

KIC 009880190

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})
009880190-01	OBS	2509.01	4.551416	133.057801	172.3	2.528	15.5	16.8	0.84	5009	1.35	160.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009880190-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT

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

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

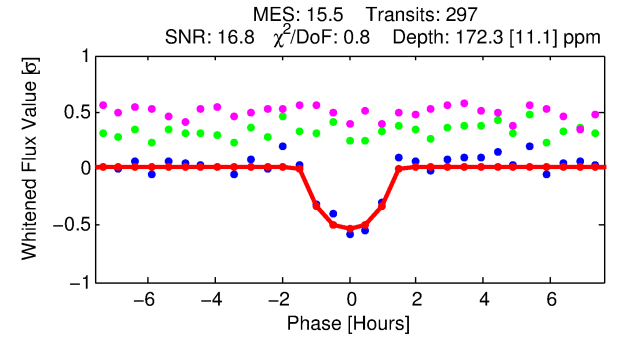
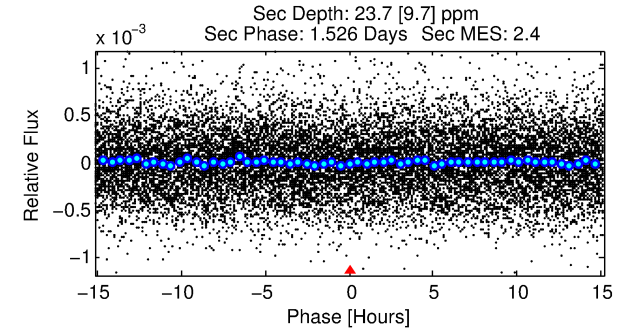
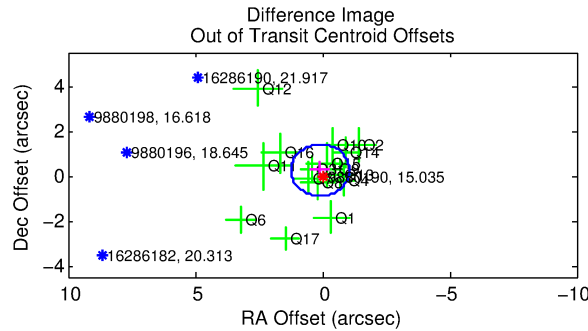
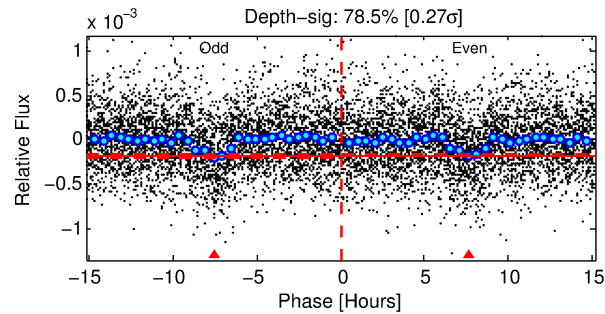
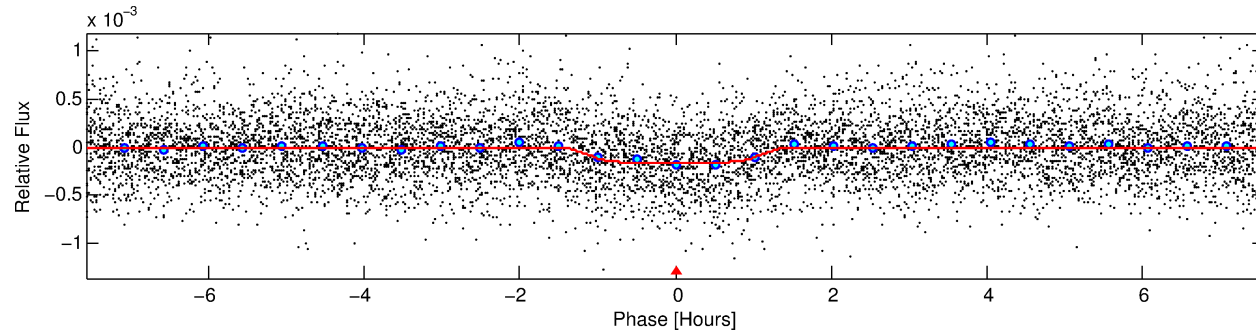
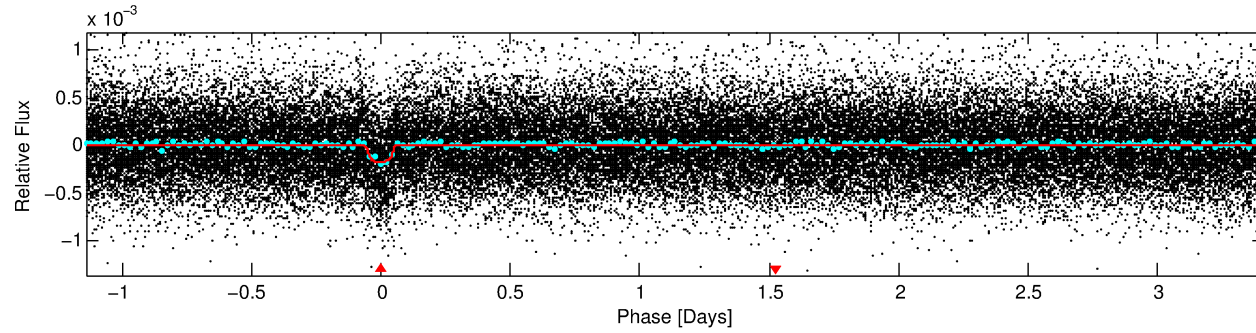
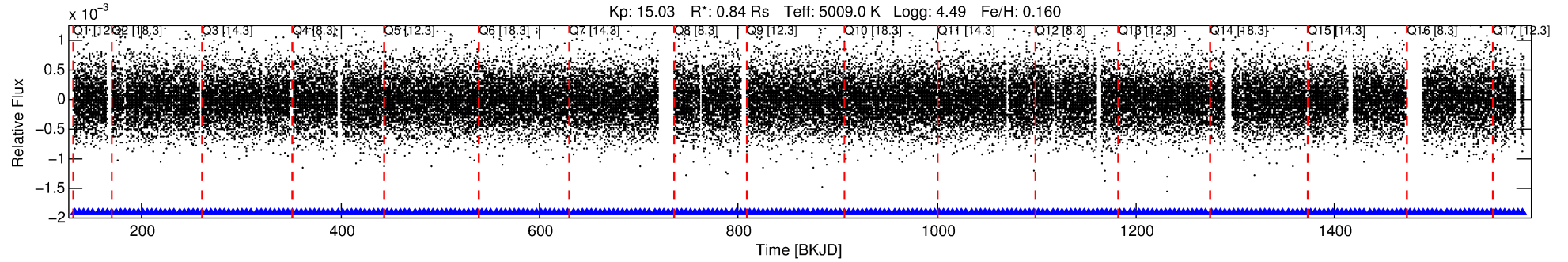
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009880190-01

No Significant Match Found

DV One-Page Summary

KIC: 9880190 Candidate: 1 of 1 Period: 4.551 d
KOI: K02509.01 Corr: 0.987



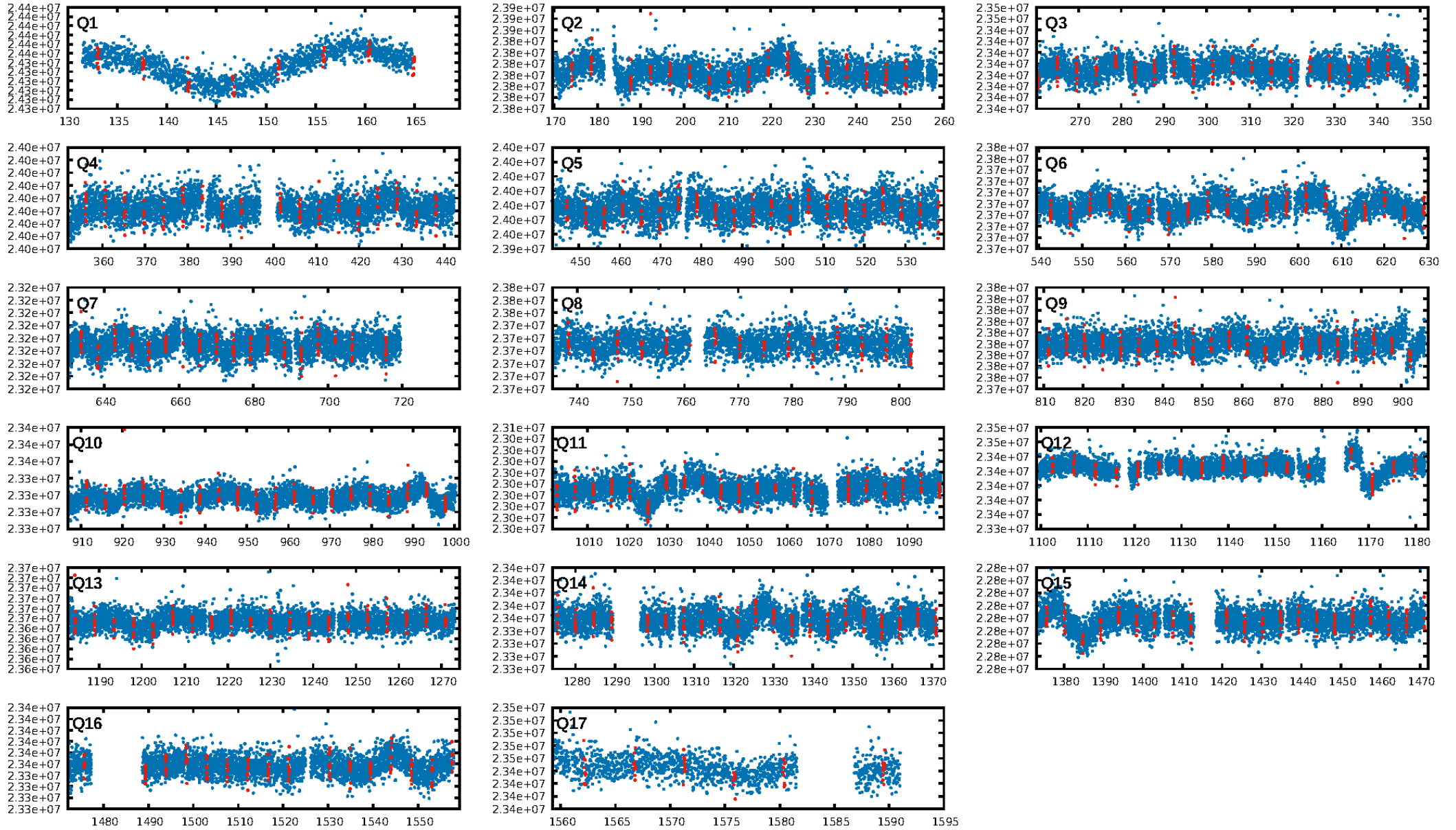
DV Fit Results:

Period = 4.55142 [0.00002] d
Epoch = 133.0578 [0.0028] BKJD
Rp/R* = 0.0147 [0.0070]
a/R* = 6.51 [12.10]
b = 0.90 [0.41]
Seff = 160.16 [22.92]
Teff = 907 [32] K
Rp = 1.35 [0.65] Re
a = 0.0498 [0.0038] AU
Ag = 17.85 [18.72] [0.90 σ]
Teffp = 2883 [752] K [2.63 σ]

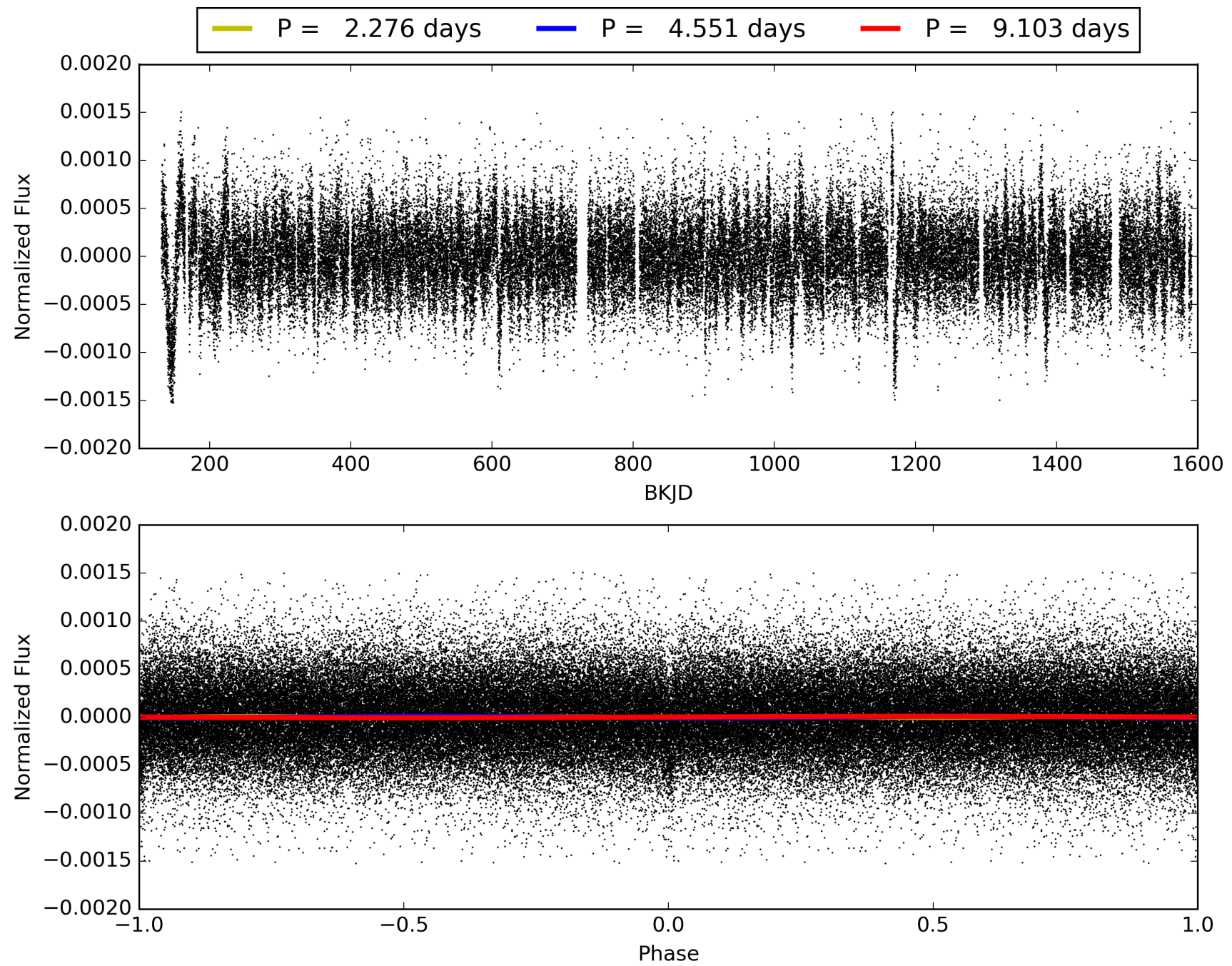
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.26e-53
RollingBand-fgt: 1.00 [283/283]
GhostDiagnostic-chr: 2.856
Centroid-sig: 0.4%
Centroid-so: 2.041 arcsec [2.82 σ]
OotOffset-rm: 0.271 arcsec [0.71 σ]
KicOffset-rm: 0.329 arcsec [0.87 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009880190-01, PDC Light Curves

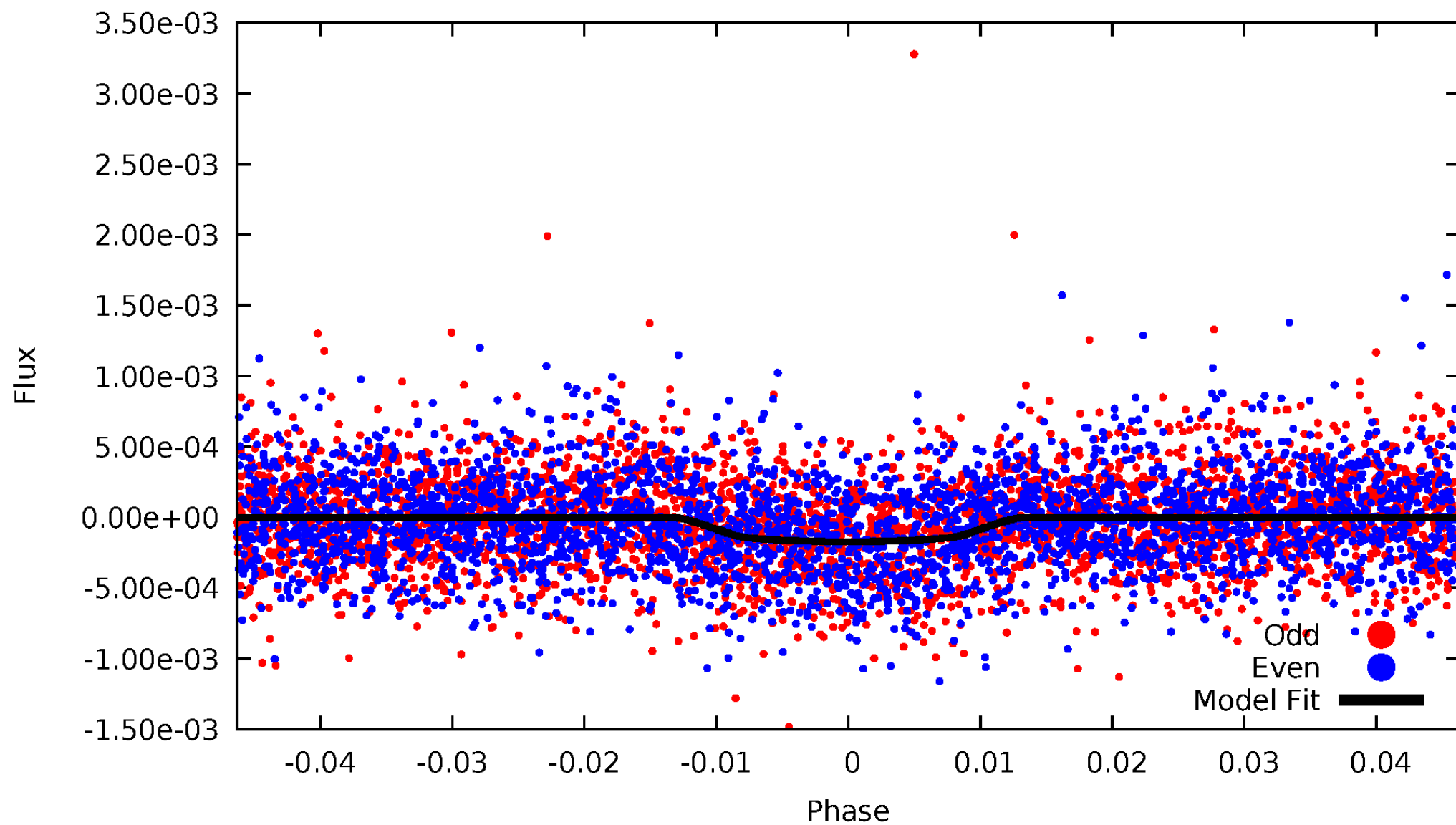


TCE 009880190-01



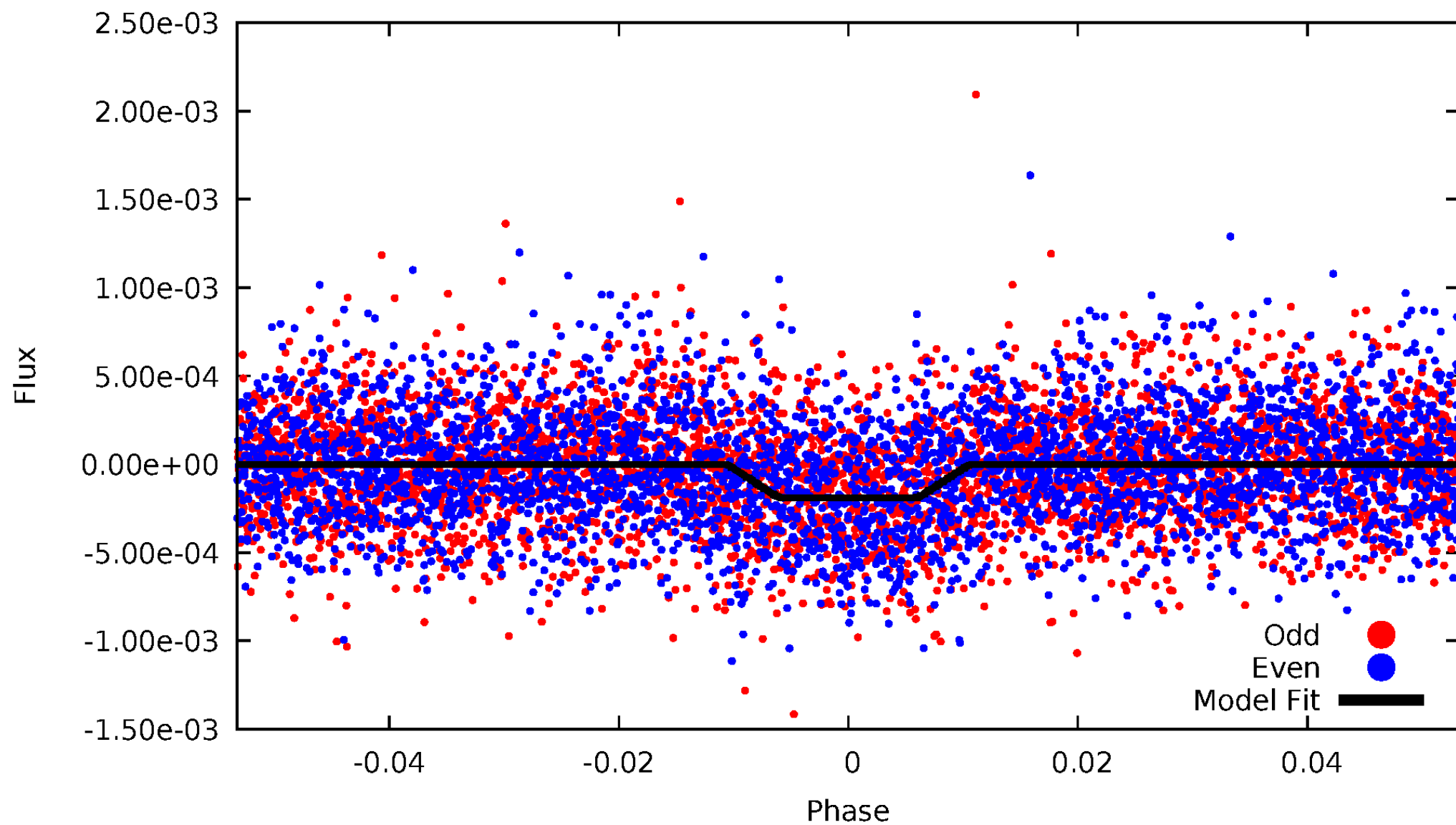
DV Odd/Even

TCE 009880190-01



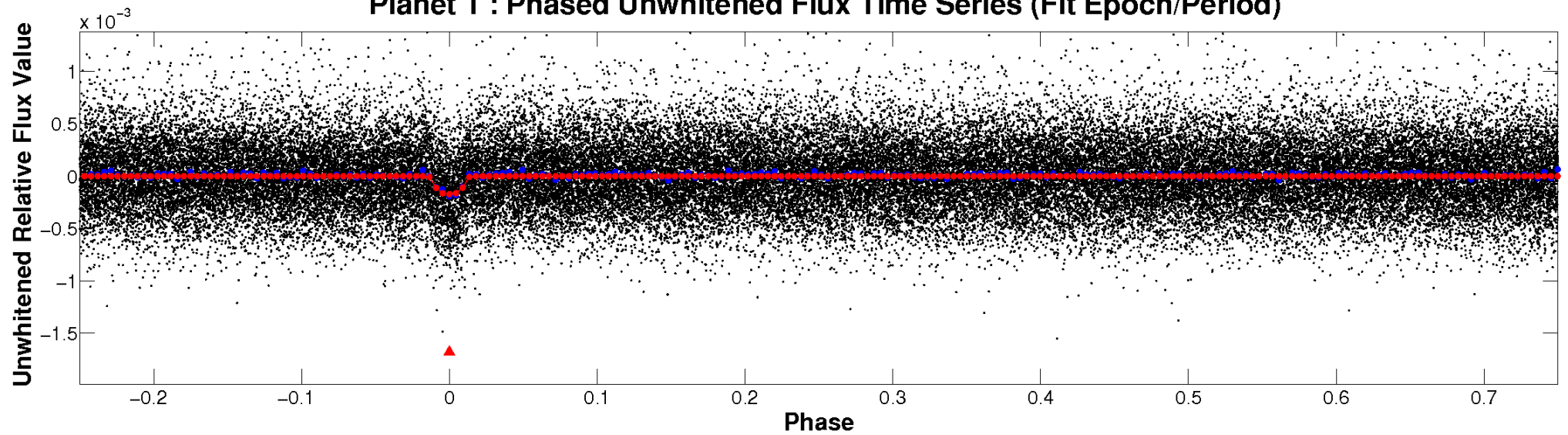
ALT Odd/Even

TCE 009880190-01

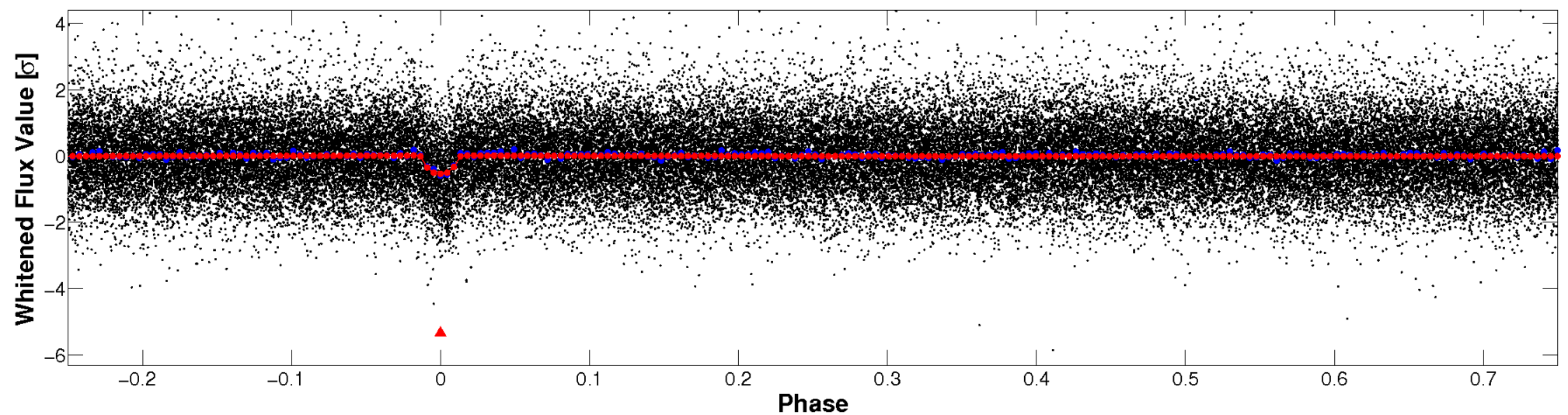


Non-Whitened Vs. Whitened Light Curve

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

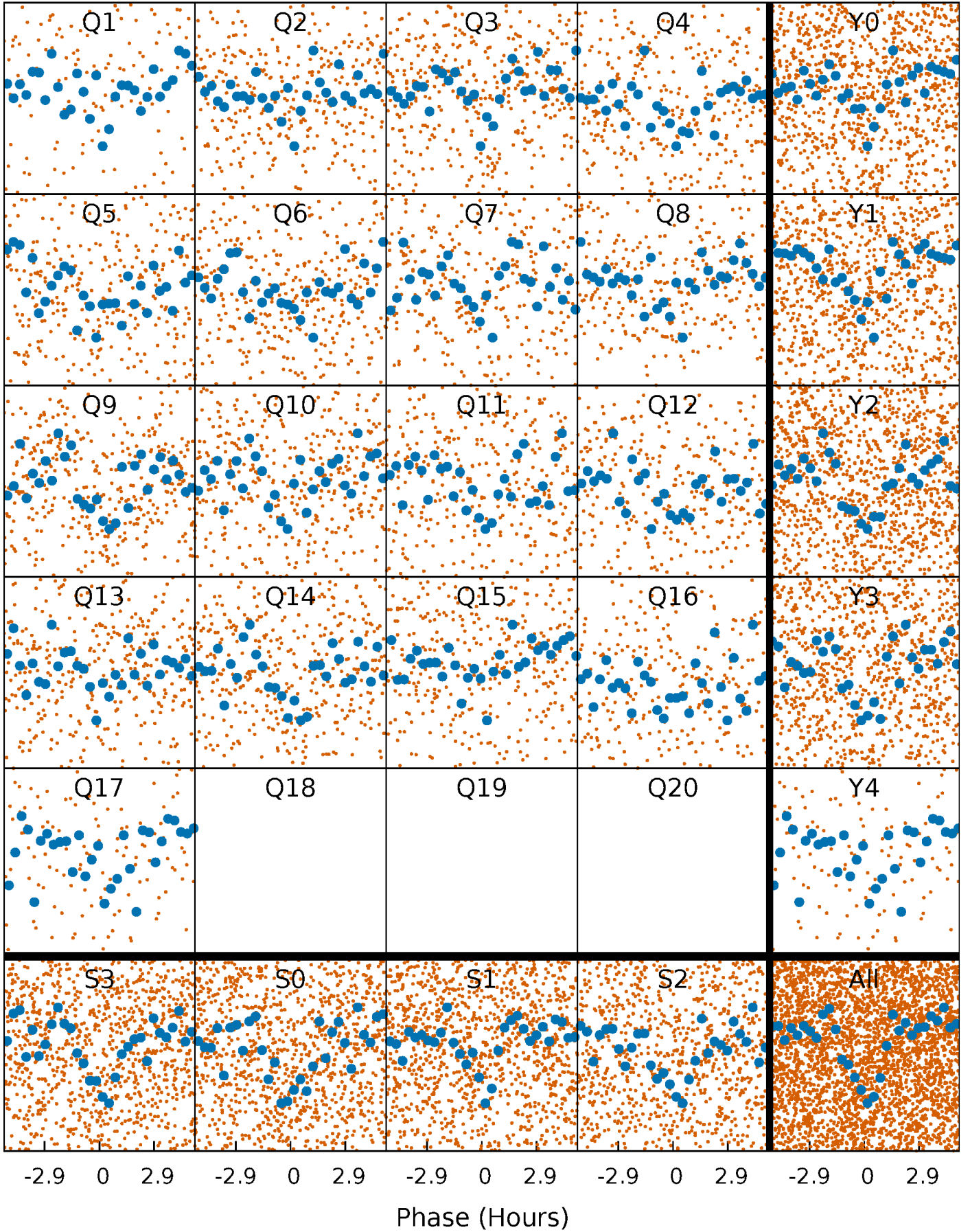


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



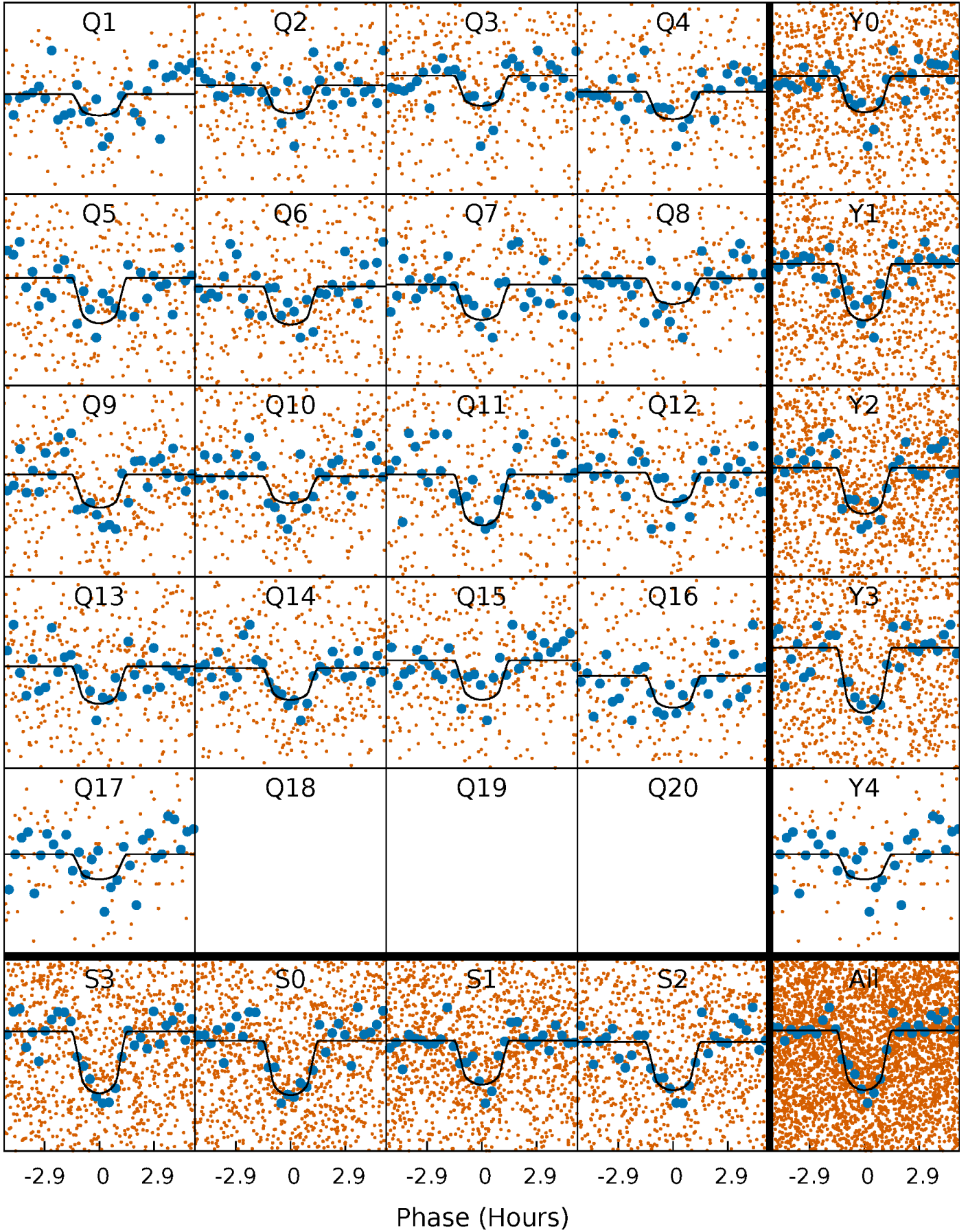
PDC Quarter-Phased Transit Curves

TCE 009880190-01 P= 4.551416 Days $T_0=133.057802$ (BKJD)



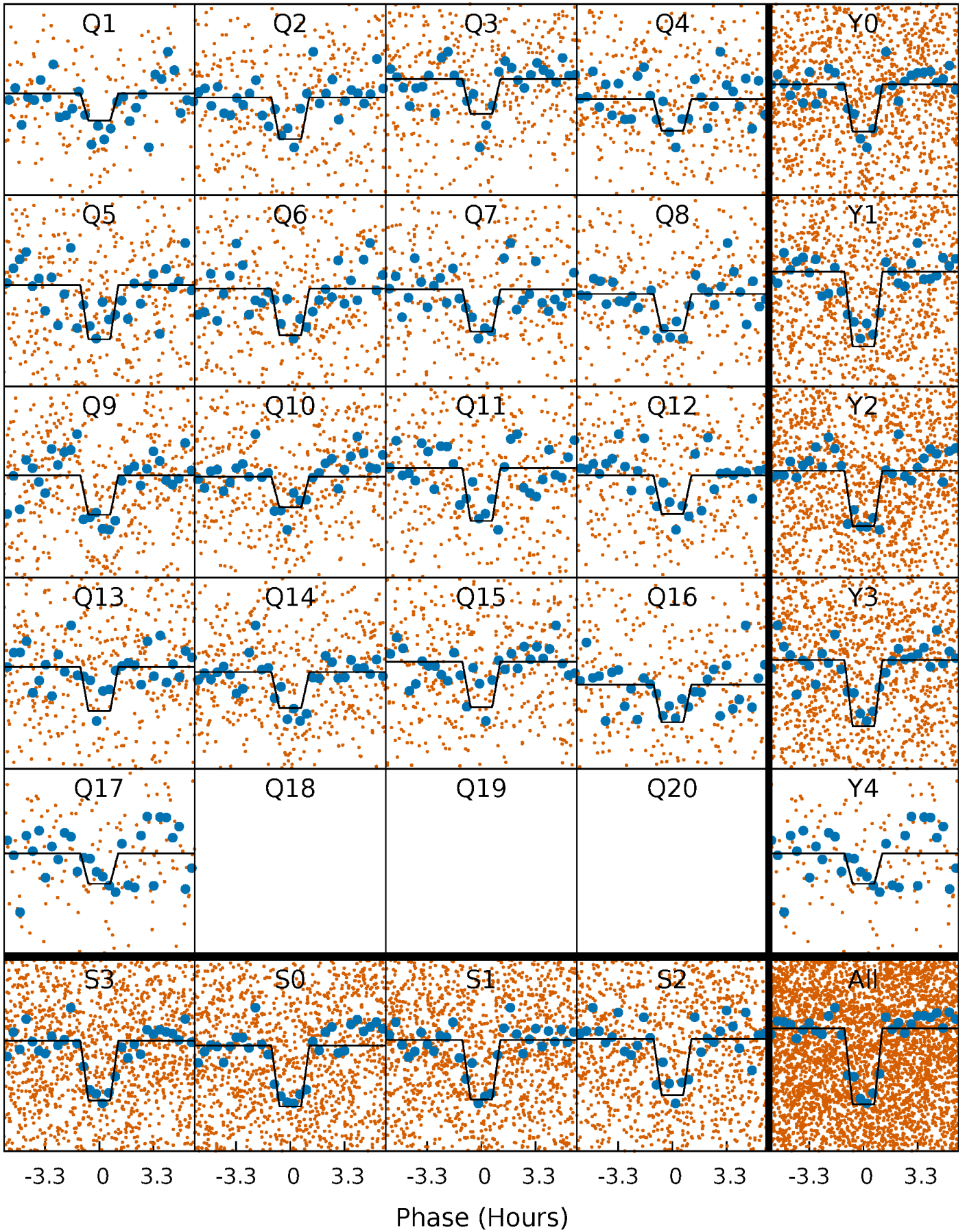
DV Quarter-Phased Transit Curves

TCE 009880190-01 P= 4.551416 Days $T_0=133.057802$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

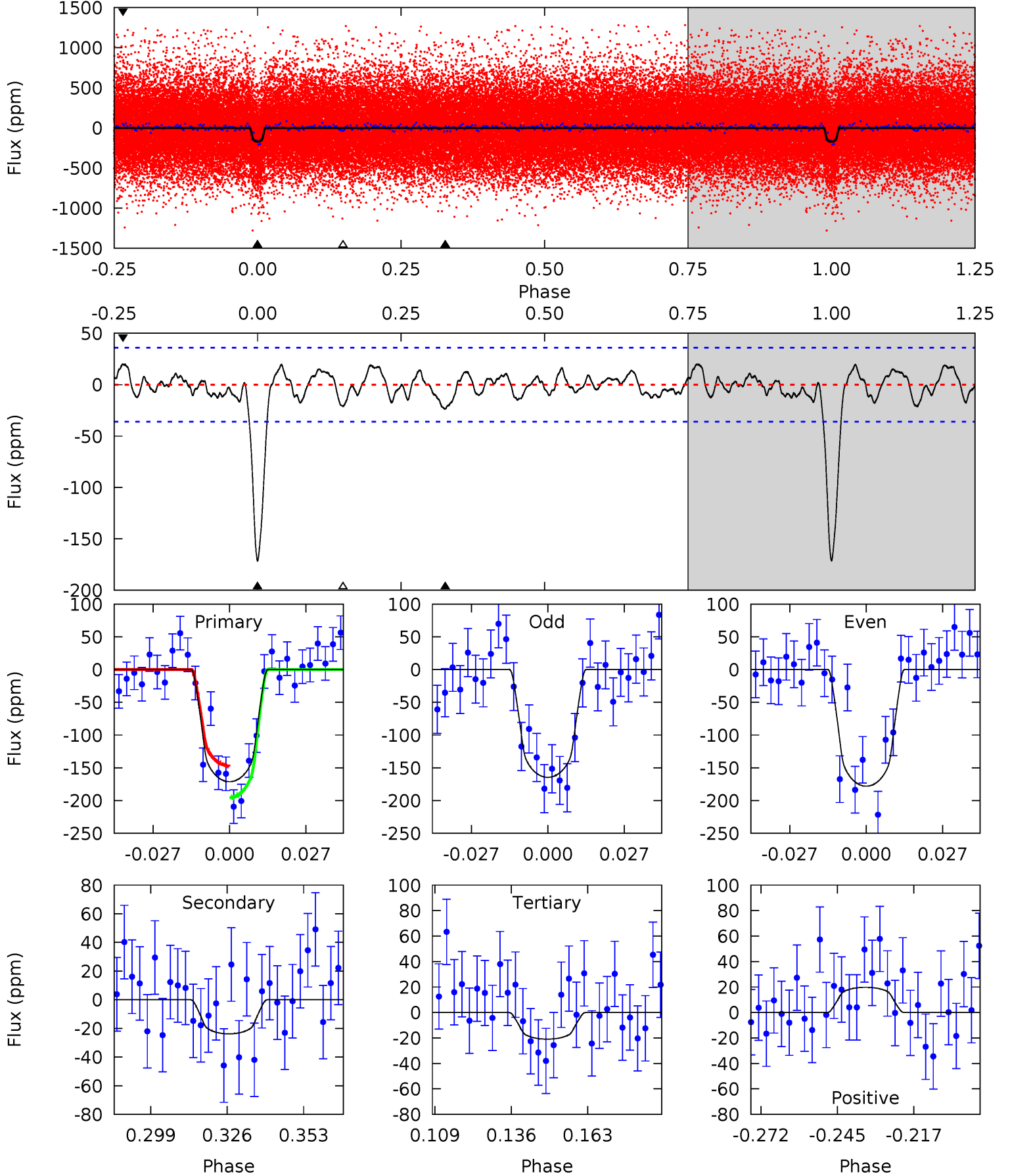
TCE 009880190-01 P= 4.551380 Days $T_0=133.064874$ (BKJD)



DV Model-Shift Uniqueness Test

009880190-01, P = 4.551416 Days, E = 128.506386 Days

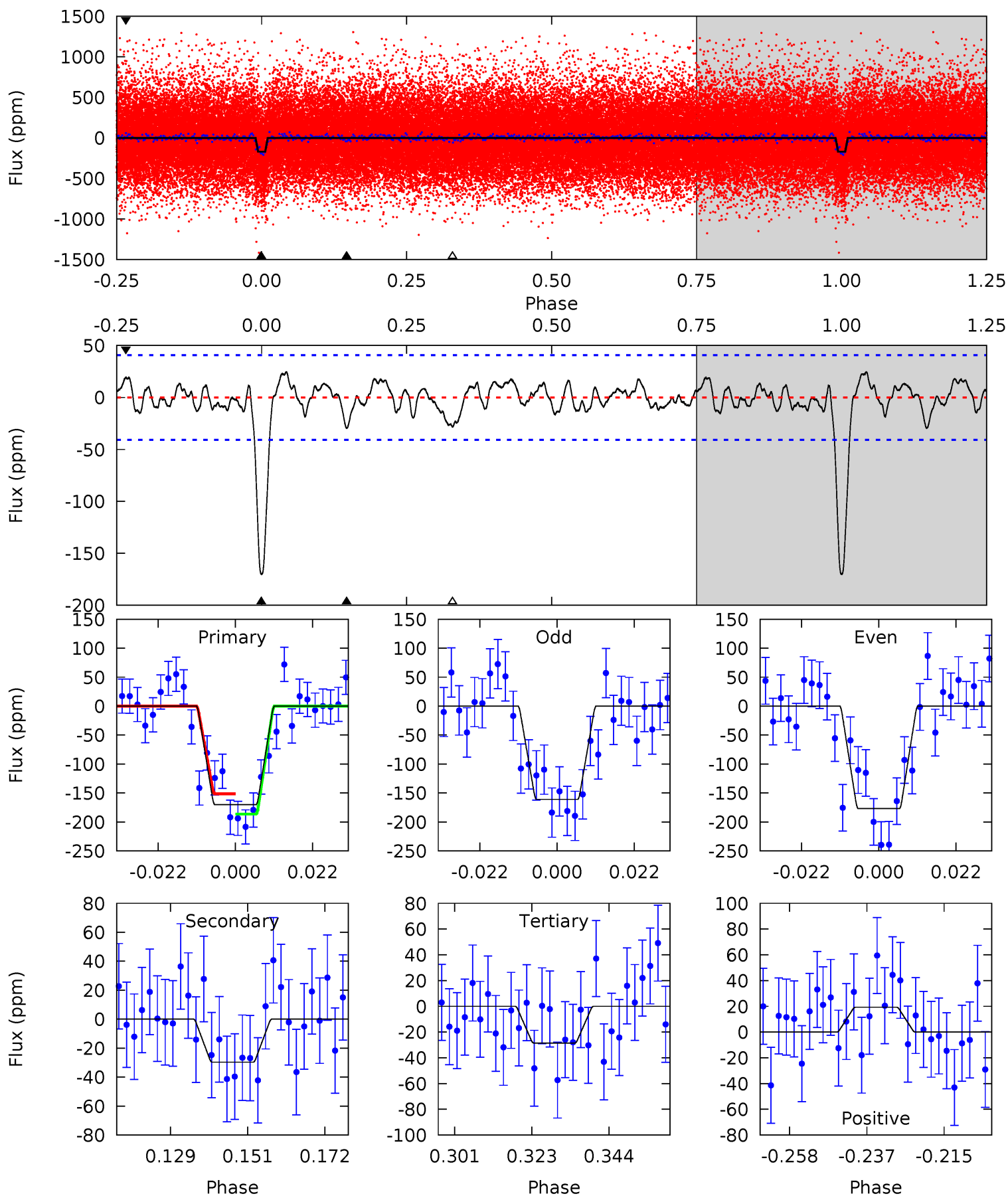
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	3.20	2.81	2.66	4.83	2.21	1.20	20.2	20.3	0.39	0.54	0.91	0.99	0.10	3.27



Alt Model-Shift Uniqueness Test

009880190-01, P = 4.551380 Days, E = 128.513494 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	3.55	3.41	2.31	4.88	2.30	1.23	16.9	18.0	0.14	1.24	0.95	1.05	0.13	2.09



Stellar Parameters For KIC 009880190

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5009^{+80}_{-80}	$4.491^{+0.077}_{-0.028}$	$0.160^{+0.150}_{-0.150}$	$0.840^{+0.034}_{-0.062}$	$0.797^{+0.054}_{-0.030}$	$1.892^{+0.520}_{-0.187}$
	+2%/-2%	+2%/-1%	+94%/-94%	+4%/-7%	+7%/-4%	+27%/-10%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 009880190-01 / KOI 2509.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 7	$1.32^{+0.68}_{-0.60}$	1260^{+28}_{-32}	3364^{+728}_{-430}	19^{+40}_{-11}
Alt.	-30 ± 8	$1.30^{+0.61}_{-0.59}$	1260^{+28}_{-29}	3501^{+857}_{-434}	24^{+56}_{-14}

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

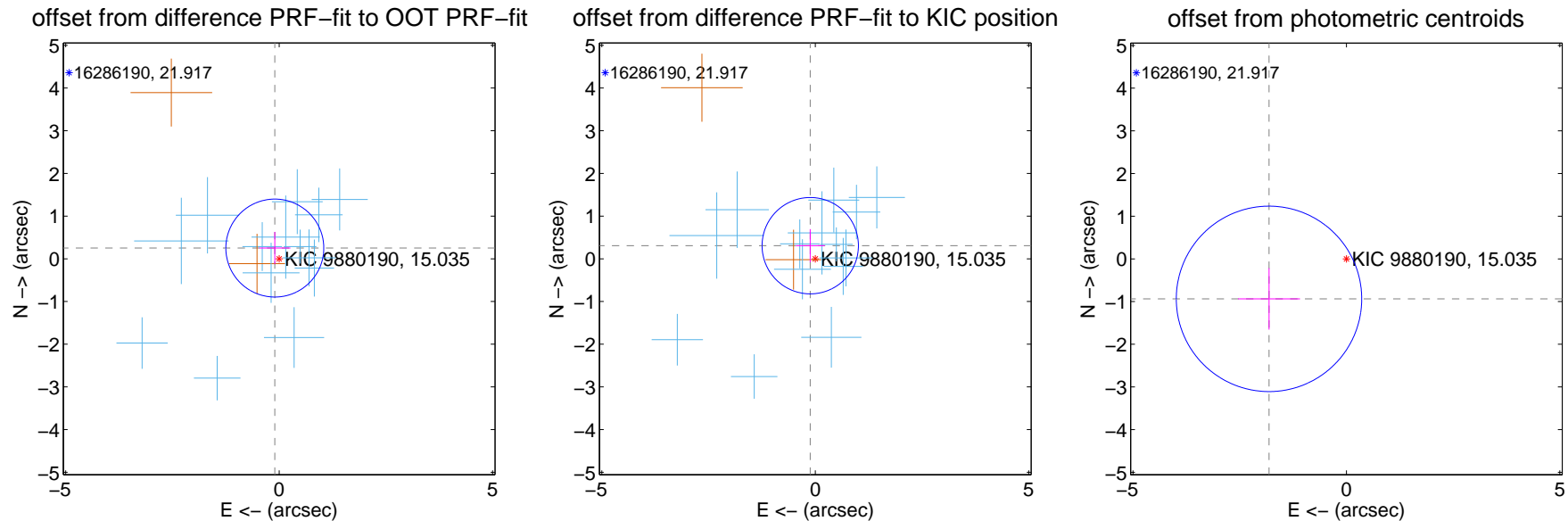
DV Centroid Data

Supplemental centroid analysis for 009880190-01. Kepler magnitude: 15.04. Transit SNR 16.76

There are 14 quarters with good PRF difference image offsets

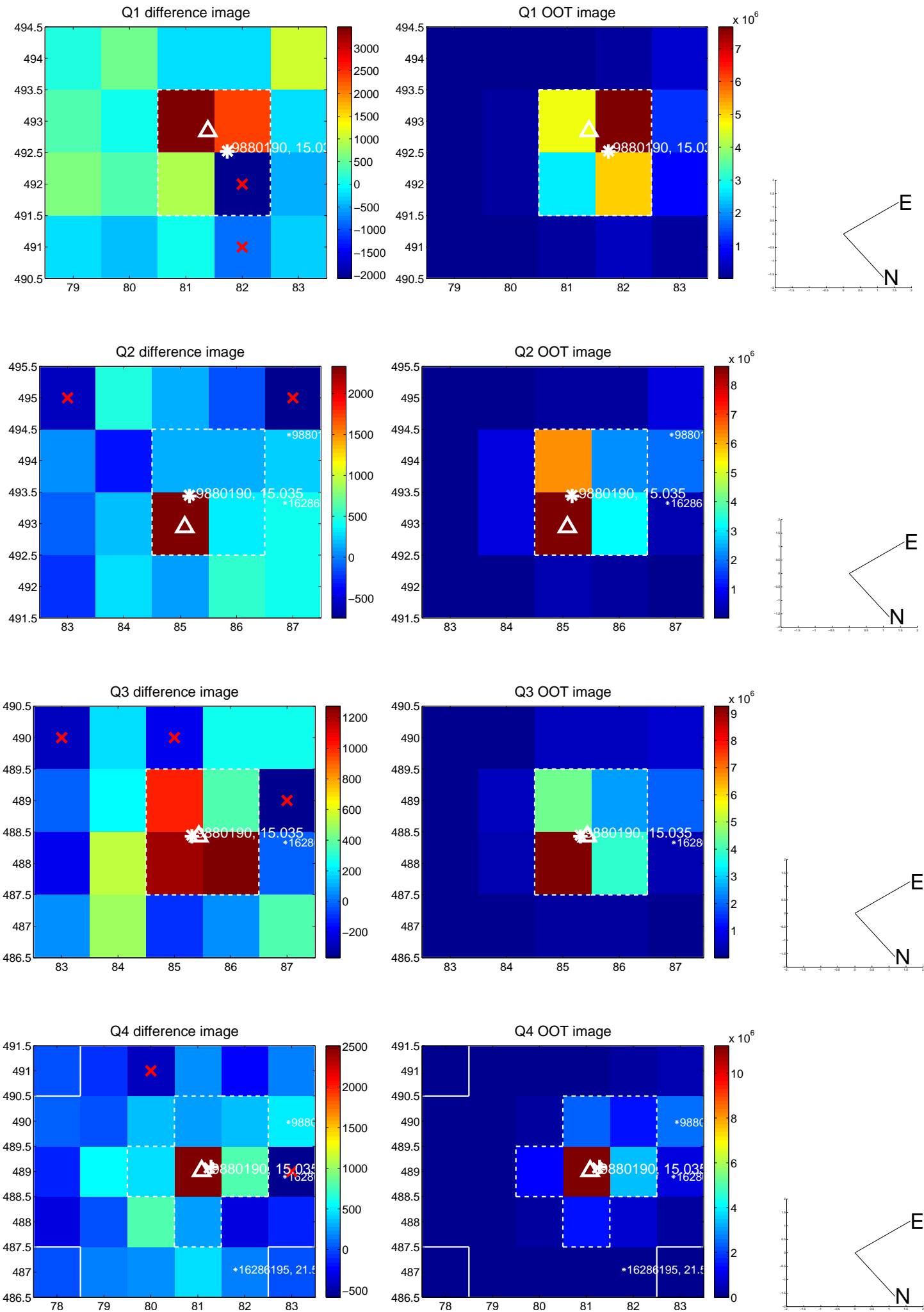
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.271 ± 0.382	0.71	0.101 ± 0.365	0.252 ± 0.378
PRF-fit source offset from KIC position	0.329 ± 0.376	0.87	0.117 ± 0.338	0.307 ± 0.388
photometric centroid source offset	2.04 ± 0.72	2.82	1.81 ± 0.73	-0.94 ± 0.72

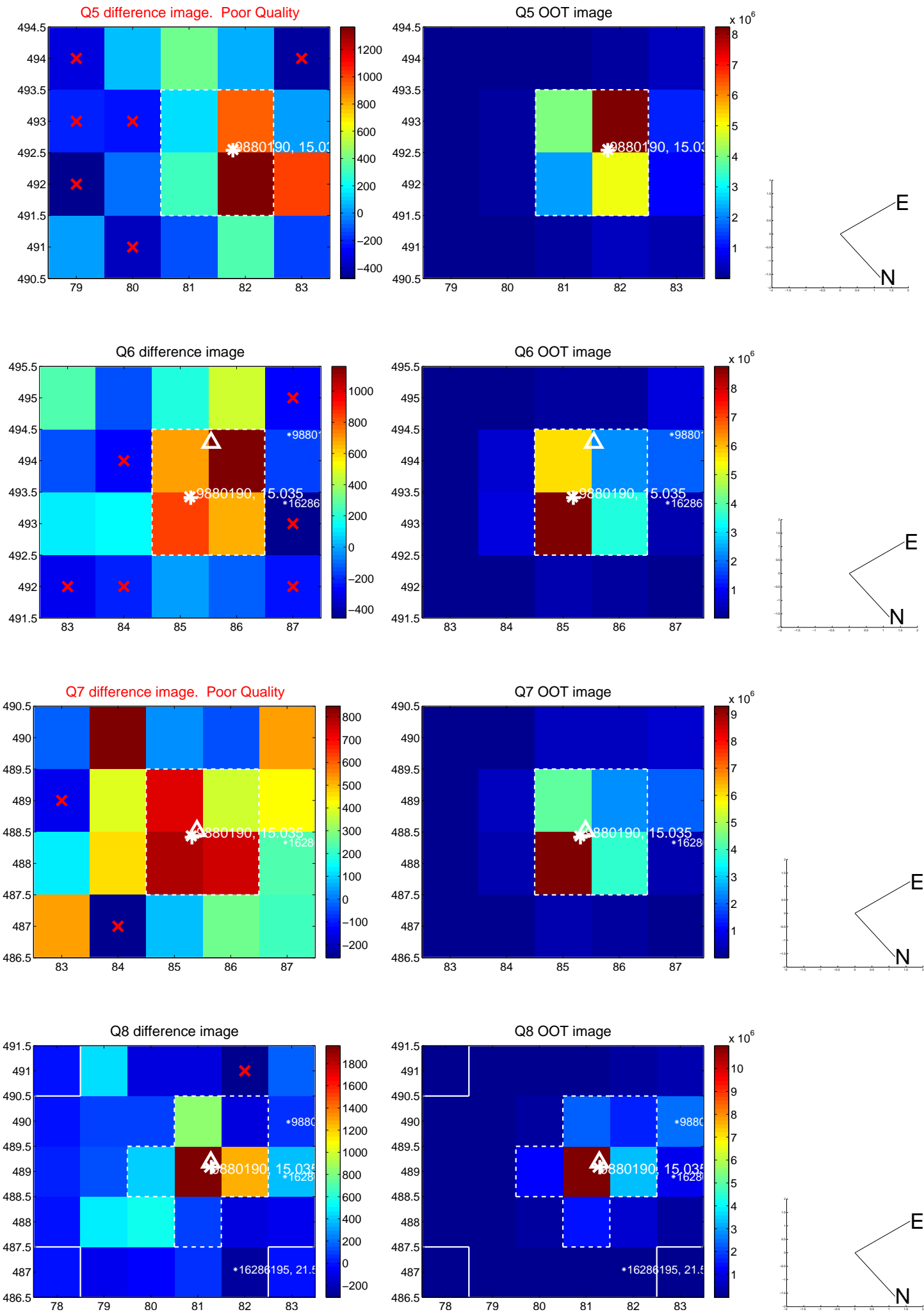


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

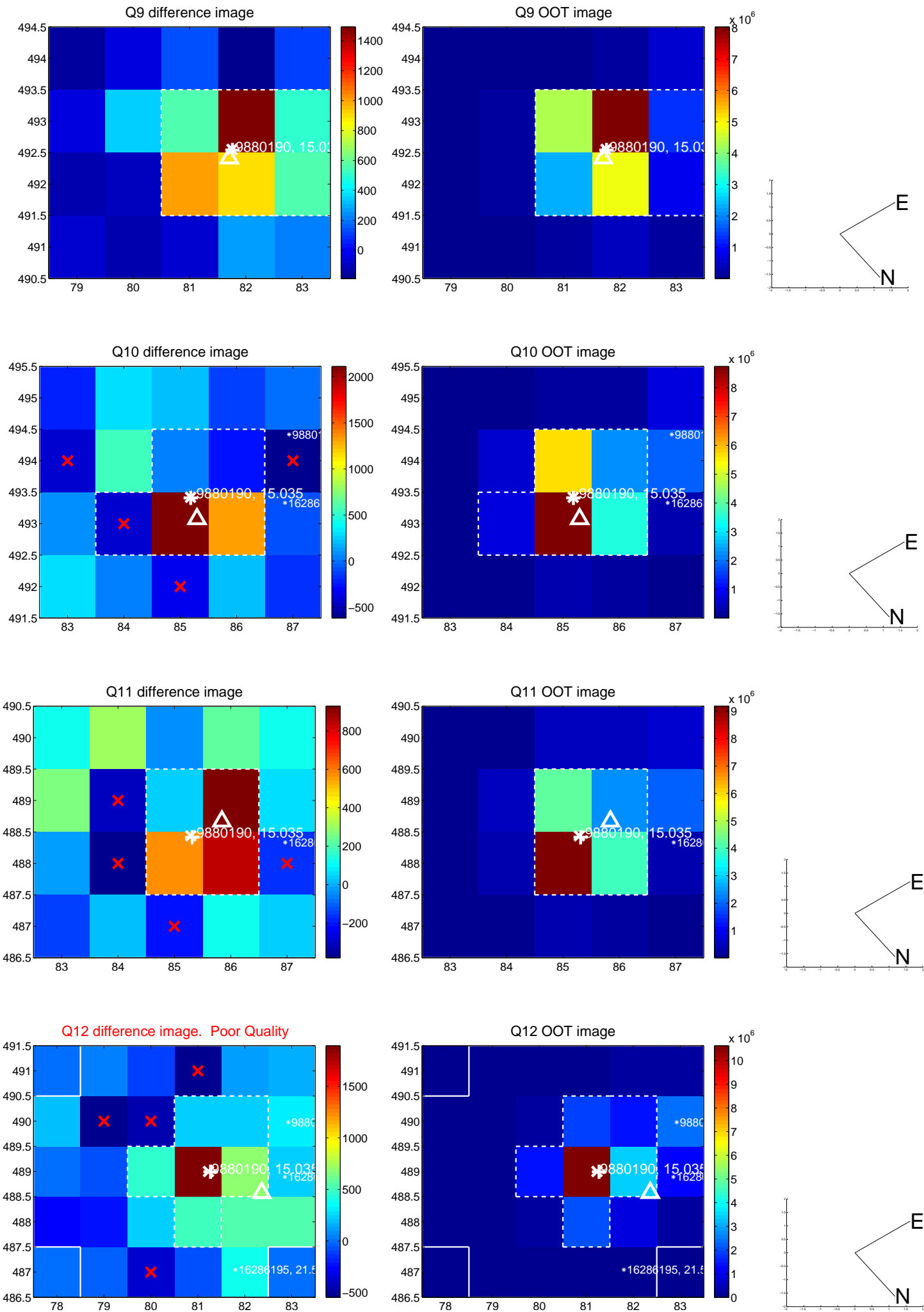
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



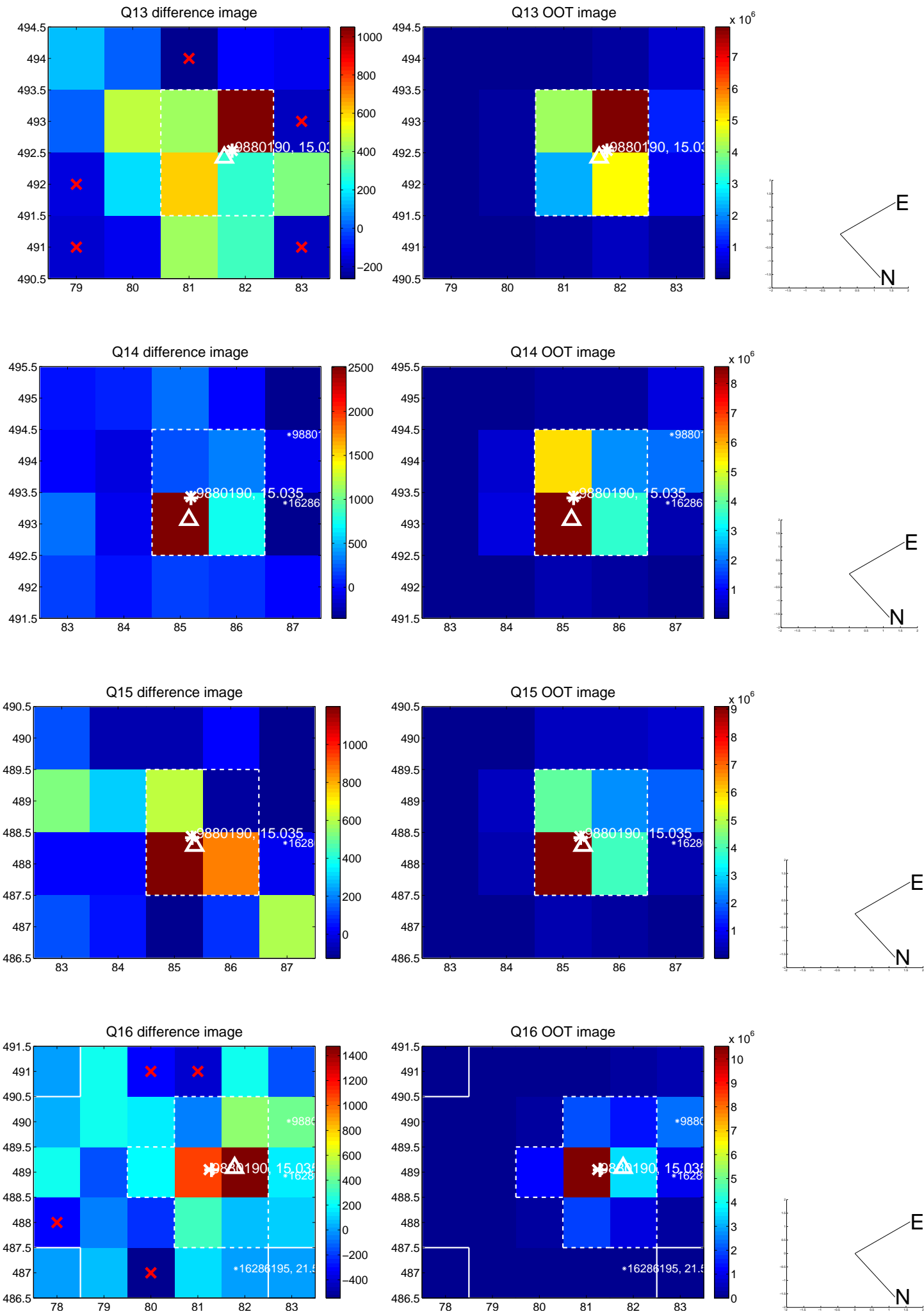
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



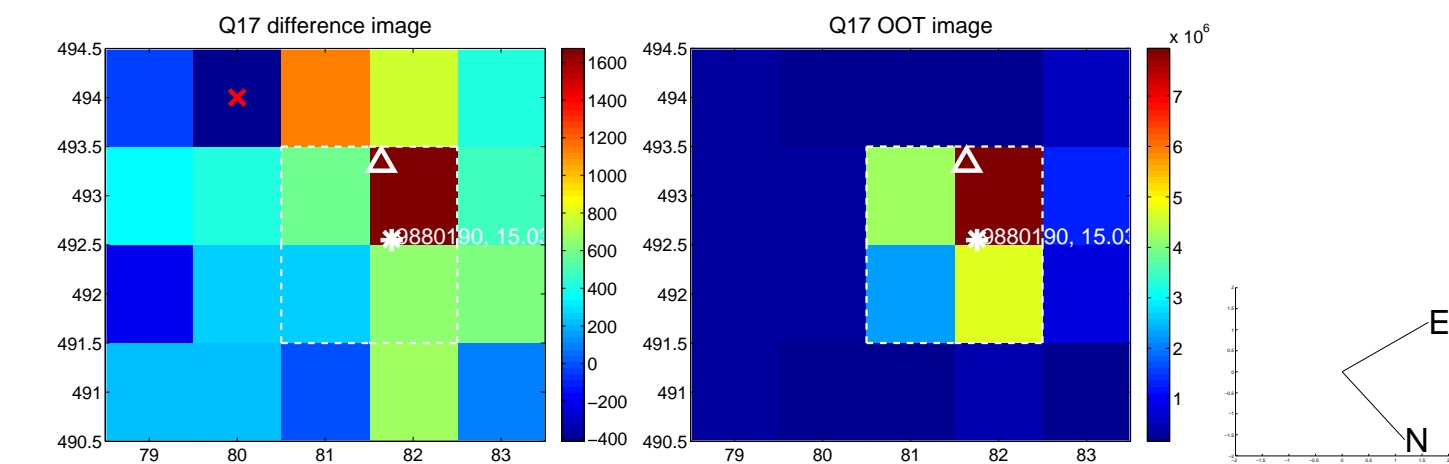
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



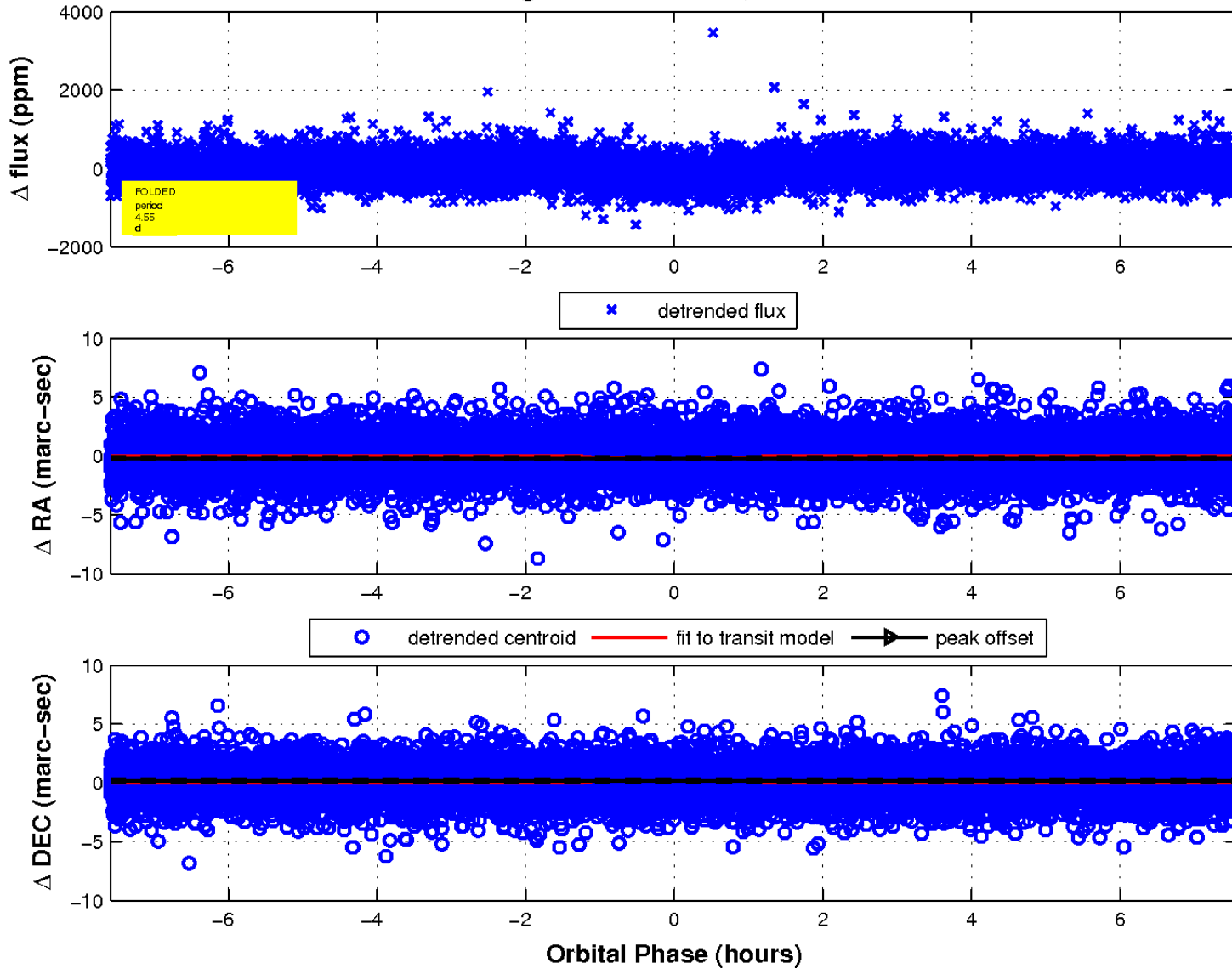
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

