

KIC 004171937

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})
004171937-01	OBS	No	543.595319	344.720041	960.1	4.475	9.1	5.8	0.59	5128	1.95	0.17
004171937-02	OBS	No	299.418058	279.399892	928.9	4.580	8.6	5.8	0.59	5128	1.90	0.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004171937-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004171937-02	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—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

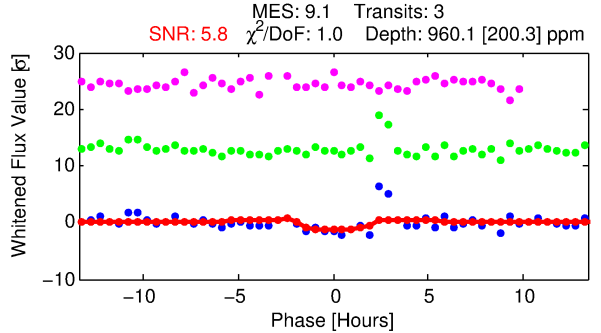
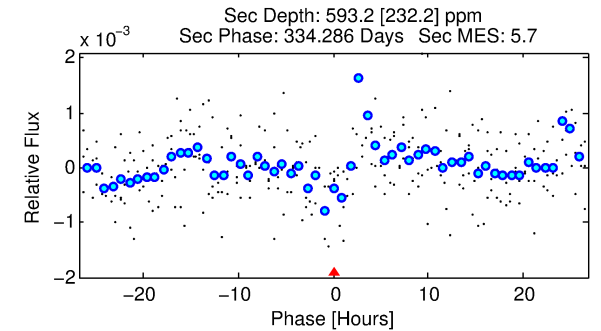
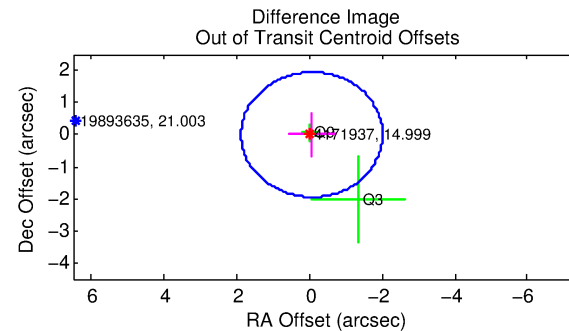
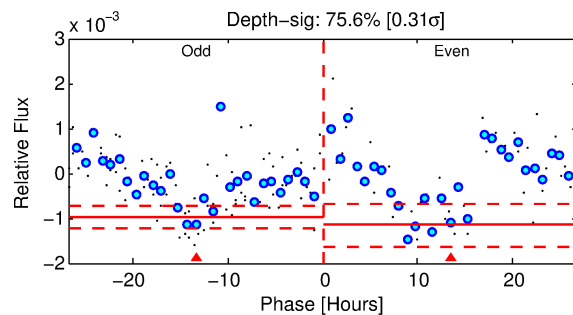
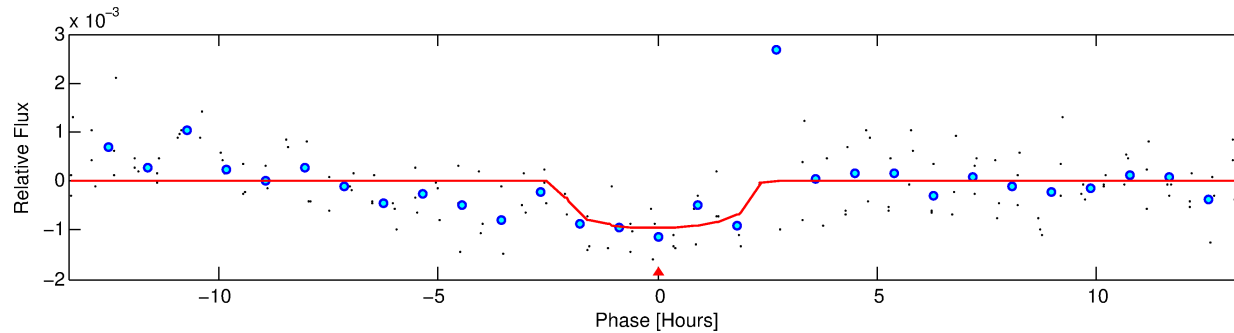
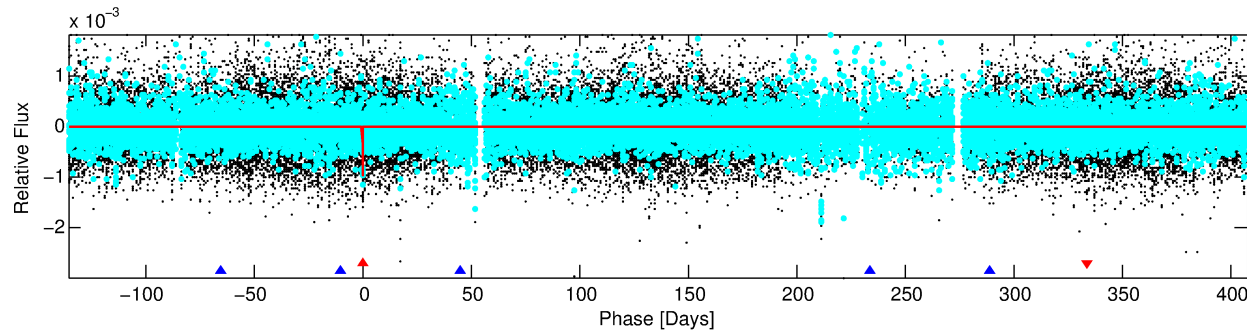
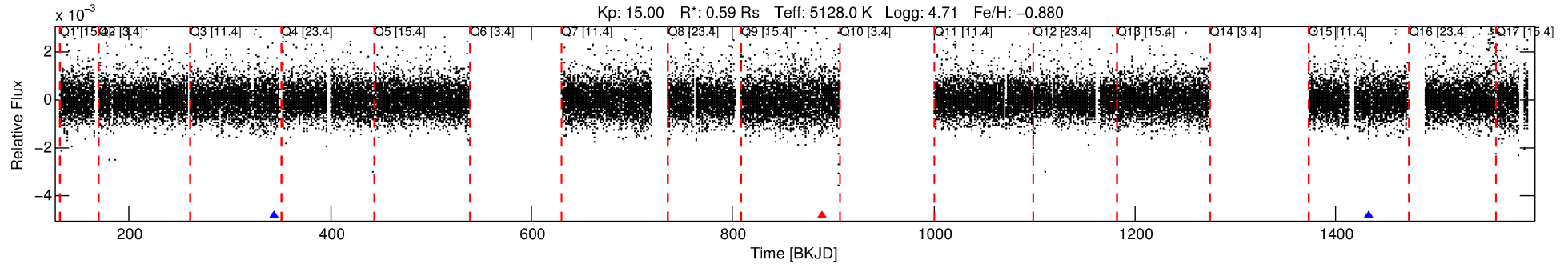
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004171937-01

No Significant Match Found

DV One-Page Summary

KIC: 4171937 Candidate: 1 of 2 Period: 543.595 d

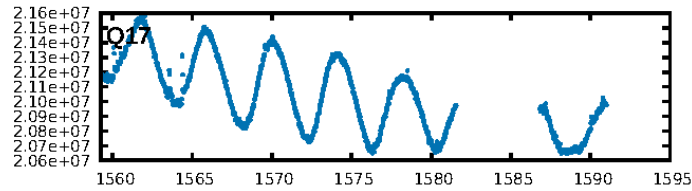
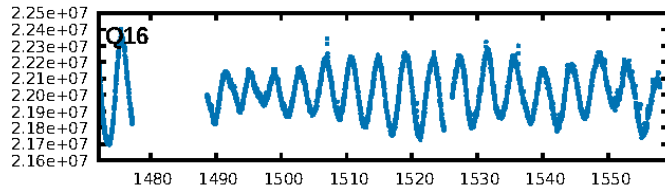
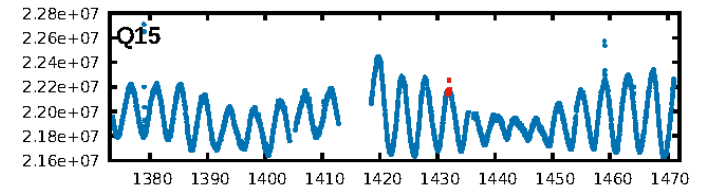
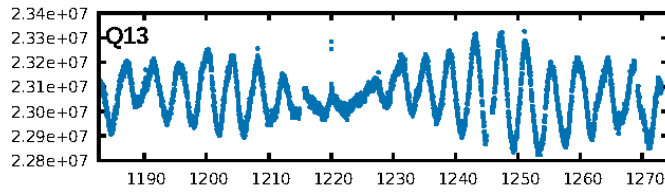
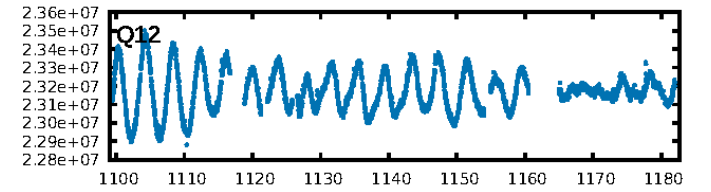
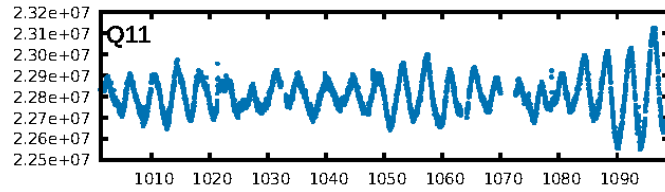
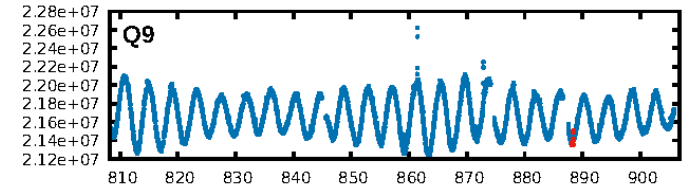
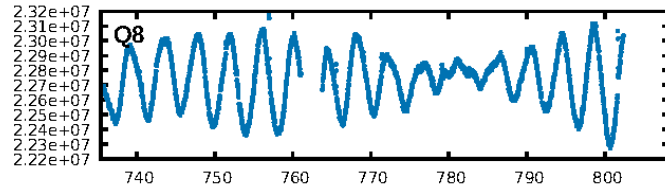
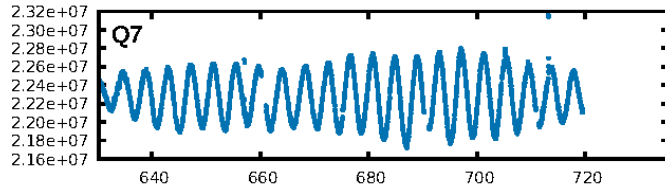
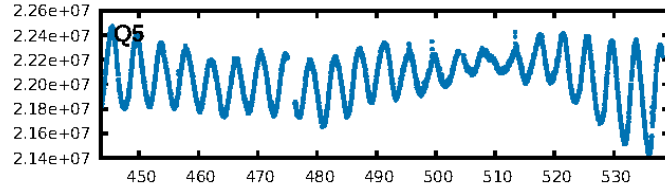
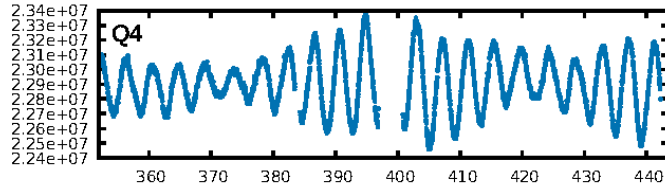
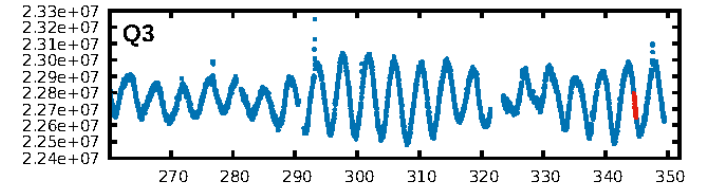
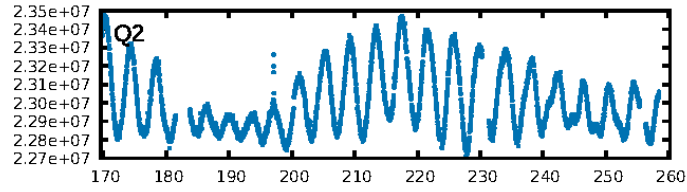
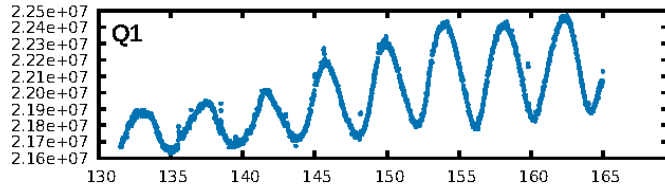


DV Fit Results:	DV Diagnostic Results:
Period = 543.59532 [0.00940] d	ShortPeriod-sig: 100.0% [915.23σ]
Epoch = 344.7200 [0.0138] BKJD	LongPeriod-sig: N/A
Rp/R* = 0.0300 [0.0411]	ModelChiSquare2-sig: 9.7%
a/R* = 731.40 [4062.45]	ModelChiSquareGof-sig: 96.6%
b = 0.66 [4.76]	Bootstrap-pfa: 1.66e-09
Seff = 0.17 [0.03]	RollingBand-fgt: 0.67 [2/3]
Teq = 164 [7] K	GhostDiagnostic-chr: 1.509
Rp = 1.94 [2.68] Re	Centroid-sig: 29.9%
a = 1.1365 [0.1039] AU	Centroid-so: 2.022 arcsec [1.05σ]
Ag = 111434.35 [309353.71] [0.36σ]	OotOffset-rm: 0.069 arcsec [0.11σ]
Teffp = 4624 [3209] K [1.39σ]	OotOffset-st: 0/1/0/1 [2]
	KicOffset-rm: 0.170 arcsec [0.26σ]
	OotOffset-st: 0/1/0/1 [2]
	KicOffset-st: 0/1/0/1 [2]
	DiffImageQuality-fgm: 0.50 [1/2]
	DiffImageOverlap-fno: 1.00 [3/3]

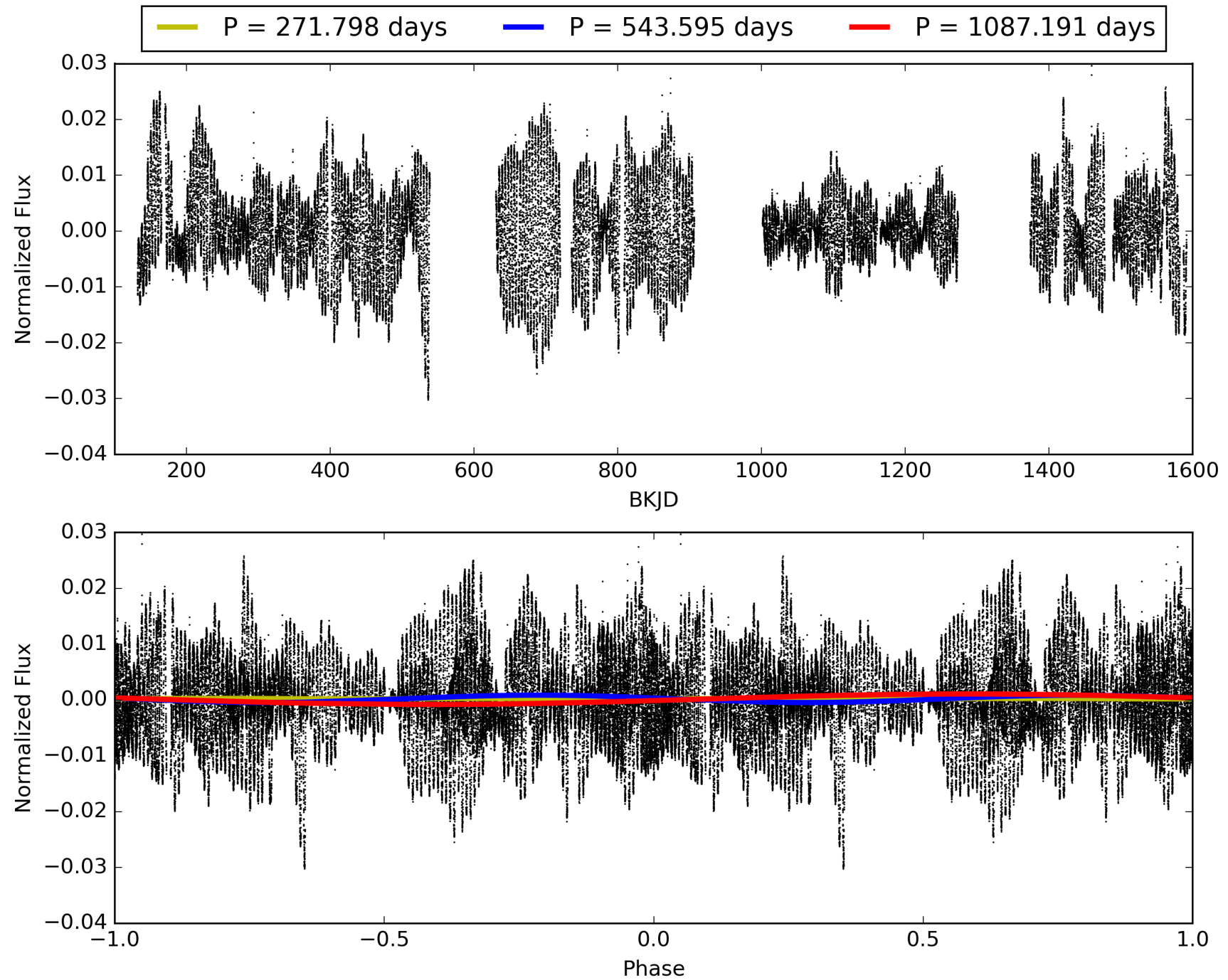
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:24:13 Z

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

TCE 004171937-01, PDC Light Curves

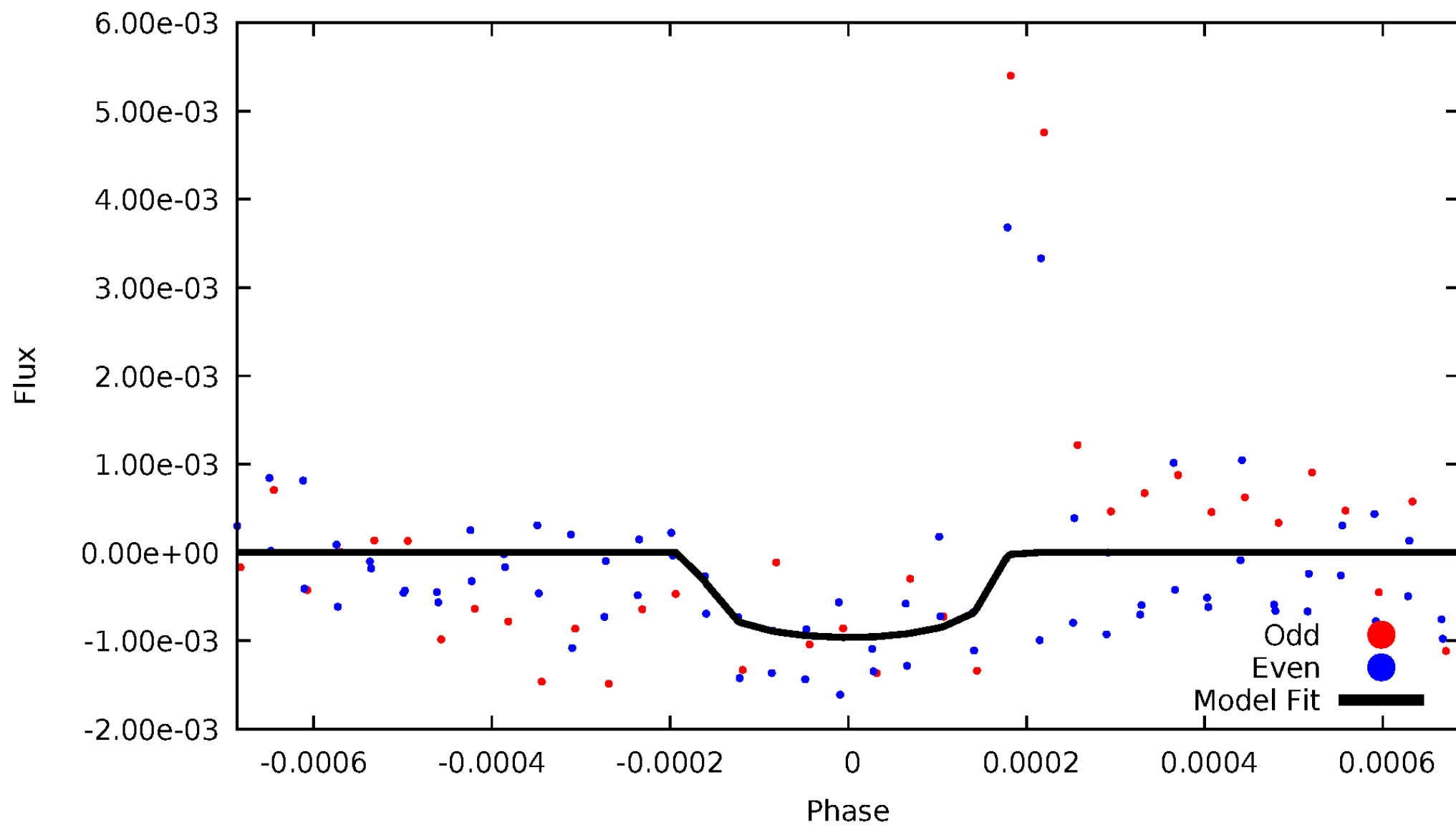


TCE 004171937-01



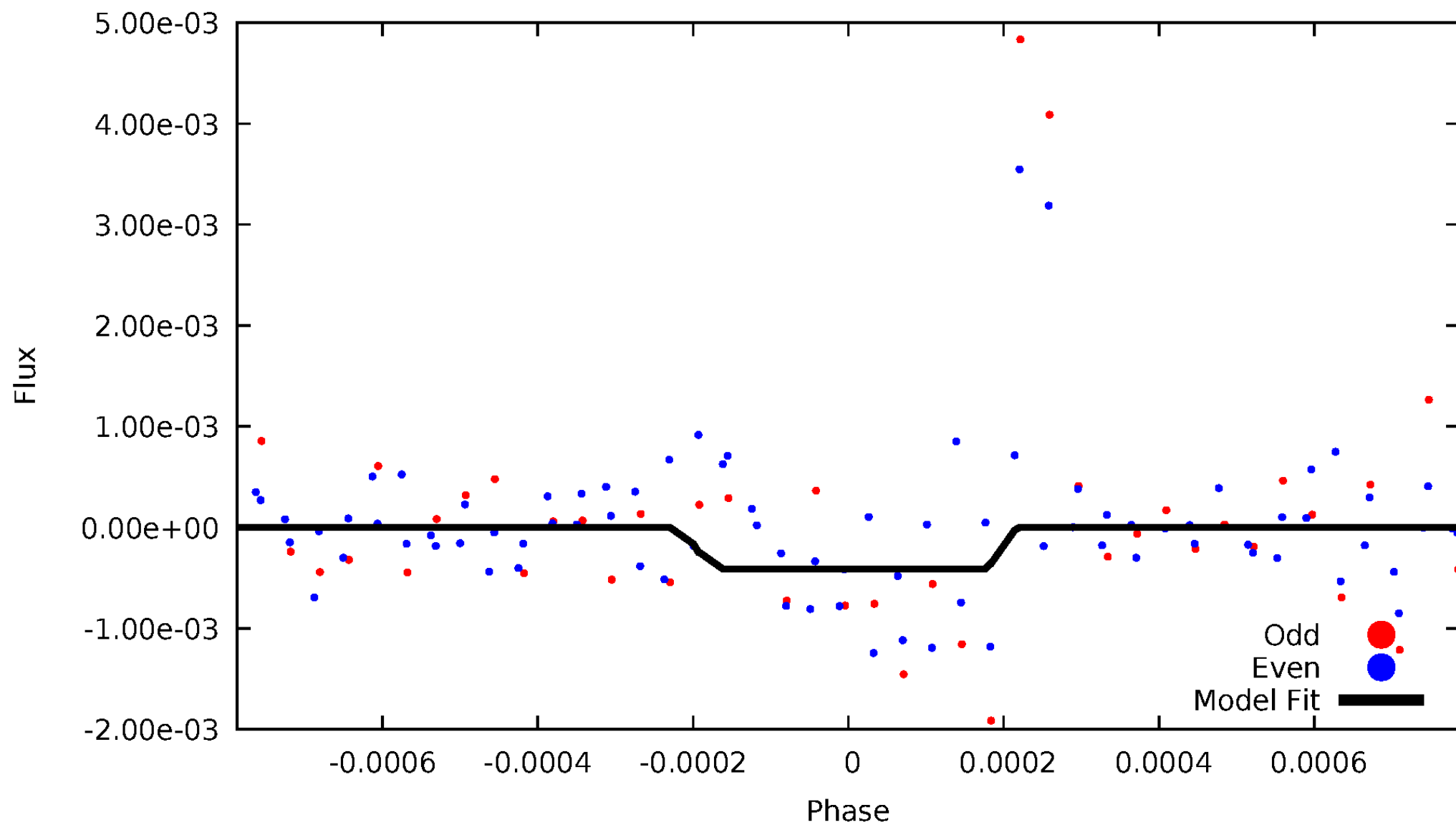
DV Odd/Even

TCE 004171937-01



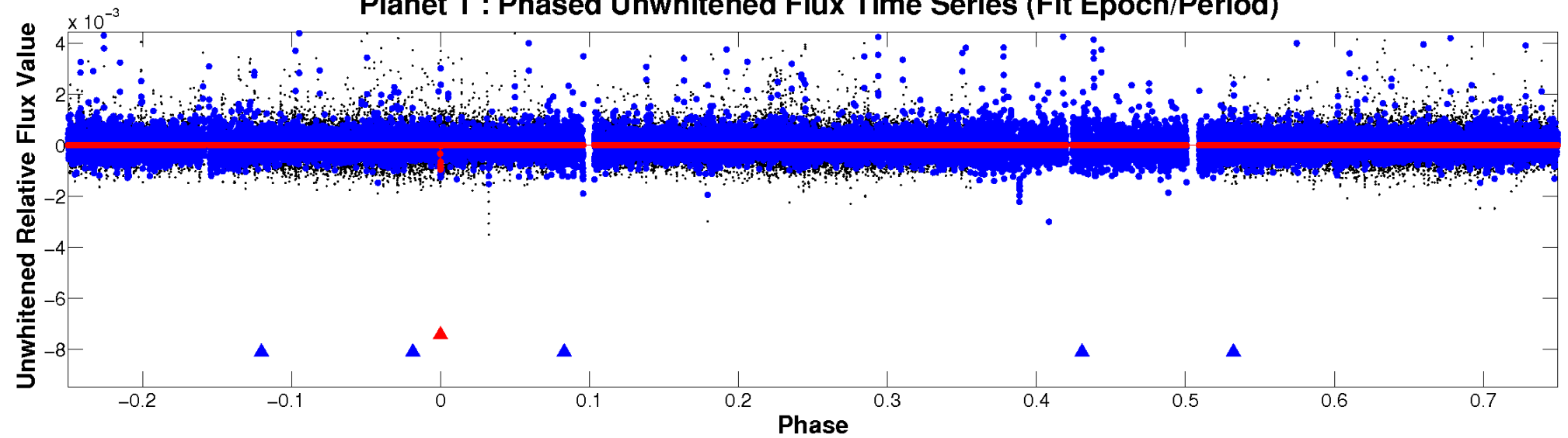
ALT Odd/Even

TCE 004171937-01

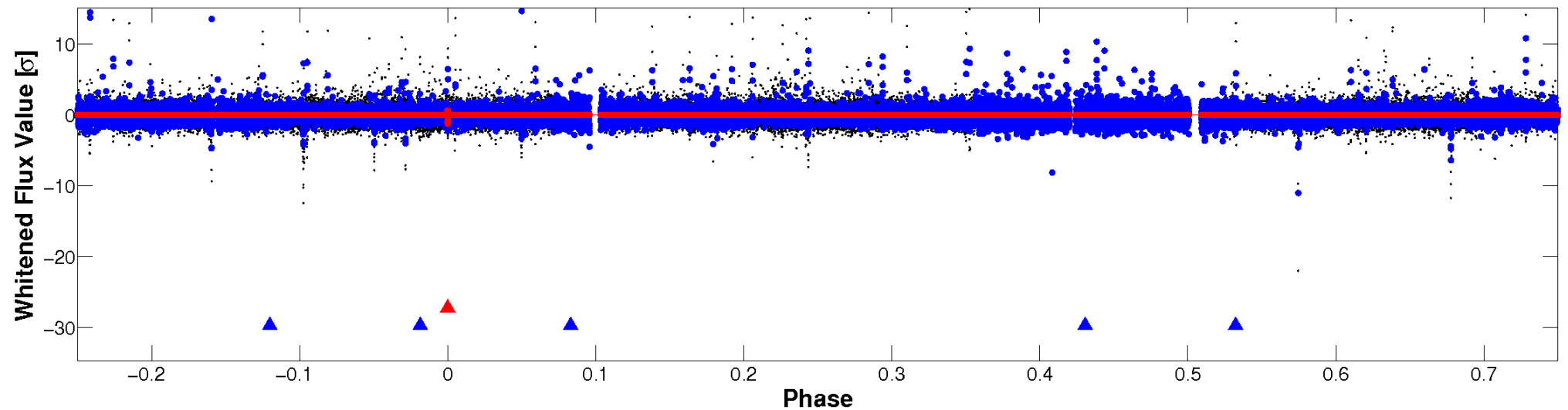


Non-Whitened Vs. Whitened Light Curve

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

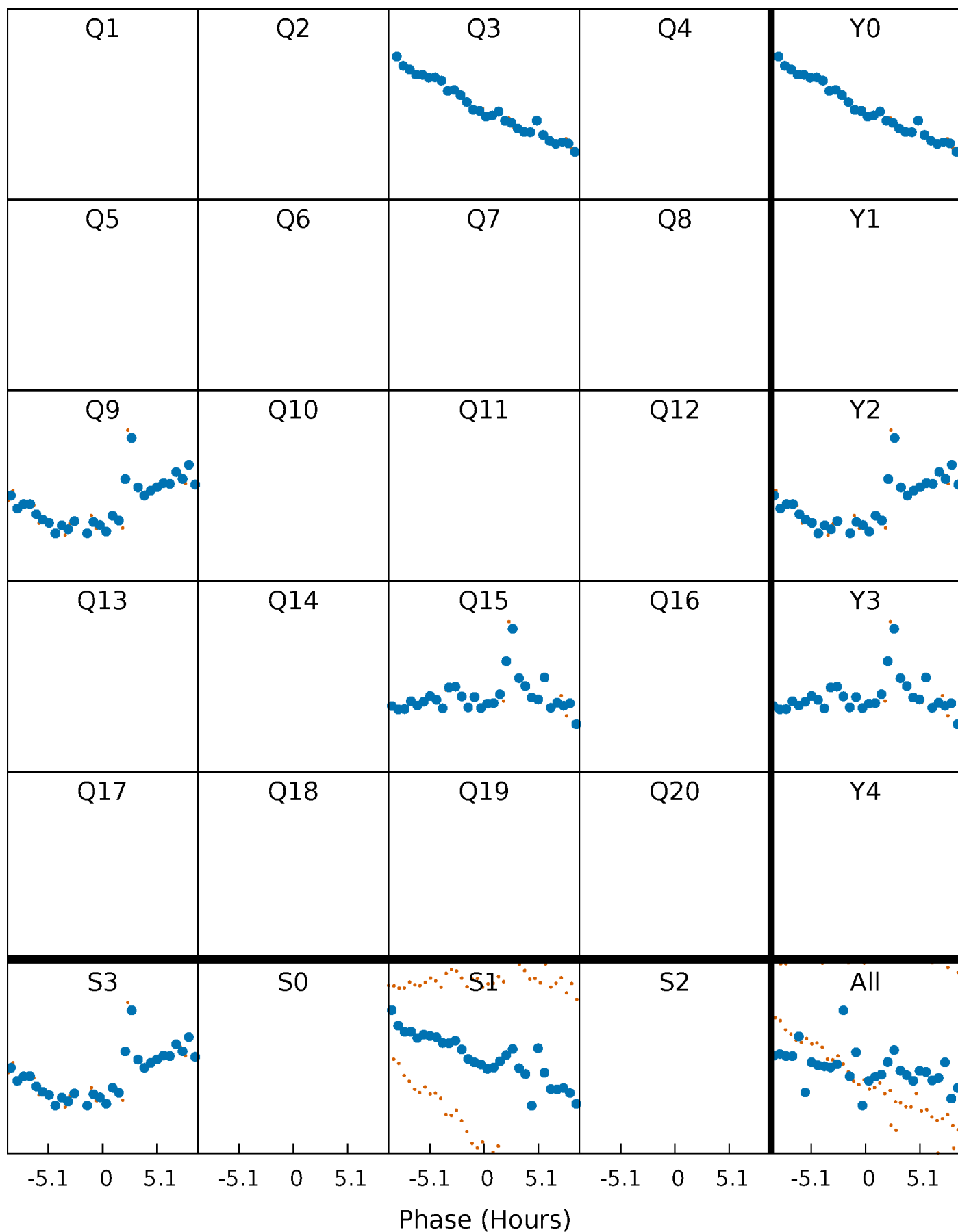


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



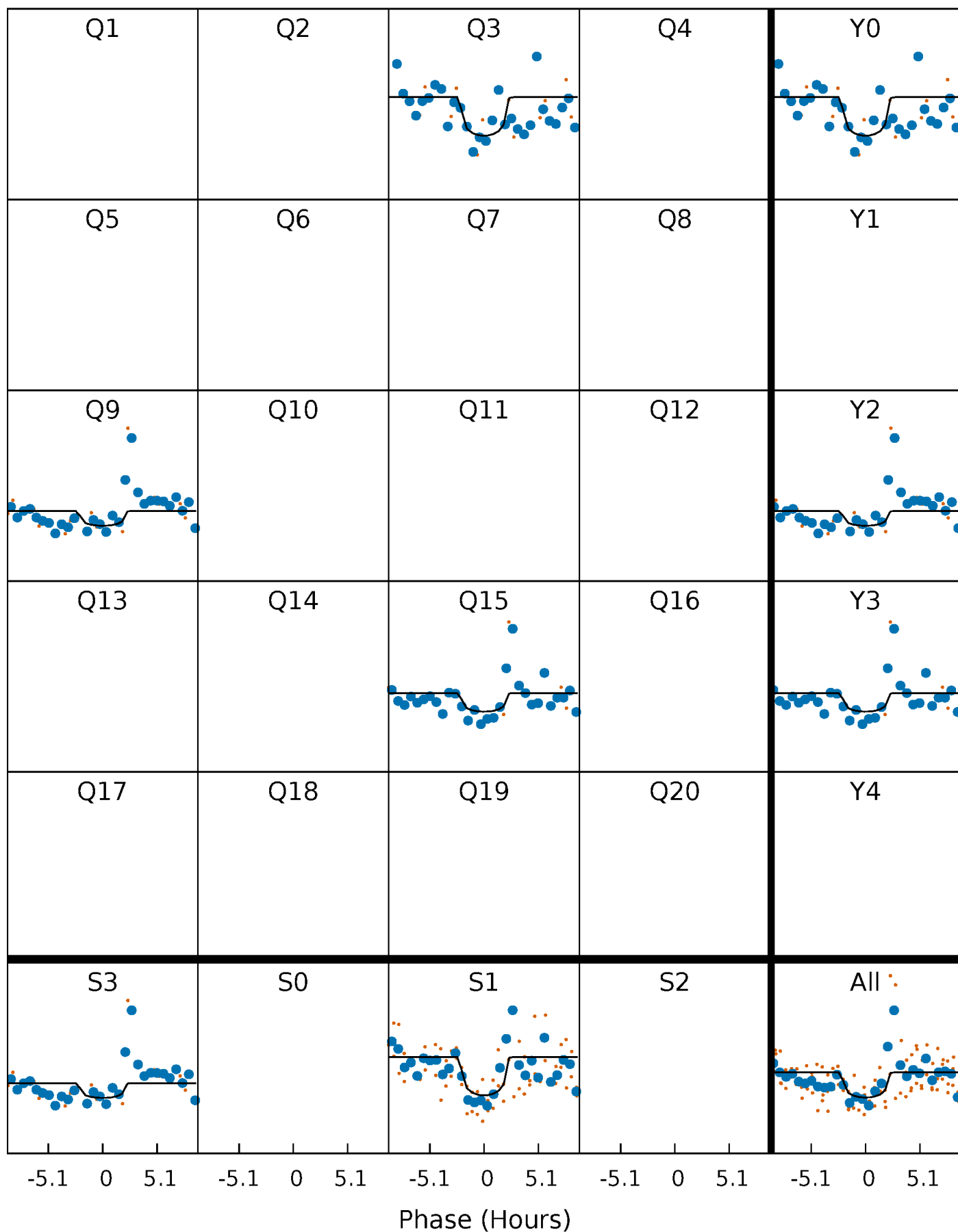
PDC Quarter-Phased Transit Curves

TCE 004171937-01 P=543.595319 Days $T_0=344.720041$ (BKJD)



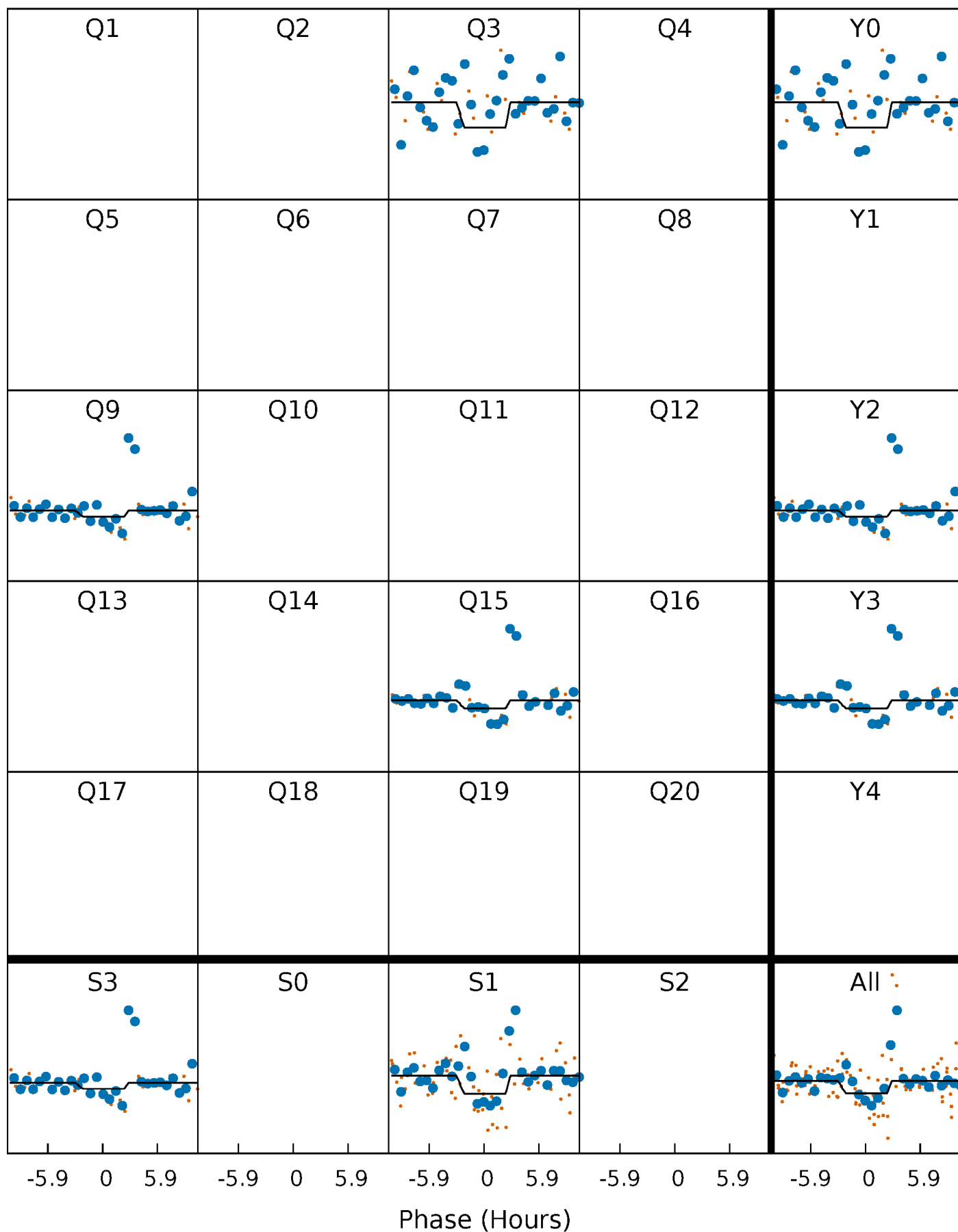
DV Quarter-Phased Transit Curves

TCE 004171937-01 $P=543.595319$ Days $T_0=344.720041$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

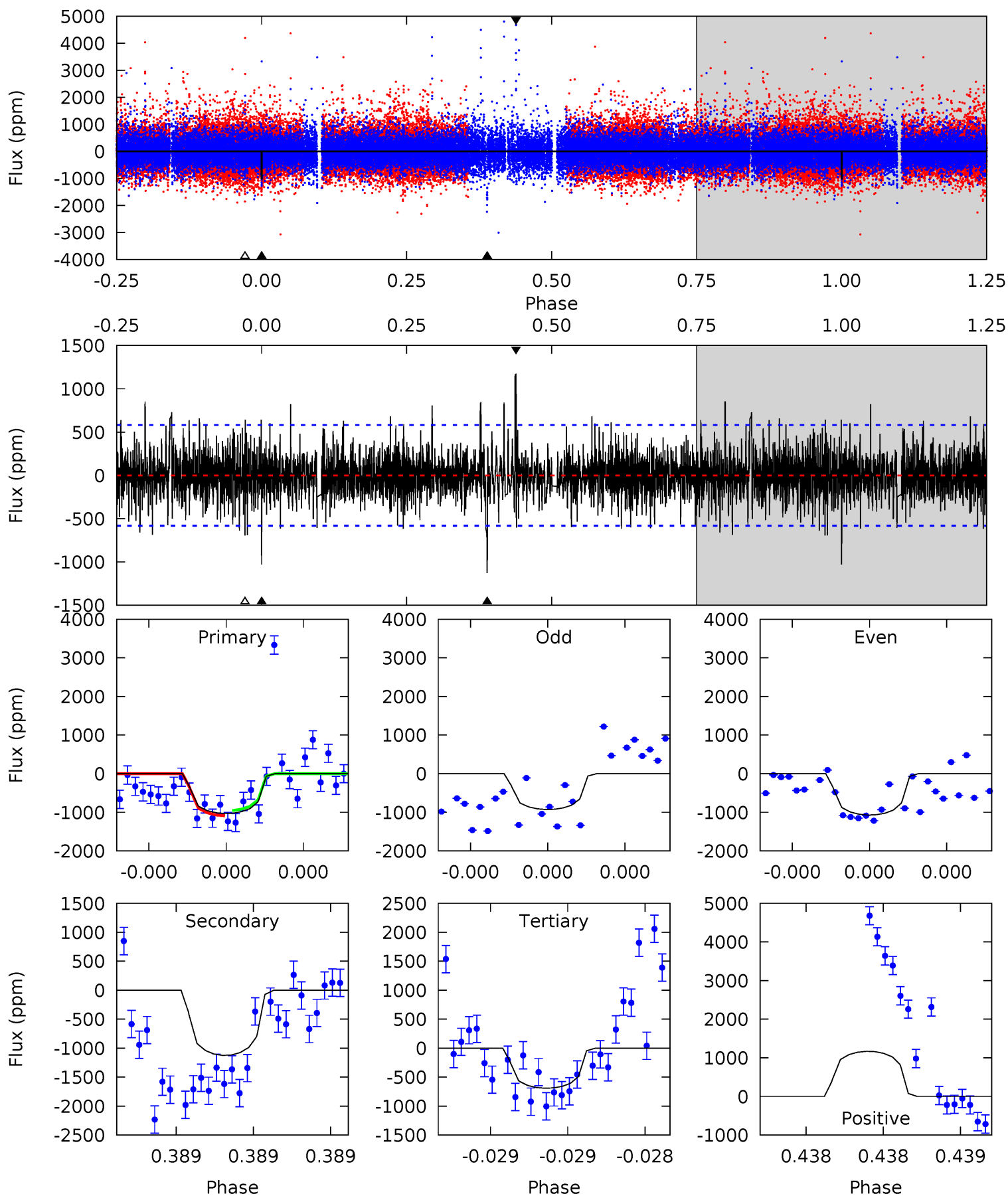
TCE 004171937-01 P=543.593997 Days $T_0=344.699980$ (BKJD)



DV Model-Shift Uniqueness Test

004171937-01, P = 543.595319 Days, E = 344.720041 Days

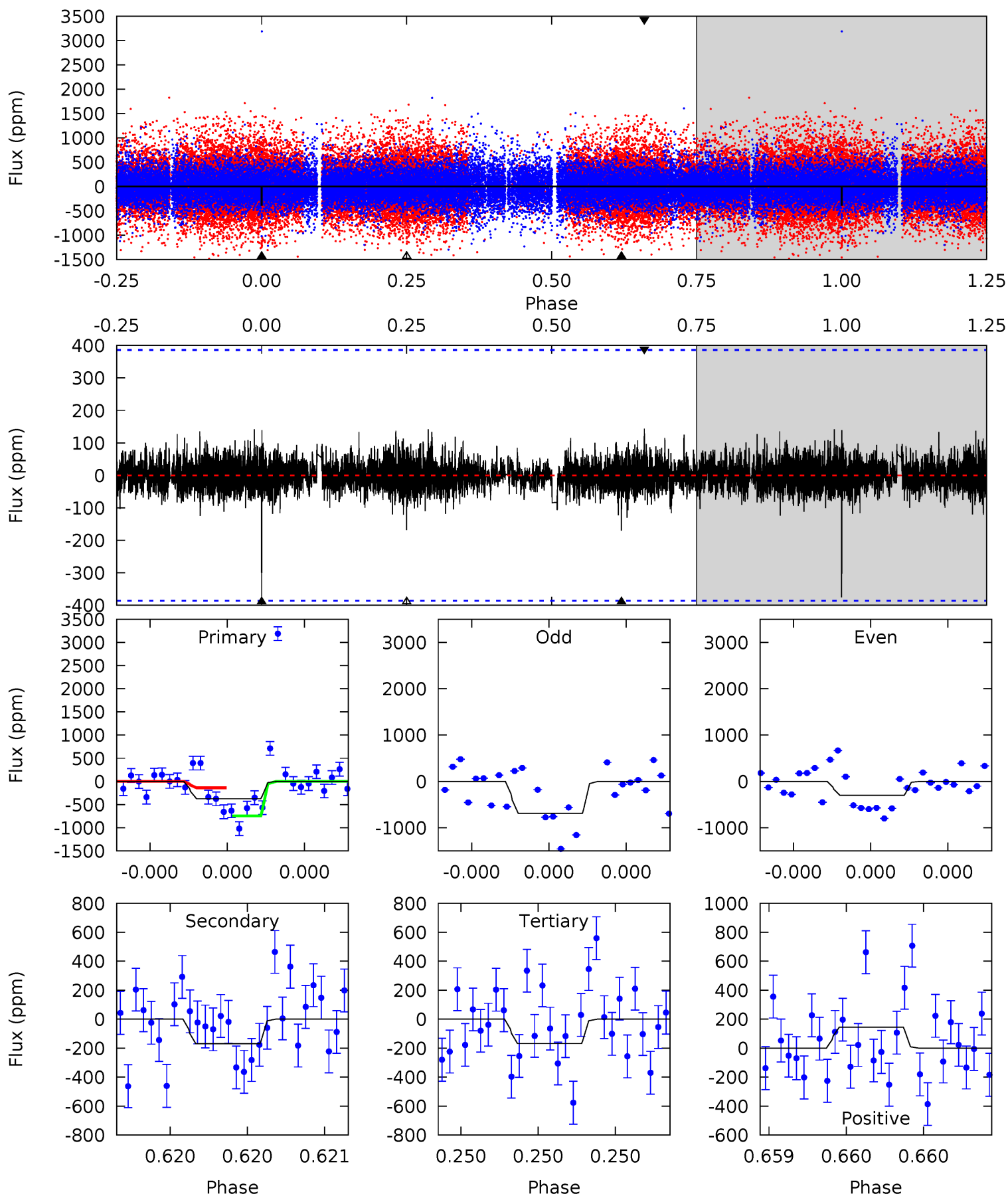
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.98	10.9	6.70	11.3	5.64	3.58	1.77	3.28	-1.34	4.20	-0.41	0.48	1.09	0.51	0.65



Alt Model-Shift Uniqueness Test

004171937-01, P = 543.593997 Days, E = 344.699980 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.45	2.47	2.45	2.09	5.61	3.54	0.45	3.00	3.36	0.02	0.38	2.68	0.78	0.28	4.35



Stellar Parameters For KIC 004171937

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5128^{+154}_{-138}	$4.710^{+0.023}_{-0.072}$	$-0.880^{+0.300}_{-0.300}$	$0.595^{+0.065}_{-0.026}$	$0.662^{+0.047}_{-0.047}$	$4.418^{+0.397}_{-1.004}$
	+3%/-3%	+0%/-2%	+34%/-34%	+11%/-4%	+7%/-7%	+9%/-23%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004171937-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1125 ± 103	$2.63^{+2.55}_{-1.71}$	230^{+8}_{-6}	4803^{+3252}_{-1095}	$111846^{+821281}_{-82116}$
Alt.	-170 ± 69	$2.34^{+2.21}_{-1.57}$	231^{+9}_{-7}	3518^{+1806}_{-679}	$20521^{+168814}_{-15518}$

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

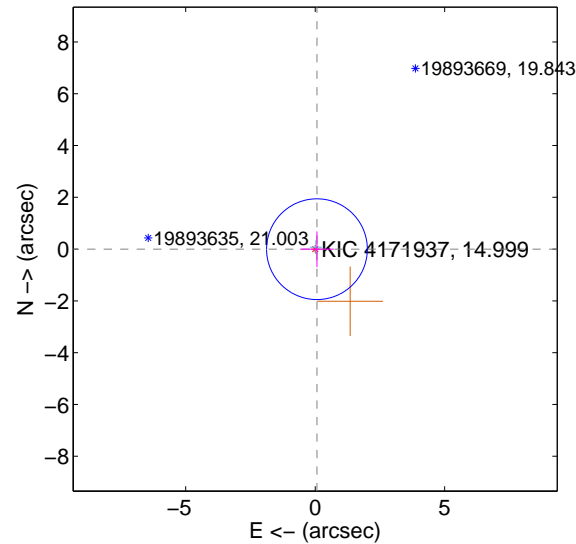
Supplemental centroid analysis for 004171937-01. Kepler magnitude: 15.00. Transit SNR 5.75

There are 1 quarters with good PRF difference image offsets

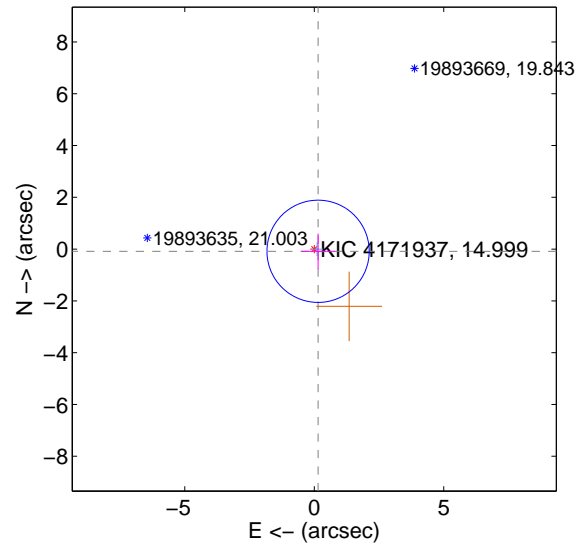
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.069 ± 0.649	0.11	-0.069 ± 0.648	-0.004 ± 0.686
PRF-fit source offset from KIC position	0.170 ± 0.658	0.26	-0.148 ± 0.648	-0.085 ± 0.686
photometric centroid source offset	2.02 ± 1.92	1.05	-1.81 ± 1.94	-0.90 ± 1.85

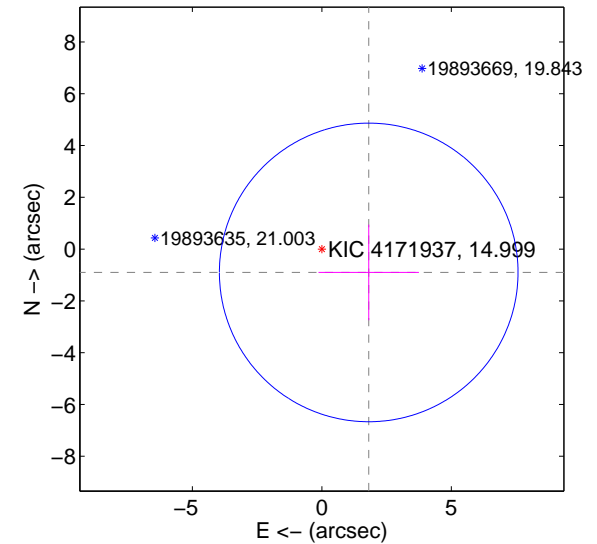
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



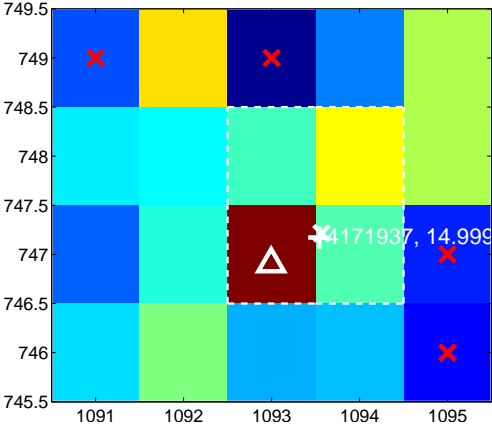
Q2 no difference image



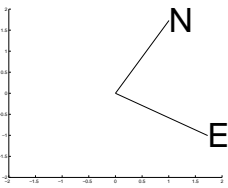
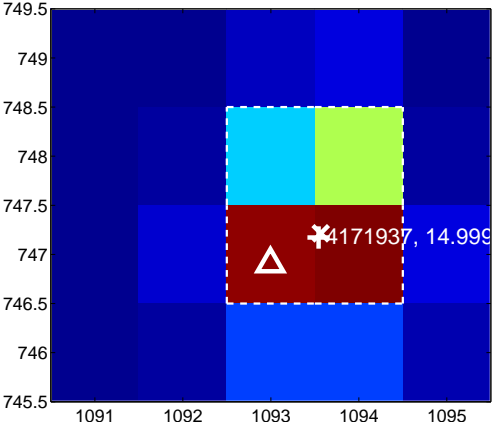
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



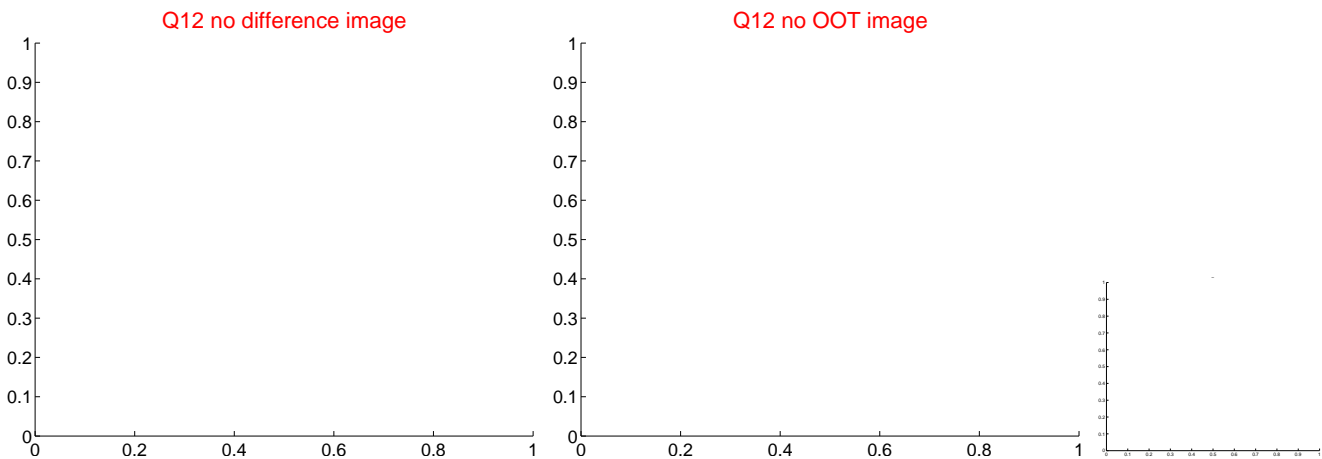
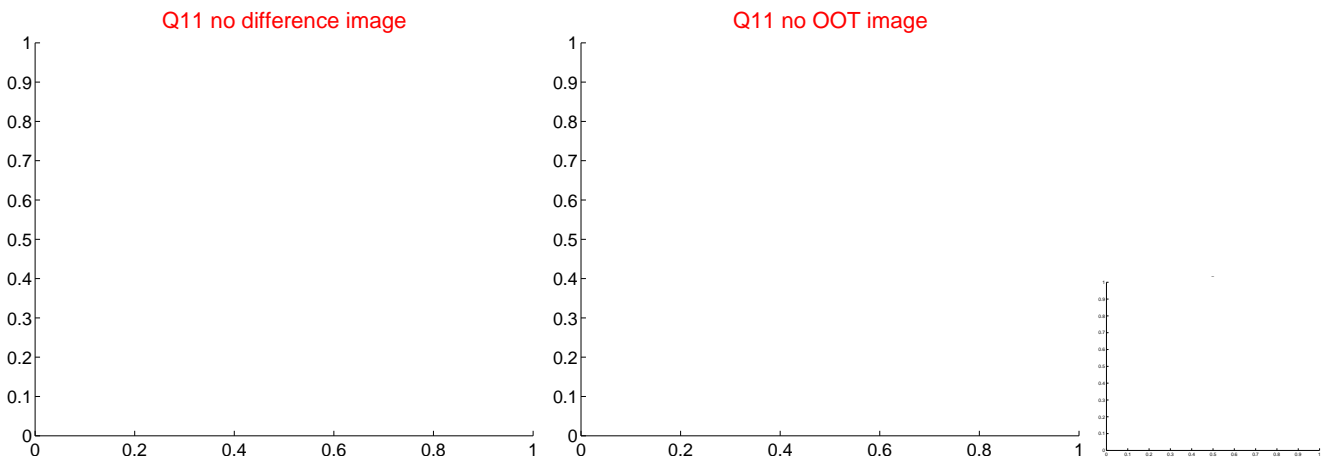
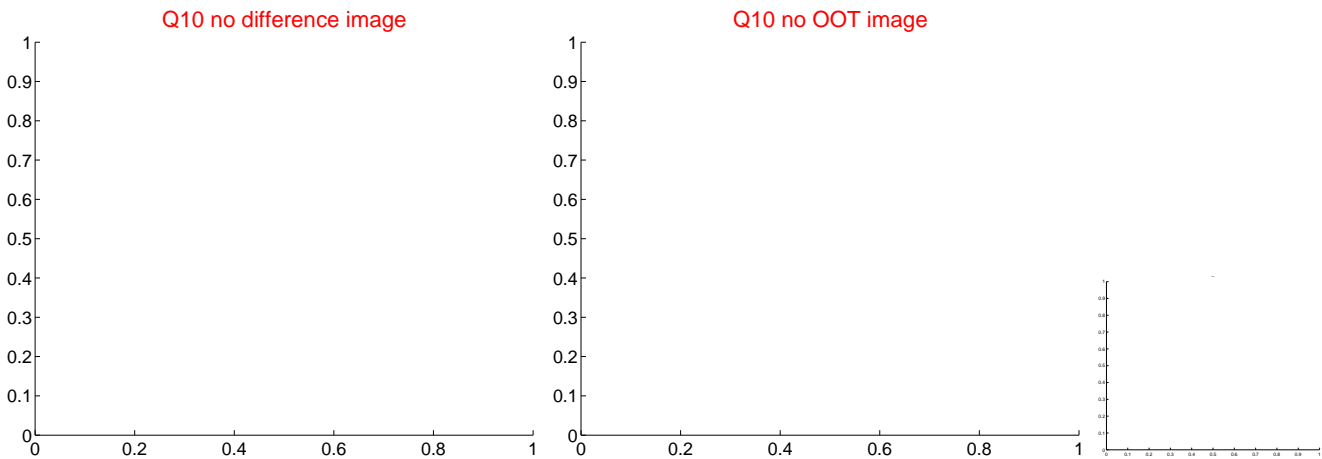
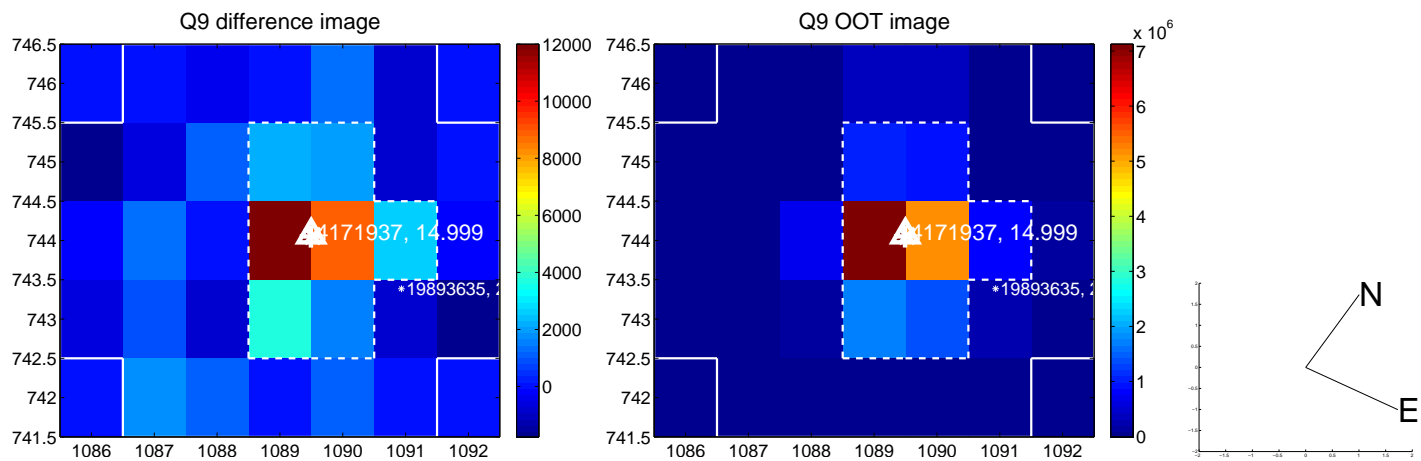
Q4 no OOT image



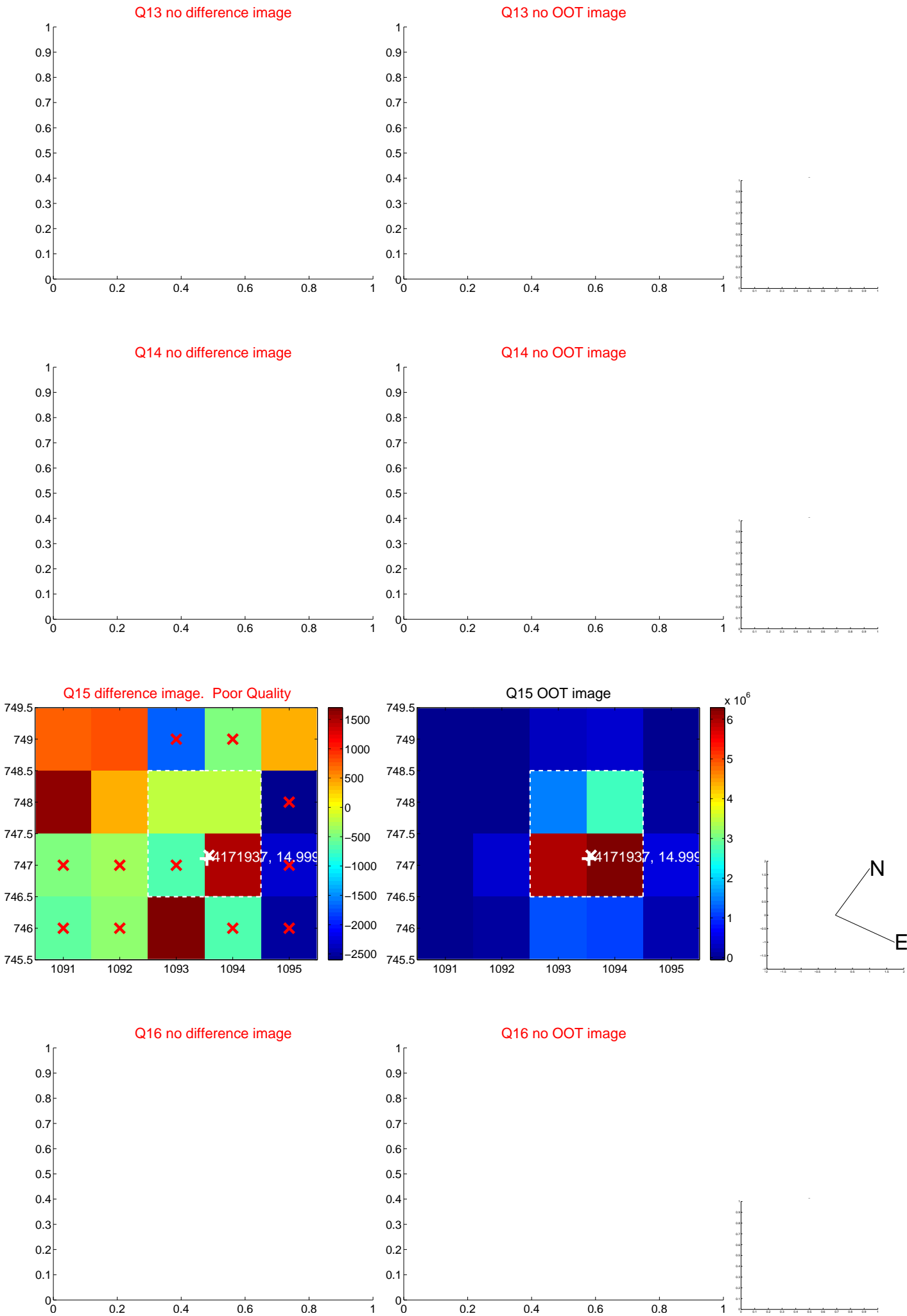
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



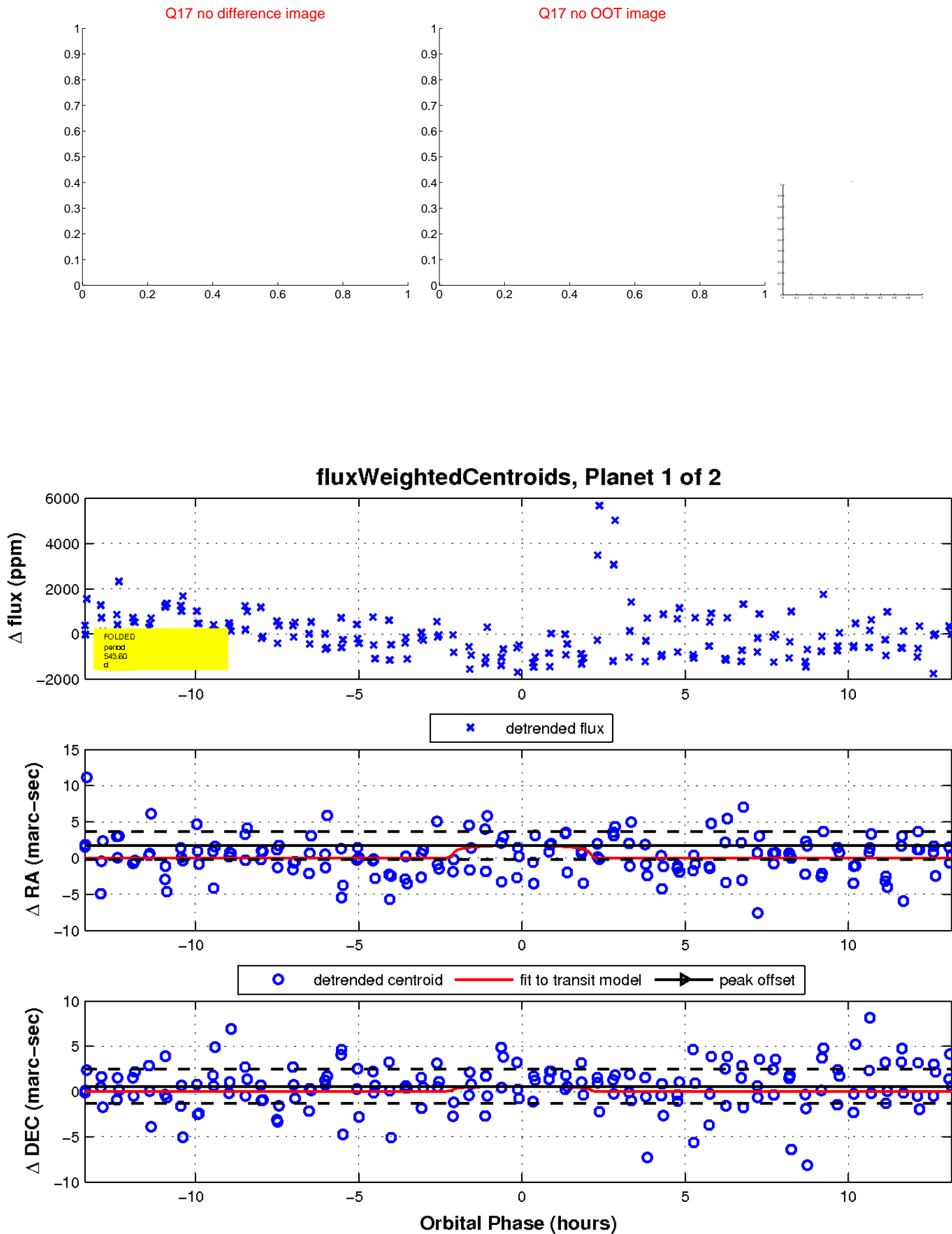
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



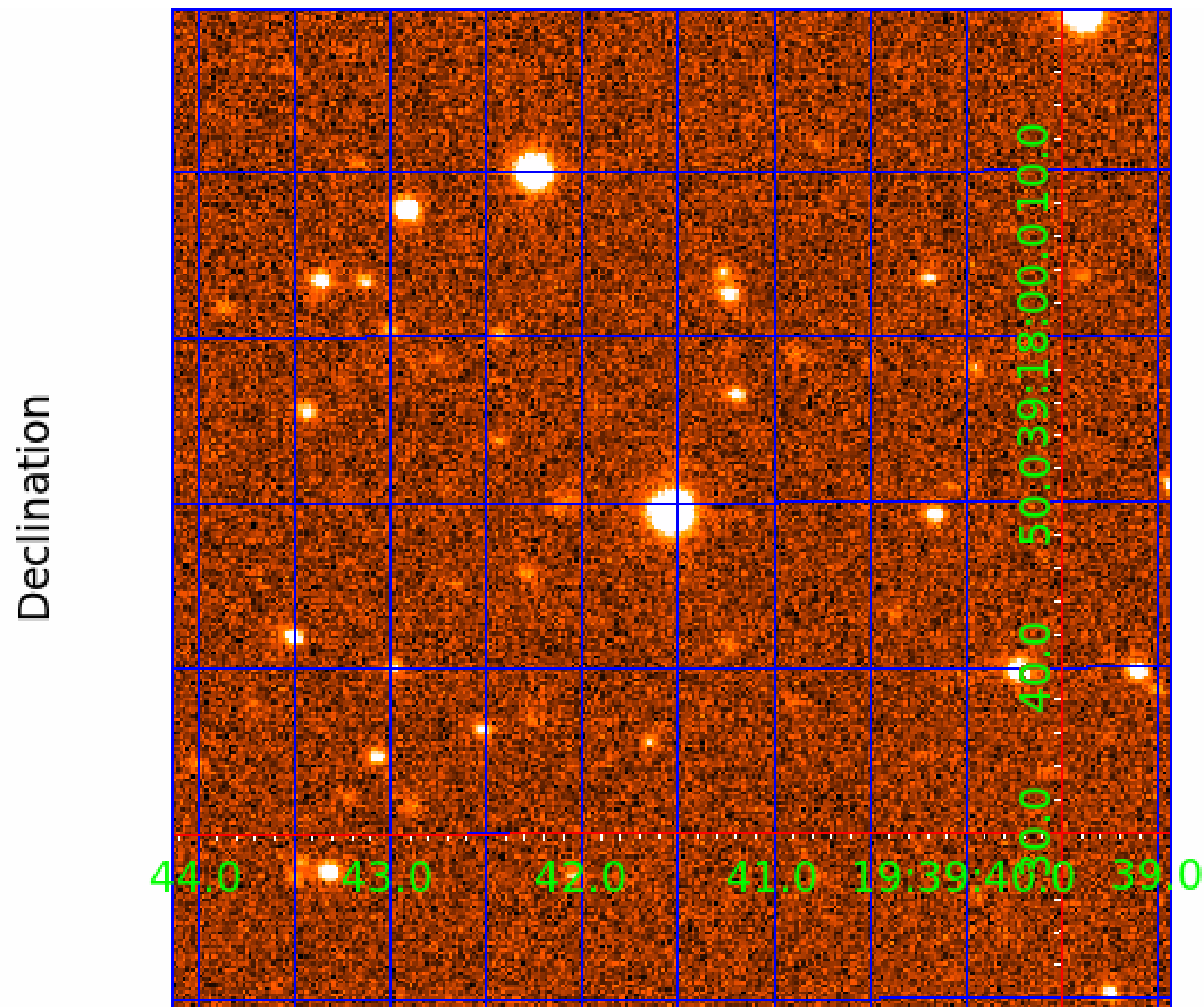
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image



KIC 004171937

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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004171937-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004171937-02	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—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

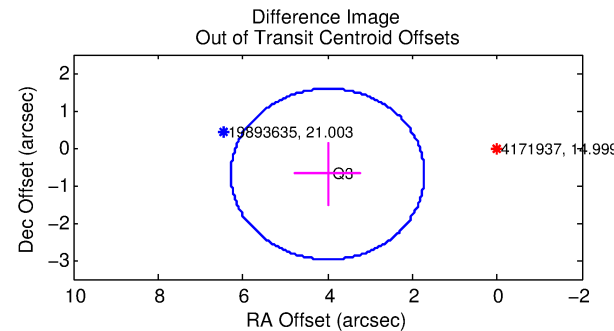
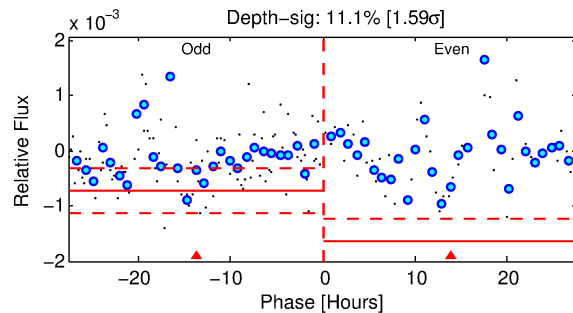
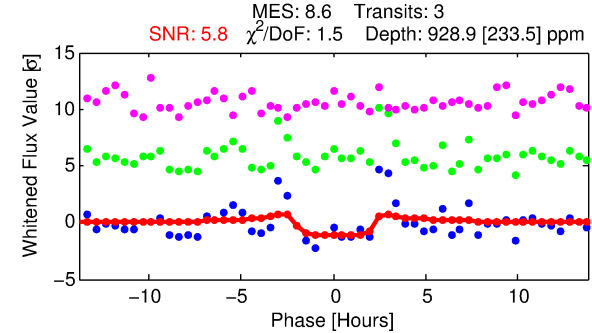
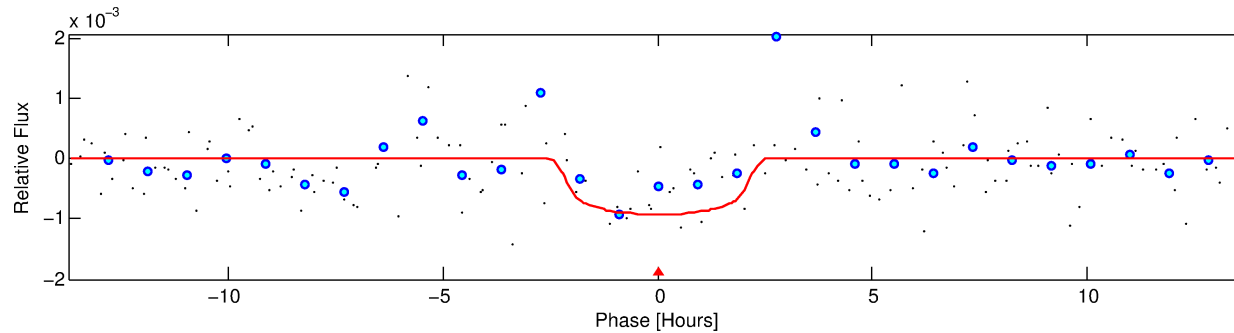
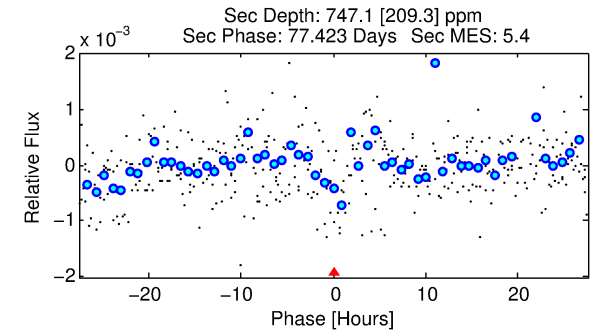
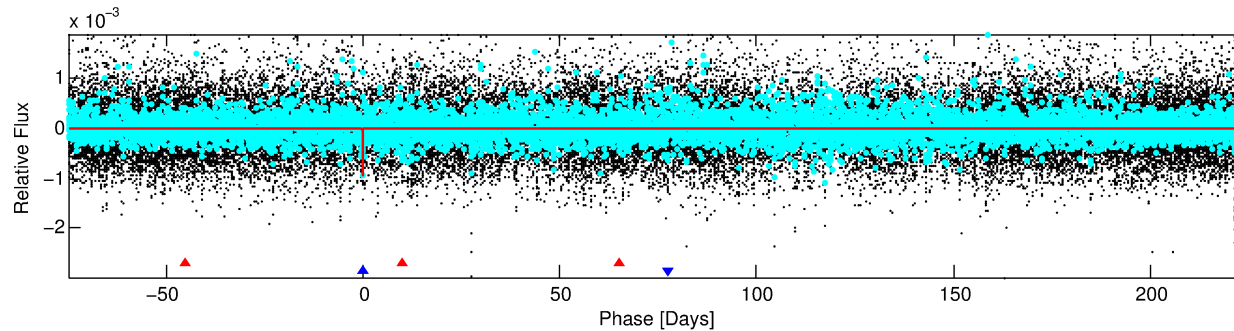
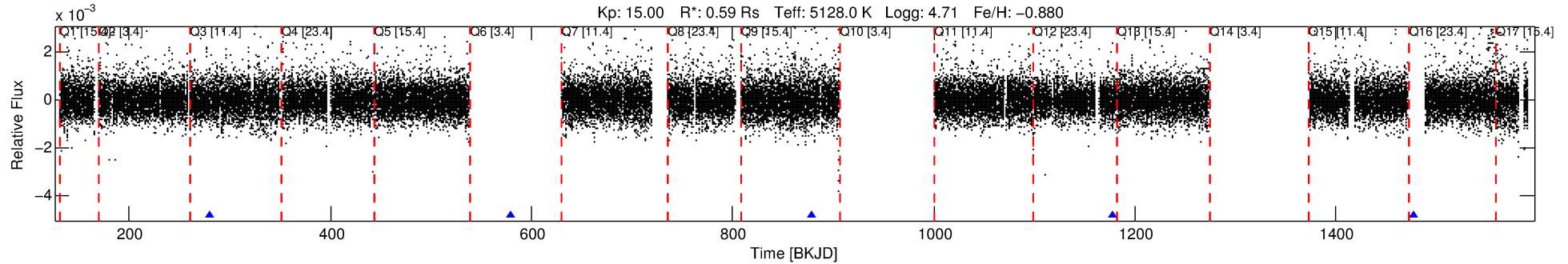
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004171937-02

No Significant Match Found

DV One-Page Summary

KIC: 4171937 Candidate: 2 of 2 Period: 299.418 d



DV Fit Results:

Period = 299.41806 [0.00691] d
Epoch = 279.3999 [0.0156] BKJD
Rp/R* = 0.0292 [0.0574]
a/R* = 405.60 [3247.52]
b = 0.63 [7.70]
Seff = 0.38 [0.07]
Teq = 200 [9] K
Rp = 1.90 [3.73] Re
a = 0.7636 [0.0698] AU
Ag = 66610.52 [262540.00] [0.25σ]
Teffp = 4960 [4887] K [0.97σ]

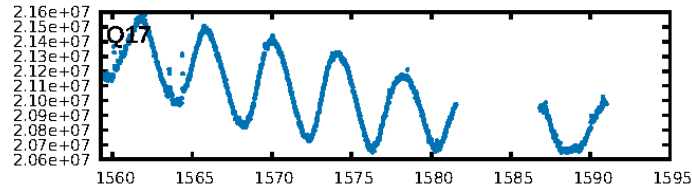
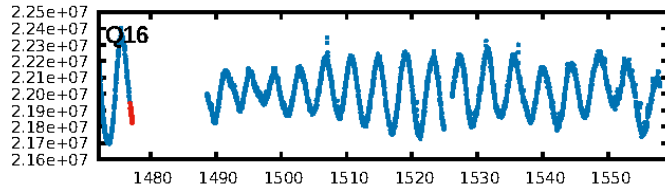
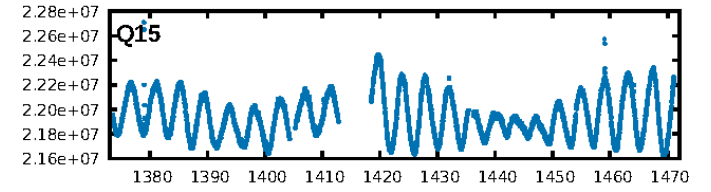
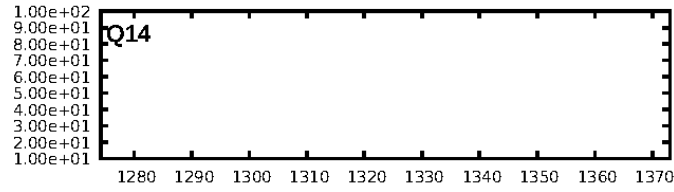
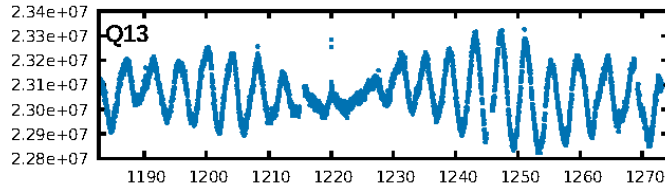
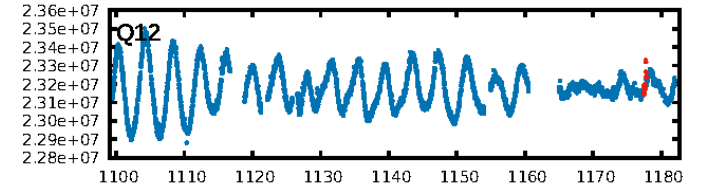
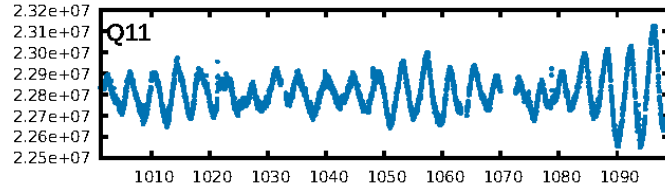
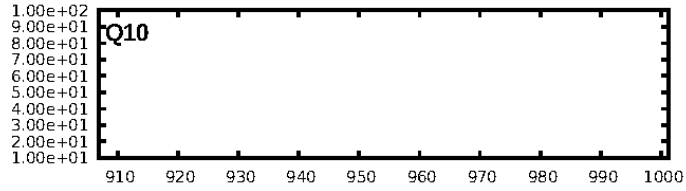
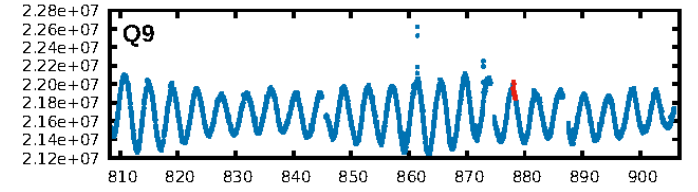
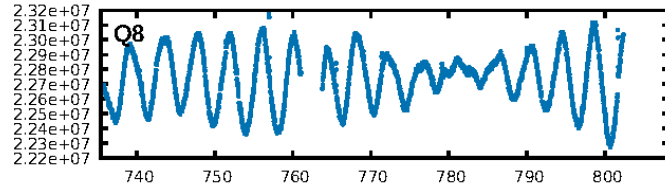
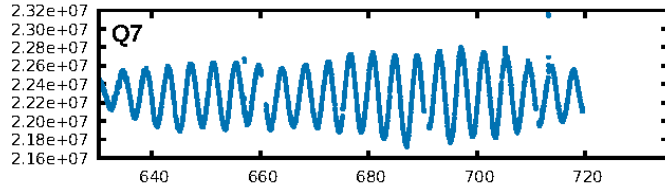
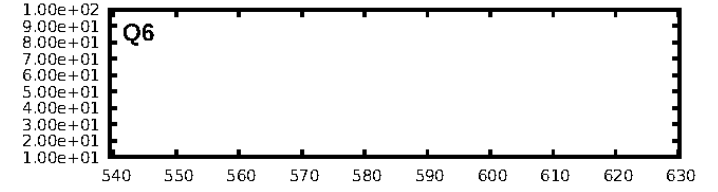
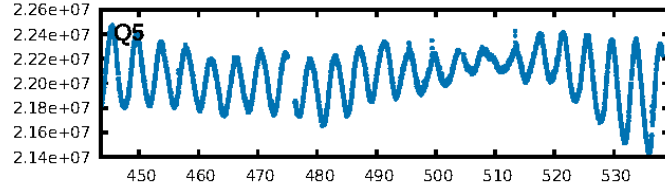
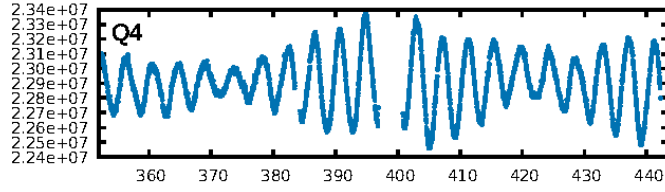
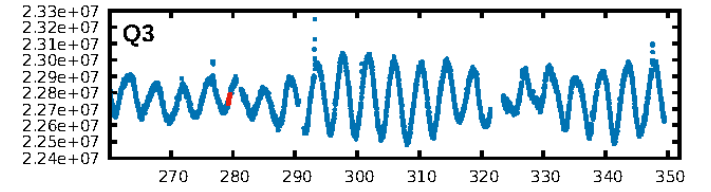
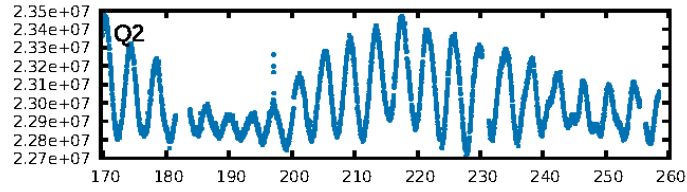
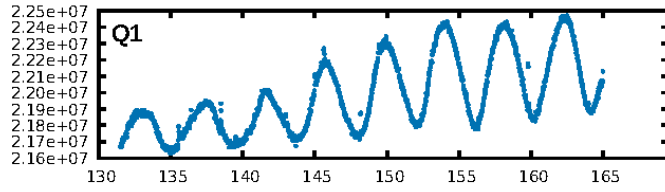
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [915.23σ]
ModelChiSquare2-sig: 2.3%
ModelChiSquareGof-sig: 79.0%
Bootstrap-pfa: 1.09e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 5.253
Centroid-sig: 27.2%
Centroid-so: 2.029 arcsec [1.07σ]
OotOffset-rm: 4.057 arcsec [5.33σ]
KicOffset-rm: 4.084 arcsec [5.36σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

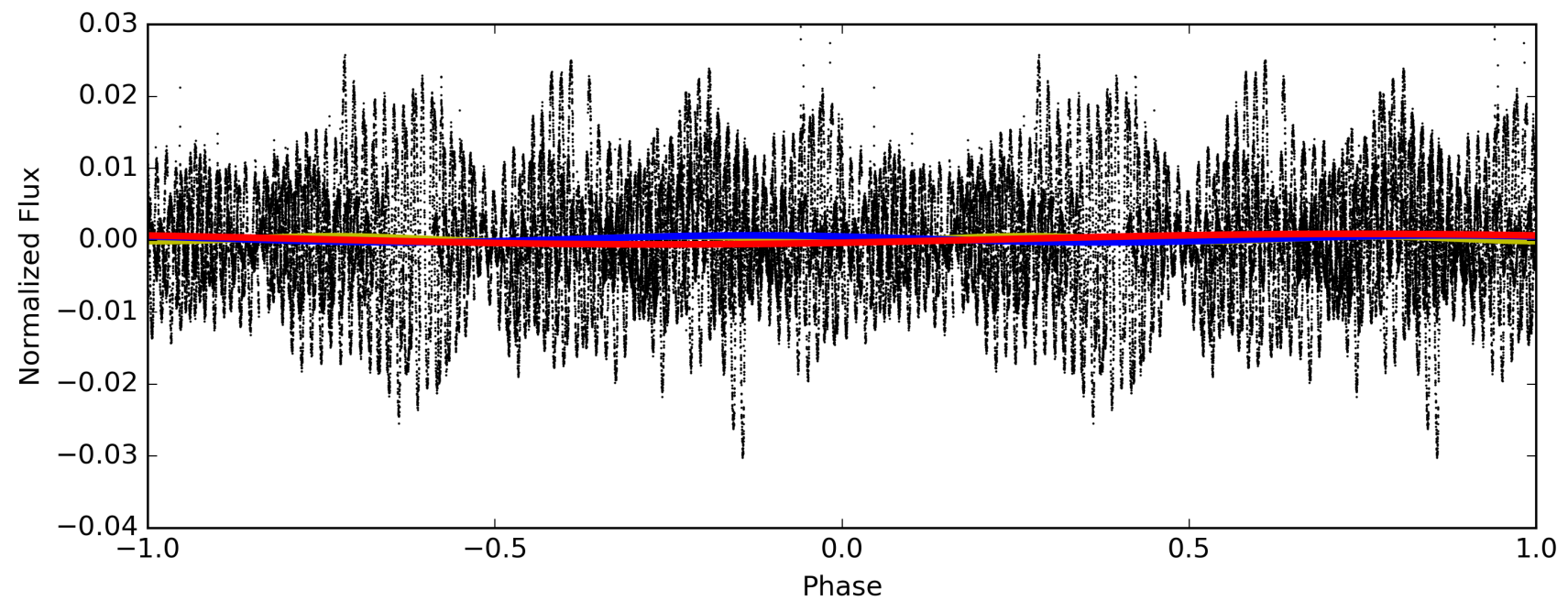
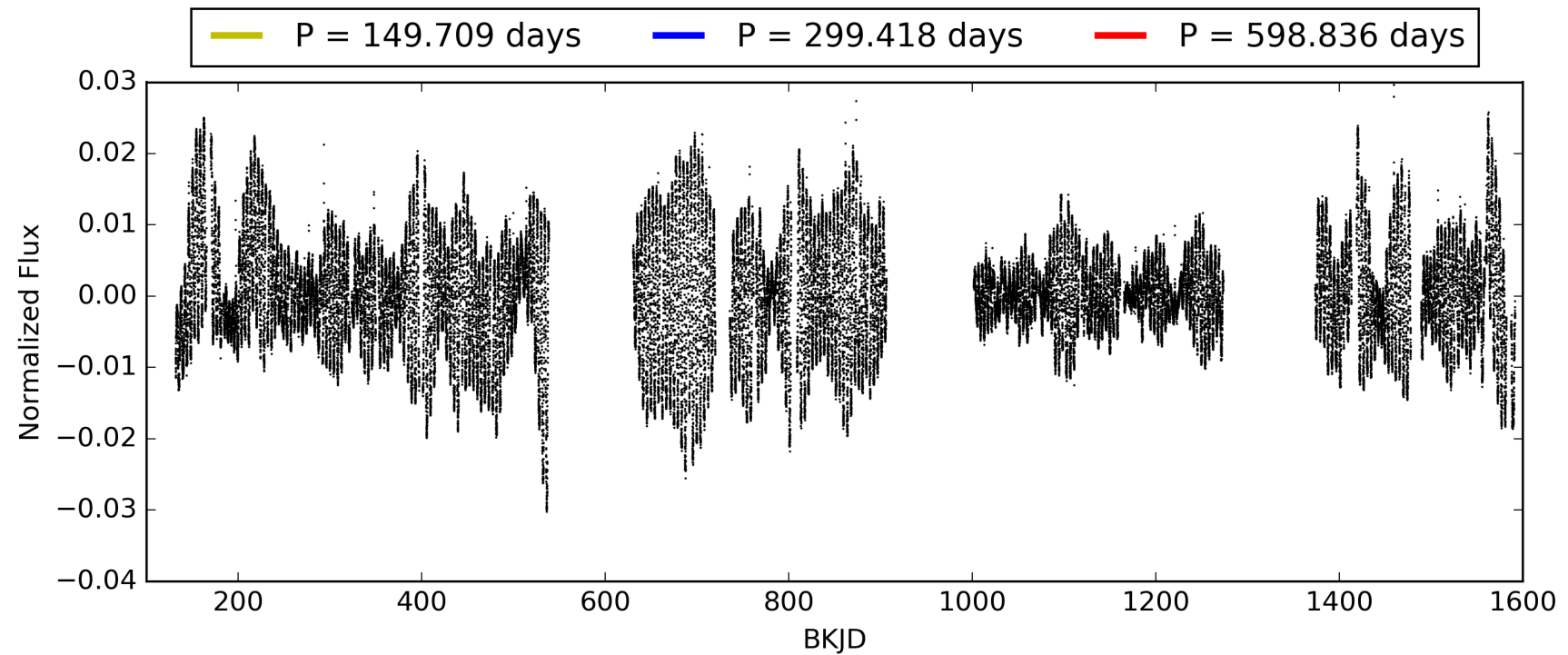
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:24:24 Z

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

TCE 004171937-02, PDC Light Curves

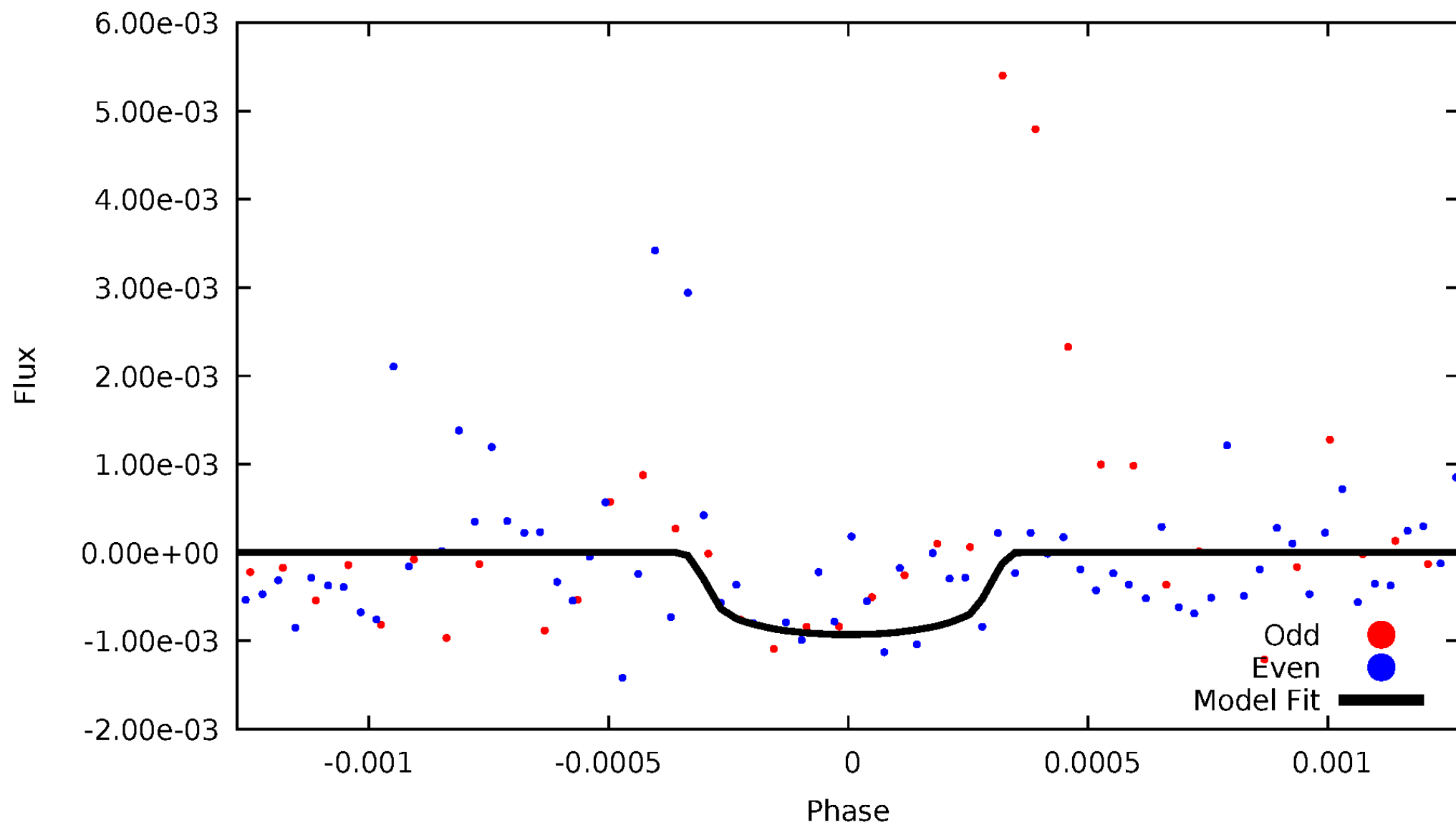


TCE 004171937-02



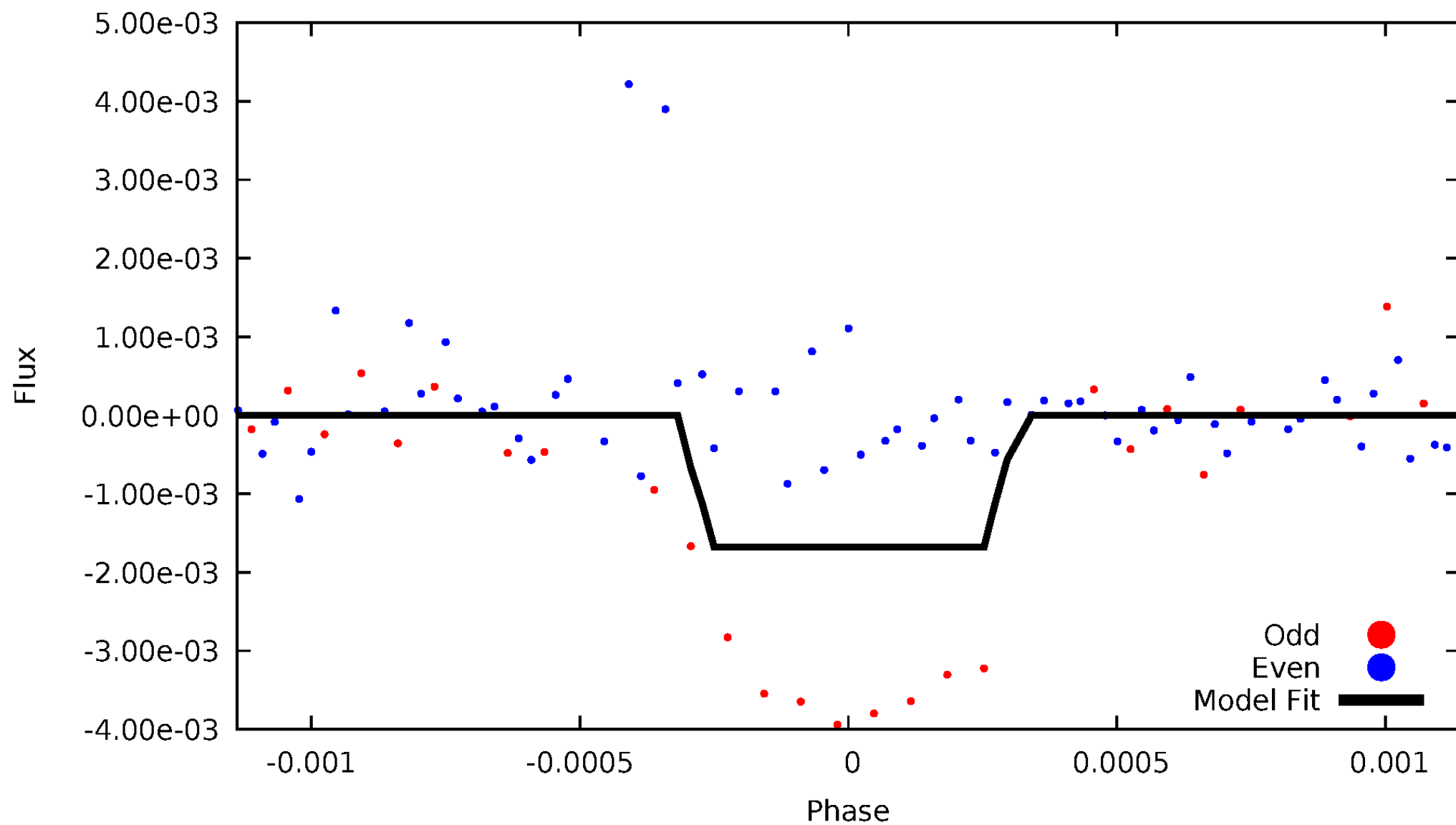
DV Odd/Even

TCE 004171937-02



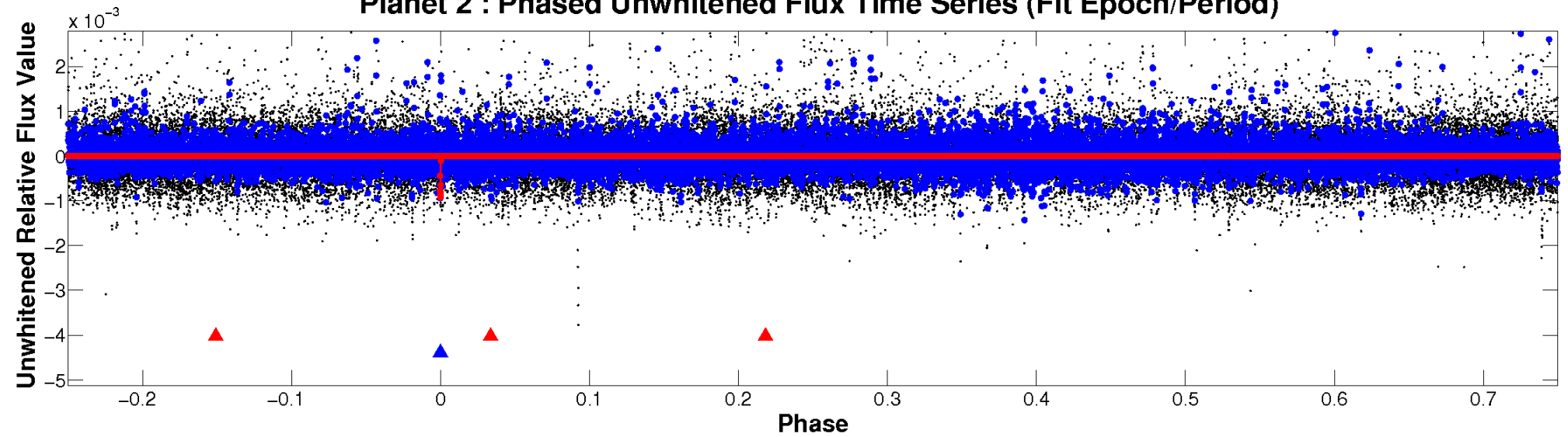
ALT Odd/Even

TCE 004171937-02

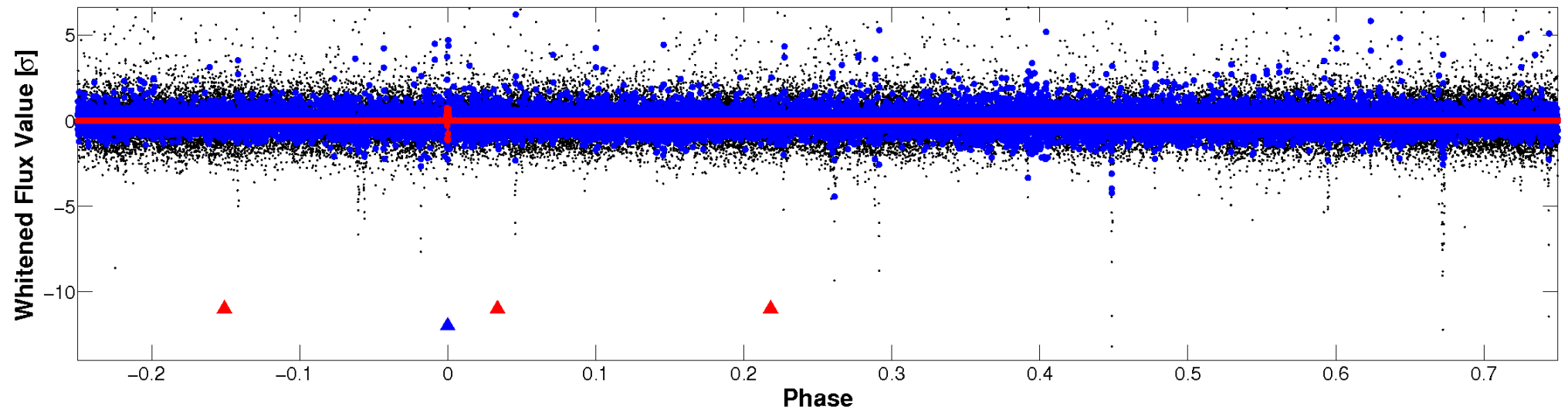


Non-Whitened Vs. Whitened Light Curve

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

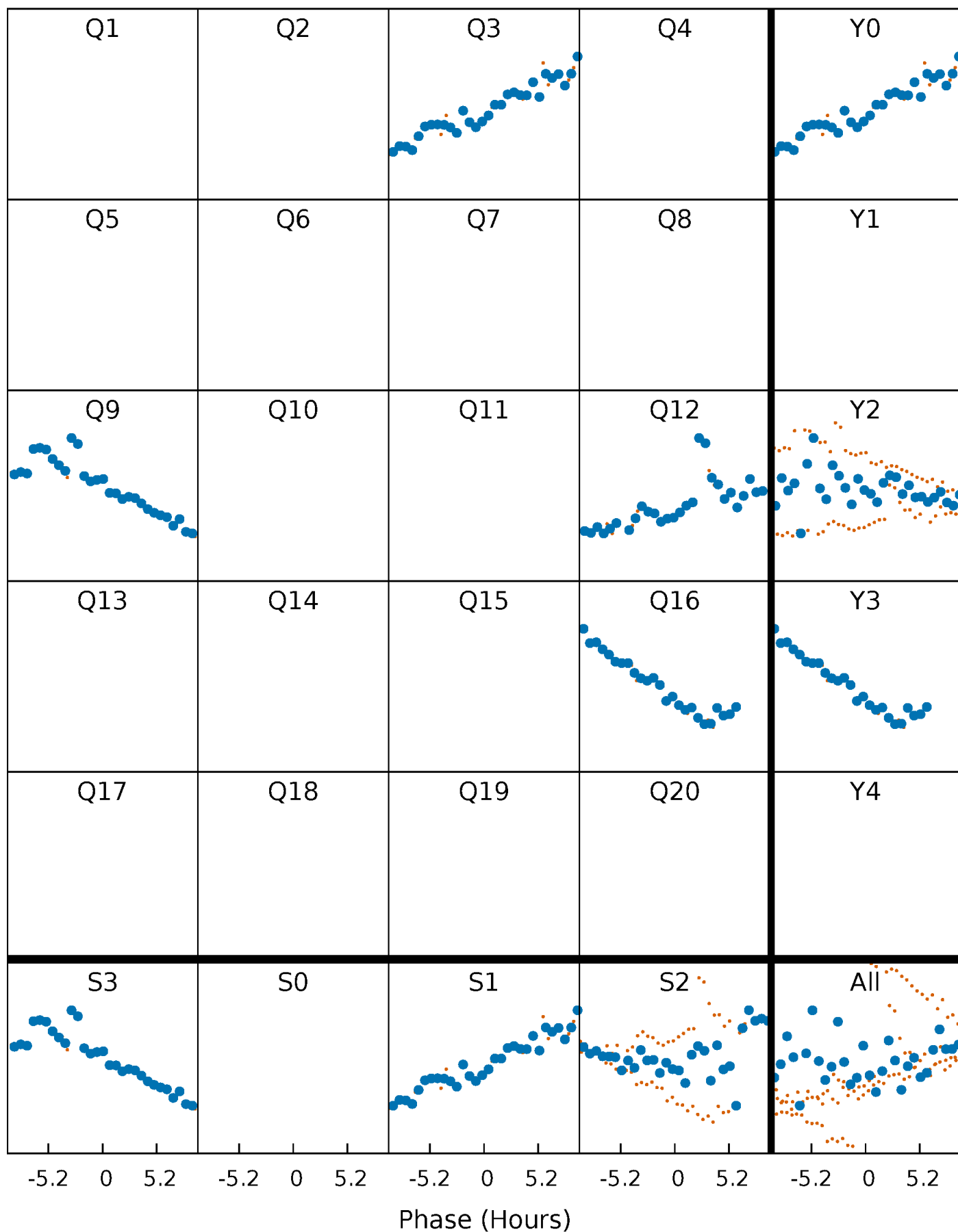


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



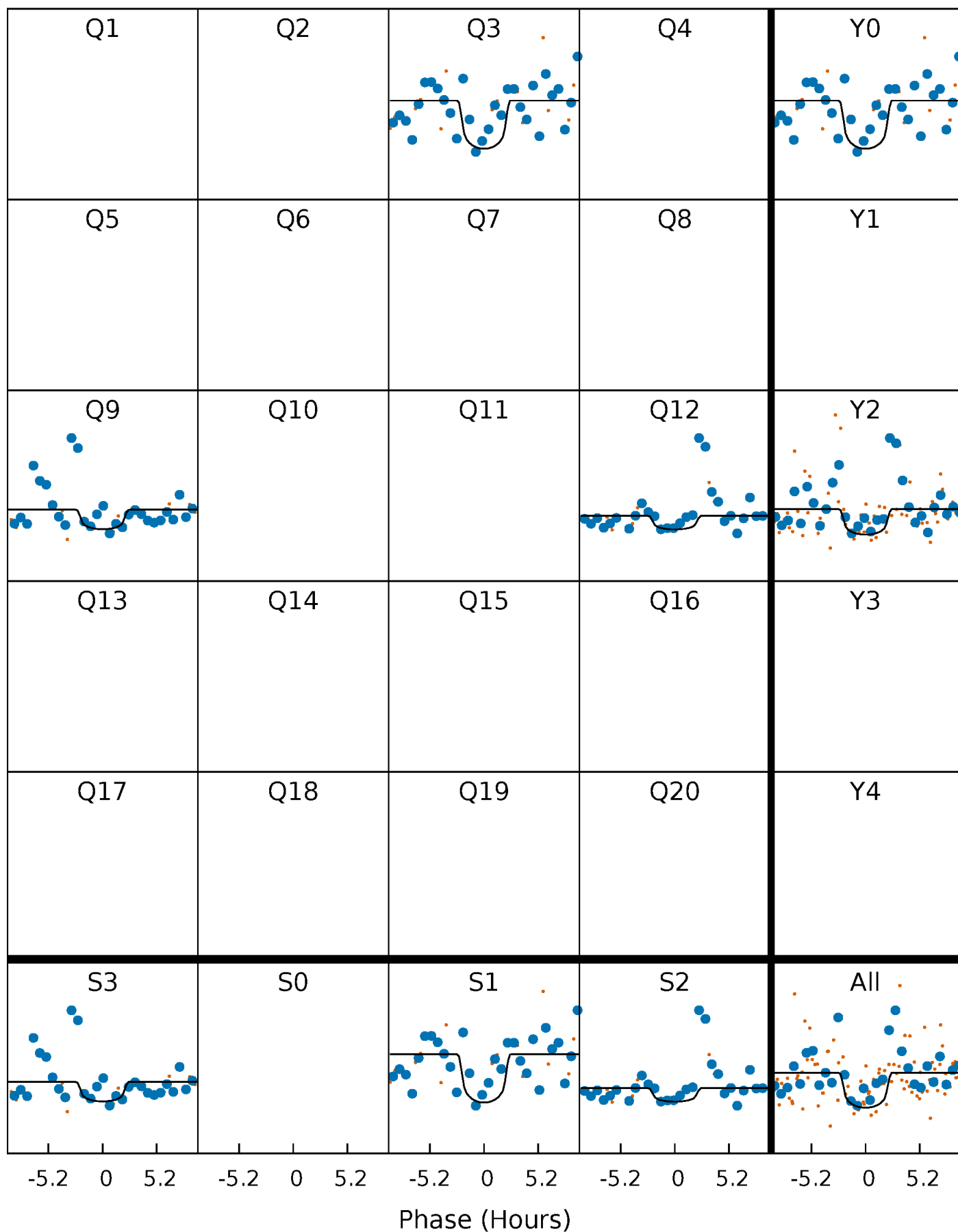
PDC Quarter-Phased Transit Curves

TCE 004171937-02 P=299.418058 Days $T_0=279.399892$ (BKJD)



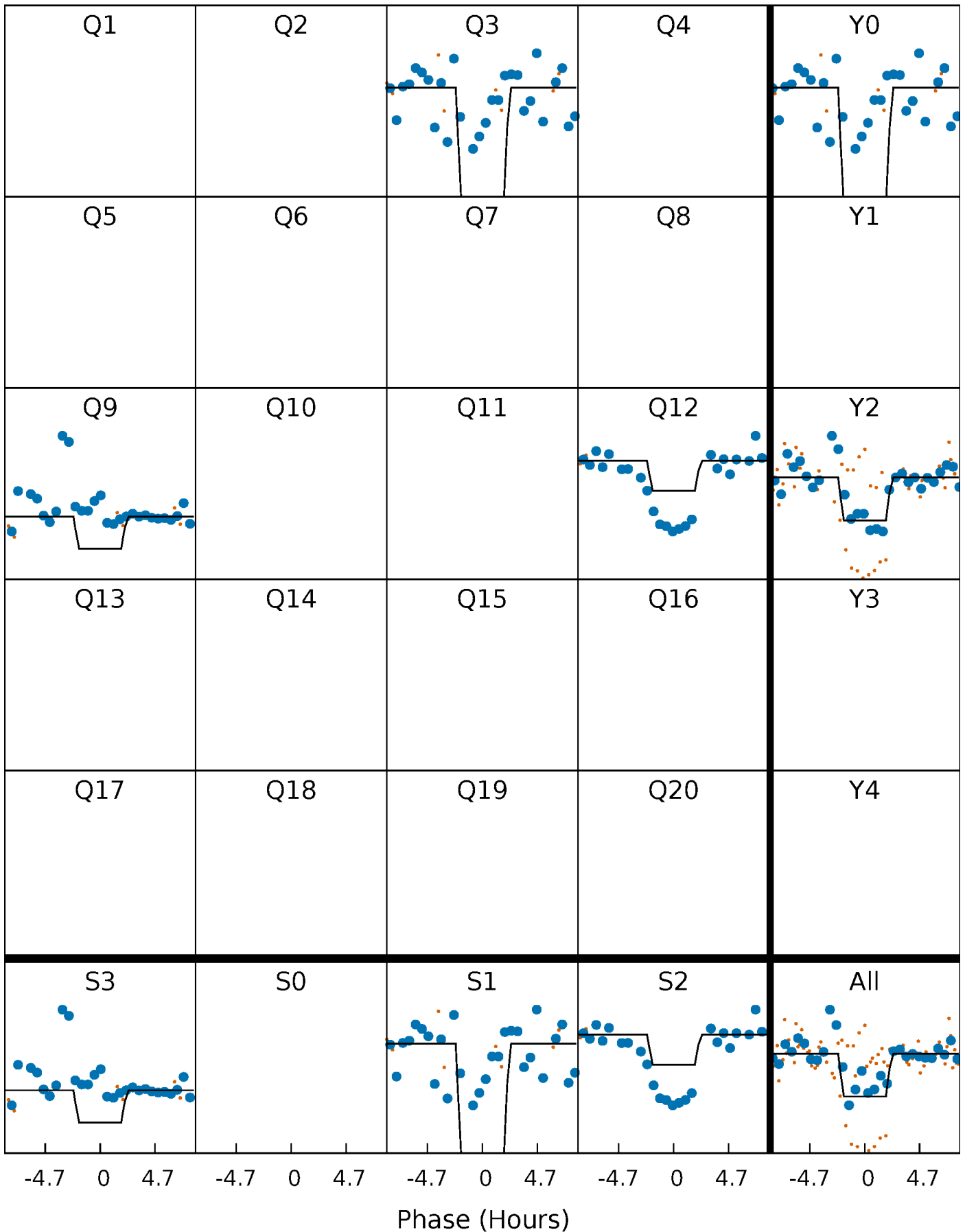
DV Quarter-Phased Transit Curves

TCE 004171937-02 $P=299.418058$ Days $T_0=279.399892$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

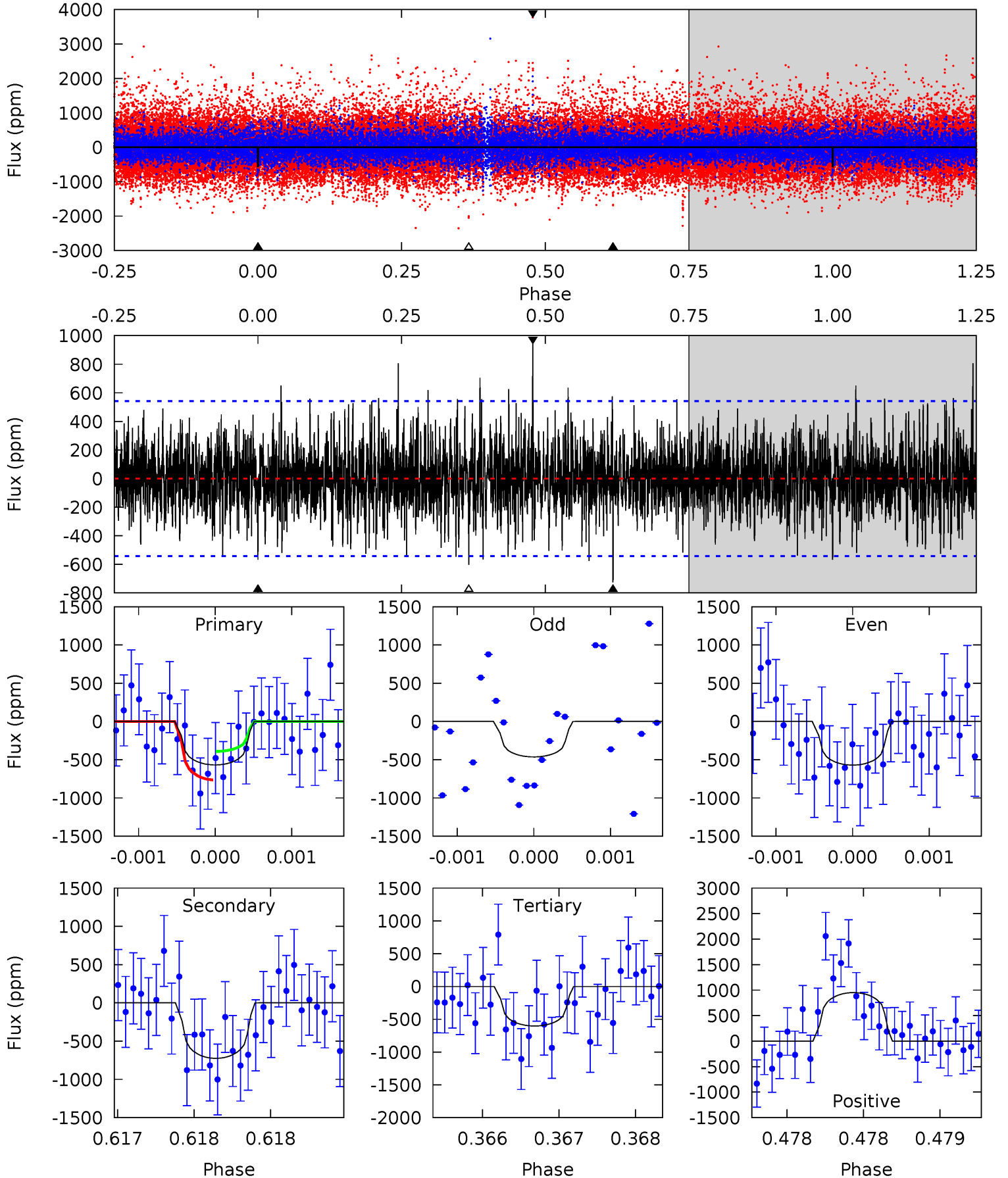
TCE 004171937-02 $P=299.416564$ Days $T_0=279.404687$ (BKJD)



DV Model-Shift Uniqueness Test

004171937-02, P = 299.418058 Days, E = 279.399892 Days

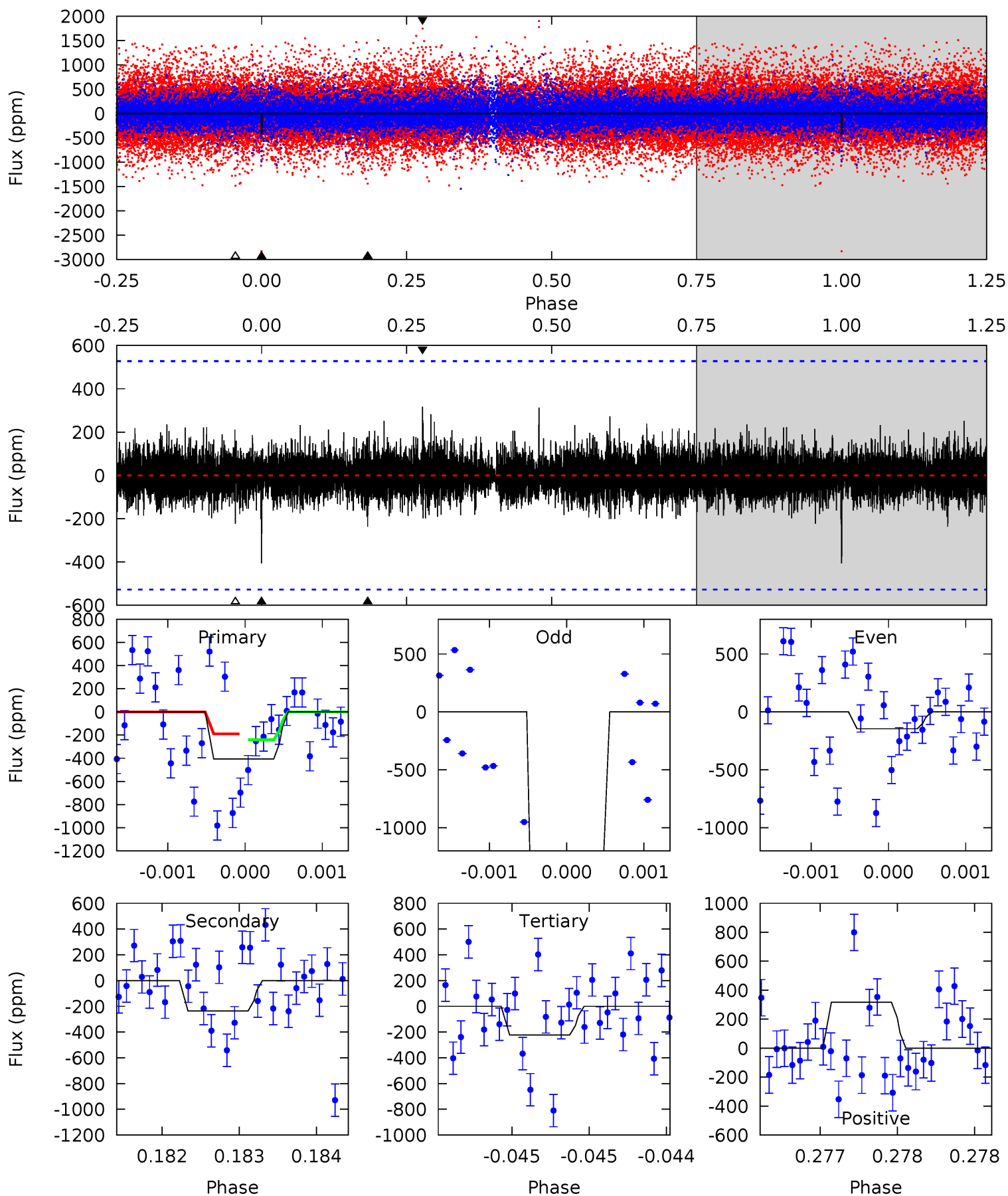
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.78	7.38	6.13	9.68	5.52	3.40	1.73	-0.35	-3.90	1.25	-2.30	0.48	1.13	0.57	1.89



Alt Model-Shift Uniqueness Test

004171937-02, P = 299.416564 Days, E = 279.404687 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.26	2.48	2.33	3.32	5.54	3.43	0.63	1.93	0.94	0.15	-0.84	20.9	2.92	0.44	0



Stellar Parameters For KIC 004171937

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5128^{+154}_{-138}	$4.710^{+0.023}_{-0.072}$	$-0.880^{+0.300}_{-0.300}$	$0.595^{+0.065}_{-0.026}$	$0.662^{+0.047}_{-0.047}$	$4.418^{+0.397}_{-1.004}$
	+3%/-3%	+0%/-2%	+34%/-34%	+11%/-4%	+7%/-7%	+9%/-23%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004171937-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-725 ± 98	$3.44^{+3.12}_{-2.37}$	282^{+10}_{-9}	3973^{+2562}_{-755}	$20179^{+188357}_{-14721}$
Alt.	-236 ± 95	$3.71^{+3.46}_{-2.30}$	282^{+11}_{-9}	3209^{+1300}_{-588}	5264^{+32812}_{-4036}

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

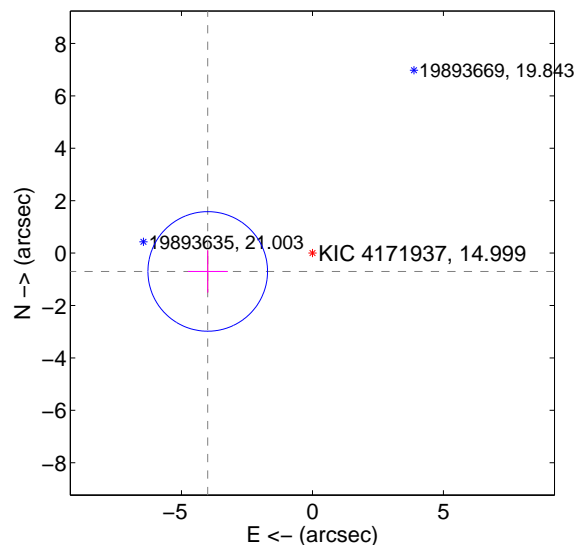
Supplemental centroid analysis for 004171937-02. Kepler magnitude: 15.00. Transit SNR 5.76

There are 0 quarters with good PRF difference image offsets

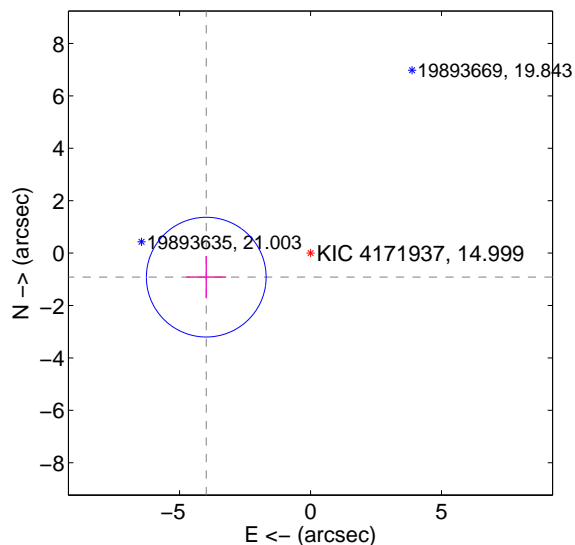
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.057 ± 0.761	5.33	3.996 ± 0.759	-0.699 ± 0.805
PRF-fit source offset from KIC position	4.084 ± 0.762	5.36	3.979 ± 0.759	-0.918 ± 0.805
photometric centroid source offset	2.03 ± 1.89	1.07	-1.03 ± 1.99	-1.75 ± 1.85

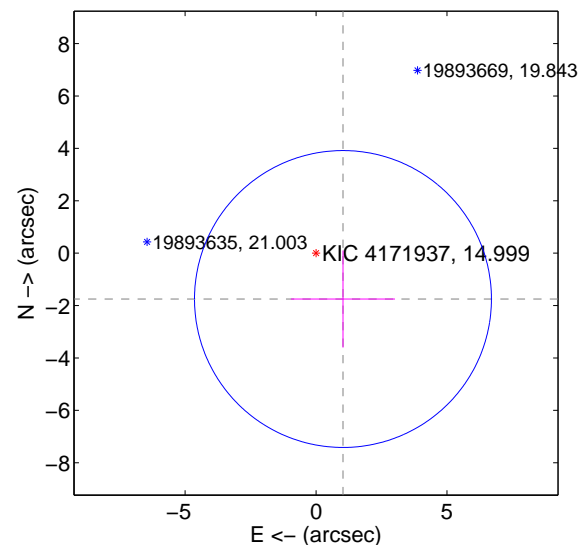
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

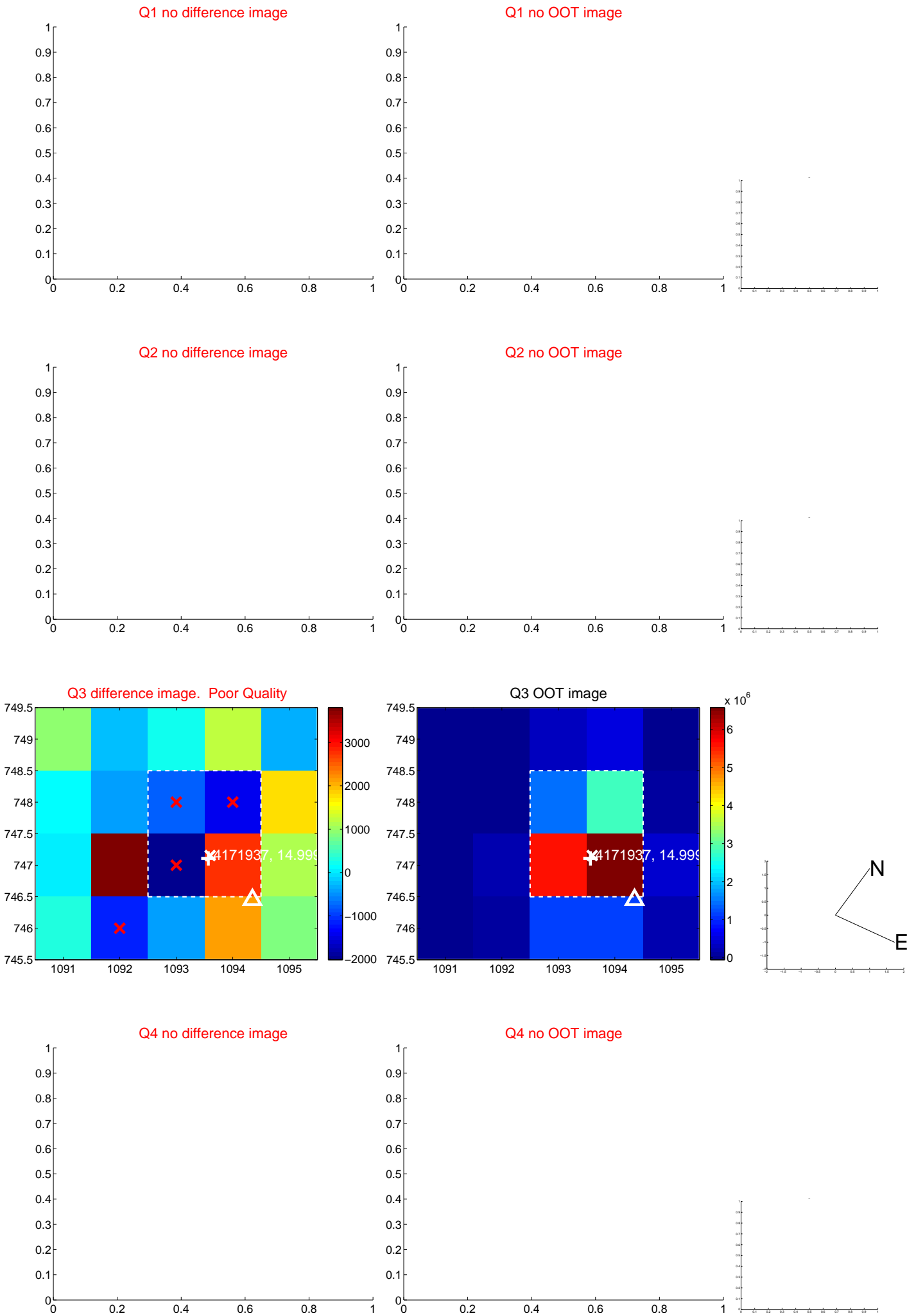


offset from photometric centroids



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.

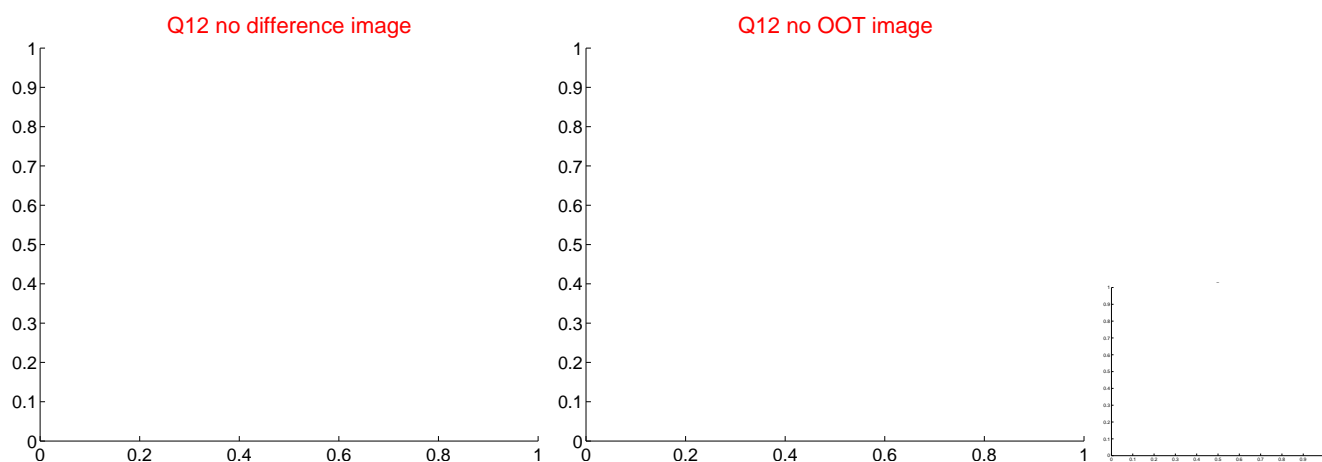
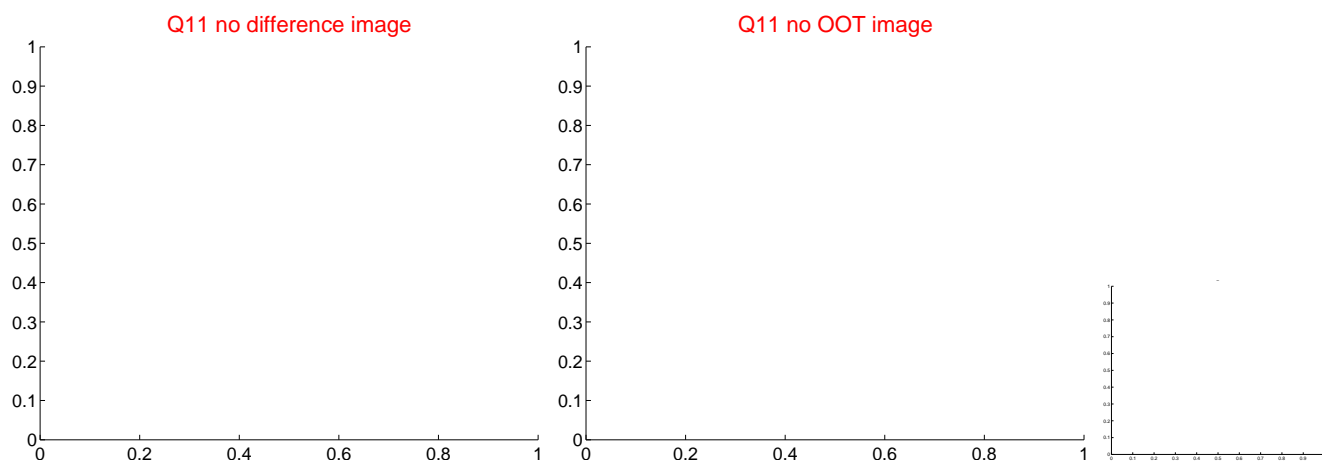
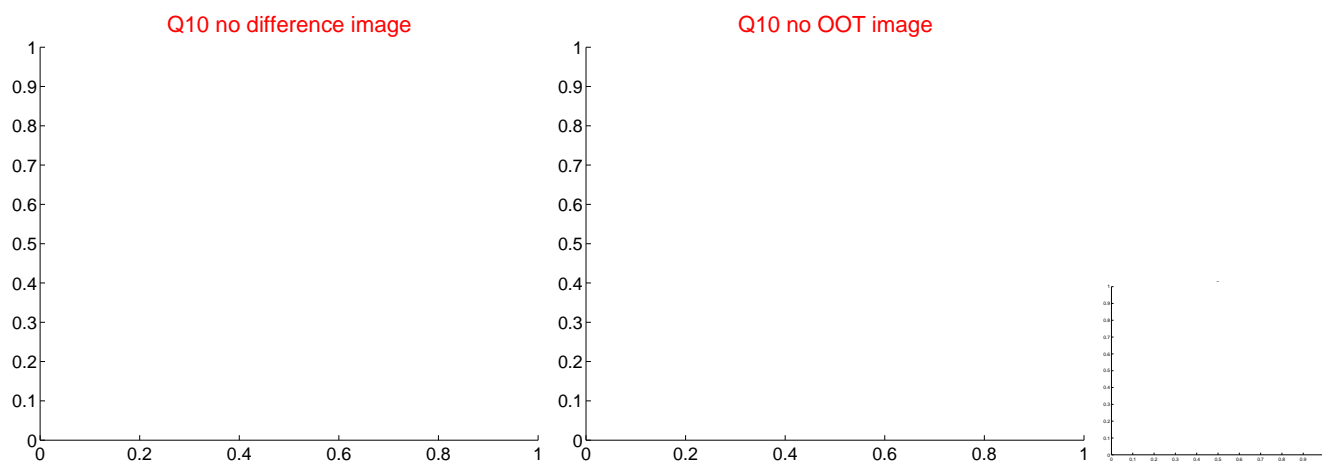
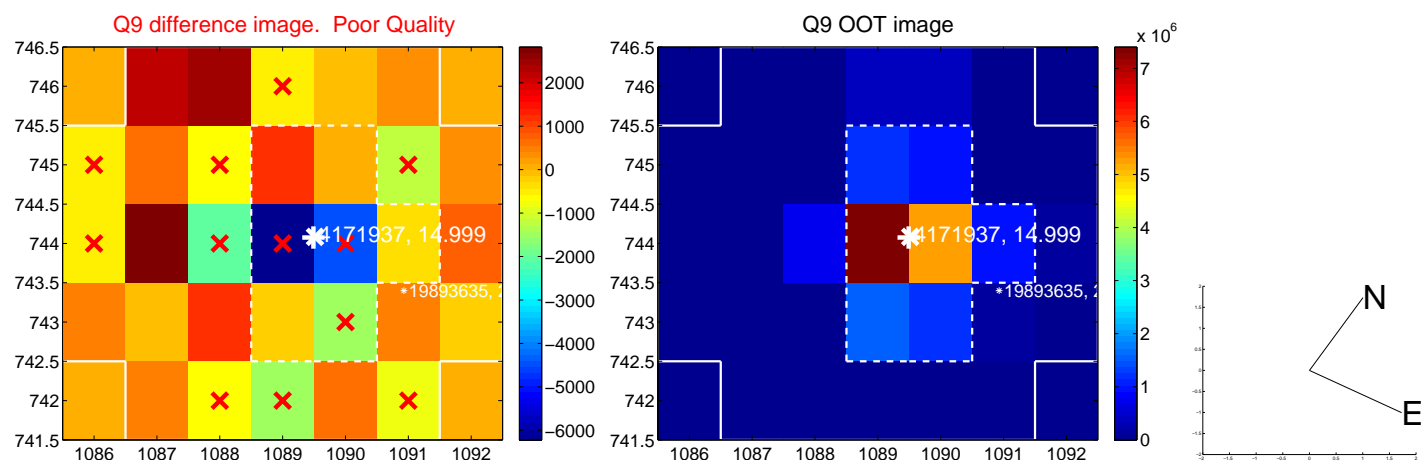
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



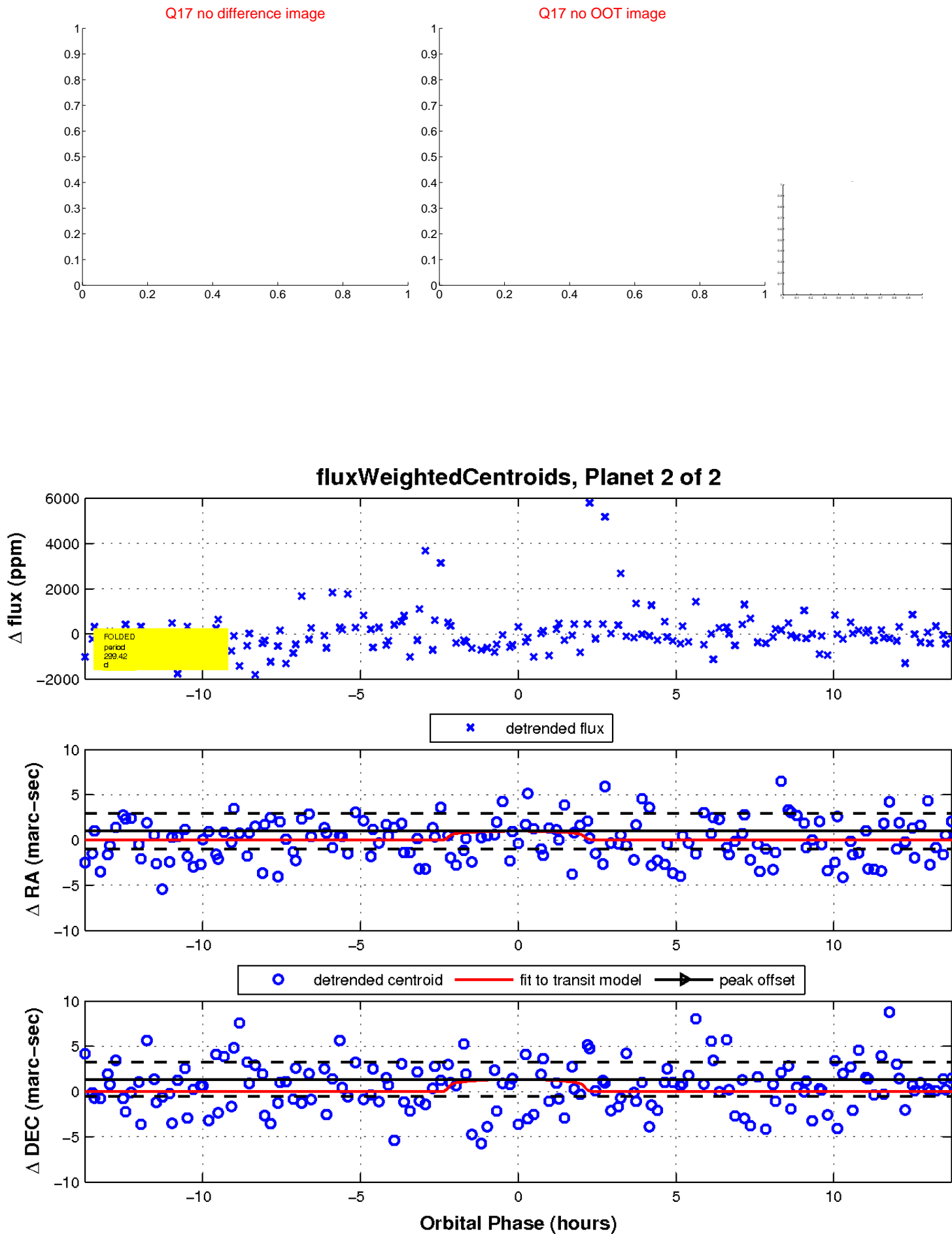
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

