

KIC 010002897

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})
010002897-01	OBS	No	2.050485	131.844316	172.7	4.063	13.7	15.6	2.84	7709	4.33	18387.44
010002897-02	OBS	No	1.025224	132.517171	93.1	3.888	10.9	11.9	2.84	7709	3.21	46334.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010002897-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010002897-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

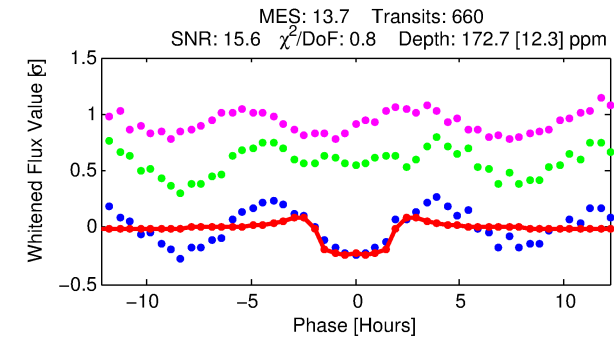
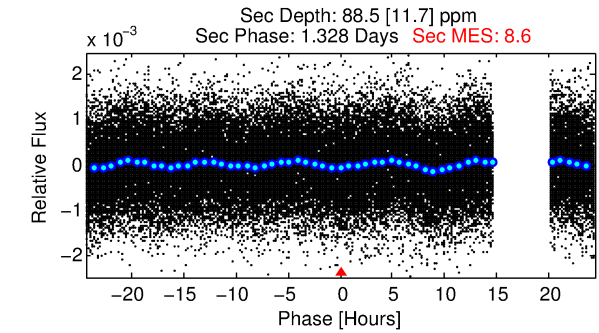
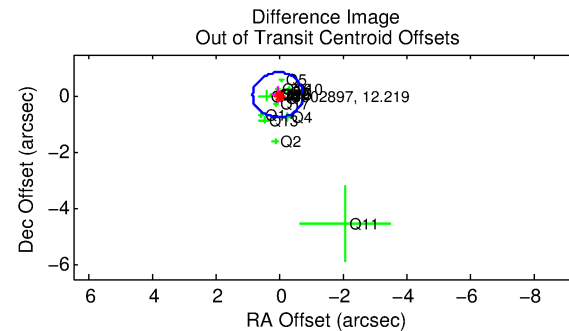
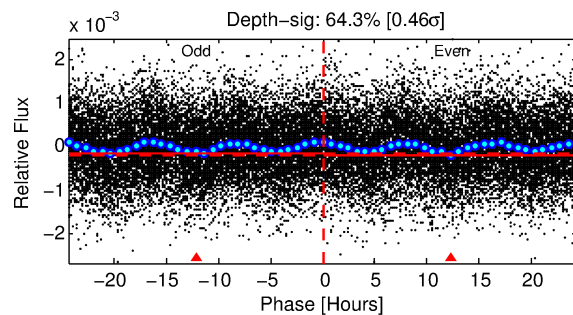
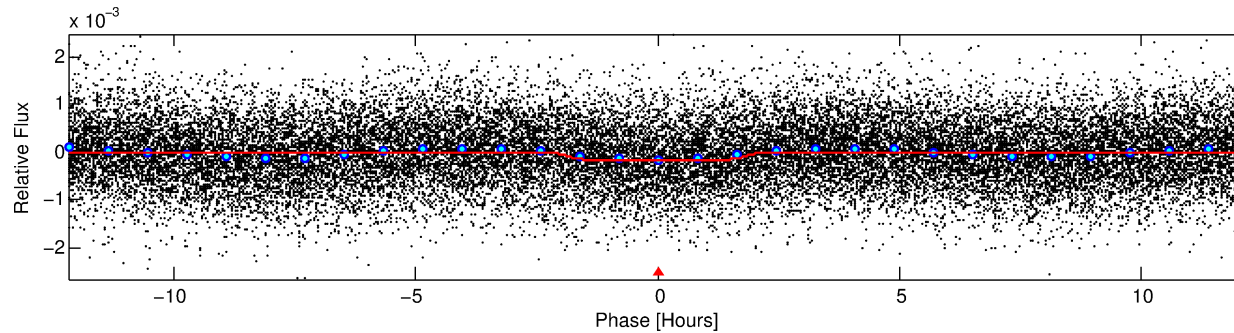
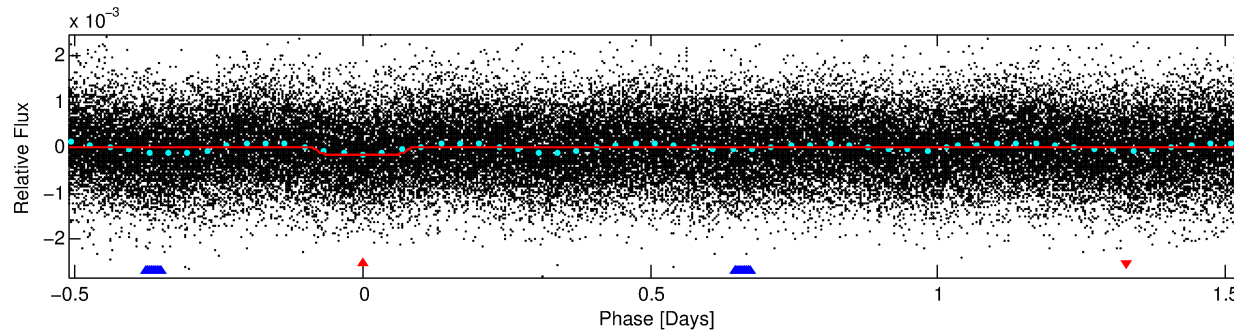
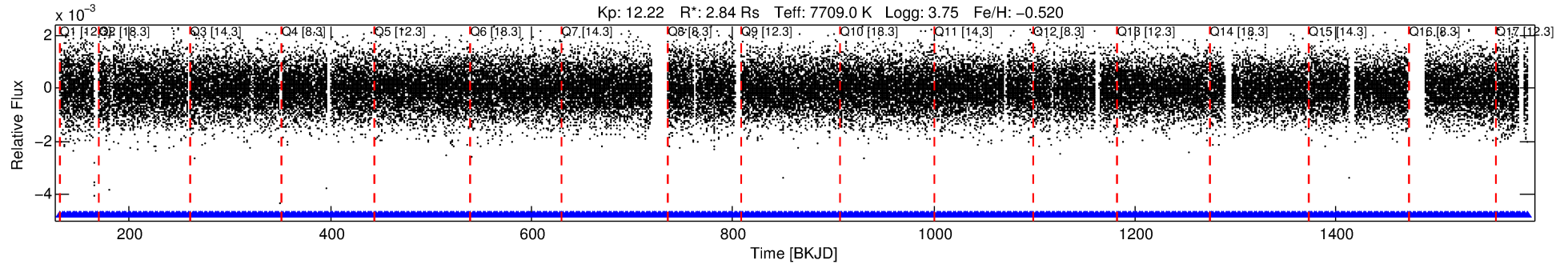
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010002897-01

No Significant Match Found

DV One-Page Summary

KIC: 10002897 Candidate: 1 of 2 Period: 2.050 d



DV Fit Results:

Period = 2.05049 [0.00001] d
Epoch = 131.8443 [0.0028] BKJD
Rp/R* = 0.0140 [0.0029]
a/R* = 2.03 [1.94]
b = 0.90 [0.27]
Seff = 18387.44 [14777.86]
Teq = 2969 [597] K
Rp = 4.33 [2.31] Re
a = 0.0372 [0.0181] AU
Ag = 3.60 [3.24] [0.80 σ]
Teffp = 6324 [726] K [3.57 σ]

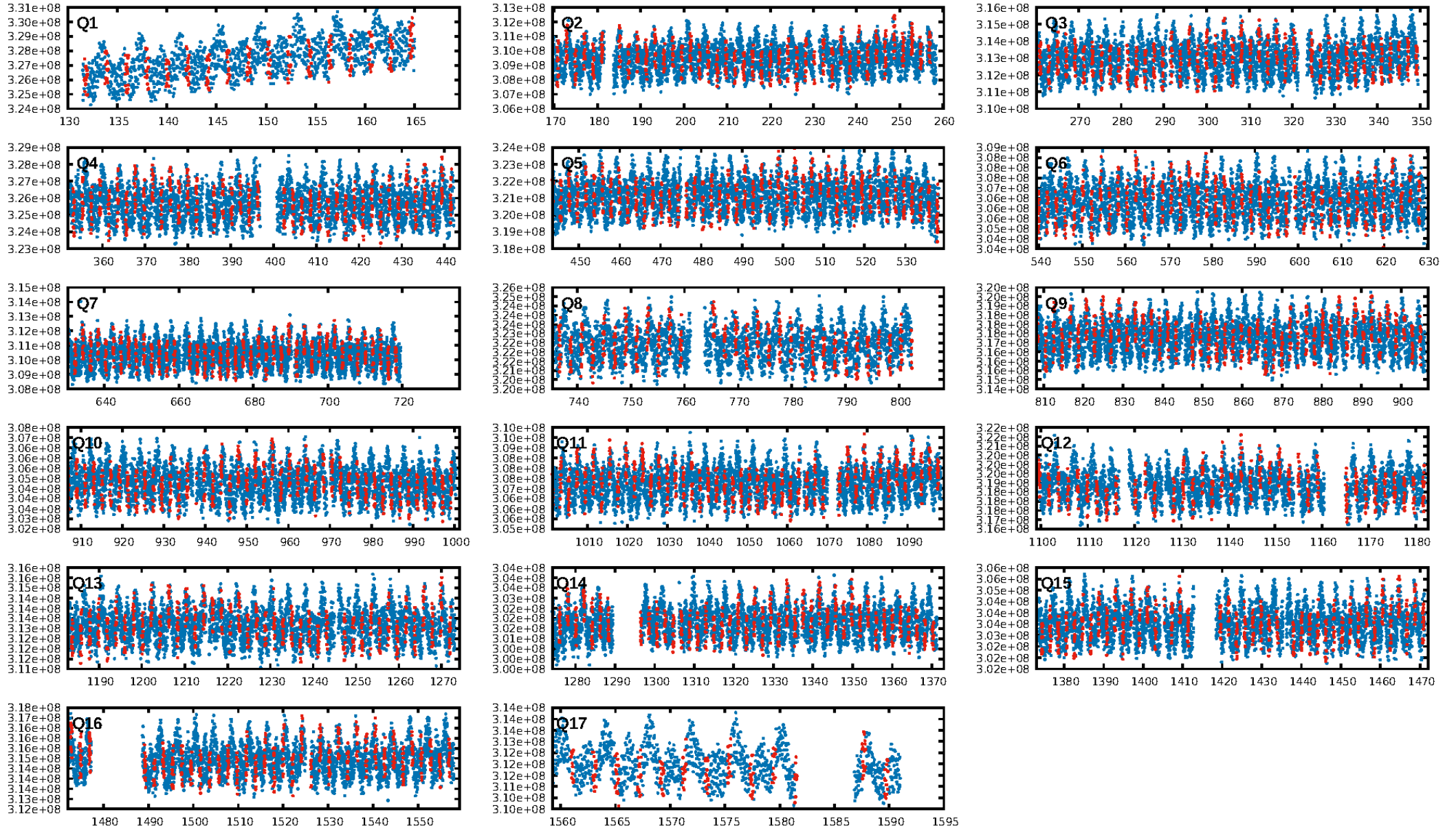
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.38 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.98e-34
RollingBand-fgt: 1.00 [630/630]
GhostDiagnostic-chr: 3.109
Centroid-sig: 43.1%
Centroid-so: 0.089 arcsec [1.14 σ]
OotOffset-rm: 0.080 arcsec [0.30 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.056 arcsec [0.18 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

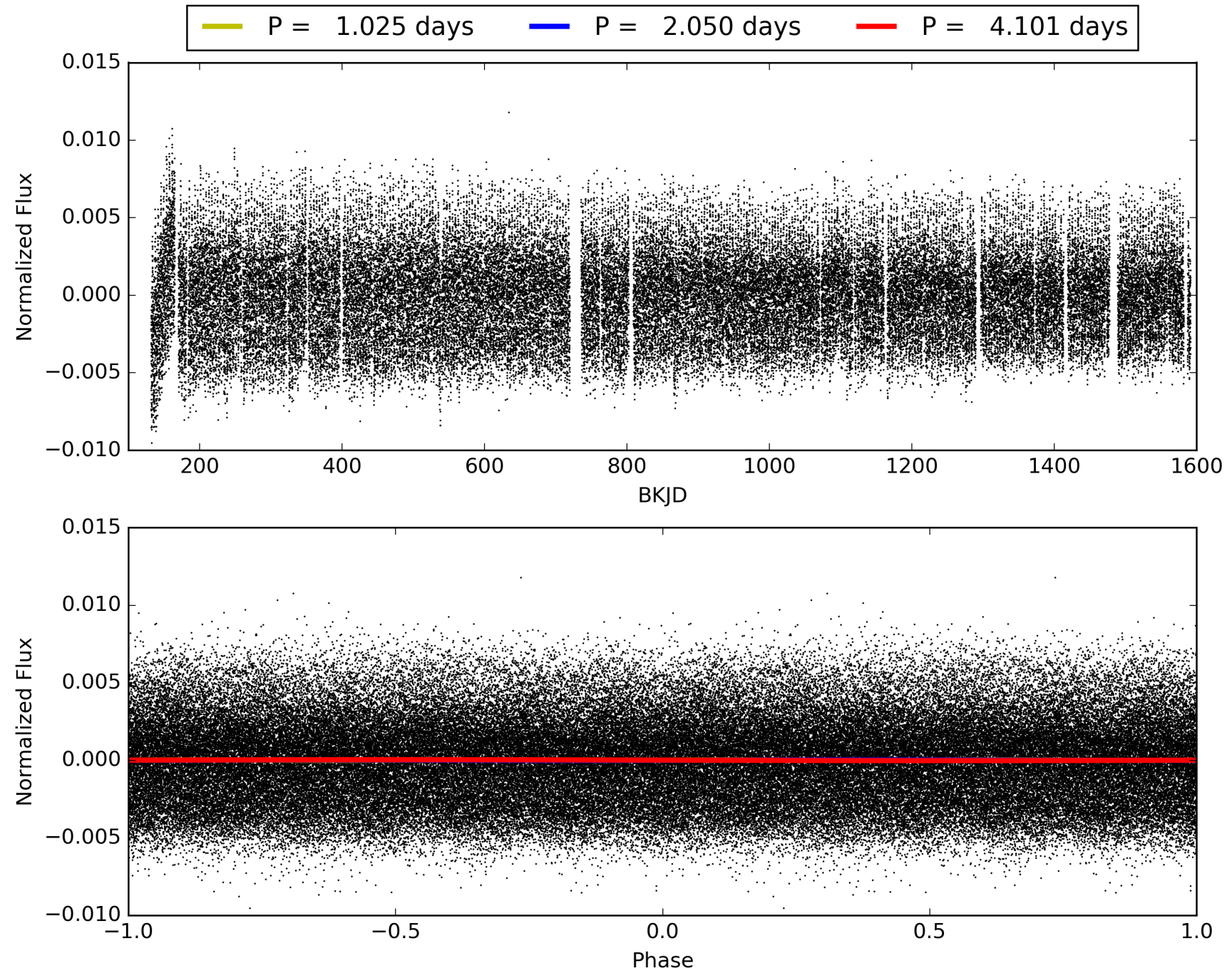
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:23:24 Z

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

TCE 010002897-01, PDC Light Curves

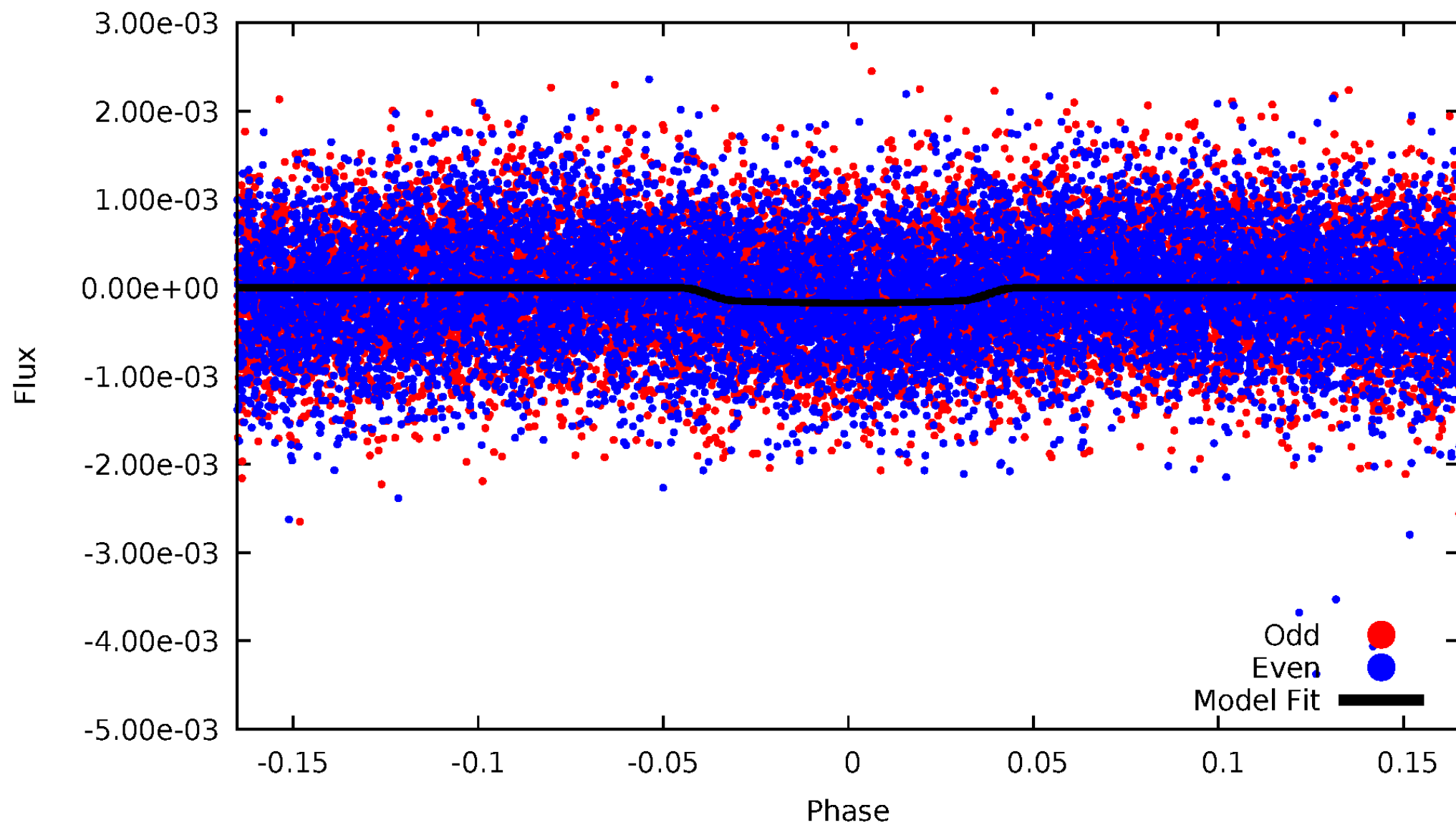


TCE 010002897-01



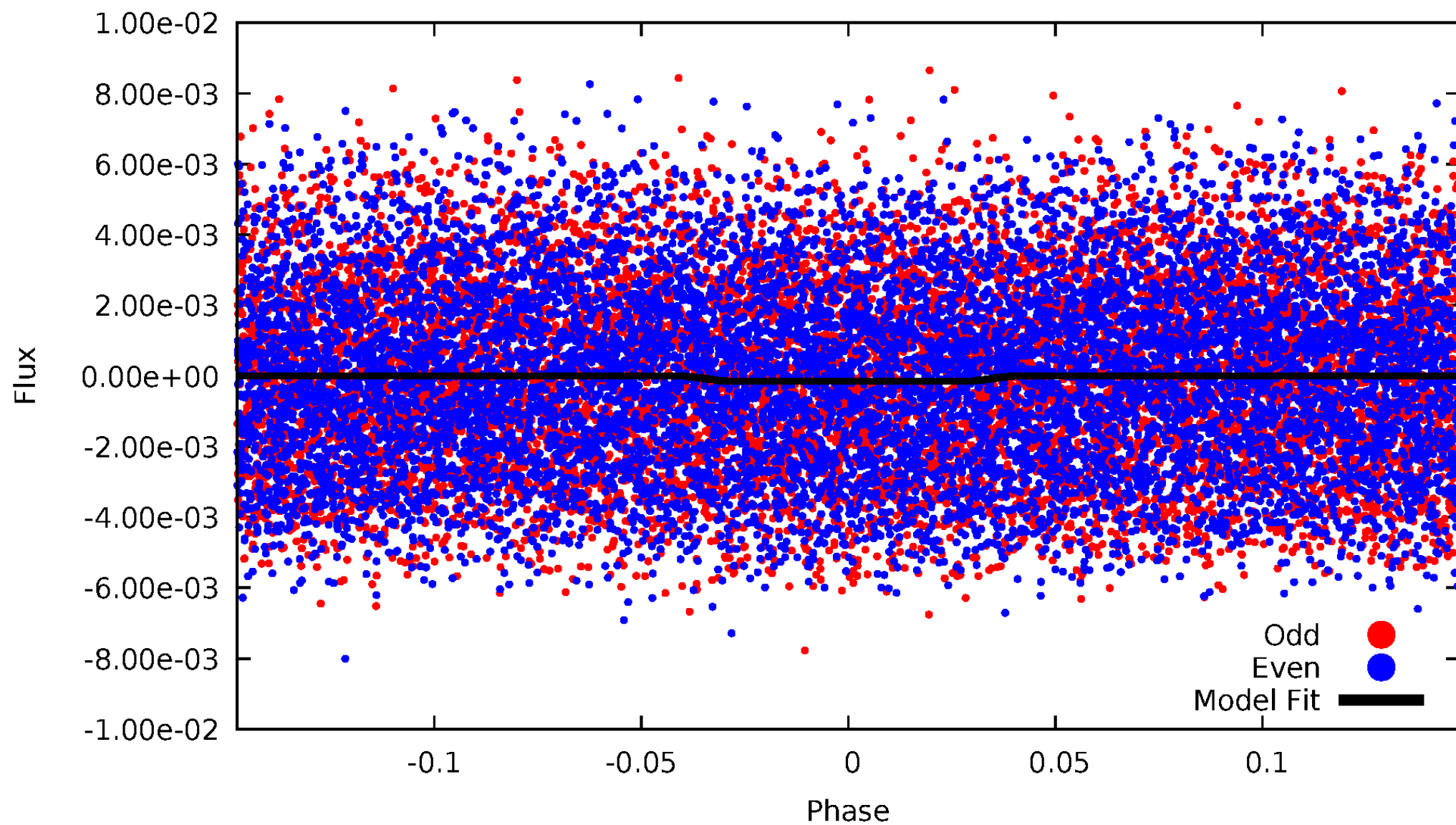
DV Odd/Even

TCE 010002897-01

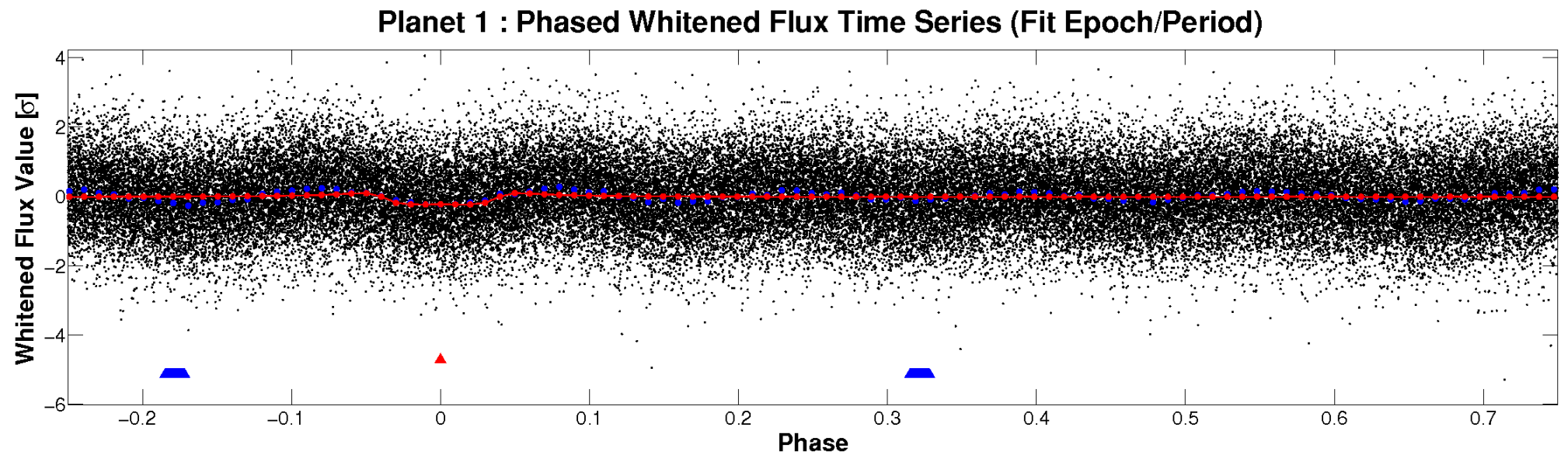
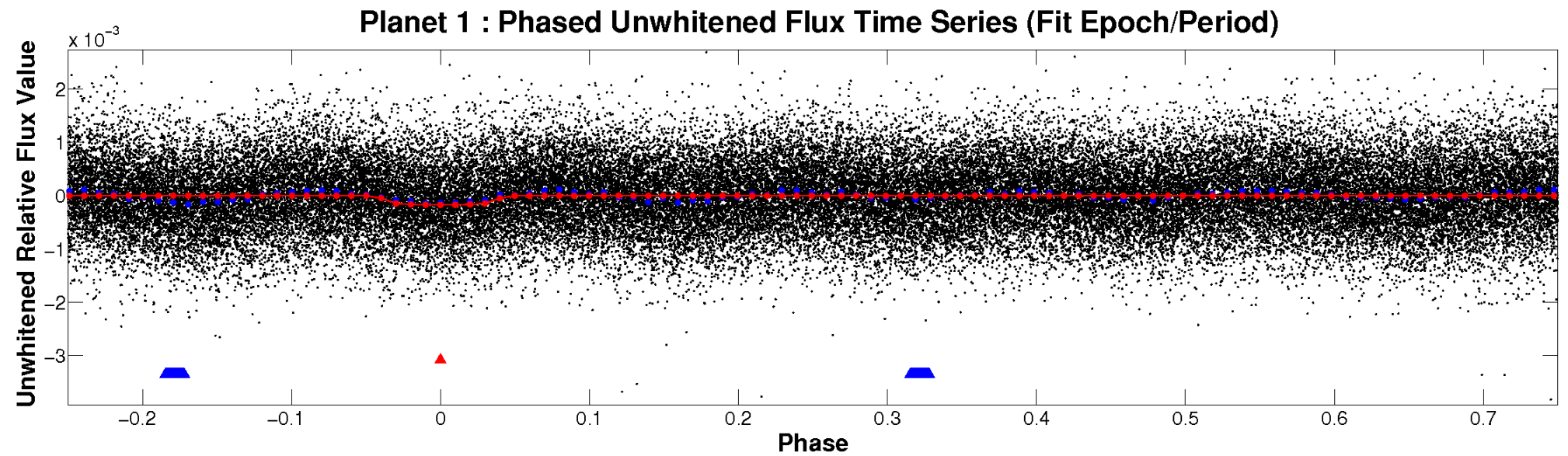


ALT Odd/Even

TCE 010002897-01

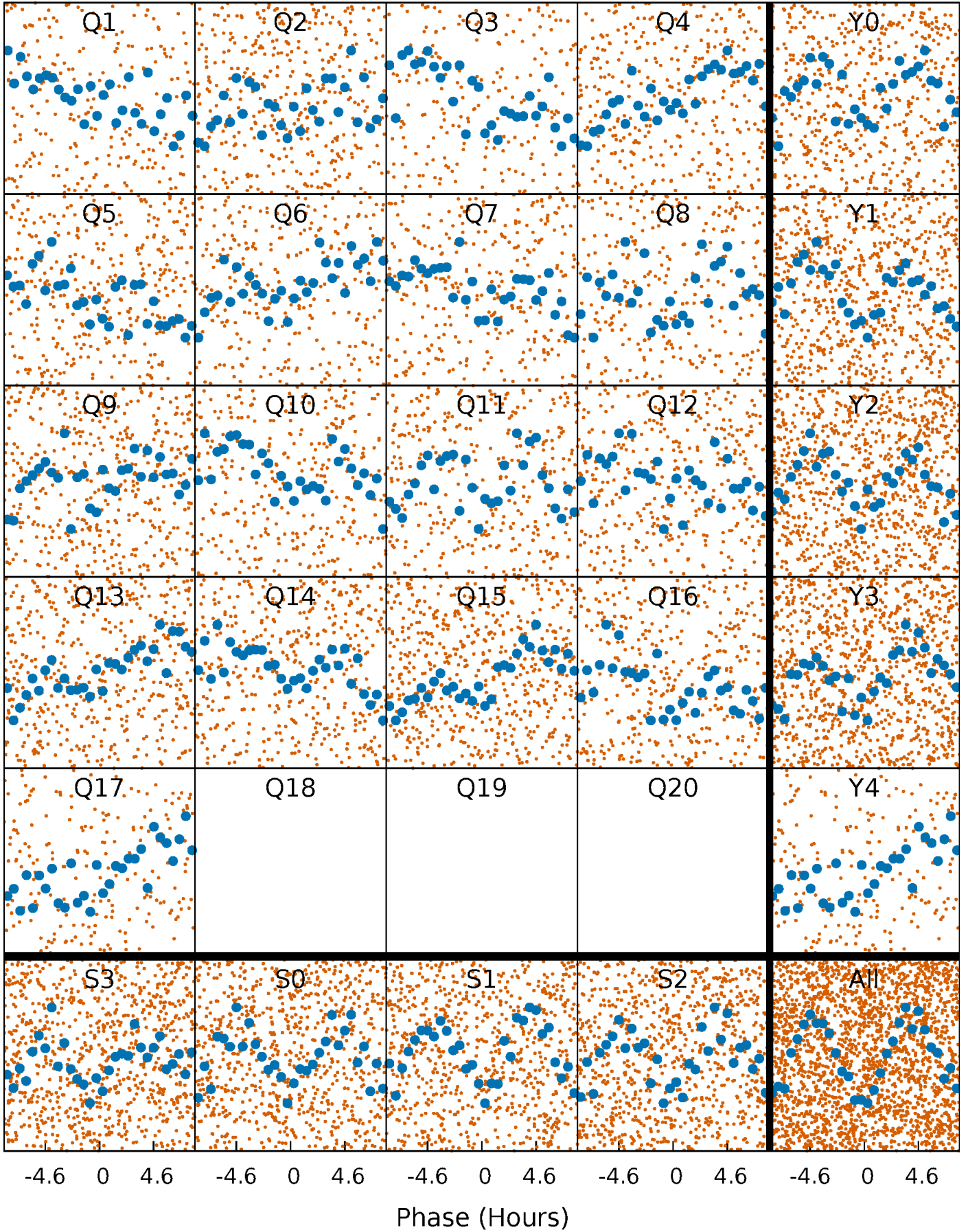


Non-Whitened Vs. Whitened Light Curve



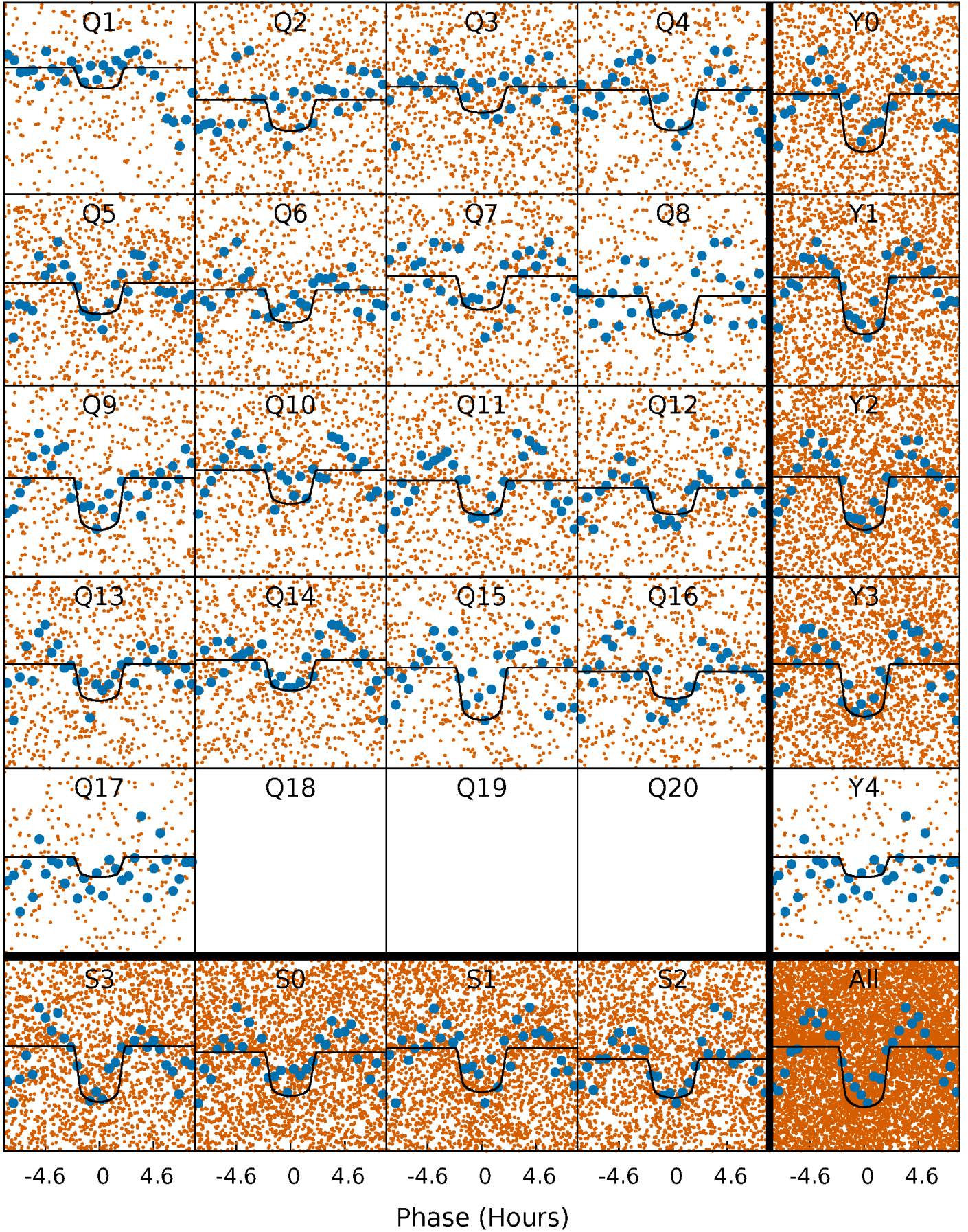
PDC Quarter-Phased Transit Curves

TCE 010002897-01 P= 2.050485 Days $T_0=131.844316$ (BKJD)



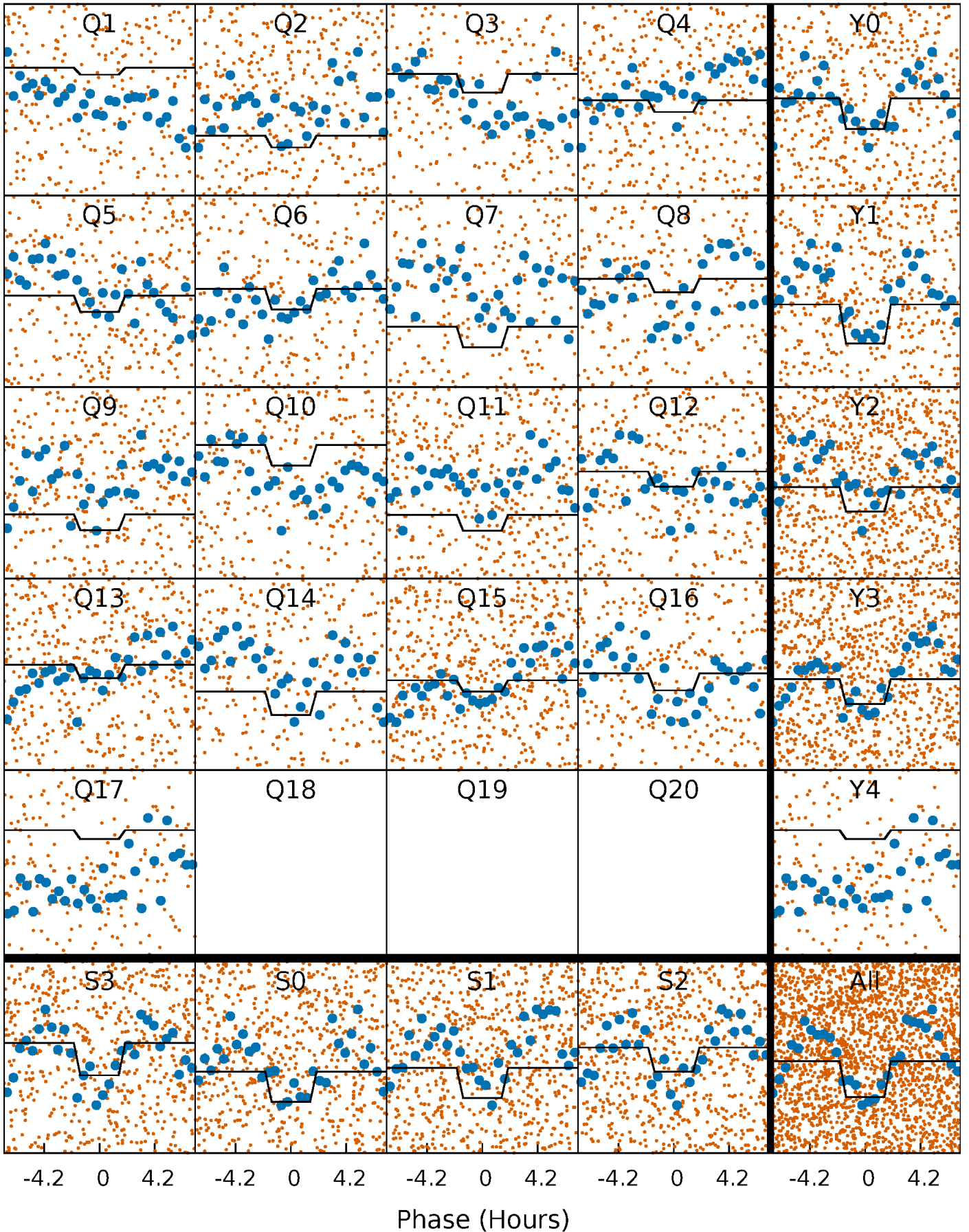
DV Quarter-Phased Transit Curves

TCE 010002897-01 P= 2.050485 Days $T_0=131.844316$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

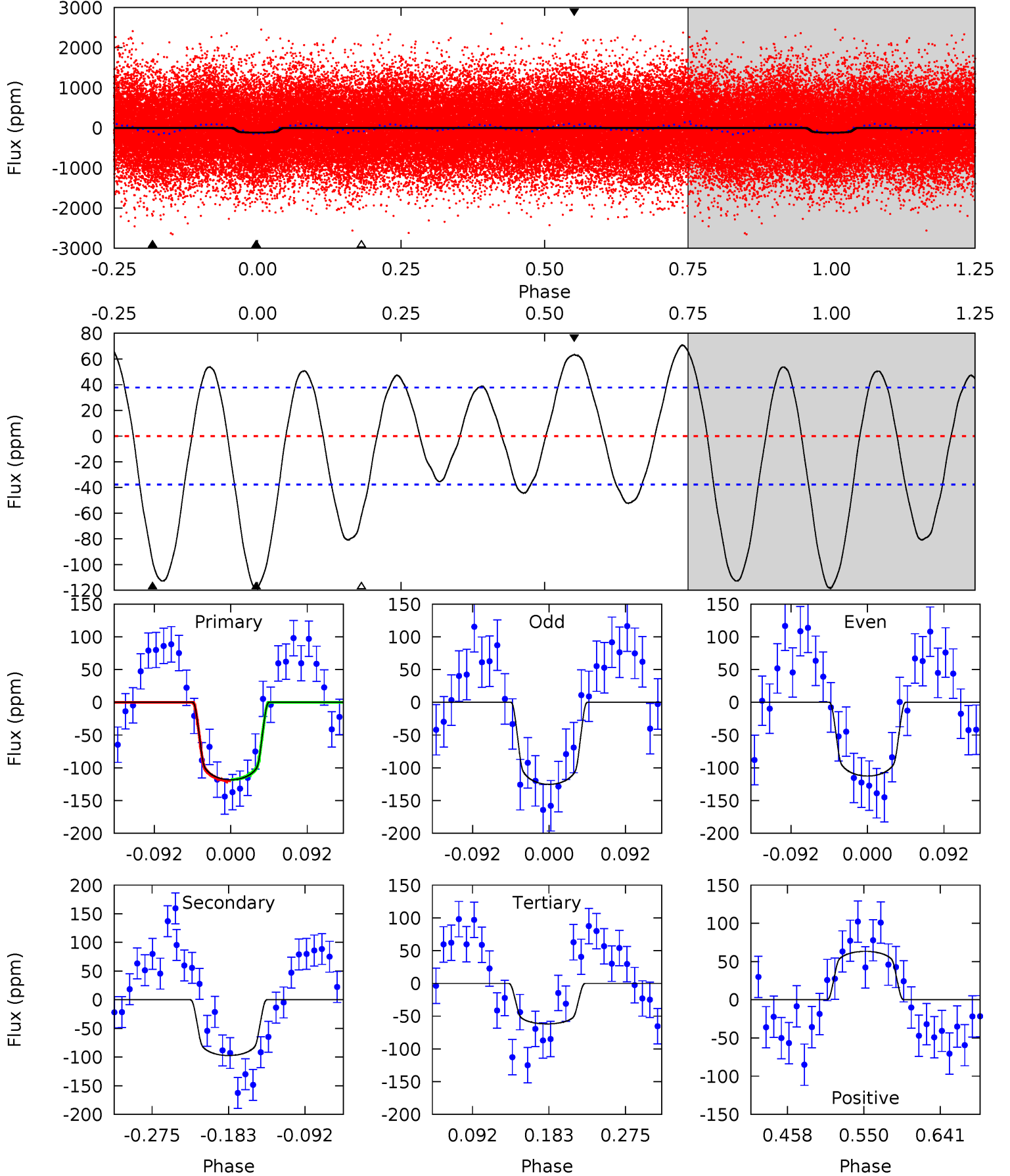
TCE 010002897-01 P= 2.050449 Days $T_0=131.845700$ (BKJD)



DV Model-Shift Uniqueness Test

010002897-01, P = 2.050485 Days, E = 129.793831 Days

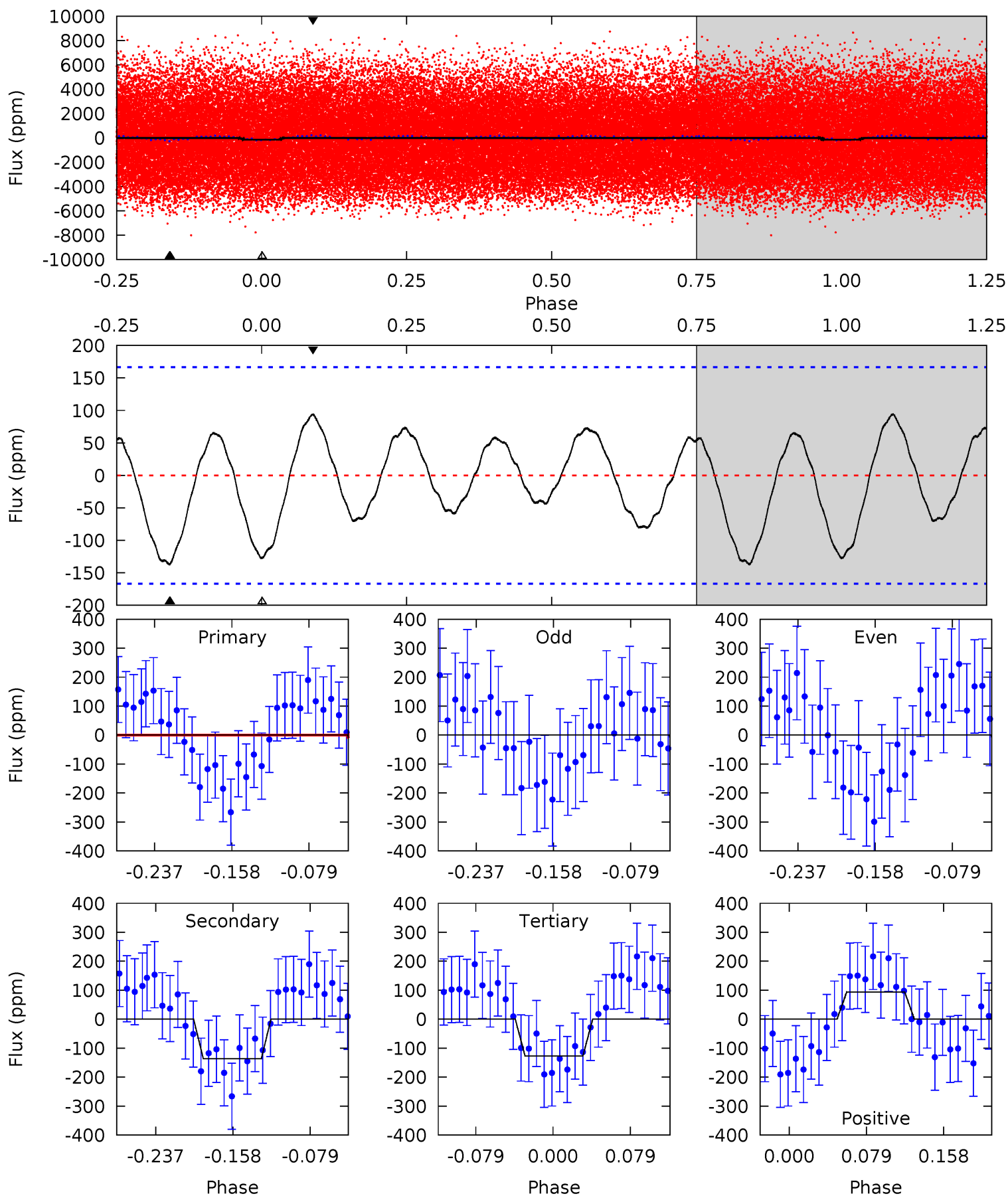
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	11.8	7.51	7.68	4.58	1.69	4.85	6.84	6.67	4.30	4.12	0.77	1.00	0.37	0.11



Alt Model-Shift Uniqueness Test

010002897-01, P = 2.050449 Days, E = 129.795251 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.77	3.79	3.52	2.60	4.61	1.76	1.50	0.26	1.17	0.27	1.19	0.80	0.38	0.41	0.20



Stellar Parameters For KIC 010002897

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7709^{+247}_{-302}	$3.746^{+0.467}_{-0.082}$	$-0.520^{+0.250}_{-0.300}$	$2.839^{+0.349}_{-1.396}$	$1.636^{+0.159}_{-0.372}$	$0.101^{+0.470}_{-0.026}$
	+3%/-4%	+12%/-2%	+48%/-58%	+12%/-49%	+10%/-23%	+467%/-26%
Source	KIC0	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 010002897-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-97 ± 8	$3.92^{+1.11}_{-1.17}$	4050^{+242}_{-441}	6276^{+872}_{-671}	$4.732^{+4.630}_{-1.713}$
Alt.	-137 ± 36	$3.39^{+1.08}_{-1.08}$	4048^{+265}_{-516}	7460^{+1605}_{-1072}	$8.666^{+10.718}_{-3.790}$

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

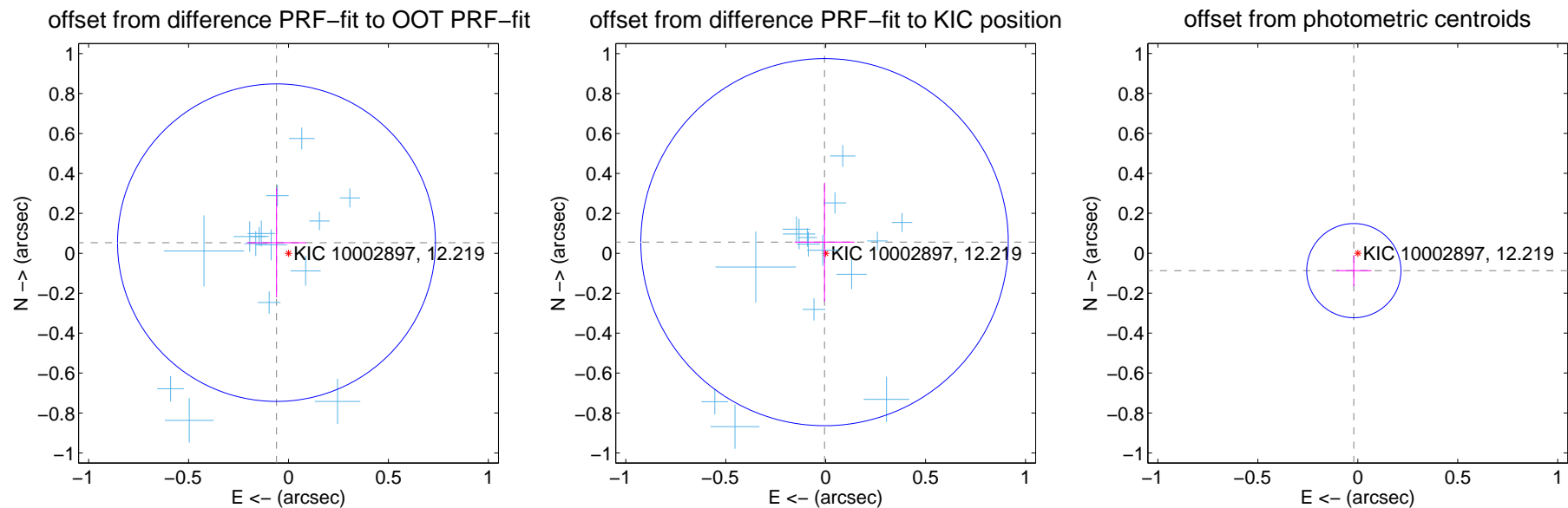
DV Centroid Data

Supplemental centroid analysis for 010002897-01. Kepler magnitude: 12.22. Transit SNR 15.65

There are 16 quarters with good PRF difference image offsets

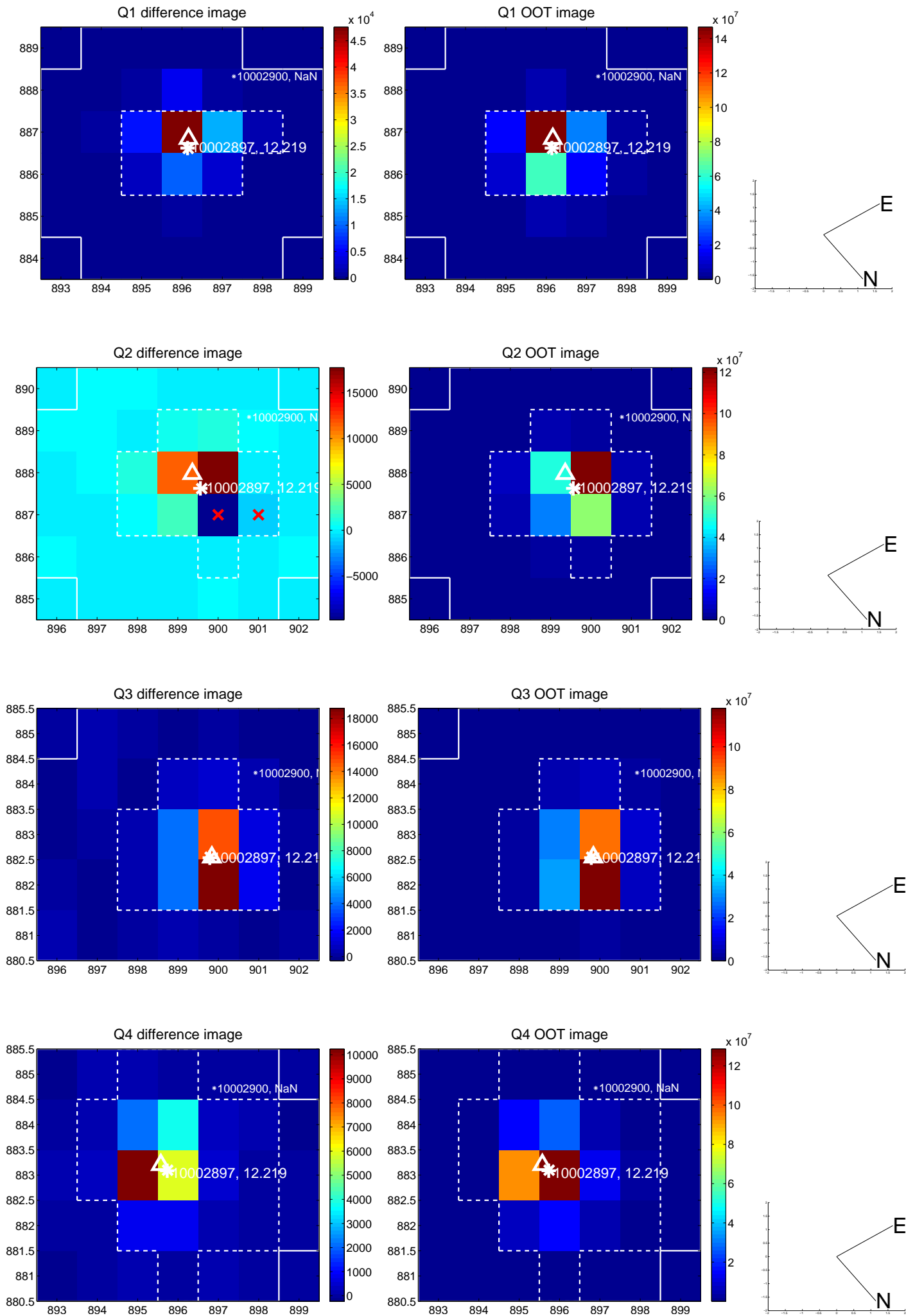
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.265	0.30	0.060 ± 0.148	0.053 ± 0.273
PRF-fit source offset from KIC position	0.056 ± 0.306	0.18	0.006 ± 0.150	0.056 ± 0.298
photometric centroid source offset	0.09 ± 0.08	1.14	0.02 ± 0.09	-0.09 ± 0.08

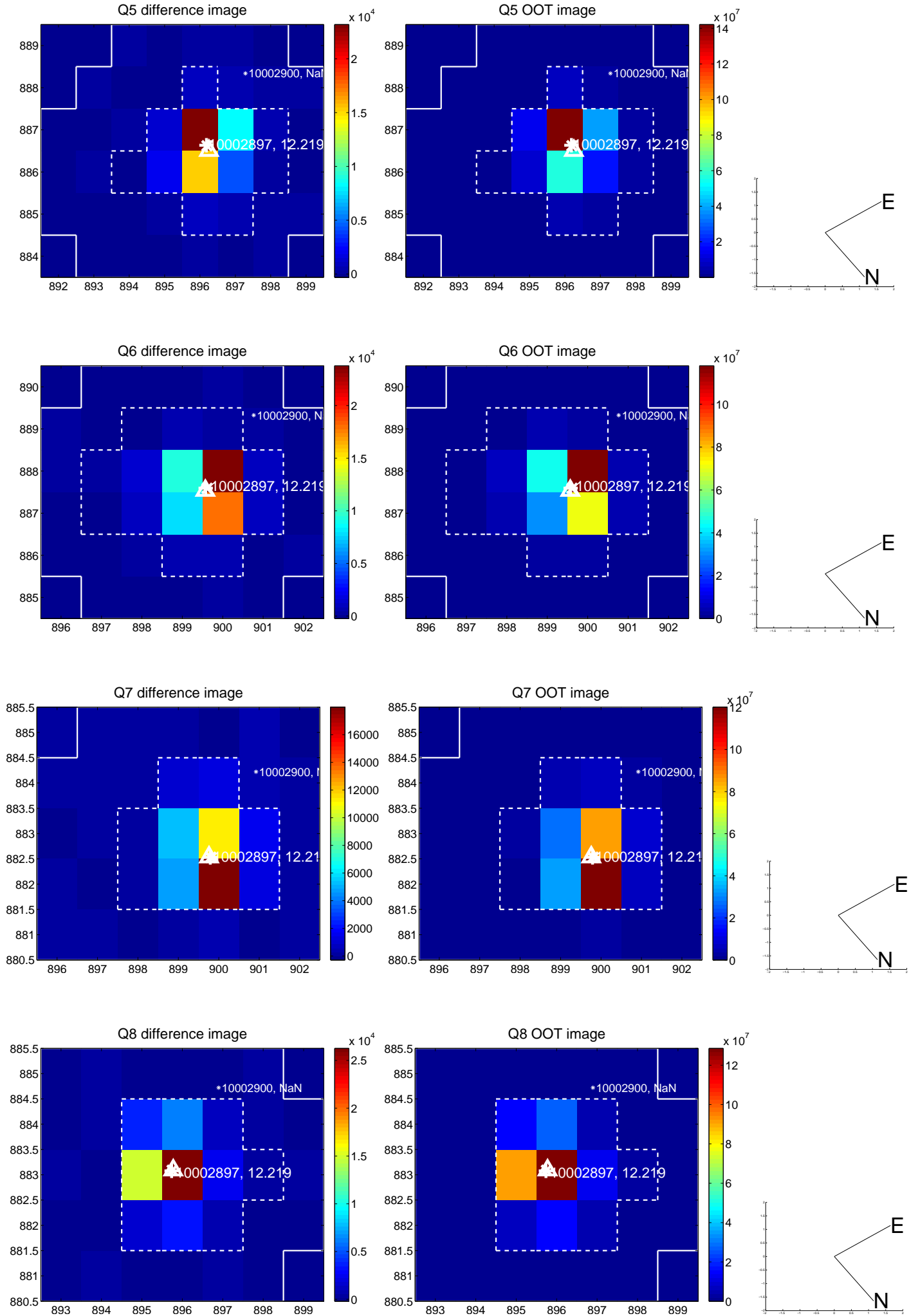


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

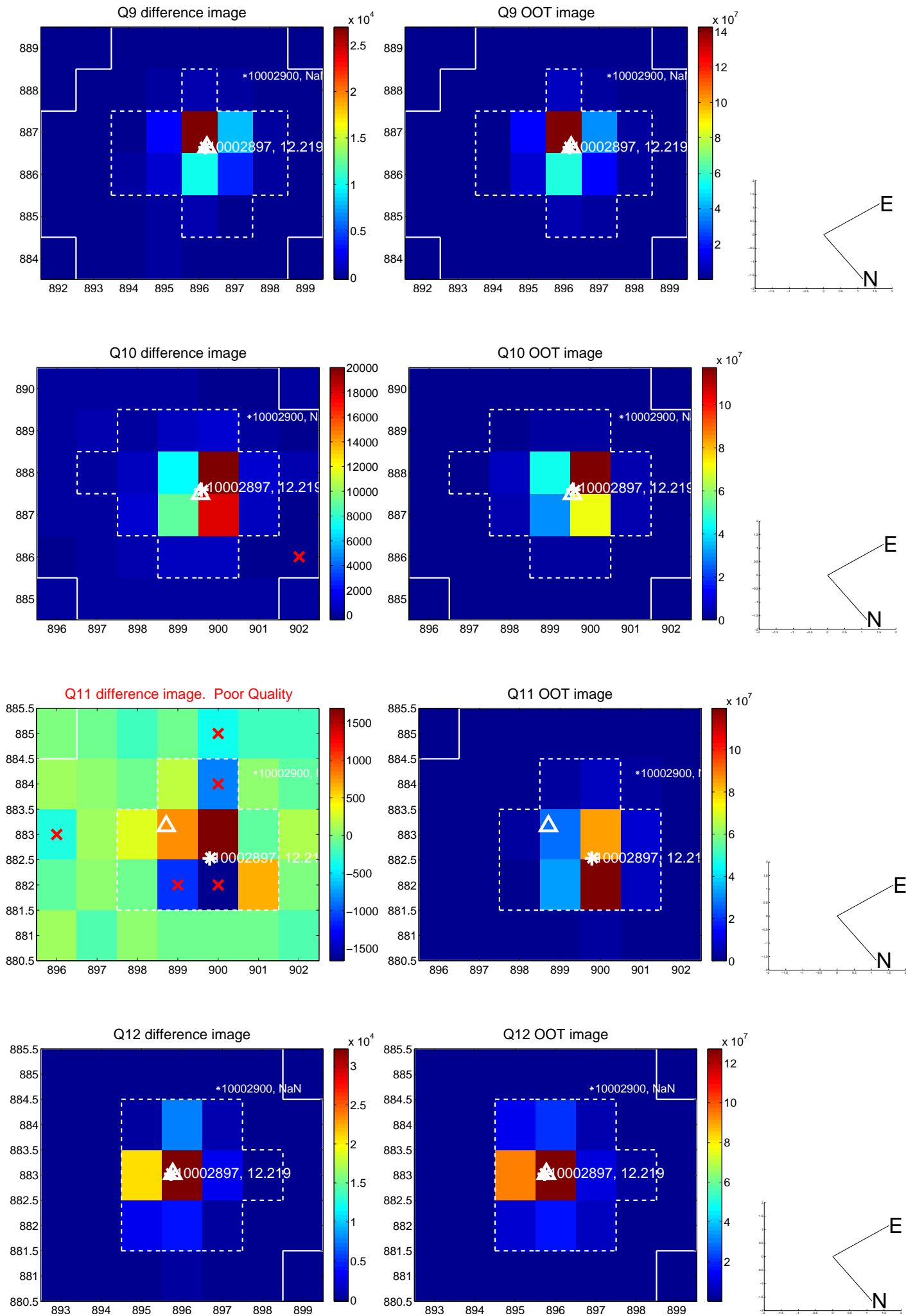
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



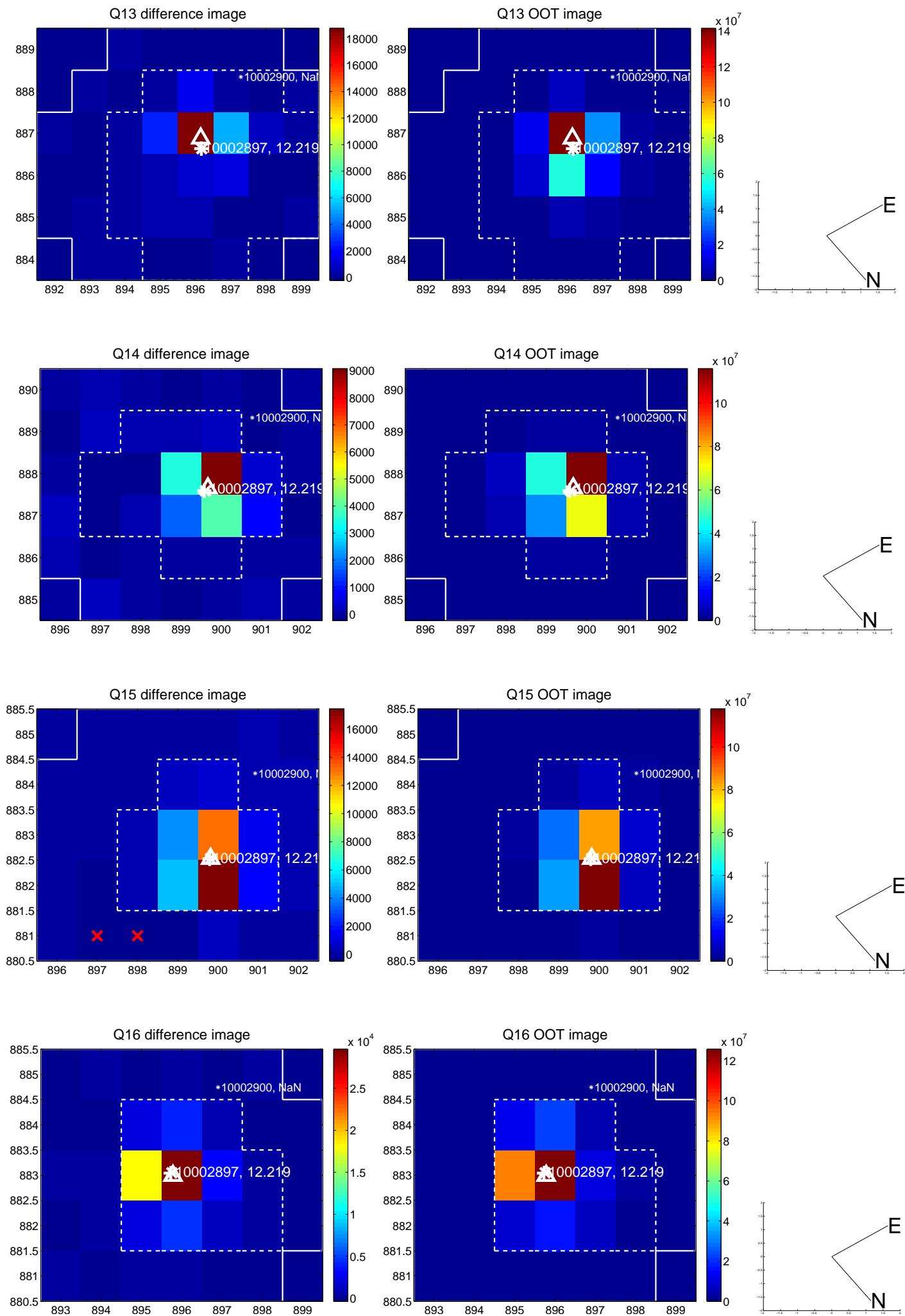
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



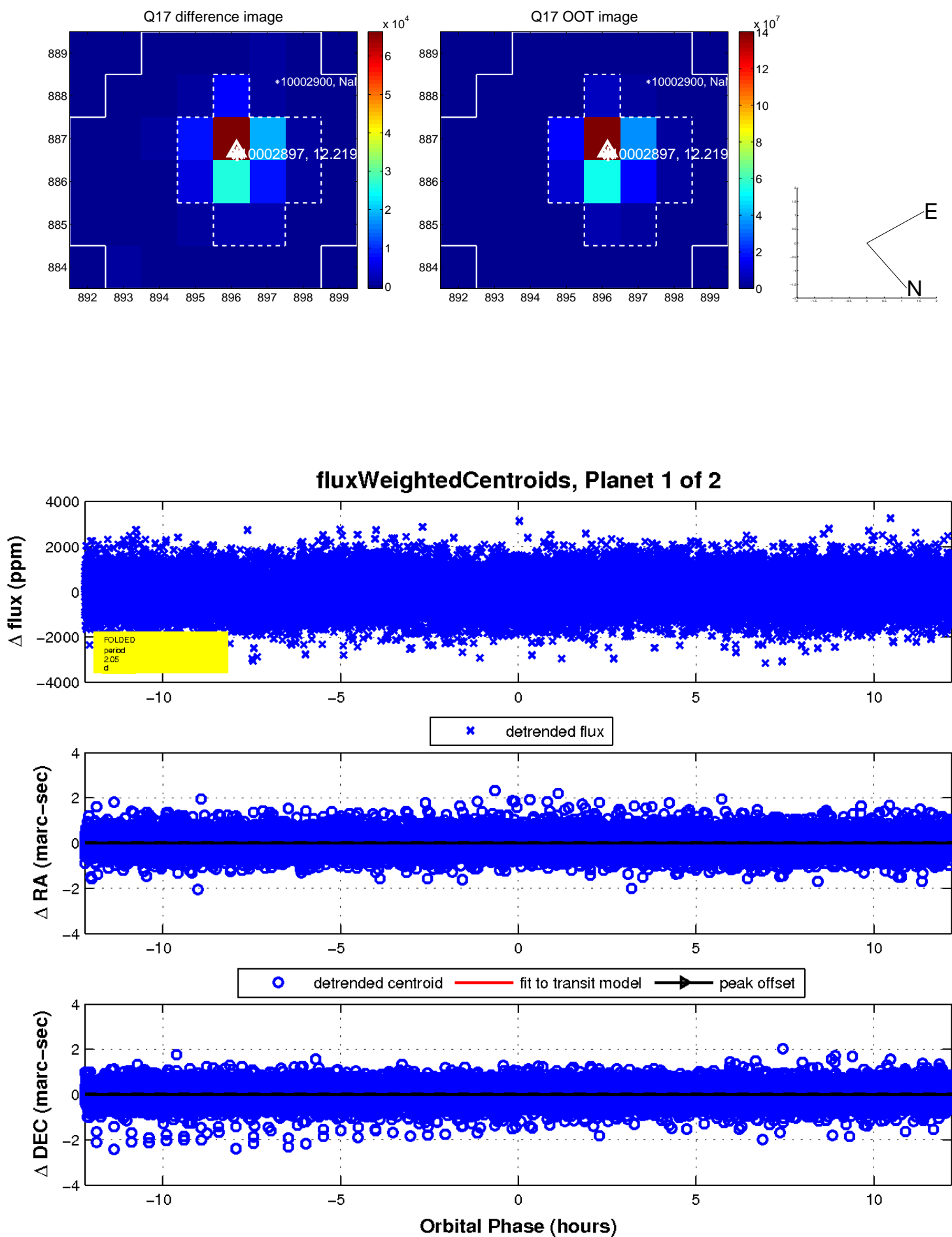
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

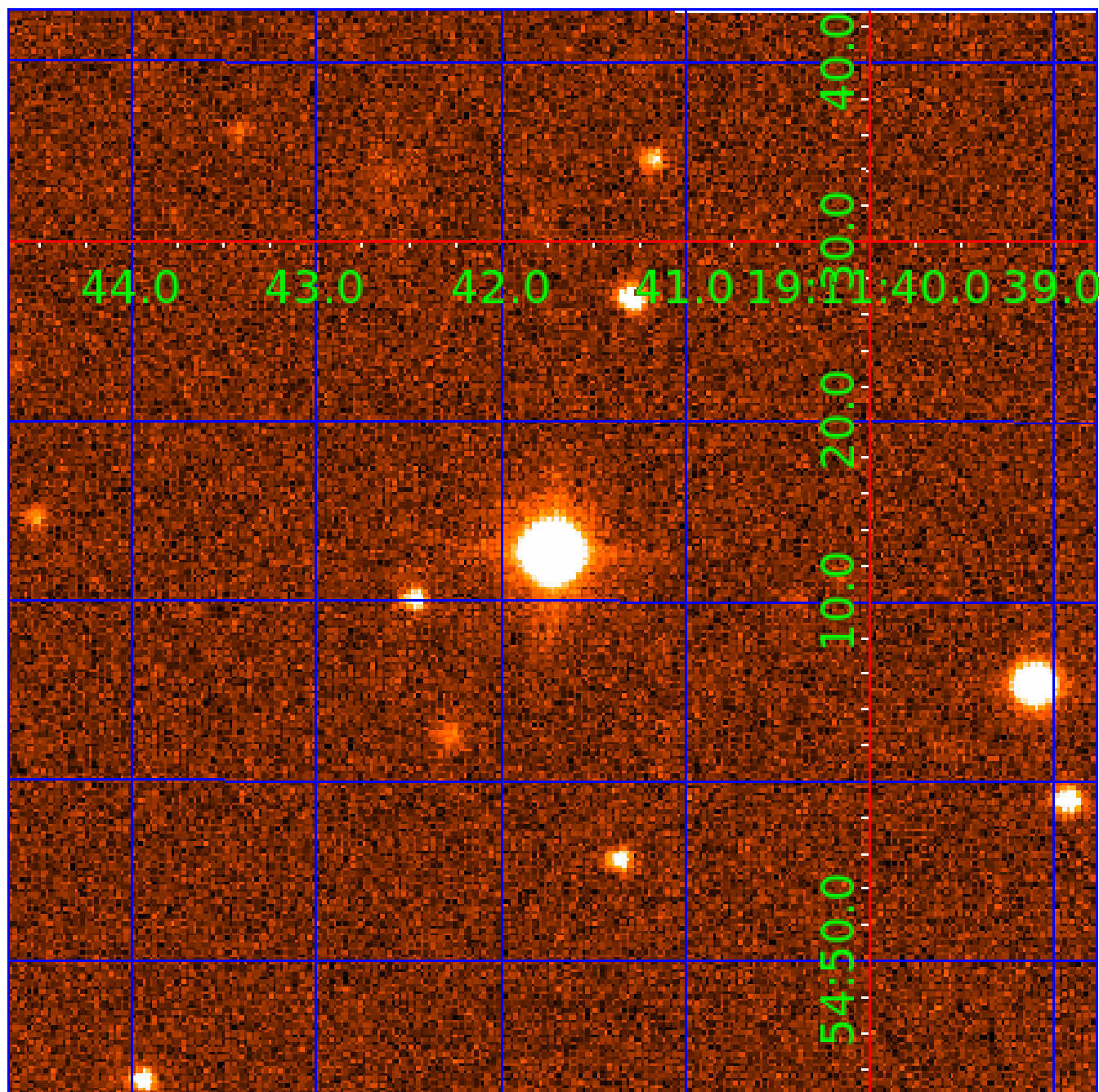


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010002897

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})
010002897-01	OBS	No	2.050485	131.844316	172.7	4.063	13.7	15.6	2.84	7709	4.33	18387.44
010002897-02	OBS	No	1.025224	132.517171	93.1	3.888	10.9	11.9	2.84	7709	3.21	46334.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010002897-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010002897-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

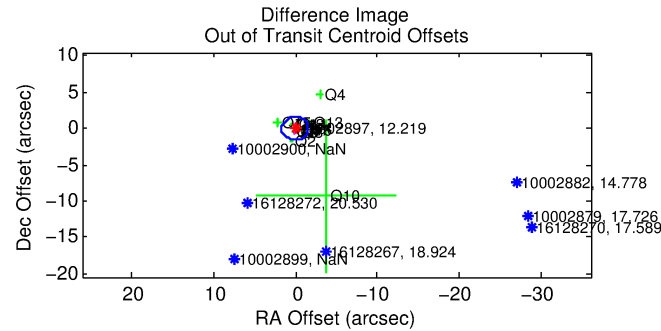
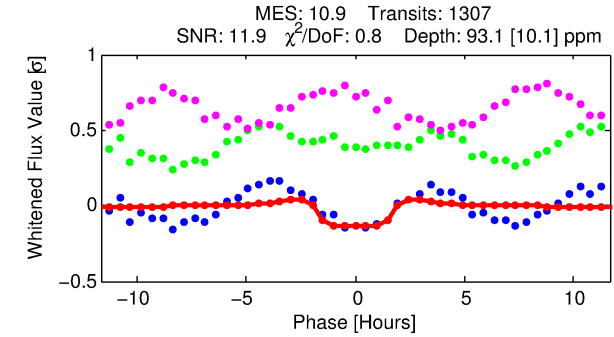
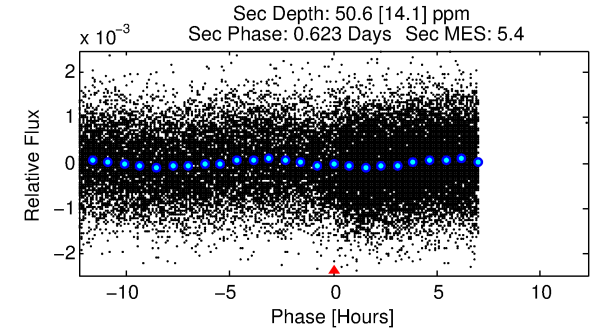
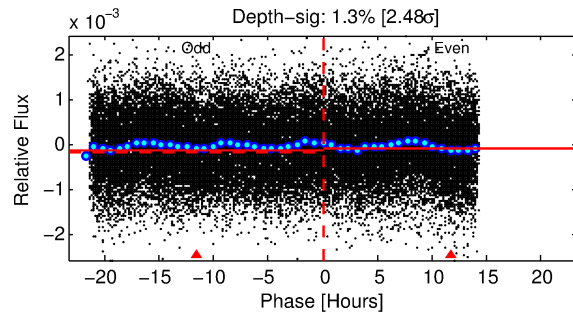
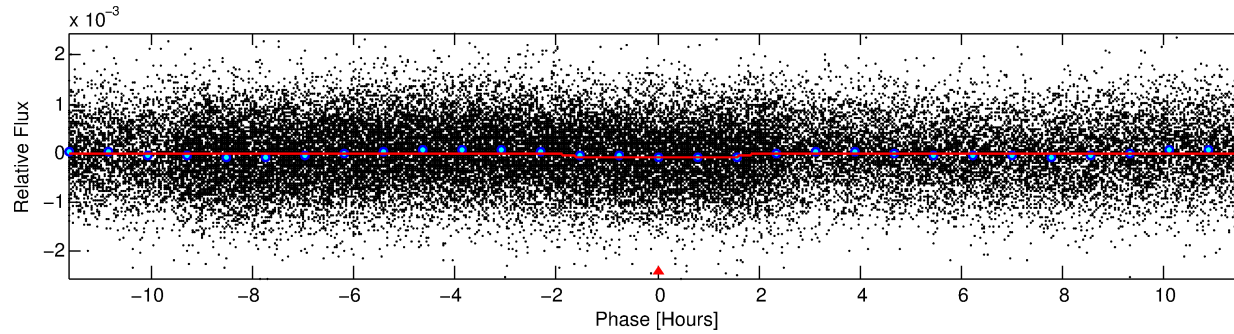
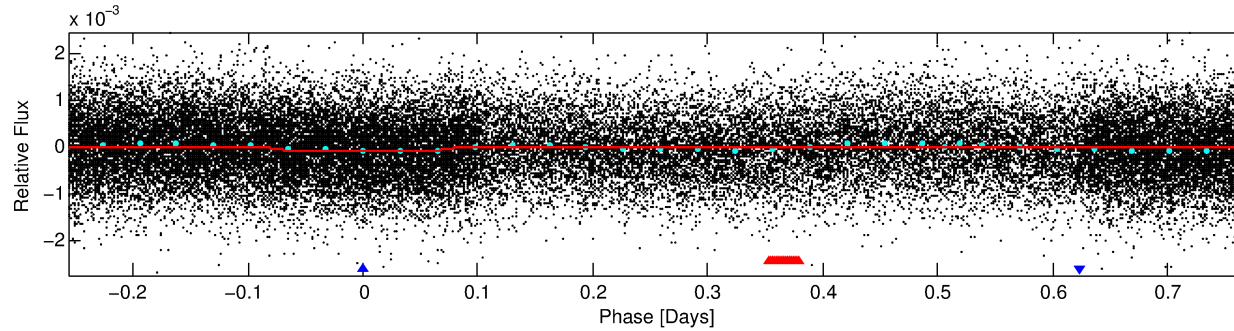
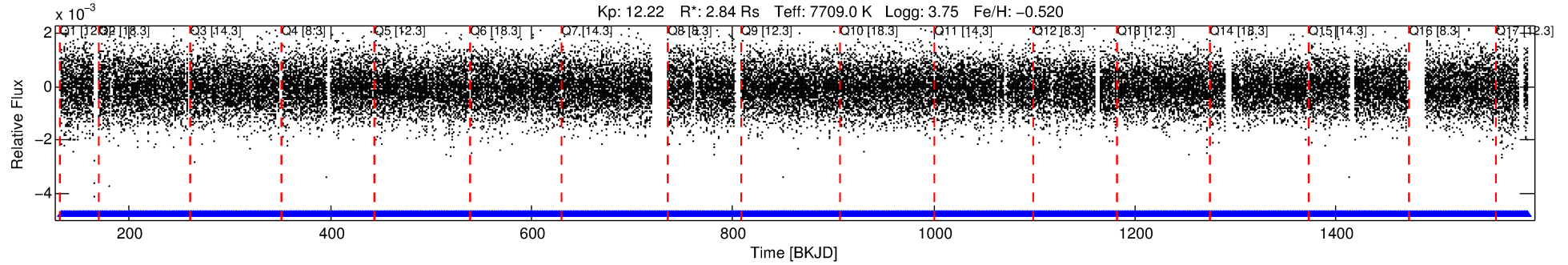
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010002897-02

No Significant Match Found

DV One-Page Summary

KIC: 10002897 Candidate: 2 of 2 Period: 1.025 d



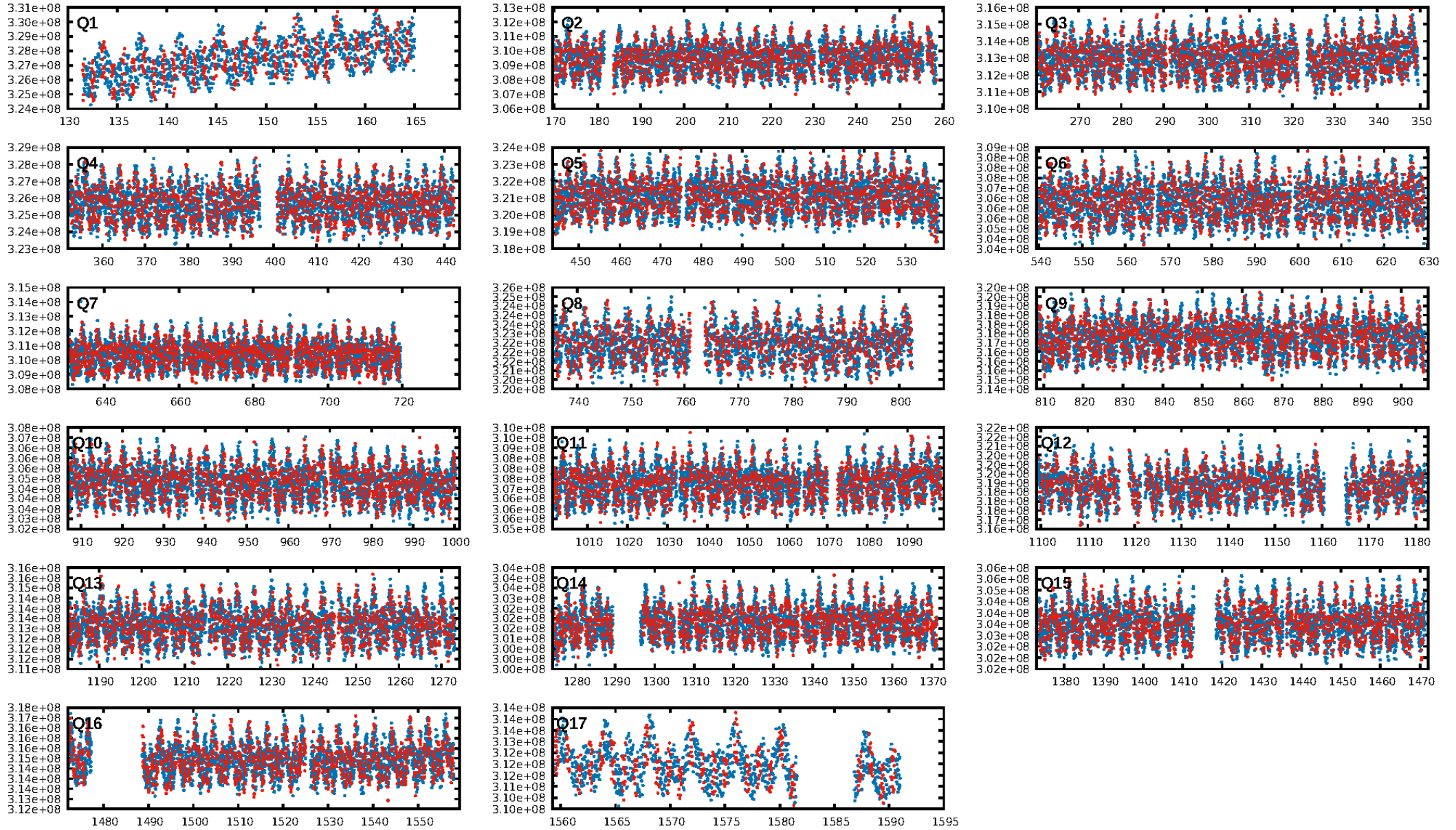
DV Fit Results:

Period = 1.02522 [0.00001] d
Epoch = 132.5172 [0.0034] BKJD
Rp/R* = 0.0104 [0.0033]
a/R* = 1.29 [1.01]
b = 0.91 [0.36]
Seff = 46334.57 [37238.77]
Teff = 3741 [752] K
Rp = 3.21 [1.88] Re
a = 0.0235 [0.0114] AU
Ag = 1.48 [1.55] [0.31 σ]
Teffp = 6382 [1133] K [1.94 σ]

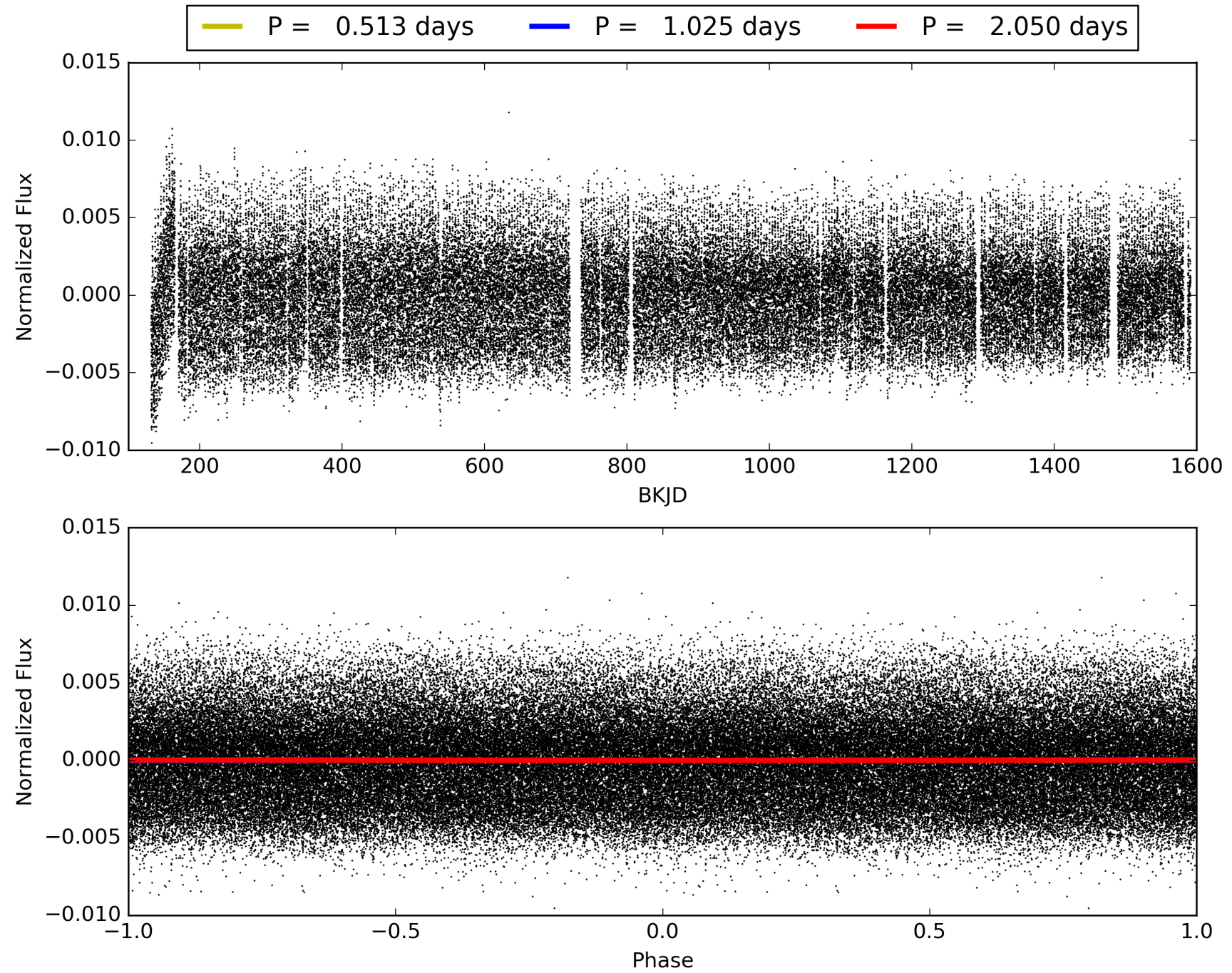
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.38 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.45e-22
RollingBand-fgt: 1.00 [1248/1248]
GhostDiagnostic-chr: 1.378
Centroid-sig: 76.2%
Centroid-so: 0.010 arcsec [0.10 σ]
OotOffset-rm: 0.052 arcsec [0.10 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.039 arcsec [0.06 σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.75 [12/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010002897-02, PDC Light Curves

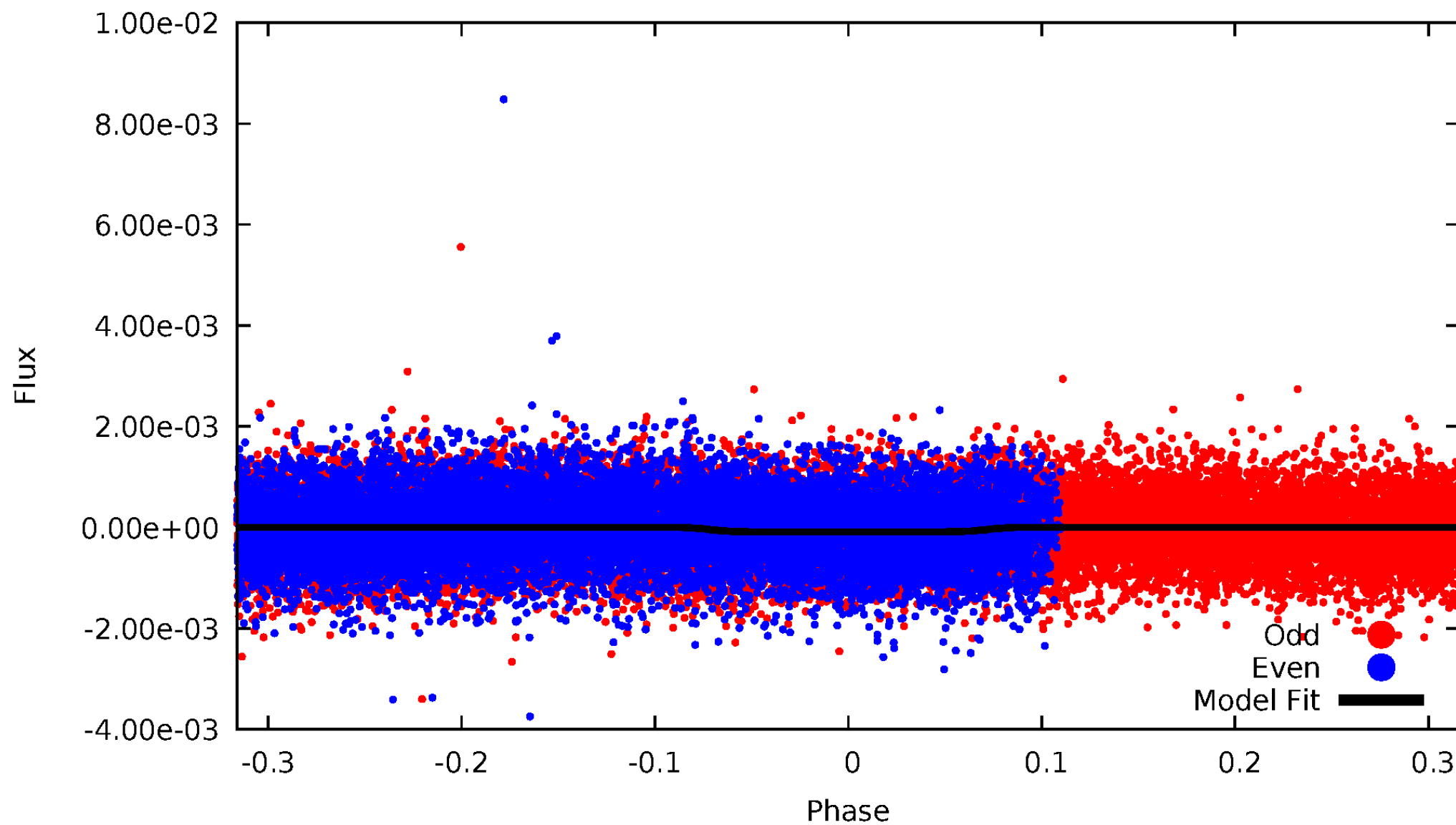


TCE 010002897-02



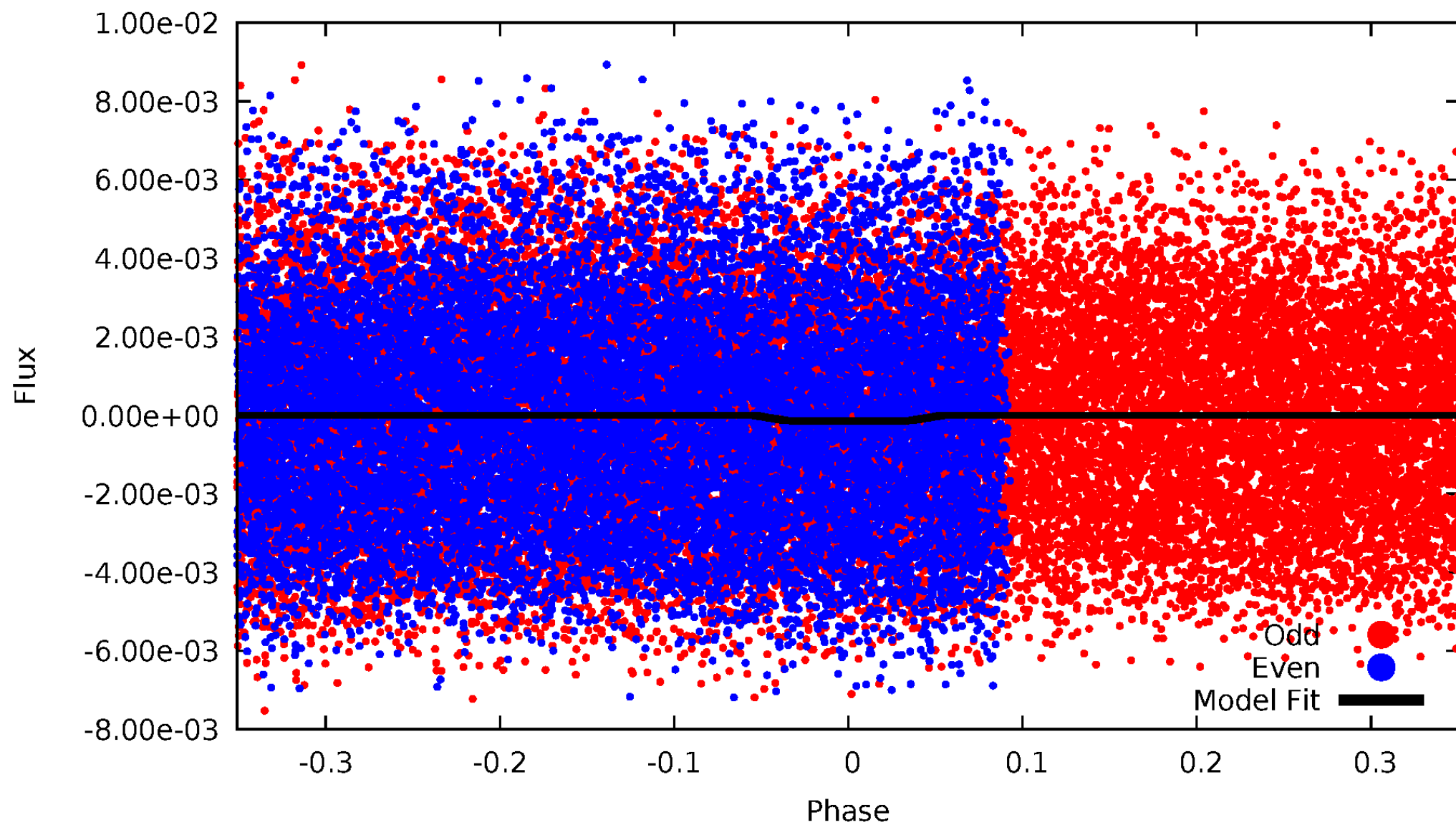
DV Odd/Even

TCE 010002897-02



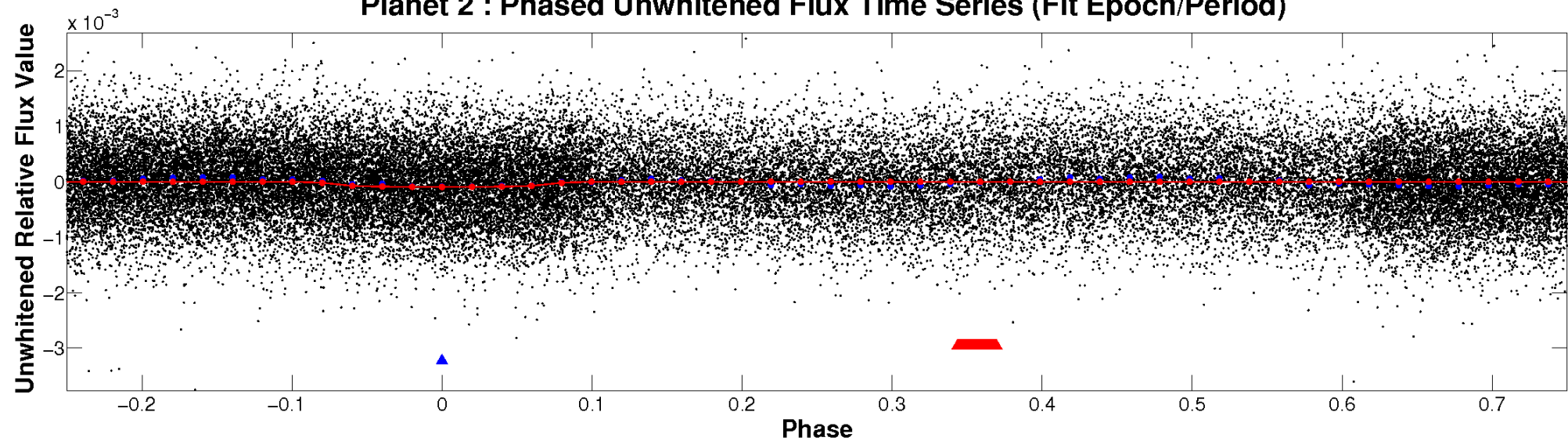
ALT Odd/Even

TCE 010002897-02

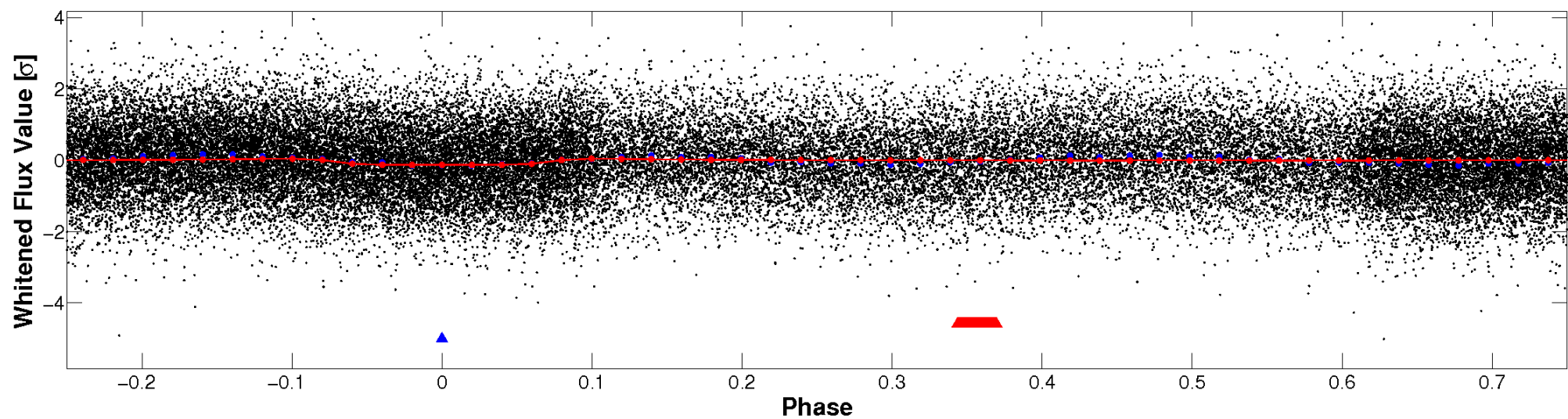


Non-Whitened Vs. Whitened Light Curve

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

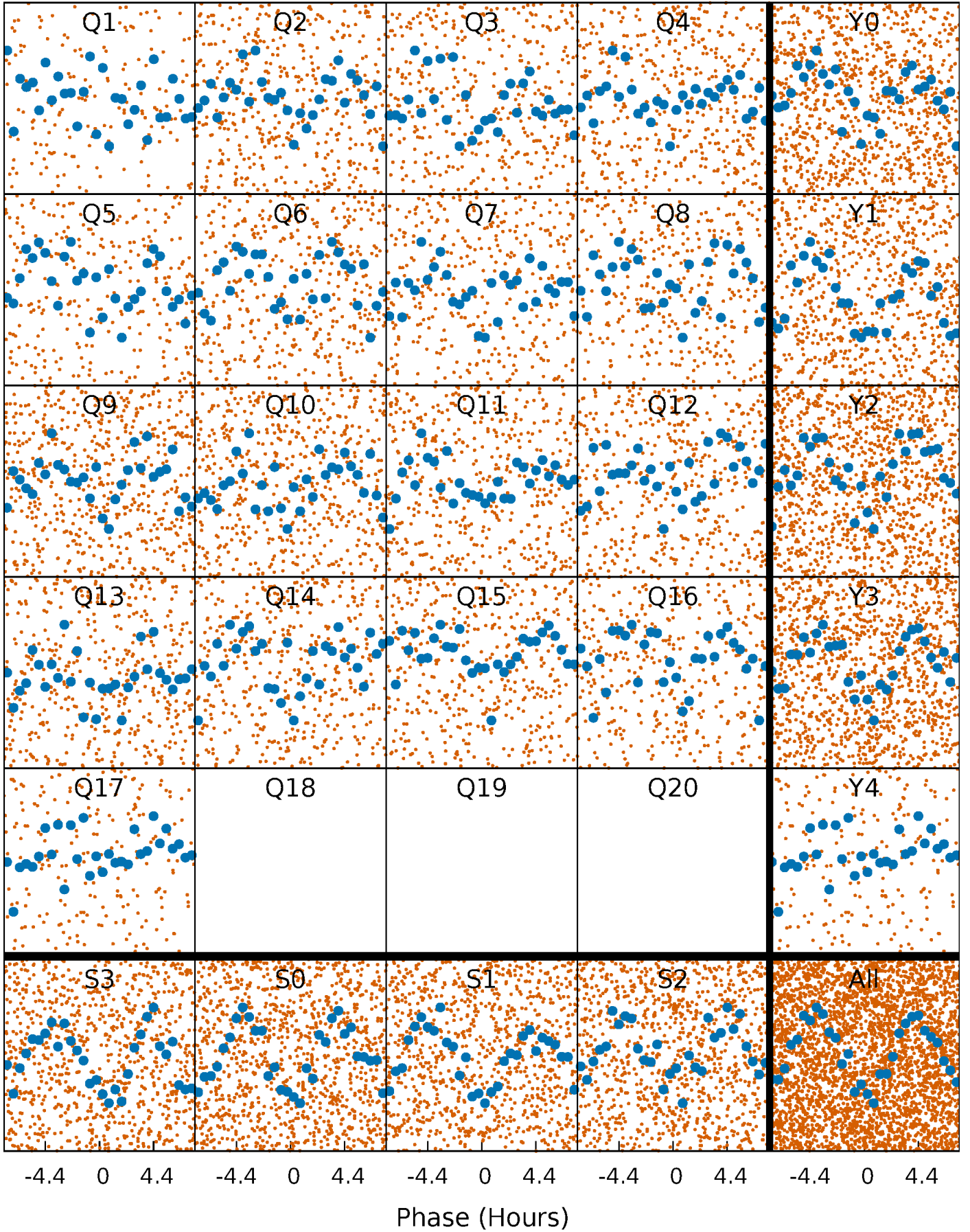


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



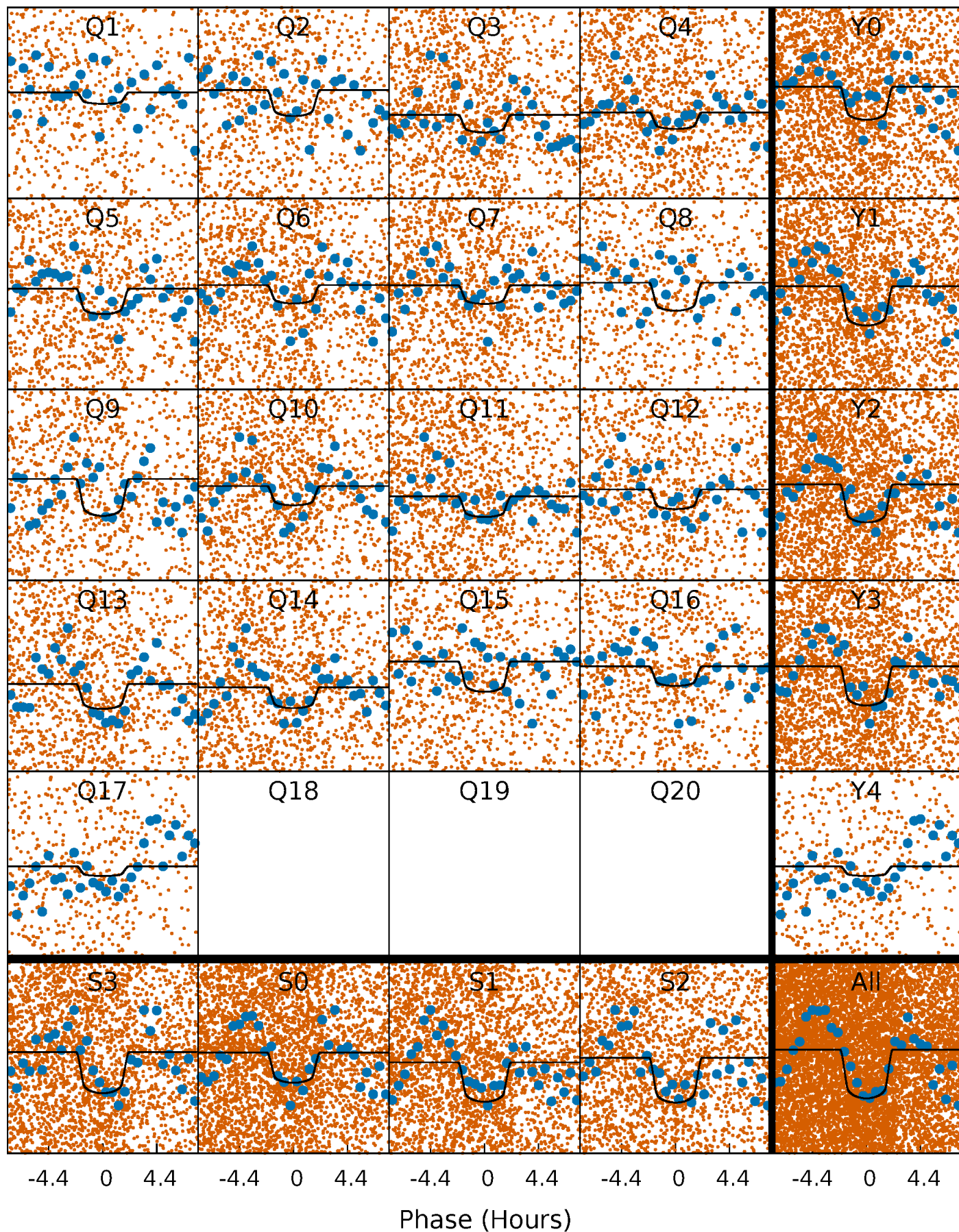
PDC Quarter-Phased Transit Curves

TCE 010002897-02 $P = 1.025224$ Days $T_0 = 132.517171$ (BKJD)



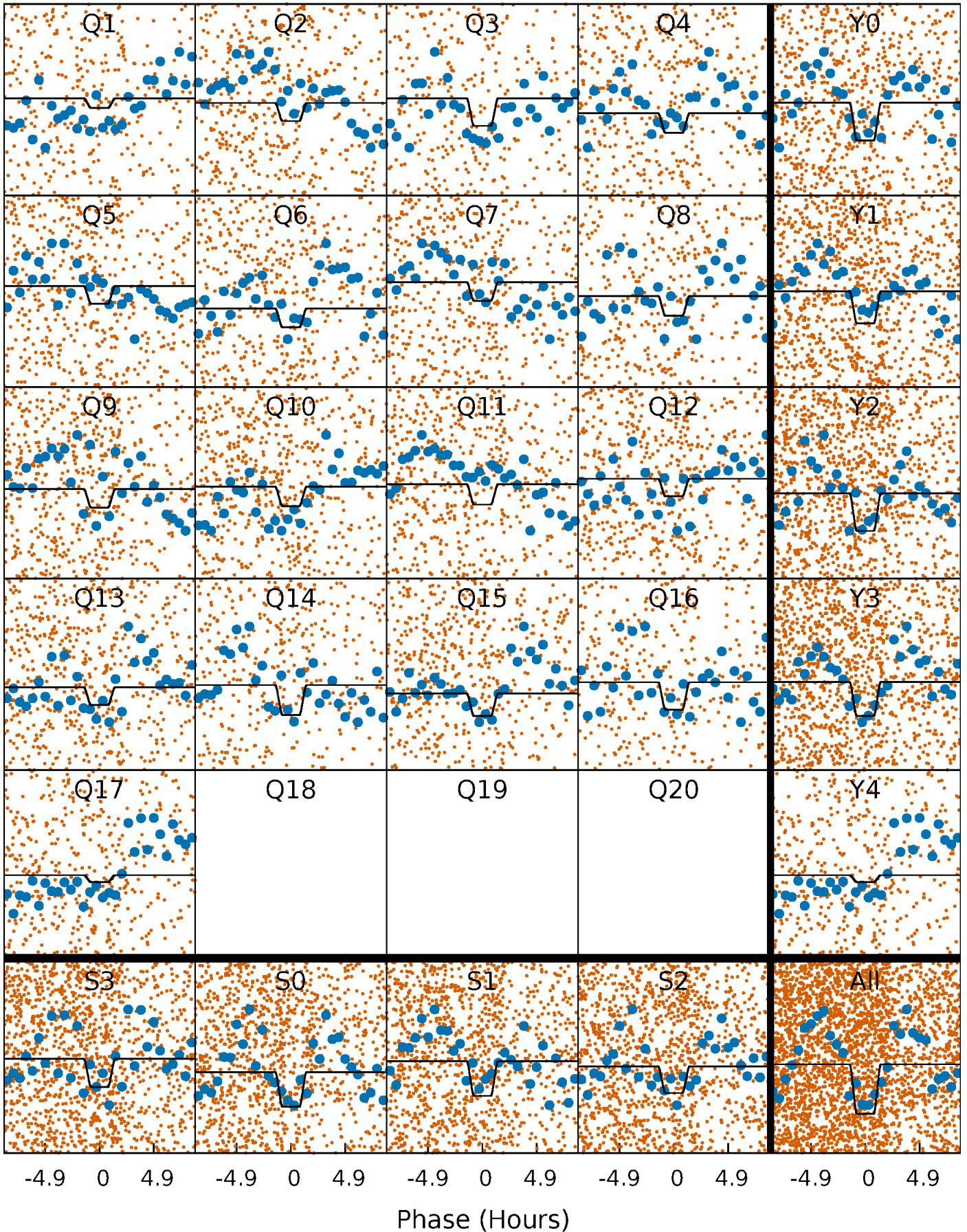
DV Quarter-Phased Transit Curves

TCE 010002897-02 P= 1.025224 Days $T_0=132.517171$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

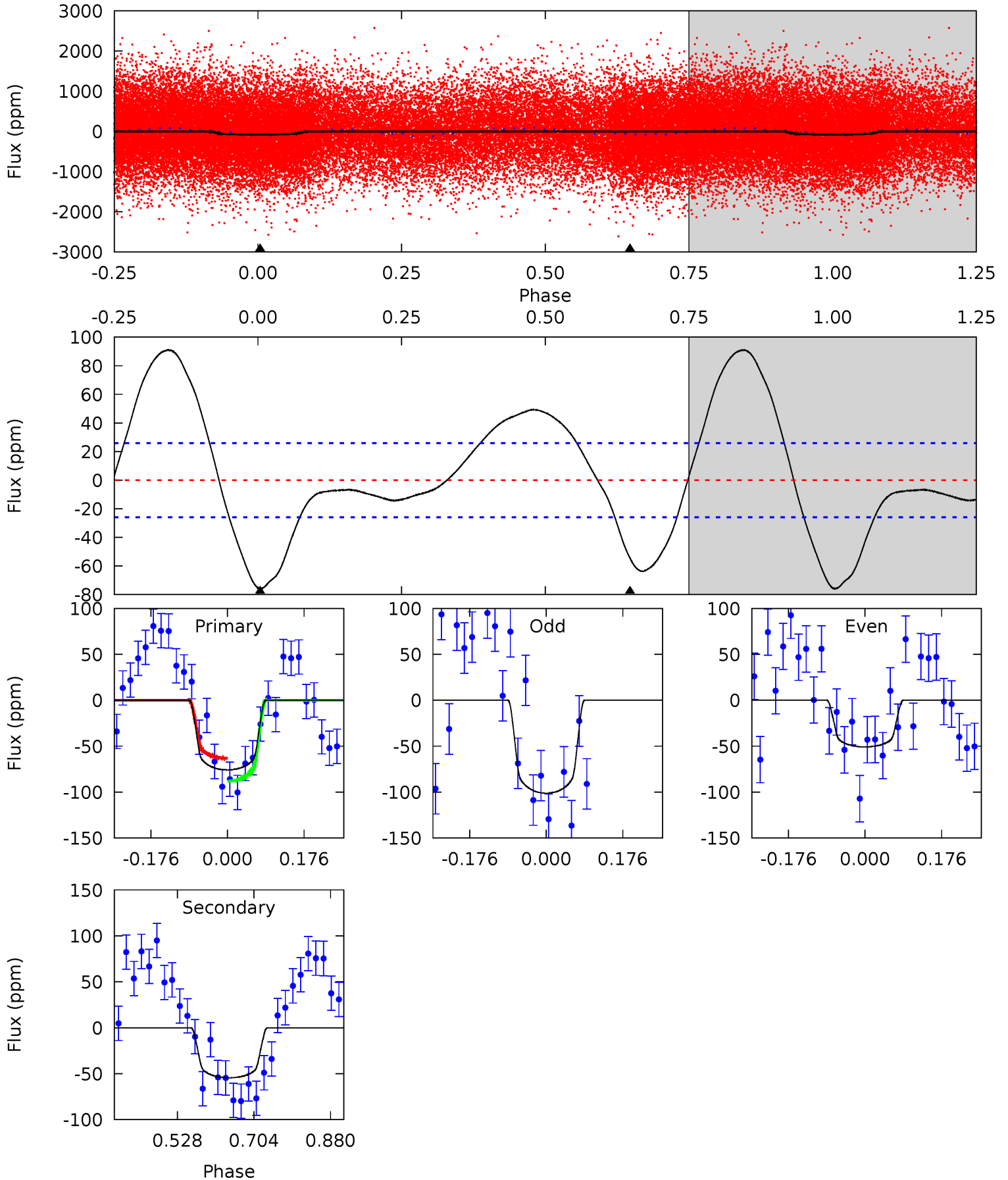
TCE 010002897-02 $P = 1.025249$ Days $T_0 = 132.510062$ (BKJD)



DV Model-Shift Uniqueness Test

010002897-02, P = 1.025224 Days, E = 131.491947 Days

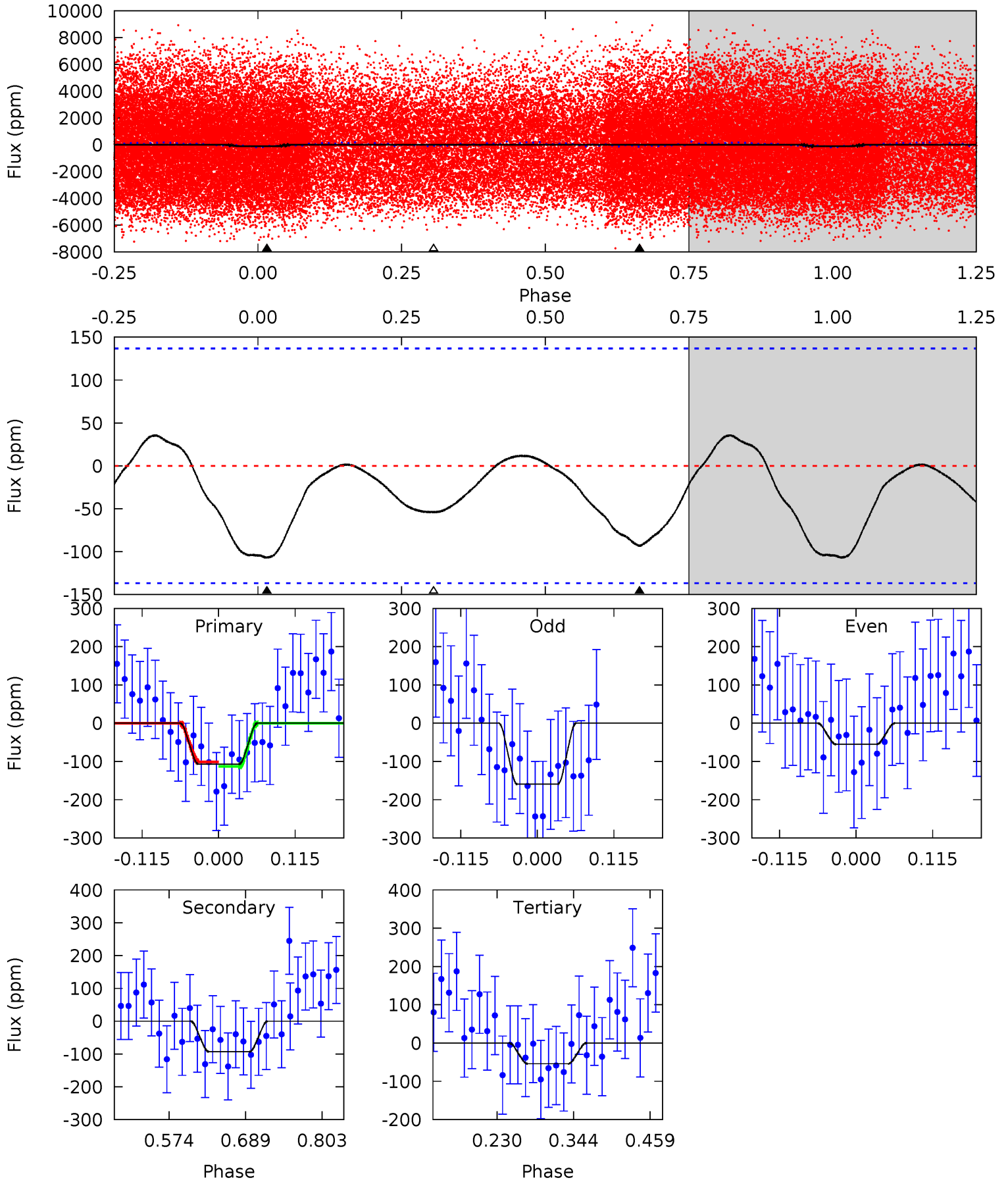
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	9.35	0	0	4.44	1.35	4.36	13.0	13.0	9.35	9.35	4.21	1.07	0.55	2.13



Alt Model-Shift Uniqueness Test

010002897-02, P = 1.025249 Days, E = 131.484813 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.55	3.09	1.79	0	4.54	1.58	0.88	1.76	3.55	1.30	3.09	1.72	0.28	0.25	0.19



Stellar Parameters For KIC 010002897

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7709^{+247}_{-302}	$3.746^{+0.467}_{-0.082}$	$-0.520^{+0.250}_{-0.300}$	$2.839^{+0.349}_{-1.396}$	$1.636^{+0.159}_{-0.372}$	$0.101^{+0.470}_{-0.026}$
	+3%/-4%	+12%/-2%	+48%/-58%	+12%/-49%	+10%/-23%	+467%/-26%
Source	KIC0	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 010002897-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-54 ± 6	$2.82^{+1.09}_{-1.10}$	5028^{+367}_{-591}	6147^{+1756}_{-937}	$2.064^{+3.327}_{-0.989}$
Alt.	-93 ± 30	$3.40^{+1.34}_{-1.12}$	5073^{+341}_{-575}	6414^{+1618}_{-1143}	$2.365^{+3.109}_{-1.262}$

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 $A_{obs} \gg 1.0$

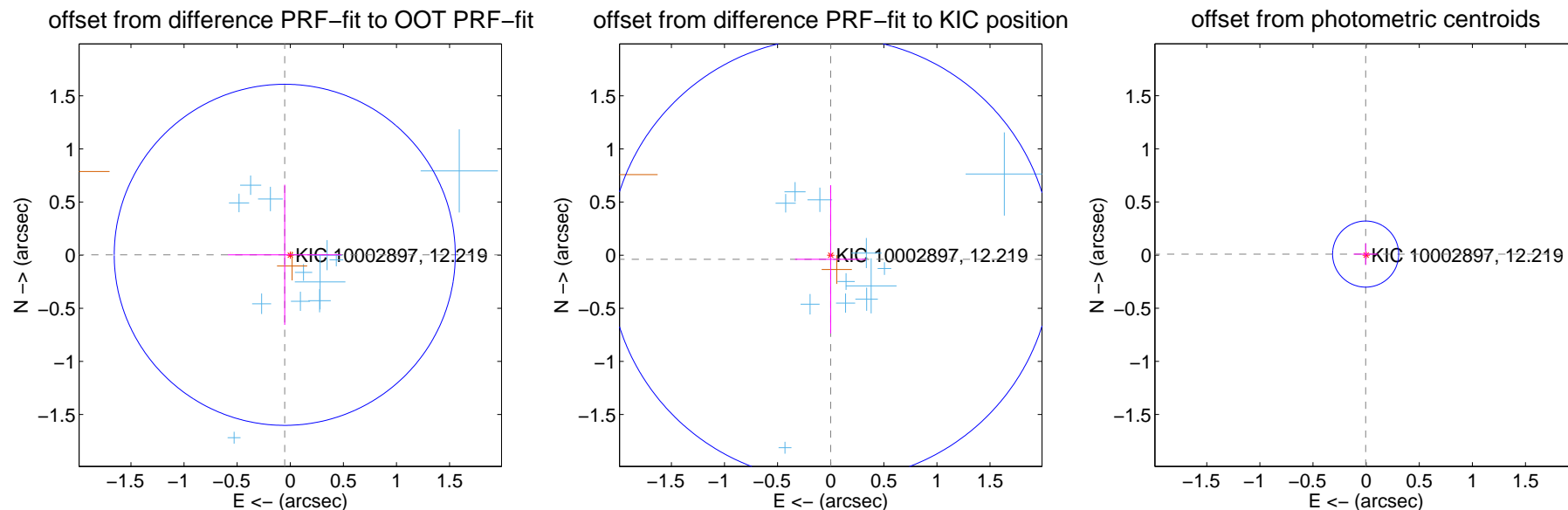
DV Centroid Data

Supplemental centroid analysis for 010002897-02. Kepler magnitude: 12.22. Transit SNR 11.92

There are 12 quarters with good PRF difference image offsets

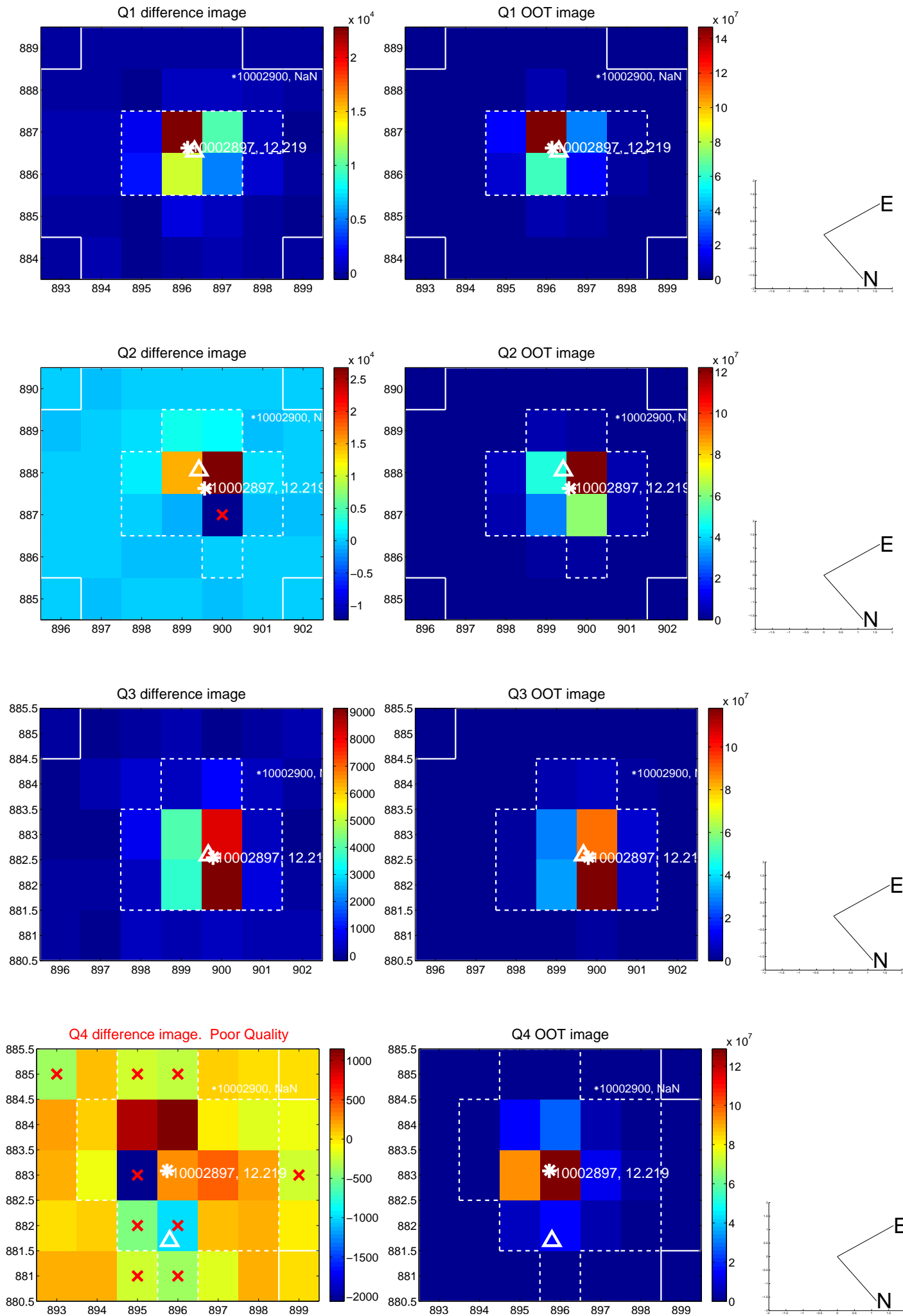
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.535	0.10	0.052 ± 0.535	0.003 ± 0.660
PRF-fit source offset from KIC position	0.039 ± 0.696	0.06	0.001 ± 0.335	-0.039 ± 0.697
photometric centroid source offset	0.01 ± 0.10	0.10	0.00 ± 0.11	0.01 ± 0.10

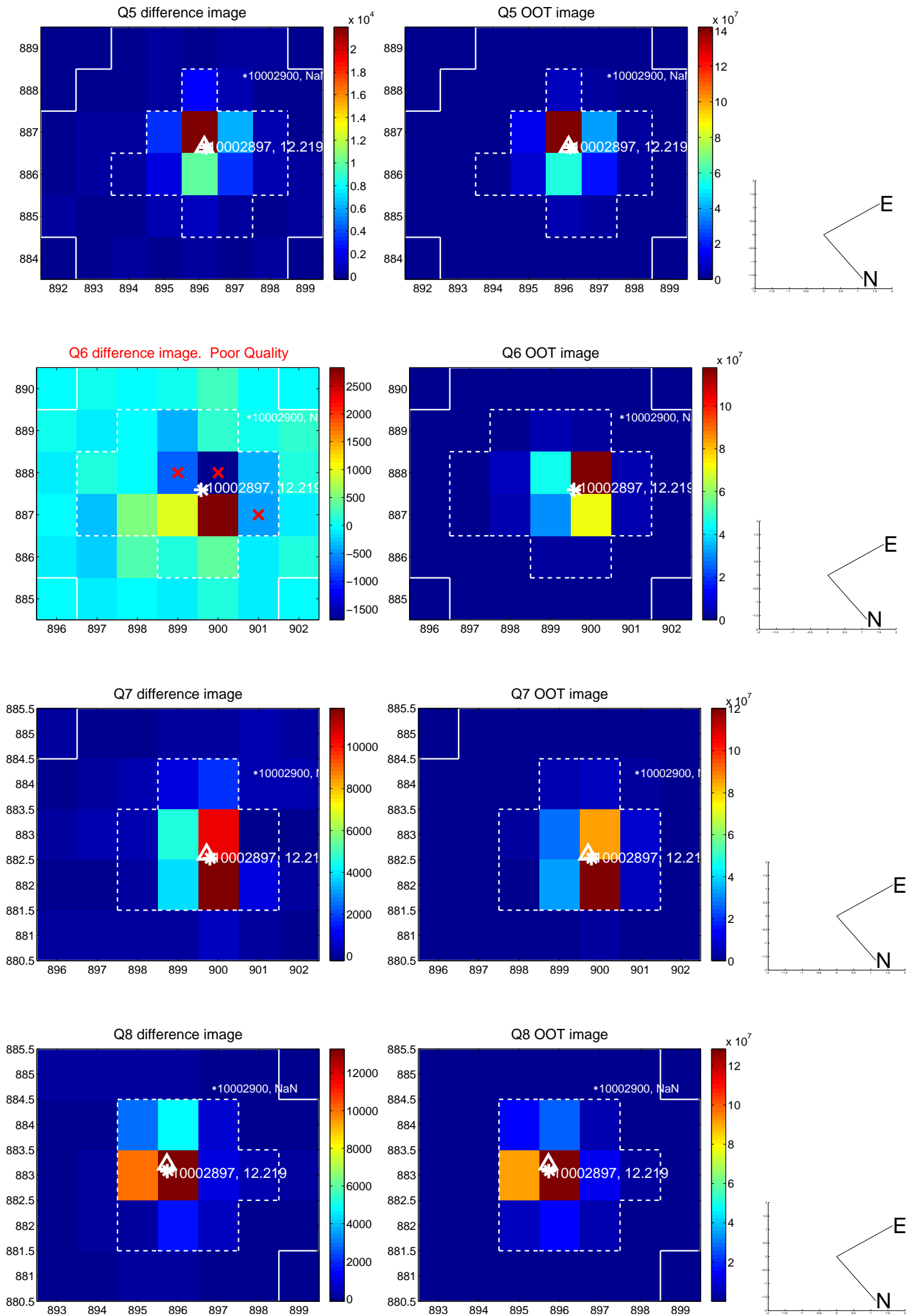


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

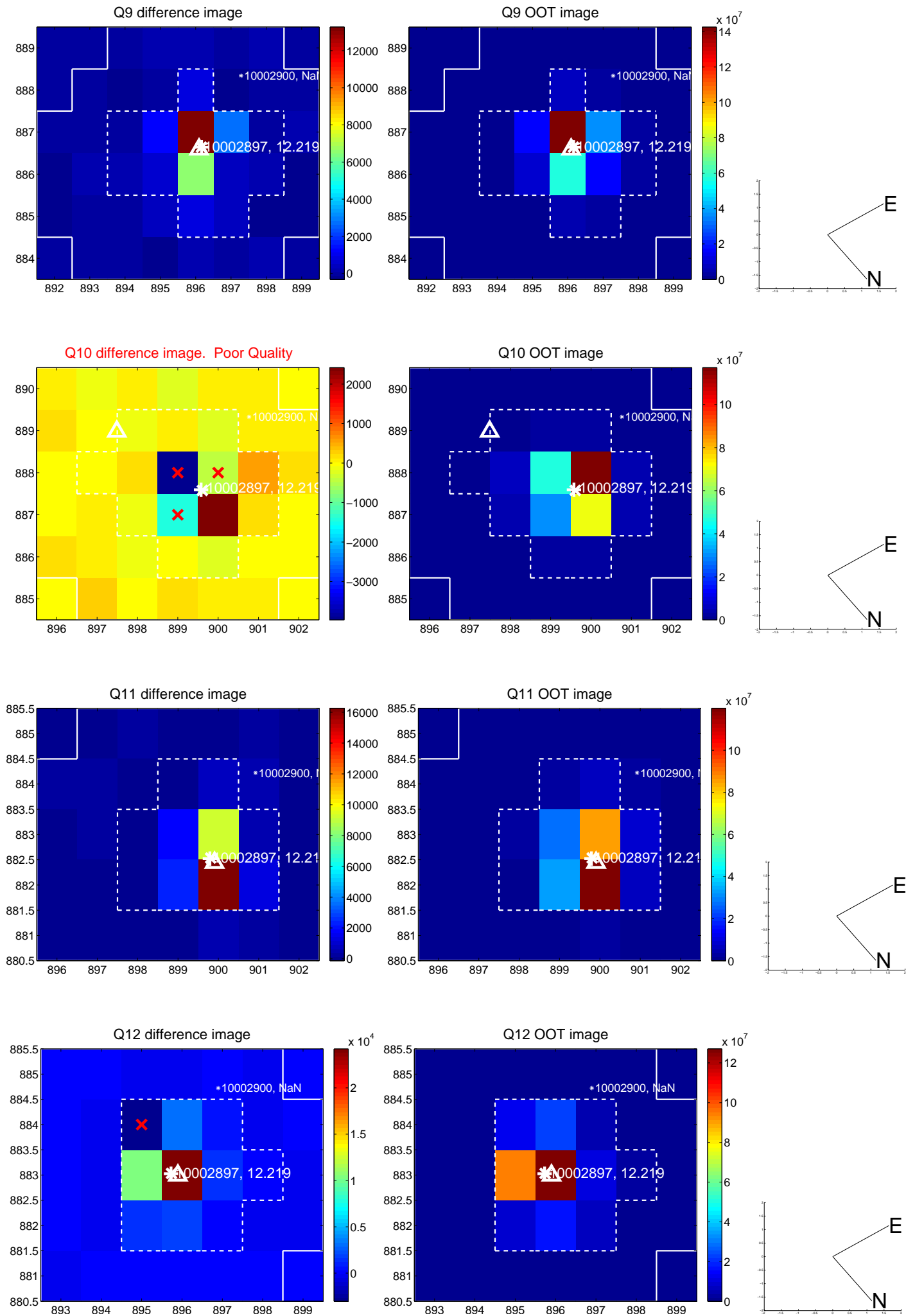
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



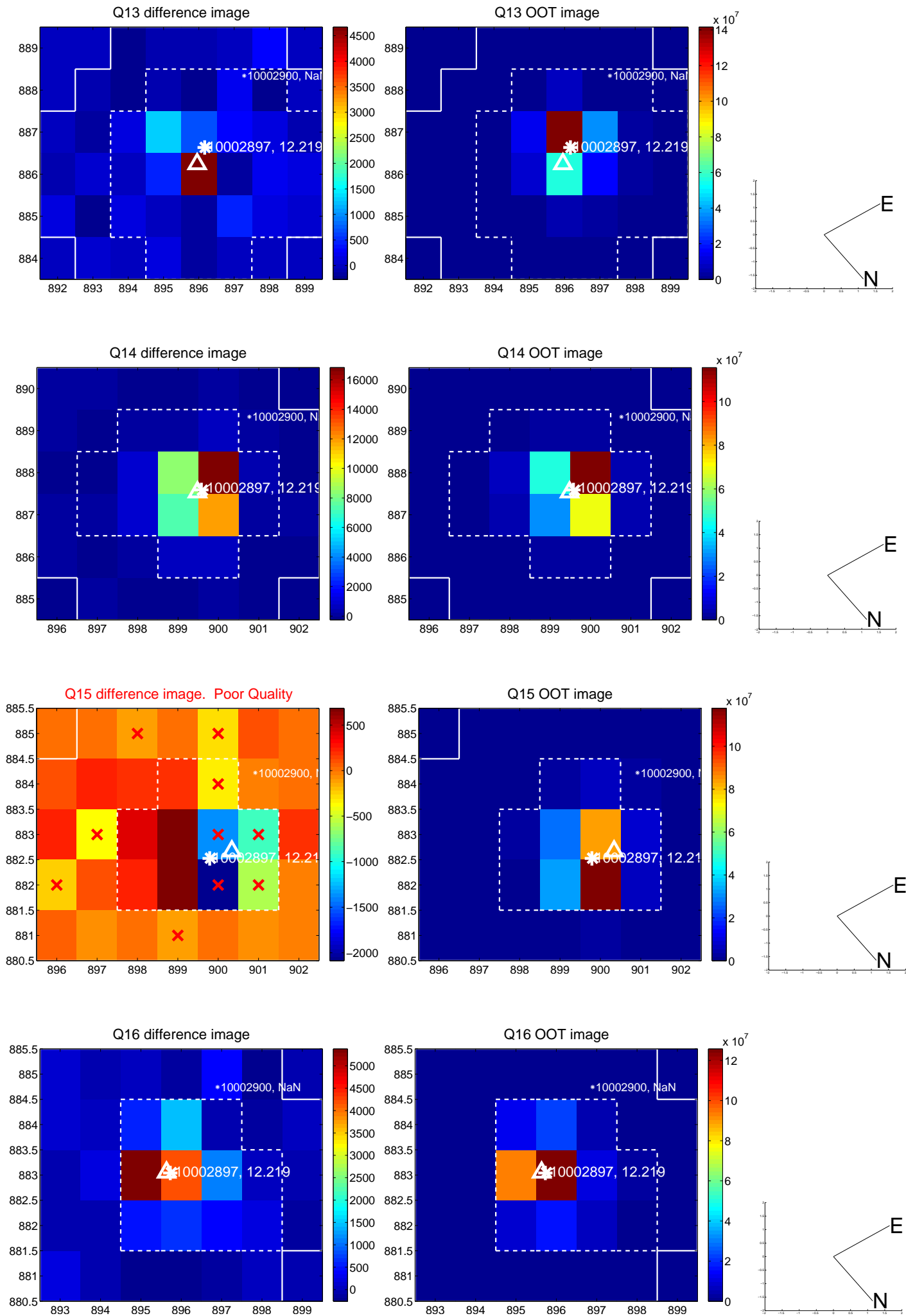
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



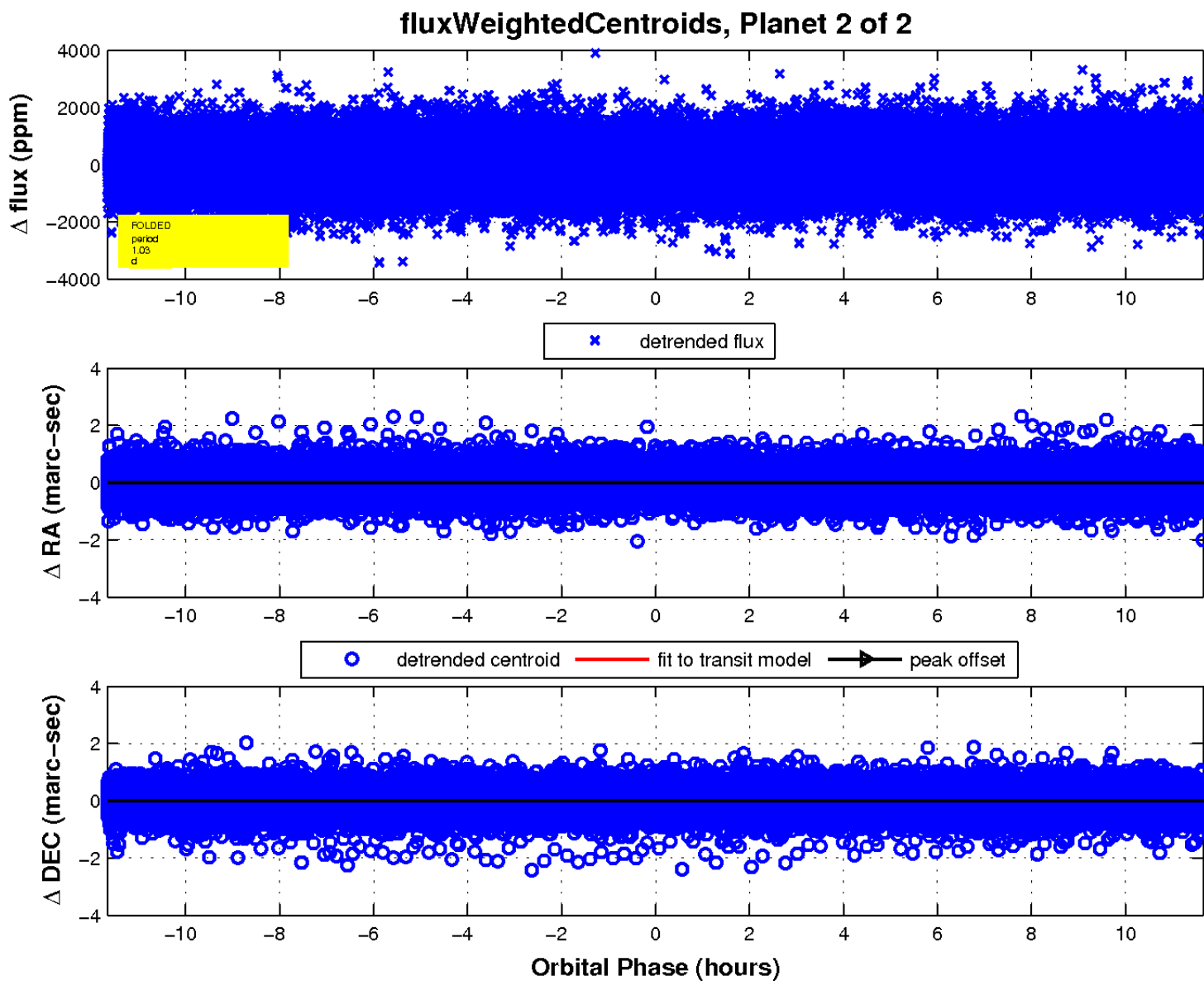
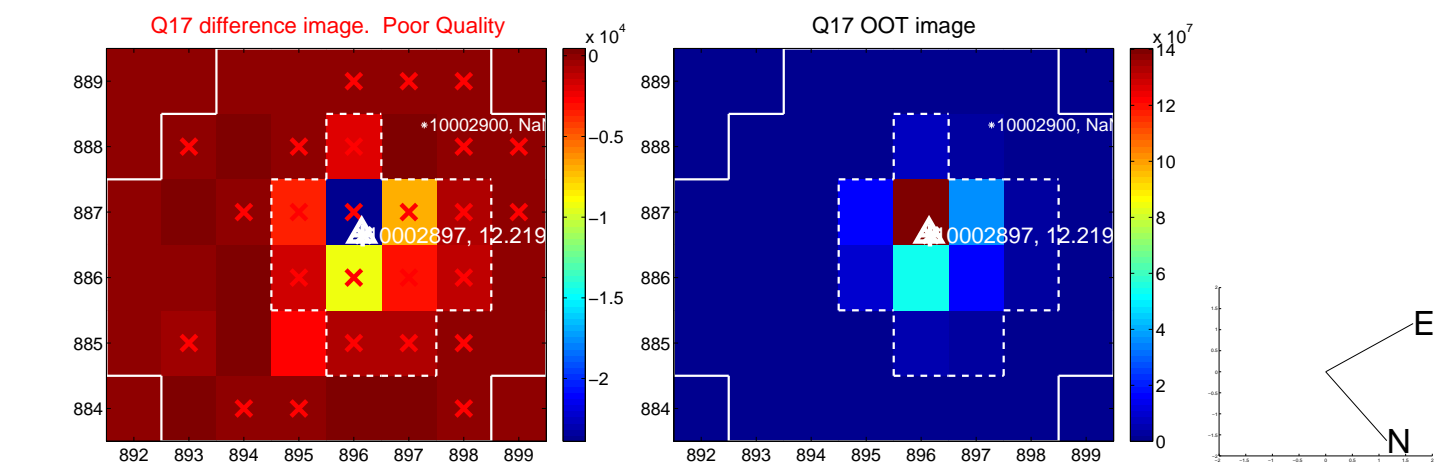
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

