

KIC 009051905

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})
009051905-01	OBS	No	336.595111	340.679606	1161.0	3.138	8.2	6.1	0.54	4342	1.99	0.16
009051905-02	OBS	No	378.038224	330.043884	2187.1	5.625	11.9	9.7	0.54	4342	2.46	0.14
009051905-03	OBS	No	432.433982	363.142435	1403.7	4.327	10.9	6.4	0.54	4342	2.15	0.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009051905-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009051905-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009051905-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

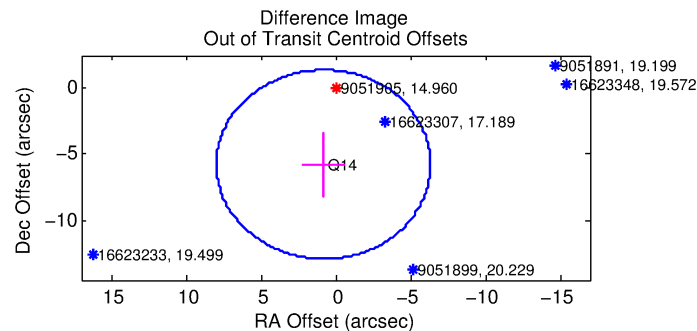
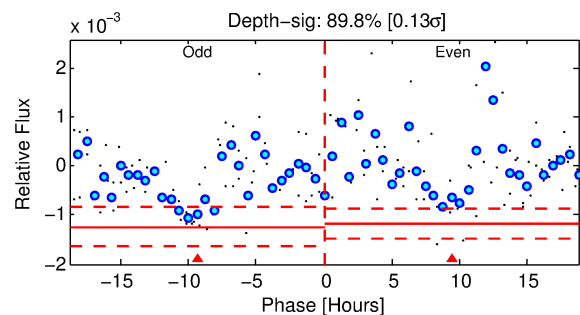
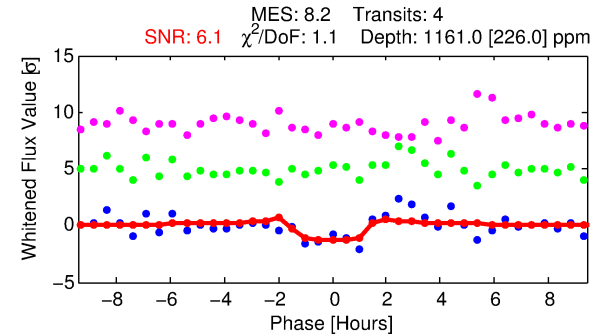
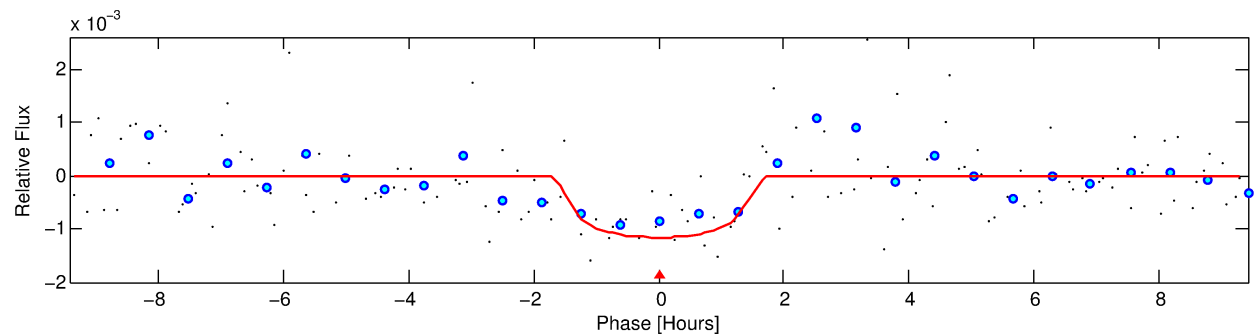
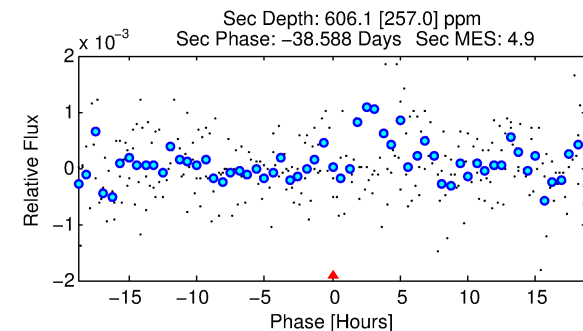
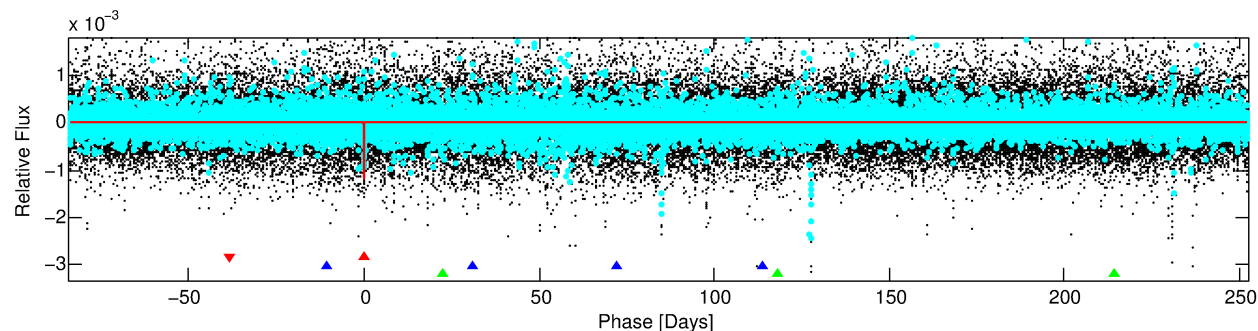
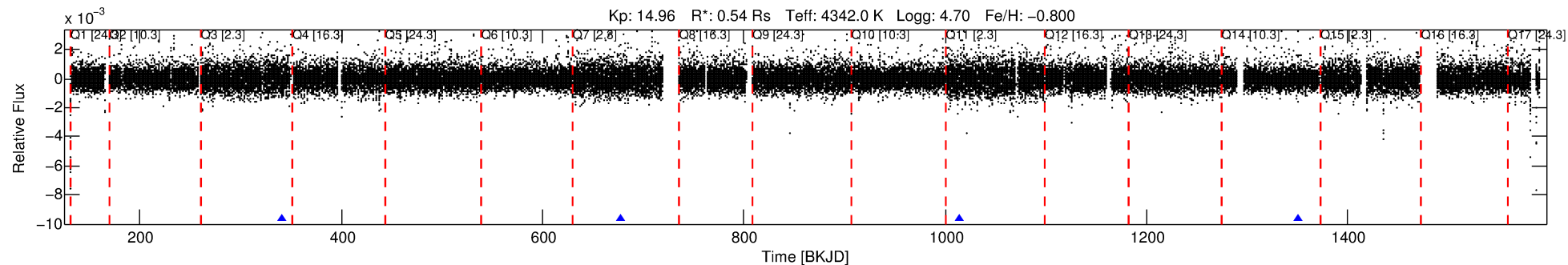
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009051905-01

No Significant Match Found

DV One-Page Summary

KIC: 9051905 Candidate: 1 of 3 Period: 336.595 d



DV Fit Results:

Period = 336.59511 [0.00446] d
Epoch = 340.6796 [0.0094] BKJD
Rp/R* = 0.0337 [0.0331]
a/R* = 601.35 [2279.06]
b = 0.73 [2.48]
Seff = 0.16 [0.03]
Teq = 161 [7] K
Rp = 1.99 [1.96] Re
a = 0.7674 [0.0594] AU
Ag = 49694.99 [99794.61] [0.50σ]
Teffp = 3709 [1863] K [1.90σ]

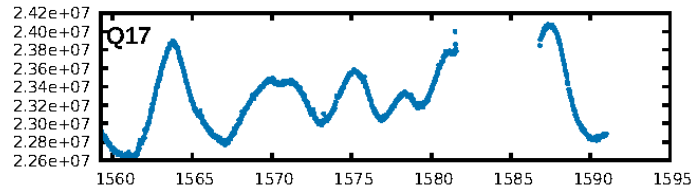
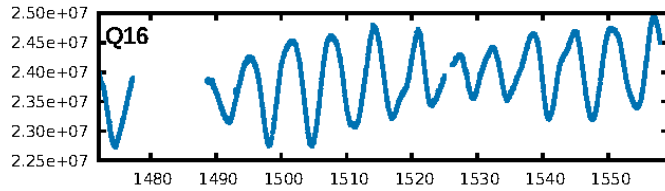
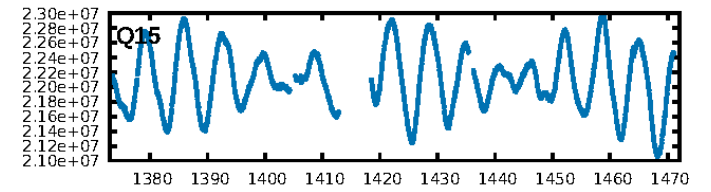
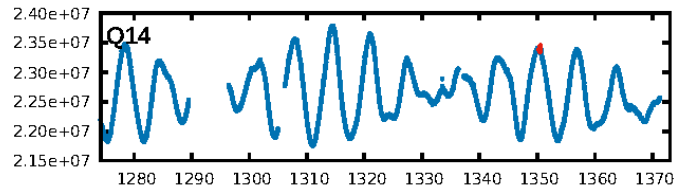
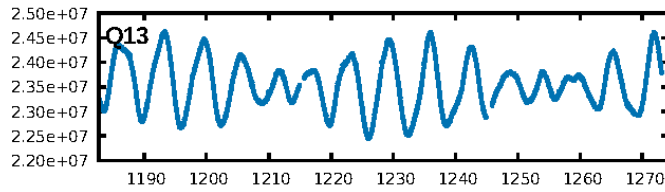
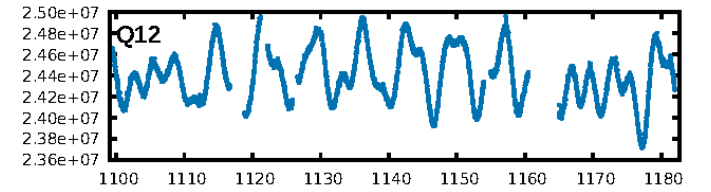
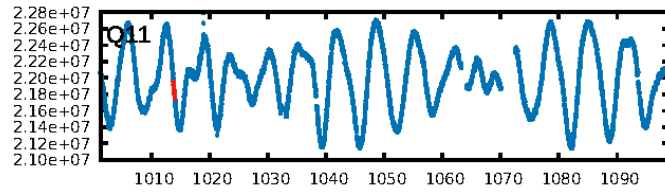
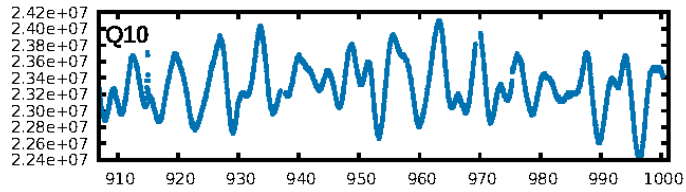
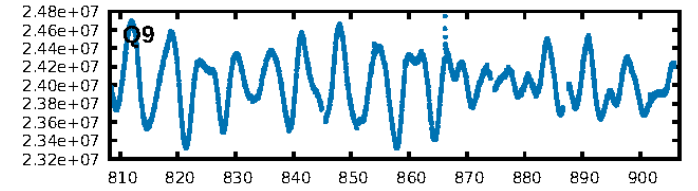
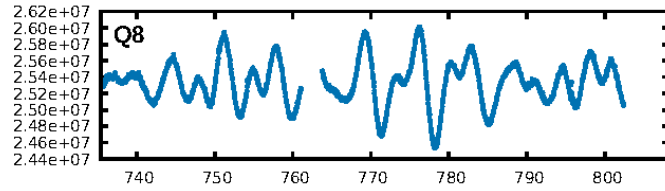
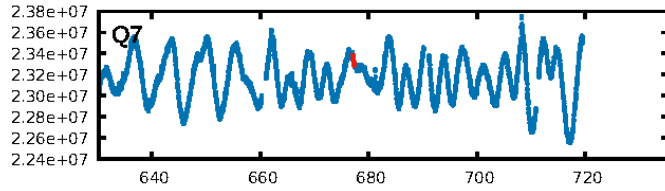
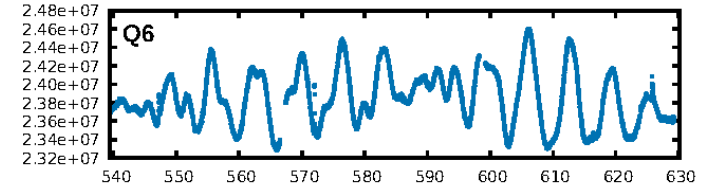
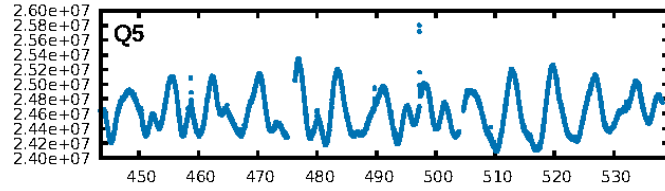
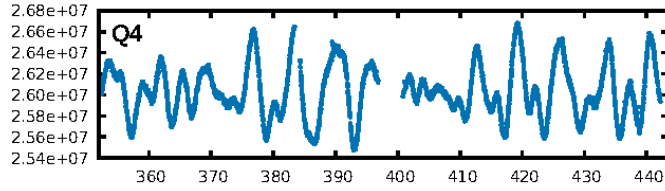
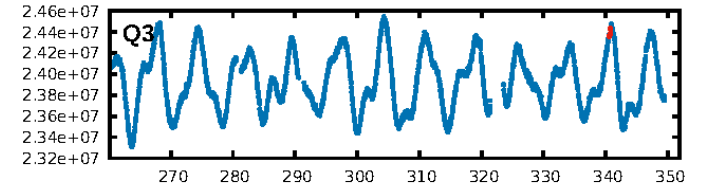
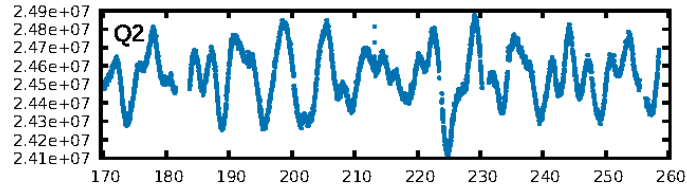
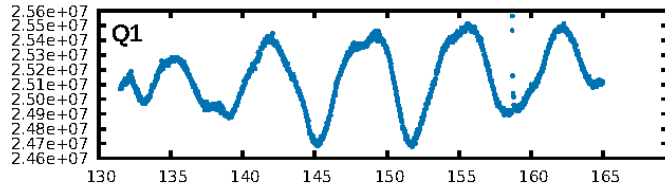
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [154.43σ]
ModelChiSquare2-sig: 49.5%
ModelChiSquareGof-sig: 94.6%
Bootstrap-pfa: 1.86e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -5.434
Centroid-sig: 1.2%
Centroid-so: 2.781 arcsec [1.86σ]
OotOffset-rm: 5.816 arcsec [2.44σ]
KicOffset-rm: 6.017 arcsec [2.51σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [4/4]

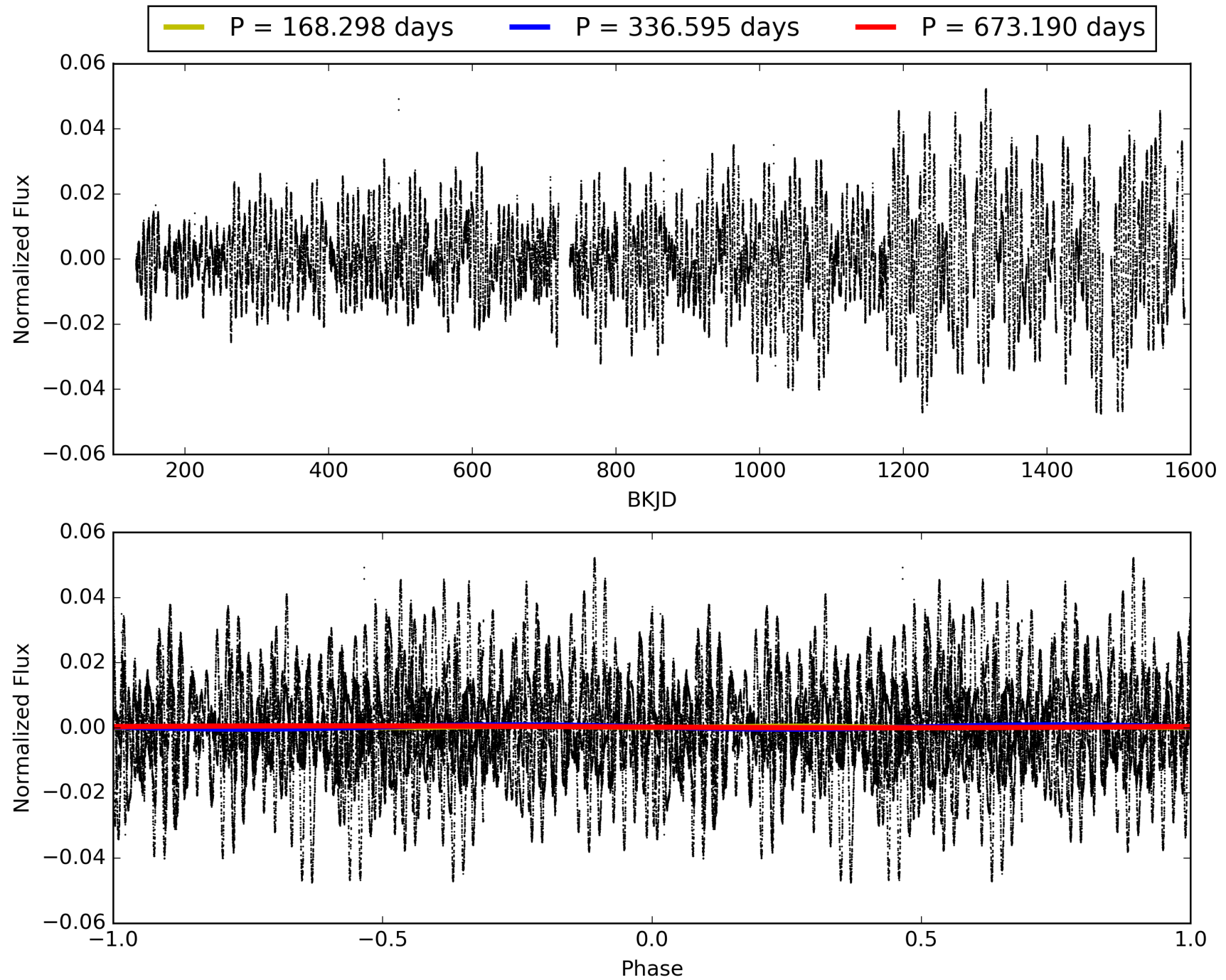
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:57:11 Z

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

TCE 009051905-01, PDC Light Curves

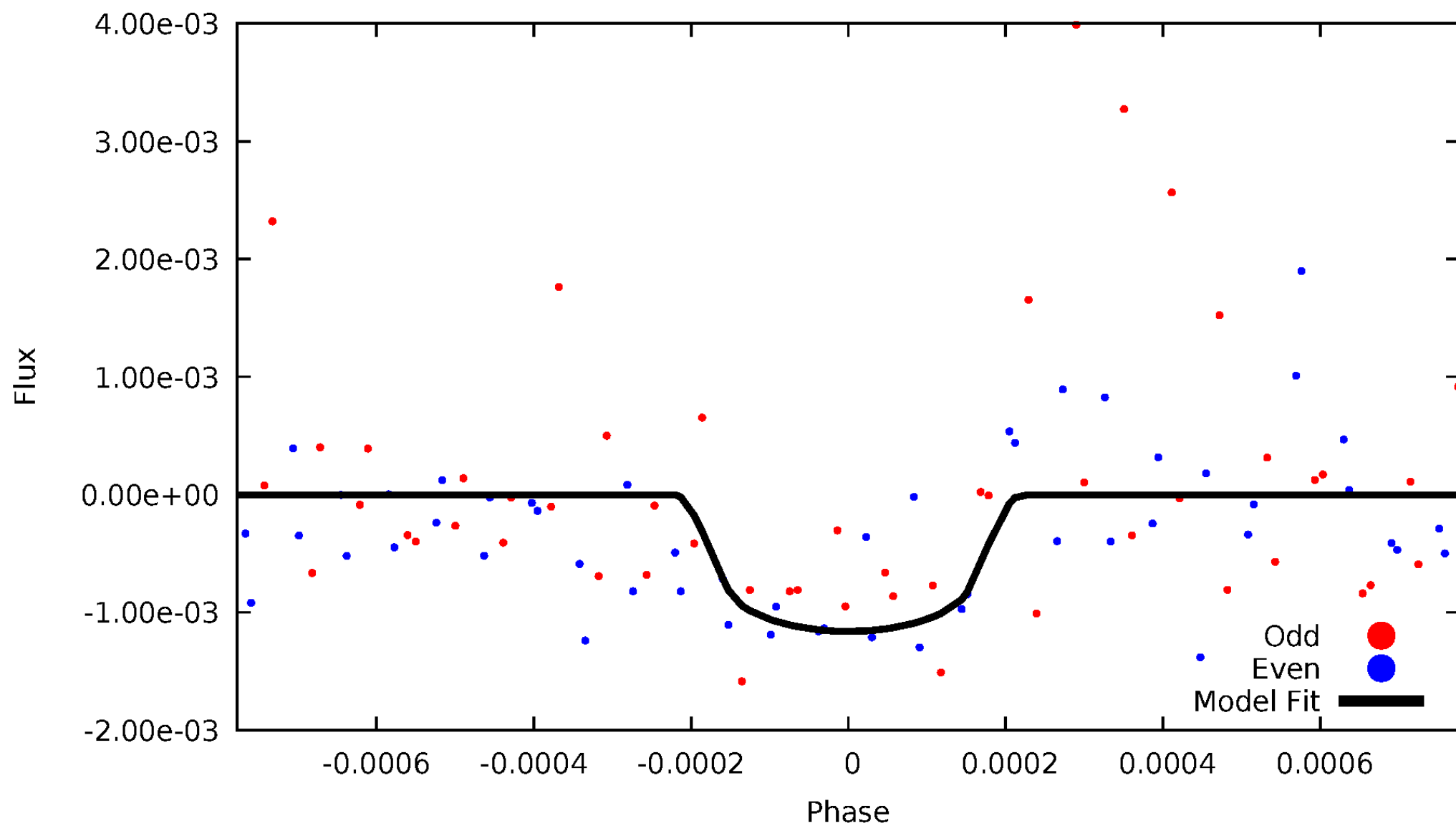


TCE 009051905-01



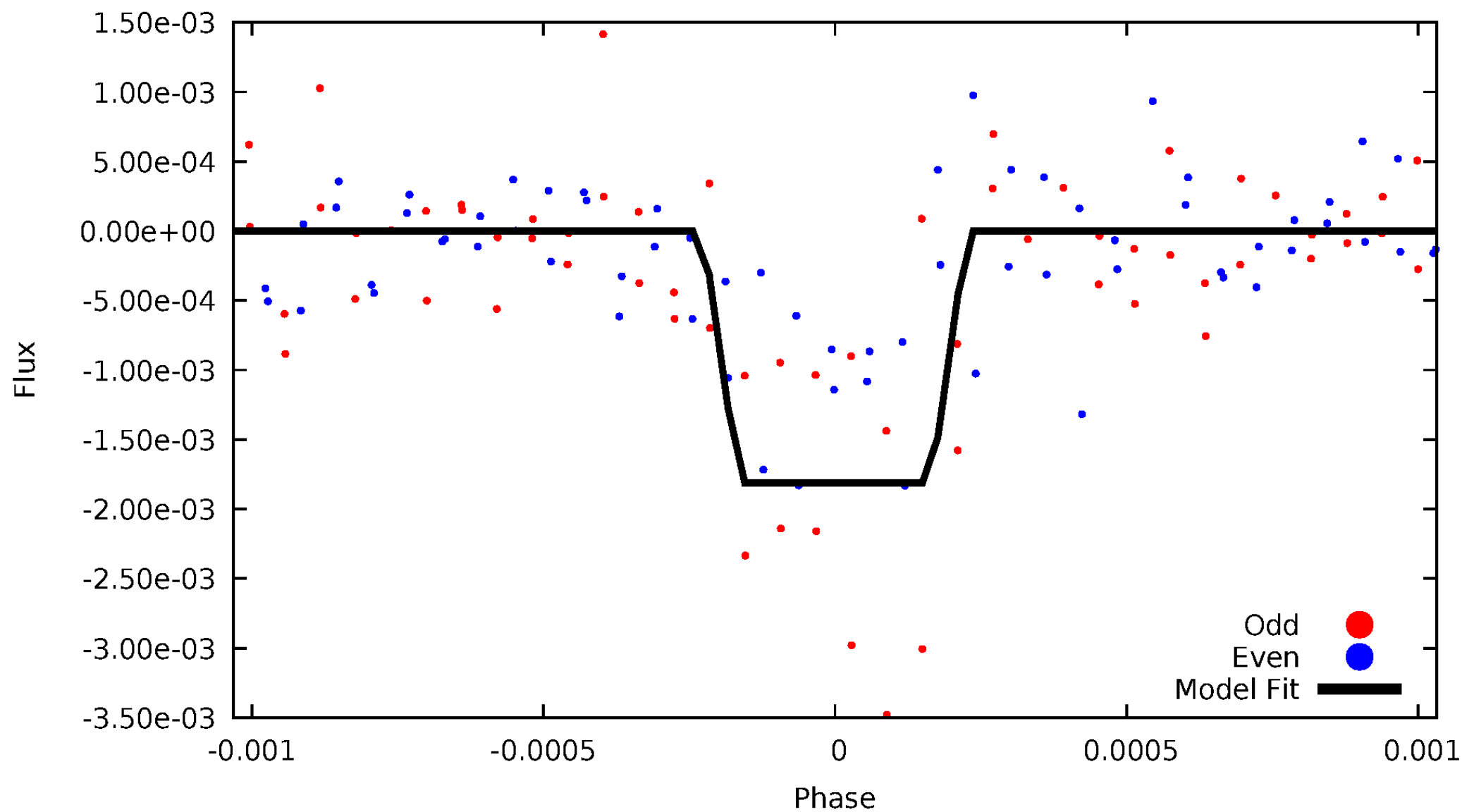
DV Odd/Even

TCE 009051905-01



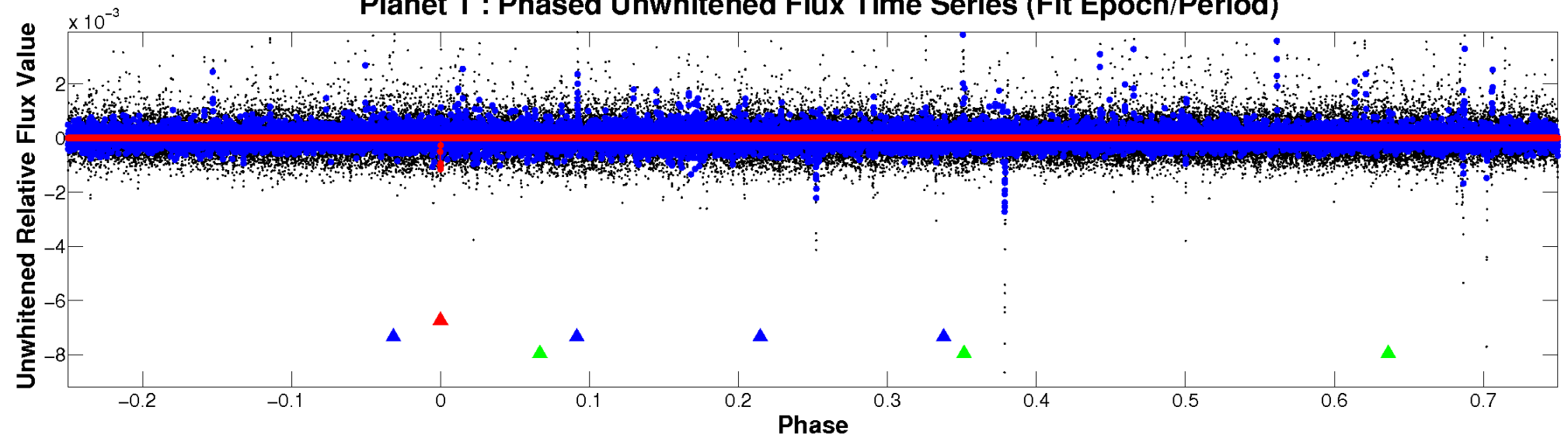
ALT Odd/Even

TCE 009051905-01

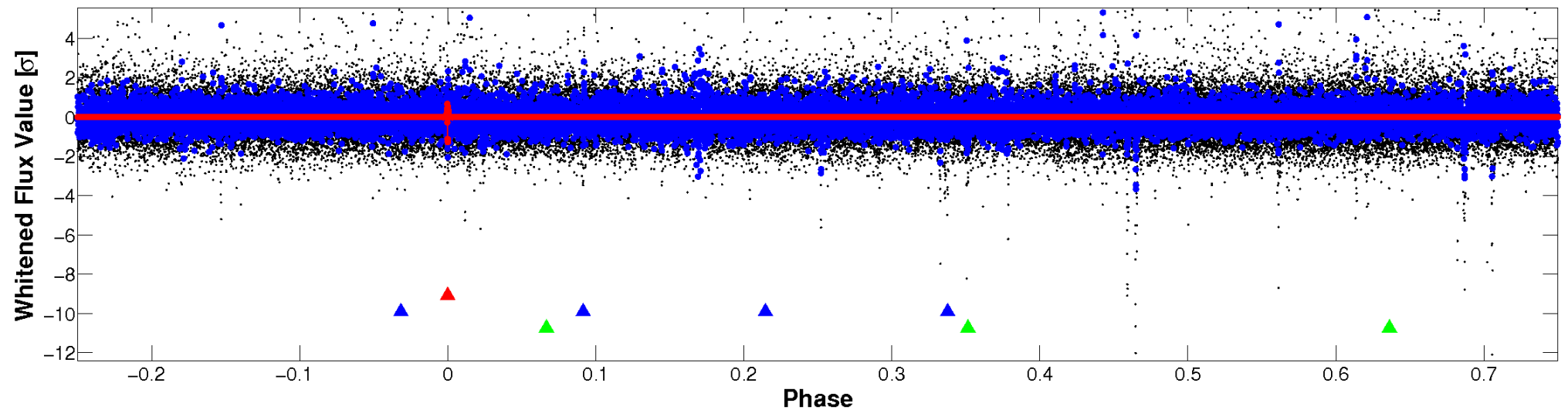


Non-Whitened Vs. Whitened Light Curve

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

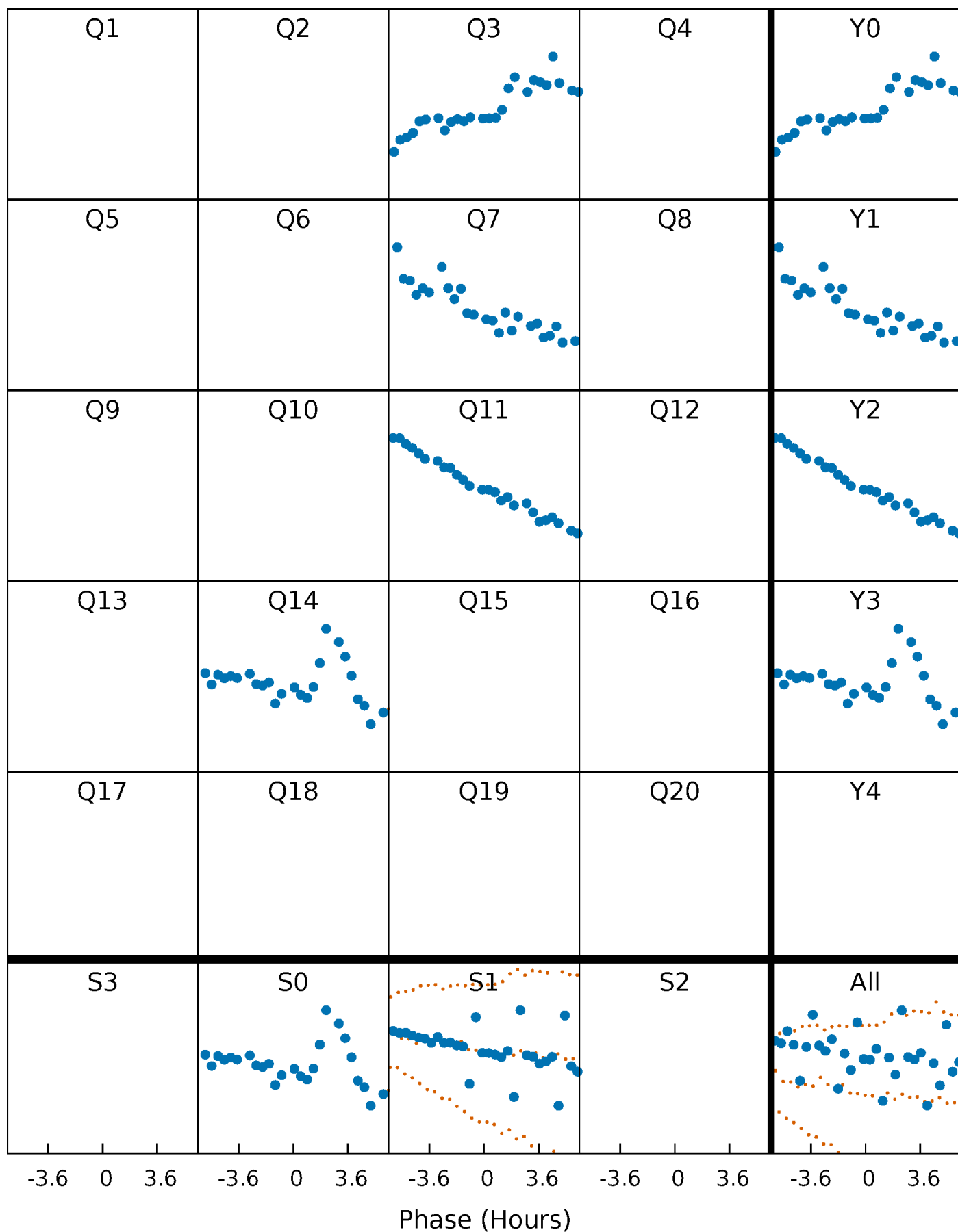


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



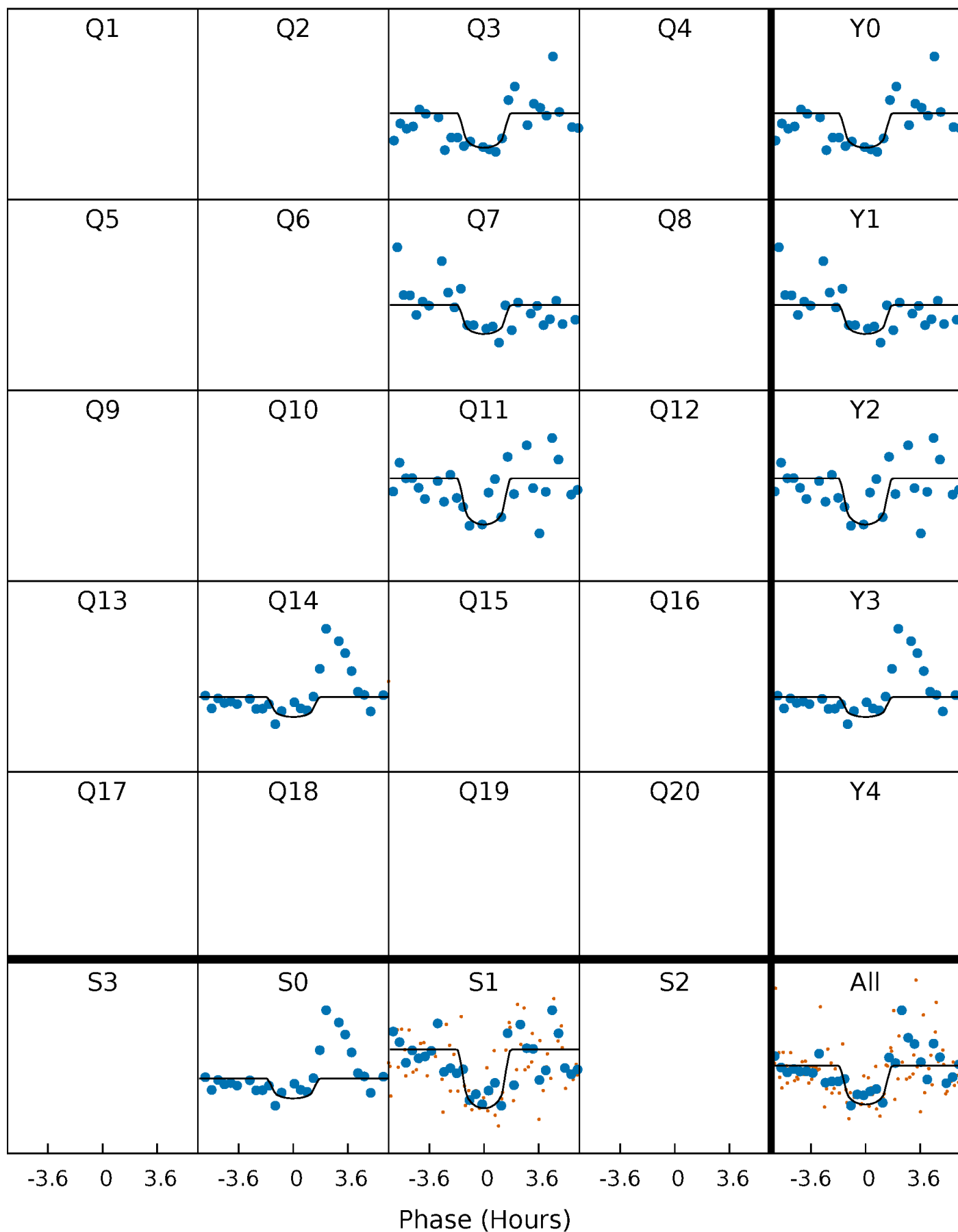
PDC Quarter-Phased Transit Curves

TCE 009051905-01 P=336.595111 Days $T_0=340.679606$ (BKJD)



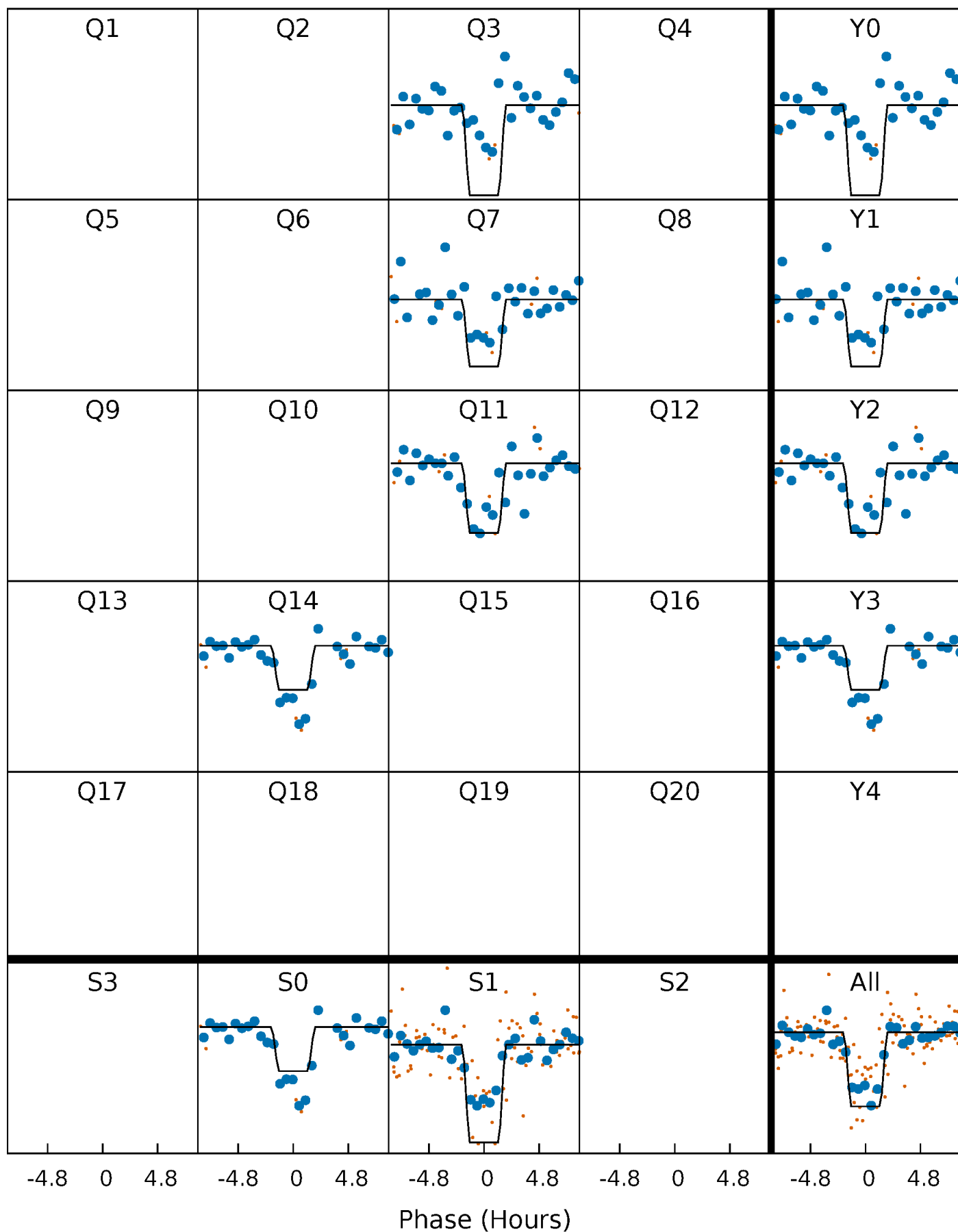
DV Quarter-Phased Transit Curves

TCE 009051905-01 P=336.595111 Days $T_0=340.679606$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

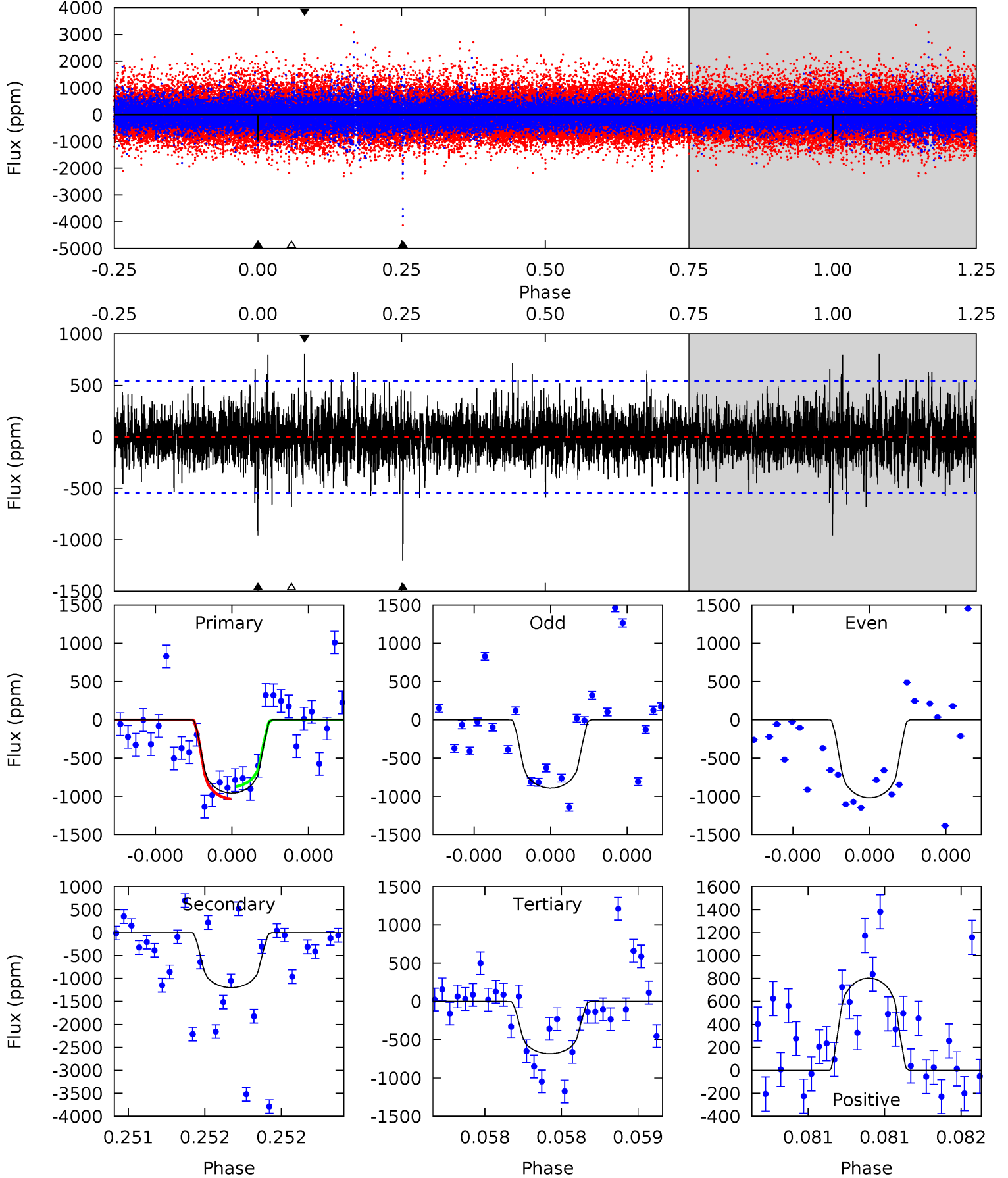
TCE 009051905-01 P=336.593180 Days $T_0=340.691565$ (BKJD)



DV Model-Shift Uniqueness Test

009051905-01, P = 336.595111 Days, E = 4.084495 Days

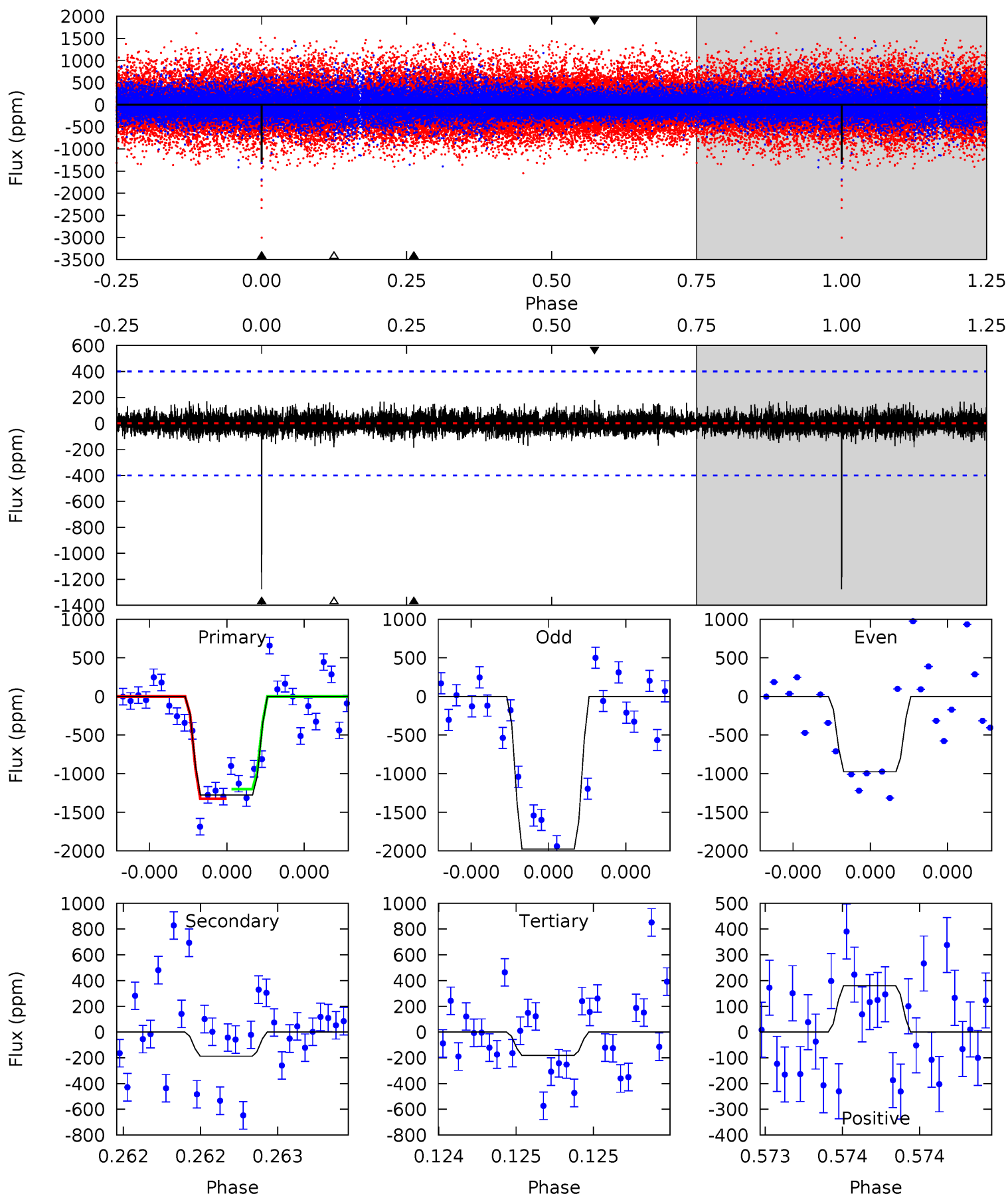
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.88	12.4	7.05	8.28	5.60	3.52	1.58	2.83	1.59	5.32	4.09	0.61	1.07	0.40	0.83



Alt Model-Shift Uniqueness Test

009051905-01, P = 336.593180 Days, E = 4.098385 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	2.62	2.53	2.51	5.59	3.51	0.59	15.3	15.3	0.08	0.10	7.58	1.23	0.12	0.83



Stellar Parameters For KIC 009051905

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4342^{+117}_{-143}	$4.699^{+0.063}_{-0.032}$	$-0.800^{+0.300}_{-0.300}$	$0.540^{+0.044}_{-0.049}$	$0.531^{+0.047}_{-0.038}$	$4.759^{+1.296}_{-0.656}$
	+3%/-3%	+1%/-1%	+37%/-37%	+8%/-9%	+9%/-7%	+27%/-14%
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 009051905-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1200 ± 97	$2.29^{+1.86}_{-1.40}$	223^{+8}_{-8}	4138^{+2036}_{-752}	$74794^{+430548}_{-52383}$
Alt.	-187 ± 72	$2.77^{+1.81}_{-1.52}$	222^{+8}_{-8}	2851^{+828}_{-341}	7184^{+29821}_{-4647}

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 $A_{obs} \gg 1.0$

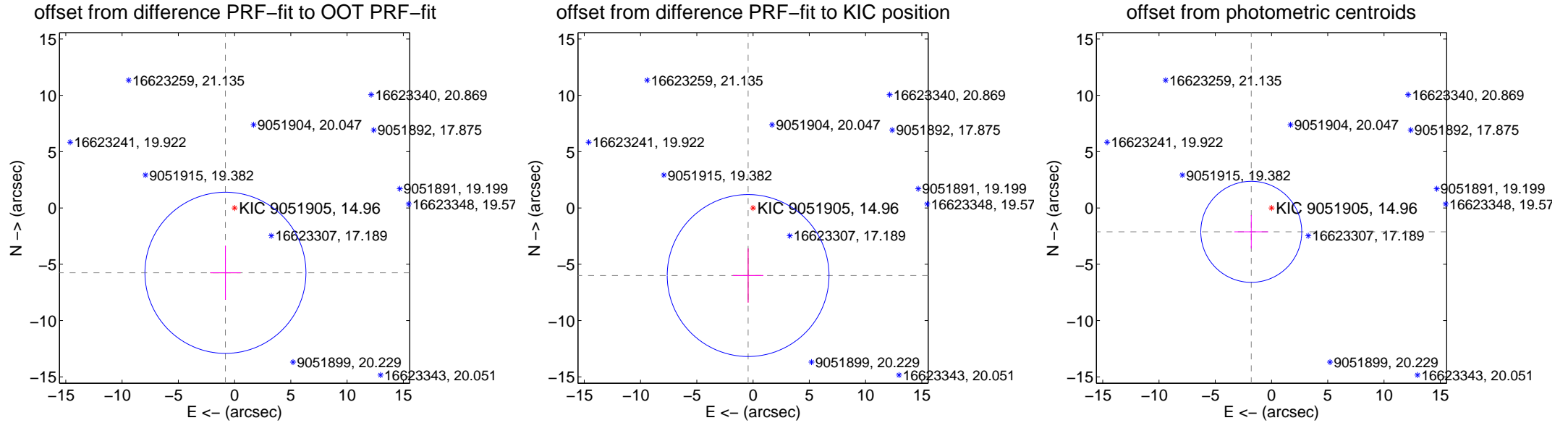
DV Centroid Data

Supplemental centroid analysis for 009051905-01. Kepler magnitude: 14.96. Transit SNR 6.09

There are 0 quarters with good PRF difference image offsets

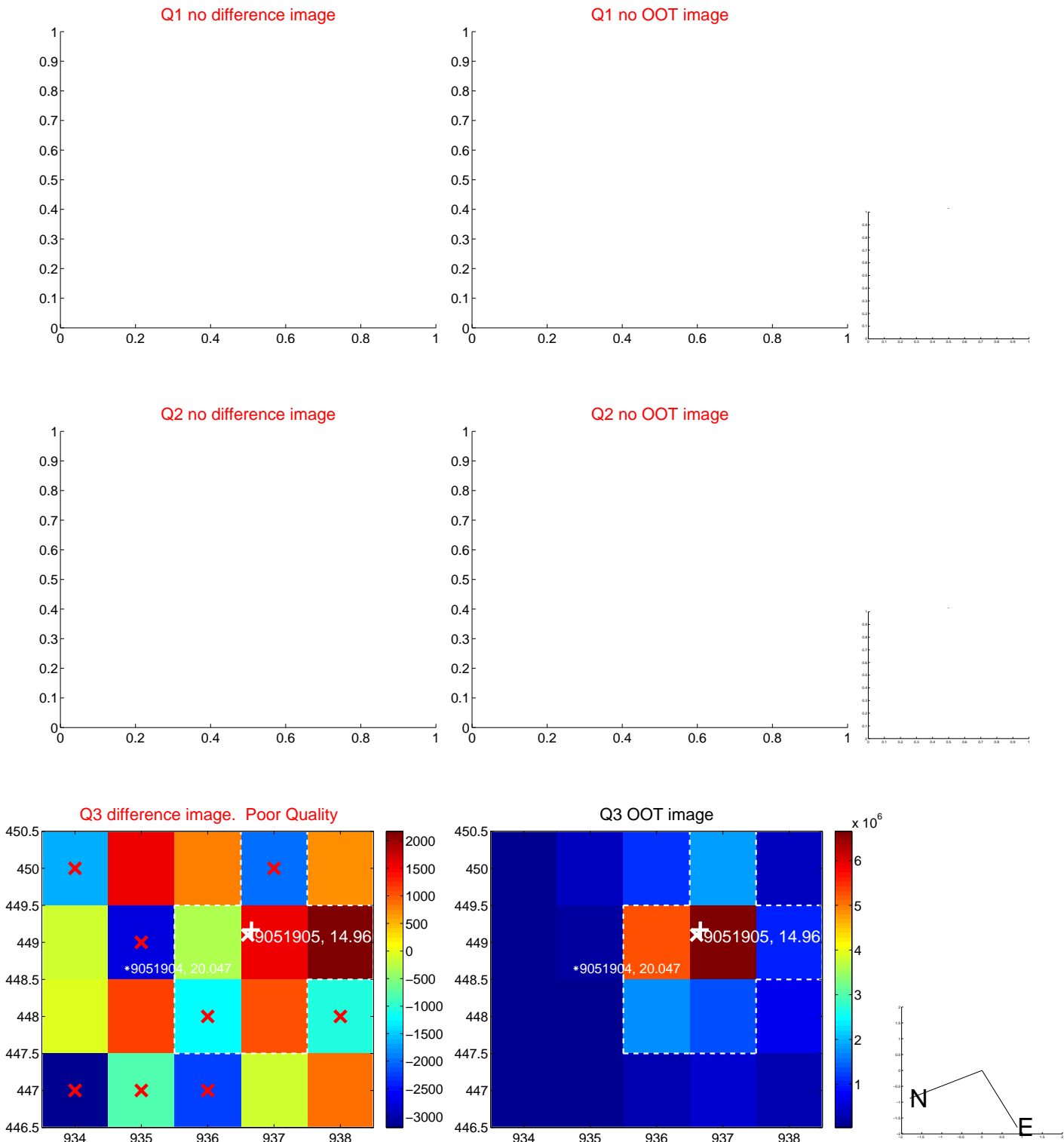
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.816 ± 2.385	2.44	0.812 ± 1.353	-5.759 ± 2.401
PRF-fit source offset from KIC position	6.017 ± 2.397	2.51	0.438 ± 1.353	-6.001 ± 2.401
photometric centroid source offset	2.78 ± 1.50	1.86	1.80 ± 1.51	-2.12 ± 1.48

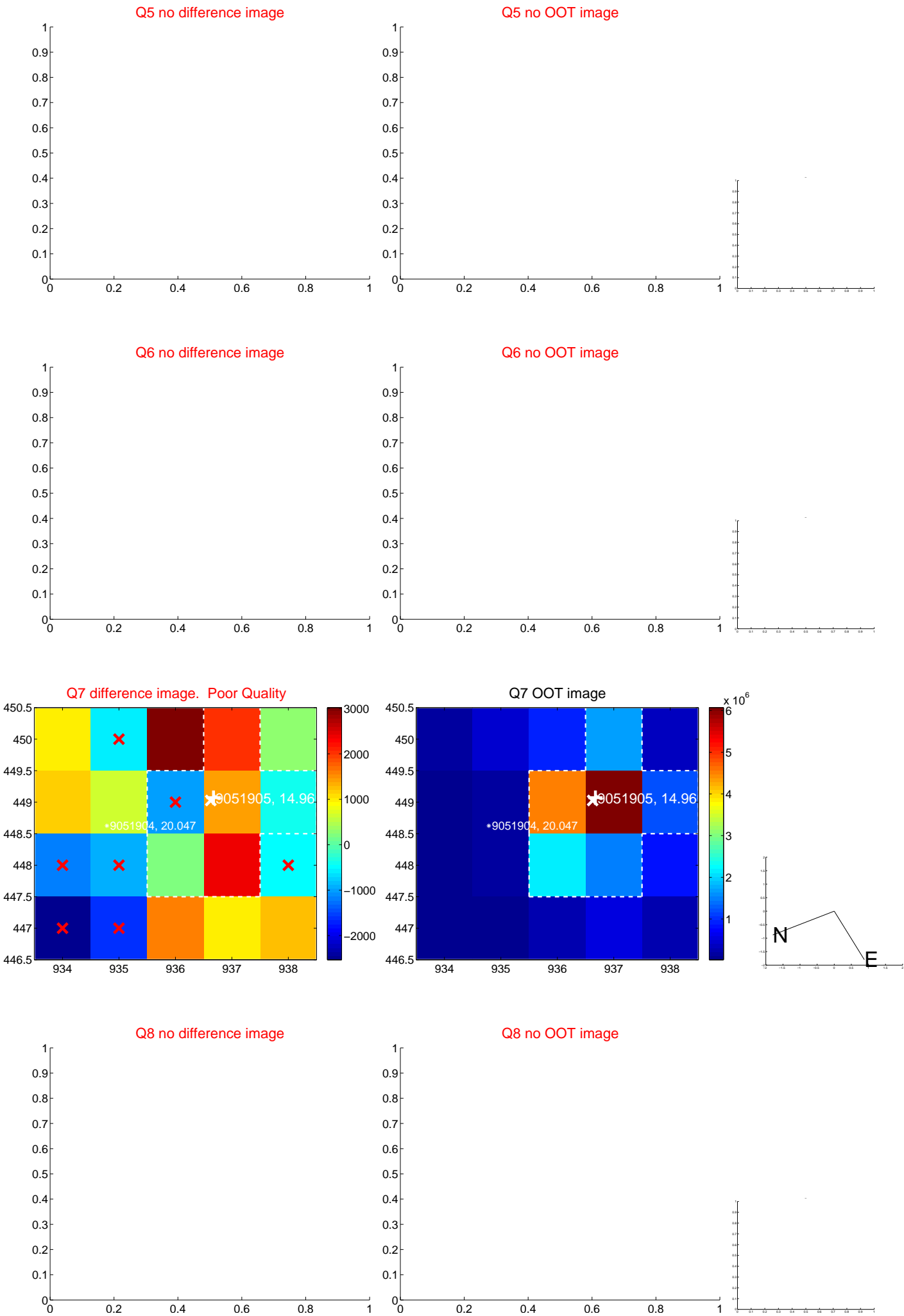


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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

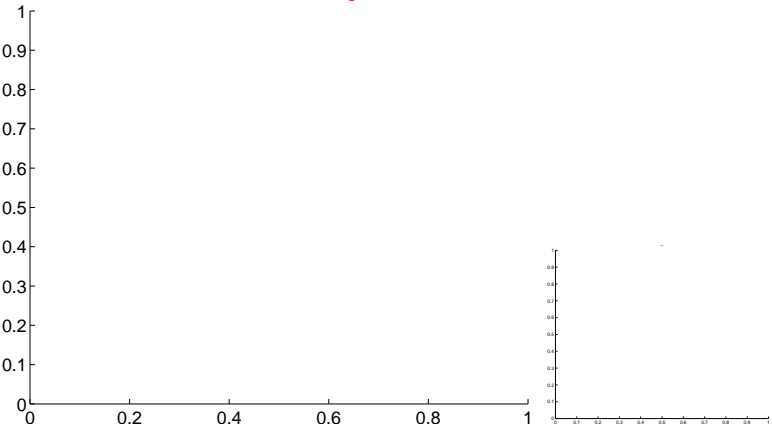


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Q9 no difference image



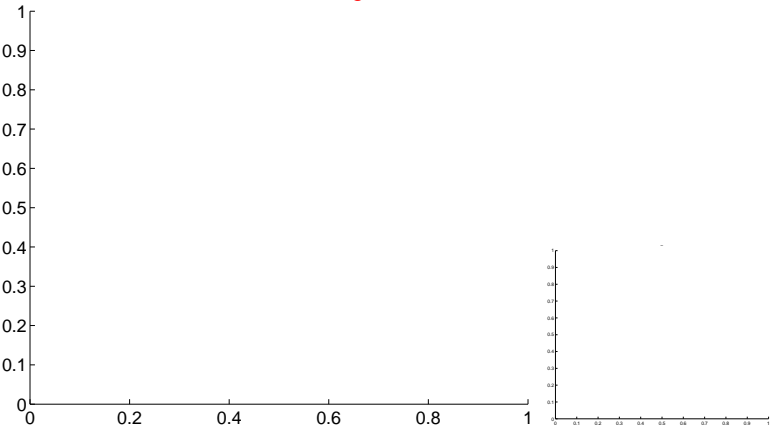
Q9 no OOT image



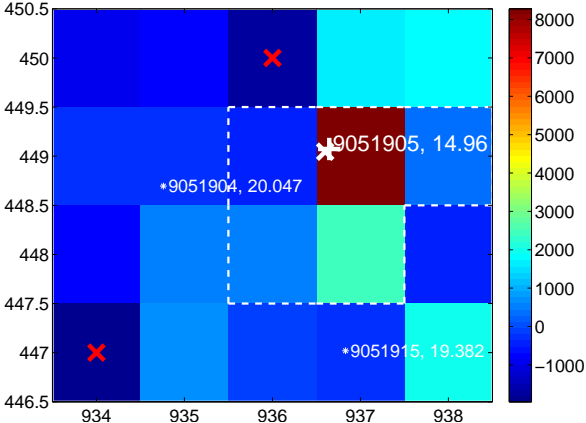
Q10 no difference image



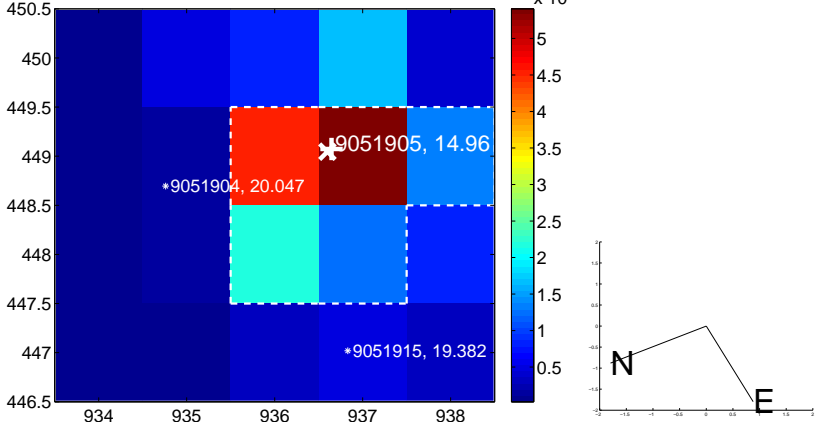
Q10 no OOT image



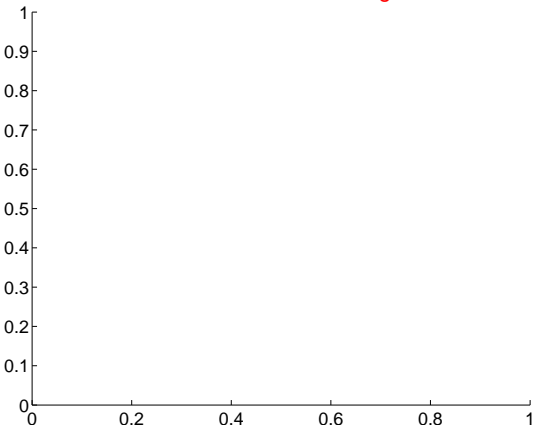
Q11 difference image. Poor Quality



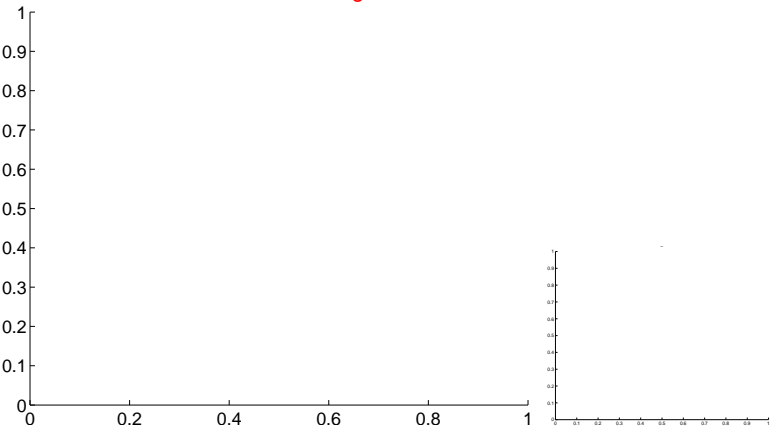
Q11 OOT image



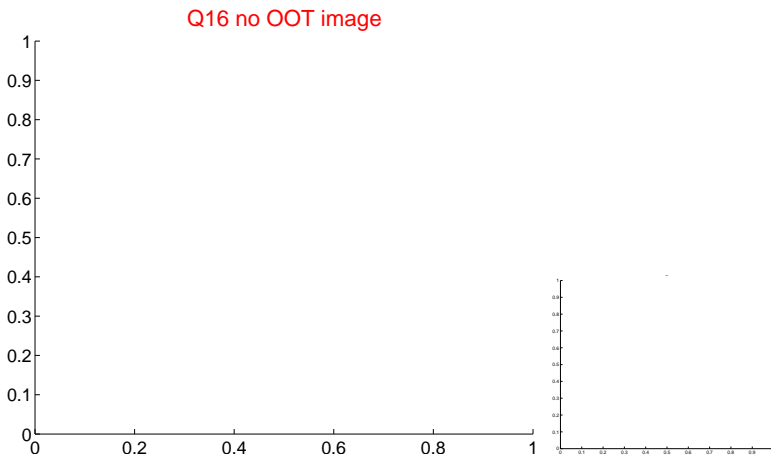
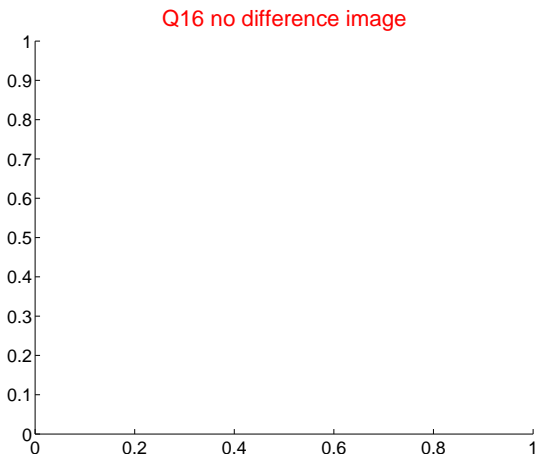
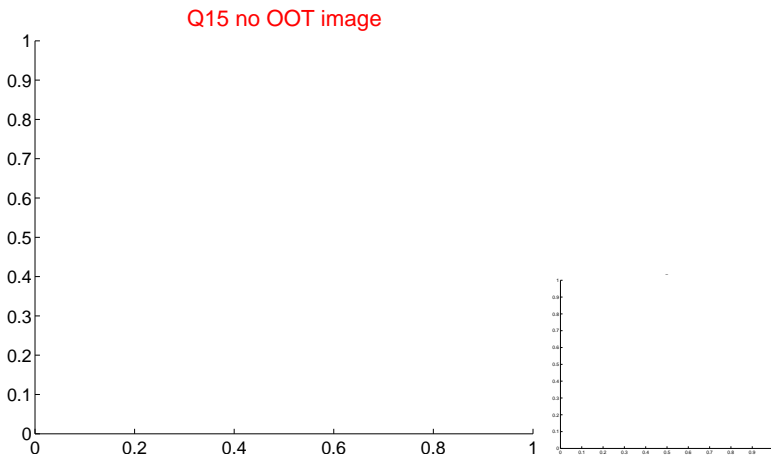
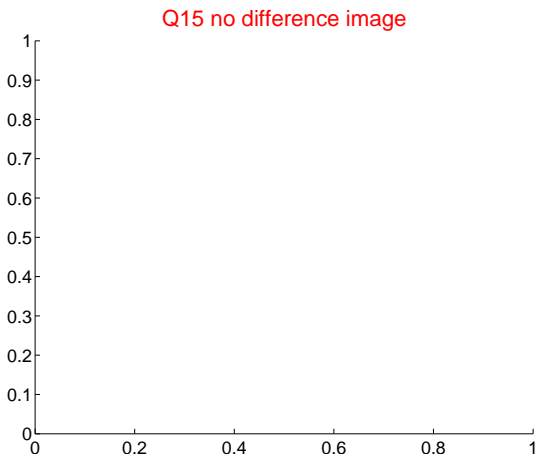
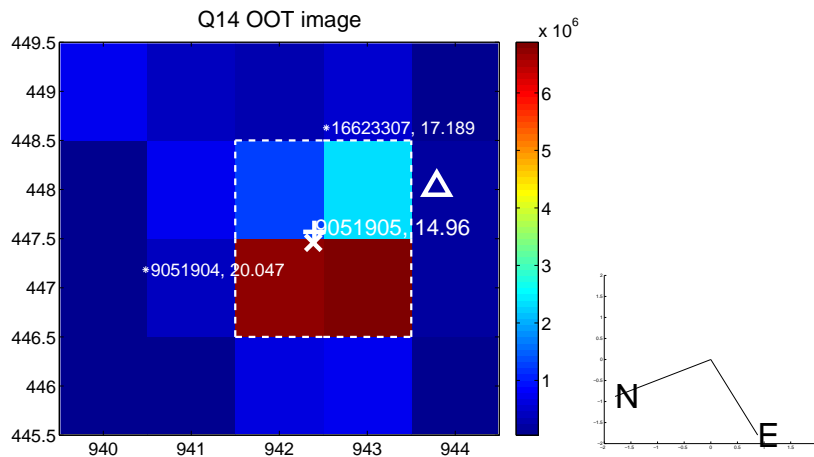
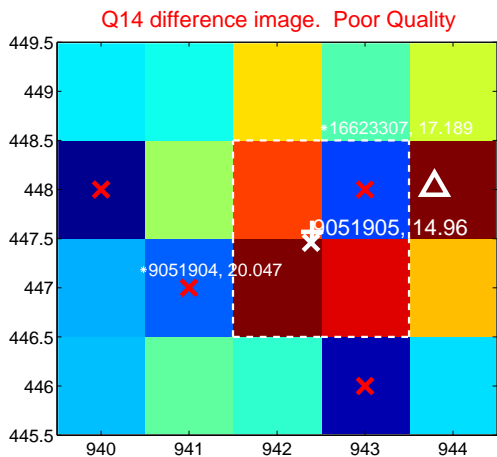
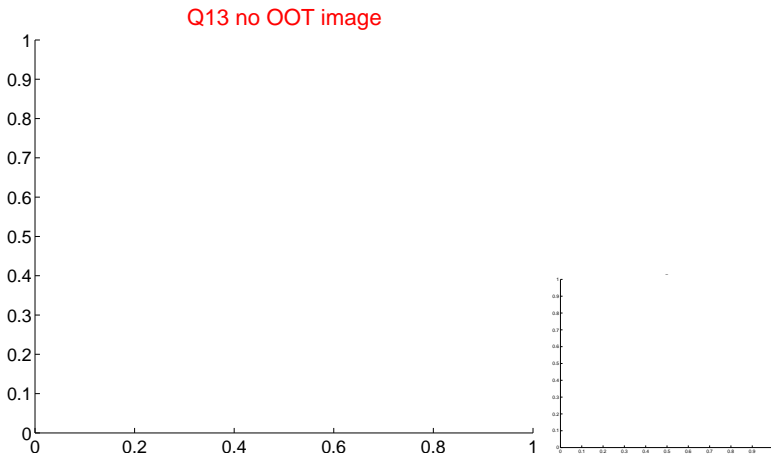
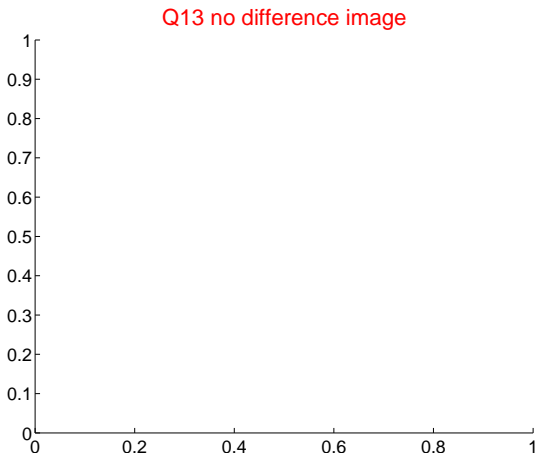
Q12 no difference image



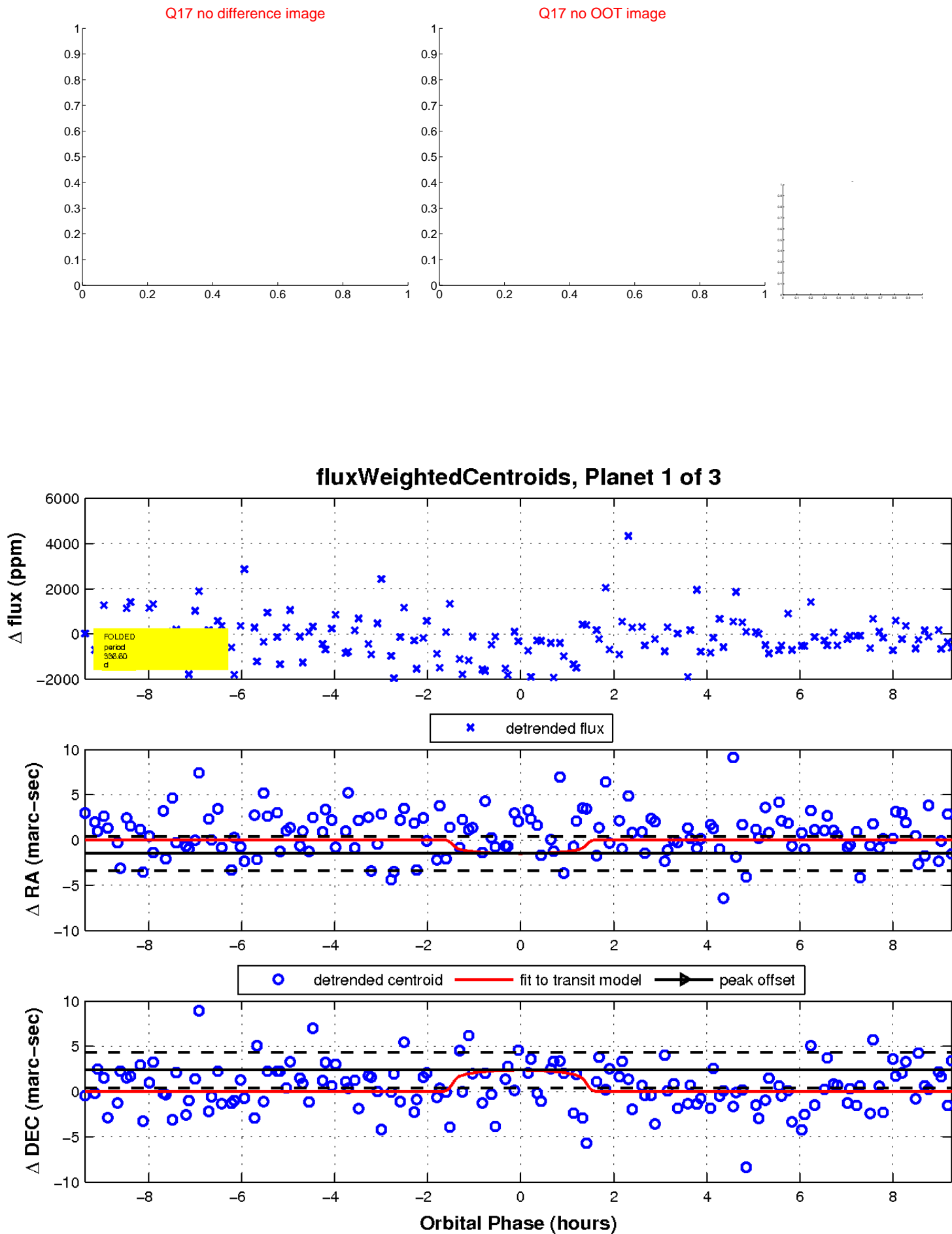
Q12 no OOT image



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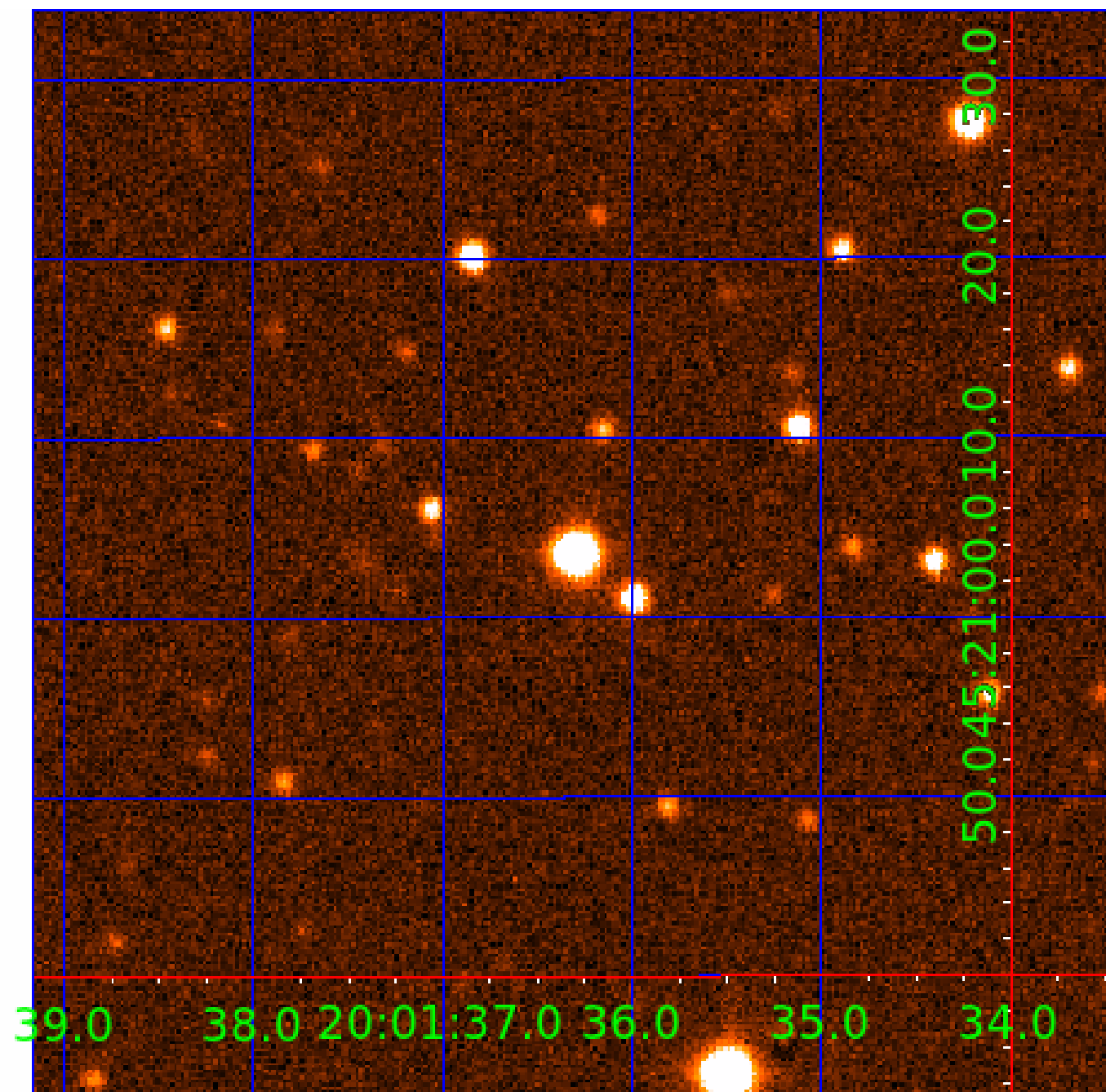


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UKIRT Image

Declination



KIC 009051905

Q1-17 DR25 TCE Parameters

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

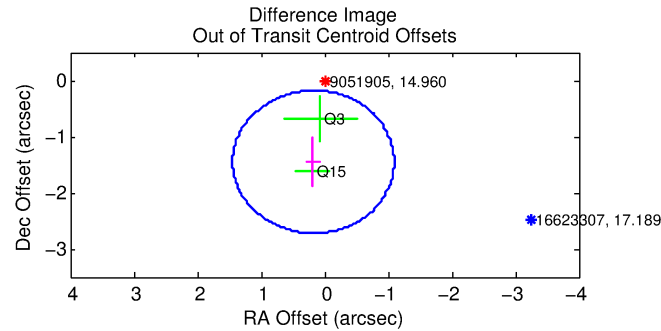
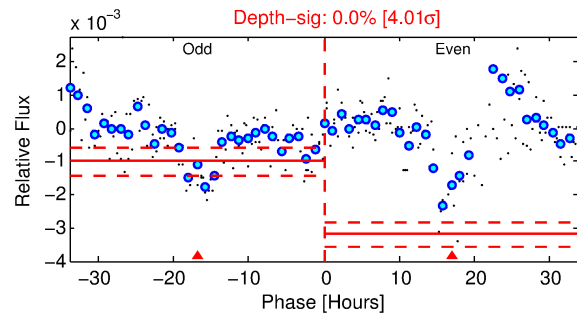
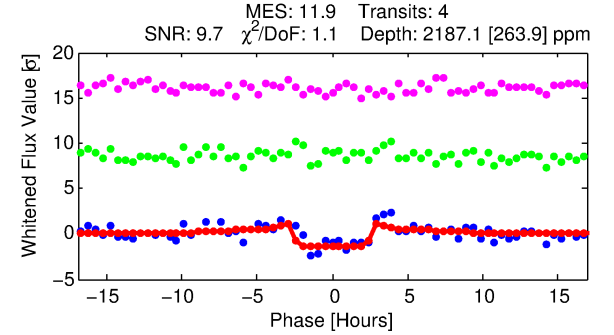
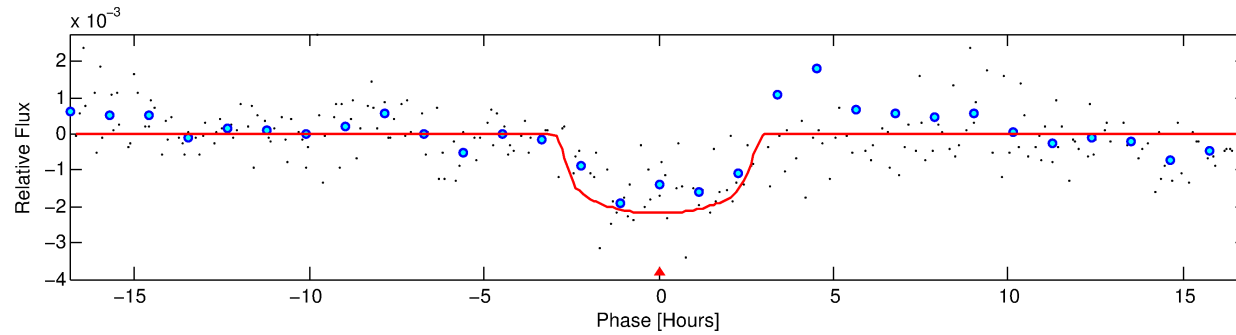
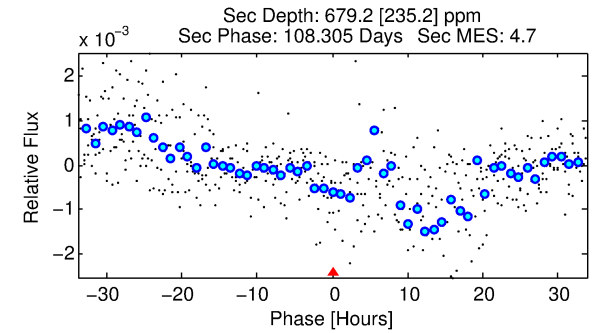
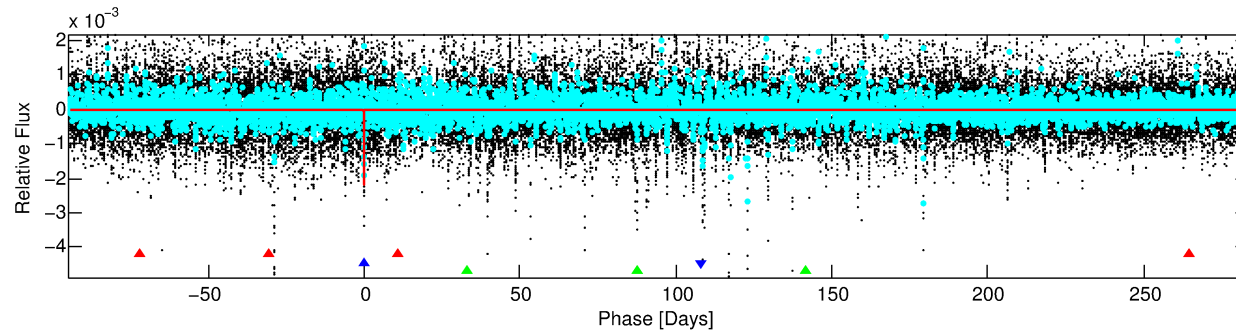
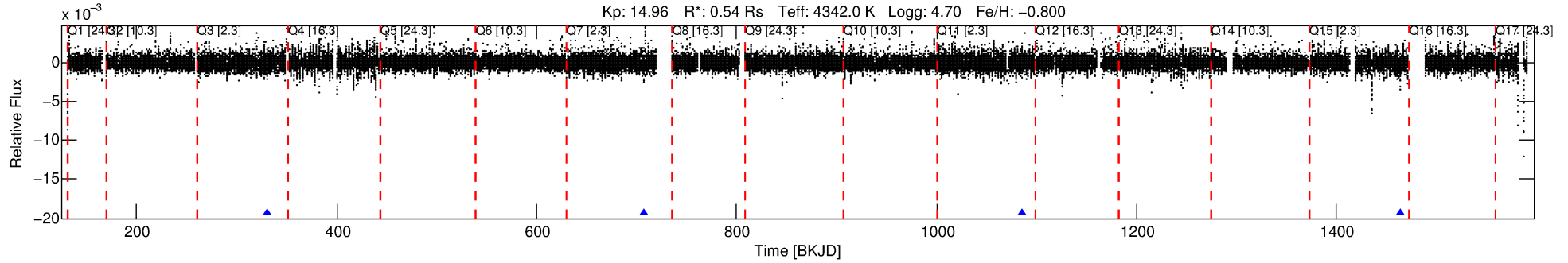
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009051905-02

No Significant Match Found

DV One-Page Summary

KIC: 9051905 Candidate: 2 of 3 Period: 378.038 d



DV Fit Results:

Period = 378.03822 [0.00336] d
Epoch = 330.0439 [0.0067] BKJD
Rp/R* = 0.0418 [0.0290]
a/R* = 534.91 [1329.73]
b = 0.00 [2282.22]
Seff = 0.14 [0.02]
Teq = 155 [7] K
Rp = 2.46 [1.72] Re
a = 0.8292 [0.0642] AU
Ag = 42305.22 [60605.08] [0.70σ]
Teffp = 3428 [1229] K [2.66σ]

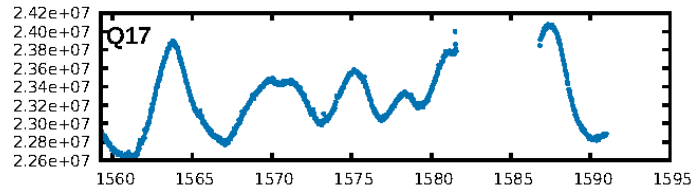
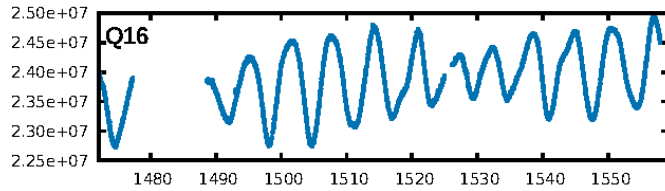
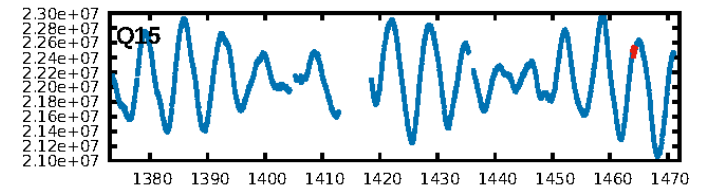
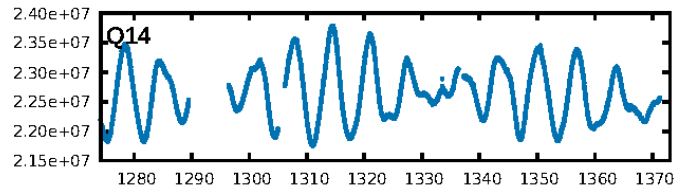
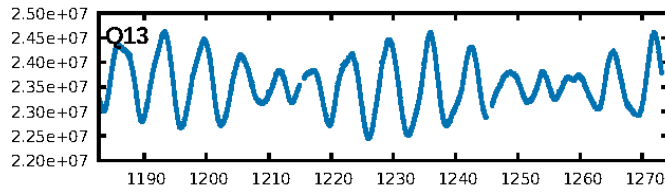
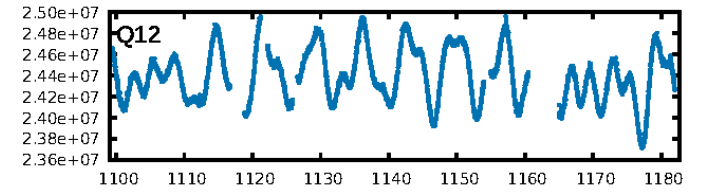
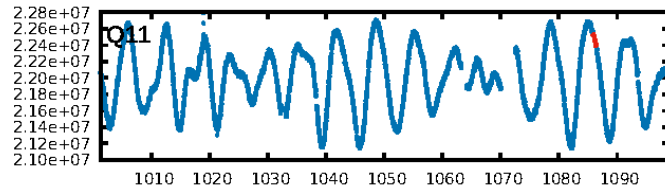
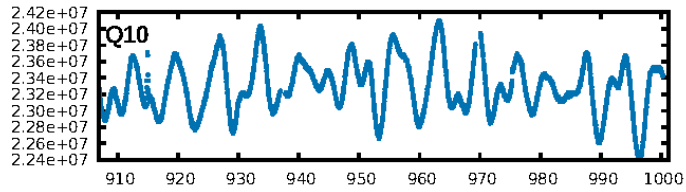
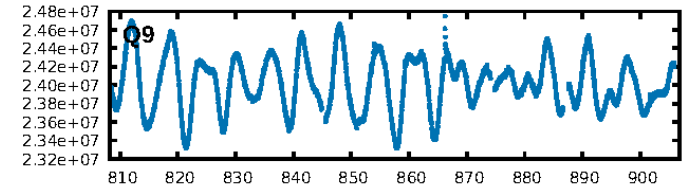
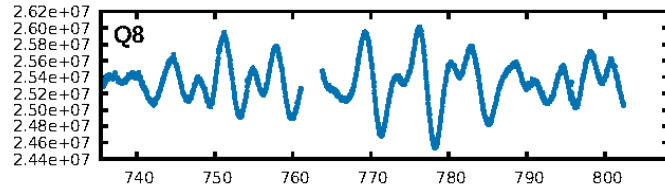
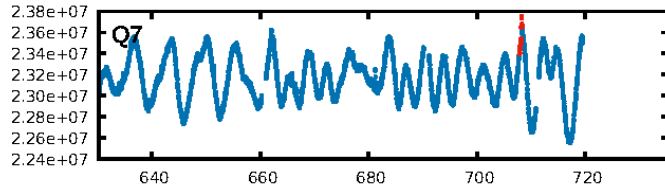
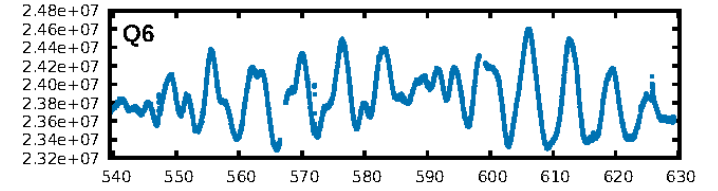
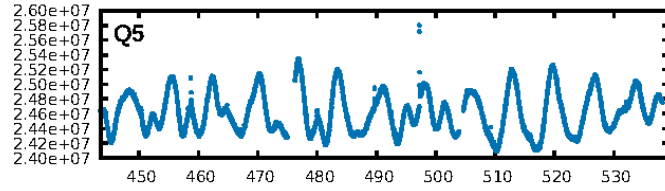
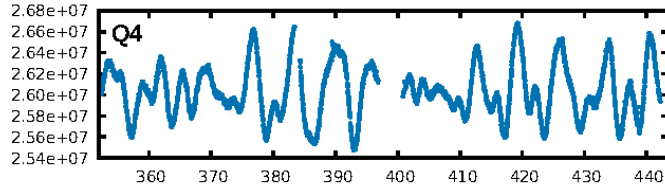
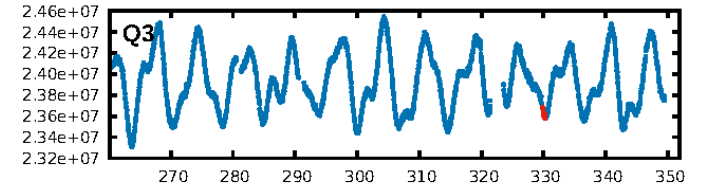
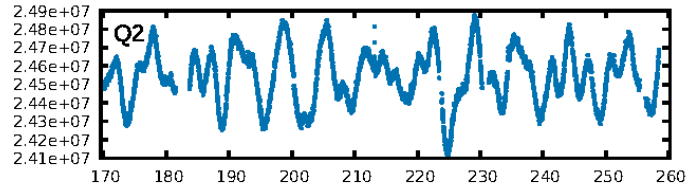
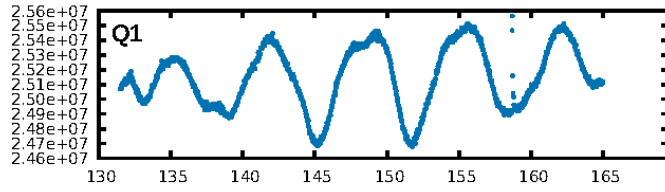
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [154.43σ]
LongPeriod-sig: 100.0% [183.96σ]
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 67.9%
Bootstrap-pfa: 7.63e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.2141
Centroid-sig: 0.0%
Centroid-so: 1.791 arcsec [2.83σ]
OotOffset-rm: 1.462 arcsec [3.45σ]
KicOffset-rm: 1.752 arcsec [4.21σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [4/4]

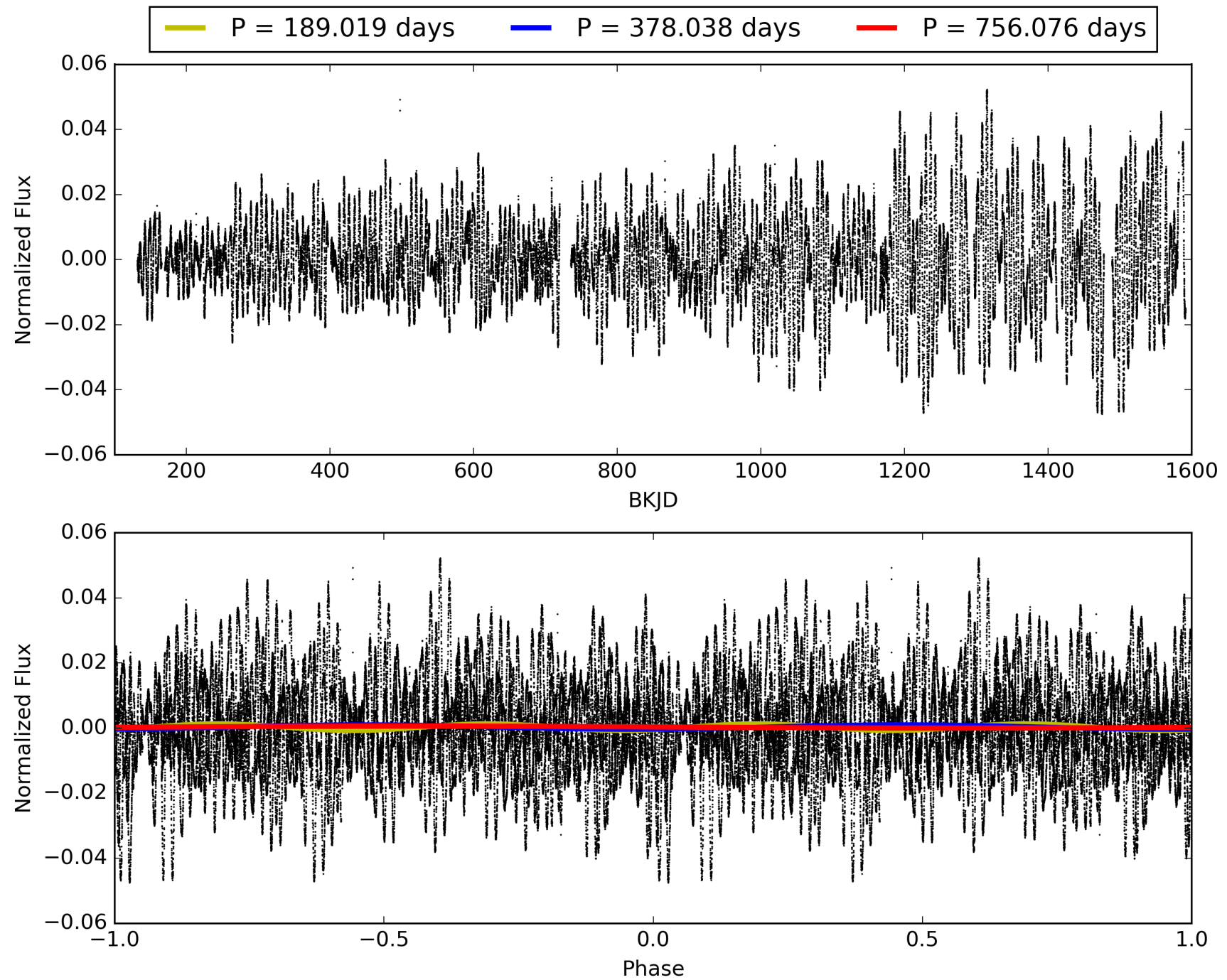
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:57:24 Z

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

TCE 009051905-02, PDC Light Curves

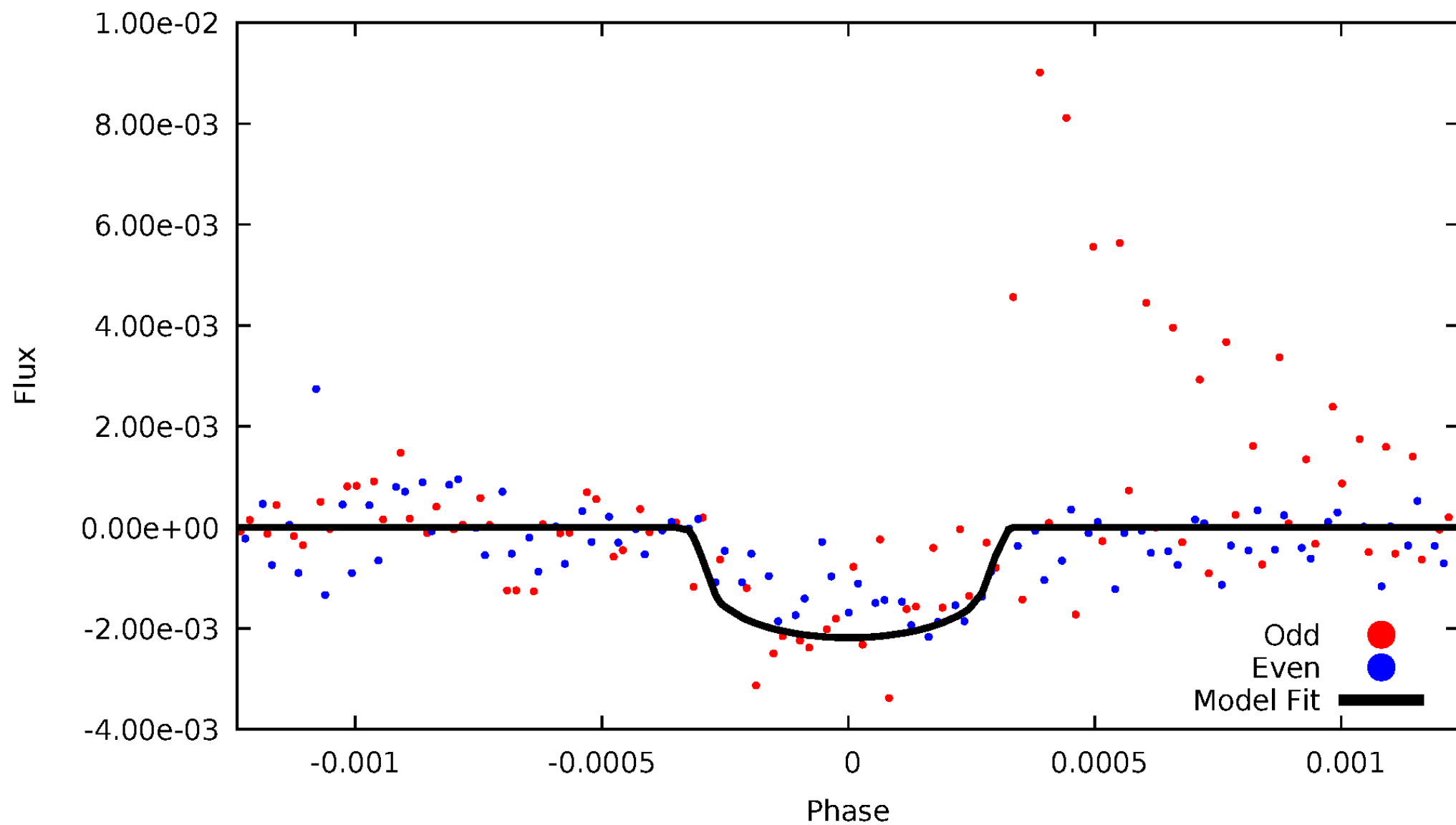


TCE 009051905-02



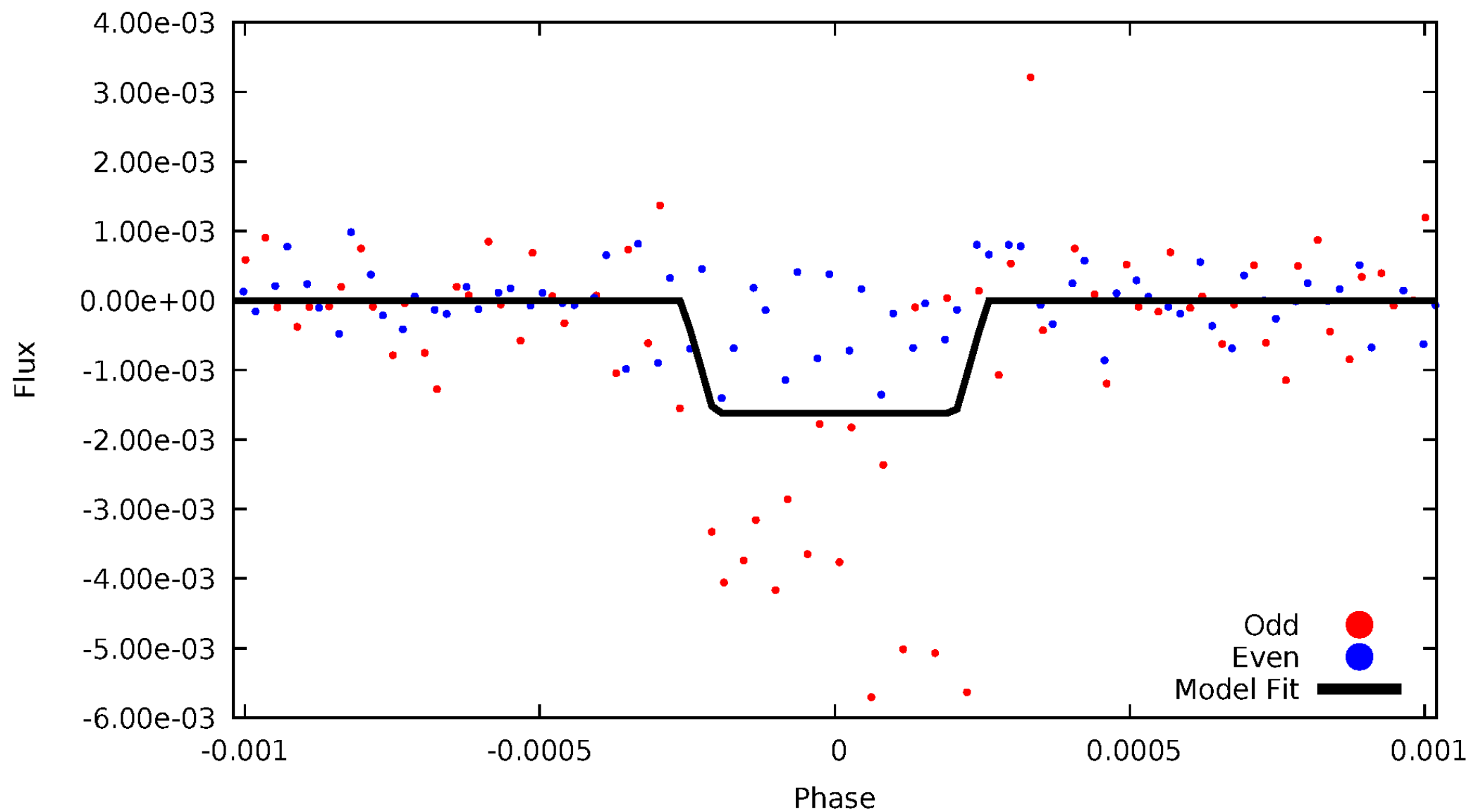
DV Odd/Even

TCE 009051905-02



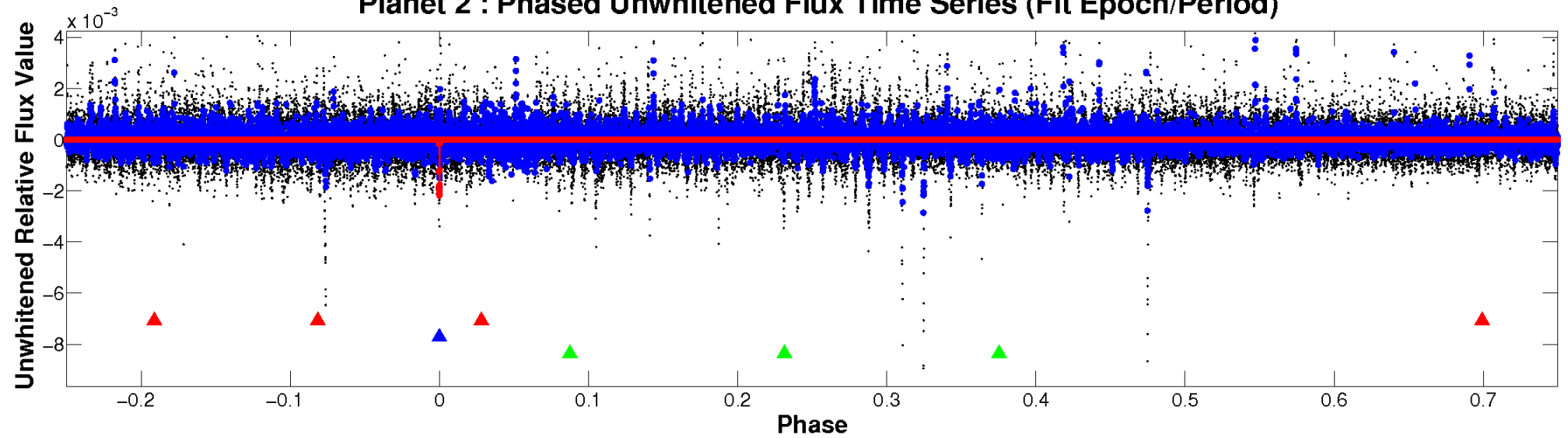
ALT Odd/Even

TCE 009051905-02

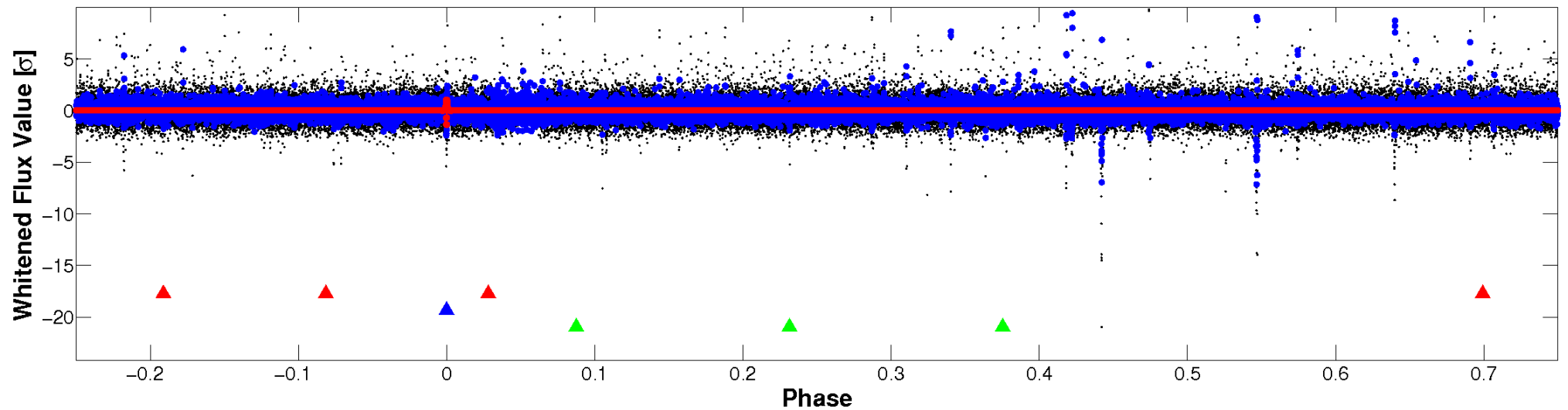


Non-Whitened Vs. Whitened Light Curve

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

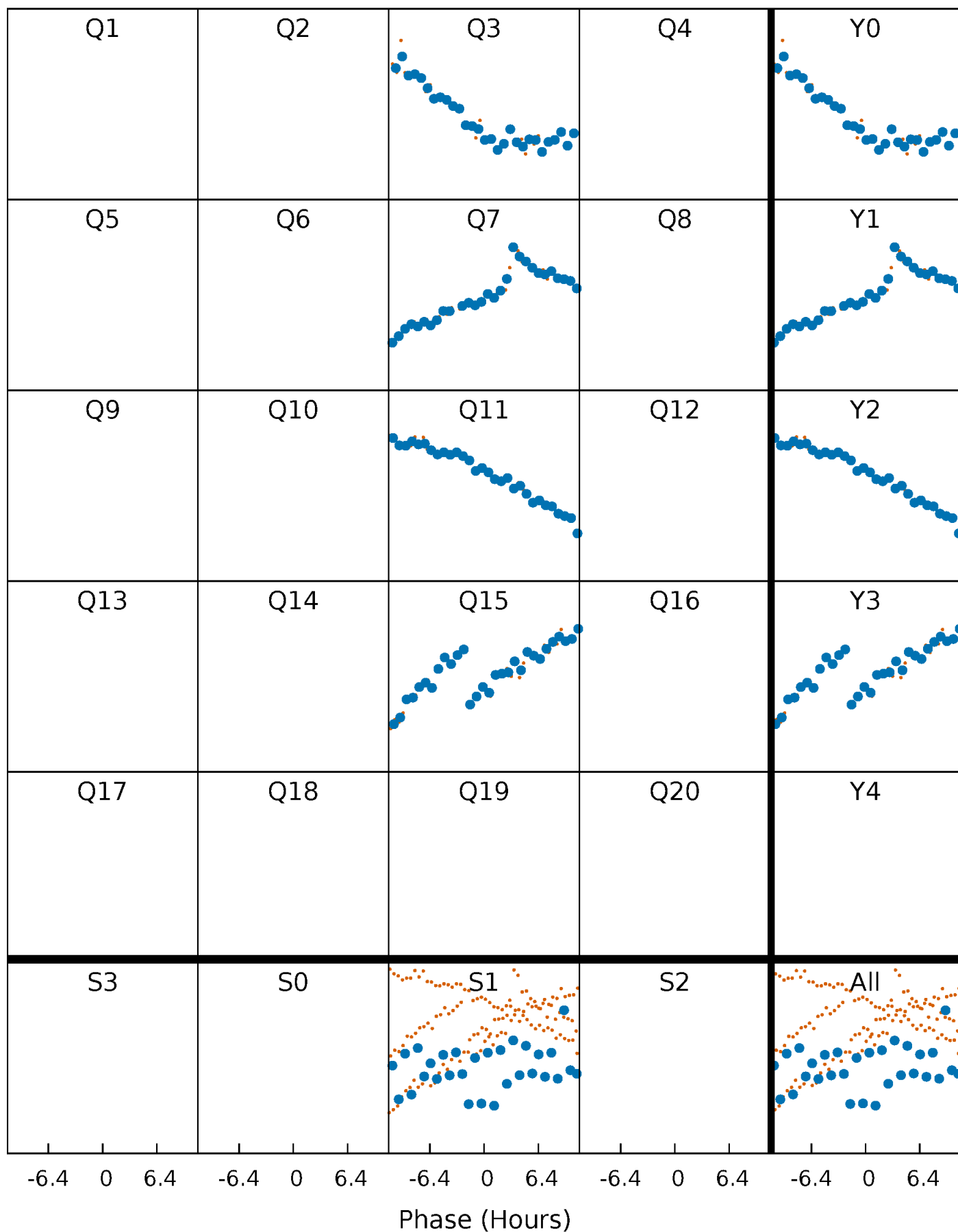


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



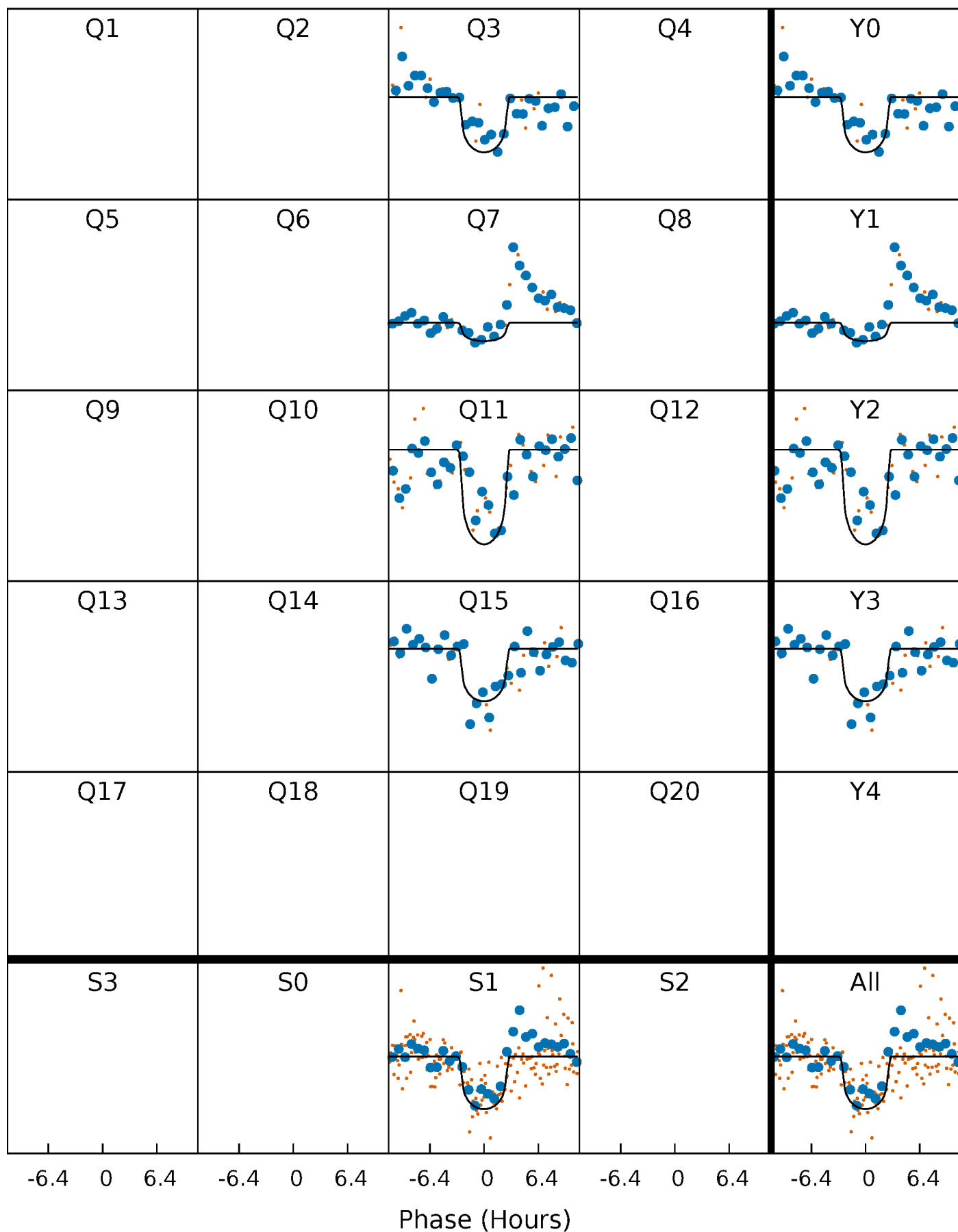
PDC Quarter-Phased Transit Curves

TCE 009051905-02 $P=378.038224$ Days $T_0=330.043884$ (BKJD)



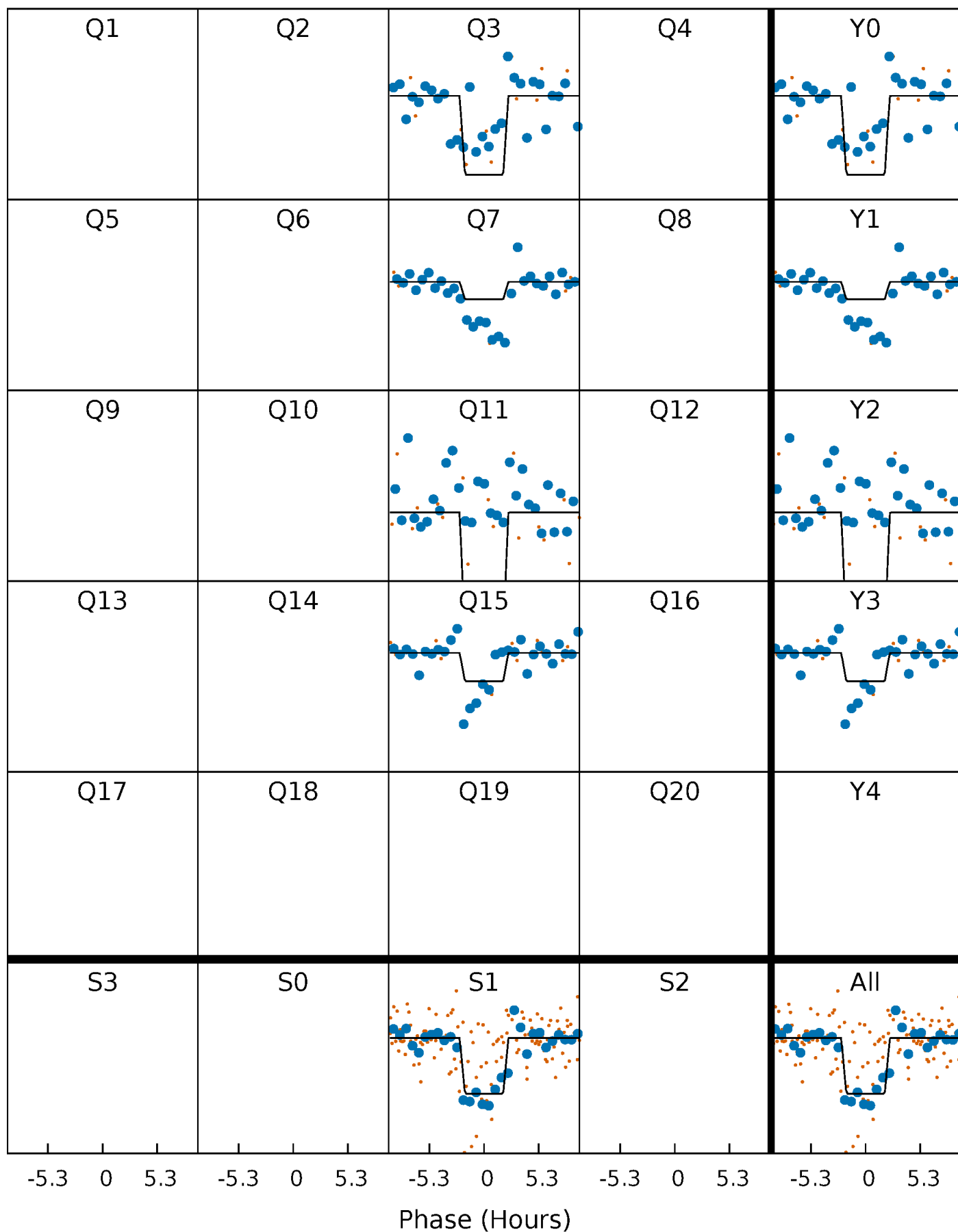
DV Quarter-Phased Transit Curves

TCE 009051905-02 $P=378.038224$ Days $T_0=330.043884$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

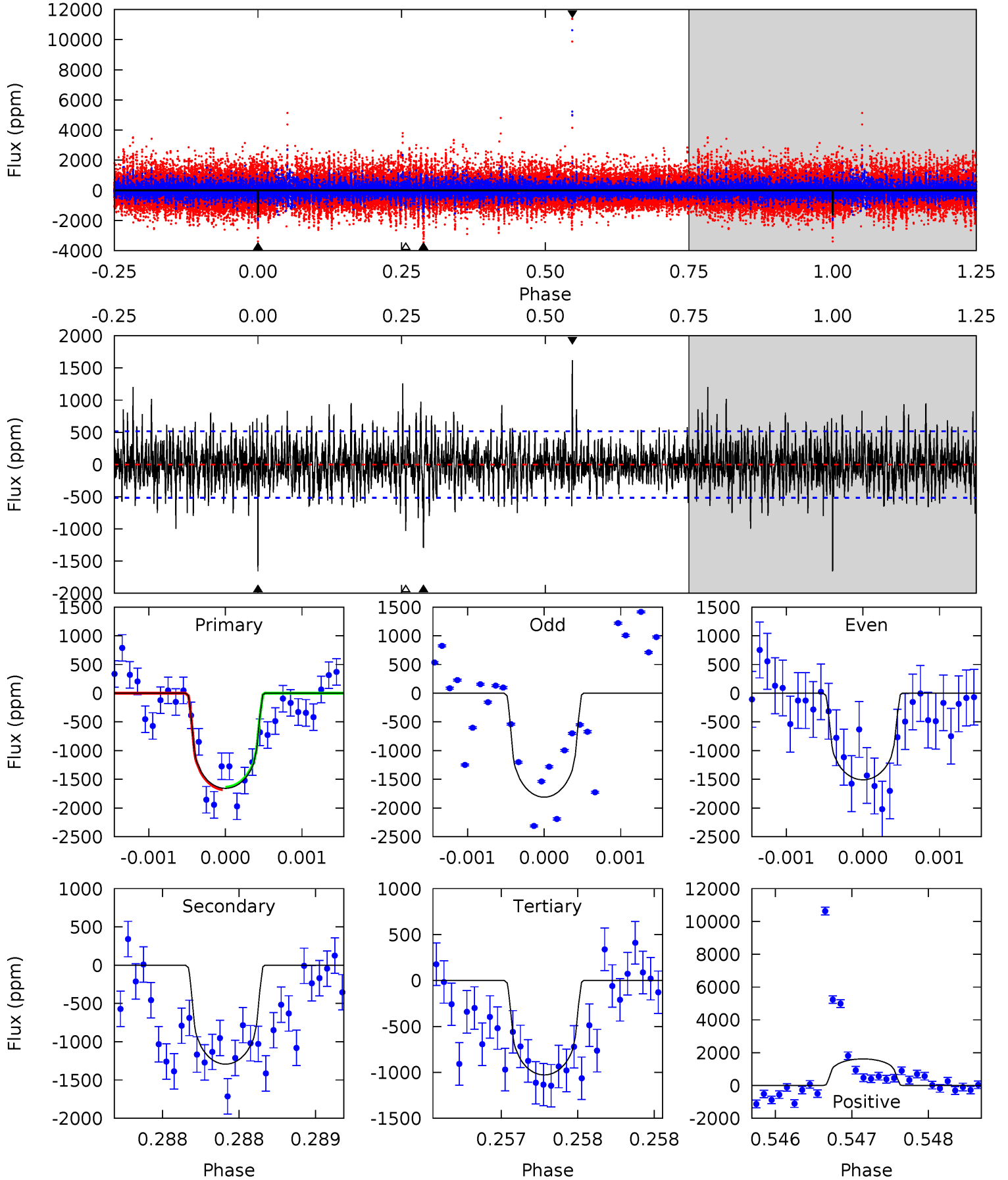
TCE 009051905-02 $P=378.027671$ Days $T_0=330.075849$ (BKJD)



DV Model-Shift Uniqueness Test

009051905-02, P = 378.038224 Days, E = 330.043884 Days

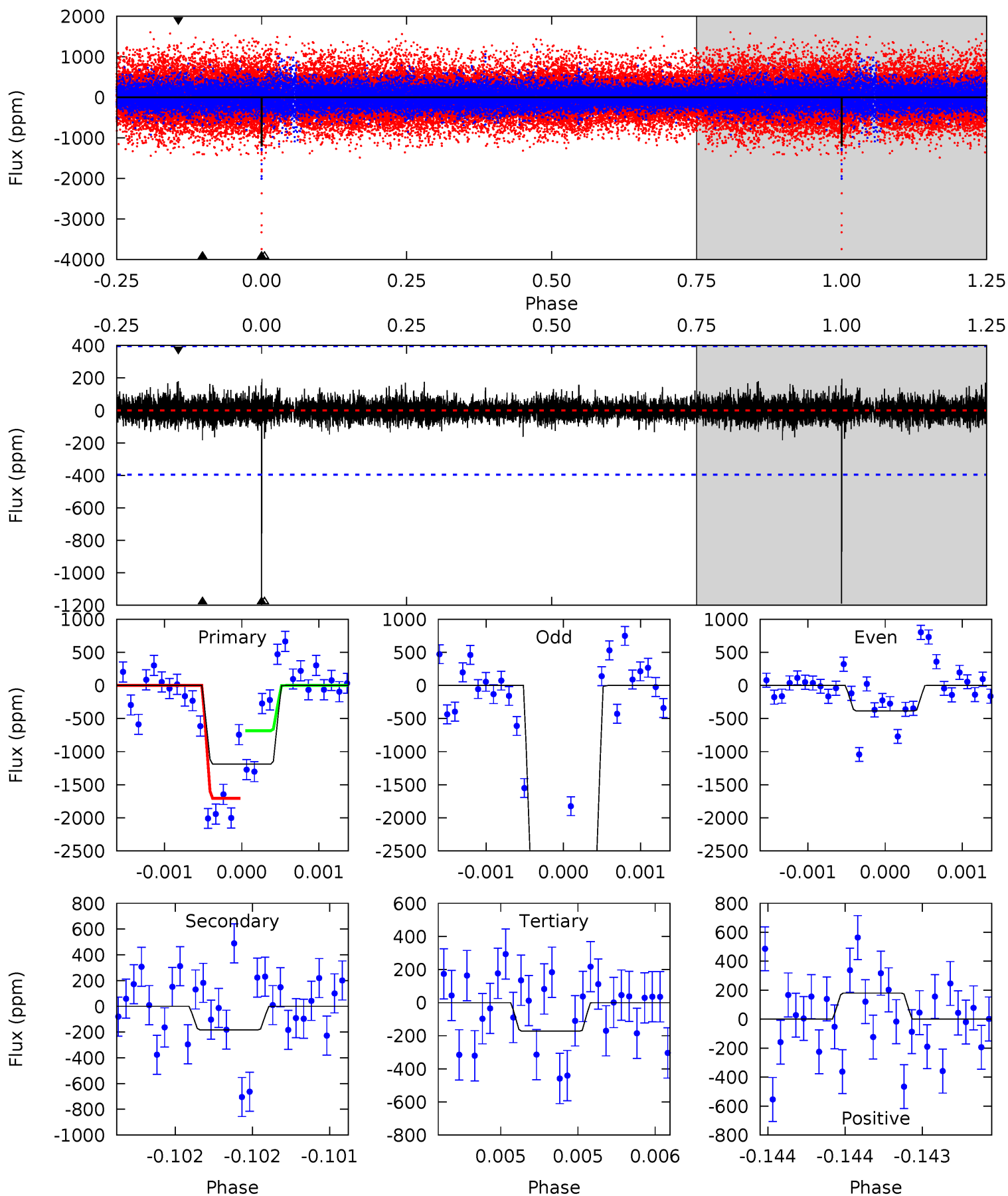
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	13.8	11.0	17.3	5.52	3.40	2.77	6.73	0.42	2.83	-3.49	1.51	1.11	0.49	0.24



Alt Model-Shift Uniqueness Test

009051905-02, P = 378.027671 Days, E = 330.075849 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	2.57	2.43	2.54	5.57	3.48	0.51	14.3	14.2	0.14	0.04	24.8	1.32	0.14	7.21



Stellar Parameters For KIC 009051905

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4342^{+117}_{-143}	$4.699^{+0.063}_{-0.032}$	$-0.800^{+0.300}_{-0.300}$	$0.540^{+0.044}_{-0.049}$	$0.531^{+0.047}_{-0.038}$	$4.759^{+1.296}_{-0.656}$
	+3%/-3%	+1%/-1%	+37%/-37%	+8%/-9%	+9%/-7%	+27%/-14%
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 009051905-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1293 ± 94	$2.69^{+1.59}_{-1.54}$	214^{+8}_{-8}	3982^{+1589}_{-580}	$68836^{+296546}_{-41963}$
Alt.	-183 ± 71	$2.61^{+1.59}_{-1.46}$	214^{+7}_{-8}	2932^{+820}_{-396}	9989^{+40061}_{-6734}

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

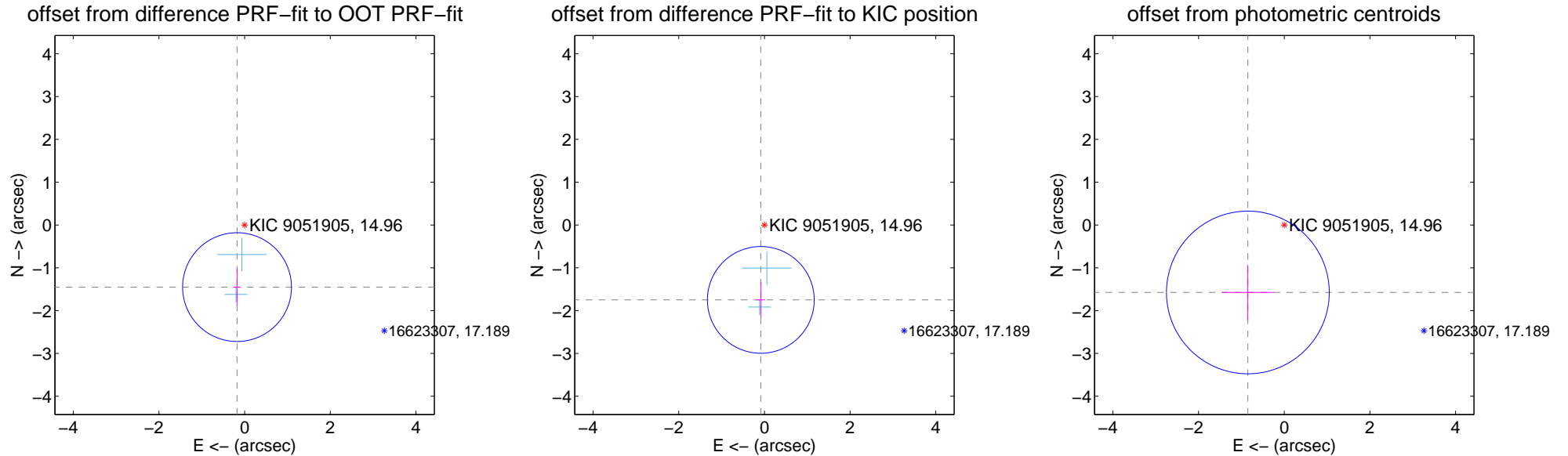
DV Centroid Data

Supplemental centroid analysis for 009051905-02. Kepler magnitude: 14.96. Transit SNR 9.70

There are 2 quarters with good PRF difference image offsets

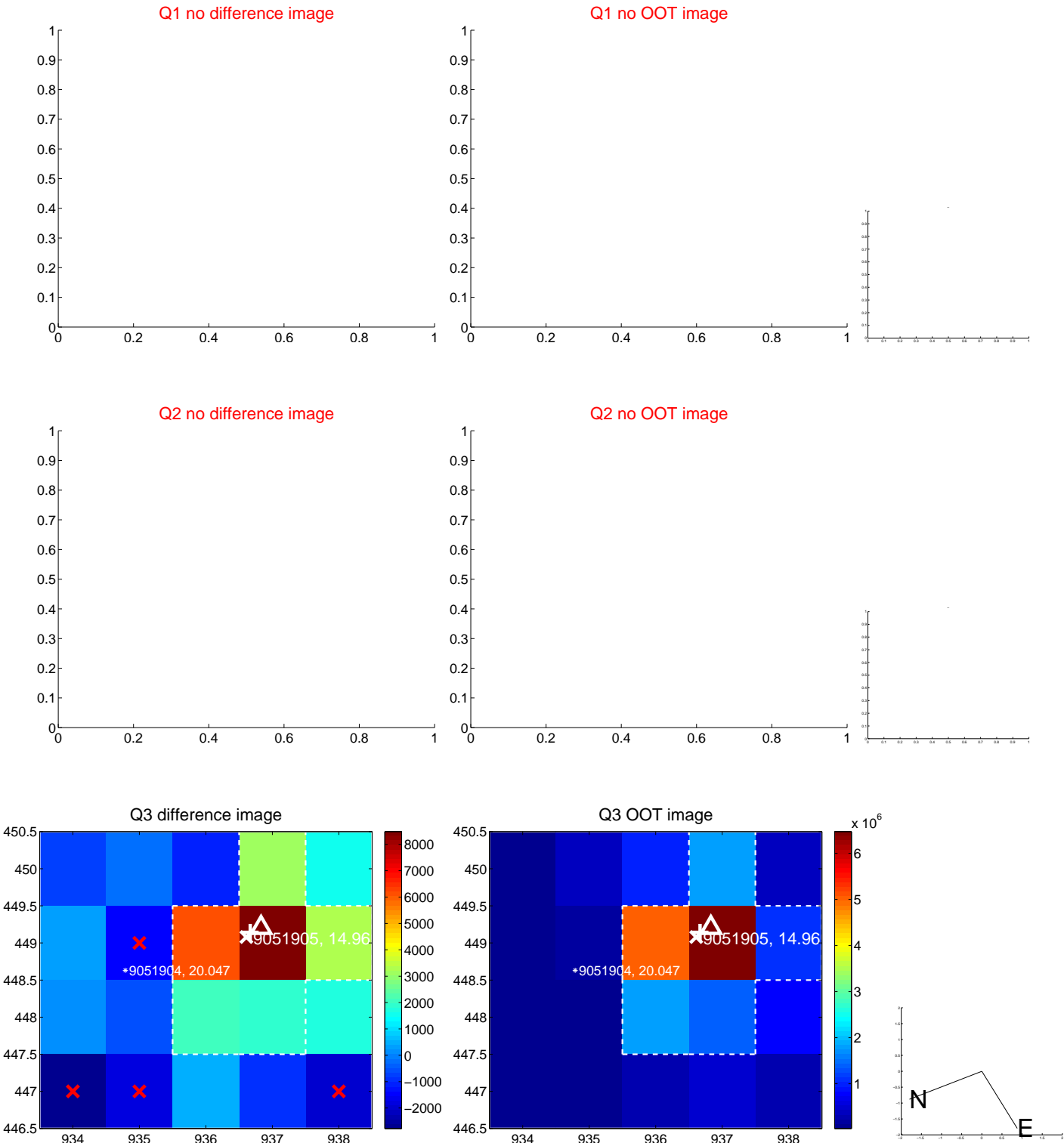
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.462 ± 0.424	3.45	0.177 ± 0.090	-1.451 ± 0.427
PRF-fit source offset from KIC position	1.752 ± 0.416	4.21	0.084 ± 0.102	-1.750 ± 0.416
photometric centroid source offset	1.79 ± 0.63	2.83	0.85 ± 0.61	-1.58 ± 0.64

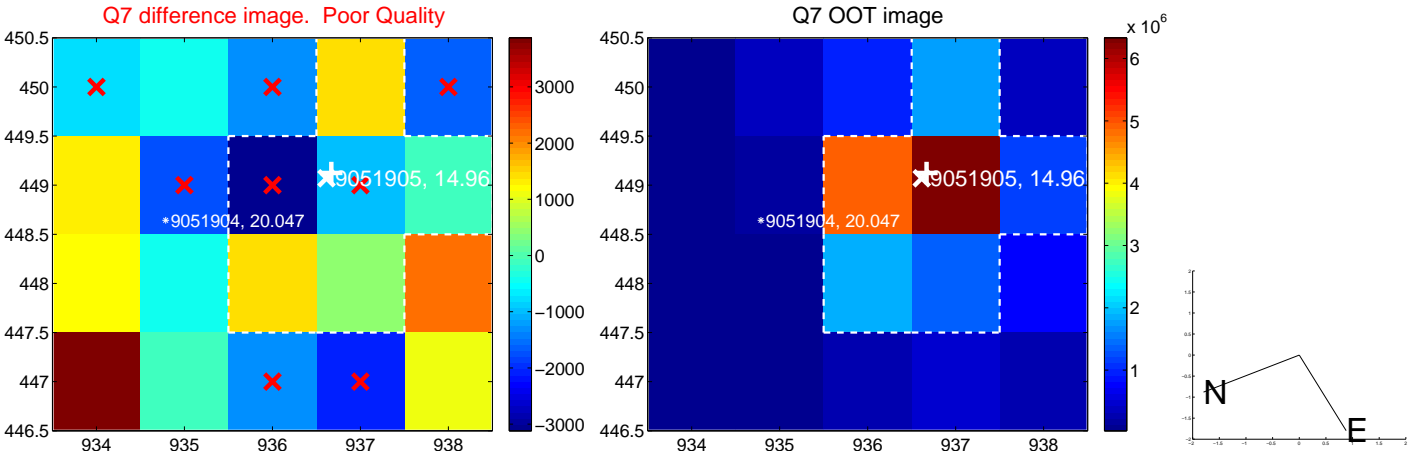


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

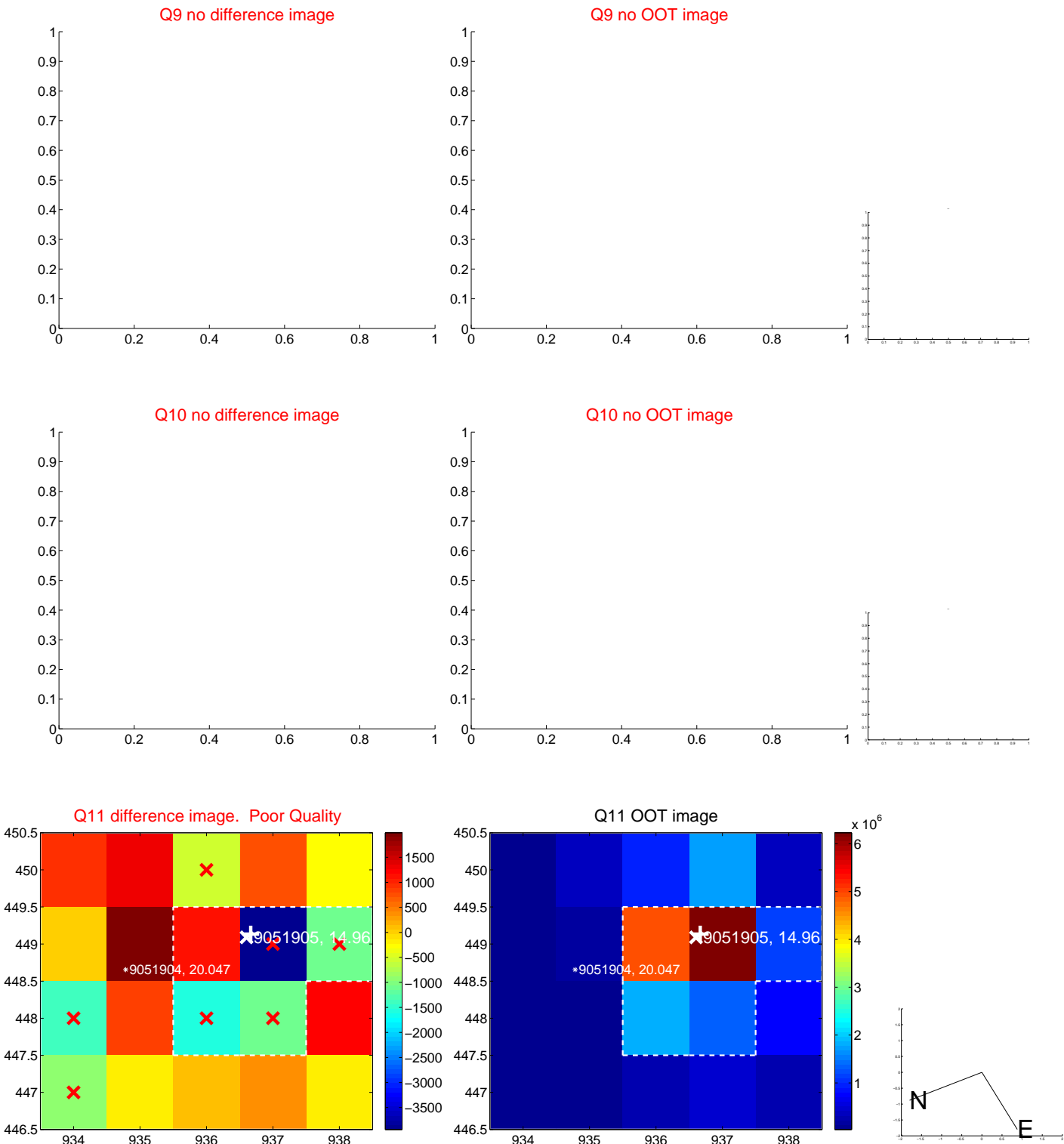
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



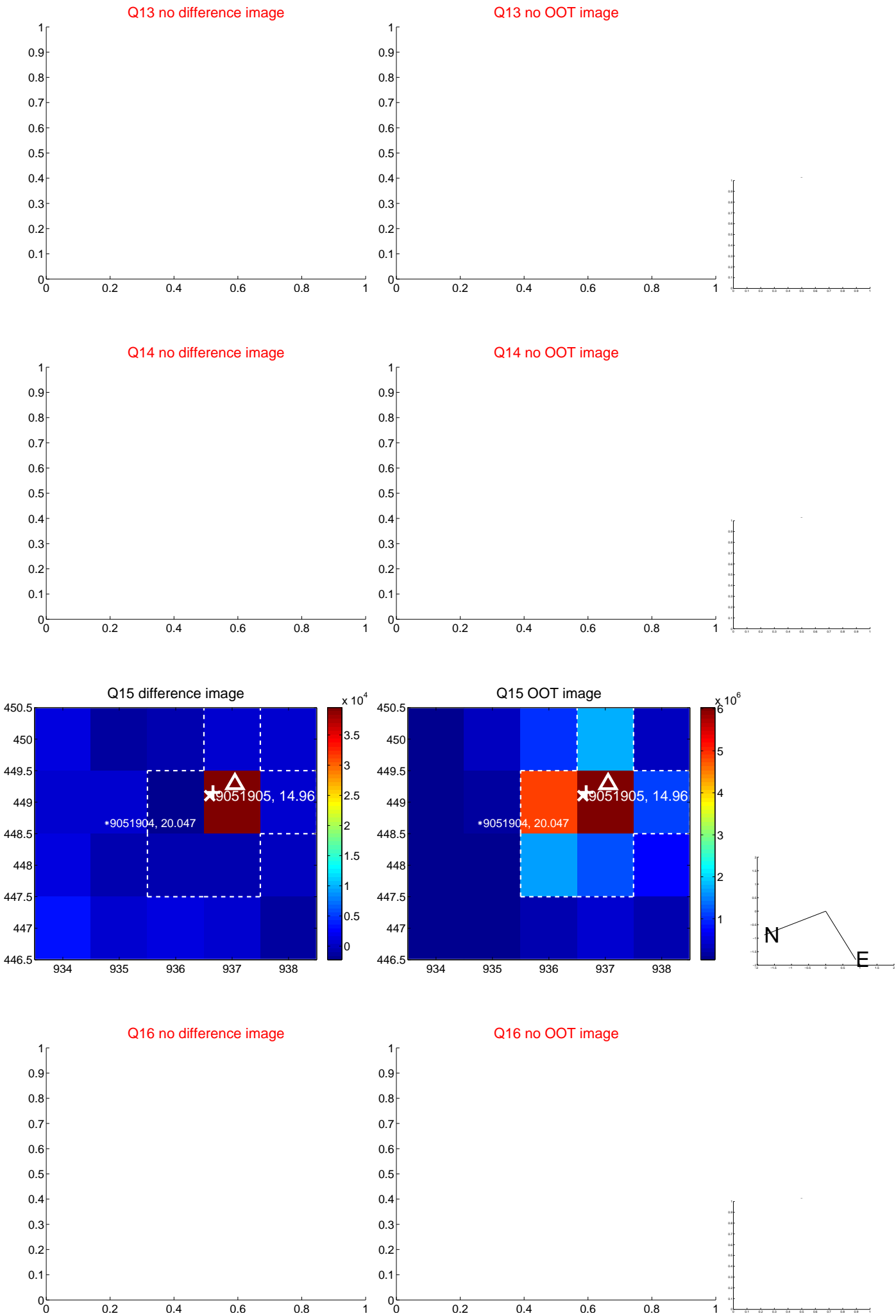
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



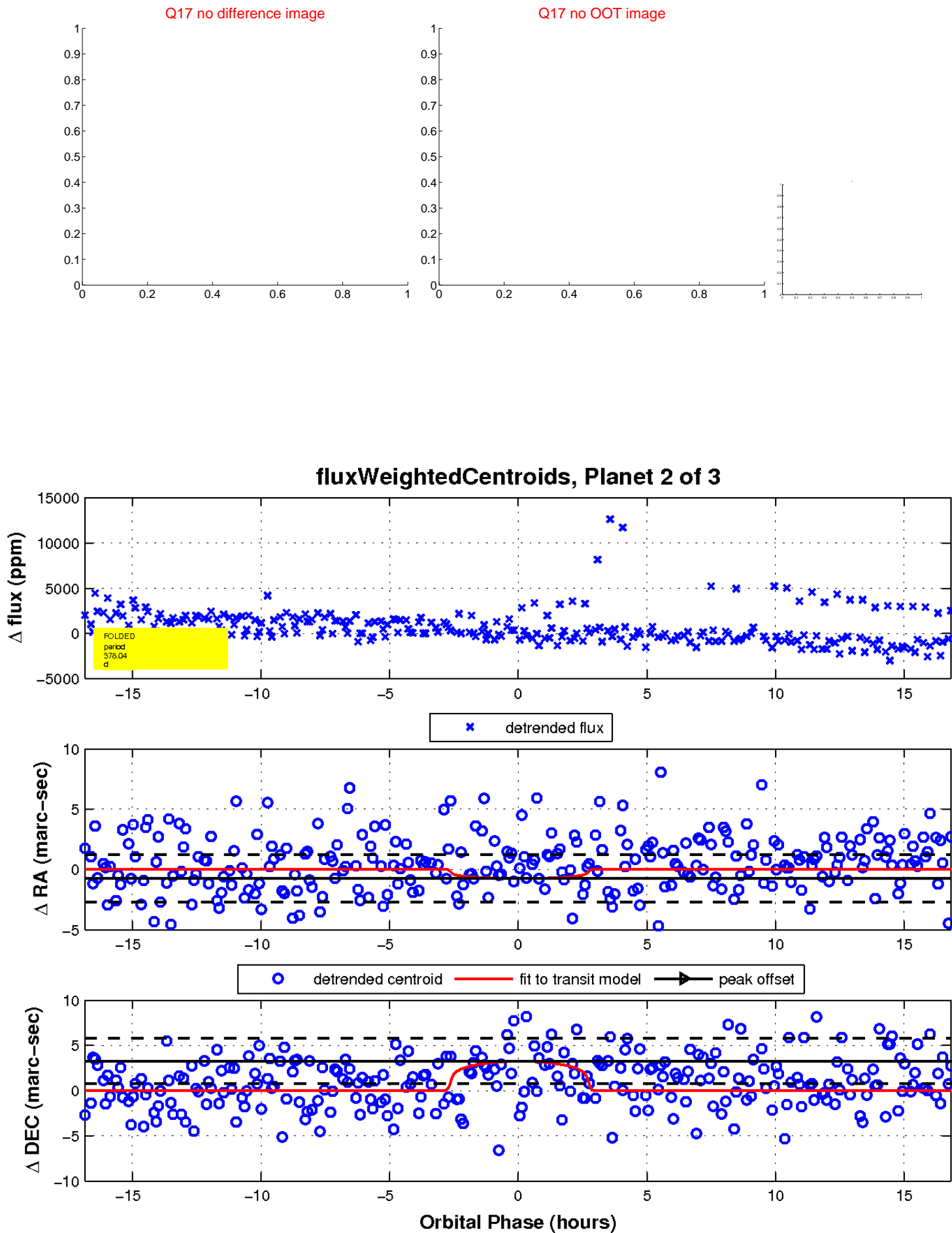
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

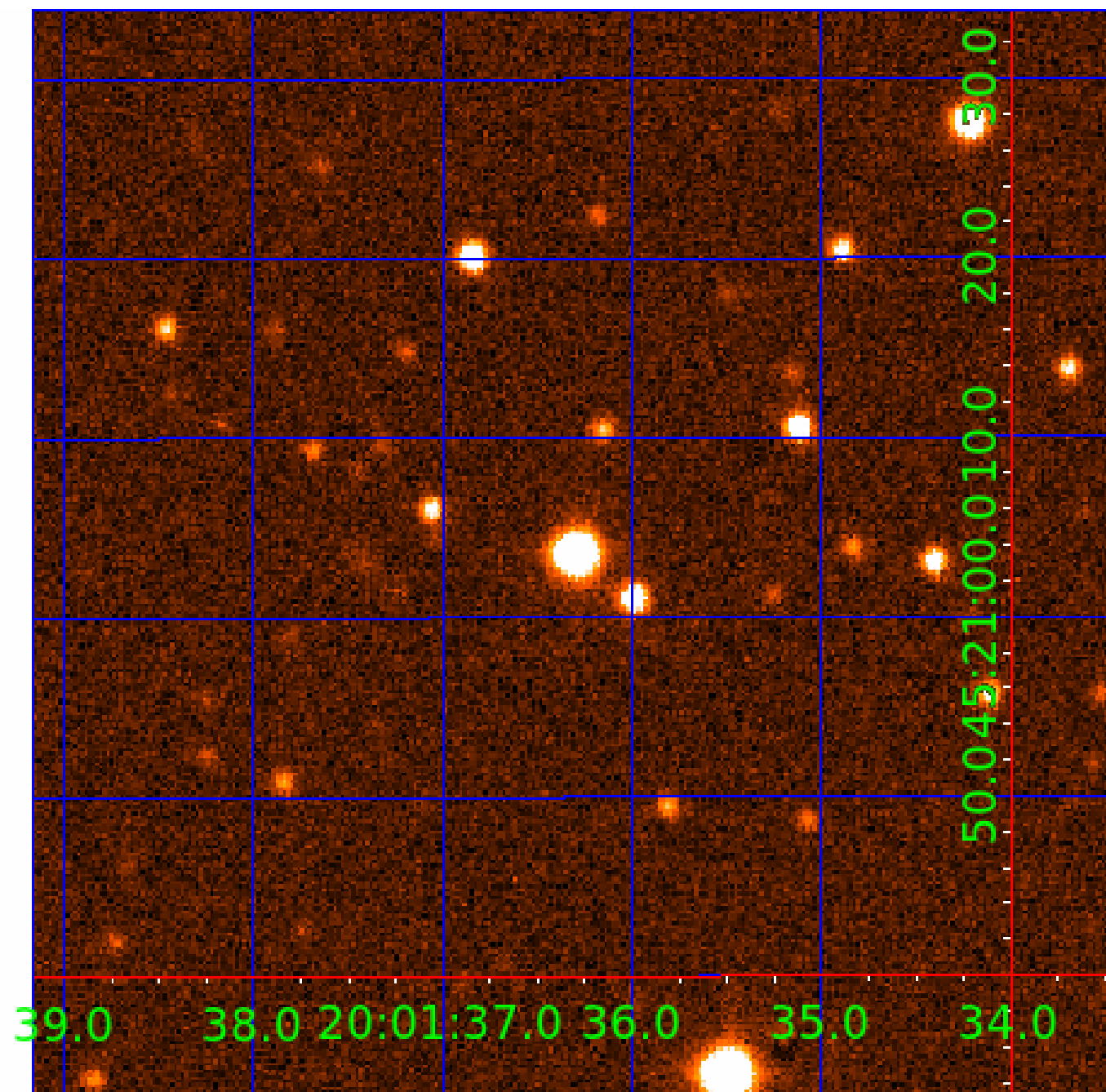


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009051905

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})
009051905-01	OBS	No	336.595111	340.679606	1161.0	3.138	8.2	6.1	0.54	4342	1.99	0.16
009051905-02	OBS	No	378.038224	330.043884	2187.1	5.625	11.9	9.7	0.54	4342	2.46	0.14
009051905-03	OBS	No	432.433982	363.142435	1403.7	4.327	10.9	6.4	0.54	4342	2.15	0.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009051905-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009051905-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009051905-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

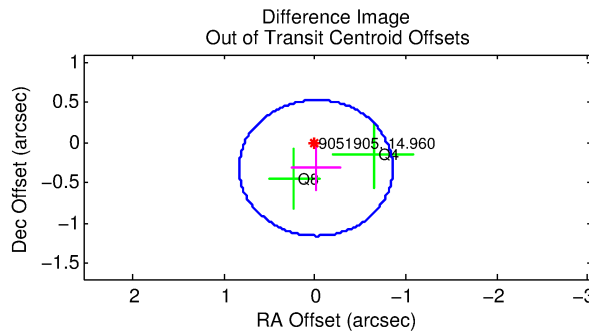
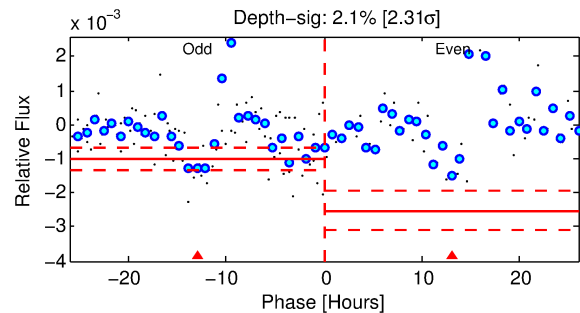
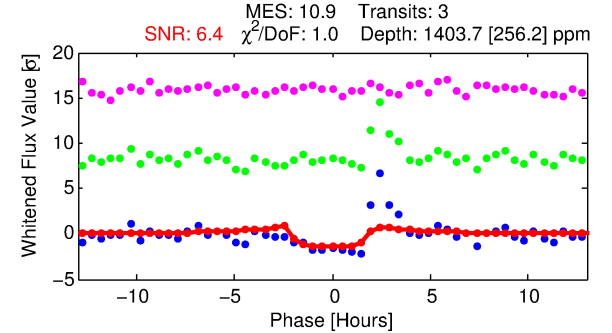
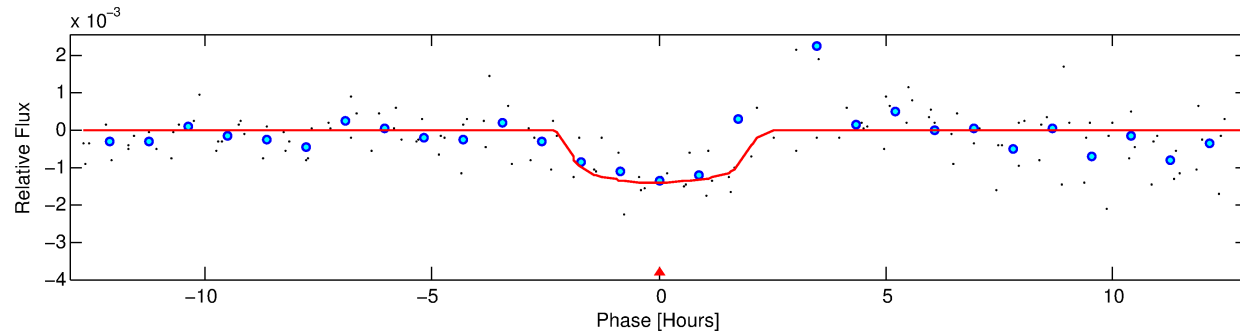
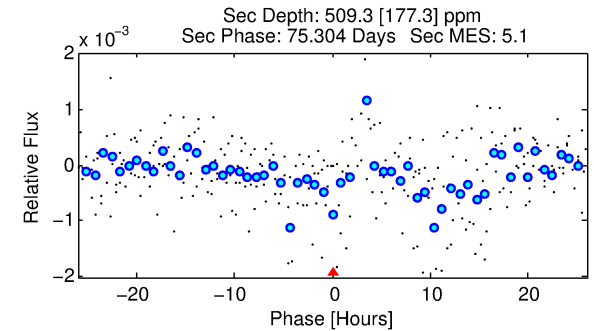
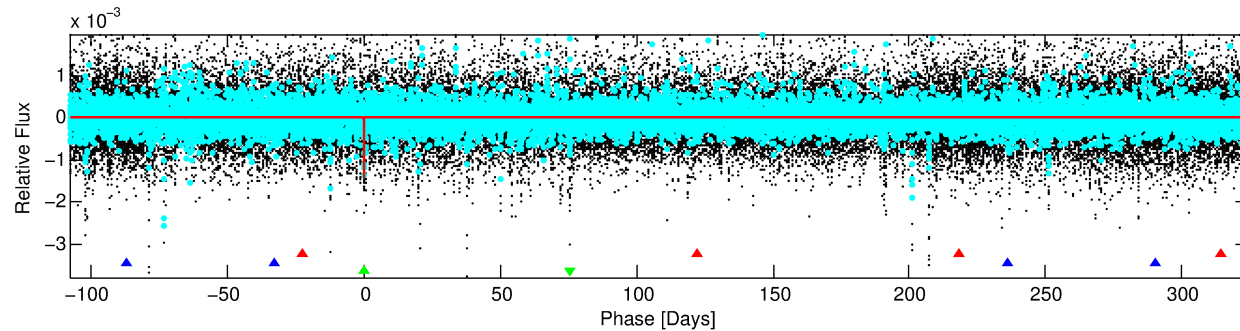
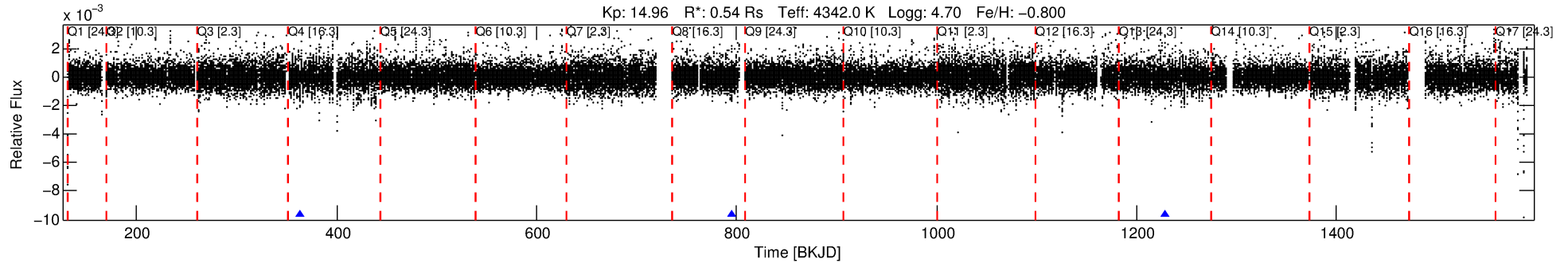
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009051905-03

No Significant Match Found

DV One-Page Summary

KIC: 9051905 Candidate: 3 of 3 Period: 432.434 d



DV Fit Results:

Period = 432.43398 [0.00790] d
Epoch = 363.1424 [0.0084] BKJD
Rp/R* = 0.0365 [0.0425]
a/R* = 592.48 [2646.61]
b = 0.69 [3.48]
Seff = 0.11 [0.02]
Teq = 148 [6] K
Rp = 2.15 [2.51] Re
a = 0.9069 [0.0702] AU
Ag = 49743.77 [117086.82] [0.42σ]
Teffp = 3413 [2009] K [1.63σ]

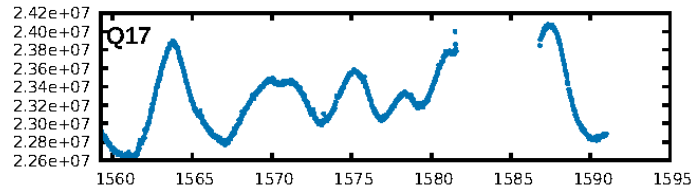
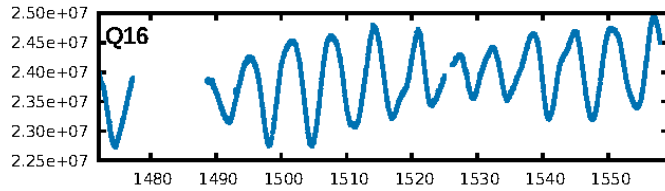
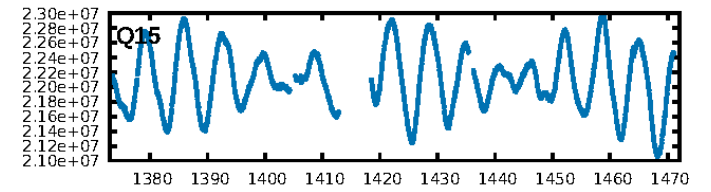
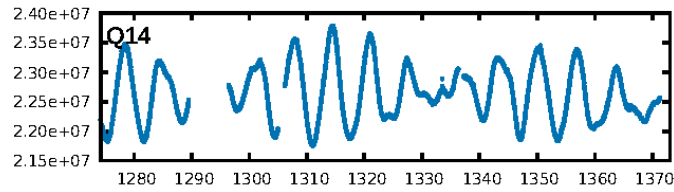
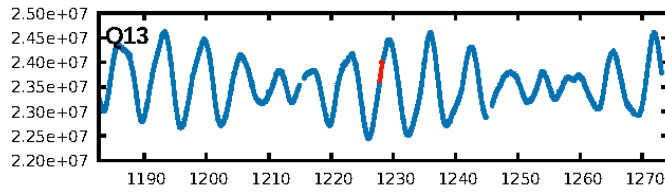
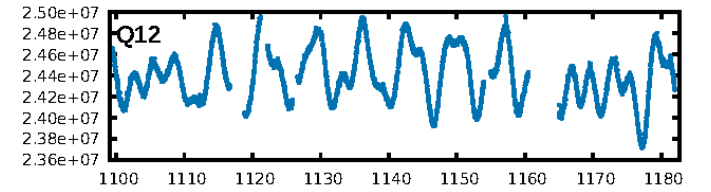
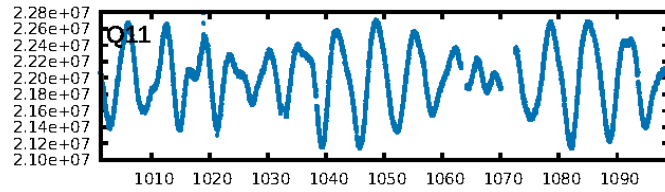
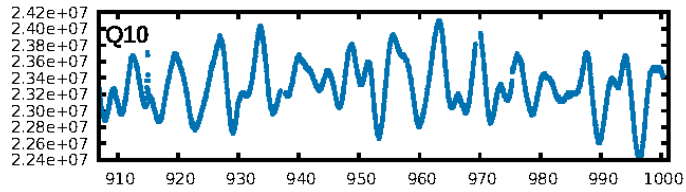
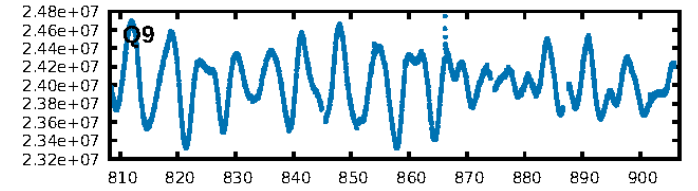
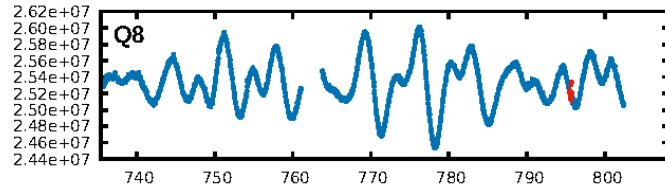
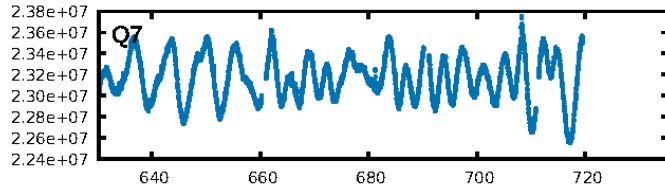
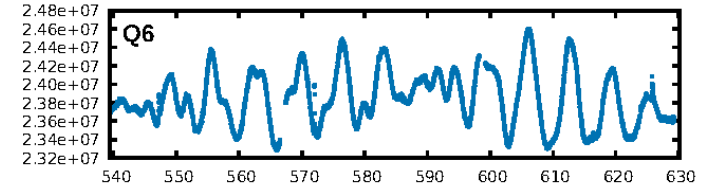
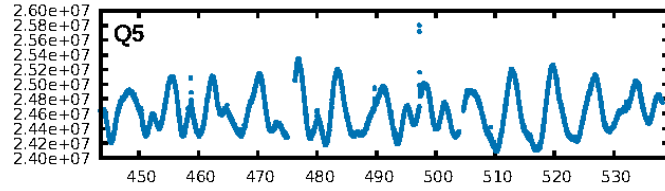
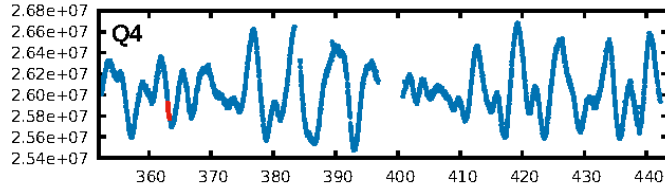
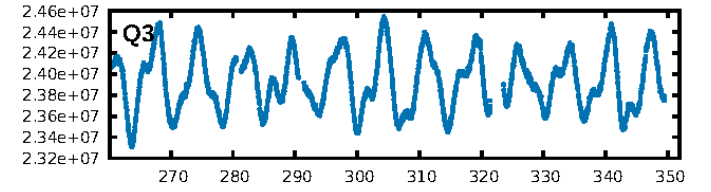
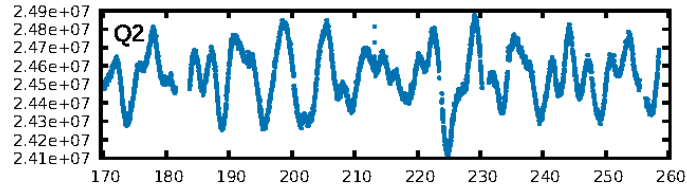
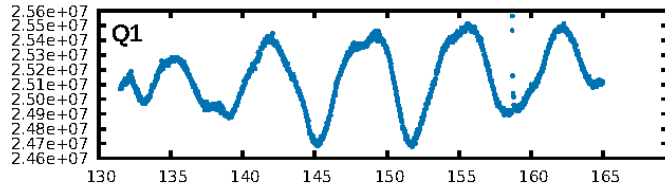
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [183.96σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.2%
ModelChiSquareGof-sig: 95.5%
Bootstrap-pfa: 2.79e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.883
Centroid-sig: 62.3%
Centroid-so: 1.119 arcsec [0.78σ]
OotOffset-rm: 0.318 arcsec [1.13σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-rm: 0.533 arcsec [1.90σ]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

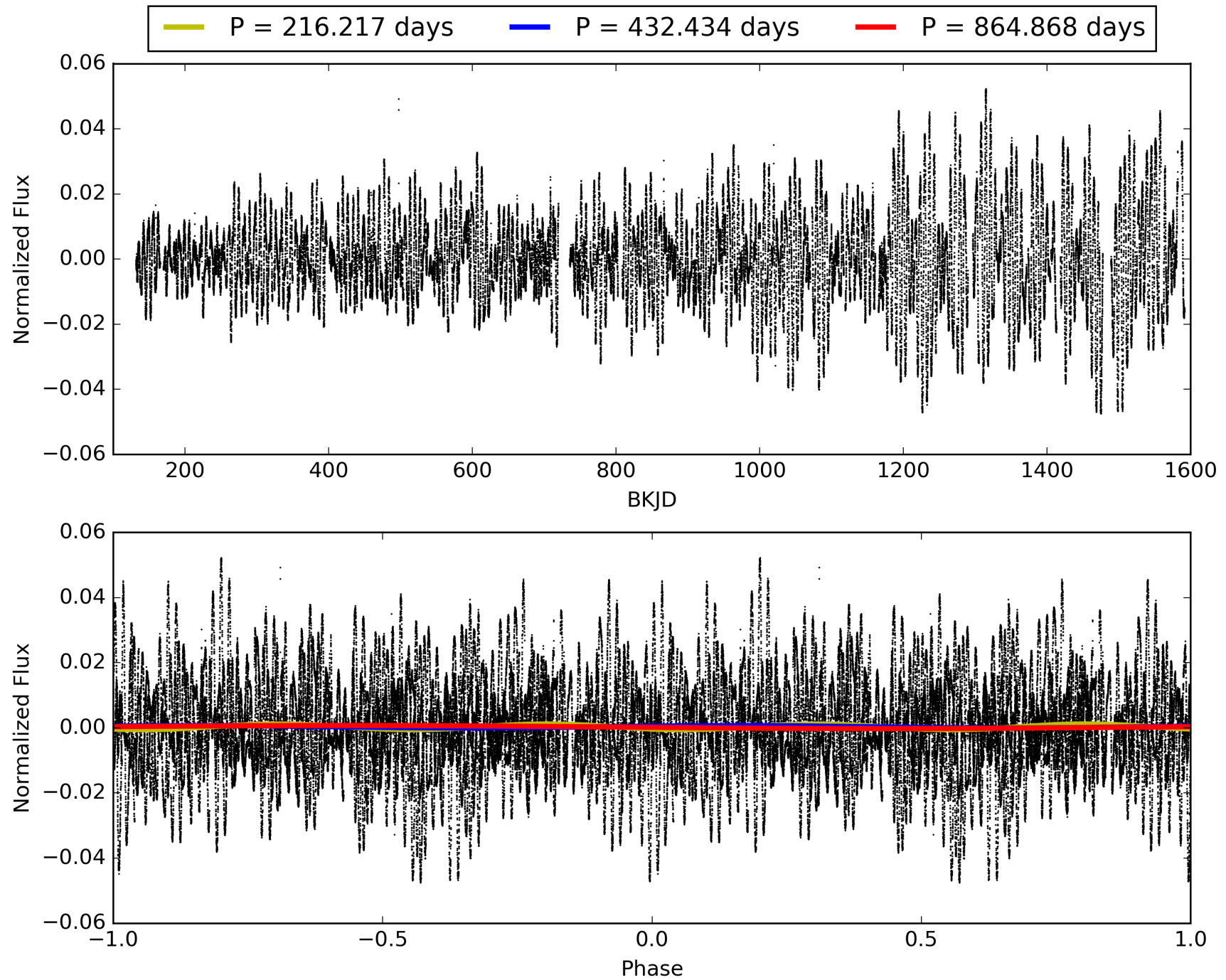
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:57:40 Z

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

TCE 009051905-03, PDC Light Curves

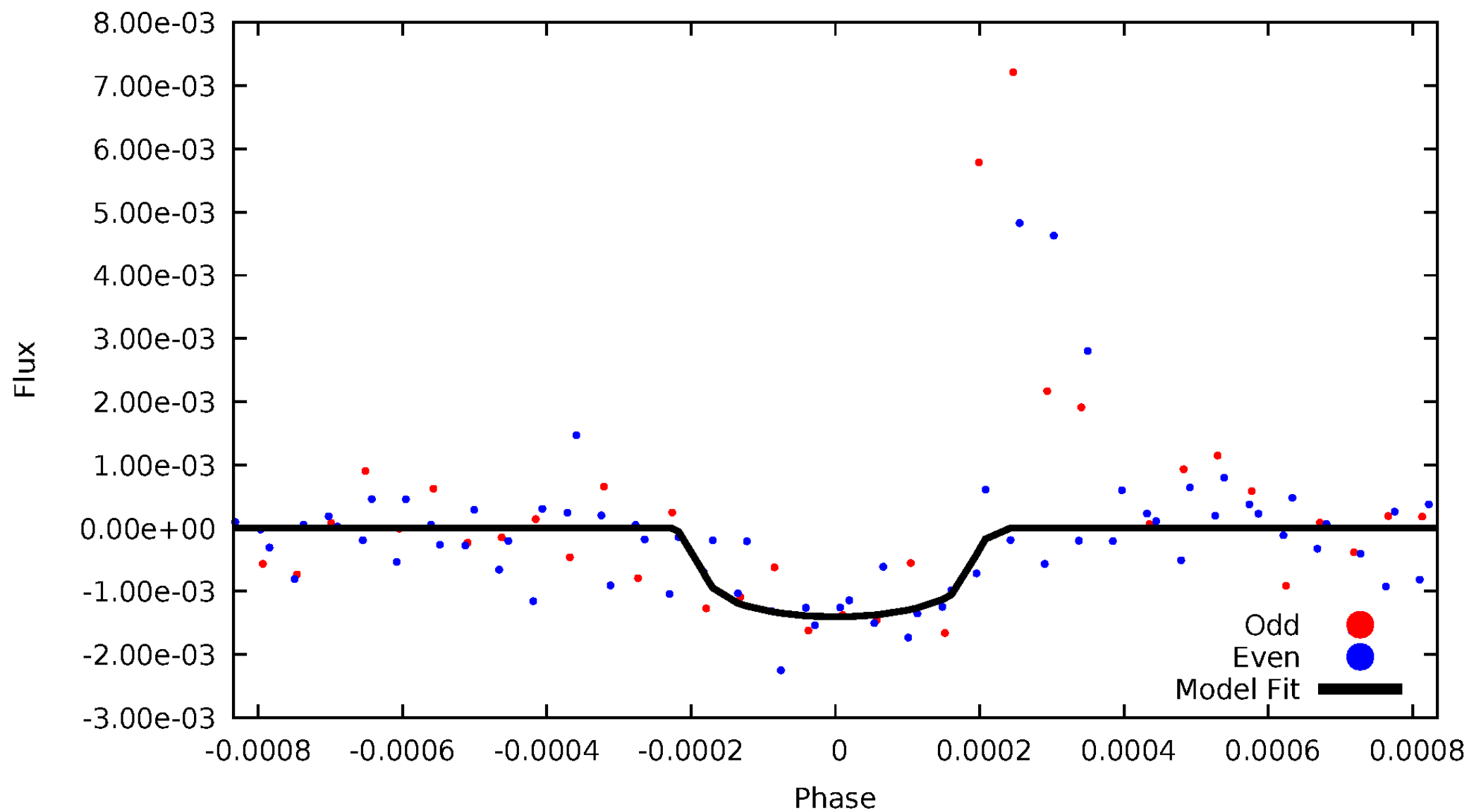


TCE 009051905-03



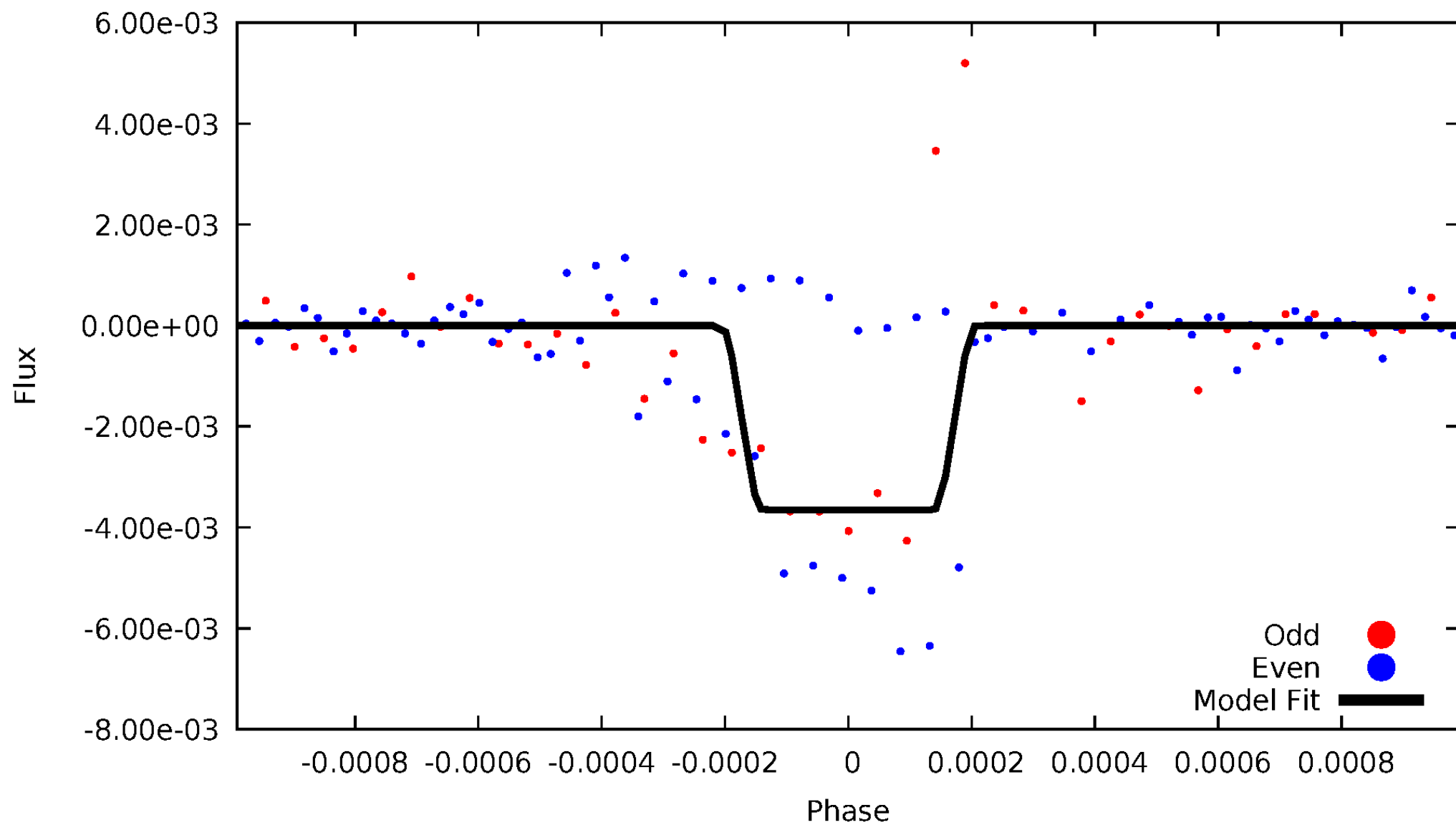
DV Odd/Even

TCE 009051905-03

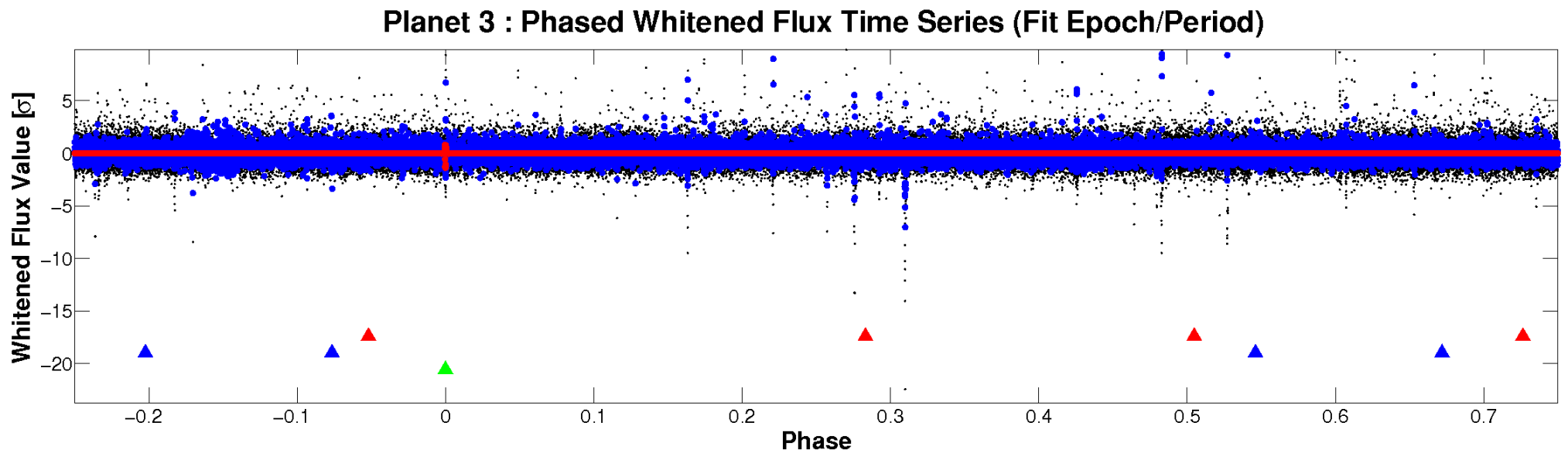
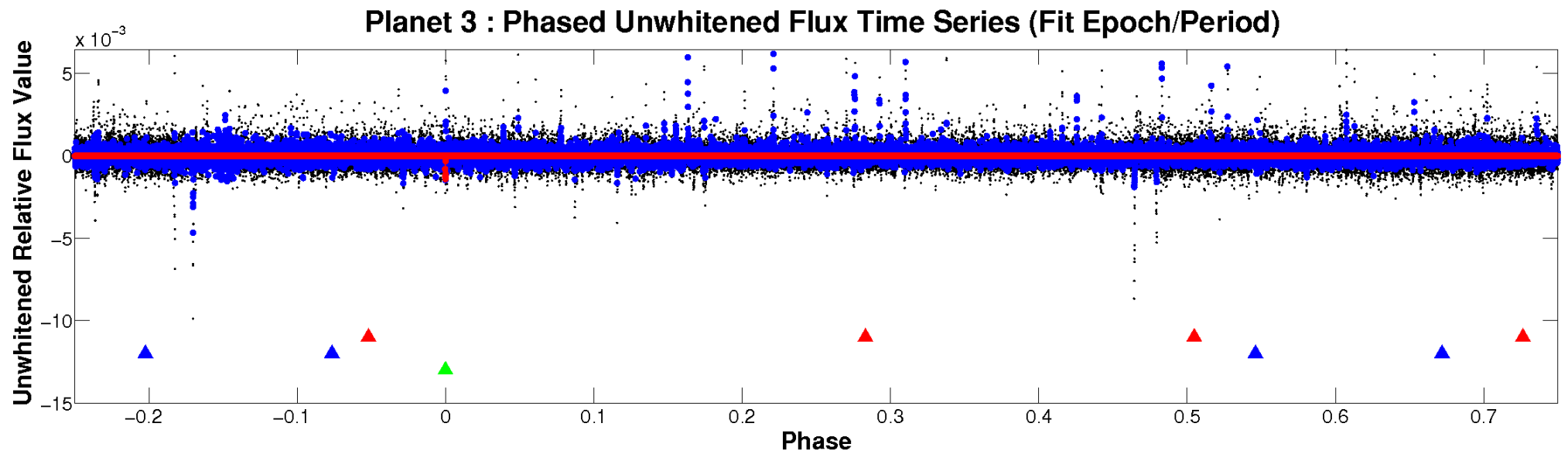


ALT Odd/Even

TCE 009051905-03

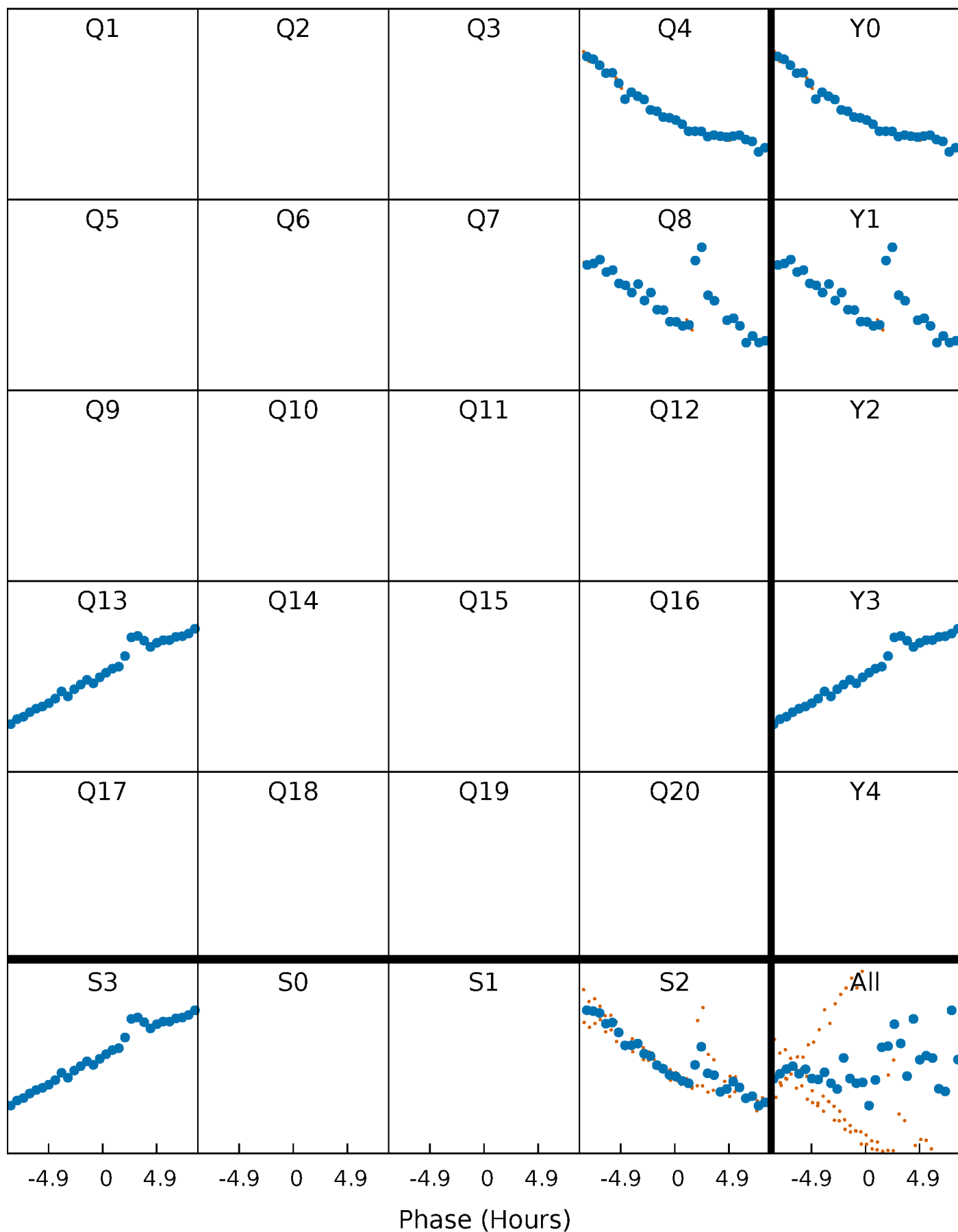


Non-Whitened Vs. Whitened Light Curve



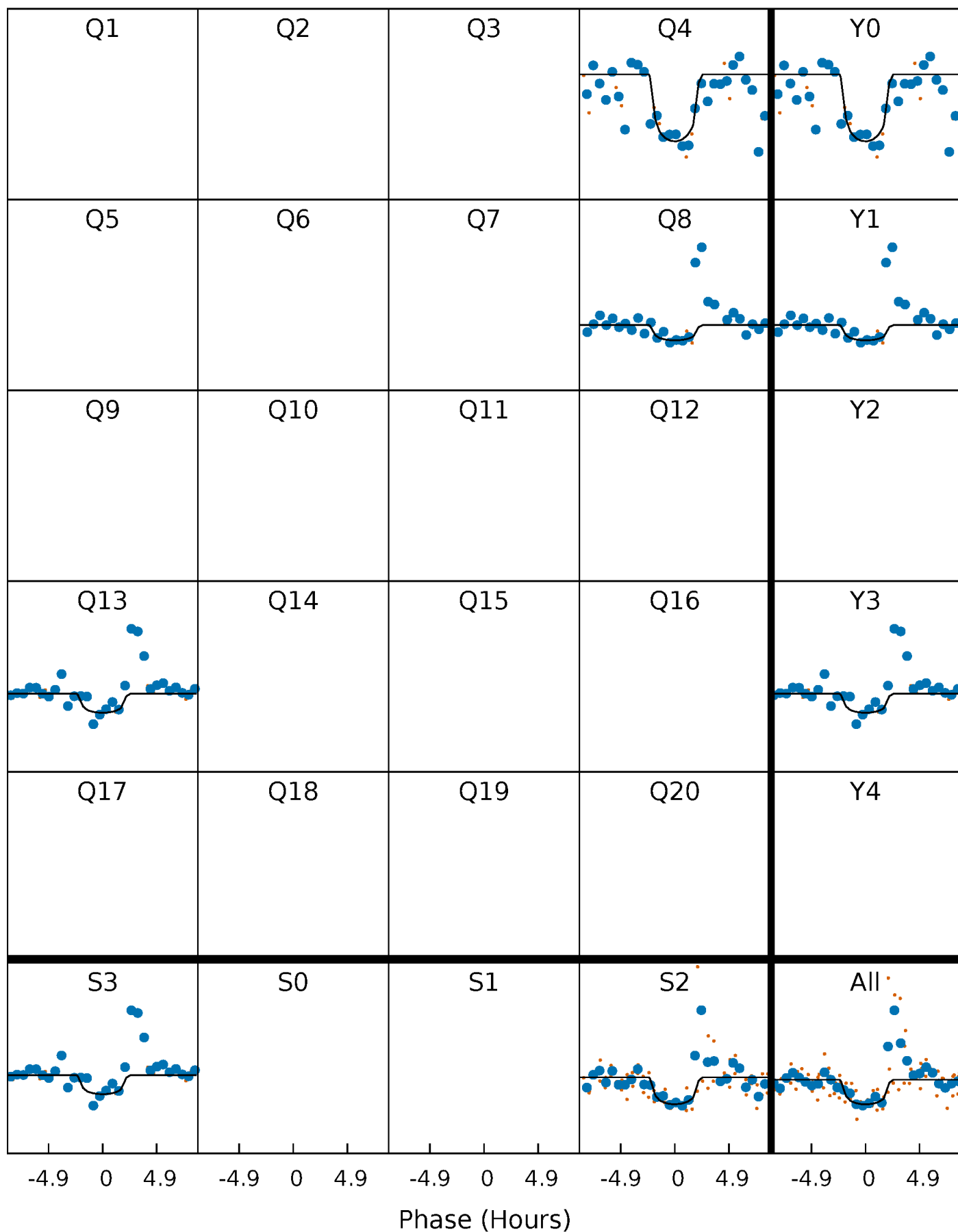
PDC Quarter-Phased Transit Curves

TCE 009051905-03 $P=432.433982$ Days $T_0=363.142435$ (BKJD)



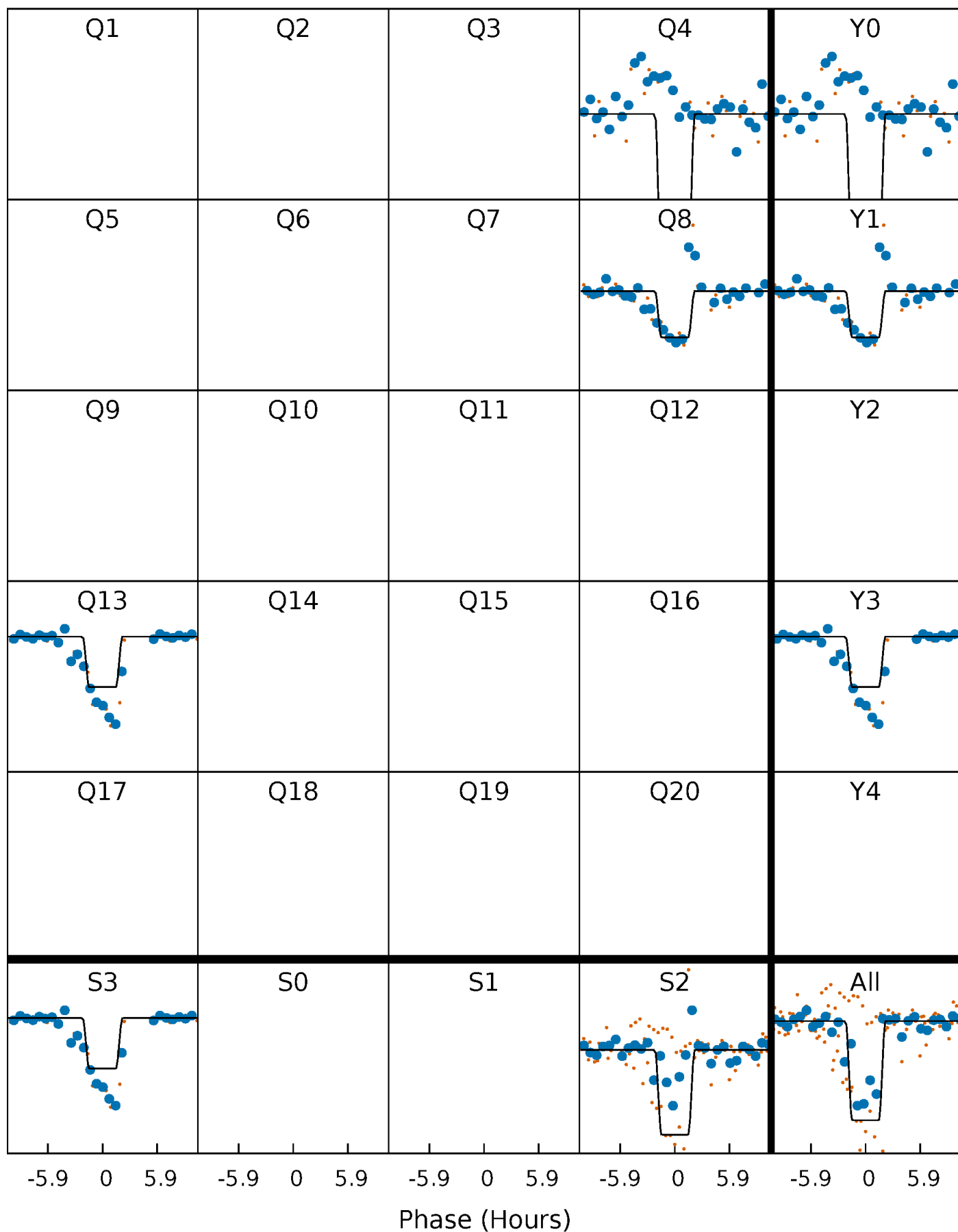
DV Quarter-Phased Transit Curves

TCE 009051905-03 $P=432.433982$ Days $T_0=363.142435$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

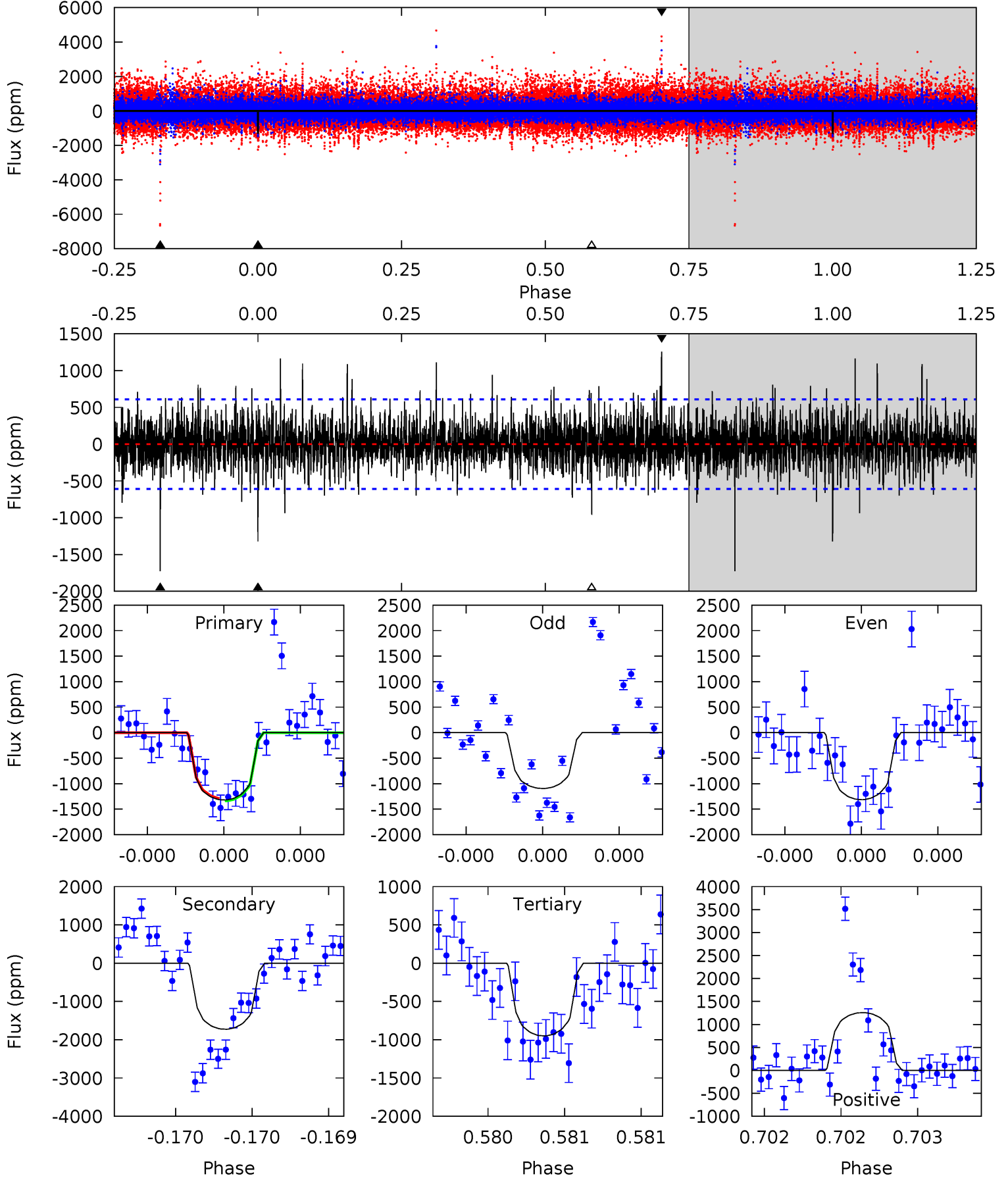
TCE 009051905-03 $P=432.421808$ Days $T_0=363.179288$ (BKJD)



DV Model-Shift Uniqueness Test

009051905-03, P = 432.433982 Days, E = 363.142435 Days

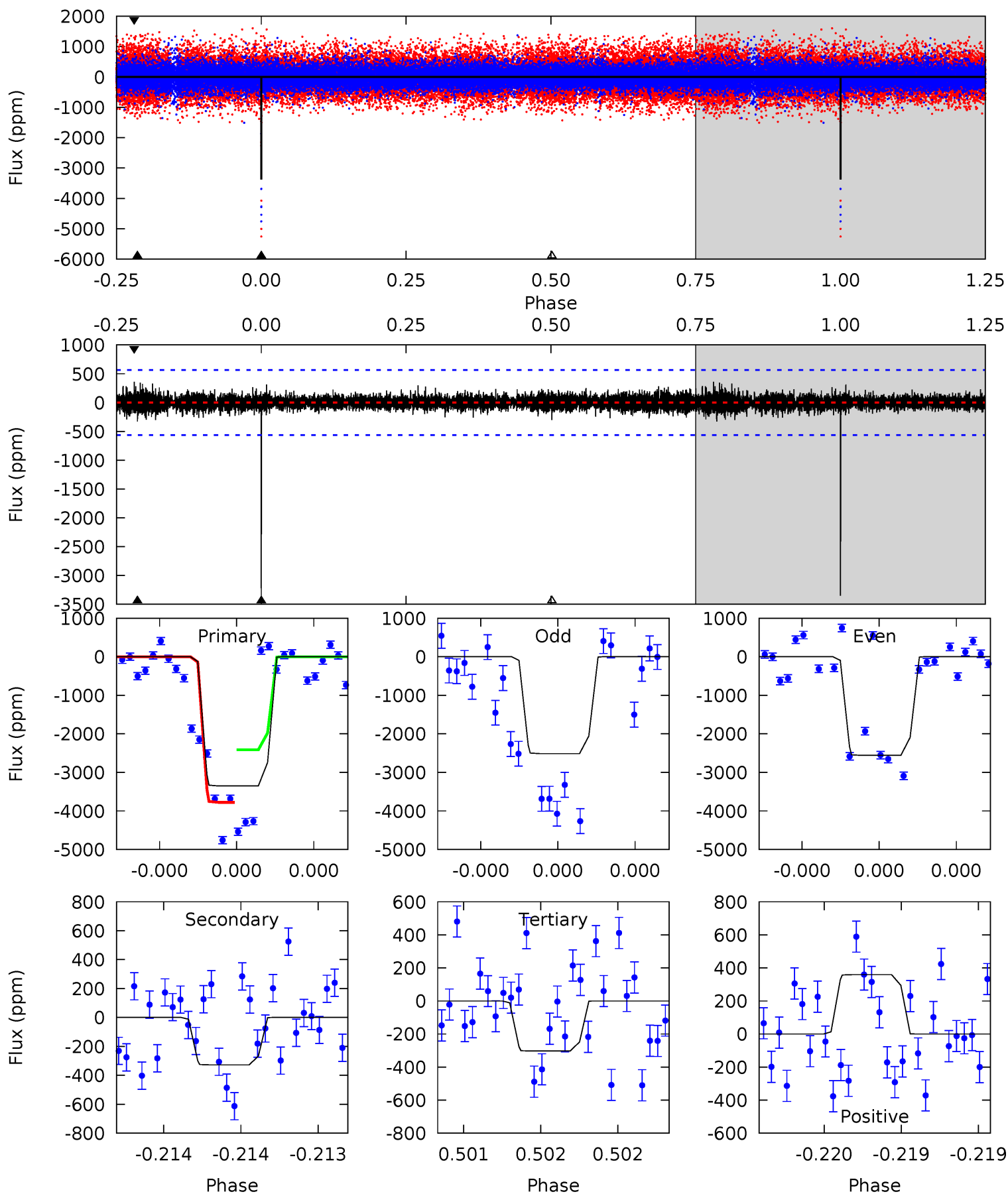
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	15.8	8.70	11.5	5.58	3.50	1.93	3.38	0.57	7.11	4.29	0.84	1.05	0.42	0.21



Alt Model-Shift Uniqueness Test

009051905-03, P = 432.421808 Days, E = 363.179288 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	3.26	3.01	3.57	5.61	3.54	0.65	30.3	29.7	0.25	-0.31	0.28	0.98	0.10	6.53



Stellar Parameters For KIC 009051905

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4342^{+117}_{-143}	$4.699^{+0.063}_{-0.032}$	$-0.800^{+0.300}_{-0.300}$	$0.540^{+0.044}_{-0.049}$	$0.531^{+0.047}_{-0.038}$	$4.759^{+1.296}_{-0.656}$
	+3%/-3%	+1%/-1%	+37%/-37%	+8%/-9%	+9%/-7%	+27%/-14%
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 009051905-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1727 ± 109	$2.72^{+2.13}_{-1.72}$	205^{+7}_{-8}	4156^{+2370}_{-750}	$107097^{+697545}_{-73481}$
Alt.	-327 ± 101	$3.77^{+2.50}_{-2.25}$	205^{+7}_{-8}	2879^{+898}_{-377}	9976^{+50318}_{-6499}

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

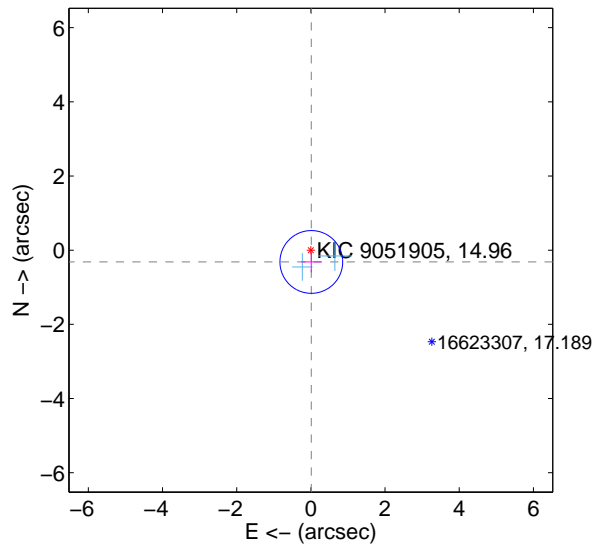
Supplemental centroid analysis for 009051905-03. Kepler magnitude: 14.96. Transit SNR 6.41

There are 2 quarters with good PRF difference image offsets

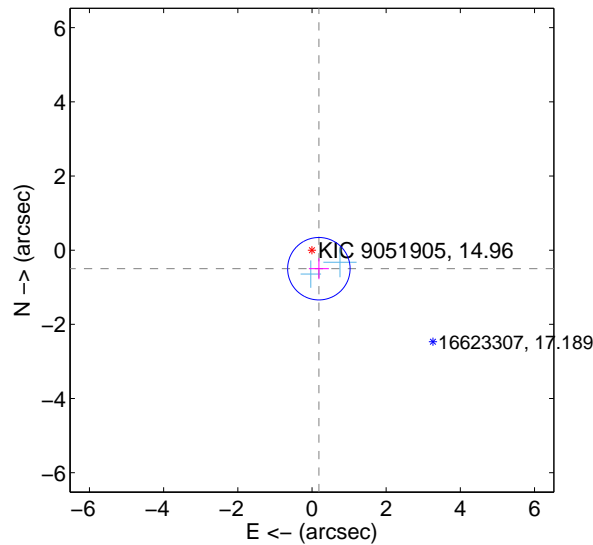
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.318 ± 0.282	1.13	-0.012 ± 0.271	-0.317 ± 0.282
PRF-fit source offset from KIC position	0.533 ± 0.281	1.90	-0.185 ± 0.271	-0.500 ± 0.282
photometric centroid source offset	1.12 ± 1.44	0.78	1.04 ± 1.47	0.42 ± 1.23

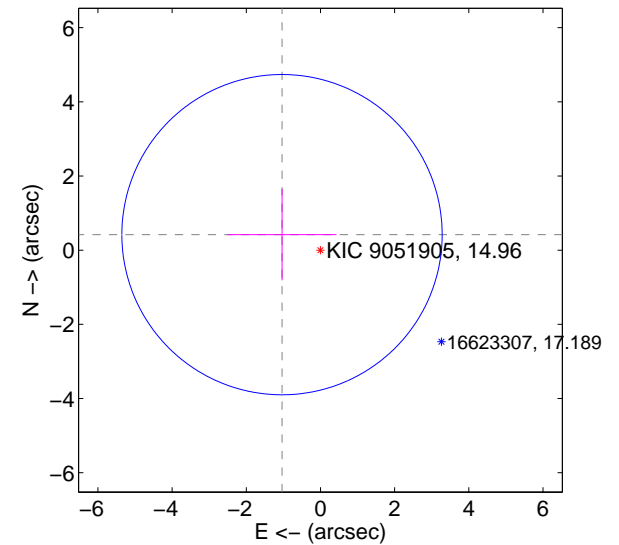
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

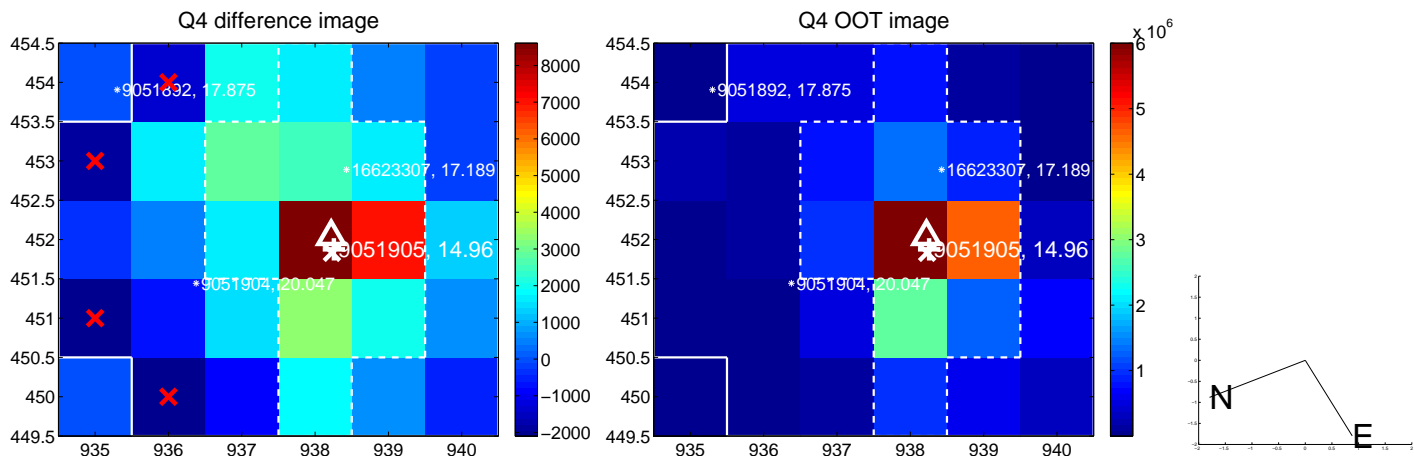
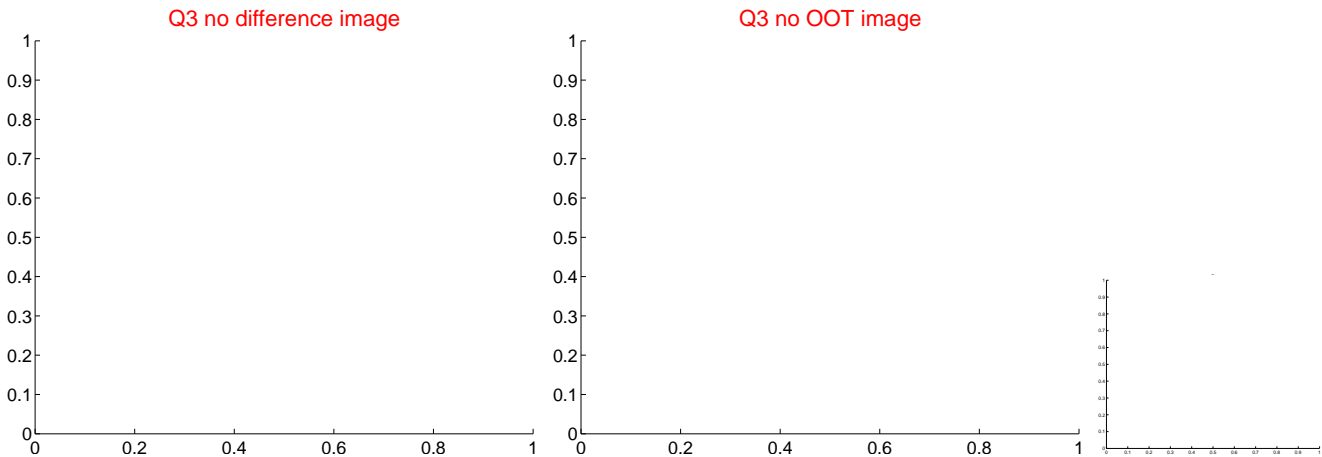
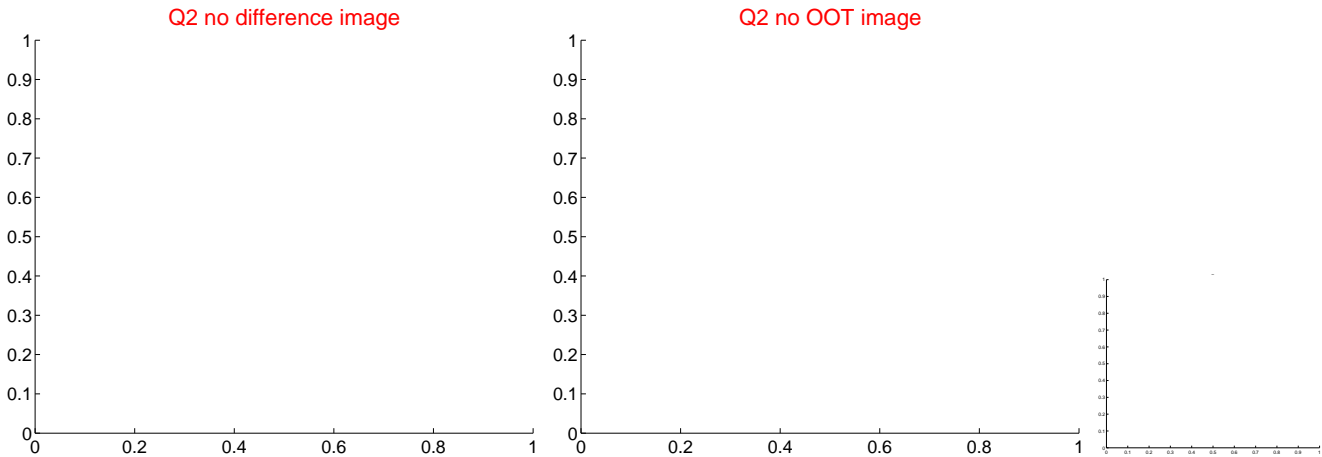
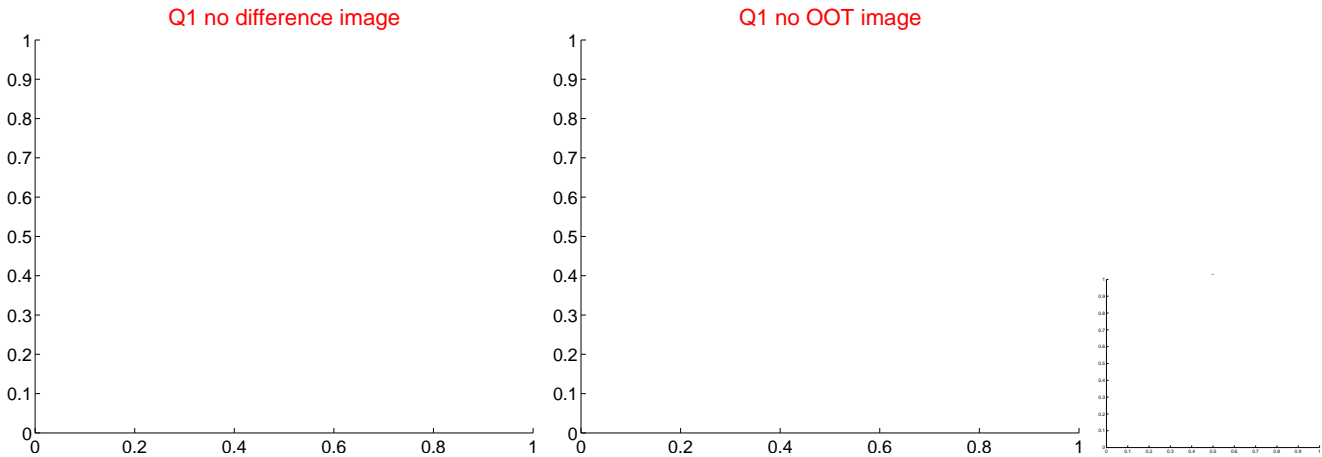


offset from photometric centroids

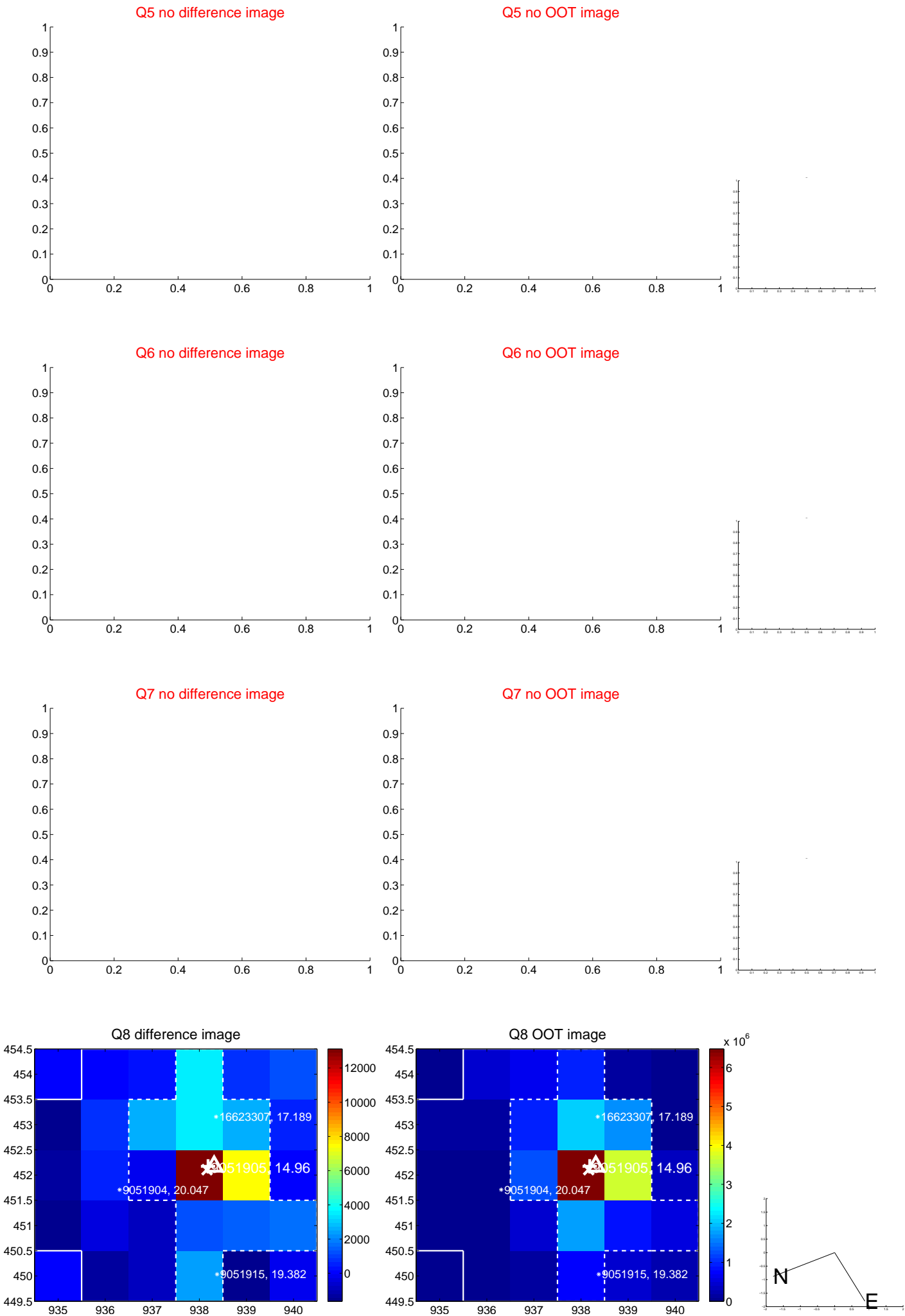


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



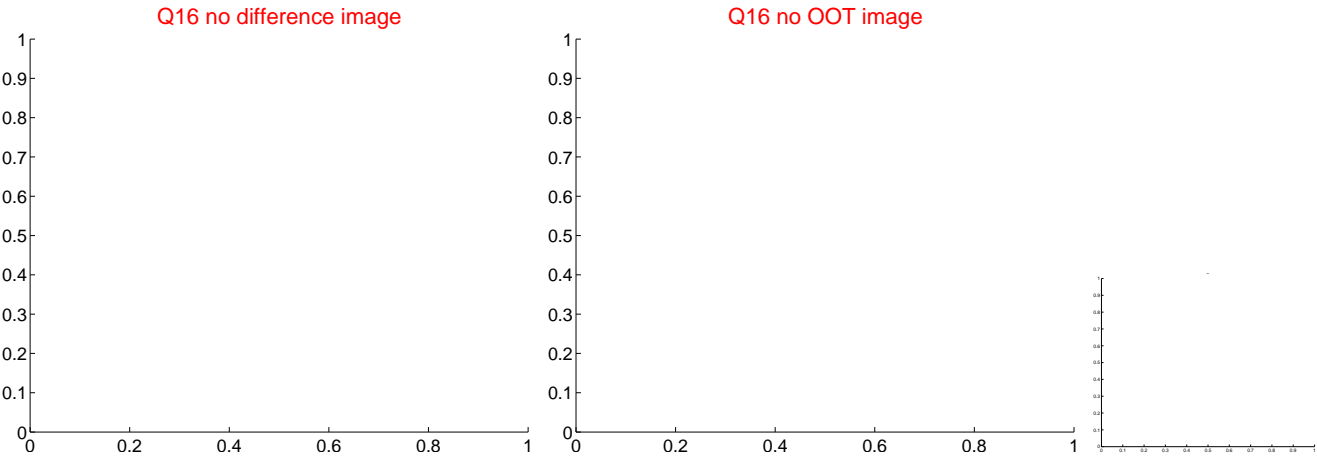
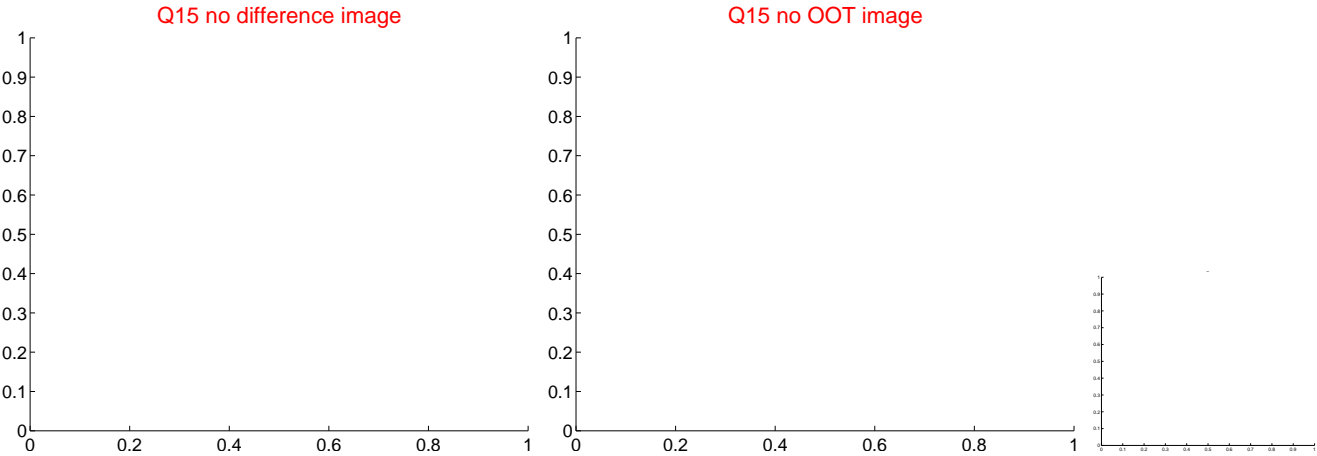
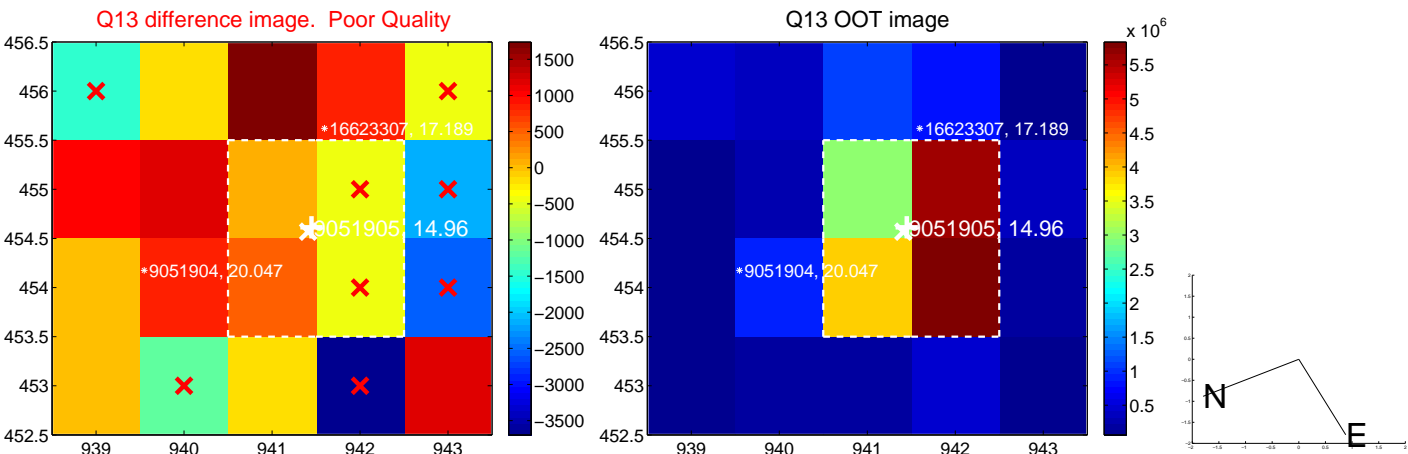
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



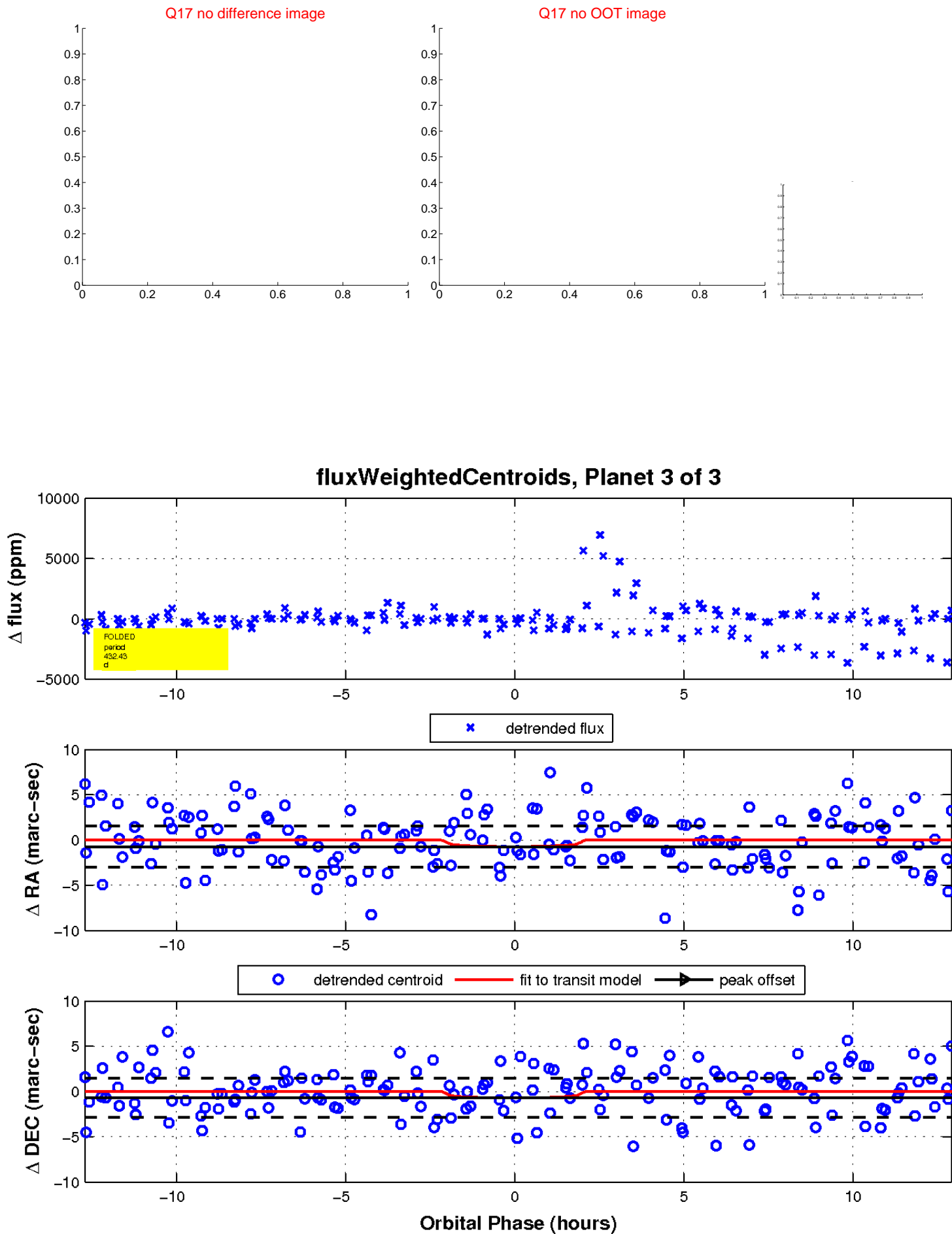
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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

