

KIC 012459913

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})
012459913-01	OBS	0602.01	12.913823	138.535646	482.4	5.452	35.5	38.3	1.00	6253	2.52	122.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012459913-01	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.

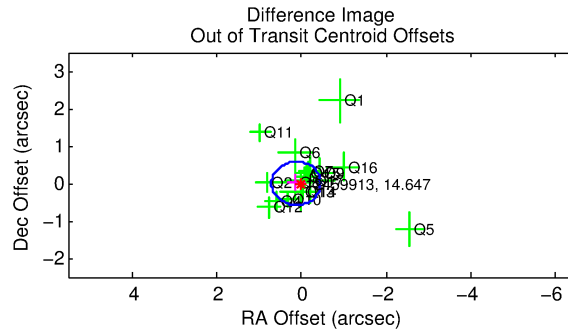
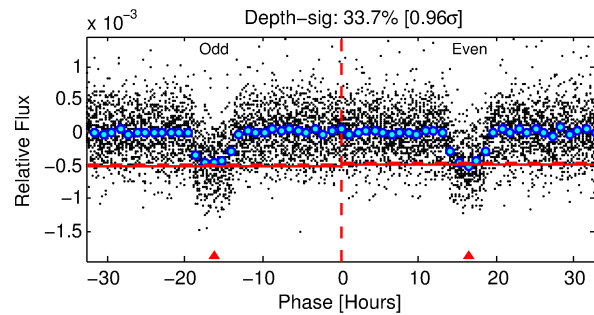
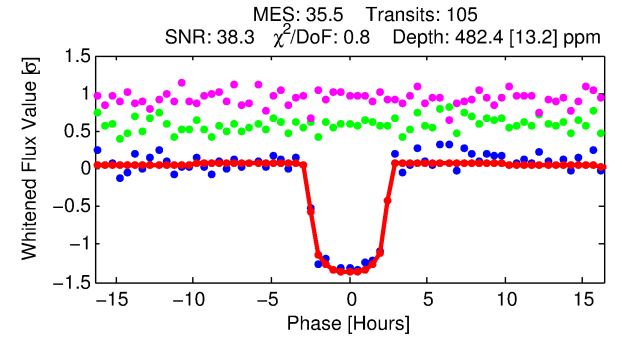
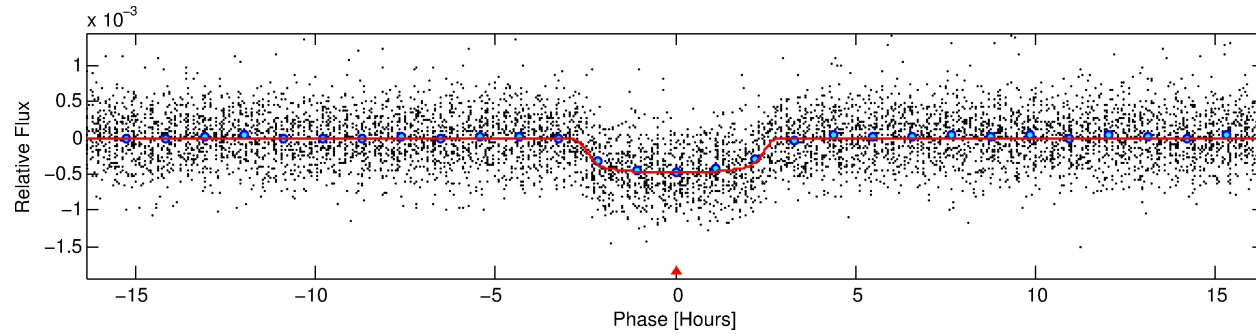
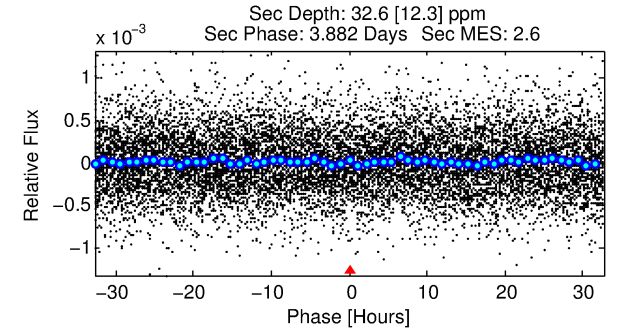
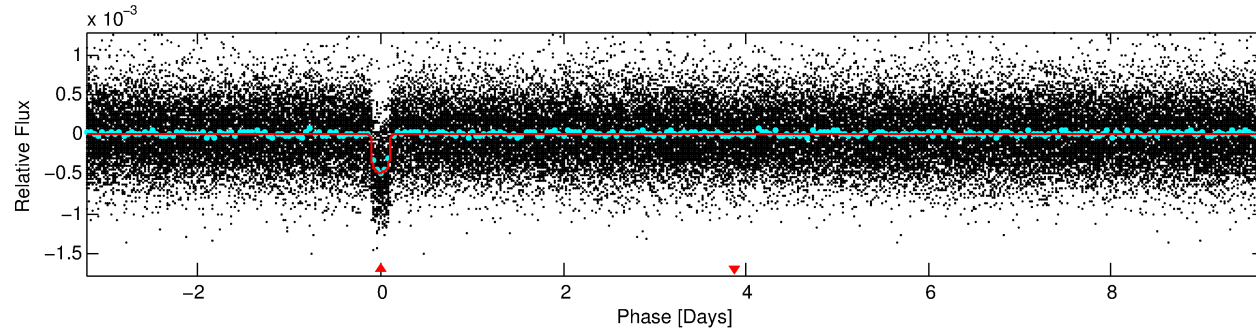
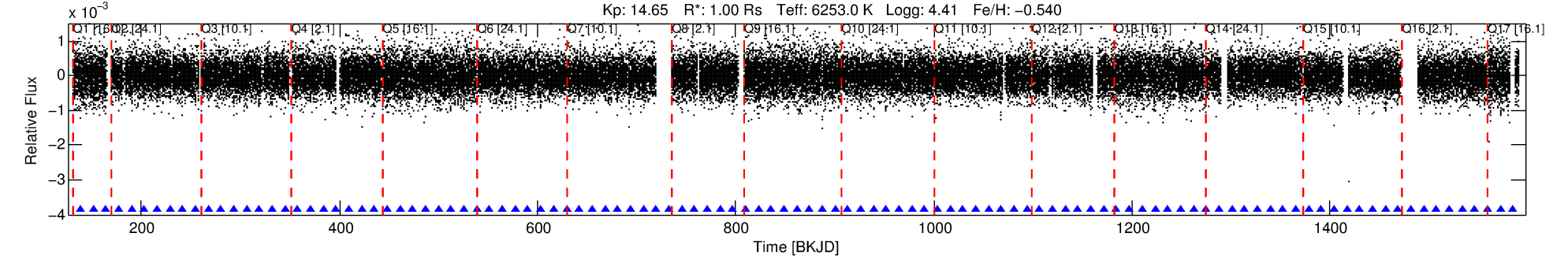
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012459913-01

No Significant Match Found

DV One-Page Summary

KIC: 12459913 Candidate: 1 of 1 Period: 12.914 d
KOI: K00602.01 Corr: 0.950



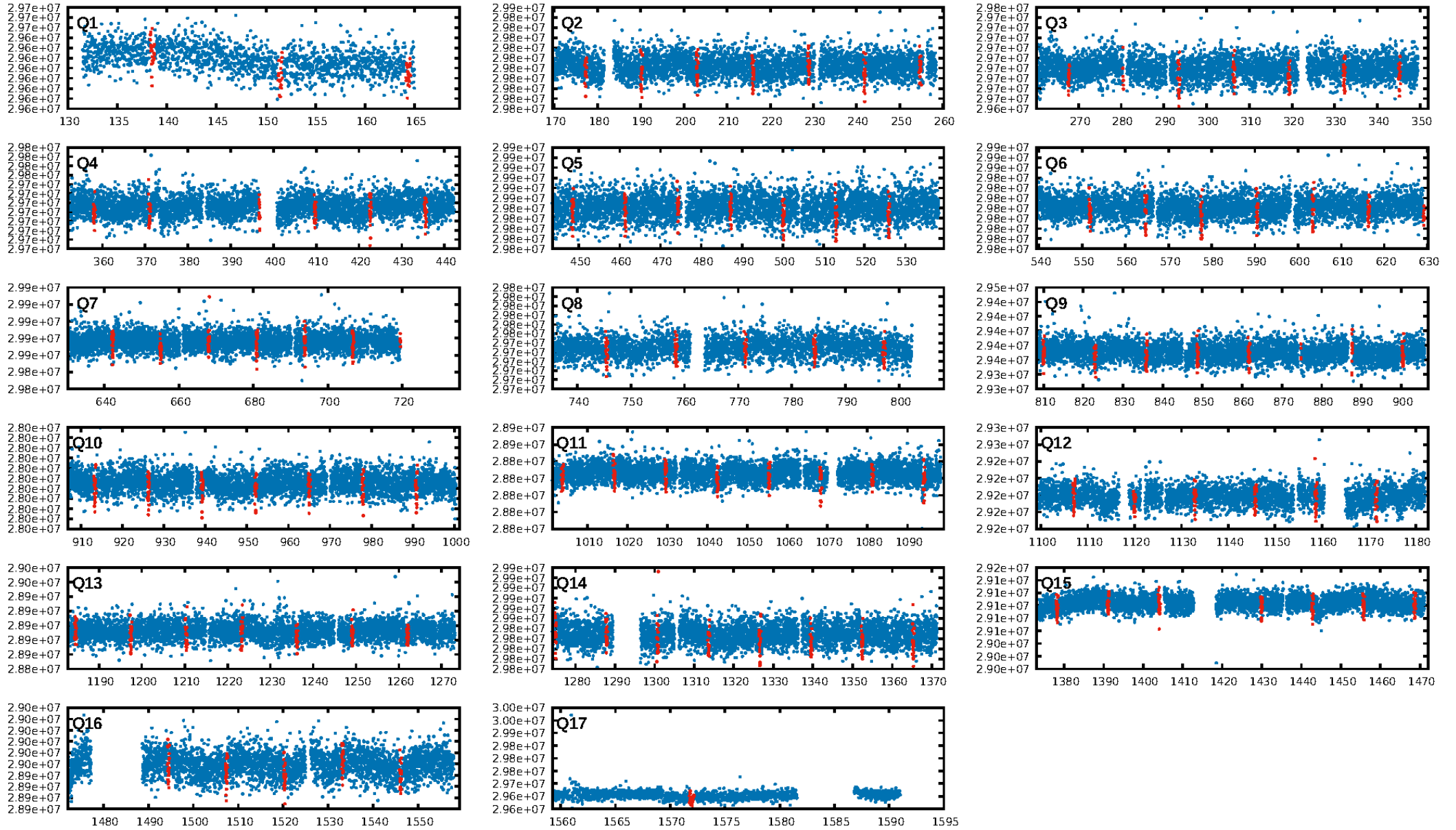
DV Fit Results:

Period = 12.91382 [0.00005] d
Epoch = 138.5356 [0.0030] BKJD
Rp/R* = 0.0231 [0.0013]
a/R* = 9.61 [2.90]
b = 0.88 [0.08]
Seff = 122.92 [46.00]
Teff = 849 [79] K
Rp = 2.52 [0.70] Re
a = 0.1052 [0.0248] AU
Ag = 31.42 [16.56] [1.84σ]
Teffp = 3108 [323] K [6.79σ]

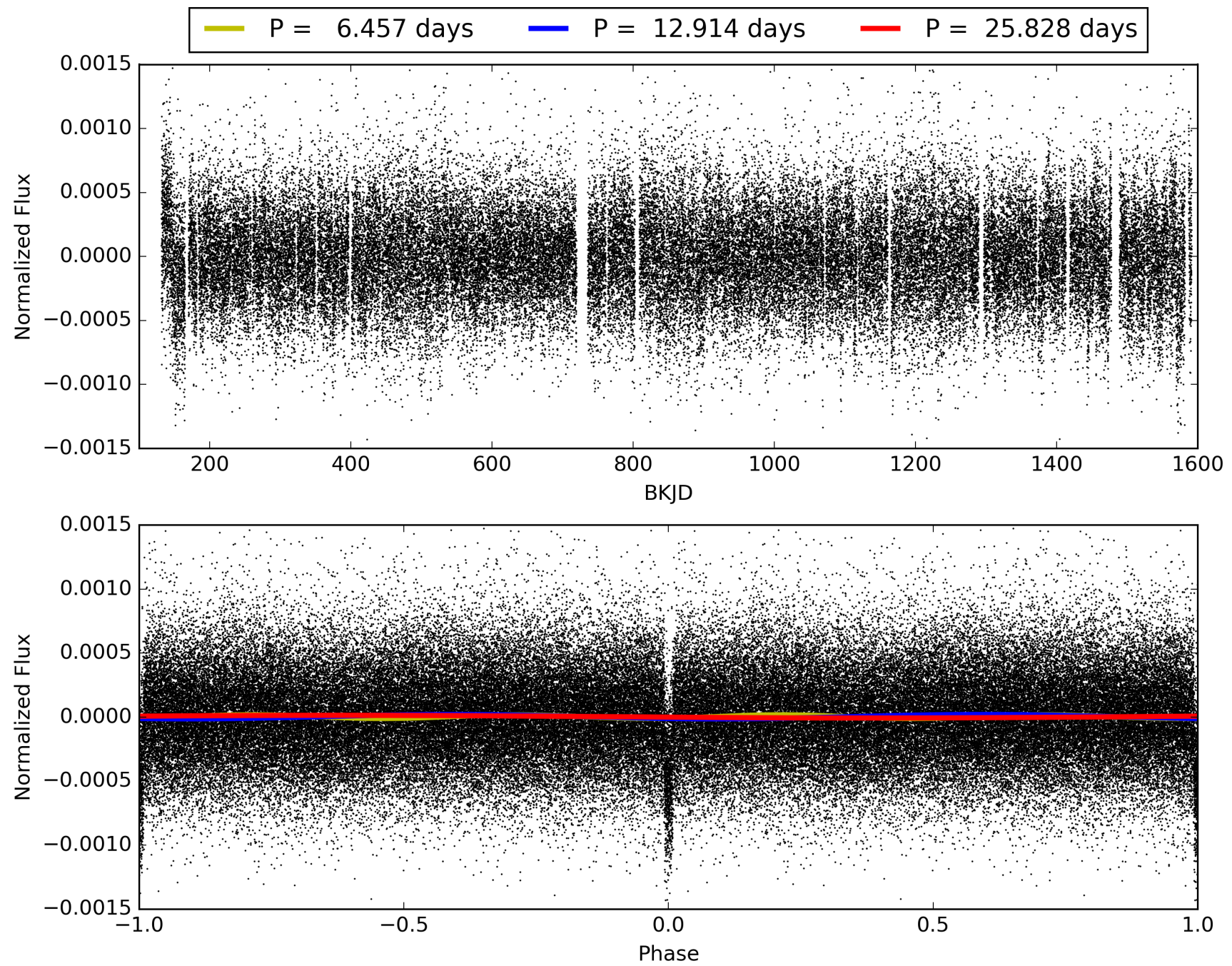
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 29.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.04e-262
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: 5.554
Centroid-sig: 74.7%
Centroid-so: 0.218 arcsec [0.65σ]
OotOffset-rm: 0.122 arcsec [0.63σ]
KicOffset-rm: 0.098 arcsec [0.51σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012459913-01, PDC Light Curves

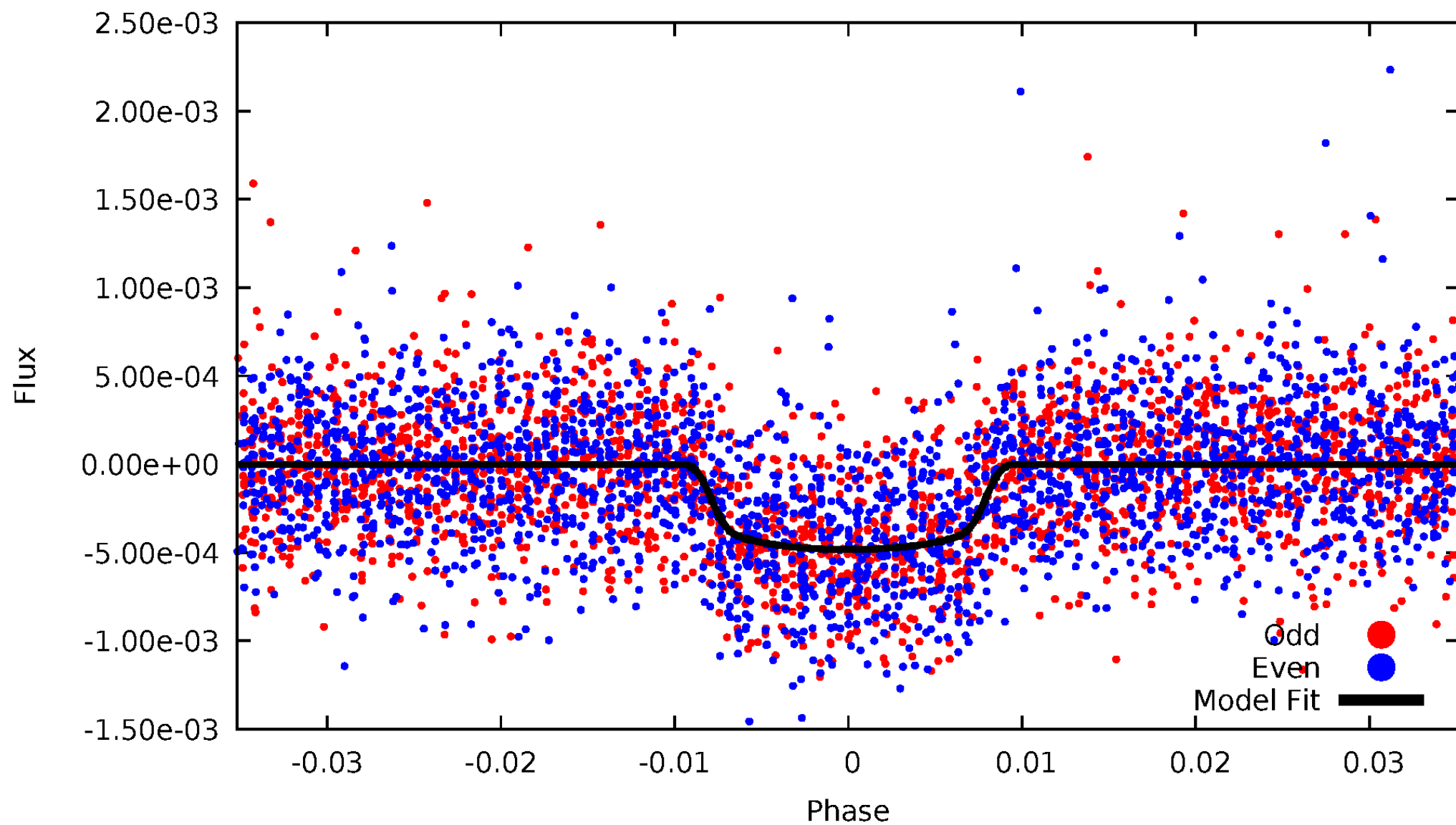


TCE 012459913-01



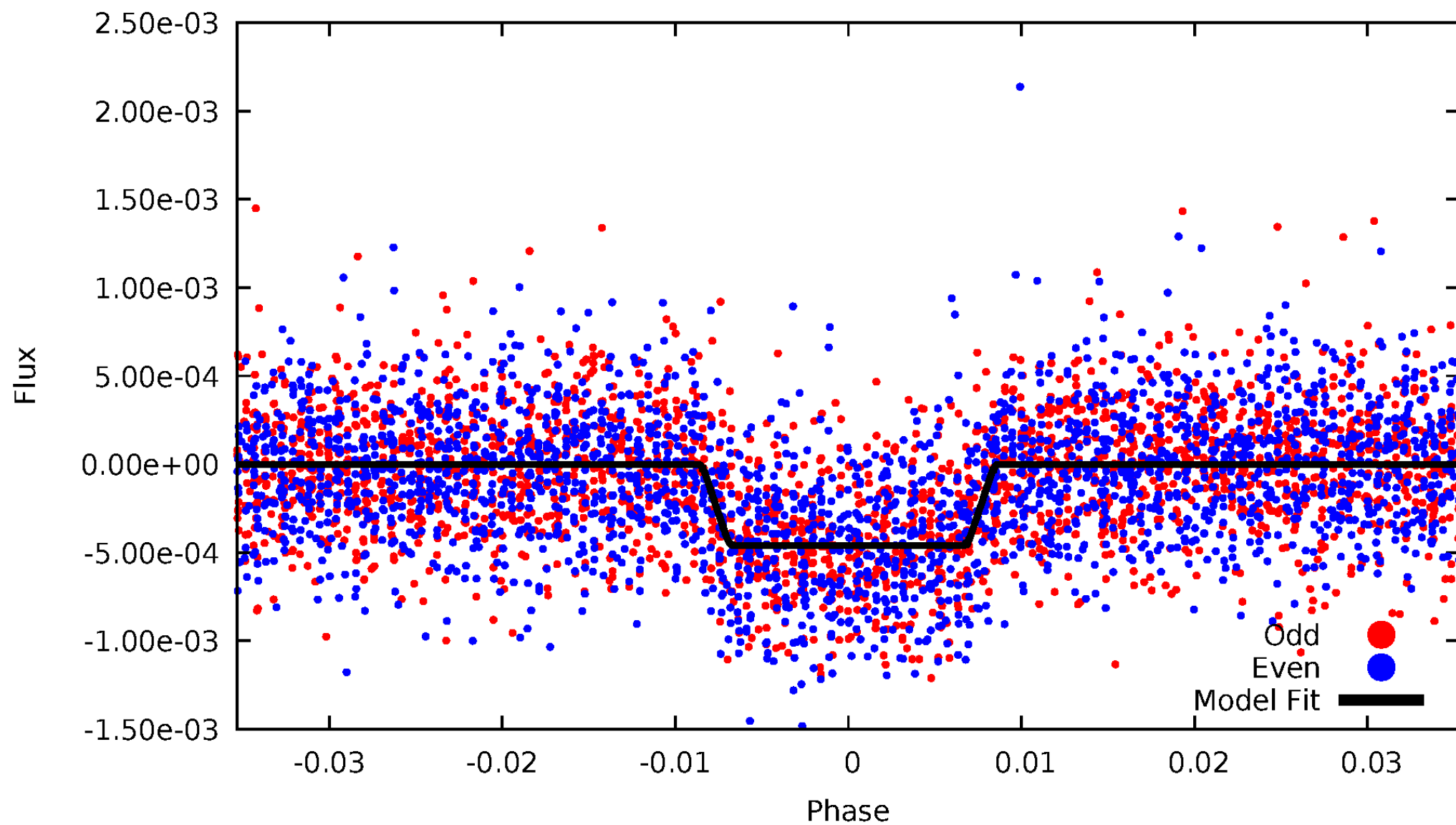
DV Odd/Even

TCE 012459913-01

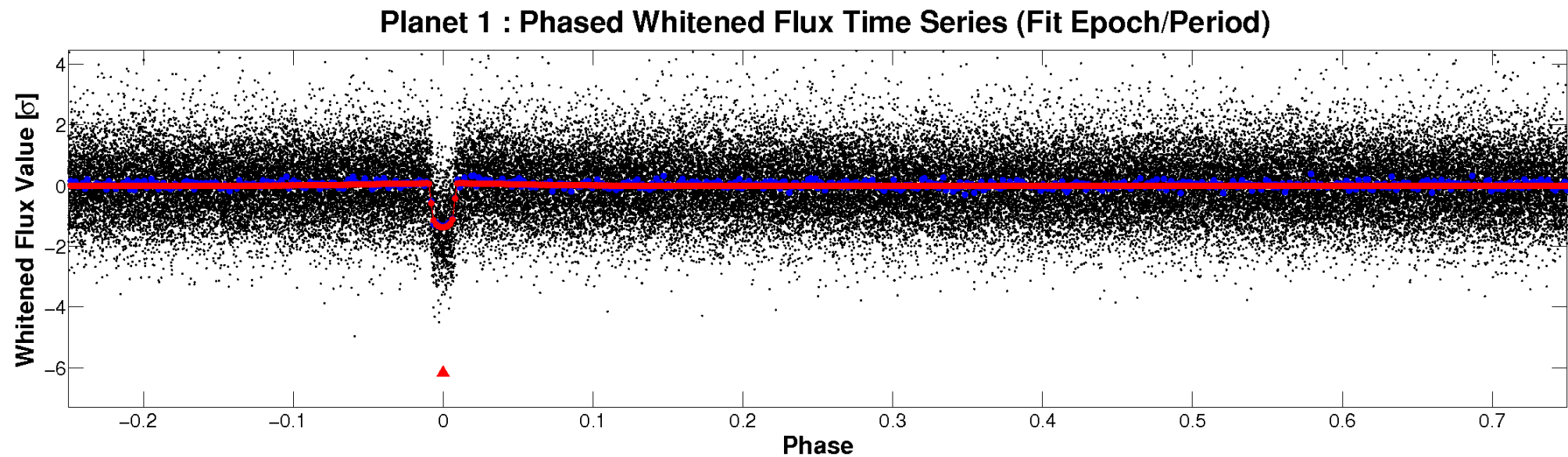
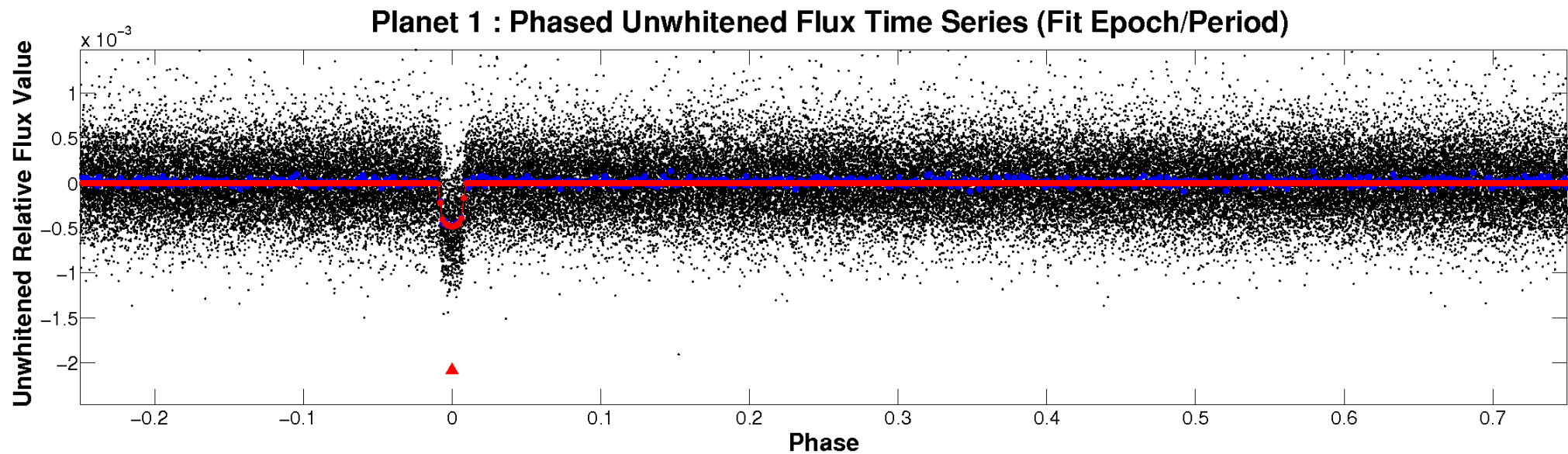


ALT Odd/Even

TCE 012459913-01

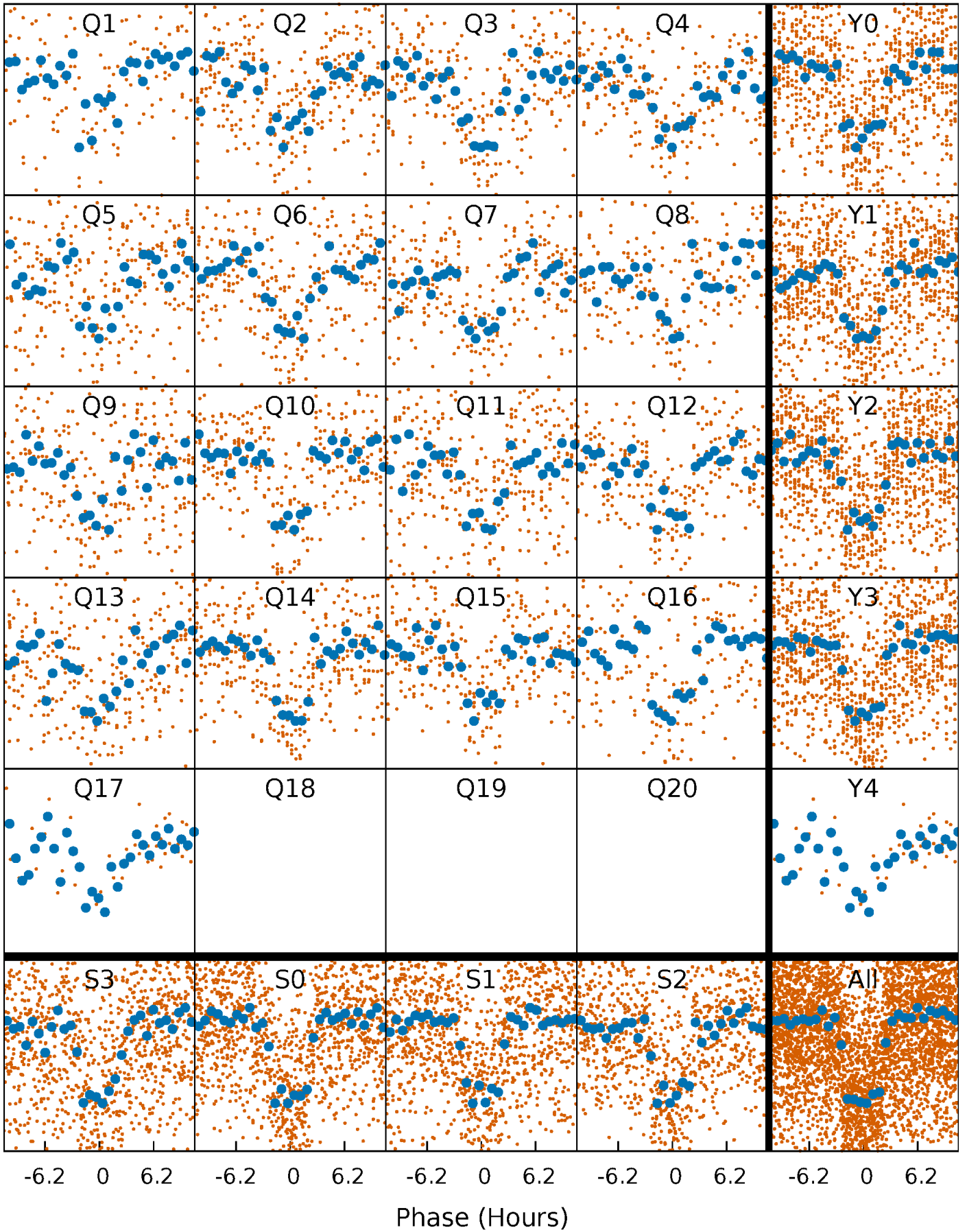


Non-Whitened Vs. Whitened Light Curve



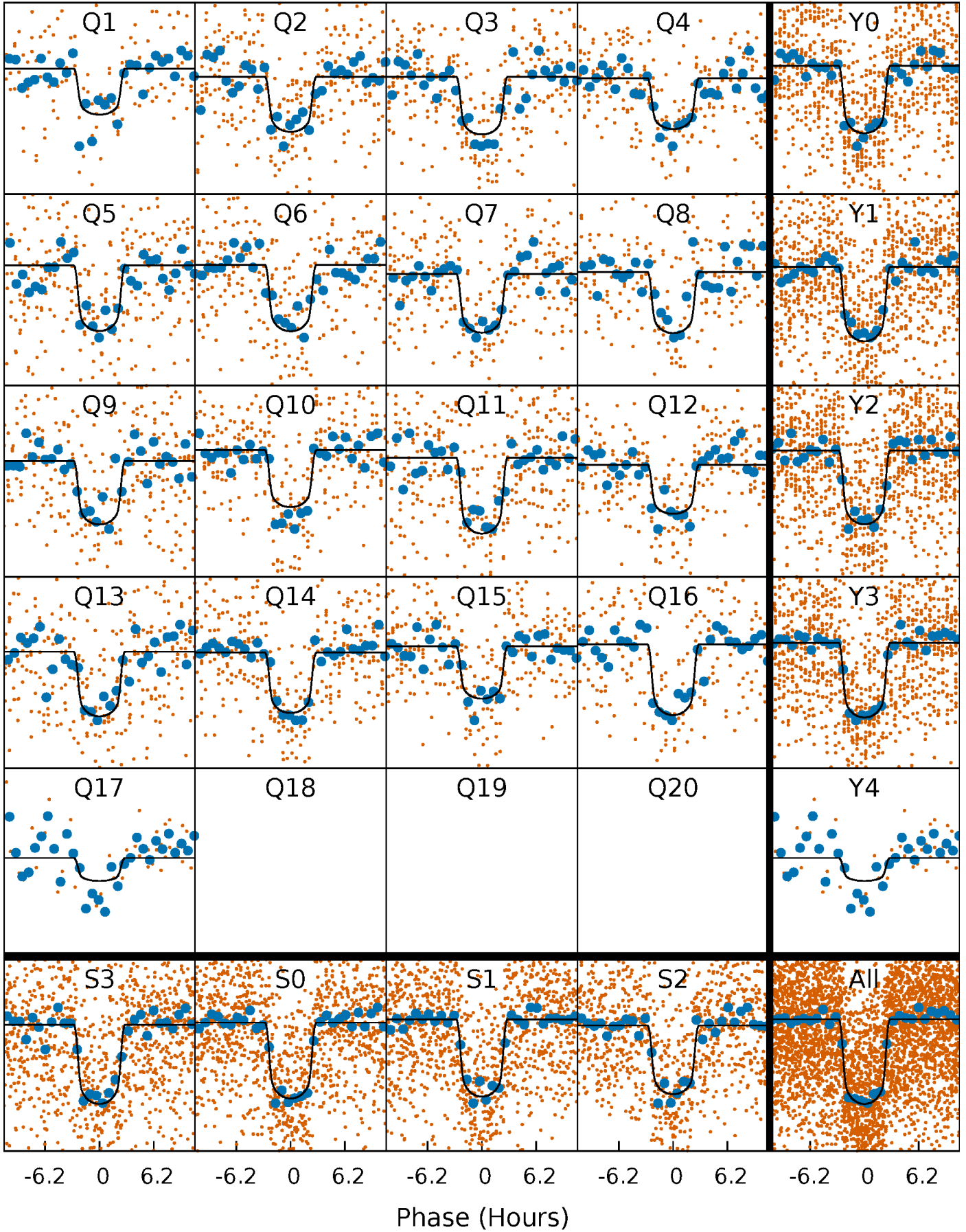
PDC Quarter-Phased Transit Curves

TCE 012459913-01 P= 12.913823 Days $T_0=138.535646$ (BKJD)



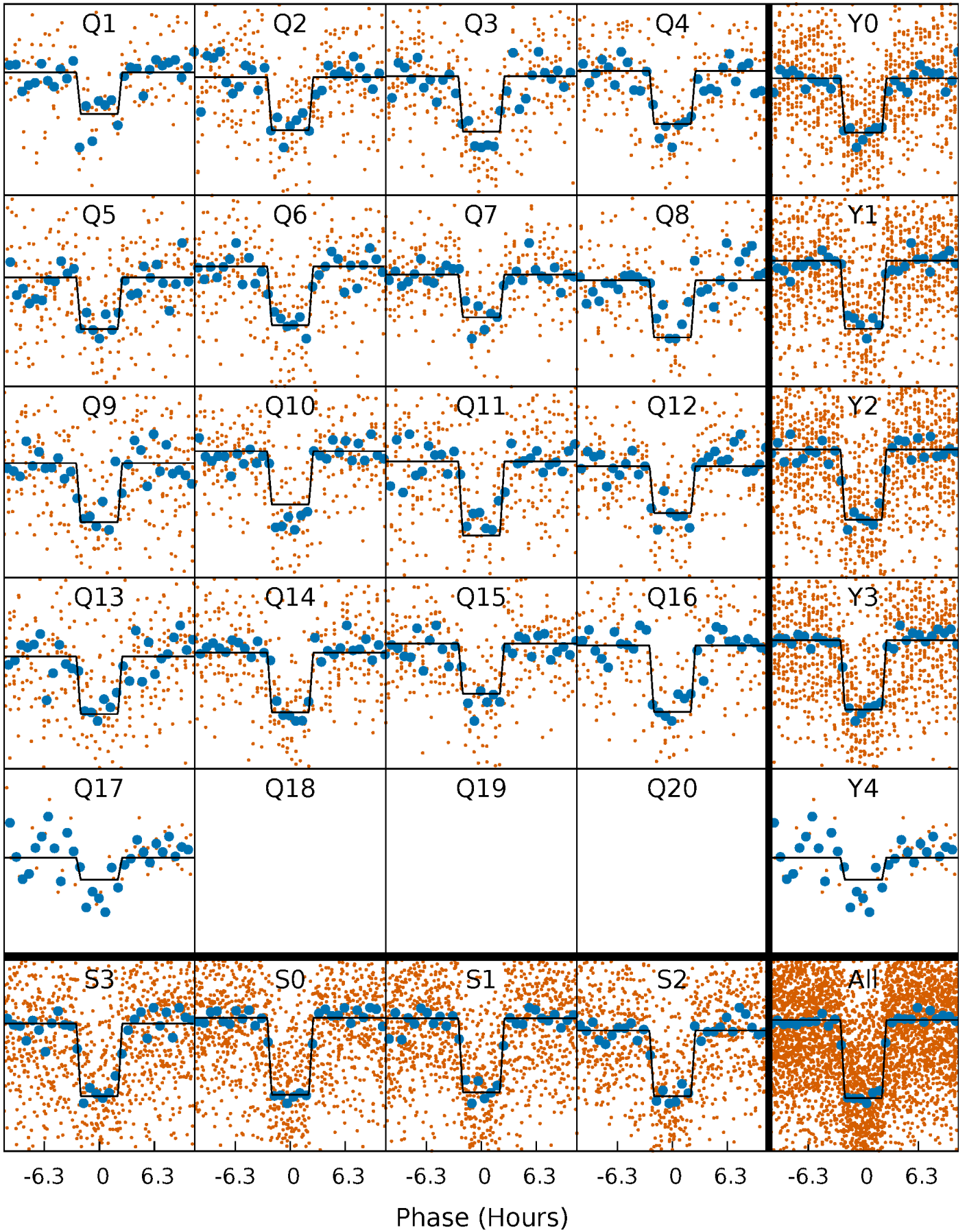
DV Quarter-Phased Transit Curves

TCE 012459913-01 P= 12.913823 Days $T_0=138.535646$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

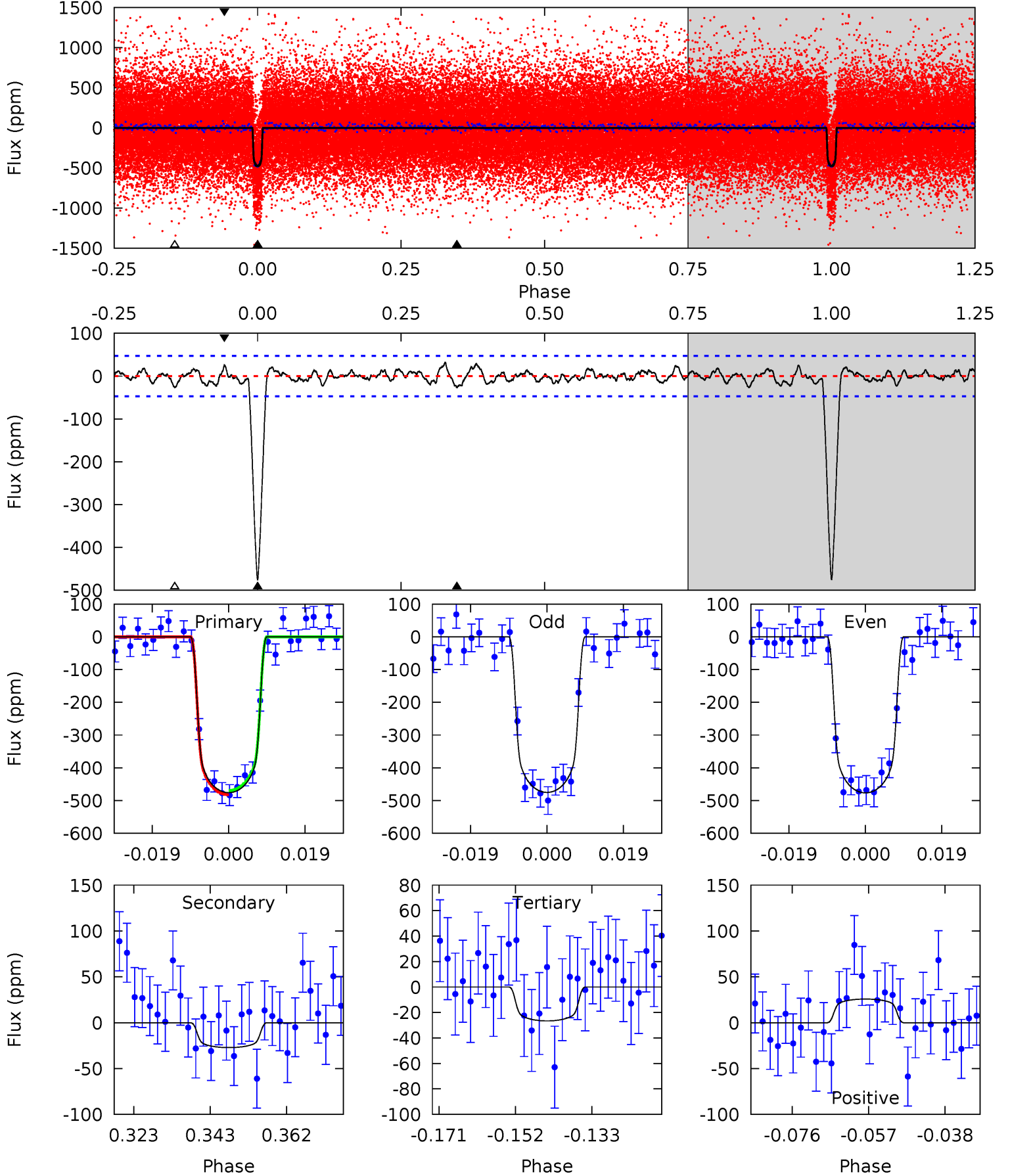
TCE 012459913-01 P= 12.913822 Days $T_0=138.535519$ (BKJD)



DV Model-Shift Uniqueness Test

012459913-01, $P = 12.913823$ Days, $E = 125.621823$ Days

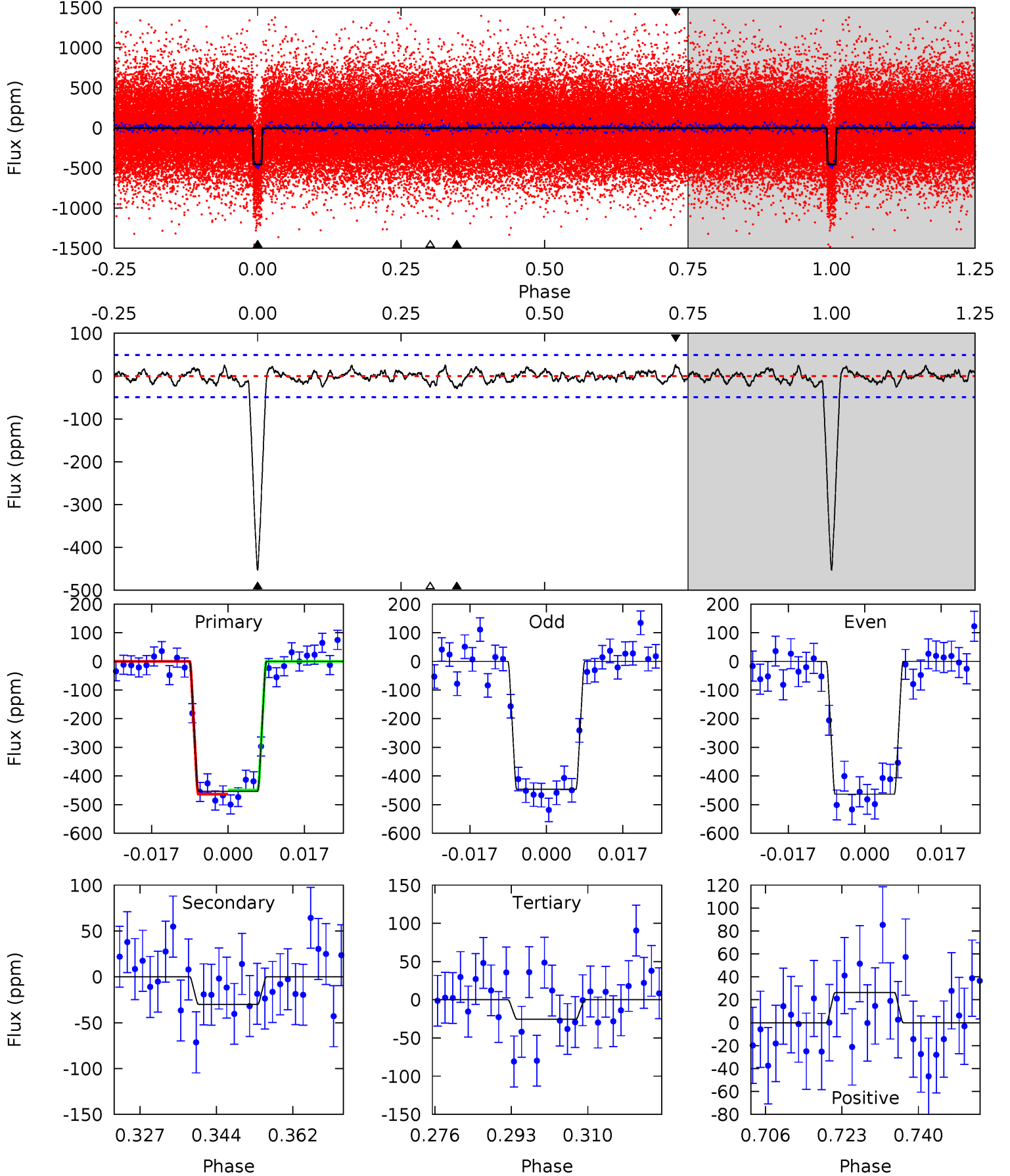
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.5	2.82	2.76	2.68	4.90	2.34	1.09	46.7	46.8	0.06	0.14	0.08	1.00	0.06	0.67



Alt Model-Shift Uniqueness Test

012459913-01, P = 12.913822 Days, E = 125.621697 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.3	3.00	2.53	2.63	4.92	2.38	1.02	42.8	42.7	0.46	0.36	0.87	0.99	0.05	0.70



Stellar Parameters For KIC 012459913

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6253^{+169}_{-206}	$4.410^{+0.105}_{-0.195}$	$-0.540^{+0.300}_{-0.300}$	$0.997^{+0.272}_{-0.147}$	$0.930^{+0.118}_{-0.096}$	$1.324^{+0.599}_{-0.664}$
	+3%/-3%	+2%/-4%	+56%/-56%	+27%/-15%	+13%/-10%	+45%/-50%
Source	PHO1	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 012459913-01 / KOI 0602.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-27 ± 10	$2.52^{+0.38}_{-0.26}$	1194^{+78}_{-67}	3451^{+222}_{-246}	25^{+13}_{-11}
Alt.	-30 ± 10	$2.39^{+0.35}_{-0.27}$	1198^{+92}_{-65}	3602^{+204}_{-237}	31^{+15}_{-12}

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

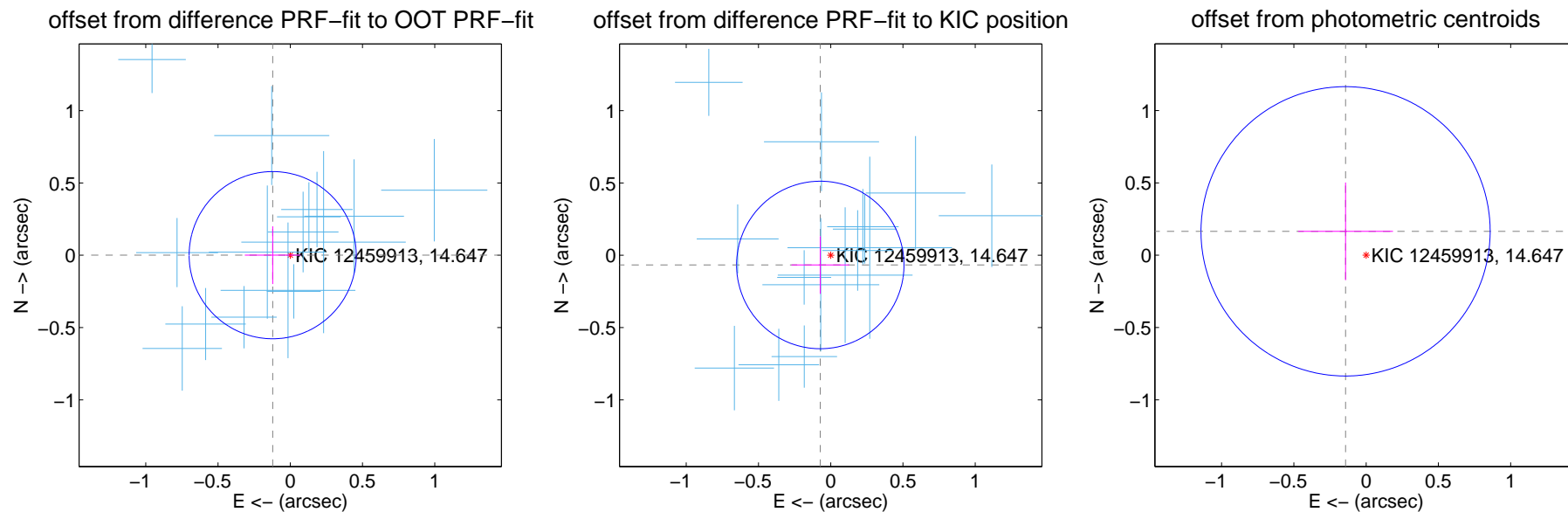
DV Centroid Data

Supplemental centroid analysis for 012459913-01. Kepler magnitude: 14.65. Transit SNR 38.28

There are 17 quarters with good PRF difference image offsets

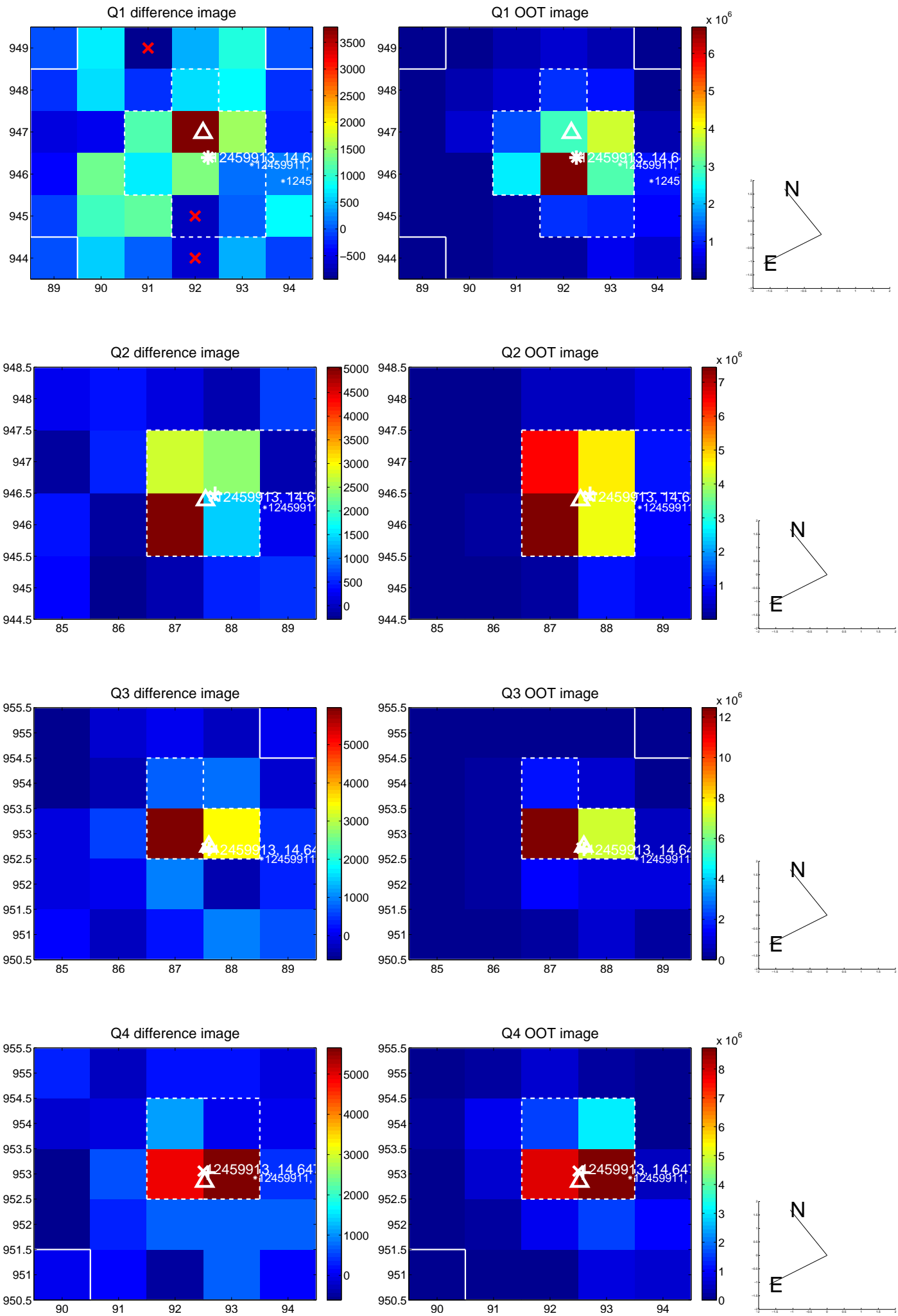
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.122 ± 0.193	0.63	0.122 ± 0.193	0.001 ± 0.200
PRF-fit source offset from KIC position	0.098 ± 0.193	0.51	0.072 ± 0.200	-0.067 ± 0.199
photometric centroid source offset	0.22 ± 0.33	0.65	0.14 ± 0.33	0.17 ± 0.34

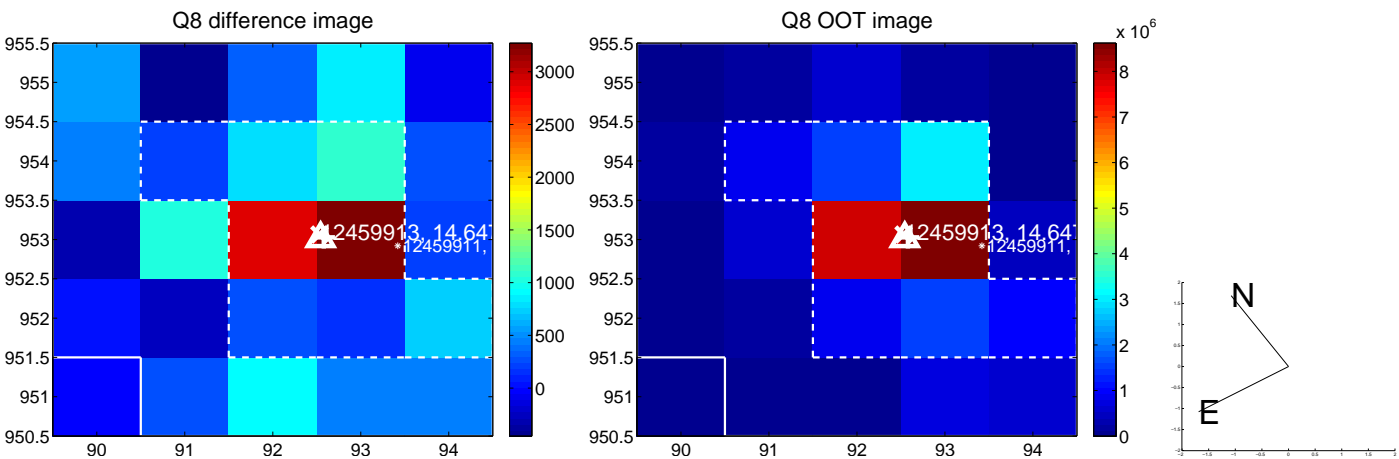
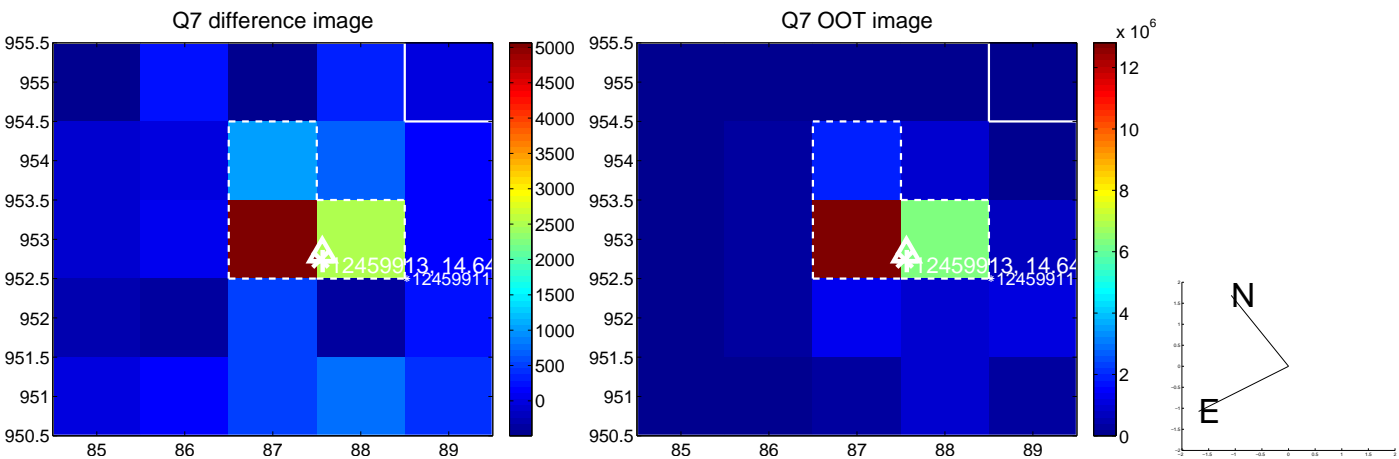
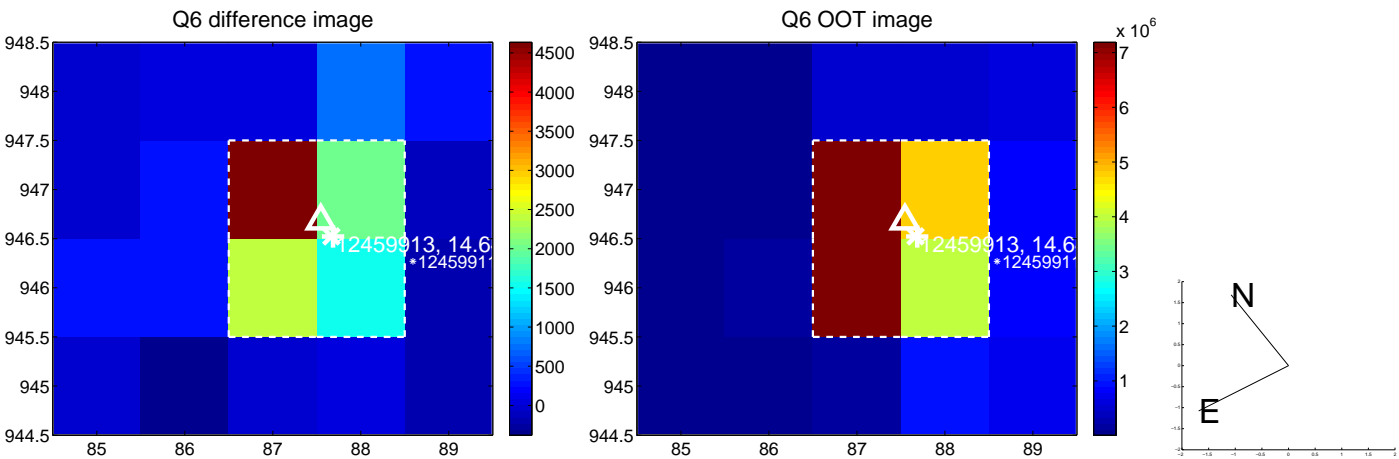
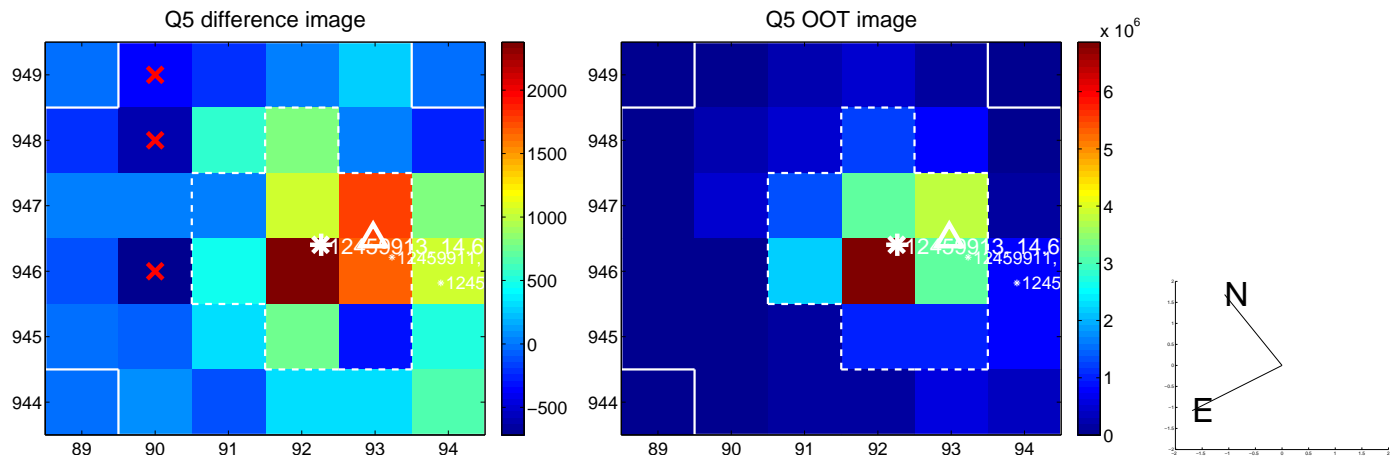


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

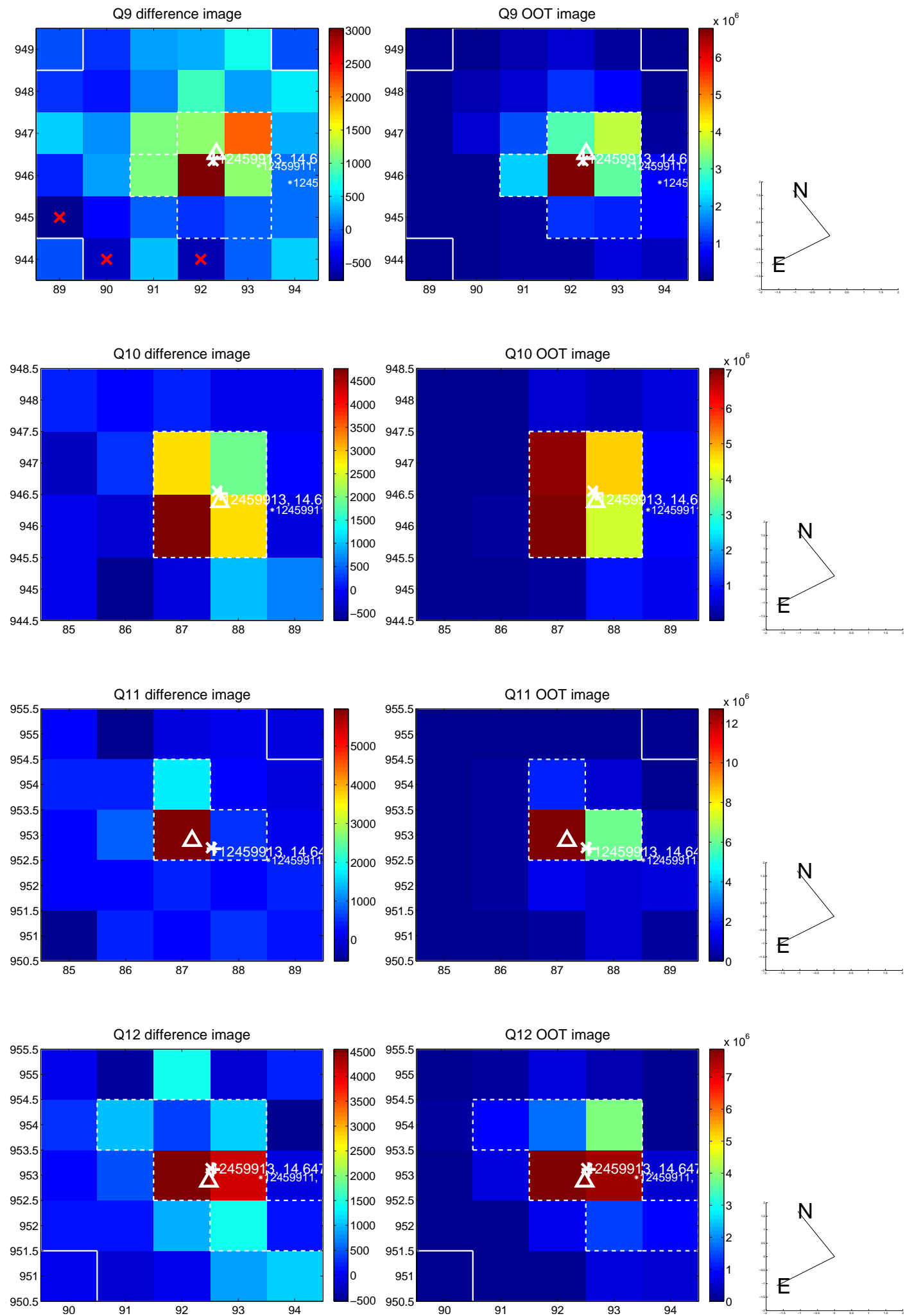
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



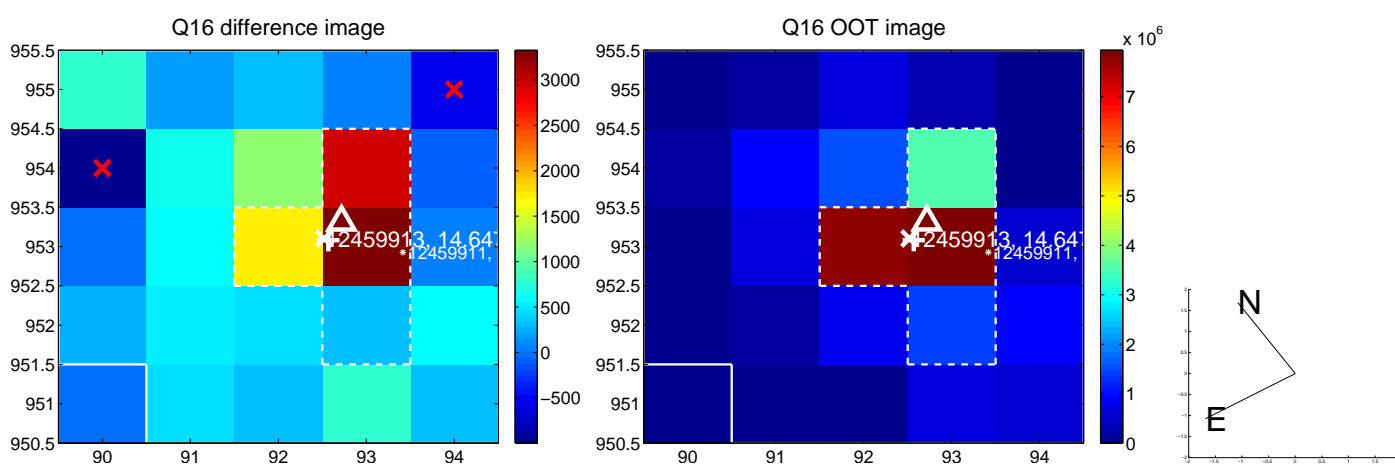
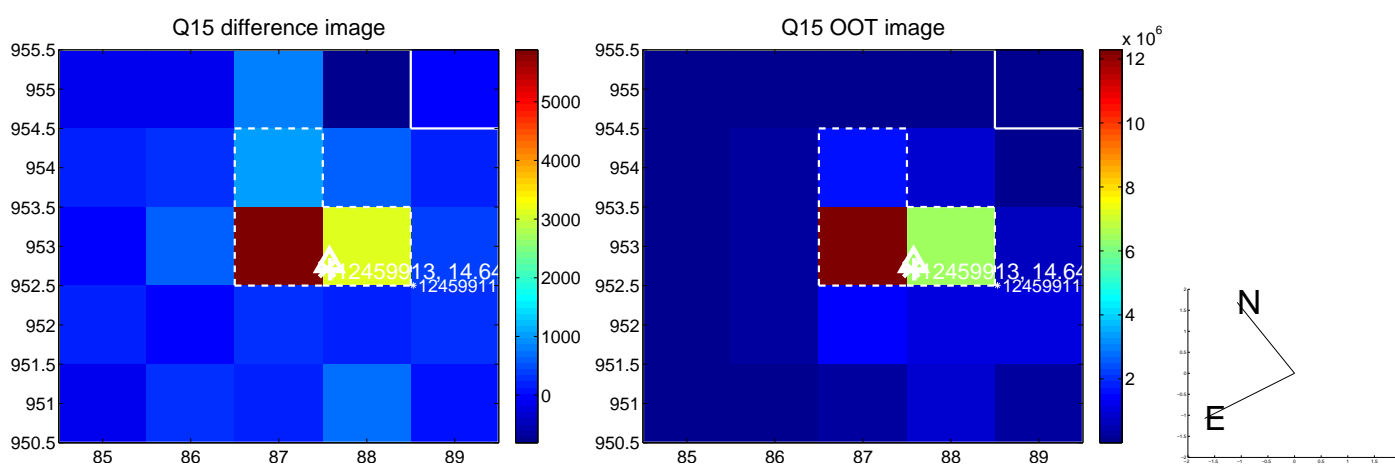
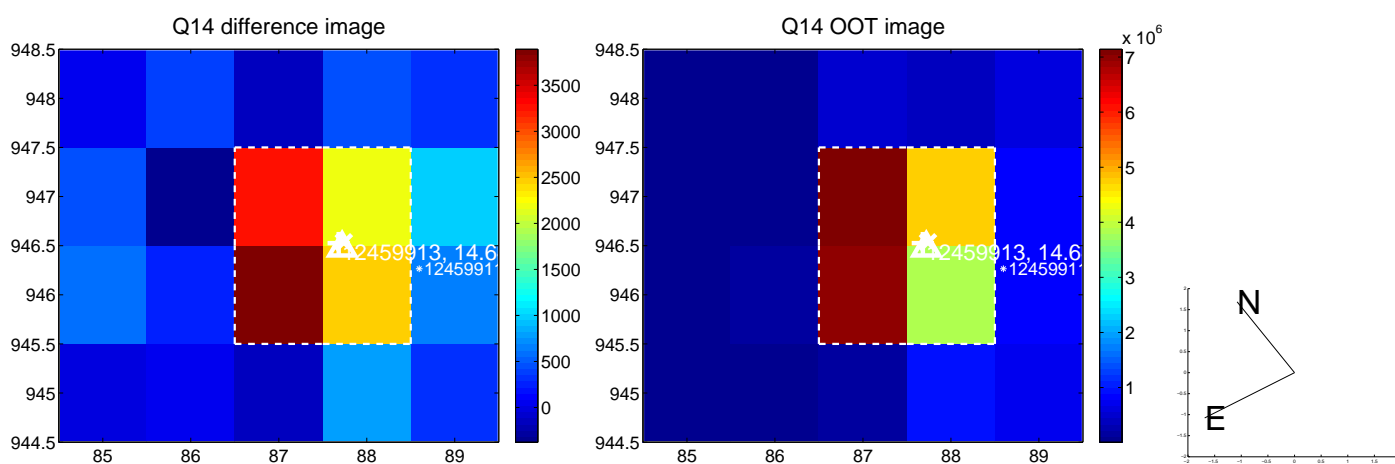
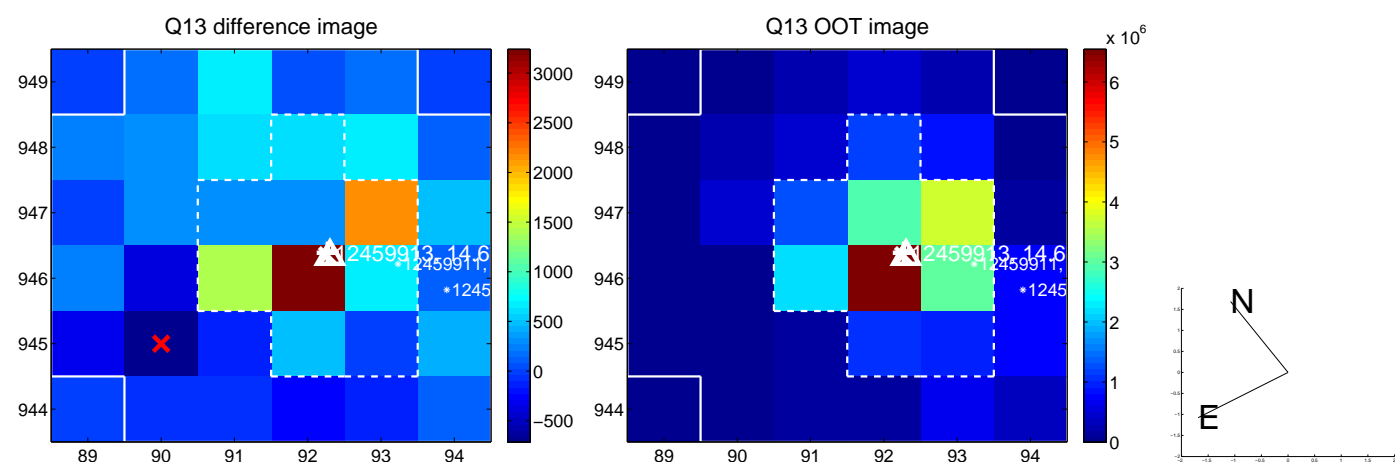
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



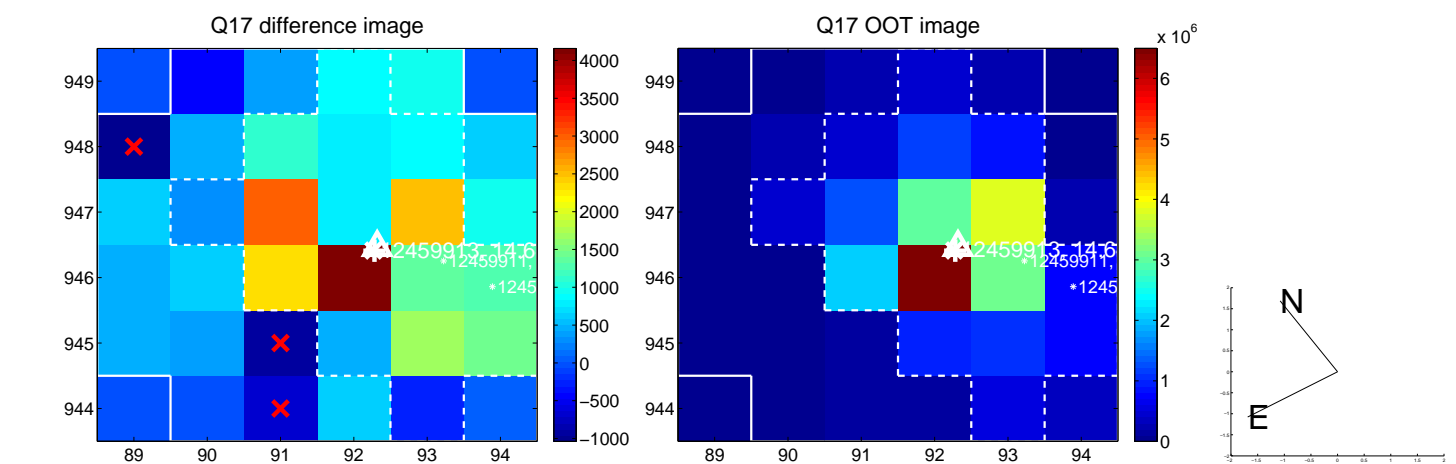
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



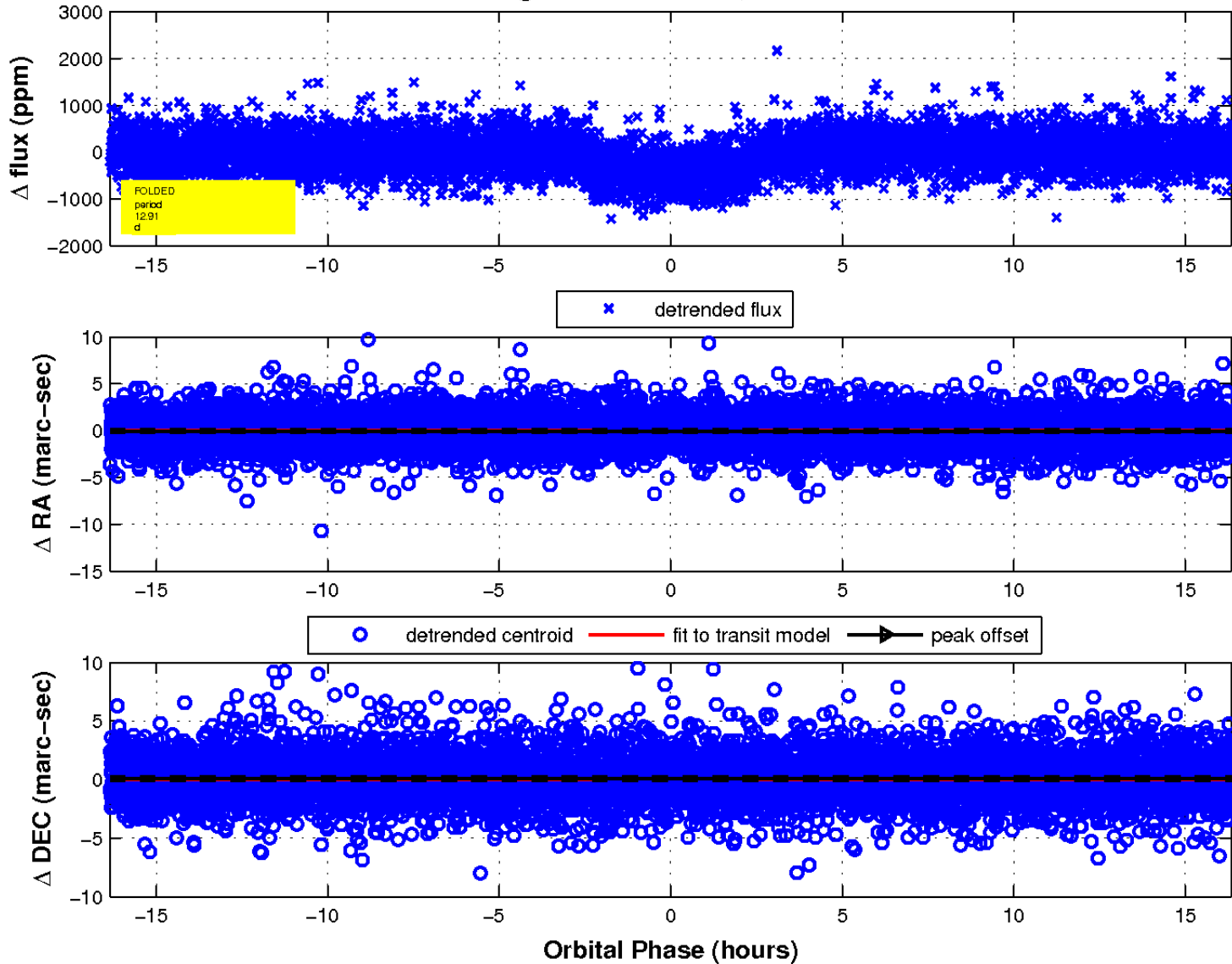
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

