

KIC 009717861

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})
009717861-01	OBS	No	2.062956	131.822304	0.2	12.982	10.8	0.0	2.76	8843	0.11	26723.50
009717861-02	OBS	No	2.063040	133.127168	593.1	14.708	21.5	25.5	2.76	8843	12.43	26722.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009717861-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009717861-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

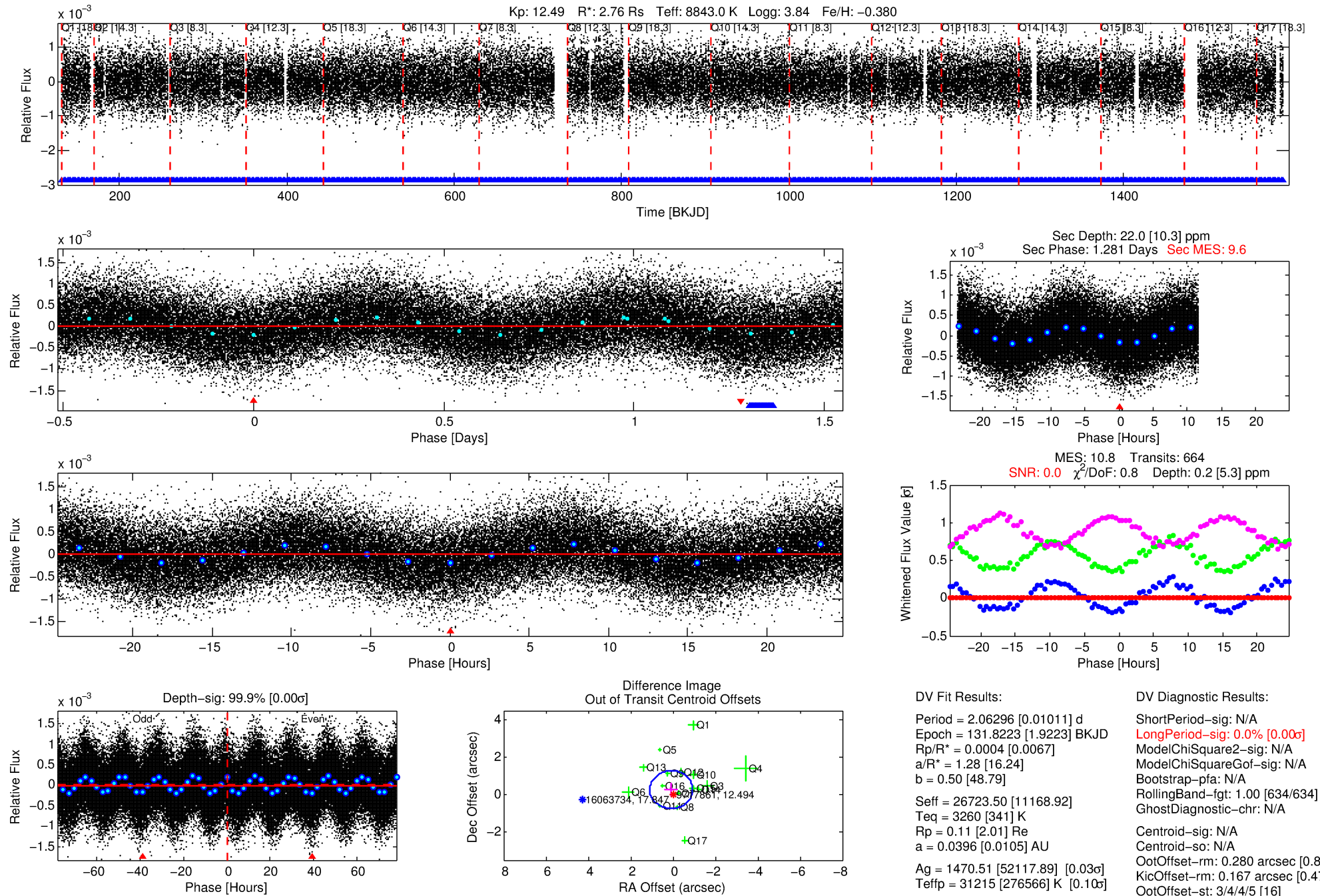
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009717861-01

No Significant Match Found

DV One-Page Summary

KIC: 9717861 Candidate: 1 of 2 Period: 2.063 d



DV Fit Results:

Period = 2.06296 [0.01011] d
Epoch = 131.8223 [1.9223] BKJD
Rp/R* = 0.0004 [0.0067]
a/R* = 1.28 [16.24]
b = 0.50 [48.79]
Seff = 26723.50 [11168.92]
Teff = 3260 [341] K
Rp = 0.11 [2.01] Re
a = 0.0396 [0.0105] AU
Ag = 1470.51 [52117.89] [0.03 σ]
Teffp = 31215 [276566] K [0.10 σ]

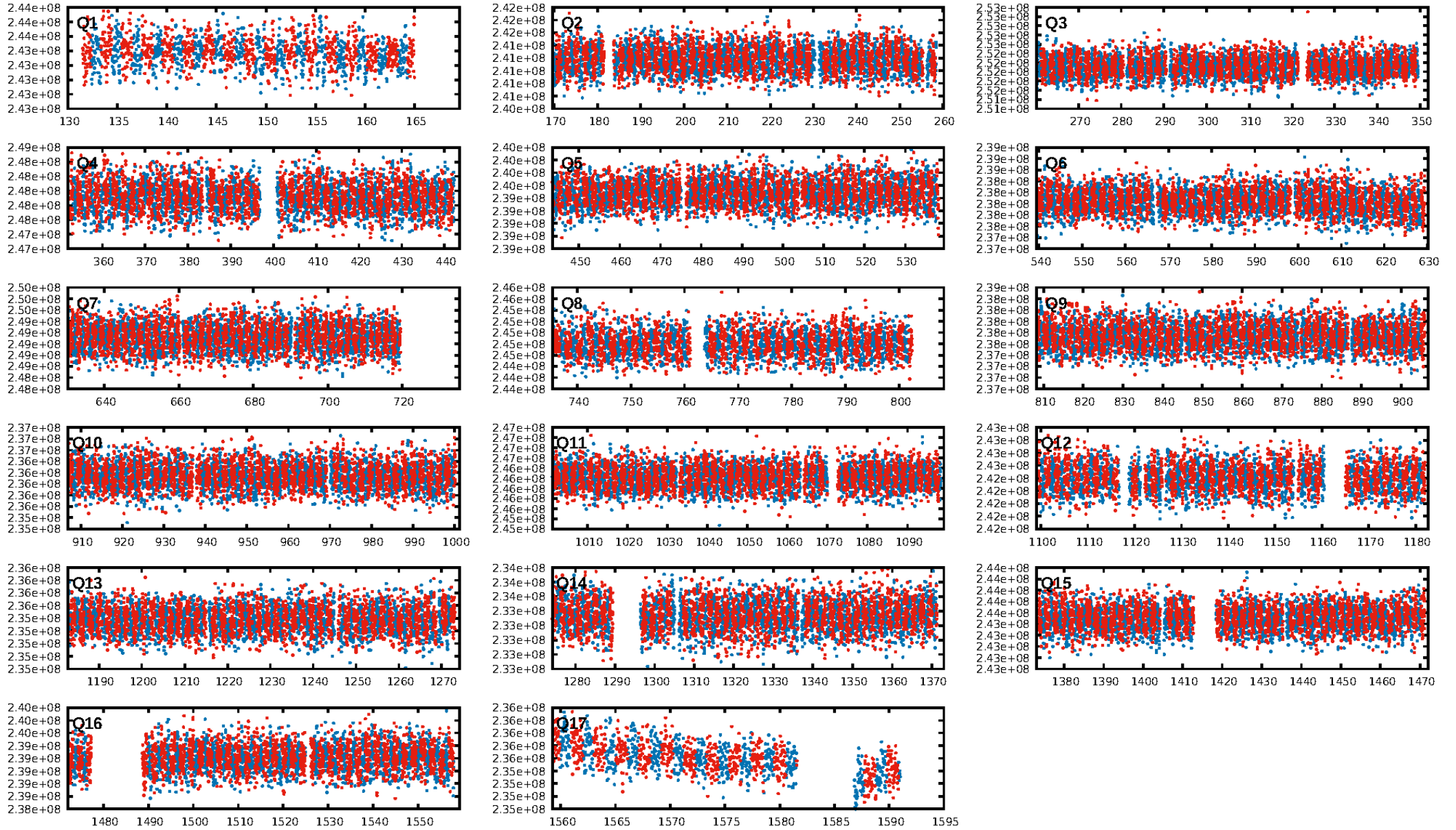
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [634/634]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.280 arcsec [0.83 σ]
KicOffset-rm: 0.167 arcsec [0.47 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.75 [12/16]
DiffImageOverlap-fno: 0.00 [0/17]

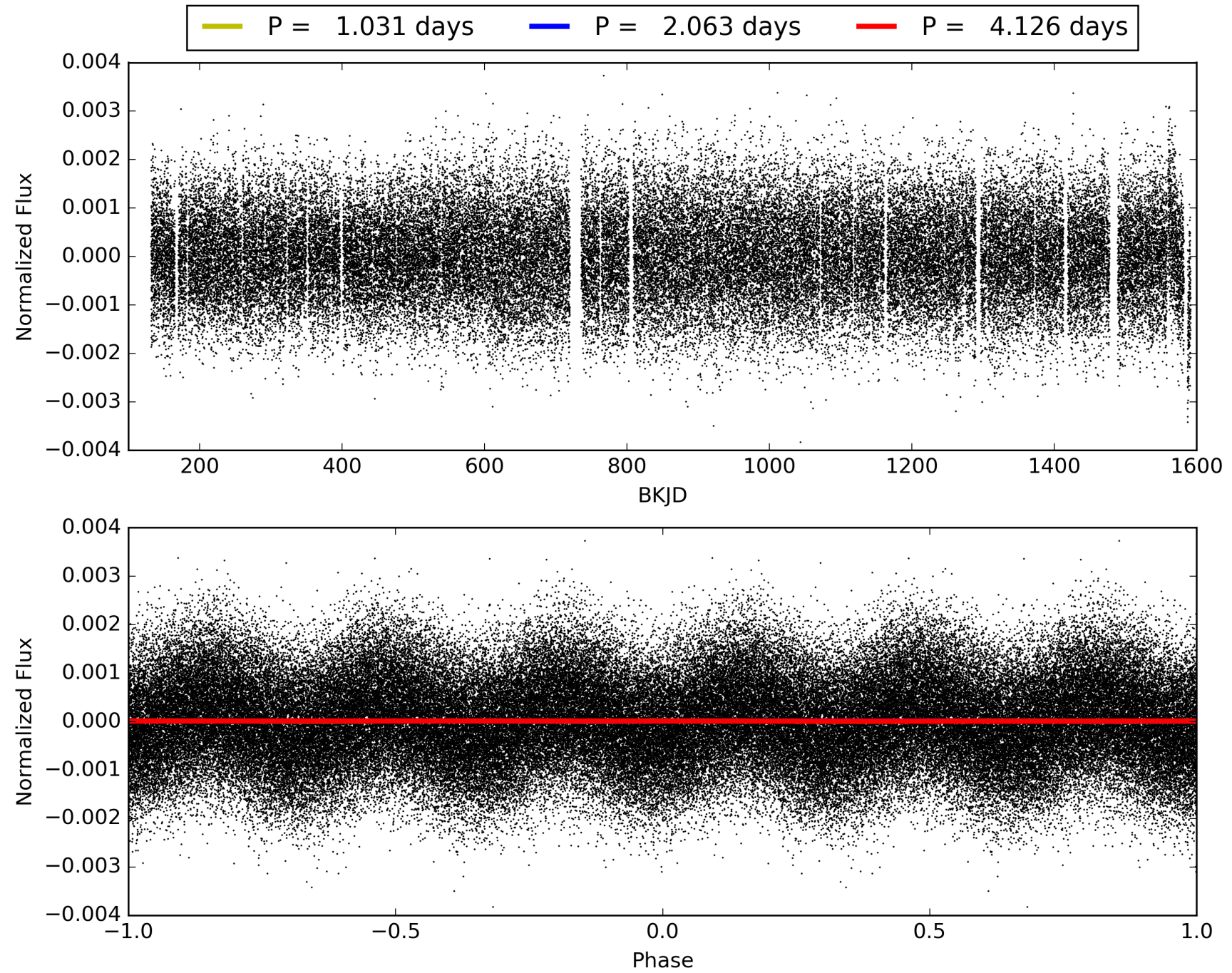
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:18:42 Z

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

TCE 009717861-01, PDC Light Curves

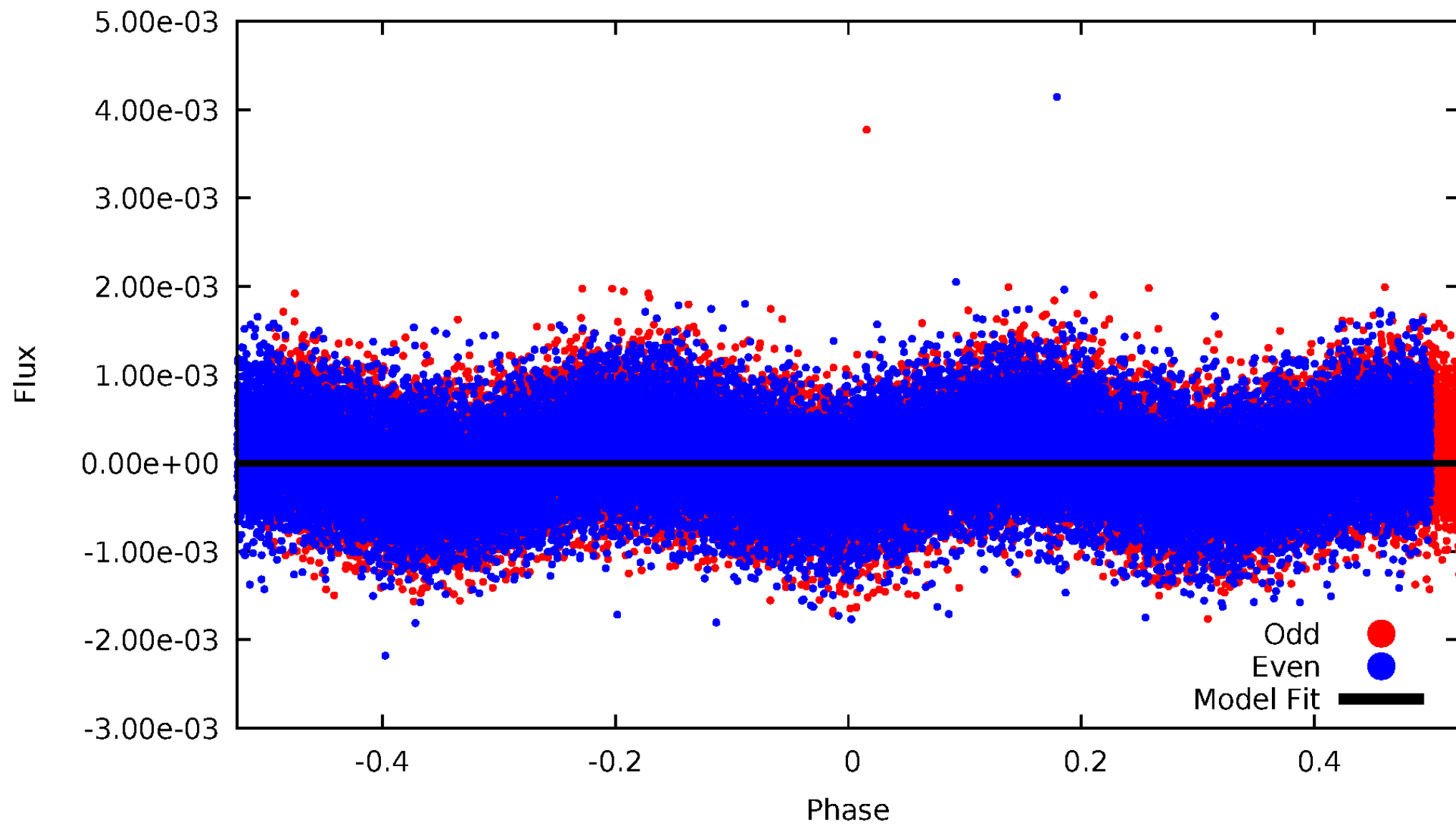


TCE 009717861-01



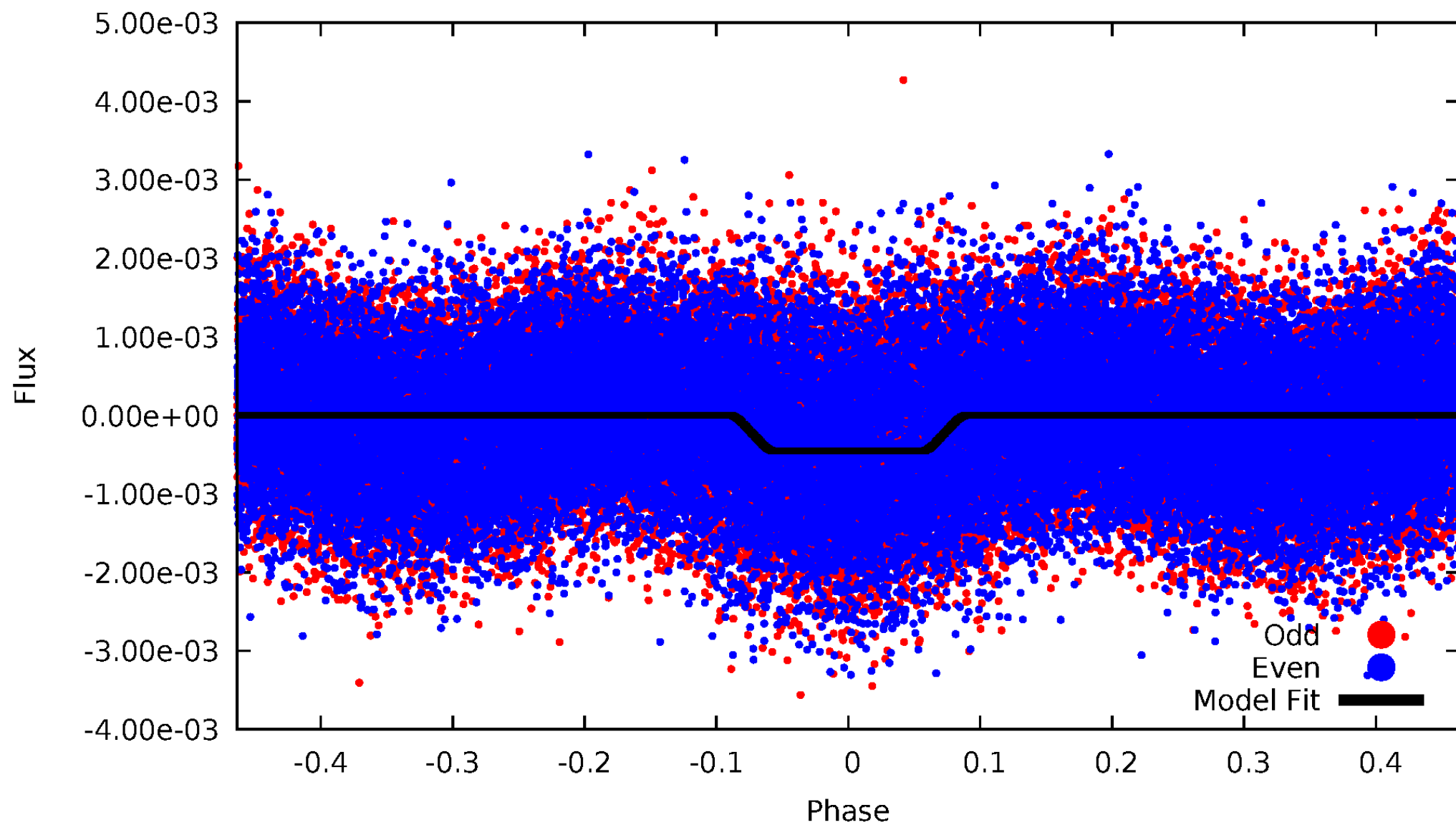
DV Odd/Even

TCE 009717861-01



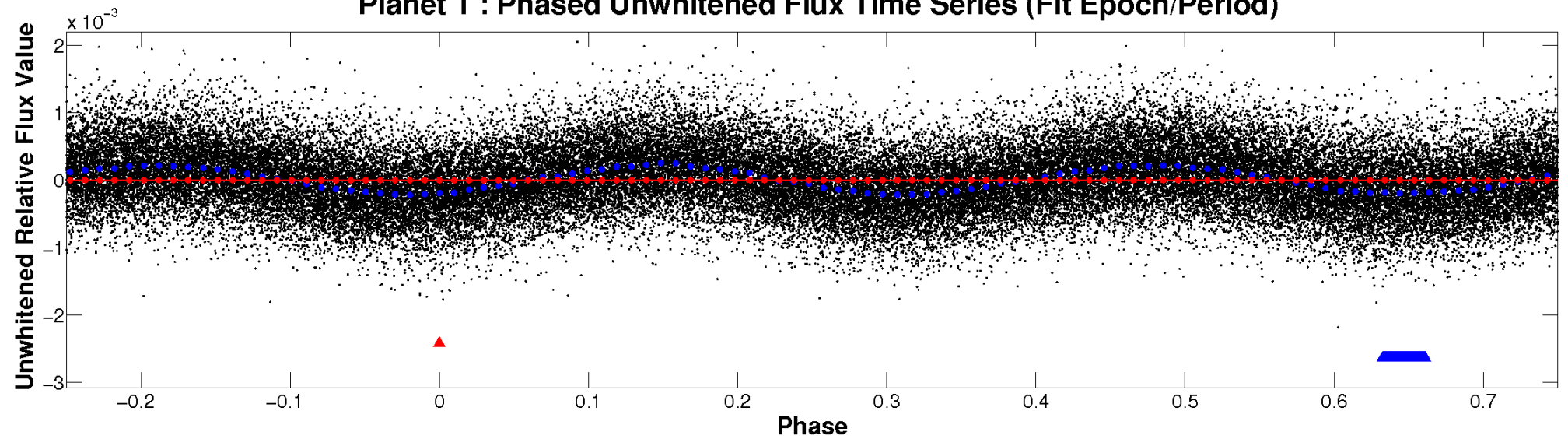
ALT Odd/Even

TCE 009717861-01

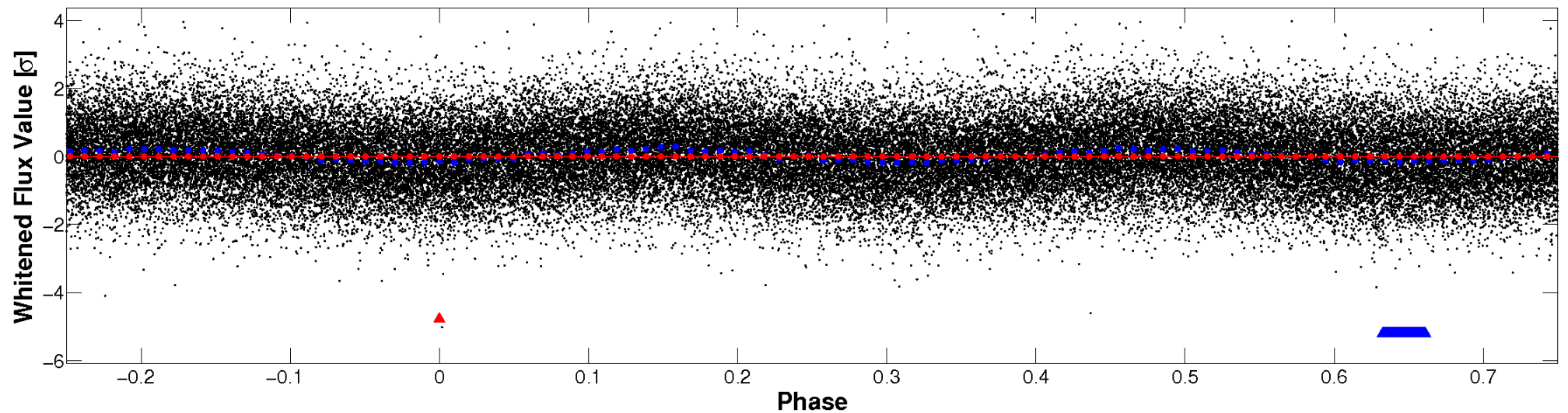


Non-Whitened Vs. Whitened Light Curve

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

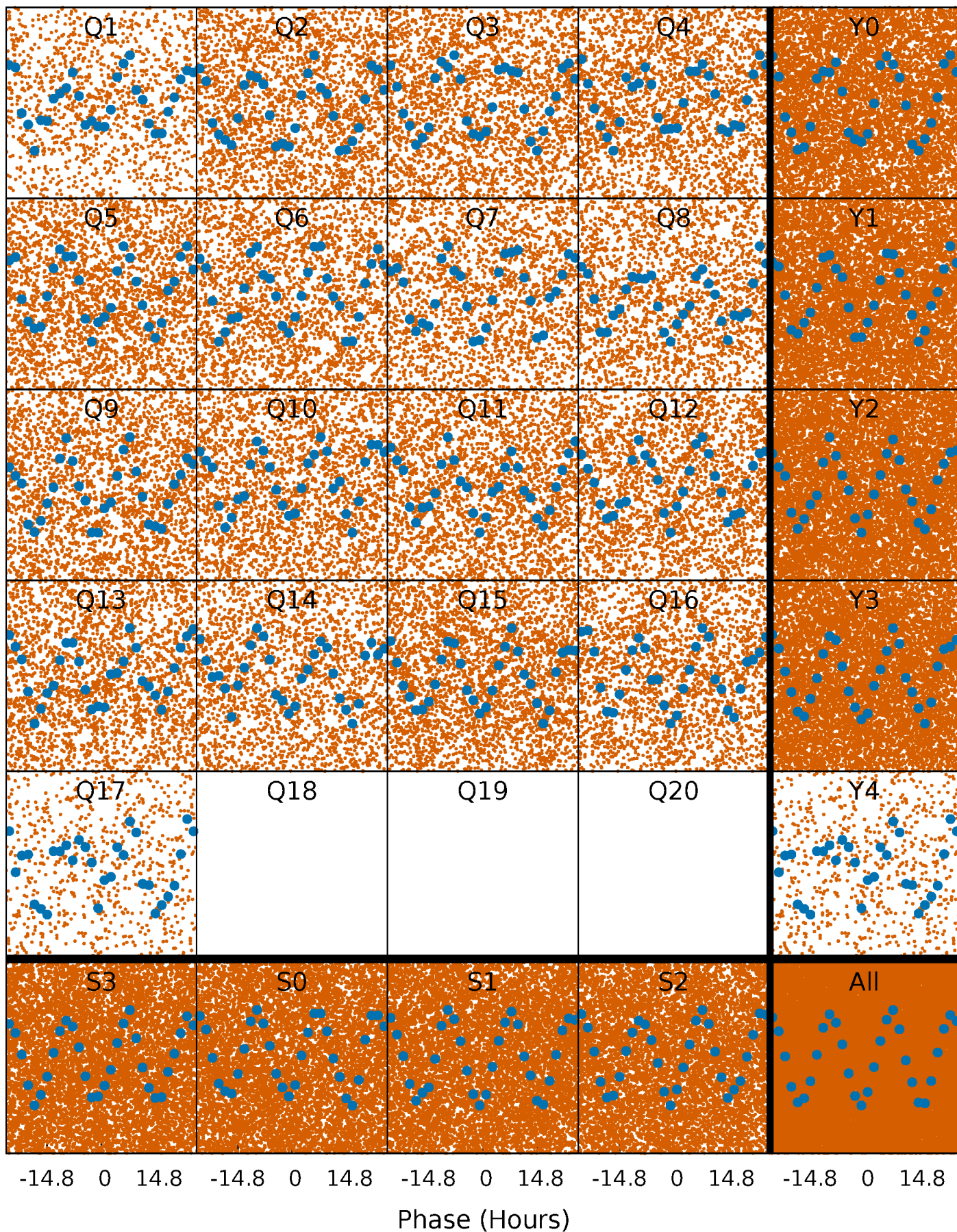


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



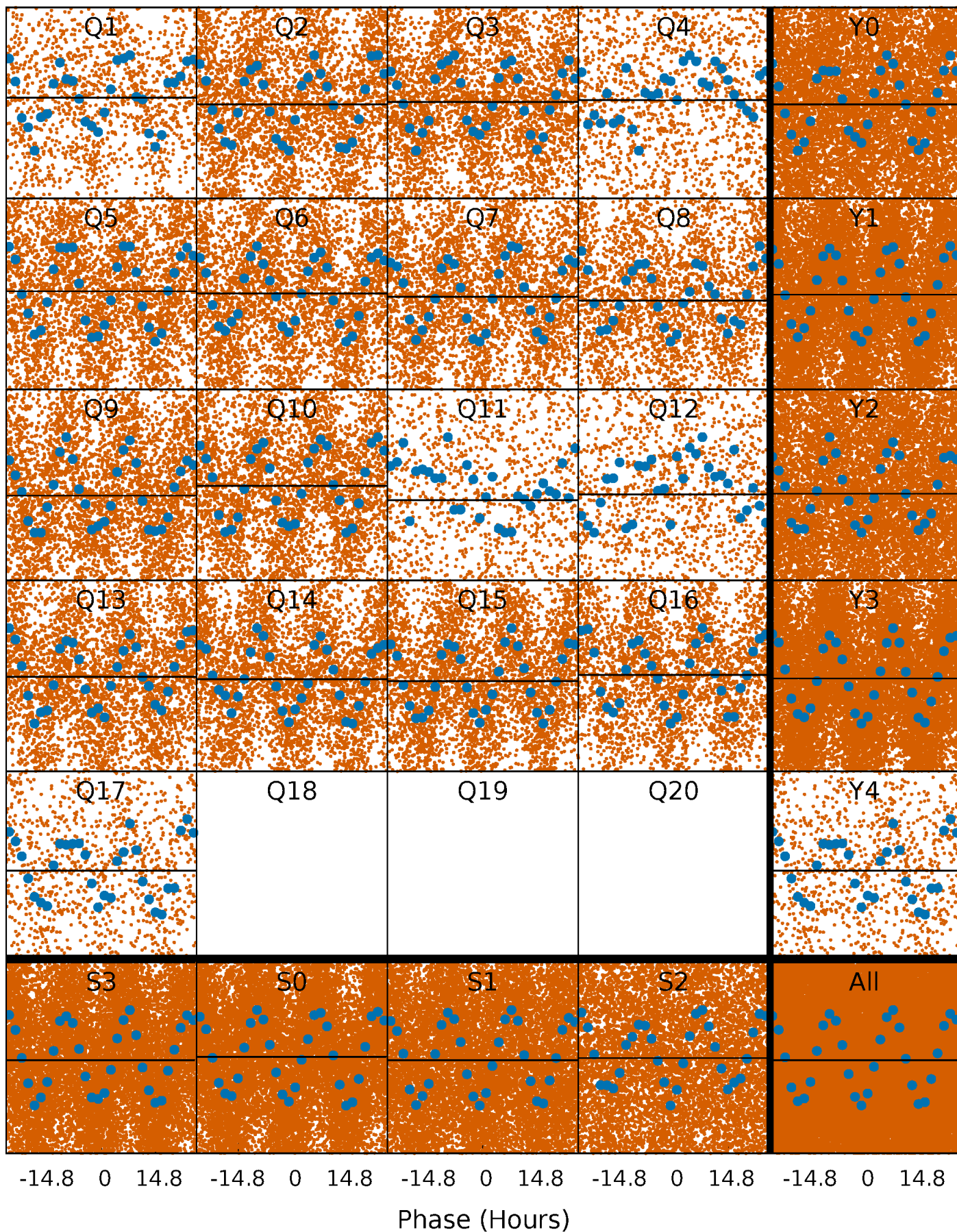
PDC Quarter-Phased Transit Curves

TCE 009717861-01 P= 2.062956 Days $T_0=131.822304$ (BKJD)



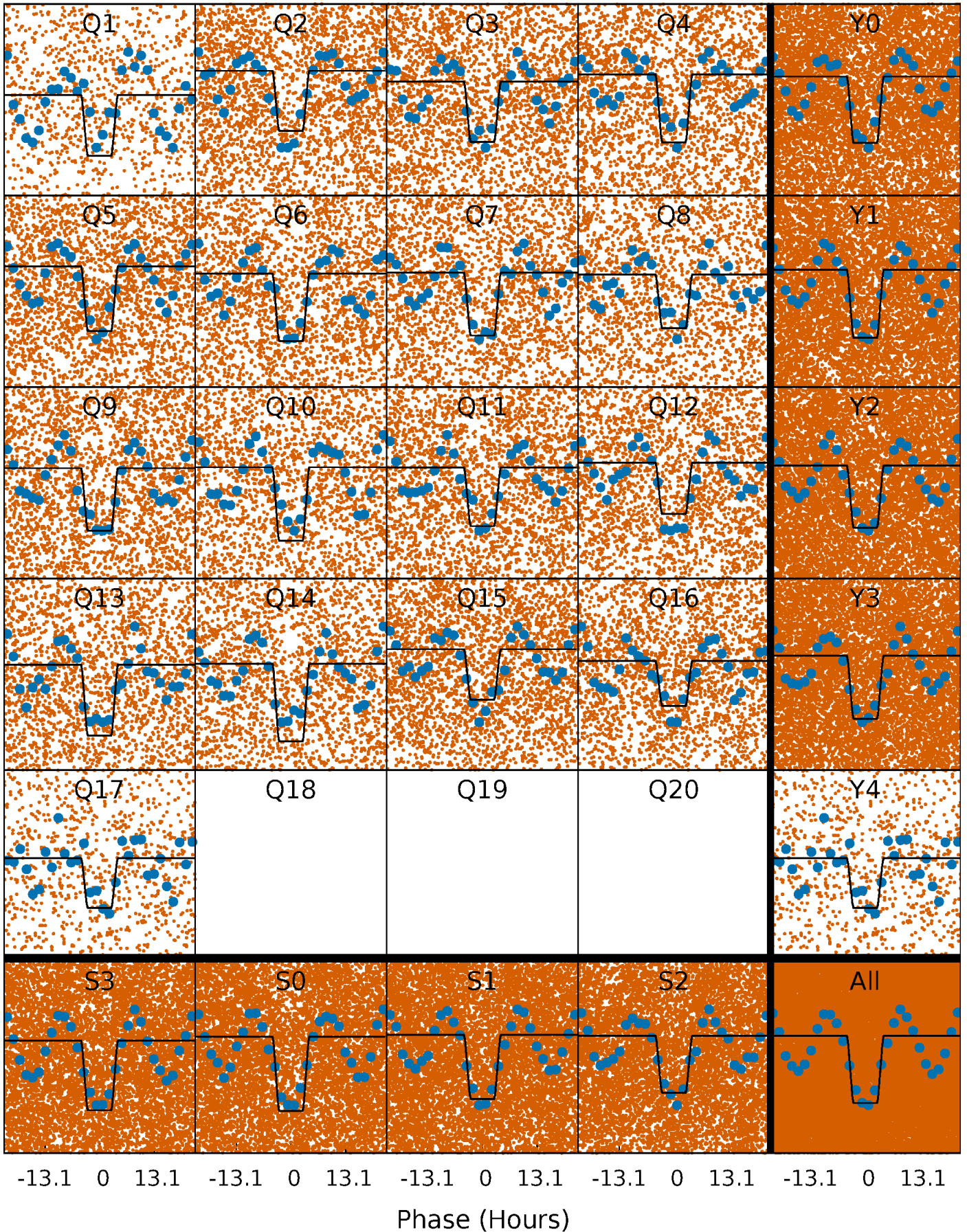
DV Quarter-Phased Transit Curves

TCE 009717861-01 P= 2.062956 Days $T_0=131.822304$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

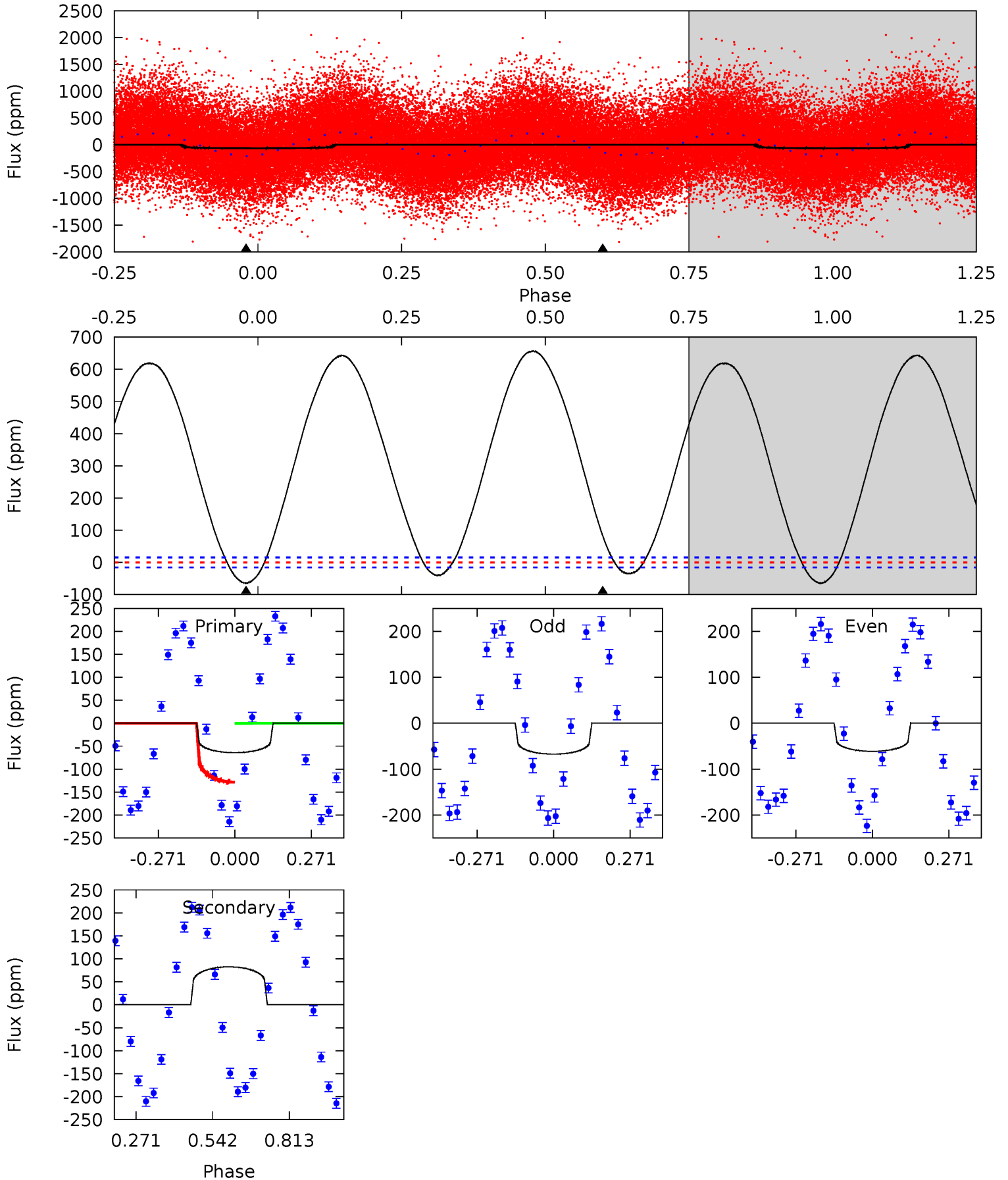
TCE 009717861-01 P= 2.063002 Days $T_0=131.764362$ (BKJD)



DV Model-Shift Uniqueness Test

009717861-01, P = 2.062956 Days, E = 129.759348 Days

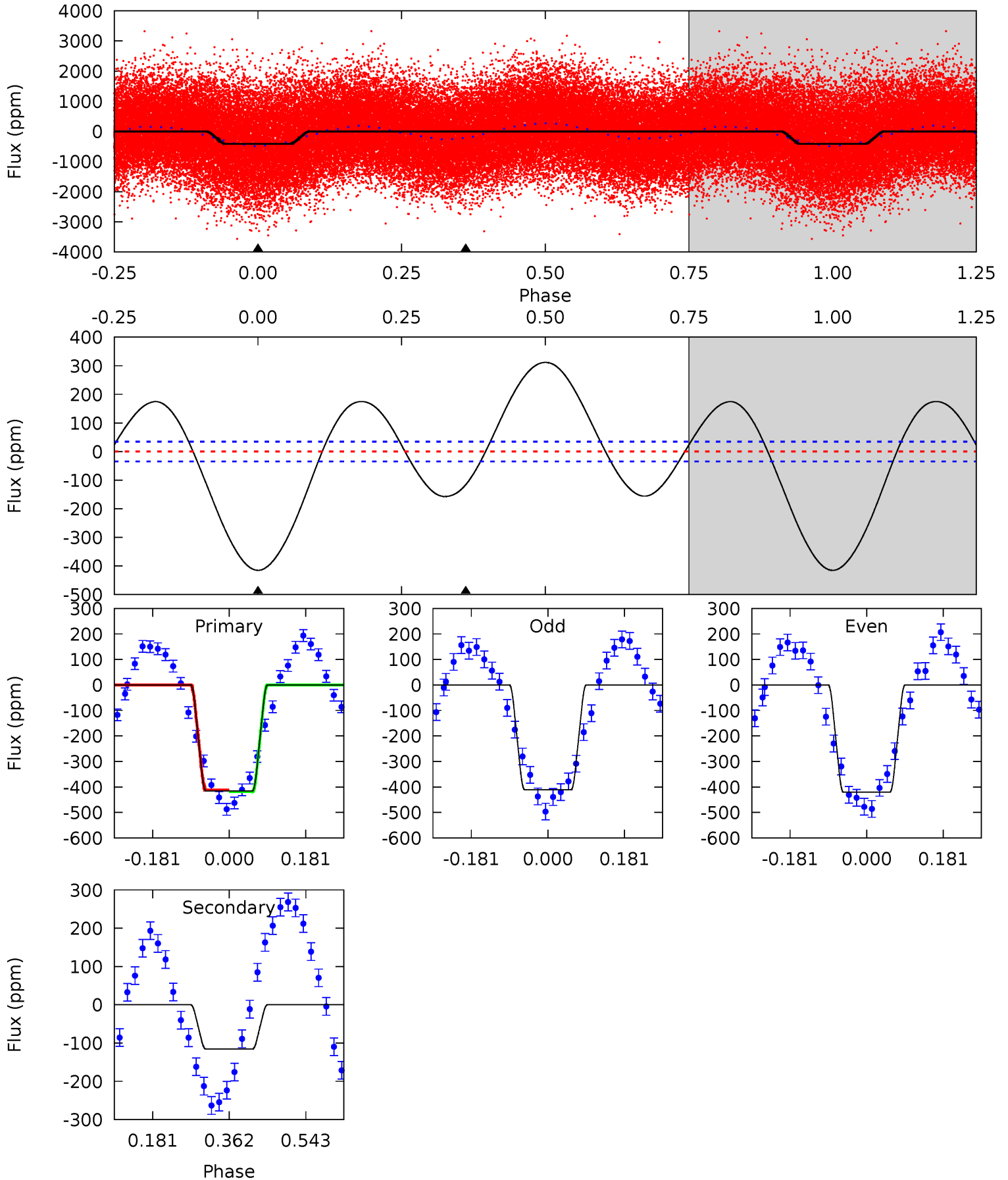
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	-22.9	0	0	4.35	1.10	23.8	17.8	17.8	-22.9	-22.9	0.89	1.12	0.91	18.9



Alt Model-Shift Uniqueness Test

009717861-01, P = 2.063002 Days, E = 129.701360 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.8	15.0	0	0	4.44	1.34	15.7	53.8	53.8	15.0	15.0	0.64	0.97	0.43	0.43



Stellar Parameters For KIC 009717861

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8843^{+70}_{-97}	$3.843^{+0.240}_{-0.080}$	$-0.380^{+0.200}_{-0.200}$	$2.763^{+0.341}_{-0.797}$	$1.941^{+0.140}_{-0.210}$	$0.130^{+0.189}_{-0.034}$
	+1%/-1%	+6%/-2%	+53%/-53%	+12%/-29%	+7%/-11%	+146%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 009717861-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	83 ± 4	$1.34^{+1.35}_{-0.94}$	4513^{+168}_{-311}	-15289^{+6440}_{-58610}	$-40.568^{+30.750}_{-387.149}$
Alt.	-116 ± 8	$6.15^{+2.23}_{-2.04}$	4521^{+174}_{-346}	5783^{+1357}_{-809}	$2.636^{+3.112}_{-1.219}$

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

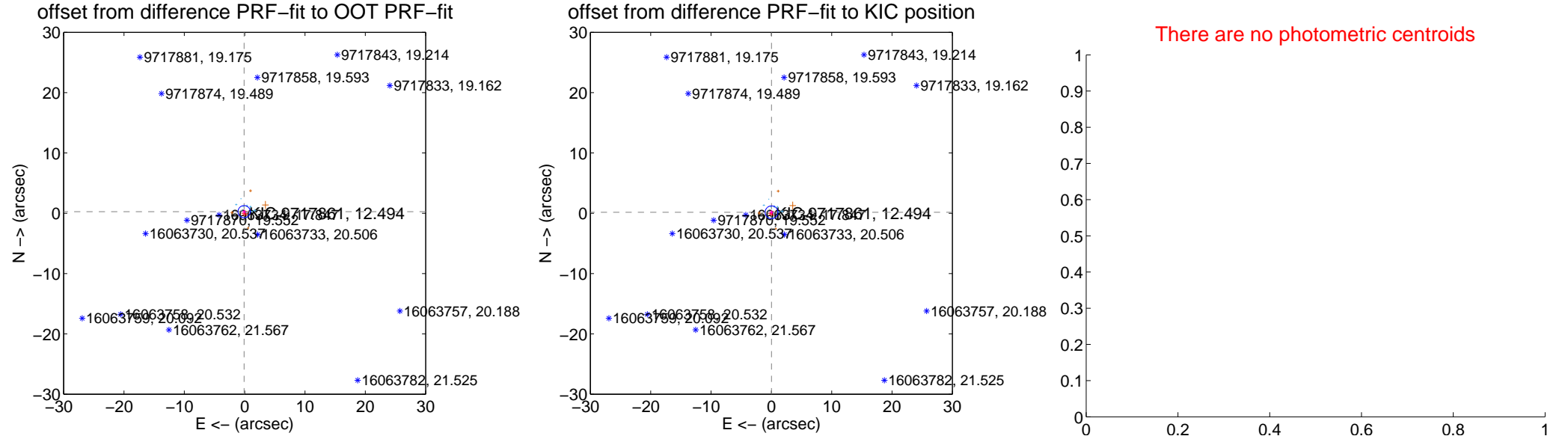
DV Centroid Data

Supplemental centroid analysis for 009717861-01. Kepler magnitude: 12.49. Transit SNR 0.03

There are 12 quarters with good PRF difference image offsets

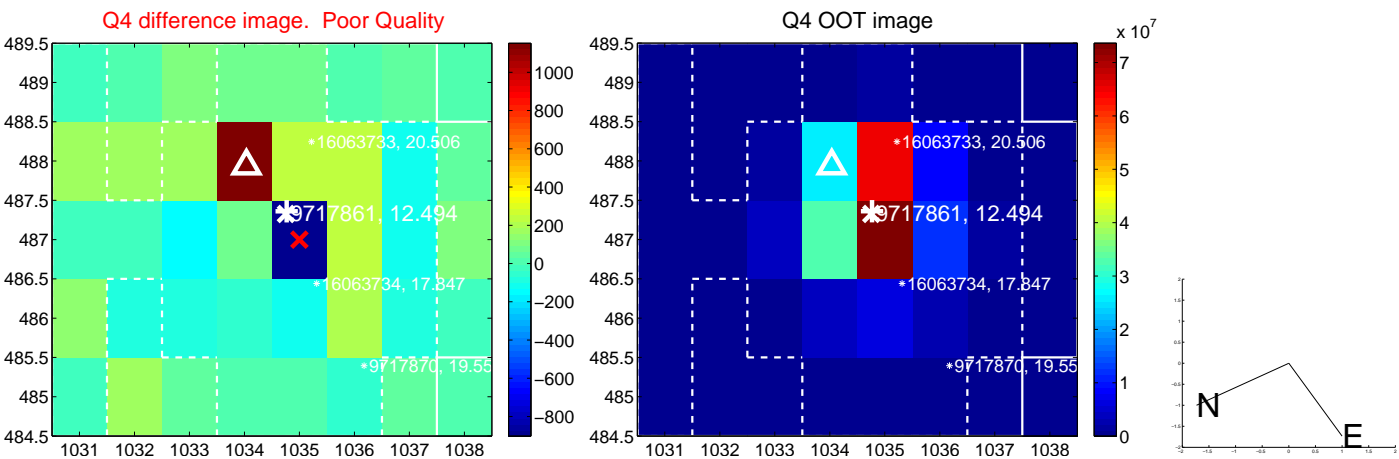
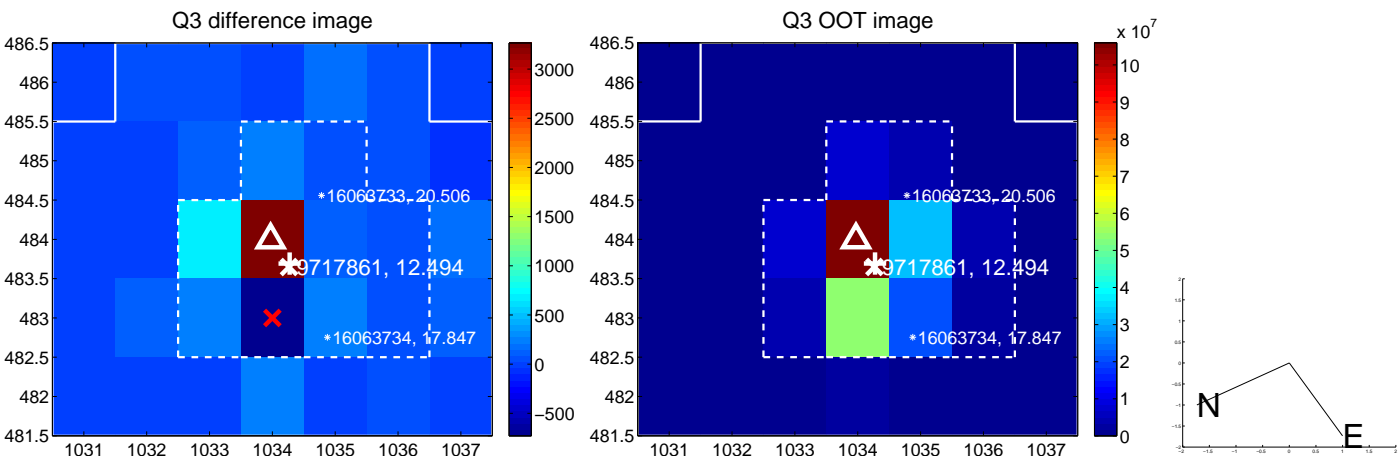
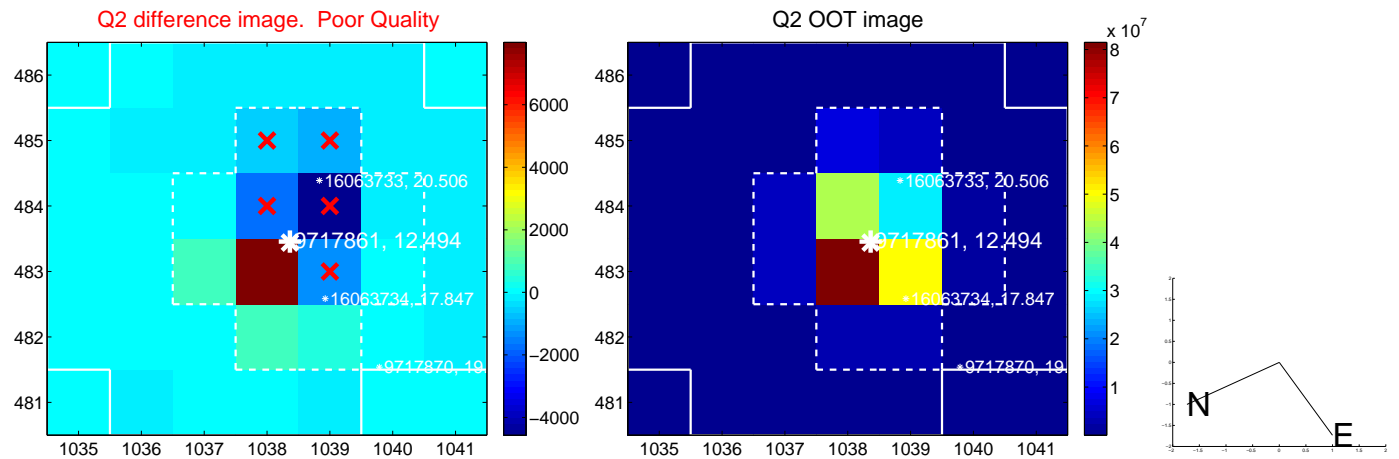
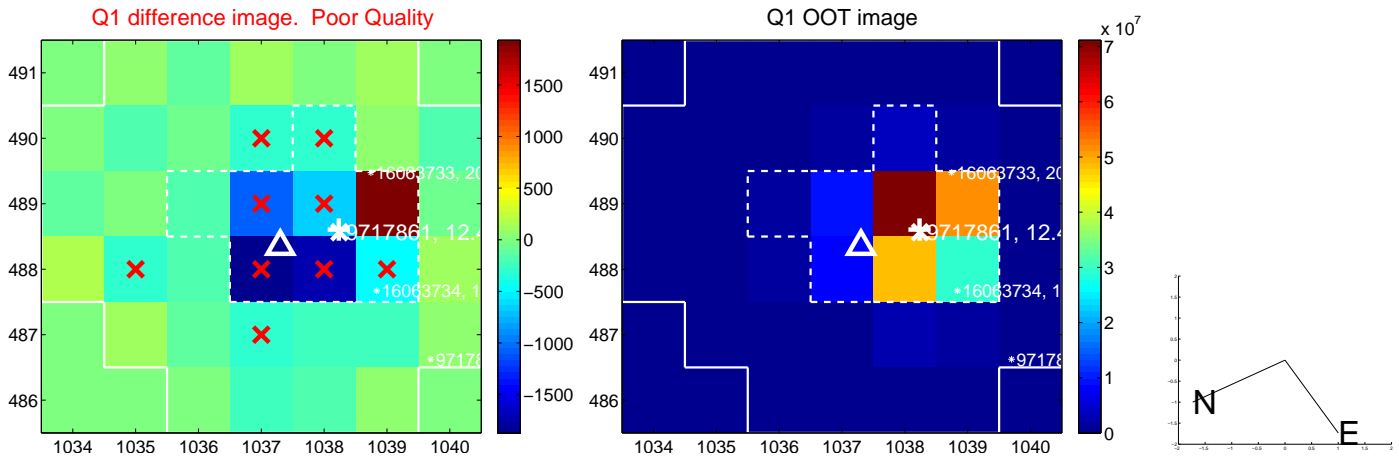
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.280 ± 0.338	0.83	0.090 ± 0.302	0.265 ± 0.342
PRF-fit source offset from KIC position	0.167 ± 0.353	0.47	-0.028 ± 0.341	0.164 ± 0.347
photometric centroid source offset	—	—	—	—

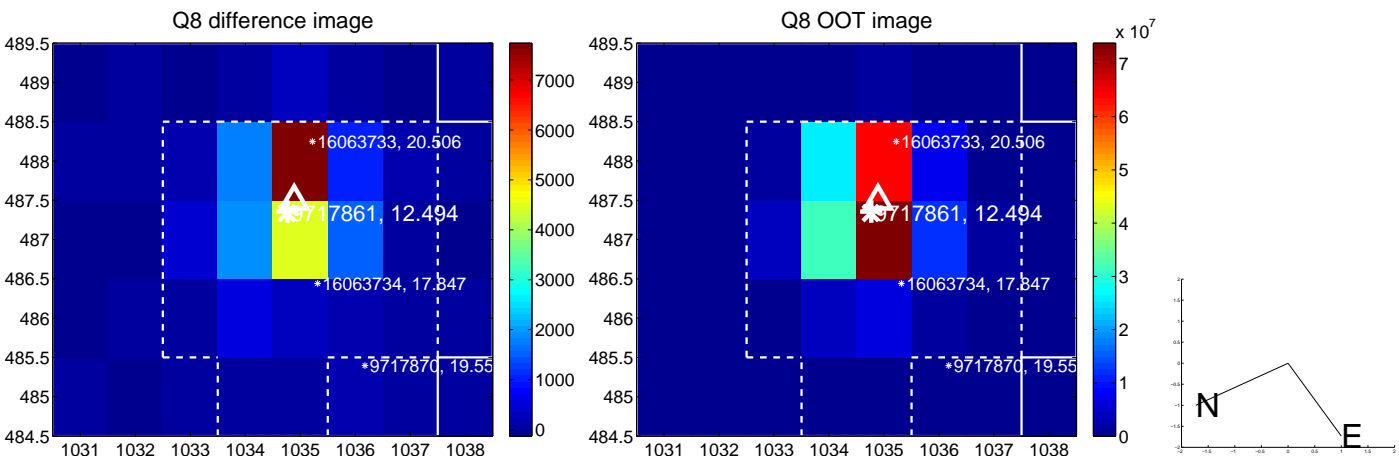
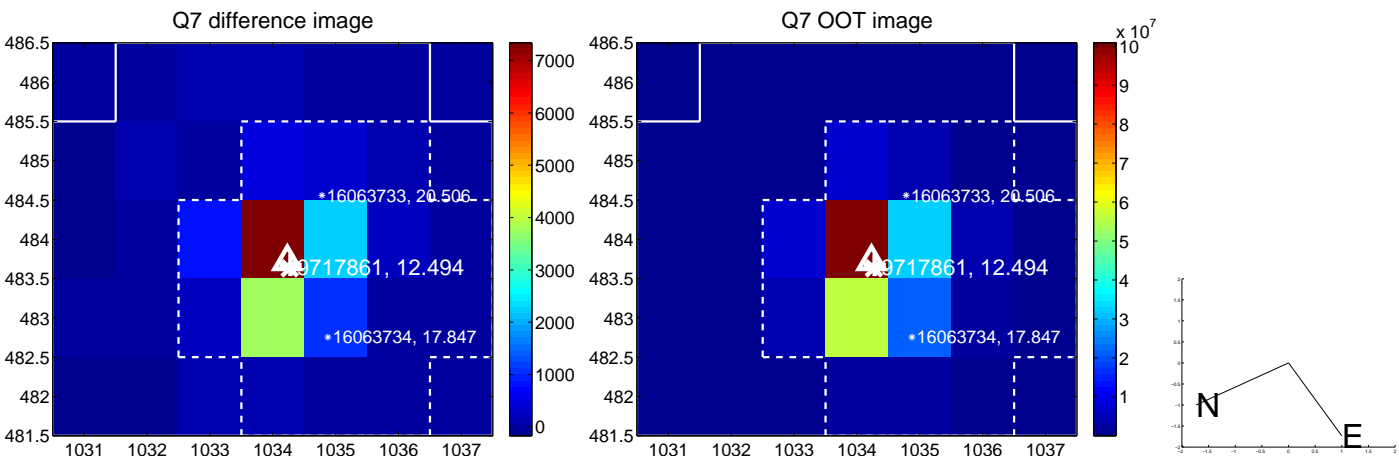
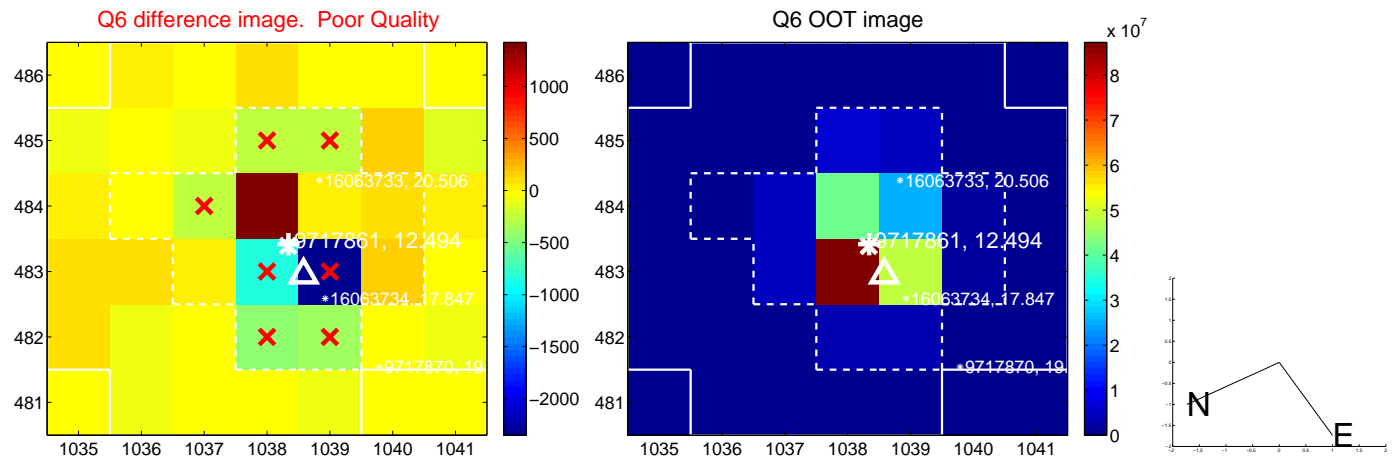
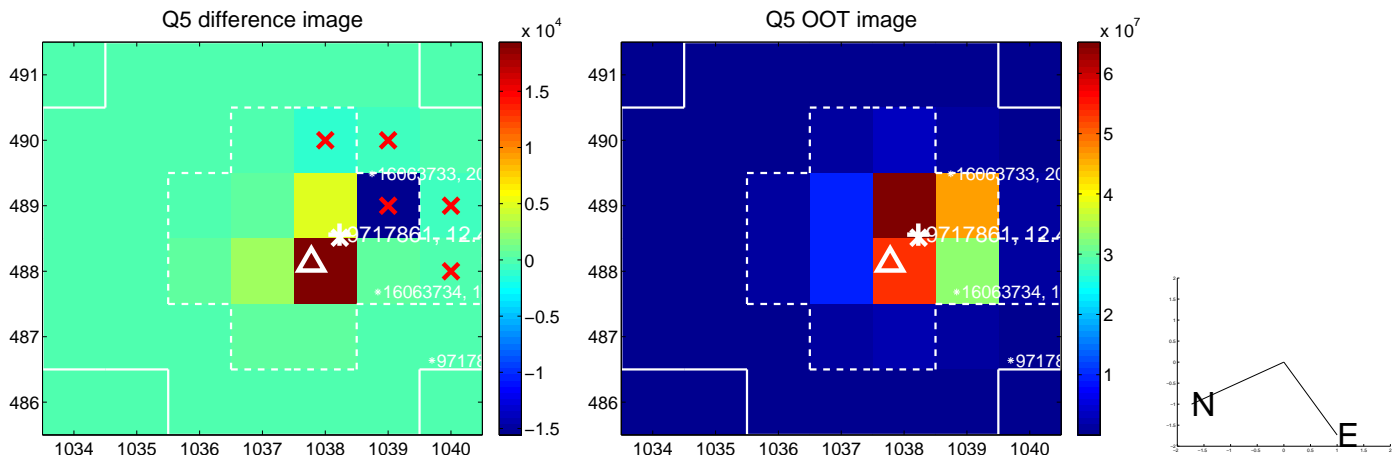


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

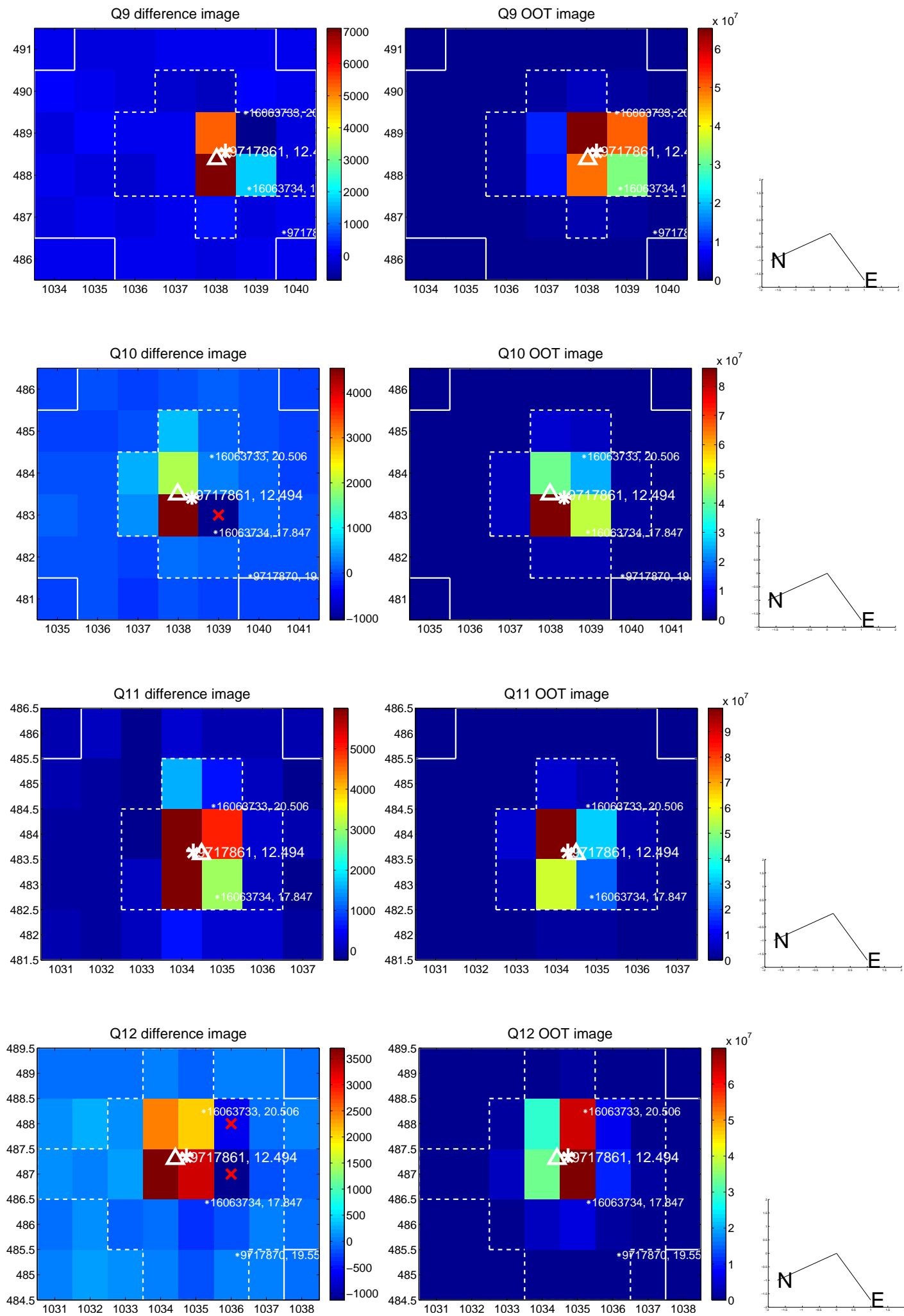
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



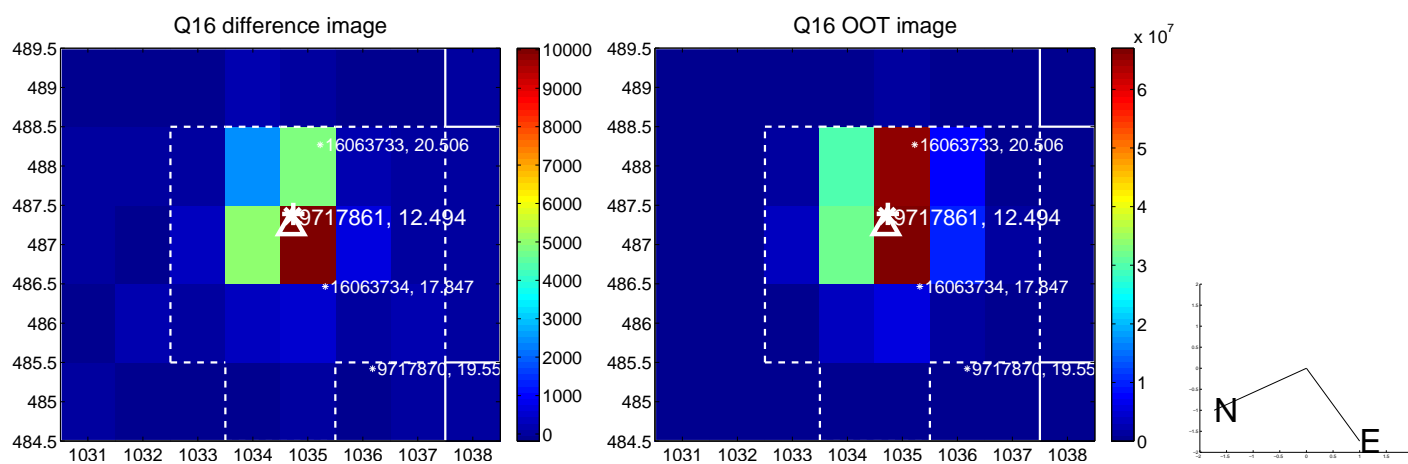
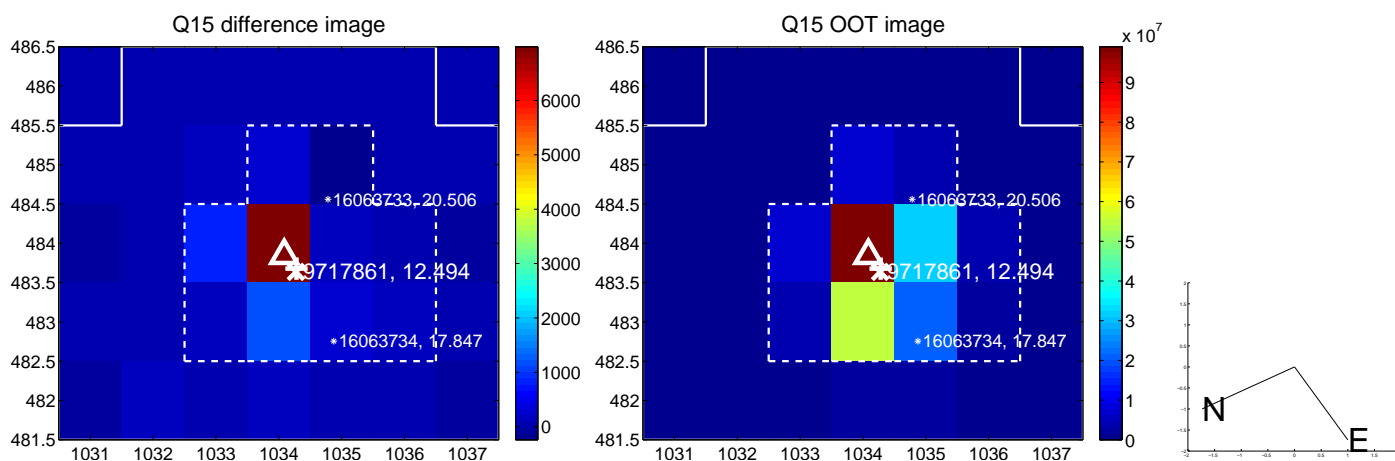
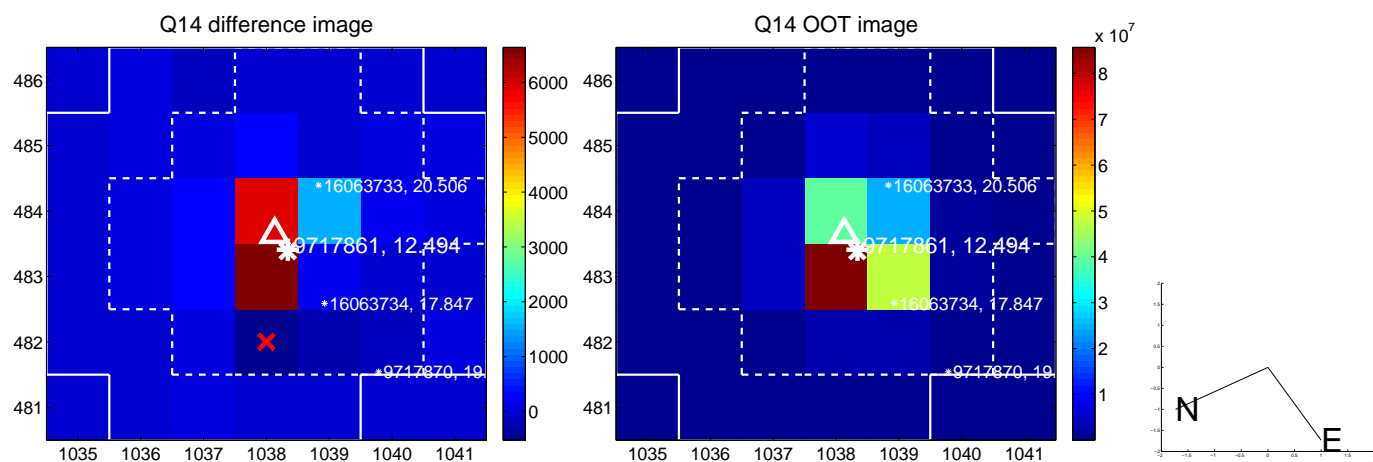
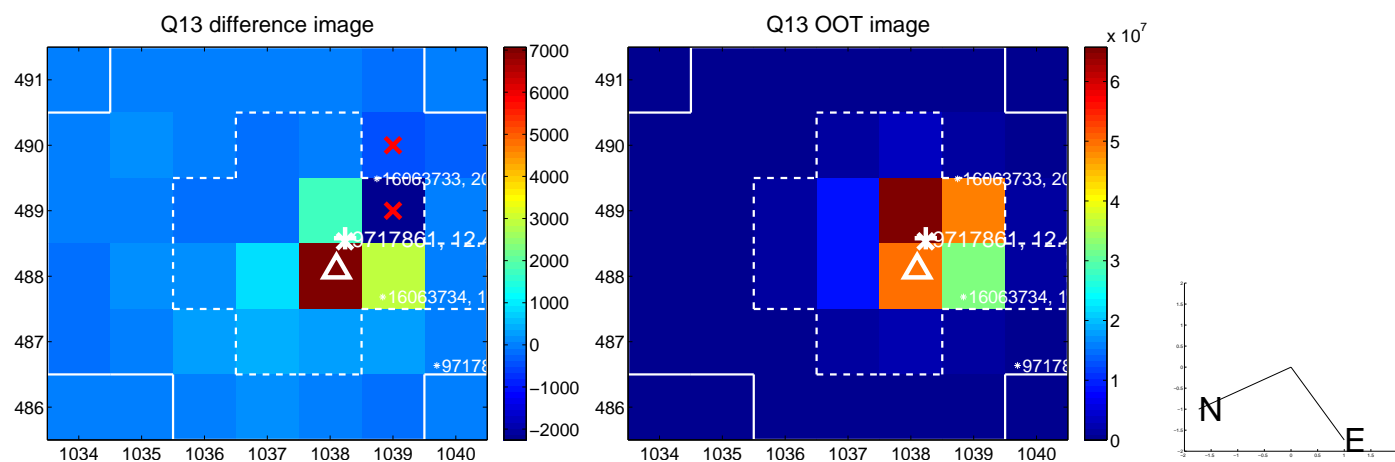
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



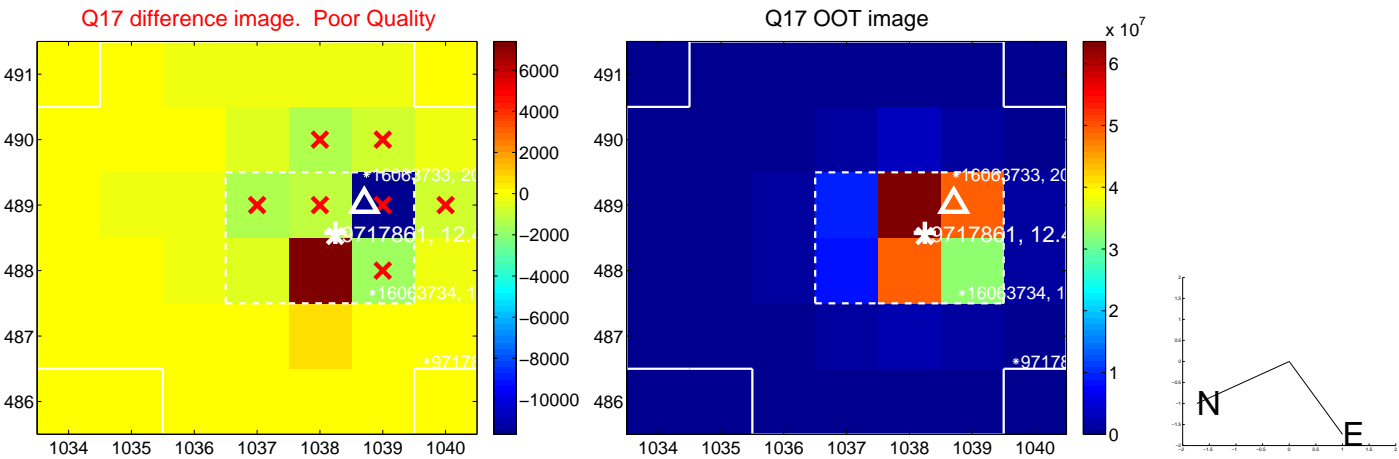
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



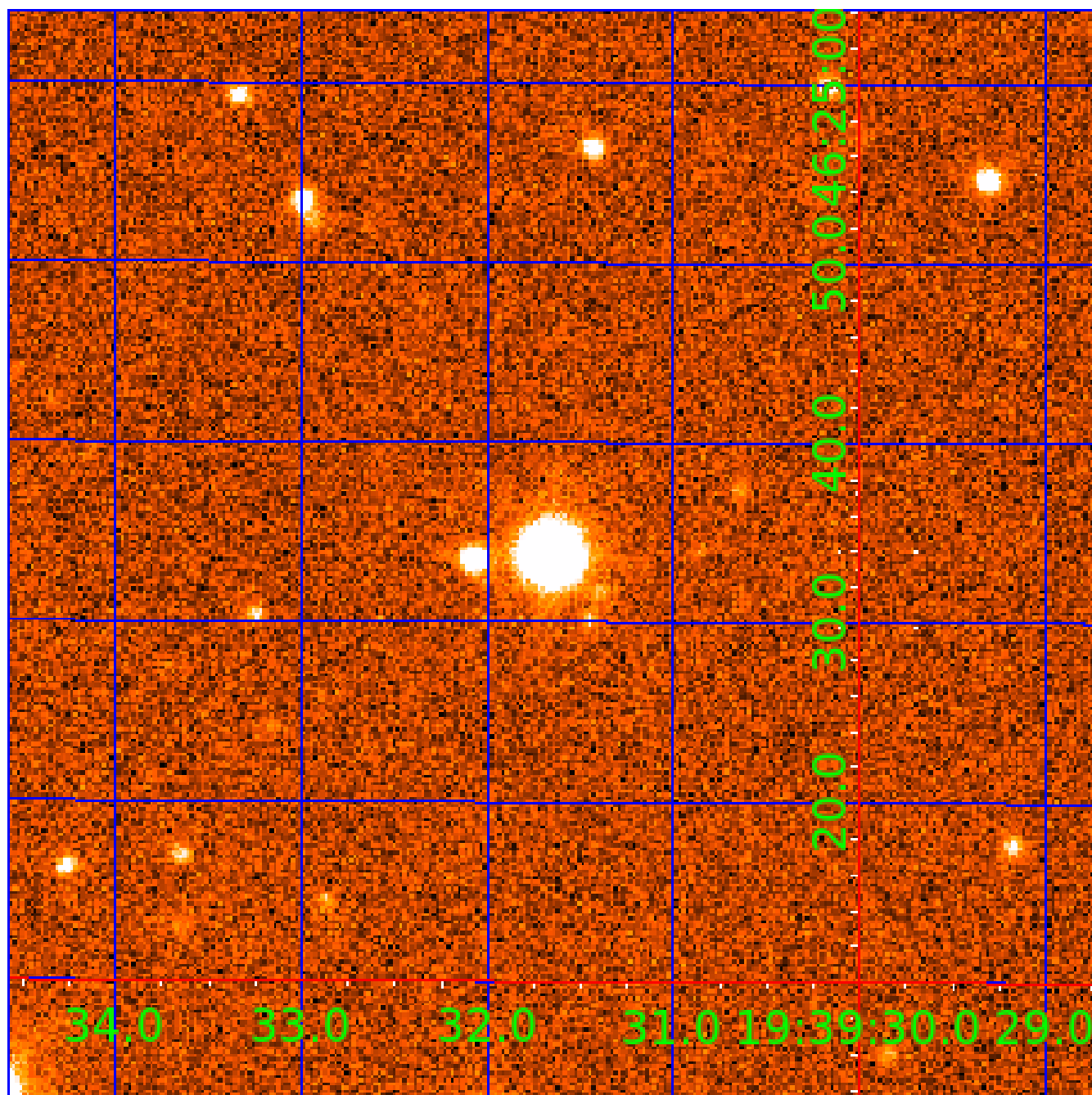
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009717861

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})
009717861-01	OBS	No	2.062956	131.822304	0.2	12.982	10.8	0.0	2.76	8843	0.11	26723.50
009717861-02	OBS	No	2.063040	133.127168	593.1	14.708	21.5	25.5	2.76	8843	12.43	26722.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009717861-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009717861-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

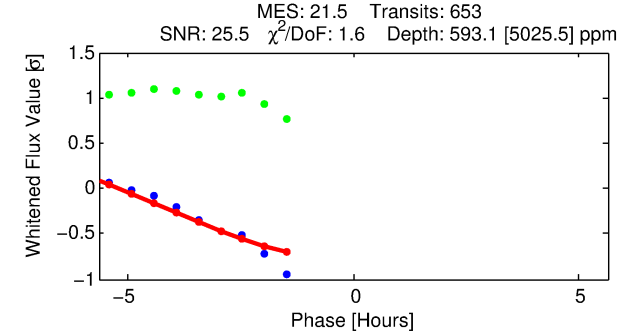
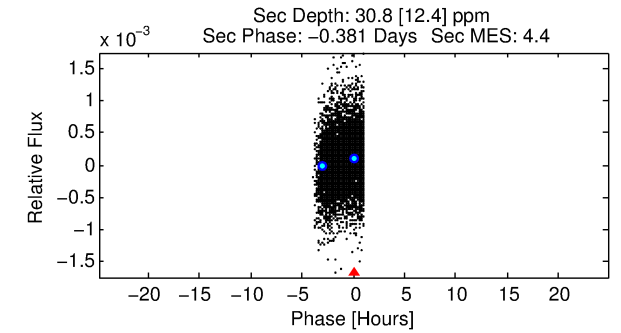
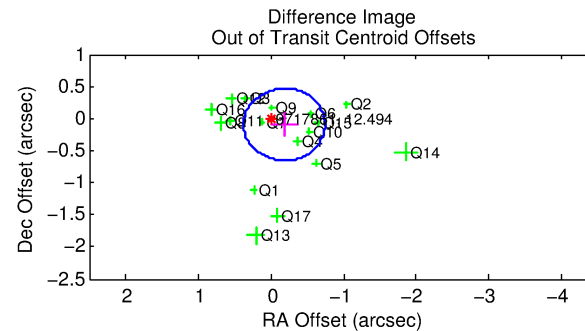
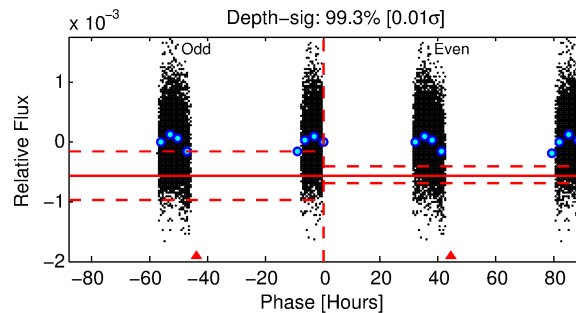
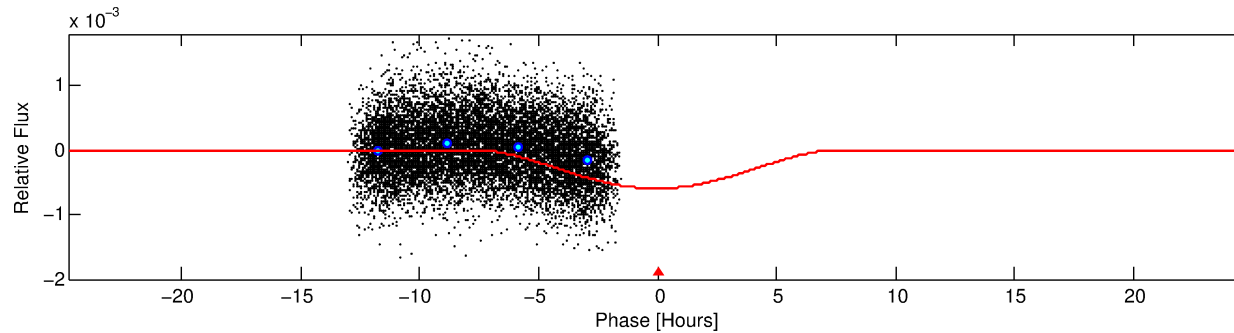
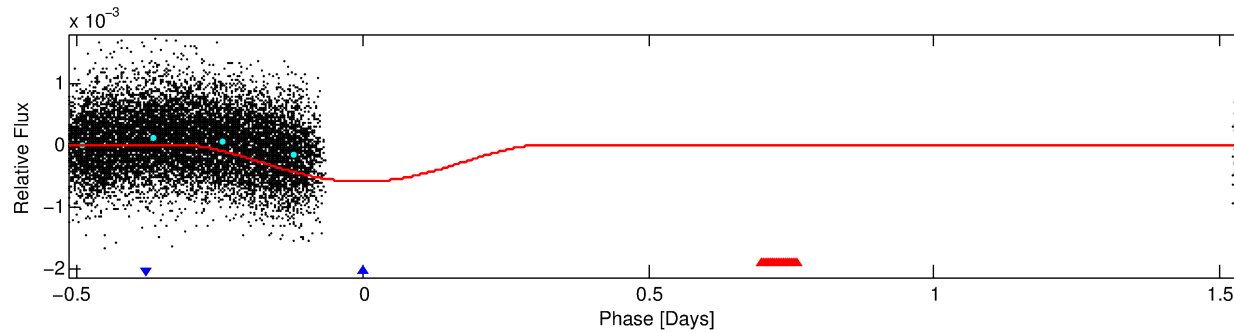
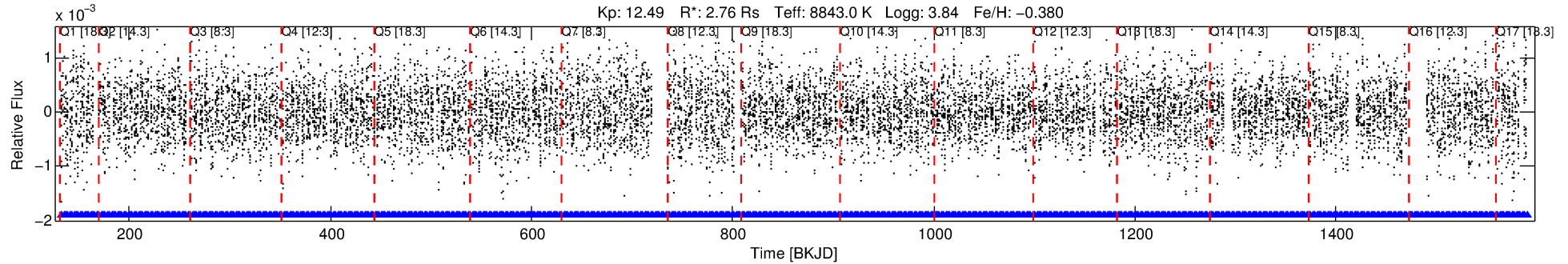
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009717861-02

No Significant Match Found

DV One-Page Summary

KIC: 9717861 Candidate: 2 of 2 Period: 2.063 d



DV Fit Results:

Period = 2.06304 [0.00002] d
Epoch = 133.1272 [0.0243] BKJD
Rp/R* = 0.0412 [0.0427]
a/R* = 1.06 [0.03]
b = 1.00 [0.31]
Seff = 26722.06 [11166.95]
Teq = 3260 [341] K
Rp = 12.43 [13.35] Re
a = 0.0396 [0.0105] AU
Ag = 0.17 [0.37] [-2.25σ]
Teffp = 3244 [1710] K [-0.01σ]

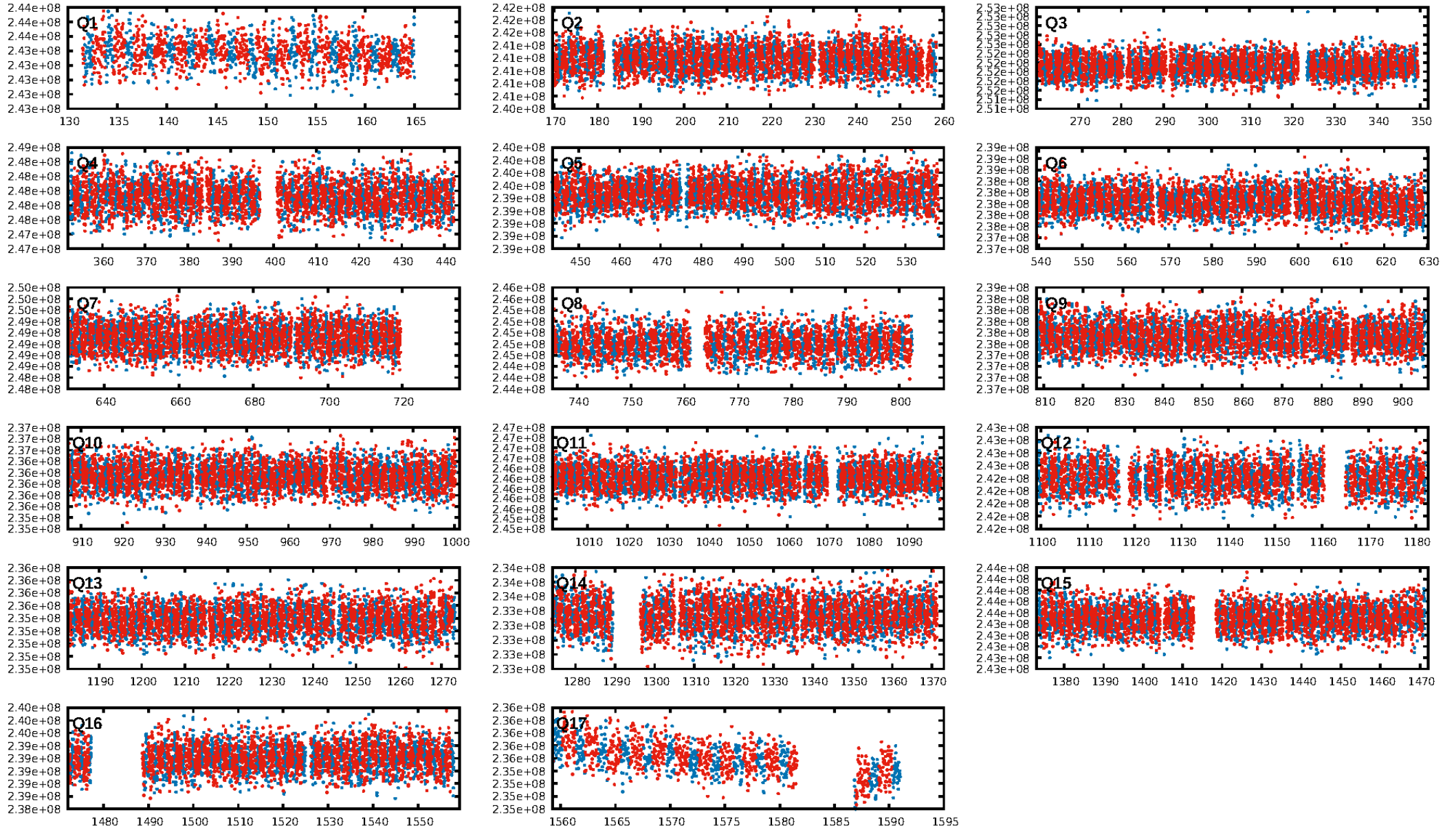
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [624/624]
GhostDiagnostic-chr: 0.4869
Centroid-sig: 0.5%
Centroid-so: 0.131 arcsec [5.95σ]
OotOffset-rm: 0.209 arcsec [1.12σ]
KicOffset-rm: 0.354 arcsec [2.05σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

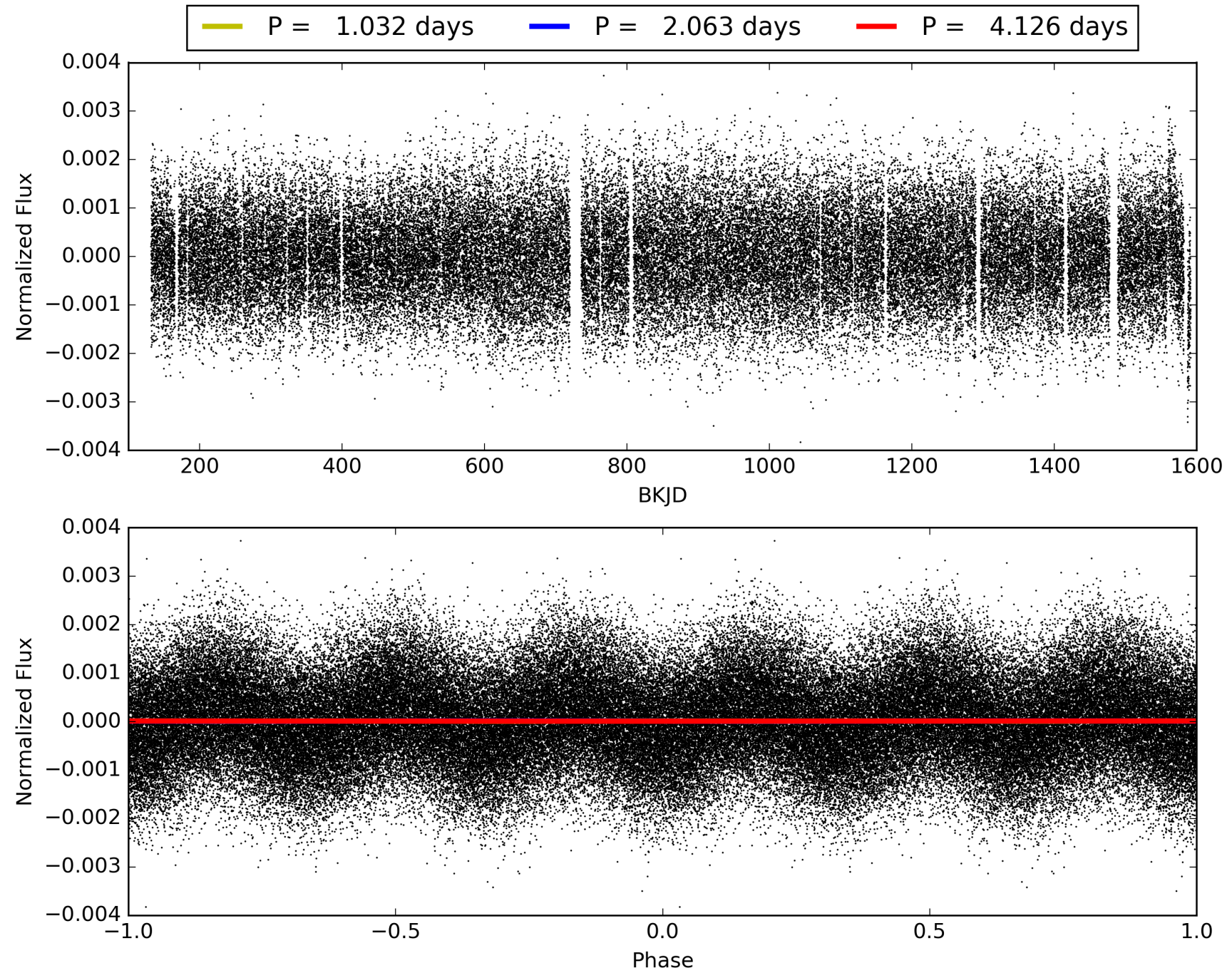
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:18:59 Z

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

TCE 009717861-02, PDC Light Curves

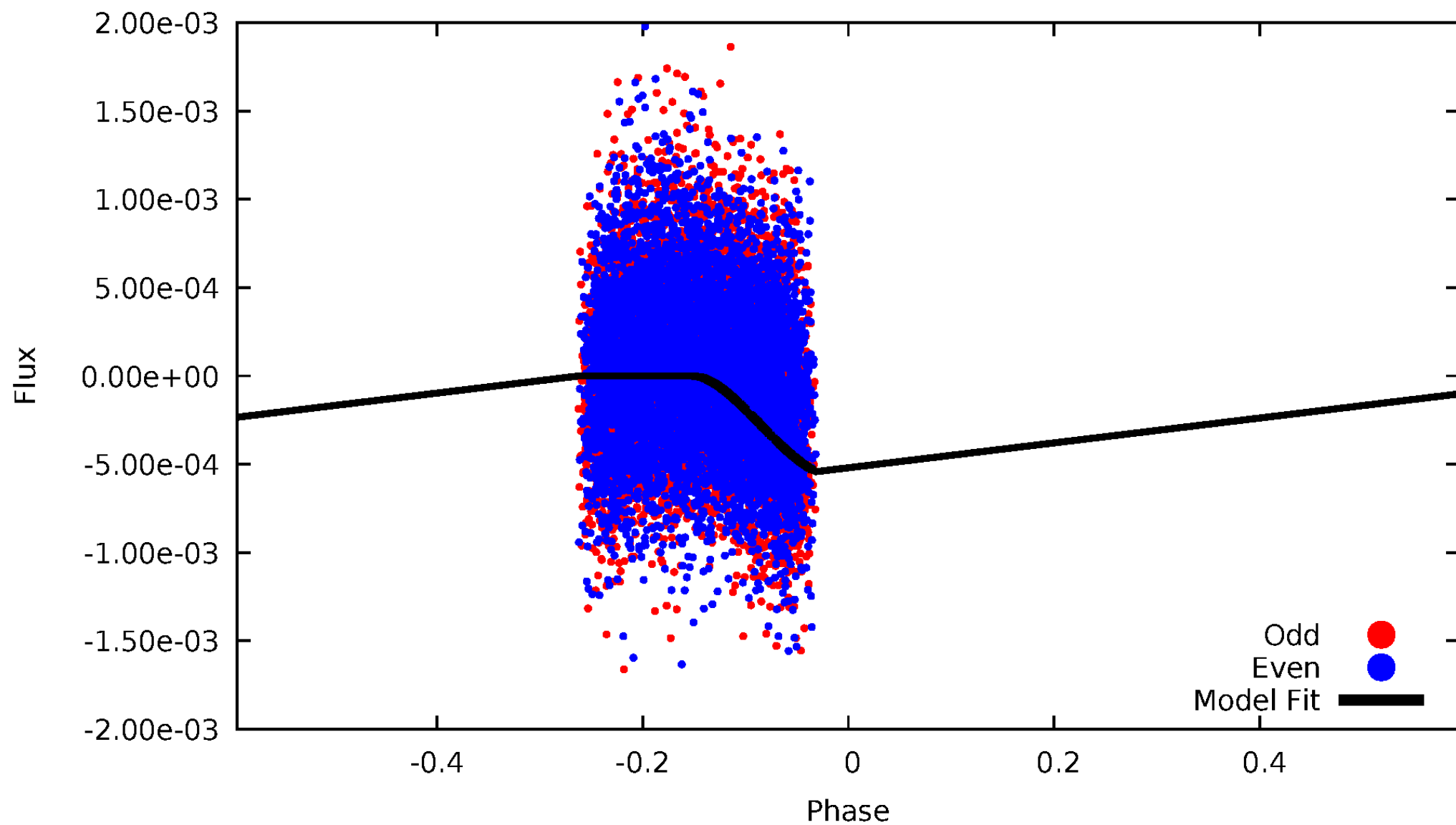


TCE 009717861-02



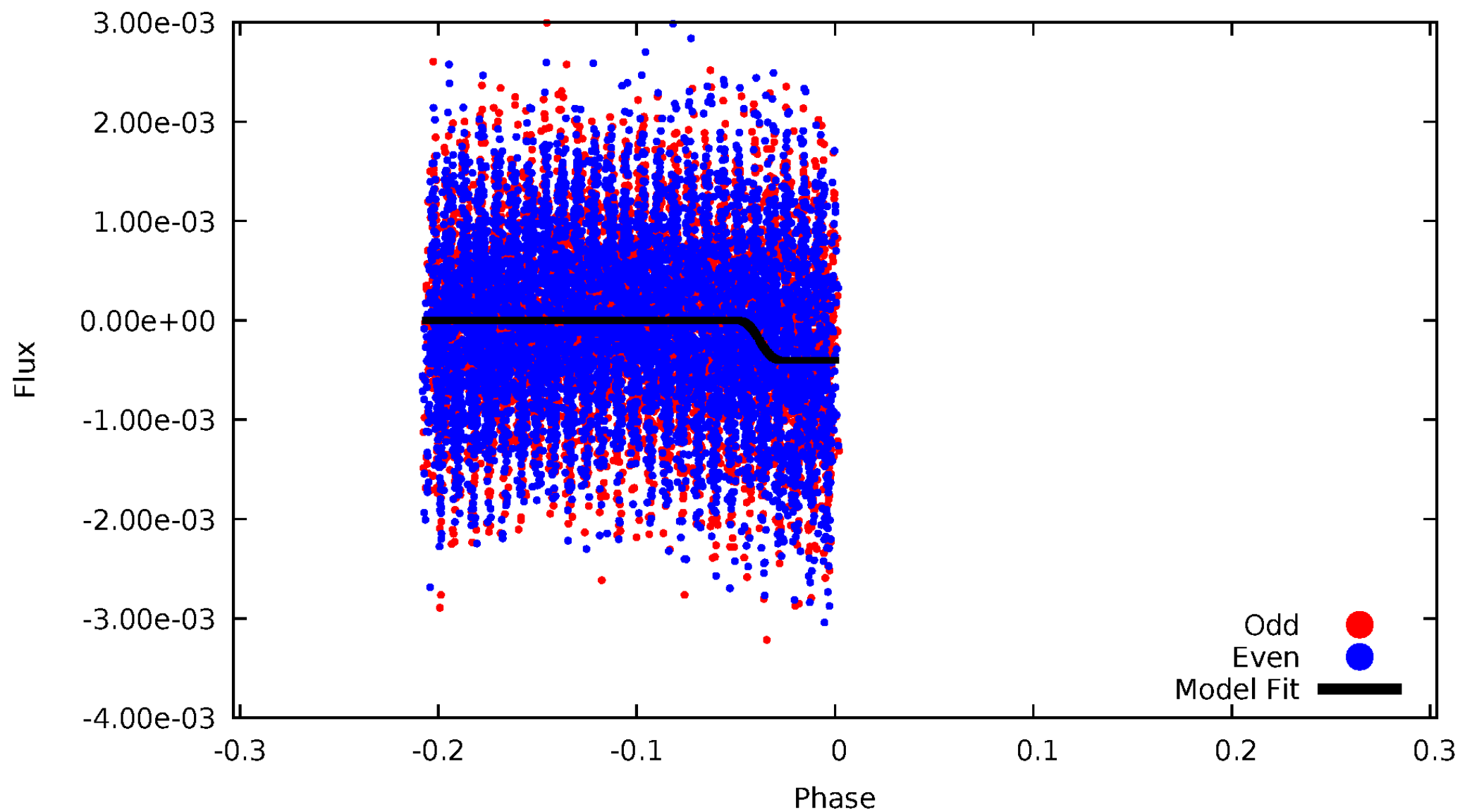
DV Odd/Even

TCE 009717861-02



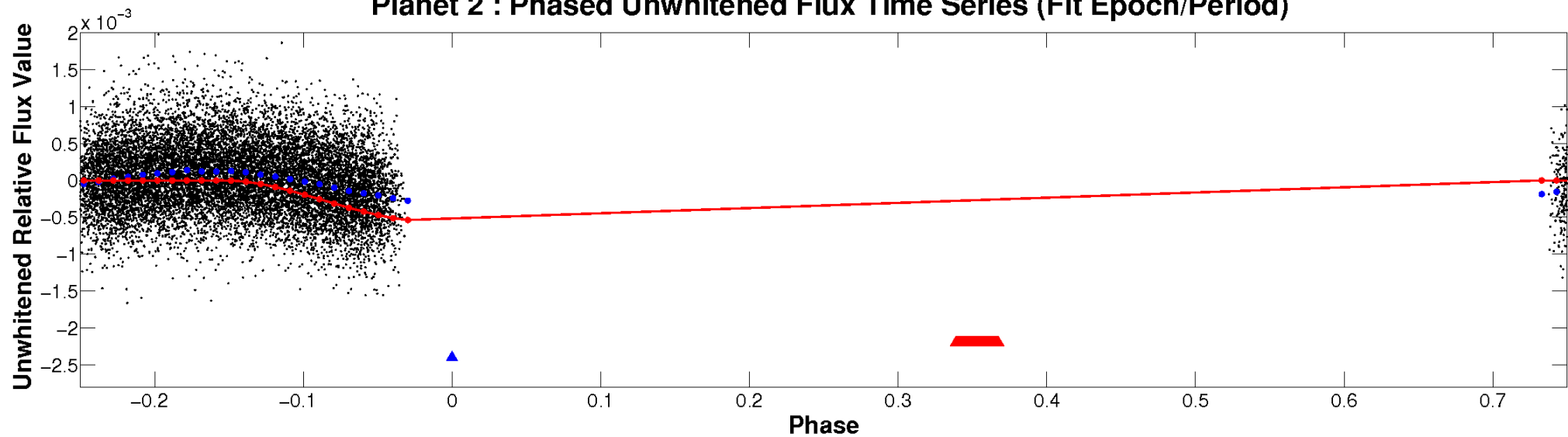
ALT Odd/Even

TCE 009717861-02

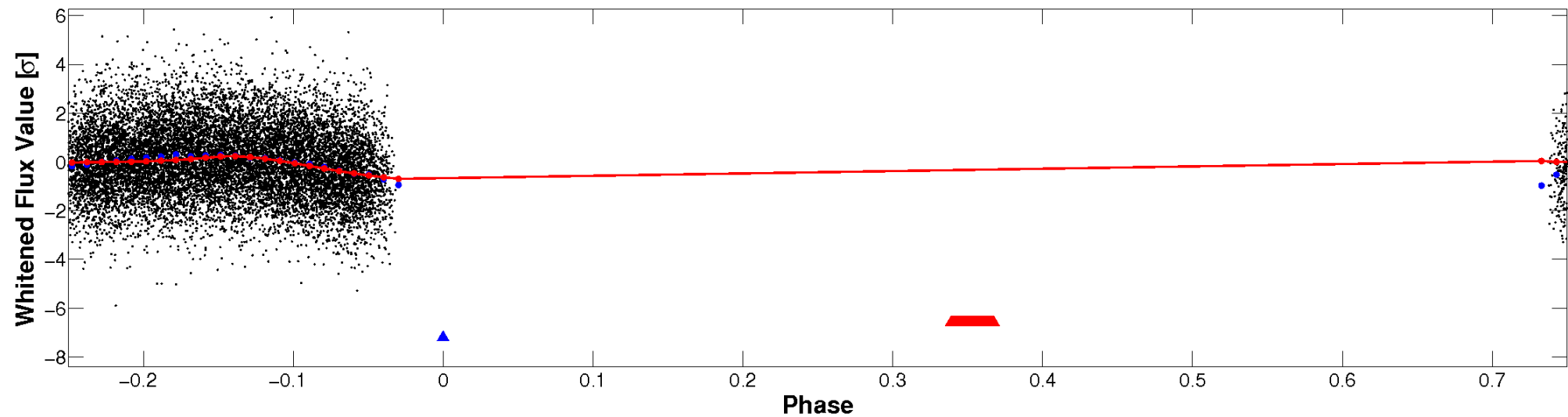


Non-Whitened Vs. Whitened Light Curve

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

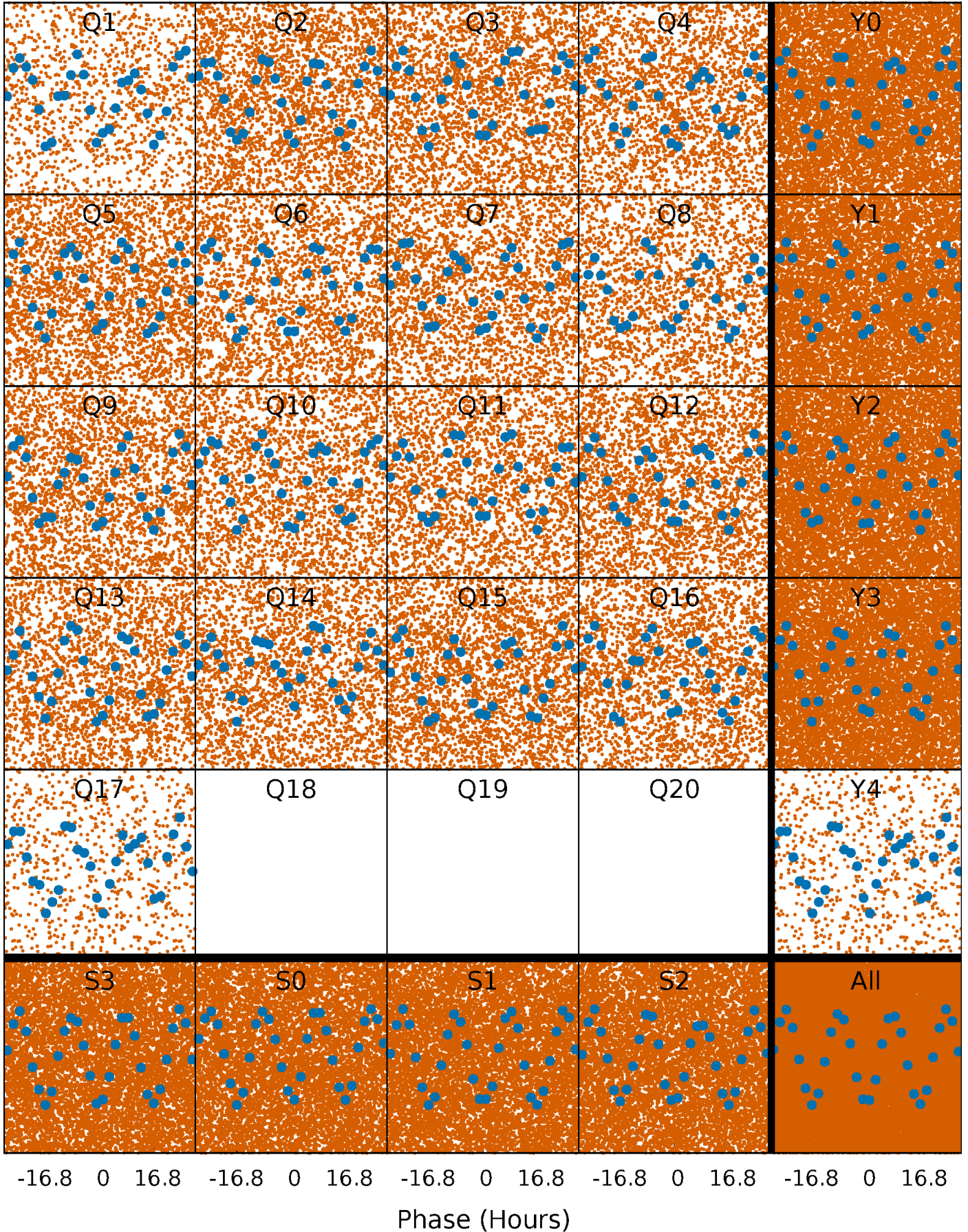


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



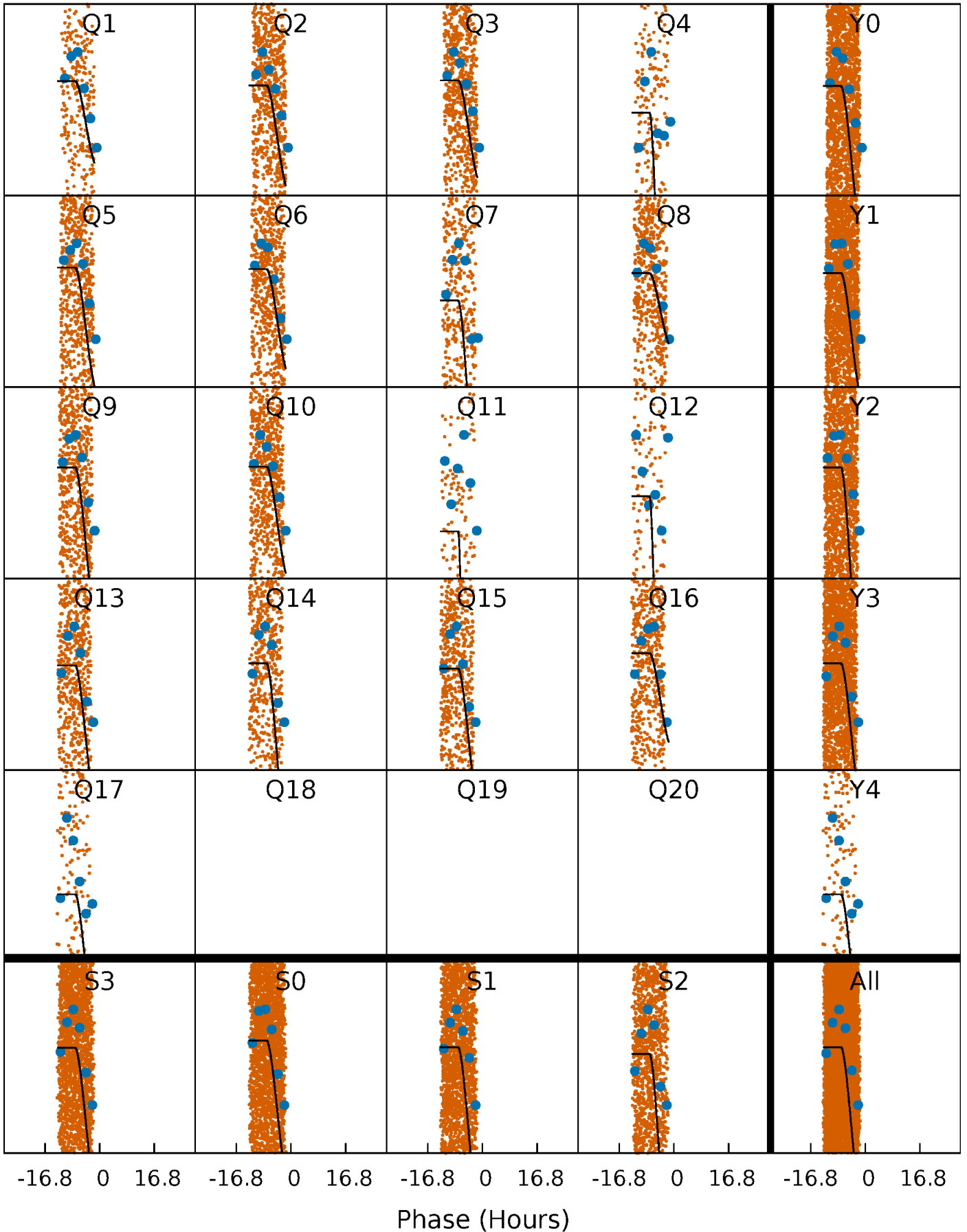
PDC Quarter-Phased Transit Curves

TCE 009717861-02 P= 2.063040 Days $T_0=133.127168$ (BKJD)



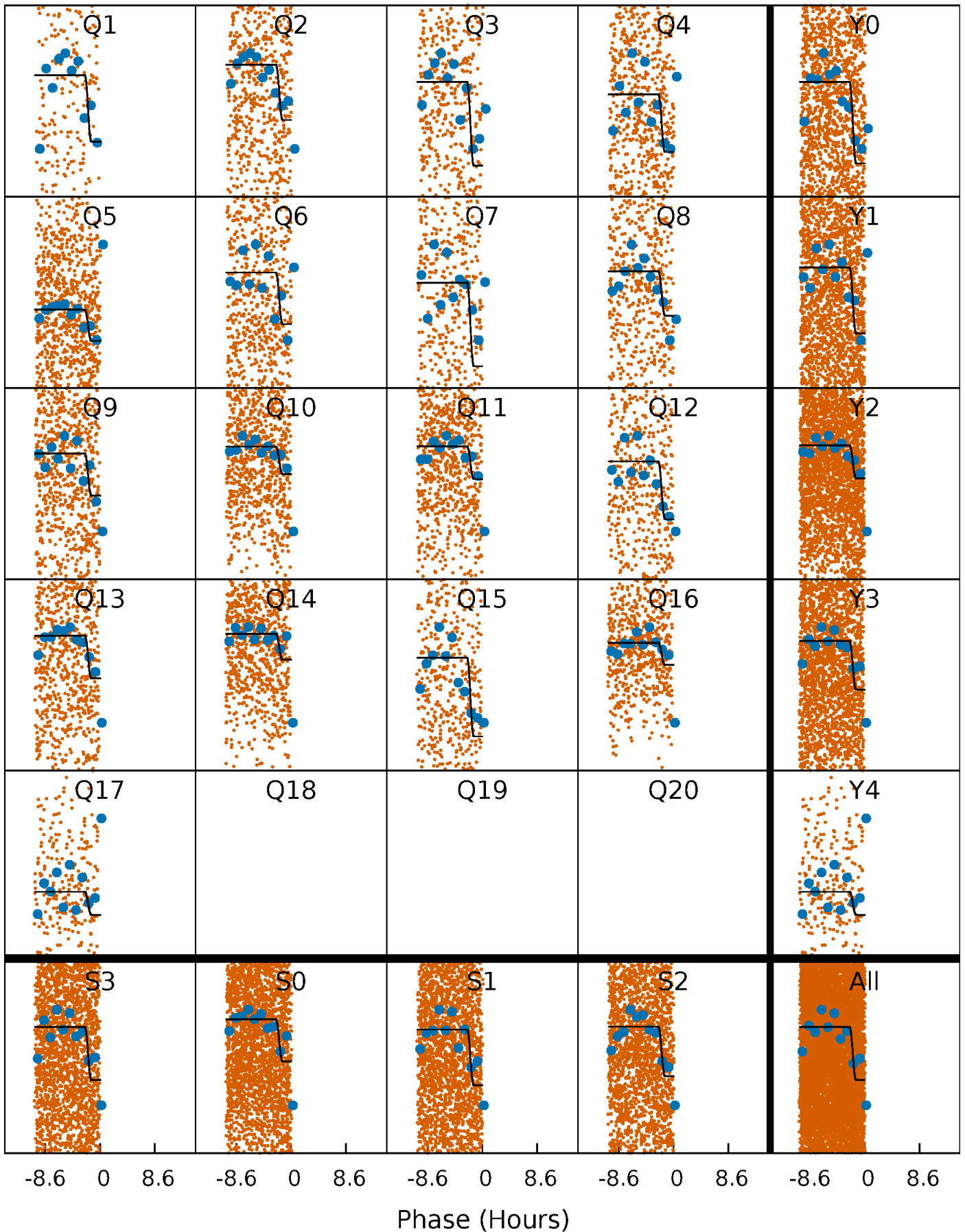
DV Quarter-Phased Transit Curves

TCE 009717861-02 $P = 2.063040$ Days $T_0 = 133.127168$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

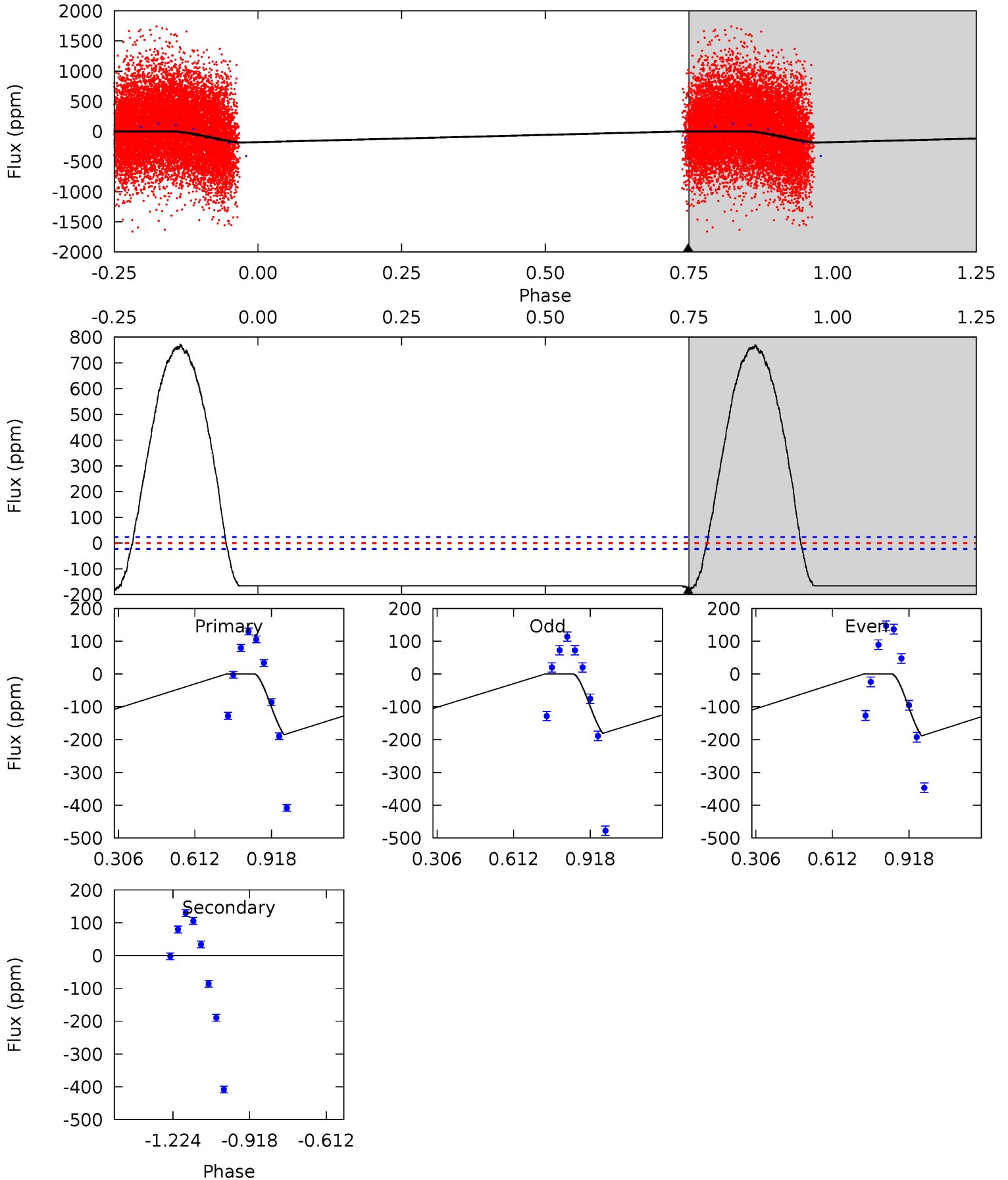
TCE 009717861-02 $P = 2.062977$ Days $T_0 = 133.058821$ (BKJD)



DV Model-Shift Uniqueness Test

009717861-02, P = 2.063040 Days, E = 131.064128 Days

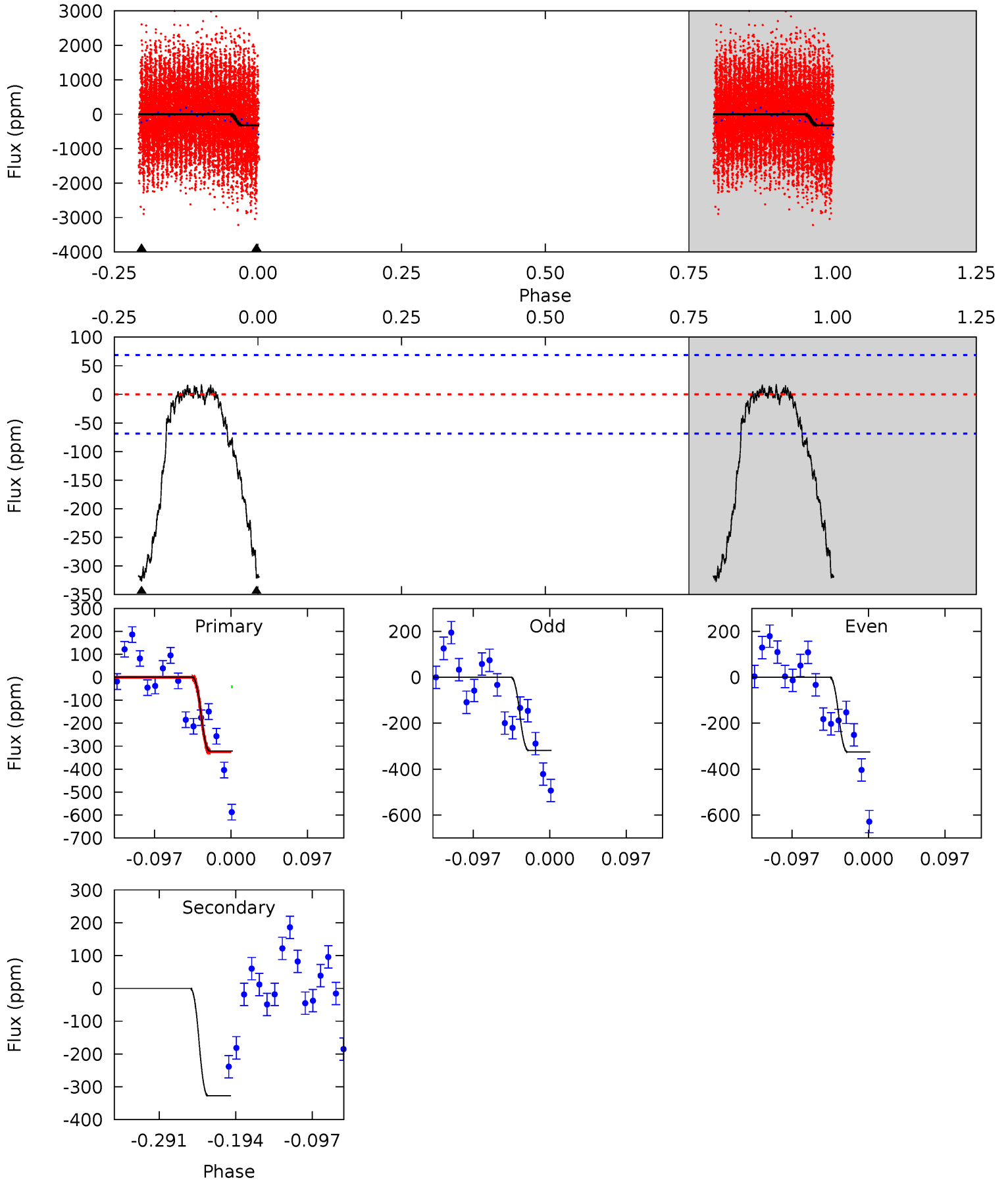
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.2	0	0	0	4.32	1.02	17.2	34.2	34.2	0	0	0.74	0	0.81	0



Alt Model-Shift Uniqueness Test

009717861-02, P = 2.062977 Days, E = 130.995844 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	21.8	0	0	4.57	1.66	0.49	21.4	21.4	21.8	21.8	0.23	1.00	0.05	1.33



Stellar Parameters For KIC 009717861

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8843^{+70}_{-97}	$3.843^{+0.240}_{-0.080}$	$-0.380^{+0.200}_{-0.200}$	$2.763^{+0.341}_{-0.797}$	$1.941^{+0.140}_{-0.210}$	$0.130^{+0.189}_{-0.034}$
	+1%/-1%	+6%/-2%	+53%/-53%	+12%/-29%	+7%/-11%	+146%/-26%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 009717861-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 5	$14.57^{+11.01}_{-8.91}$	4519^{+172}_{-334}	-3889^{+288}_{-139}	$-0.001^{+0.032}_{-0.029}$
Alt.	-327 ± 15	$11.53^{+9.99}_{-7.56}$	4521^{+164}_{-331}	5492^{+5175}_{-1608}	$2.156^{+15.909}_{-1.534}$

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

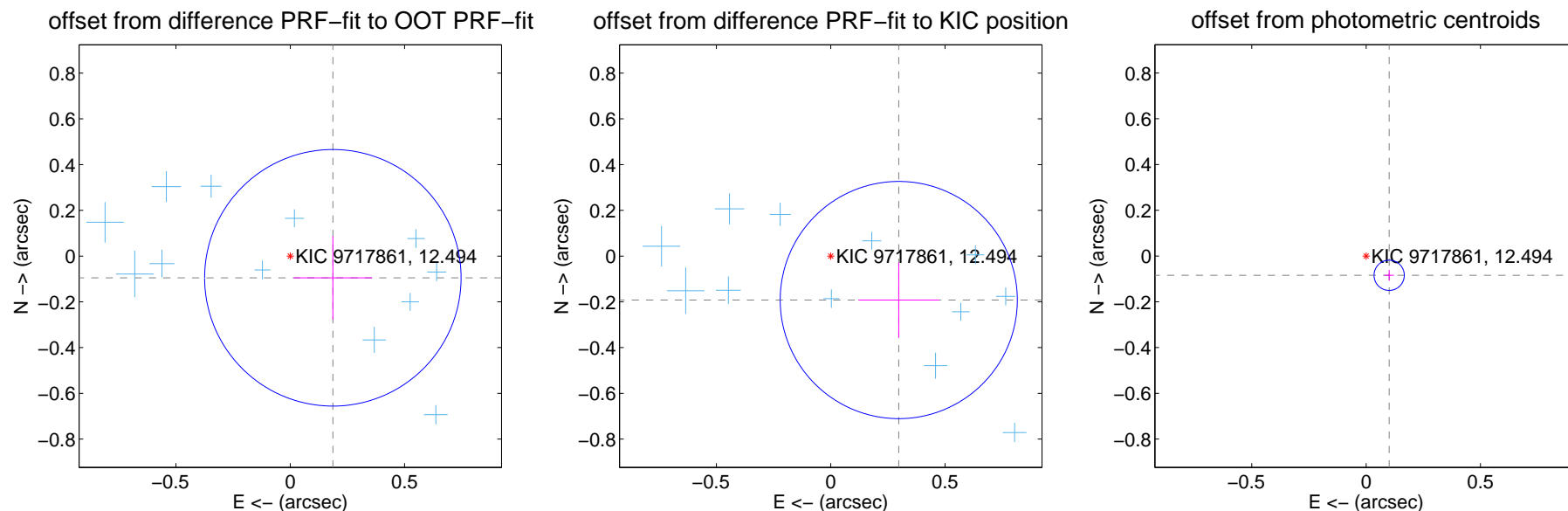
DV Centroid Data

Supplemental centroid analysis for 009717861-02. Kepler magnitude: 12.49. Transit SNR 25.50

There are 17 quarters with good PRF difference image offsets

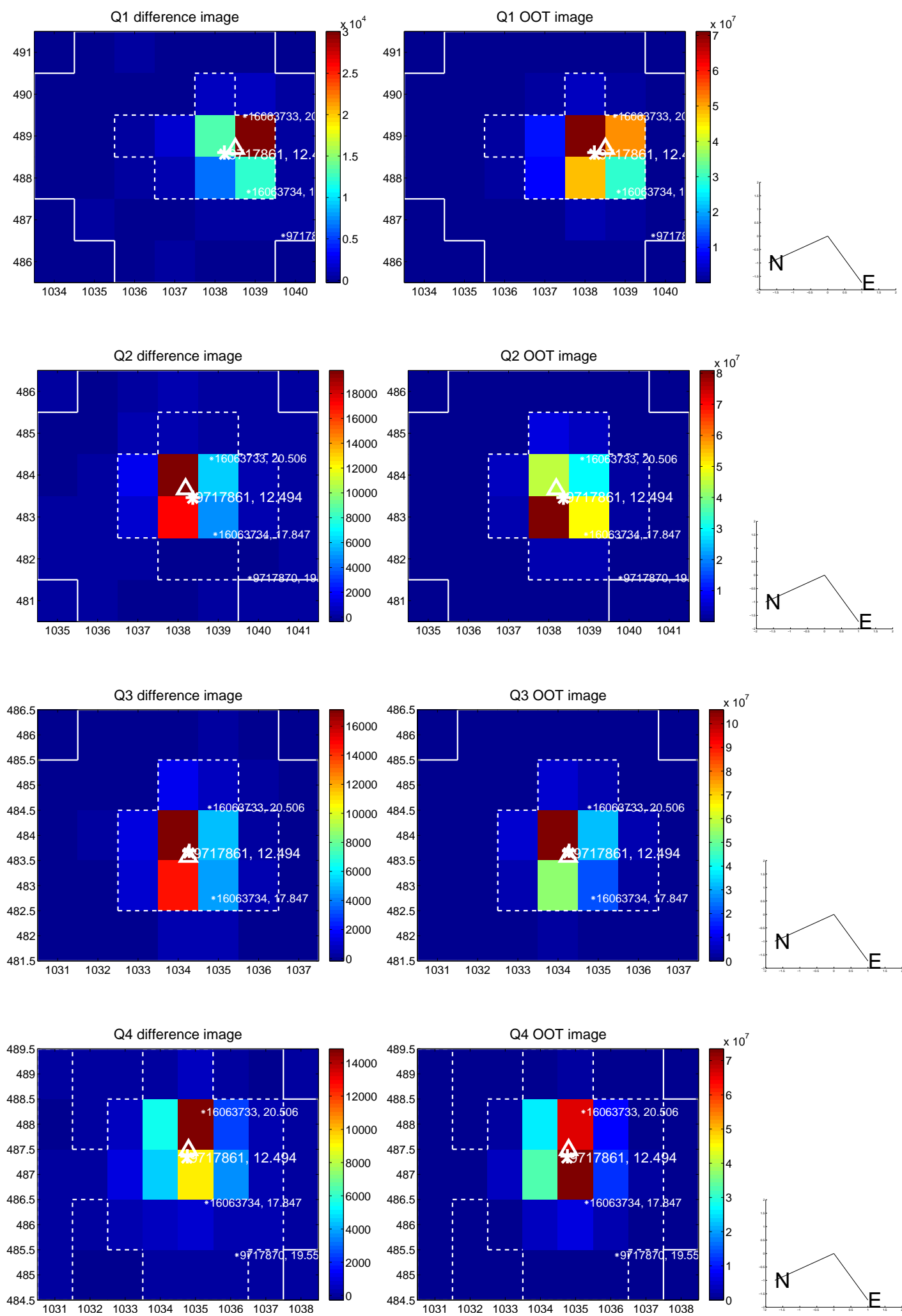
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.209 ± 0.187	1.12	-0.186 ± 0.172	-0.095 ± 0.182
PRF-fit source offset from KIC position	0.354 ± 0.173	2.05	-0.298 ± 0.177	-0.192 ± 0.165
photometric centroid source offset	0.13 ± 0.02	5.95	-0.10 ± 0.02	-0.08 ± 0.02

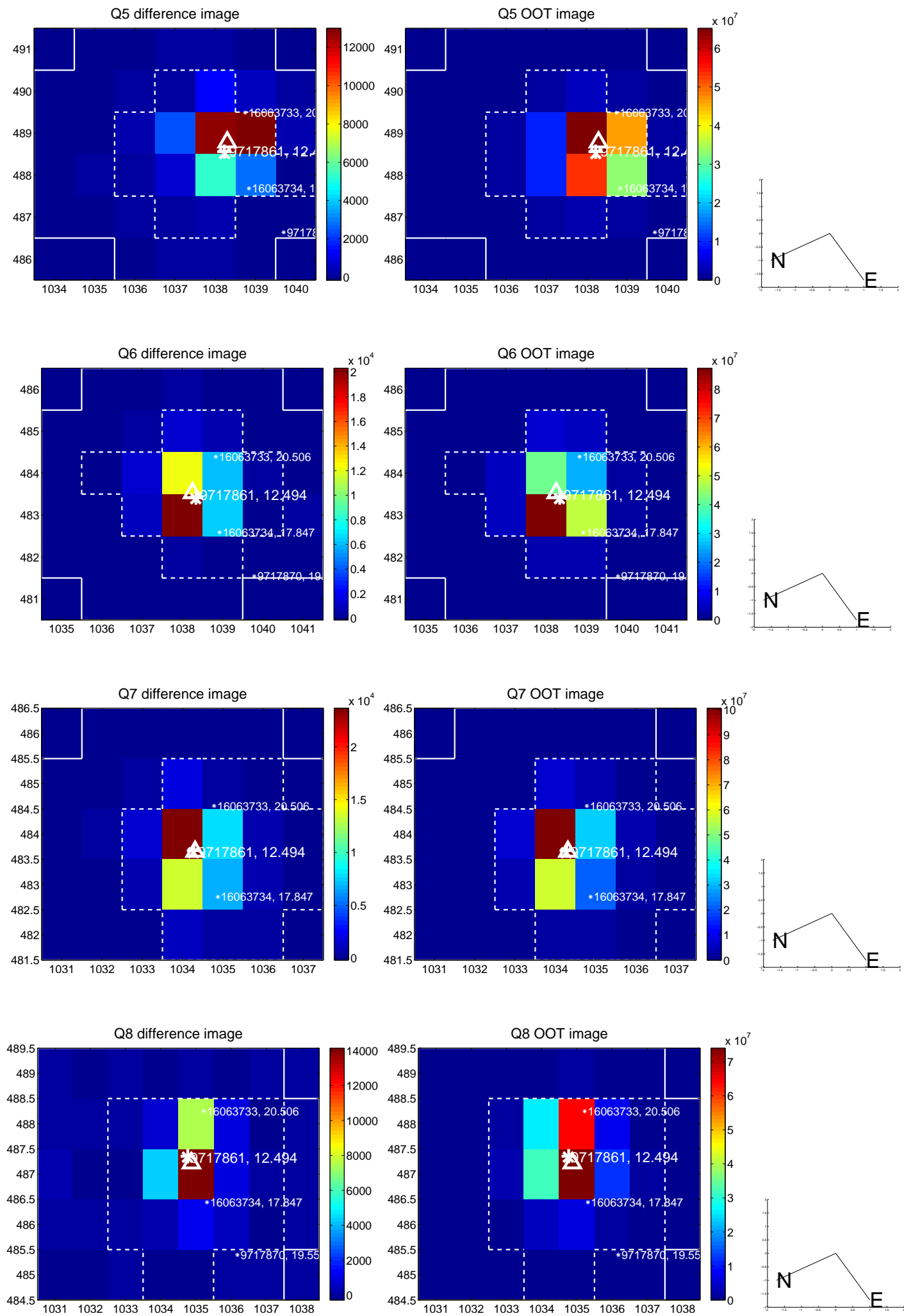


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

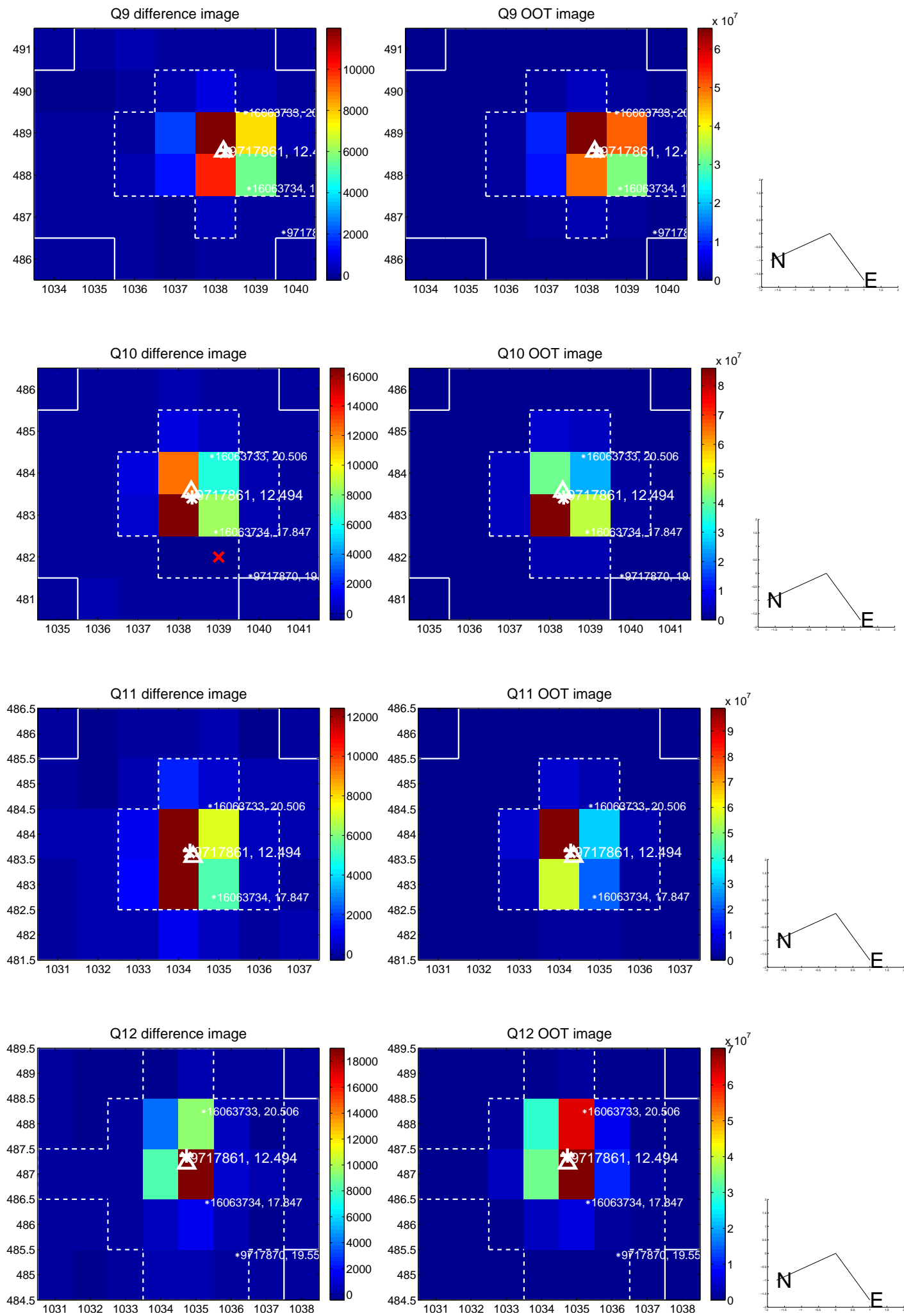
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



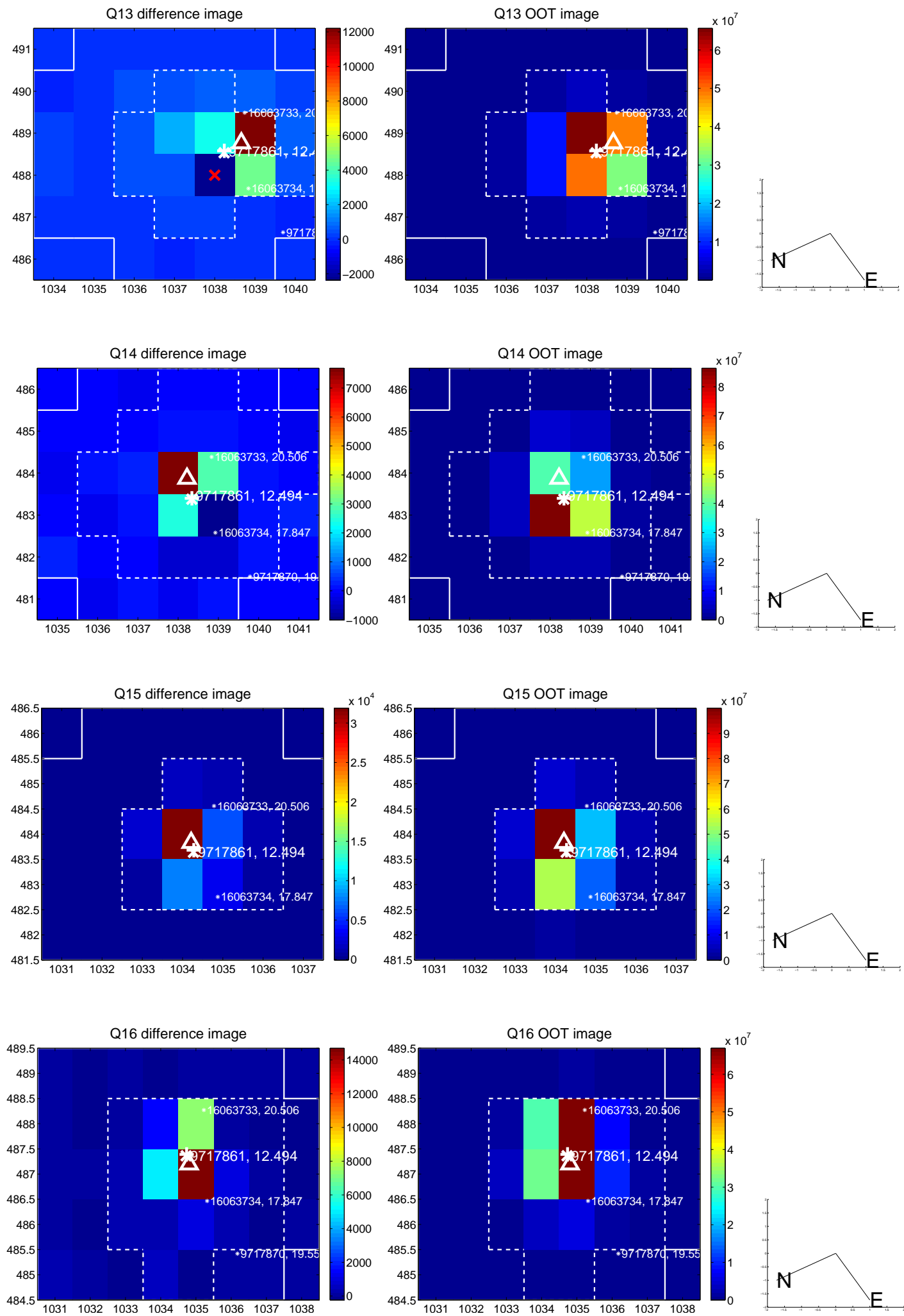
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



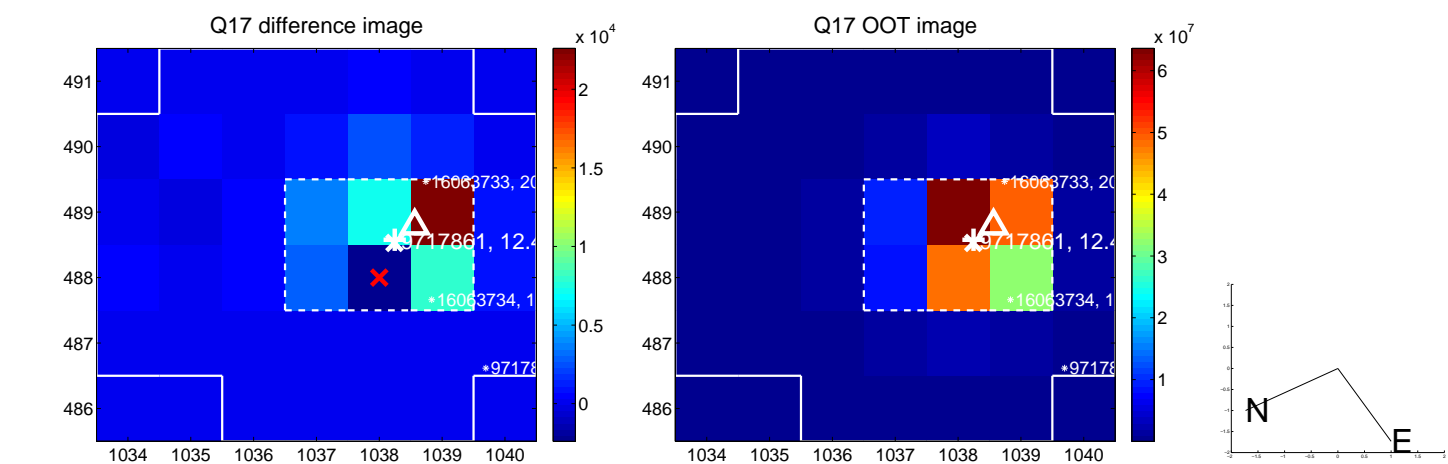
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



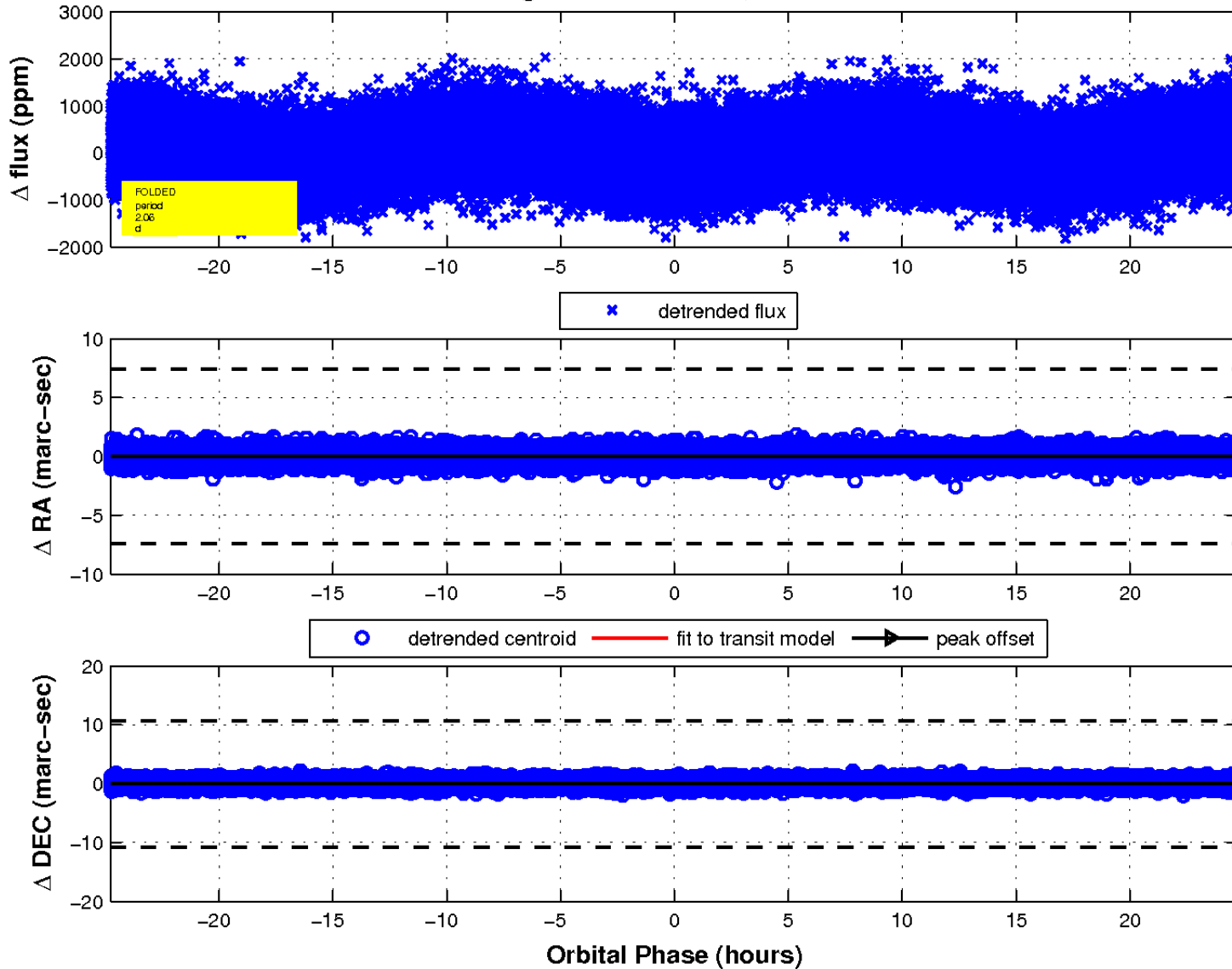
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

