

KIC 009071386

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})
009071386-01	OBS	0023.01	4.693304	132.169666	14341.1	5.171	2739.5	2739.6	1.47	6365	17.82	882.39
009071386-02	OBS	No	2.346625	132.178316	277.1	5.166	58.8	57.6	1.47	6365	2.87	2223.52
009071386-03	OBS	No	401.338873	340.667856	833.9	21.552	8.5	6.7	1.47	6365	8.14	2.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009071386-01	OBS	FP	0.27	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009071386-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009071386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

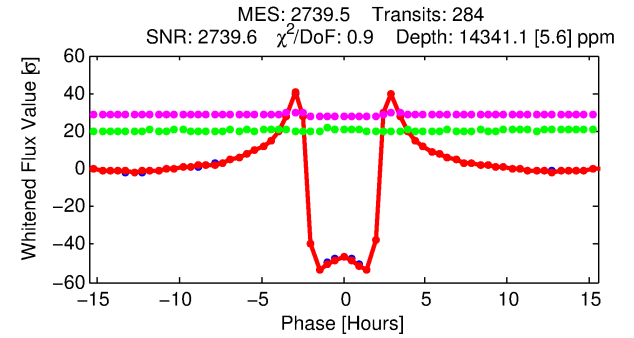
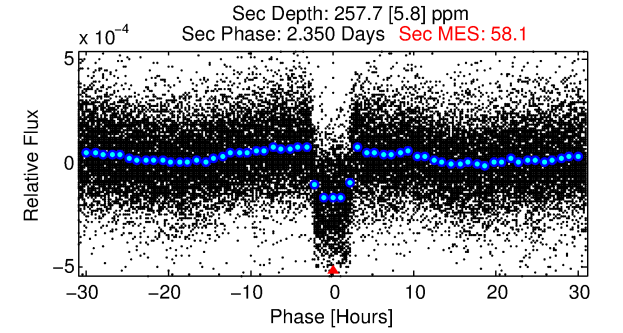
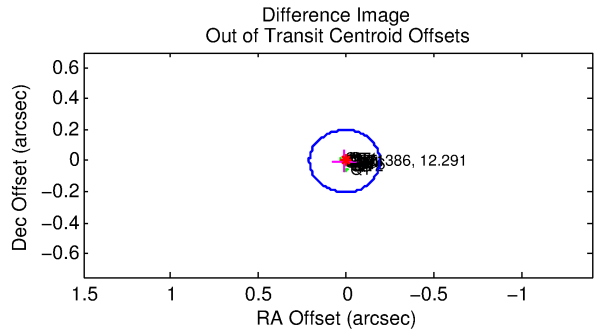
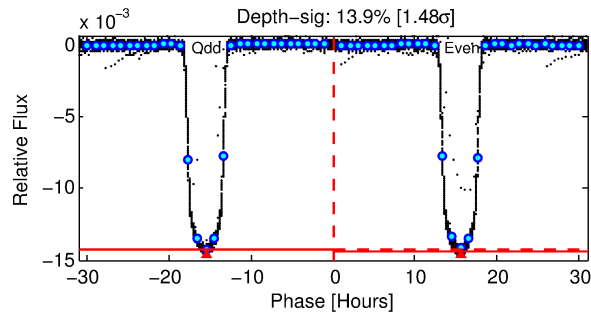
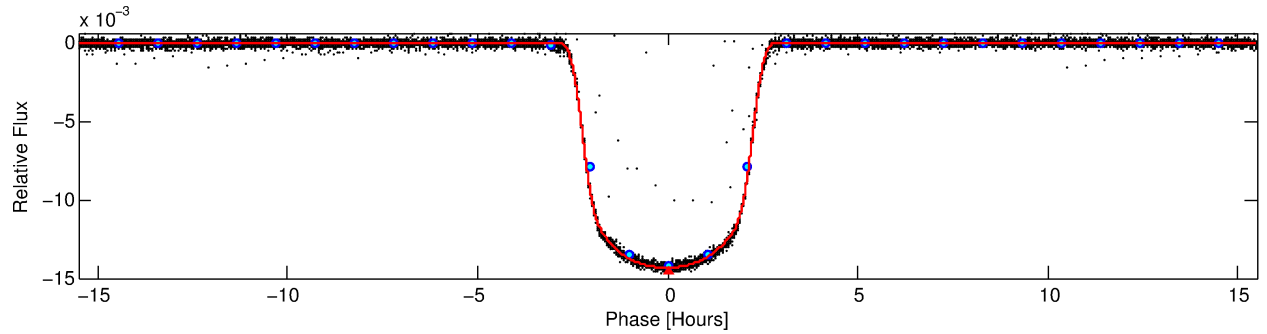
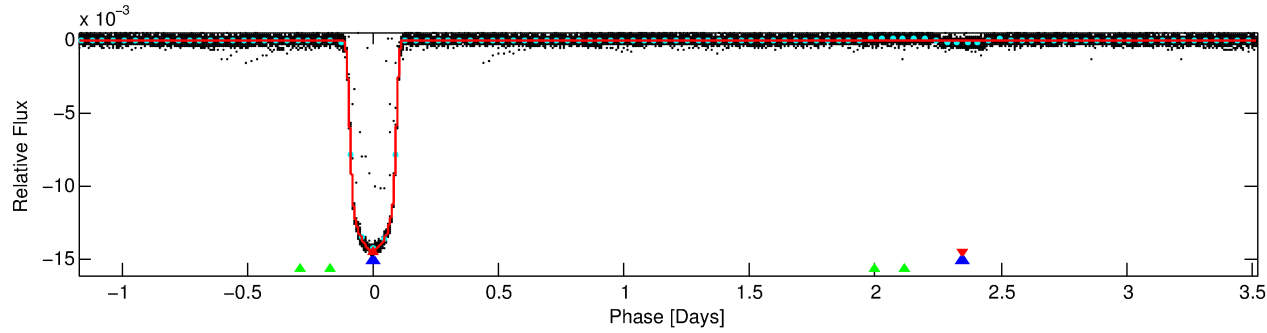
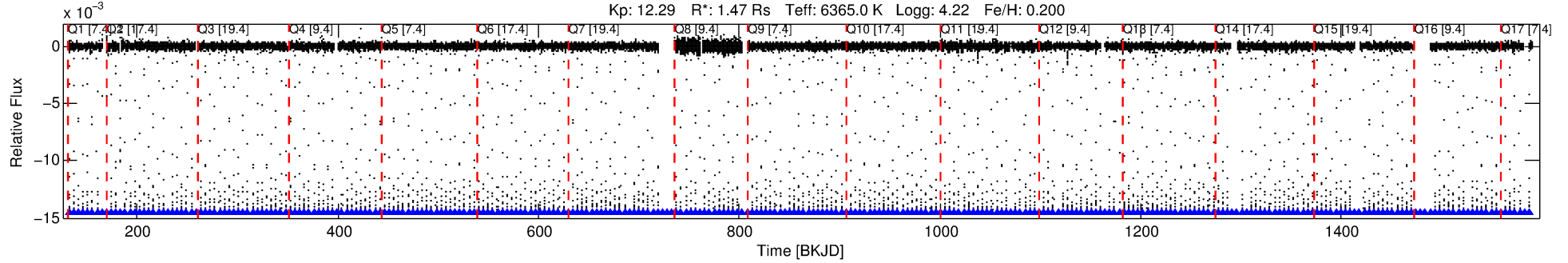
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009071386-01

No Significant Match Found

DV One-Page Summary

KIC: 9071386 Candidate: 1 of 3 Period: 4.693 d
KOI: K00023.01 Corr: 0.996



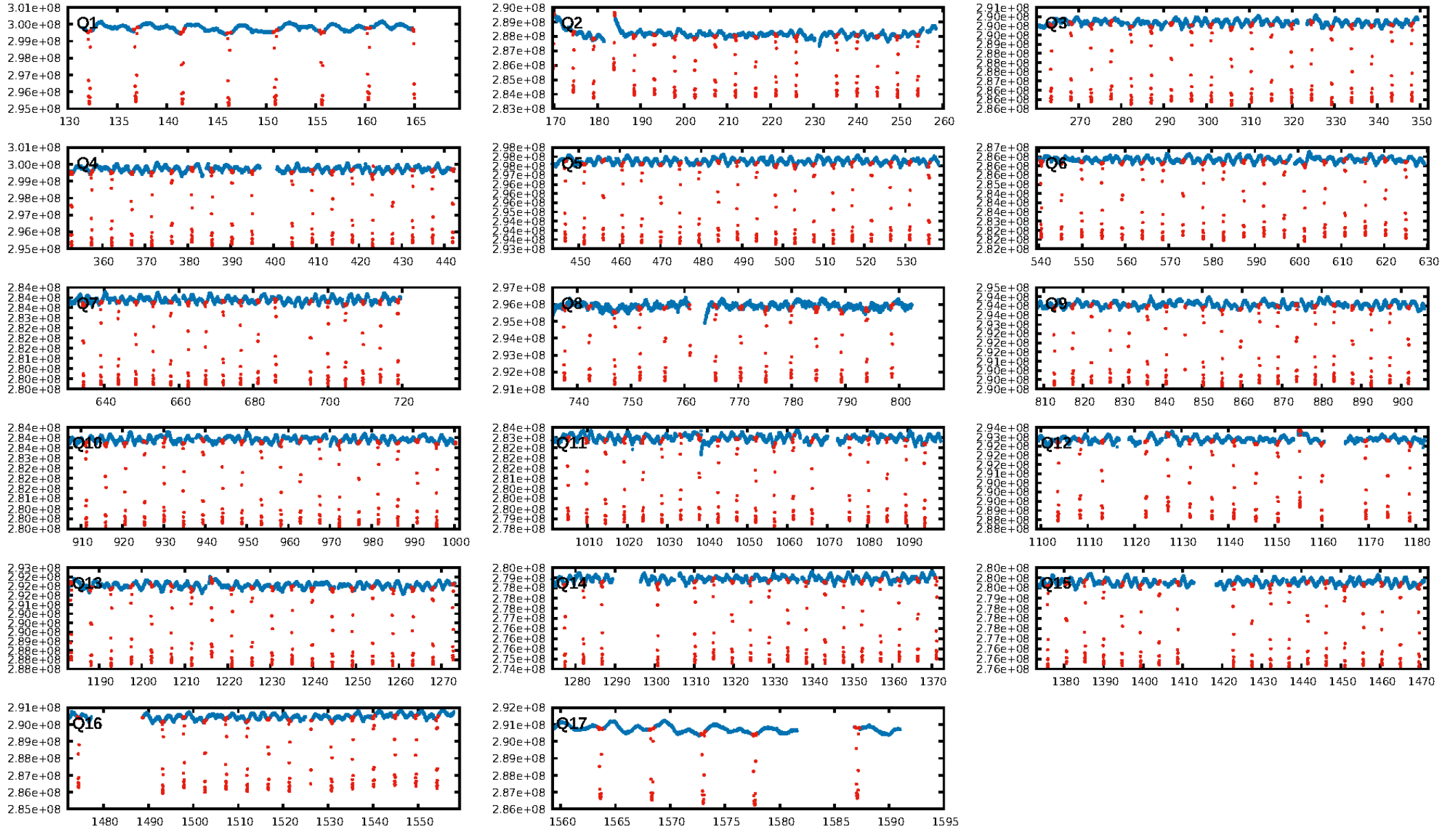
DV Fit Results:

Period = 4.69330 [0.00000] d
Epoch = 132.1697 [0.0000] BKJD
Rp/R* = 0.1111 [0.0000]
a/R* = 7.40 [0.01]
b = 0.32 [0.00]
Seff = 882.39 [210.49]
Teq = 1390 [83] K
Rp = 17.82 [3.24] Re
a = 0.0600 [0.0092] AU
Ag = 1.61 [0.36] [1.70 σ]
Teffp = 2420 [55] K [10.36 σ]

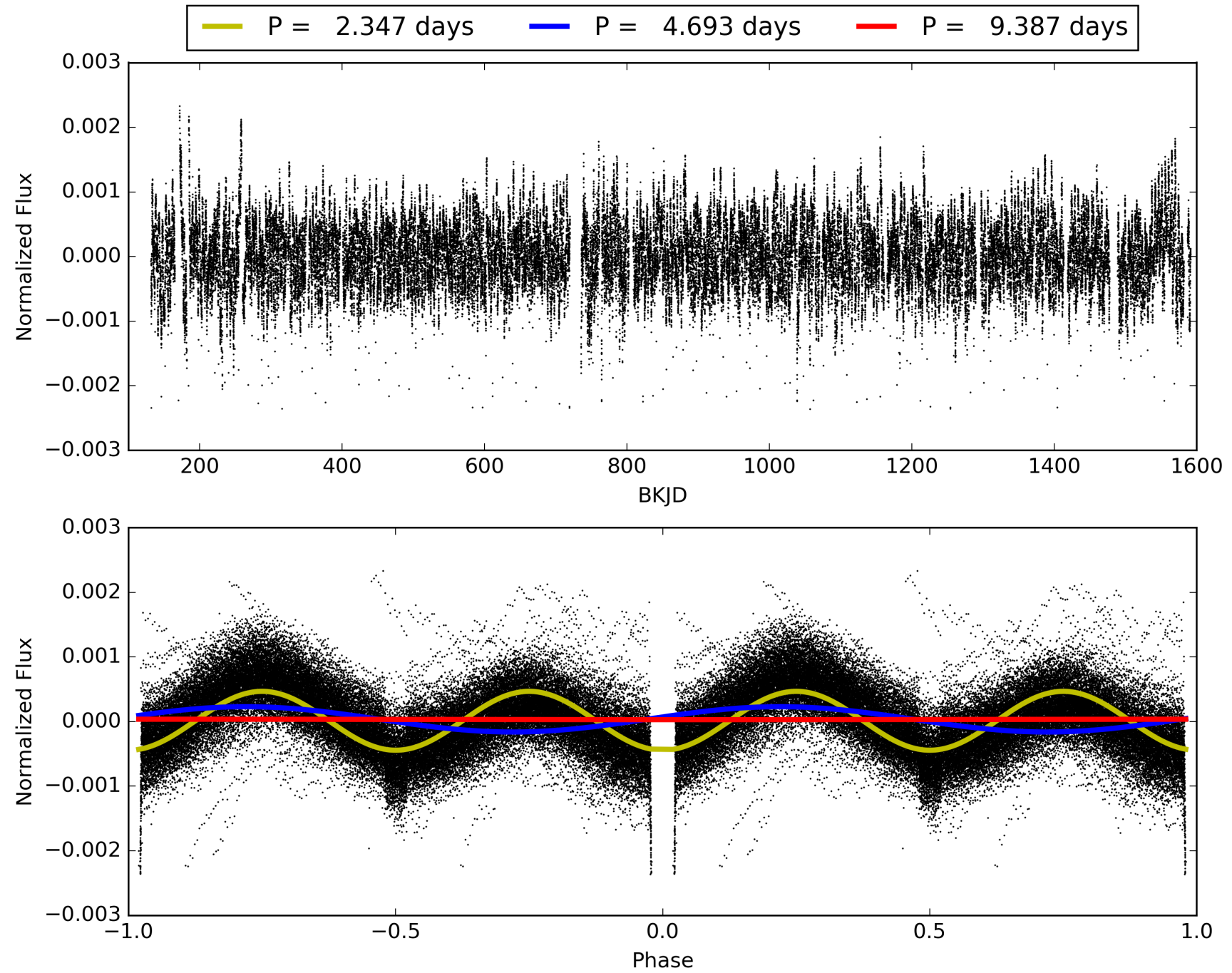
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.71 σ]
LongPeriod-sig: 100.0% [429.51 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [271/271]
GhostDiagnostic-chr: 4.468
Centroid-sig: 0.0%
Centroid-so: 0.105 arcsec [43.38 σ]
OotOffset-rm: 0.010 arcsec [0.15 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.137 arcsec [2.00 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009071386-01, PDC Light Curves

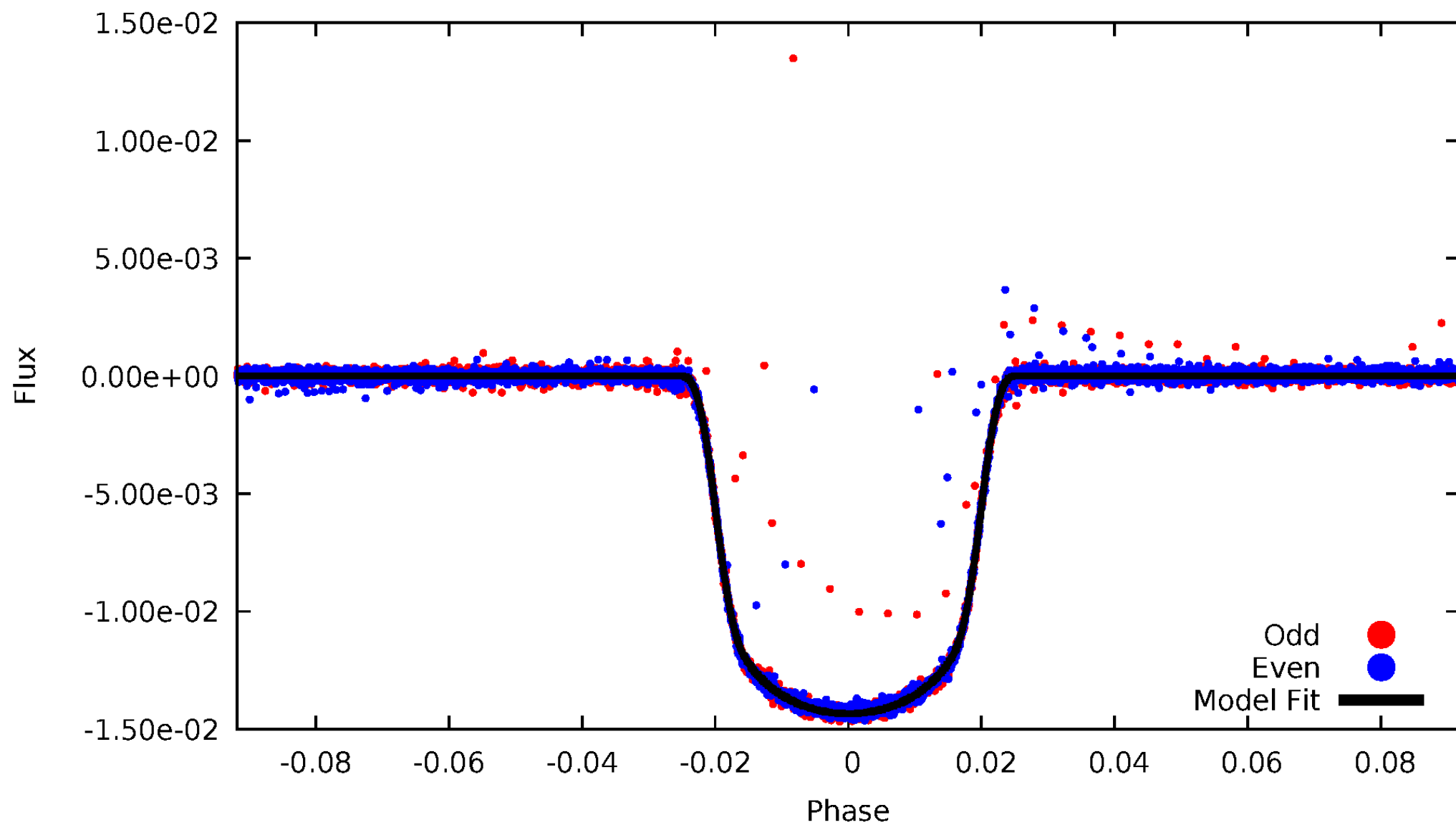


TCE 009071386-01



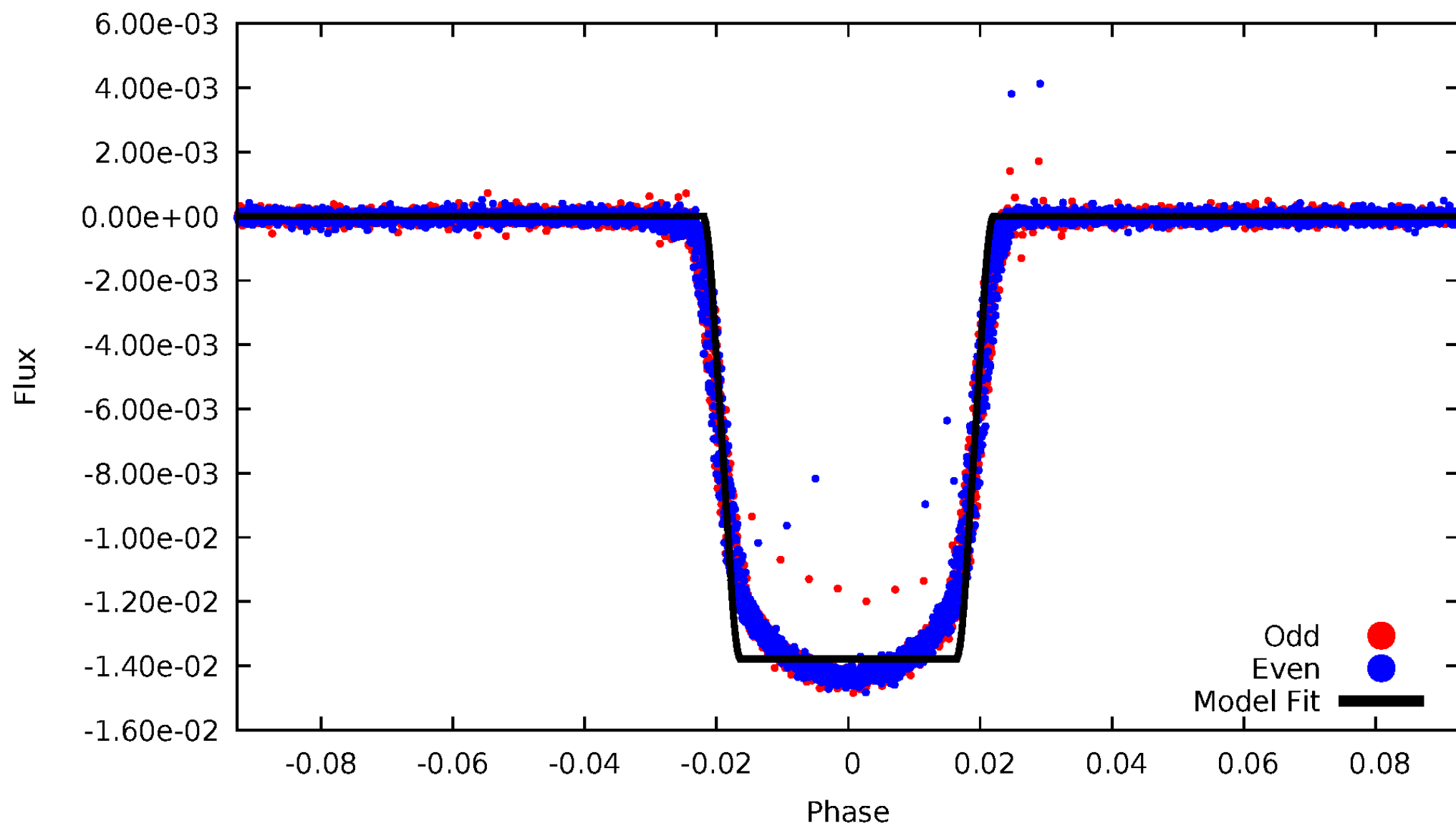
DV Odd/Even

TCE 009071386-01



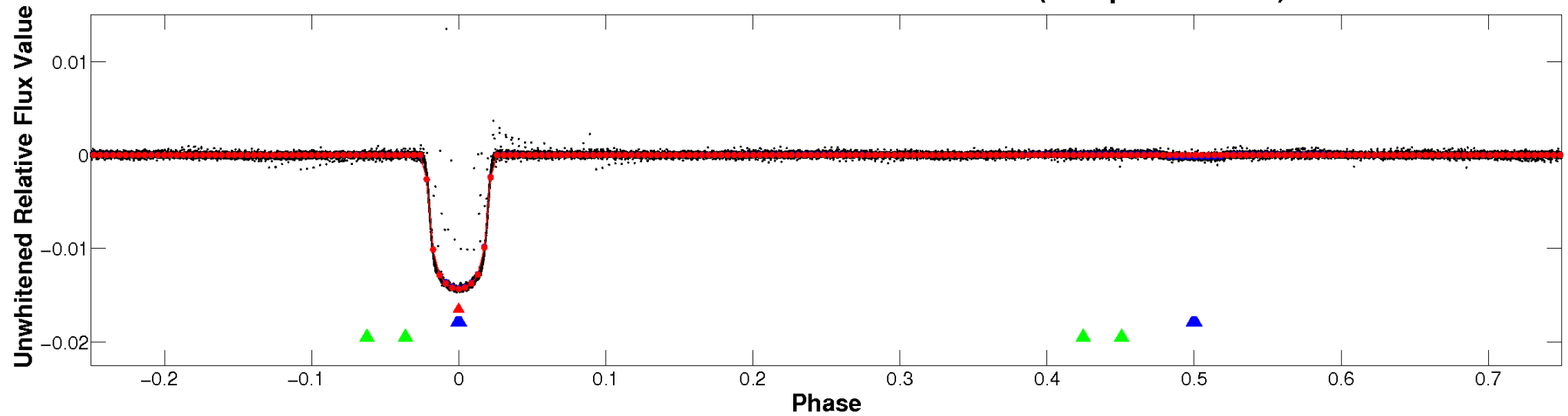
ALT Odd/Even

TCE 009071386-01

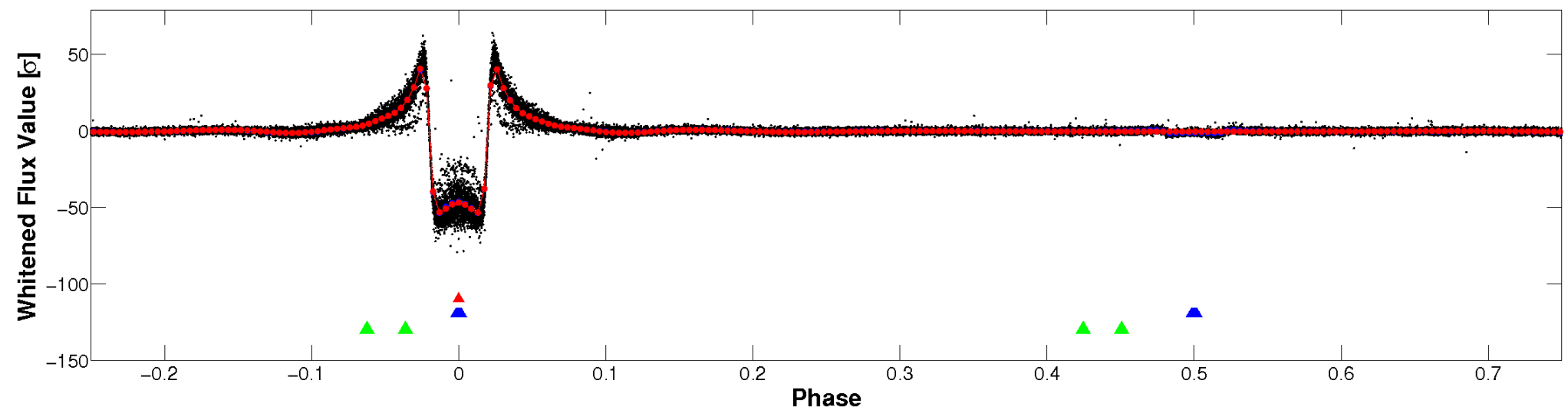


Non-Whitened Vs. Whitened Light Curve

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

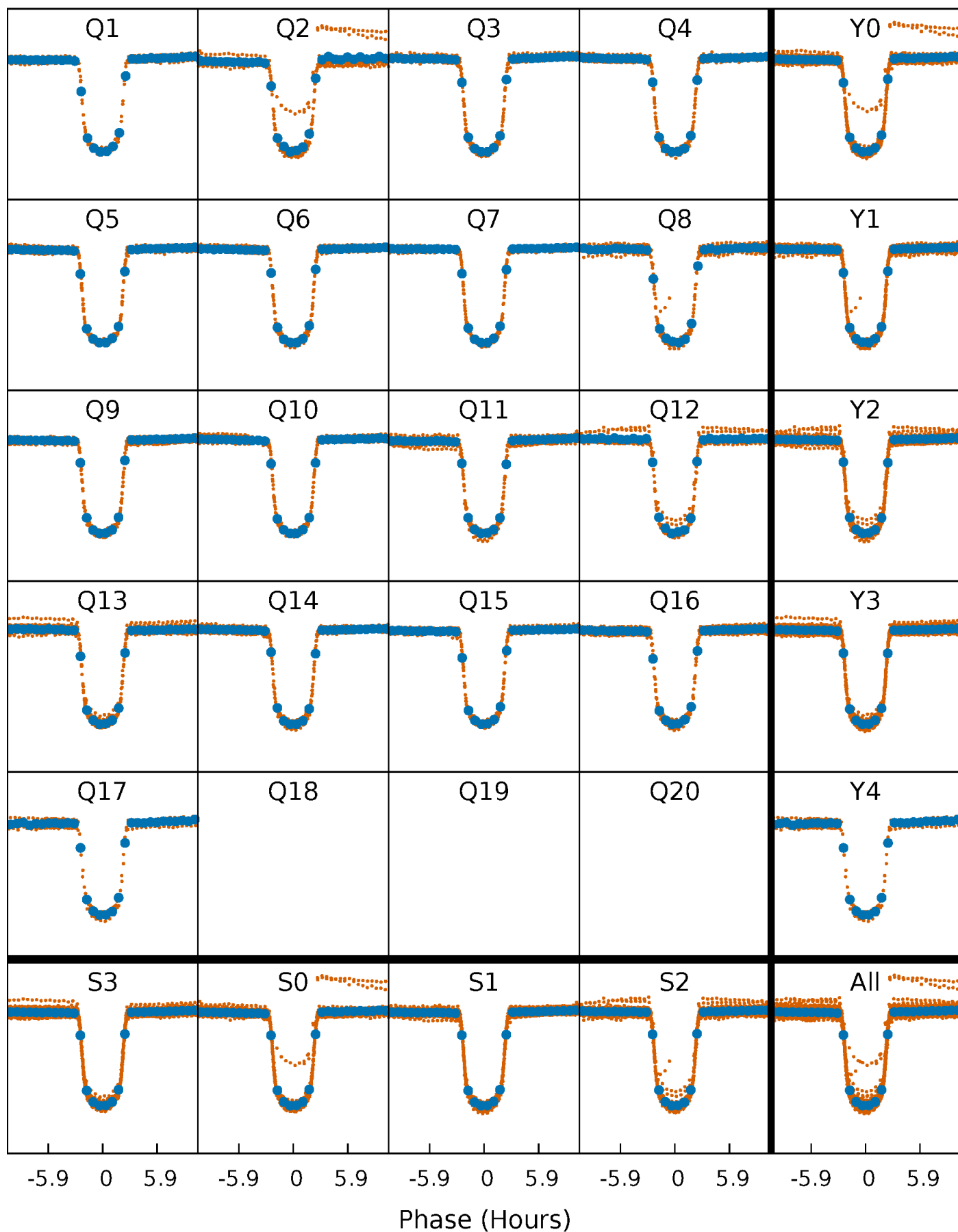


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



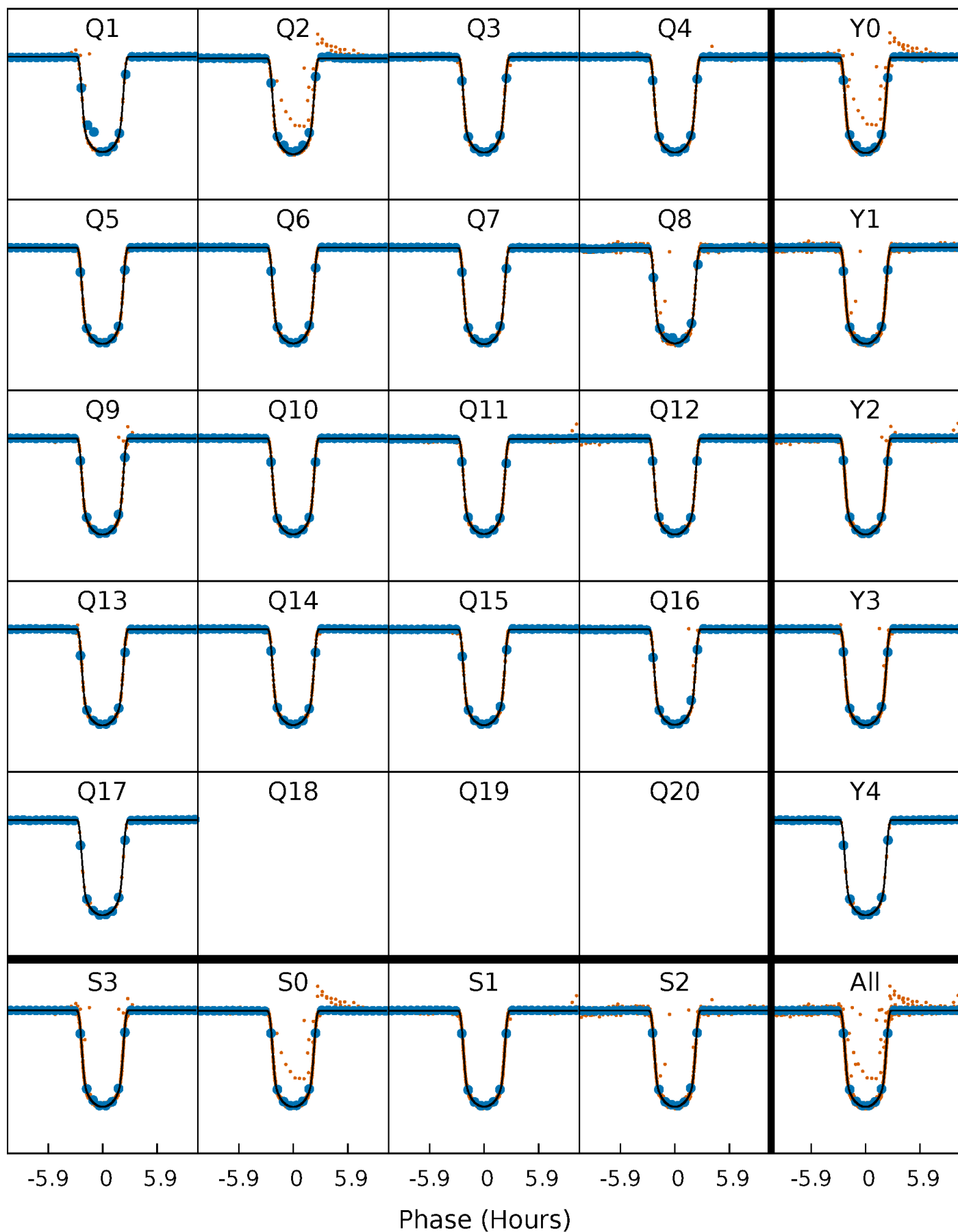
PDC Quarter-Phased Transit Curves

TCE 009071386-01 P= 4.693304 Days $T_0=132.169666$ (BKJD)



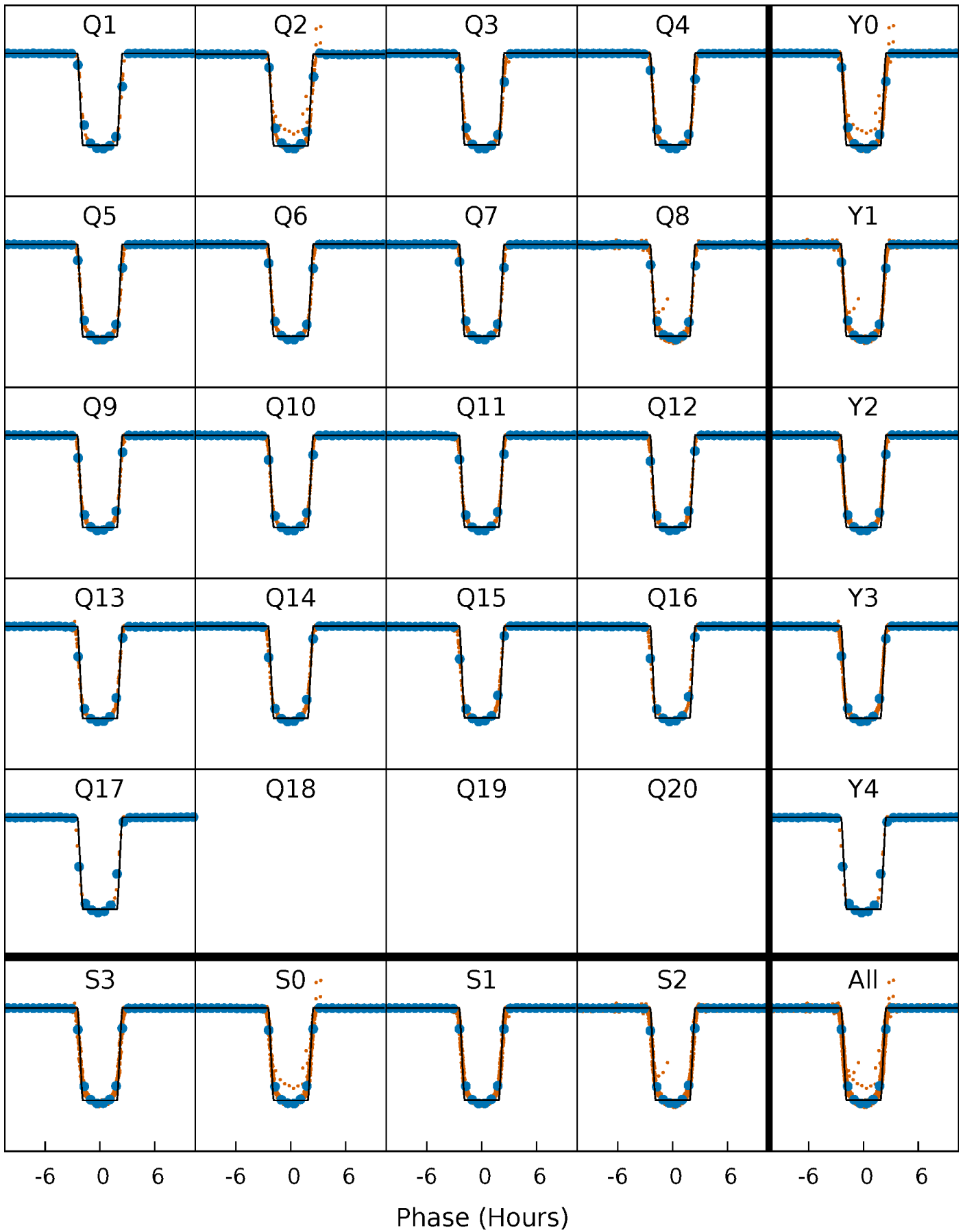
DV Quarter-Phased Transit Curves

TCE 009071386-01 P= 4.693304 Days $T_0=132.169666$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

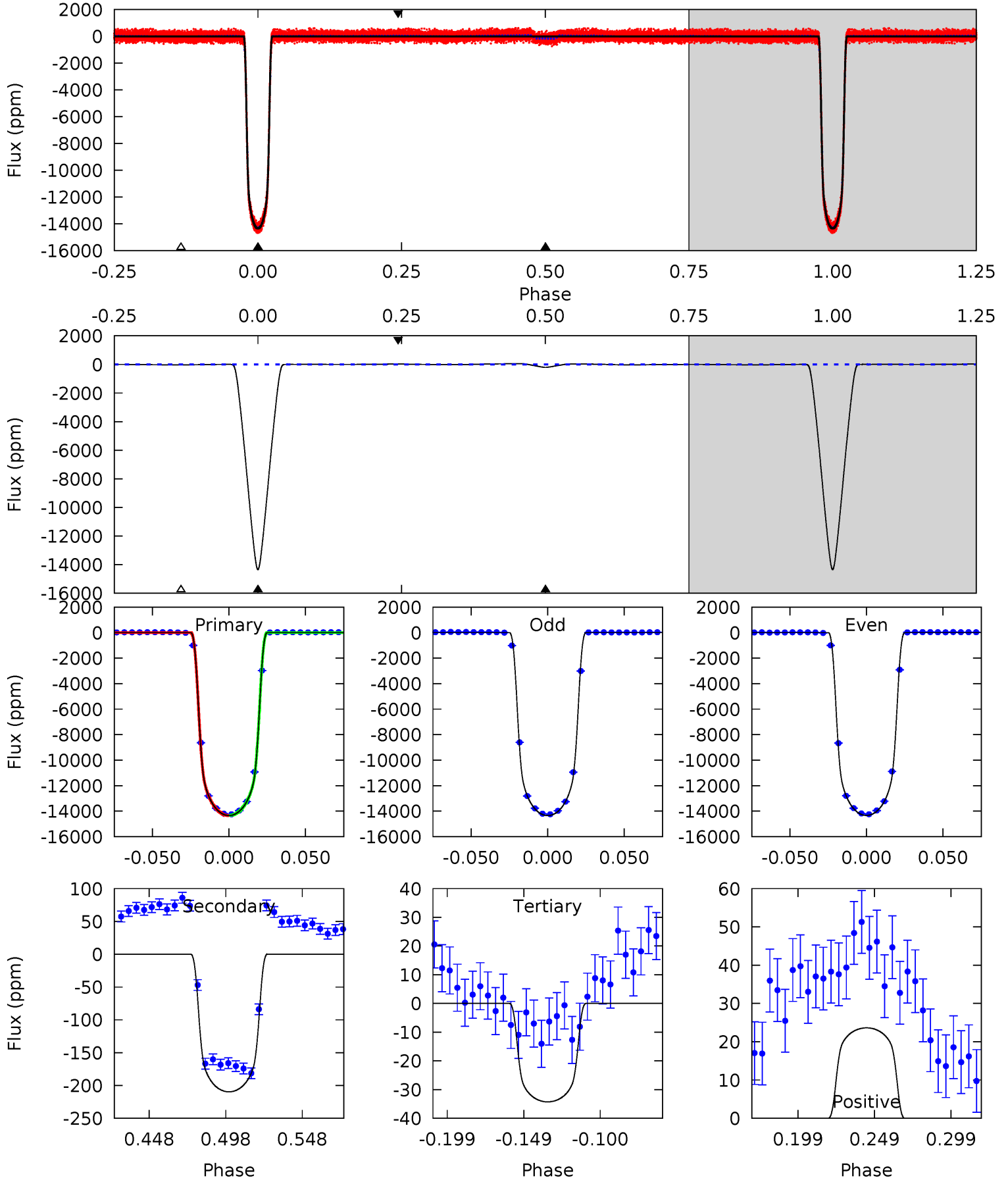
TCE 009071386-01 P= 4.693342 Days $T_0=132.163825$ (BKJD)



DV Model-Shift Uniqueness Test

009071386-01, P = 4.693304 Days, E = 127.476362 Days

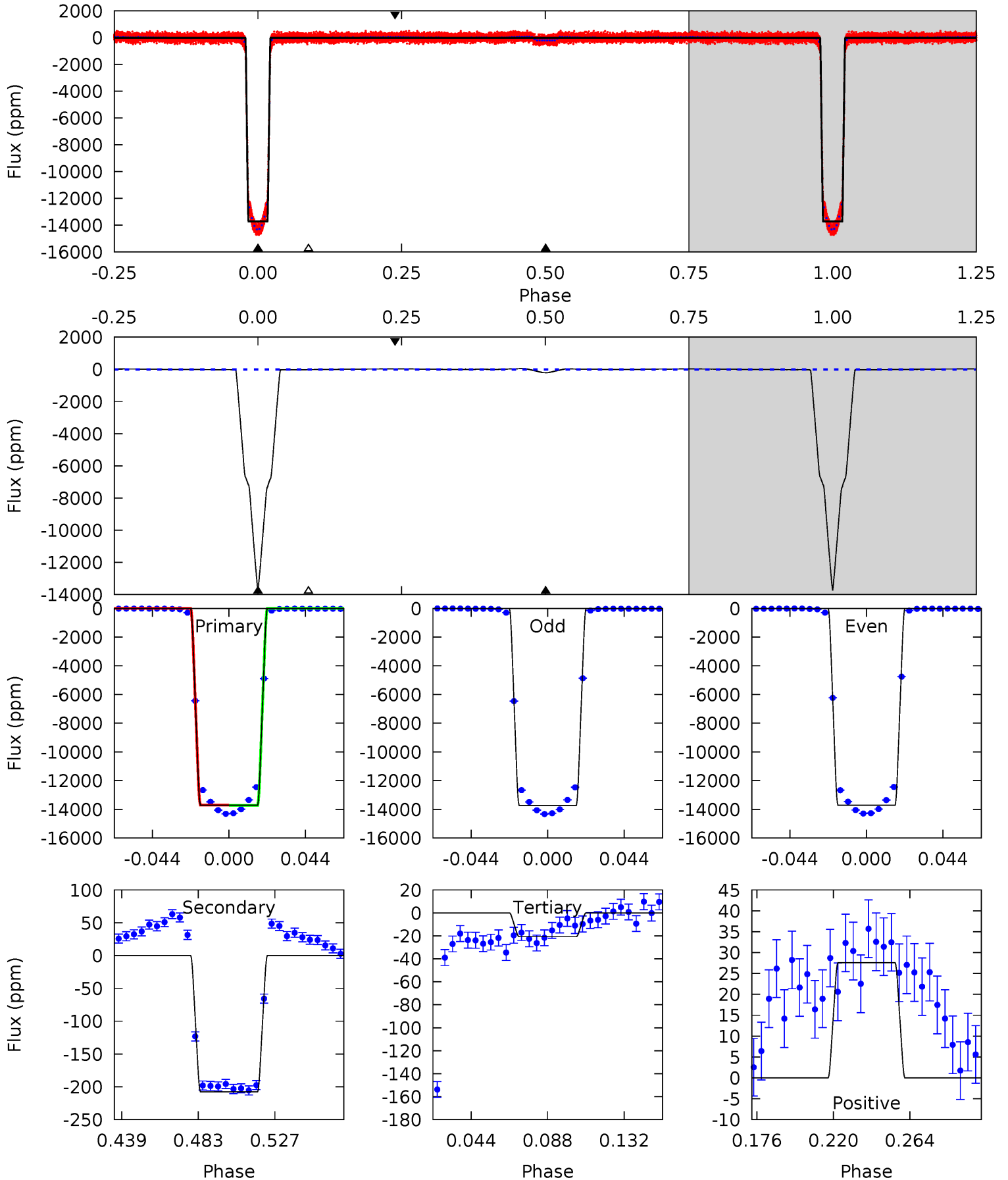
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5586	81.7	13.4	9.20	4.71	1.96	7.64	5573	5577	68.3	72.5	2.38	0.98	0.00	1.57



Alt Model-Shift Uniqueness Test

009071386-01, P = 4.693342 Days, E = 127.470483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5526	83.7	8.34	11.1	4.73	2.01	6.12	5518	5515	75.3	72.6	1.91	1.00	0.00	3.50



Stellar Parameters For KIC 009071386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6365^{+115}_{-140}	$4.220^{+0.099}_{-0.121}$	$0.200^{+0.150}_{-0.200}$	$1.470^{+0.267}_{-0.200}$	$1.312^{+0.093}_{-0.113}$	$0.581^{+0.260}_{-0.210}$
	+2%/-2%	+2%/-3%	+75%/-100%	+18%/-14%	+7%/-9%	+45%/-36%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009071386-01 / KOI 0023.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-210 ± 3	$17.81^{+1.67}_{-1.30}$	1946^{+92}_{-85}	2868^{+37}_{-38}	$1.303^{+0.201}_{-0.214}$
Alt.	-208 ± 2	$18.86^{+1.81}_{-1.27}$	1946^{+92}_{-79}	2807^{+38}_{-40}	$1.149^{+0.180}_{-0.184}$

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 $A_{obs} \gg 1.0$

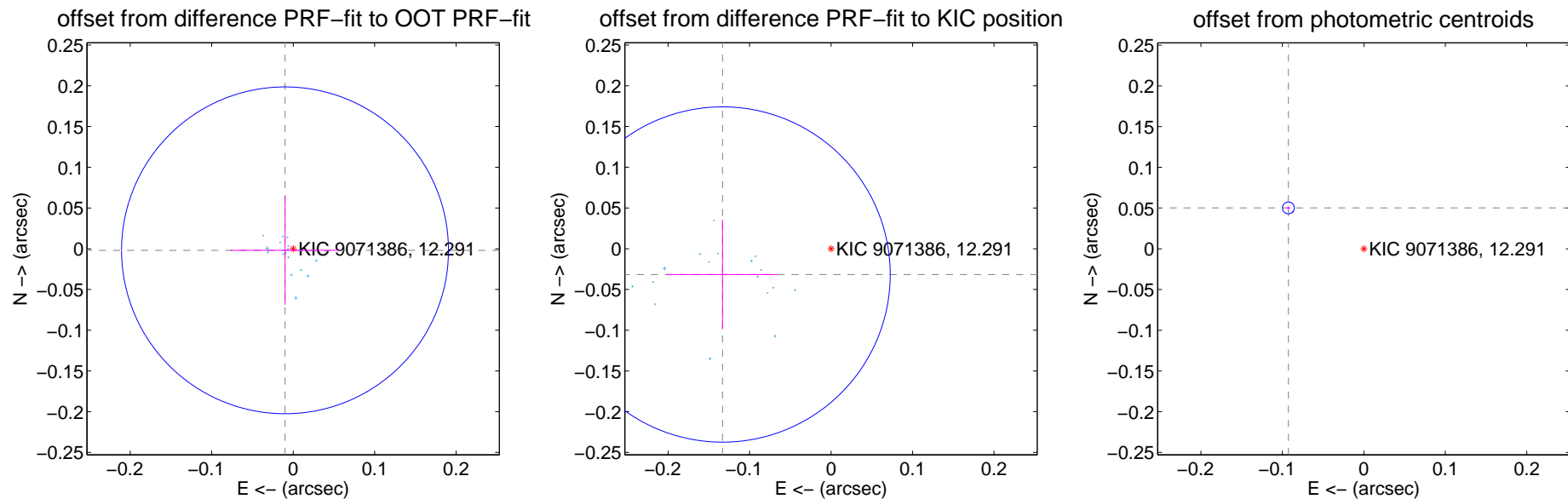
DV Centroid Data

Supplemental centroid analysis for 009071386-01. Kepler magnitude: 12.29. Transit SNR 2739.62

There are 17 quarters with good PRF difference image offsets

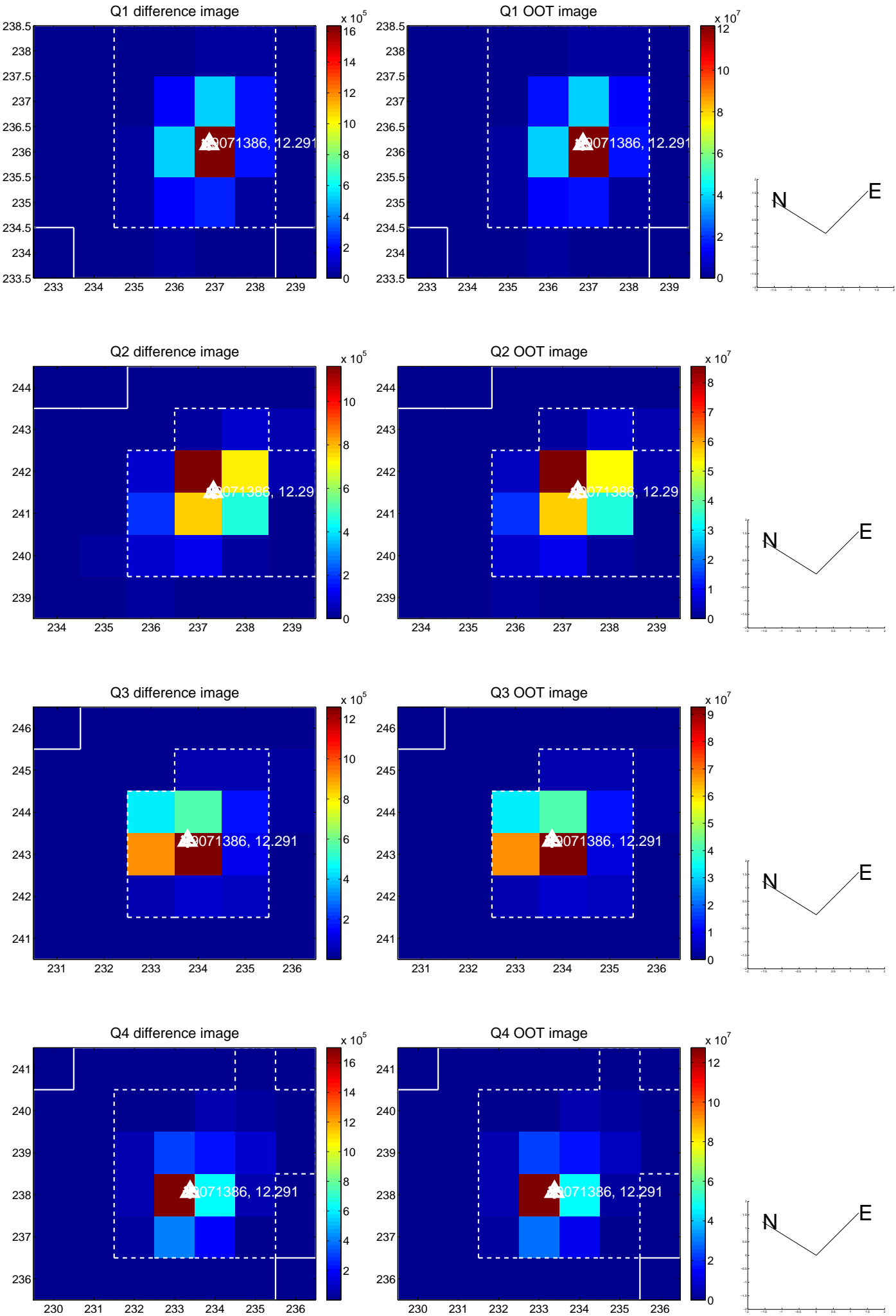
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.010 ± 0.067	0.15	0.010 ± 0.067	-0.002 ± 0.067
PRF-fit source offset from KIC position	0.137 ± 0.069	2.00	0.133 ± 0.069	-0.032 ± 0.067
photometric centroid source offset	0.11 ± 0.00	43.38	0.09 ± 0.00	0.05 ± 0.00

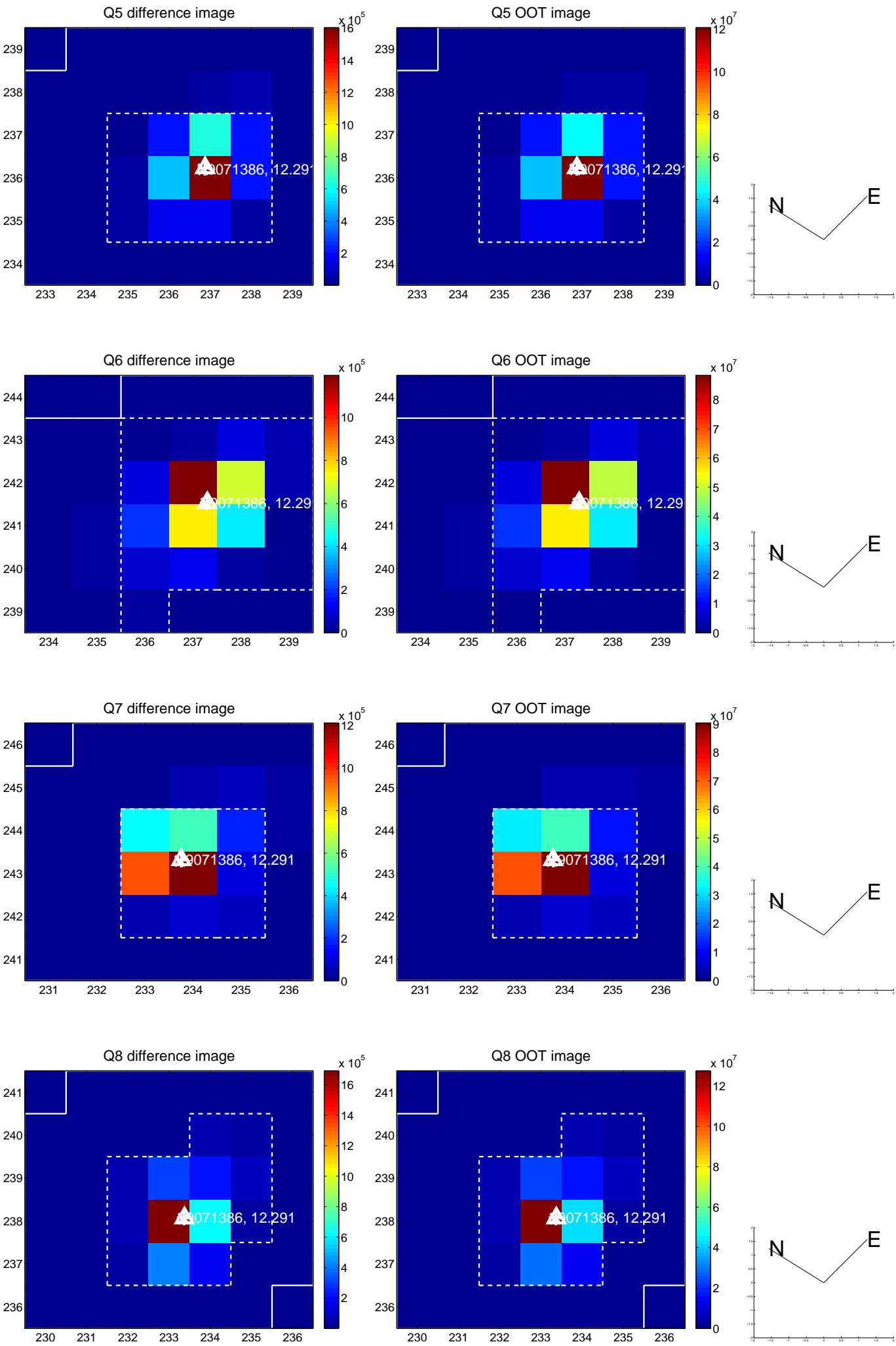


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

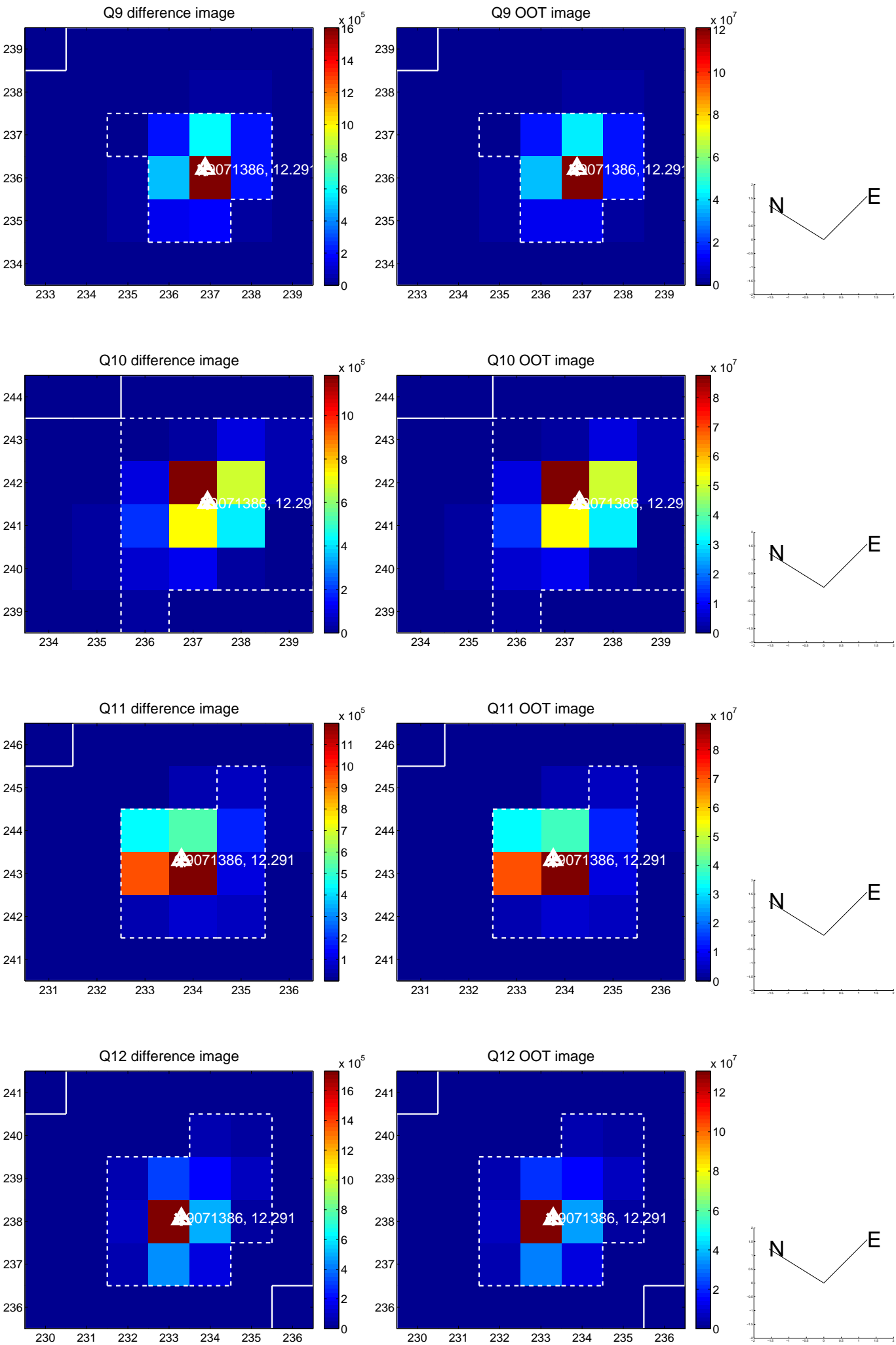
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



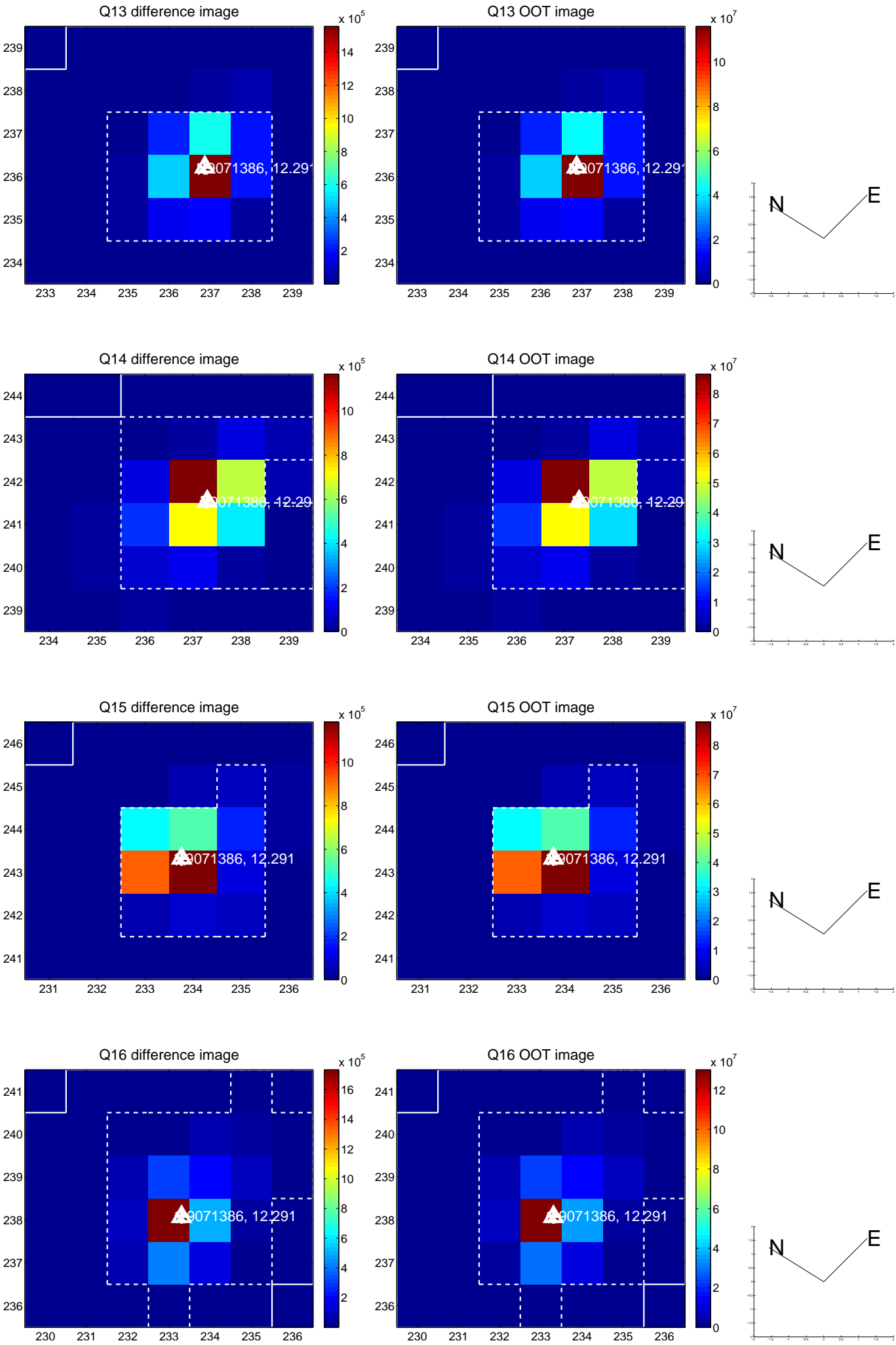
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



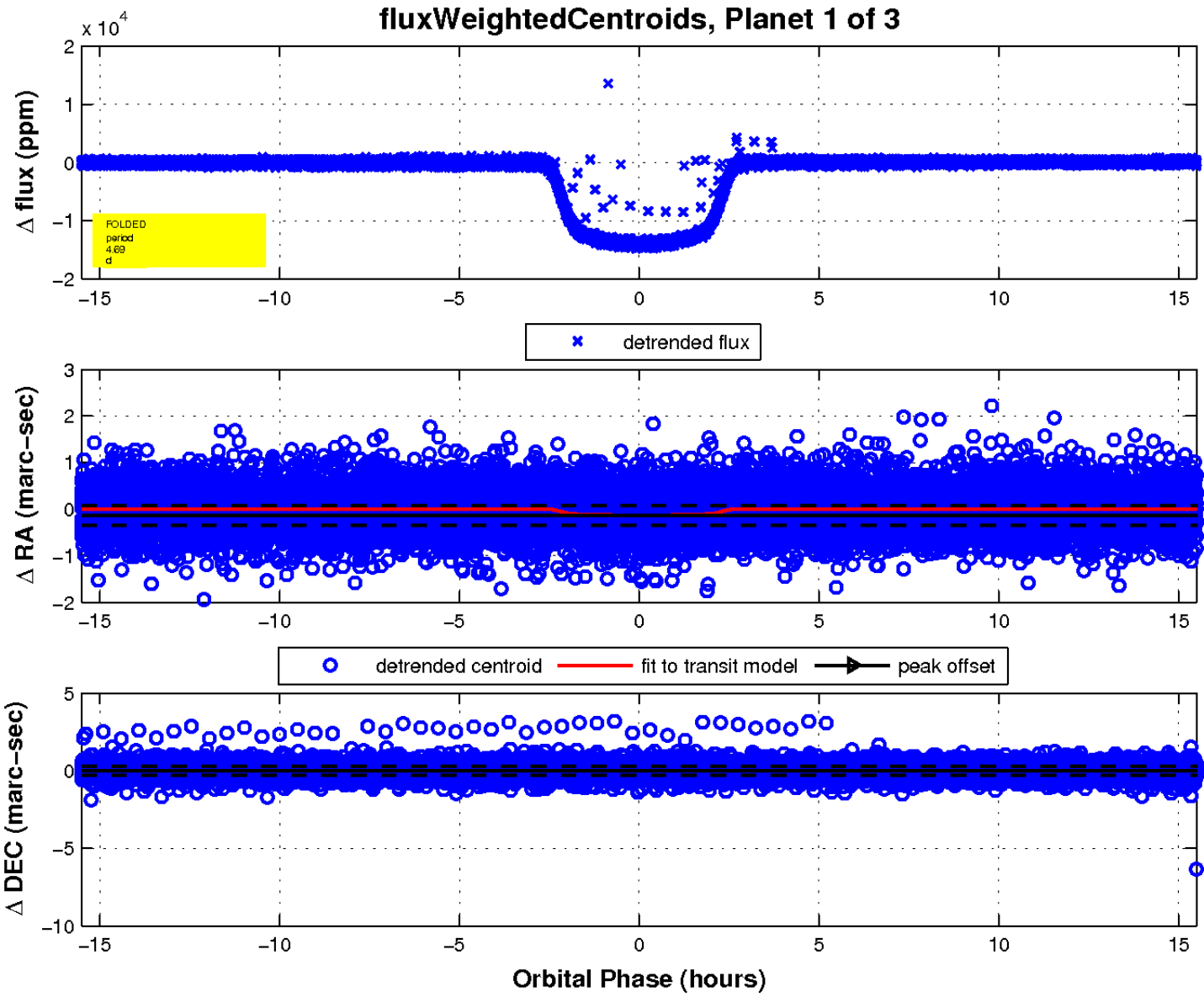
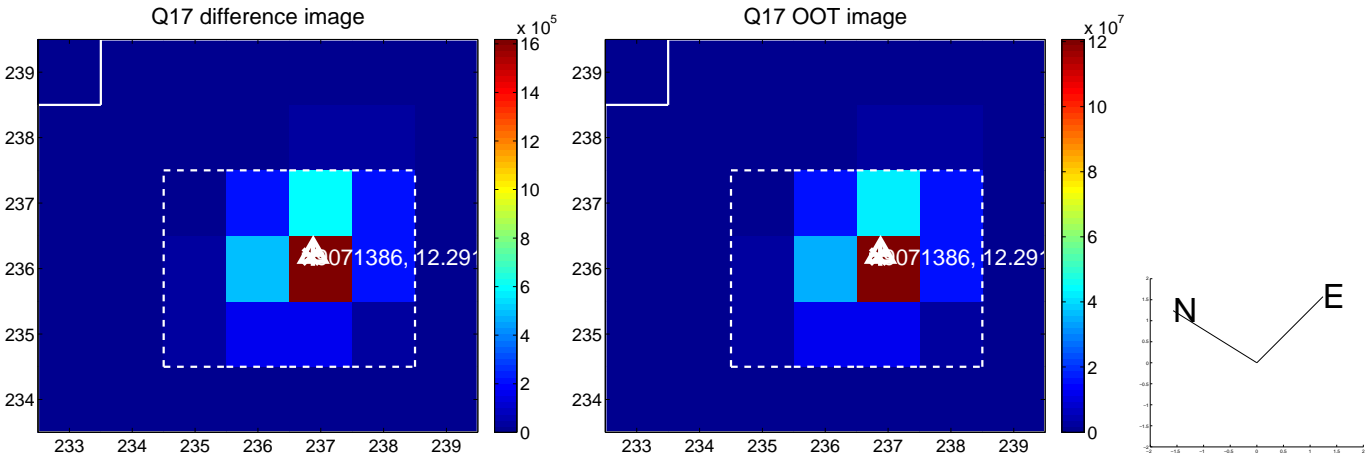
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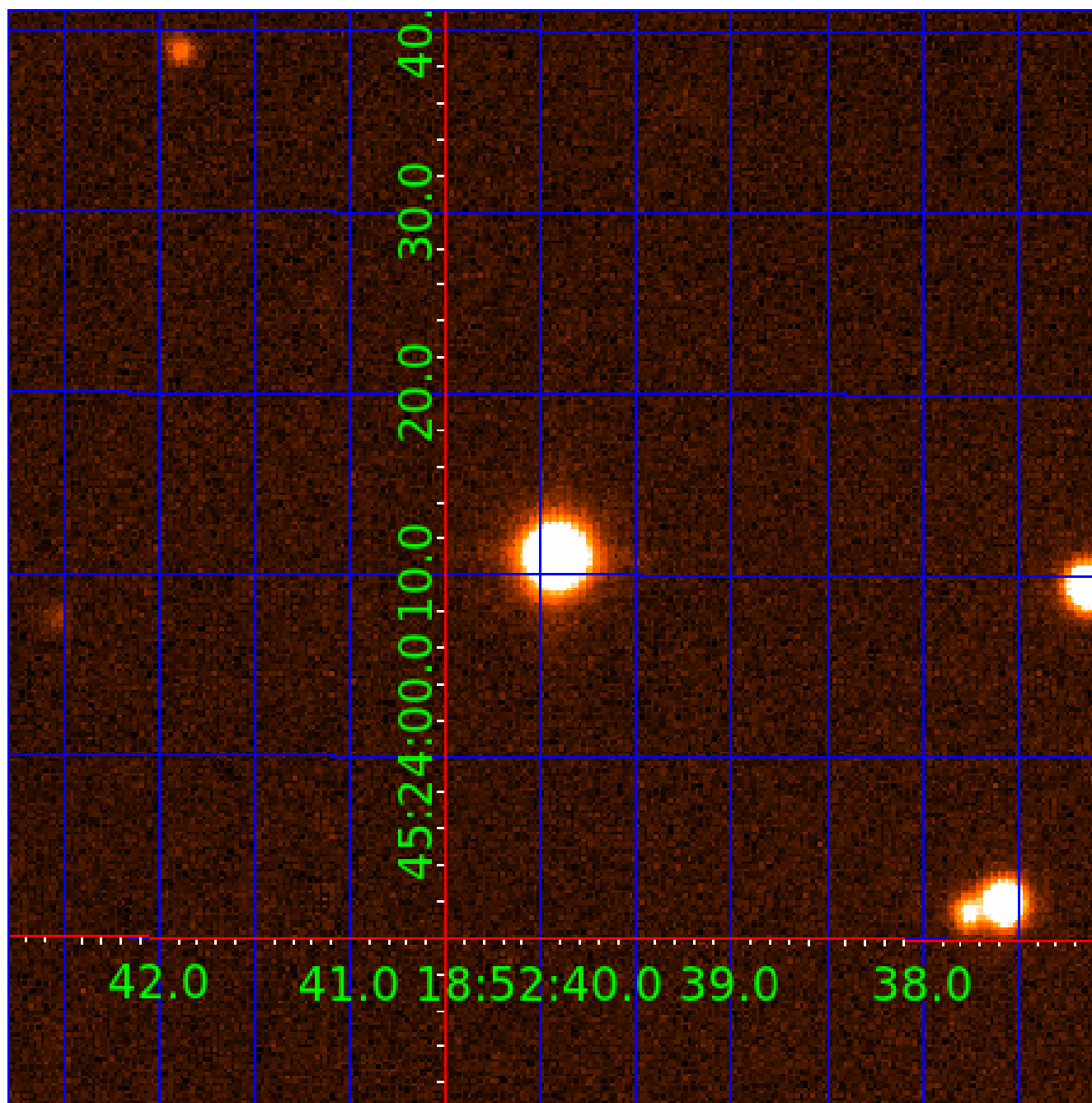


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009071386

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})
009071386-01	OBS	0023.01	4.693304	132.169666	14341.1	5.171	2739.5	2739.6	1.47	6365	17.82	882.39
009071386-02	OBS	No	2.346625	132.178316	277.1	5.166	58.8	57.6	1.47	6365	2.87	2223.52
009071386-03	OBS	No	401.338873	340.667856	833.9	21.552	8.5	6.7	1.47	6365	8.14	2.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009071386-01	OBS	FP	0.27	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009071386-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009071386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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.

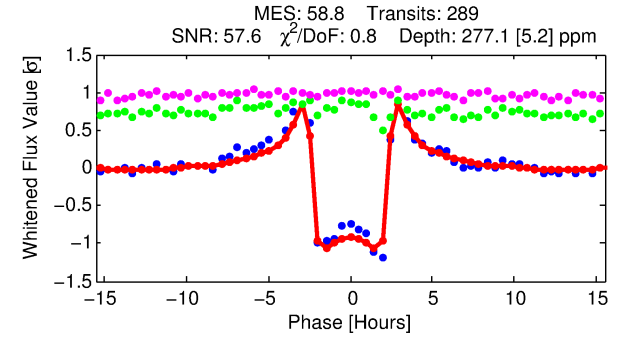
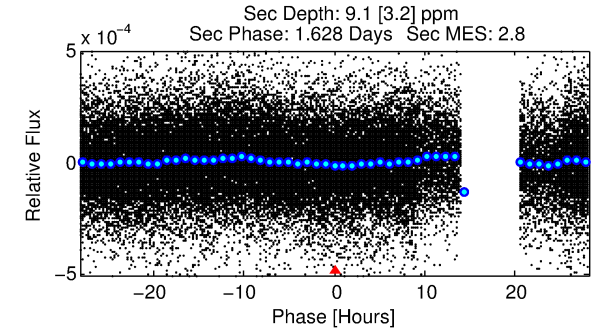
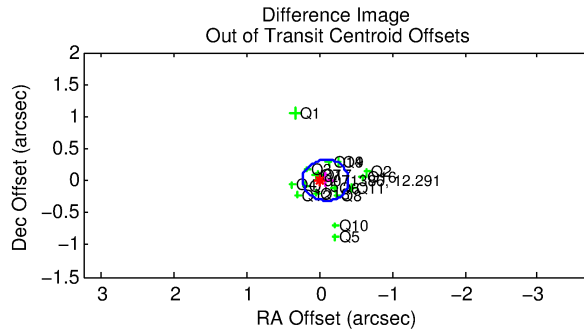
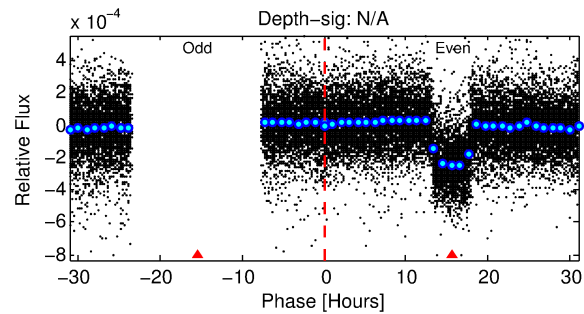
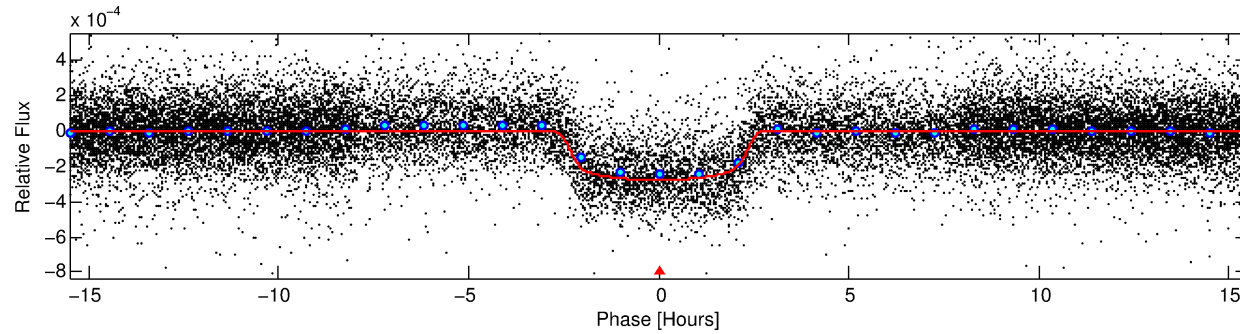
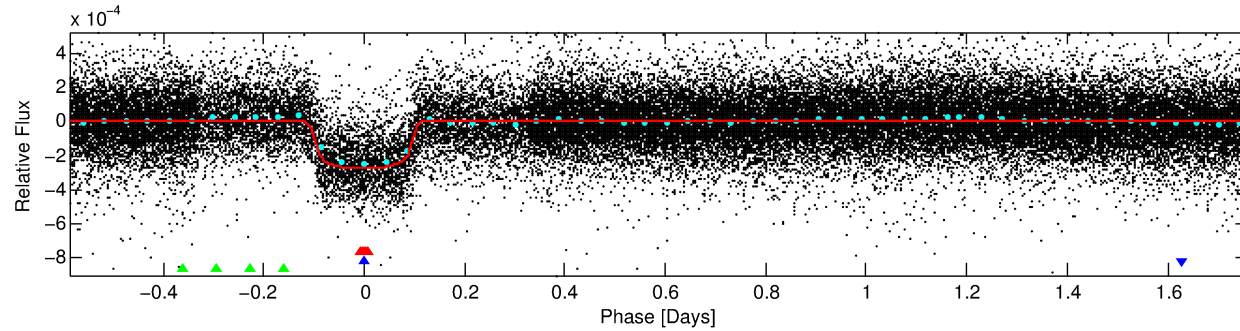
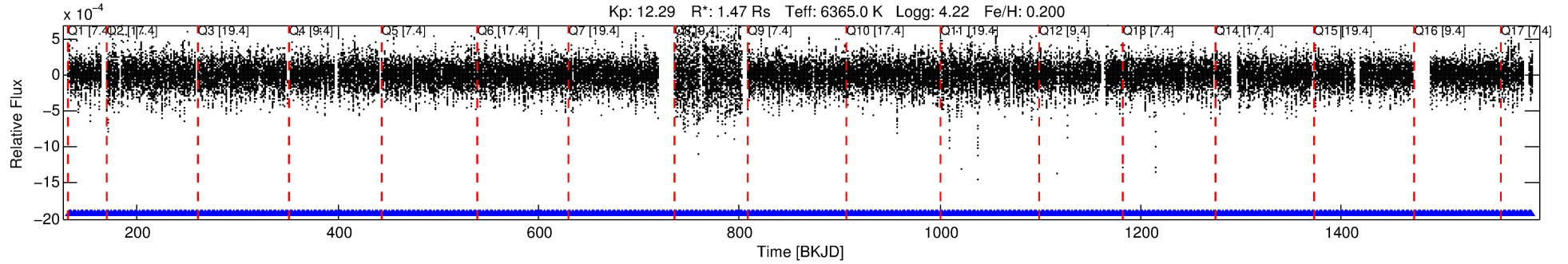
Ephemeris Match Information For 009071386-02

No Significant Match Found

DV One-Page Summary

KIC: 9071386 Candidate: 2 of 3 Period: 2.347 d

KOI: K00023 Corr: No Ephemeris Match



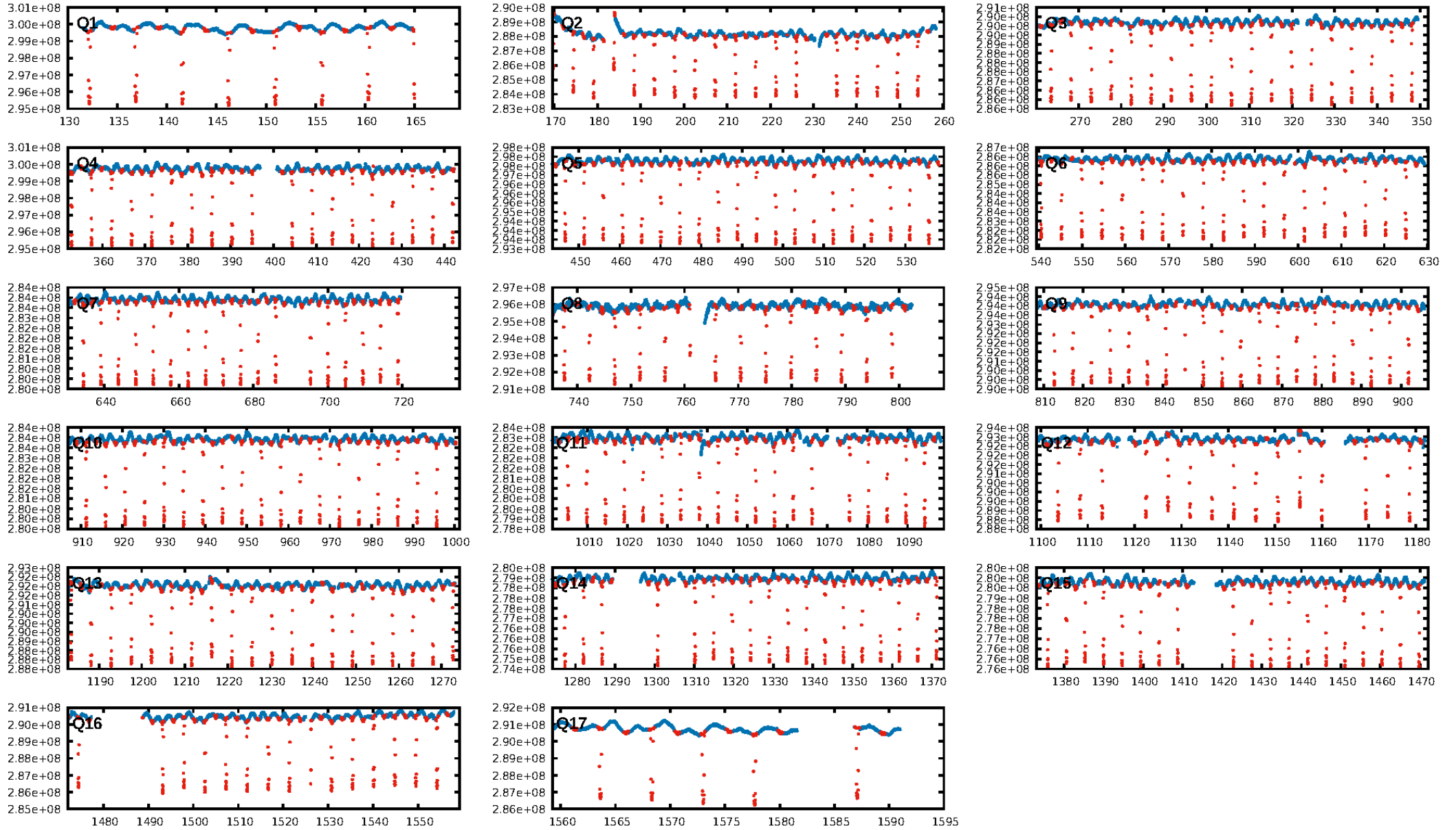
DV Fit Results:

Period = 2.34662 [0.00000] d
Epoch = 132.1783 [0.0005] BKJD
Rp/R* = 0.0179 [0.0004]
a/R* = 1.90 [0.12]
b = 0.90 [0.02]
Seff = 2223.52 [530.41]
Teq = 1751 [104] K
Rp = 2.87 [0.53] Re
a = 0.0378 [0.0058] AU
Ag = 0.87 [0.36] [-0.37σ]
Teffp = 2611 [240] K [3.29σ]

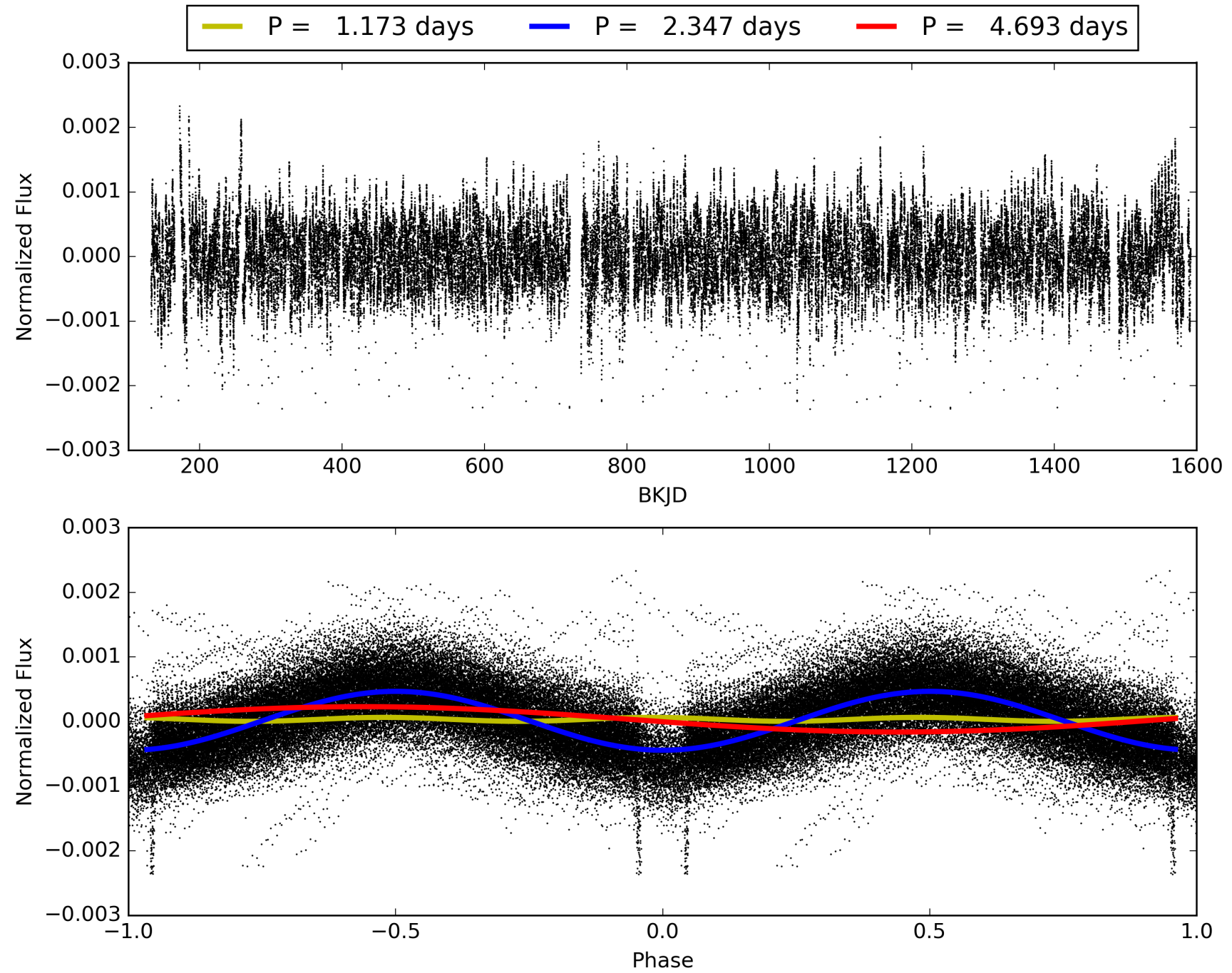
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [7.71σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [276/276]
GhostDiagnostic-chr: 10
Centroid-sig: 0.0%
Centroid-so: 0.205 arcsec [2.55σ]
OotOffset-rm: 0.086 arcsec [0.82σ]
KicOffset-rm: 0.040 arcsec [0.40σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009071386-02, PDC Light Curves

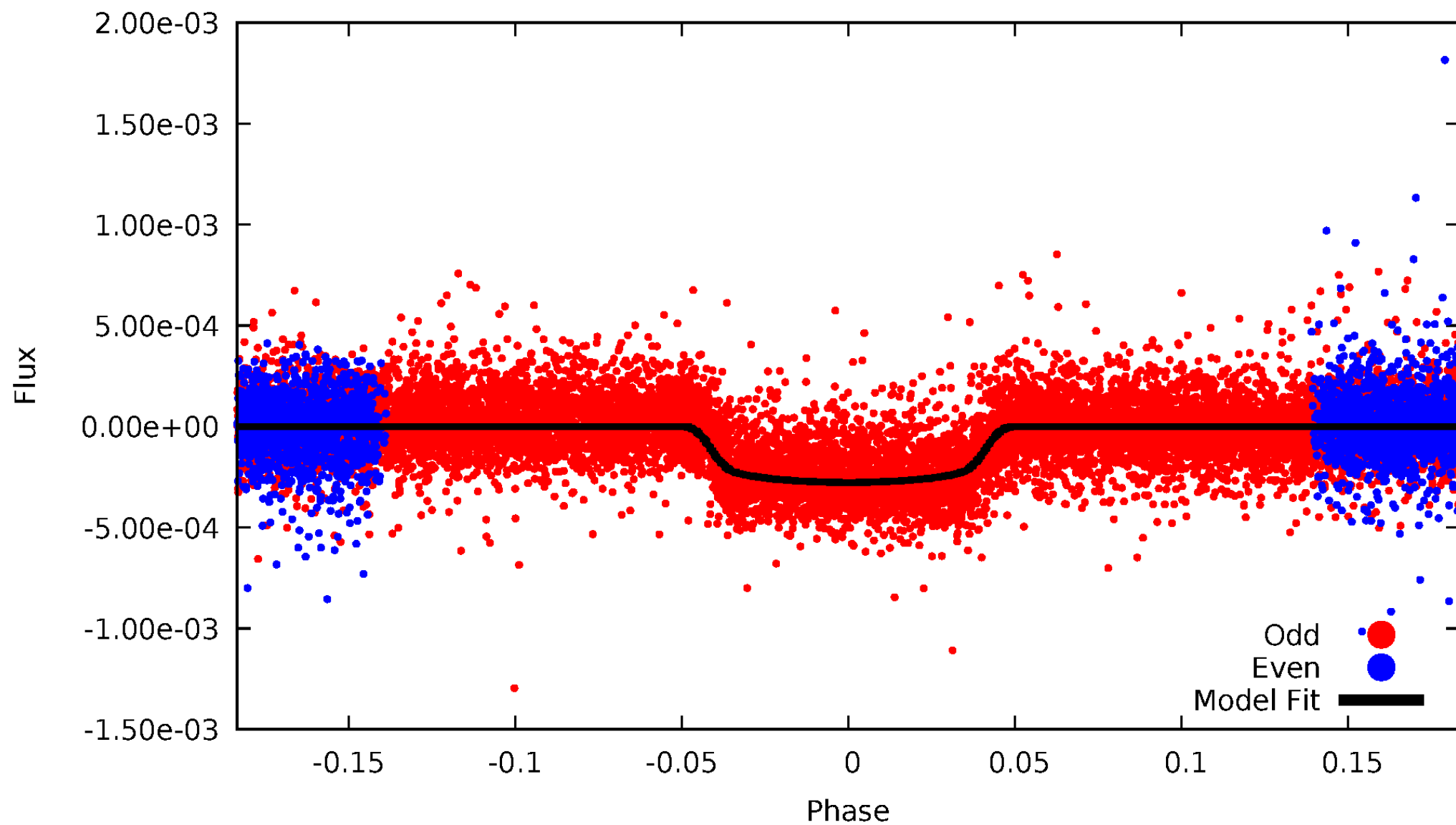


TCE 009071386-02



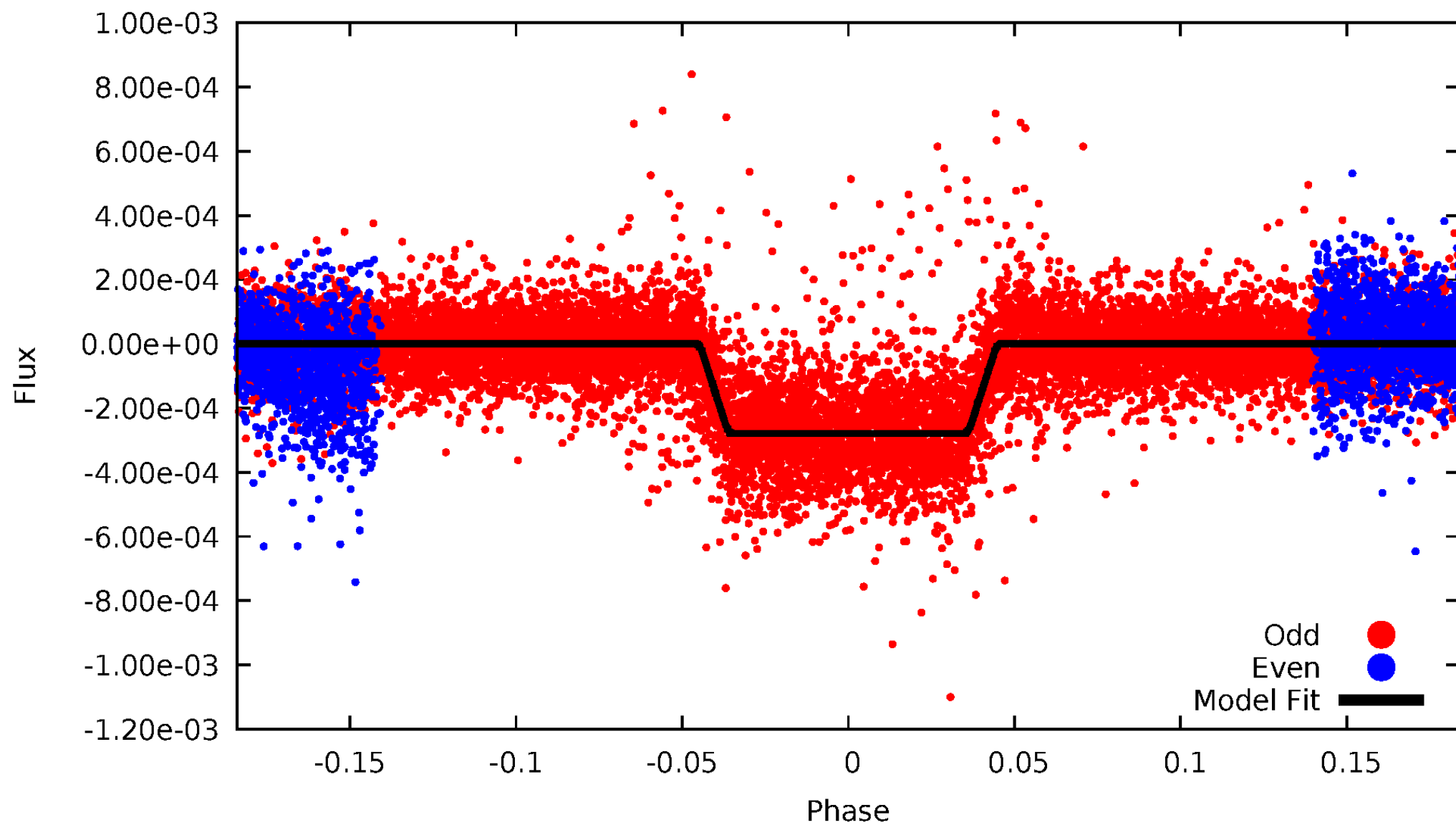
DV Odd/Even

TCE 009071386-02



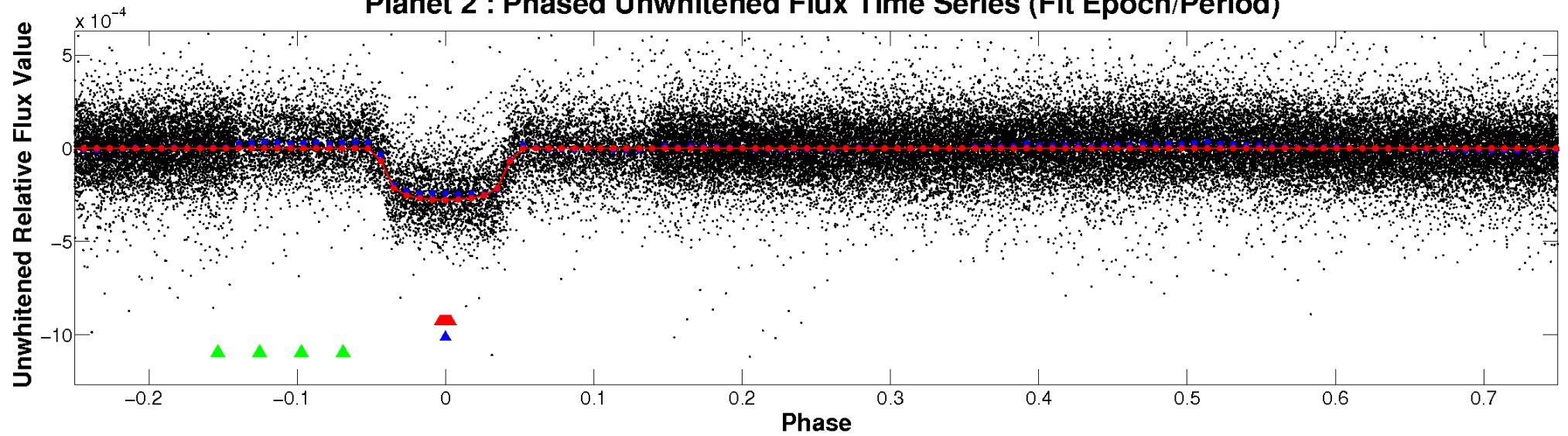
ALT Odd/Even

TCE 009071386-02

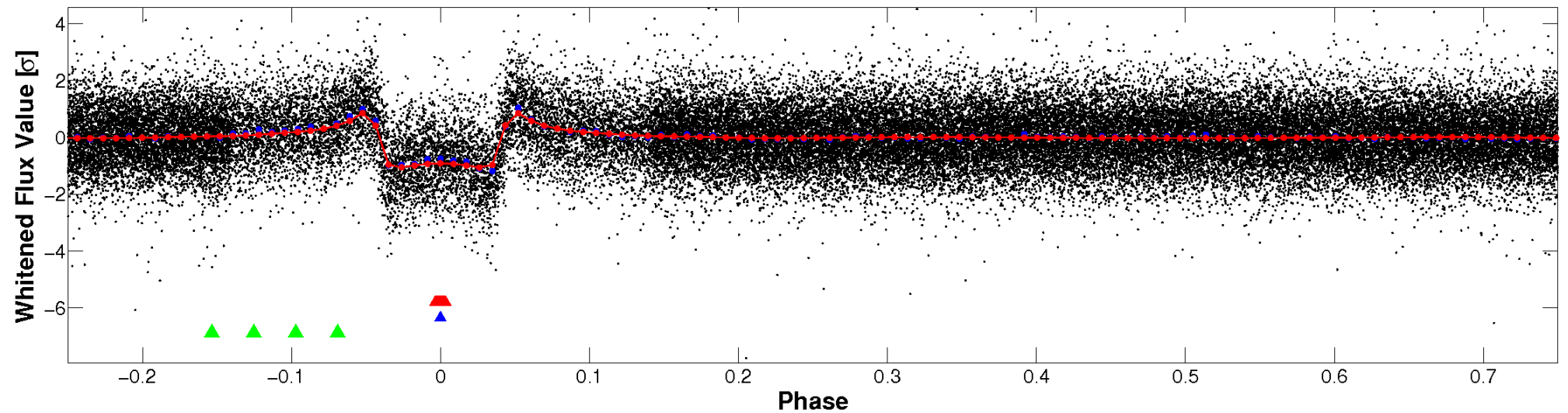


Non-Whitened Vs. Whitened Light Curve

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

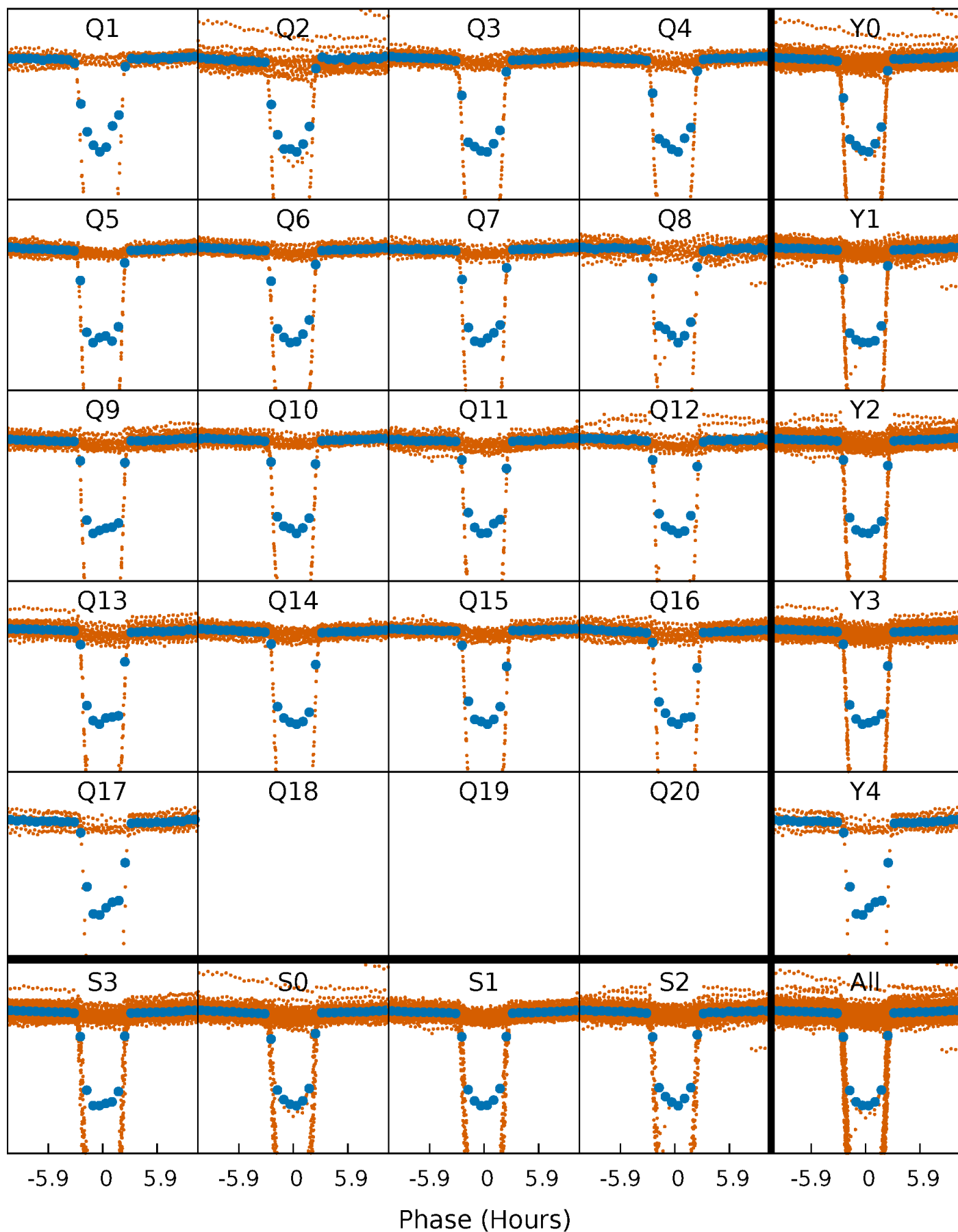


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



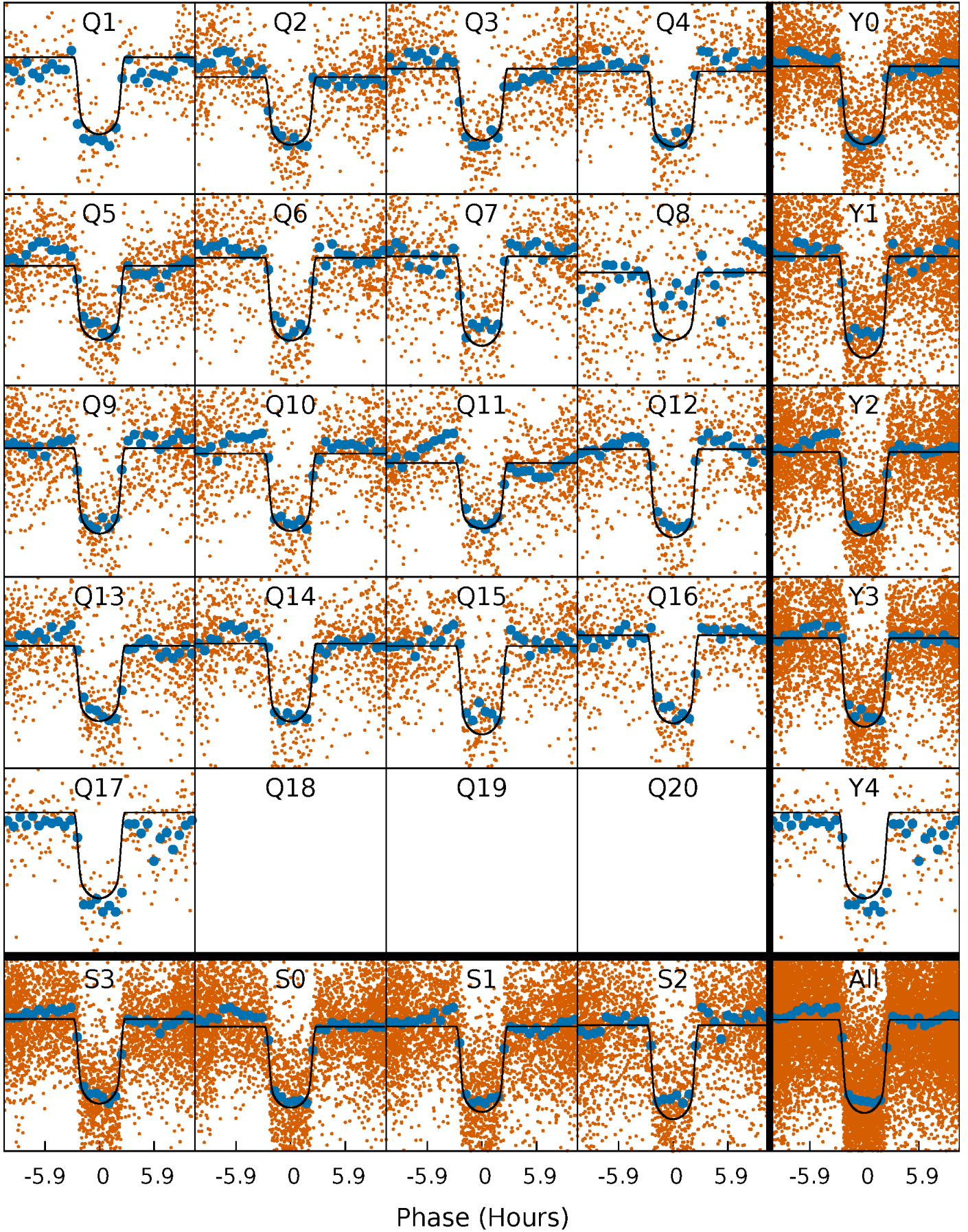
PDC Quarter-Phased Transit Curves

TCE 009071386-02 P= 2.346625 Days $T_0=132.178316$ (BKJD)



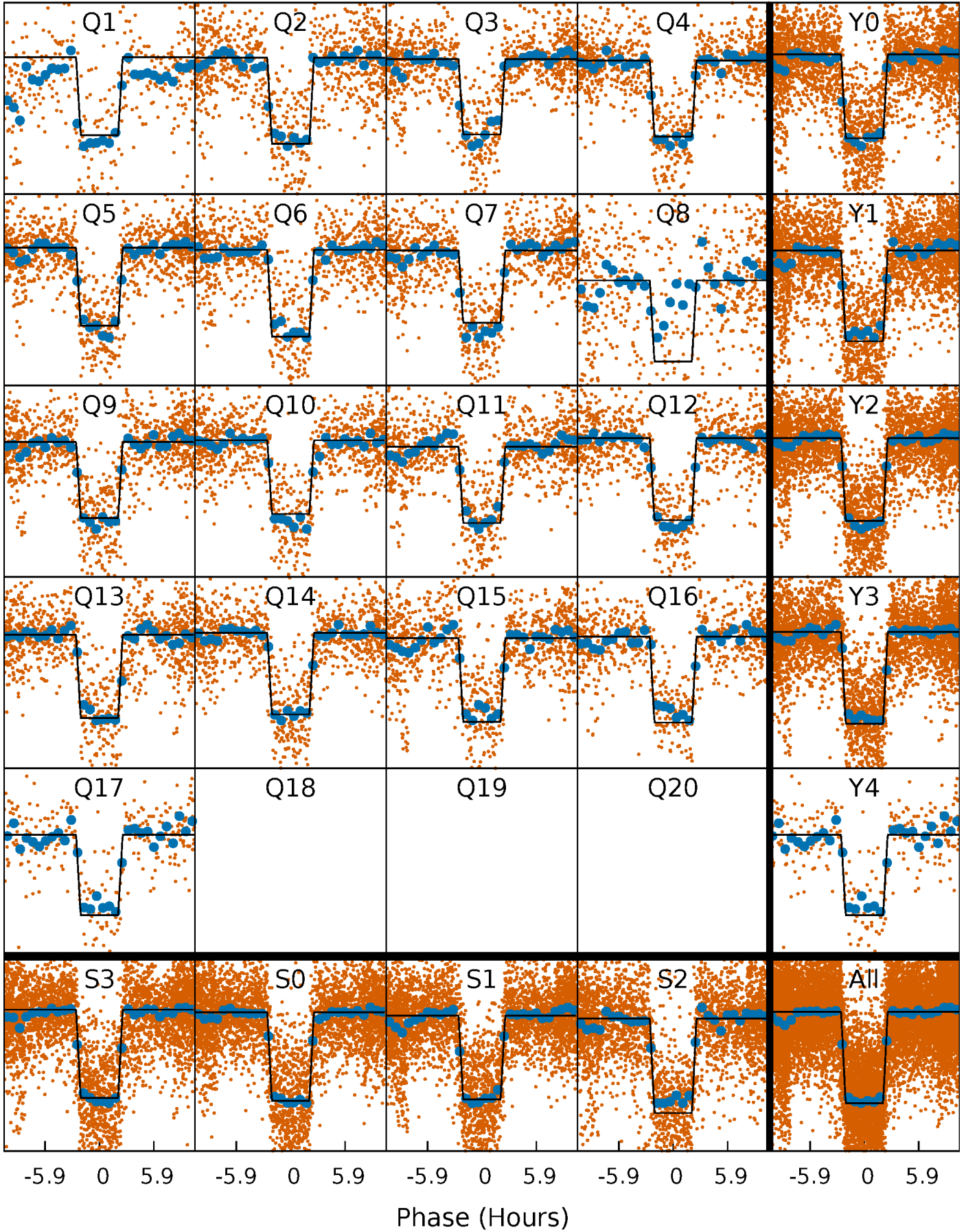
DV Quarter-Phased Transit Curves

TCE 009071386-02 P= 2.346625 Days $T_0=132.178316$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

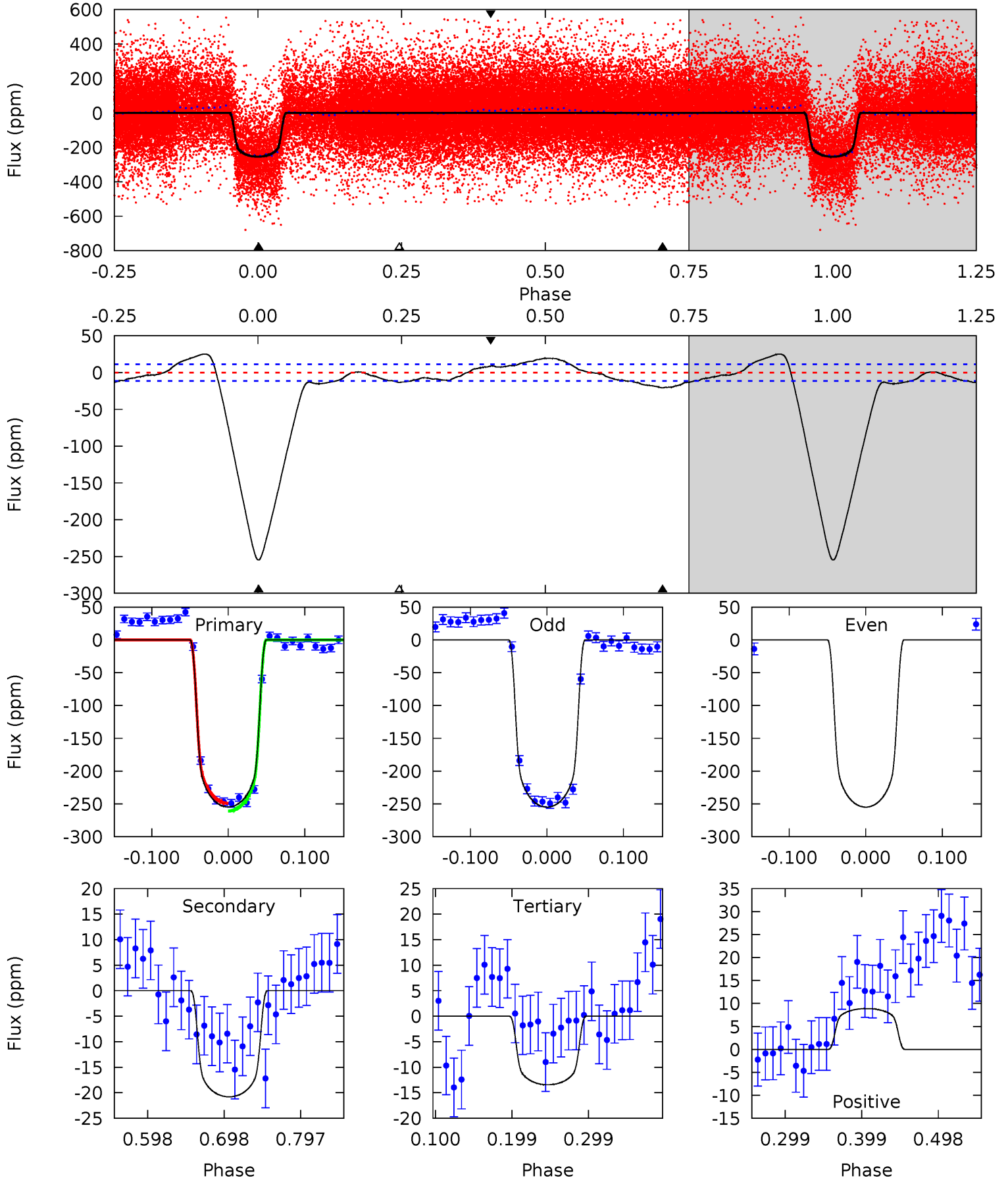
TCE 009071386-02 P= 2.346633 Days $T_0=132.177561$ (BKJD)



DV Model-Shift Uniqueness Test

009071386-02, P = 2.346625 Days, E = 129.831691 Days

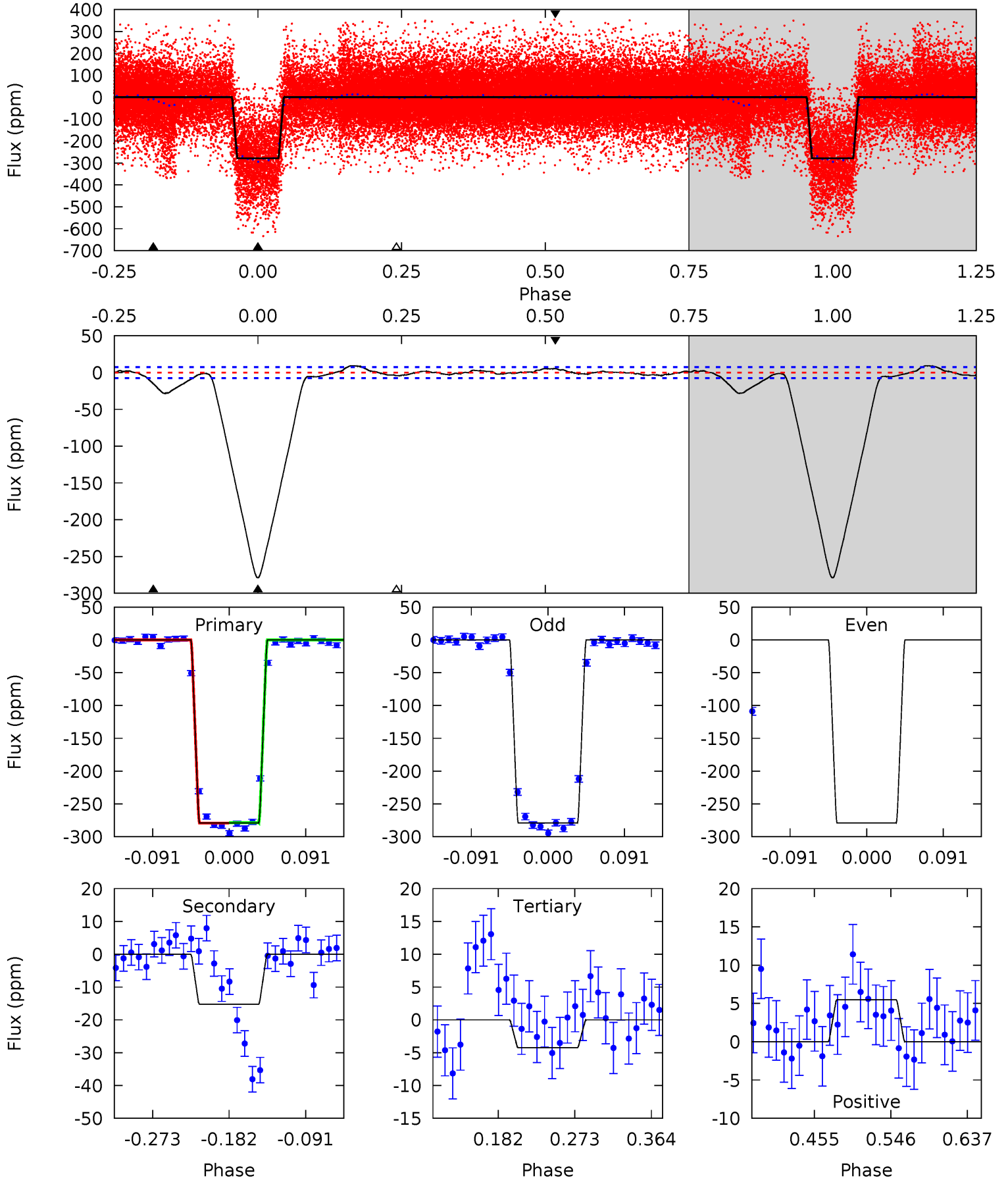
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
102.4	8.36	5.40	3.57	4.57	1.65	4.08	97.0	98.9	2.96	4.79	0	0.94	0.09	2.43



Alt Model-Shift Uniqueness Test

009071386-02, P = 2.346633 Days, E = 129.830928 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
170.8	9.32	2.60	3.36	4.58	1.69	1.84	168.1	167.4	6.71	5.96	0	0.97	0.03	0.25



Stellar Parameters For KIC 009071386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6365^{+115}_{-140}	$4.220^{+0.099}_{-0.121}$	$0.200^{+0.150}_{-0.200}$	$1.470^{+0.267}_{-0.200}$	$1.312^{+0.093}_{-0.113}$	$0.581^{+0.260}_{-0.210}$
	+2%/-2%	+2%/-3%	+75%/-100%	+18%/-14%	+7%/-9%	+45%/-36%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009071386-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21 ± 2	$2.89^{+0.28}_{-0.22}$	2455^{+108}_{-103}	3540^{+101}_{-99}	$1.936^{+0.427}_{-0.371}$
Alt.	-15 ± 2	$2.69^{+0.28}_{-0.20}$	2458^{+116}_{-107}	3432^{+88}_{-91}	$1.643^{+0.342}_{-0.311}$

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

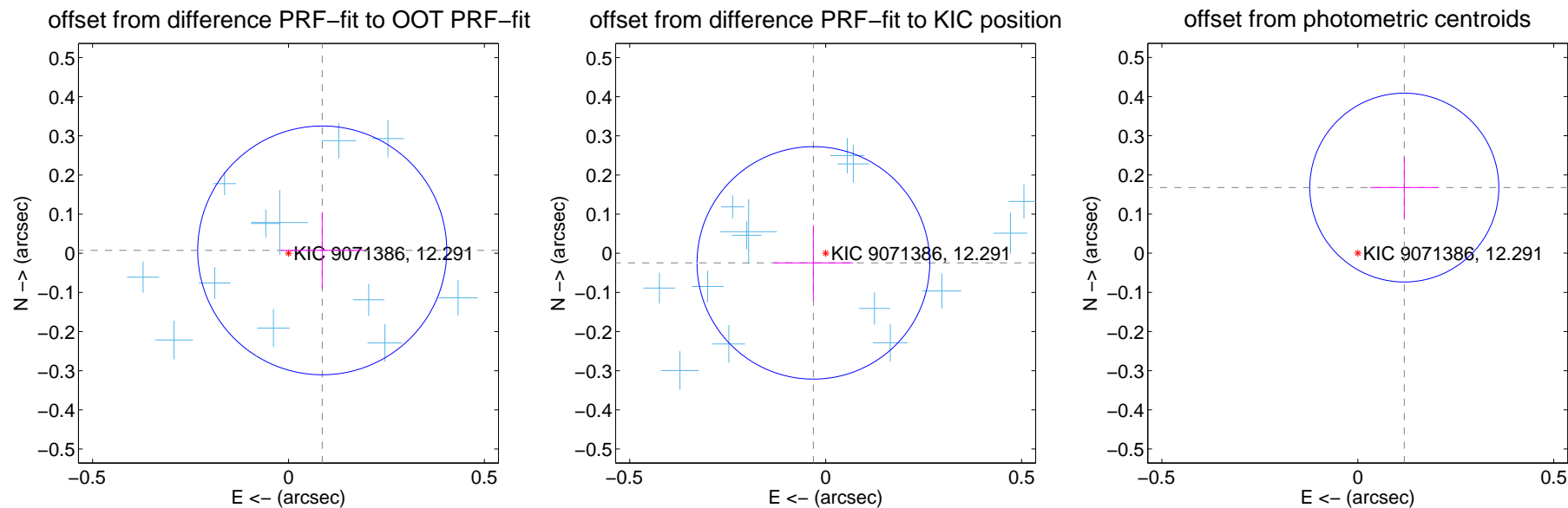
DV Centroid Data

Supplemental centroid analysis for 009071386-02. Kepler magnitude: 12.29. Transit SNR 57.60

There are 17 quarters with good PRF difference image offsets

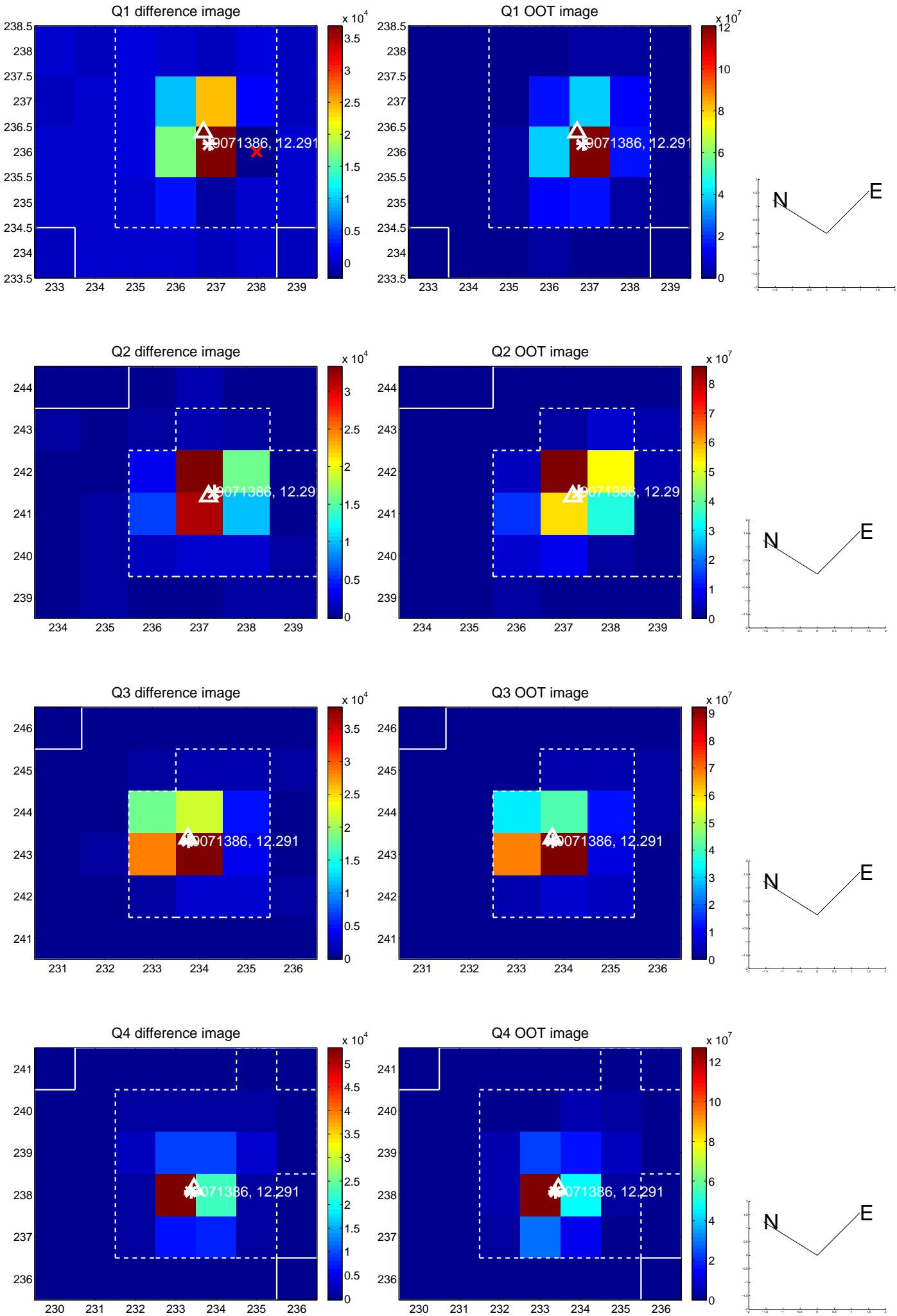
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.086 ± 0.106	0.82	-0.086 ± 0.106	0.007 ± 0.097
PRF-fit source offset from KIC position	0.040 ± 0.099	0.40	0.031 ± 0.101	-0.025 ± 0.096
photometric centroid source offset	0.21 ± 0.08	2.55	-0.12 ± 0.09	0.17 ± 0.08

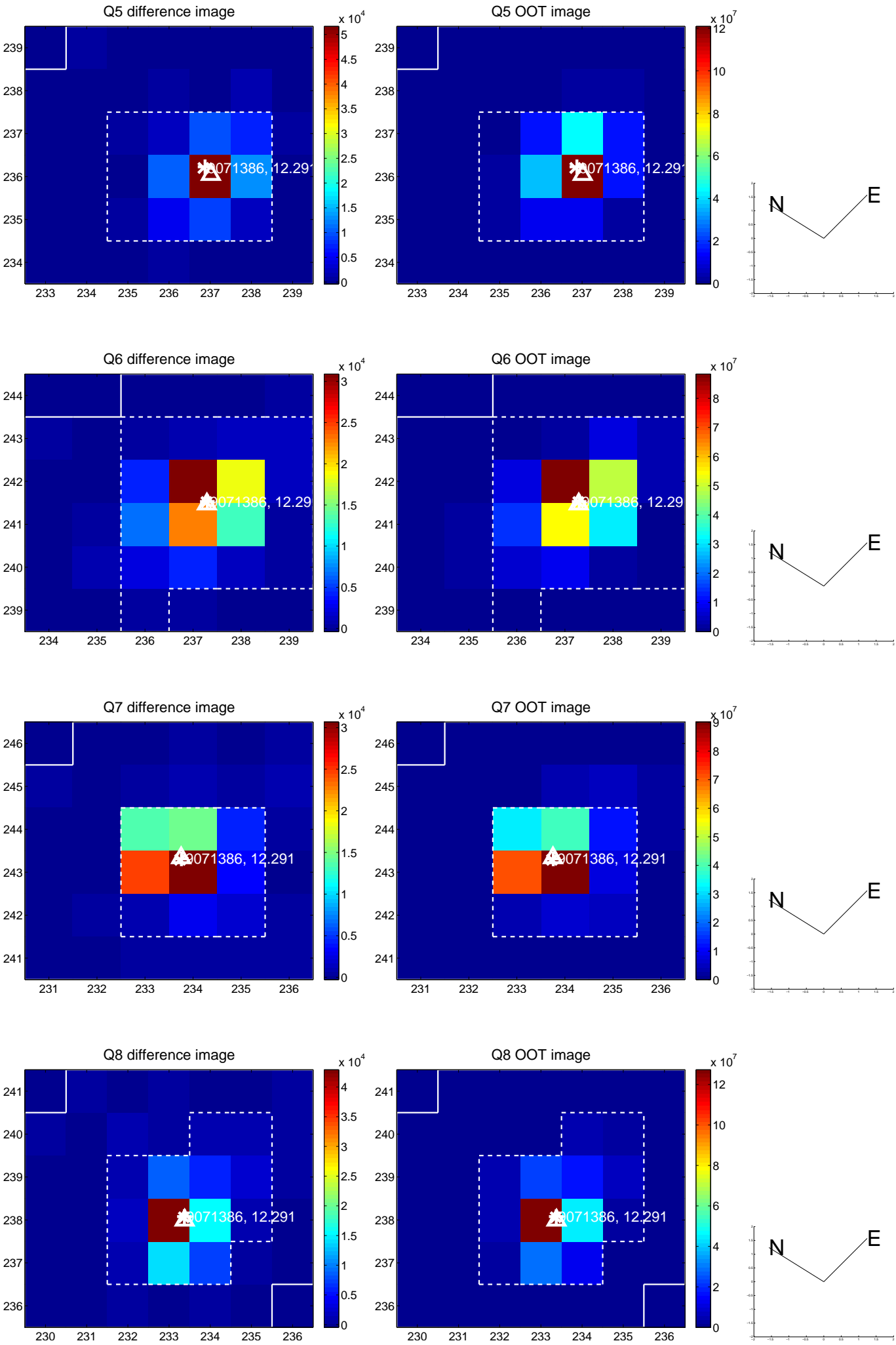


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

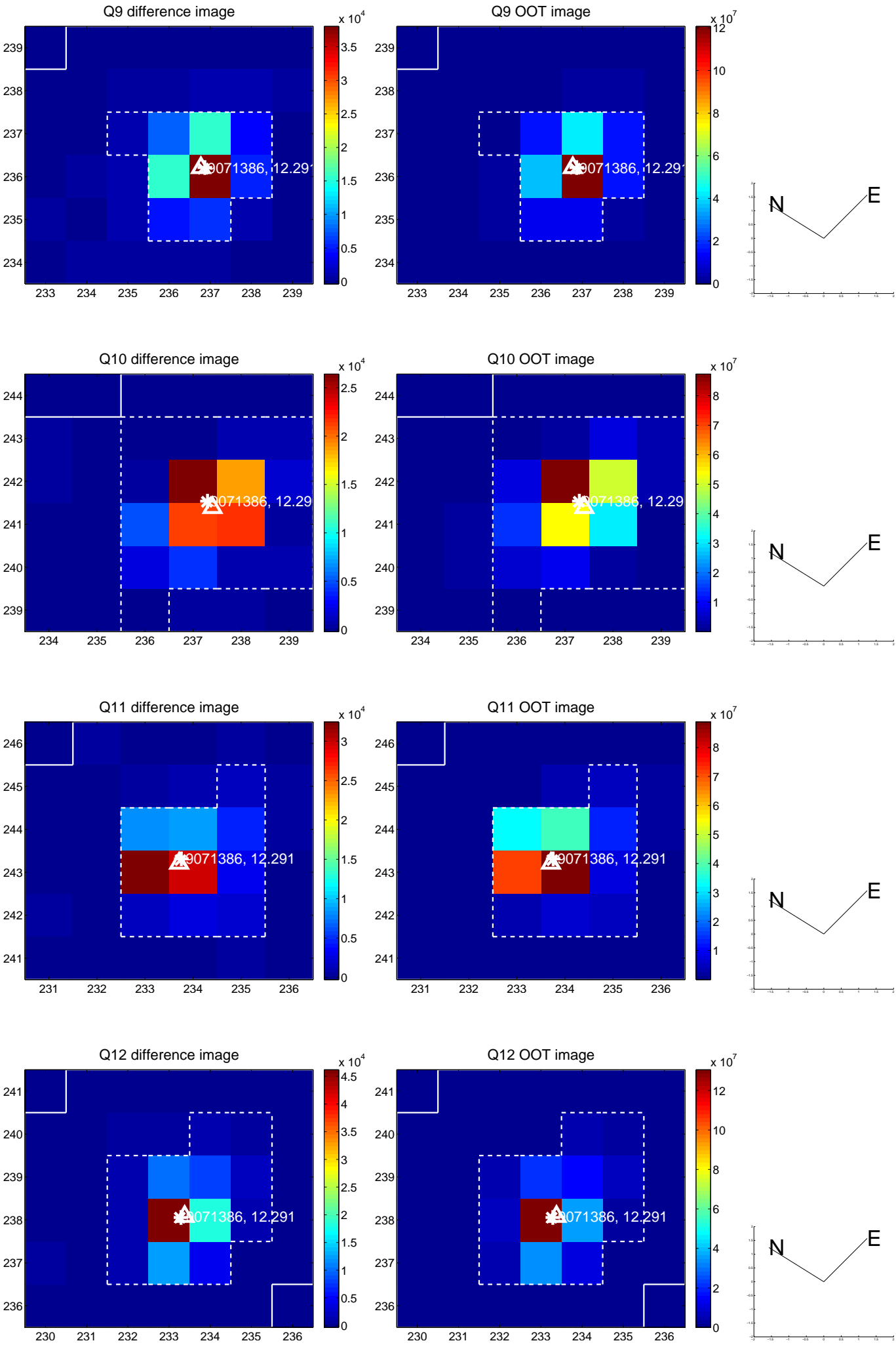
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



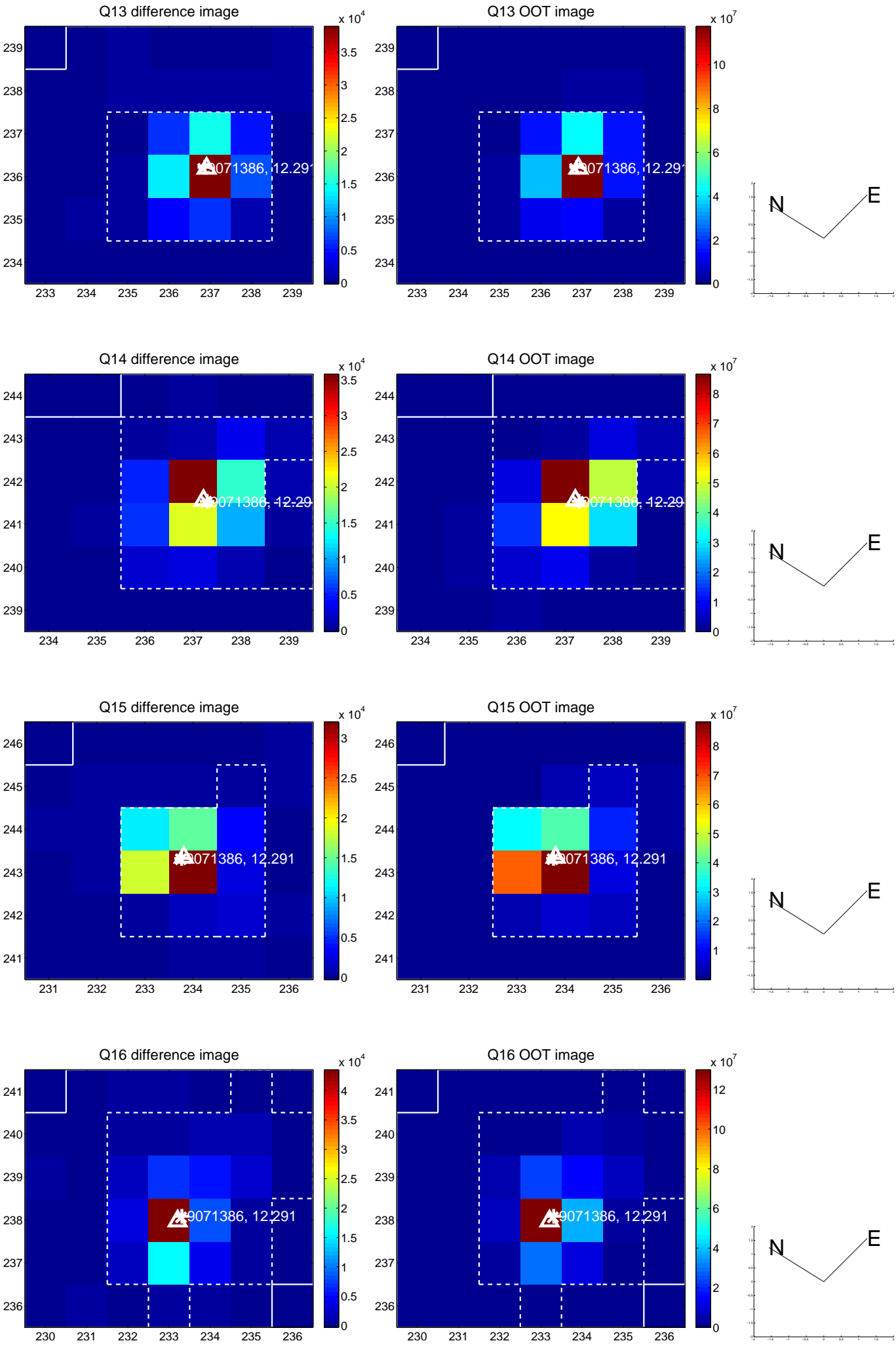
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



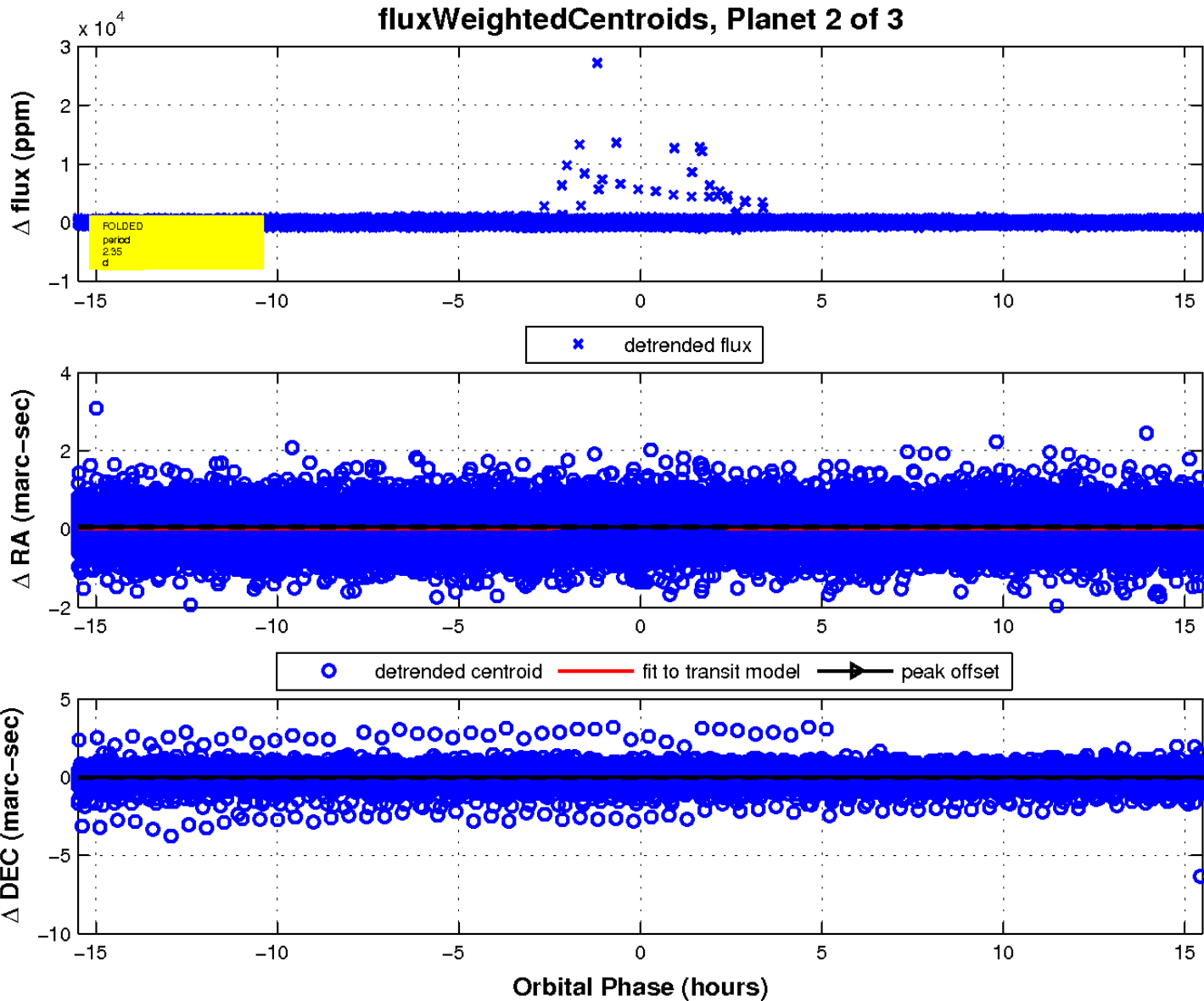
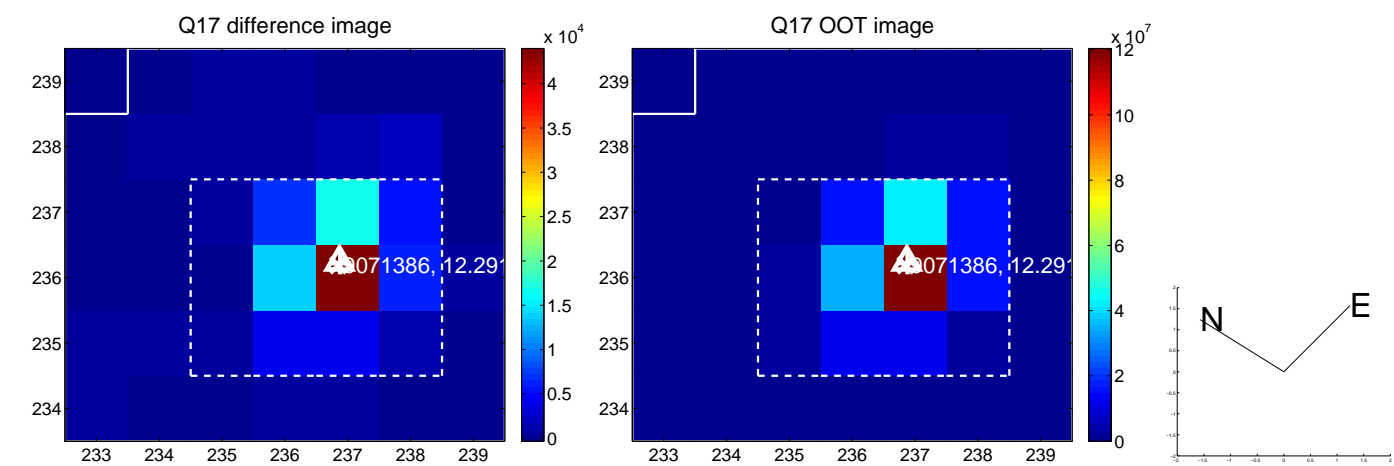
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

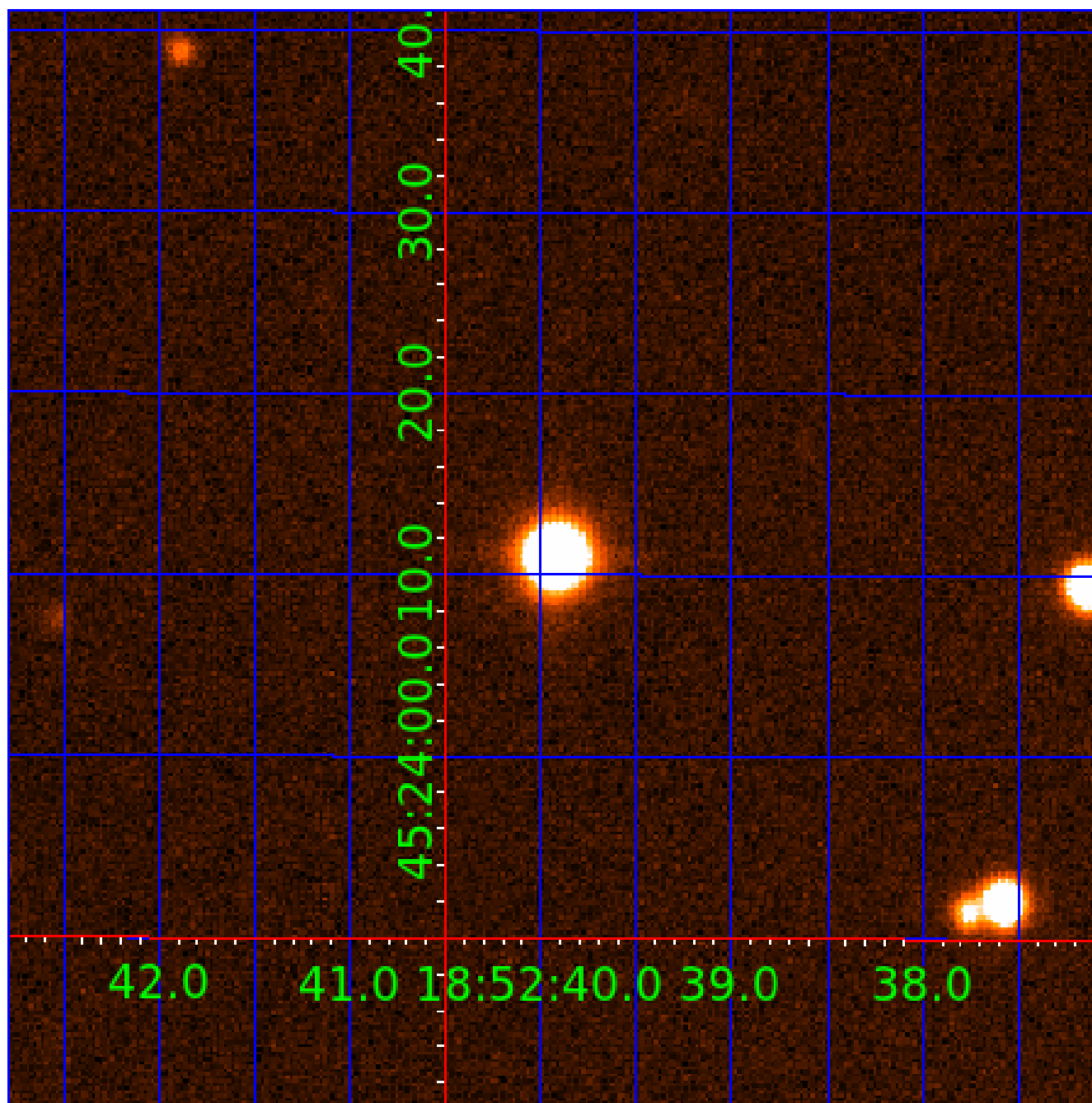


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009071386

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})
009071386-01	OBS	0023.01	4.693304	132.169666	14341.1	5.171	2739.5	2739.6	1.47	6365	17.82	882.39
009071386-02	OBS	No	2.346625	132.178316	277.1	5.166	58.8	57.6	1.47	6365	2.87	2223.52
009071386-03	OBS	No	401.338873	340.667856	833.9	21.552	8.5	6.7	1.47	6365	8.14	2.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009071386-01	OBS	FP	0.27	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009071386-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009071386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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.

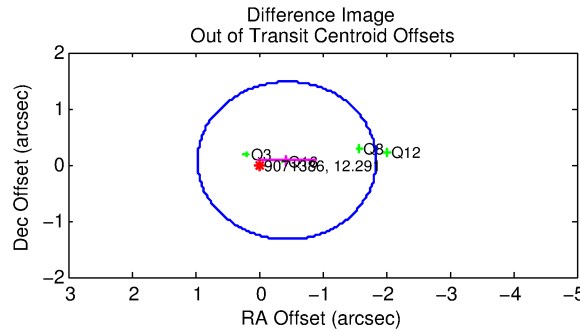
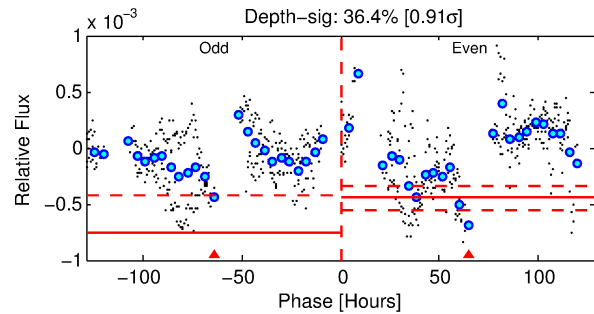
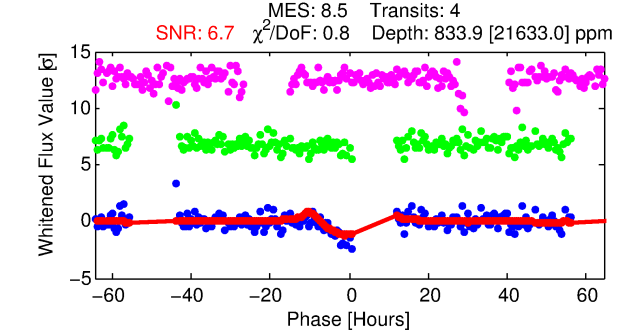
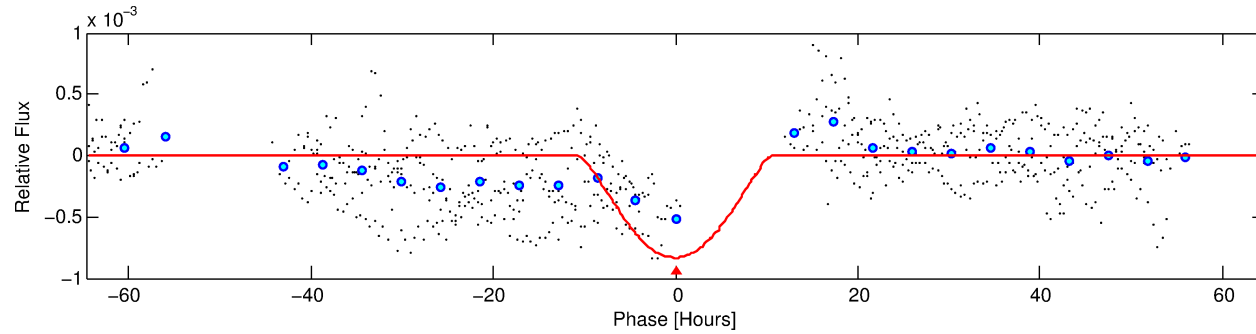
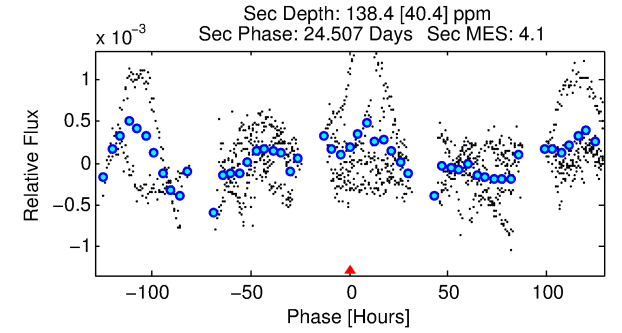
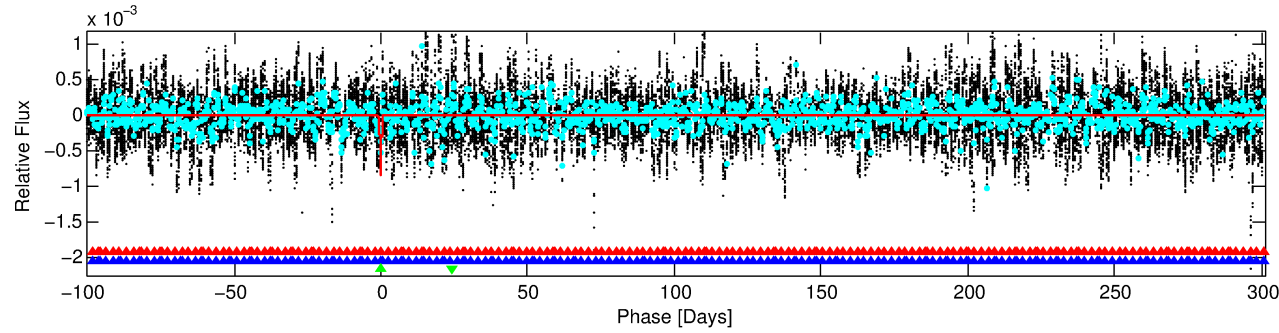
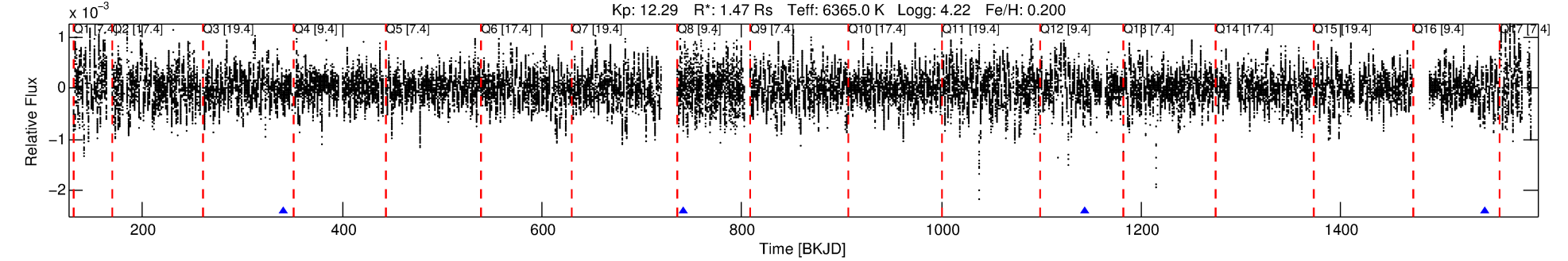
Ephemeris Match Information For 009071386-03

No Significant Match Found

DV One-Page Summary

KIC: 9071386 Candidate: 3 of 3 Period: 401.339 d
KOI: K00023 Corr: No Ephemeris Match

Kp: 12.29 R*: 1.47 Rs Teff: 6365.0 K Logg: 4.22 Fe/H: 0.200



DV Fit Results:

Period = 401.33887 [0.01533] d
Epoch = 340.6679 [0.0454] BKJD
Rp/R* = 0.0508 [0.0793]
a/R* = 45.92 [15.66]
b = 1.00 [0.78]
Seff = 2.34 [0.56]
Teq = 315 [19] K
Rp = 8.14 [12.81] Re
a = 1.1648 [0.1778] AU
Ag = 1557.58 [4900.23] [0.32σ]
Teff = 3064 [2405] K [1.14σ]

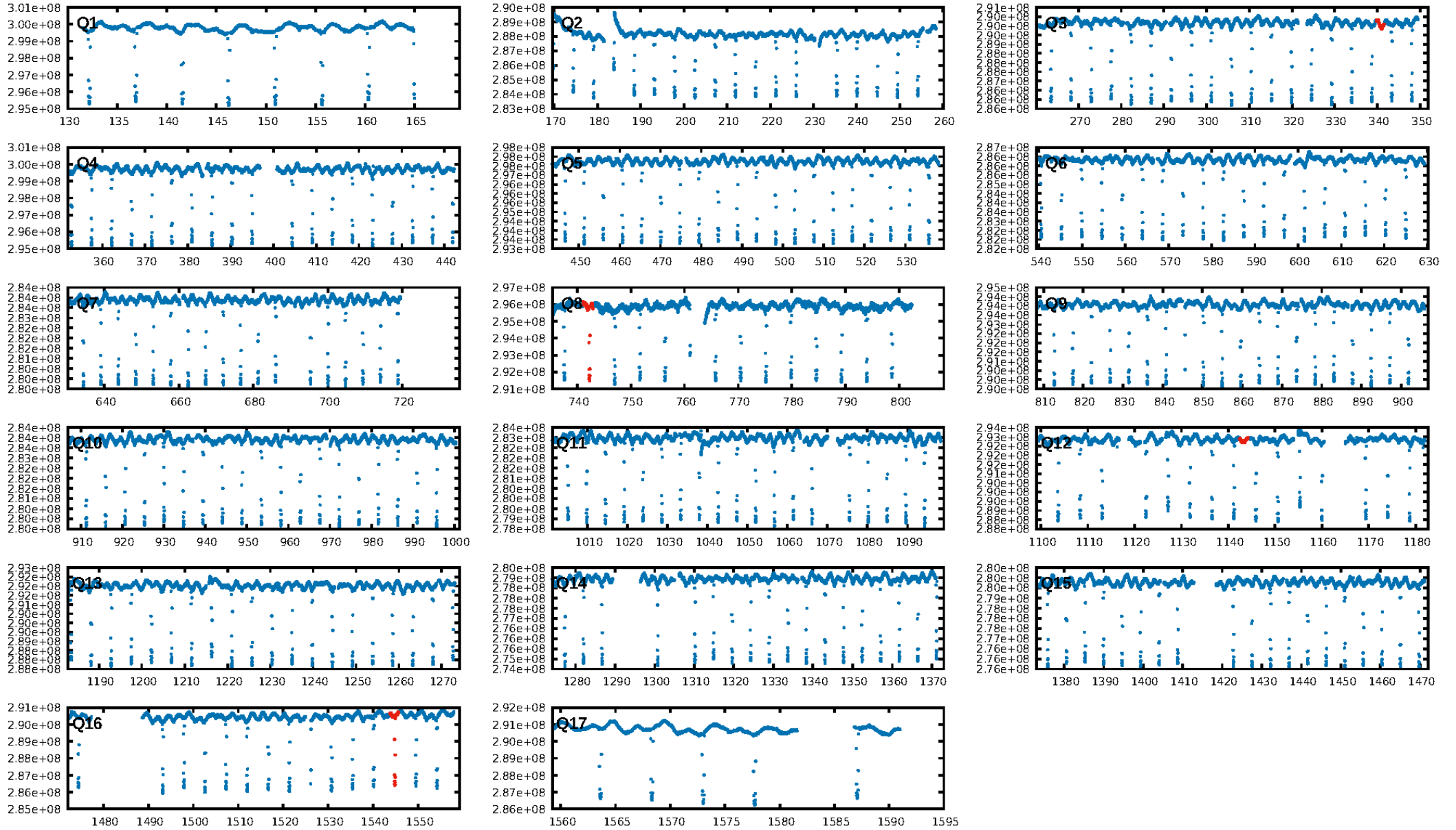
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [429.51σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 34.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.66e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -13.91
Centroid-sig: 12.6%
Centroid-so: 0.202 arcsec [1.07σ]
OotOffset-rm: 0.446 arcsec [0.95σ]
KicOffset-rm: 0.345 arcsec [0.66σ]
OotOffset-st: 0/1/3/0 [4]
KicOffset-st: 0/1/3/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.00 [0/4]

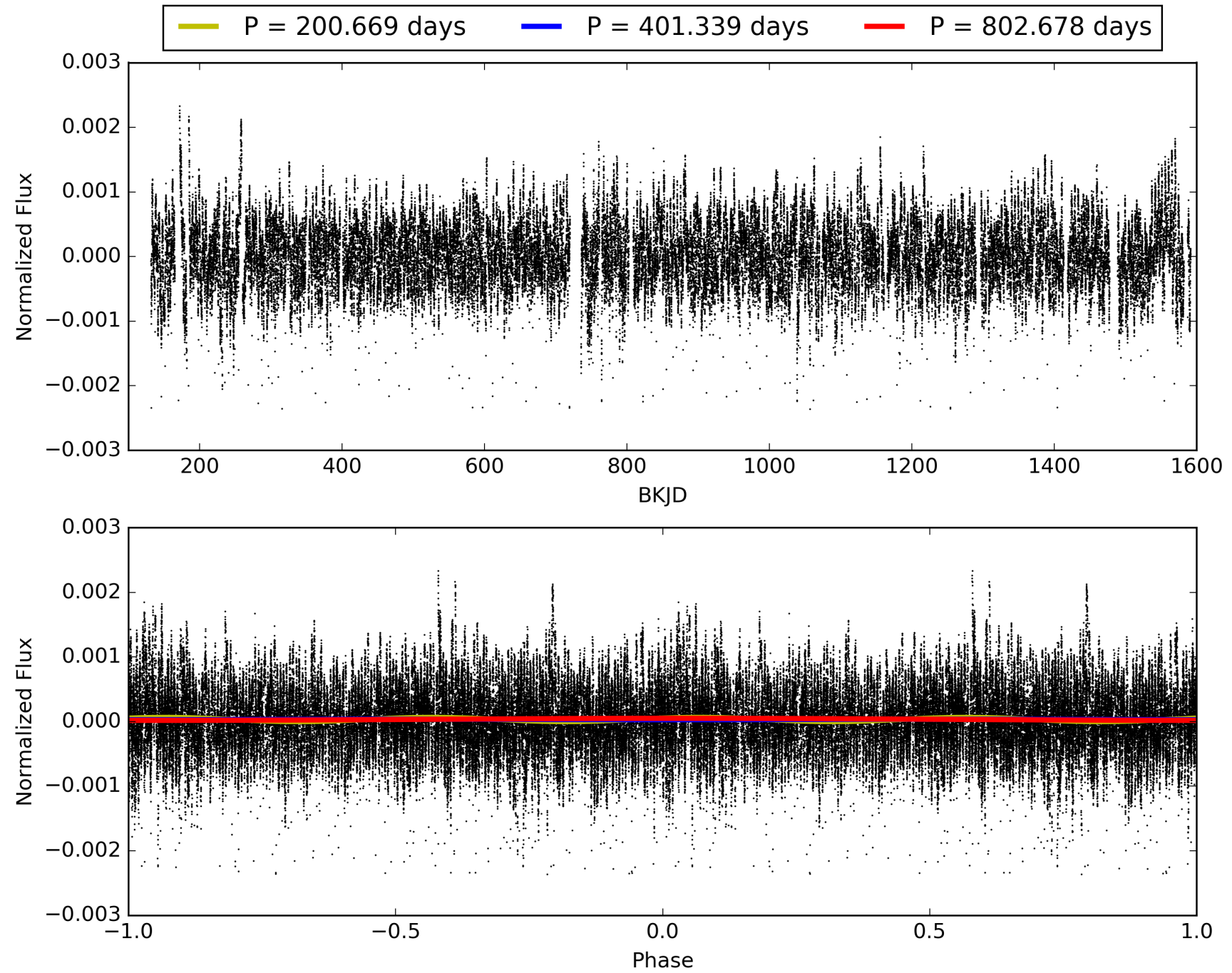
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:17:58 Z

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

TCE 009071386-03, PDC Light Curves

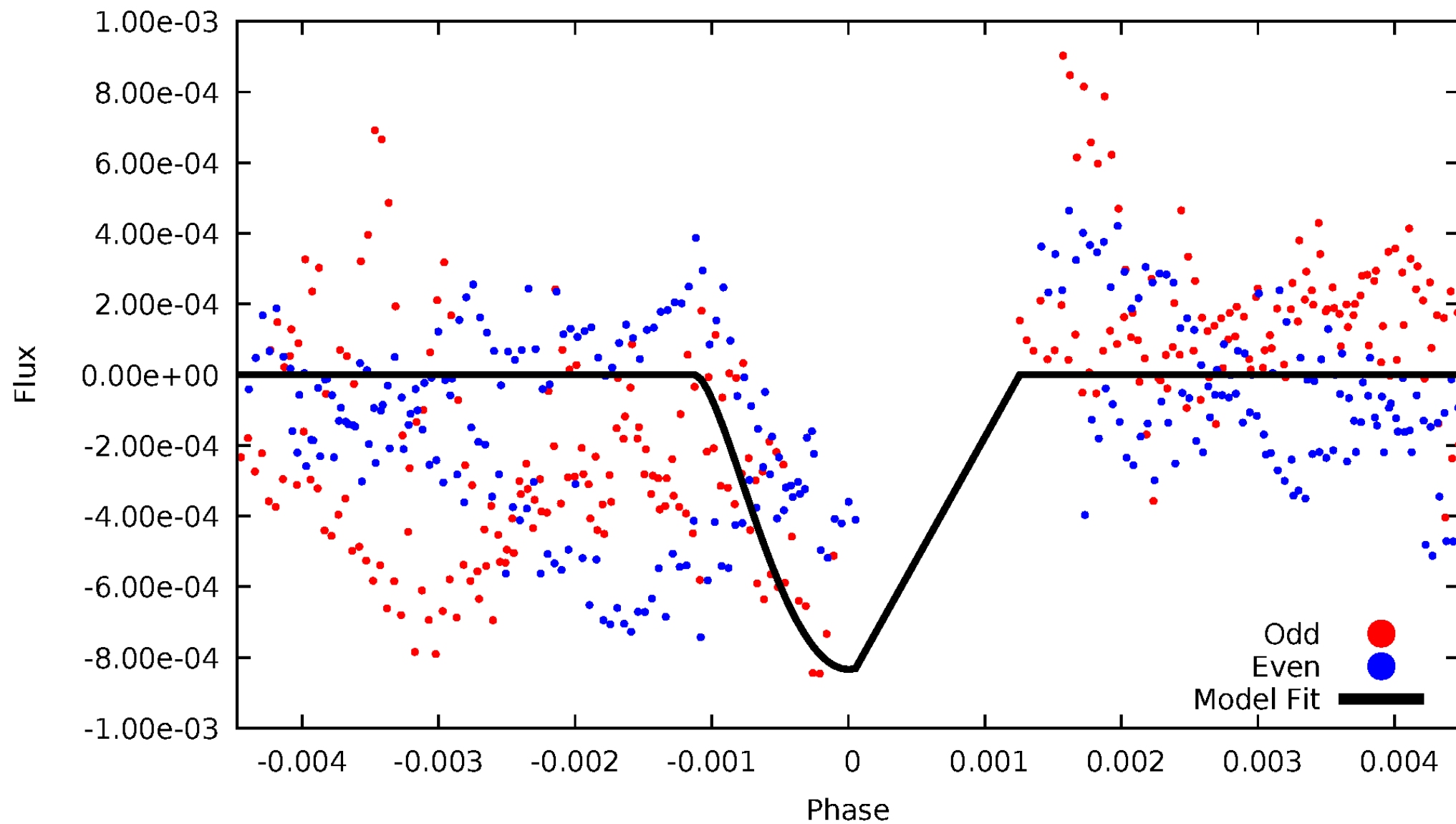


TCE 009071386-03



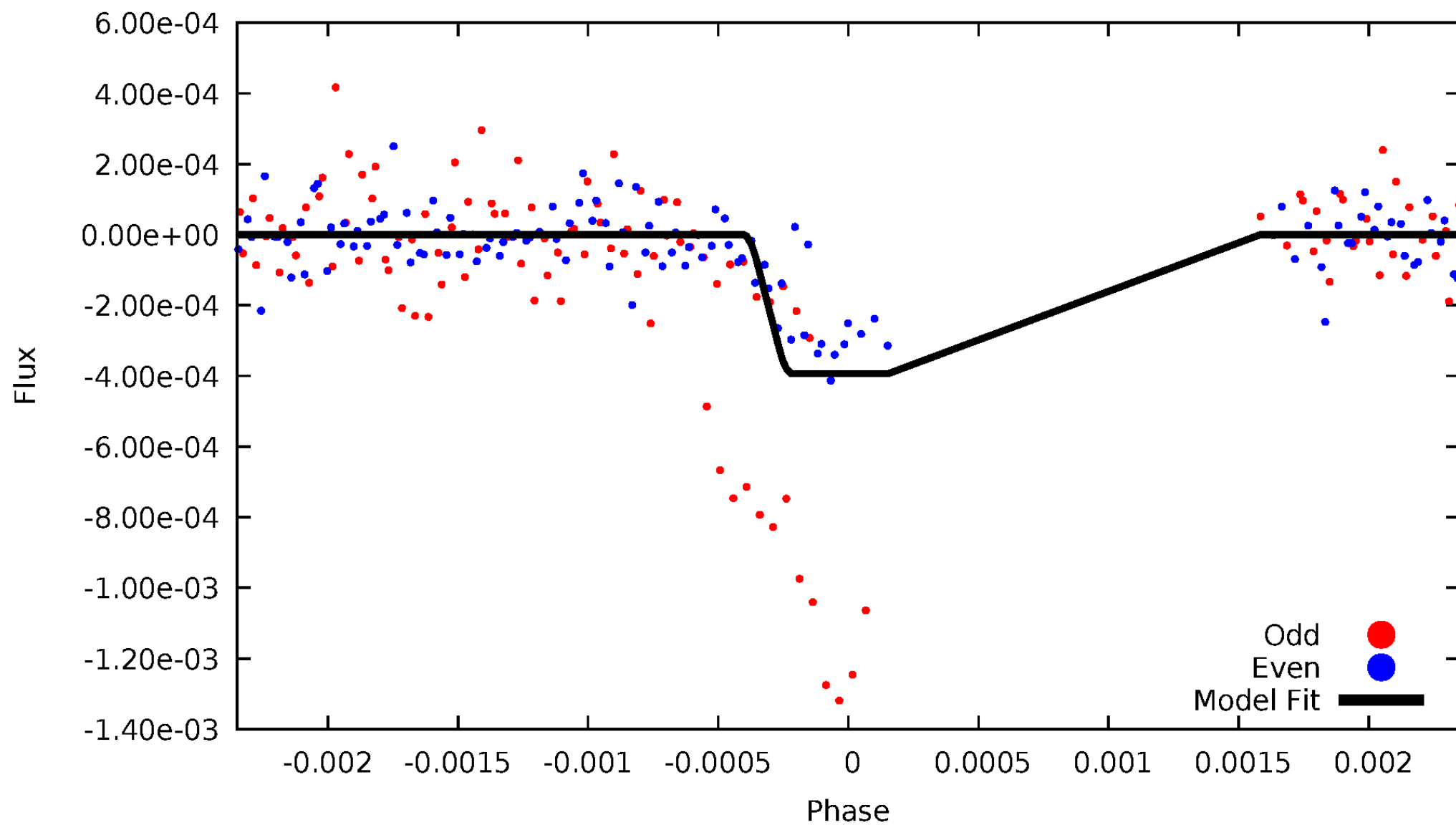
DV Odd/Even

TCE 009071386-03



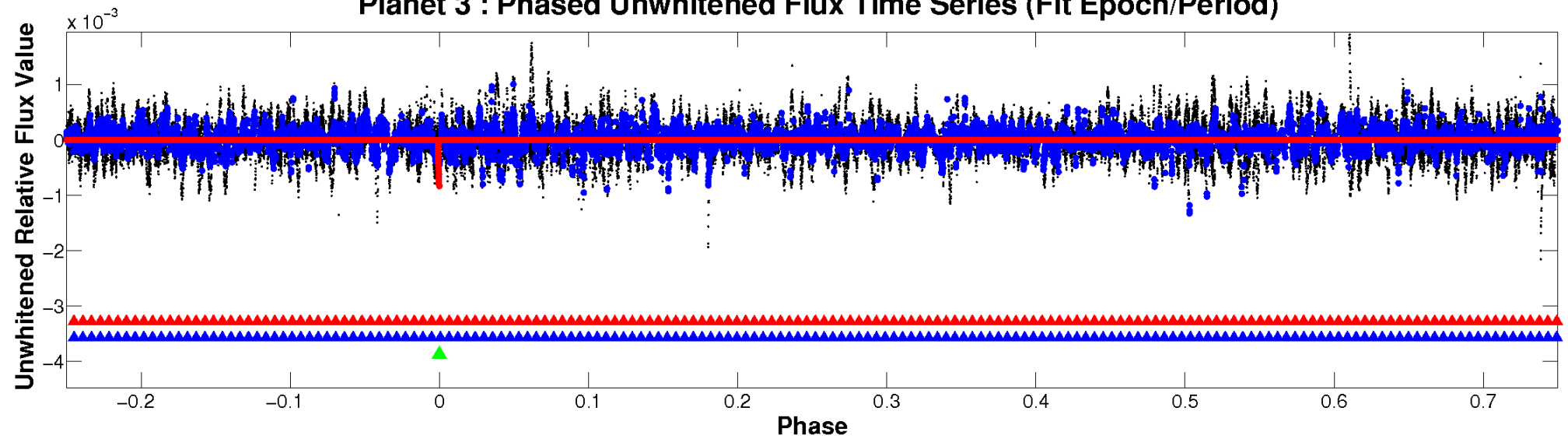
ALT Odd/Even

TCE 009071386-03

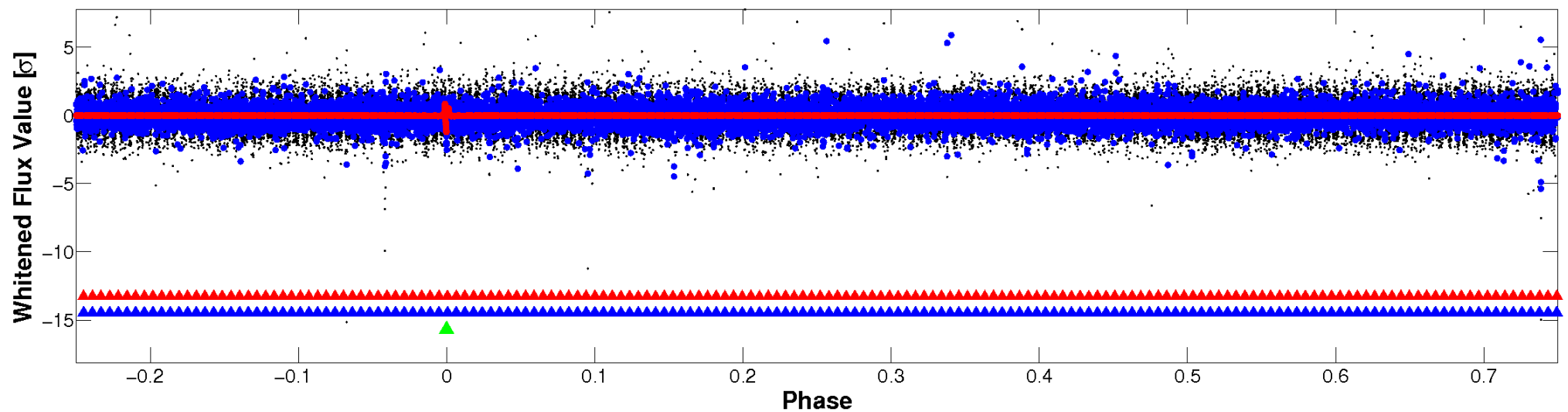


Non-Whitened Vs. Whitened Light Curve

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

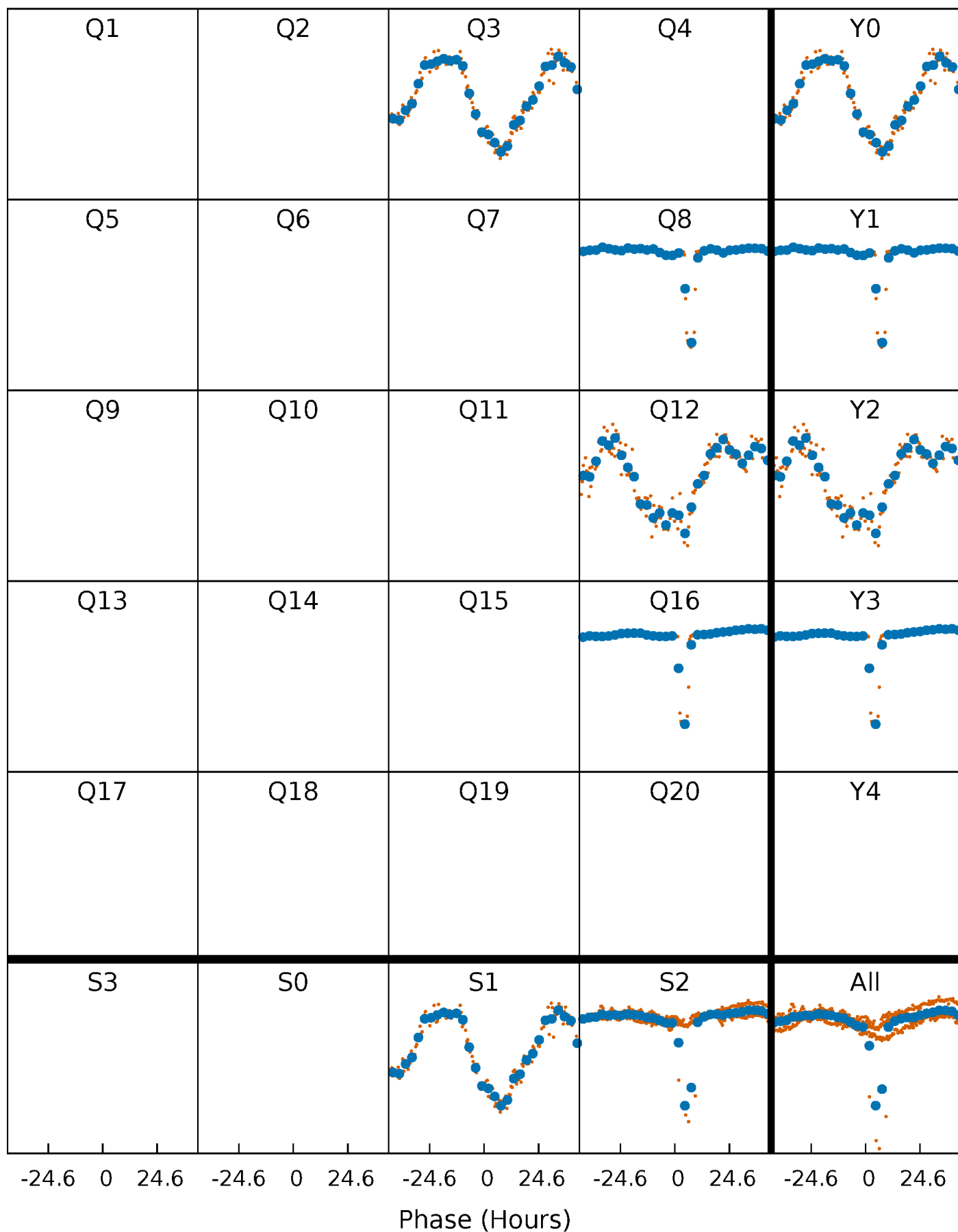


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



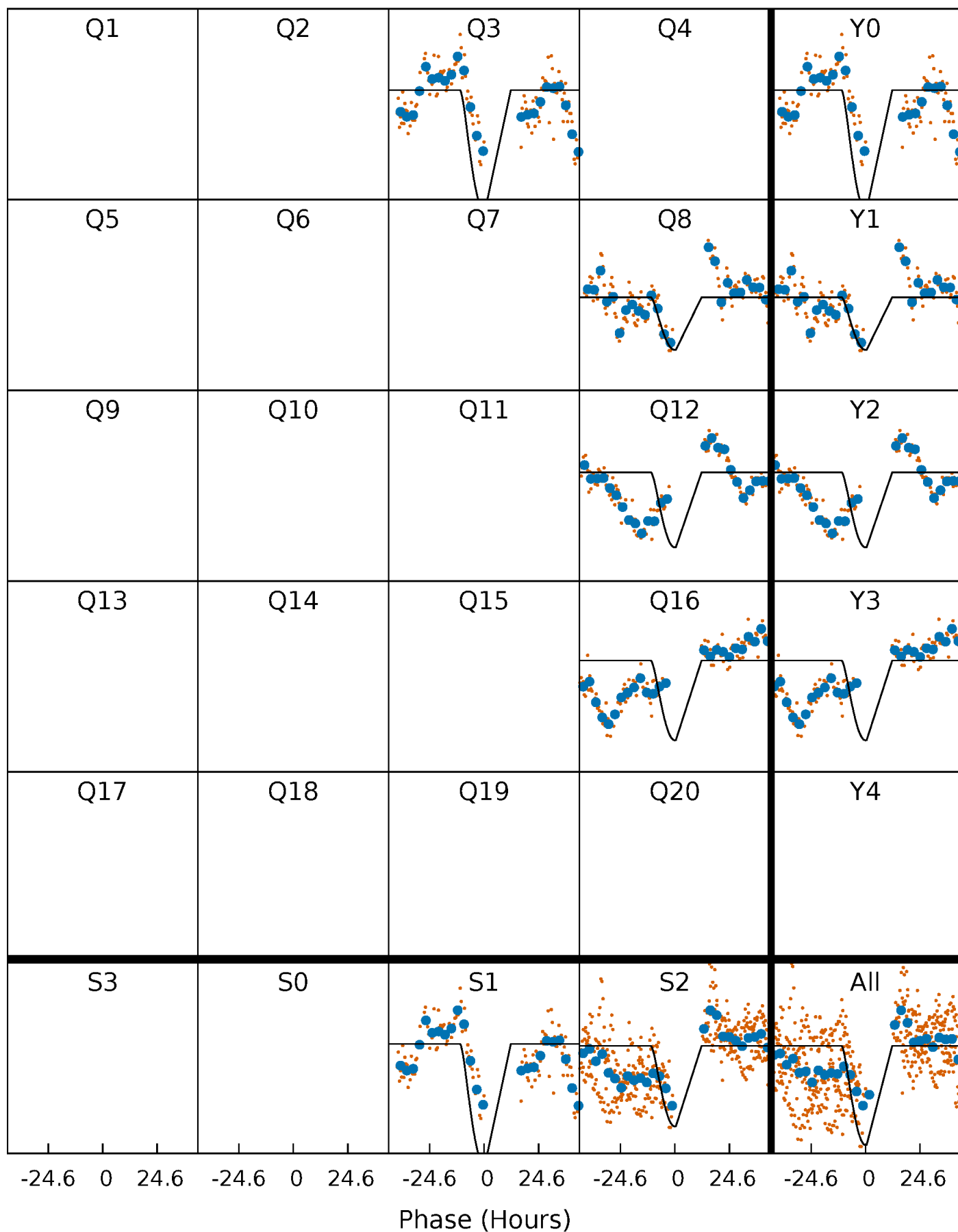
PDC Quarter-Phased Transit Curves

TCE 009071386-03 $P=401.338873$ Days $T_0=340.667856$ (BKJD)



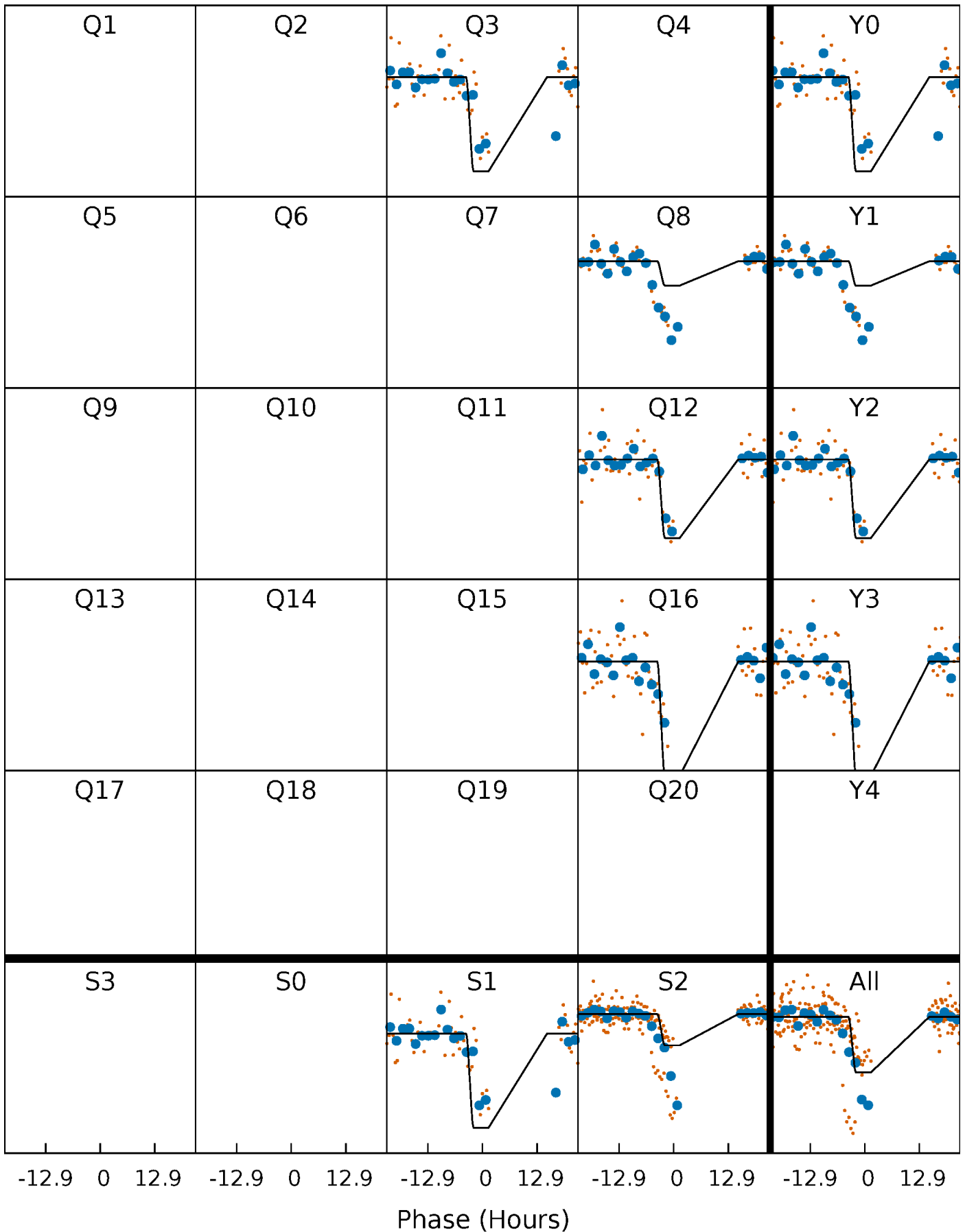
DV Quarter-Phased Transit Curves

TCE 009071386-03 $P=401.338873$ Days $T_0=340.667856$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

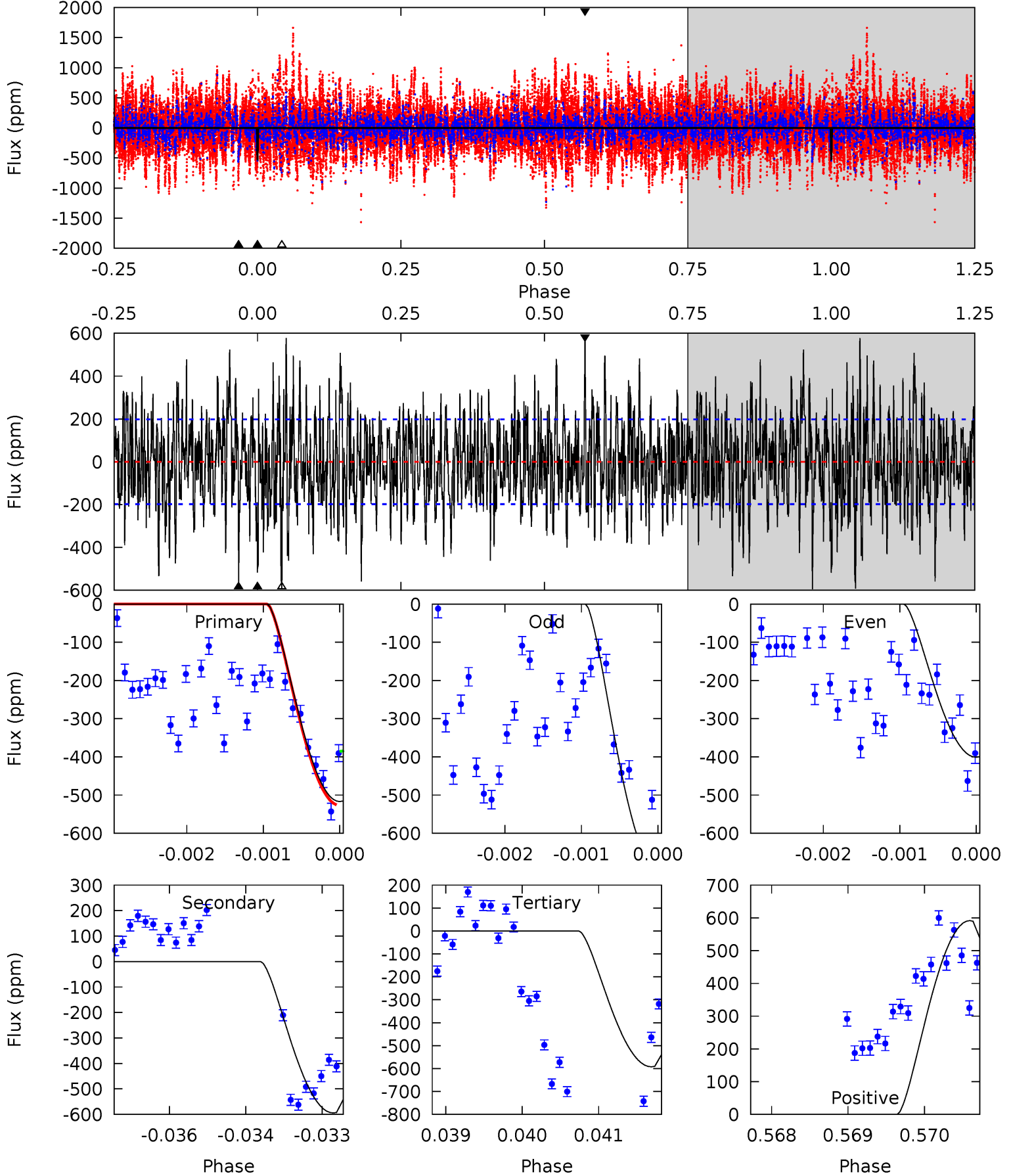
TCE 009071386-03 P=401.308307 Days $T_0=340.628116$ (BKJD)



DV Model-Shift Uniqueness Test

009071386-03, P = 401.338873 Days, E = 340.667856 Days

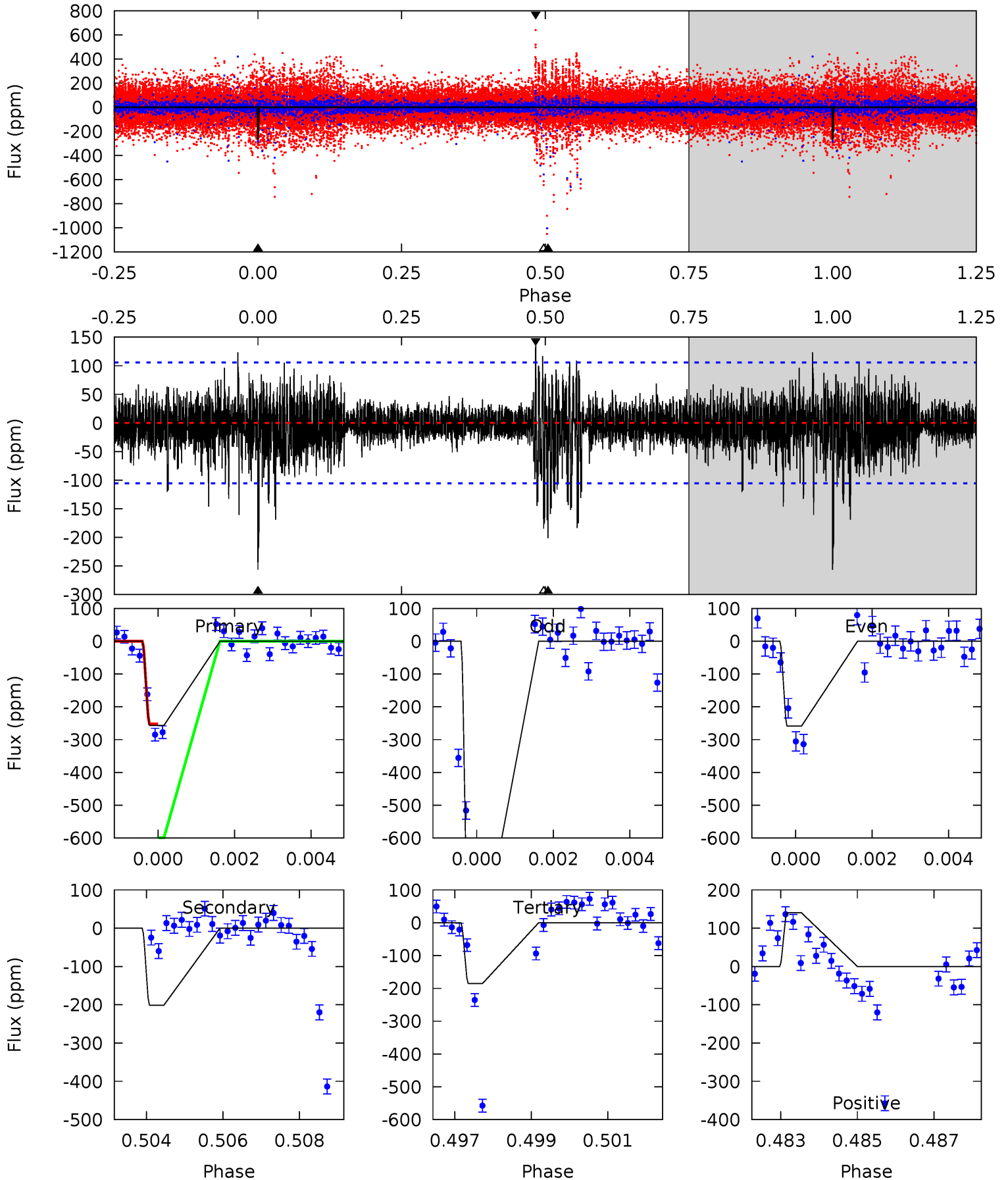
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	16.3	16.2	16.2	5.42	3.24	4.48	-2.06	-2.04	0.05	0.08	3.88	1.06	0.50	0.46



Alt Model-Shift Uniqueness Test

009071386-03, P = 401.308307 Days, E = 340.628116 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	10.1	9.33	7.08	5.33	3.10	1.35	3.62	5.87	0.82	3.07	16.7	1.68	0.35	5.92



Stellar Parameters For KIC 009071386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6365^{+115}_{-140}	$4.220^{+0.099}_{-0.121}$	$0.200^{+0.150}_{-0.200}$	$1.470^{+0.267}_{-0.200}$	$1.312^{+0.093}_{-0.113}$	$0.581^{+0.260}_{-0.210}$
	+2%/-2%	+2%/-3%	+75%/-100%	+18%/-14%	+7%/-9%	+45%/-36%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009071386-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-594 ± 37	$12.10^{+10.78}_{-7.65}$	440^{+20}_{-18}	3949^{+2024}_{-716}	2999^{+20316}_{-2157}
Alt.	-201 ± 20	$9.88^{+11.06}_{-6.82}$	442^{+22}_{-18}	3532^{+1999}_{-686}	1504^{+14992}_{-1162}

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 $A_{obs} \gg 1.0$

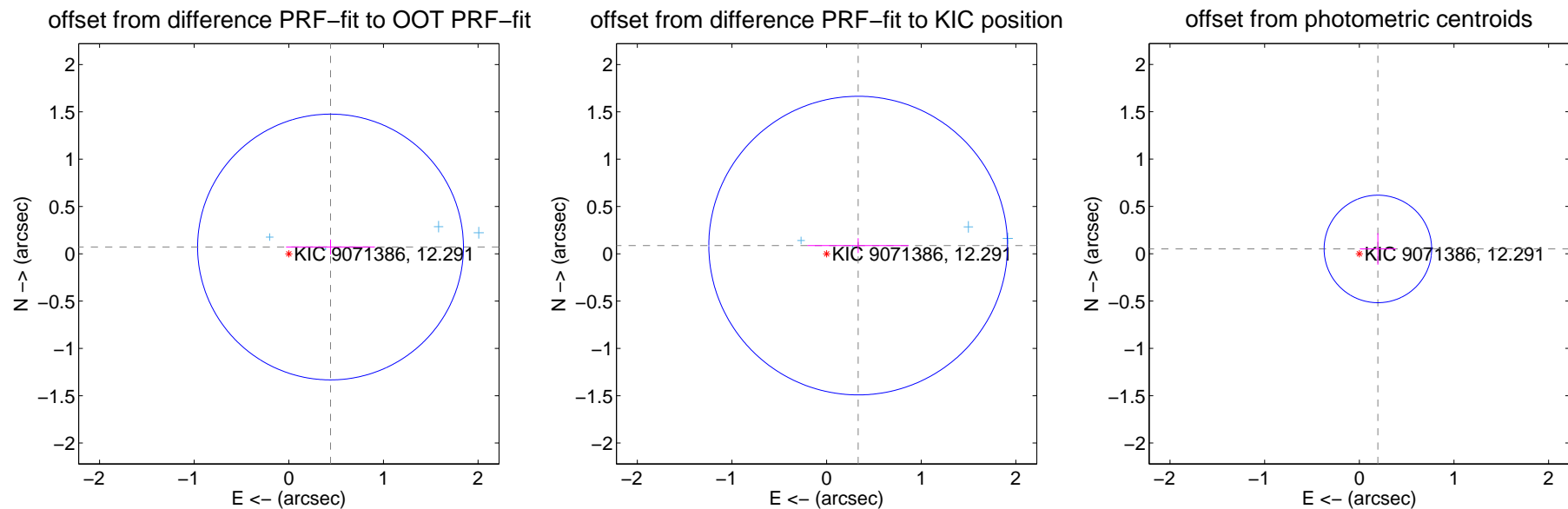
DV Centroid Data

Supplemental centroid analysis for 009071386-03. Kepler magnitude: 12.29. Transit SNR 6.72

There are 4 quarters with good PRF difference image offsets

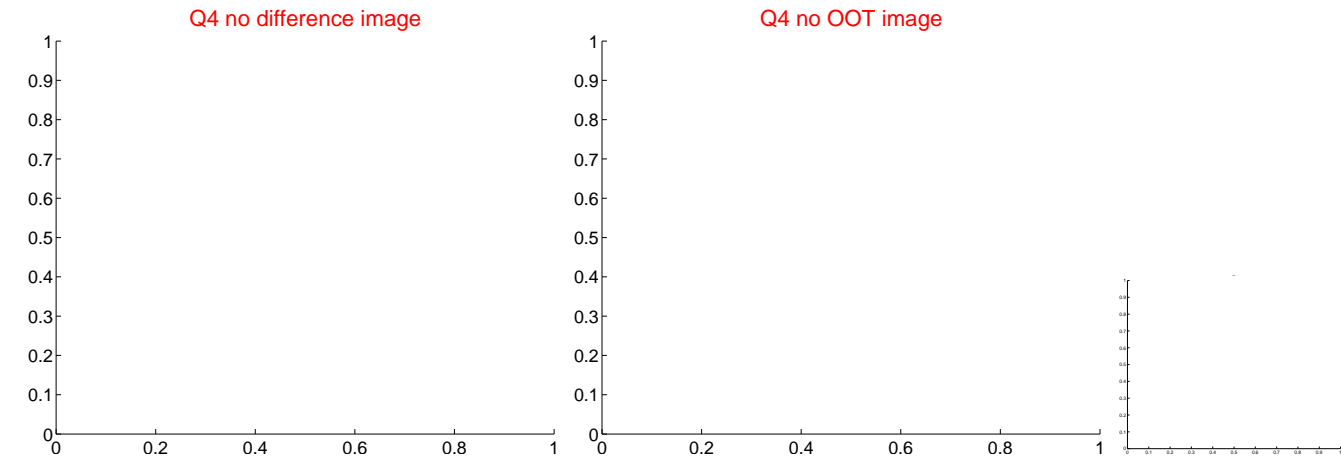
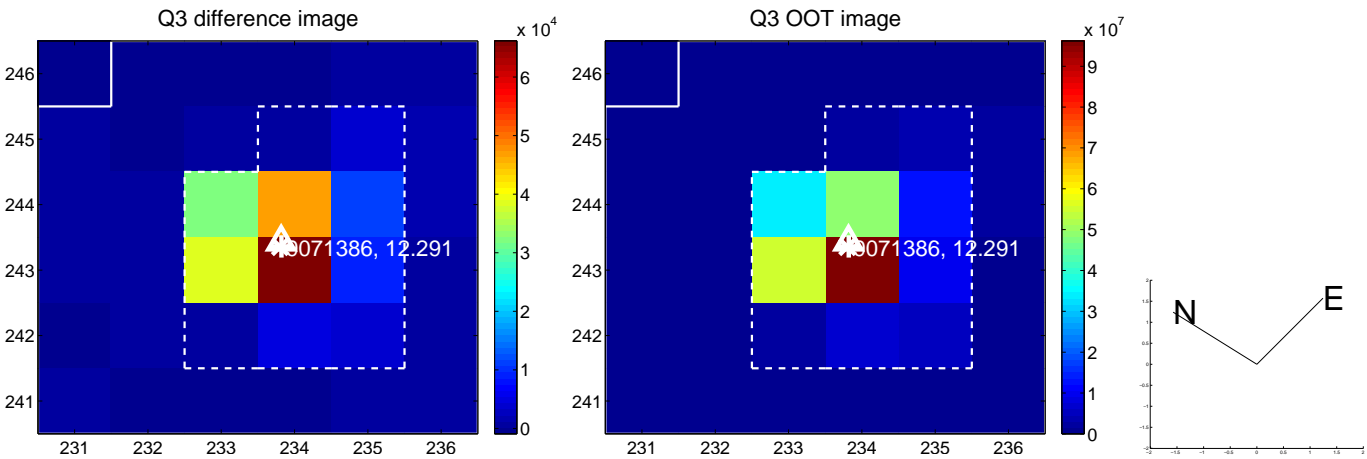
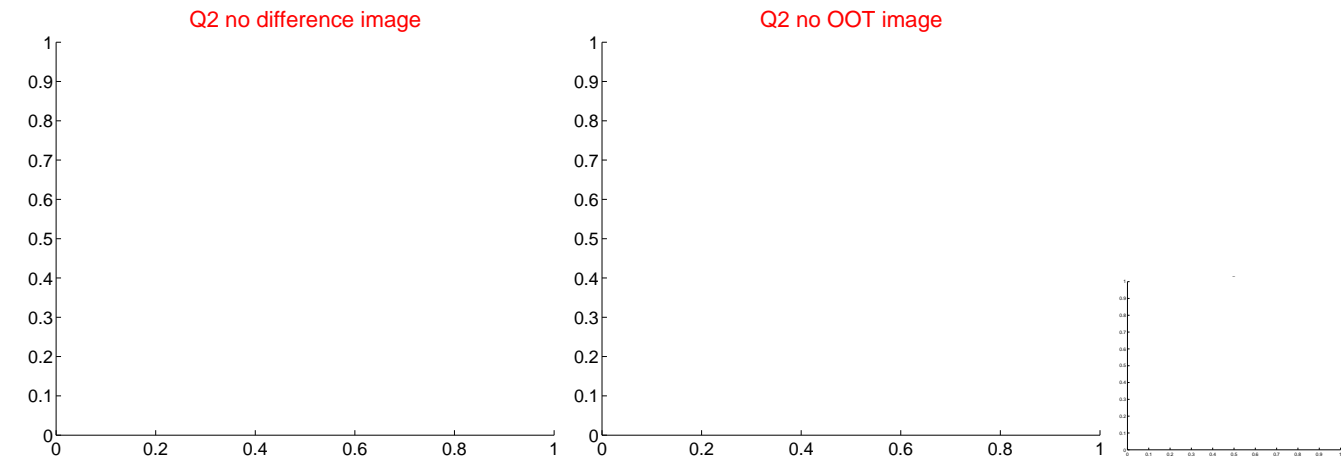
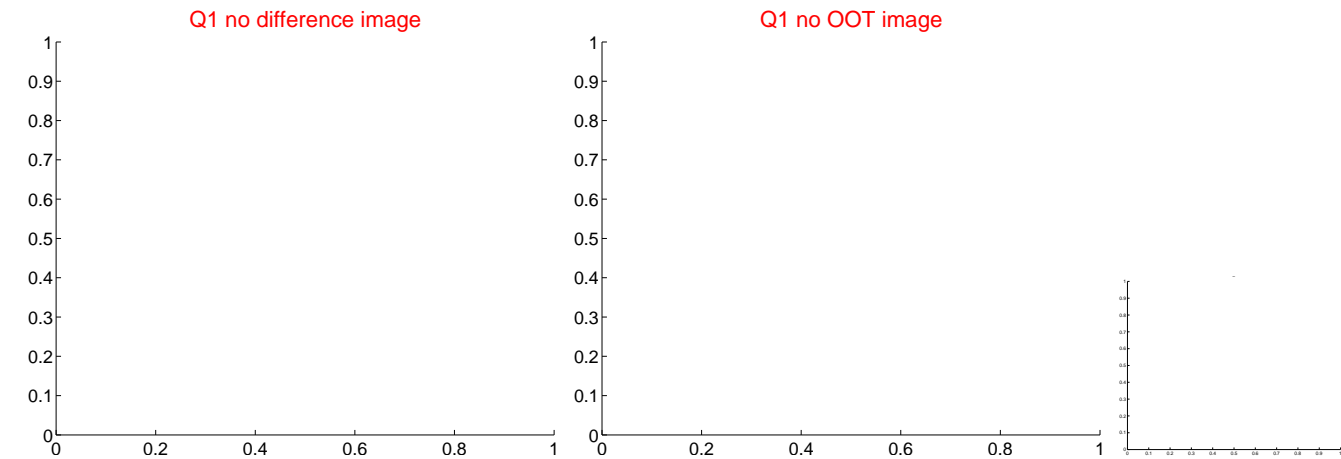
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.446 ± 0.468	0.95	-0.441 ± 0.469	0.072 ± 0.080
PRF-fit source offset from KIC position	0.345 ± 0.526	0.66	-0.334 ± 0.535	0.087 ± 0.078
photometric centroid source offset	0.20 ± 0.19	1.07	-0.20 ± 0.19	0.05 ± 0.17

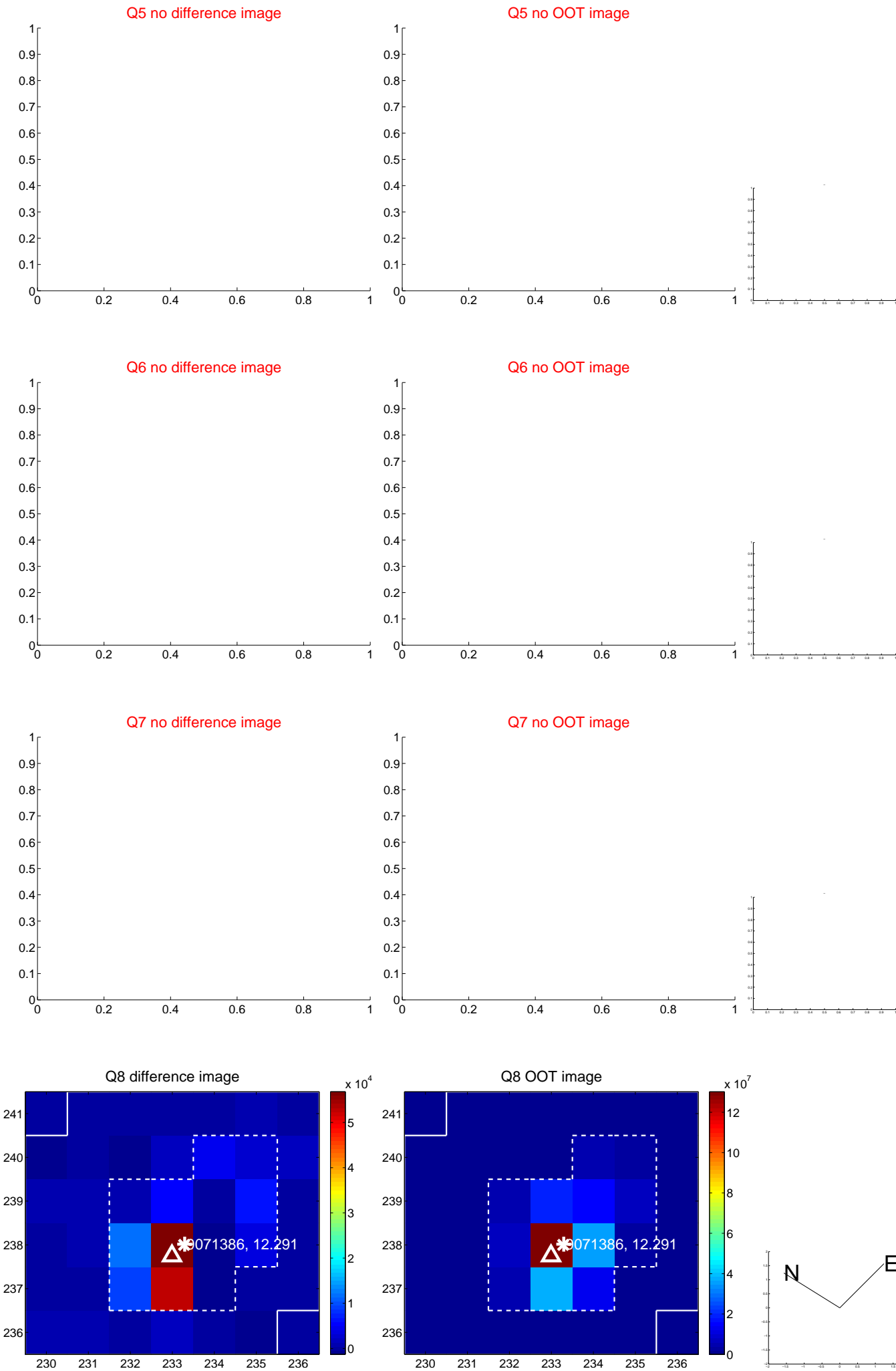


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

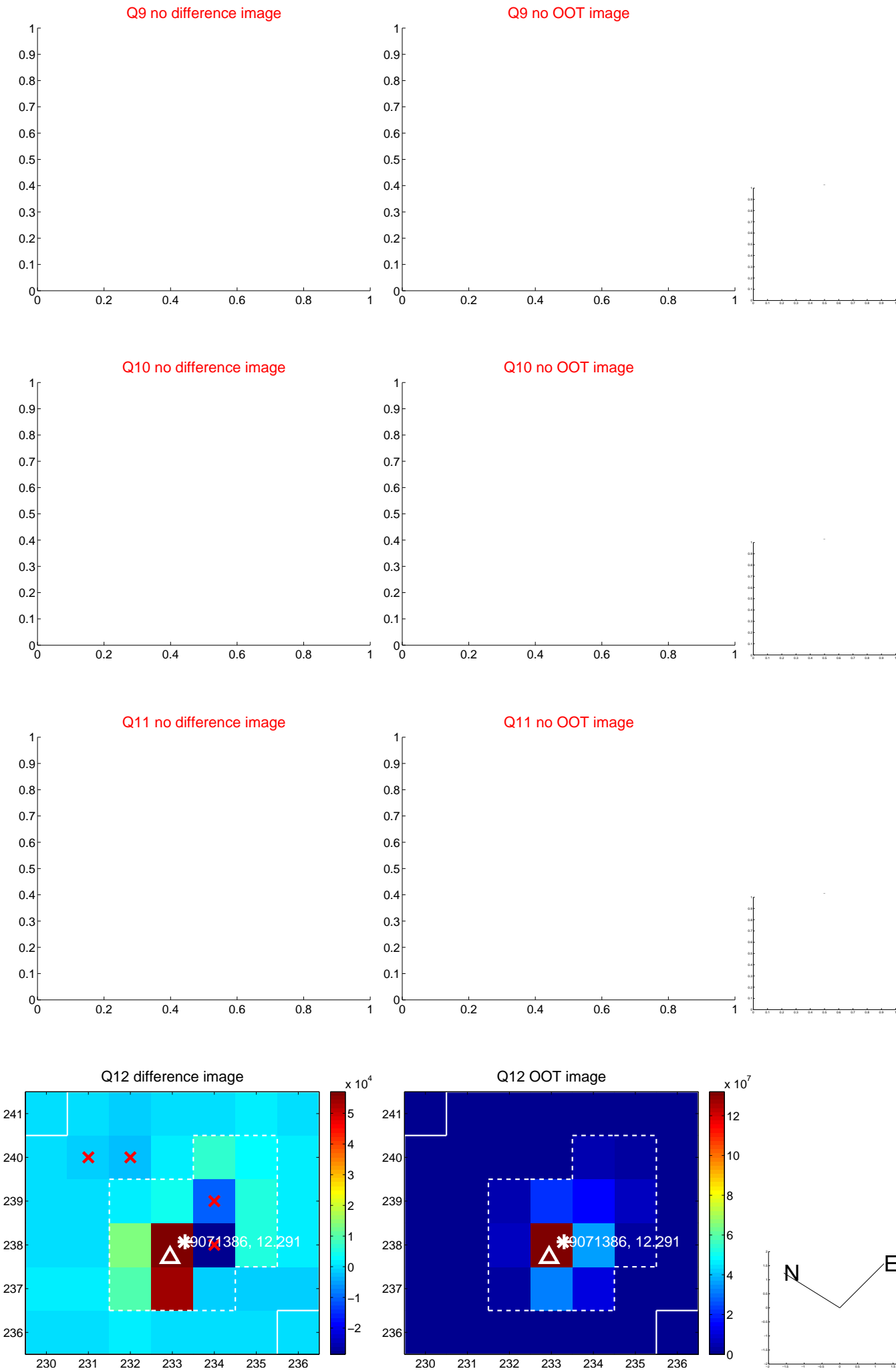
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



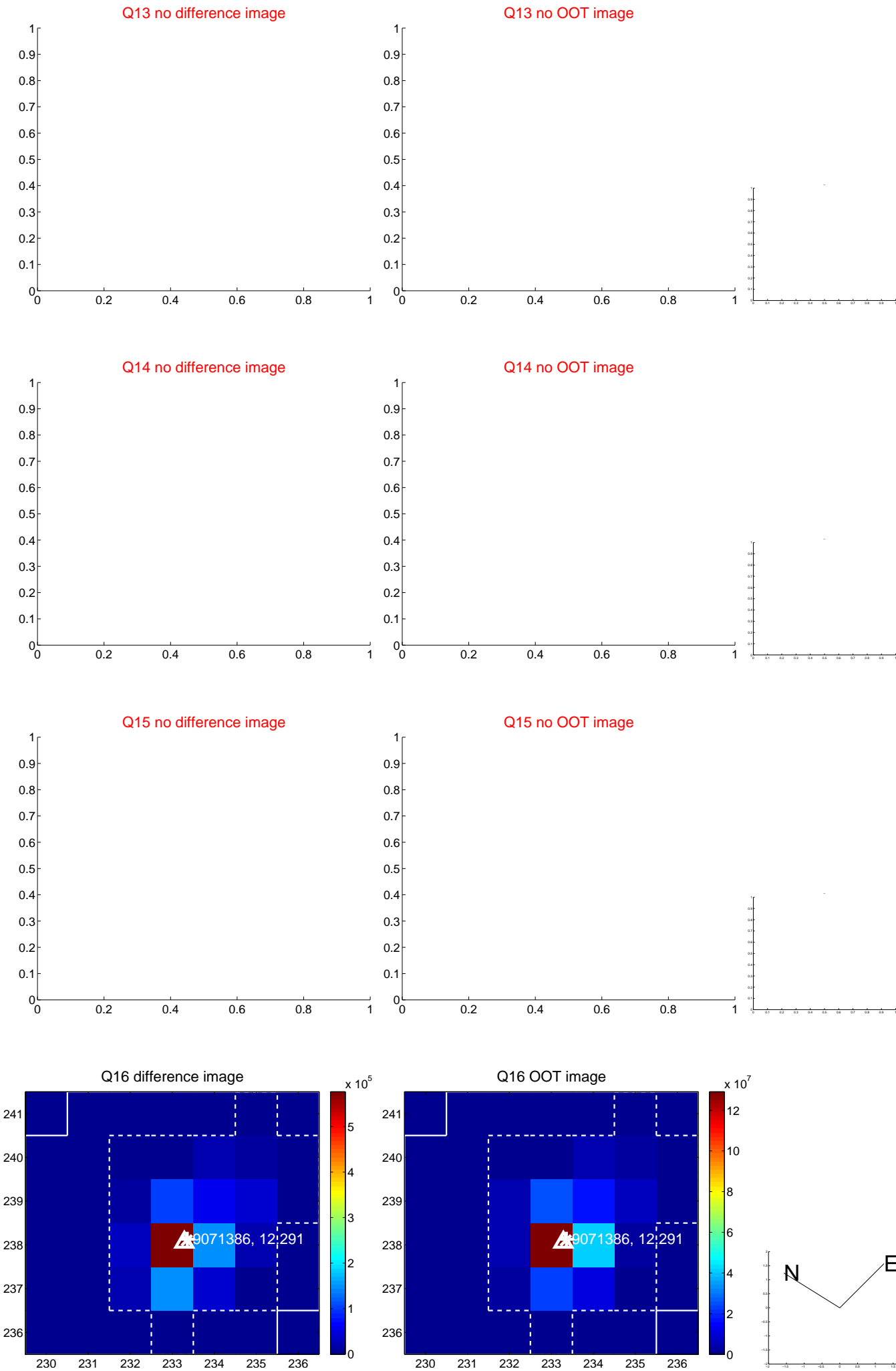
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



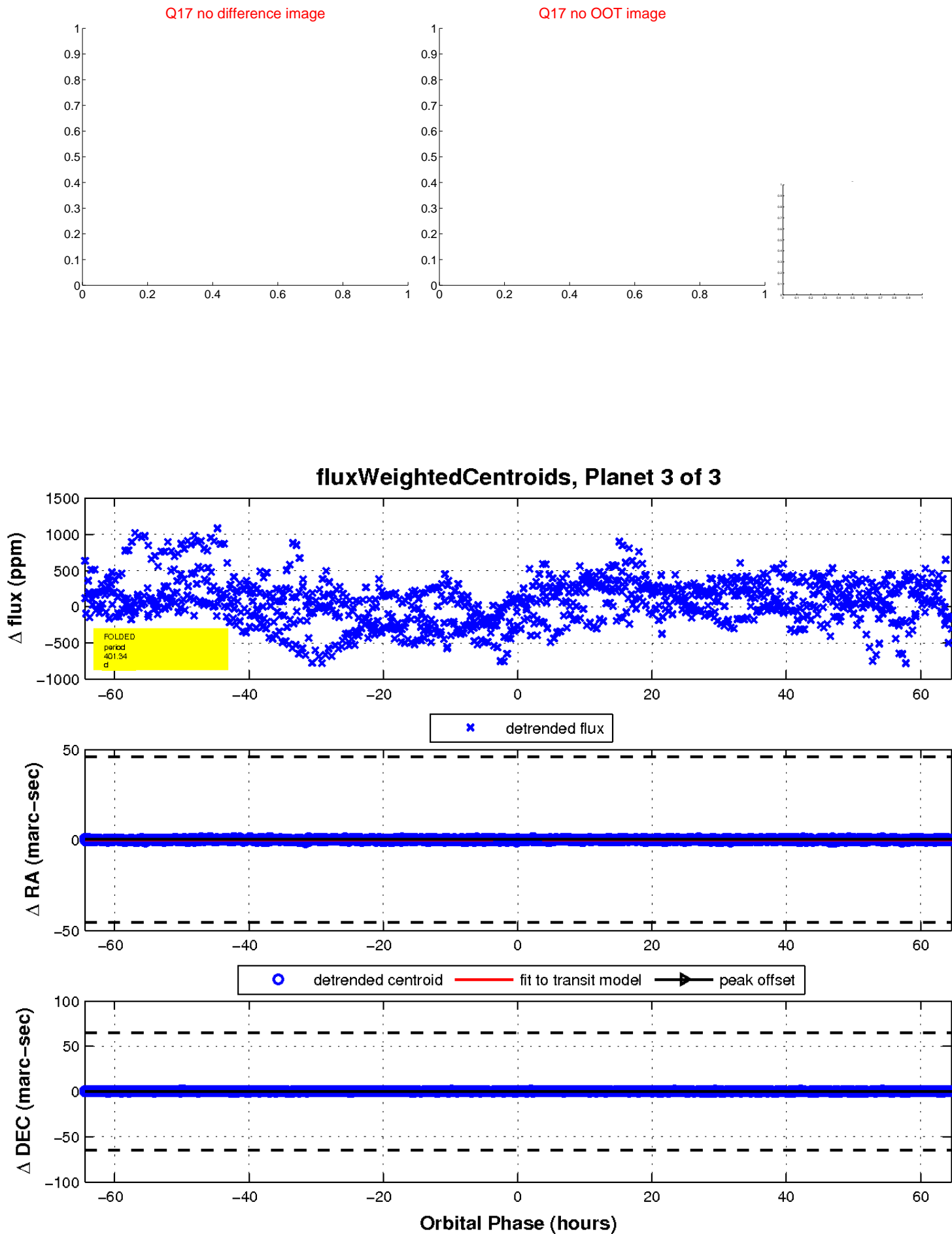
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

