

KIC 007733731

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})
007733731-01	OBS	4022.01	4.858126	135.158680	73.8	5.808	18.8	20.2	2.33	6109	2.37	1907.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007733731-01	OBS	PC	1.00	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.

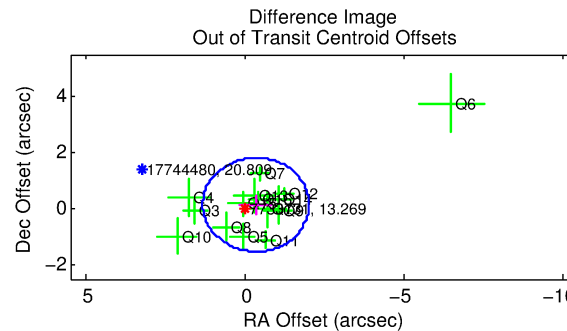
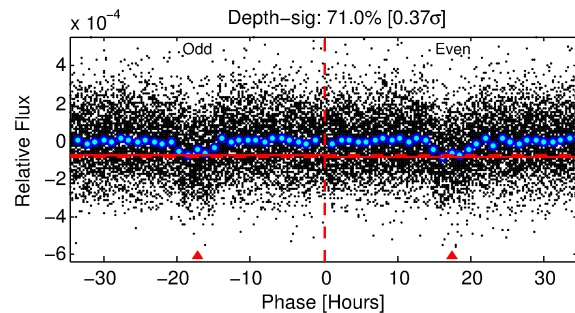
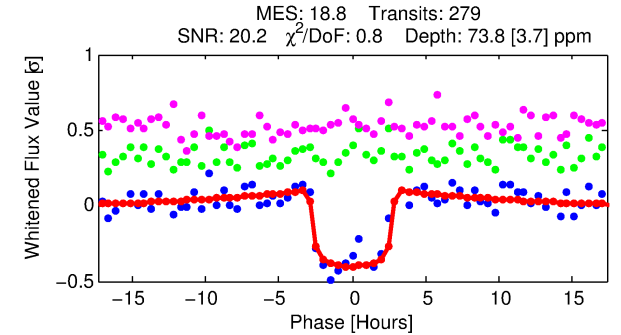
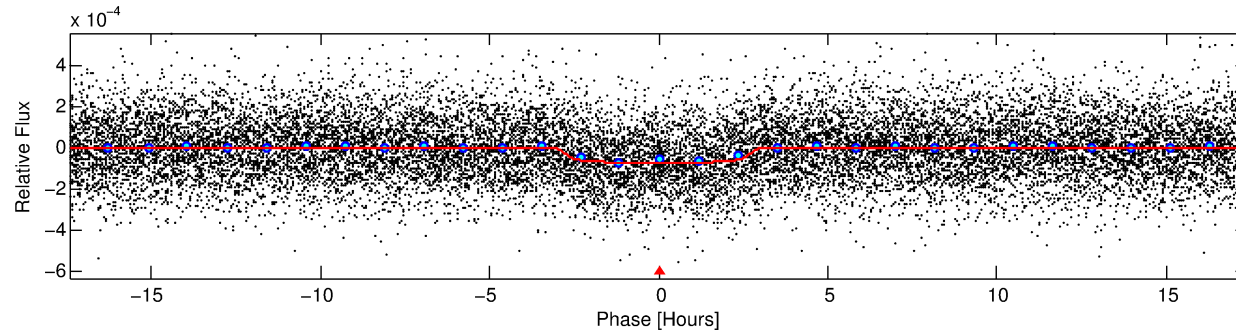
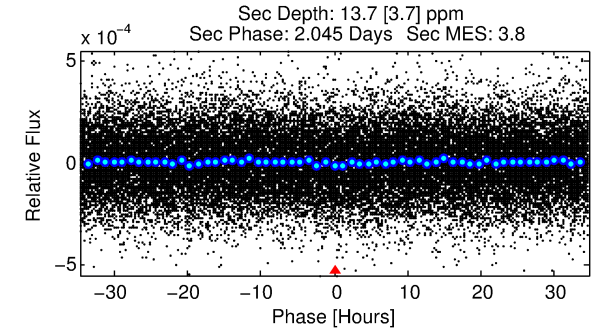
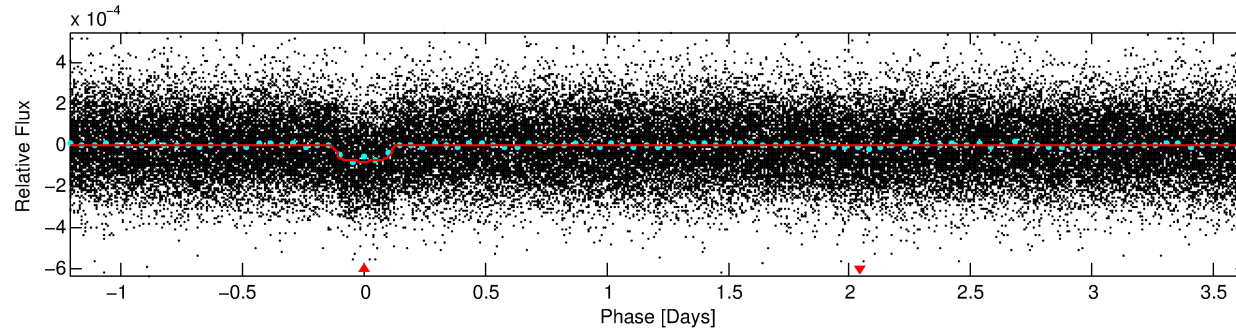
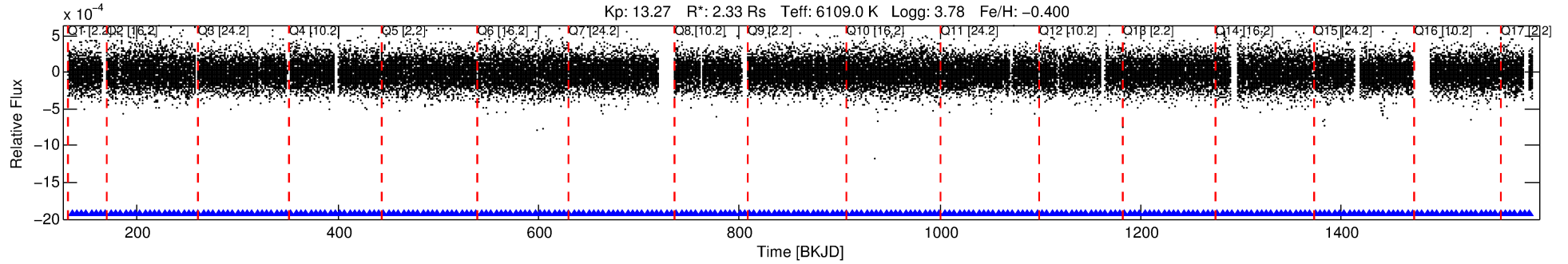
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007733731-01

No Significant Match Found

DV One-Page Summary

KIC: 773731 Candidate: 1 of 1 Period: 4.858 d
KOI: K04022.01 Corr: 0.958



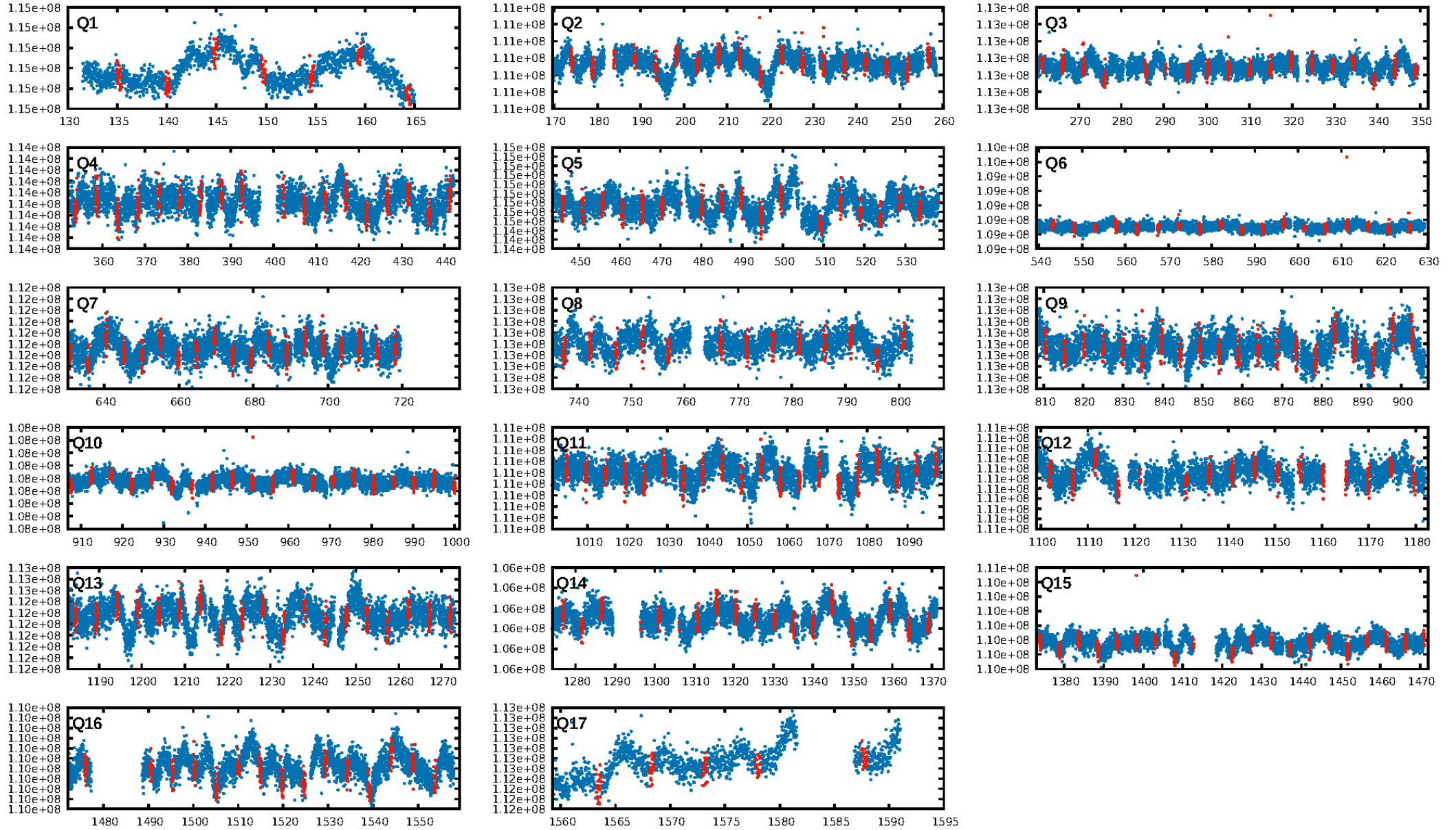
DV Fit Results:

Period = 4.85813 [0.00002] d
Epoch = 135.1587 [0.0035] BKJD
Rp/R* = 0.0093 [0.0013]
a/R* = 2.95 [2.05]
b = 0.91 [0.15]
Seff = 1907.90 [1057.03]
Teq = 1685 [233] K
Rp = 2.37 [0.93] Re
a = 0.0595 [0.0204] AU
Ag = 4.77 [3.19] [1.18σ]
Teffp = 3851 [395] K [4.72σ]

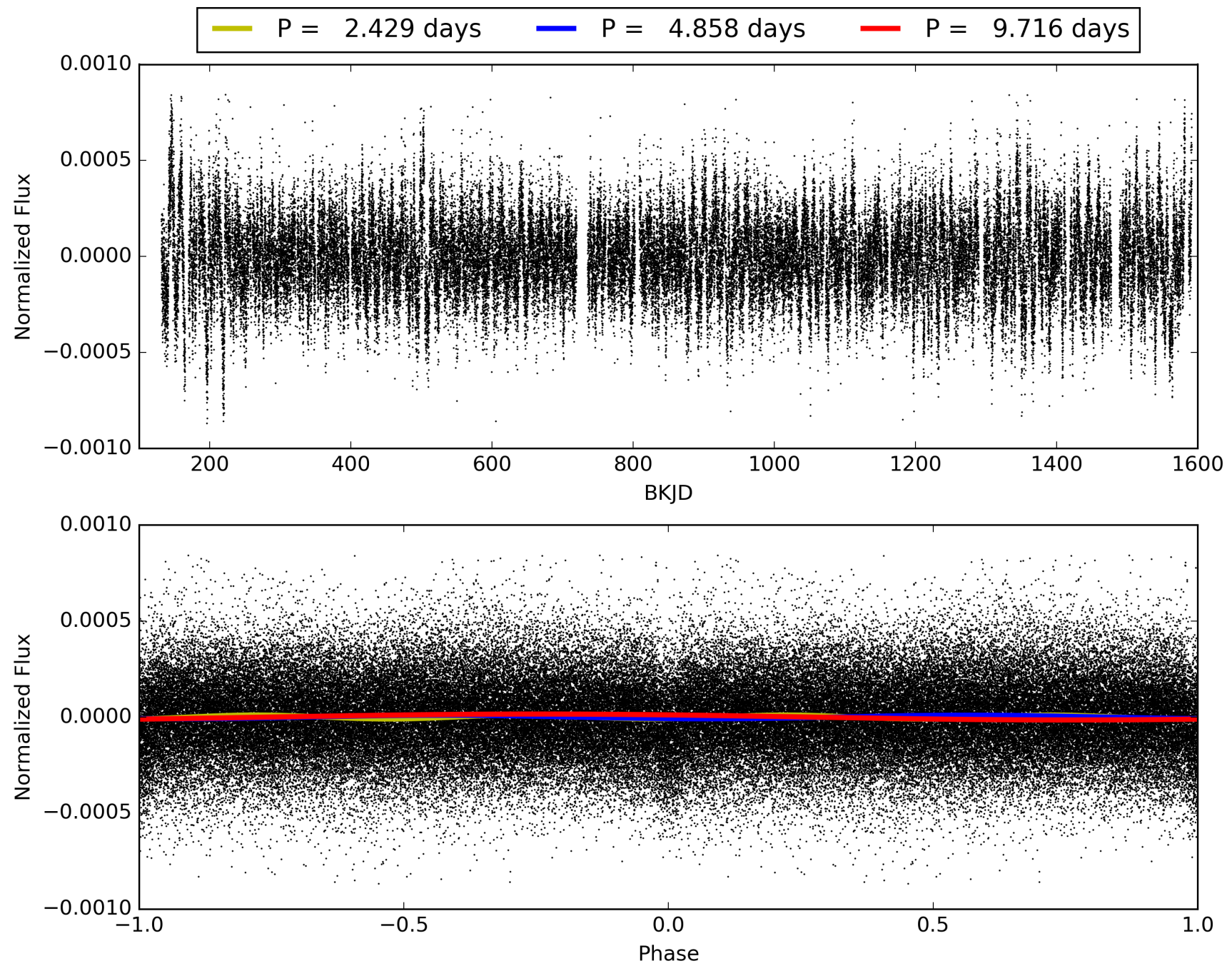
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 2.26e-74
RollingBand-fgt: 1.00 [267/267]
GhostDiagnostic-chr: 11.73
Centroid-sig: 87.4%
Centroid-so: 0.173 arcsec [0.28σ]
OotOffset-rm: 0.365 arcsec [0.65σ]
KicOffset-rm: 0.270 arcsec [0.49σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007733731-01, PDC Light Curves

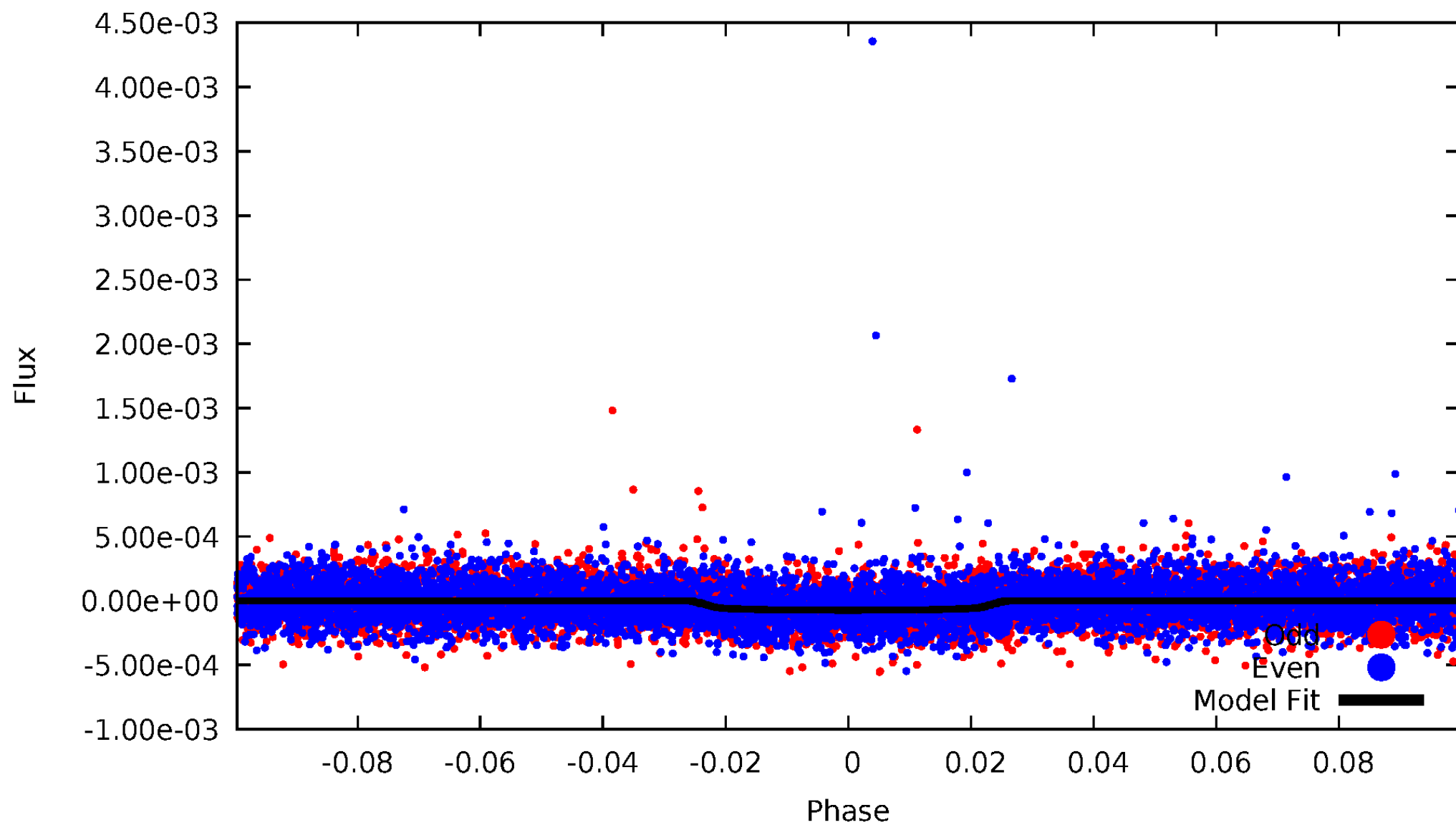


TCE 007733731-01



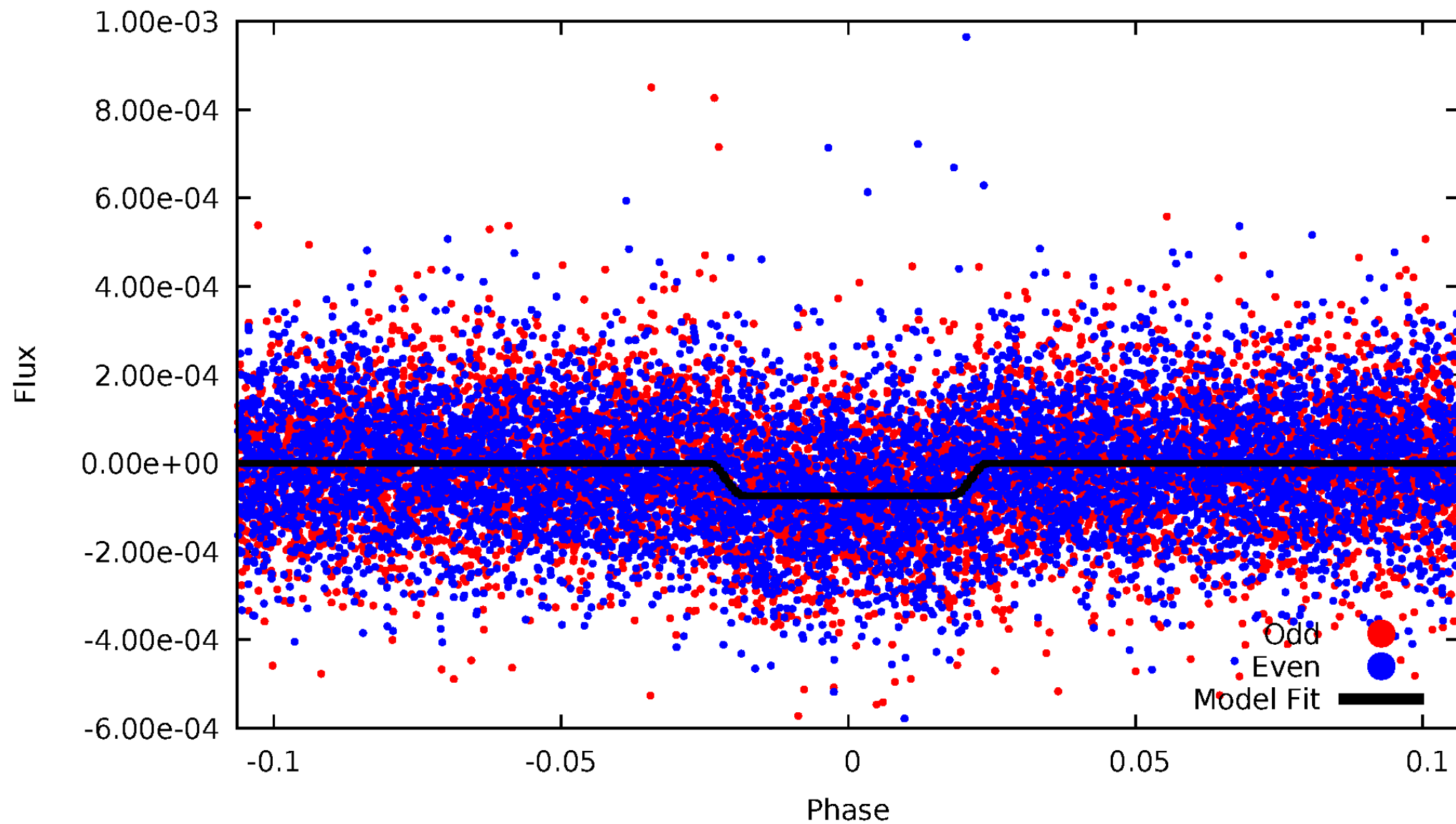
DV Odd/Even

TCE 007733731-01



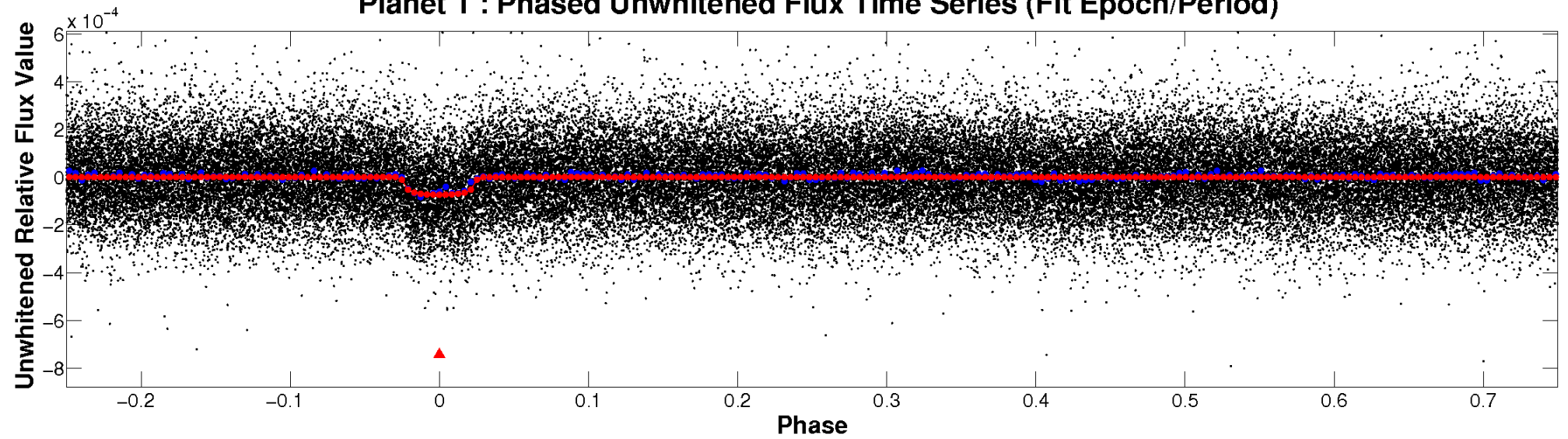
ALT Odd/Even

TCE 007733731-01

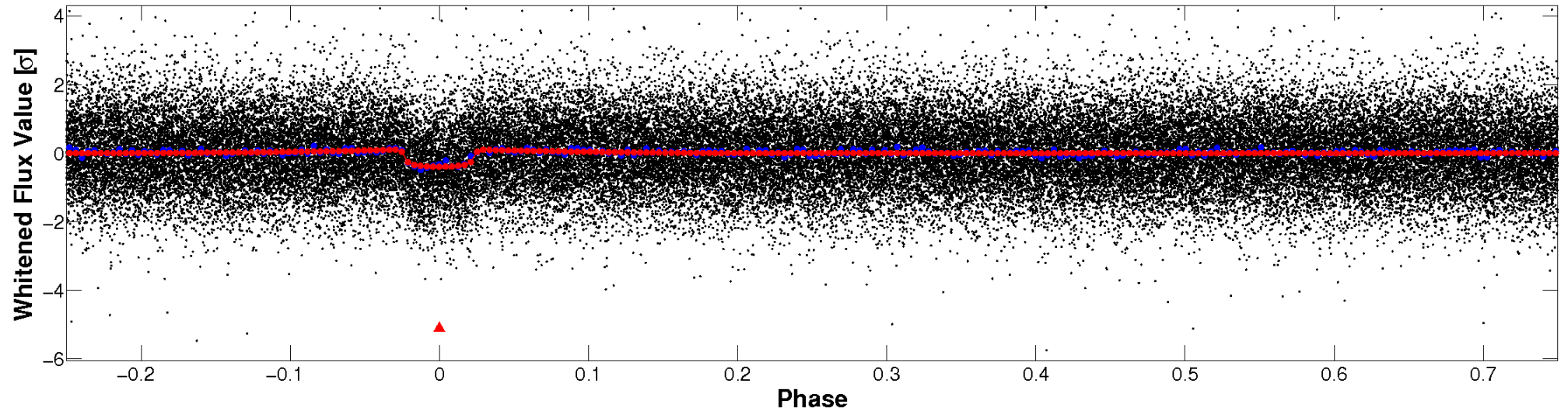


Non-Whitened Vs. Whitened Light Curve

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

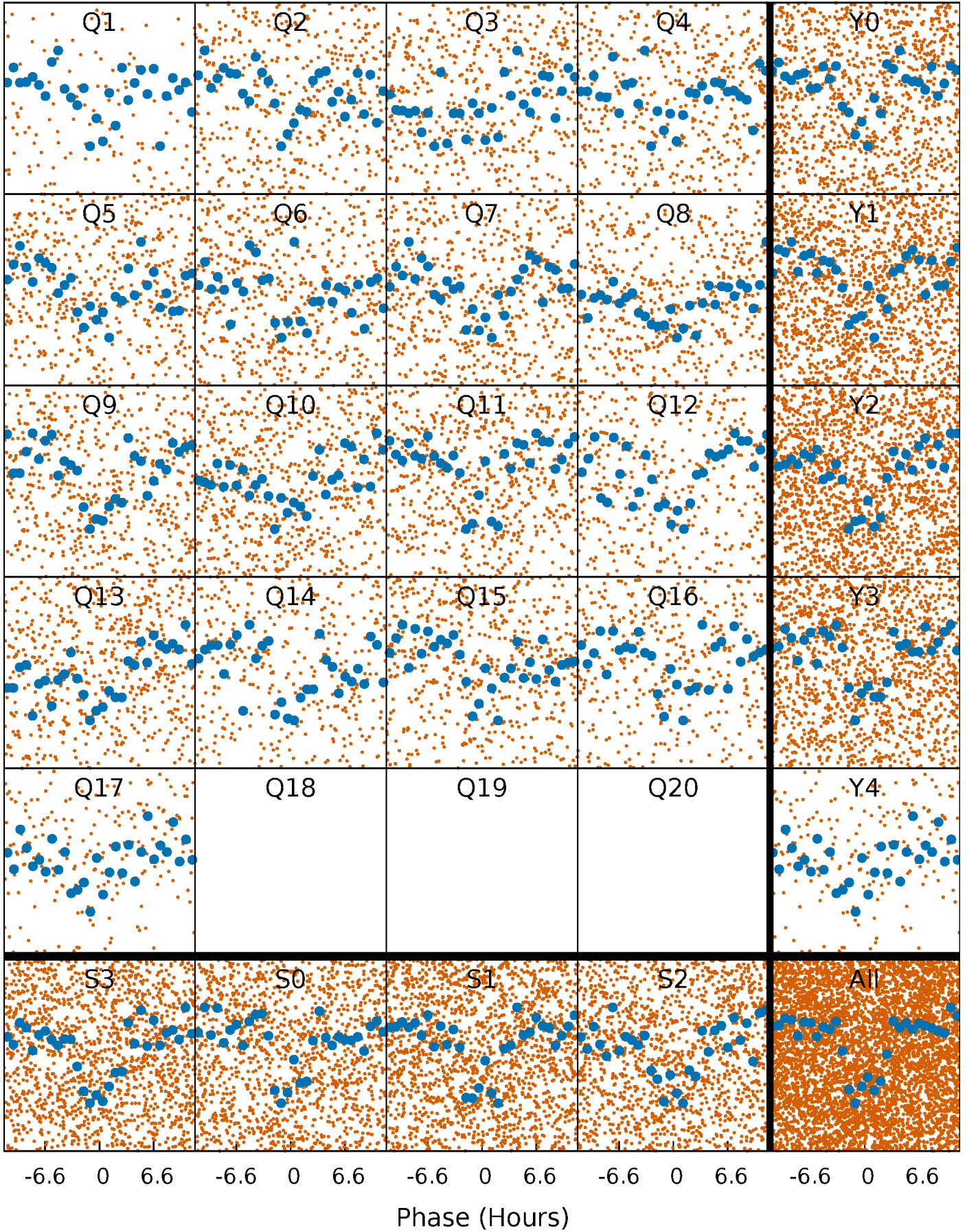


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



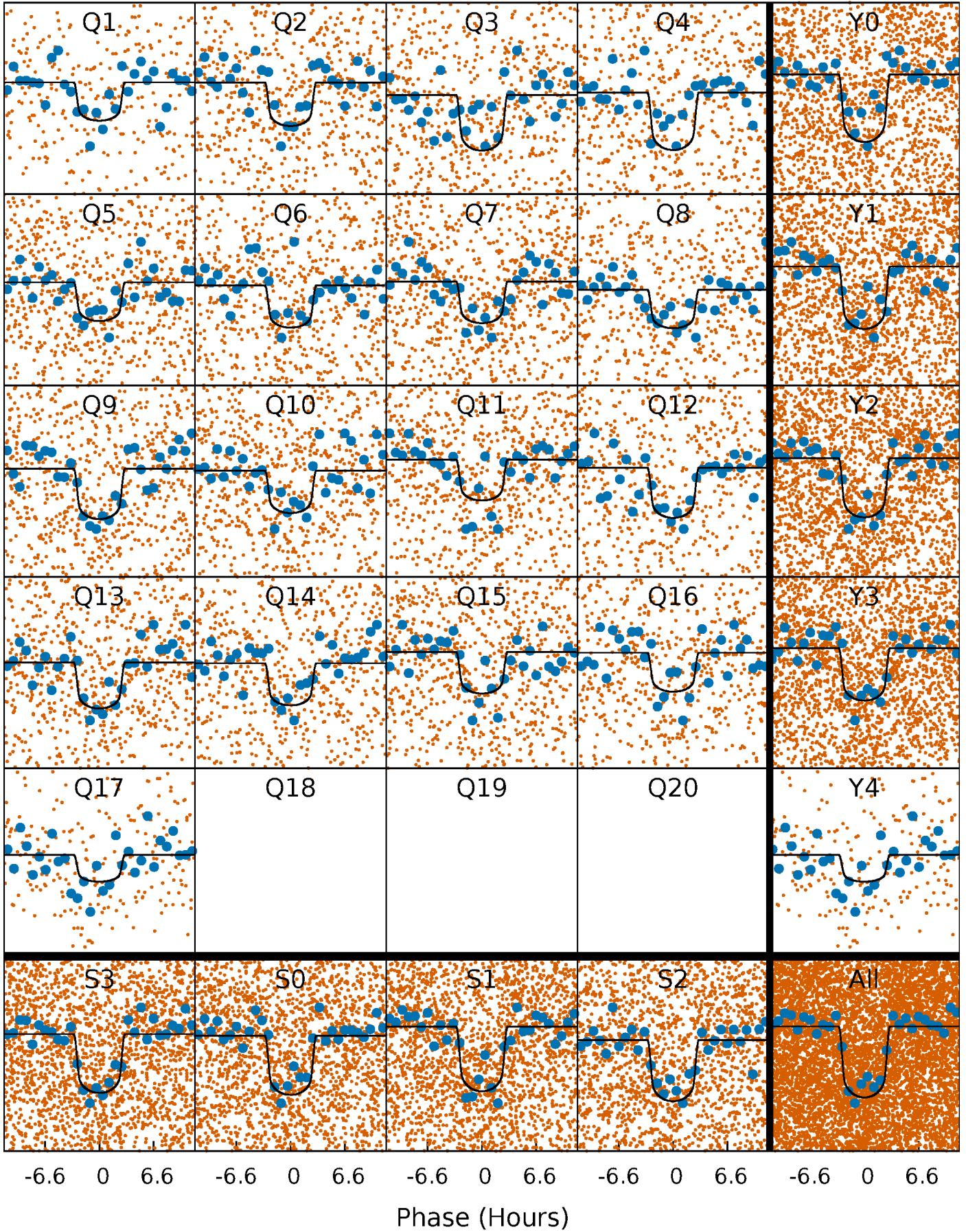
PDC Quarter-Phased Transit Curves

TCE 007733731-01 P= 4.858126 Days $T_0=135.158680$ (BKJD)



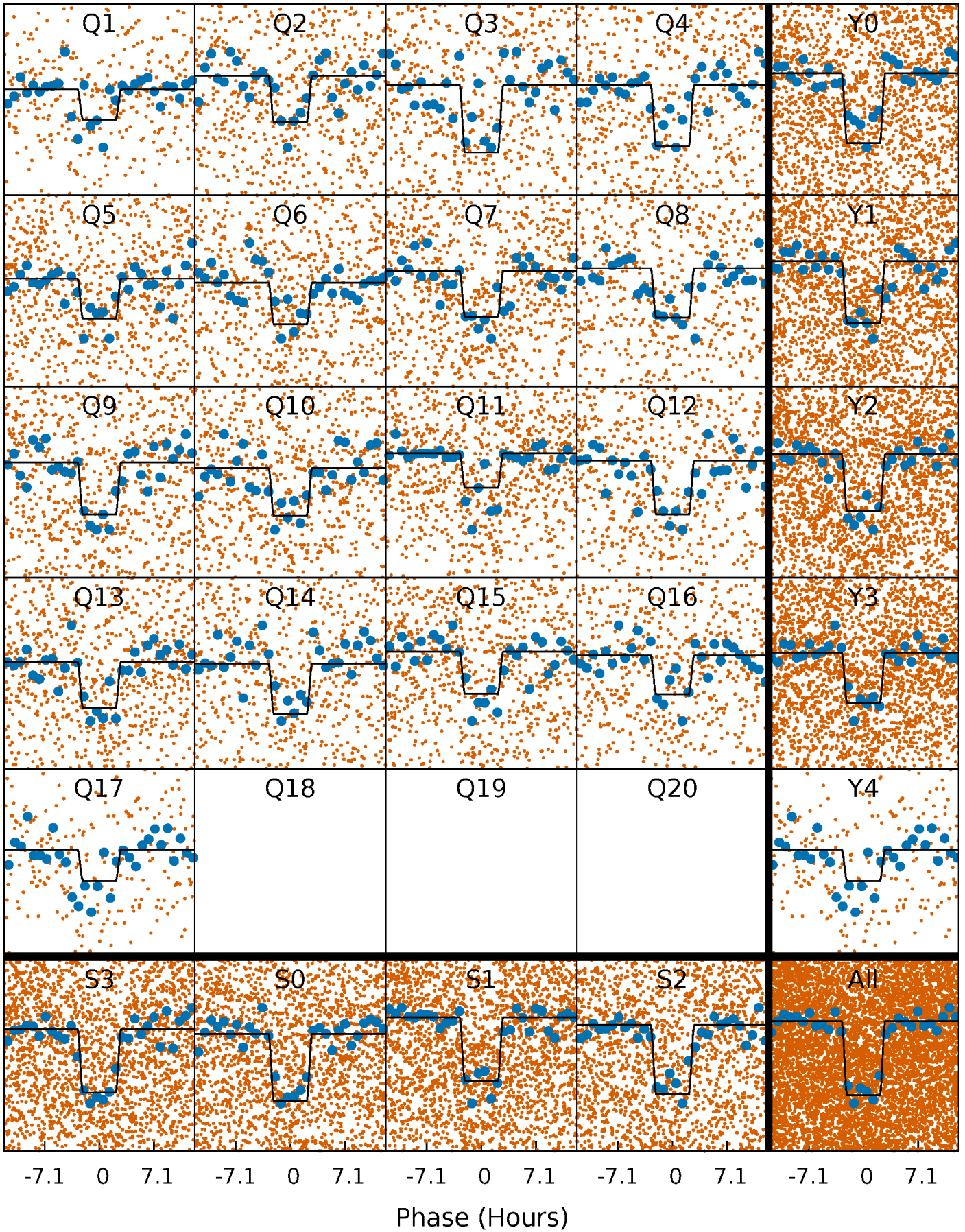
DV Quarter-Phased Transit Curves

TCE 007733731-01 P= 4.858126 Days $T_0=135.158680$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

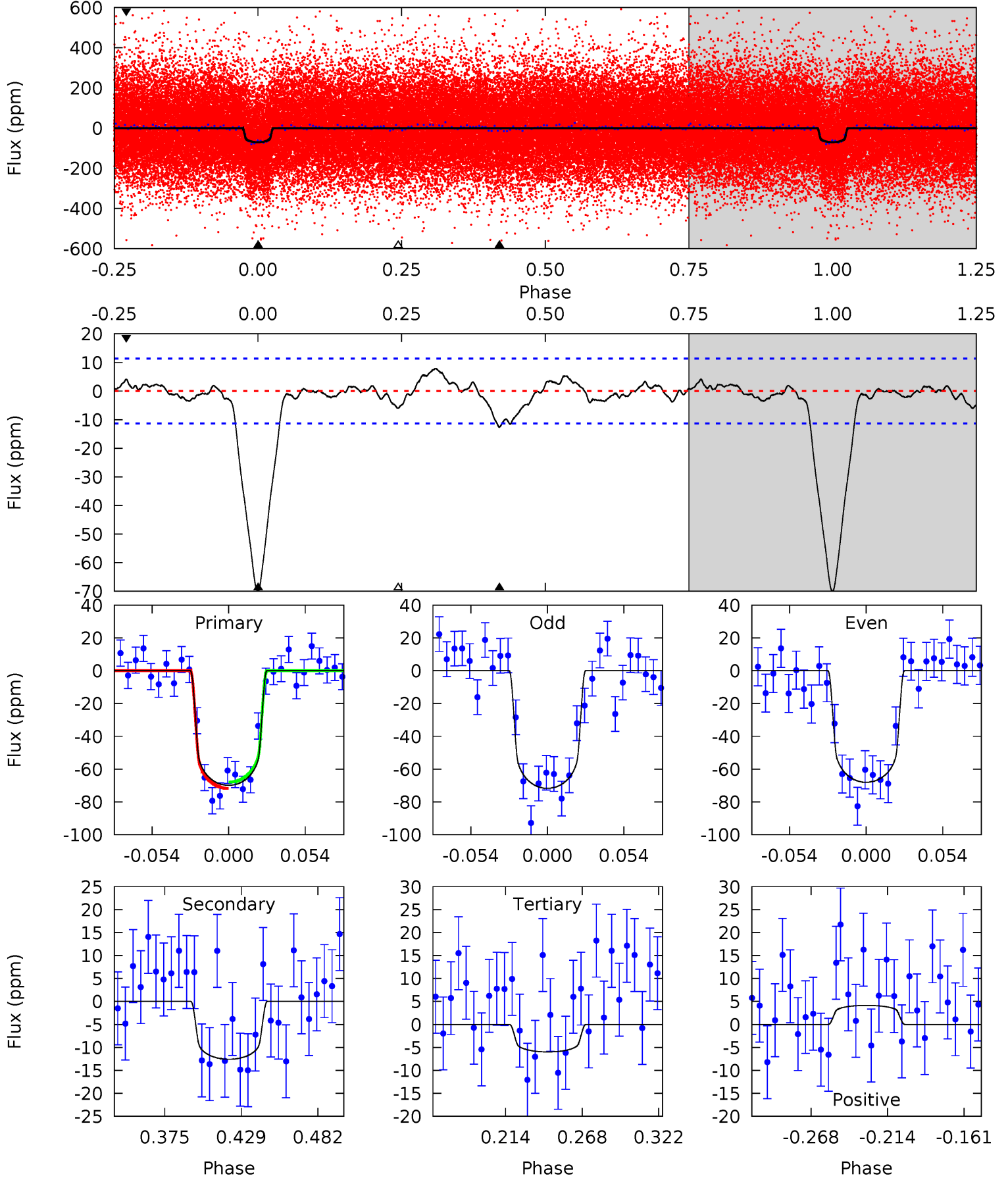
TCE 007733731-01 P= 4.858153 Days $T_0=135.152105$ (BKJD)



DV Model-Shift Uniqueness Test

007733731-01, P = 4.858126 Days, E = 130.300554 Days

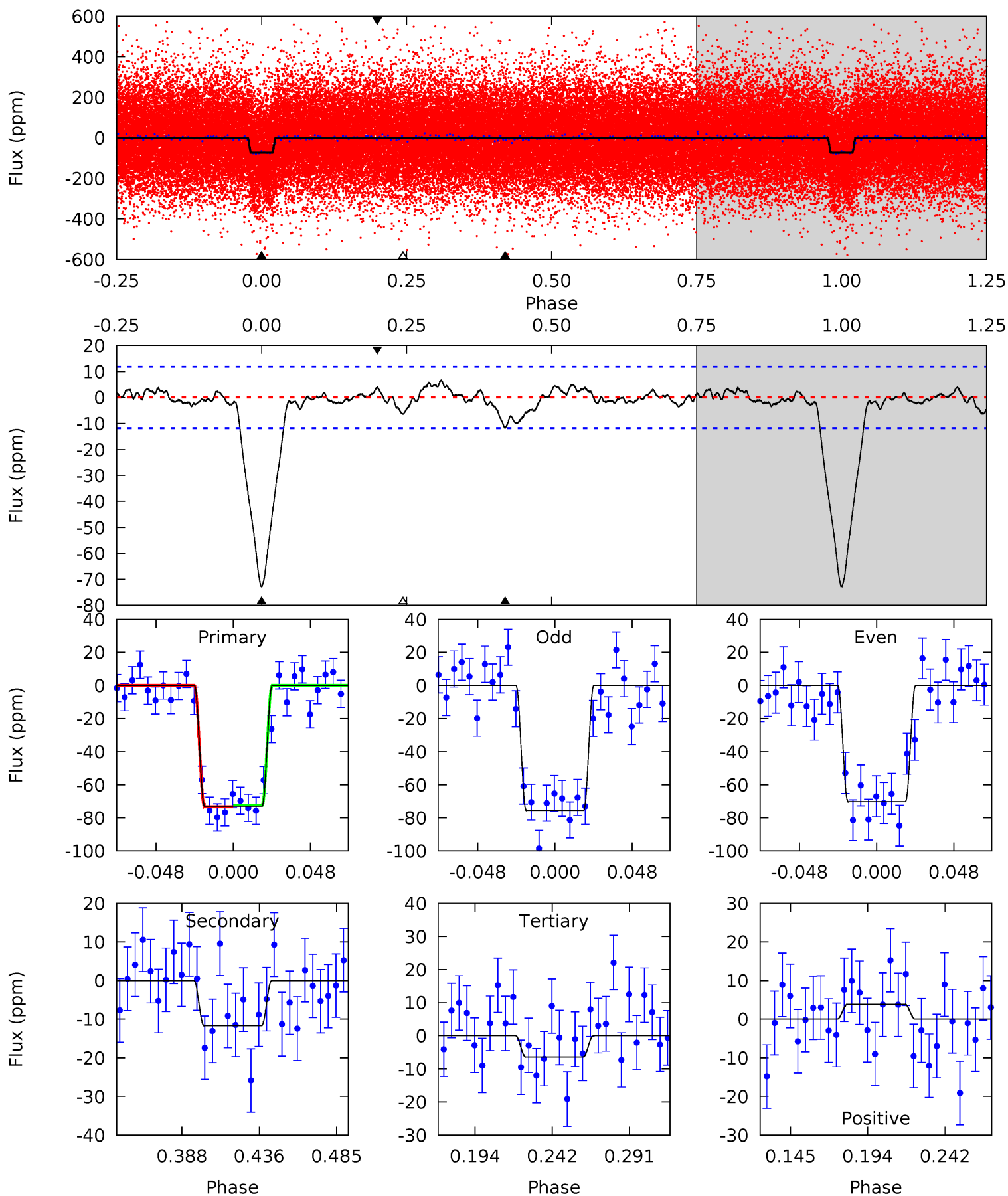
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	5.20	2.48	1.71	4.69	1.93	1.07	26.4	27.2	2.73	3.49	0.76	0.90	0.10	0.81



Alt Model-Shift Uniqueness Test

007733731-01, P = 4.858153 Days, E = 130.293952 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.1	4.67	2.55	1.55	4.71	1.97	0.92	26.5	27.6	2.12	3.12	1.04	1.00	0.08	0.18



Stellar Parameters For KIC 007733731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6109^{+182}_{-164}	$3.780^{+0.315}_{-0.105}$	$-0.400^{+0.350}_{-0.250}$	$2.326^{+0.391}_{-0.847}$	$1.188^{+0.199}_{-0.243}$	$0.133^{+0.311}_{-0.044}$
	+3%/-3%	+8%/-3%	+87%/-62%	+17%/-36%	+17%/-20%	+234%/-33%
Source	PHO1	FLK73	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 007733731-01 / KOI 4022.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-13 ± 2	$2.27^{+0.50}_{-0.48}$	2320^{+144}_{-202}	4012^{+312}_{-274}	$4.886^{+2.885}_{-1.827}$
Alt.	-12 ± 3	$2.08^{+0.48}_{-0.49}$	2320^{+141}_{-190}	4110^{+353}_{-296}	$5.410^{+3.740}_{-1.996}$

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

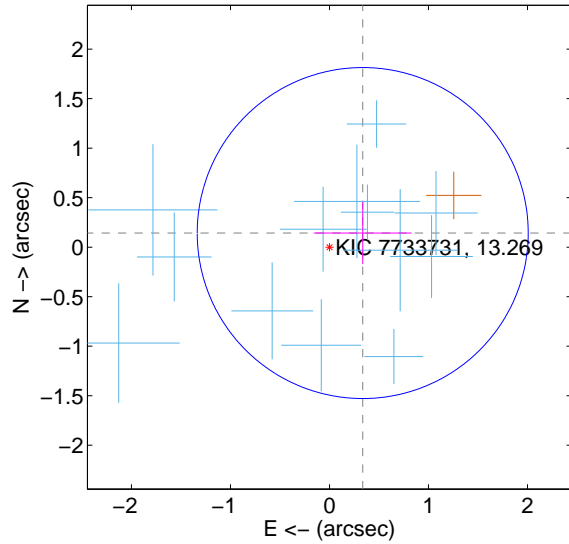
Supplemental centroid analysis for 007733731-01. Kepler magnitude: 13.27. Transit SNR 20.16

There are 13 quarters with good PRF difference image offsets

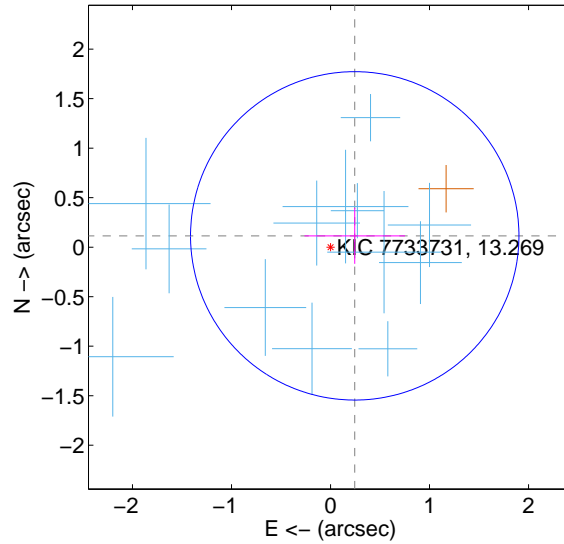
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.365 ± 0.557	0.65	-0.336 ± 0.494	0.143 ± 0.315
PRF-fit source offset from KIC position	0.270 ± 0.553	0.49	-0.245 ± 0.507	0.114 ± 0.282
photometric centroid source offset	0.17 ± 0.62	0.28	0.11 ± 0.63	-0.14 ± 0.61

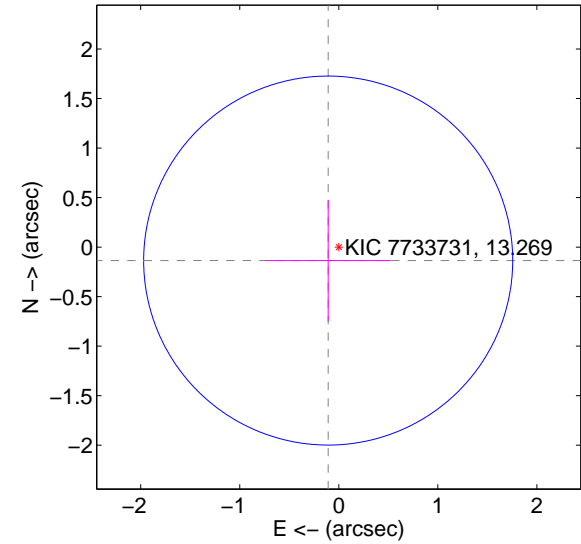
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

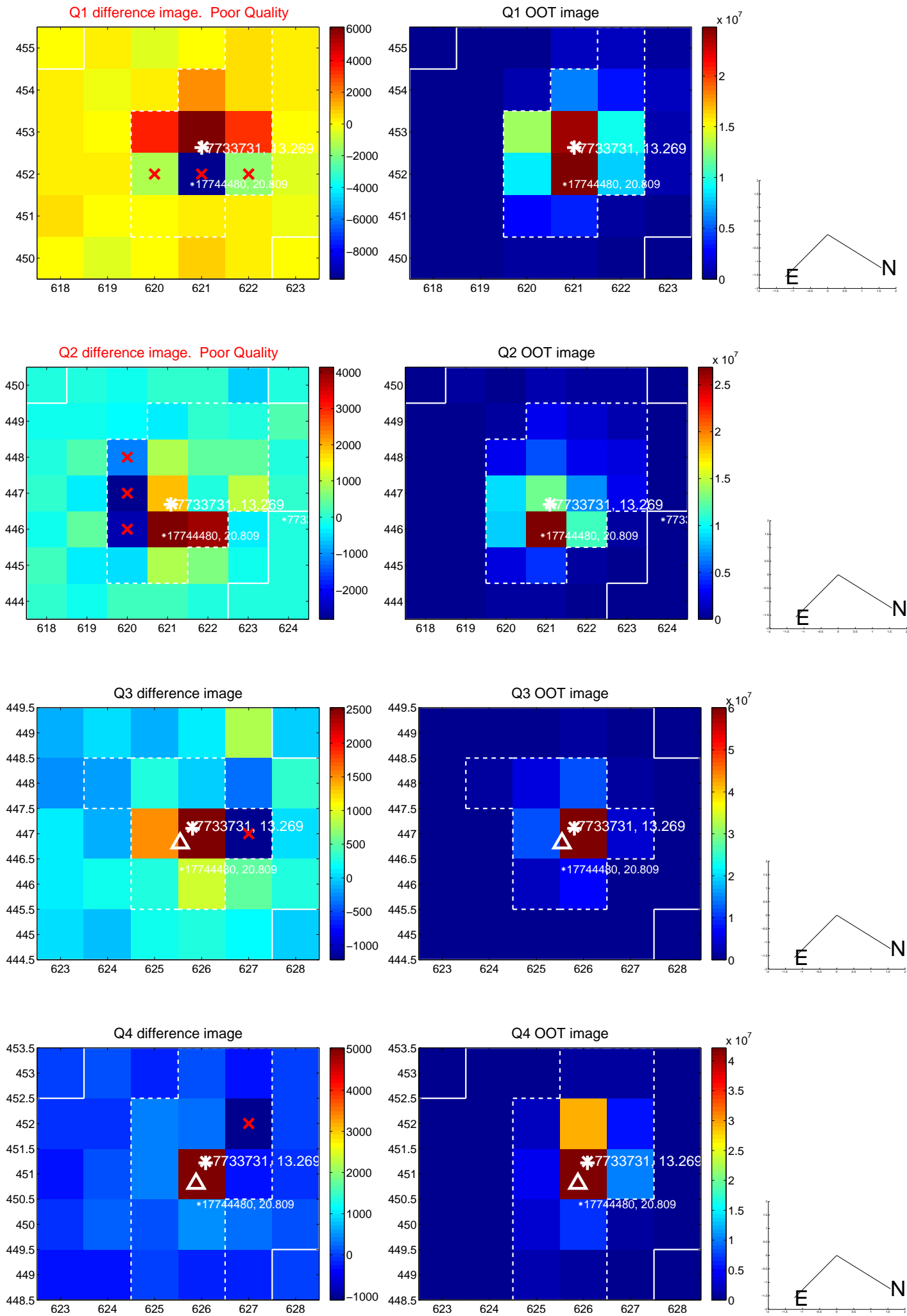


offset from photometric centroids

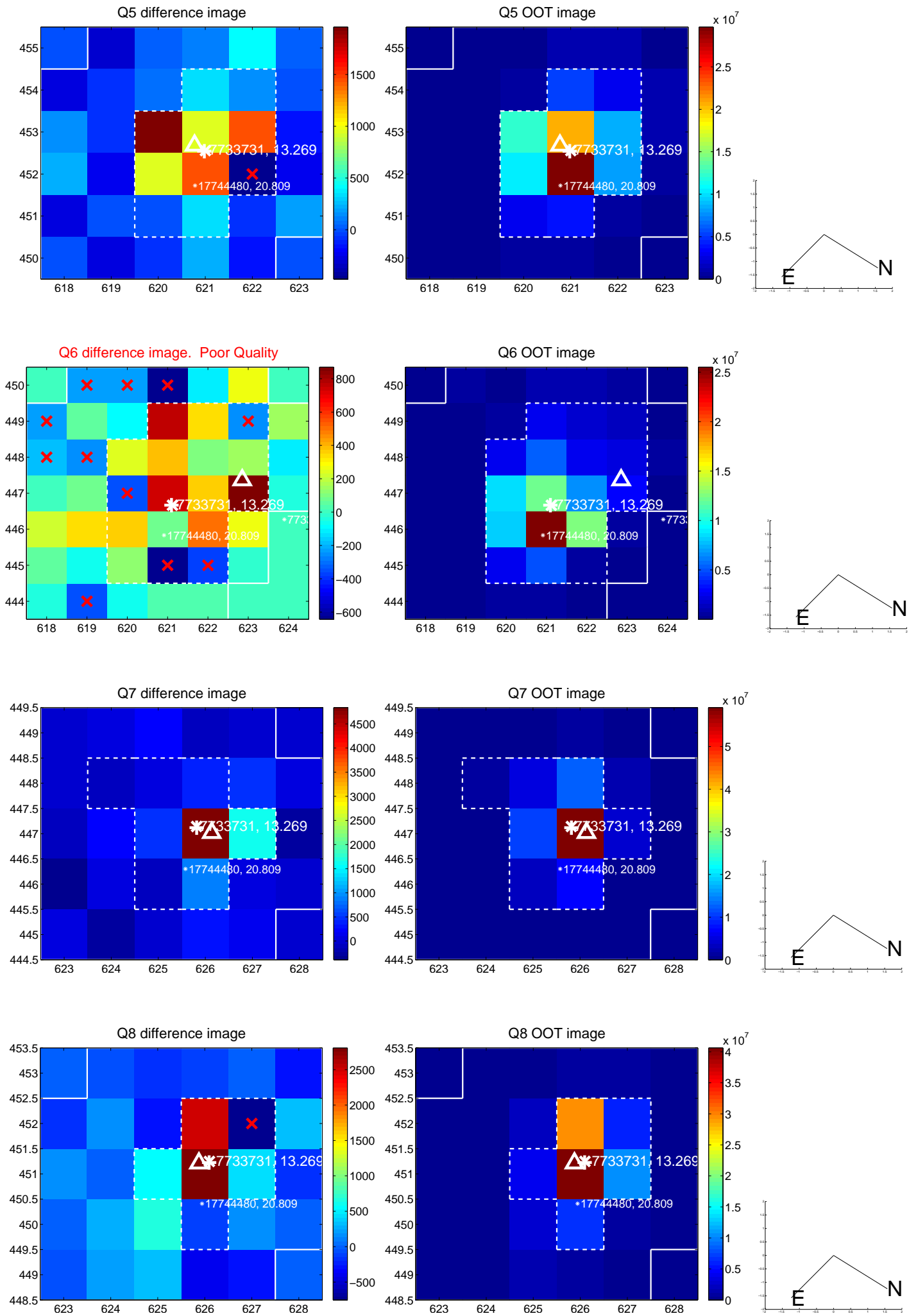


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

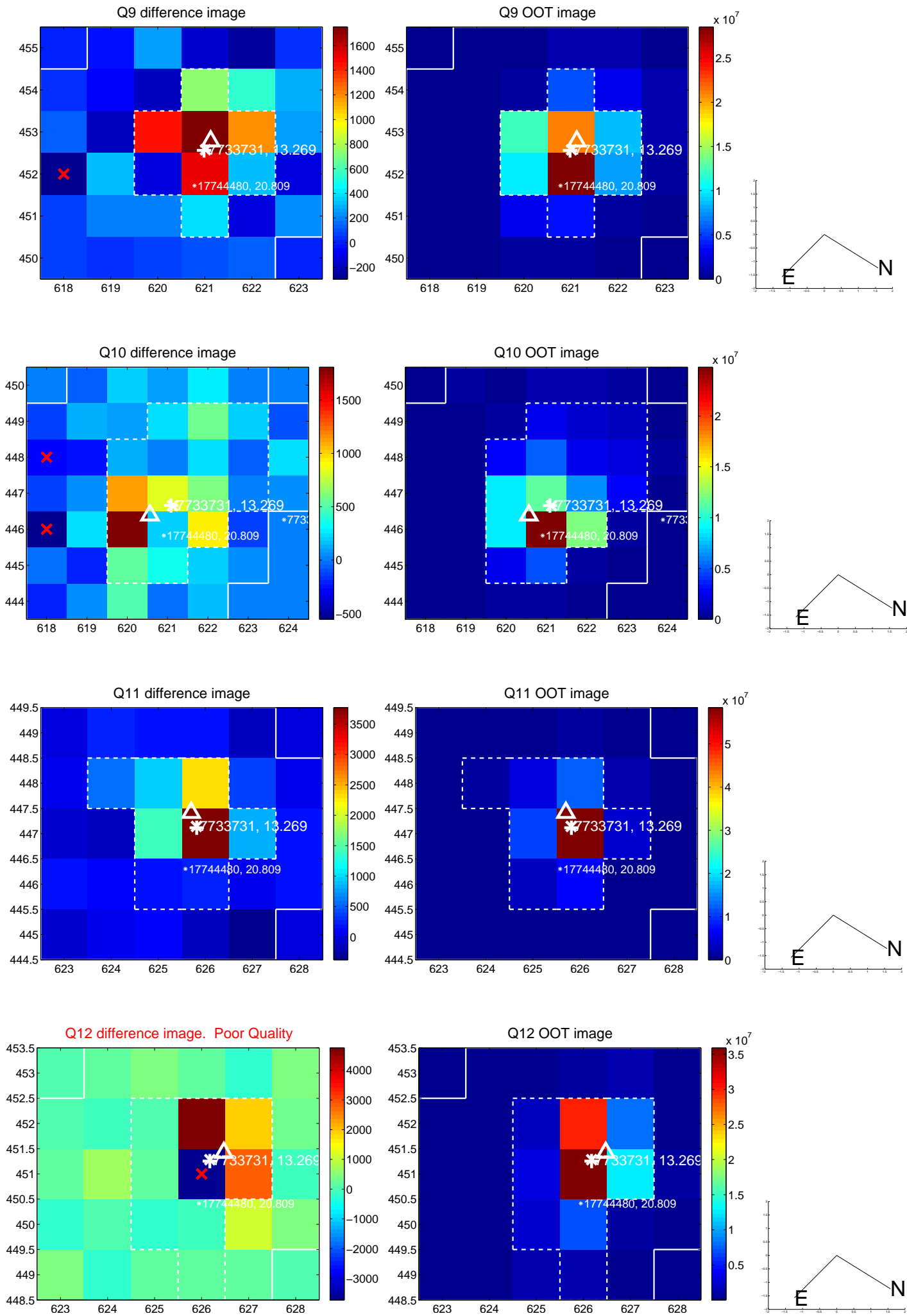
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



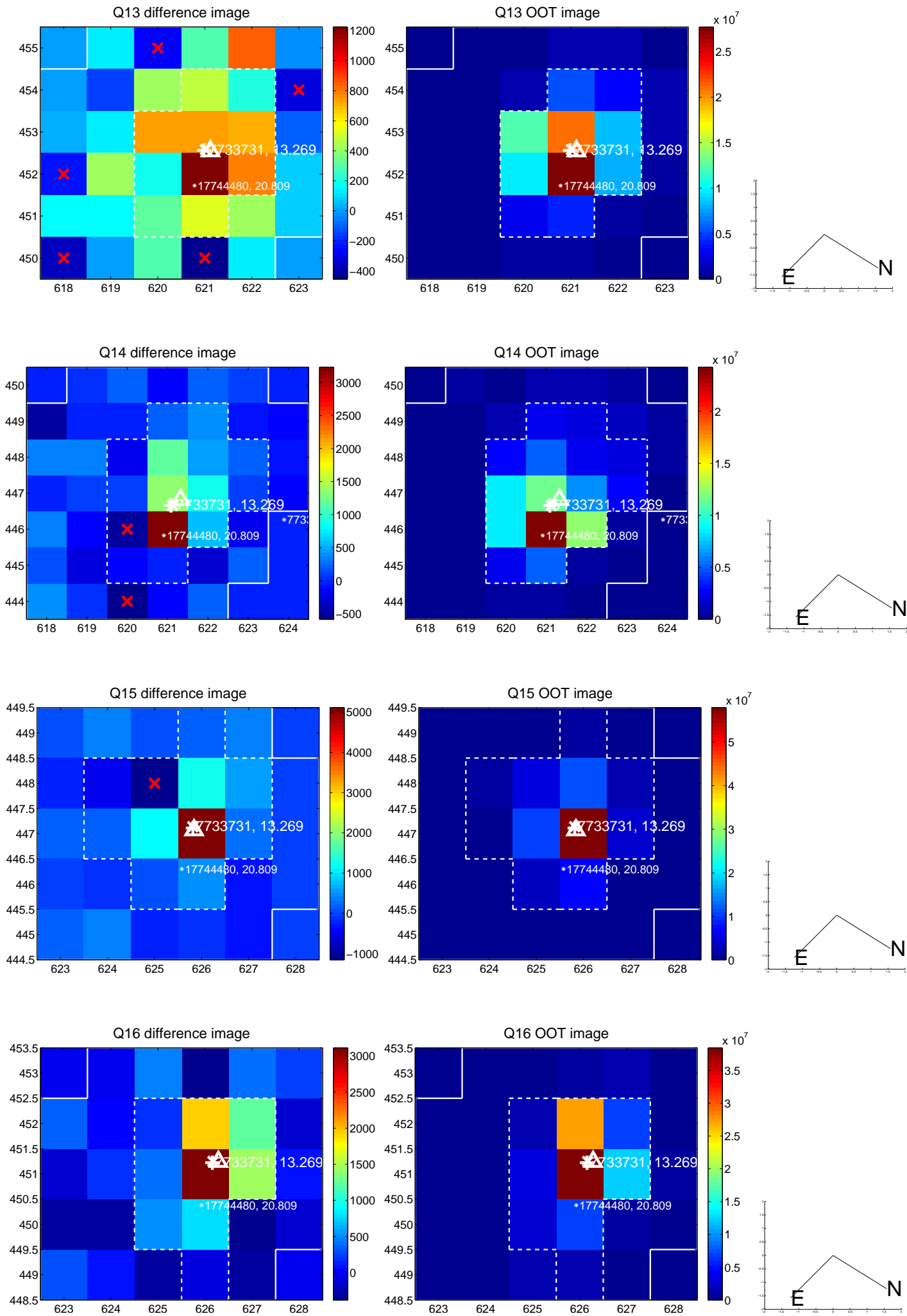
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



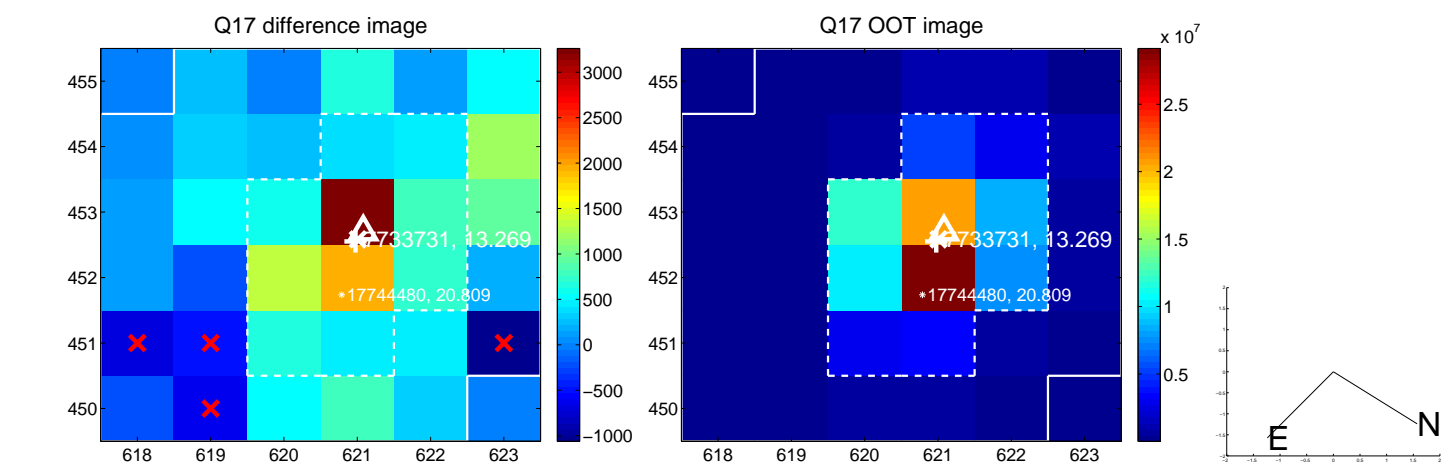
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



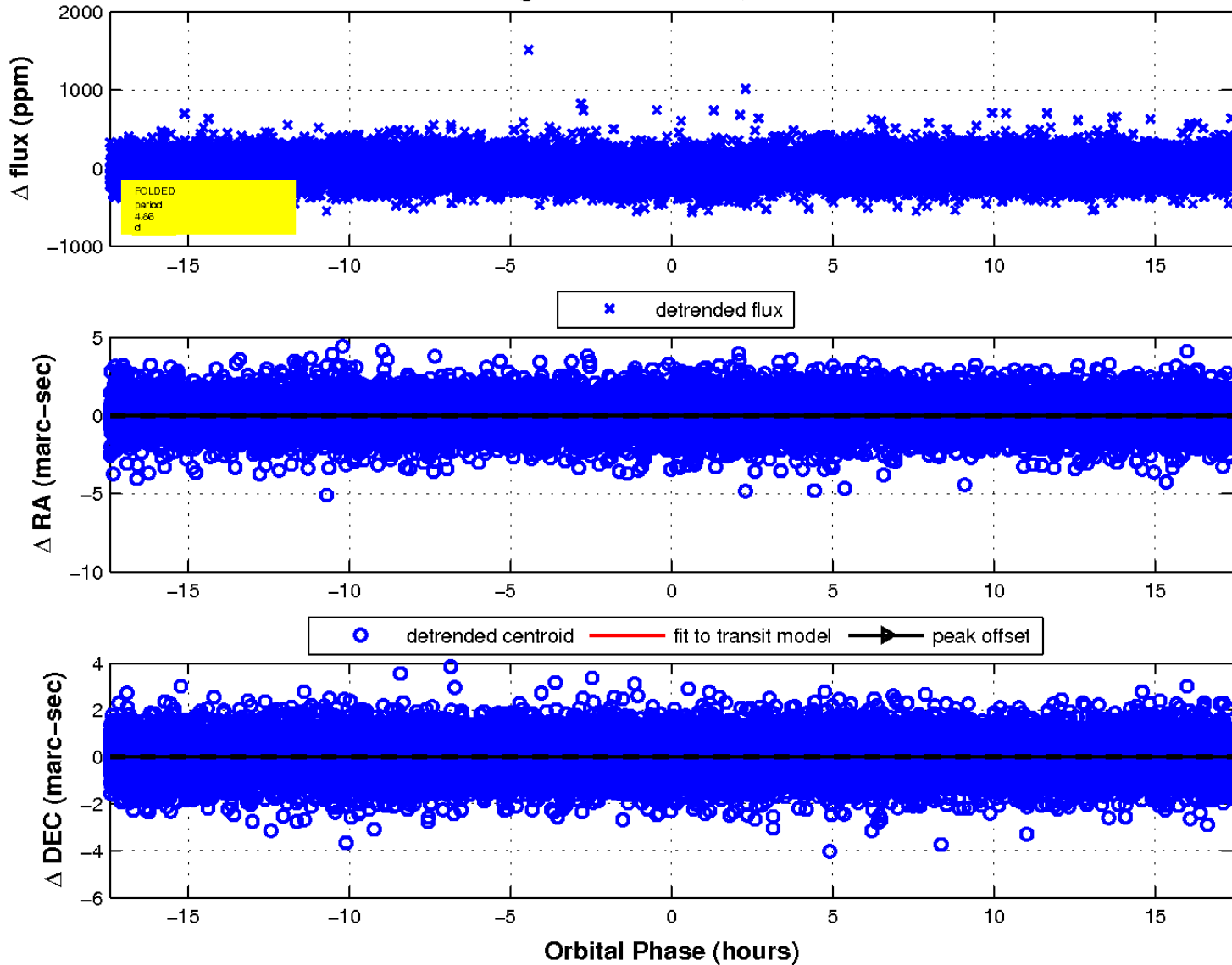
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

