

KIC 005938970

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
005938970-01	OBS	4016.01	125.413035	195.626619	1337.2	2.303	18.0	19.6	0.75	4641	3.09	1.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005938970-01	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.

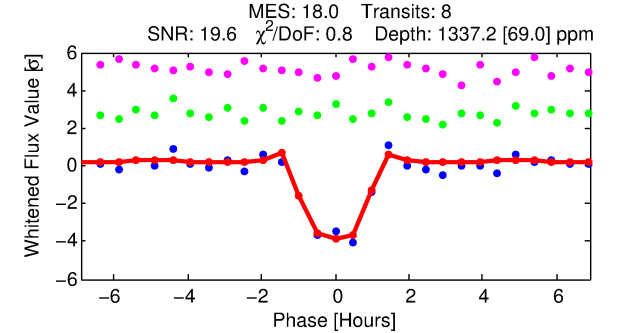
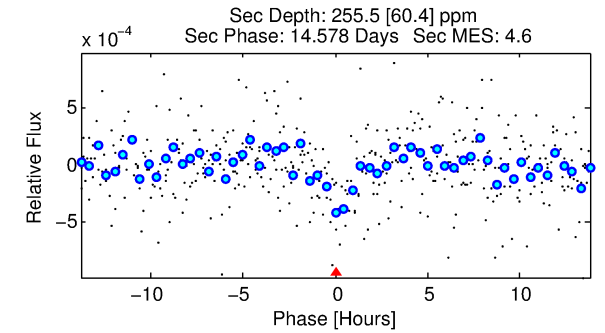
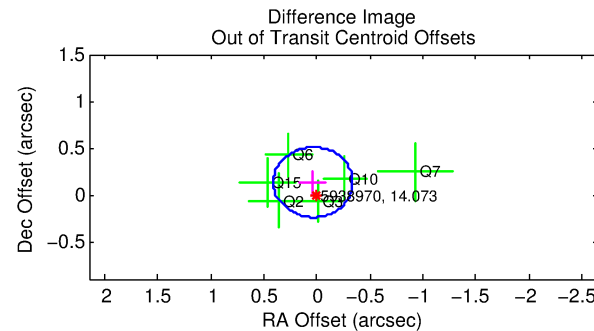
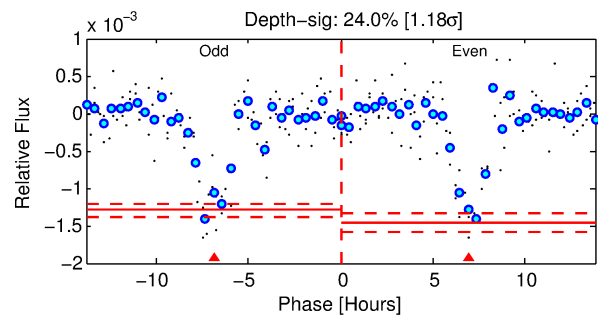
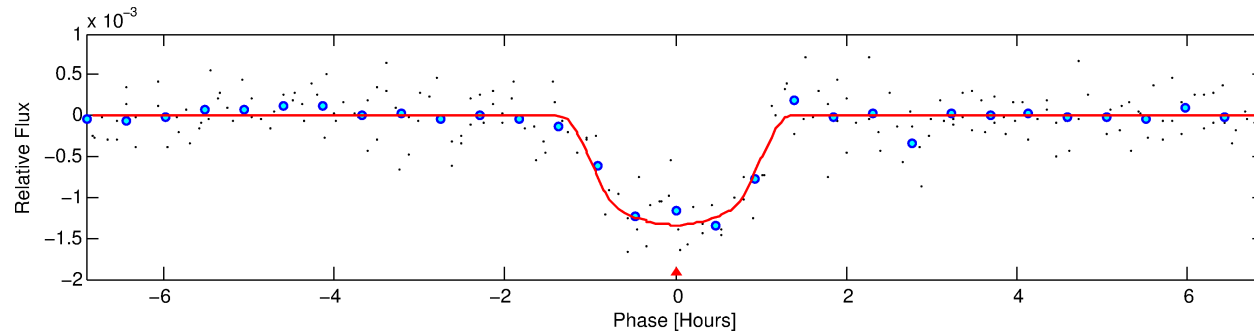
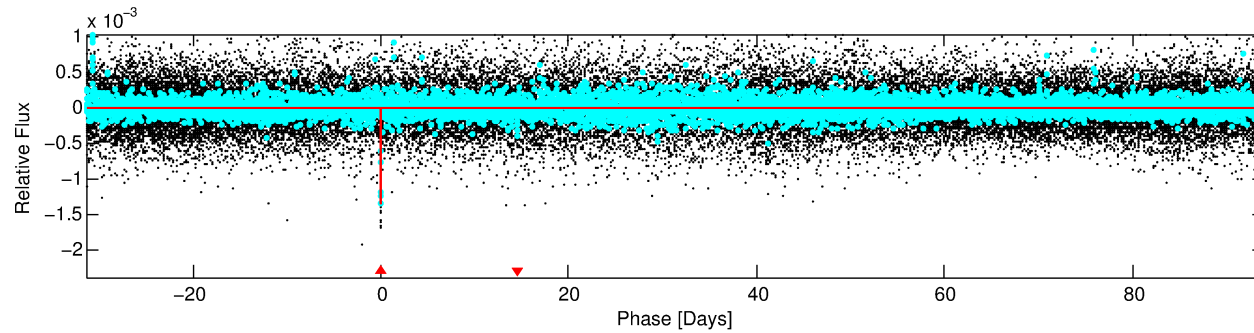
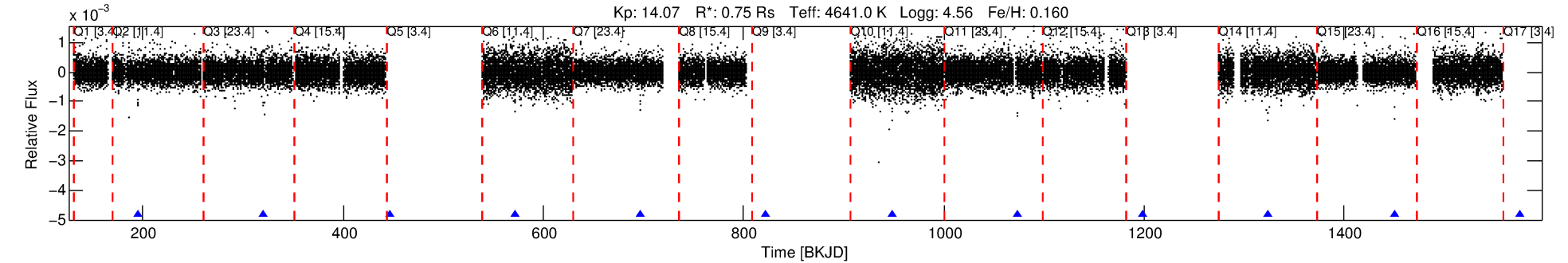
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005938970-01

No Significant Match Found

DV One-Page Summary

KIC: 5938970 Candidate: 1 of 1 Period: 125.413 d
KOI: K04016.01 Corr: 0.981



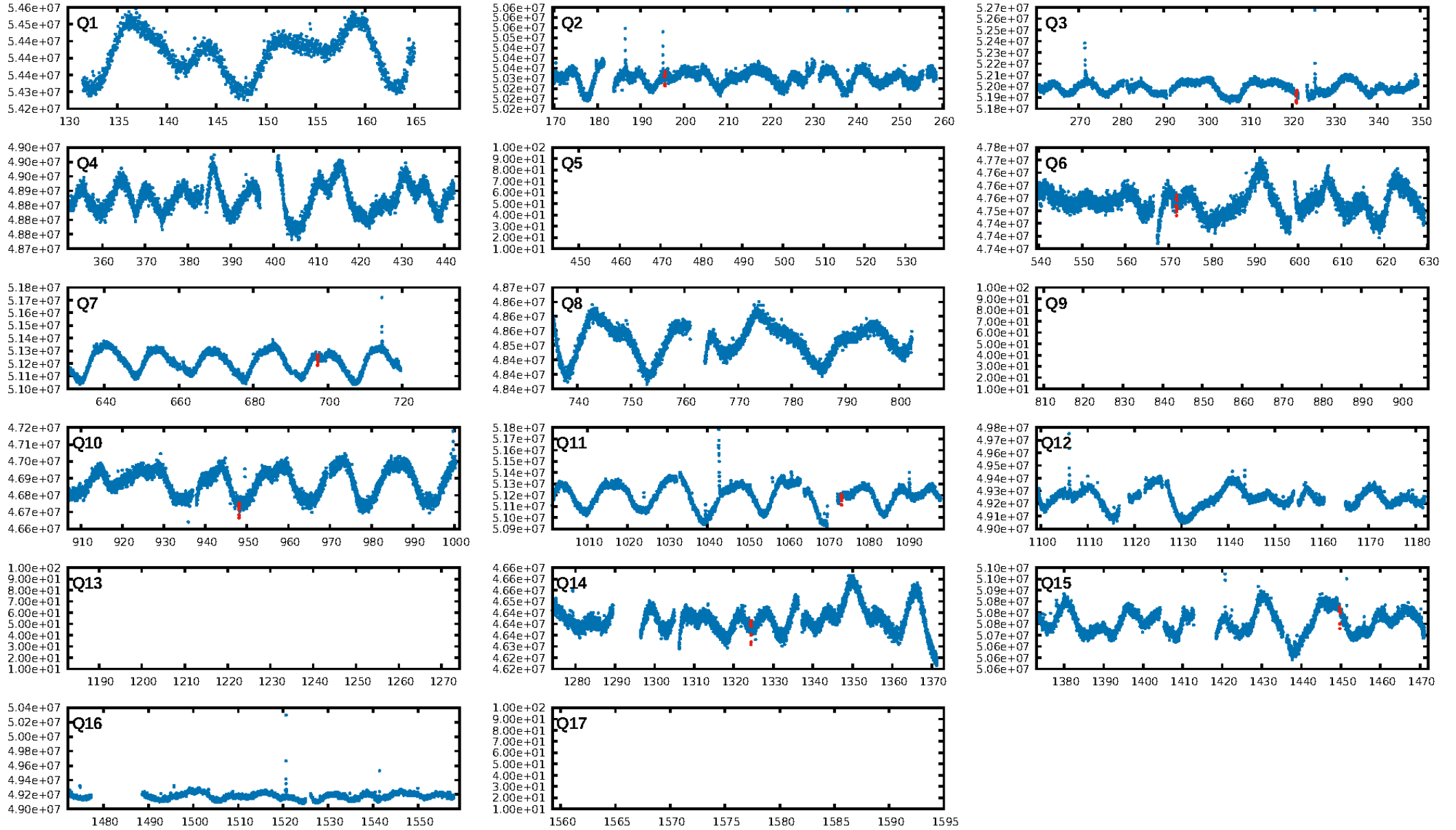
DV Fit Results:

Period = 125.41303 [0.00036] d
Epoch = 195.6266 [0.0023] BKJD
Rp/R* = 0.0379 [0.0129]
a/R* = 274.10 [301.96]
b = 0.80 [0.51]
Seff = 1.19 [0.13]
Teq = 266 [7] K
Rp = 3.09 [1.07] Re
a = 0.4424 [0.0229] AU
Ag = 2884.52 [2099.90] [1.37 σ]
Teffp = 3015 [548] K [5.02 σ]

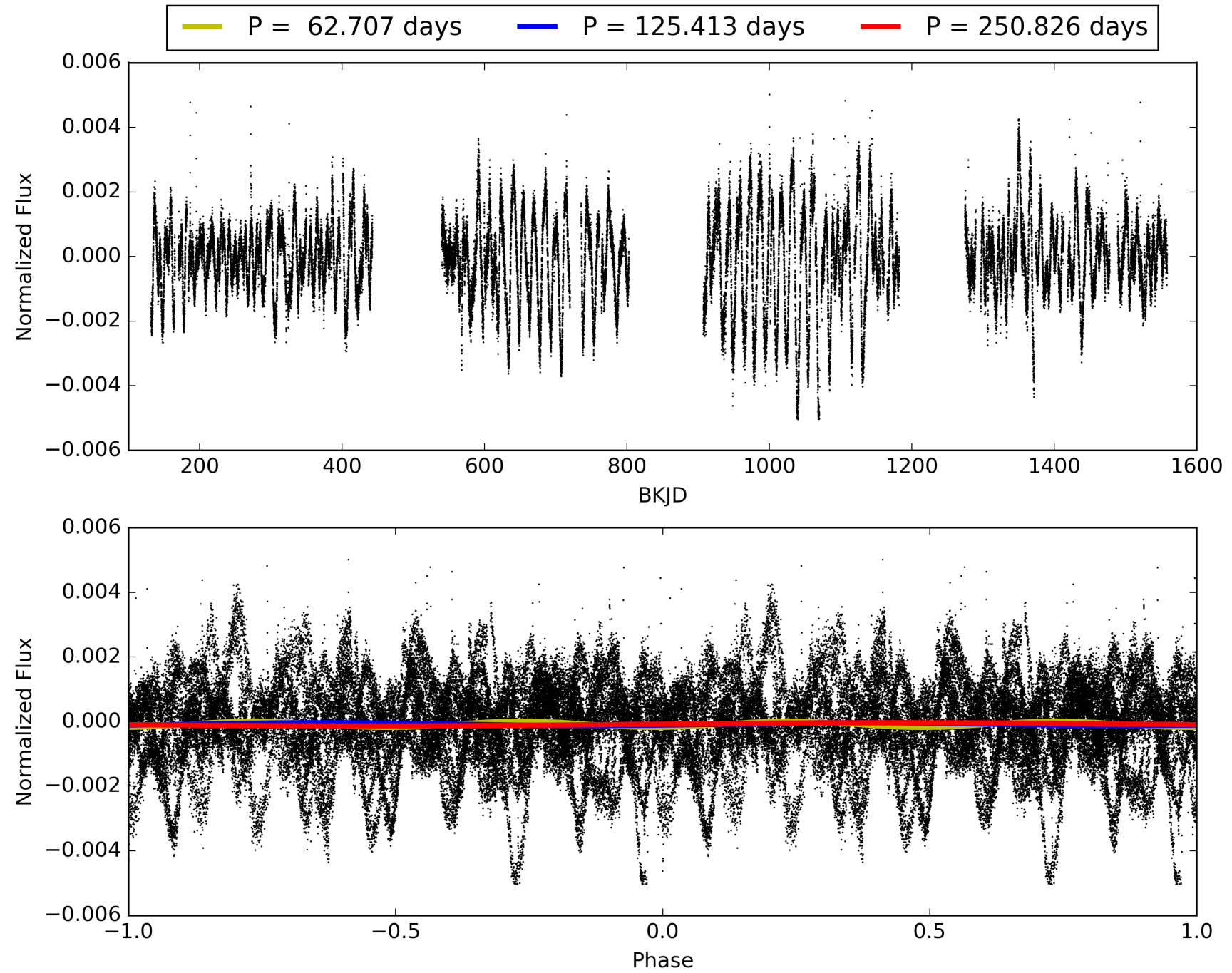
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 55.8%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: 1.27e-58
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.713
Centroid-sig: 19.4%
Centroid-so: 0.453 arcsec [0.82 σ]
OotOffset-rm: 0.138 arcsec [1.10 σ]
KicOffset-rm: 0.231 arcsec [1.84 σ]
OotOffset-st: 3/3/0/0 [6]
KicOffset-st: 3/3/0/0 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [7/7]

TCE 005938970-01, PDC Light Curves

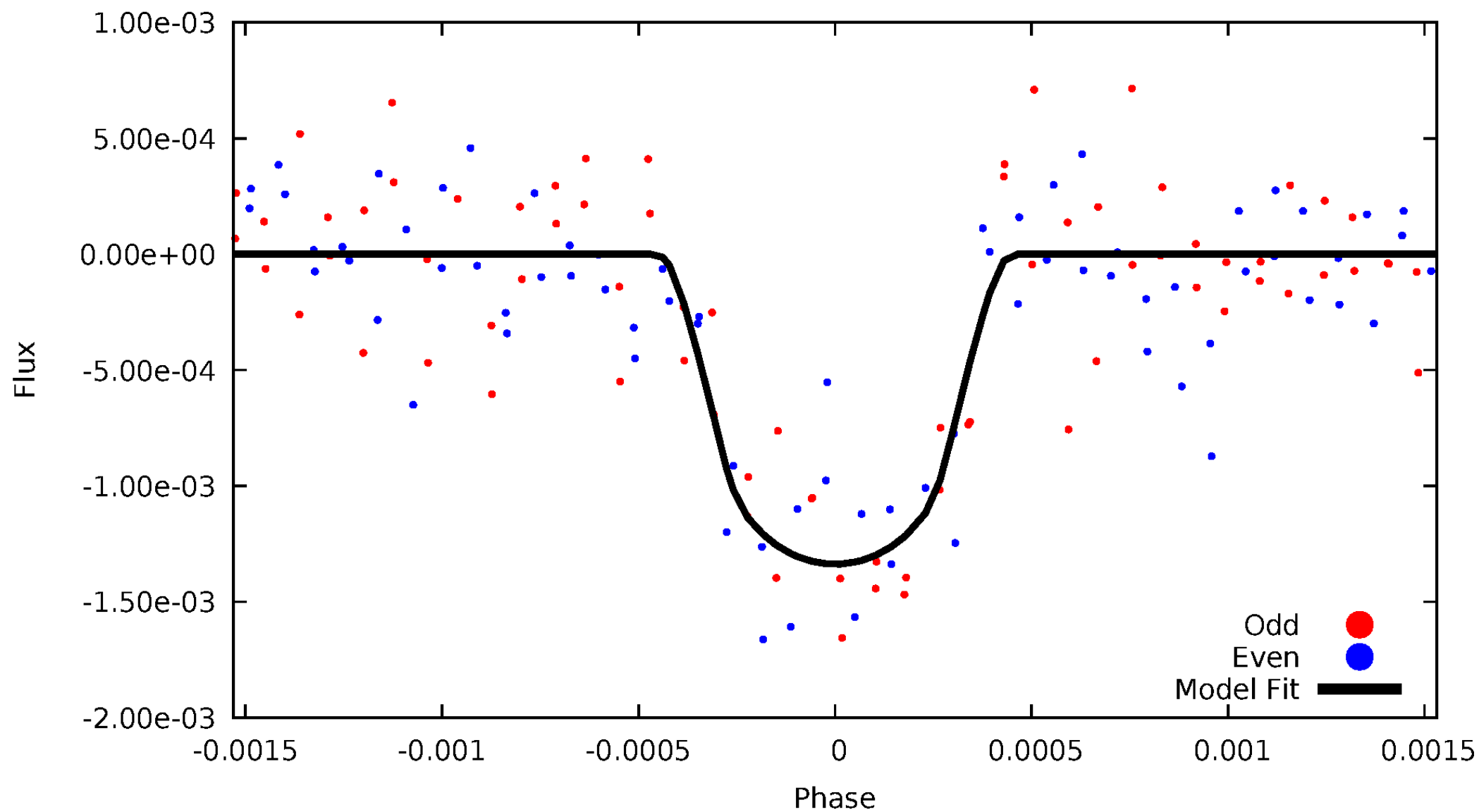


TCE 005938970-01



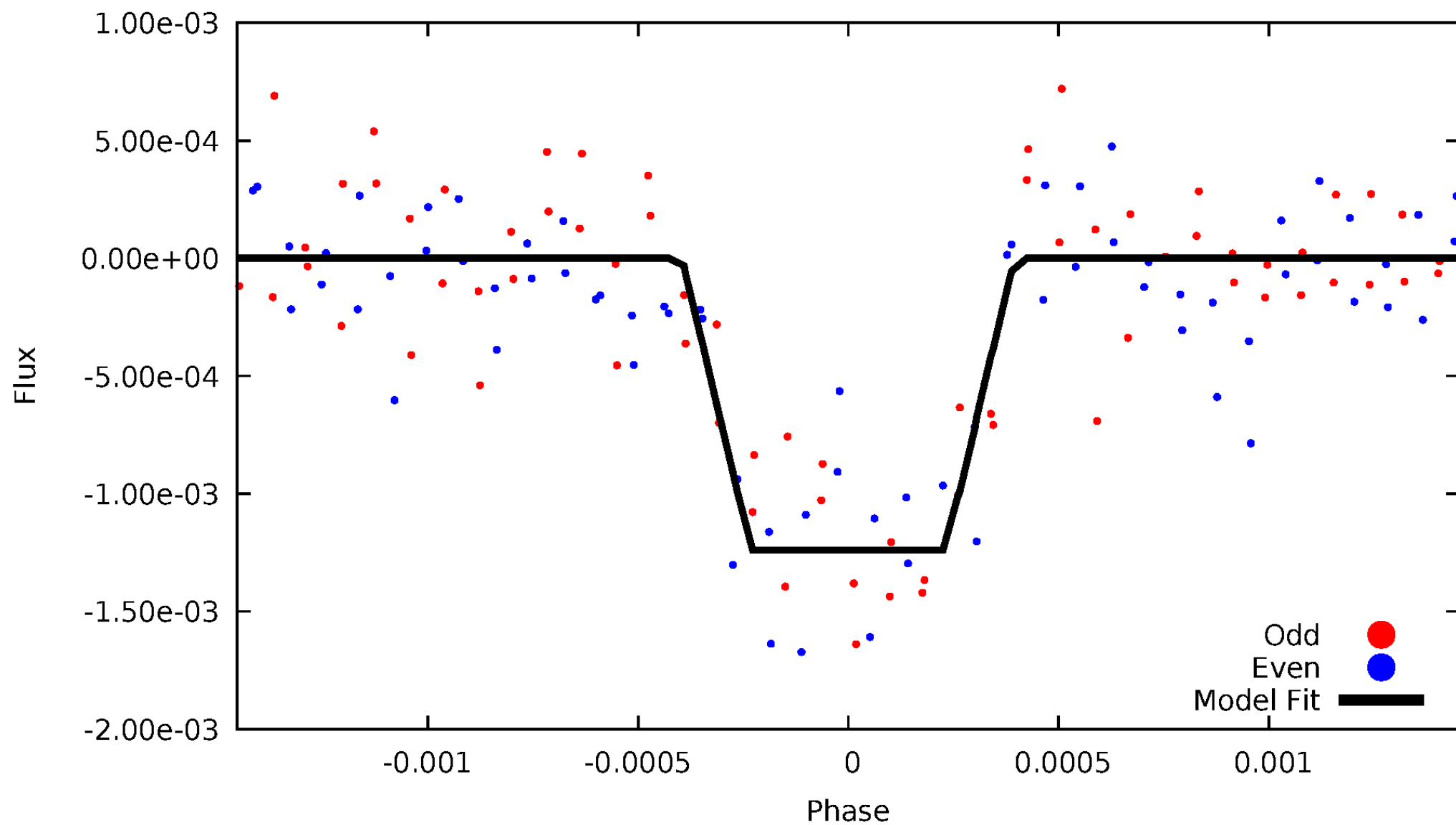
DV Odd/Even

TCE 005938970-01



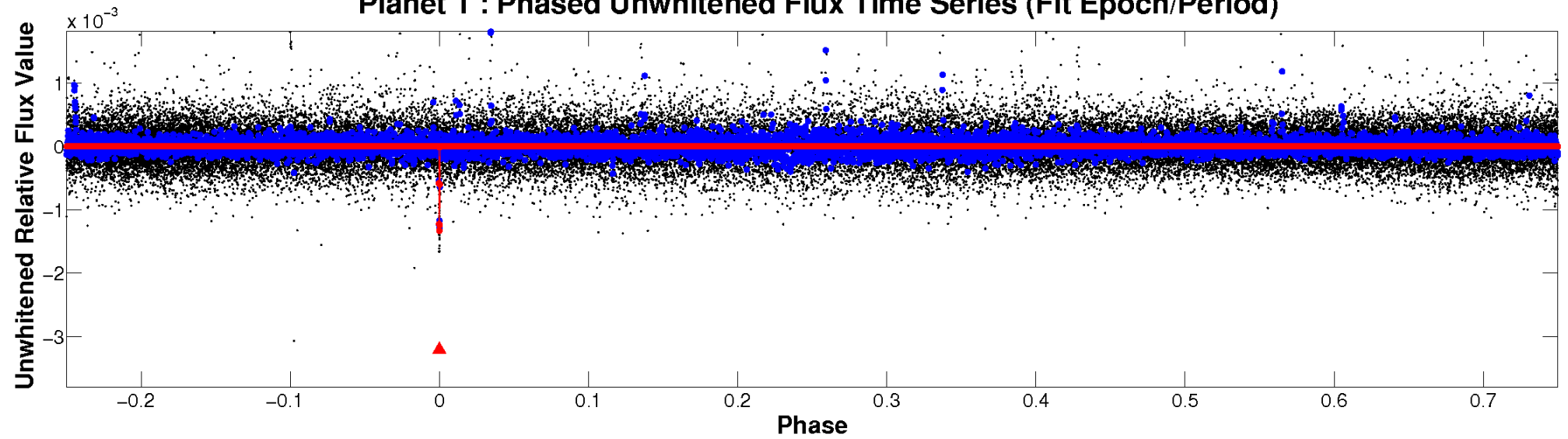
ALT Odd/Even

TCE 005938970-01

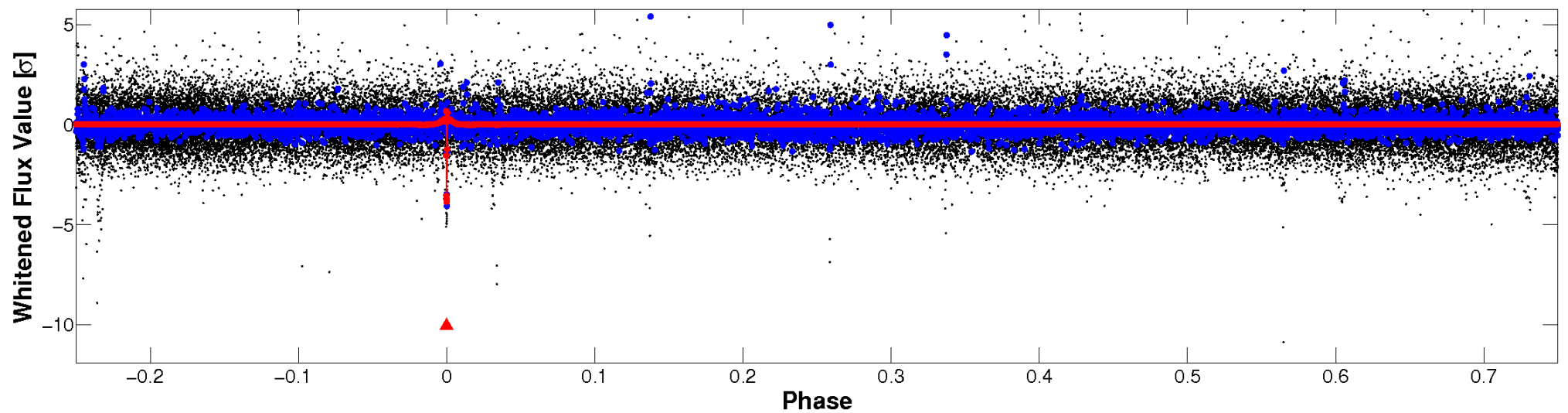


Non-Whitened Vs. Whitened Light Curve

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

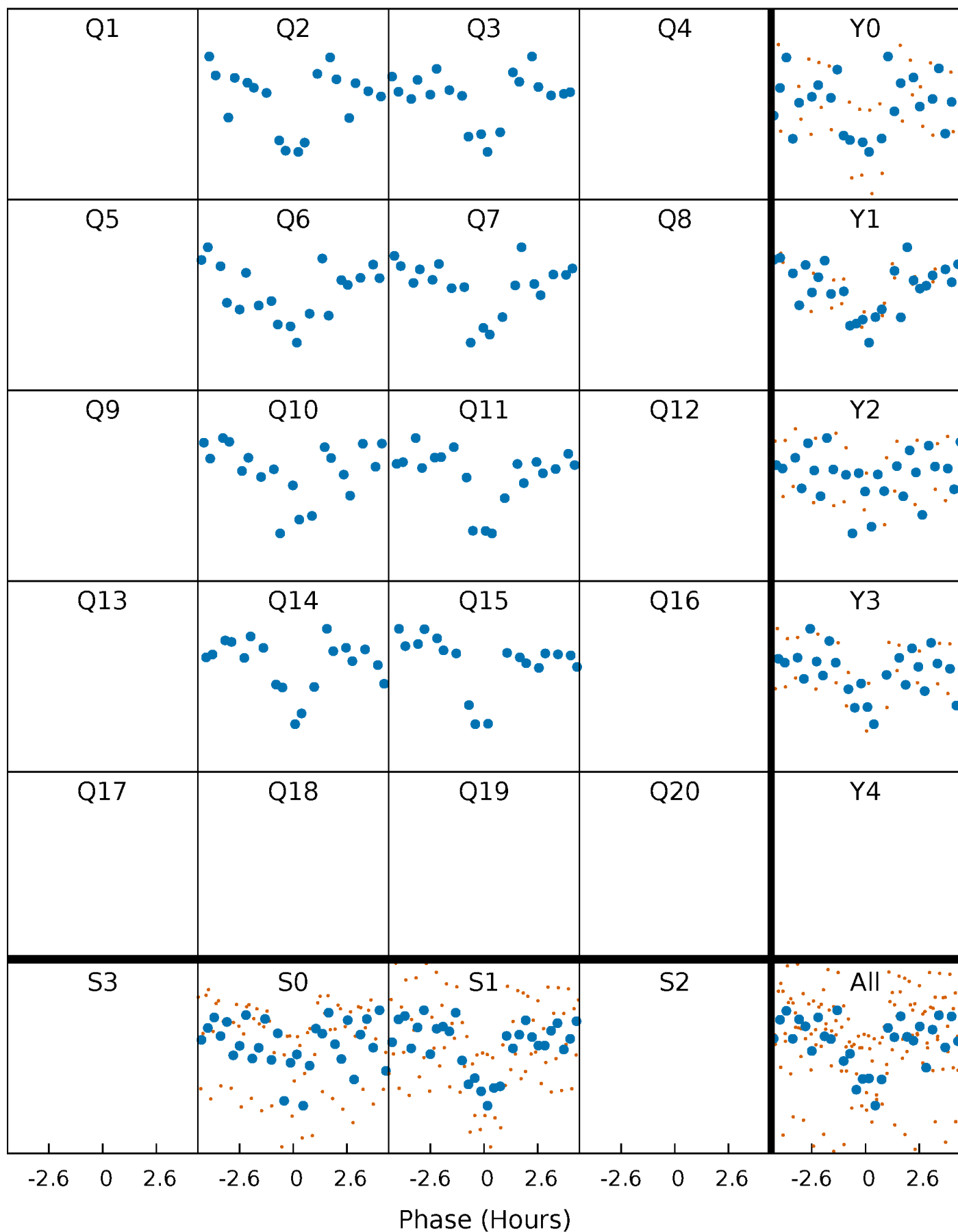


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



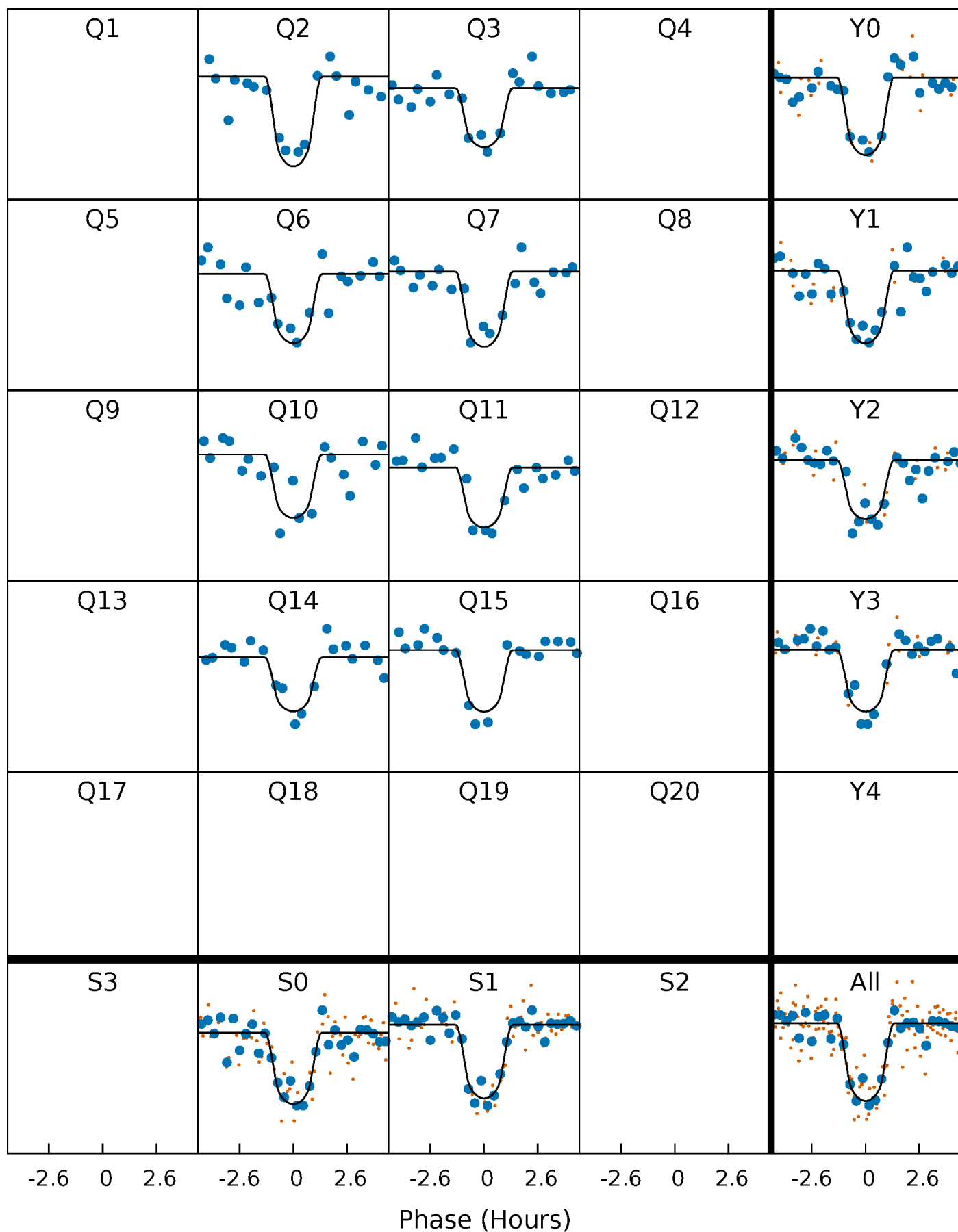
PDC Quarter-Phased Transit Curves

TCE 005938970-01 P=125.413035 Days $T_0=195.626619$ (BKJD)



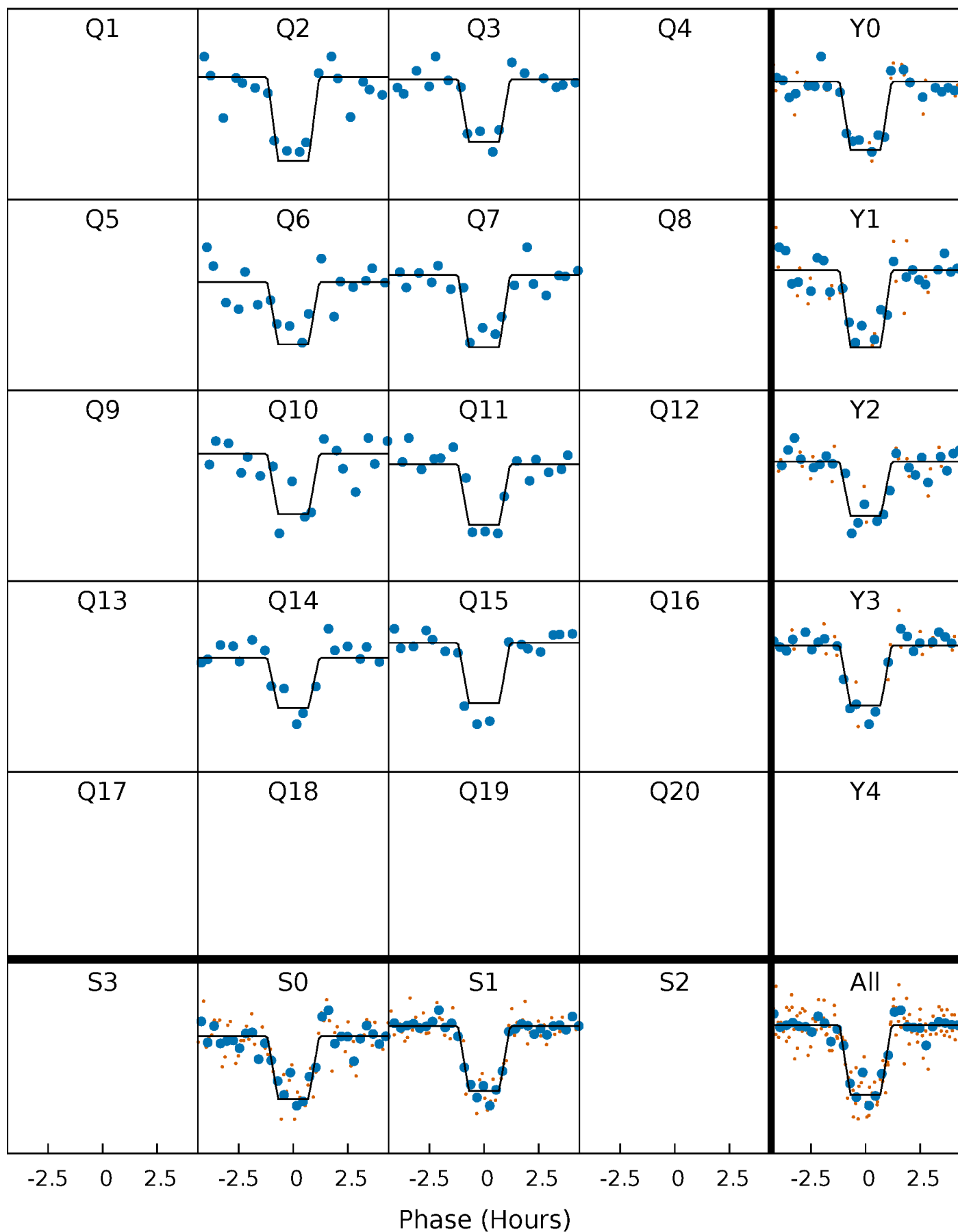
DV Quarter-Phased Transit Curves

TCE 005938970-01 P=125.413035 Days $T_0=195.626619$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

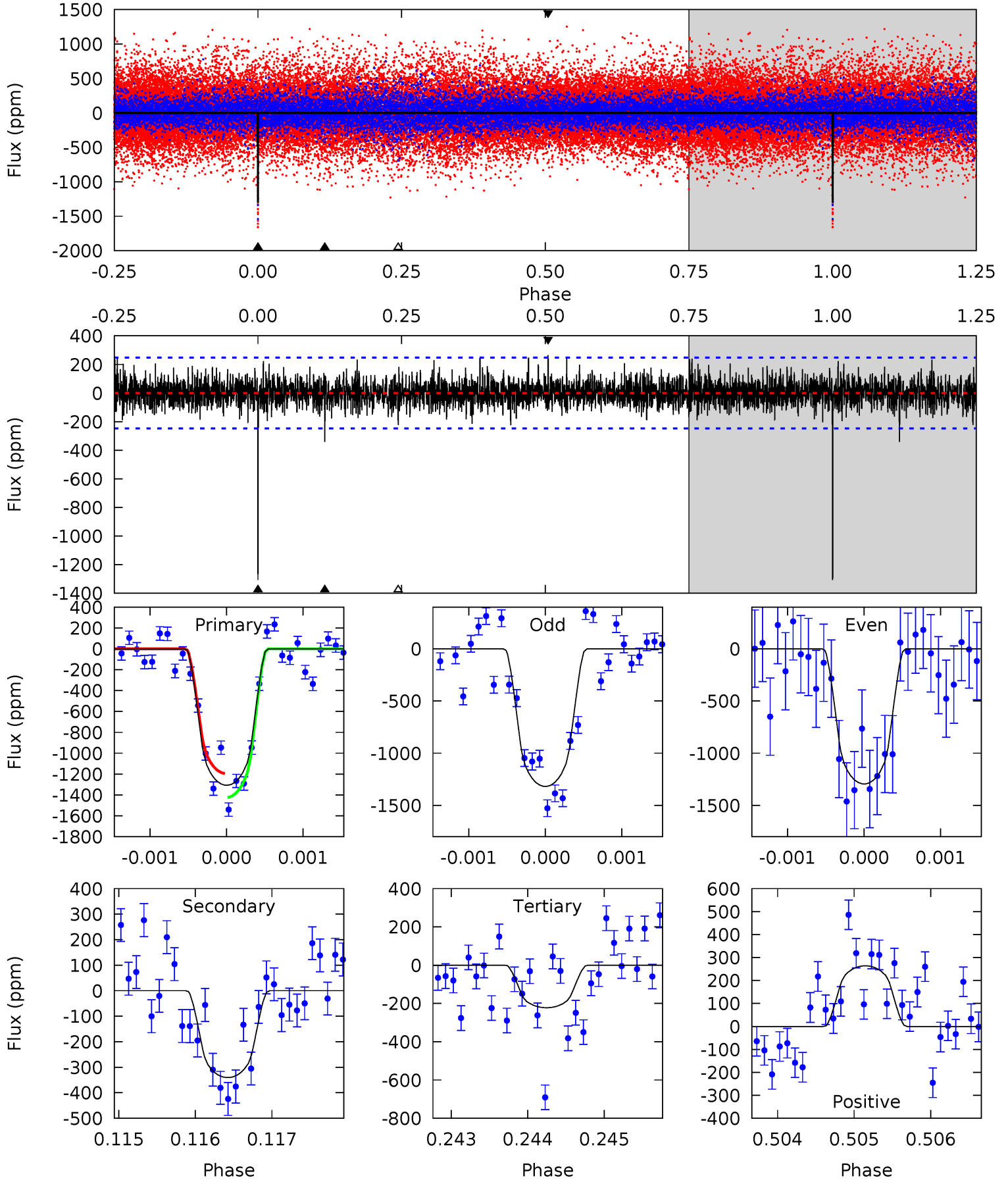
TCE 005938970-01 P=125.412949 Days $T_0=195.627276$ (BKJD)



DV Model-Shift Uniqueness Test

005938970-01, $P = 125.413035$ Days, $E = 70.213584$ Days

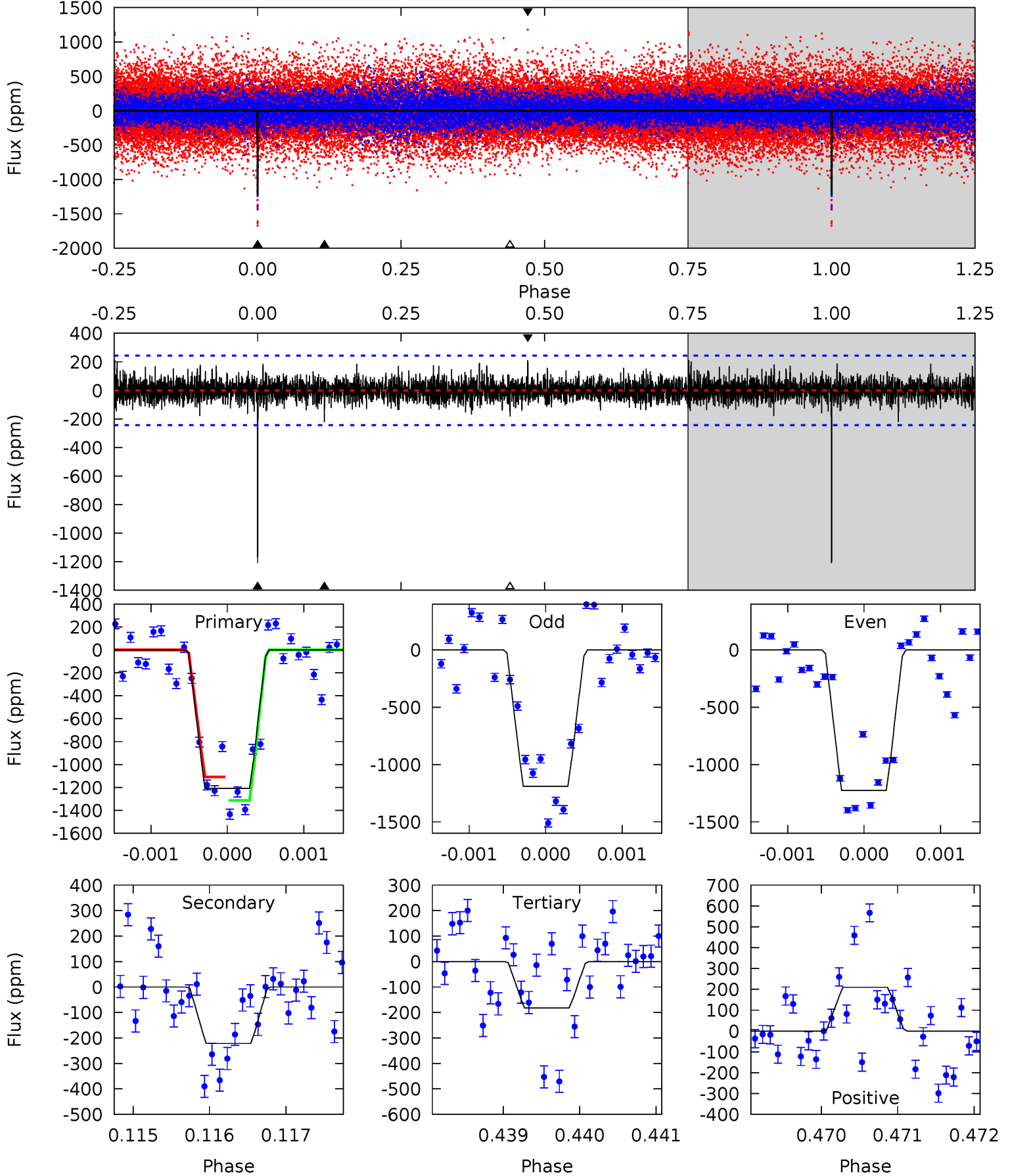
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	7.53	4.92	5.84	5.48	3.34	1.45	24.0	23.1	2.61	1.69	0.26	1.01	0.17	2.51



Alt Model-Shift Uniqueness Test

005938970-01, P = 125.412949 Days, E = 70.214327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.3	5.00	4.11	4.74	5.50	3.36	1.14	23.1	22.5	0.89	0.27	0.42	1.00	0.15	2.30



Stellar Parameters For KIC 005938970

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4641^{+74}_{-83}	$4.557^{+0.049}_{-0.014}$	$0.160^{+0.150}_{-0.150}$	$0.747^{+0.020}_{-0.040}$	$0.734^{+0.044}_{-0.028}$	$2.481^{+0.469}_{-0.139}$
	+2%/-2%	+1%/-0%	+94%/-94%	+3%/-5%	+6%/-4%	+19%/-6%
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 005938970-01 / KOI 4016.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-340 ± 45	$3.09^{+1.03}_{-1.09}$	370^{+7}_{-9}	3577^{+570}_{-324}	3901^{+5336}_{-1780}
Alt.	-222 ± 44	$2.80^{+1.10}_{-1.02}$	369^{+8}_{-7}	3443^{+555}_{-362}	3076^{+4649}_{-1568}

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

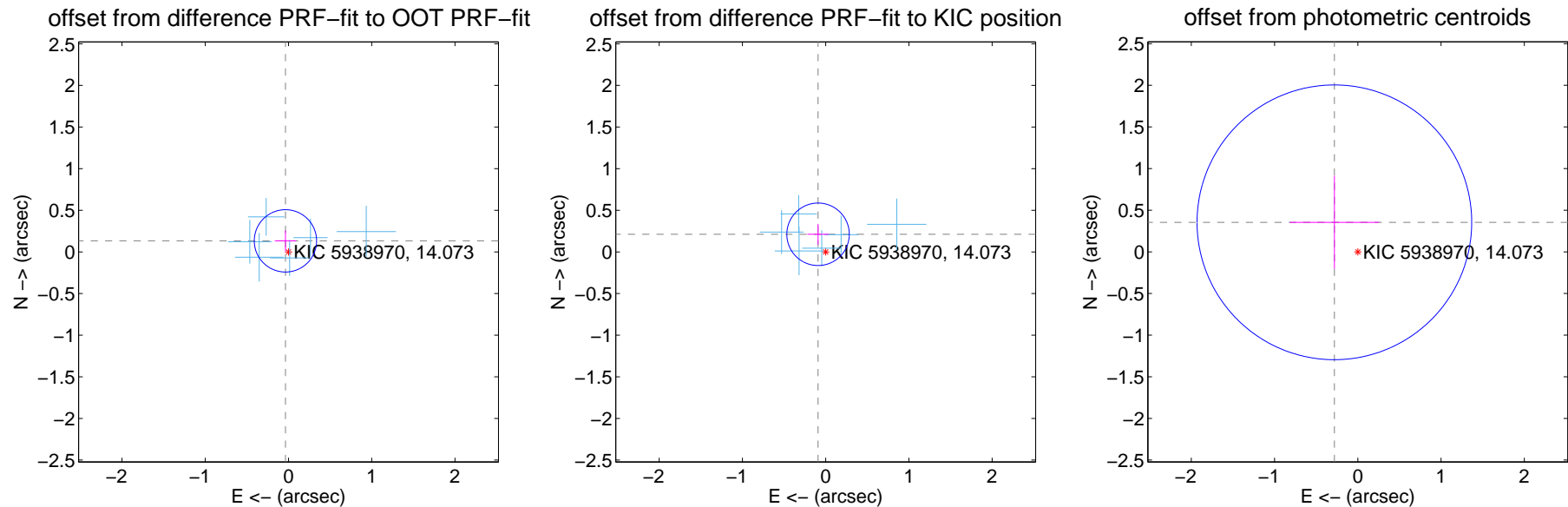
DV Centroid Data

Supplemental centroid analysis for 005938970-01. Kepler magnitude: 14.07. Transit SNR 19.59

There are 6 quarters with good PRF difference image offsets

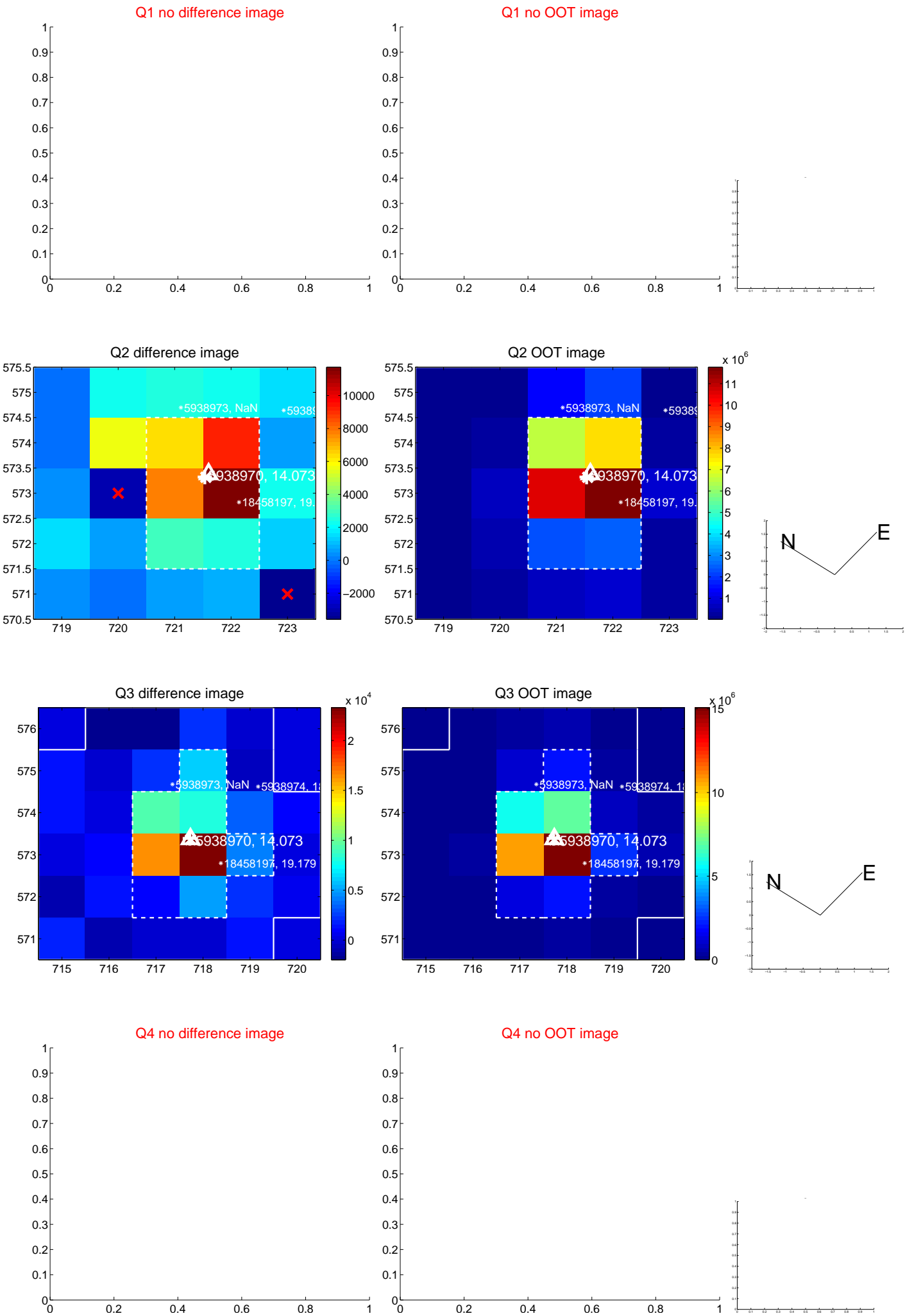
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.138 ± 0.125	1.10	0.037 ± 0.128	0.133 ± 0.125
PRF-fit source offset from KIC position	0.231 ± 0.125	1.84	0.091 ± 0.128	0.212 ± 0.125
photometric centroid source offset	0.45 ± 0.55	0.82	0.28 ± 0.54	0.35 ± 0.56

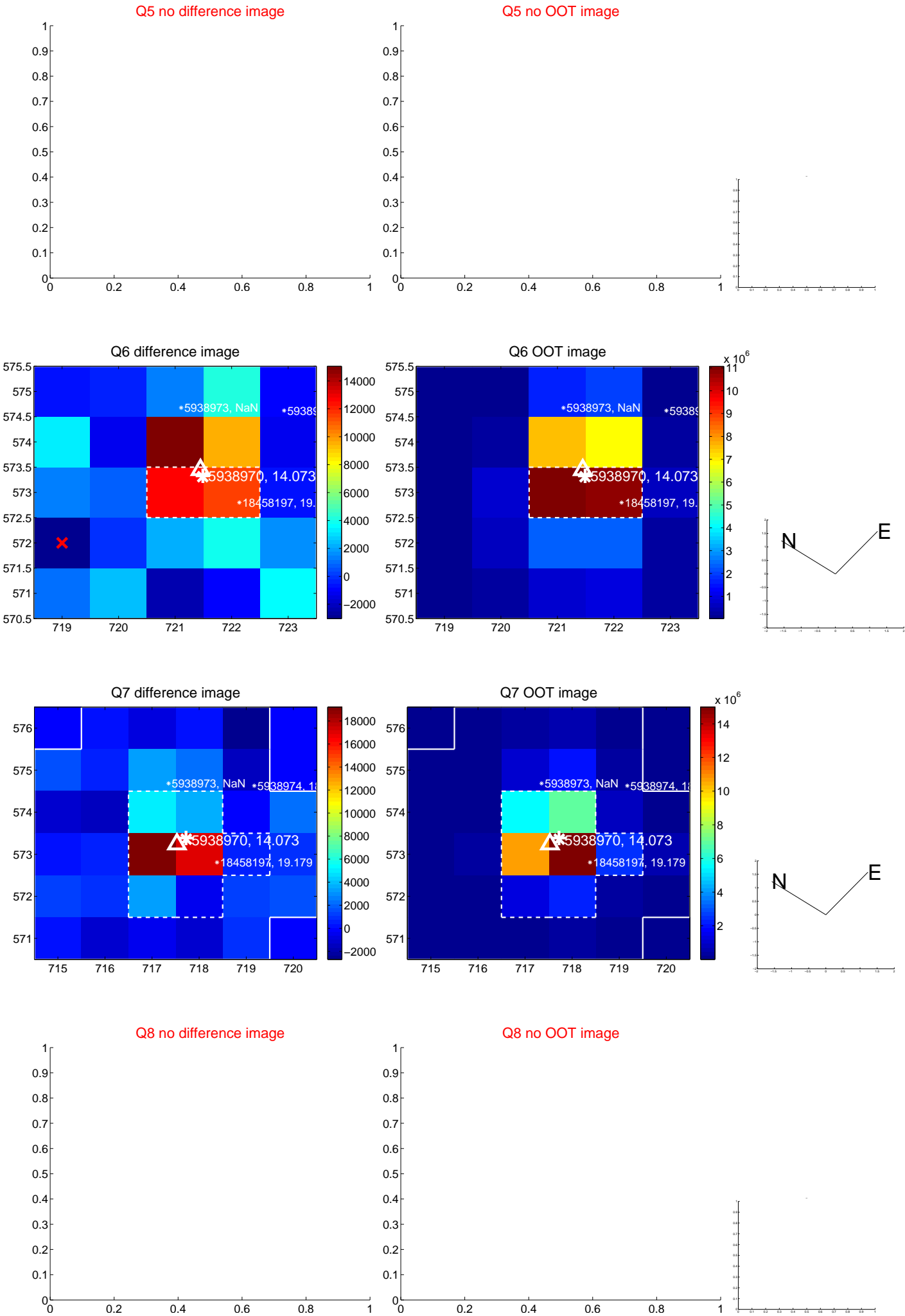


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

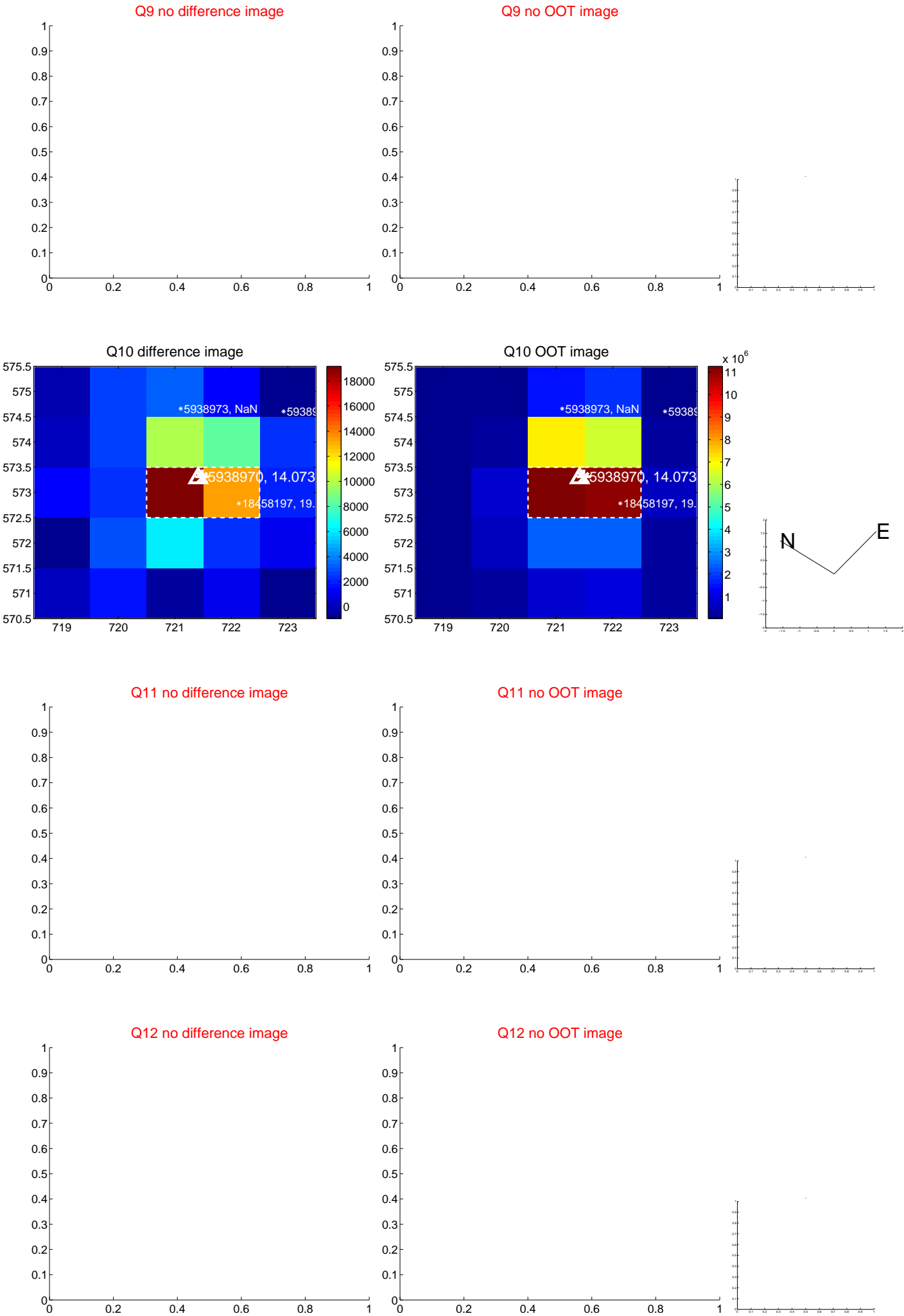
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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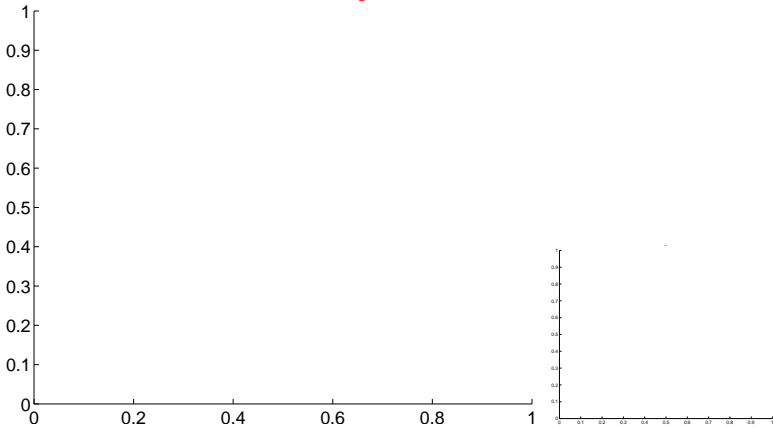


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

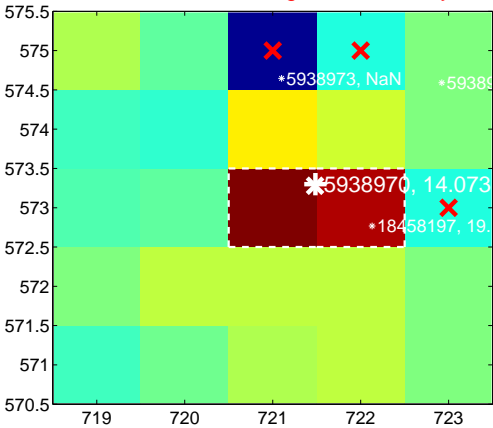
Q13 no difference image



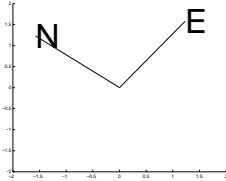
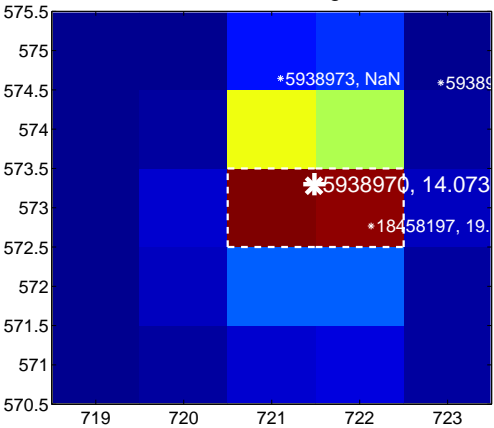
Q13 no OOT image



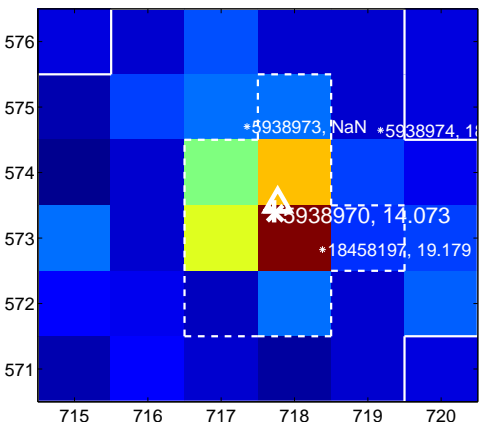
Q14 difference image. Poor Quality



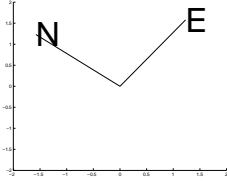
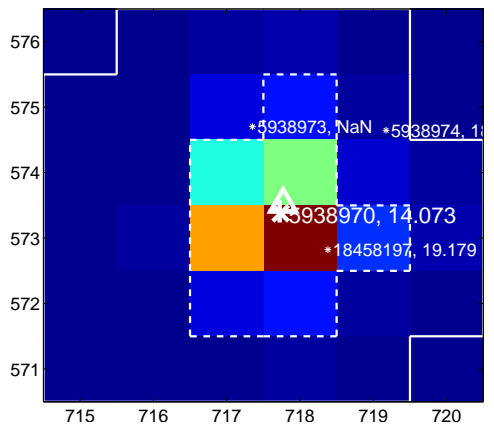
Q14 OOT image



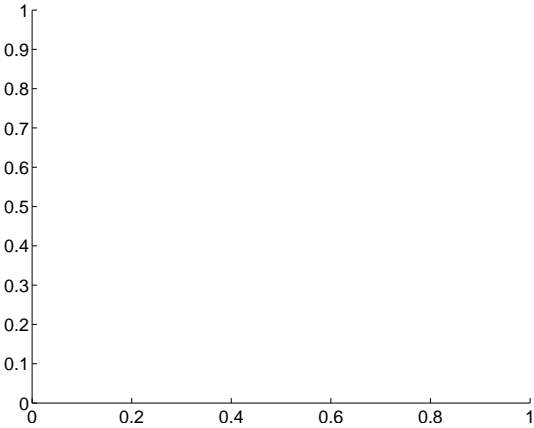
Q15 difference image



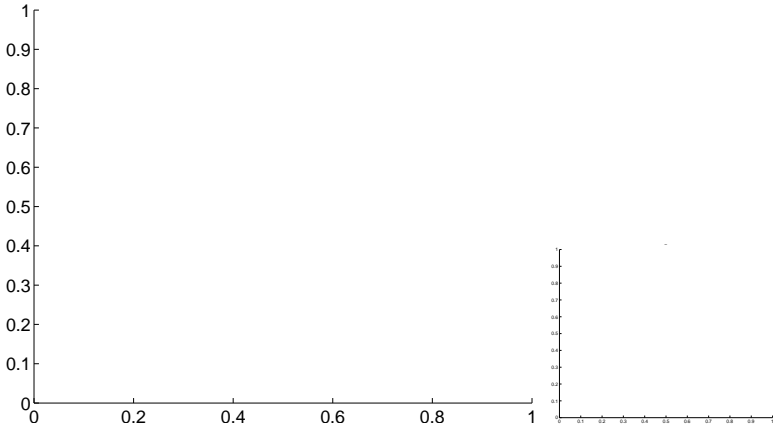
Q15 OOT image



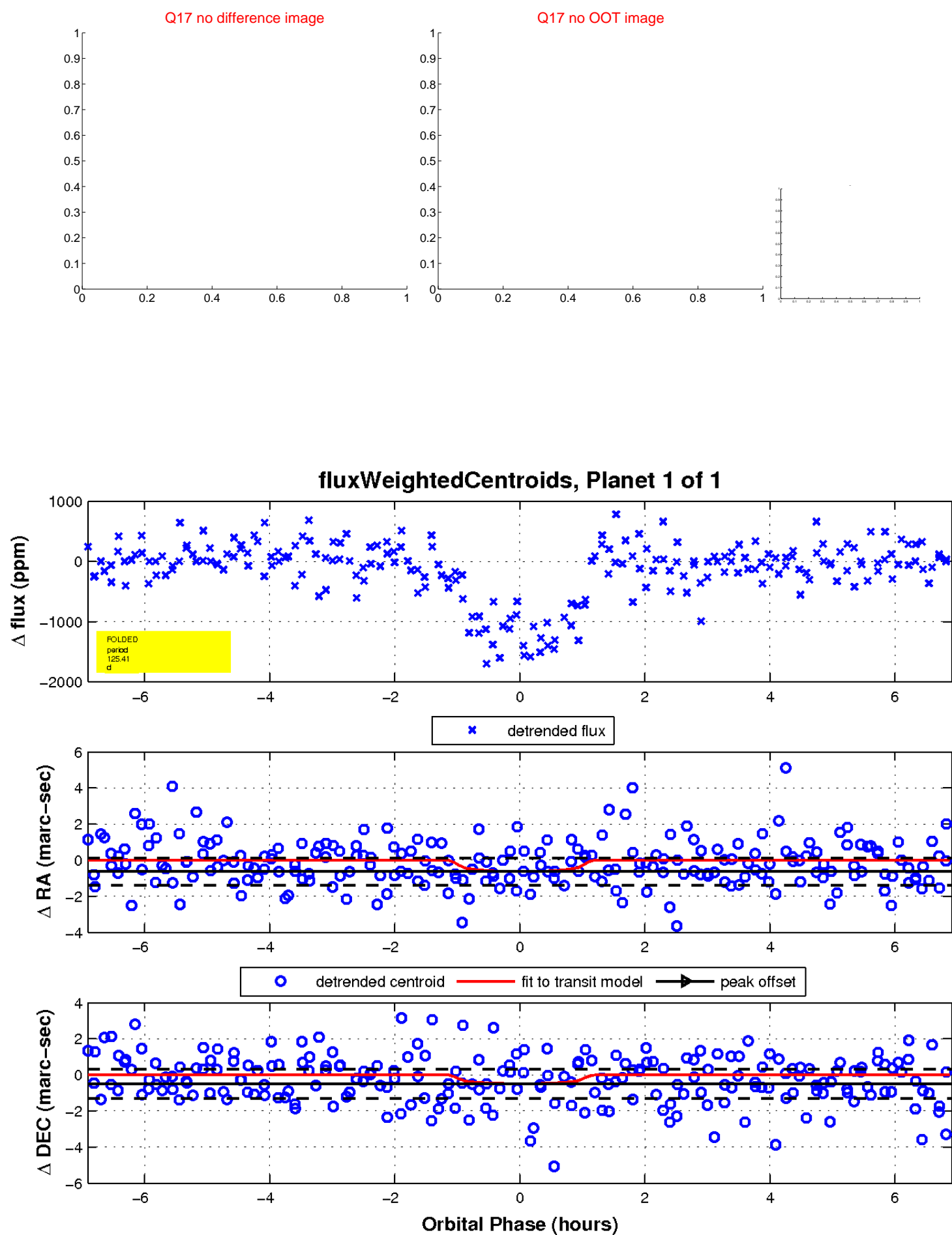
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

