

KIC 009203478

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})
009203478-01	OBS	No	360.549293	286.261317	1898.5	5.709	10.8	5.4	0.73	4623	3.25	0.28
009203478-02	OBS	No	443.084213	573.336017	3771.3	9.800	13.8	8.4	0.73	4623	6.12	0.21
009203478-03	OBS	No	332.381443	418.447857	3201.7	11.027	10.3	7.4	0.73	4623	4.92	0.31
009203478-04	OBS	No	326.434145	391.042435	2221.5	5.537	17.0	5.7	0.73	4623	3.38	0.32
009203478-05	OBS	No	566.428865	175.270293	3515.5	5.324	8.5	8.3	0.73	4623	5.05	0.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009203478-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-02	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

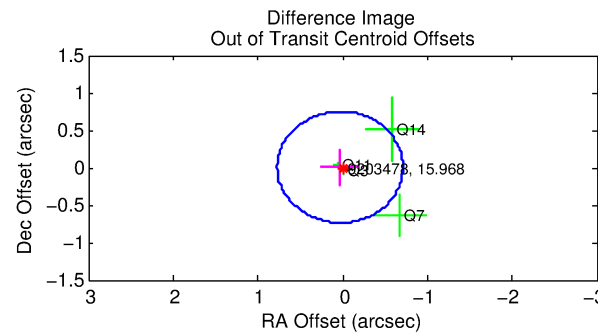
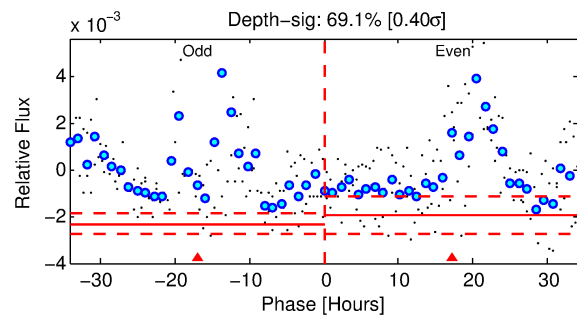
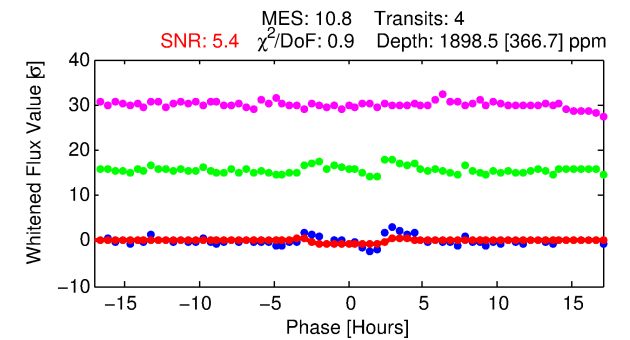
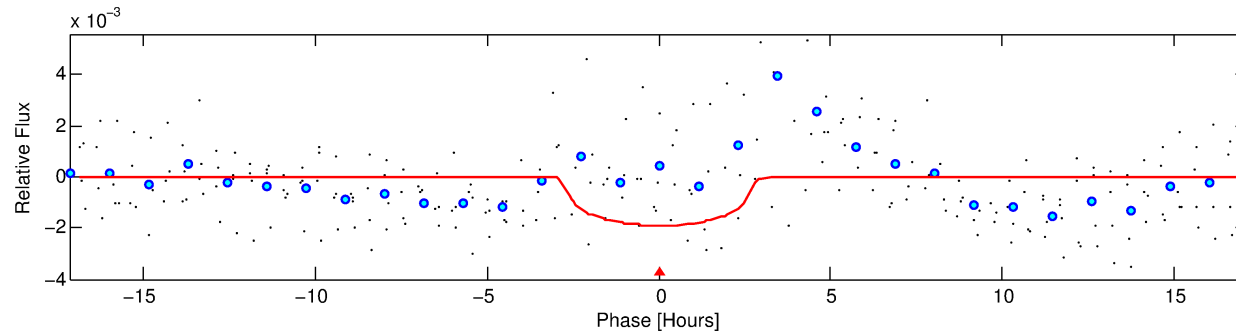
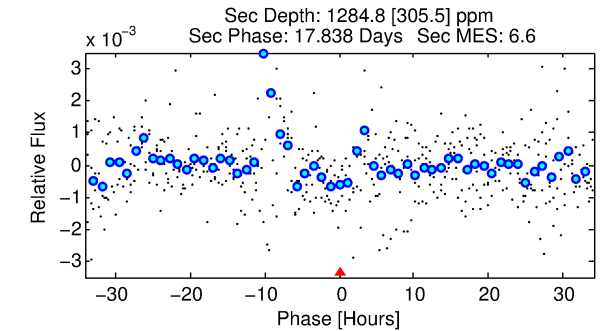
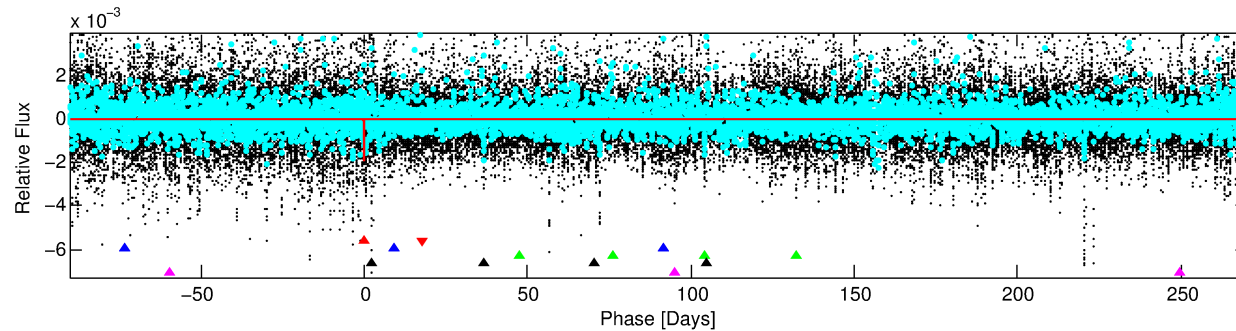
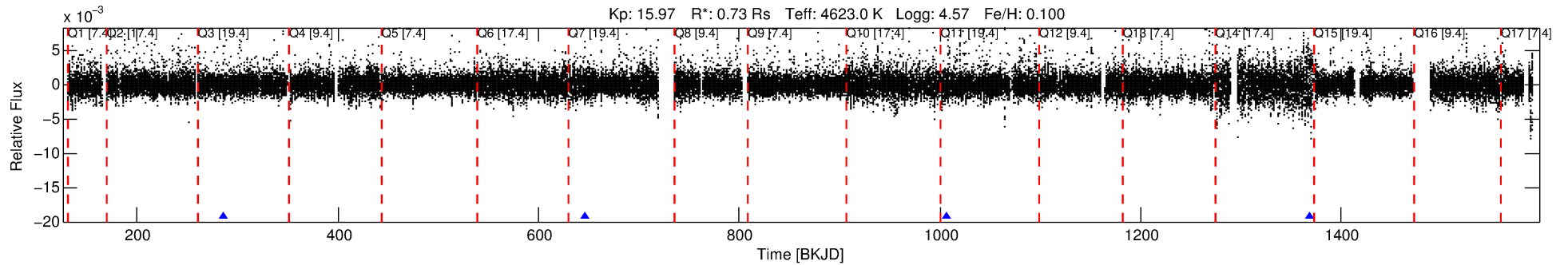
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009203478-01

No Significant Match Found

DV One-Page Summary

KIC: 9203478 Candidate: 1 of 5 Period: 360.549 d



DV Fit Results:

Period = 360.54929 [0.00667] d
Epoch = 286.2613 [0.0102] BKJD
Rp/R* = 0.0406 [0.0396]
a/R* = 423.16 [1225.08]
b = 0.56 [3.63]
Seff = 0.28 [0.05]
Teq = 185 [8] K
Rp = 3.25 [3.18] Re
a = 0.8887 [0.0685] AU
Ag = 52914.05 [104151.84] [0.51 σ]
Teffp = 4343 [2139] K [1.94 σ]

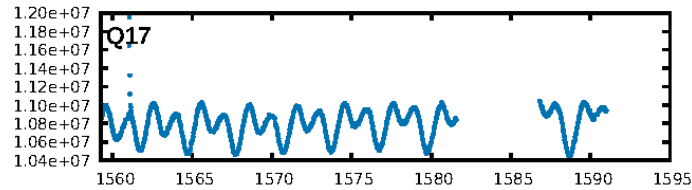
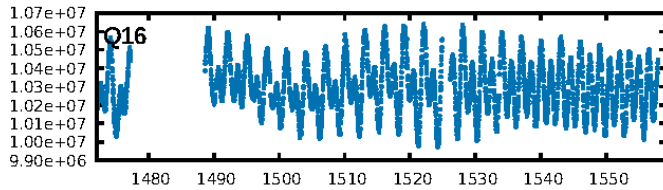
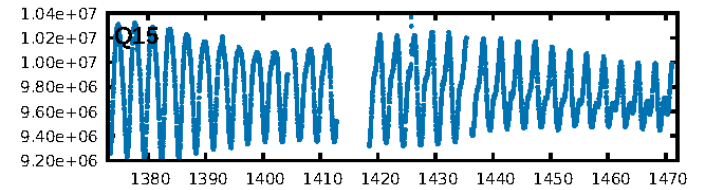
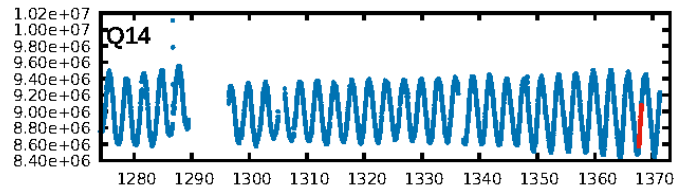
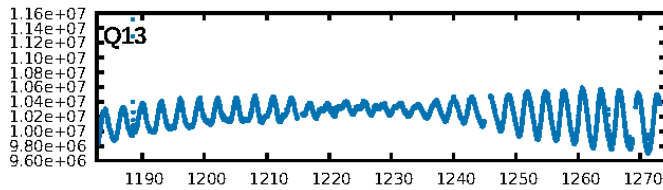
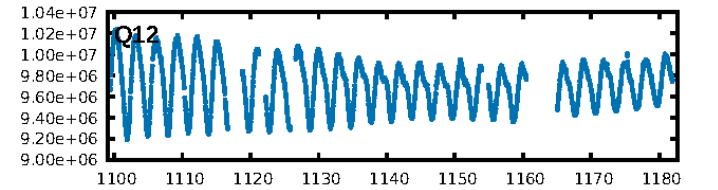
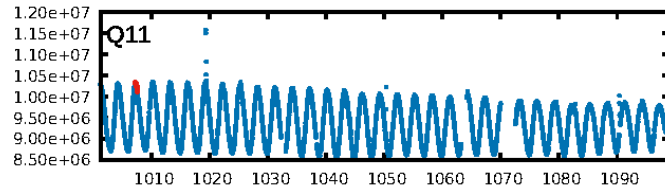
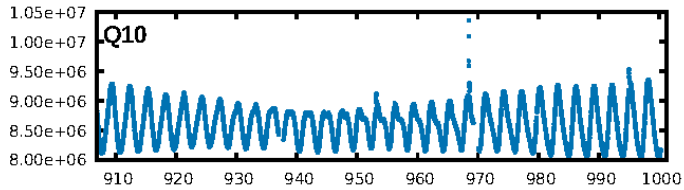
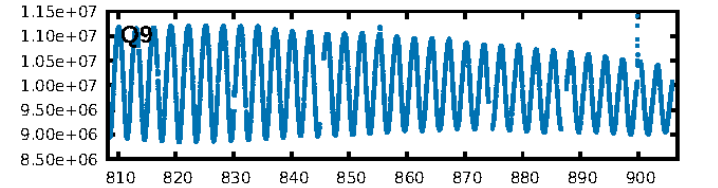
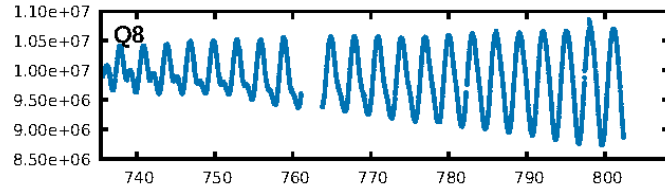
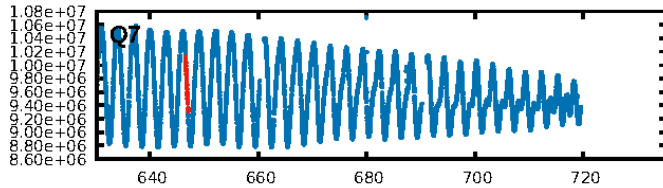
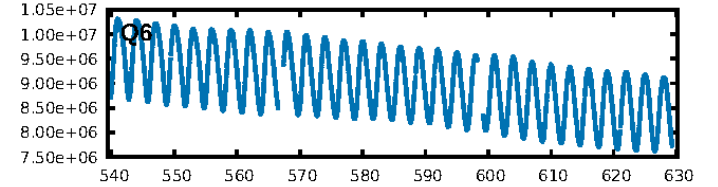
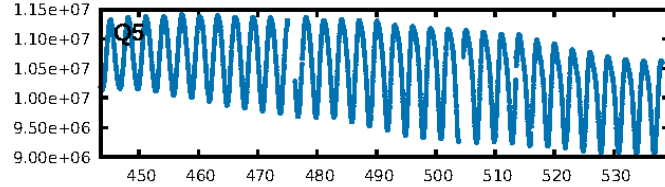
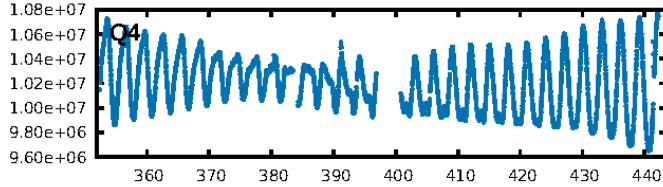
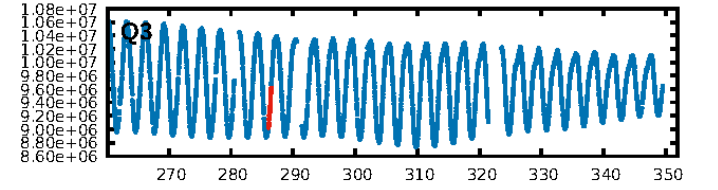
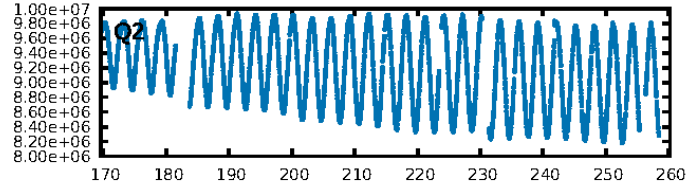
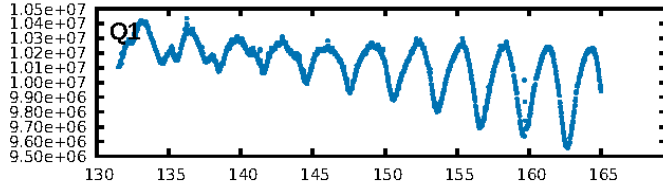
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.44 σ]
LongPeriod-sig: 100.0% [174.66 σ]
ModelChiSquare2-sig: 70.4%
ModelChiSquareGof-sig: 98.0%
Bootstrap-pfa: 2.21e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.1955
Centroid-sig: 8.8%
Centroid-so: 1.858 arcsec [1.87 σ]
OotOffset-rm: 0.031 arcsec [0.13 σ]
OotOffset-st: 1/3/0/0 [4]
KicOffset-rm: 0.147 arcsec [0.78 σ]
KicOffset-st: 1/3/0/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

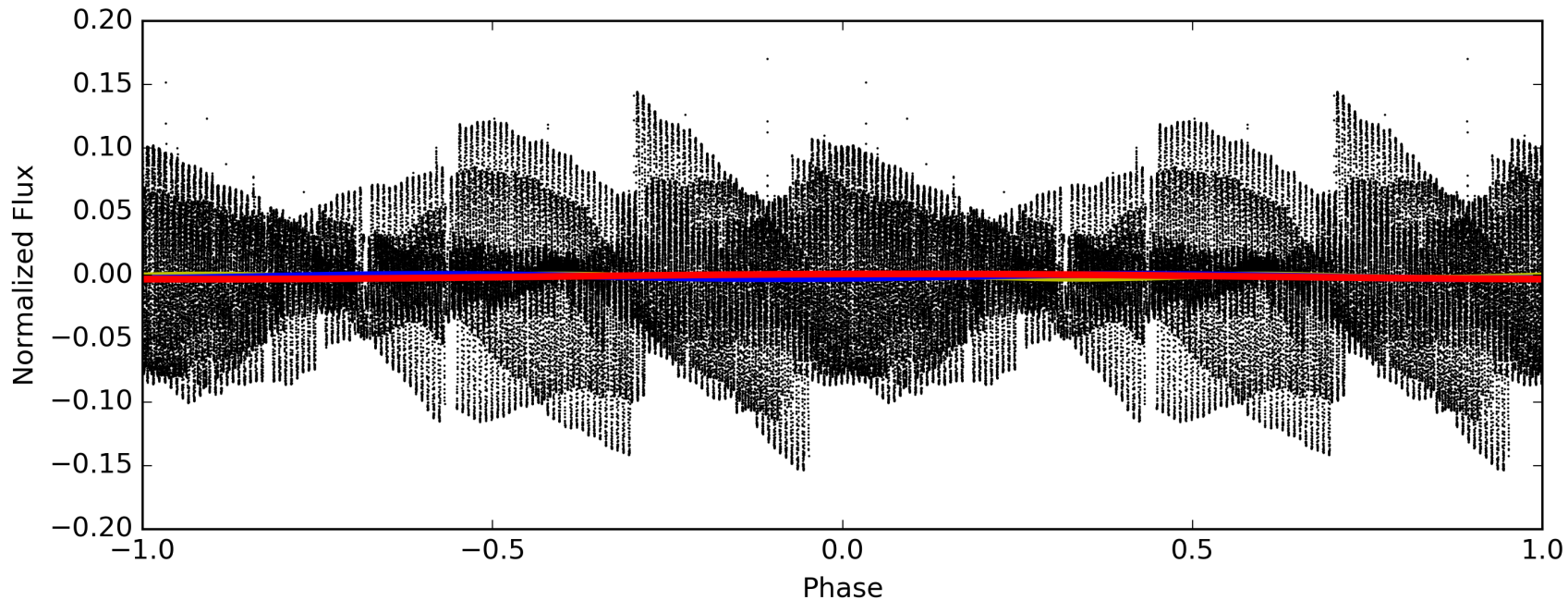
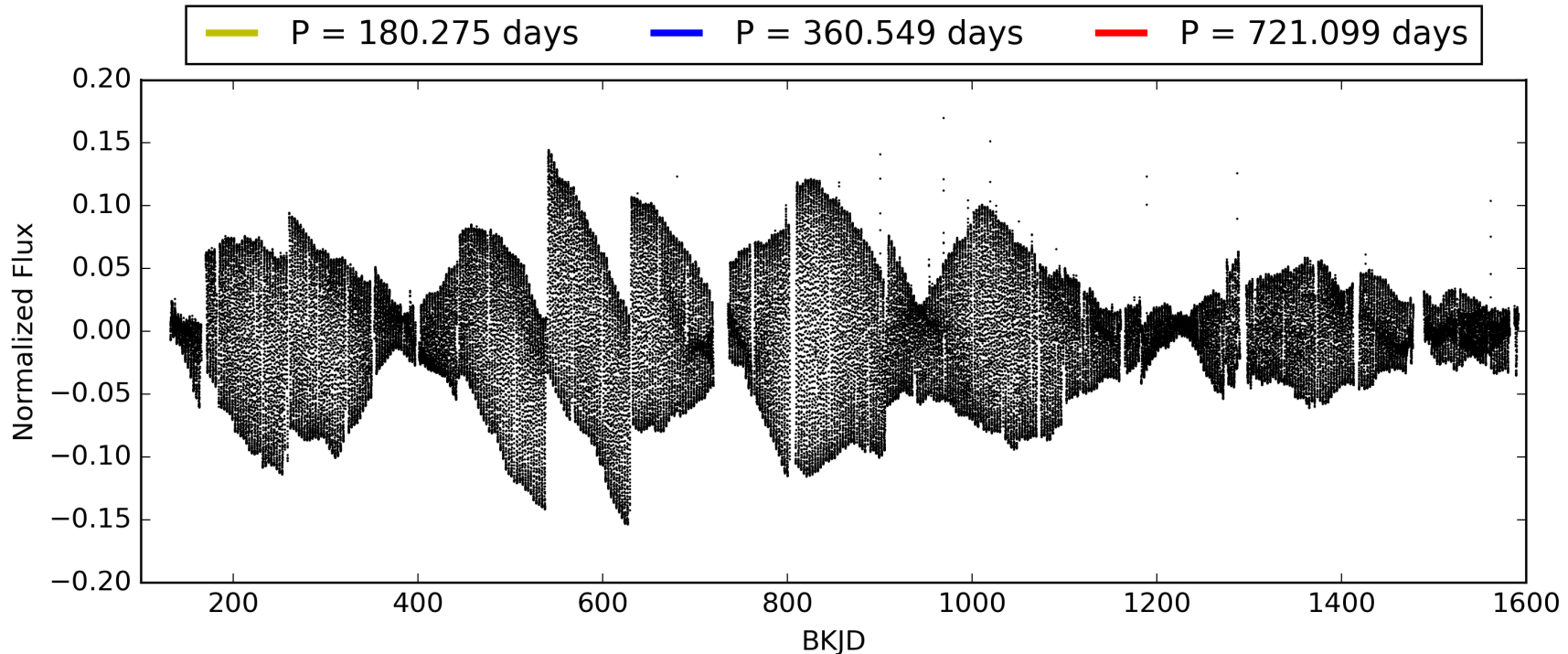
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:10:31 Z

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

TCE 009203478-01, PDC Light Curves

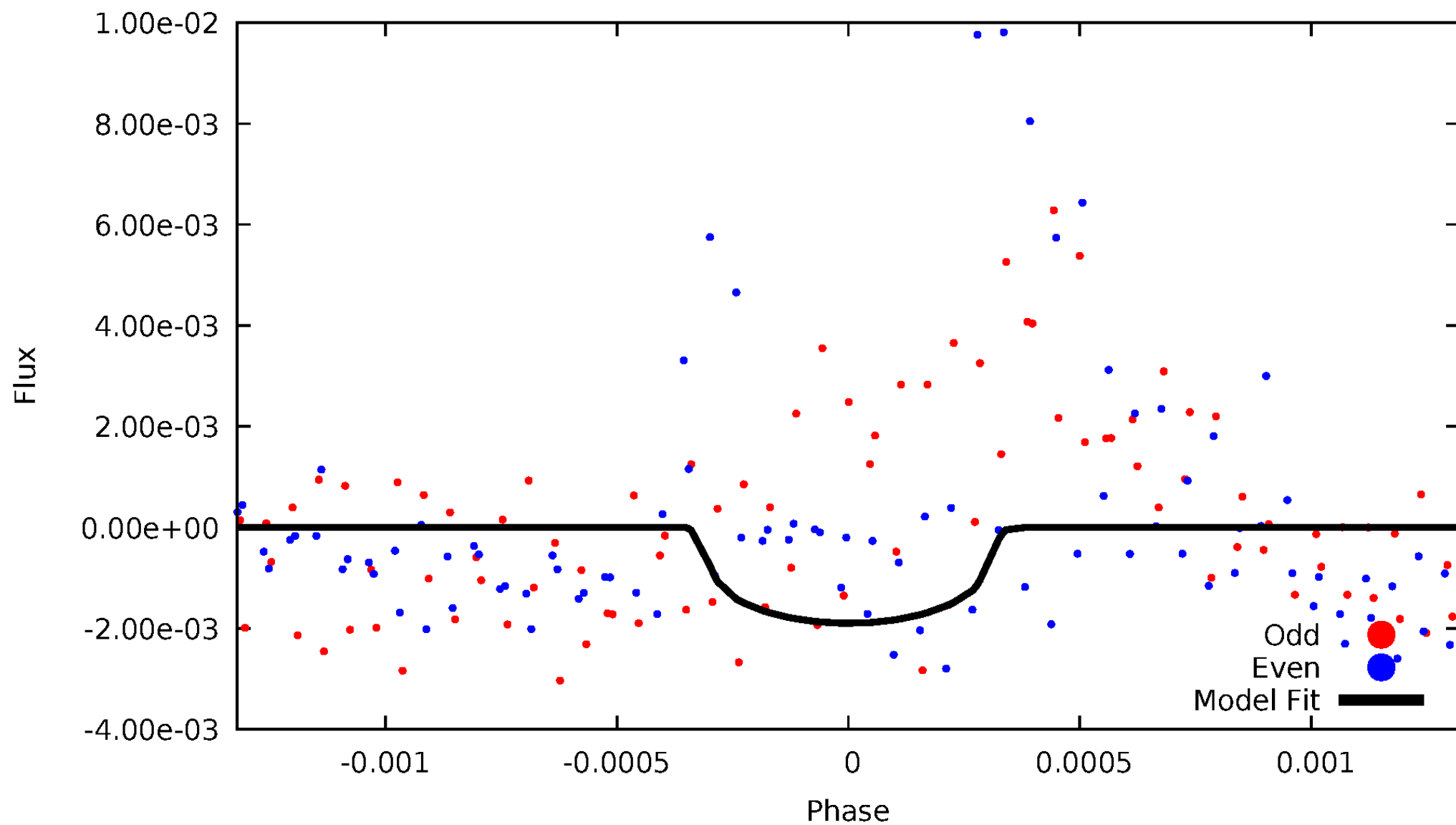


TCE 009203478-01



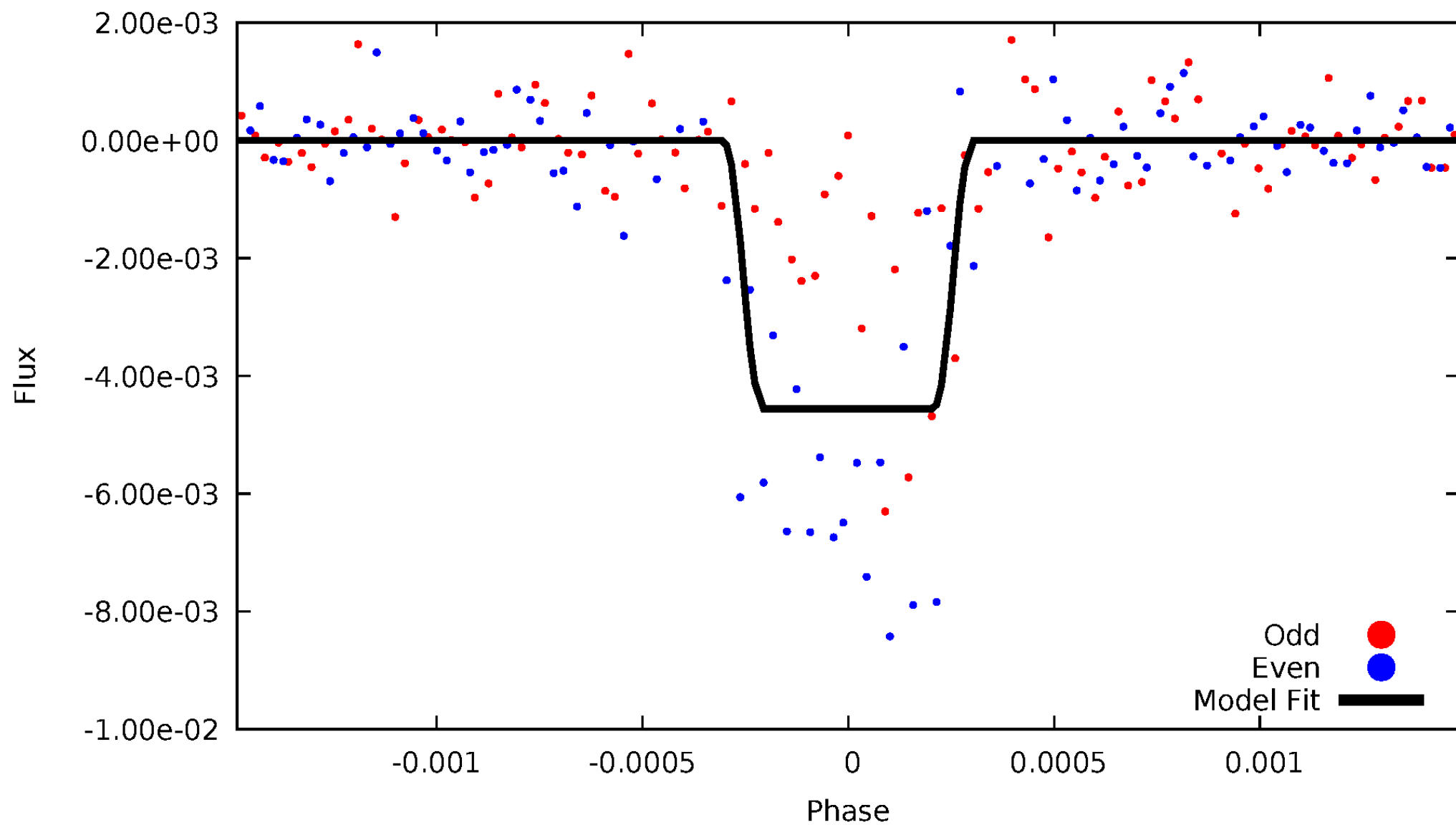
DV Odd/Even

TCE 009203478-01



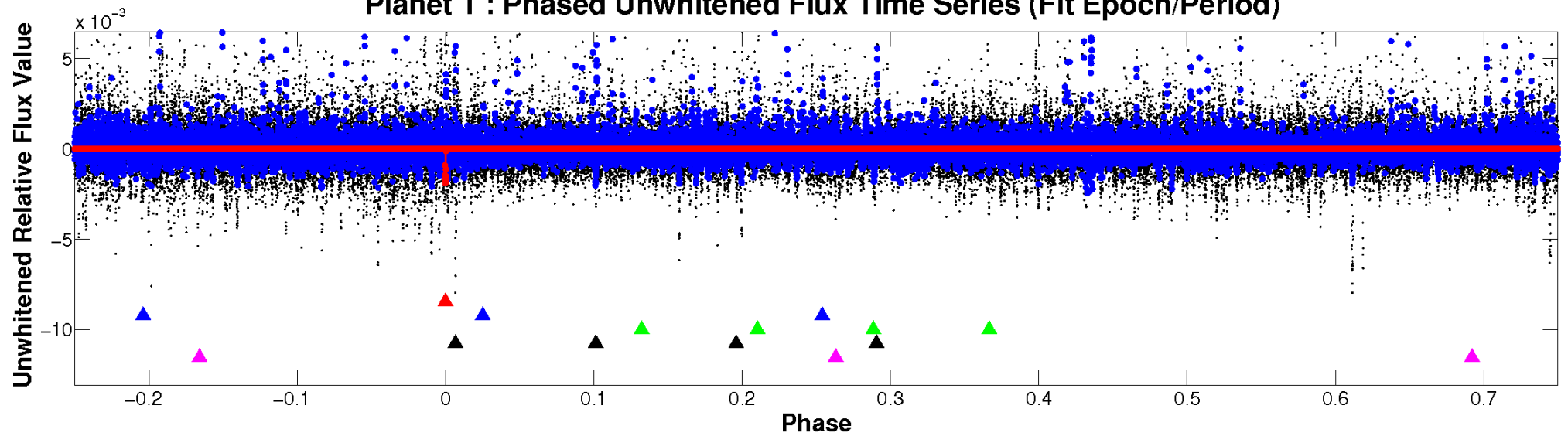
ALT Odd/Even

TCE 009203478-01

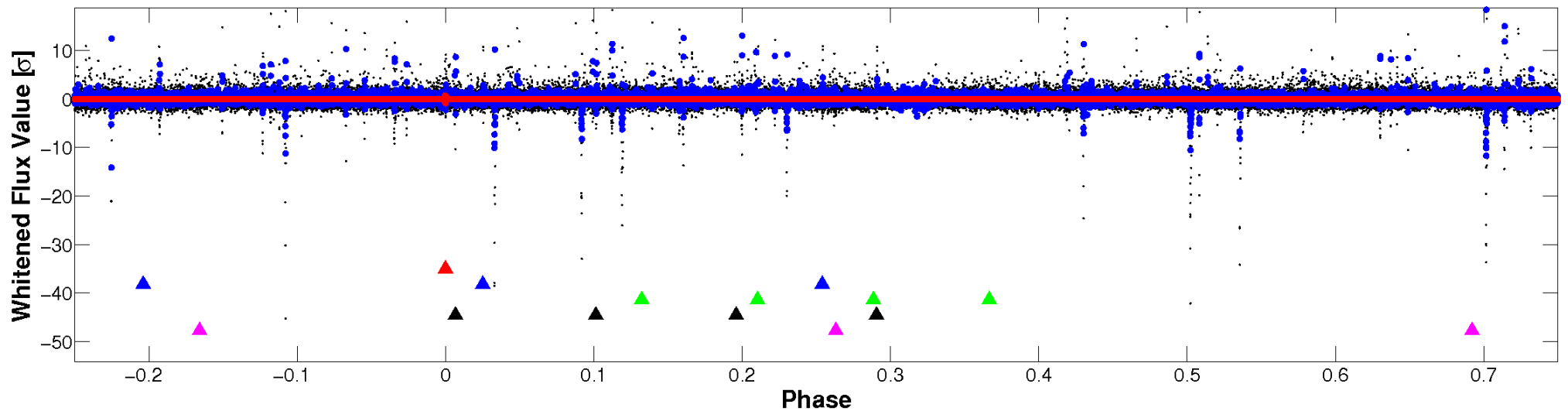


Non-Whitened Vs. Whitened Light Curve

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

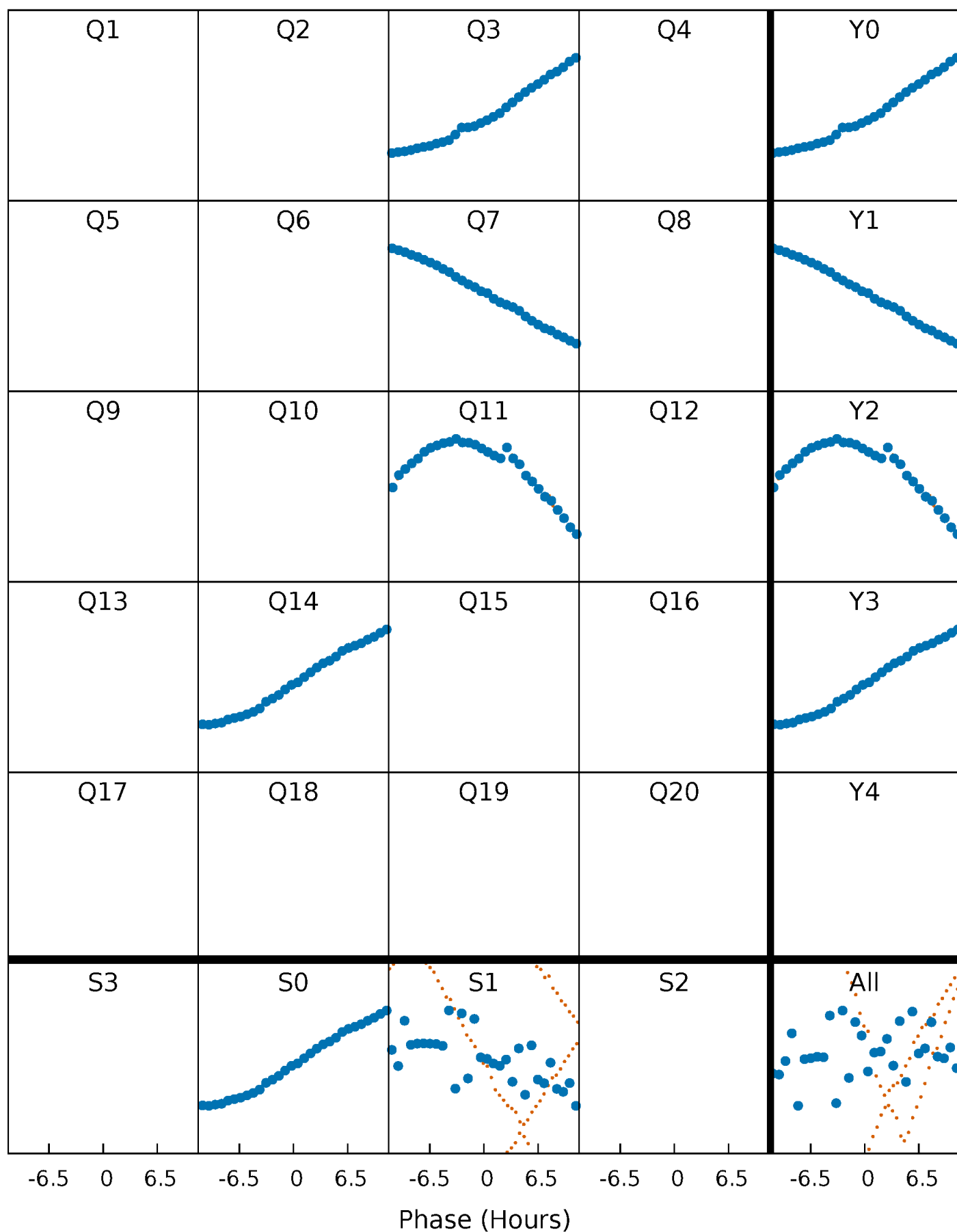


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



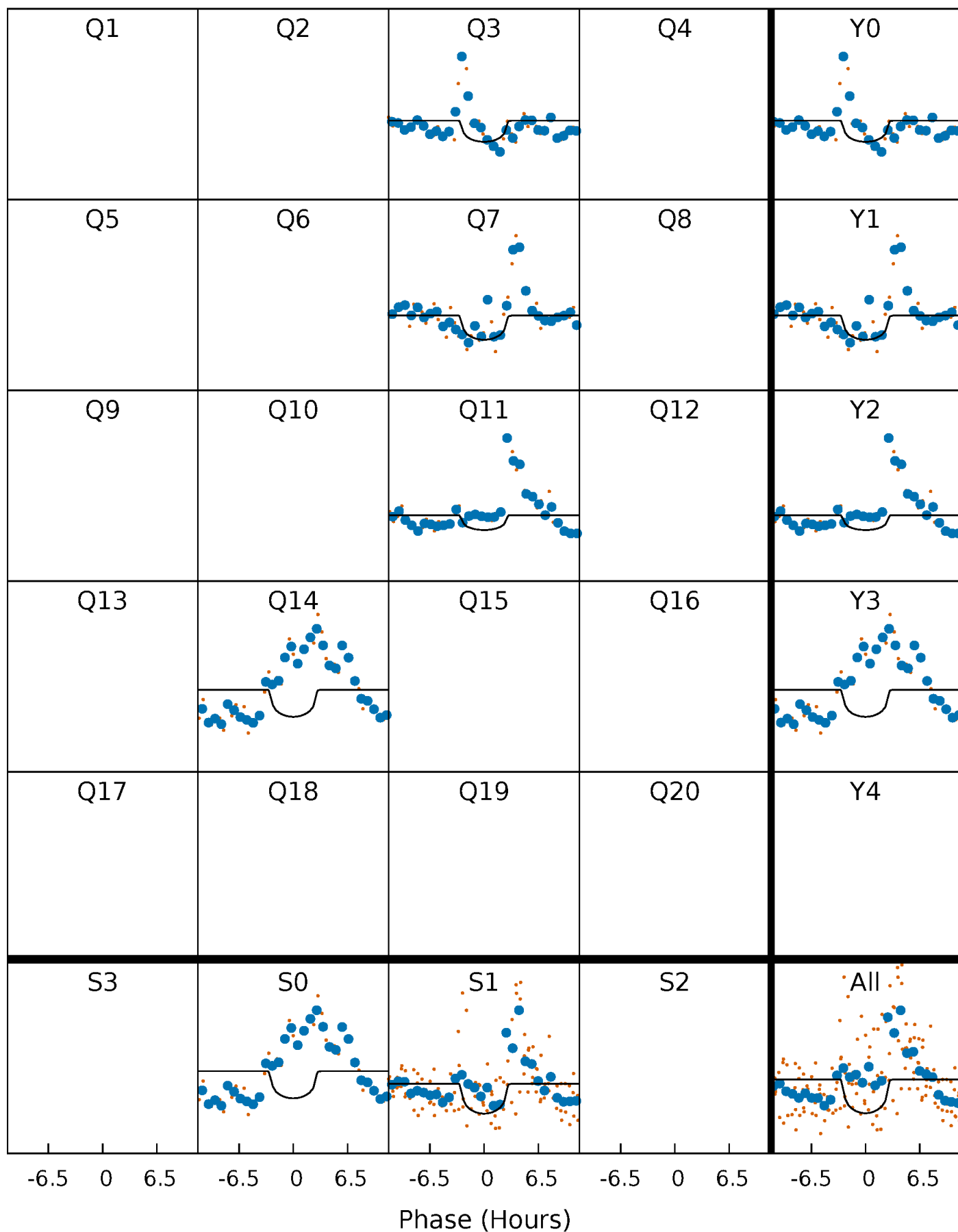
PDC Quarter-Phased Transit Curves

TCE 009203478-01 P=360.549293 Days $T_0=286.261317$ (BKJD)



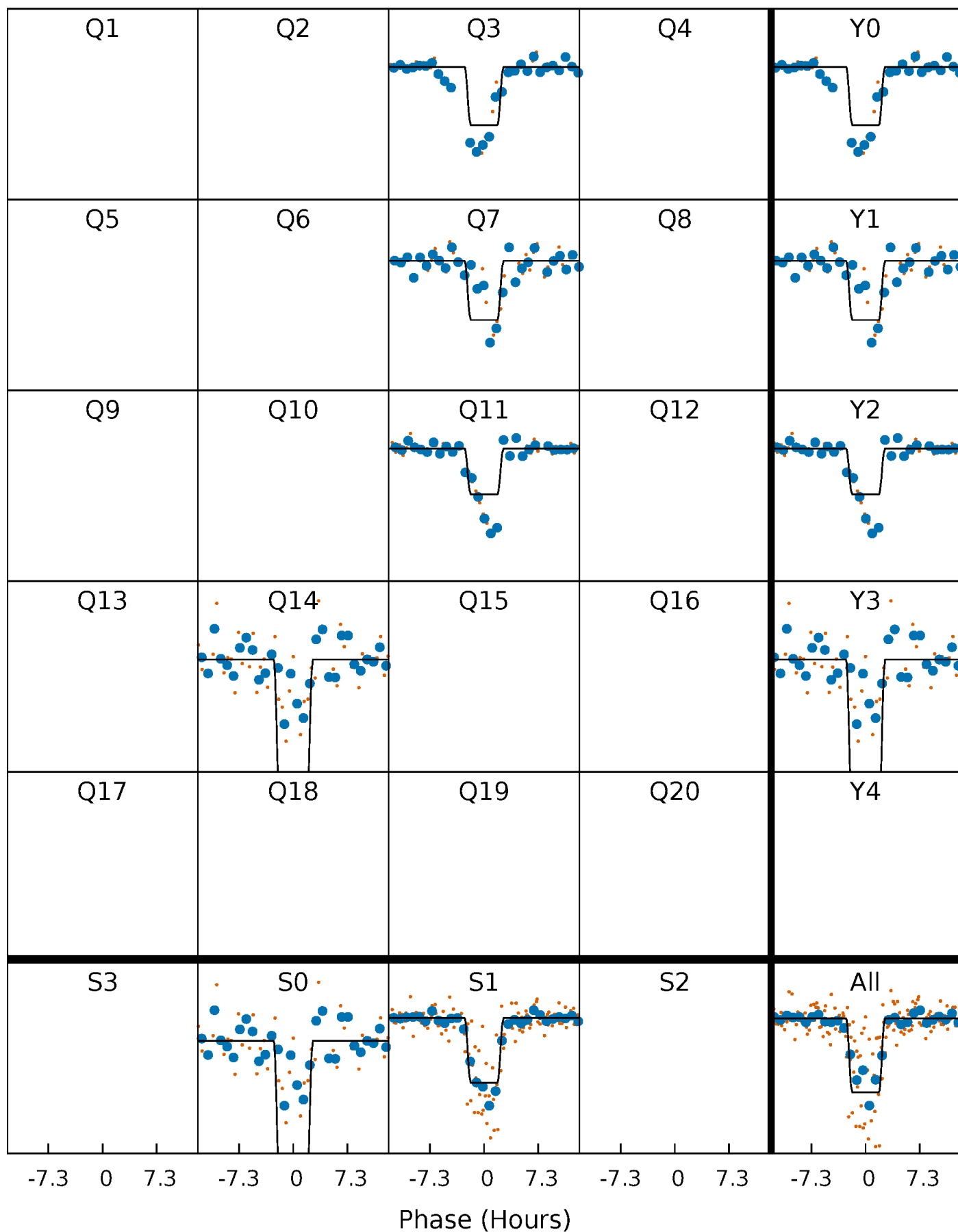
DV Quarter-Phased Transit Curves

TCE 009203478-01 P=360.549293 Days $T_0=286.261317$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

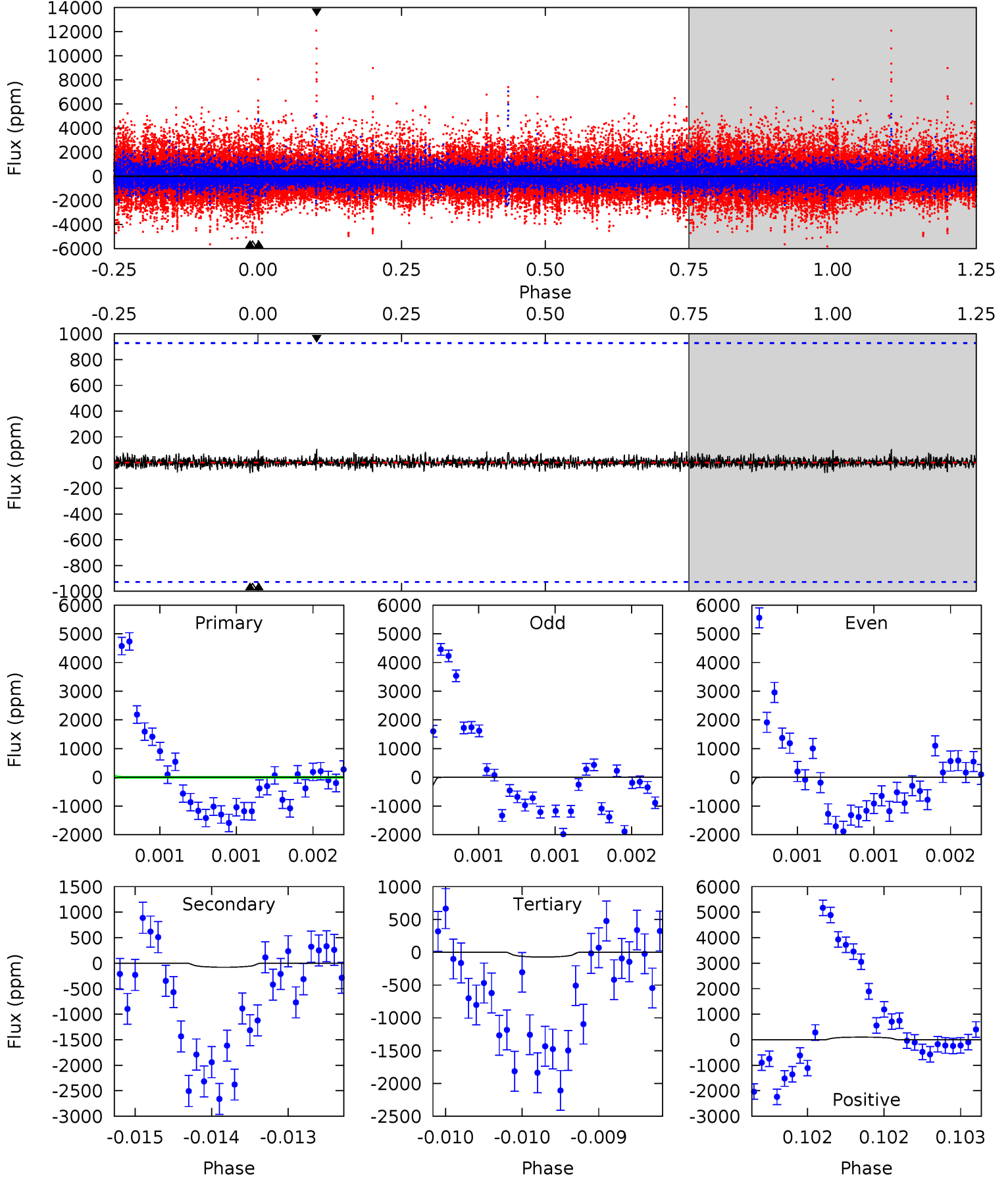
TCE 009203478-01 P=360.526579 Days $T_0=286.309479$ (BKJD)



DV Model-Shift Uniqueness Test

009203478-01, P = 360.549293 Days, E = 286.261317 Days

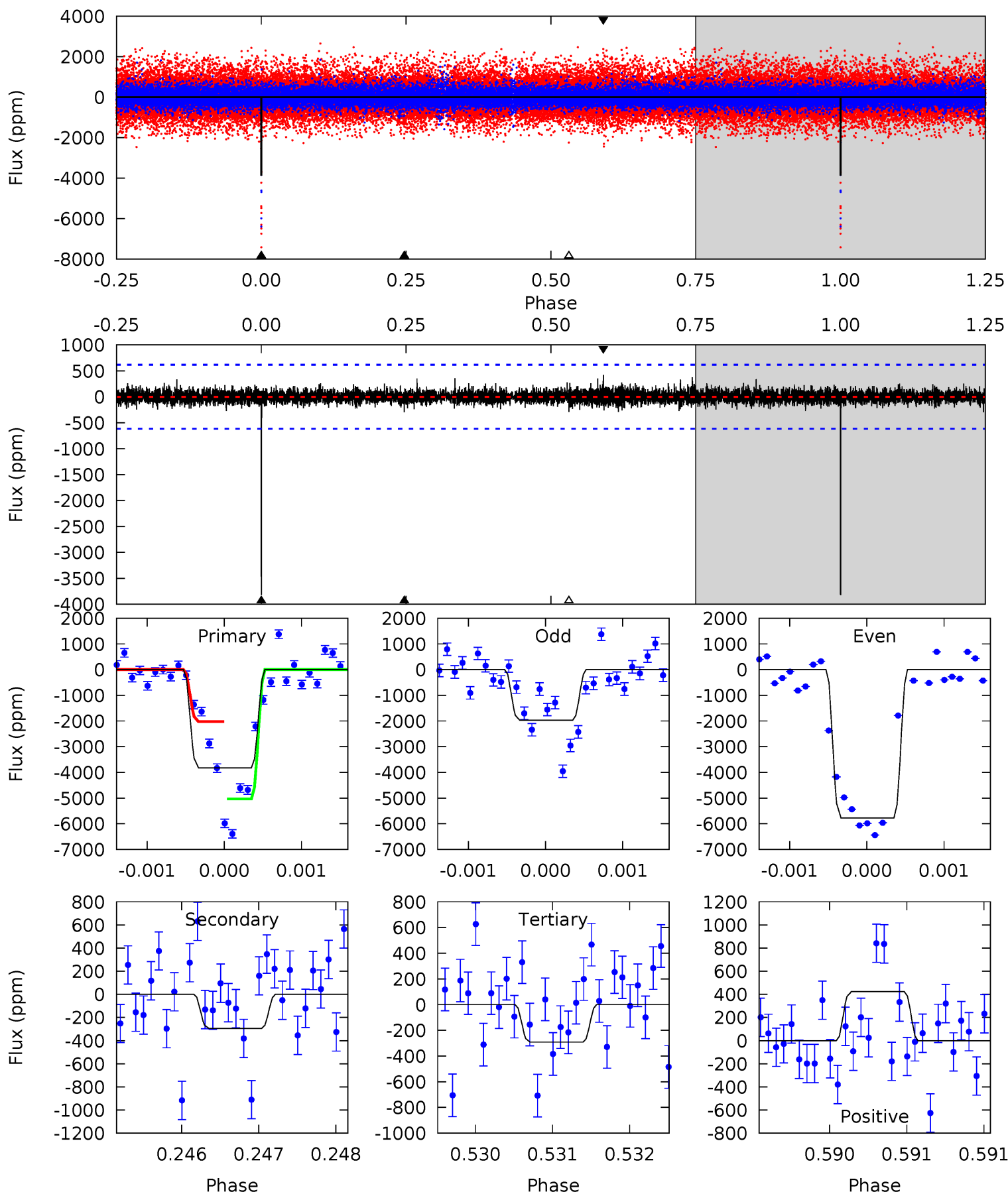
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.40	0.47	0.44	0.61	5.51	3.38	0.13	-0.03	-0.21	0.04	-0.14	0.01	-13.5	0.56	0.39



Alt Model-Shift Uniqueness Test

009203478-01, P = 360.526579 Days, E = 286.309479 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.4	2.65	2.62	3.80	5.55	3.44	0.64	31.7	30.6	0.02	-1.16	20.1	0.94	0.10	13.4



Stellar Parameters For KIC 009203478

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4623^{+163}_{-163}	$4.565^{+0.063}_{-0.027}$	$0.100^{+0.250}_{-0.300}$	$0.733^{+0.042}_{-0.066}$	$0.720^{+0.063}_{-0.058}$	$2.574^{+0.652}_{-0.255}$
	+4%/-4%	+1%/-1%	+250%/-300%	+6%/-9%	+9%/-8%	+25%/-10%
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 009203478-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-80 ± 168	$3.79^{+2.84}_{-2.31}$	257^{+10}_{-10}	2598^{+997}_{-5321}	1779^{+14889}_{-4276}
Alt.	-294 ± 111	$5.79^{+2.87}_{-3.02}$	257^{+11}_{-10}	2870^{+663}_{-326}	3782^{+12055}_{-2308}

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

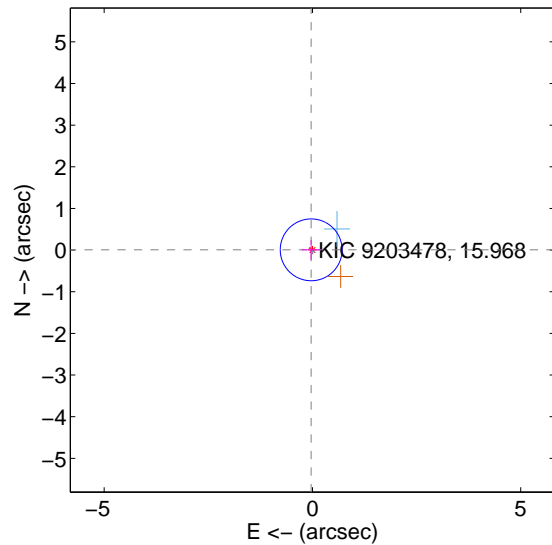
Supplemental centroid analysis for 009203478-01. Kepler magnitude: 15.97. Transit SNR 5.37

There are 2 quarters with good PRF difference image offsets

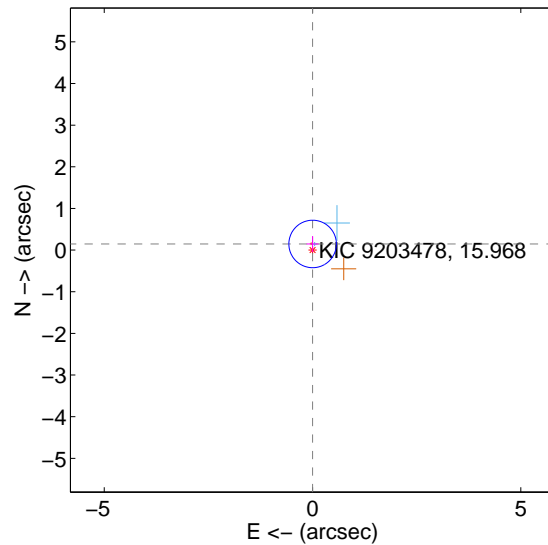
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.031 ± 0.247	0.13	0.031 ± 0.223	0.006 ± 0.237
PRF-fit source offset from KIC position	0.147 ± 0.190	0.78	-0.002 ± 0.145	0.147 ± 0.191
photometric centroid source offset	1.86 ± 0.99	1.87	-1.79 ± 0.99	0.51 ± 1.06

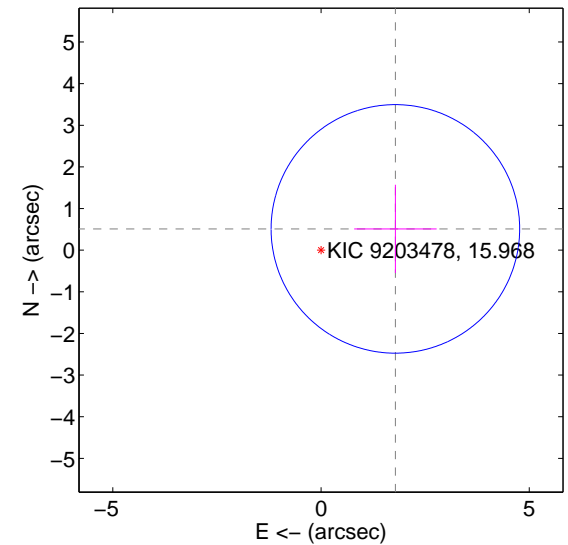
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

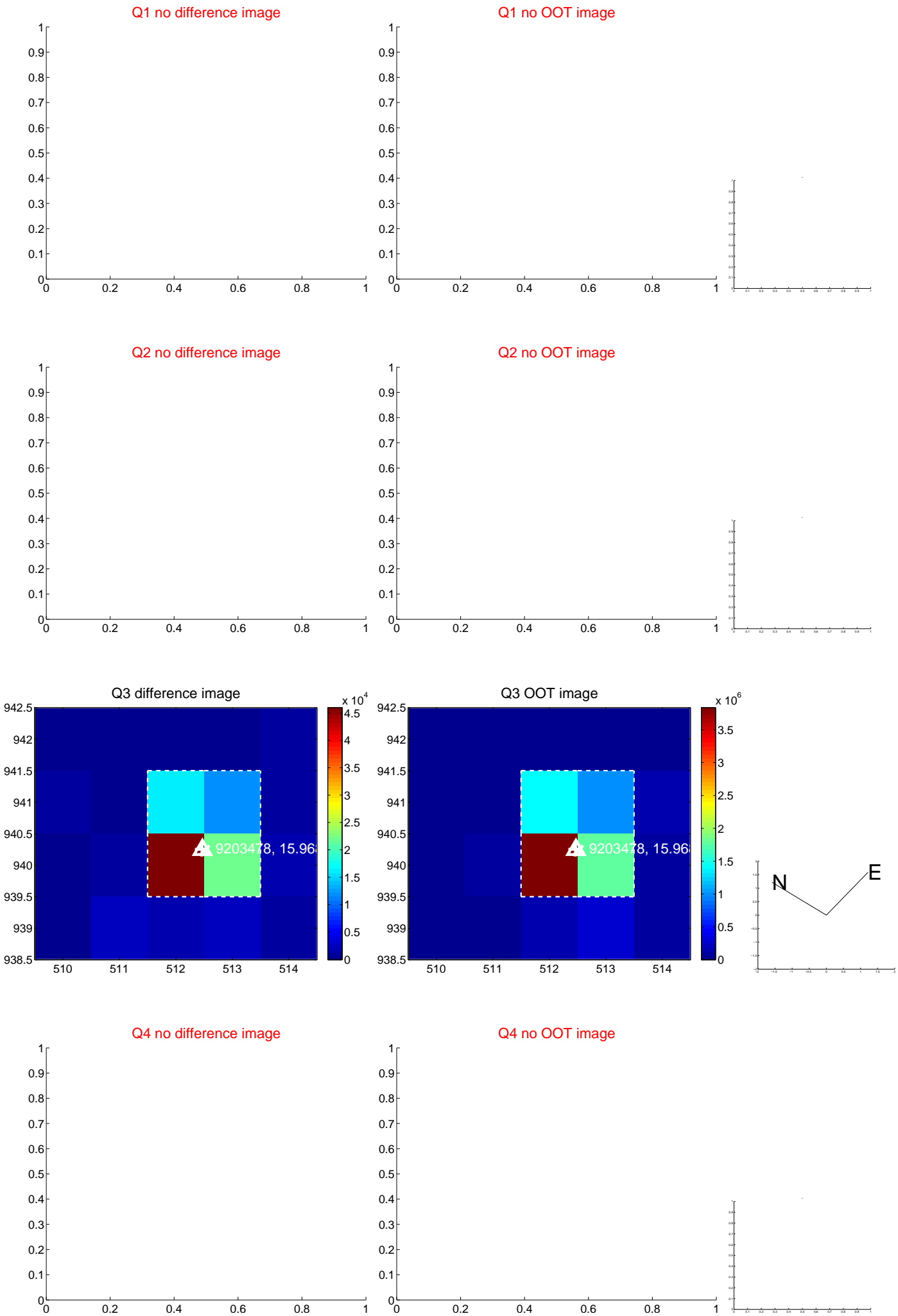


offset from photometric centroids



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.

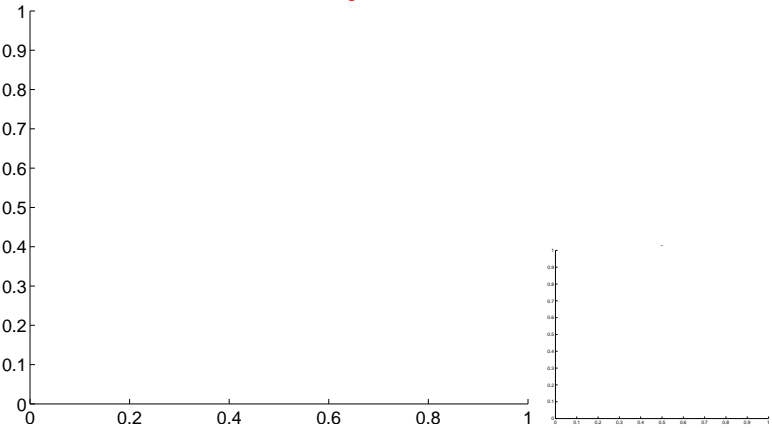


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q5 no difference image



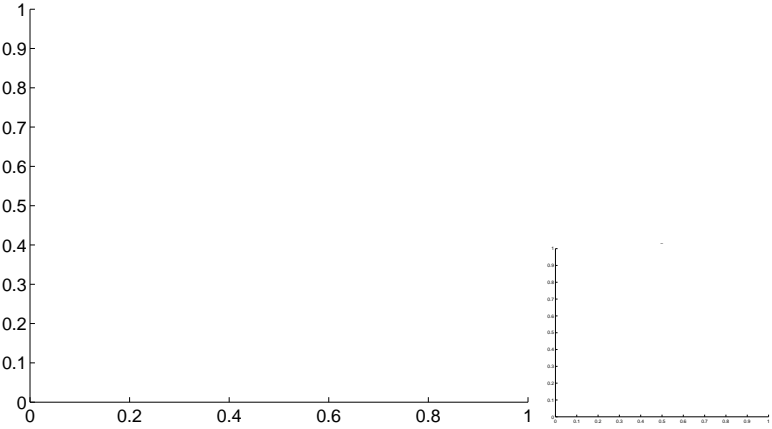
Q5 no OOT image



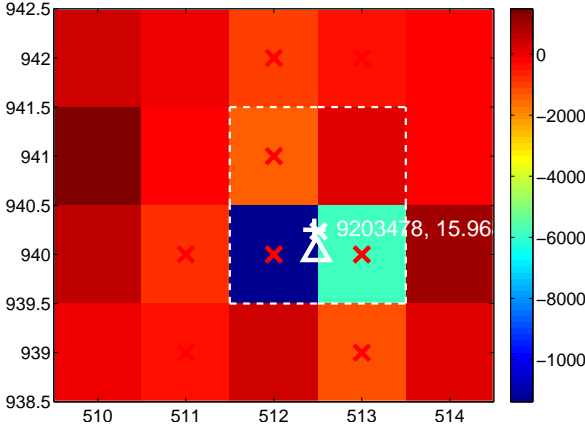
Q6 no difference image



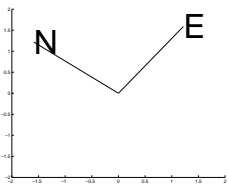
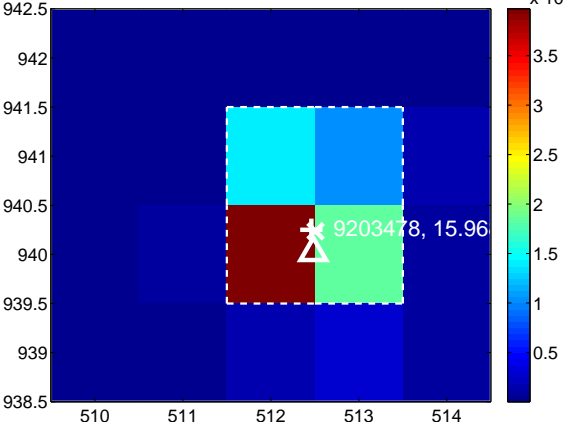
Q6 no OOT image



Q7 difference image. Poor Quality



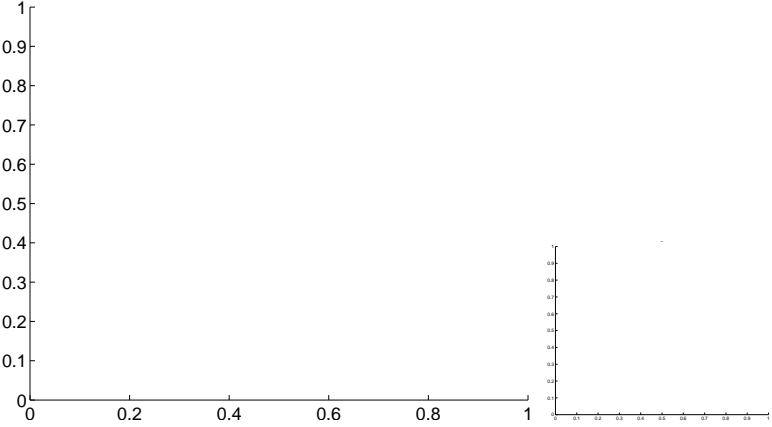
Q7 OOT image



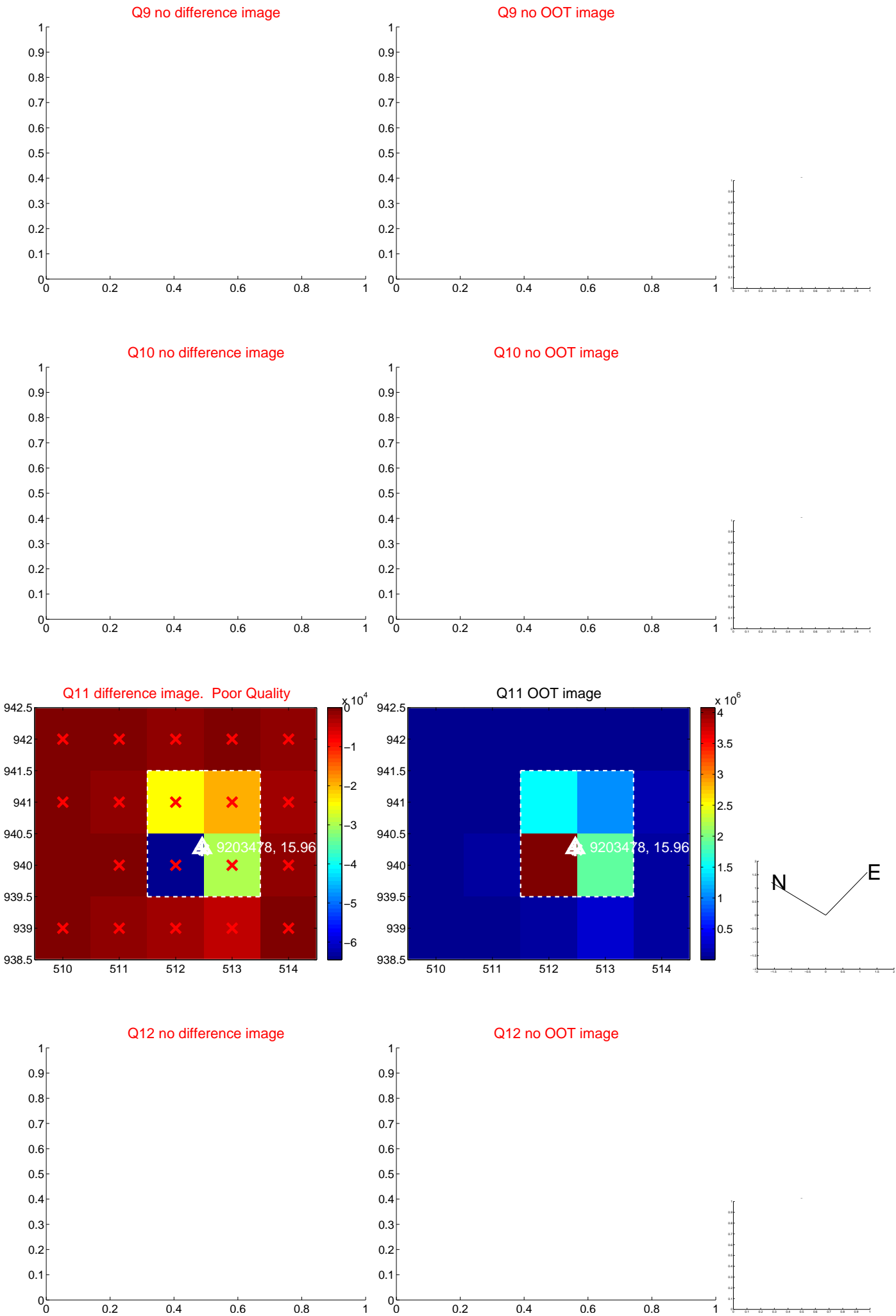
Q8 no difference image



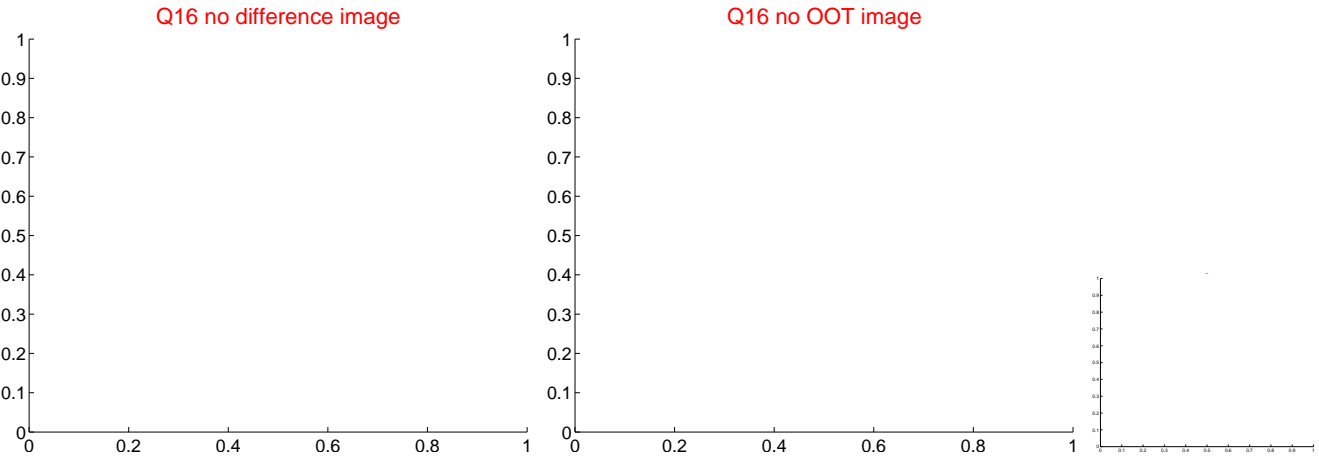
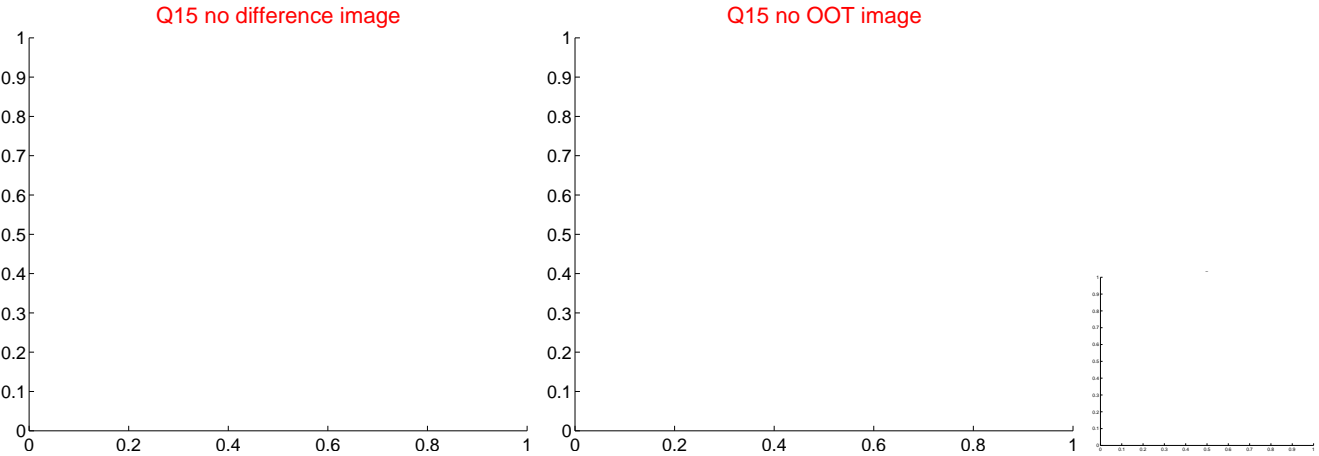
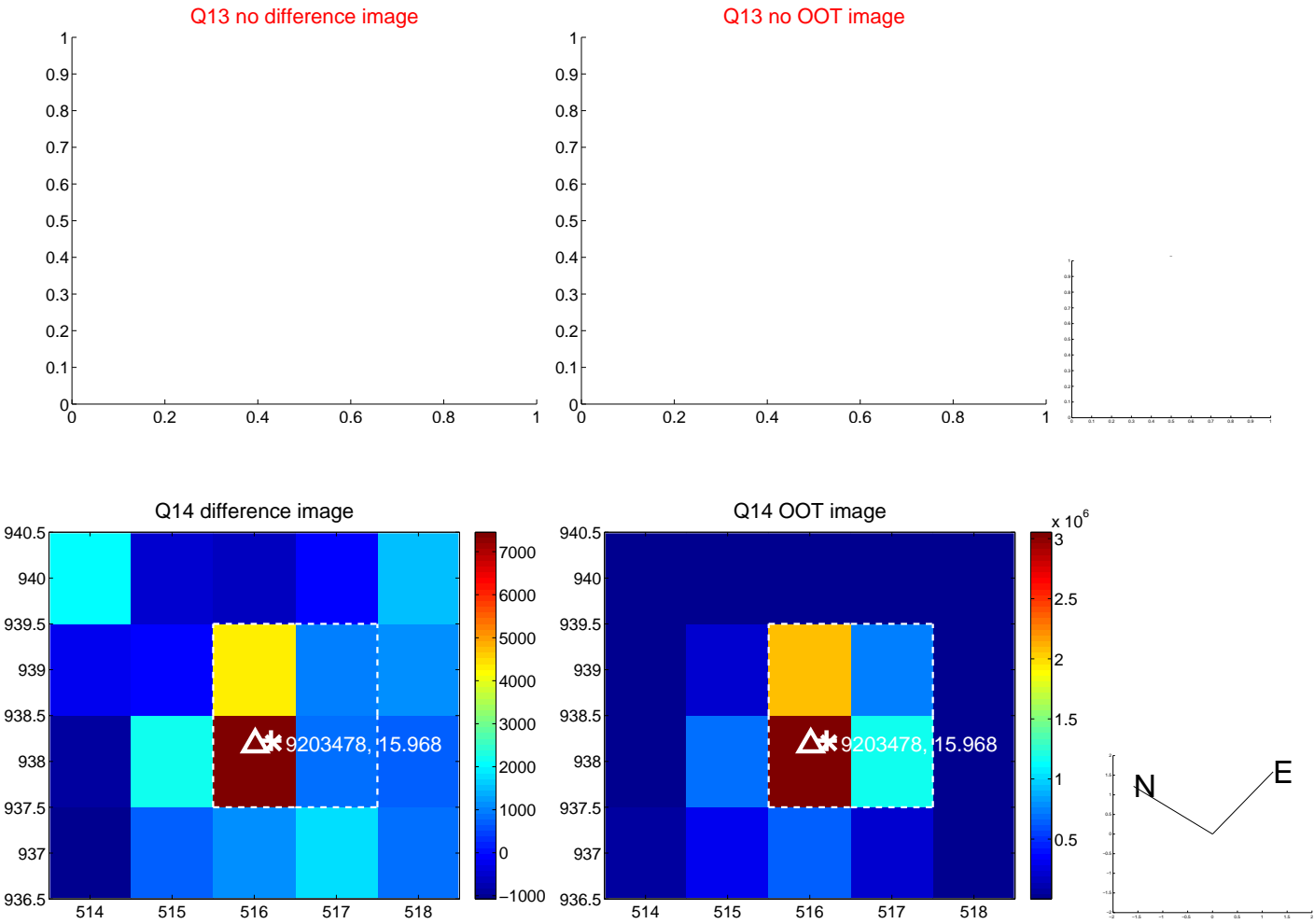
Q8 no OOT image



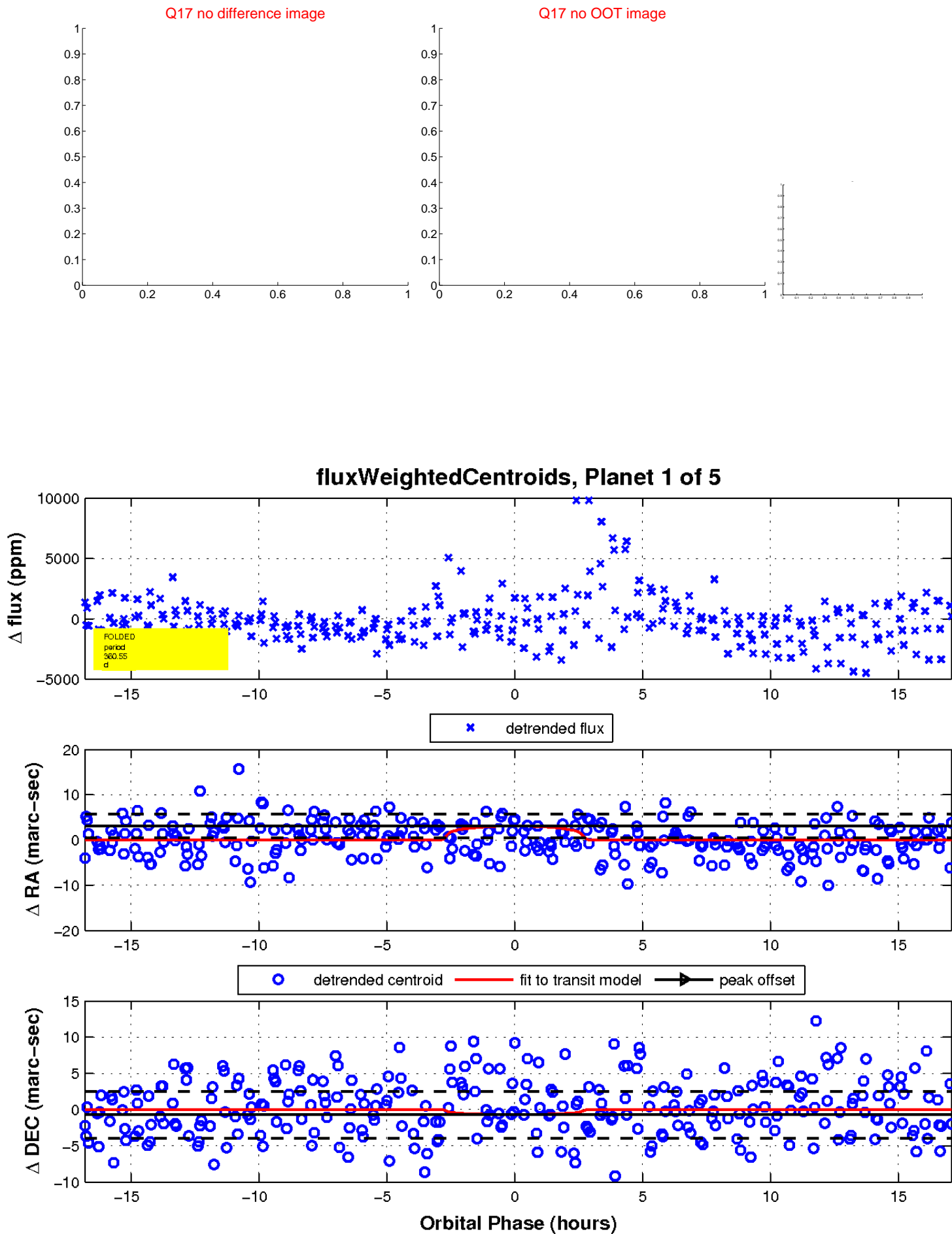
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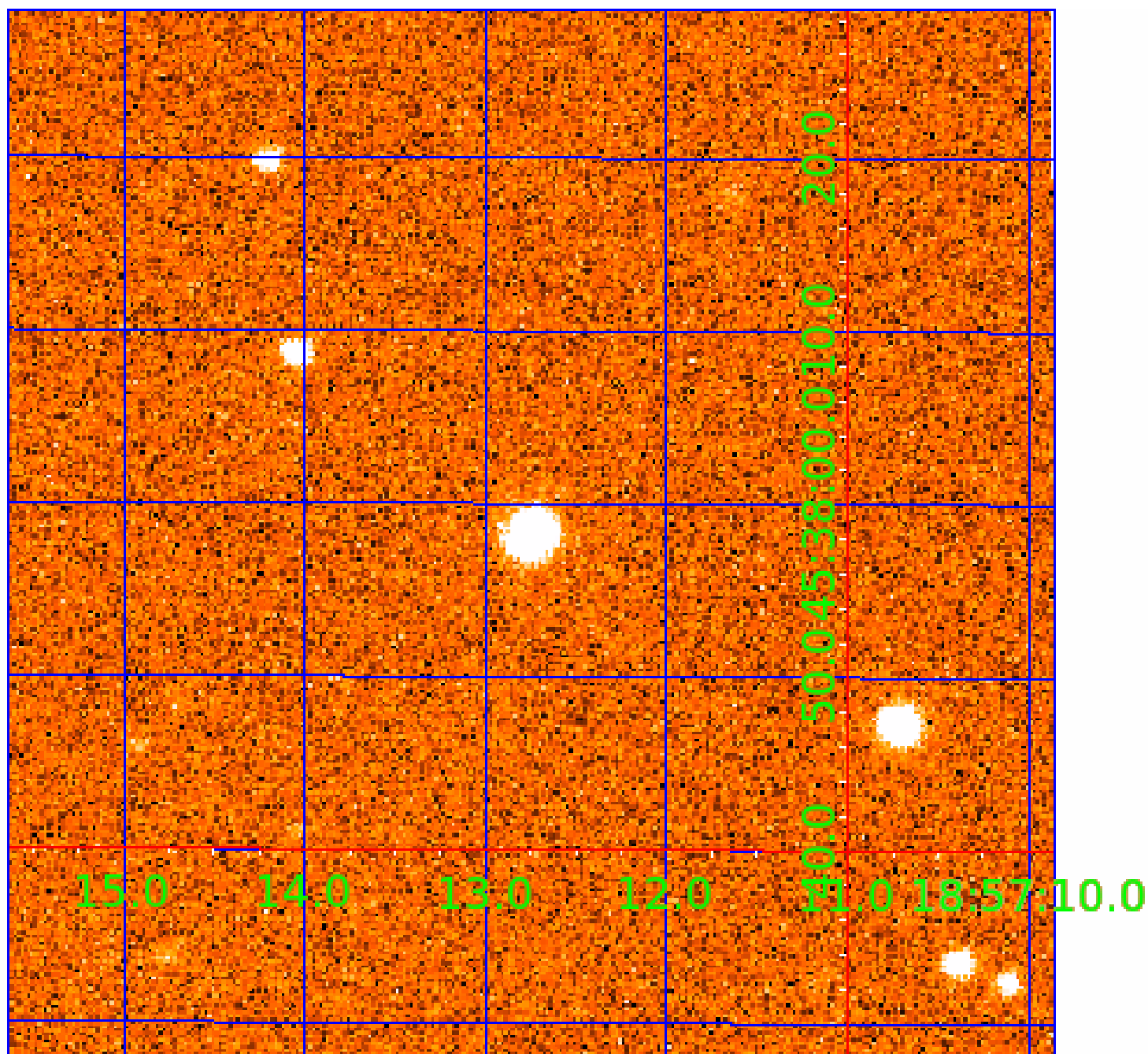


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UKIRT Image

Declination



KIC 009203478

Q1-17 DR25 TCE Parameters

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

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

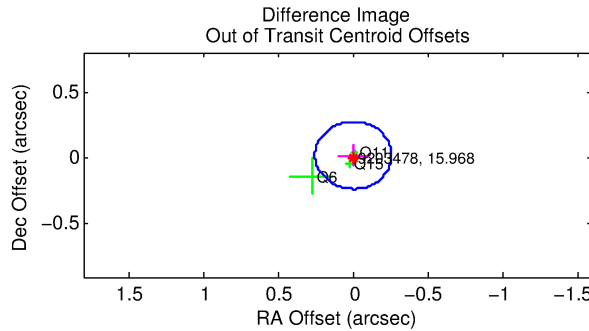
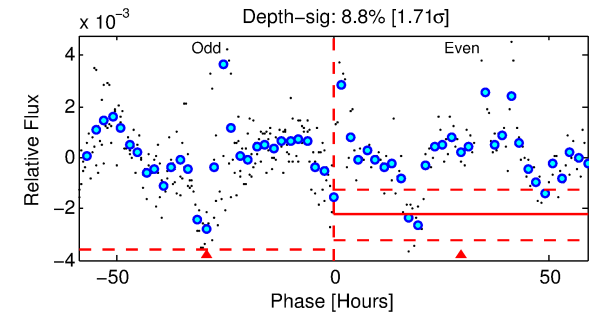
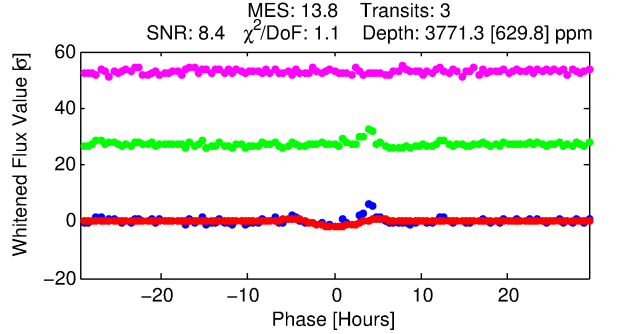
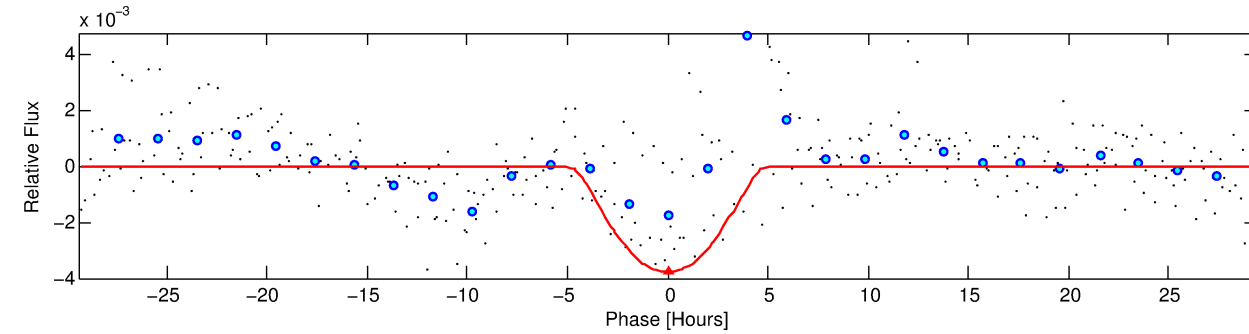
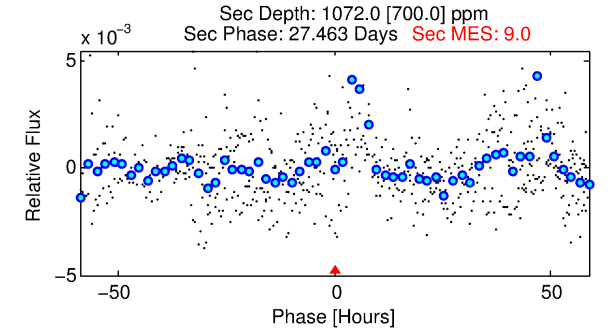
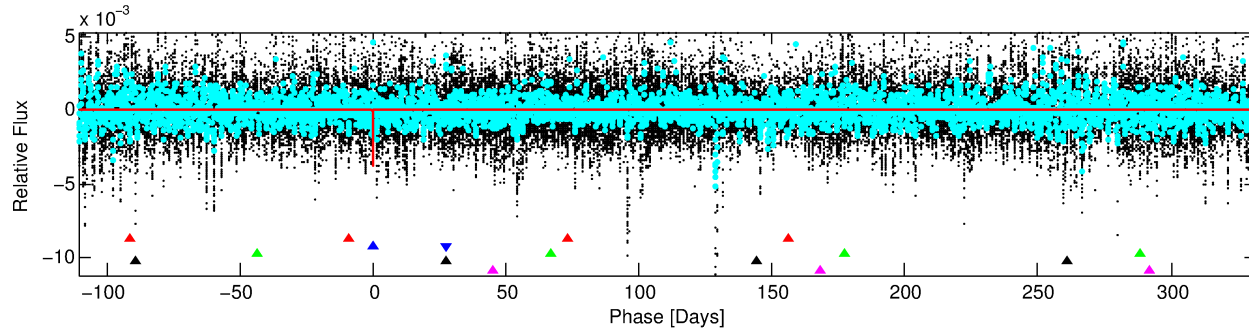
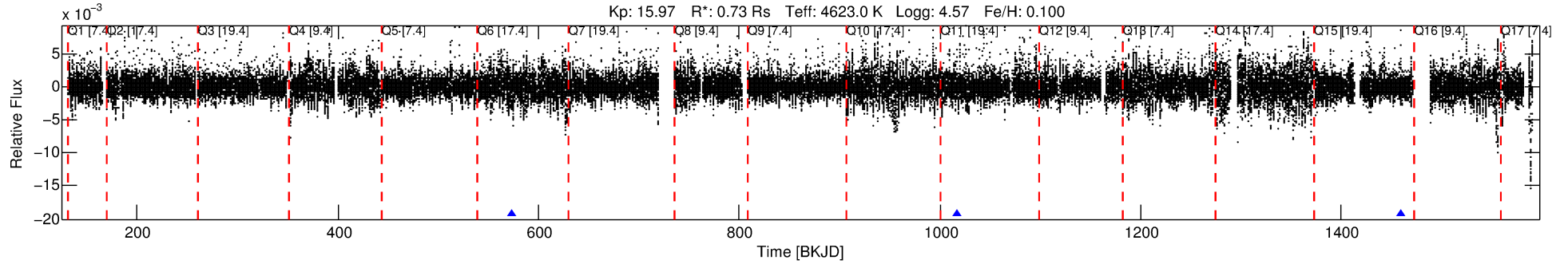
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009203478-02

No Significant Match Found

DV One-Page Summary

KIC: 9203478 Candidate: 2 of 5 Period: 443.084 d



DV Fit Results:

Period = 443.08421 [0.01150] d
Epoch = 573.3360 [0.0172] BKJD
Rp/R* = 0.0765 [0.0249]
a/R* = 181.59 [32.91]
b = 0.94 [0.06]
Seff = 0.21 [0.04]
Teq = 173 [8] K
Rp = 6.12 [2.07] Re
a = 1.0196 [0.0786] AU
Ag = 16364.45 [15203.29] [1.08 σ]
Teffp = 3024 [705] K [4.04 σ]

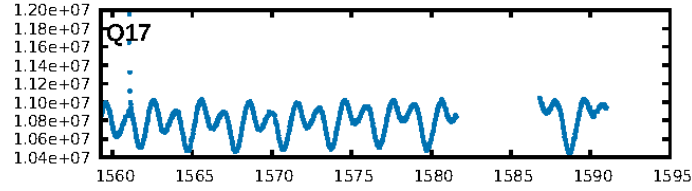
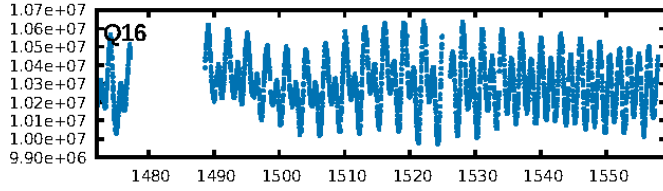
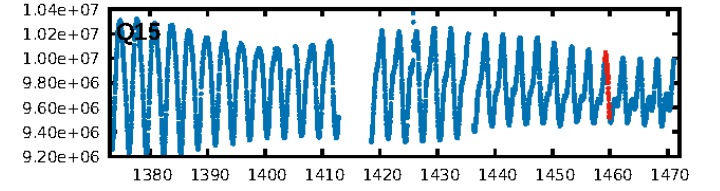
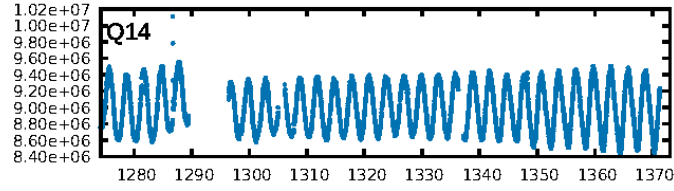
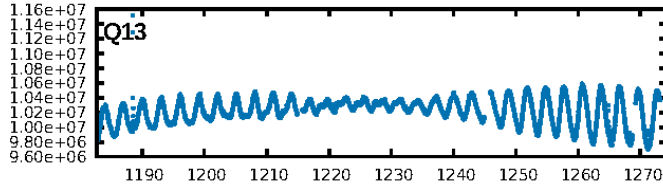
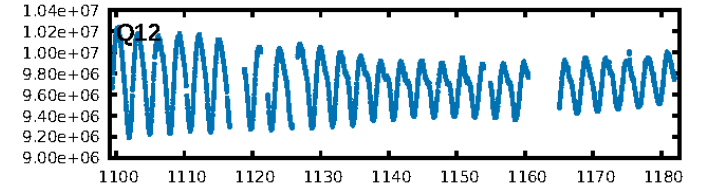
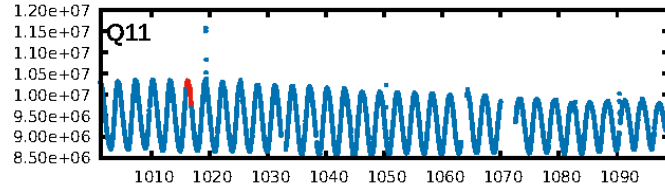
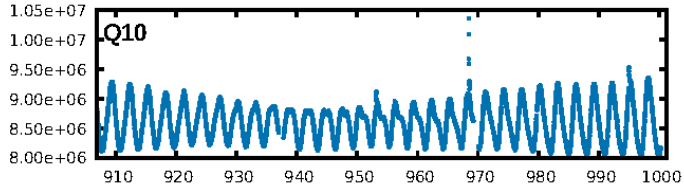
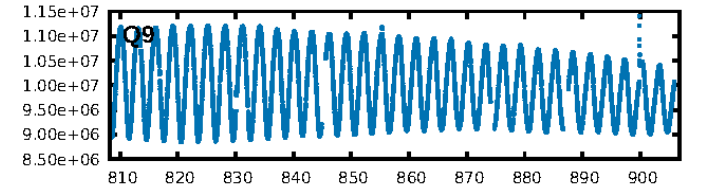
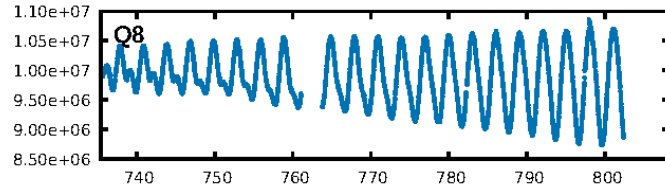
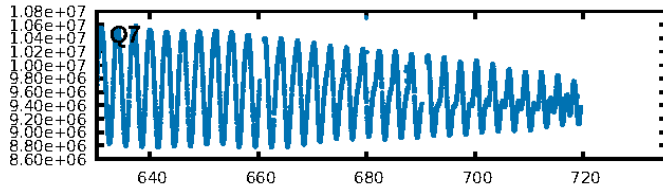
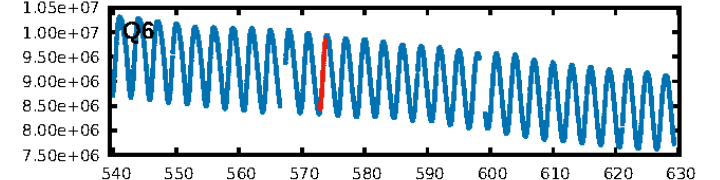
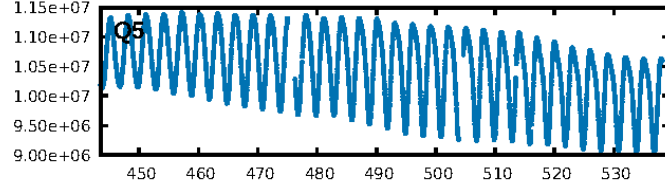
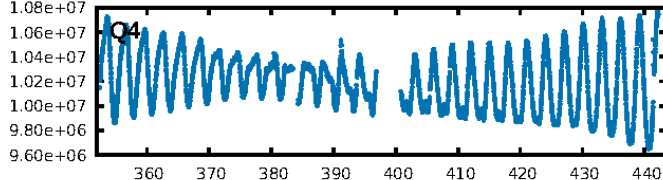
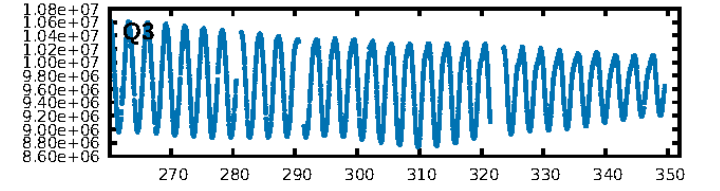
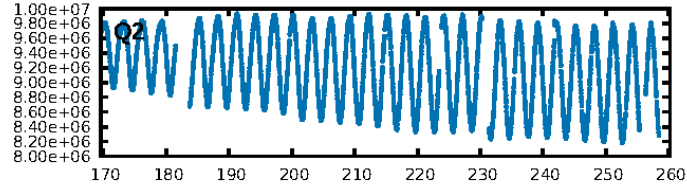
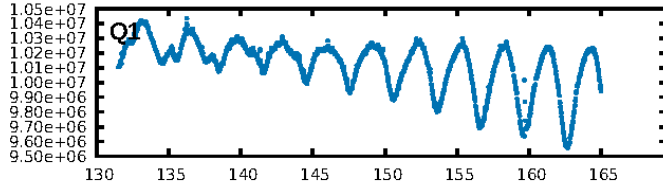
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [174.66 σ]
LongPeriod-sig: 100.0% [265.43 σ]
ModelChiSquare2-sig: 5.4%
ModelChiSquareGof-sig: 94.1%
Bootstrap-pfa: 3.67e-17
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7641
Centroid-sig: 85.3%
Centroid-so: 0.156 arcsec [0.27 σ]
OotOffset-rm: 0.021 arcsec [0.24 σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.161 arcsec [1.90 σ]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

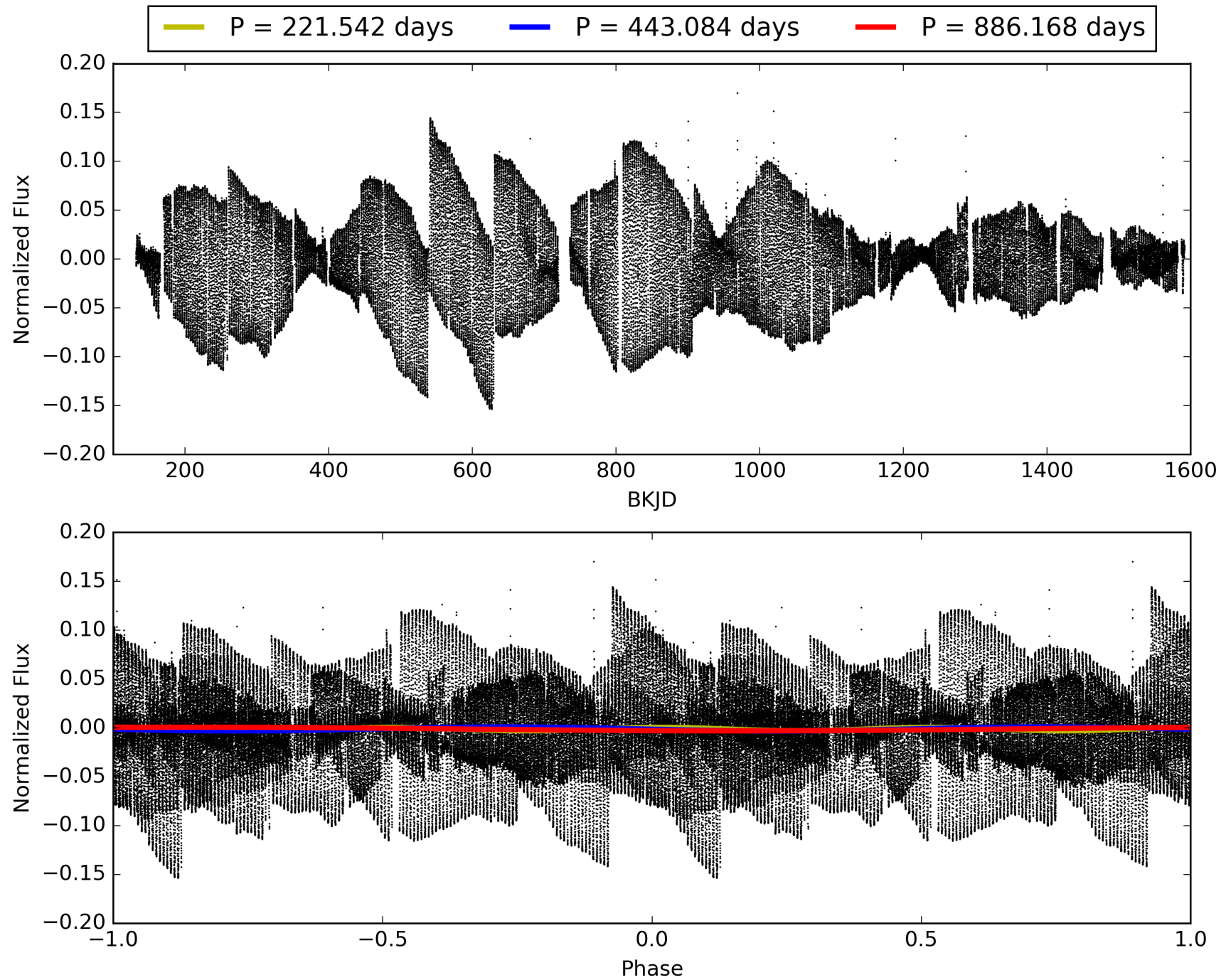
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:10:41 Z

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

TCE 009203478-02, PDC Light Curves

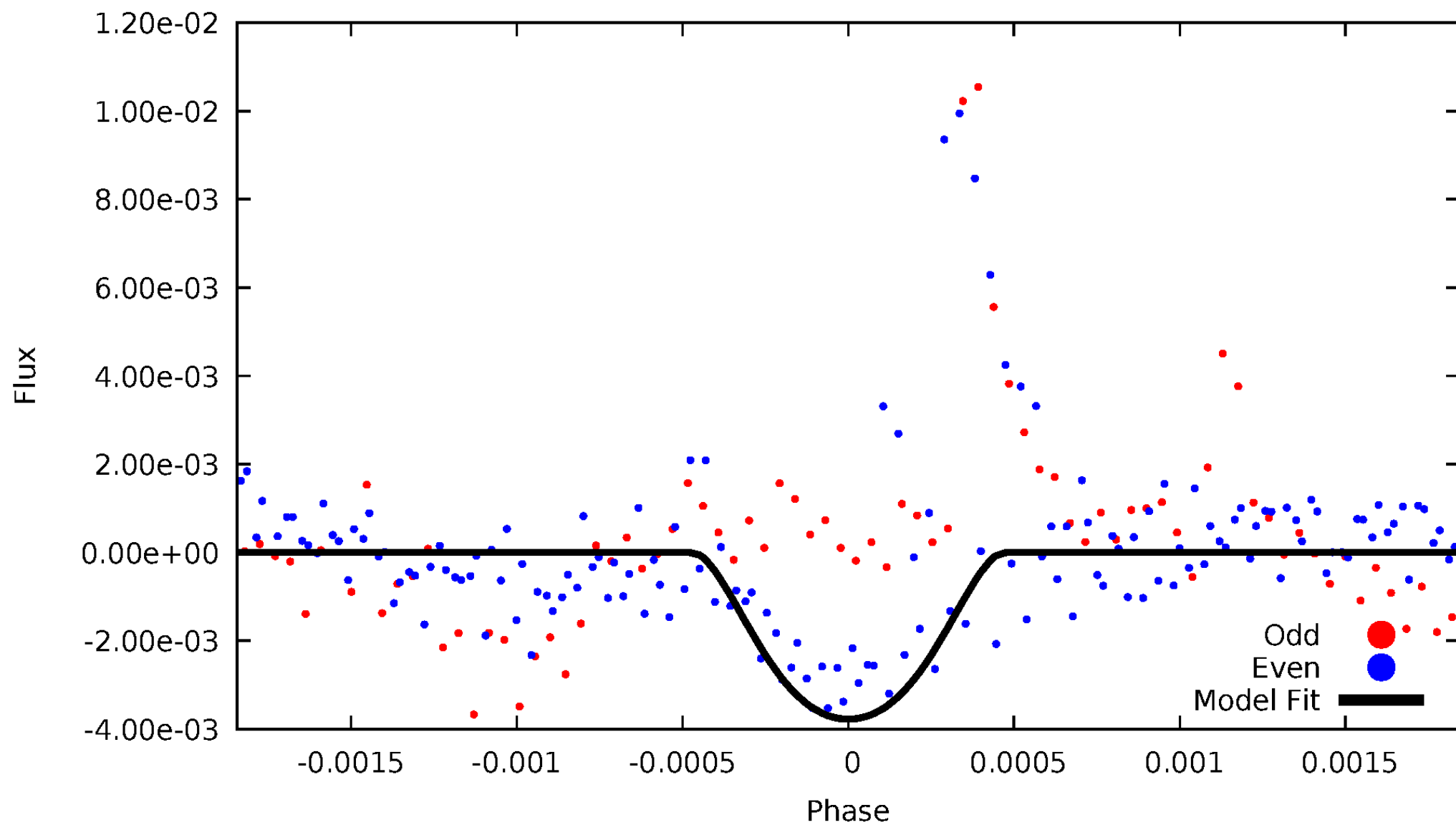


TCE 009203478-02



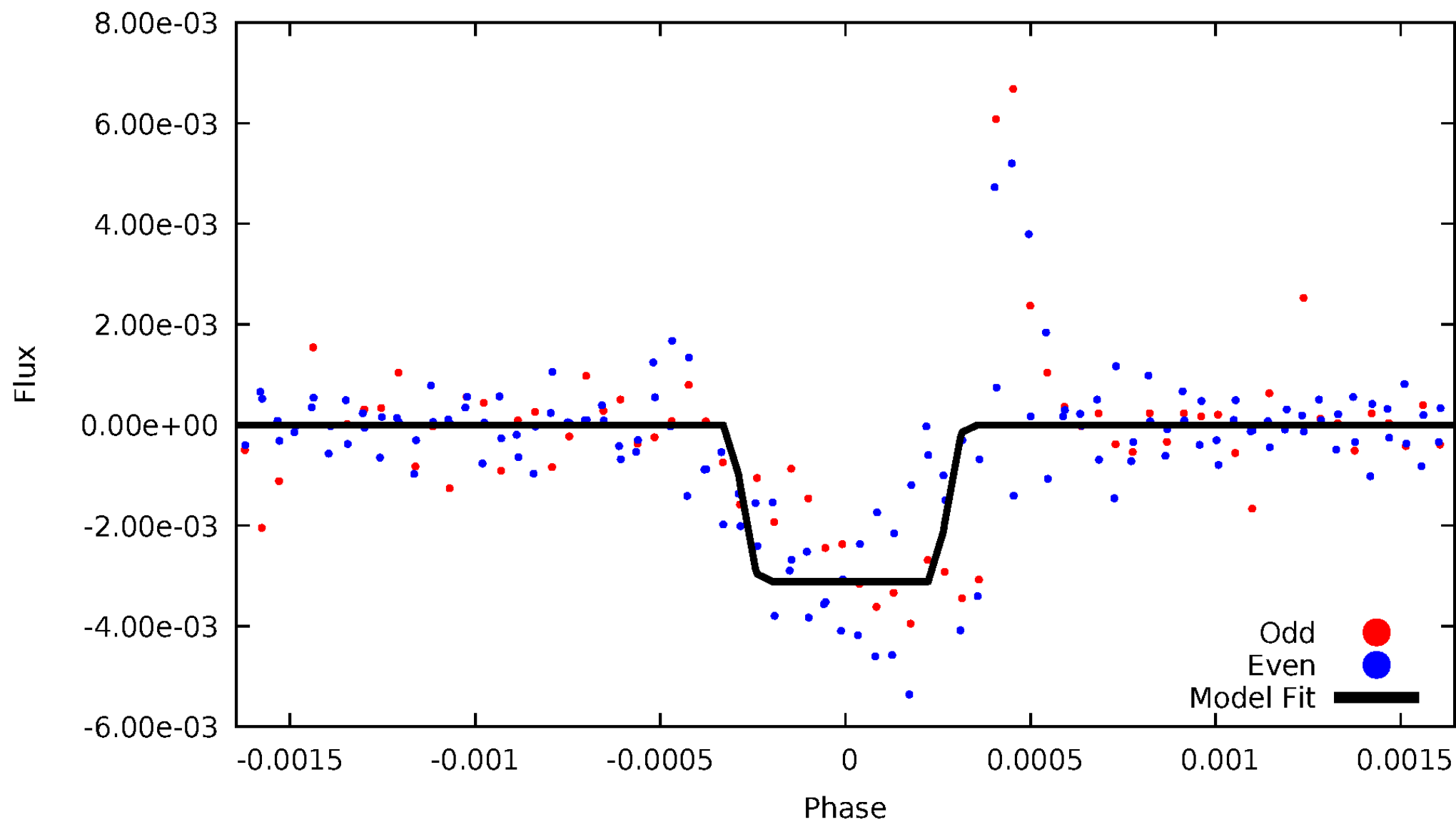
DV Odd/Even

TCE 009203478-02



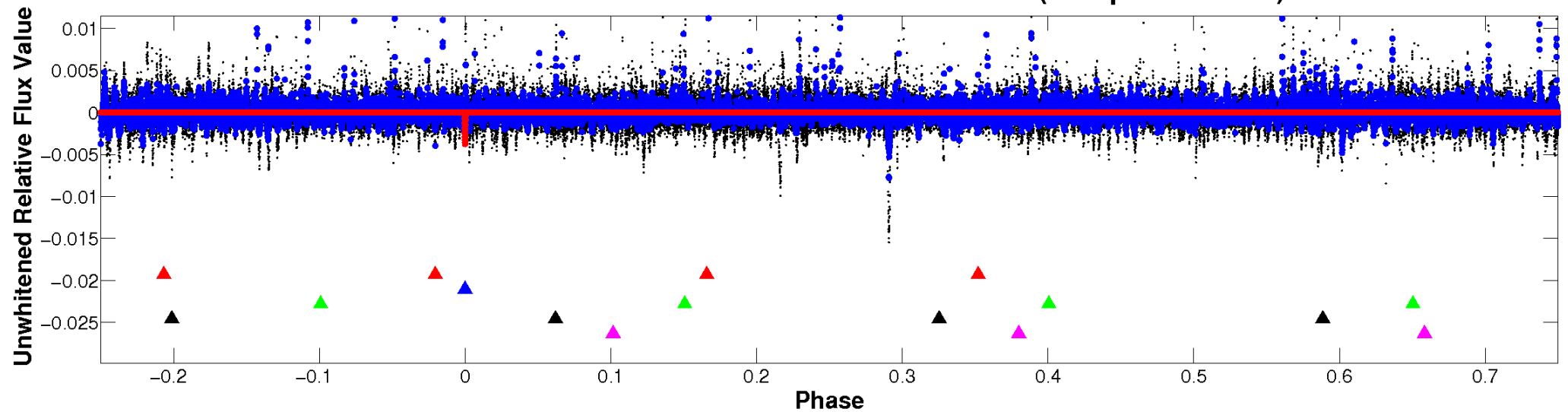
ALT Odd/Even

TCE 009203478-02

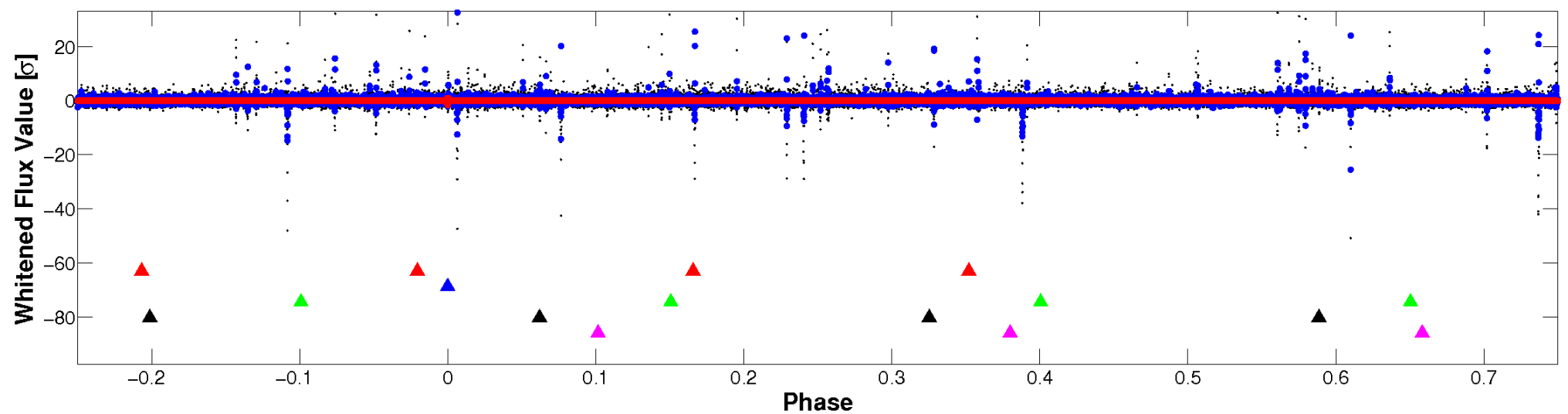


Non-Whitened Vs. Whitened Light Curve

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

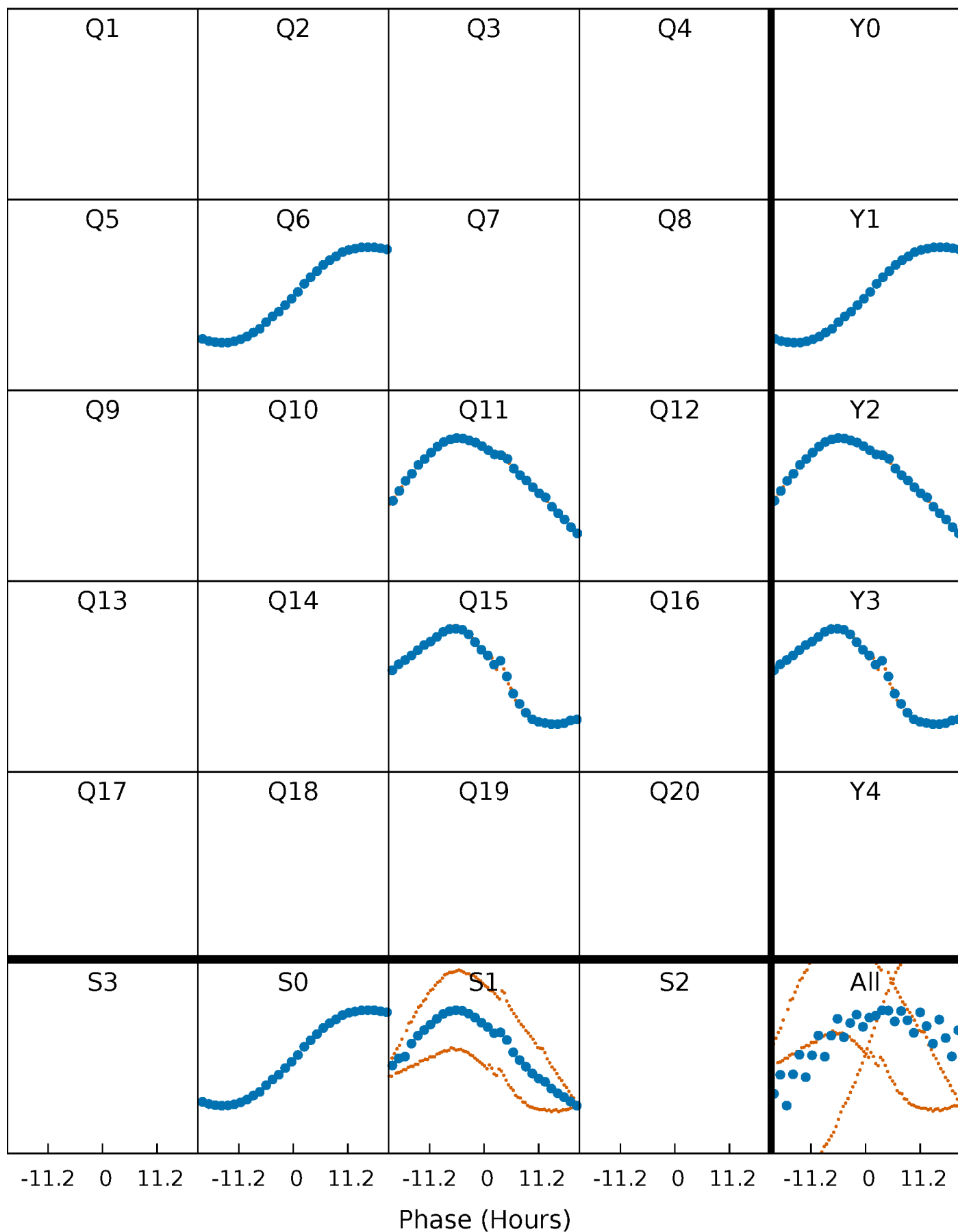


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



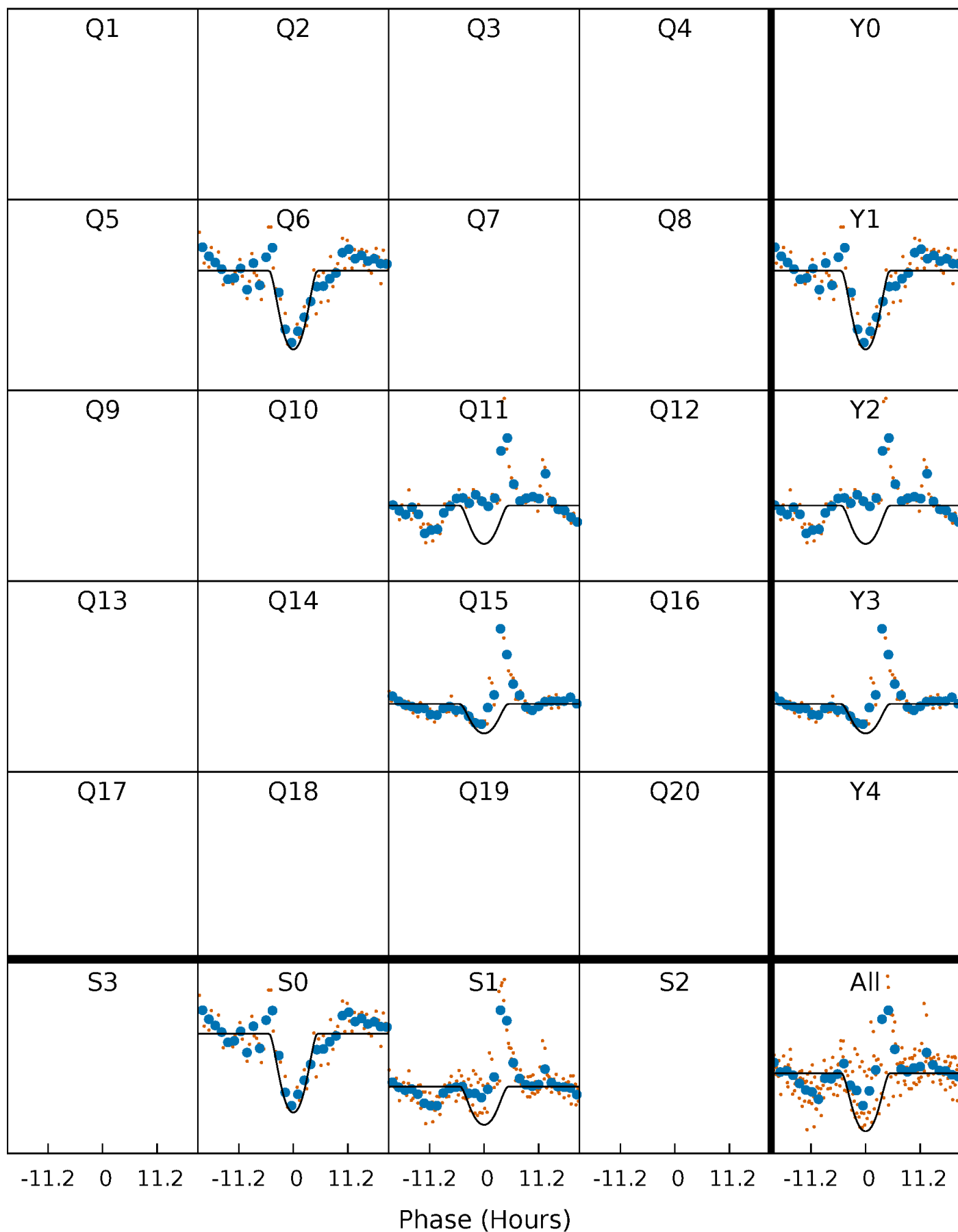
PDC Quarter-Phased Transit Curves

TCE 009203478-02 P=443.084213 Days $T_0=573.336017$ (BKJD)



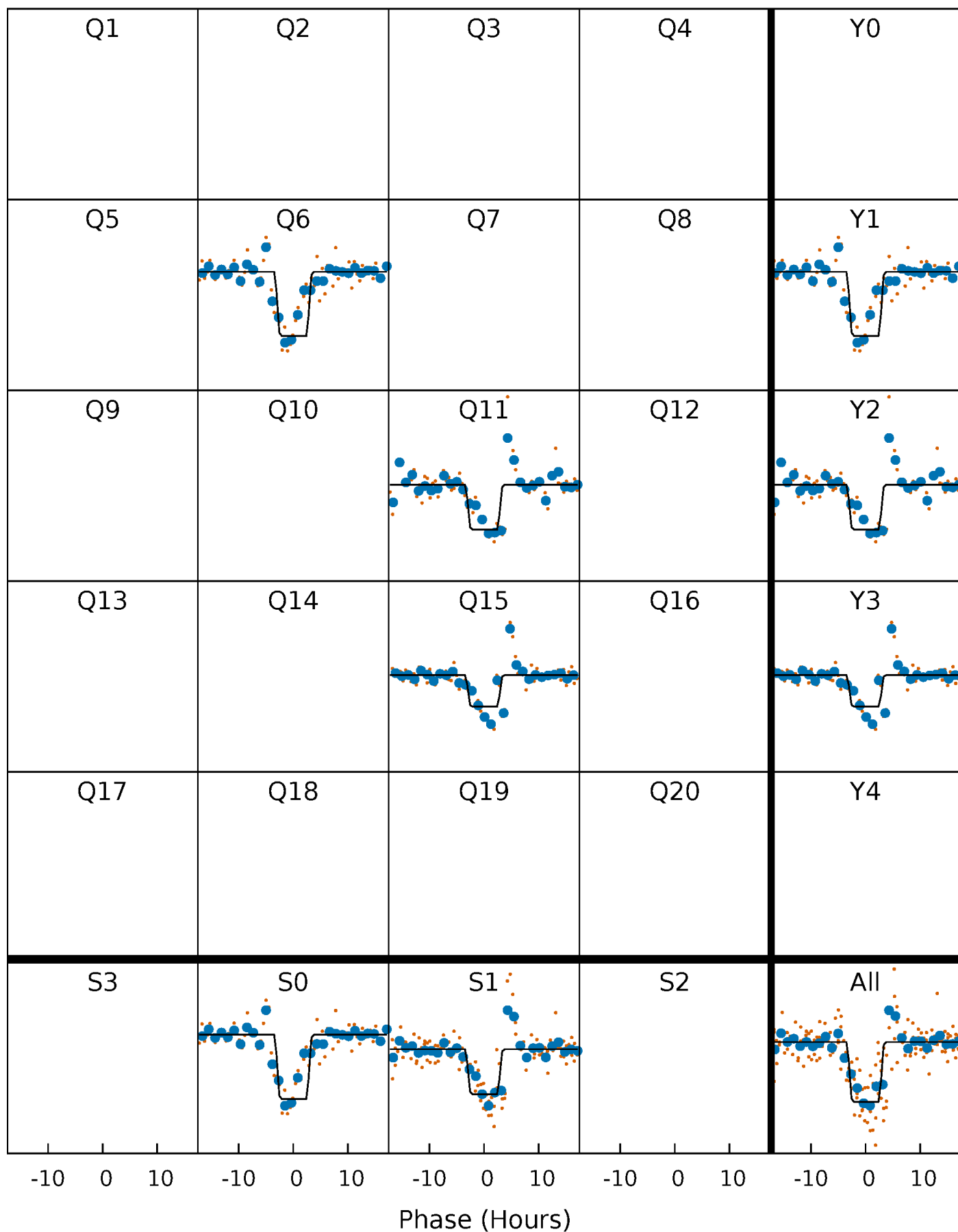
DV Quarter-Phased Transit Curves

TCE 009203478-02 P=443.084213 Days $T_0=573.336017$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

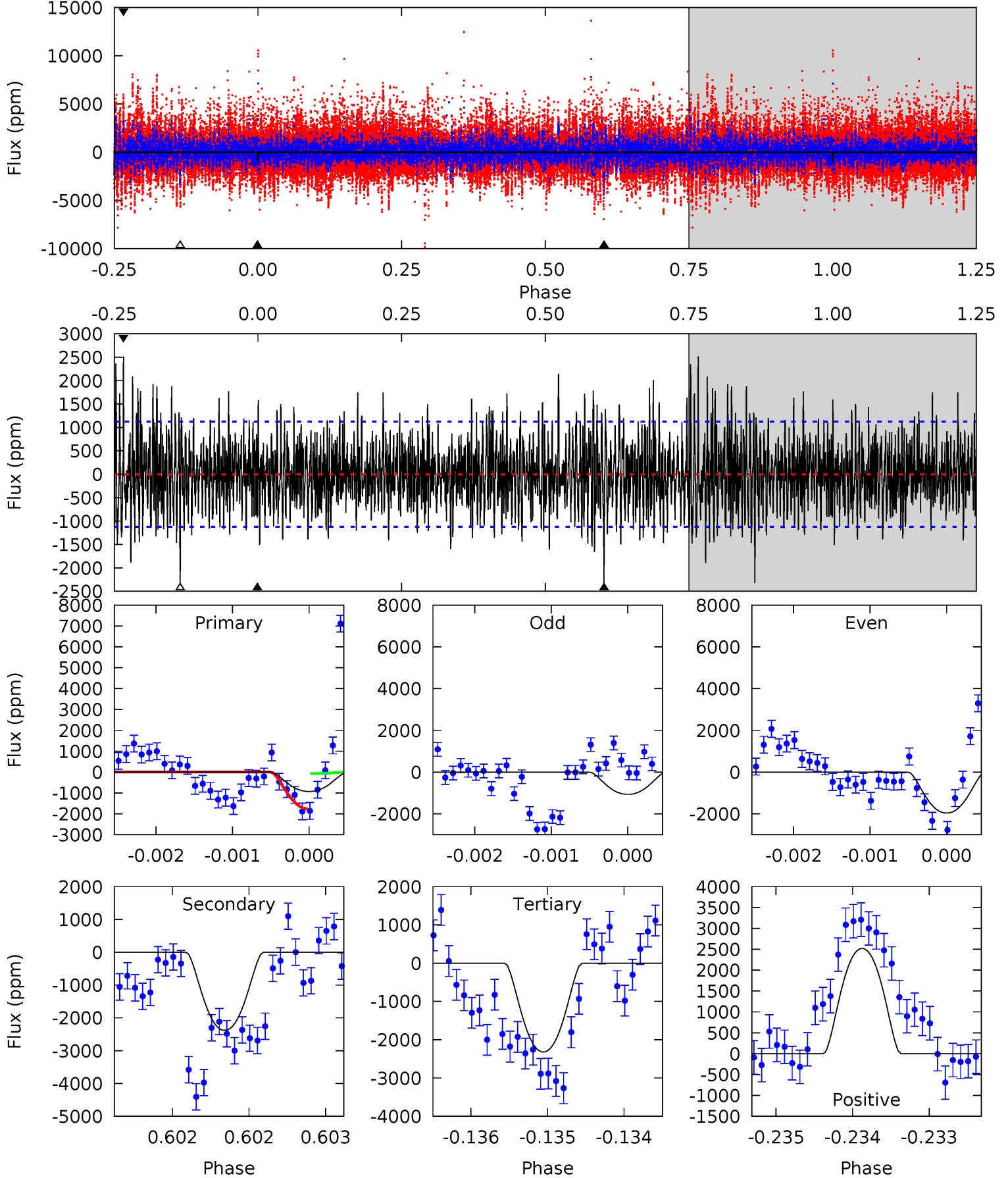
TCE 009203478-02 P=443.060881 Days $T_0=573.332373$ (BKJD)



DV Model-Shift Uniqueness Test

009203478-02, P = 443.084213 Days, E = 130.251804 Days

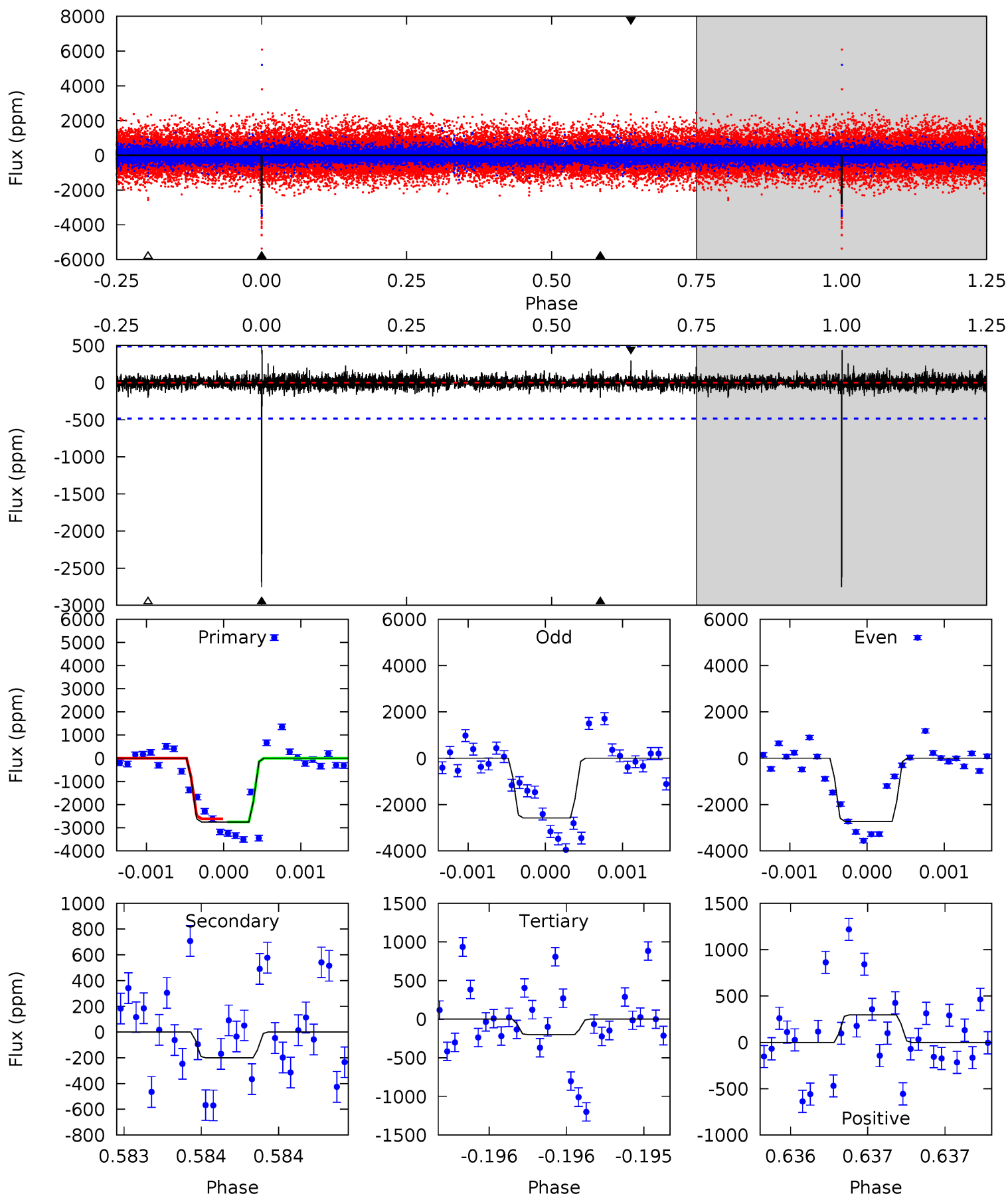
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.52	11.6	11.3	12.3	5.46	3.31	2.95	-6.78	-7.74	0.28	-0.68	1.74	2.86	0.51	4.12



Alt Model-Shift Uniqueness Test

009203478-02, P = 443.060881 Days, E = 130.271492 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.3	2.28	2.27	3.37	5.52	3.39	0.52	29.1	28.0	0.00	-1.09	0.78	1.07	0.14	0.75



Stellar Parameters For KIC 009203478

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4623^{+163}_{-163}	$4.565^{+0.063}_{-0.027}$	$0.100^{+0.250}_{-0.300}$	$0.733^{+0.042}_{-0.066}$	$0.720^{+0.063}_{-0.058}$	$2.574^{+0.652}_{-0.255}$
	+4%/-4%	+1%/-1%	+250%/-300%	+6%/-9%	+9%/-8%	+25%/-10%
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 009203478-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2378 ± 205	$6.06^{+1.91}_{-1.93}$	240^{+10}_{-10}	3905^{+580}_{-351}	37919^{+41067}_{-16095}
Alt.	-200 ± 88	$4.50^{+2.06}_{-1.95}$	240^{+9}_{-10}	2904^{+541}_{-367}	5452^{+12092}_{-3459}

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

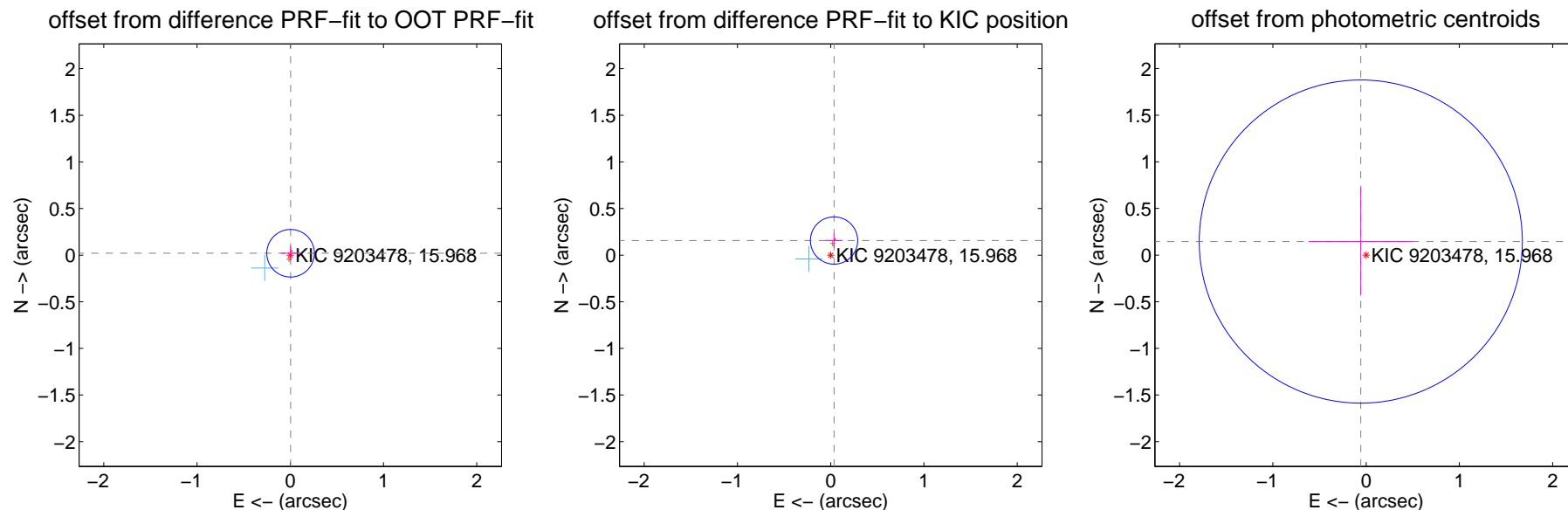
DV Centroid Data

Supplemental centroid analysis for 009203478-02. Kepler magnitude: 15.97. Transit SNR 8.38

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.021 ± 0.085	0.24	-0.003 ± 0.103	0.021 ± 0.079
PRF-fit source offset from KIC position	0.161 ± 0.085	1.90	-0.036 ± 0.091	0.157 ± 0.077
photometric centroid source offset	0.16 ± 0.58	0.27	0.06 ± 0.56	0.15 ± 0.58

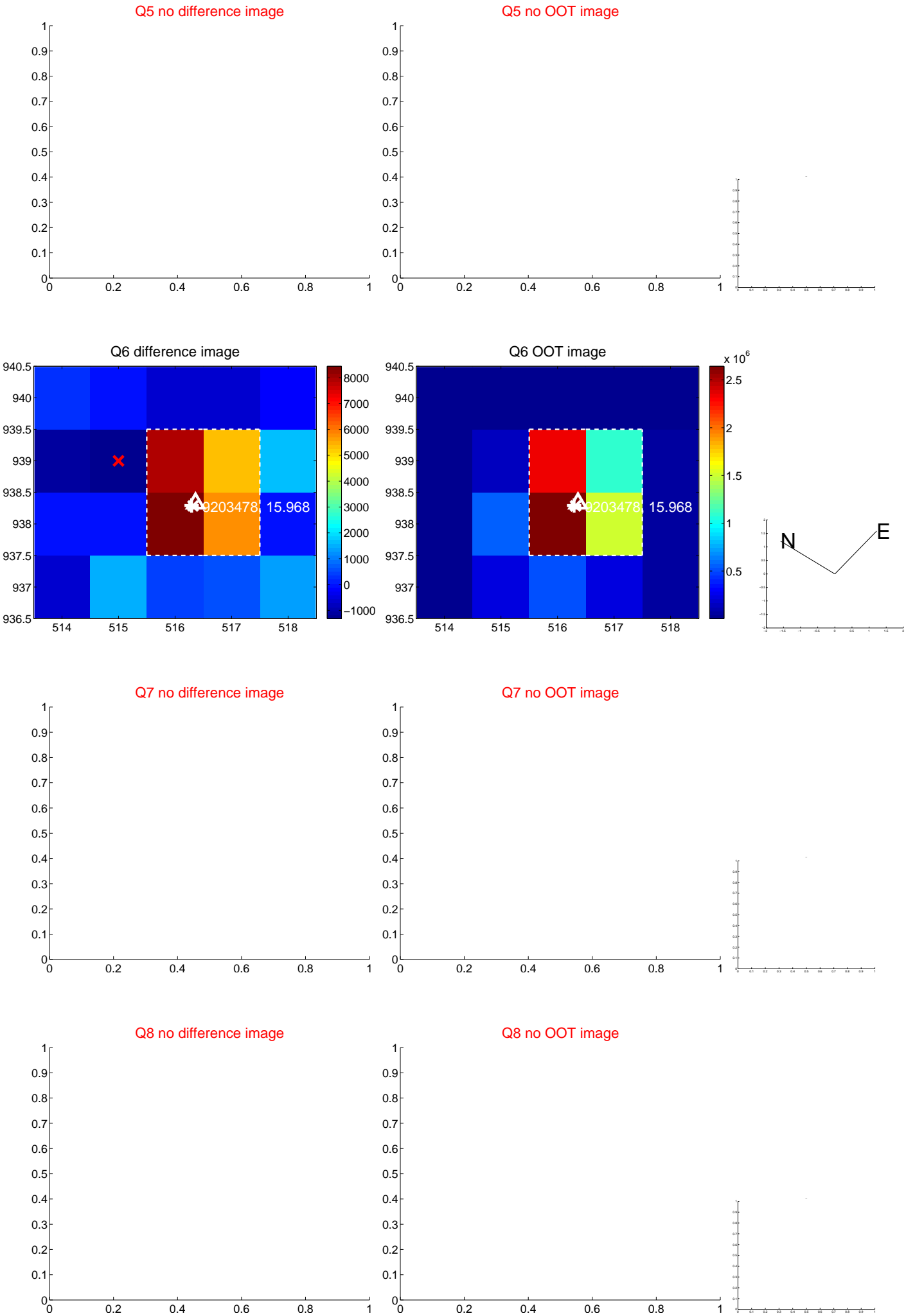


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

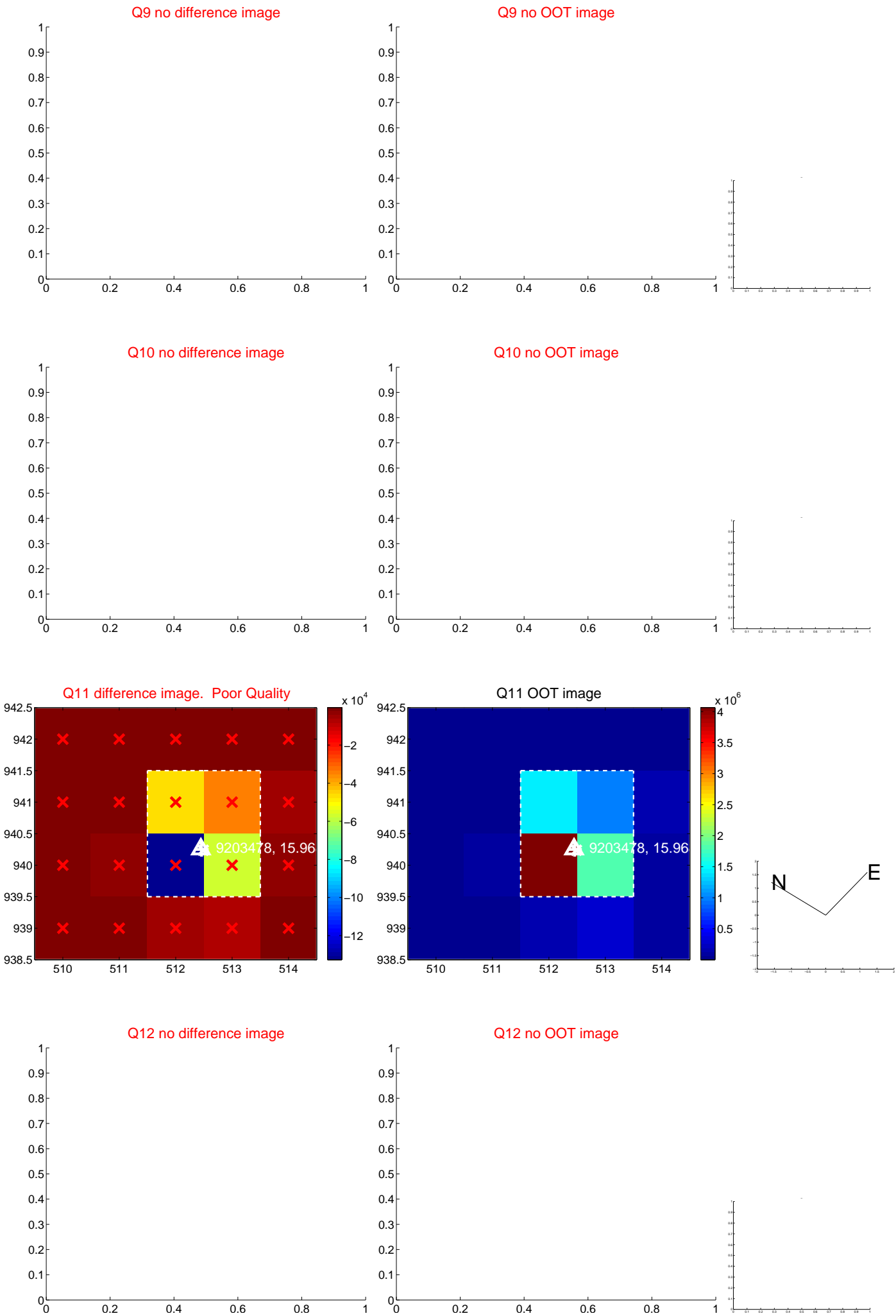
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



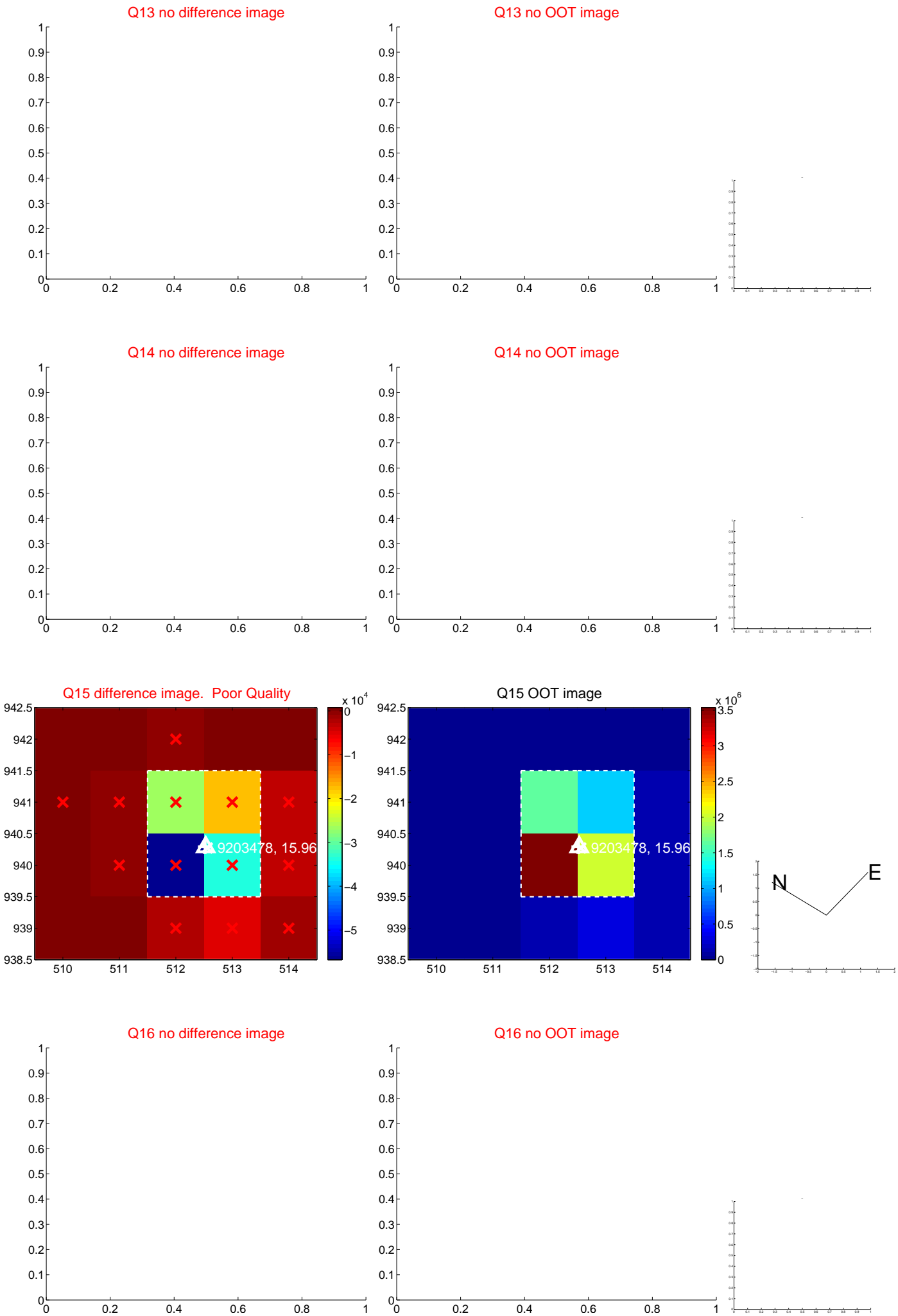
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



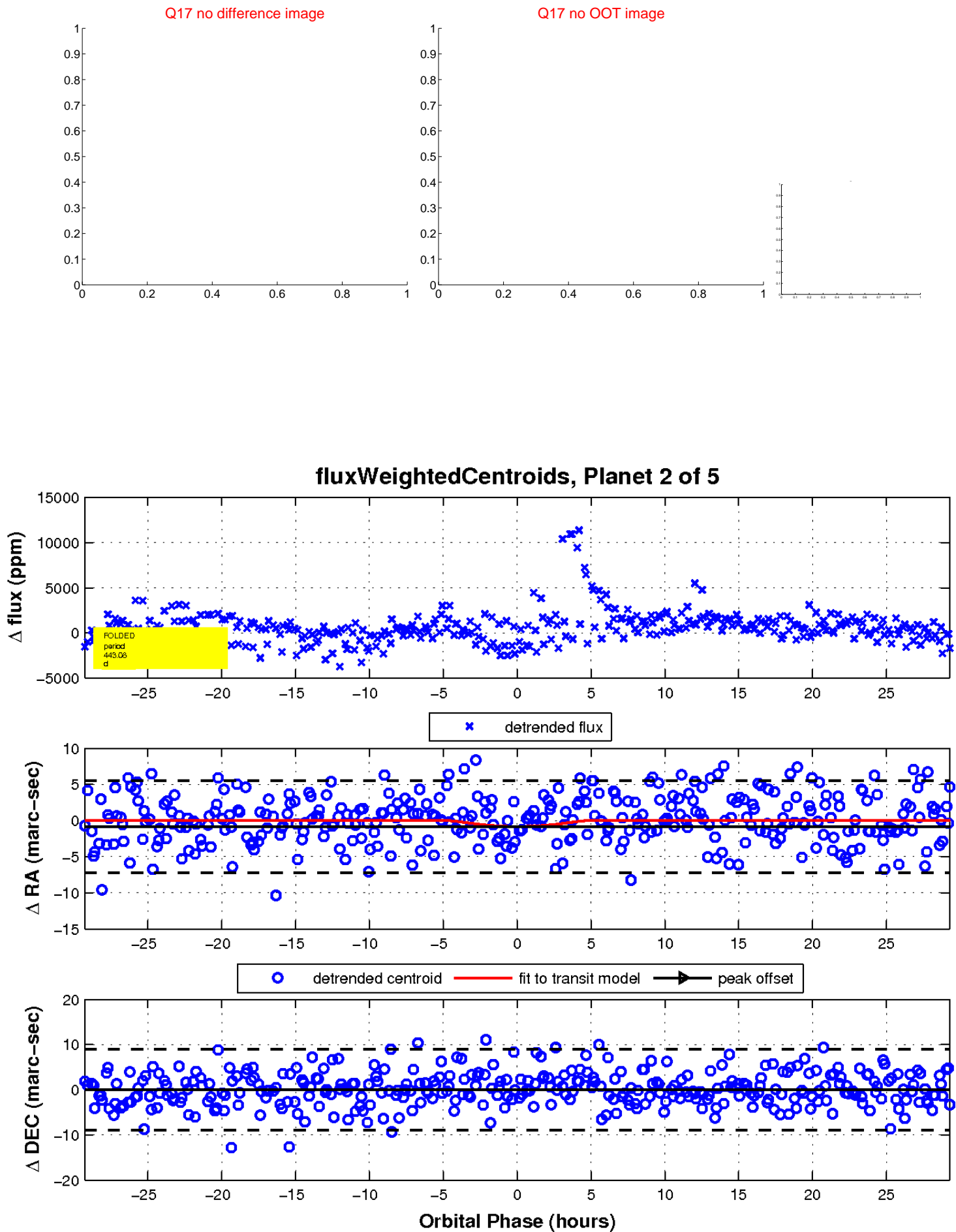
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

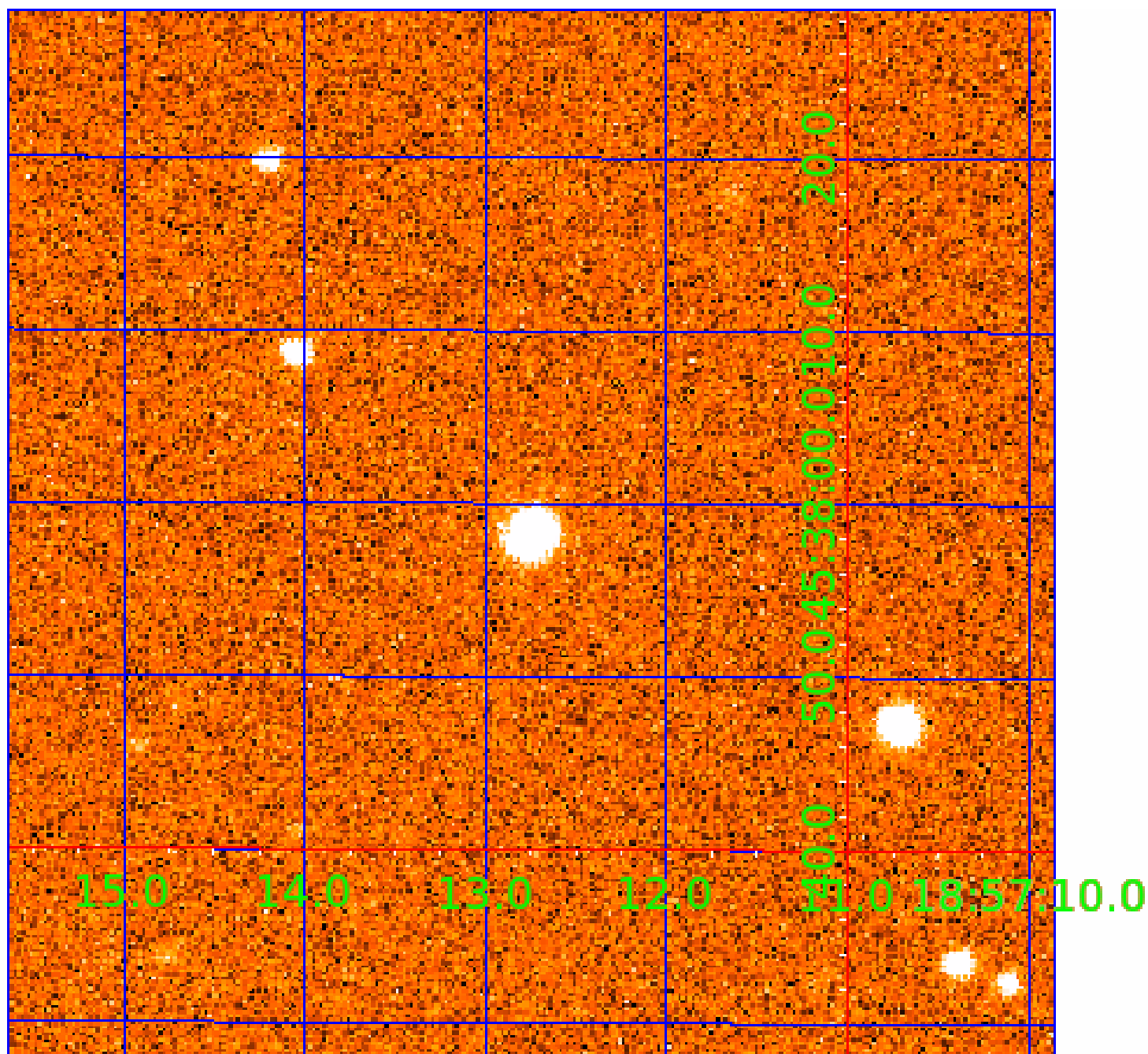


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009203478

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})
009203478-01	OBS	No	360.549293	286.261317	1898.5	5.709	10.8	5.4	0.73	4623	3.25	0.28
009203478-02	OBS	No	443.084213	573.336017	3771.3	9.800	13.8	8.4	0.73	4623	6.12	0.21
009203478-03	OBS	No	332.381443	418.447857	3201.7	11.027	10.3	7.4	0.73	4623	4.92	0.31
009203478-04	OBS	No	326.434145	391.042435	2221.5	5.537	17.0	5.7	0.73	4623	3.38	0.32
009203478-05	OBS	No	566.428865	175.270293	3515.5	5.324	8.5	8.3	0.73	4623	5.05	0.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009203478-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-02	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

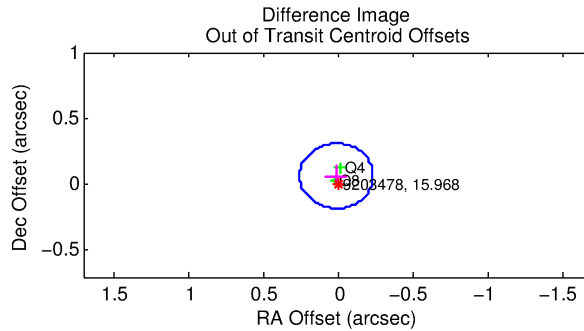
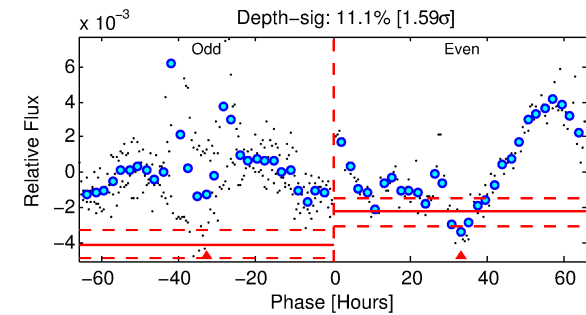
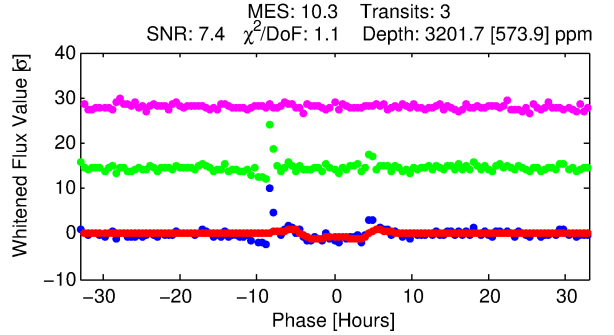
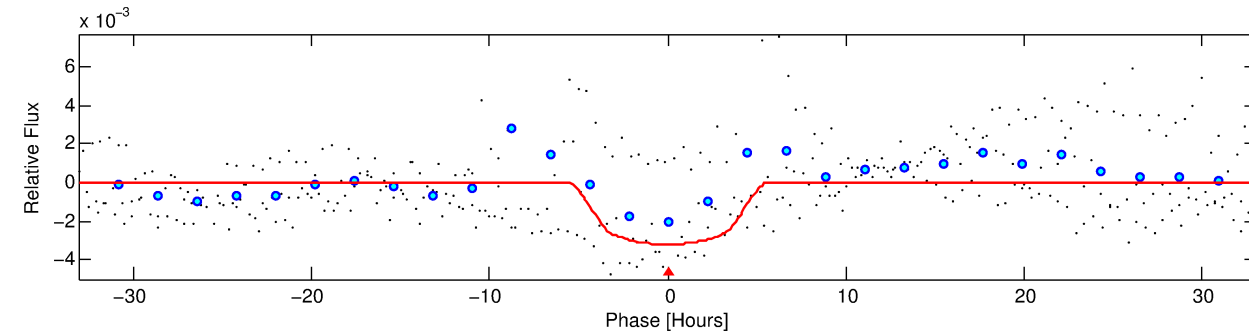
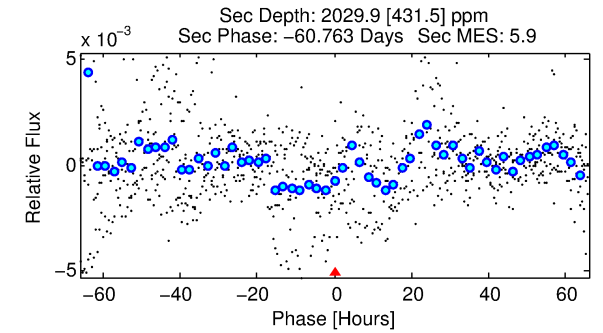
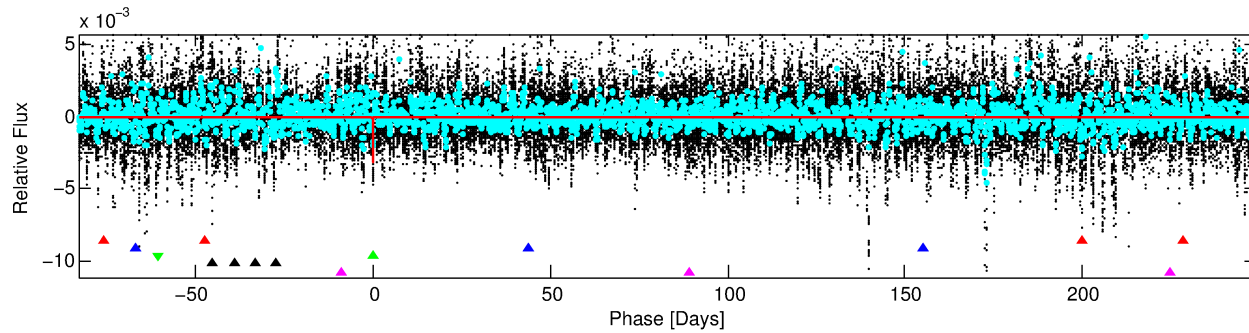
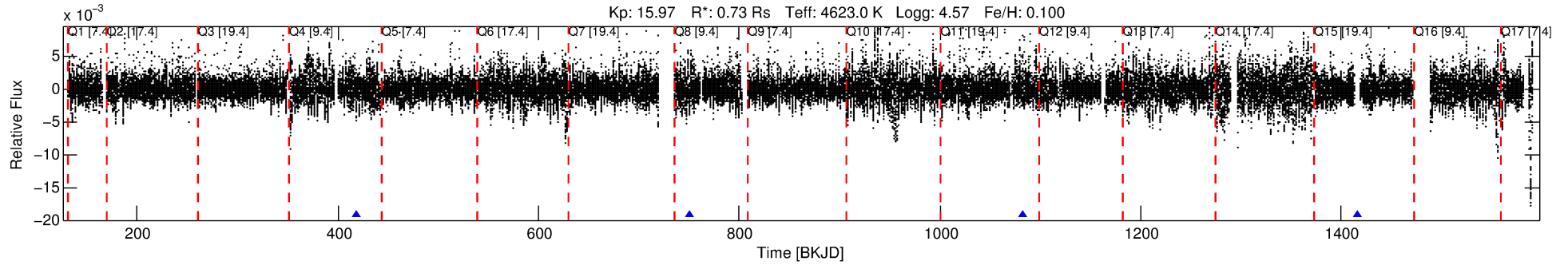
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009203478-03

No Significant Match Found

DV One-Page Summary

KIC: 9203478 Candidate: 3 of 5 Period: 332.381 d



DV Fit Results:

Period = 332.38144 [0.01160] d
Epoch = 418.4479 [0.0147] BKJD
Rp/R* = 0.0616 [0.0072]
a/R* = 142.16 [28.06]
b = 0.86 [0.06]
Seff = 0.31 [0.06]
Teq = 190 [9] K
Rp = 4.92 [0.73] Re
a = 0.8418 [0.0649] AU
Ag = 32644.71 [10990.40] [2.97 σ]
Teffp = 3955 [343] K [10.98 σ]

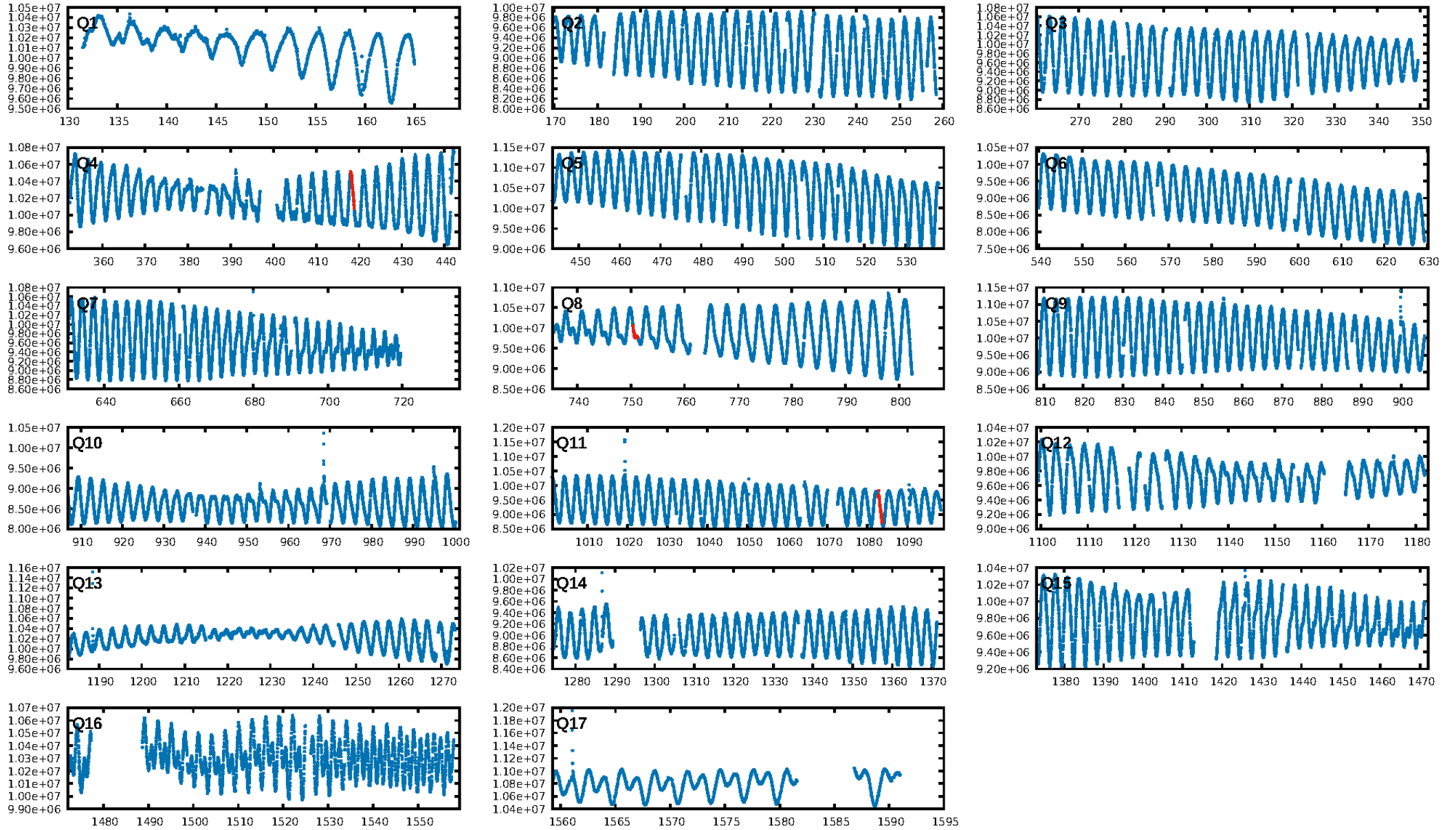
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.57 σ]
LongPeriod-sig: 100.0% [54.44 σ]
ModelChiSquare2-sig: 6.2%
ModelChiSquareGof-sig: 94.3%
Bootstrap-pfa: 2.45e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3578
Centroid-sig: 97.8%
Centroid-so: 0.278 arcsec [0.49 σ]
OotOffset-rm: 0.065 arcsec [0.80 σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-rm: 0.204 arcsec [2.79 σ]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

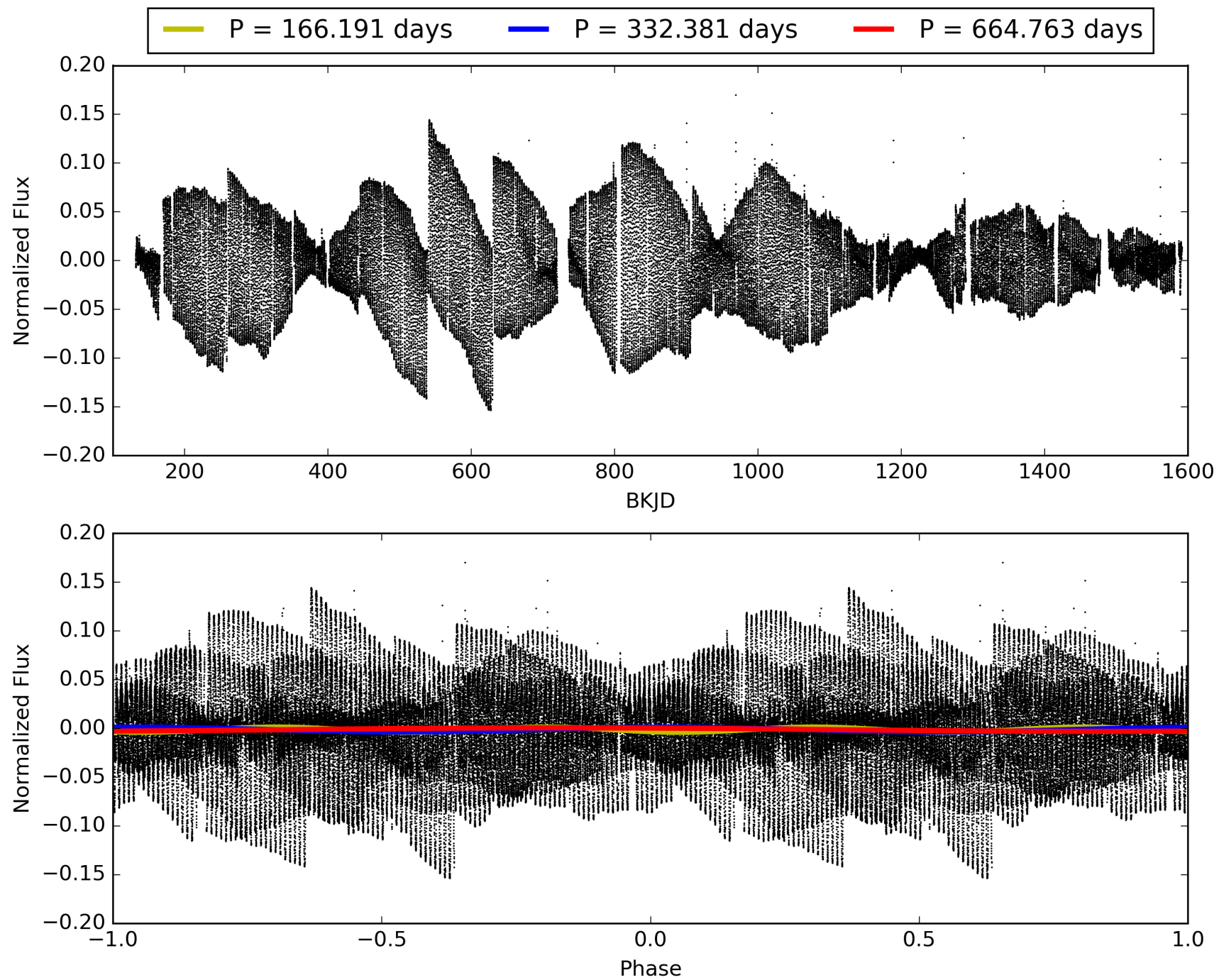
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:10:50 Z

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

TCE 009203478-03, PDC Light Curves

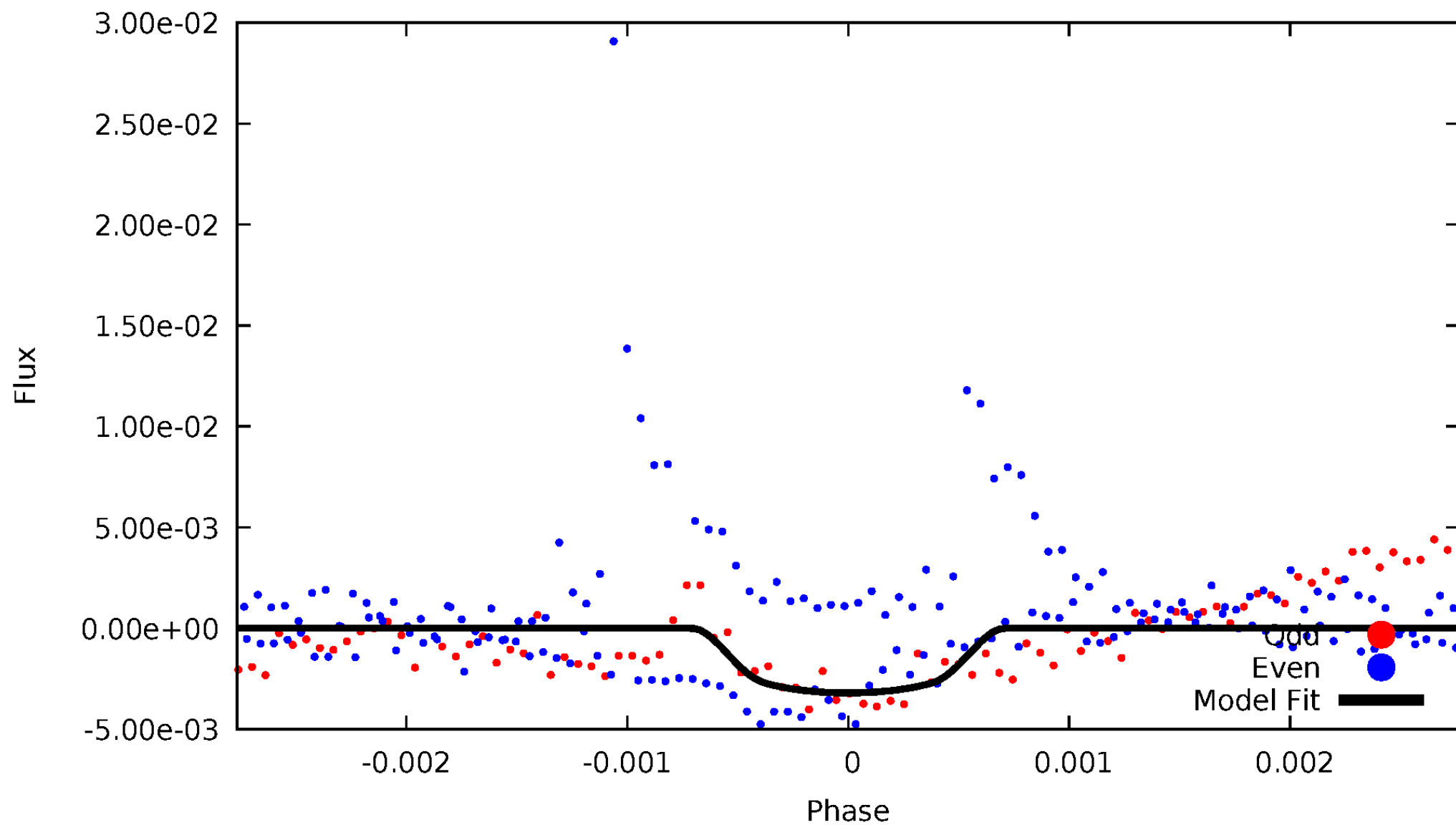


TCE 009203478-03



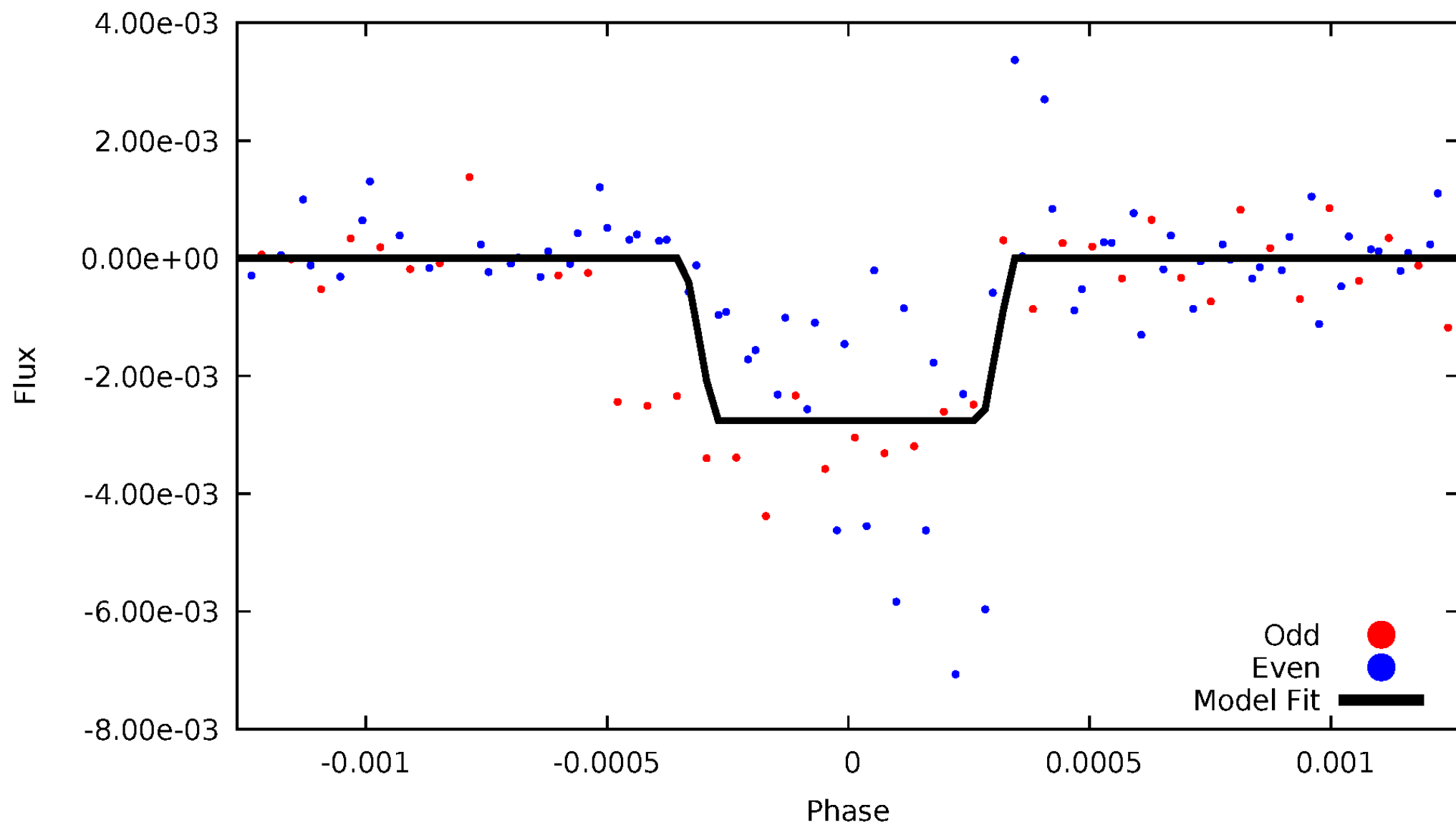
DV Odd/Even

TCE 009203478-03



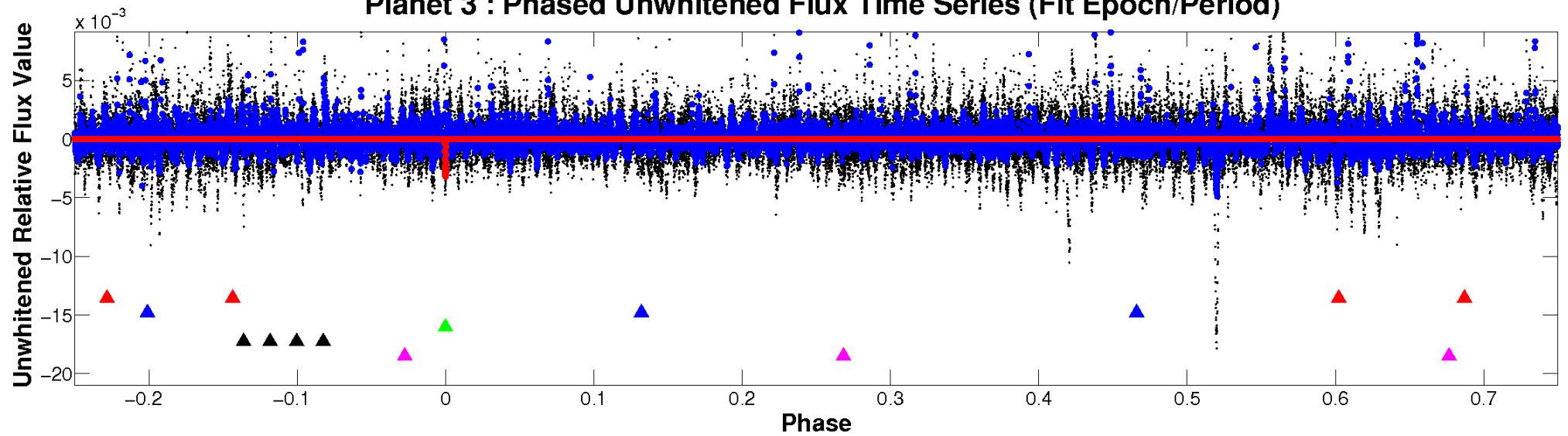
ALT Odd/Even

TCE 009203478-03

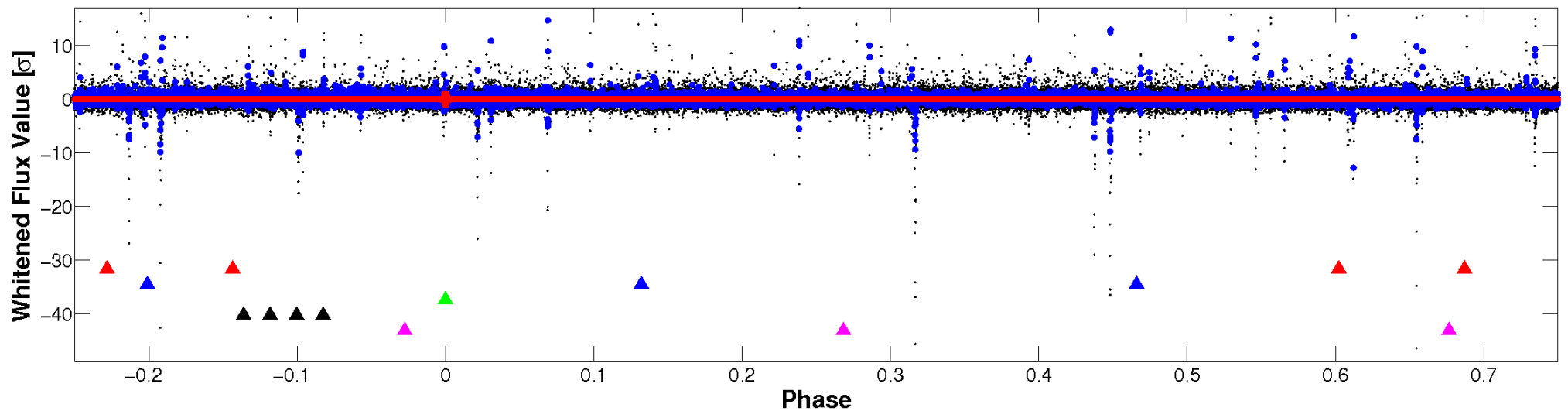


Non-Whitened Vs. Whitened Light Curve

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

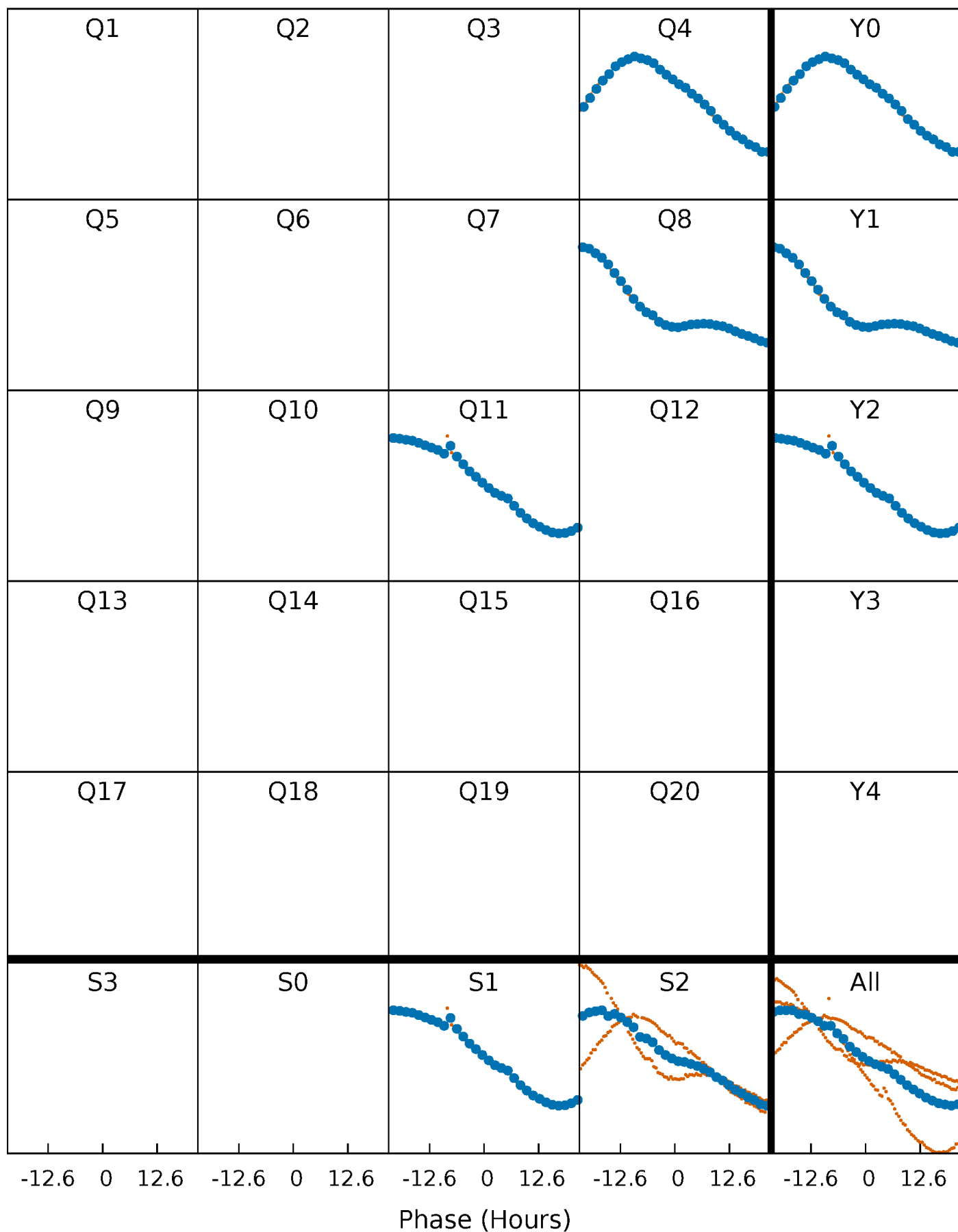


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



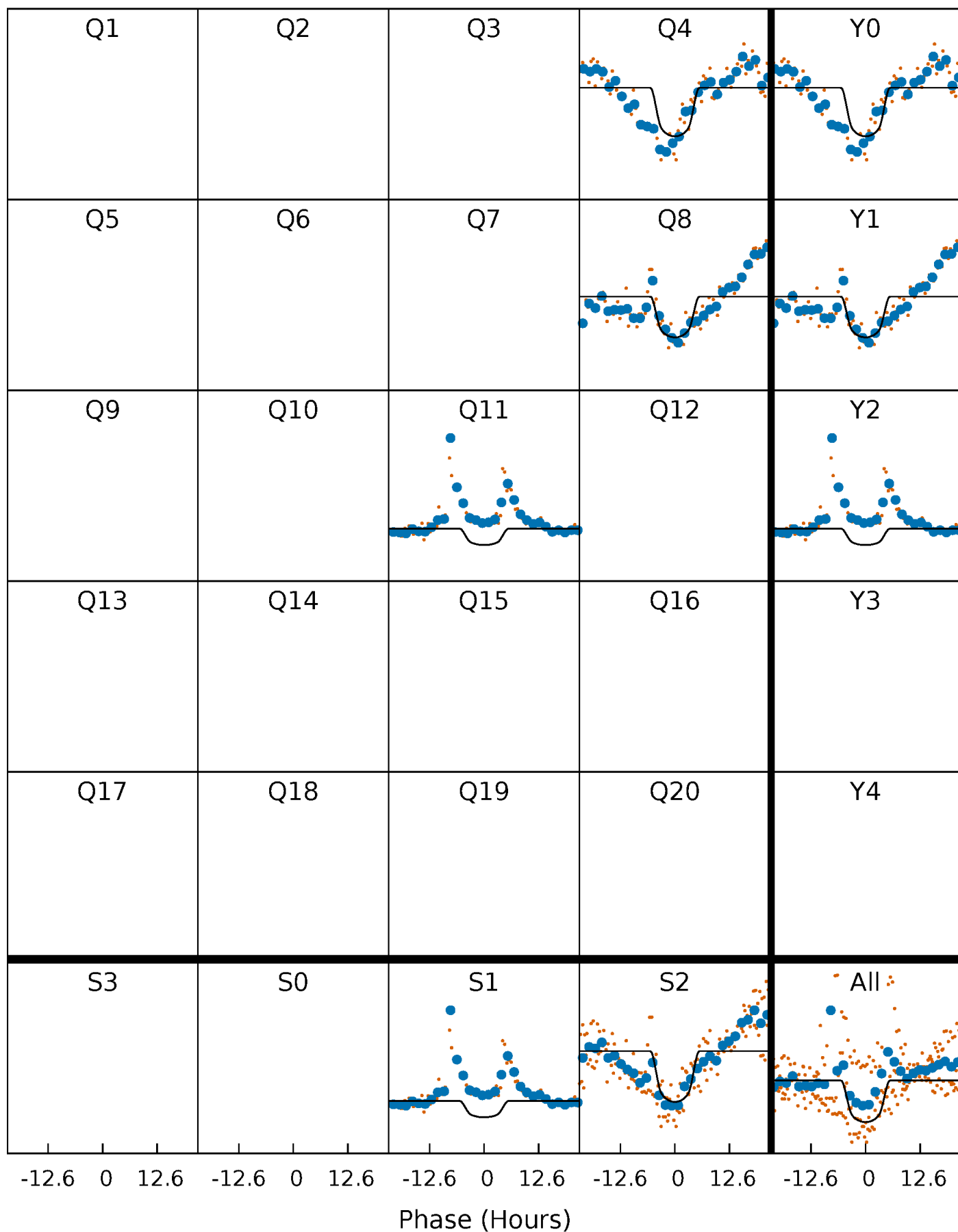
PDC Quarter-Phased Transit Curves

TCE 009203478-03 P=332.381443 Days $T_0=418.447857$ (BKJD)



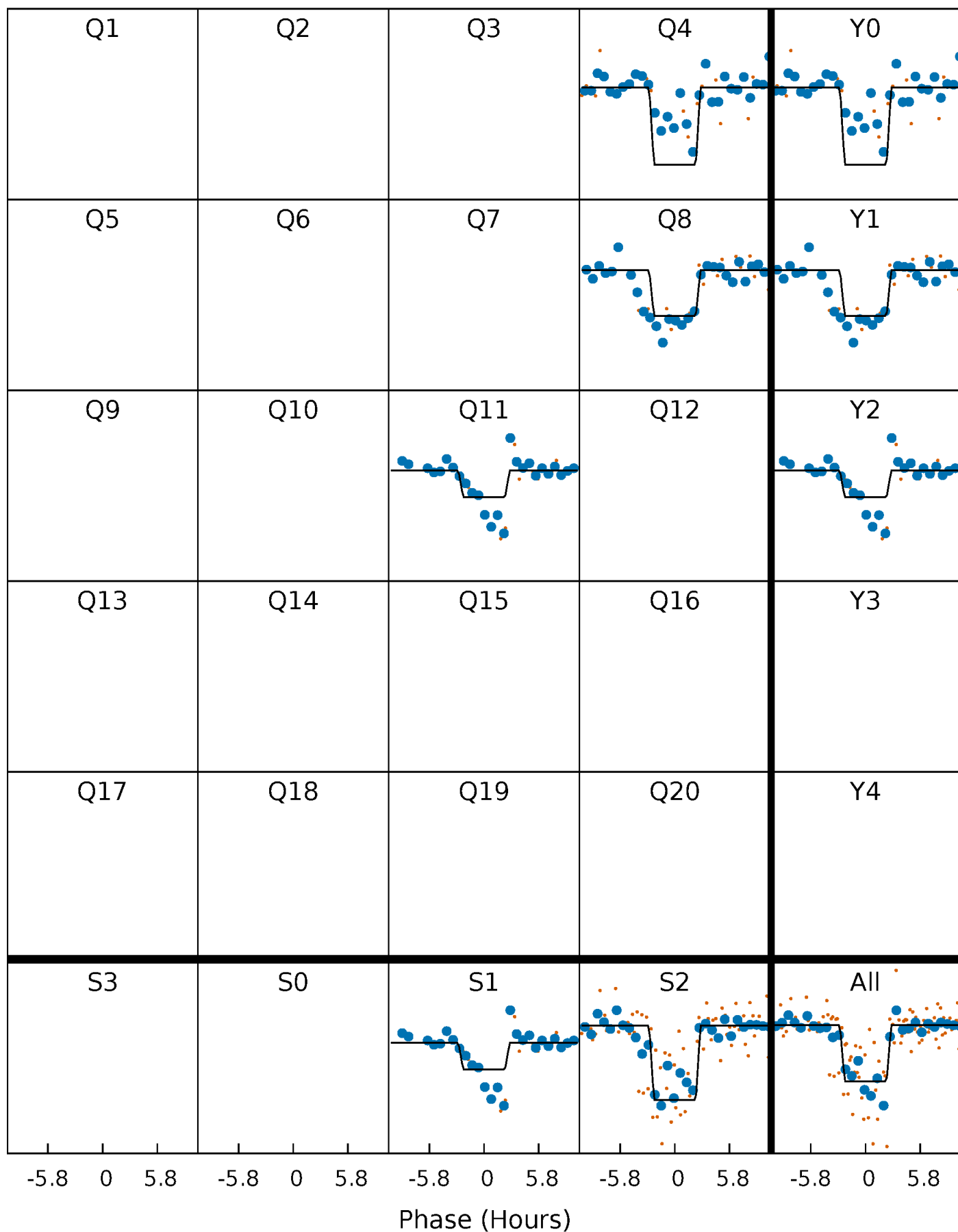
DV Quarter-Phased Transit Curves

TCE 009203478-03 P=332.381443 Days $T_0=418.447857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

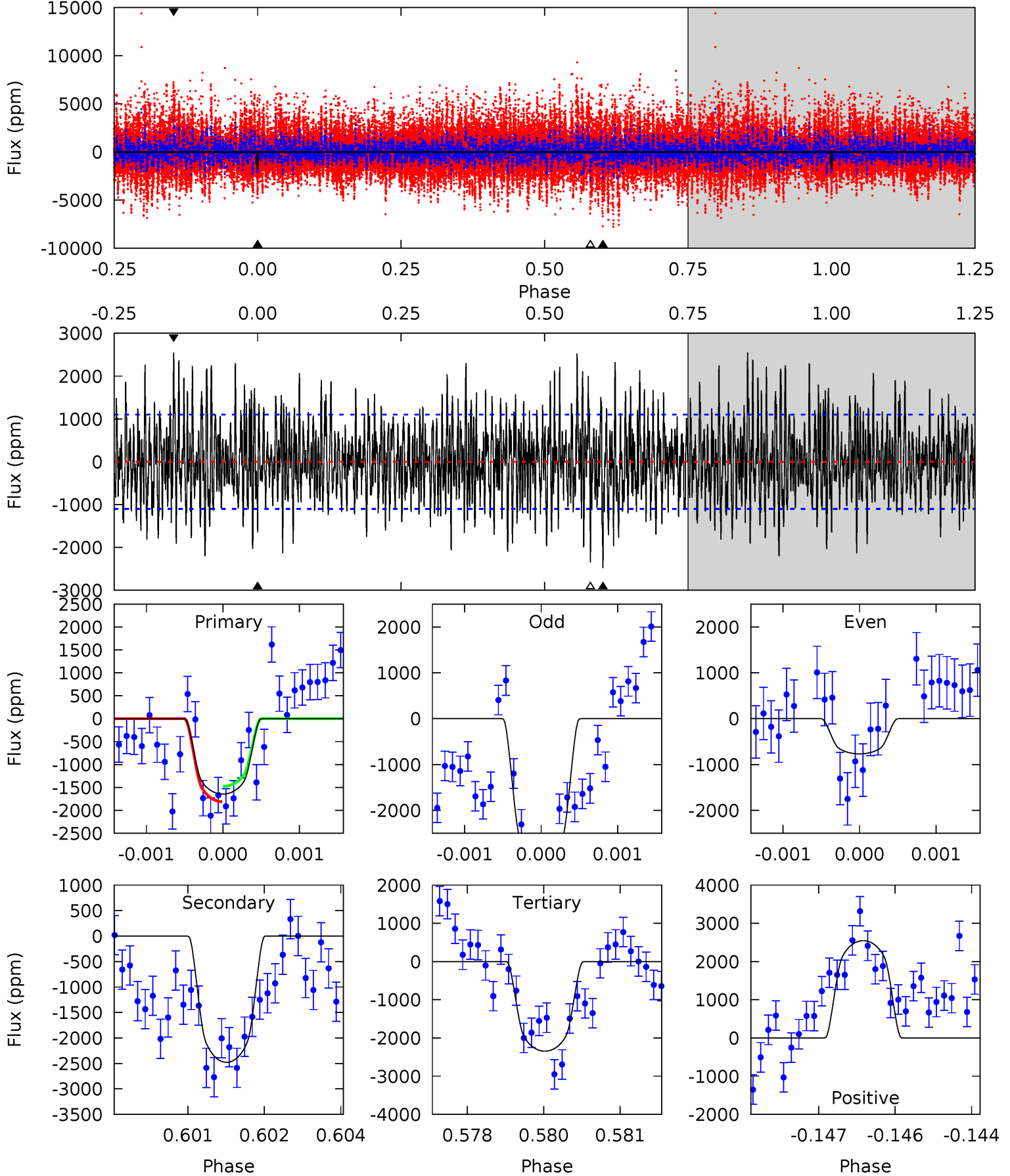
TCE 009203478-03 P=332.447210 Days $T_0=418.379776$ (BKJD)



DV Model-Shift Uniqueness Test

009203478-03, P = 332.381443 Days, E = 86.066414 Days

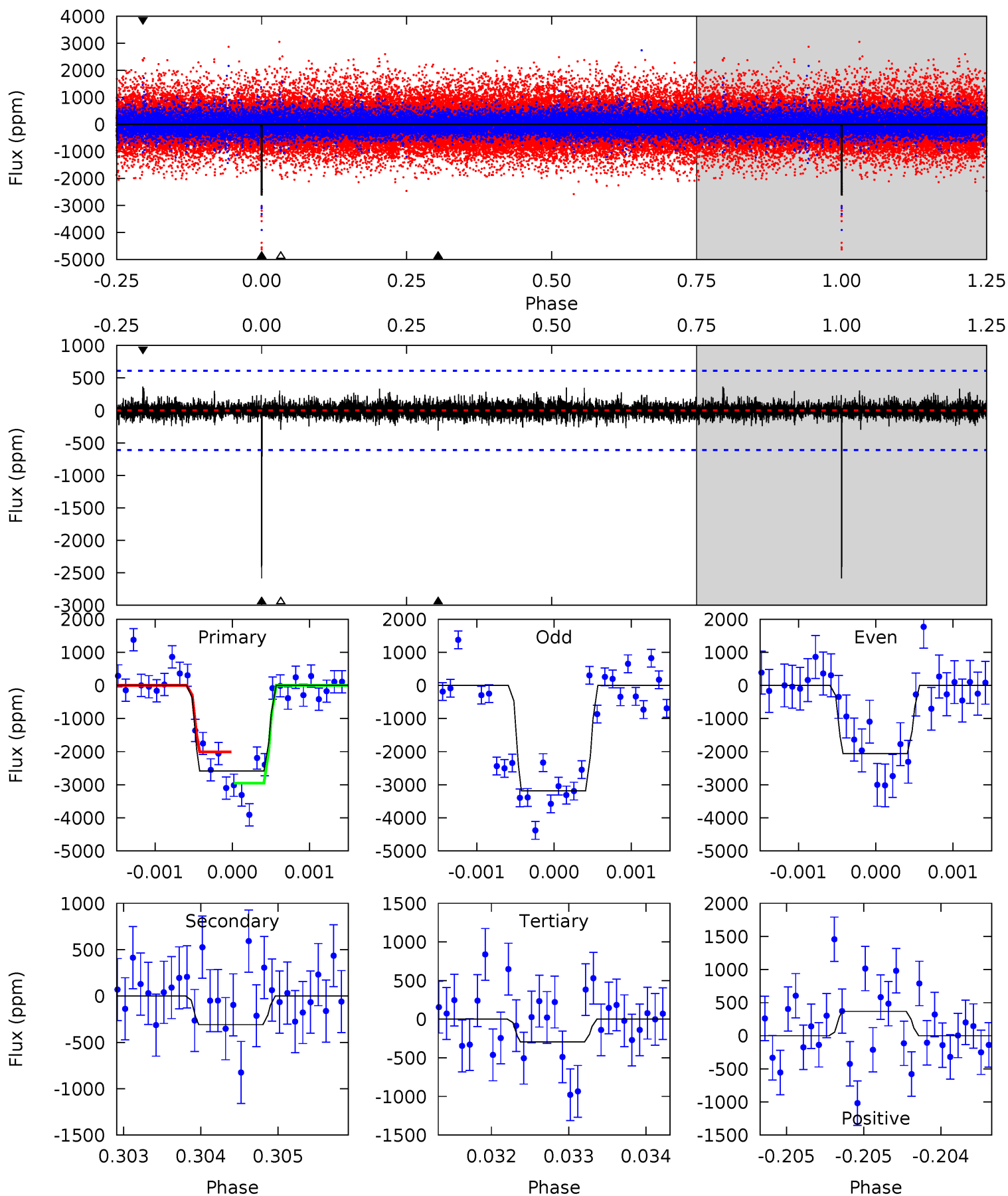
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.04	12.1	11.5	12.4	5.39	3.19	3.76	-3.43	-4.41	0.65	-0.33	5.46	0.45	0.51	0.82



Alt Model-Shift Uniqueness Test

009203478-03, P = 332.447210 Days, E = 85.932566 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.4	2.80	2.66	3.33	5.53	3.42	0.62	20.8	20.1	0.14	-0.53	5.02	0.88	0.12	4.10



Stellar Parameters For KIC 009203478

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4623^{+163}_{-163}	$4.565^{+0.063}_{-0.027}$	$0.100^{+0.250}_{-0.300}$	$0.733^{+0.042}_{-0.066}$	$0.720^{+0.063}_{-0.058}$	$2.574^{+0.652}_{-0.255}$
	+4%/-4%	+1%/-1%	+250%/-300%	+6%/-9%	+9%/-8%	+25%/-10%
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 009203478-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2479 ± 205	$4.87^{+0.58}_{-0.65}$	264^{+11}_{-10}	4269^{+281}_{-235}	41354^{+14742}_{-9293}
Alt.	-309 ± 110	$4.16^{+0.66}_{-0.57}$	264^{+11}_{-10}	3173^{+242}_{-234}	6850^{+4051}_{-2736}

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

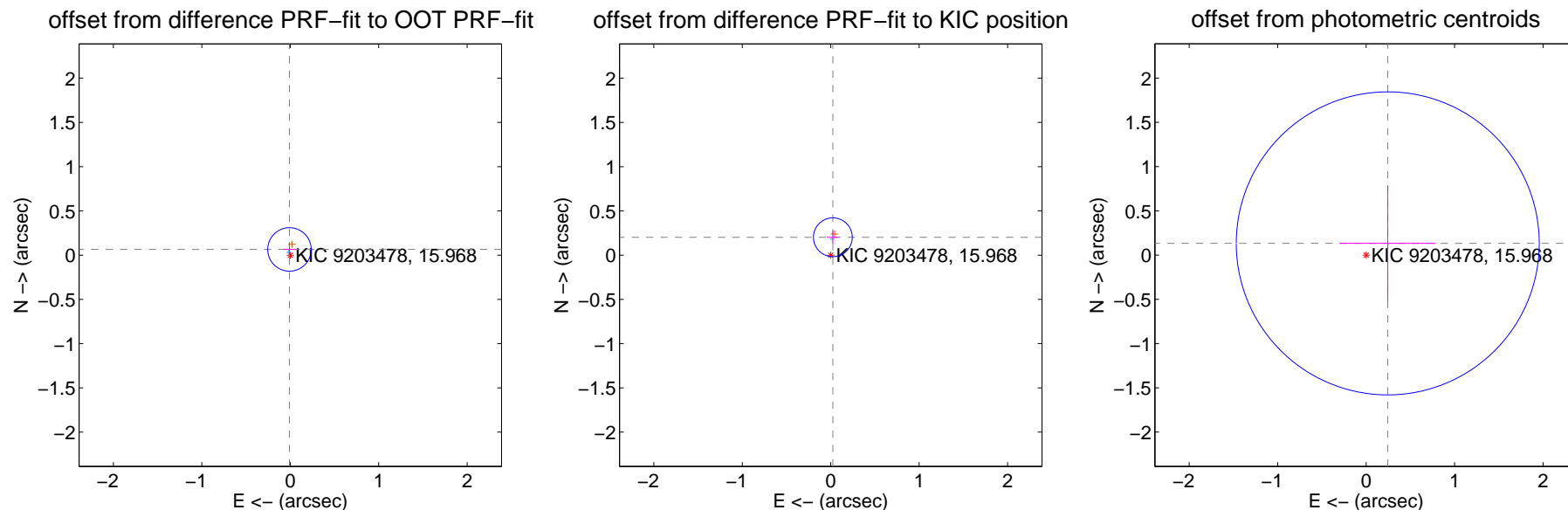
DV Centroid Data

Supplemental centroid analysis for 009203478-03. Kepler magnitude: 15.97. Transit SNR 7.40

There are 1 quarters with good PRF difference image offsets

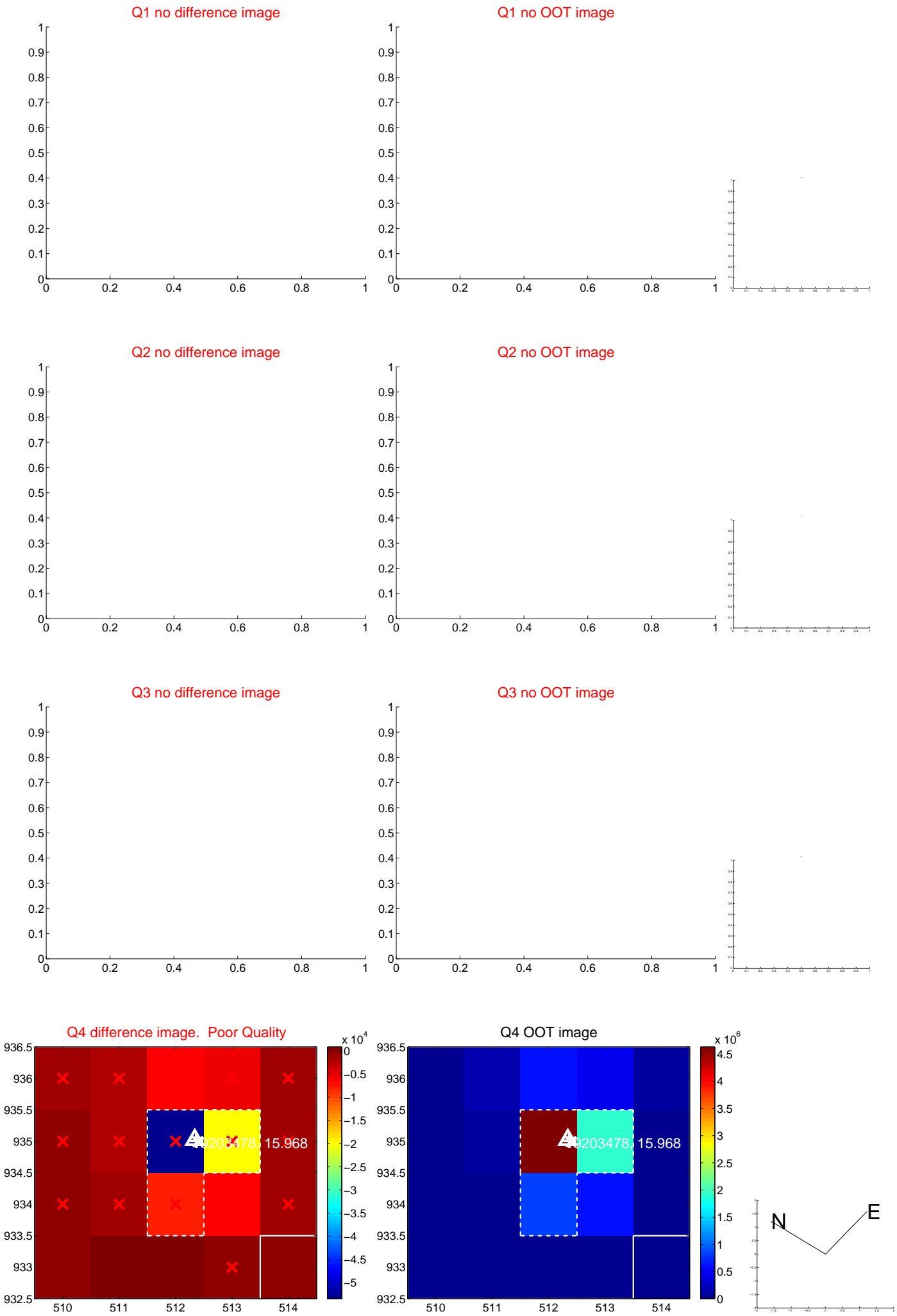
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.065 ± 0.082	0.80	0.009 ± 0.070	0.065 ± 0.082
PRF-fit source offset from KIC position	0.204 ± 0.073	2.79	-0.024 ± 0.068	0.202 ± 0.073
photometric centroid source offset	0.28 ± 0.57	0.49	-0.24 ± 0.54	0.13 ± 0.65

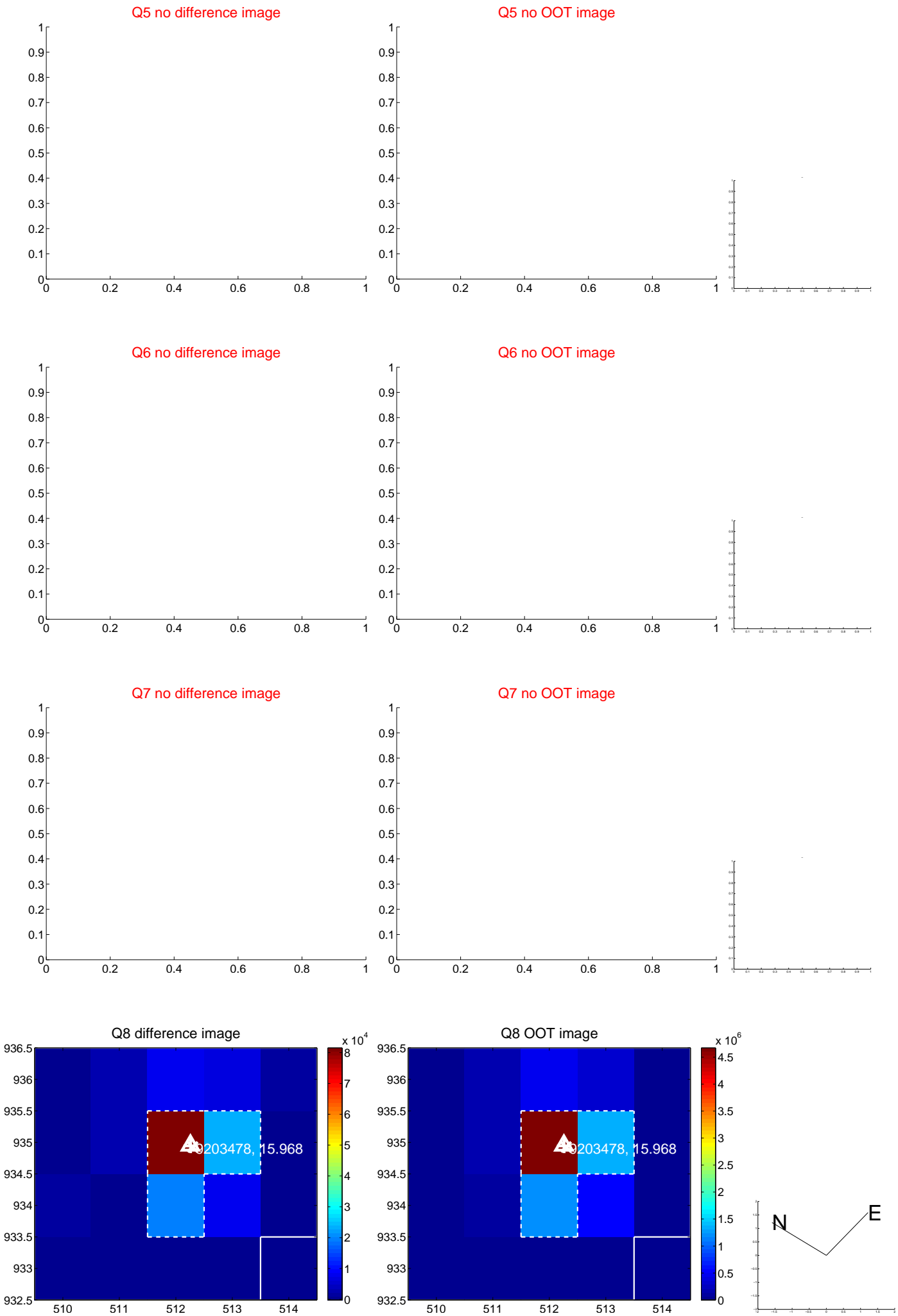


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



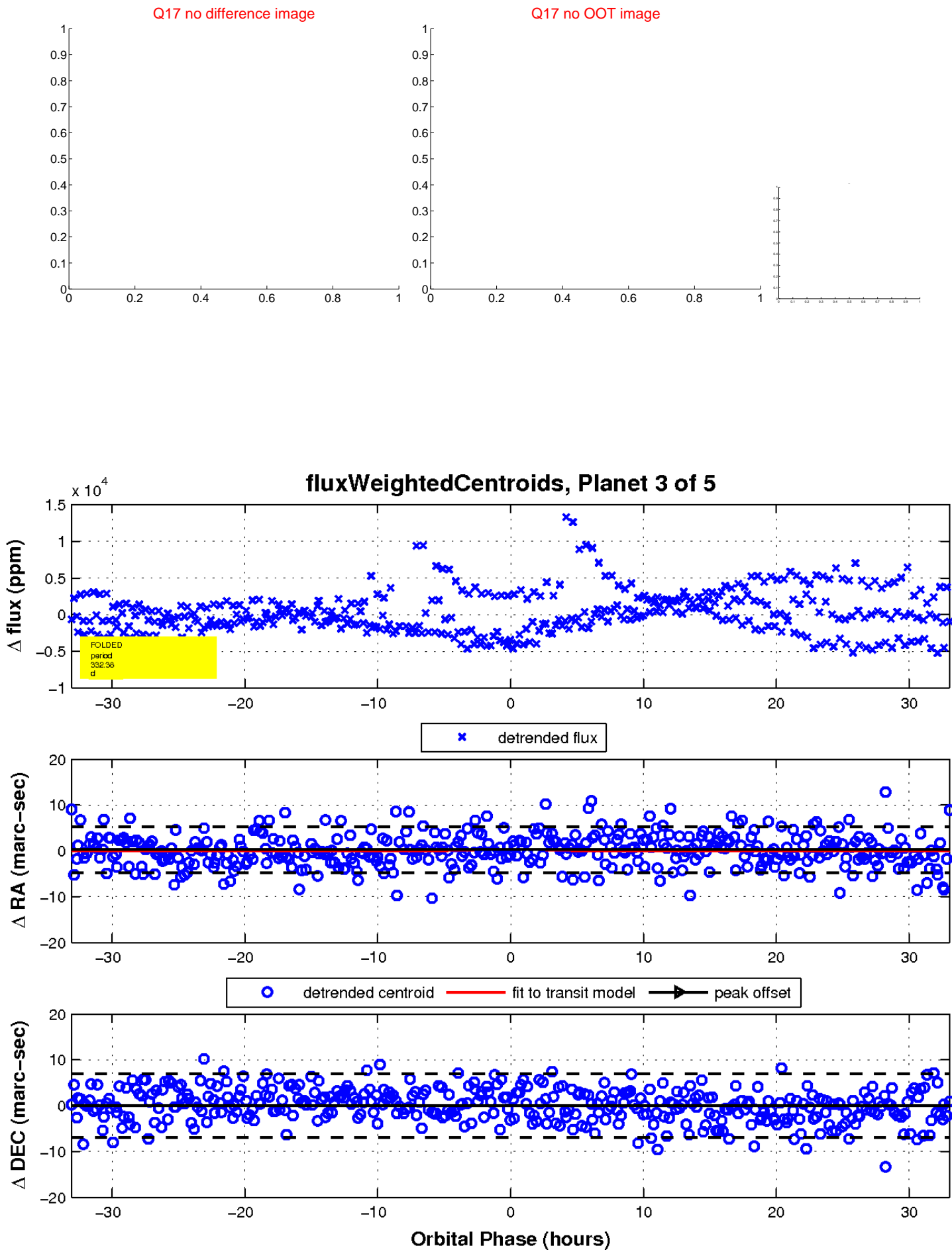
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

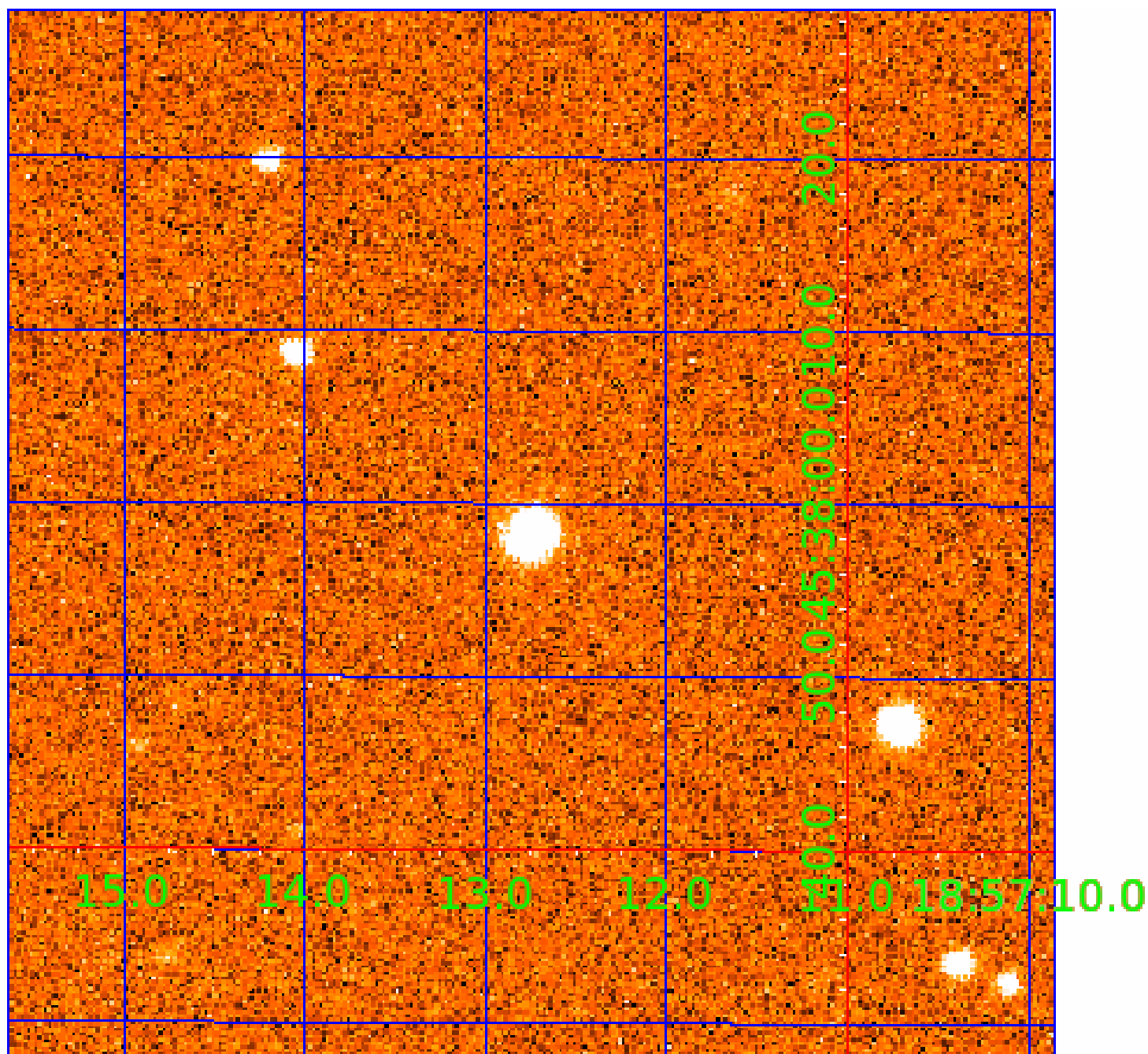


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009203478

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})
009203478-01	OBS	No	360.549293	286.261317	1898.5	5.709	10.8	5.4	0.73	4623	3.25	0.28
009203478-02	OBS	No	443.084213	573.336017	3771.3	9.800	13.8	8.4	0.73	4623	6.12	0.21
009203478-03	OBS	No	332.381443	418.447857	3201.7	11.027	10.3	7.4	0.73	4623	4.92	0.31
009203478-04	OBS	No	326.434145	391.042435	2221.5	5.537	17.0	5.7	0.73	4623	3.38	0.32
009203478-05	OBS	No	566.428865	175.270293	3515.5	5.324	8.5	8.3	0.73	4623	5.05	0.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009203478-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-02	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

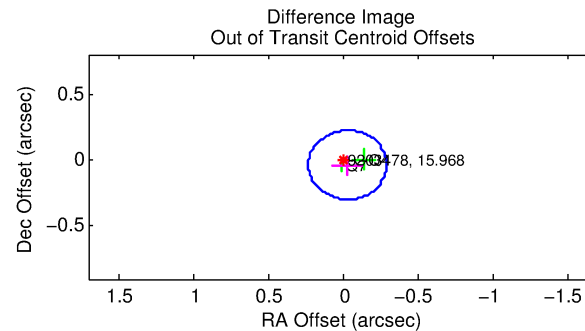
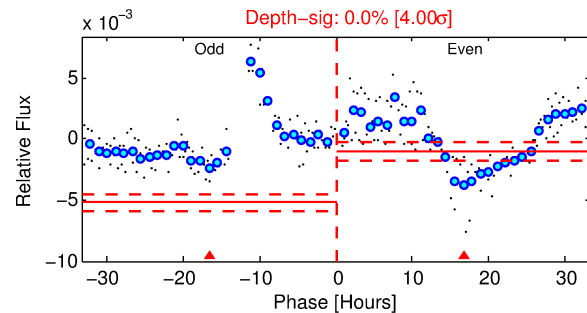
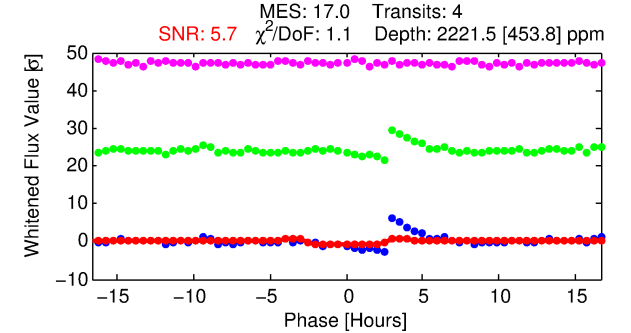
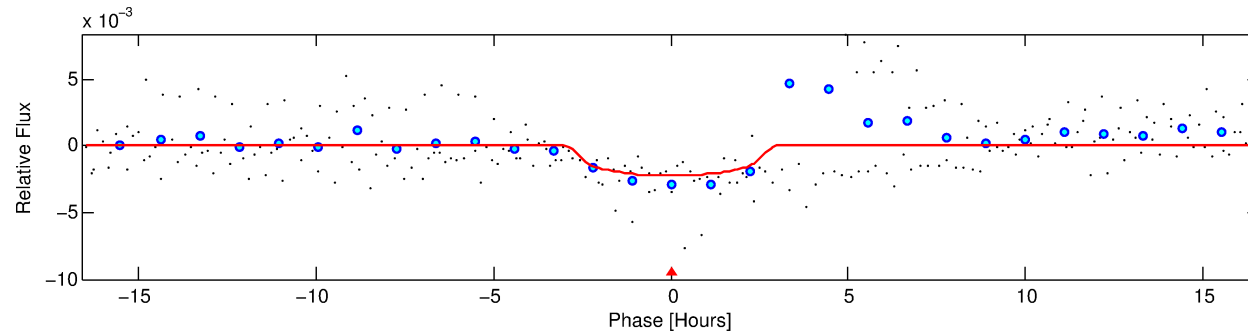
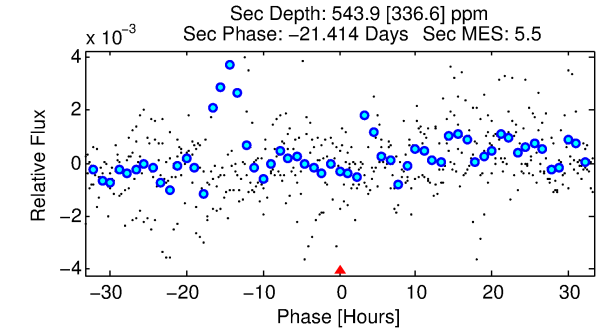
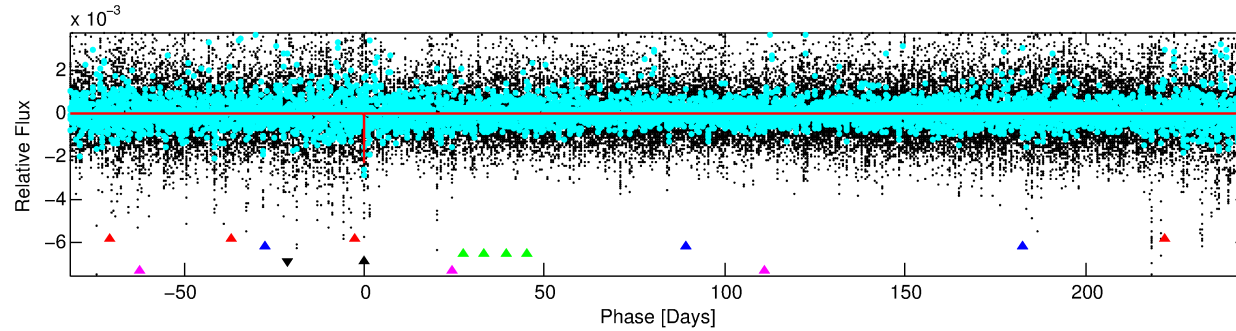
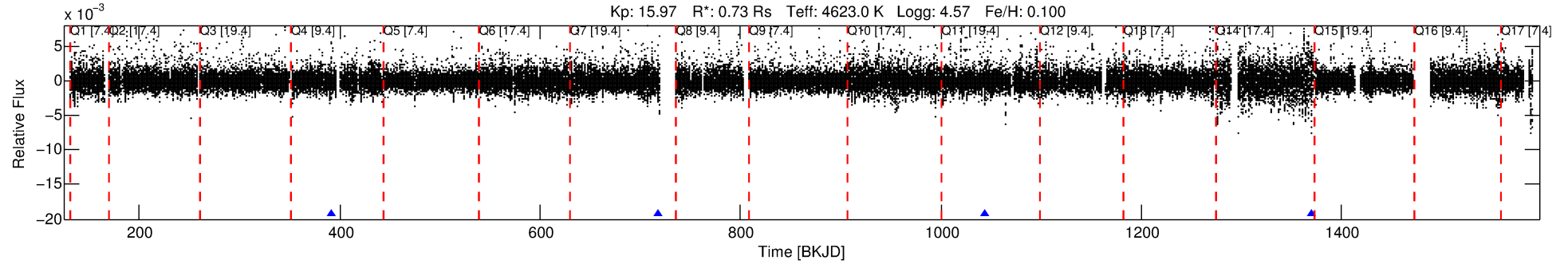
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009203478-04

No Significant Match Found

DV One-Page Summary

KIC: 9203478 Candidate: 4 of 5 Period: 326.434 d



DV Fit Results:

Period = 326.43414 [0.00580] d
Epoch = 391.0424 [0.0101] BKJD
Rp/R* = 0.0422 [0.0559]
a/R* = 440.50 [1715.20]
b = 0.36 [9.62]
Seff = 0.32 [0.06]
Teq = 191 [9] K
Rp = 3.38 [4.48] Re
a = 0.8317 [0.0641] AU
Ag = 18139.69 [49334.35] [0.37 σ]
Teffp = 3436 [2337] K [1.39 σ]

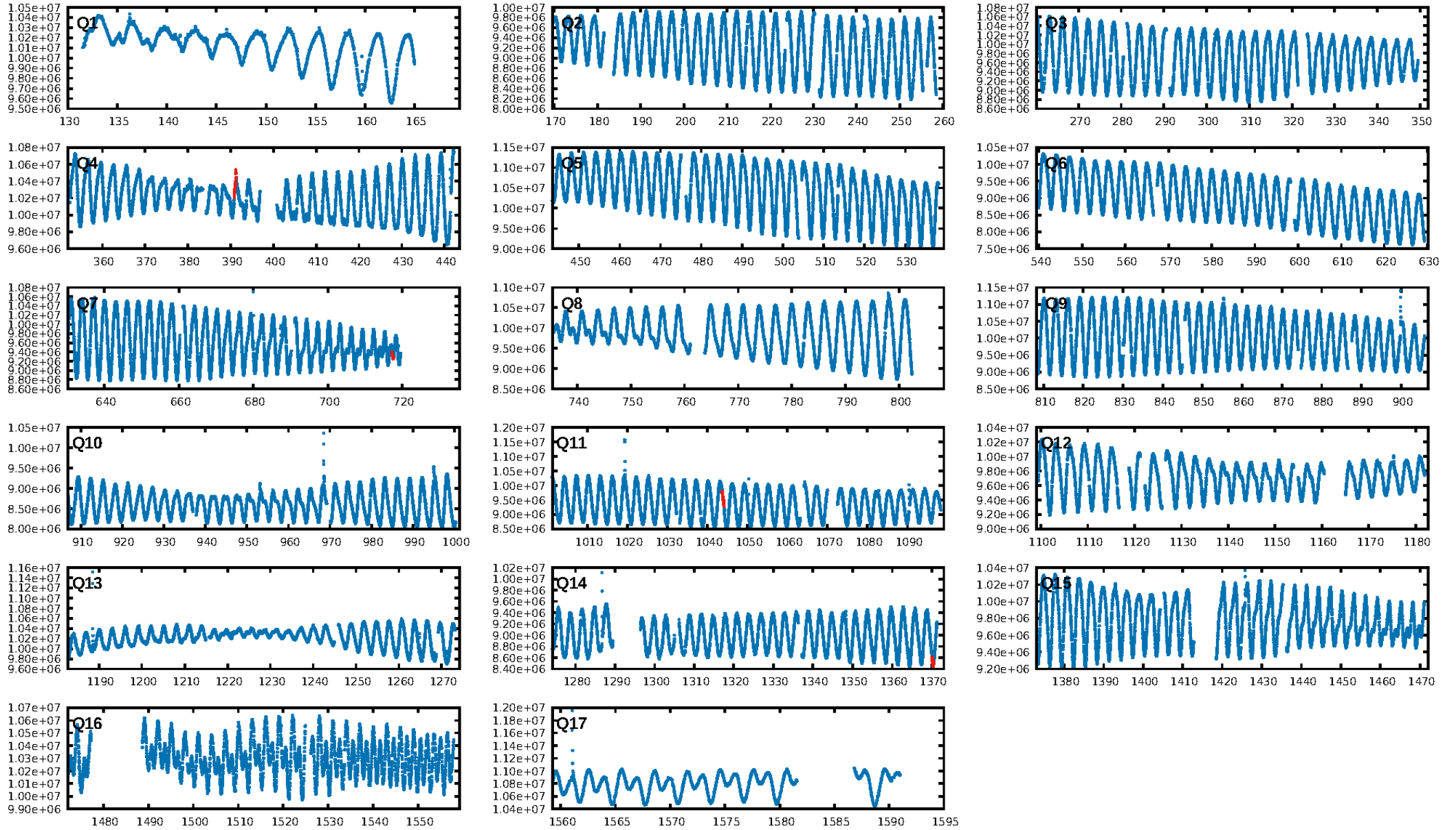
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.57 σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 87.9%
Bootstrap-pfa: 1.07e-20
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.2313
Centroid-sig: 97.7%
Centroid-so: 0.347 arcsec [0.37 σ]
OotOffset-rm: 0.049 arcsec [0.56 σ]
KicOffset-rm: 0.192 arcsec [2.37 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

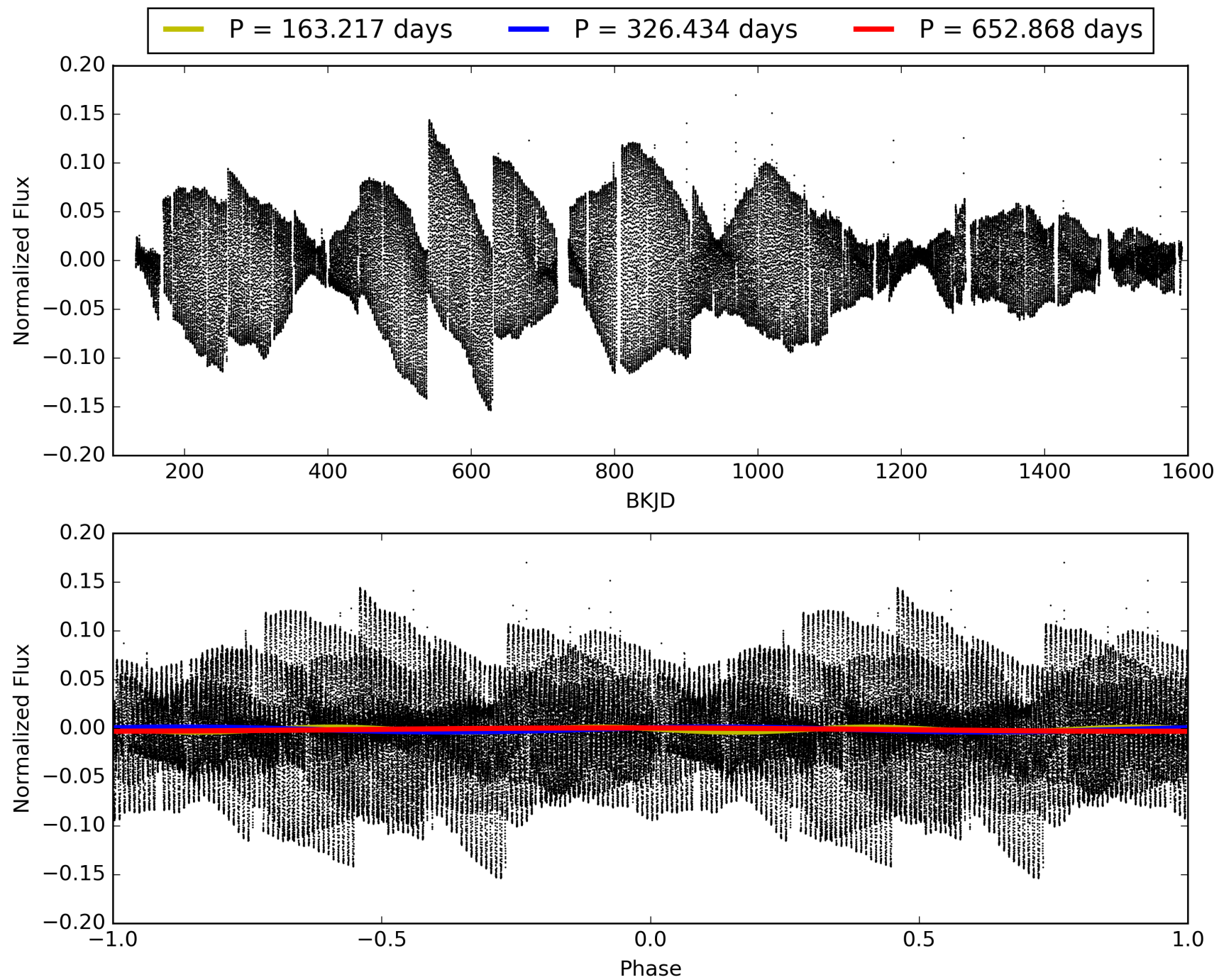
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:11:01 Z

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

TCE 009203478-04, PDC Light Curves

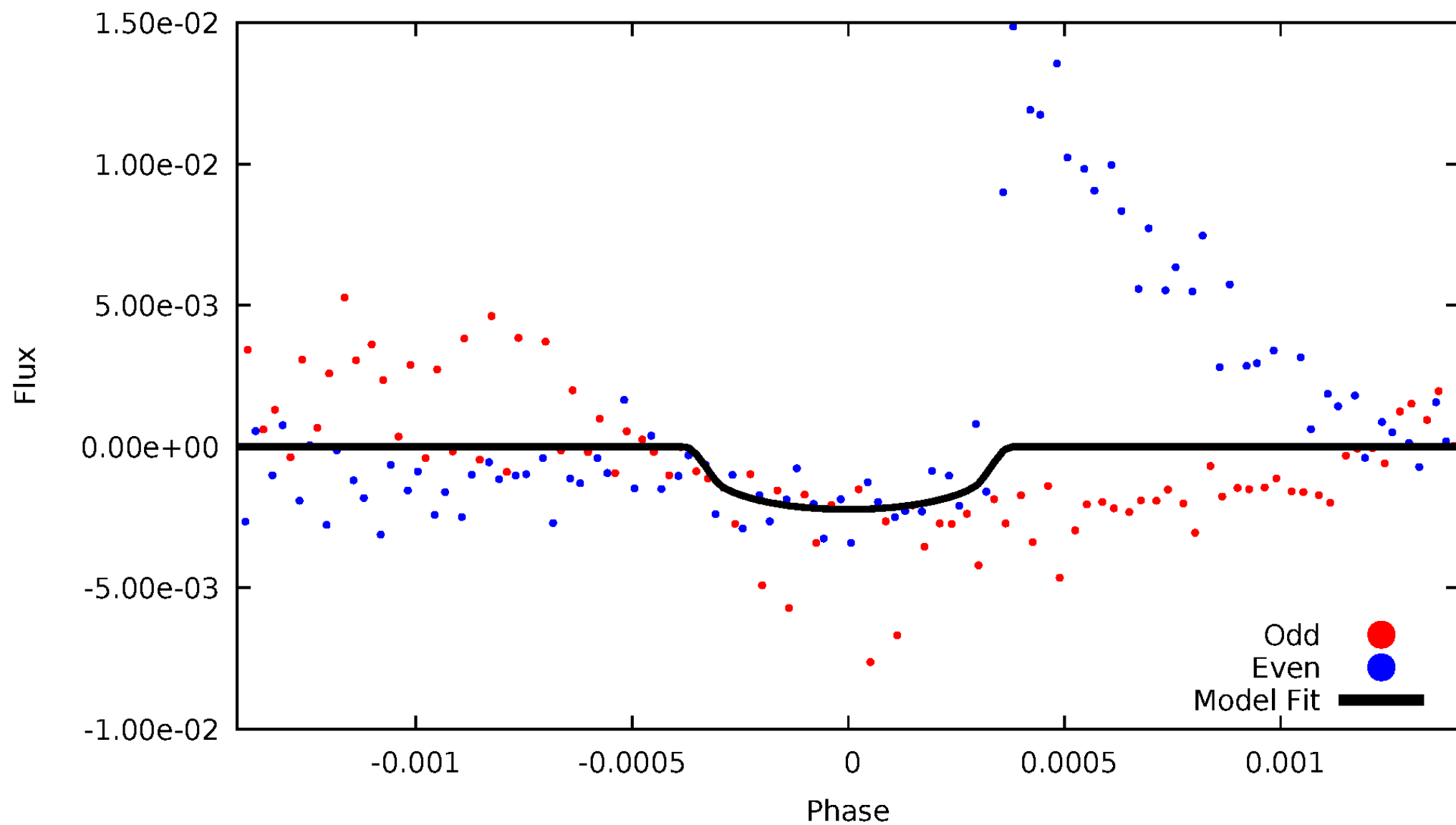


TCE 009203478-04



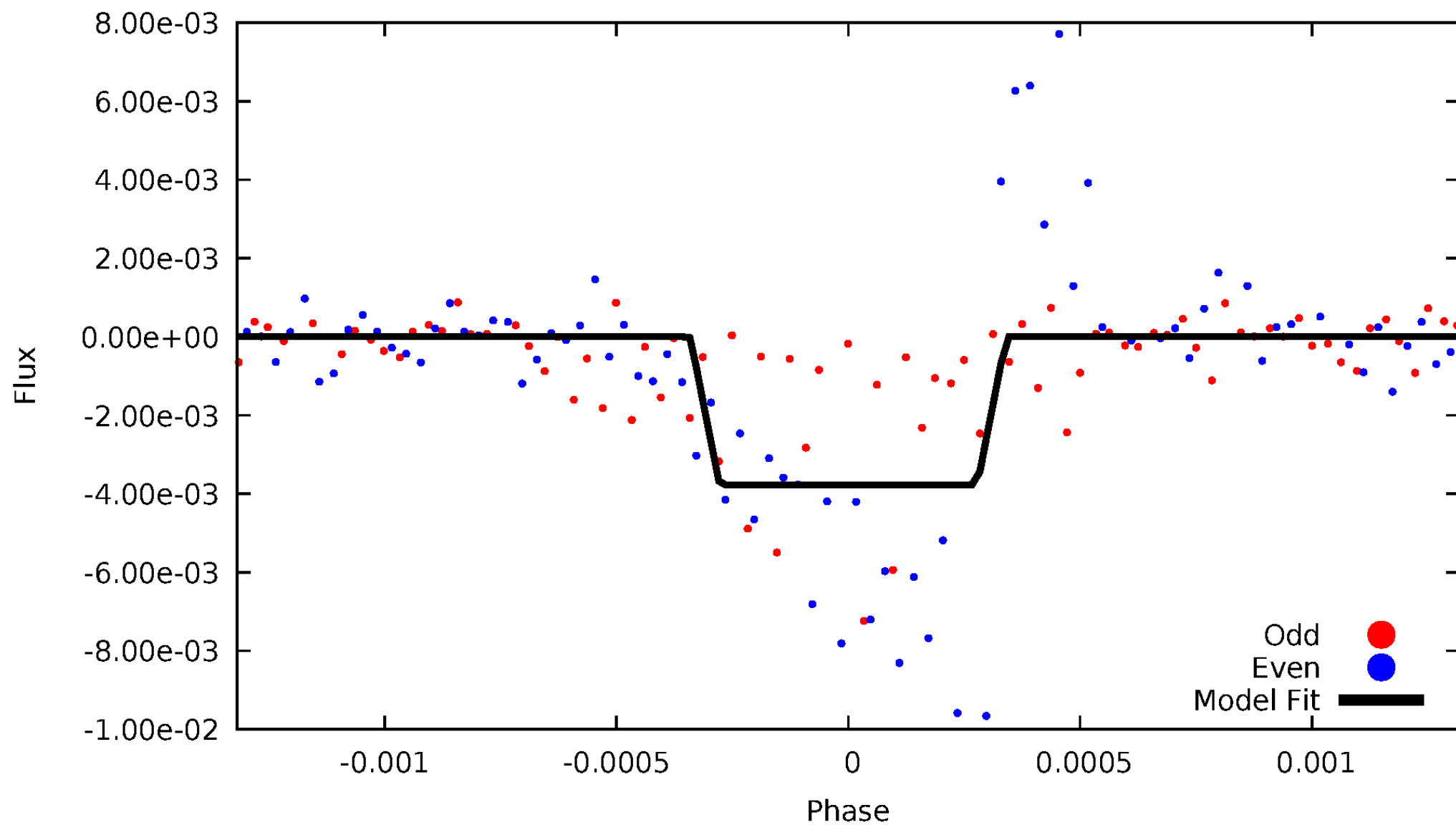
DV Odd/Even

TCE 009203478-04



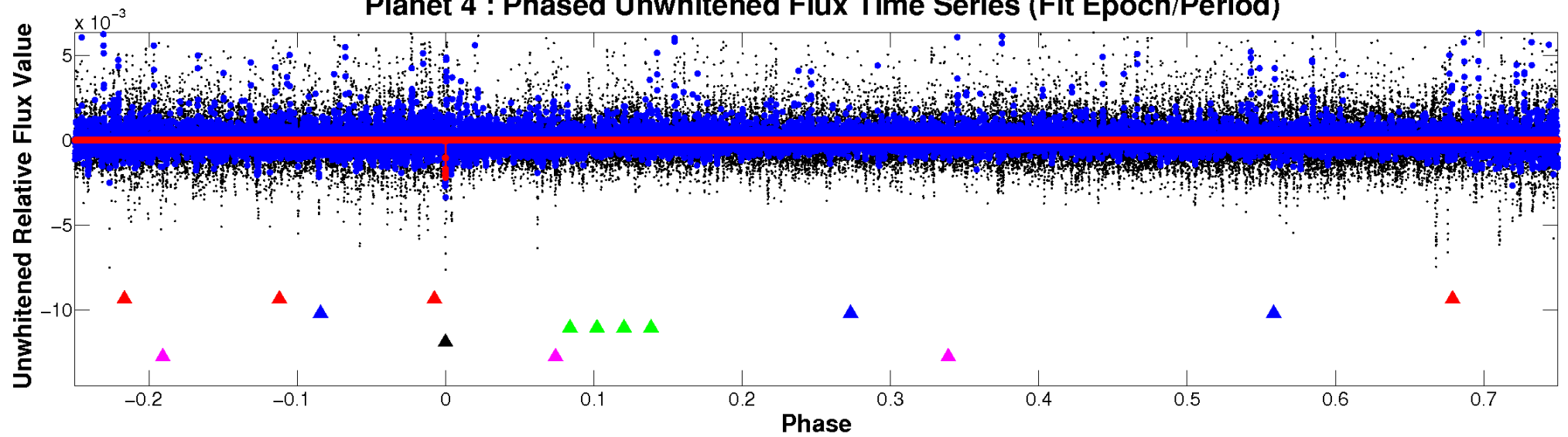
ALT Odd/Even

TCE 009203478-04

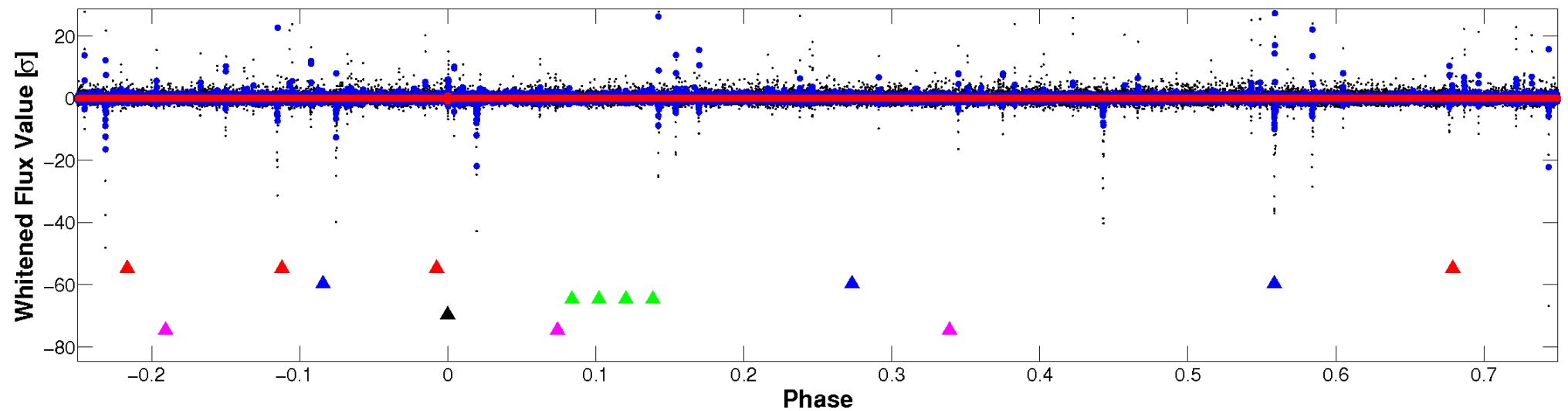


Non-Whitened Vs. Whitened Light Curve

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

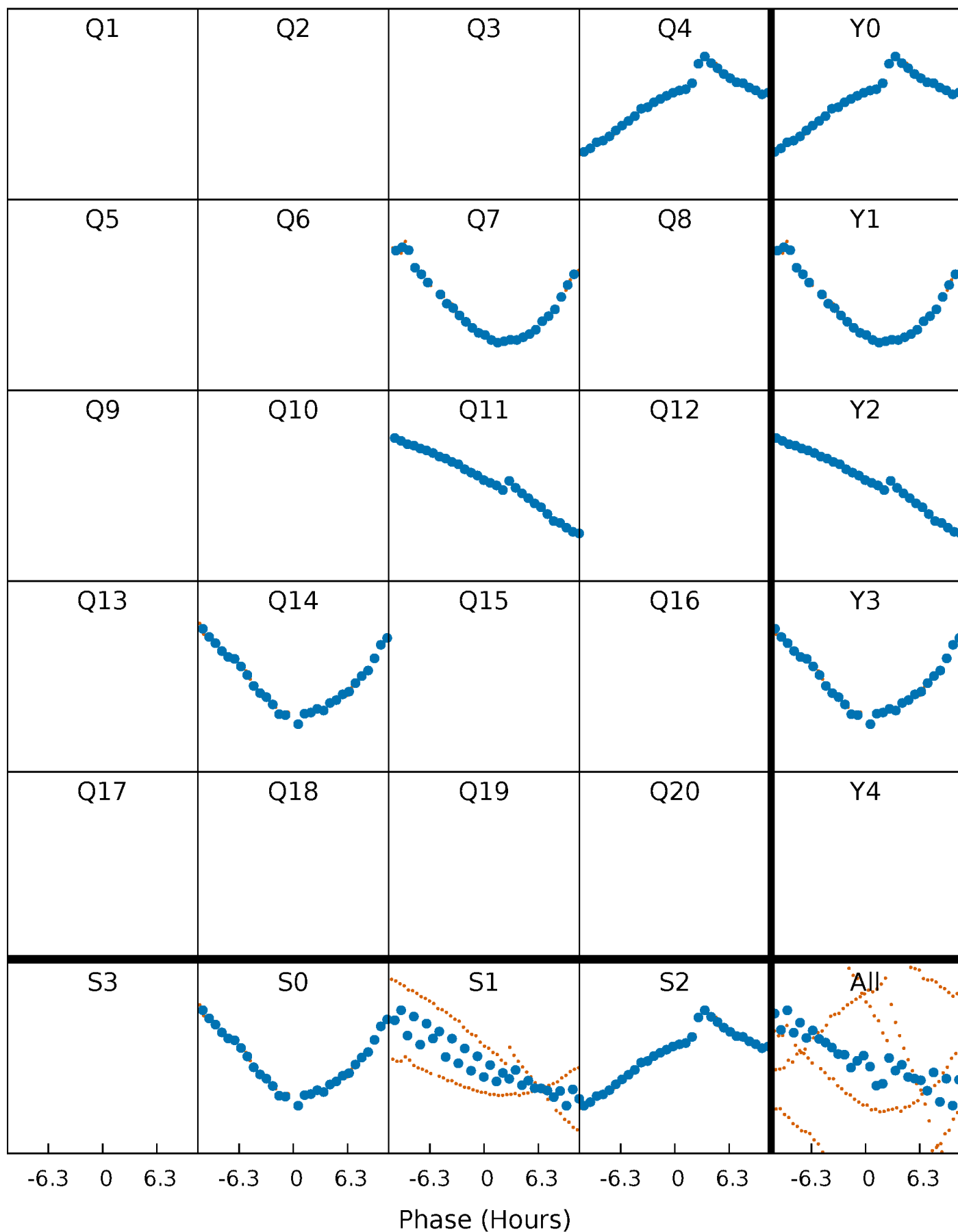


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



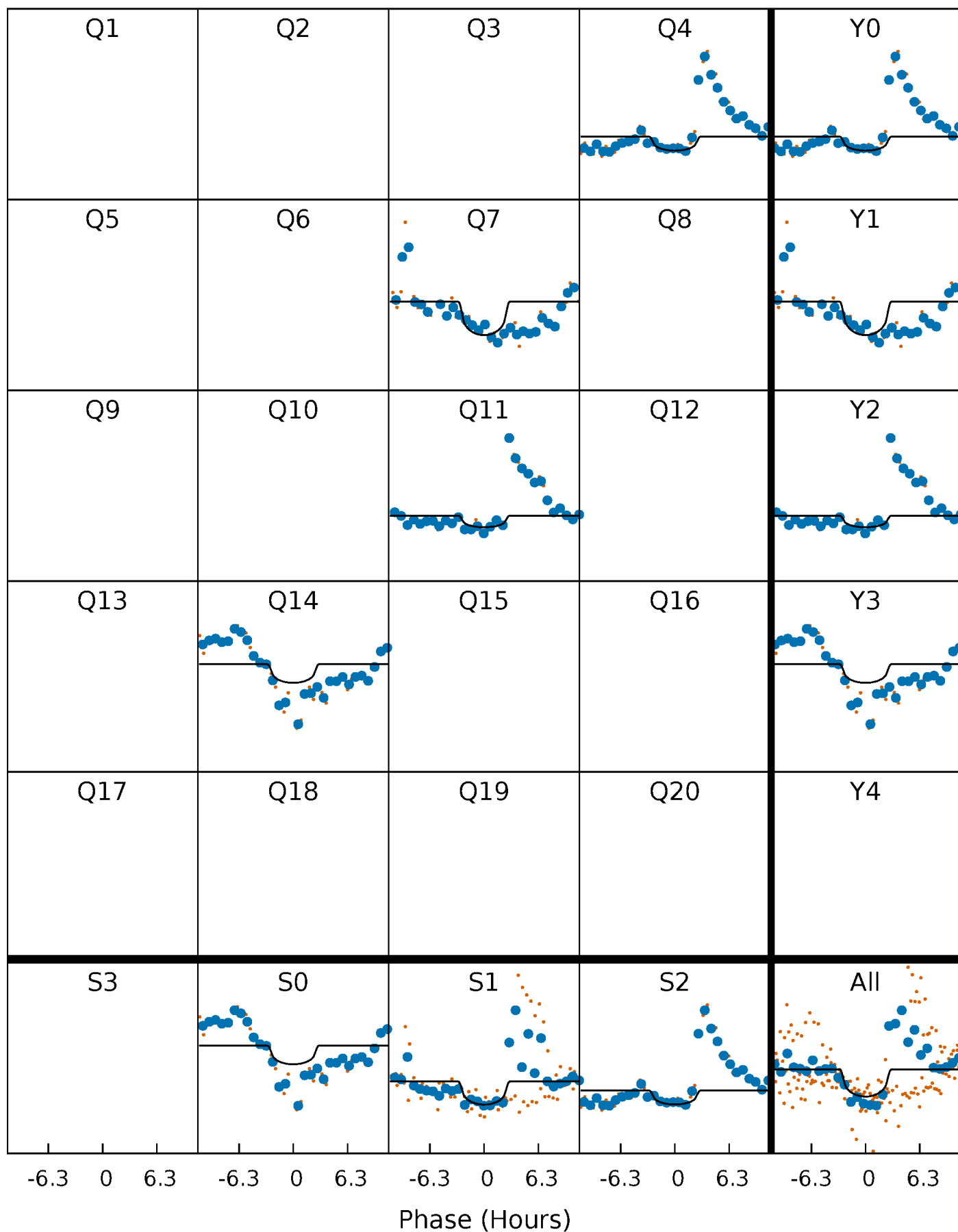
PDC Quarter-Phased Transit Curves

TCE 009203478-04 $P=326.434145$ Days $T_0=391.042435$ (BKJD)



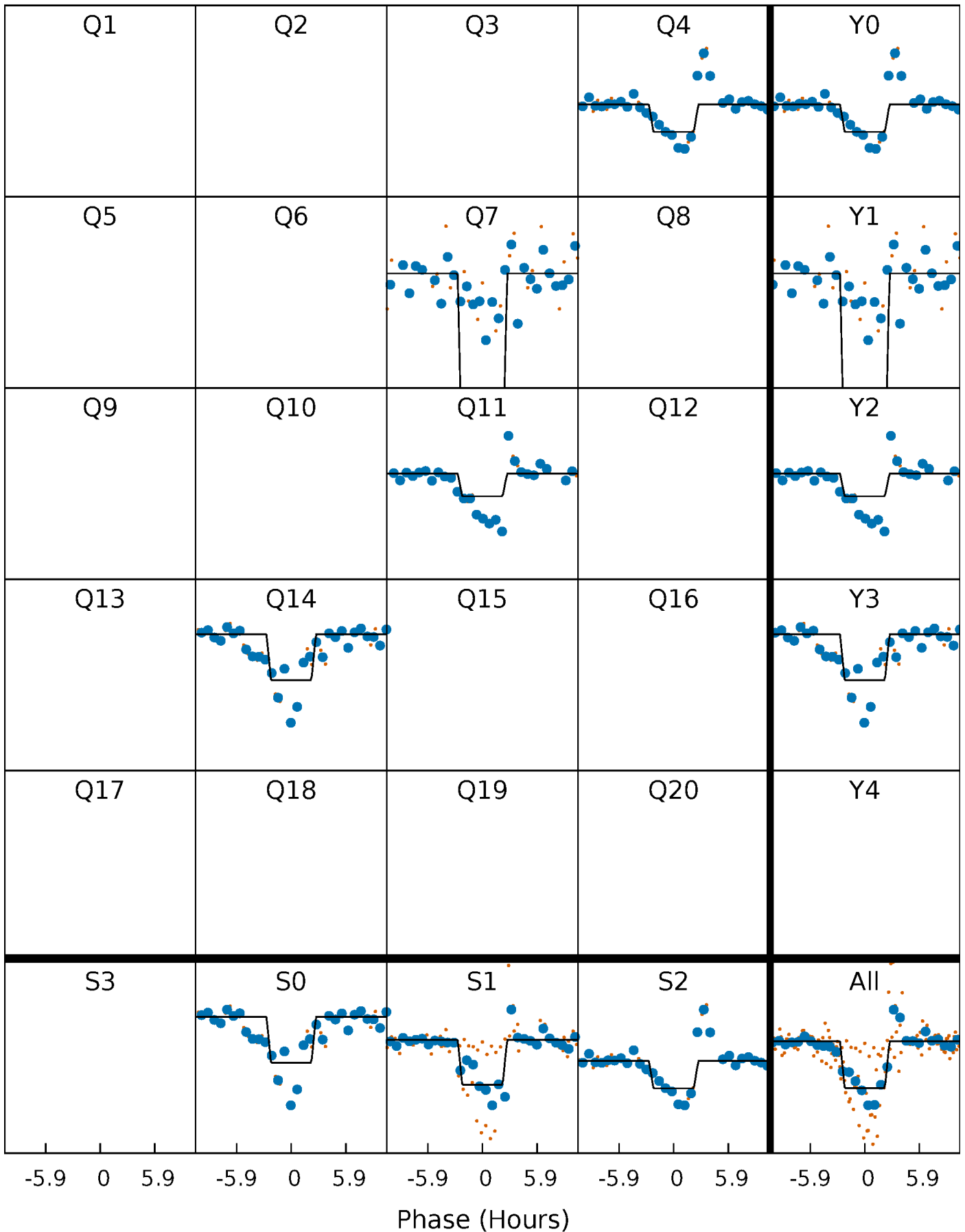
DV Quarter-Phased Transit Curves

TCE 009203478-04 $P=326.434145$ Days $T_0=391.042435$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

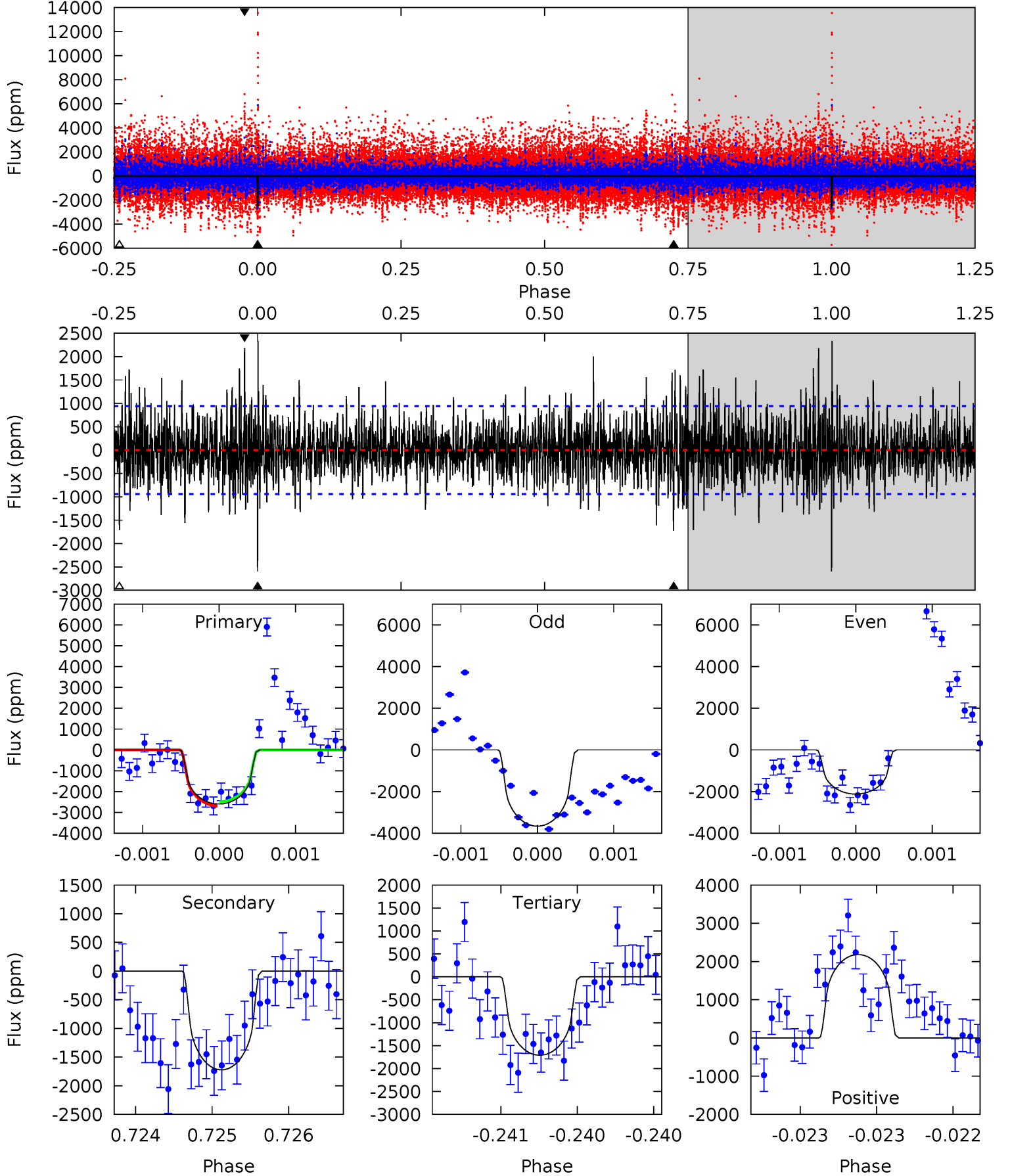
TCE 009203478-04 P=326.432932 Days $T_0=391.051716$ (BKJD)



DV Model-Shift Uniqueness Test

009203478-04, P = 326.434145 Days, E = 64.608290 Days

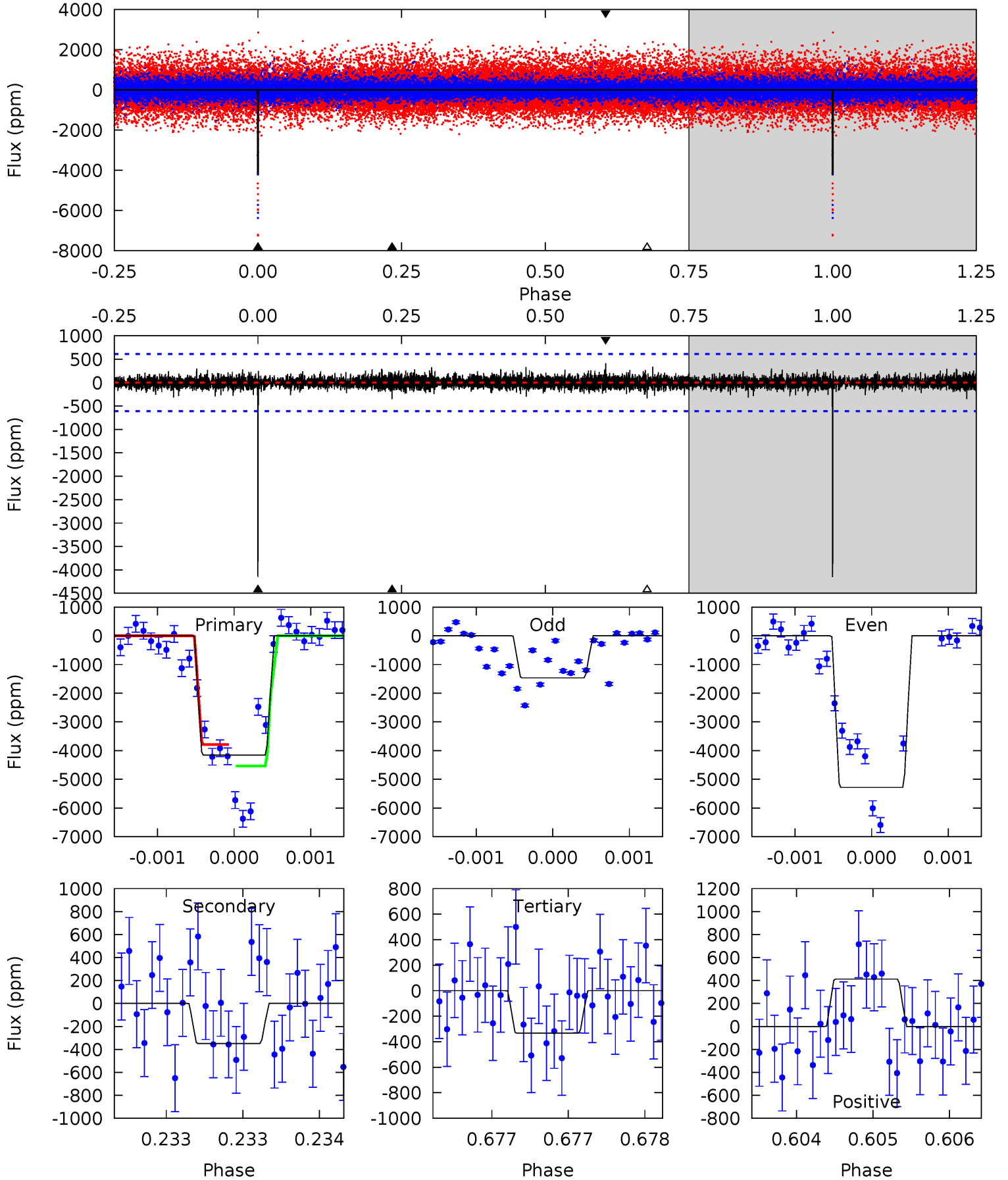
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	10.1	9.98	12.7	5.50	3.37	2.64	5.18	2.41	0.08	-2.68	3.97	1.24	0.47	0.59



Alt Model-Shift Uniqueness Test

009203478-04, P = 326.432932 Days, E = 64.618784 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.6	3.16	3.02	3.74	5.53	3.41	0.65	34.6	33.9	0.14	-0.57	20.7	0.97	0.09	0



Stellar Parameters For KIC 009203478

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4623^{+163}_{-163}	$4.565^{+0.063}_{-0.027}$	$0.100^{+0.250}_{-0.300}$	$0.733^{+0.042}_{-0.066}$	$0.720^{+0.063}_{-0.058}$	$2.574^{+0.652}_{-0.255}$
	+4%/-4%	+1%/-1%	+250%/-300%	+6%/-9%	+9%/-8%	+25%/-10%
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 009203478-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1723 ± 171	$4.49^{+3.81}_{-2.96}$	266^{+11}_{-10}	4111^{+2462}_{-766}	$32477^{+247126}_{-22628}$
Alt.	-349 ± 110	$5.50^{+4.06}_{-3.32}$	266^{+10}_{-11}	2999^{+1014}_{-462}	4459^{+25569}_{-3194}

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

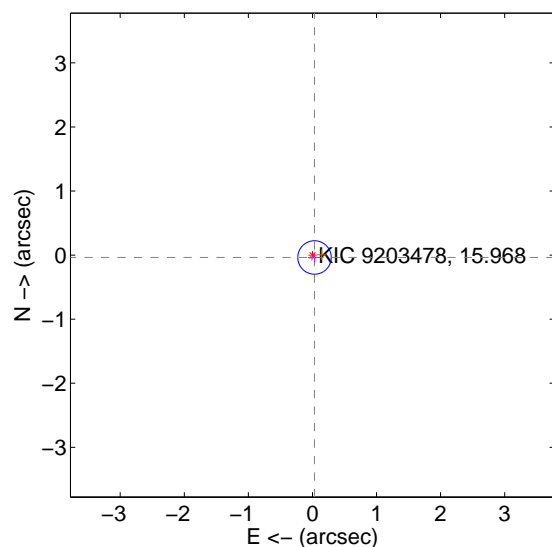
Supplemental centroid analysis for 009203478-04. Kepler magnitude: 15.97. Transit SNR 5.72

There are 1 quarters with good PRF difference image offsets

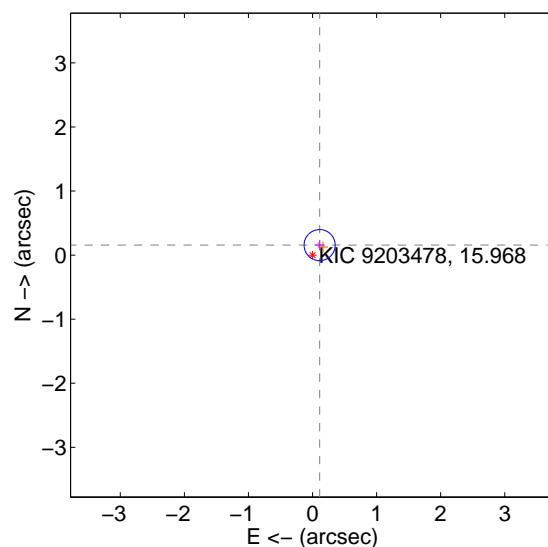
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.049 ± 0.087	0.56	-0.032 ± 0.105	-0.037 ± 0.071
PRF-fit source offset from KIC position	0.192 ± 0.081	2.37	-0.111 ± 0.081	0.156 ± 0.081
photometric centroid source offset	0.35 ± 0.93	0.37	-0.28 ± 0.90	0.20 ± 1.00

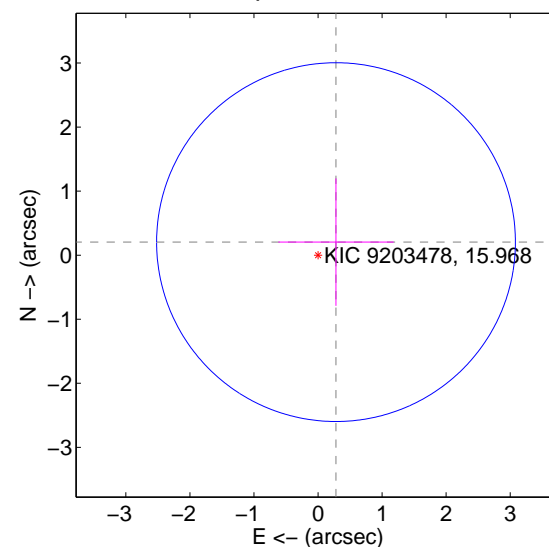
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

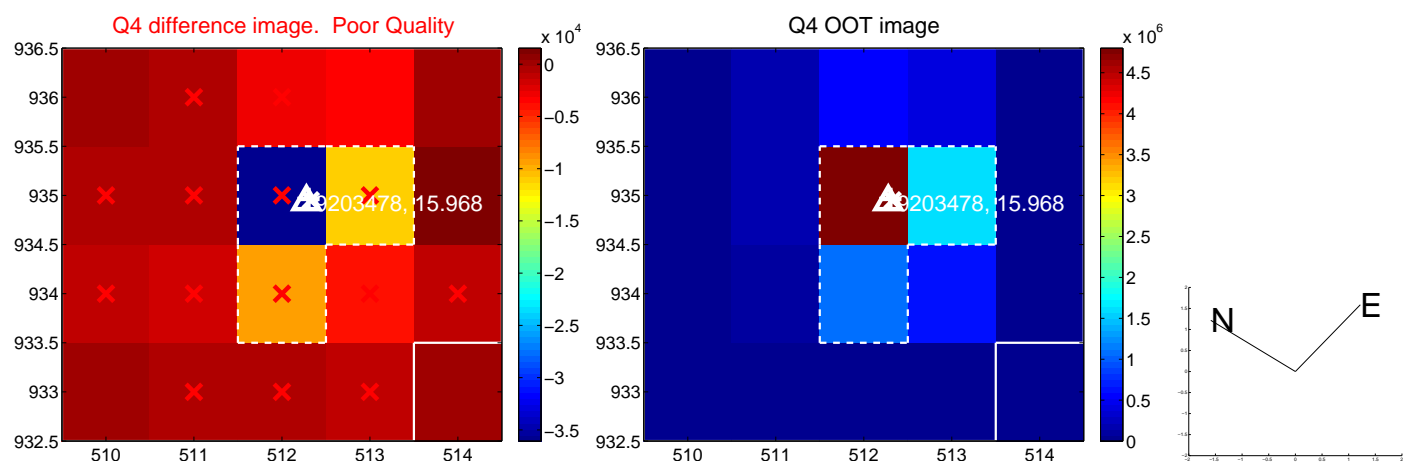
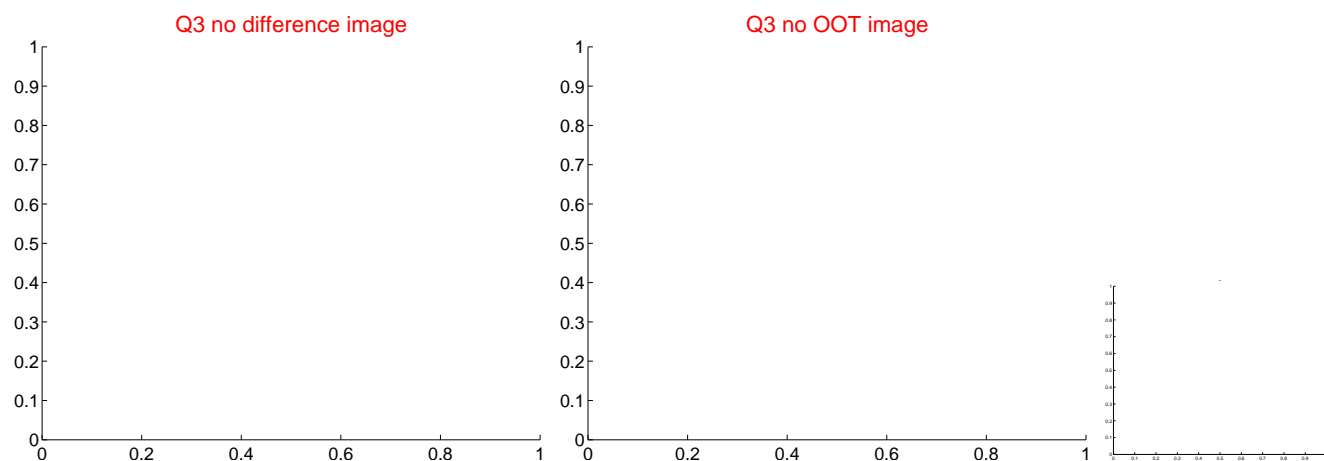
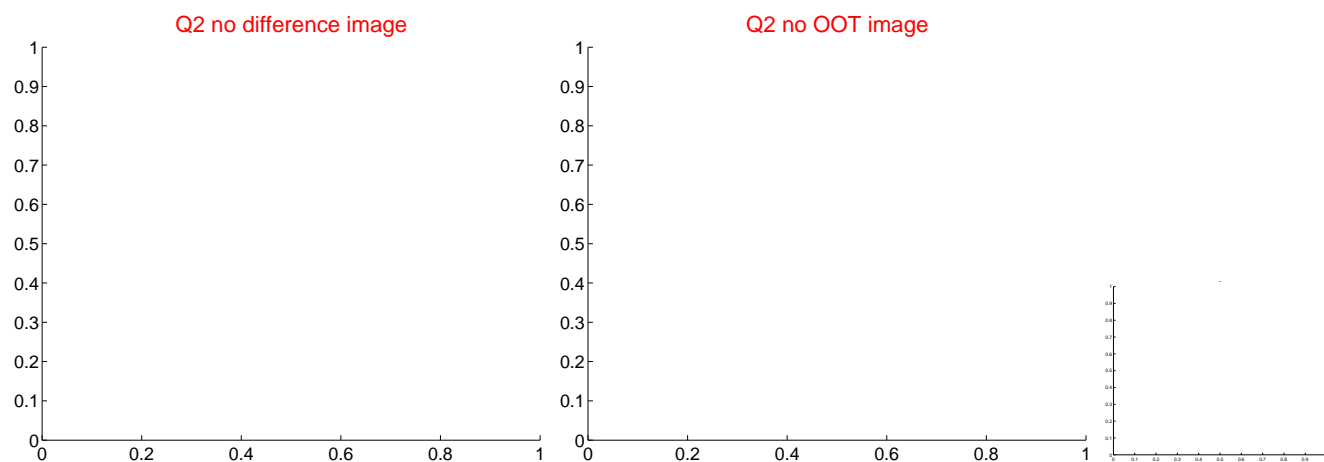
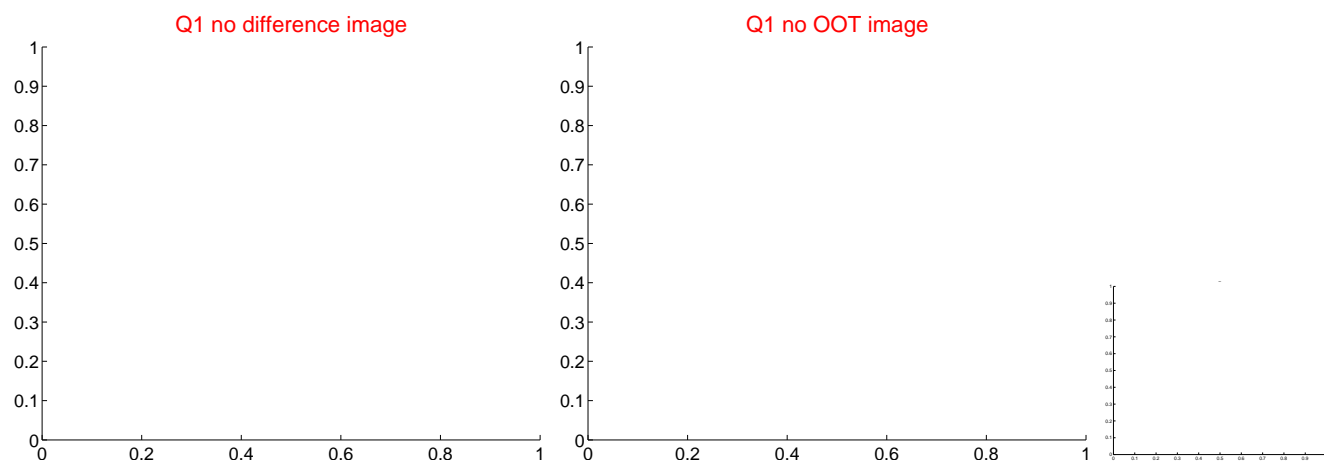


offset from photometric centroids

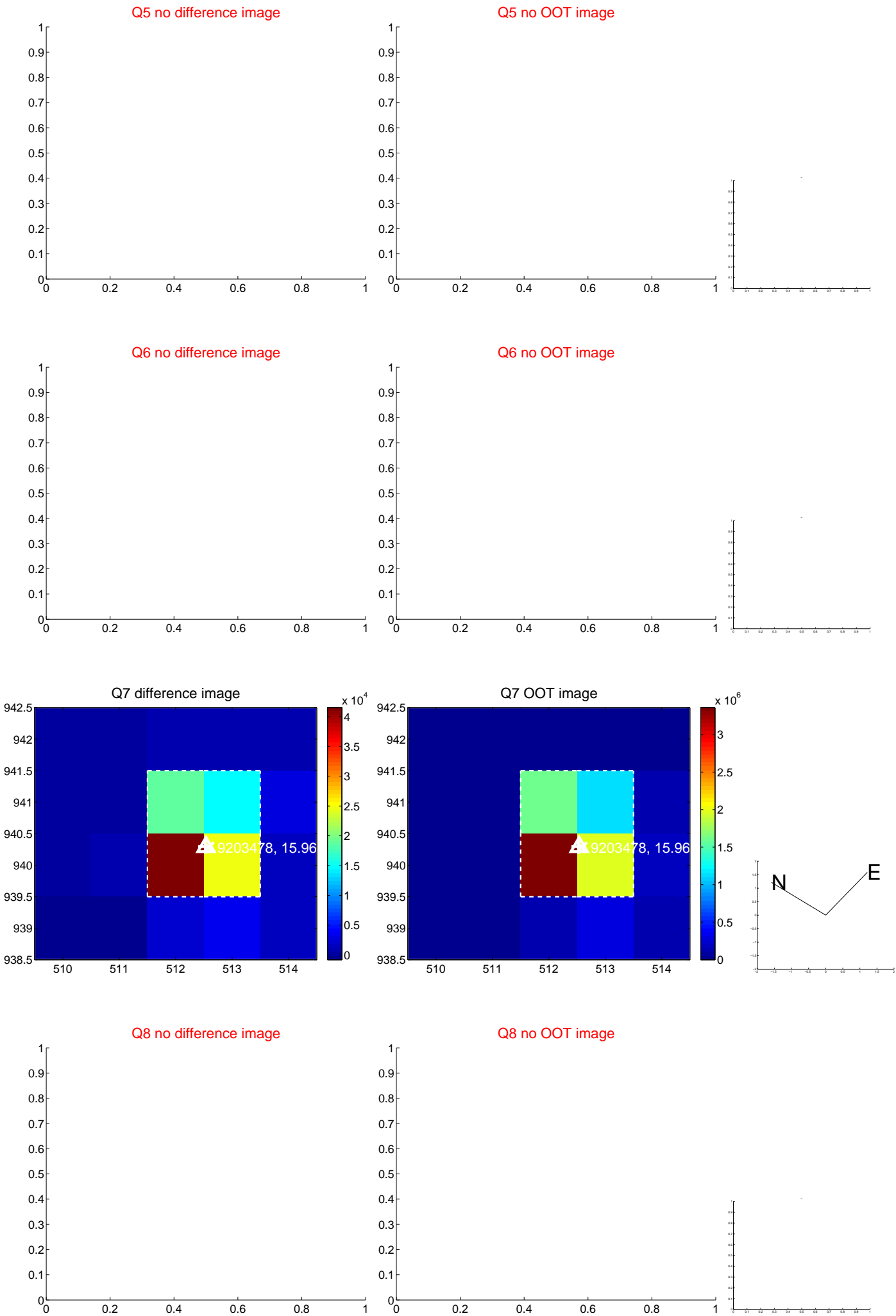


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

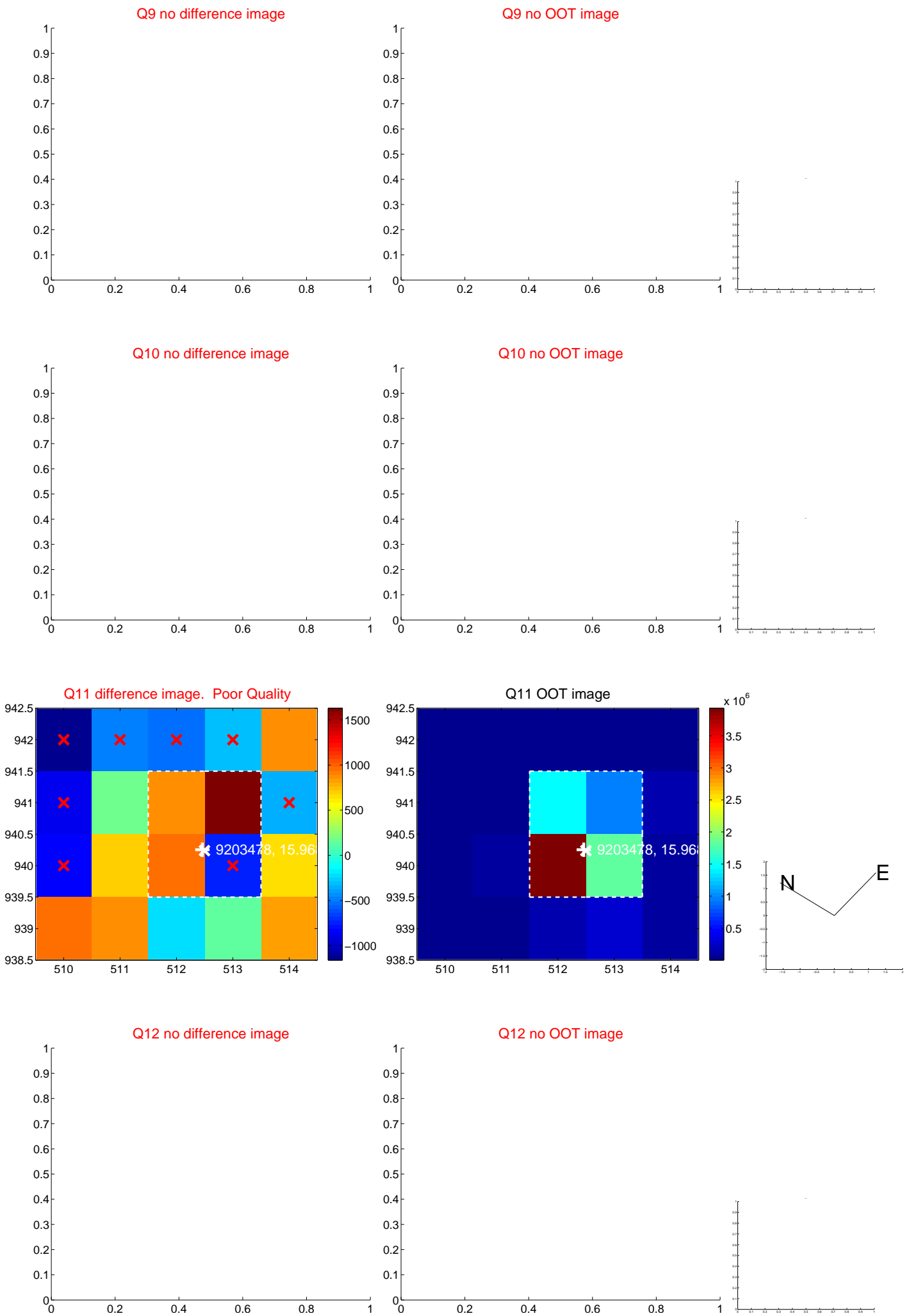
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



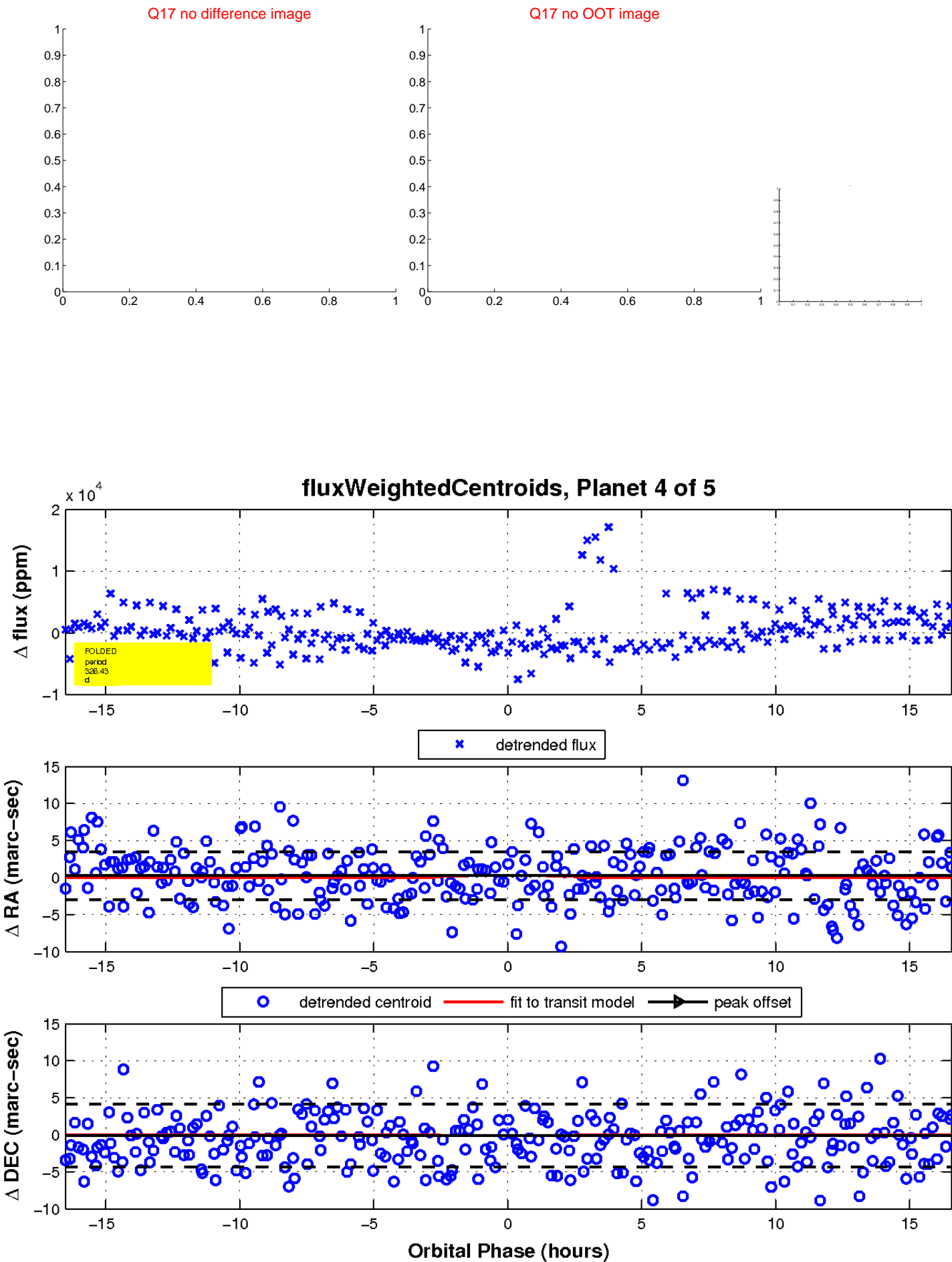
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

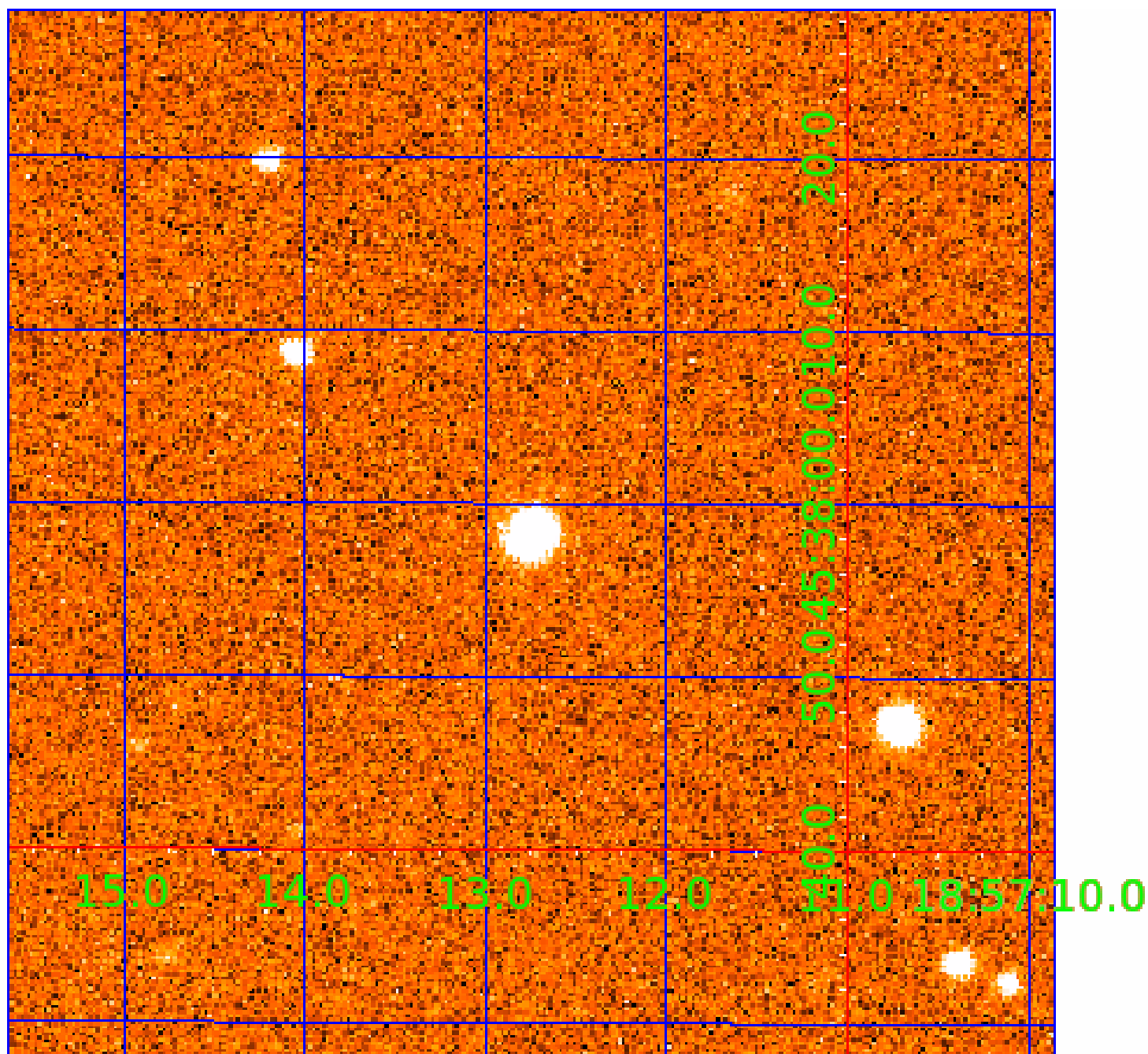


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009203478

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})
009203478-01	OBS	No	360.549293	286.261317	1898.5	5.709	10.8	5.4	0.73	4623	3.25	0.28
009203478-02	OBS	No	443.084213	573.336017	3771.3	9.800	13.8	8.4	0.73	4623	6.12	0.21
009203478-03	OBS	No	332.381443	418.447857	3201.7	11.027	10.3	7.4	0.73	4623	4.92	0.31
009203478-04	OBS	No	326.434145	391.042435	2221.5	5.537	17.0	5.7	0.73	4623	3.38	0.32
009203478-05	OBS	No	566.428865	175.270293	3515.5	5.324	8.5	8.3	0.73	4623	5.05	0.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009203478-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-02	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-03	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—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009203478-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009203478-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

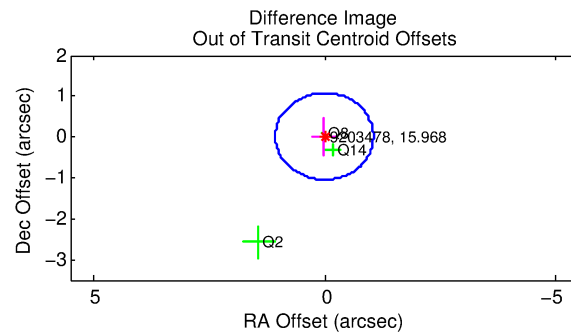
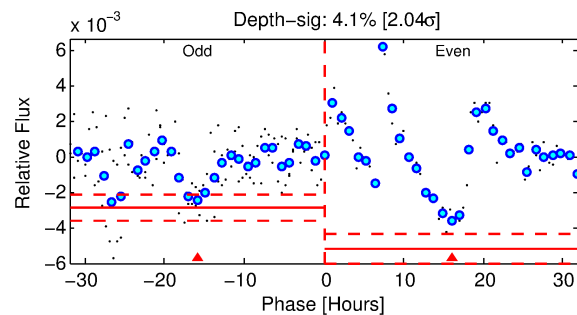
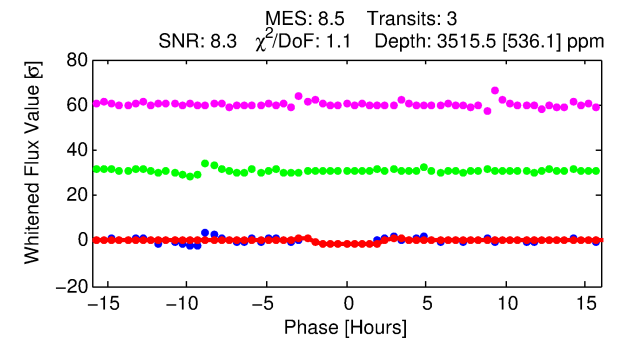
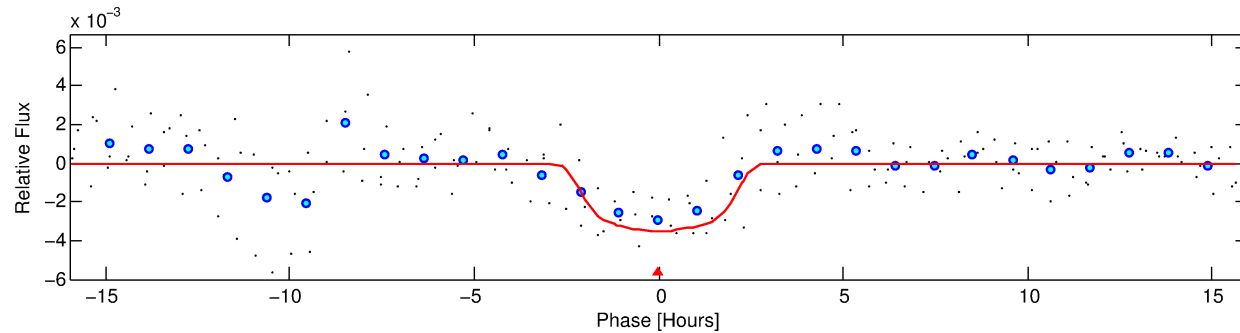
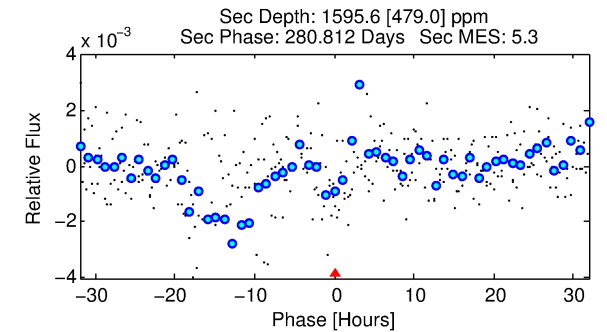
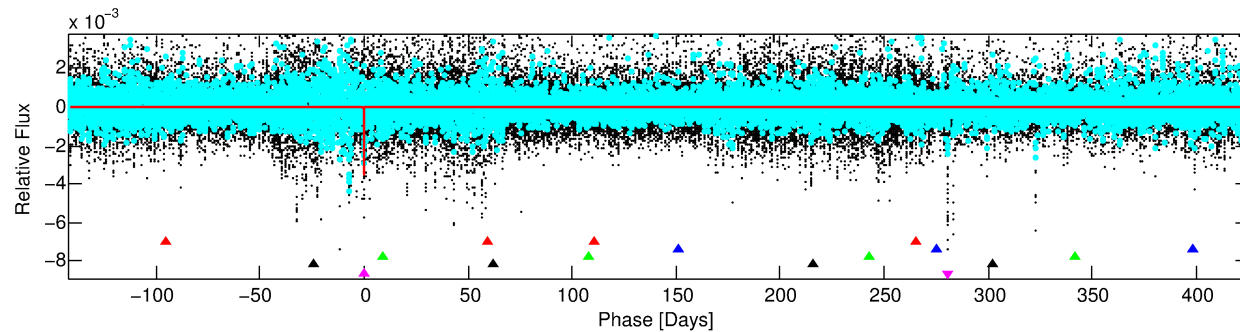
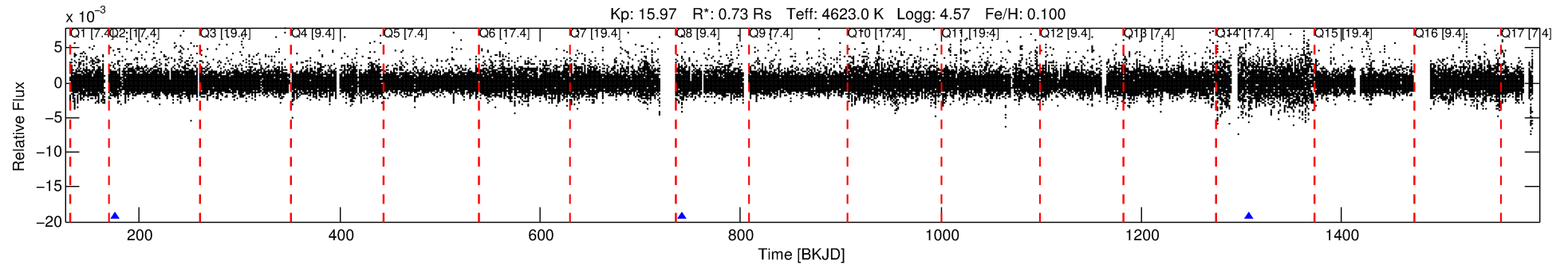
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009203478-05

No Significant Match Found

DV One-Page Summary

KIC: 9203478 Candidate: 5 of 5 Period: 566.429 d



DV Fit Results:

Period = 566.42886 [0.00830] d
Epoch = 175.2703 [0.0089] BKJD
Rp/R* = 0.0631 [0.0102]
a/R* = 531.11 [217.25]
b = 0.84 [0.15]
Seff = 0.15 [0.03]
Teq = 159 [7] K
Rp = 5.05 [0.93] Re
a = 1.2010 [0.0926] AU
Ag = 49728.78 [22612.27] [2.20 σ]
Teffp = 3679 [425] K [8.28 σ]

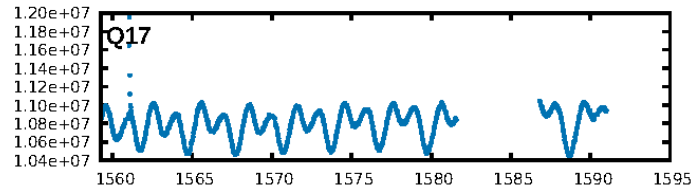
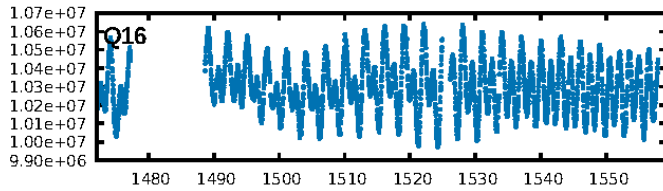
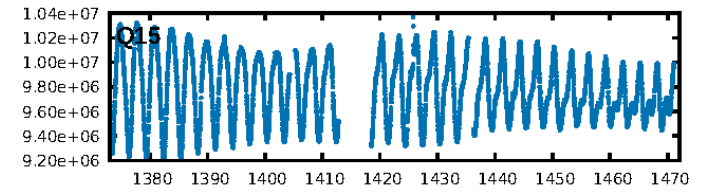
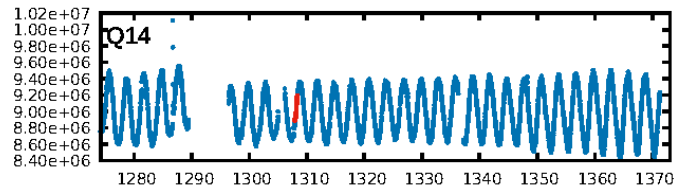
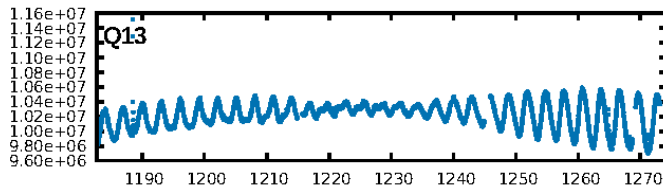
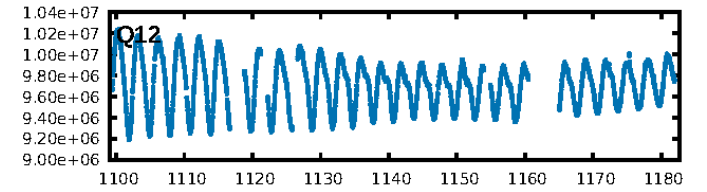
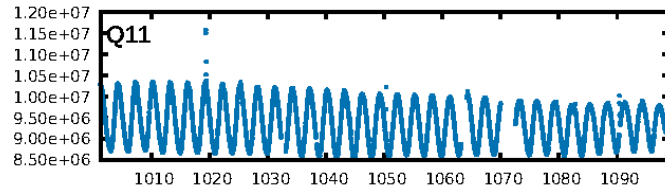
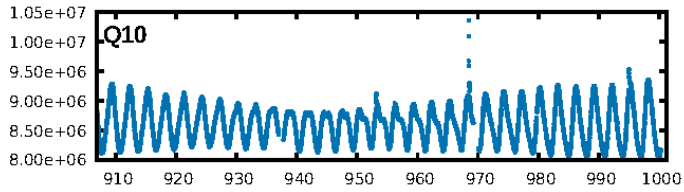
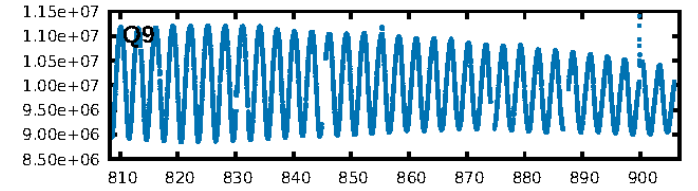
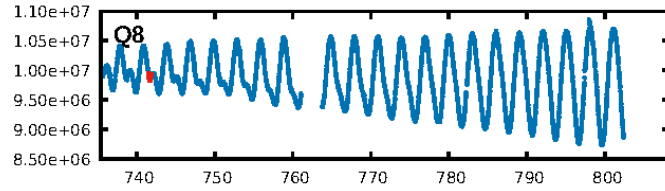
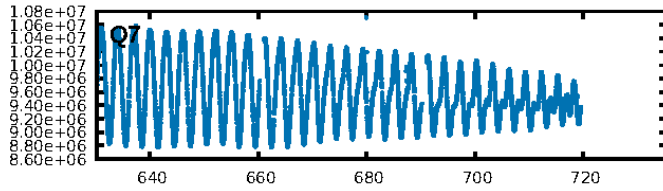
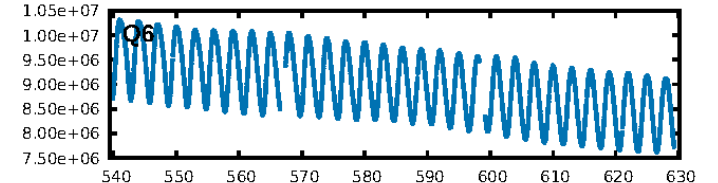
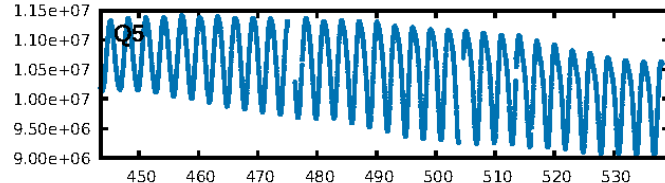
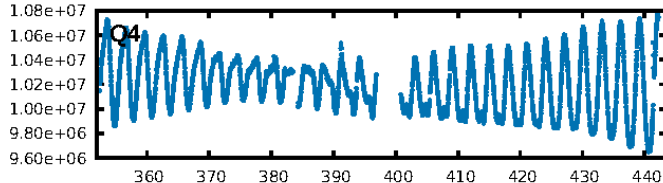
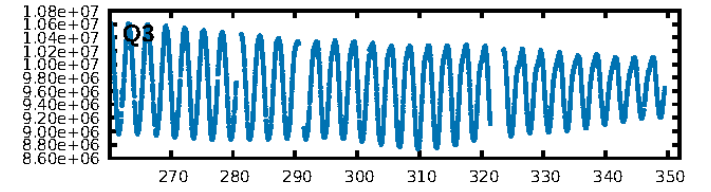
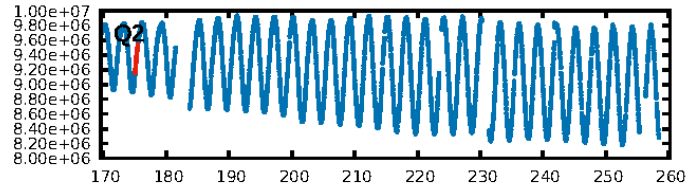
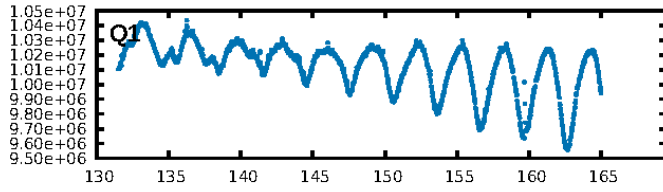
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [265.43 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 42.7%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 4.22e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.305
Centroid-sig: 0.2%
Centroid-so: 1.808 arcsec [2.39 σ]
OotOffset-rm: 0.018 arcsec [0.05 σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-rm: 0.165 arcsec [0.18 σ]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

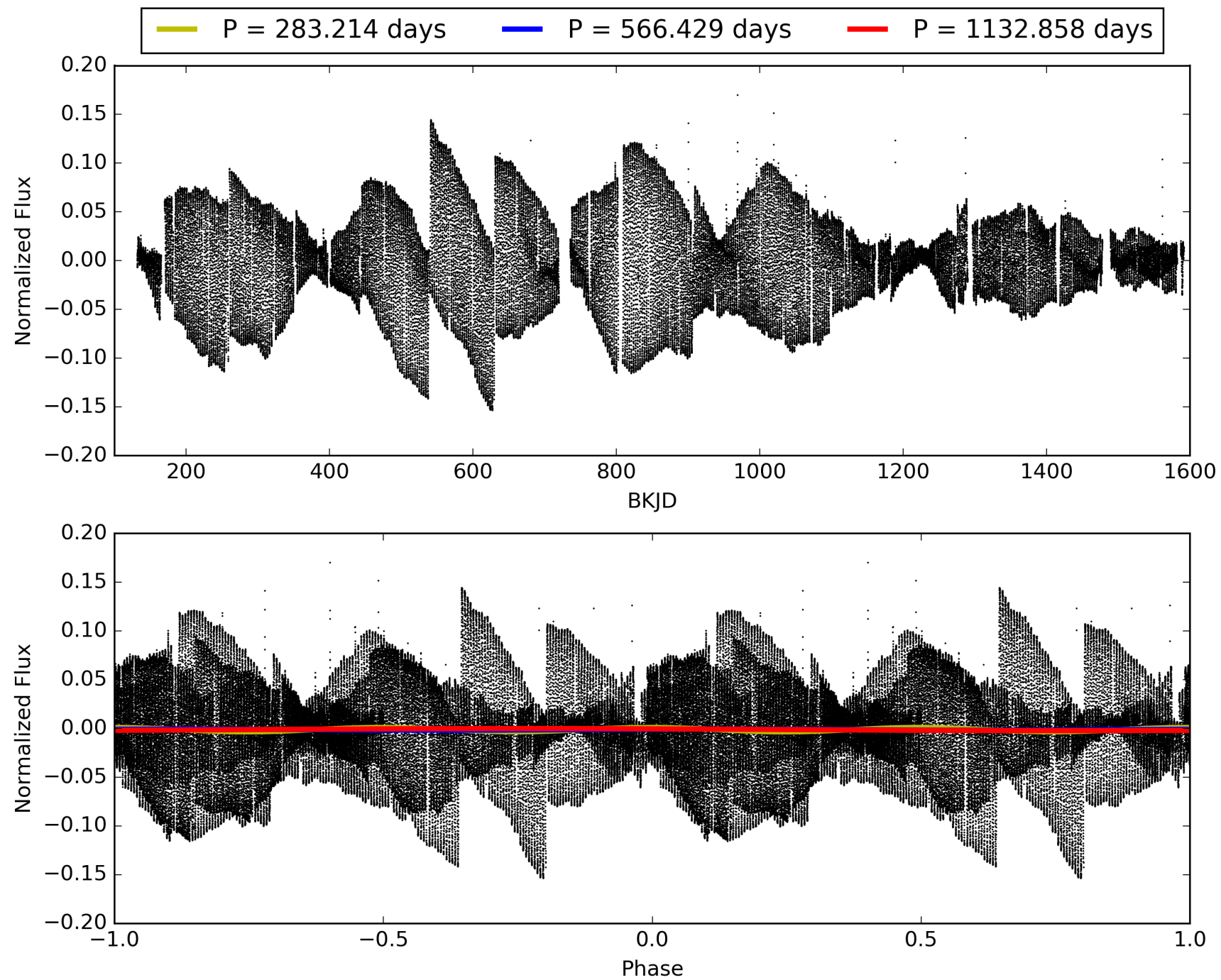
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:11:18 Z

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

TCE 009203478-05, PDC Light Curves

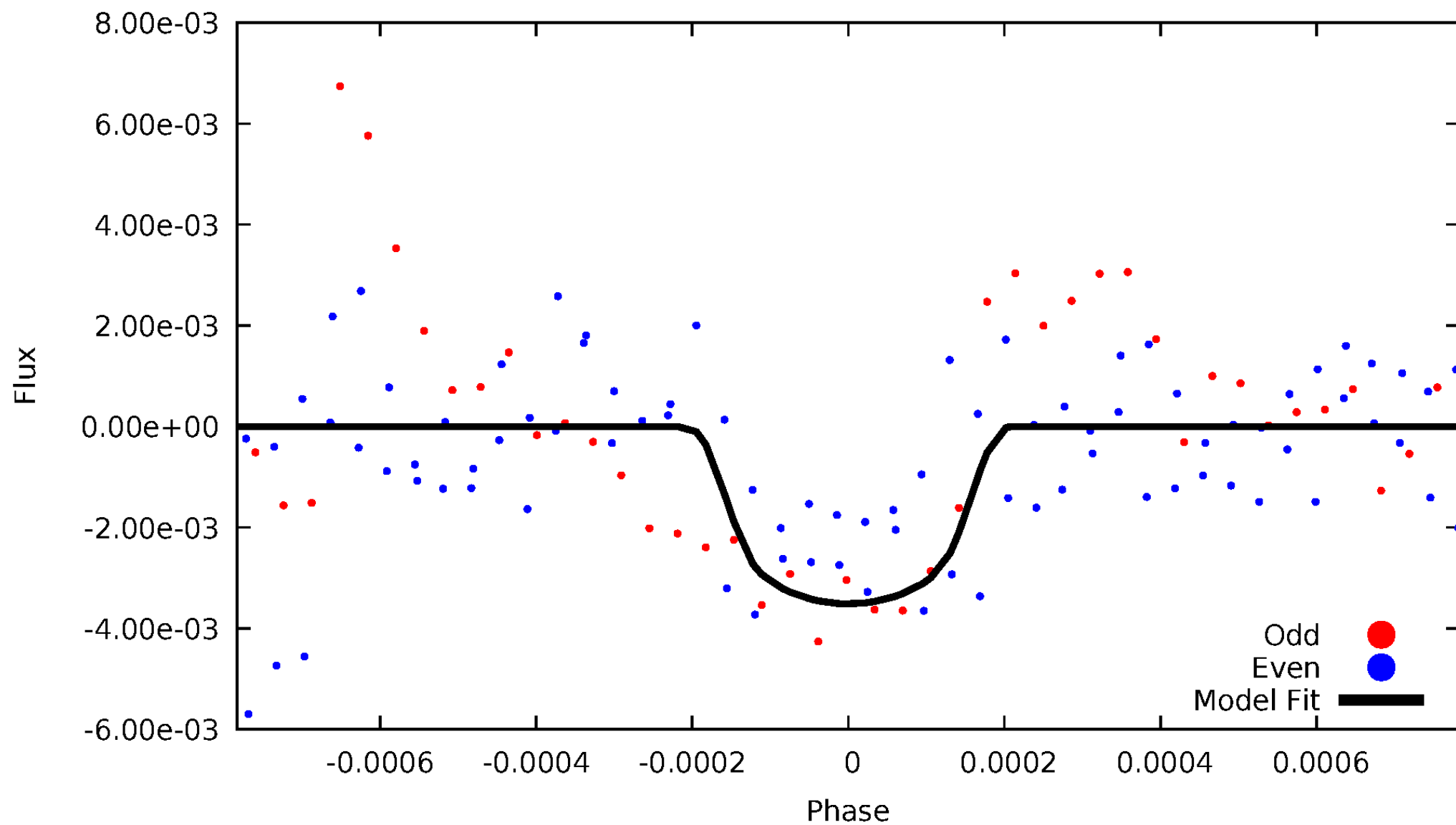


TCE 009203478-05



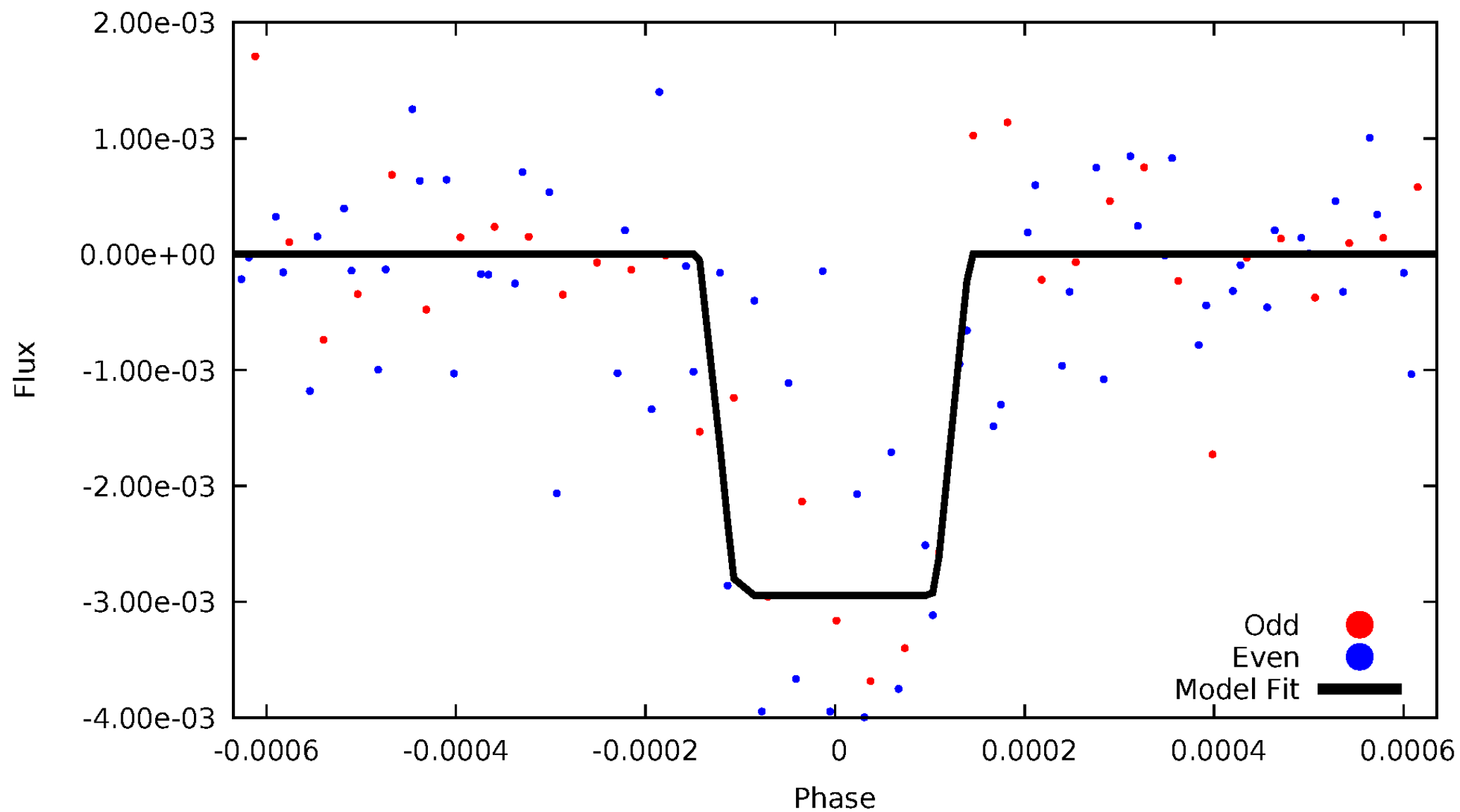
DV Odd/Even

TCE 009203478-05



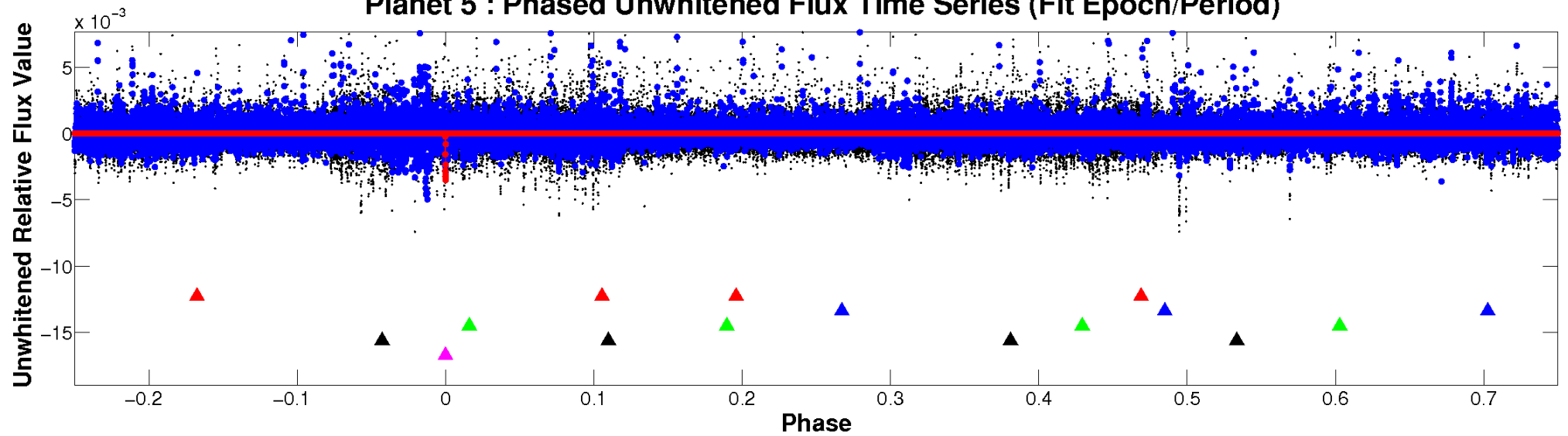
ALT Odd/Even

TCE 009203478-05

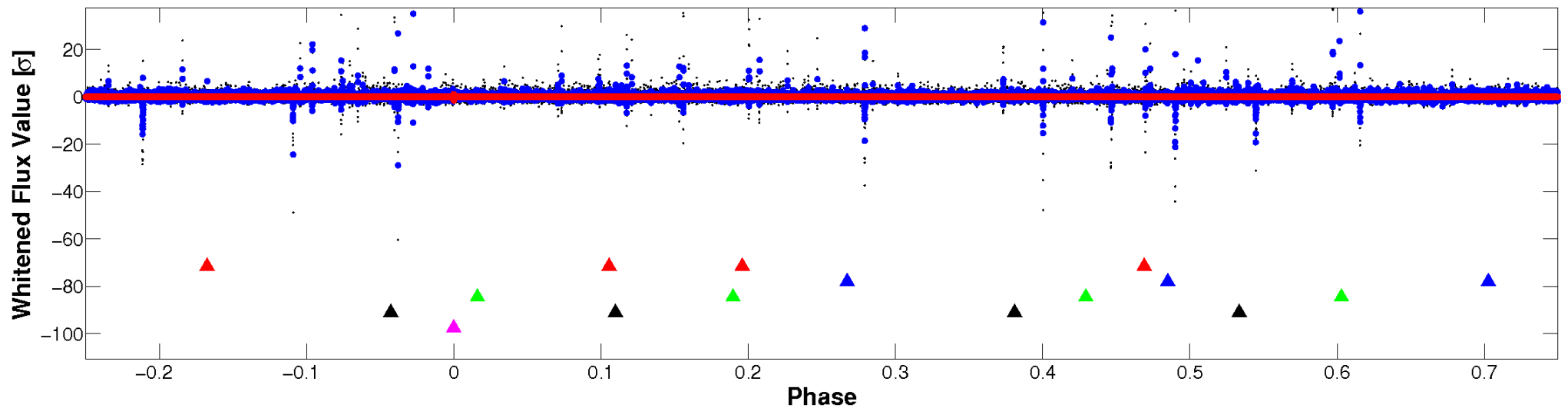


Non-Whitened Vs. Whitened Light Curve

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

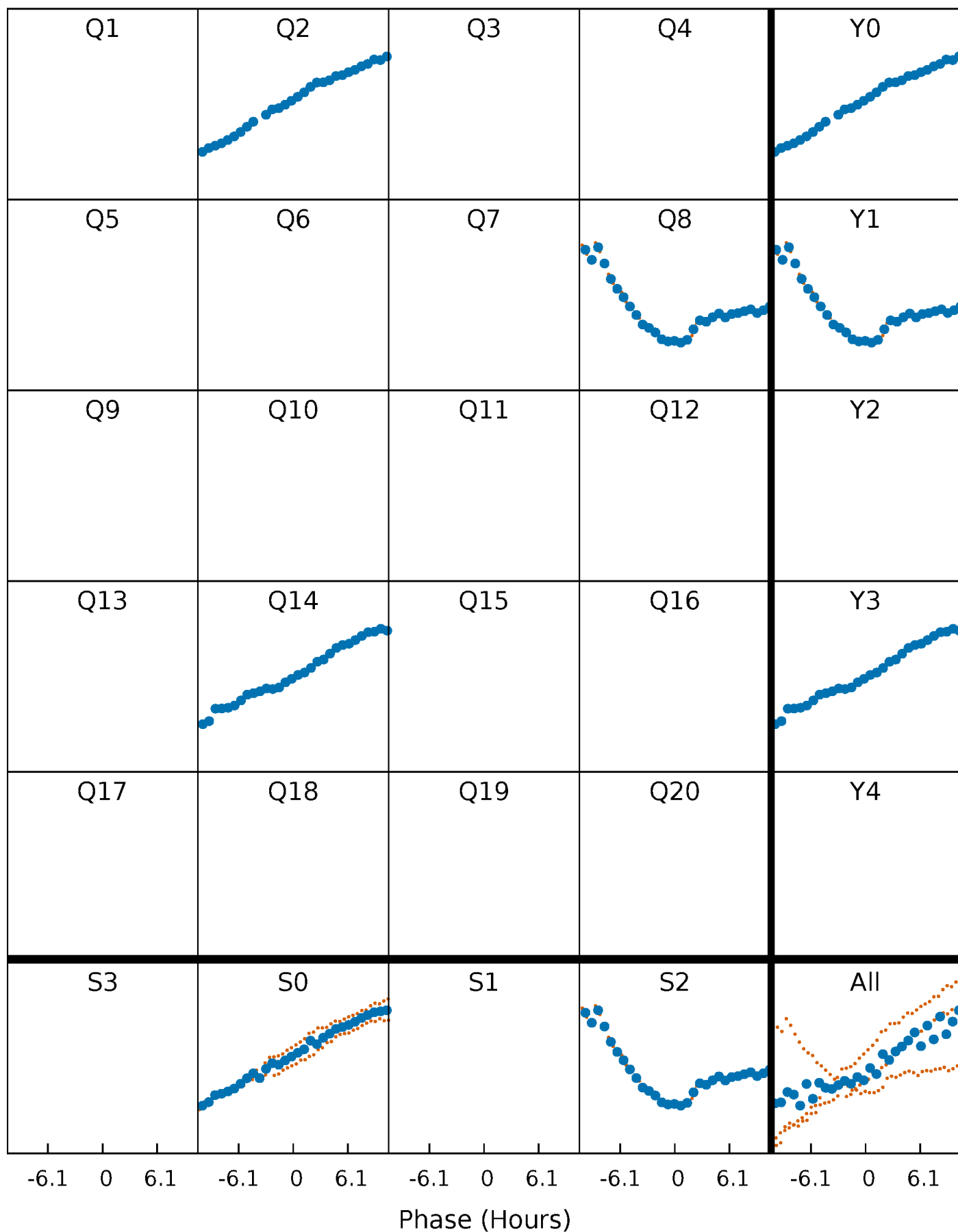


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



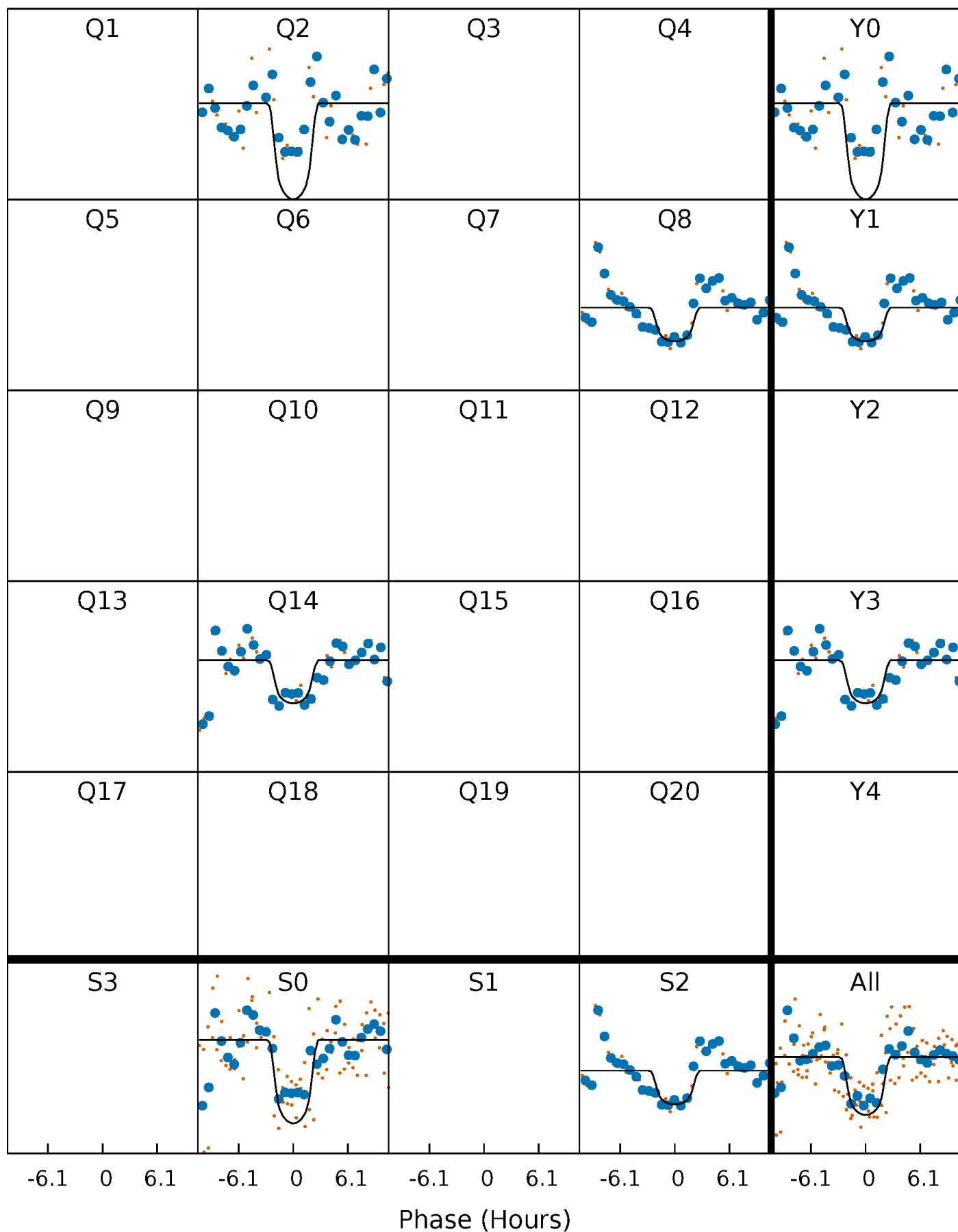
PDC Quarter-Phased Transit Curves

TCE 009203478-05 $P=566.428865$ Days $T_0=175.270293$ (BKJD)



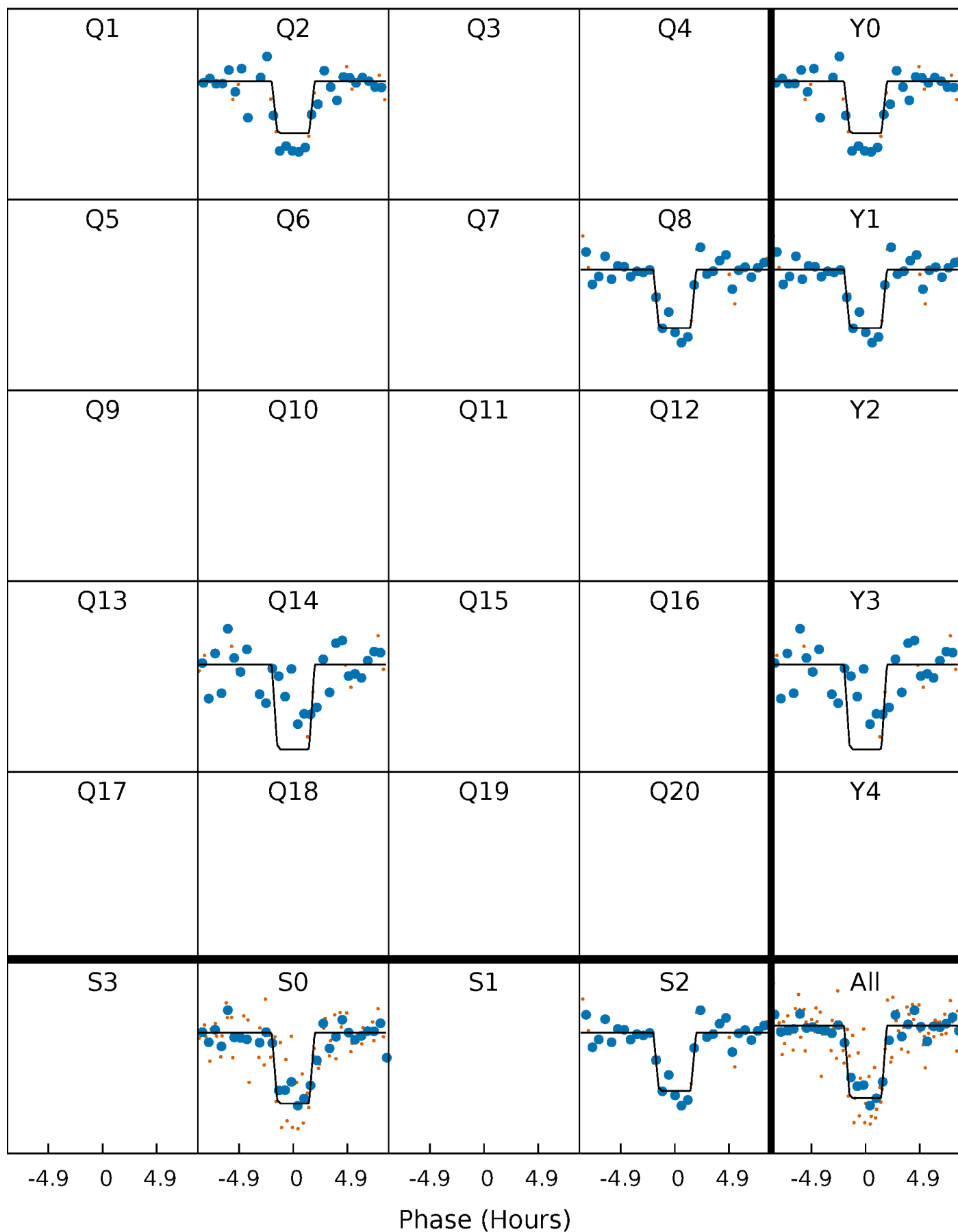
DV Quarter-Phased Transit Curves

TCE 009203478-05 $P=566.428865$ Days $T_0=175.270293$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

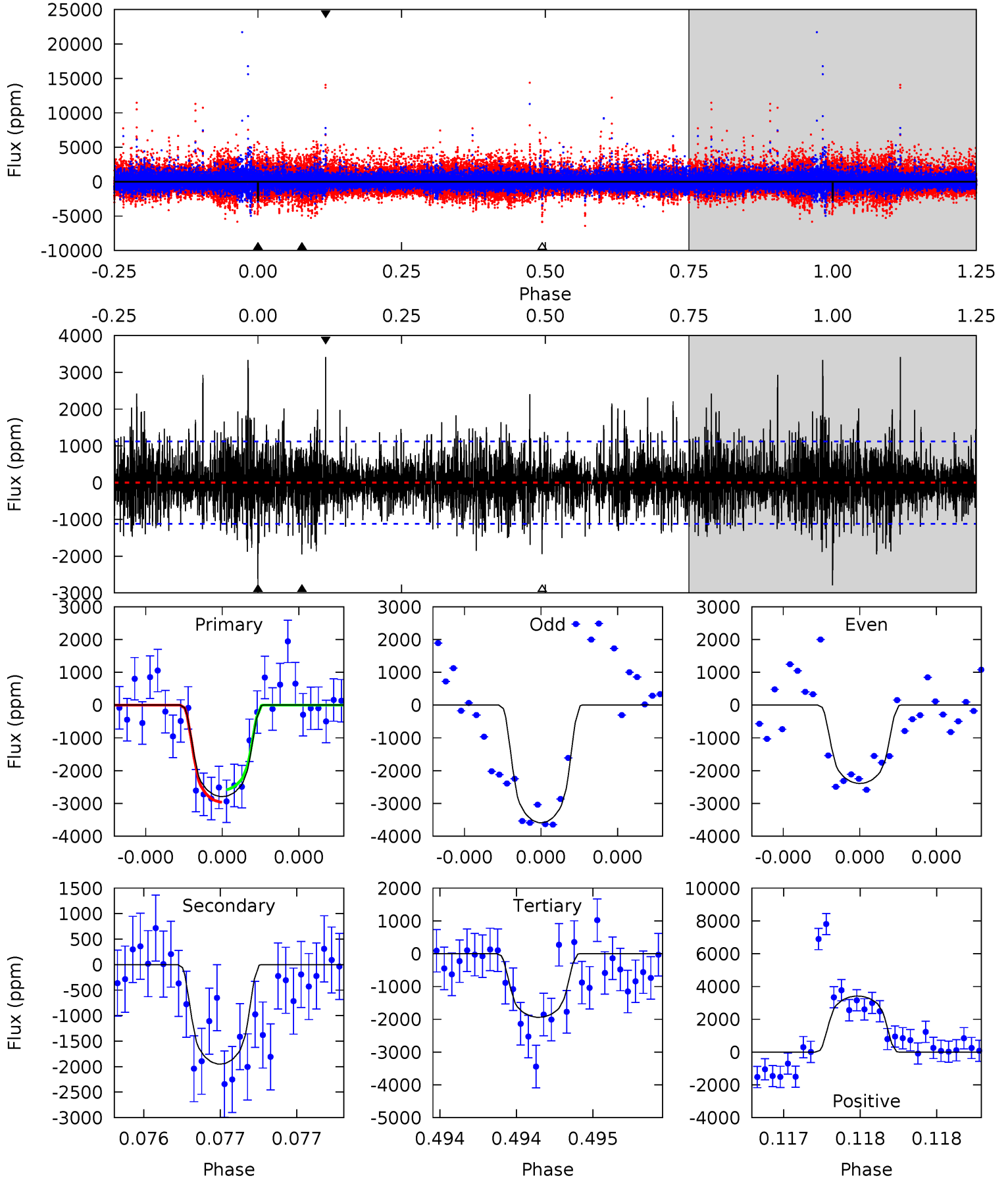
TCE 009203478-05 $P=566.452339$ Days $T_0=175.265039$ (BKJD)



DV Model-Shift Uniqueness Test

009203478-05, P = 566.428865 Days, E = 175.270293 Days

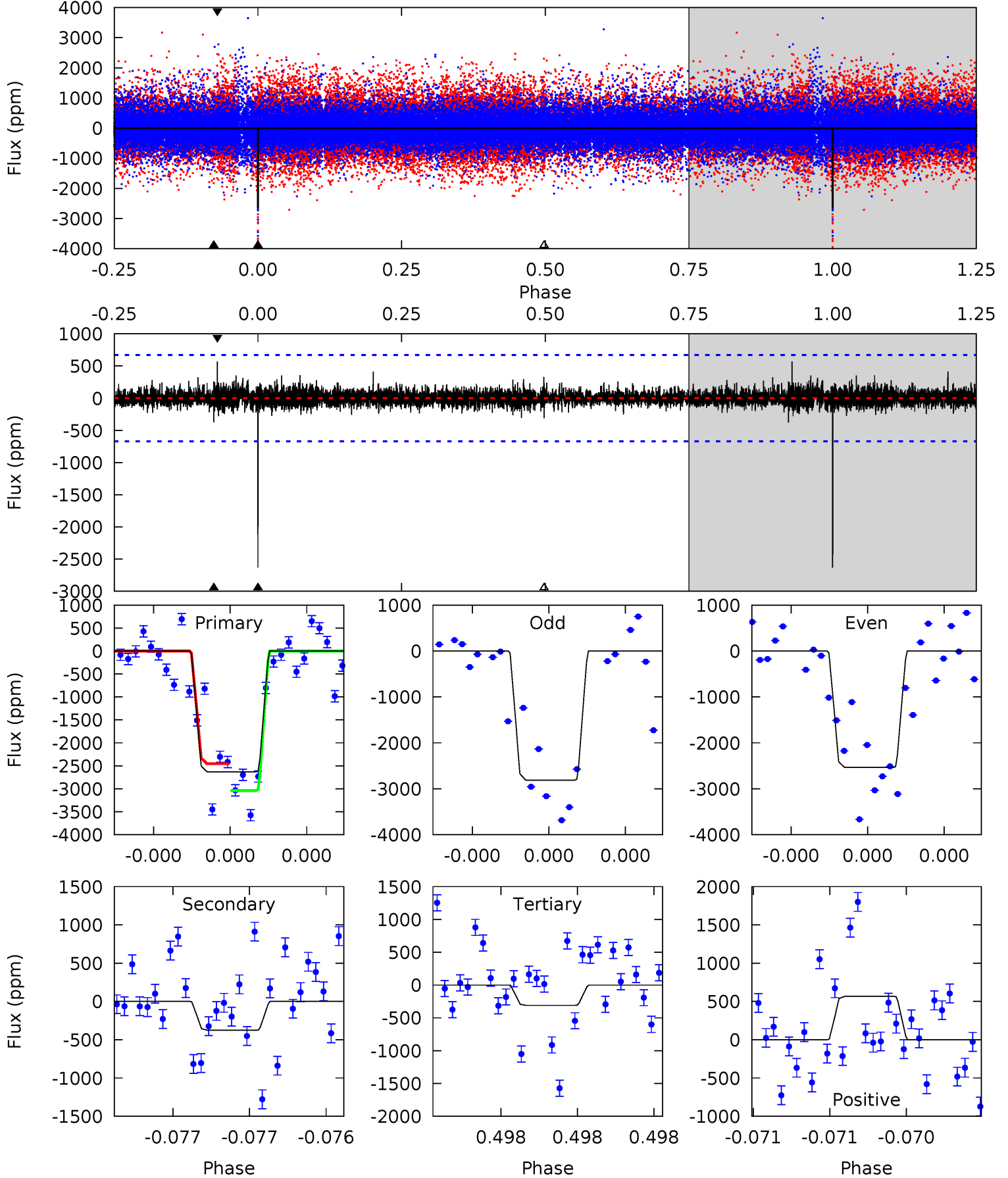
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	9.78	9.73	17.1	5.61	3.54	2.70	4.27	-3.13	0.05	-7.35	1.50	0.81	0.55	0.94



Alt Model-Shift Uniqueness Test

009203478-05, P = 566.452339 Days, E = 175.265039 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	3.17	2.61	4.79	5.67	3.63	0.58	19.6	17.4	0.56	-1.62	1.06	0.93	0.18	2.43



Stellar Parameters For KIC 009203478

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4623^{+163}_{-163}	$4.565^{+0.063}_{-0.027}$	$0.100^{+0.250}_{-0.300}$	$0.733^{+0.042}_{-0.066}$	$0.720^{+0.063}_{-0.058}$	$2.574^{+0.652}_{-0.255}$
	+4%/-4%	+1%/-1%	+250%/-300%	+6%/-9%	+9%/-8%	+25%/-10%
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 009203478-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1952 ± 200	$4.99^{+0.78}_{-0.82}$	222^{+8}_{-9}	4051^{+295}_{-237}	62998^{+27725}_{-16843}
Alt.	-376 ± 118	$4.32^{+0.86}_{-0.87}$	221^{+9}_{-10}	3236^{+288}_{-230}	15751^{+10994}_{-6028}

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

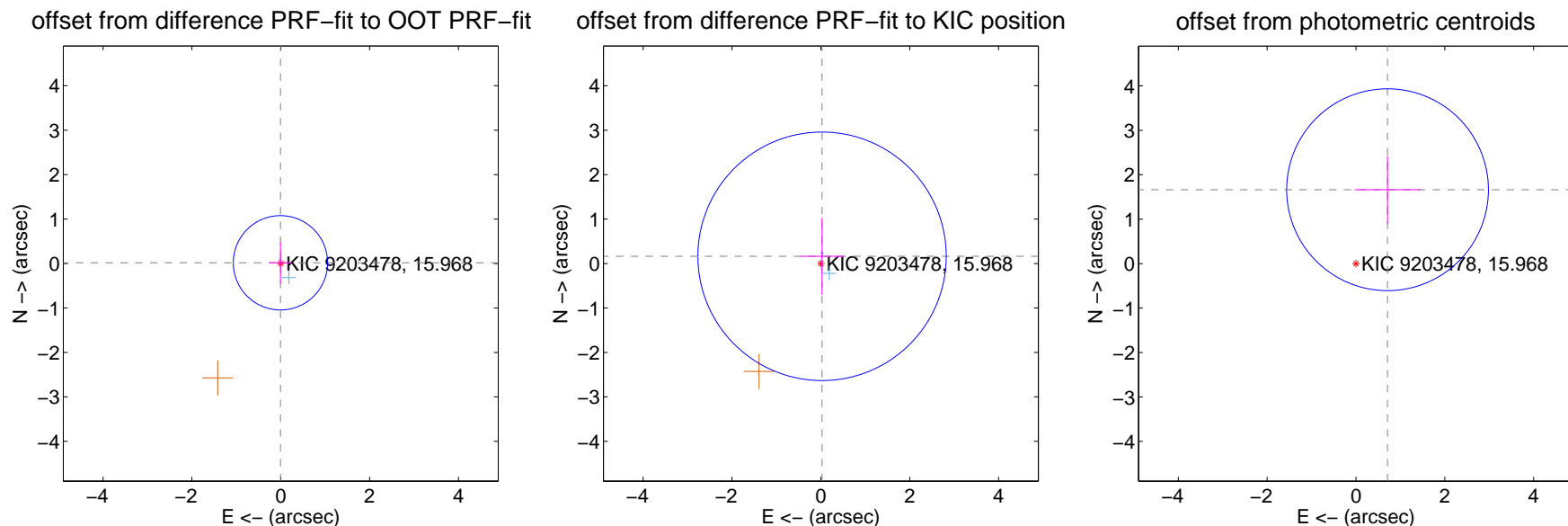
DV Centroid Data

Supplemental centroid analysis for 009203478-05. Kepler magnitude: 15.97. Transit SNR 8.26

There are 2 quarters with good PRF difference image offsets

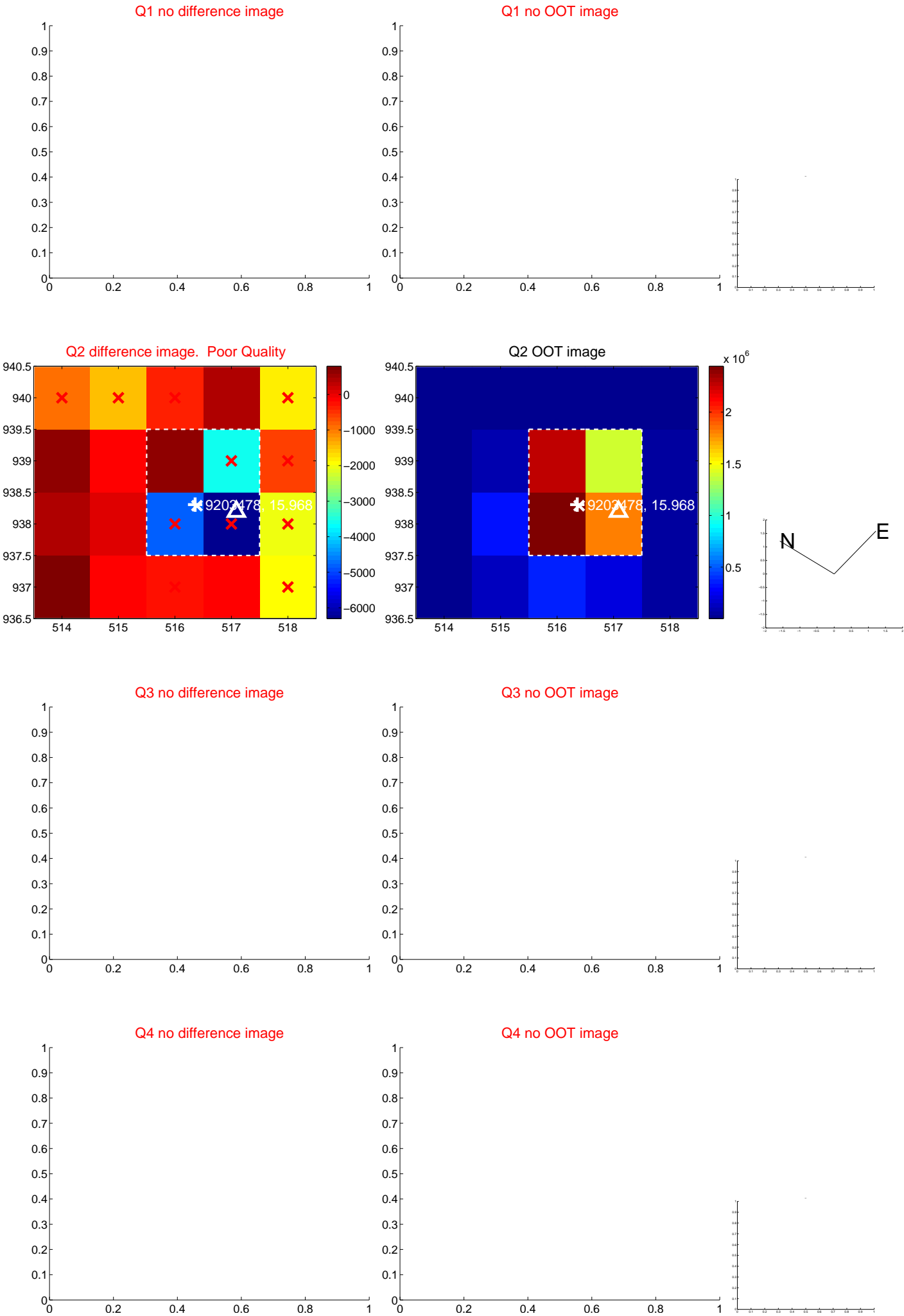
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.018 ± 0.354	0.05	0.007 ± 0.251	0.017 ± 0.463
PRF-fit source offset from KIC position	0.165 ± 0.932	0.18	-0.027 ± 0.490	0.163 ± 0.866
photometric centroid source offset	1.81 ± 0.76	2.39	-0.71 ± 0.74	1.66 ± 0.76

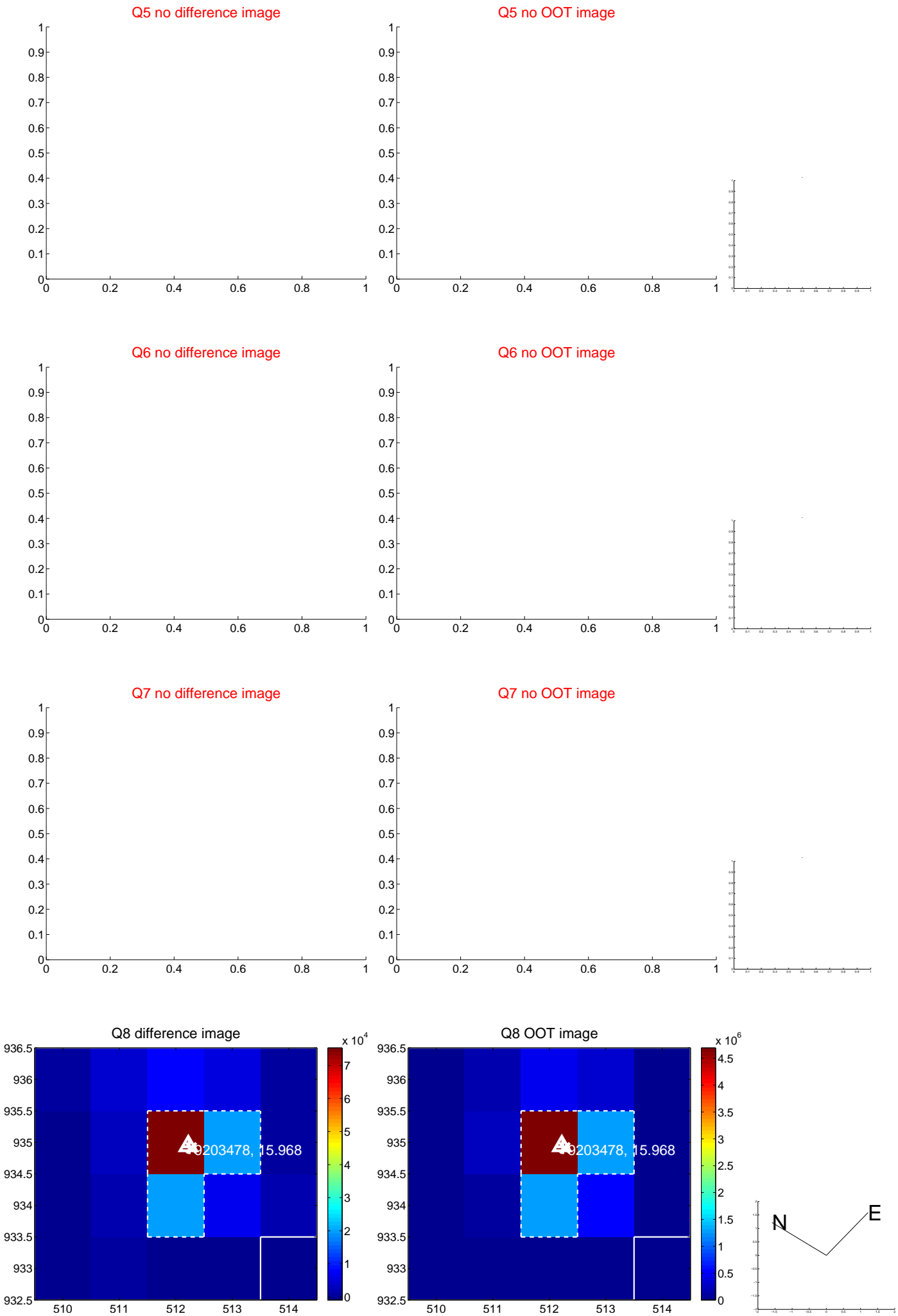


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



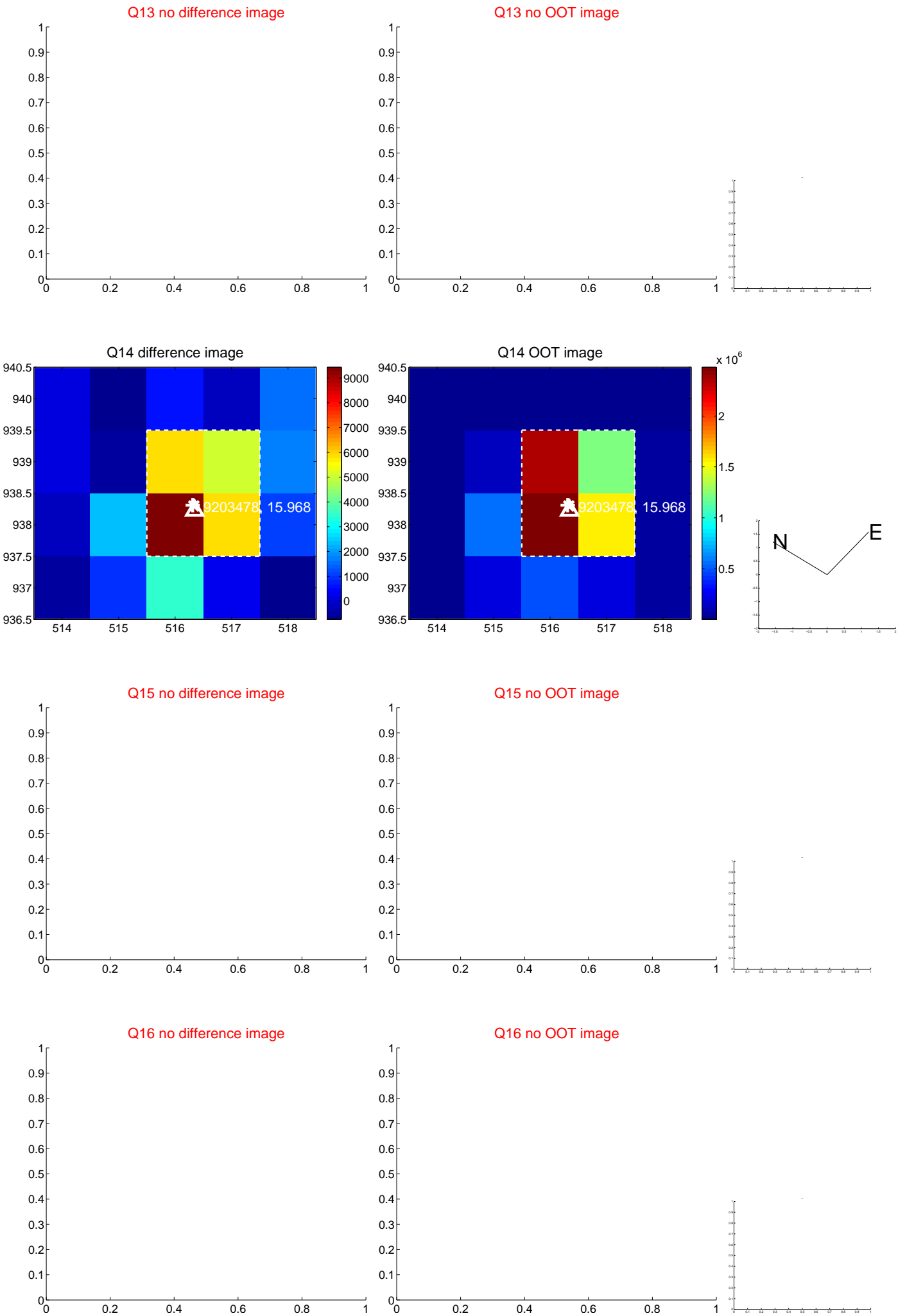
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



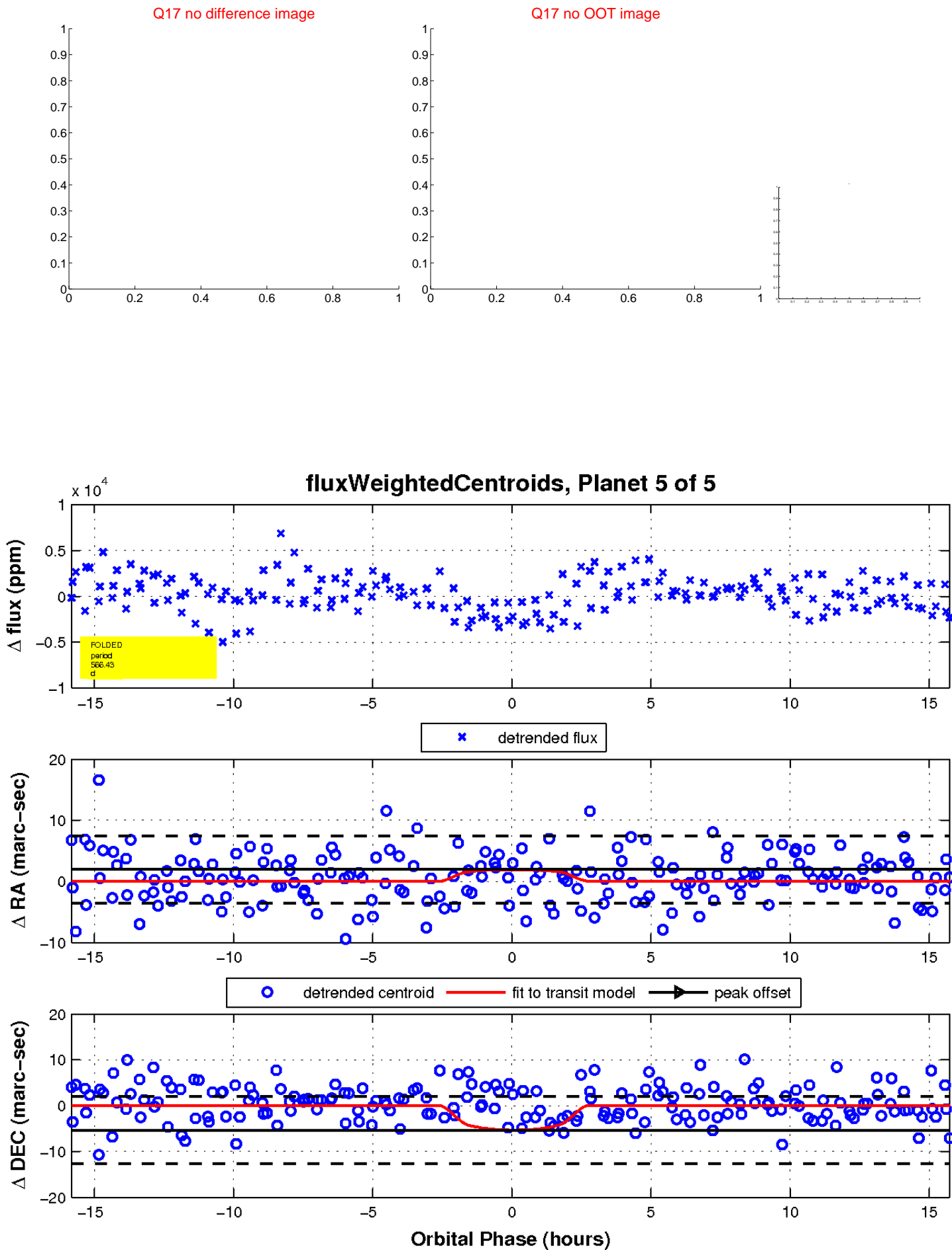
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

