

KIC 008938937

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})
008938937-01	OBS	No	651.685871	187.863457	1154.4	18.889	10.3	10.3	0.86	5591	2.95	0.30
008938937-02	OBS	No	370.479091	233.901861	1165.5	16.804	8.0	8.1	0.86	5591	3.54	0.65
008938937-03	OBS	4758.01	37.108743	166.233019	386.3	4.361	7.9	8.4	0.86	5591	1.81	13.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008938937-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008938937-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008938937-03	OBS	FP	0.41	1	0	0	0	MOD_NONUNIQ_ALT

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 008938937-01

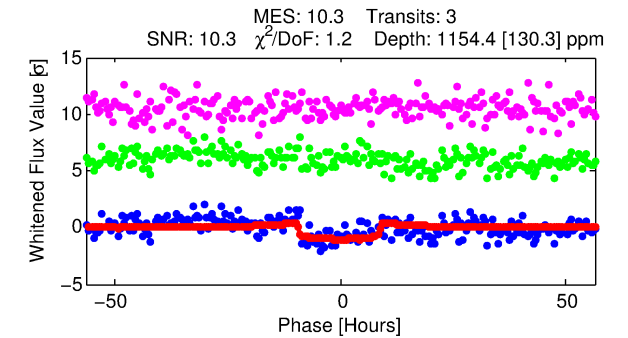
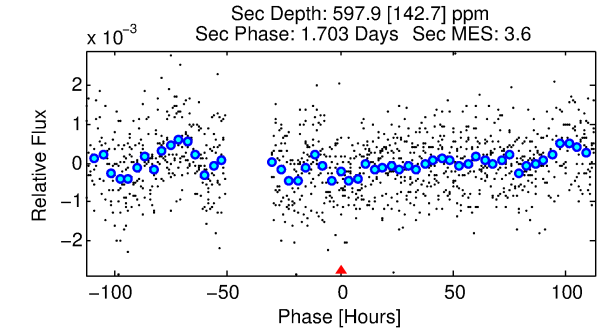
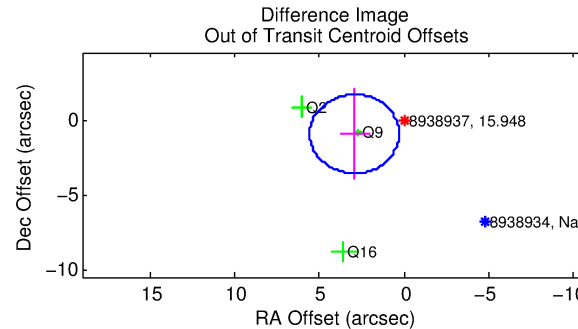
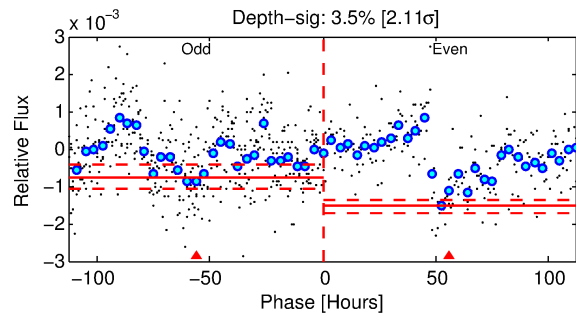
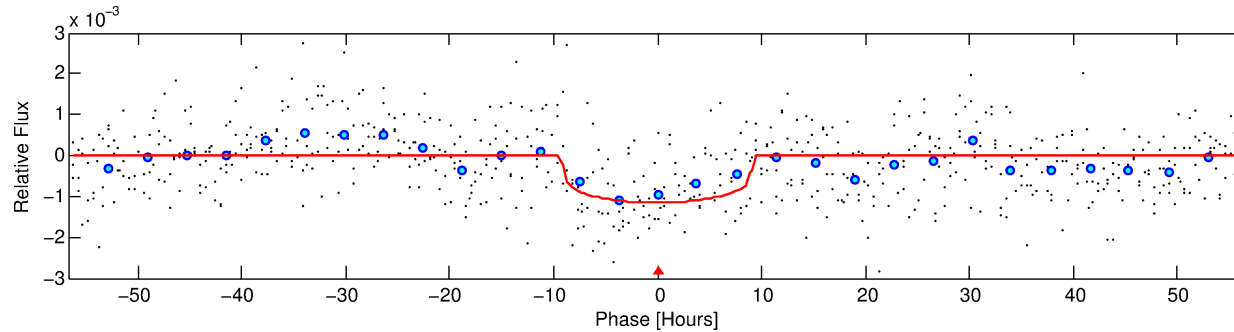
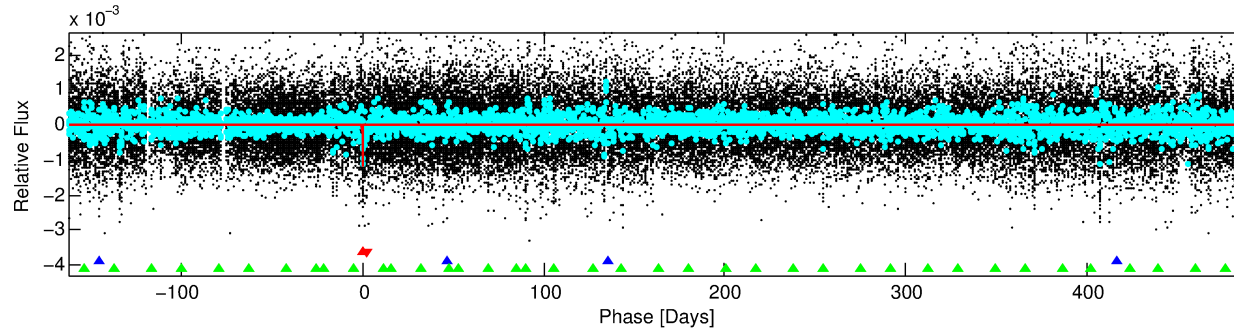
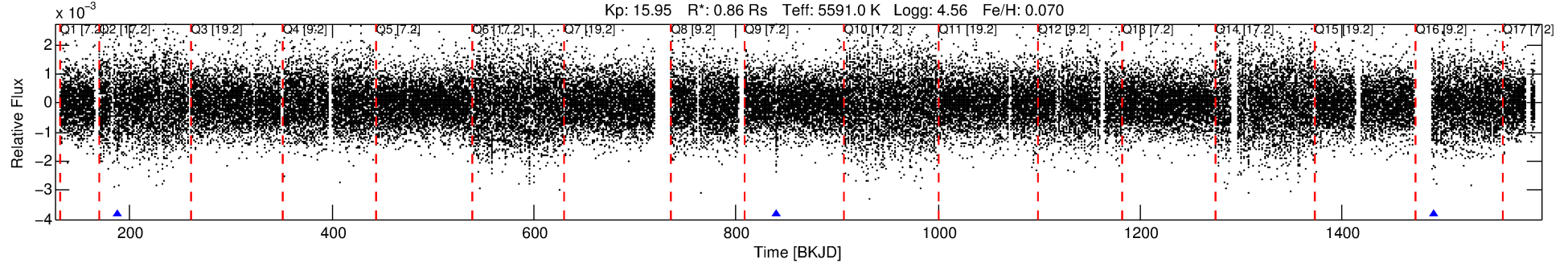
No Significant Match Found

DV One-Page Summary

KIC: 8938937 Candidate: 1 of 3 Period: 651.686 d

KOI: K04758 Corr: No Ephemeris Match

Kp: 15.95 R*: 0.86 Rs Teff: 5591.0 K Logg: 4.56 Fe/H: 0.070



DV Fit Results:

Period = 651.68587 [0.01701] d
Epoch = 187.8635 [0.0226] BKJD
Rp/R* = 0.0314 [0.0148]
a/R* = 245.94 [464.15]
b = 0.44 [3.49]
Seff = 0.30 [0.11]
Teq = 189 [17] K
Rp = 2.95 [1.58] Re
a = 1.4601 [0.3198] AU
Ag = 80702.76 [82473.84] [0.98σ]
Teffp = 4933 [1207] K [3.93σ]

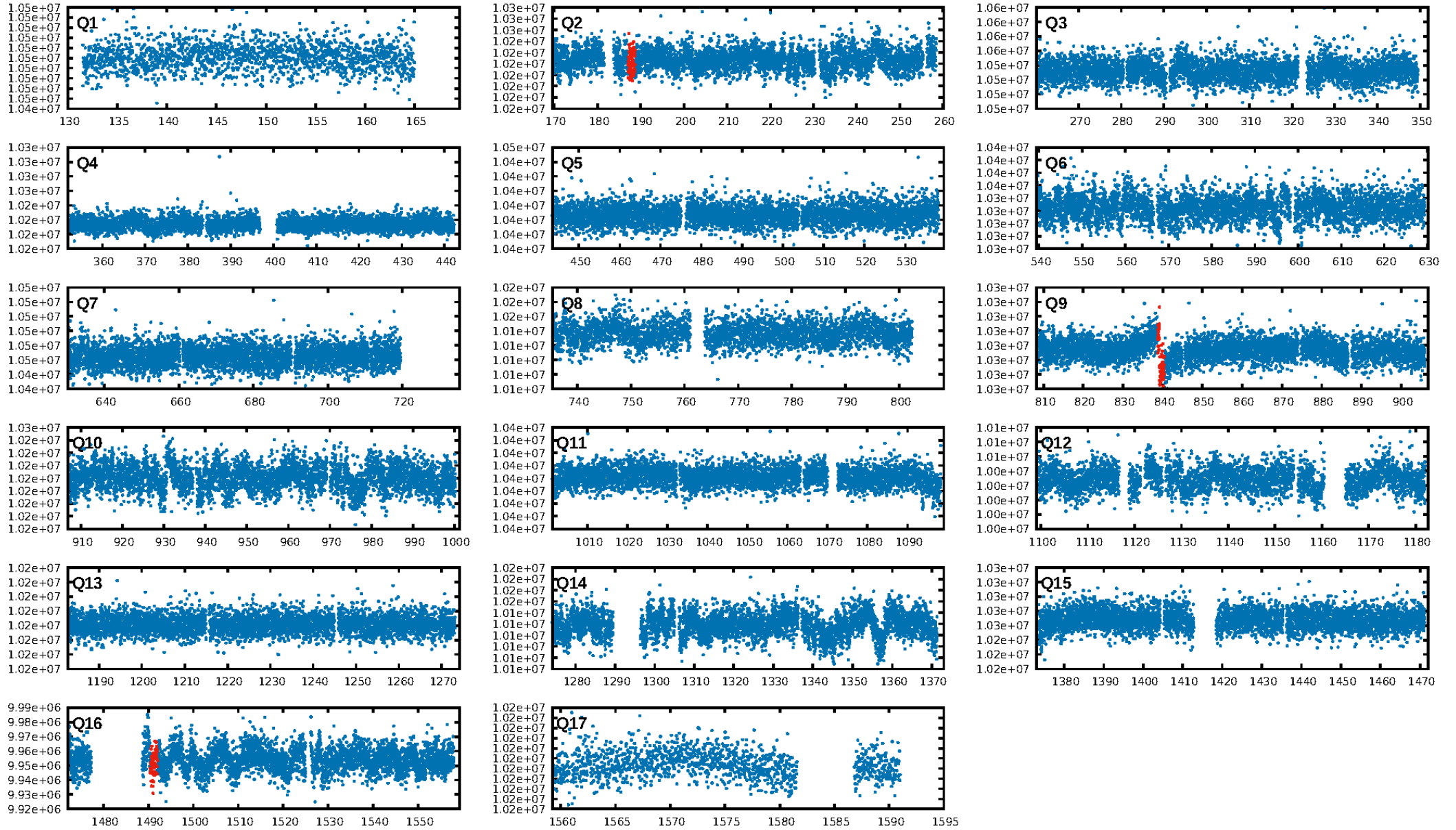
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [266.95σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 94.1%
Bootstrap-pfa: 2.81e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.9507
Centroid-sig: 34.6%
Centroid-so: 1.002 arcsec [0.61σ]
OotOffset-rm: 3.100 arcsec [3.53σ]
KicOffset-rm: 2.988 arcsec [3.50σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

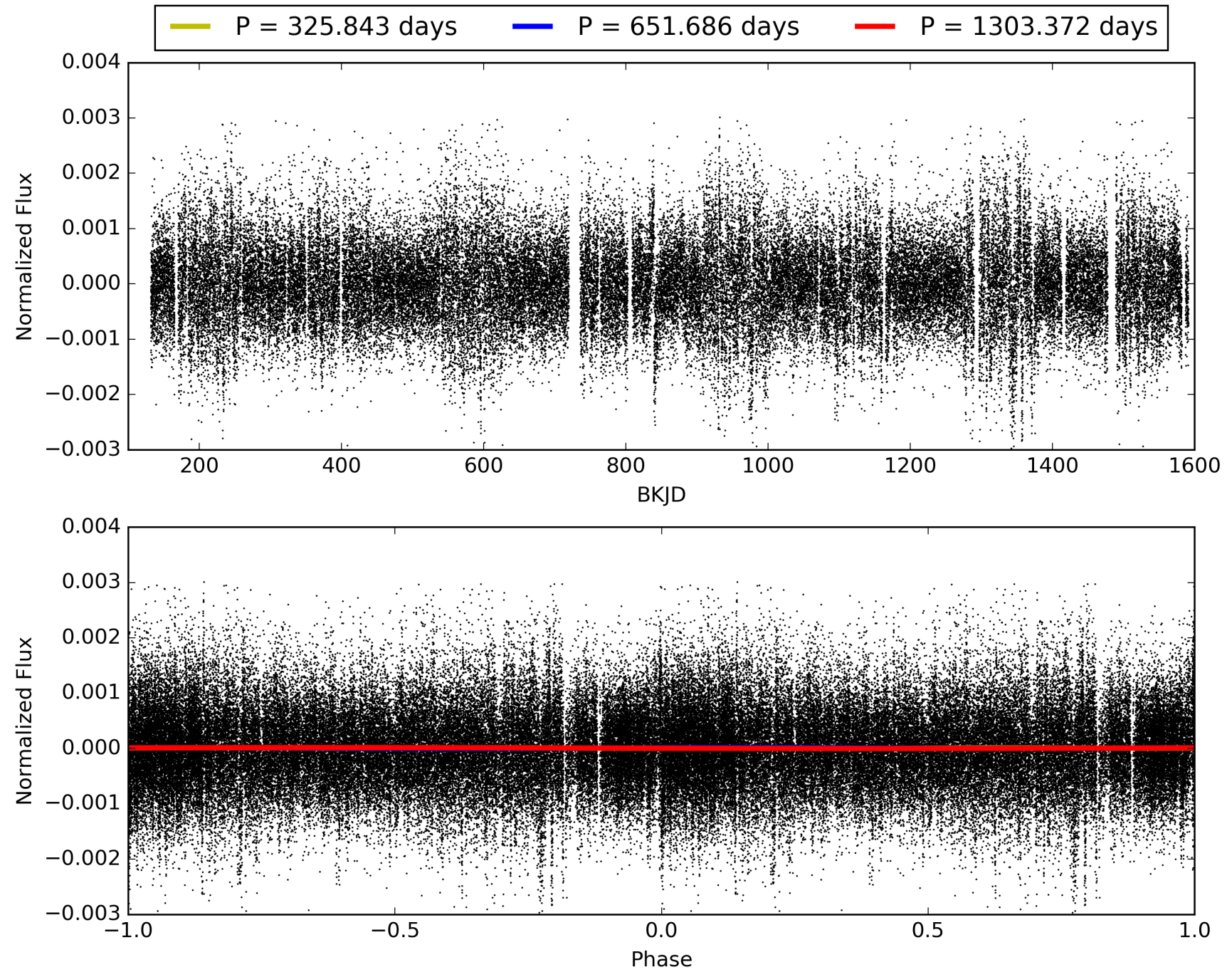
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:33:40 Z

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

TCE 008938937-01, PDC Light Curves

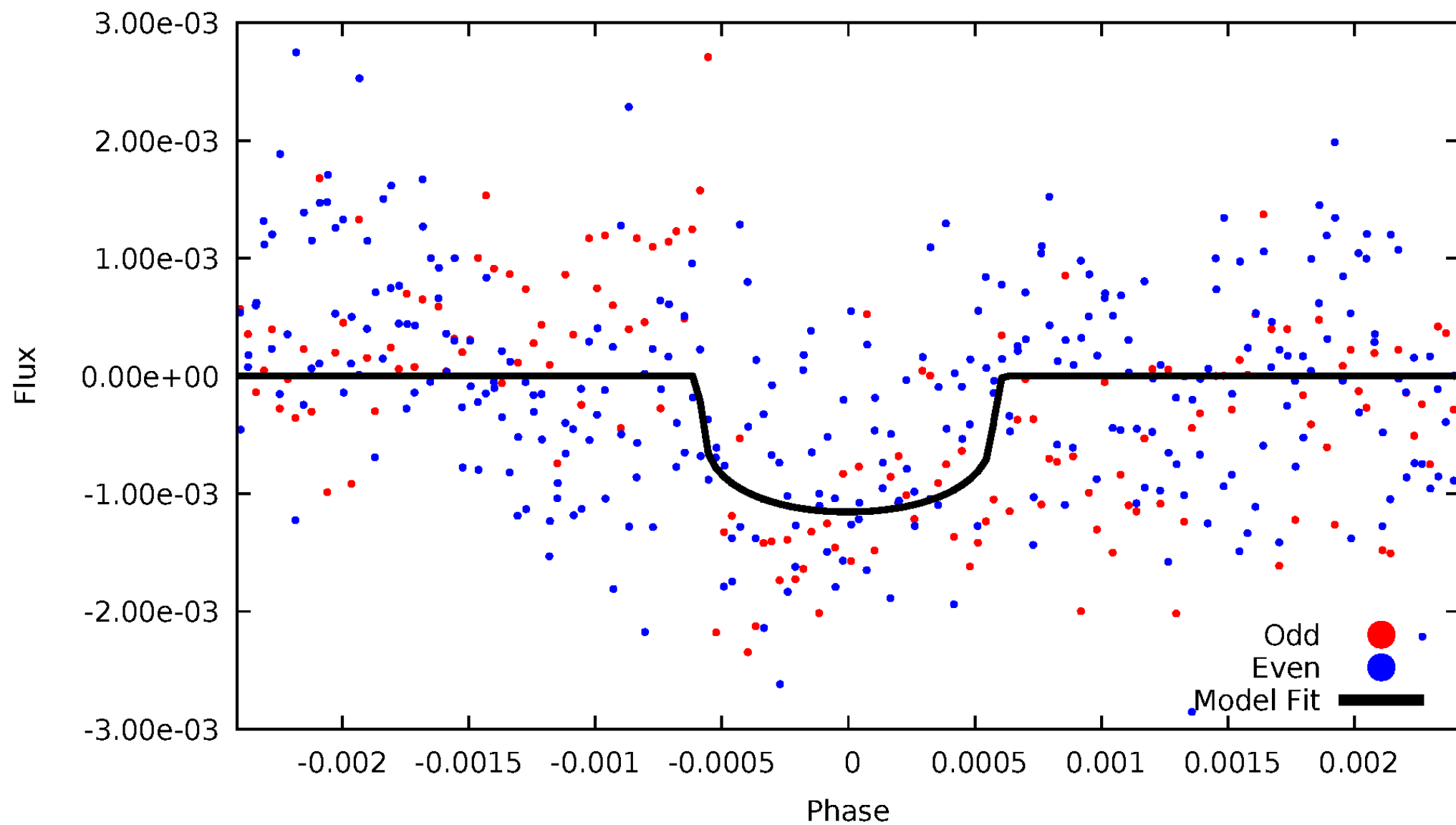


TCE 008938937-01



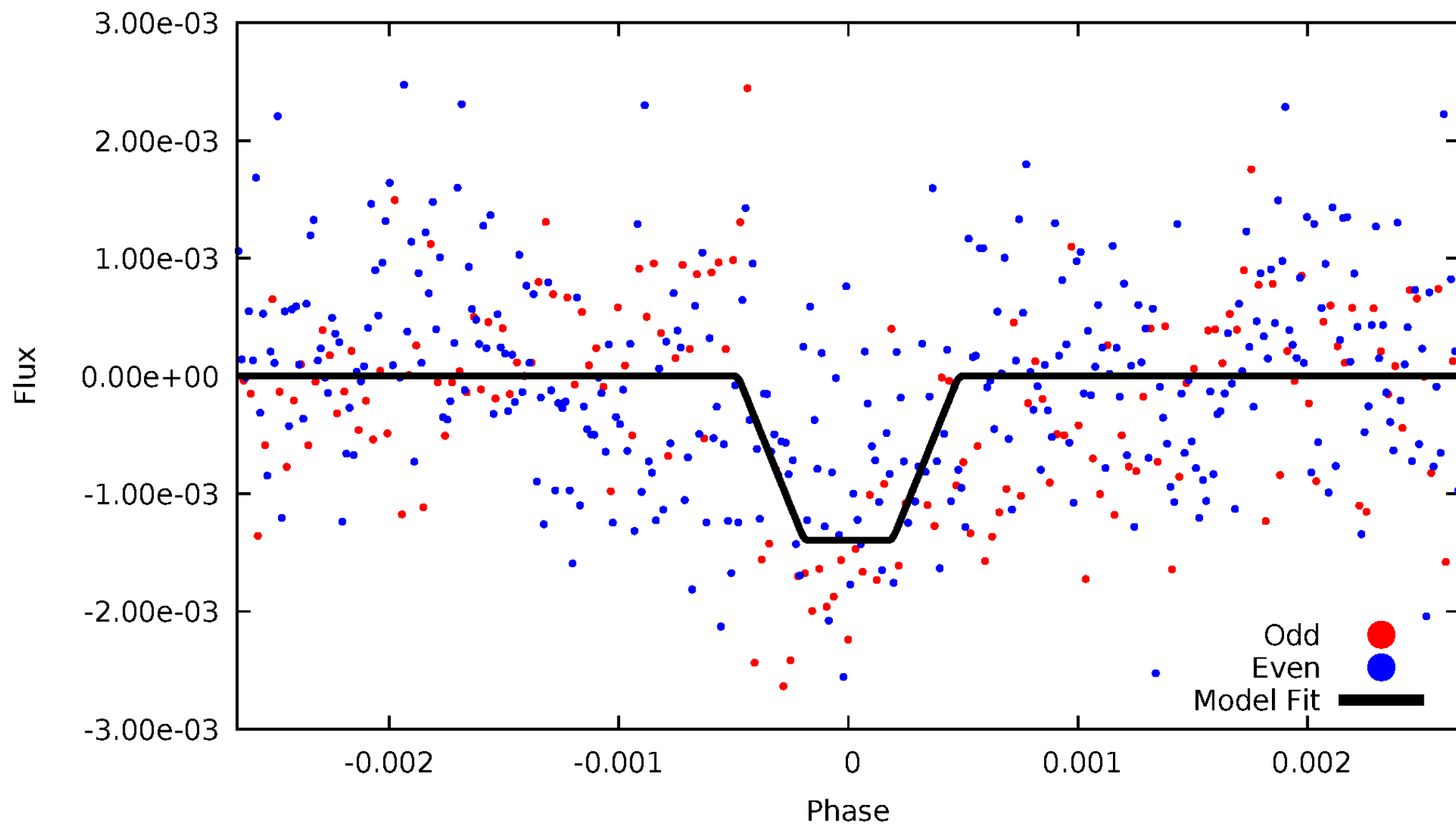
DV Odd/Even

TCE 008938937-01



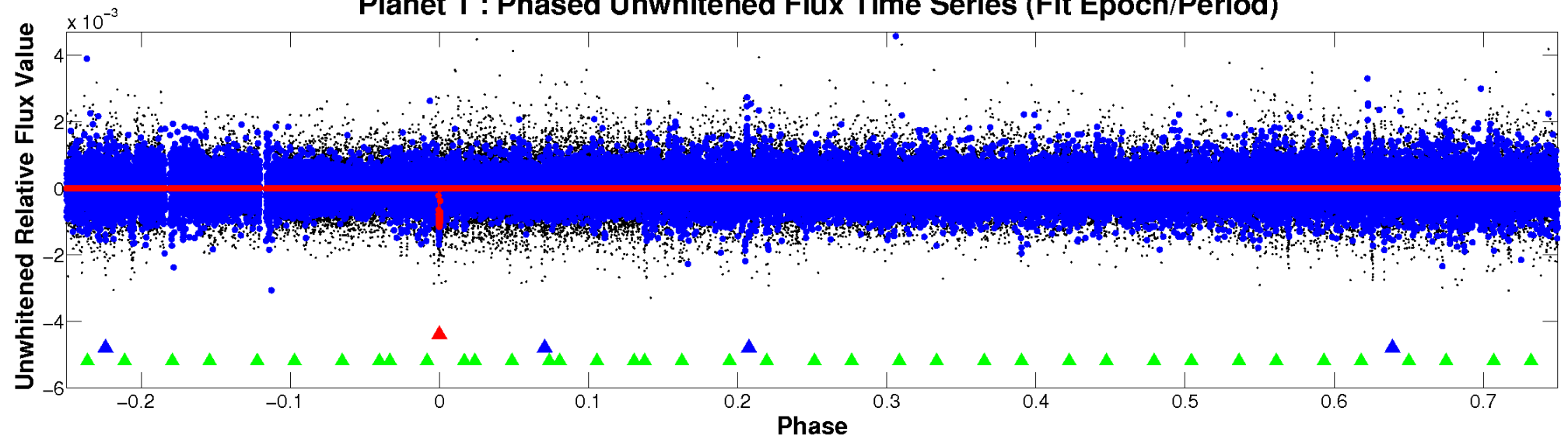
ALT Odd/Even

TCE 008938937-01

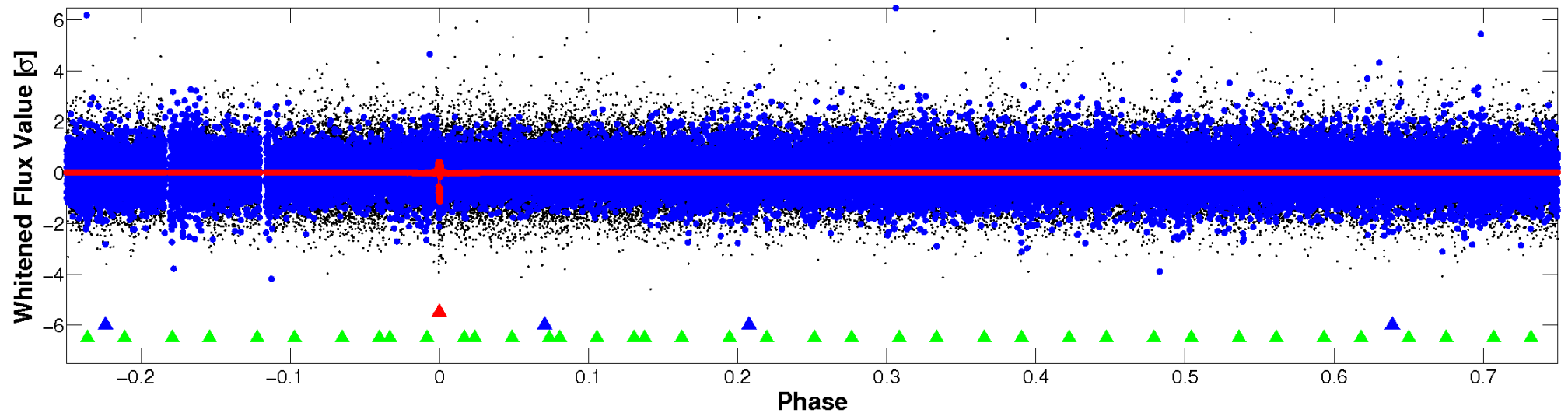


Non-Whitened Vs. Whitened Light Curve

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

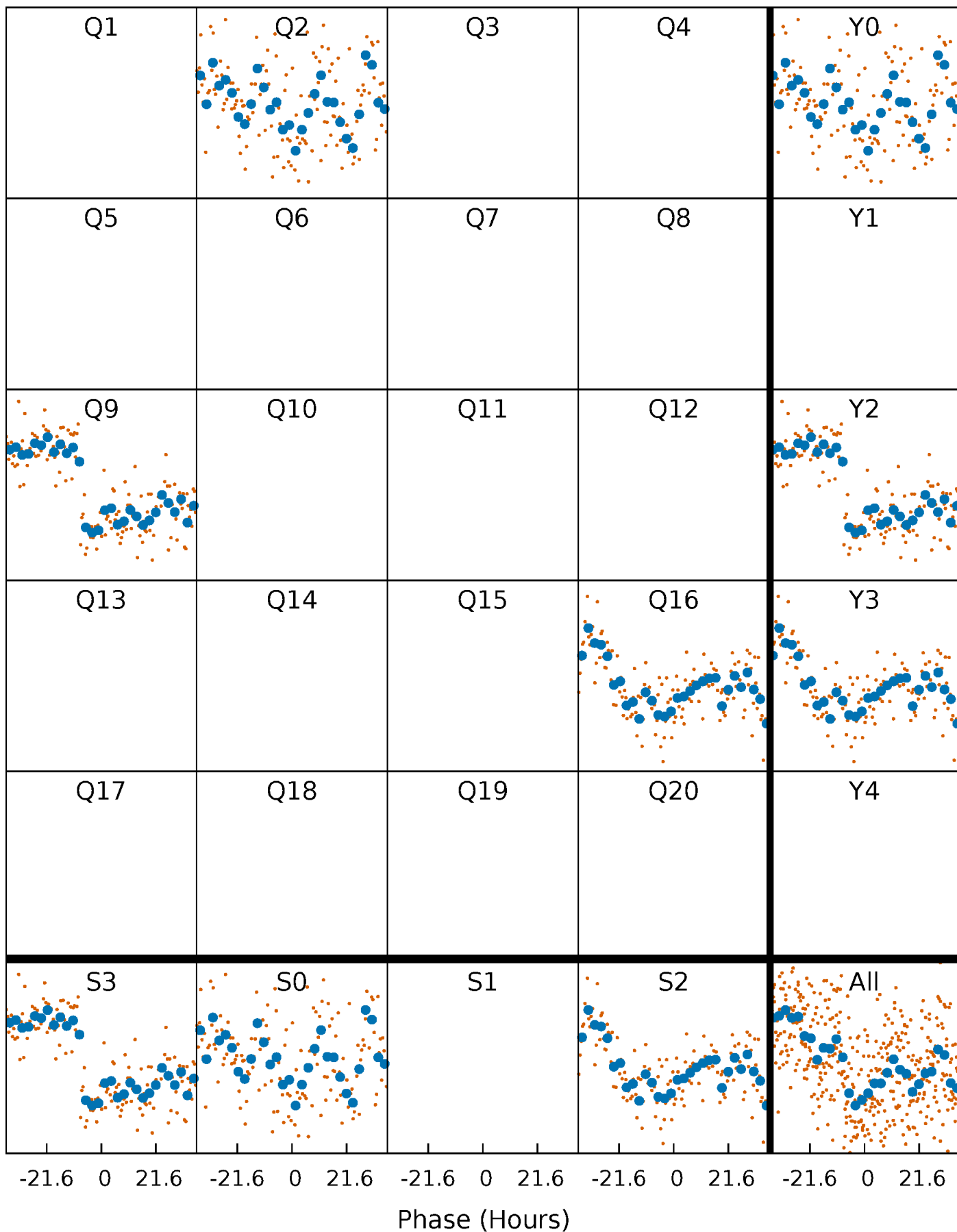


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



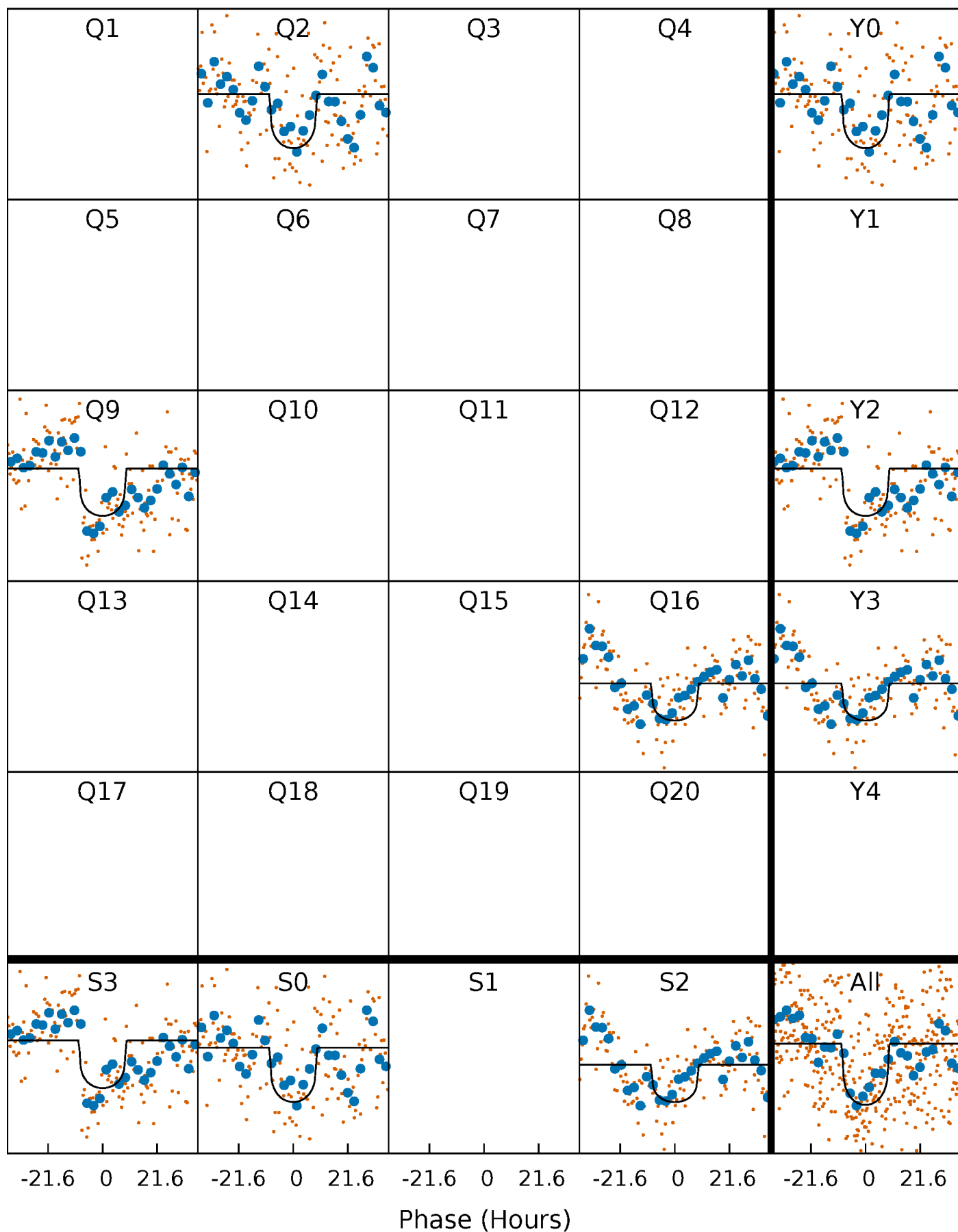
PDC Quarter-Phased Transit Curves

TCE 008938937-01 P=651.685871 Days $T_0=187.863458$ (BKJD)



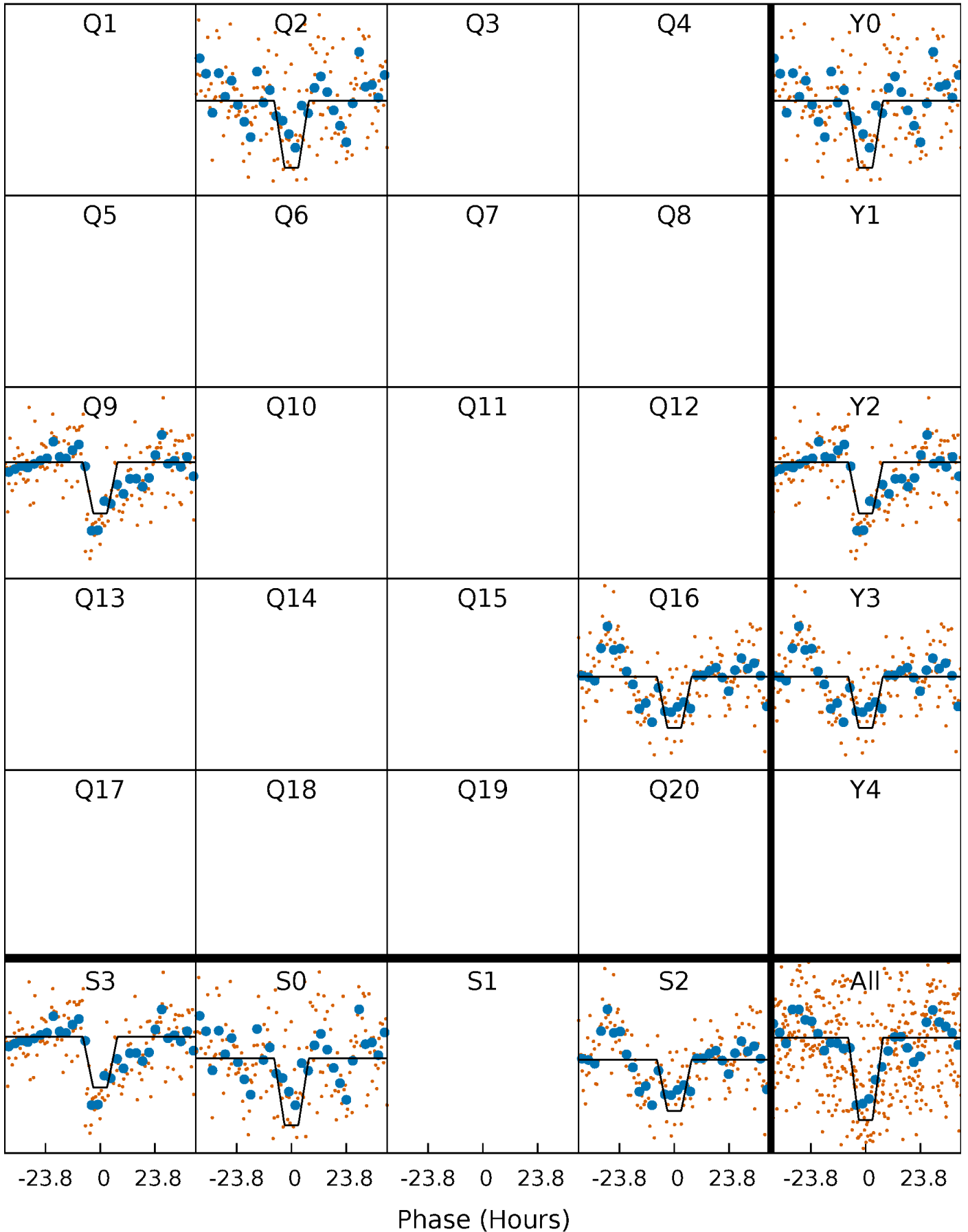
DV Quarter-Phased Transit Curves

TCE 008938937-01 P=651.685871 Days $T_0=187.863458$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

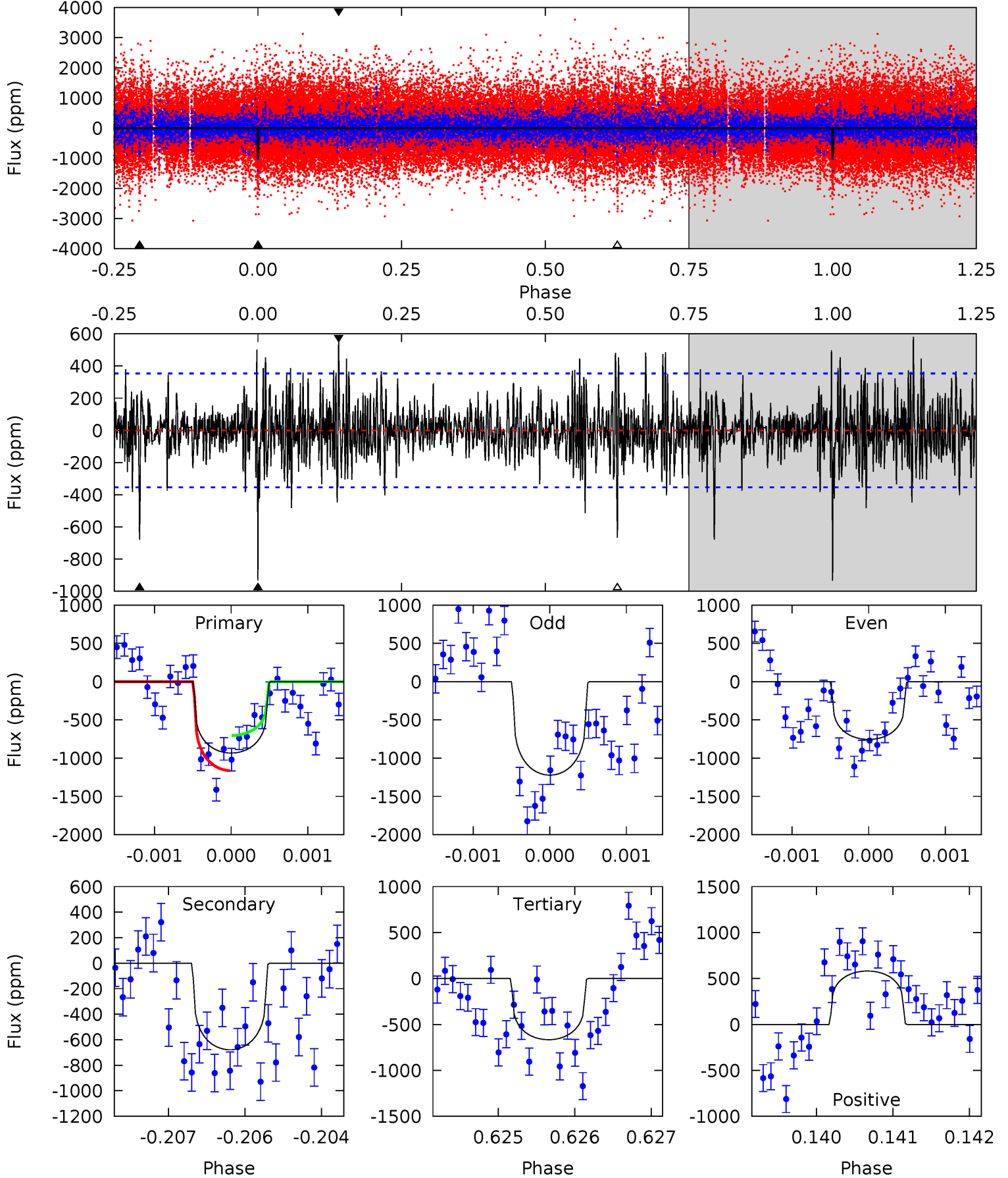
TCE 008938937-01 P=651.598984 Days $T_0=187.875674$ (BKJD)



DV Model-Shift Uniqueness Test

008938937-01, $P = 651.685871$ Days, $E = 187.863458$ Days

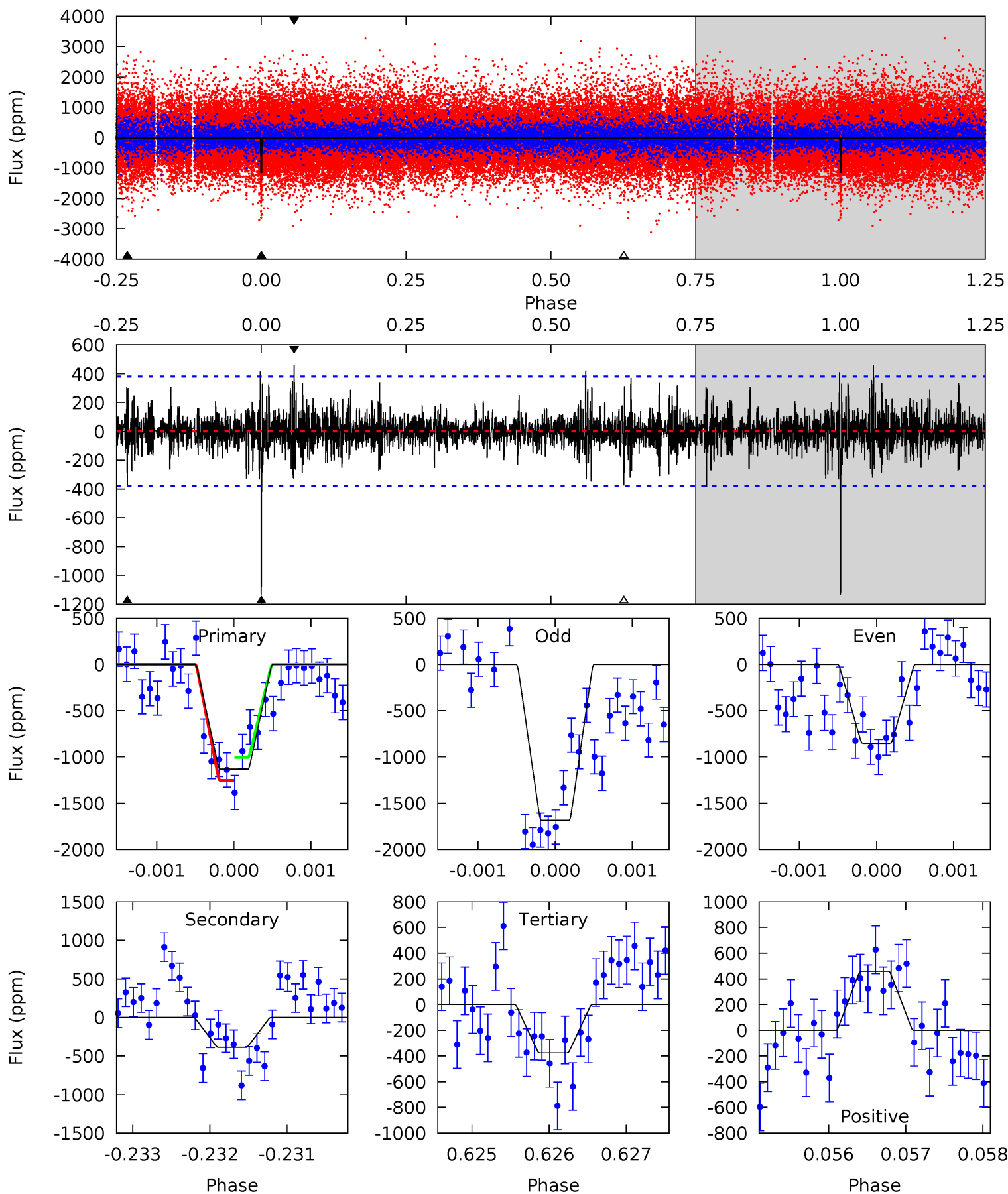
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	10.4	10.2	8.91	5.42	3.23	2.06	4.09	5.39	0.19	1.49	3.37	1.17	0.38	3.52



Alt Model-Shift Uniqueness Test

008938937-01, P = 651.598984 Days, E = 187.875674 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	5.55	5.38	6.58	5.45	3.29	1.27	10.8	9.63	0.17	-1.03	5.64	1.11	0.29	1.77



Stellar Parameters For KIC 008938937

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5591^{+169}_{-186}	$4.559^{+0.032}_{-0.179}$	$0.070^{+0.200}_{-0.300}$	$0.860^{+0.220}_{-0.073}$	$0.977^{+0.083}_{-0.125}$	$2.163^{+0.373}_{-1.023}$
	+3%/-3%	+1%/-4%	+286%/-429%	+26%/-8%	+8%/-13%	+17%/-47%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008938937-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-678 ± 65	$3.17^{+1.47}_{-1.43}$	270^{+16}_{-12}	5091^{+1724}_{-740}	$76498^{+170846}_{-39444}$
Alt.	-387 ± 70	$3.65^{+1.50}_{-1.43}$	270^{+16}_{-12}	4248^{+907}_{-487}	31418^{+55584}_{-15772}

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

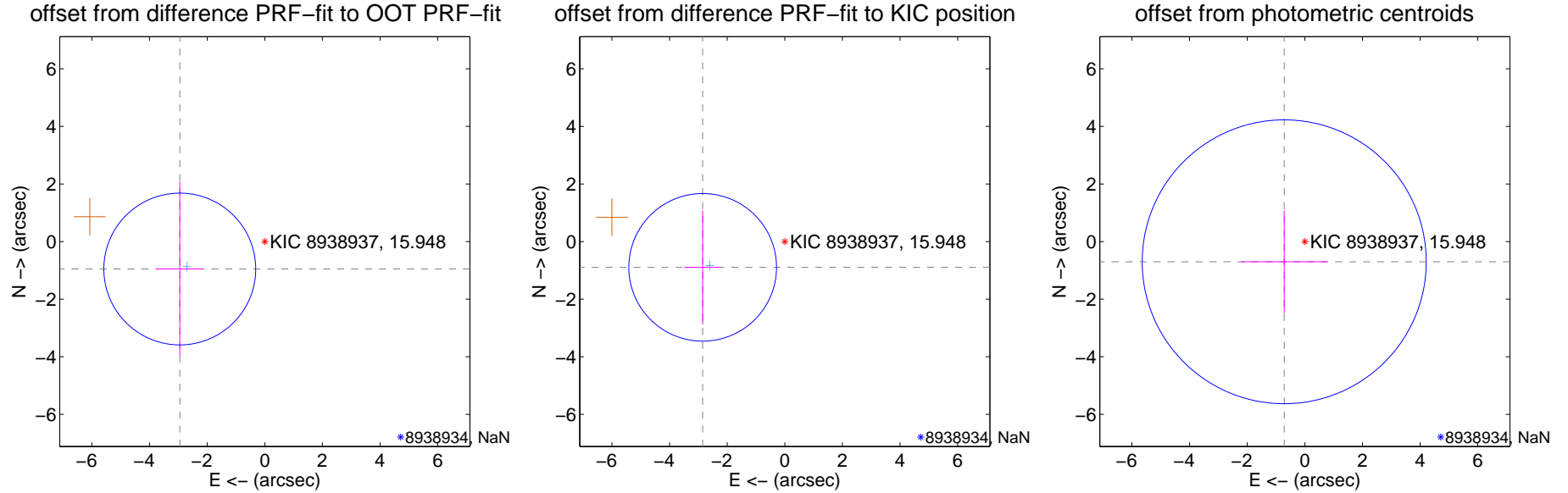
DV Centroid Data

Supplemental centroid analysis for 008938937-01. Kepler magnitude: 15.95. Transit SNR 10.27

There are 1 quarters with good PRF difference image offsets

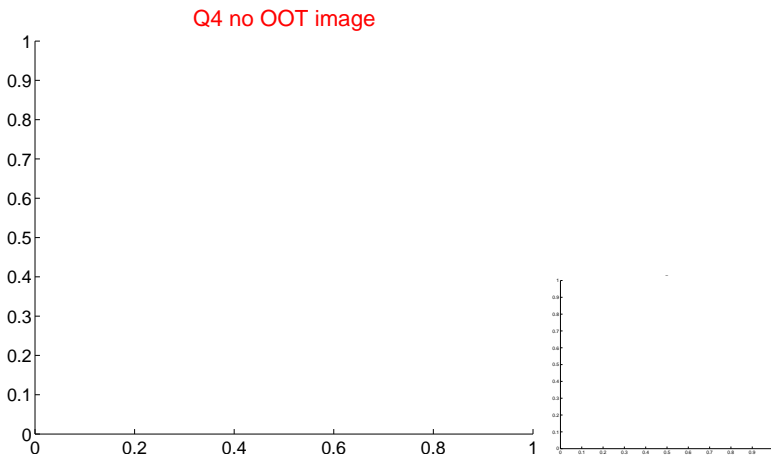
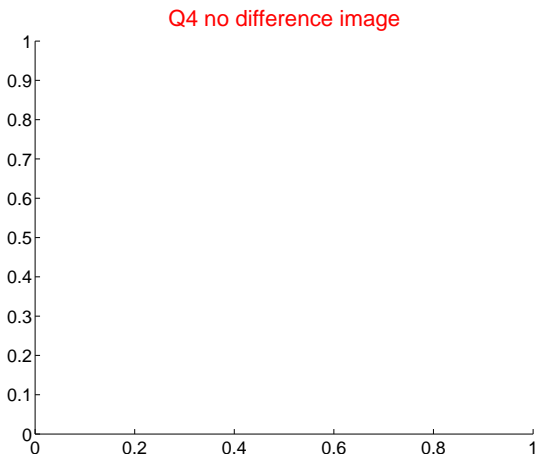
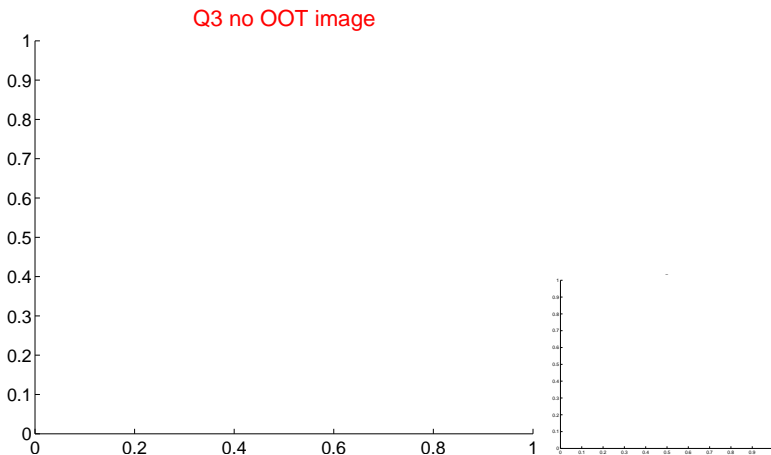
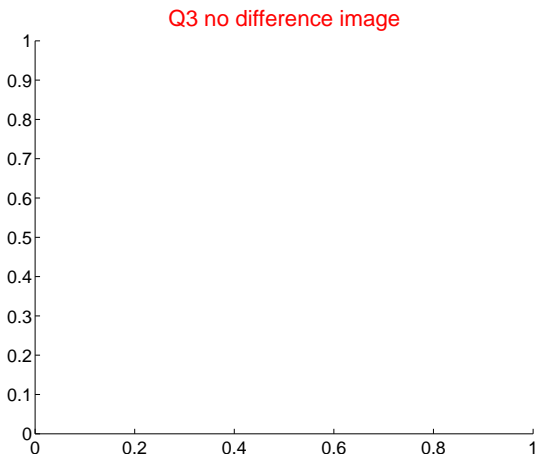
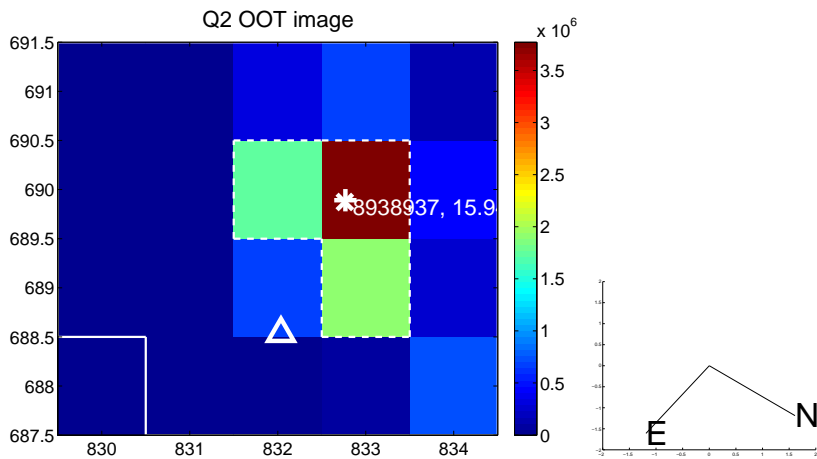
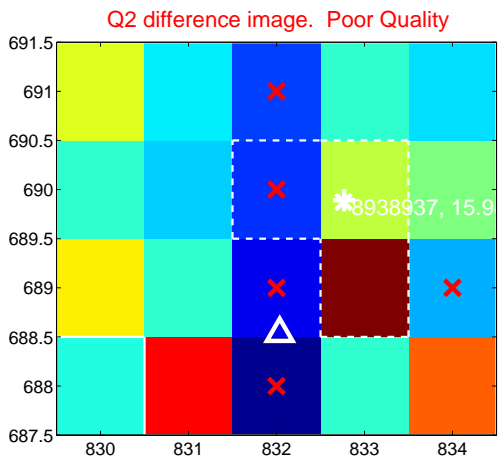
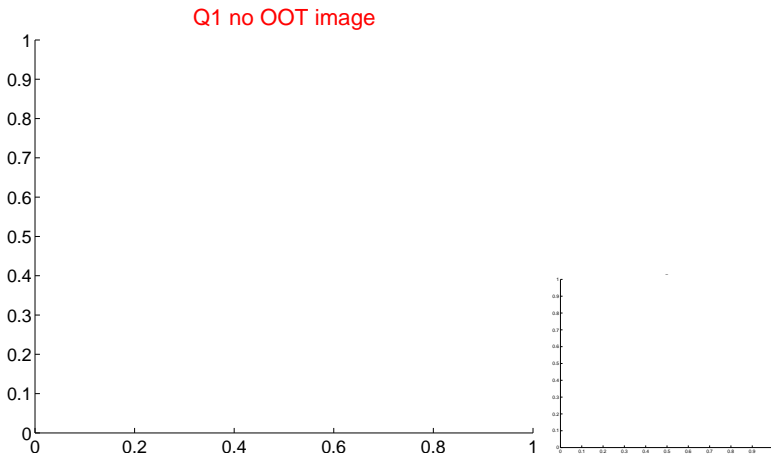
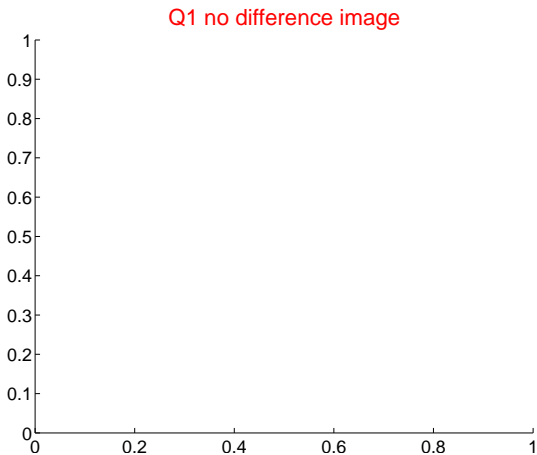
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.100 ± 0.879	3.53	2.950 ± 0.826	-0.953 ± 3.027
PRF-fit source offset from KIC position	2.988 ± 0.854	3.50	2.851 ± 0.645	-0.895 ± 1.980
photometric centroid source offset	1.00 ± 1.64	0.61	0.71 ± 1.49	-0.70 ± 1.78



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

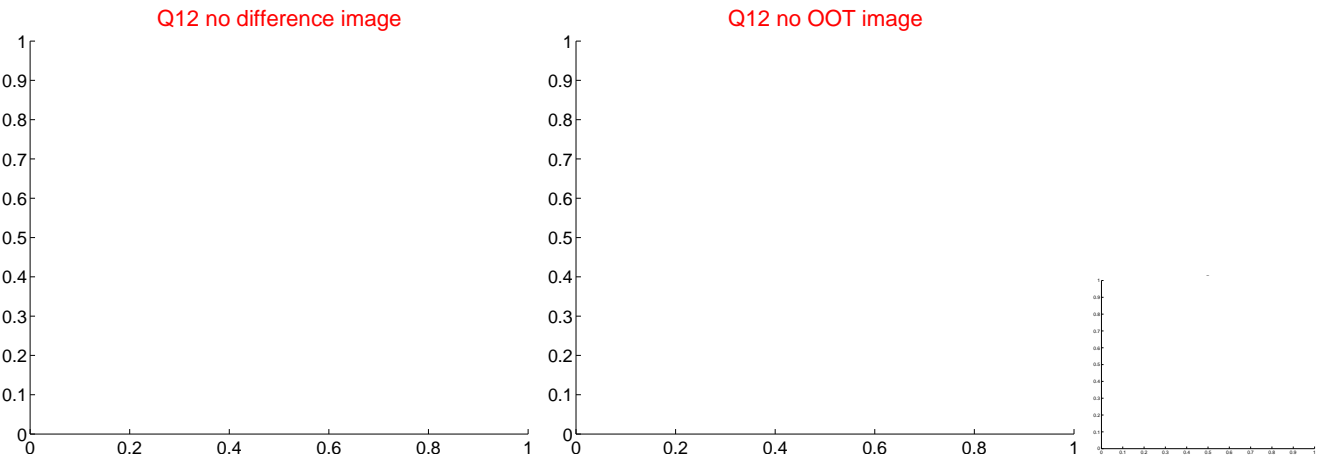
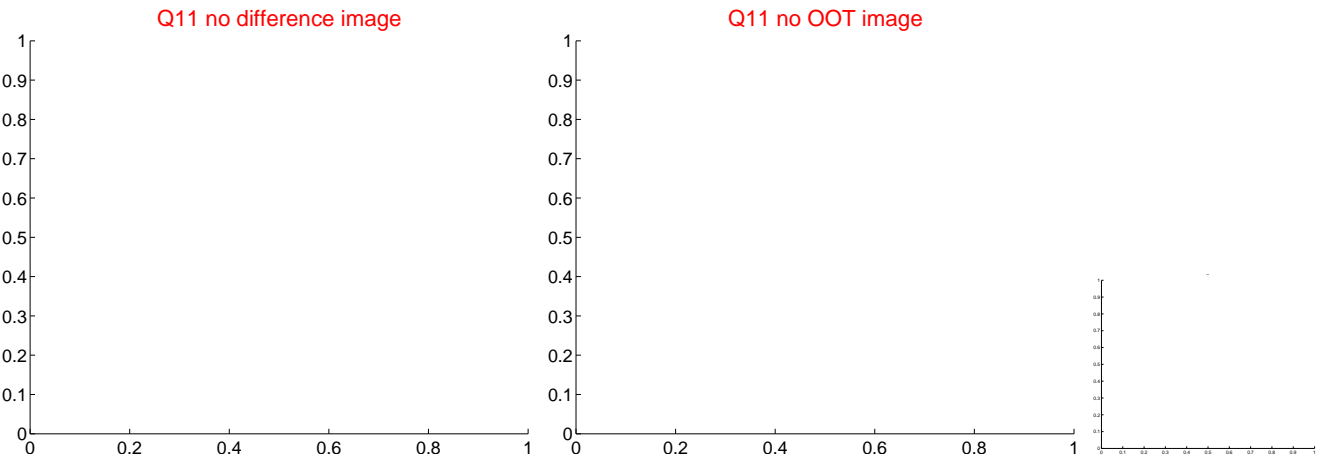
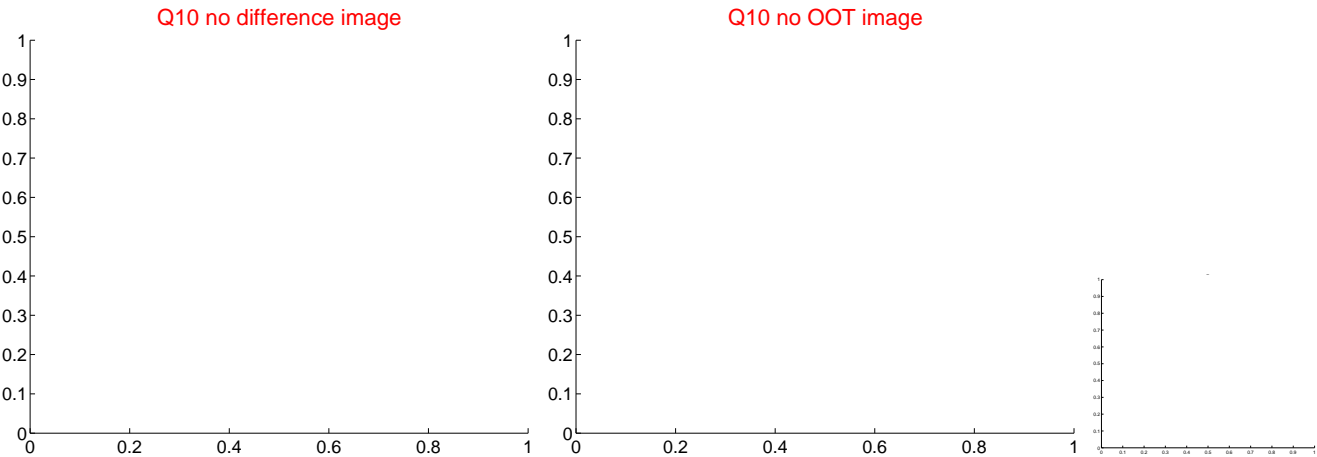
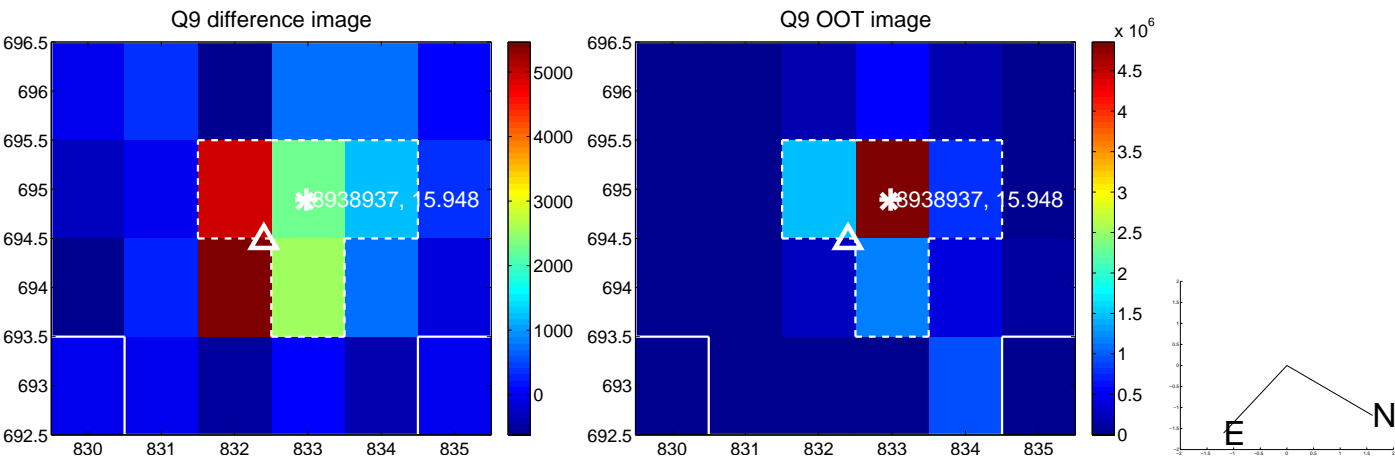
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



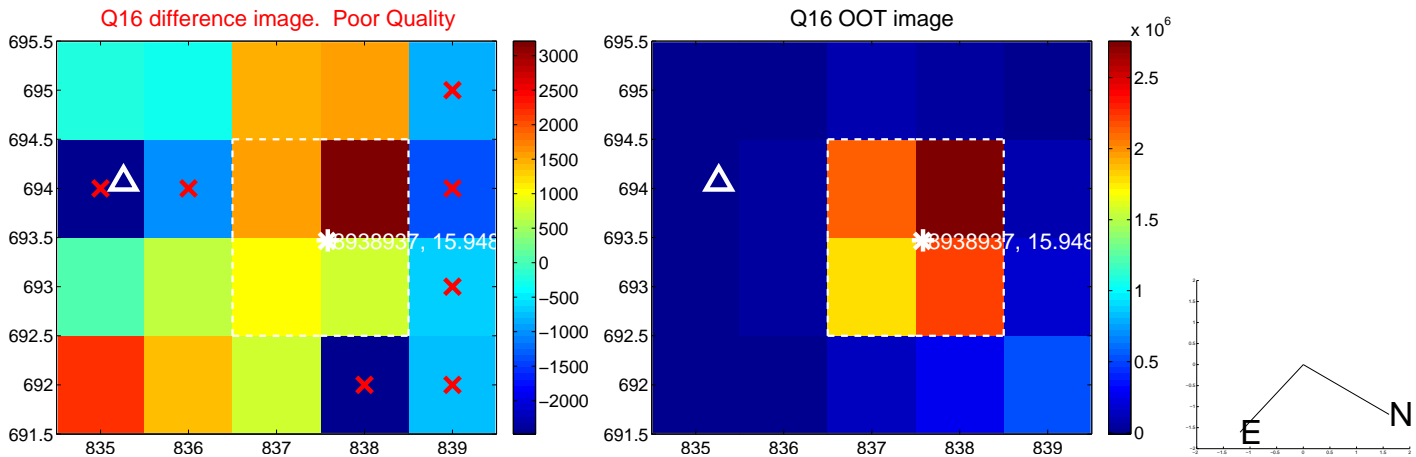
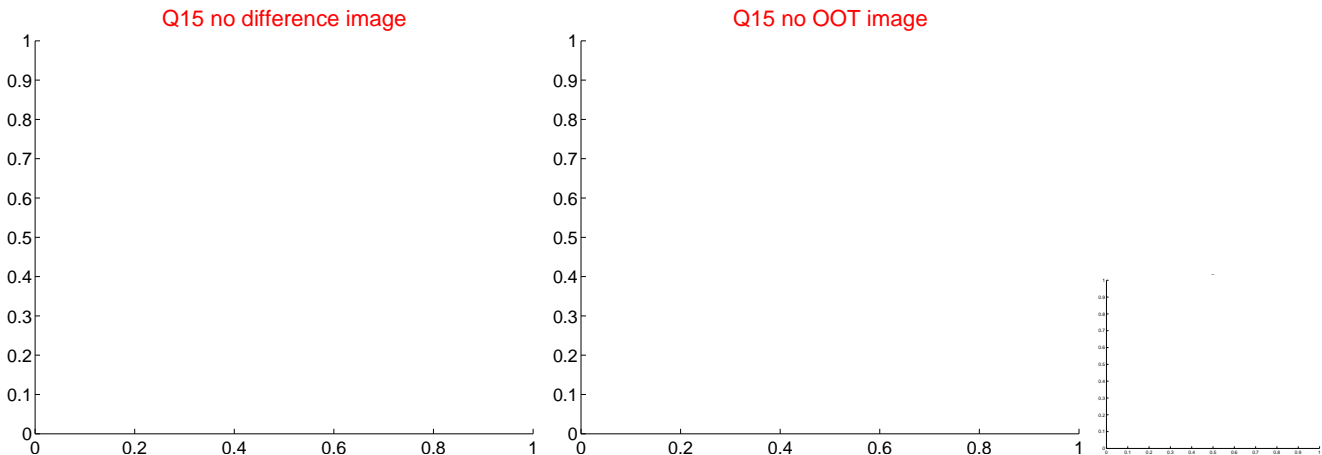
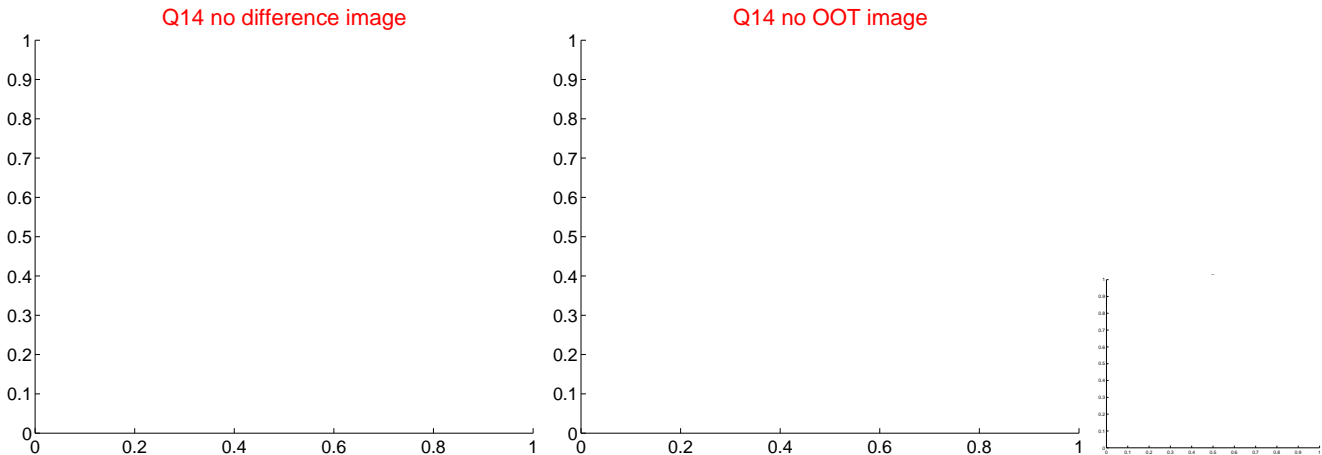
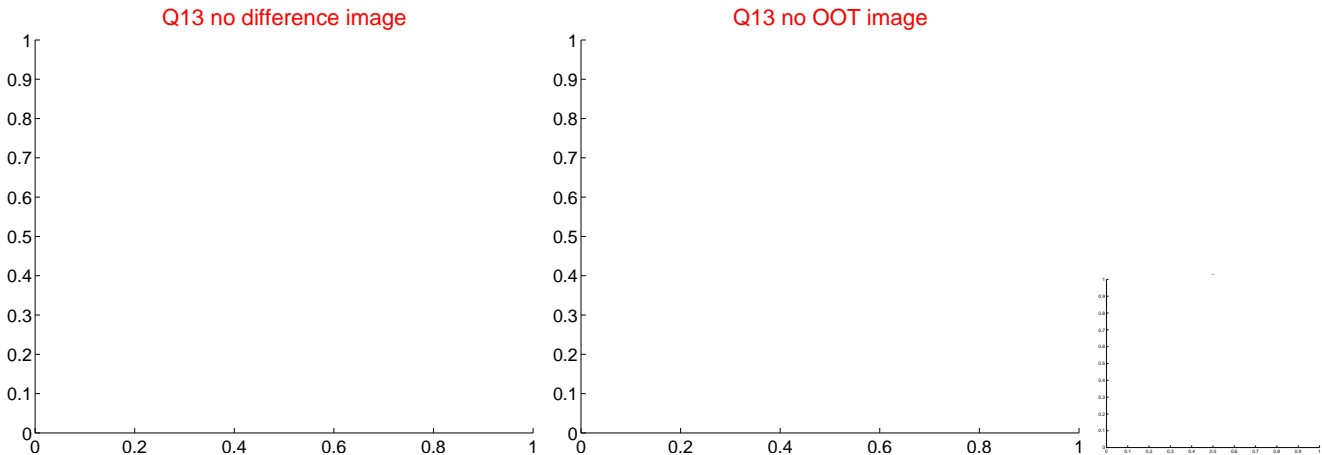
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



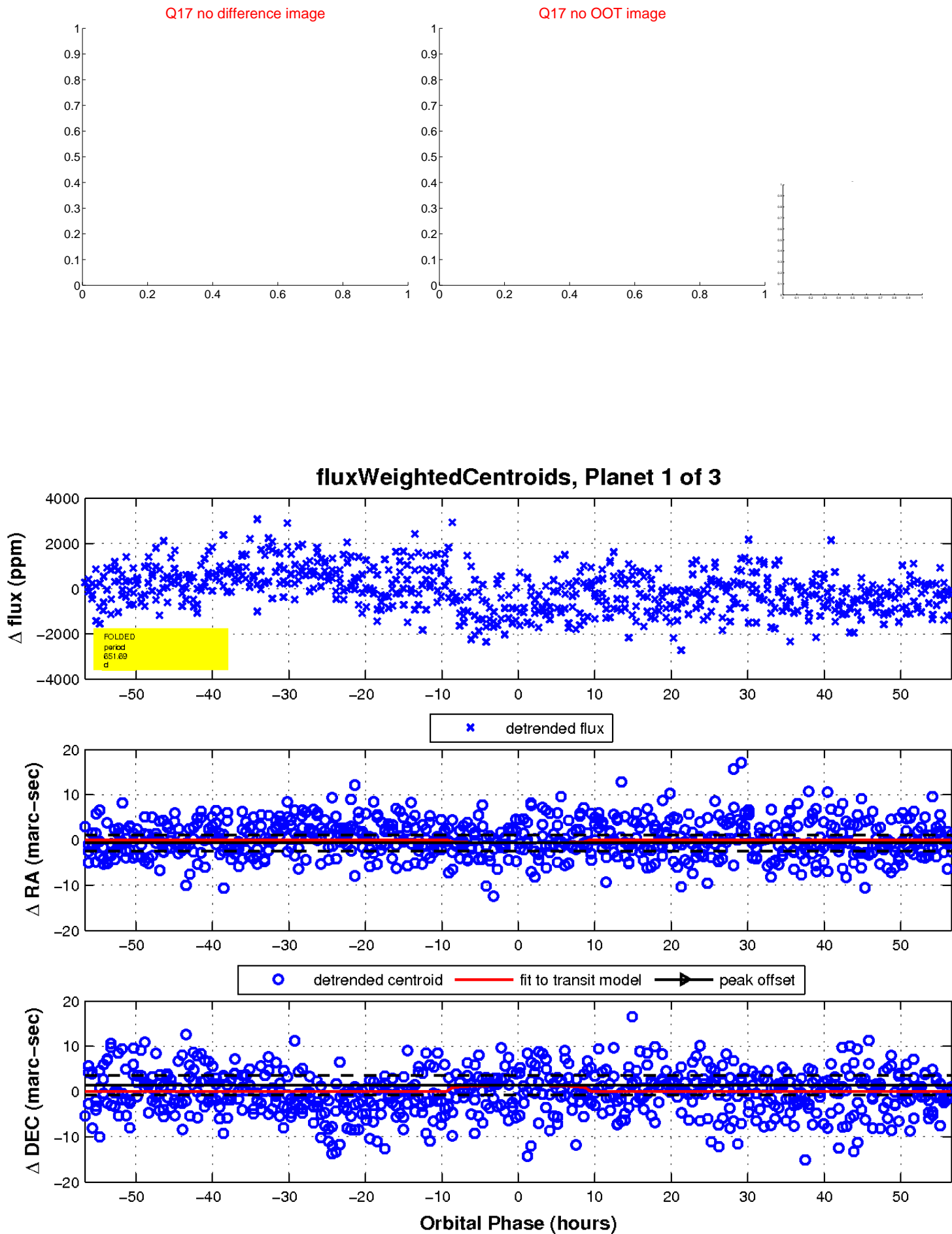
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

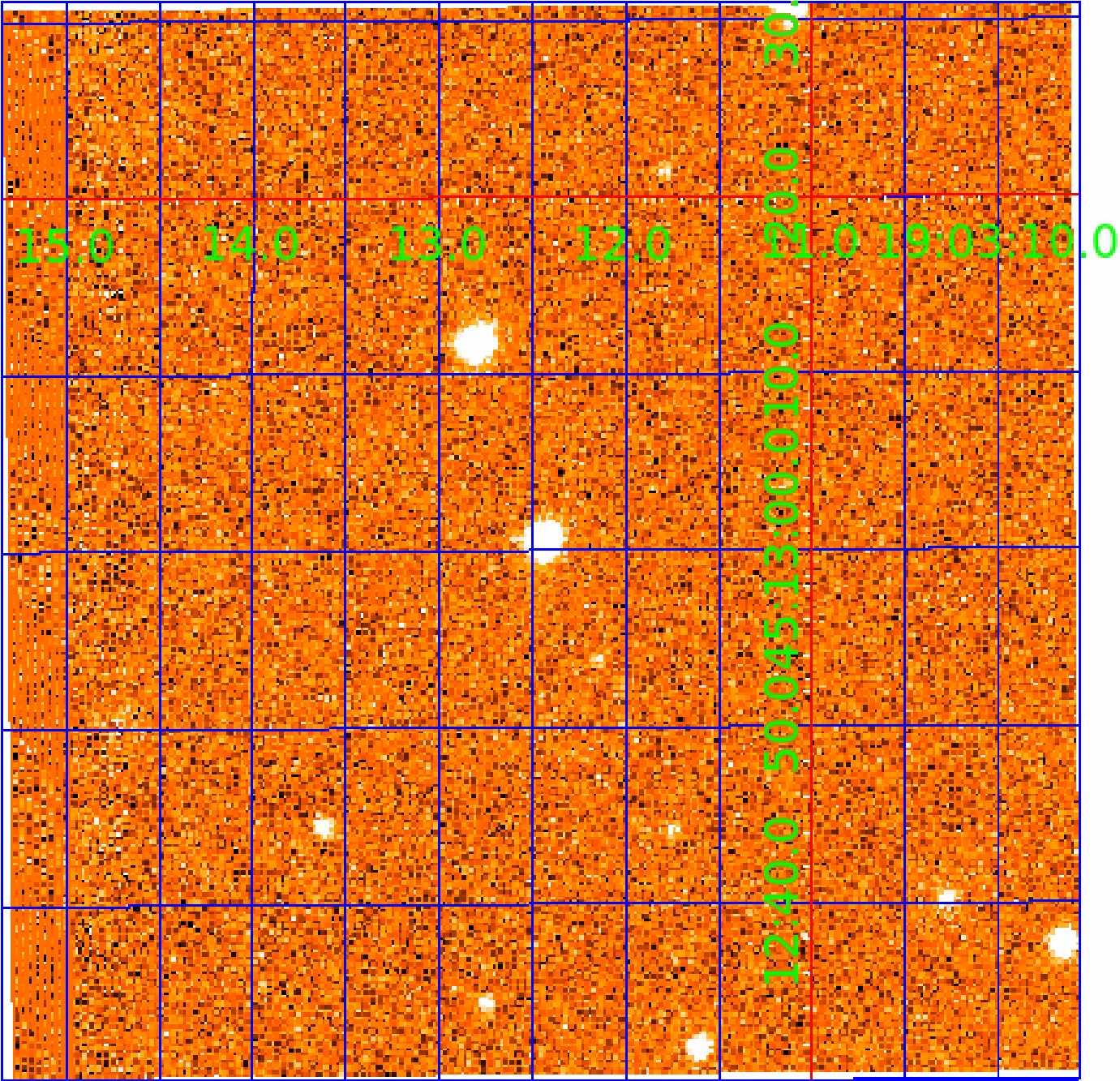


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008938937

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})
008938937-01	OBS	No	651.685871	187.863457	1154.4	18.889	10.3	10.3	0.86	5591	2.95	0.30
008938937-02	OBS	No	370.479091	233.901861	1165.5	16.804	8.0	8.1	0.86	5591	3.54	0.65
008938937-03	OBS	4758.01	37.108743	166.233019	386.3	4.361	7.9	8.4	0.86	5591	1.81	13.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008938937-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008938937-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008938937-03	OBS	FP	0.41	1	0	0	0	MOD_NONUNIQ_ALT

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 008938937-02

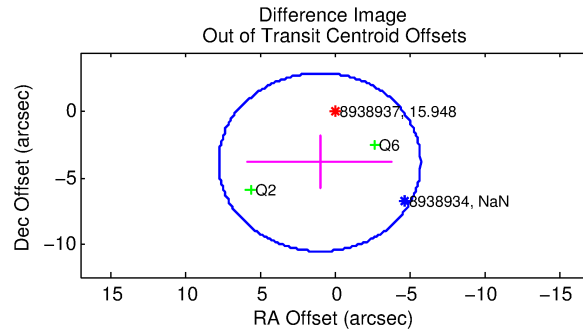
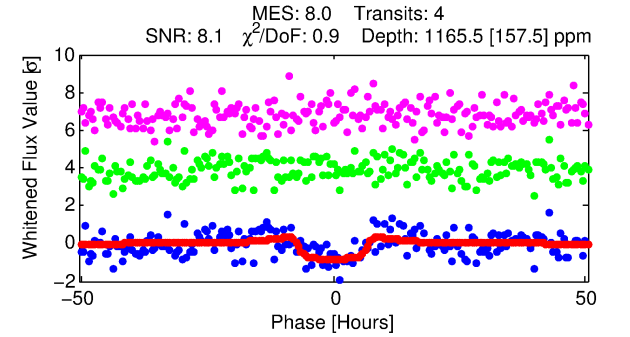
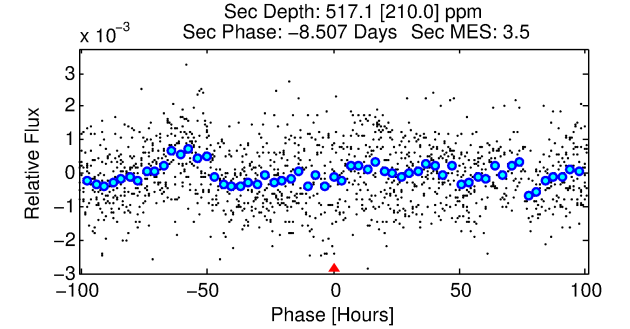
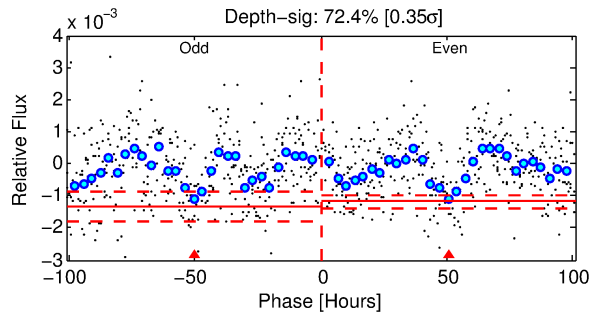
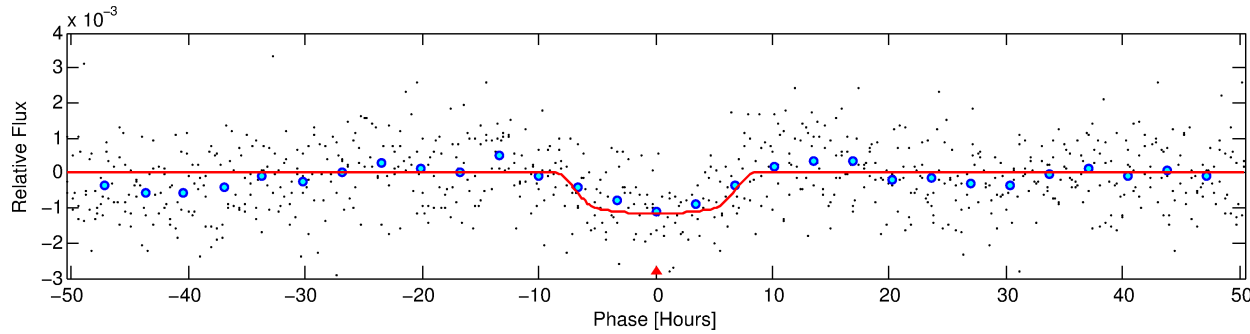
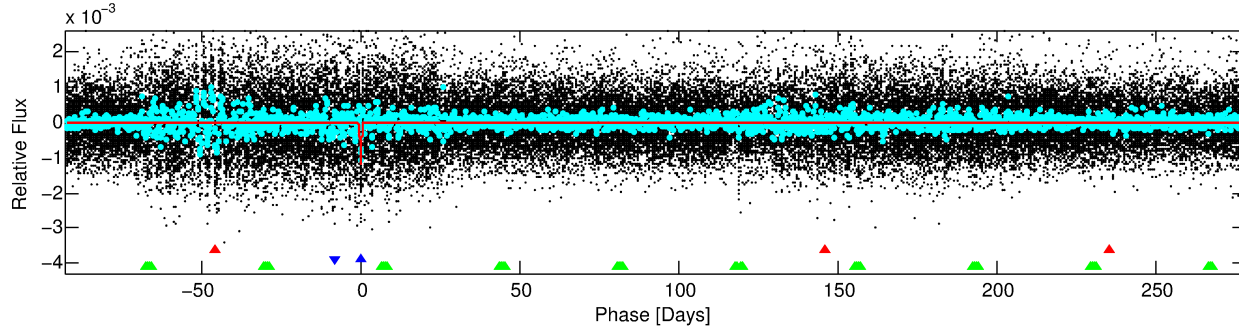
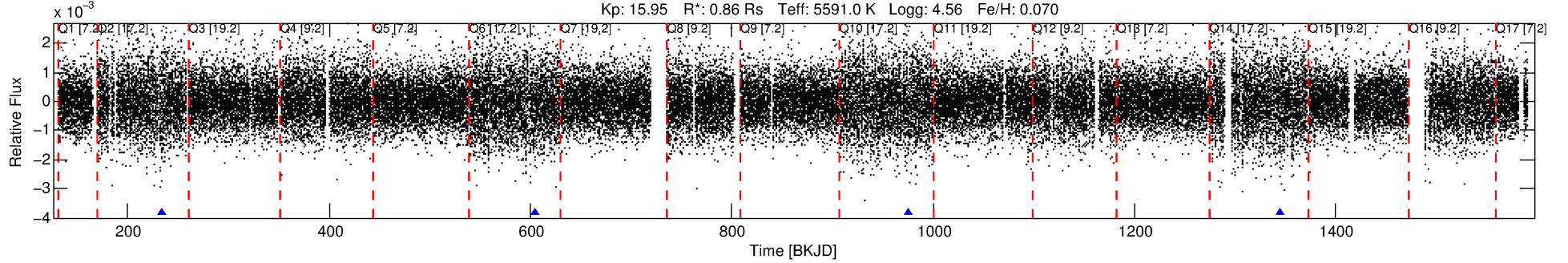
No Significant Match Found

DV One-Page Summary

KIC: 8938937 Candidate: 2 of 3 Period: 370.479 d

KOI: K04758 Corr: No Ephemeris Match

Kp: 15.95 R*: 0.86 Rs Teff: 5591.0 K Logg: 4.56 Fe/H: 0.070



DV Fit Results:

Period = 370.47909 [0.01539] d
Epoch = 233.9019 [0.0271] BKJD
Rp/R* = 0.0377 [0.0041]
a/R* = 85.29 [27.56]
b = 0.91 [0.07]
Seff = 0.64 [0.23]
Teq = 229 [20] K
Rp = 3.54 [0.98] Re
a = 1.0020 [0.2194] AU
Ag = 22824.19 [12853.27] [1.78σ]
Teff = 4343 [521] K [7.89σ]

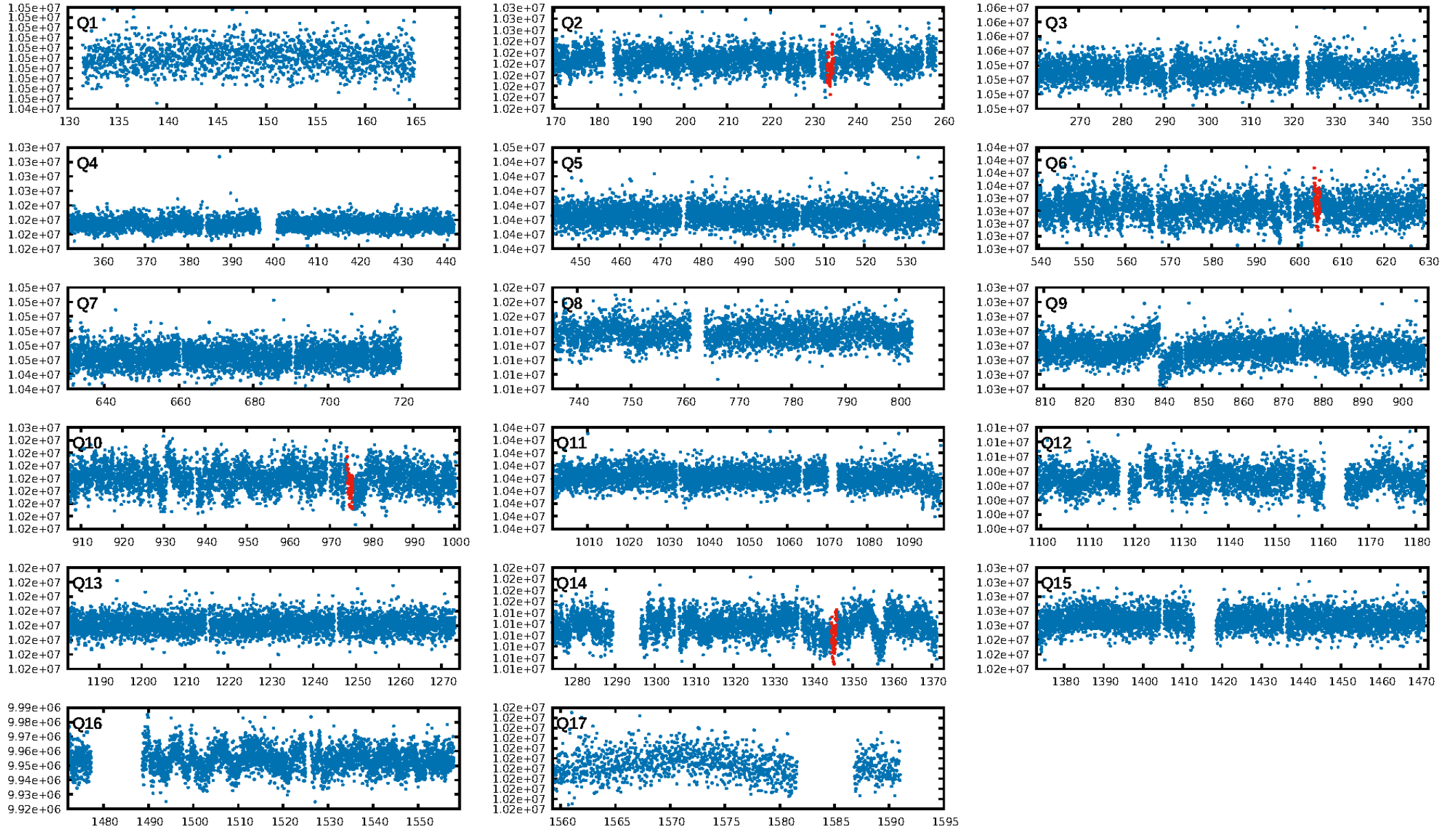
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [460.87σ]
LongPeriod-sig: 100.0% [266.95σ]
ModelChiSquare2-sig: 34.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.95e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -3.431
Centroid-sig: 26.8%
Centroid-so: 1.617 arcsec [0.72σ]
OotOffset-rm: 3.941 arcsec [1.75σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-rm: 3.908 arcsec [1.55σ]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

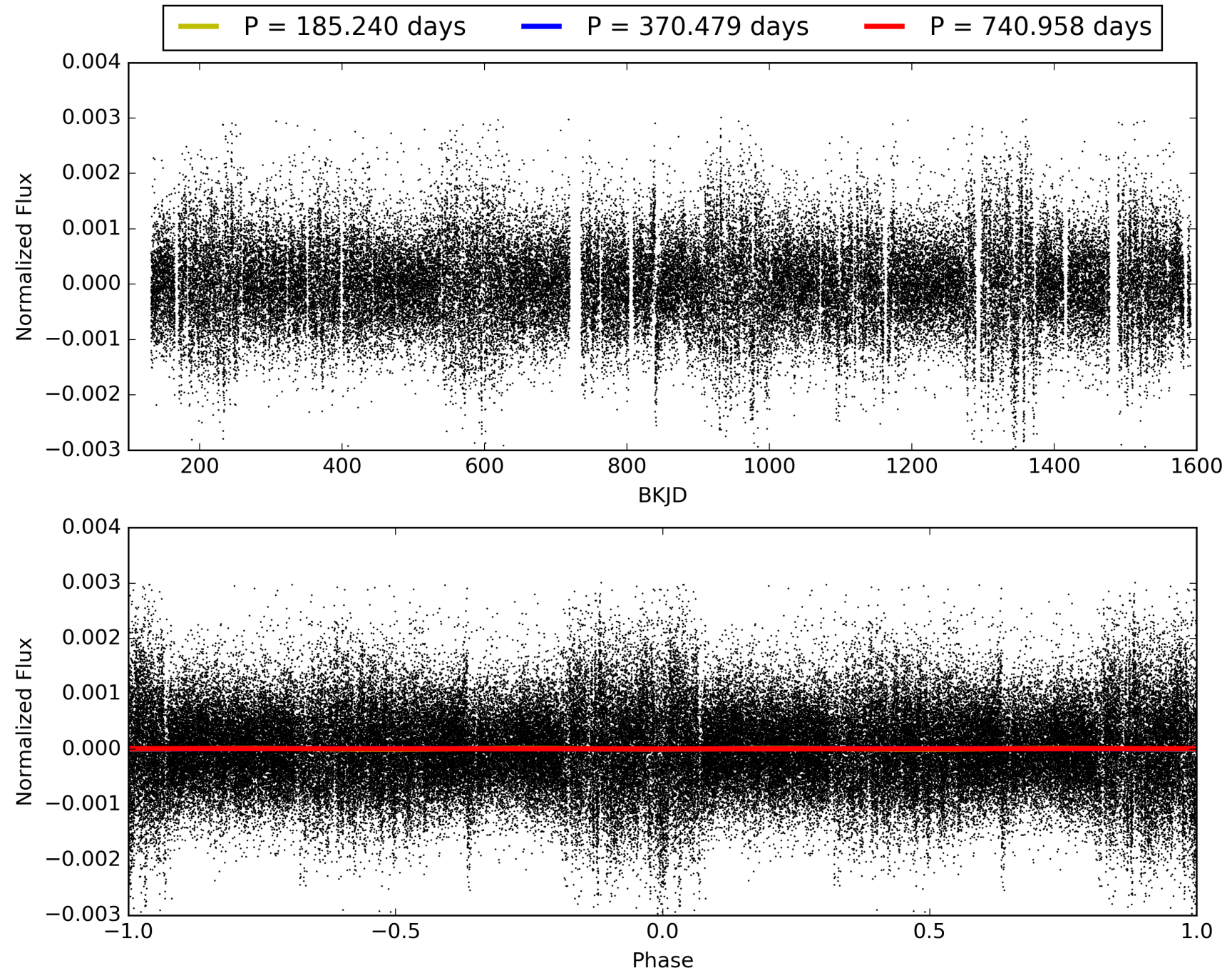
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:33:49 Z

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

TCE 008938937-02, PDC Light Curves

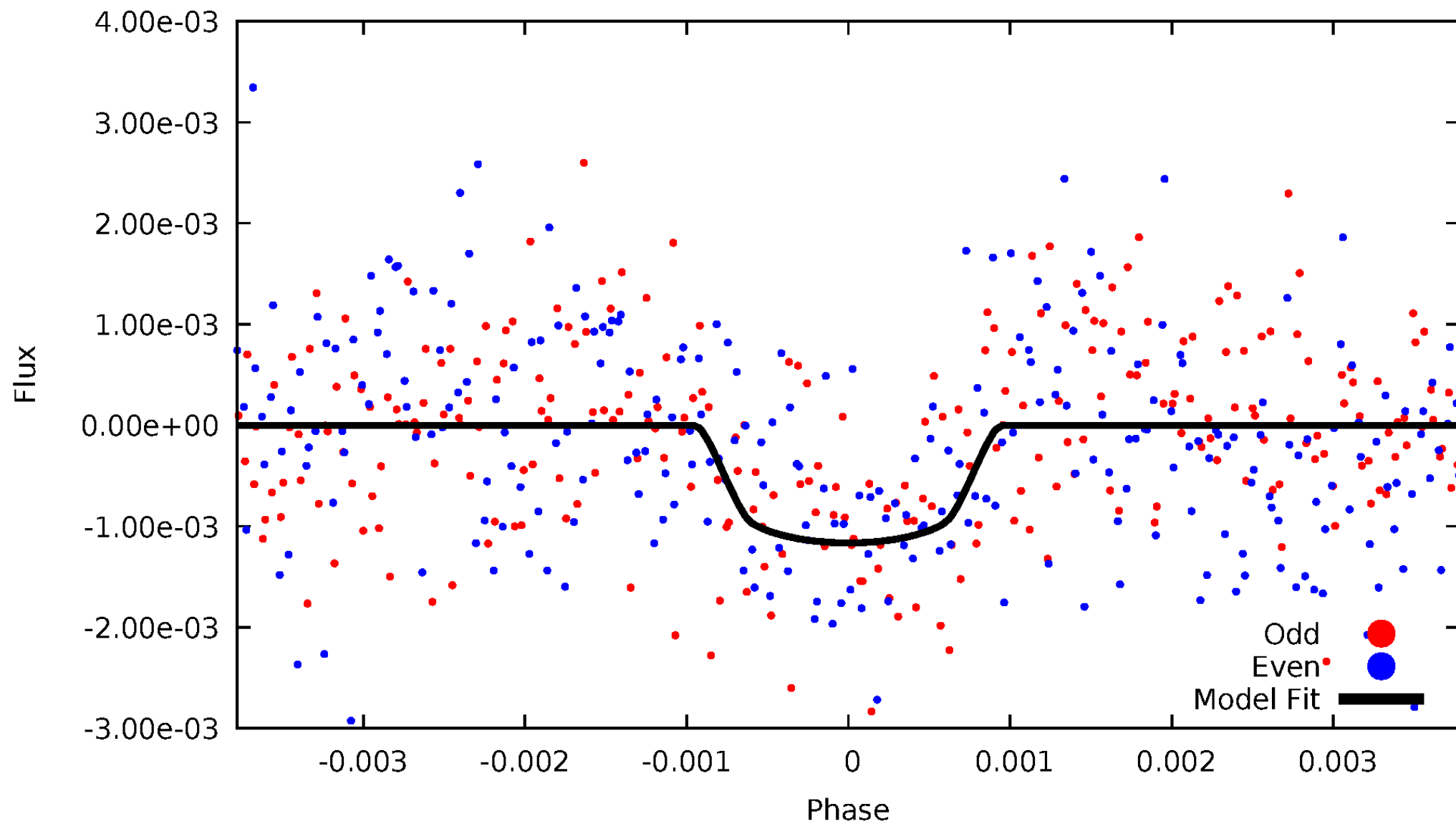


TCE 008938937-02



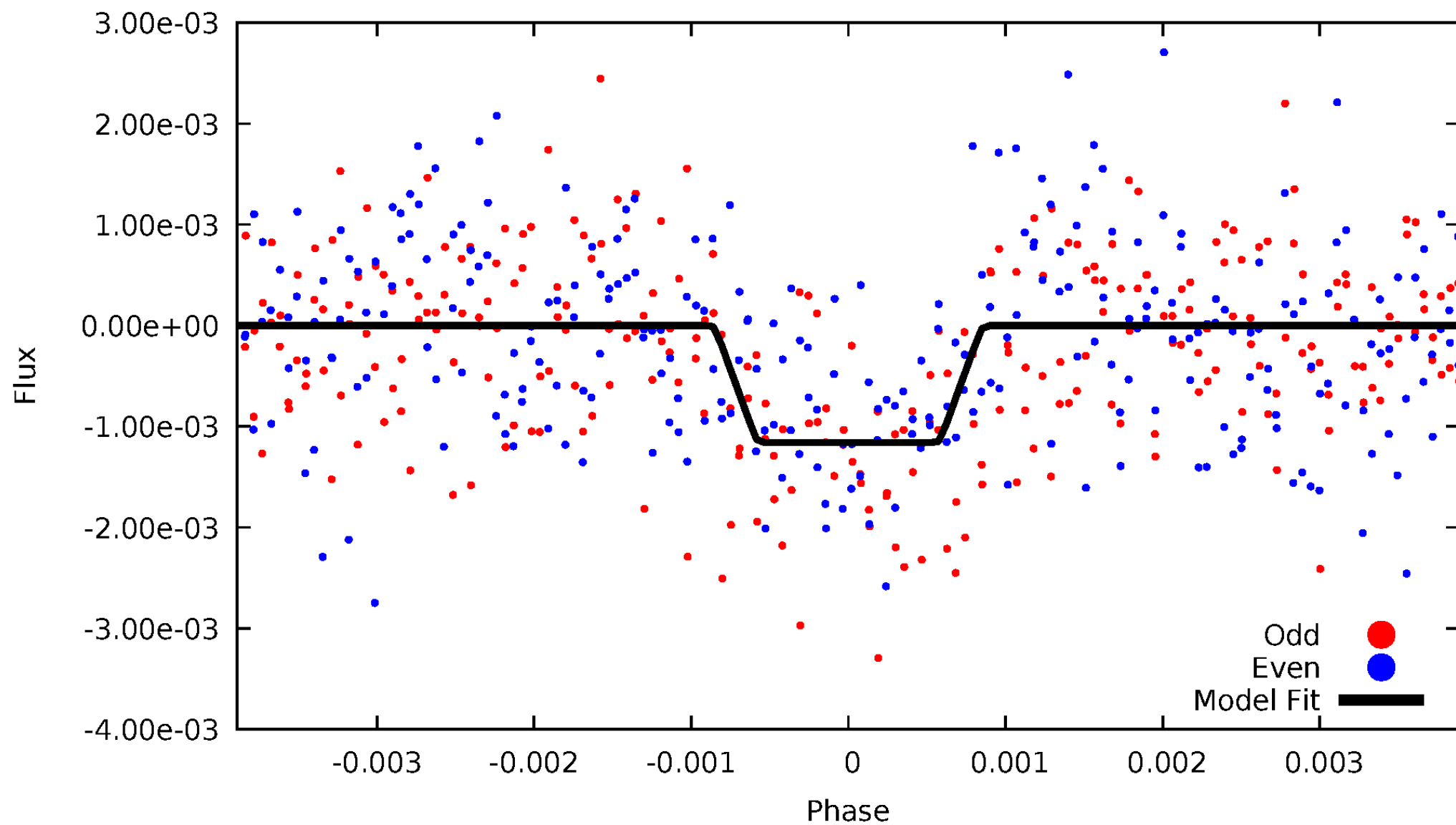
DV Odd/Even

TCE 008938937-02



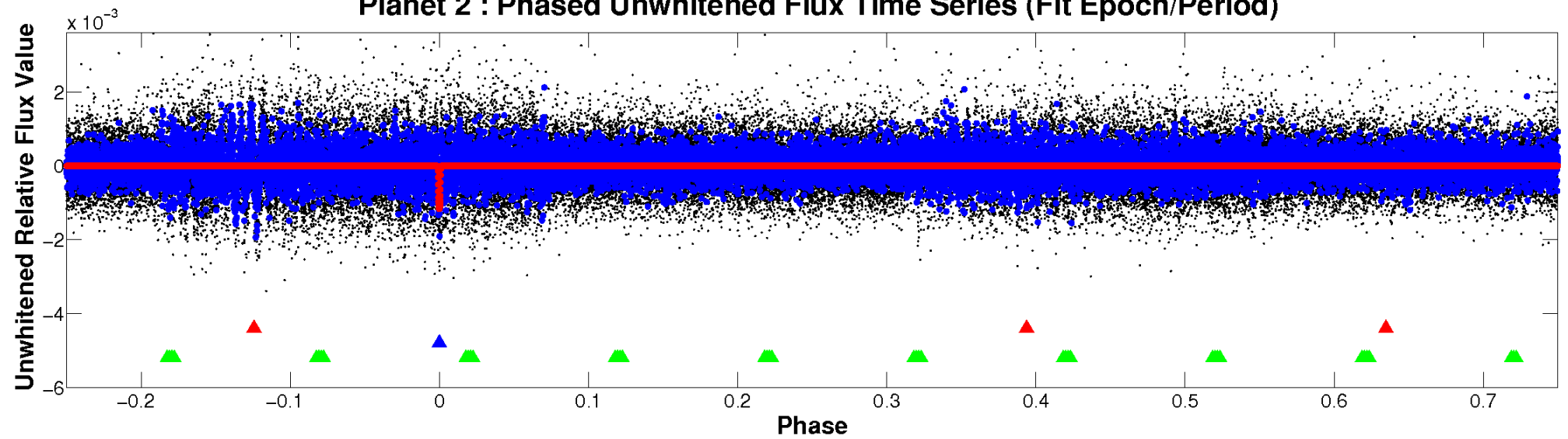
ALT Odd/Even

TCE 008938937-02

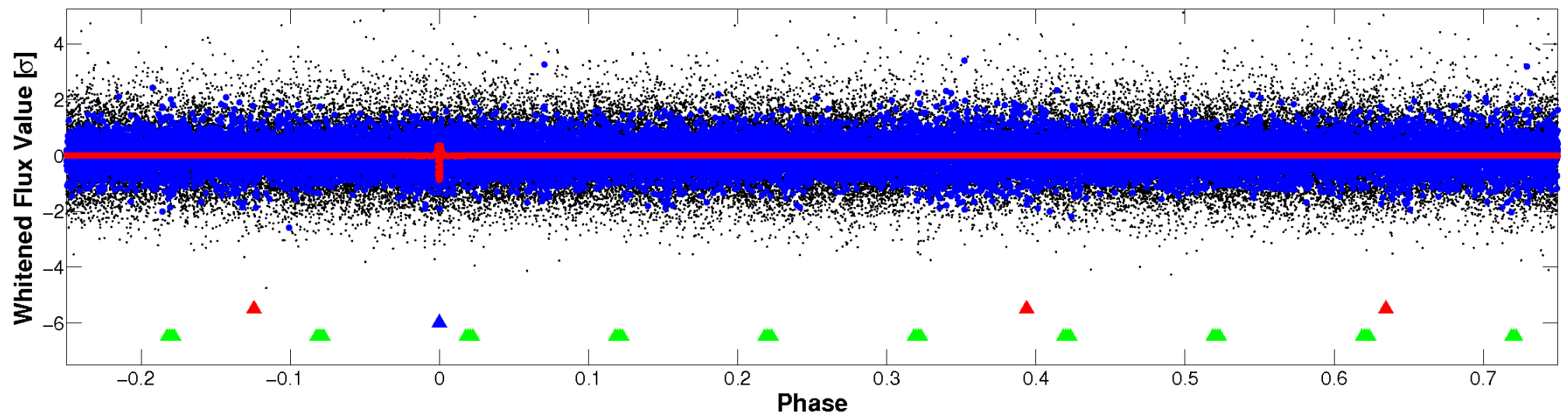


Non-Whitened Vs. Whitened Light Curve

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

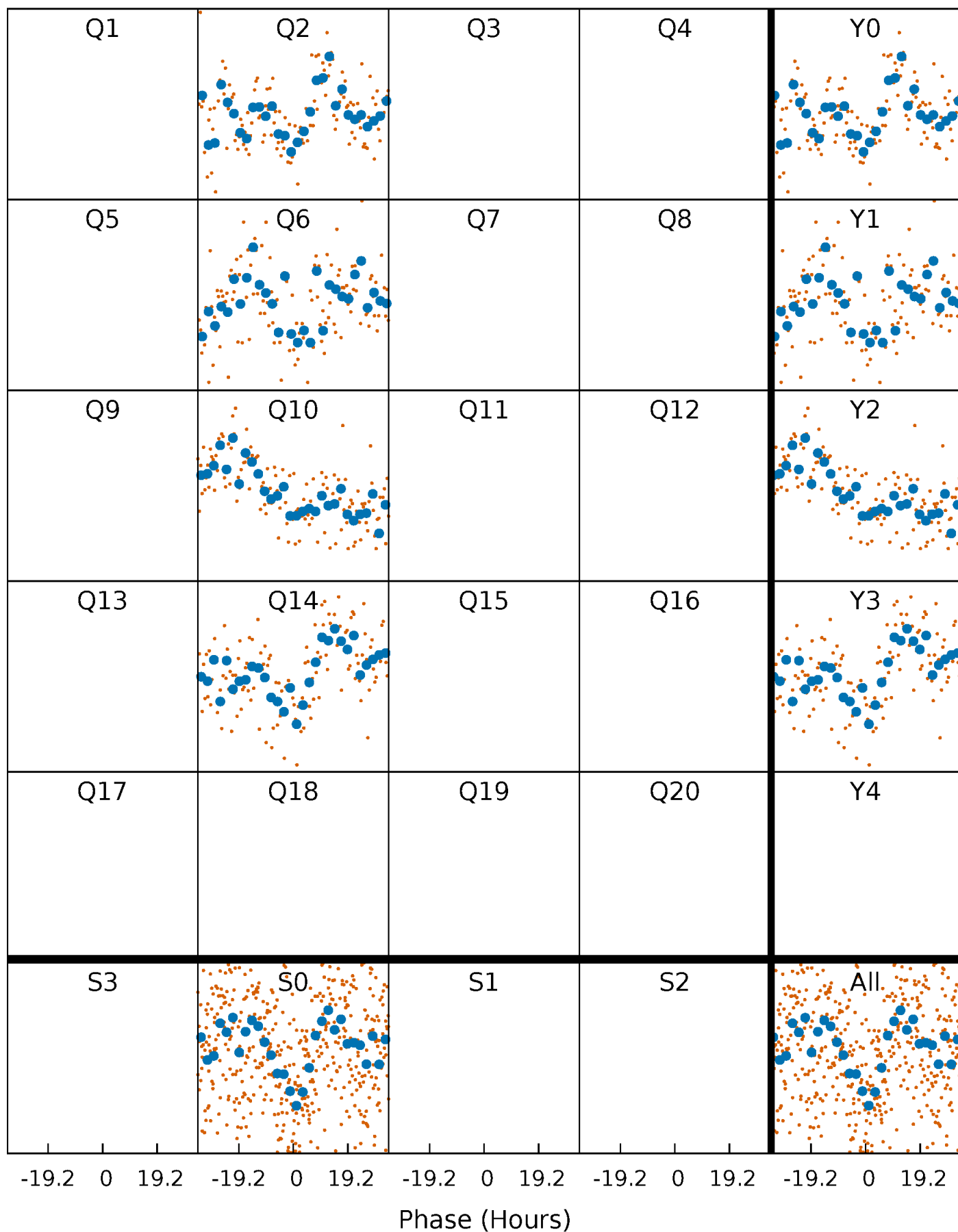


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



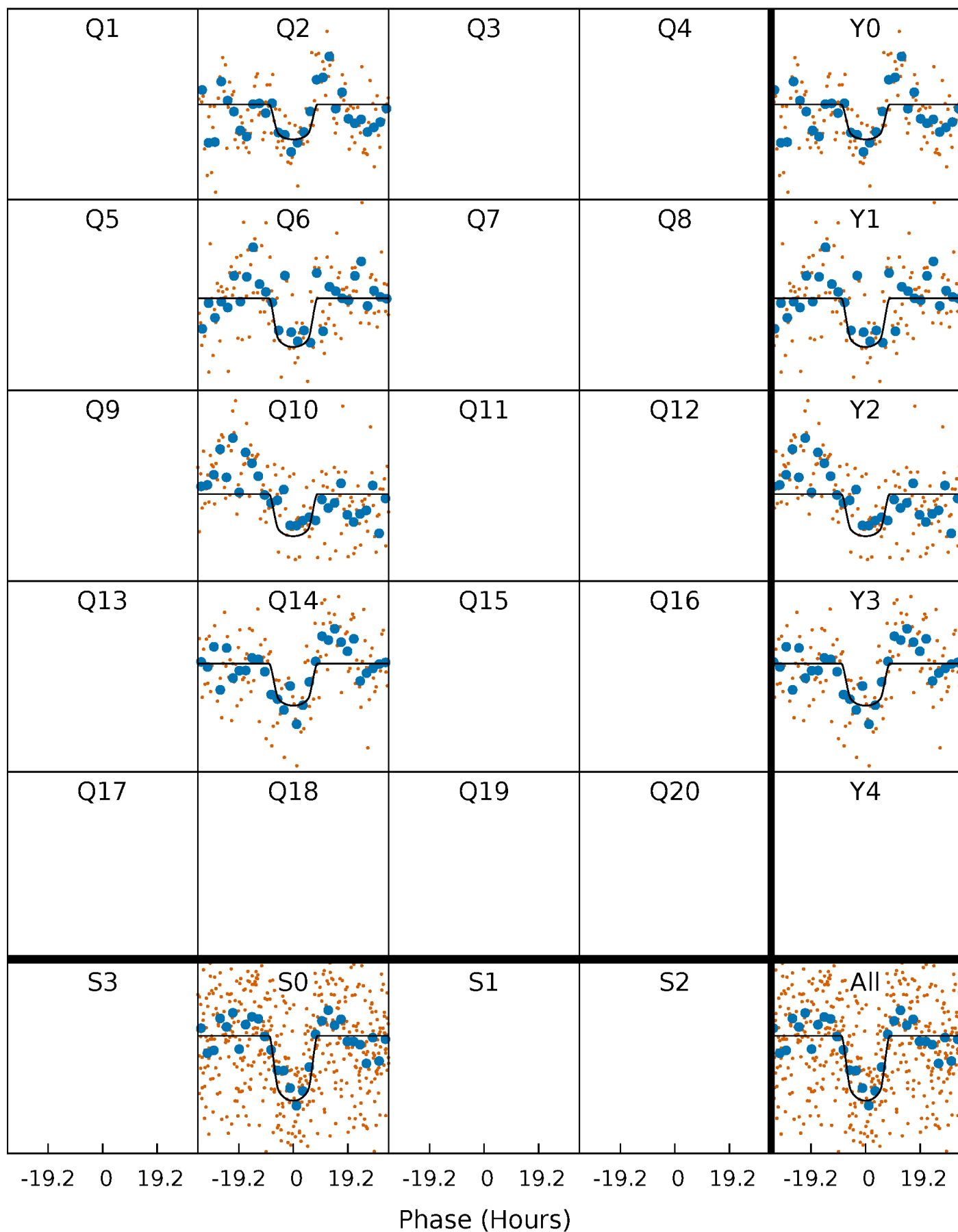
PDC Quarter-Phased Transit Curves

TCE 008938937-02 $P=370.479091$ Days $T_0=233.901861$ (BKJD)



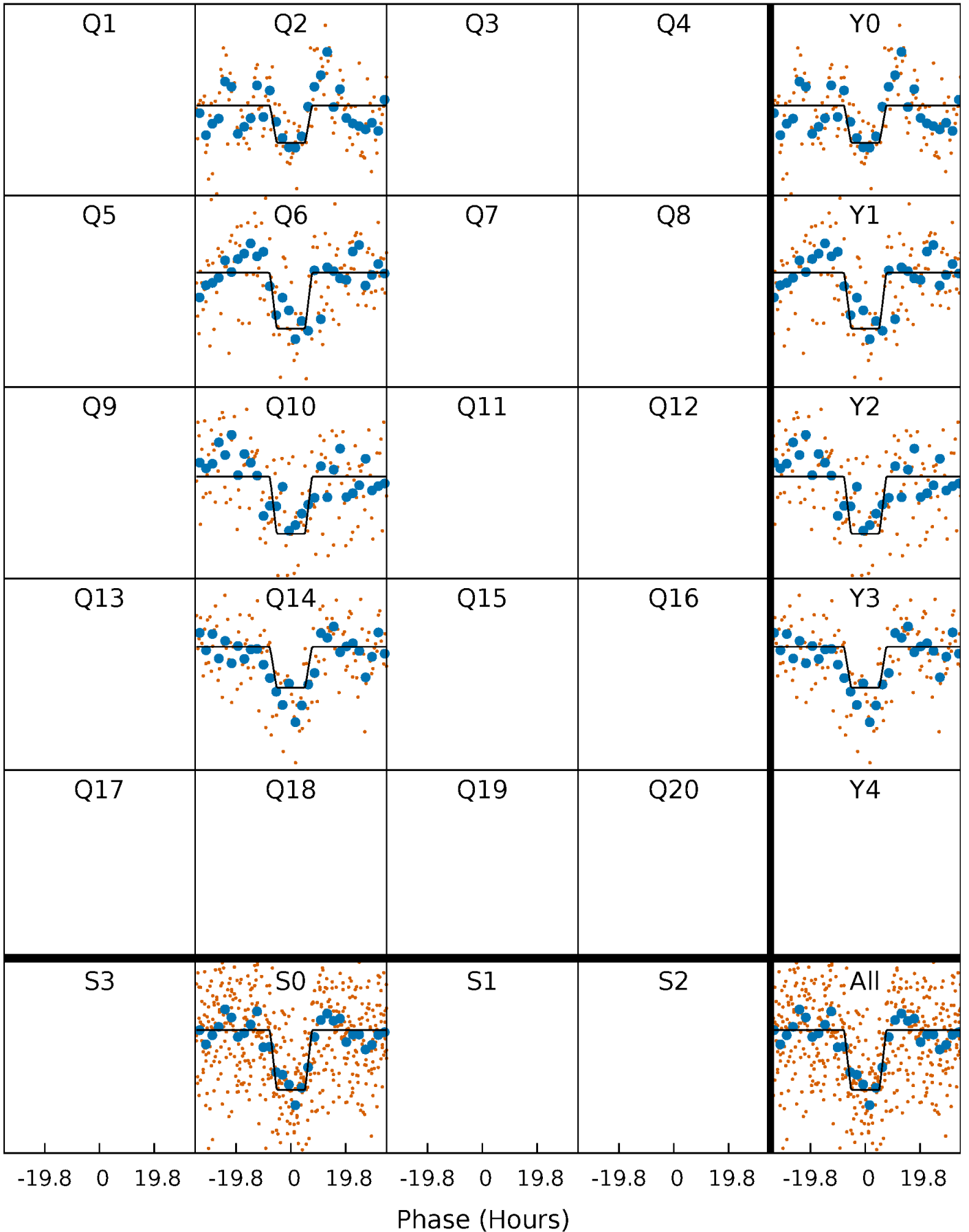
DV Quarter-Phased Transit Curves

TCE 008938937-02 P=370.479091 Days $T_0=233.901861$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

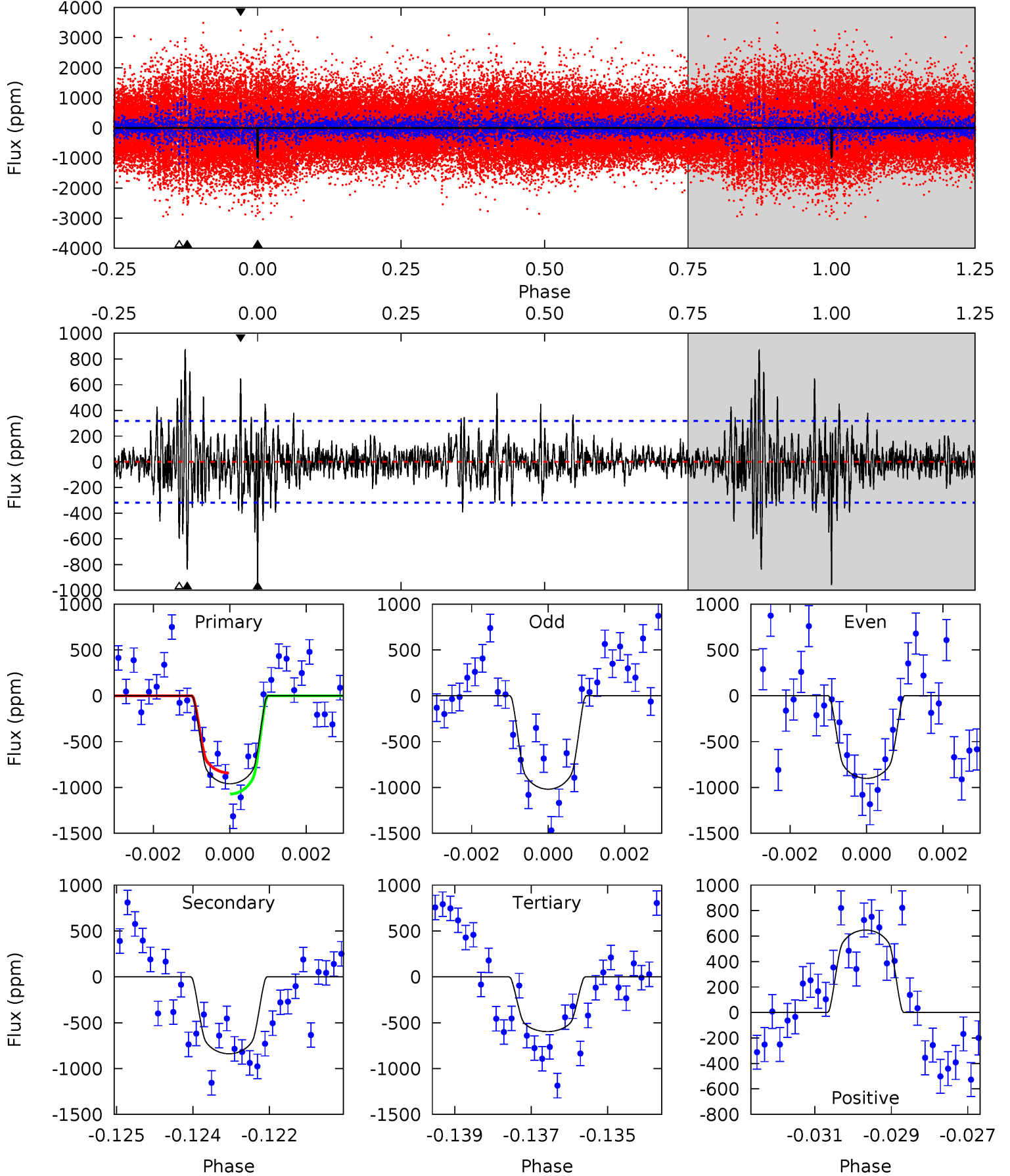
TCE 008938937-02 $P=370.480876$ Days $T_0=233.878975$ (BKJD)



DV Model-Shift Uniqueness Test

008938937-02, P = 370.479091 Days, E = 233.901861 Days

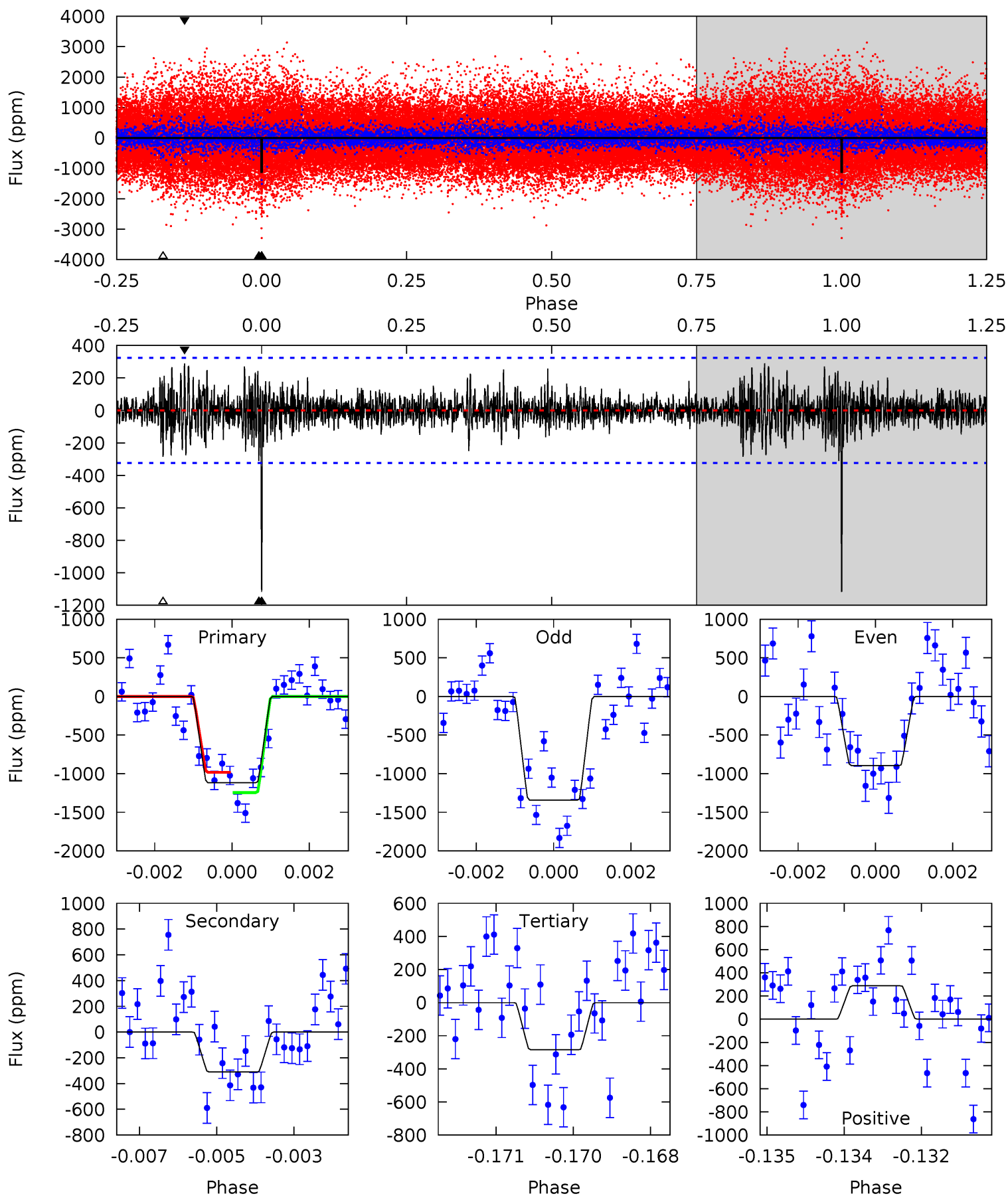
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	14.1	10.0	10.9	5.33	3.10	2.19	6.08	5.24	4.05	3.21	1.00	0.97	0.48	1.92



Alt Model-Shift Uniqueness Test

008938937-02, $P = 370.480876$ Days, $E = 233.878975$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	5.13	4.72	4.77	5.35	3.14	1.14	13.8	13.7	0.42	0.36	3.71	1.09	0.21	2.17



Stellar Parameters For KIC 008938937

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5591^{+169}_{-186}	$4.559^{+0.032}_{-0.179}$	$0.070^{+0.200}_{-0.300}$	$0.860^{+0.220}_{-0.073}$	$0.977^{+0.083}_{-0.125}$	$2.163^{+0.373}_{-1.023}$
	+3%/-3%	+1%/-4%	+286%/-429%	+26%/-8%	+8%/-13%	+17%/-47%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008938937-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-839 ± 60	$3.64^{+0.59}_{-0.48}$	326^{+19}_{-15}	4981^{+285}_{-264}	33549^{+11309}_{-8511}
Alt.	-310 ± 60	$3.33^{+0.56}_{-0.51}$	327^{+19}_{-16}	4235^{+319}_{-248}	14956^{+6301}_{-4548}

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

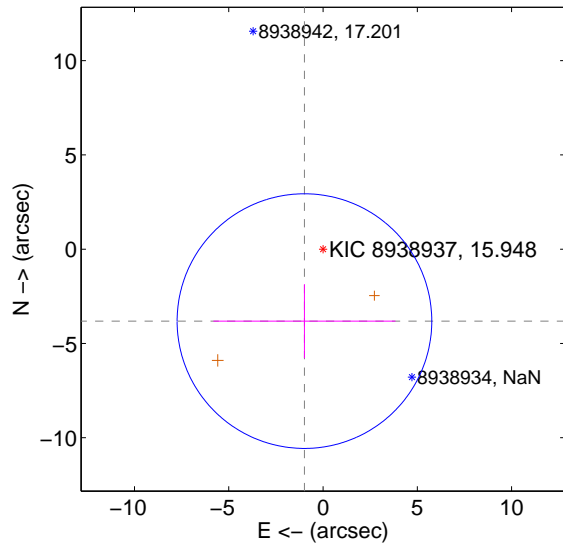
Supplemental centroid analysis for 008938937-02. Kepler magnitude: 15.95. Transit SNR 8.05

There are 0 quarters with good PRF difference image offsets

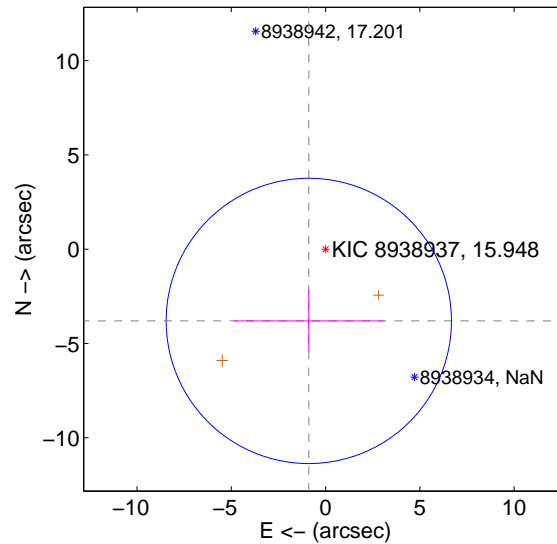
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.941 ± 2.251	1.75	0.986 ± 4.828	-3.816 ± 1.962
PRF-fit source offset from KIC position	3.908 ± 2.522	1.55	0.890 ± 3.973	-3.806 ± 1.662
photometric centroid source offset	1.62 ± 2.26	0.72	-0.47 ± 1.80	-1.55 ± 2.29

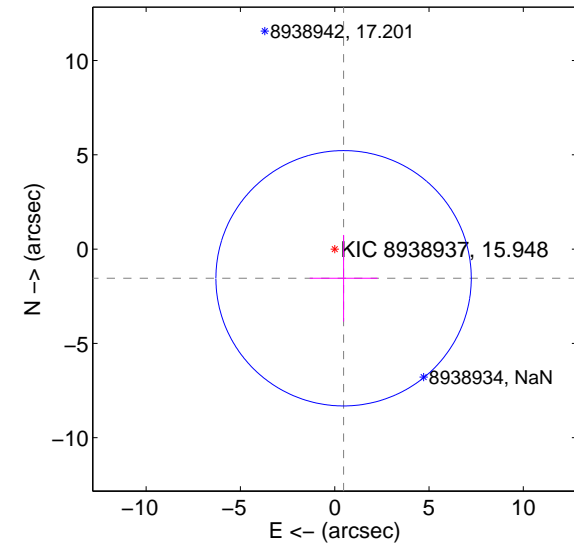
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

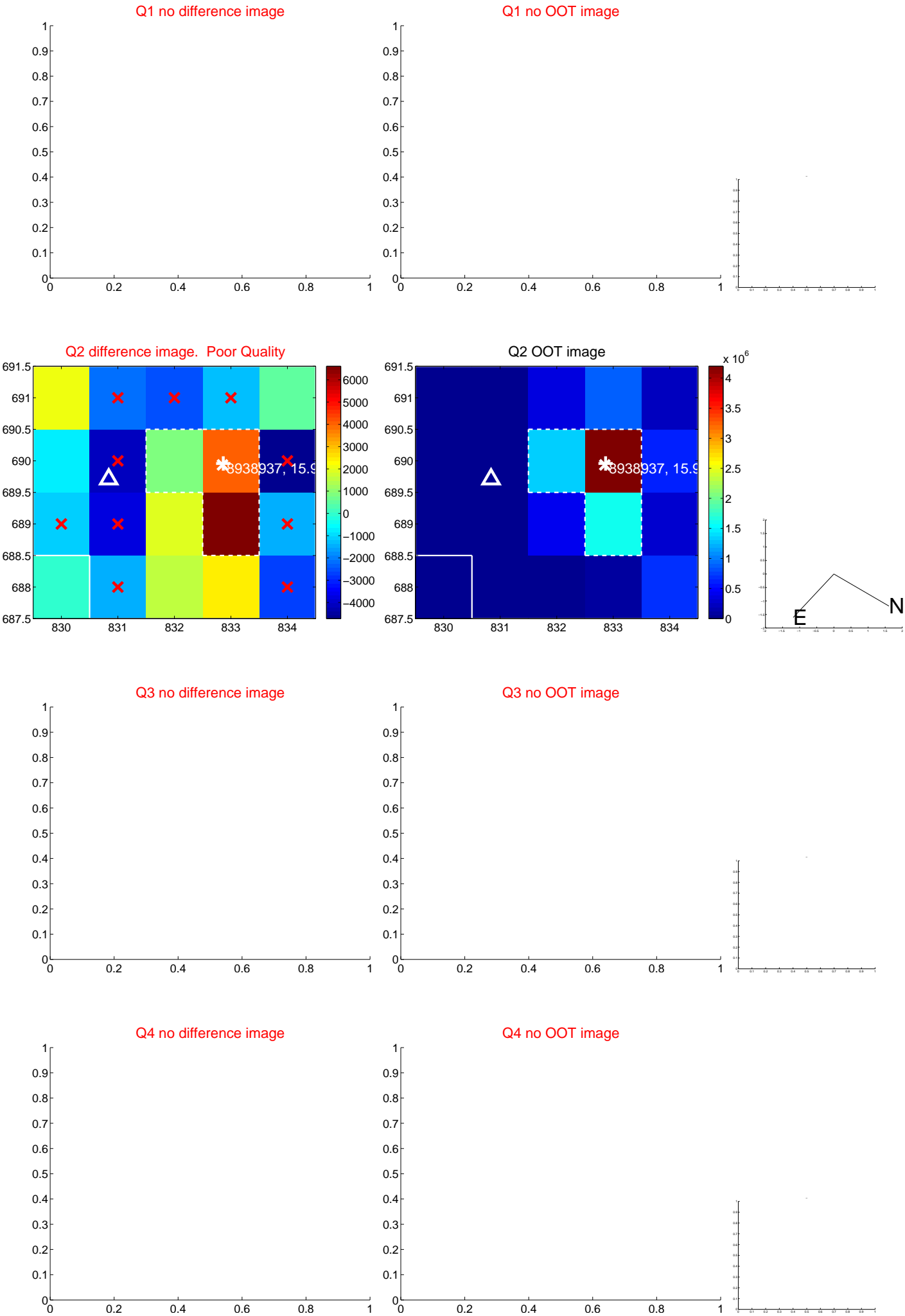


offset from photometric centroids

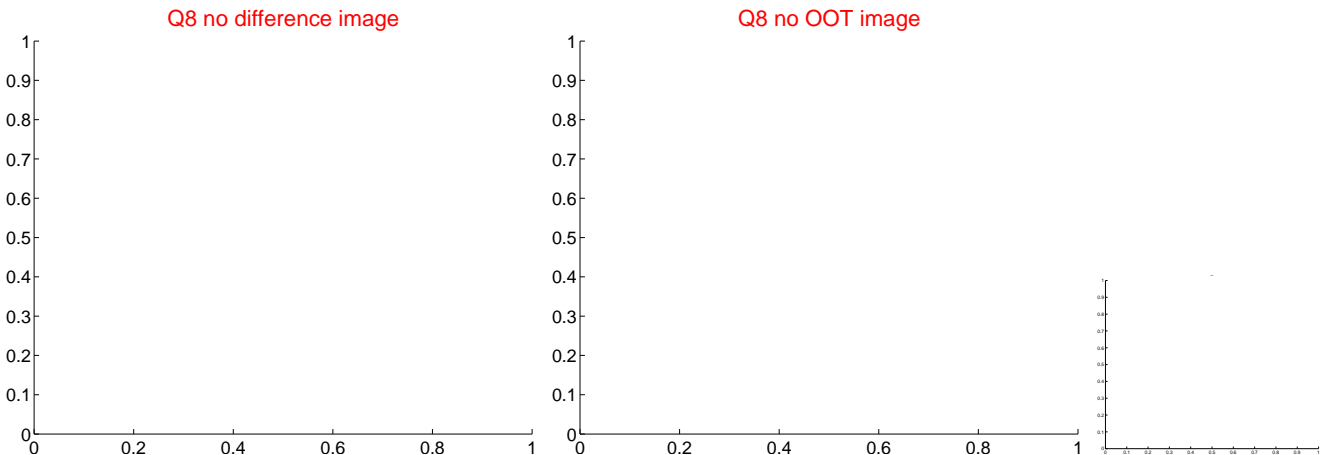
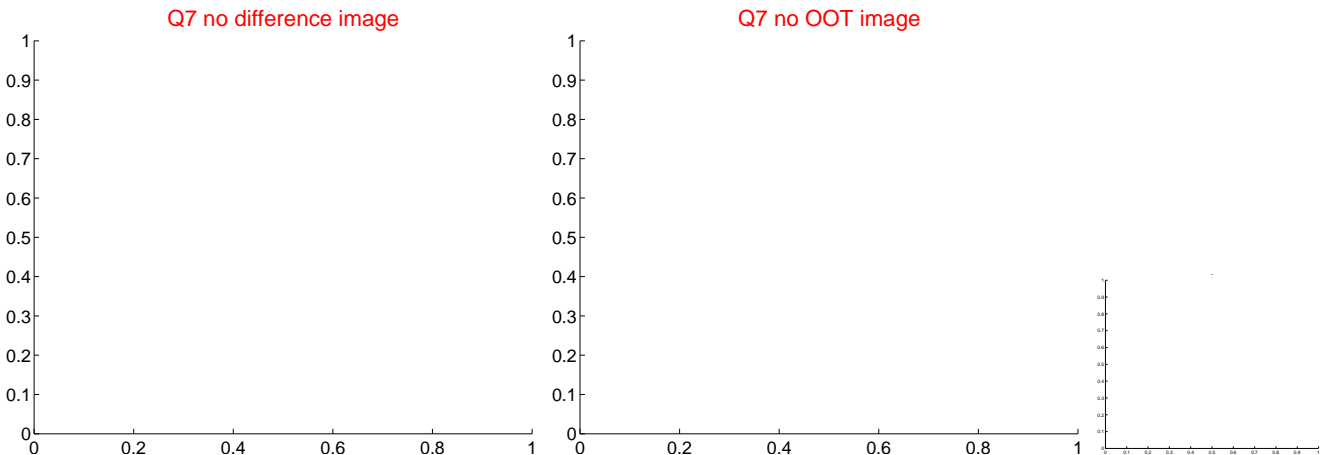
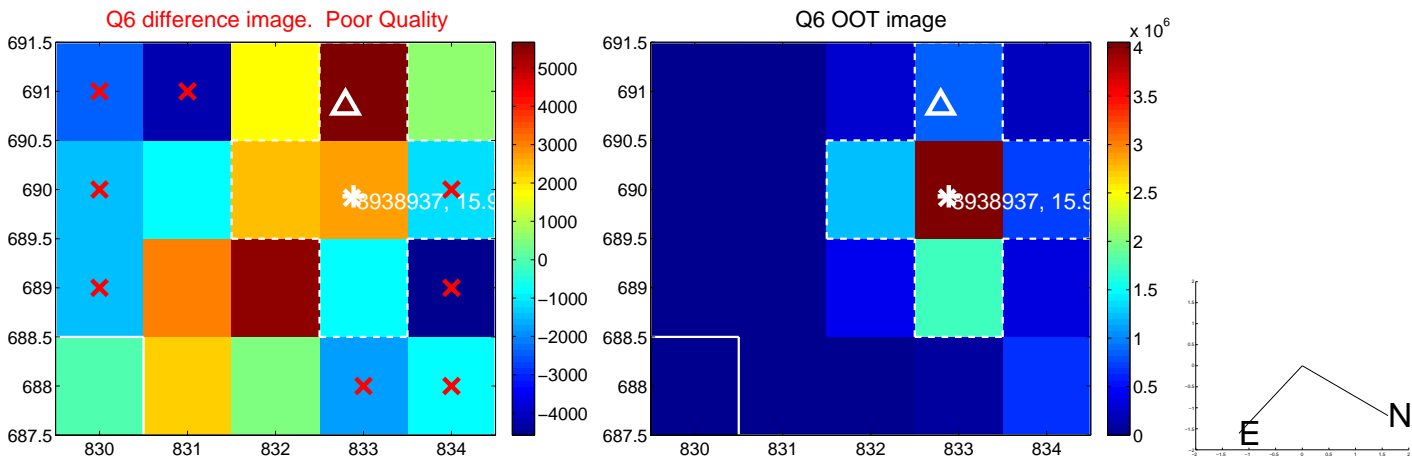
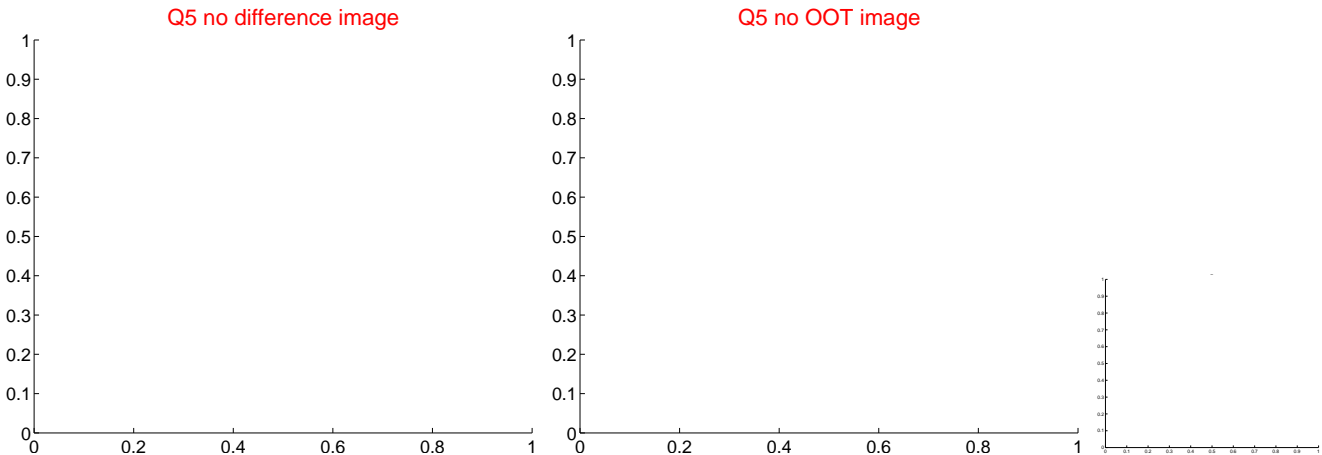


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

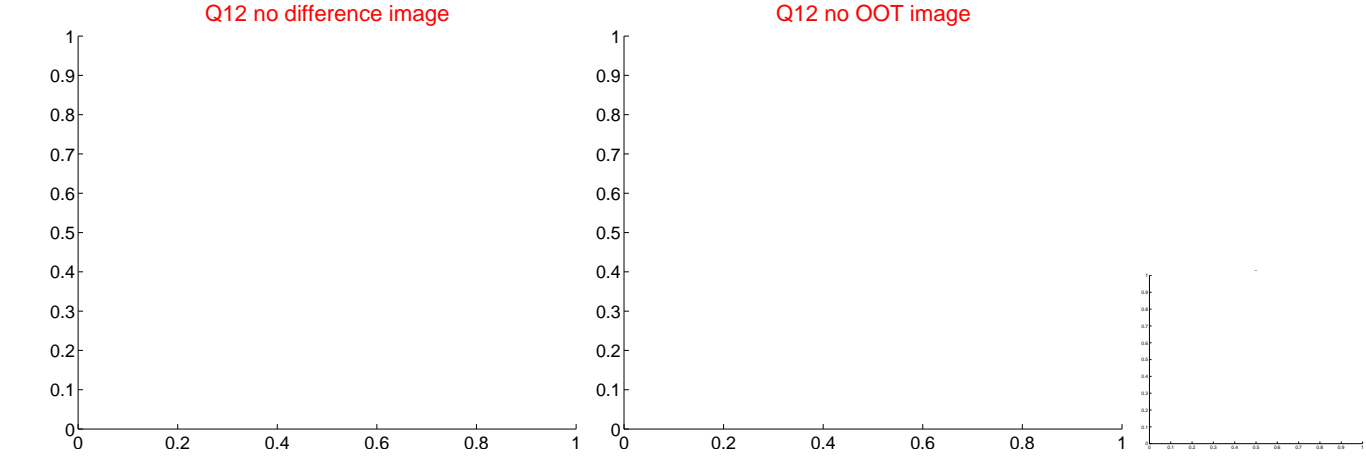
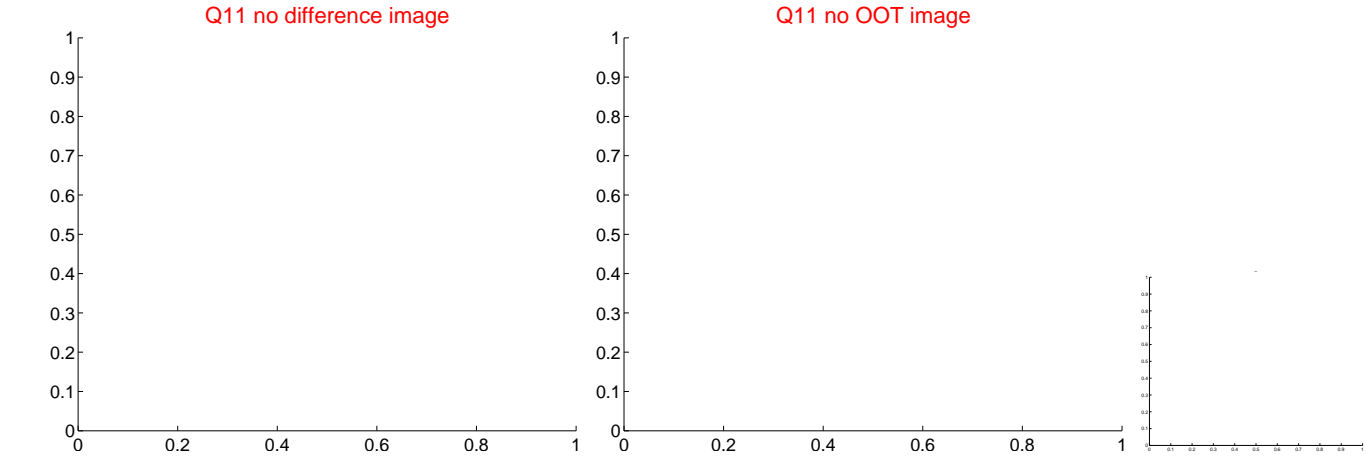
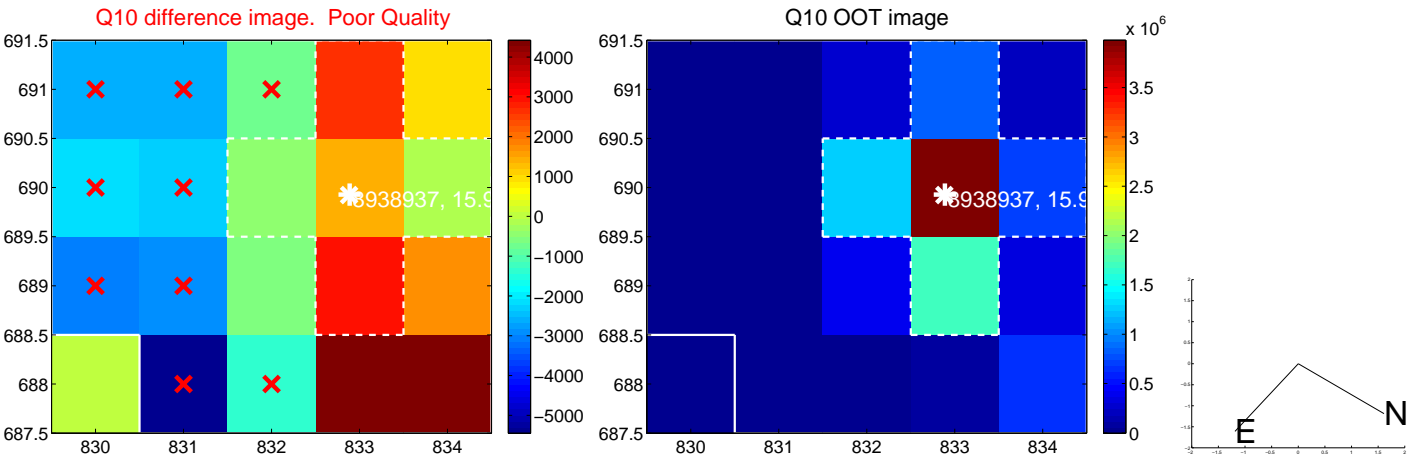
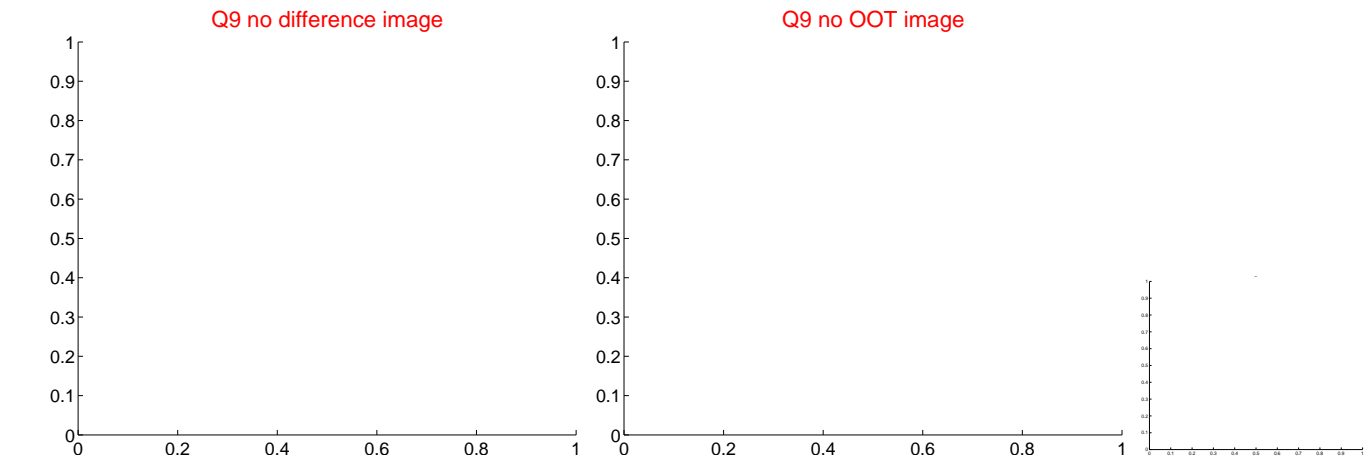
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



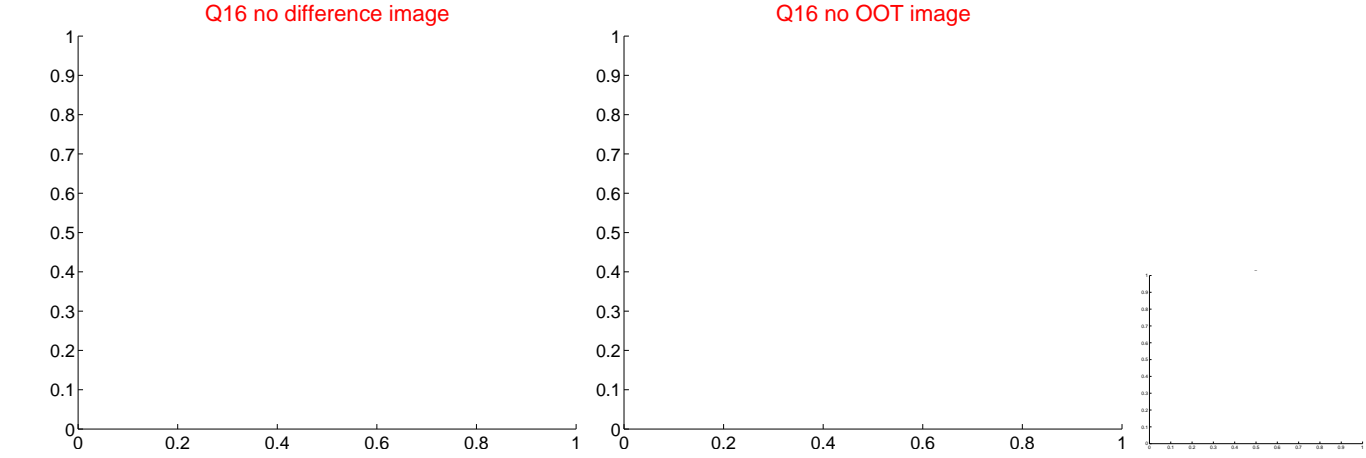
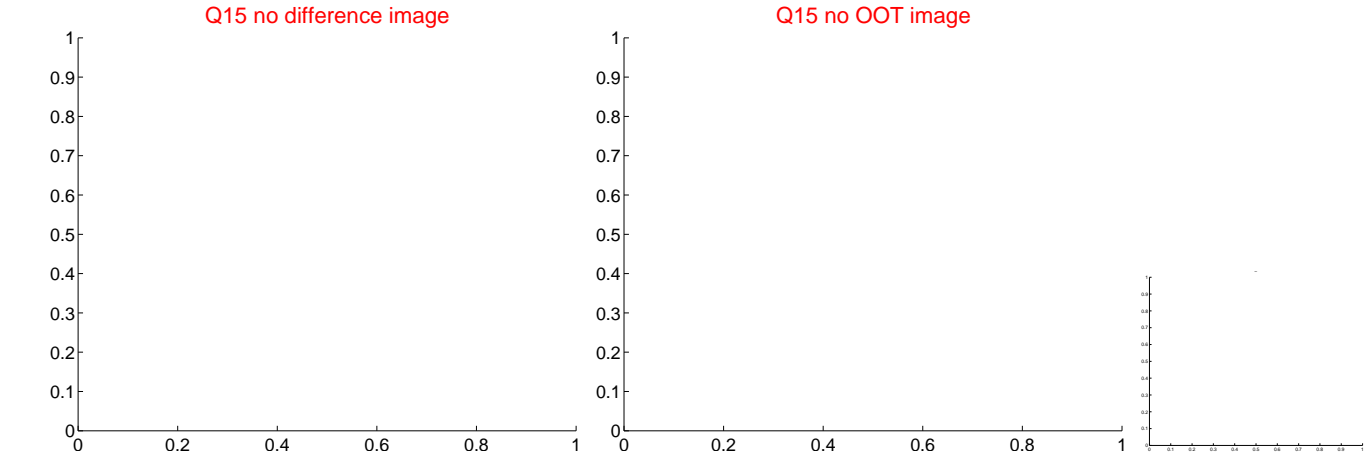
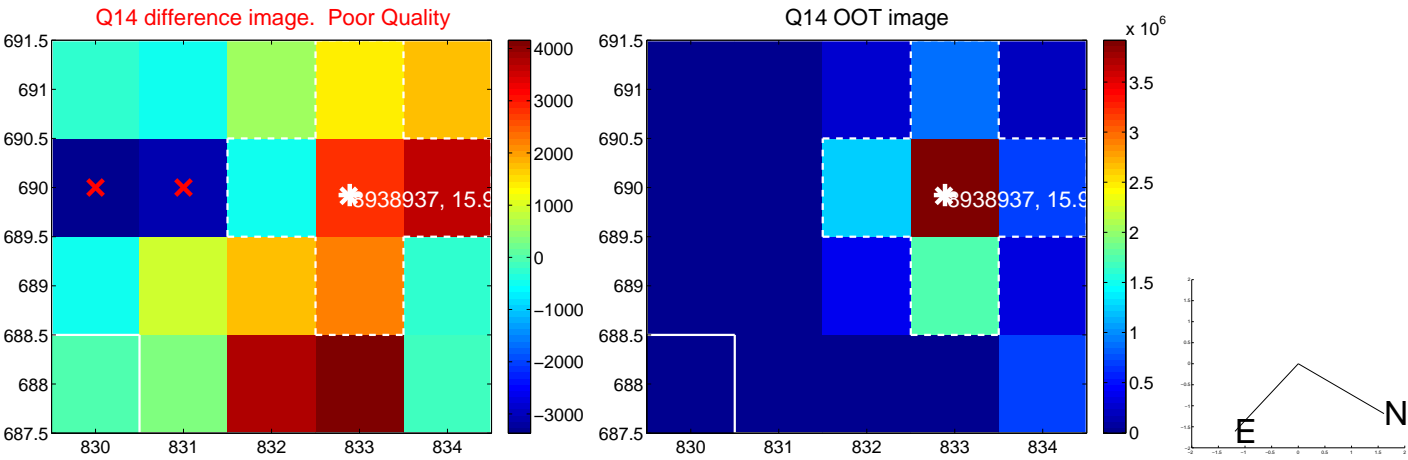
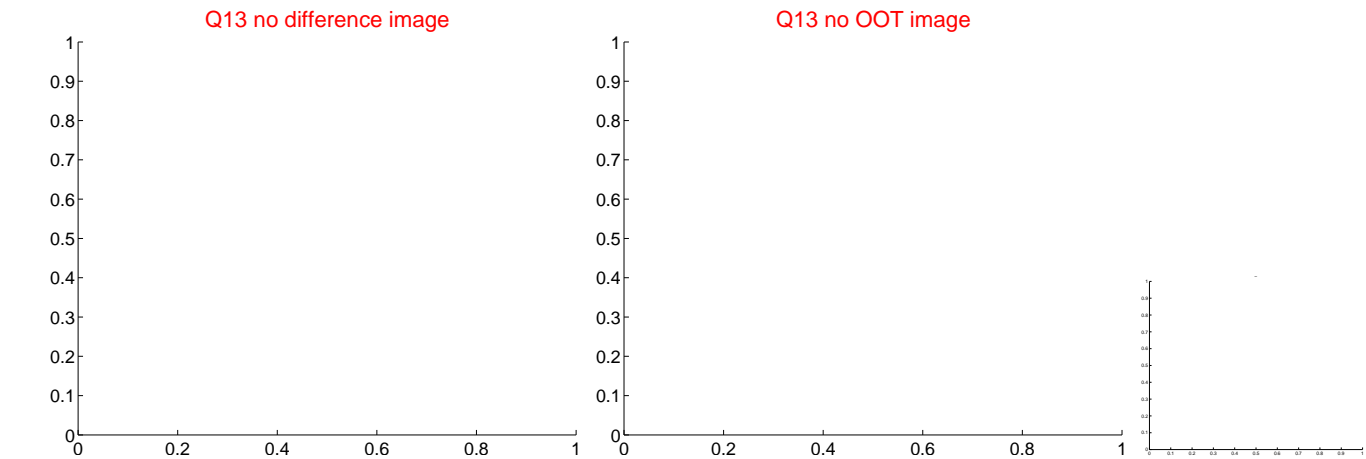
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



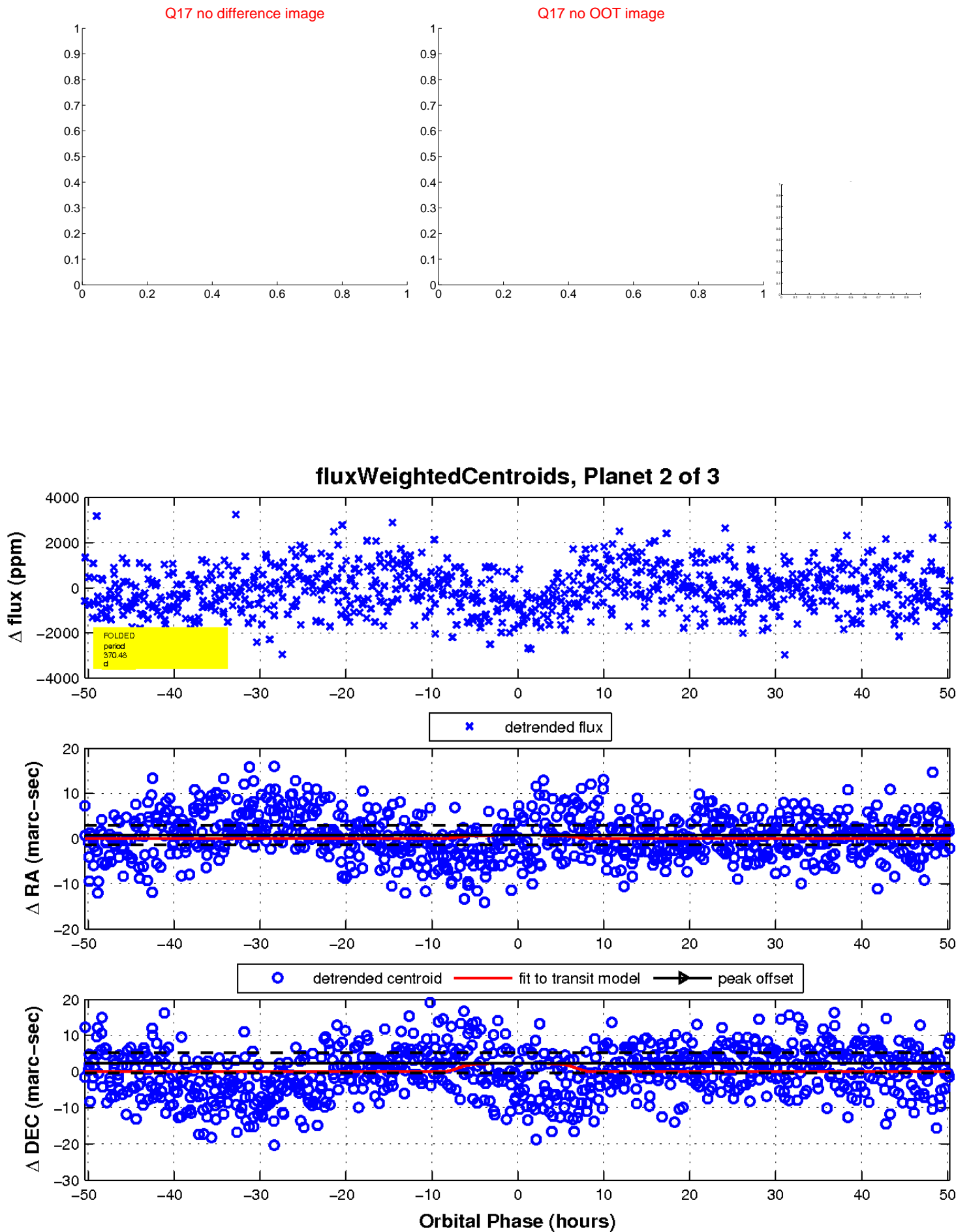
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

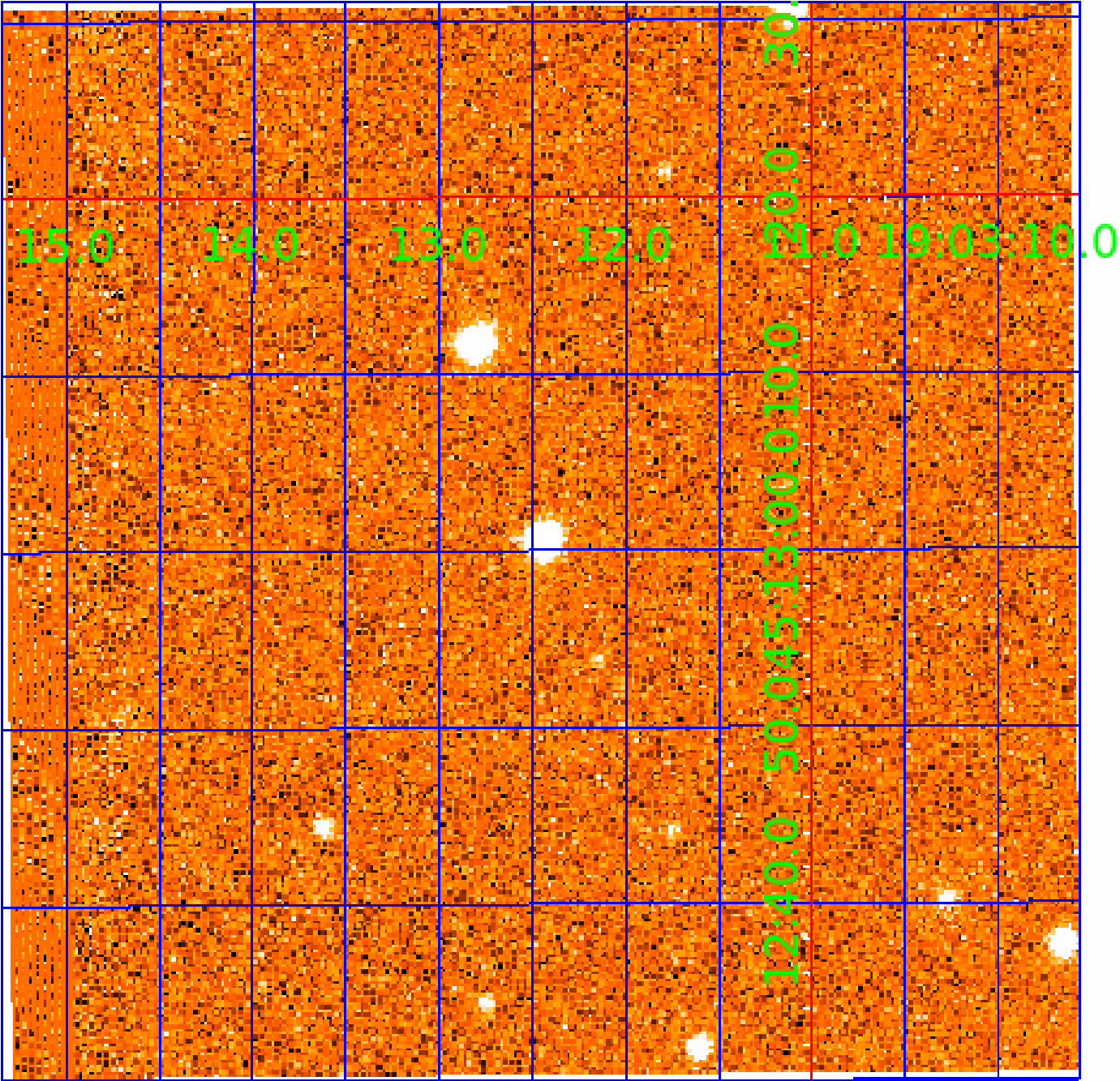


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008938937

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})
008938937-01	OBS	No	651.685871	187.863457	1154.4	18.889	10.3	10.3	0.86	5591	2.95	0.30
008938937-02	OBS	No	370.479091	233.901861	1165.5	16.804	8.0	8.1	0.86	5591	3.54	0.65
008938937-03	OBS	4758.01	37.108743	166.233019	386.3	4.361	7.9	8.4	0.86	5591	1.81	13.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008938937-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008938937-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008938937-03	OBS	FP	0.41	1	0	0	0	MOD_NONUNIQ_ALT

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

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

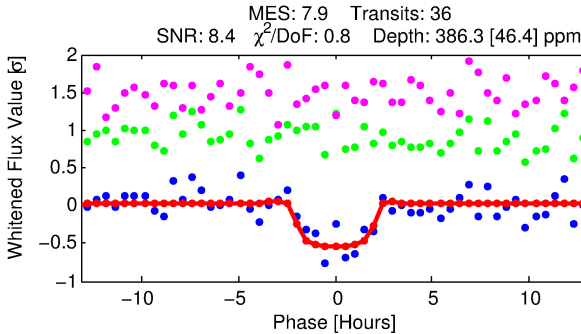
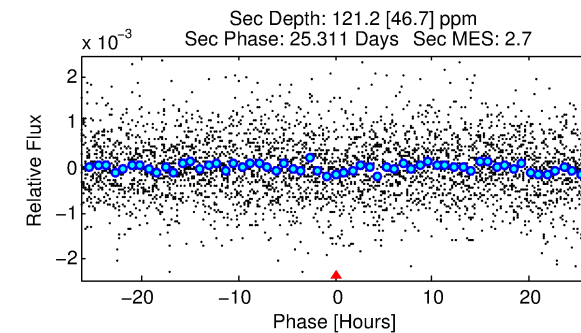
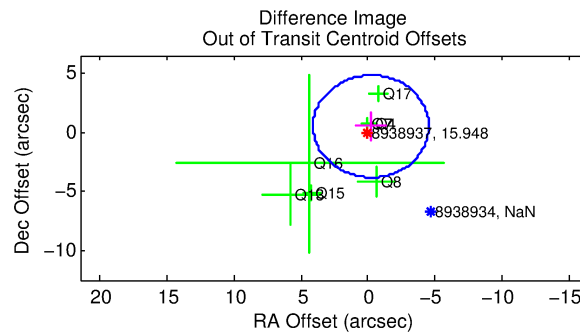
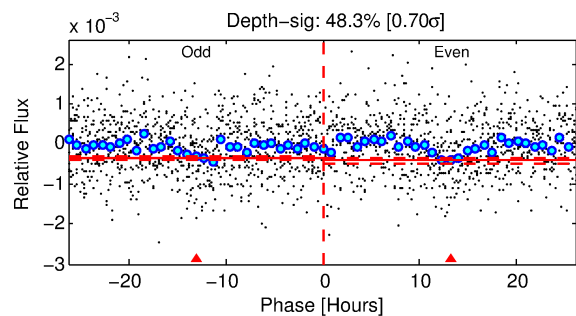
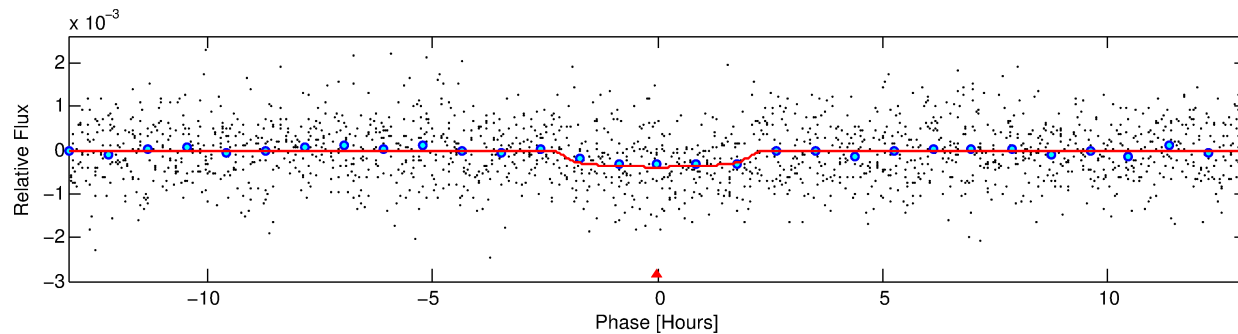
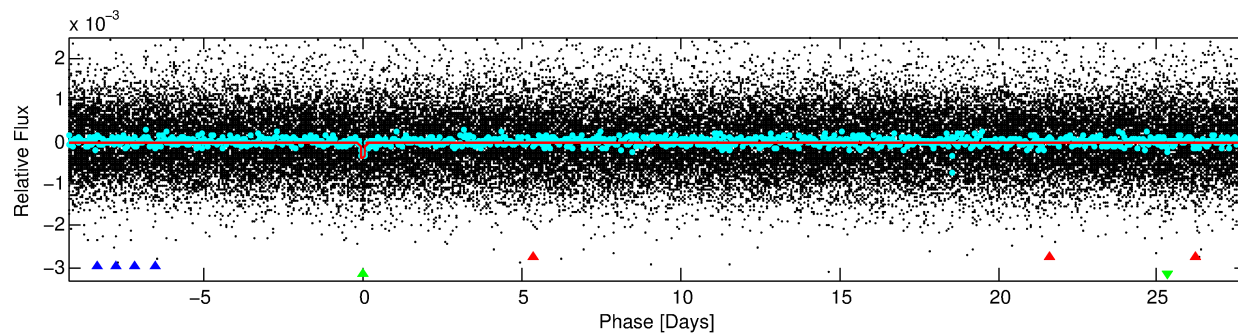
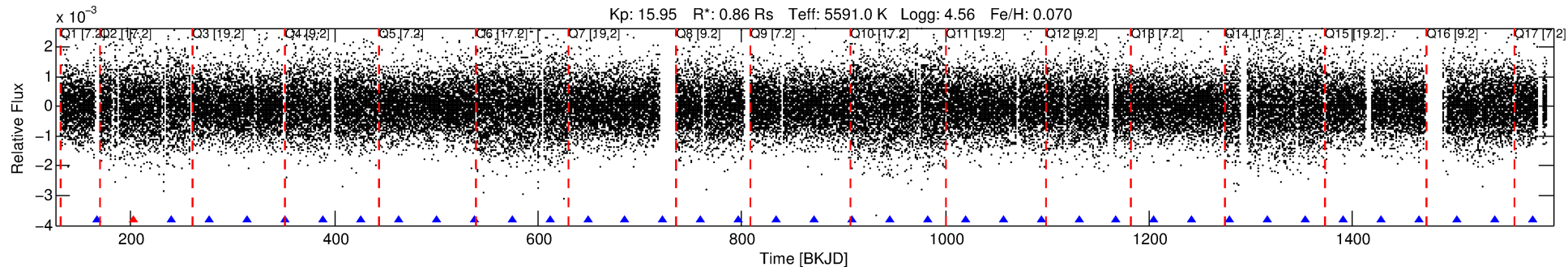
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008938937-03

No Significant Match Found

DV One-Page Summary

KIC: 8938937 Candidate: 3 of 3 Period: 37.109 d
KOI: K04758.01 Corr: 0.973



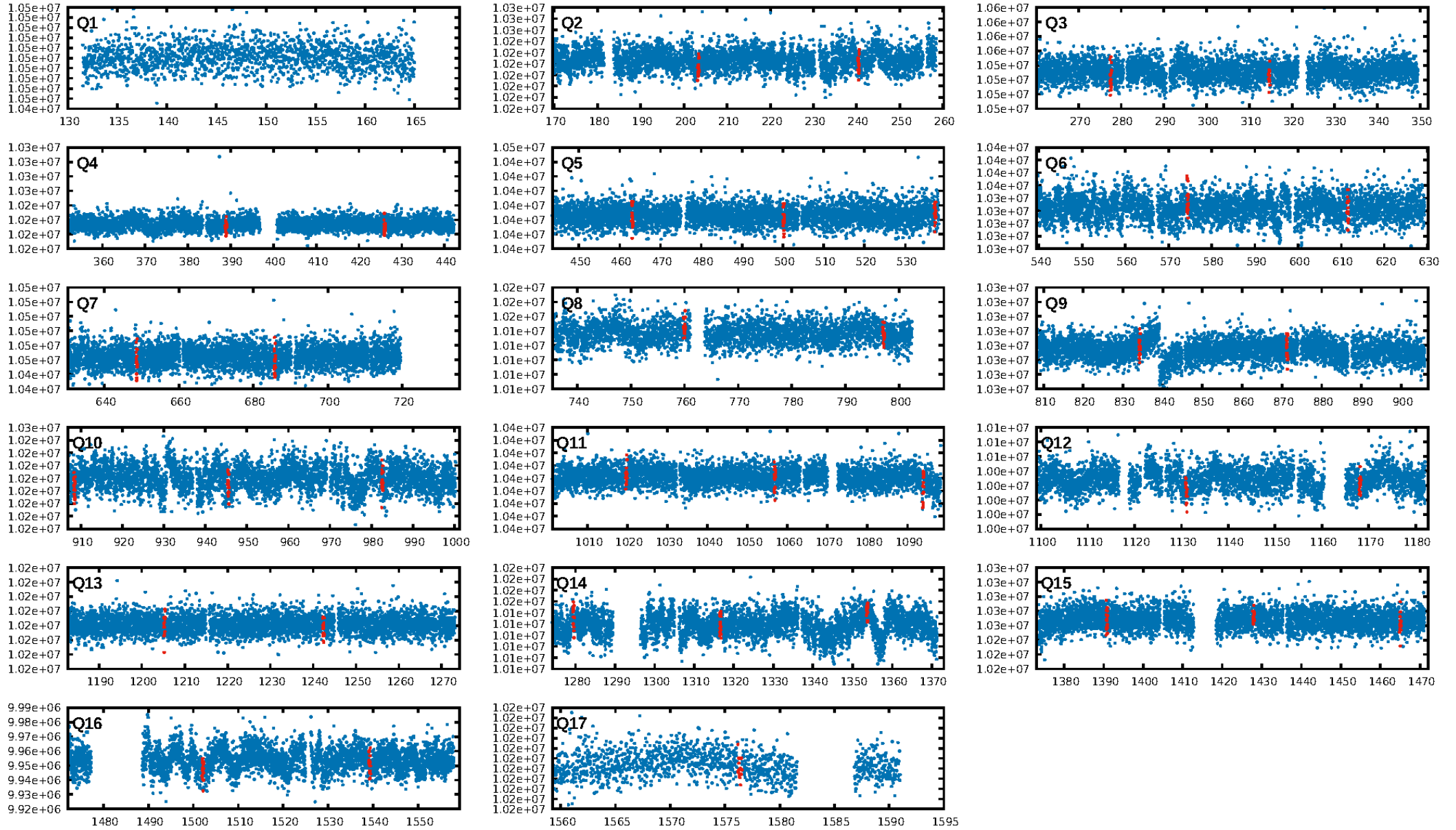
DV Fit Results:

Period = 37.10874 [0.00050] d
Epoch = 166.2330 [0.0117] BKJD
Rp/R* = 0.0193 [0.0268]
a/R* = 47.56 [273.42]
b = 0.71 [4.08]
Seff = 13.86 [4.85]
Teq = 492 [43] K
Rp = 1.81 [2.56] Re
a = 0.2161 [0.0473] AU
Ag = 950.47 [2686.18] [0.35 σ]
Teffp = 4224 [2968] K [1.26 σ]

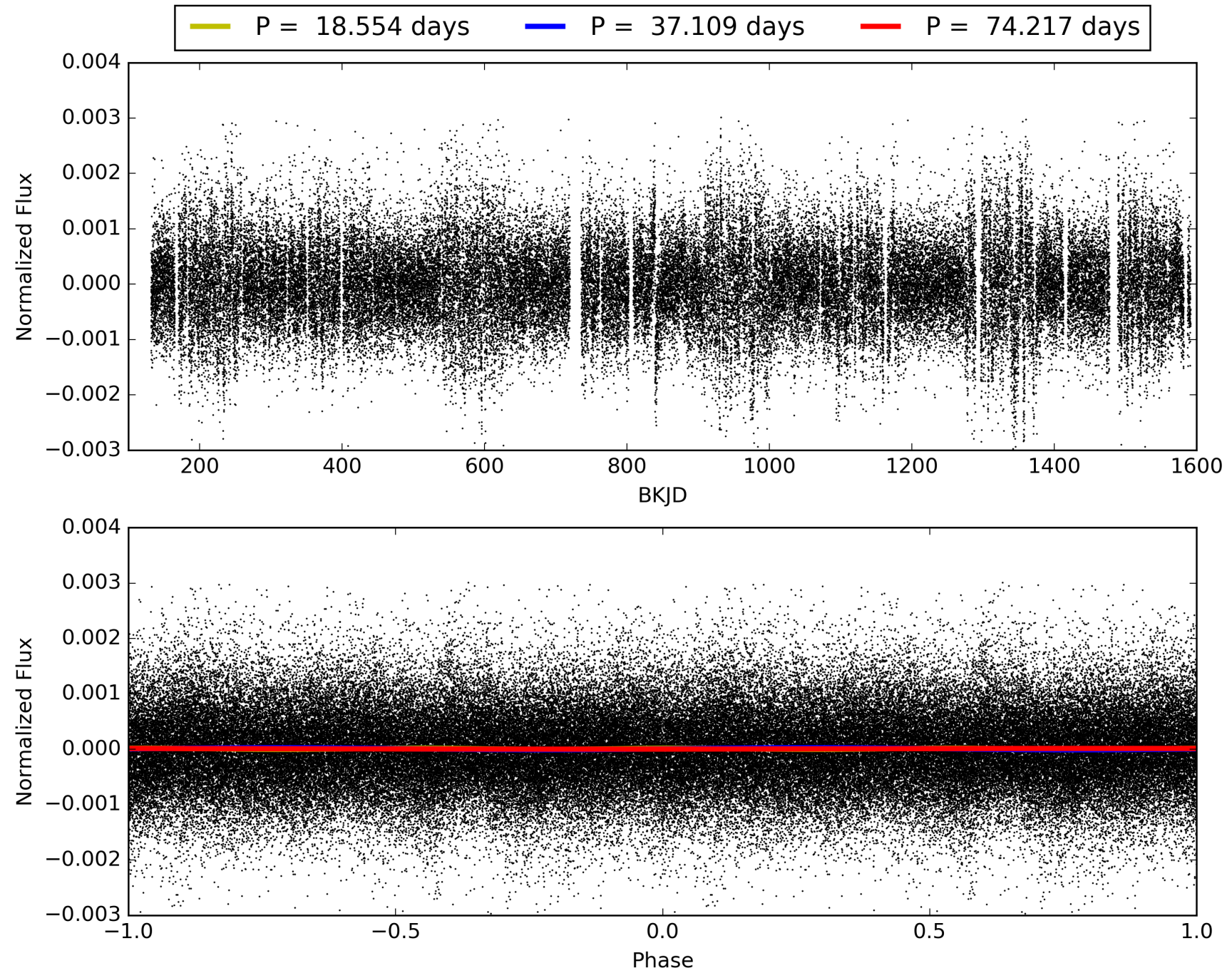
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [460.87 σ]
ModelChiSquare2-sig: 82.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.26e-15
RollingBand-fgt: 0.97 [34/35]
GhostDiagnostic-chr: -8.364
Centroid-sig: 17.8%
Centroid-so: 2.711 arcsec [1.41 σ]
OotOffset-rm: 0.538 arcsec [0.37 σ]
KicOffset-rm: 0.550 arcsec [0.37 σ]
OotOffset-st: 0/2/3/2 [7]
KicOffset-st: 0/2/3/2 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 008938937-03, PDC Light Curves

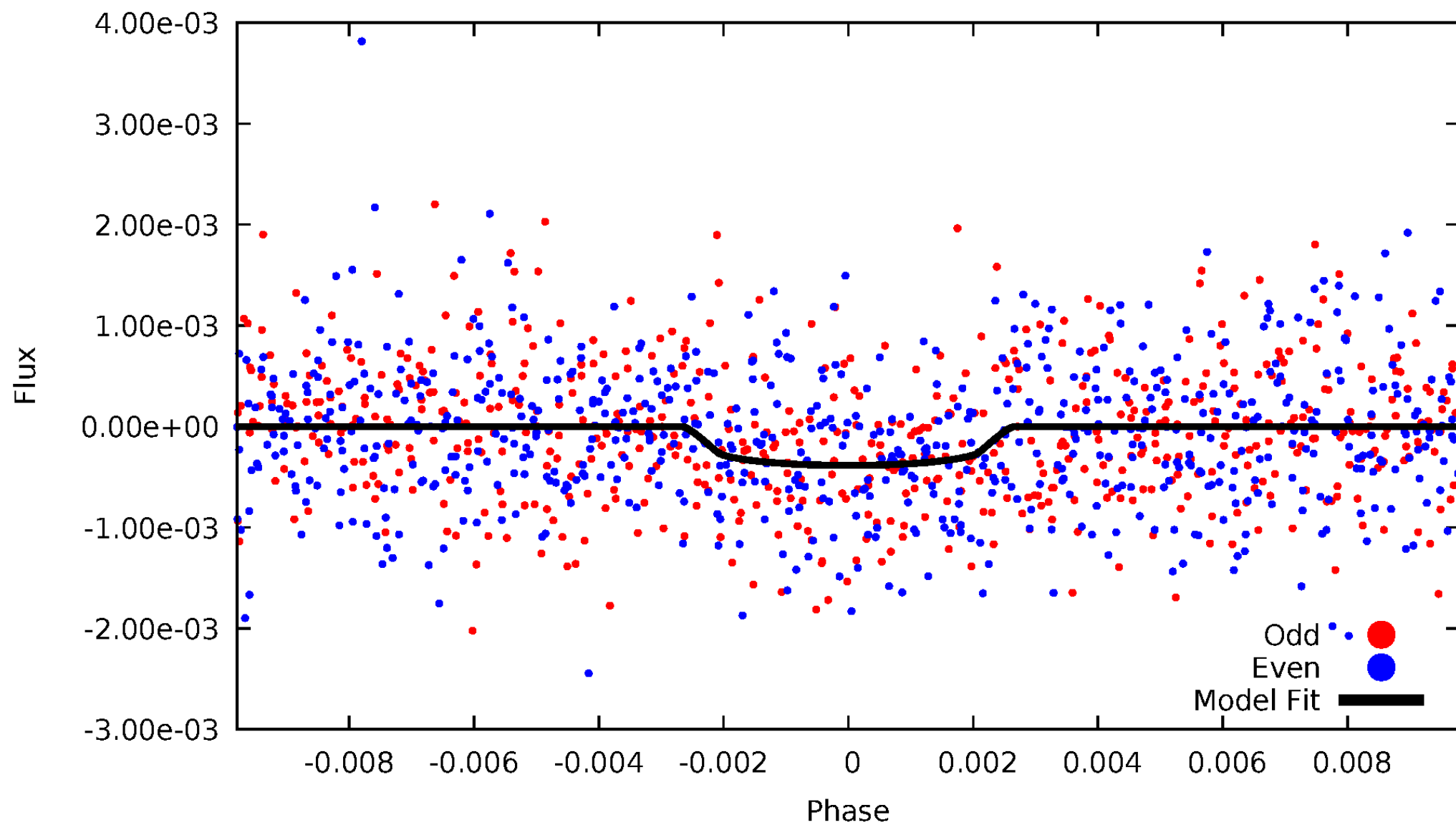


TCE 008938937-03



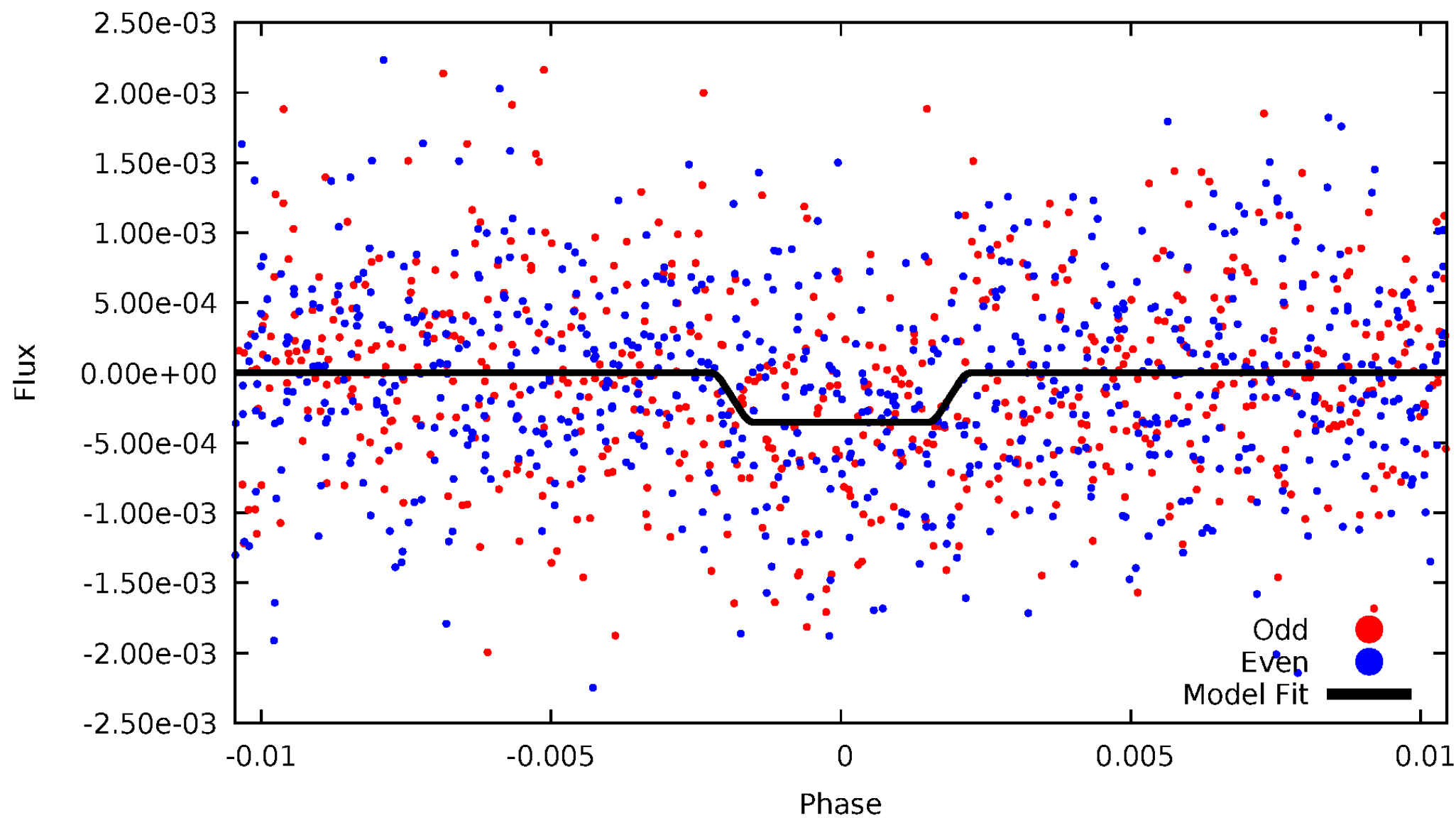
DV Odd/Even

TCE 008938937-03



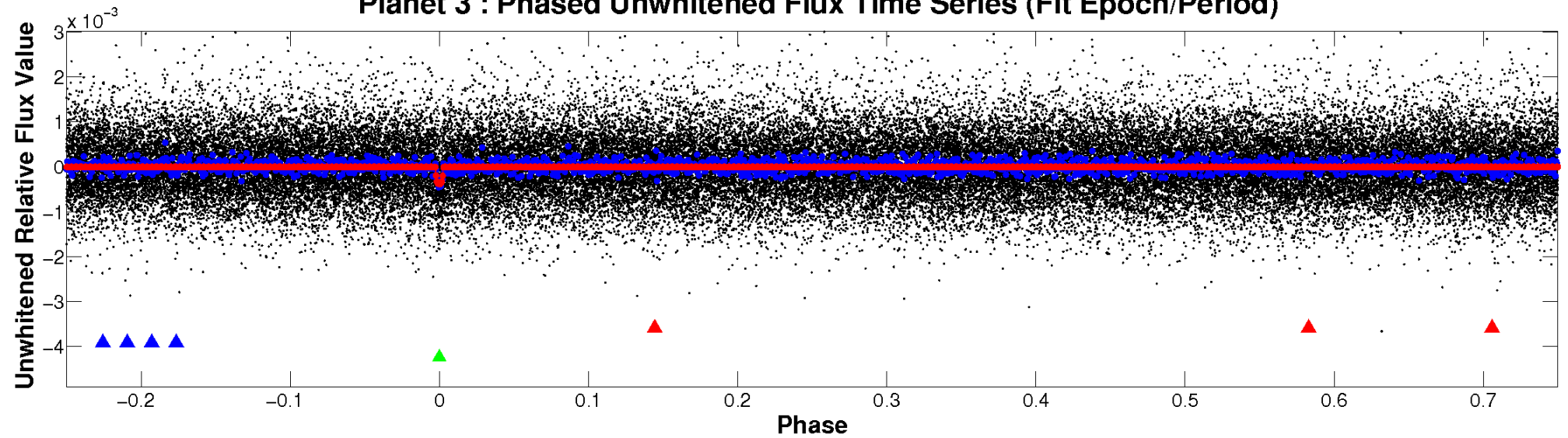
ALT Odd/Even

TCE 008938937-03

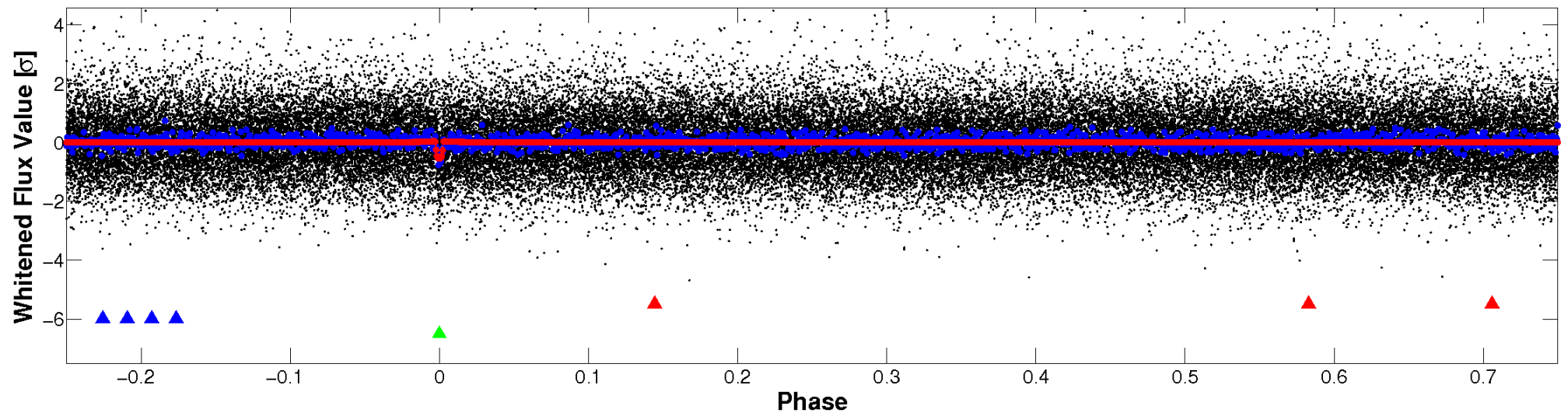


Non-Whitened Vs. Whitened Light Curve

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

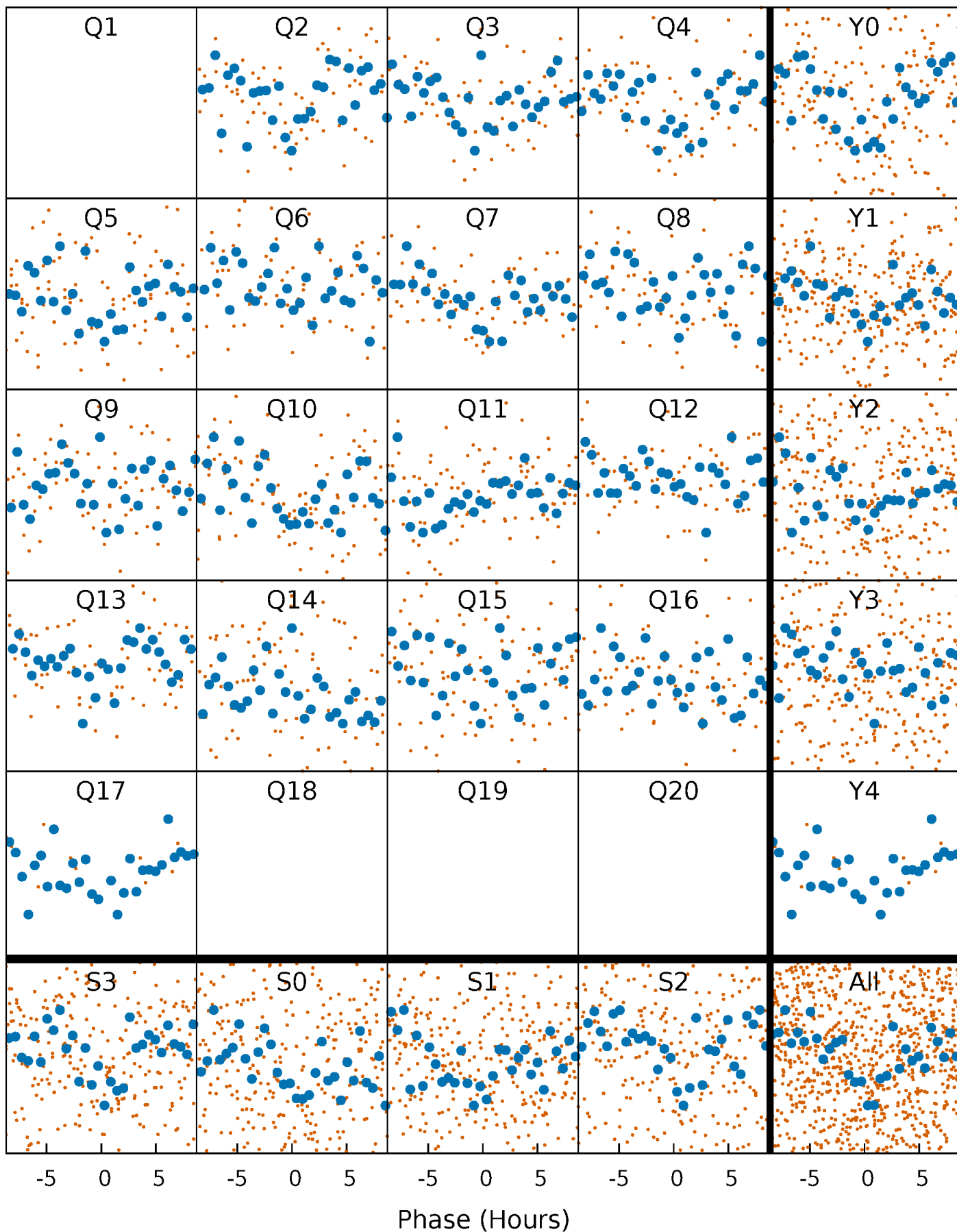


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



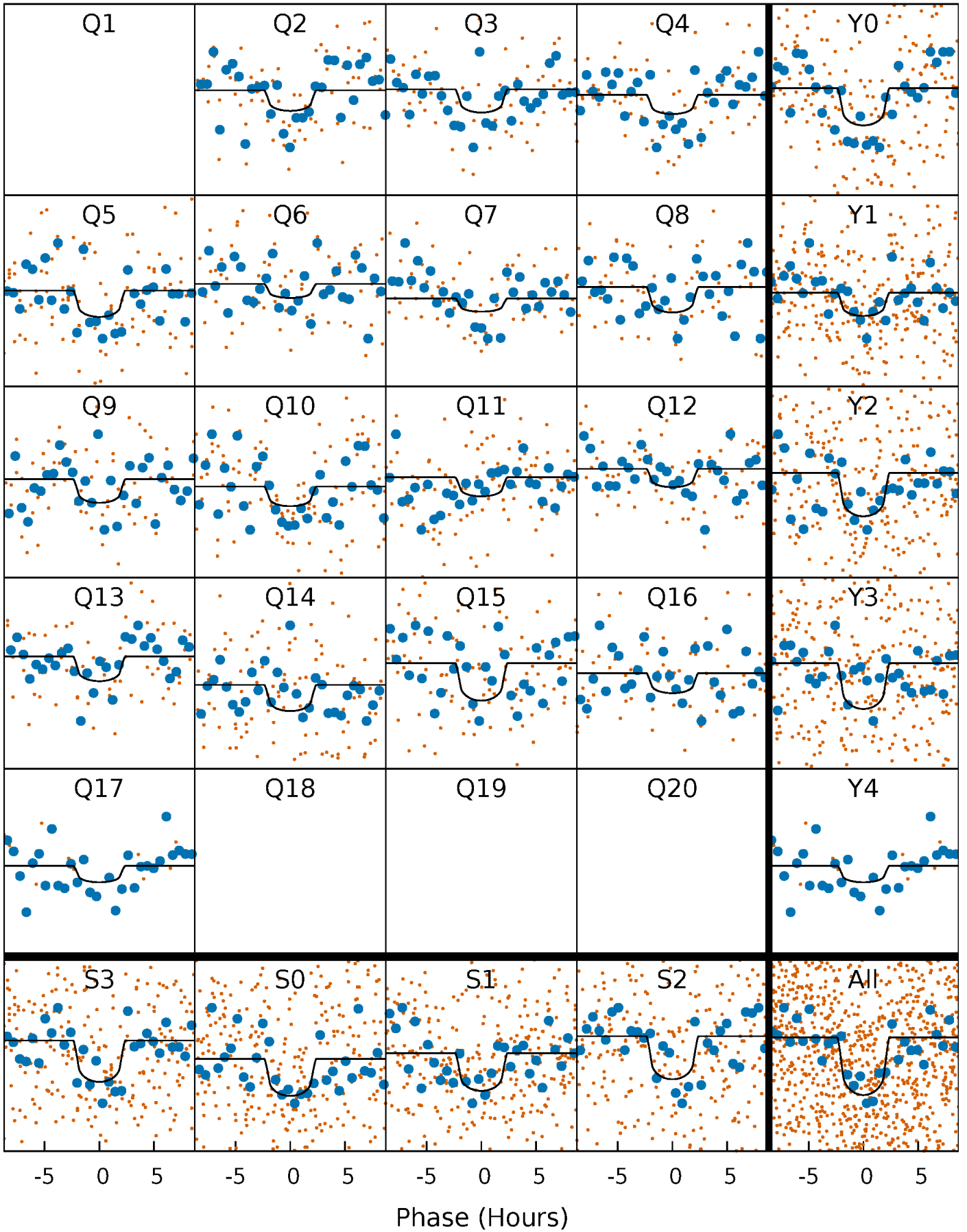
PDC Quarter-Phased Transit Curves

TCE 008938937-03 P= 37.108743 Days $T_0=166.233019$ (BKJD)



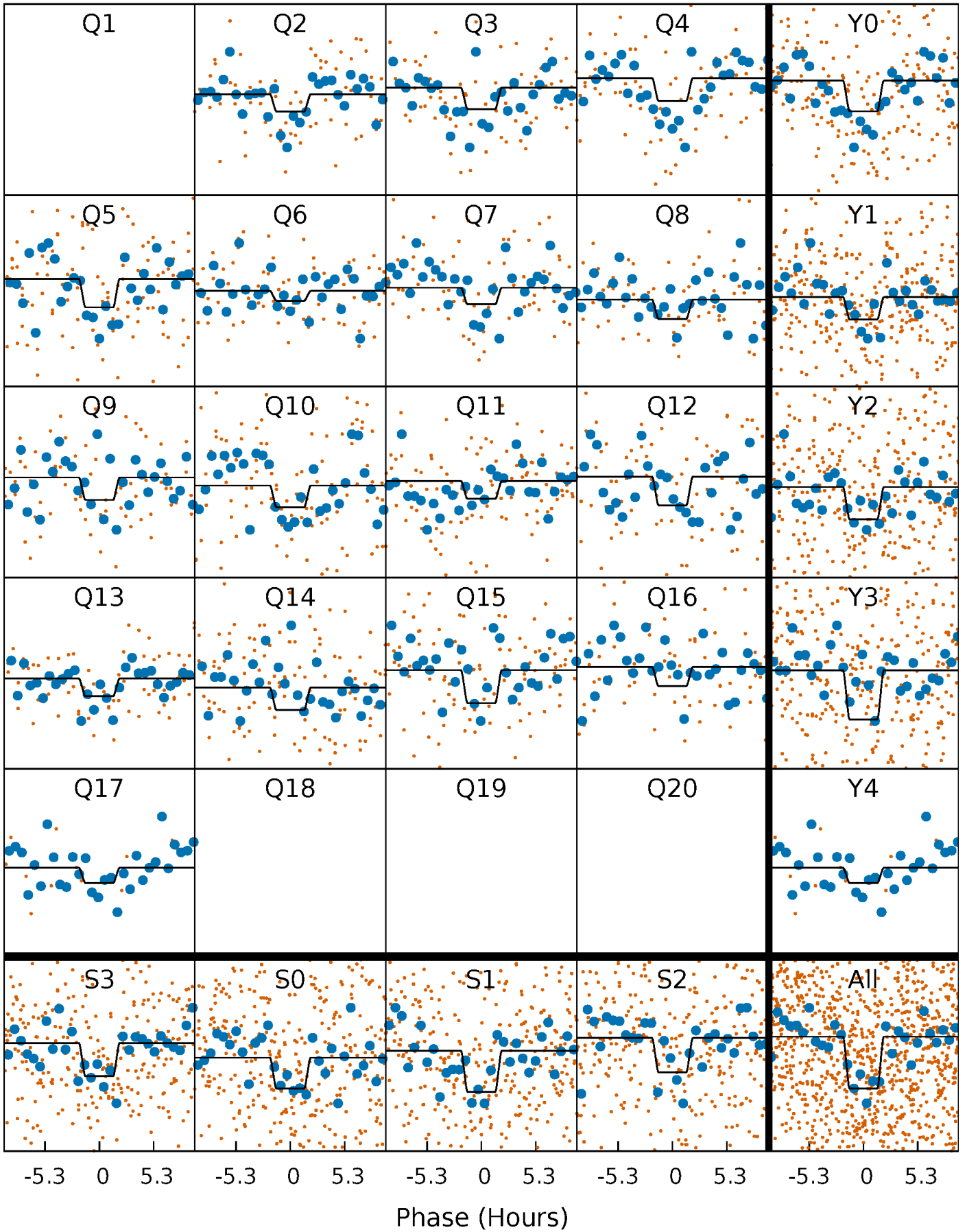
DV Quarter-Phased Transit Curves

TCE 008938937-03 P= 37.108743 Days $T_0=166.233019$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

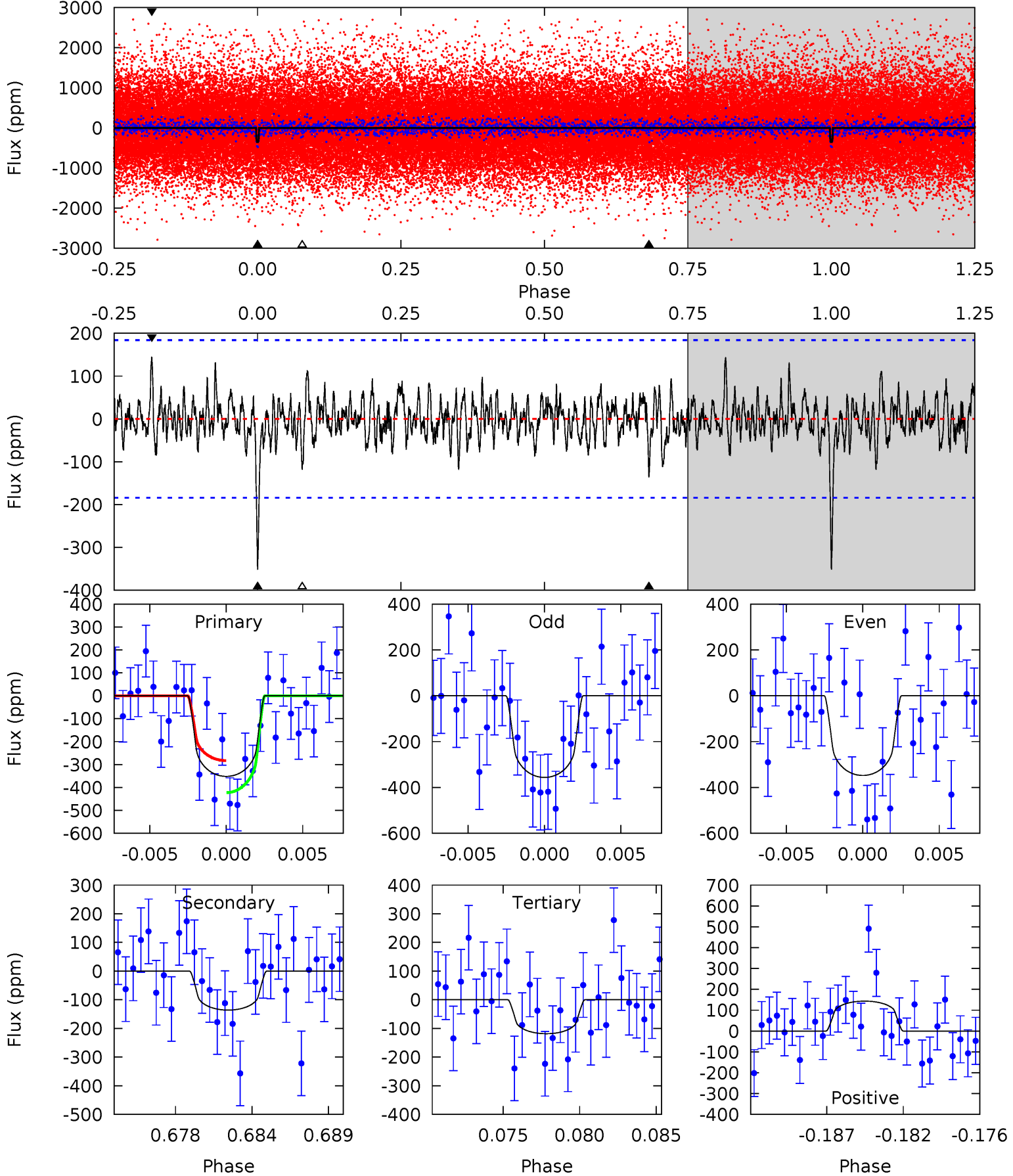
TCE 008938937-03 P= 37.108236 Days $T_0=166.248341$ (BKJD)



DV Model-Shift Uniqueness Test

008938937-03, $P = 37.108743$ Days, $E = 129.124276$ Days

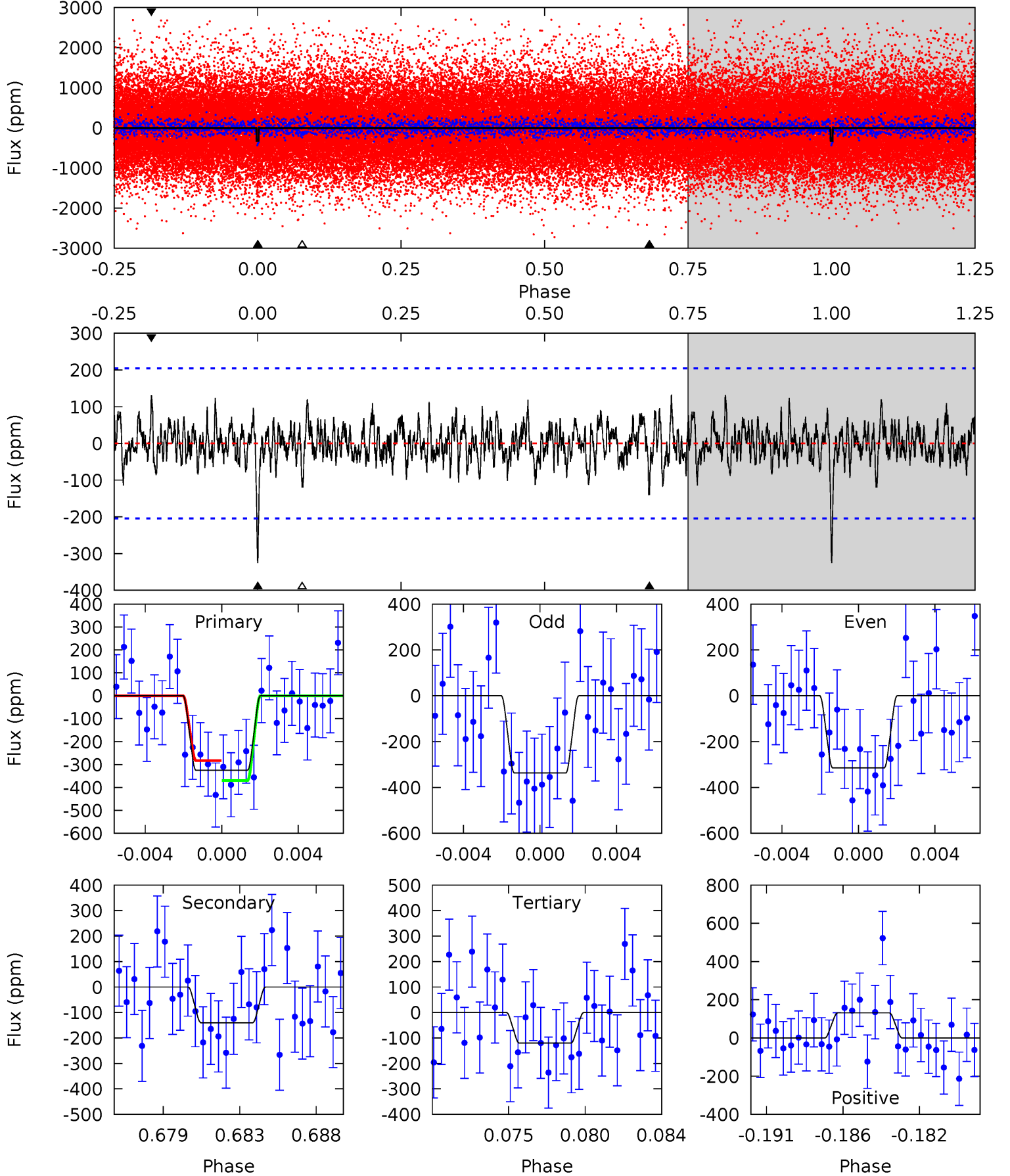
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.84	3.81	3.32	4.01	5.15	2.79	1.08	6.52	5.83	0.49	-0.20	0.12	0.89	0.29	1.95



Alt Model-Shift Uniqueness Test

008938937-03, P = 37.108236 Days, E = 129.140105 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.25	3.55	3.04	3.33	5.18	2.85	1.06	5.21	4.92	0.51	0.22	0.28	0.97	0.29	1.10



Stellar Parameters For KIC 008938937

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5591^{+169}_{-186}	$4.559^{+0.032}_{-0.179}$	$0.070^{+0.200}_{-0.300}$	$0.860^{+0.220}_{-0.073}$	$0.977^{+0.083}_{-0.125}$	$2.163^{+0.373}_{-1.023}$
	+3%/-3%	+1%/-4%	+286%/-429%	+26%/-8%	+8%/-13%	+17%/-47%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008938937-03 / KOI 4758.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-136 ± 36	$2.58^{+2.49}_{-1.66}$	706^{+41}_{-31}	4017^{+2144}_{-795}	493^{+3292}_{-368}
Alt.	-140 ± 39	$2.68^{+2.31}_{-1.77}$	704^{+40}_{-31}	3951^{+2220}_{-713}	477^{+3527}_{-338}

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

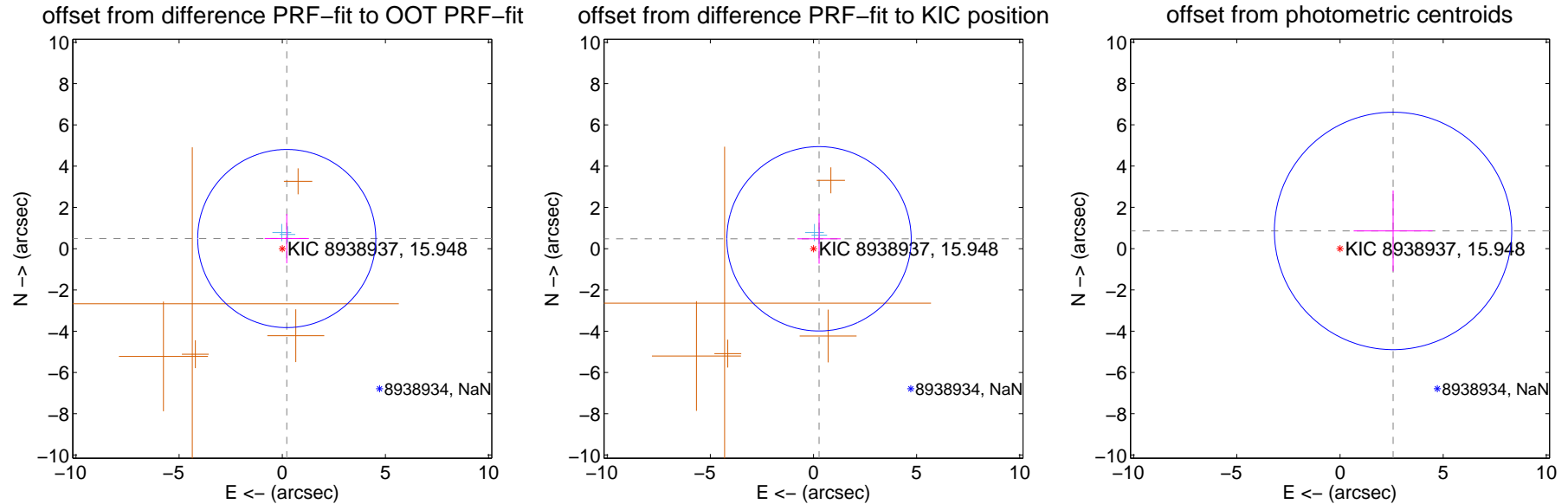
DV Centroid Data

Supplemental centroid analysis for 008938937-03. Kepler magnitude: 15.95. Transit SNR 8.39

There are 2 quarters with good PRF difference image offsets

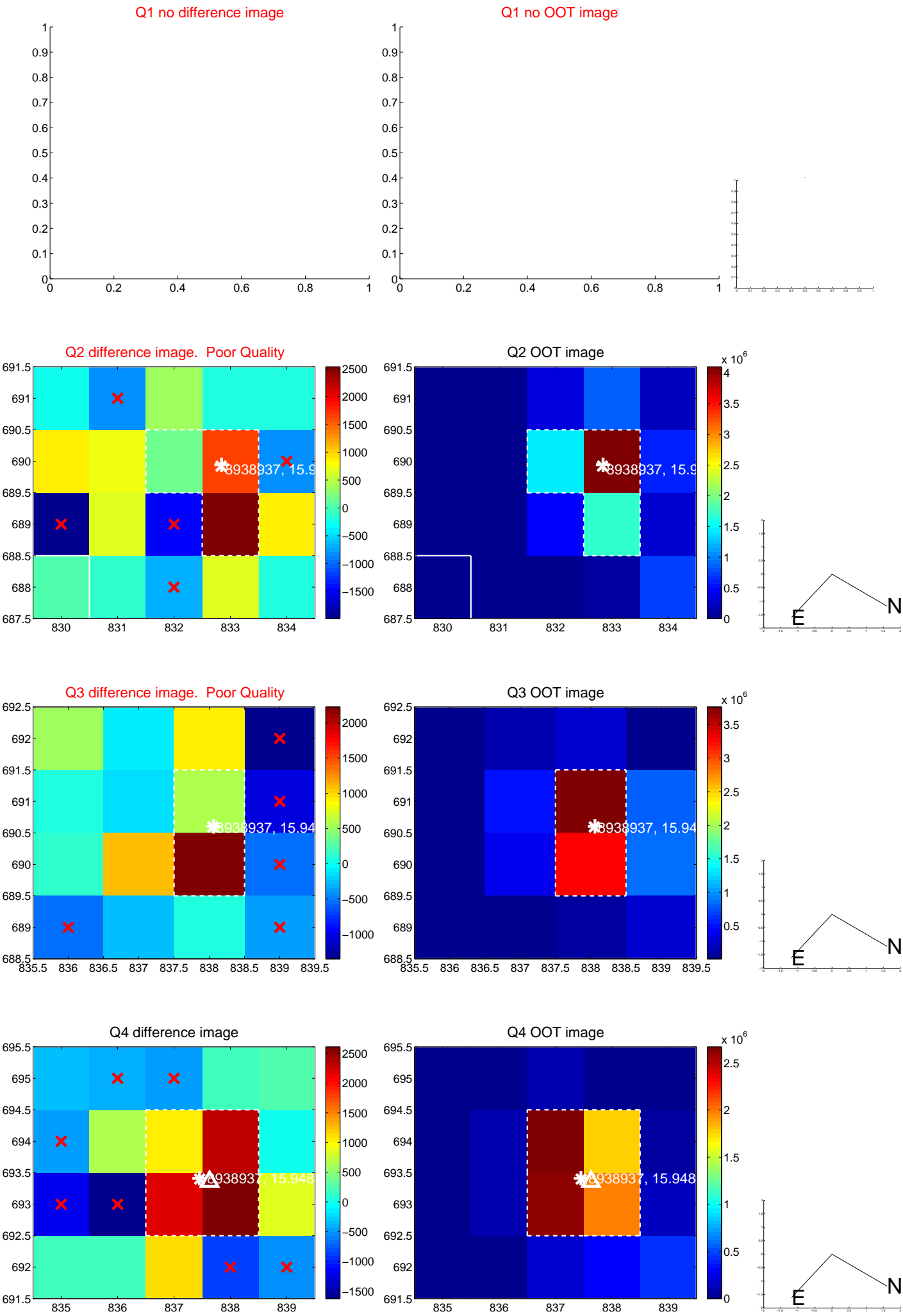
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.538 ± 1.439	0.37	-0.217 ± 1.071	0.492 ± 1.194
PRF-fit source offset from KIC position	0.550 ± 1.489	0.37	-0.269 ± 1.050	0.479 ± 1.209
photometric centroid source offset	2.71 ± 1.92	1.41	-2.57 ± 1.91	0.86 ± 1.96

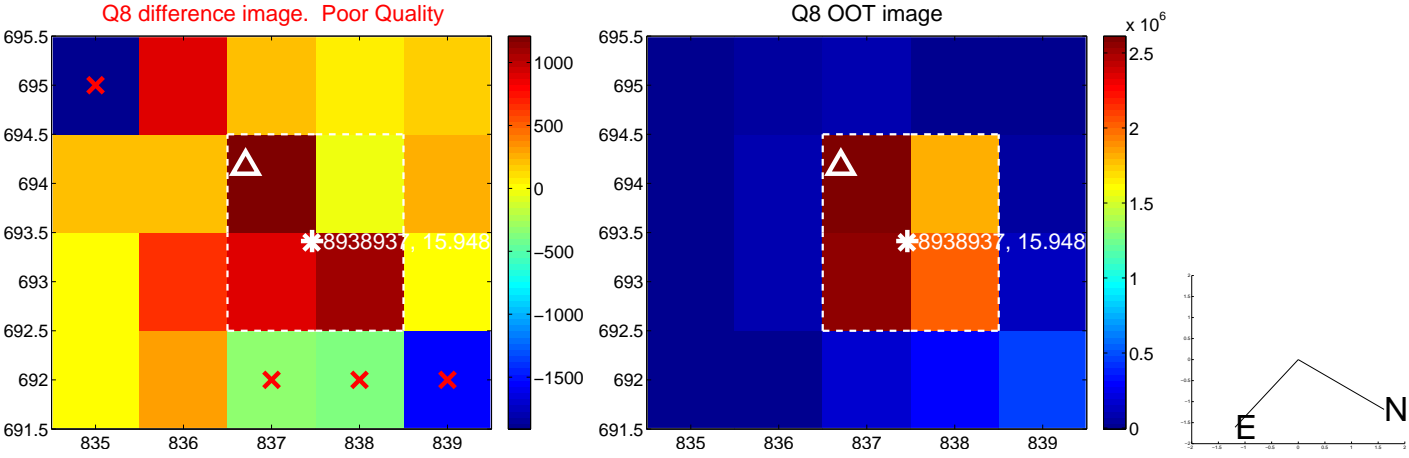
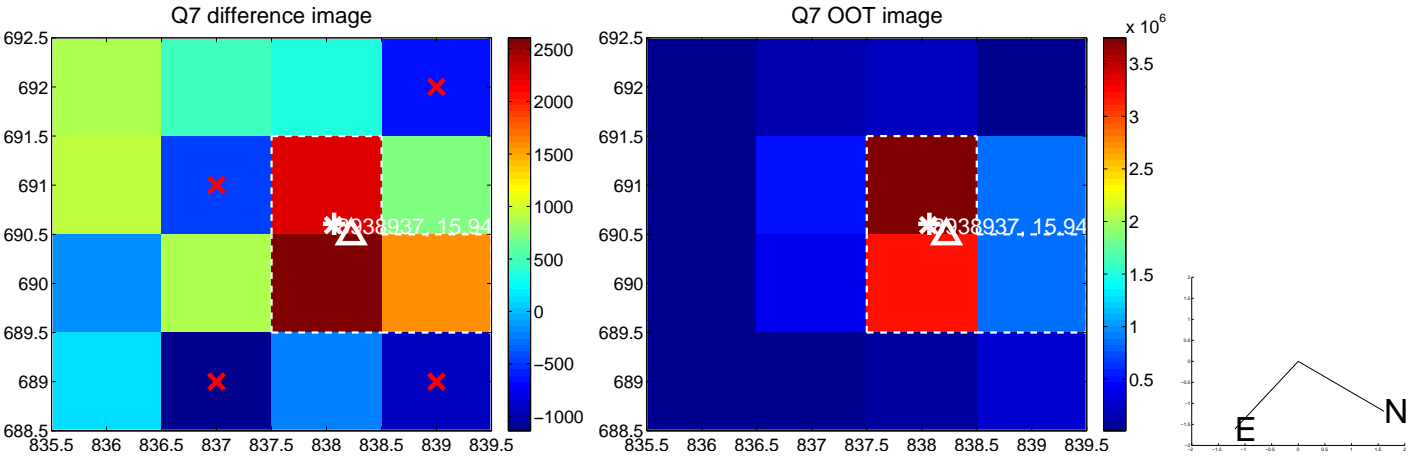
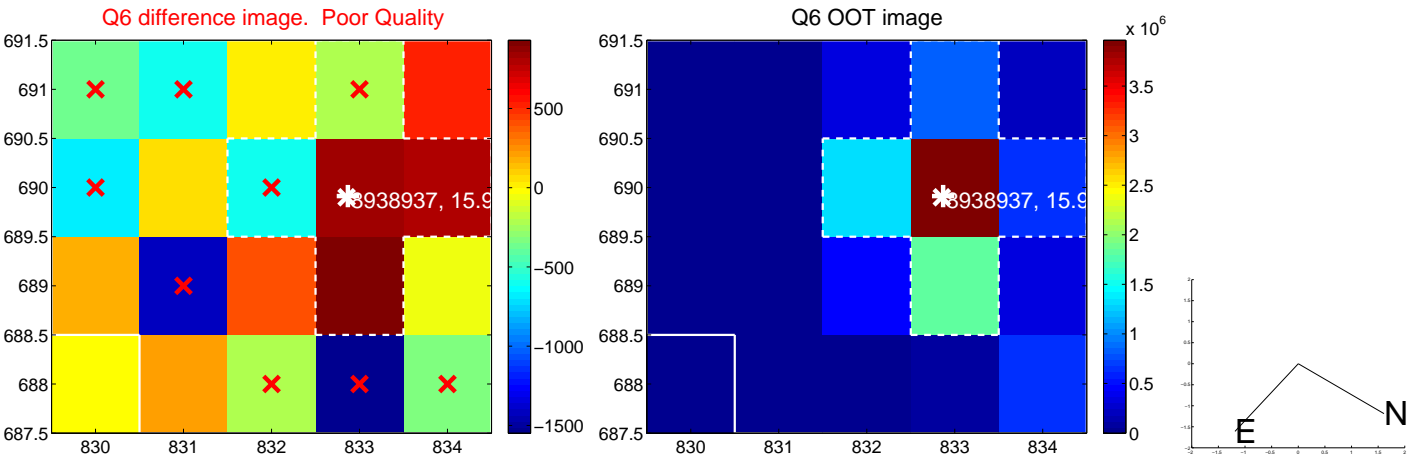
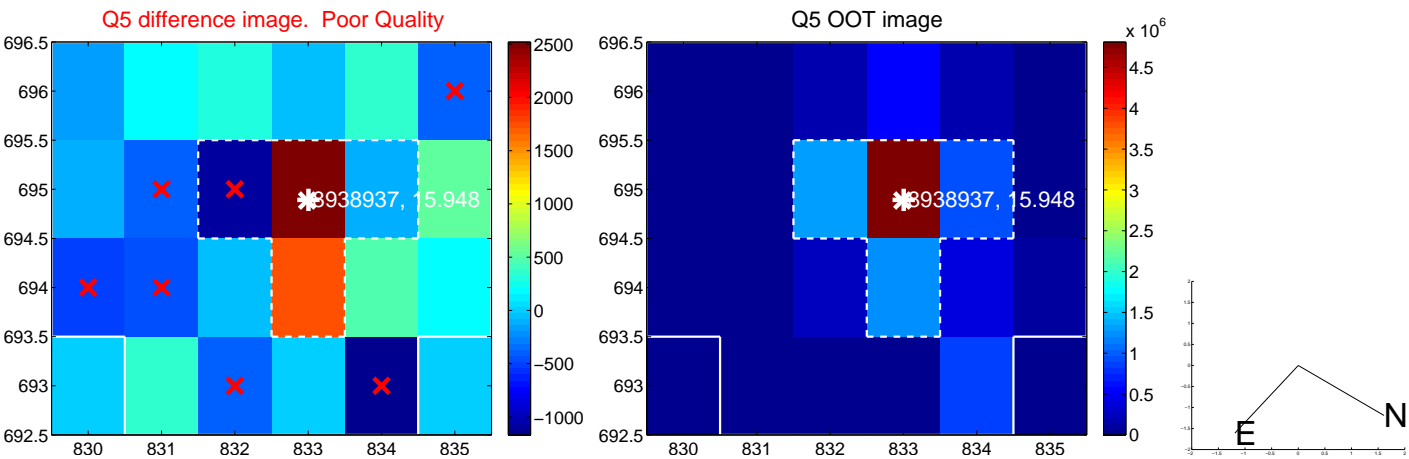


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

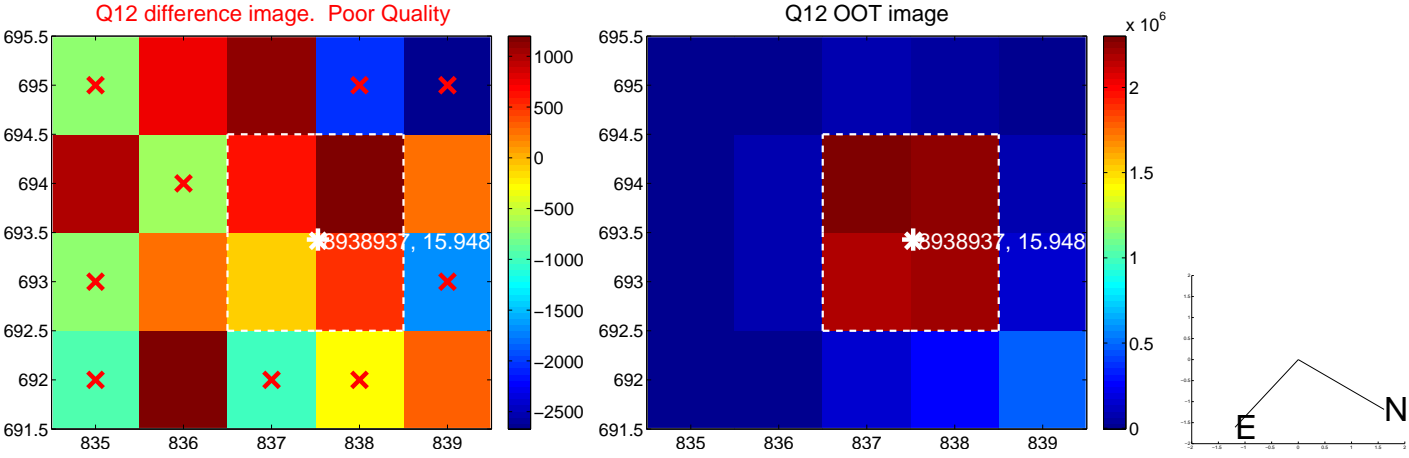
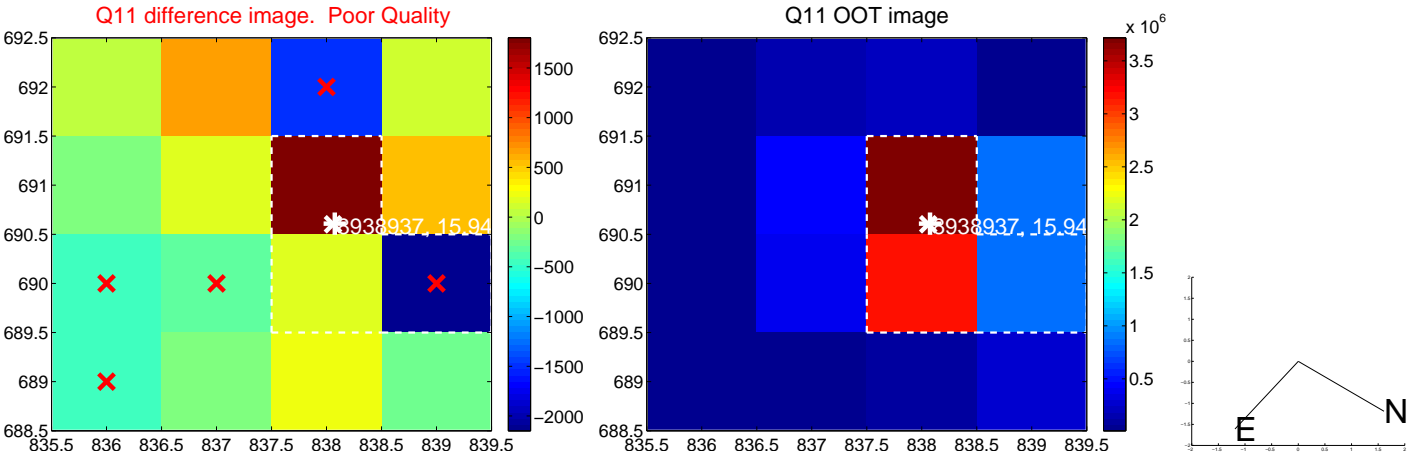
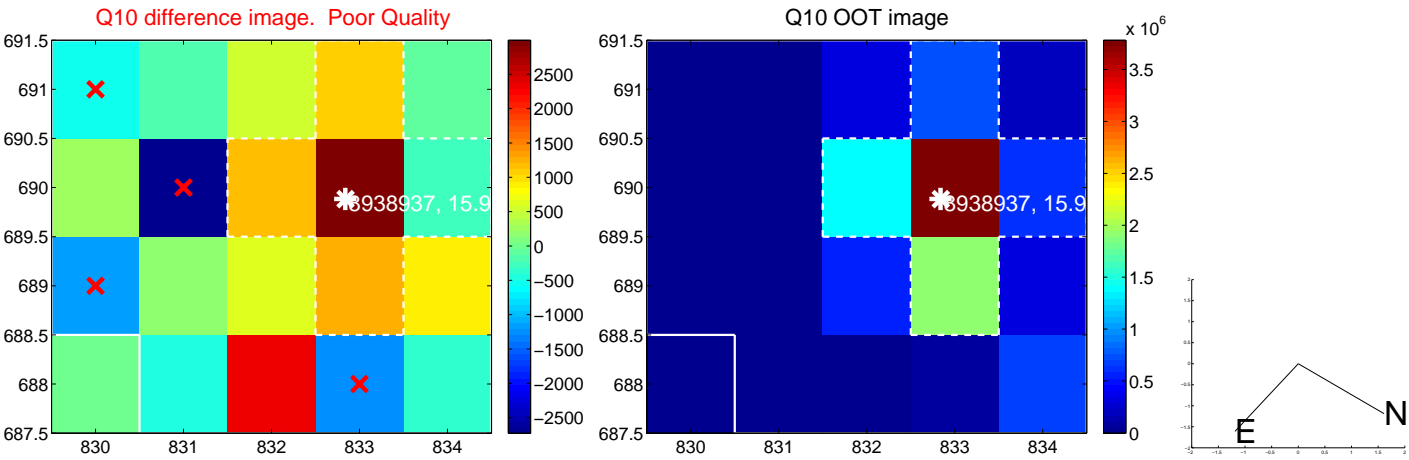
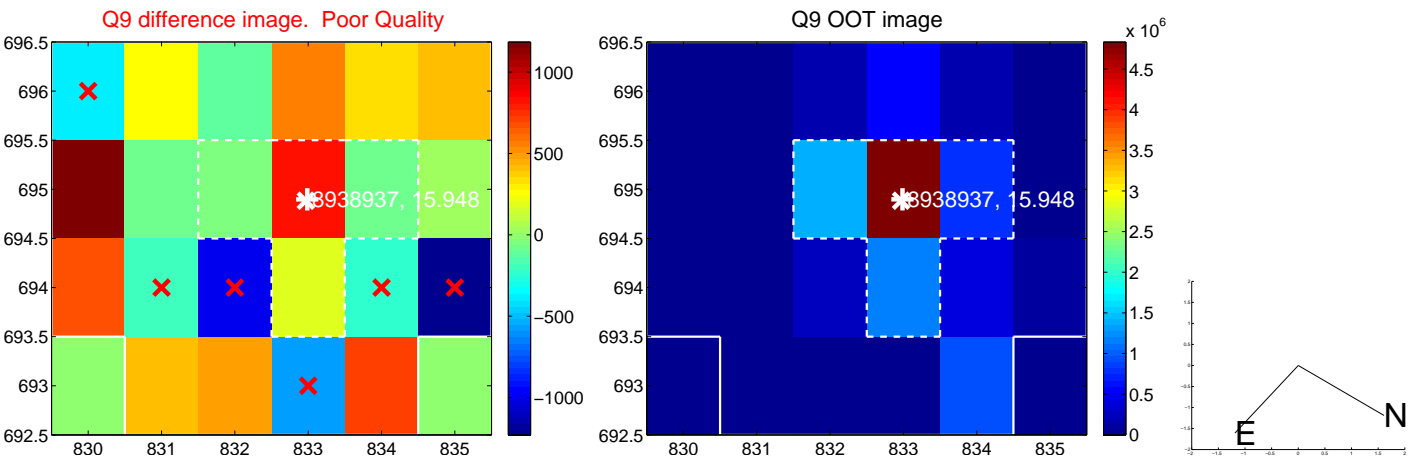
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



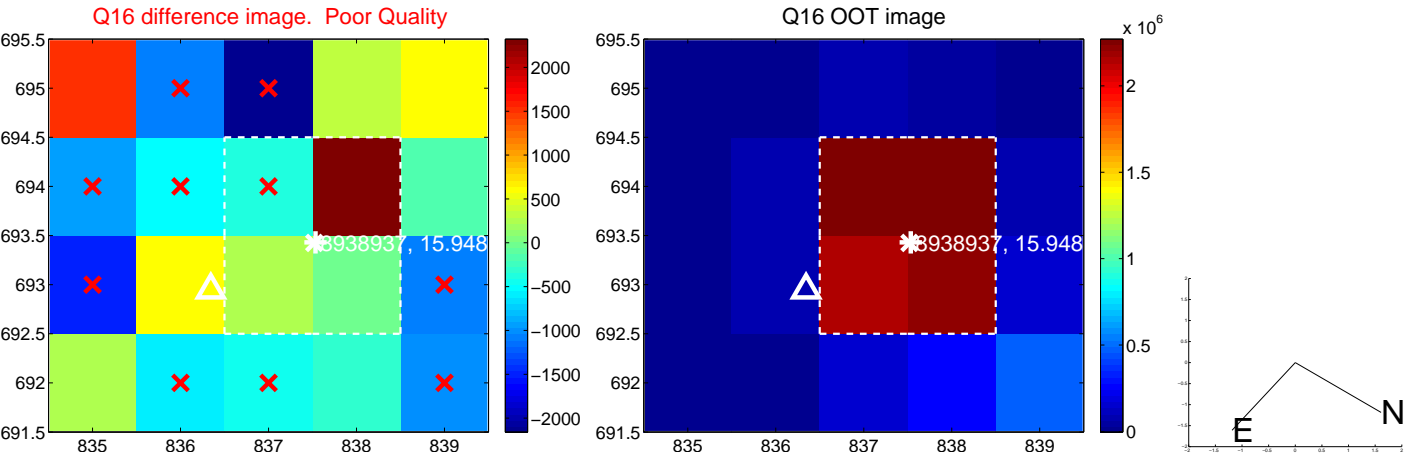
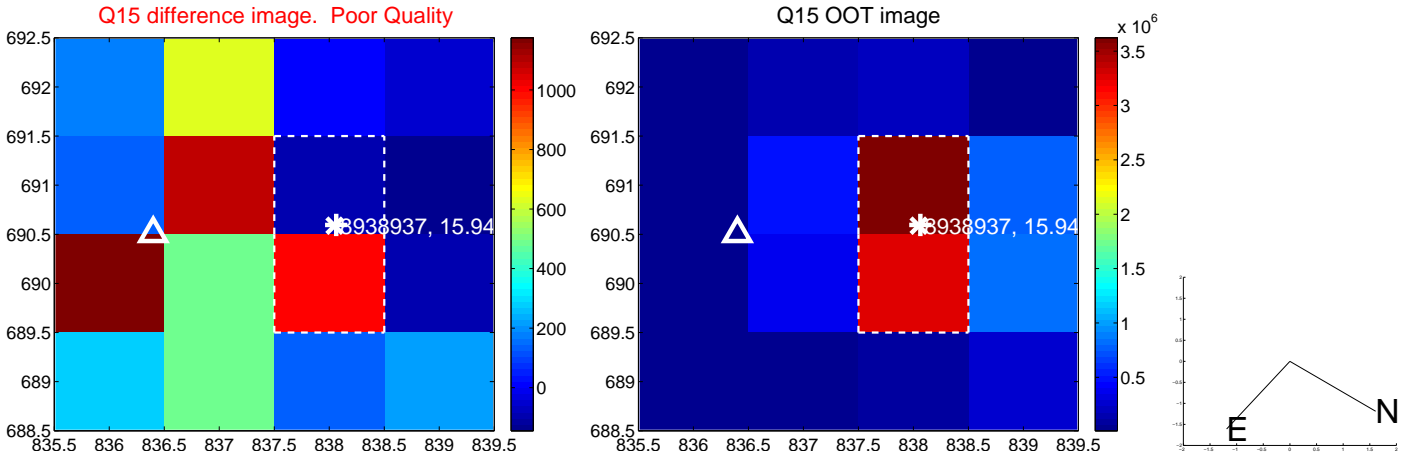
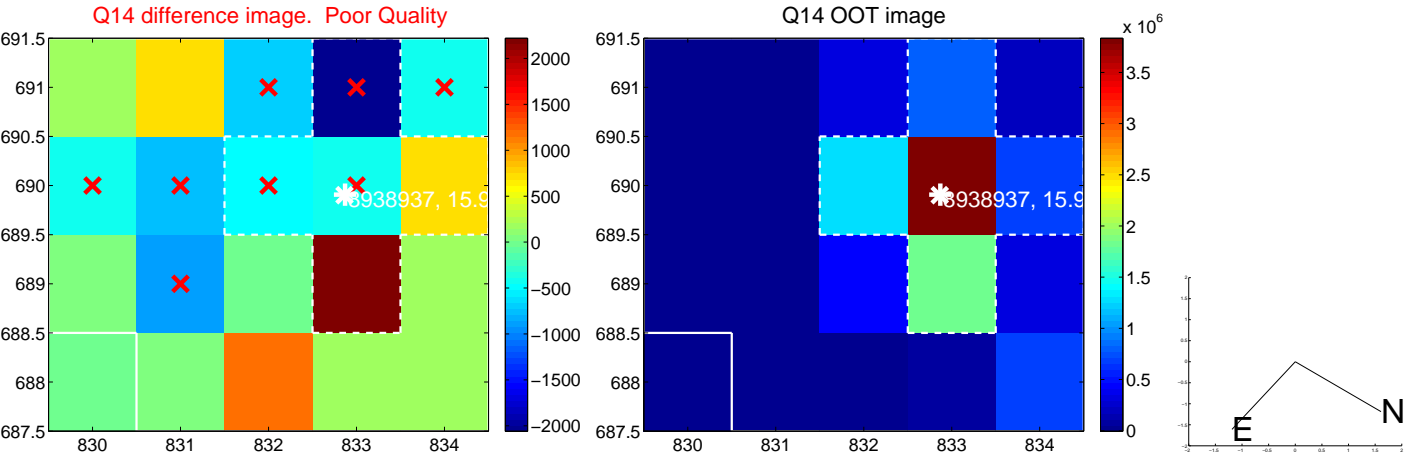
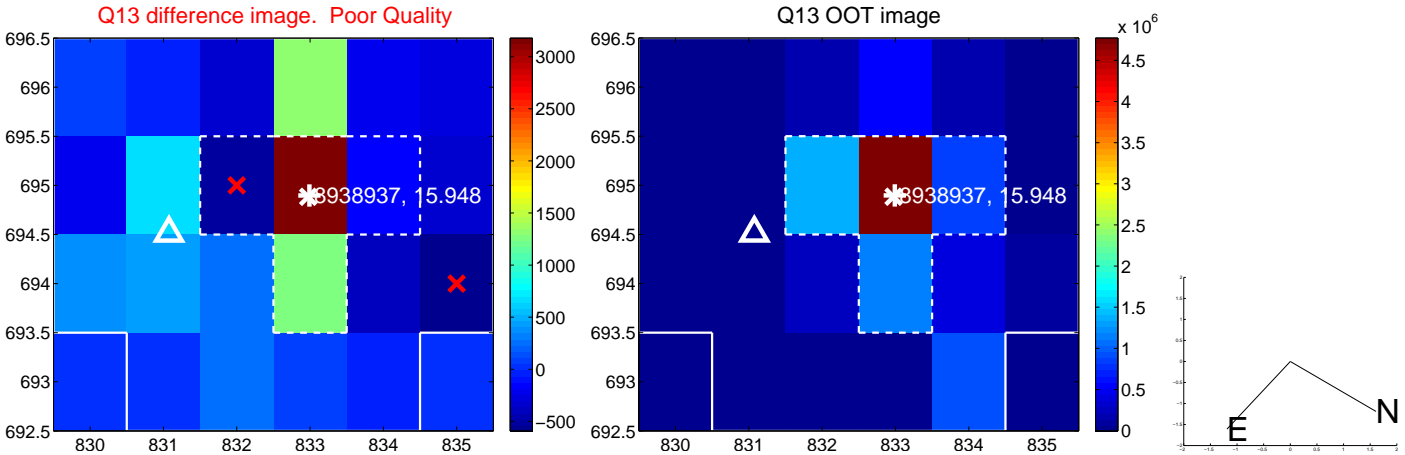
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



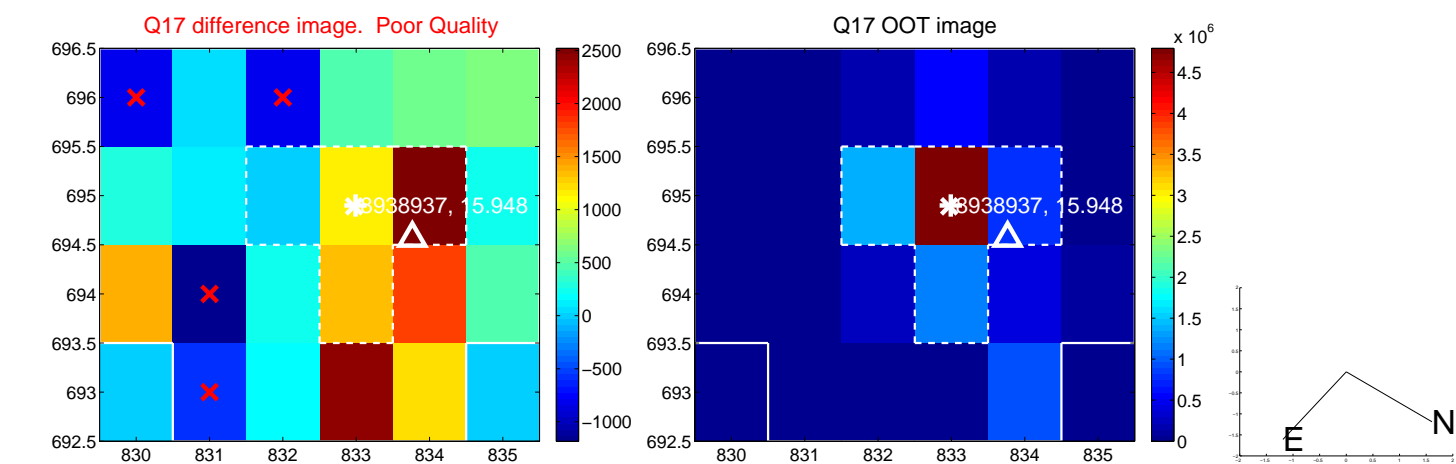
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



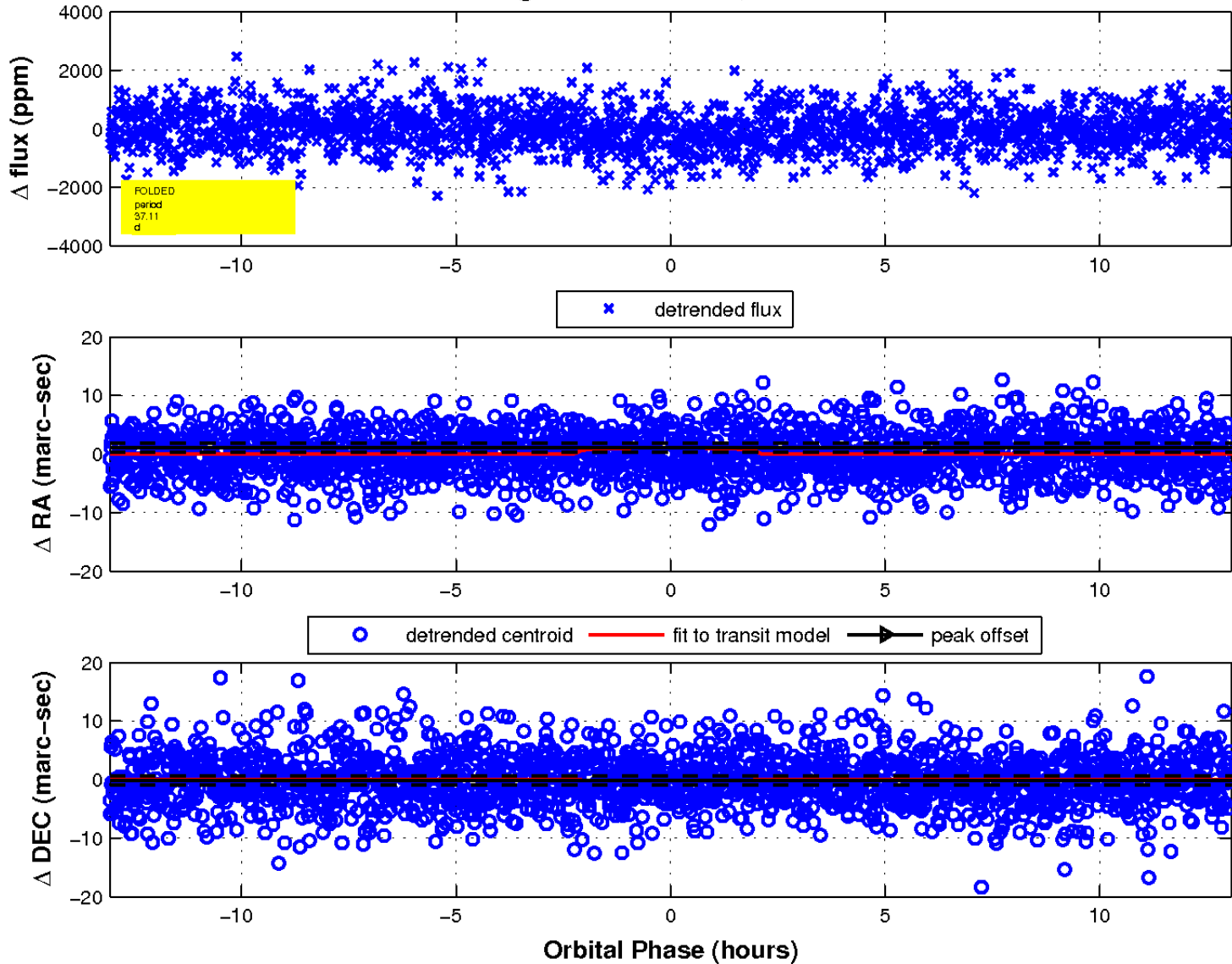
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

