

KIC 002309910

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})
002309910-01	OBS	4937.01	1.843642	132.295975	107.7	4.547	16.6	17.4	1.11	6032	1.25	1663.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002309910-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET

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.

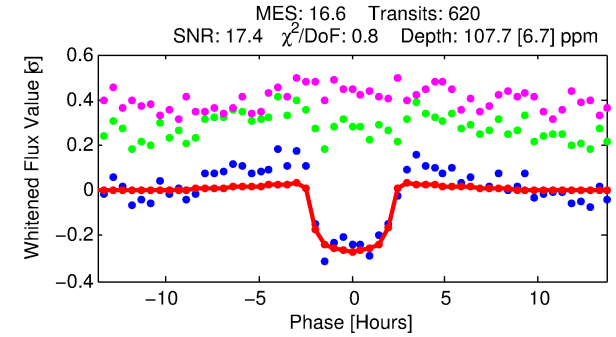
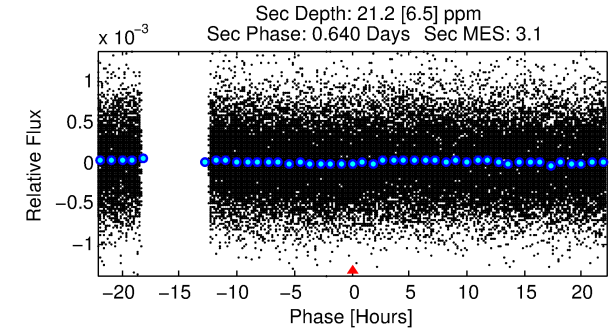
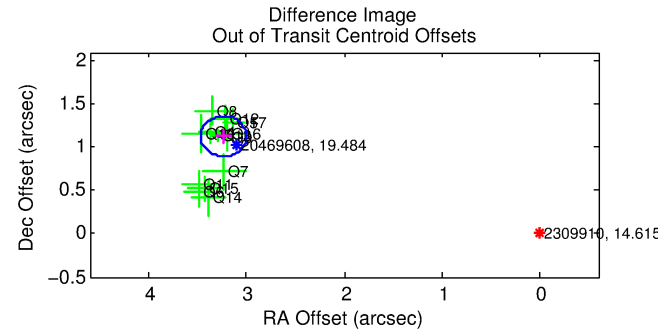
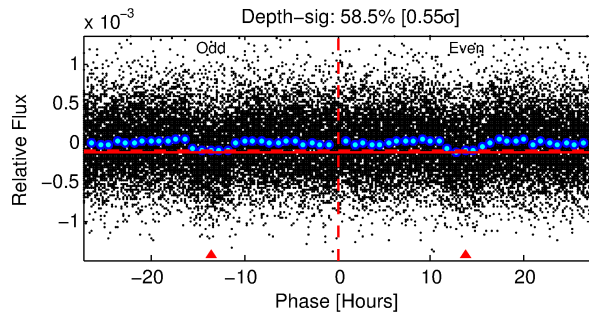
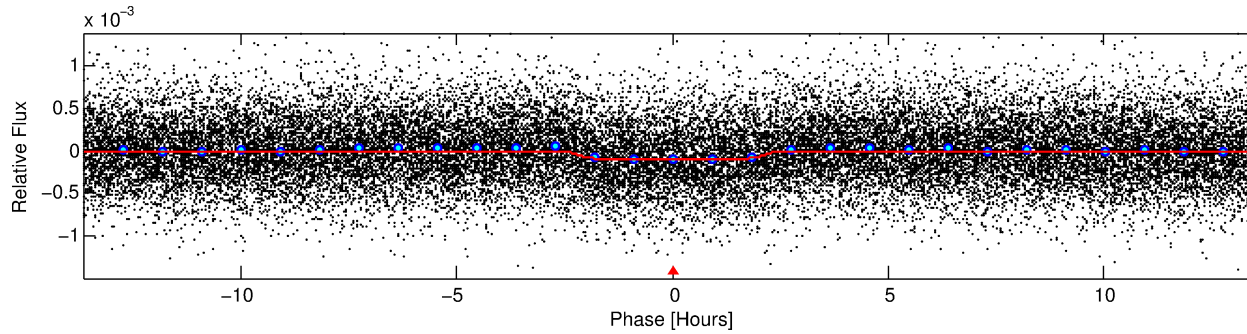
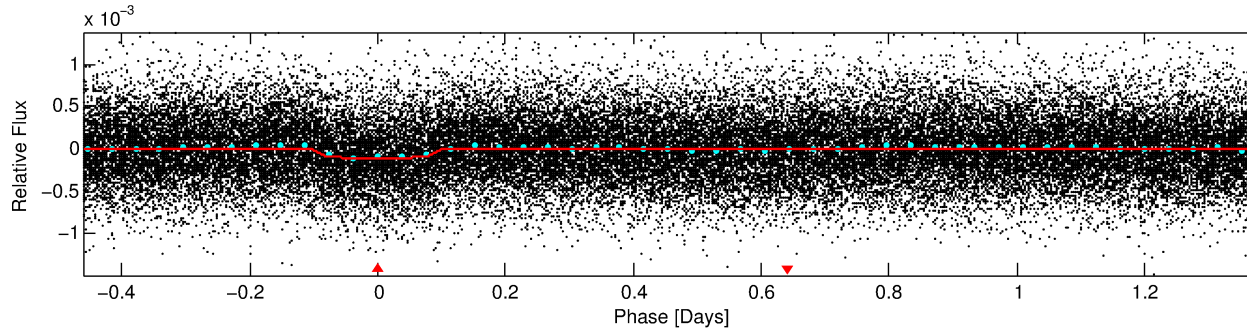
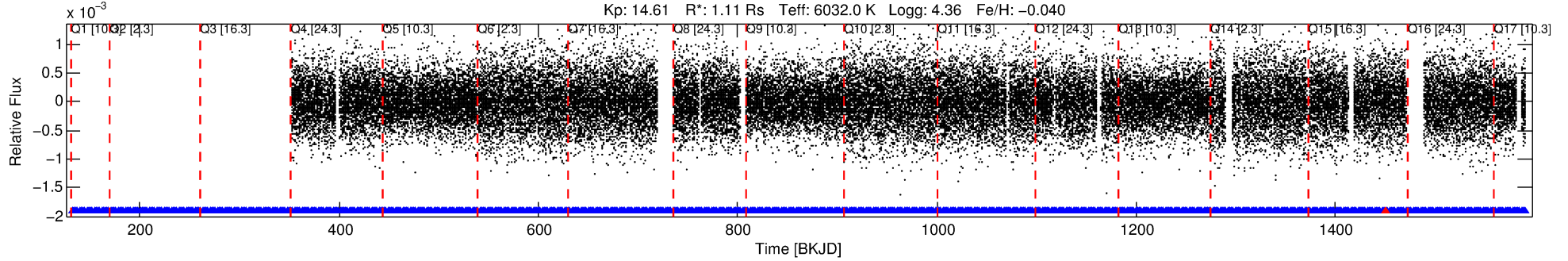
Ephemeris Match Information For 002309910-01

No Significant Match Found

DV One-Page Summary

KIC: 2309910 Candidate: 1 of 1 Period: 1.844 d
KOI: K04937 Corr: No Ephemeris Match

Kp: 14.61 R*: 1.11 Rs Teff: 6032.0 K Logg: 4.36 Fe/H: -0.040



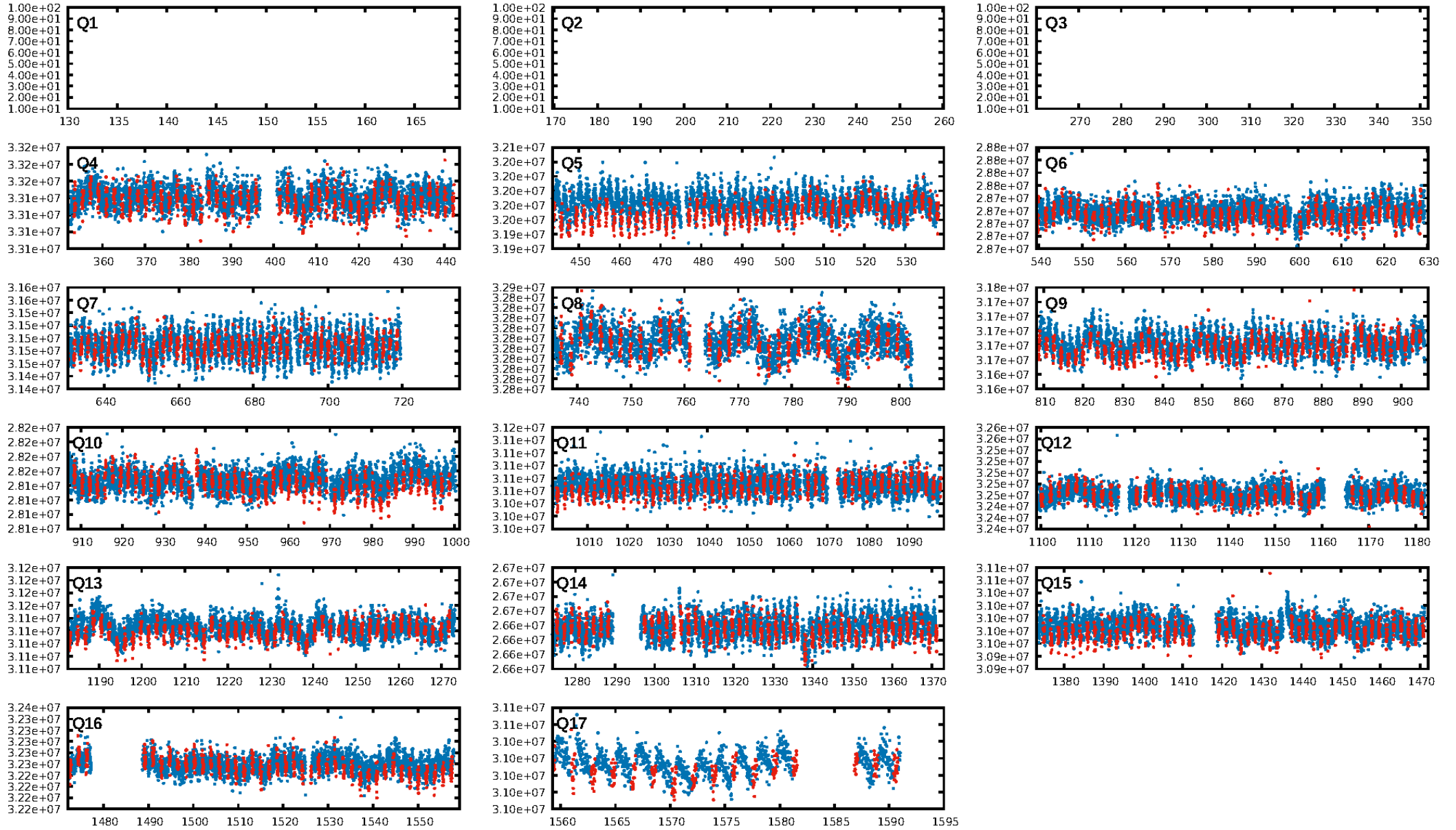
DV Fit Results:

Period = 1.84364 [0.00001] d
Epoch = 132.2960 [0.0031] BKJD
Rp/R* = 0.0103 [0.0047]
a/R* = 2.26 [4.01]
b = 0.75 [1.30]
Seff = 1663.77 [652.71]
Teq = 1629 [160] K
Rp = 1.25 [0.69] Re
a = 0.0297 [0.0076] AU
Ag = 6.56 [6.71] [0.83σ]
Teffp = 4030 [976] K [2.43σ]

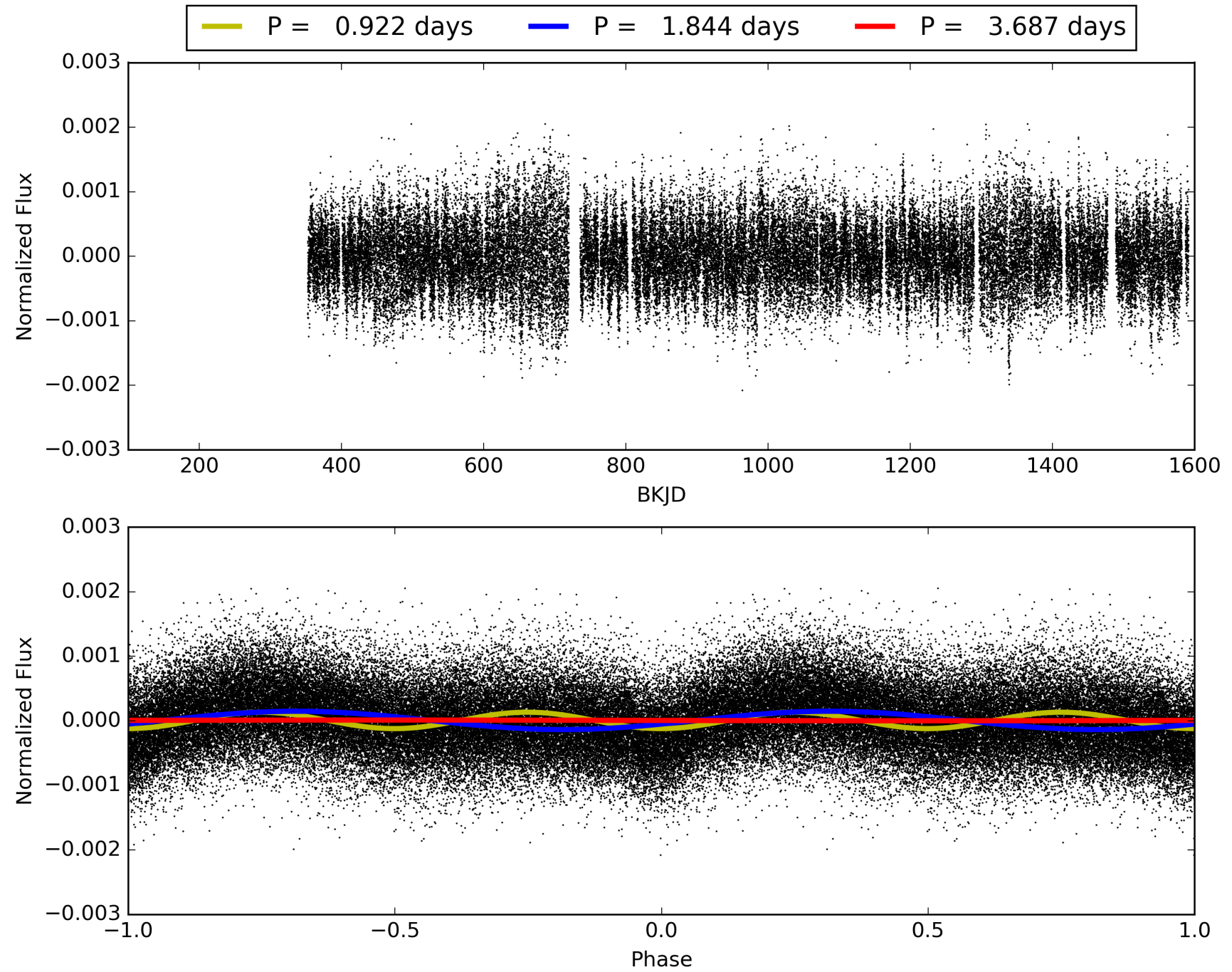
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.71e-56
RollingBand-fgt: 1.00 [603/604]
GhostDiagnostic-chr: 0.8985
Centroid-sig: 0.0%
Centroid-so: 5.272 arcsec [7.34σ]
OotOffset-rm: 3.427 arcsec [43.96σ]
KicOffset-rm: 3.422 arcsec [43.89σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 002309910-01, PDC Light Curves

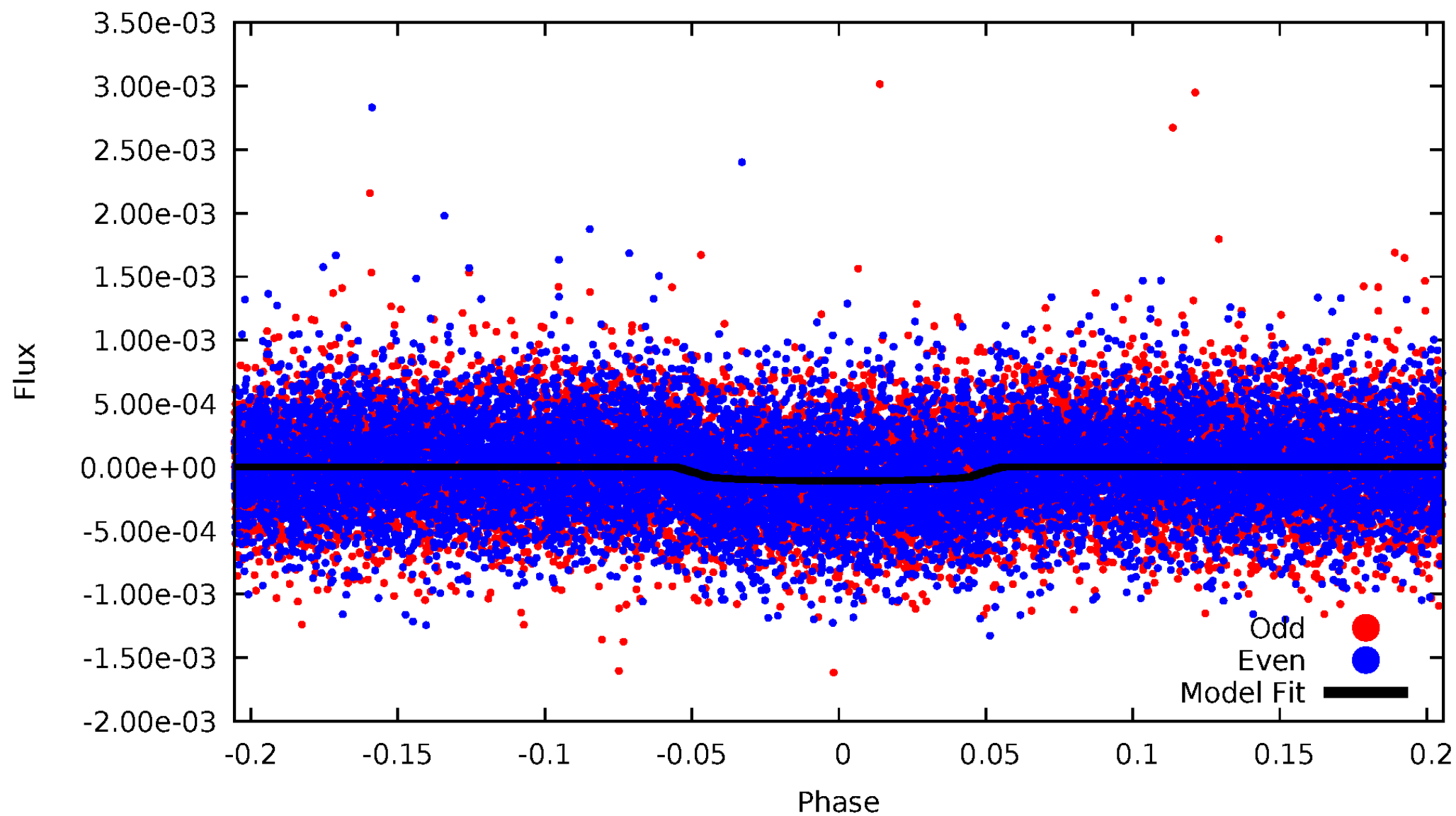


TCE 002309910-01



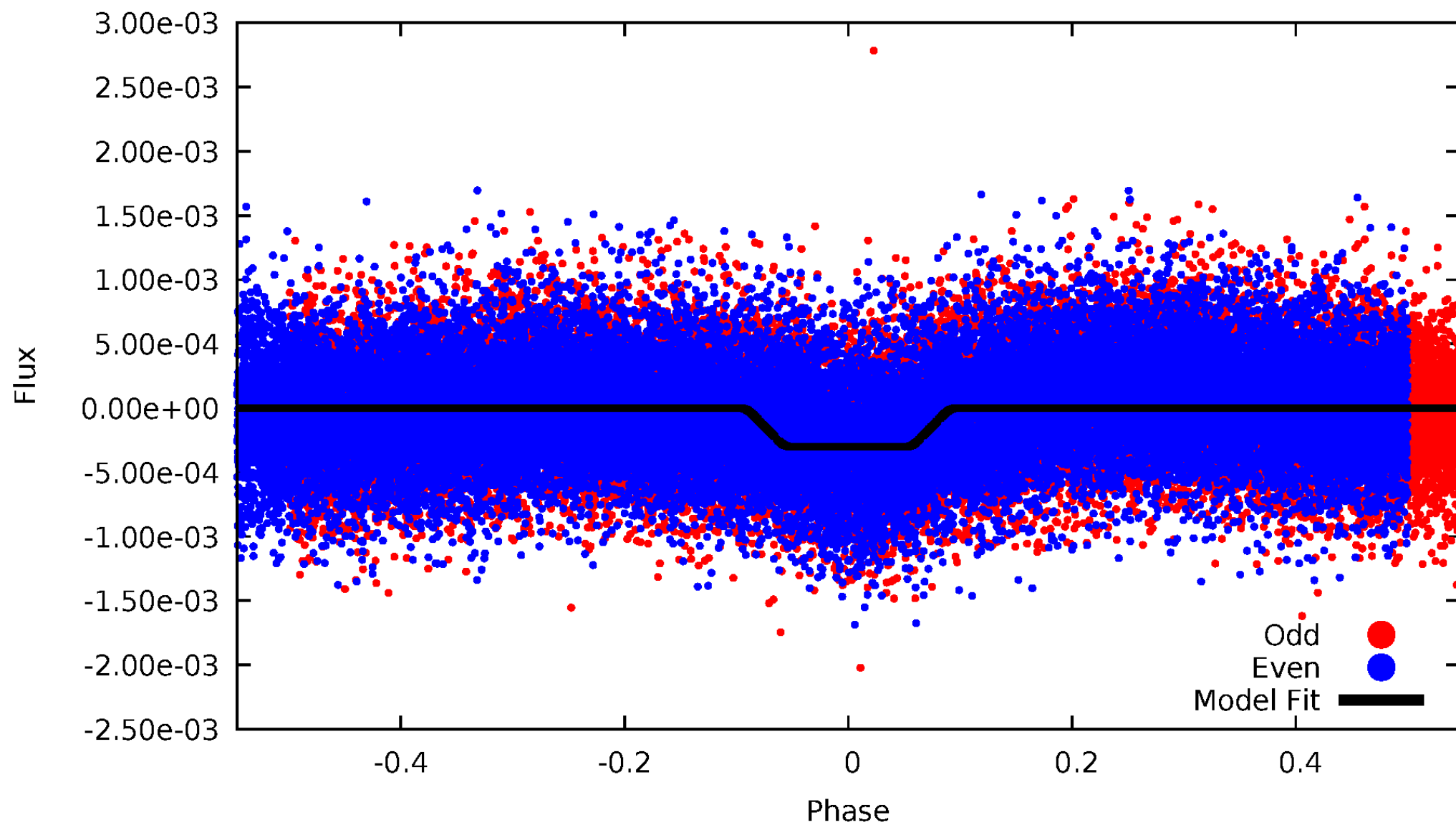
DV Odd/Even

TCE 002309910-01



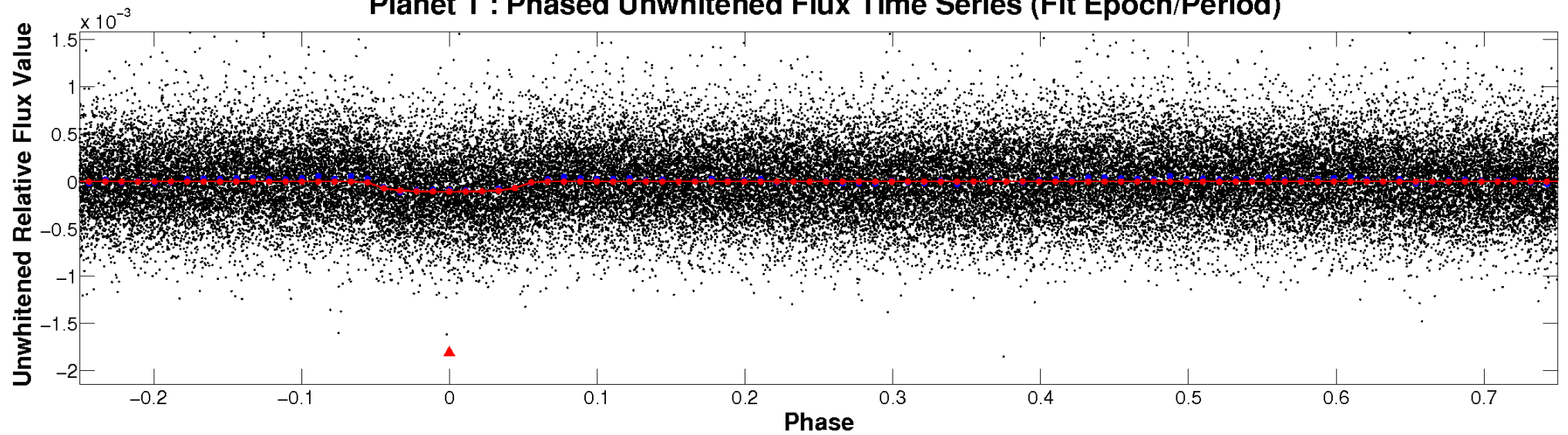
ALT Odd/Even

TCE 002309910-01

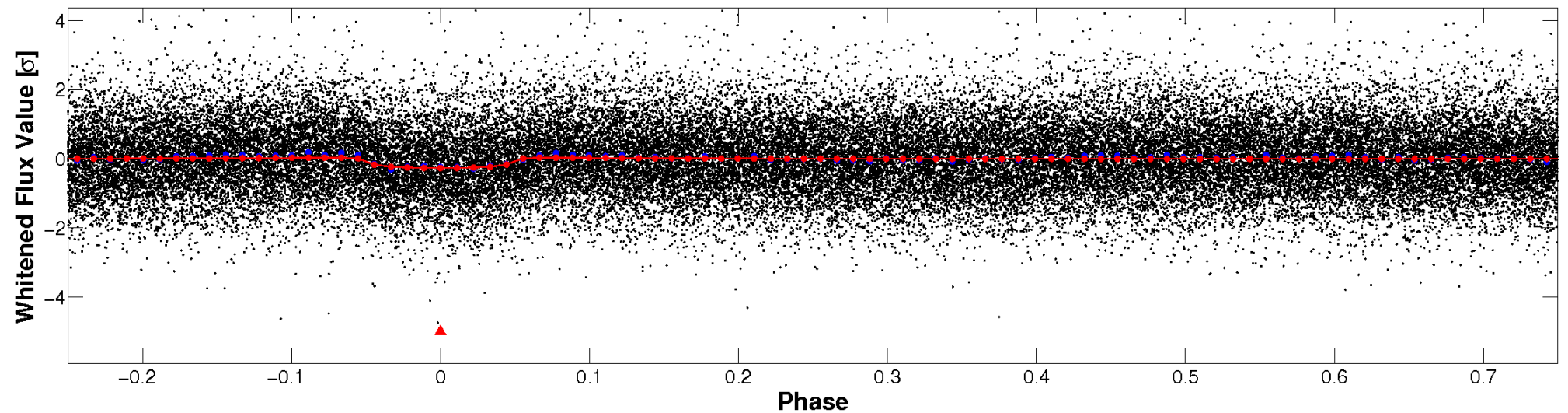


Non-Whitened Vs. Whitened Light Curve

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

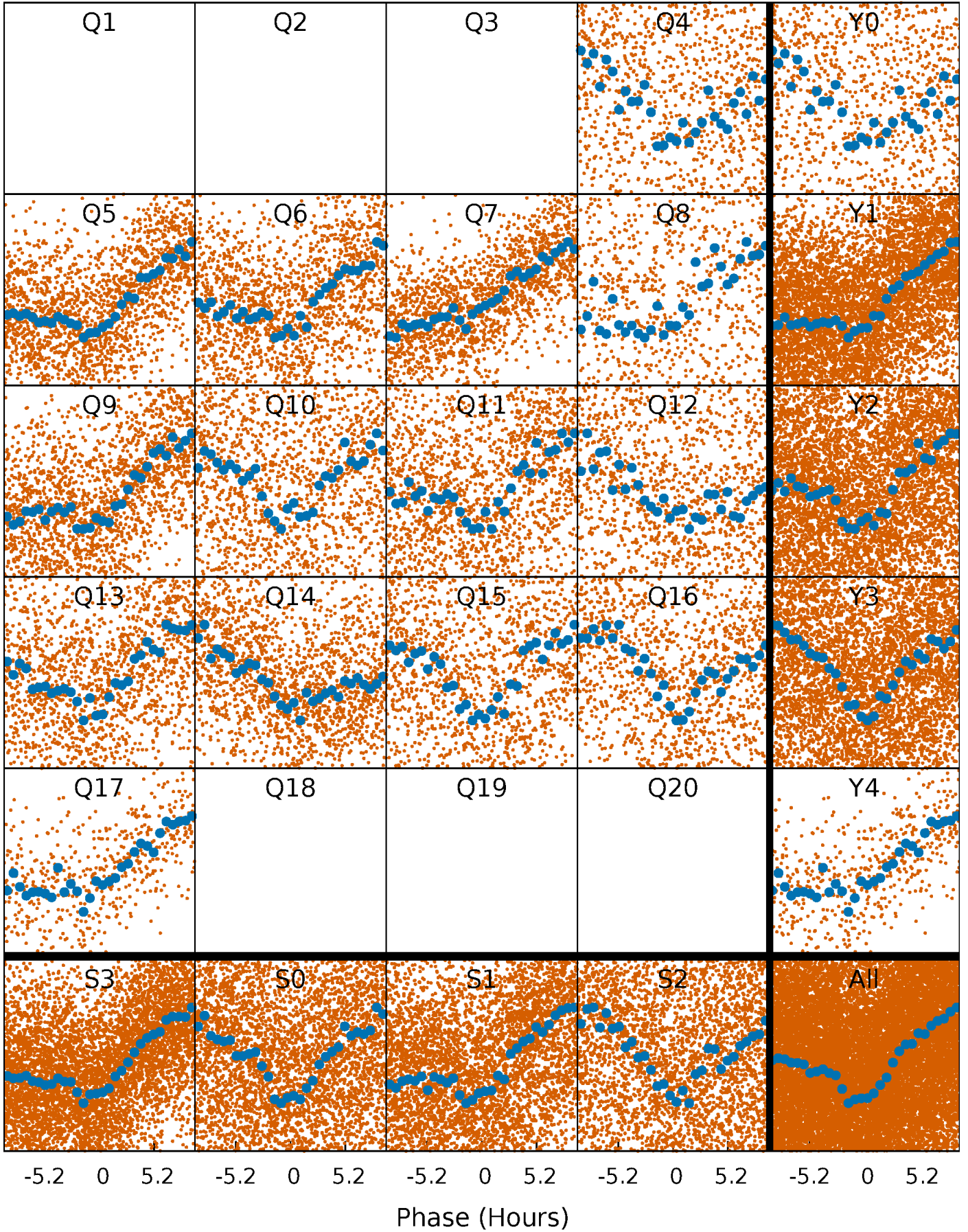


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



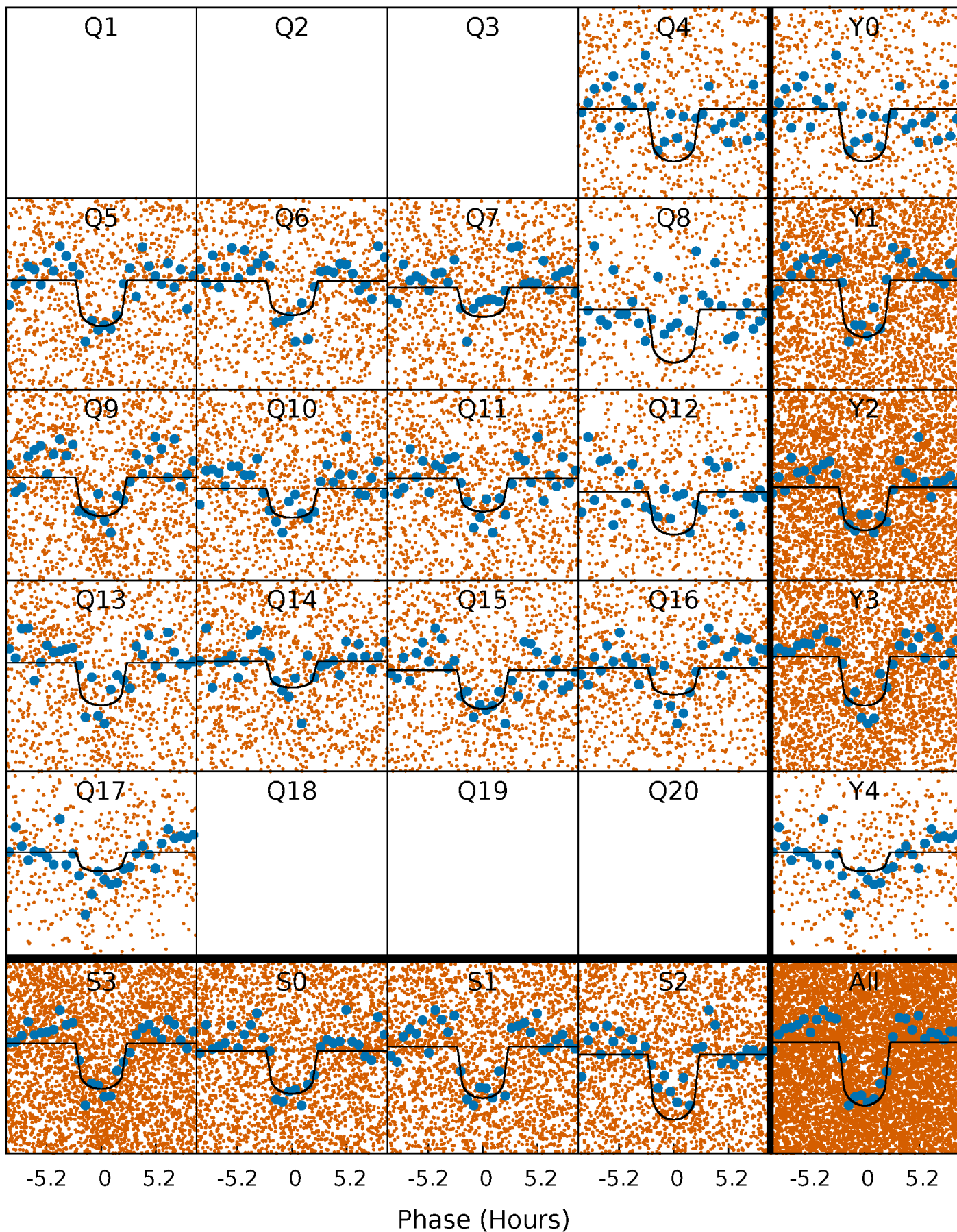
PDC Quarter-Phased Transit Curves

TCE 002309910-01 P= 1.843642 Days $T_0=132.295975$ (BKJD)



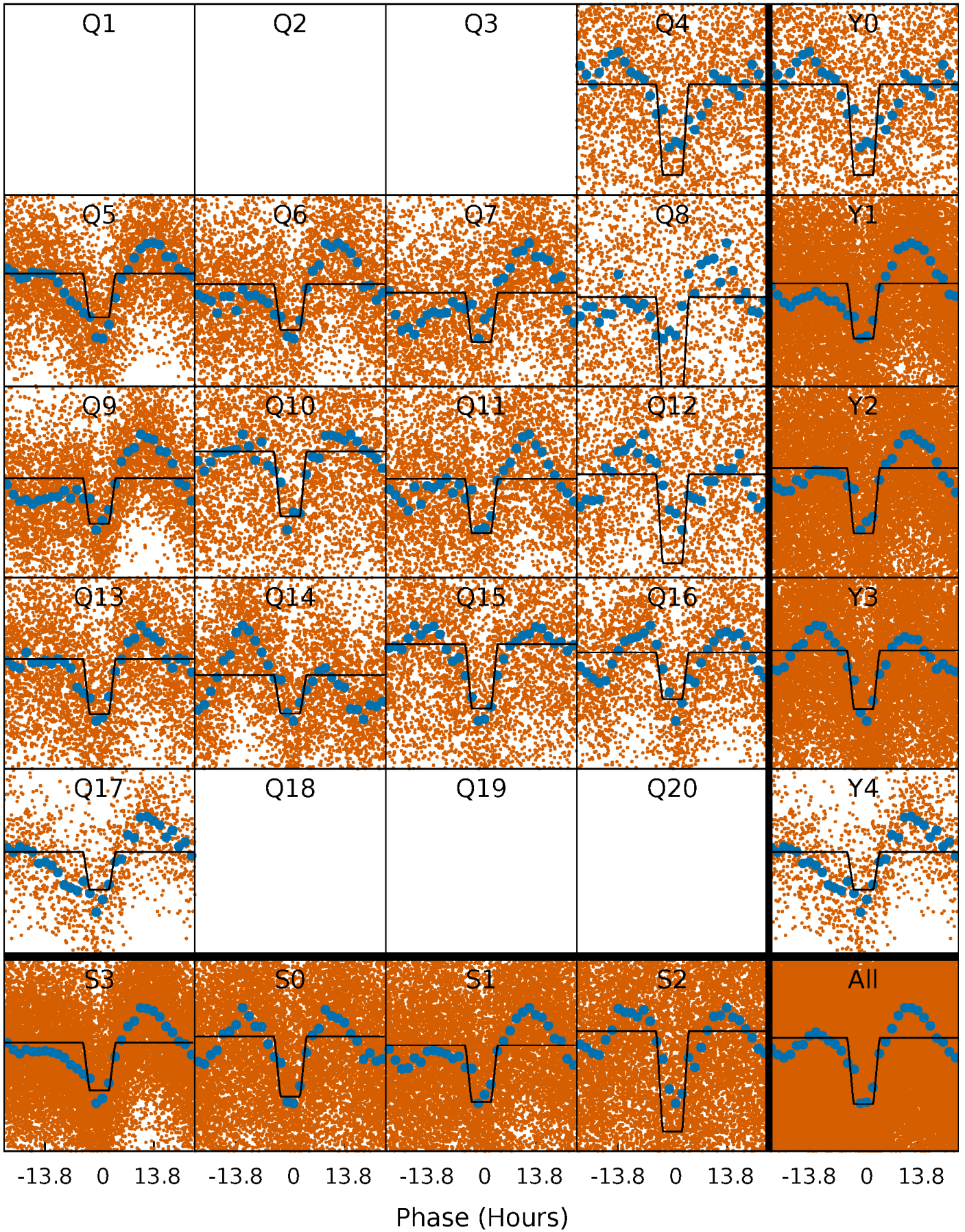
DV Quarter-Phased Transit Curves

TCE 002309910-01 P= 1.843642 Days $T_0=132.295975$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

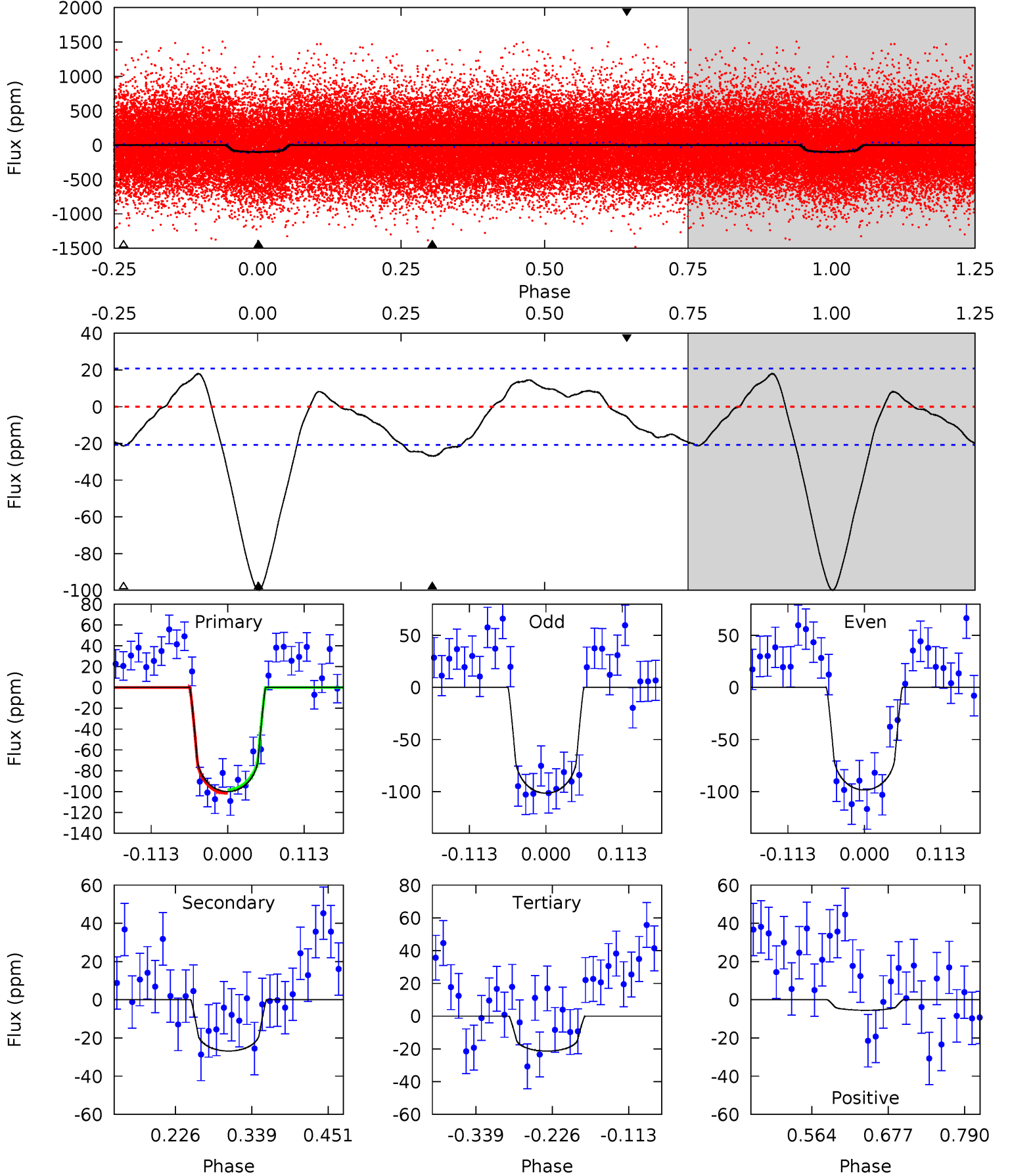
TCE 002309910-01 P= 1.843671 Days $T_0=132.259688$ (BKJD)



DV Model-Shift Uniqueness Test

002309910-01, P = 1.843642 Days, E = 132.295975 Days

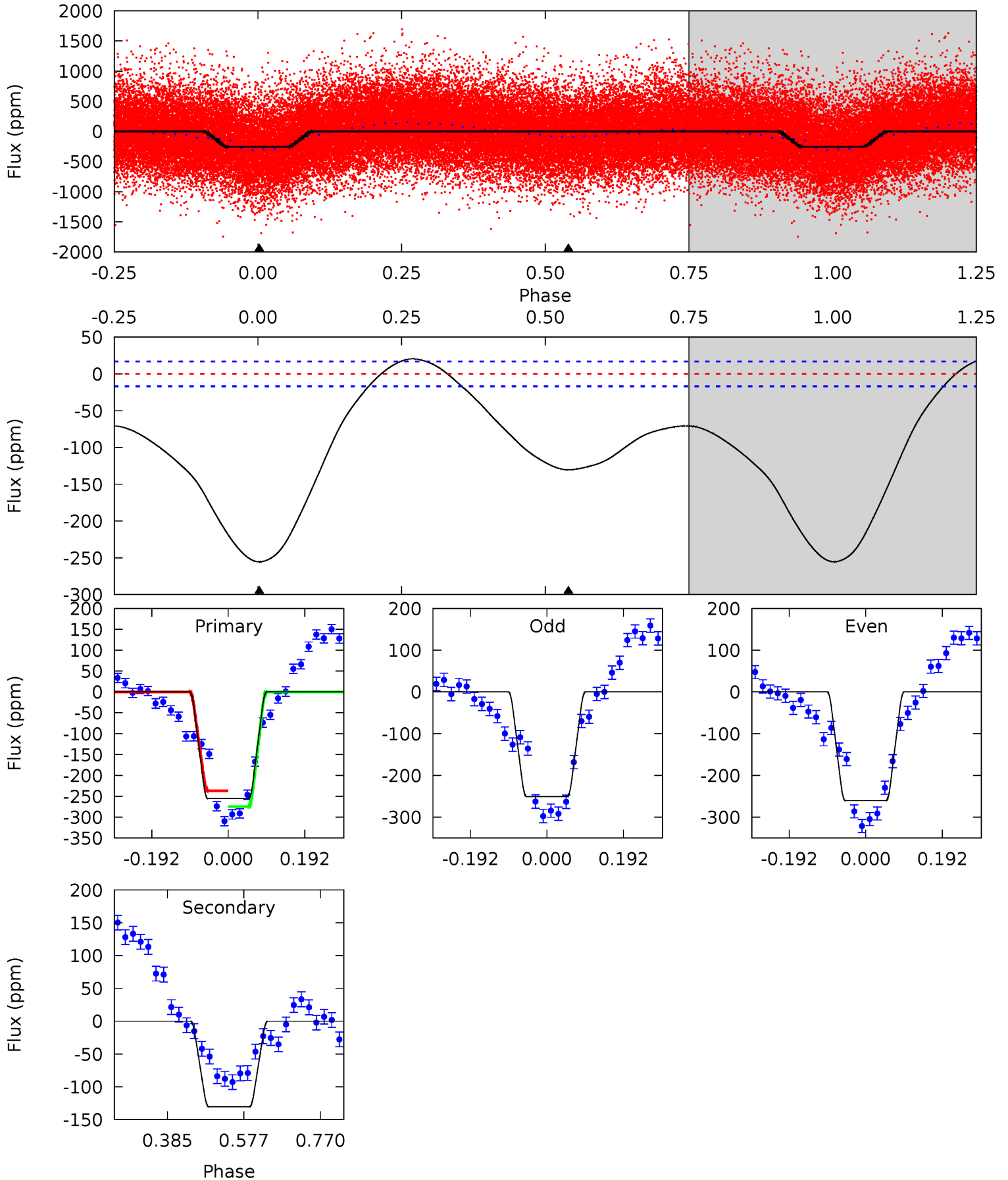
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	5.86	4.66	-1.20	4.54	1.59	2.37	17.2	23.0	1.20	7.06	0.34	1.03	0.15	0.35



Alt Model-Shift Uniqueness Test

002309910-01, P = 1.843671 Days, E = 132.259688 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.9	34.1	0	0	4.43	1.30	10.7	66.9	66.9	34.1	34.1	1.29	1.05	0.07	5.01



Stellar Parameters For KIC 002309910

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6032^{+190}_{-232}	$4.358^{+0.112}_{-0.192}$	$-0.040^{+0.250}_{-0.300}$	$1.114^{+0.348}_{-0.187}$	$1.033^{+0.159}_{-0.130}$	$1.051^{+0.618}_{-0.527}$
	+3%/-4%	+3%/-4%	+625%/-750%	+31%/-17%	+15%/-13%	+59%/-50%
Source	KIC0	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 002309910-01 / KOI 4937.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-27 ± 5	$1.27^{+0.62}_{-0.49}$	2293^{+175}_{-137}	4431^{+1022}_{-636}	$7.967^{+13.950}_{-4.441}$
Alt.	-130 ± 4	$2.14^{+0.78}_{-0.61}$	2304^{+176}_{-148}	4963^{+862}_{-509}	14^{+13}_{-6}

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

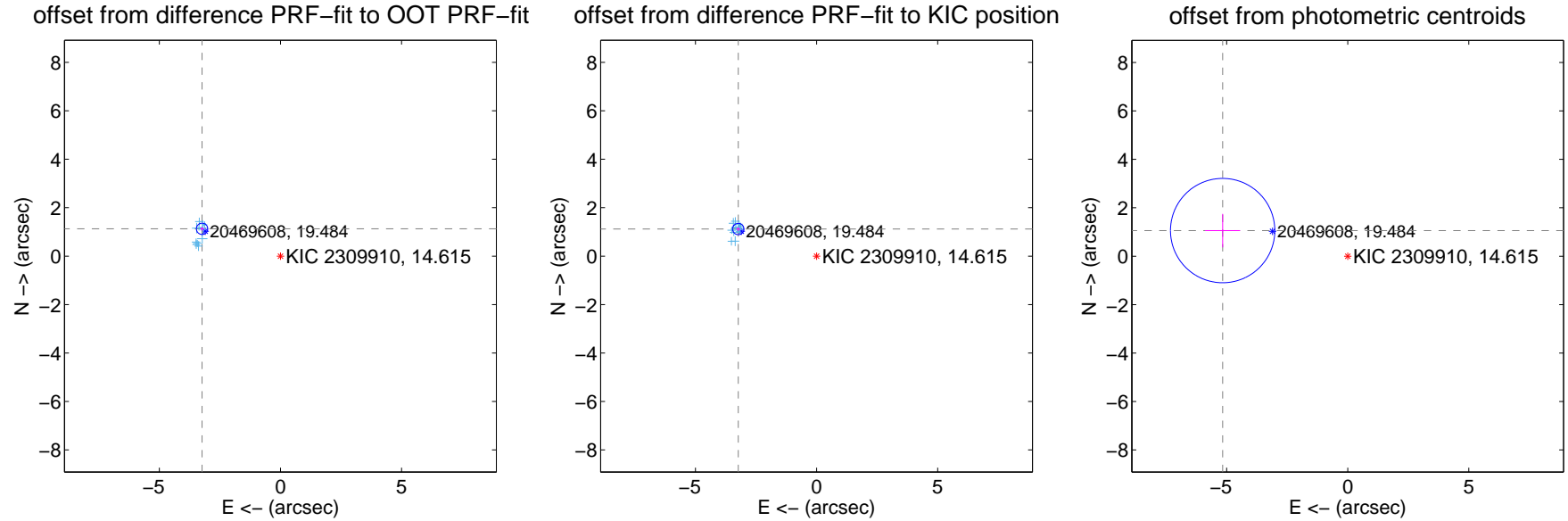
DV Centroid Data

Supplemental centroid analysis for 002309910-01. Kepler magnitude: 14.62. Transit SNR 17.36

There are 14 quarters with good PRF difference image offsets

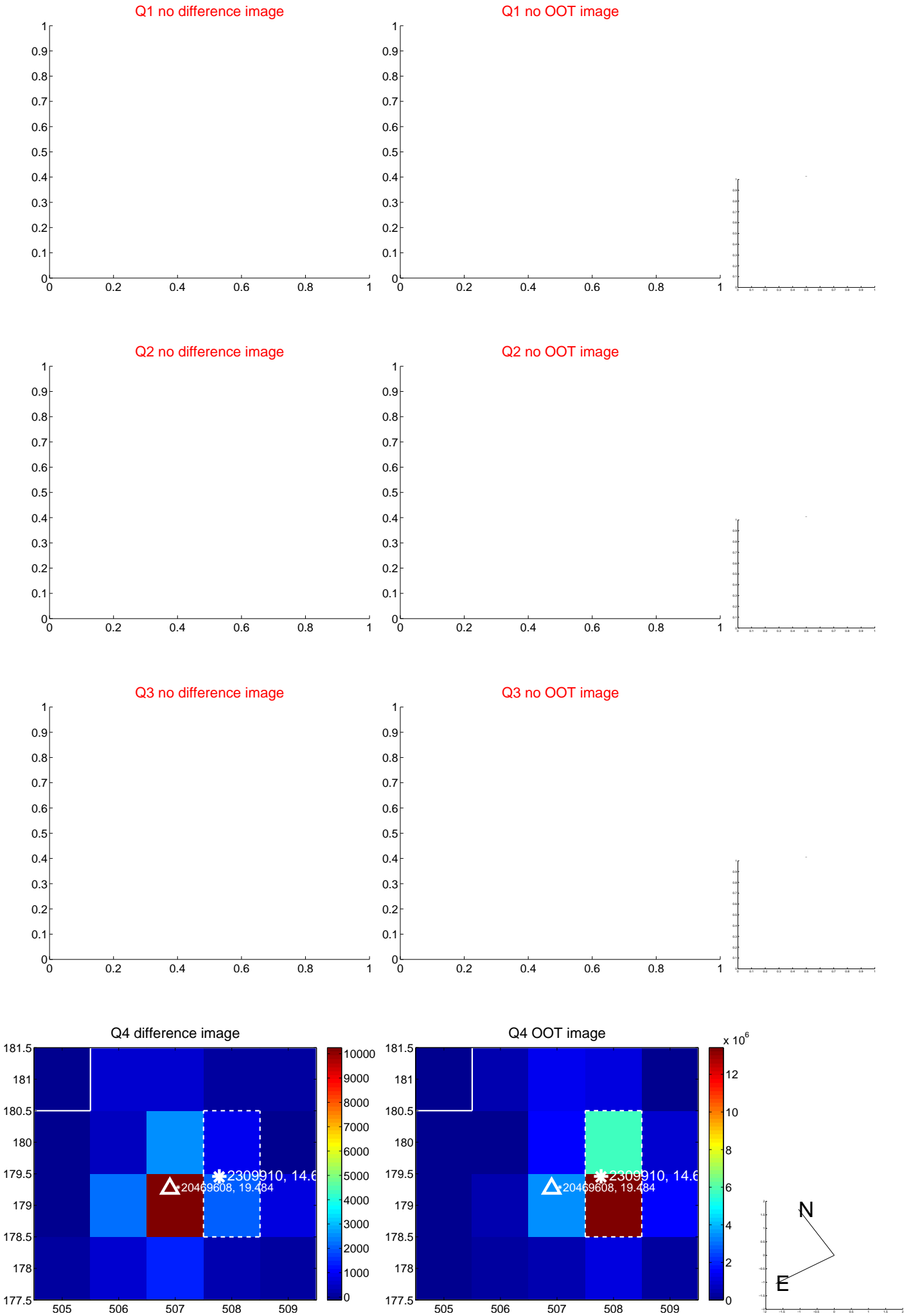
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.427 ± 0.078	43.96	3.236 ± 0.078	1.127 ± 0.078
PRF-fit source offset from KIC position	3.422 ± 0.078	43.89	3.233 ± 0.078	1.119 ± 0.078
photometric centroid source offset	5.27 ± 0.72	7.34	5.17 ± 0.72	1.06 ± 0.69

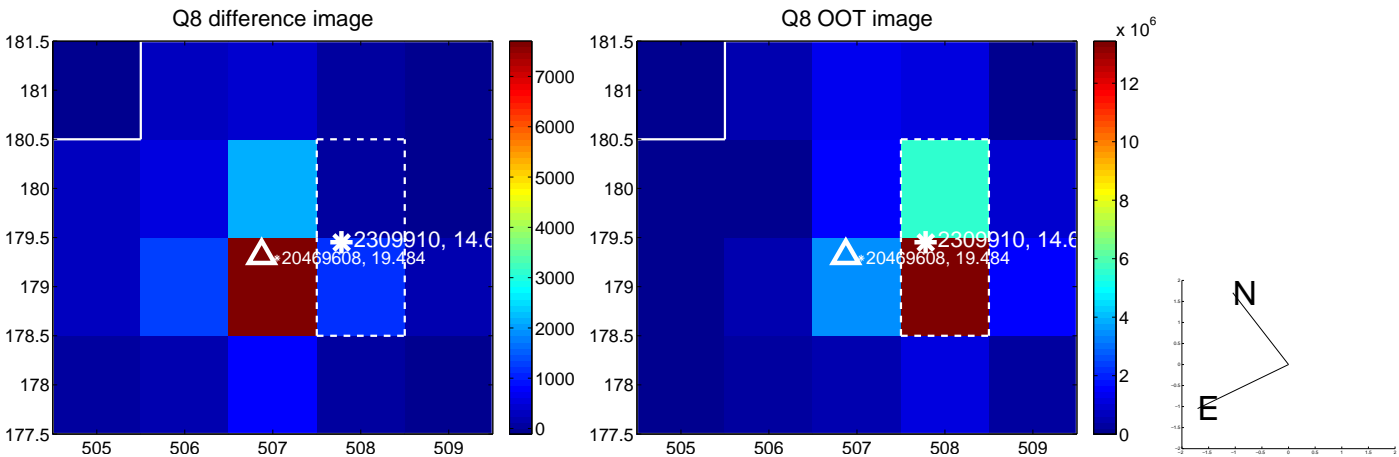
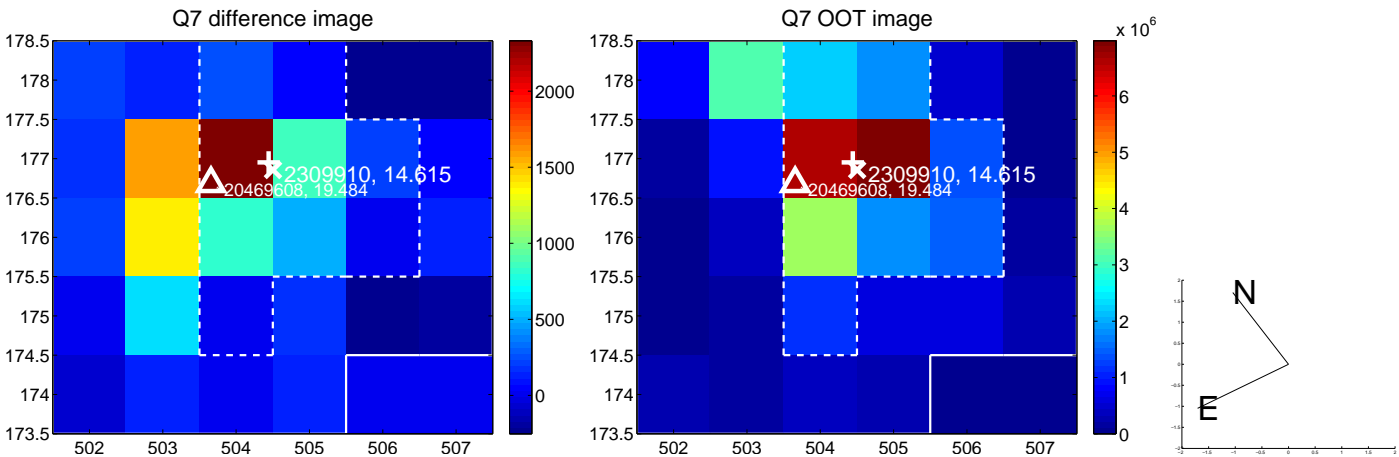
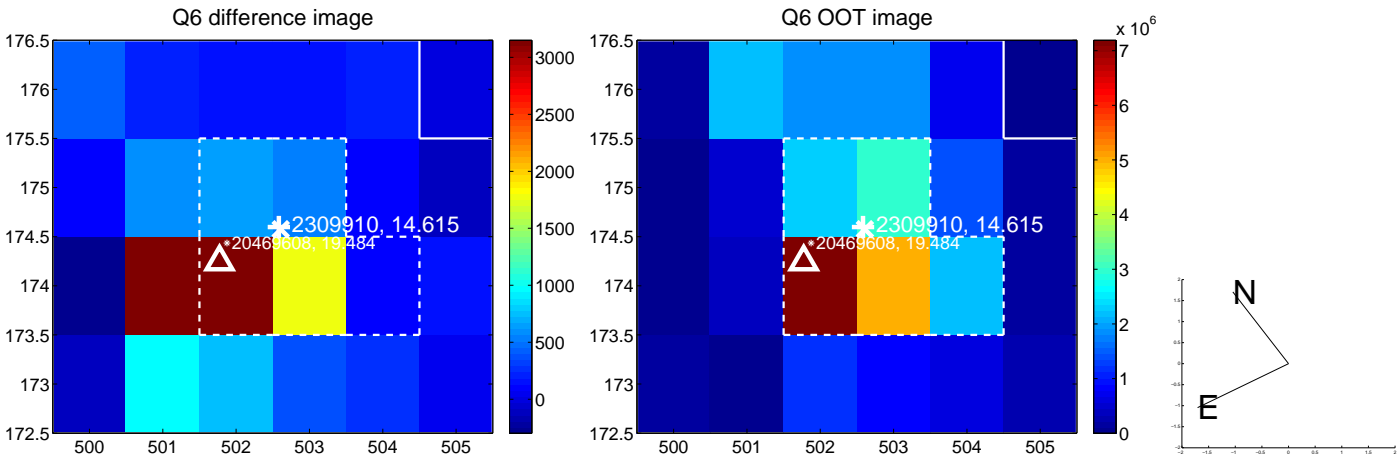
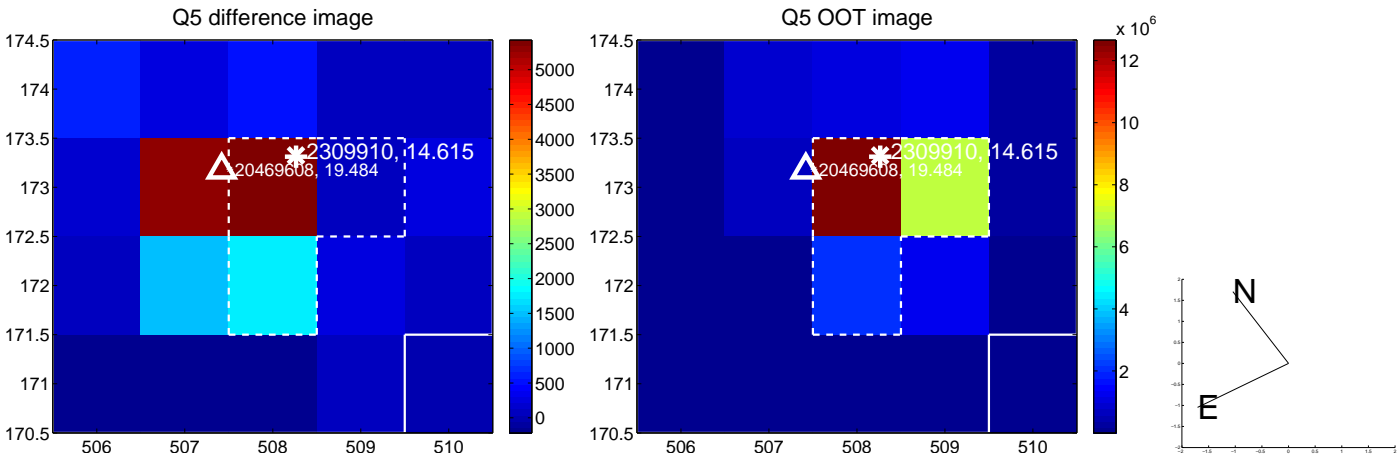


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

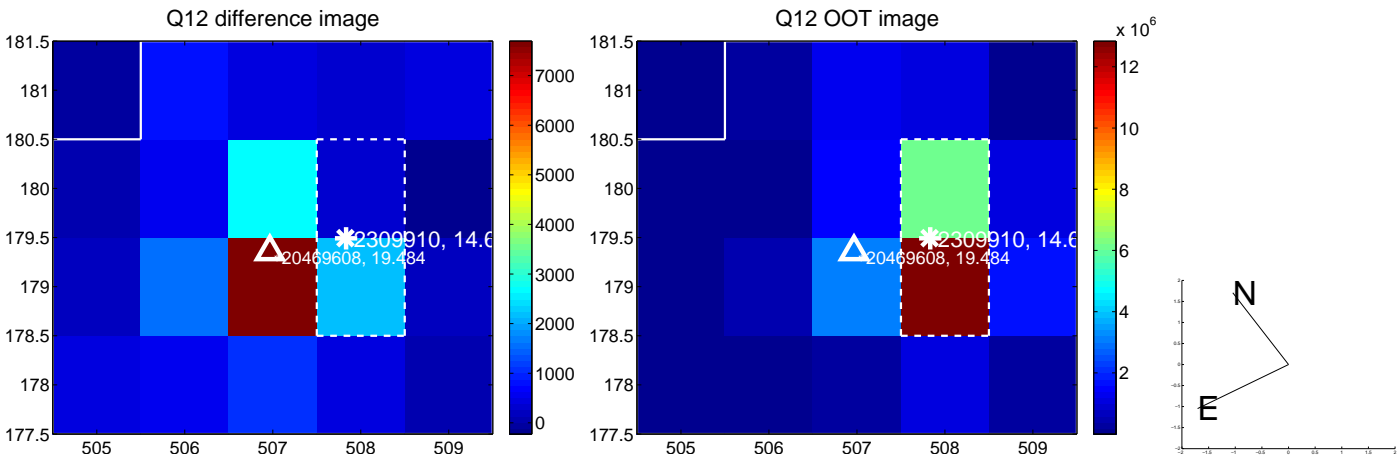
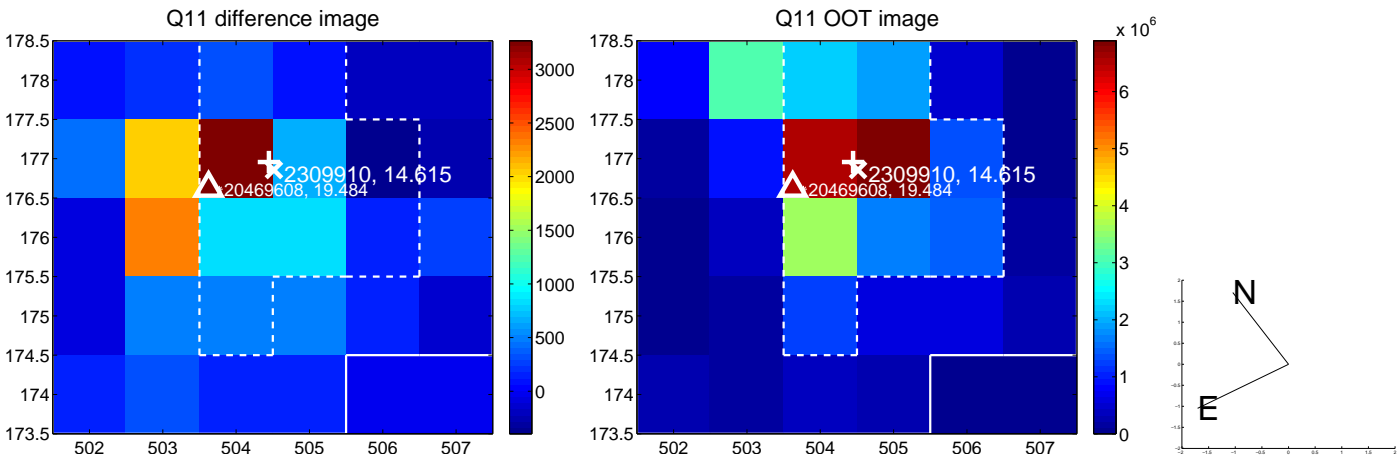
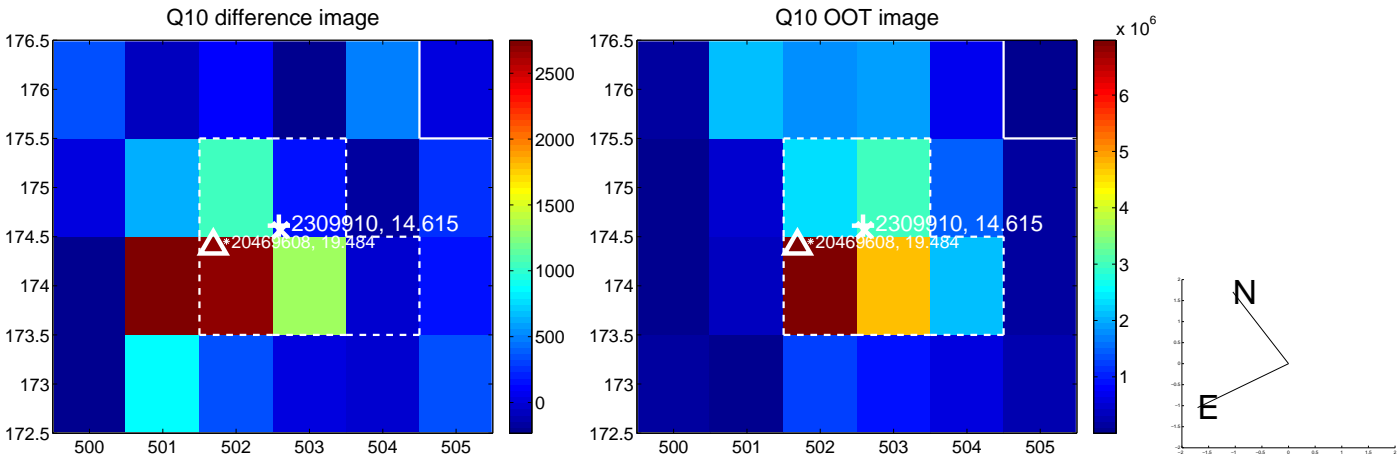
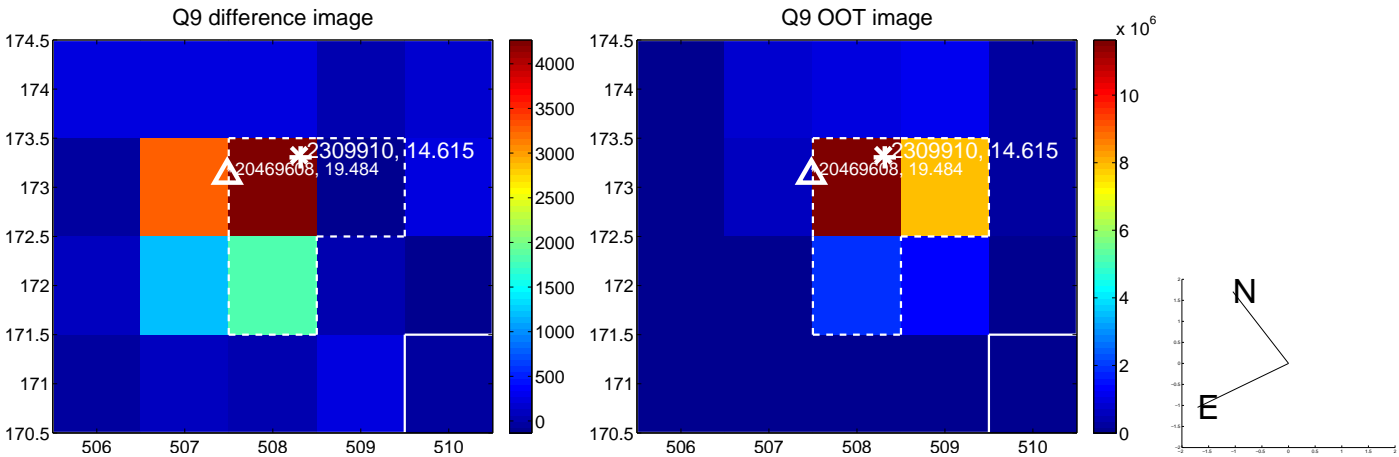
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



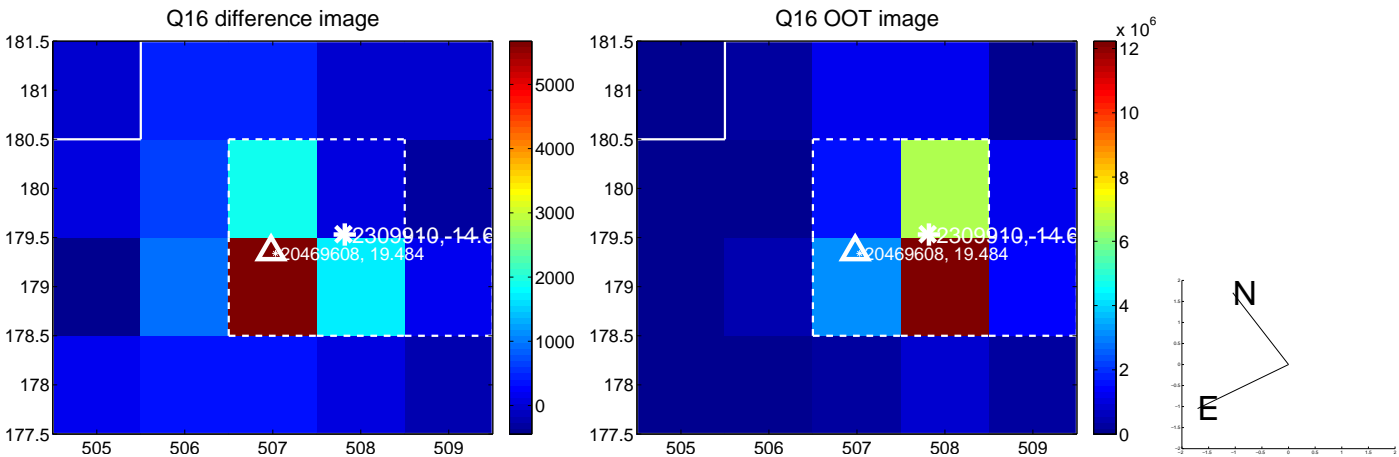
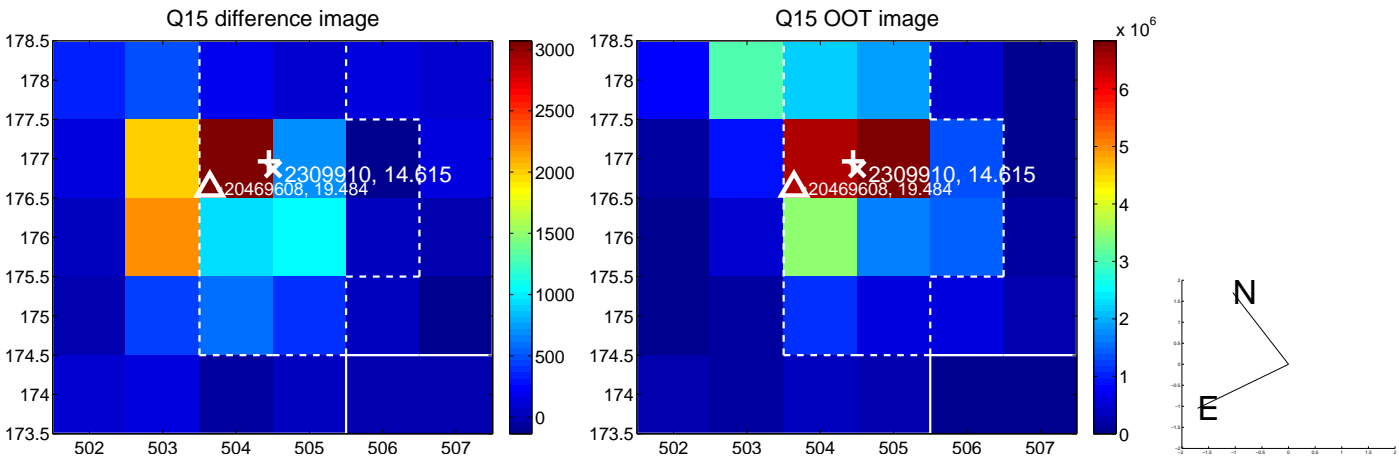
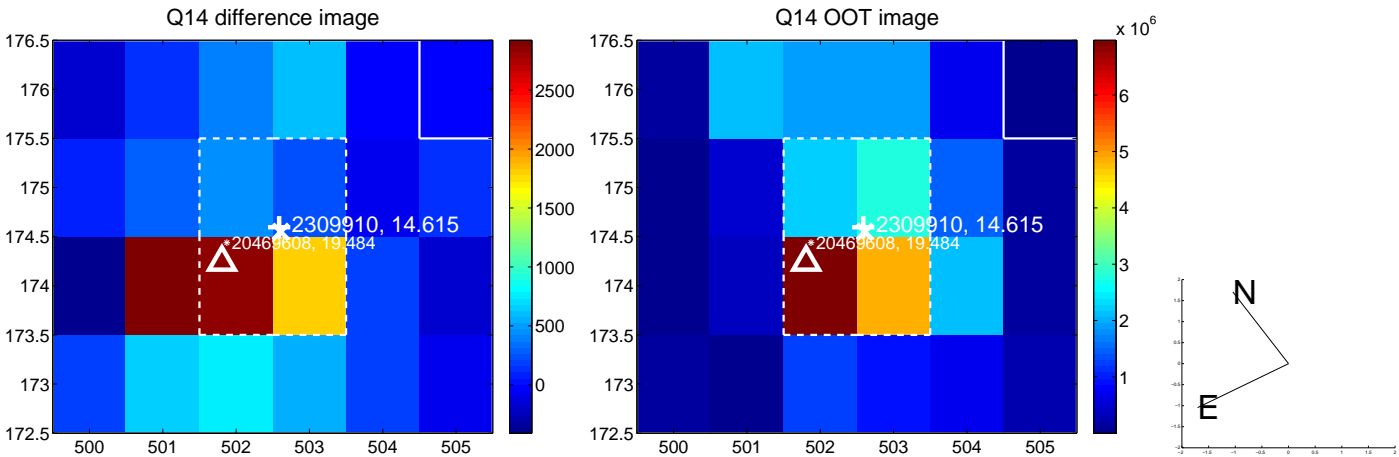
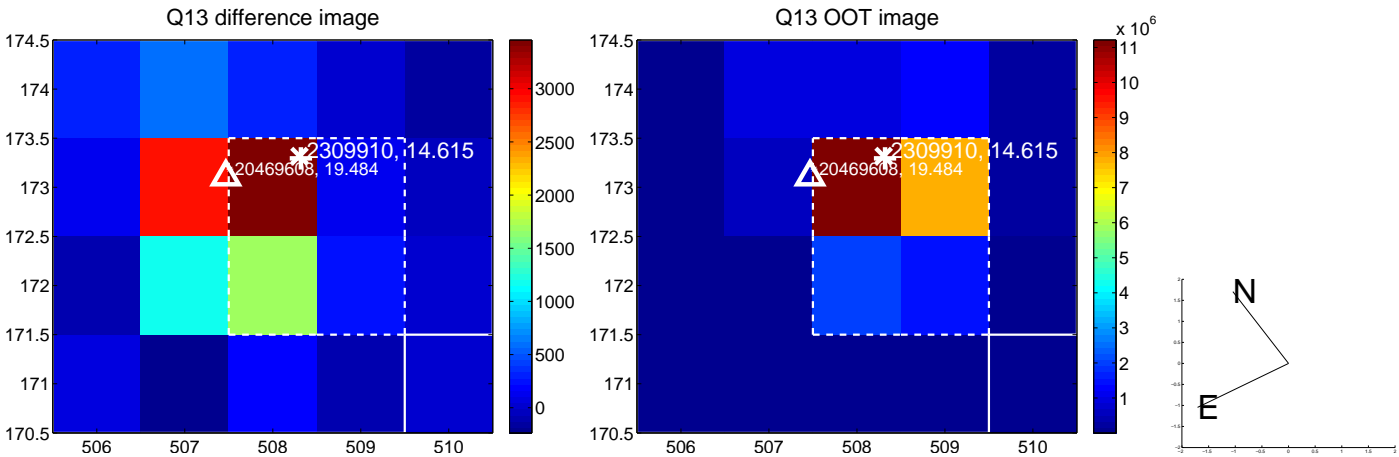
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



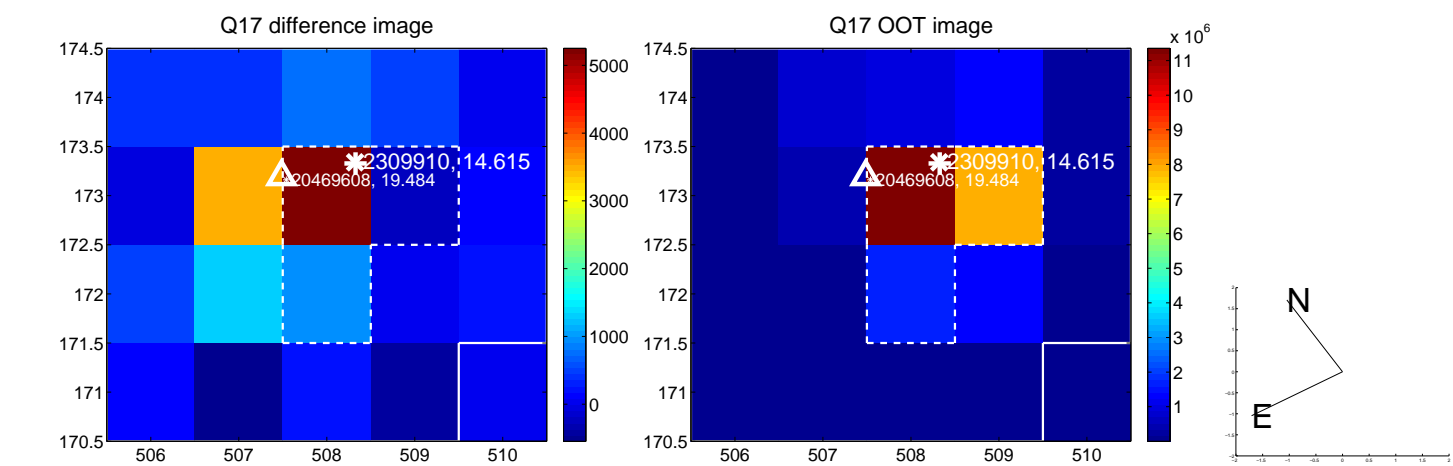
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



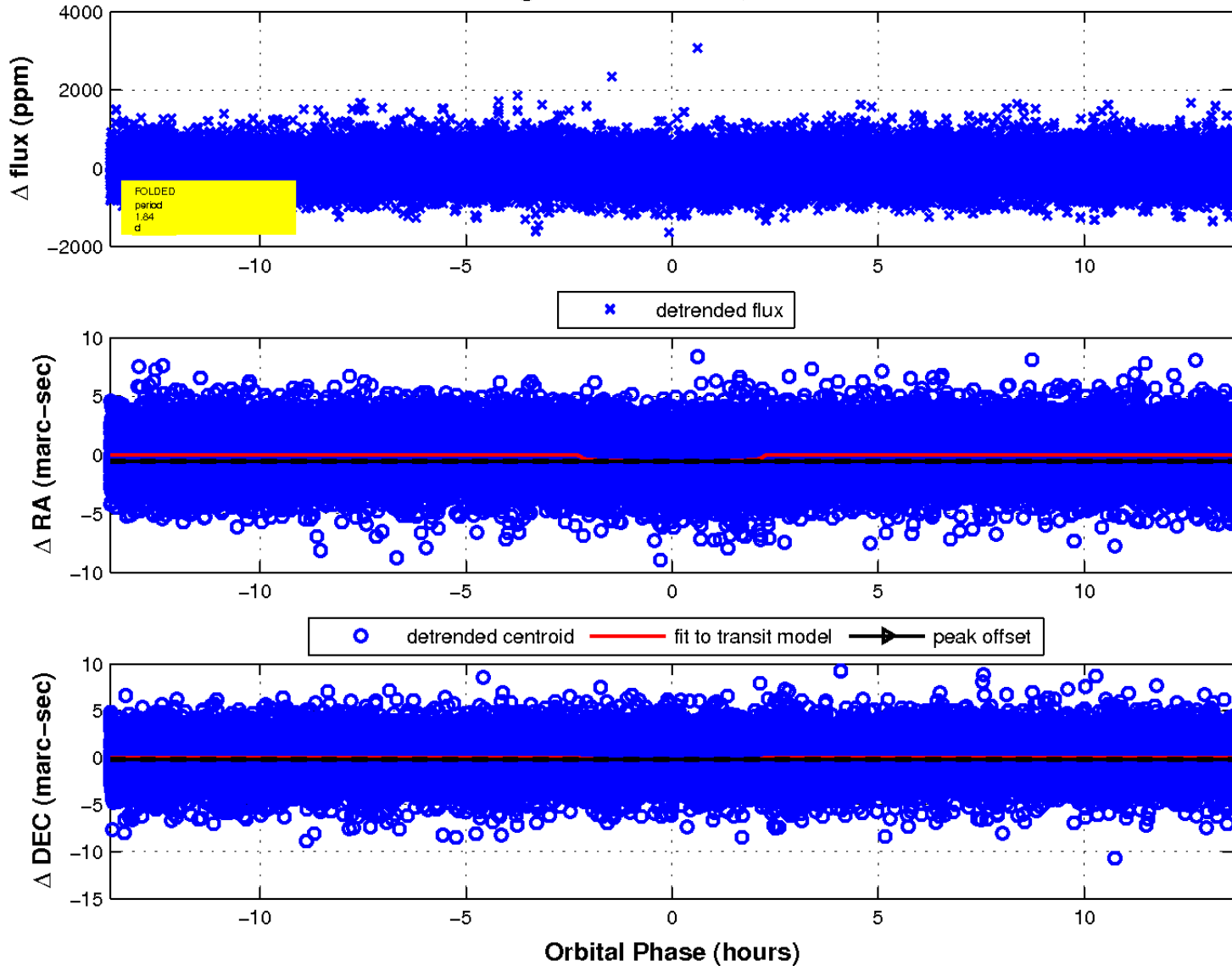
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

