

KIC 008249139

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})
008249139-01	OBS	No	444.950461	501.522821	2361.3	11.827	24.6	11.6	2.06	5395	12.68	2.59
008249139-02	OBS	No	340.694918	272.666315	2486.9	10.909	20.9	13.5	2.06	5395	13.06	3.70
008249139-03	OBS	No	284.764330	151.813264	1139.7	6.122	16.3	8.5	2.06	5395	10.82	4.70
008249139-04	OBS	No	462.227486	357.463866	1820.6	13.339	20.2	10.0	2.06	5395	9.54	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008249139-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008249139-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008249139-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008249139-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

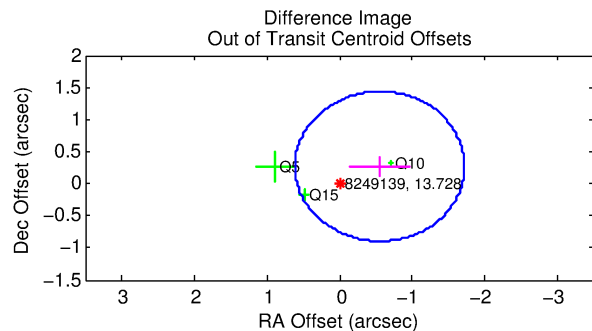
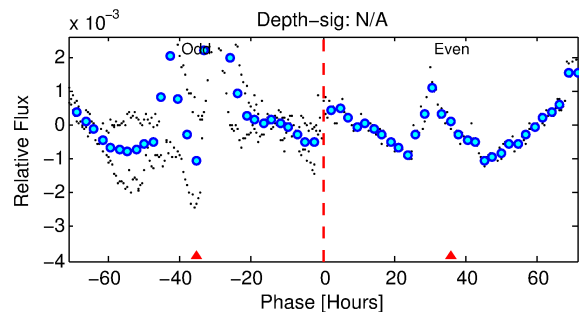
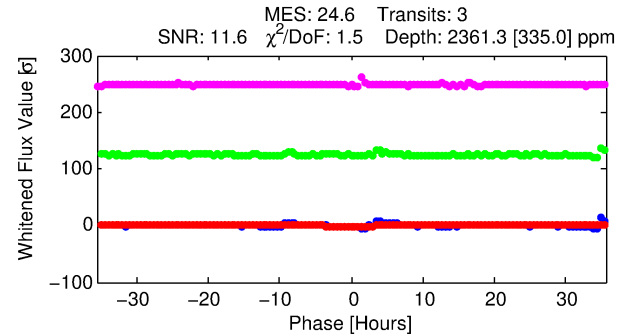
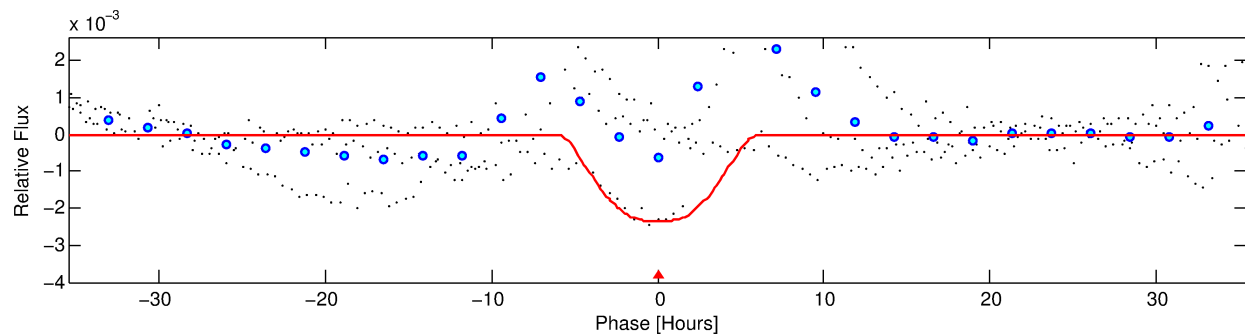
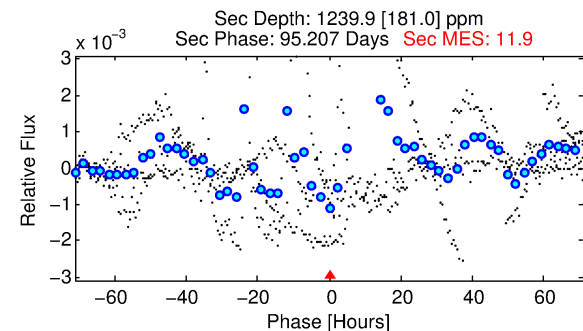
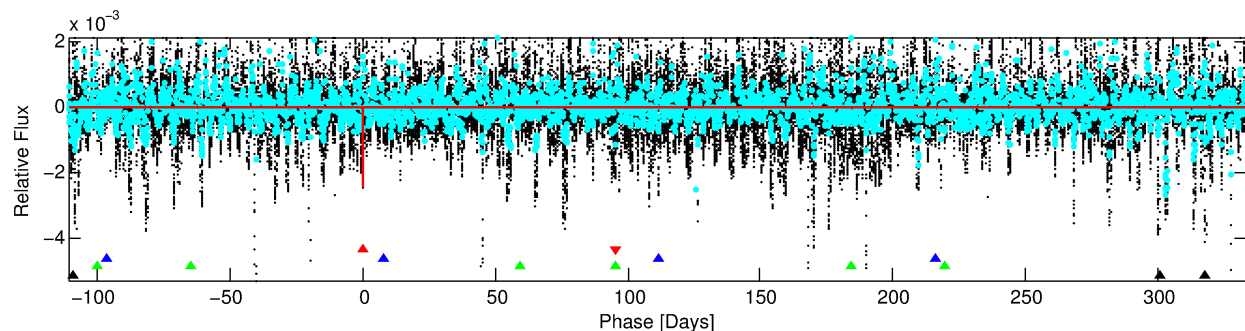
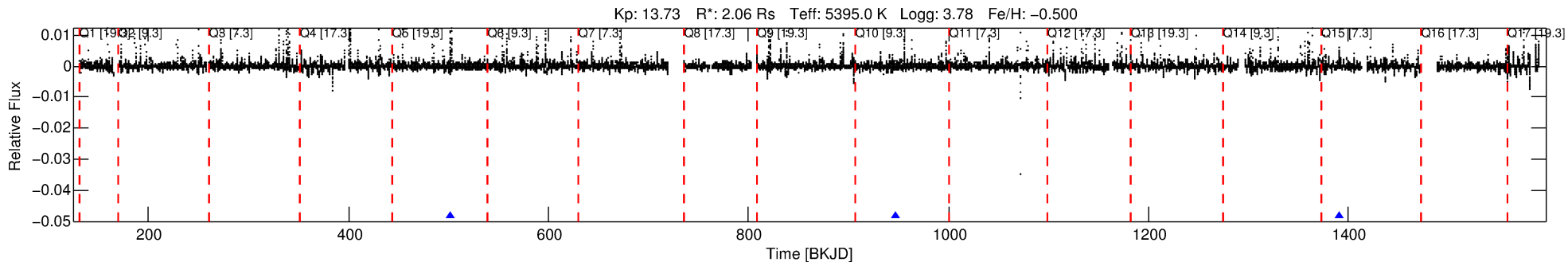
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008249139-01

No Significant Match Found

DV One-Page Summary

KIC: 8249139 Candidate: 1 of 4 Period: 444.950 d



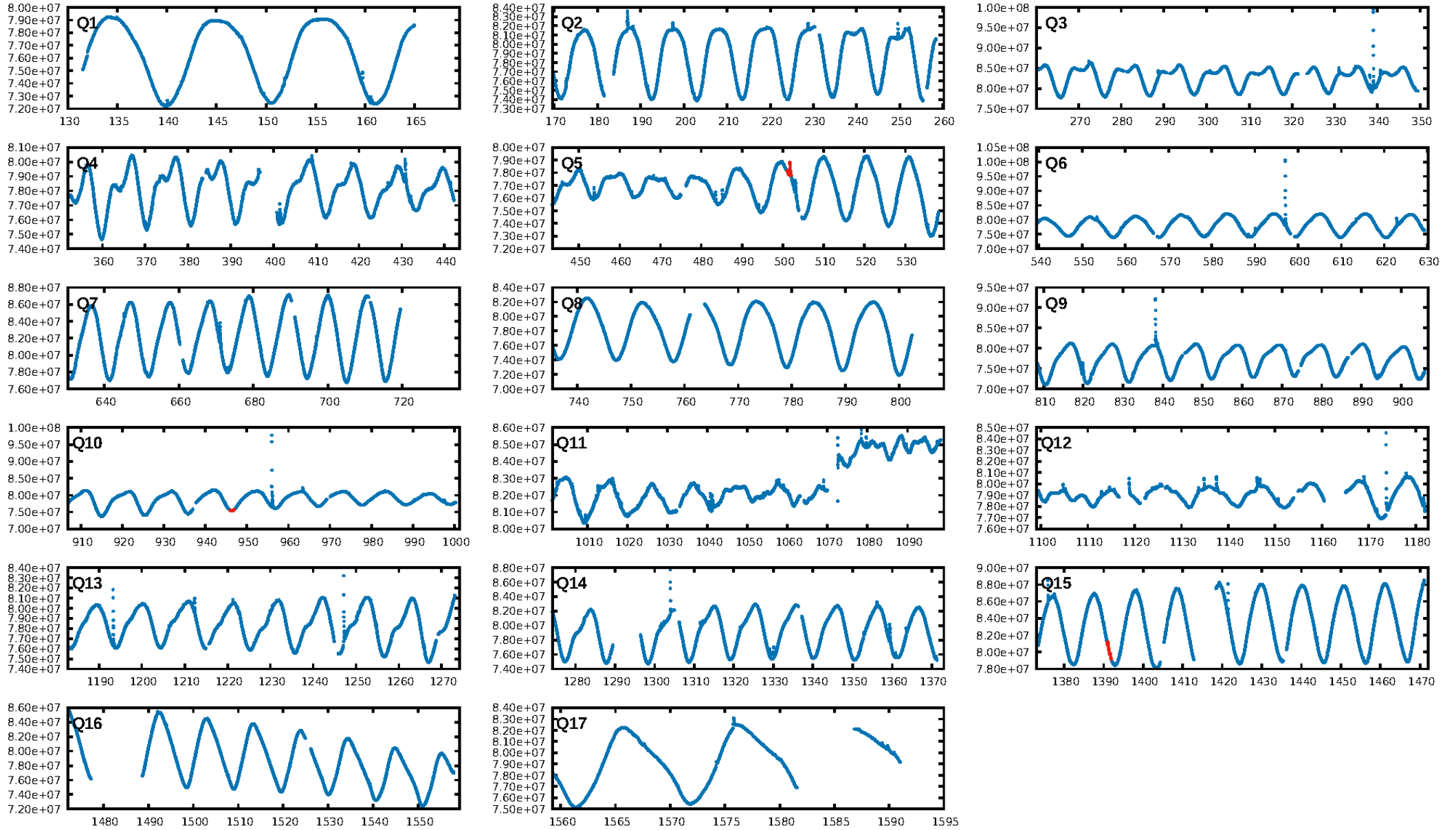
DV Fit Results:

Period = 444.95046 [0.01103] d
Epoch = 501.5228 [0.0154] BKJD
Rp/R* = 0.0565 [0.0049]
a/R* = 137.74 [11.10]
b = 0.94 [0.01]
Seff = 2.59 [3.49]
Teq = 324 [109] K
Rp = 12.68 [8.30] Re
a = 1.1124 [0.8530] AU
Ag = 5249.29 [7124.77] [0.74 σ]
Teffp = 4258 [292] K [12.64 σ]

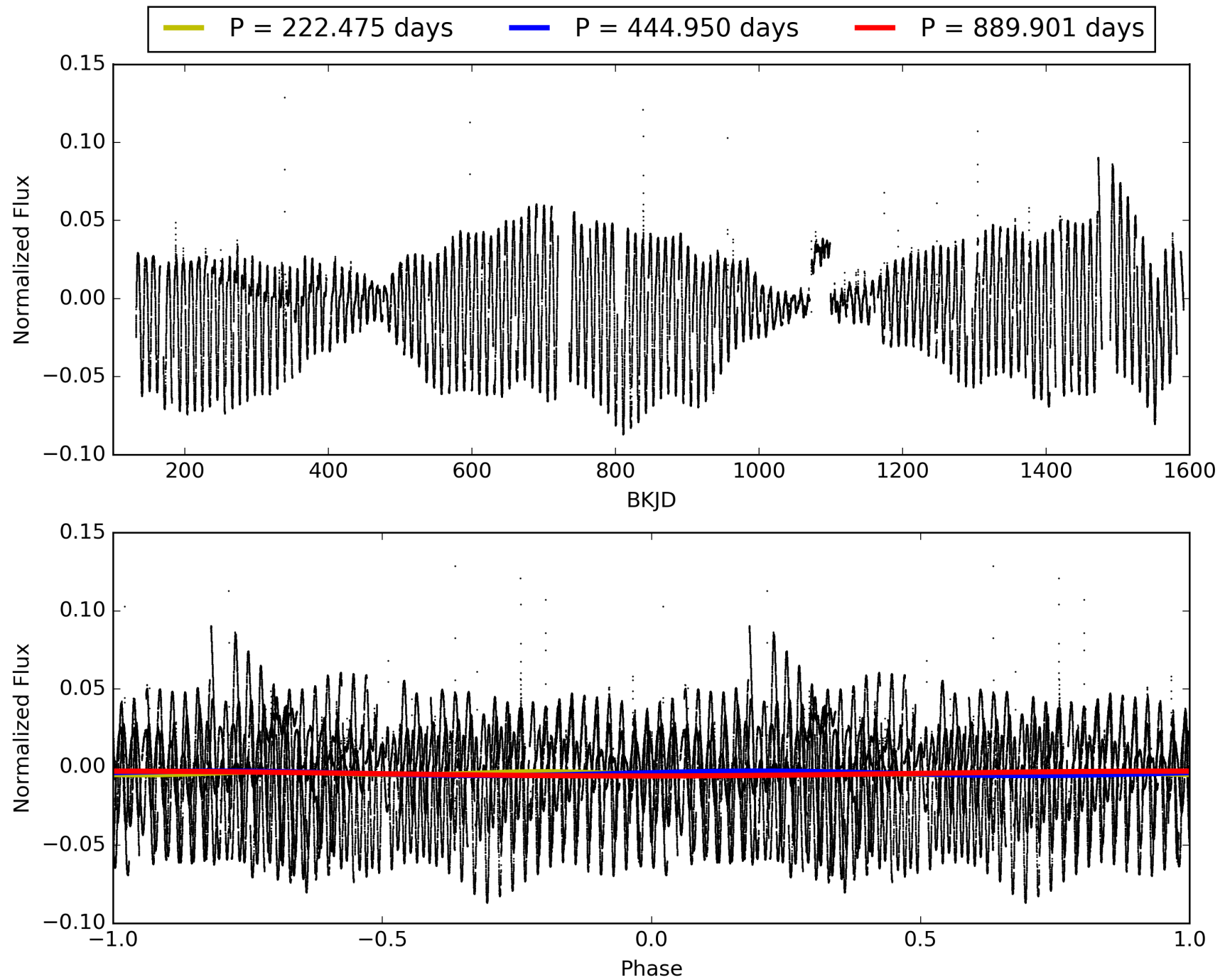
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [155.51 σ]
LongPeriod-sig: 100.0% [23.26 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 7.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.606
Centroid-sig: 43.2%
Centroid-so: 0.112 arcsec [0.72 σ]
OotOffset-rm: 0.615 arcsec [1.58 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 0.589 arcsec [1.57 σ]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008249139-01, PDC Light Curves

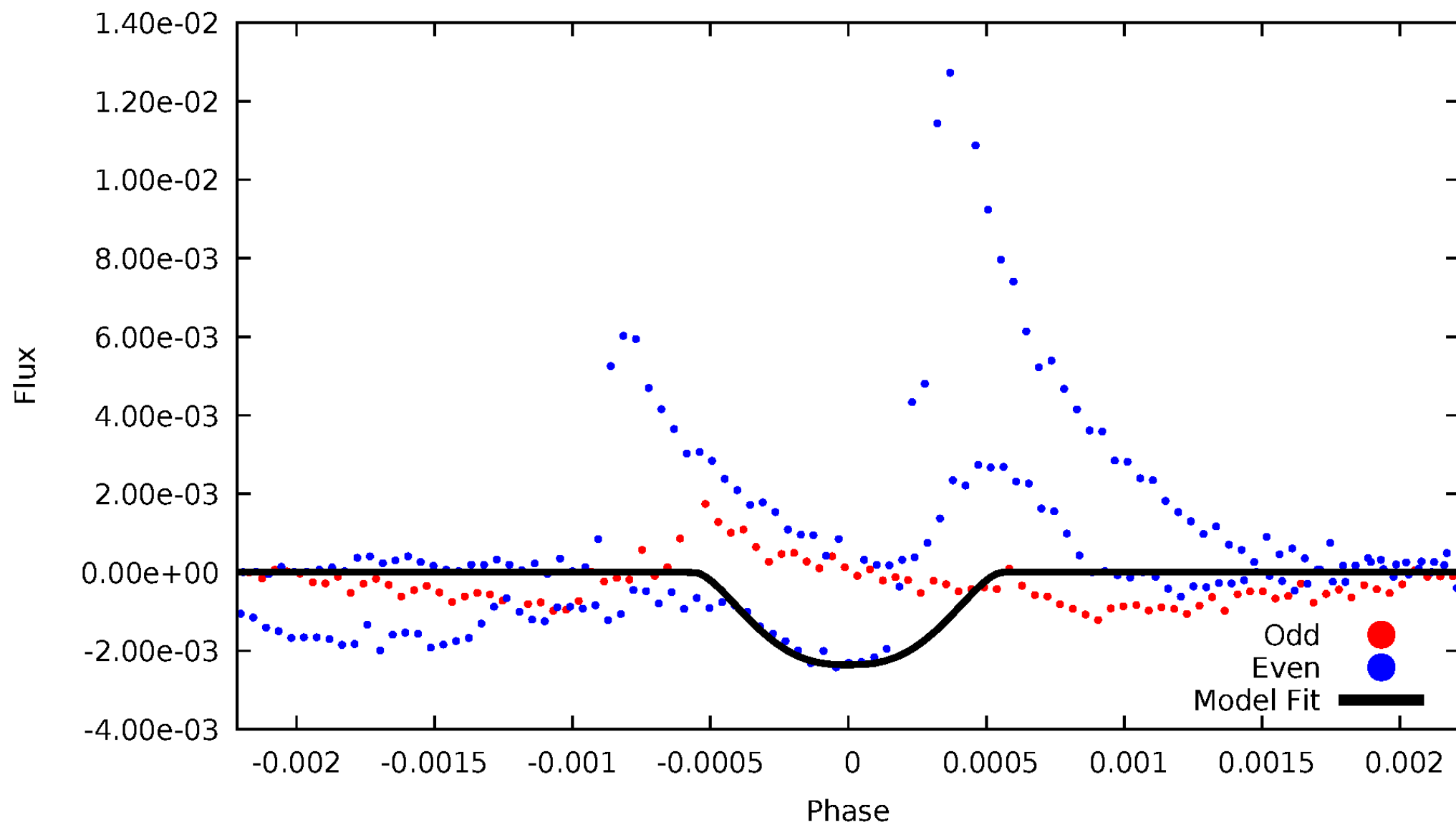


TCE 008249139-01



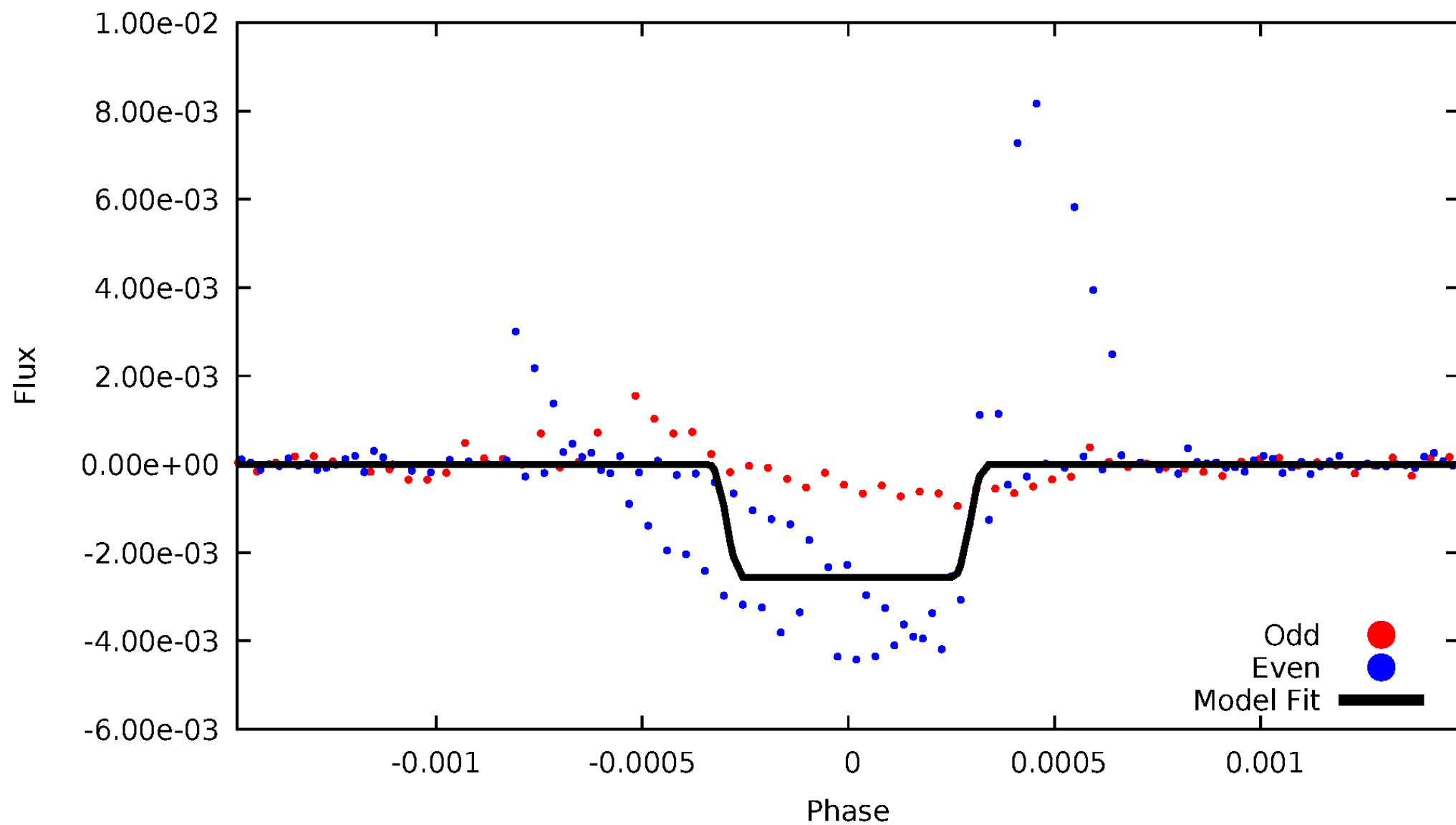
DV Odd/Even

TCE 008249139-01



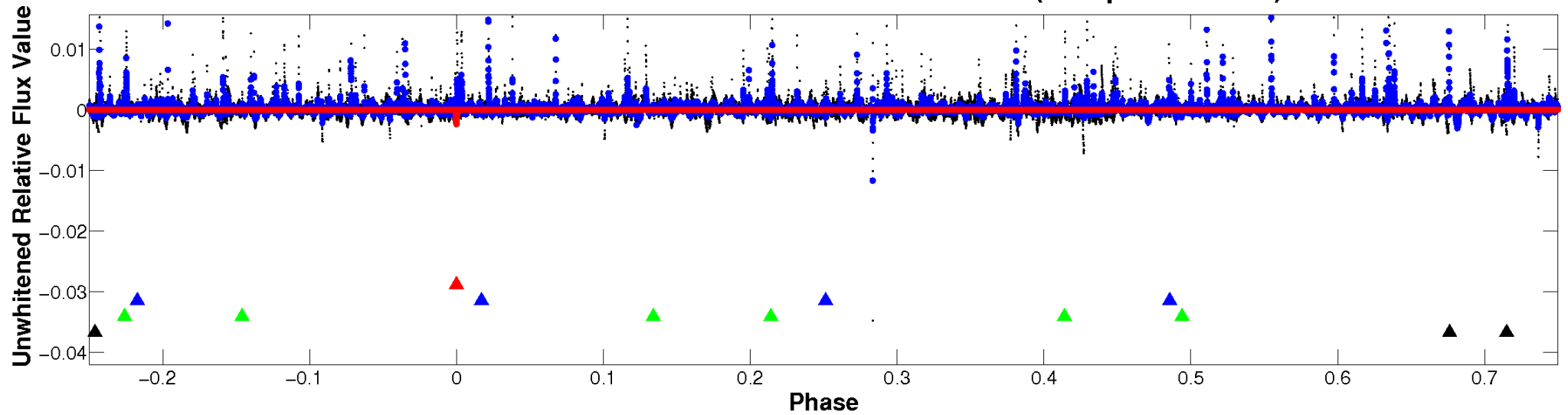
ALT Odd/Even

TCE 008249139-01

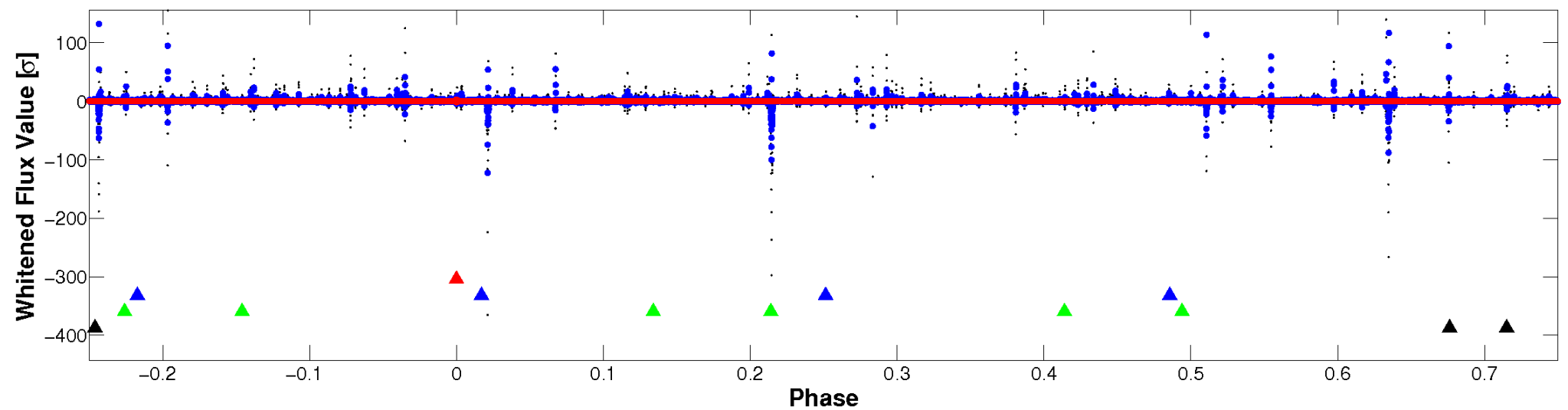


Non-Whitened Vs. Whitened Light Curve

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

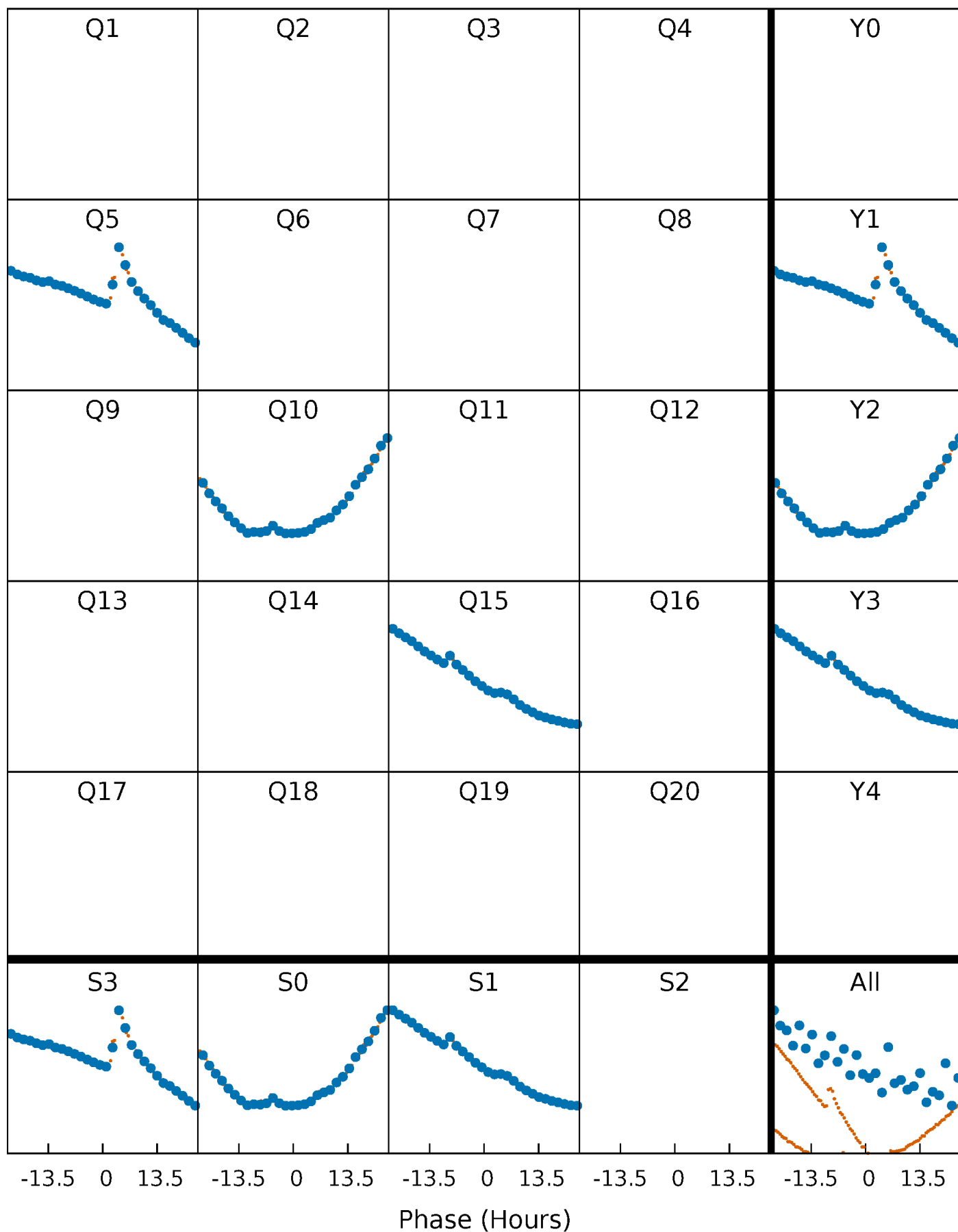


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



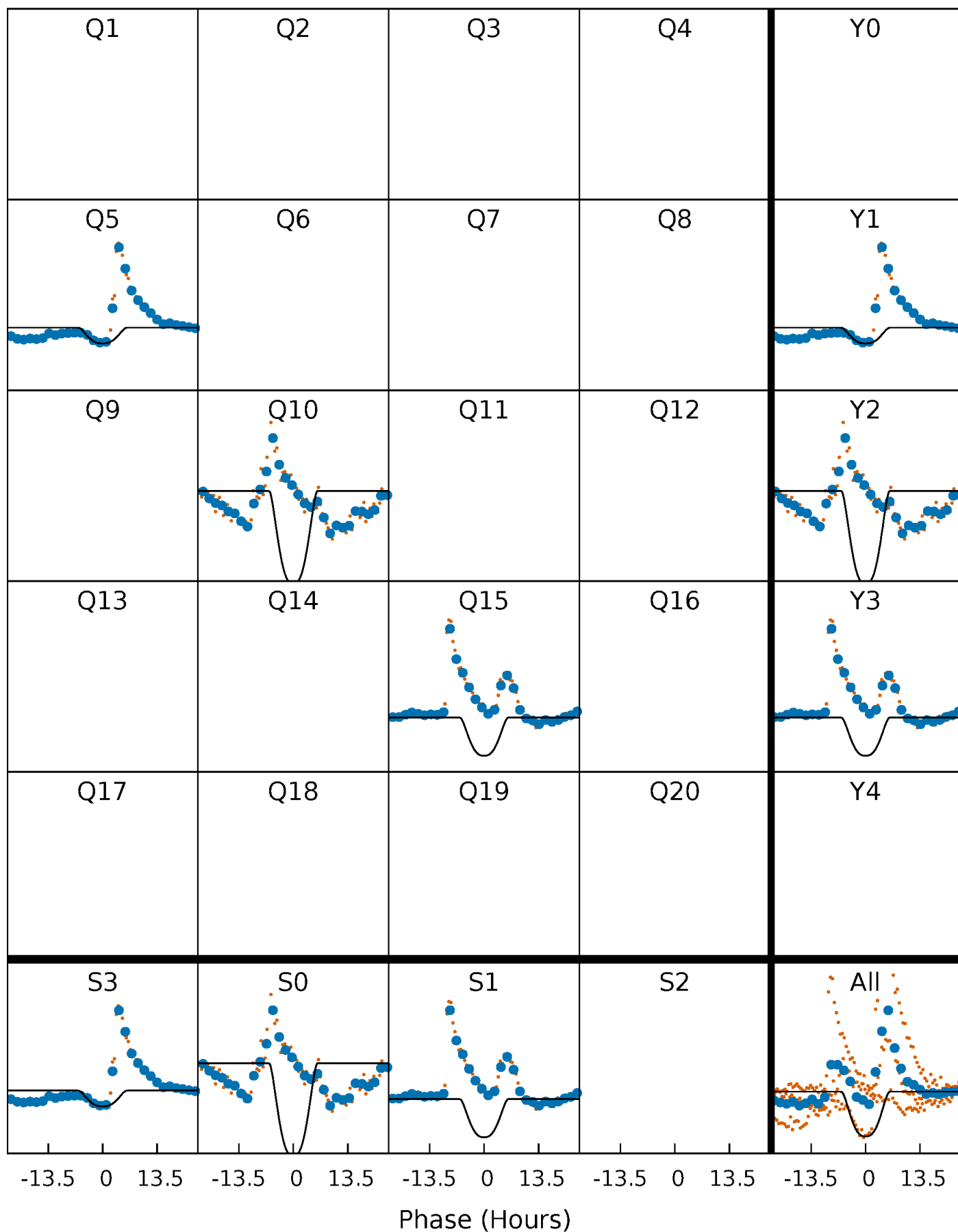
PDC Quarter-Phased Transit Curves

TCE 008249139-01 P=444.950461 Days $T_0=501.522821$ (BKJD)



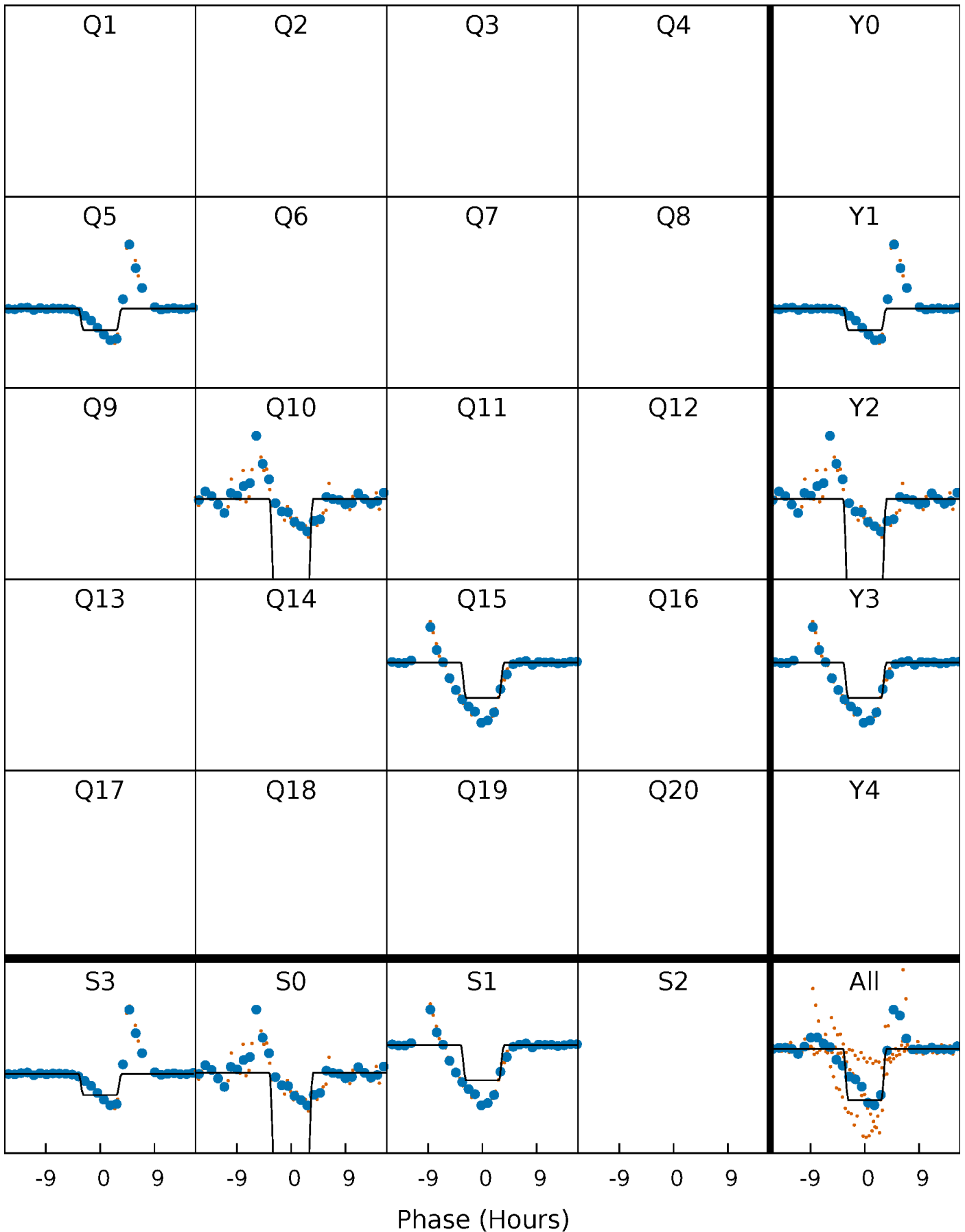
DV Quarter-Phased Transit Curves

TCE 008249139-01 P=444.950461 Days $T_0=501.522821$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

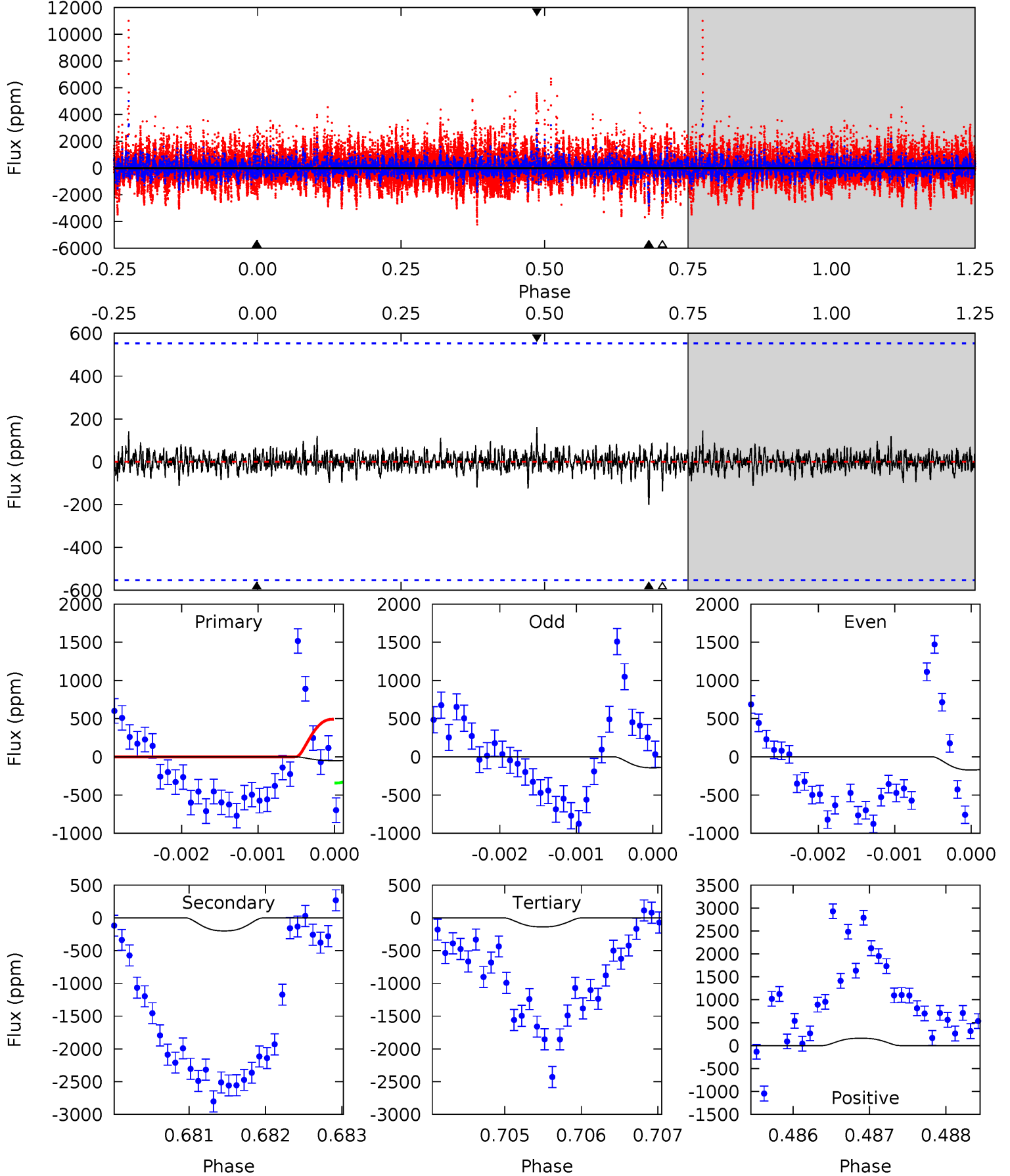
TCE 008249139-01 P=444.988447 Days $T_0=501.483930$ (BKJD)



DV Model-Shift Uniqueness Test

008249139-01, P = 444.950461 Days, E = 56.572360 Days

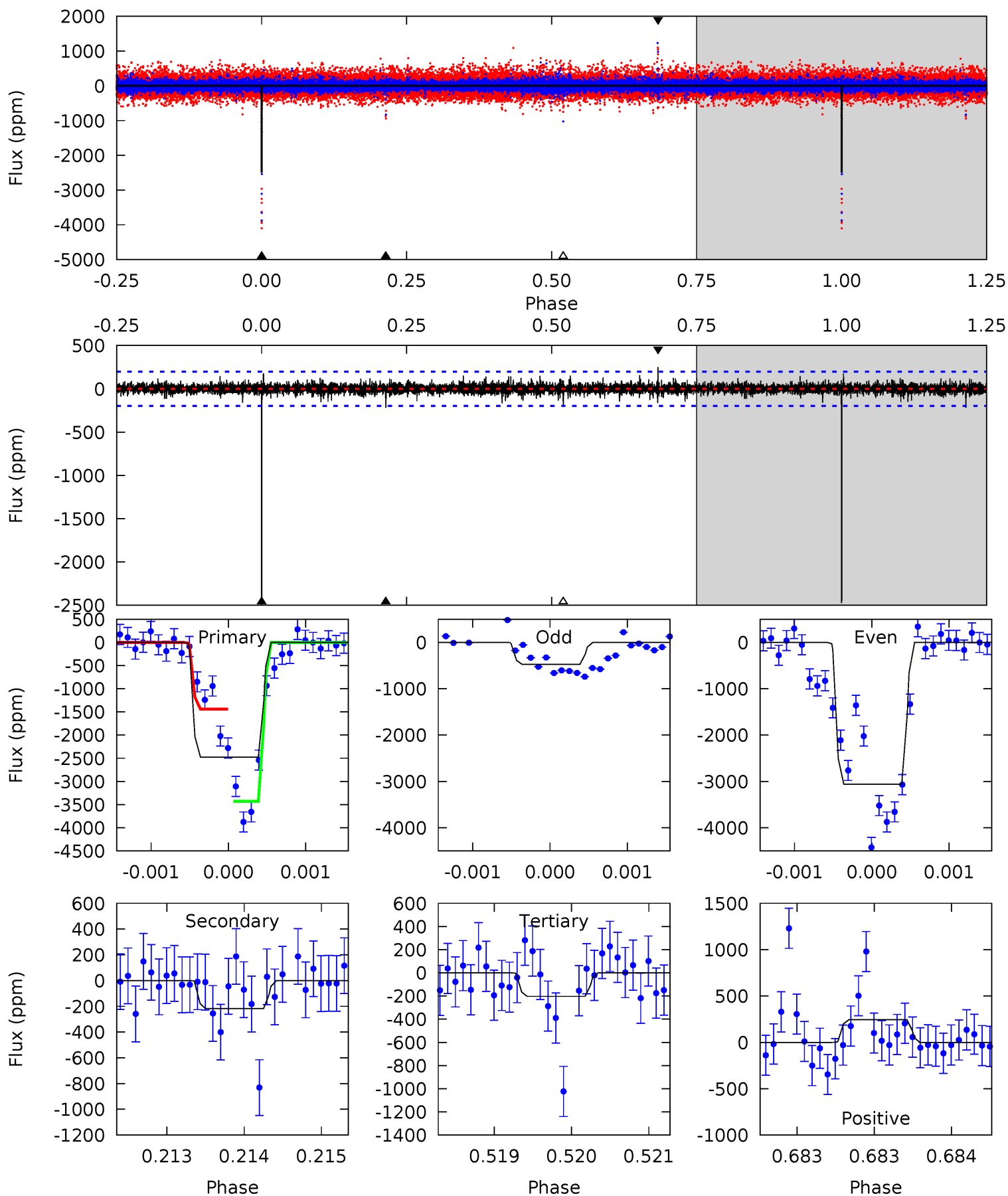
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.49	1.96	1.35	1.58	5.43	3.26	0.31	-0.86	-1.09	0.60	0.37	0.06	3.38	0.45	0.74



Alt Model-Shift Uniqueness Test

008249139-01, $P = 444.988447$ Days, $E = 56.495483$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.2	6.10	5.69	6.84	5.53	3.41	0.85	63.5	62.3	0.41	-0.75	24.4	0.89	0.09	27.8



Stellar Parameters For KIC 008249139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5395^{+208}_{-170}	$3.779^{+0.825}_{-0.330}$	$-0.500^{+0.350}_{-0.250}$	$2.056^{+1.092}_{-1.334}$	$0.928^{+0.219}_{-0.179}$	$0.150^{+2.211}_{-0.101}$
	+4%/-3%	+22%/-9%	+70%/-50%	+53%/-65%	+24%/-19%	+1472%/-67%
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 008249139-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-199±102	$12.45^{+4.41}_{-4.14}$	449^{+70}_{-82}	3256^{+244}_{-351}	850^{+1188}_{-541}
Alt.	-218±36	$11.04^{+3.48}_{-3.86}$	446^{+69}_{-78}	3433^{+155}_{-166}	1221^{+1590}_{-514}

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

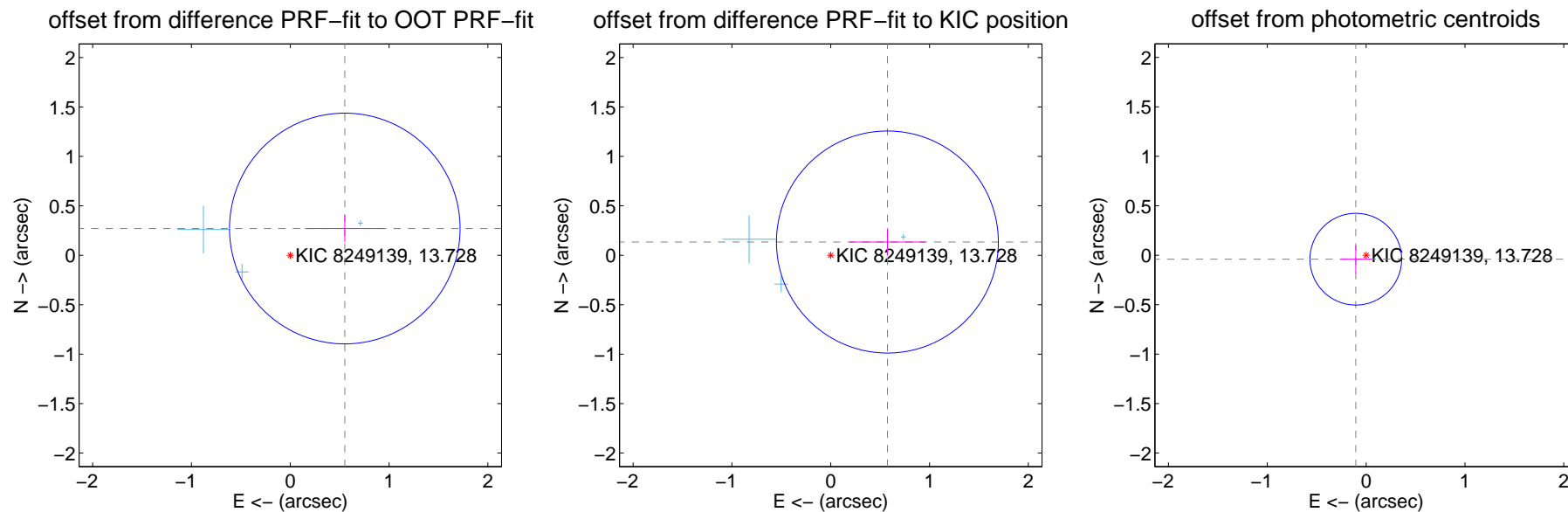
DV Centroid Data

Supplemental centroid analysis for 008249139-01. Kepler magnitude: 13.73. Transit SNR 11.62

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.615 ± 0.389	1.58	-0.552 ± 0.402	0.271 ± 0.139
PRF-fit source offset from KIC position	0.589 ± 0.374	1.57	-0.574 ± 0.385	0.134 ± 0.136
photometric centroid source offset	0.11 ± 0.15	0.72	0.10 ± 0.16	-0.04 ± 0.14

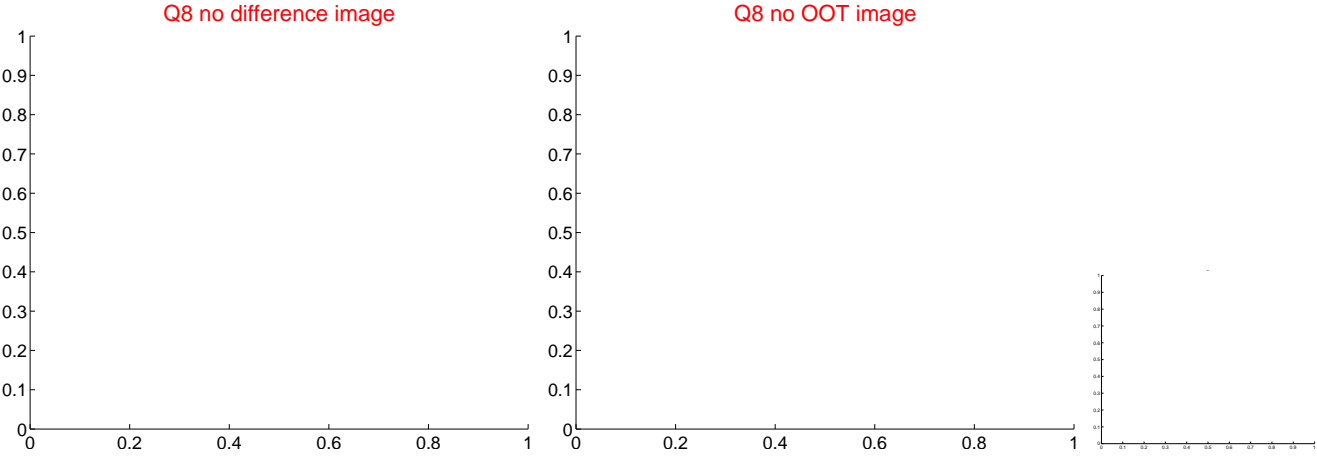
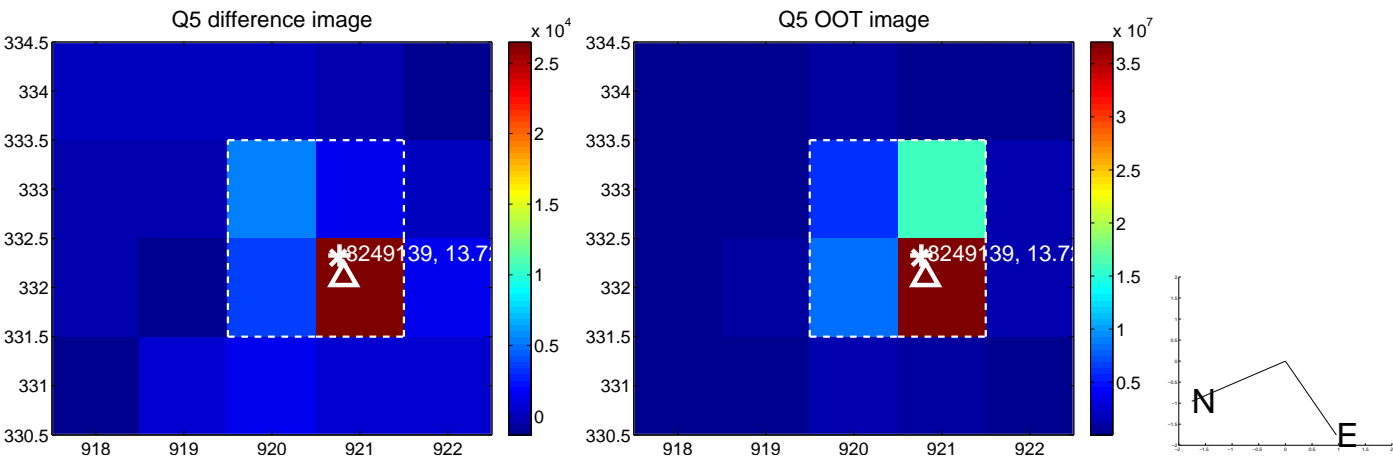


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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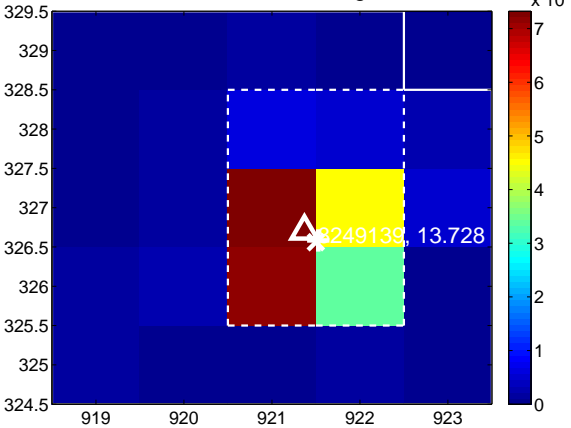
Q9 no difference image



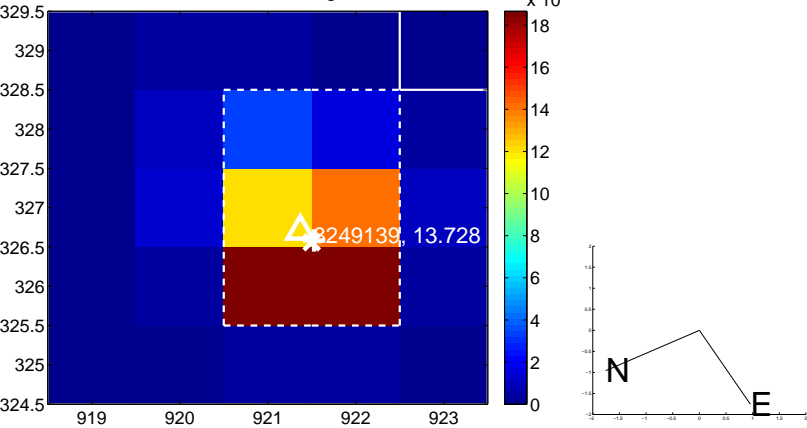
Q9 no OOT image



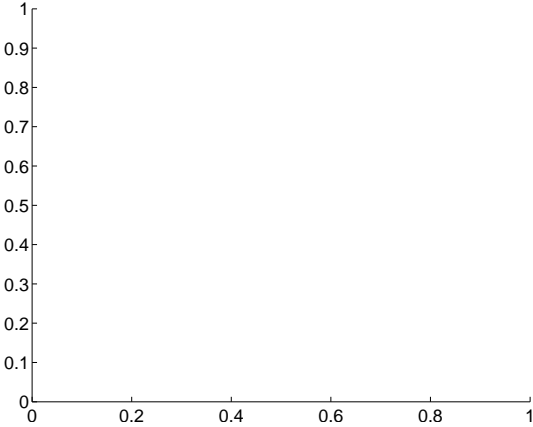
Q10 difference image



Q10 OOT image



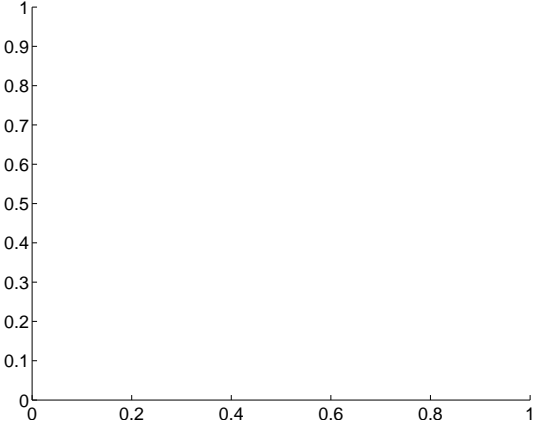
Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

Q13 no difference image



Q13 no OOT image



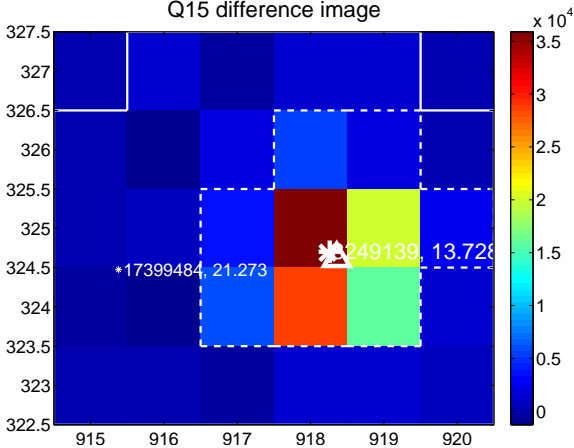
Q14 no difference image



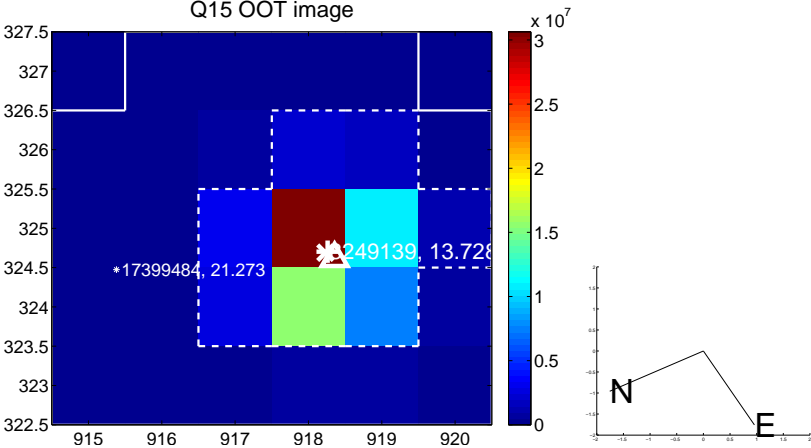
Q14 no OOT image



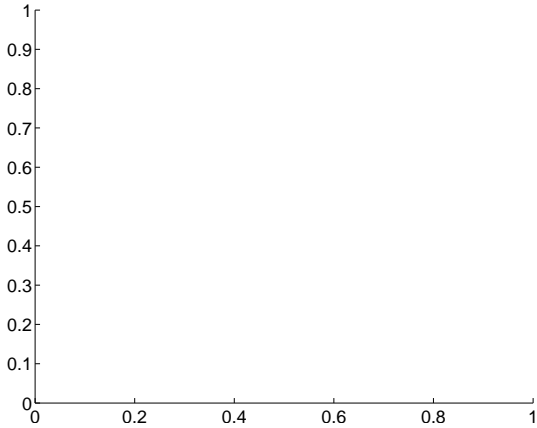
Q15 difference image



Q15 OOT image



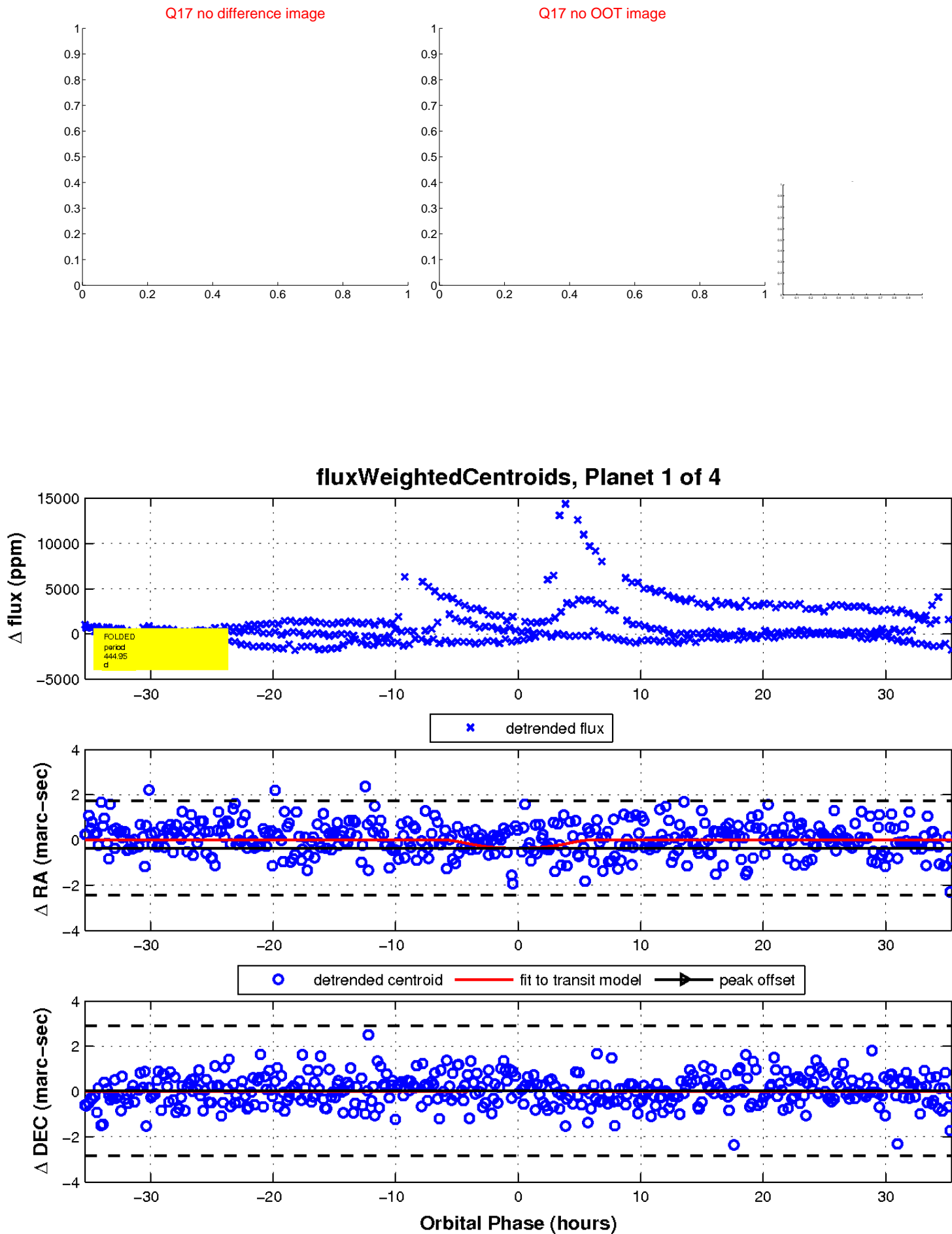
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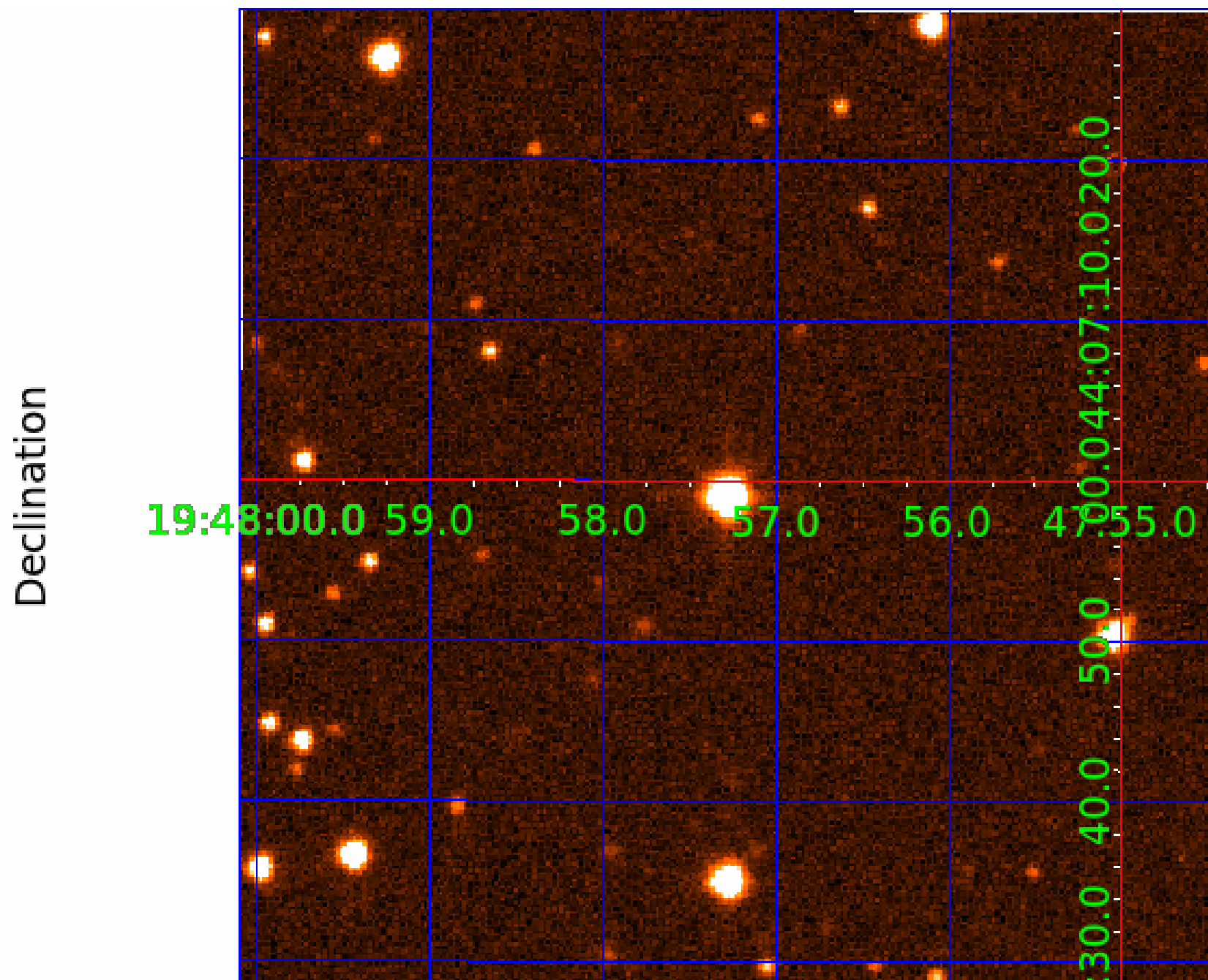
Q16 no OOT image



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



UKIRT Image



KIC 008249139

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})
008249139-01	OBS	No	444.950461	501.522821	2361.3	11.827	24.6	11.6	2.06	5395	12.68	2.59
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Robovetter Results

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008249139-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008249139-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008249139-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

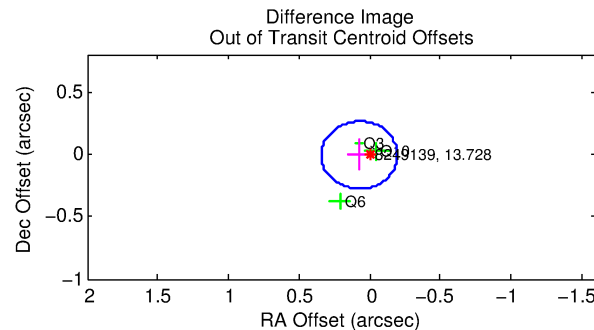
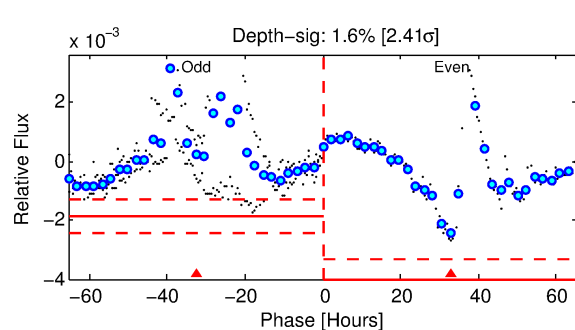
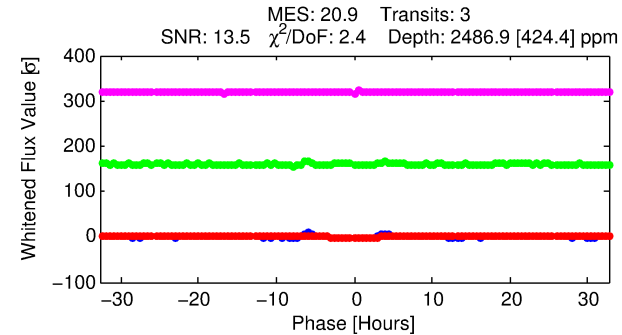
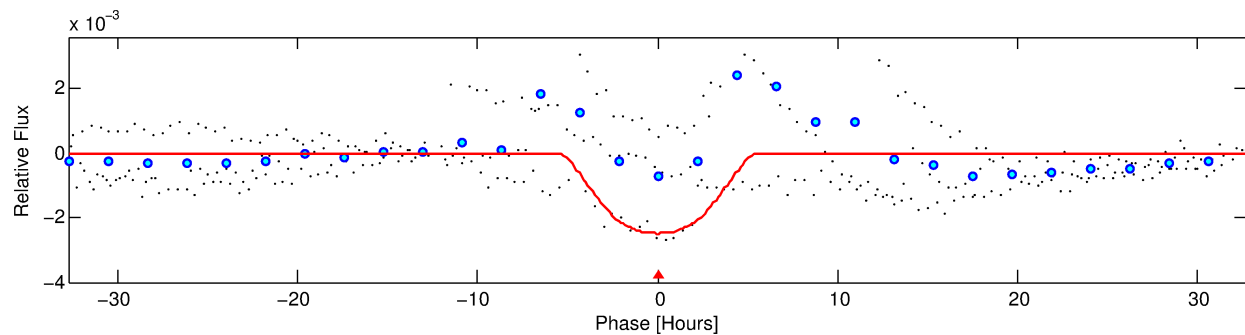
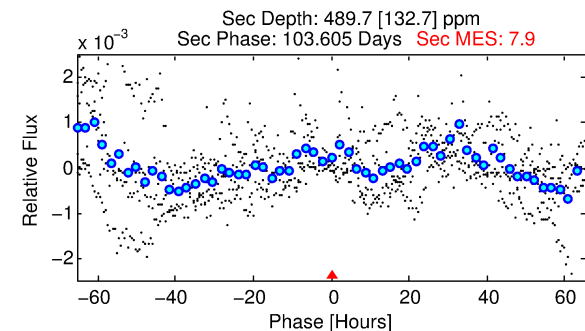
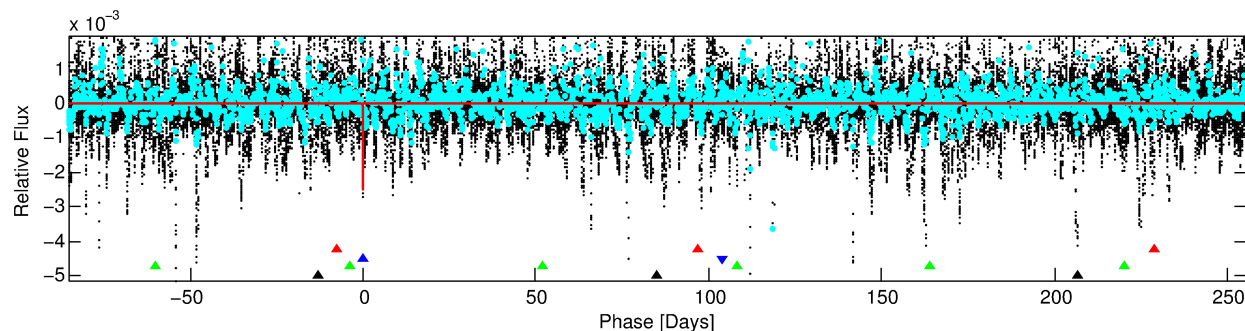
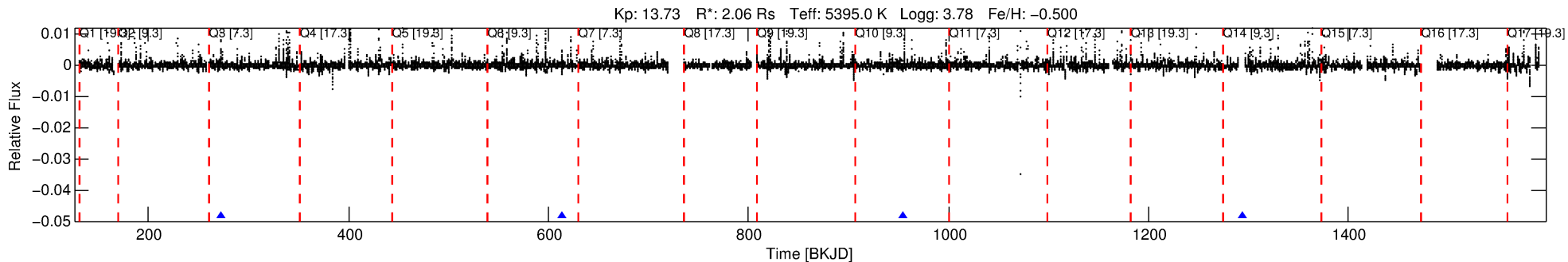
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008249139-02

No Significant Match Found

DV One-Page Summary

KIC: 8249139 Candidate: 2 of 4 Period: 340.695 d



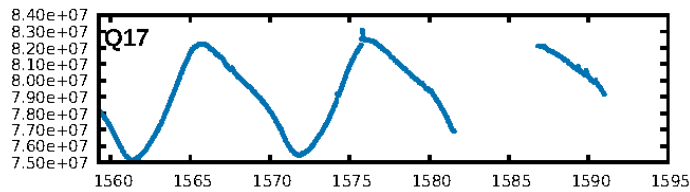
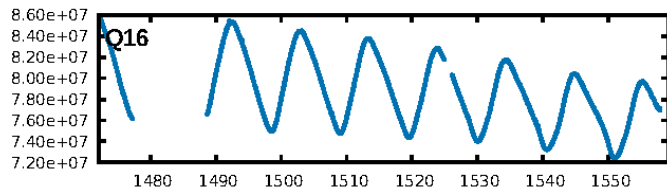
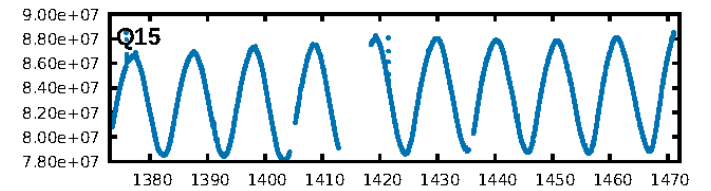
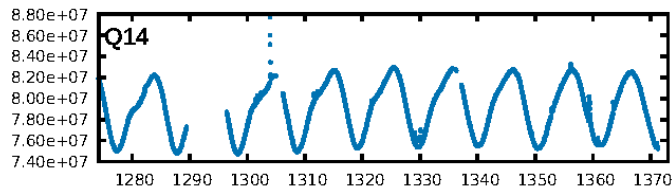
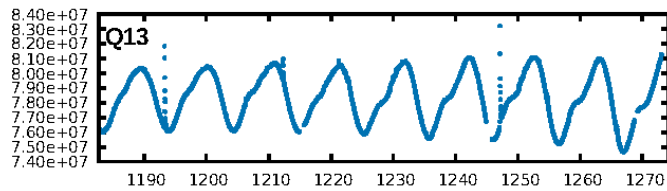
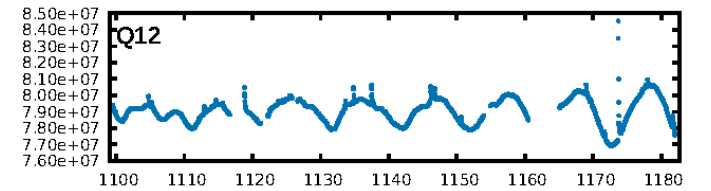
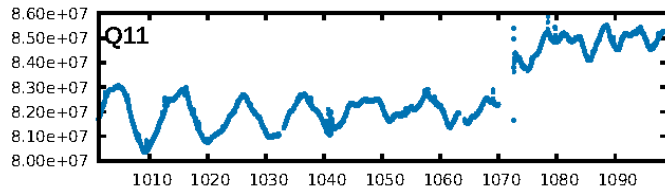
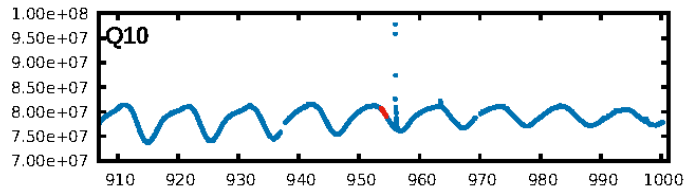
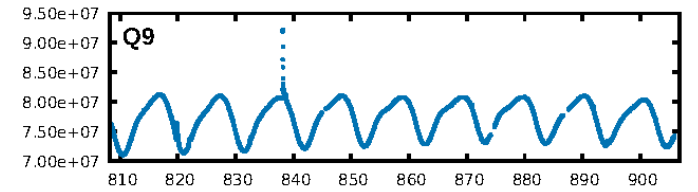
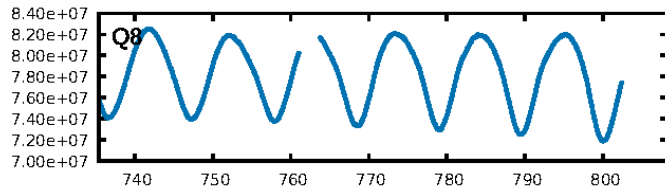
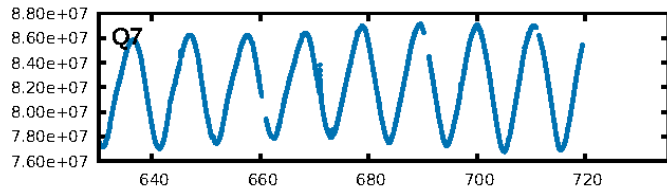
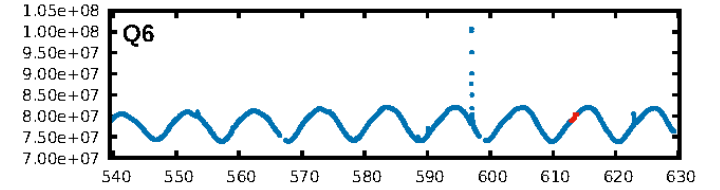
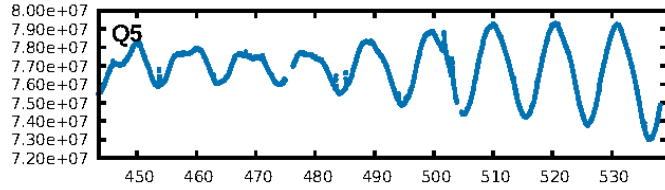
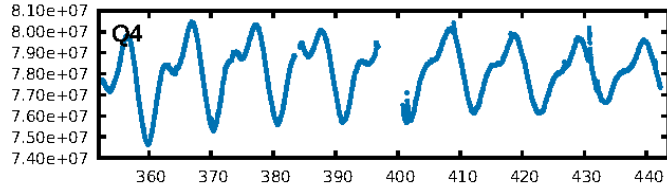
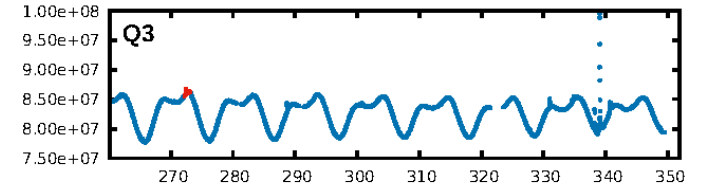
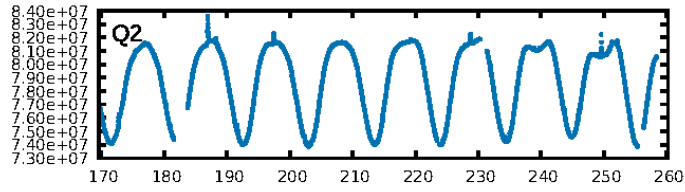
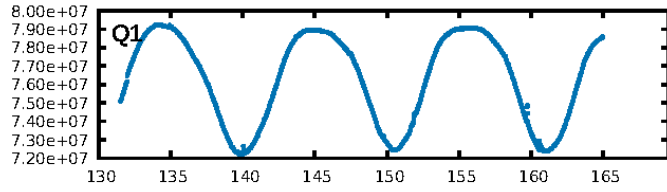
DV Fit Results:

Period = 340.69492 [0.01239] d
Epoch = 272.6663 [0.0159] BKJD
Rp/R* = 0.0582 [0.0071]
a/R* = 114.76 [12.40]
b = 0.94 [0.02]
Seff = 3.70 [4.99]
Teq = 354 [119] K
Rp = 13.06 [8.62] Re
a = 0.9310 [0.7139] AU
Ag = 1368.73 [1898.10] [0.72 σ]
Teffp = 3326 [328] K [8.51 σ]

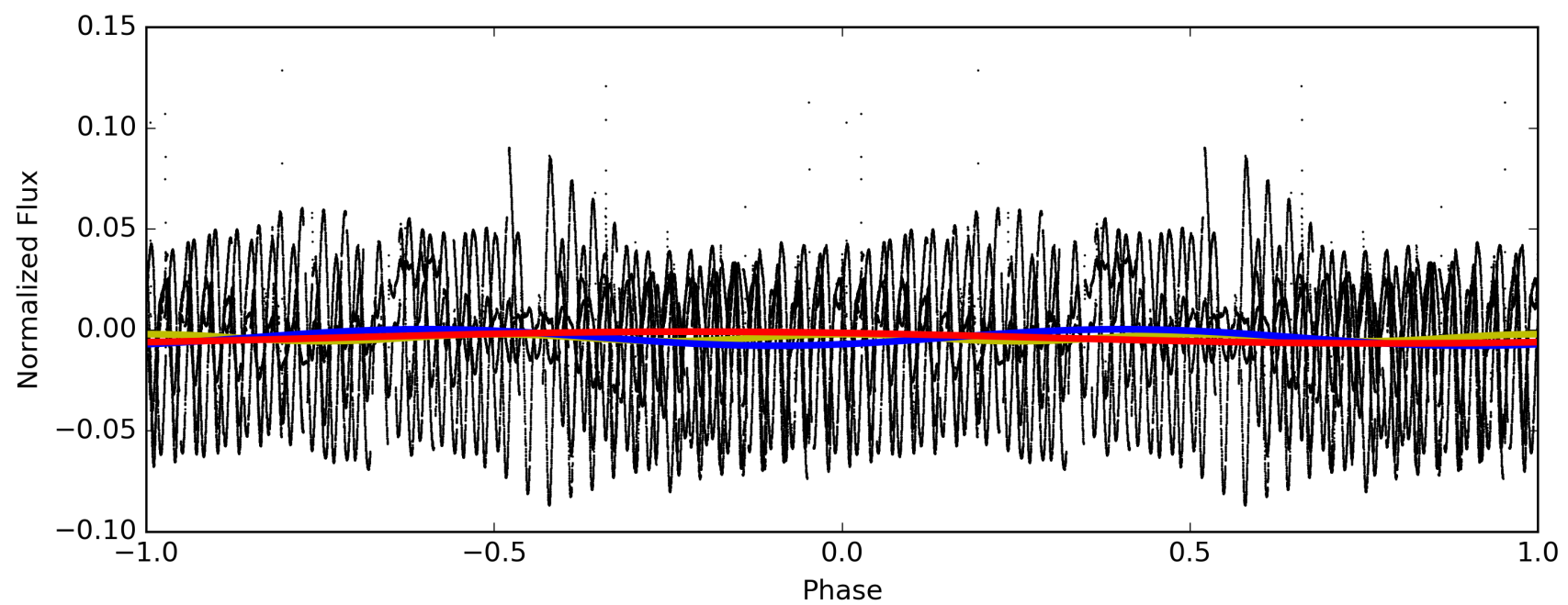
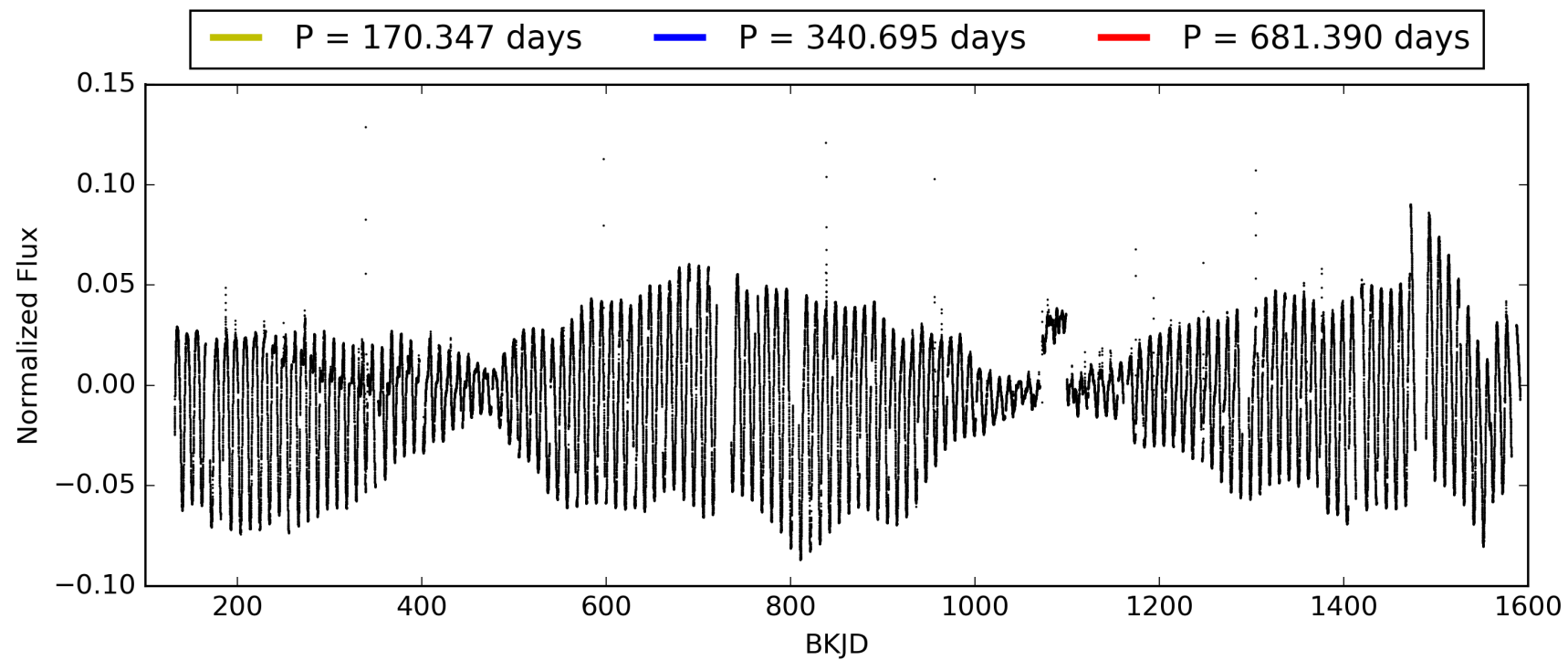
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [107.31 σ]
LongPeriod-sig: 100.0% [155.51 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.425
Centroid-sig: 7.7%
Centroid-so: 0.194 arcsec [1.20 σ]
OotOffset-rm: 0.075 arcsec [0.83 σ]
KicOffset-rm: 0.158 arcsec [1.15 σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008249139-02, PDC Light Curves

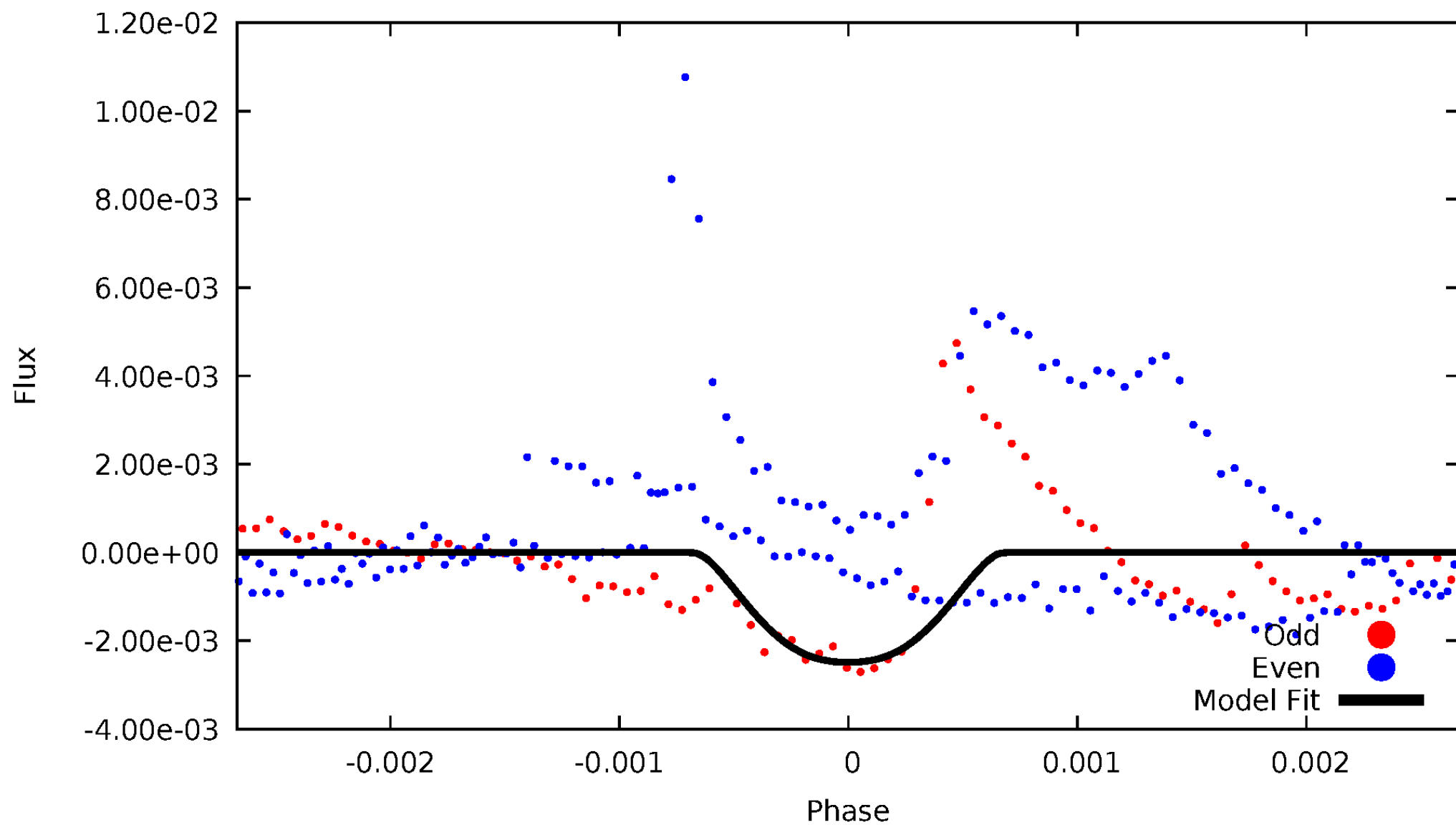


TCE 008249139-02



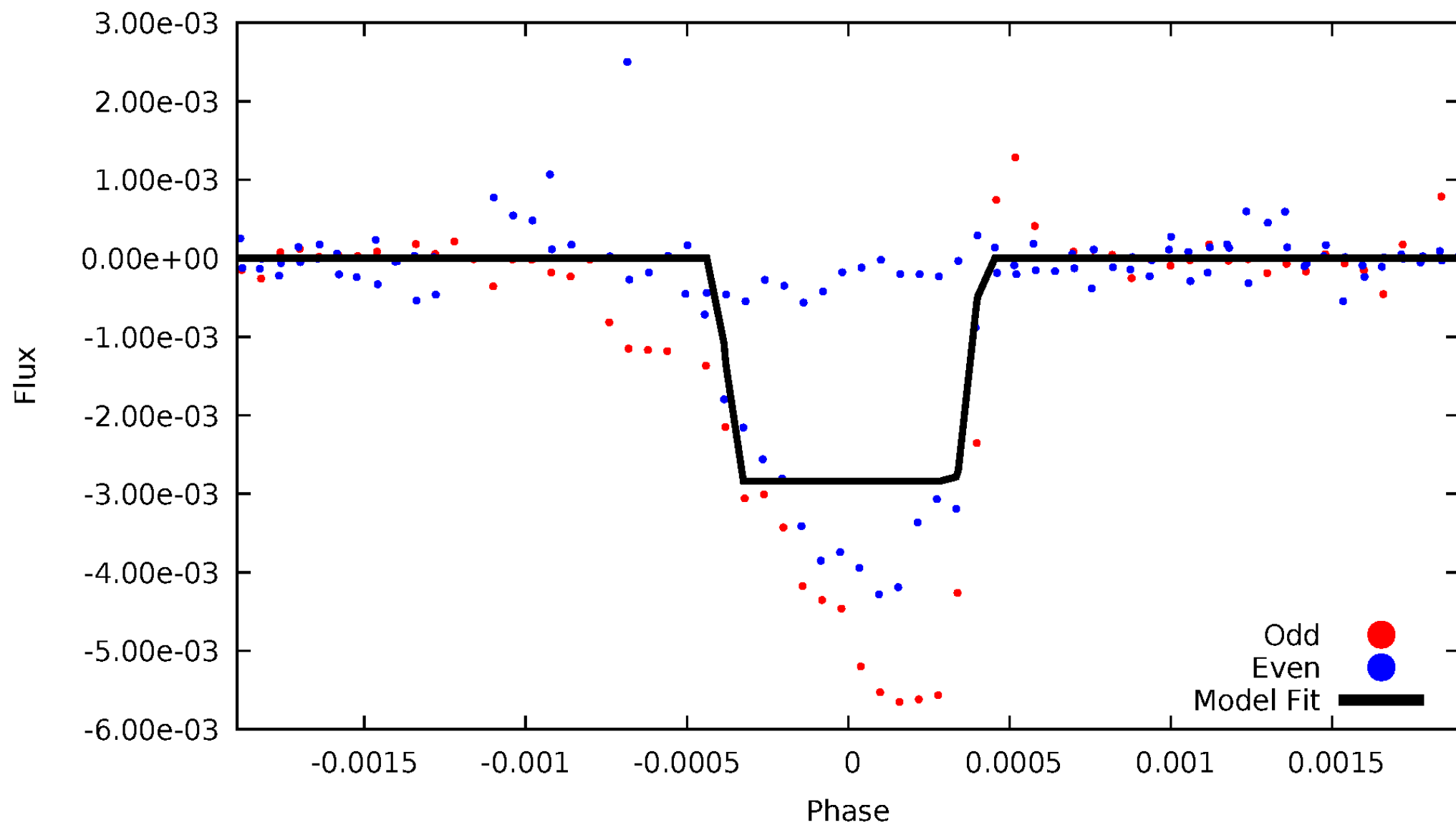
DV Odd/Even

TCE 008249139-02



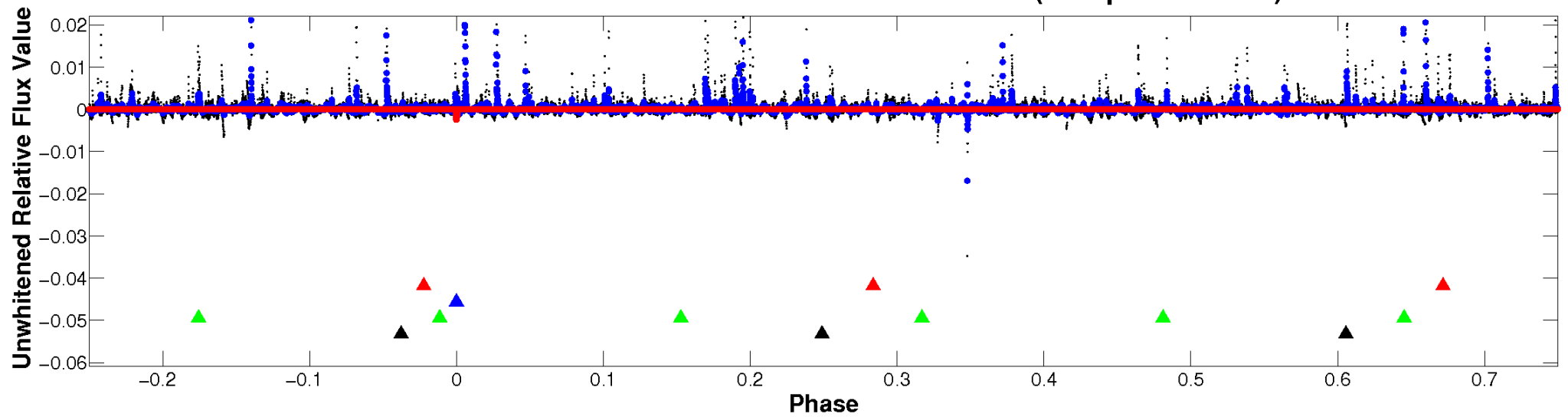
ALT Odd/Even

TCE 008249139-02

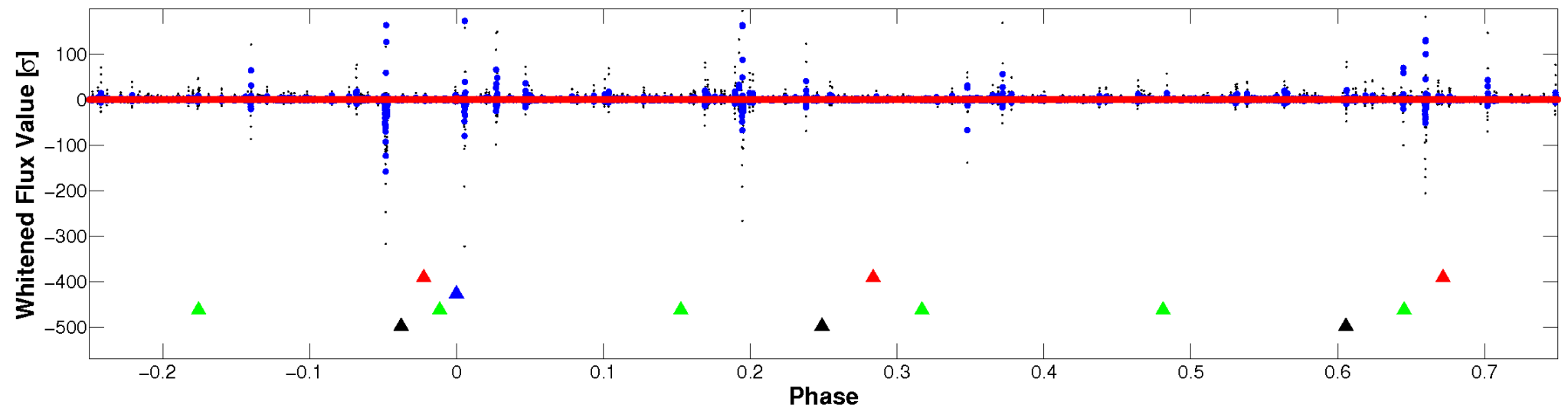


Non-Whitened Vs. Whitened Light Curve

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

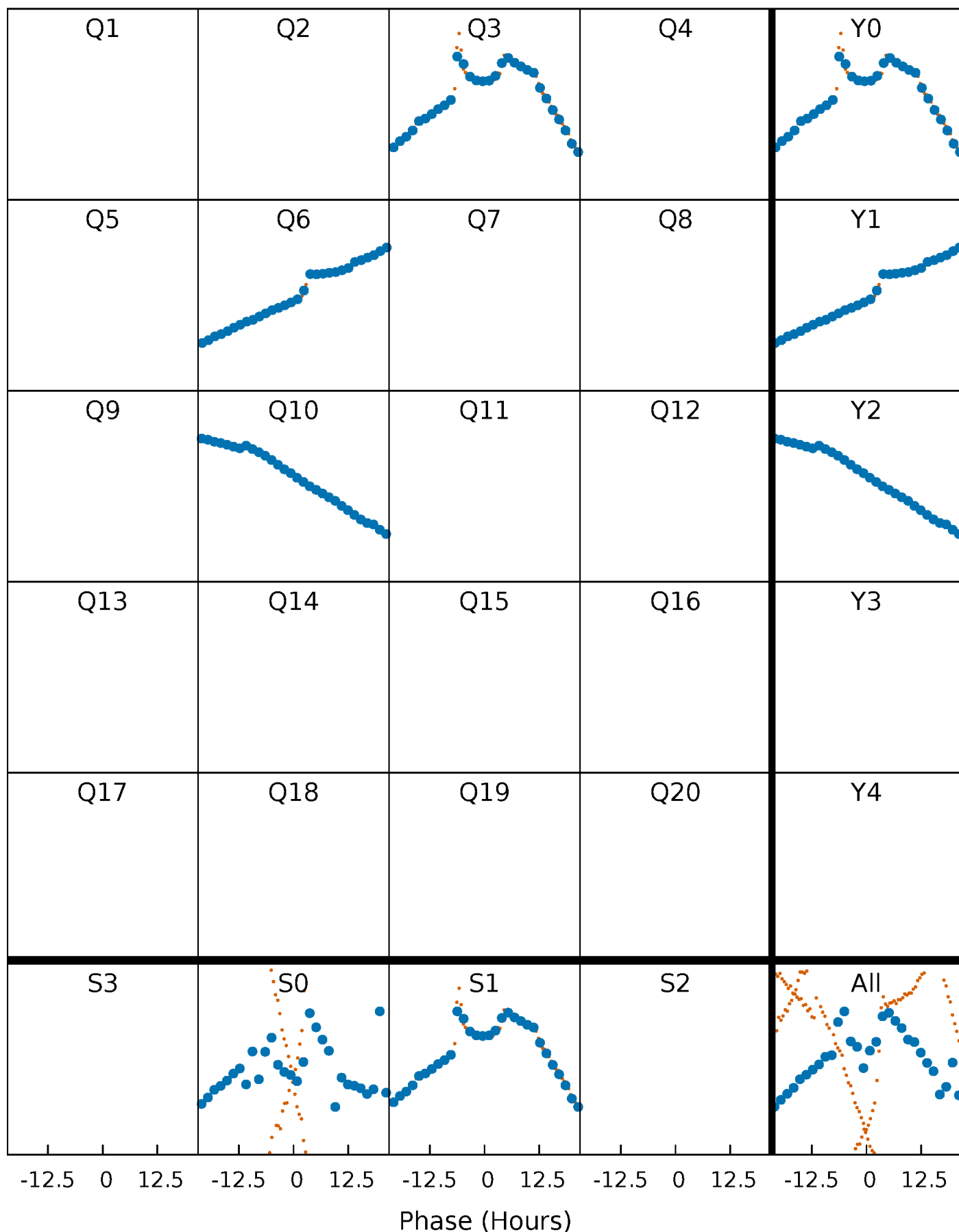


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



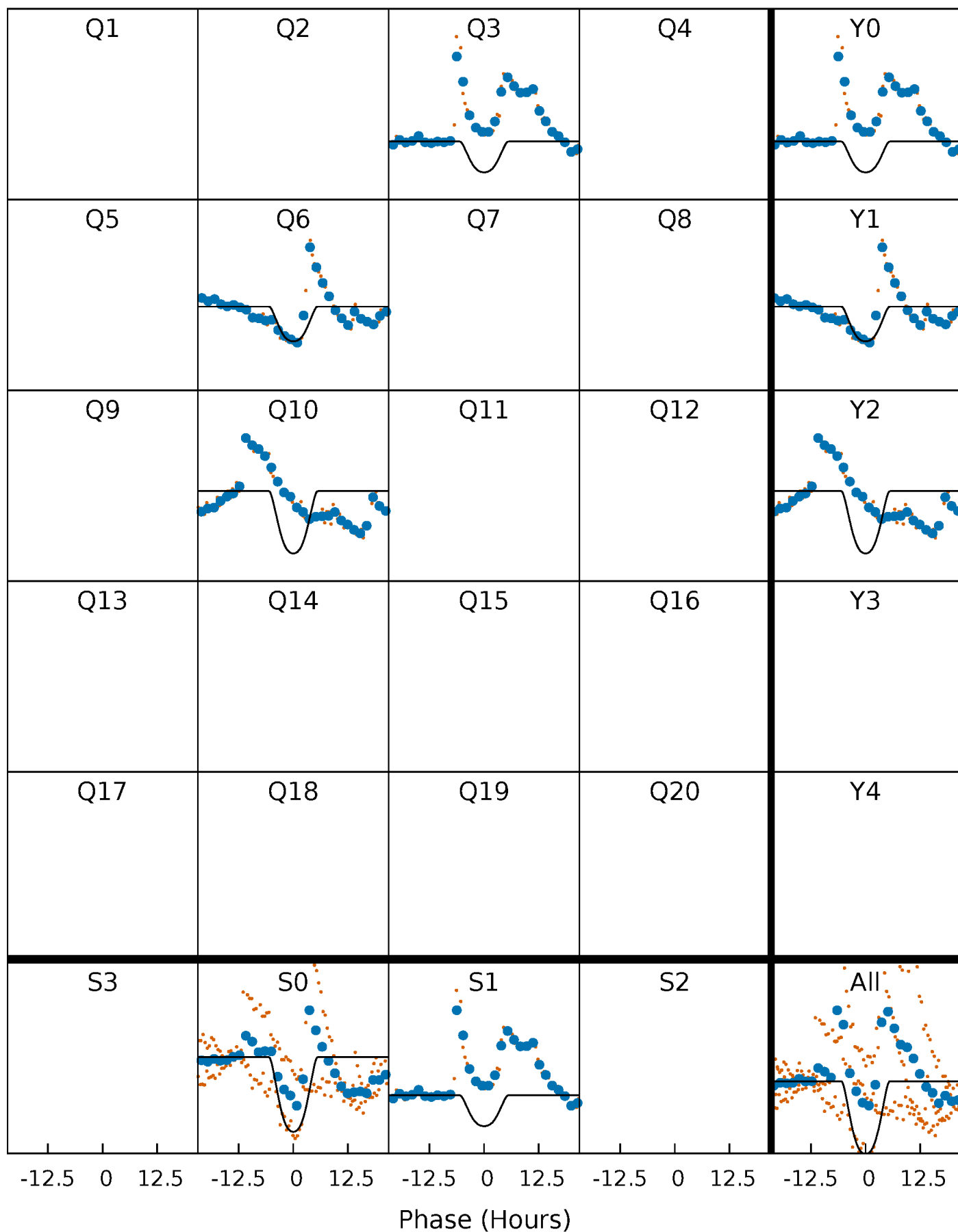
PDC Quarter-Phased Transit Curves

TCE 008249139-02 P=340.694918 Days $T_0=272.666315$ (BKJD)



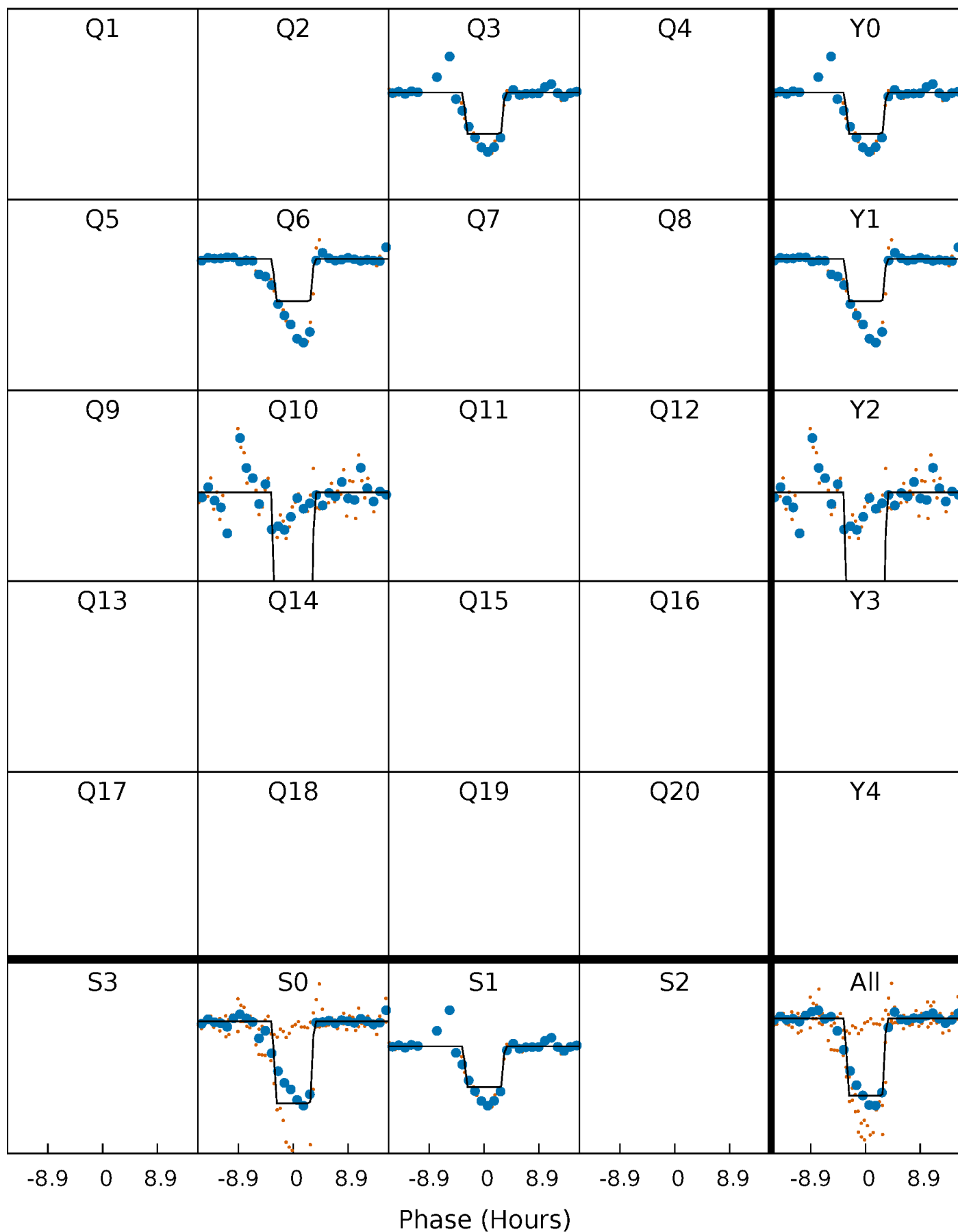
DV Quarter-Phased Transit Curves

TCE 008249139-02 P=340.694918 Days $T_0=272.666315$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

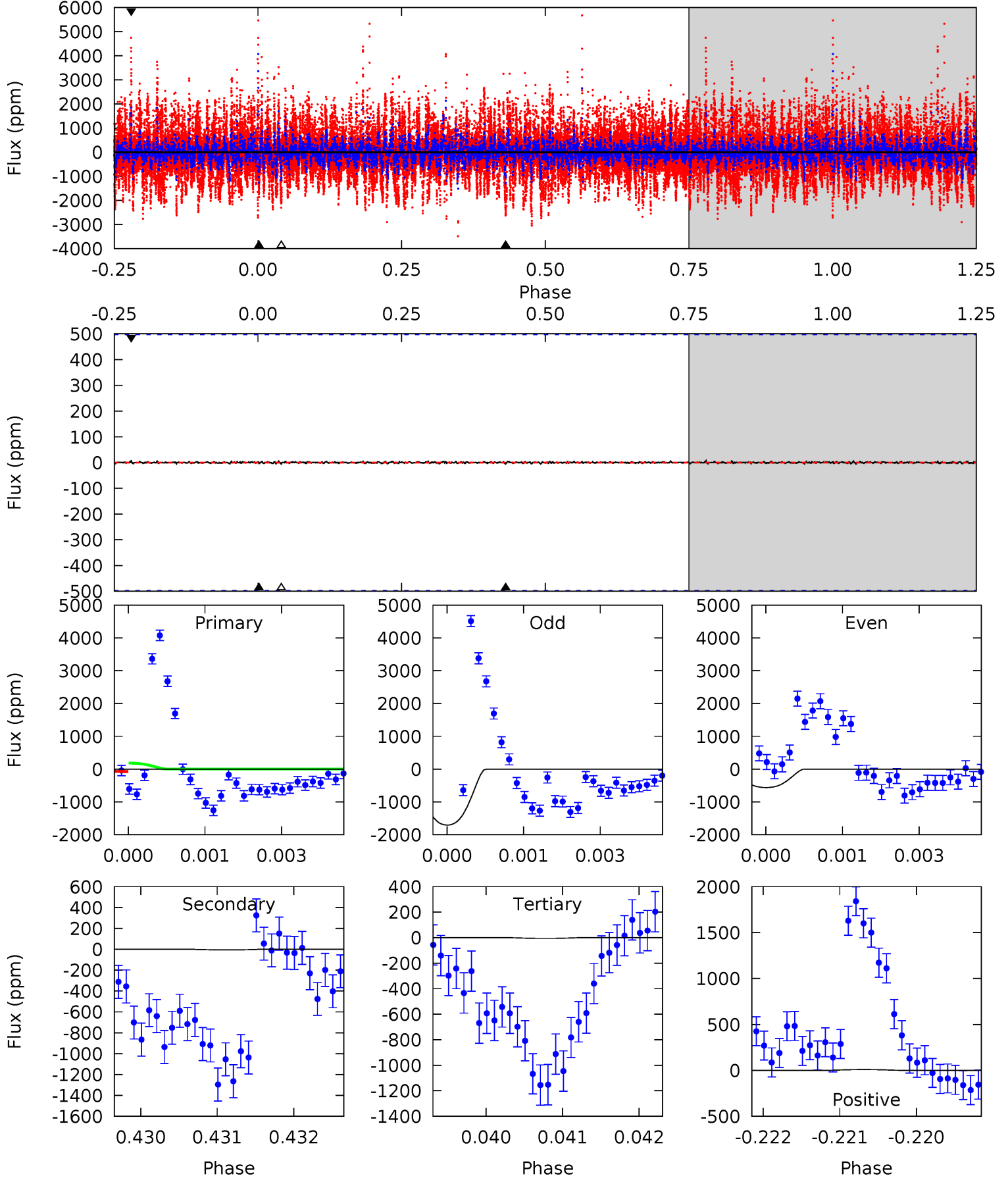
TCE 008249139-02 P=340.647879 Days $T_0=272.697912$ (BKJD)



DV Model-Shift Uniqueness Test

008249139-02, P = 340.694918 Days, E = 272.666315 Days

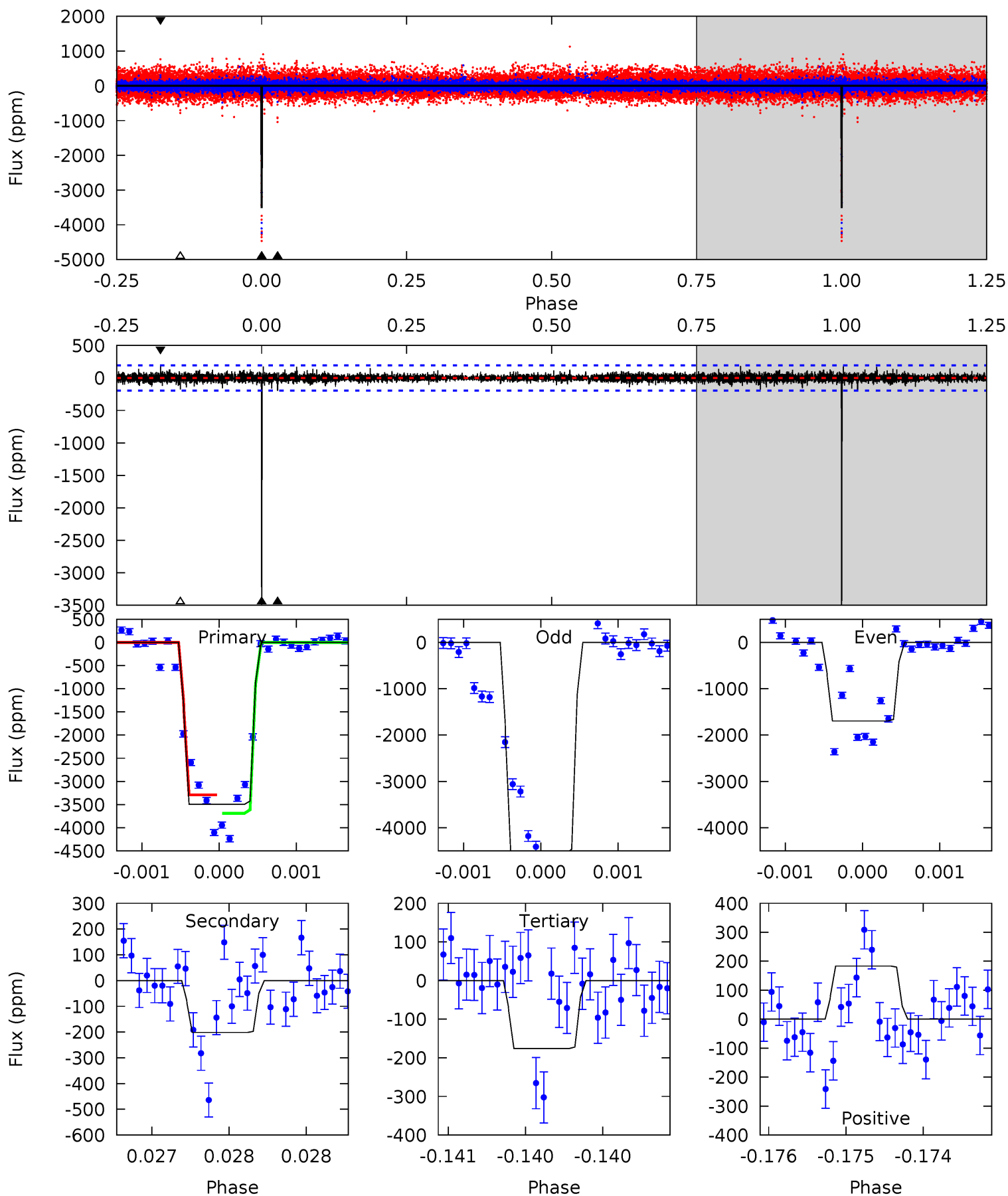
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.04	0.07	0.06	0.09	5.40	3.20	0.02	-0.02	-0.05	0.00	-0.02	4.23	0.29	0.57	0.56



Alt Model-Shift Uniqueness Test

008249139-02, P = 340.647879 Days, E = 272.697912 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.5	5.68	4.96	5.17	5.48	3.34	0.87	93.6	93.4	0.72	0.51	48.6	0.81	0.05	0



Stellar Parameters For KIC 008249139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5395^{+208}_{-170}	$3.779^{+0.825}_{-0.330}$	$-0.500^{+0.350}_{-0.250}$	$2.056^{+1.092}_{-1.334}$	$0.928^{+0.219}_{-0.179}$	$0.150^{+2.211}_{-0.101}$
	+4%/-3%	+22%/-9%	+70%/-50%	+53%/-65%	+24%/-19%	+1472%/-67%
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 008249139-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 92	$12.59^{+4.93}_{-4.39}$	489^{+75}_{-92}	2071^{+858}_{-4915}	16^{+355}_{-288}
Alt.	-201 ± 35	$11.55^{+4.67}_{-4.48}$	488^{+77}_{-103}	3319^{+197}_{-191}	735^{+1229}_{-368}

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

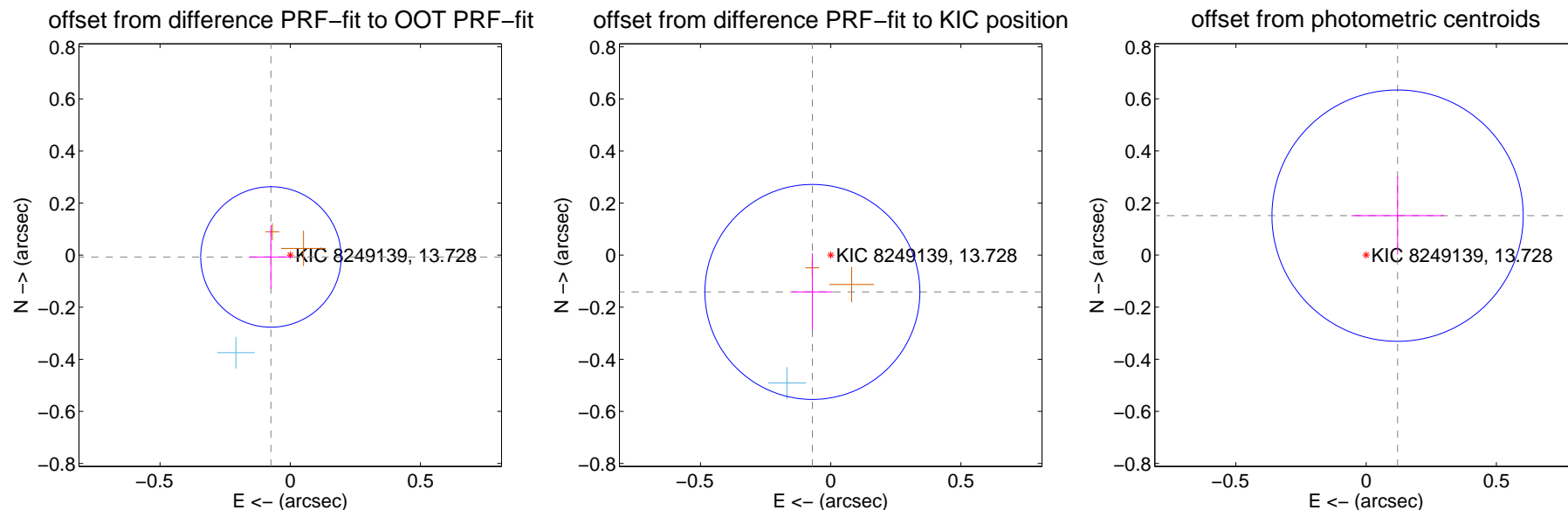
DV Centroid Data

Supplemental centroid analysis for 008249139-02. Kepler magnitude: 13.73. Transit SNR 13.51

There are 1 quarters with good PRF difference image offsets

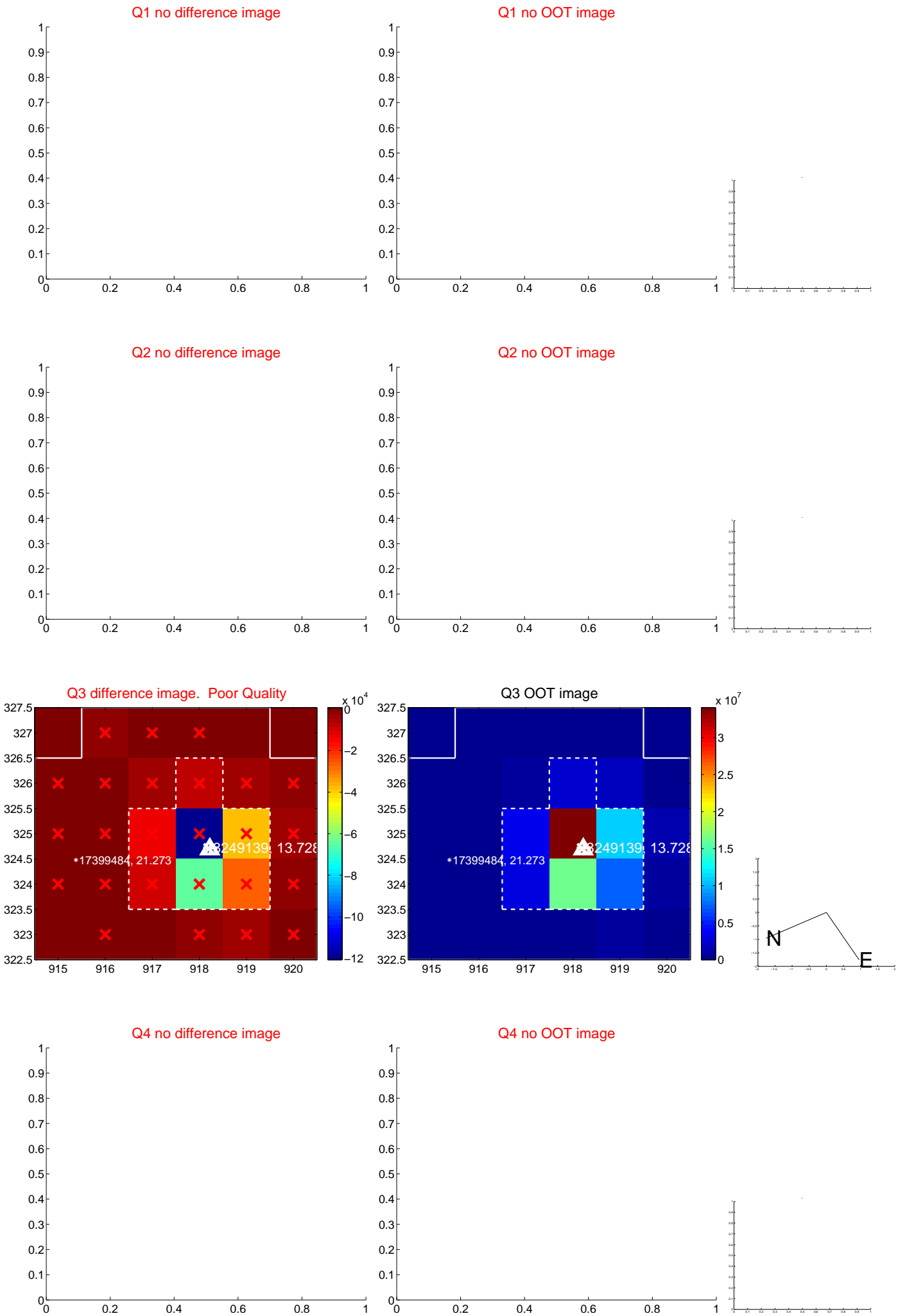
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.090	0.83	0.074 ± 0.085	-0.007 ± 0.122
PRF-fit source offset from KIC position	0.158 ± 0.138	1.15	0.070 ± 0.078	-0.141 ± 0.149
photometric centroid source offset	0.19 ± 0.16	1.20	-0.12 ± 0.18	0.15 ± 0.15



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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

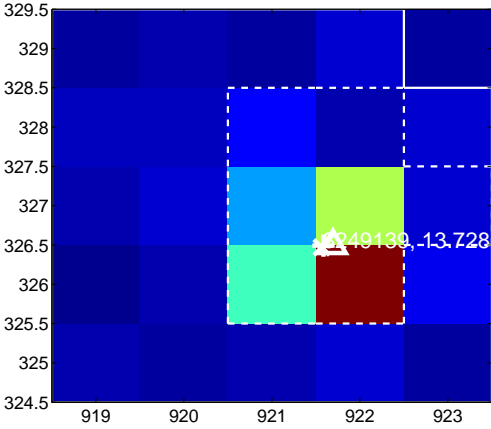
Q5 no difference image



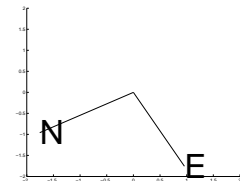
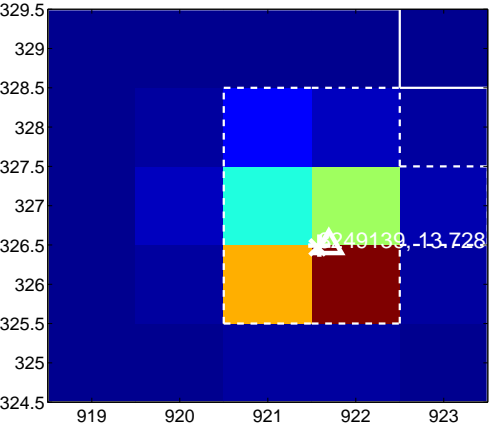
Q5 no OOT image



Q6 difference image



Q6 OOT image



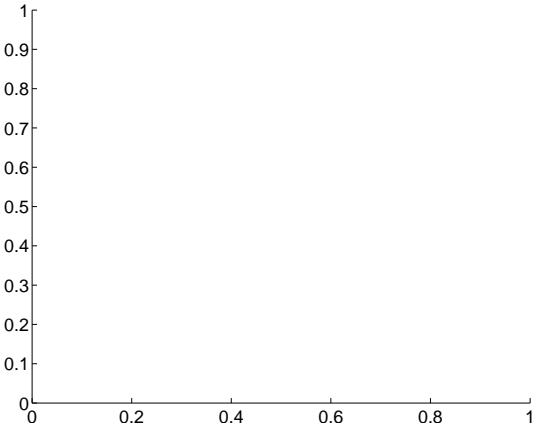
Q7 no difference image



Q7 no OOT image



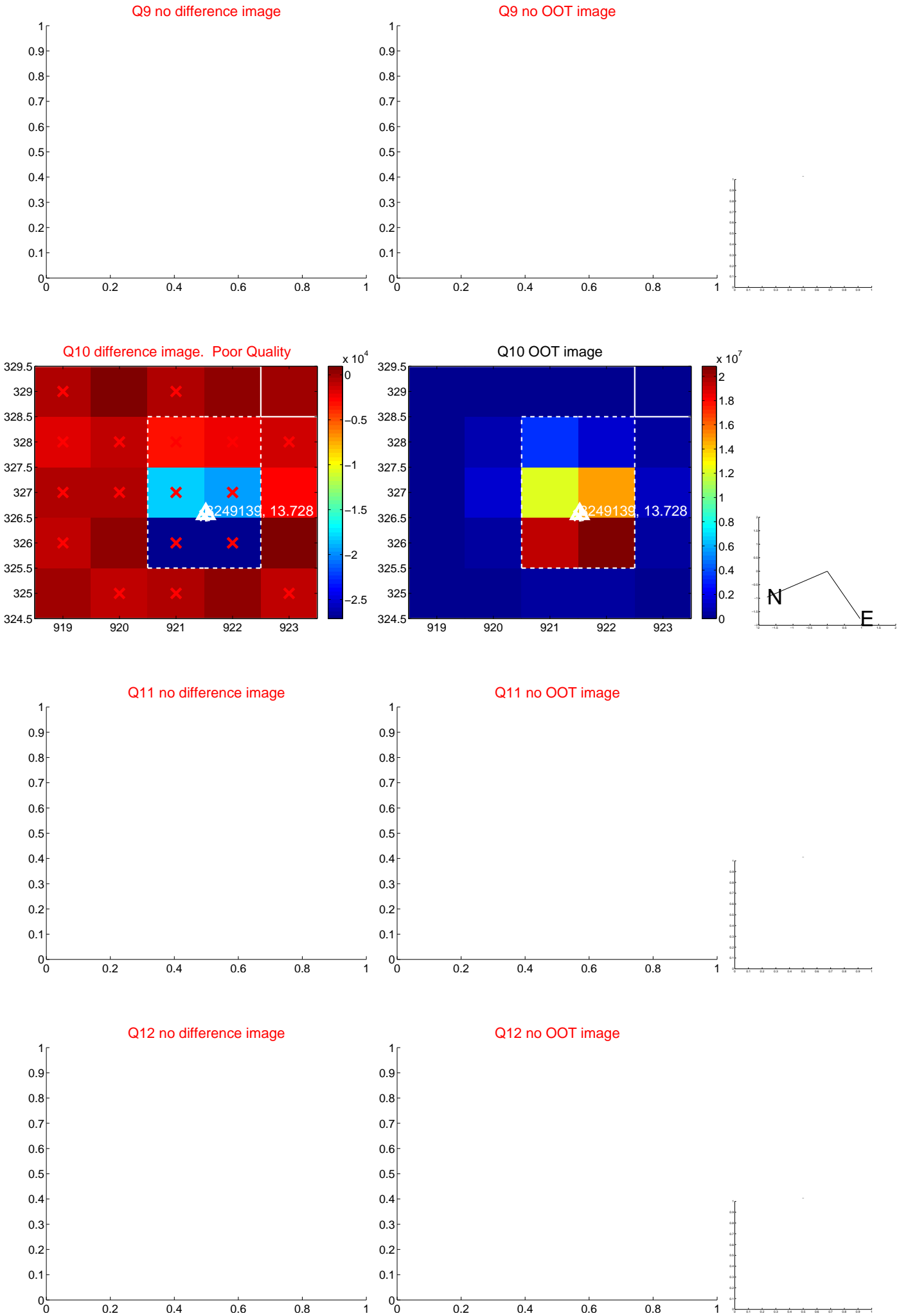
Q8 no difference image



Q8 no OOT image



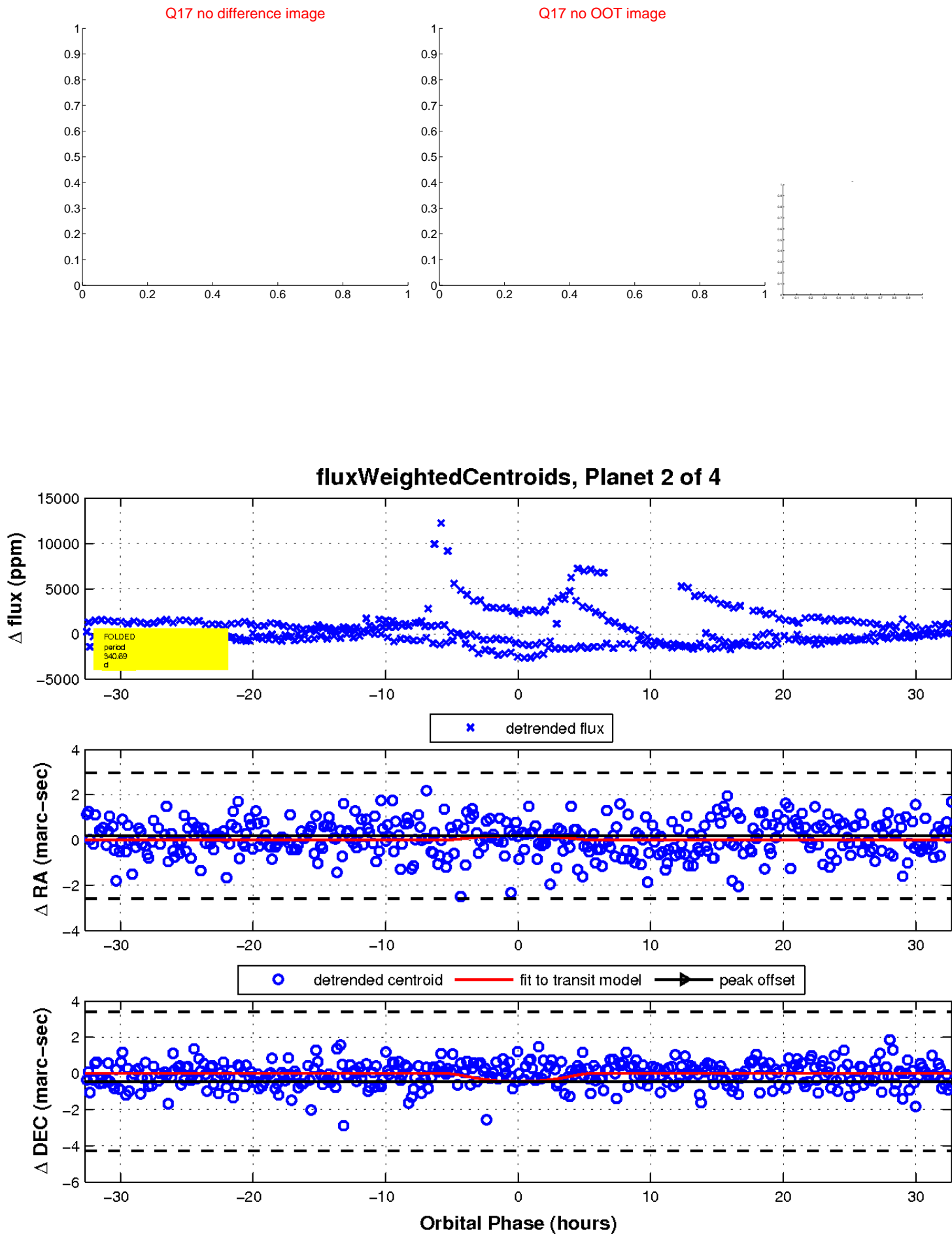
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

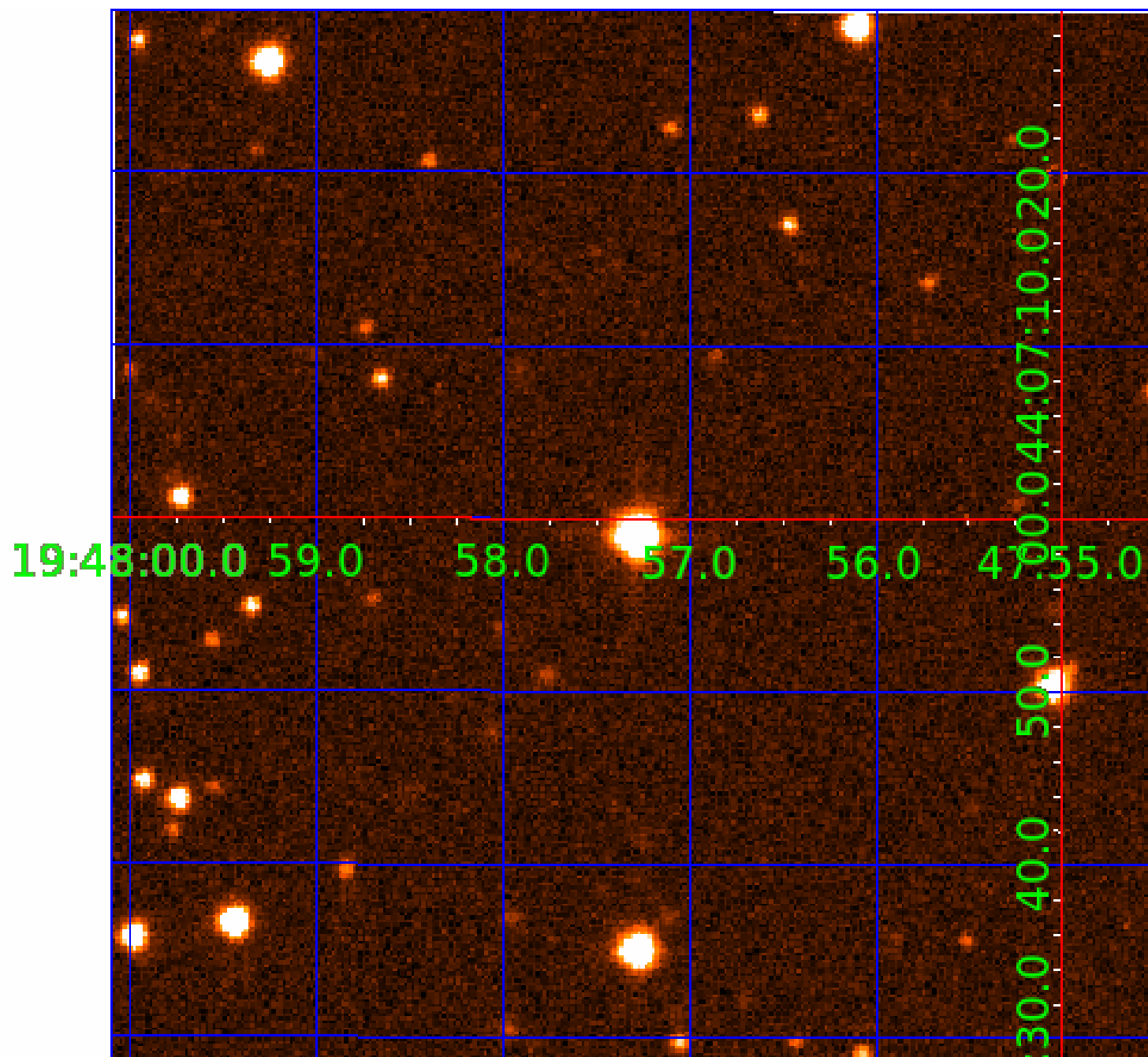


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008249139

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})
008249139-01	OBS	No	444.950461	501.522821	2361.3	11.827	24.6	11.6	2.06	5395	12.68	2.59
008249139-02	OBS	No	340.694918	272.666315	2486.9	10.909	20.9	13.5	2.06	5395	13.06	3.70
008249139-03	OBS	No	284.764330	151.813264	1139.7	6.122	16.3	8.5	2.06	5395	10.82	4.70
008249139-04	OBS	No	462.227486	357.463866	1820.6	13.339	20.2	10.0	2.06	5395	9.54	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008249139-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008249139-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008249139-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008249139-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

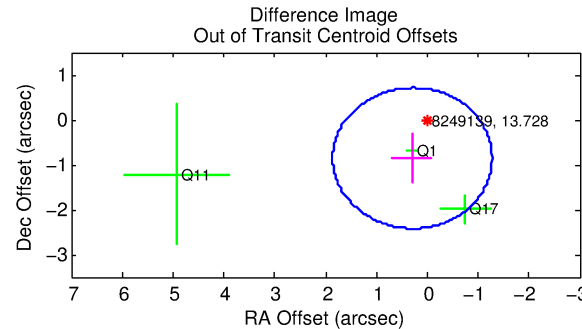
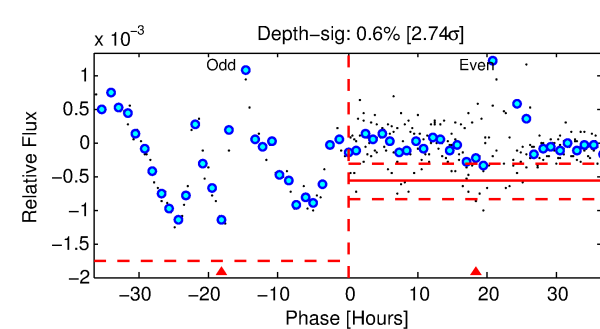
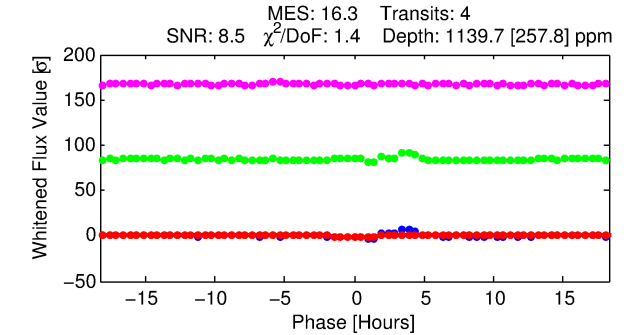
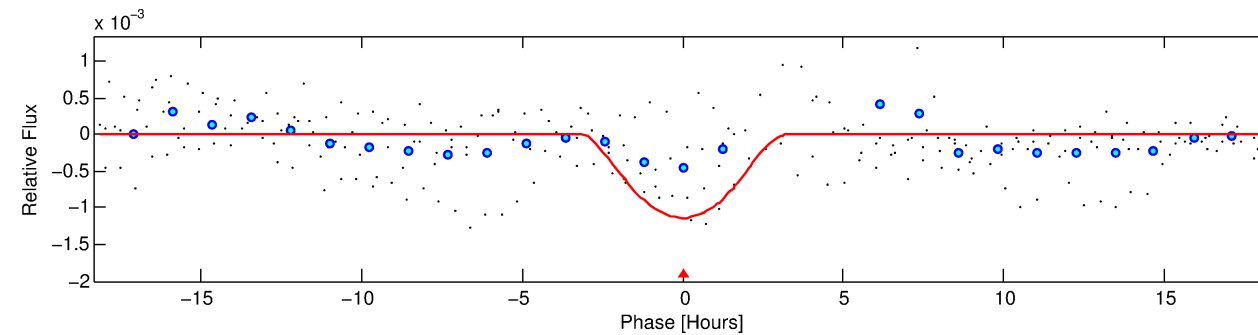
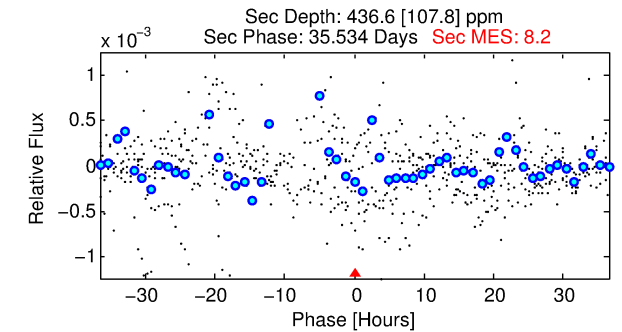
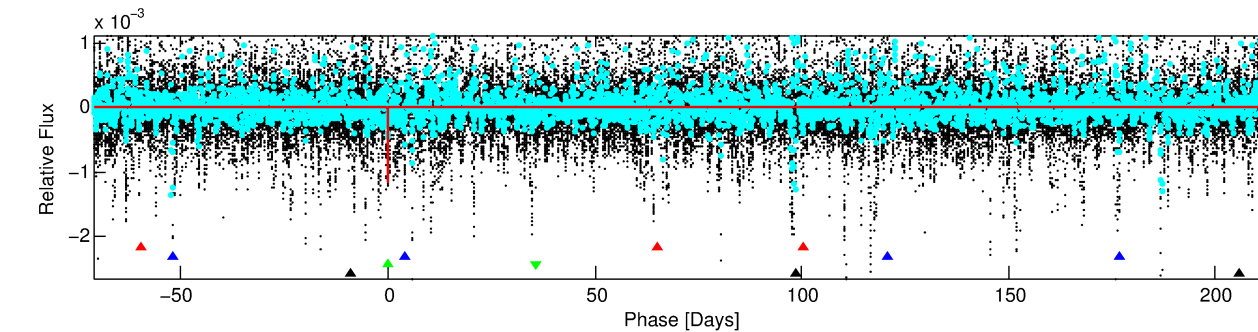
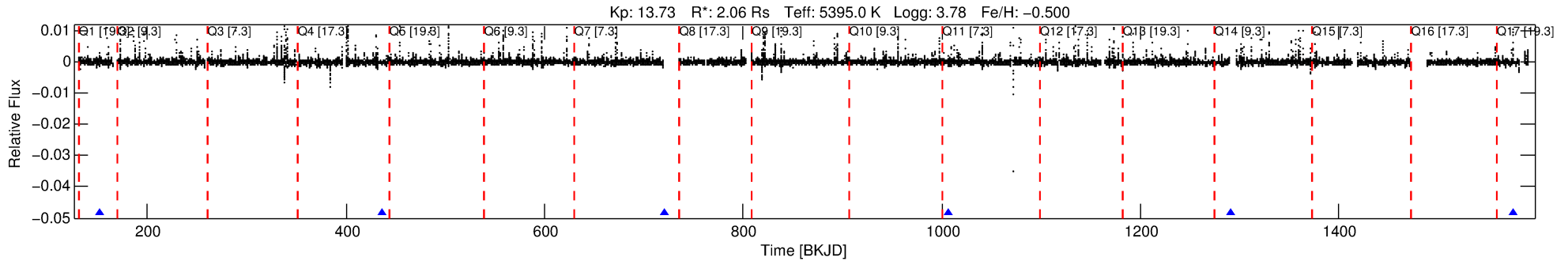
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008249139-03

No Significant Match Found

DV One-Page Summary

KIC: 8249139 Candidate: 3 of 4 Period: 284.764 d



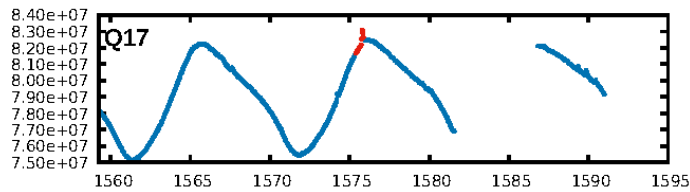
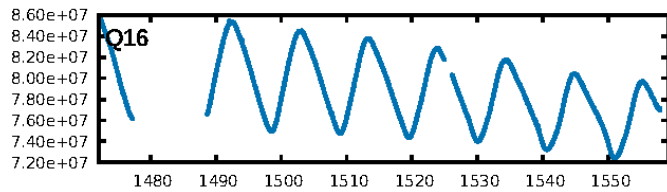
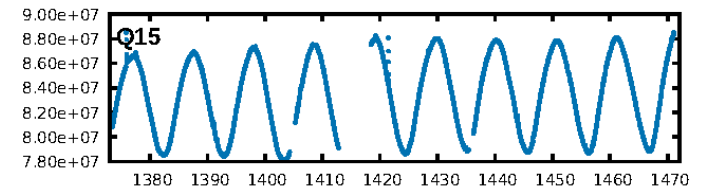
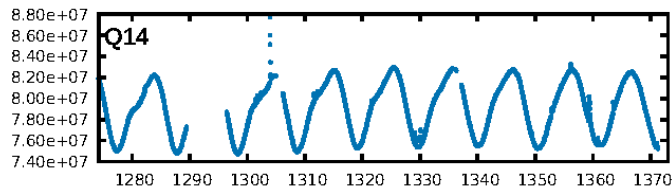
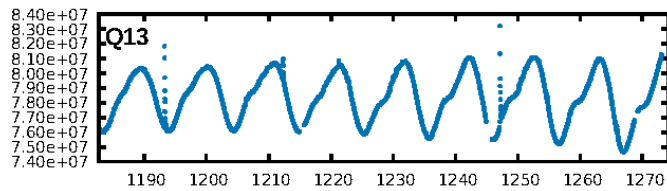
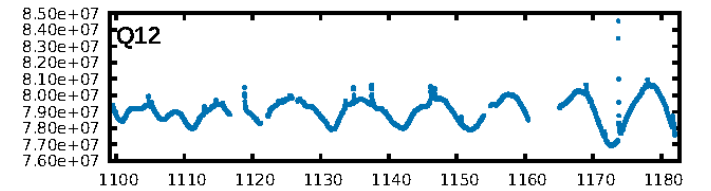
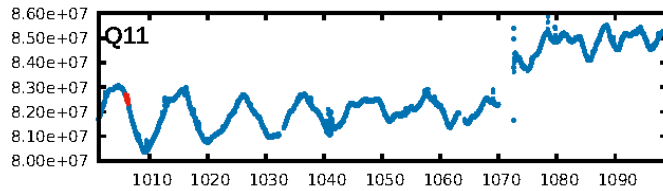
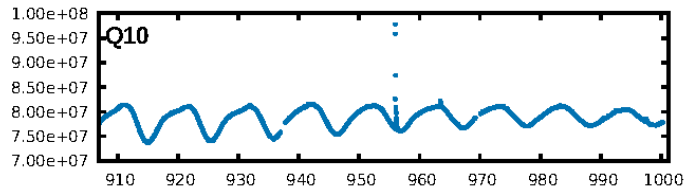
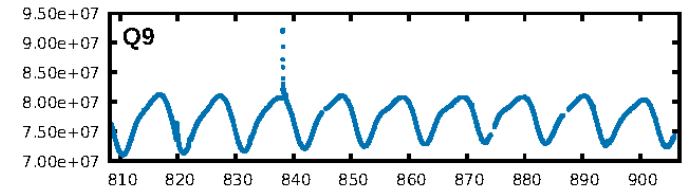
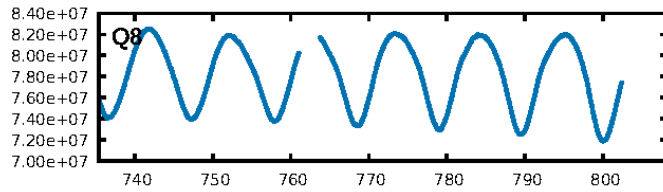
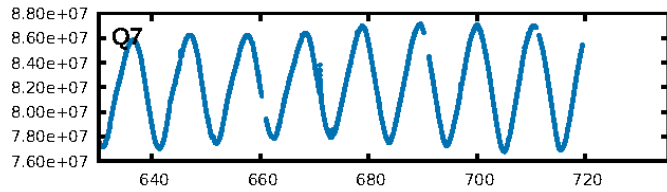
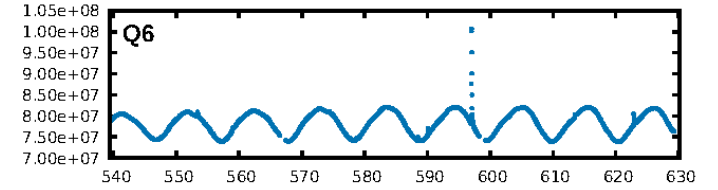
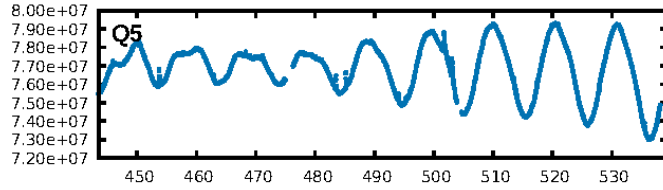
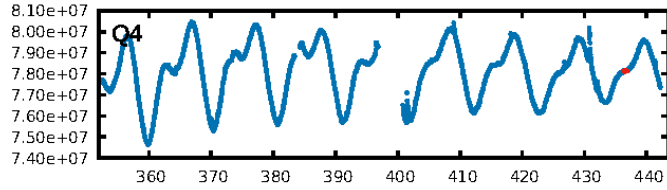
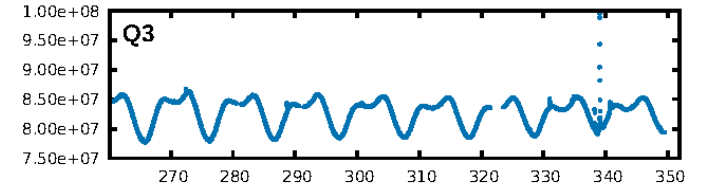
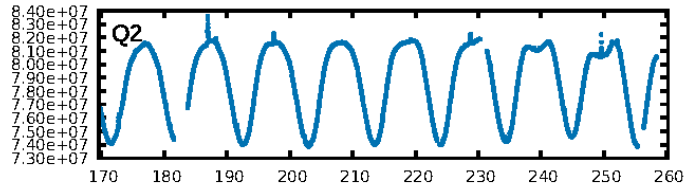
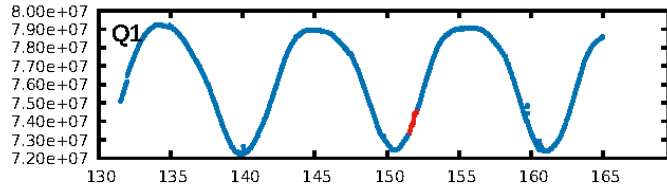
DV Fit Results:

Period = 284.76433 [0.00460] d
Epoch = 151.8133 [0.0134] BKJD
Rp/R* = 0.0482 [0.0535]
a/R* = 132.45 [52.84]
b = 0.98 [0.10]
Seff = 4.70 [6.33]
Teq = 375 [126] K
Rp = 10.82 [13.90] Re
a = 0.8261 [0.6335] AU
Ag = 1401.15 [3647.29] [0.38σ]
Teffp = 3552 [1987] K [1.60σ]

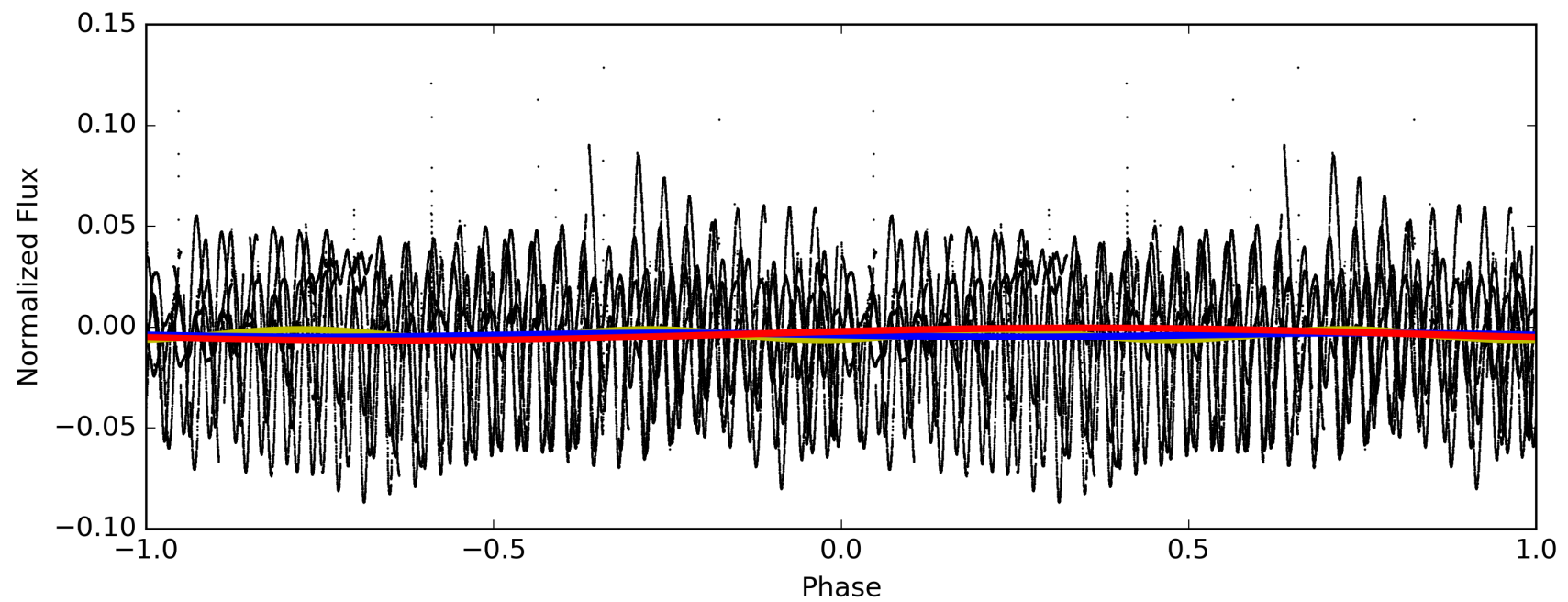
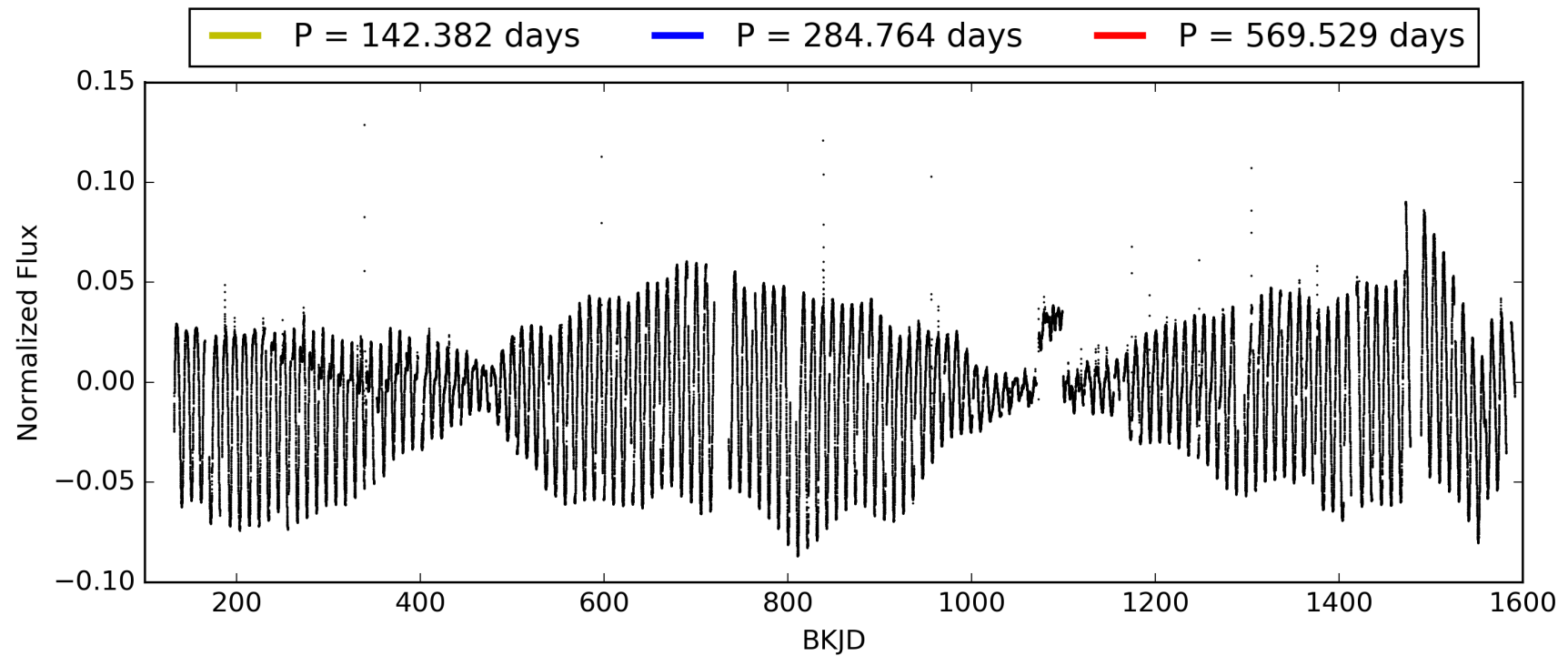
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [107.31σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 79.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 13.32
Centroid-sig: 36.7%
Centroid-so: 0.470 arcsec [1.30σ]
OotOffset-rm: 0.906 arcsec [1.73σ]
OotOffset-st: 0.1/0/2 [3]
KicOffset-rm: 0.975 arcsec [1.81σ]
KicOffset-st: 0.1/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008249139-03, PDC Light Curves

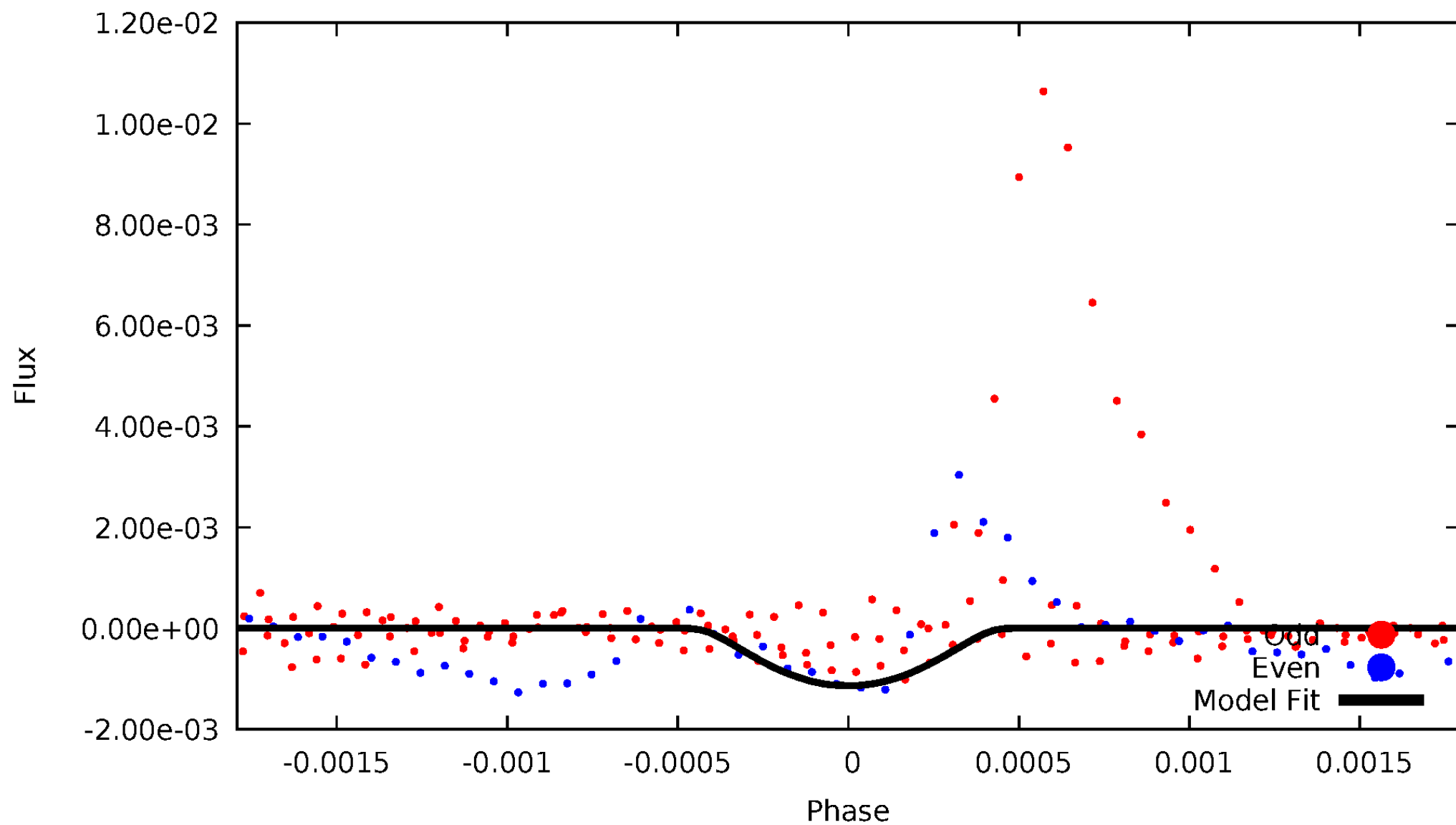


TCE 008249139-03



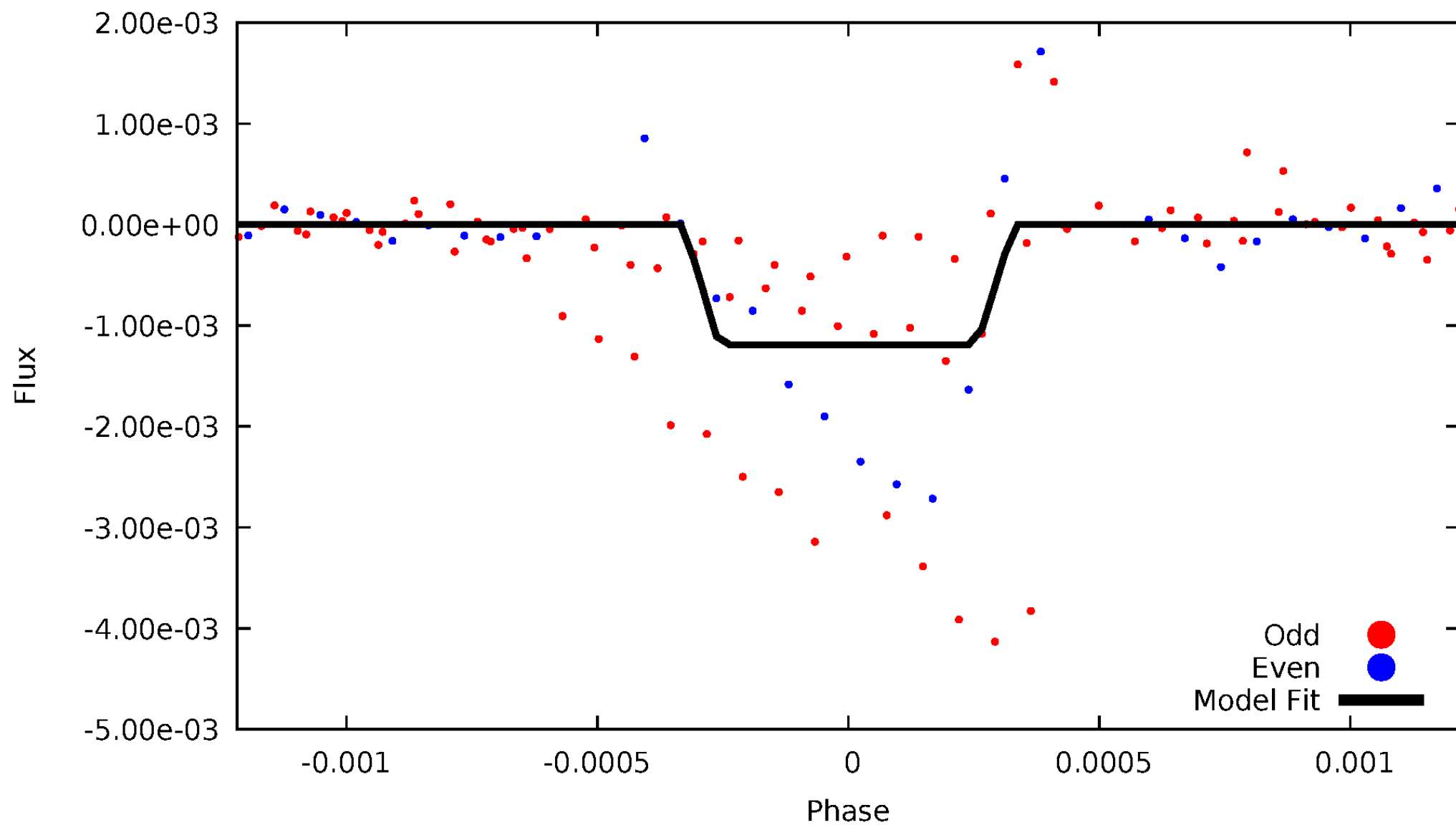
DV Odd/Even

TCE 008249139-03



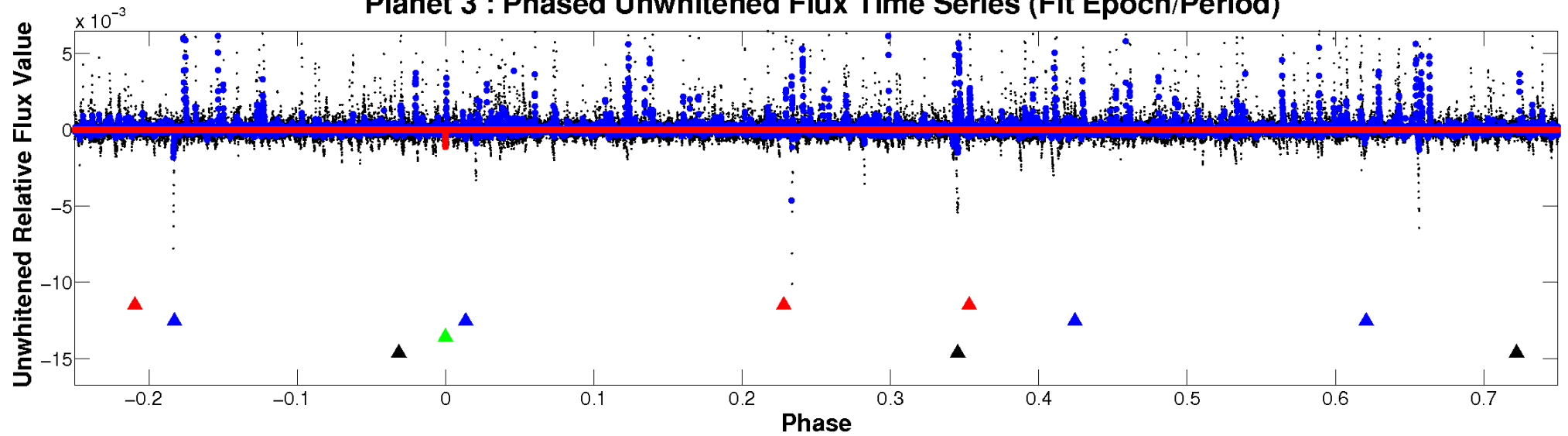
ALT Odd/Even

TCE 008249139-03

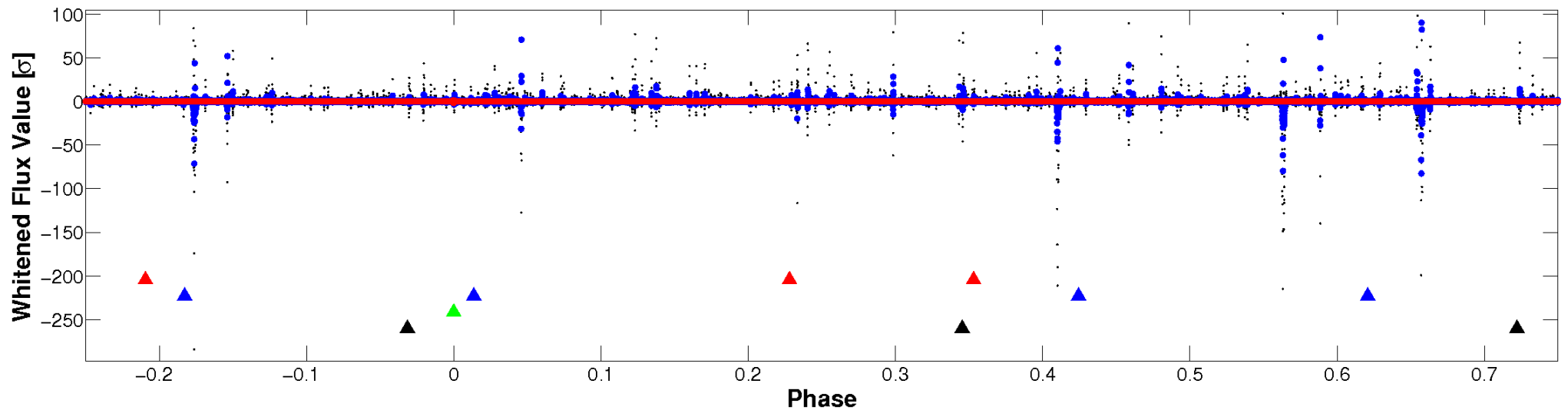


Non-Whitened Vs. Whitened Light Curve

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

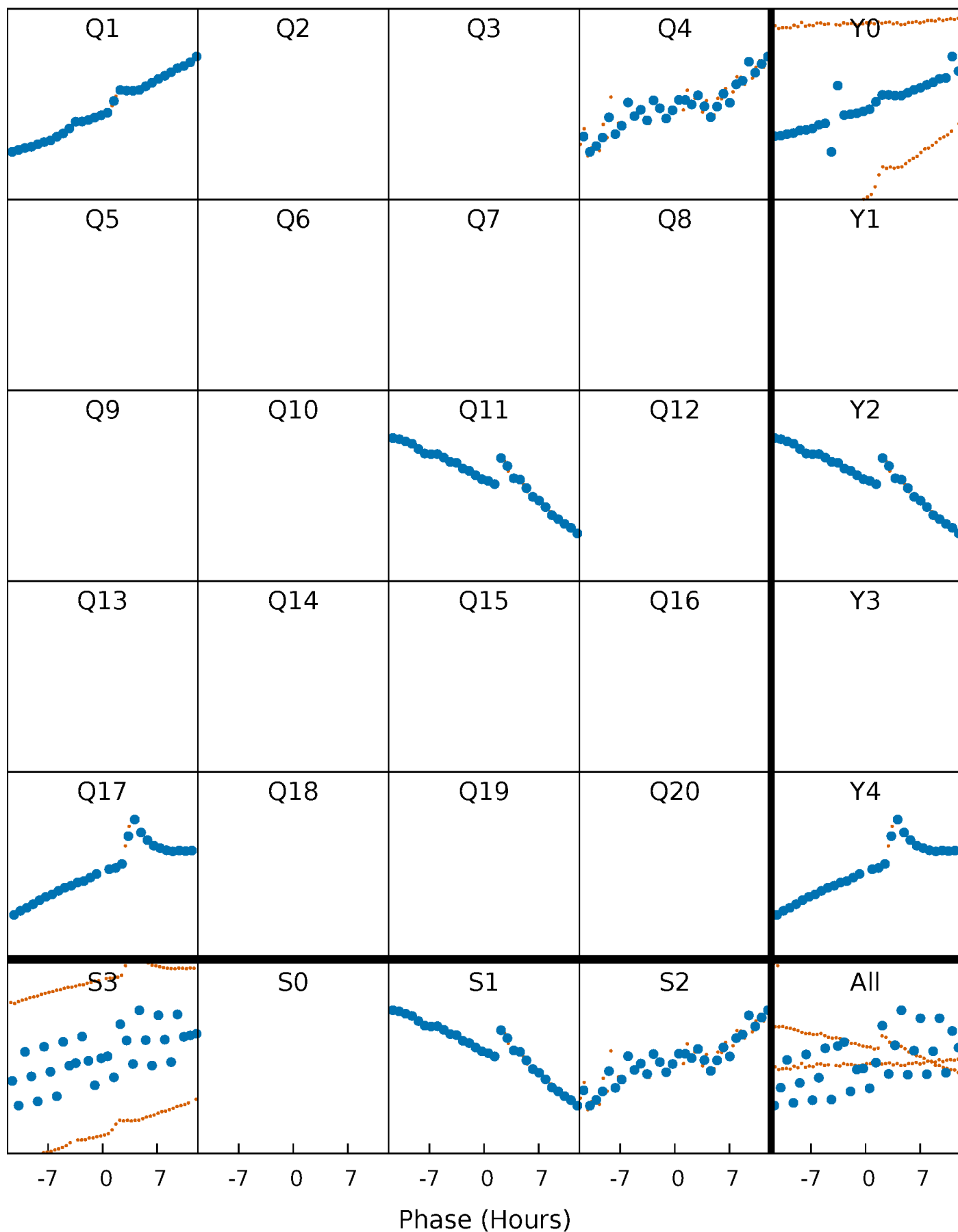


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



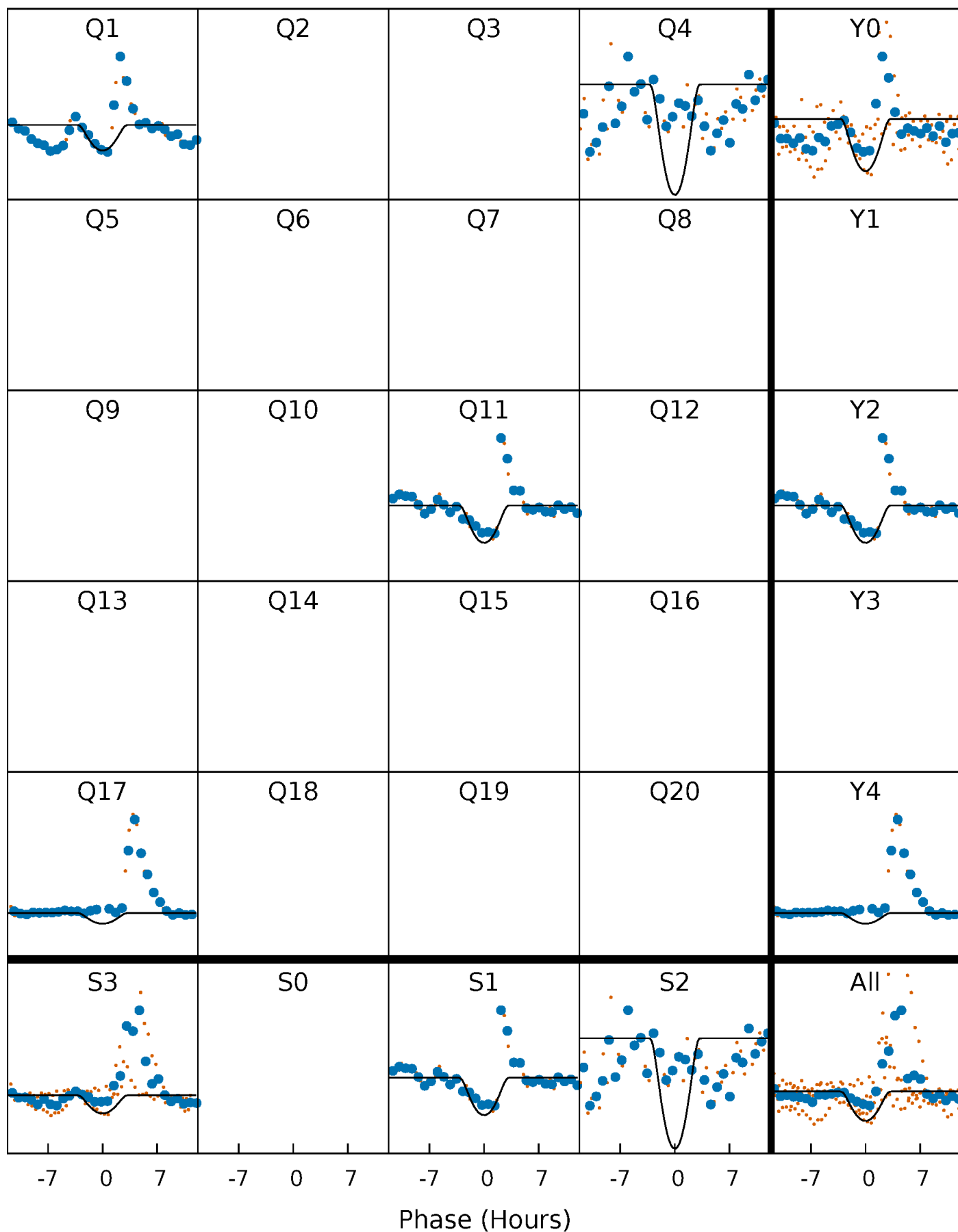
PDC Quarter-Phased Transit Curves

TCE 008249139-03 P=284.764330 Days $T_0=151.813264$ (BKJD)



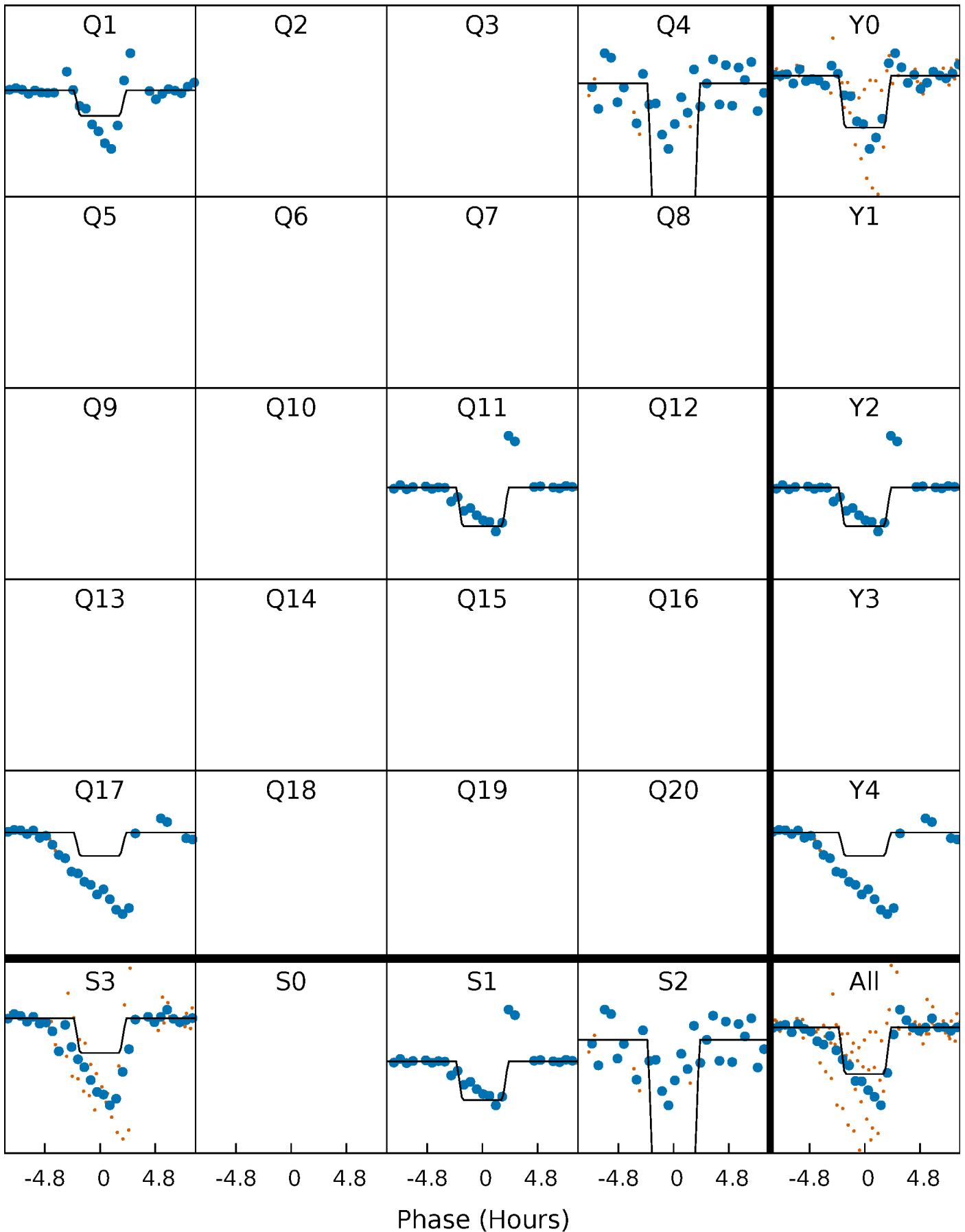
DV Quarter-Phased Transit Curves

TCE 008249139-03 P=284.764330 Days $T_0=151.813264$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

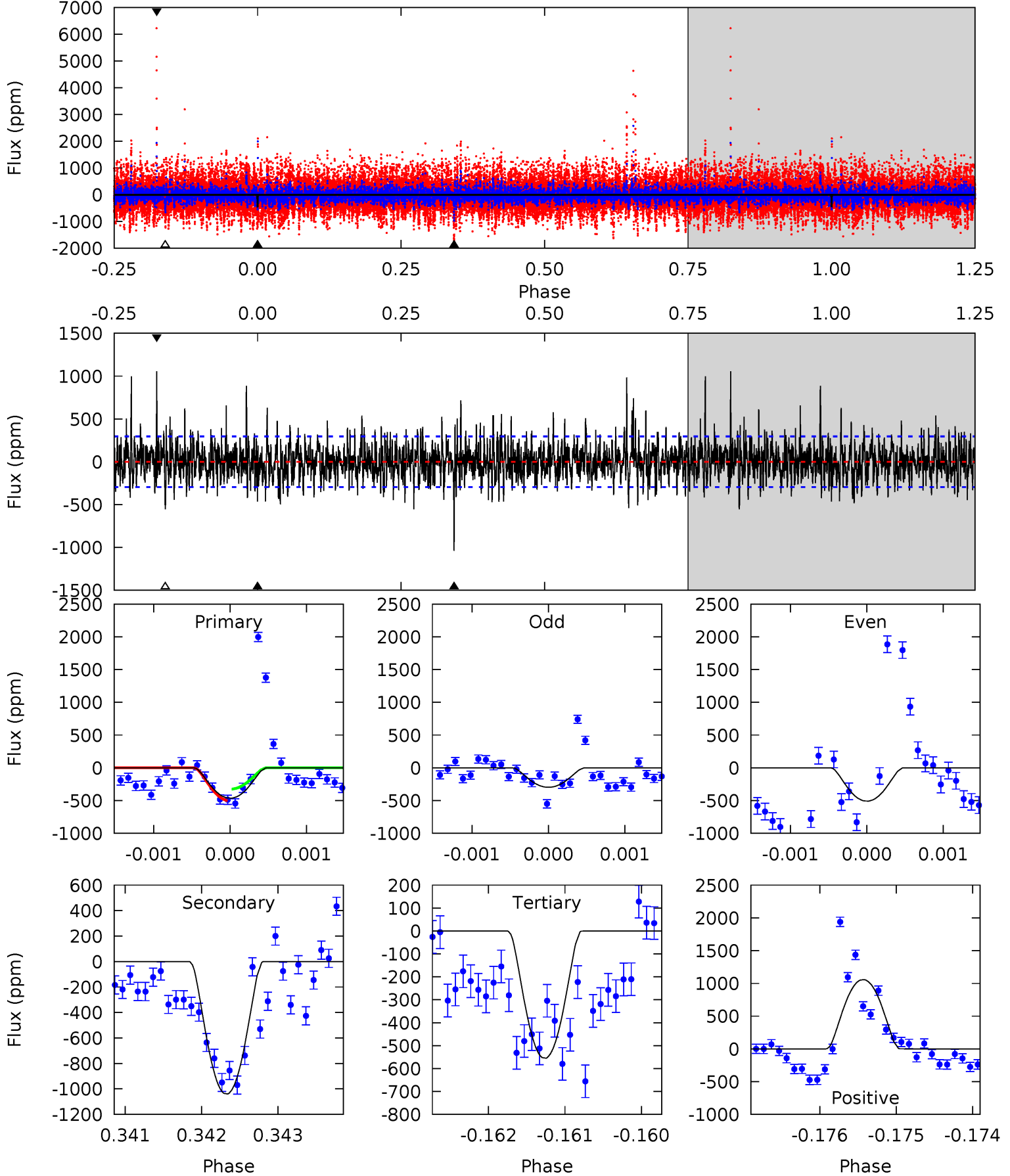
TCE 008249139-03 $P=284.767304$ Days $T_0=151.796374$ (BKJD)



DV Model-Shift Uniqueness Test

008249139-03, P = 284.764330 Days, E = 151.813264 Days

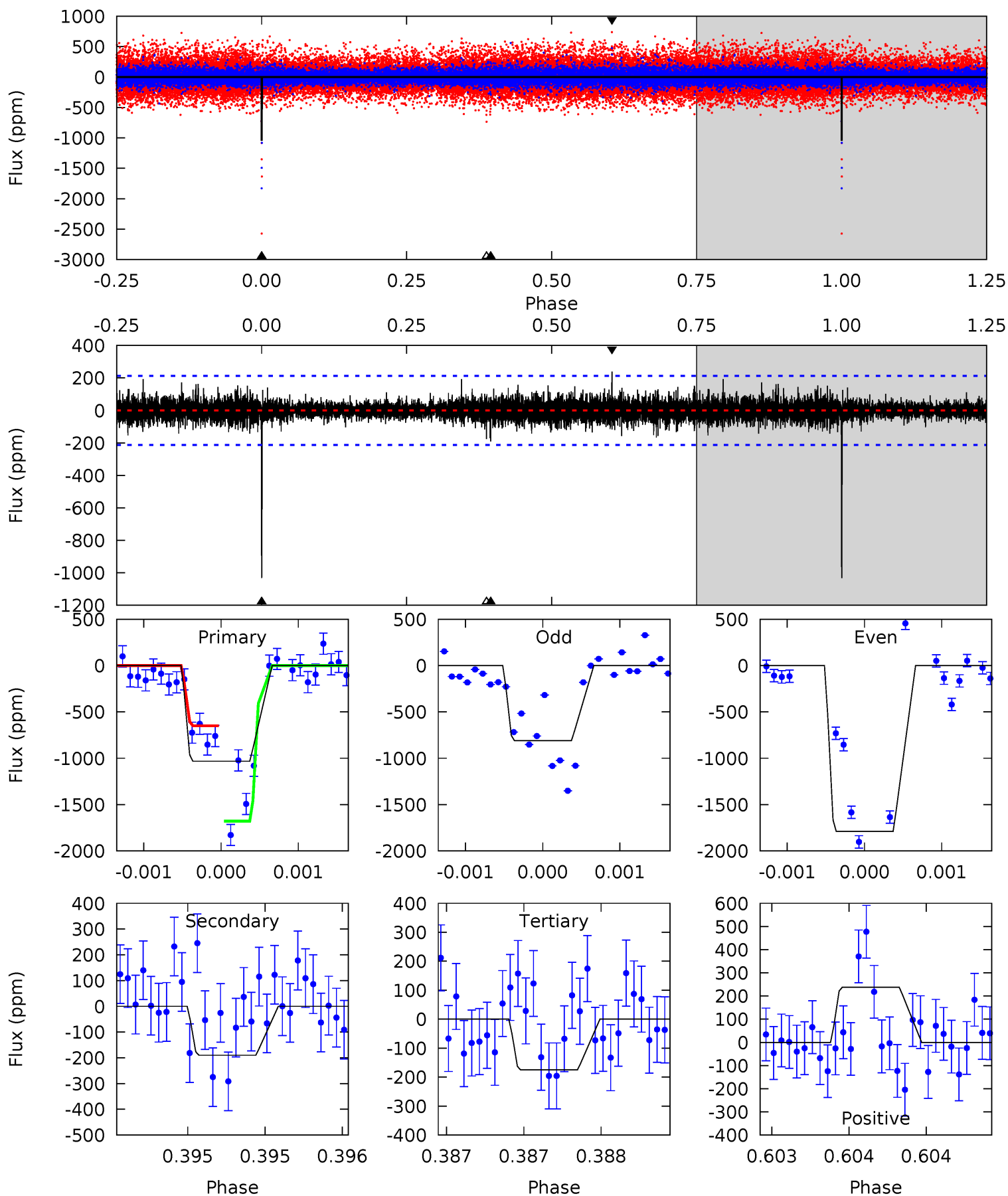
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.55	19.2	10.2	19.5	5.45	3.30	3.15	-1.69	-11.0	8.95	-0.31	1.39	0.64	0.50	1.65



Alt Model-Shift Uniqueness Test

008249139-03, P = 284.767304 Days, E = 151.796374 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	4.94	4.55	6.19	5.53	3.41	0.96	22.3	20.7	0.39	-1.25	14.6	1.14	0.19	0



Stellar Parameters For KIC 008249139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5395^{+208}_{-170}	$3.779^{+0.825}_{-0.330}$	$-0.500^{+0.350}_{-0.250}$	$2.056^{+1.092}_{-1.334}$	$0.928^{+0.219}_{-0.179}$	$0.150^{+2.211}_{-0.101}$
	+4%/-3%	+22%/-9%	+70%/-50%	+53%/-65%	+24%/-19%	+1472%/-67%
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 008249139-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1040 ± 54	$11.58^{+12.99}_{-7.56}$	514^{+79}_{-100}	4191^{+2210}_{-756}	2905^{+21150}_{-2241}
Alt.	-190 ± 38	$10.17^{+11.14}_{-6.72}$	516^{+81}_{-93}	3285^{+1541}_{-506}	677^{+5248}_{-525}

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 $A_{obs} \gg 1.0$

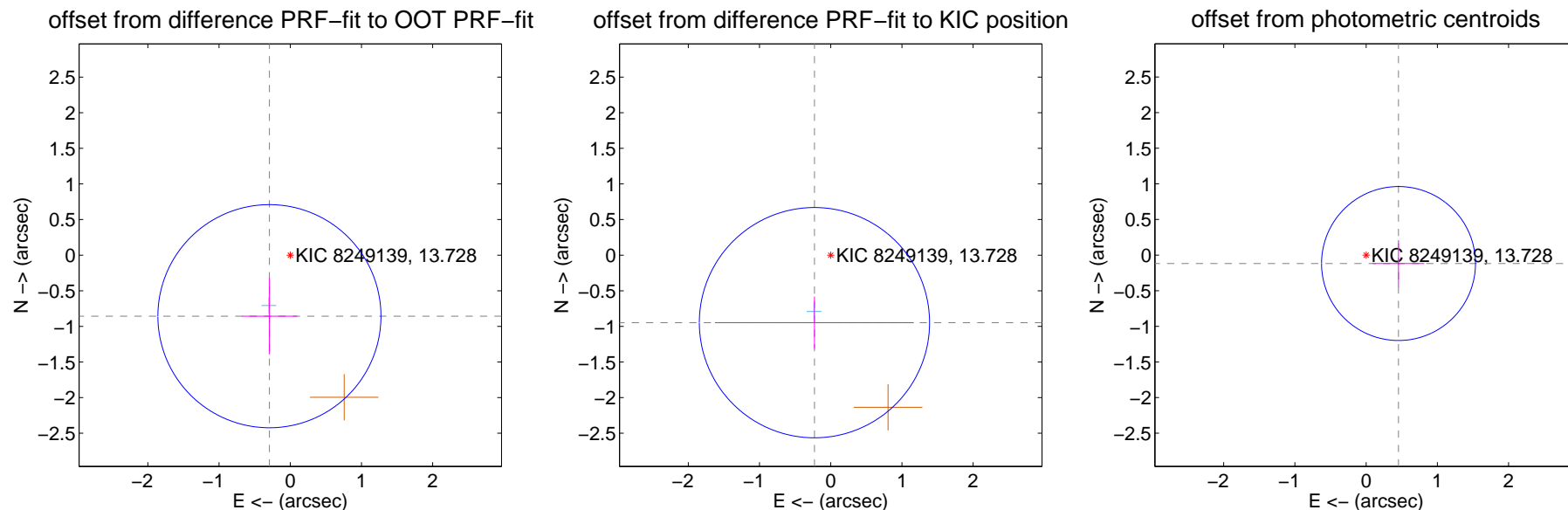
DV Centroid Data

Supplemental centroid analysis for 008249139-03. Kepler magnitude: 13.73. Transit SNR 8.46

There are 1 quarters with good PRF difference image offsets

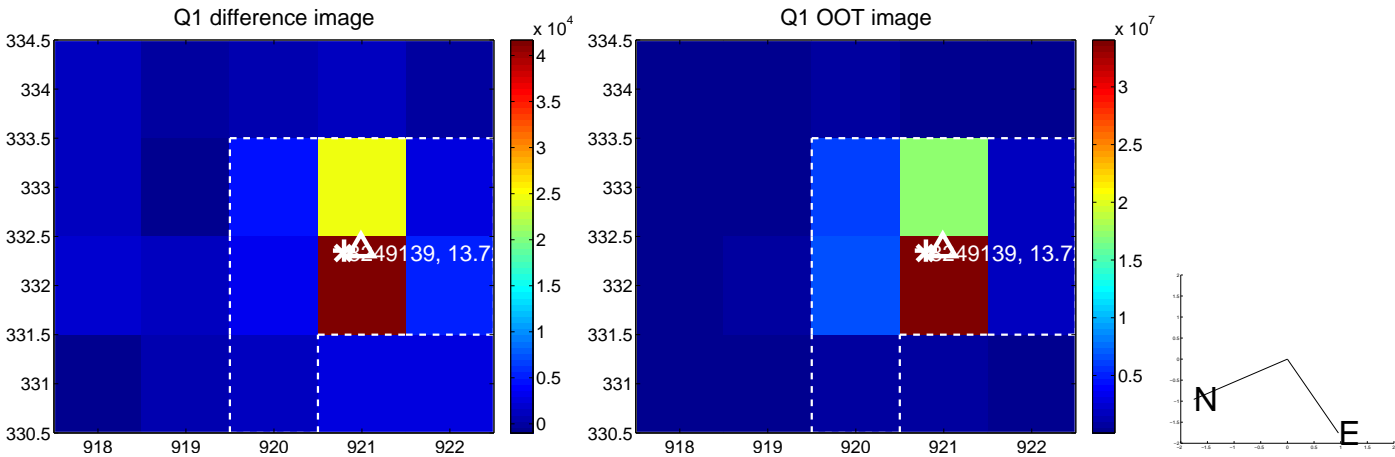
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.906 ± 0.522	1.73	0.293 ± 0.387	-0.857 ± 0.536
PRF-fit source offset from KIC position	0.975 ± 0.539	1.81	0.228 ± 1.396	-0.948 ± 0.365
photometric centroid source offset	0.47 ± 0.36	1.30	-0.45 ± 0.36	-0.12 ± 0.33



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

Q9 no difference image



Q9 no OOT image



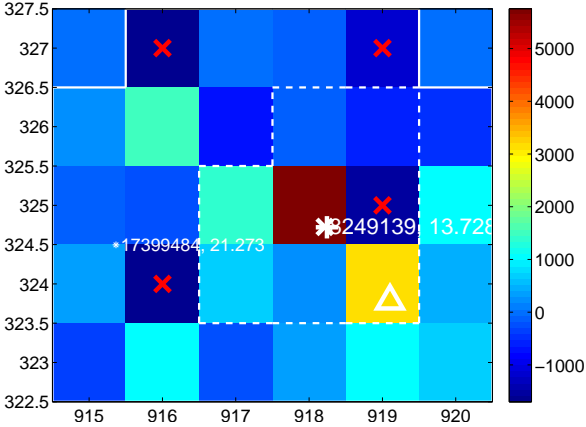
Q10 no difference image



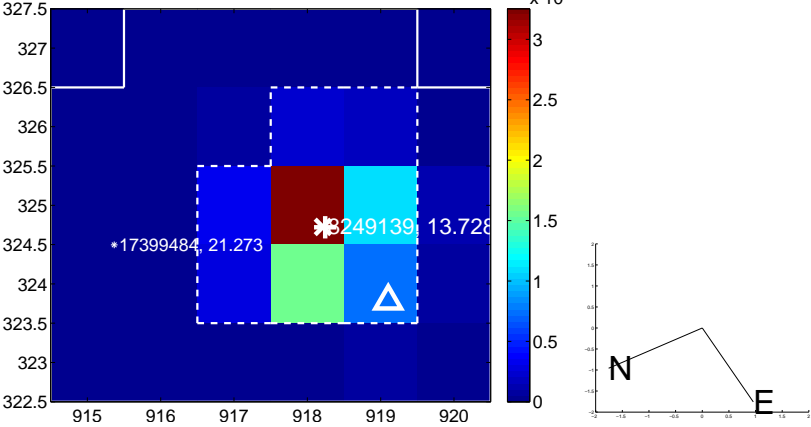
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



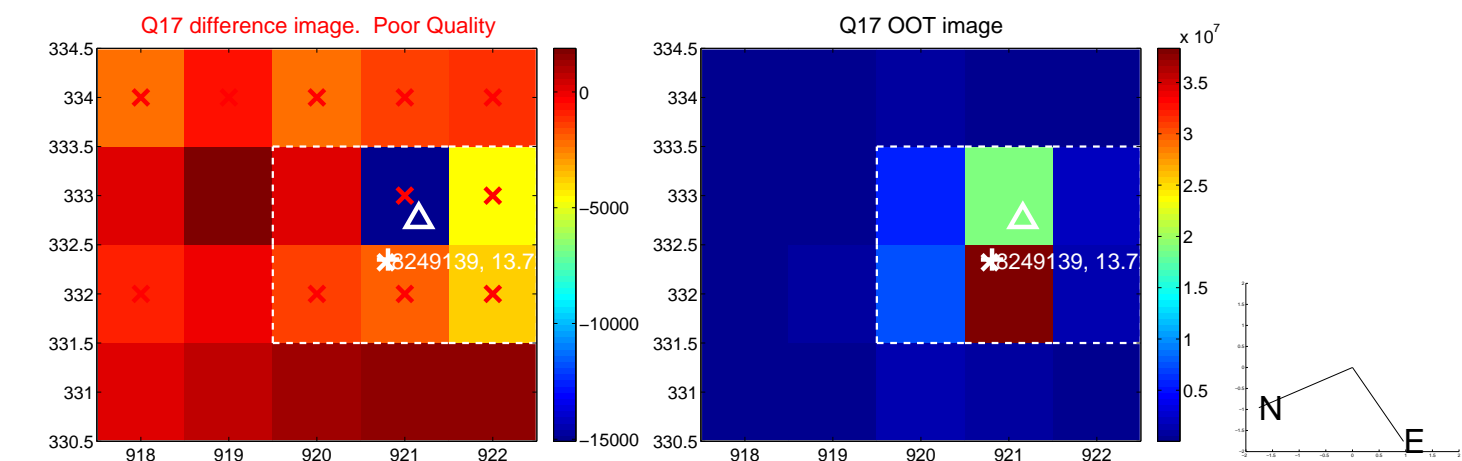
Q12 no OOT image



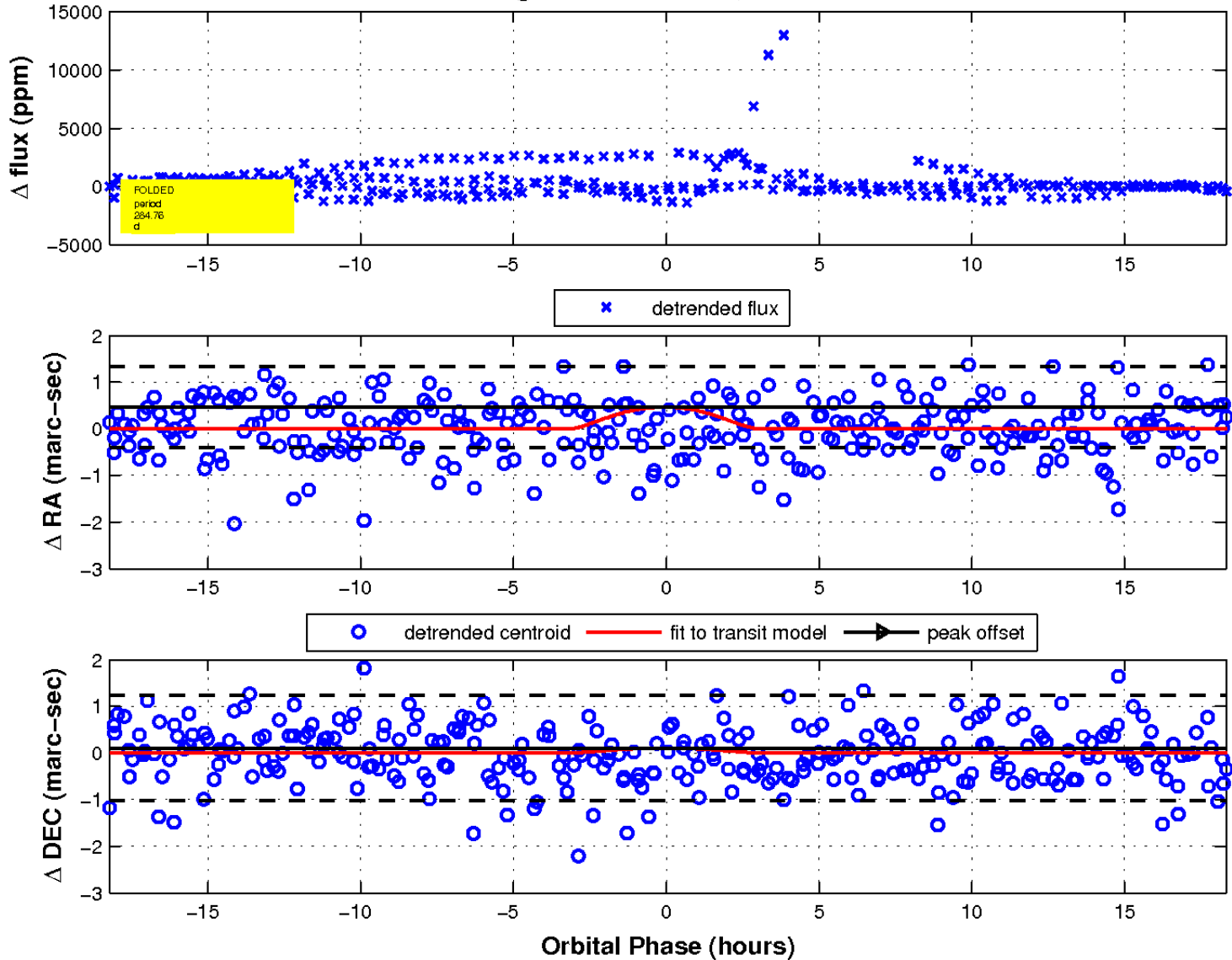
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

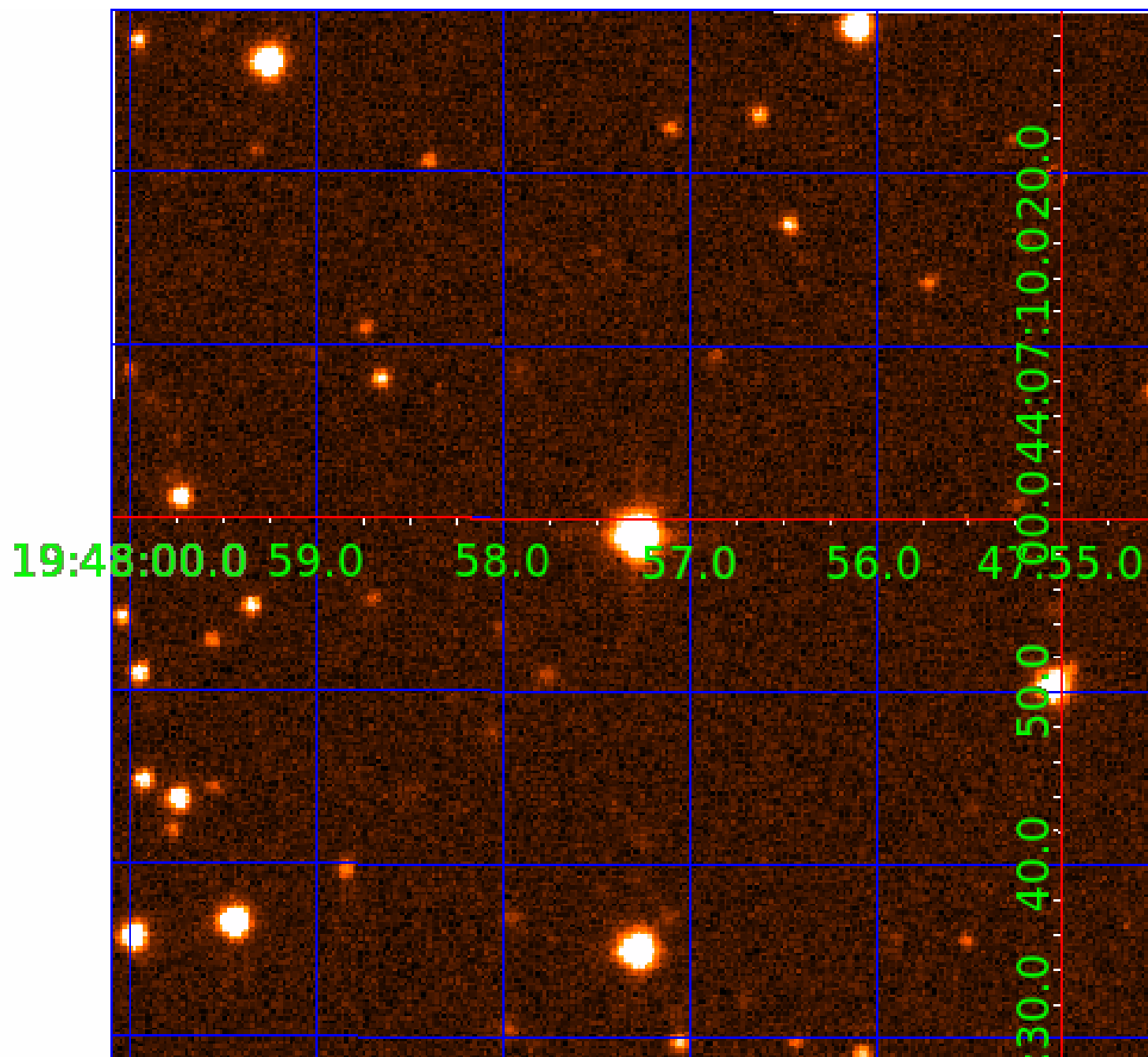


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 008249139

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})
008249139-01	OBS	No	444.950461	501.522821	2361.3	11.827	24.6	11.6	2.06	5395	12.68	2.59
008249139-02	OBS	No	340.694918	272.666315	2486.9	10.909	20.9	13.5	2.06	5395	13.06	3.70
008249139-03	OBS	No	284.764330	151.813264	1139.7	6.122	16.3	8.5	2.06	5395	10.82	4.70
008249139-04	OBS	No	462.227486	357.463866	1820.6	13.339	20.2	10.0	2.06	5395	9.54	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008249139-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008249139-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008249139-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008249139-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

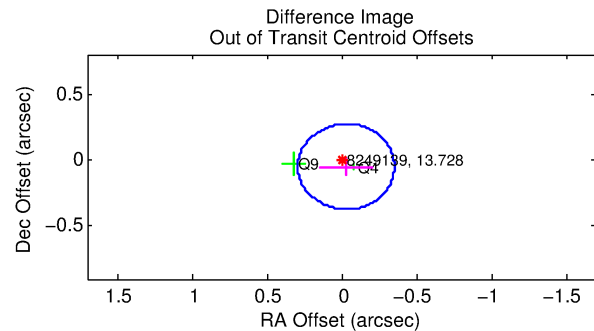
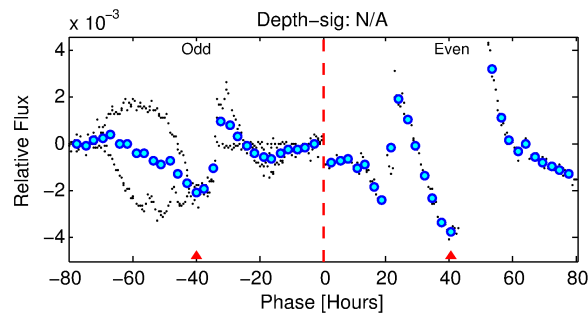
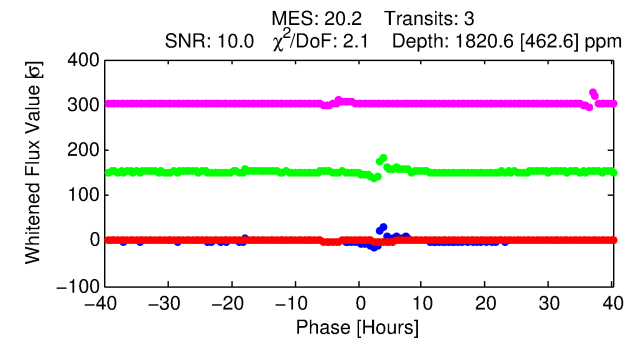
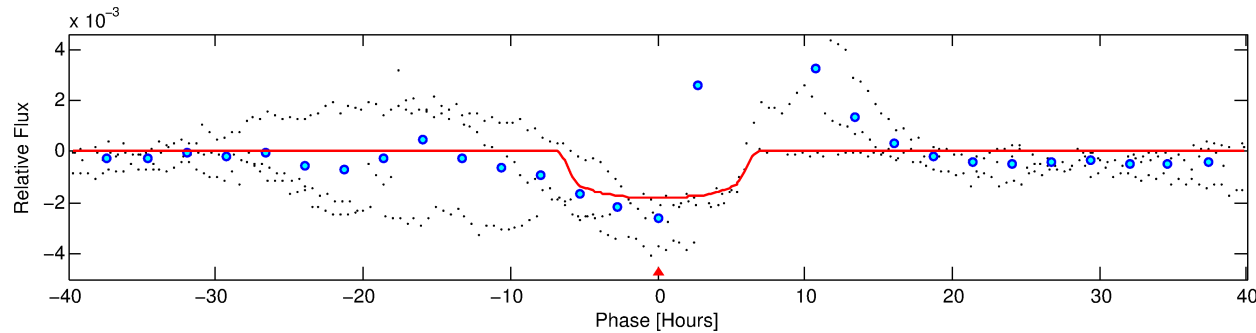
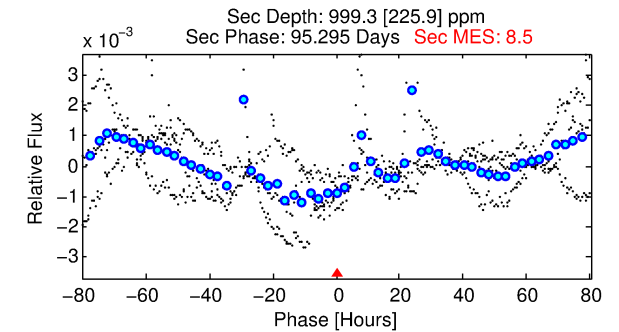
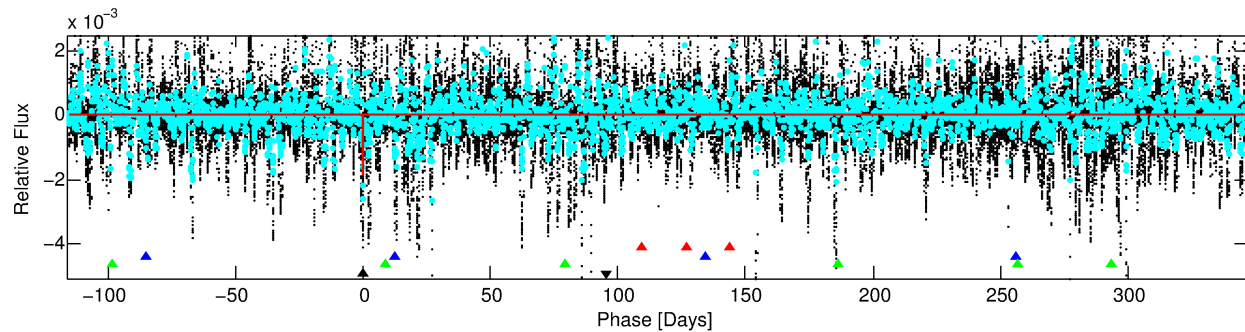
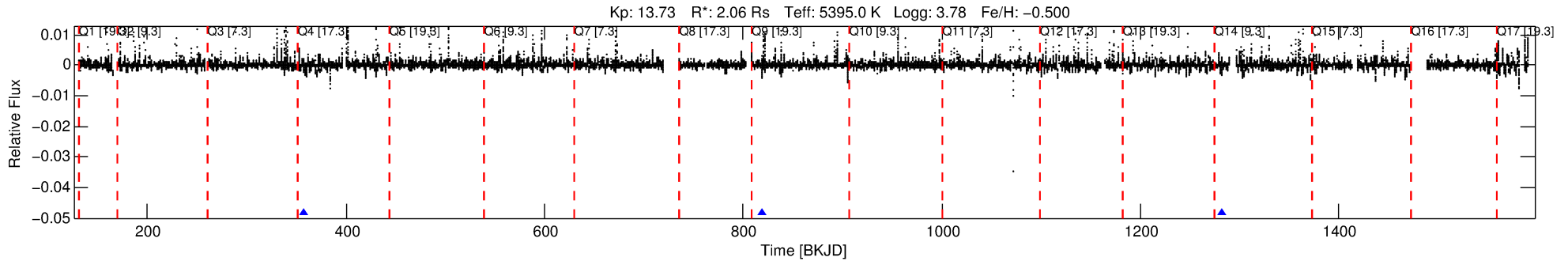
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008249139-04

No Significant Match Found

DV One-Page Summary

KIC: 8249139 Candidate: 4 of 4 Period: 462.227 d



DV Fit Results:

Period = 462.22749 [0.01056] d
Epoch = 357.4639 [0.0142] BKJD
Rp/R* = 0.0425 [0.0070]
a/R* = 190.70 [68.29]
b = 0.75 [0.21]
Seff = 2.46 [3.32]
Teq = 319 [108] K
Rp = 9.54 [6.39] Re
a = 1.1410 [0.8750] AU
Ag = 7855.55 [10972.36] [0.72σ]
Teffp = 4650 [498] K [8.49σ]

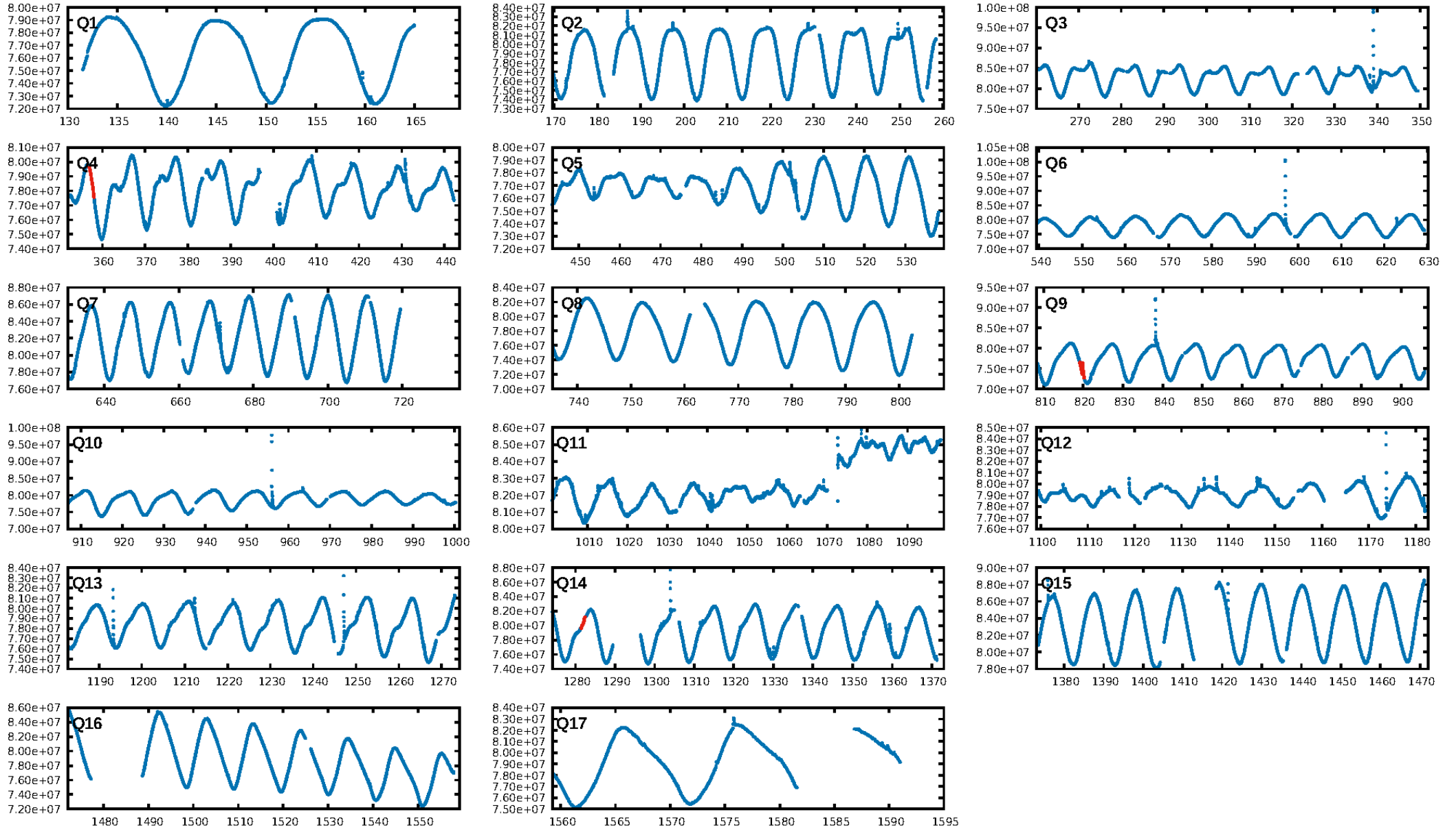
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.26σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 20.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9978
Centroid-sig: 41.0%
Centroid-so: 0.155 arcsec [0.96σ]
OotOffset-rm: 0.059 arcsec [0.55σ]
KicOffset-rm: 0.169 arcsec [1.33σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

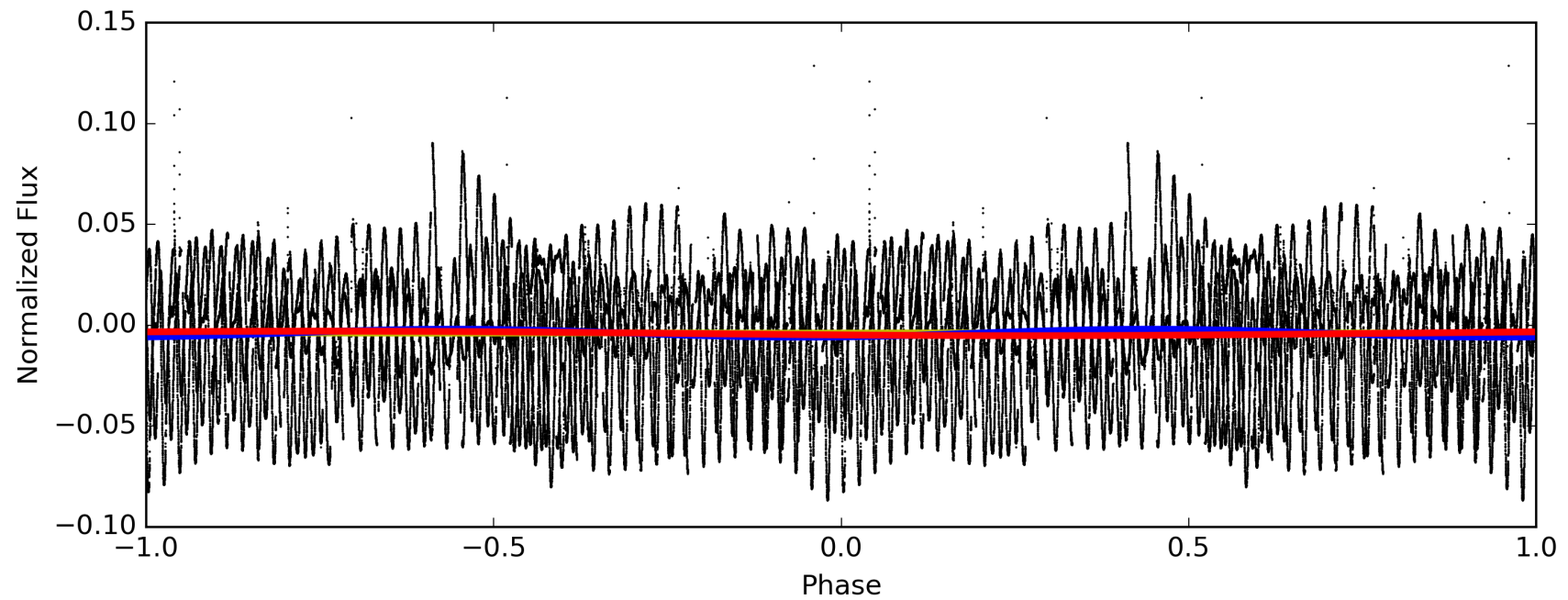
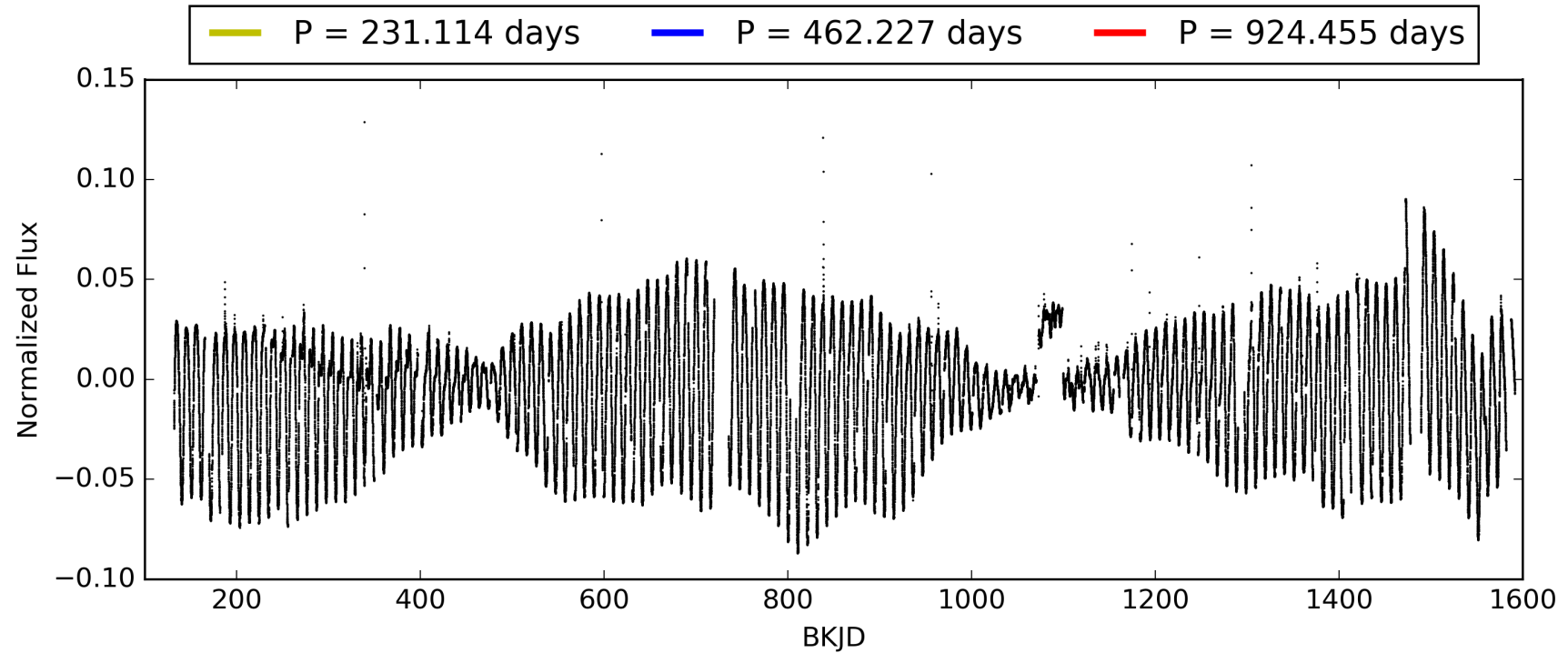
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:50:27 Z

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

TCE 008249139-04, PDC Light Curves

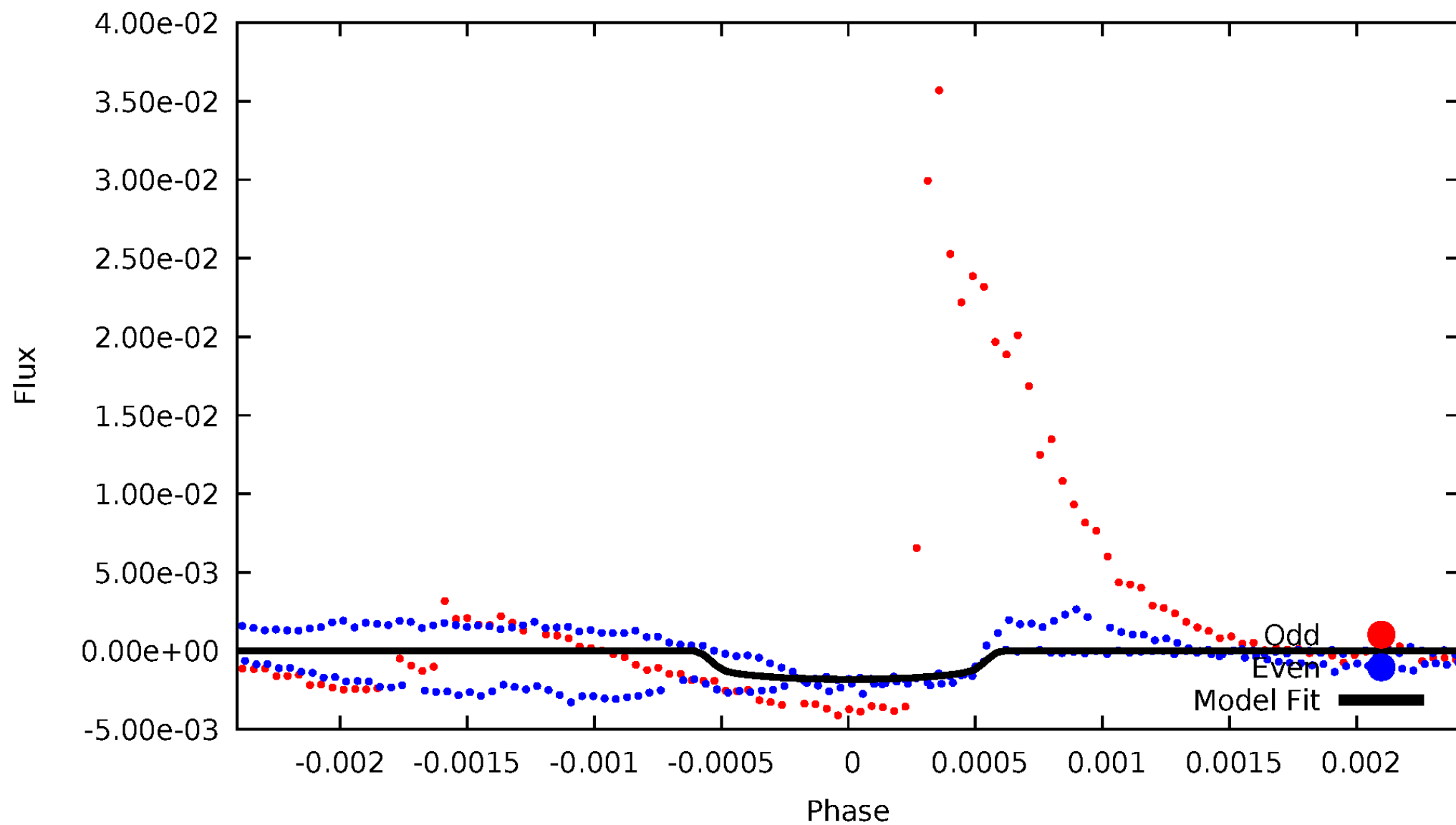


TCE 008249139-04



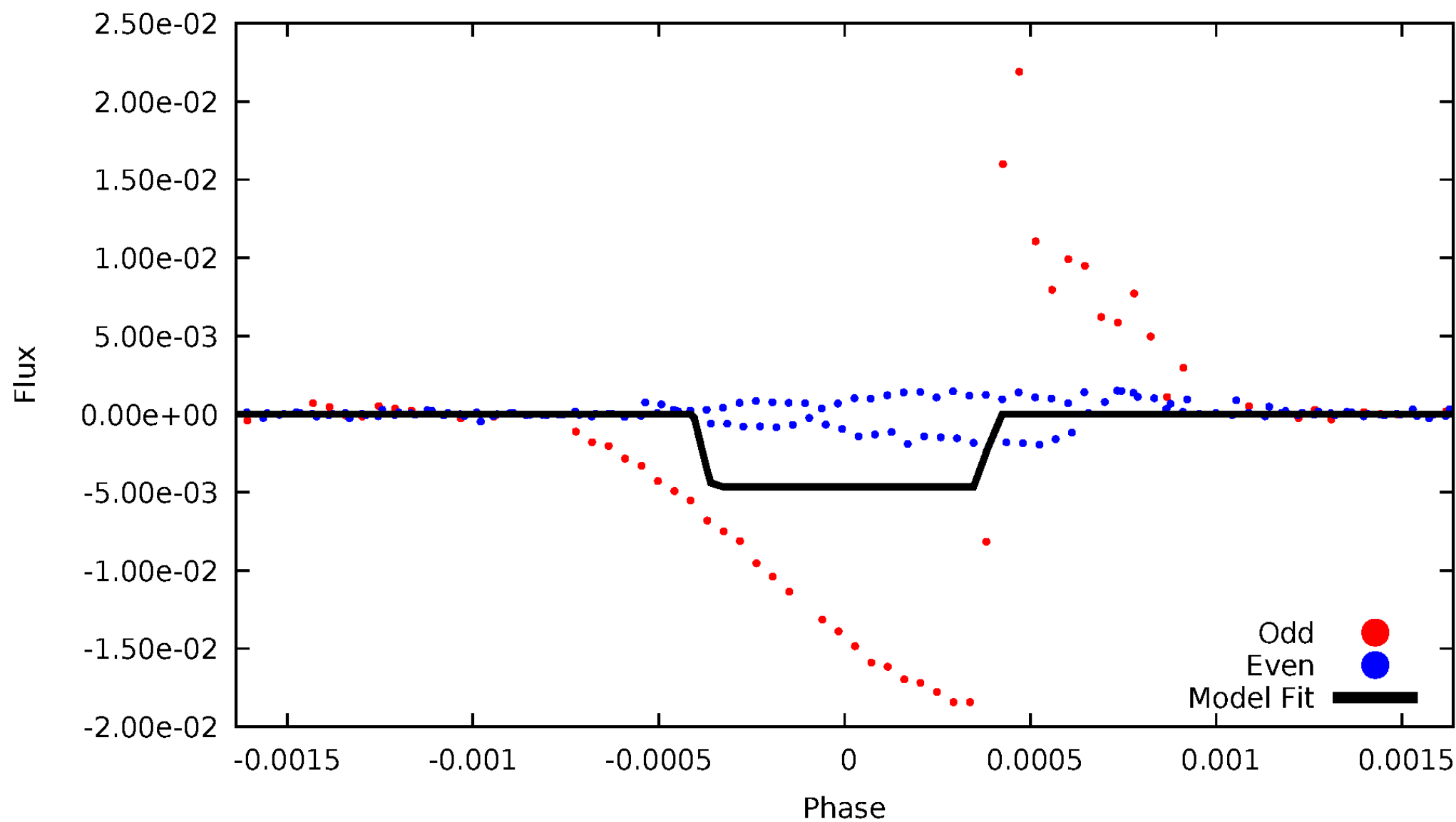
DV Odd/Even

TCE 008249139-04



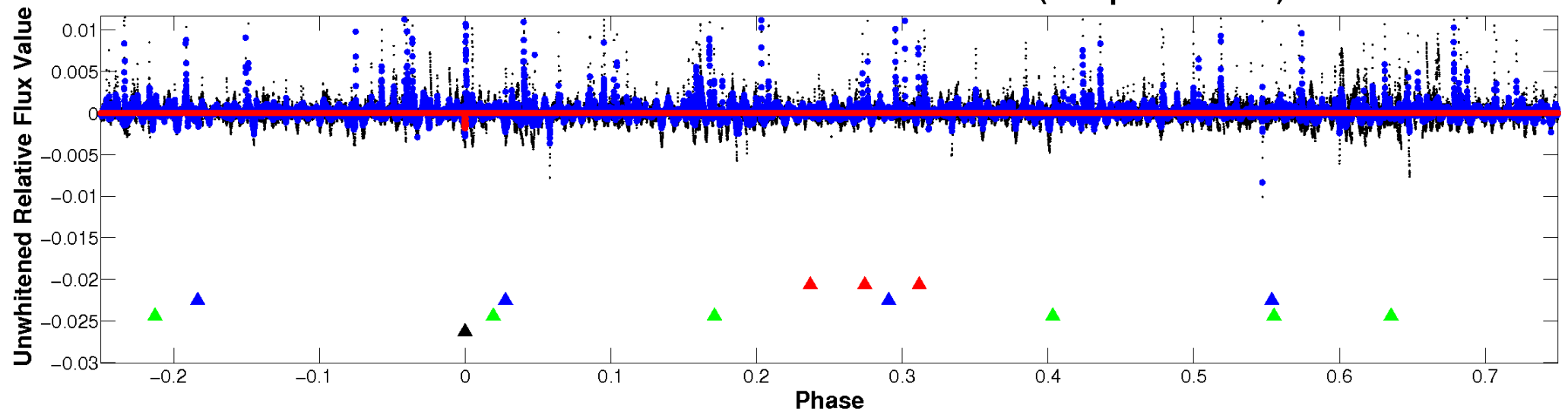
ALT Odd/Even

TCE 008249139-04

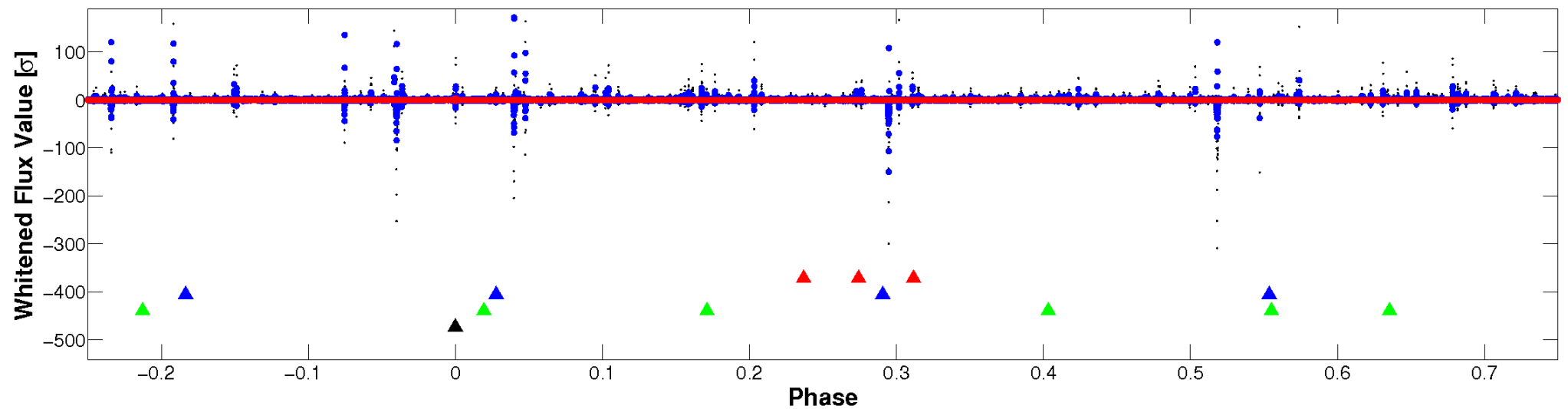


Non-Whitened Vs. Whitened Light Curve

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

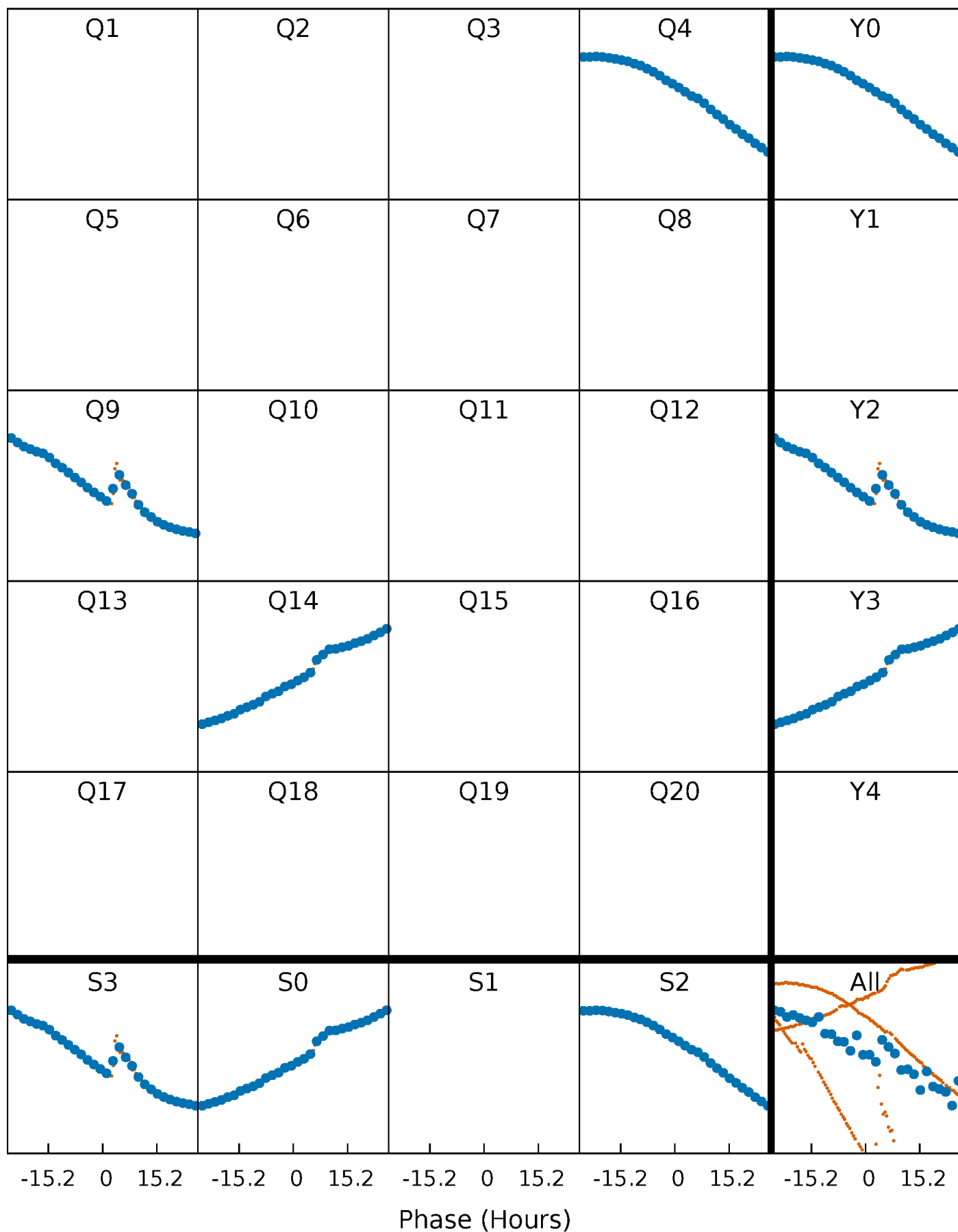


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



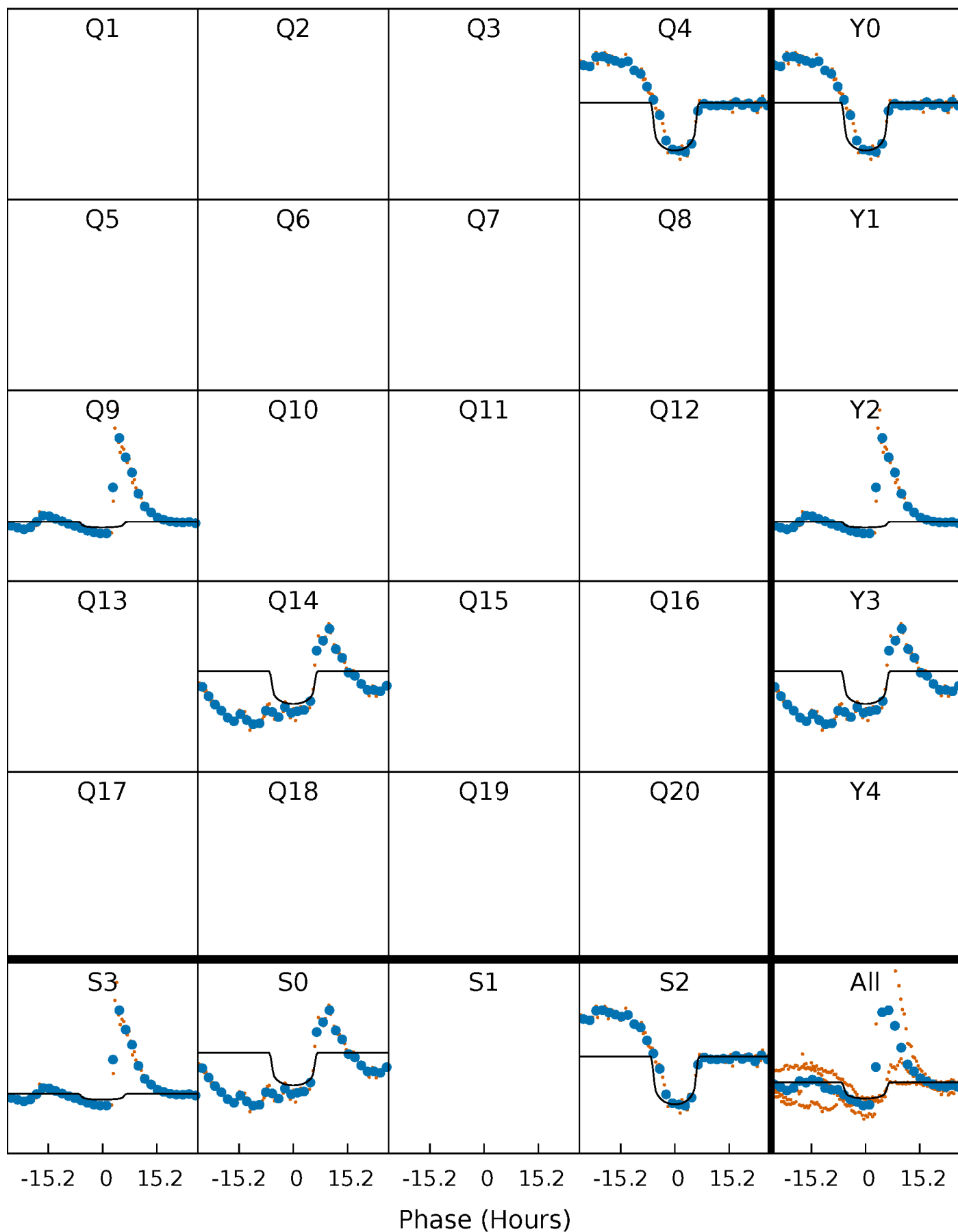
PDC Quarter-Phased Transit Curves

TCE 008249139-04 P=462.227486 Days $T_0=357.463866$ (BKJD)



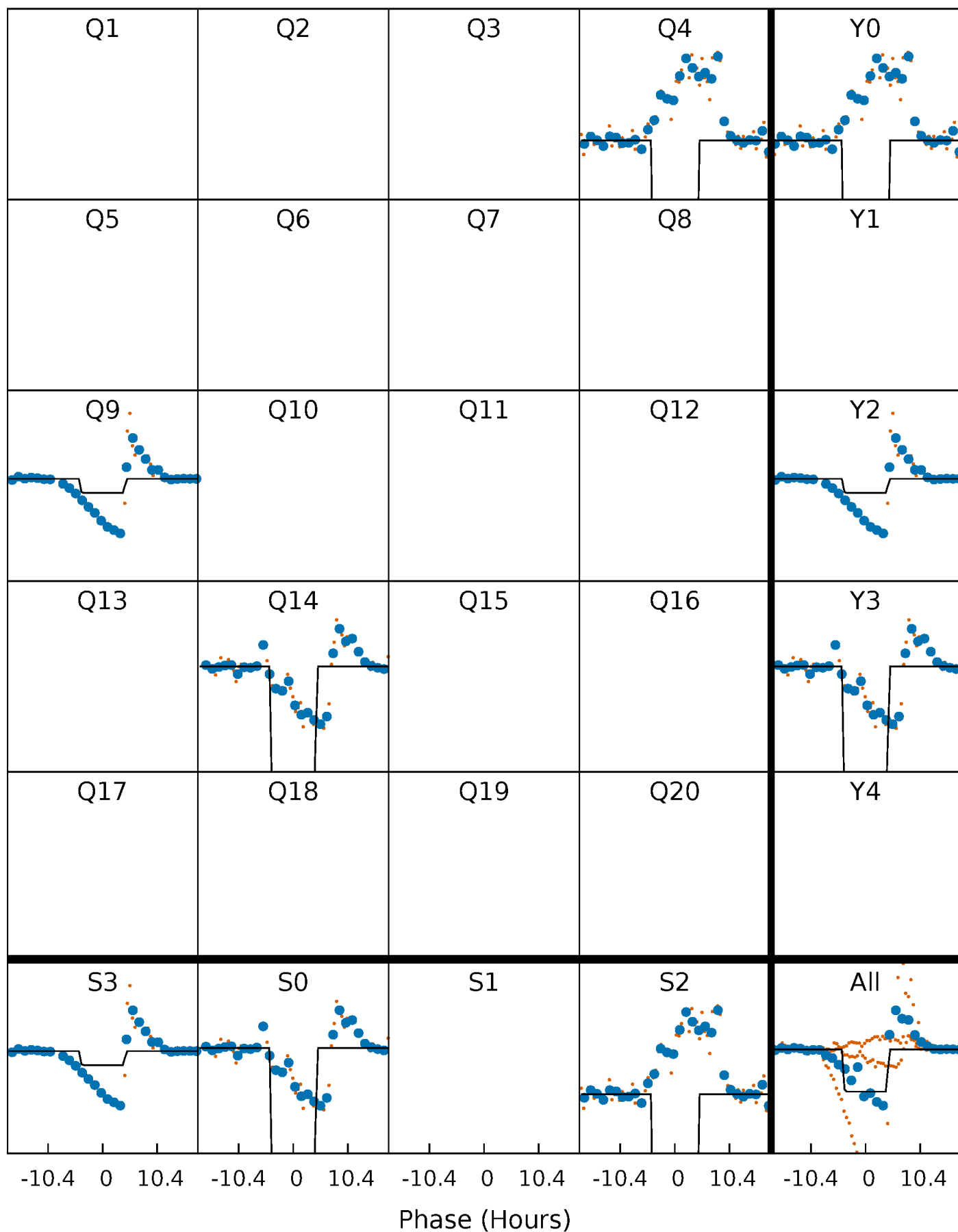
DV Quarter-Phased Transit Curves

TCE 008249139-04 $P=462.227486$ Days $T_0=357.463866$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

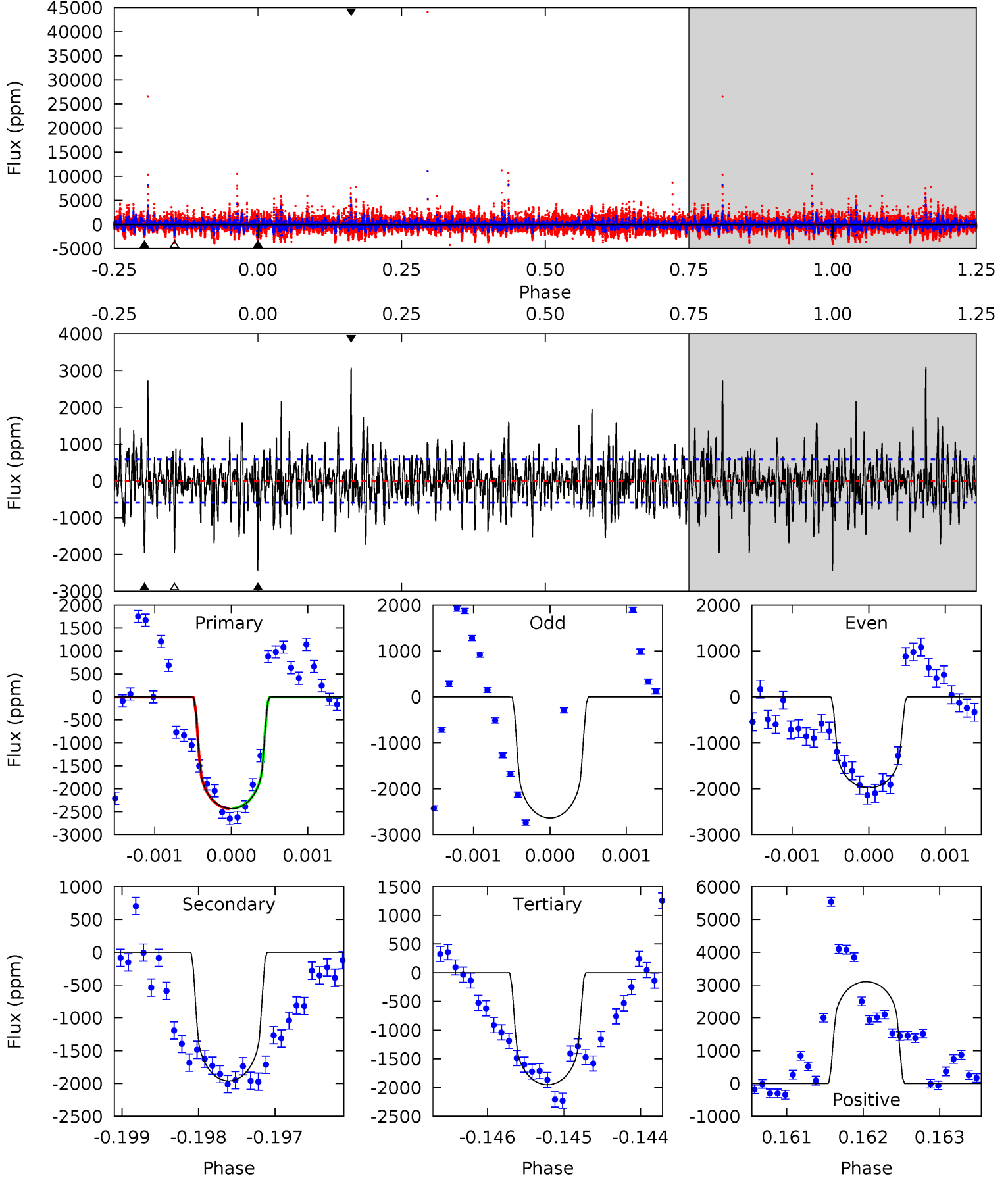
TCE 008249139-04 $P=462.227561$ Days $T_0=357.411631$ (BKJD)



DV Model-Shift Uniqueness Test

008249139-04, P = 462.227486 Days, E = 357.463866 Days

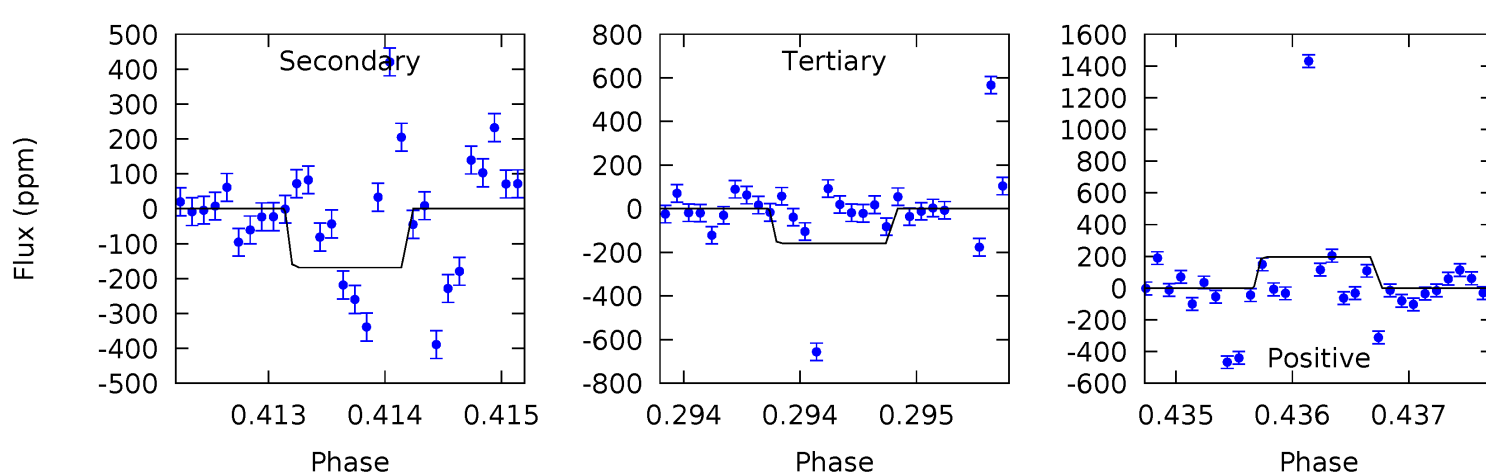
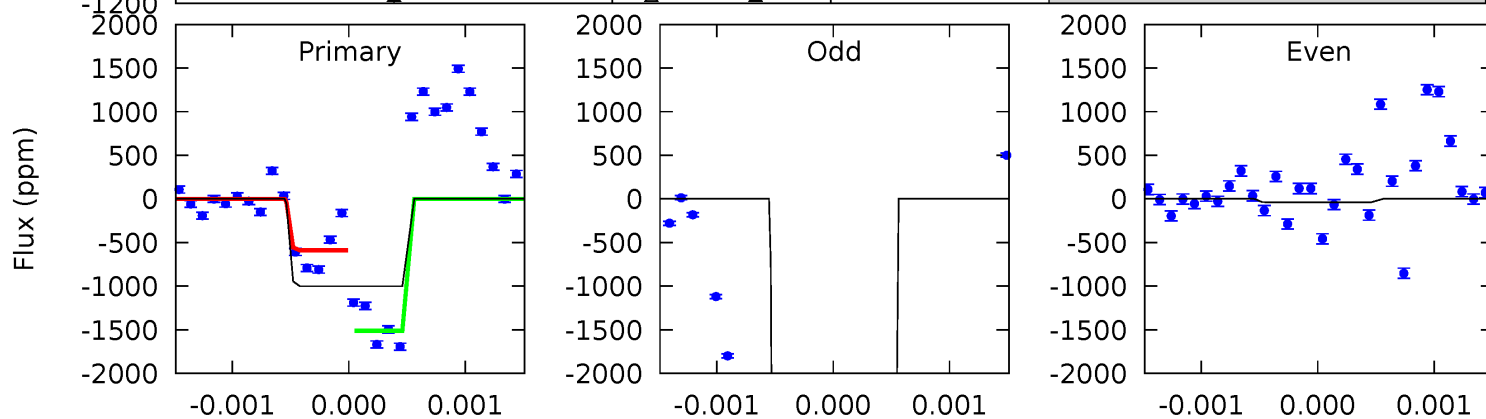
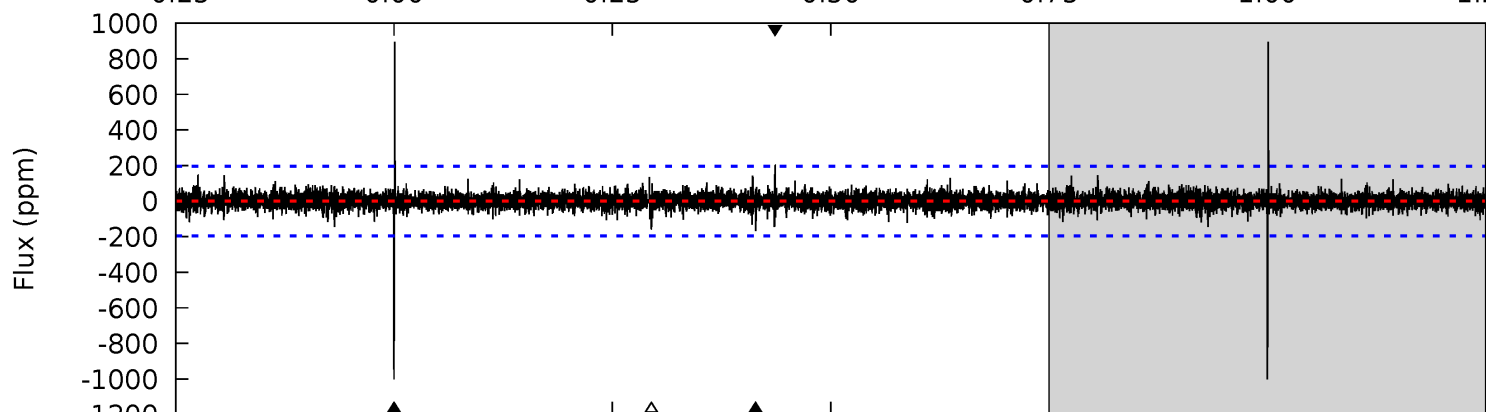
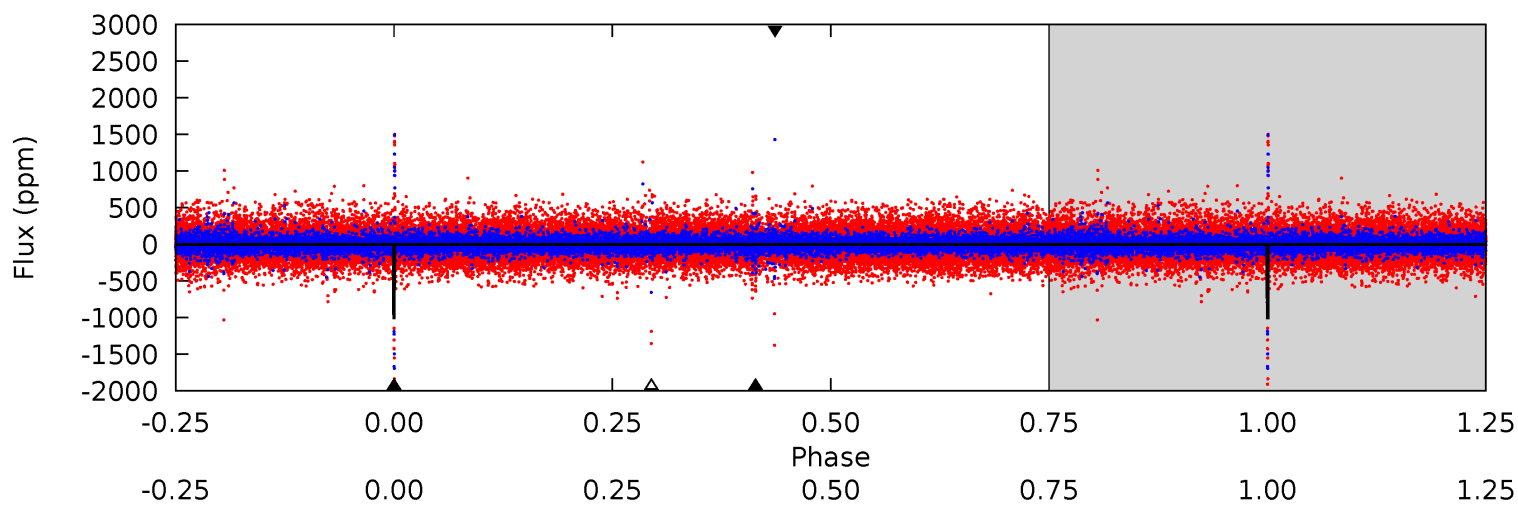
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	17.9	17.8	28.3	5.41	3.23	4.66	4.40	-6.12	0.10	-10.4	1.67	-0.05	0.56	0.06



Alt Model-Shift Uniqueness Test

008249139-04, P = 462.227561 Days, E = 357.411631 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	4.75	4.50	5.55	5.50	3.37	0.79	23.7	22.7	0.25	-0.80	179.8	4.30	0.47	13.0



Stellar Parameters For KIC 008249139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5395^{+208}_{-170}	$3.779^{+0.825}_{-0.330}$	$-0.500^{+0.350}_{-0.250}$	$2.056^{+1.092}_{-1.334}$	$0.928^{+0.219}_{-0.179}$	$0.150^{+2.211}_{-0.101}$
	+4%/-3%	+22%/-9%	+70%/-50%	+53%/-65%	+24%/-19%	+1472%/-67%
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 008249139-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1962 ± 110	$9.24^{+4.04}_{-3.39}$	444^{+72}_{-82}	5506^{+610}_{-410}	16374^{+24894}_{-8084}
Alt.	-169 ± 36	$14.97^{+5.33}_{-5.12}$	443^{+66}_{-80}	3007^{+153}_{-138}	552^{+654}_{-269}

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

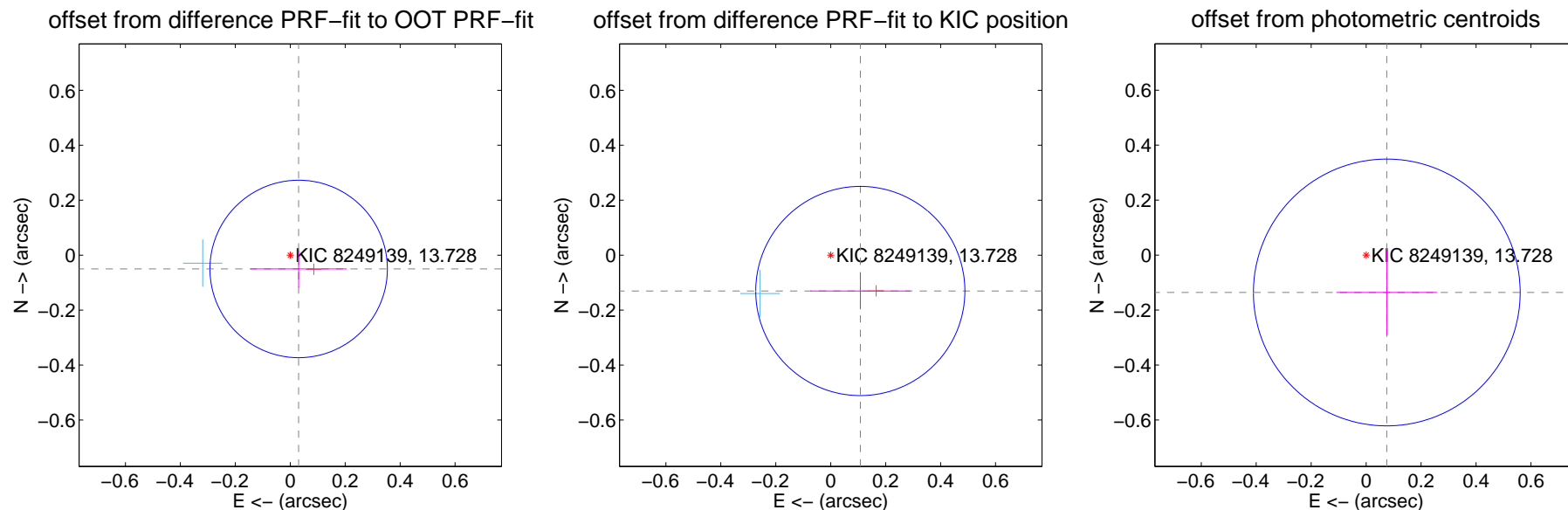
DV Centroid Data

Supplemental centroid analysis for 008249139-04. Kepler magnitude: 13.73. Transit SNR 10.03

There are 1 quarters with good PRF difference image offsets

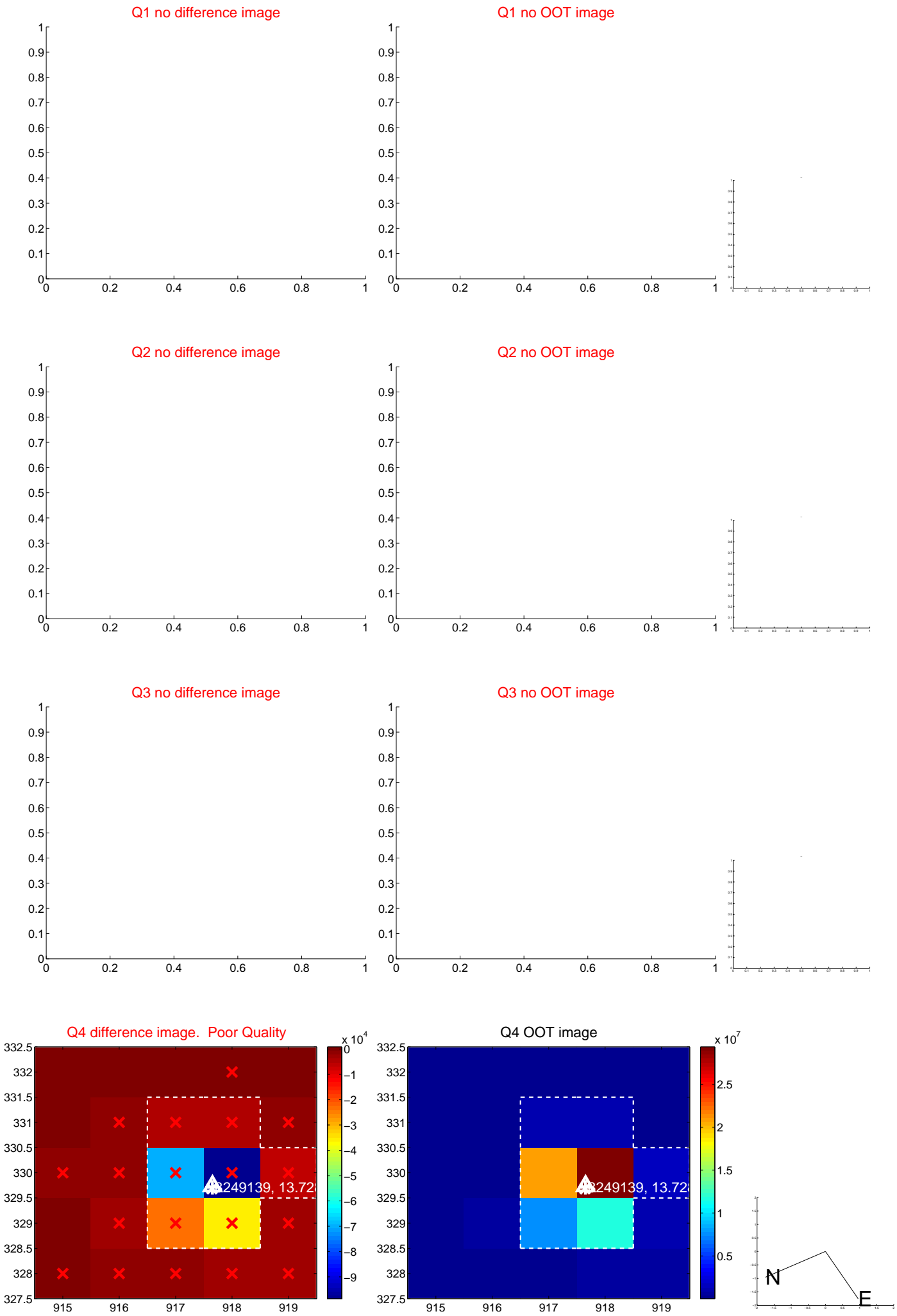
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.059 ± 0.108	0.55	-0.031 ± 0.175	-0.050 ± 0.067
PRF-fit source offset from KIC position	0.169 ± 0.127	1.33	-0.108 ± 0.182	-0.130 ± 0.067
photometric centroid source offset	0.16 ± 0.16	0.96	-0.08 ± 0.18	-0.14 ± 0.15



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

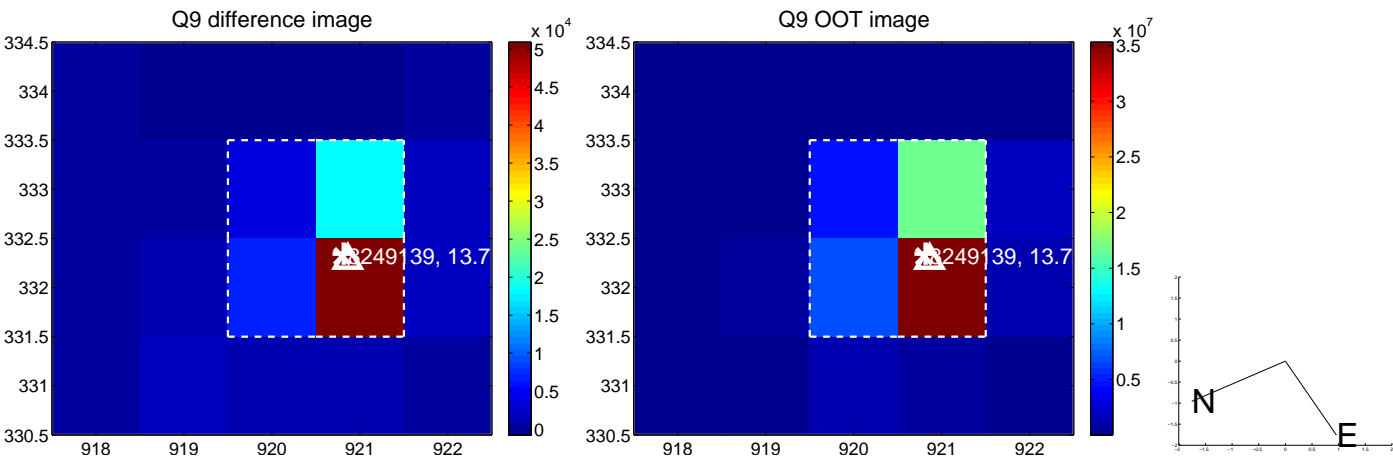
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



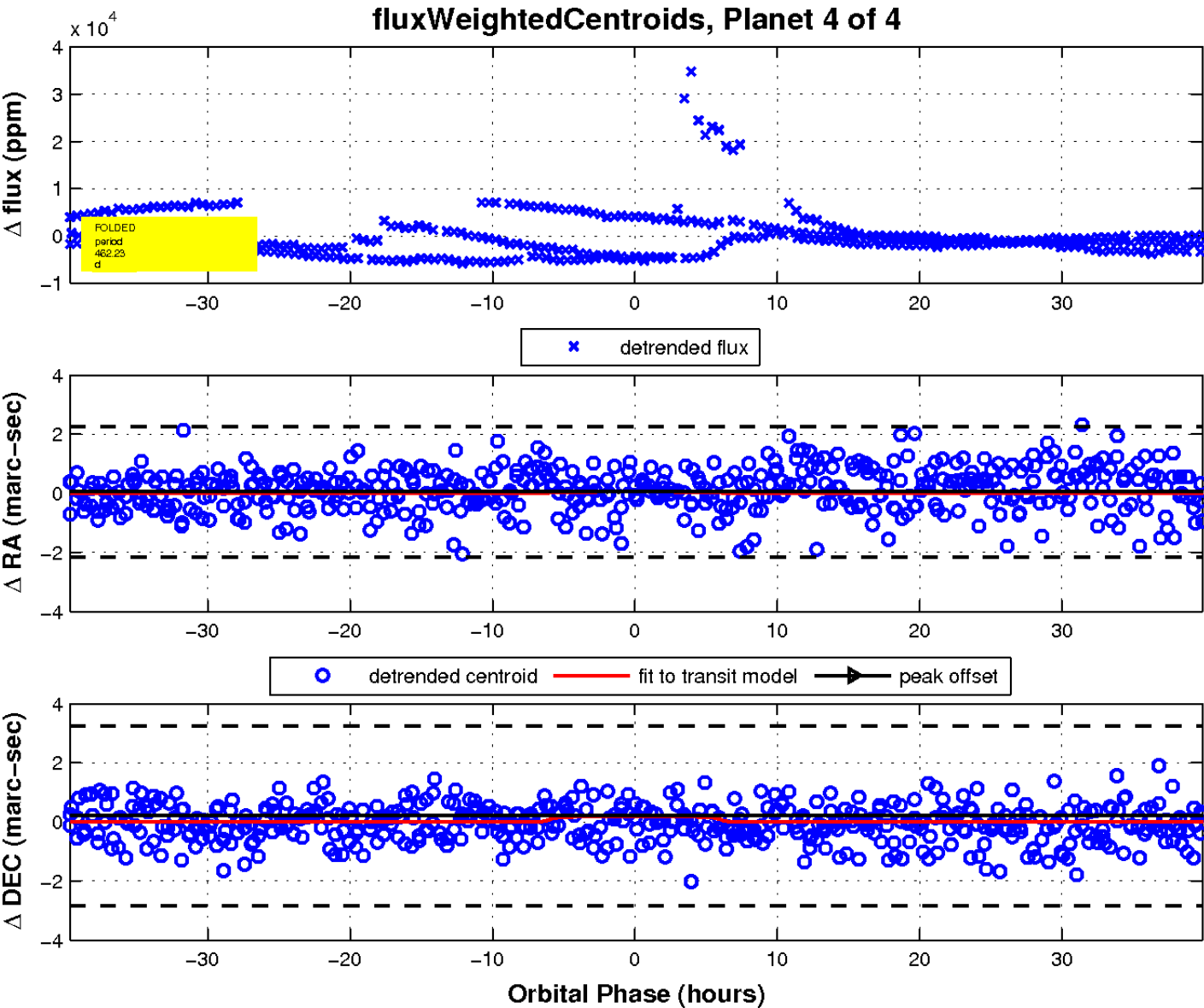
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

