

KIC 009236858

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})
009236858-01	OBS	7149.01	2.537082	134.005184	240830.2	4.747	4624.6	4419.2	1.31	6735	67.35	2034.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009236858-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT

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 009236858-01

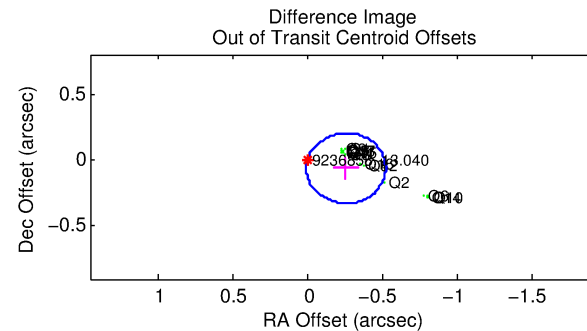
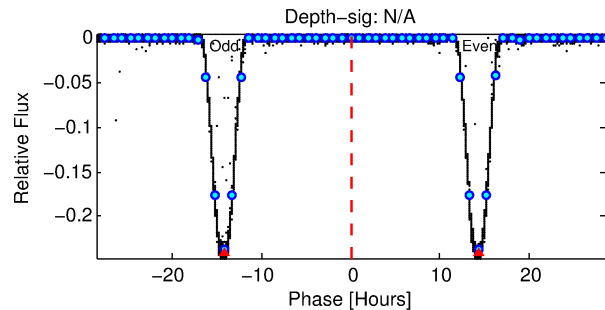
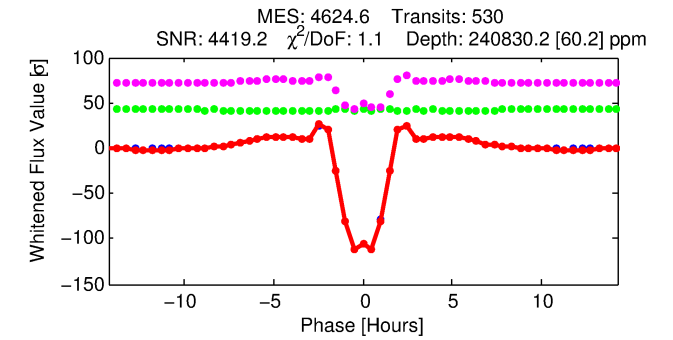
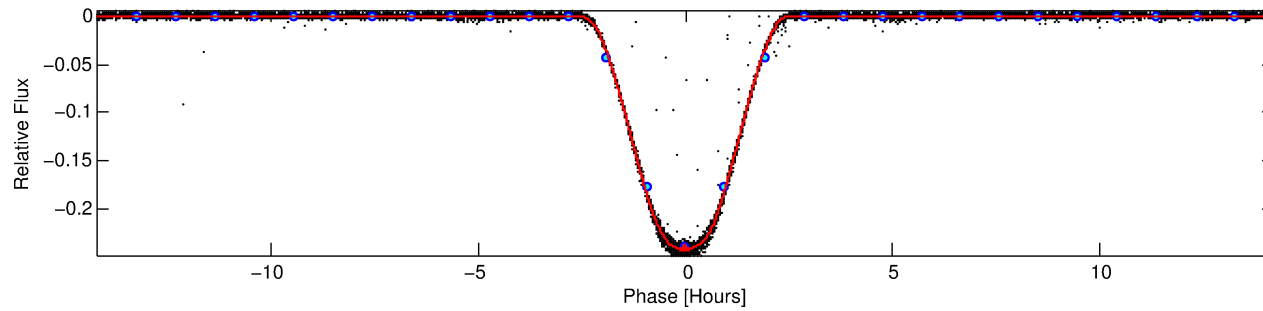
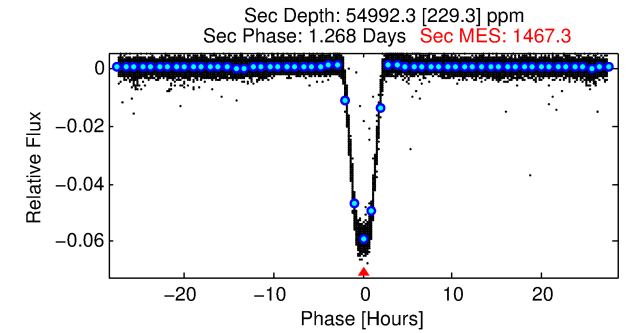
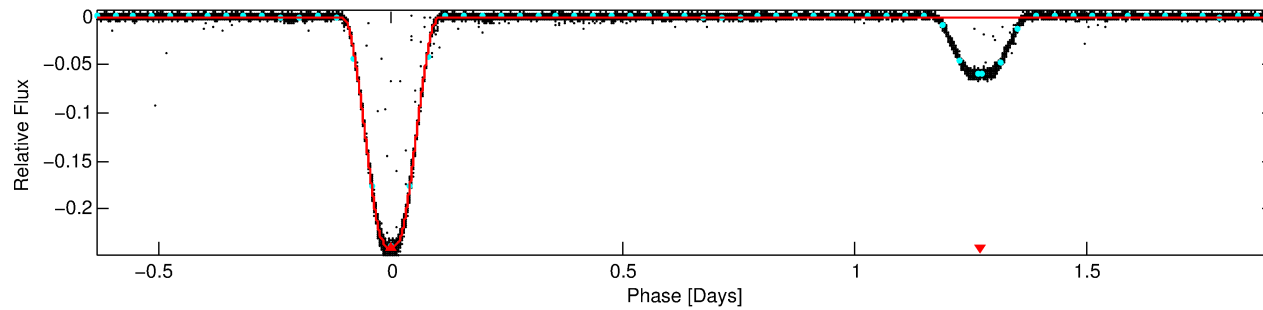
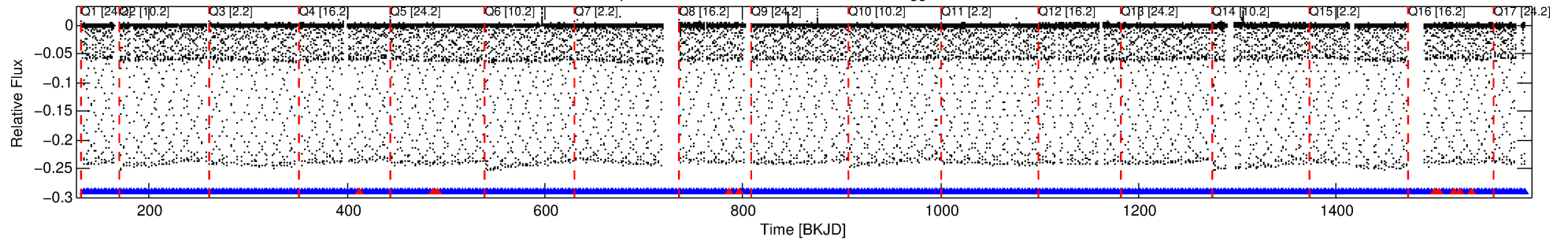
No Significant Match Found

DV One-Page Summary

KIC: 9236858 Candidate: 1 of 1 Period: 2.537 d

KOI: K07149.01 Corr: 0.994

Kp: 13.04 R*: 1.31 Rs Teff: 6735.0 K Logg: 4.31 Fe/H: -0.120



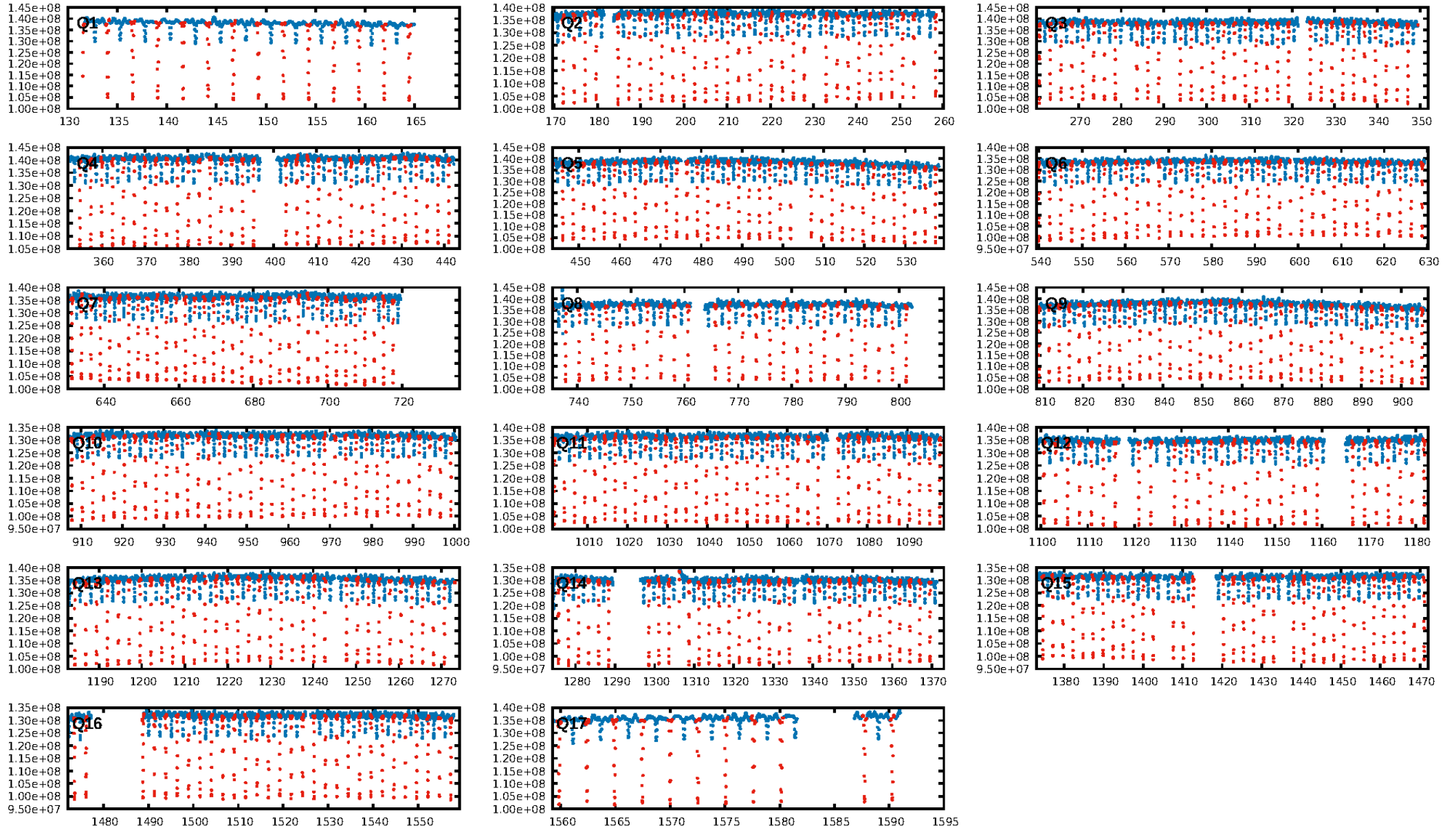
DV Fit Results:

Period = 2.53708 [0.00000] d
Epoch = 134.0052 [0.0000] BKJD
Rp/R* = 0.4715 [0.0001]
a/R* = 5.79 [0.00]
b = 0.45 [0.00]
Seff = 2034.35 [838.76]
Teff = 1713 [177] K
Rp = 67.35 [23.05] Re
a = 0.0394 [0.0109] AU
Ag = 10.36 [4.00] [2.34σ]
Teffp = 4750 [171] K [12.34σ]

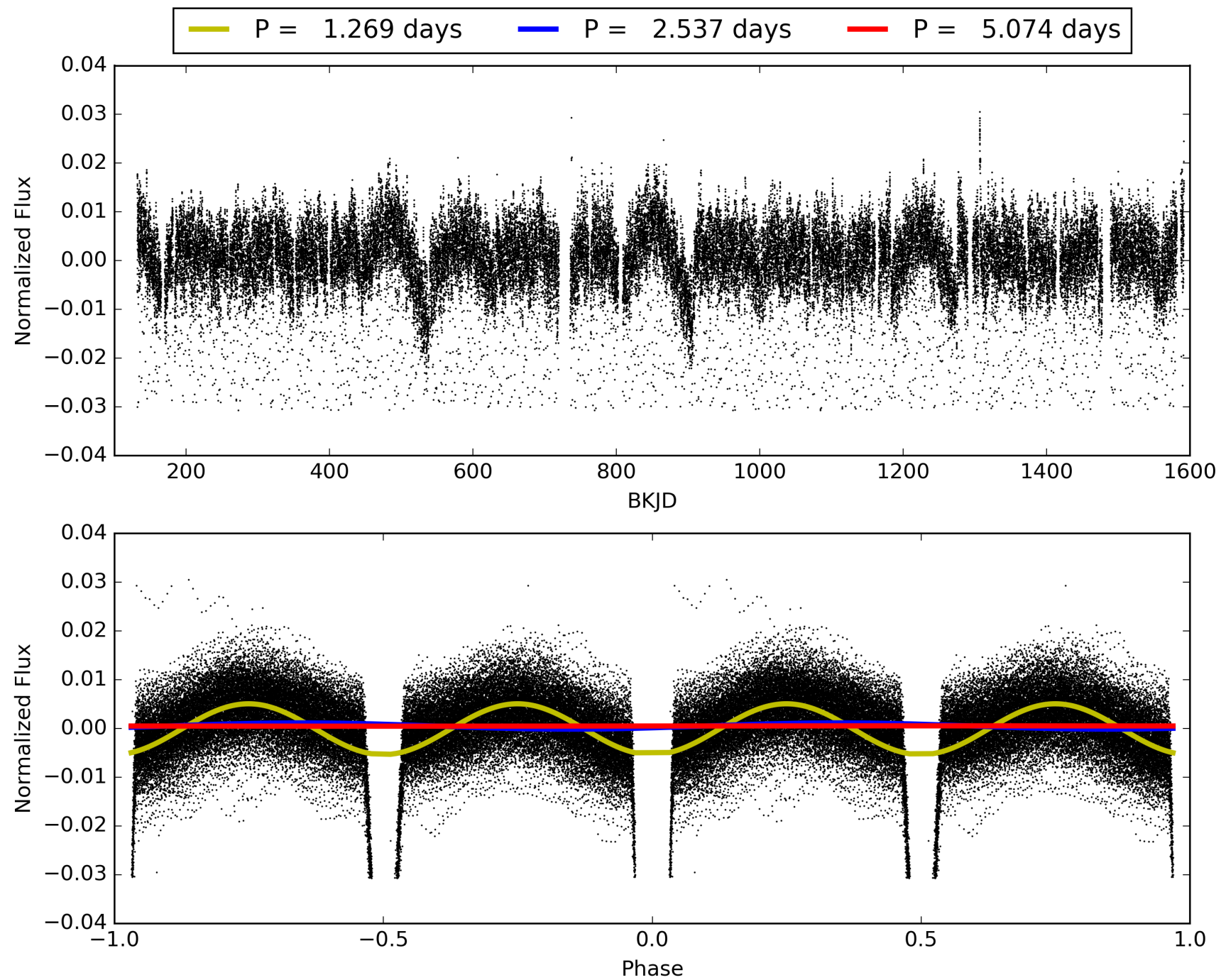
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [495/505]
GhostDiagnostic-chr: 2.186
Centroid-sig: 0.0%
Centroid-so: 0.049 arcsec [160.57σ]
OotOffset-rm: 0.268 arcsec [3.04σ]
KicOffset-rm: 0.058 arcsec [0.85σ]
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 009236858-01, PDC Light Curves

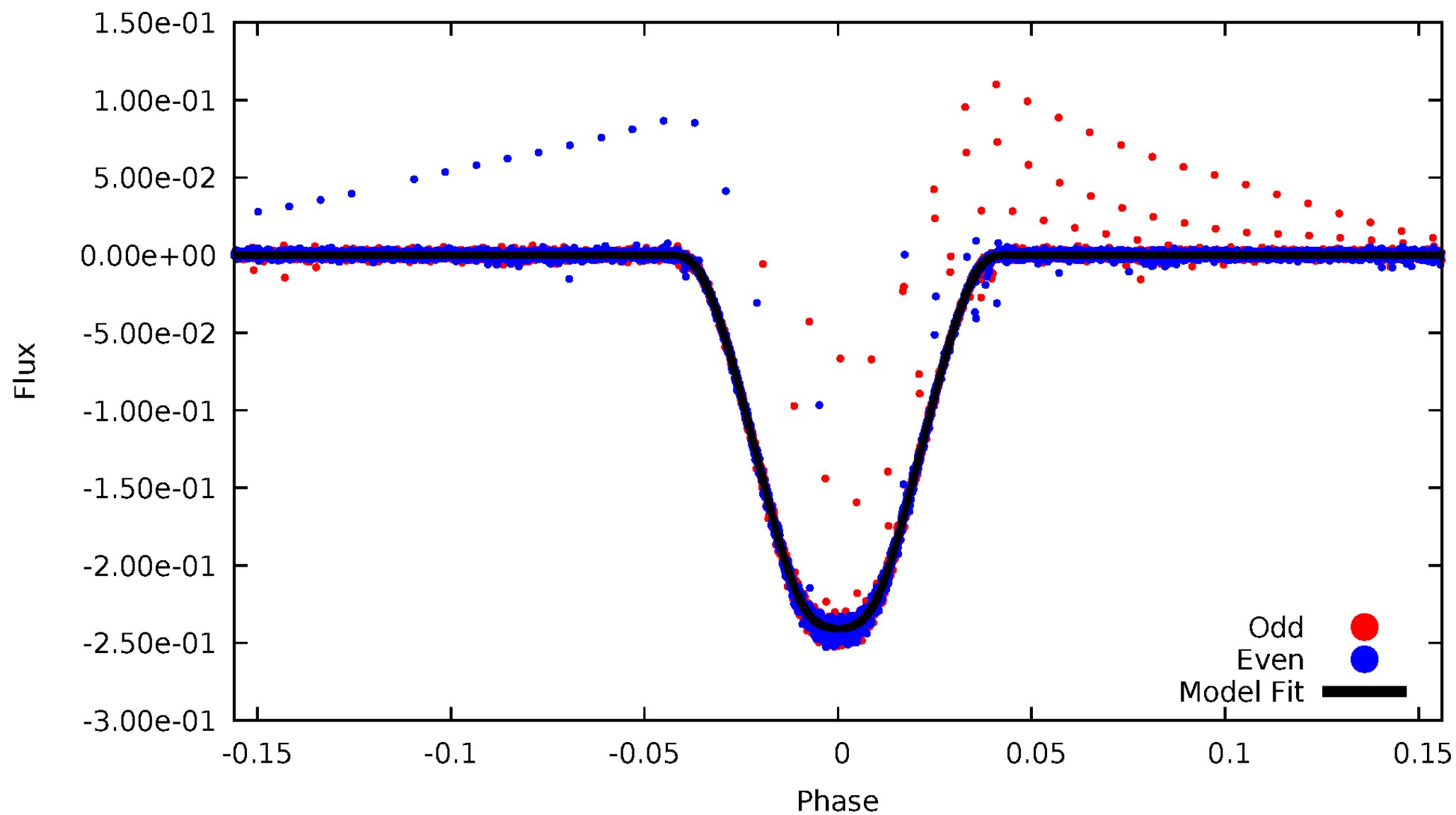


TCE 009236858-01



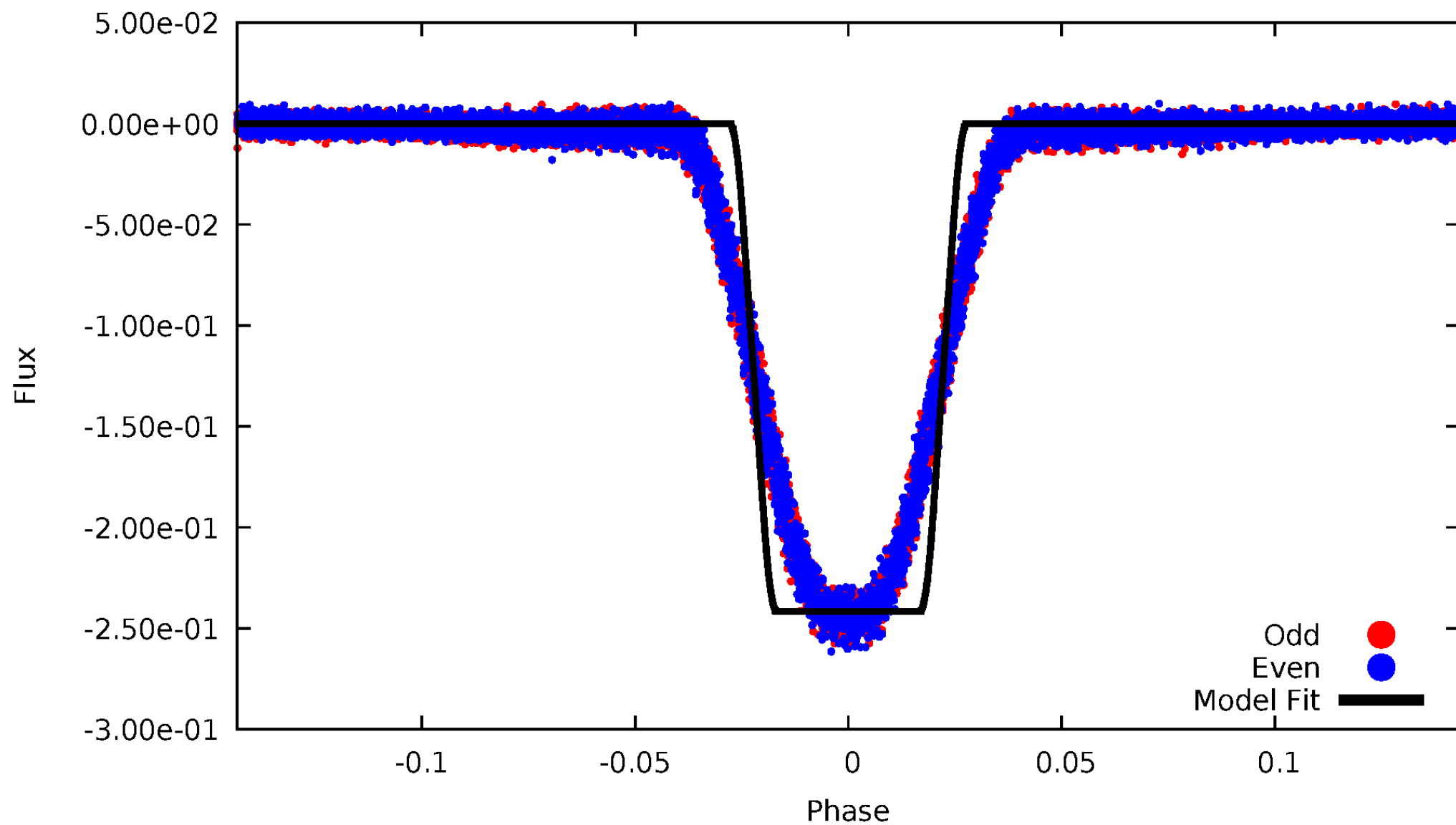
DV Odd/Even

TCE 009236858-01



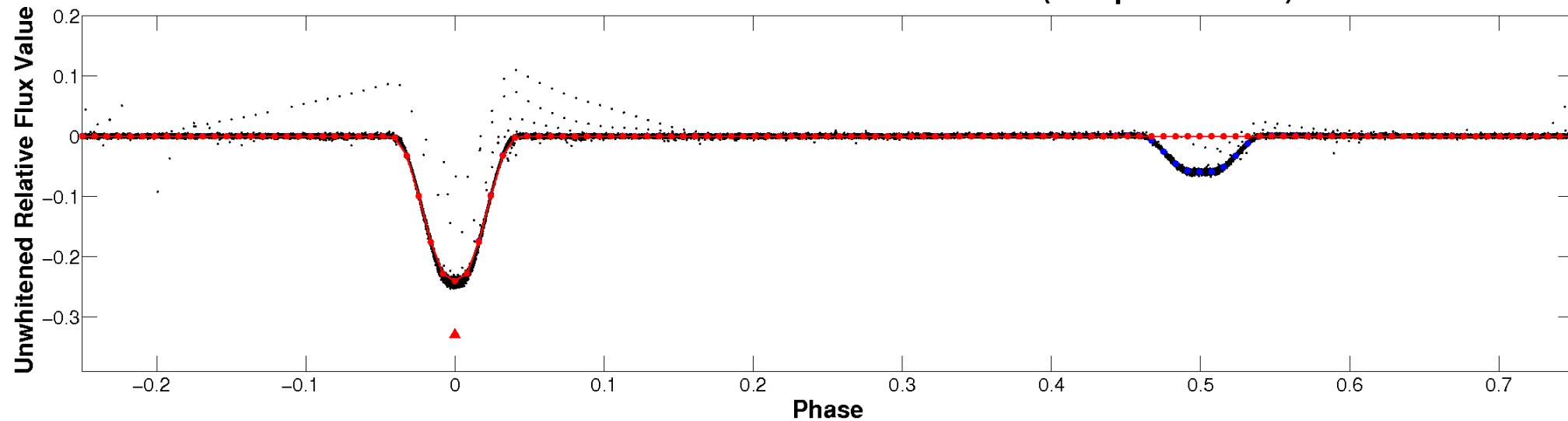
ALT Odd/Even

TCE 009236858-01

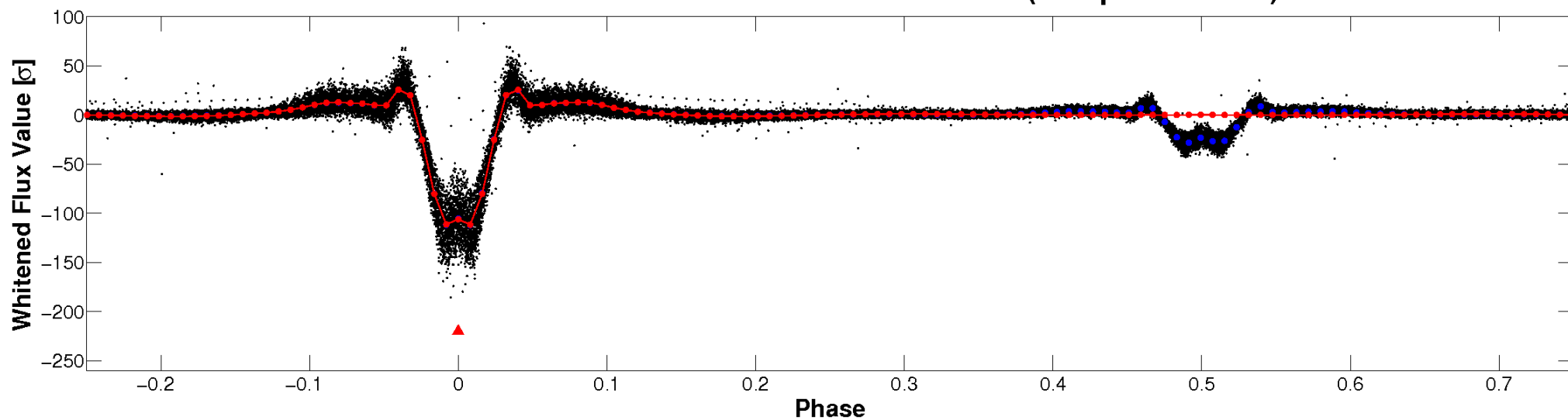


Non-Whitened Vs. Whitened Light Curve

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

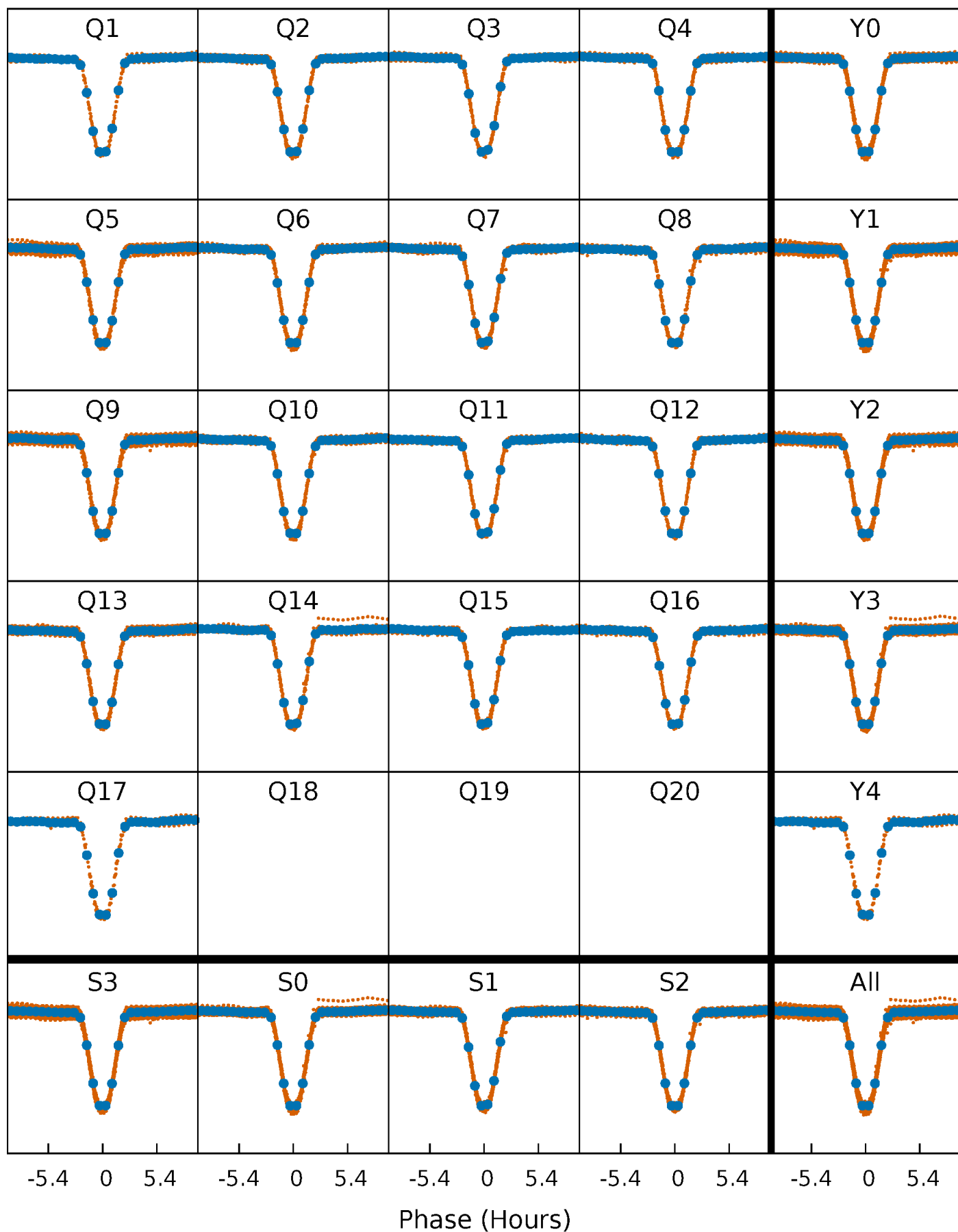


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



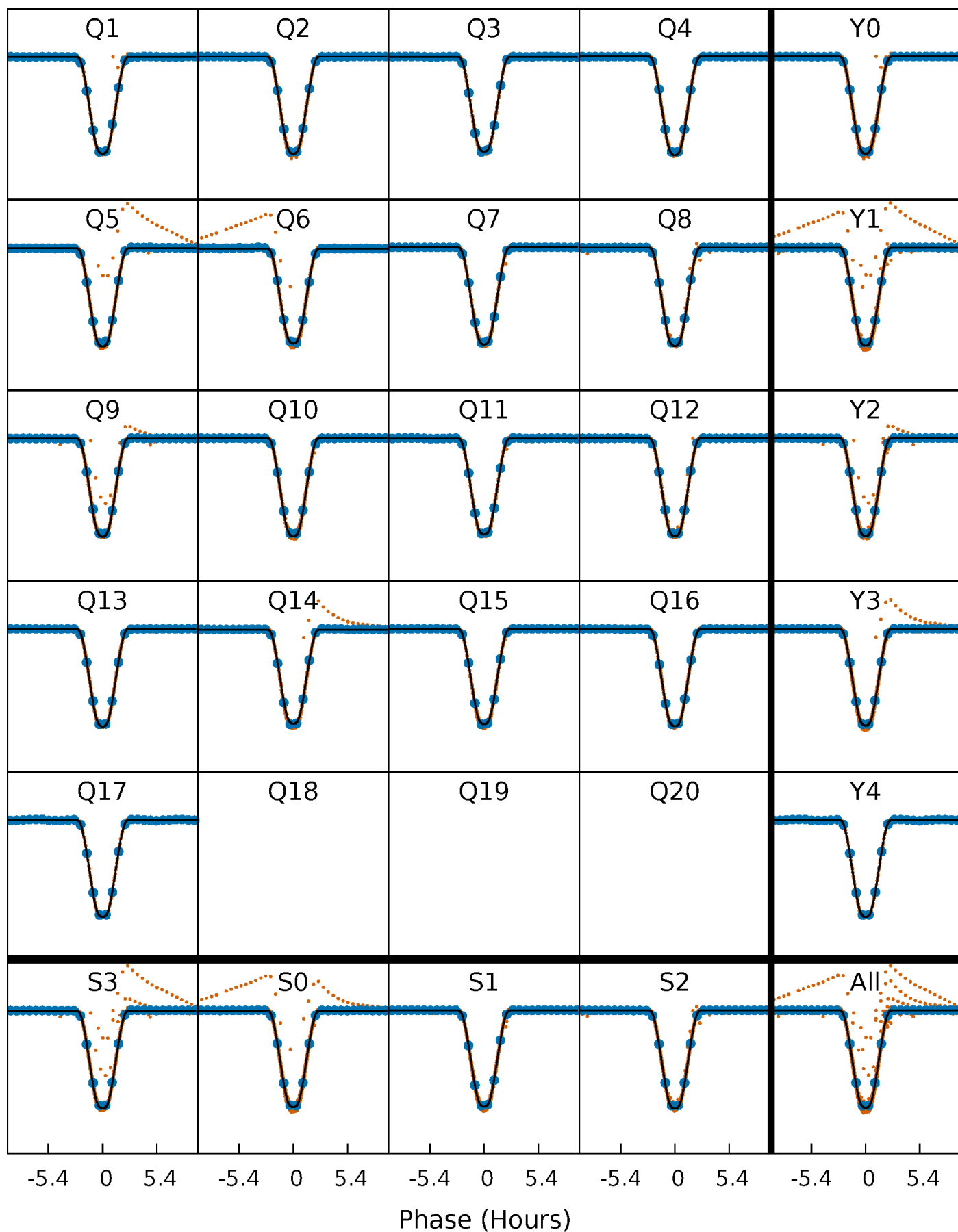
PDC Quarter-Phased Transit Curves

TCE 009236858-01 P= 2.537082 Days $T_0=134.005184$ (BKJD)



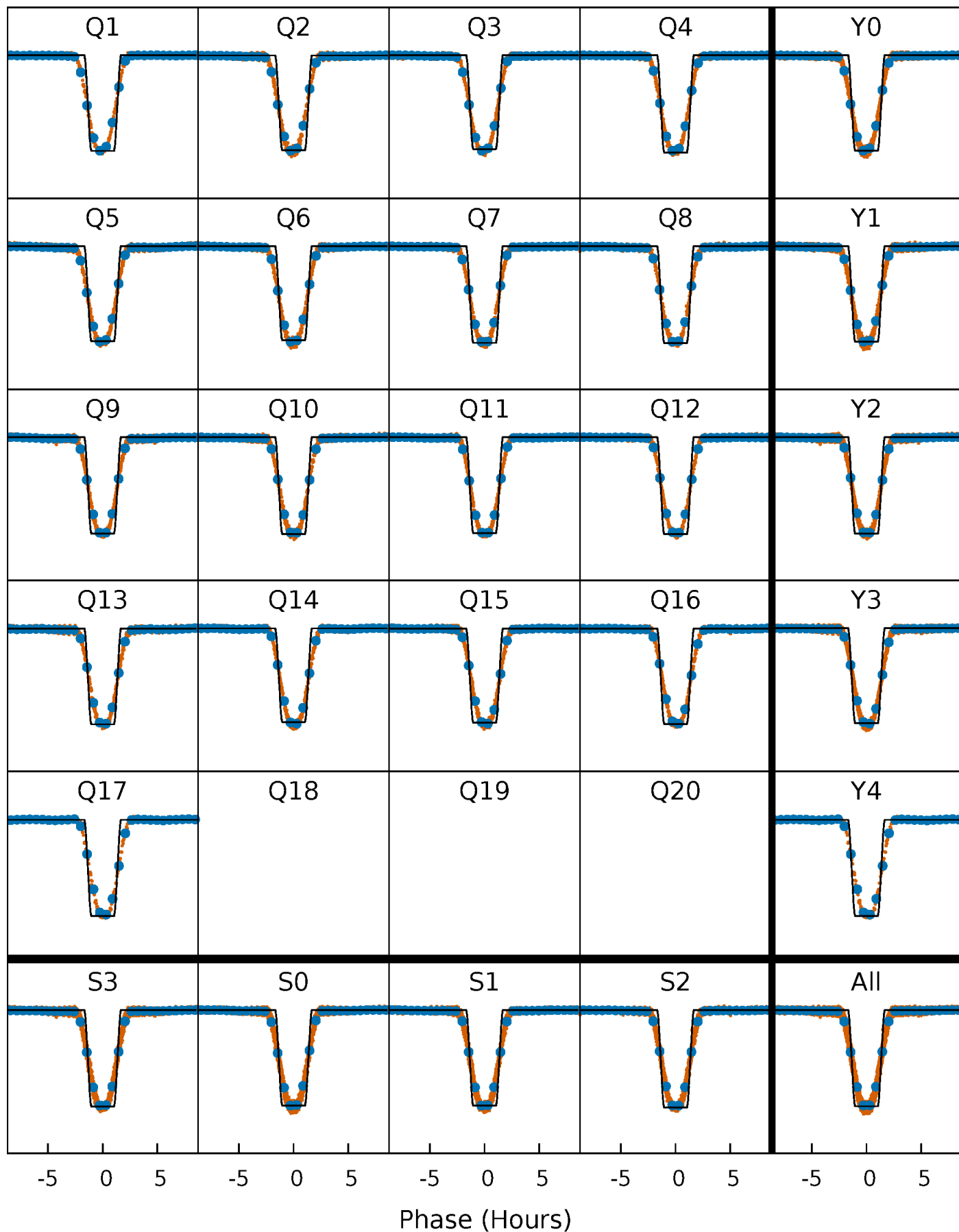
DV Quarter-Phased Transit Curves

TCE 009236858-01 P= 2.537082 Days $T_0=134.005184$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

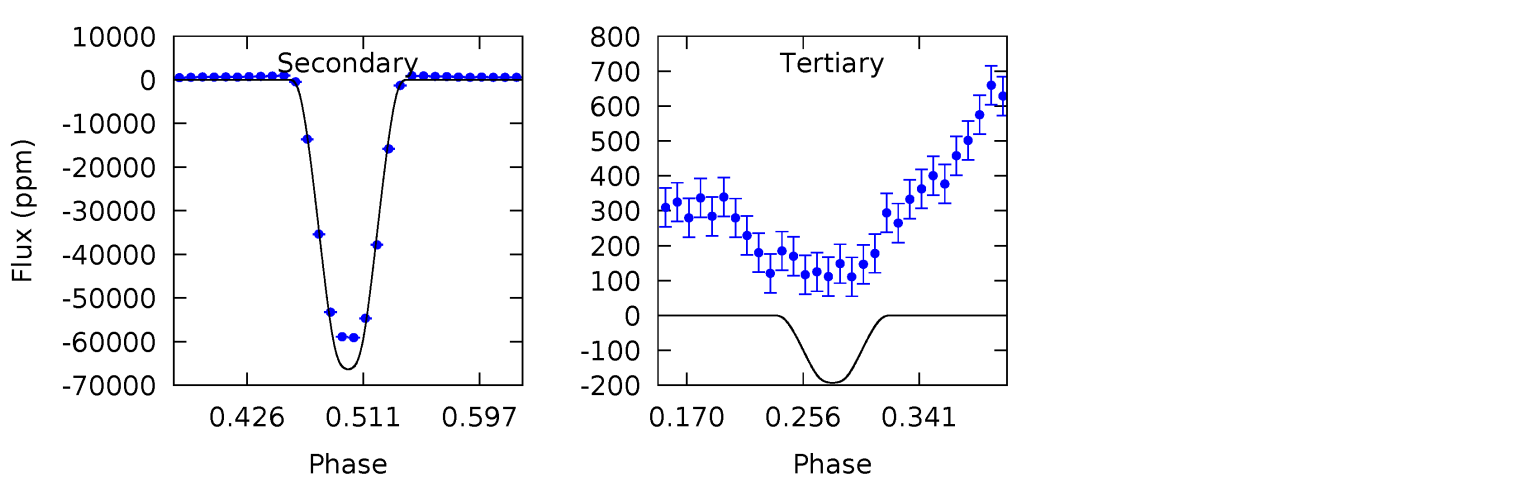
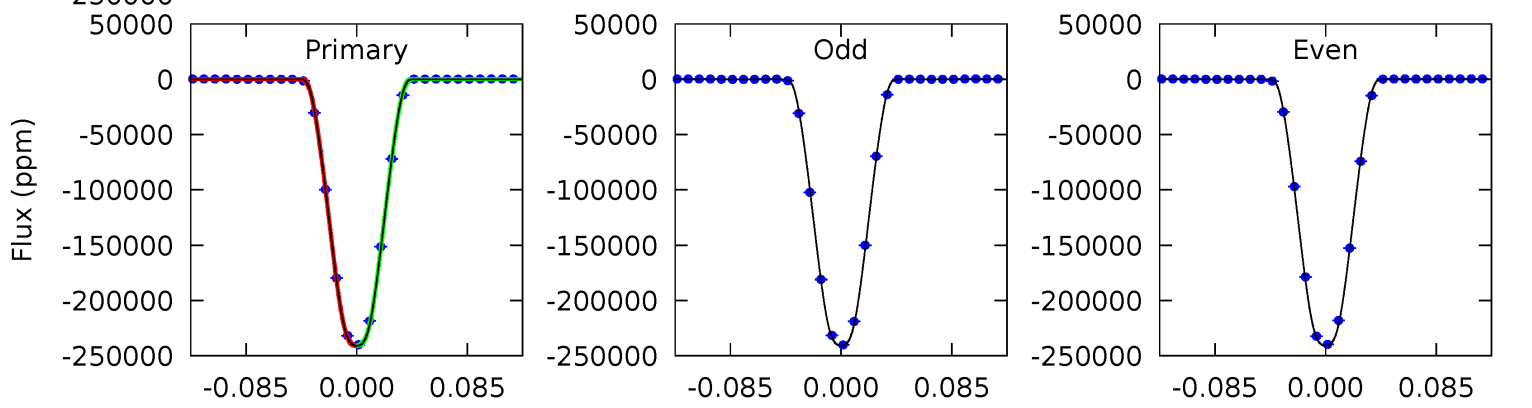
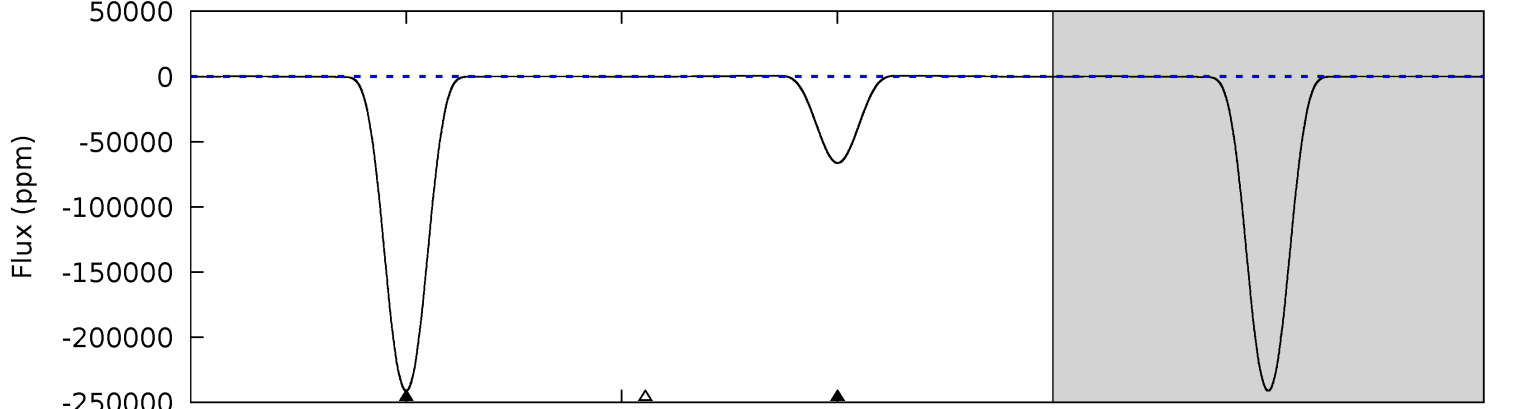
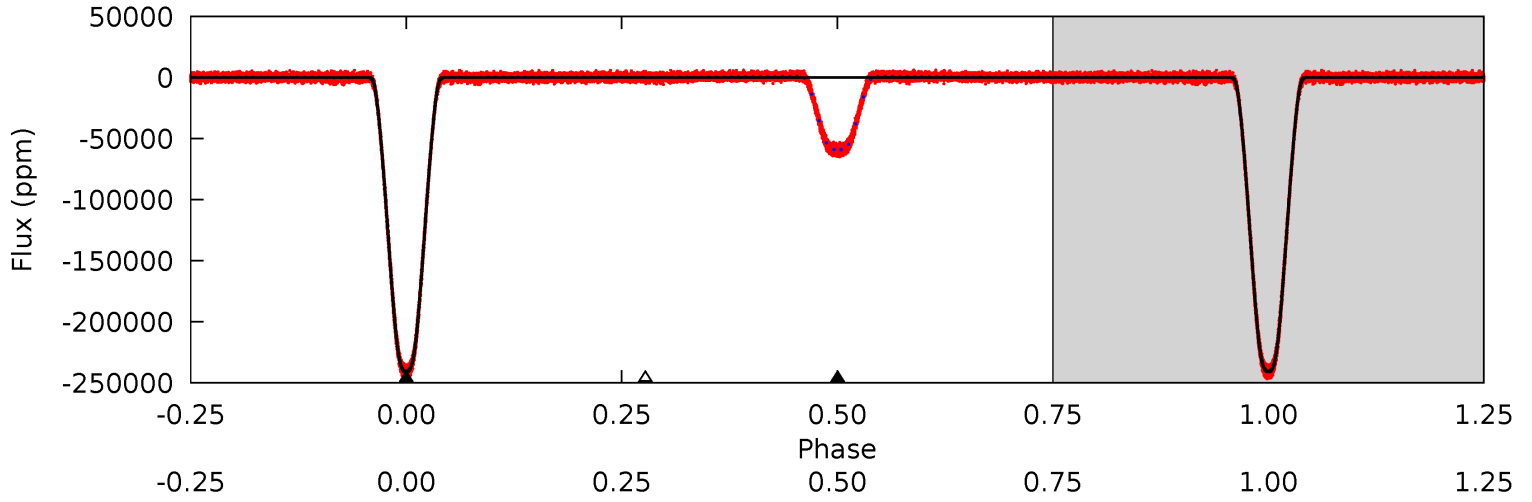
TCE 009236858-01 P= 2.537065 Days $T_0=134.010069$ (BKJD)



DV Model-Shift Uniqueness Test

009236858-01, P = 2.537082 Days, E = 131.468102 Days

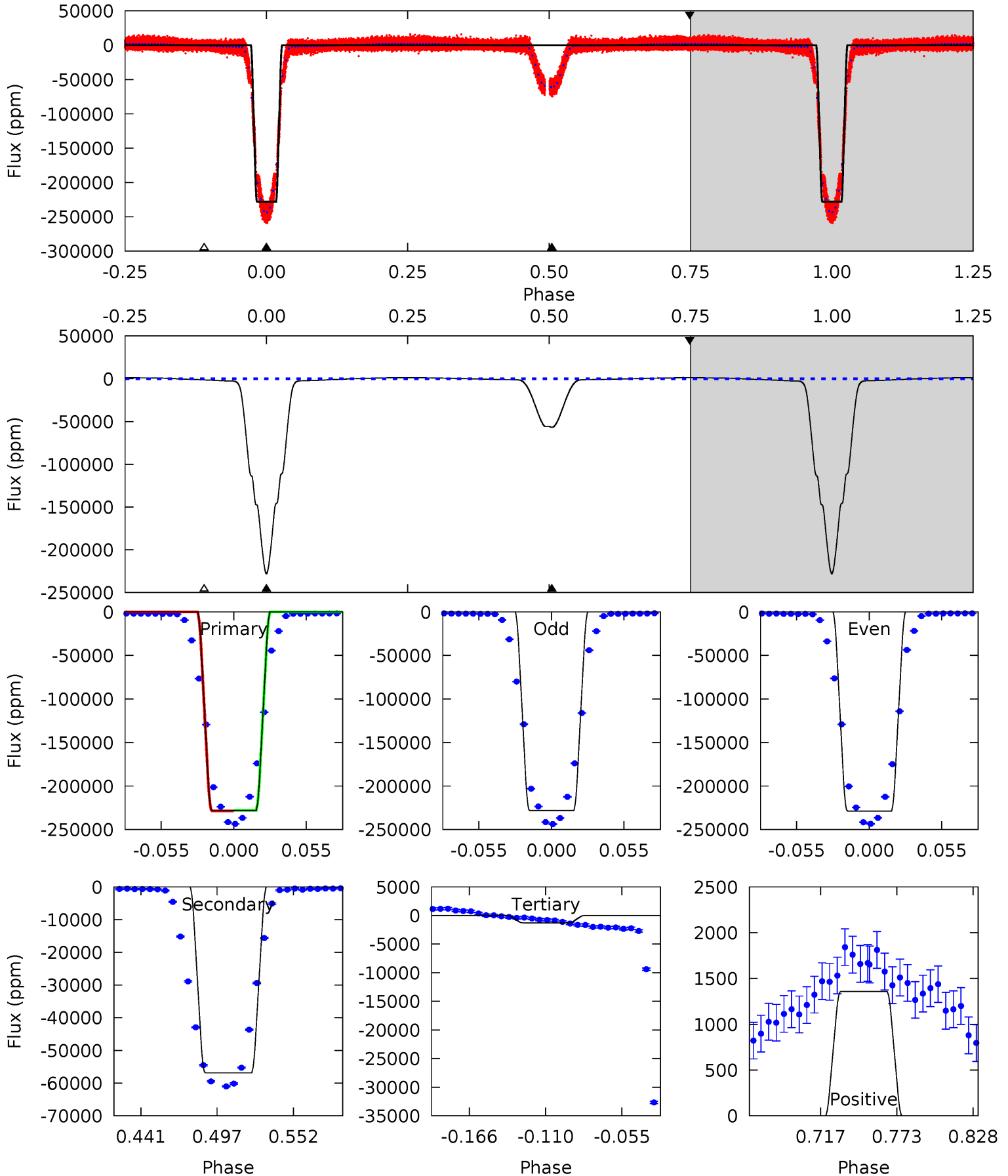
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13073	3599	10.5	0	4.60	1.72	9.93	13063	13073	3588	3599	2.15	0.99	0.00	3.68



Alt Model-Shift Uniqueness Test

009236858-01, P = 2.537065 Days, E = 131.473004 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3195	796.7	17.8	19.0	4.69	1.92	15.5	3177	3176	778.9	777.7	3.02	1.00	0.01	3.93



Stellar Parameters For KIC 009236858

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6735^{+162}_{-243}	$4.307^{+0.072}_{-0.203}$	$-0.120^{+0.250}_{-0.300}$	$1.309^{+0.448}_{-0.192}$	$1.275^{+0.190}_{-0.190}$	$0.801^{+0.303}_{-0.420}$
	+2%/-4%	+2%/-5%	+208%/-250%	+34%/-15%	+15%/-15%	+38%/-52%
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 009236858-01 / KOI 7149.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-66346 ± 18	$69.59^{+12.40}_{-6.91}$	2430^{+182}_{-135}	5079^{+110}_{-145}	13^{+2}_{-3}
Alt.	-56863 ± 71	$71.83^{+12.59}_{-5.96}$	2434^{+183}_{-132}	4827^{+89}_{-131}	$9.858^{+1.605}_{-2.542}$

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

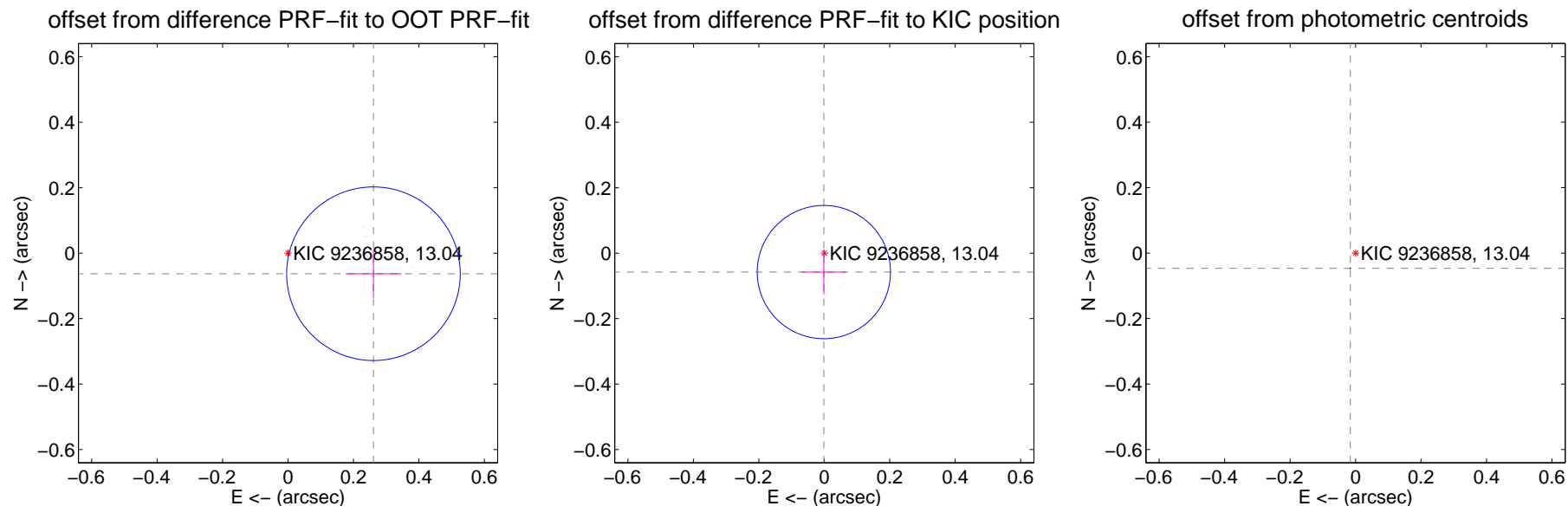
DV Centroid Data

Supplemental centroid analysis for 009236858-01. Kepler magnitude: 13.04. Transit SNR 4419.19

There are 17 quarters with good PRF difference image offsets

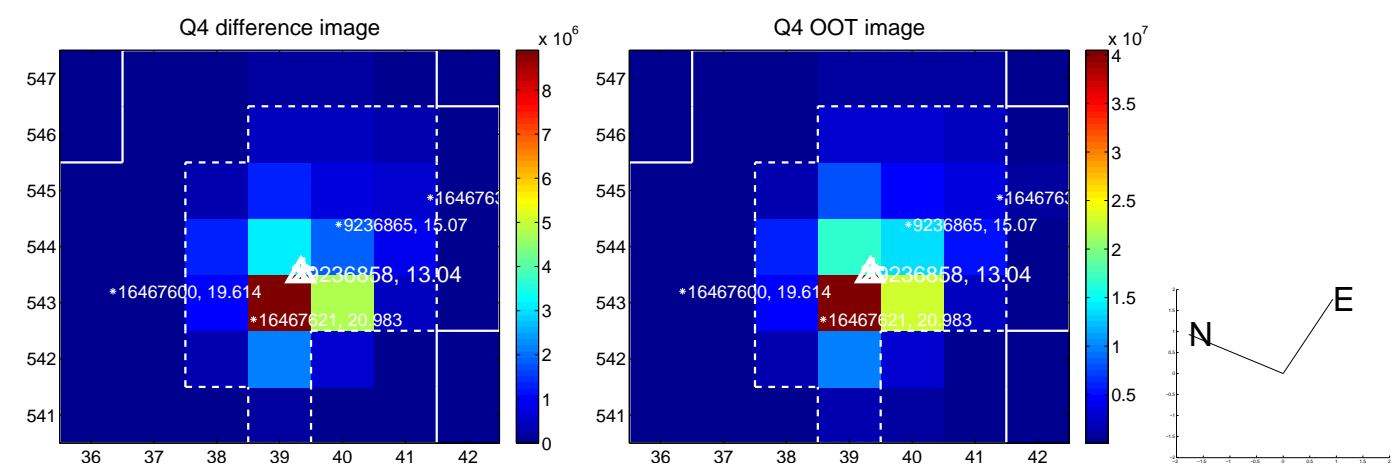
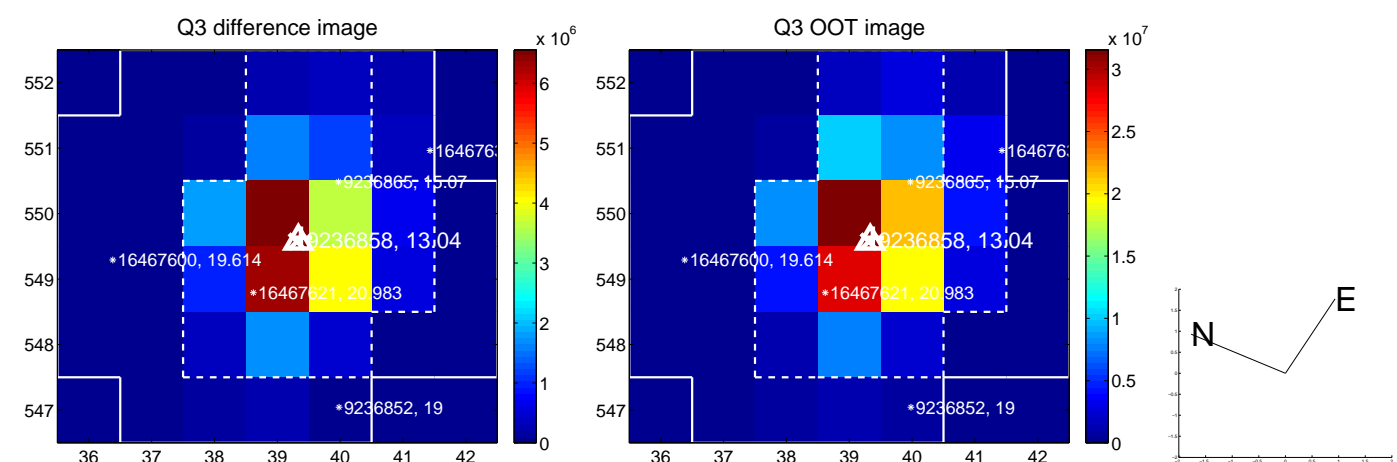
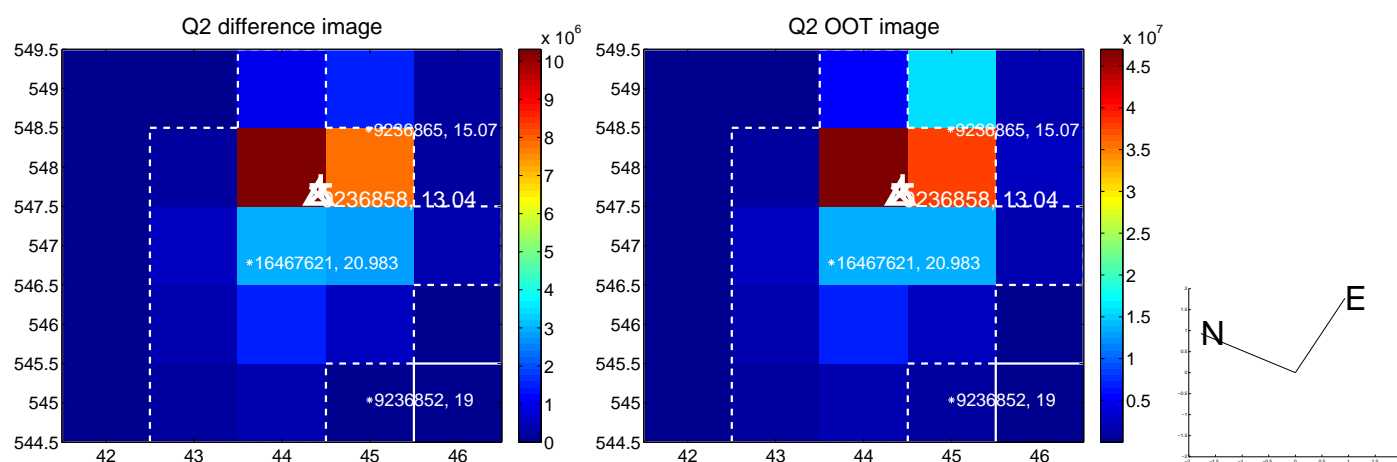
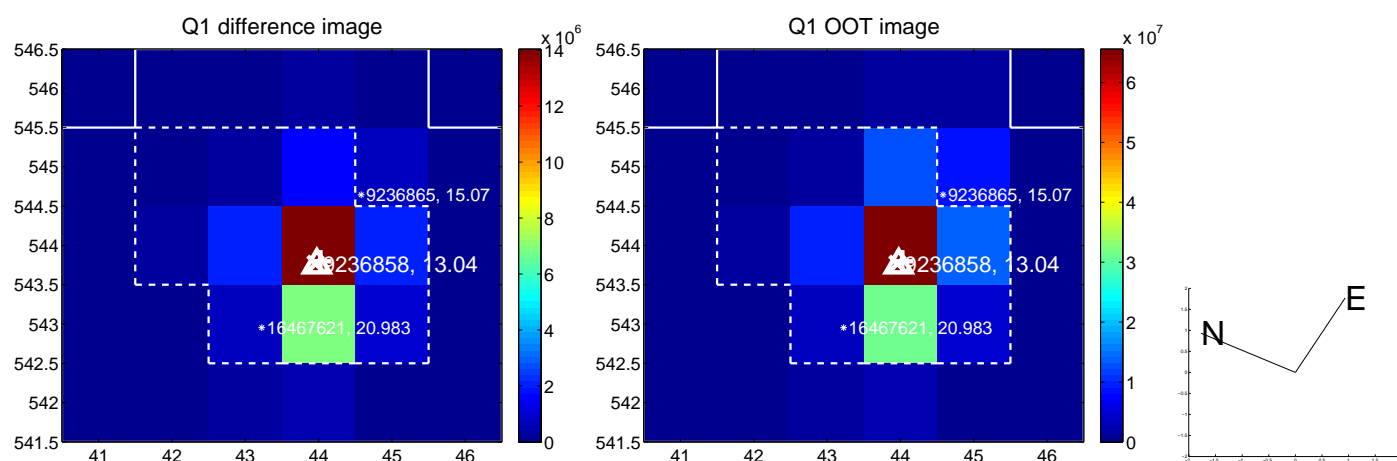
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.268 ± 0.088	3.04	-0.261 ± 0.084	-0.063 ± 0.074
PRF-fit source offset from KIC position	0.058 ± 0.068	0.85	0.001 ± 0.068	-0.058 ± 0.068
photometric centroid source offset	0.05 ± 0.00	160.57	0.02 ± 0.00	-0.05 ± 0.00

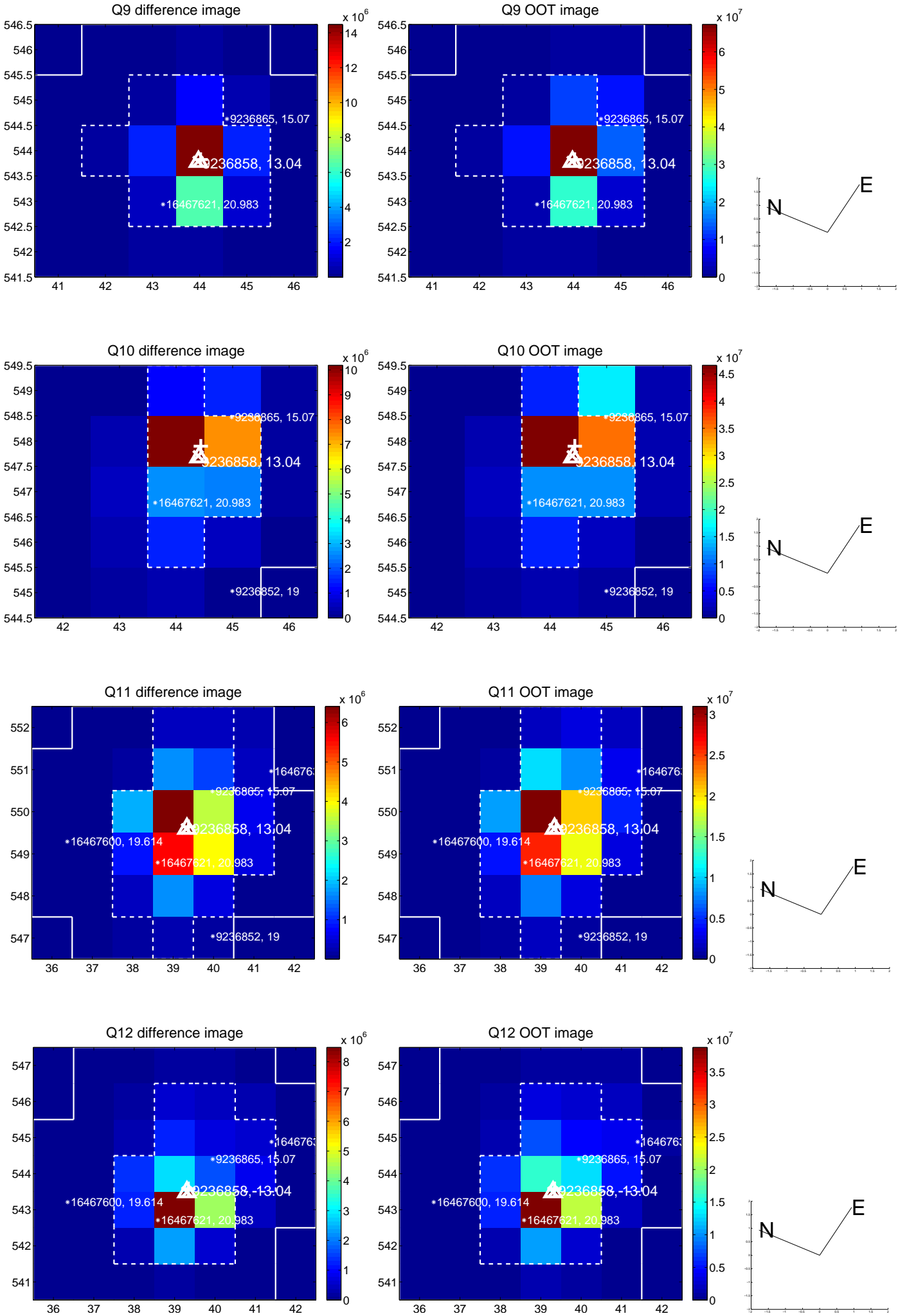


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

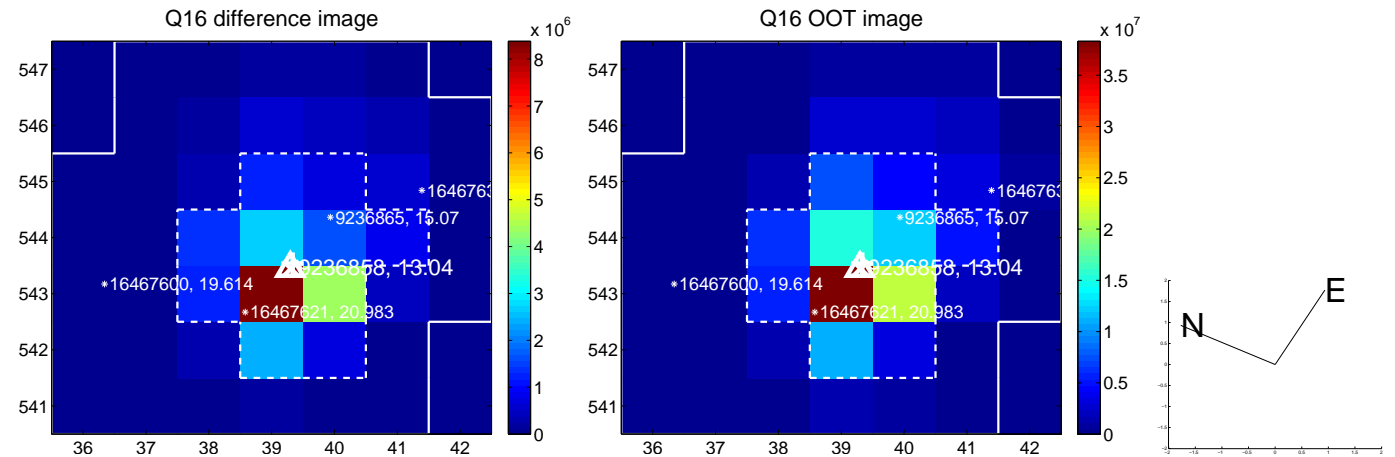
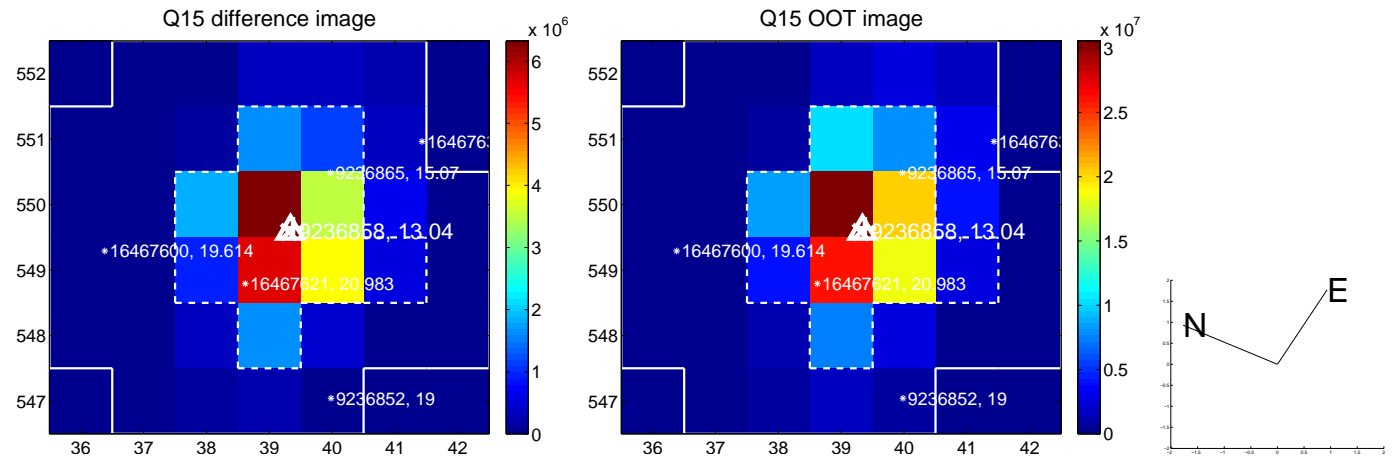
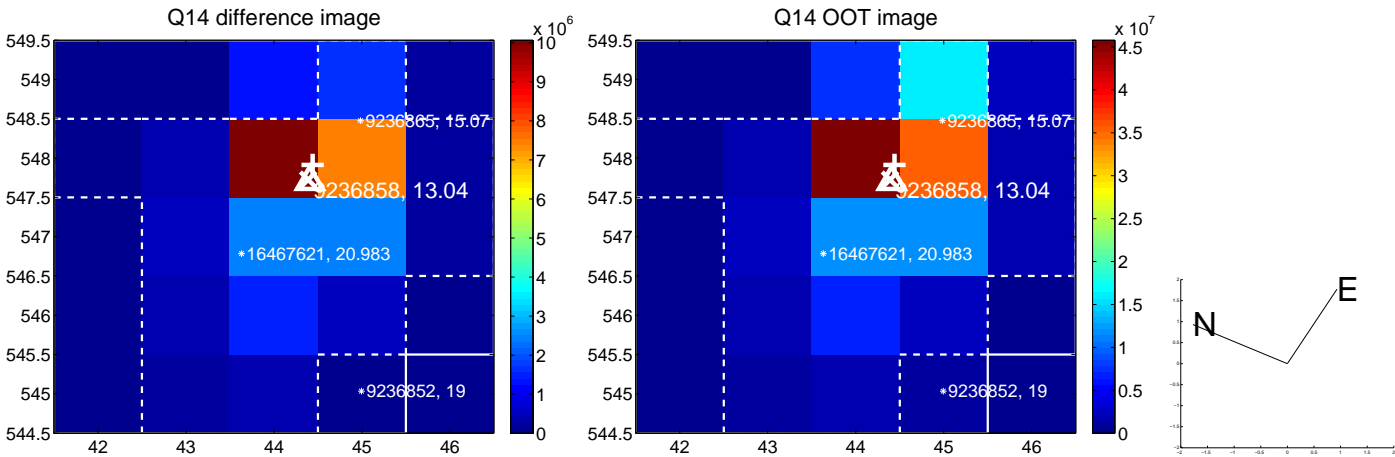
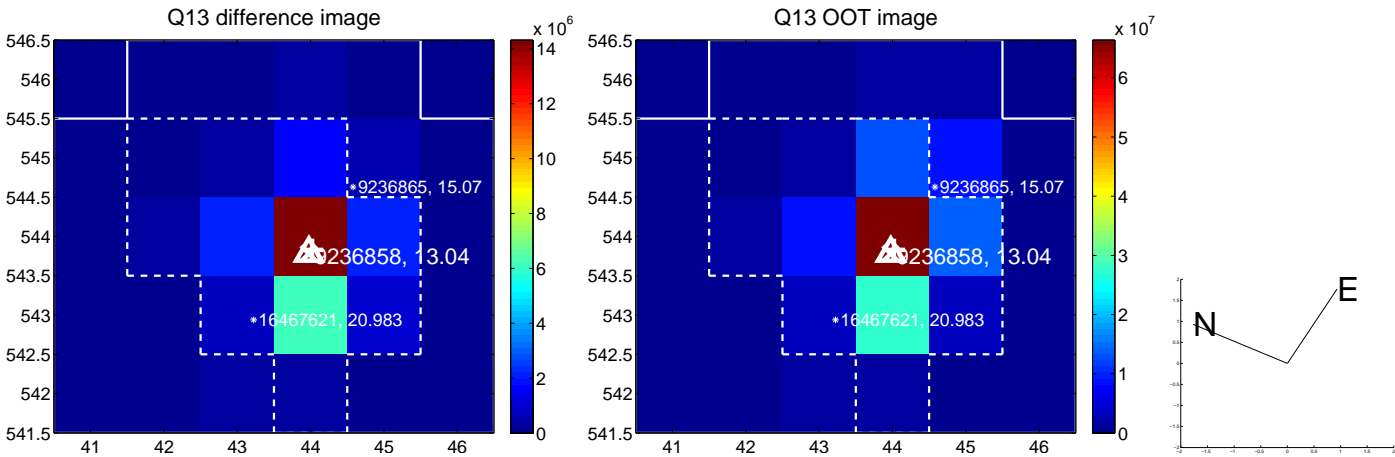
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



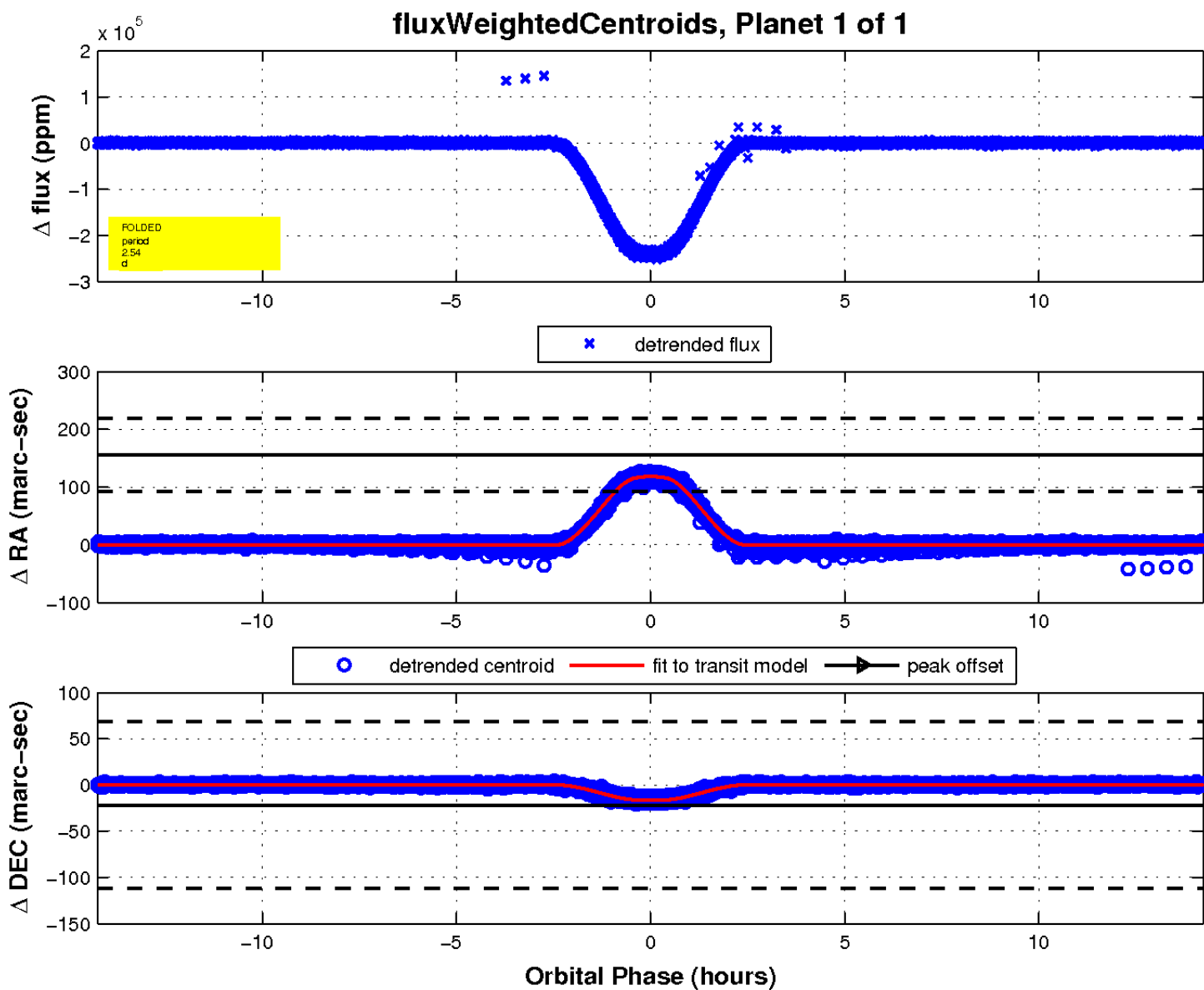
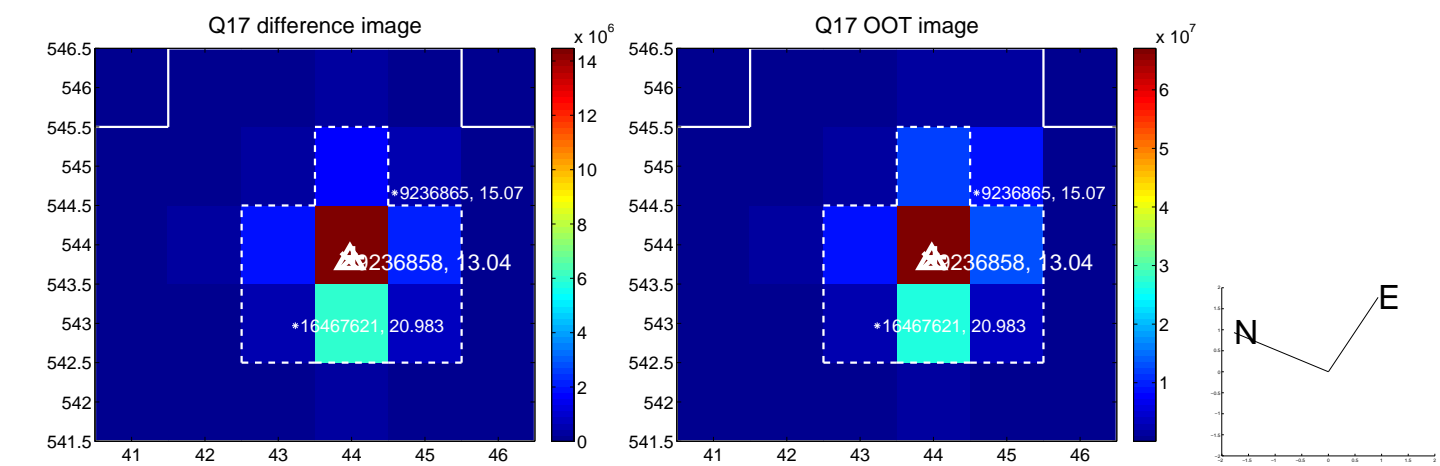
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

