

KIC 011820820

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})
011820820-01	OBS	No	2.242903	133.417001	20.1	3.194	7.7	5.2	1.54	7134	0.81	3871.41
011820820-02	OBS	No	1.121640	132.417882	19.9	3.901	8.1	7.1	1.54	7134	0.70	9753.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011820820-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
011820820-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_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.

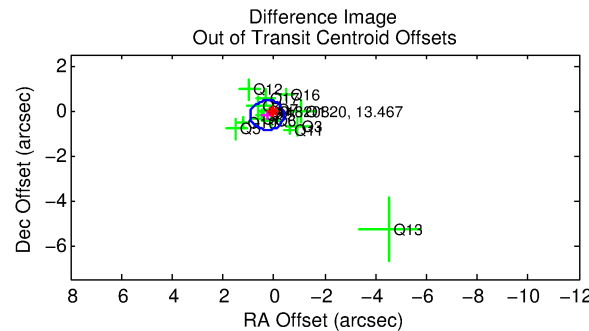
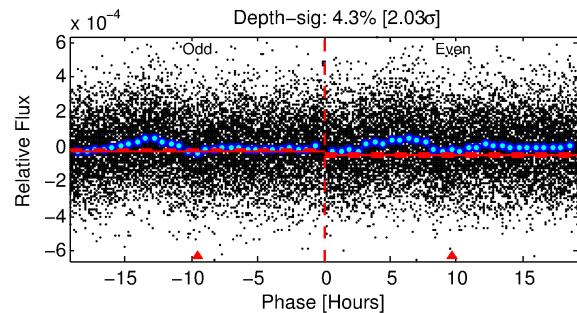
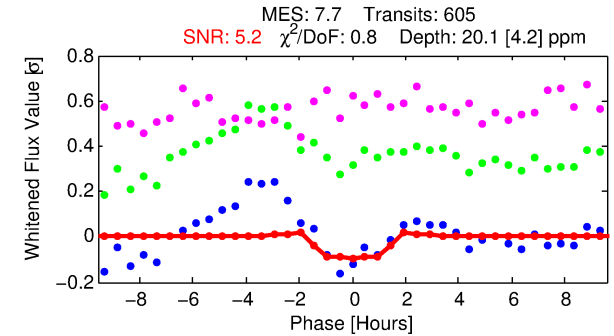
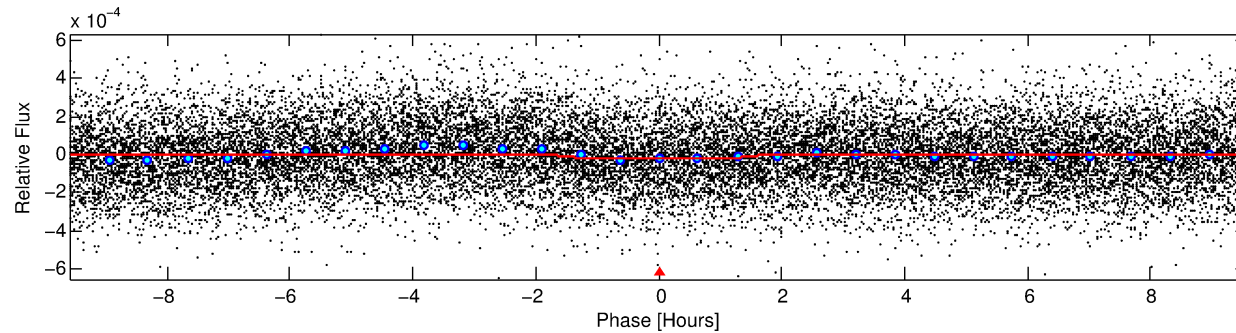
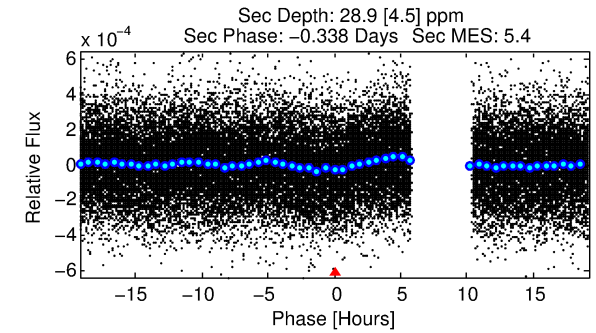
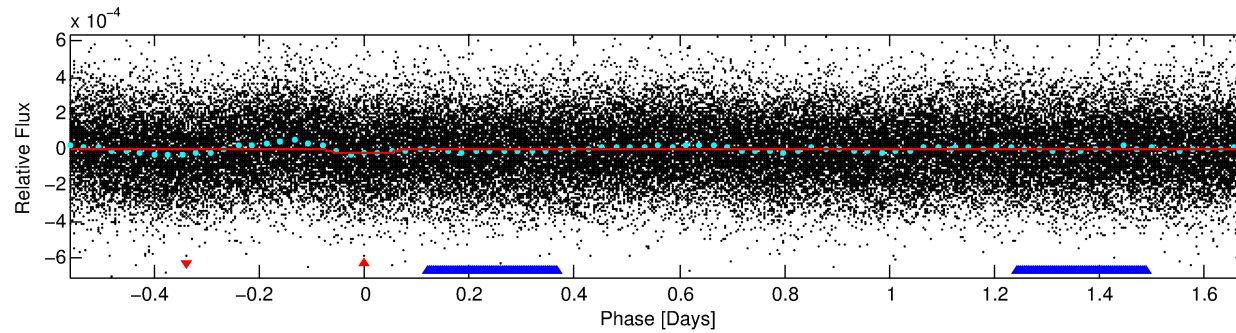
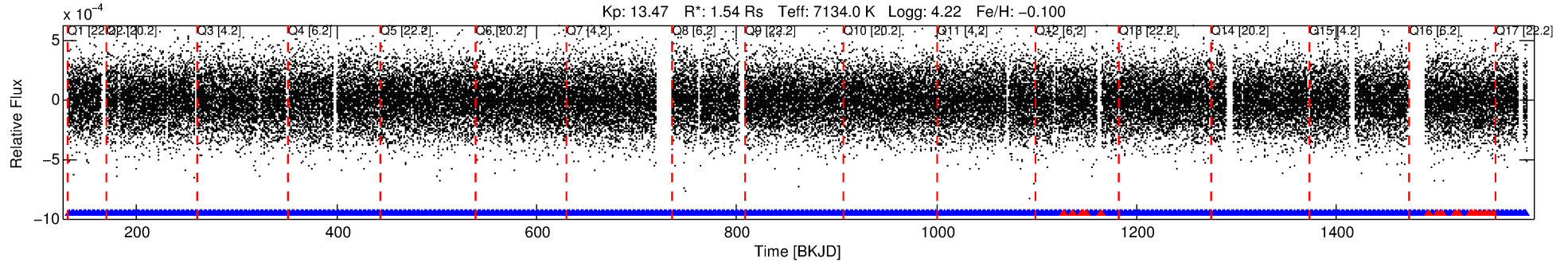
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011820820-01

No Significant Match Found

DV One-Page Summary

KIC: 11820820 Candidate: 1 of 2 Period: 2.243 d



DV Fit Results:

Period = 2.24290 [0.00003] d
Epoch = 133.4170 [0.0067] BKJD
Rp/R* = 0.0048 [0.0019]
a/R* = 2.52 [5.06]
b = 0.91 [0.48]
Seff = 3871.41 [1671.96]
Teq = 2011 [217] K
Rp = 0.81 [0.42] Re
a = 0.0378 [0.0107] AU
Ag = 35.00 [31.02] [1.10σ]
Teffp = 7564 [1531] K [3.59σ]

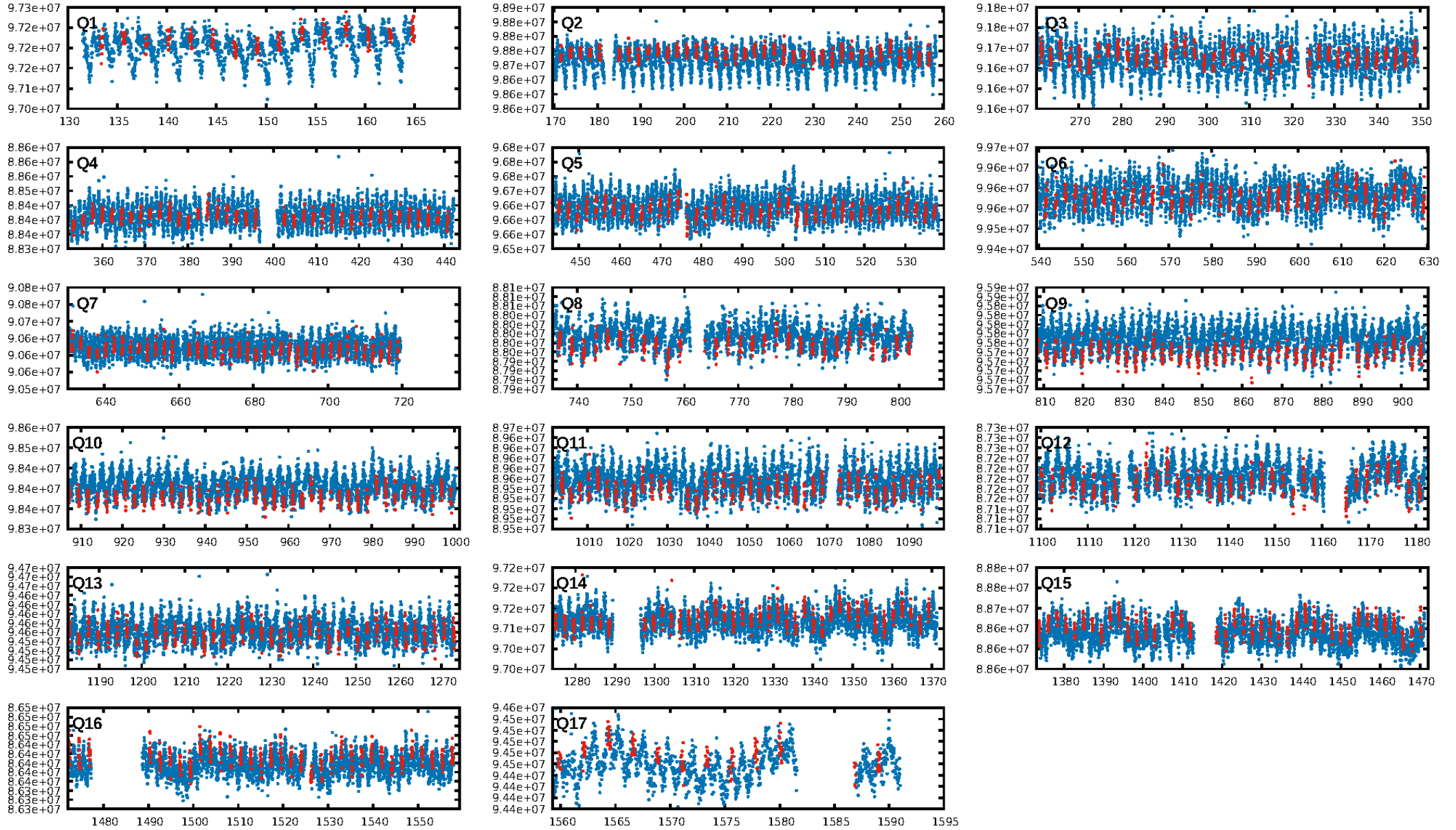
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.34σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.51e-12
RollingBand-fgt: 0.97 [559/578]
GhostDiagnostic-chr: 4.042
Centroid-sig: 47.6%
Centroid-so: 1.878 arcsec [1.01σ]
OotOffset-rm: 0.331 arcsec [1.51σ]
KicOffset-rm: 0.343 arcsec [1.61σ]
OotOffset-st: 2/4/4/5 [15]
KicOffset-st: 2/4/4/5 [15]
DiffImageQuality-fgm: 0.73 [11/15]
DiffImageOverlap-fno: 0.00 [0/17]

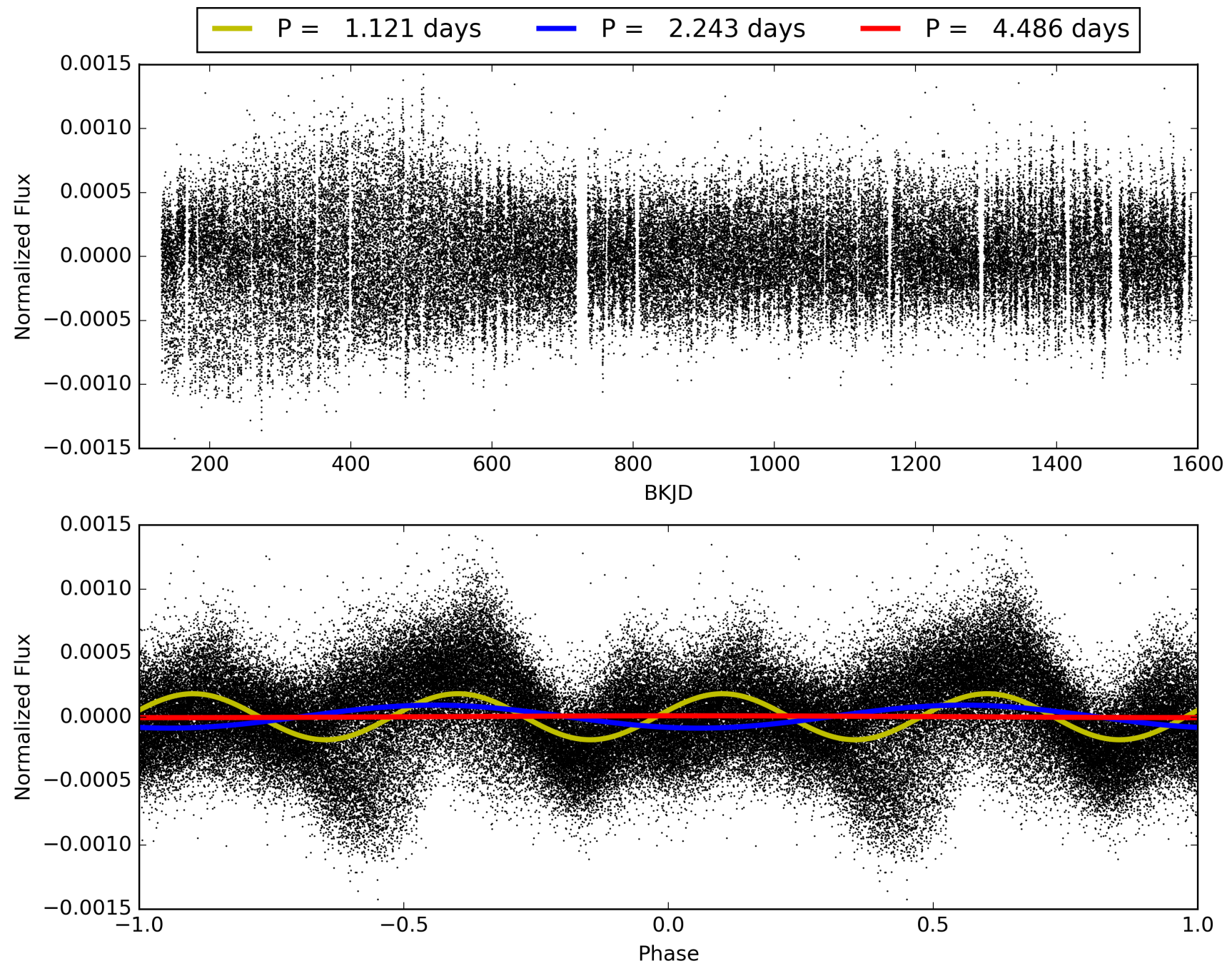
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:07:39 Z

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

TCE 011820820-01, PDC Light Curves

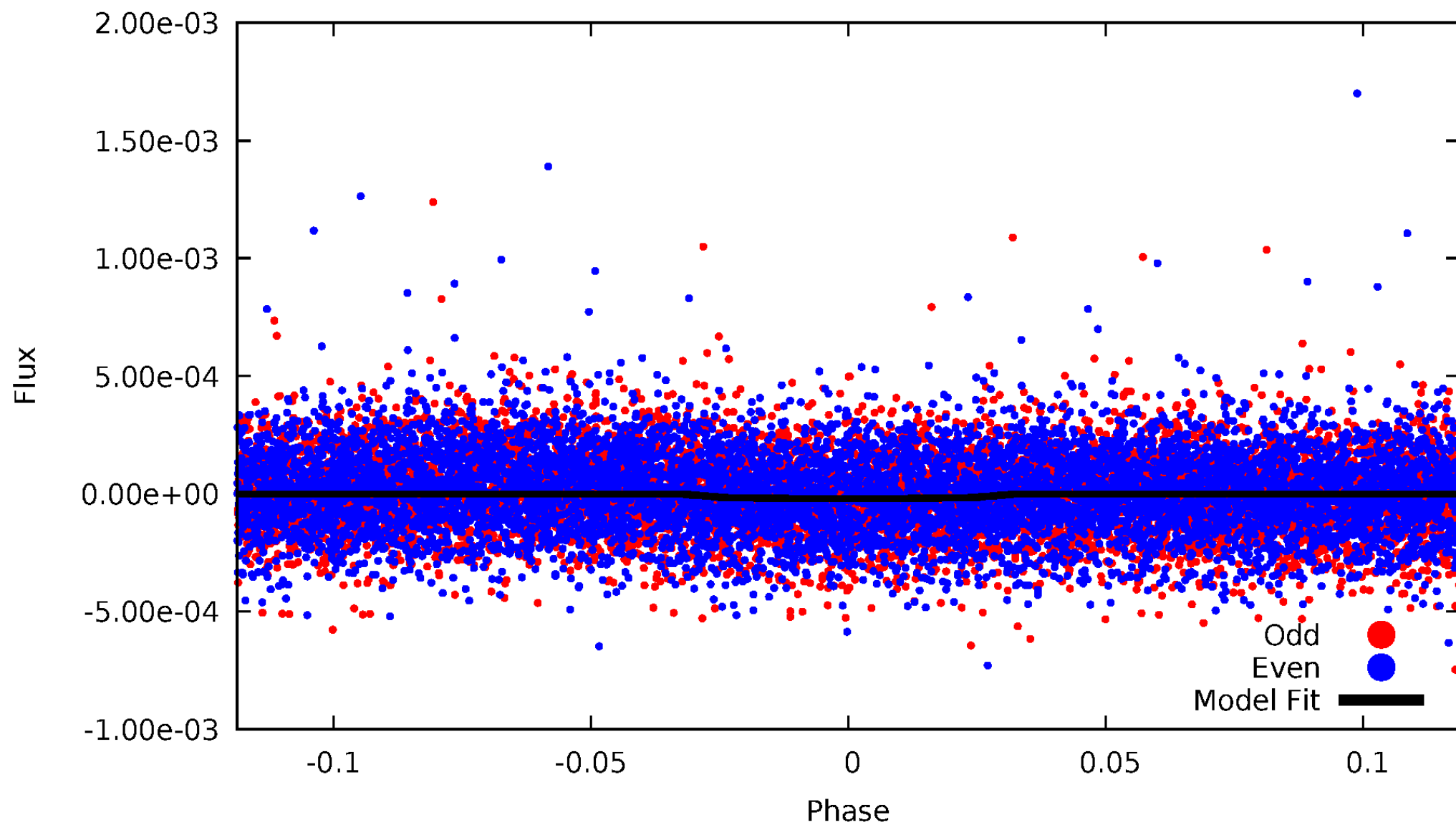


TCE 011820820-01



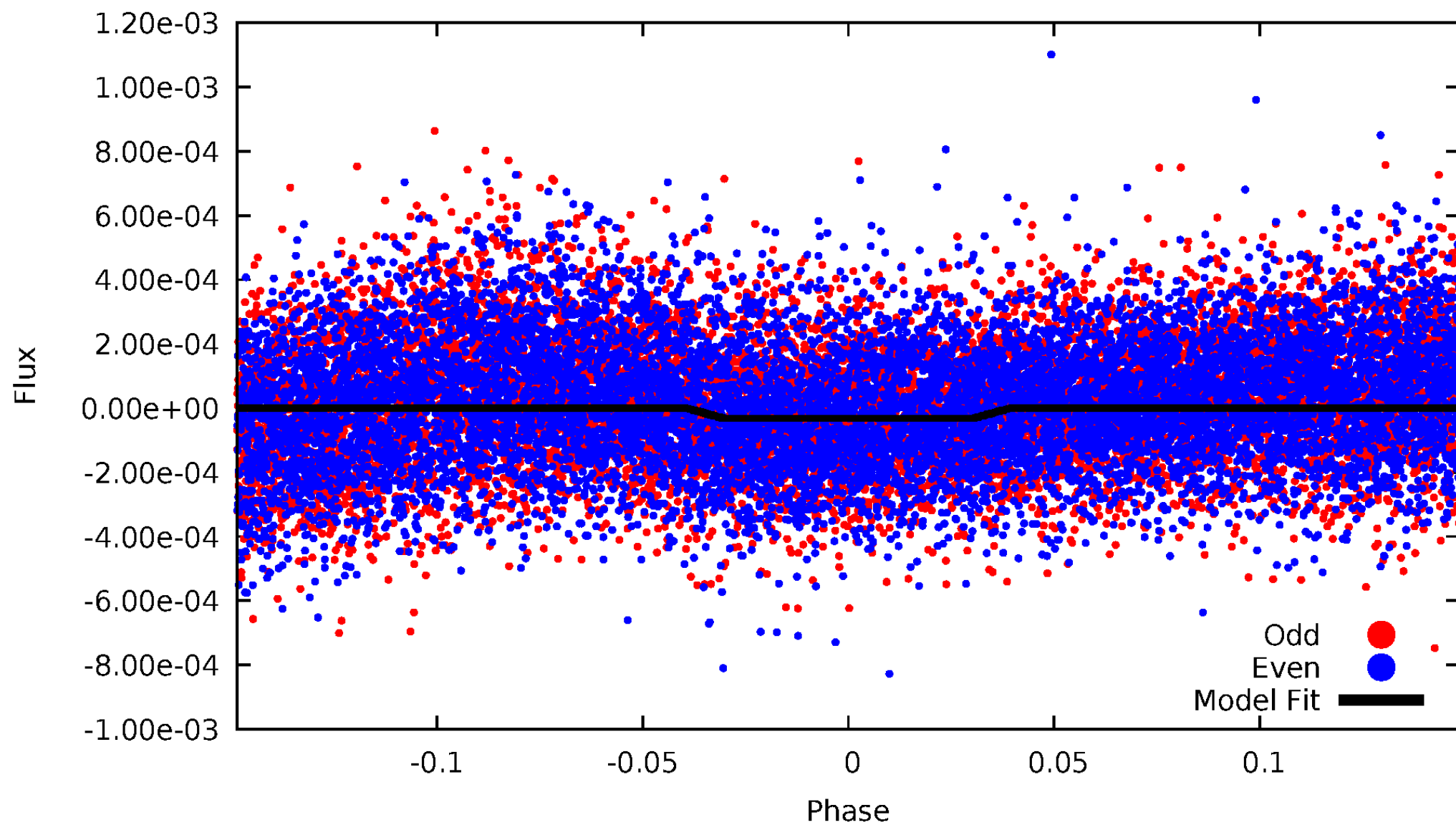
DV Odd/Even

TCE 011820820-01



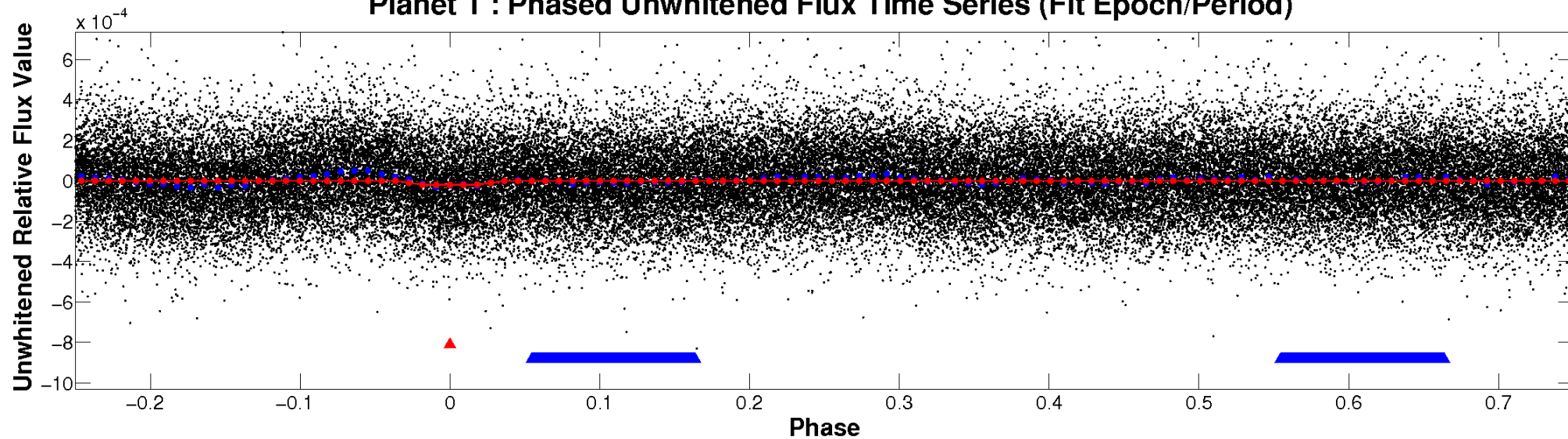
ALT Odd/Even

TCE 011820820-01

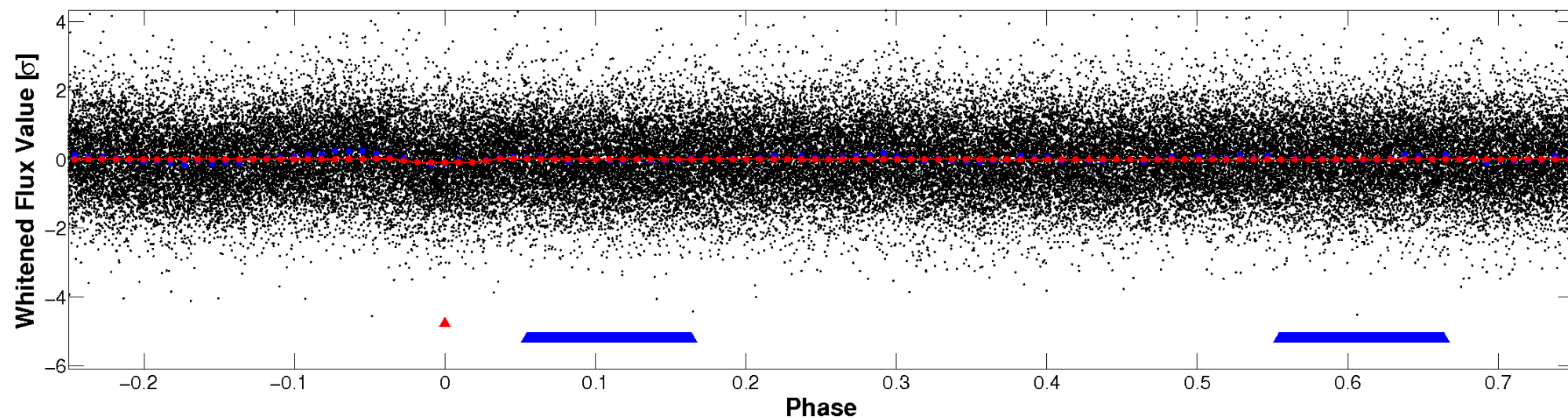


Non-Whitened Vs. Whitened Light Curve

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

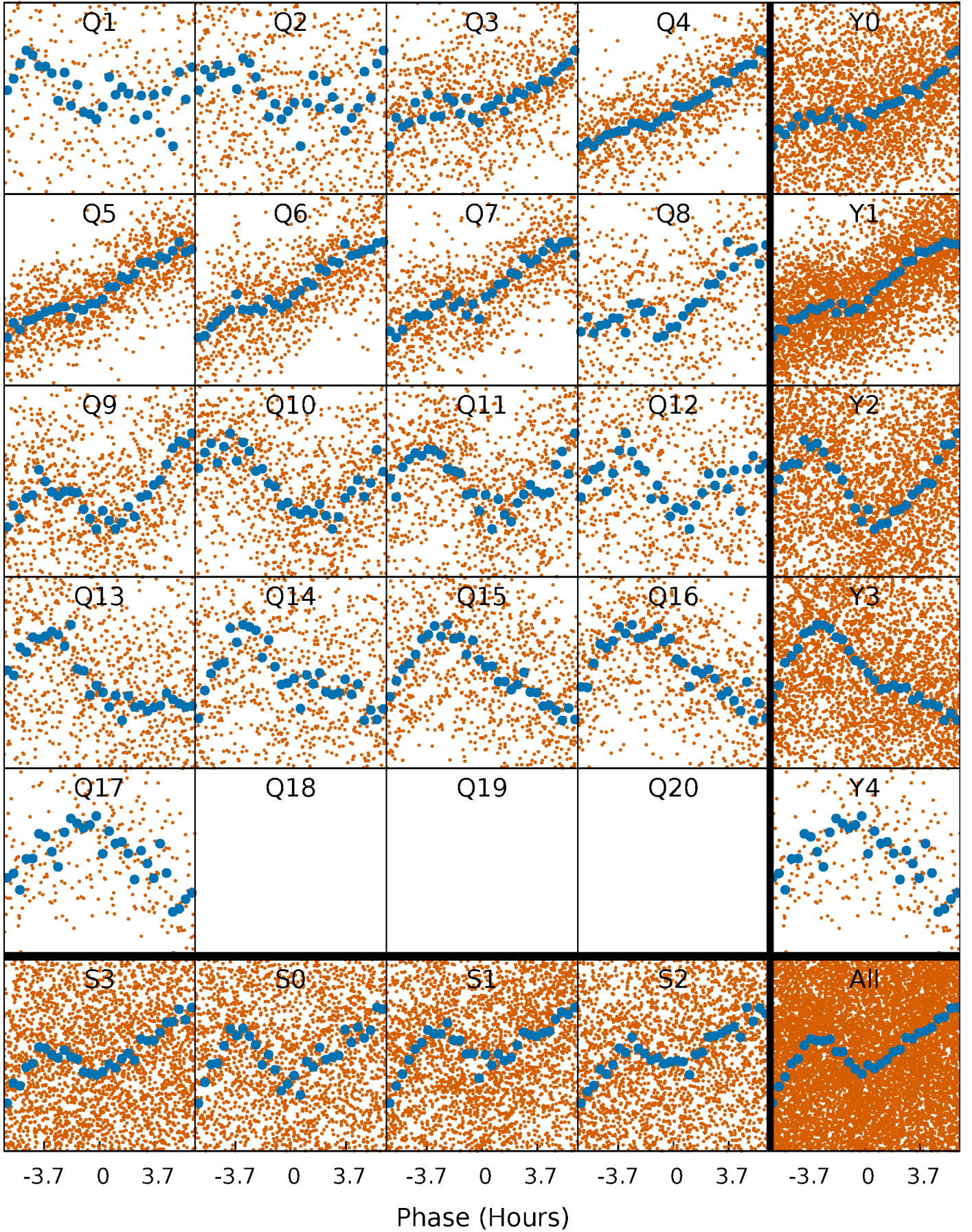


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



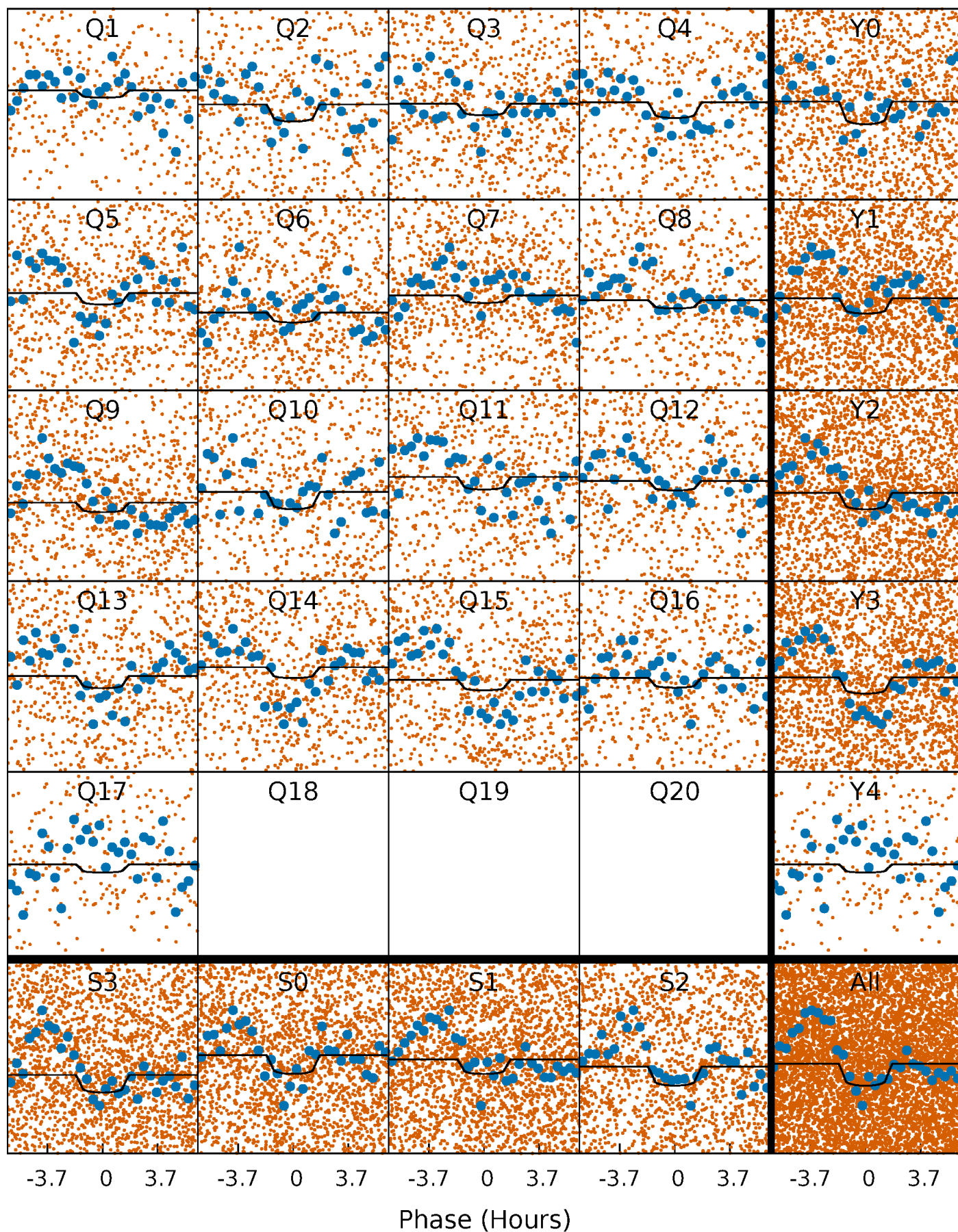
PDC Quarter-Phased Transit Curves

TCE 011820820-01 P= 2.242903 Days $T_0=133.417001$ (BKJD)



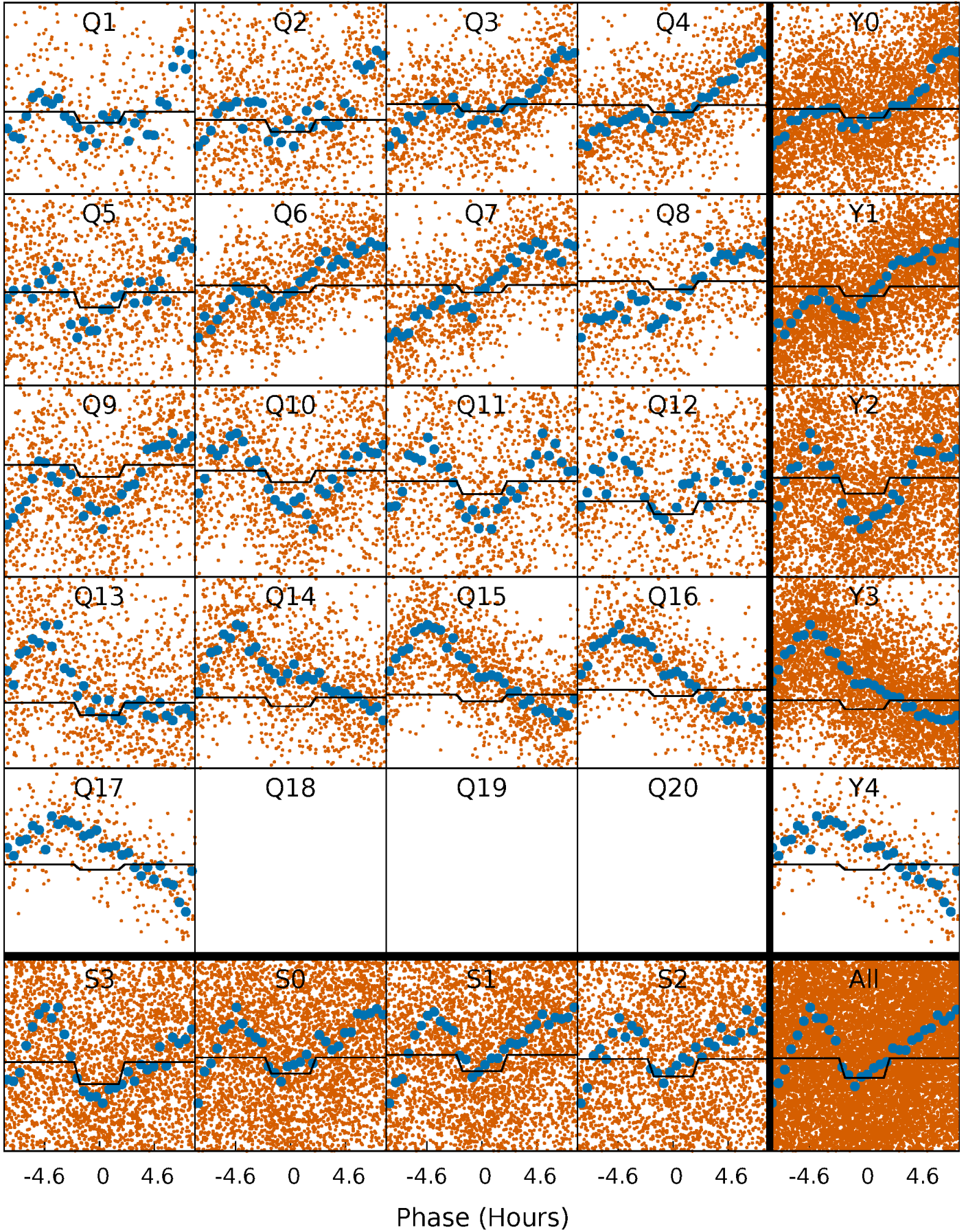
DV Quarter-Phased Transit Curves

TCE 011820820-01 P= 2.242903 Days $T_0=133.417001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

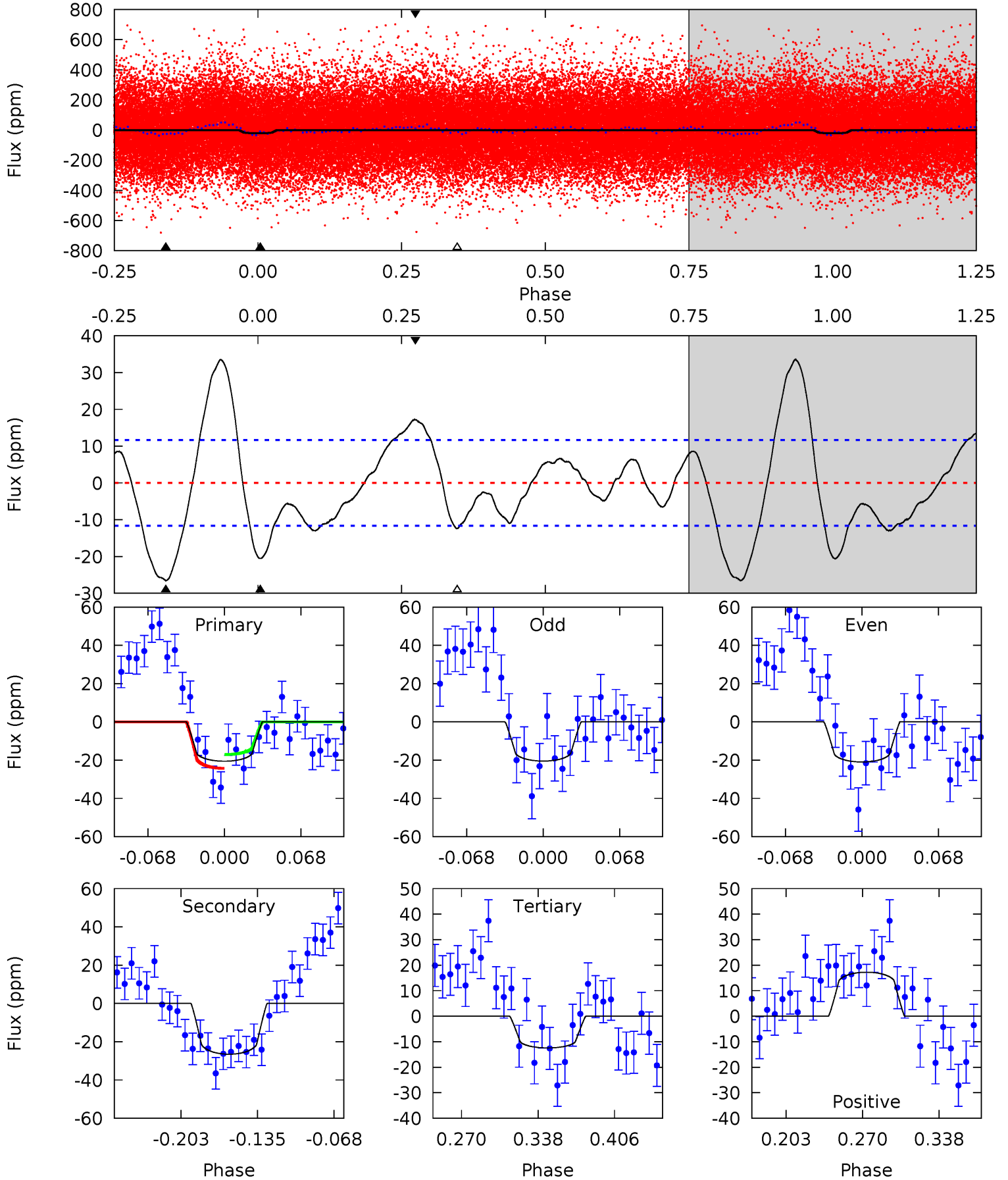
TCE 011820820-01 P= 2.243014 Days $T_0=133.419318$ (BKJD)



DV Model-Shift Uniqueness Test

011820820-01, P = 2.242903 Days, E = 131.174098 Days

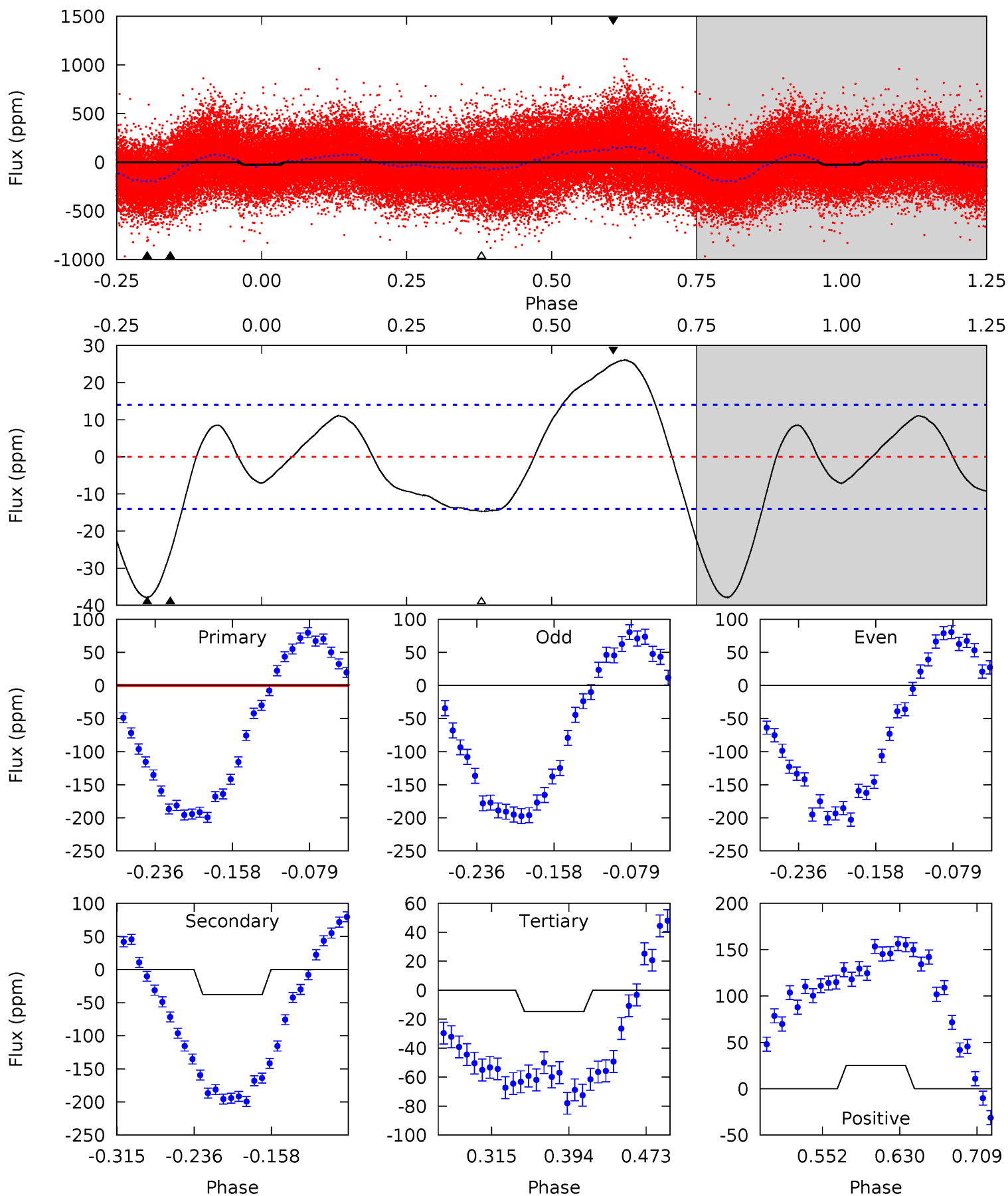
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.18	10.6	4.95	6.86	4.65	1.83	3.79	3.24	1.32	5.62	3.70	0.10	1.07	0.56	1.45



Alt Model-Shift Uniqueness Test

011820820-01, P = 2.243014 Days, E = 131.176304 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.50	12.4	4.84	8.23	4.61	1.76	4.14	3.66	0.26	7.61	4.22	1.08	0.75	0.41	2.85



Stellar Parameters For KIC 011820820

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7134^{+200}_{-300}	$4.216^{+0.105}_{-0.210}$	$-0.100^{+0.250}_{-0.400}$	$1.542^{+0.539}_{-0.270}$	$1.428^{+0.209}_{-0.209}$	$0.549^{+0.281}_{-0.295}$
	+3%/-4%	+2%/-5%	+250%/-400%	+35%/-18%	+15%/-15%	+51%/-54%
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 011820820-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-27 ± 3	$0.82^{+0.36}_{-0.33}$	2832^{+247}_{-170}	7398^{+2820}_{-1255}	30^{+55}_{-15}
Alt.	-38 ± 3	$0.98^{+0.40}_{-0.34}$	2838^{+225}_{-177}	7488^{+2155}_{-1245}	31^{+42}_{-16}

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

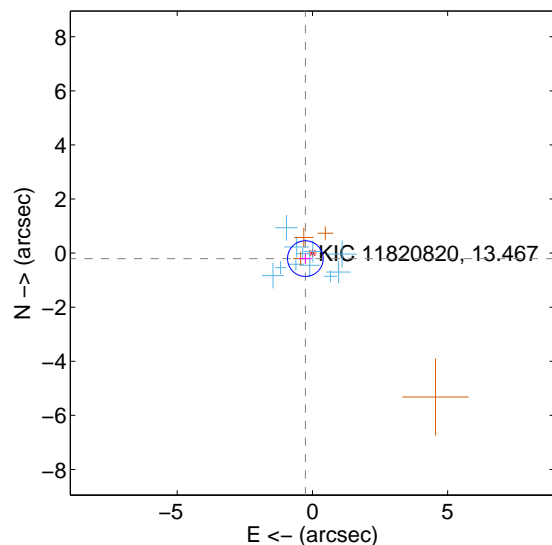
Supplemental centroid analysis for 011820820-01. Kepler magnitude: 13.47. Transit SNR 5.17

There are 11 quarters with good PRF difference image offsets

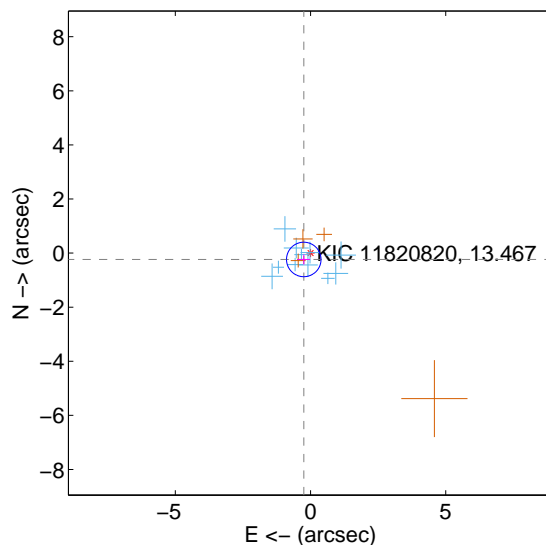
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.331 ± 0.220	1.51	0.262 ± 0.237	-0.203 ± 0.188
PRF-fit source offset from KIC position	0.343 ± 0.213	1.61	0.250 ± 0.234	-0.235 ± 0.186
photometric centroid source offset	1.88 ± 1.86	1.01	1.87 ± 1.86	-0.17 ± 1.98

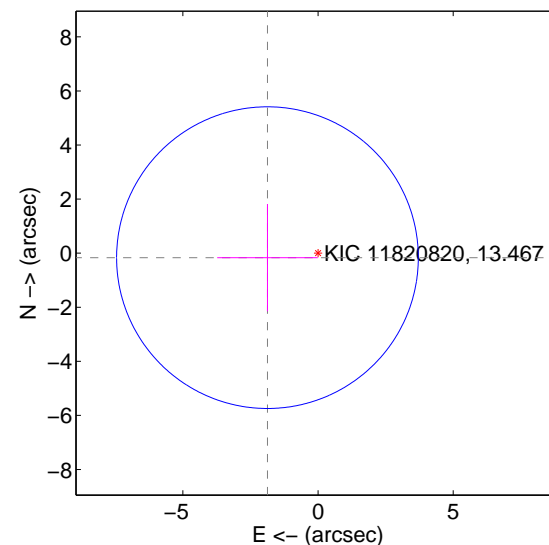
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

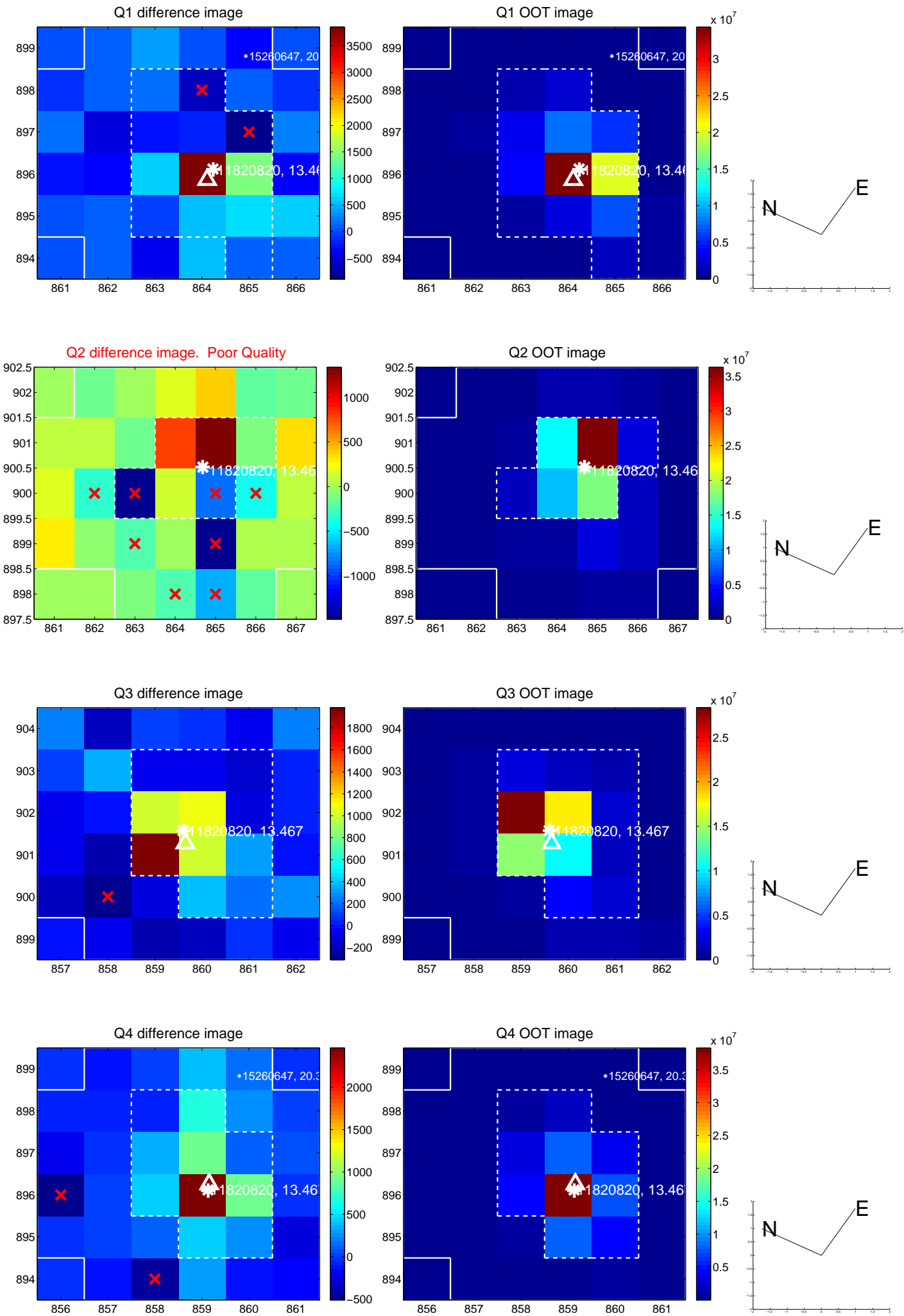


offset from photometric centroids

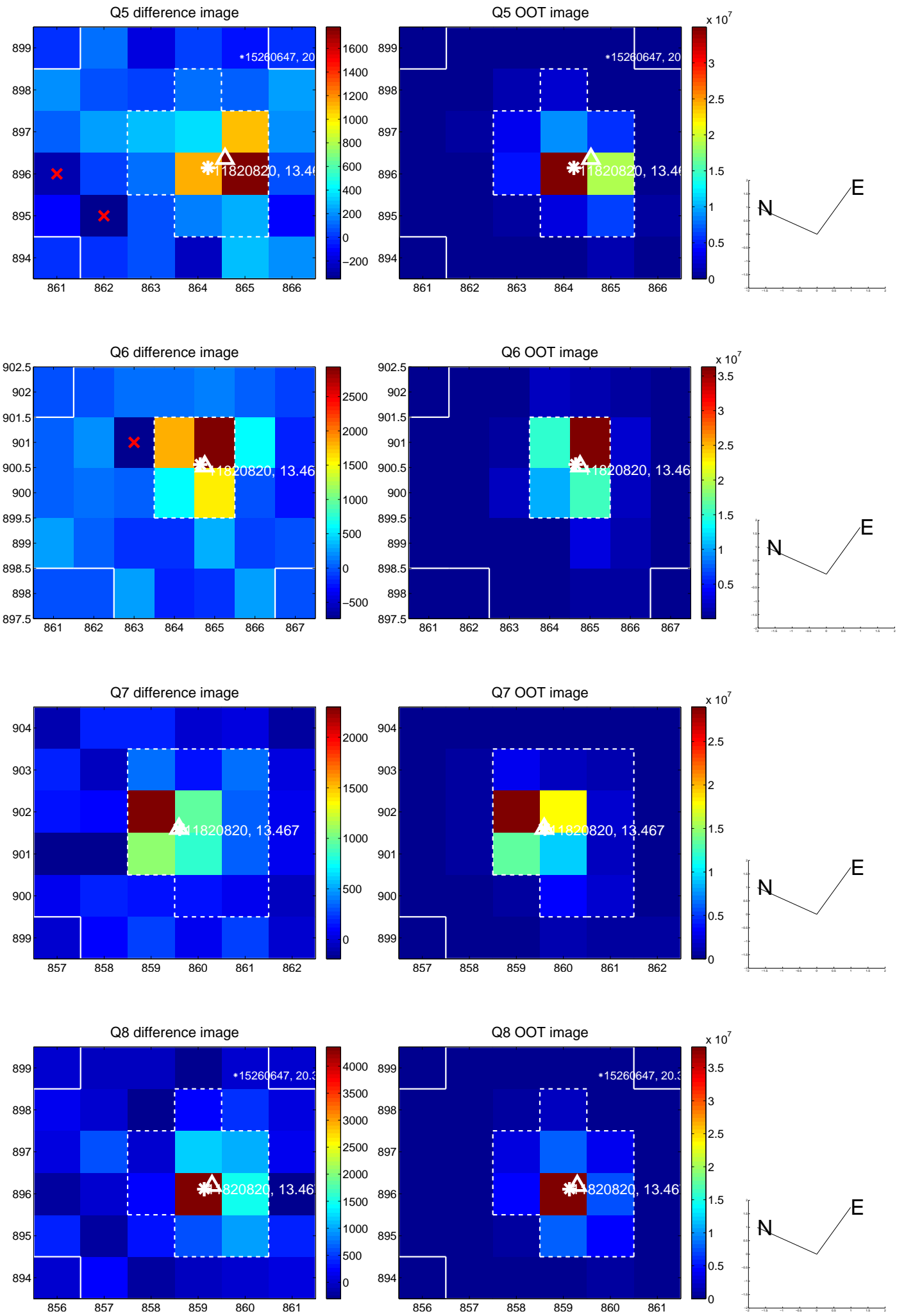


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

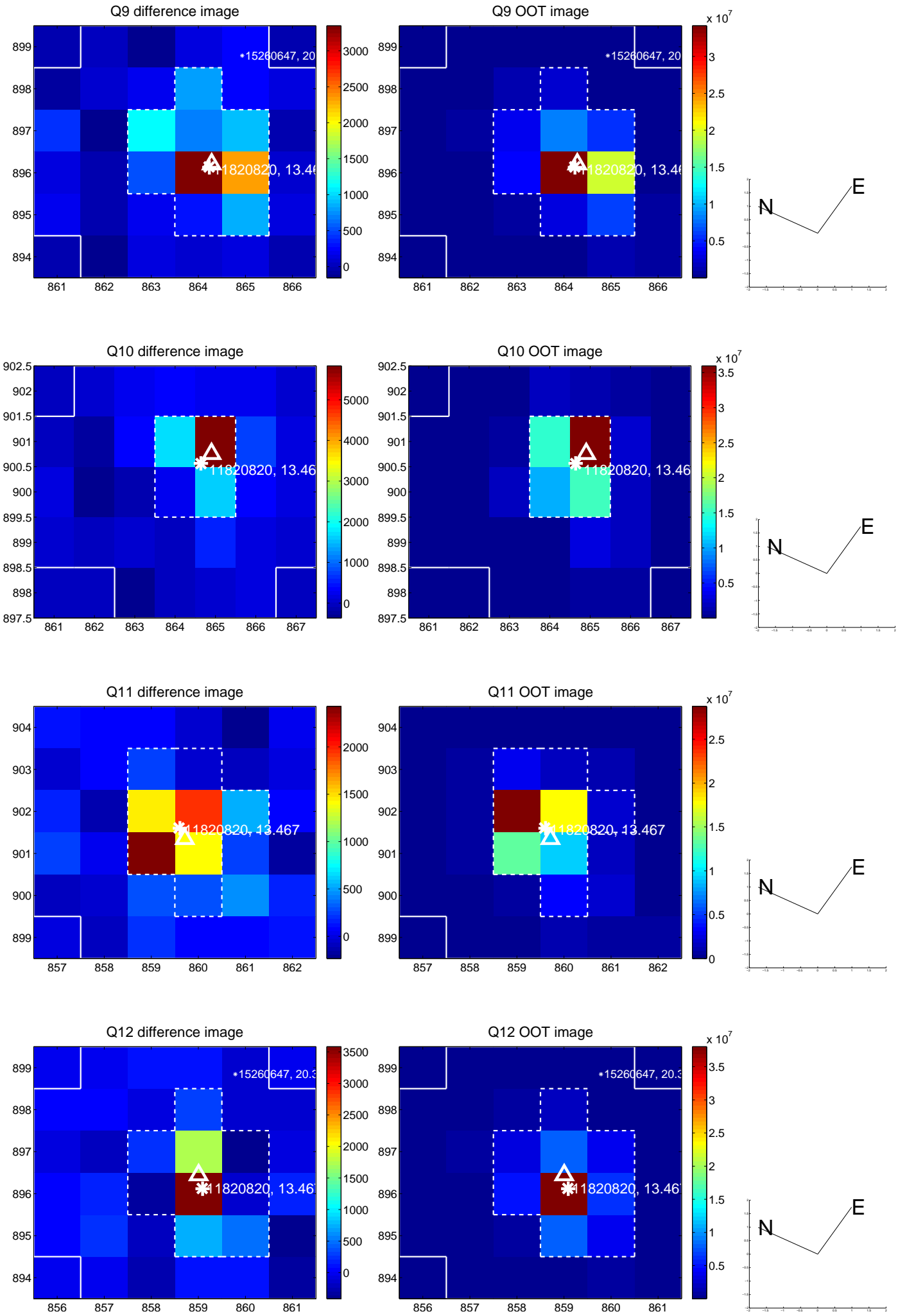
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



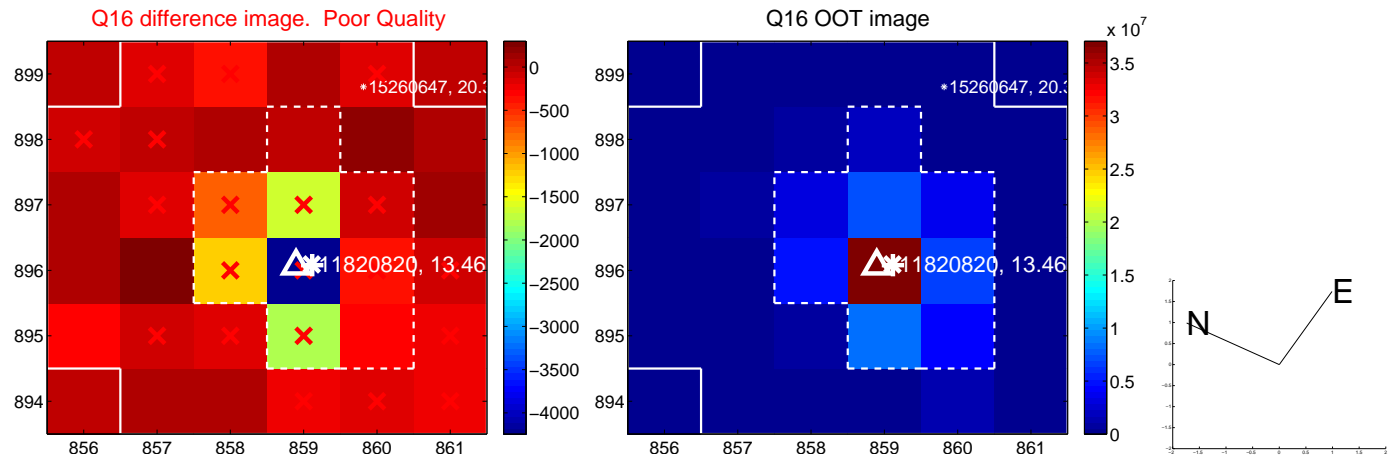
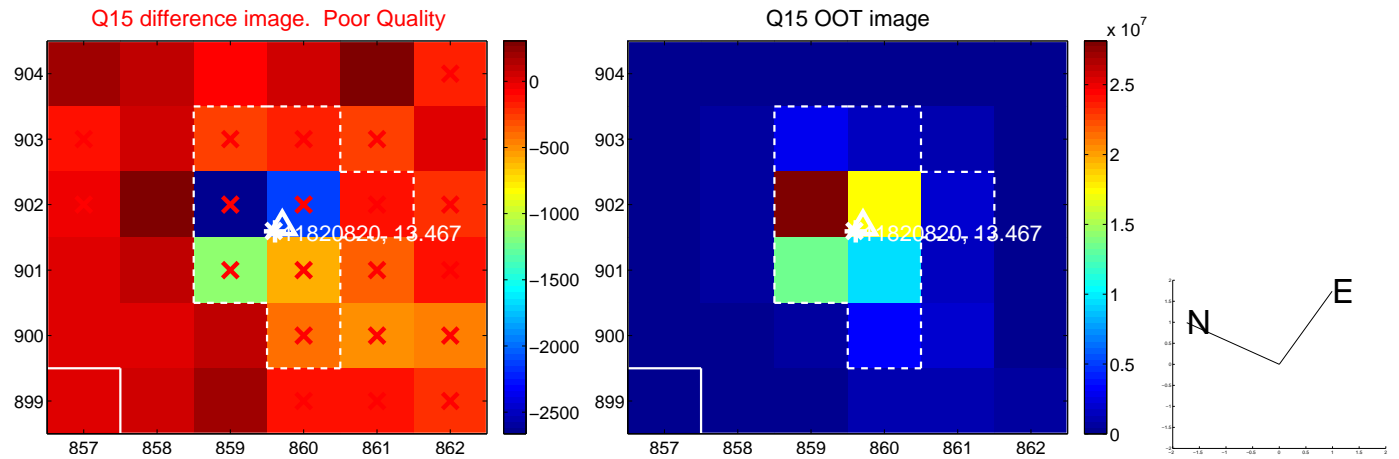
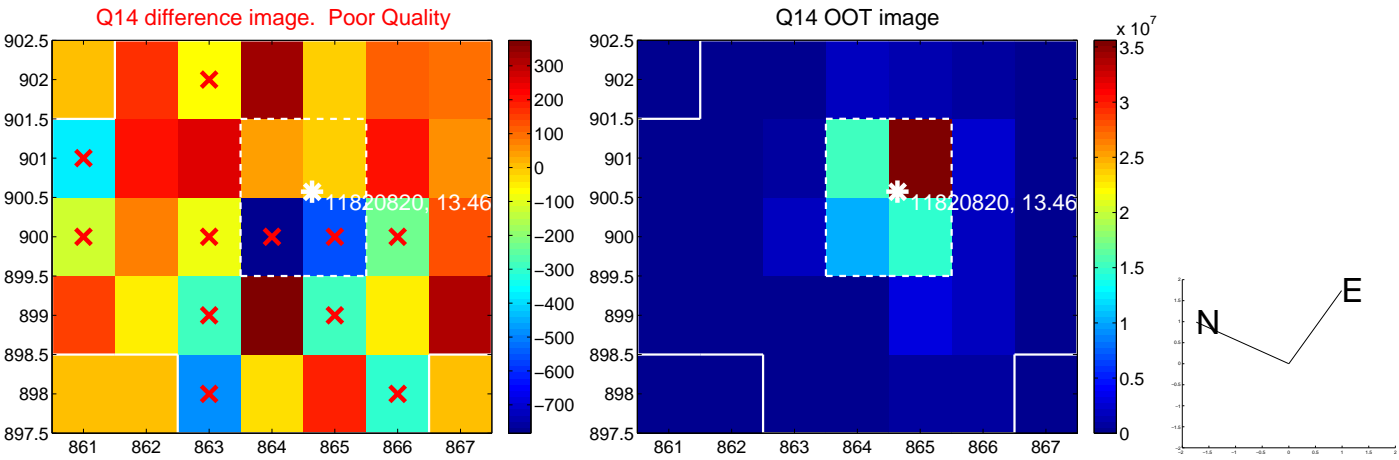
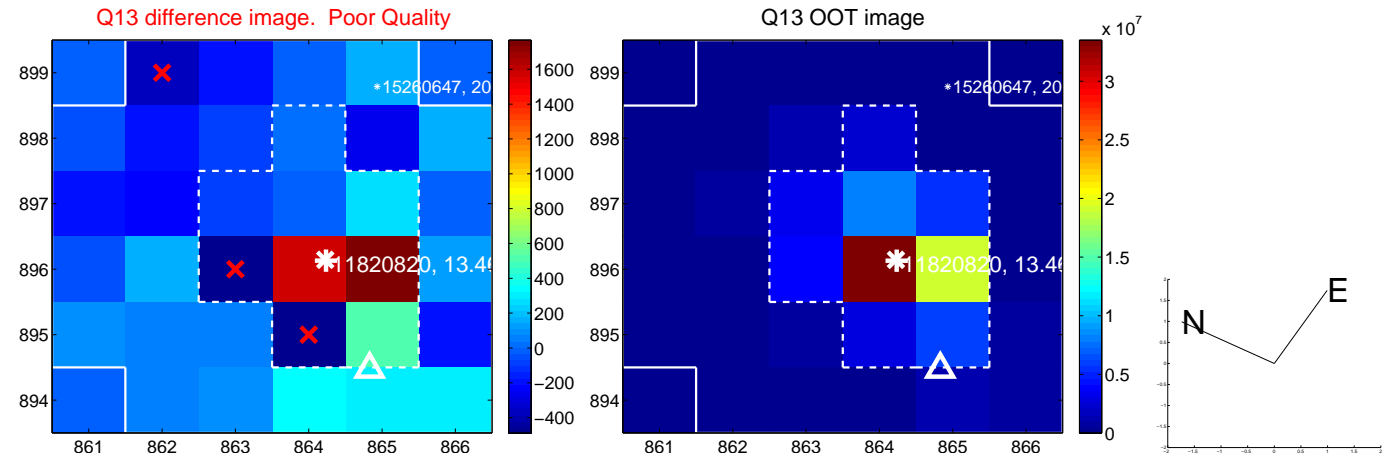
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



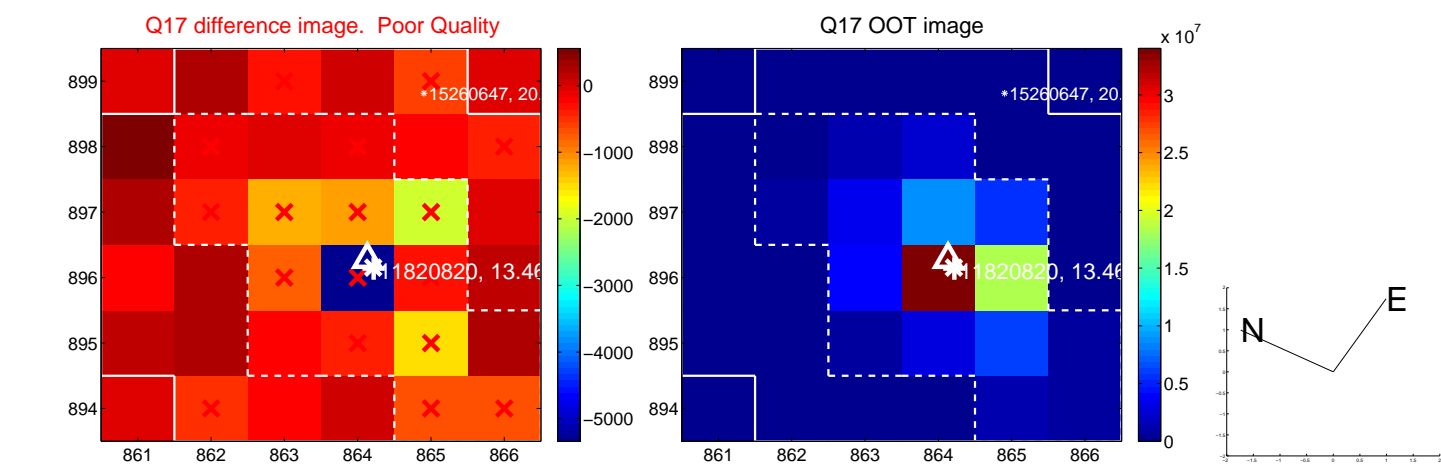
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



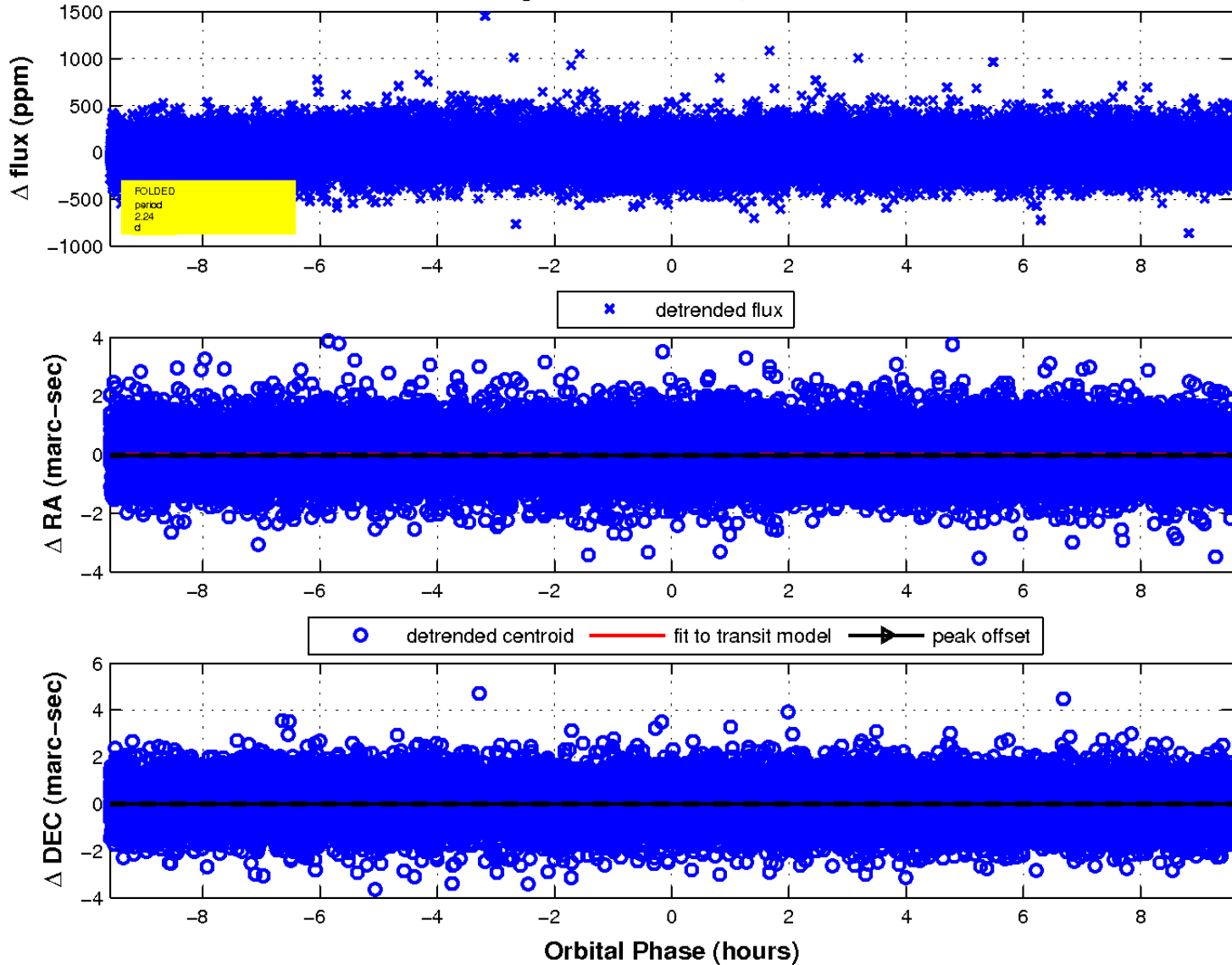
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

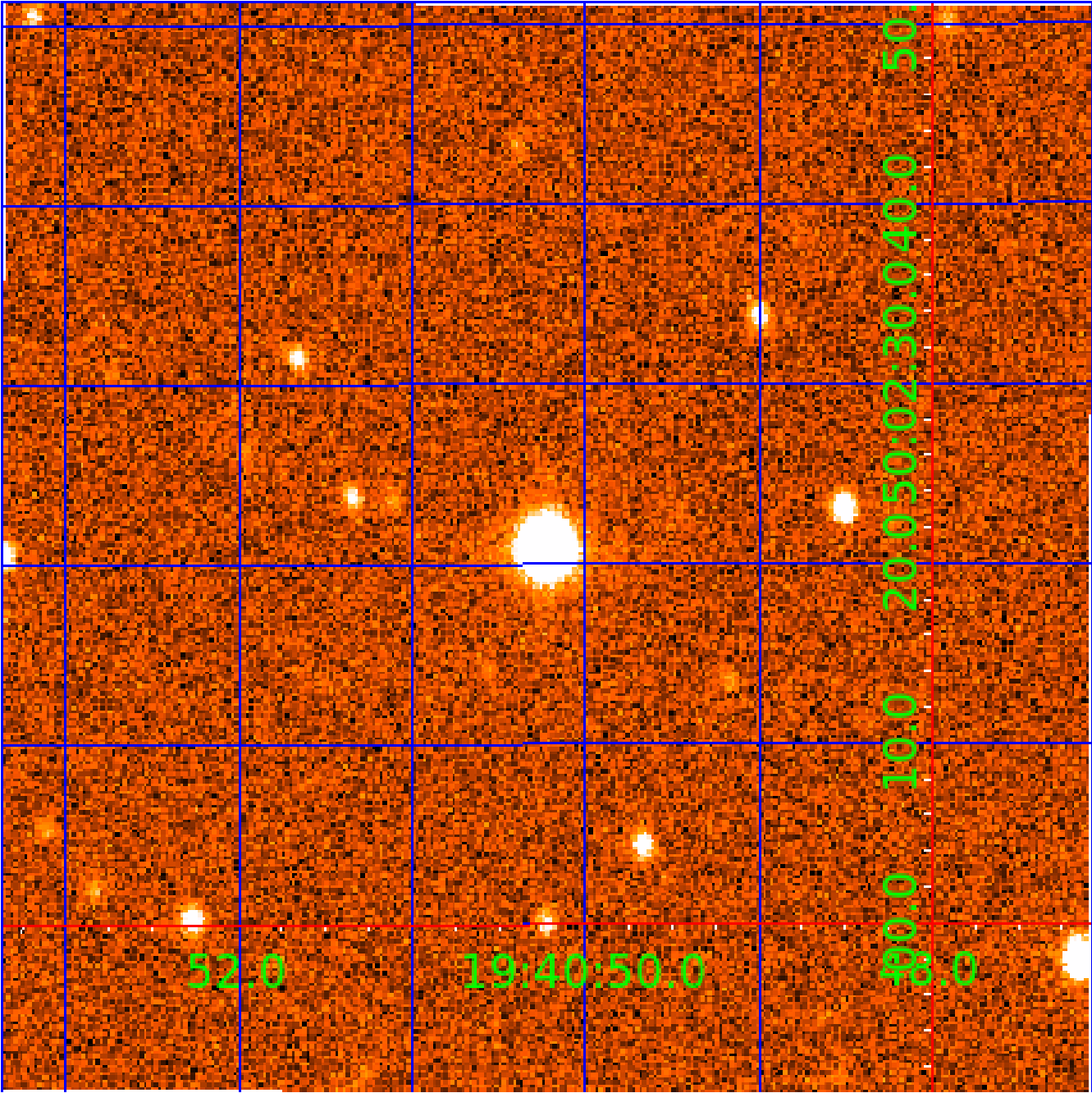


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011820820

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})
011820820-01	OBS	No	2.242903	133.417001	20.1	3.194	7.7	5.2	1.54	7134	0.81	3871.41
011820820-02	OBS	No	1.121640	132.417882	19.9	3.901	8.1	7.1	1.54	7134	0.70	9753.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011820820-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
011820820-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_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.

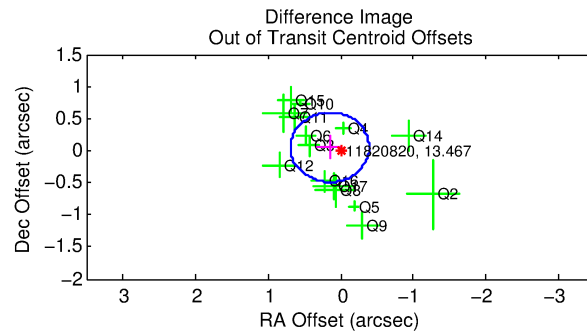
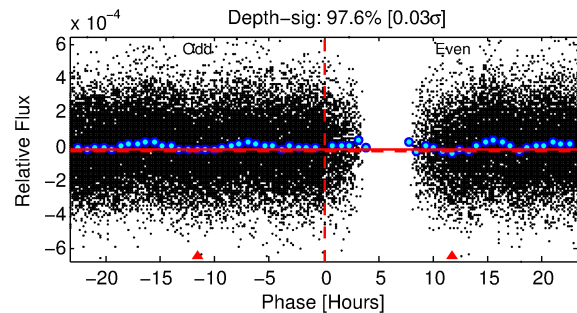
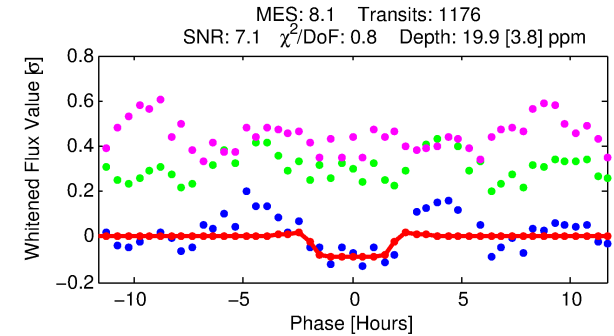
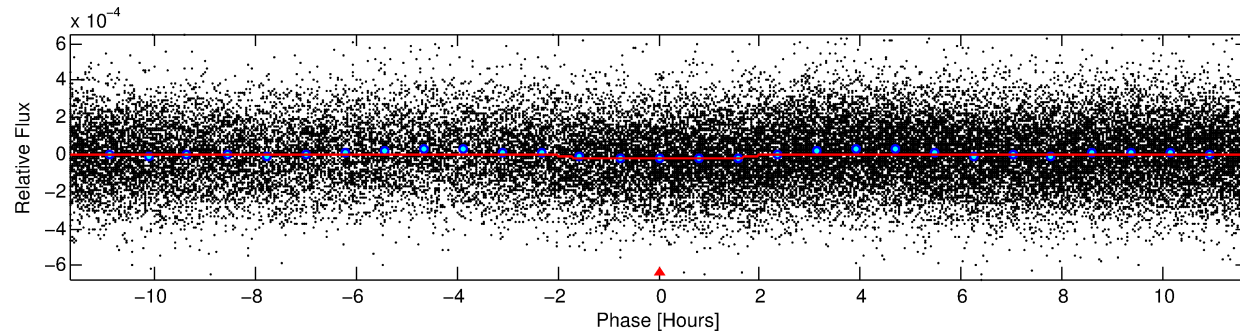
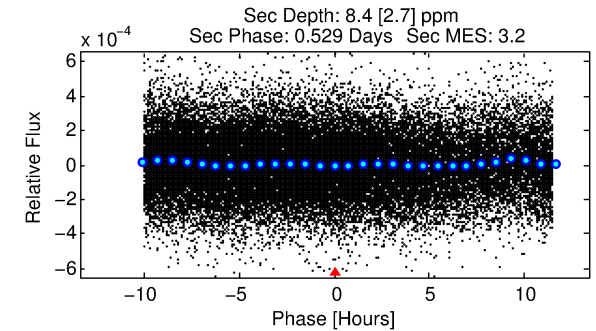
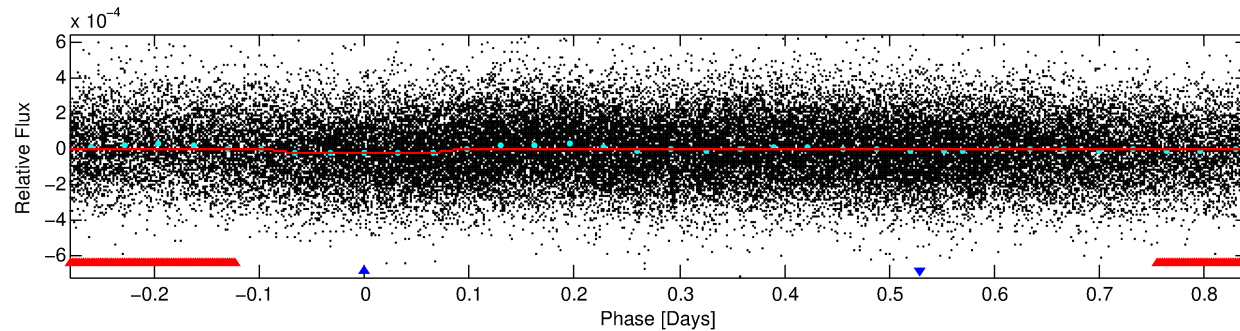
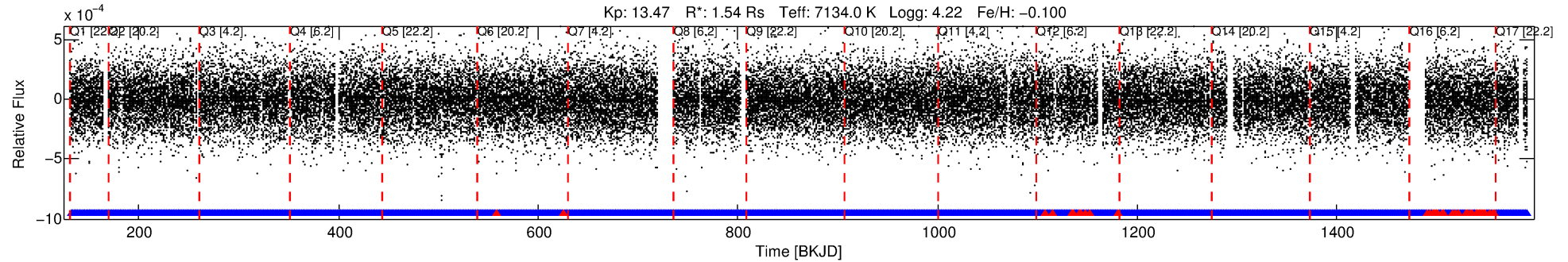
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011820820-02

No Significant Match Found

DV One-Page Summary

KIC: 11820820 Candidate: 2 of 2 Period: 1.122 d



DV Fit Results:

Period = 1.12164 [0.00002] d
Epoch = 132.4179 [0.0054] BKJD
Rp/R* = 0.0041 [0.0058]
a/R* = 2.28 [14.91]
b = 0.06 [126.58]
Seff = 9753.15 [4212.13]
Teq = 2534 [274] K
Rp = 0.70 [1.00] Re
a = 0.0238 [0.0067] AU
Ag = 5.42 [15.34] [0.29σ]
Teffp = 5978 [4196] K [0.82σ]

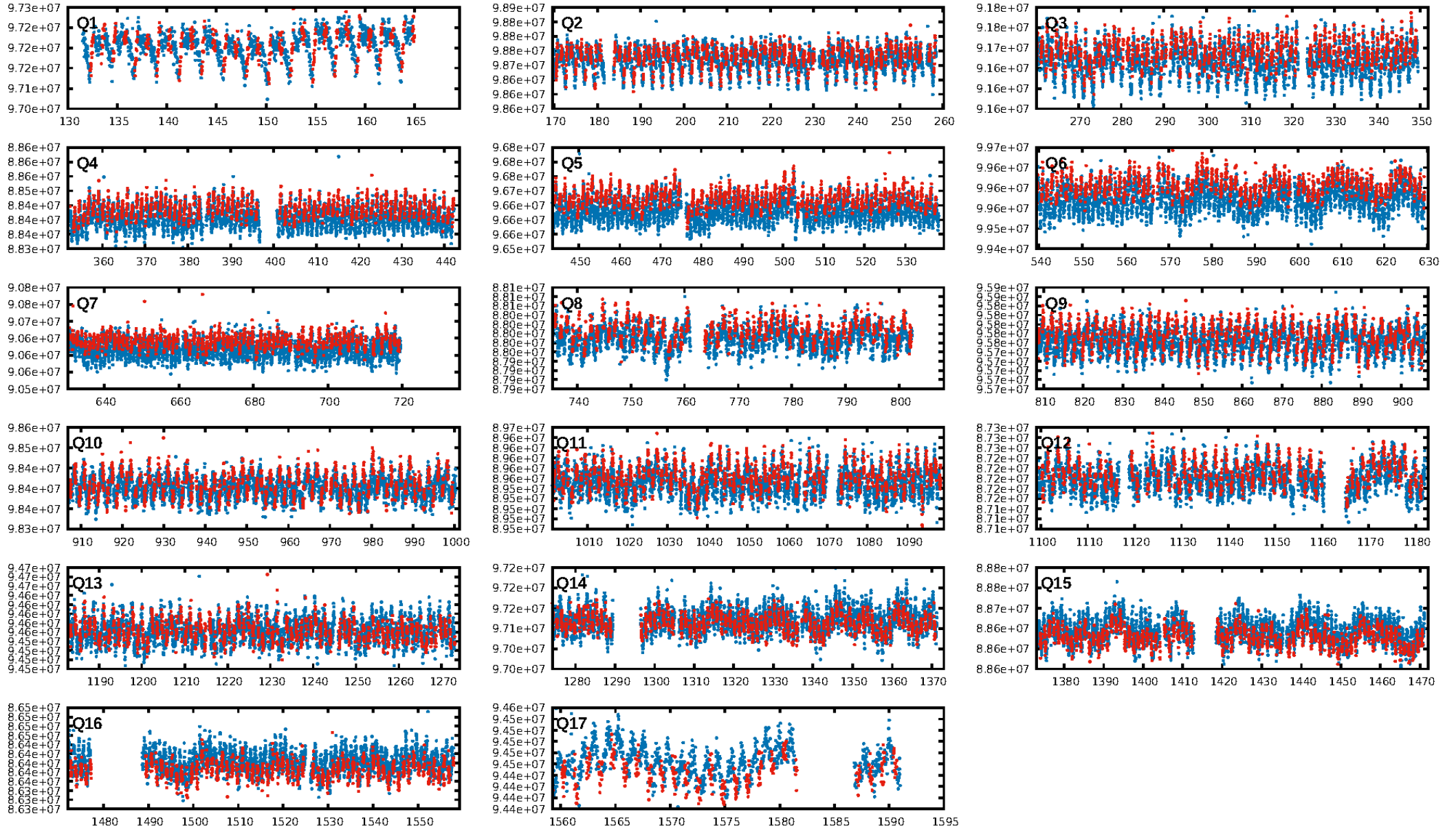
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.34σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 6.80e-13
RollingBand-fgt: 0.97 [1096/1134]
GhostDiagnostic-chr: 0.5274
Centroid-sig: 2.9%
Centroid-so: 1.823 arcsec [1.43σ]
OotOffset-rm: 0.160 arcsec [0.88σ]
KicOffset-rm: 0.134 arcsec [0.71σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.27 [4/15]
DiffImageOverlap-fno: 1.00 [17/17]

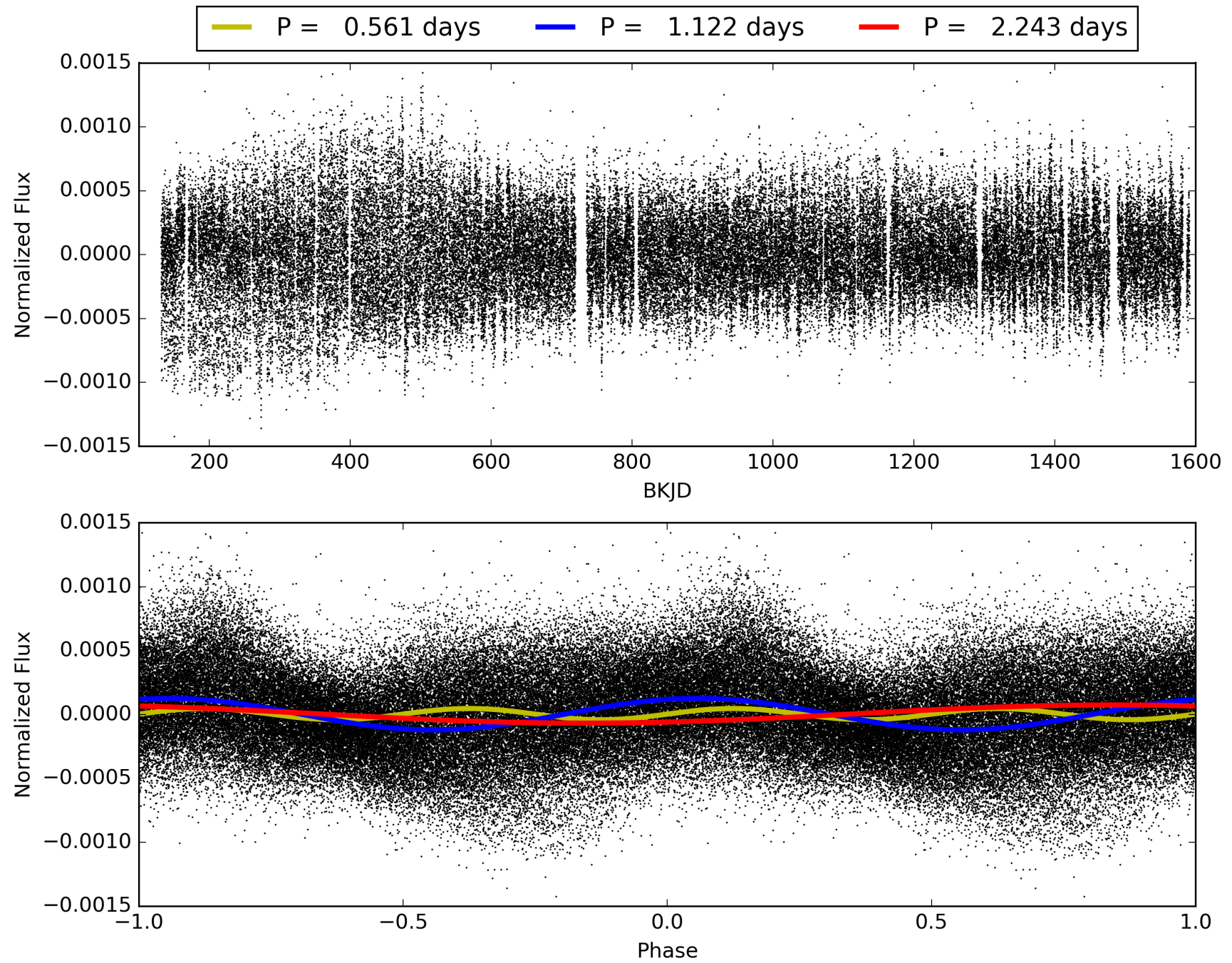
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:07:49 Z

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

TCE 011820820-02, PDC Light Curves

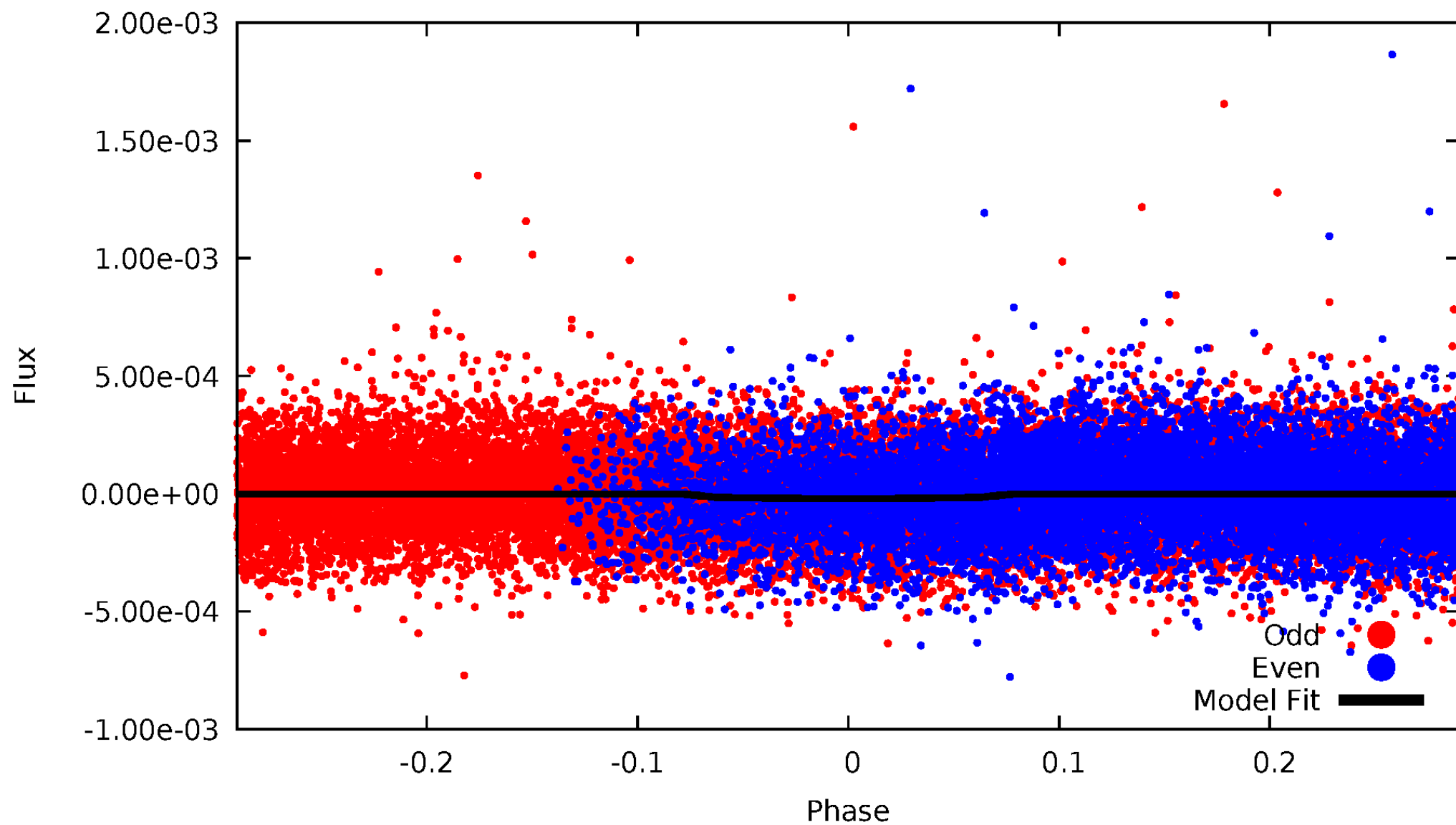


TCE 011820820-02



DV Odd/Even

TCE 011820820-02

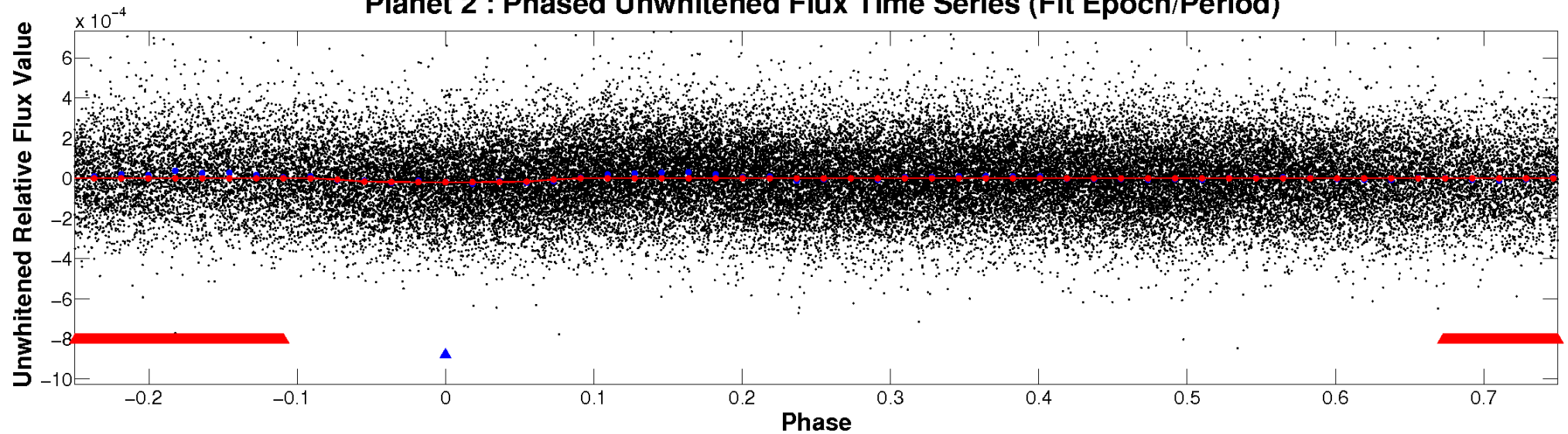


ALT Odd/Even

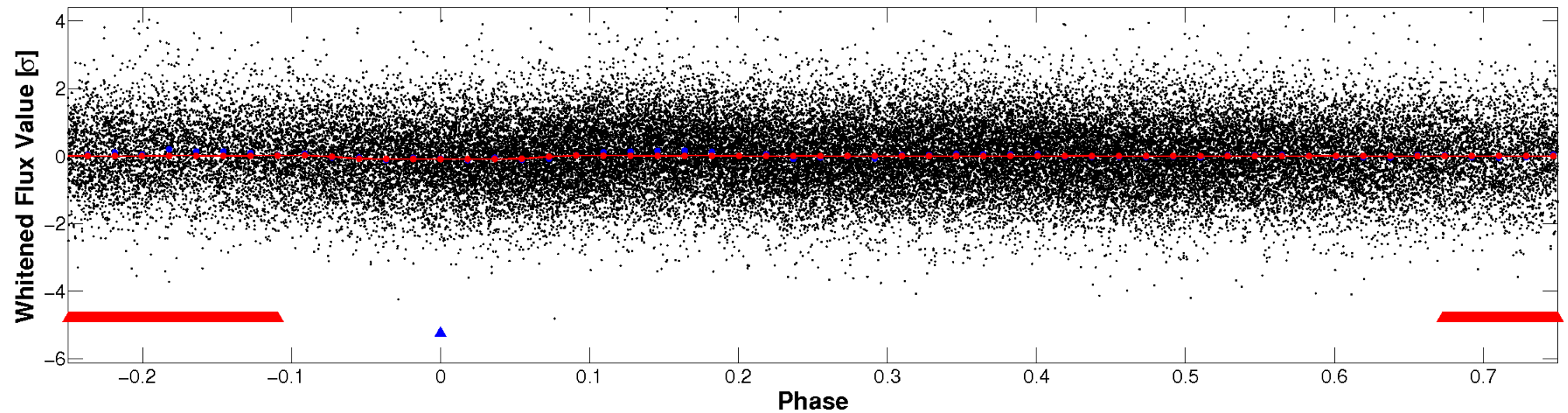
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

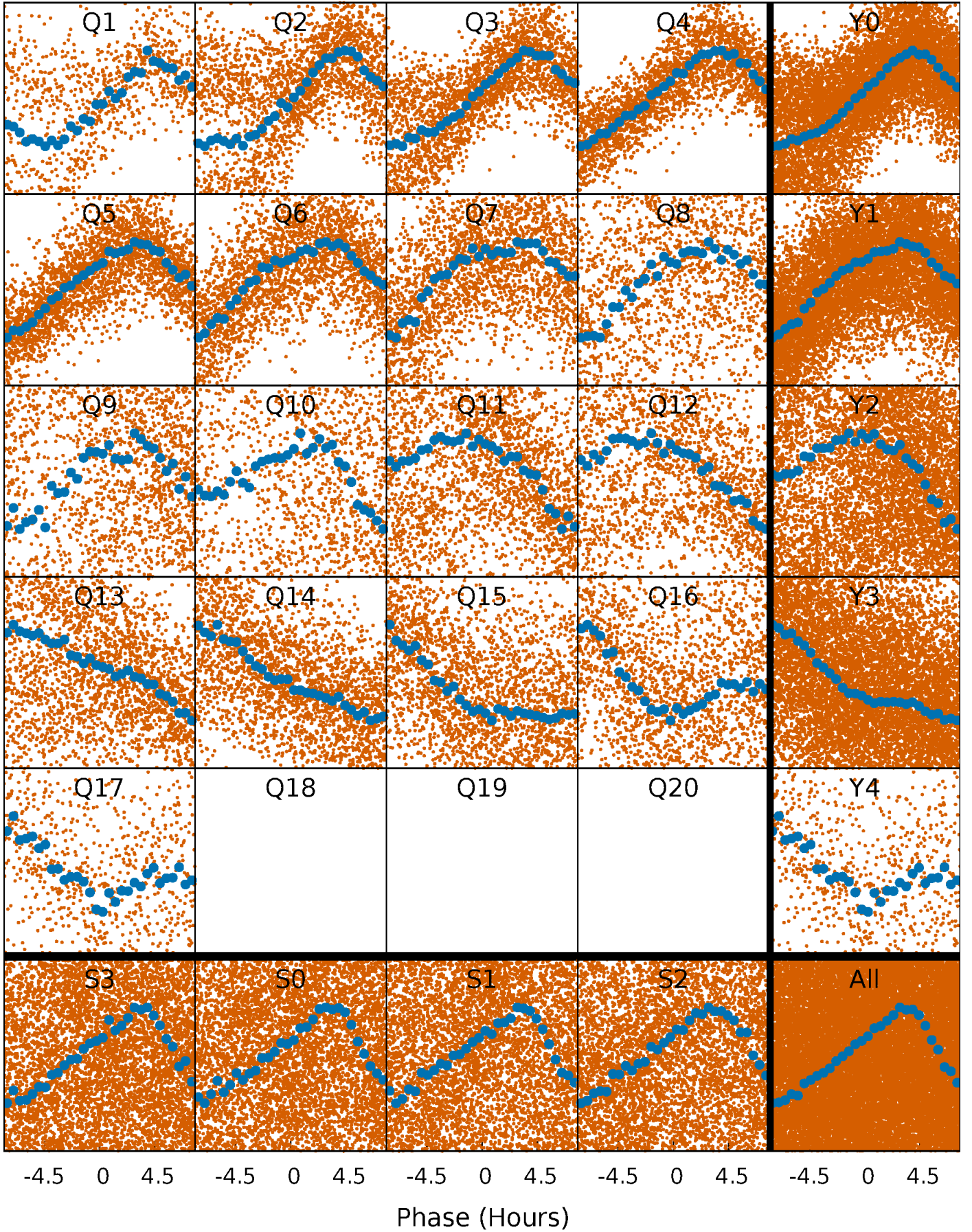


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



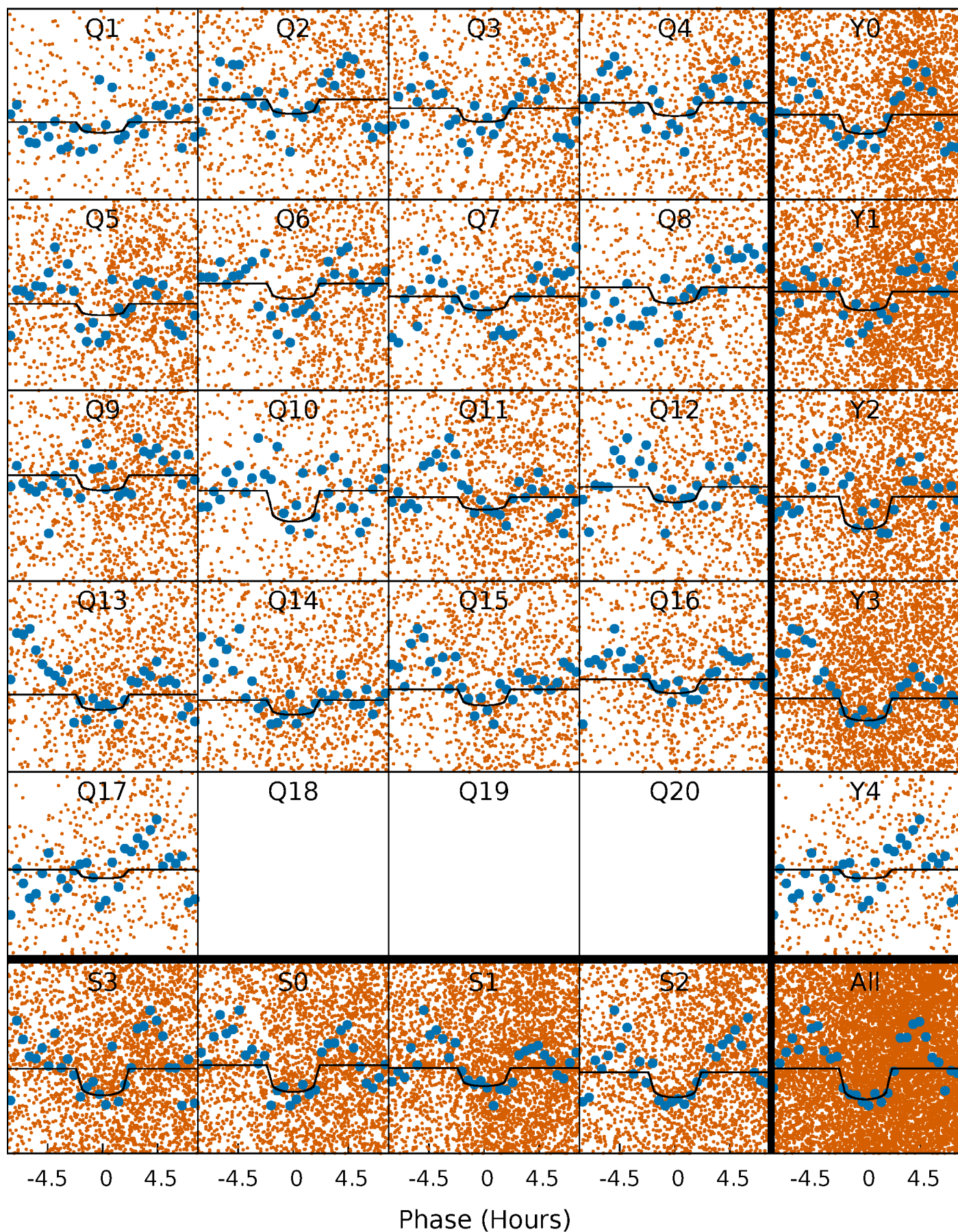
PDC Quarter-Phased Transit Curves

TCE 011820820-02 P= 1.121640 Days $T_0=132.417882$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 011820820-02 P= 1.121640 Days $T_0=132.417882$ (BKJD)

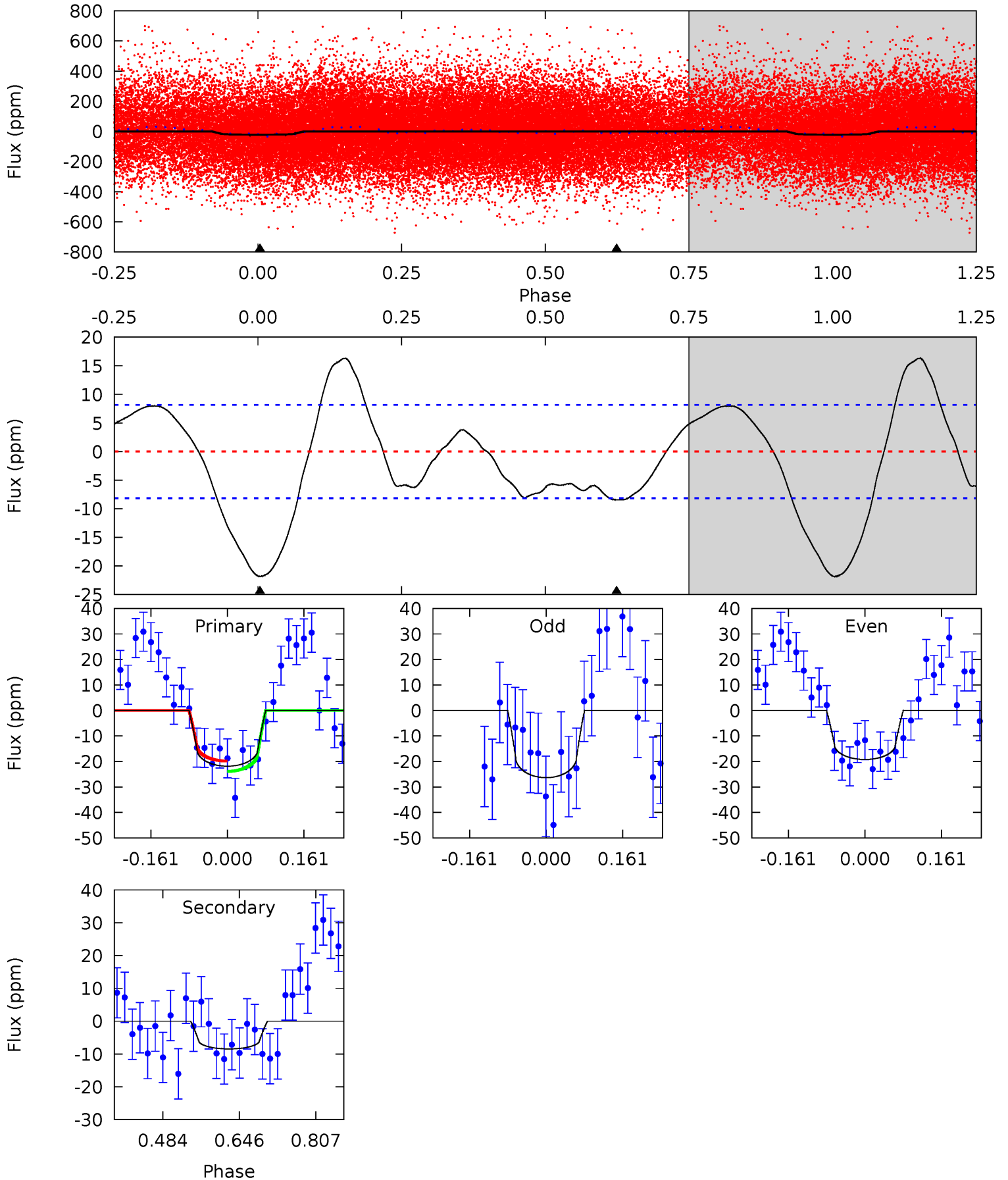


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

011820820-02, P = 1.121640 Days, E = 131.296242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	4.63	0	0	4.46	1.40	2.96	12.0	12.0	4.63	4.63	1.91	0.92	0.43	1.10



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 011820820

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7134^{+200}_{-300}	$4.216^{+0.105}_{-0.210}$	$-0.100^{+0.250}_{-0.400}$	$1.542^{+0.539}_{-0.270}$	$1.428^{+0.209}_{-0.209}$	$0.549^{+0.281}_{-0.295}$
	+3%/-4%	+2%/-5%	+250%/-400%	+35%/-18%	+15%/-15%	+51%/-54%
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 011820820-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$1.00^{+0.89}_{-0.65}$	3566^{+284}_{-217}	4954^{+3960}_{-1334}	$2.624^{+20.574}_{-1.888}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

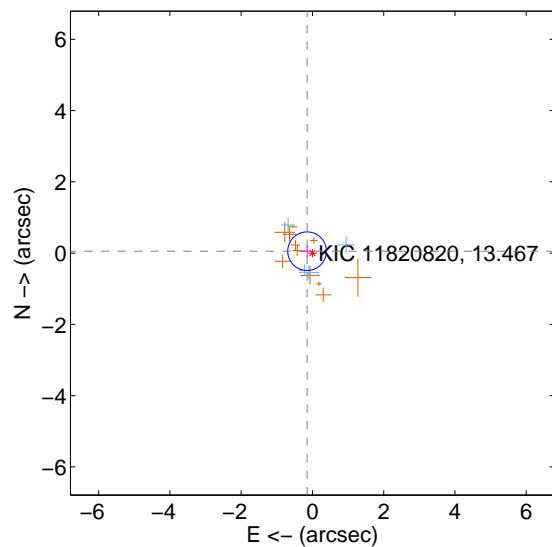
Supplemental centroid analysis for 011820820-02. Kepler magnitude: 13.47. Transit SNR 7.15

There are 4 quarters with good PRF difference image offsets

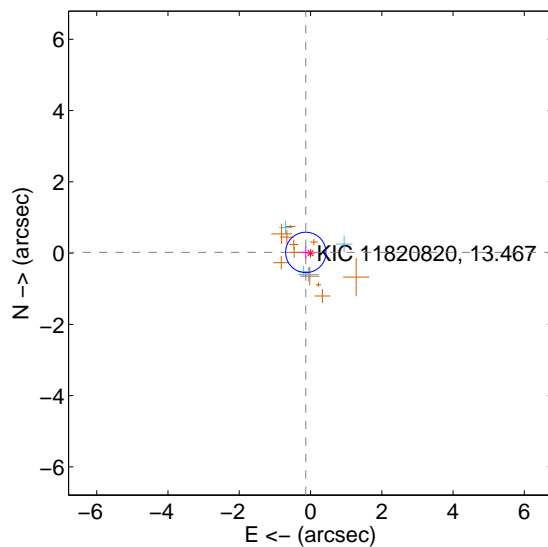
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.160 ± 0.181	0.88	0.151 ± 0.159	0.053 ± 0.165
PRF-fit source offset from KIC position	0.134 ± 0.189	0.71	0.132 ± 0.177	0.020 ± 0.170
photometric centroid source offset	1.82 ± 1.28	1.43	-0.49 ± 1.21	-1.76 ± 1.28

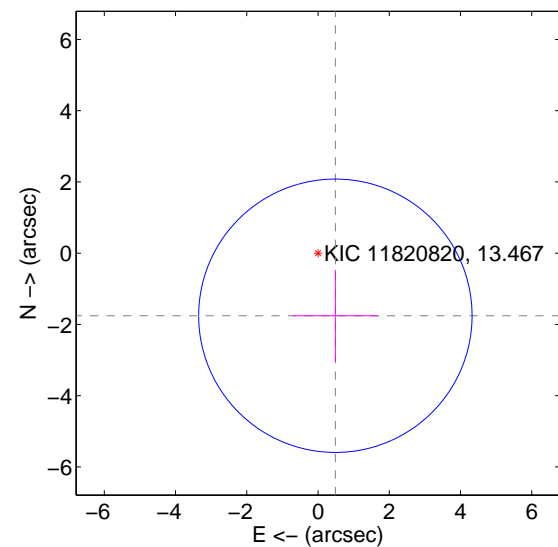
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

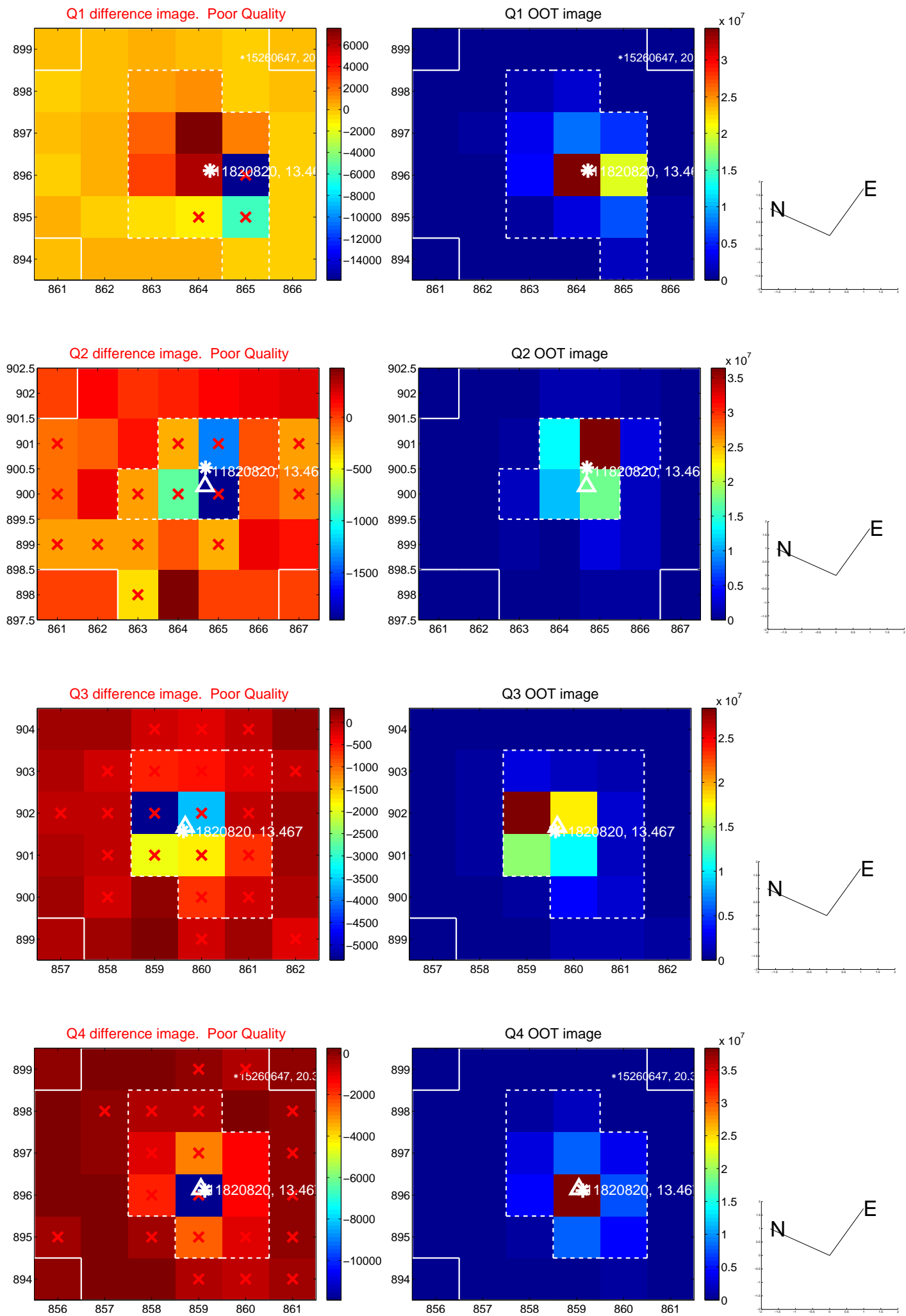


offset from photometric centroids

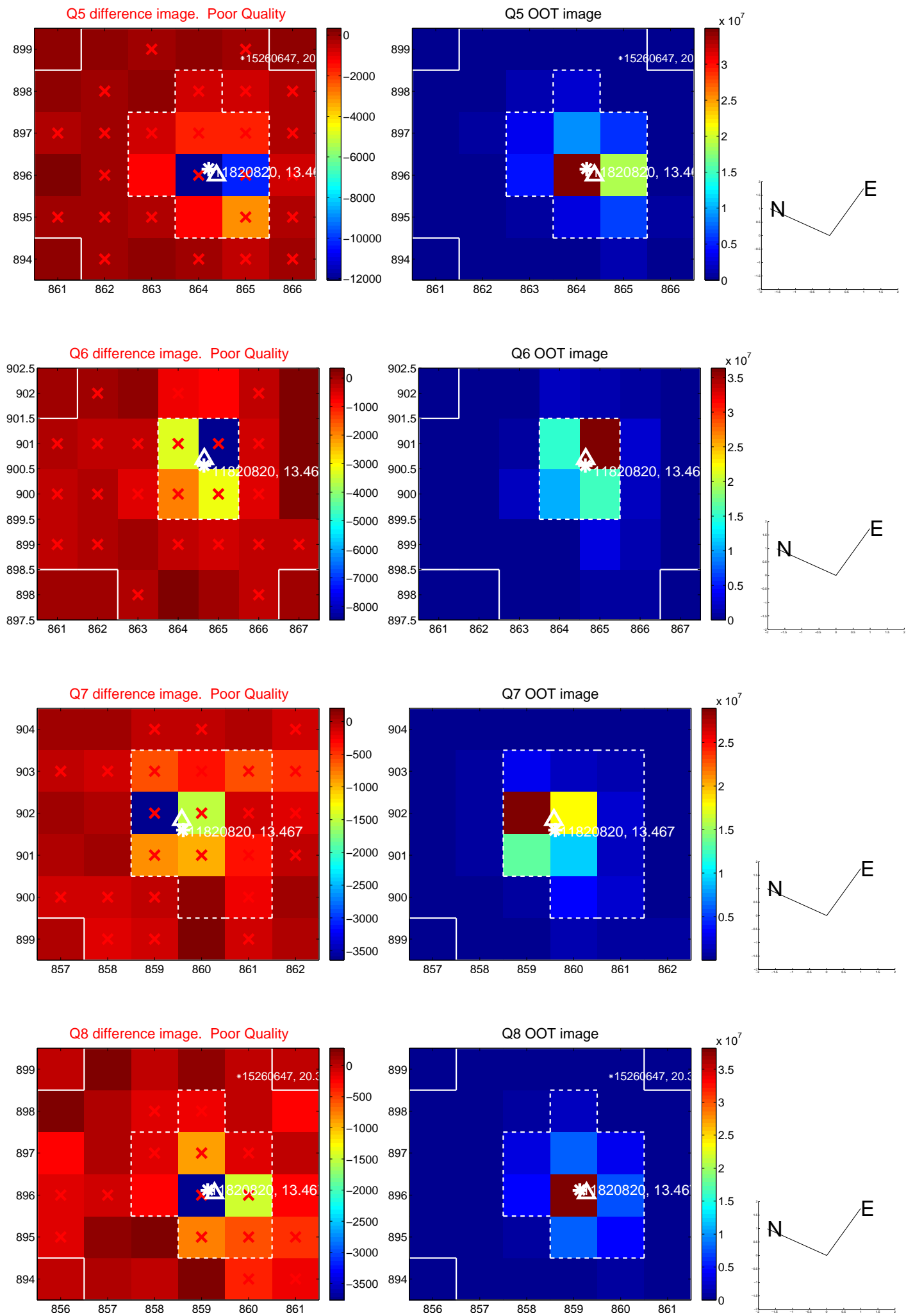


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

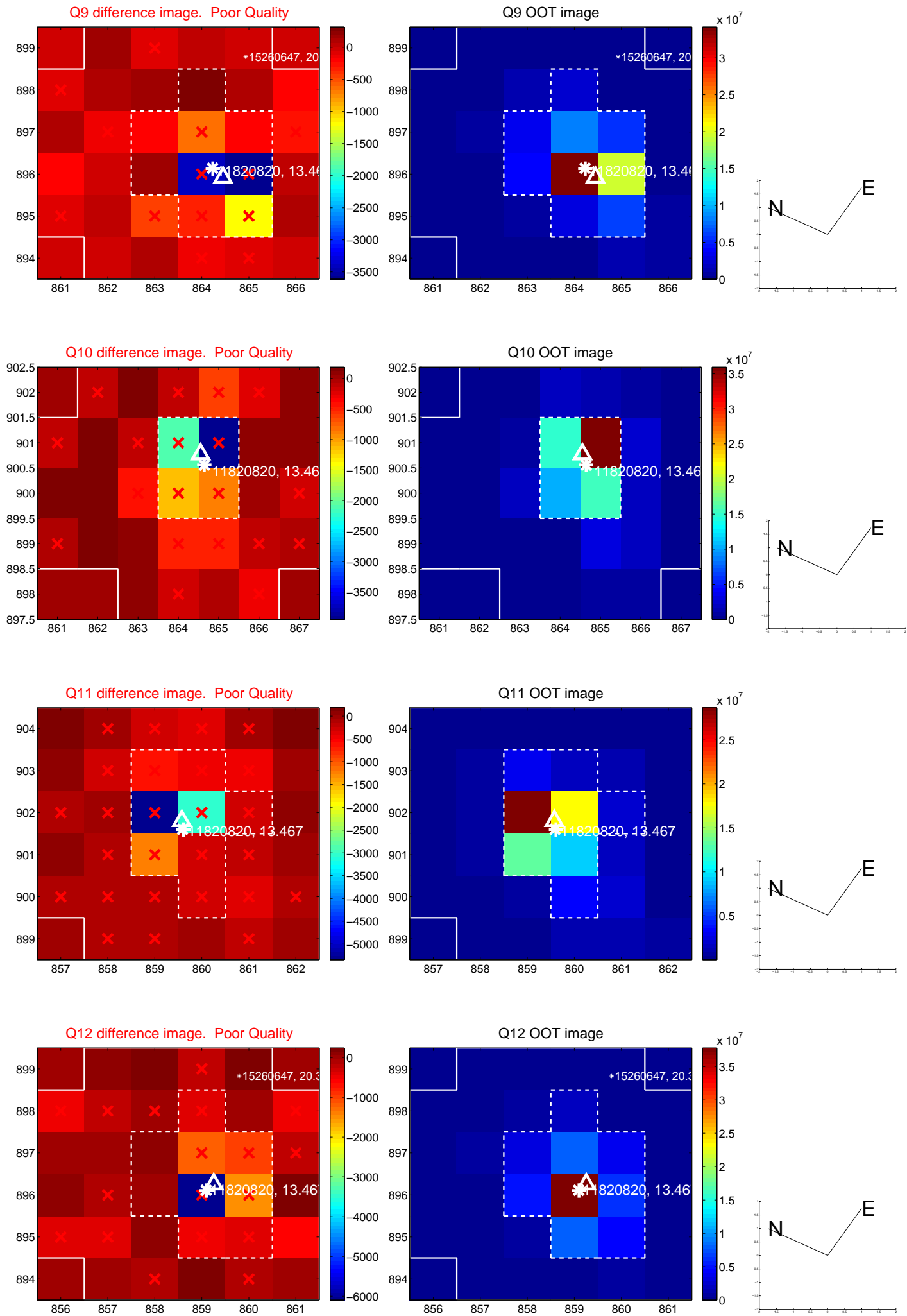
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



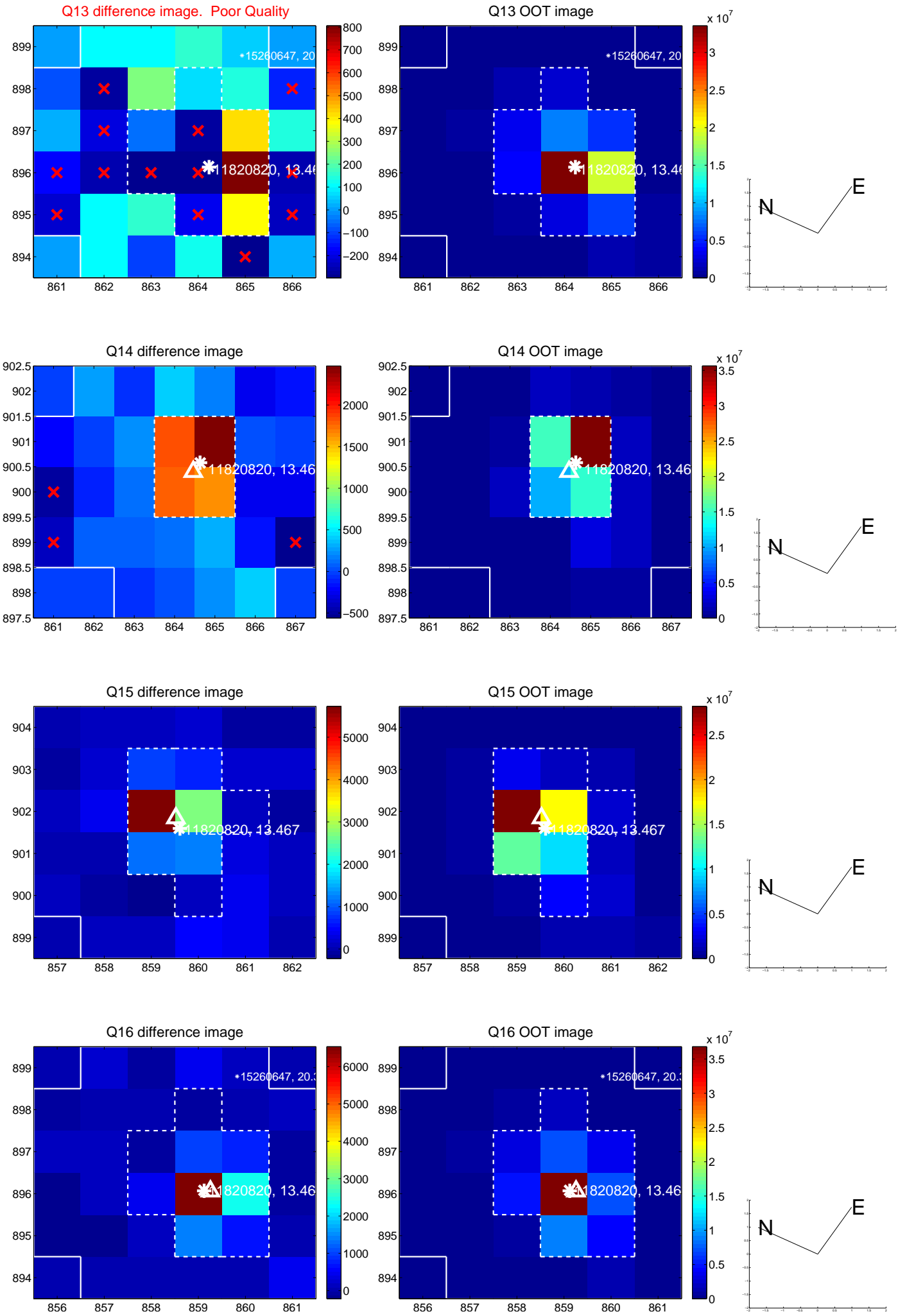
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



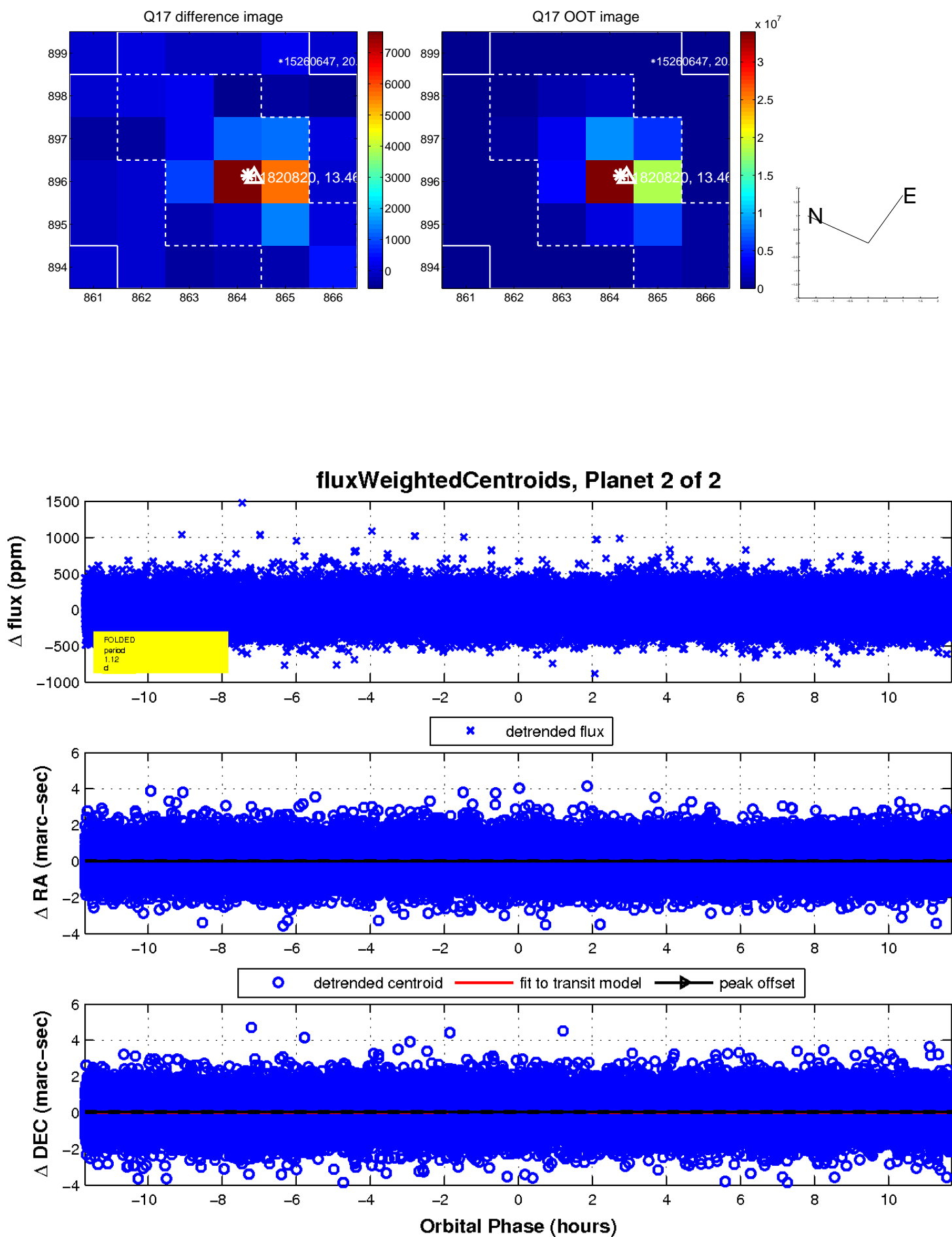
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \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

