

KIC 010859386

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})
010859386-01	OBS	No	0.837247	131.746315	37.2	3.704	10.9	11.2	1.77	7209	1.25	21276.09
010859386-02	OBS	No	0.837239	132.171710	56.2	3.405	15.4	16.3	1.77	7209	1.54	21276.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010859386-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010859386-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

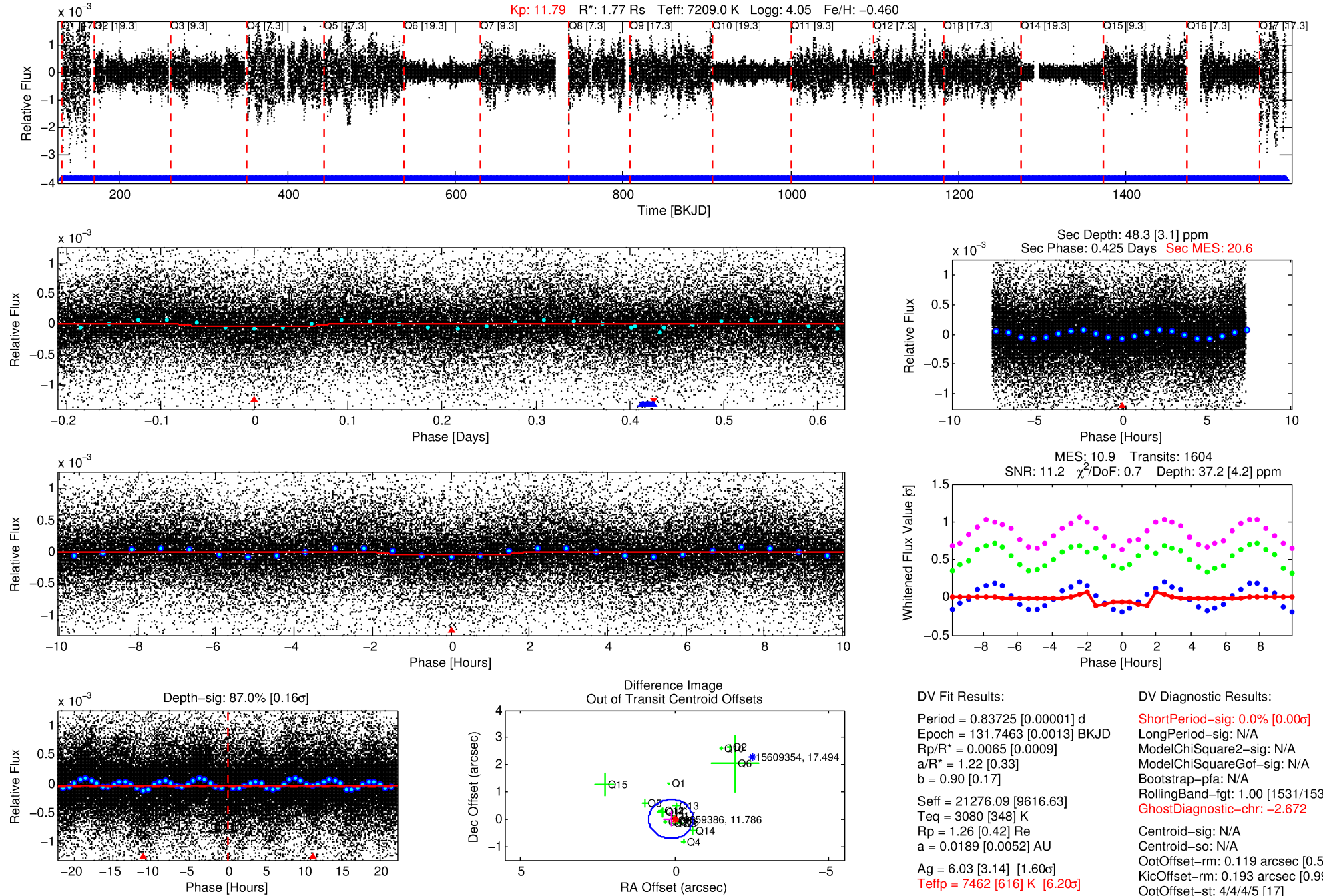
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010859386-01

No Significant Match Found

DV One-Page Summary

KIC: 10859386 Candidate: 1 of 2 Period: 0.837 d



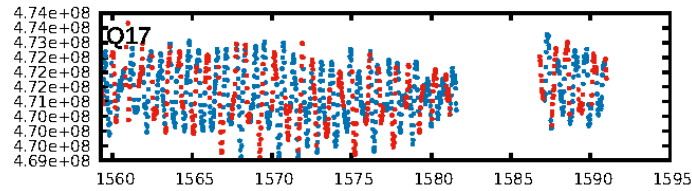
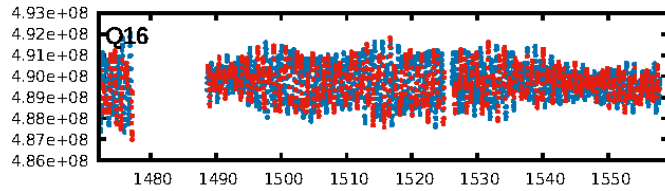
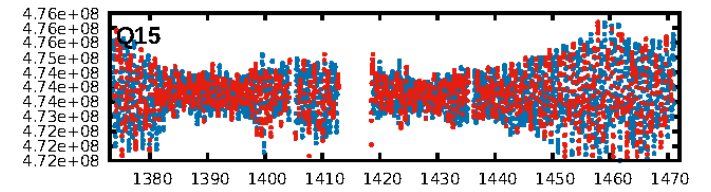
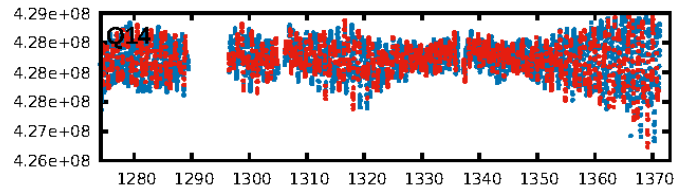
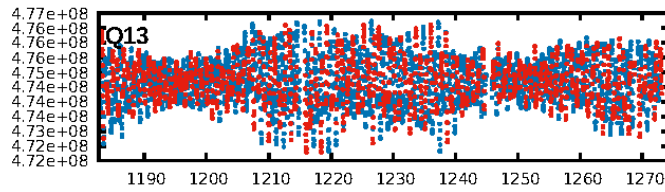
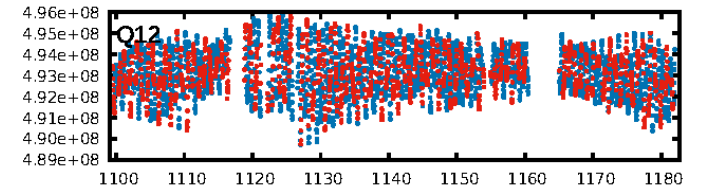
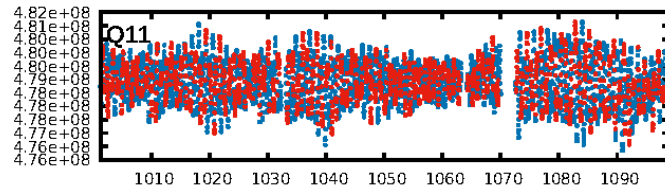
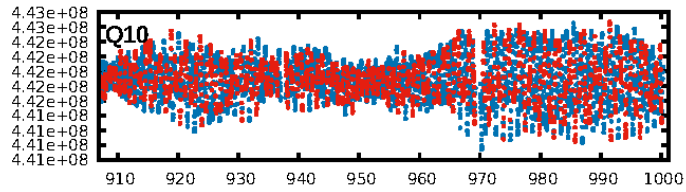
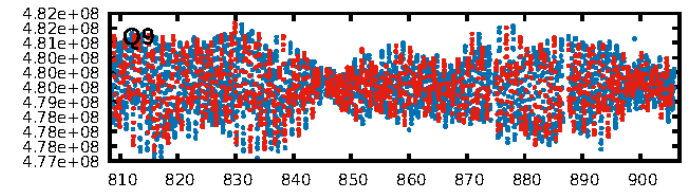
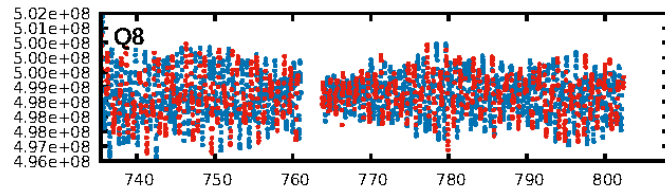
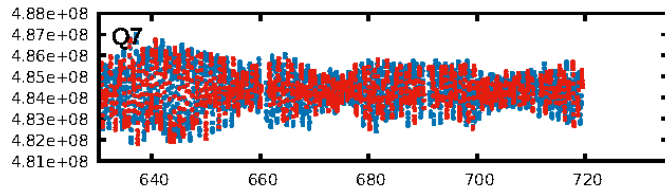
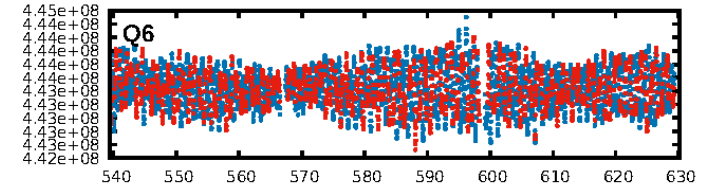
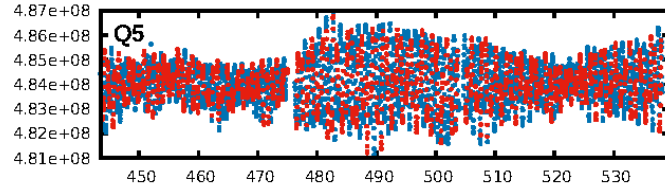
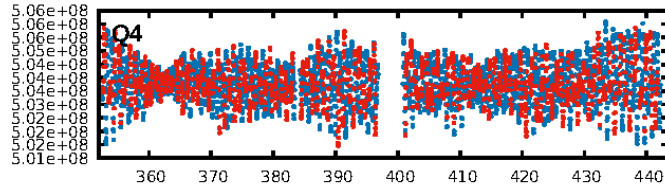
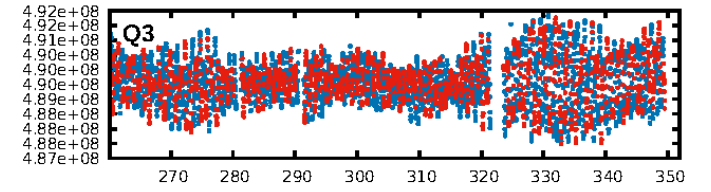
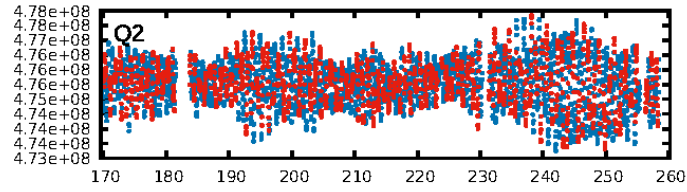
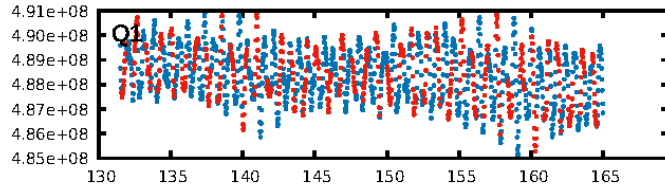
DV Fit Results:

Period = 0.83725 [0.00001] d
Epoch = 131.7463 [0.0013] BKJD
Rp/R* = 0.0065 [0.0009]
a/R* = 1.22 [0.33]
b = 0.90 [0.17]
Seff = 21276.09 [9616.63]
Teq = 3080 [348] K
Rp = 1.26 [0.42] Re
a = 0.0189 [0.0052] AU
Ag = 6.03 [3.14] [1.60σ]
Teffp = 7462 [616] K [6.20σ]

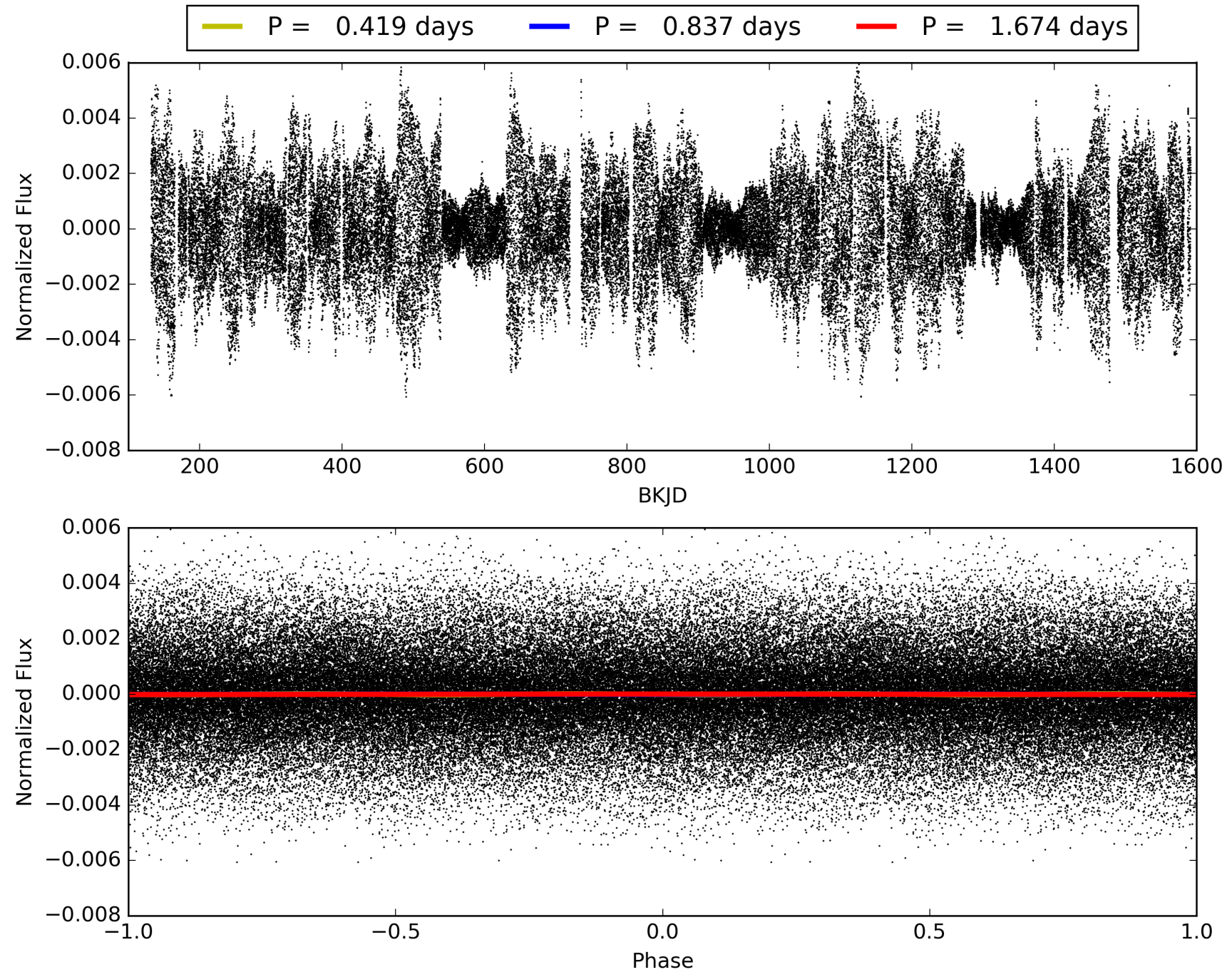
DV Diagnostic Results:

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 [1531/1531]
GhostDiagnostic-chr: -2.672
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.119 arcsec [0.50σ]
KicOffset-rm: 0.193 arcsec [0.99σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 010859386-01, PDC Light Curves

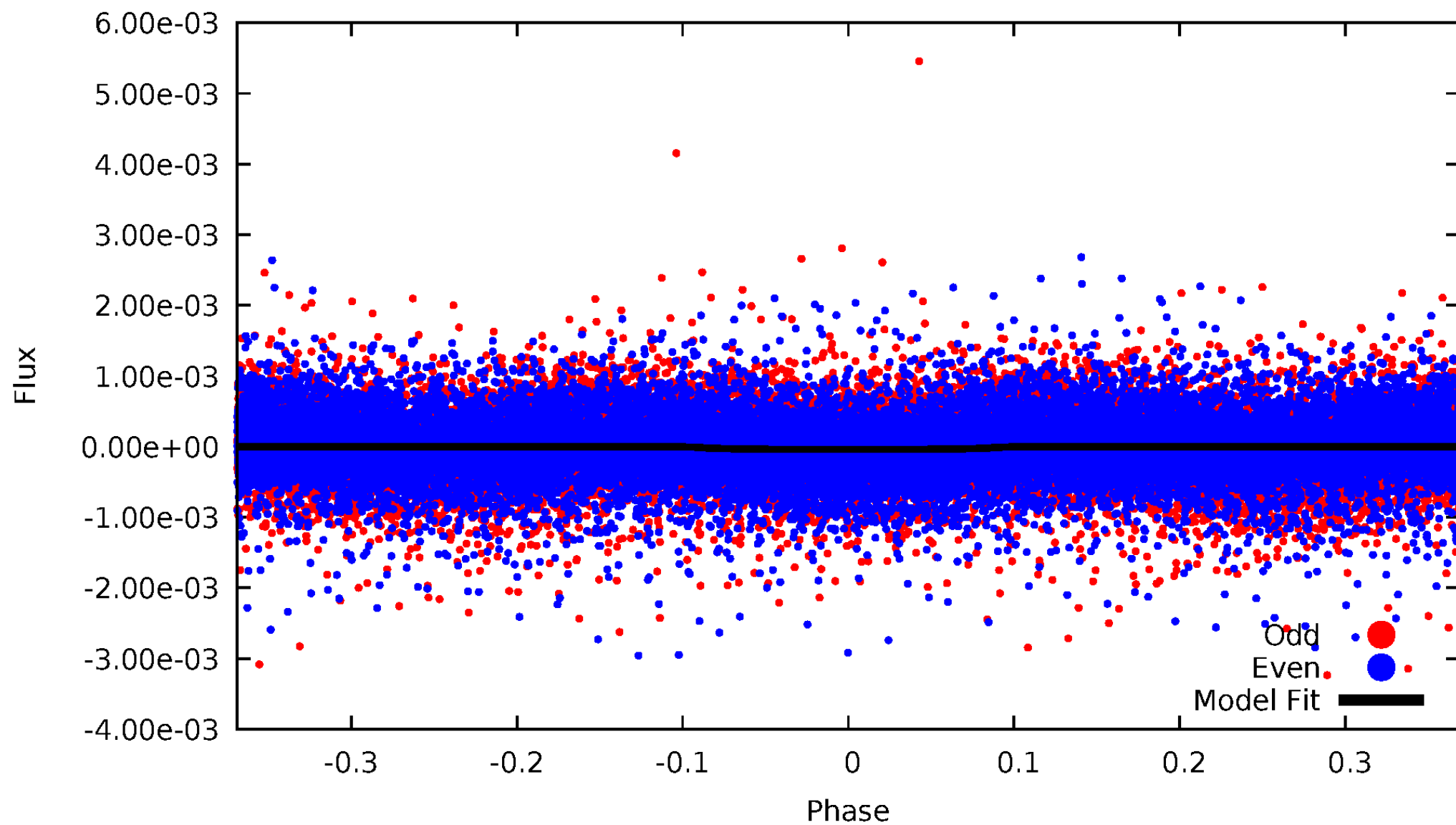


TCE 010859386-01



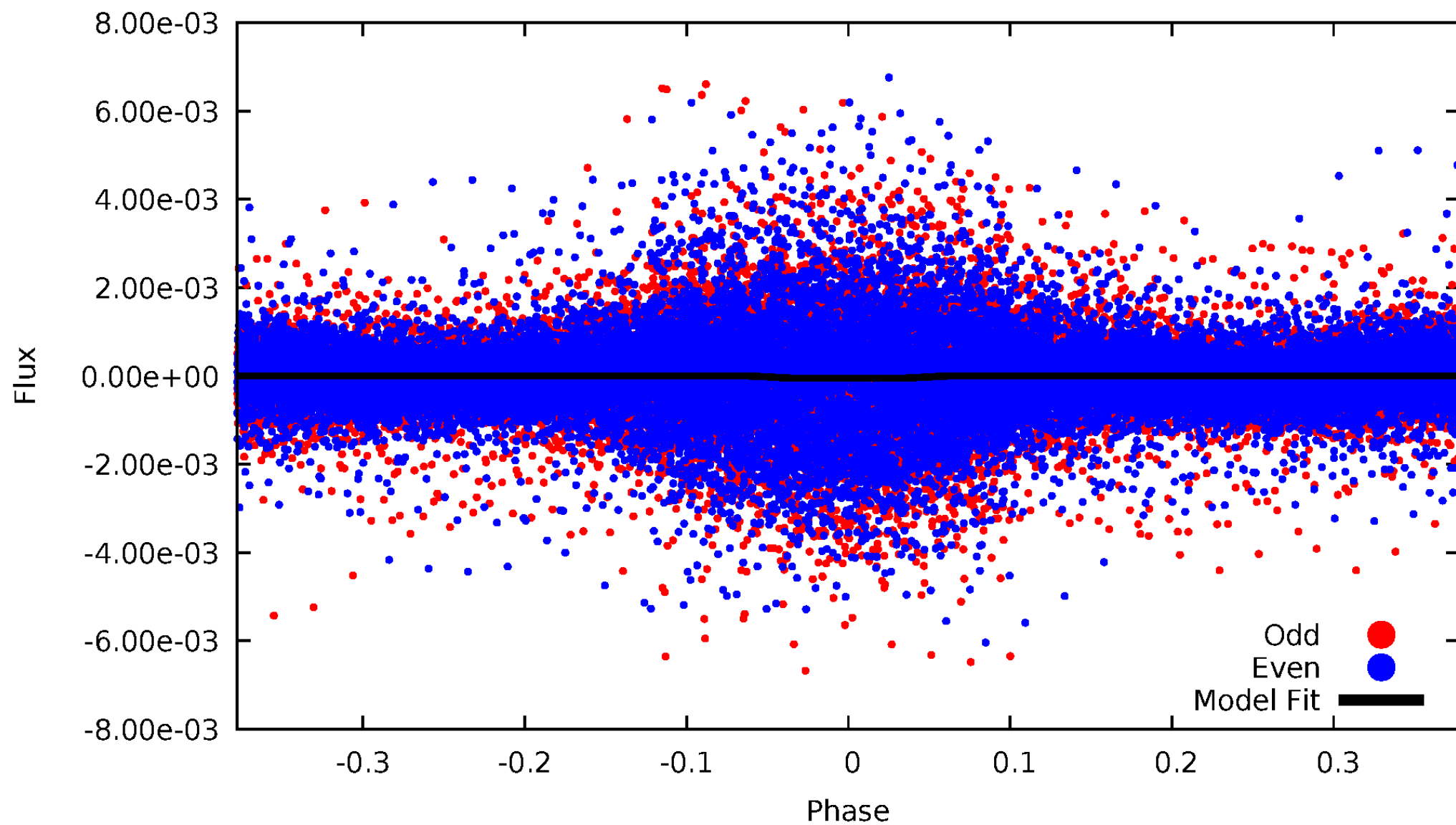
DV Odd/Even

TCE 010859386-01



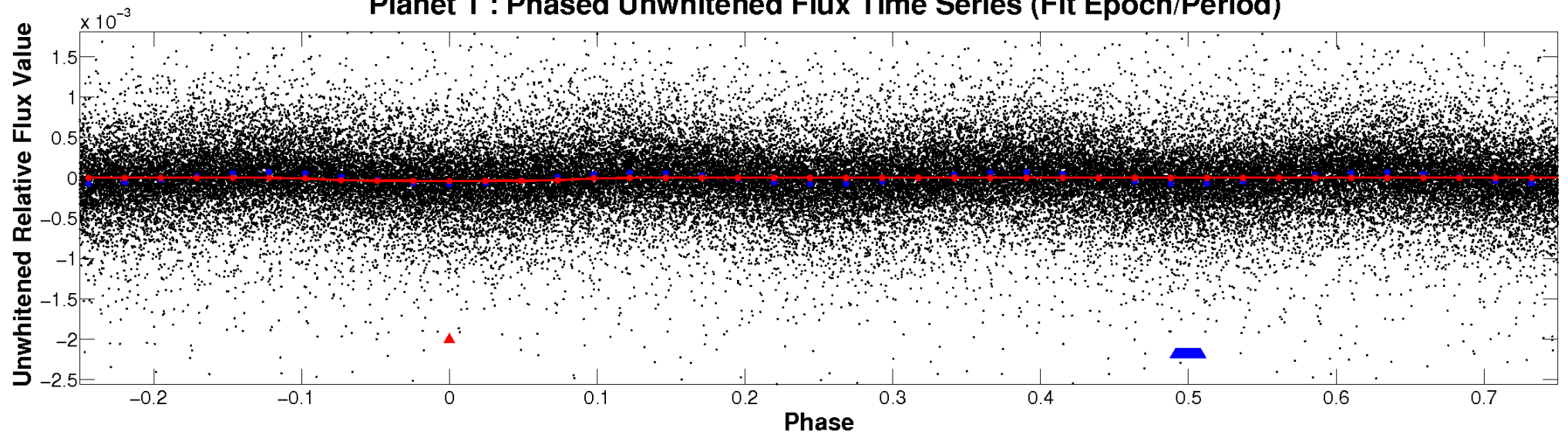
ALT Odd/Even

TCE 010859386-01

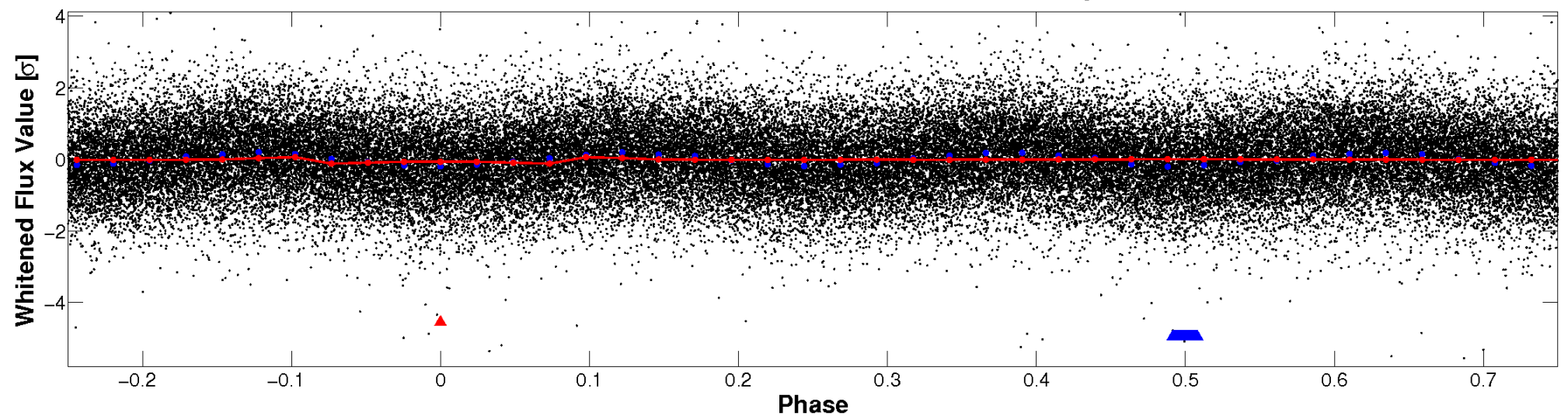


Non-Whitened Vs. Whitened Light Curve

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

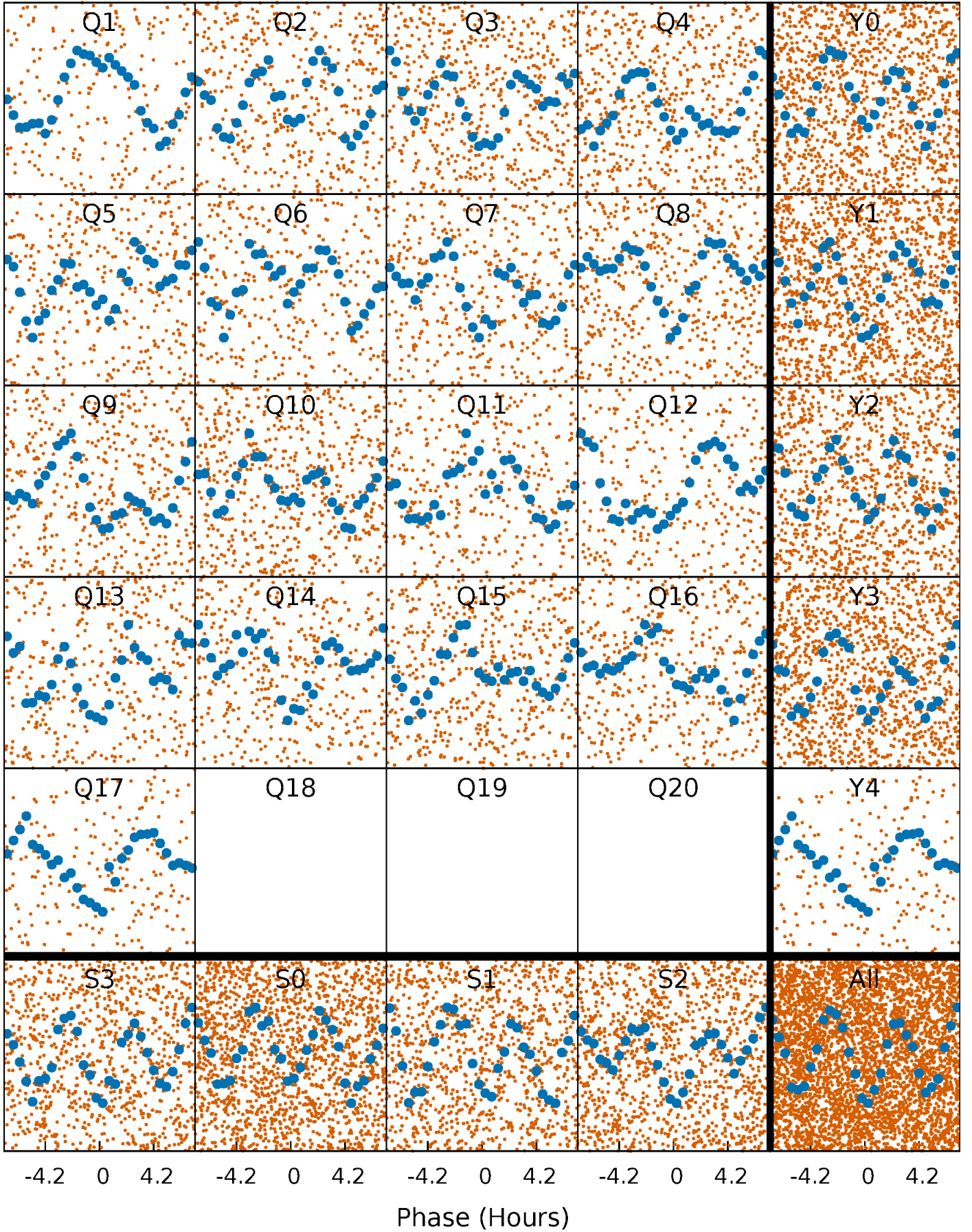


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



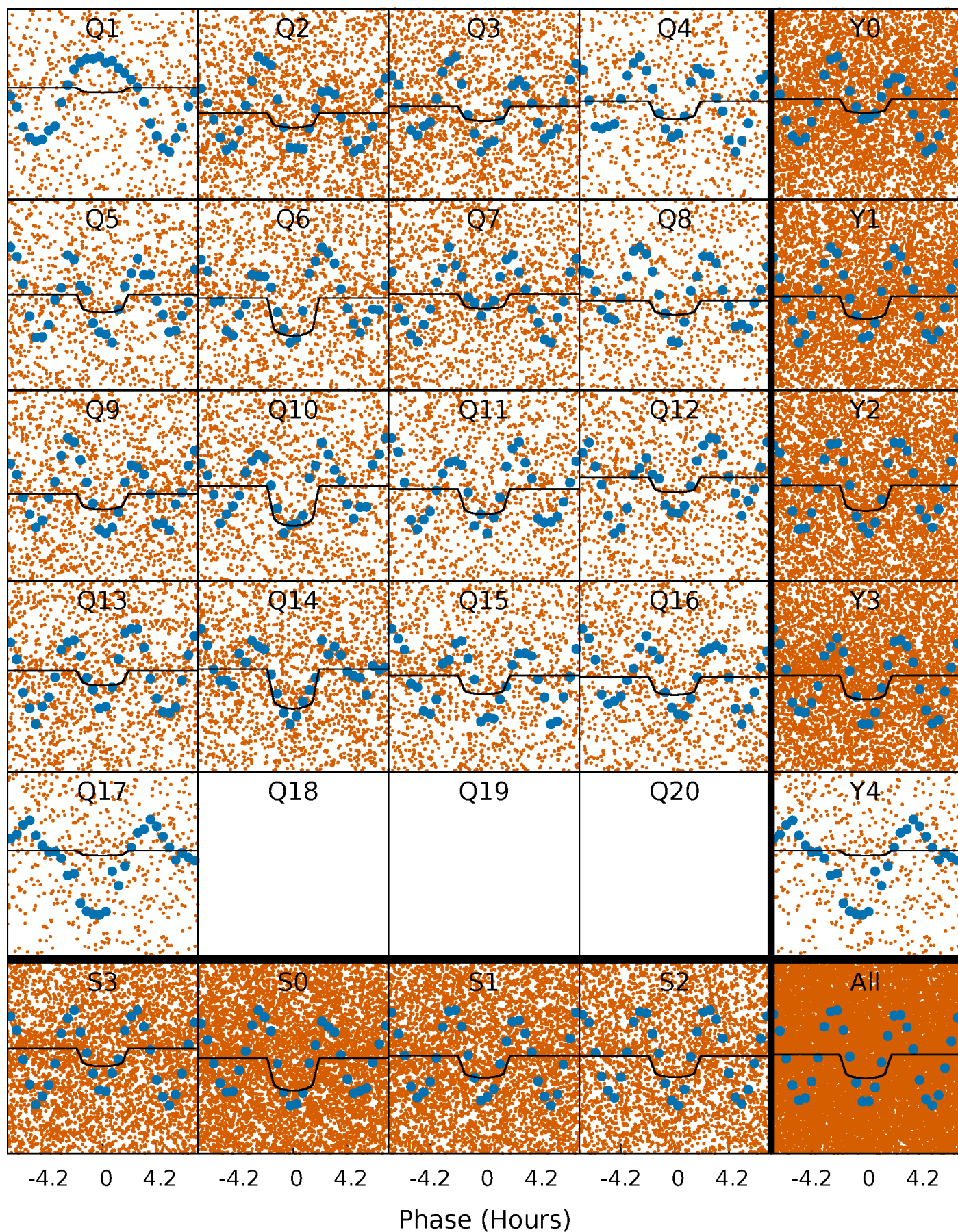
PDC Quarter-Phased Transit Curves

TCE 010859386-01 P= 0.837247 Days $T_0=131.746315$ (BKJD)



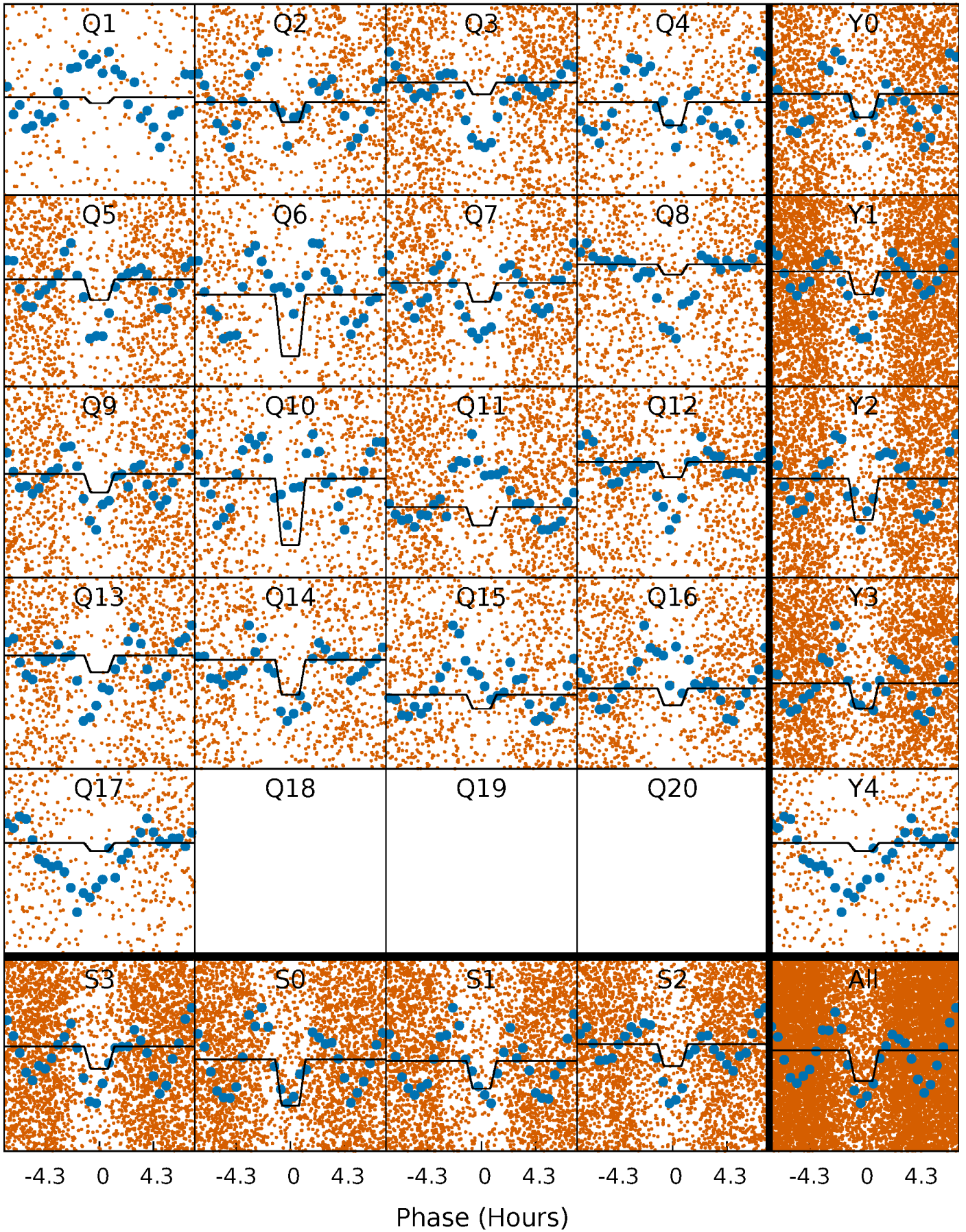
DV Quarter-Phased Transit Curves

TCE 010859386-01 P= 0.837247 Days $T_0=131.746315$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

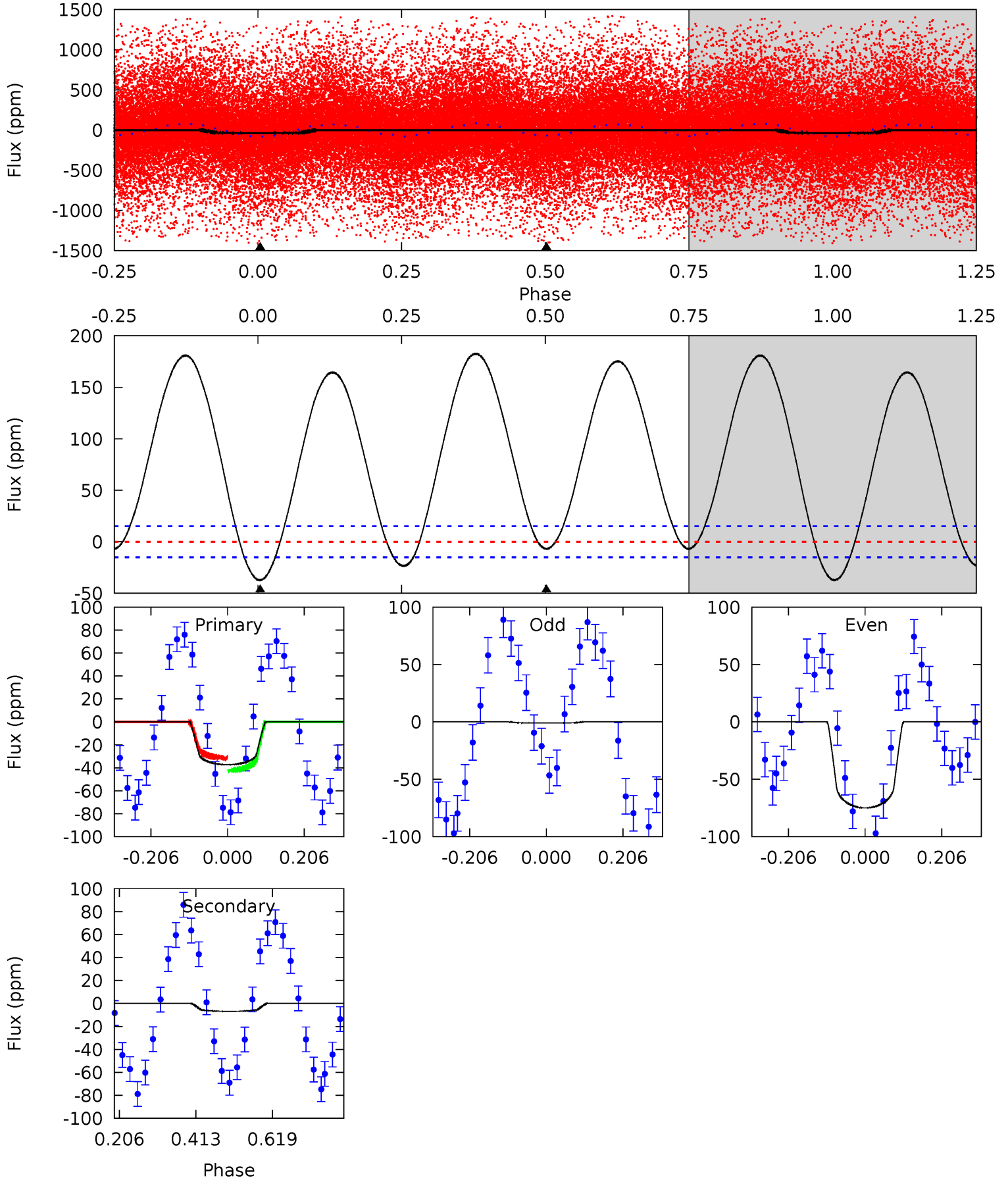
TCE 010859386-01 P= 0.837255 Days $T_0=131.745828$ (BKJD)



DV Model-Shift Uniqueness Test

010859386-01, P = 0.837247 Days, E = 130.909068 Days

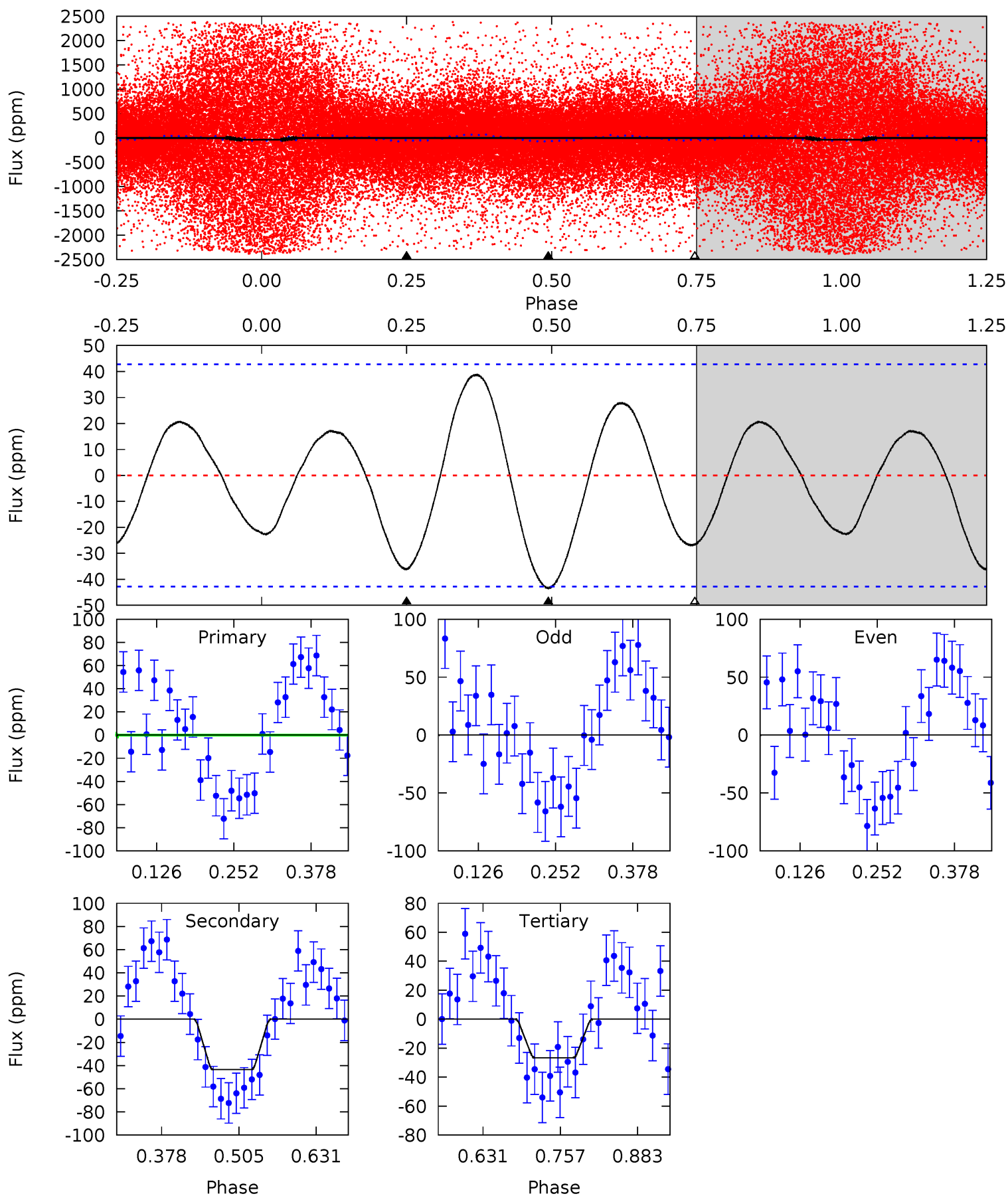
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	2.00	0	0	4.41	1.26	5.34	10.9	10.9	2.00	2.00	11.0	1.76	0.83	1.58



Alt Model-Shift Uniqueness Test

010859386-01, P = 0.837255 Days, E = 130.908573 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.82	4.59	2.81	0	4.52	1.53	1.75	1.00	3.82	1.78	4.59	2.36	39.1	0.47	0.78



Stellar Parameters For KIC 010859386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7209^{+196}_{-261}	$4.050^{+0.246}_{-0.143}$	$-0.460^{+0.250}_{-0.300}$	$1.774^{+0.489}_{-0.537}$	$1.287^{+0.202}_{-0.184}$	$0.325^{+0.517}_{-0.141}$
	+3%/-4%	+6%/-4%	+54%/-65%	+28%/-30%	+16%/-14%	+159%/-44%
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 010859386-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 3	$1.22^{+0.27}_{-0.25}$	4258^{+298}_{-358}	4294^{+700}_{-948}	$0.867^{+0.799}_{-0.449}$
Alt.	-43 ± 9	$1.35^{+0.30}_{-0.24}$	4243^{+329}_{-346}	6685^{+735}_{-659}	$4.527^{+2.468}_{-1.699}$

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 $A_{obs} \gg 1.0$

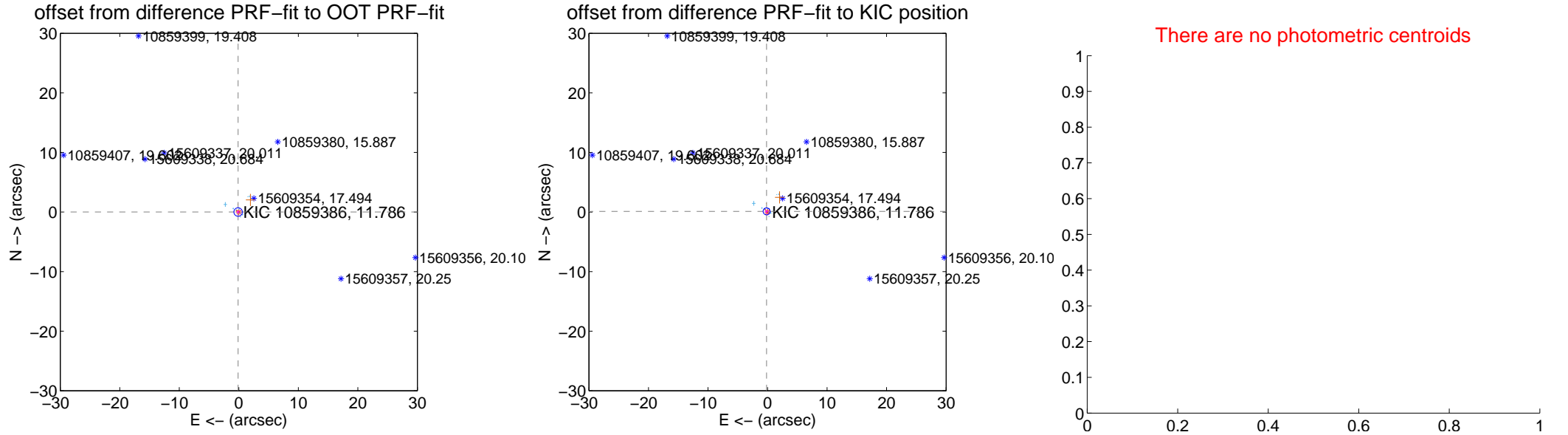
DV Centroid Data

Supplemental centroid analysis for 010859386-01. **Kepler magnitude: 11.79.** Transit SNR 11.20

There are 13 quarters with good PRF difference image offsets

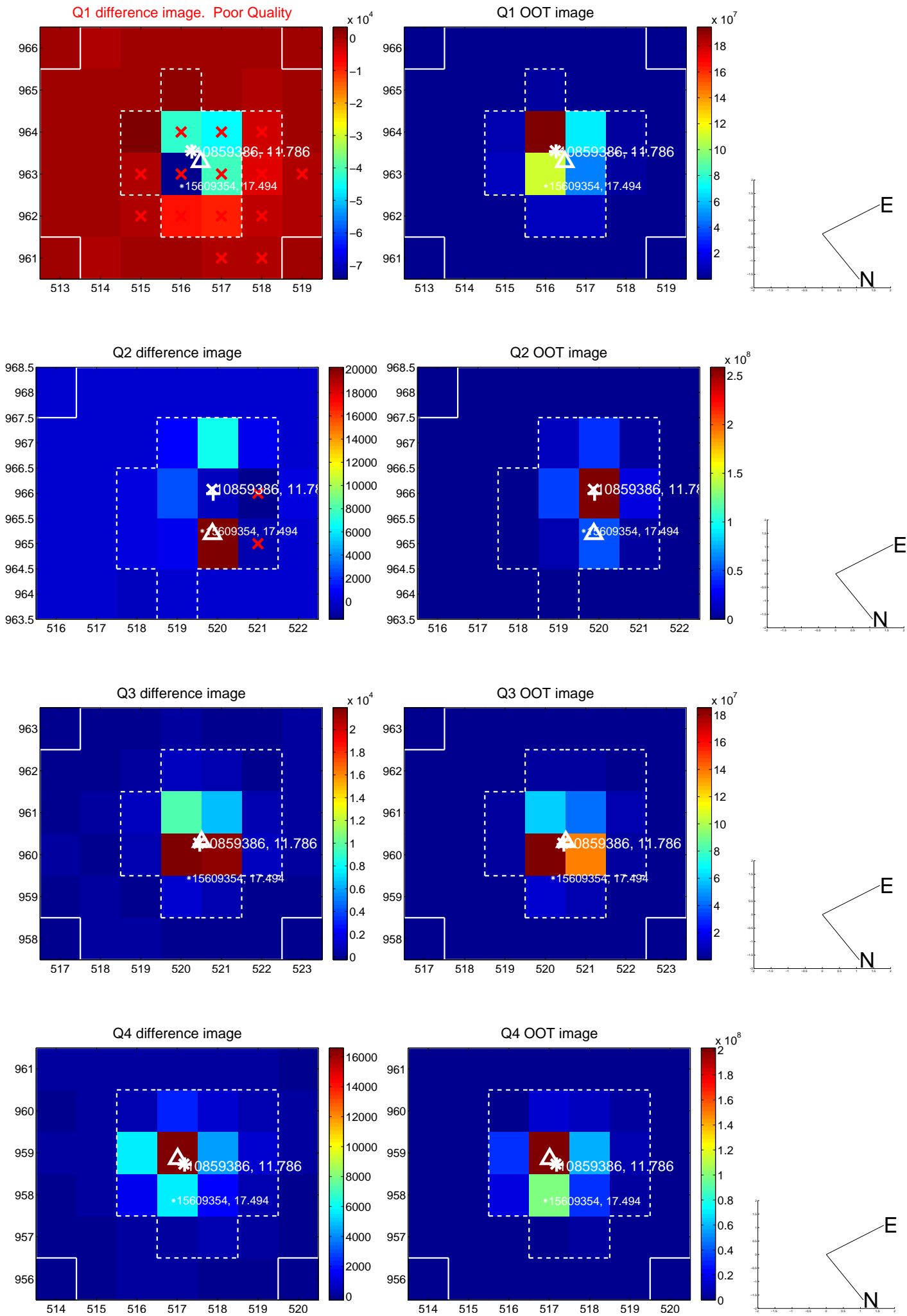
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.119 ± 0.238	0.50	0.119 ± 0.239	0.002 ± 0.249
PRF-fit source offset from KIC position	0.193 ± 0.195	0.99	0.158 ± 0.253	0.110 ± 0.285
photometric centroid source offset	—	—	—	—

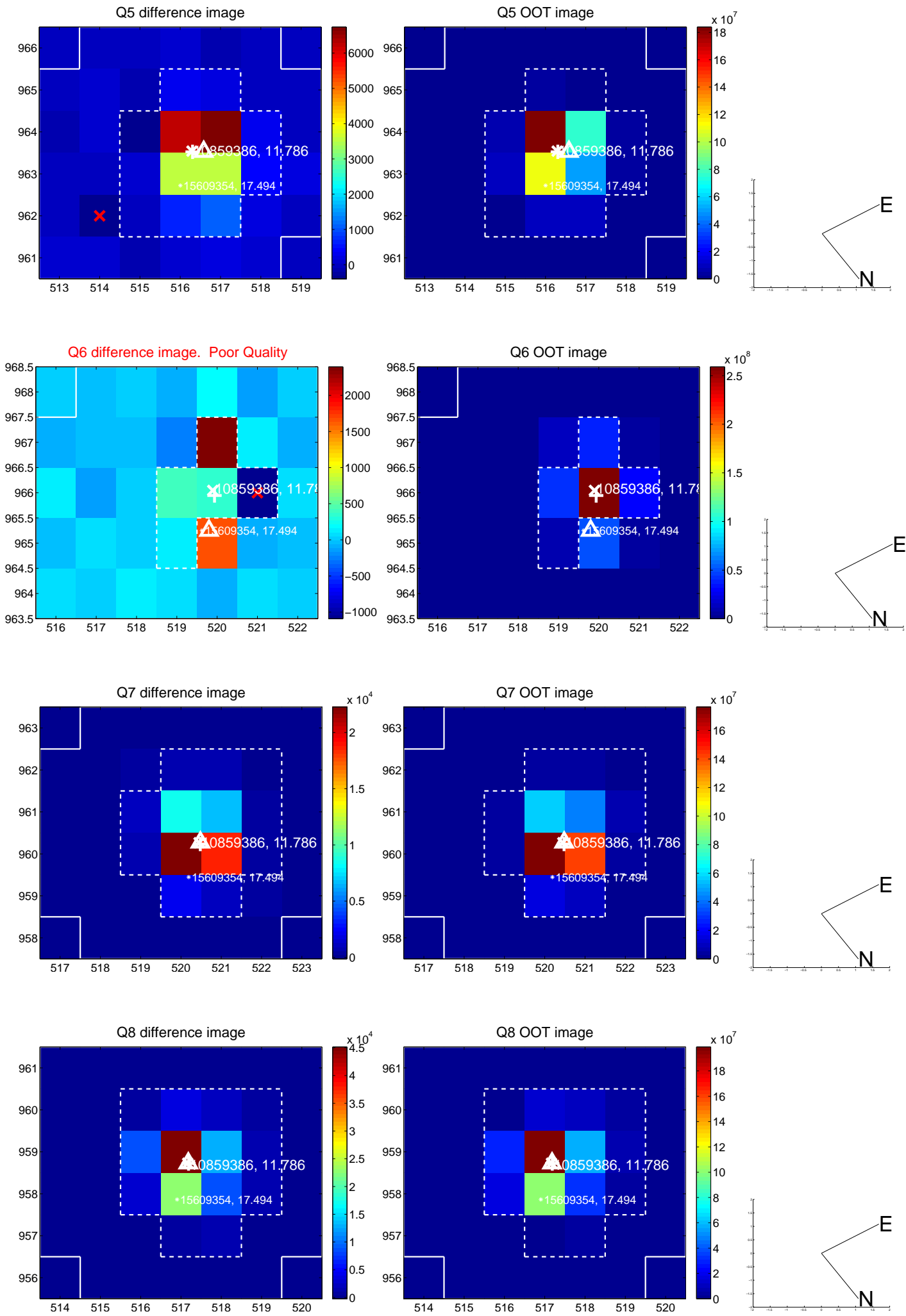


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

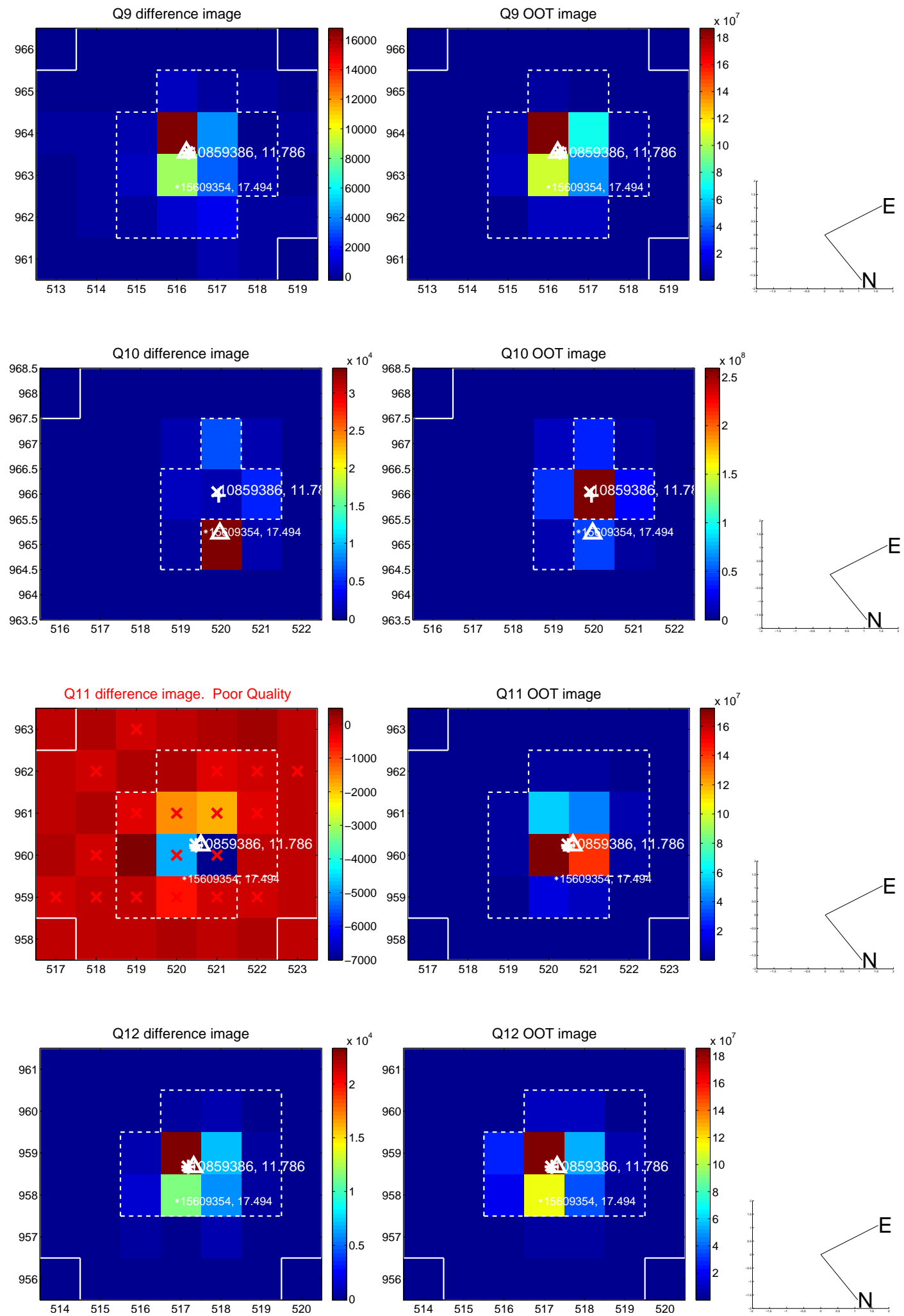
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



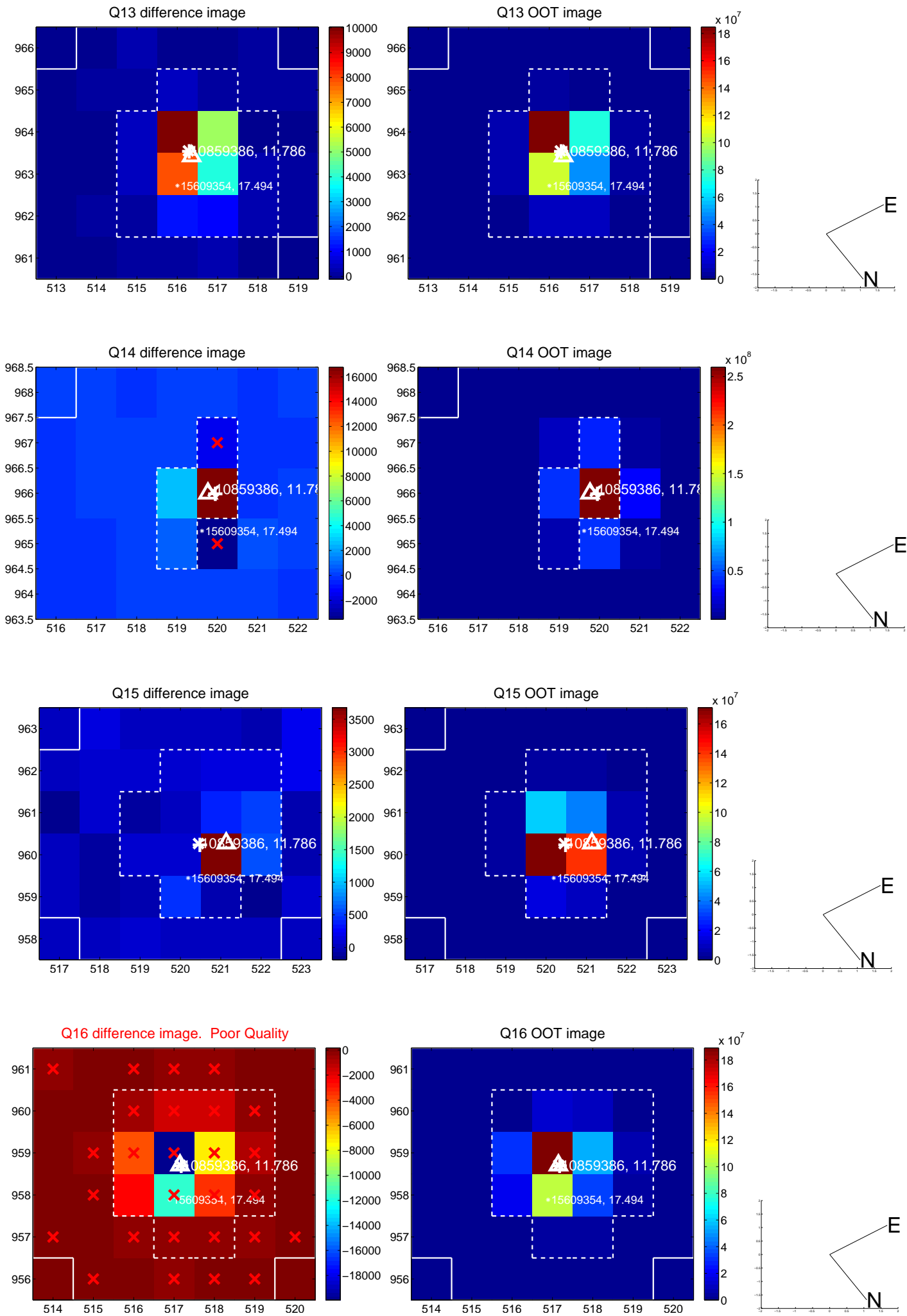
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



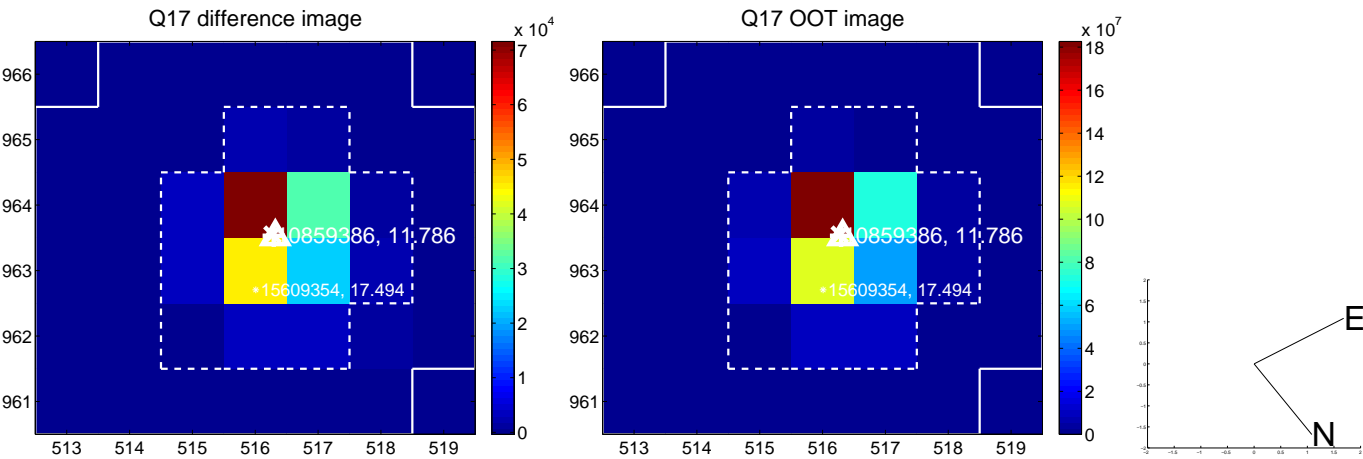
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



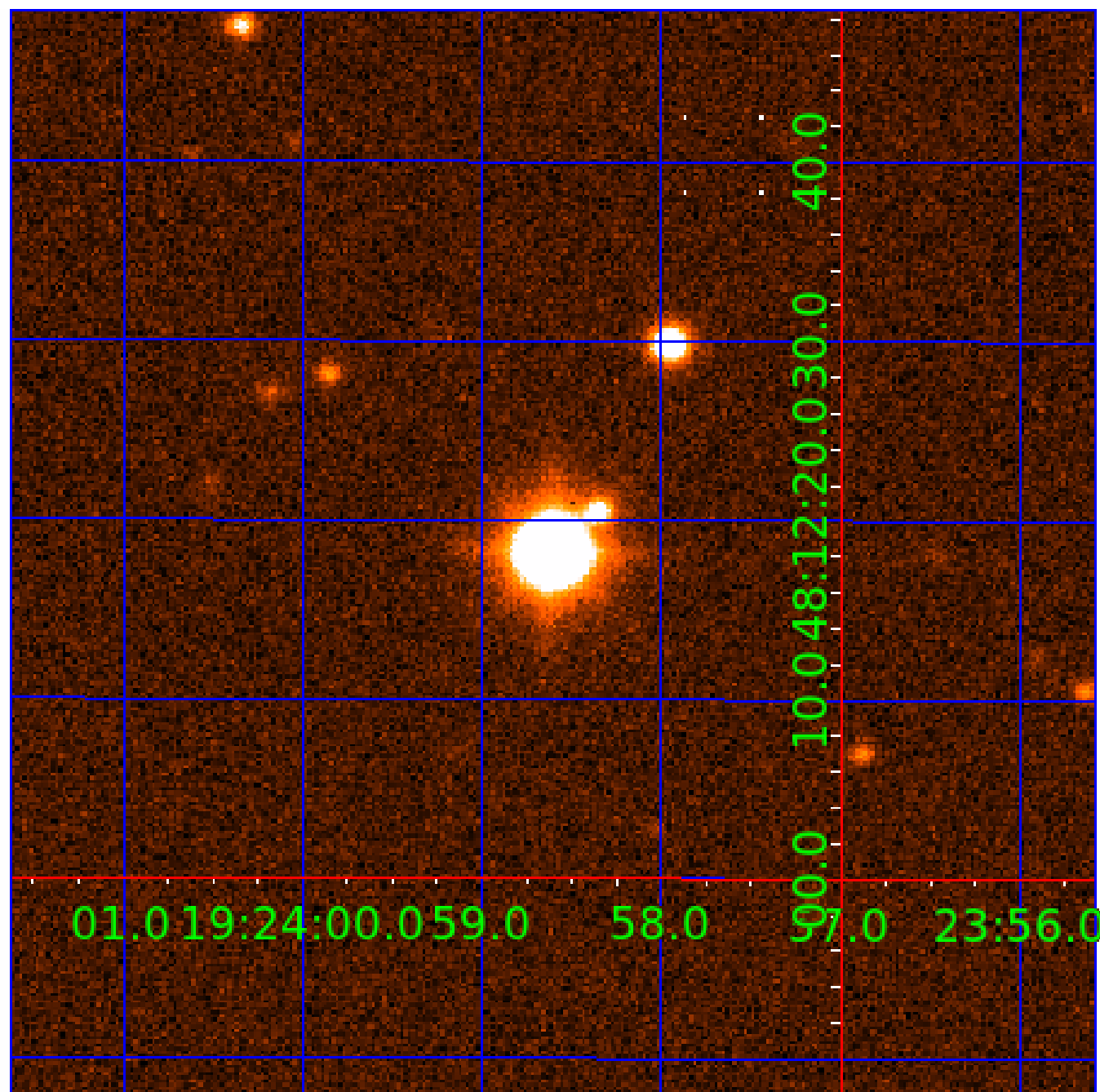
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 010859386

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})
010859386-01	OBS	No	0.837247	131.746315	37.2	3.704	10.9	11.2	1.77	7209	1.25	21276.09
010859386-02	OBS	No	0.837239	132.171710	56.2	3.405	15.4	16.3	1.77	7209	1.54	21276.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010859386-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010859386-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

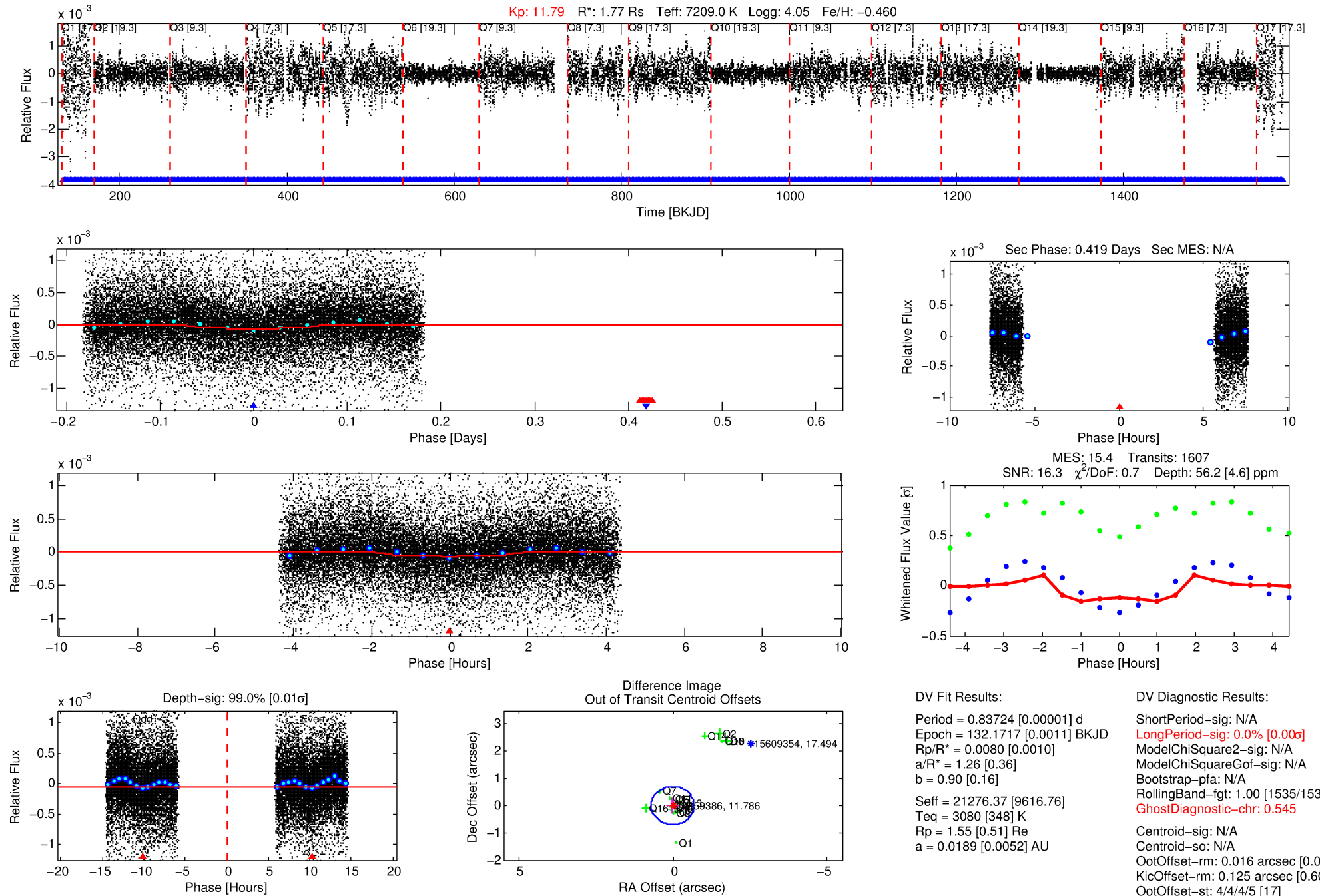
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010859386-02

No Significant Match Found

DV One-Page Summary

KIC: 10859386 Candidate: 2 of 2 Period: 0.837 d



DV Fit Results:

Period = 0.83724 [0.00001] d
Epoch = 132.1717 [0.0011] BKJD
Rp/R* = 0.0080 [0.0010]
a/R* = 1.26 [0.36]
b = 0.90 [0.16]
Seff = 21276.37 [9616.76]
Teq = 3080 [348] K
Rp = 1.55 [0.51] Re
a = 0.0189 [0.0052] AU

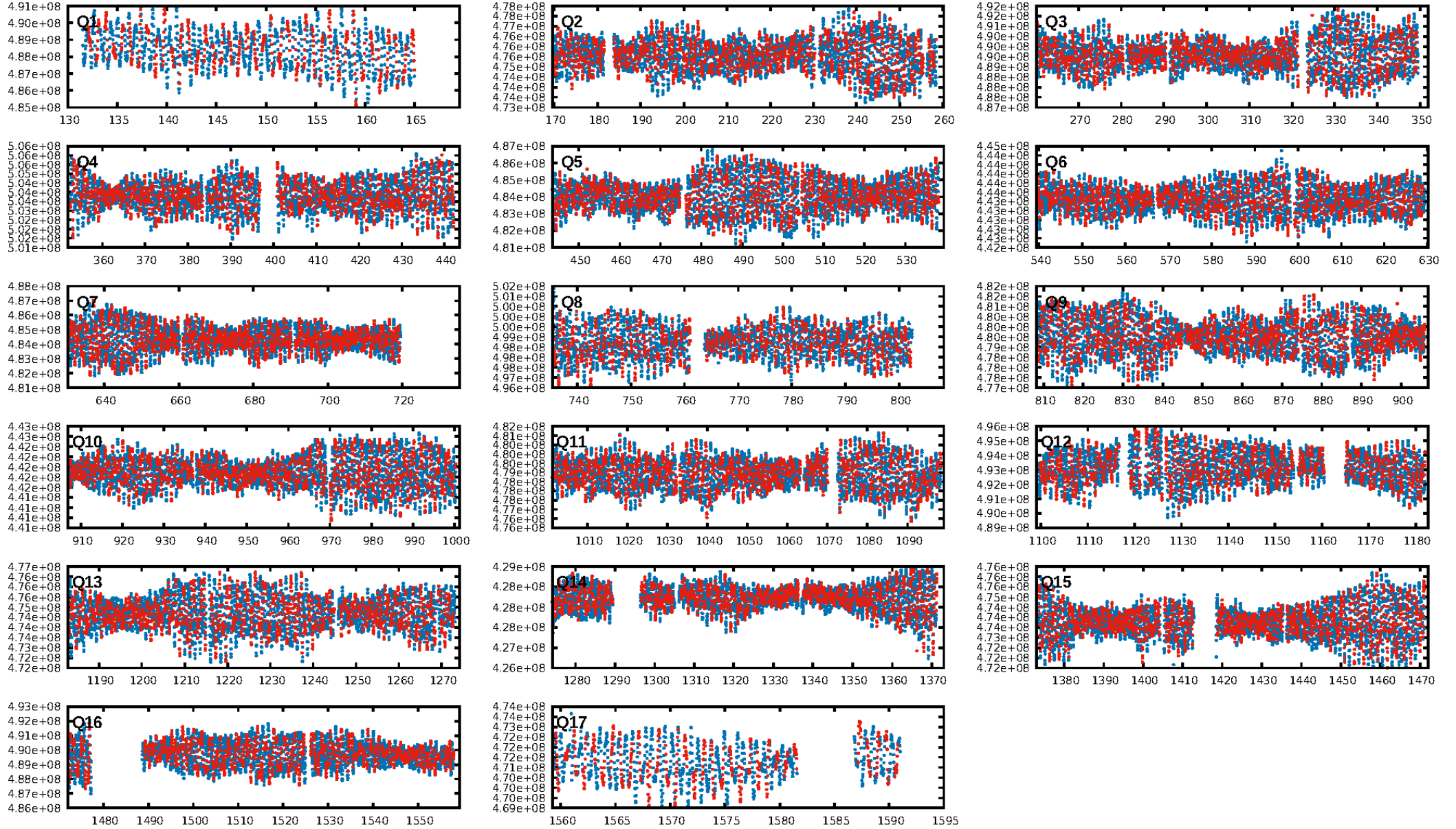
DV Diagnostic Results:

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 [1535/1535]
GhostDiagnostic-chr: 0.545
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.016 arcsec [0.07 σ]
KicOffset-rm: 0.125 arcsec [0.60 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 0.76 [13/17]

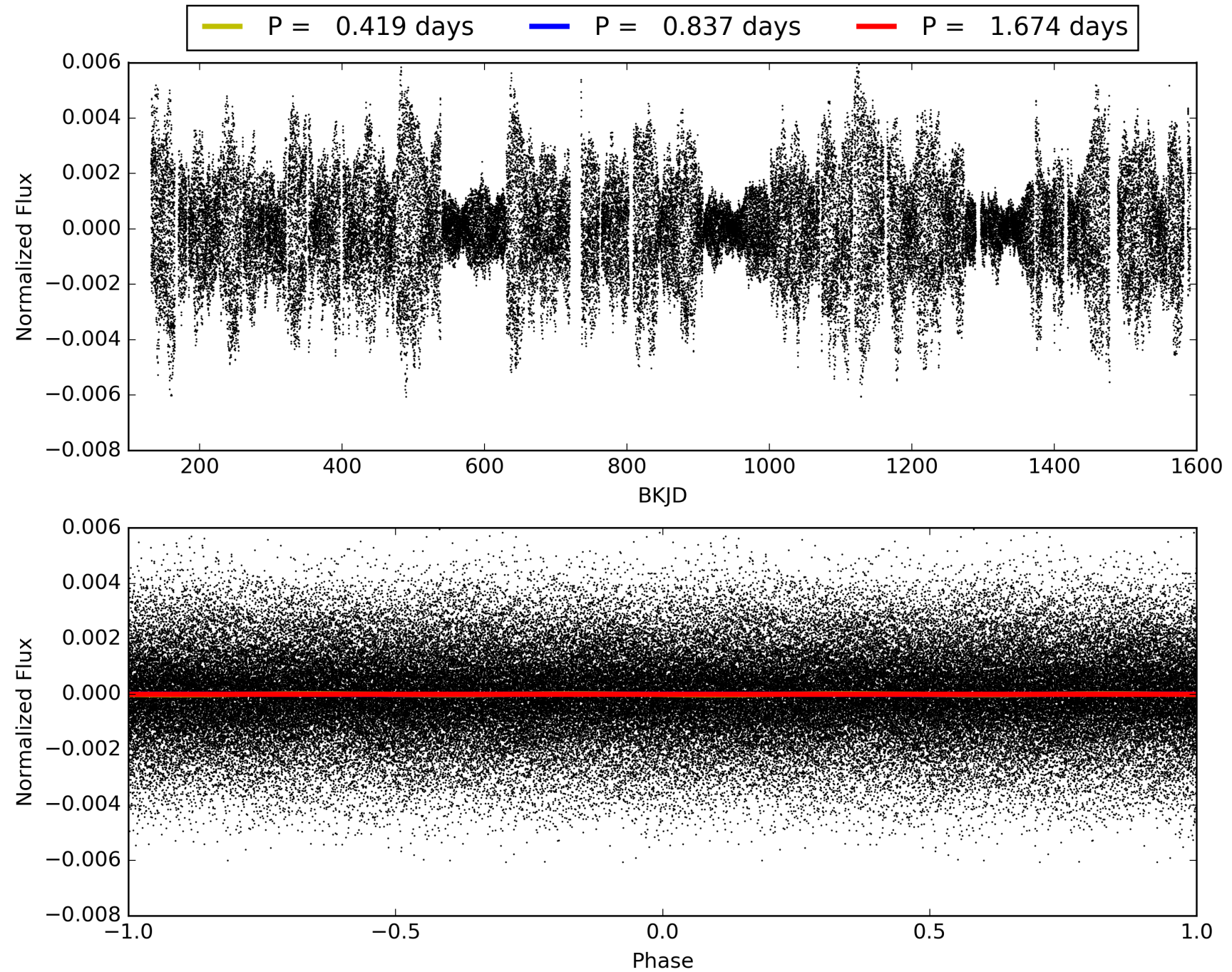
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:02:38 Z

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

TCE 010859386-02, PDC Light Curves

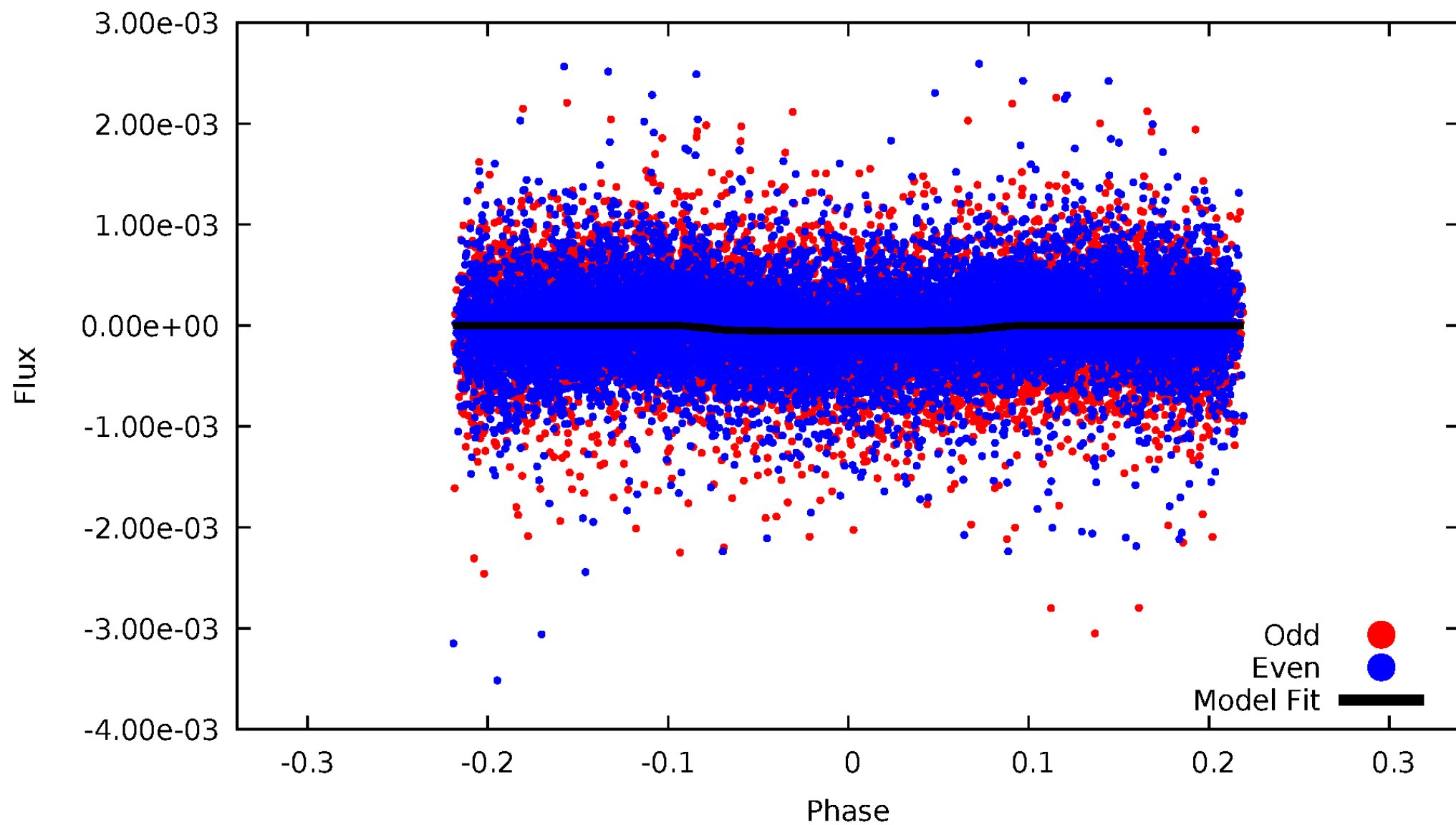


TCE 010859386-02



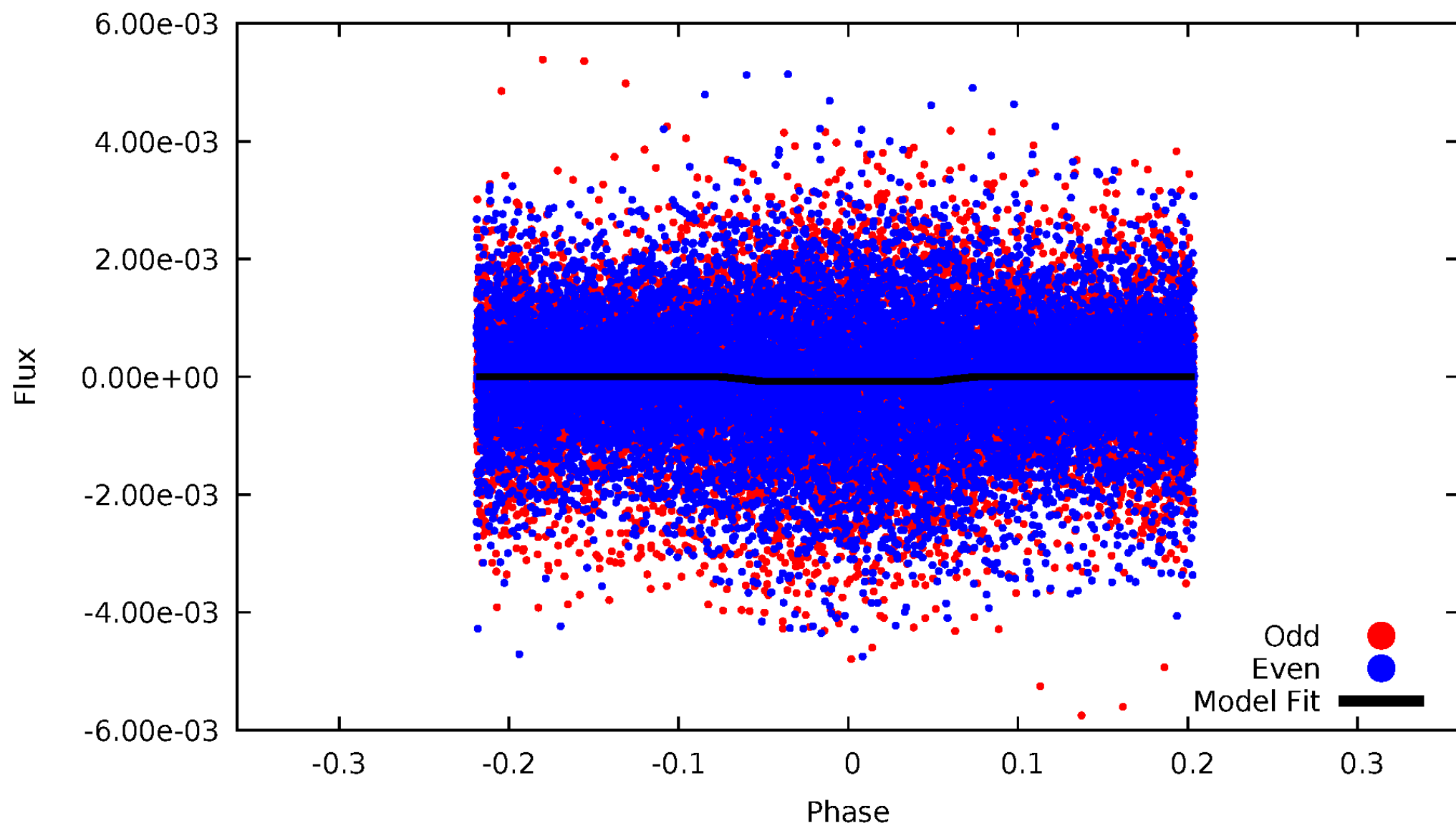
DV Odd/Even

TCE 010859386-02



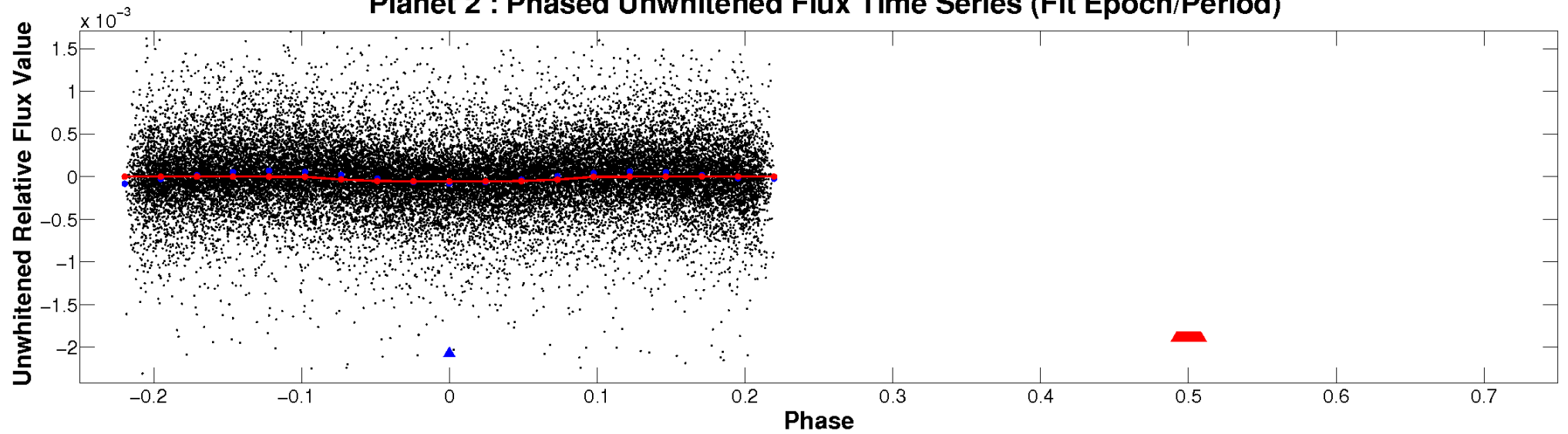
ALT Odd/Even

TCE 010859386-02

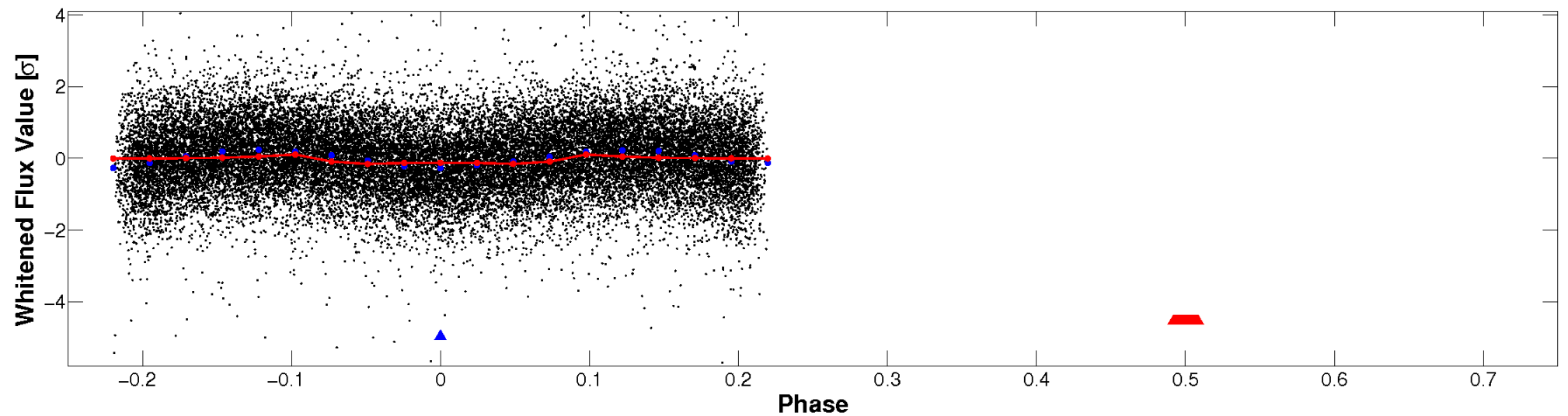


Non-Whitened Vs. Whitened Light Curve

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

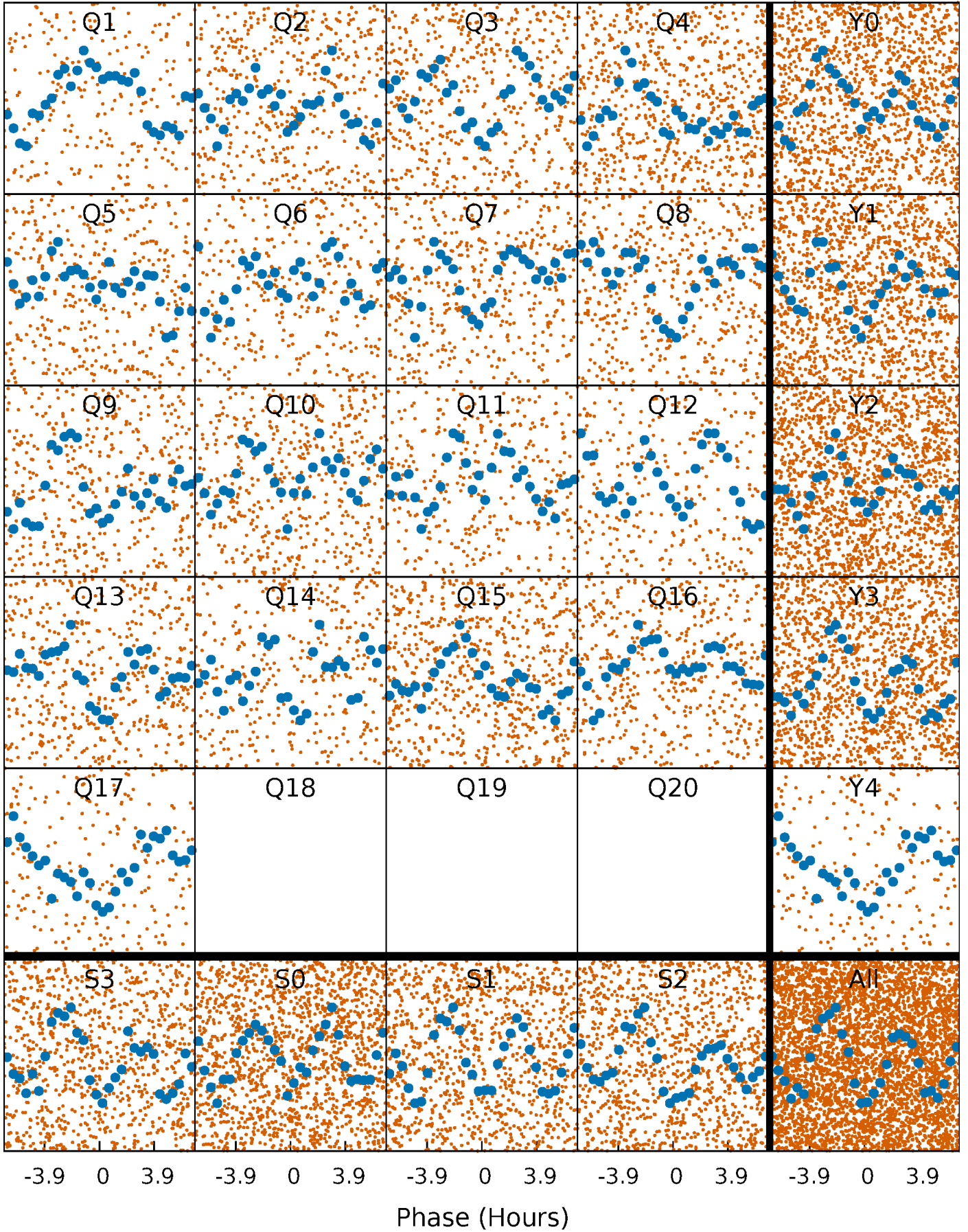


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



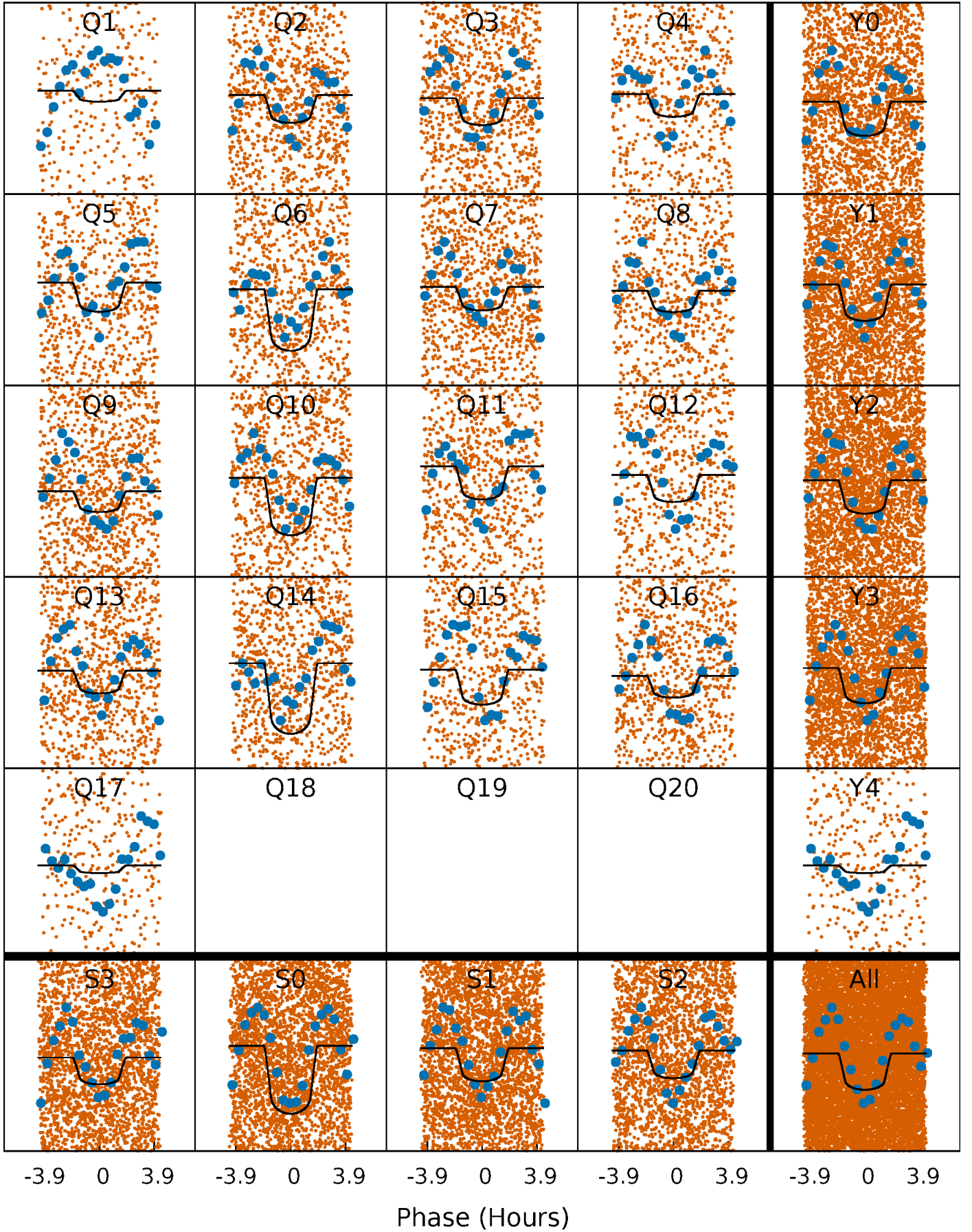
PDC Quarter-Phased Transit Curves

TCE 010859386-02 P= 0.837239 Days $T_0=132.171710$ (BKJD)



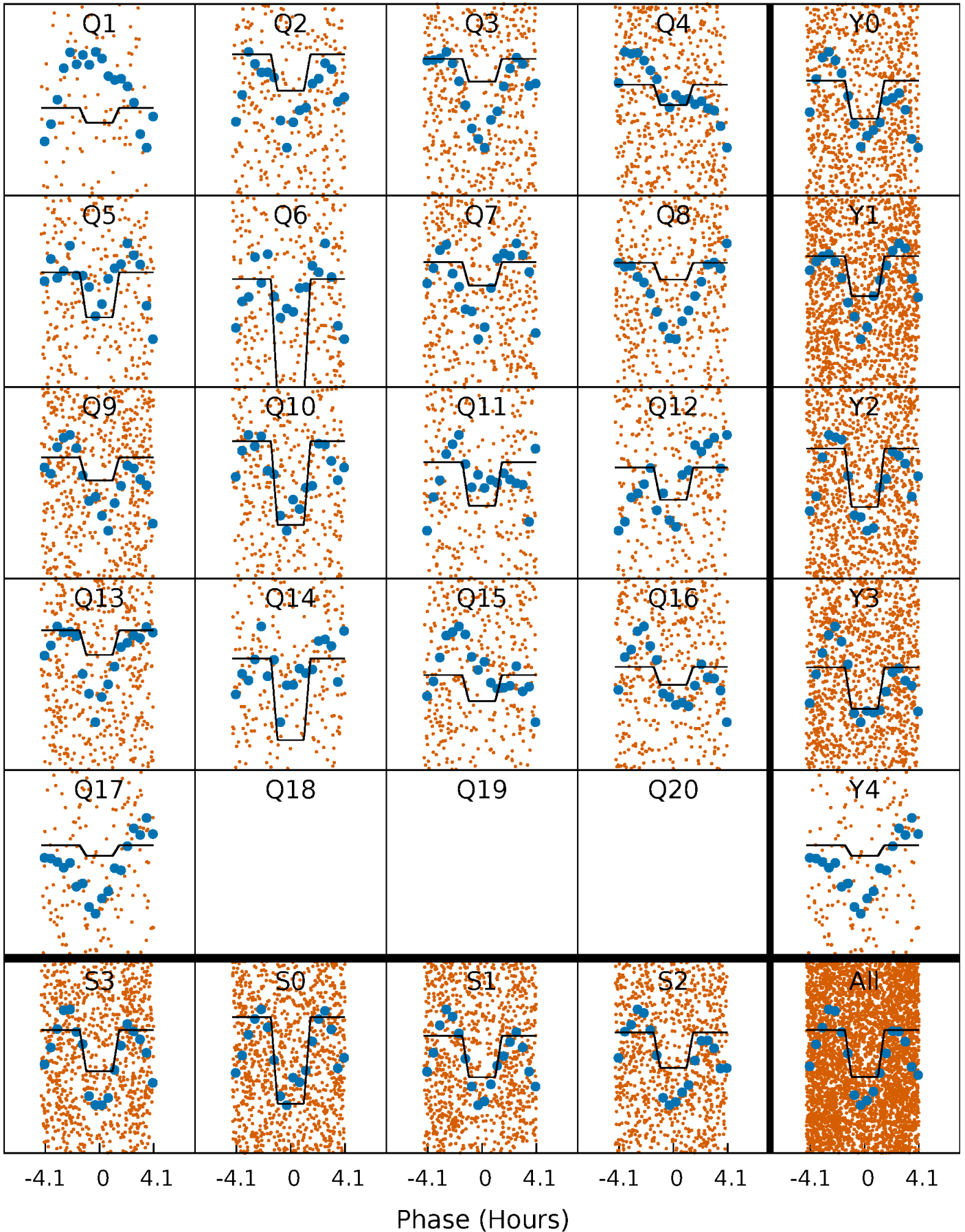
DV Quarter-Phased Transit Curves

TCE 010859386-02 P= 0.837239 Days $T_0=132.171710$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

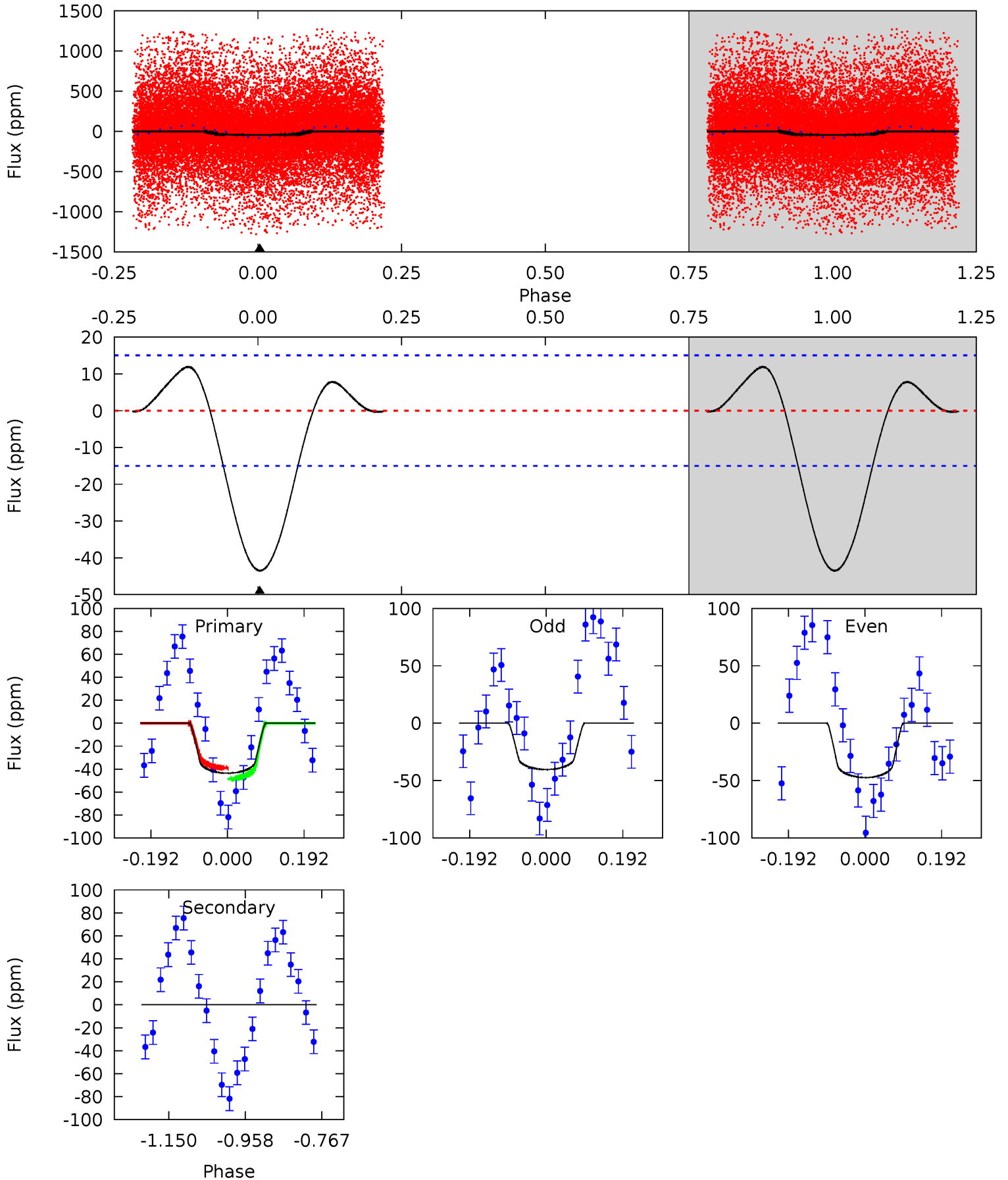
TCE 010859386-02 $P = 0.837248$ Days $T_0 = 132.171018$ (BKJD)



DV Model-Shift Uniqueness Test

010859386-02, P = 0.837239 Days, E = 131.334471 Days

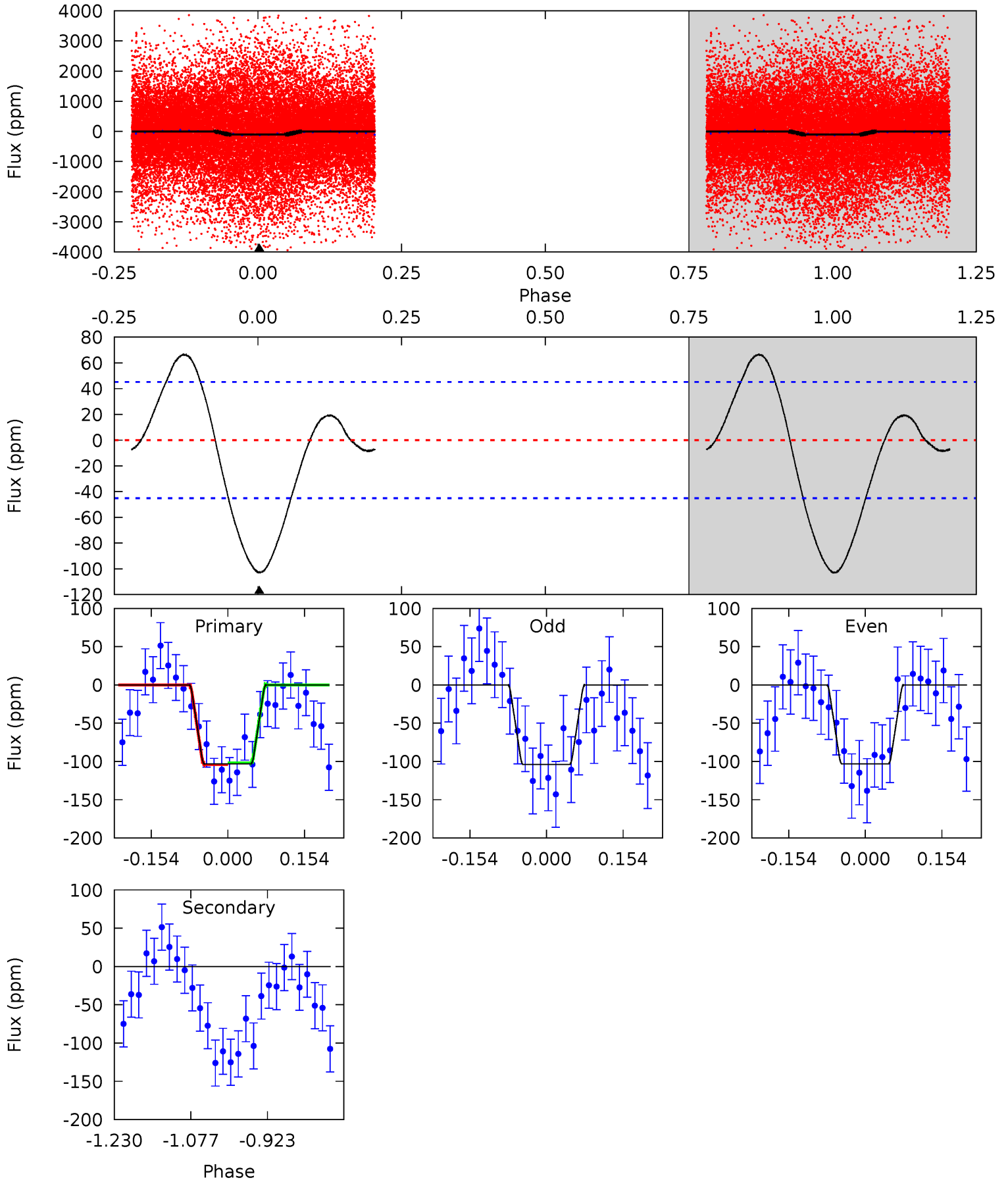
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	0	0	0	4.43	1.31	0.21	12.8	12.8	0	0	1.04	1.23	0.22	1.49



Alt Model-Shift Uniqueness Test

010859386-02, P = 0.837248 Days, E = 131.333770 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	0	0	0	4.47	1.43	1.89	10.2	10.2	0	0	0.03	1.40	0.39	0.09



Stellar Parameters For KIC 010859386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7209^{+196}_{-261}	$4.050^{+0.246}_{-0.143}$	$-0.460^{+0.250}_{-0.300}$	$1.774^{+0.489}_{-0.537}$	$1.287^{+0.202}_{-0.184}$	$0.325^{+0.517}_{-0.141}$
	+3%/-4%	+6%/-4%	+54%/-65%	+28%/-30%	+16%/-14%	+159%/-44%
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 010859386-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 3	$1.54^{+0.31}_{-0.31}$	4272^{+299}_{-352}	-3861^{+1533}_{-470}	$-0.003^{+0.291}_{-0.278}$
Alt.	0 ± 10	$1.69^{+0.35}_{-0.30}$	4257^{+313}_{-337}	-3836^{+7836}_{-955}	$-0.005^{+0.691}_{-0.700}$

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 $A_{obs} \gg 1.0$

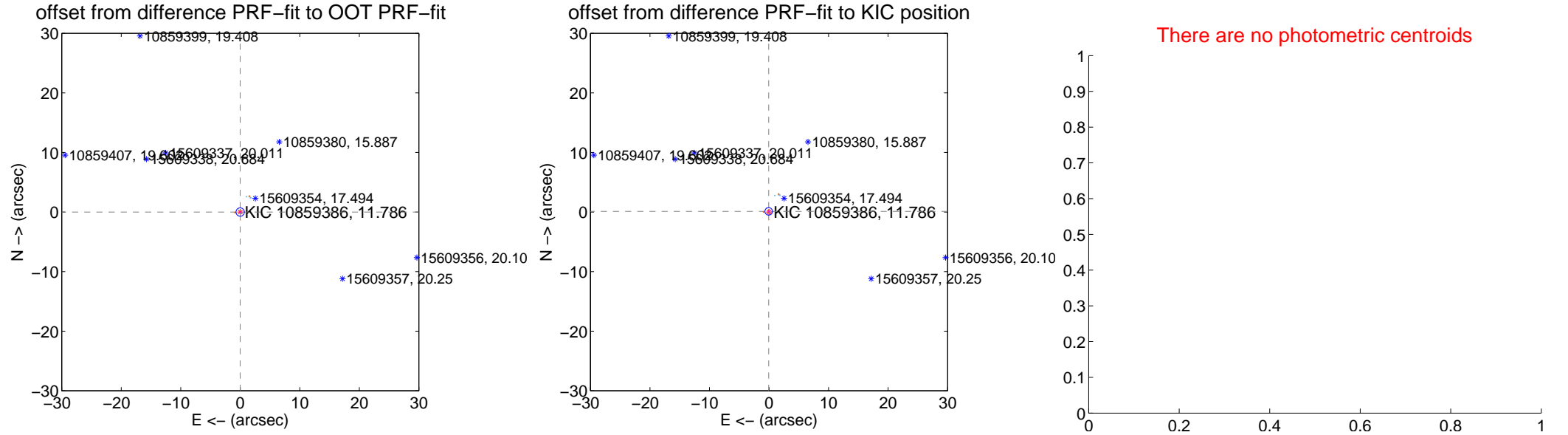
DV Centroid Data

Supplemental centroid analysis for 010859386-02. **Kepler magnitude: 11.79.** Transit SNR 16.28

There are 11 quarters with good PRF difference image offsets

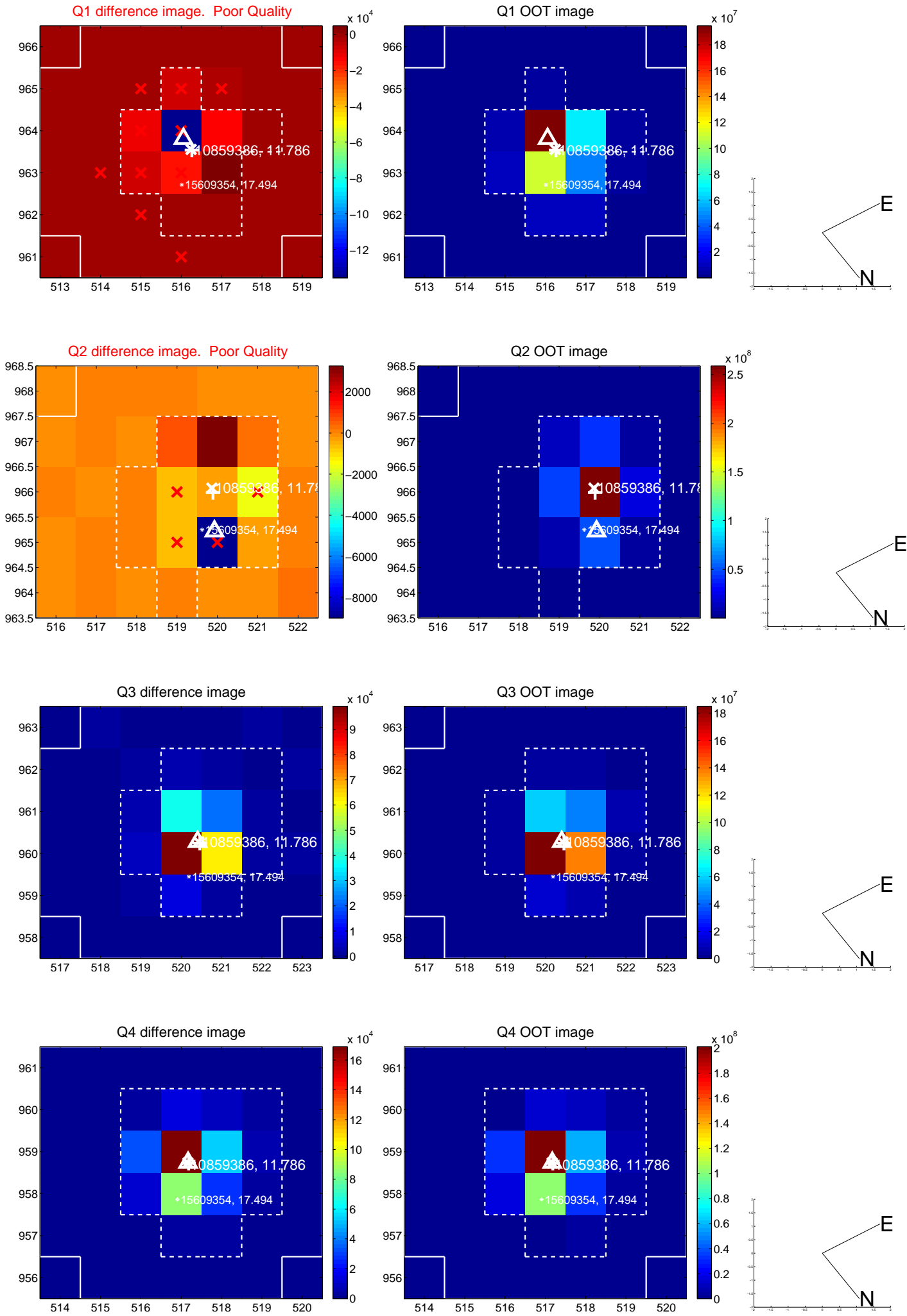
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.016 ± 0.234	0.07	0.015 ± 0.187	-0.003 ± 0.281
PRF-fit source offset from KIC position	0.125 ± 0.210	0.60	0.055 ± 0.190	0.113 ± 0.299
photometric centroid source offset	—	—	—	—

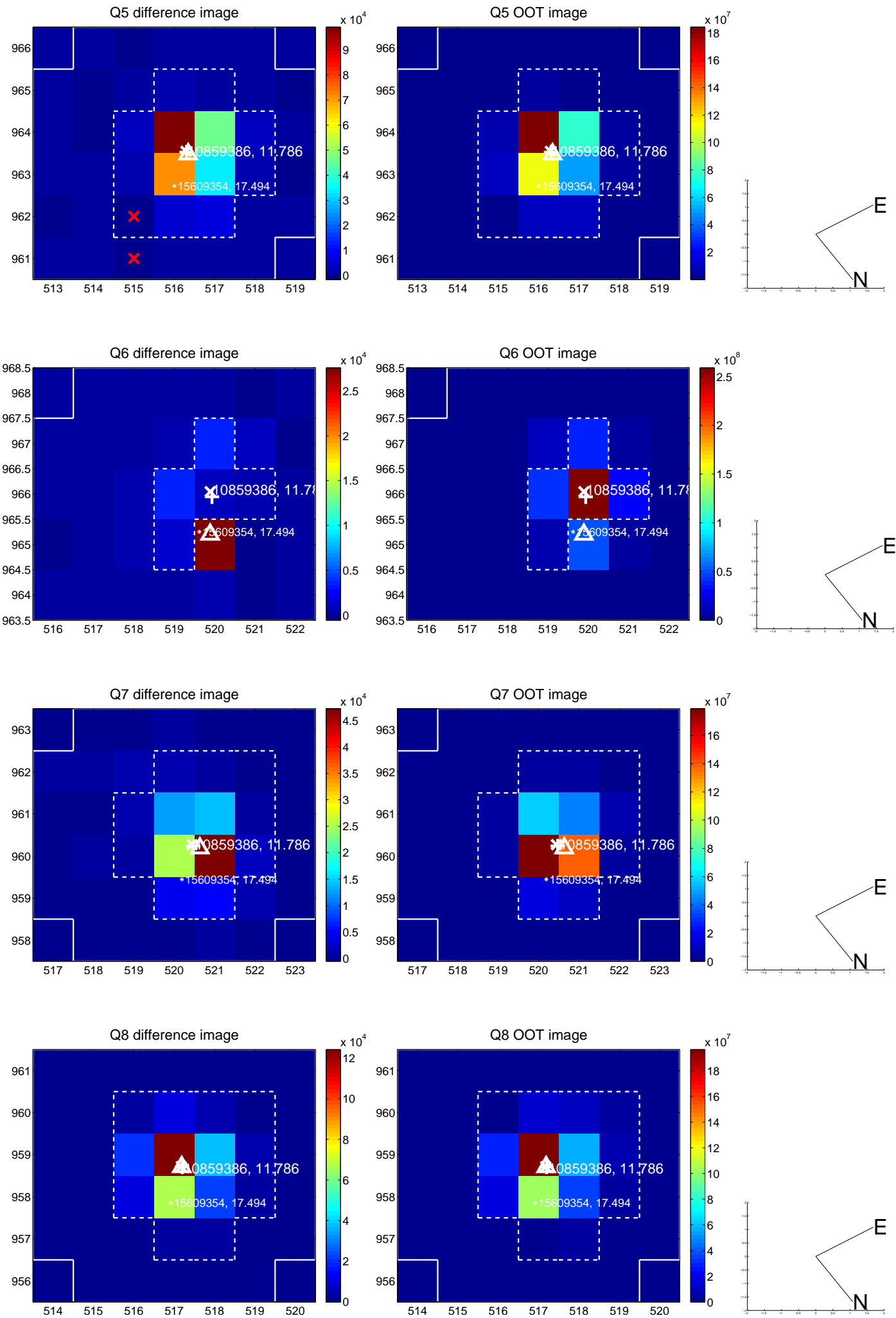


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

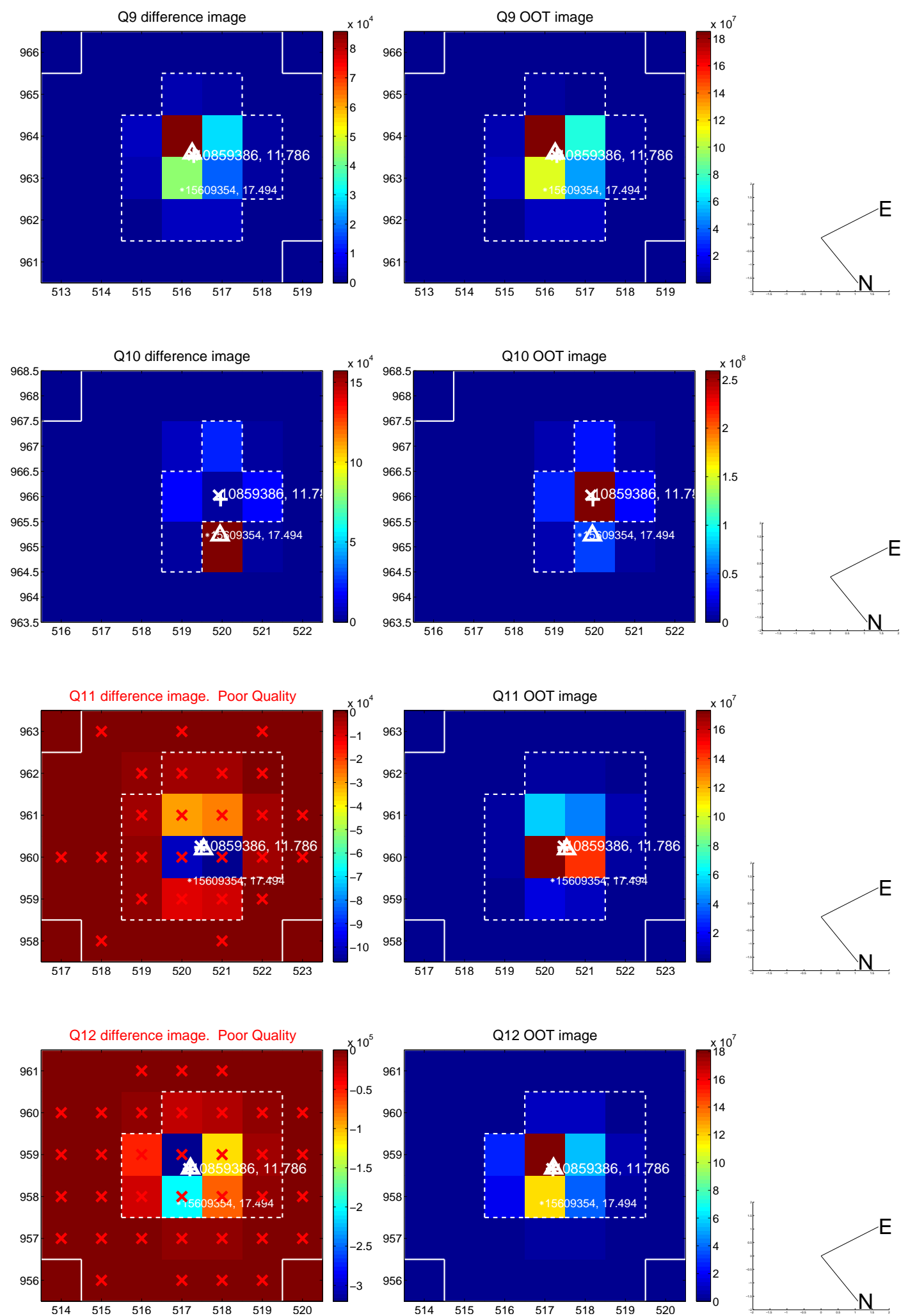
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



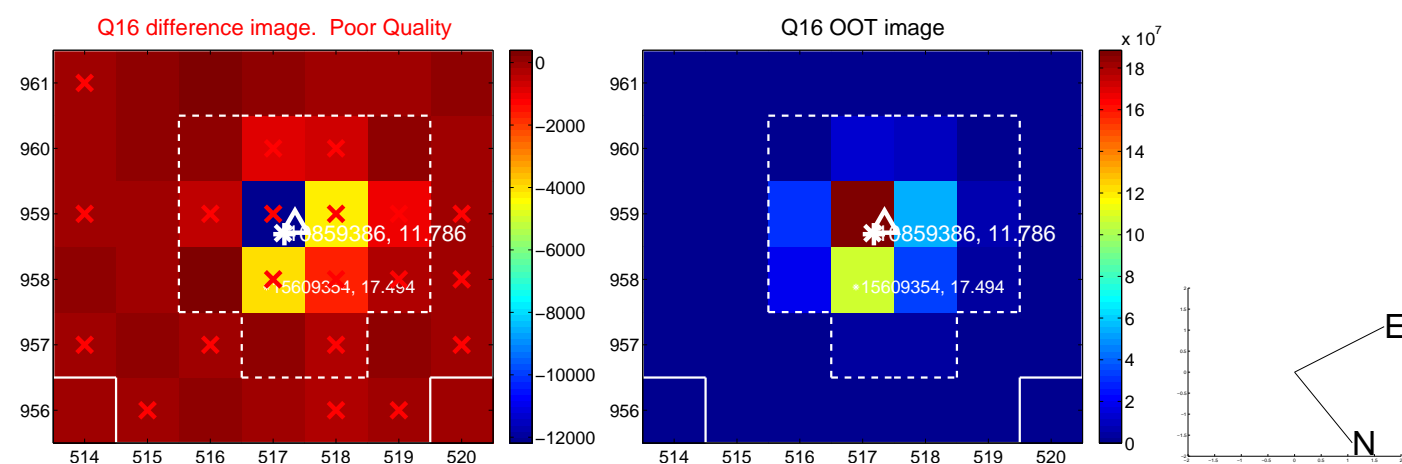
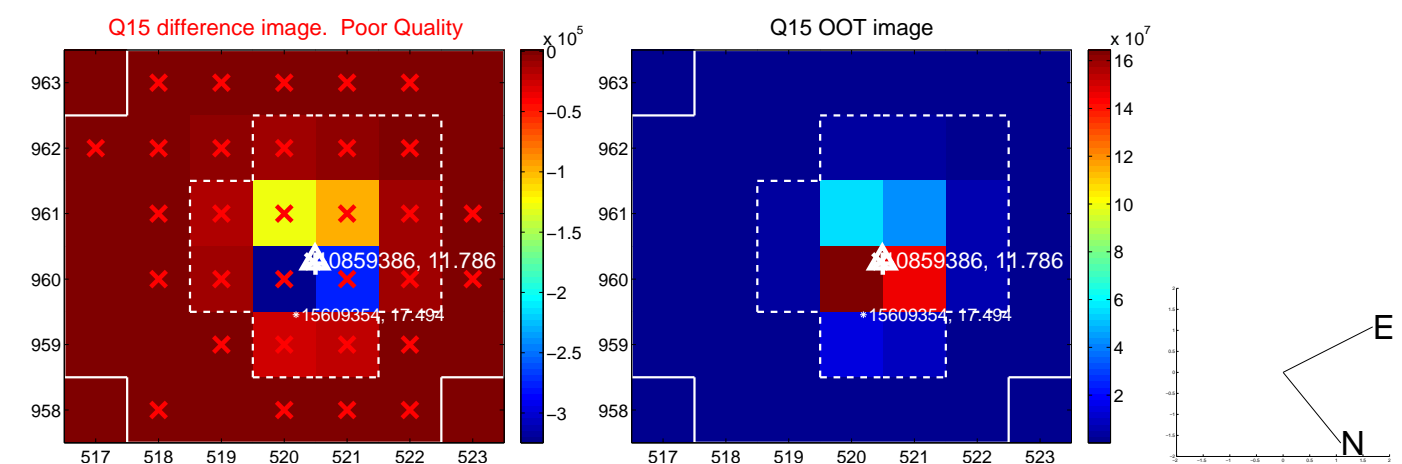
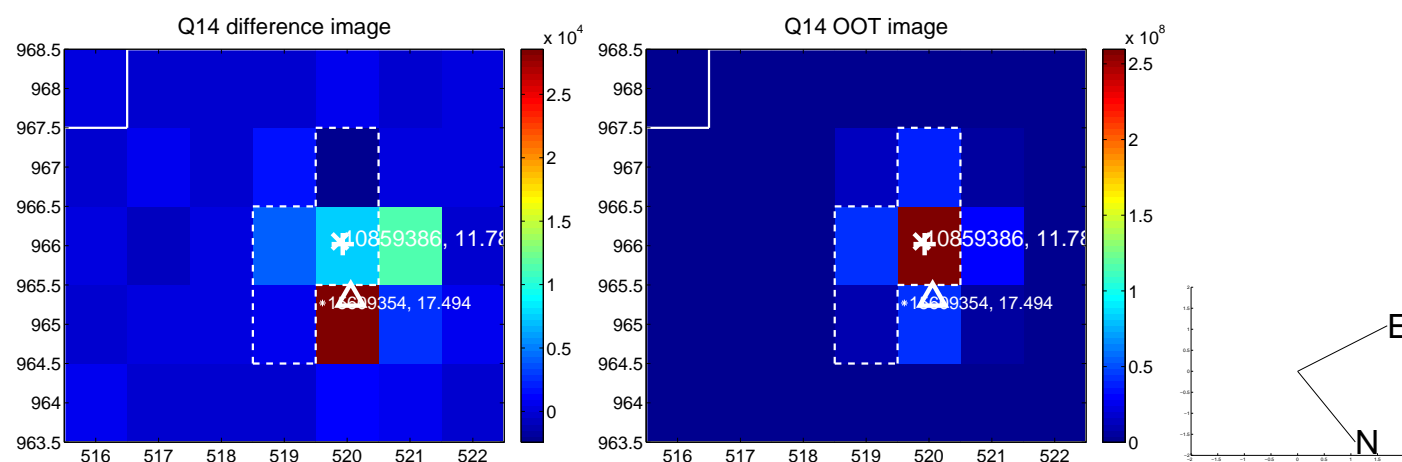
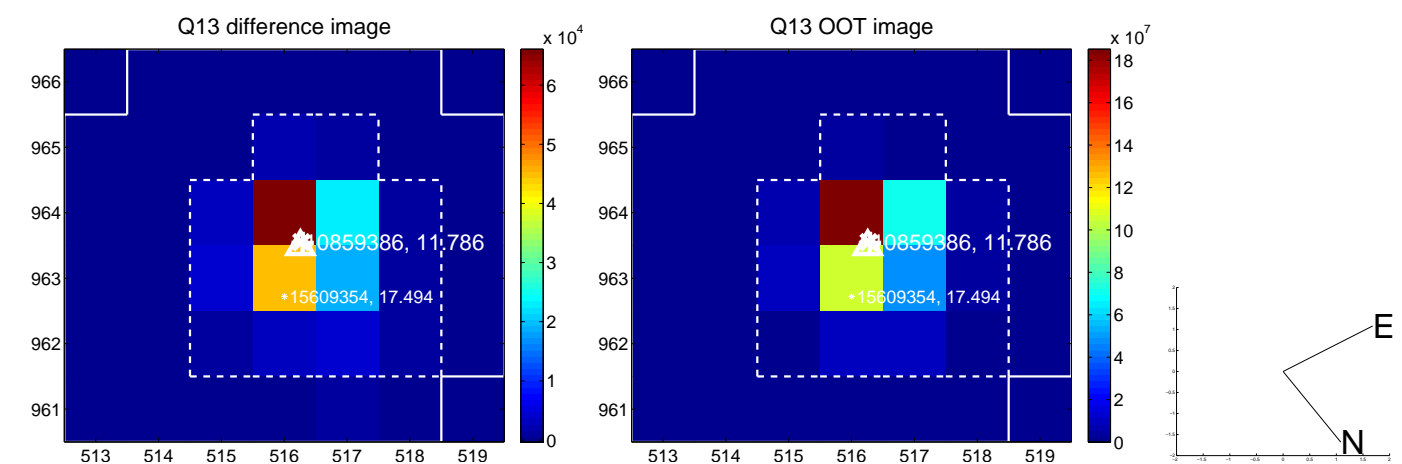
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



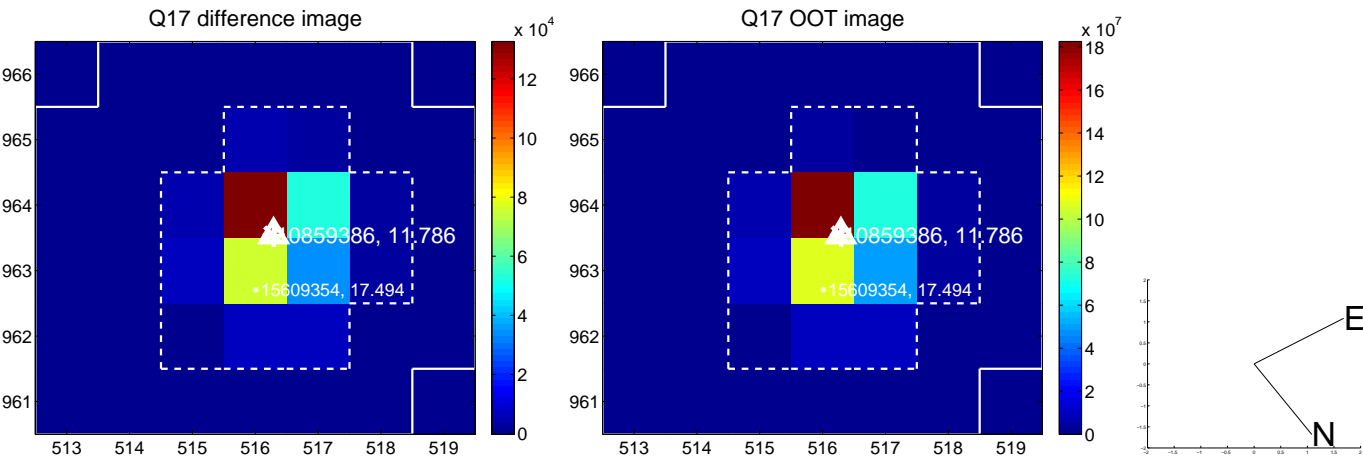
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

