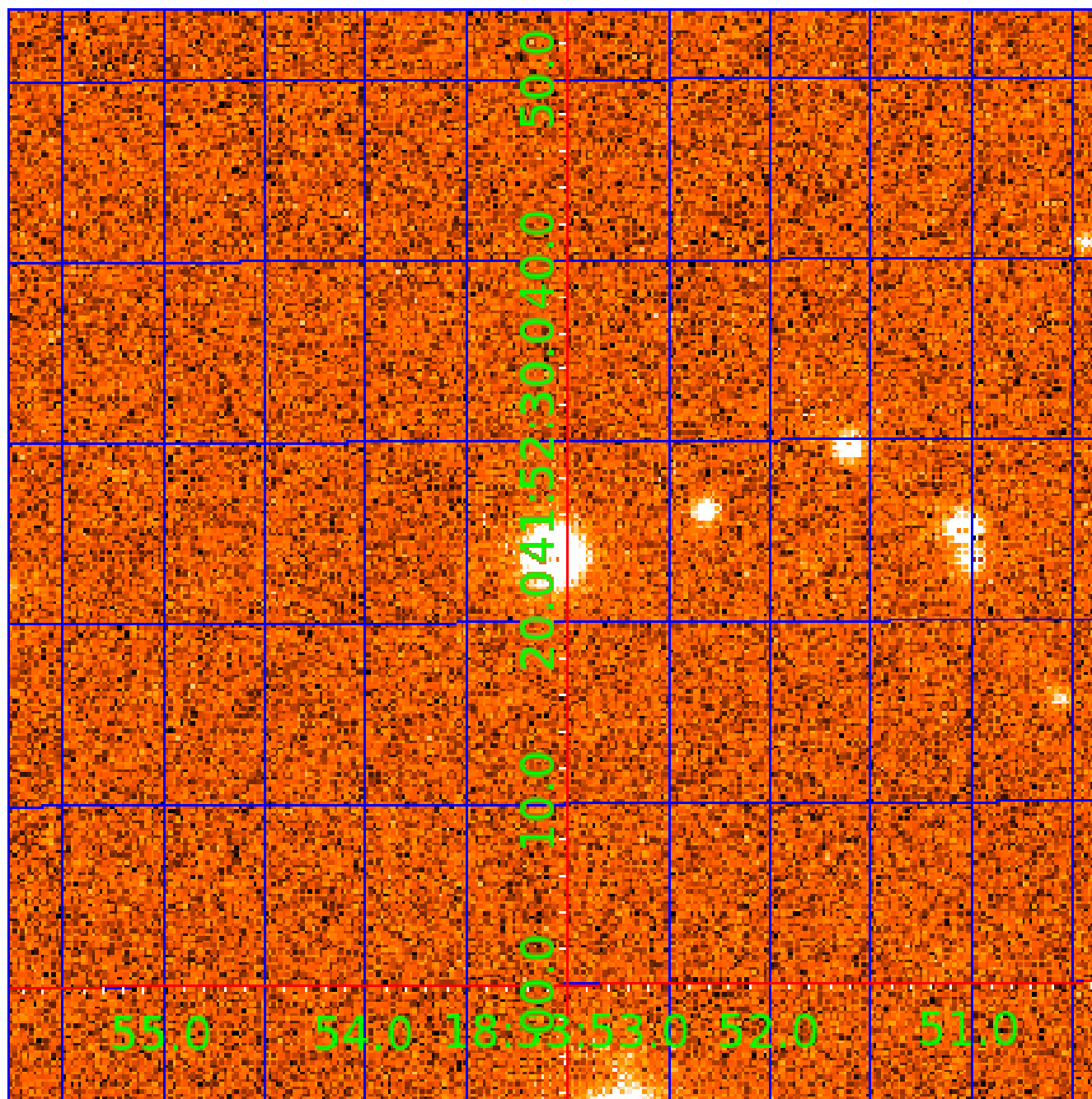


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006422367

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})
006422367-01	OBS	No	372.486873	208.372853	789.4	3.332	8.6	8.7	0.73	5344	2.20	0.48
006422367-02	OBS	No	355.179115	234.337472	967.4	3.218	8.7	9.3	0.73	5344	4.22	0.52
006422367-03	OBS	No	372.498641	247.344778	1055.3	3.312	8.4	9.3	0.73	5344	4.59	0.48
006422367-04	OBS	No	350.849388	225.666660	798.3	3.986	7.7	7.7	0.73	5344	3.05	0.53
006422367-05	OBS	No	363.840342	221.351267	726.8	2.910	7.1	7.8	0.73	5344	2.36	0.50
006422367-06	OBS	No	394.155050	178.034964	807.1	2.337	7.5	8.1	0.73	5344	2.25	0.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006422367-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-02	OBS	FP	0.00	1	0	0	0	MOD_TER_DV—MOD_TER_ALT
006422367-03	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
006422367-04	OBS	FP	0.03	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

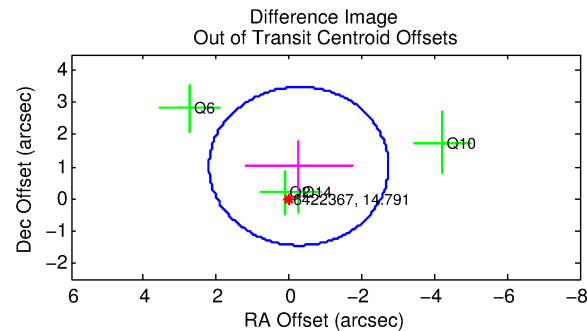
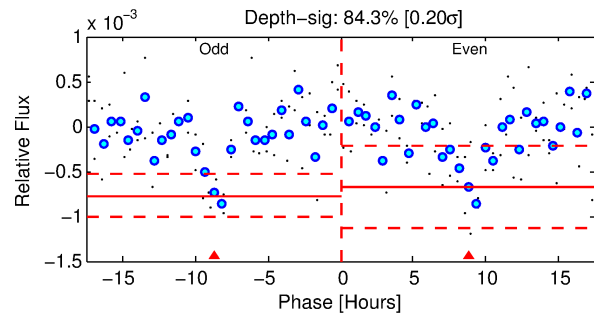
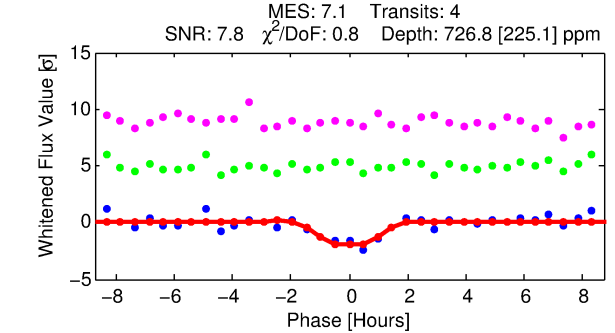
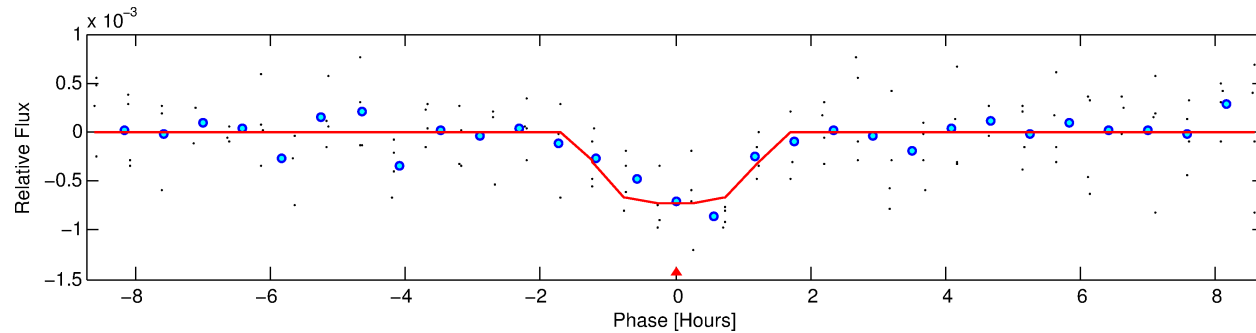
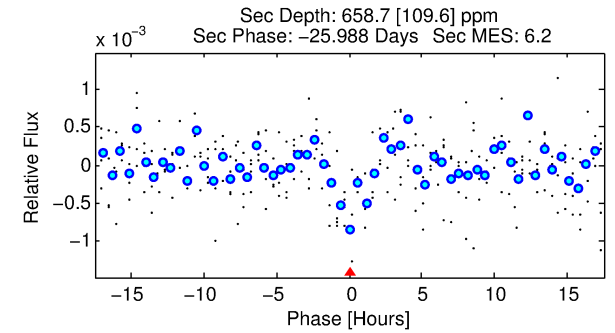
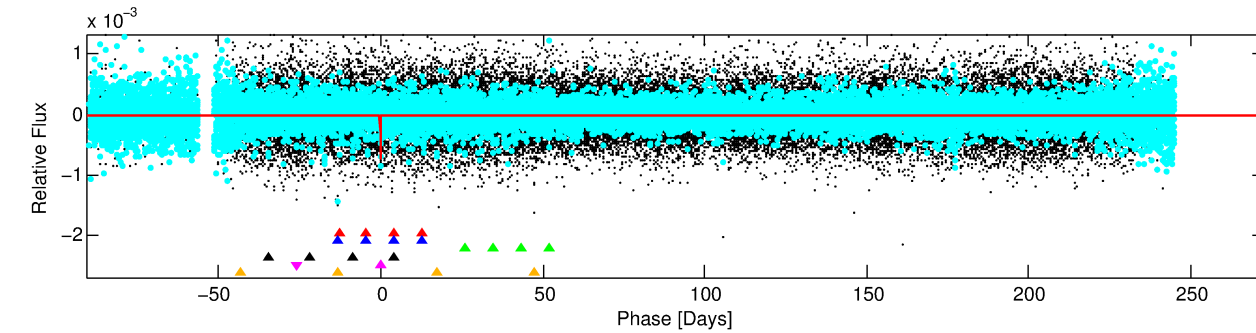
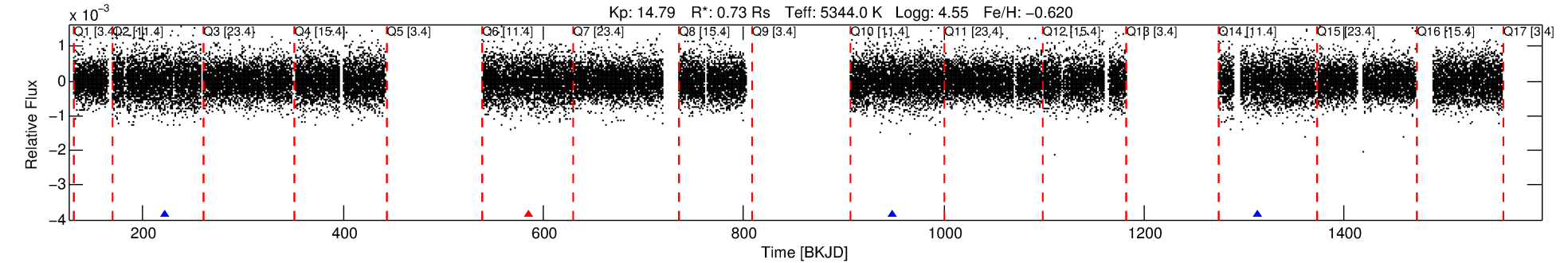
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006422367-05

No Significant Match Found

DV One-Page Summary

KIC: 6422367 Candidate: 5 of 6 Period: 363.840 d
KOI: K00559 Corr: No Ephemeris Match



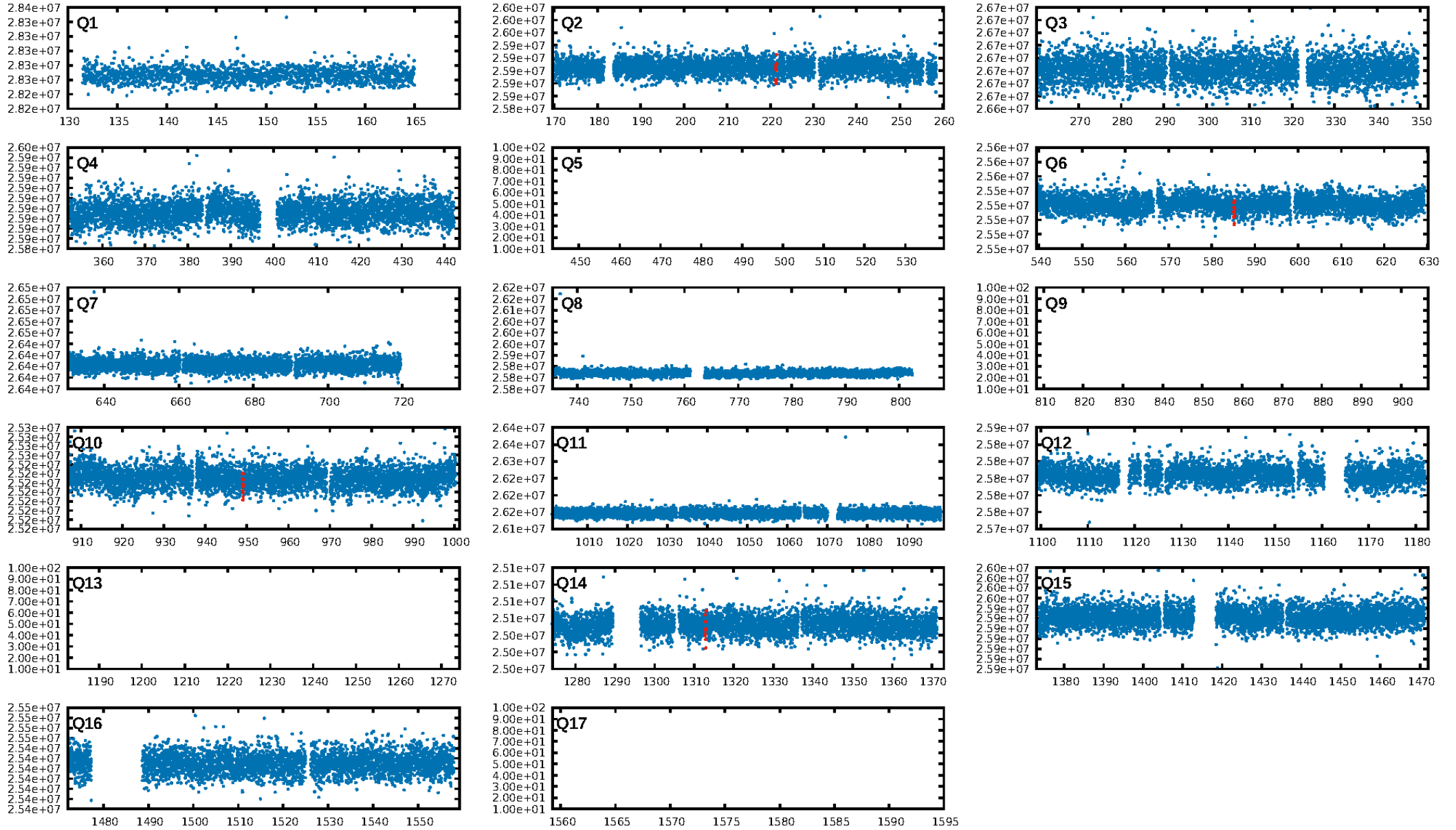
DV Fit Results:

Period = 363.84034 [0.00516] d
Epoch = 221.3513 [0.0091] BKJD
Rp/R* = 0.0297 [0.1602]
a/R* = 474.33 [11590.29]
b = 0.90 [5.18]
Seff = 0.50 [0.10]
Teq = 214 [11] K
Rp = 2.36 [12.73] Re
a = 0.8798 [0.0973] AU
Ag = 50456.97 [544751.28] [0.09 σ]
Teff = 4969 [13412] K [0.35 σ]

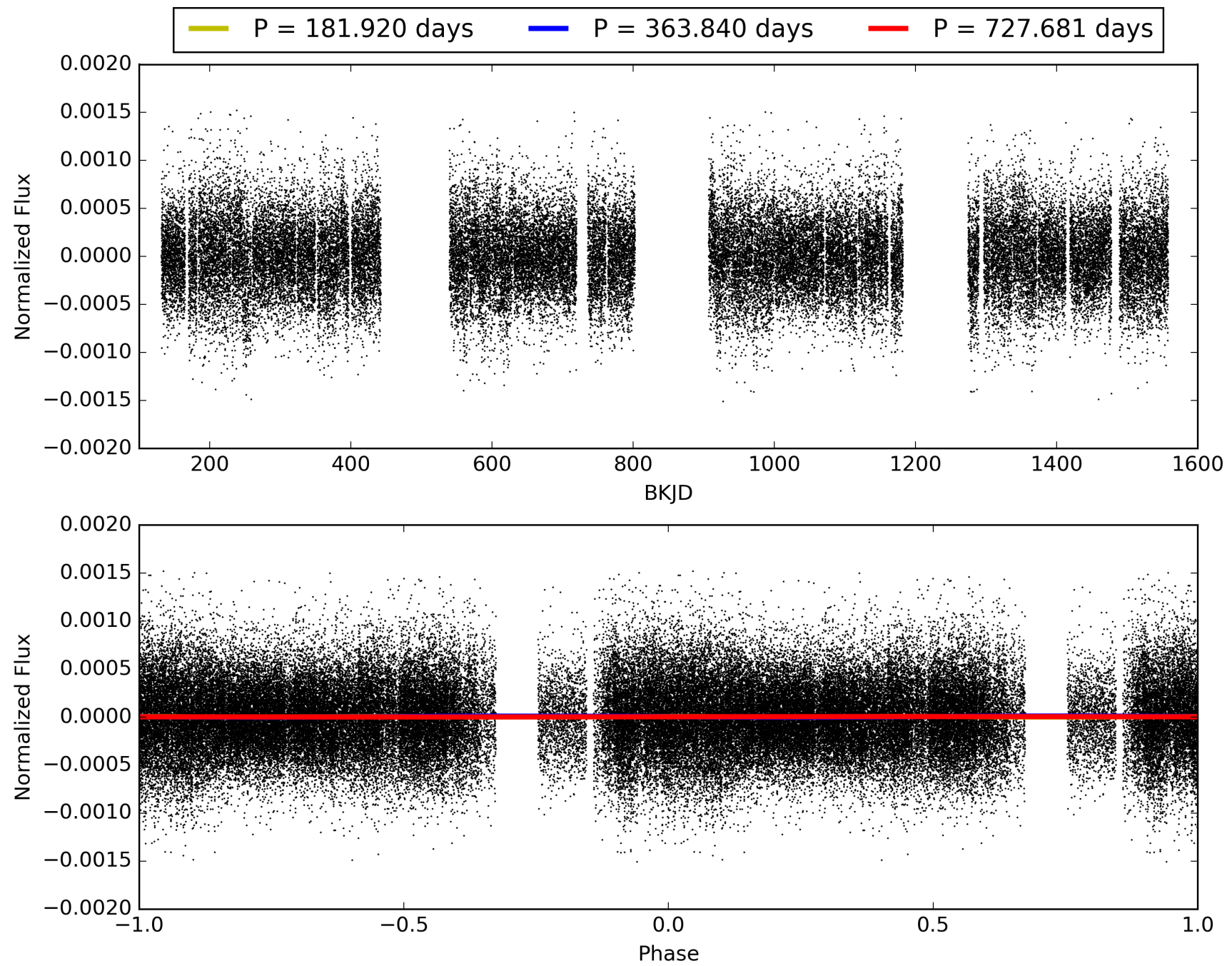
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.91 σ]
LongPeriod-sig: 100.0% [46.91 σ]
ModelChiSquare2-sig: 82.7%
ModelChiSquareGof-sig: 98.7%
Bootstrap-pfa: 2.13e-10
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 1.843
Centroid-sig: 95.0%
Centroid-so: 0.315 arcsec [0.15 σ]
OotOffset-rm: 1.048 arcsec [1.27 σ]
KicOffset-rm: 1.136 arcsec [1.37 σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 006422367-05, PDC Light Curves

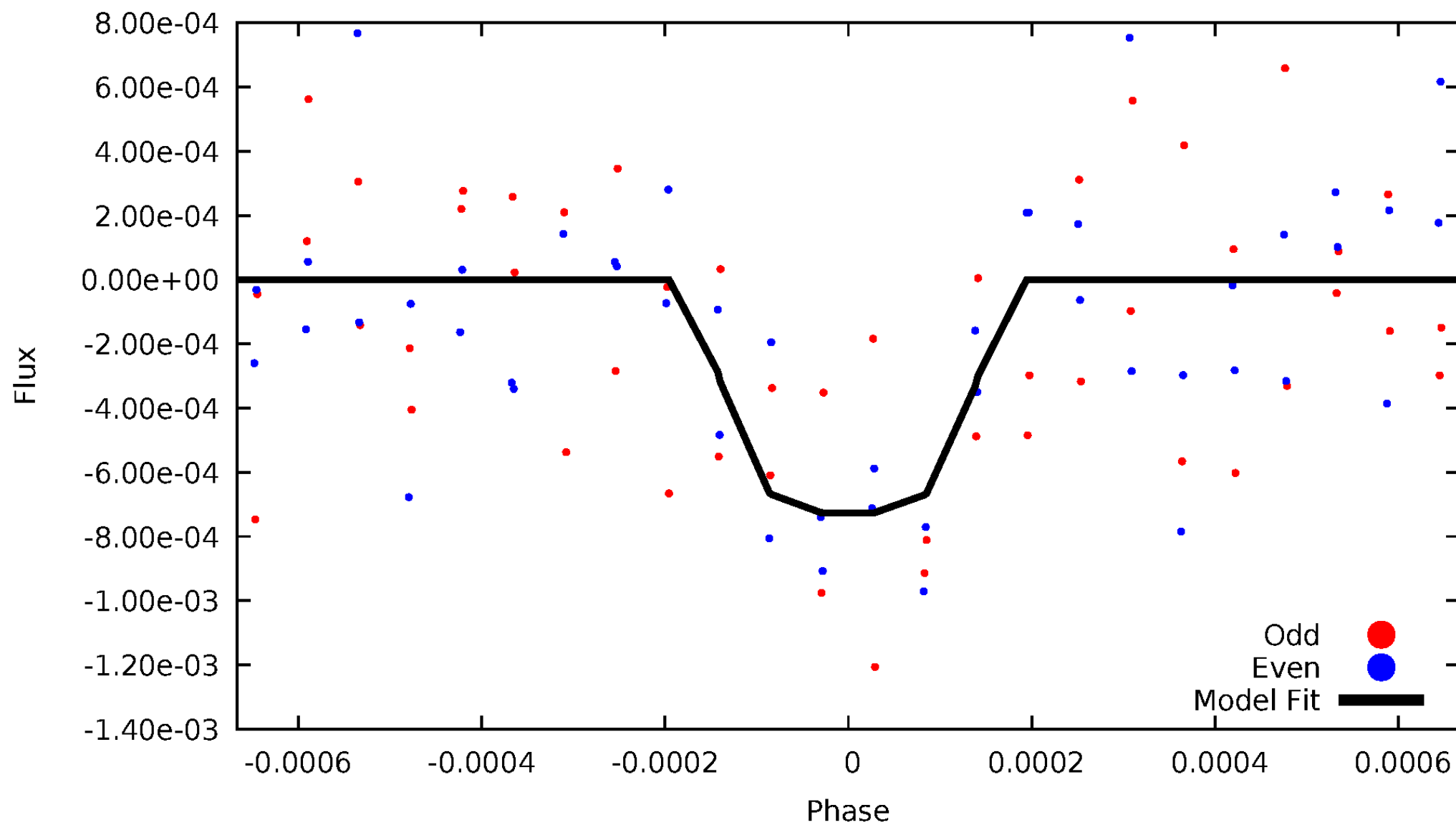


TCE 006422367-05



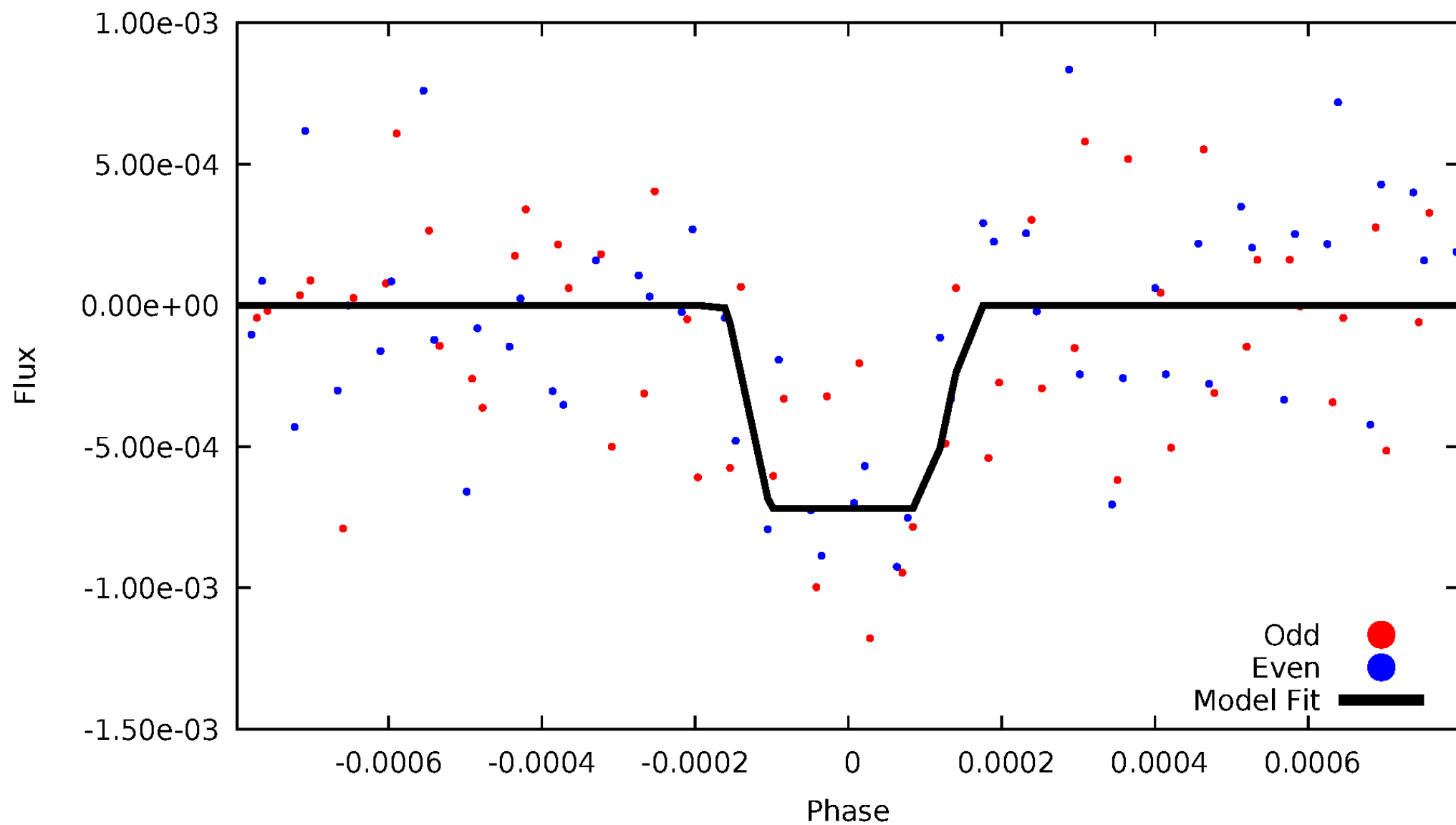
DV Odd/Even

TCE 006422367-05



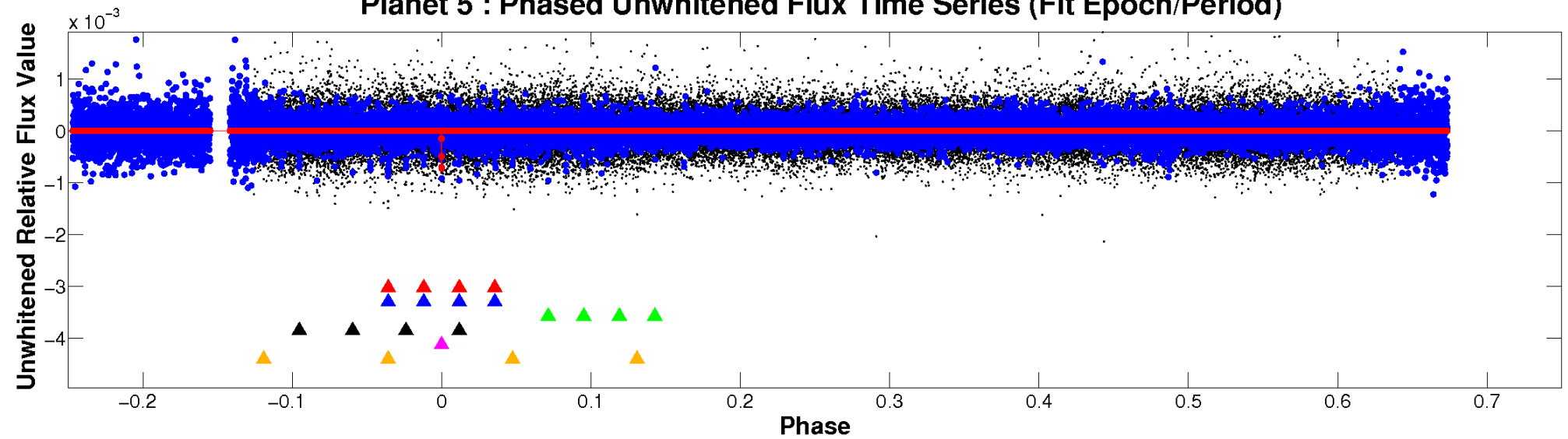
ALT Odd/Even

TCE 006422367-05

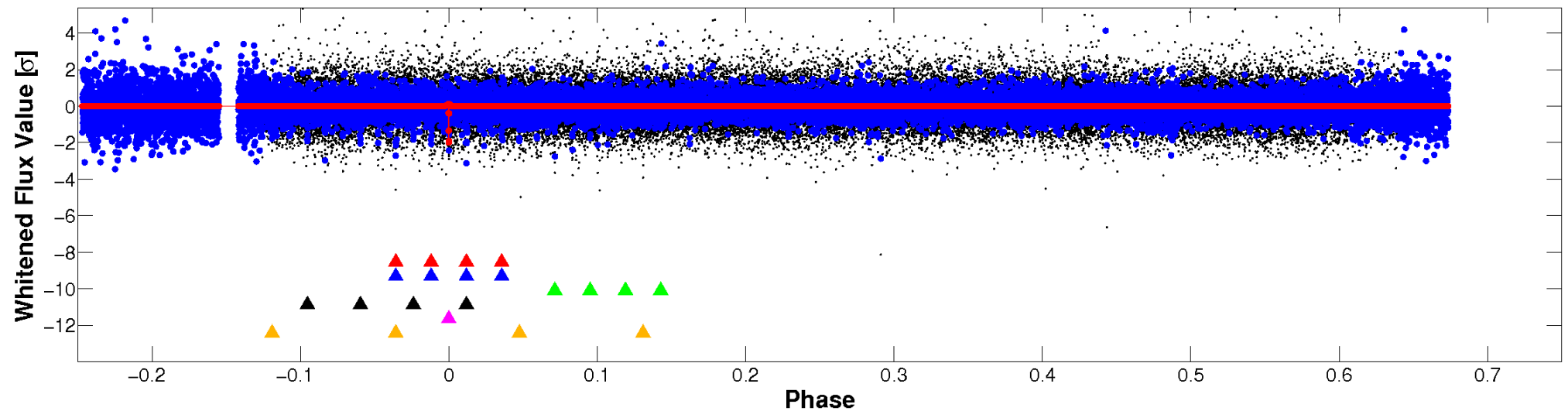


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

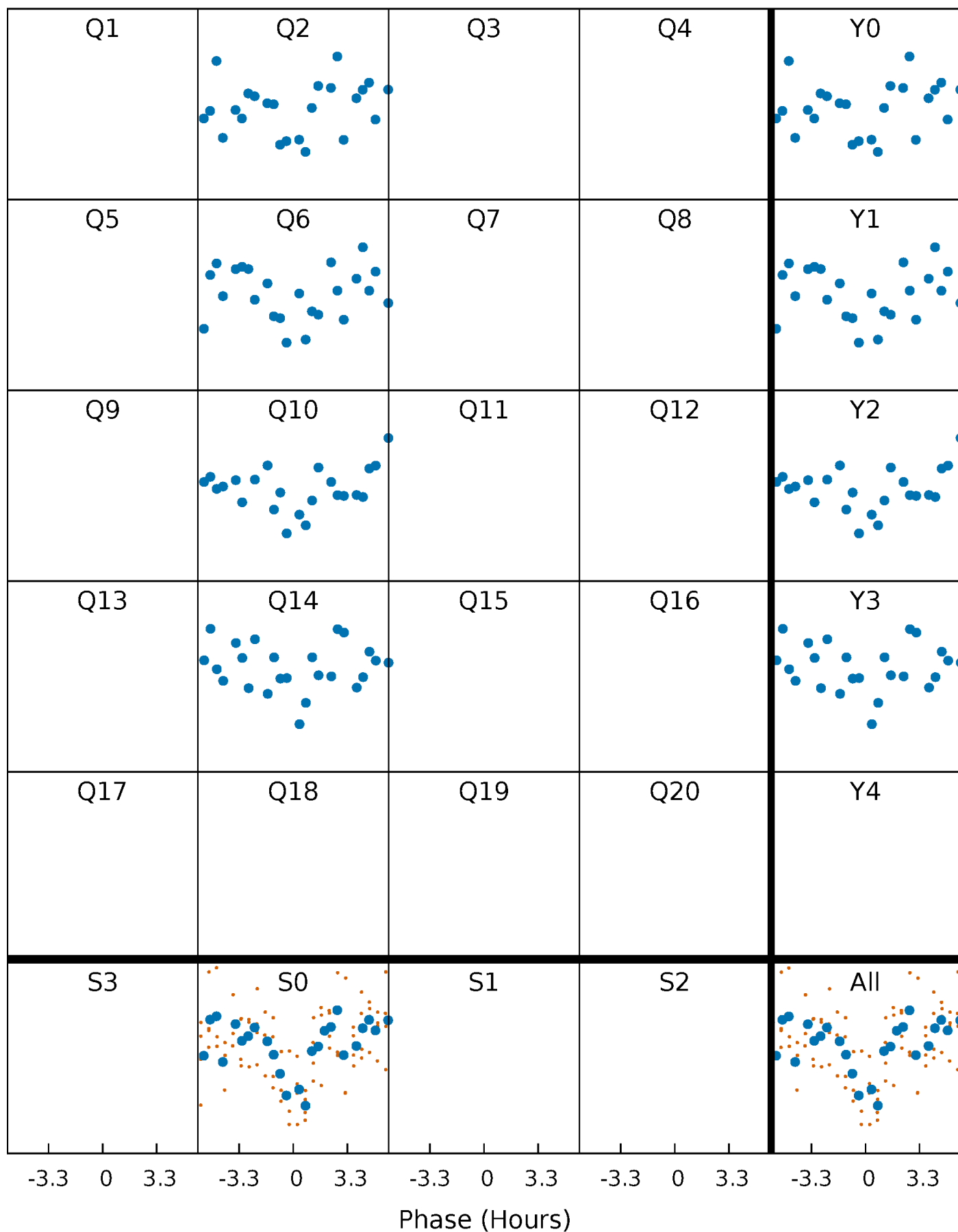


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 006422367-05 $P=363.840342$ Days $T_0=221.351267$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006422367-05 $P=363.840342$ Days $T_0=221.351267$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

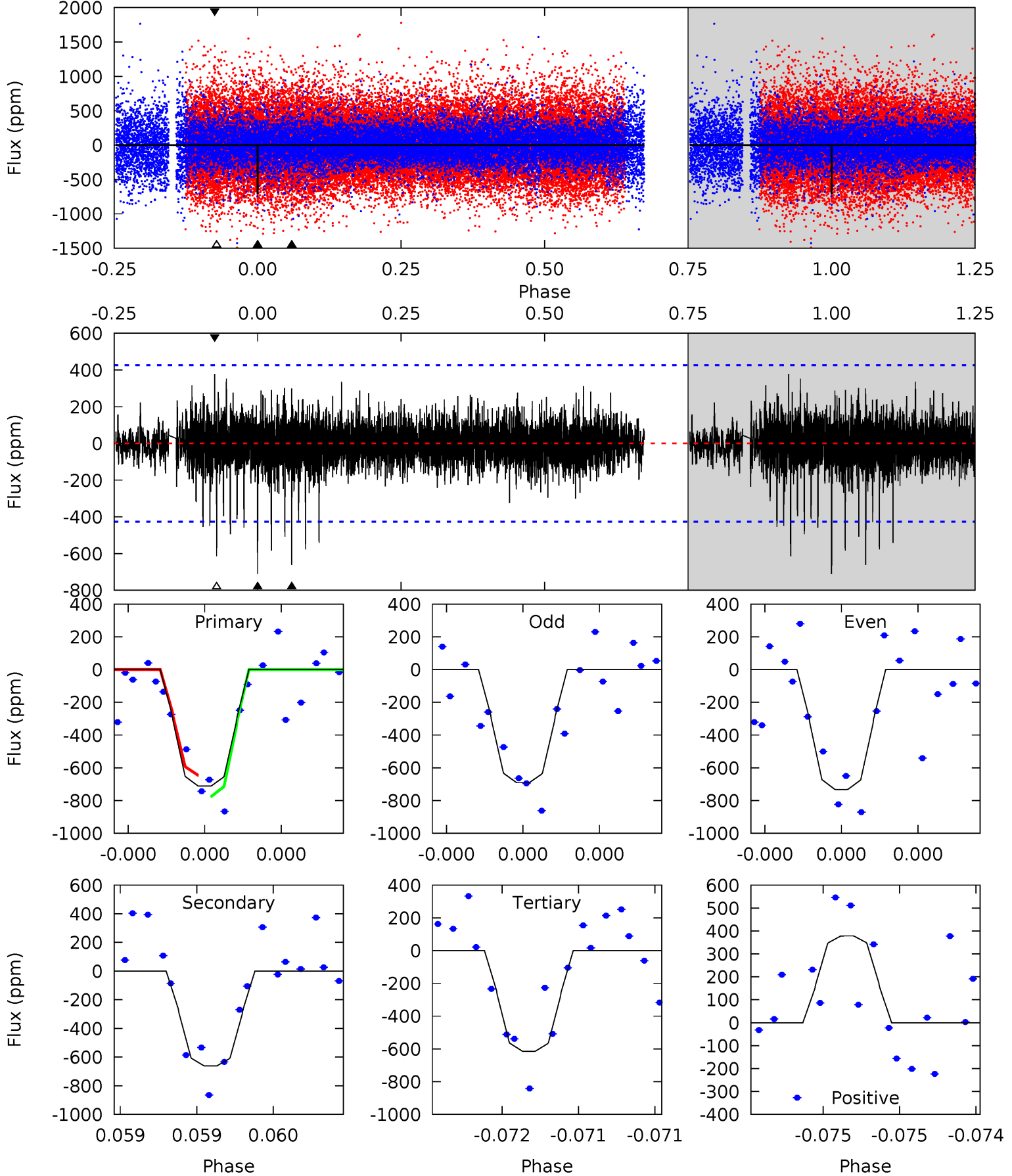
TCE 006422367-05 $P=363.838187$ Days $T_0=221.358070$ (BKJD)



DV Model-Shift Uniqueness Test

006422367-05, P = 363.840342 Days, E = 221.351267 Days

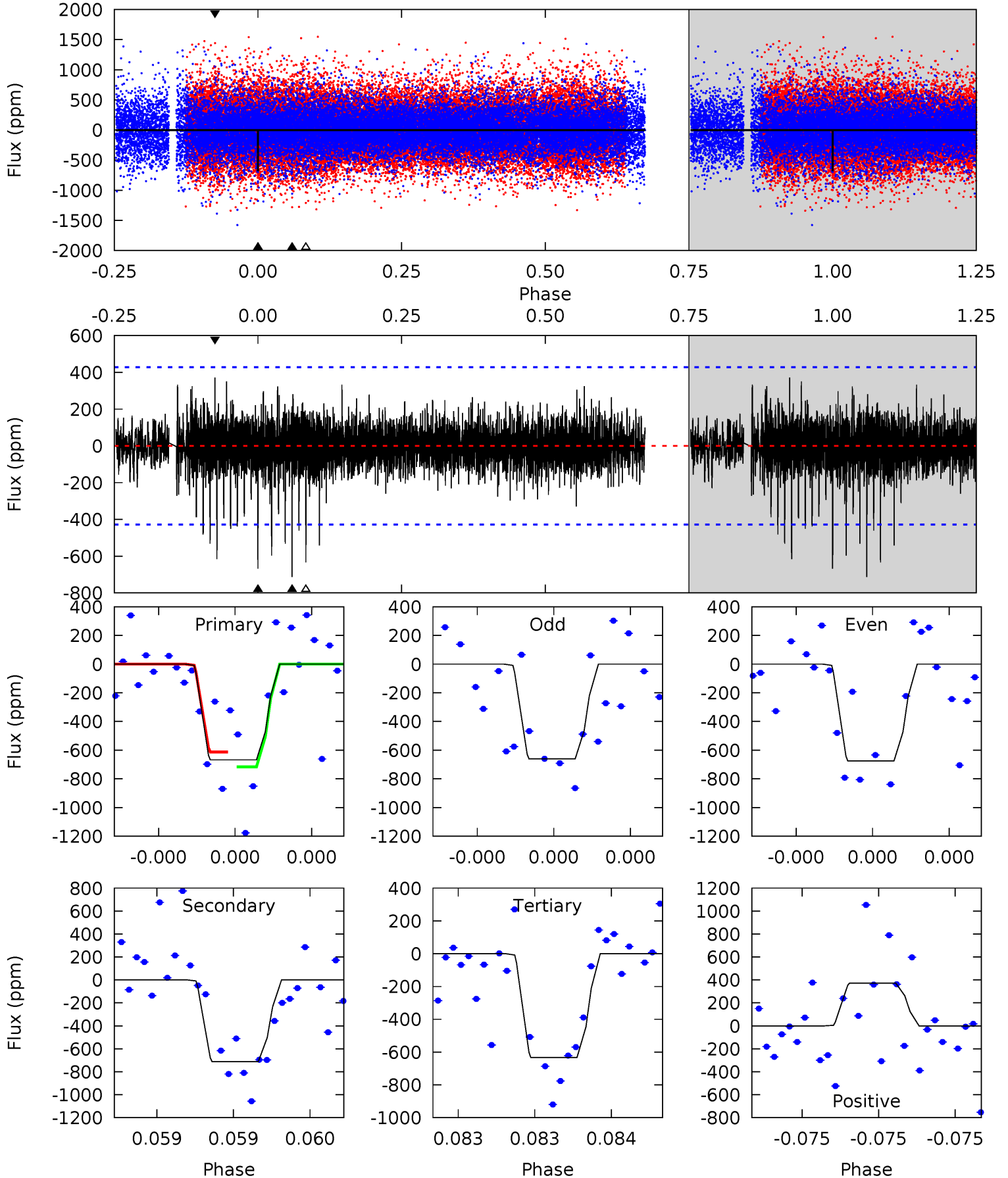
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.41	8.75	8.13	5.01	5.64	3.59	1.14	1.28	4.41	0.62	3.74	0.28	1.00	0.35	0.85



Alt Model-Shift Uniqueness Test

006422367-05, P = 363.838187 Days, E = 221.358070 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.83	9.43	8.37	4.92	5.66	3.61	1.15	0.46	3.91	1.05	4.51	0.09	1.00	0.34	0.68



Stellar Parameters For KIC 006422367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5344^{+160}_{-160}	$4.550^{+0.096}_{-0.072}$	$-0.620^{+0.350}_{-0.300}$	$0.728^{+0.090}_{-0.082}$	$0.686^{+0.090}_{-0.032}$	$2.502^{+0.940}_{-0.576}$
	+3%/-3%	+2%/-2%	+56%/-48%	+12%/-11%	+13%/-5%	+38%/-23%
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 006422367-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-662 ± 76	$9.13^{+10.00}_{-6.32}$	298^{+13}_{-13}	3116^{+1536}_{-556}	3394^{+32178}_{-2631}
Alt.	-713 ± 76	$9.10^{+10.02}_{-6.39}$	299^{+13}_{-13}	3184^{+1640}_{-605}	3737^{+39840}_{-2921}

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

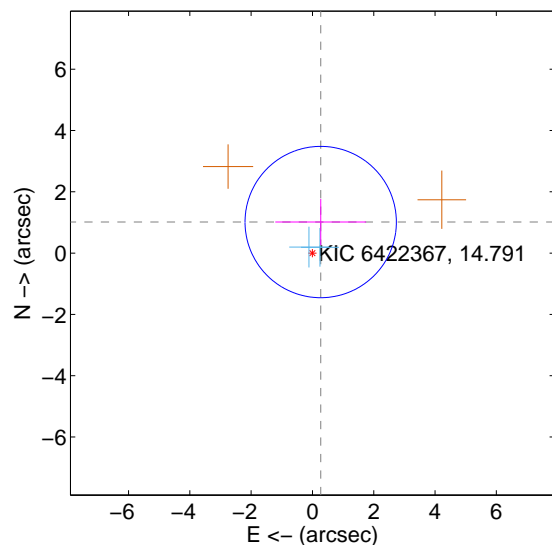
Supplemental centroid analysis for 006422367-05. Kepler magnitude: 14.79. Transit SNR 7.82

There are 2 quarters with good PRF difference image offsets

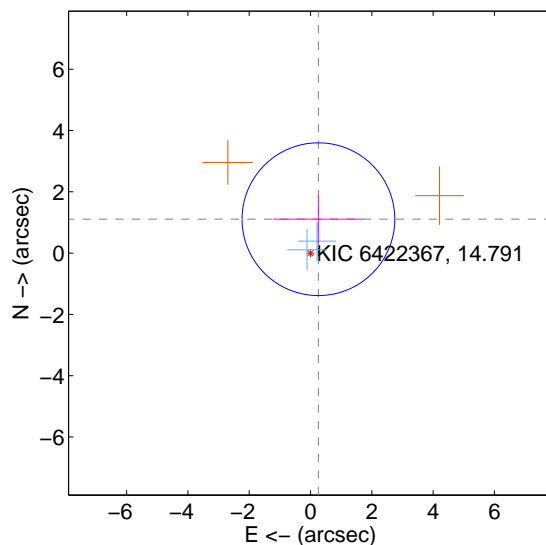
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.048 ± 0.823	1.27	-0.269 ± 1.482	1.013 ± 0.755
PRF-fit source offset from KIC position	1.136 ± 0.830	1.37	-0.257 ± 1.476	1.106 ± 0.780
photometric centroid source offset	0.32 ± 2.09	0.15	0.23 ± 2.06	-0.22 ± 2.12

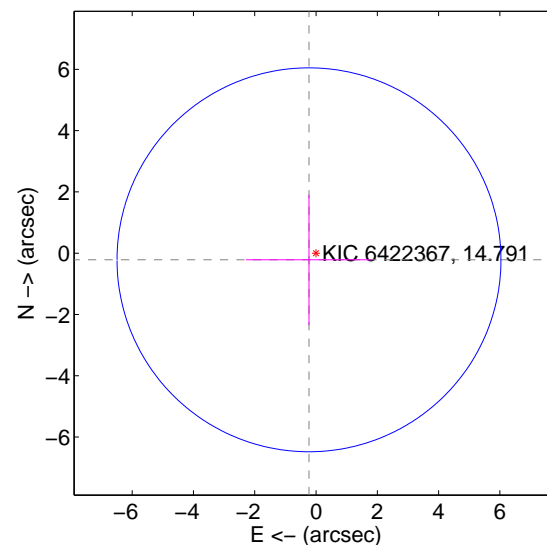
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

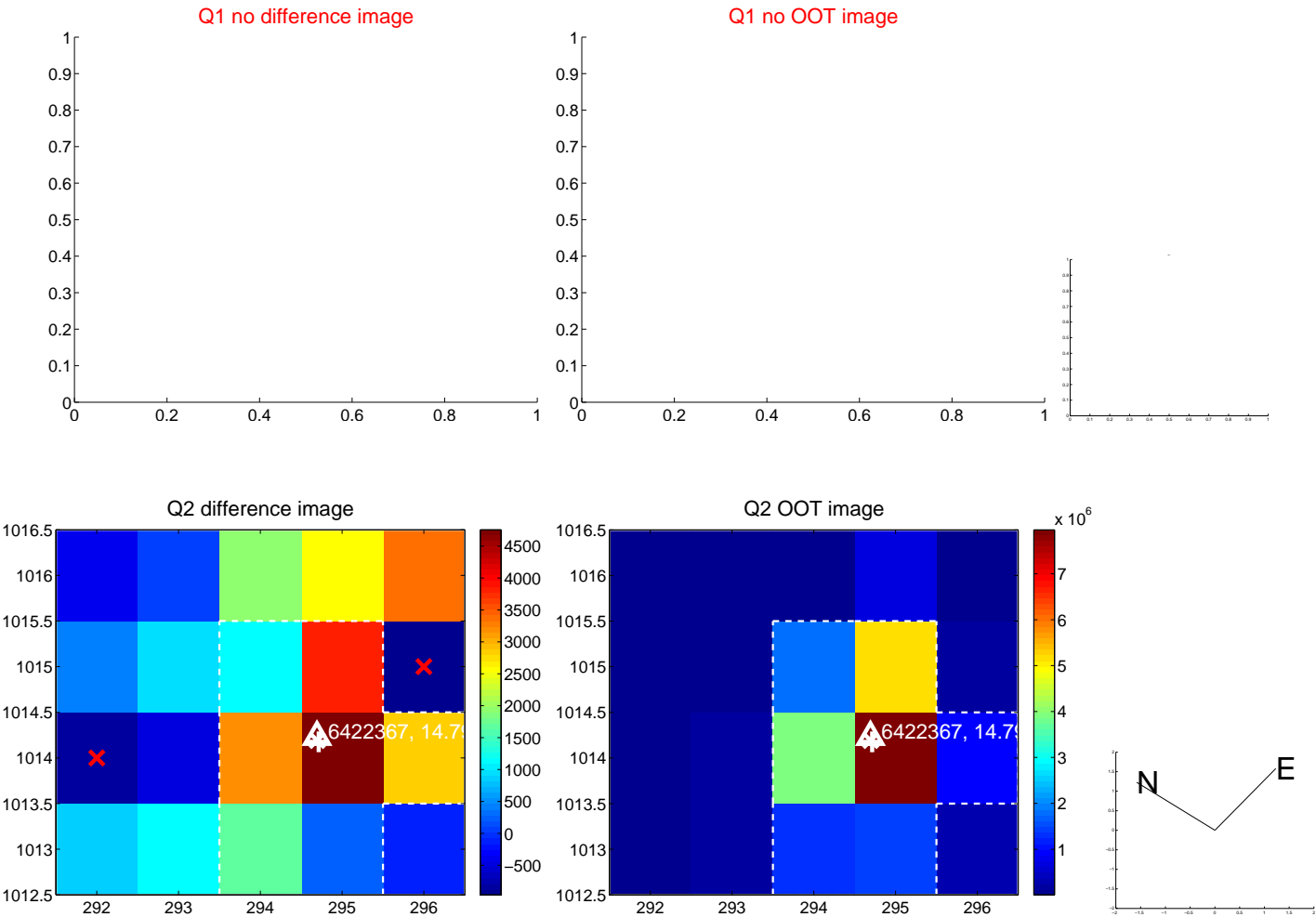


offset from photometric centroids



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



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

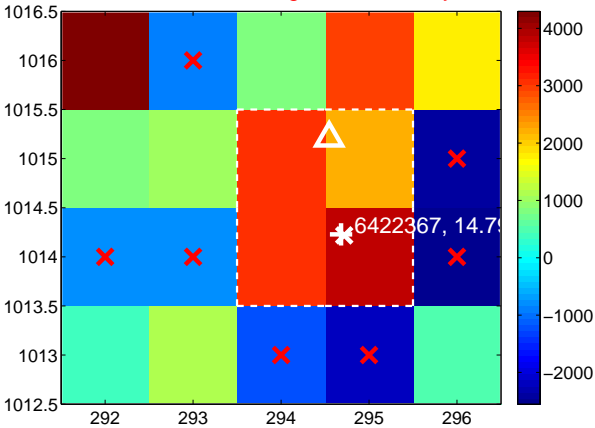
Q5 no difference image



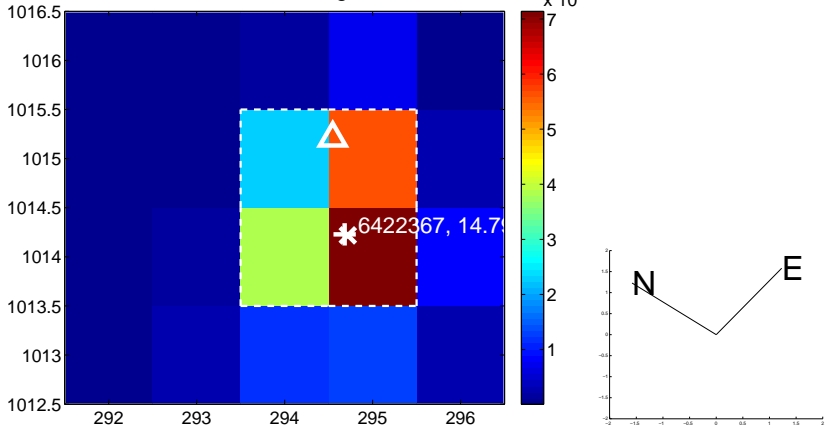
Q5 no OOT image



Q6 difference image. Poor Quality



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.

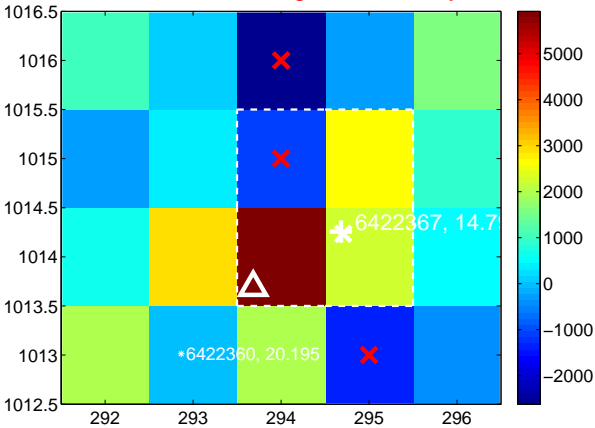
Q9 no difference image



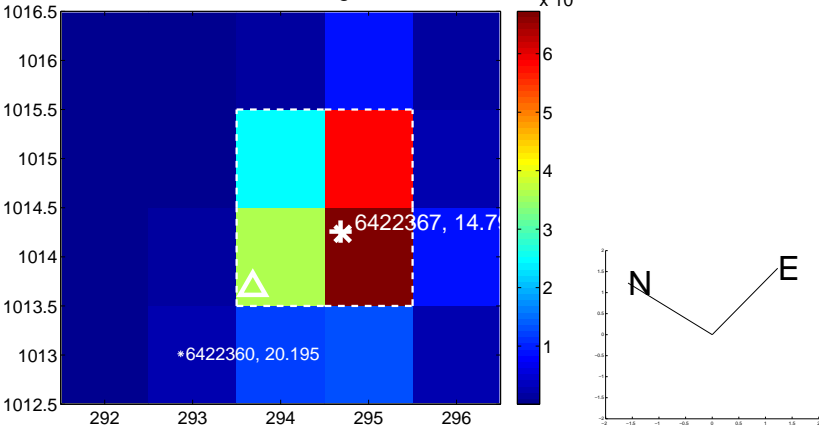
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

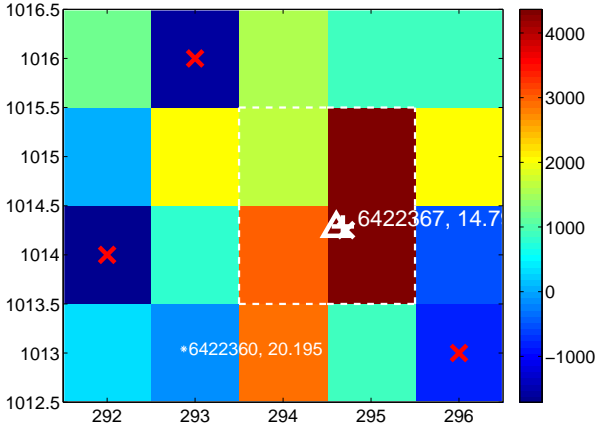
Q13 no difference image



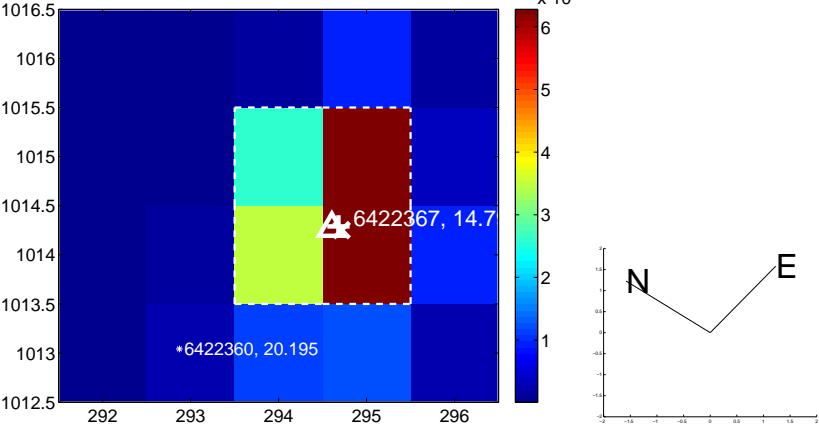
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



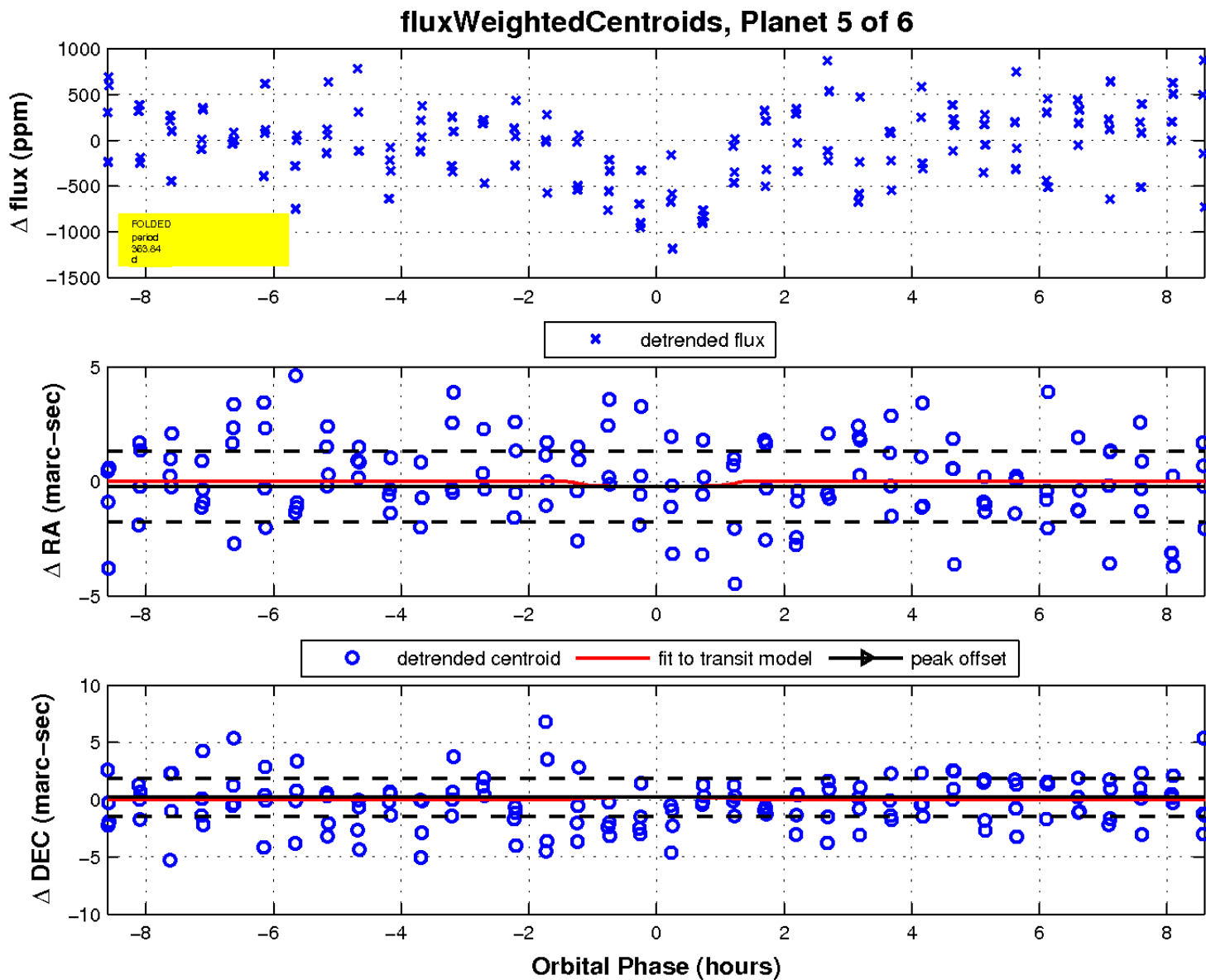
Q16 no difference image



Q16 no OOT image

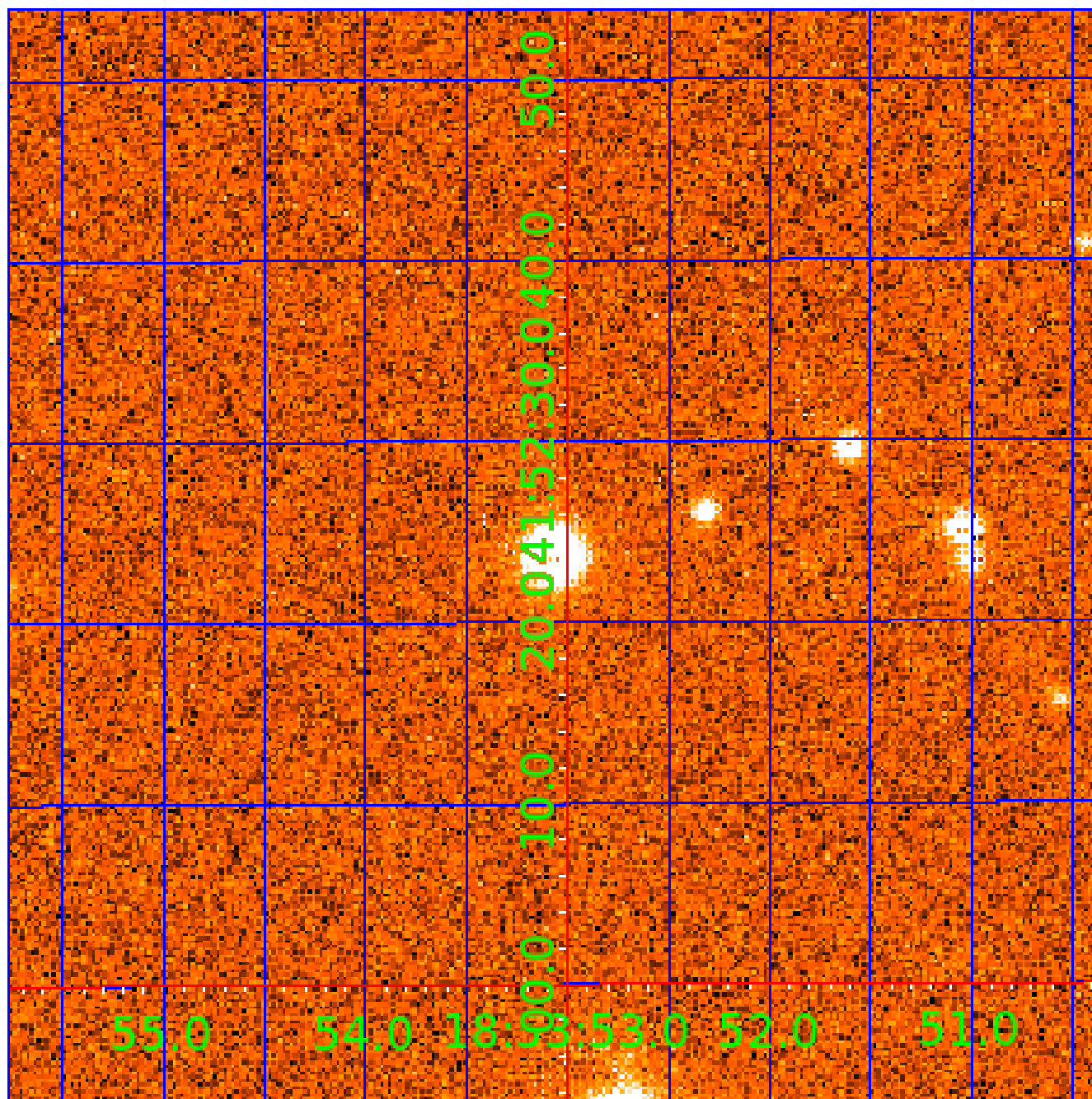


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006422367

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})
006422367-01	OBS	No	372.486873	208.372853	789.4	3.332	8.6	8.7	0.73	5344	2.20	0.48
006422367-02	OBS	No	355.179115	234.337472	967.4	3.218	8.7	9.3	0.73	5344	4.22	0.52
006422367-03	OBS	No	372.498641	247.344778	1055.3	3.312	8.4	9.3	0.73	5344	4.59	0.48
006422367-04	OBS	No	350.849388	225.666660	798.3	3.986	7.7	7.7	0.73	5344	3.05	0.53
006422367-05	OBS	No	363.840342	221.351267	726.8	2.910	7.1	7.8	0.73	5344	2.36	0.50
006422367-06	OBS	No	394.155050	178.034964	807.1	2.337	7.5	8.1	0.73	5344	2.25	0.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006422367-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-02	OBS	FP	0.00	1	0	0	0	MOD_TER_DV—MOD_TER_ALT
006422367-03	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
006422367-04	OBS	FP	0.03	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
006422367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

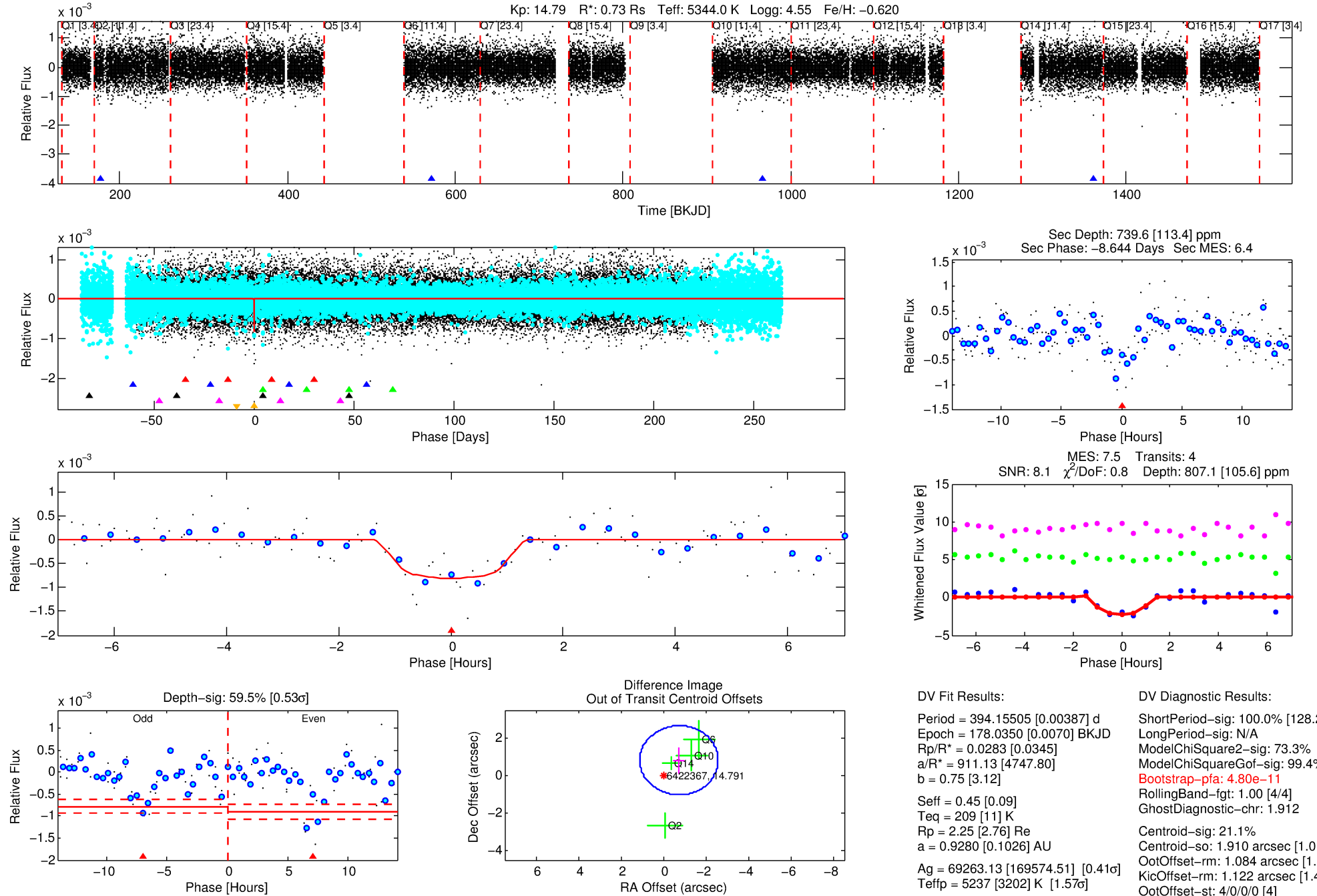
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006422367-06

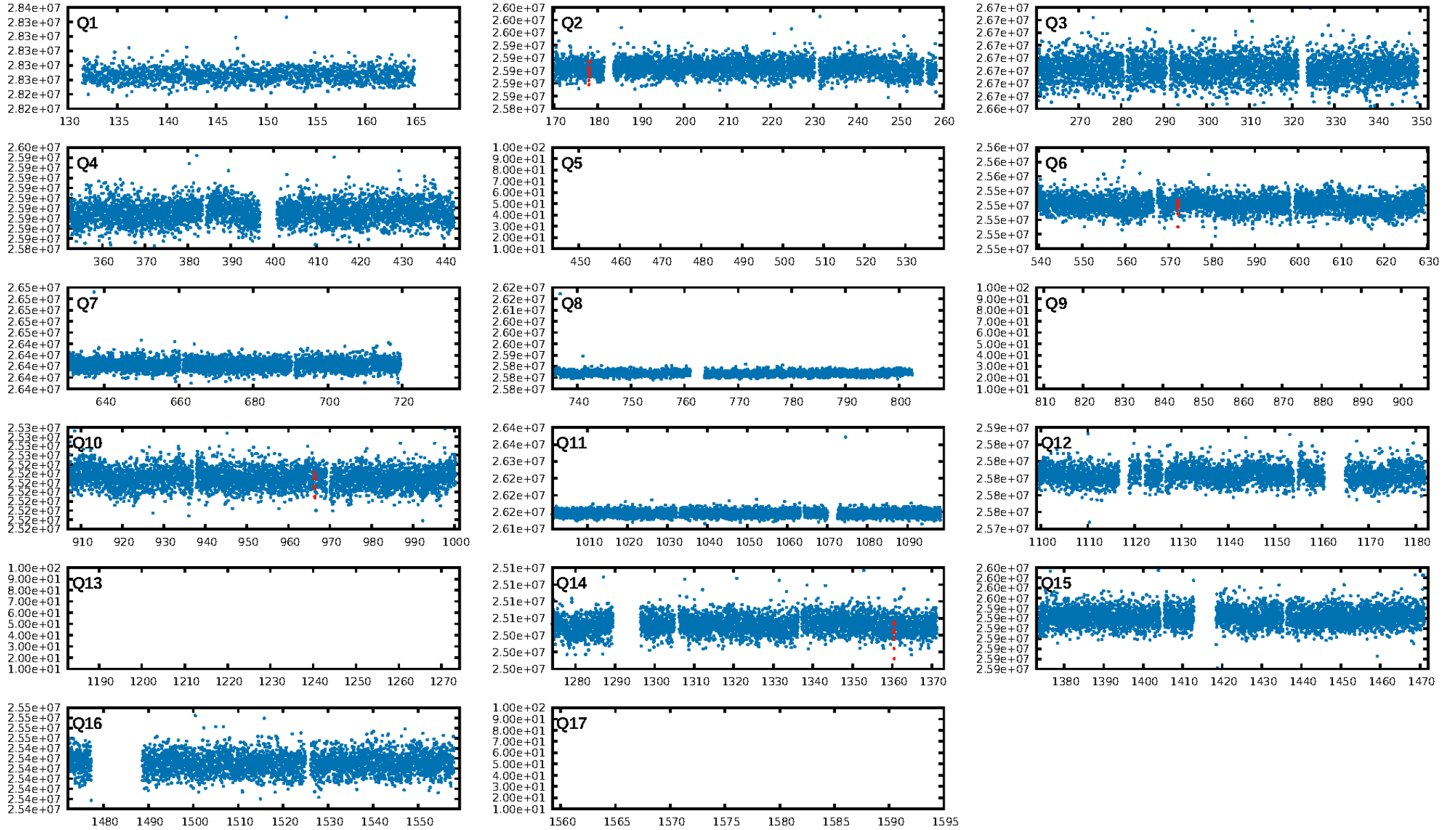
No Significant Match Found

DV One-Page Summary

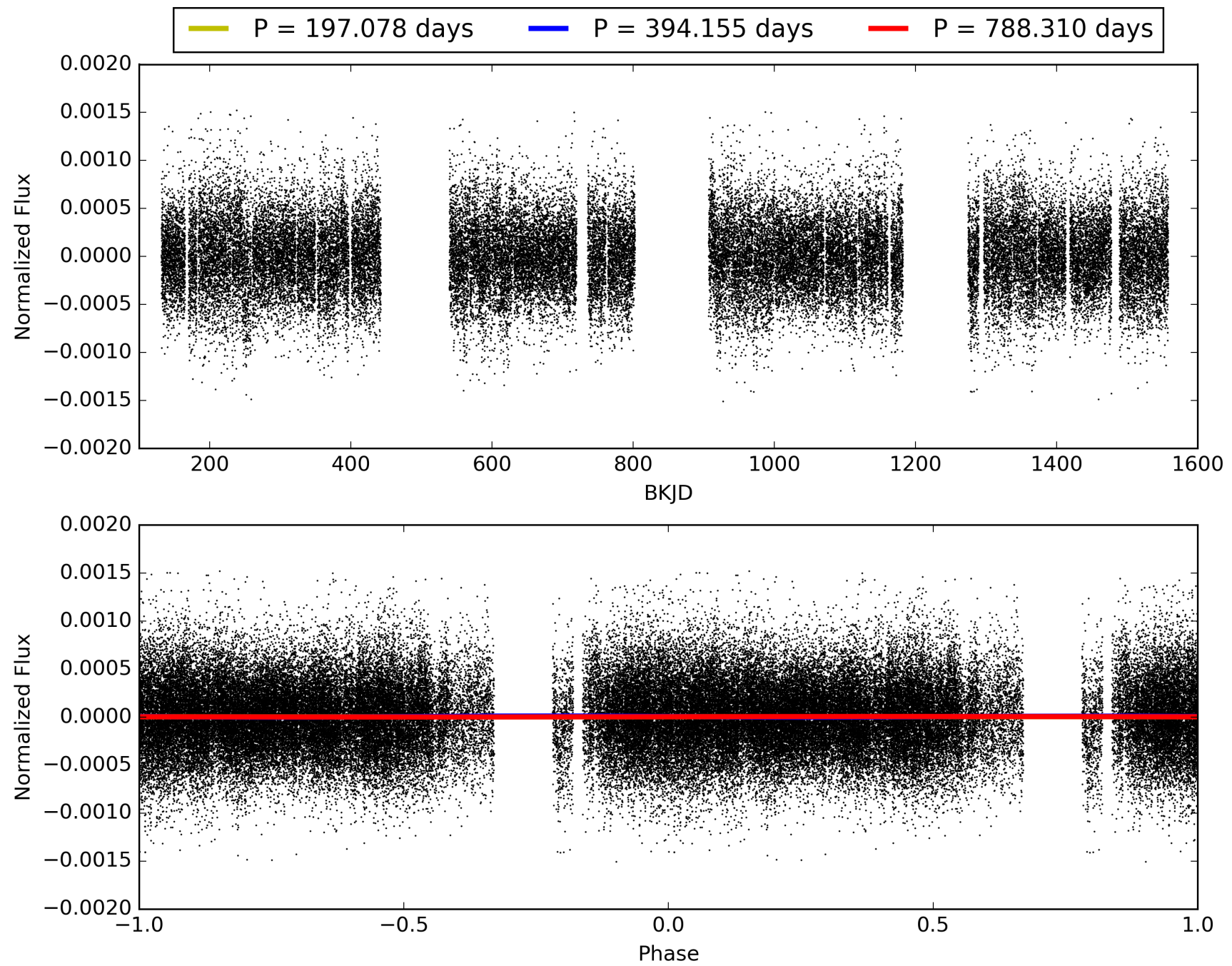
KIC: 6422367 Candidate: 6 of 6 Period: 394.155 d
KOI: K00559 Corr: No Ephemeris Match



TCE 006422367-06, PDC Light Curves

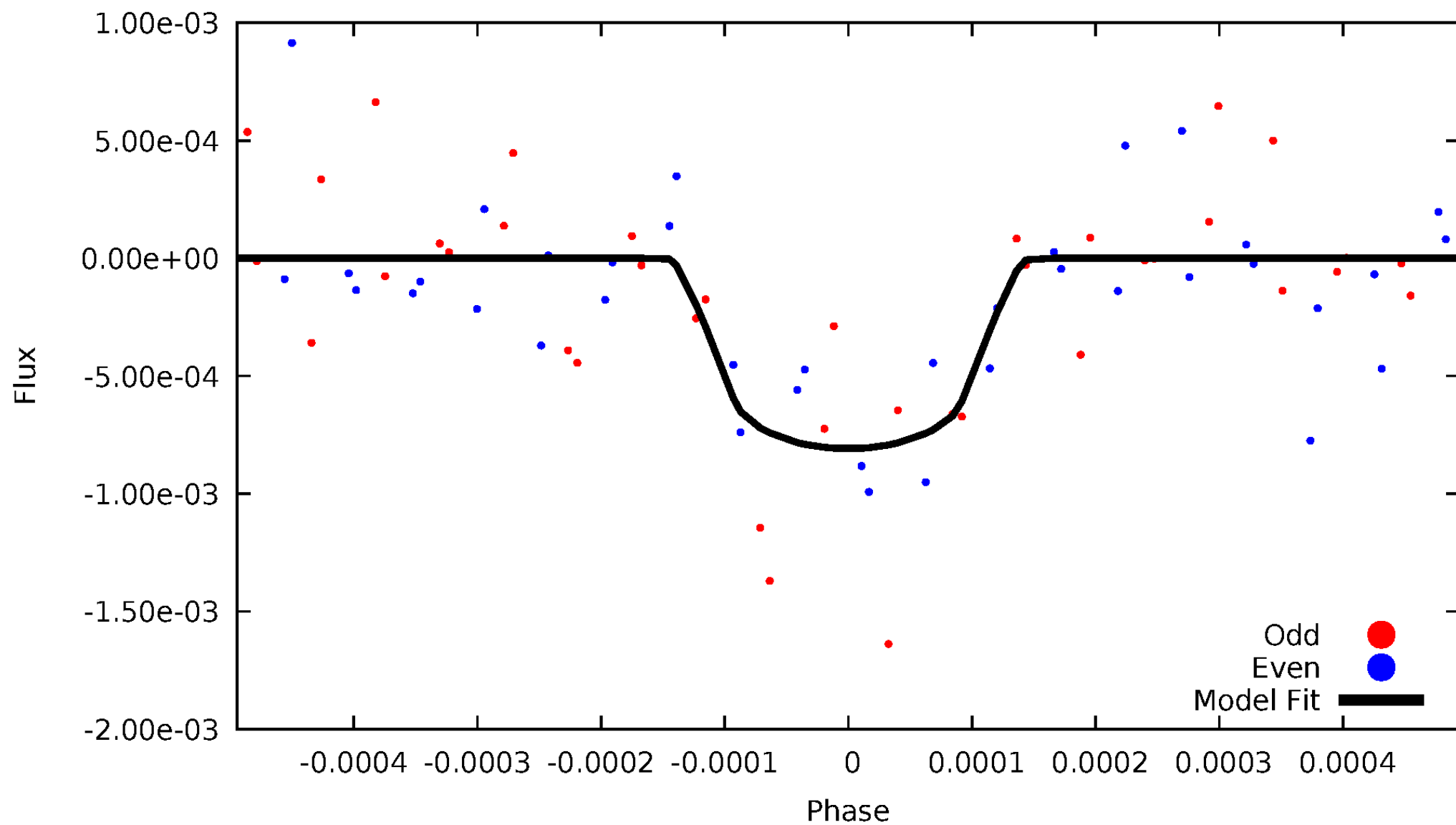


TCE 006422367-06



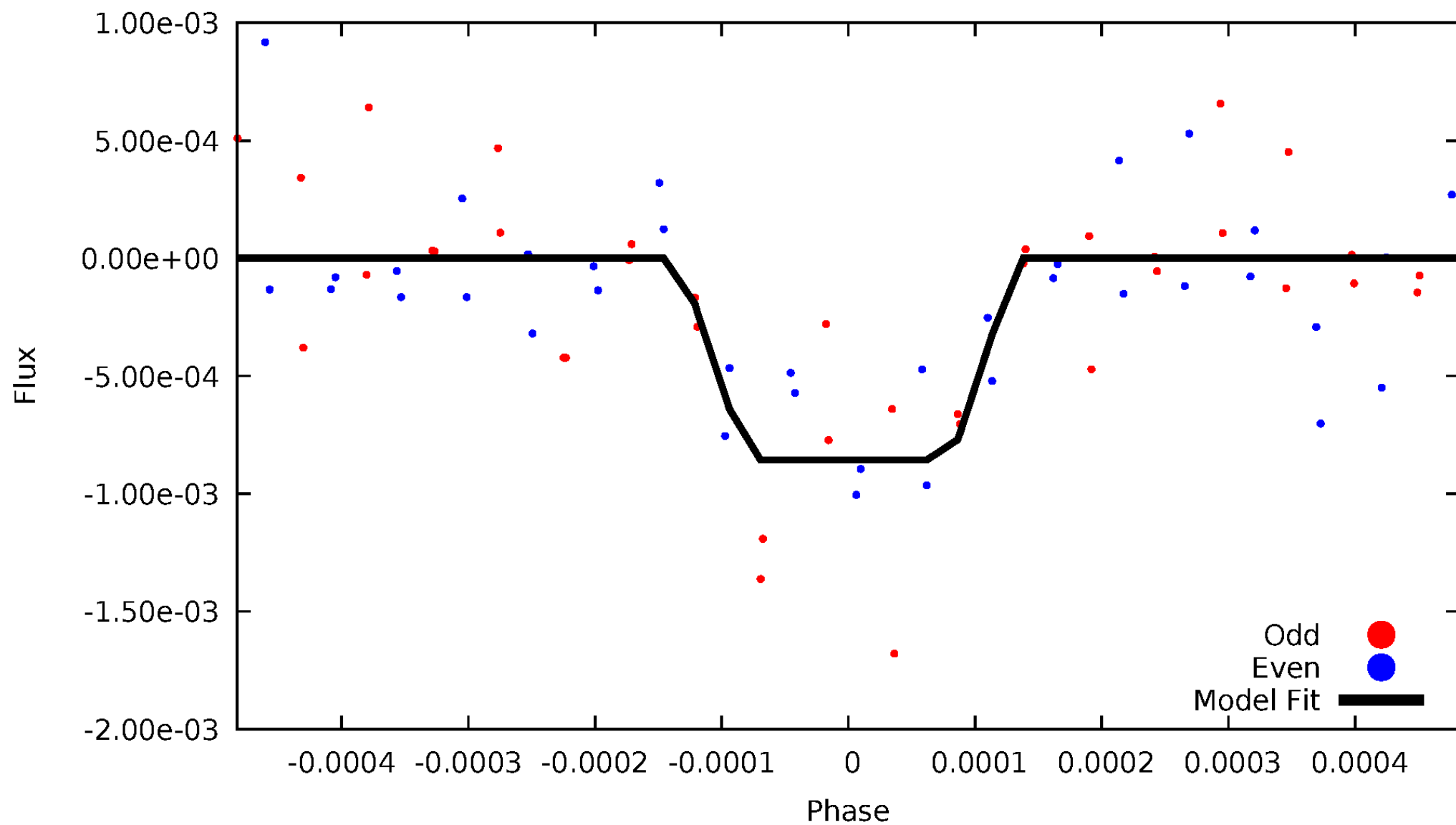
DV Odd/Even

TCE 006422367-06



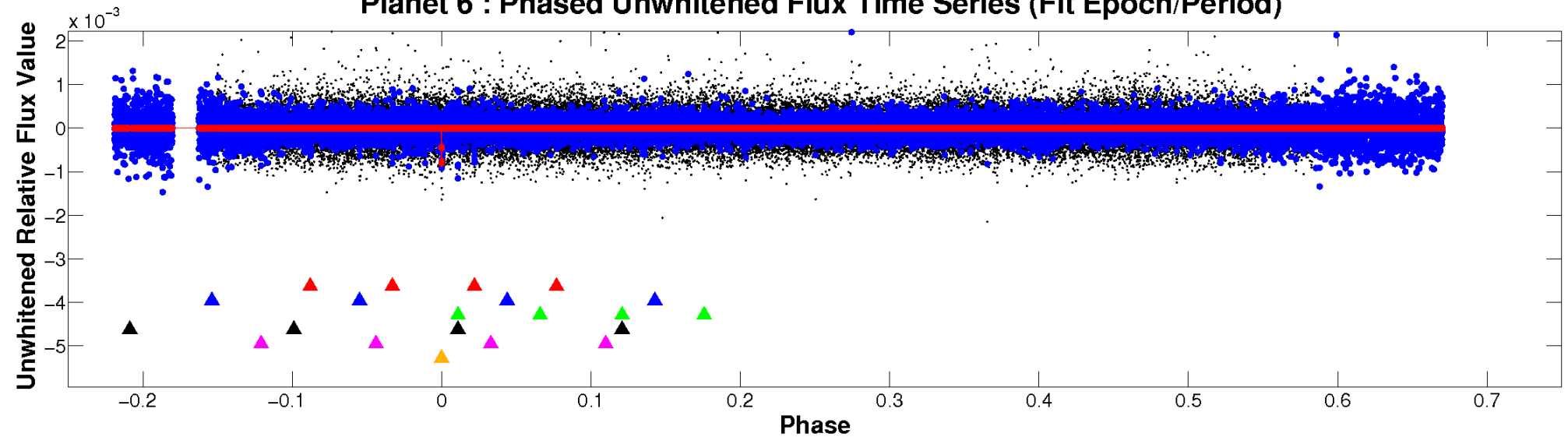
ALT Odd/Even

TCE 006422367-06

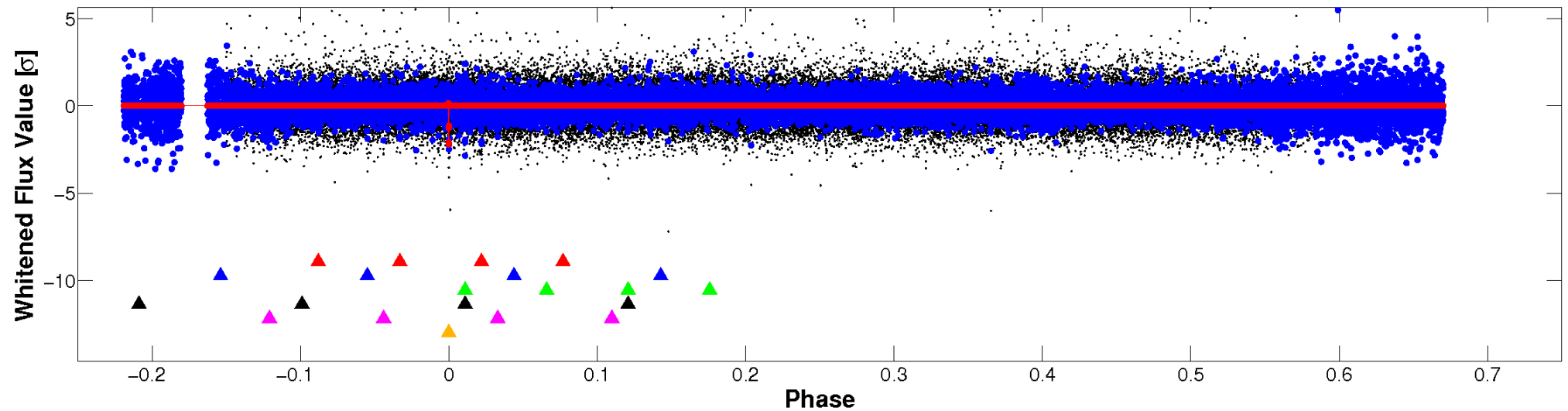


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

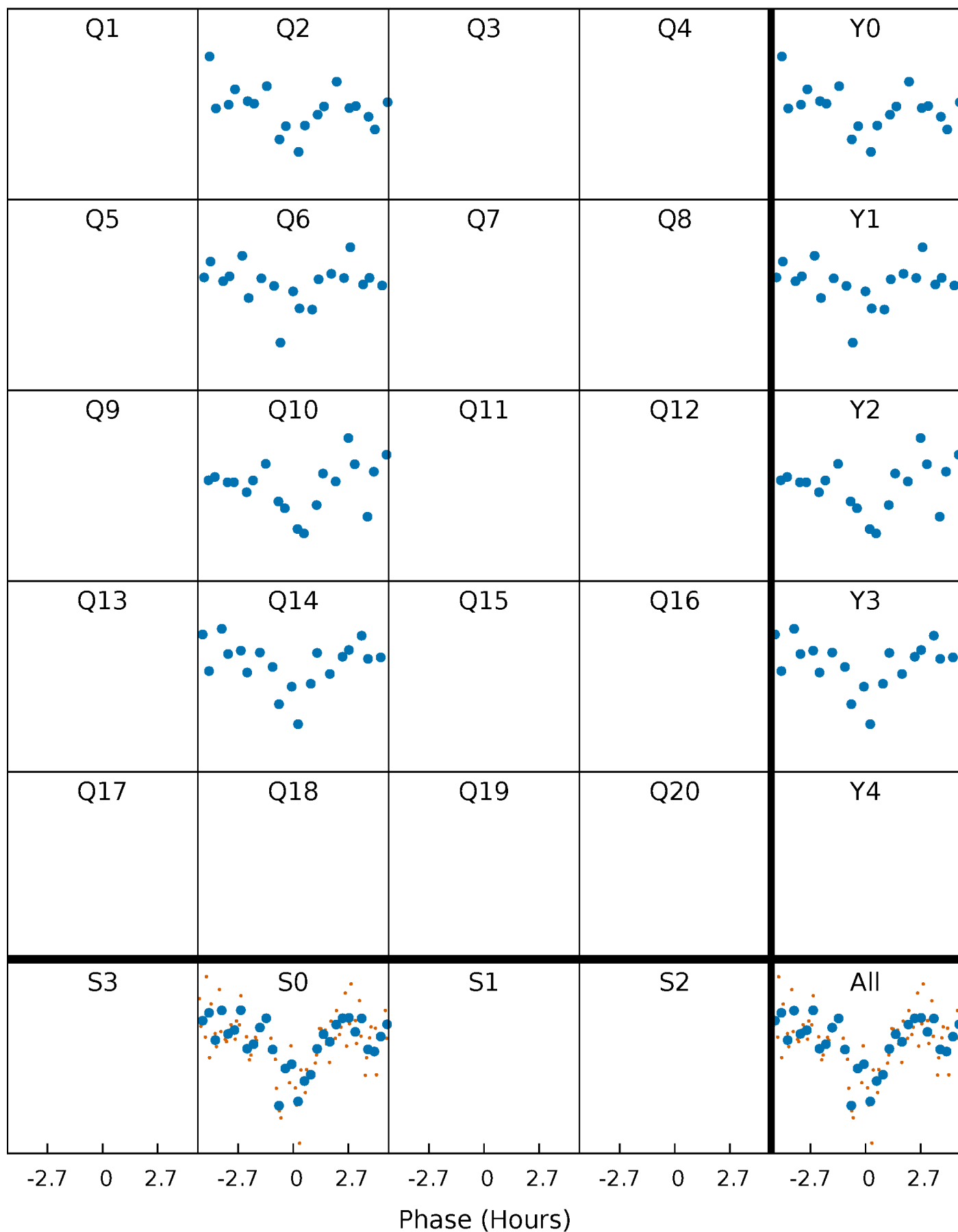


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



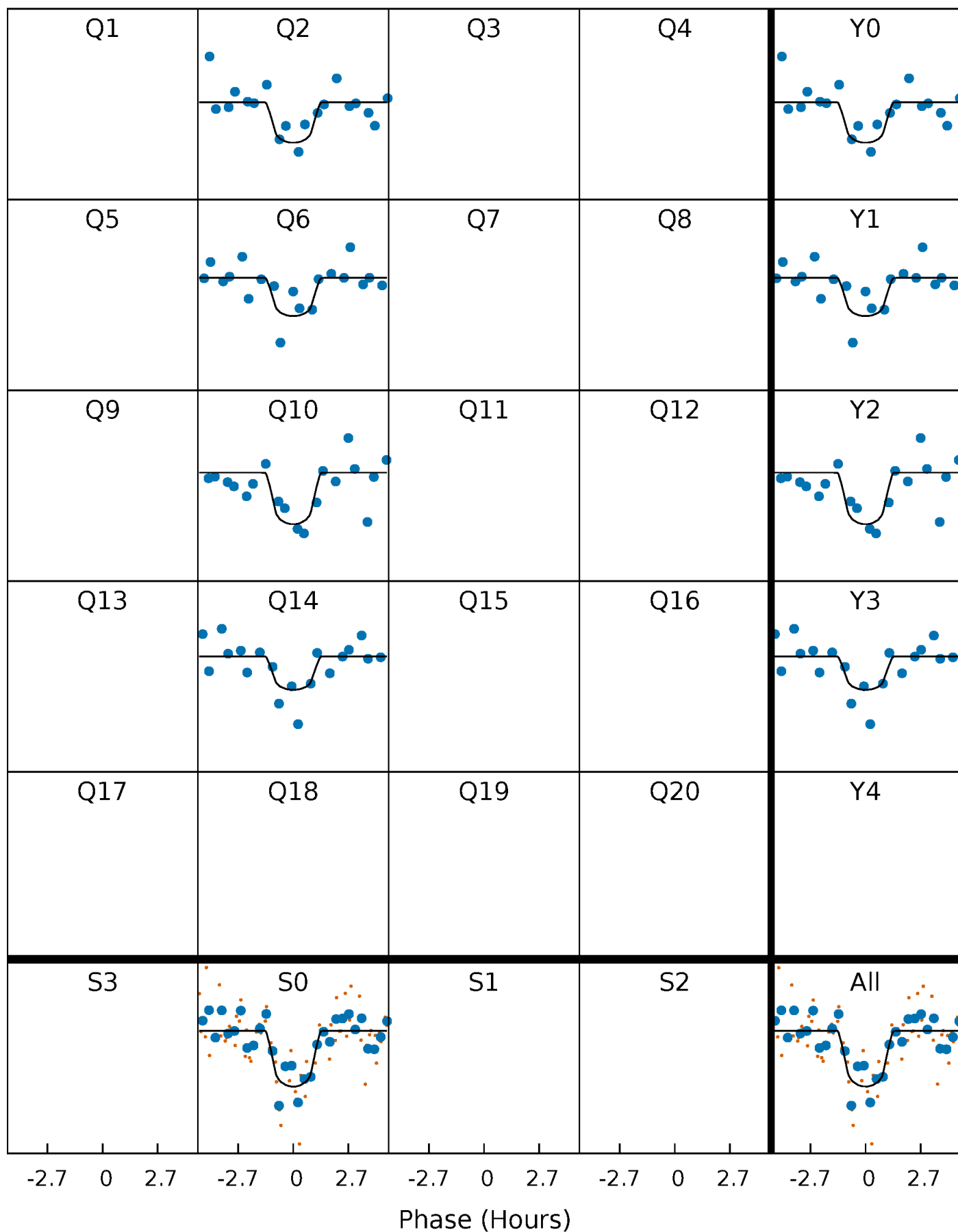
PDC Quarter-Phased Transit Curves

TCE 006422367-06 P=394.155050 Days $T_0=178.034964$ (BKJD)



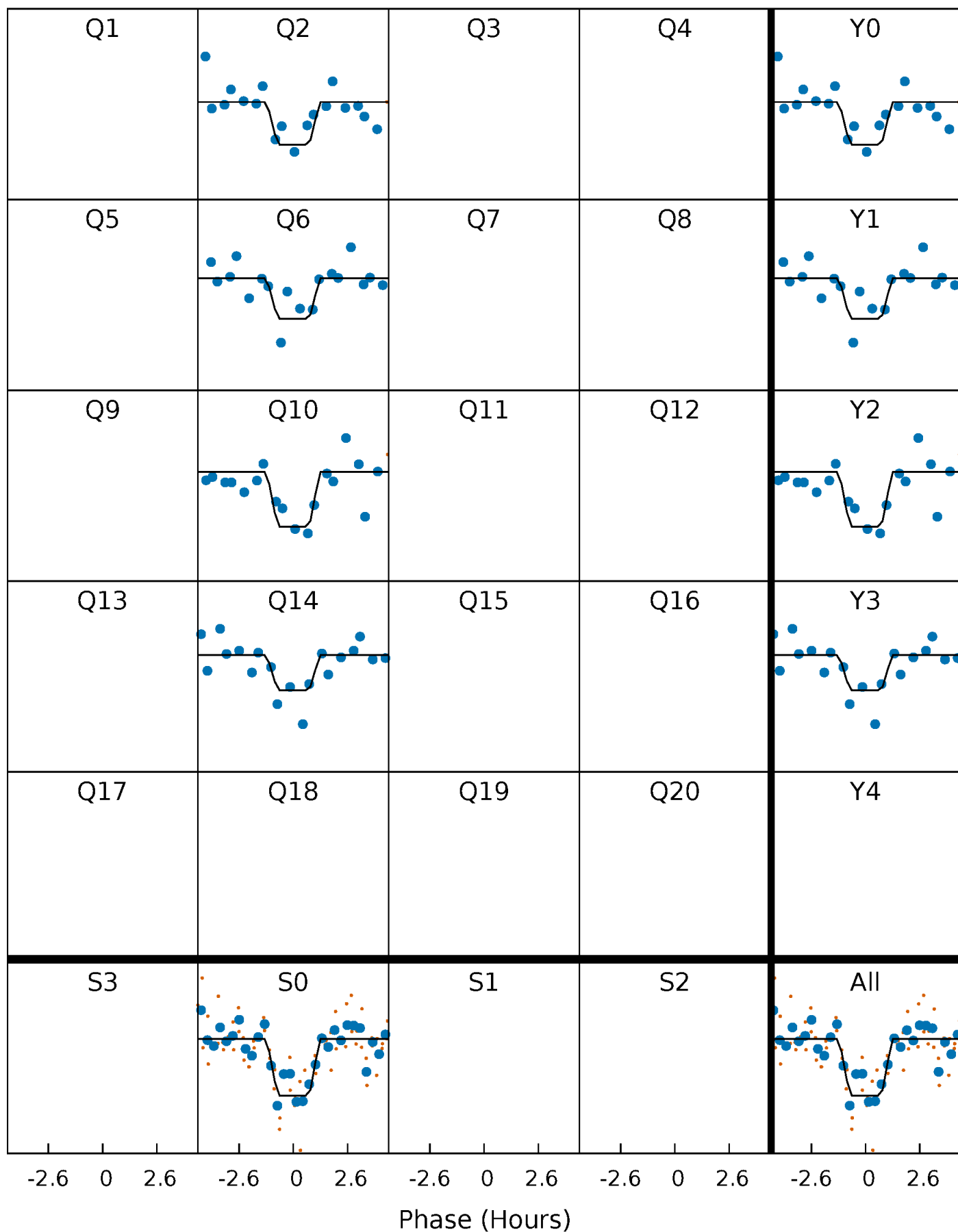
DV Quarter-Phased Transit Curves

TCE 006422367-06 P=394.155050 Days $T_0=178.034964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

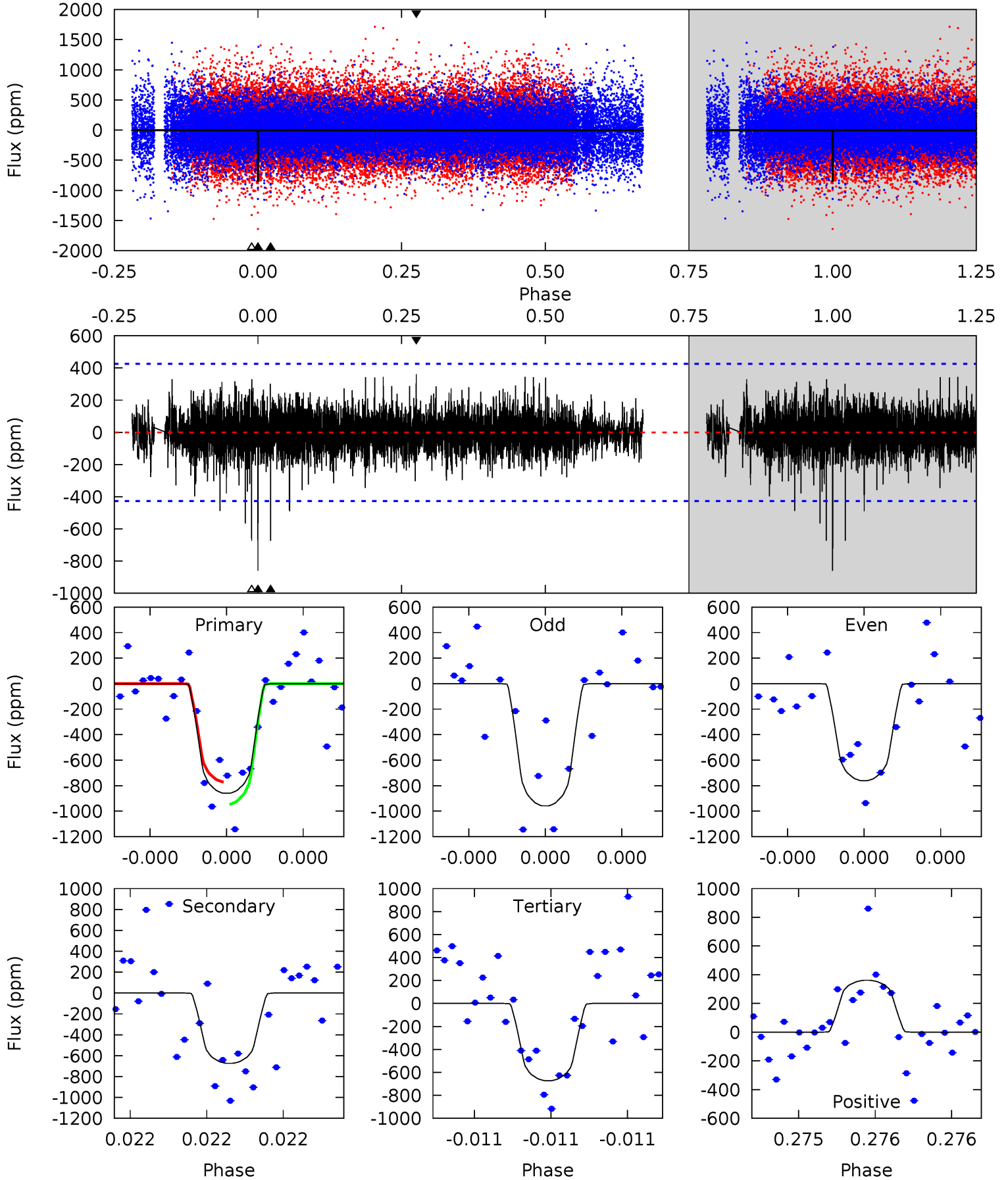
TCE 006422367-06 P=394.153194 Days $T_0=178.039013$ (BKJD)



DV Model-Shift Uniqueness Test

006422367-06, P = 394.155050 Days, E = 178.034964 Days

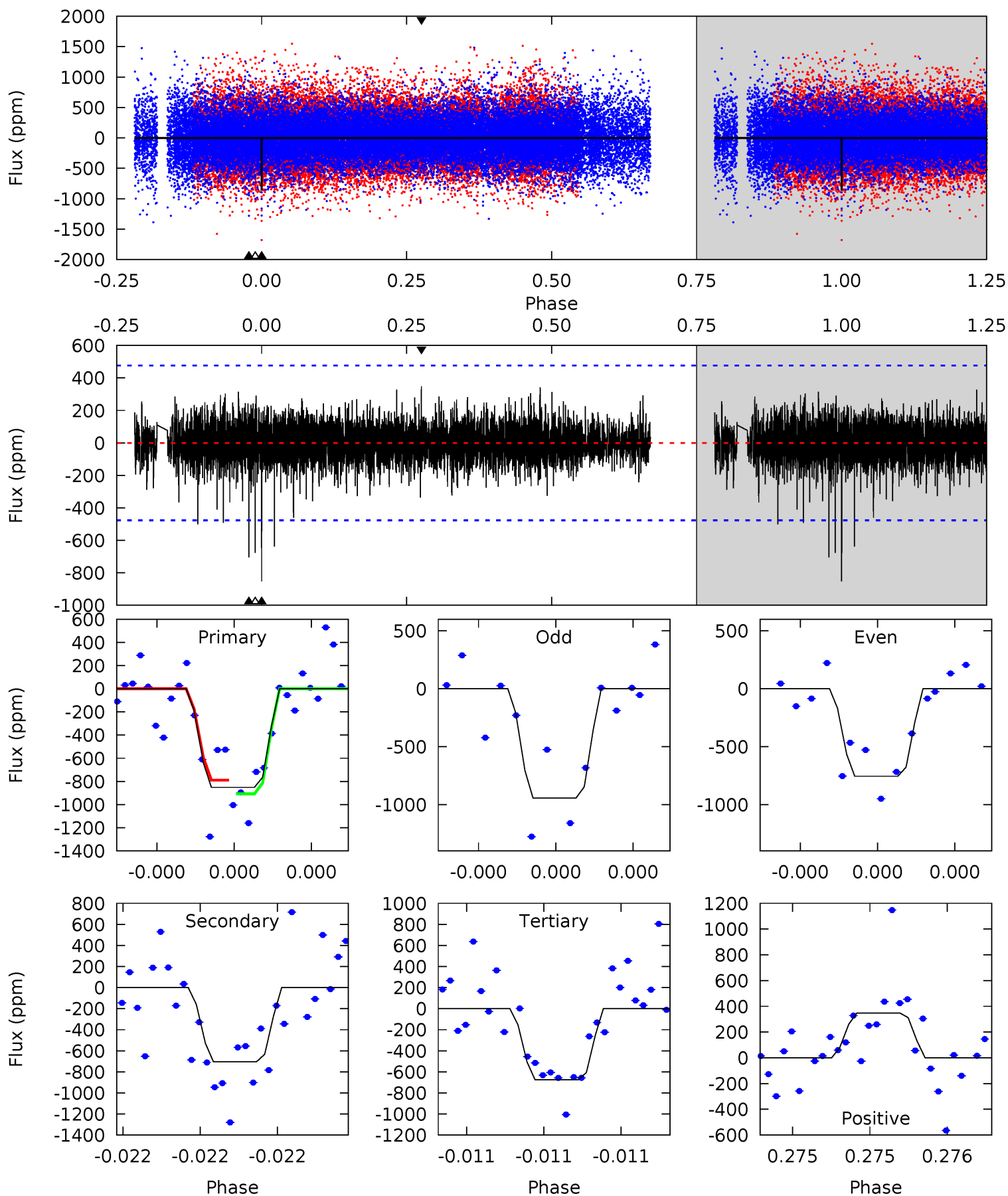
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	8.96	8.95	4.80	5.67	3.63	1.20	2.48	6.63	0.01	4.16	1.32	1.08	0.30	1.16



Alt Model-Shift Uniqueness Test

006422367-06, P = 394.153194 Days, E = 178.039013 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	8.43	8.09	4.17	5.70	3.68	1.09	2.10	6.02	0.34	4.27	1.15	1.09	0.29	0.70



Stellar Parameters For KIC 006422367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5344^{+160}_{-160}	$4.550^{+0.096}_{-0.072}$	$-0.620^{+0.350}_{-0.300}$	$0.728^{+0.090}_{-0.082}$	$0.686^{+0.090}_{-0.032}$	$2.502^{+0.940}_{-0.576}$
	+3%/-3%	+2%/-2%	+56%/-48%	+12%/-11%	+13%/-5%	+38%/-23%
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 006422367-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-674 ± 75	$3.09^{+2.31}_{-2.02}$	291^{+11}_{-13}	4488^{+3005}_{-794}	$33640^{+244610}_{-22442}$
Alt.	-705 ± 84	$2.90^{+2.59}_{-1.87}$	290^{+12}_{-12}	4638^{+3149}_{-917}	$39474^{+284070}_{-27913}$

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 $A_{obs} \gg 1.0$

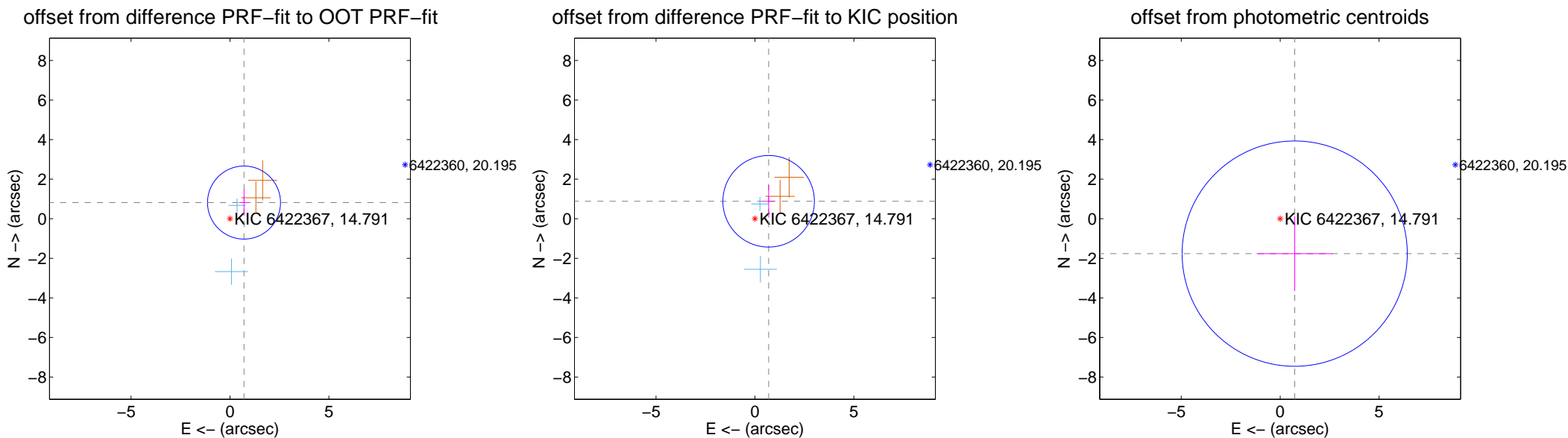
DV Centroid Data

Supplemental centroid analysis for 006422367-06. Kepler magnitude: 14.79. Transit SNR 8.05

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.084 ± 0.615	1.76	-0.710 ± 0.244	0.819 ± 0.655
PRF-fit source offset from KIC position	1.122 ± 0.771	1.45	-0.692 ± 0.289	0.883 ± 0.822
photometric centroid source offset	1.91 ± 1.90	1.01	-0.73 ± 1.92	-1.76 ± 1.89



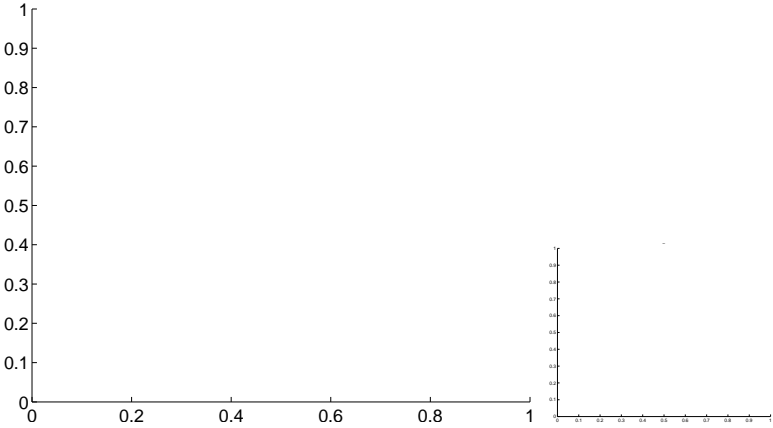
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

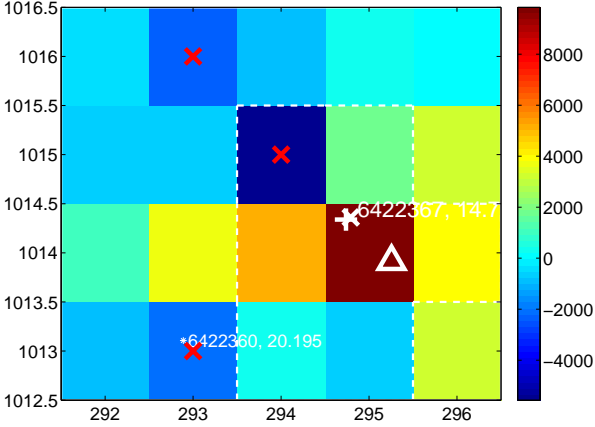
Q1 no difference image



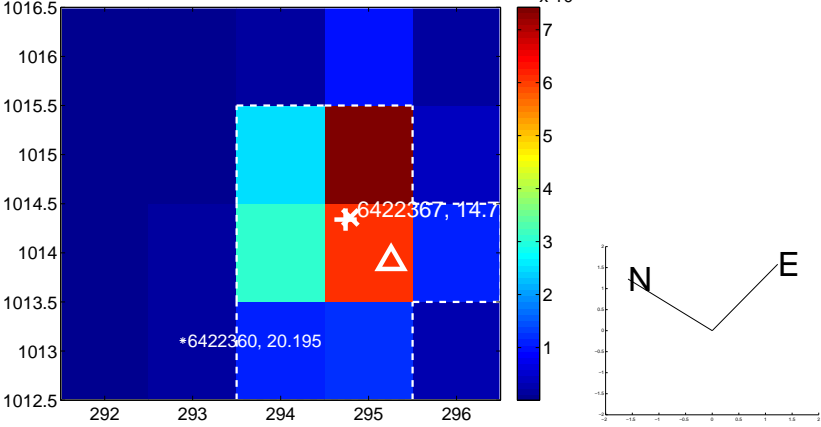
Q1 no OOT image



Q2 difference image



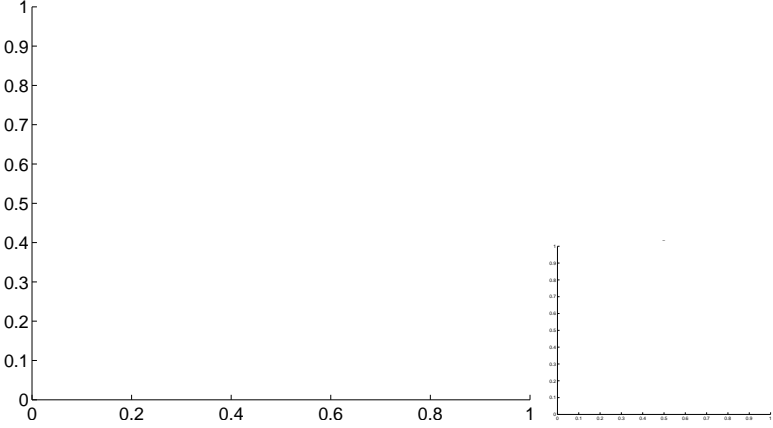
Q2 OOT image



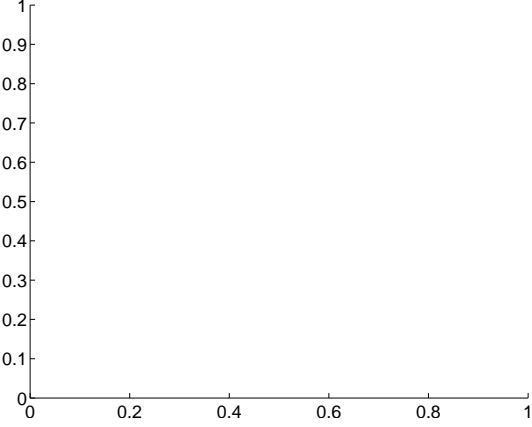
Q3 no difference image



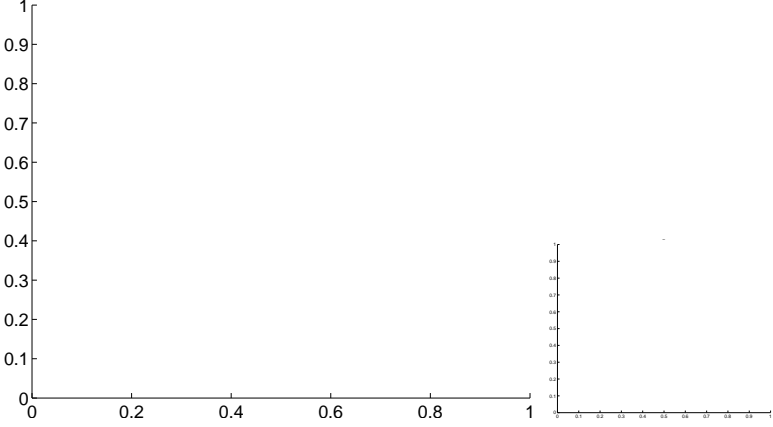
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

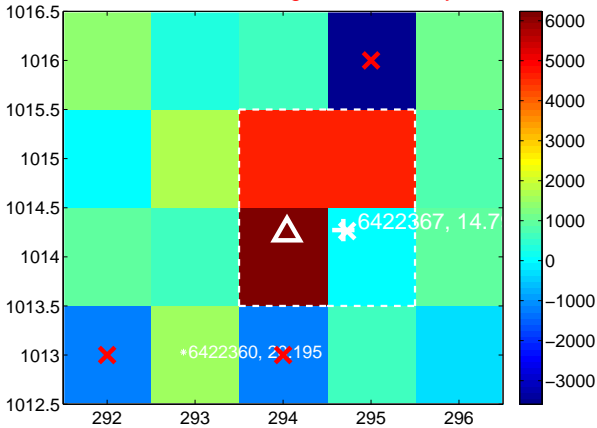
Q5 no difference image



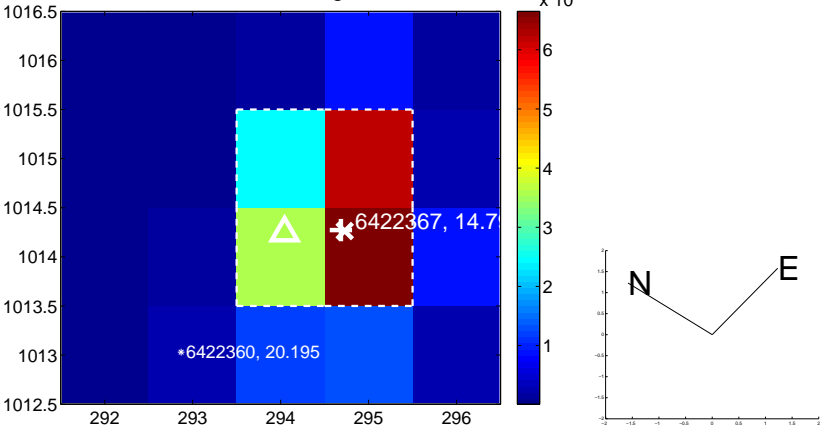
Q5 no OOT image



Q6 difference image. Poor Quality



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.

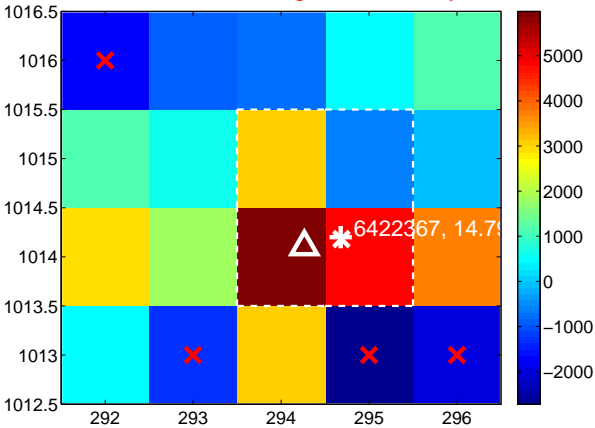
Q9 no difference image



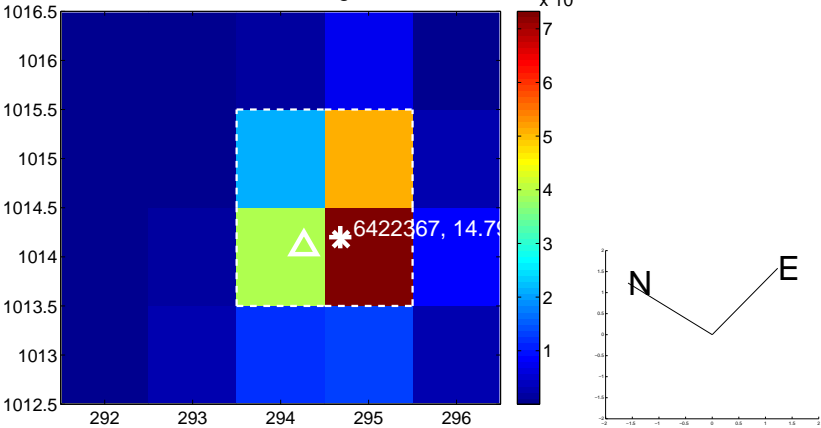
Q9 no OOT image



Q10 difference image. Poor Quality



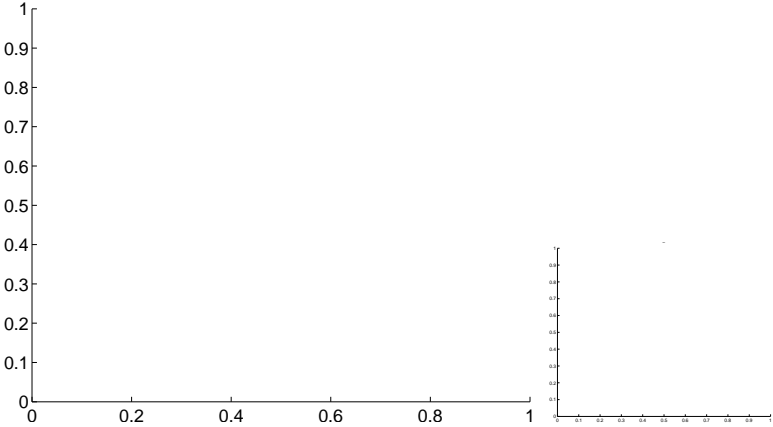
Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

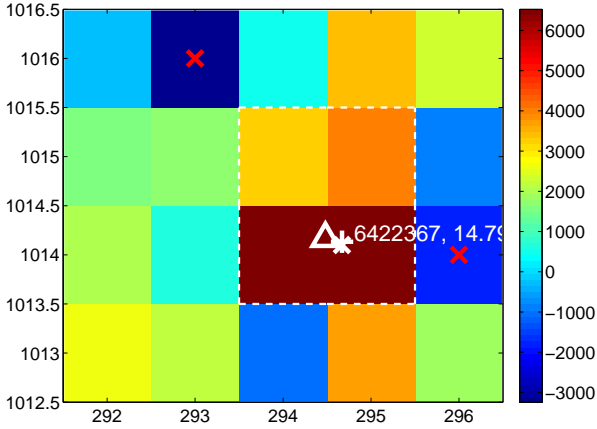
Q13 no difference image



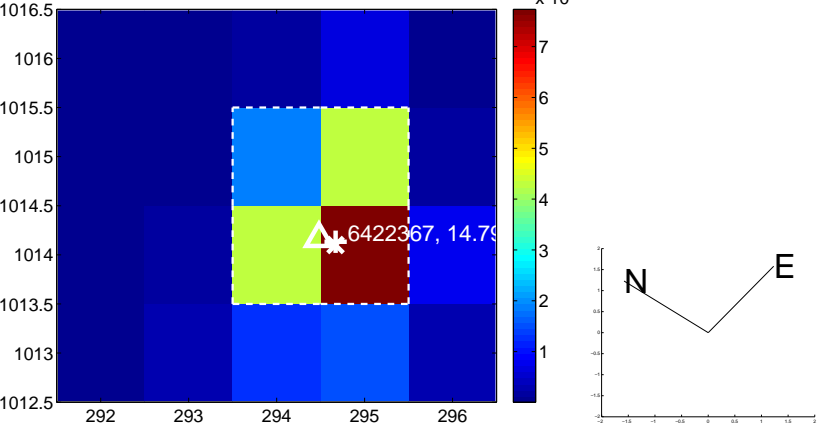
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



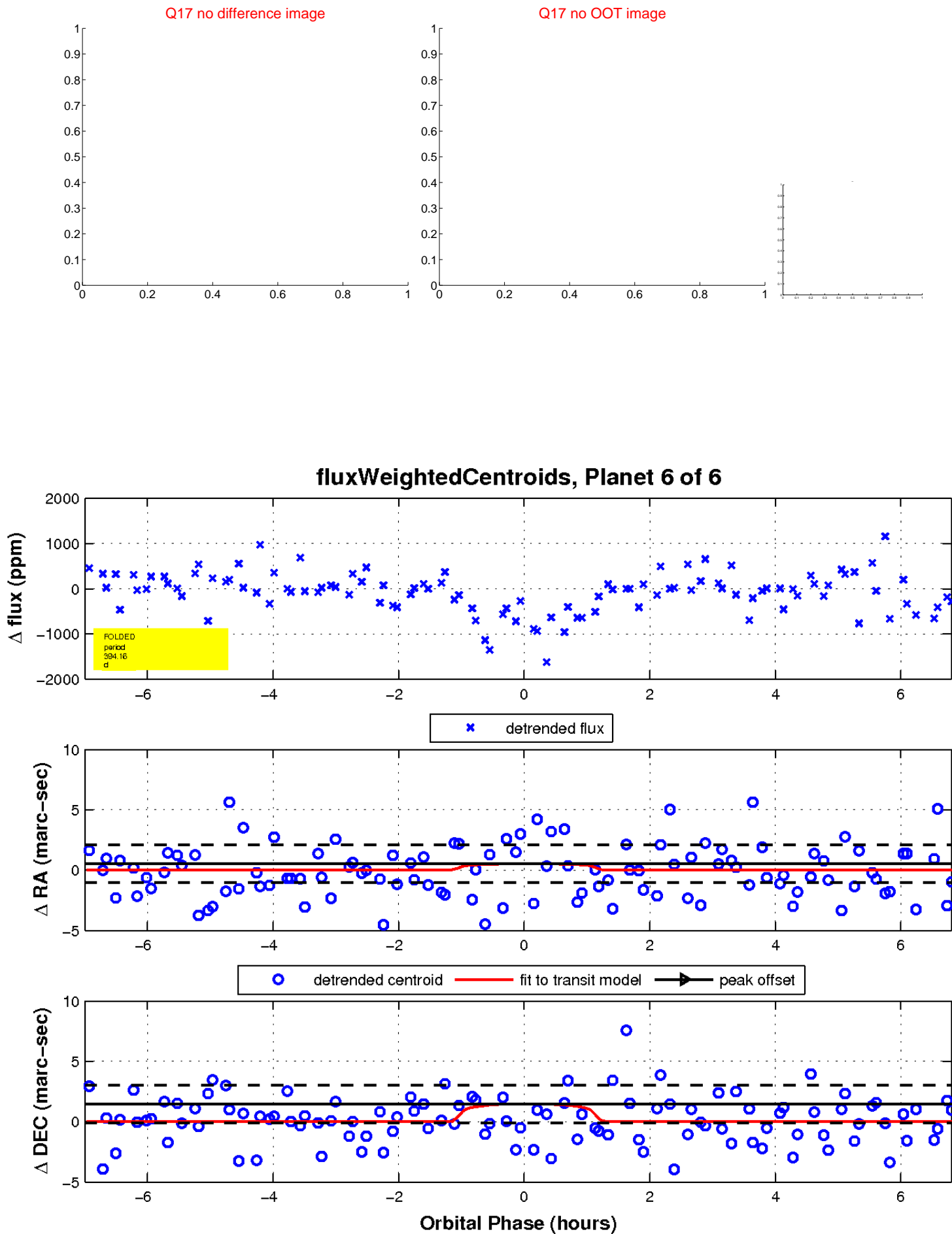
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

