

KIC 012009347

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})
012009347-01	OBS	3792.01	5.447707	133.577525	8328.1	1.497	170.3	155.2	0.73	4416	10.58	61.58
012009347-02	OBS	No	5.447725	136.299640	2642.7	1.272	47.8	62.1	0.73	4416	4.75	61.58
012009347-03	OBS	No	328.642890	191.943907	2126.4	7.591	11.4	7.8	0.73	4416	3.27	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012009347-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012009347-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012009347-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—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.

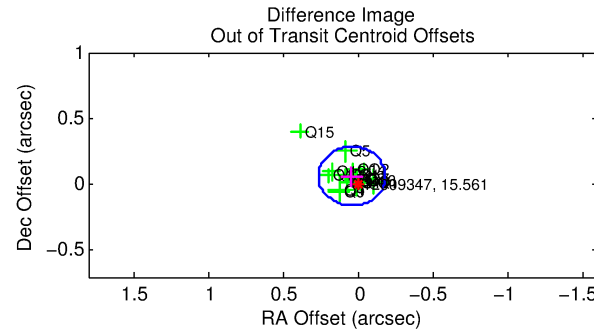
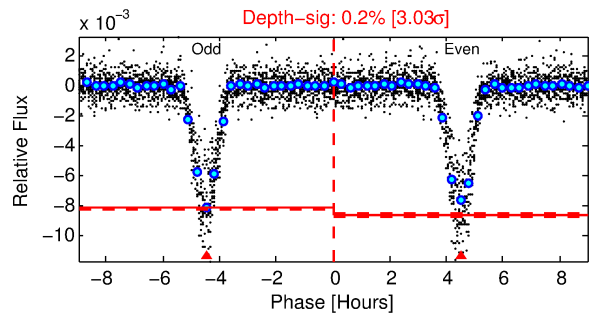
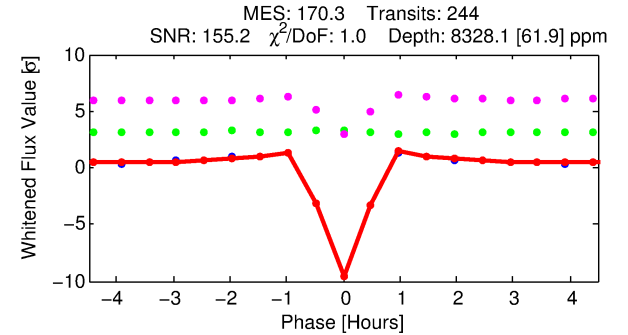
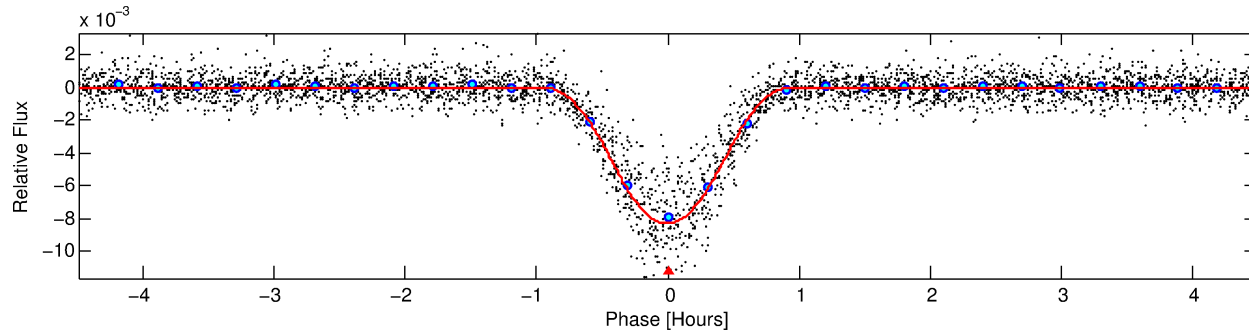
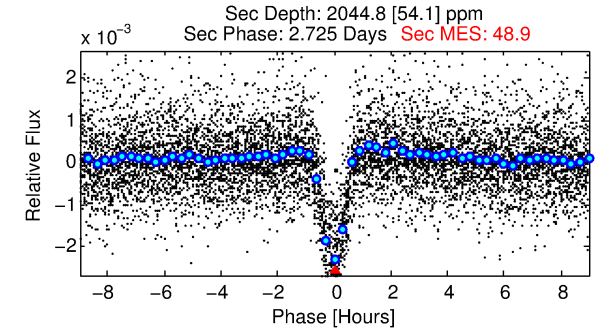
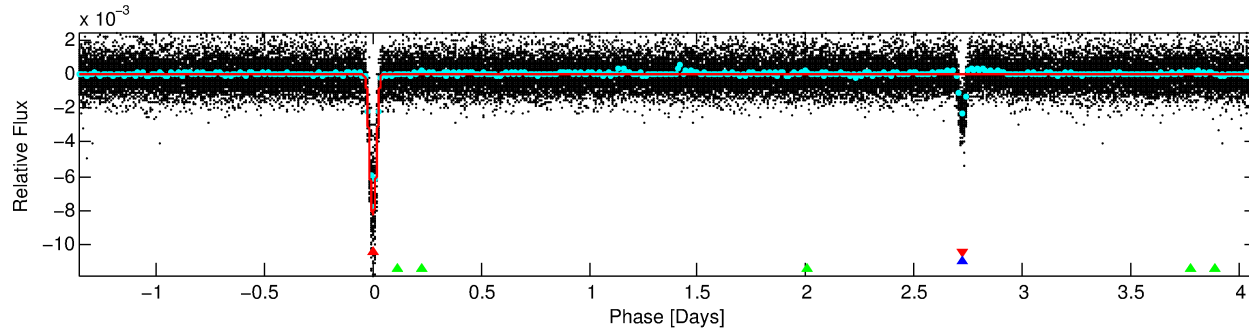
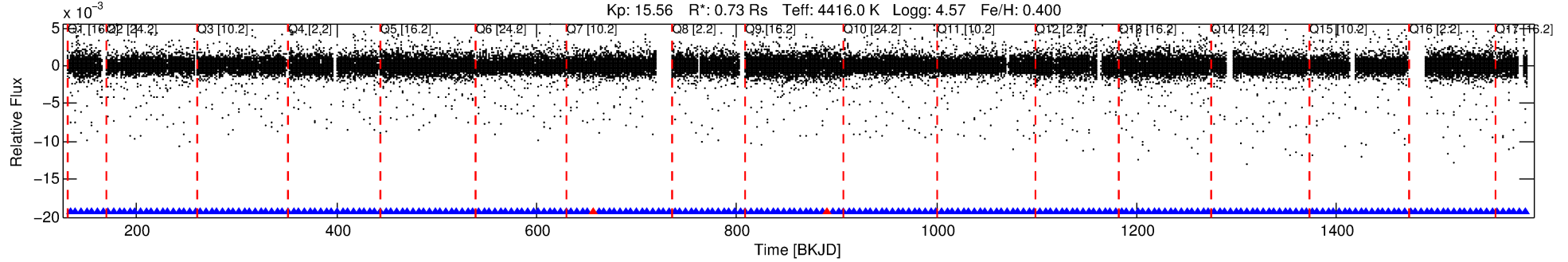
Ephemeris Match Information For 012009347-01

No Significant Match Found

DV One-Page Summary

KIC: 12009347 Candidate: 1 of 3 Period: 5.448 d
KOI: K03792 Corr: No Ephemeris Match

Kp: 15.56 R*: 0.73 Rs Teff: 4416.0 K Logg: 4.57 Fe/H: 0.400



DV Fit Results:

Period = 5.44771 [0.00000] d
Epoch = 133.5775 [0.0002] BKJD
Rp/R* = 0.1323 [0.0376]
a/R* = 17.11 [1.18]
b = 0.95 [0.06]
Seff = 61.58 [9.65]
Teq = 714 [28] K
Rp = 10.58 [3.12] Re
a = 0.0545 [0.0037] AU
Ag = 29.87 [17.26] [1.67σ]
Teffp = 2582 [375] K [4.96σ]

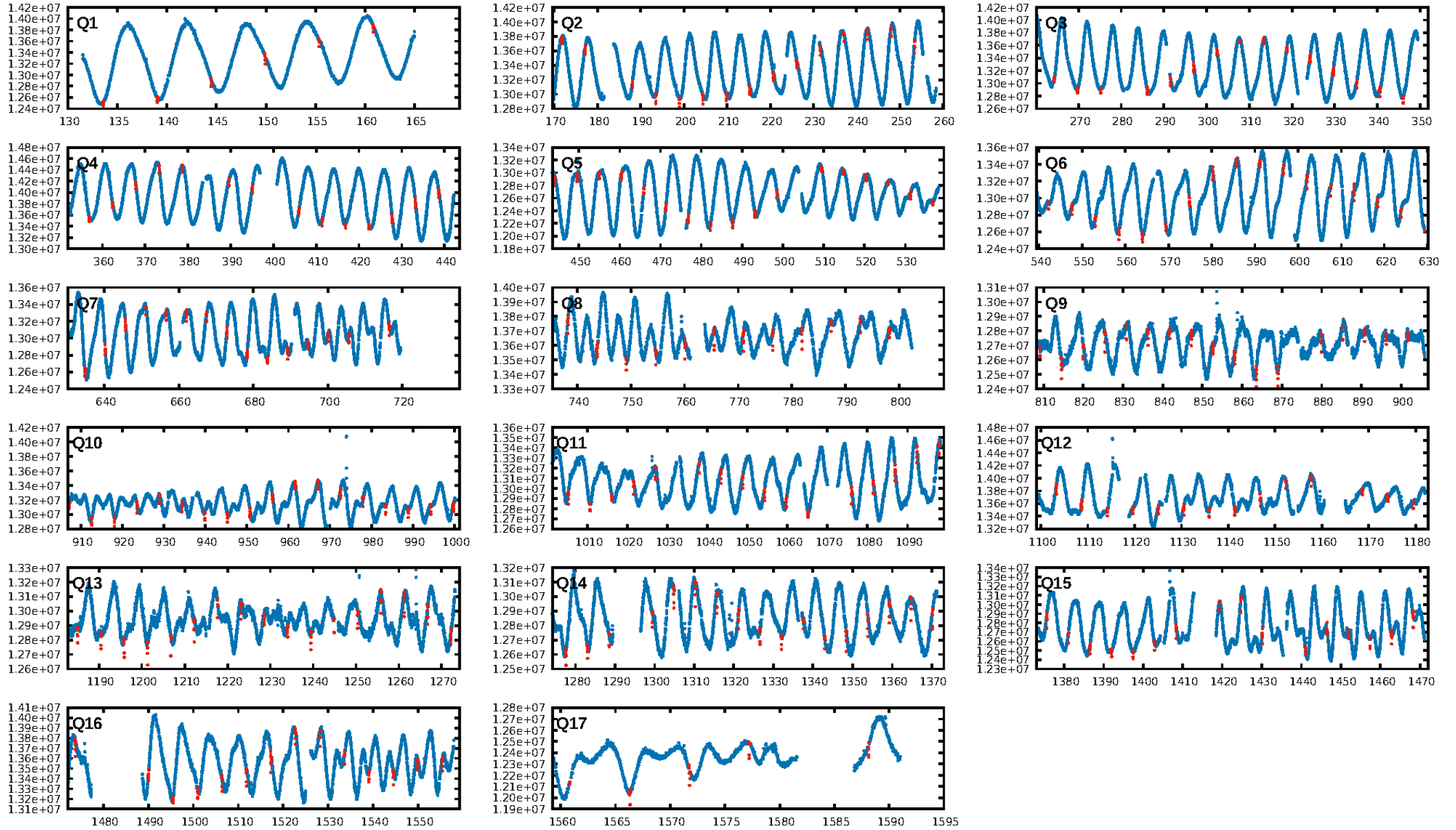
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [231/233]
GhostDiagnostic-chr: 1.908
Centroid-sig: 0.0%
Centroid-so: 0.298 arcsec [4.44σ]
OotOffset-rm: 0.074 arcsec [0.99σ]
KicOffset-rm: 0.404 arcsec [5.40σ]
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]

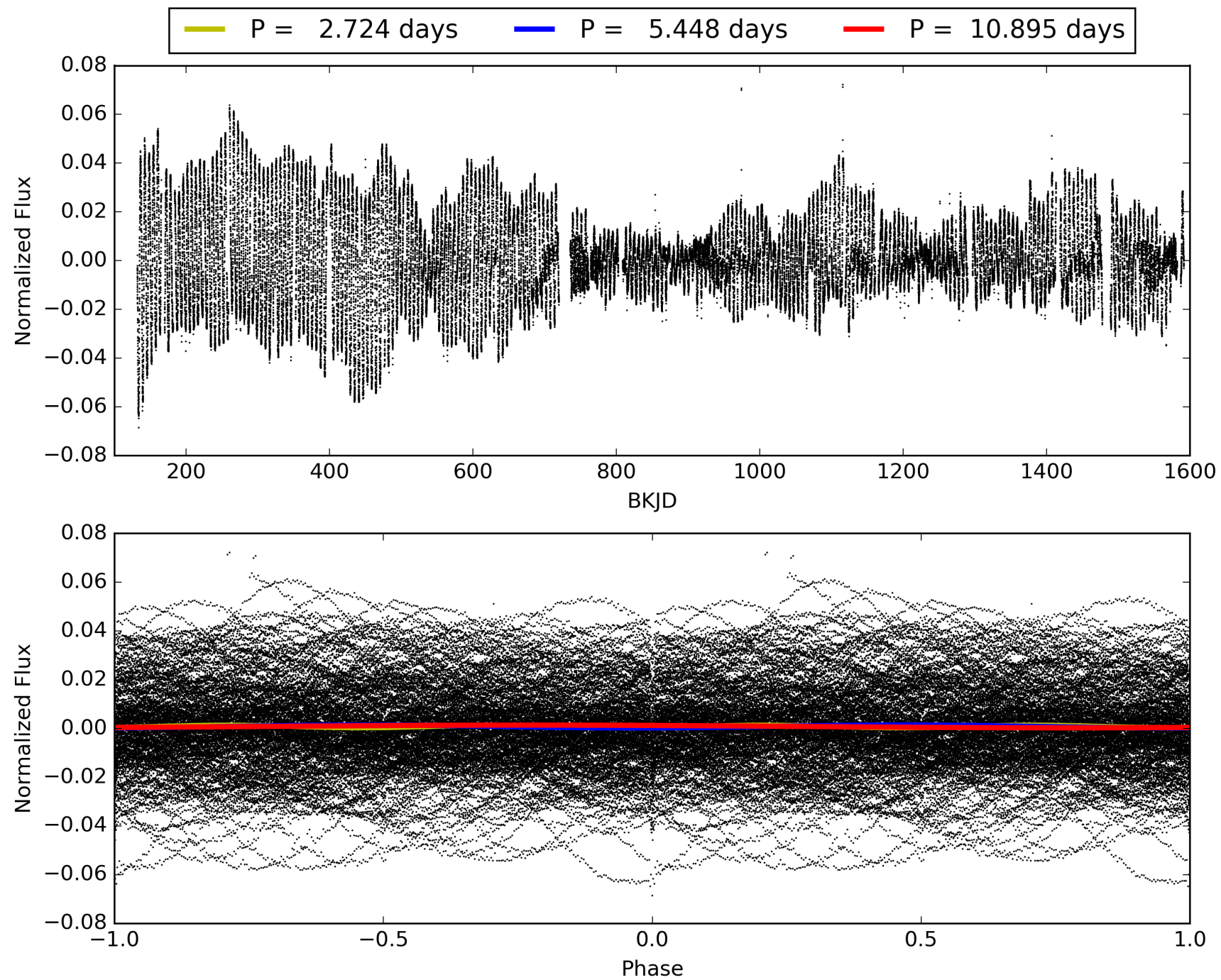
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:39:29 Z

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

TCE 012009347-01, PDC Light Curves

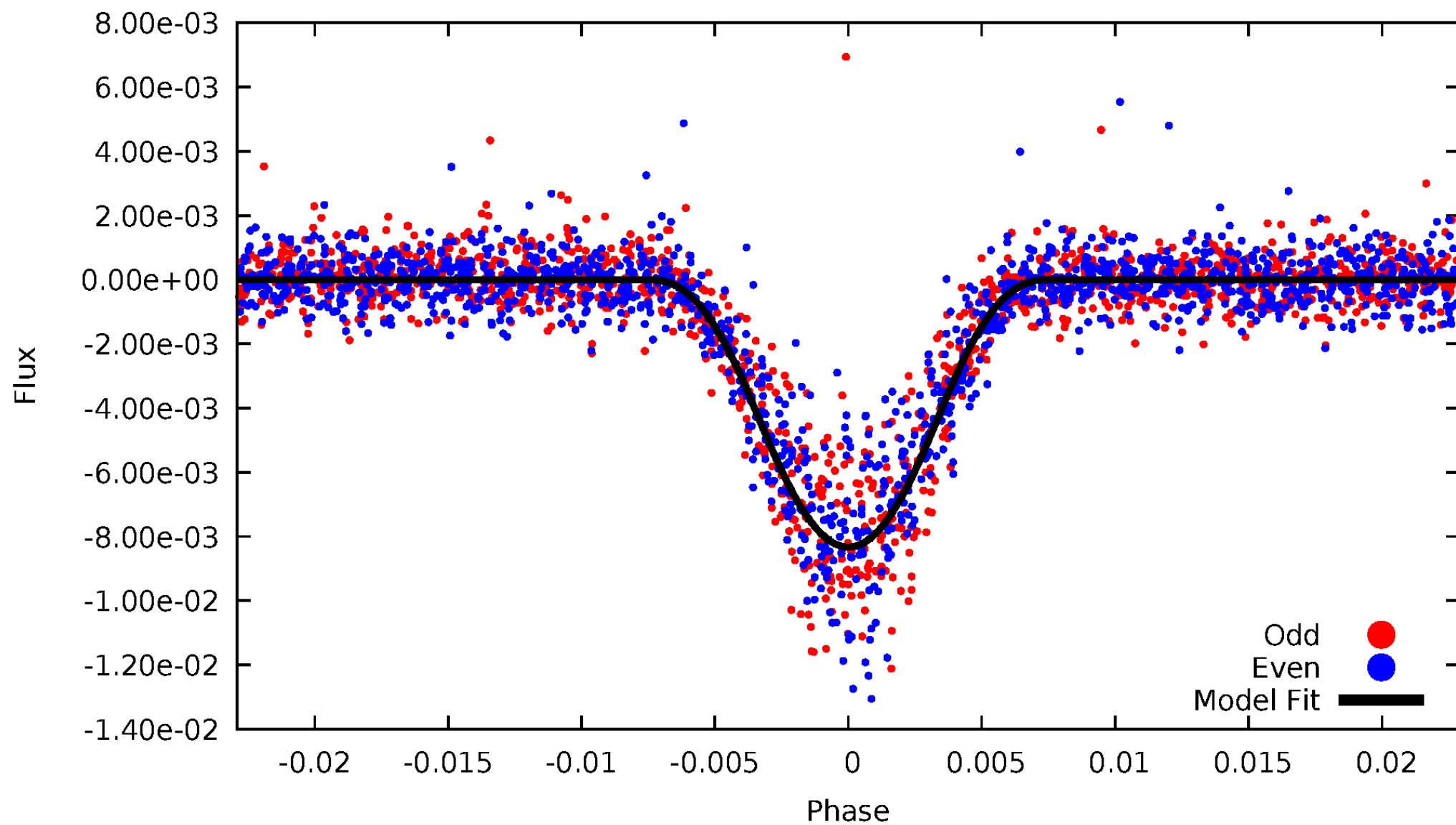


TCE 012009347-01



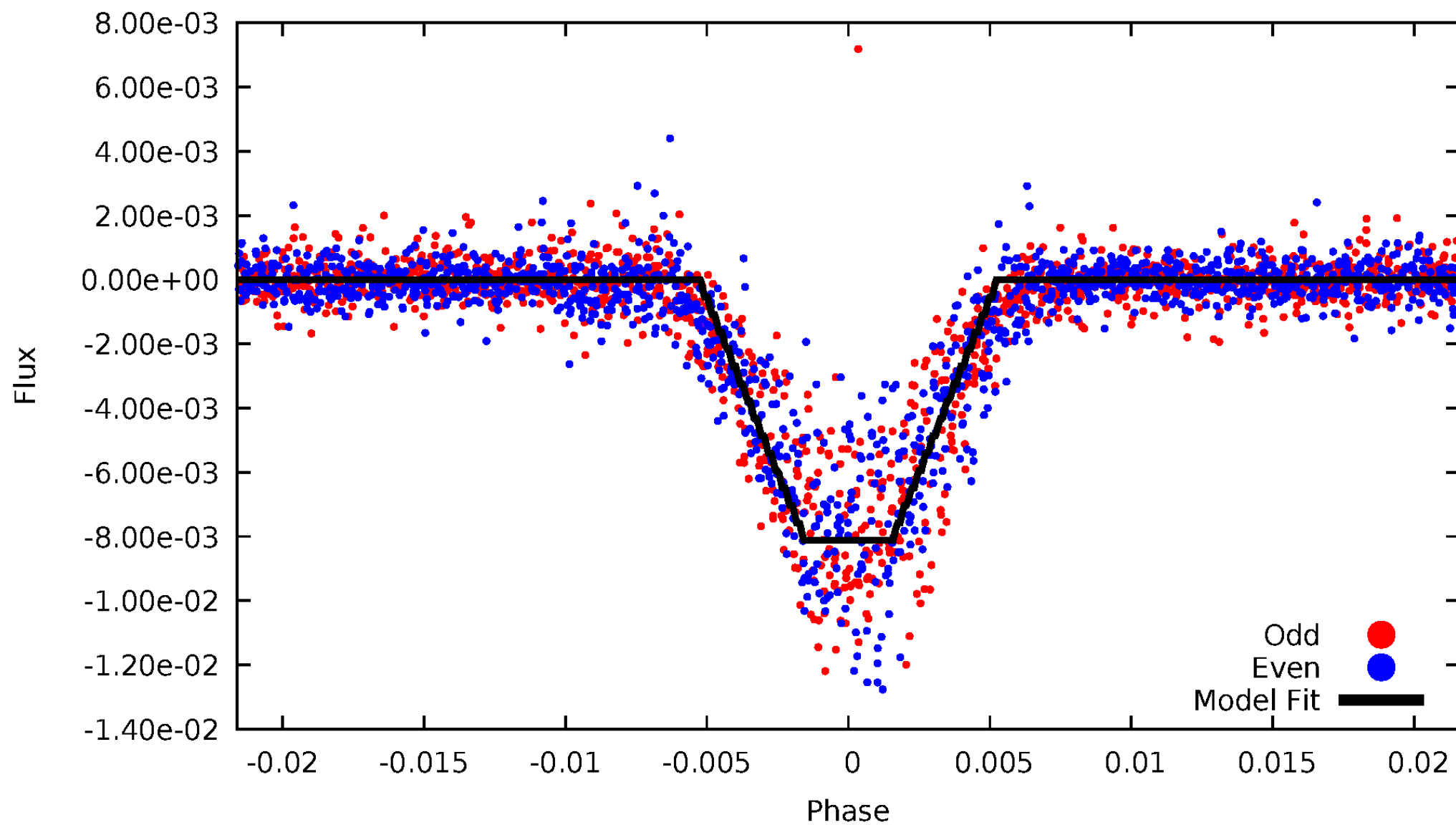
DV Odd/Even

TCE 012009347-01

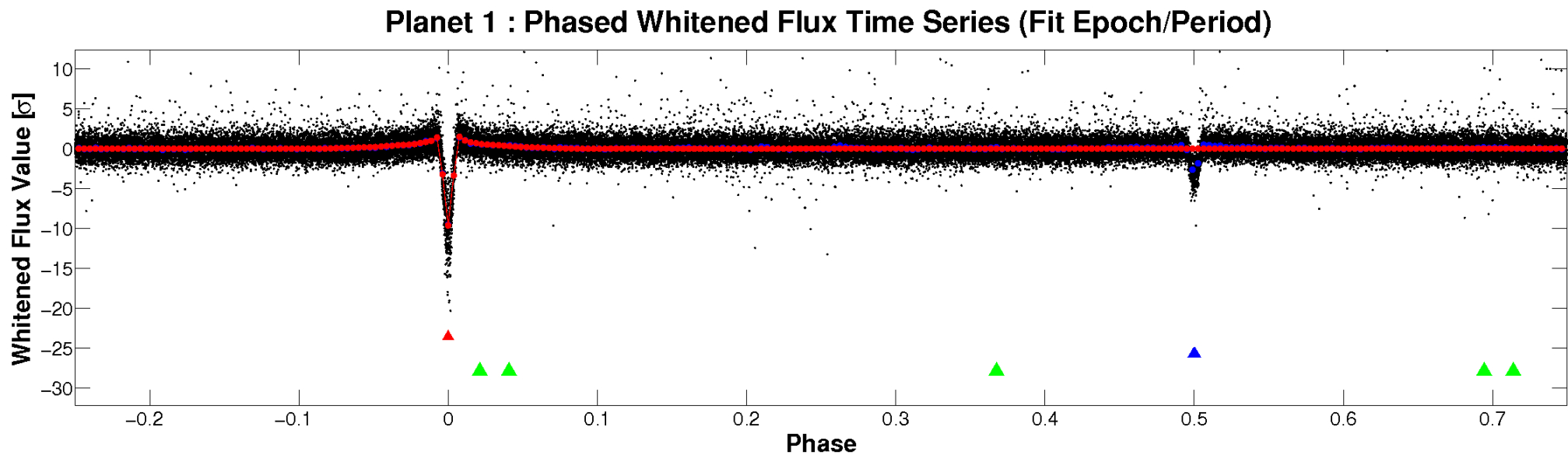
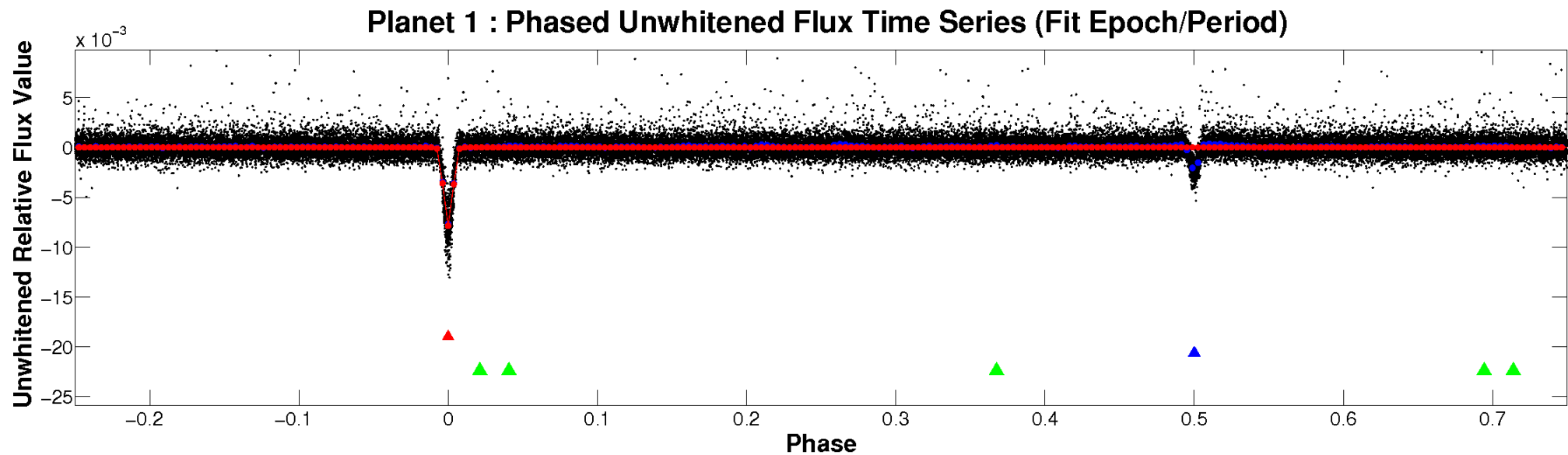


ALT Odd/Even

TCE 012009347-01

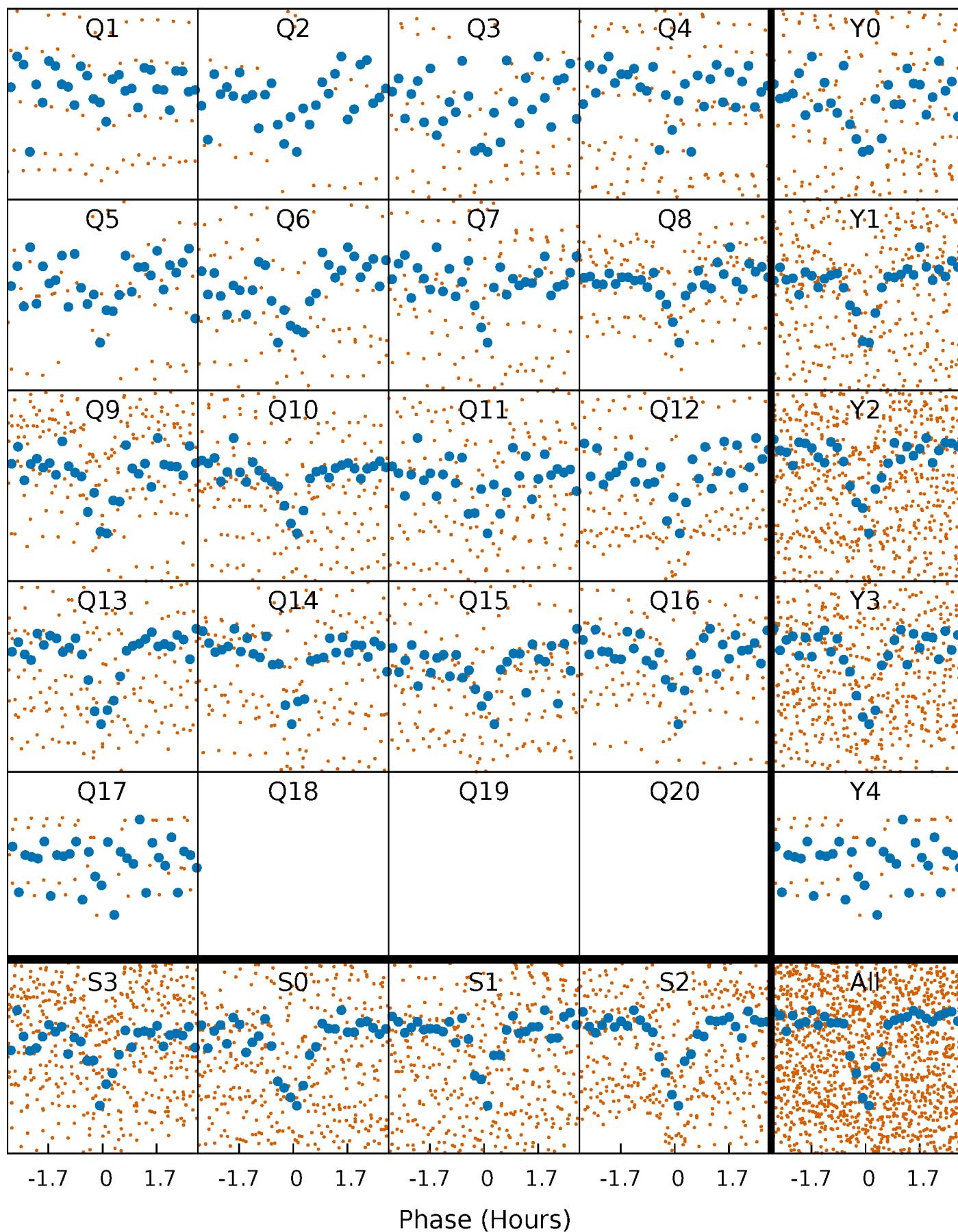


Non-Whitened Vs. Whitened Light Curve



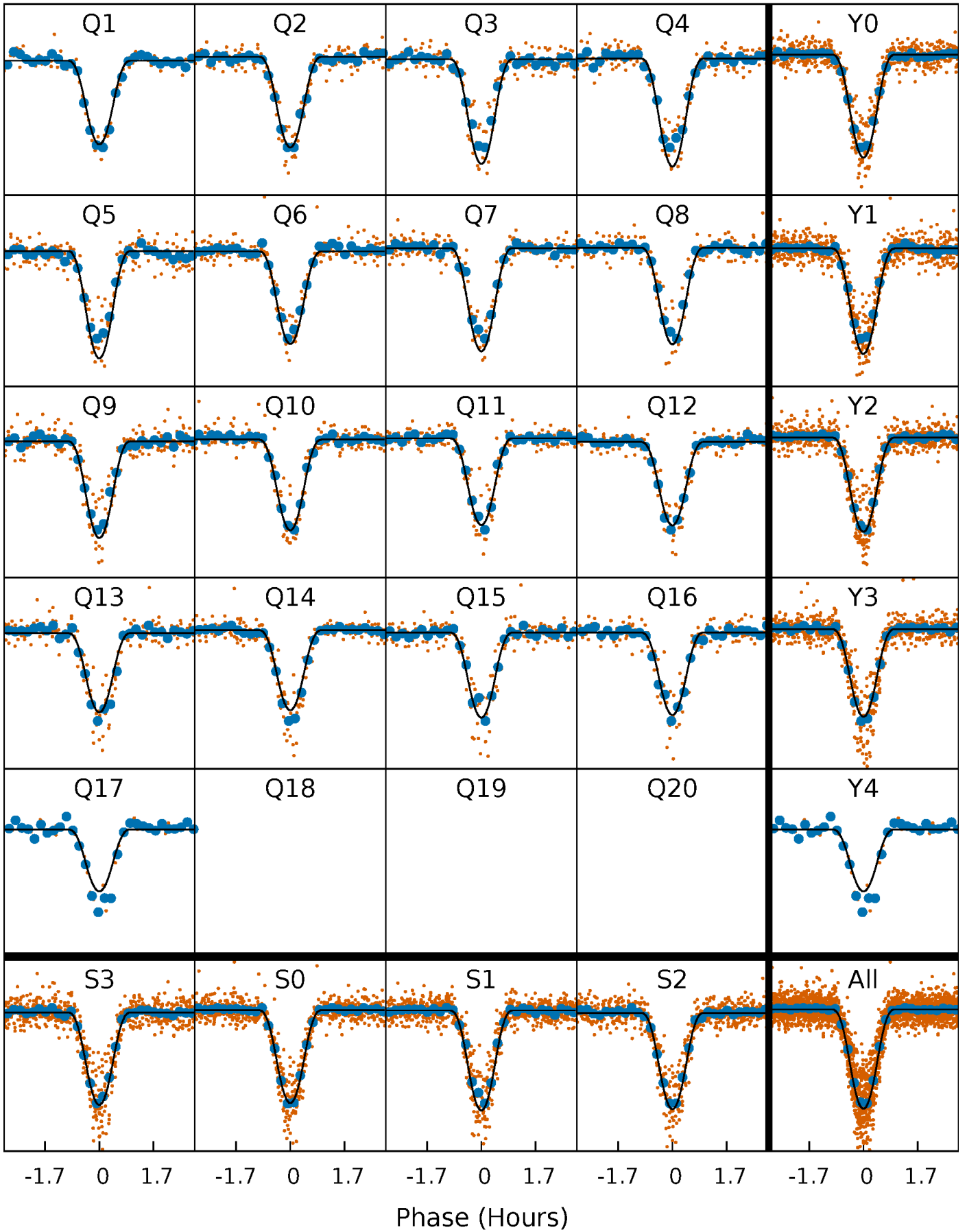
PDC Quarter-Phased Transit Curves

TCE 012009347-01 P= 5.447707 Days $T_0=133.577525$ (BKJD)



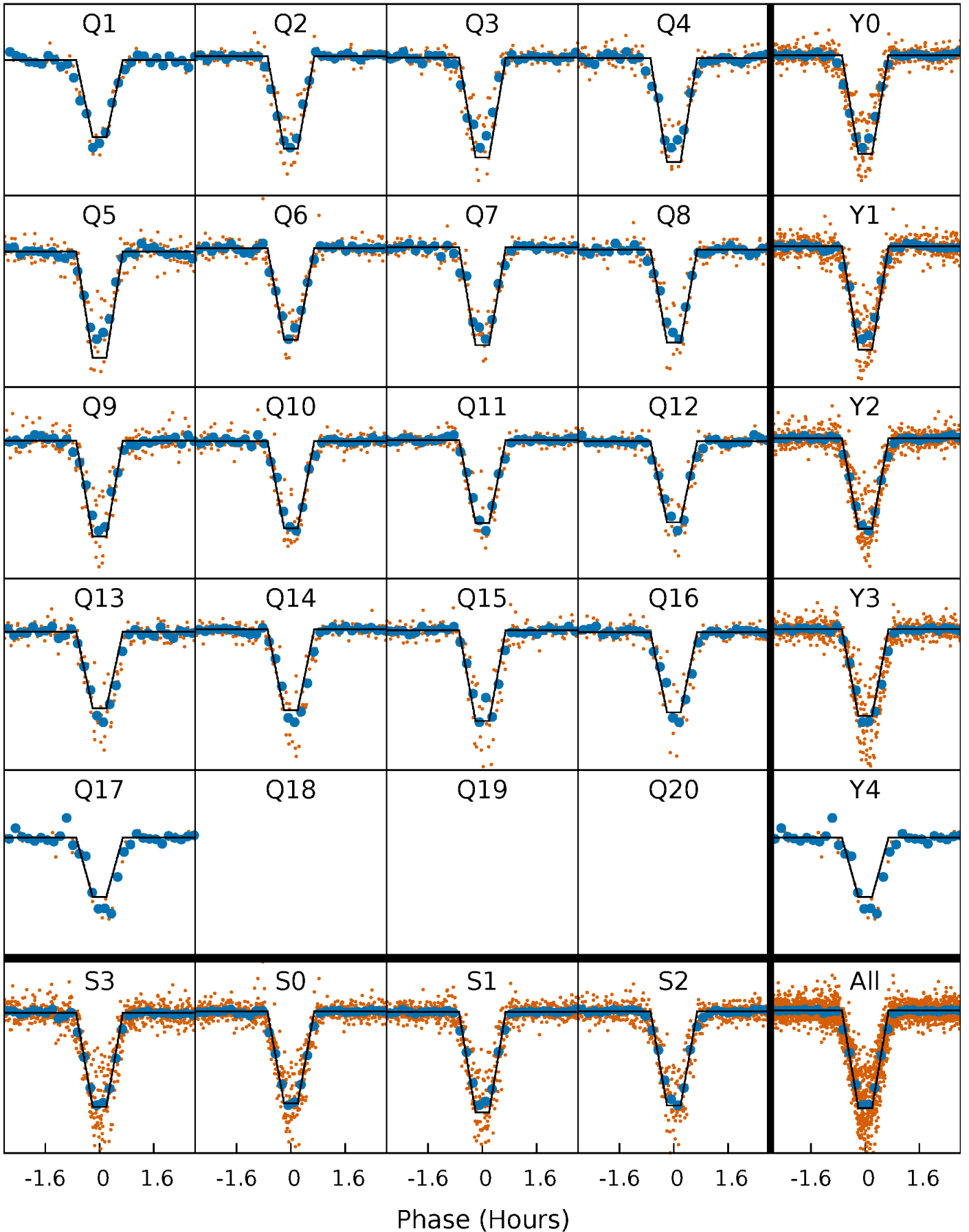
DV Quarter-Phased Transit Curves

TCE 012009347-01 P= 5.447707 Days $T_0=133.577525$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

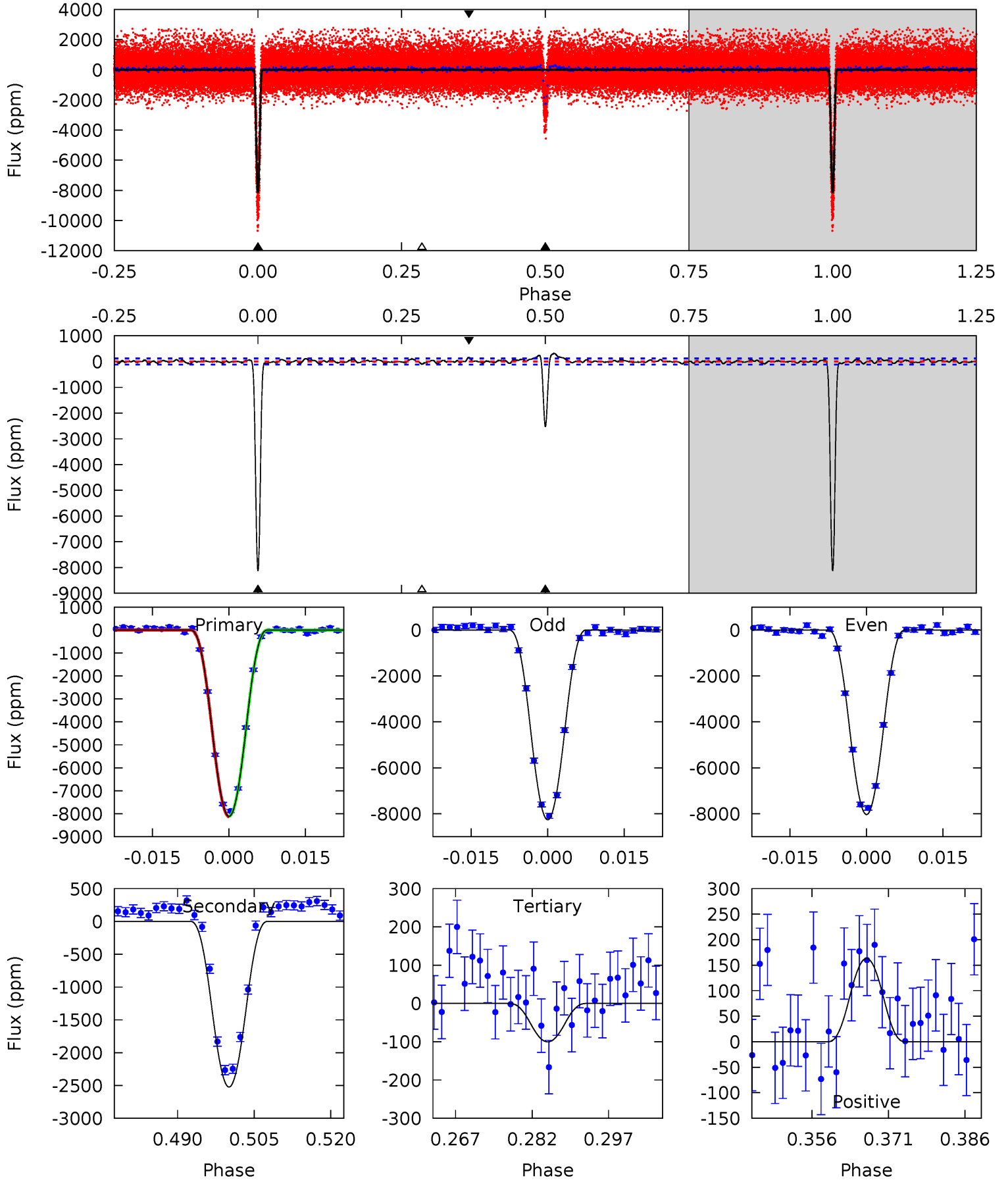
TCE 012009347-01 $P = 5.447687$ Days $T_0 = 133.579914$ (BKJD)



DV Model-Shift Uniqueness Test

012009347-01, P = 5.447707 Days, E = 128.129818 Days

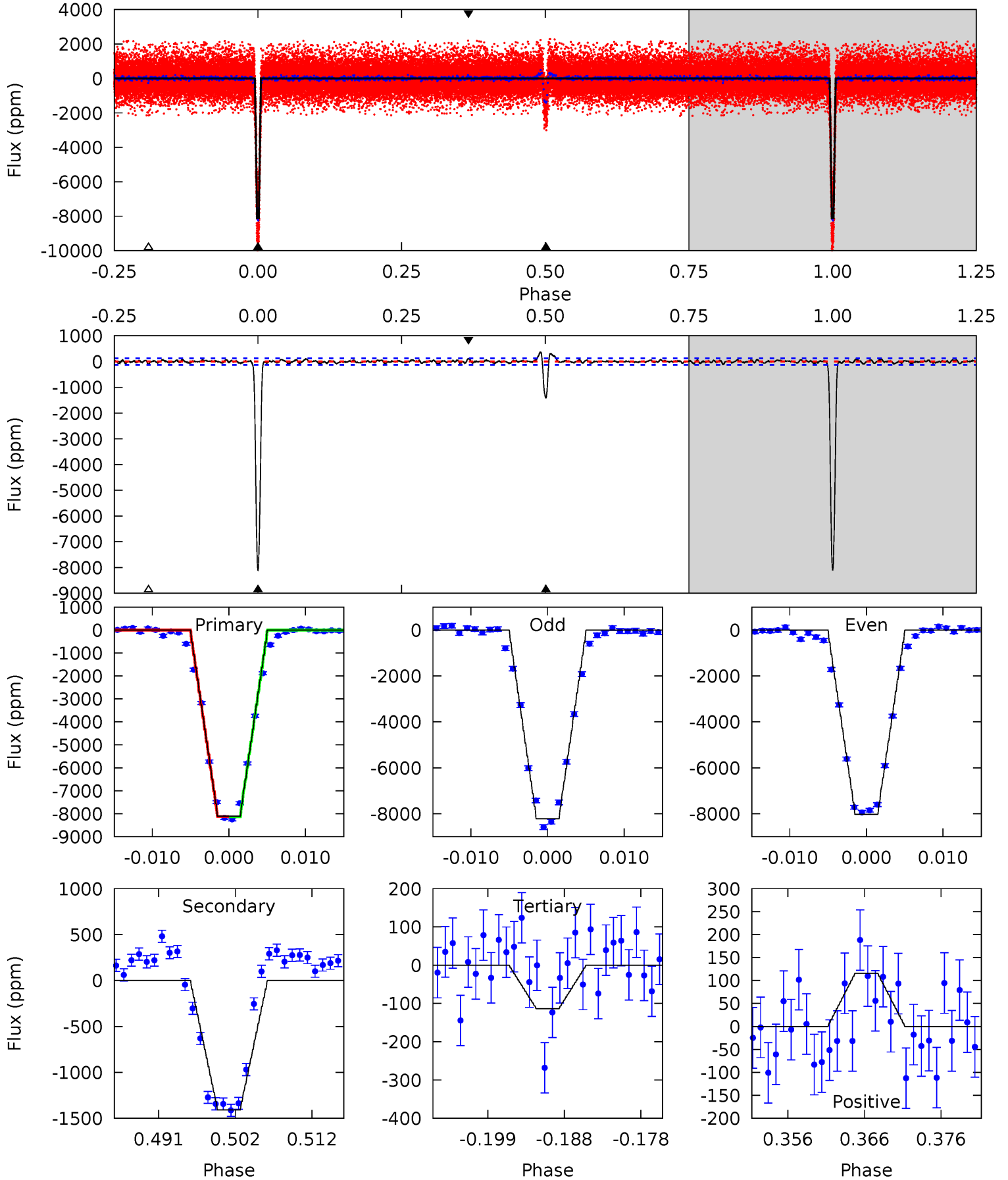
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
342.0	106.3	4.23	6.88	4.95	2.44	2.12	337.8	335.1	102.1	99.5	4.84	0.98	0.04	0.51



Alt Model-Shift Uniqueness Test

012009347-01, P = 5.447687 Days, E = 128.132227 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
320.0	55.6	4.50	4.58	5.02	2.56	1.64	315.5	315.5	51.1	51.0	3.74	0.98	0.04	0.19



Stellar Parameters For KIC 012009347

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4416^{+132}_{-132}	$4.570^{+0.056}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.733^{+0.021}_{-0.059}$	$0.728^{+0.037}_{-0.046}$	$2.604^{+0.657}_{-0.152}$
	+3%/-3%	+1%/-0%	+12%/-75%	+3%/-8%	+5%/-6%	+25%/-6%
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 012009347-01 / KOI 3792.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2523 ± 24	$10.45^{+3.12}_{-3.08}$	992^{+33}_{-33}	3185^{+379}_{-224}	38^{+38}_{-15}
Alt.	-1408 ± 25	$7.11^{+3.14}_{-3.04}$	990^{+32}_{-35}	3273^{+620}_{-314}	47^{+94}_{-24}

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

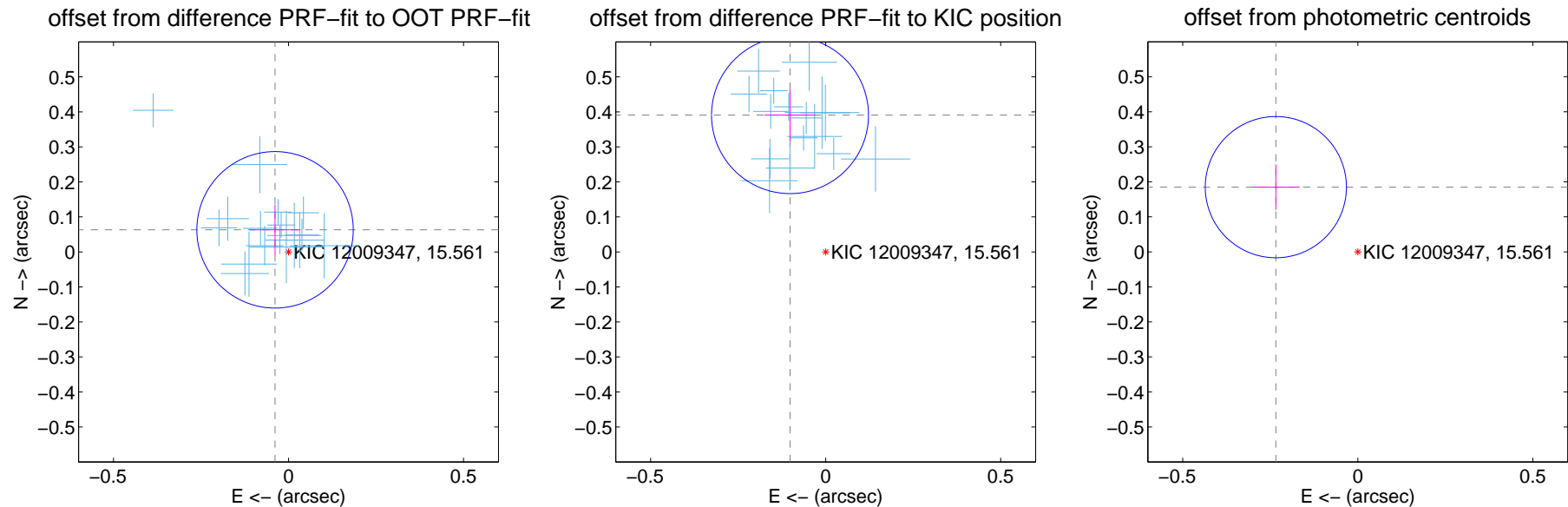
DV Centroid Data

Supplemental centroid analysis for 012009347-01. Kepler magnitude: 15.56. Transit SNR 155.16

There are 17 quarters with good PRF difference image offsets

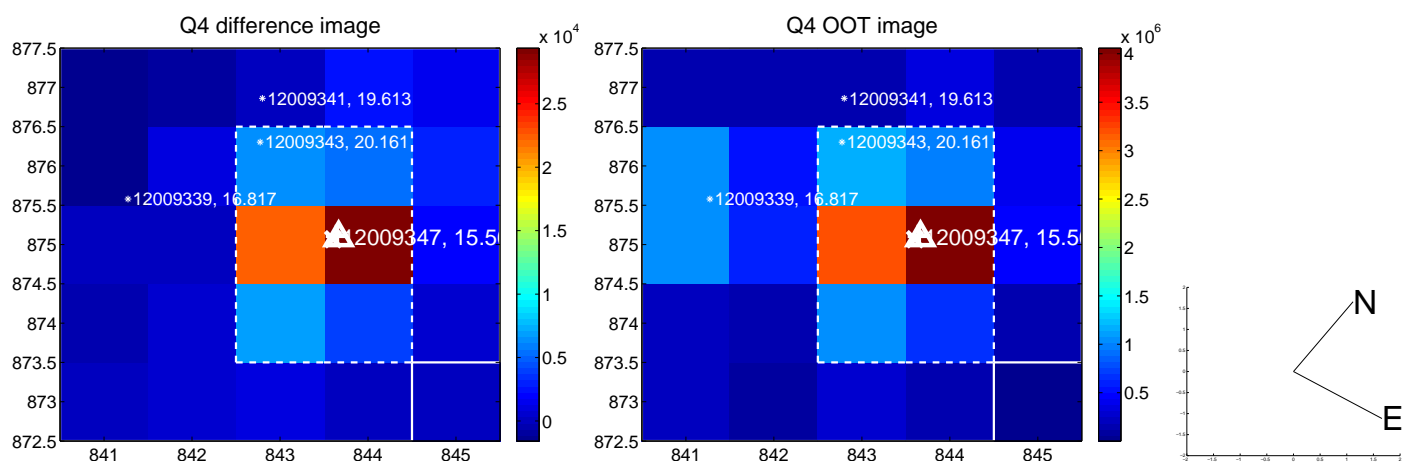
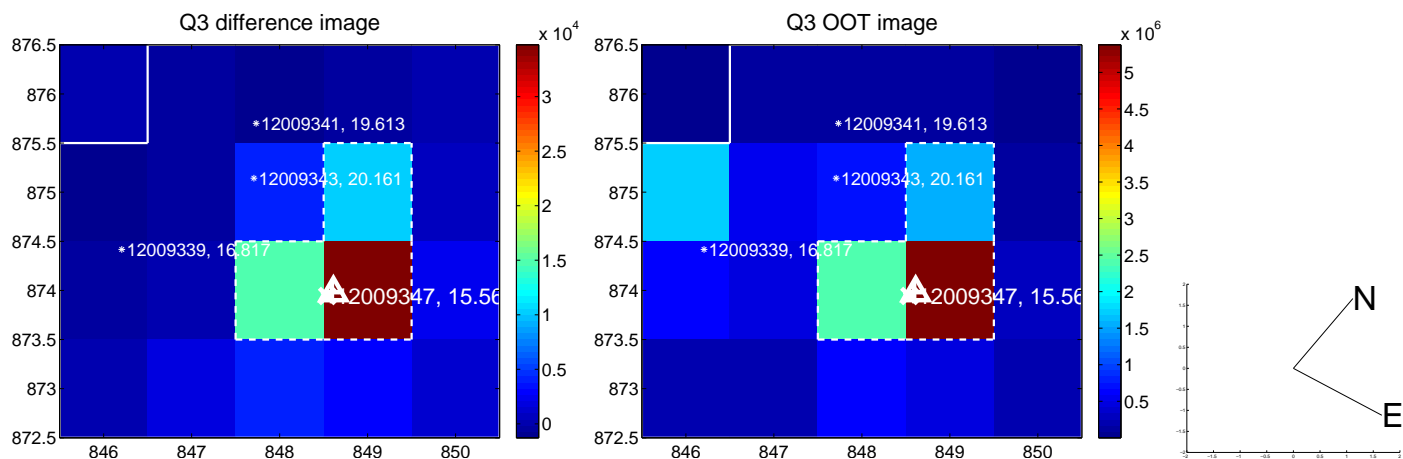
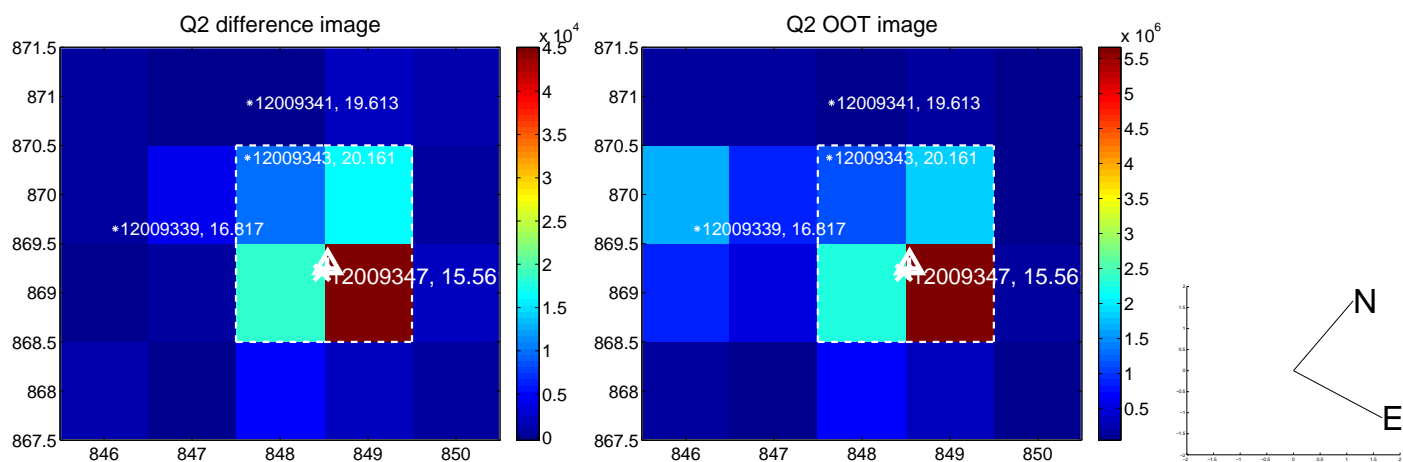
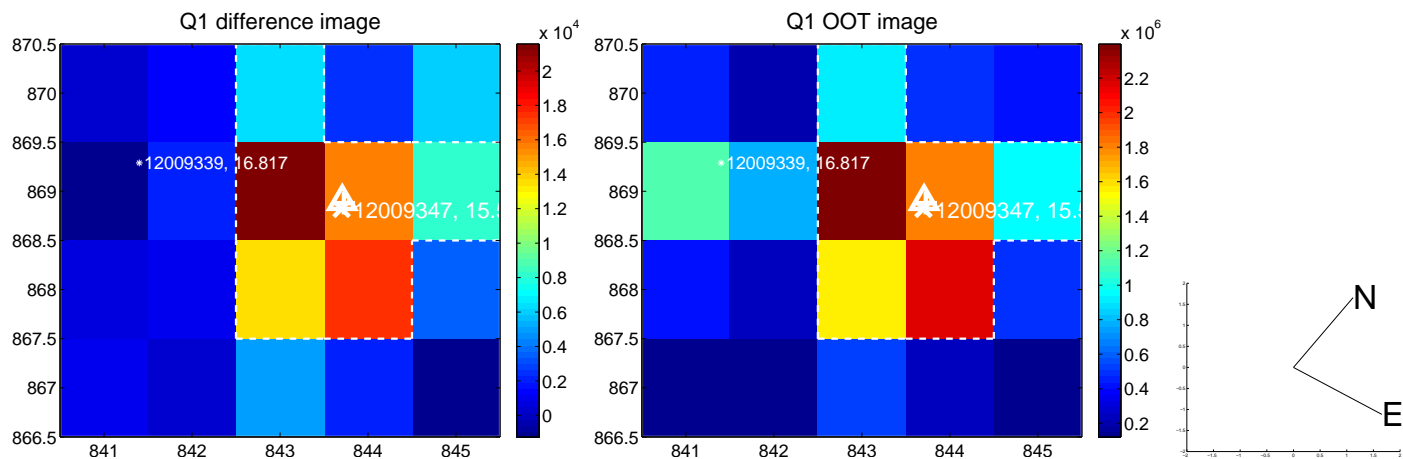
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.074 ± 0.074	0.99	0.038 ± 0.073	0.063 ± 0.071
PRF-fit source offset from KIC position	0.404 ± 0.075	5.40	0.102 ± 0.073	0.391 ± 0.073
photometric centroid source offset	0.30 ± 0.07	4.44	0.23 ± 0.07	0.18 ± 0.06

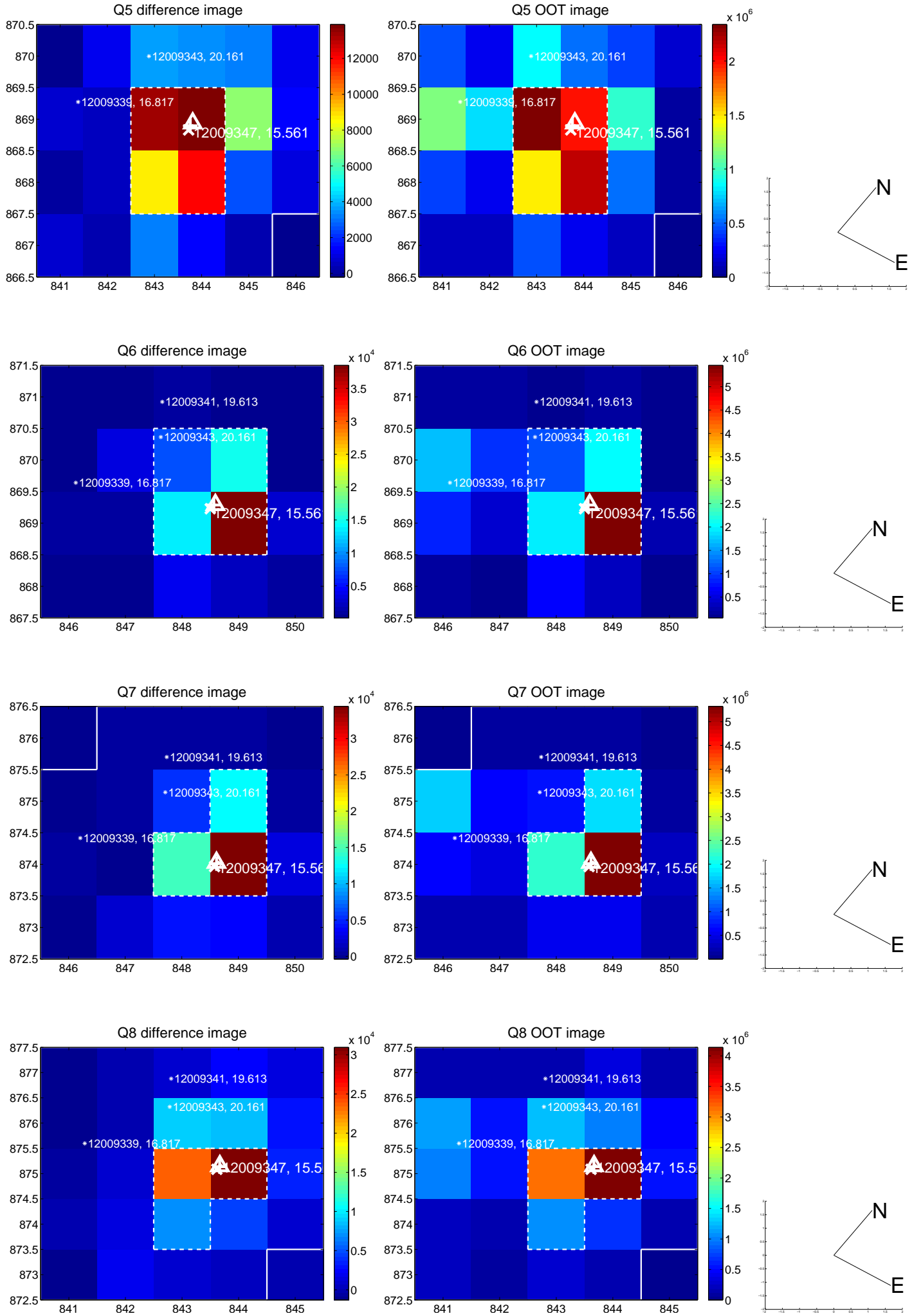


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

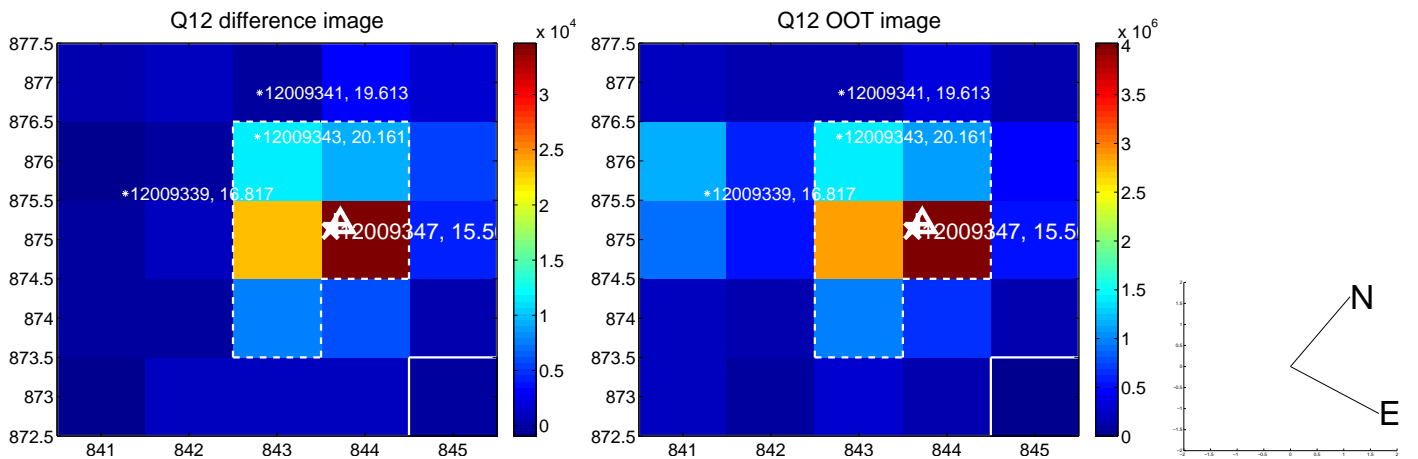
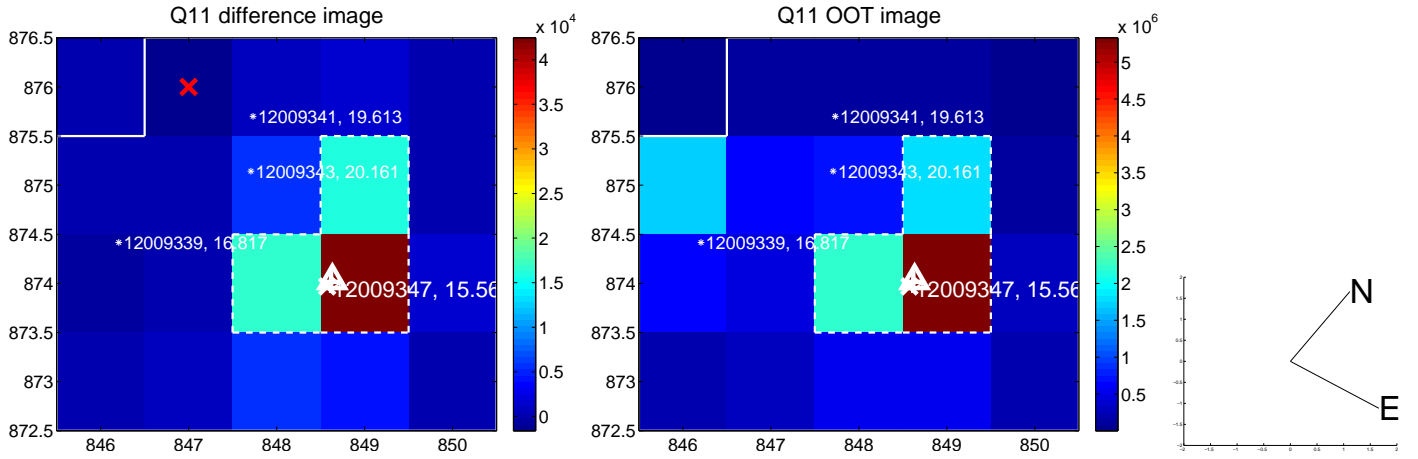
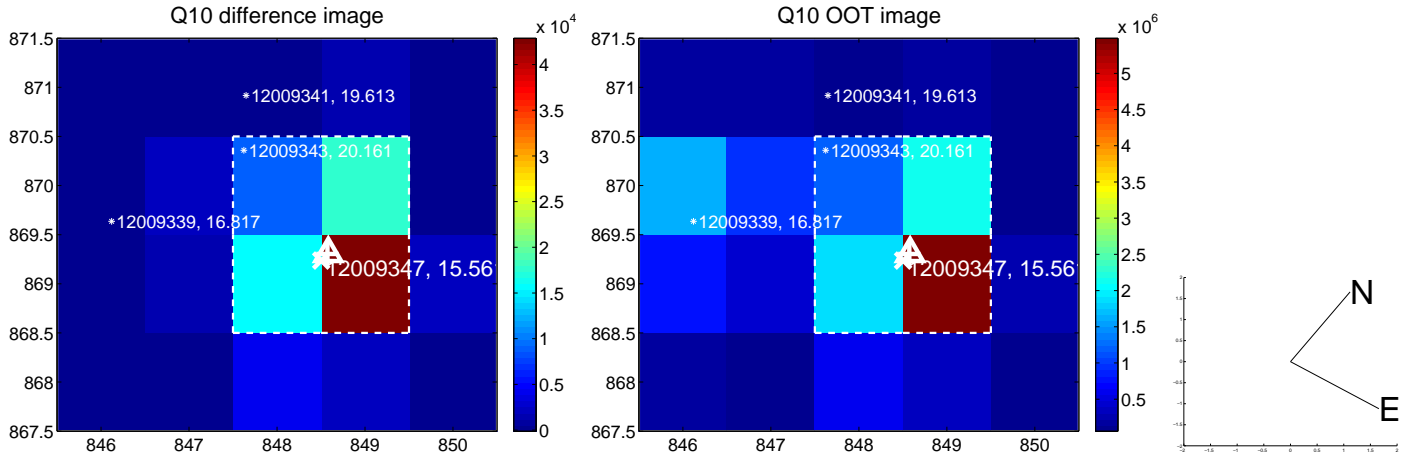
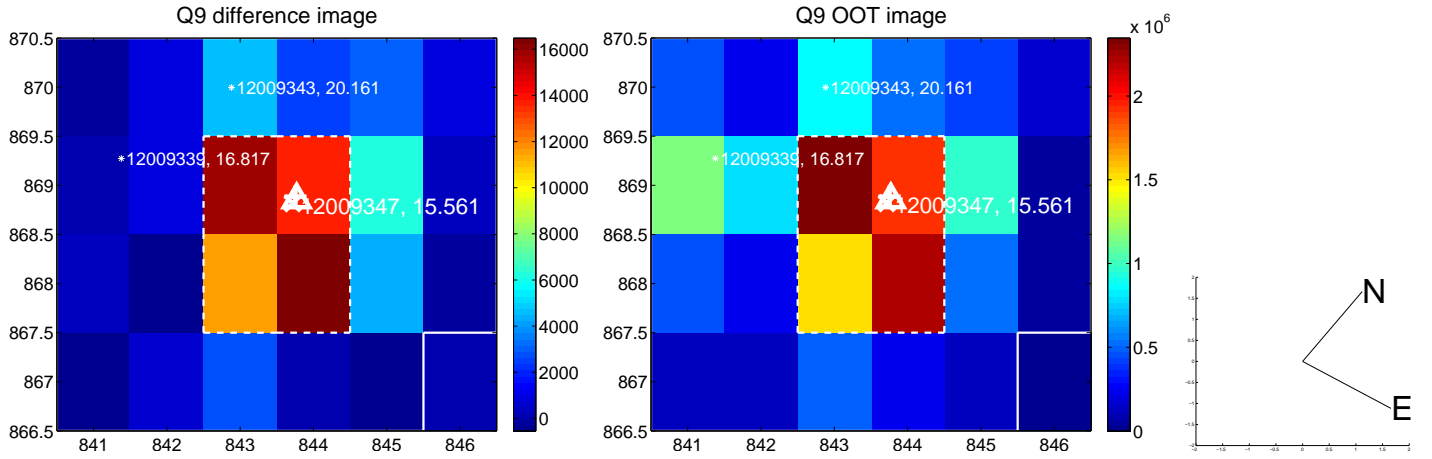
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



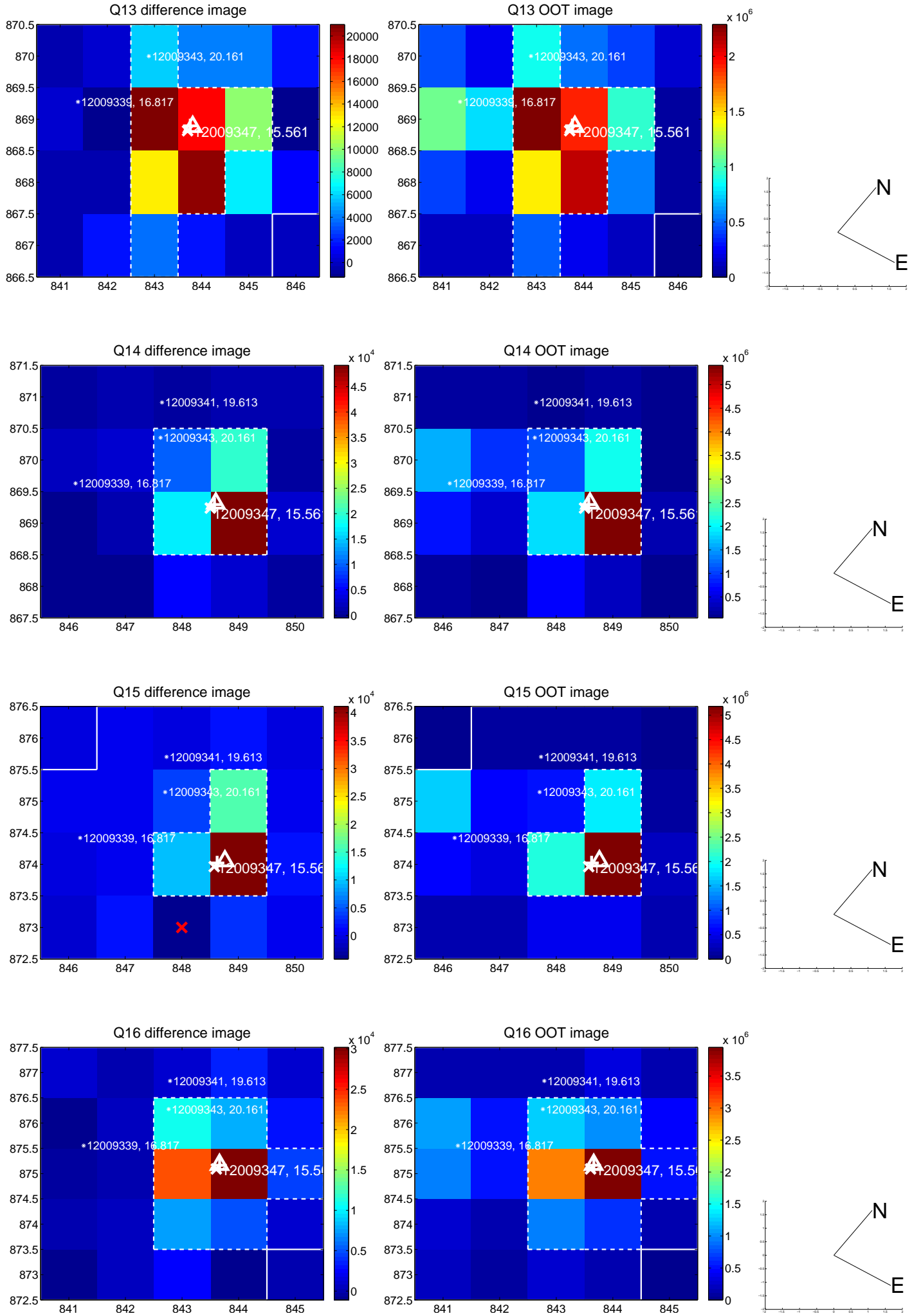
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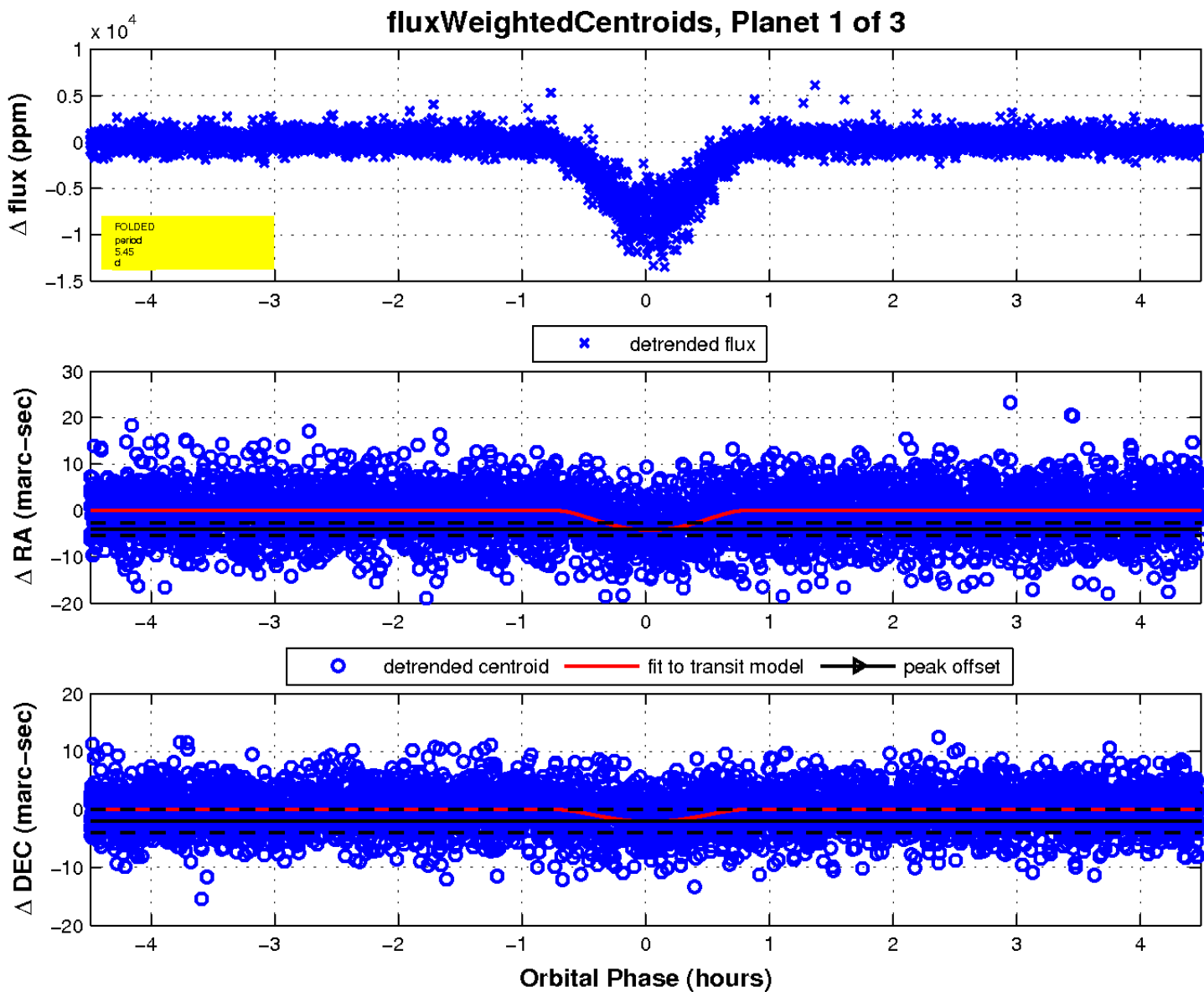
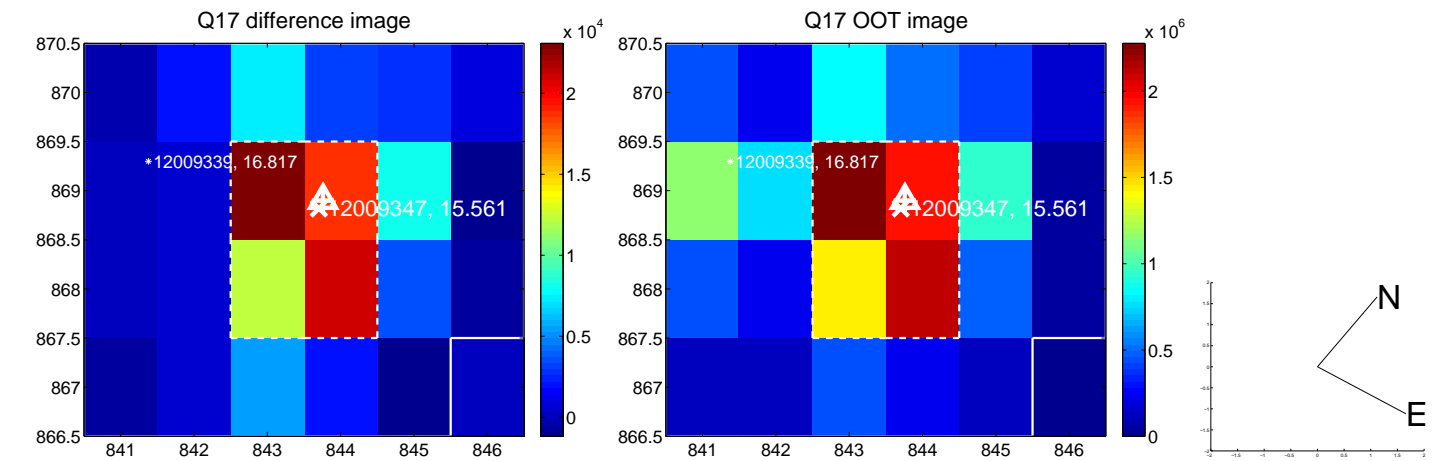
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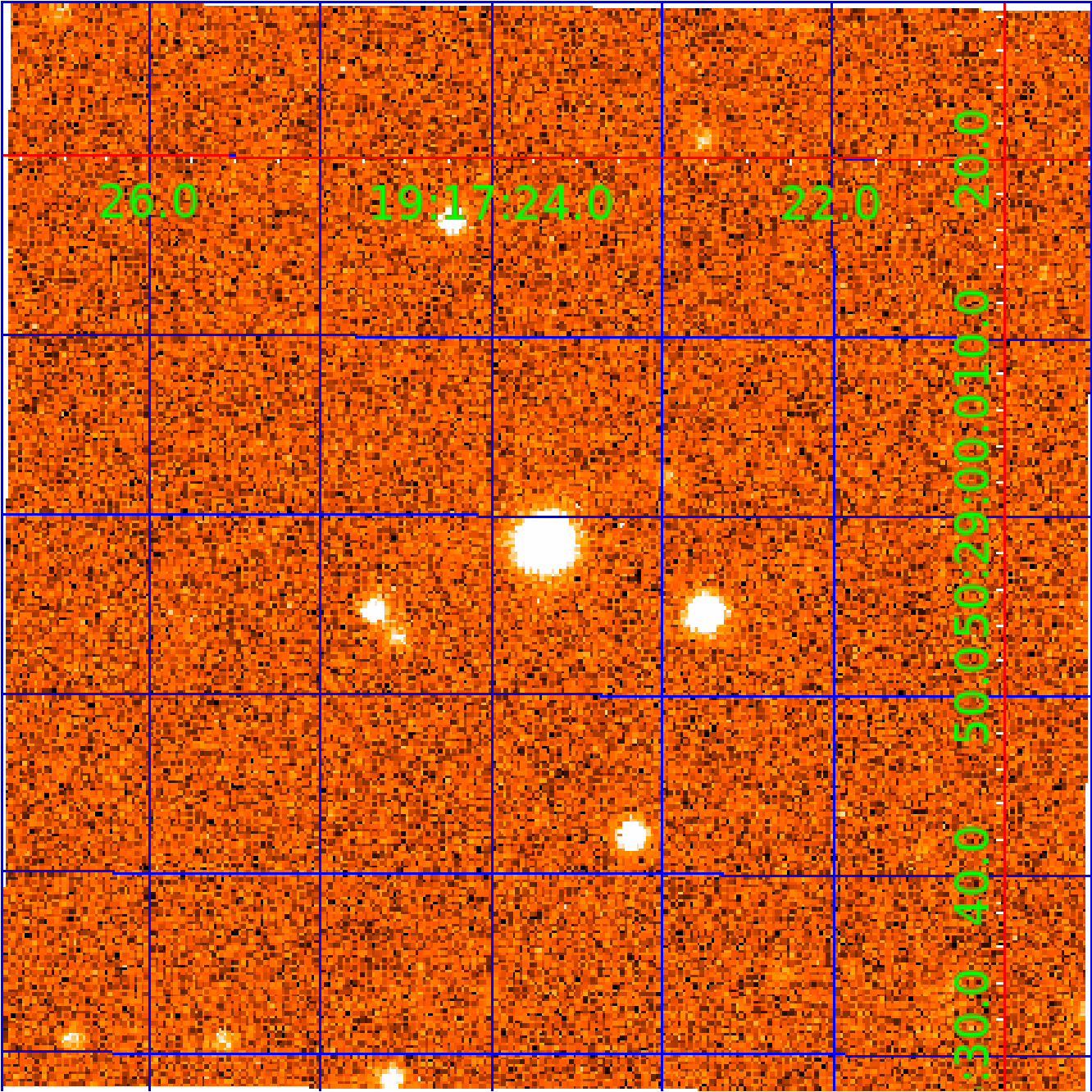


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012009347

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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012009347-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012009347-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—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.

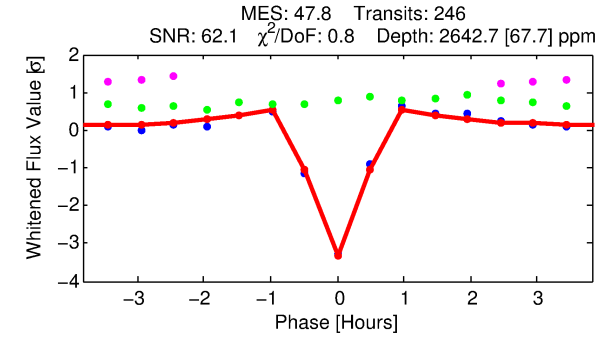
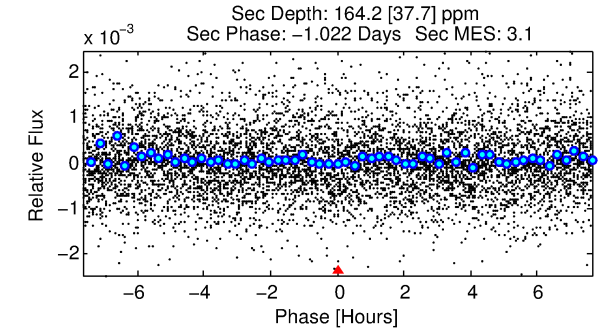
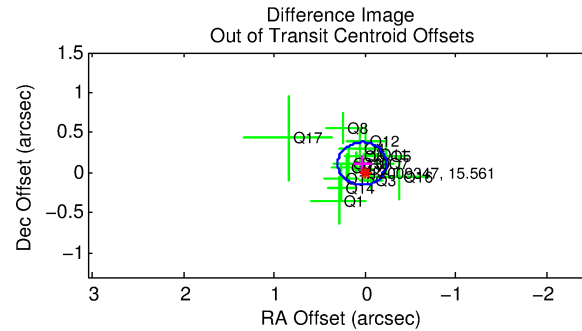
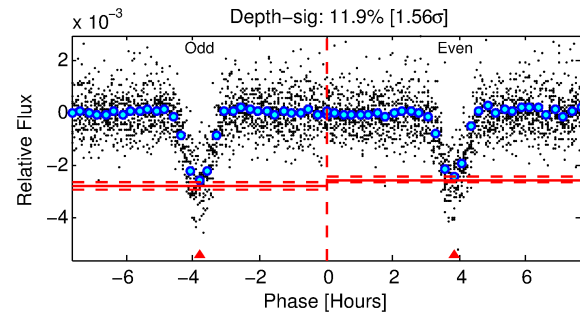
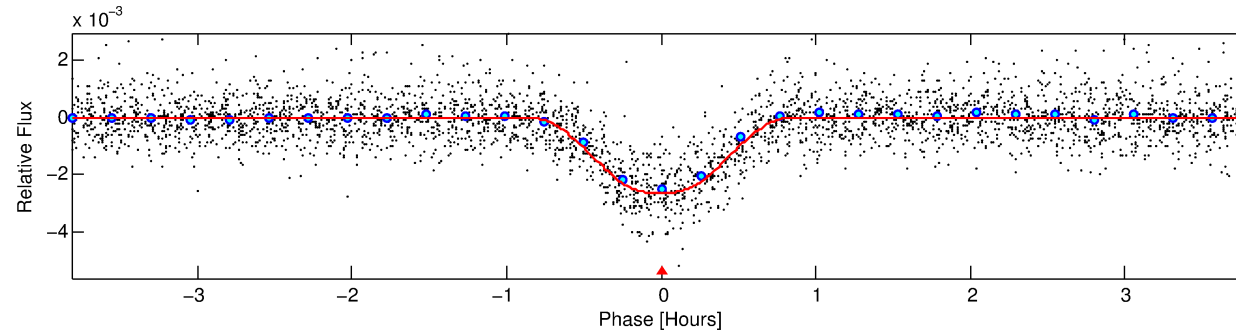
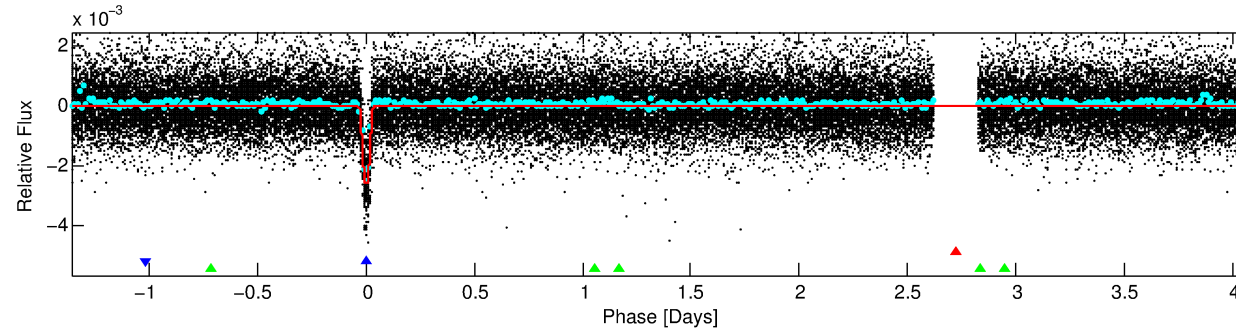
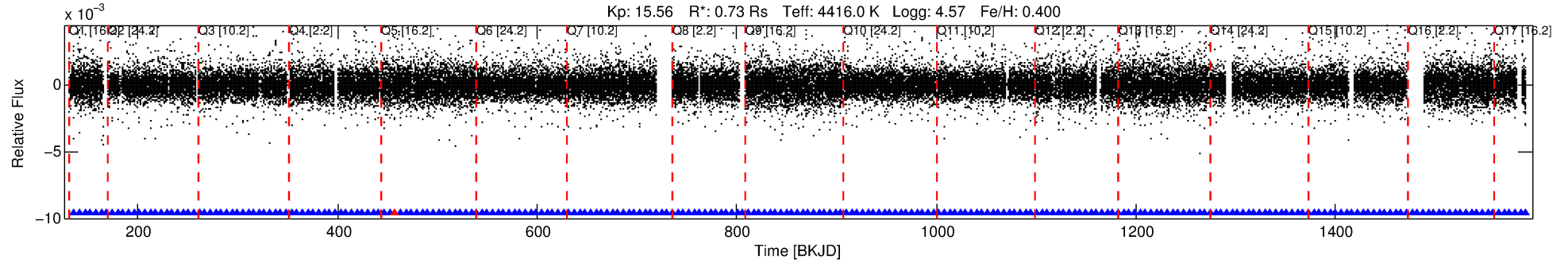
Ephemeris Match Information For 012009347-02

No Significant Match Found

DV One-Page Summary

KIC: 12009347 Candidate: 2 of 3 Period: 5.448 d

KOI: K03792 Corr: No Ephemeris Match



DV Fit Results:

Period = 5.44773 [0.00000] d
Epoch = 136.2996 [0.0004] BKJD
 $R_p/R^* = 0.0594$ [0.0035]
 $a/R^* = 18.34$ [2.93]
 $b = 0.90$ [0.04]
 $S_{\text{eff}} = 61.58$ [9.65]
 $T_{\text{eq}} = 714$ [28] K
 $R_p = 4.75$ [0.47] R_e
 $a = 0.0545$ [0.0037] AU
 $A_g = 11.90$ [3.30] [3.30 σ]
 $T_{\text{eff}} = 2051$ [146] K [9.00 σ]

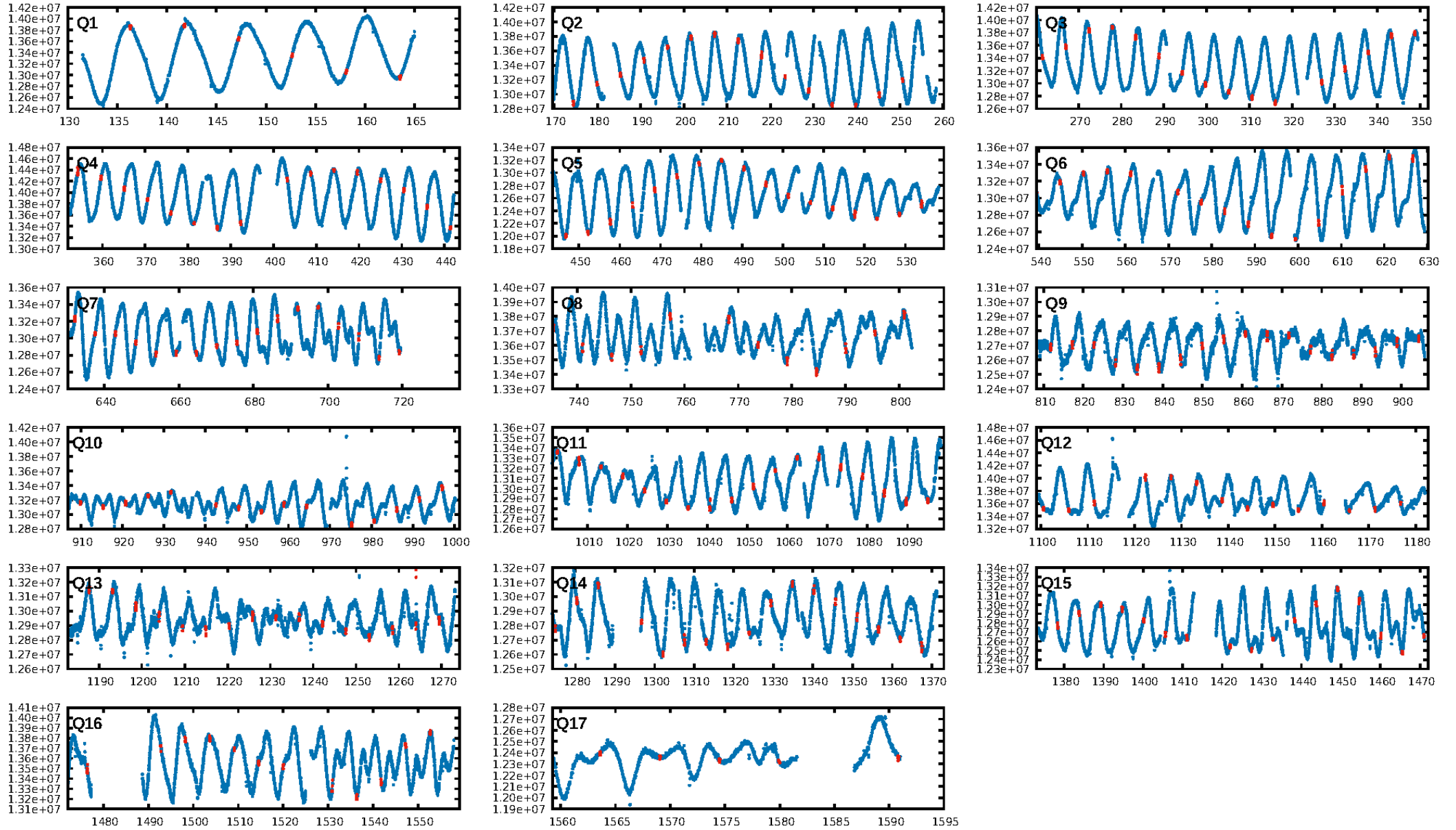
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [1007.72 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [234/235]
GhostDiagnostic-chr: 2.215
Centroid-sig: 0.0%
Centroid-so: 0.447 arcsec [2.19 σ]
OotOffset-rm: 0.118 arcsec [1.32 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.422 arcsec [4.60 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

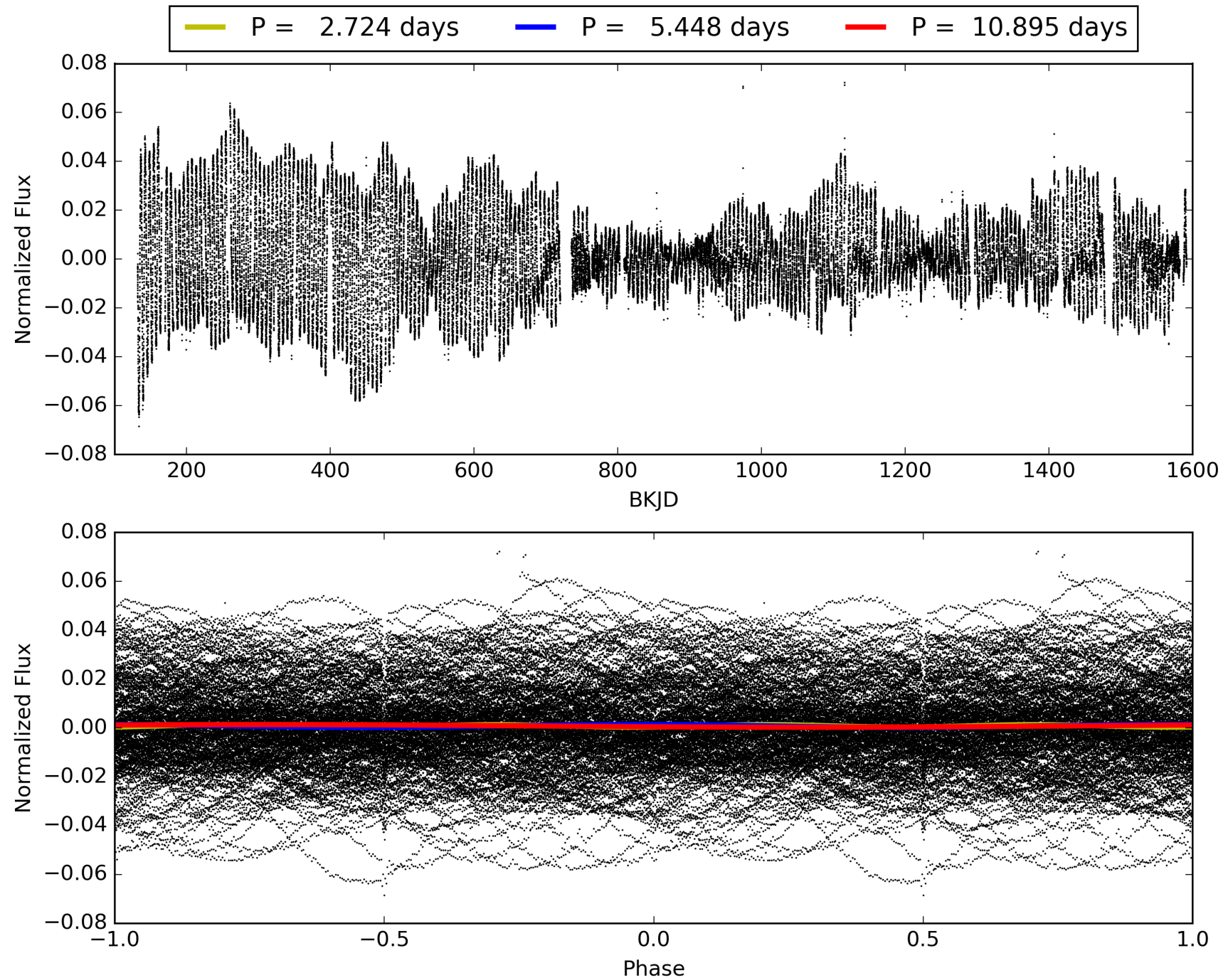
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TCE 012009347-02, PDC Light Curves

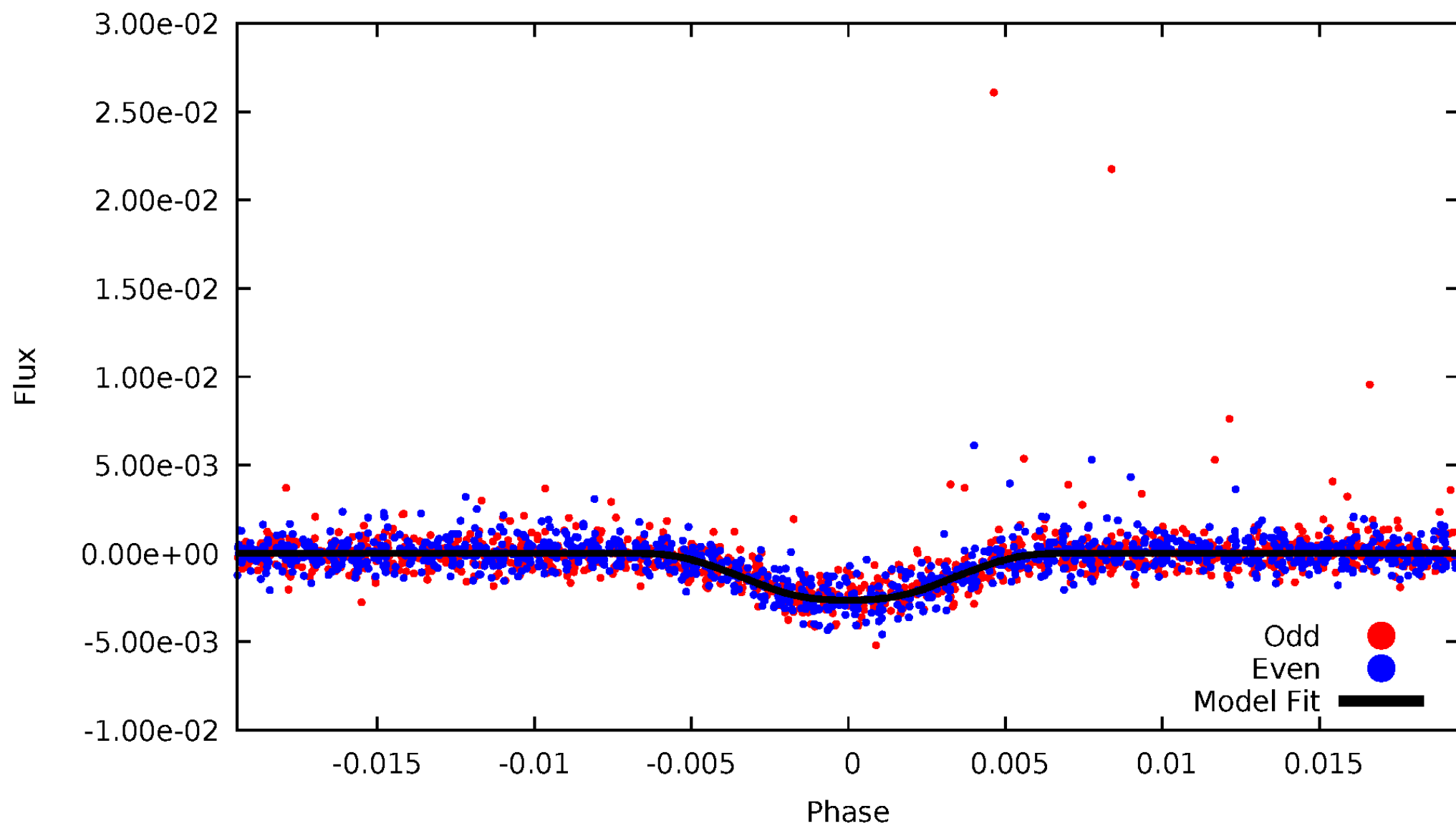


TCE 012009347-02



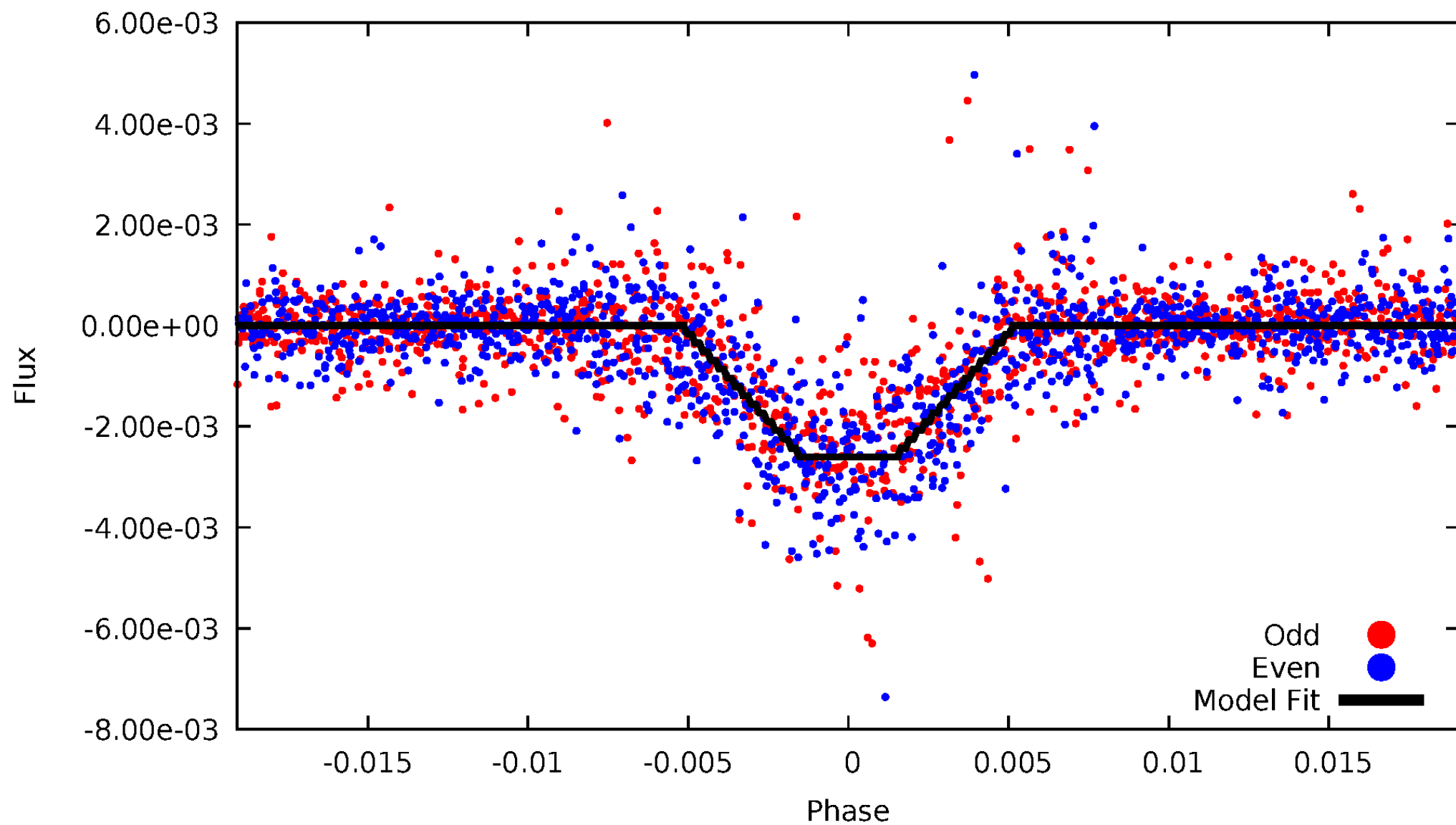
DV Odd/Even

TCE 012009347-02



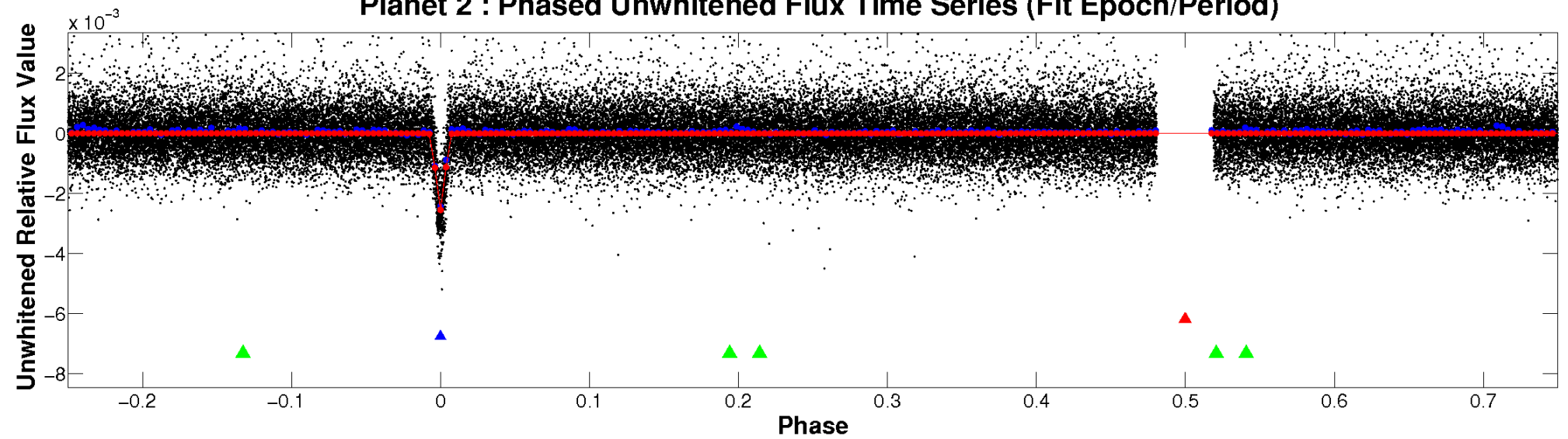
ALT Odd/Even

TCE 012009347-02

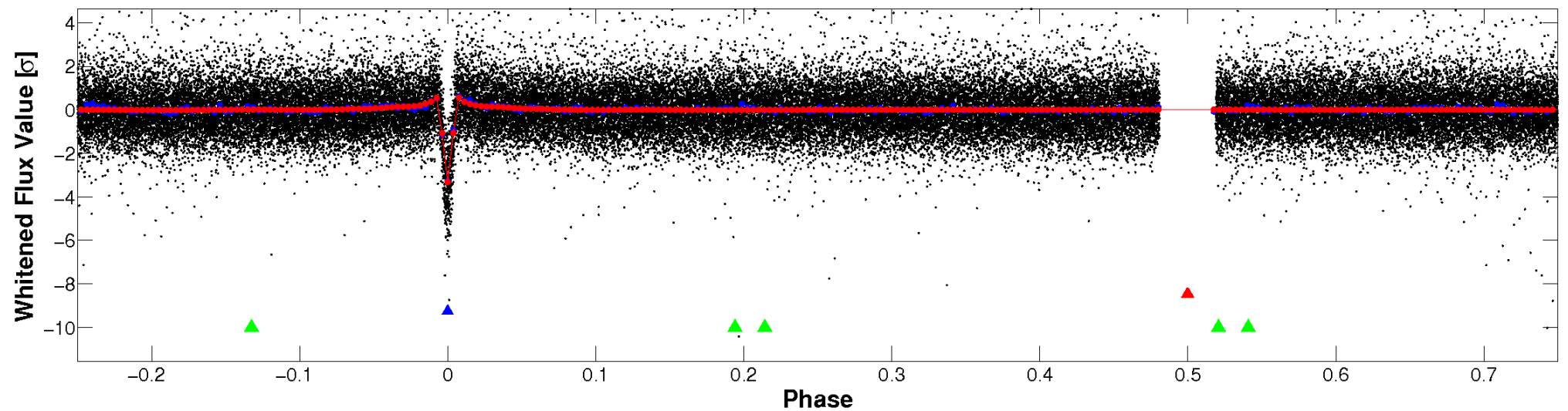


Non-Whitened Vs. Whitened Light Curve

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

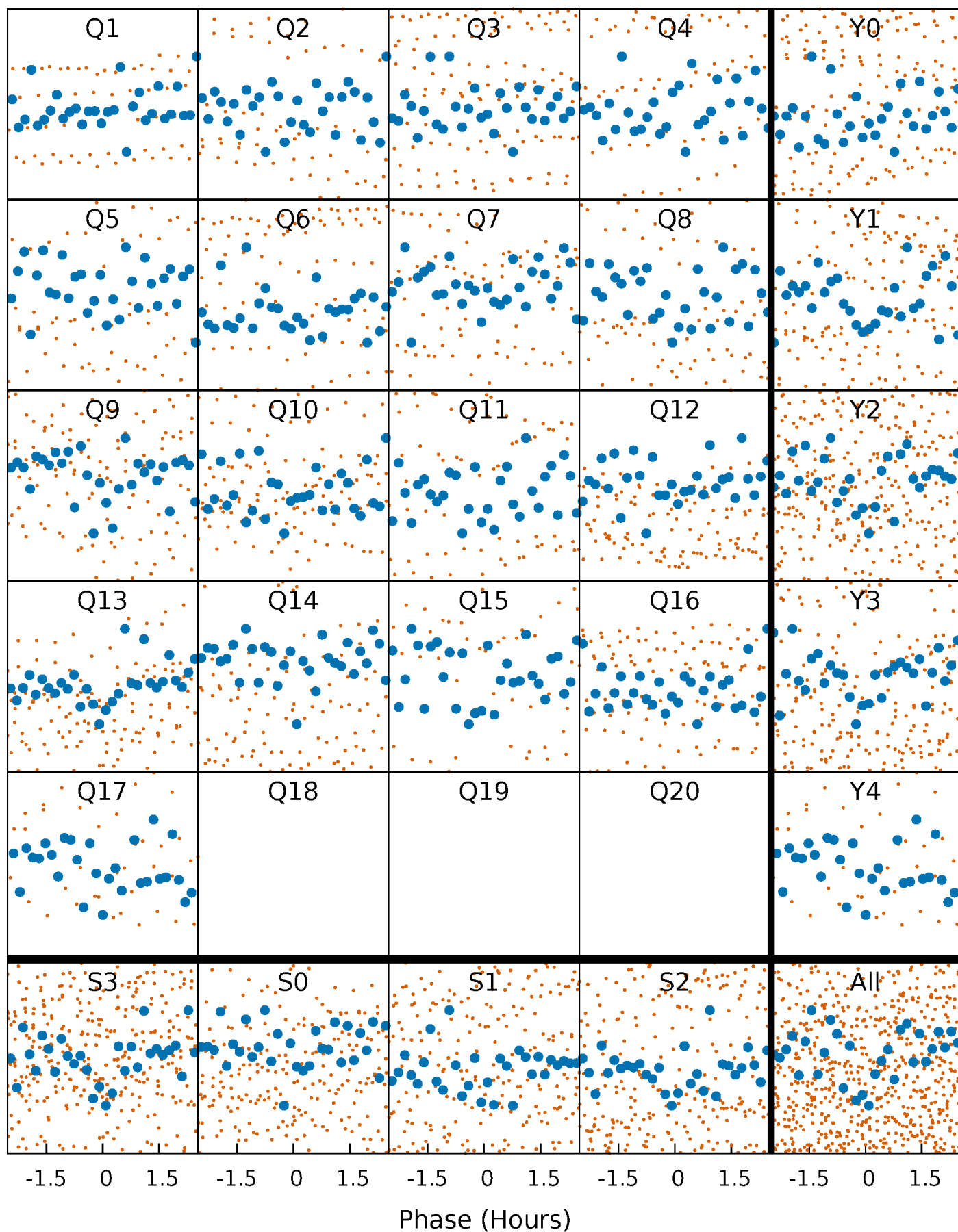


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



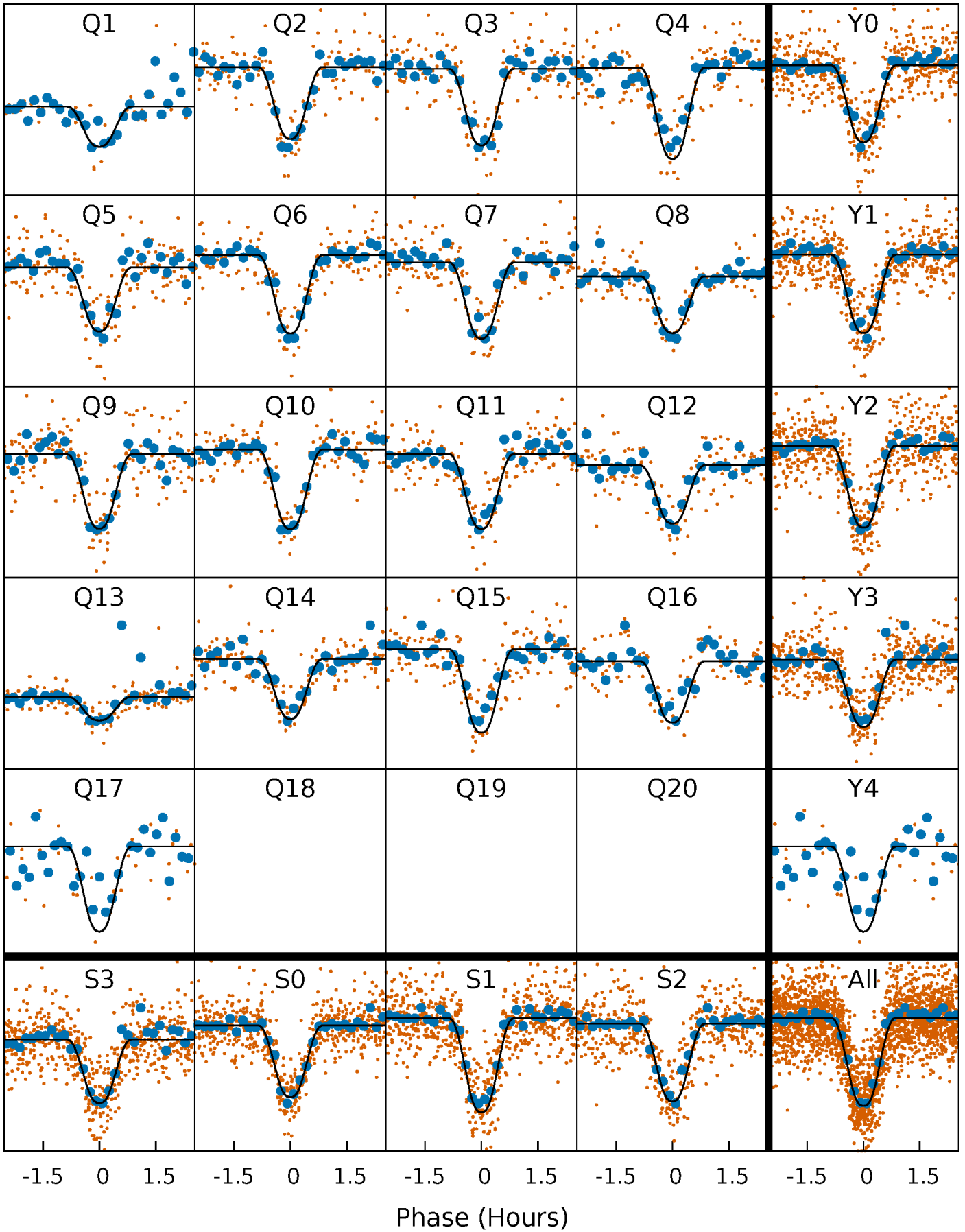
PDC Quarter-Phased Transit Curves

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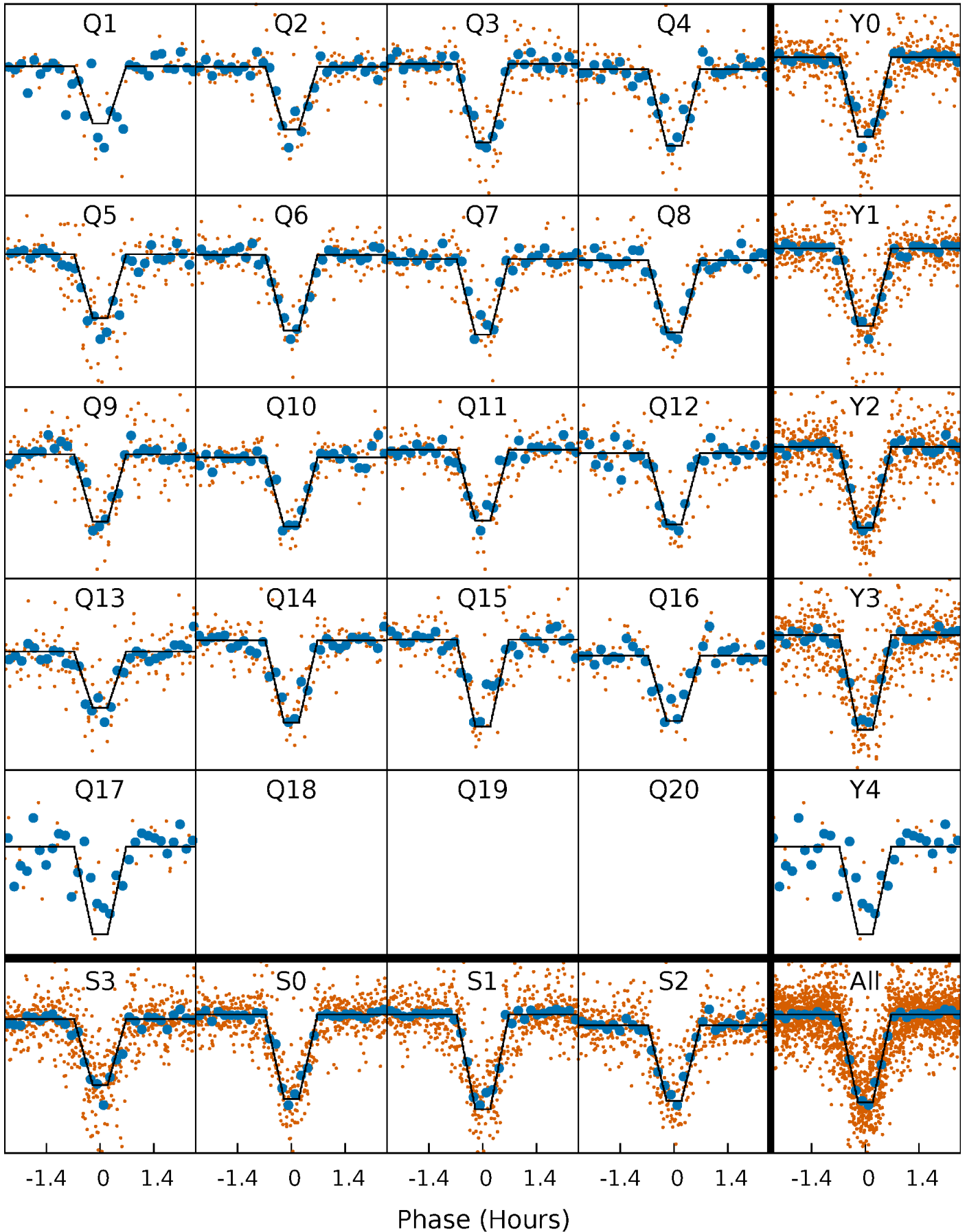
DV Quarter-Phased Transit Curves

TCE 012009347-02 $P = 5.447725$ Days $T_0 = 136.299640$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

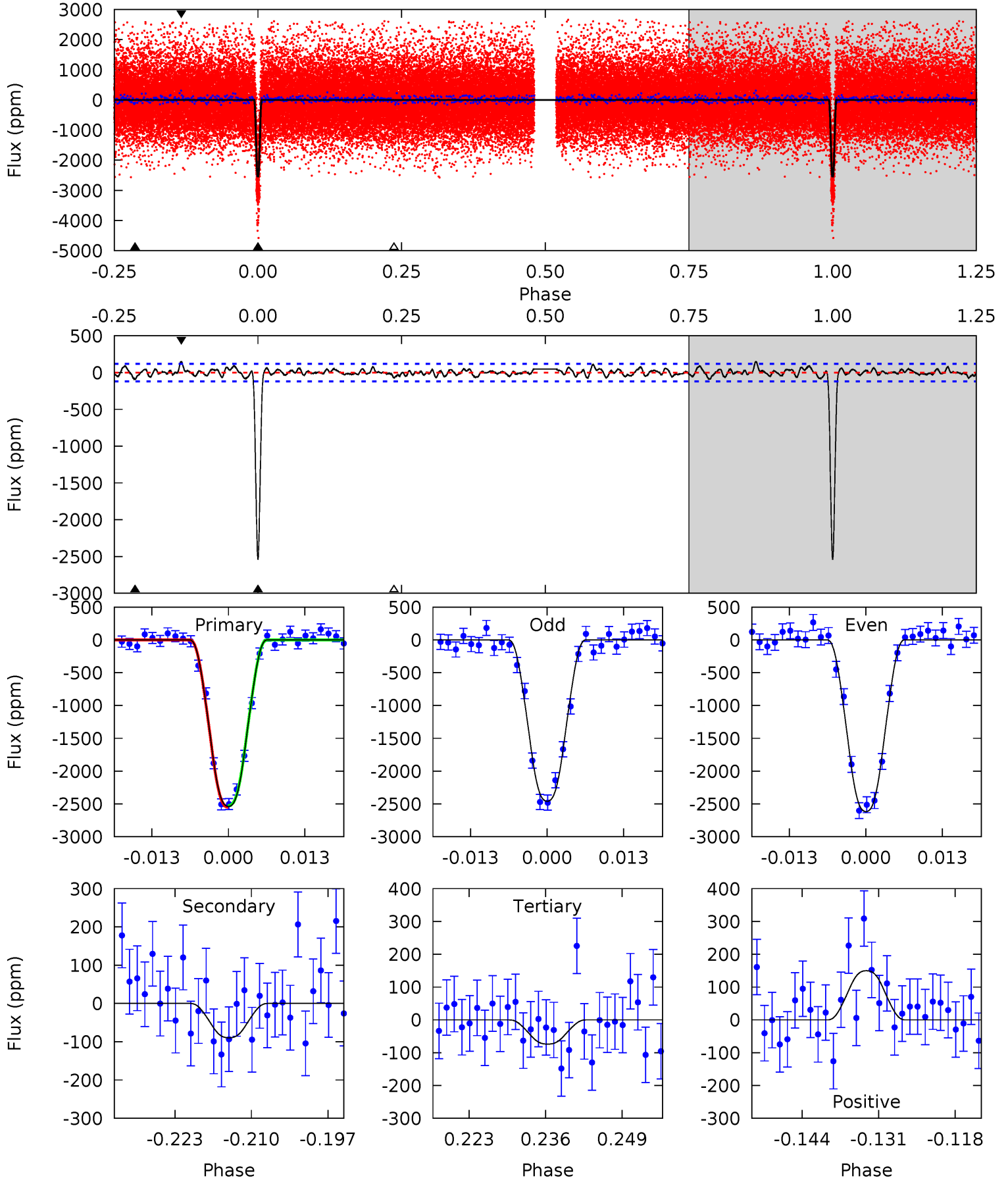
TCE 012009347-02 $P = 5.447734$ Days $T_0 = 136.298618$ (BKJD)



DV Model-Shift Uniqueness Test

012009347-02, P = 5.447725 Days, E = 130.851915 Days

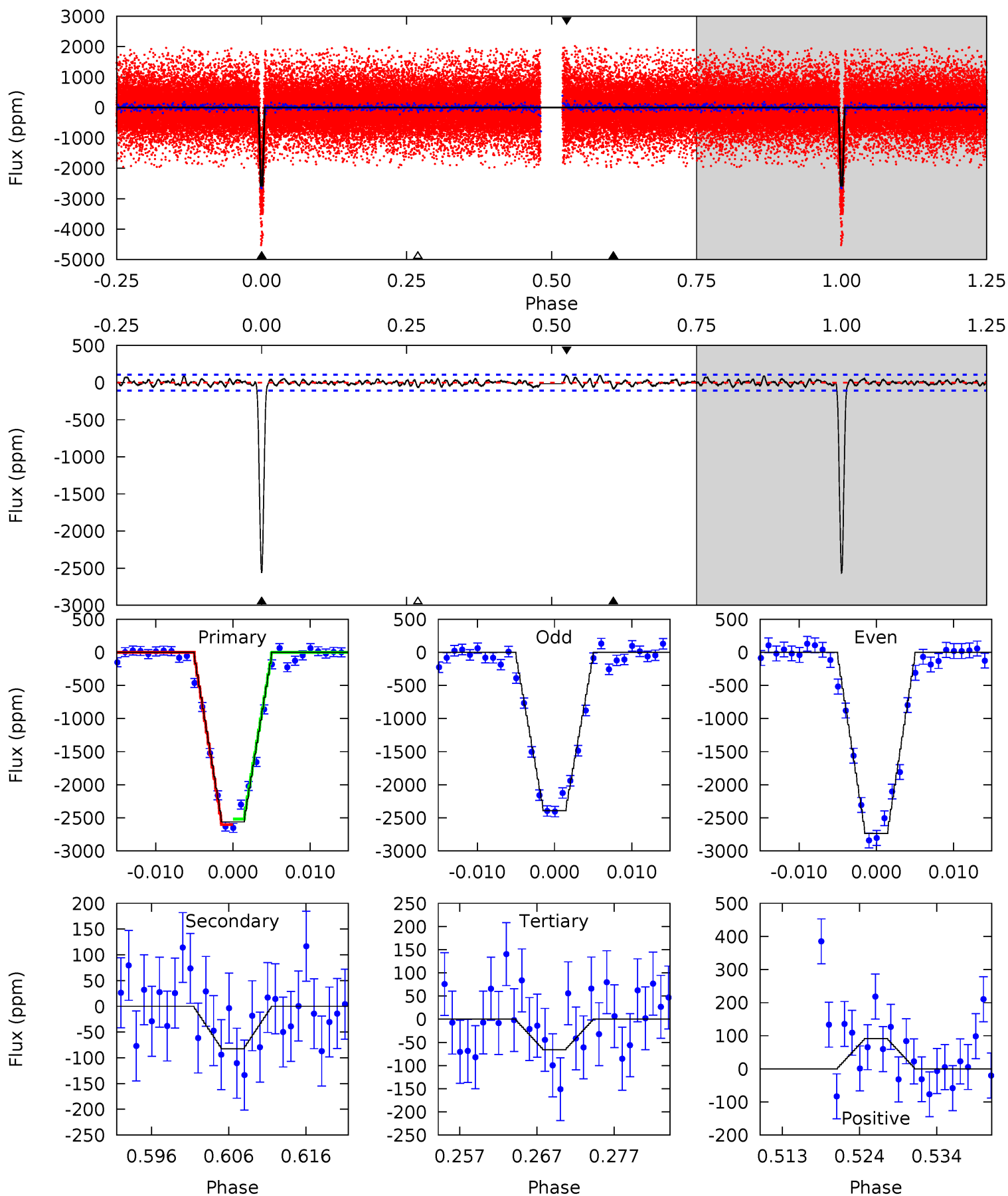
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
106.4	3.76	3.10	6.27	4.97	2.48	1.47	103.3	100.1	0.66	-2.51	3.33	0.98	0.06	0.50



Alt Model-Shift Uniqueness Test

012009347-02, P = 5.447734 Days, E = 130.850884 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
119.1	3.83	3.06	4.25	5.02	2.57	1.26	116.0	114.8	0.77	-0.43	8.05	0.98	0.04	1.99



Stellar Parameters For KIC 012009347

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4416^{+132}_{-132}	$4.570^{+0.056}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.733^{+0.021}_{-0.059}$	$0.728^{+0.037}_{-0.046}$	$2.604^{+0.657}_{-0.152}$
	+3%/-3%	+1%/-0%	+12%/-75%	+3%/-8%	+5%/-6%	+25%/-6%
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 012009347-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-90 ± 24	$4.69^{+0.32}_{-0.29}$	991^{+31}_{-32}	2516^{+103}_{-114}	$6.729^{+2.155}_{-1.823}$
Alt.	-82 ± 22	$4.06^{+0.30}_{-0.31}$	990^{+34}_{-32}	2572^{+112}_{-119}	$7.986^{+2.586}_{-2.236}$

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

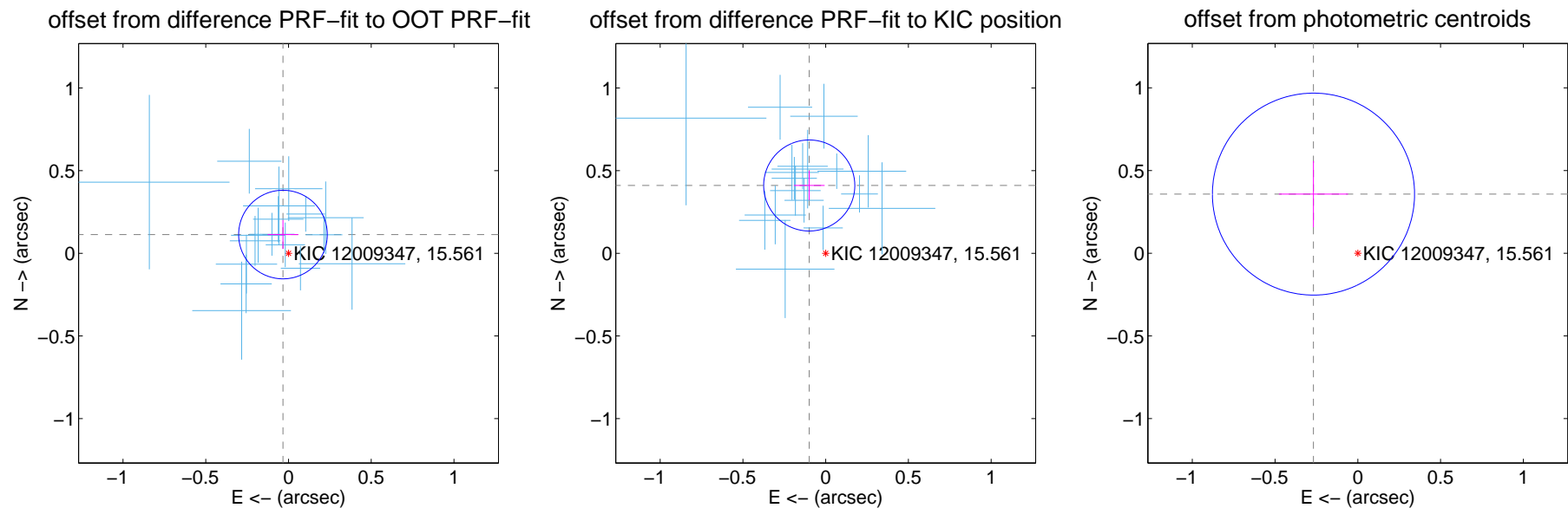
DV Centroid Data

Supplemental centroid analysis for 012009347-02. Kepler magnitude: 15.56. Transit SNR 62.07

There are 17 quarters with good PRF difference image offsets

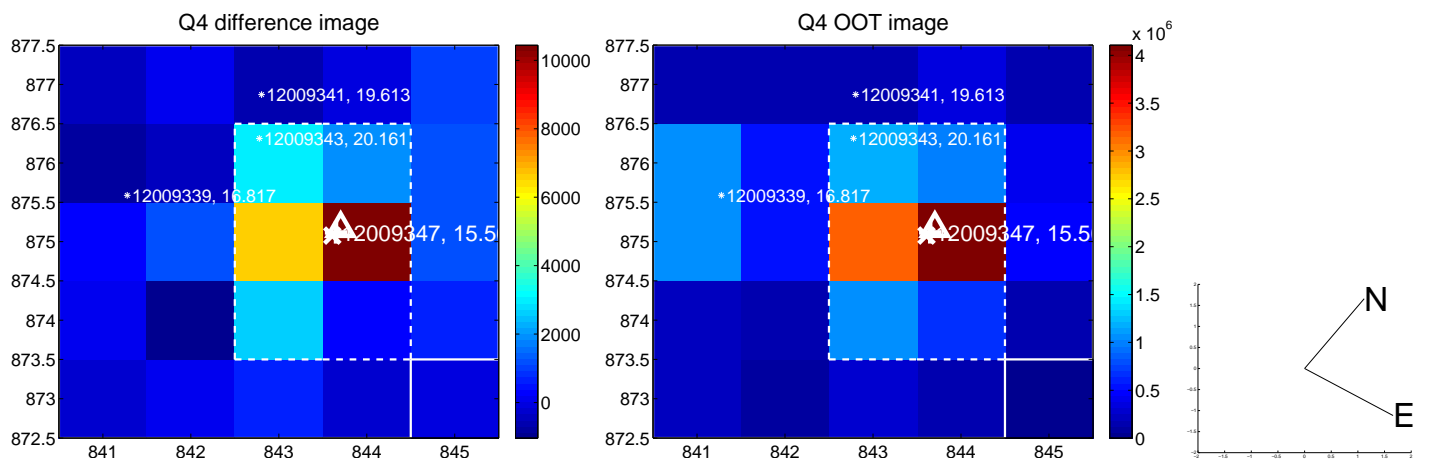
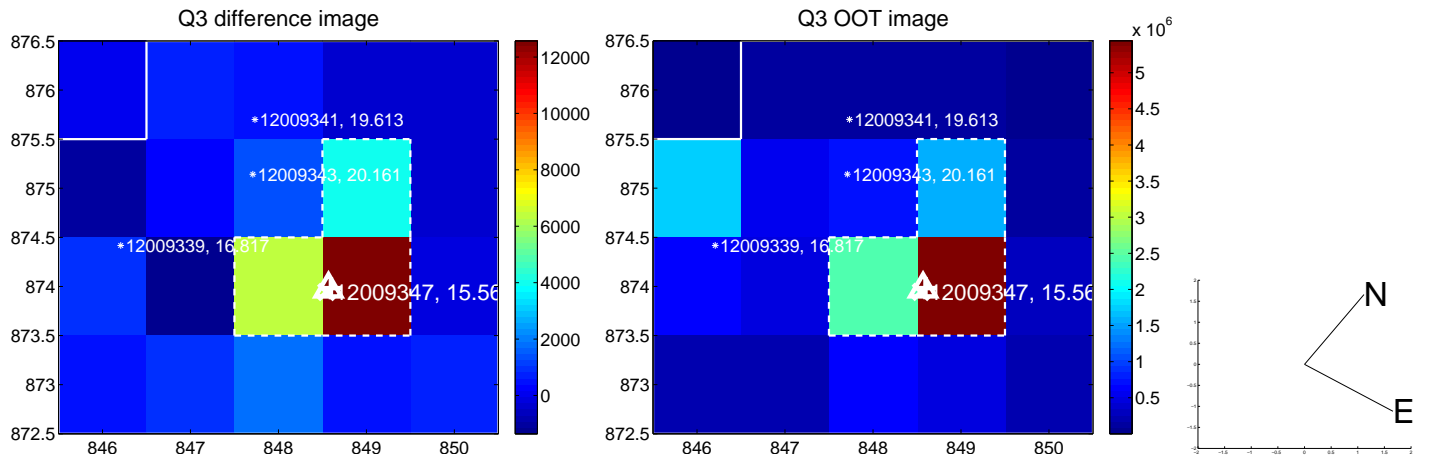
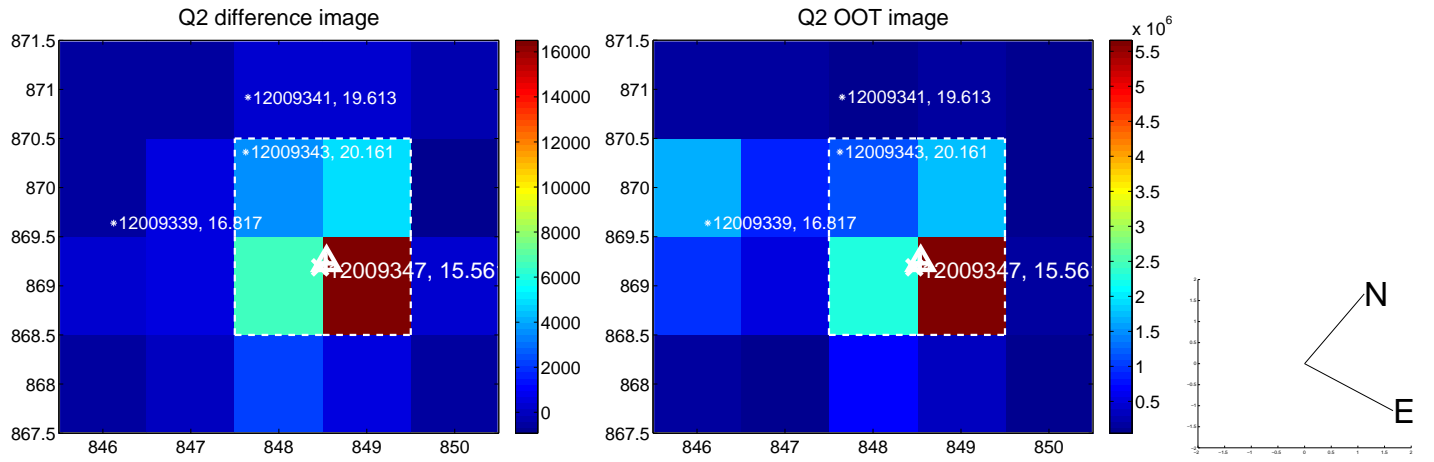
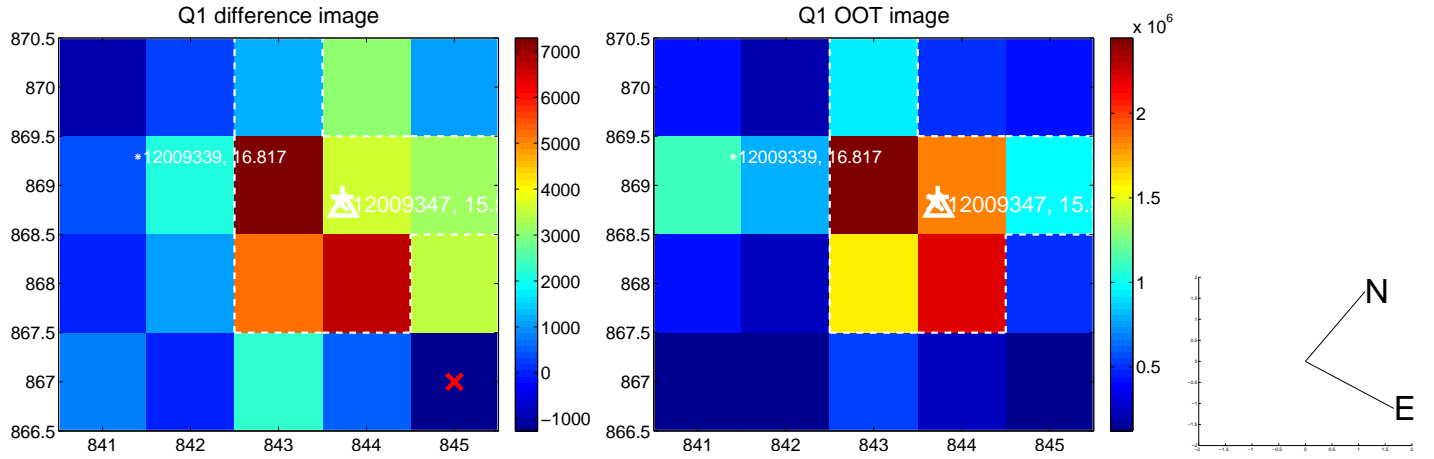
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.118 ± 0.089	1.32	0.033 ± 0.092	0.113 ± 0.087
PRF-fit source offset from KIC position	0.422 ± 0.092	4.60	0.099 ± 0.093	0.410 ± 0.089
photometric centroid source offset	0.45 ± 0.20	2.19	0.27 ± 0.21	0.36 ± 0.20

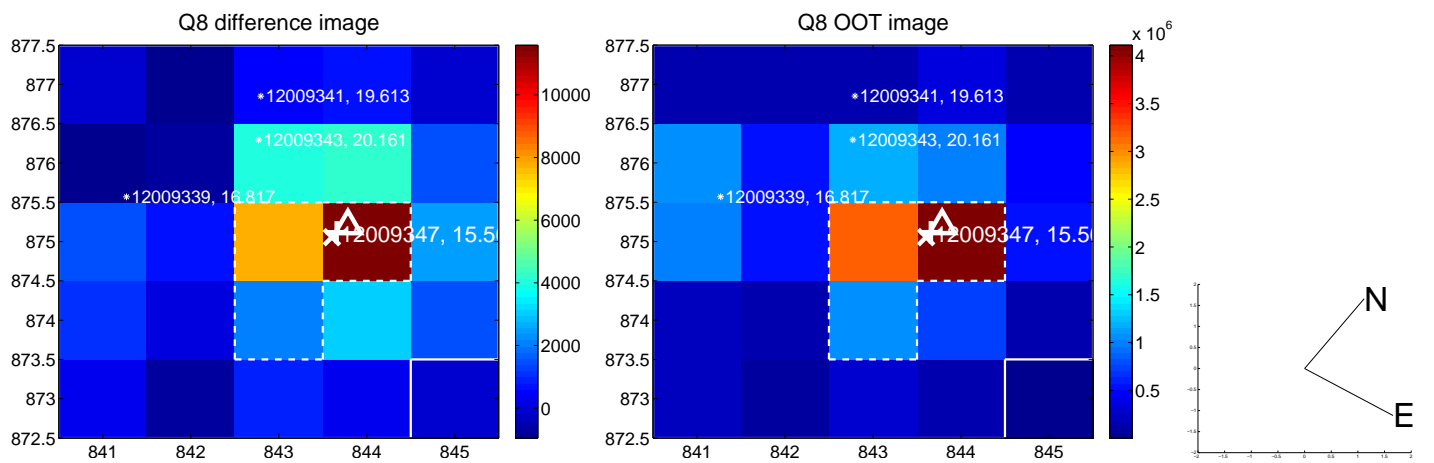
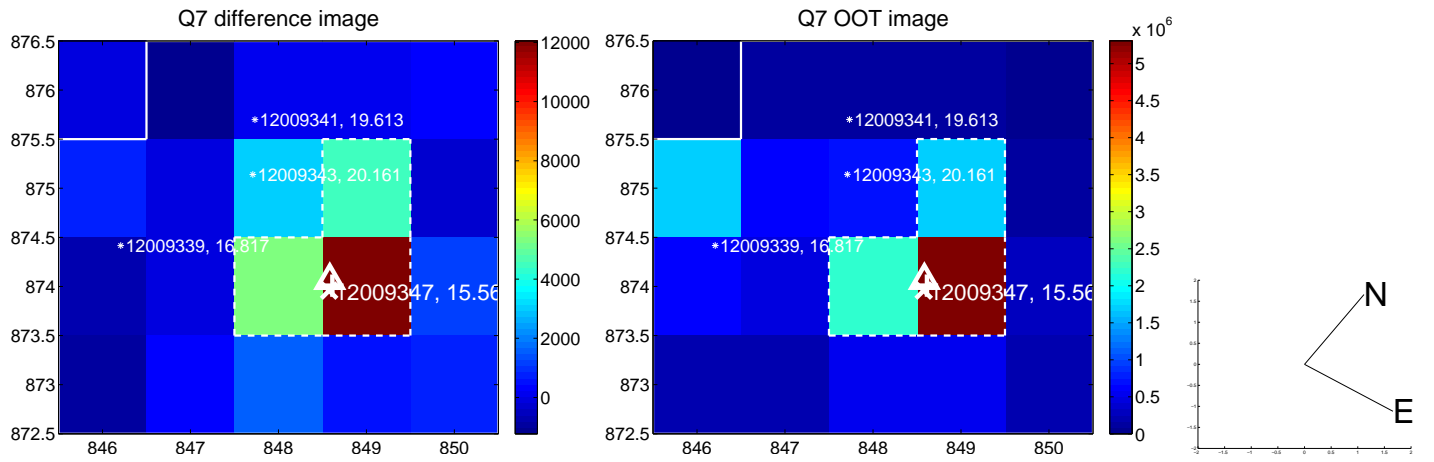
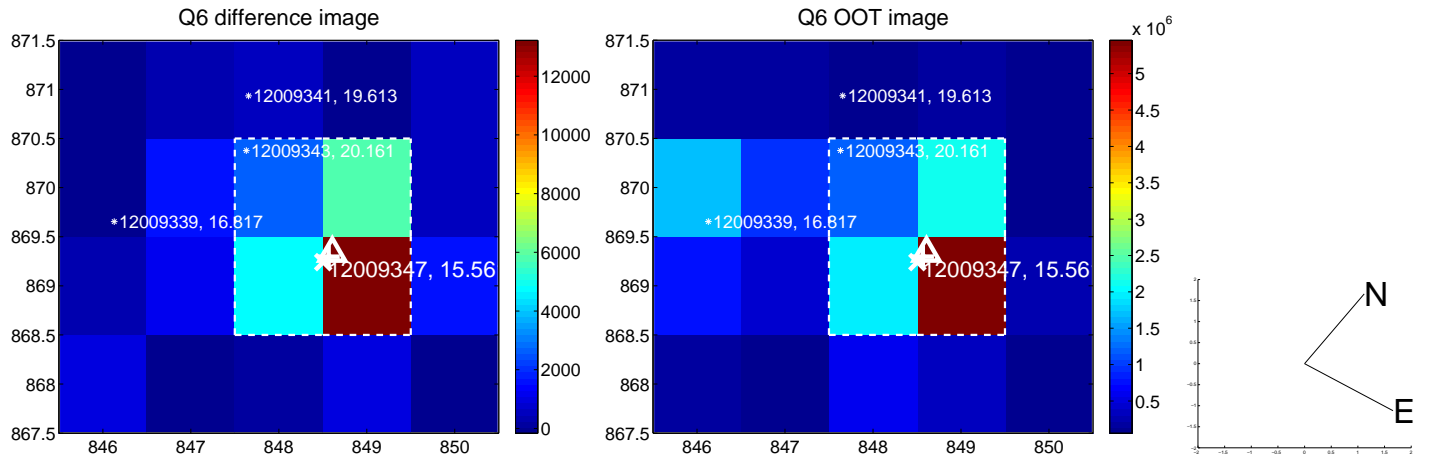
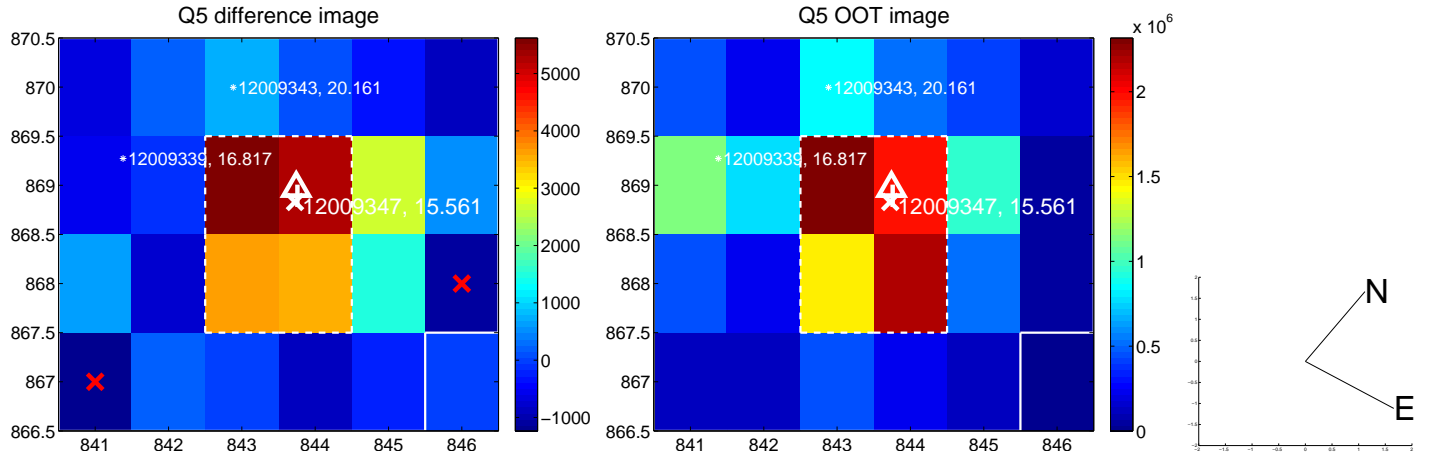


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

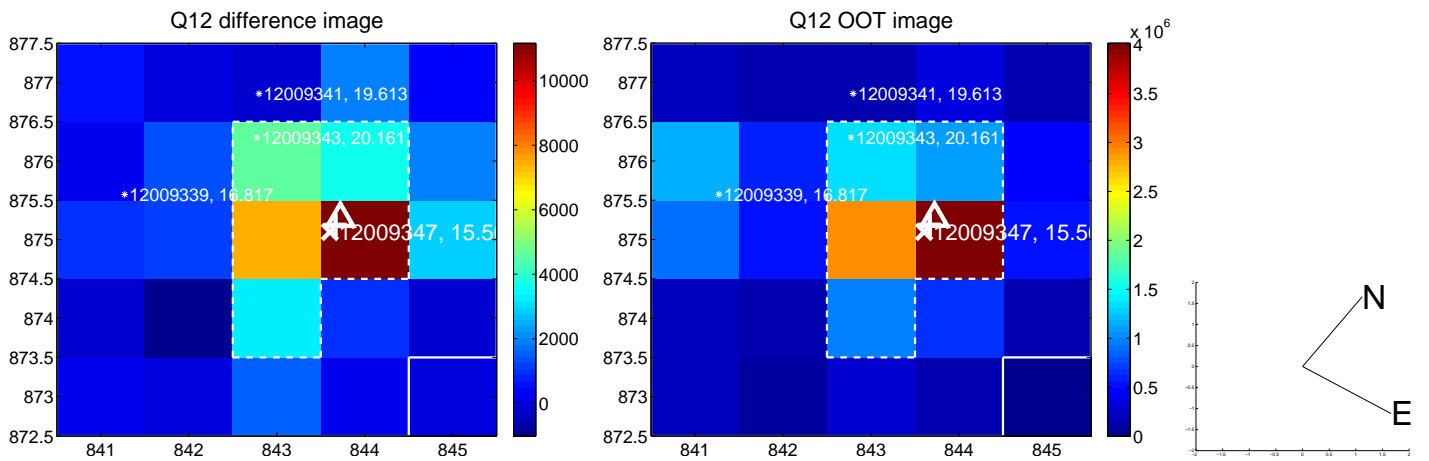
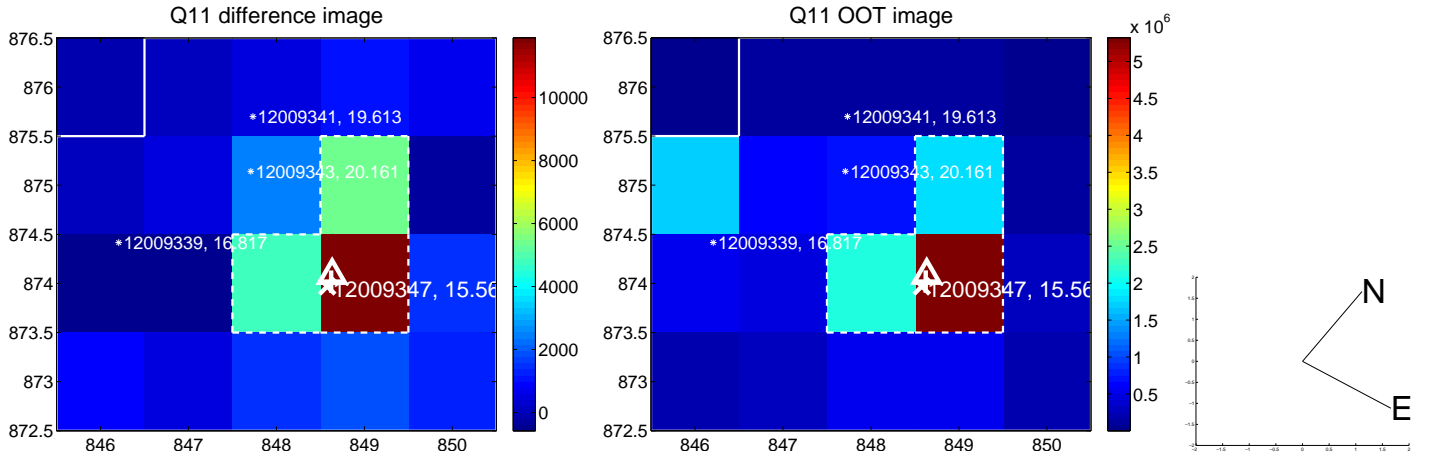
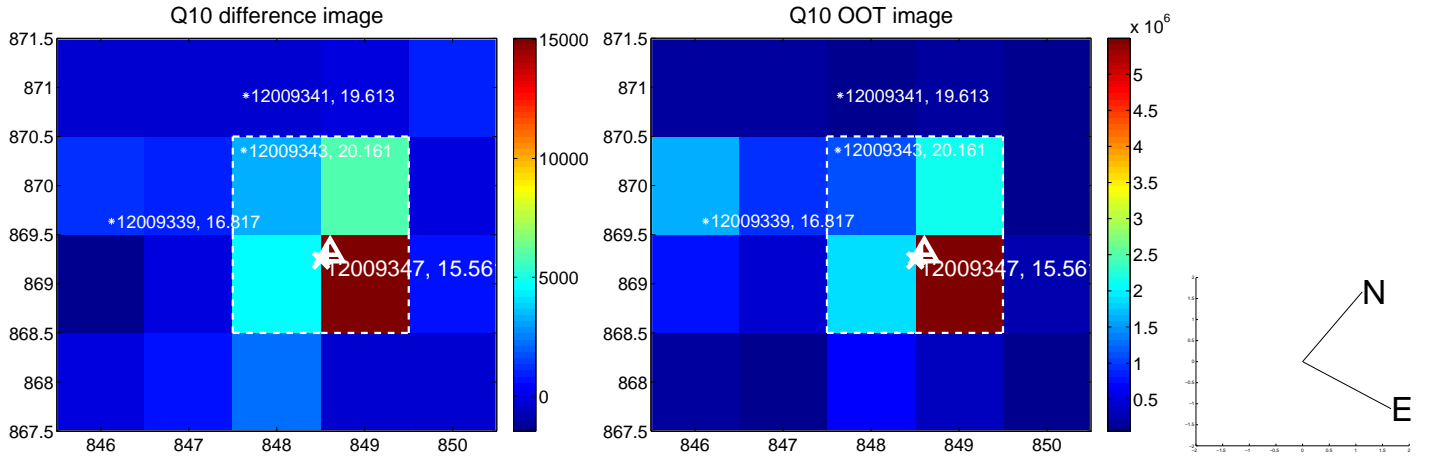
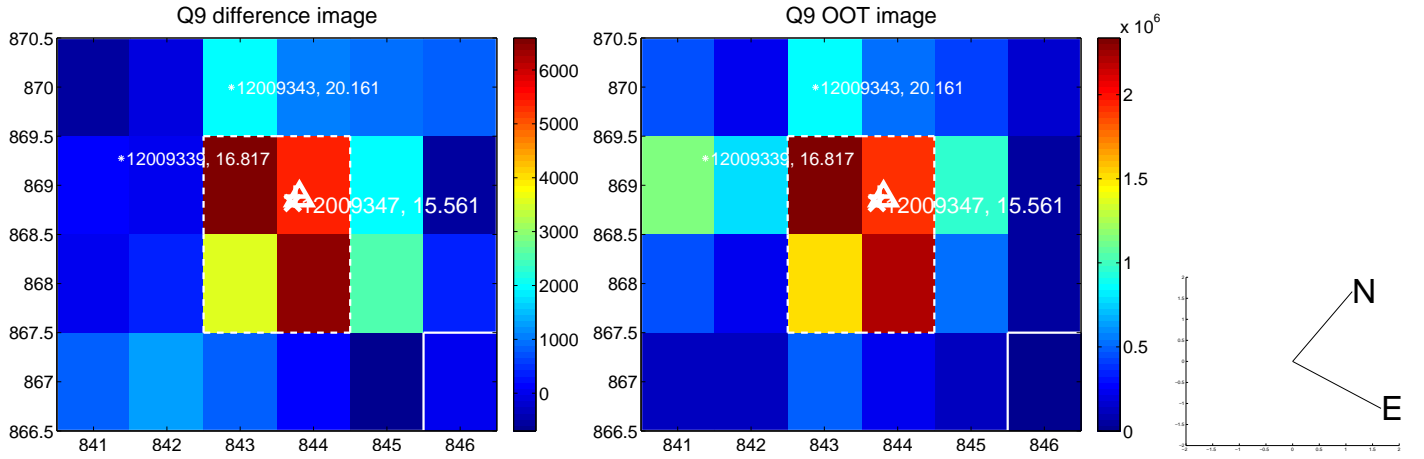
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



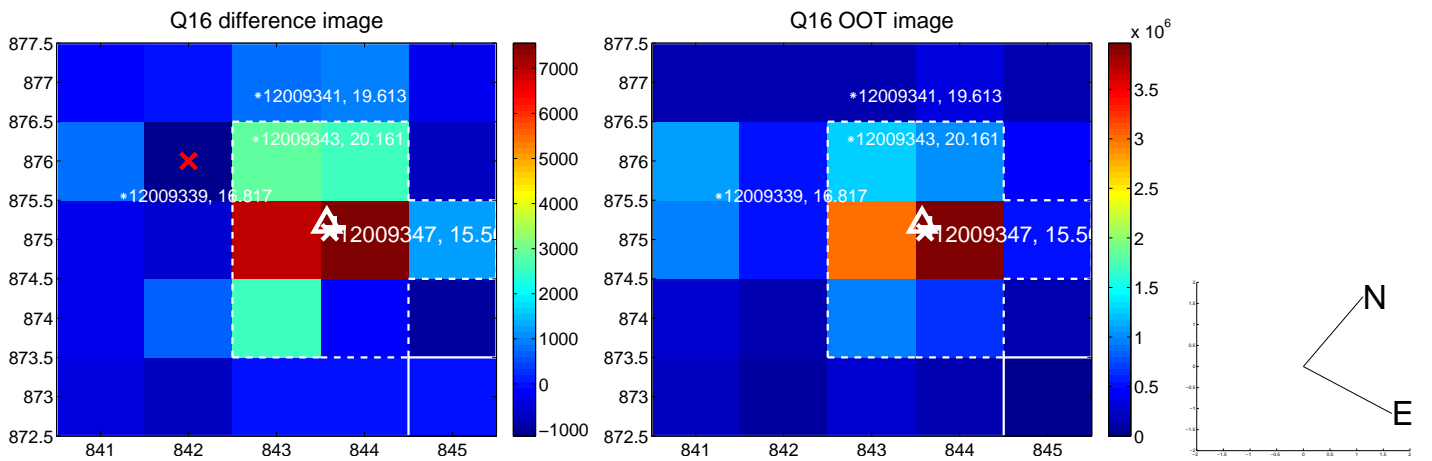
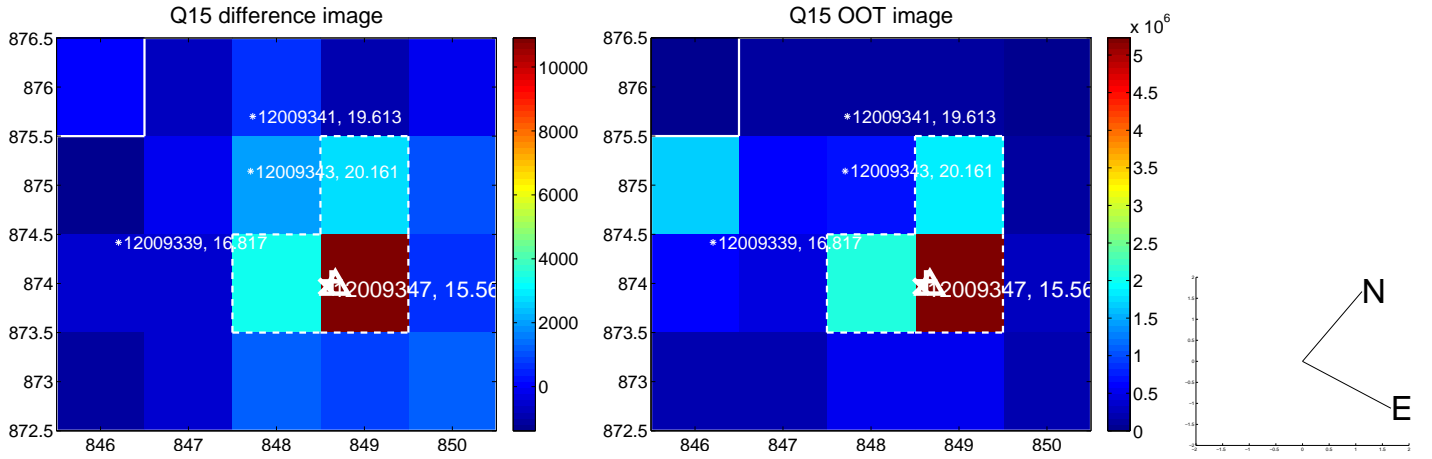
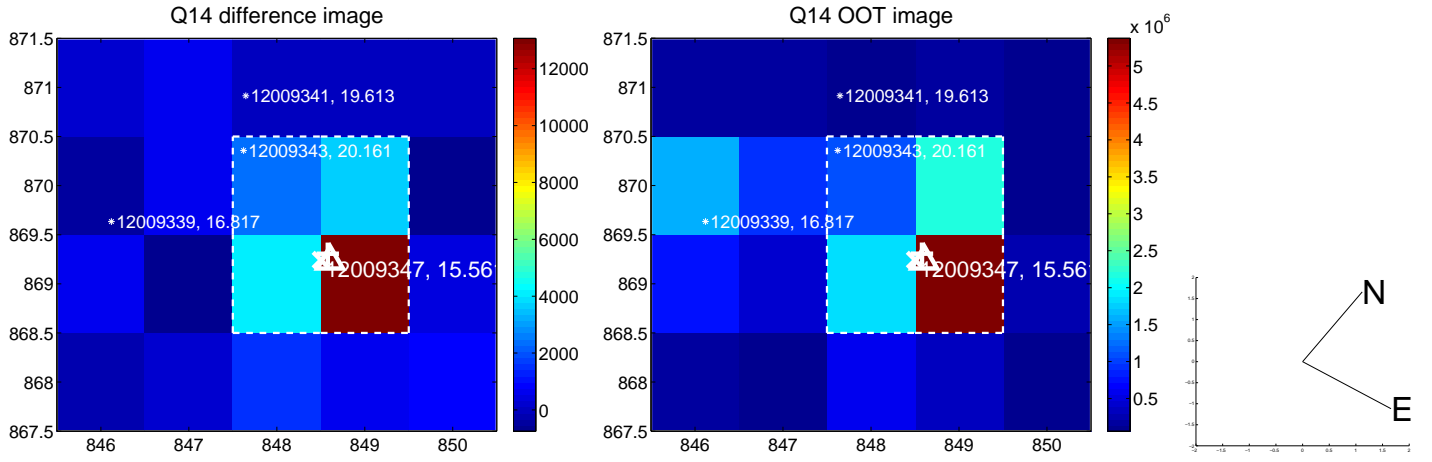
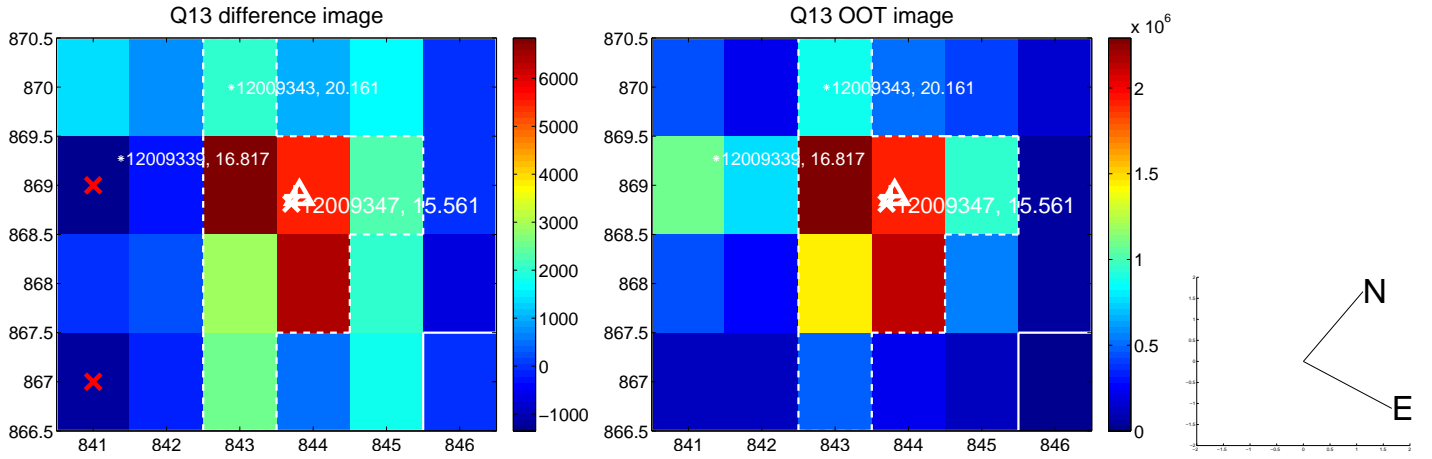
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



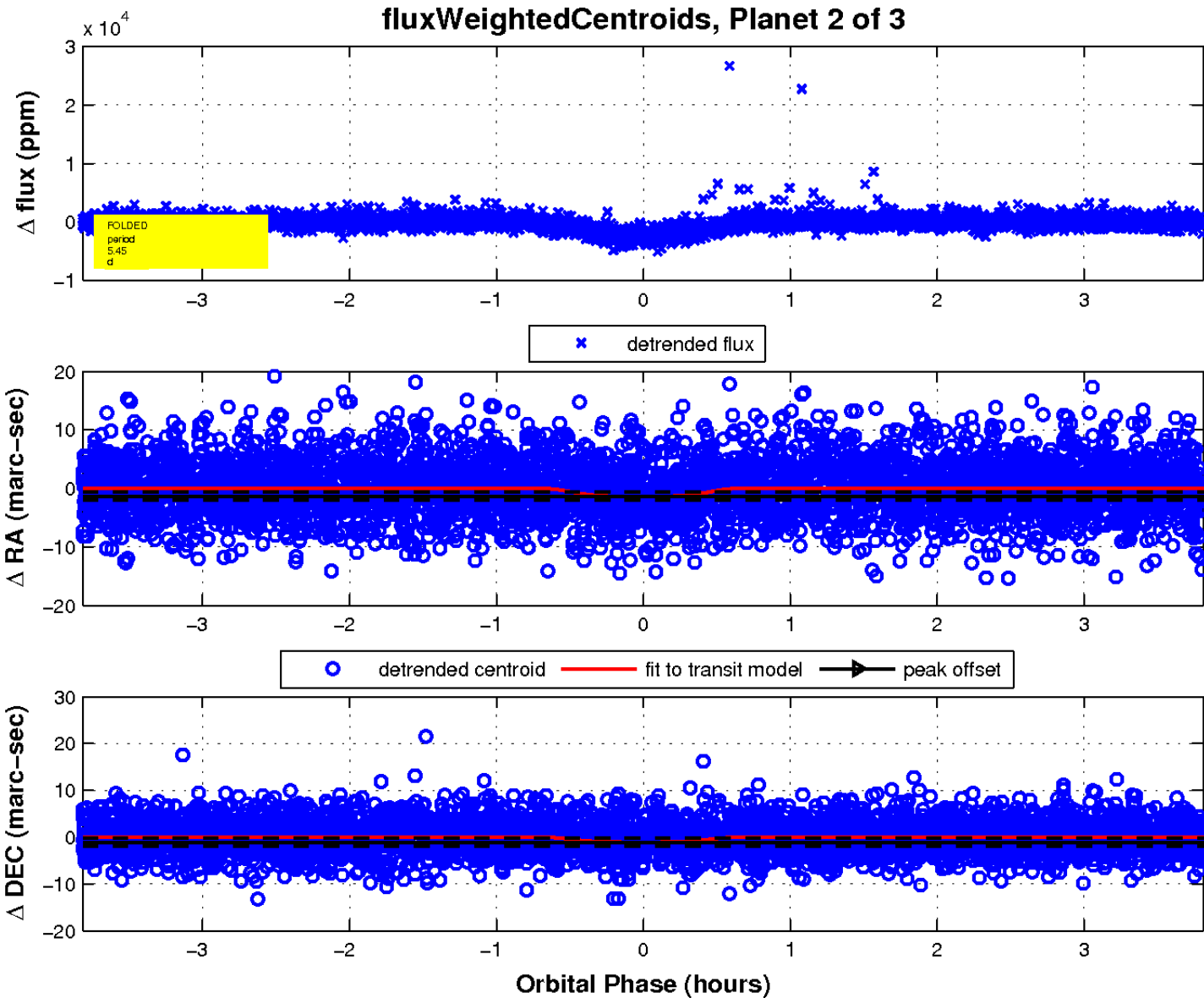
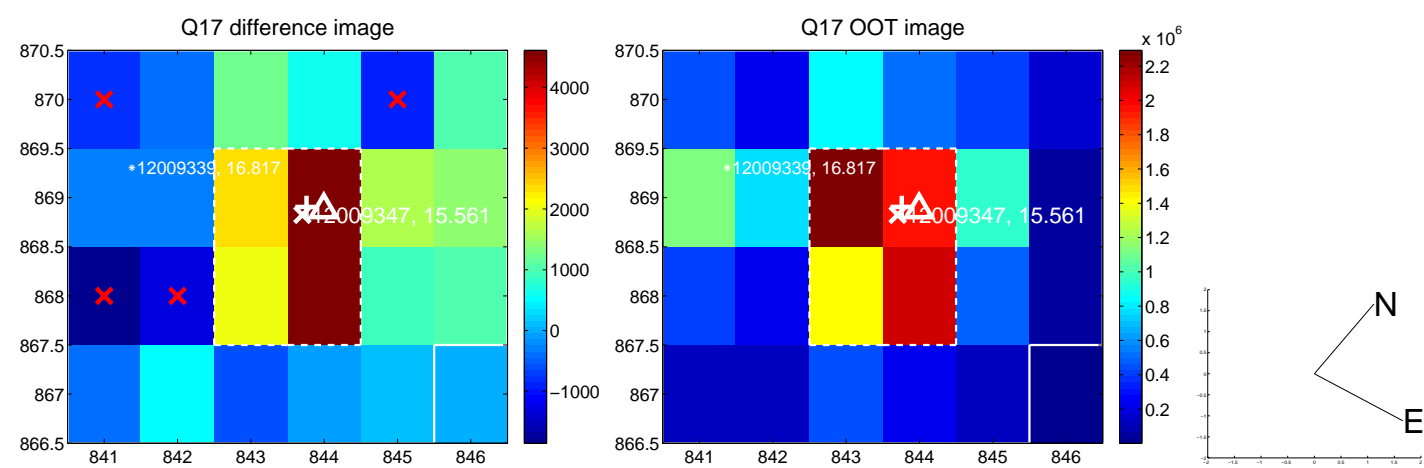
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

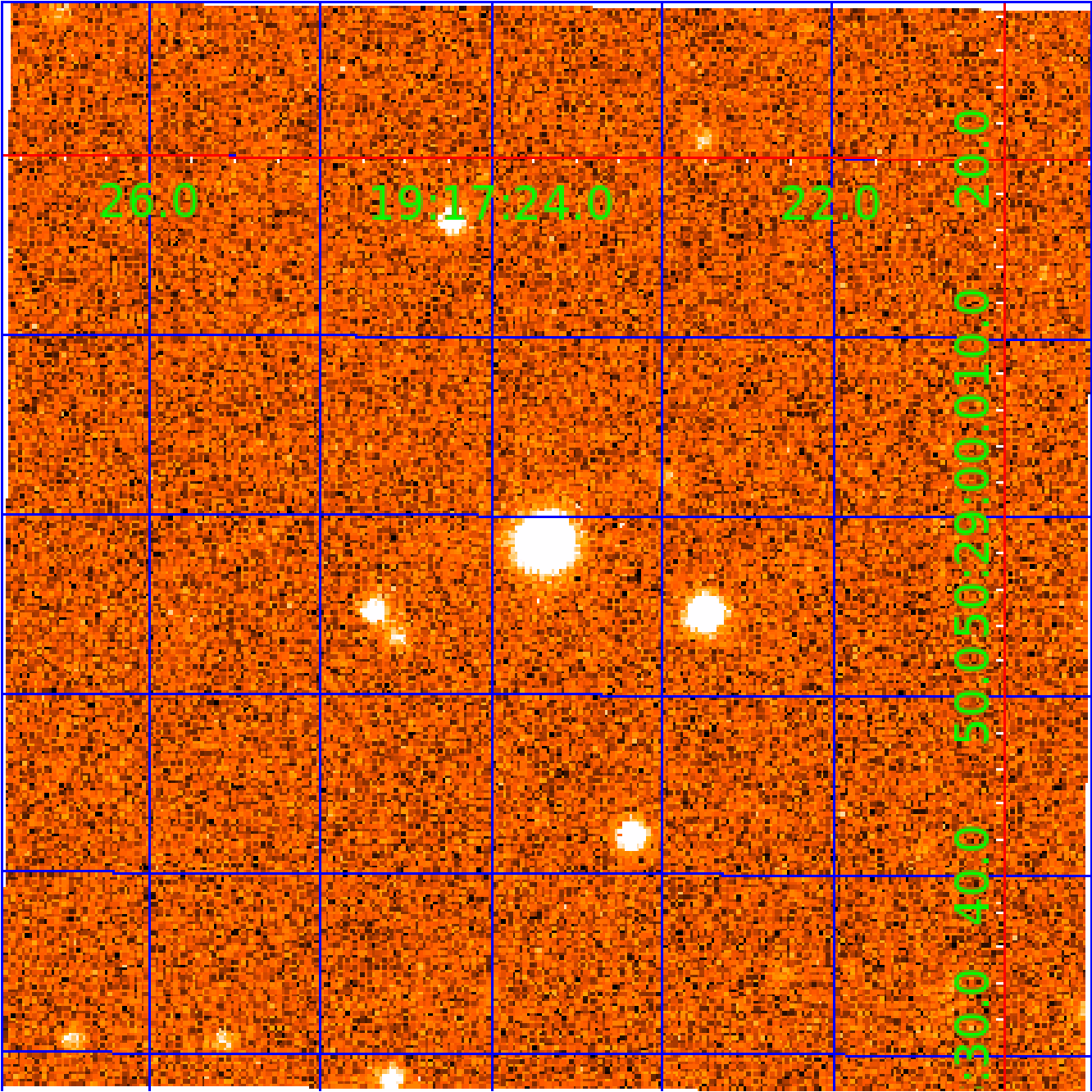


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012009347

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})
012009347-01	OBS	3792.01	5.447707	133.577525	8328.1	1.497	170.3	155.2	0.73	4416	10.58	61.58
012009347-02	OBS	No	5.447725	136.299640	2642.7	1.272	47.8	62.1	0.73	4416	4.75	61.58
012009347-03	OBS	No	328.642890	191.943907	2126.4	7.591	11.4	7.8	0.73	4416	3.27	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012009347-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012009347-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
012009347-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—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.

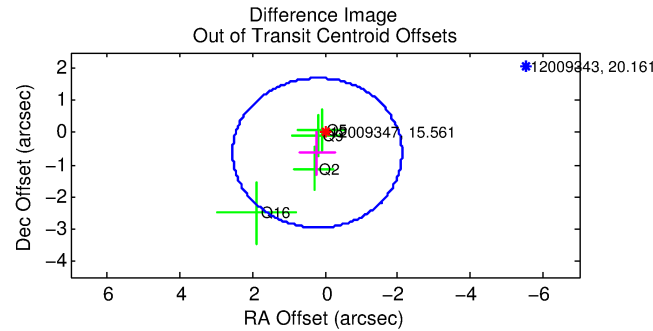
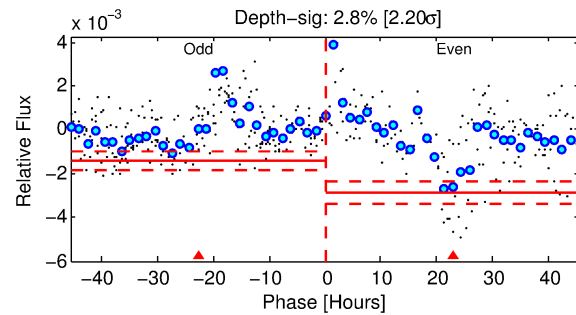
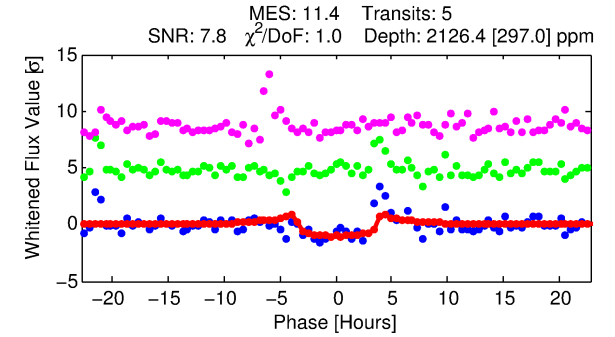
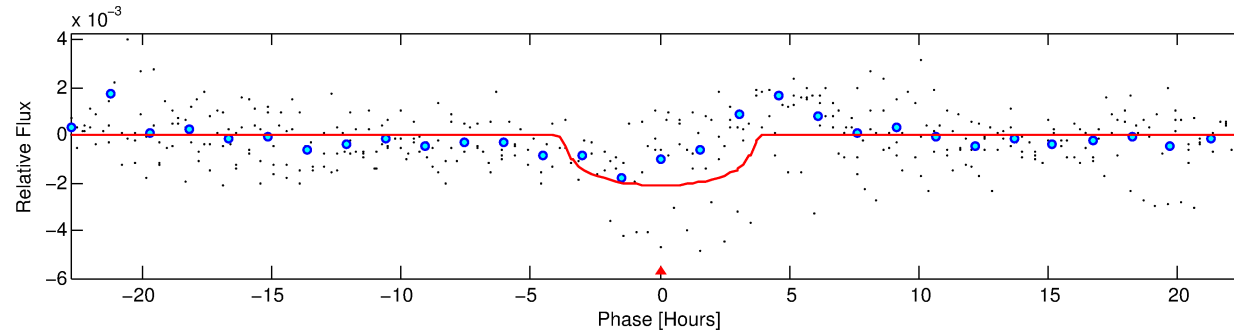
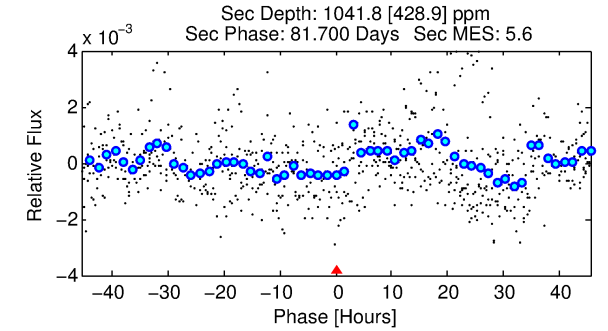
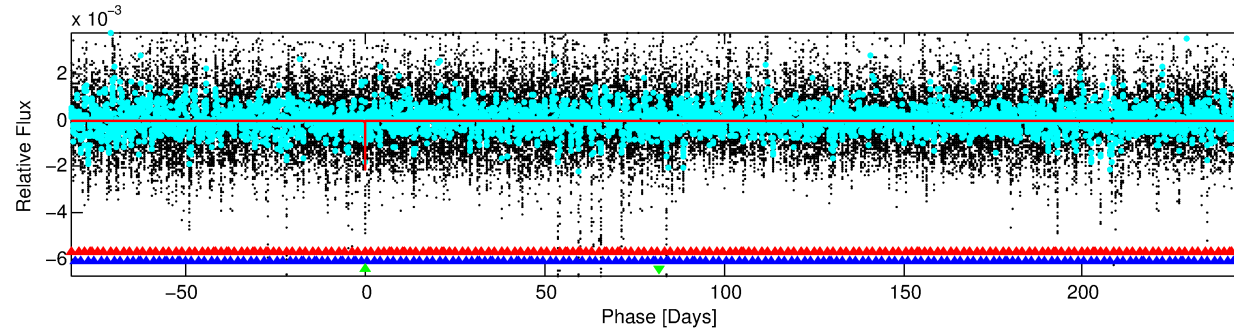
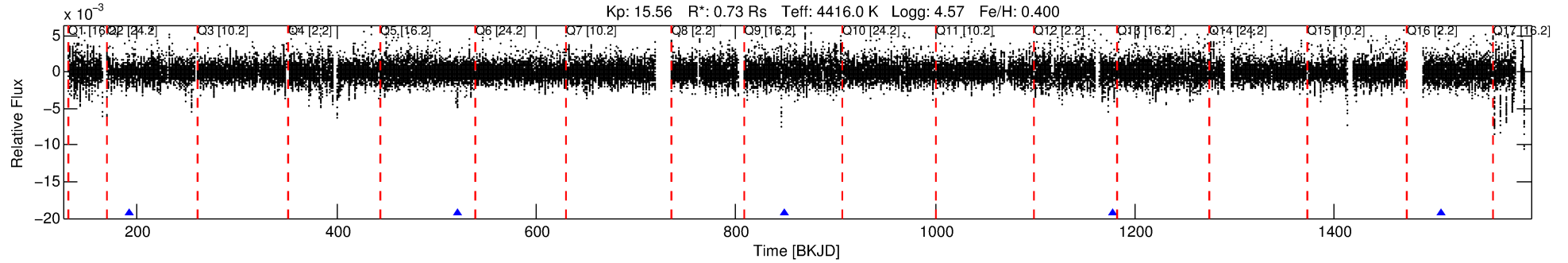
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012009347-03

No Significant Match Found

DV One-Page Summary

KIC: 12009347 Candidate: 3 of 3 Period: 328.643 d
KOI: K03792 Corr: No Ephemeris Match



DV Fit Results:

Period = 328.64289 [0.00399] d
Epoch = 191.9439 [0.0083] BKJD
Rp/R* = 0.0409 [0.0300]
a/R* = 325.89 [661.22]
b = 0.34 [5.47]
Seff = 0.26 [0.04]
Teq = 182 [7] K
Rp = 3.27 [2.42] Re
a = 0.8387 [0.0577] AU
Ag = 37619.85 [57444.96] [0.65σ]
Teffp = 3922 [1498] K [2.50σ]

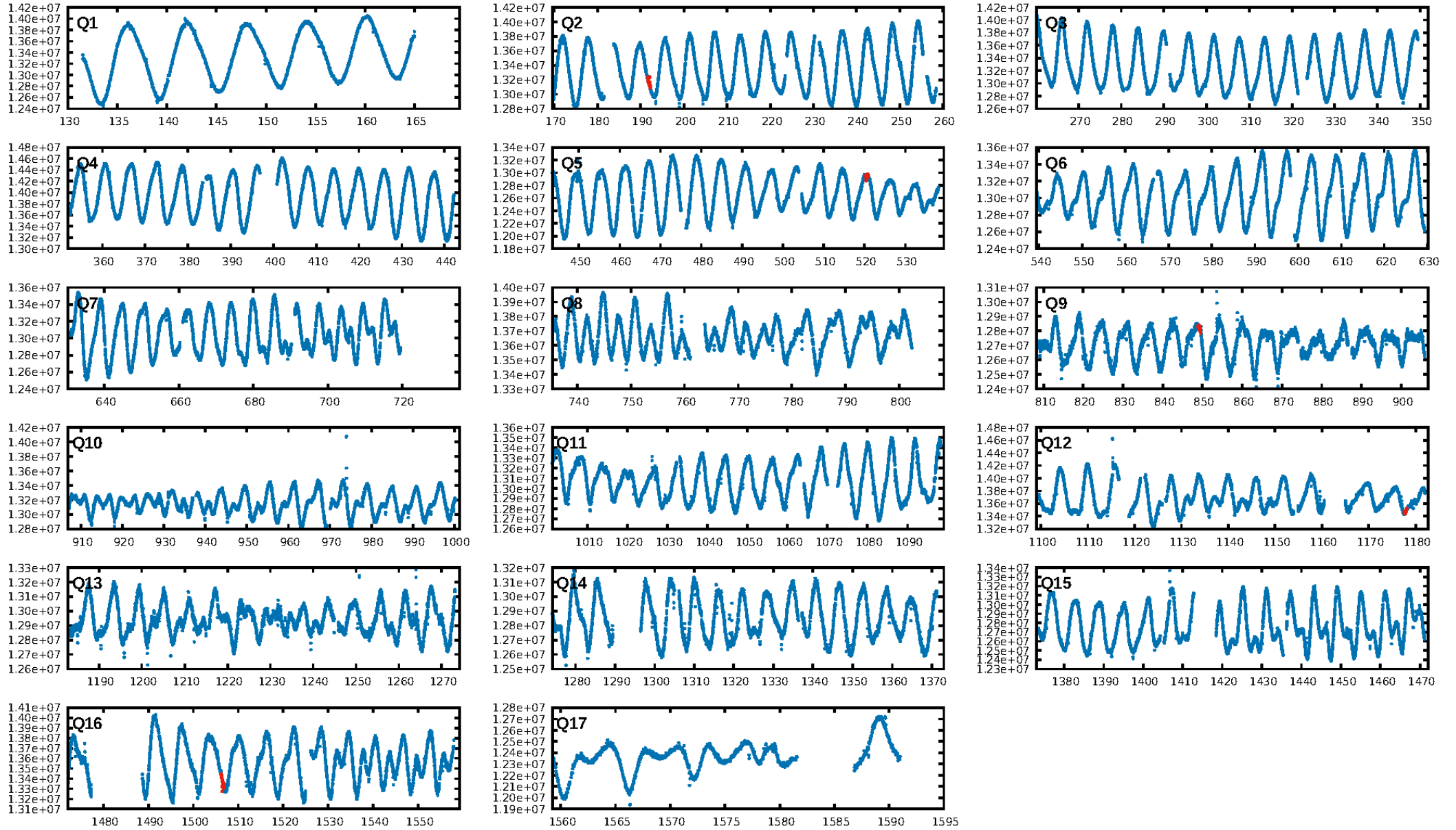
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1007.72σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: 2.63e-13
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.096
Centroid-sig: 61.4%
Centroid-so: 1.025 arcsec [0.97σ]
OotOffset-rm: 0.667 arcsec [0.86σ]
OotOffset-st: 1/0/1/2 [4]
KicOffset-rm: 0.510 arcsec [0.86σ]
KicOffset-st: 1/0/1/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.50 [2/4]

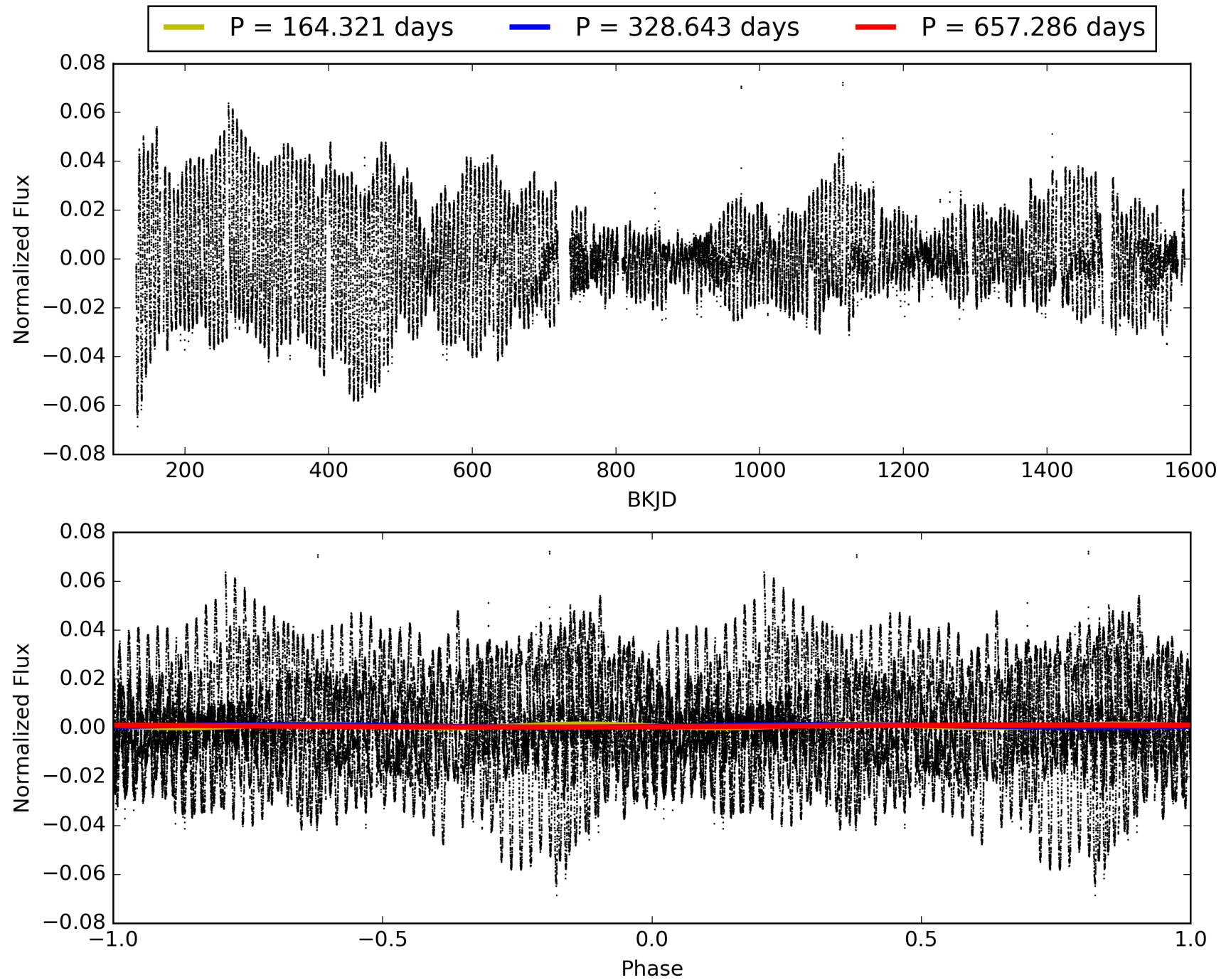
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:39:45 Z

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

TCE 012009347-03, PDC Light Curves

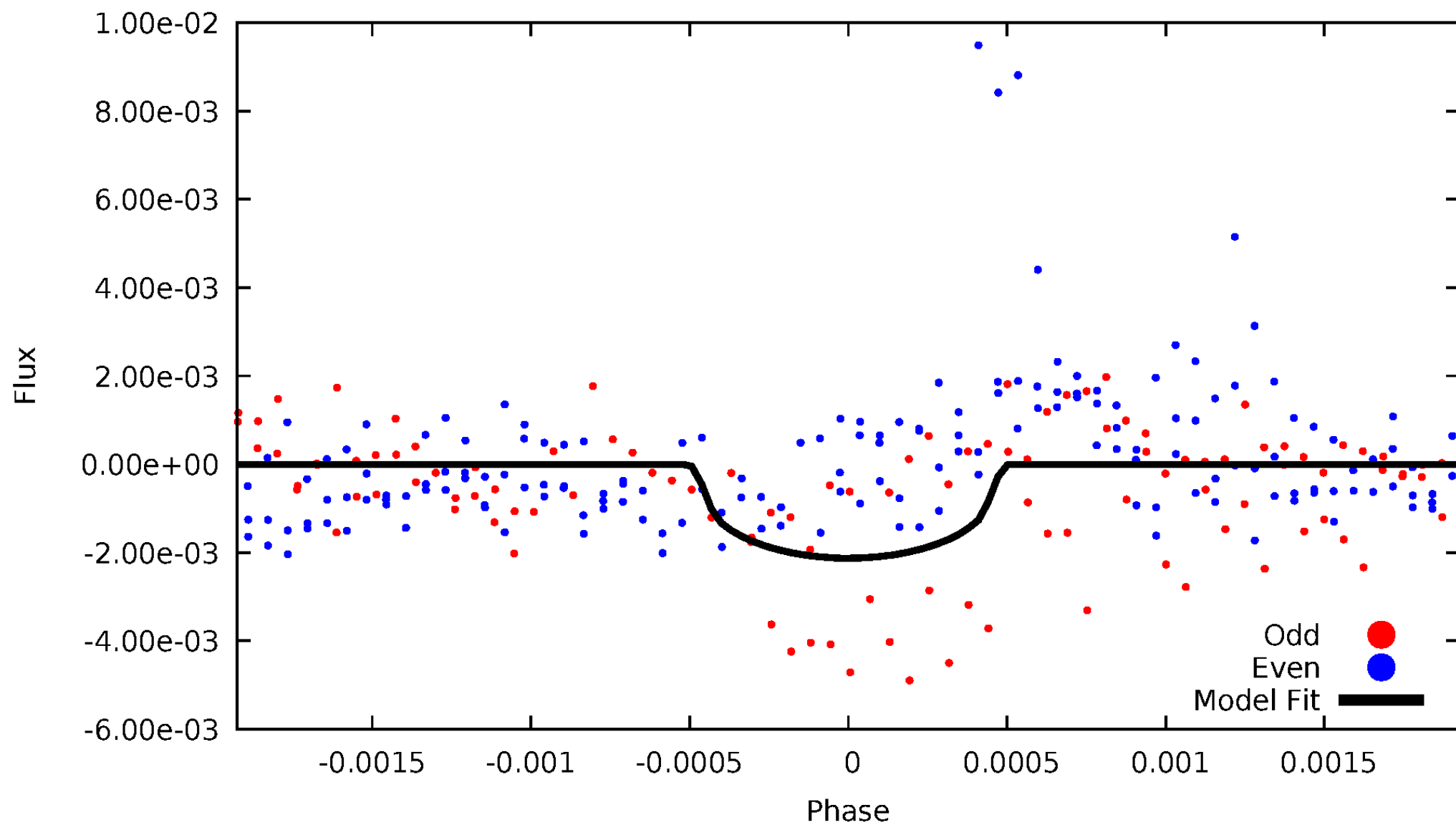


TCE 012009347-03



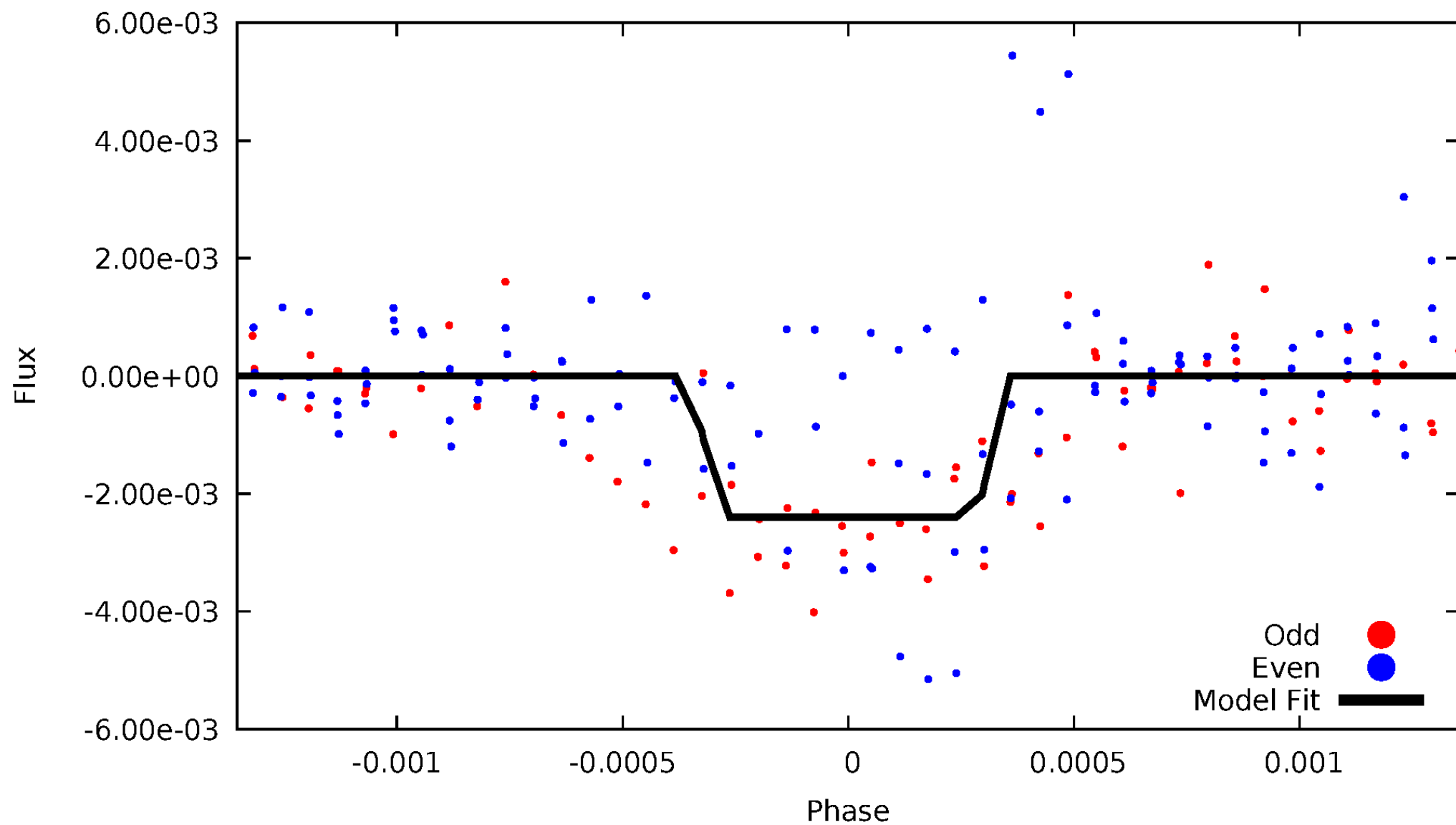
DV Odd/Even

TCE 012009347-03

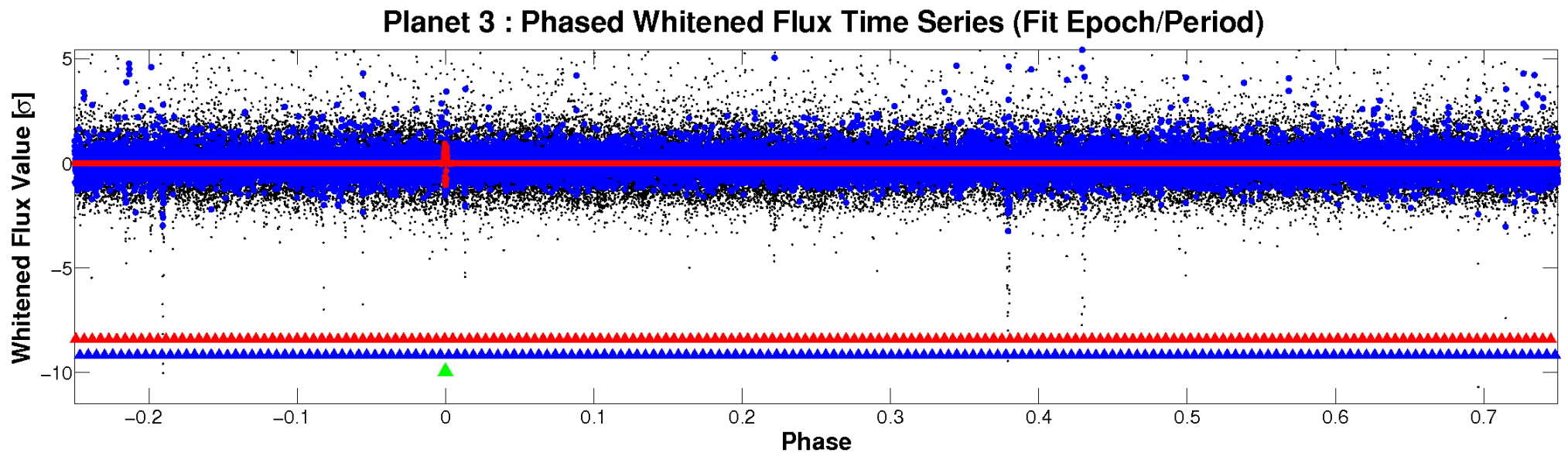
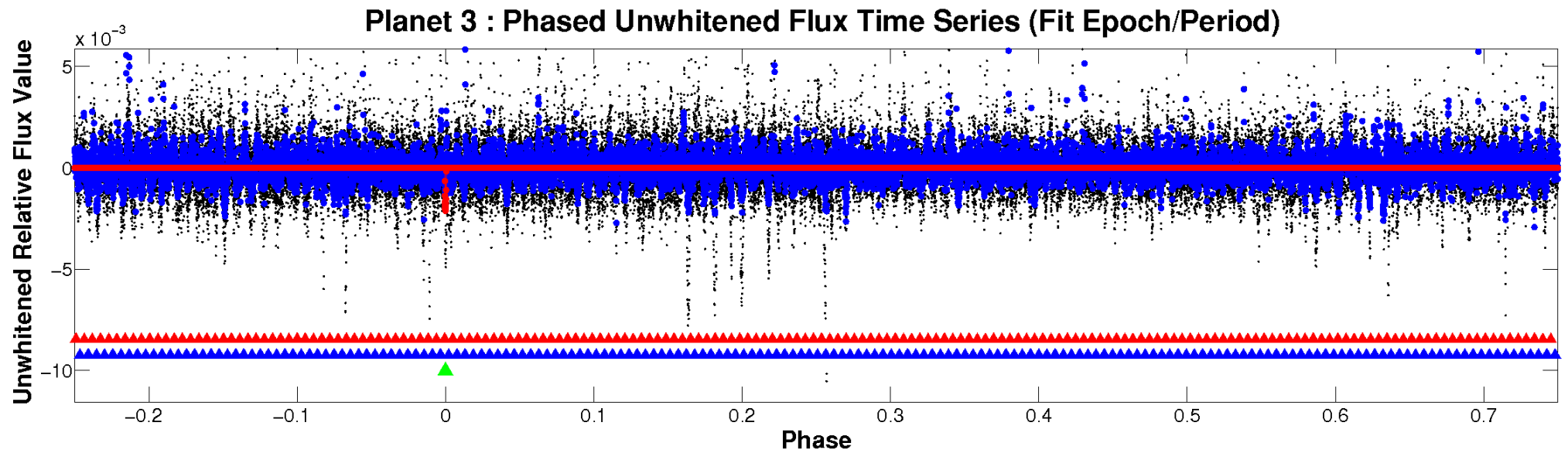


ALT Odd/Even

TCE 012009347-03

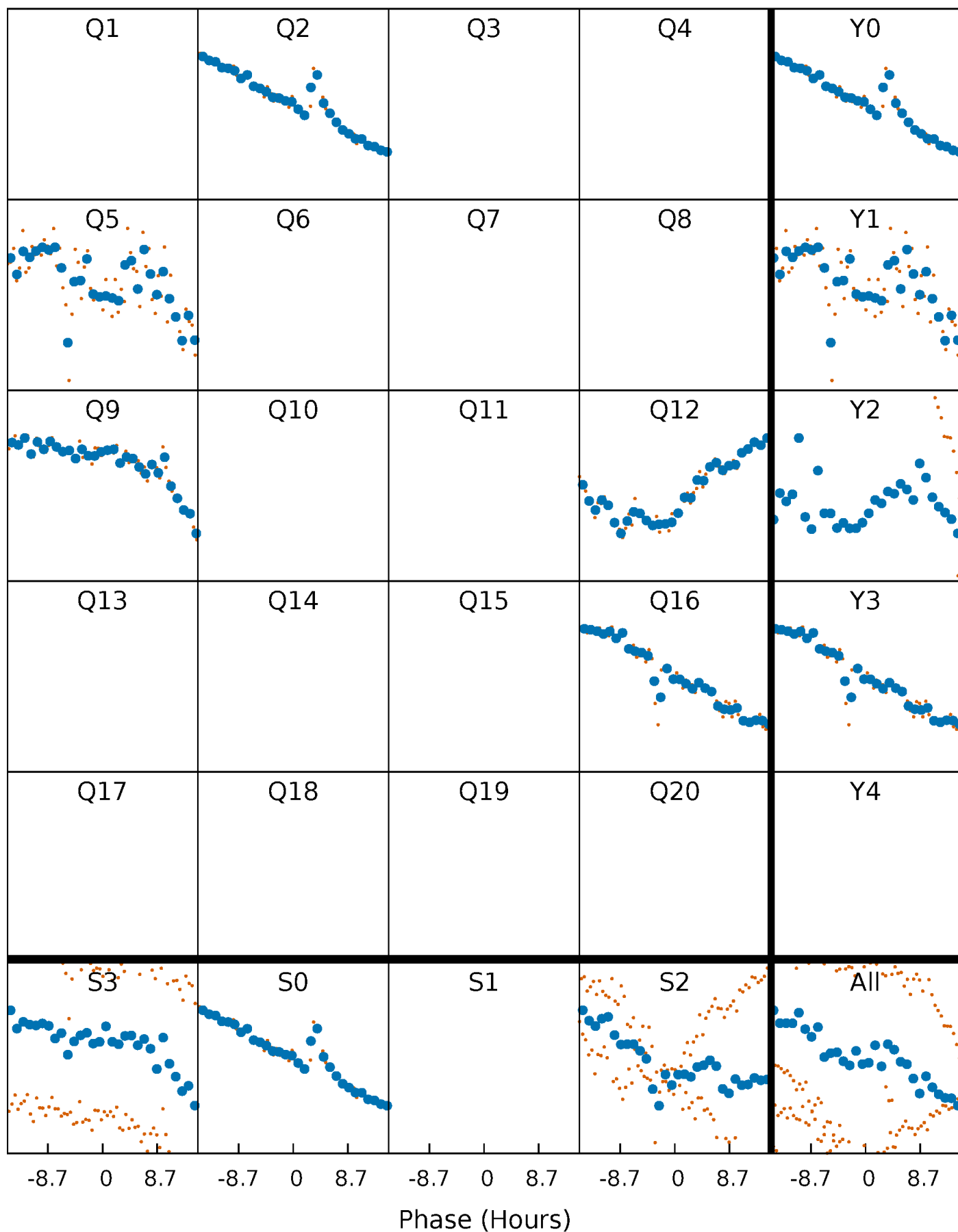


Non-Whitened Vs. Whitened Light Curve



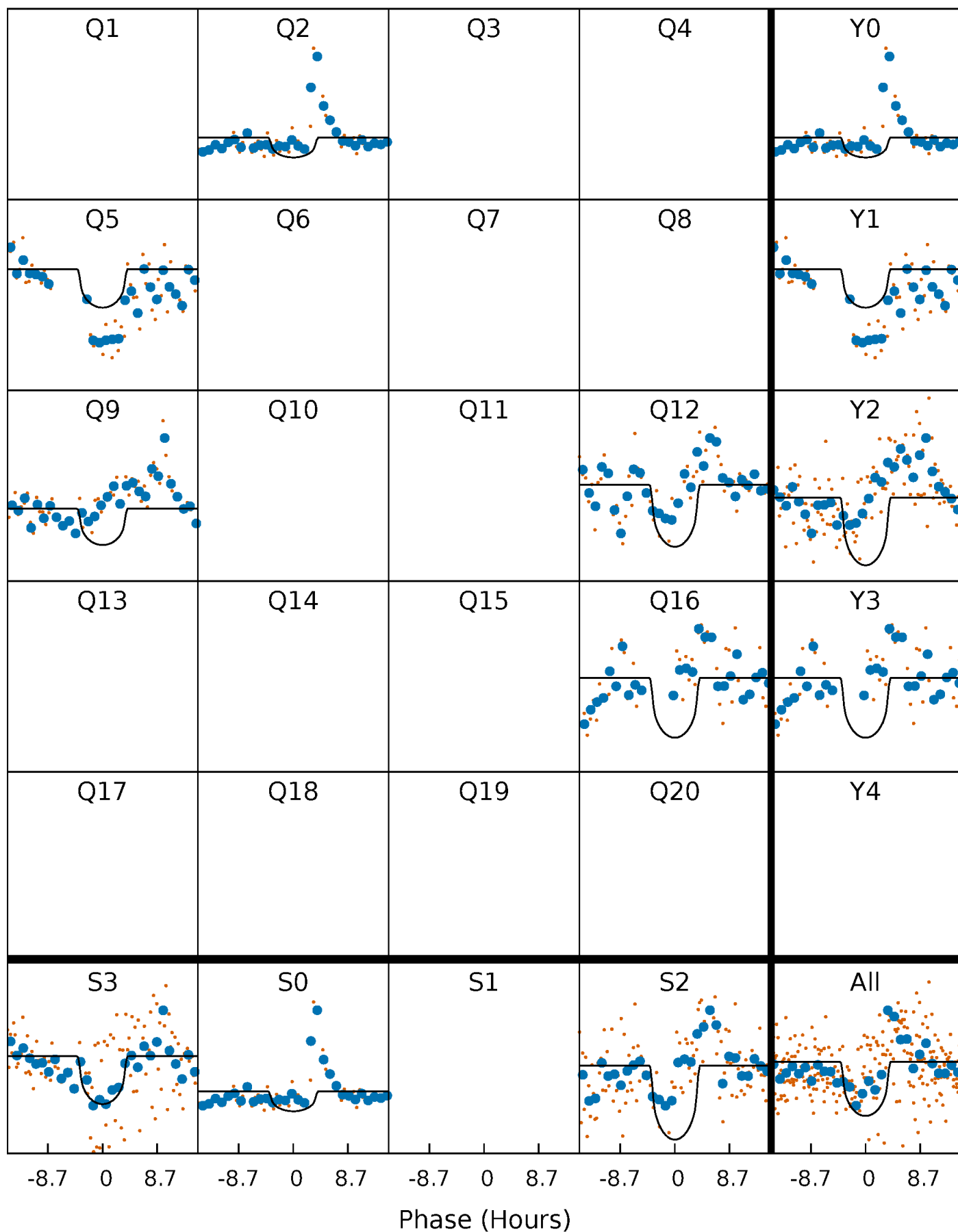
PDC Quarter-Phased Transit Curves

TCE 012009347-03 $P=328.642890$ Days $T_0=191.943907$ (BKJD)



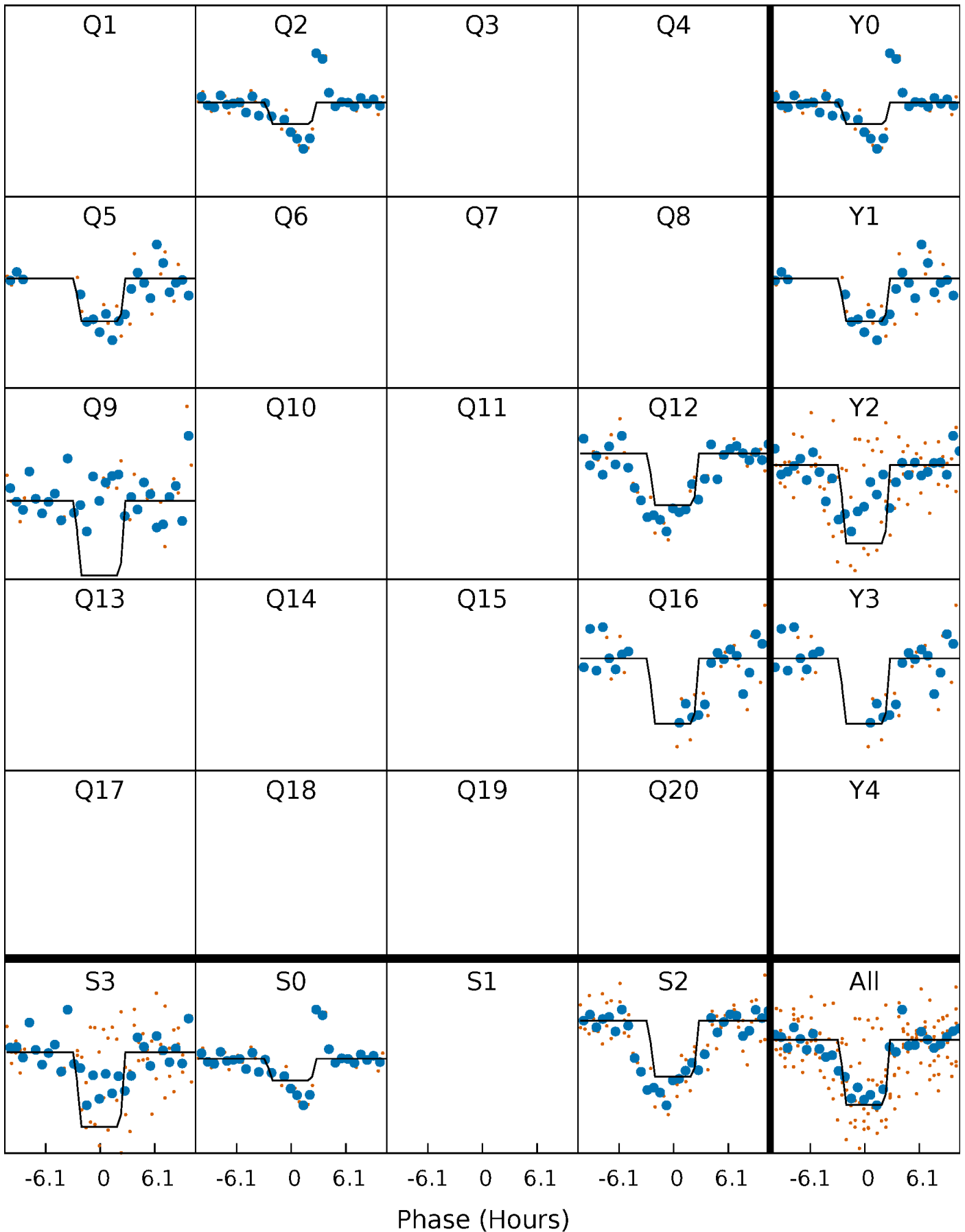
DV Quarter-Phased Transit Curves

TCE 012009347-03 $P=328.642890$ Days $T_0=191.943907$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

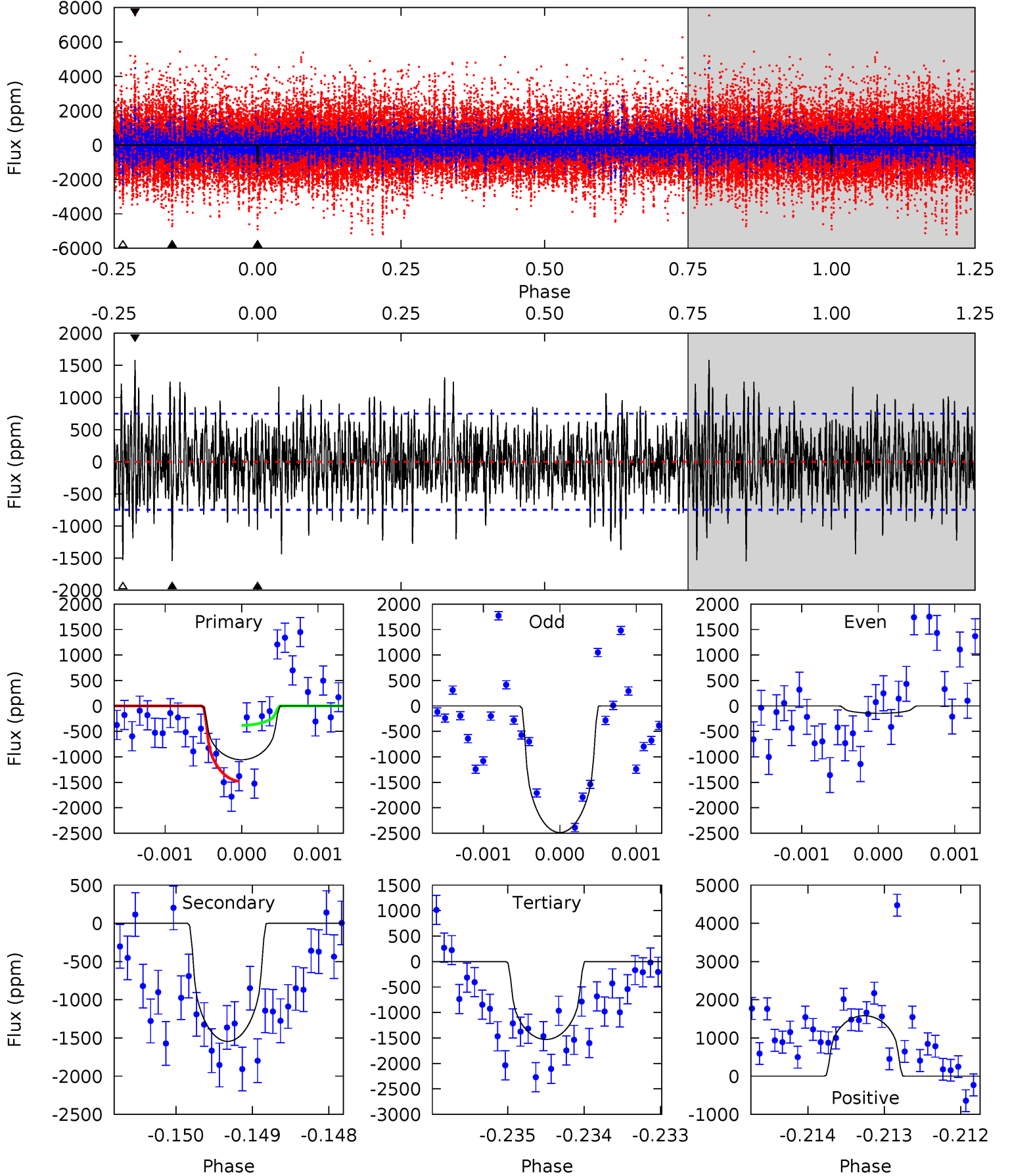
TCE 012009347-03 P=328.632946 Days $T_0=191.959271$ (BKJD)



DV Model-Shift Uniqueness Test

012009347-03, P = 328.642890 Days, E = 191.943907 Days

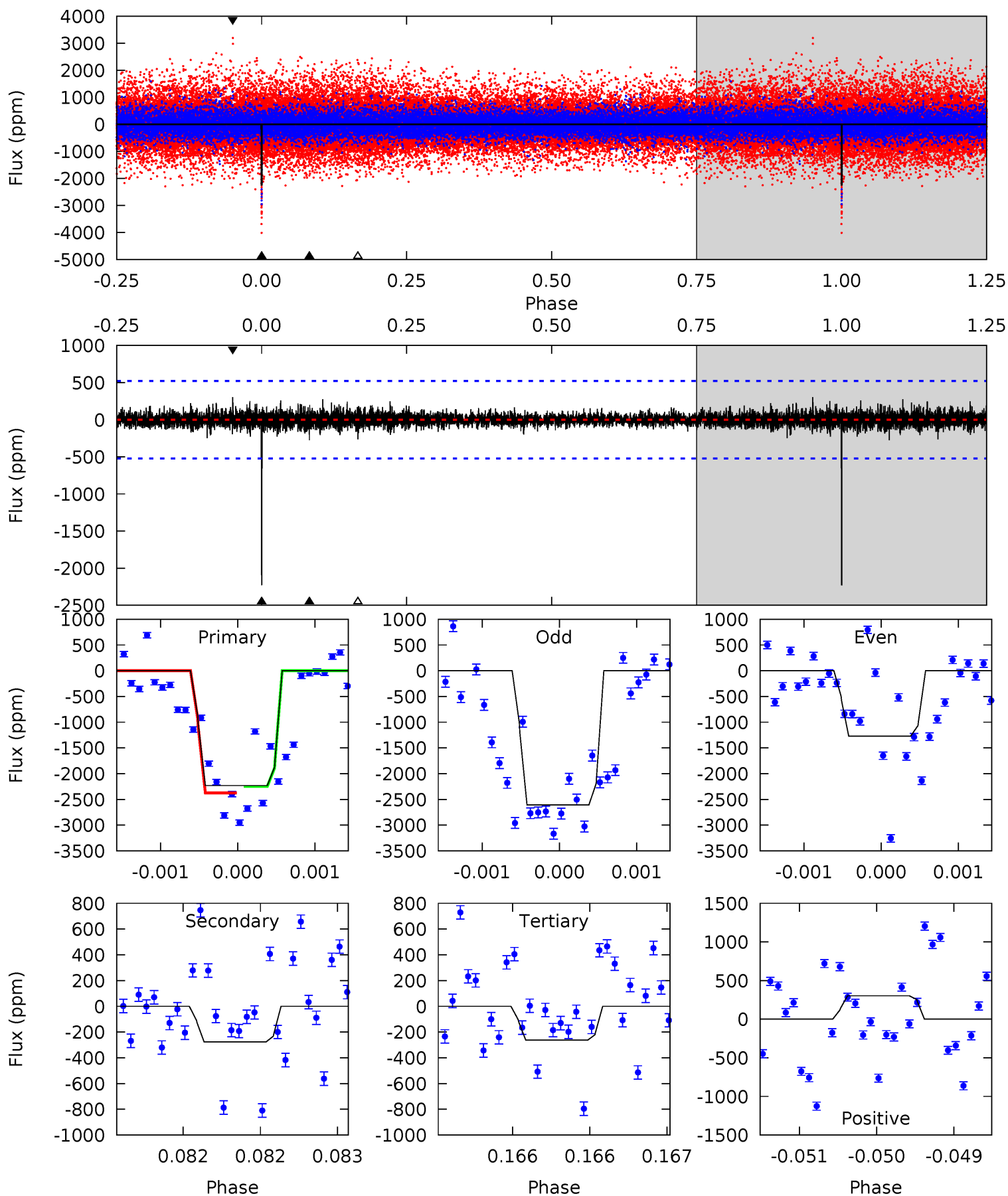
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.70	11.3	11.1	11.5	5.45	3.29	2.89	-3.45	-3.83	0.11	-0.27	8.30	6.45	0.51	3.93



Alt Model-Shift Uniqueness Test

012009347-03, P = 328.632946 Days, E = 191.959271 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	2.92	2.78	3.20	5.53	3.42	0.58	20.9	20.4	0.15	-0.27	7.24	0.88	0.12	0.65



Stellar Parameters For KIC 012009347

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4416^{+132}_{-132}	$4.570^{+0.056}_{-0.016}$	$0.400^{+0.050}_{-0.300}$	$0.733^{+0.021}_{-0.059}$	$0.728^{+0.037}_{-0.046}$	$2.604^{+0.657}_{-0.152}$
	+3%/-3%	+1%/-0%	+12%/-75%	+3%/-8%	+5%/-6%	+25%/-6%
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 012009347-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1545 ± 137	$3.36^{+2.24}_{-1.80}$	252^{+8}_{-8}	4285^{+1563}_{-715}	$52220^{+195189}_{-33103}$
Alt.	-276 ± 94	$3.86^{+2.43}_{-1.87}$	253^{+8}_{-8}	3083^{+693}_{-422}	6866^{+19836}_{-4450}

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

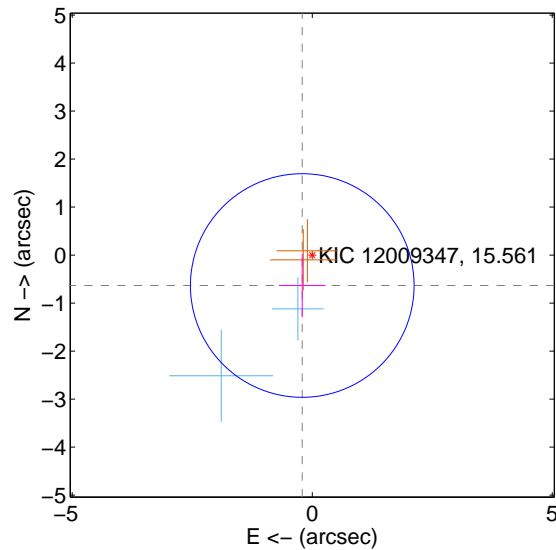
Supplemental centroid analysis for 012009347-03. Kepler magnitude: 15.56. Transit SNR 7.80

There are 2 quarters with good PRF difference image offsets

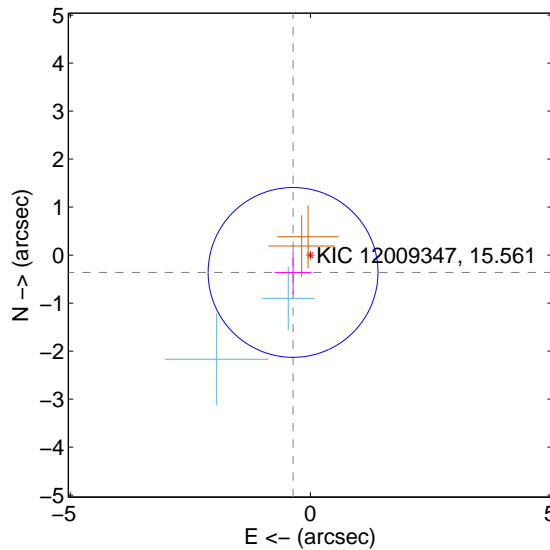
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.667 ± 0.777	0.86	0.208 ± 0.486	-0.634 ± 0.663
PRF-fit source offset from KIC position	0.510 ± 0.590	0.86	0.360 ± 0.385	-0.361 ± 0.461
photometric centroid source offset	1.02 ± 1.06	0.97	-1.00 ± 1.07	-0.22 ± 0.80

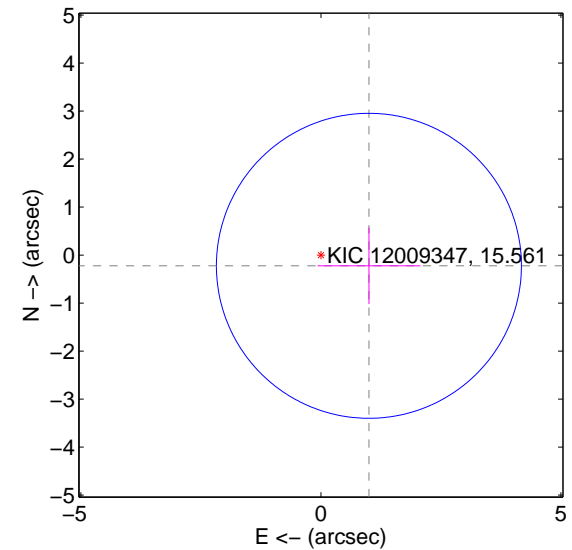
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

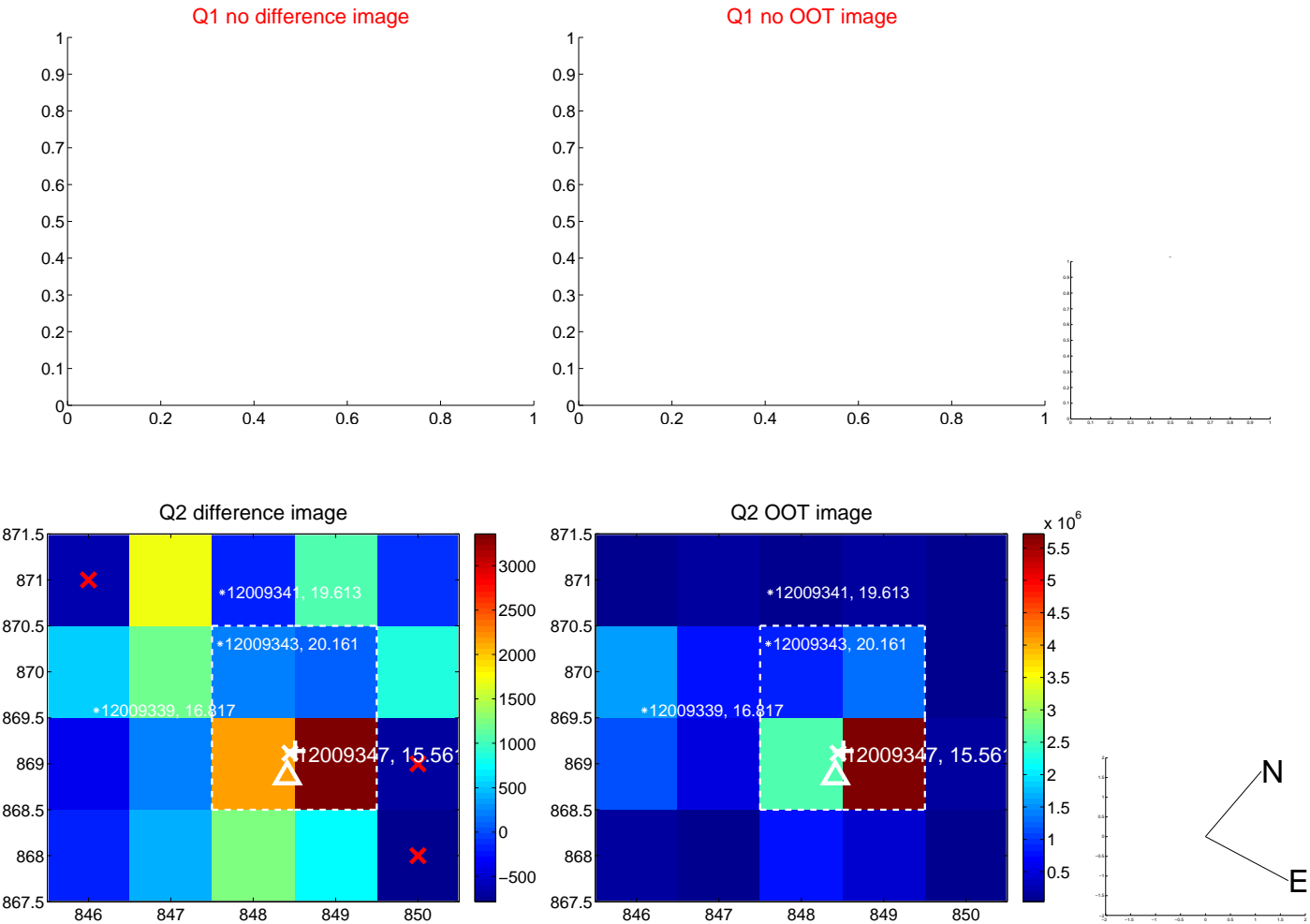


offset from photometric centroids

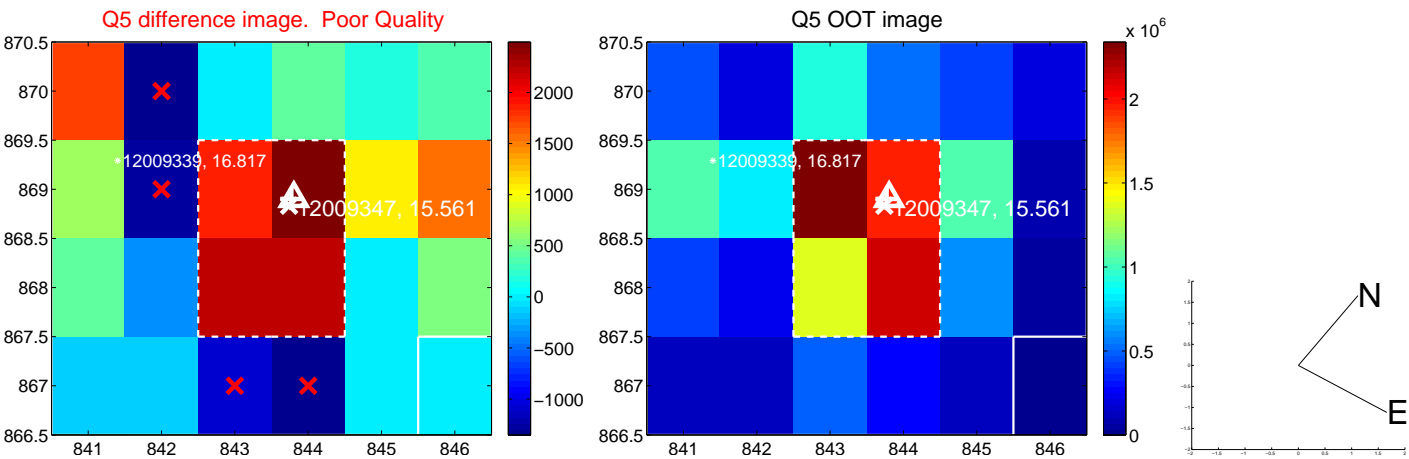


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

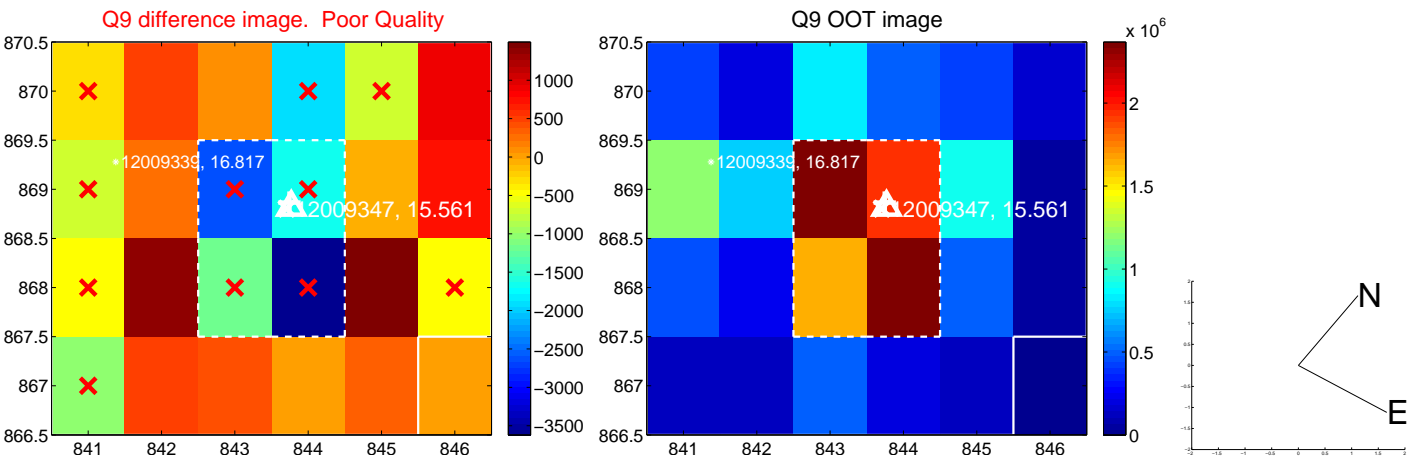
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



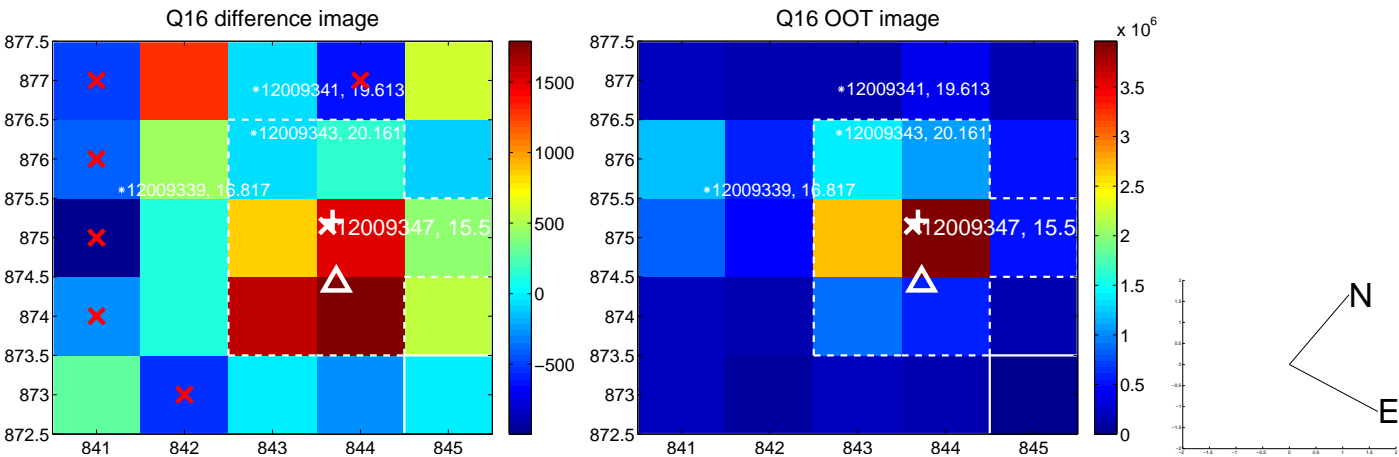
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



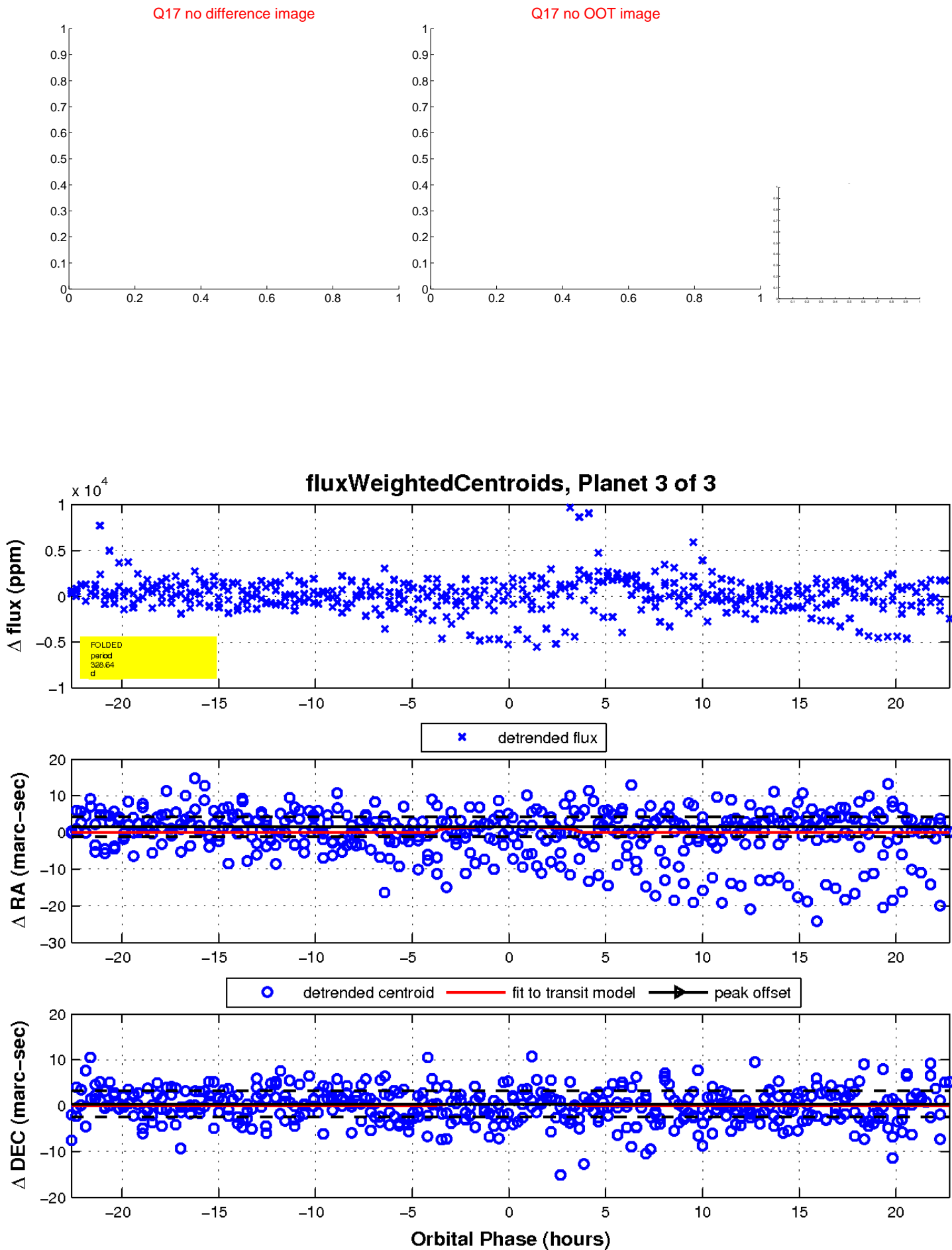
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

