

KIC 009640123

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})
009640123-01	OBS	7209.01	8.255024	135.213534	52.7	4.263	9.0	9.1	3.60	5403	3.12	1081.46

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009640123-01	OBS	PC	0.99	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.

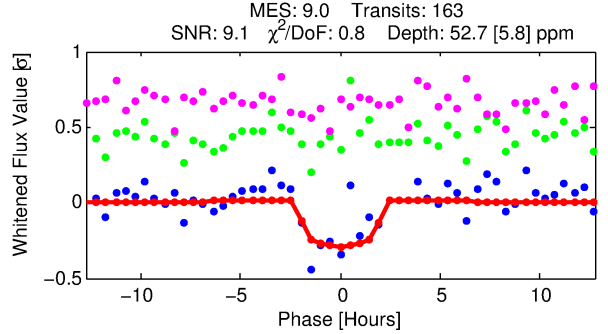
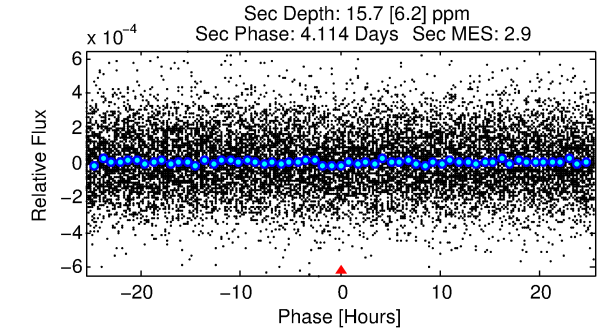
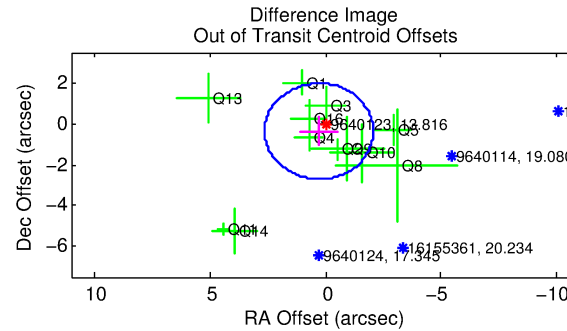
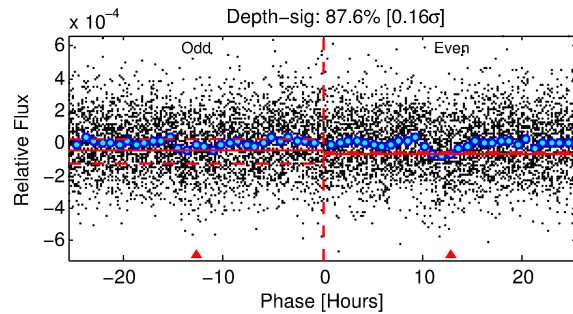
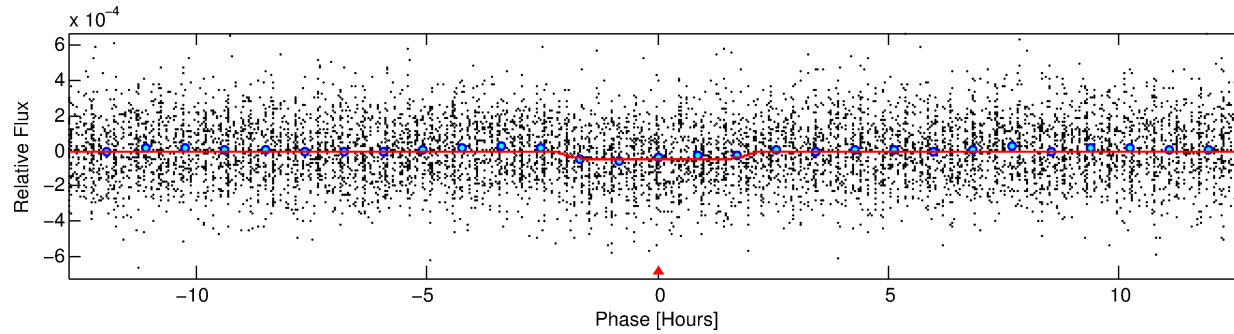
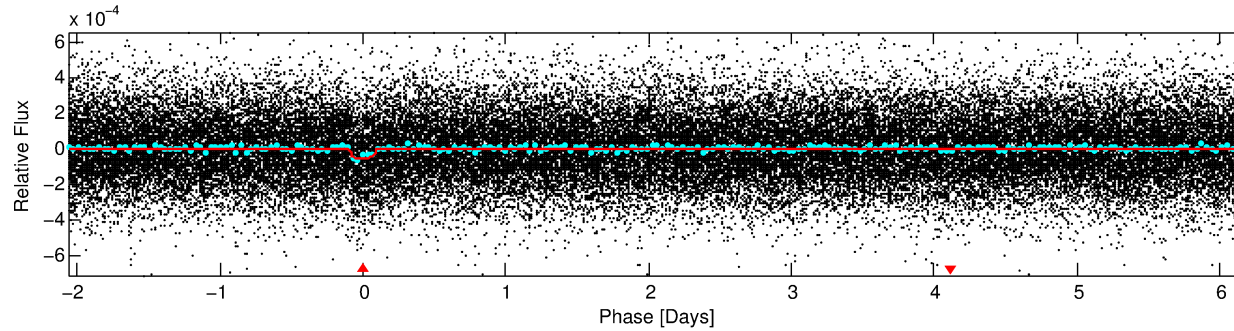
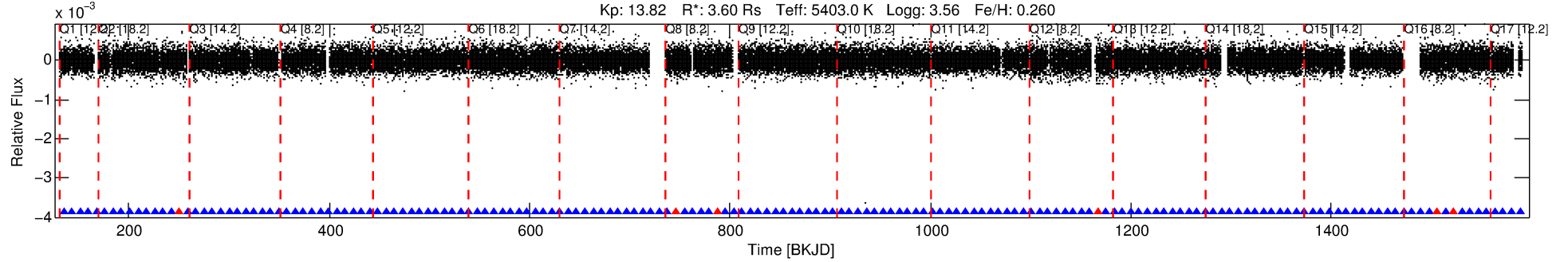
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009640123-01

No Significant Match Found

DV One-Page Summary

KIC: 9640123 Candidate: 1 of 1 Period: 8.255 d
KOI: K07209.01 Corr: 0.883



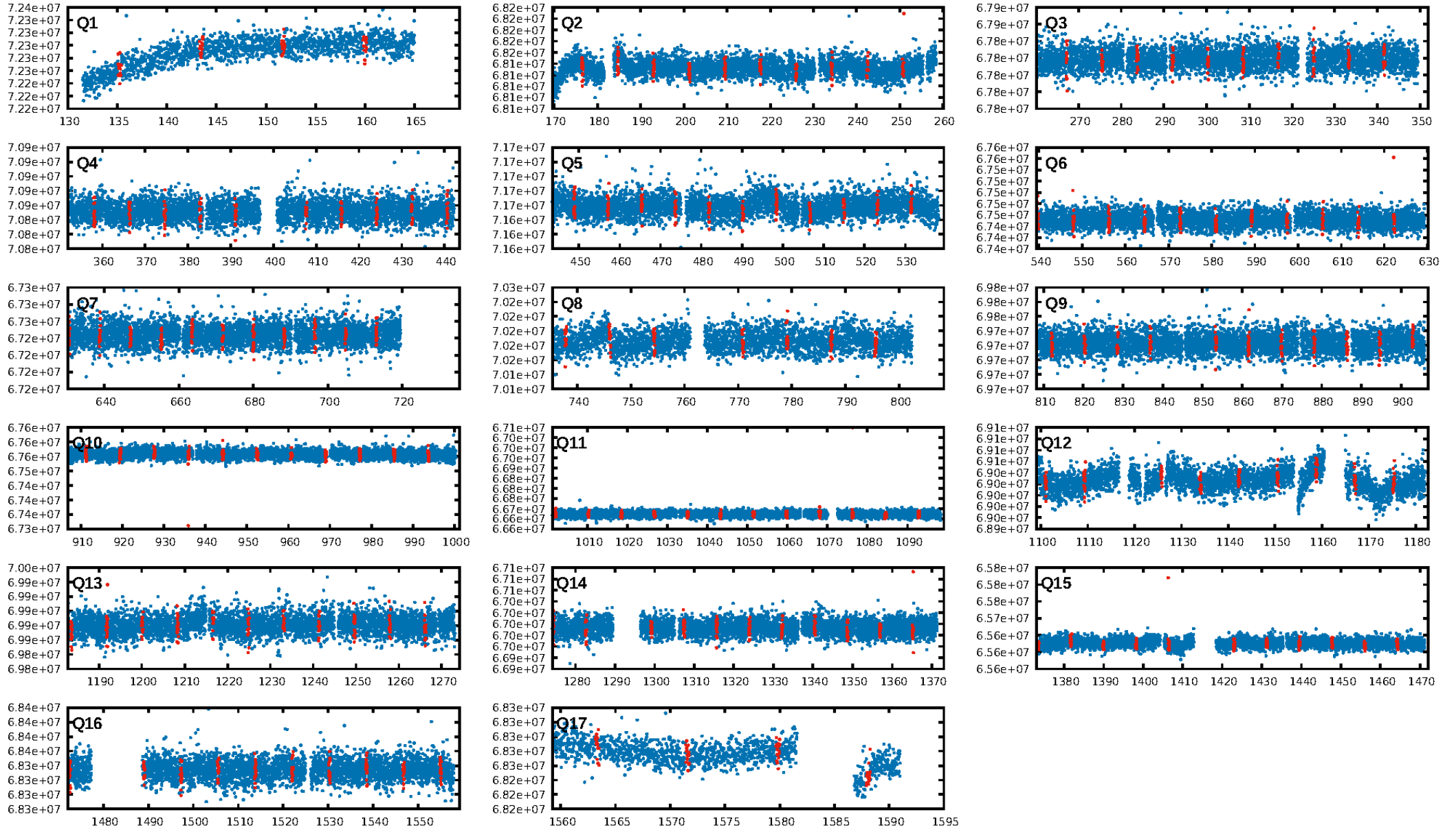
DV Fit Results:

Period = 8.25502 [0.00009] d
Epoch = 135.2135 [0.0081] BKJD
Rp/R* = 0.0079 [0.0050]
a/R* = 6.98 [18.71]
b = 0.89 [0.63]
Seff = 1081.46 [567.58]
Teq = 1462 [192] K
Rp = 3.12 [2.30] Re
a = 0.0957 [0.0327] AU
Ag = 8.13 [11.54] [0.62 σ]
Teffp = 3818 [1261] K [1.85 σ]

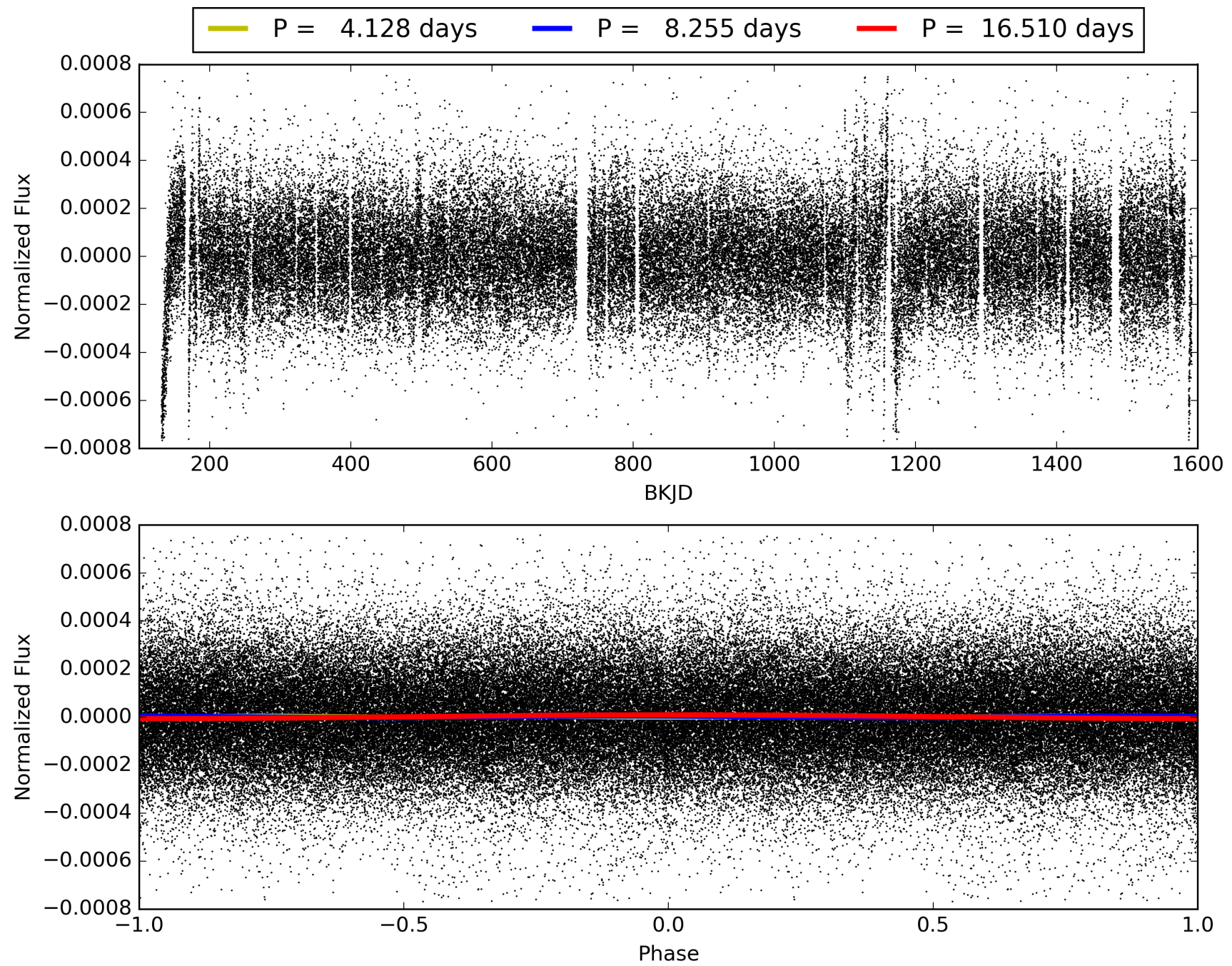
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.01e-18
RollingBand-fgt: 0.96 [149/155]
GhostDiagnostic-chr: 16.26
Centroid-sig: 77.4%
Centroid-so: 0.542 arcsec [0.37 σ]
OotOffset-rm: 0.464 arcsec [0.59 σ]
OotOffset-st: 3/2/3/4 [12]
KicOffset-rm: 0.473 arcsec [0.65 σ]
KicOffset-st: 3/2/3/4 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009640123-01, PDC Light Curves

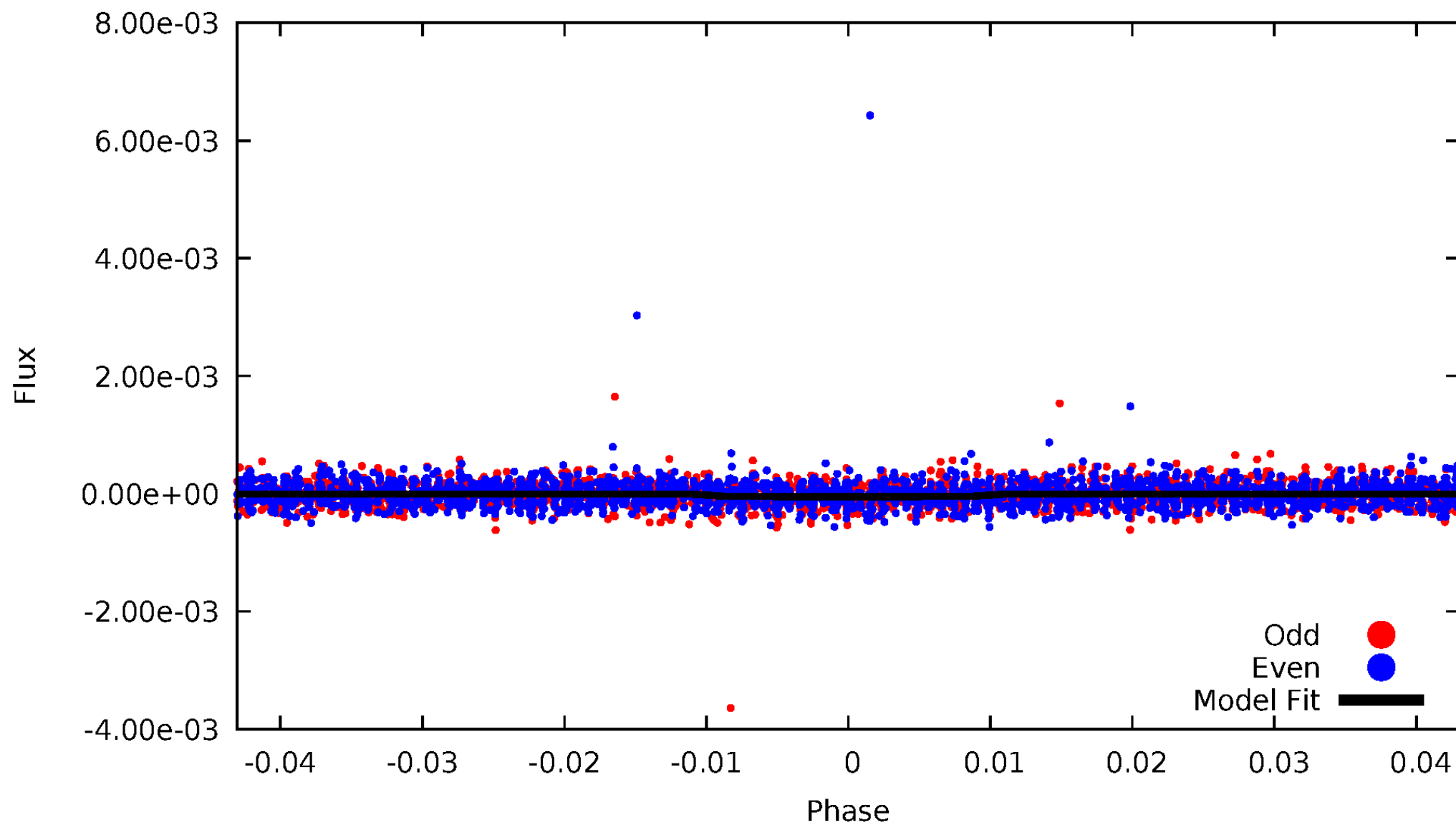


TCE 009640123-01



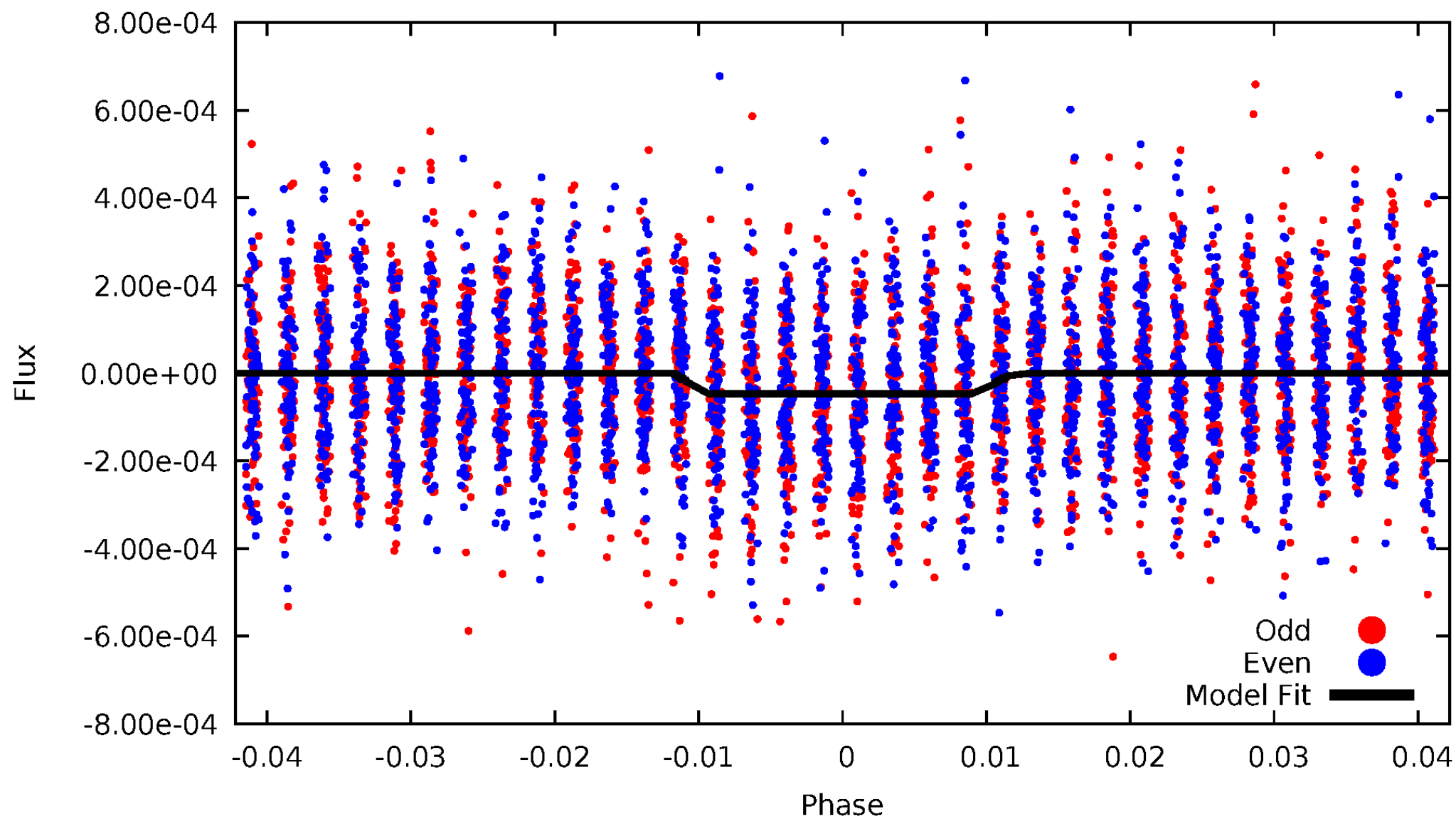
DV Odd/Even

TCE 009640123-01



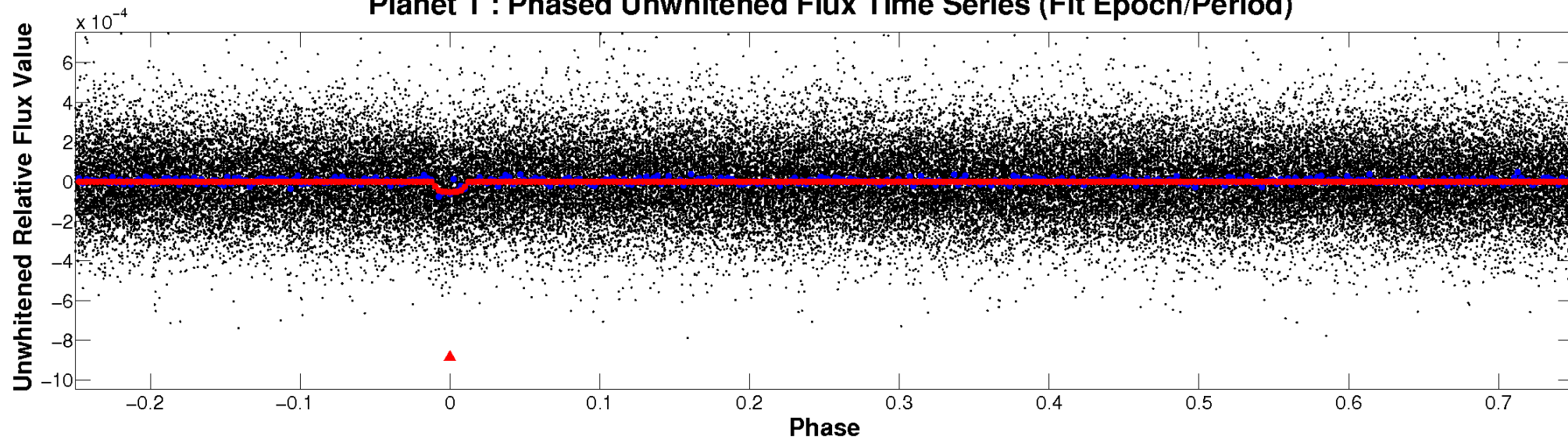
ALT Odd/Even

TCE 009640123-01

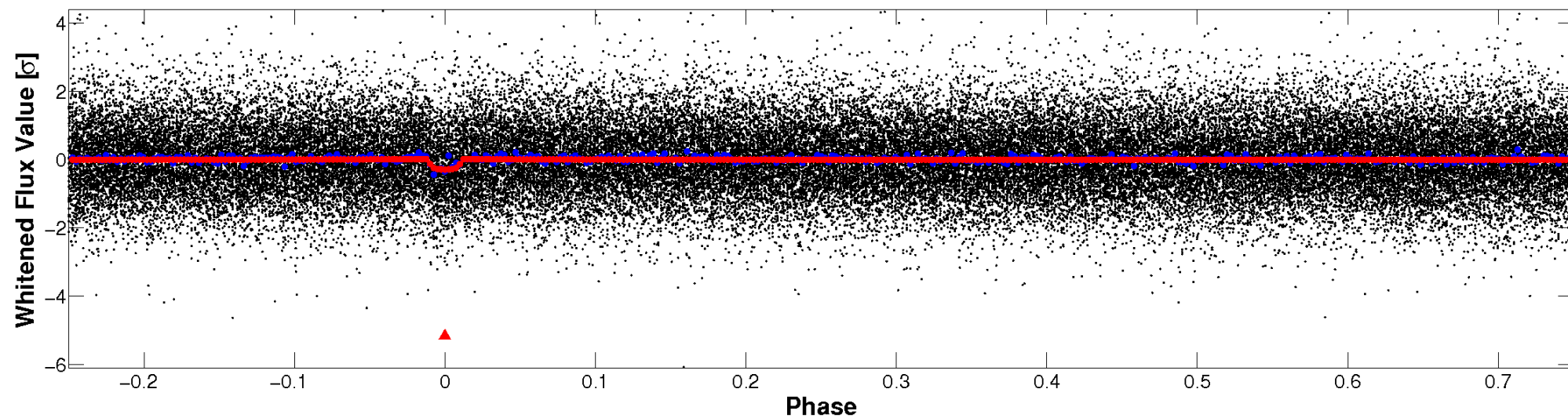


Non-Whitened Vs. Whitened Light Curve

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

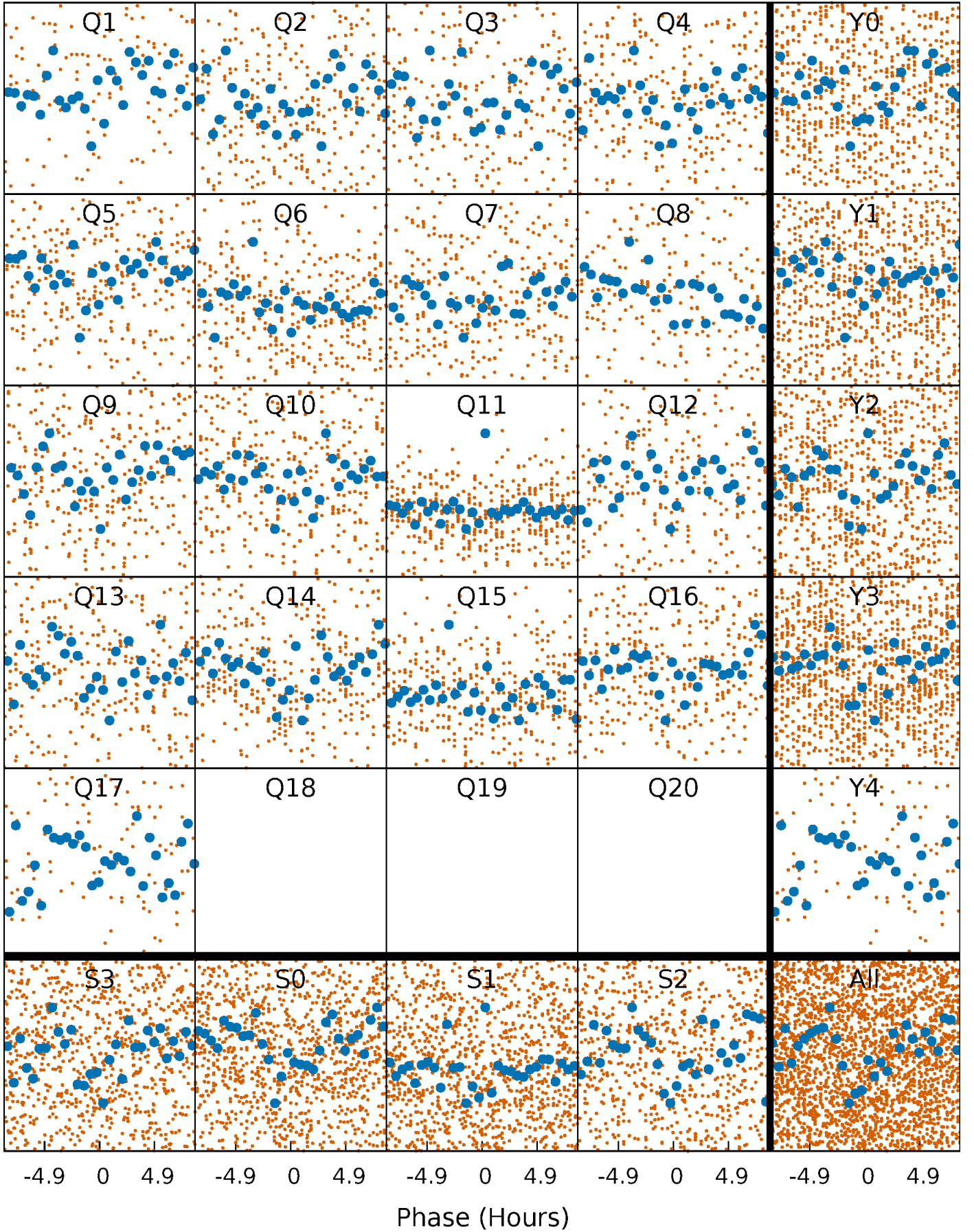


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



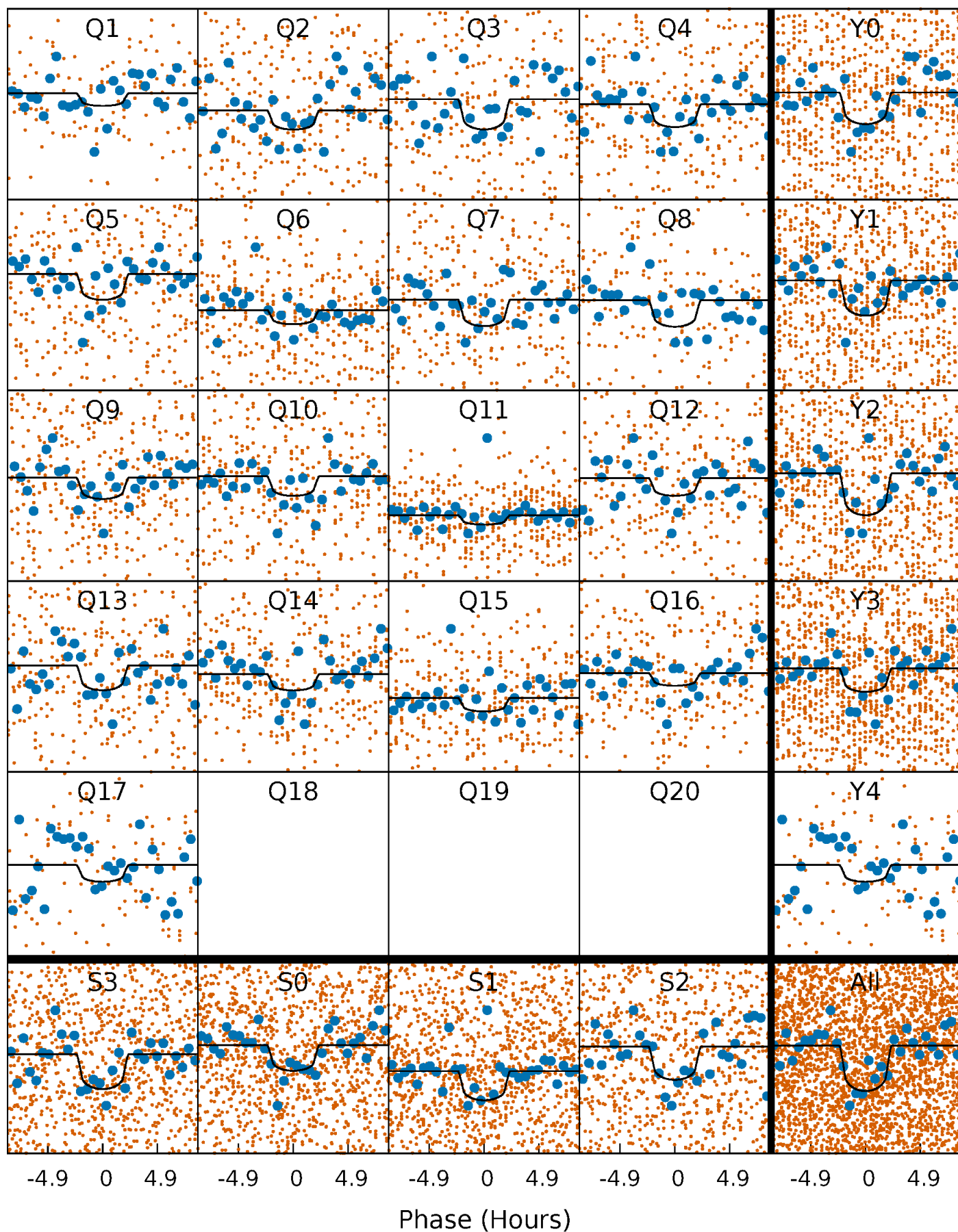
PDC Quarter-Phased Transit Curves

TCE 009640123-01 P= 8.255024 Days $T_0=135.213534$ (BKJD)



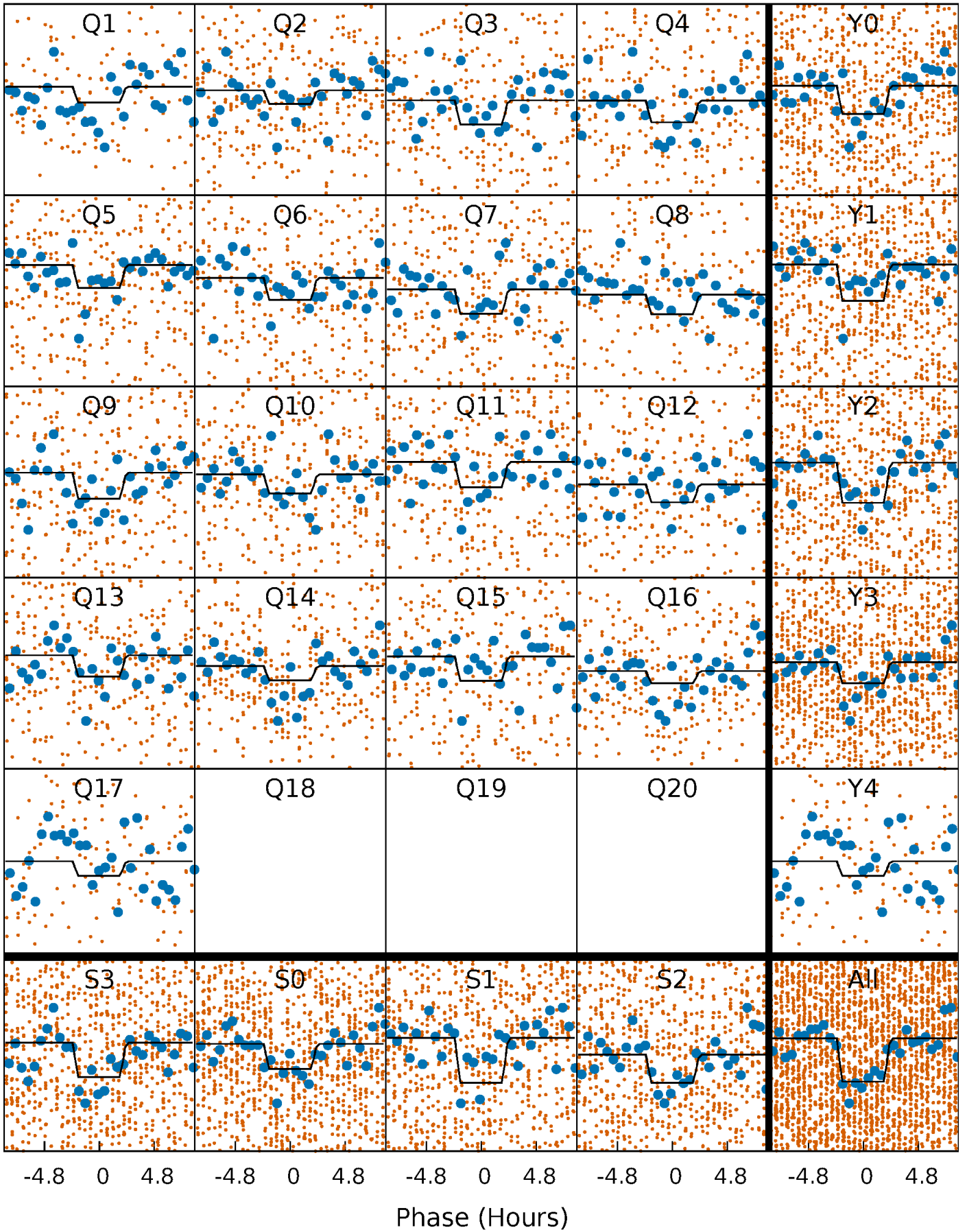
DV Quarter-Phased Transit Curves

TCE 009640123-01 P= 8.255024 Days $T_0=135.213534$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

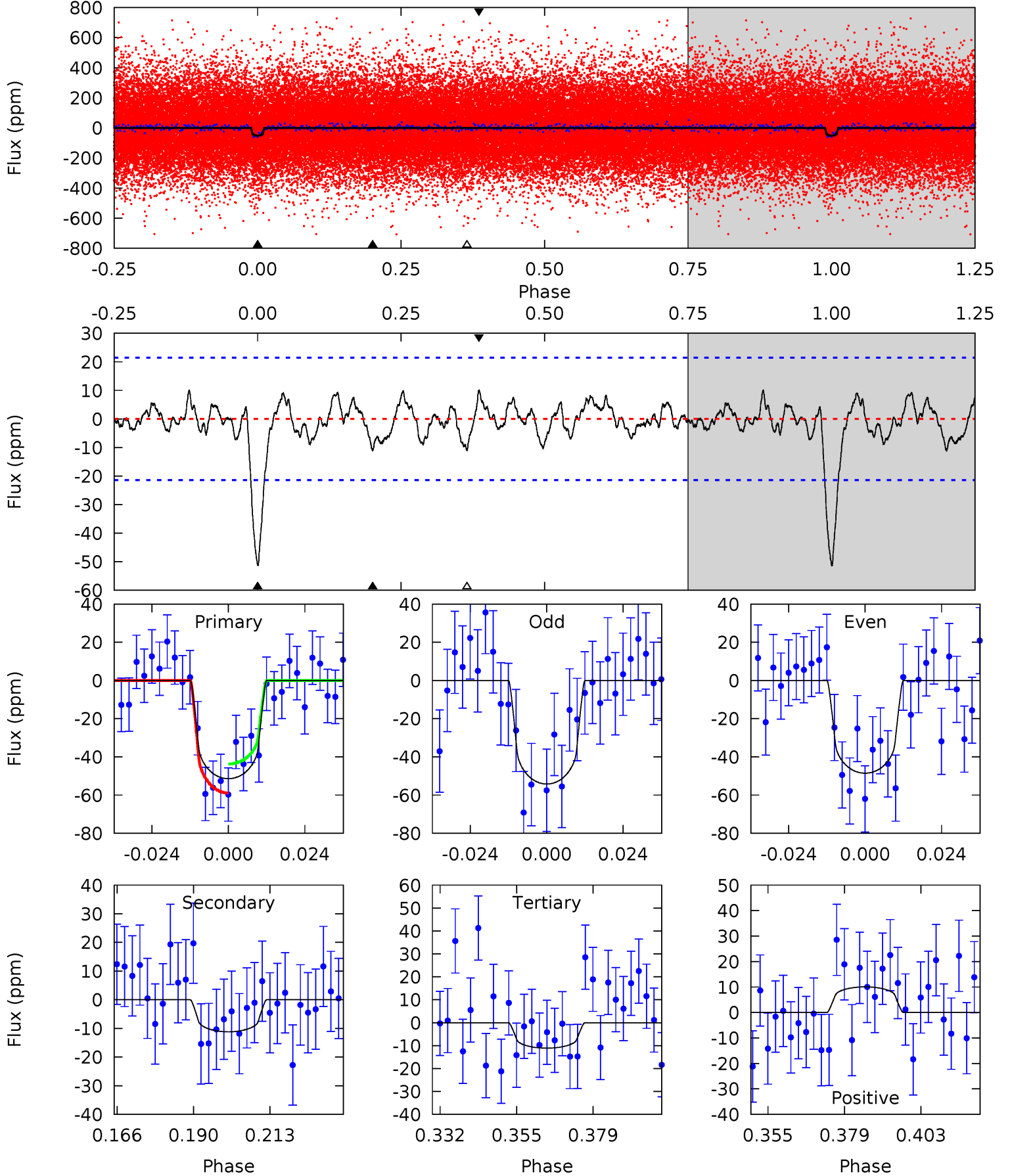
TCE 009640123-01 P= 8.255148 Days $T_0=135.203743$ (BKJD)



DV Model-Shift Uniqueness Test

009640123-01, P = 8.255024 Days, E = 126.958510 Days

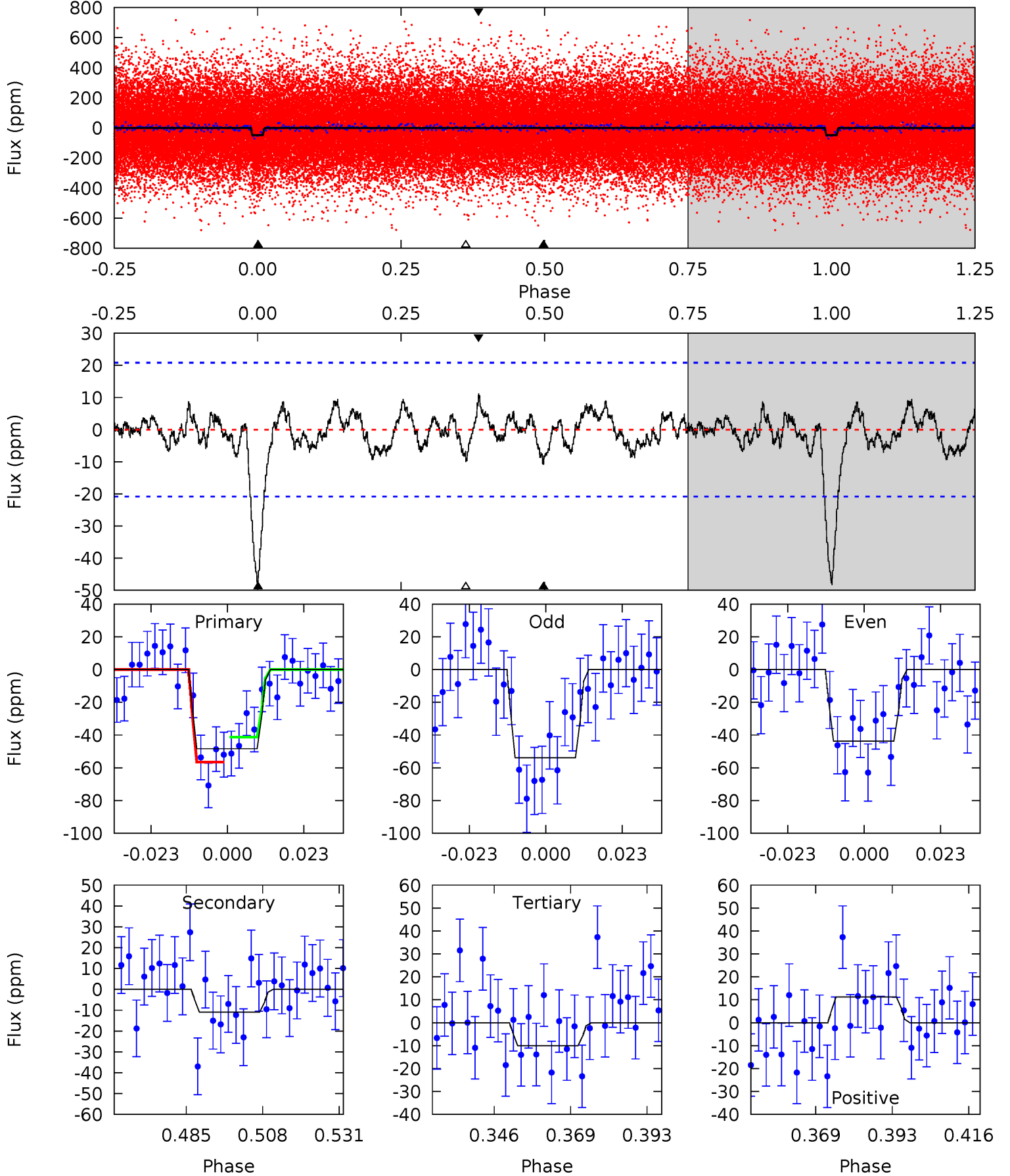
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	2.53	2.51	2.28	4.86	2.26	0.96	9.13	9.37	0.02	0.26	0.64	1.02	0.16	1.73



Alt Model-Shift Uniqueness Test

009640123-01, P = 8.255148 Days, E = 126.948595 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	2.55	2.34	2.63	4.86	2.27	0.95	8.94	8.65	0.21	-0.08	1.19	1.09	0.19	1.77



Stellar Parameters For KIC 009640123

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5403^{+86}_{-75}	$3.559^{+0.296}_{-0.111}$	$0.260^{+0.150}_{-0.150}$	$3.600^{+0.590}_{-1.376}$	$1.714^{+0.155}_{-0.466}$	$0.052^{+0.109}_{-0.018}$
	+2%/-1%	+8%/-3%	+58%/-58%	+16%/-38%	+9%/-27%	+211%/-34%
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 009640123-01 / KOI 7209.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11±4	$3.05^{+1.93}_{-1.58}$	2023^{+116}_{-168}	3703^{+1362}_{-610}	$5.225^{+19.903}_{-3.454}$
Alt.	-11±4	$2.66^{+1.91}_{-1.52}$	2025^{+109}_{-191}	3922^{+1531}_{-730}	$7.266^{+32.860}_{-5.194}$

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

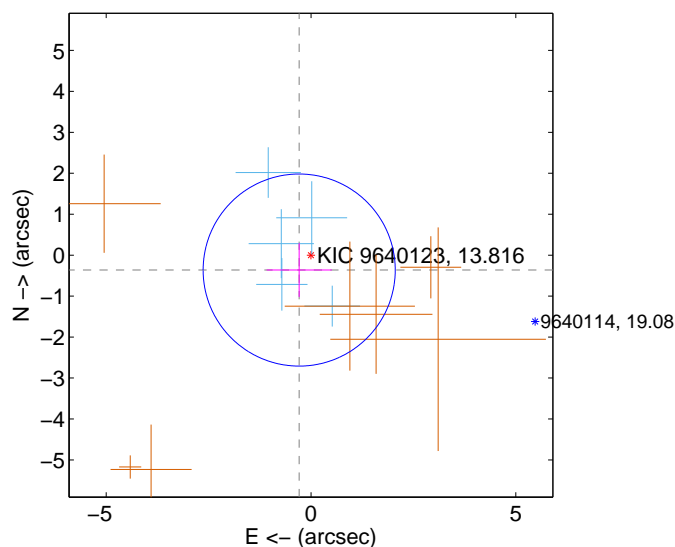
Supplemental centroid analysis for 009640123-01. Kepler magnitude: 13.82. Transit SNR 9.11

There are 5 quarters with good PRF difference image offsets

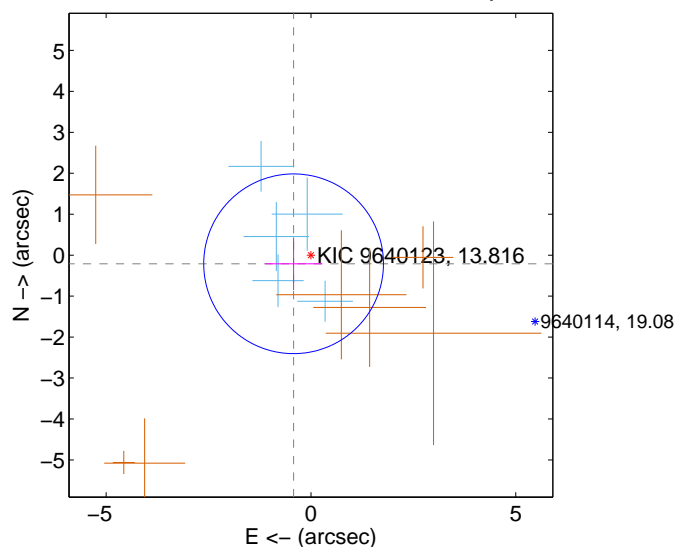
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.464 ± 0.782	0.59	0.289 ± 0.796	-0.363 ± 0.655
PRF-fit source offset from KIC position	0.473 ± 0.731	0.65	0.424 ± 0.700	-0.210 ± 0.643
photometric centroid source offset	0.54 ± 1.46	0.37	-0.42 ± 1.49	-0.34 ± 1.42

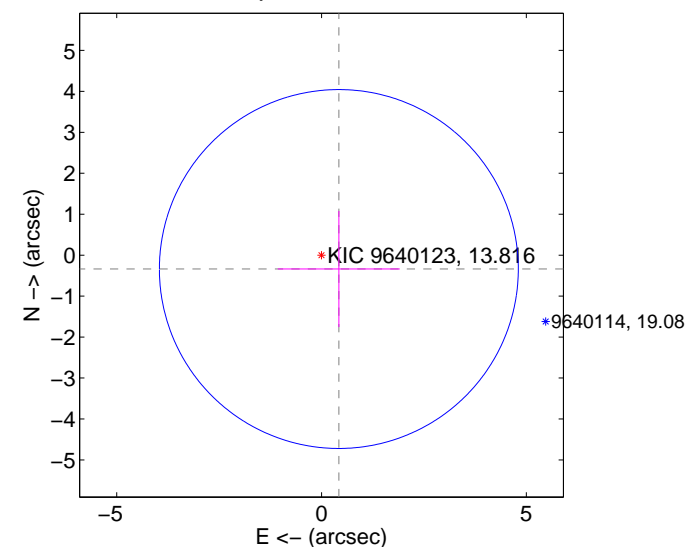
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

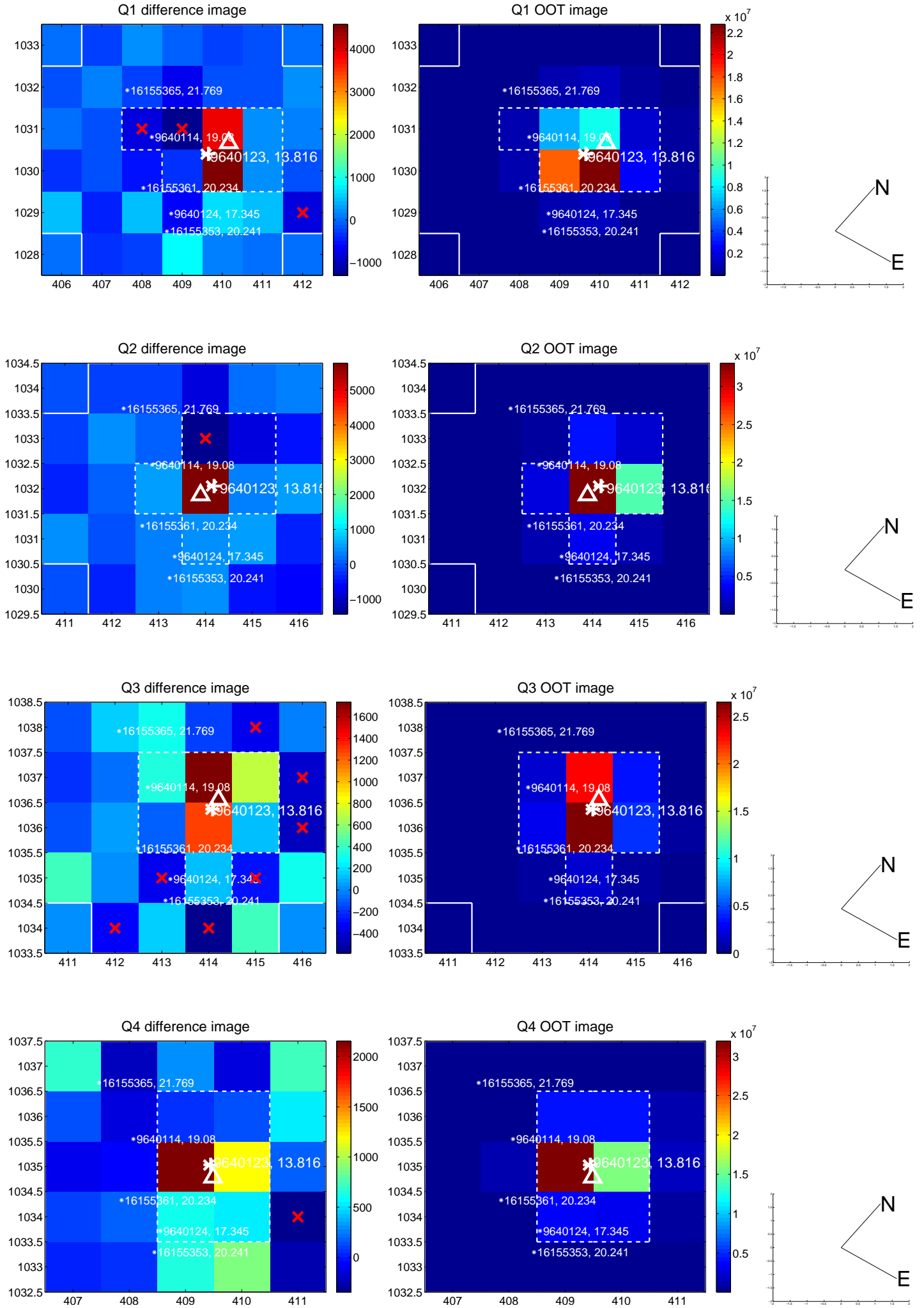


offset from photometric centroids

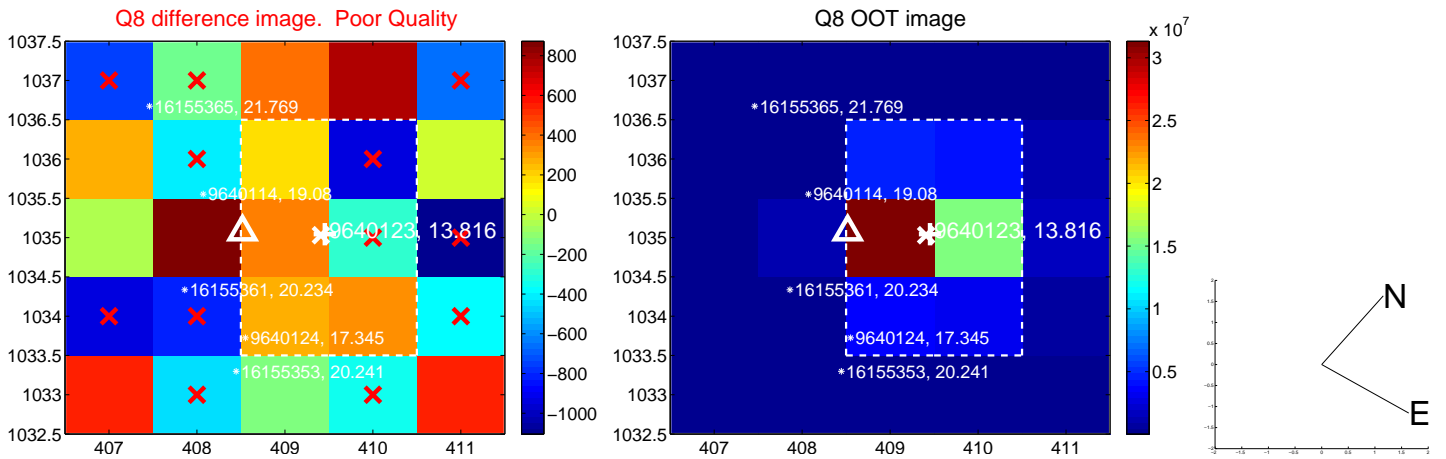
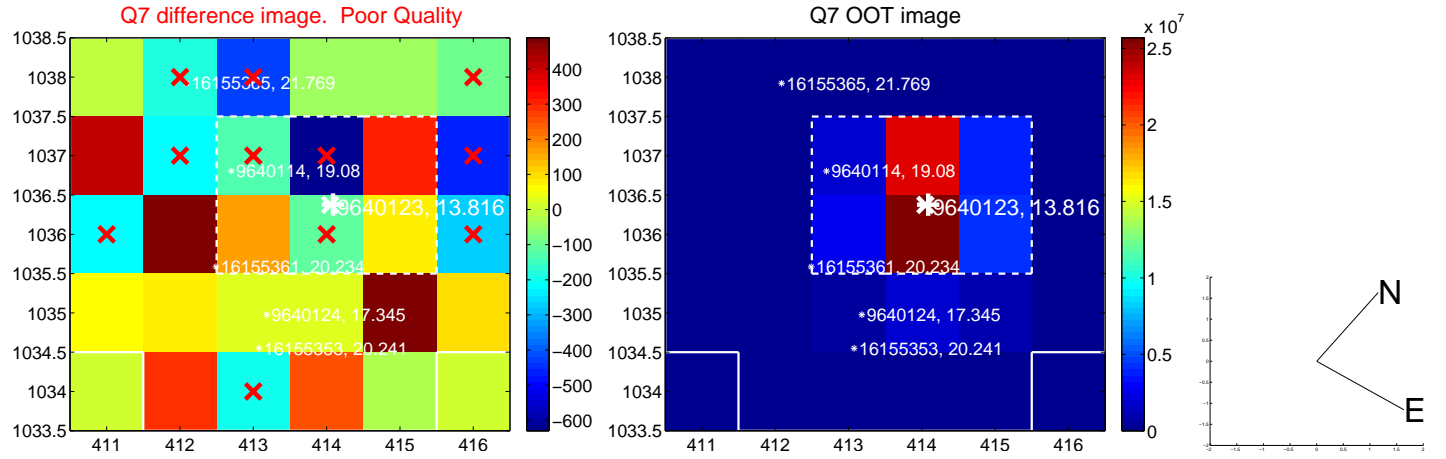
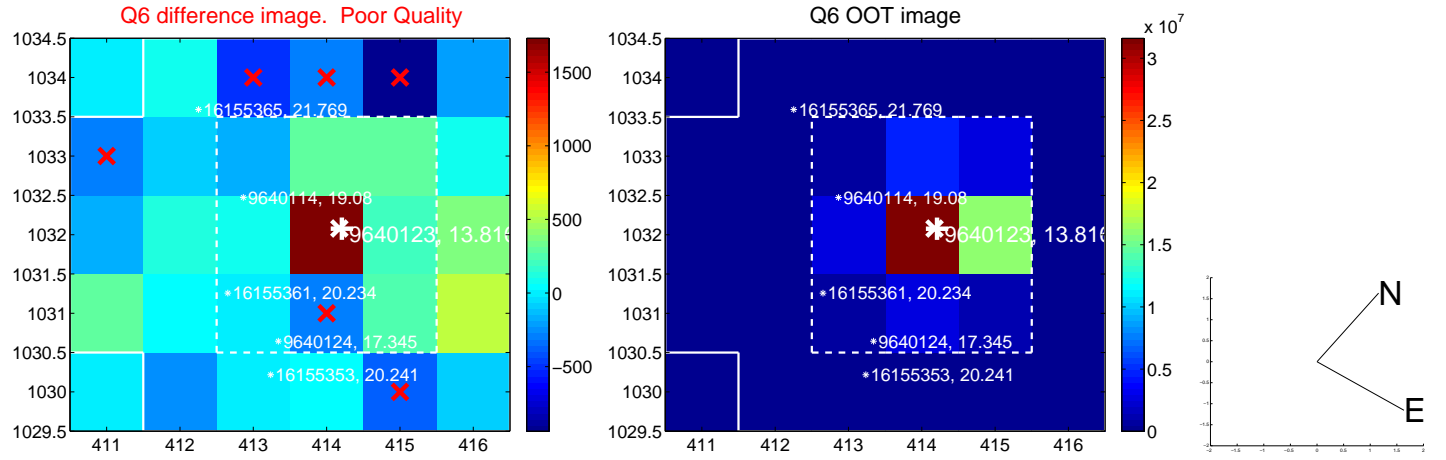
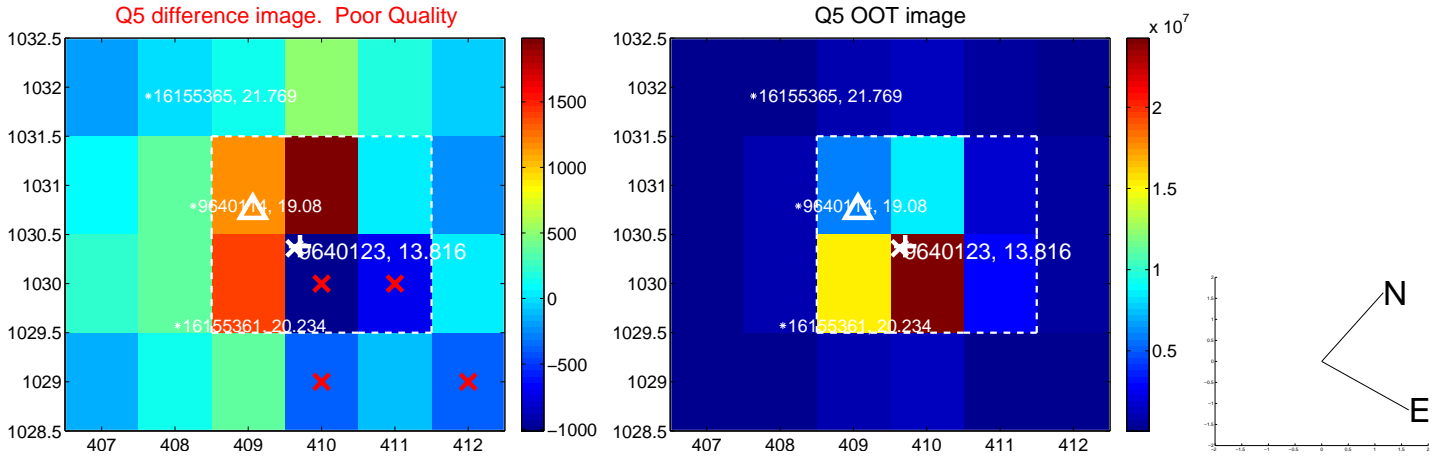


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

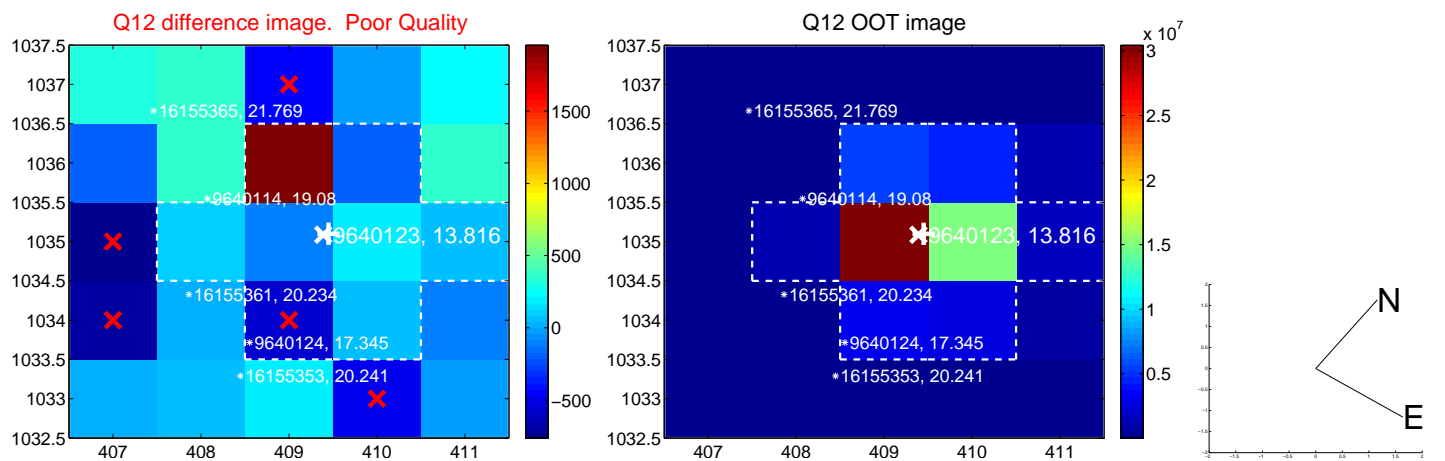
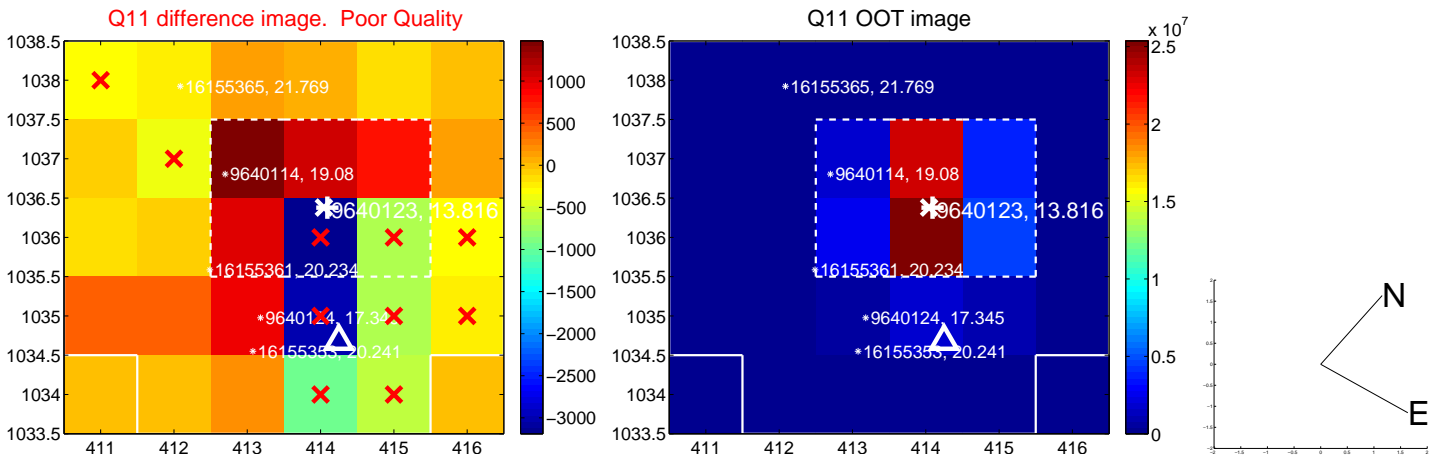
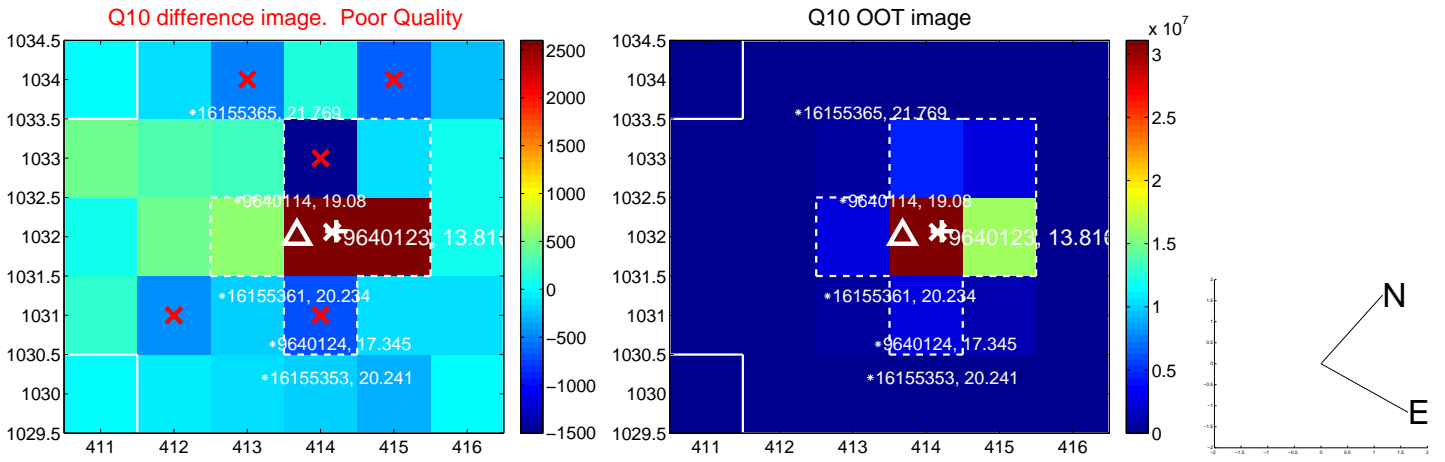
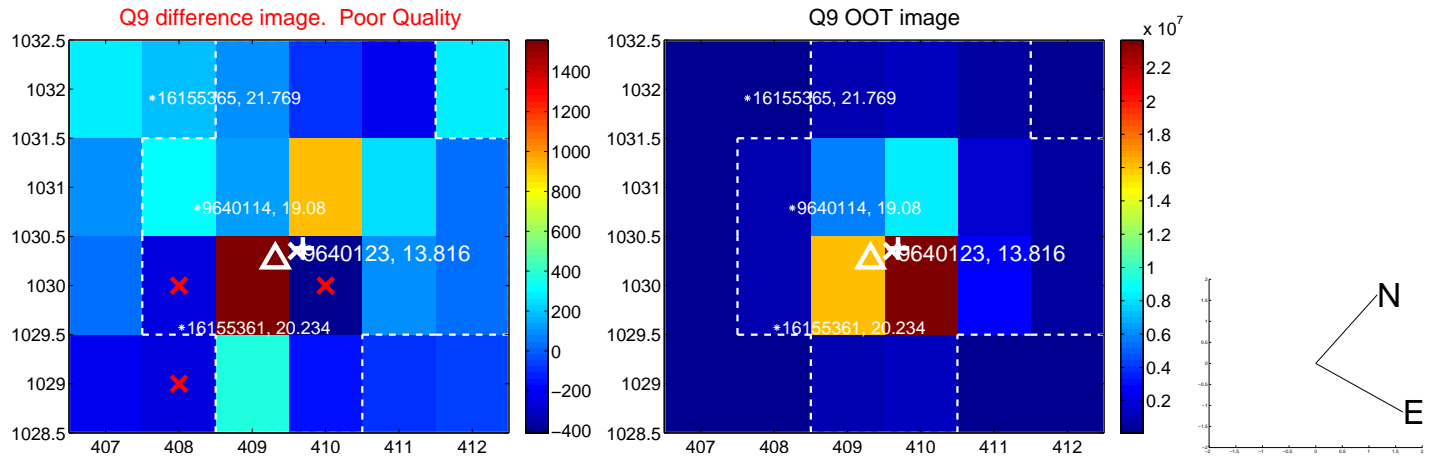
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



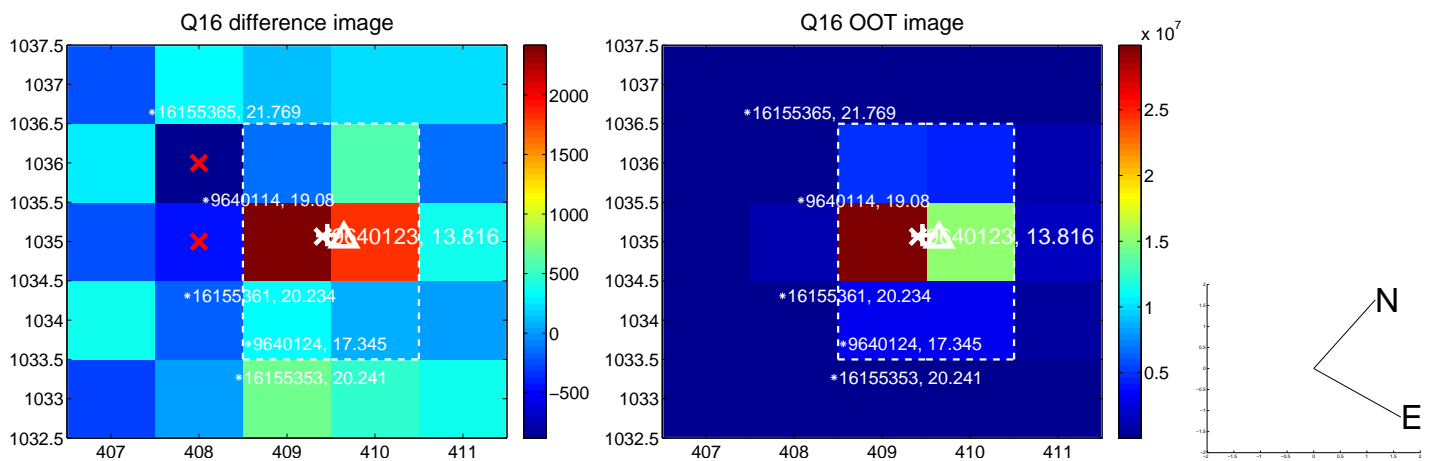
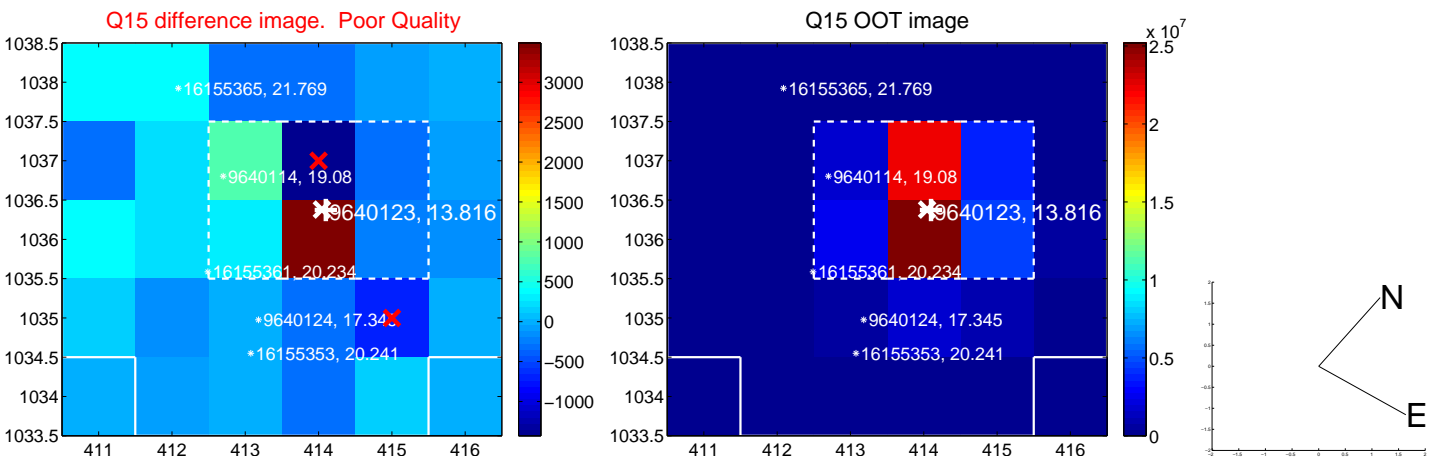
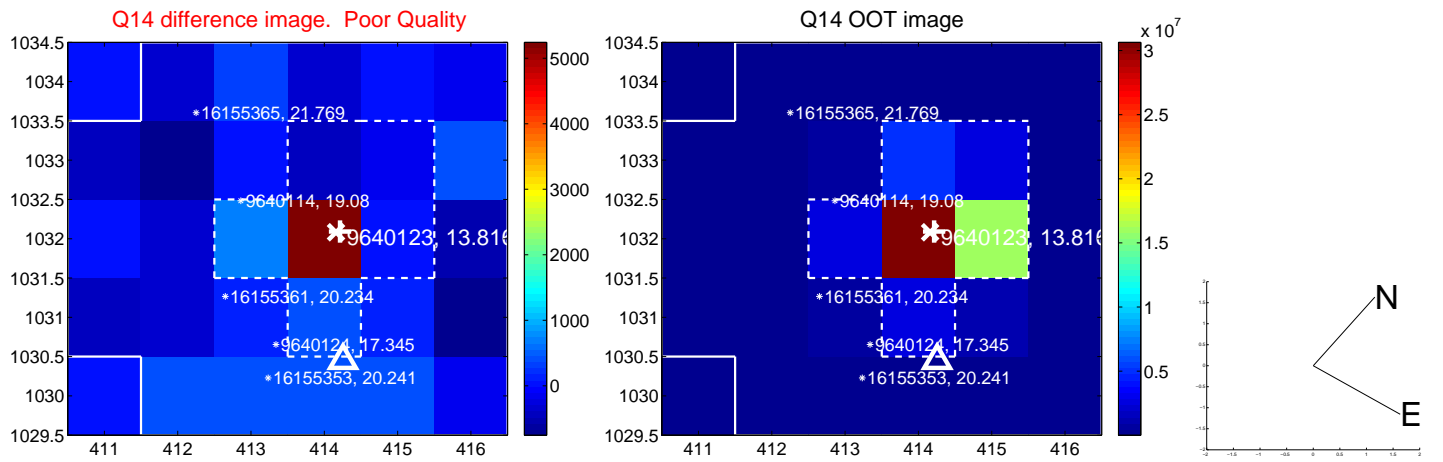
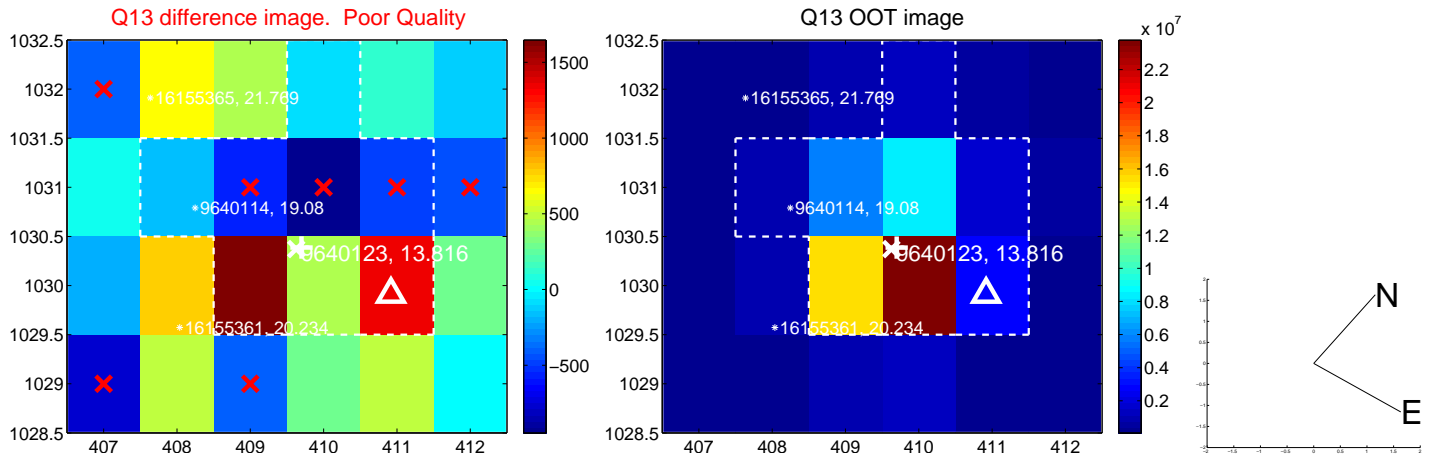
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



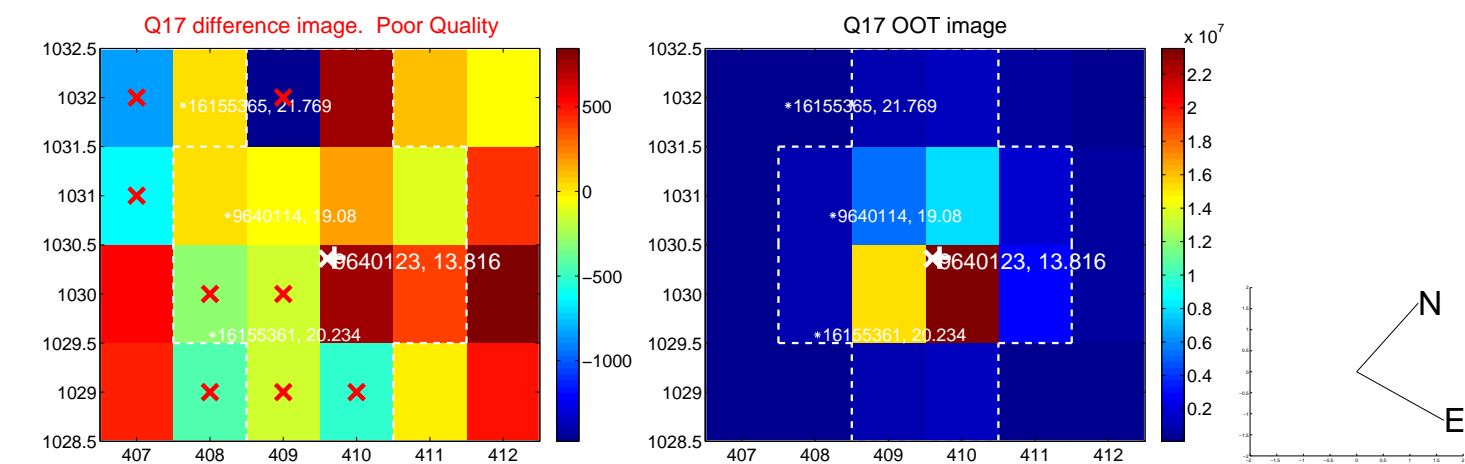
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



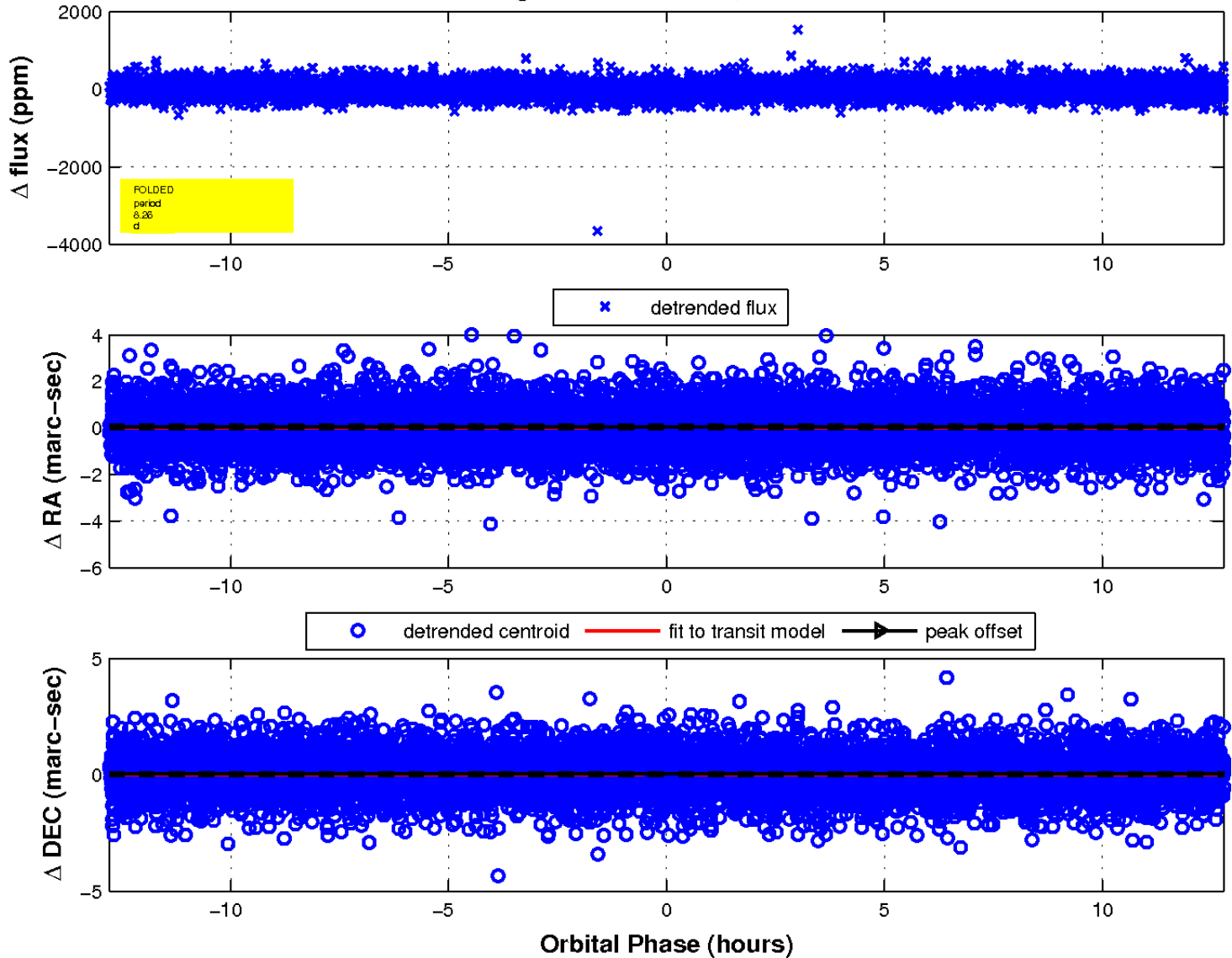
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

