

KIC 009847963

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})
009847963-01	OBS	No	310.825531	331.542093	3700.4	3.133	13.3	9.0	0.83	5518	5.47	0.84
009847963-02	OBS	No	249.439847	177.269384	3203.8	2.736	12.4	8.1	0.83	5518	4.78	1.13
009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
009847963-05	OBS	No	369.594720	402.568831	3565.7	12.236	9.9	7.9	0.83	5518	4.88	0.67
009847963-06	OBS	No	183.633385	134.142260	2715.2	2.999	15.9	6.5	0.83	5518	4.47	1.70
009847963-07	OBS	No	359.513509	139.813954	3211.3	7.443	10.0	6.9	0.83	5518	6.29	0.69
009847963-08	OBS	No	139.045528	135.344328	1783.2	2.500	9.1	-1.0	0.83	5518	3.46	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009847963-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

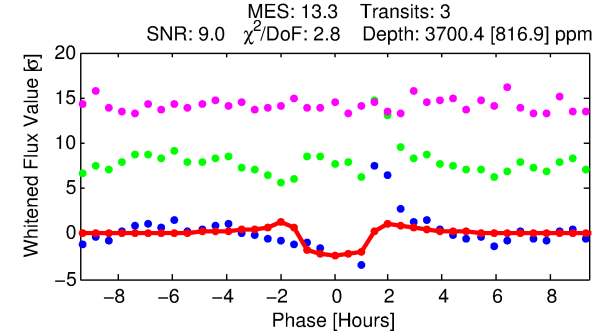
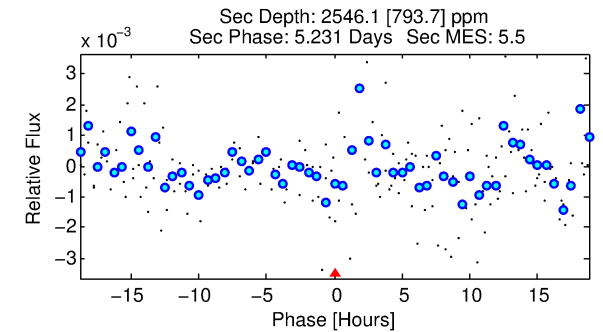
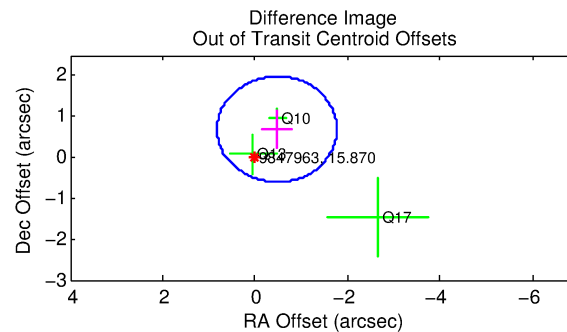
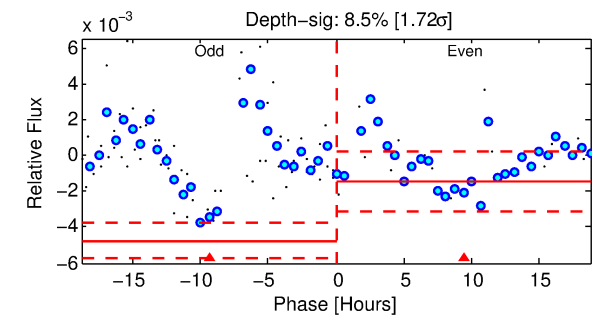
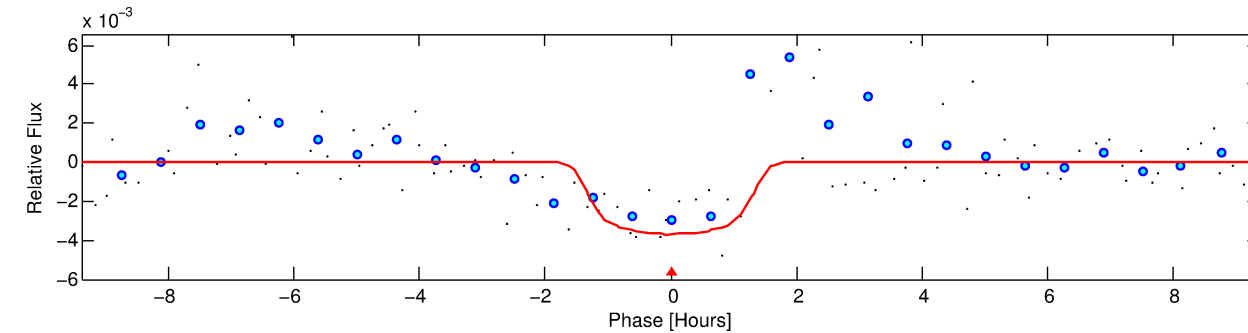
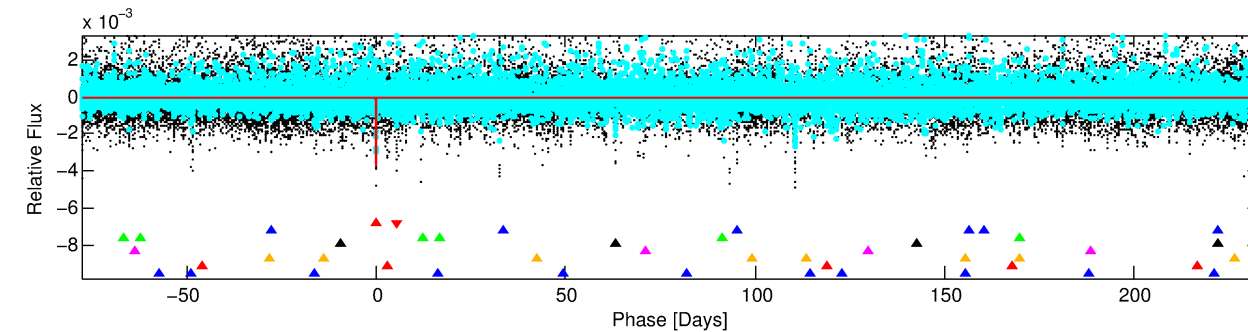
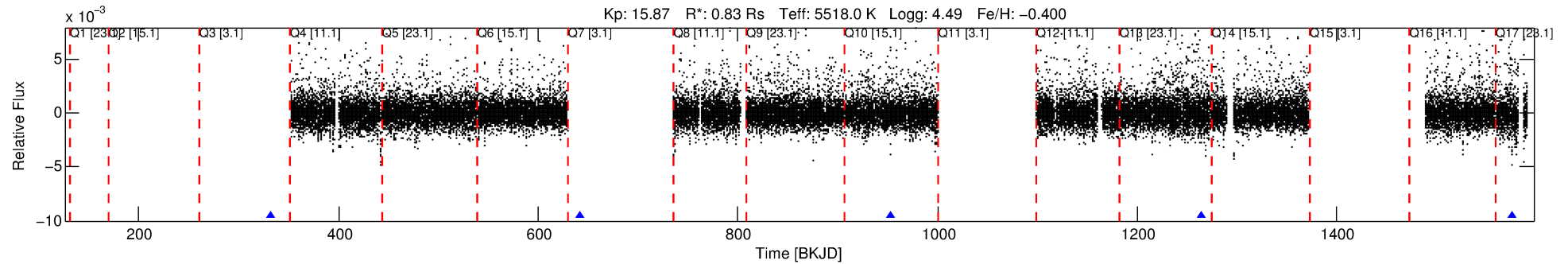
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-01

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 1 of 8 Period: 310.826 d



DV Fit Results:

Period = 310.82553 [0.00653] d
Epoch = 331.5421 [0.0191] BKJD
Rp/R* = 0.0606 [0.0287]
a/R* = 570.83 [1060.97]
b = 0.75 [1.12]
Seff = 0.84 [0.24]
Teq = 244 [17] K
Rp = 5.47 [2.82] Re
a = 0.8217 [0.1397] AU
Ag = 31559.14 [32478.18] [0.97 σ]
Teffp = 5036 [1269] K [3.77 σ]

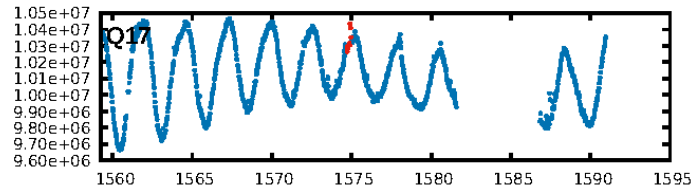
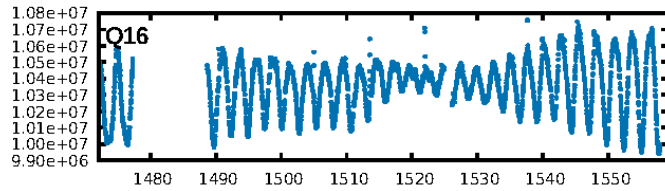
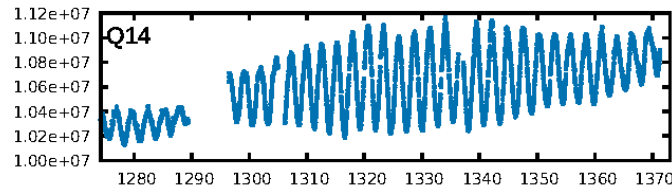
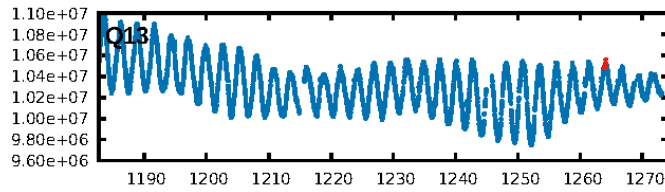
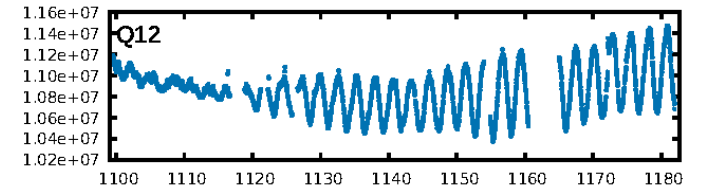
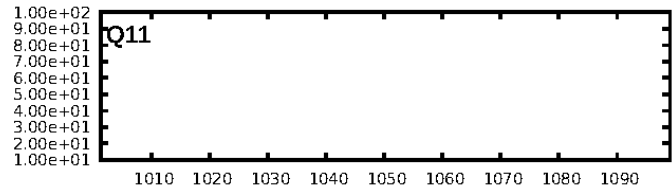
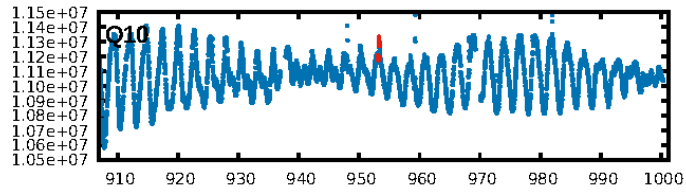
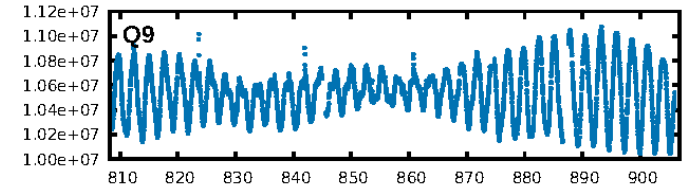
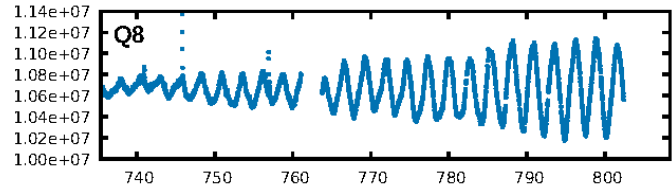
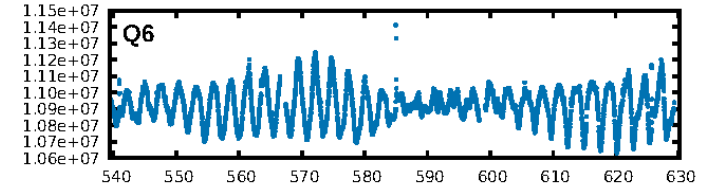
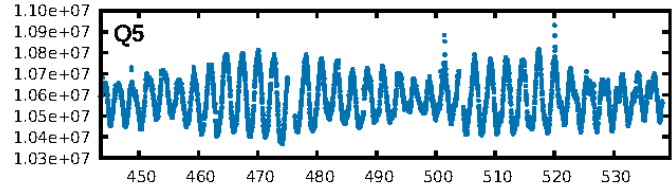
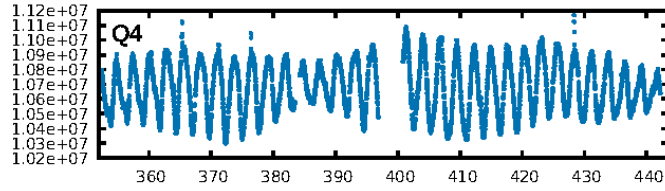
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [354.16 σ]
LongPeriod-sig: 100.0% [144.69 σ]
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 1.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 2.921
Centroid-sig: N/A
Centroid-so: 1.889 arcsec [1.96 σ]
OotOffset-rm: 0.834 arcsec [1.93 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 0.986 arcsec [1.80 σ]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

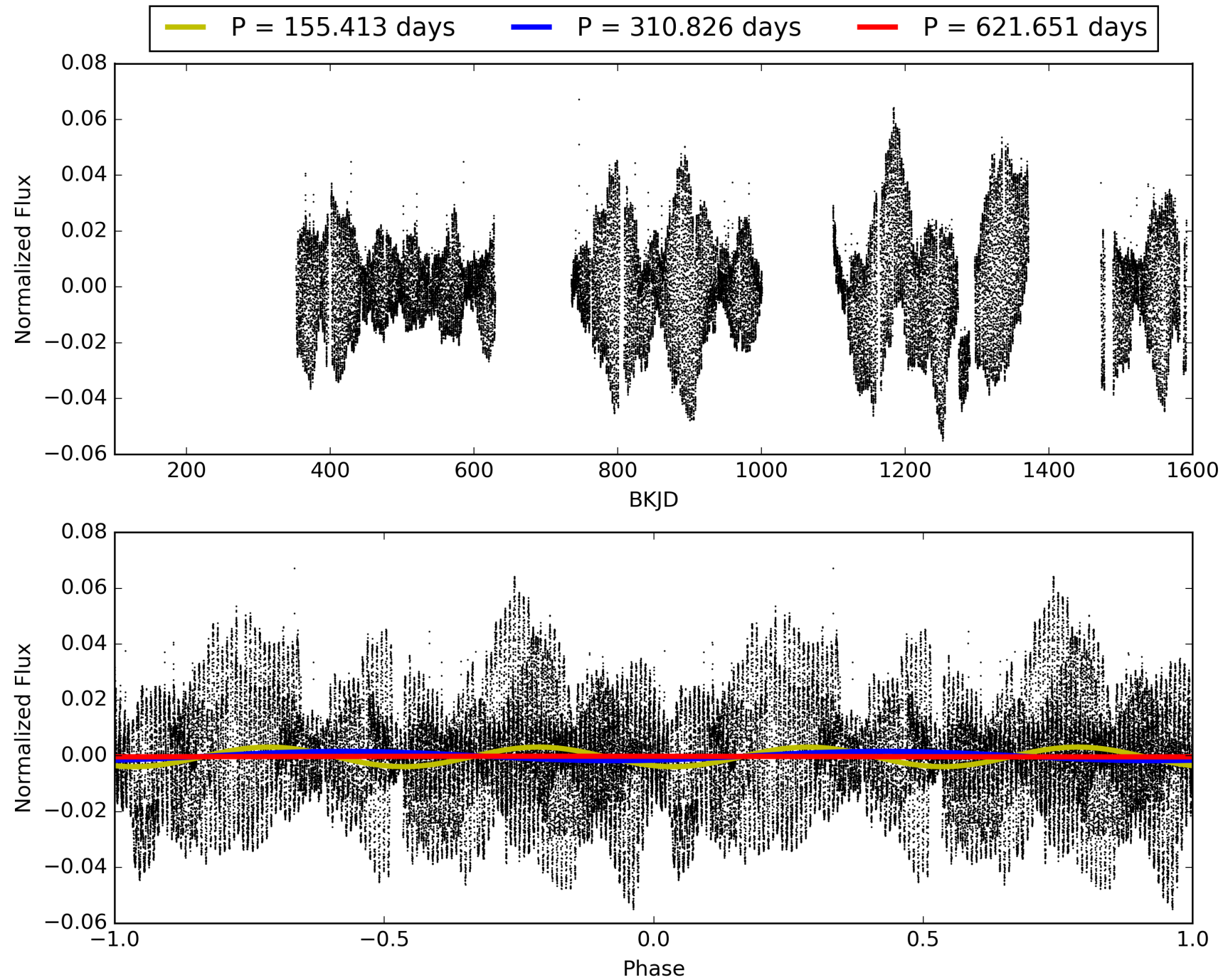
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:22:47 Z

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

TCE 009847963-01, PDC Light Curves

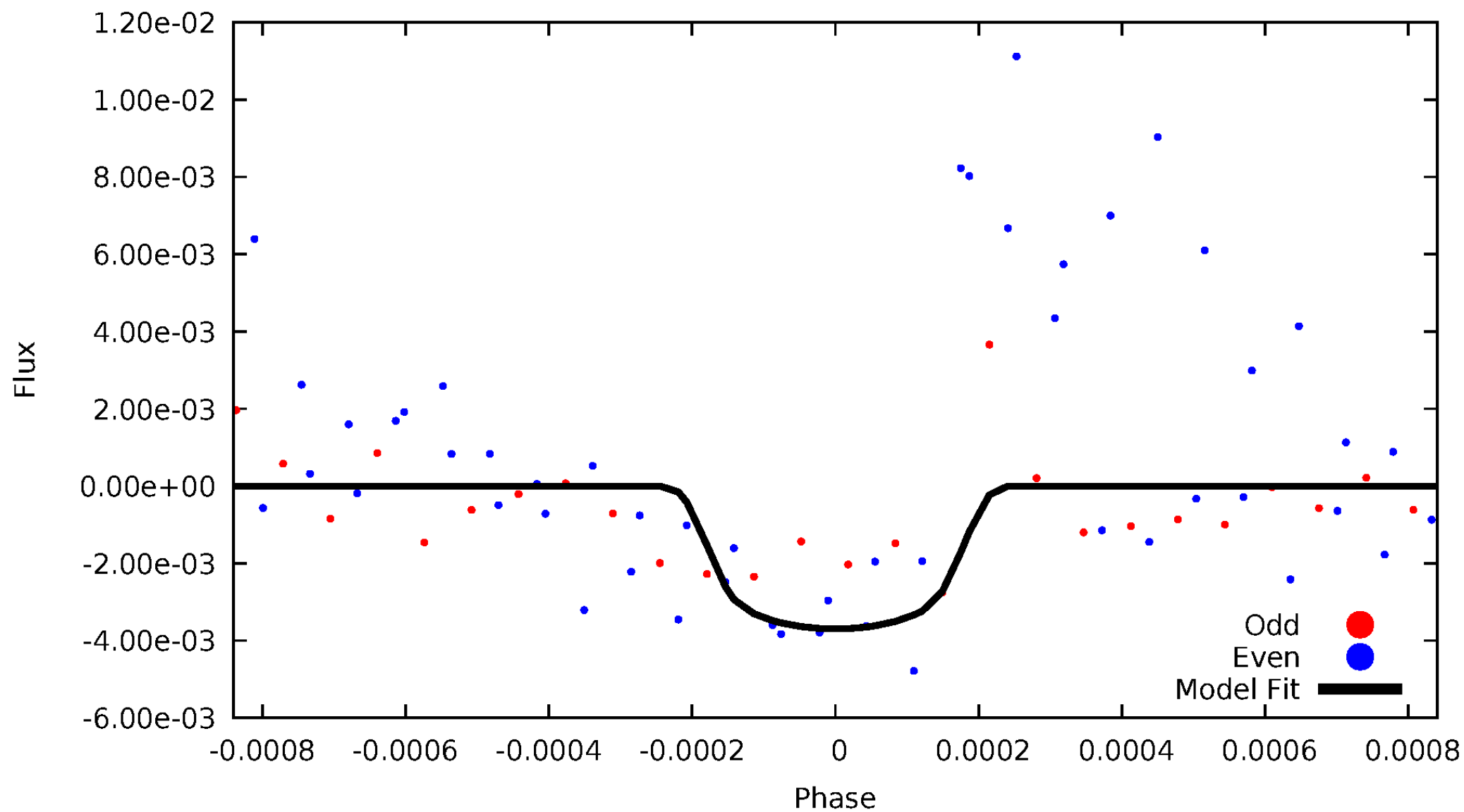


TCE 009847963-01



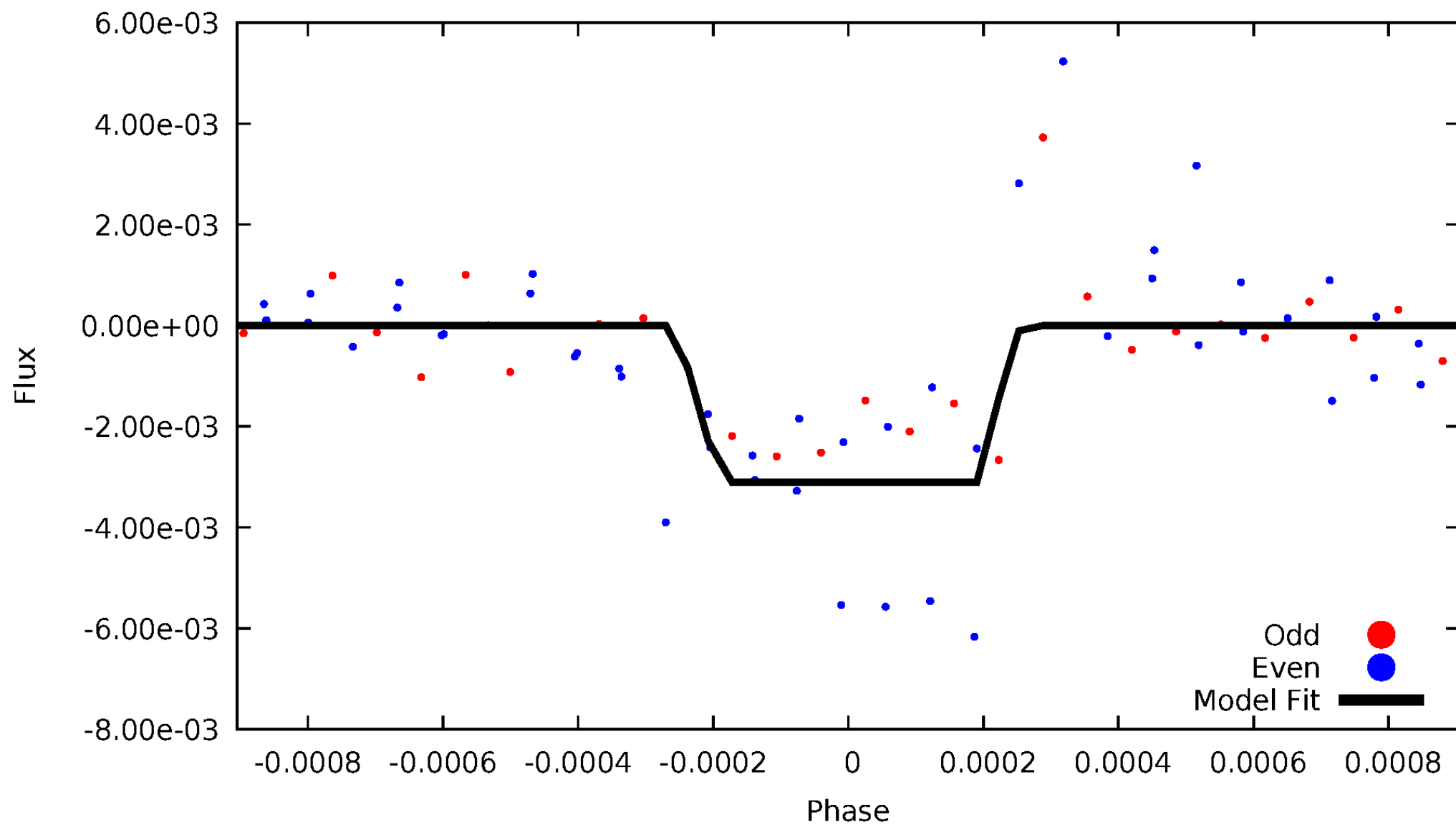
DV Odd/Even

TCE 009847963-01



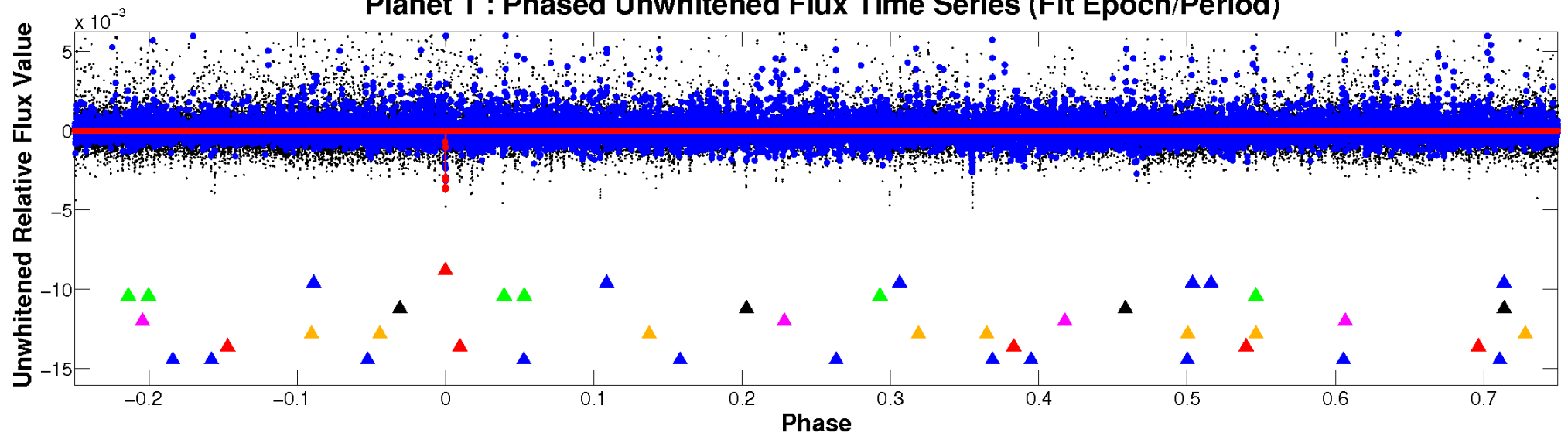
ALT Odd/Even

TCE 009847963-01

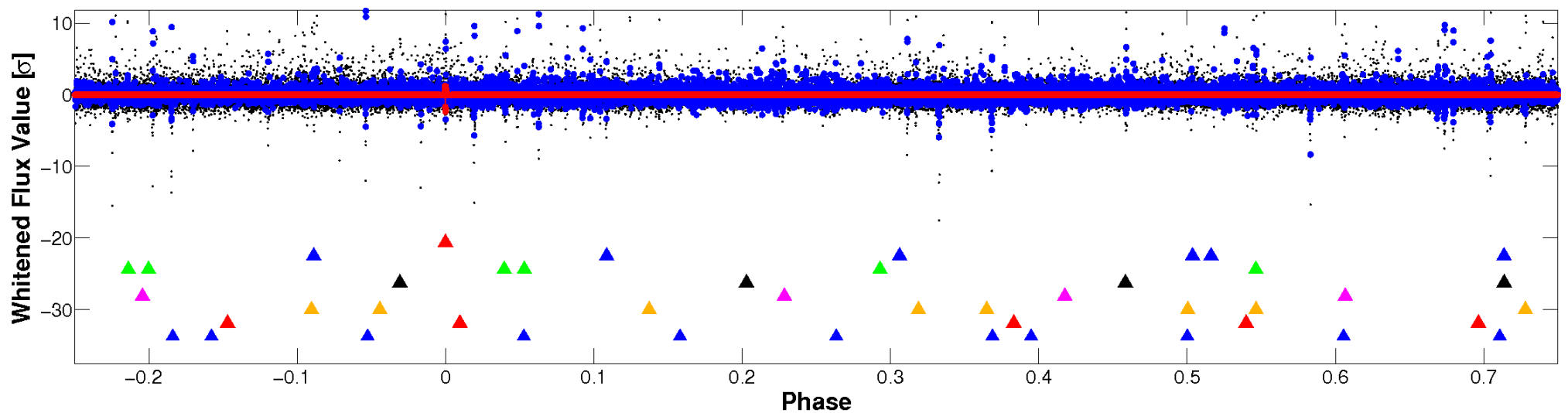


Non-Whitened Vs. Whitened Light Curve

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

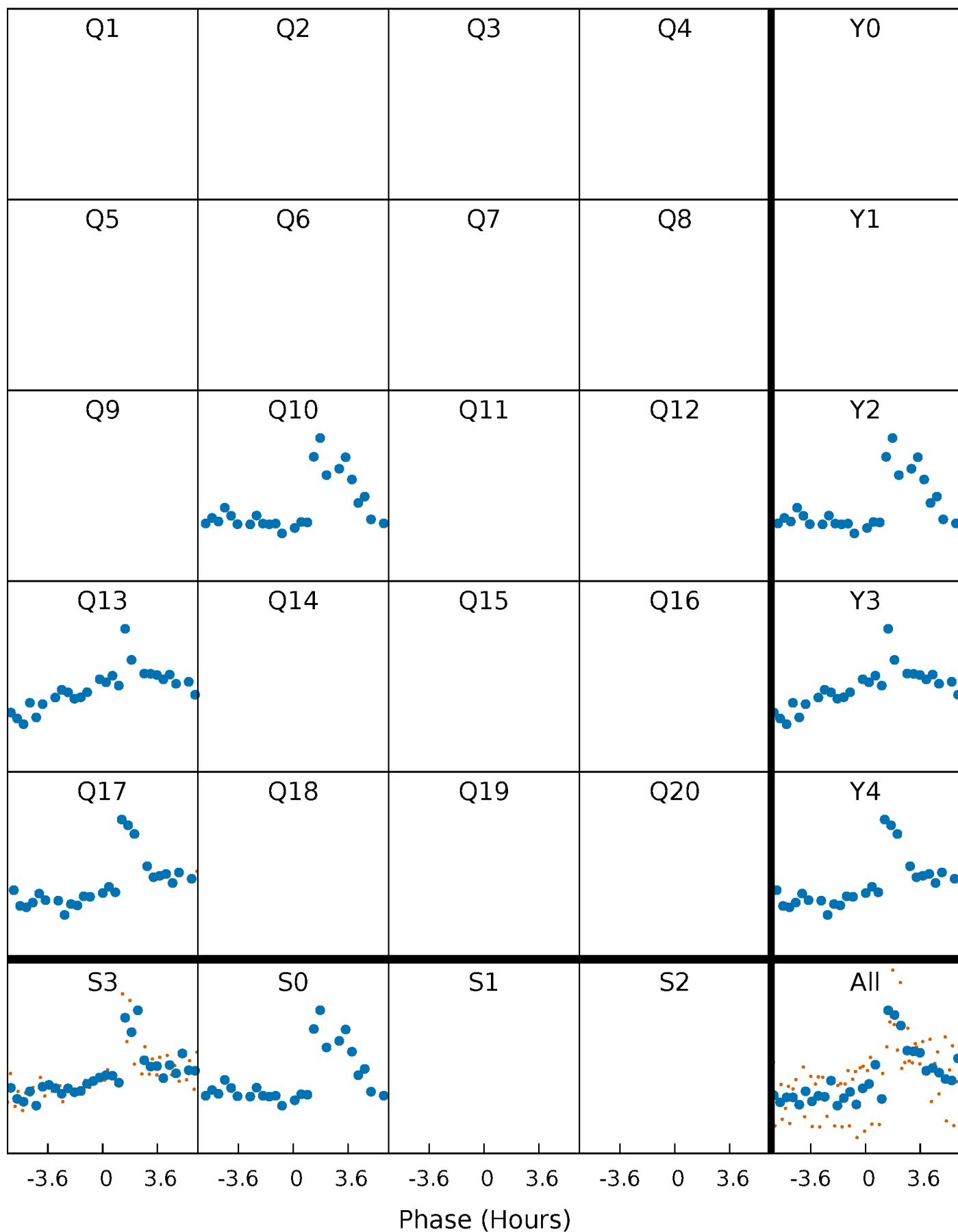


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



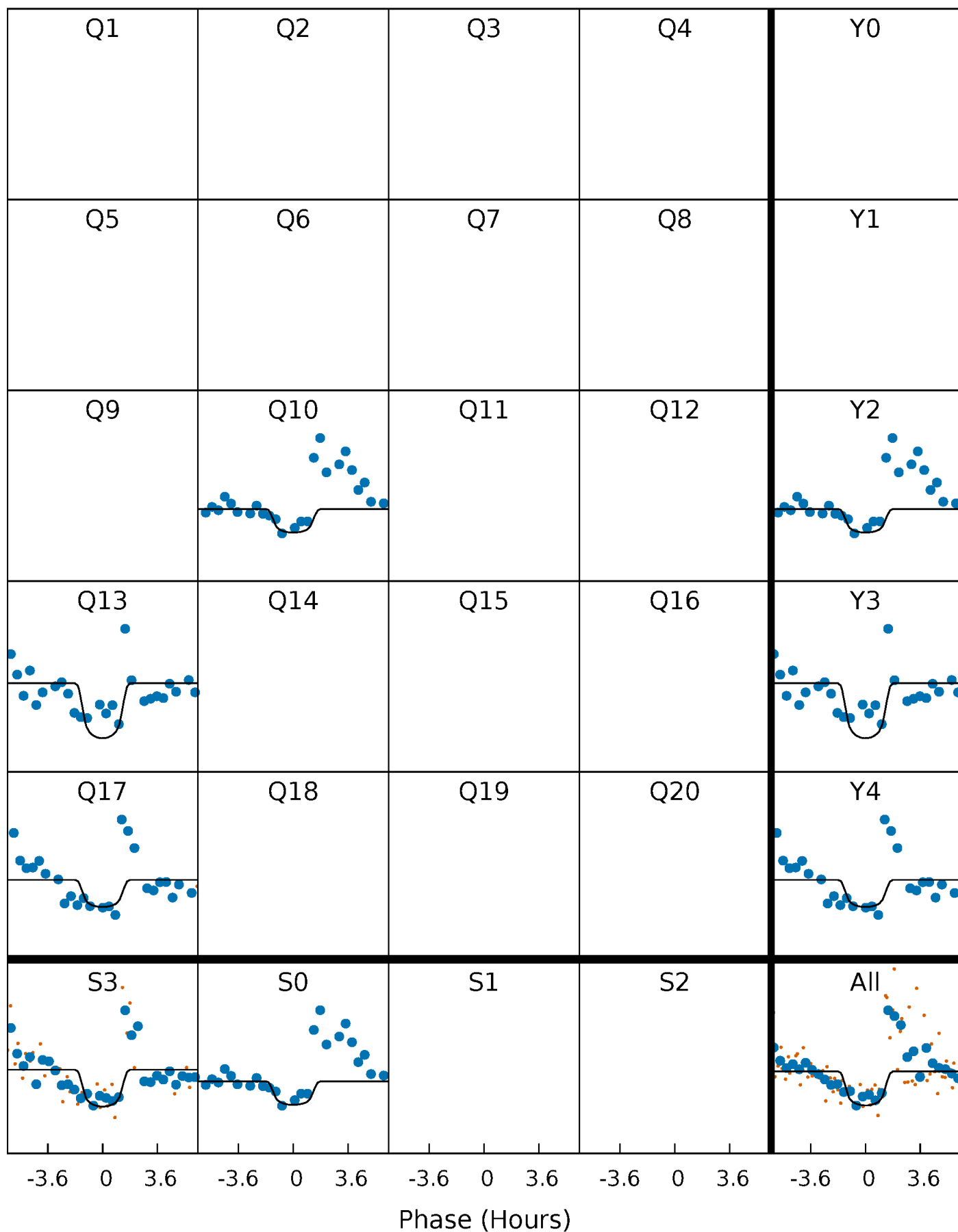
PDC Quarter-Phased Transit Curves

TCE 009847963-01 P=310.825531 Days $T_0=331.542093$ (BKJD)



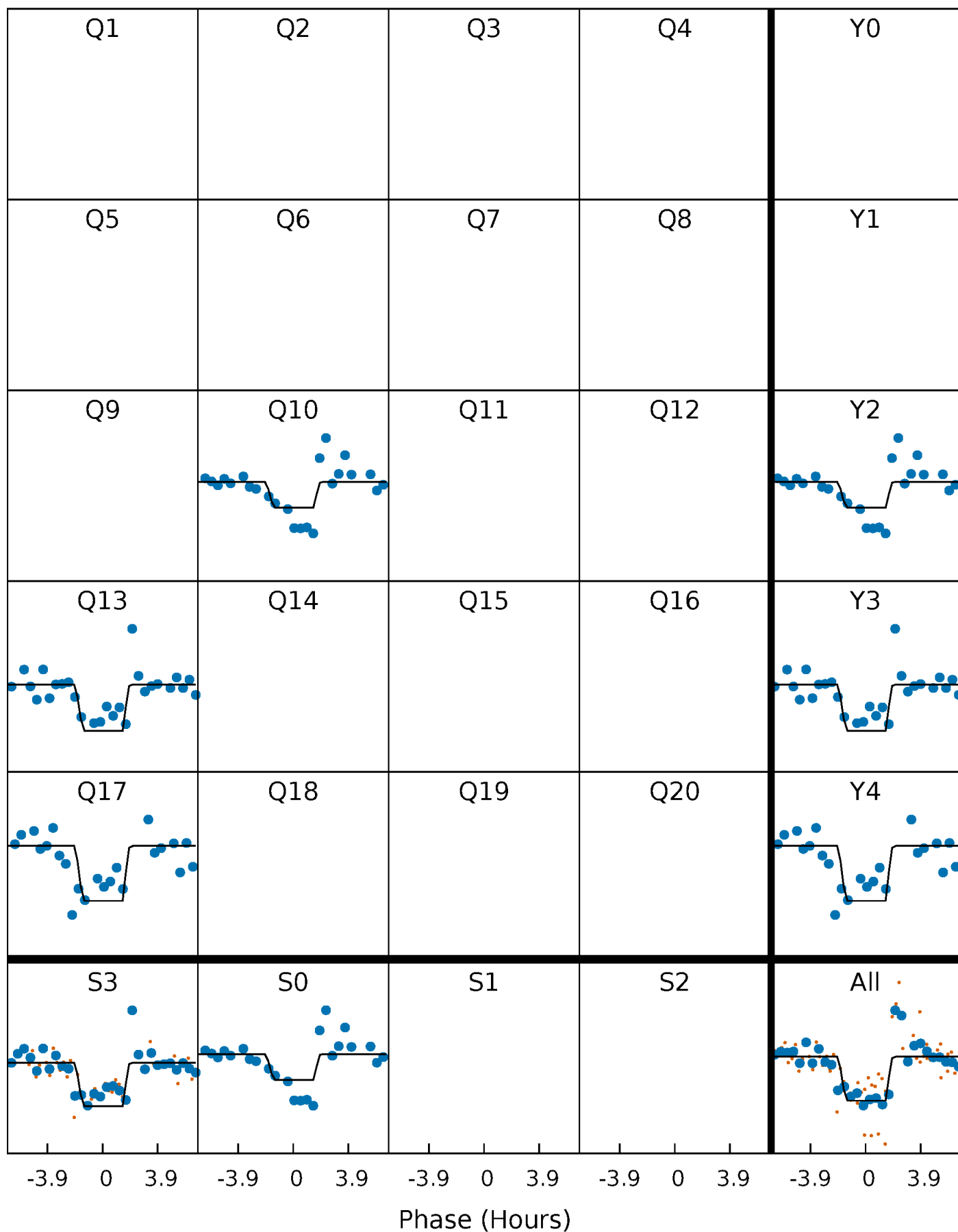
DV Quarter-Phased Transit Curves

TCE 009847963-01 P=310.825531 Days $T_0=331.542093$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

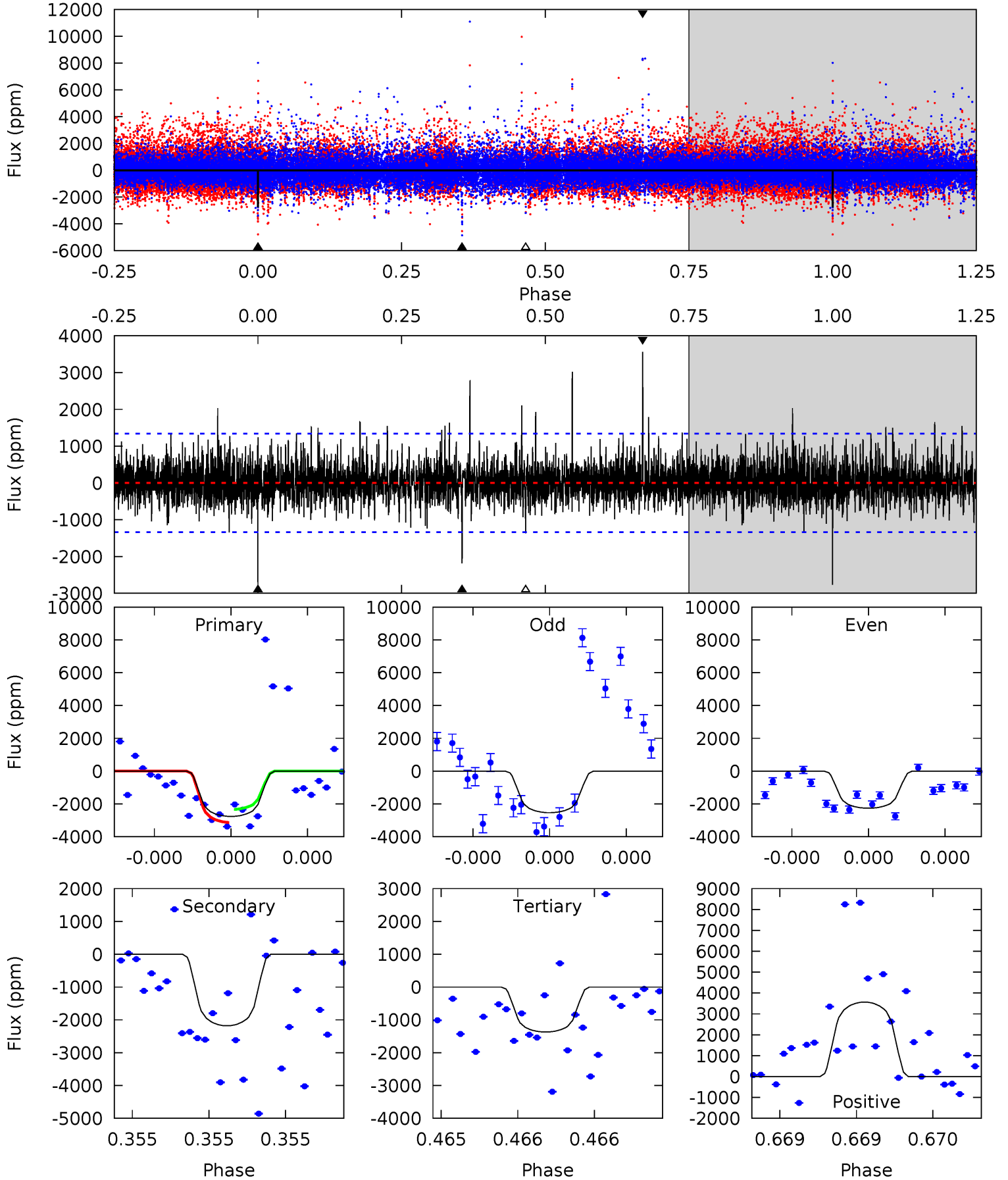
TCE 009847963-01 P=310.823174 Days $T_0=331.526479$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-01, P = 310.825531 Days, E = 331.542093 Days

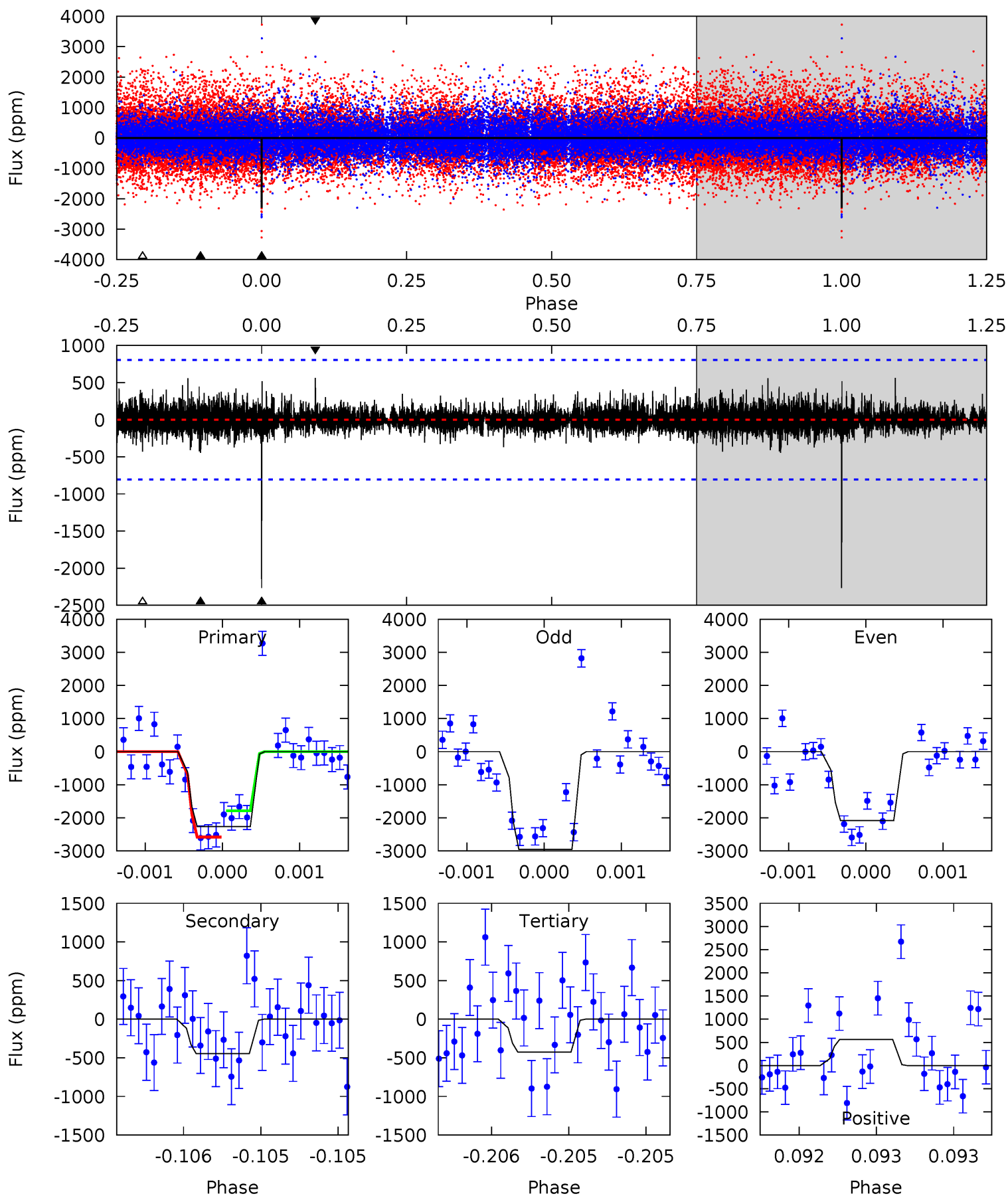
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	9.13	5.74	14.9	5.60	3.53	1.62	5.83	-3.35	3.39	-5.79	0.49	1.10	0.56	1.67



Alt Model-Shift Uniqueness Test

009847963-01, P = 310.823174 Days, E = 331.526479 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	3.08	2.95	3.88	5.56	3.47	0.68	12.7	11.8	0.13	-0.80	2.97	1.34	0.20	2.75



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2181 ± 239	$5.78^{+2.75}_{-2.68}$	342^{+22}_{-18}	4845^{+1658}_{-671}	24526^{+61501}_{-13442}
Alt.	-446 ± 145	$5.20^{+2.71}_{-2.50}$	341^{+21}_{-18}	3730^{+1071}_{-503}	6101^{+16825}_{-3601}

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

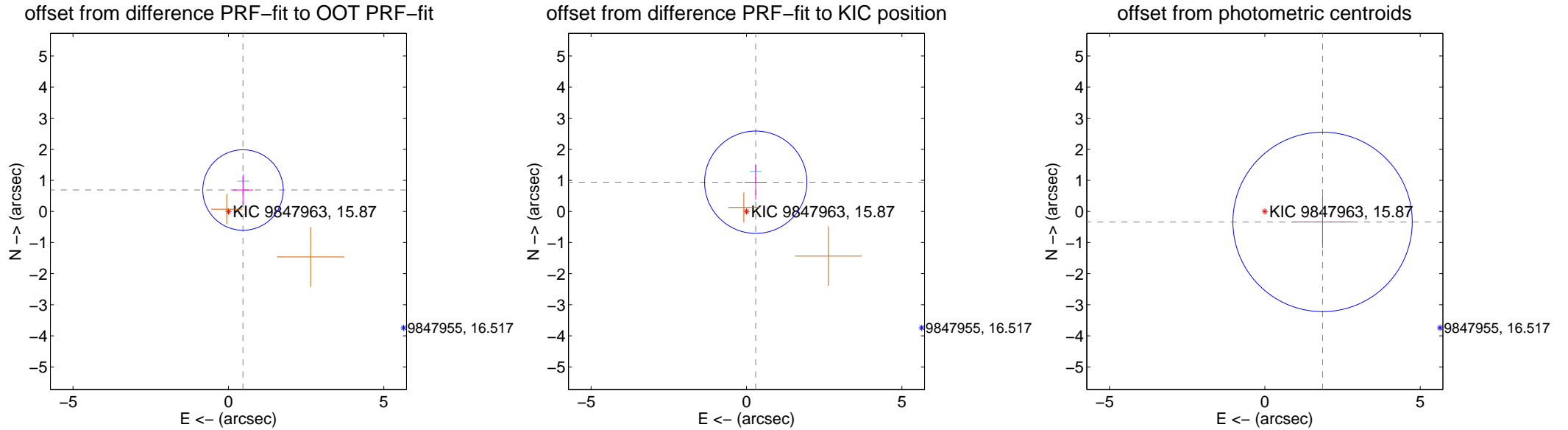
DV Centroid Data

Supplemental centroid analysis for 009847963-01. Kepler magnitude: 15.87. Transit SNR 9.05

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.834 ± 0.431	1.93	-0.469 ± 0.327	0.689 ± 0.472
PRF-fit source offset from KIC position	0.986 ± 0.549	1.80	-0.298 ± 0.355	0.939 ± 0.564
photometric centroid source offset	1.89 ± 0.96	1.96	-1.86 ± 0.97	-0.34 ± 0.84



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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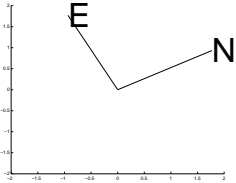
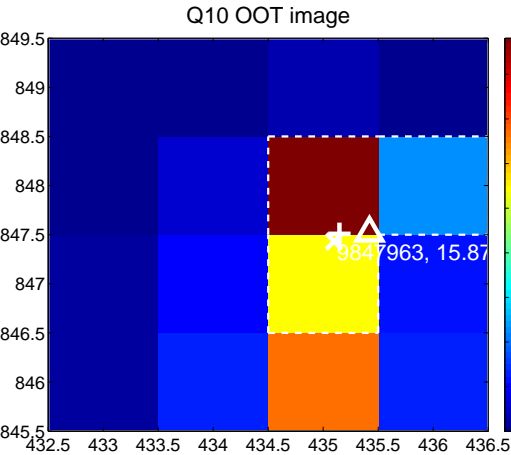
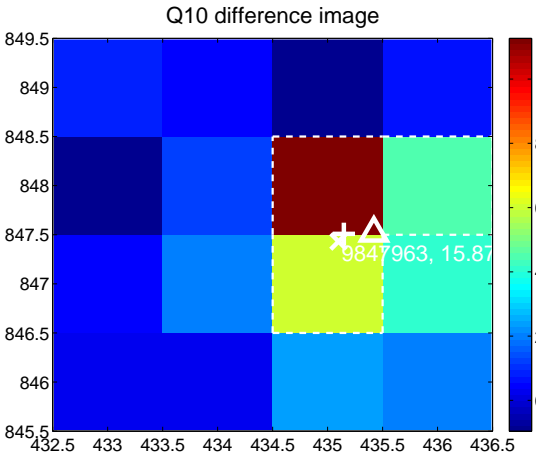


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

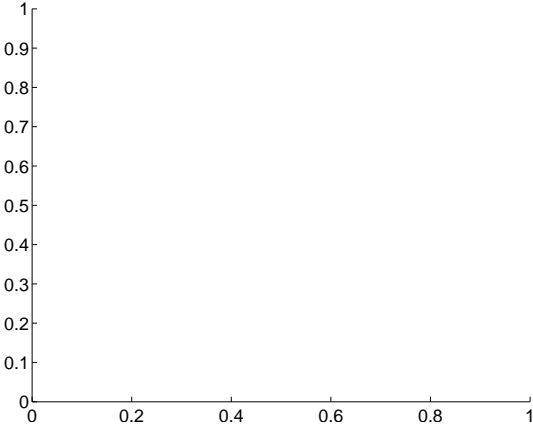
Q9 no difference image



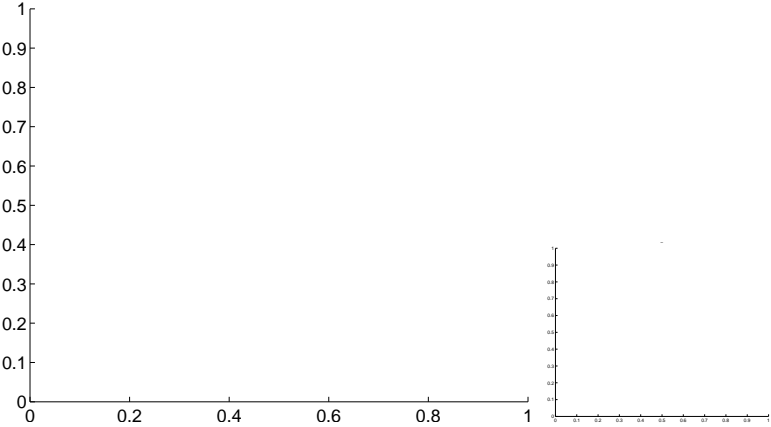
Q9 no OOT image



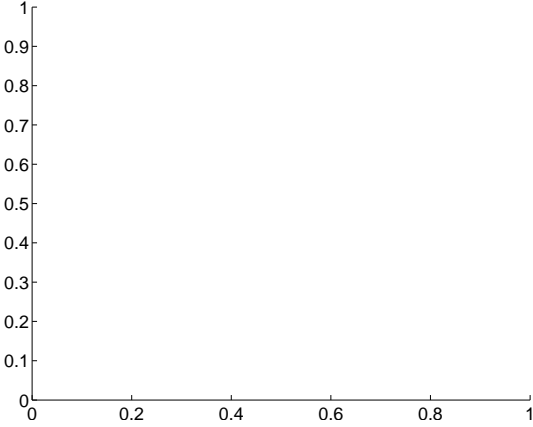
Q11 no difference image



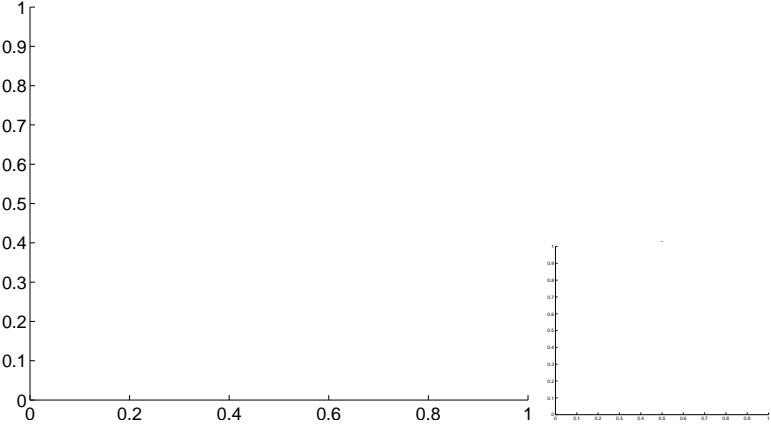
Q11 no OOT image



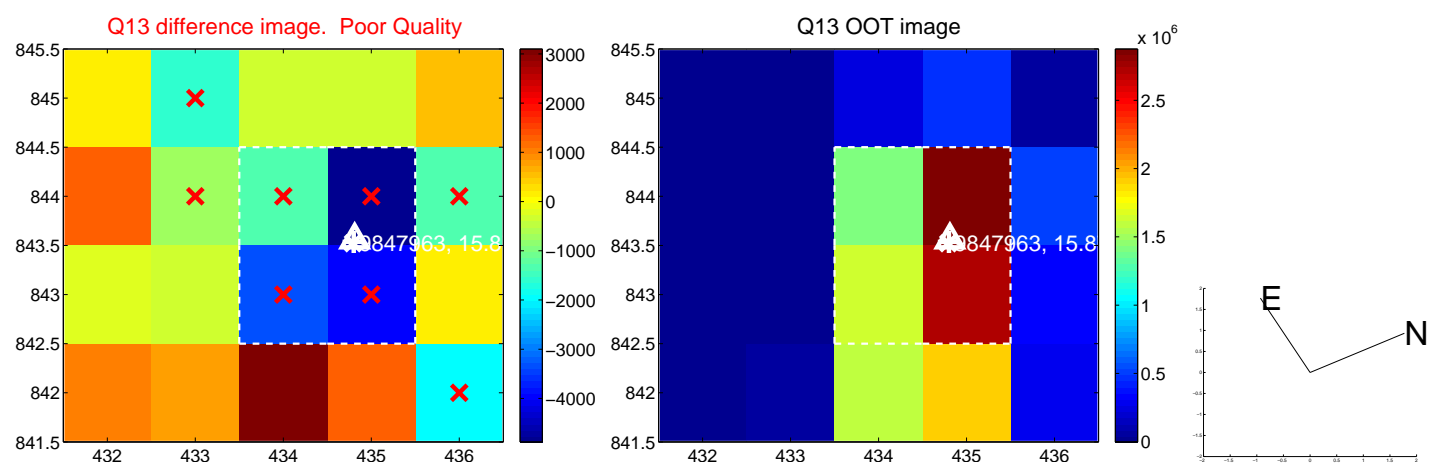
Q12 no difference image



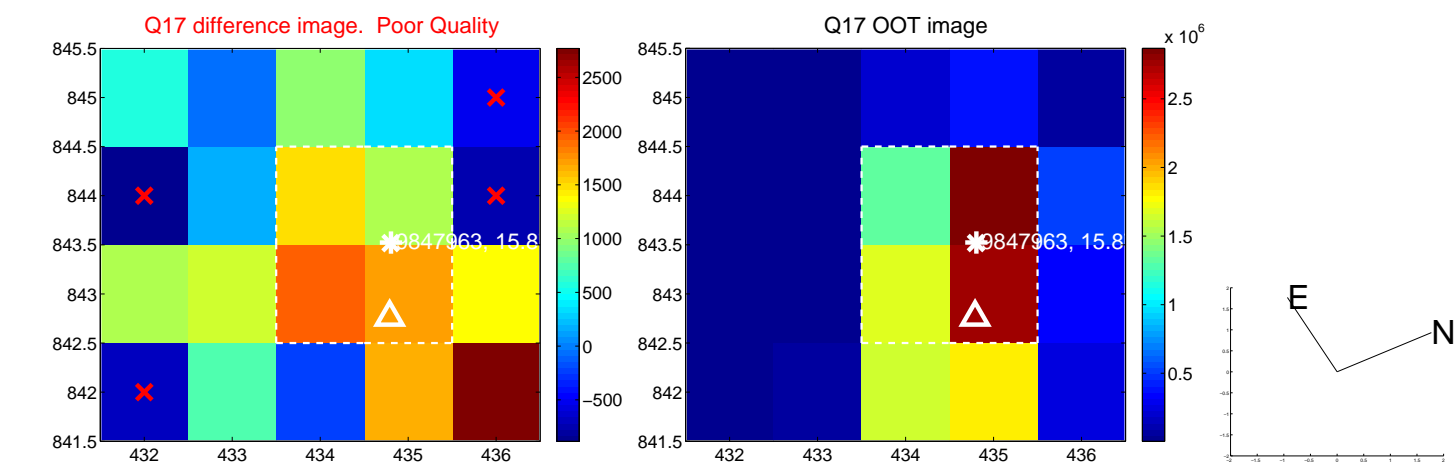
Q12 no OOT image



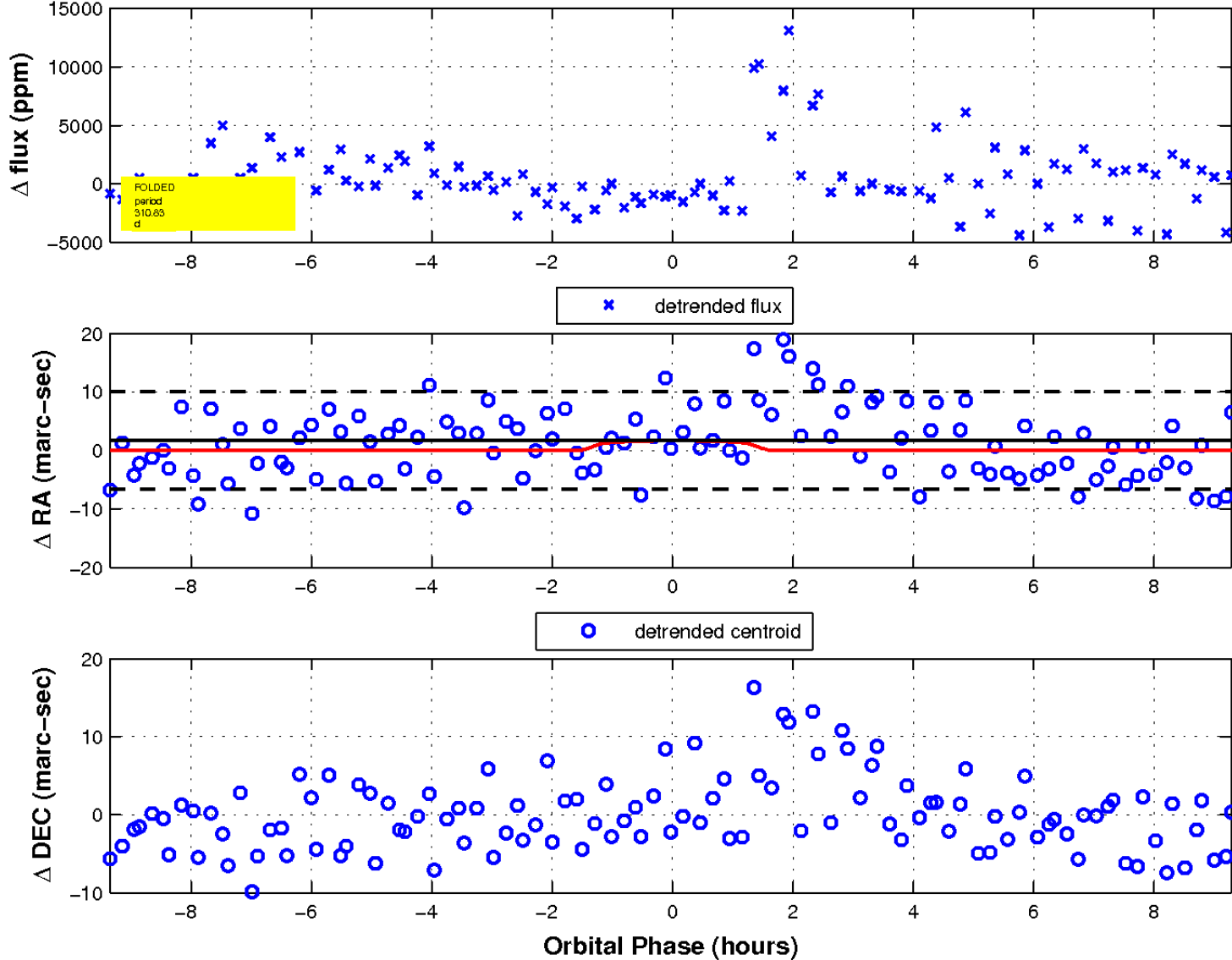
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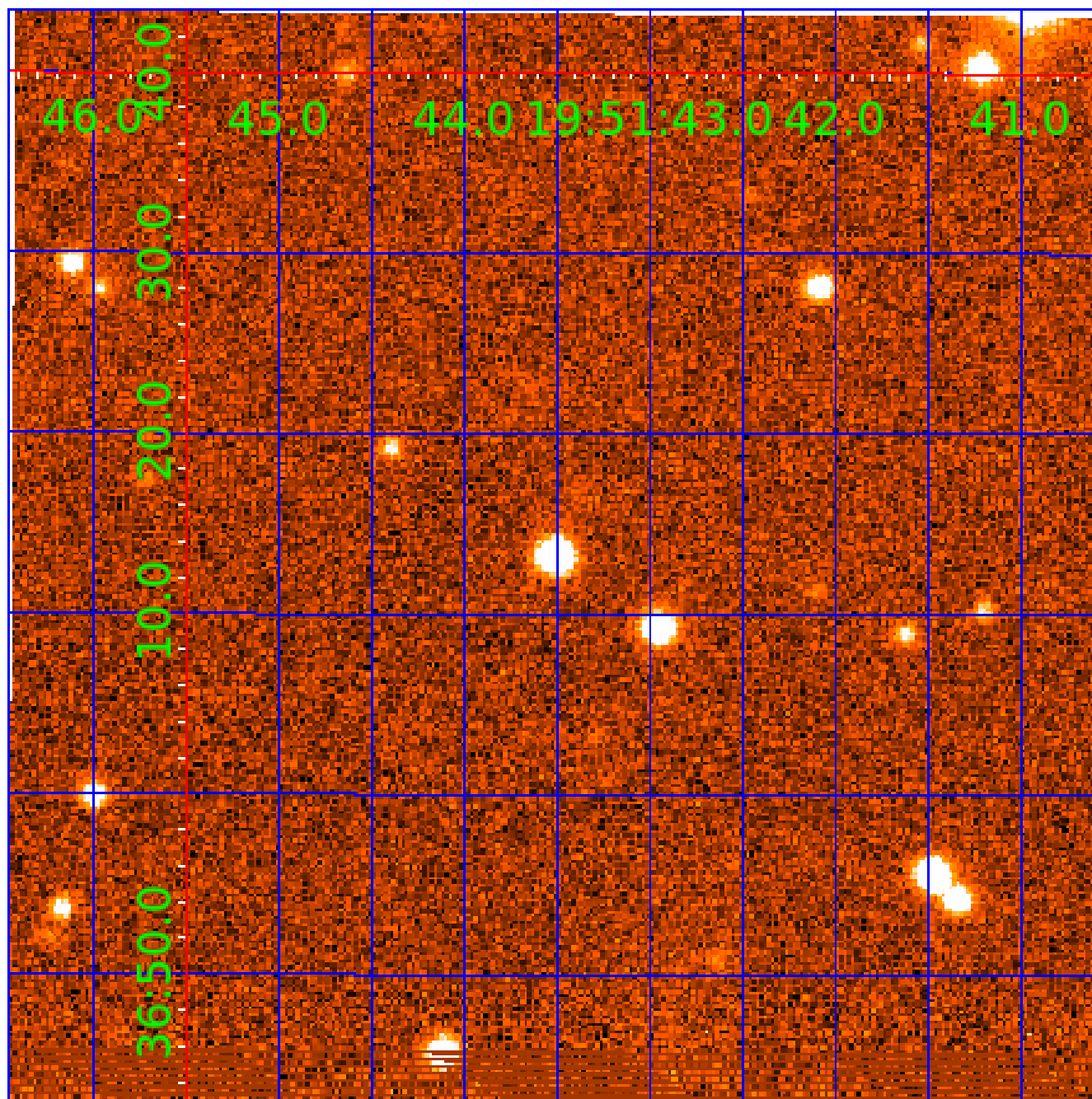


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination



KIC 009847963

Q1-17 DR25 TCE Parameters

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009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
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009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
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N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

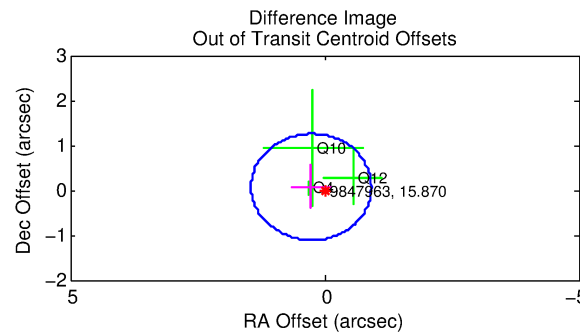
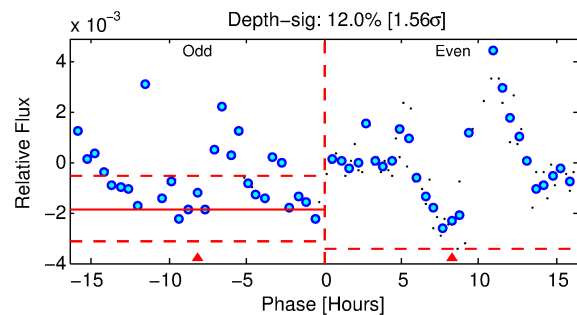
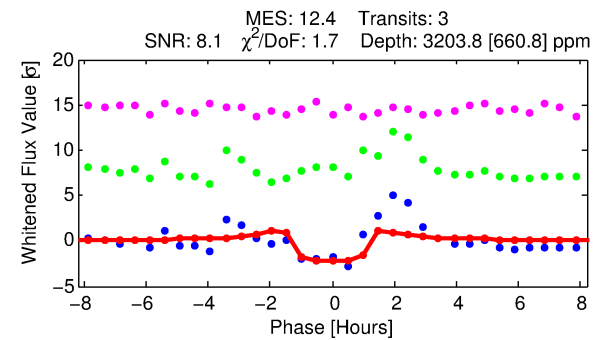
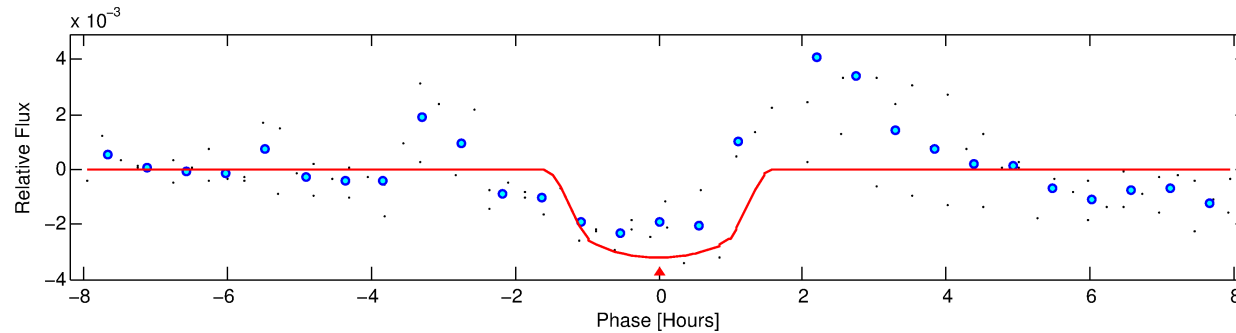
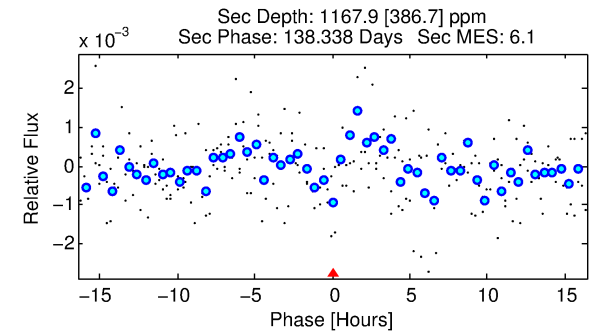
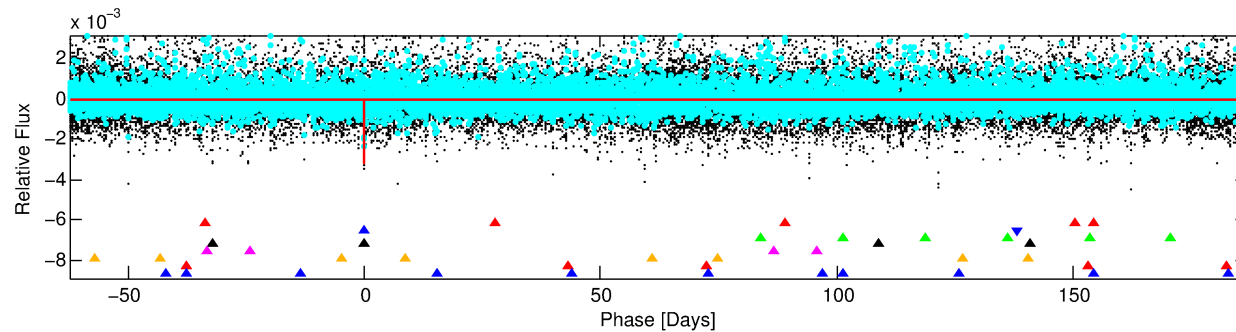
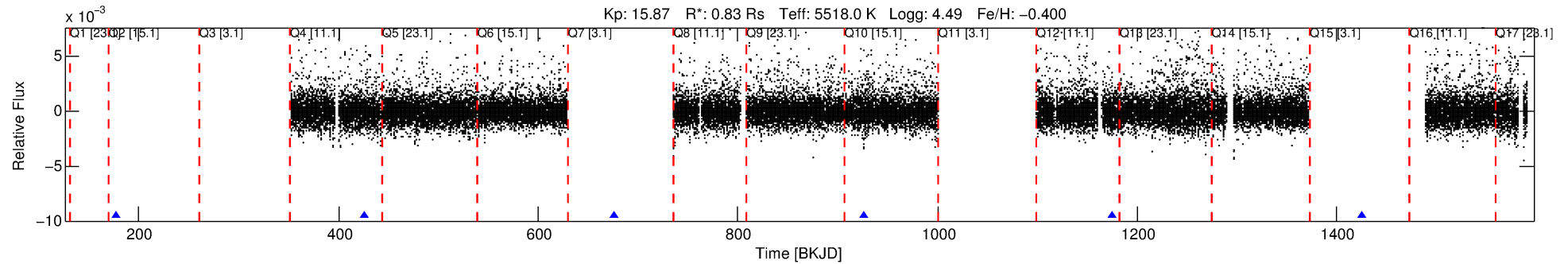
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-02

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 2 of 8 Period: 249.440 d



DV Fit Results:

Period = 249.43985 [0.00319] d
Epoch = 177.2694 [0.0099] BKJD
Rp/R* = 0.0529 [0.0997]
a/R* = 653.62 [5196.02]
b = 0.48 [12.96]
Seff = 1.13 [0.32]
Teq = 263 [19] K
Rp = 4.78 [9.06] Re
a = 0.7096 [0.1207] AU
Ag = 14188.86 [53880.23] [0.26σ]
Teffp = 4437 [4206] K [0.99σ]

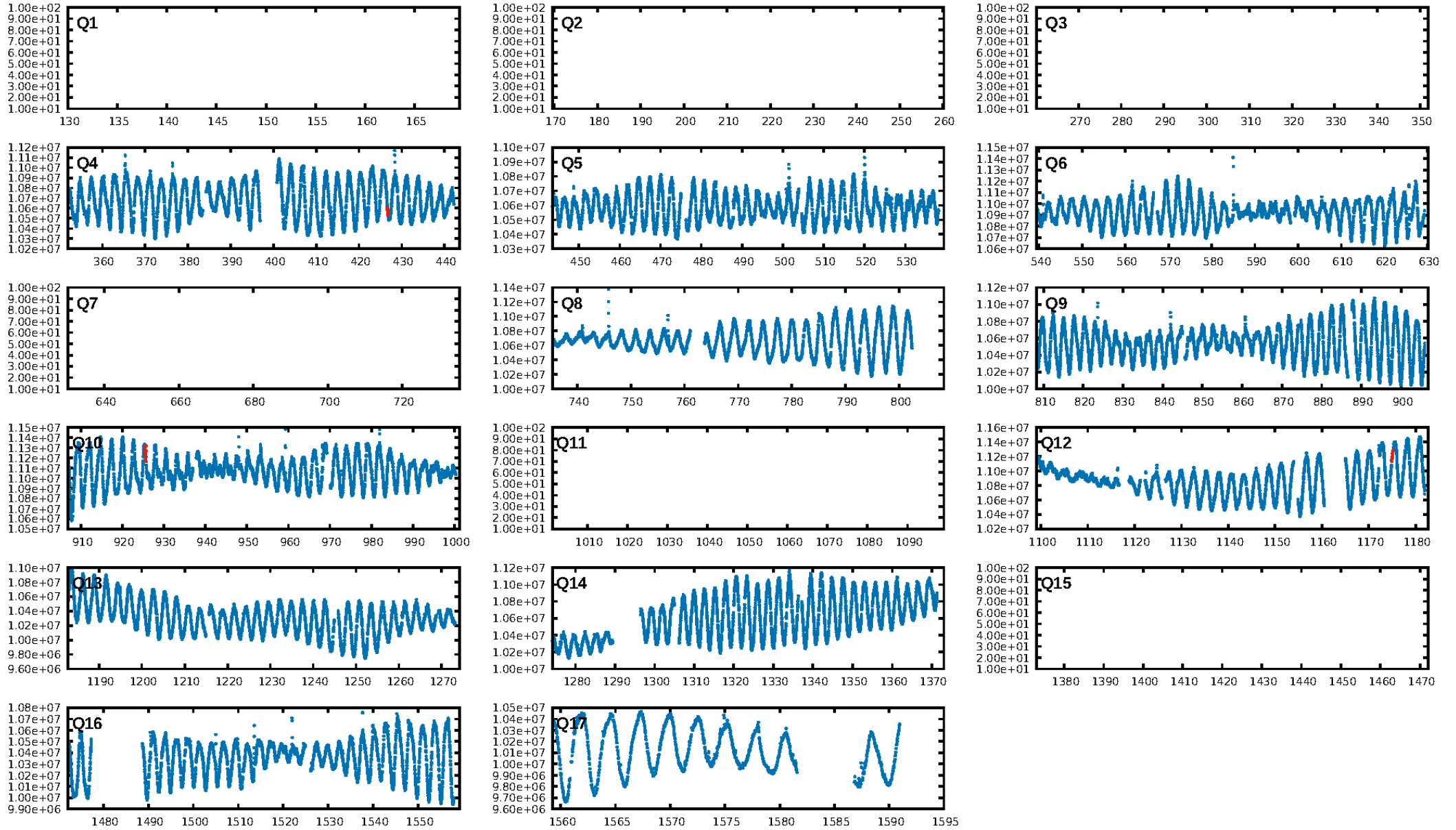
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [67.15σ]
LongPeriod-sig: 100.0% [354.16σ]
ModelChiSquare2-sig: 9.0%
ModelChiSquareGof-sig: 43.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.762
Centroid-sig: N/A
Centroid-so: 1.257 arcsec [1.29σ]
OotOffset-rm: 0.271 arcsec [0.69σ]
OotOffset-st: 1/0/2/0 [3]
KicOffset-rm: 0.111 arcsec [0.27σ]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.67 [2/3]

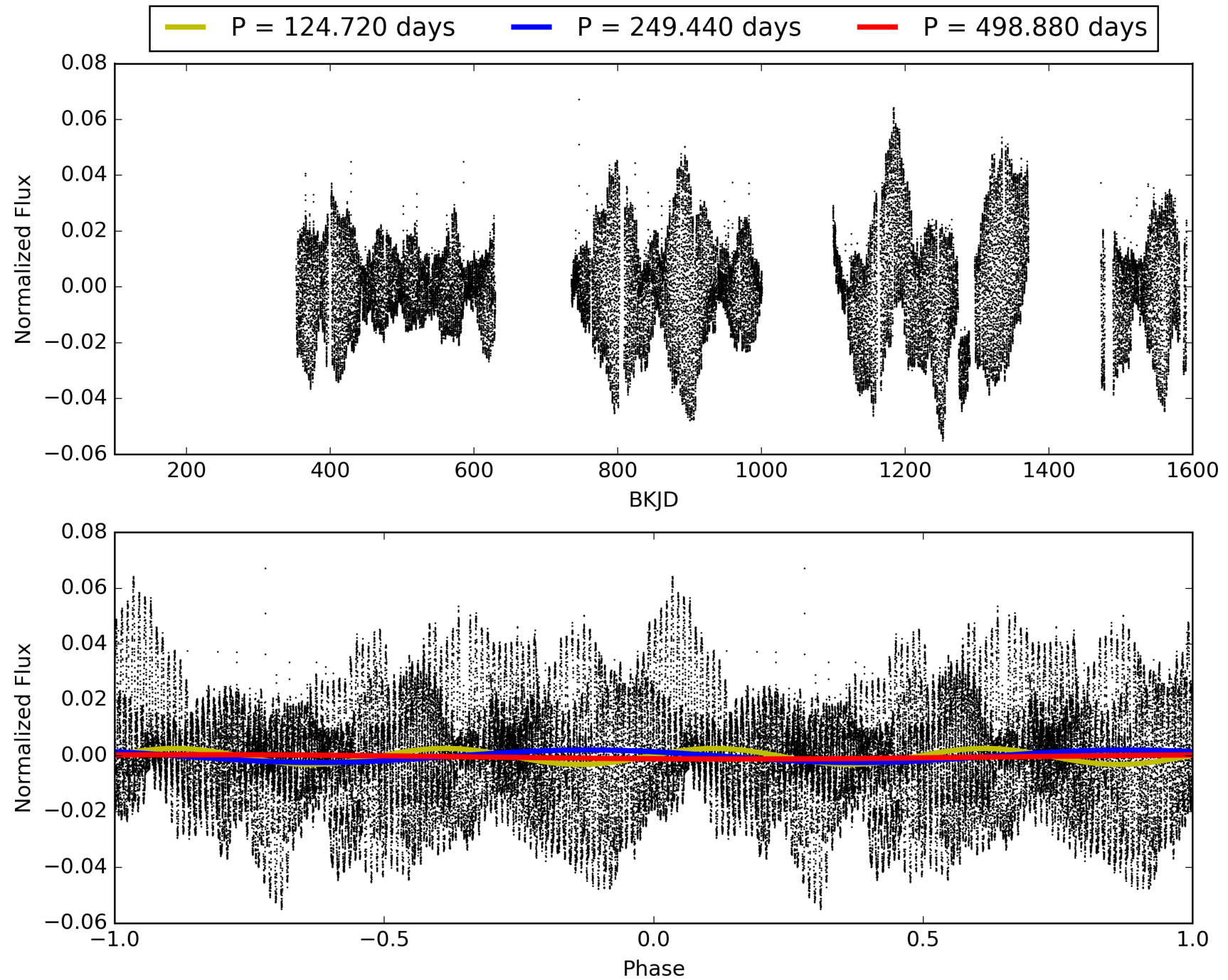
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:22:58 Z

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

TCE 009847963-02, PDC Light Curves

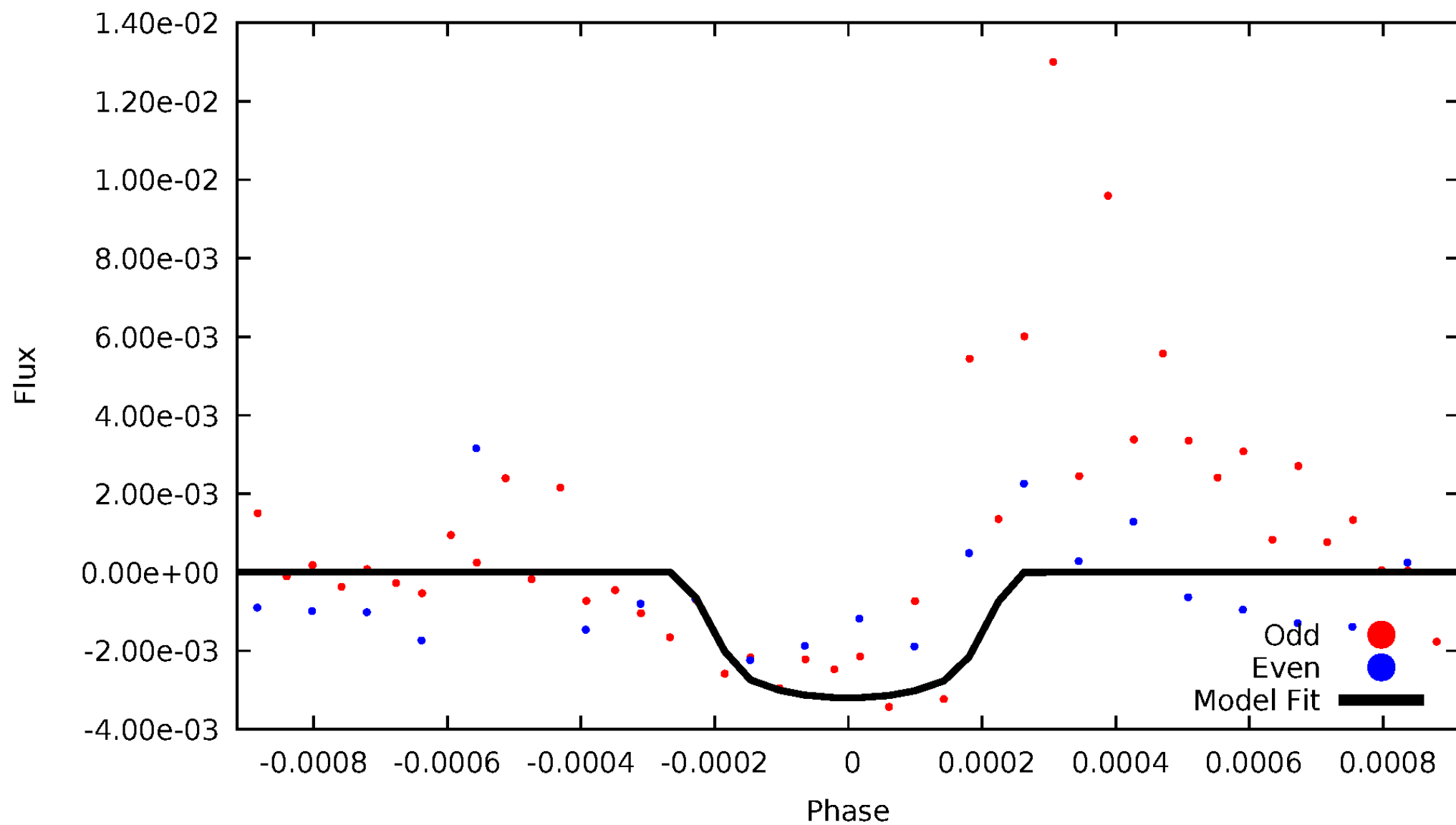


TCE 009847963-02



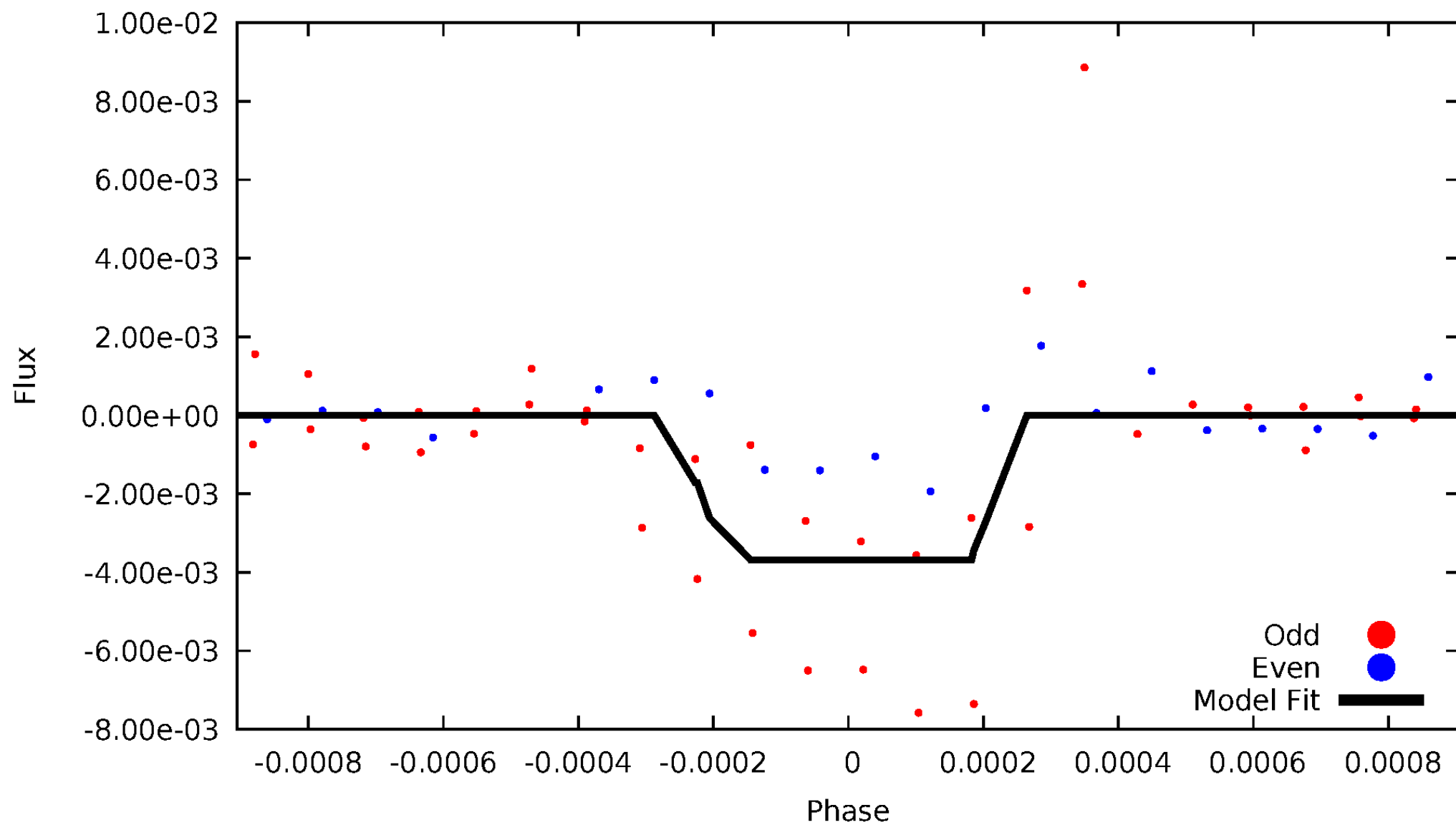
DV Odd/Even

TCE 009847963-02



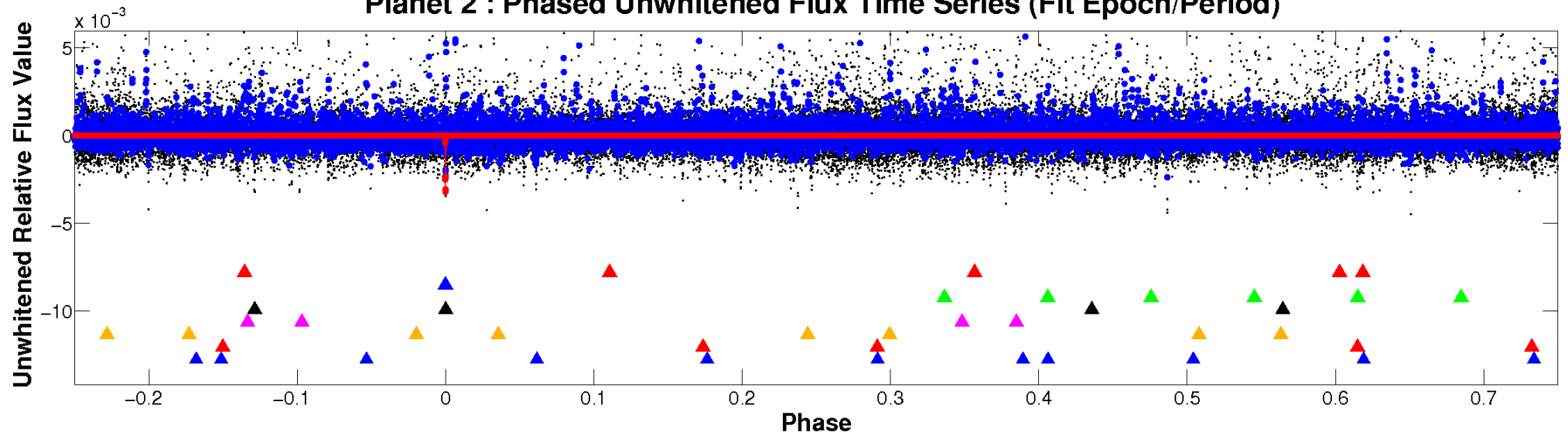
ALT Odd/Even

TCE 009847963-02

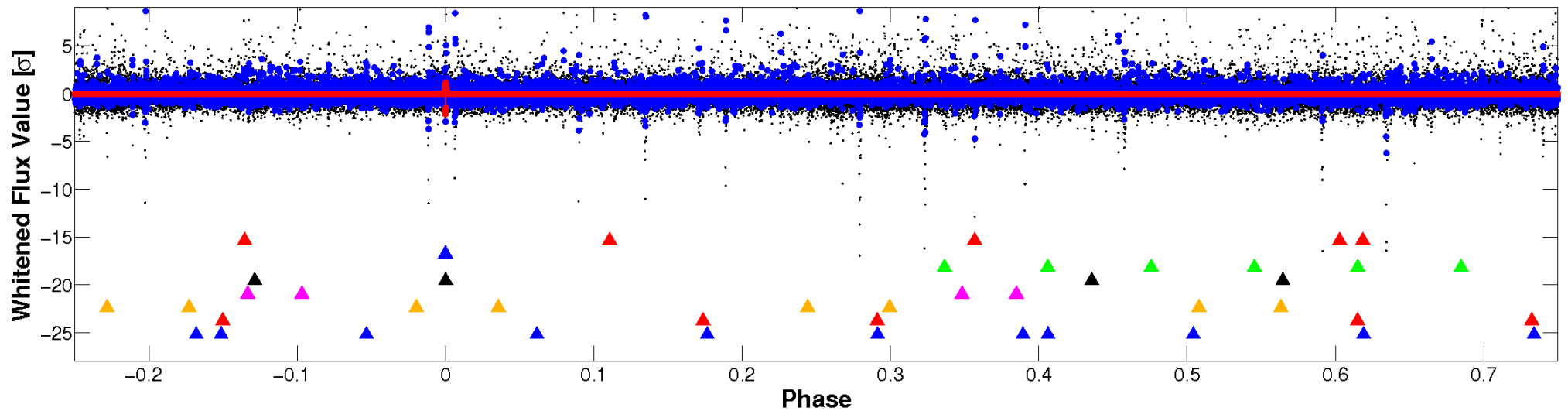


Non-Whitened Vs. Whitened Light Curve

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

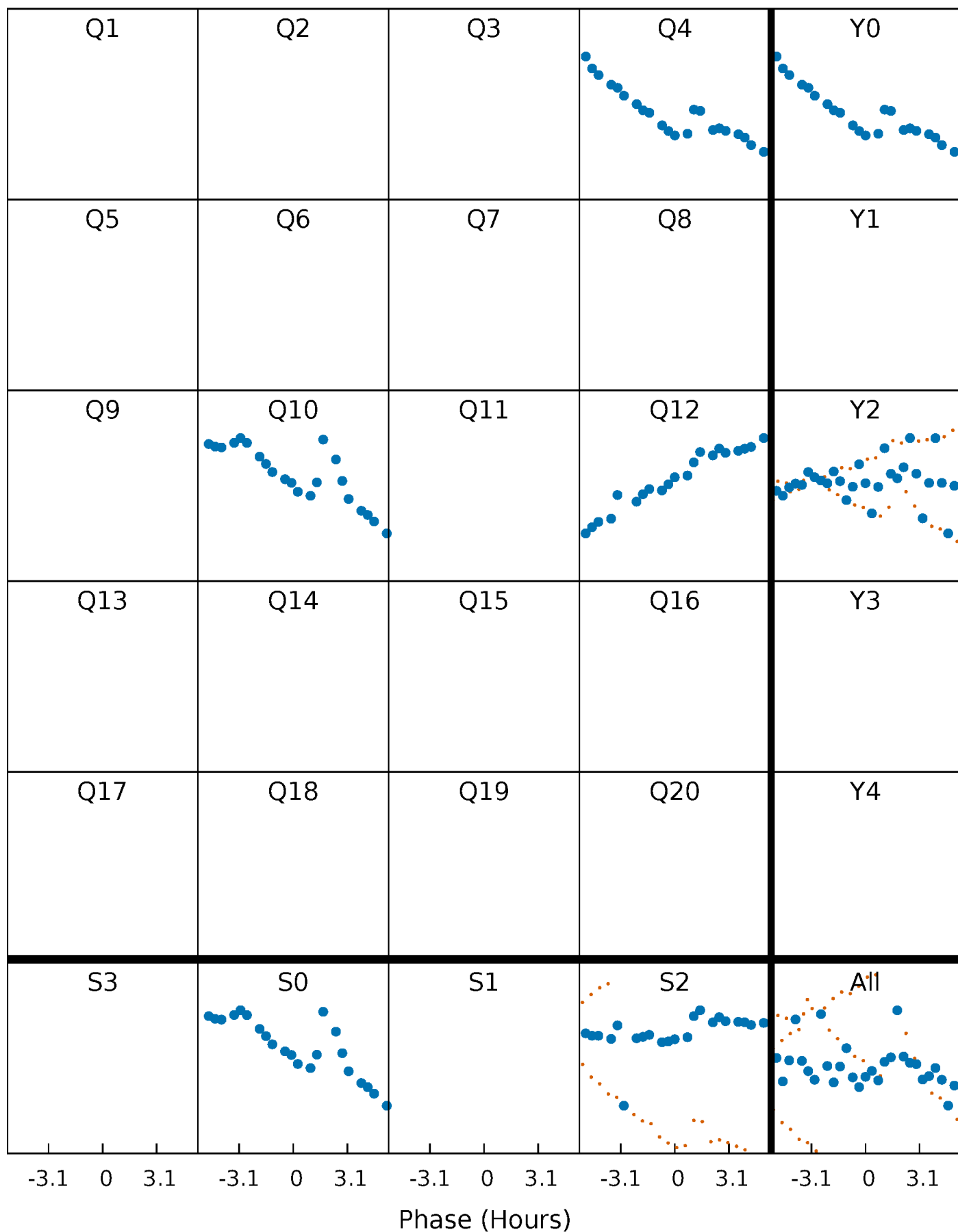


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



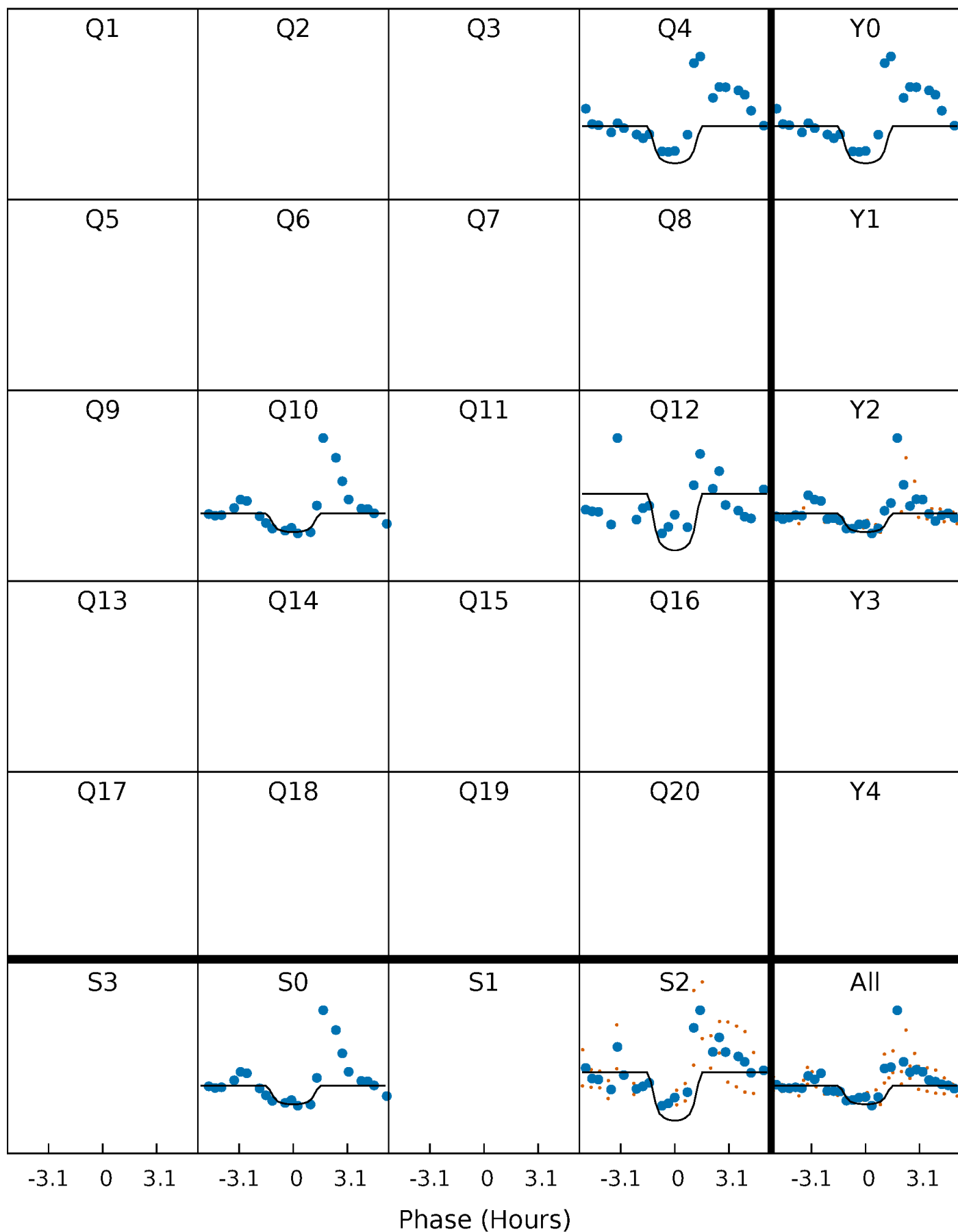
PDC Quarter-Phased Transit Curves

TCE 009847963-02 P=249.439847 Days $T_0=177.269384$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009847963-02 P=249.439847 Days $T_0=177.269384$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

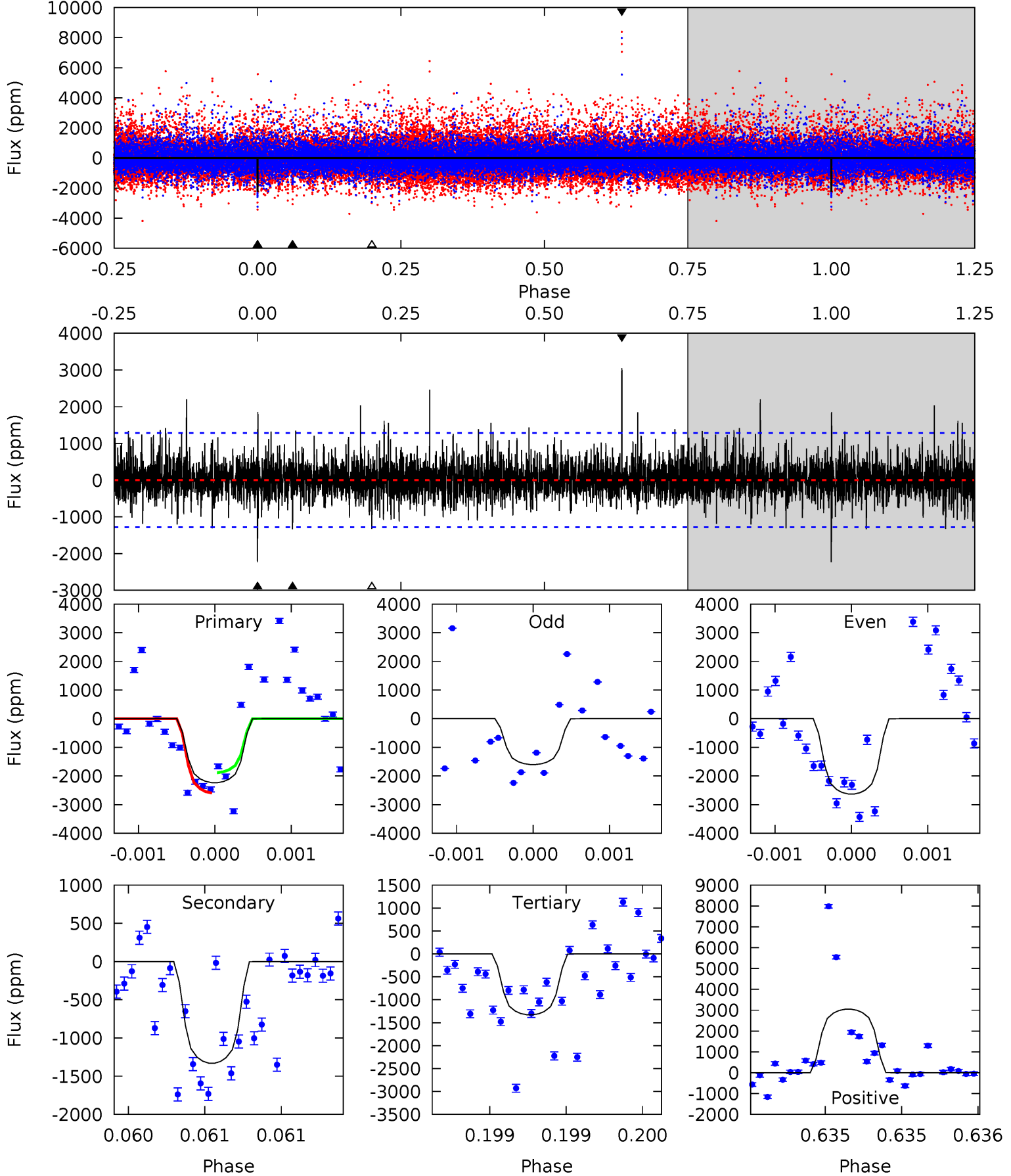
TCE 009847963-02 P=249.444826 Days $T_0=177.243678$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-02, P = 249.439847 Days, E = 177.269384 Days

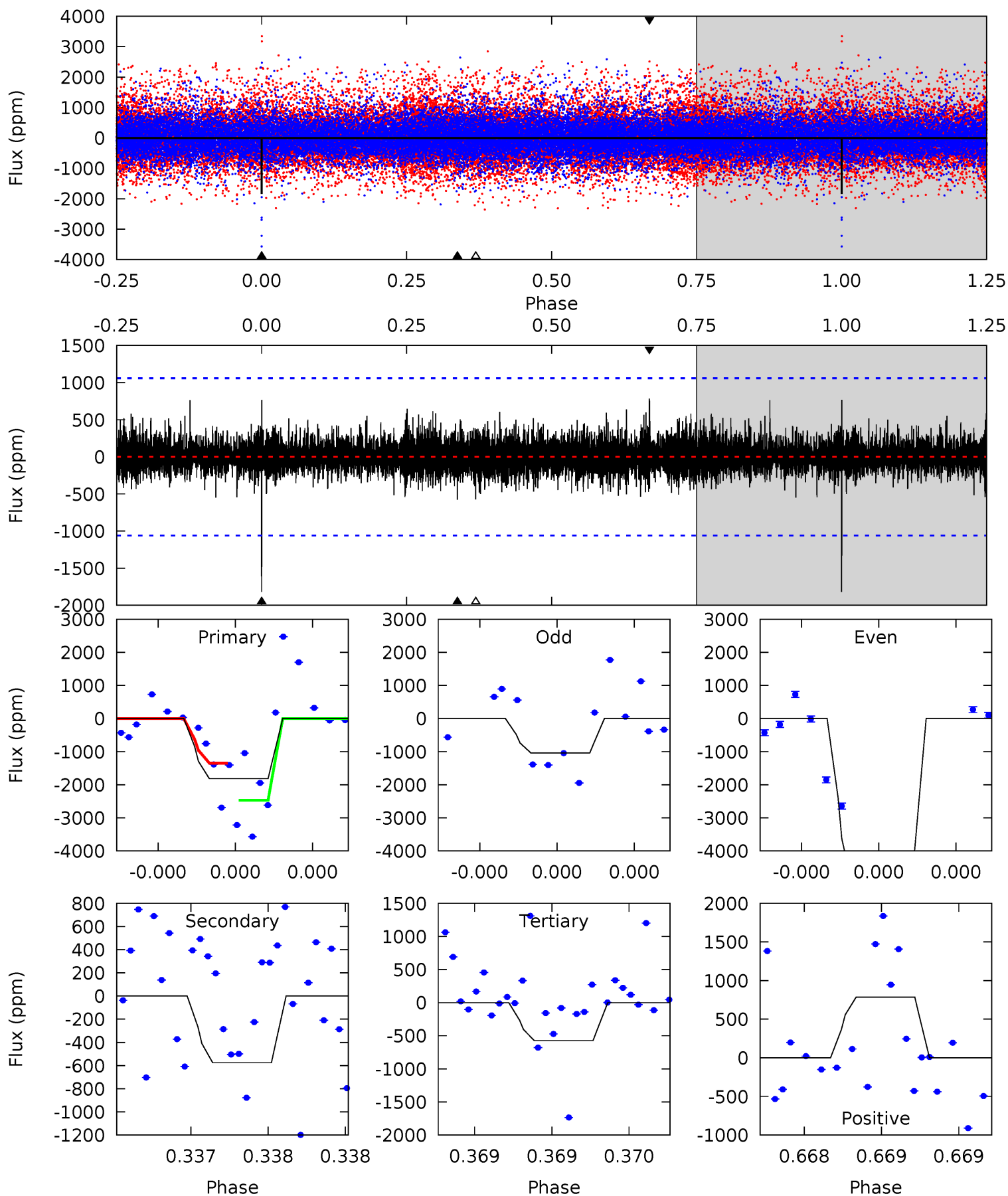
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.69	5.77	5.76	13.2	5.56	3.46	1.55	3.93	-3.53	0.01	-7.45	1.90	1.16	0.58	1.55



Alt Model-Shift Uniqueness Test

009847963-02, P = 249.444826 Days, E = 177.243678 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.60	3.04	3.02	4.14	5.60	3.52	0.79	6.57	5.46	0.02	-1.10	12.5	1.36	0.30	2.81



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1331 ± 231	$8.33^{+7.85}_{-5.69}$	368^{+23}_{-18}	3854^{+2305}_{-717}	5562^{+45985}_{-4099}
Alt.	-576 ± 189	$8.68^{+8.04}_{-5.84}$	369^{+22}_{-20}	3319^{+1577}_{-597}	2150^{+17243}_{-1606}

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 $A_{obs} \gg 1.0$

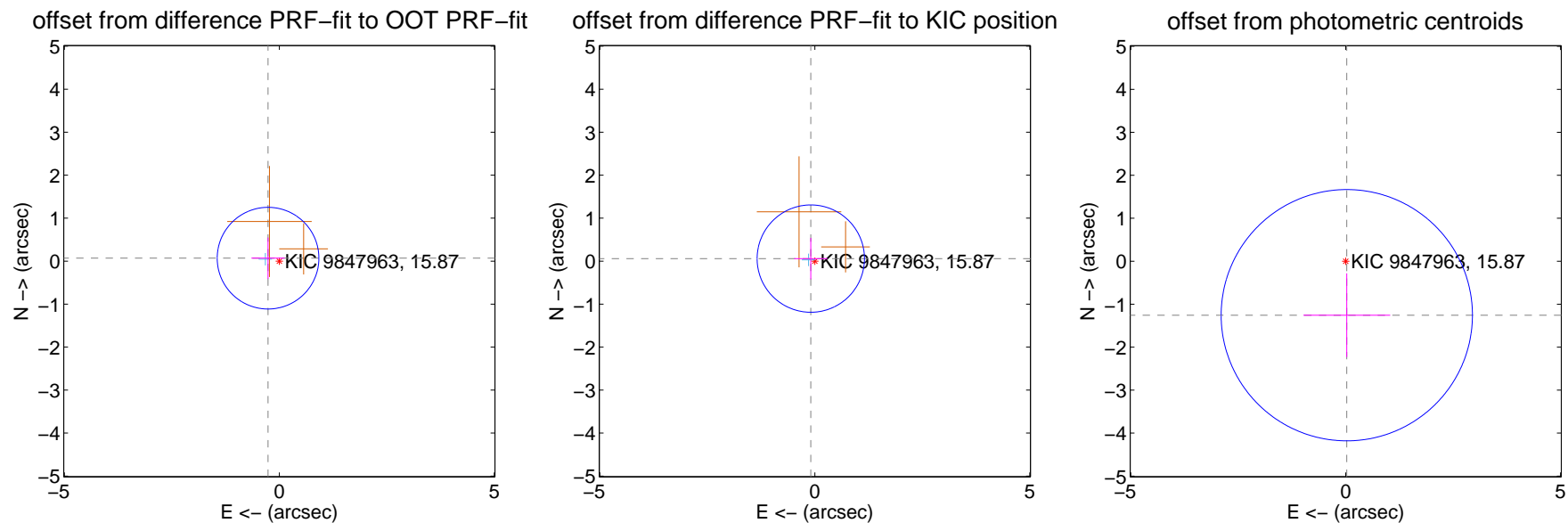
DV Centroid Data

Supplemental centroid analysis for 009847963-02. Kepler magnitude: 15.87. Transit SNR 8.13

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.271 ± 0.394	0.69	0.262 ± 0.388	0.069 ± 0.481
PRF-fit source offset from KIC position	0.111 ± 0.416	0.27	0.094 ± 0.388	0.059 ± 0.481
photometric centroid source offset	1.26 ± 0.97	1.29	-0.03 ± 1.01	-1.26 ± 0.97



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

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



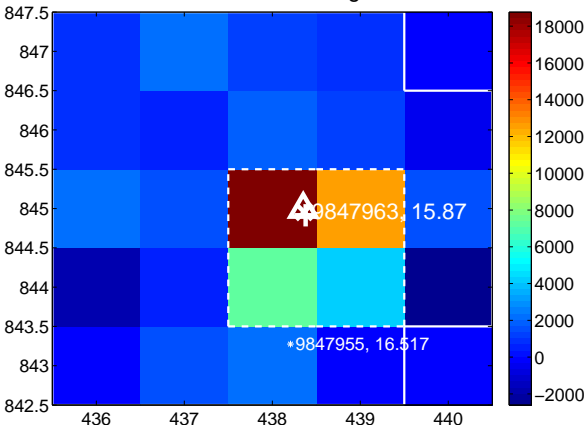
Q3 no difference image



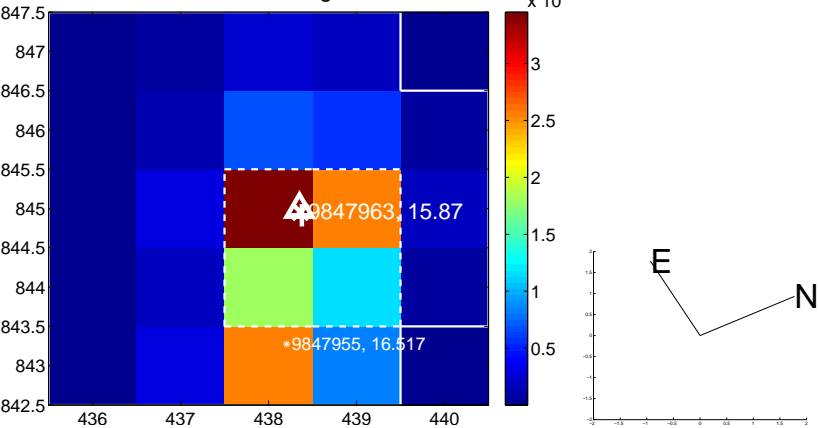
Q3 no OOT image



Q4 difference image



Q4 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.

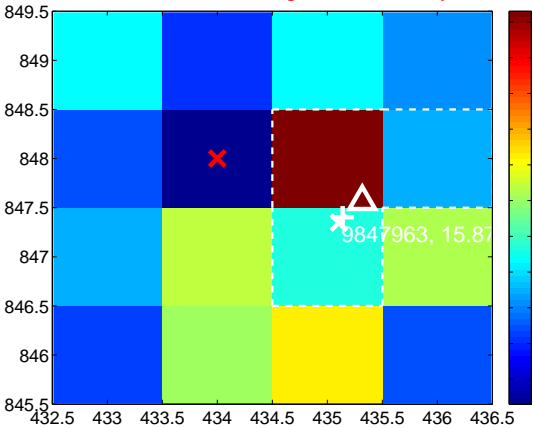
Q9 no difference image



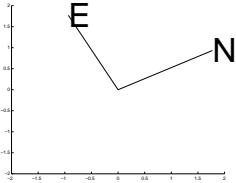
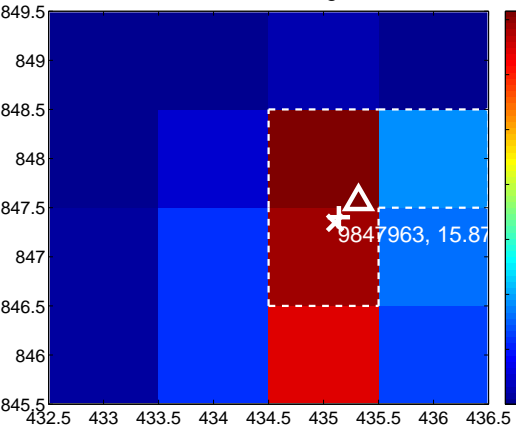
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



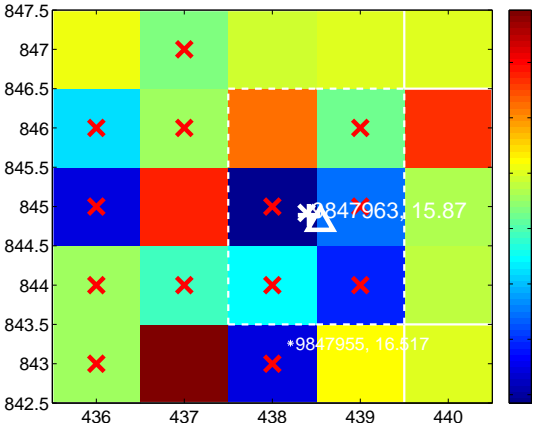
Q11 no difference image



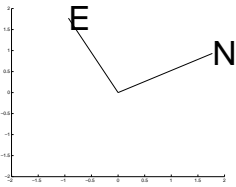
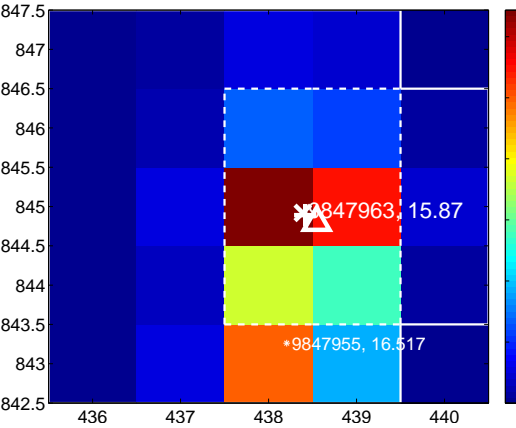
Q11 no OOT image



Q12 difference image. Poor Quality



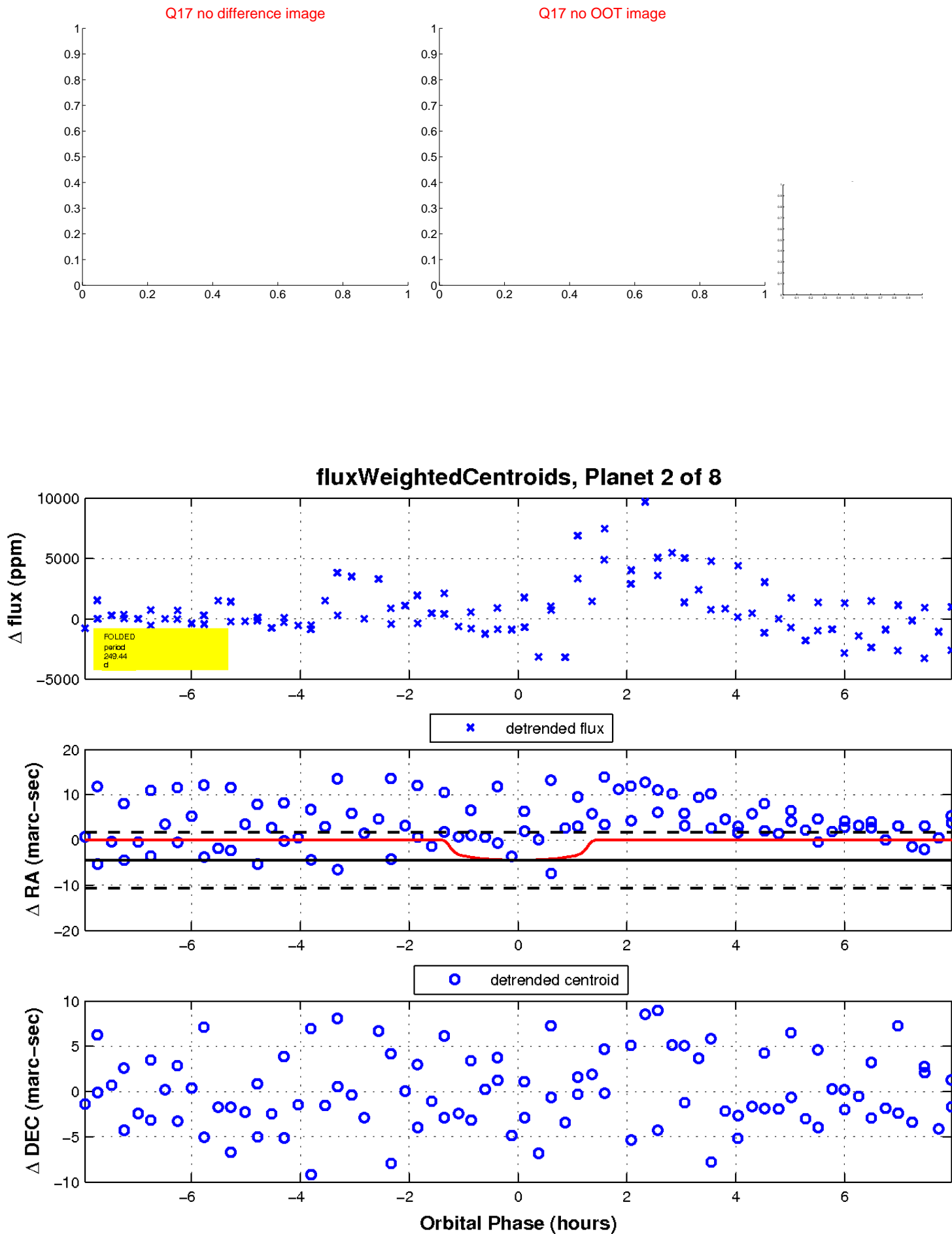
Q12 OOT image



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

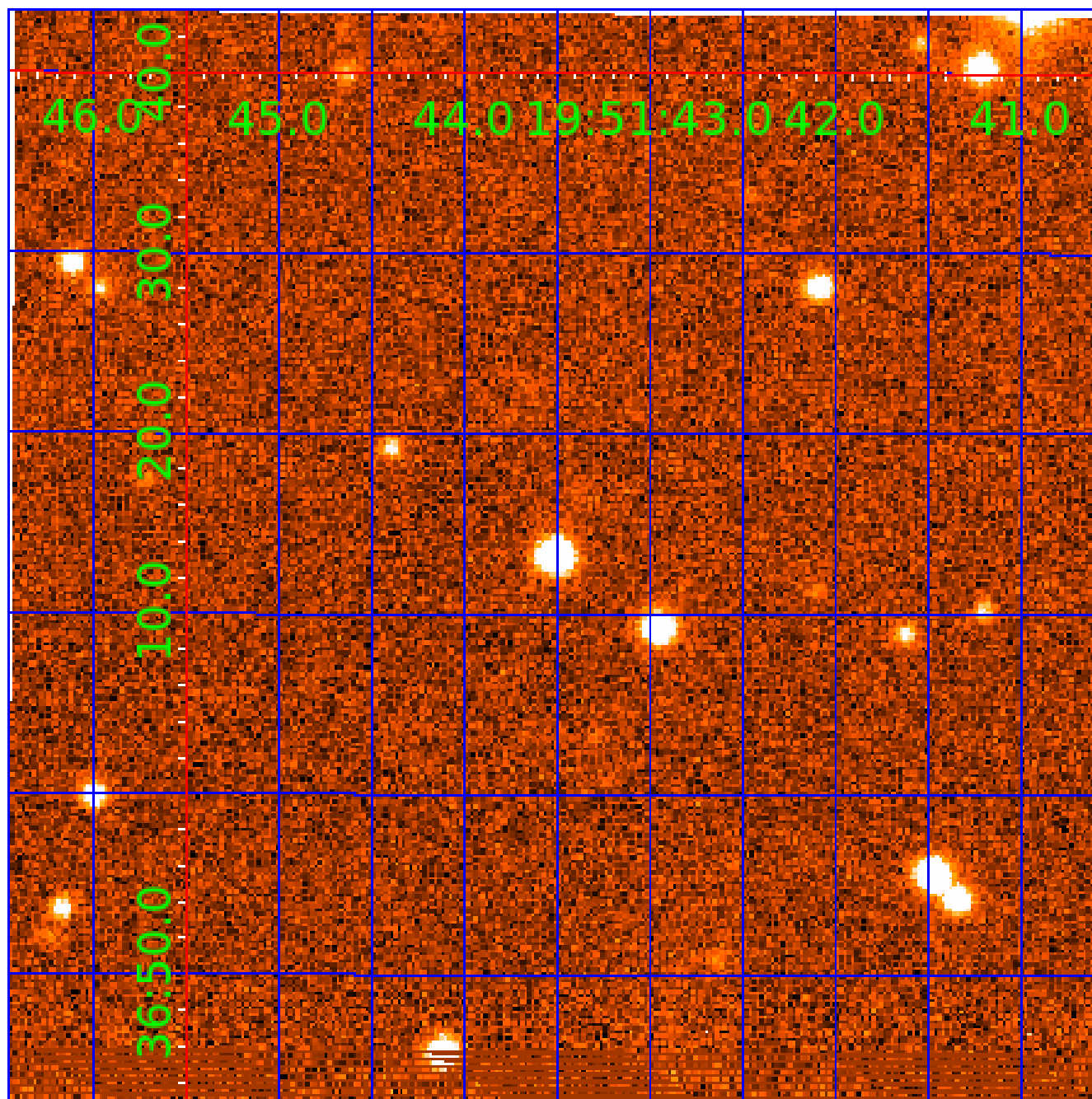


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009847963

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})
009847963-01	OBS	No	310.825531	331.542093	3700.4	3.133	13.3	9.0	0.83	5518	5.47	0.84
009847963-02	OBS	No	249.439847	177.269384	3203.8	2.736	12.4	8.1	0.83	5518	4.78	1.13
009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
009847963-05	OBS	No	369.594720	402.568831	3565.7	12.236	9.9	7.9	0.83	5518	4.88	0.67
009847963-06	OBS	No	183.633385	134.142260	2715.2	2.999	15.9	6.5	0.83	5518	4.47	1.70
009847963-07	OBS	No	359.513509	139.813954	3211.3	7.443	10.0	6.9	0.83	5518	6.29	0.69
009847963-08	OBS	No	139.045528	135.344328	1783.2	2.500	9.1	-1.0	0.83	5518	3.46	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009847963-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

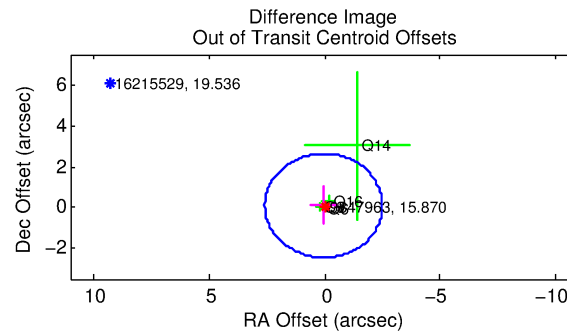
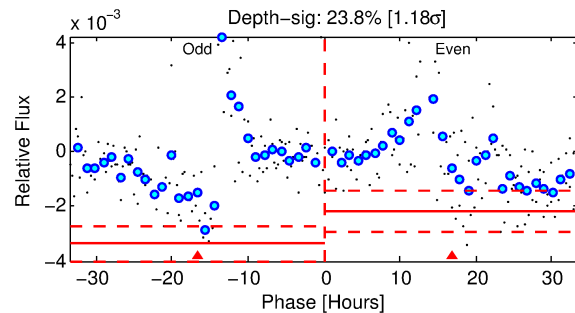
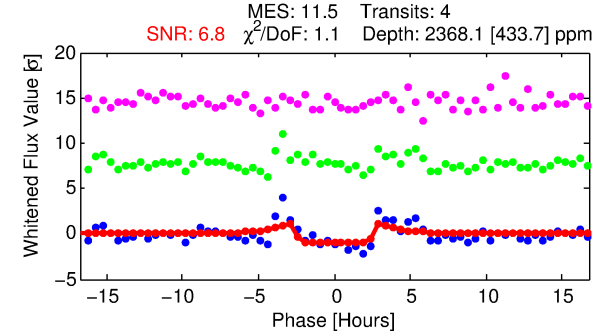
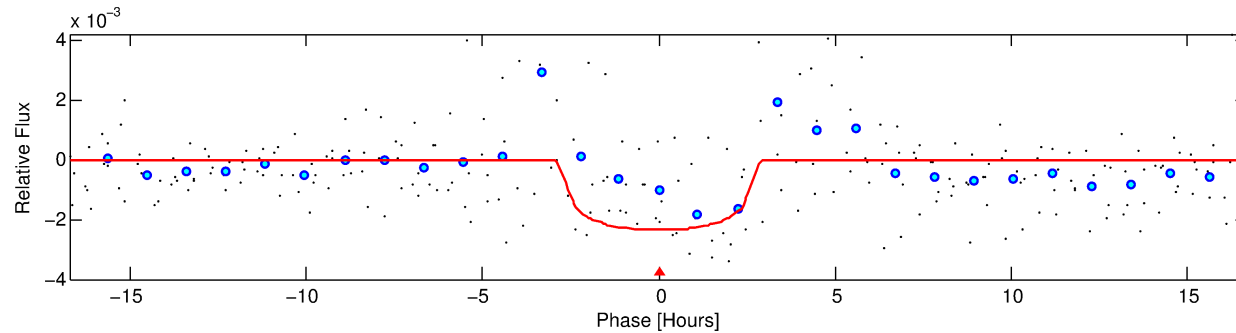
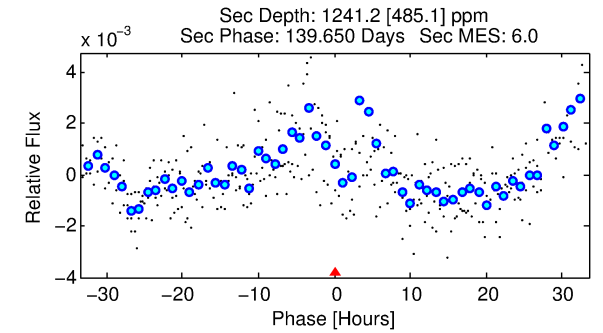
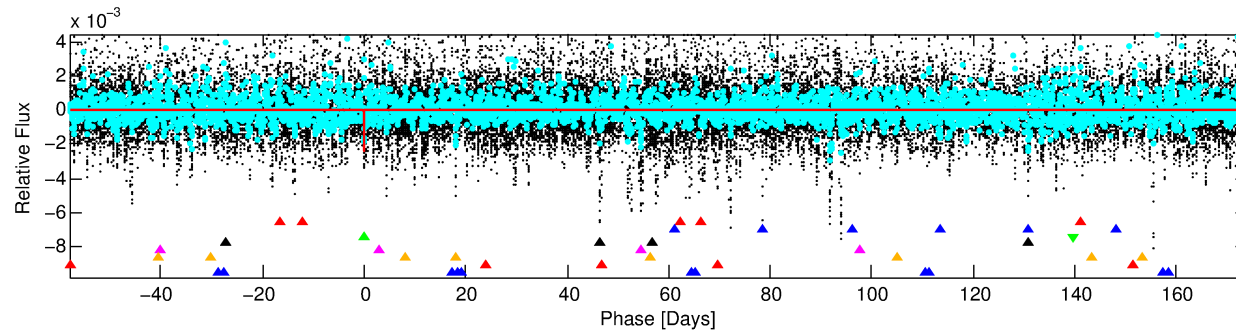
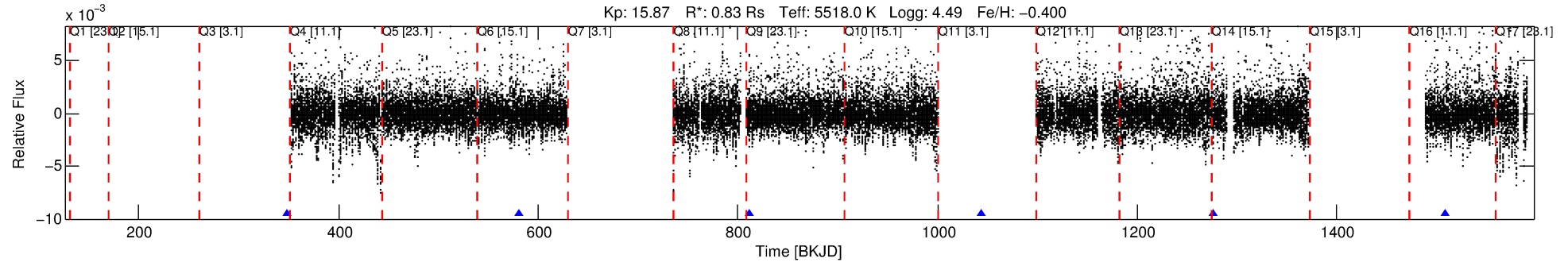
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-03

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 3 of 8 Period: 232.062 d



DV Fit Results:

Period = 232.06246 [0.00318] d
Epoch = 348.0731 [0.0100] BKJD
Rp/R* = 0.0445 [0.0291]
a/R* = 320.44 [860.11]
b = 0.27 [9.11]
Seff = 1.25 [0.36]
Teq = 269 [19] K
Rp = 4.02 [2.75] Re
a = 0.6763 [0.1150] AU
Ag = 19354.08 [26869.62] [0.72σ]
Teffp = 4912 [1686] K [2.75σ]

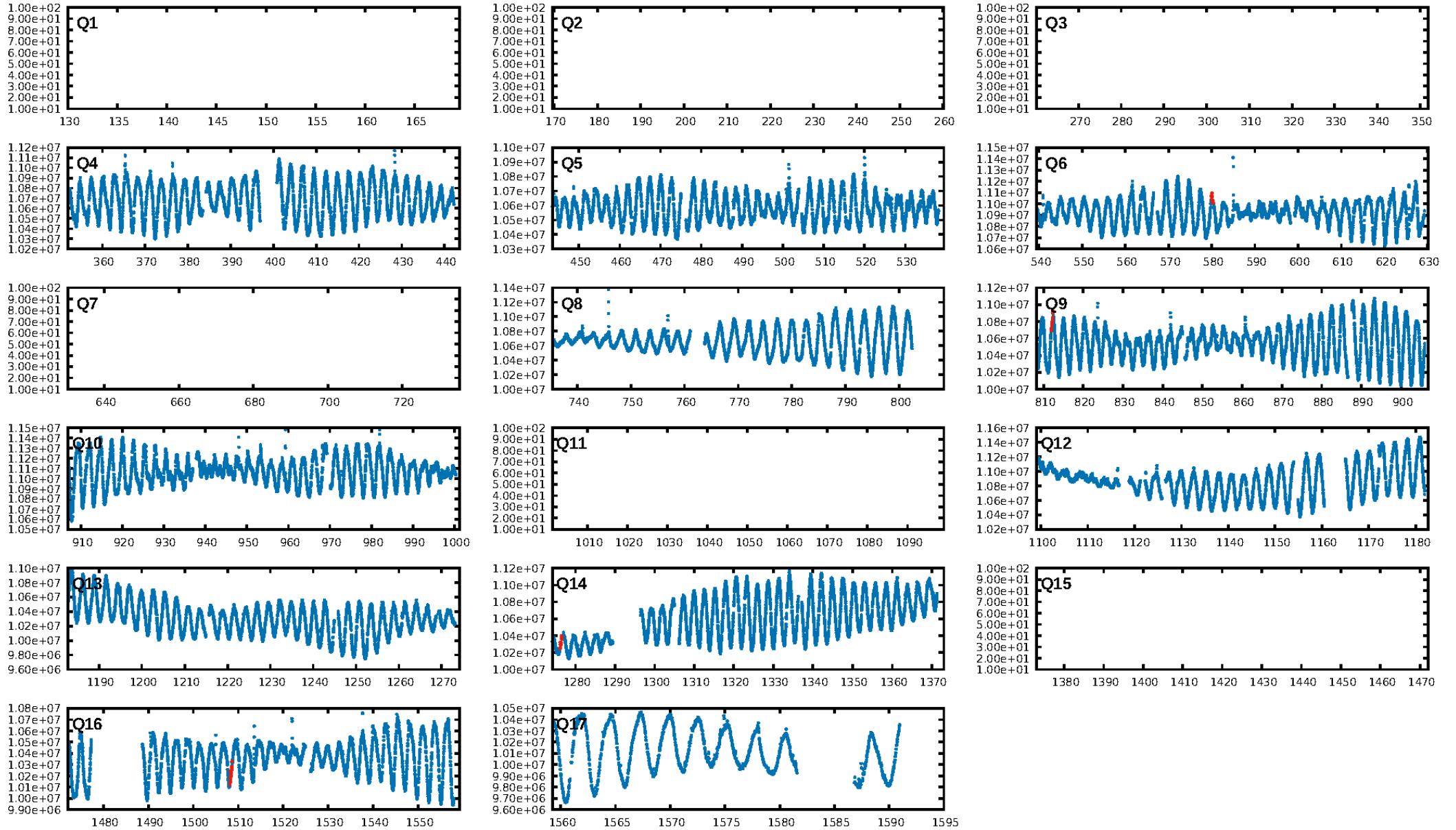
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [183.58σ]
LongPeriod-sig: 100.0% [67.15σ]
ModelChiSquare2-sig: 58.9%
ModelChiSquareGof-sig: 93.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.17
Centroid-sig: N/A
Centroid-so: 0.567 arcsec [0.57σ]
OotOffset-rm: 0.101 arcsec [0.12σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-rm: 0.206 arcsec [0.25σ]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [4/4]

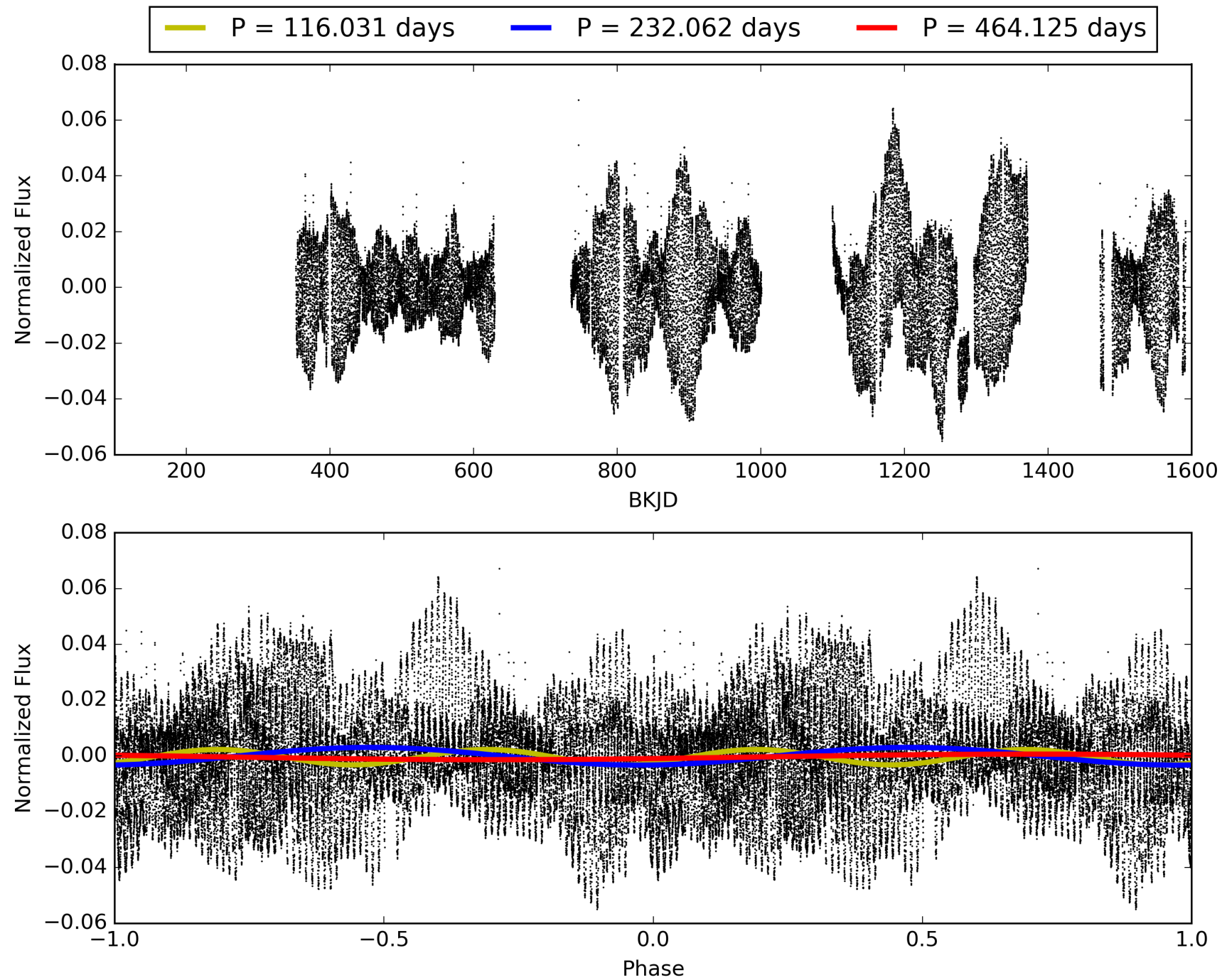
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:23:06 Z

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

TCE 009847963-03, PDC Light Curves

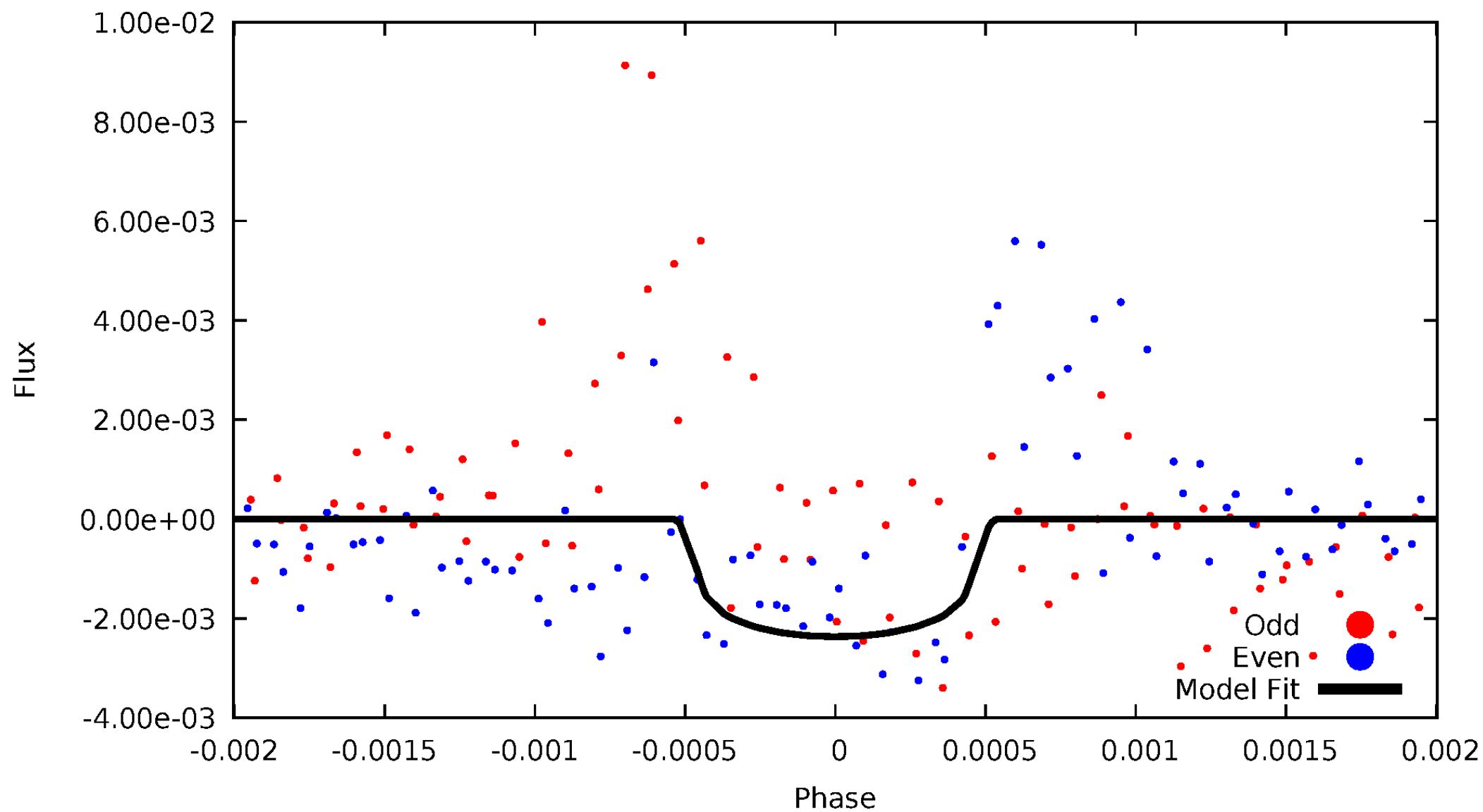


TCE 009847963-03



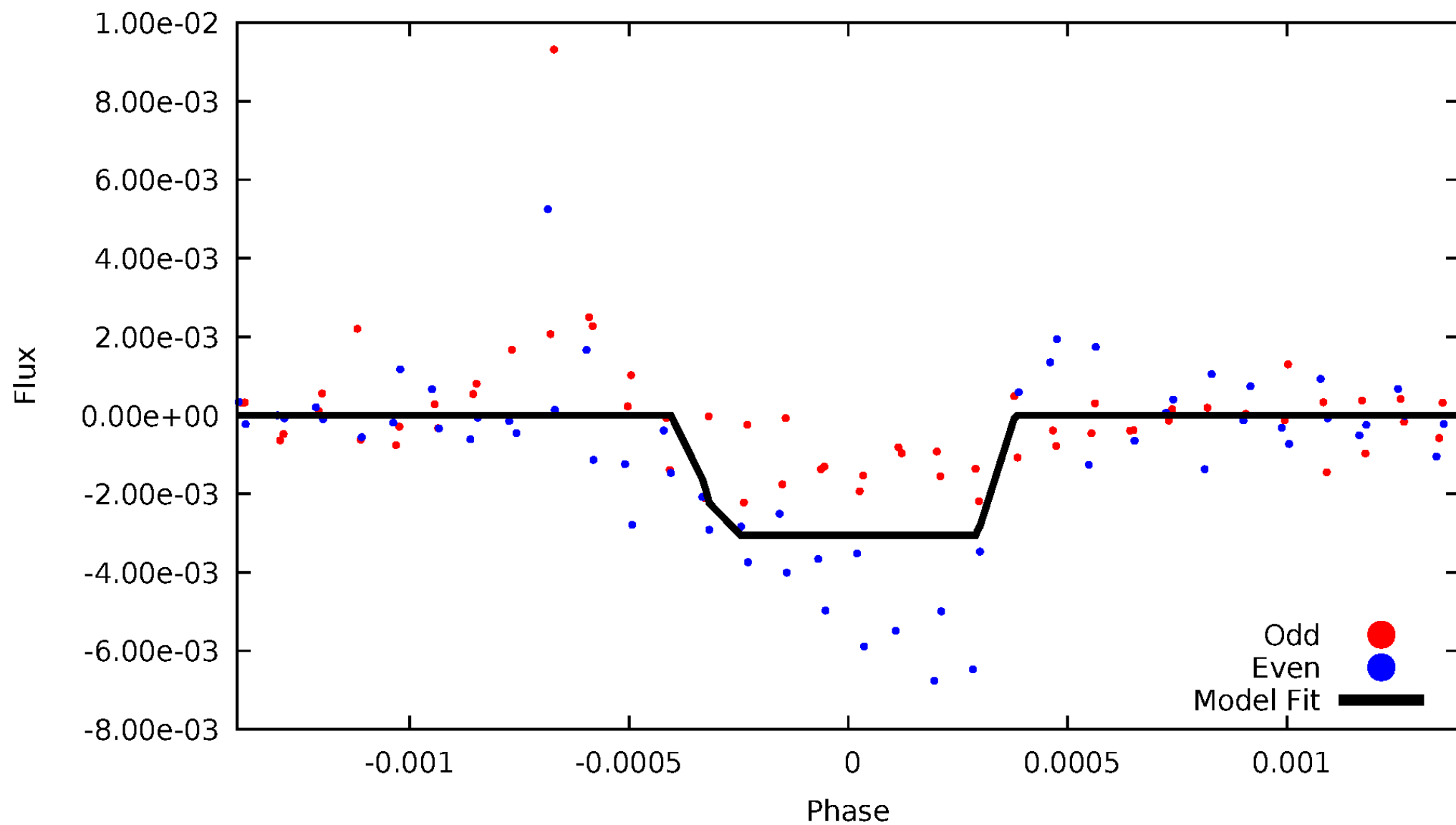
DV Odd/Even

TCE 009847963-03



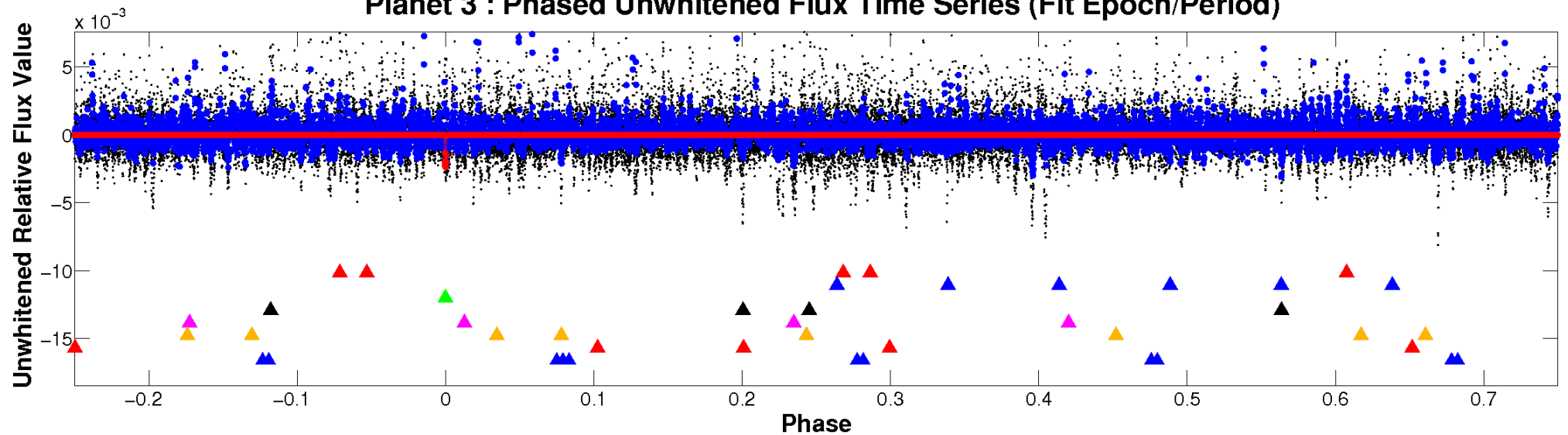
ALT Odd/Even

TCE 009847963-03

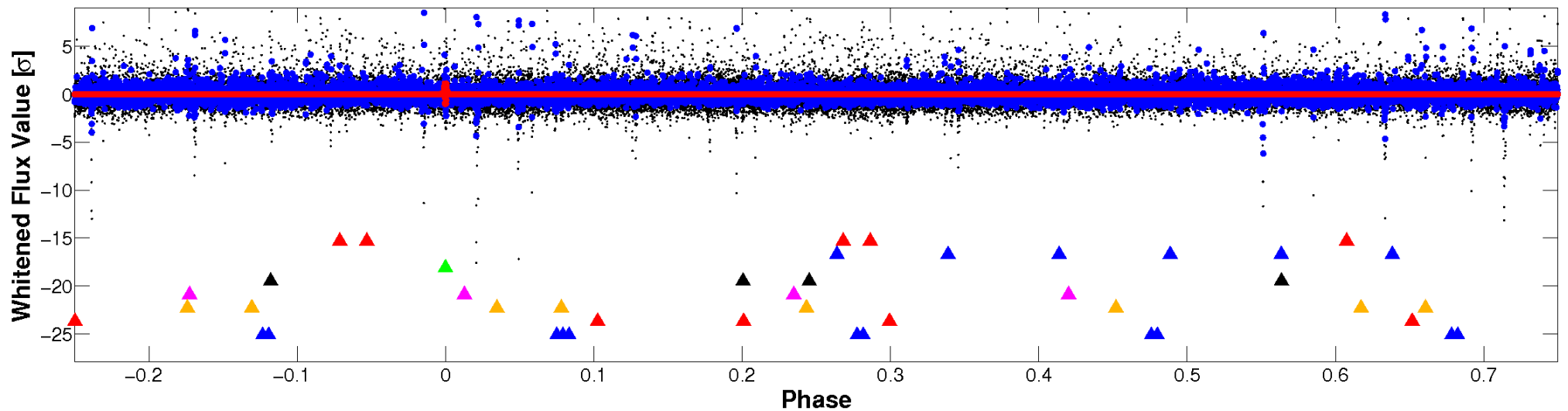


Non-Whitened Vs. Whitened Light Curve

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

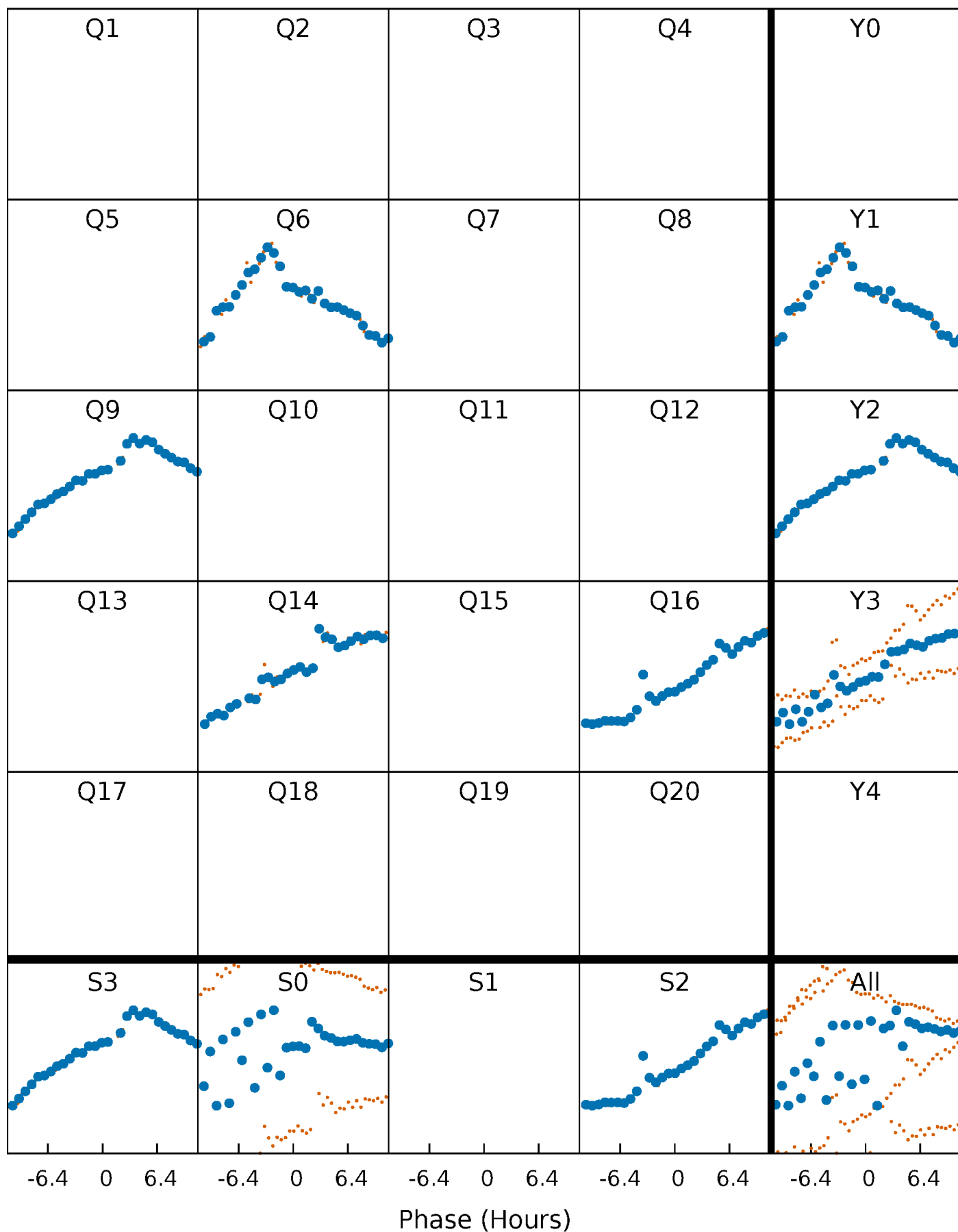


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



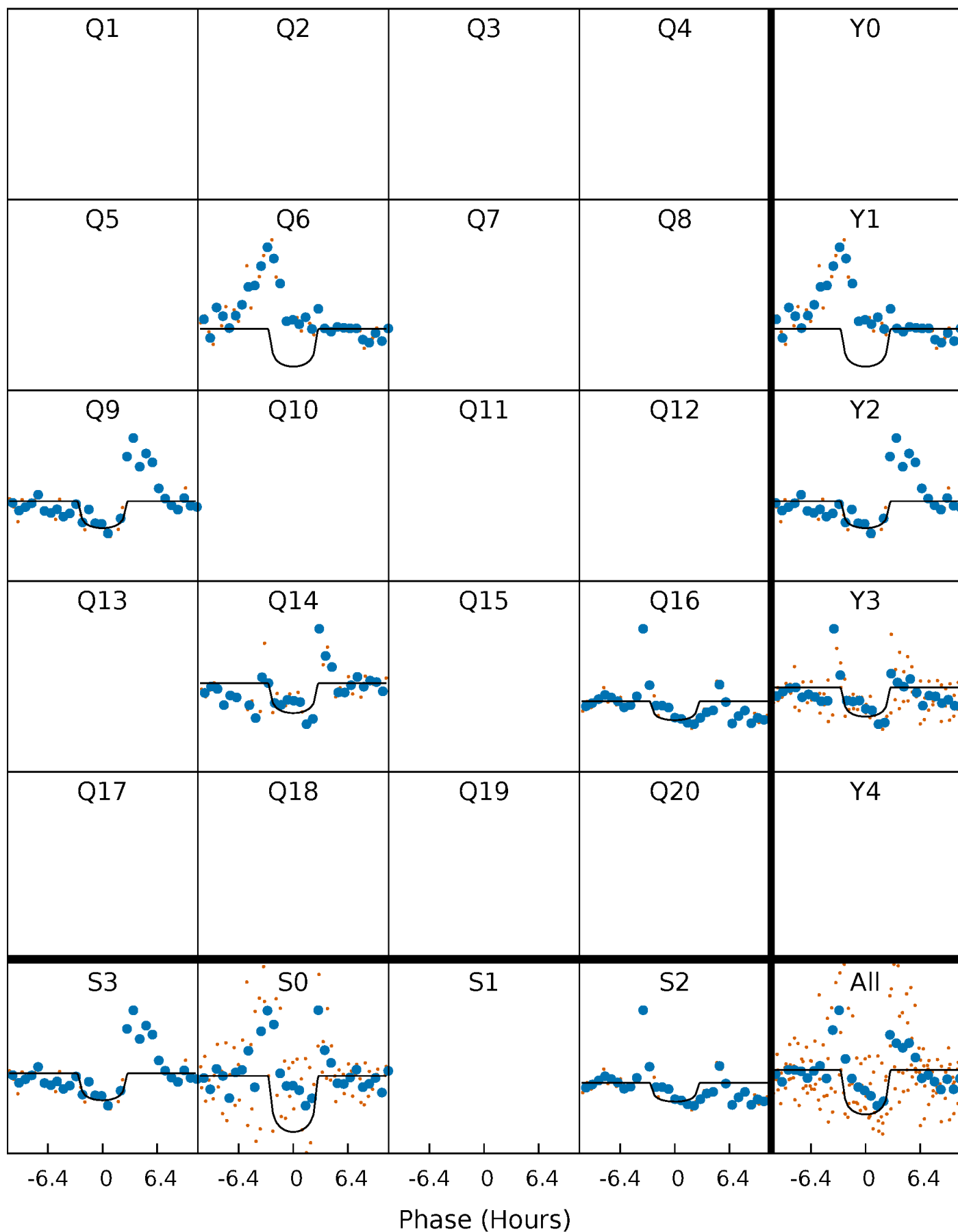
PDC Quarter-Phased Transit Curves

TCE 009847963-03 P=232.062462 Days $T_0=348.073101$ (BKJD)



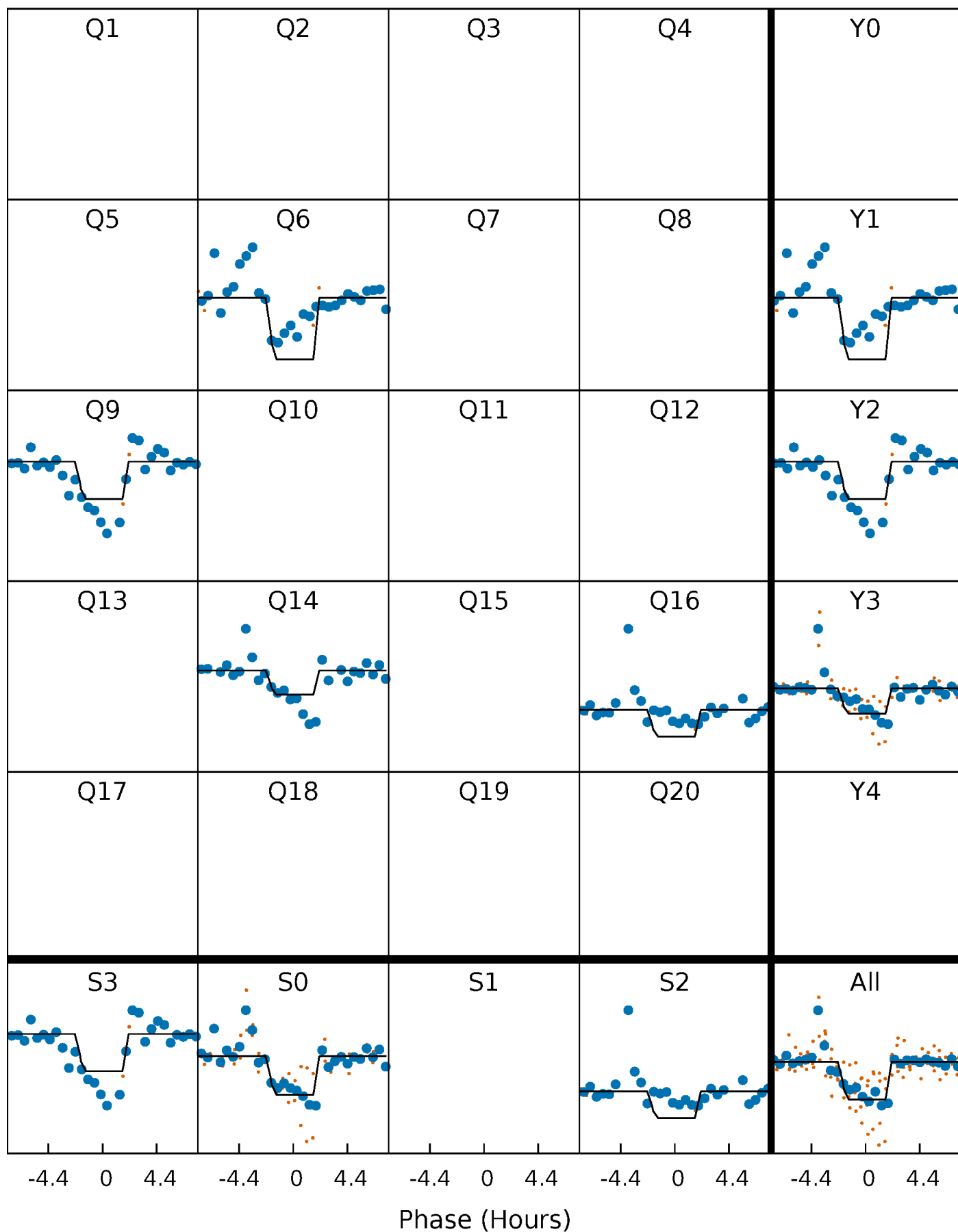
DV Quarter-Phased Transit Curves

TCE 009847963-03 $P=232.062462$ Days $T_0=348.073101$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

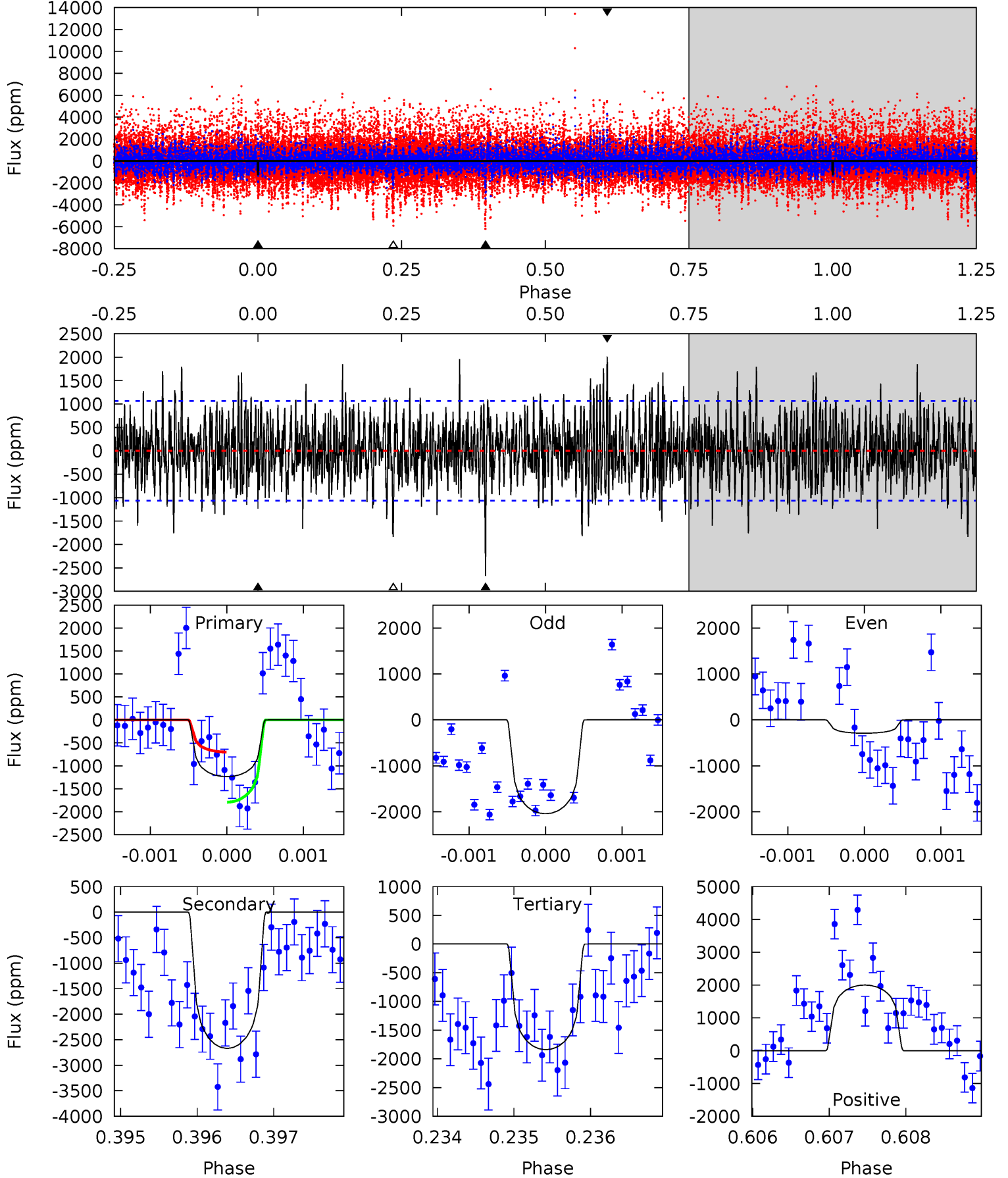
TCE 009847963-03 P=232.057649 Days $T_0=348.110996$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-03, P = 232.062462 Days, E = 348.073101 Days

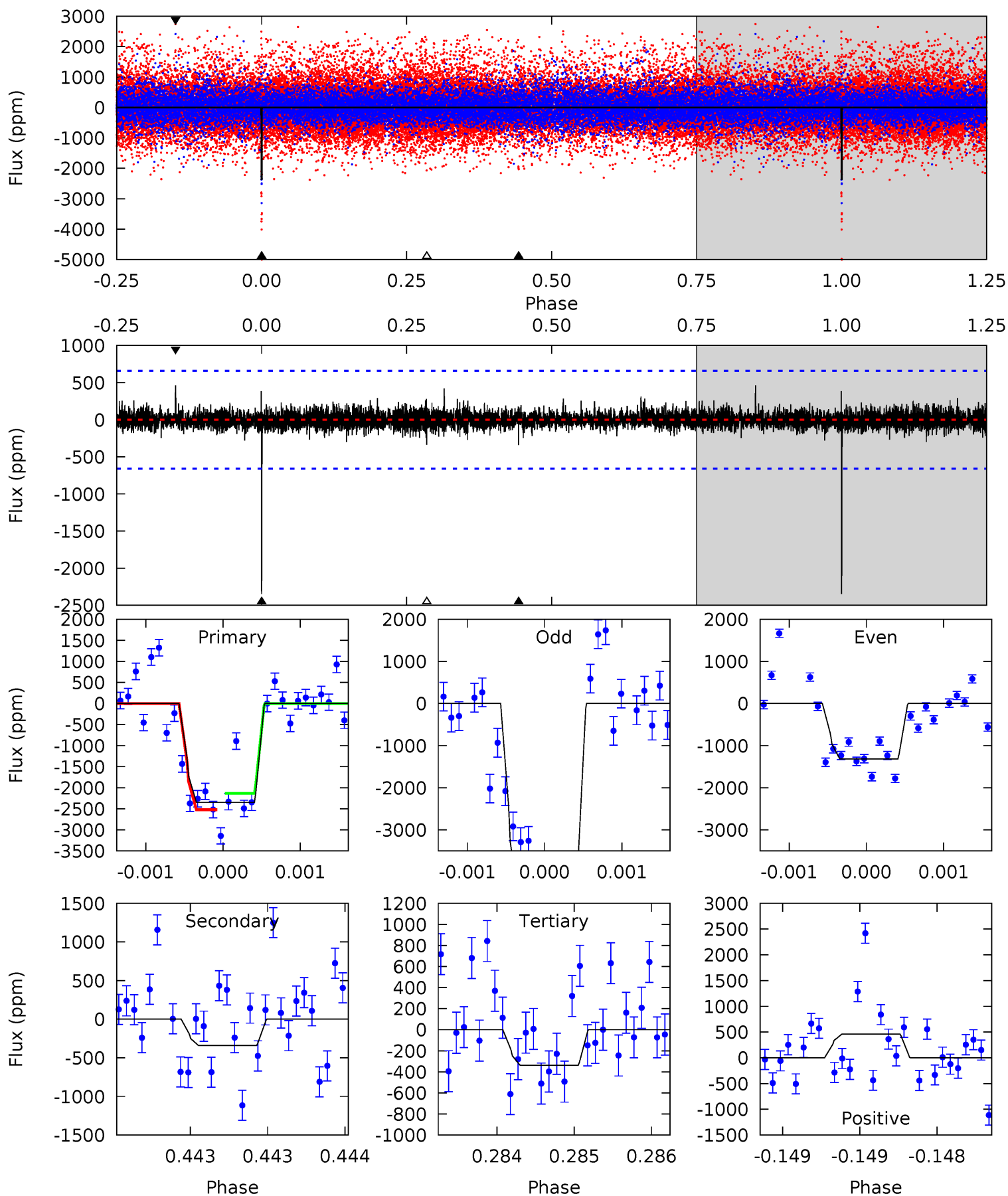
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.31	13.6	9.39	10.2	5.44	3.27	2.75	-3.08	-3.90	4.24	3.41	4.23	0.62	0.43	2.81



Alt Model-Shift Uniqueness Test

009847963-03, P = 232.057649 Days, E = 348.110996 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	2.86	2.83	3.85	5.51	3.39	0.60	16.8	15.8	0.03	-0.99	14.7	0.96	0.16	1.63



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2669 ± 196	$4.25^{+2.67}_{-2.19}$	377^{+24}_{-19}	5840^{+2914}_{-1131}	$38390^{+127036}_{-23781}$
Alt.	-342 ± 120	$5.08^{+2.78}_{-2.33}$	378^{+22}_{-21}	3587^{+866}_{-490}	3078^{+7756}_{-1903}

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 $A_{obs} \gg 1.0$

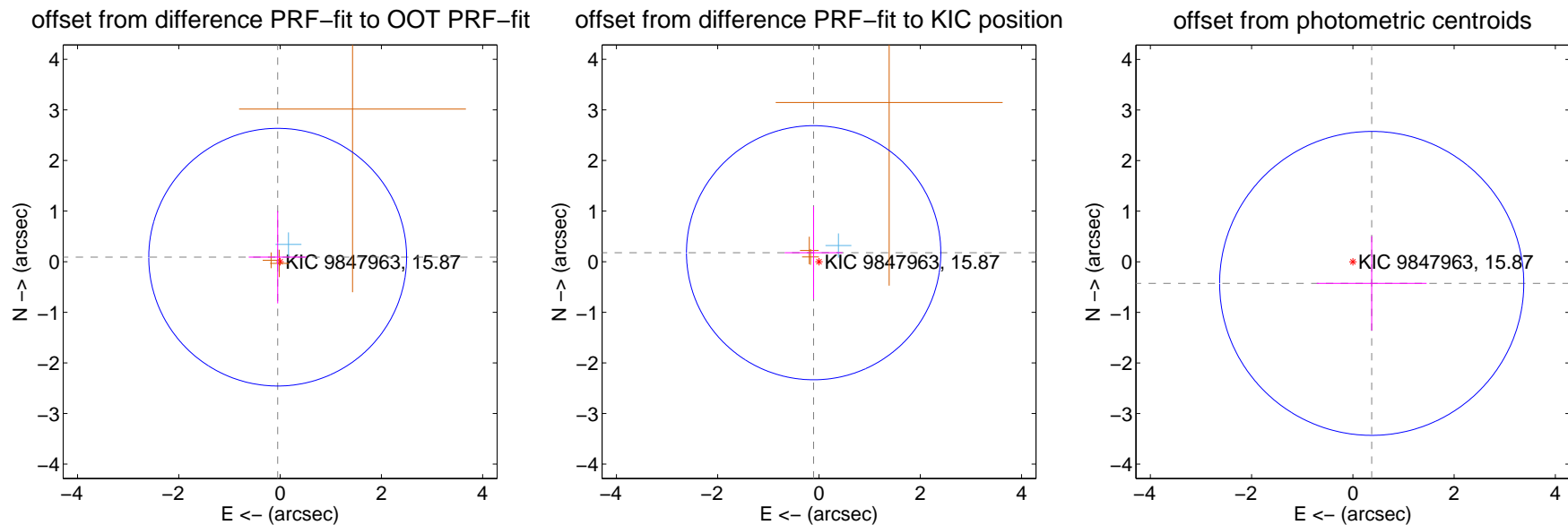
DV Centroid Data

Supplemental centroid analysis for 009847963-03. Kepler magnitude: 15.87. Transit SNR 6.75

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.849	0.12	0.048 ± 0.571	0.089 ± 0.913
PRF-fit source offset from KIC position	0.206 ± 0.837	0.25	0.106 ± 0.571	0.177 ± 0.913
photometric centroid source offset	0.57 ± 1.00	0.57	-0.37 ± 1.08	-0.43 ± 0.93



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

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



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

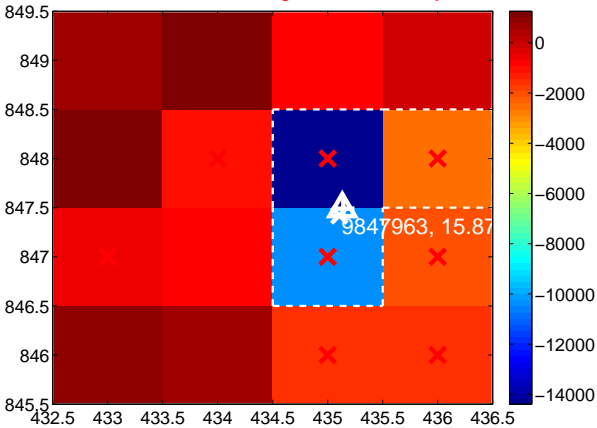
Q5 no difference image



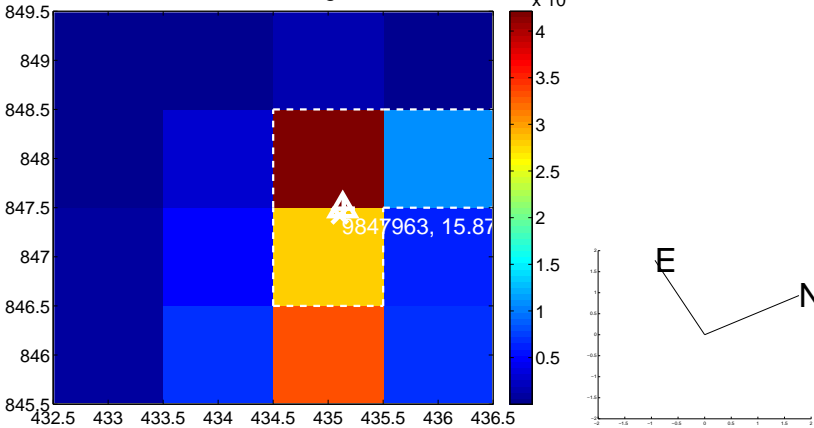
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



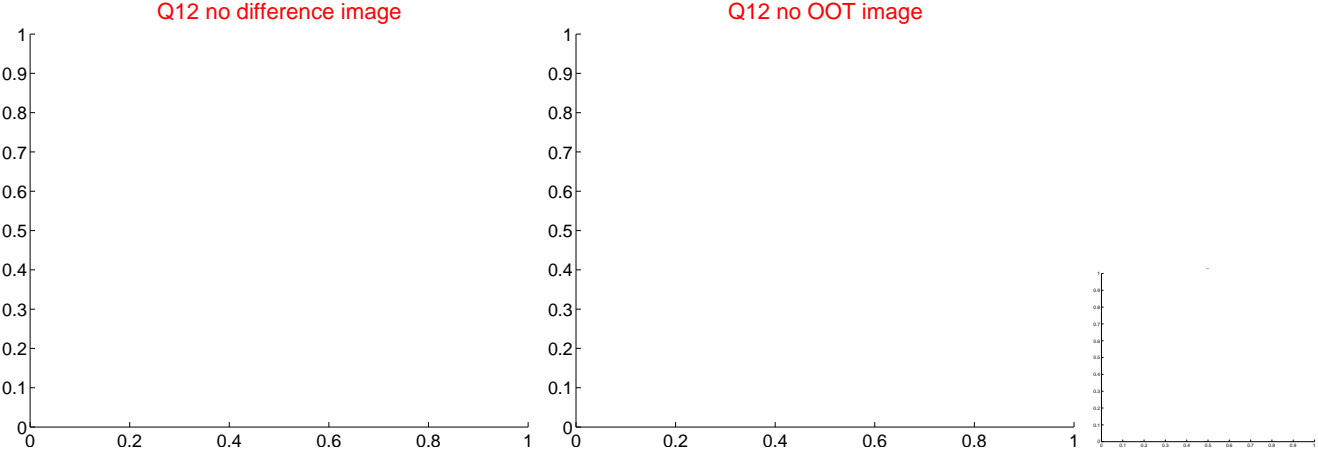
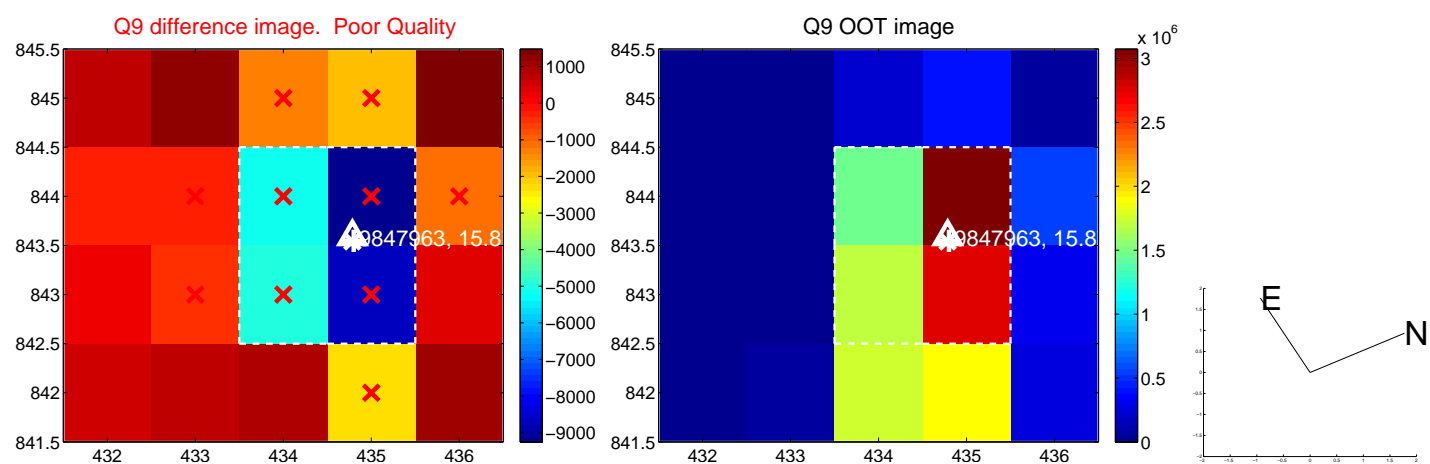
Q8 no difference image



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.

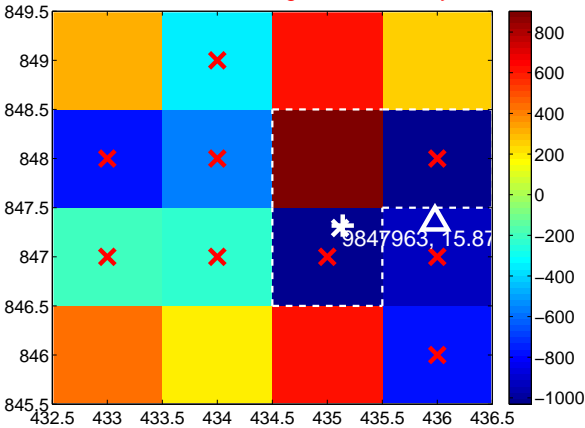
Q13 no difference image



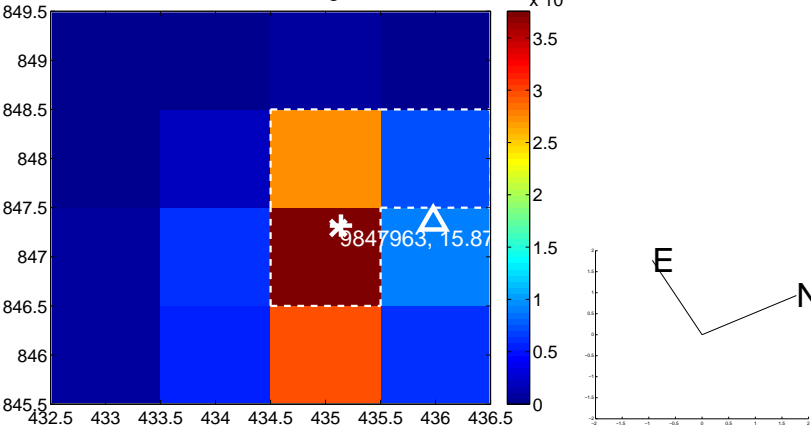
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



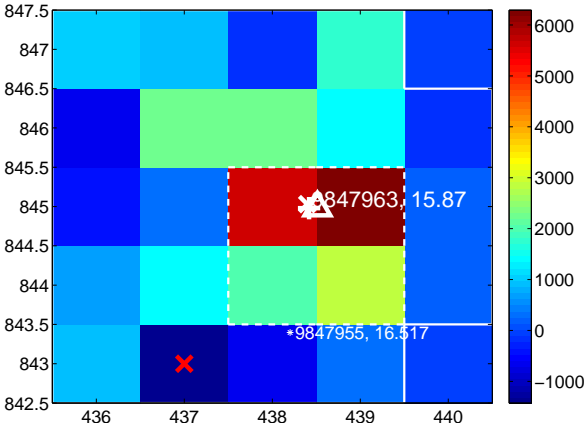
Q15 no difference image



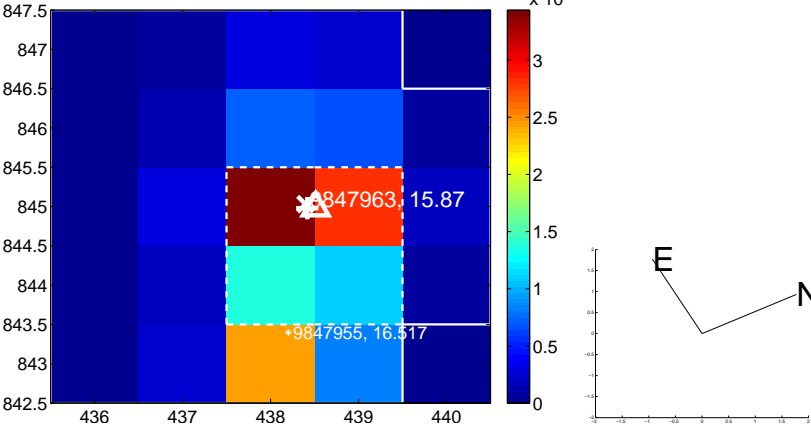
Q15 no OOT image



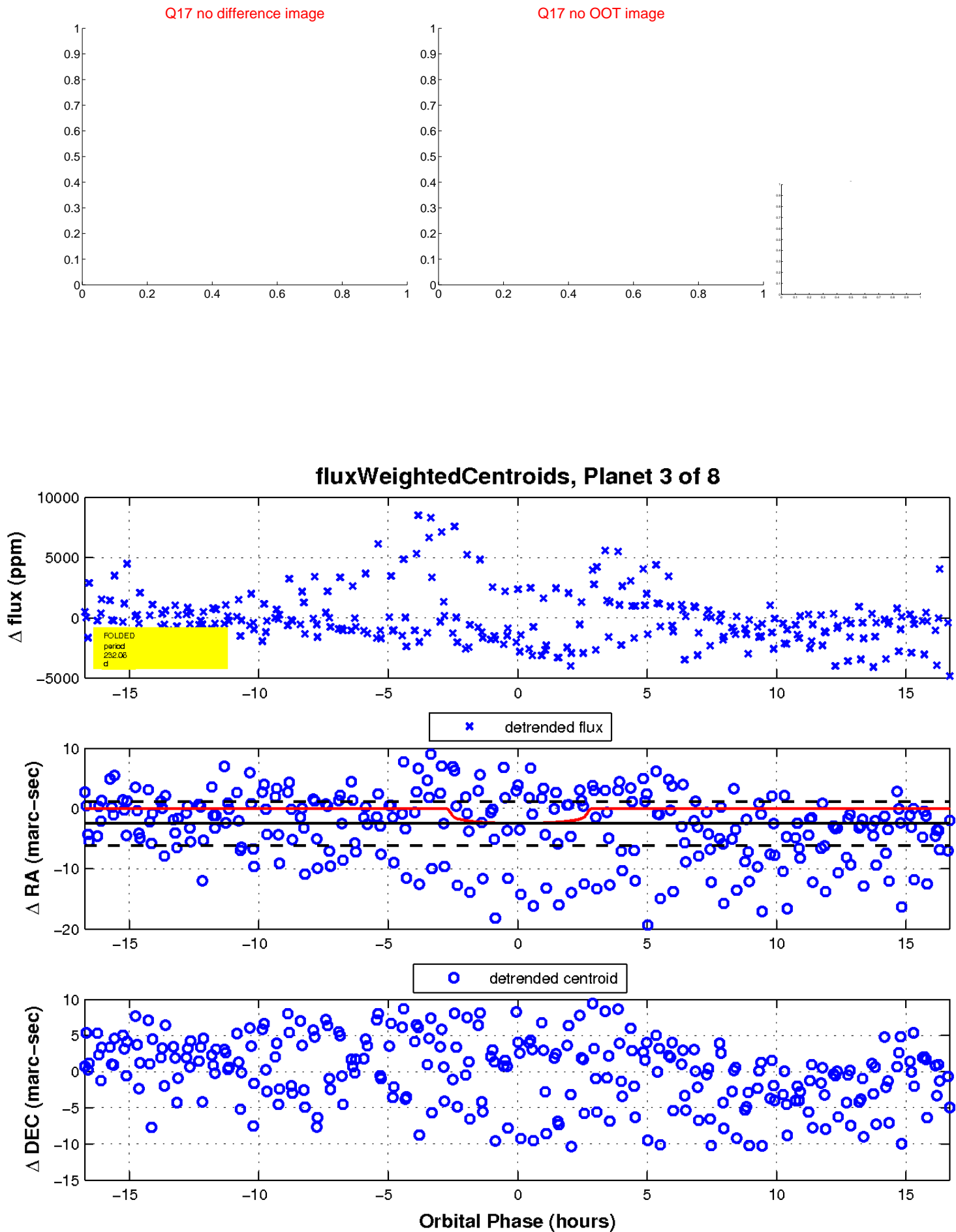
Q16 difference image



Q16 OOT image

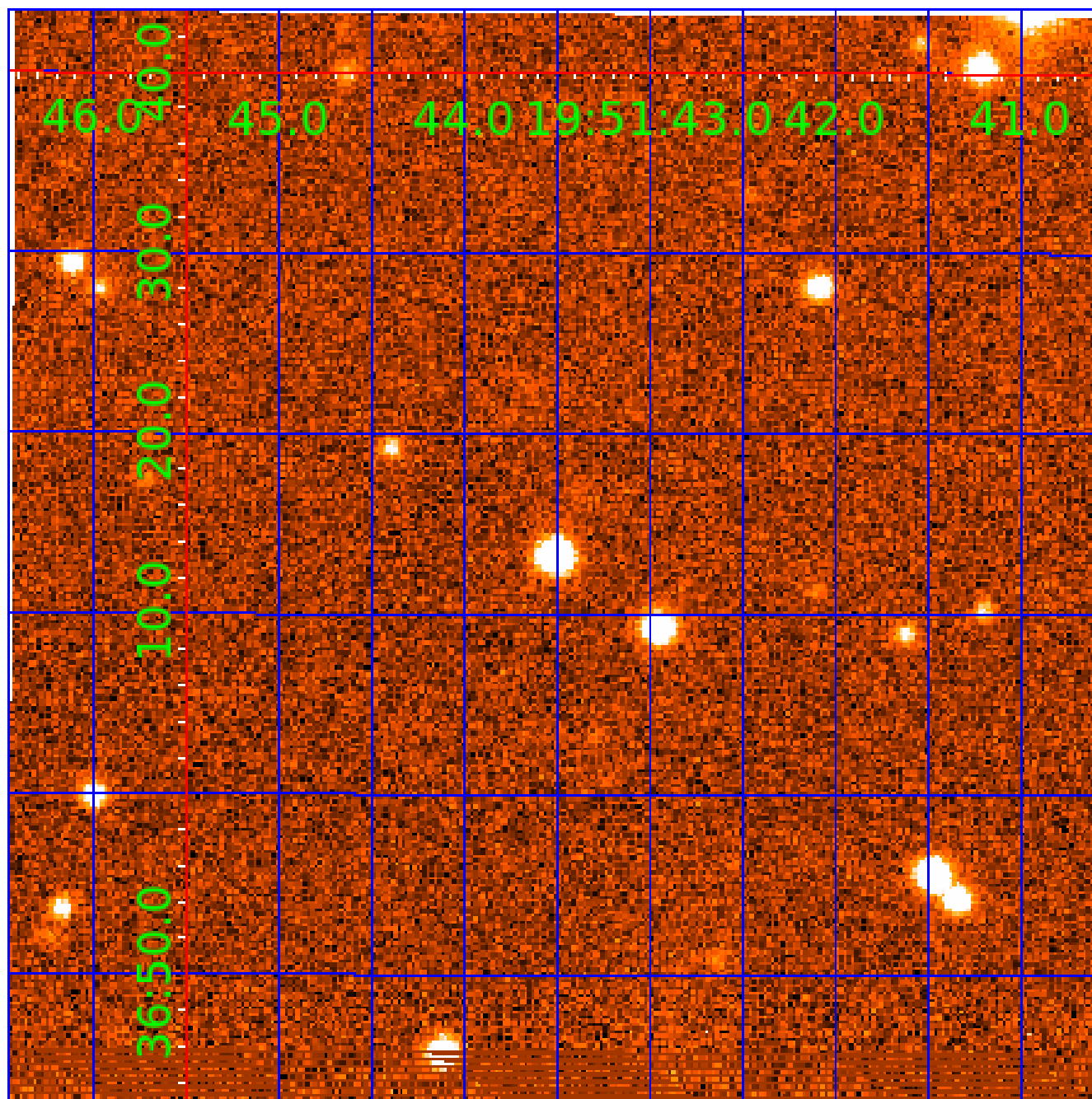


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009847963

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})
009847963-01	OBS	No	310.825531	331.542093	3700.4	3.133	13.3	9.0	0.83	5518	5.47	0.84
009847963-02	OBS	No	249.439847	177.269384	3203.8	2.736	12.4	8.1	0.83	5518	4.78	1.13
009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
009847963-05	OBS	No	369.594720	402.568831	3565.7	12.236	9.9	7.9	0.83	5518	4.88	0.67
009847963-06	OBS	No	183.633385	134.142260	2715.2	2.999	15.9	6.5	0.83	5518	4.47	1.70
009847963-07	OBS	No	359.513509	139.813954	3211.3	7.443	10.0	6.9	0.83	5518	6.29	0.69
009847963-08	OBS	No	139.045528	135.344328	1783.2	2.500	9.1	-1.0	0.83	5518	3.46	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009847963-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

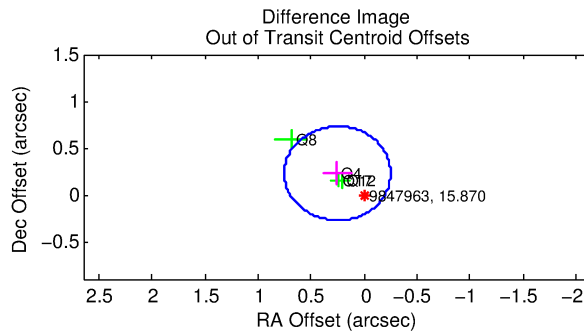
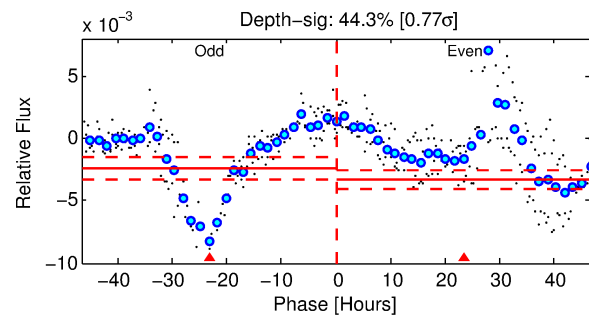
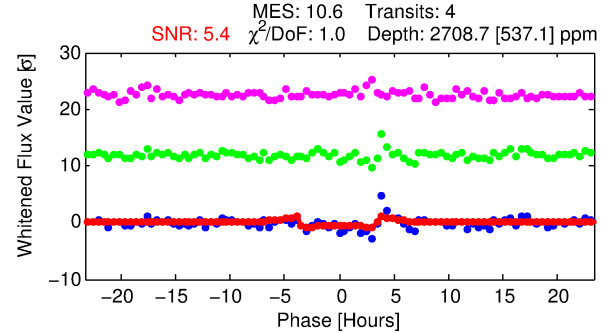
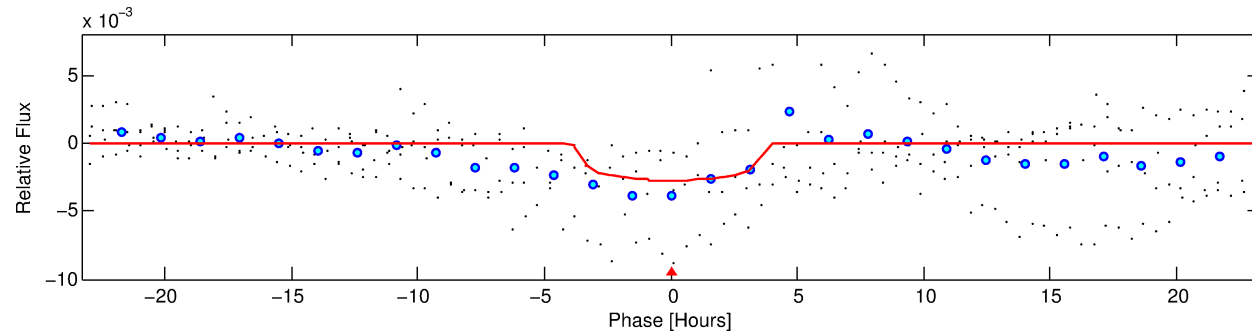
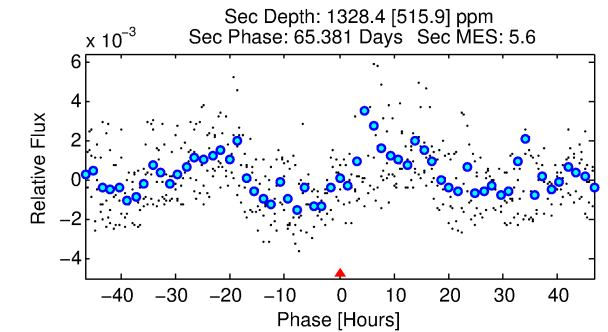
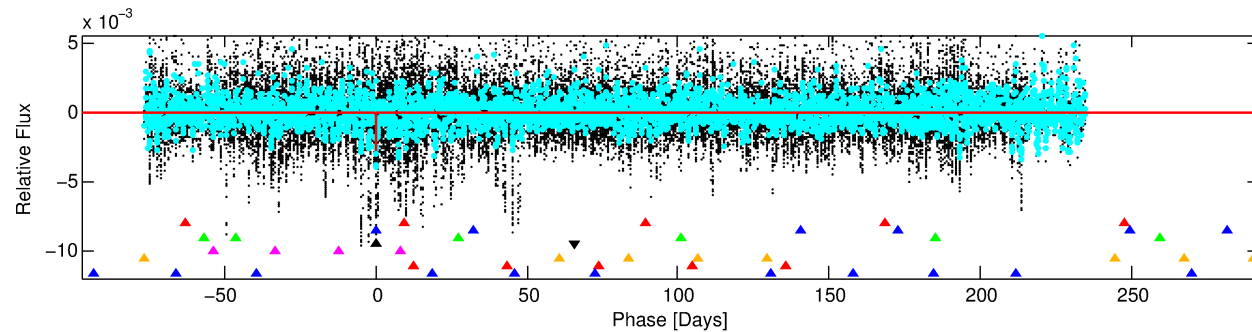
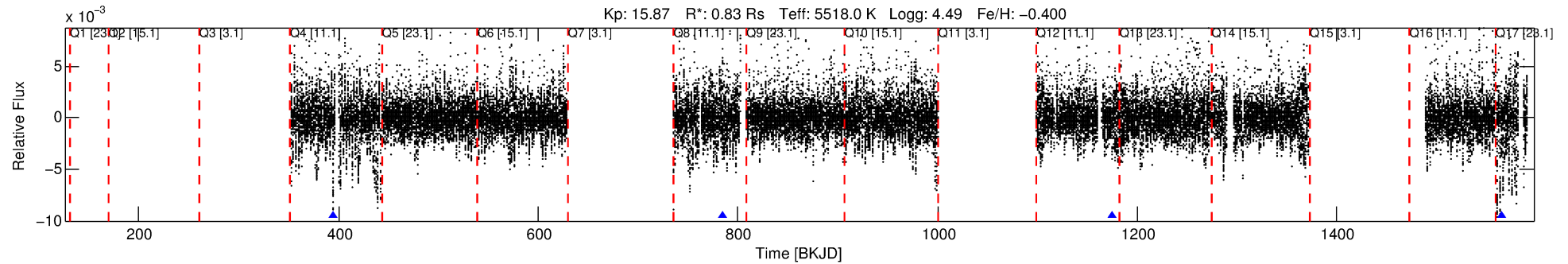
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-04

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 4 of 8 Period: 390.221 d



DV Fit Results:

Period = 390.22140 [0.00584] d
Epoch = 394.6273 [0.0095] BKJD
Rp/R* = 0.0496 [0.0130]
a/R* = 330.41 [307.79]
b = 0.60 [1.00]
Seff = 0.62 [0.18]
Teq = 227 [16] K
Rp = 4.48 [1.48] Re
a = 0.9563 [0.1626] AU
Ag = 33279.71 [23224.25] [1.43 σ]
Teffp = 4730 [788] K [5.71 σ]

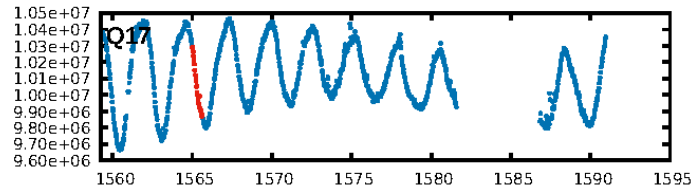
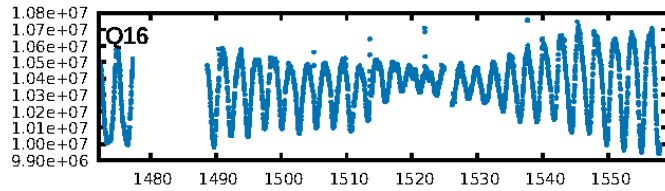
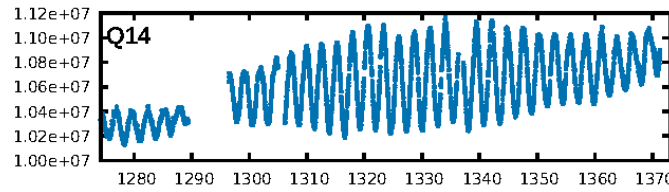
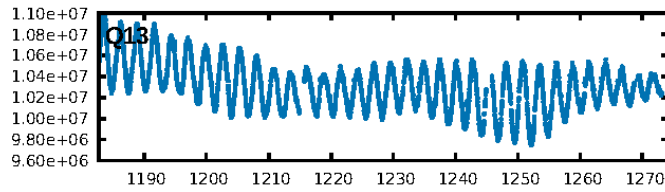
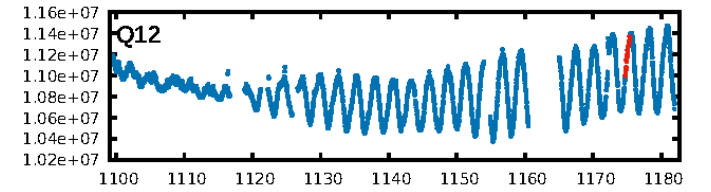
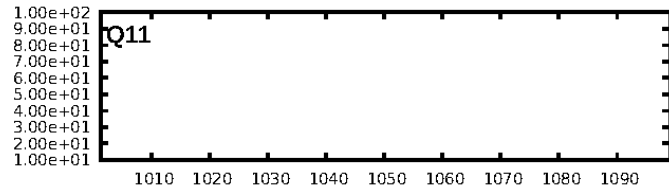
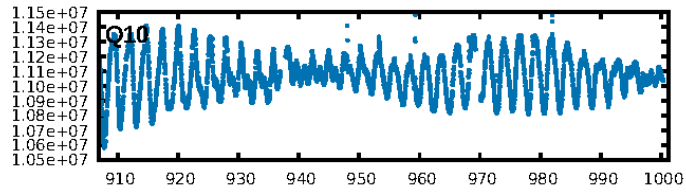
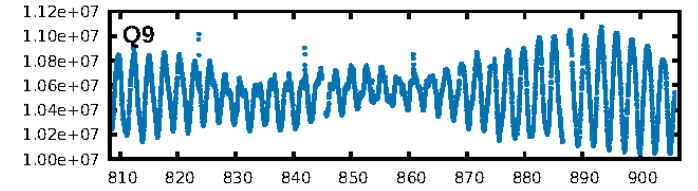
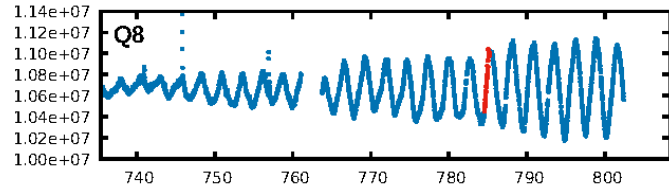
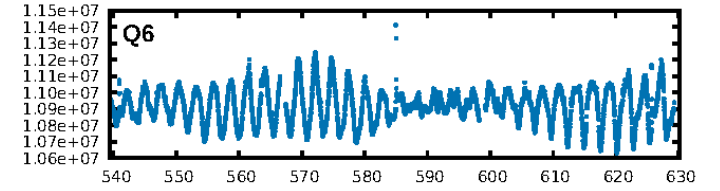
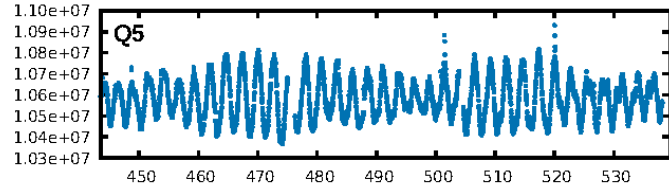
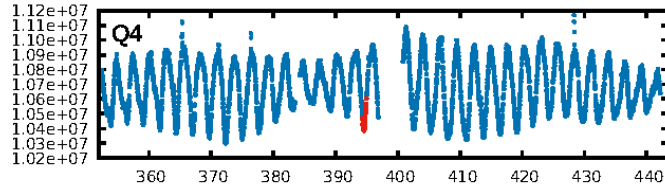
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.15 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 75.8%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.656
Centroid-sig: N/A
Centroid-so: 0.871 arcsec [0.75 σ]
OotOffset-rm: 0.340 arcsec [2.03 σ]
OotOffset-st: 0/0/3/1 [4]
KicOffset-rm: 0.159 arcsec [1.41 σ]
KicOffset-st: 0/0/3/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.75 [3/4]

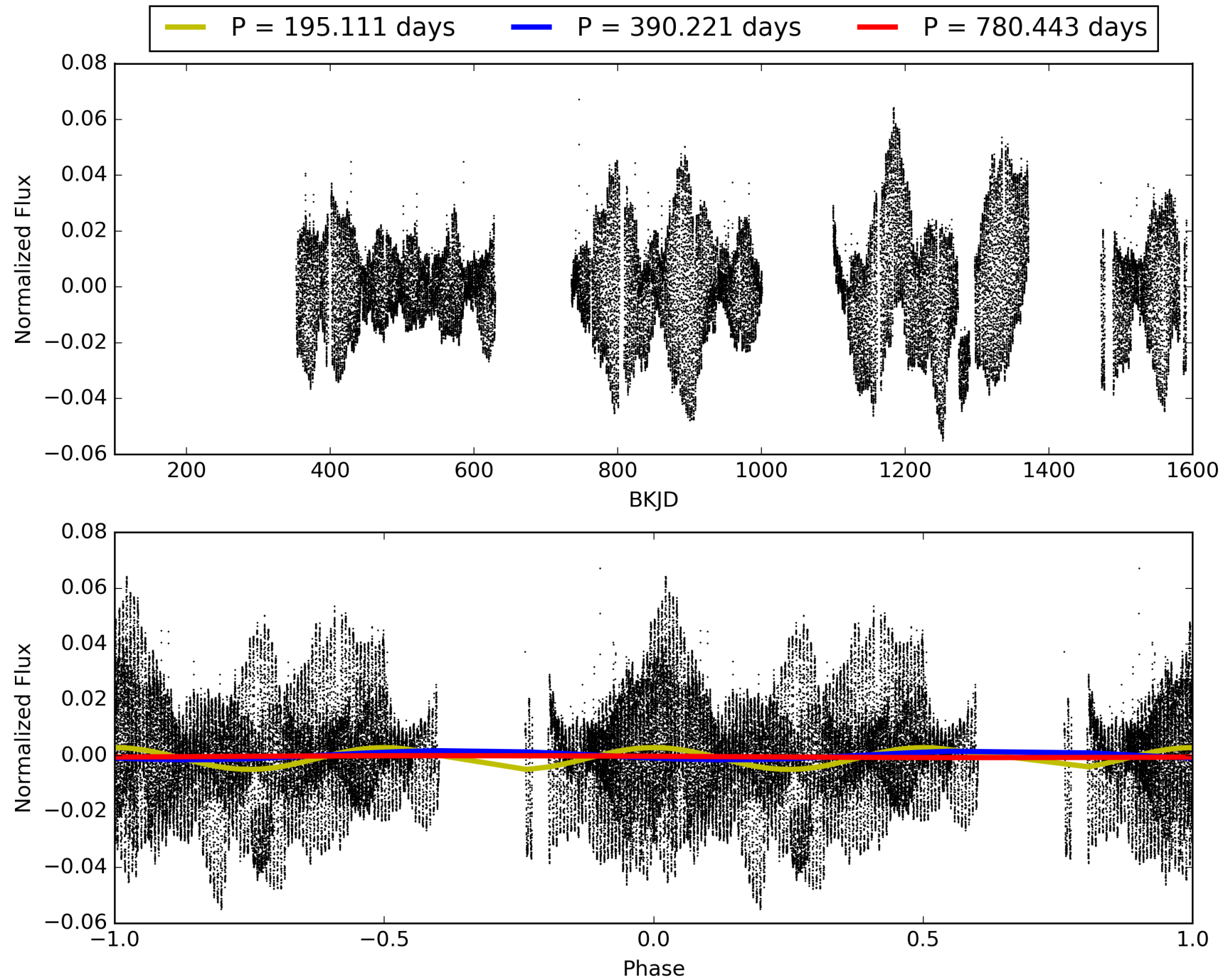
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:23:14 Z

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

TCE 009847963-04, PDC Light Curves

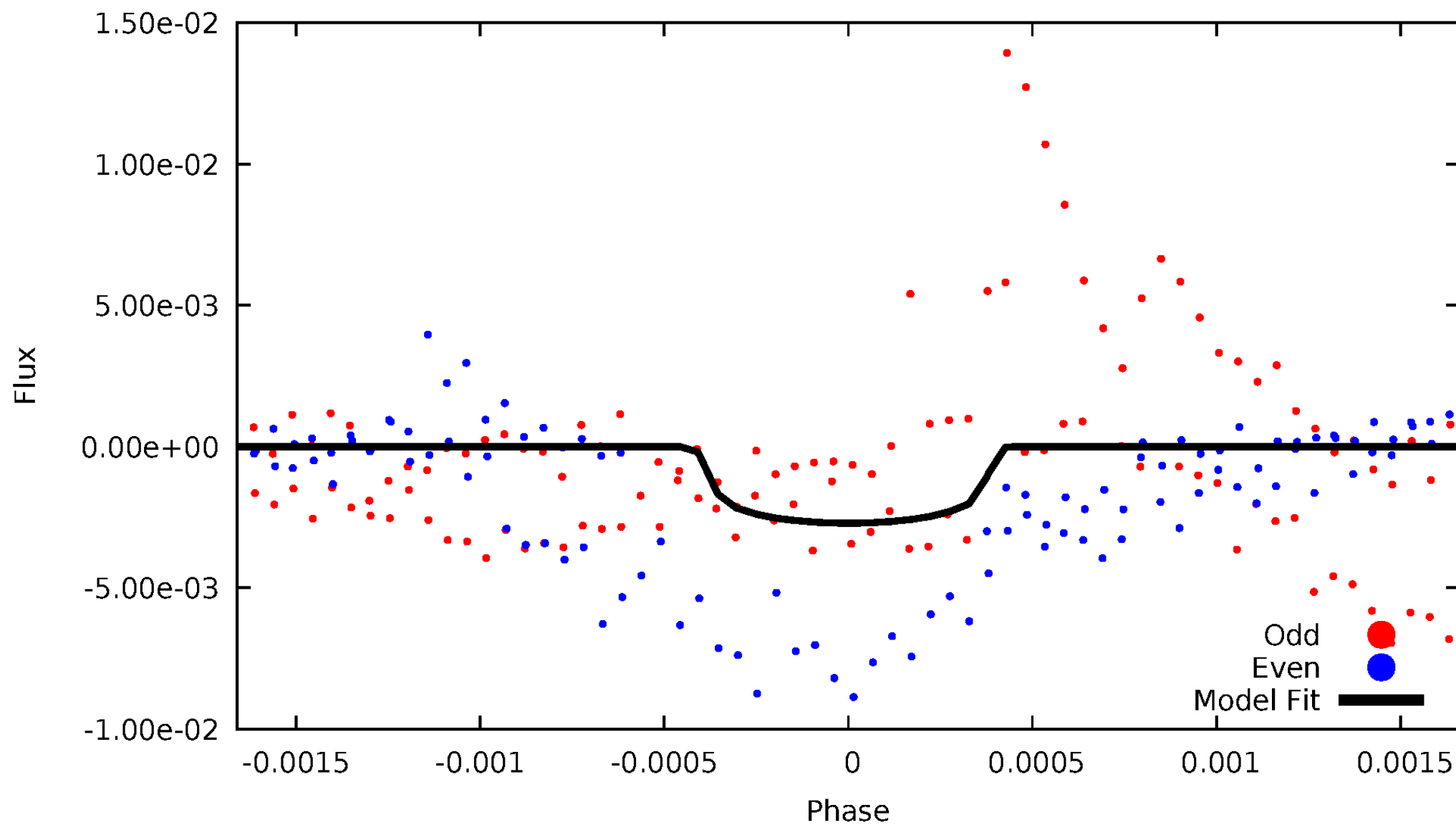


TCE 009847963-04



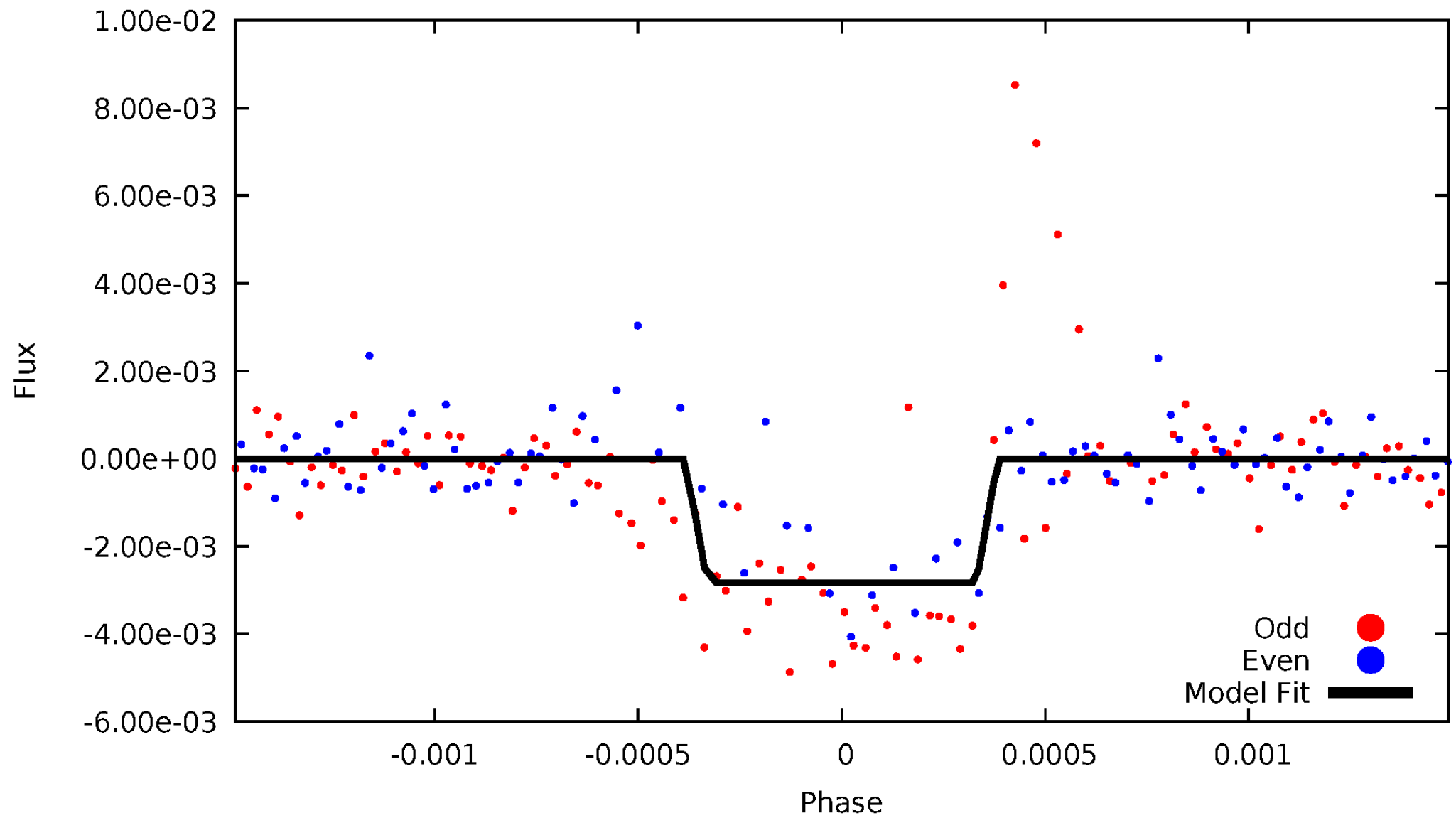
DV Odd/Even

TCE 009847963-04



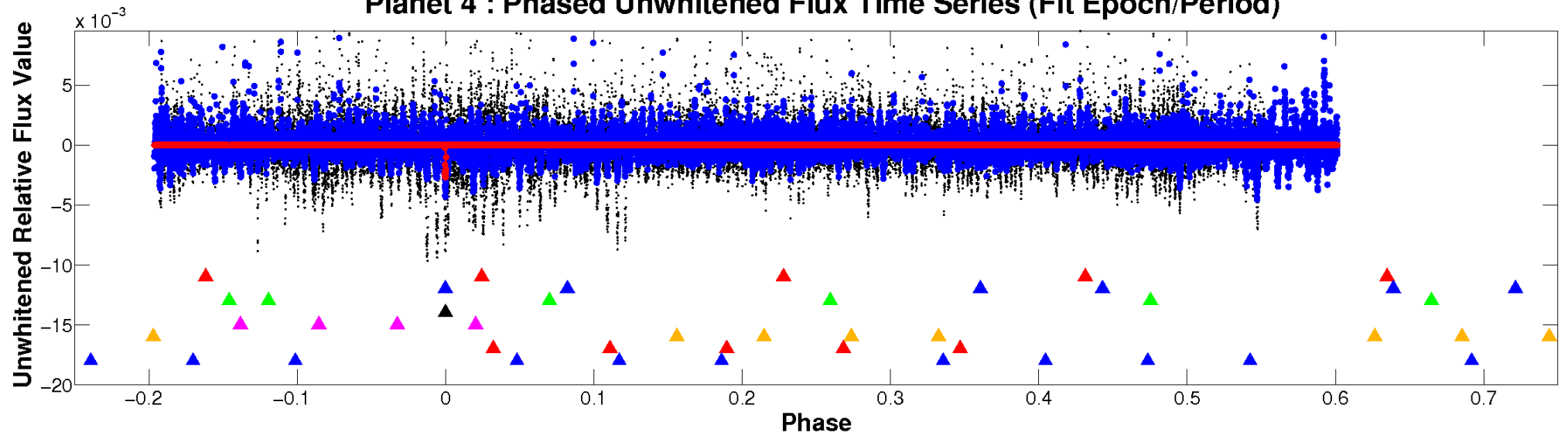
ALT Odd/Even

TCE 009847963-04

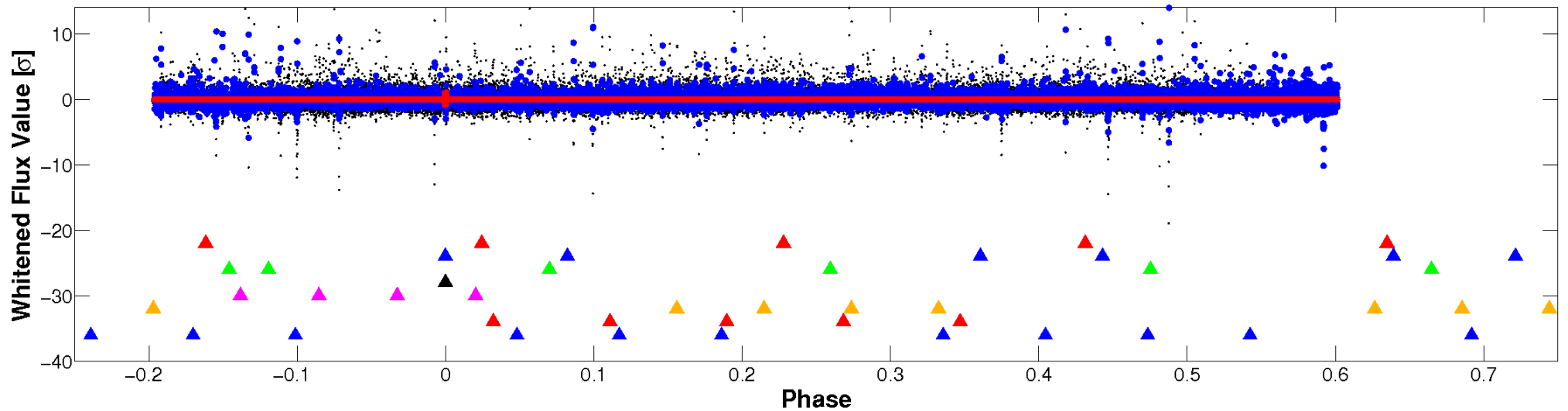


Non-Whitened Vs. Whitened Light Curve

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

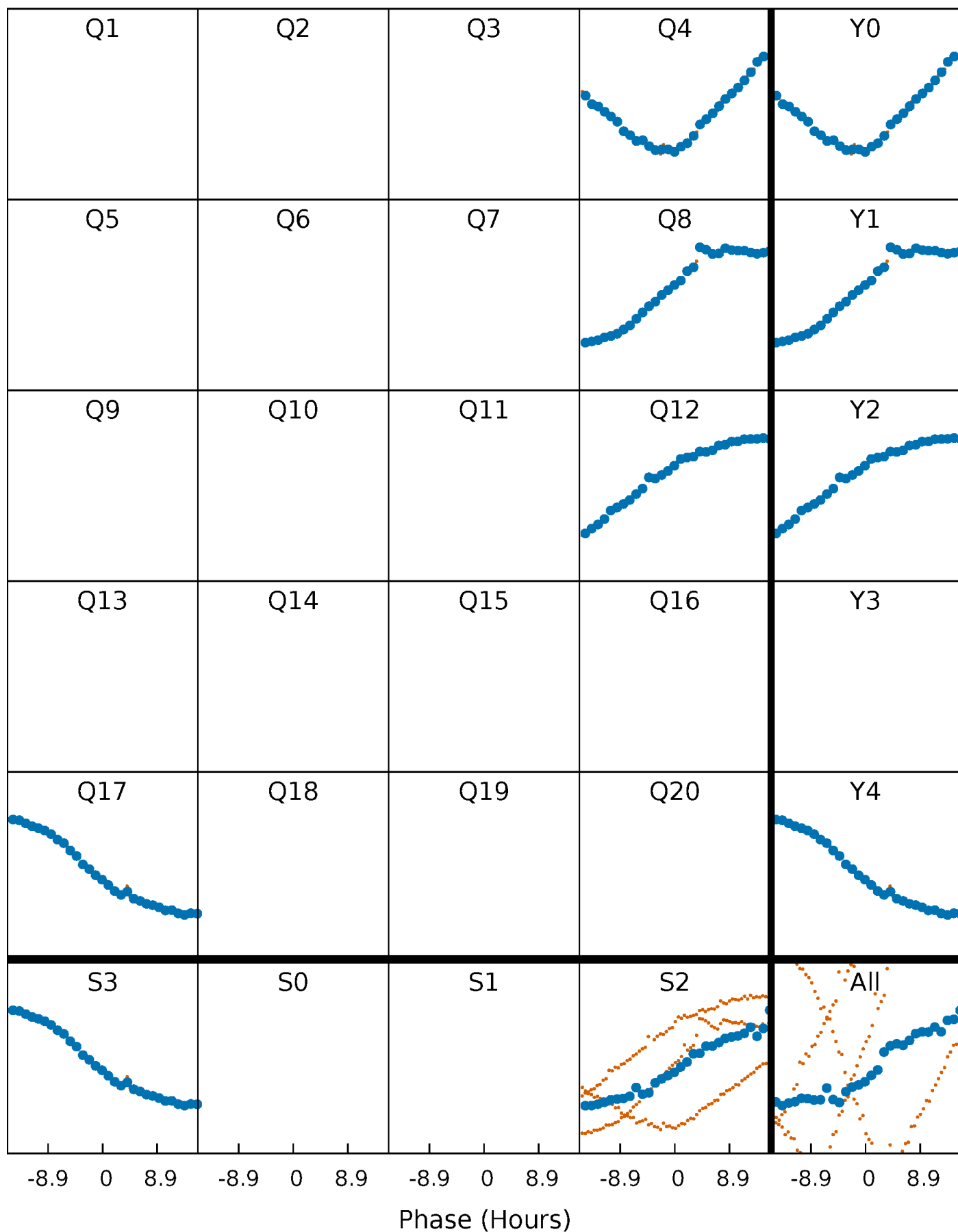


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



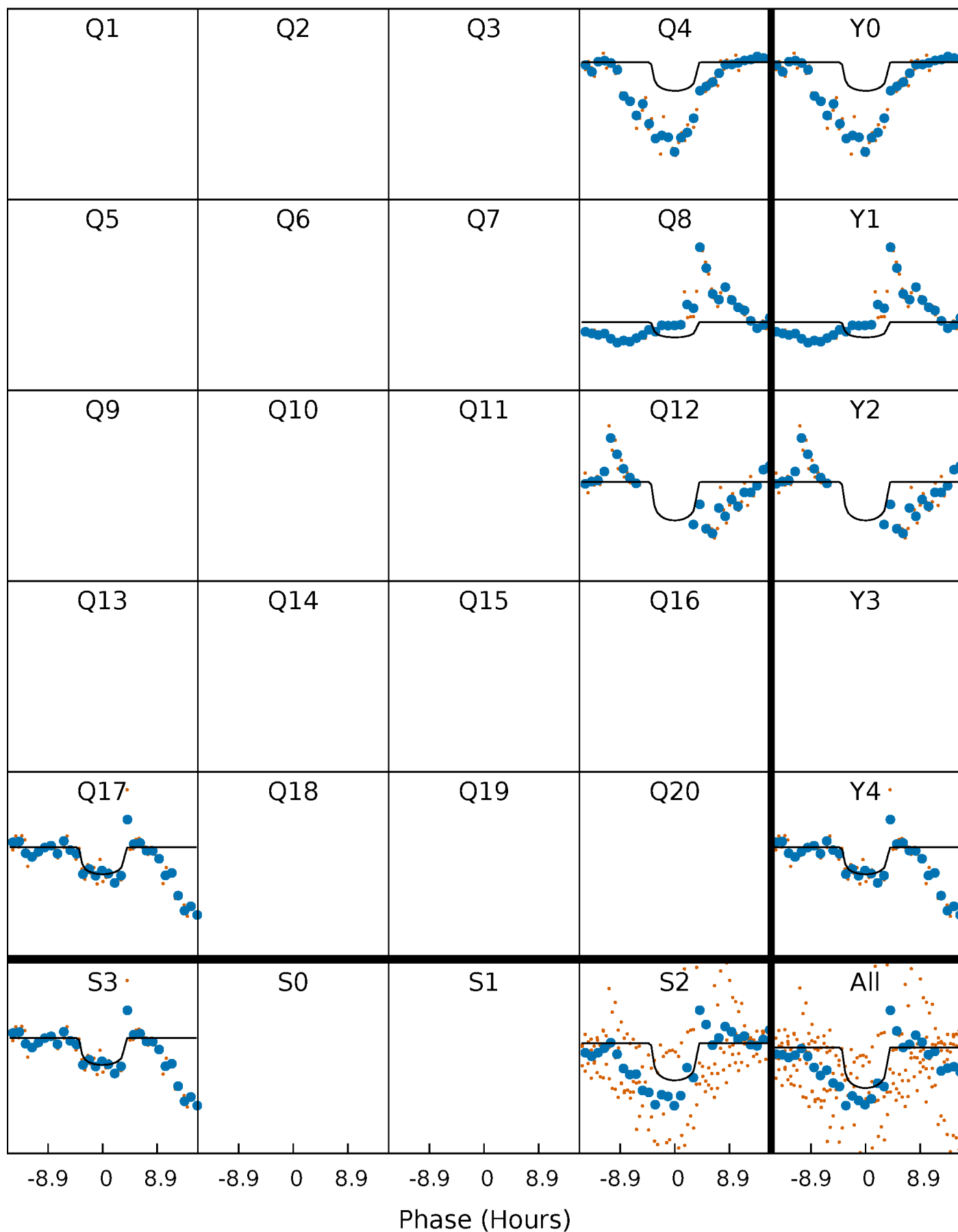
PDC Quarter-Phased Transit Curves

TCE 009847963-04 $P=390.221404$ Days $T_0=394.627293$ (BKJD)



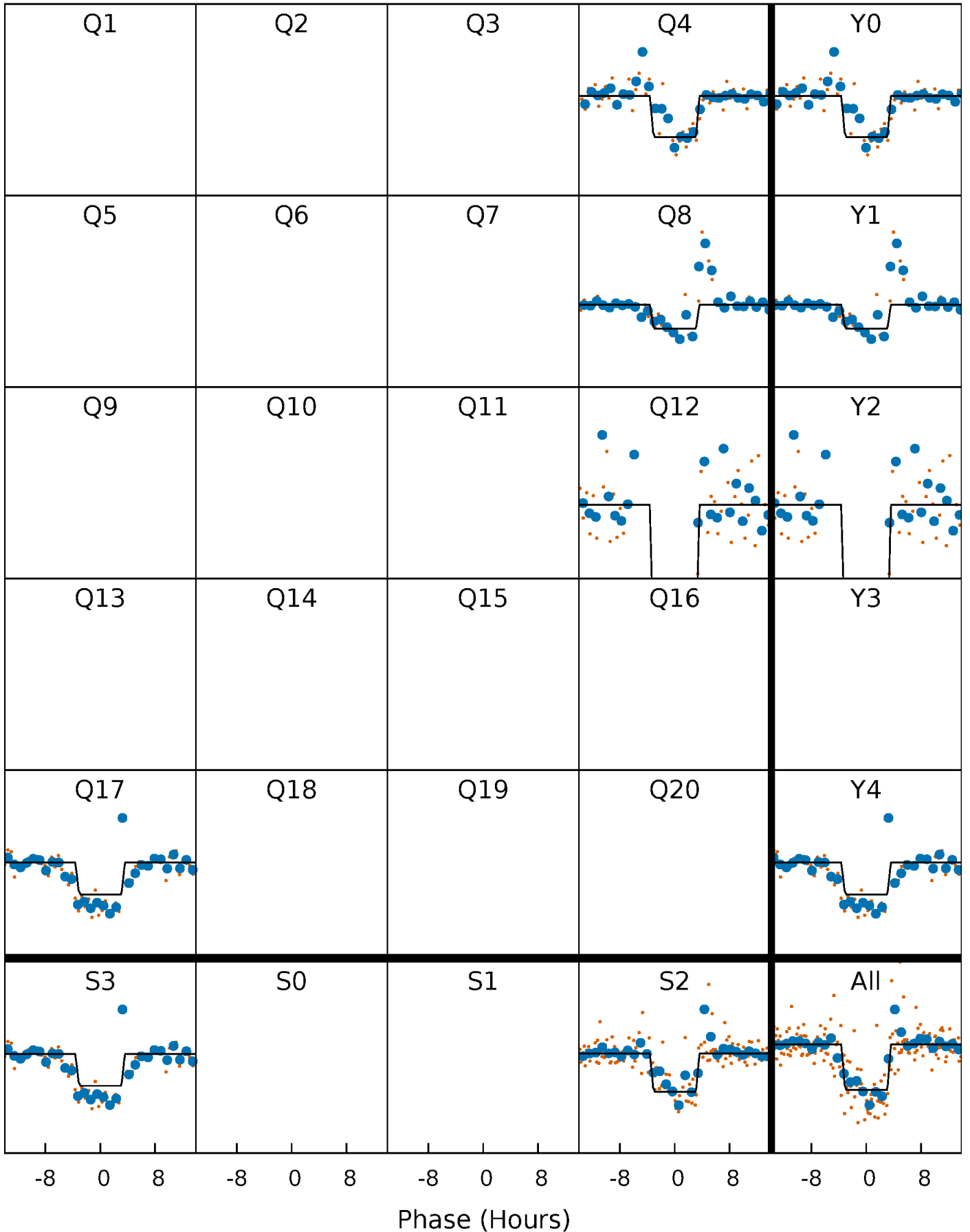
DV Quarter-Phased Transit Curves

TCE 009847963-04 $P=390.221404$ Days $T_0=394.627293$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

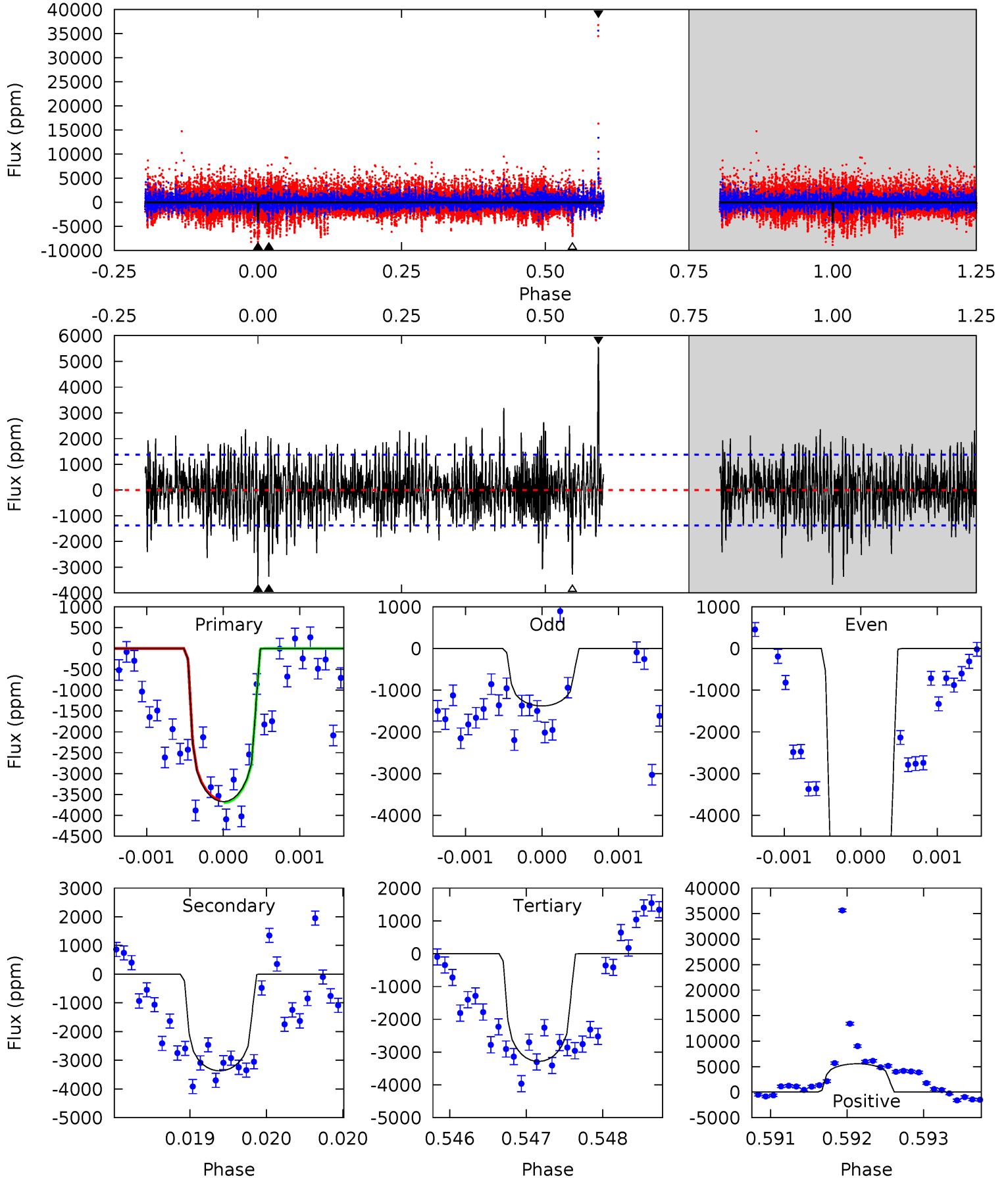
TCE 009847963-04 $P=390.226507$ Days $T_0=394.624044$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-04, P = 390.221404 Days, E = 4.405889 Days

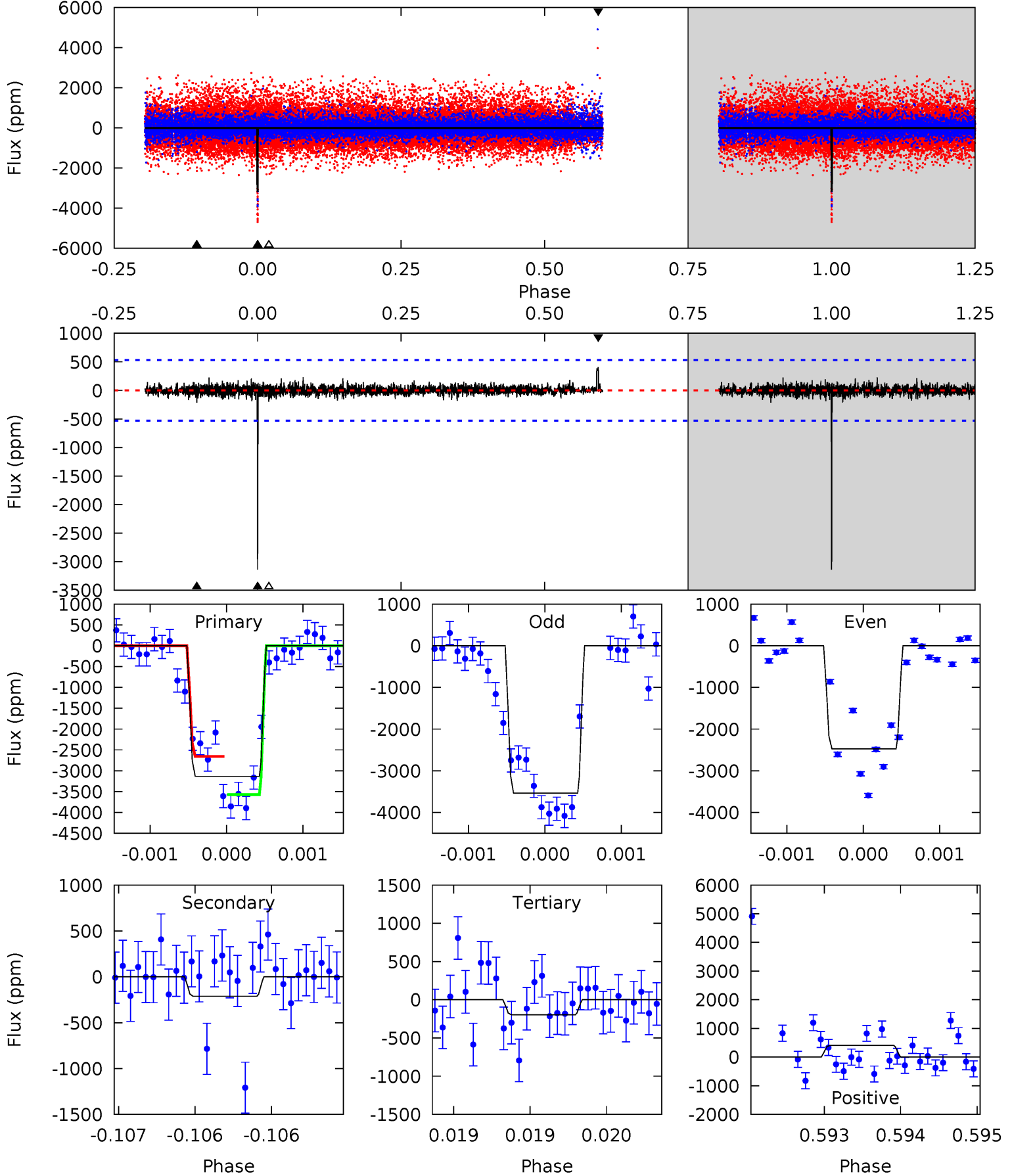
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	13.4	13.1	22.1	5.47	3.32	3.34	1.54	-7.49	0.33	-8.70	11.9	0.86	0.60	0.12



Alt Model-Shift Uniqueness Test

009847963-04, P = 390.226507 Days, E = 4.397537 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.6	2.20	2.04	4.21	5.50	3.37	0.51	30.5	28.3	0.16	-2.01	5.29	1.08	0.11	4.68



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3368 ± 252	$4.48^{+1.32}_{-1.26}$	317^{+20}_{-17}	6012^{+1030}_{-700}	85606^{+77307}_{-33797}
Alt.	-211 ± 96	$4.93^{+1.31}_{-1.34}$	316^{+20}_{-16}	3359^{+423}_{-357}	4327^{+4588}_{-2359}

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

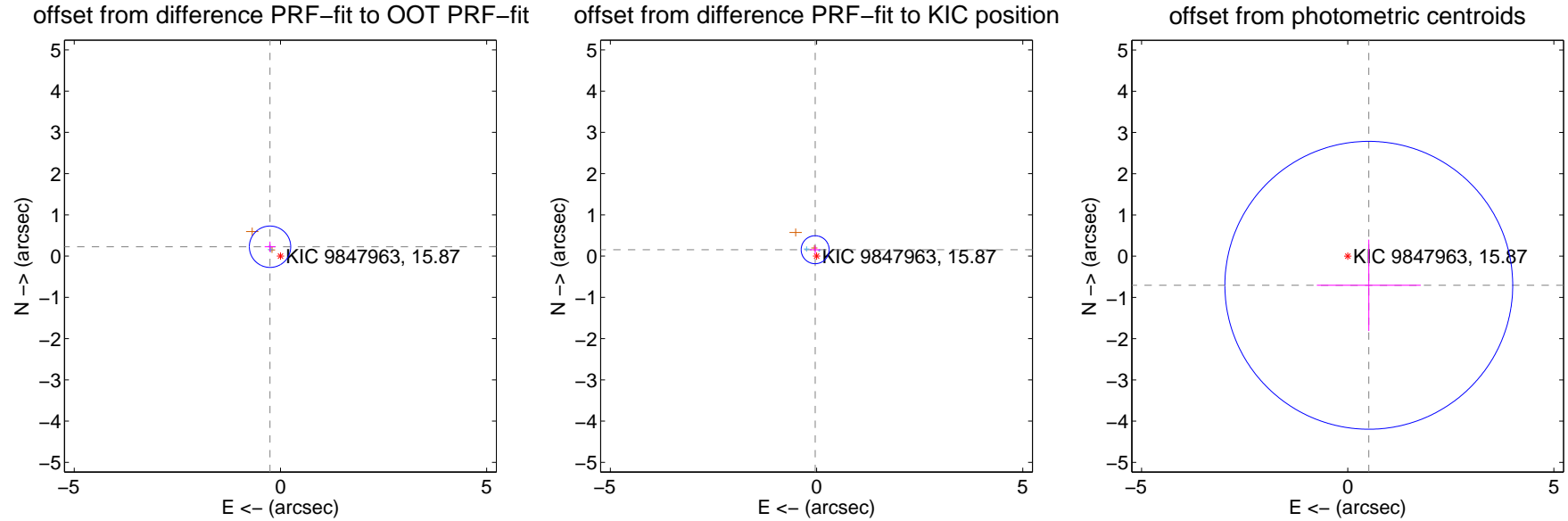
DV Centroid Data

Supplemental centroid analysis for 009847963-04. Kepler magnitude: 15.87. Transit SNR 5.40

There are 2 quarters with good PRF difference image offsets

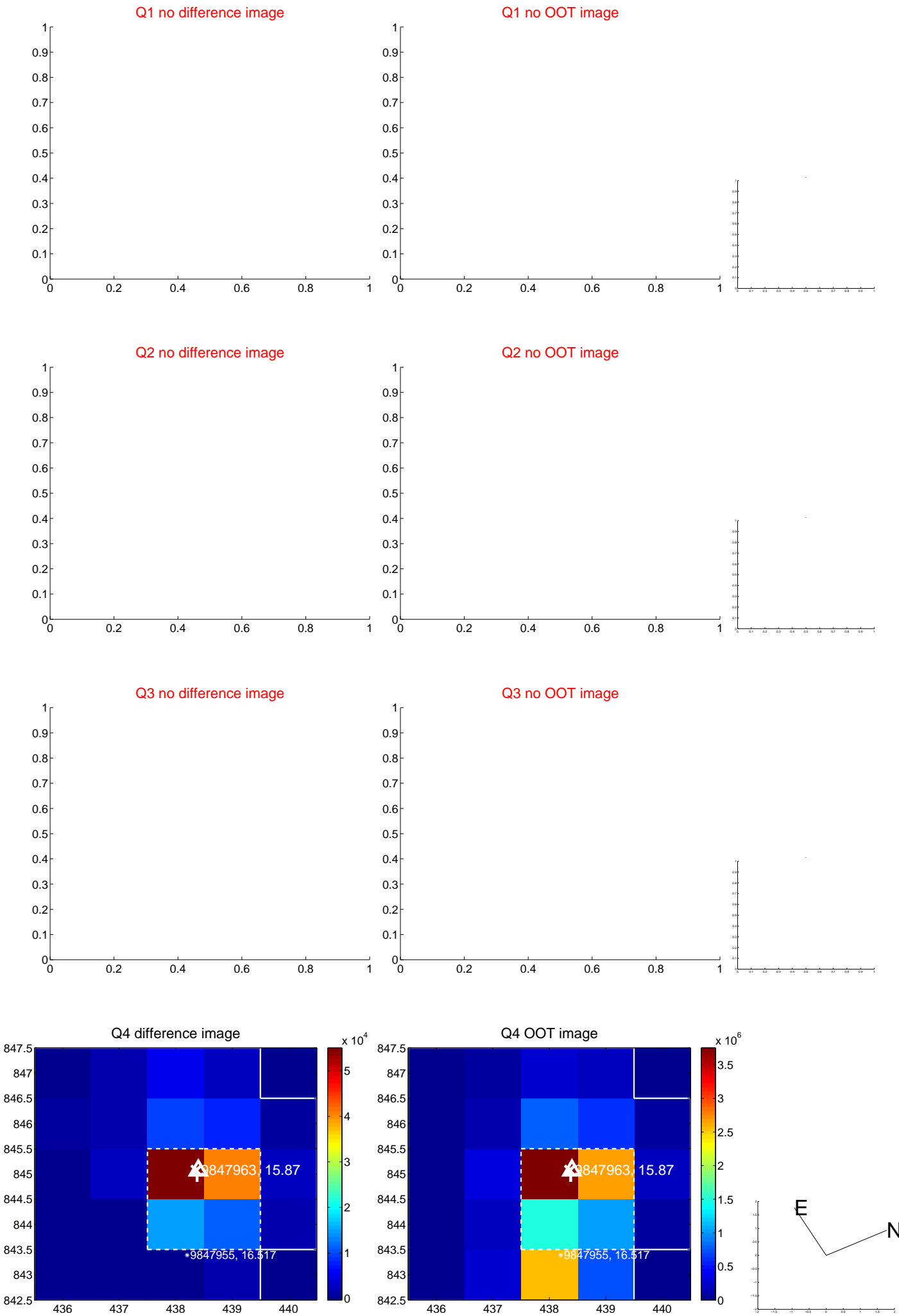
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.340 ± 0.167	2.03	0.253 ± 0.131	0.228 ± 0.124
PRF-fit source offset from KIC position	0.159 ± 0.113	1.41	0.034 ± 0.125	0.156 ± 0.099
photometric centroid source offset	0.87 ± 1.16	0.75	-0.51 ± 1.26	-0.71 ± 1.11

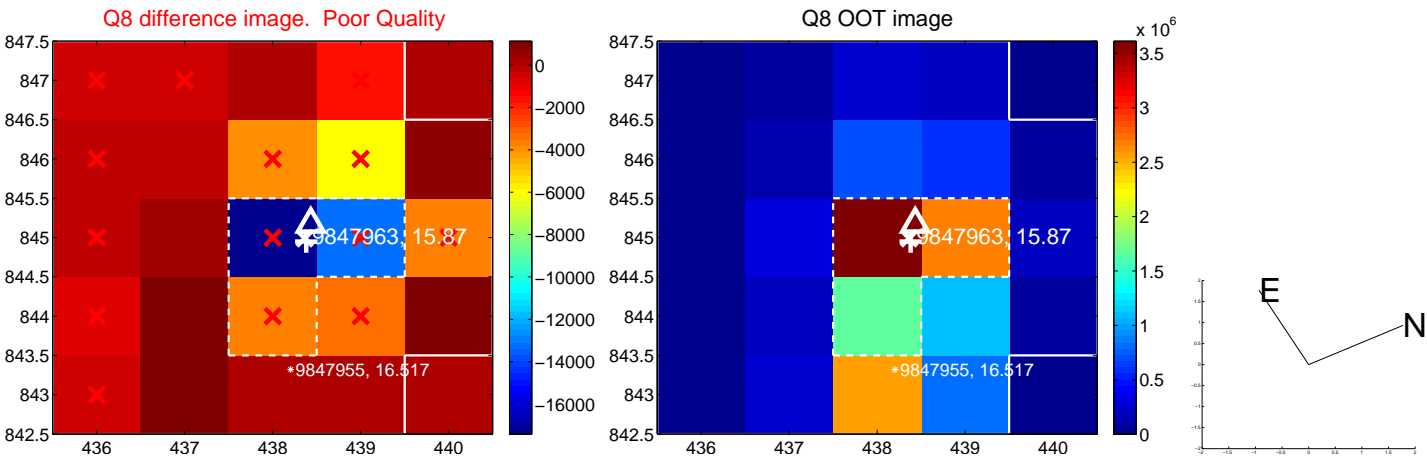


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

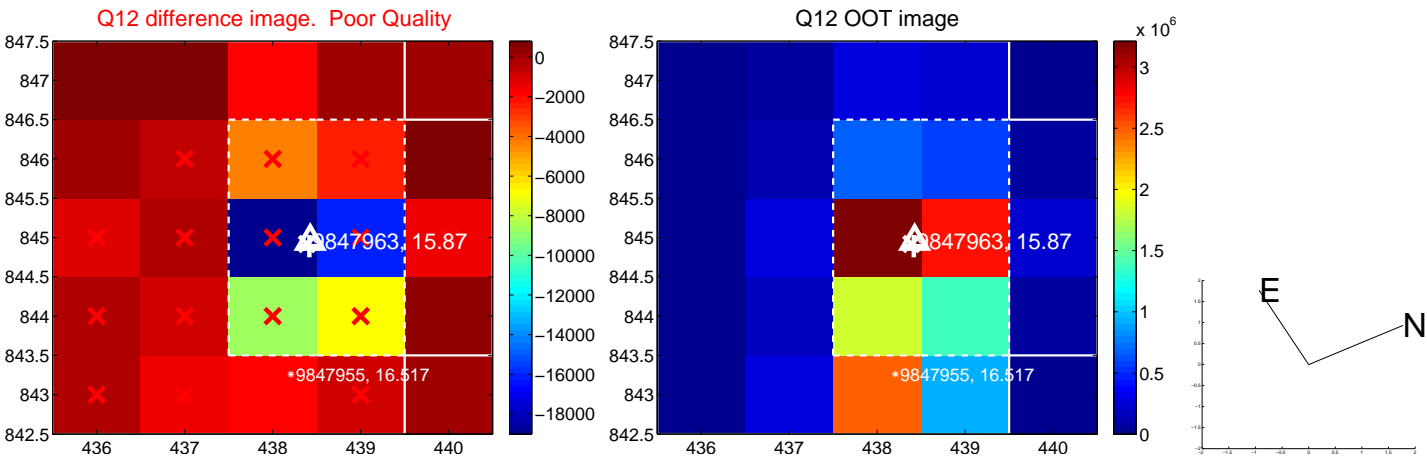
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



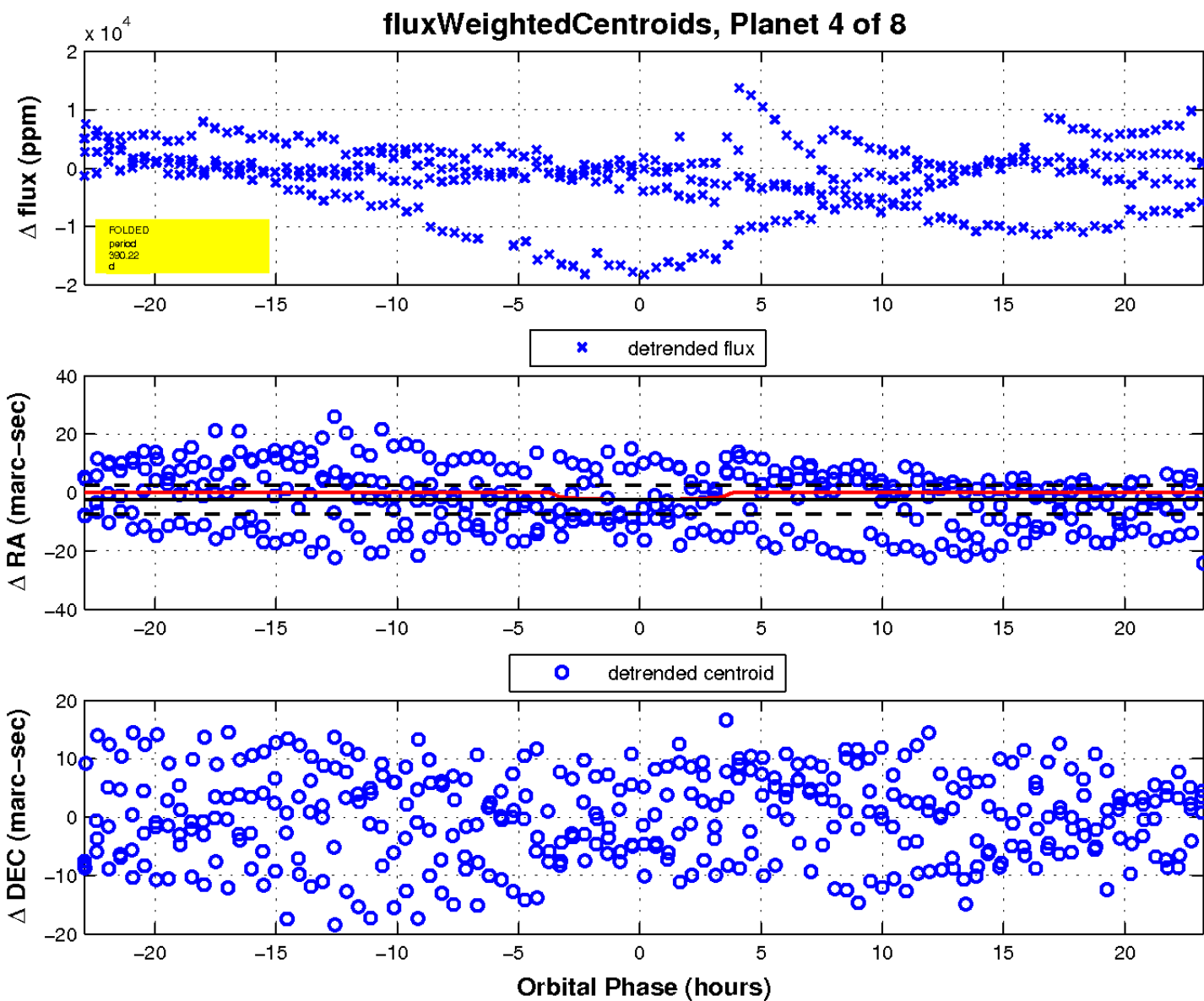
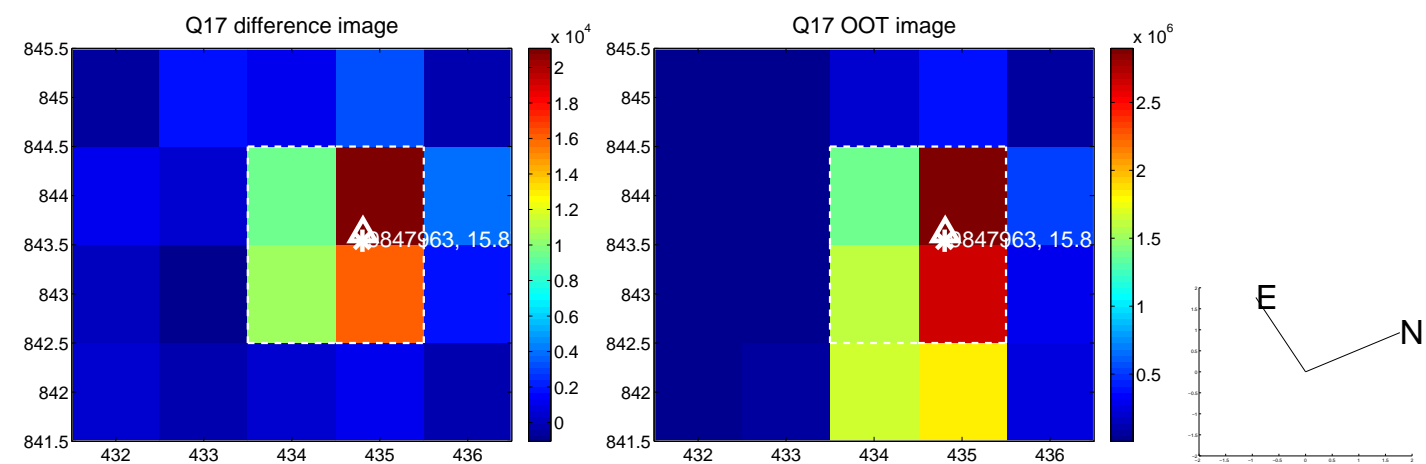
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

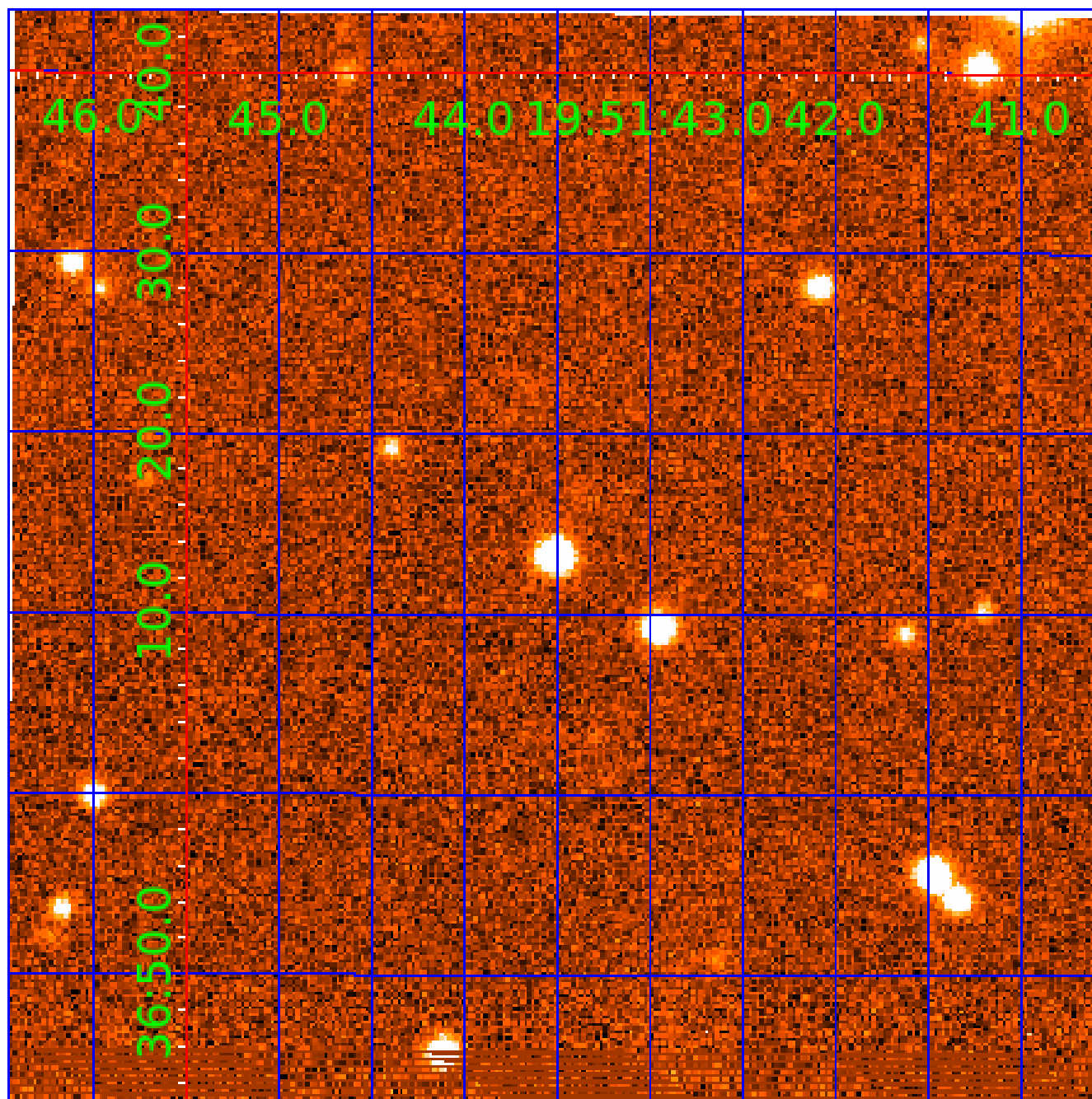


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009847963

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})
009847963-01	OBS	No	310.825531	331.542093	3700.4	3.133	13.3	9.0	0.83	5518	5.47	0.84
009847963-02	OBS	No	249.439847	177.269384	3203.8	2.736	12.4	8.1	0.83	5518	4.78	1.13
009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
009847963-05	OBS	No	369.594720	402.568831	3565.7	12.236	9.9	7.9	0.83	5518	4.88	0.67
009847963-06	OBS	No	183.633385	134.142260	2715.2	2.999	15.9	6.5	0.83	5518	4.47	1.70
009847963-07	OBS	No	359.513509	139.813954	3211.3	7.443	10.0	6.9	0.83	5518	6.29	0.69
009847963-08	OBS	No	139.045528	135.344328	1783.2	2.500	9.1	-1.0	0.83	5518	3.46	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009847963-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

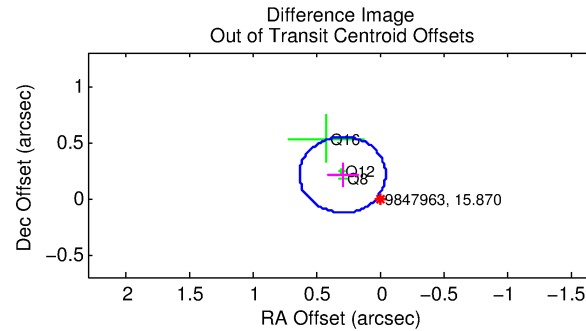
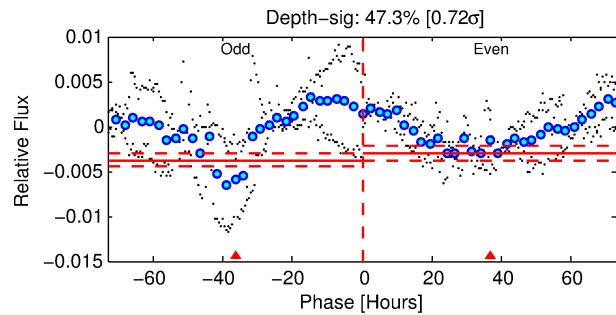
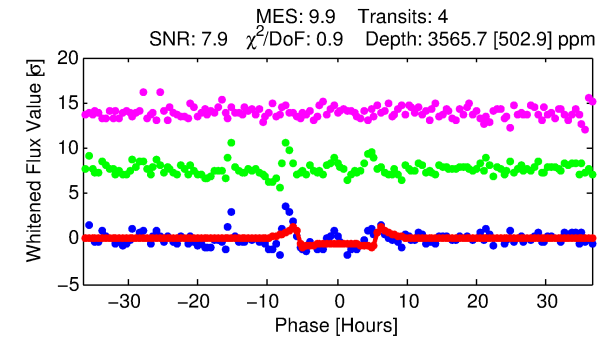
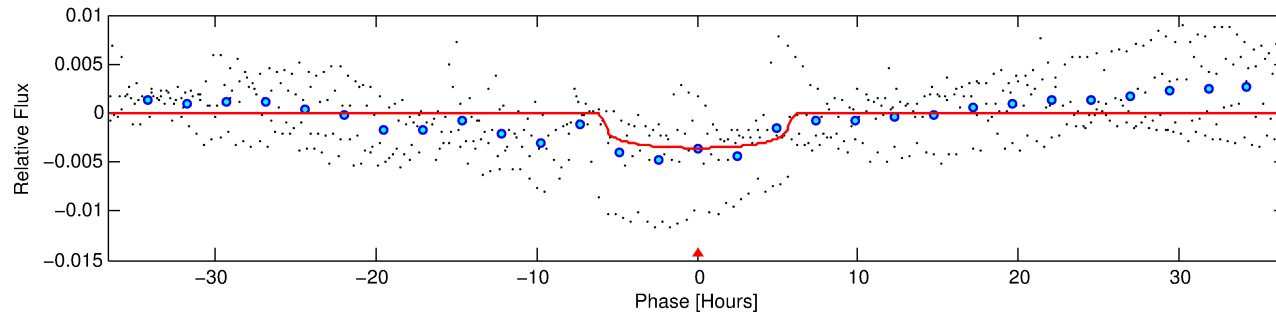
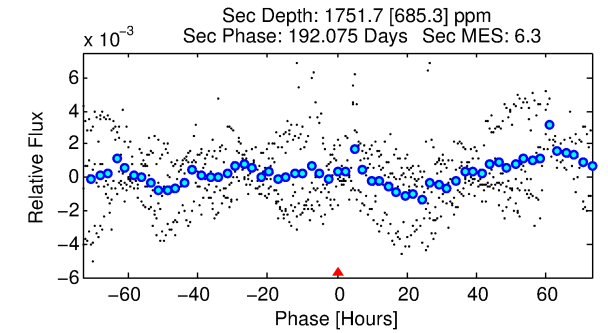
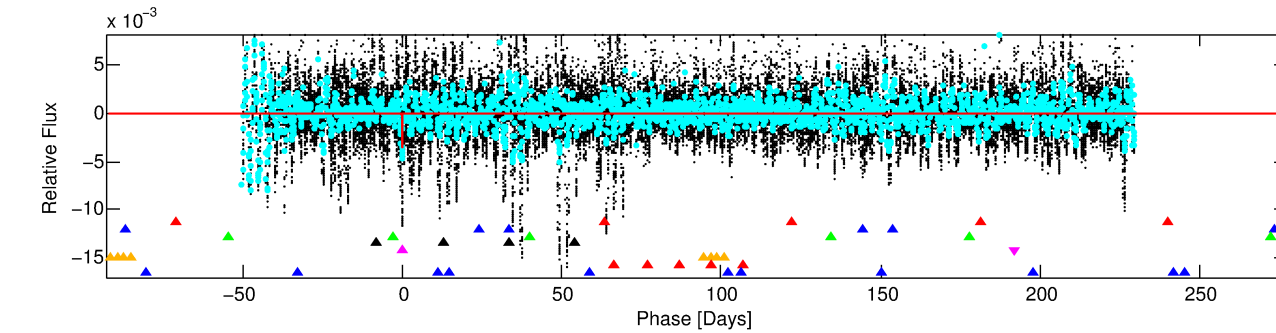
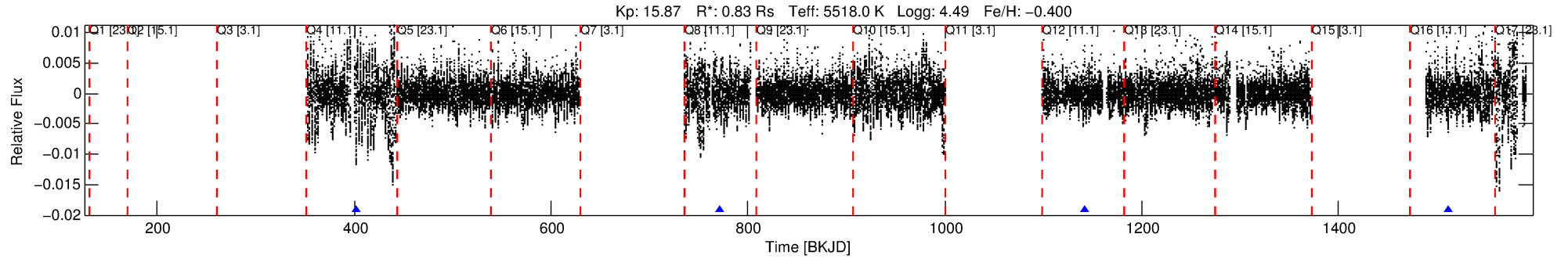
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-05

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 5 of 8 Period: 369.595 d



DV Fit Results:

Period = 369.59472 [0.00382] d
Epoch = 402.5688 [0.0071] BKJD
Rp/R* = 0.0541 [0.0093]
a/R* = 243.23 [144.92]
b = 0.01 [61.35]
Seff = 0.67 [0.19]
Teq = 231 [16] K
Rp = 4.88 [1.29] Re
a = 0.9223 [0.1568] AU
Ag = 34358.41 [19812.63] [1.73σ]
Teffp = 4855 [654] K [7.07σ]

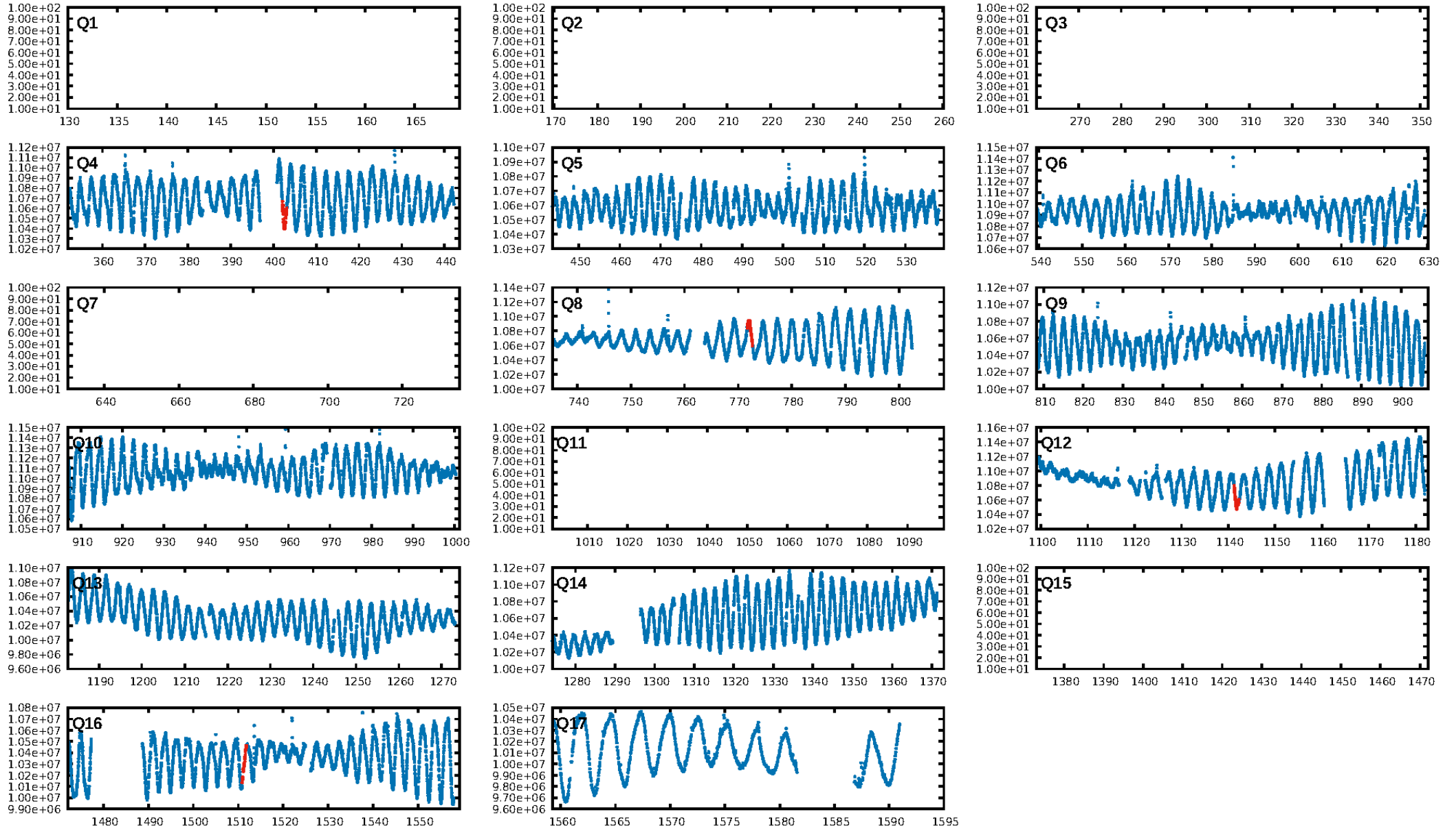
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.89σ]
LongPeriod-sig: 100.0% [34.15σ]
ModelChiSquare2-sig: 43.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6609
Centroid-sig: N/A
Centroid-so: 0.223 arcsec [0.26σ]
OotOffset-rm: 0.364 arcsec [3.23σ]
KicOffset-rm: 0.173 arcsec [1.34σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

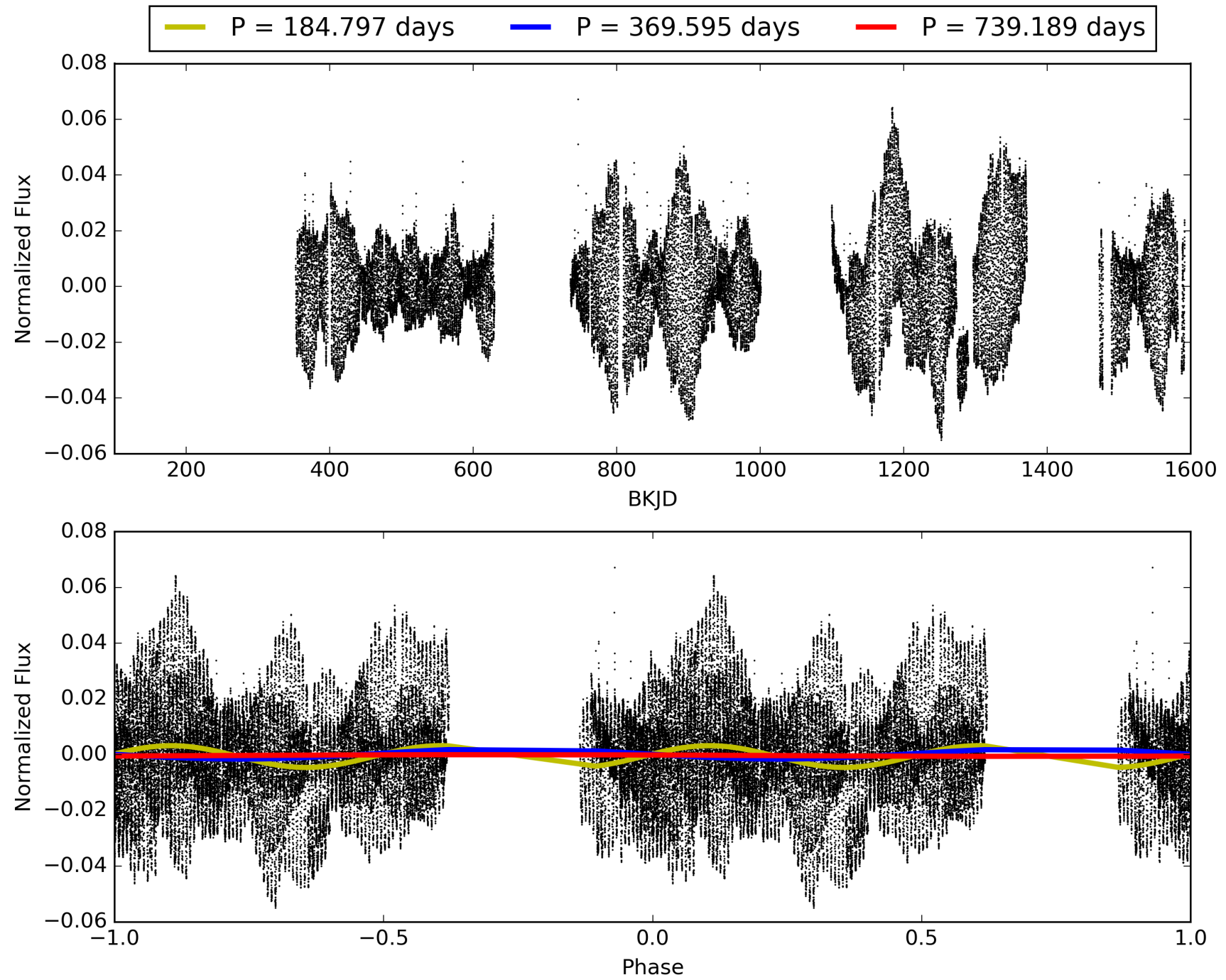
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:23:21 Z

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

TCE 009847963-05, PDC Light Curves

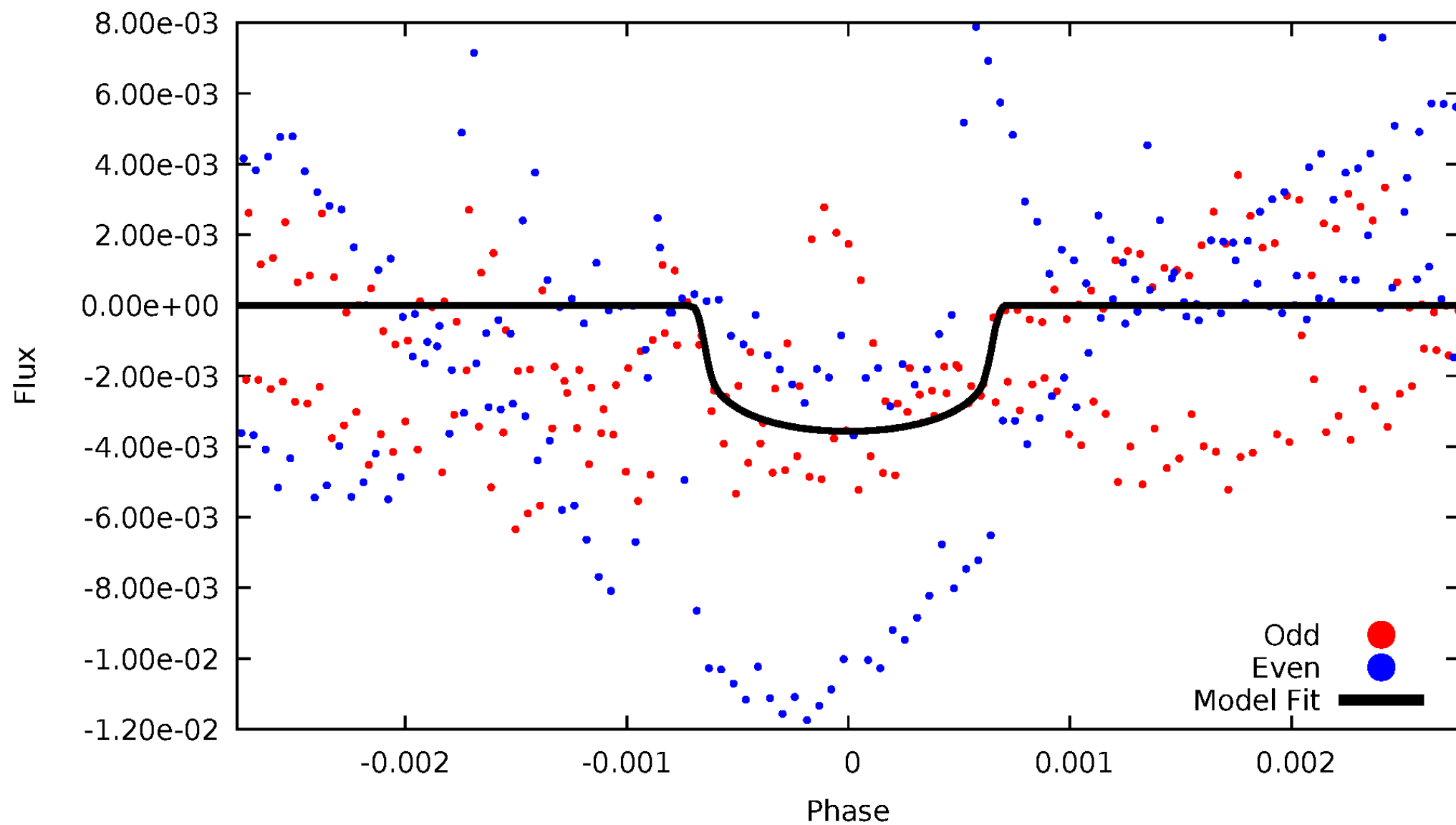


TCE 009847963-05



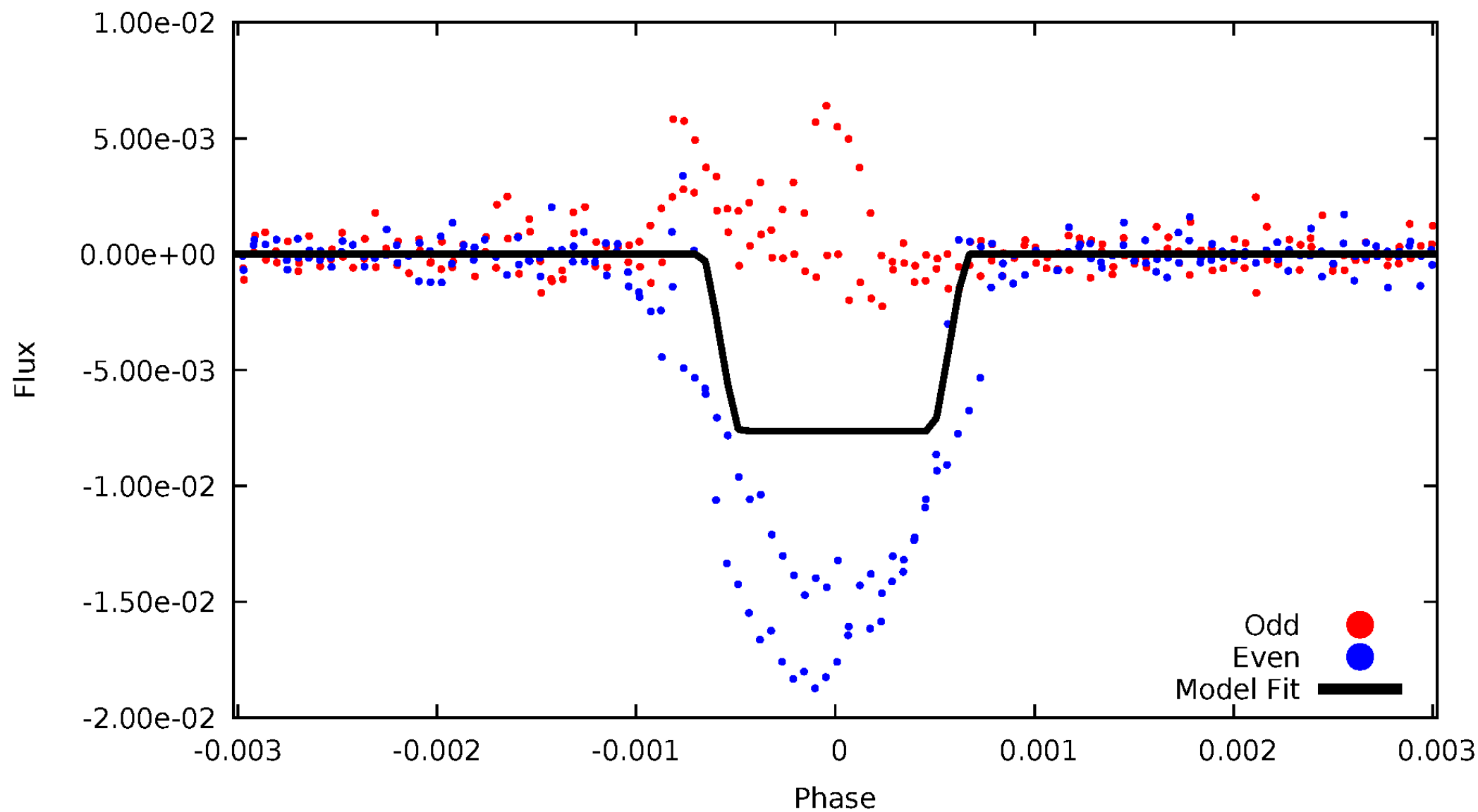
DV Odd/Even

TCE 009847963-05



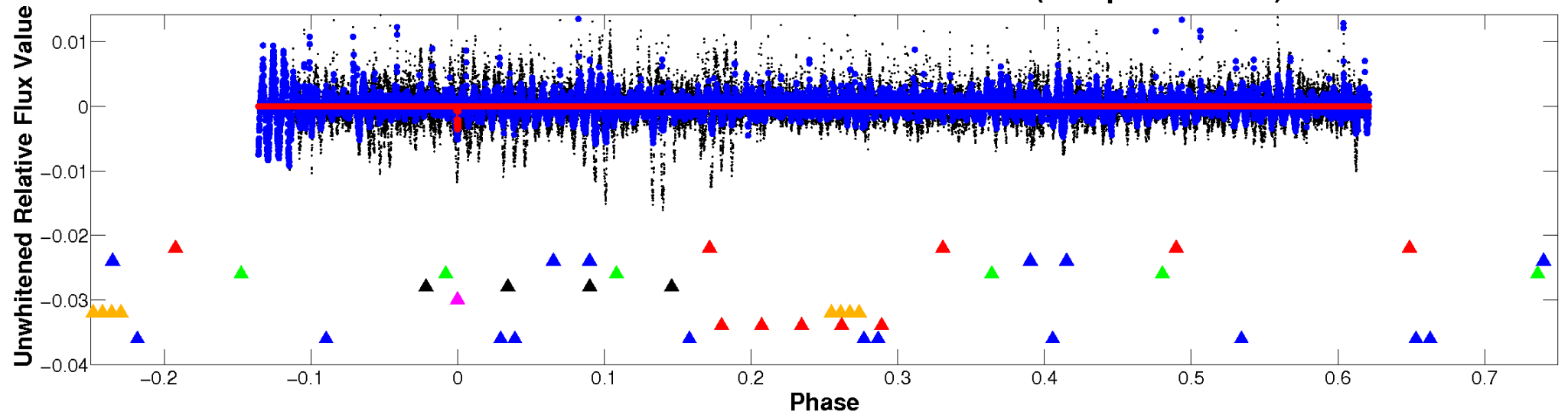
ALT Odd/Even

TCE 009847963-05

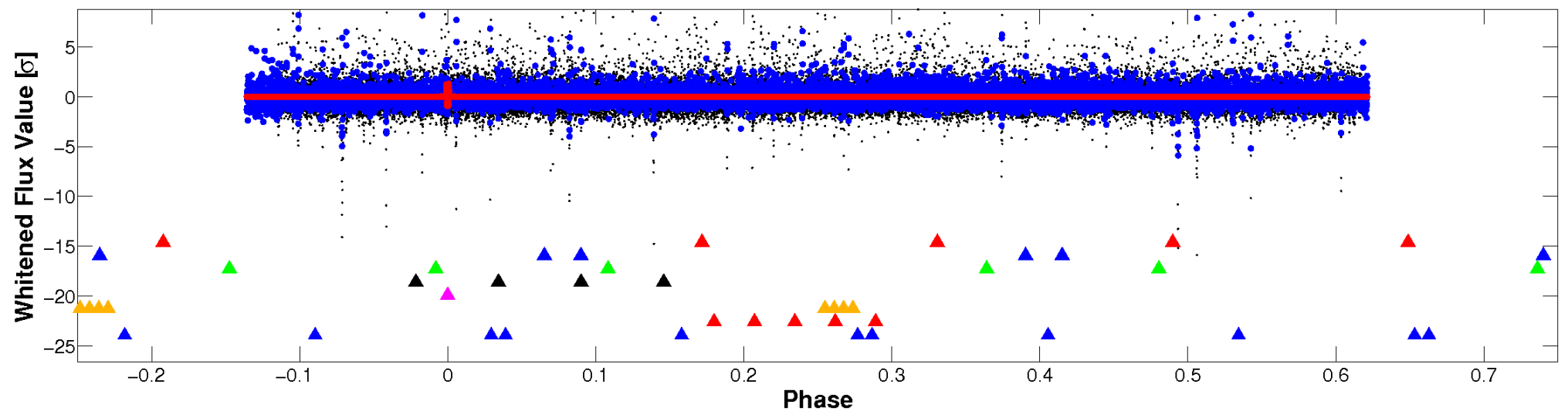


Non-Whitened Vs. Whitened Light Curve

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

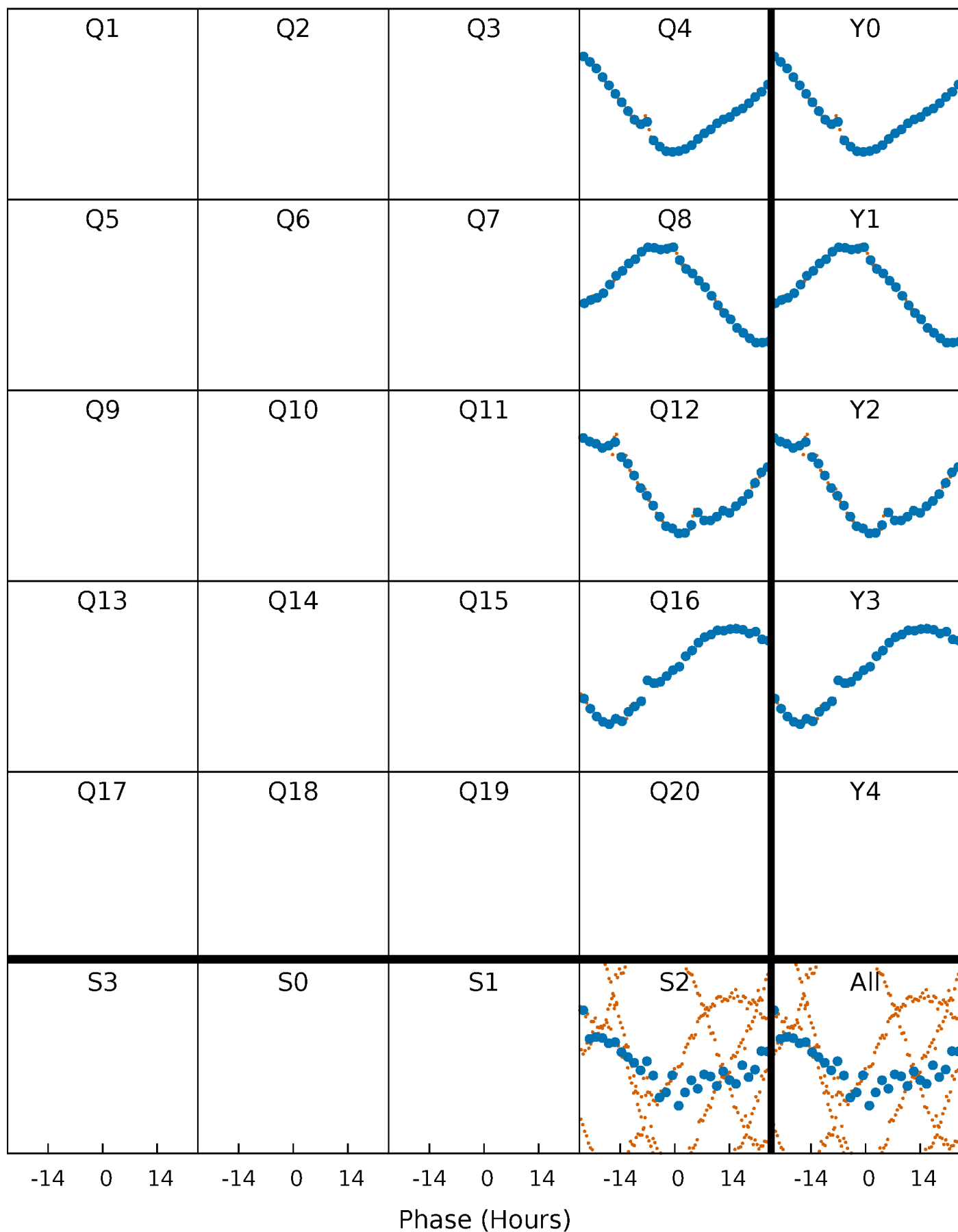


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



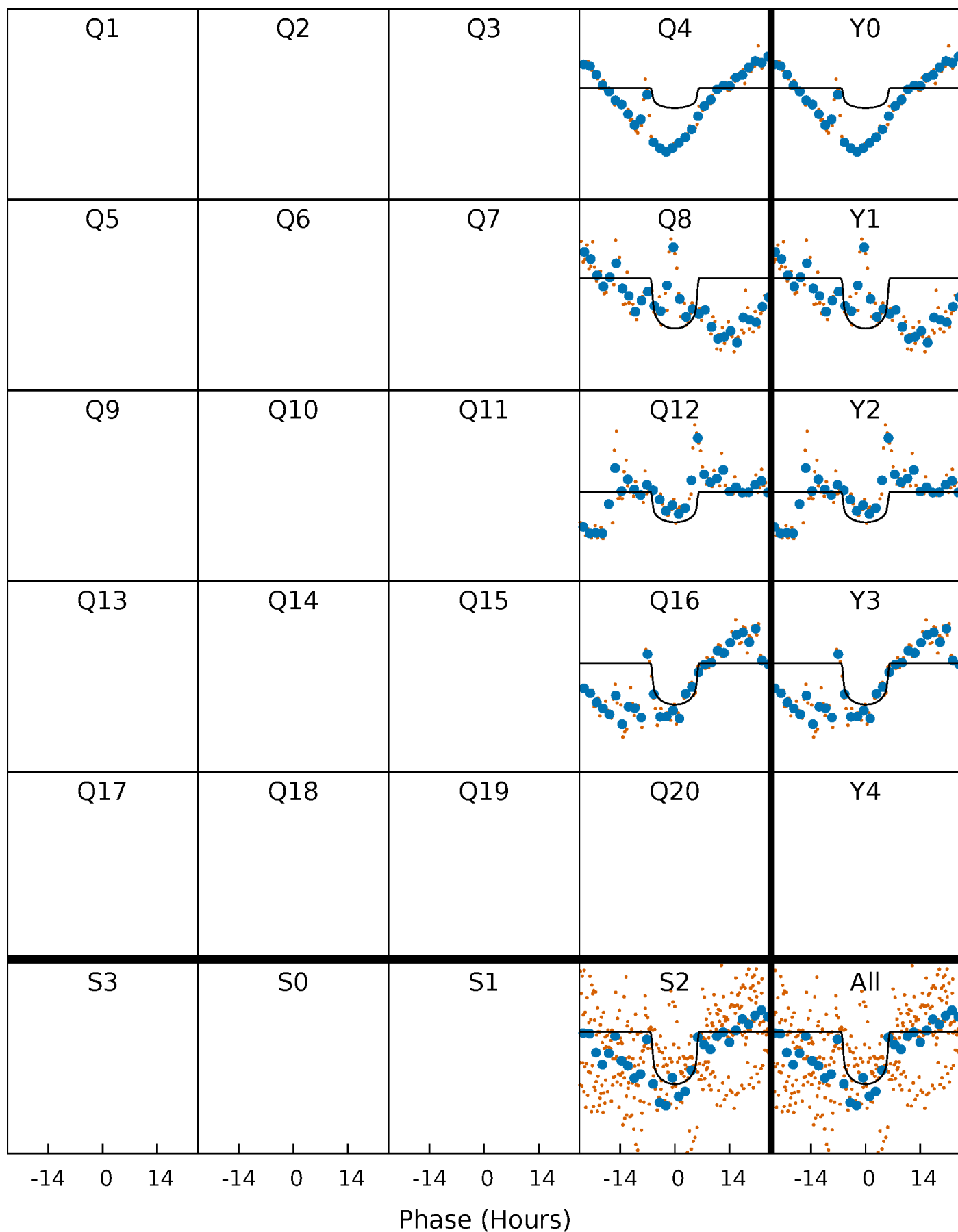
PDC Quarter-Phased Transit Curves

TCE 009847963-05 $P=369.594720$ Days $T_0=402.568831$ (BKJD)



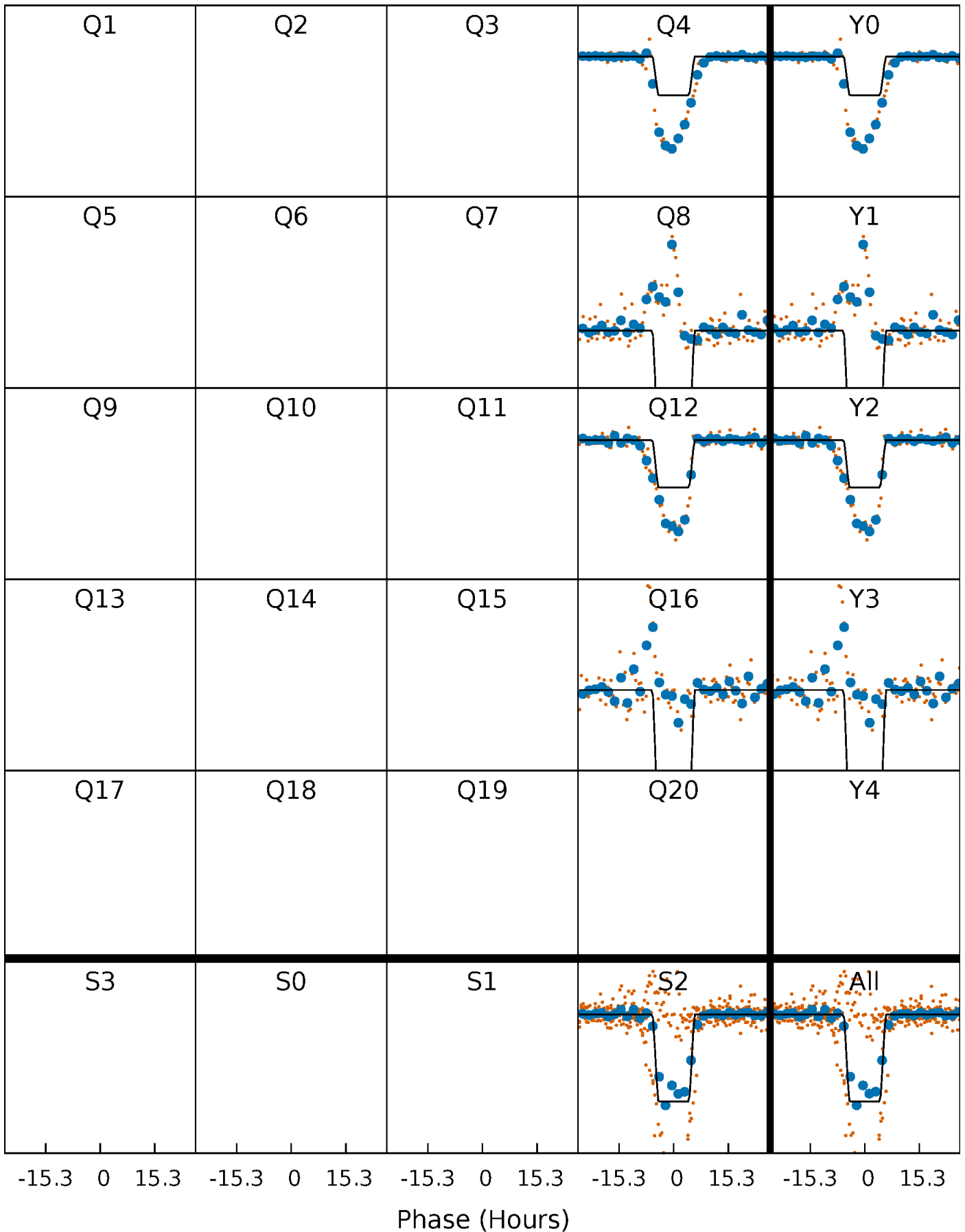
DV Quarter-Phased Transit Curves

TCE 009847963-05 $P=369.594720$ Days $T_0=402.568831$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

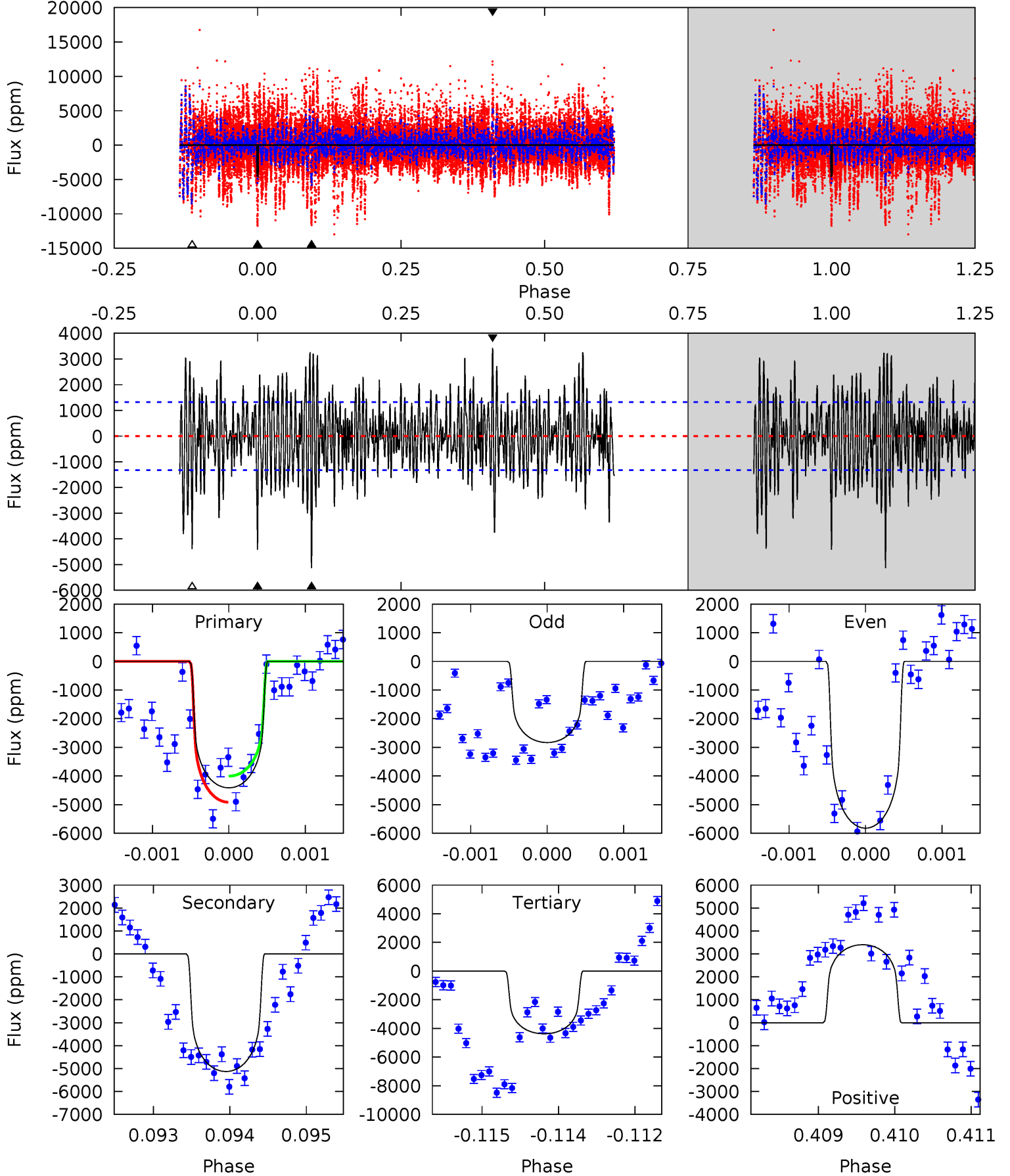
TCE 009847963-05 $P=369.602233$ Days $T_0=402.537279$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-05, P = 369.594720 Days, E = 32.974111 Days

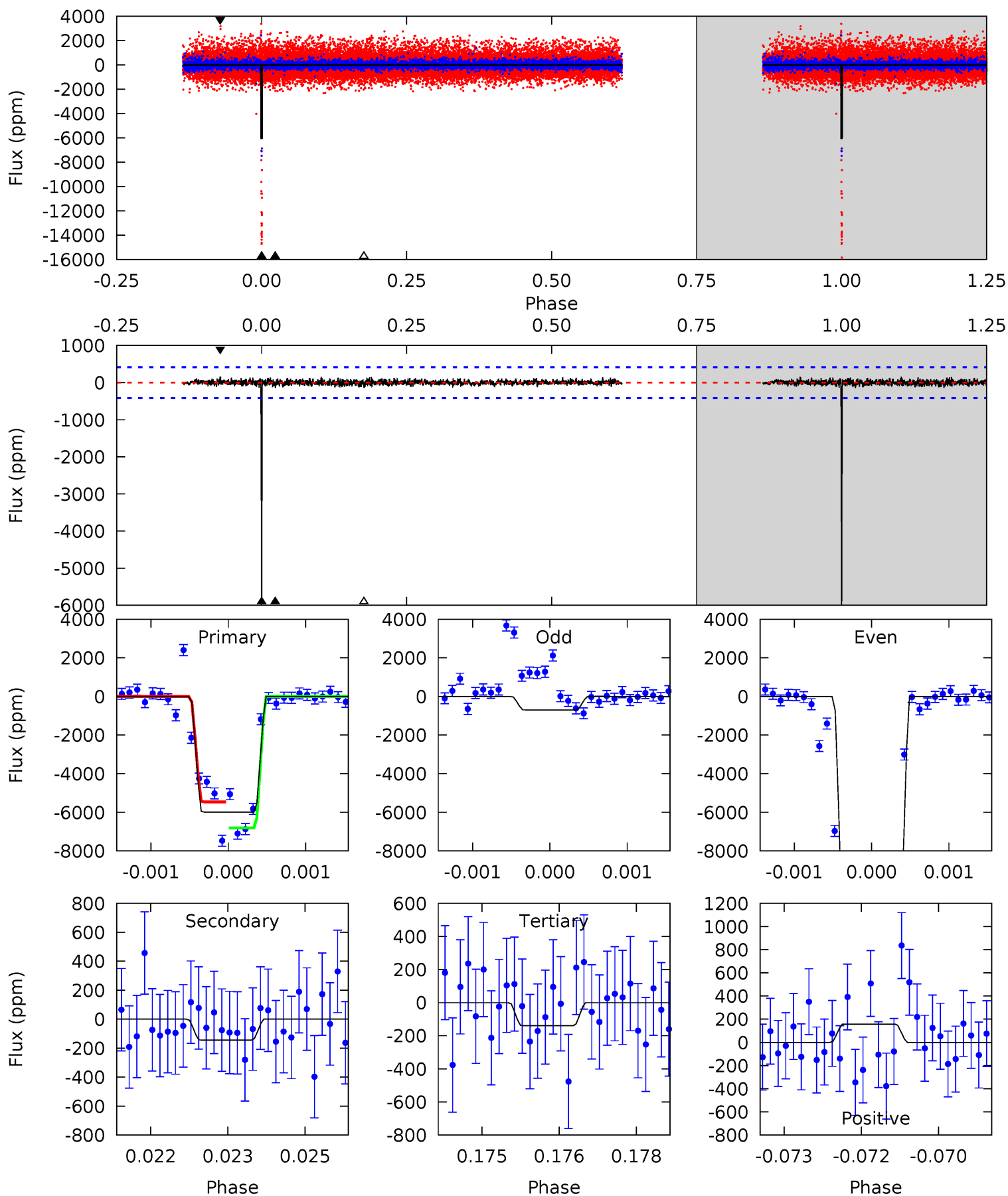
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	20.9	17.8	13.8	5.39	3.19	4.65	0.15	4.13	3.07	7.04	5.80	1.55	0.40	1.84



Alt Model-Shift Uniqueness Test

009847963-05, P = 369.602233 Days, E = 32.935046 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
77.6	1.86	1.79	2.04	5.39	3.20	0.50	75.8	75.5	0.07	-0.18	106.6	1.02	0.03	8.25



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5129 ± 245	$4.93^{+1.03}_{-0.92}$	322^{+19}_{-17}	6287^{+718}_{-508}	99397^{+50888}_{-30209}
Alt.	-144 ± 77	$8.02^{+1.22}_{-1.12}$	321^{+21}_{-16}	2772^{+217}_{-268}	1051^{+779}_{-574}

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

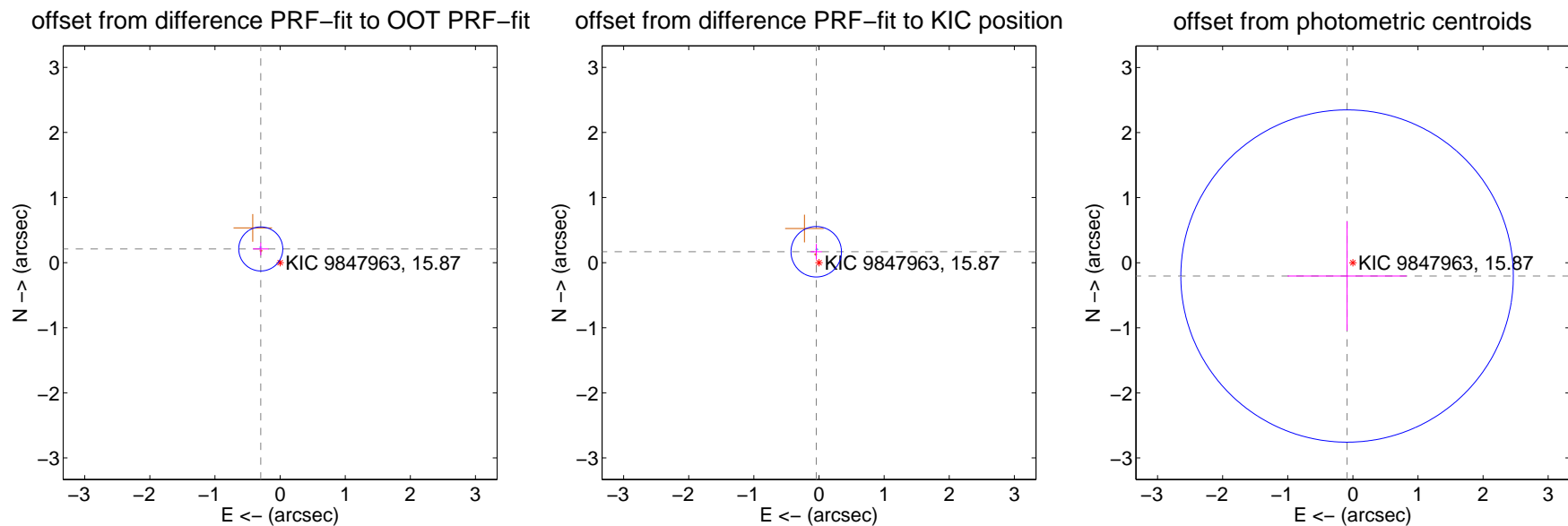
DV Centroid Data

Supplemental centroid analysis for 009847963-05. Kepler magnitude: 15.87. Transit SNR 7.90

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.364 \pm 0.113	3.23	0.297 \pm 0.120	0.210 \pm 0.098
PRF-fit source offset from KIC position	0.173 \pm 0.129	1.34	0.042 \pm 0.087	0.167 \pm 0.121
photometric centroid source offset	0.22 \pm 0.85	0.26	0.09 \pm 0.91	-0.20 \pm 0.84

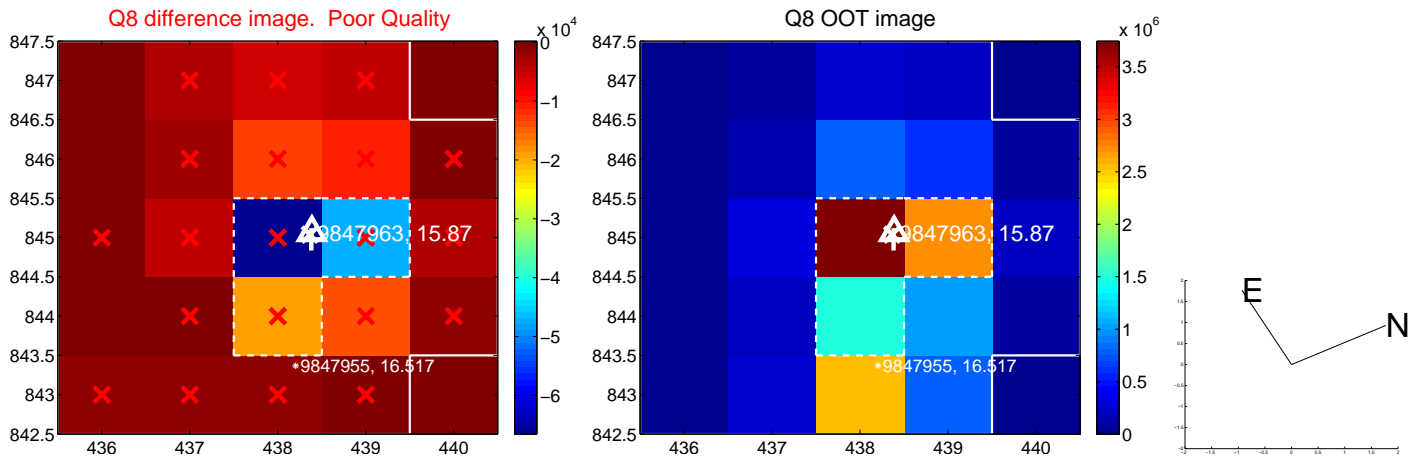
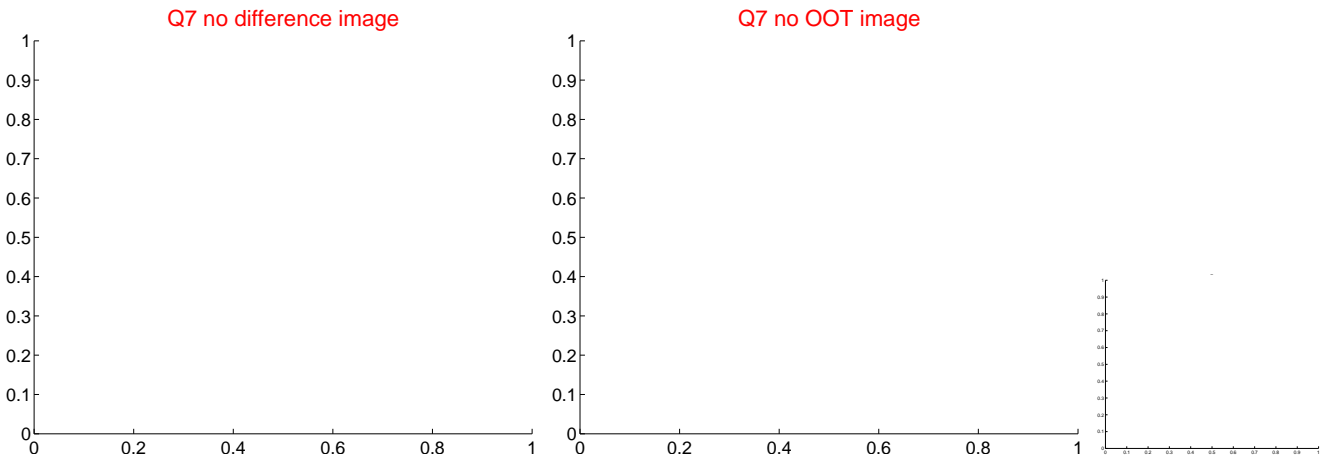
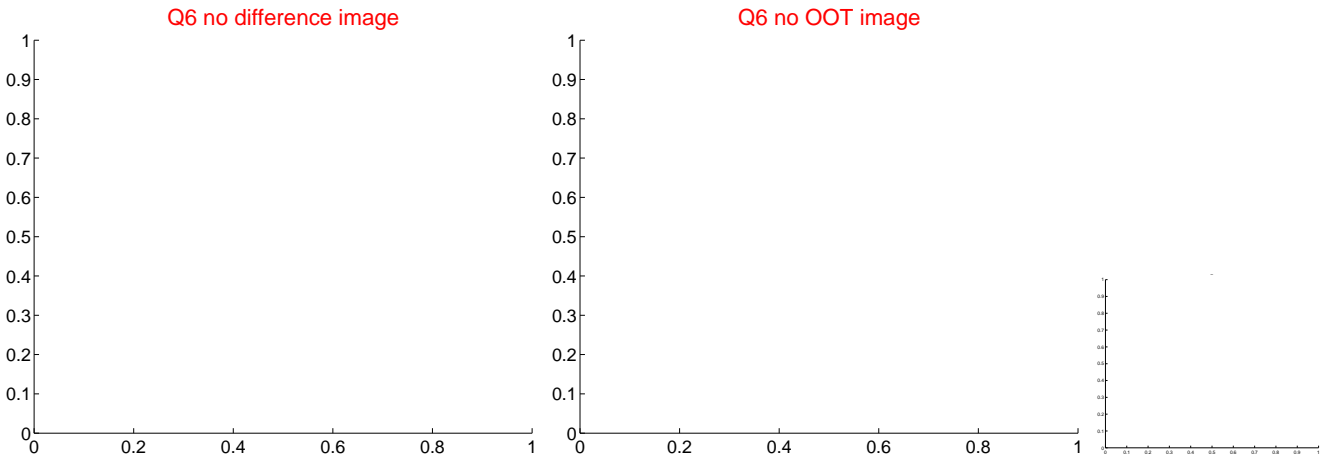
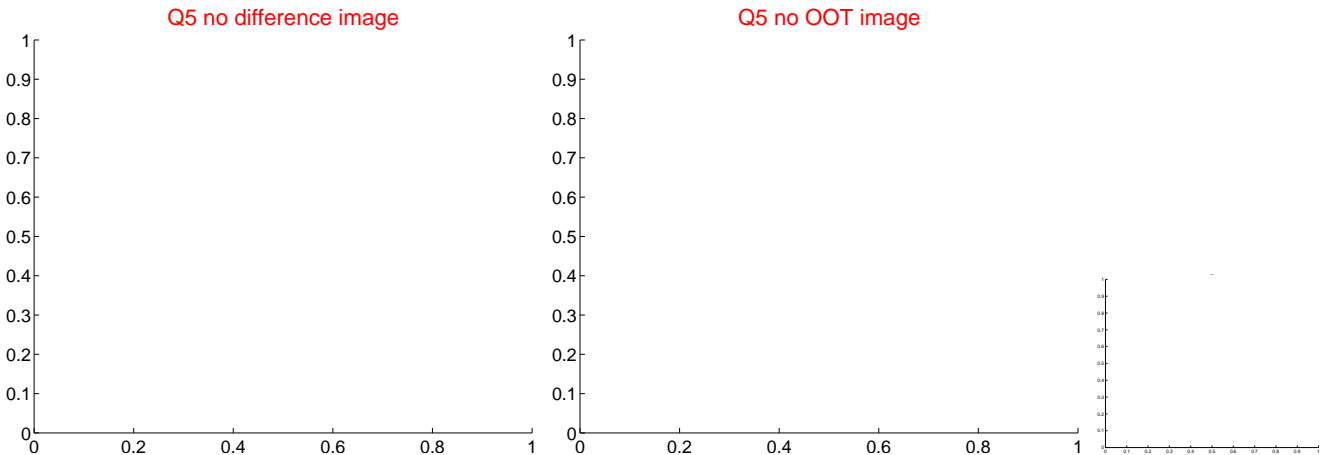


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

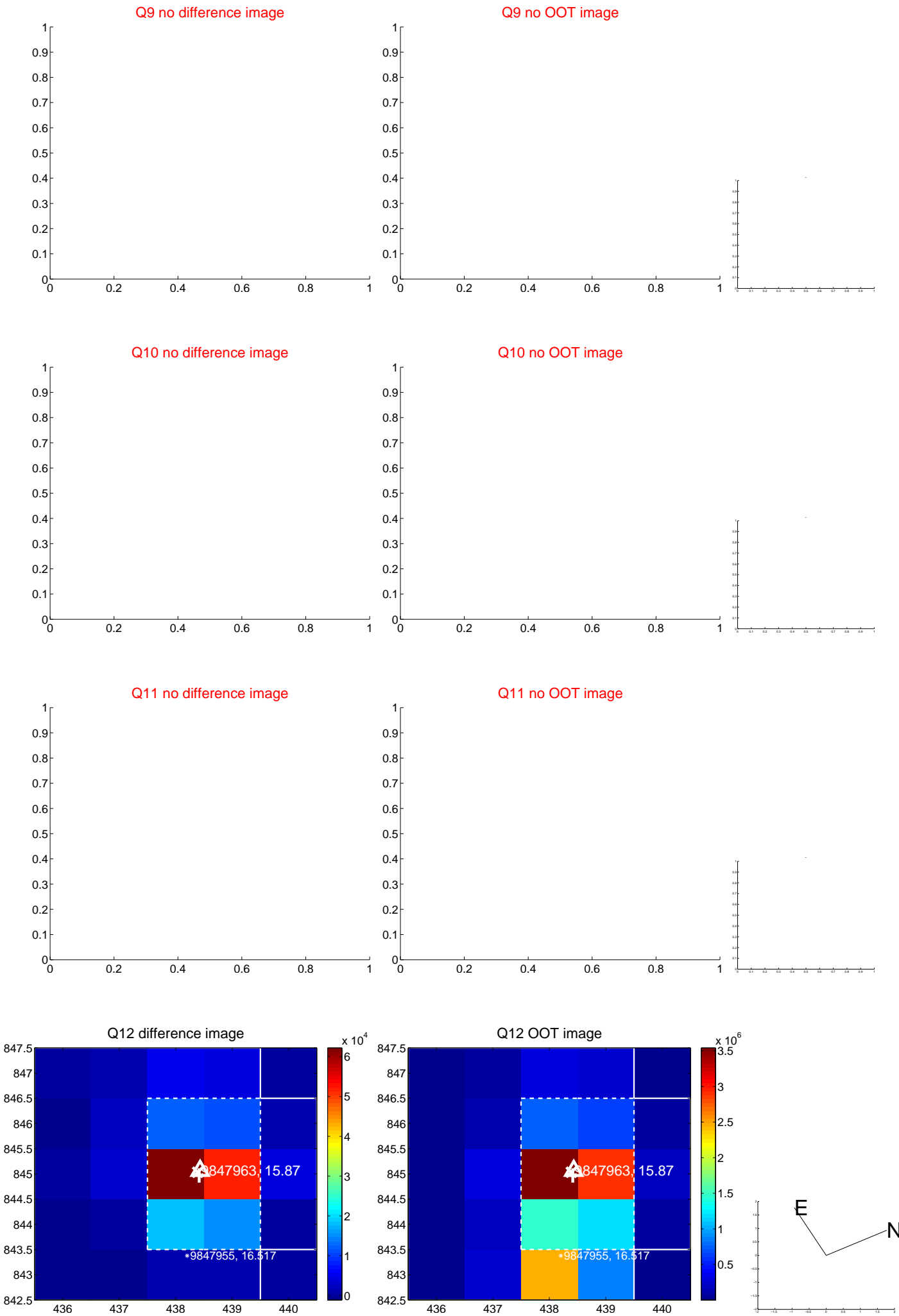
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



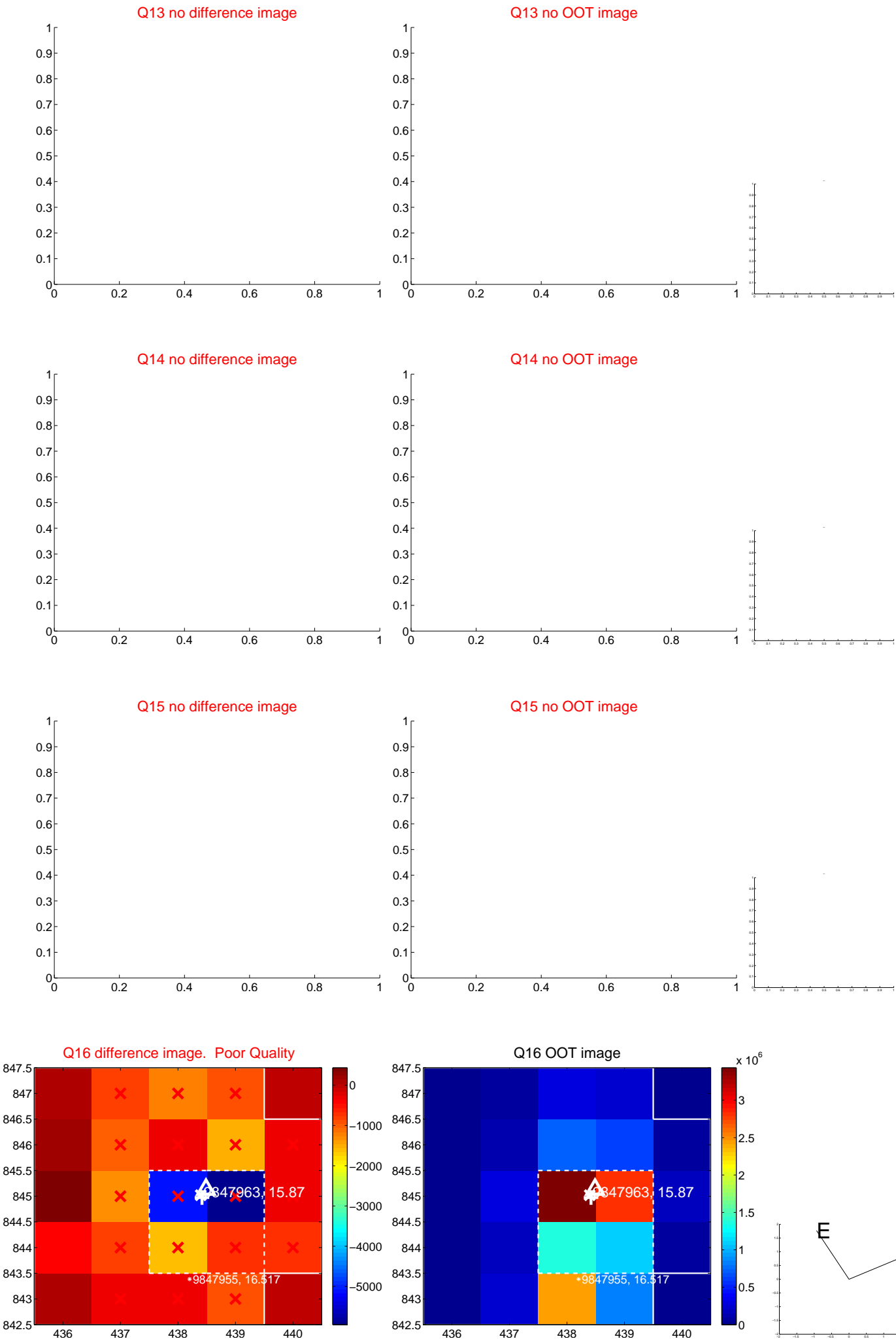
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



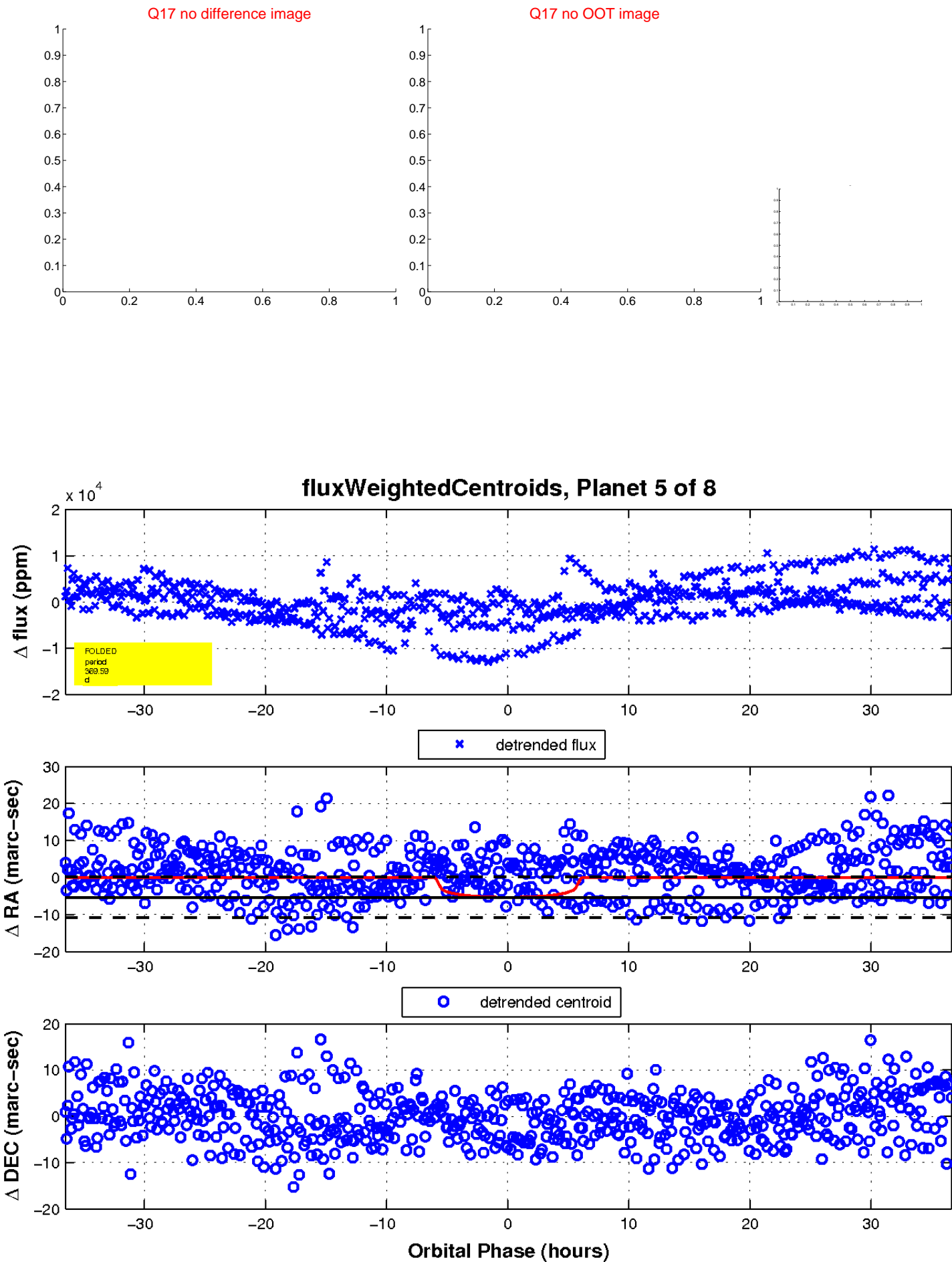
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

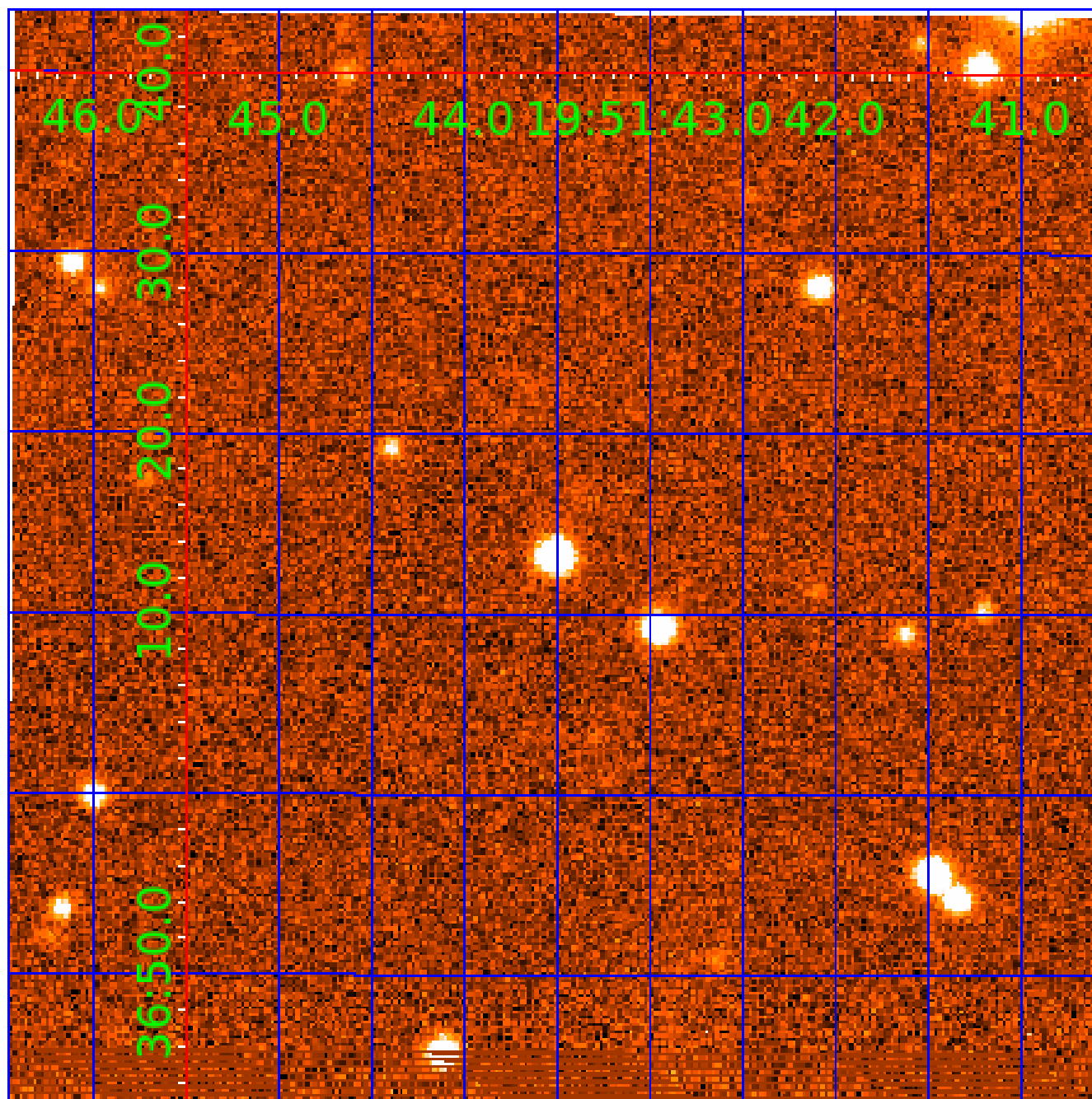


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009847963

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
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Robovetter Results

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009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

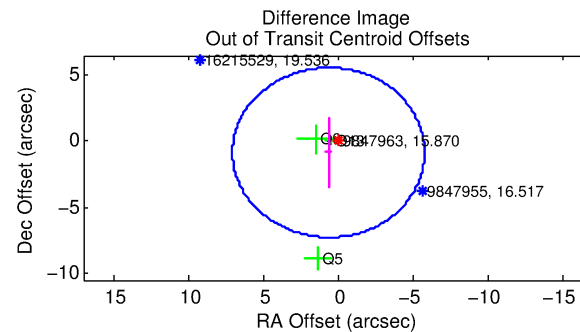
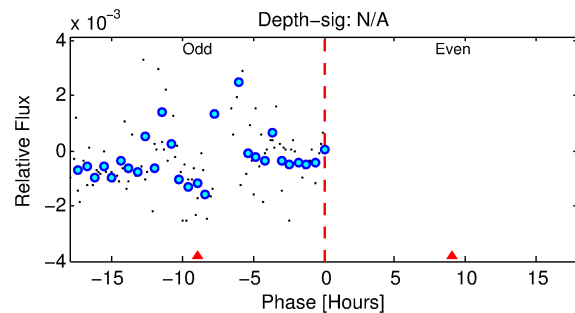
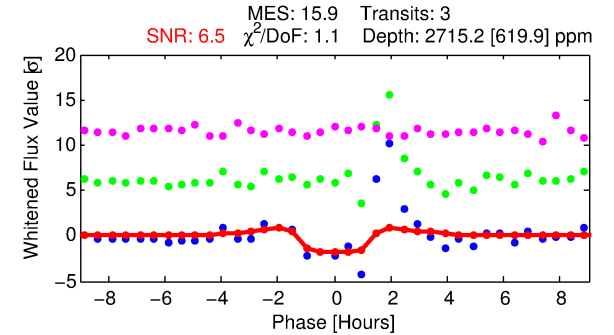
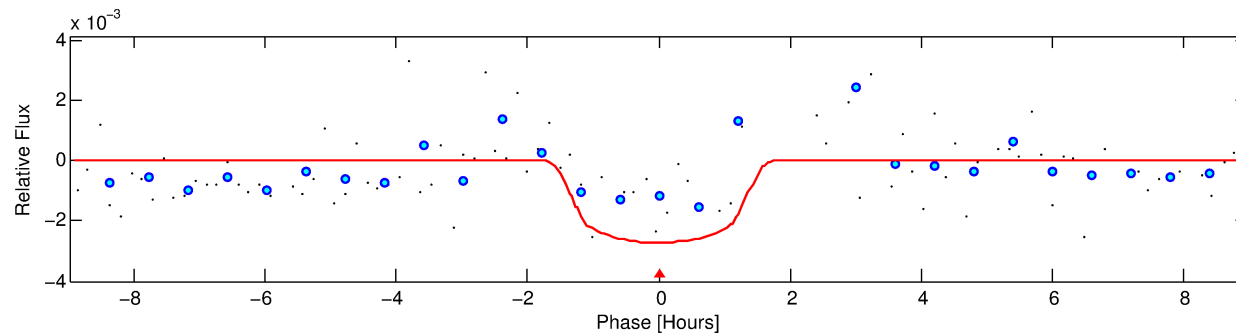
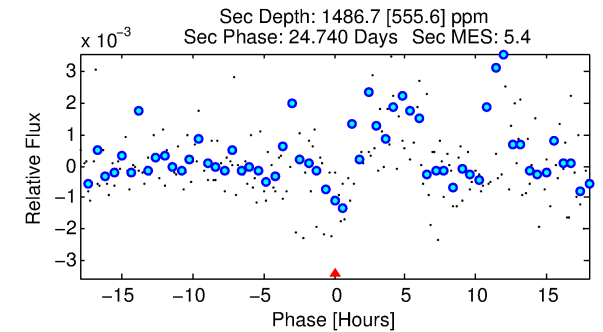
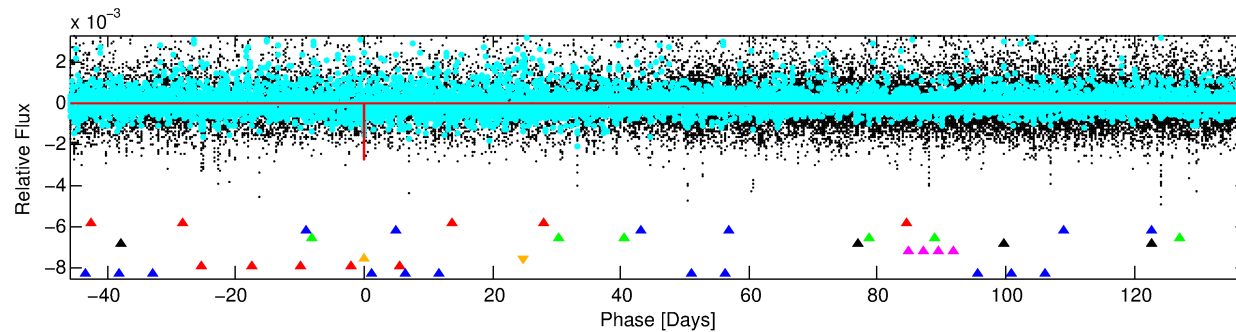
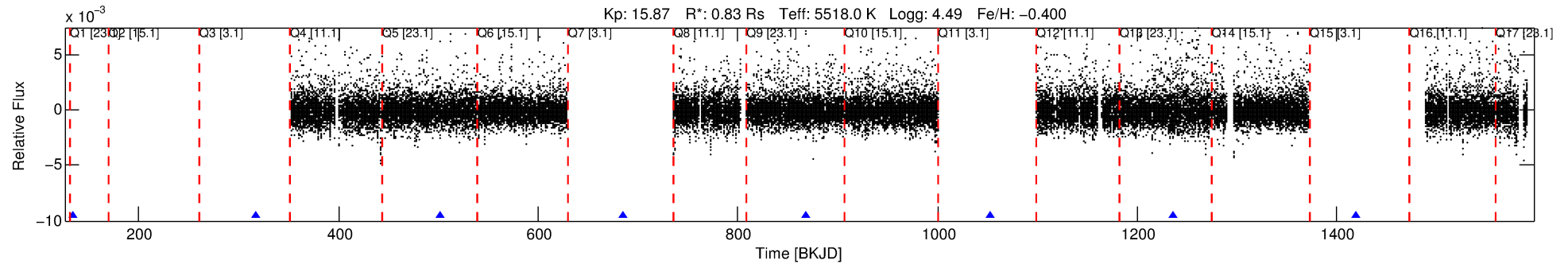
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-06

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 6 of 8 Period: 183.633 d



DV Fit Results:

Period = 183.63339 [0.00397] d
Epoch = 134.1423 [0.0171] BKJD
Rp/R* = 0.0495 [0.0885]
a/R* = 410.70 [3099.00]
b = 0.58 [8.88]
Seff = 1.70 [0.49]
Teq = 291 [21] K
Rp = 4.47 [8.05] Re
a = 0.5786 [0.0984] AU
Ag = 13710.84 [49477.68] [0.28σ]
Teffp = 4872 [4388] K [1.04σ]

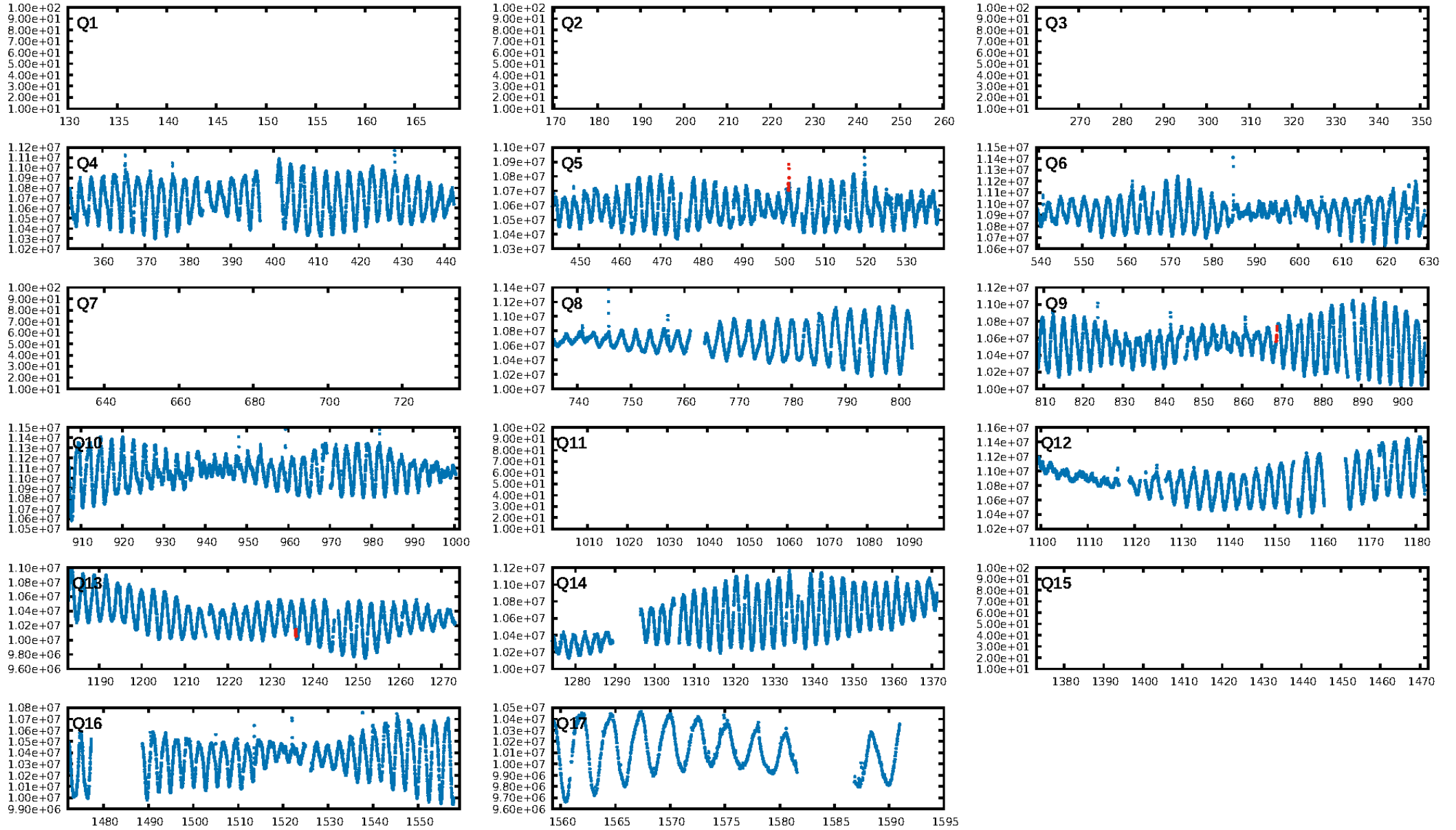
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [274.09σ]
LongPeriod-sig: 100.0% [183.58σ]
ModelChiSquare2-sig: 52.6%
ModelChiSquareGof-sig: 95.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -5.008
Centroid-sig: N/A
Centroid-so: 0.562 arcsec [0.48σ]
OotOffset-rm: 1.049 arcsec [0.49σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-rm: 1.011 arcsec [0.48σ]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

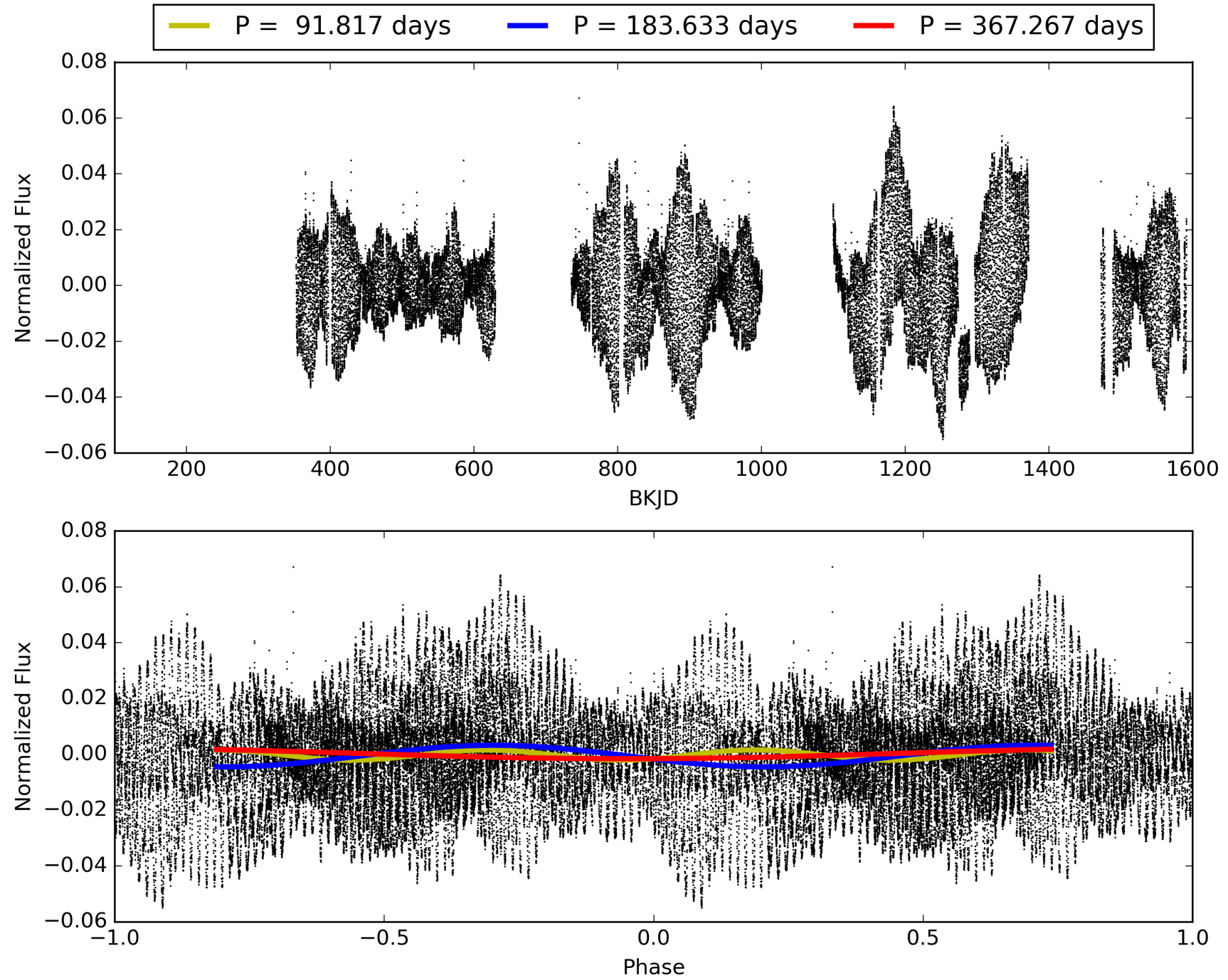
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:23:29 Z

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

TCE 009847963-06, PDC Light Curves

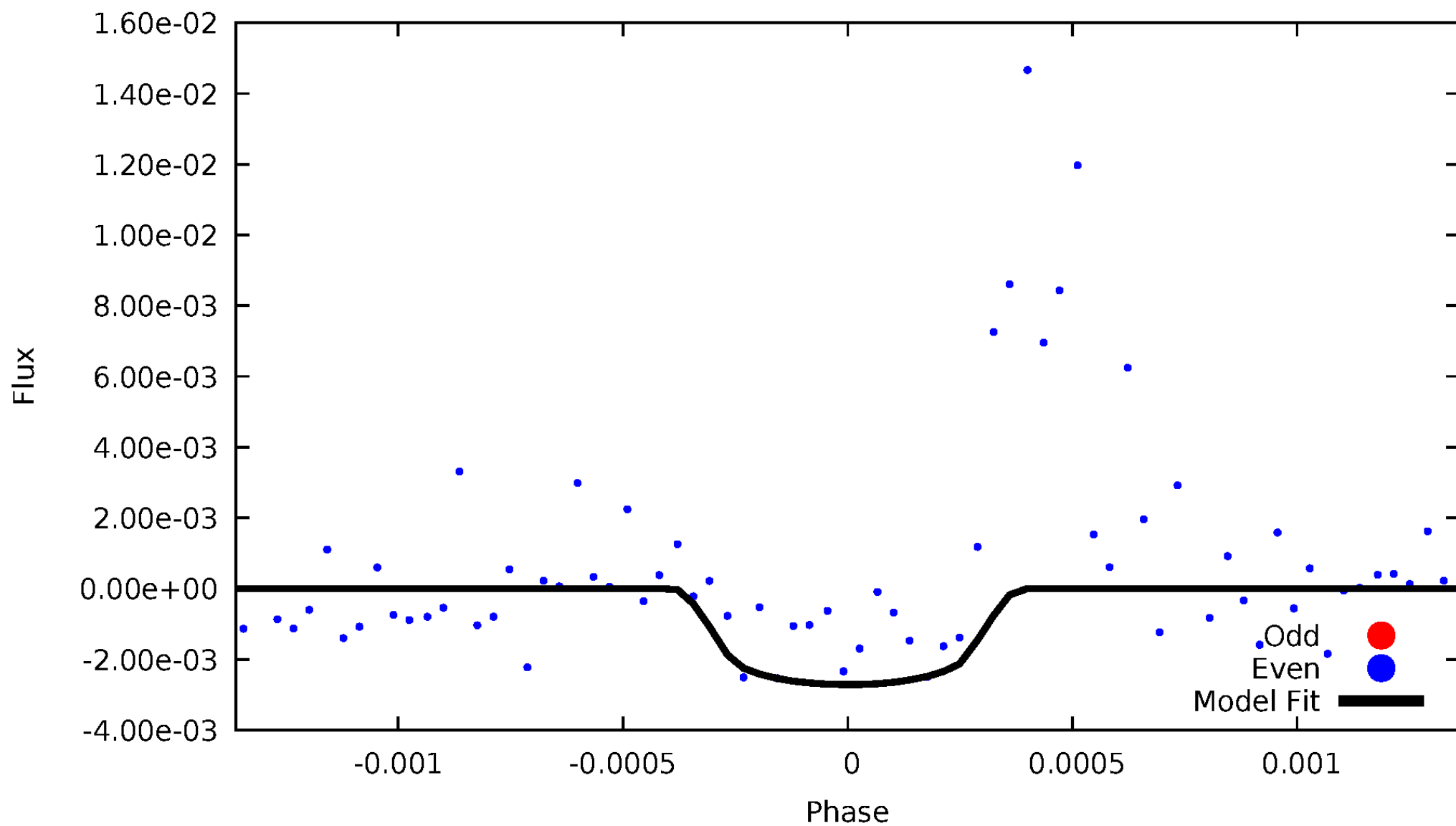


TCE 009847963-06



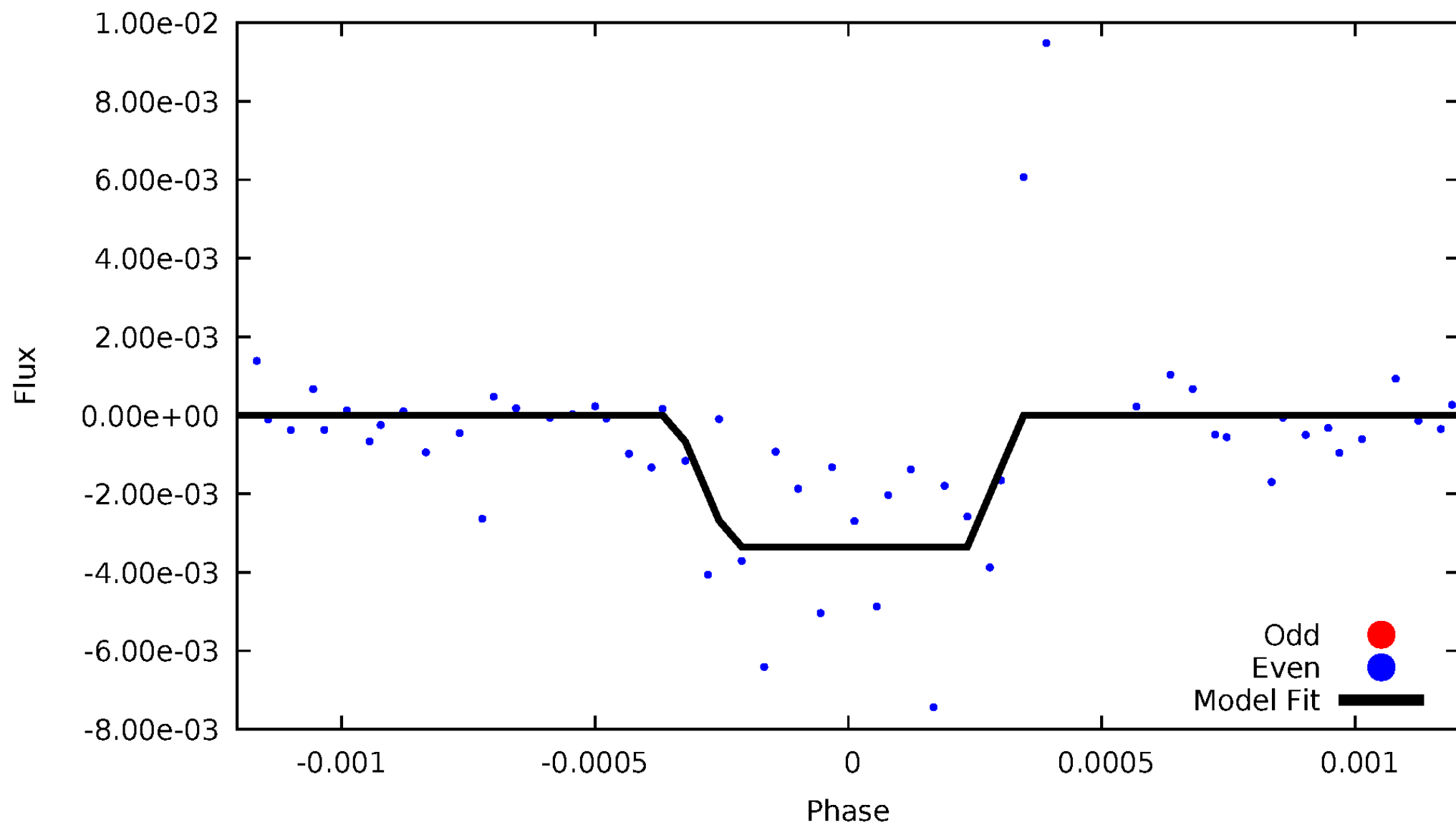
DV Odd/Even

TCE 009847963-06



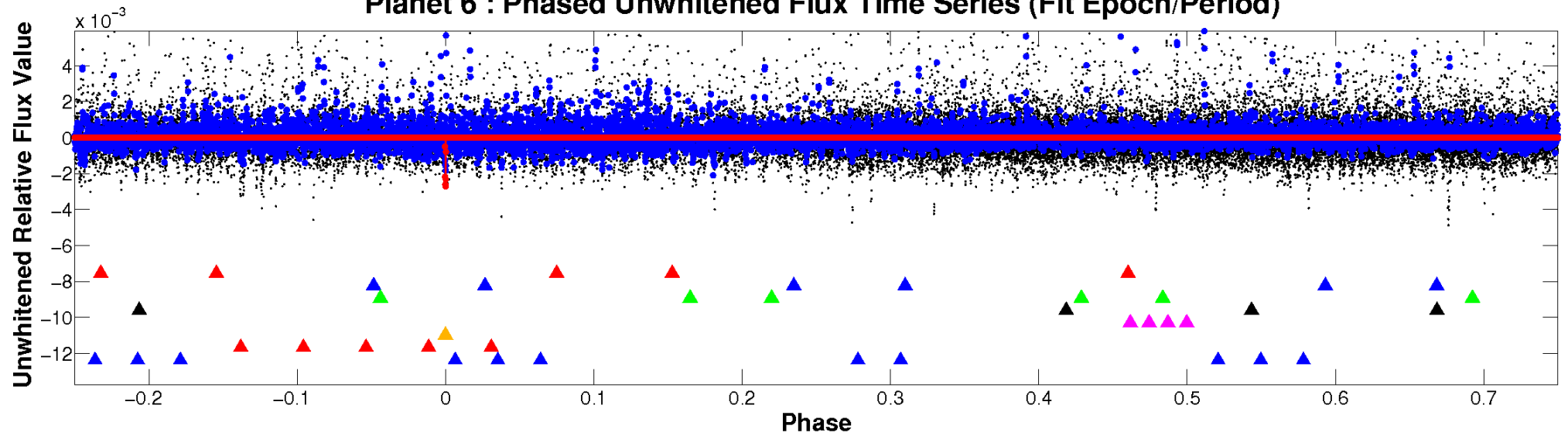
ALT Odd/Even

TCE 009847963-06

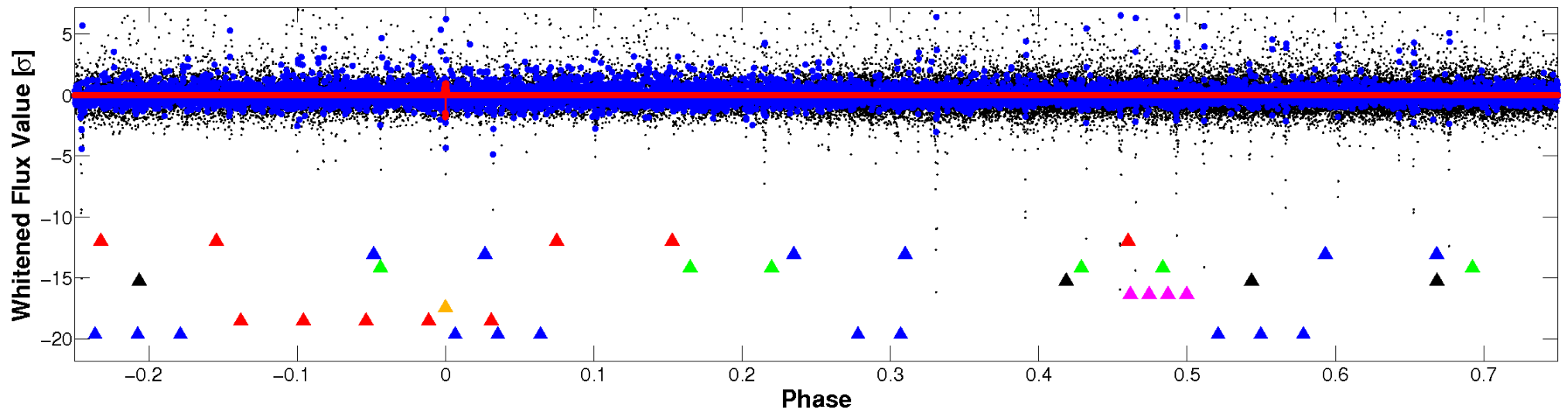


Non-Whitened Vs. Whitened Light Curve

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

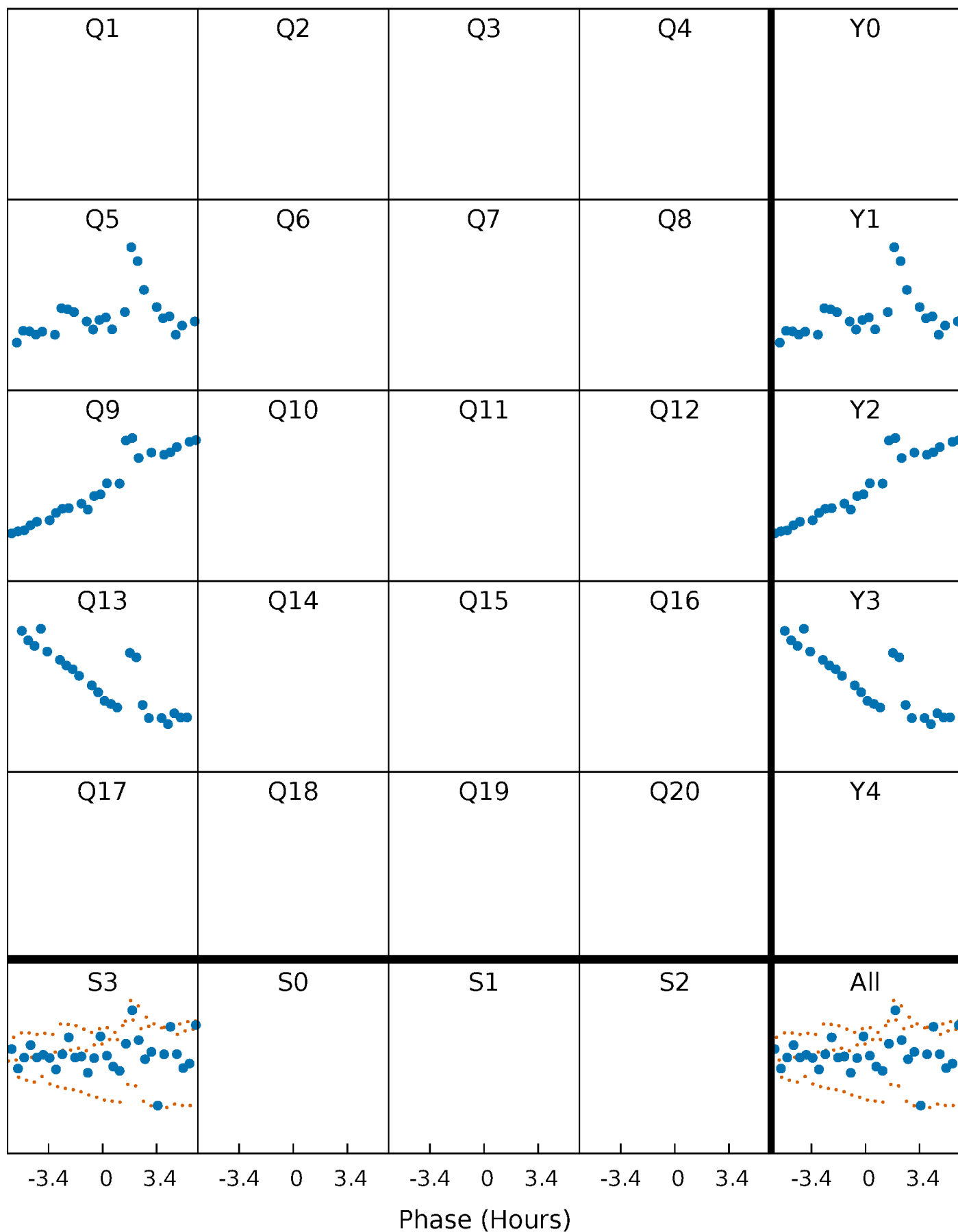


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



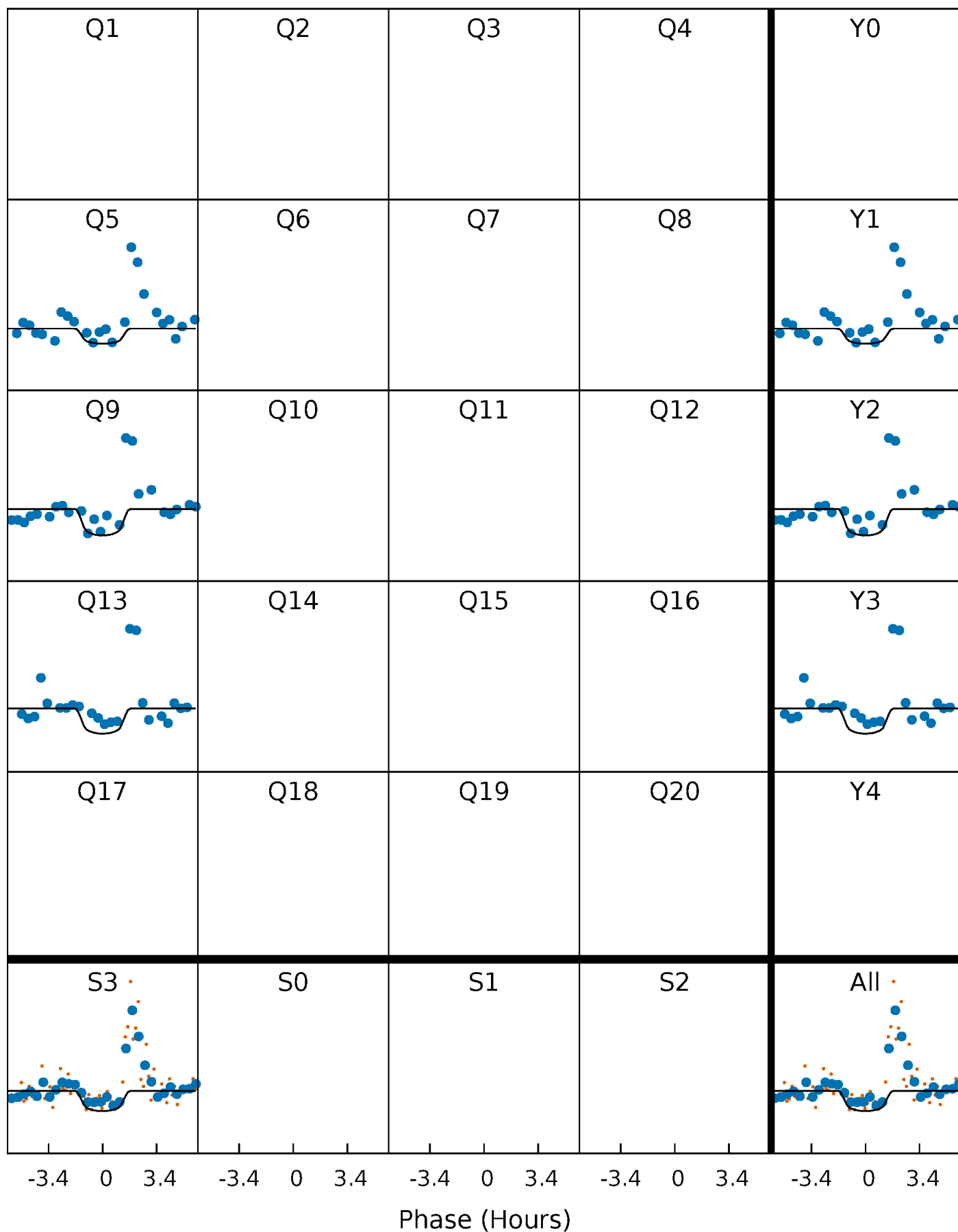
PDC Quarter-Phased Transit Curves

TCE 009847963-06 P=183.633385 Days $T_0=134.142260$ (BKJD)



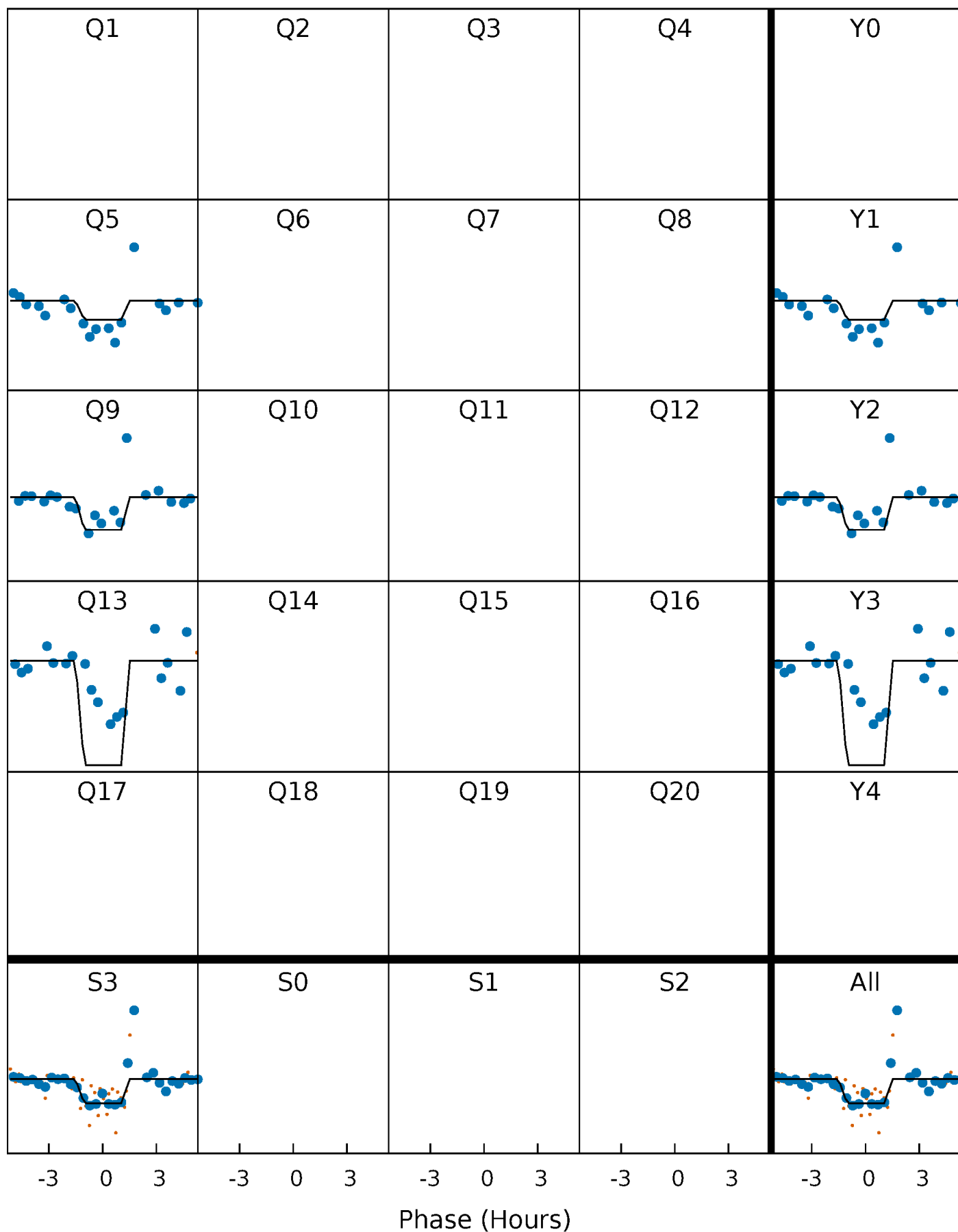
DV Quarter-Phased Transit Curves

TCE 009847963-06 $P=183.633385$ Days $T_0=134.142260$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

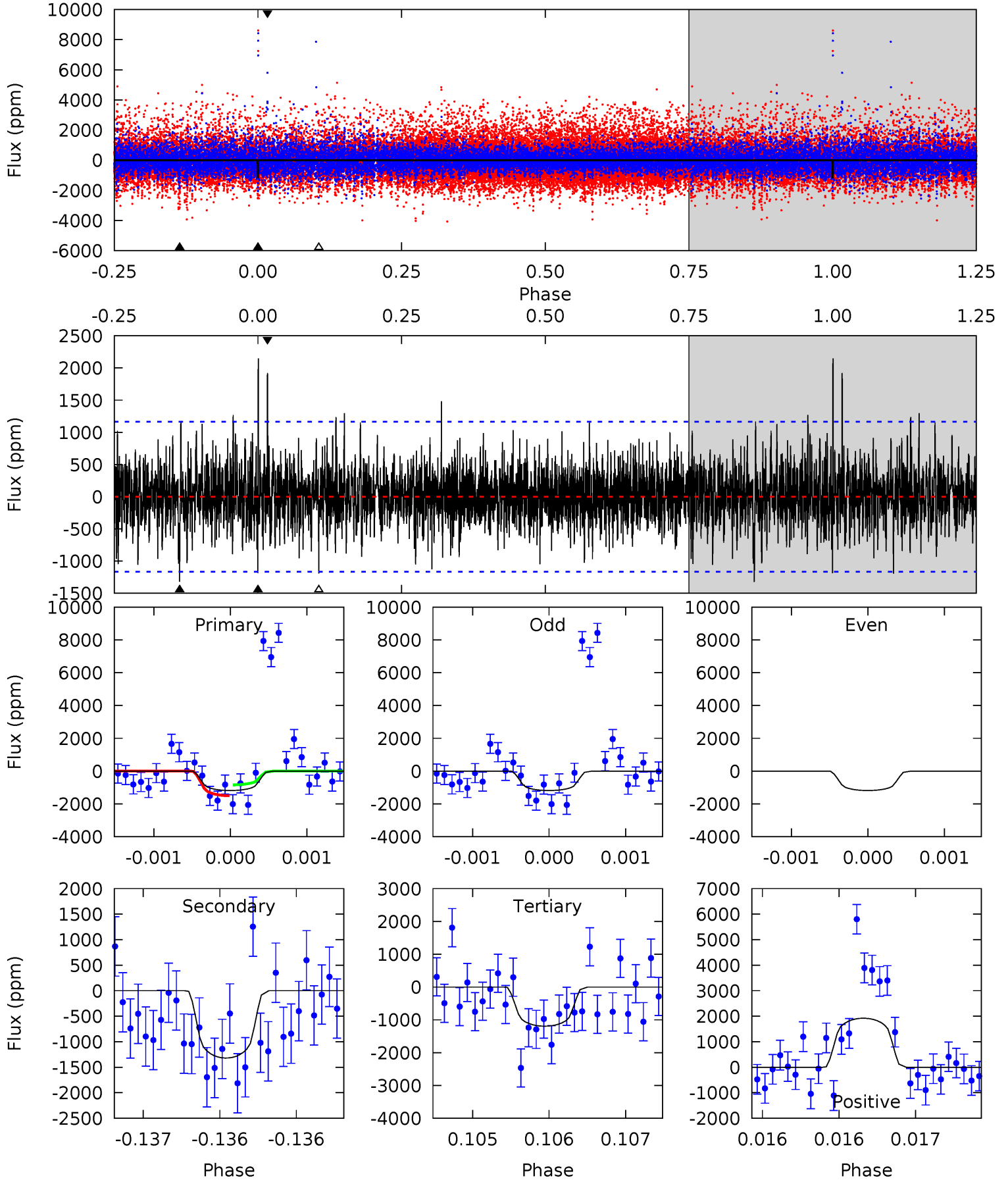
TCE 009847963-06 P=183.630529 Days $T_0=134.149743$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-06, P = 183.633385 Days, E = 134.142260 Days

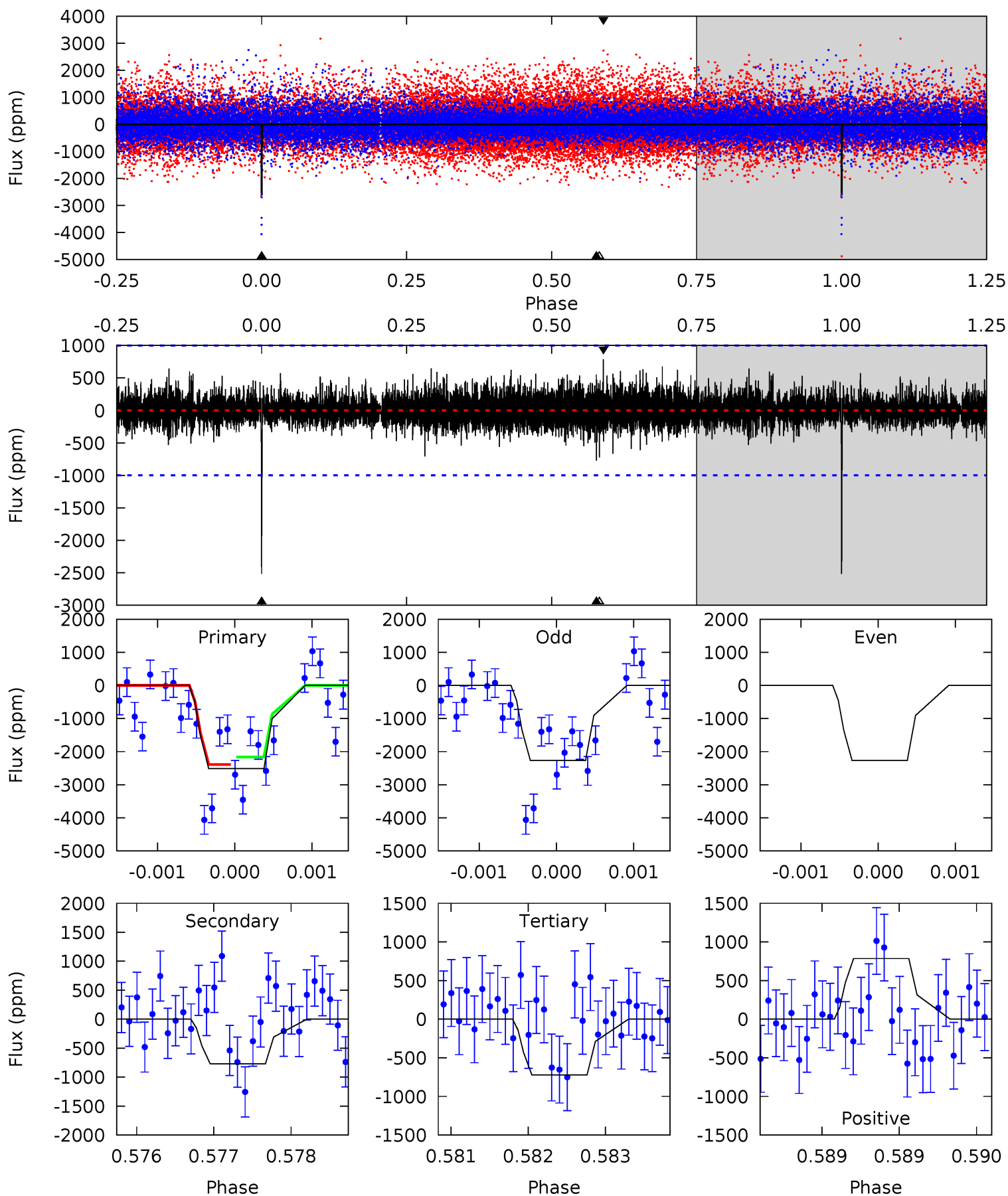
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.59	6.22	5.62	9.06	5.50	3.36	1.53	-0.03	-3.47	0.60	-2.84	0	1.00	0.62	1.57



Alt Model-Shift Uniqueness Test

009847963-06, P = 183.630529 Days, E = 134.149743 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	4.27	3.99	4.35	5.53	3.42	0.89	9.94	9.58	0.28	-0.08	0	1.34	0.24	0.60



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1320 ± 212	$7.77^{+6.66}_{-5.16}$	408^{+24}_{-22}	3946^{+2345}_{-731}	4052^{+33539}_{-2914}
Alt.	-770 ± 180	$7.44^{+7.41}_{-4.91}$	408^{+24}_{-20}	3630^{+1906}_{-670}	2510^{+20820}_{-1900}

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 $A_{obs} \gg 1.0$

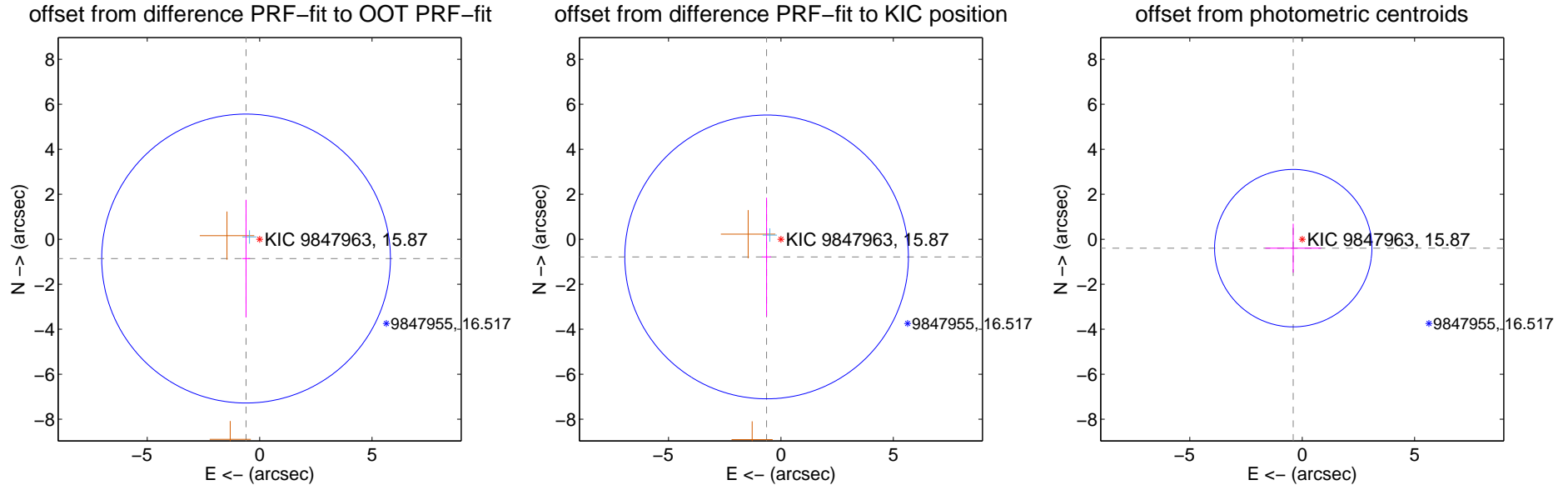
DV Centroid Data

Supplemental centroid analysis for 009847963-06. Kepler magnitude: 15.87. Transit SNR 6.52

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.049 ± 2.141	0.49	0.604 ± 0.173	-0.857 ± 2.611
PRF-fit source offset from KIC position	1.011 ± 2.103	0.48	0.637 ± 0.197	-0.786 ± 2.632
photometric centroid source offset	0.56 ± 1.17	0.48	0.40 ± 1.24	-0.40 ± 1.09

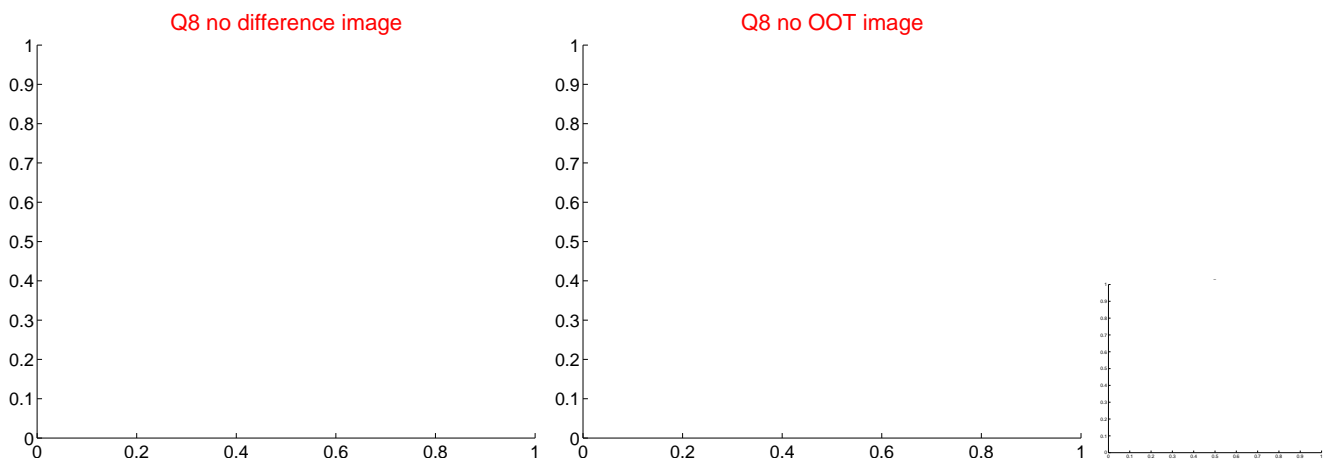
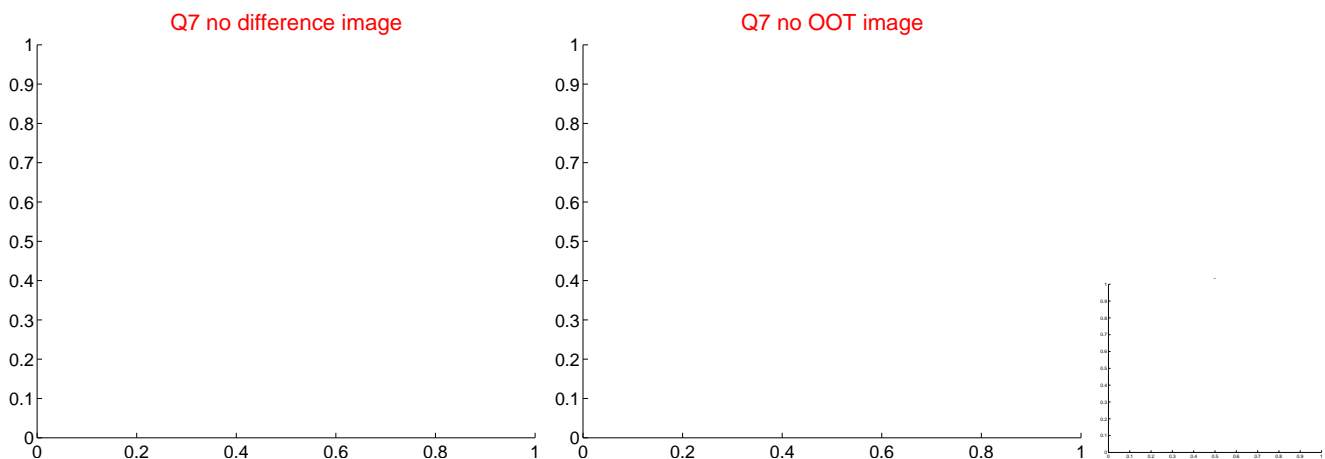
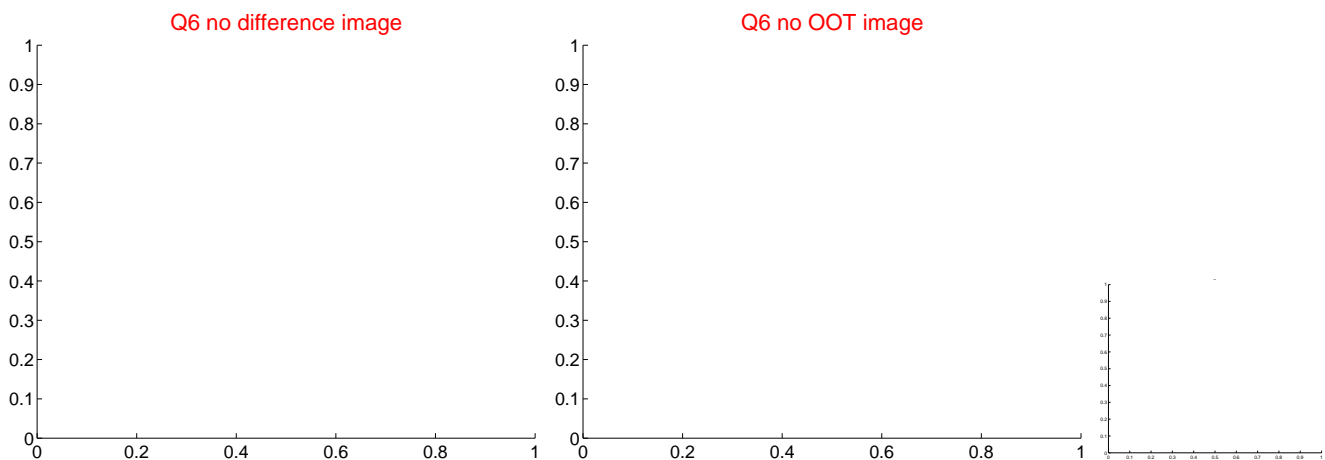
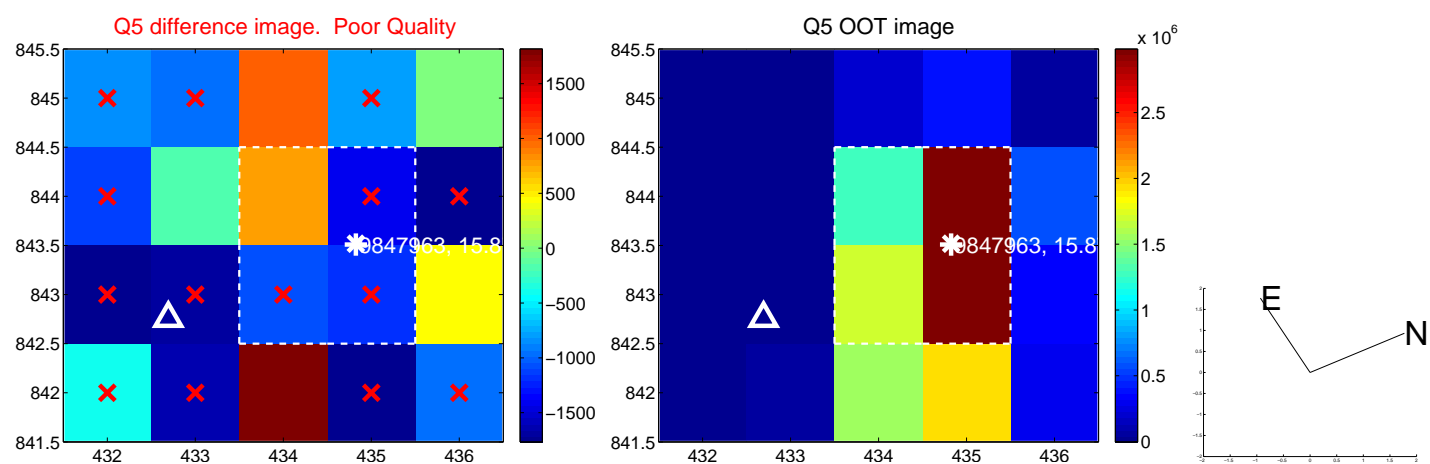


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

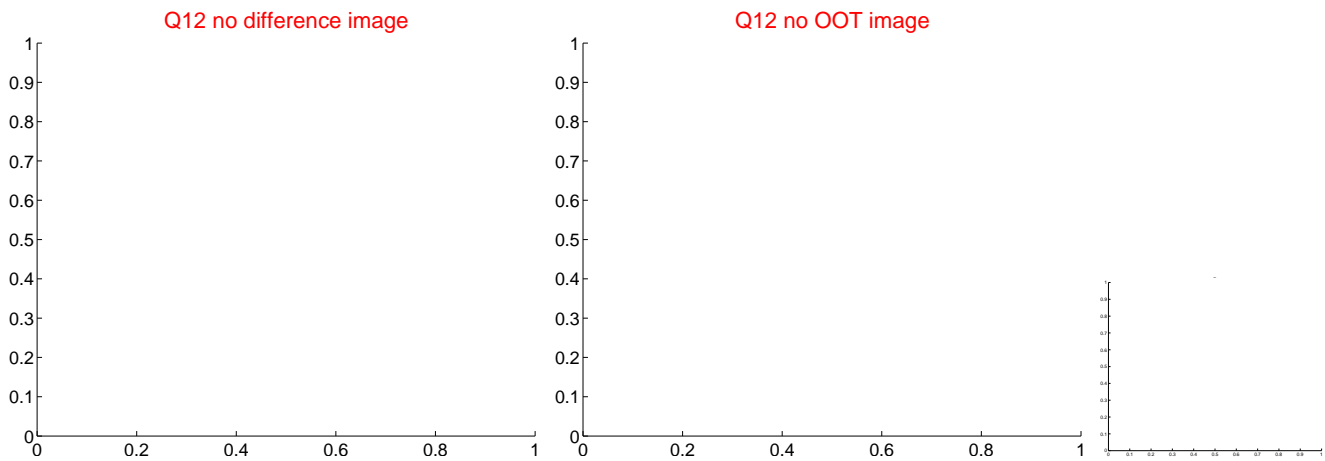
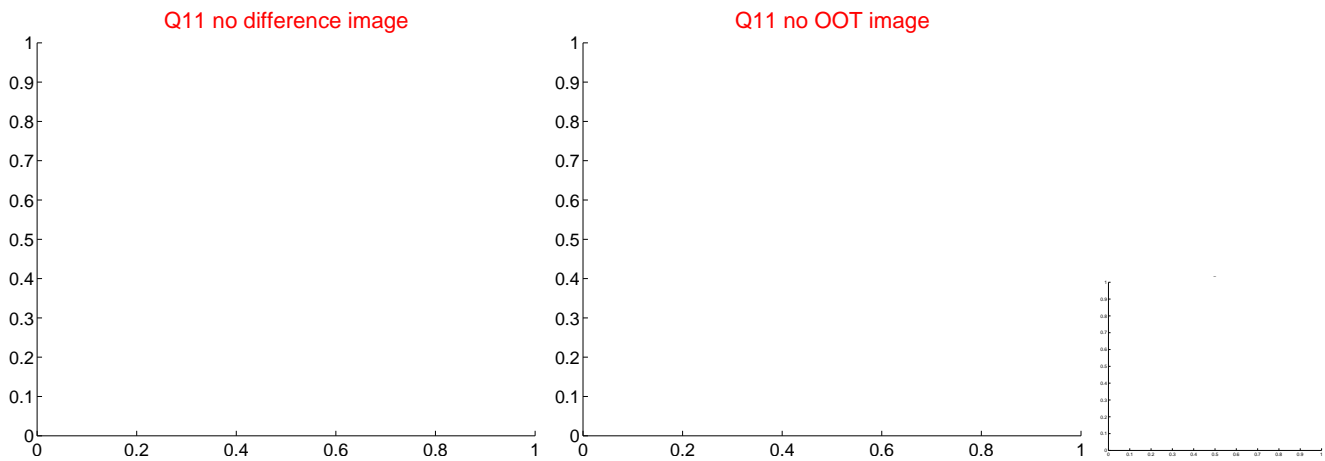
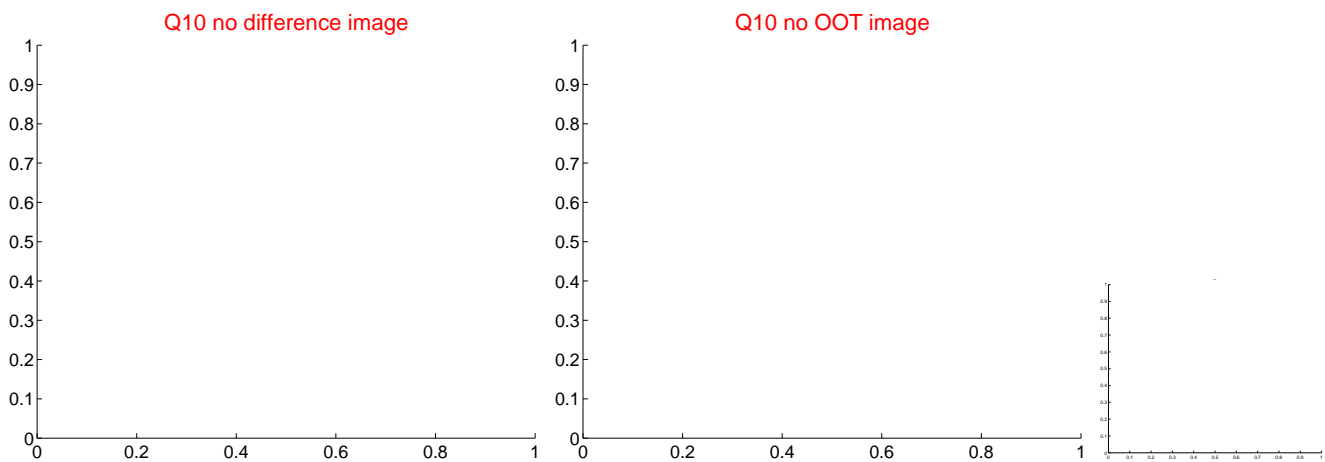
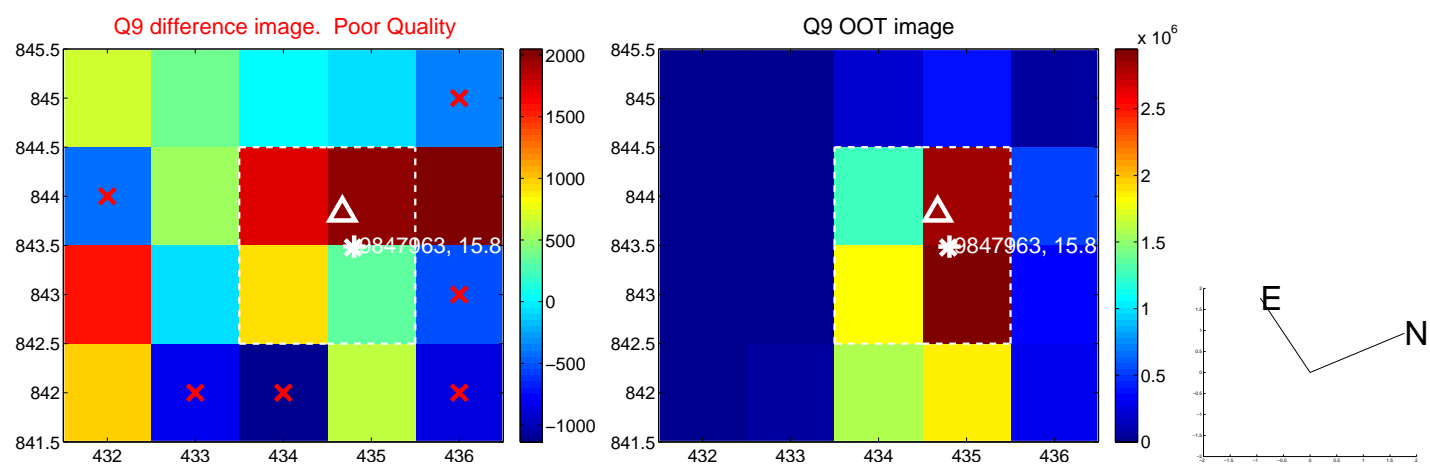
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



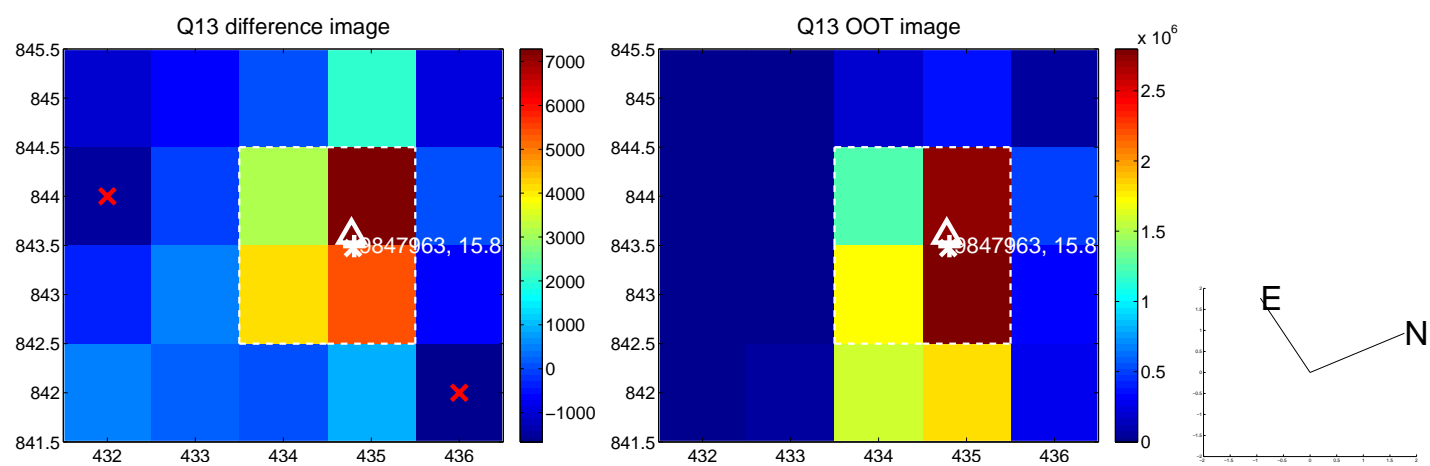
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



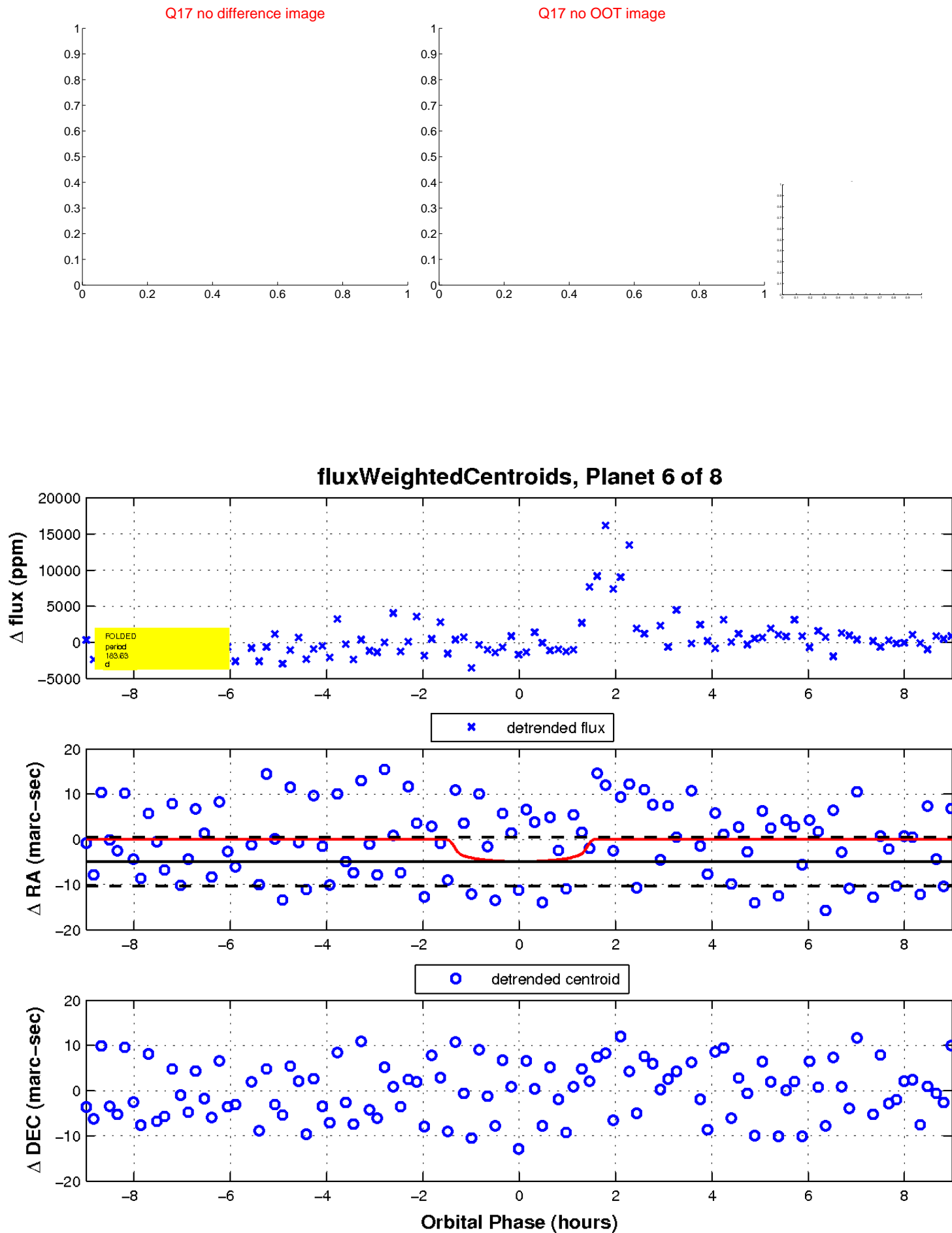
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

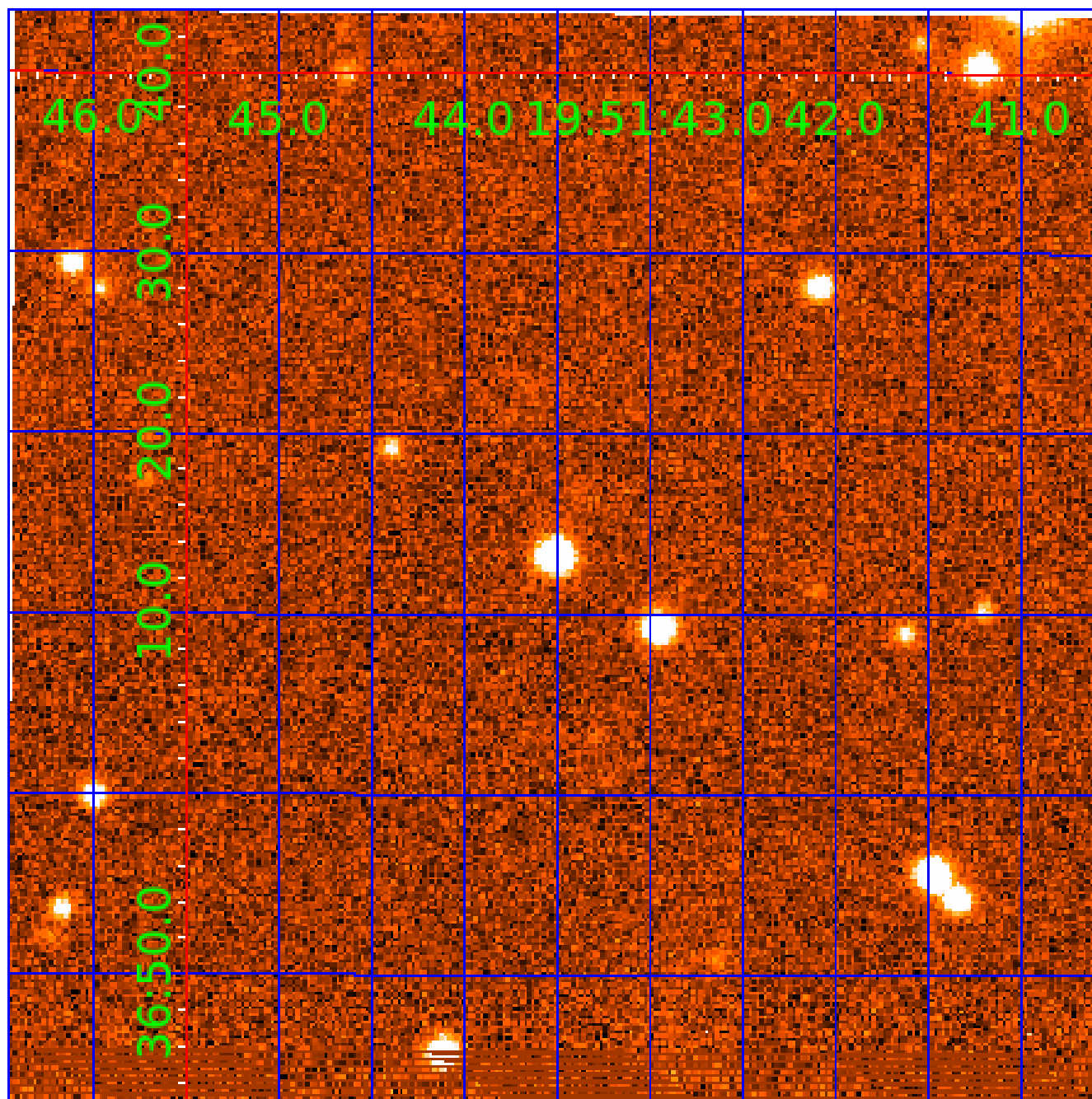


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009847963

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})
009847963-01	OBS	No	310.825531	331.542093	3700.4	3.133	13.3	9.0	0.83	5518	5.47	0.84
009847963-02	OBS	No	249.439847	177.269384	3203.8	2.736	12.4	8.1	0.83	5518	4.78	1.13
009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
009847963-05	OBS	No	369.594720	402.568831	3565.7	12.236	9.9	7.9	0.83	5518	4.88	0.67
009847963-06	OBS	No	183.633385	134.142260	2715.2	2.999	15.9	6.5	0.83	5518	4.47	1.70
009847963-07	OBS	No	359.513509	139.813954	3211.3	7.443	10.0	6.9	0.83	5518	6.29	0.69
009847963-08	OBS	No	139.045528	135.344328	1783.2	2.500	9.1	-1.0	0.83	5518	3.46	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009847963-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

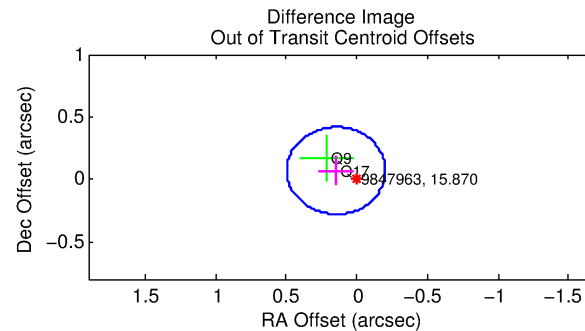
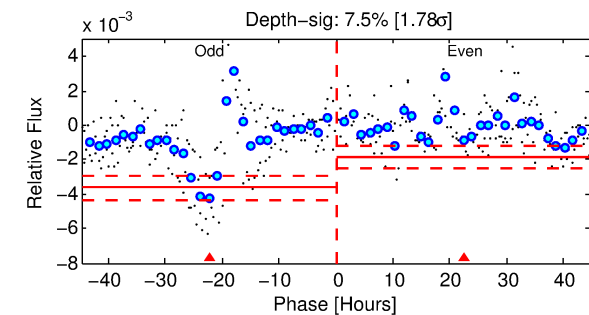
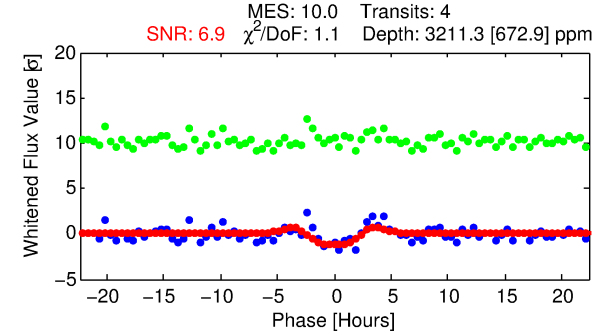
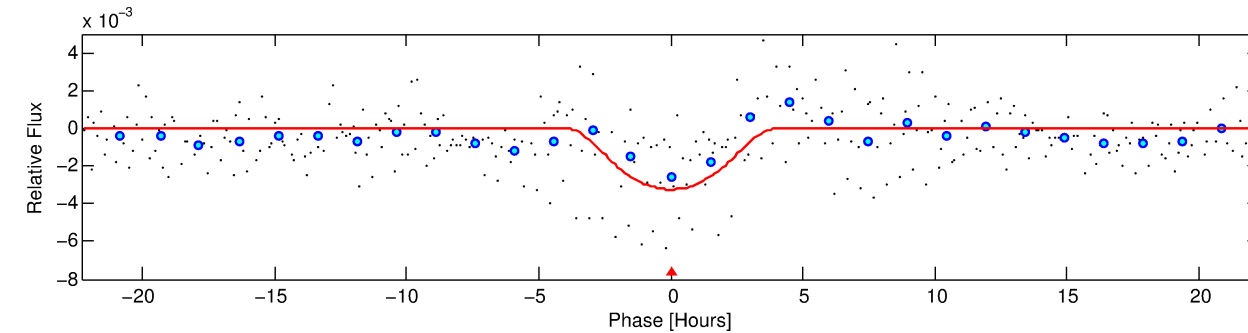
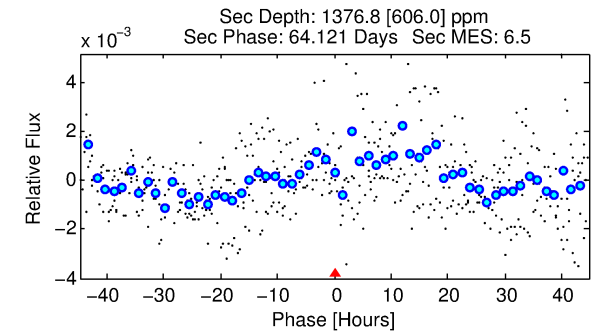
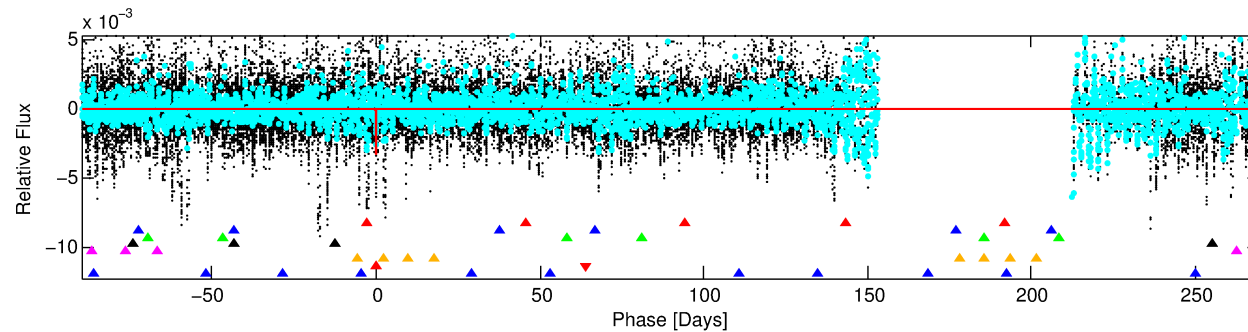
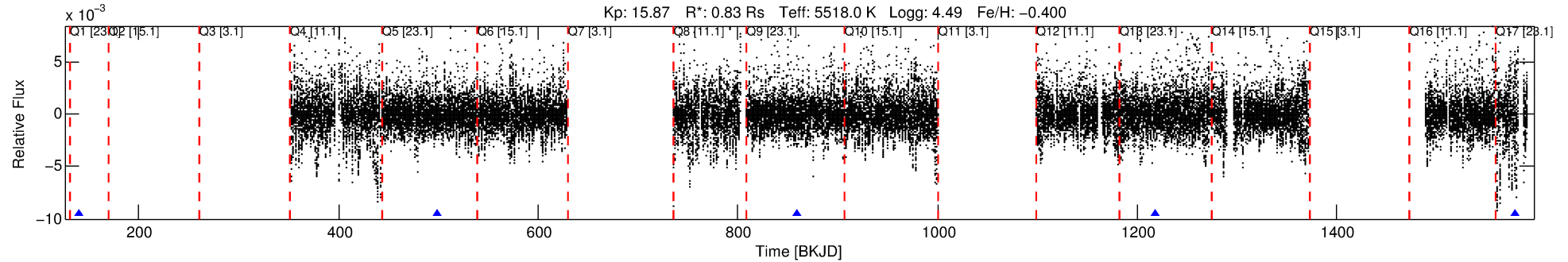
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-07

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 7 of 8 Period: 359.514 d



DV Fit Results:

Period = 359.51351 [0.00843] d
Epoch = 139.8140 [0.0218] BKJD
Rp/R* = 0.0697 [0.0325]
a/R* = 181.33 [43.65]
b = 0.95 [0.07]
Seff = 0.69 [0.20]
Teq = 233 [17] K
Rp = 6.29 [3.20] Re
a = 0.9054 [0.1540] AU
Ag = 15671.82 [16641.37] [0.94σ]
Teffp = 4027 [1049] K [3.62σ]

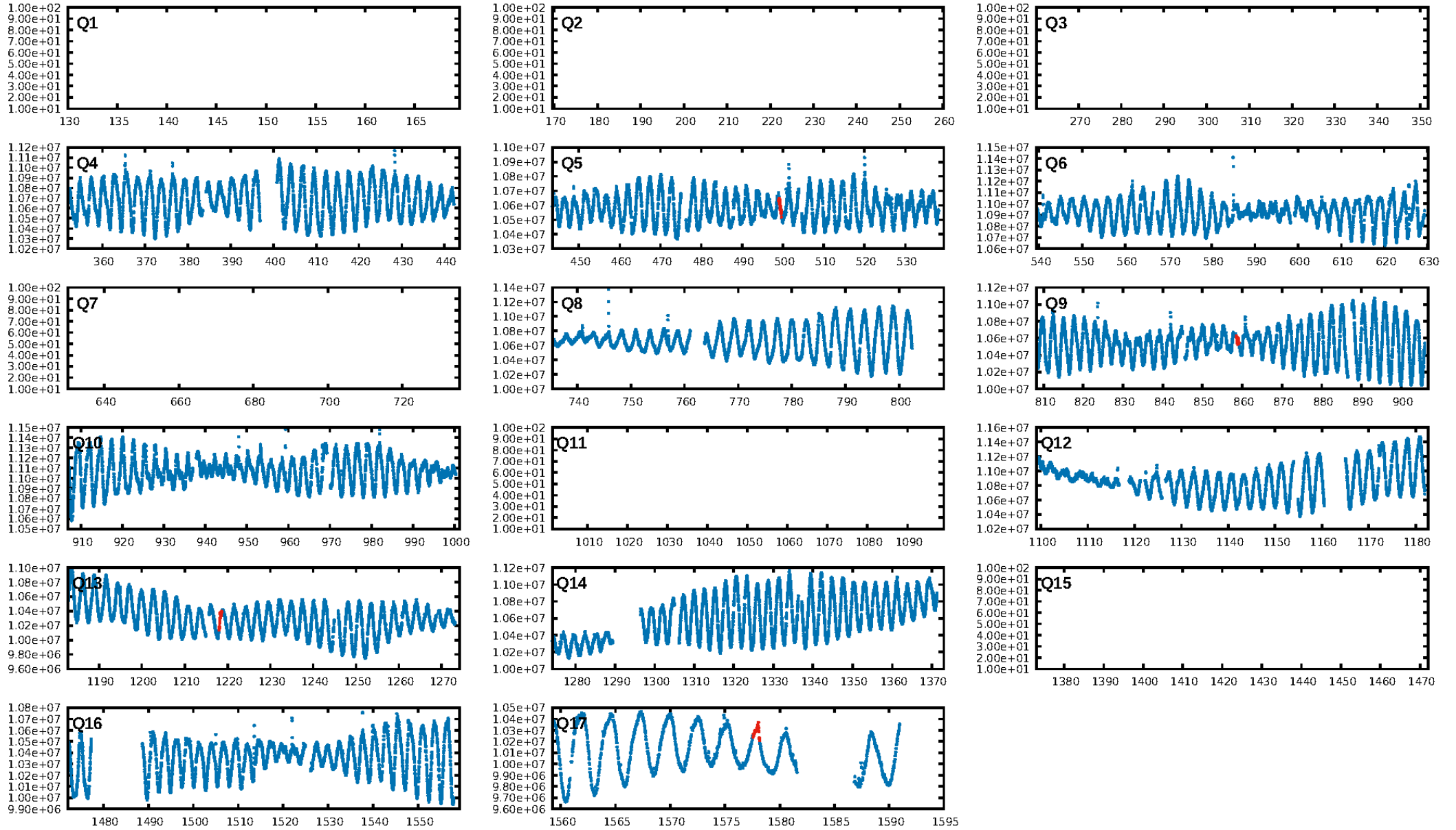
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [144.69σ]
LongPeriod-sig: 100.0% [16.89σ]
ModelChiSquare2-sig: 71.8%
ModelChiSquareGof-sig: 98.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3841
Centroid-sig: N/A
Centroid-so: 2.156 arcsec [2.24σ]
OotOffset-rm: 0.162 arcsec [1.39σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 0.181 arcsec [1.56σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

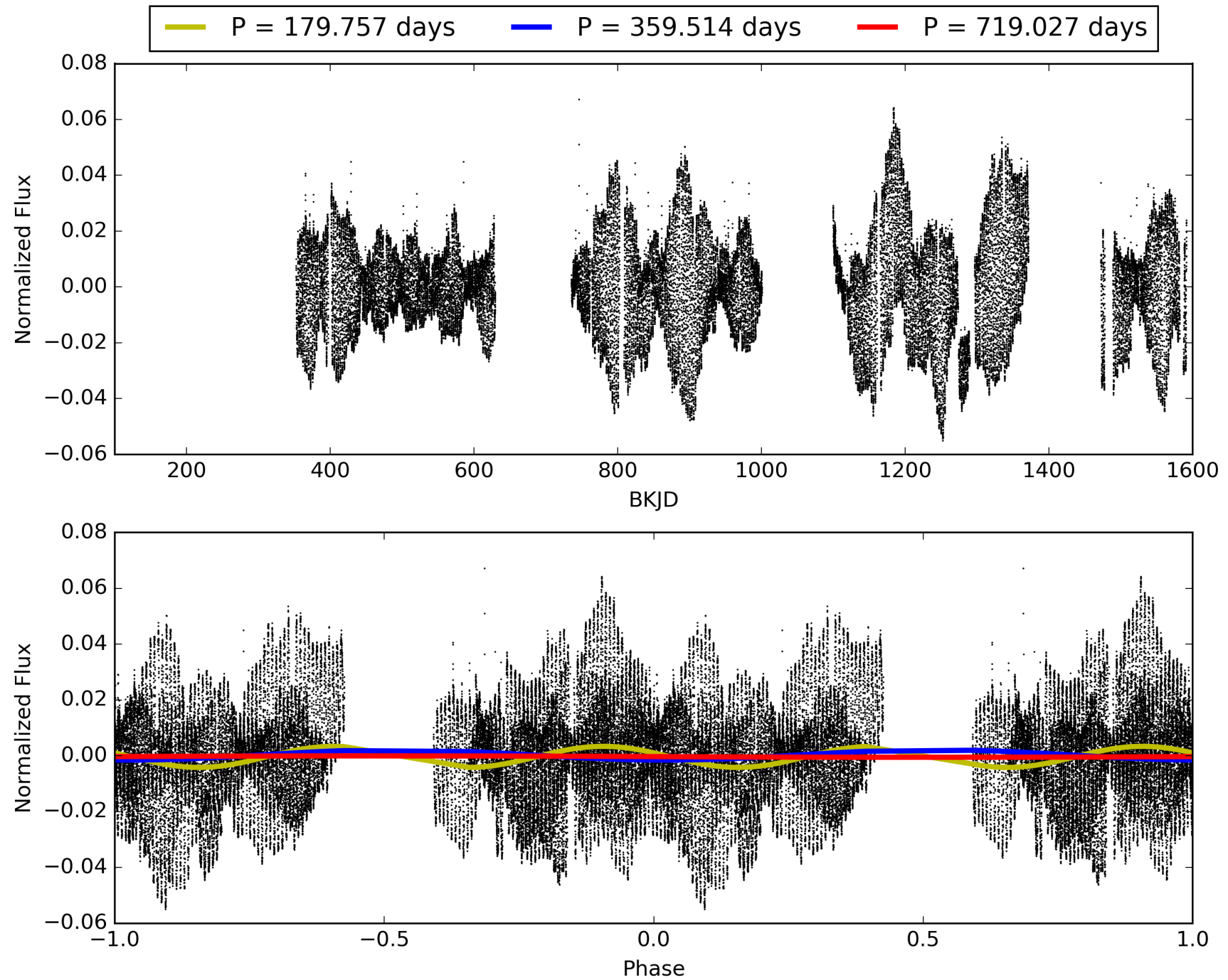
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:23:37 Z

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

TCE 009847963-07, PDC Light Curves

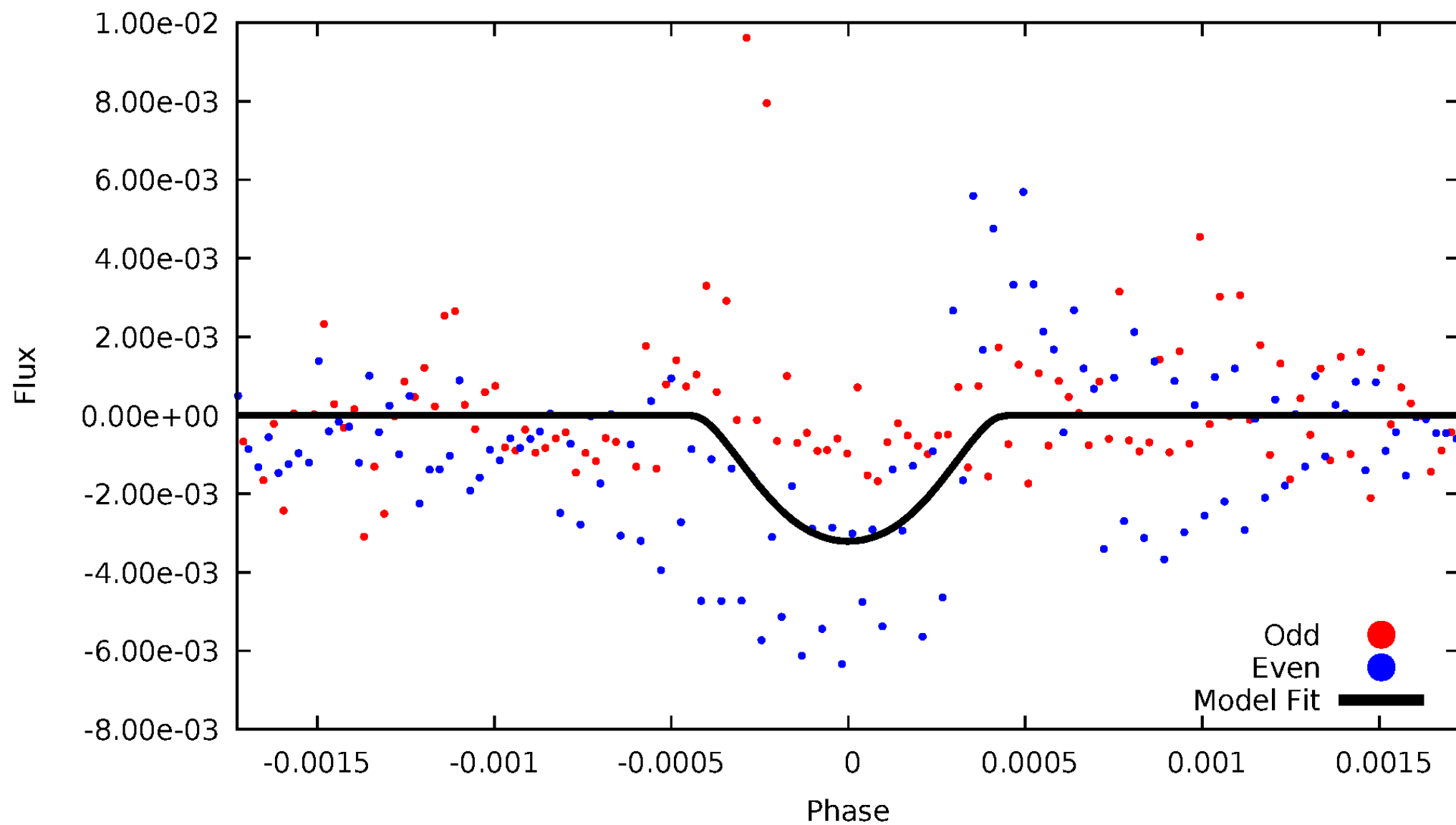


TCE 009847963-07



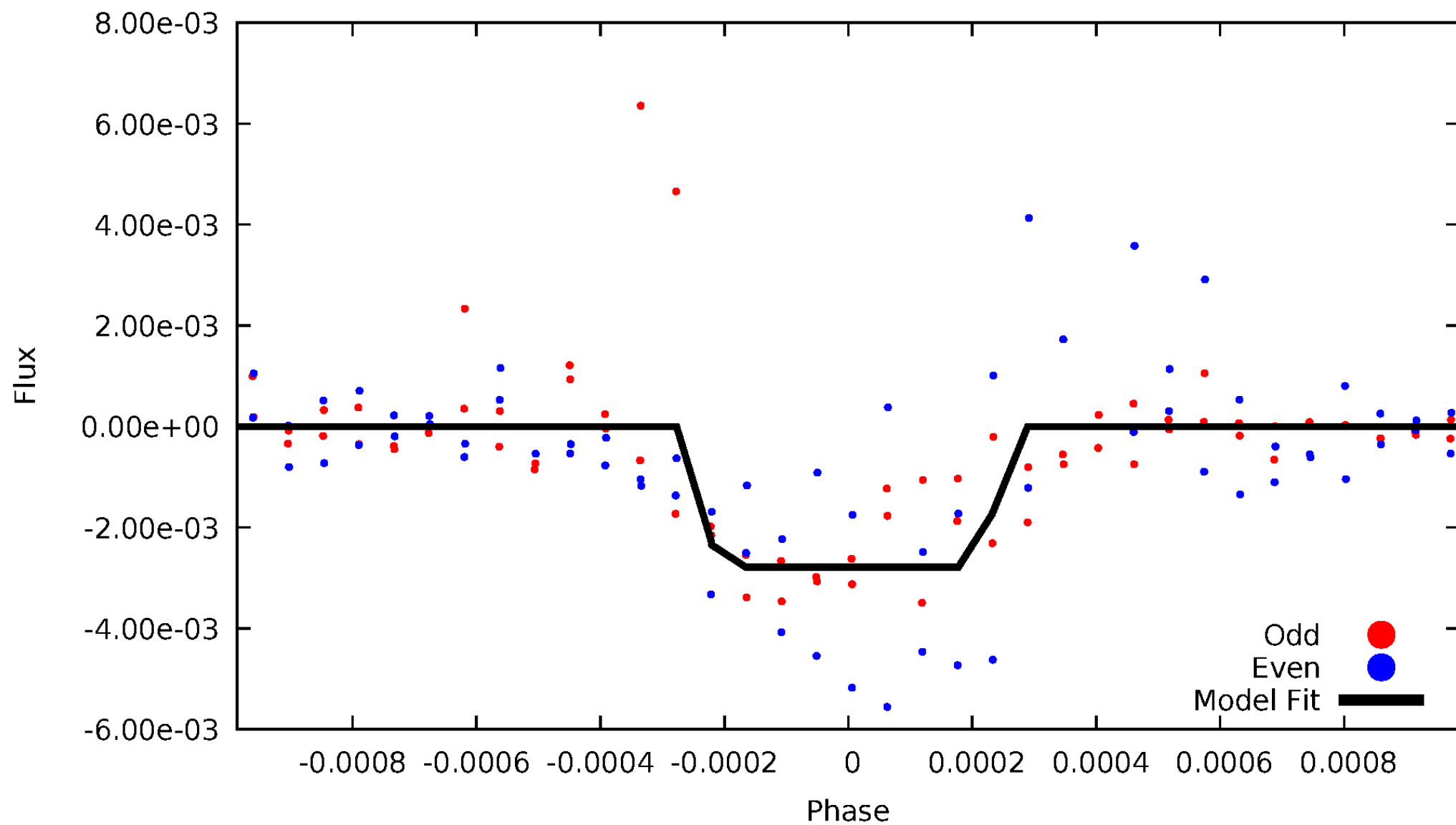
DV Odd/Even

TCE 009847963-07



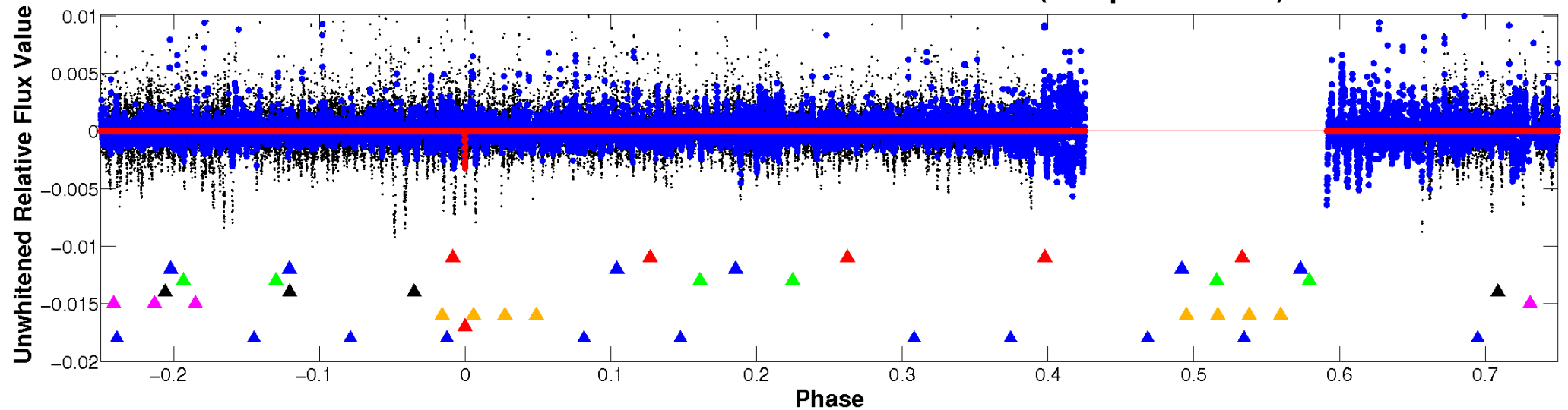
ALT Odd/Even

TCE 009847963-07

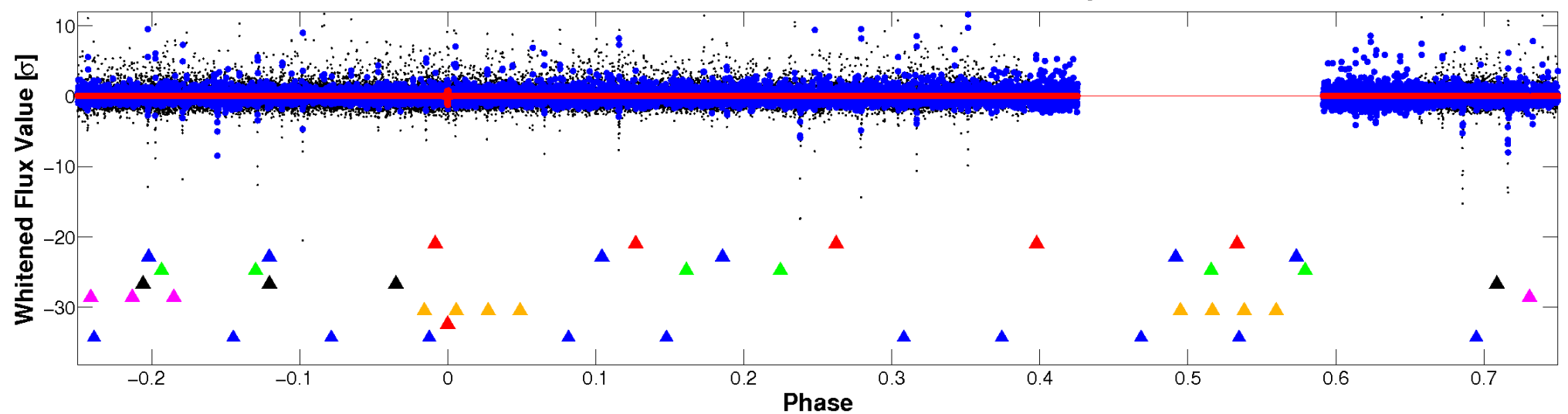


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

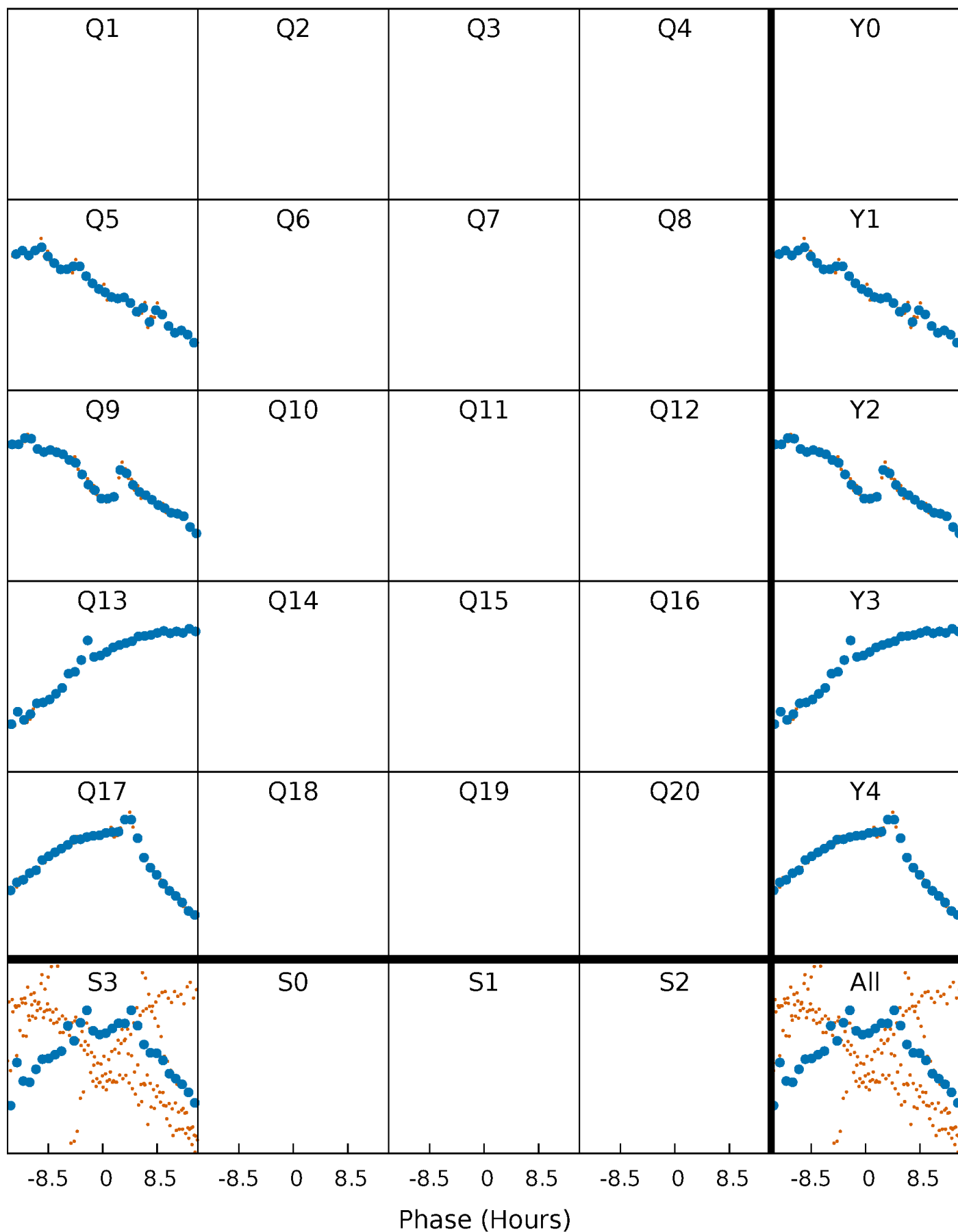


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



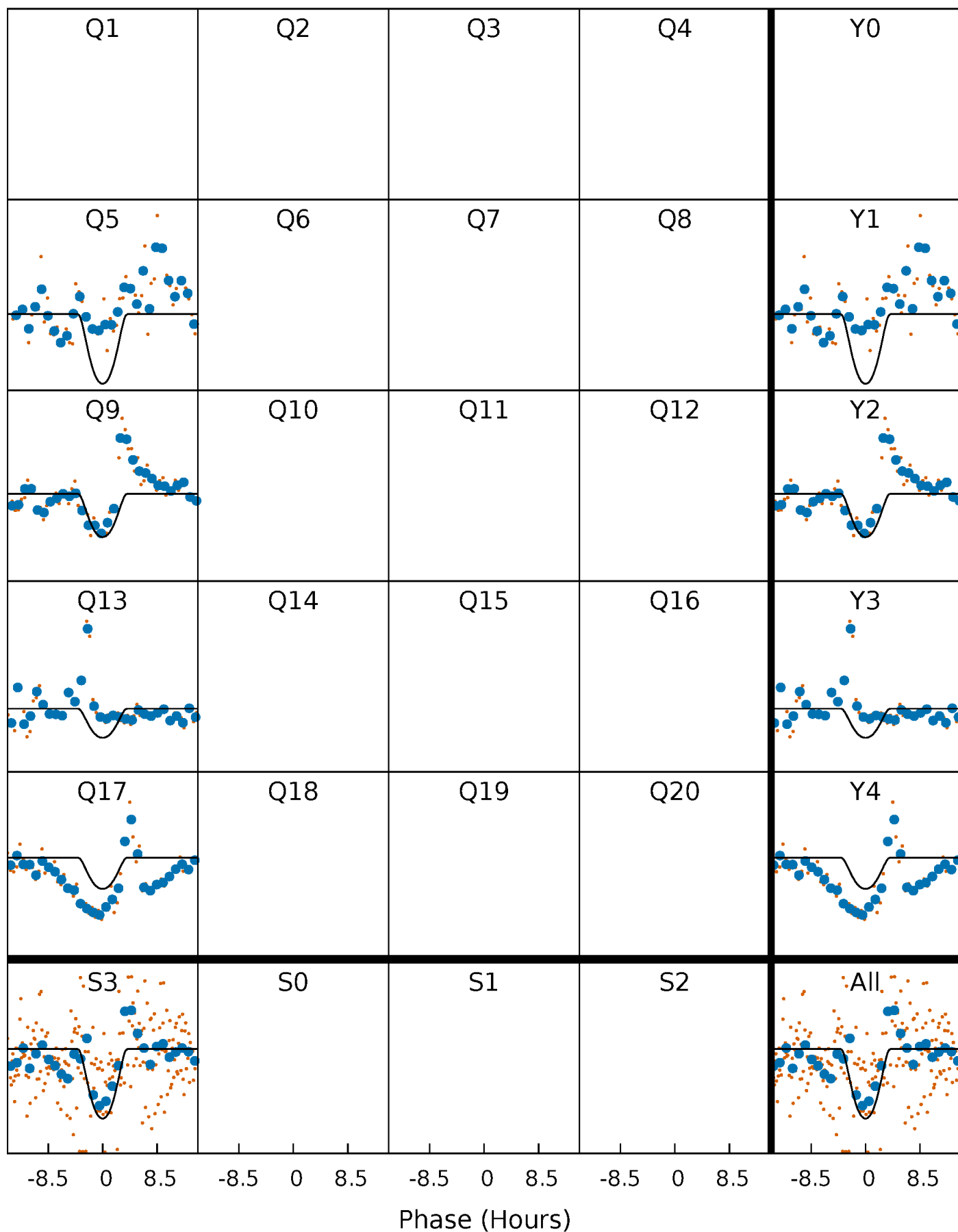
PDC Quarter-Phased Transit Curves

TCE 009847963-07 $P=359.513509$ Days $T_0=139.813954$ (BKJD)



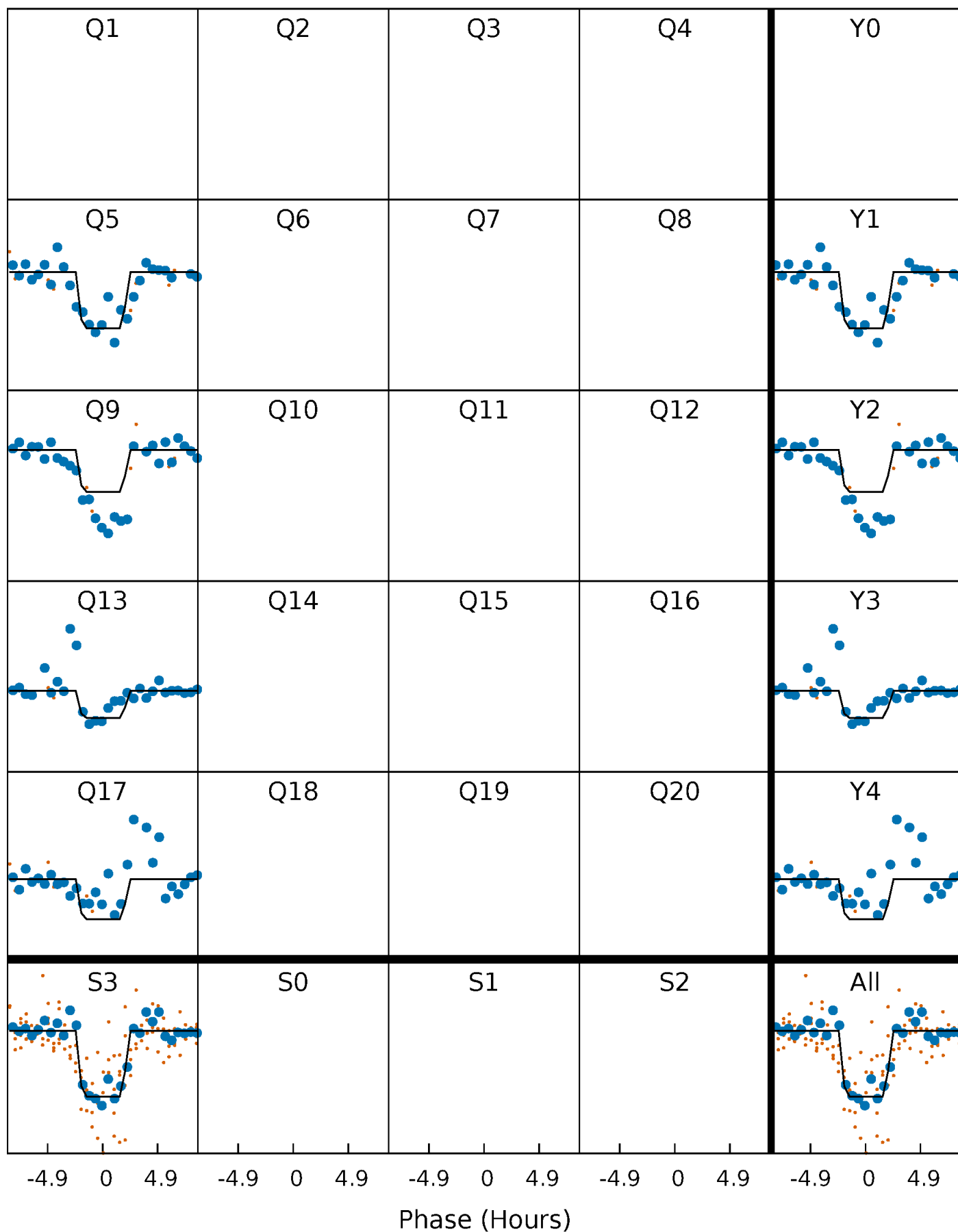
DV Quarter-Phased Transit Curves

TCE 009847963-07 $P=359.513509$ Days $T_0=139.813954$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

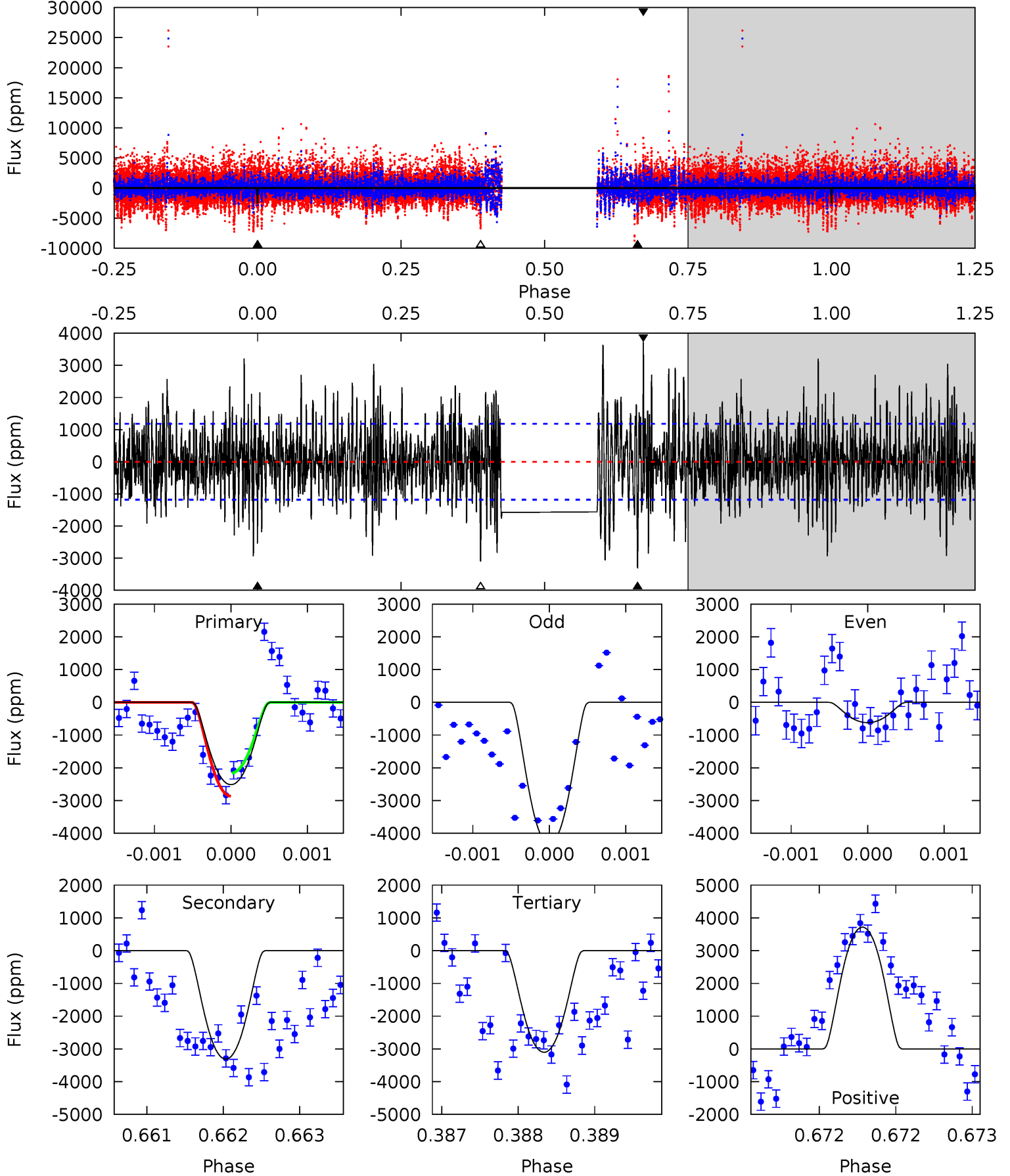
TCE 009847963-07 $P=359.528488$ Days $T_0=139.786086$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-07, P = 359.513509 Days, E = 139.813954 Days

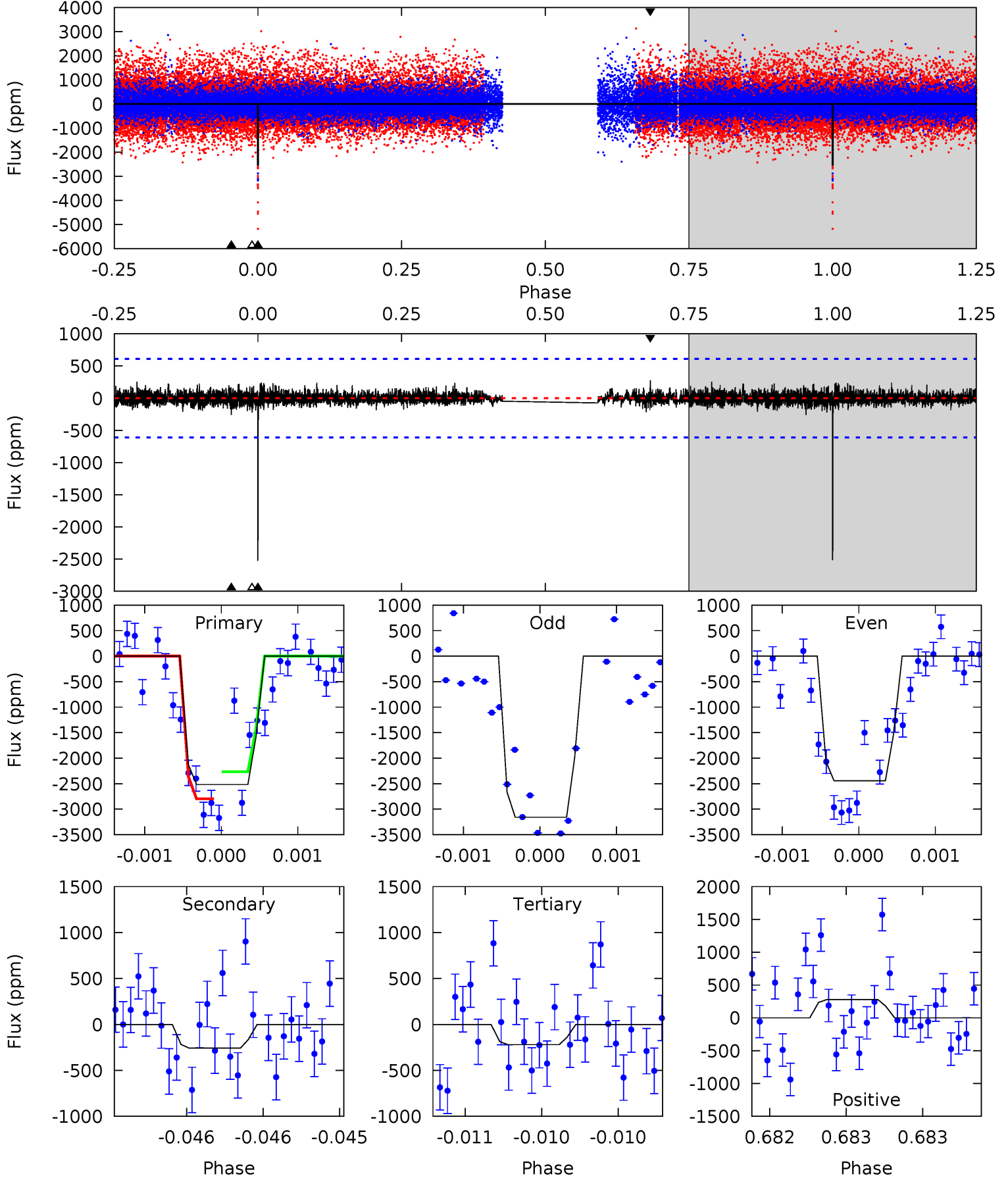
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	15.3	14.4	17.2	5.47	3.33	4.03	-2.73	-5.57	0.95	-1.89	7.91	1.49	0.53	1.64



Alt Model-Shift Uniqueness Test

009847963-07, P = 359.528488 Days, E = 139.786086 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	2.34	2.00	2.53	5.57	3.47	0.52	20.9	20.4	0.34	-0.18	3.32	1.10	0.10	2.30



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3310 ± 216	$6.68^{+3.18}_{-2.79}$	326^{+21}_{-17}	4984^{+1477}_{-724}	33861^{+68131}_{-18165}
Alt.	-257 ± 110	$5.13^{+2.73}_{-2.83}$	326^{+19}_{-18}	3456^{+1123}_{-507}	4498^{+17273}_{-2985}

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

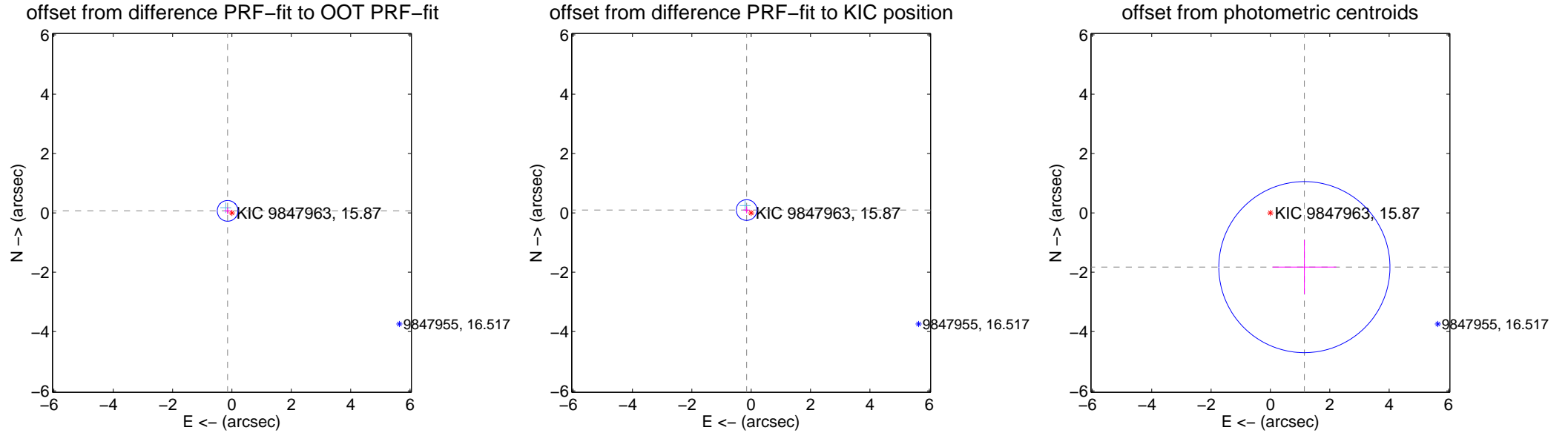
DV Centroid Data

Supplemental centroid analysis for 009847963-07. Kepler magnitude: 15.87. Transit SNR 6.91

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.162 ± 0.116	1.39	0.147 ± 0.117	0.068 ± 0.115
PRF-fit source offset from KIC position	0.181 ± 0.116	1.56	0.154 ± 0.117	0.095 ± 0.115
photometric centroid source offset	2.16 ± 0.96	2.24	-1.14 ± 1.08	-1.83 ± 0.91

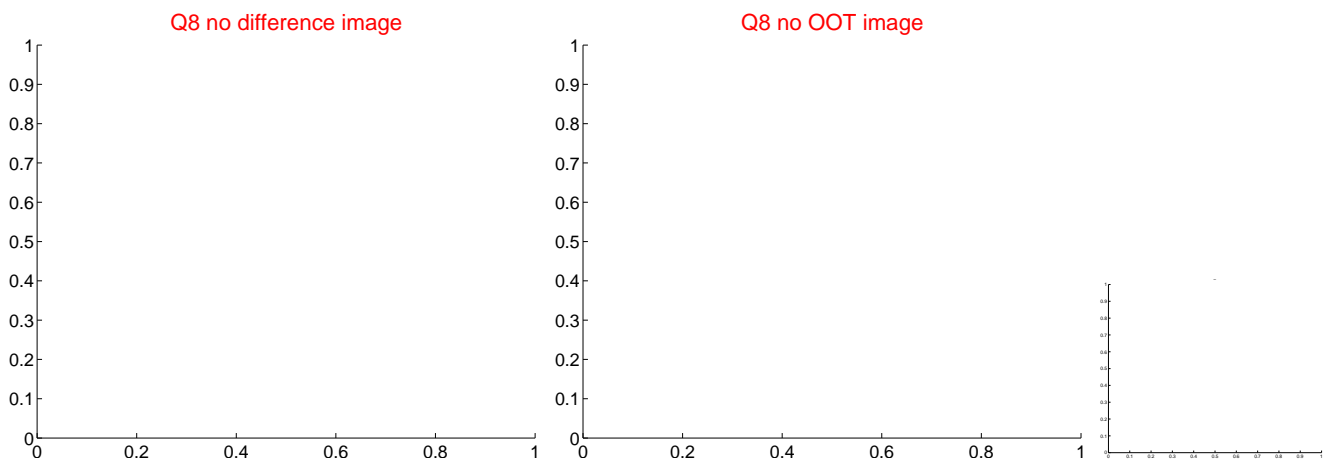
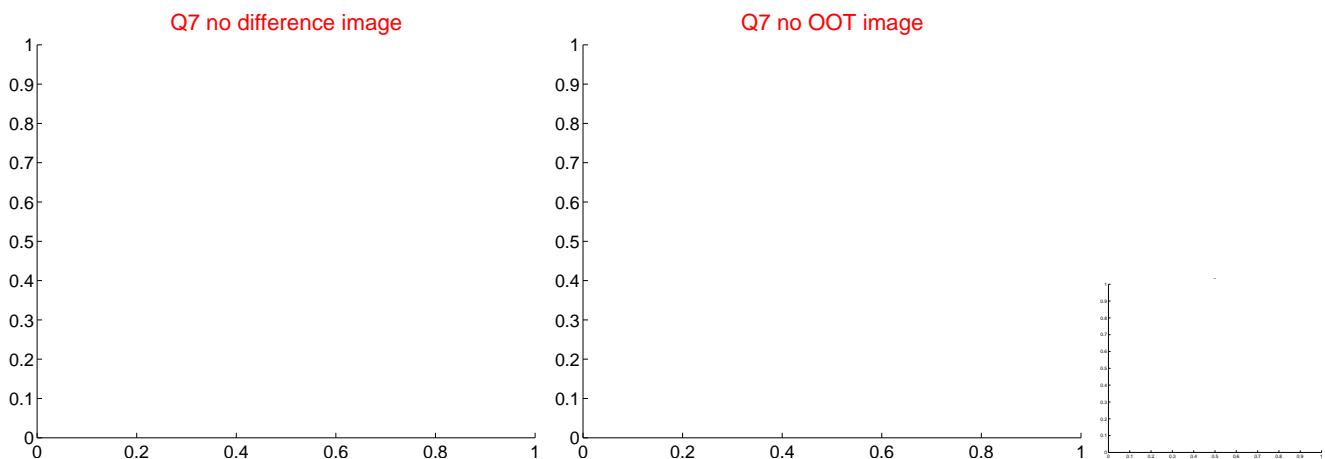
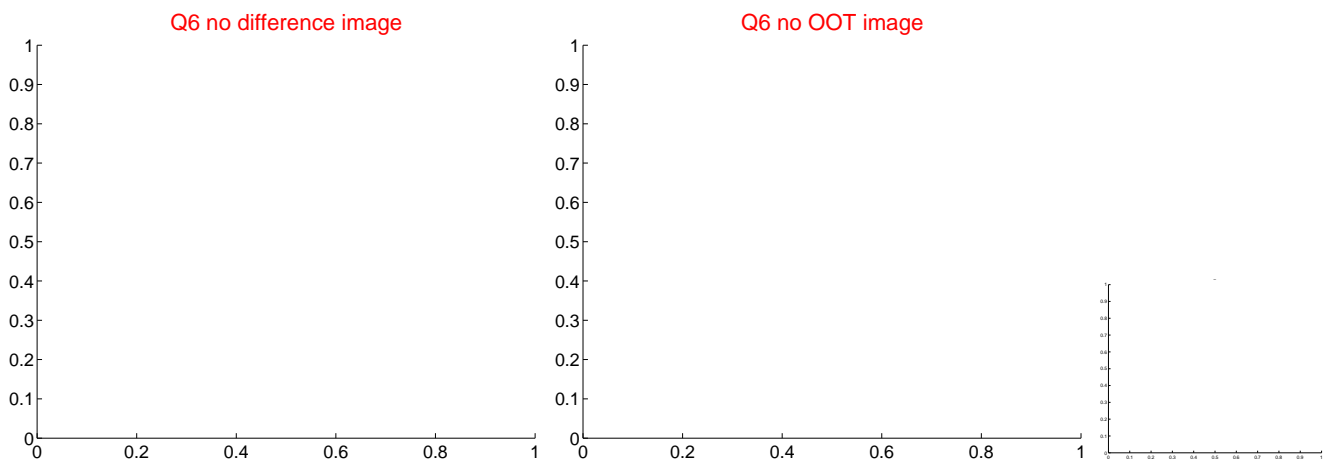
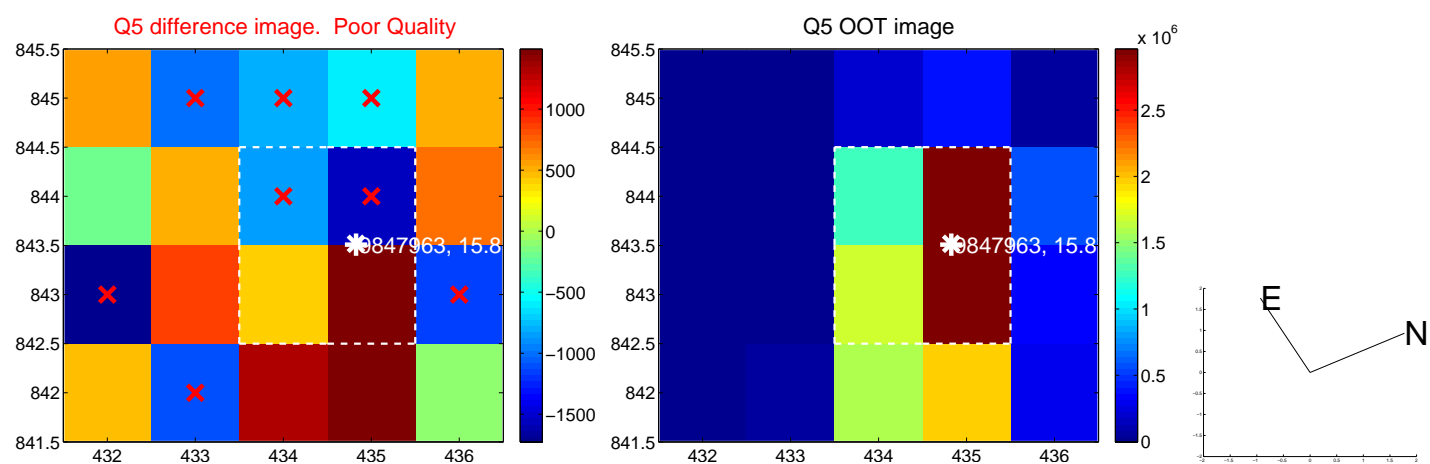


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

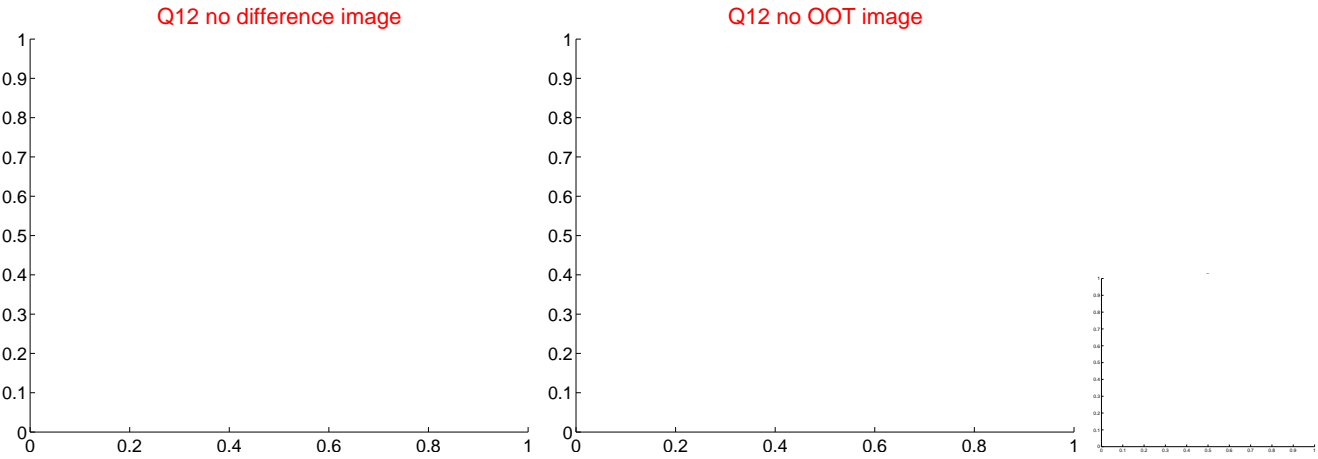
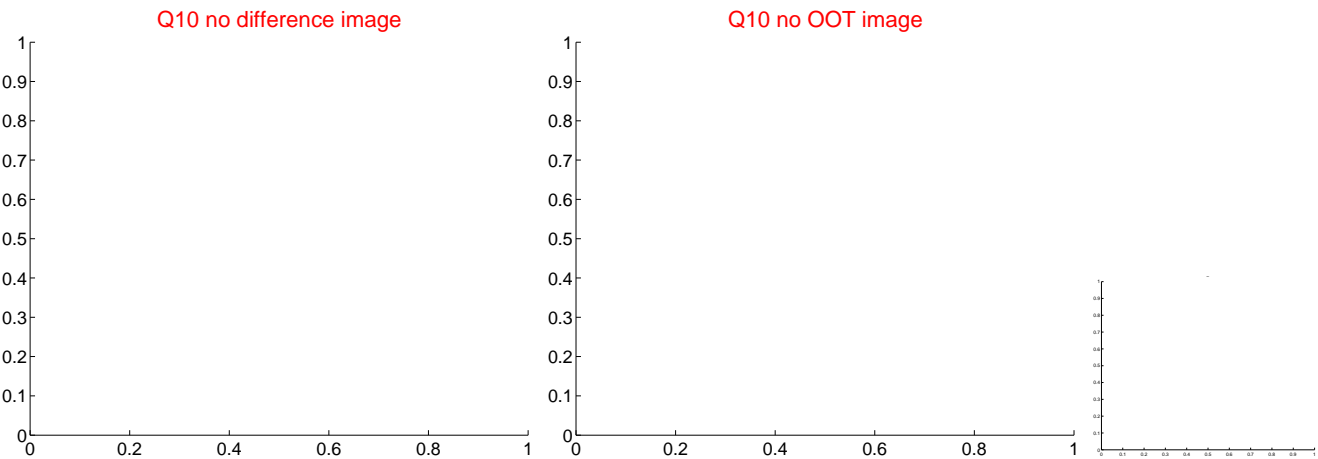
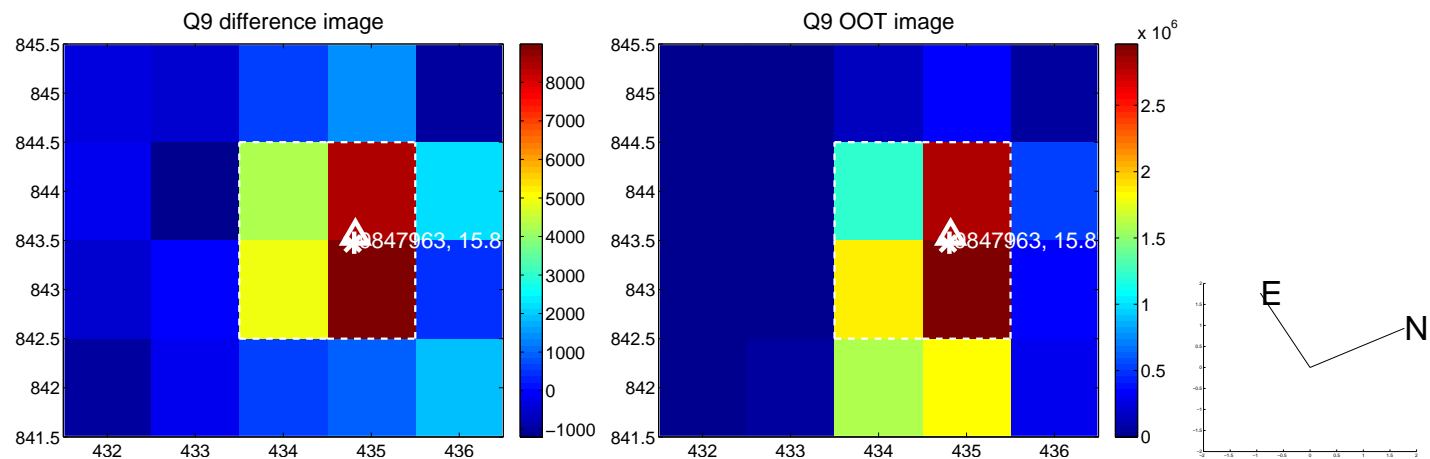
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



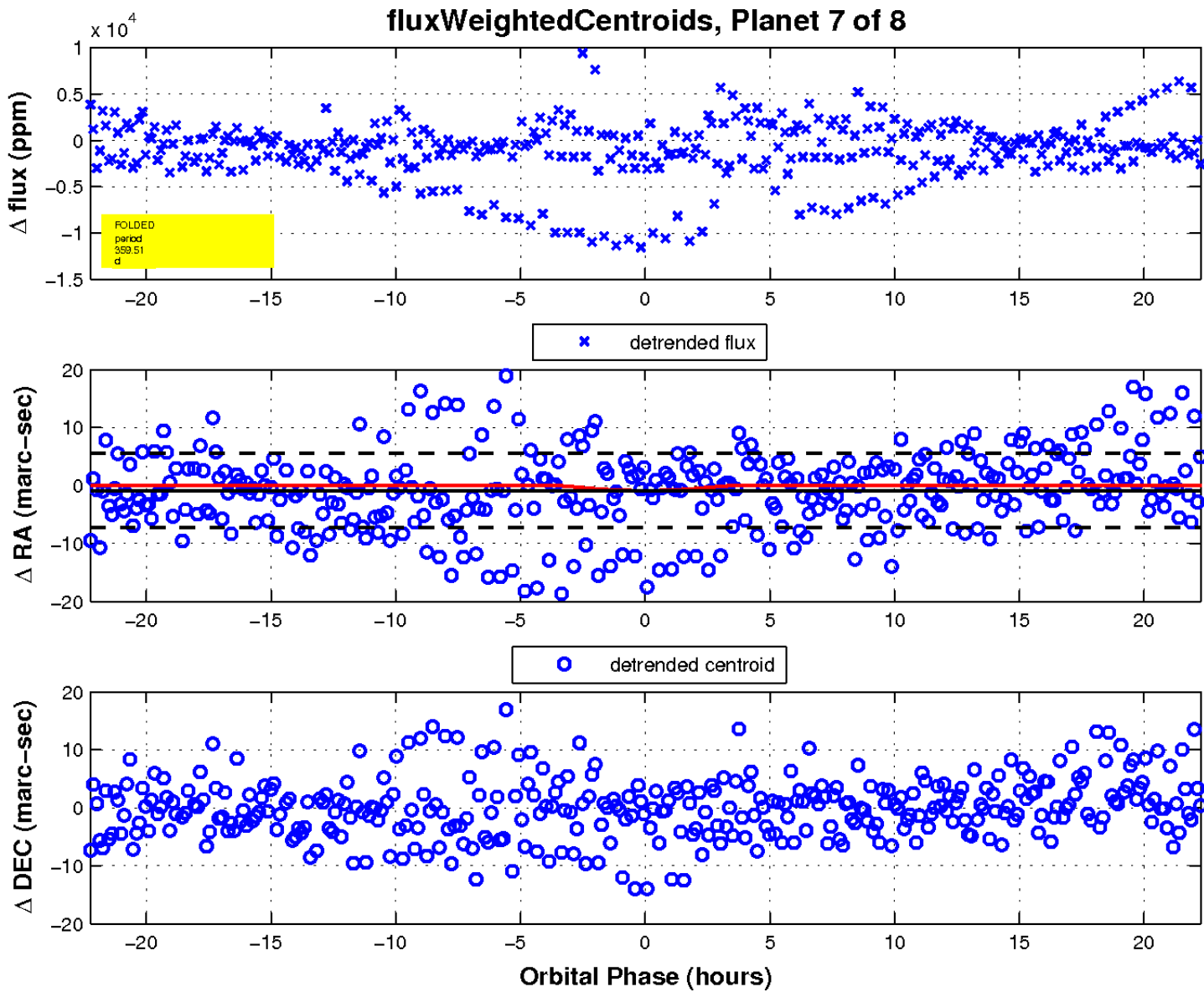
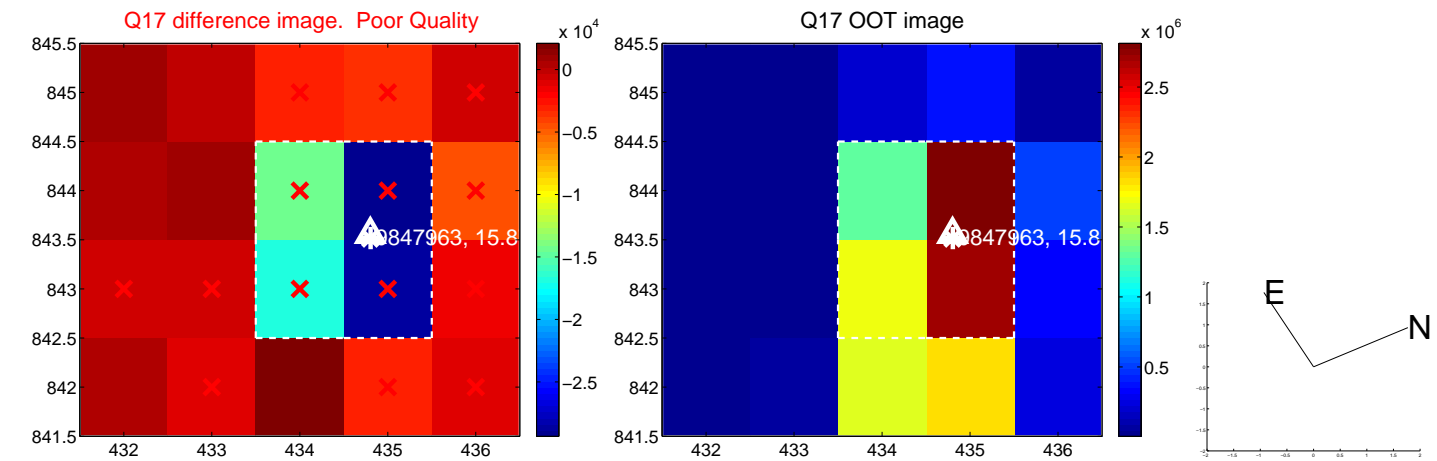
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

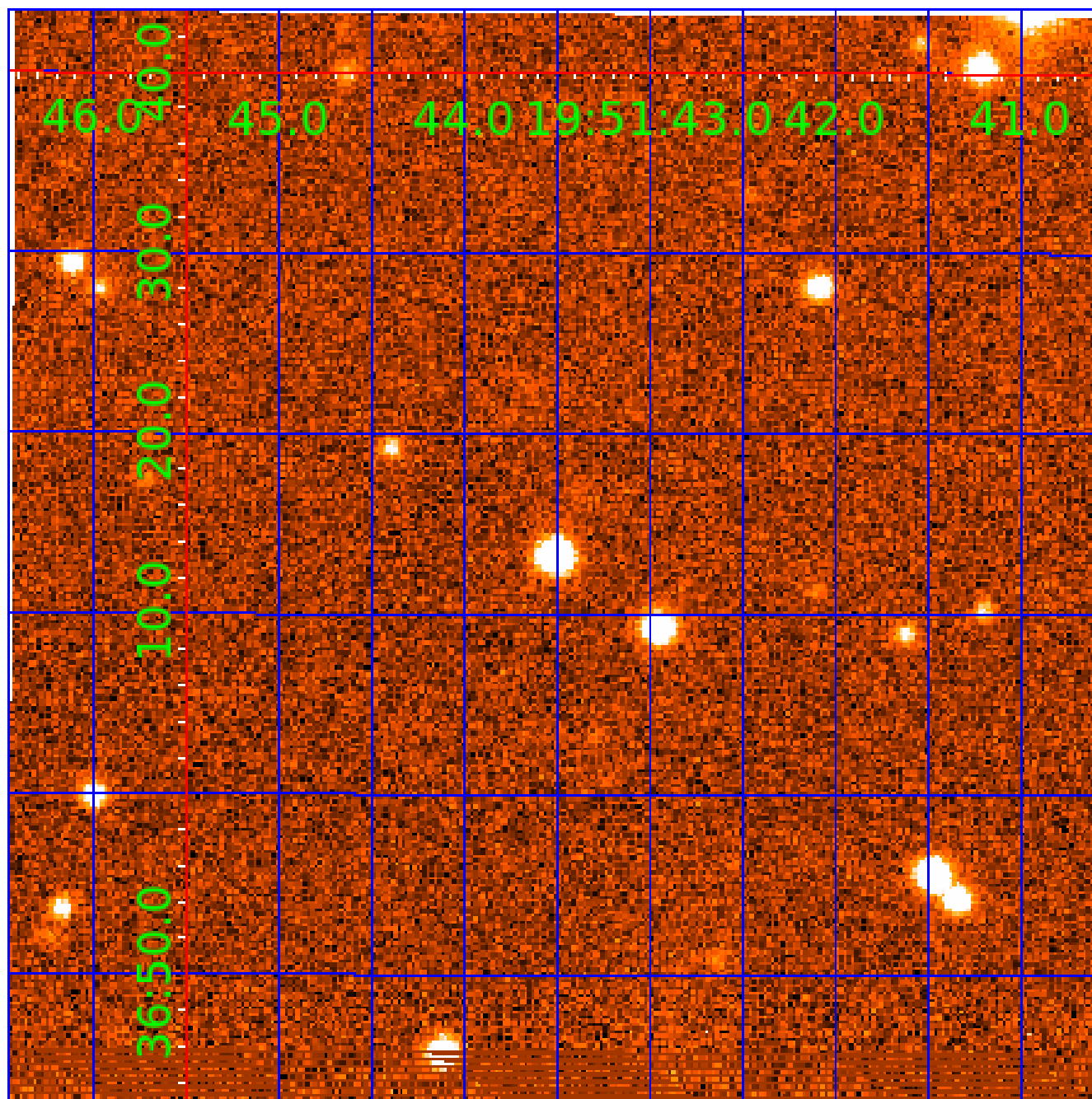


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009847963

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})
009847963-01	OBS	No	310.825531	331.542093	3700.4	3.133	13.3	9.0	0.83	5518	5.47	0.84
009847963-02	OBS	No	249.439847	177.269384	3203.8	2.736	12.4	8.1	0.83	5518	4.78	1.13
009847963-03	OBS	No	232.062462	348.073101	2368.1	5.576	11.5	6.8	0.83	5518	4.02	1.25
009847963-04	OBS	No	390.221404	394.627293	2708.7	7.772	10.6	5.4	0.83	5518	4.48	0.62
009847963-05	OBS	No	369.594720	402.568831	3565.7	12.236	9.9	7.9	0.83	5518	4.88	0.67
009847963-06	OBS	No	183.633385	134.142260	2715.2	2.999	15.9	6.5	0.83	5518	4.47	1.70
009847963-07	OBS	No	359.513509	139.813954	3211.3	7.443	10.0	6.9	0.83	5518	6.29	0.69
009847963-08	OBS	No	139.045528	135.344328	1783.2	2.500	9.1	-1.0	0.83	5518	3.46	2.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009847963-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009847963-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
009847963-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009847963-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

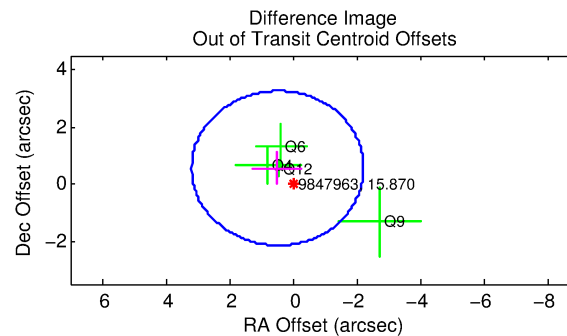
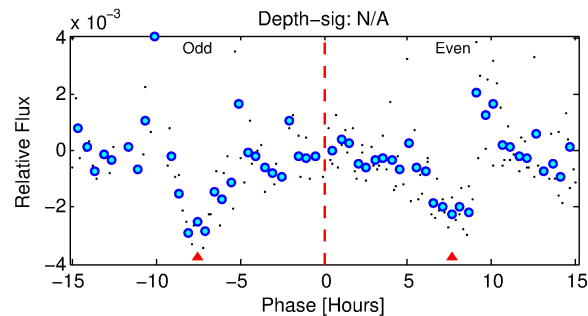
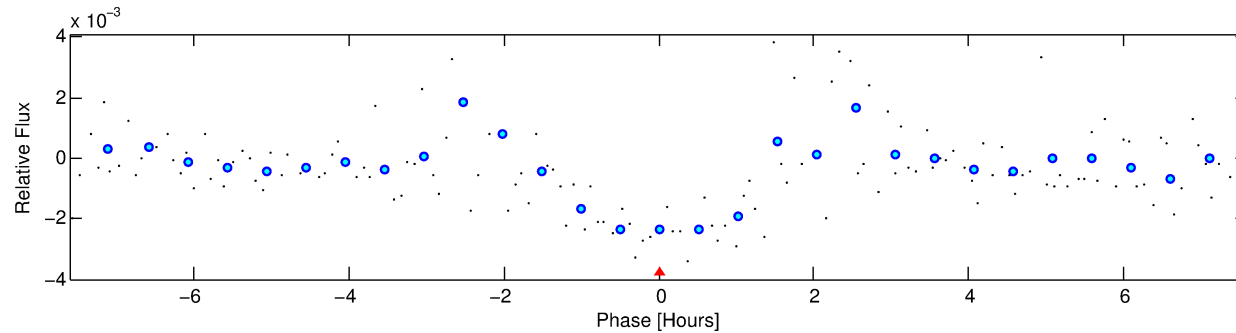
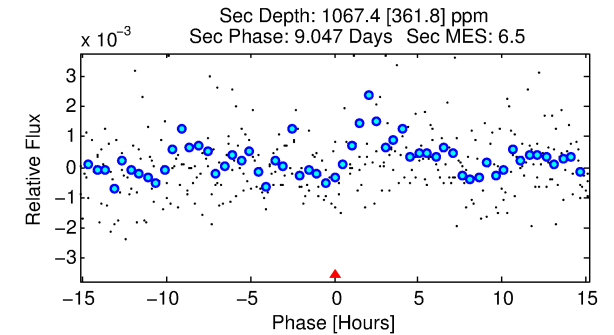
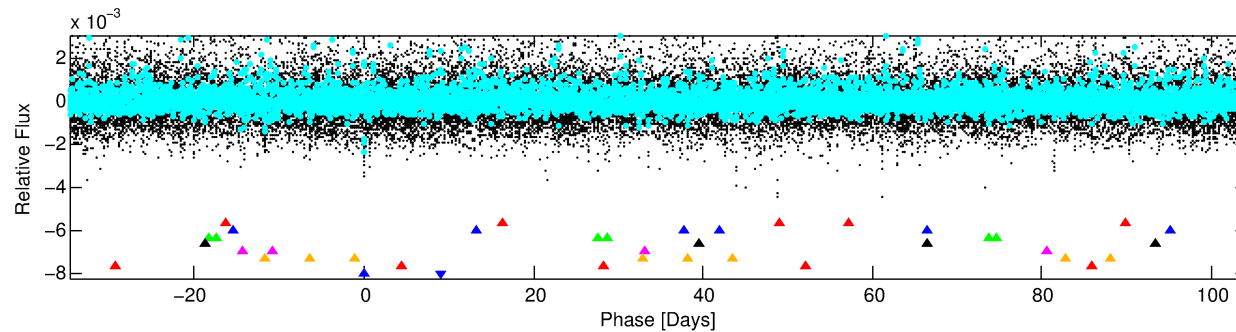
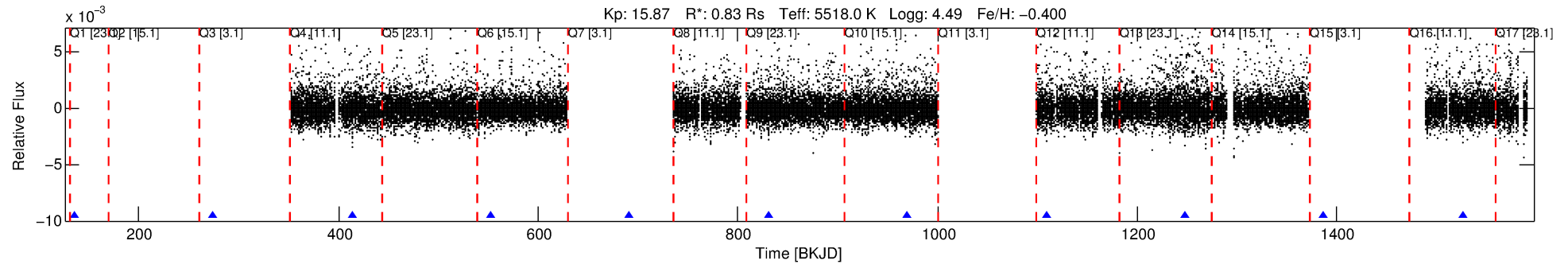
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009847963-08

No Significant Match Found

DV One-Page Summary

KIC: 9847963 Candidate: 8 of 8 Period: 139.046 d



TPS TCE Results:

Period = 139.04553 d
Epoch = 135.3443 BKJD

DV fit results are unavailable

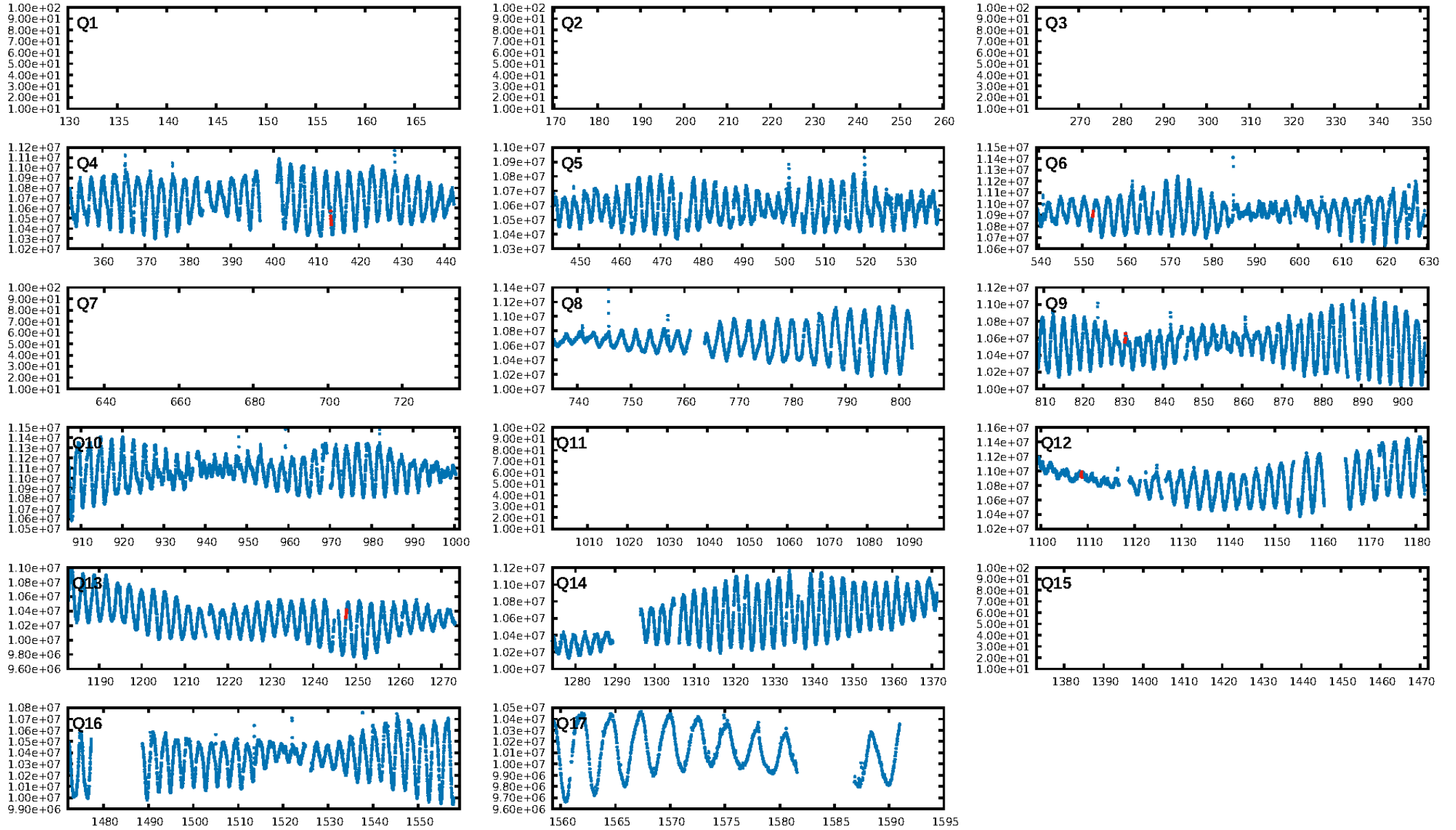
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [274.09σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.03471
Centroid-sig: N/A
Centroid-so: 1.611 arcsec [2.06σ]
OotOffset-rm: 0.732 arcsec [0.81σ]
KicOffset-rm: 0.438 arcsec [1.01σ]
OotOffset-st: 1/0/2/1 [4]
KicOffset-st: 1/0/2/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [5/5]

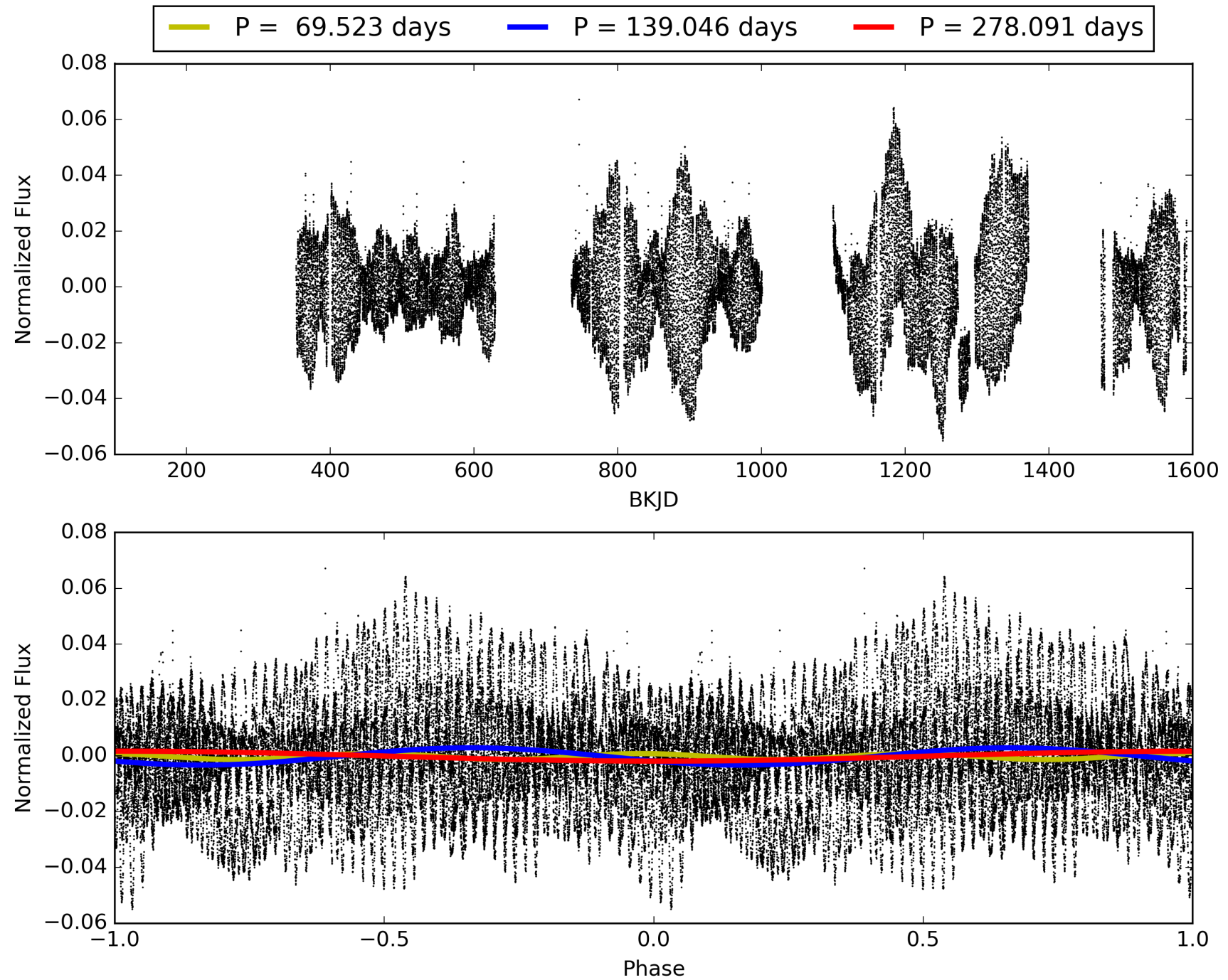
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:23:45 Z

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

TCE 009847963-08, PDC Light Curves

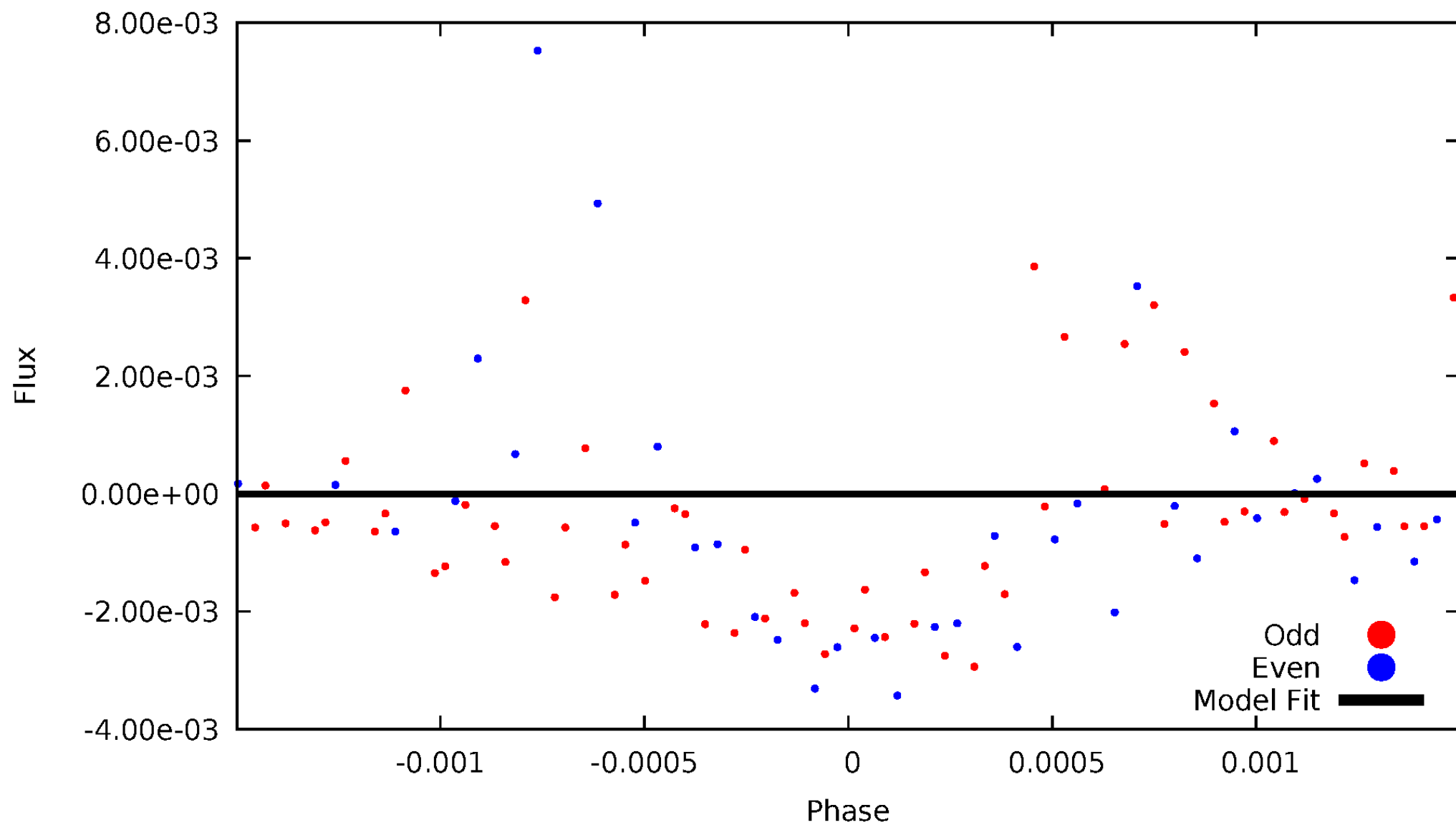


TCE 009847963-08



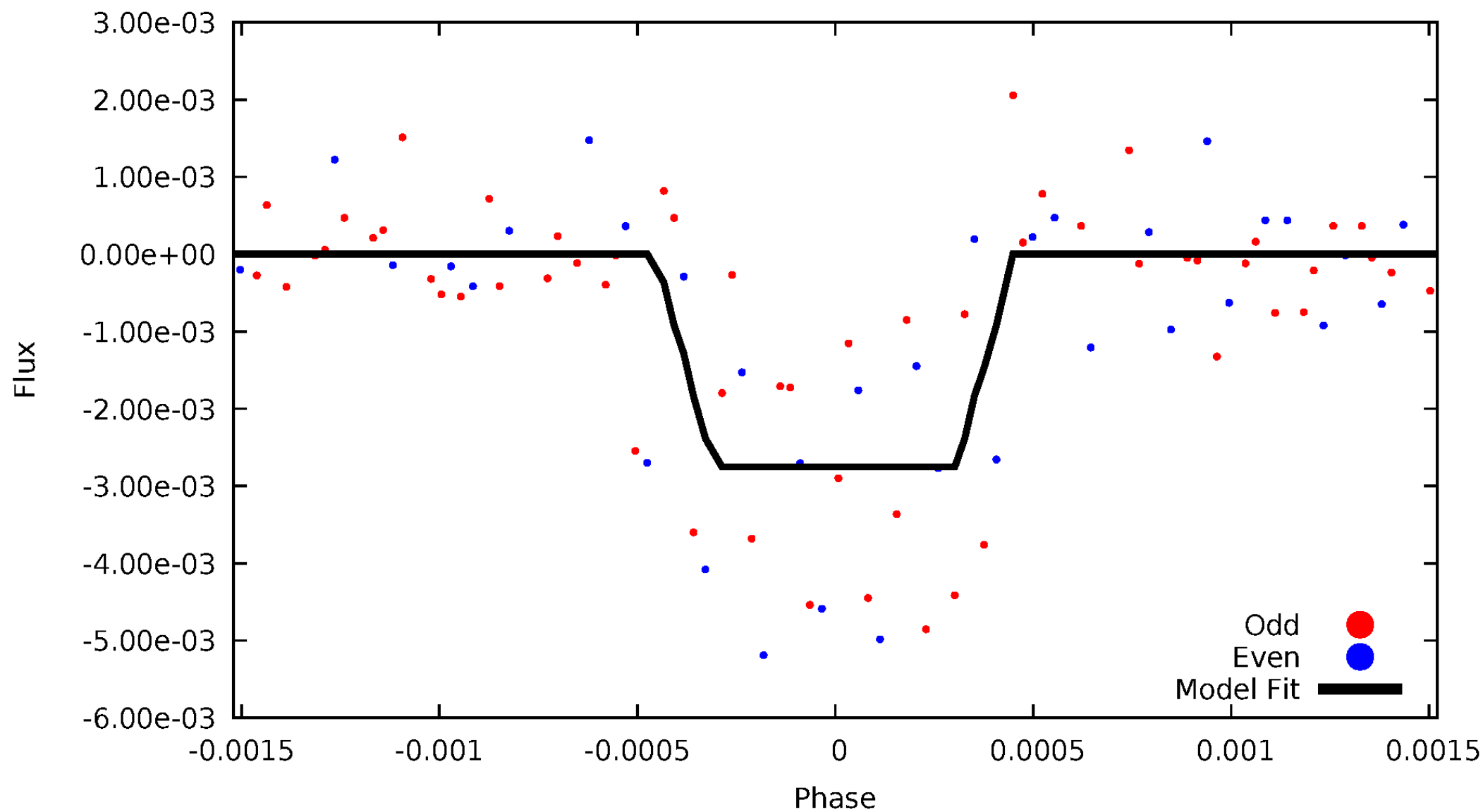
DV Odd/Even

TCE 009847963-08



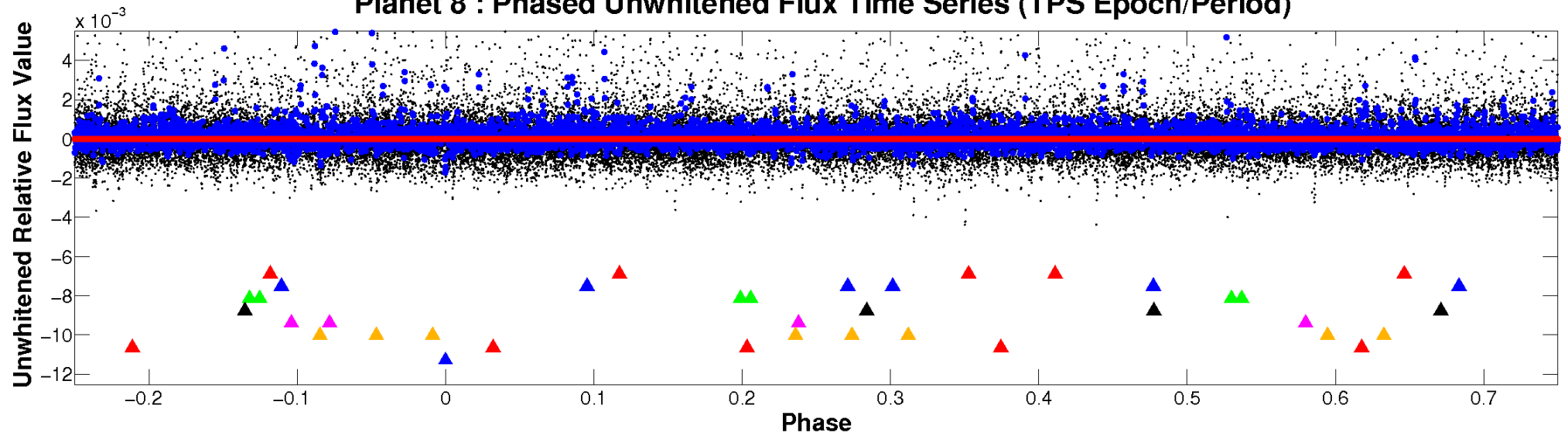
ALT Odd/Even

TCE 009847963-08



Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

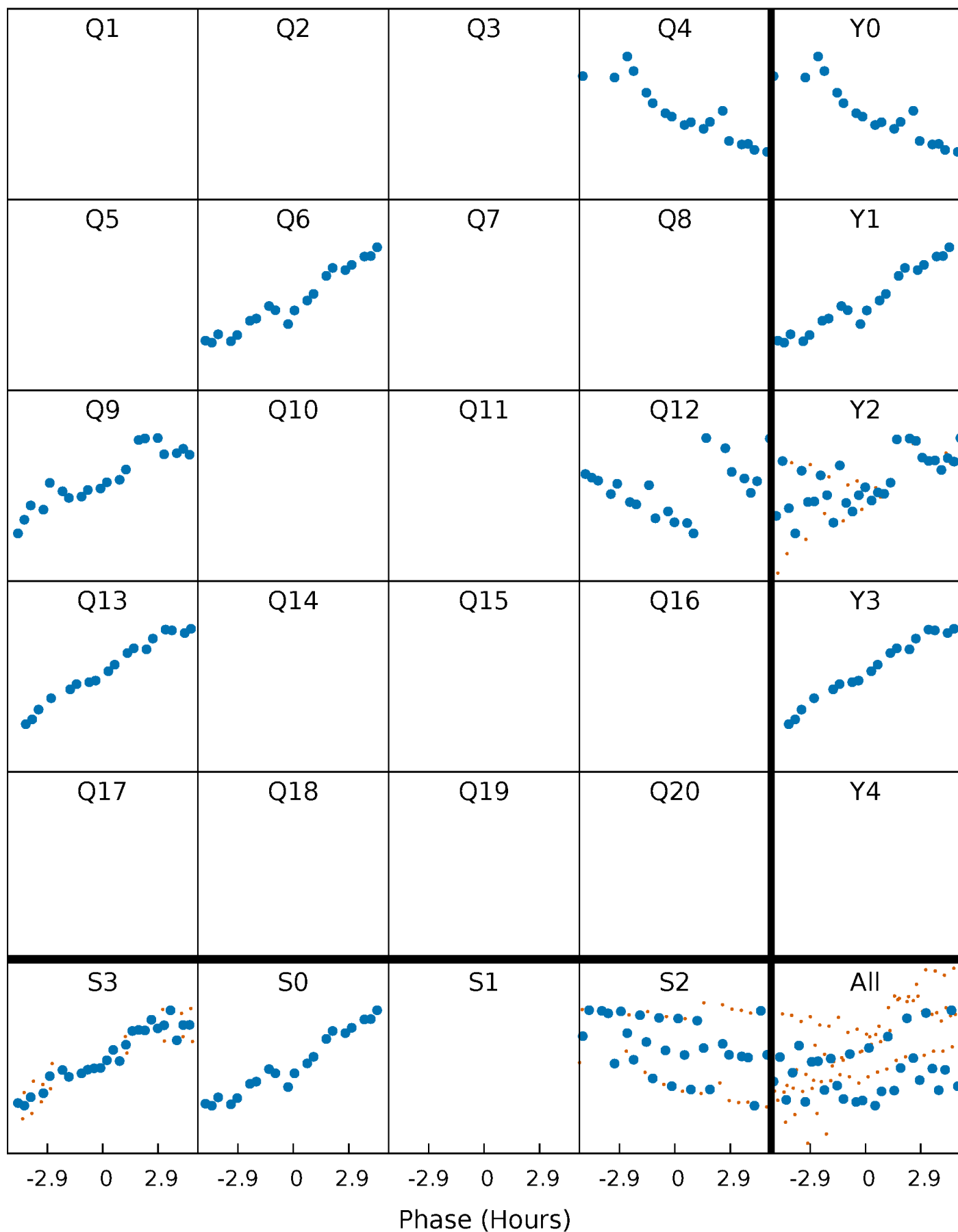


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



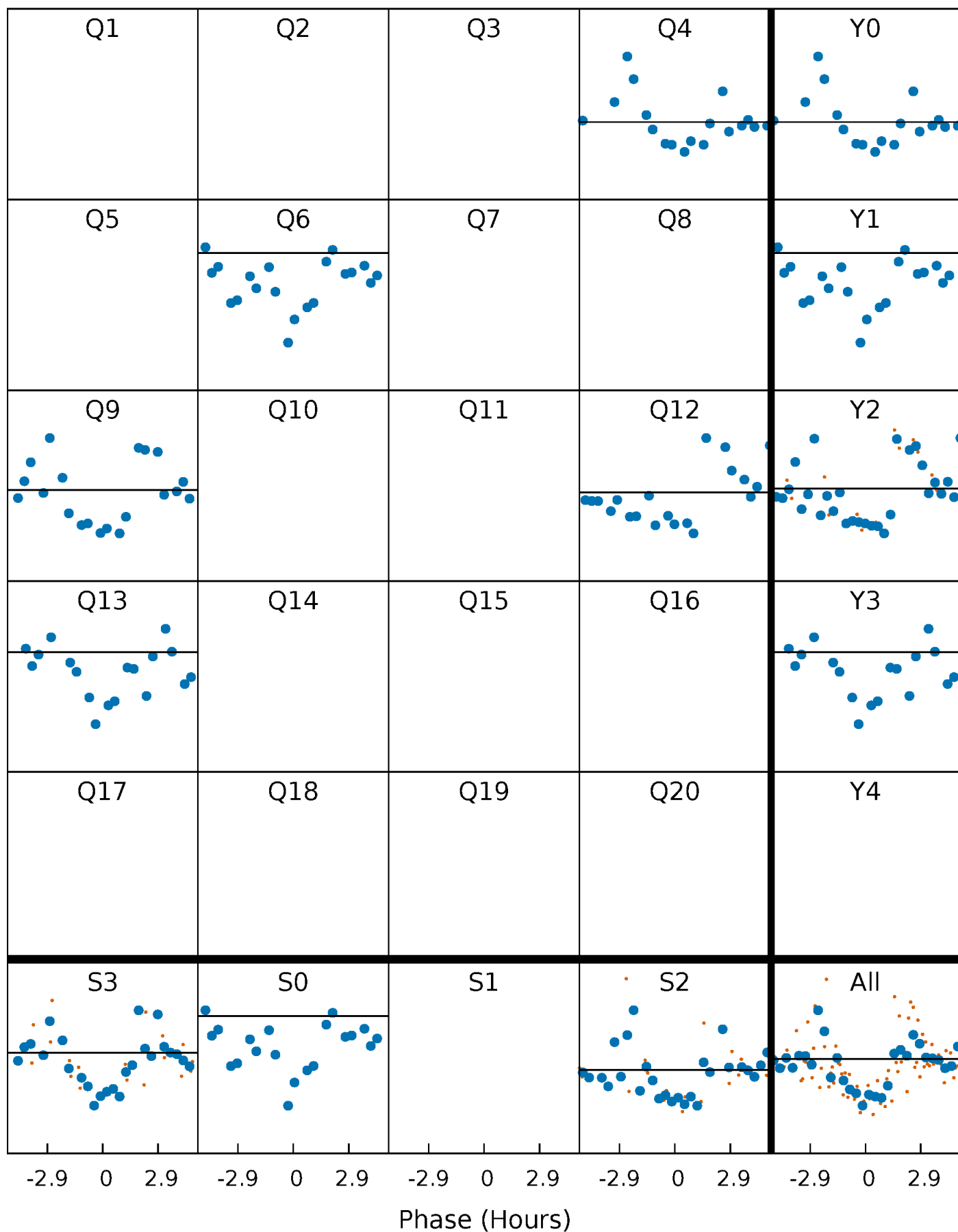
PDC Quarter-Phased Transit Curves

TCE 009847963-08 $P=139.045528$ Days $T_0=135.344328$ (BKJD)



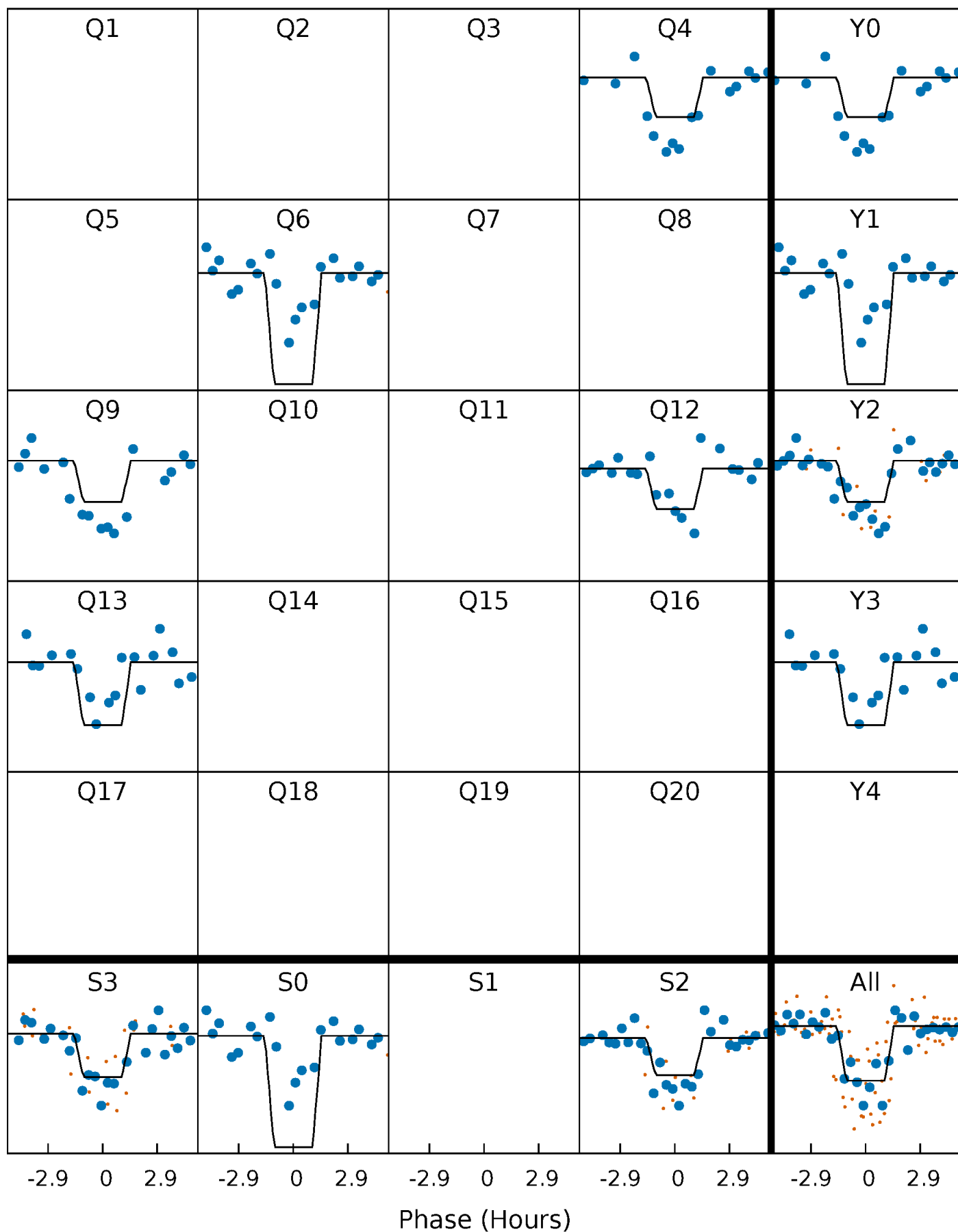
DV Quarter-Phased Transit Curves

TCE 009847963-08 $P=139.045528$ Days $T_0=135.344328$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

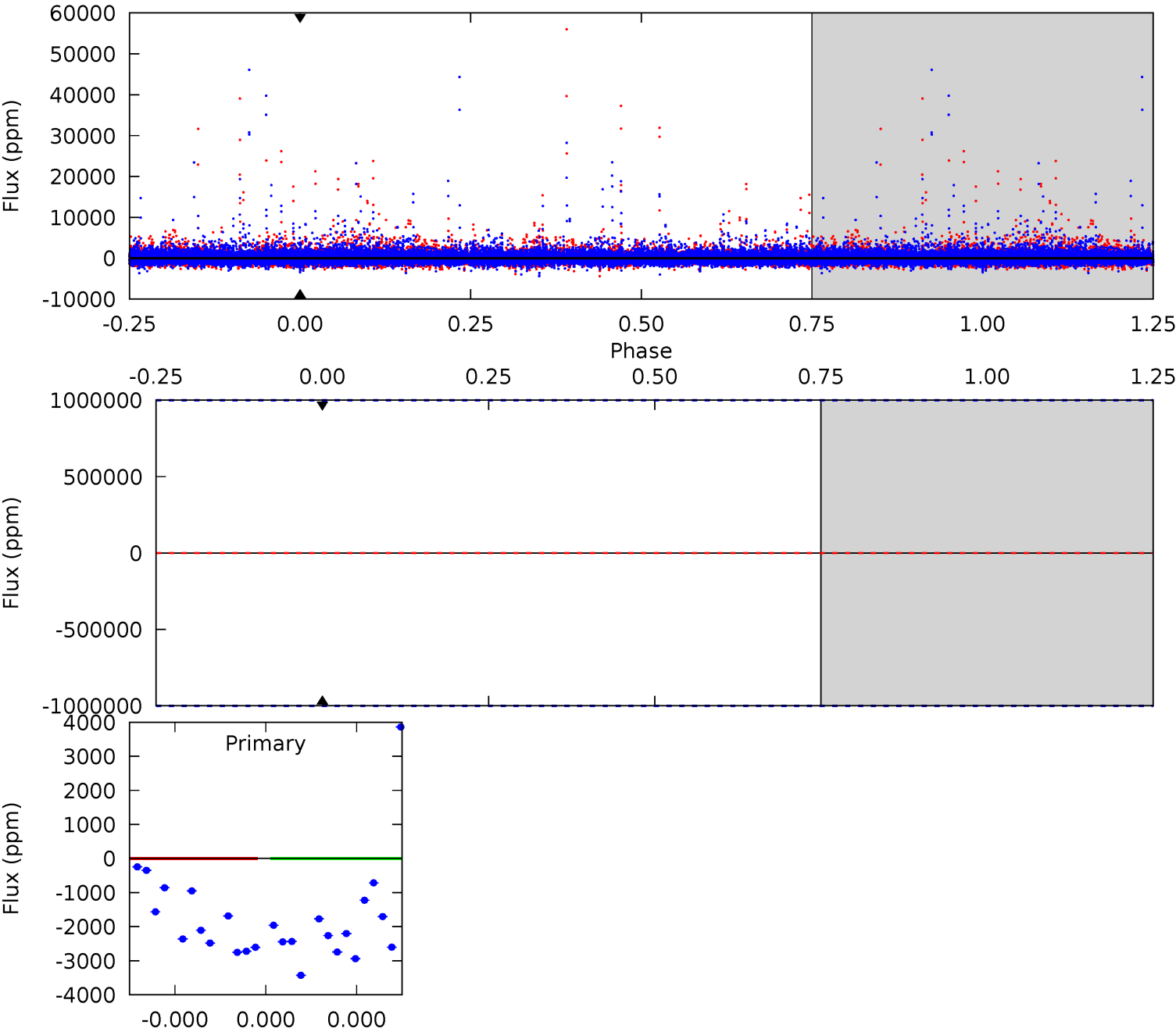
TCE 009847963-08 $P=139.045528$ Days $T_0=135.345346$ (BKJD)



DV Model-Shift Uniqueness Test

009847963-08, P = 139.045528 Days, E = 135.344328 Days

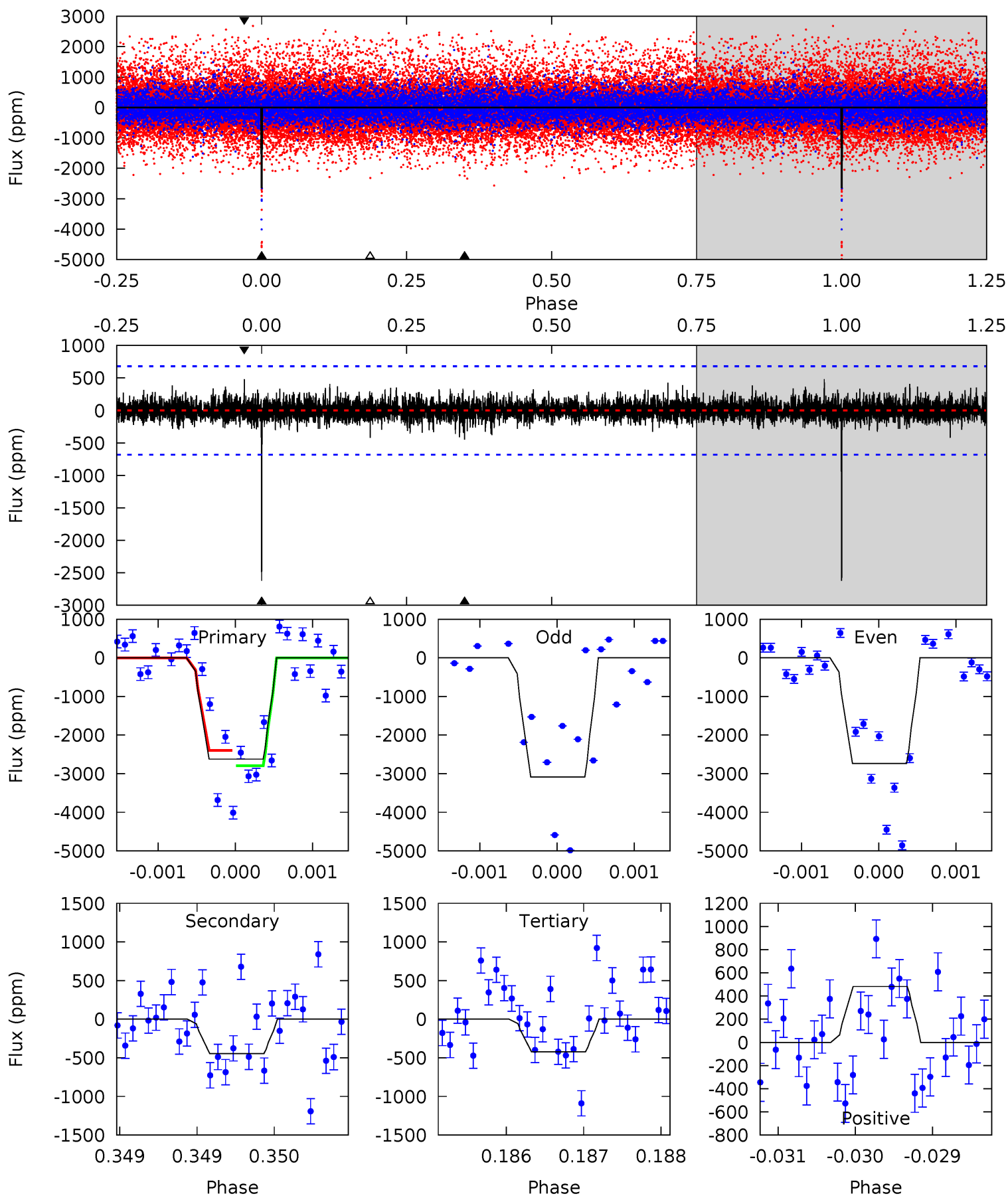
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009847963-08, P = 139.045528 Days, E = 135.345346 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	3.60	3.39	3.88	5.48	3.34	0.81	17.7	17.2	0.21	-0.28	1.45	1.03	0.16	1.60



Stellar Parameters For KIC 009847963

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5518^{+193}_{-193}	$4.486^{+0.113}_{-0.137}$	$-0.400^{+0.350}_{-0.300}$	$0.828^{+0.166}_{-0.111}$	$0.766^{+0.115}_{-0.053}$	$1.900^{+0.905}_{-0.717}$
	+3%/-3%	+3%/-3%	+87%/-75%	+20%/-13%	+15%/-7%	+48%/-38%
Source	KIC0	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 009847963-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$7.33^{+7.17}_{-4.77}$	448^{+24}_{-23}	2529^{+15758}_{-17496}	$156^{+453937}_{-333768}$
Alt.	-448 ± 124	$8.35^{+8.18}_{-5.55}$	450^{+24}_{-27}	3207^{+1463}_{-544}	781^{+6266}_{-582}

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

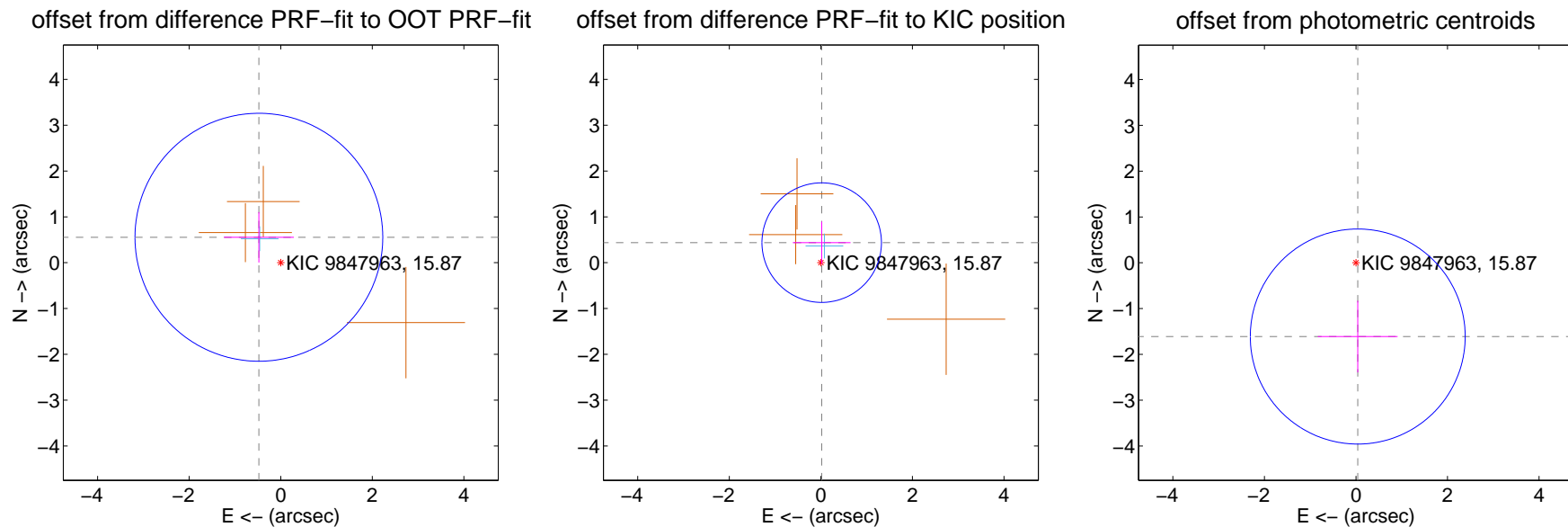
DV Centroid Data

Supplemental centroid analysis for 009847963-08. Kepler magnitude: 15.87. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

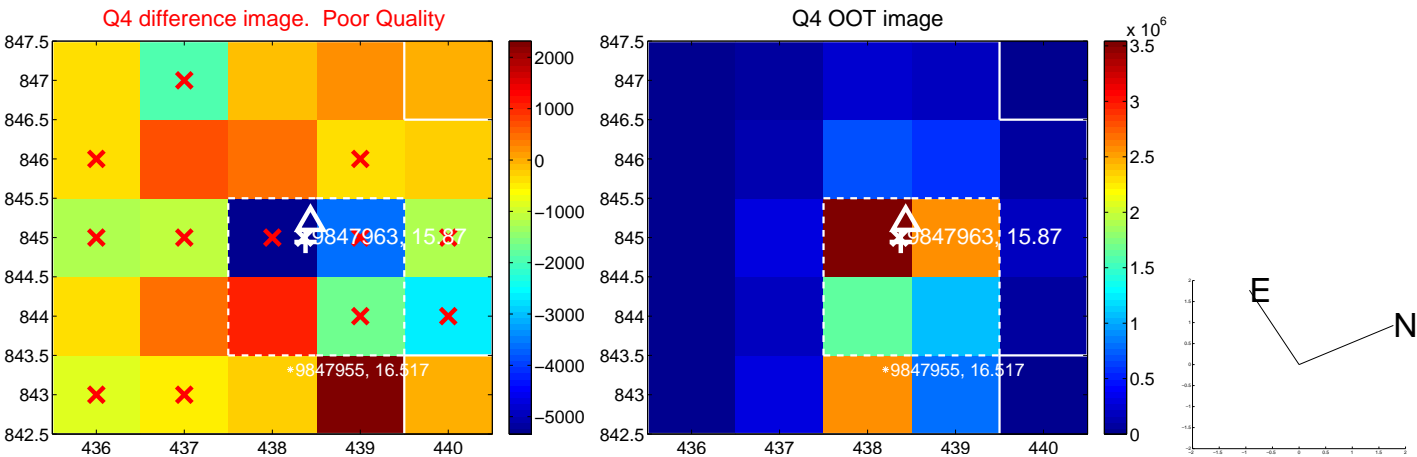
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.732 ± 0.902	0.81	0.478 ± 0.765	0.555 ± 0.551
PRF-fit source offset from KIC position	0.438 ± 0.435	1.01	-0.018 ± 0.631	0.438 ± 0.459
photometric centroid source offset	1.61 ± 0.78	2.06	-0.04 ± 0.87	-1.61 ± 0.78



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 ×: 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.

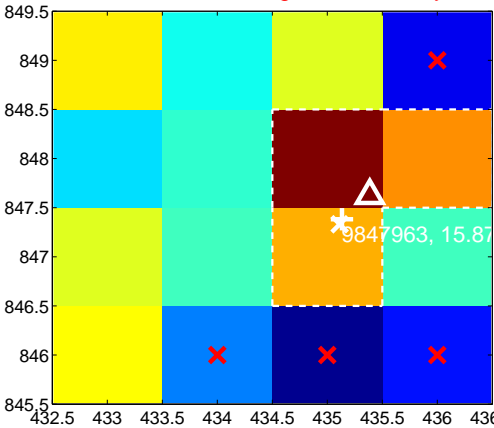
Q5 no difference image



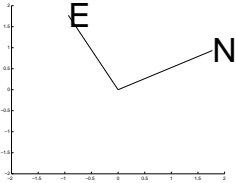
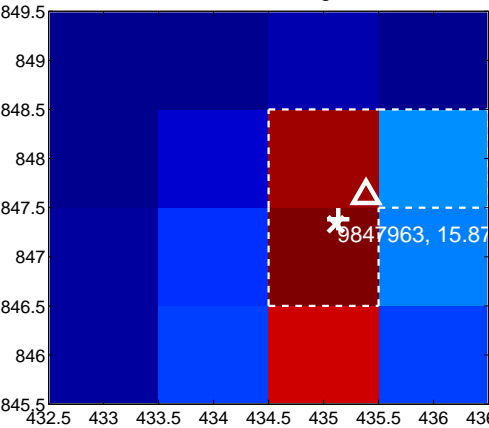
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



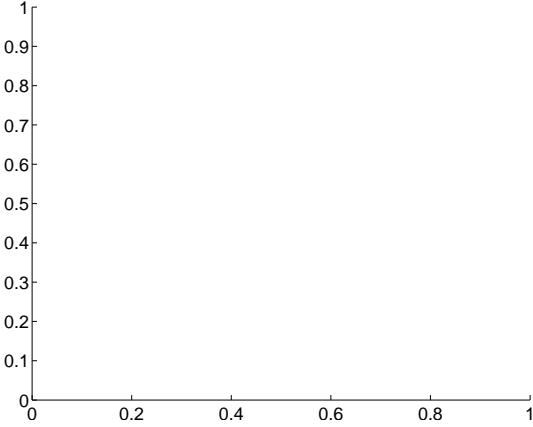
Q7 no difference image



Q7 no OOT image



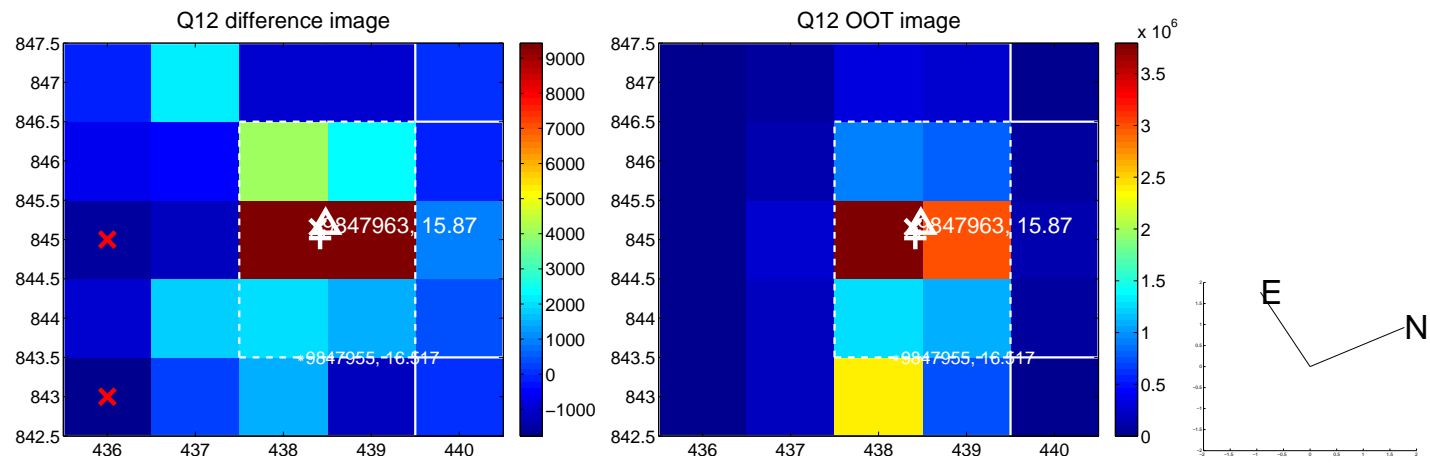
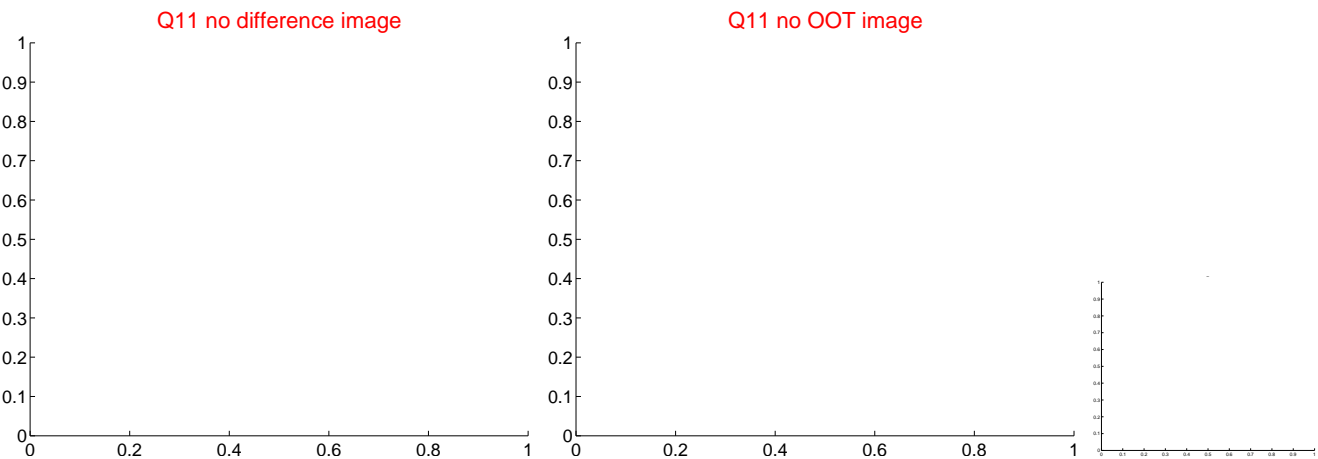
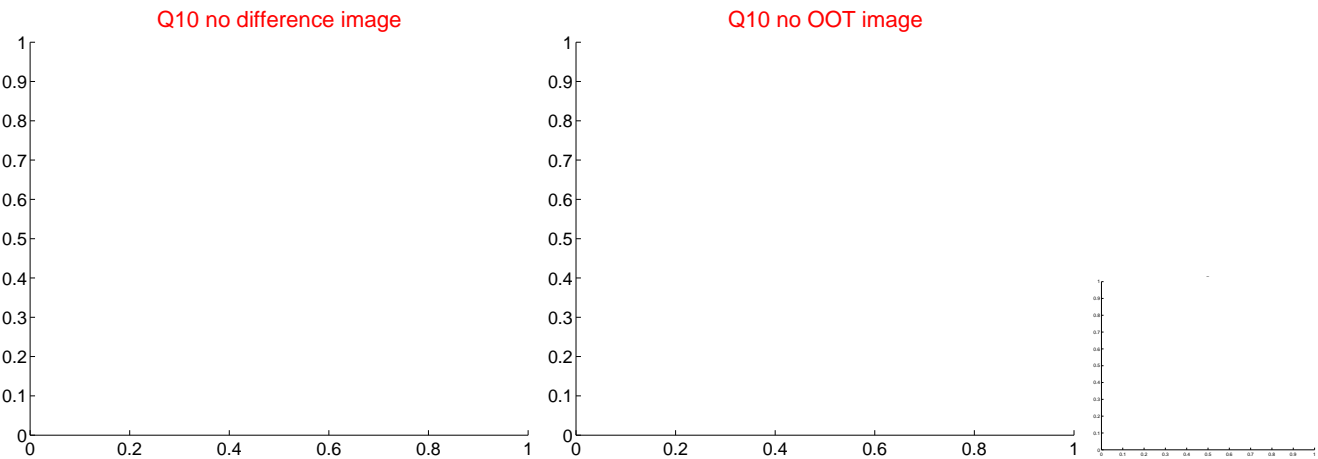
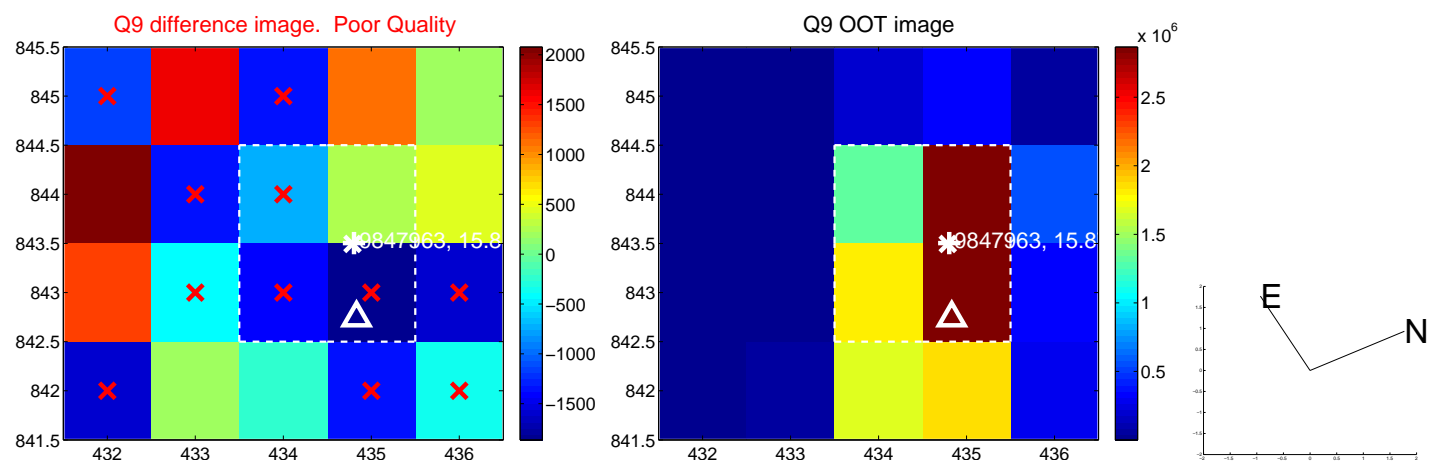
Q8 no difference image



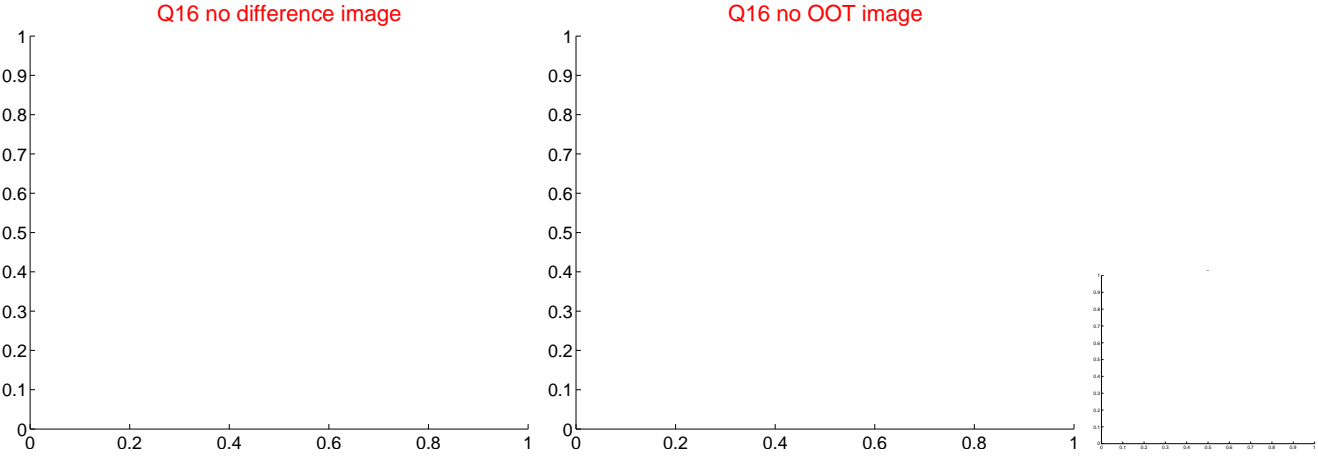
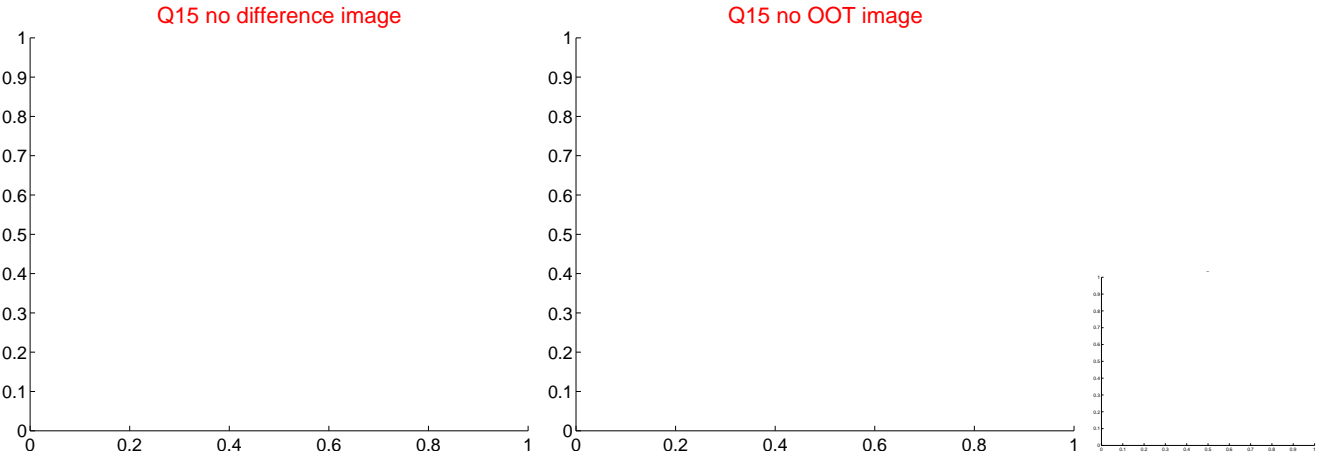
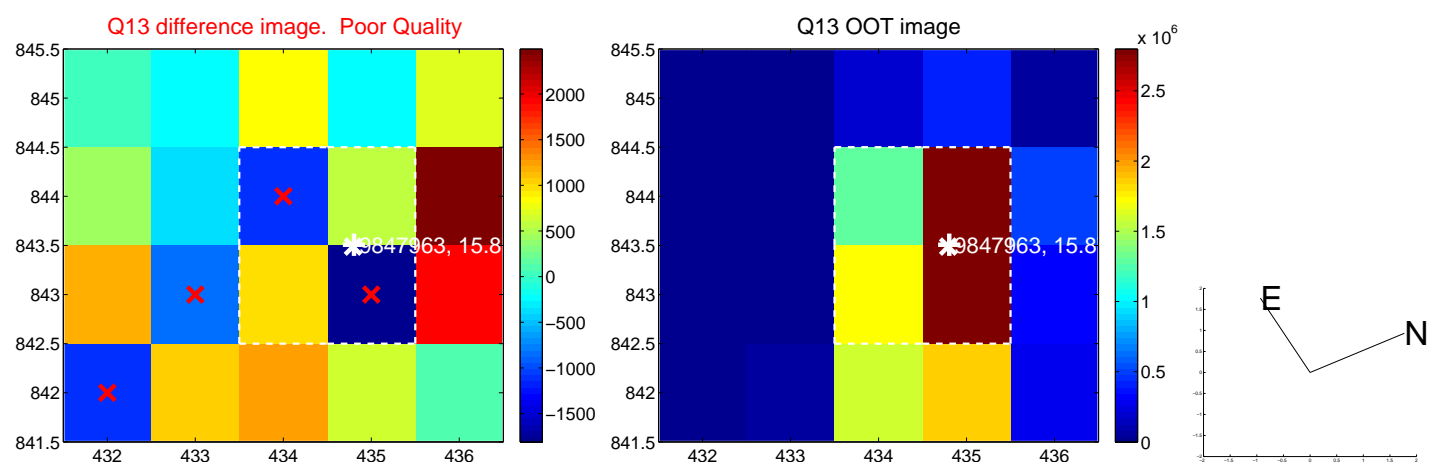
Q8 no OOT image



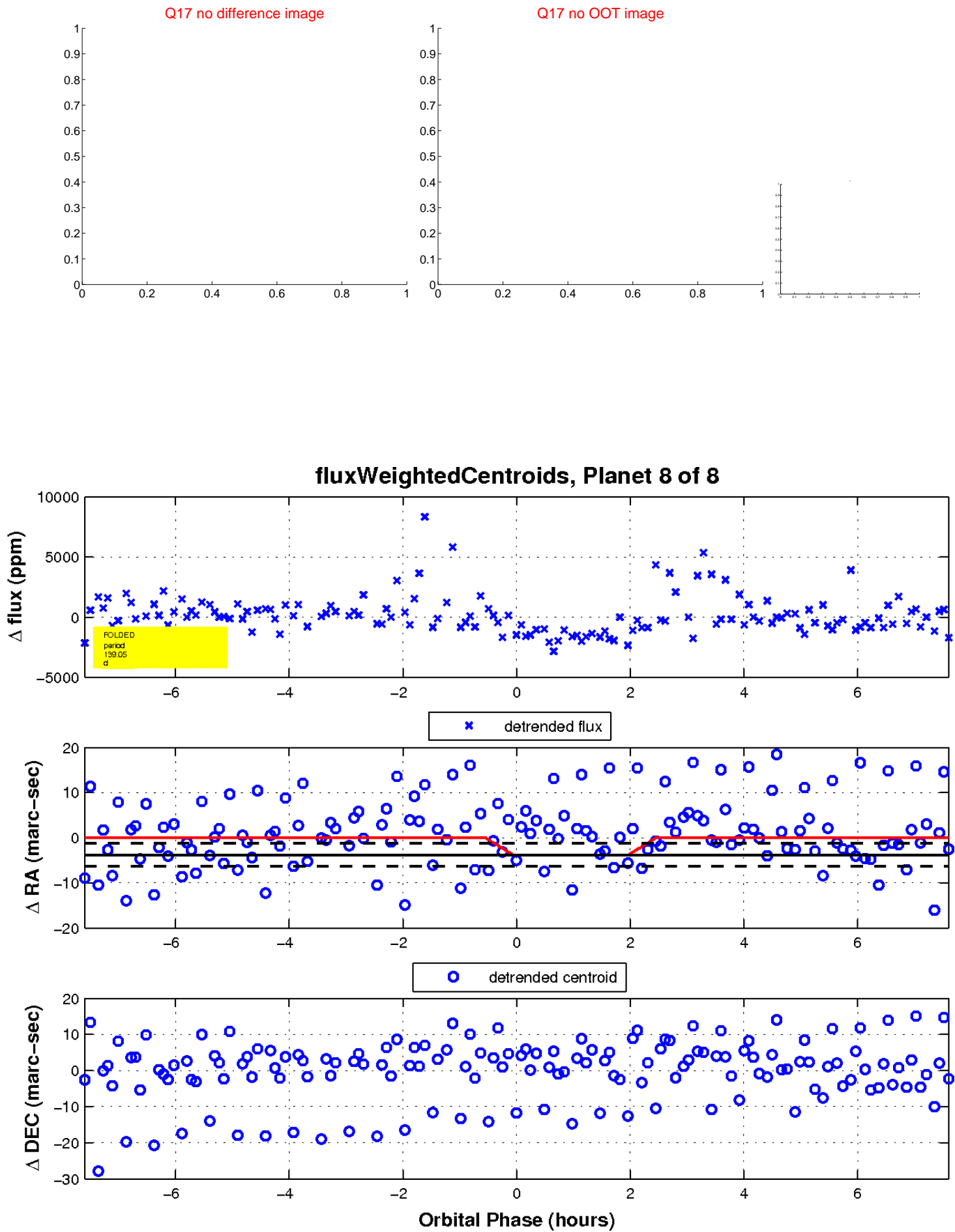
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

