

KIC 009509343

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})
009509343-01	OBS	4346.01	6.392677	135.612125	176.3	2.175	9.8	11.0	0.94	5248	1.50	148.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009509343-01	OBS	PC	0.95	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.

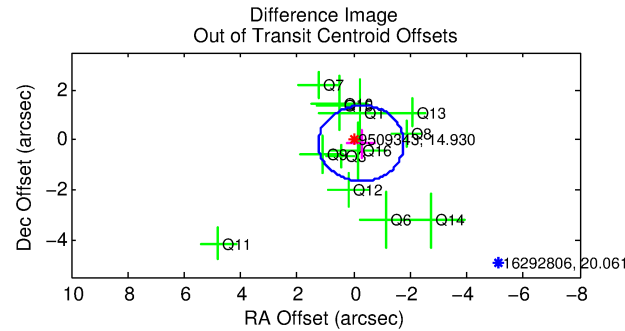
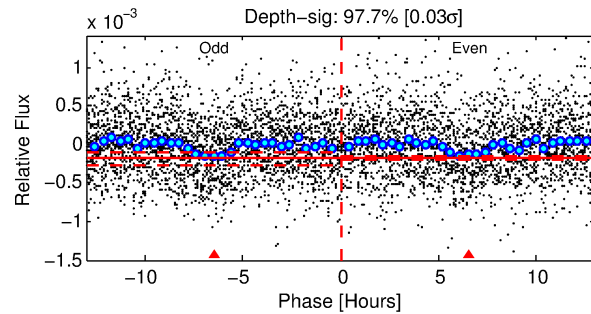
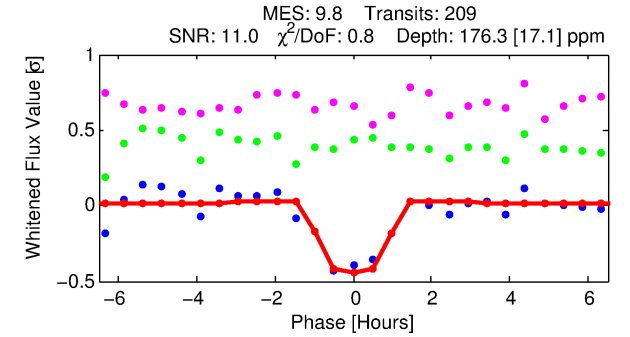
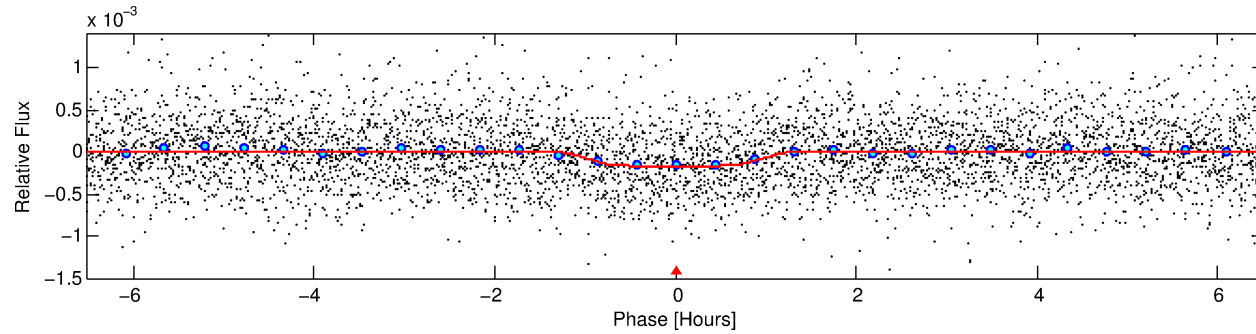
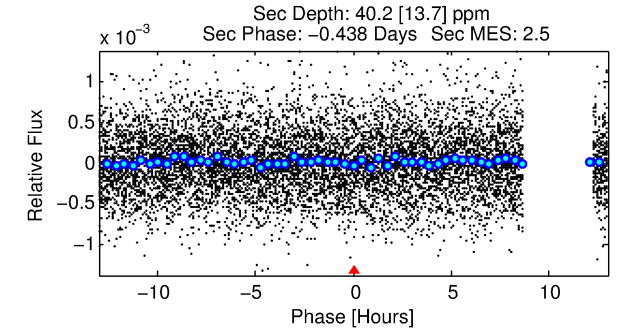
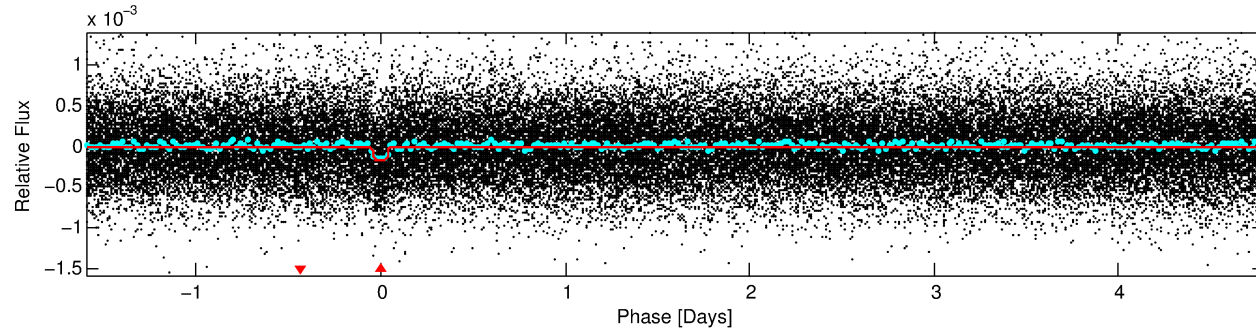
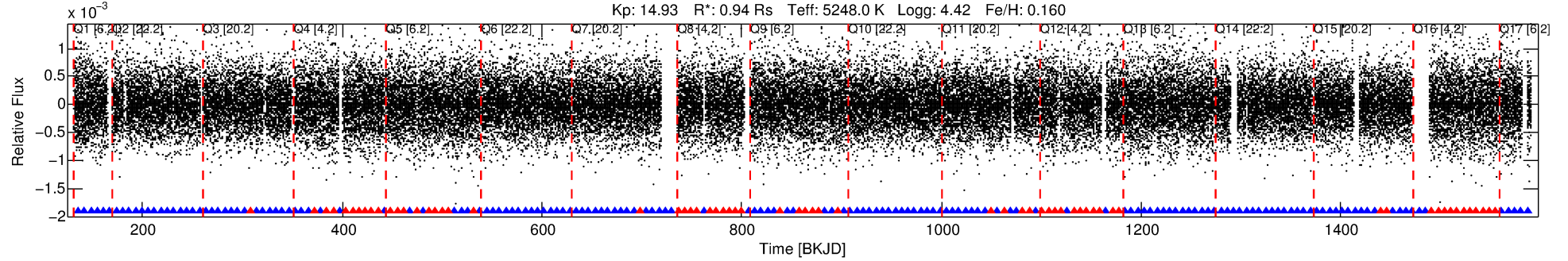
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009509343-01

No Significant Match Found

DV One-Page Summary

KIC: 9509343 Candidate: 1 of 1 Period: 6.393 d
KOI: K04346.01 Corr: 0.937



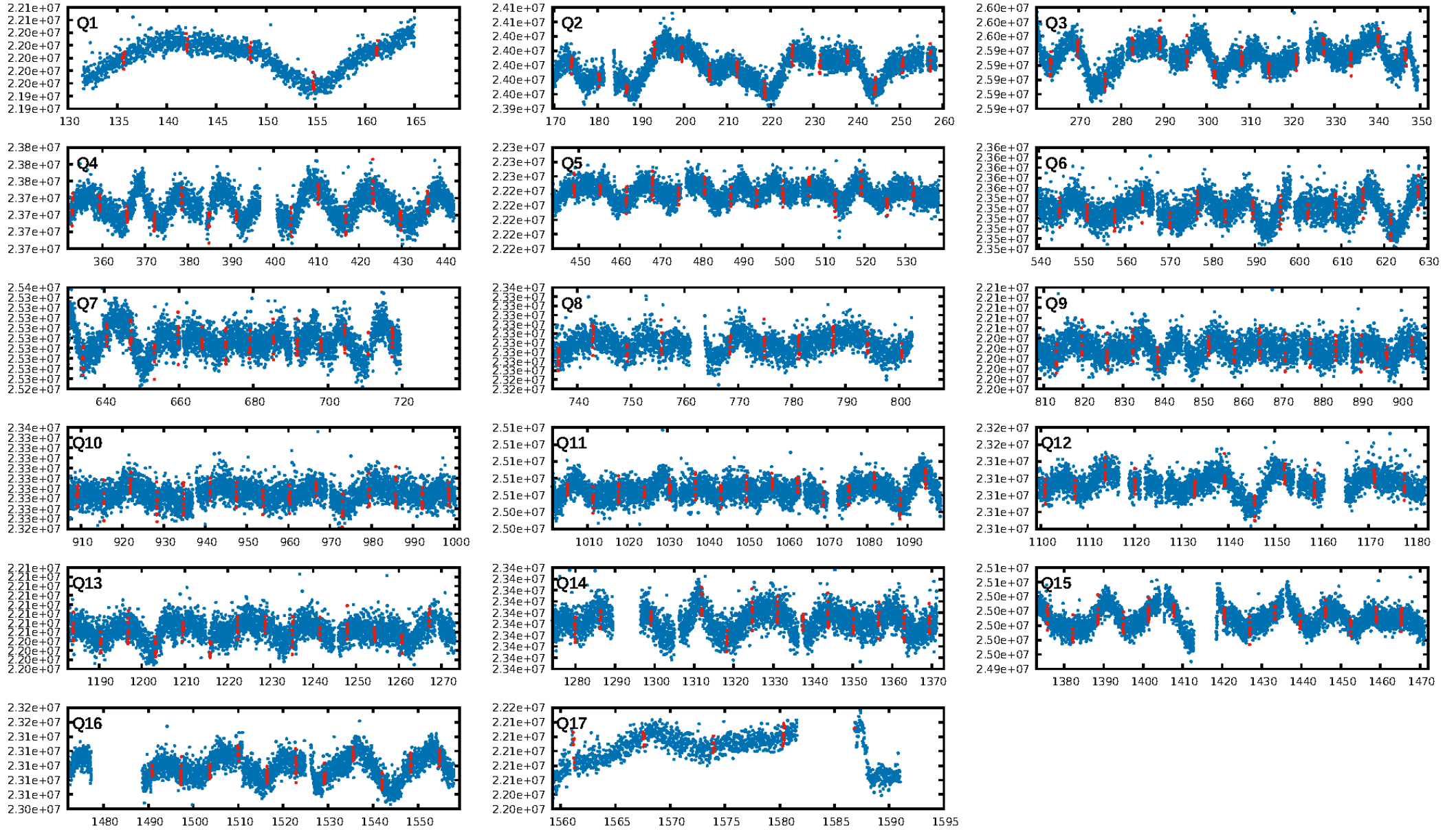
DV Fit Results:

Period = 6.39268 [0.00004] d
Epoch = 135.6121 [0.0041] BKJD
Rp/R* = 0.0146 [0.0120]
a/R* = 11.01 [36.86]
b = 0.89 [0.82]
Seff = 148.70 [29.27]
Teq = 890 [44] K
Rp = 1.50 [1.25] Re
a = 0.0638 [0.0071] AU
Ag = 39.96 [67.65] [0.58σ]
Teffp = 3461 [1457] K [1.76σ]

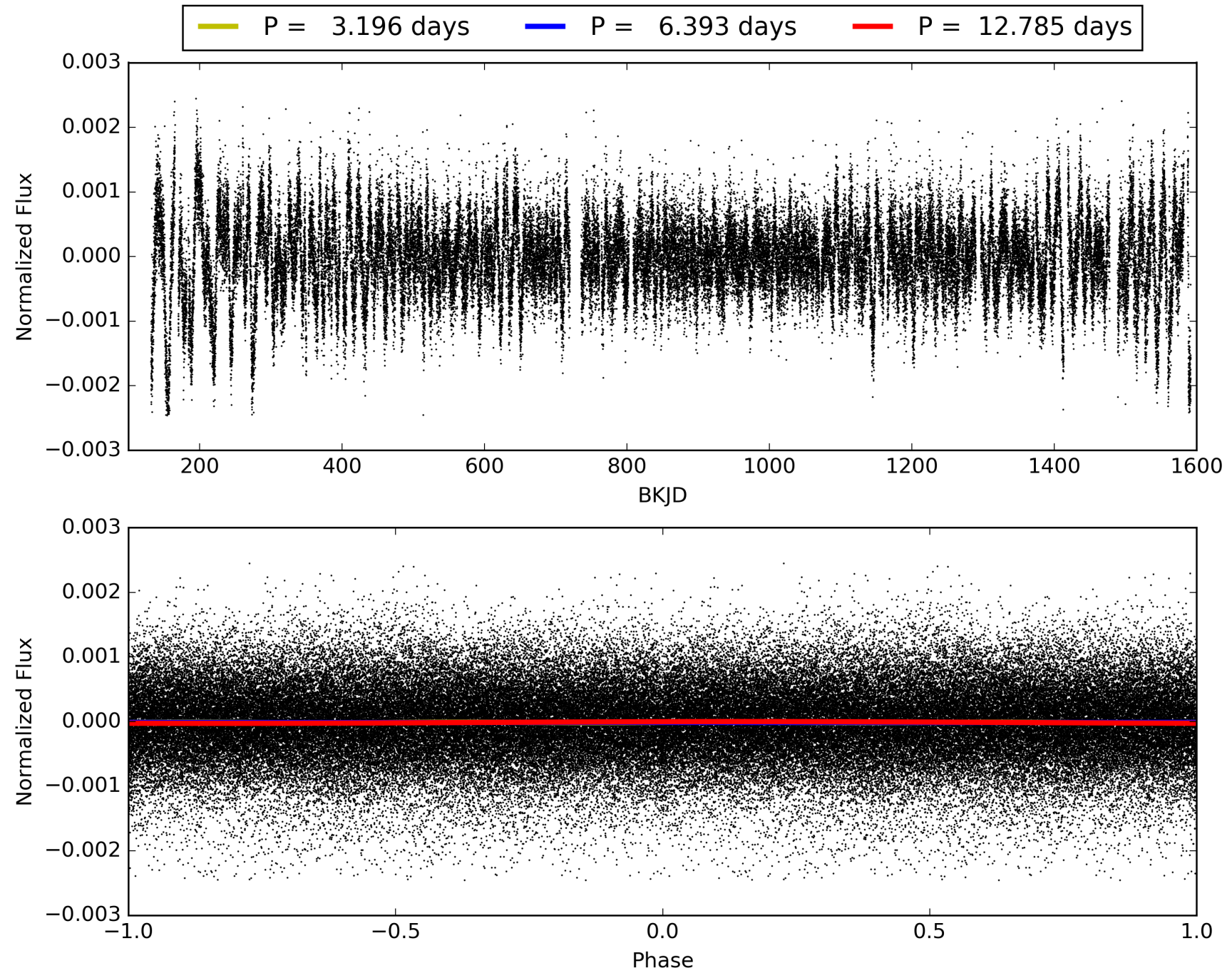
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.57e-22
RollingBand-fgt: 0.68 [136/200]
GhostDiagnostic-chr: 1.74
Centroid-sig: 0.0%
Centroid-so: 4.613 arcsec [3.15σ]
OotOffset-rm: 0.298 arcsec [0.59σ]
KicOffset-rm: 0.424 arcsec [0.82σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009509343-01, PDC Light Curves

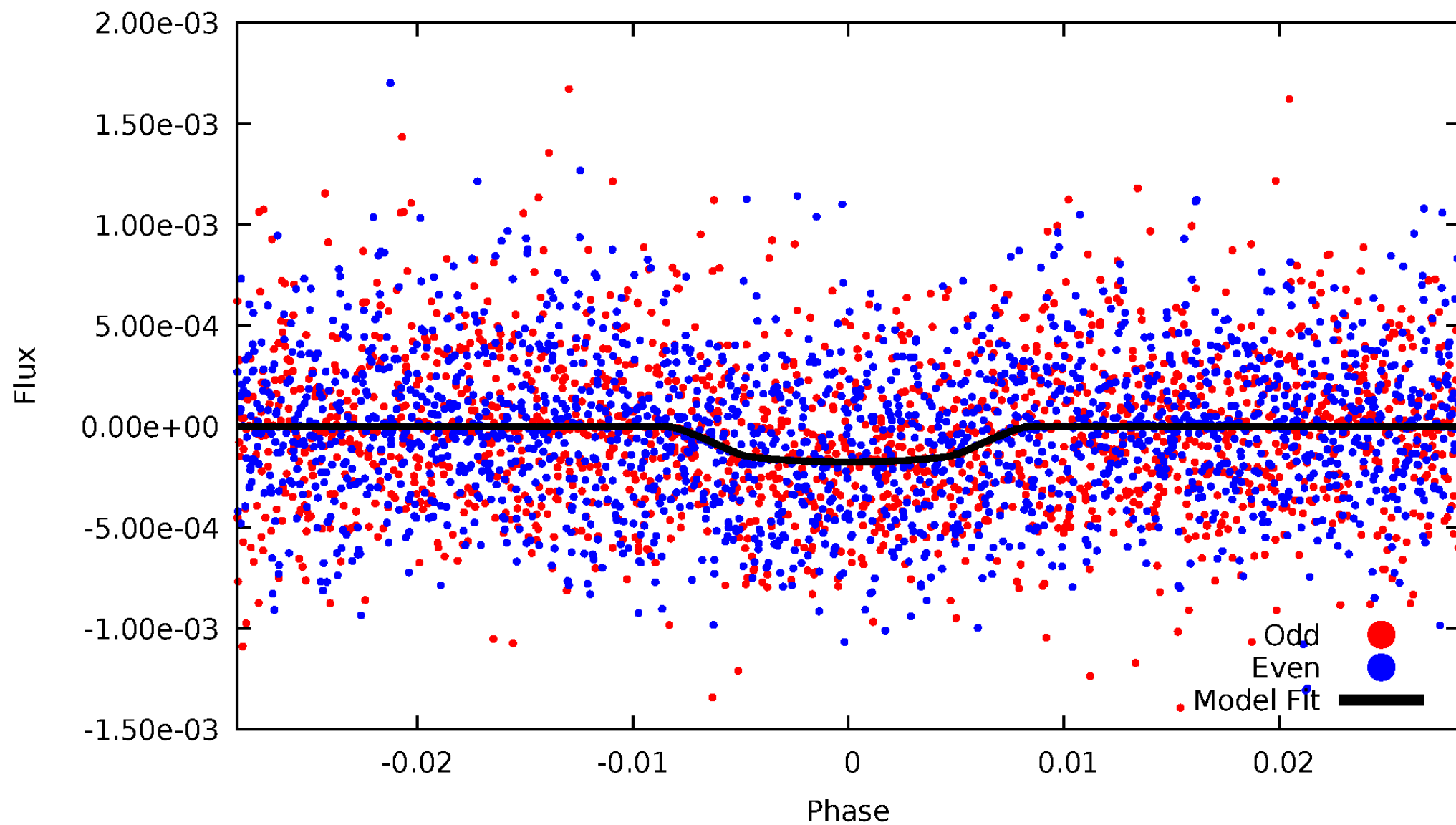


TCE 009509343-01



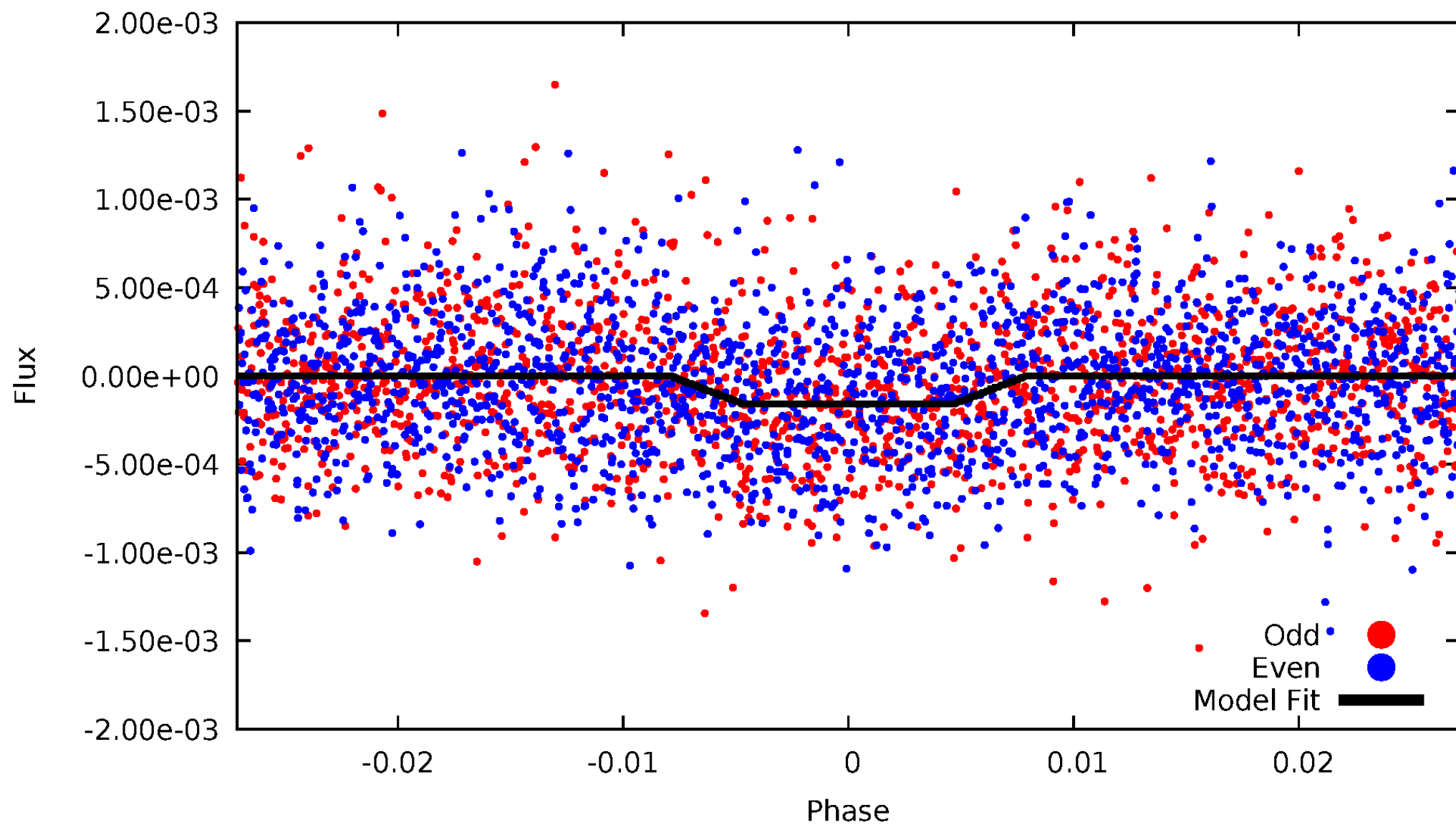
DV Odd/Even

TCE 009509343-01



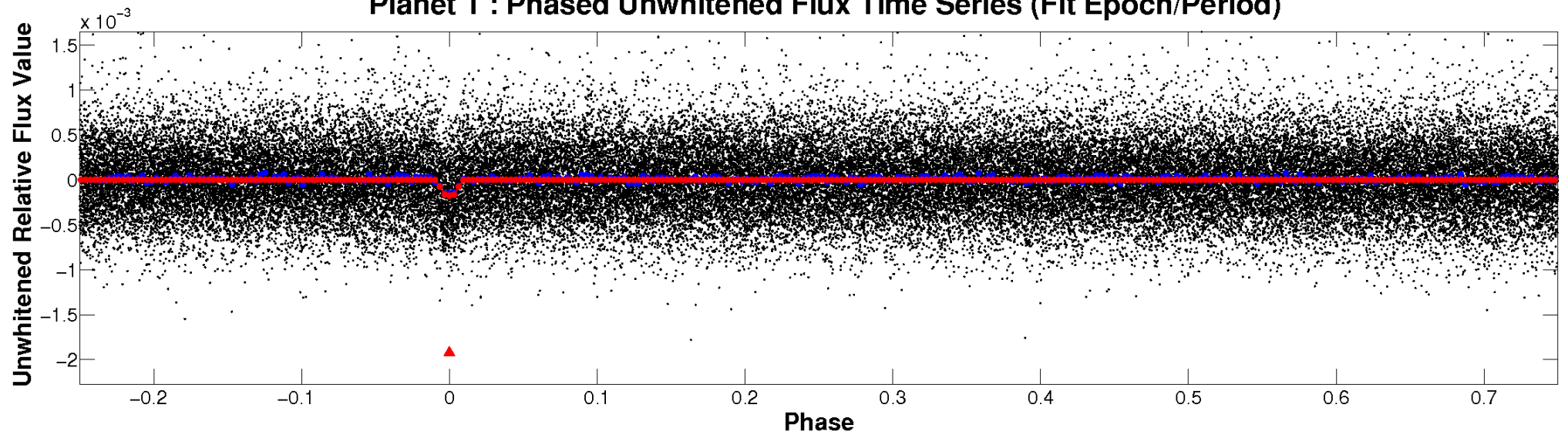
ALT Odd/Even

TCE 009509343-01

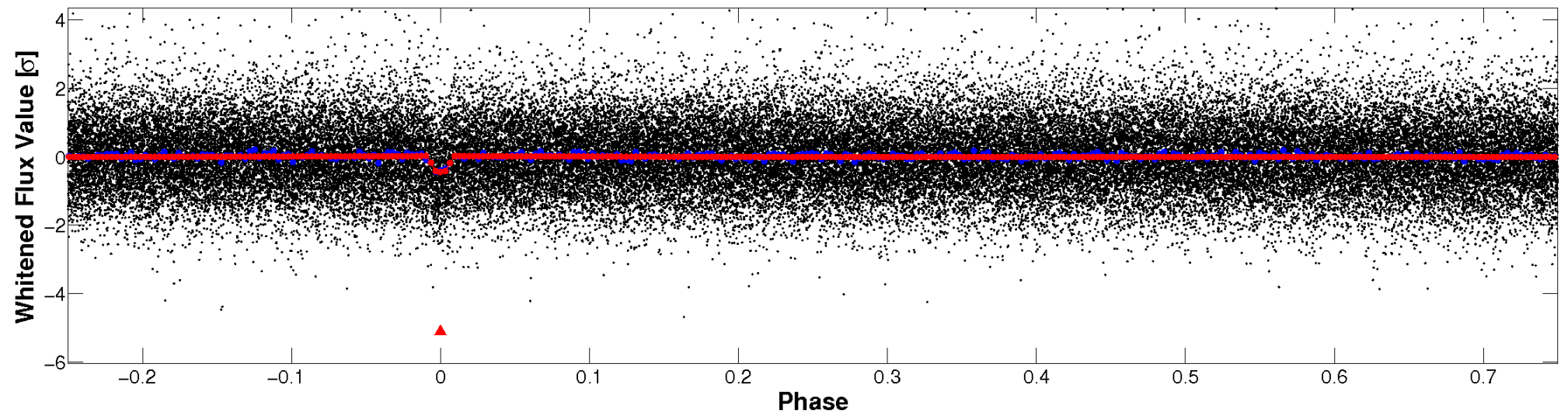


Non-Whitened Vs. Whitened Light Curve

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

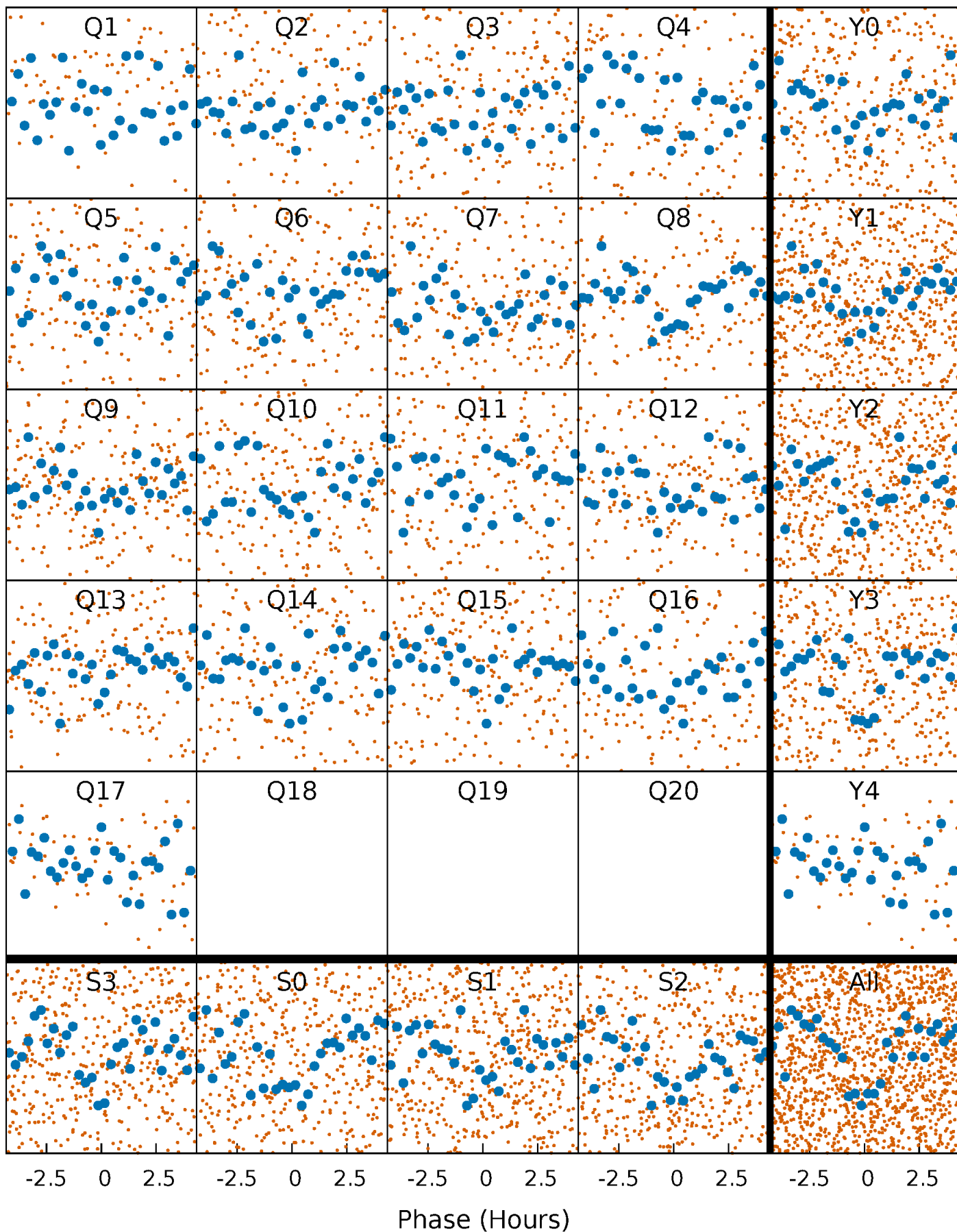


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



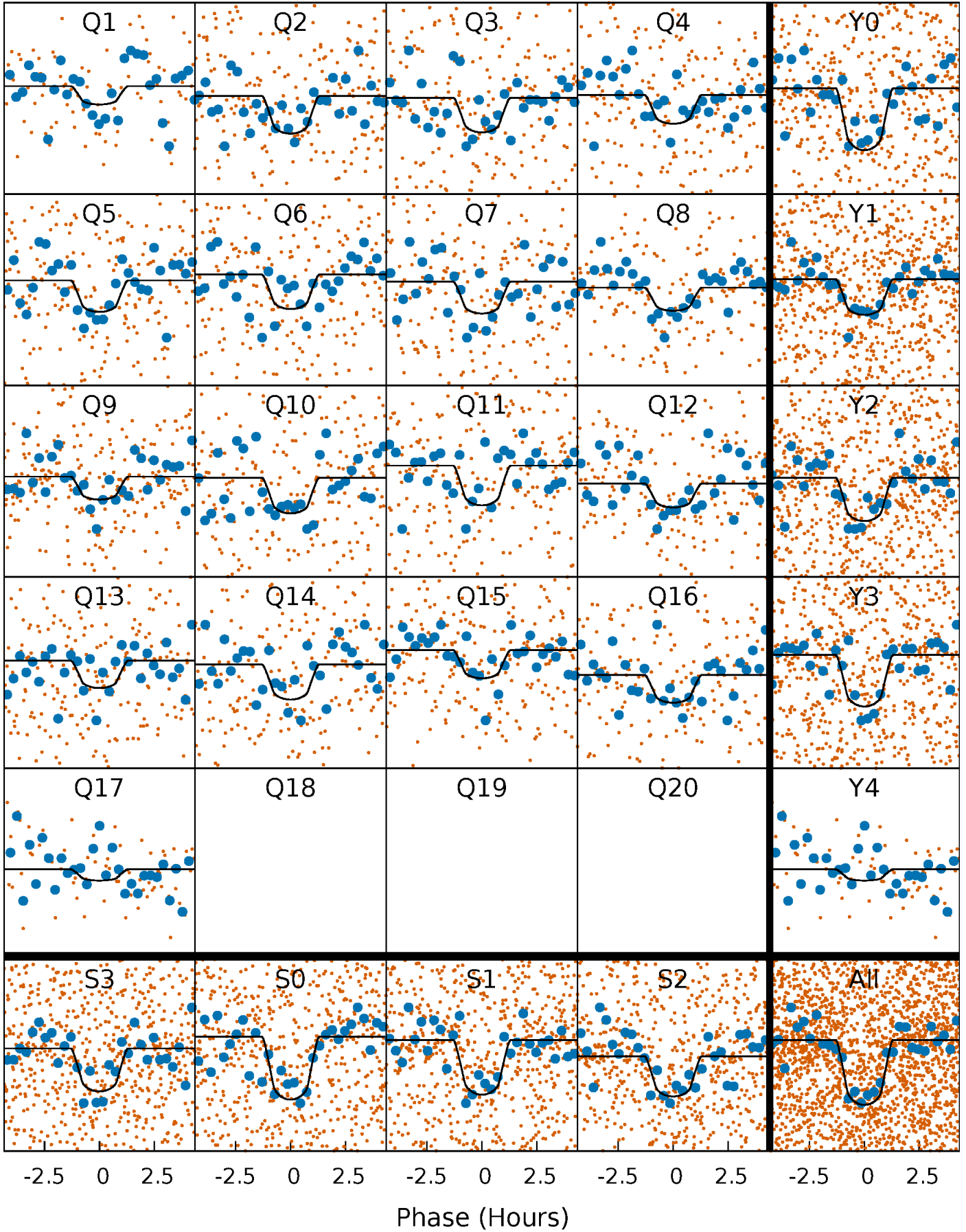
PDC Quarter-Phased Transit Curves

TCE 009509343-01 P= 6.392677 Days $T_0=135.612125$ (BKJD)



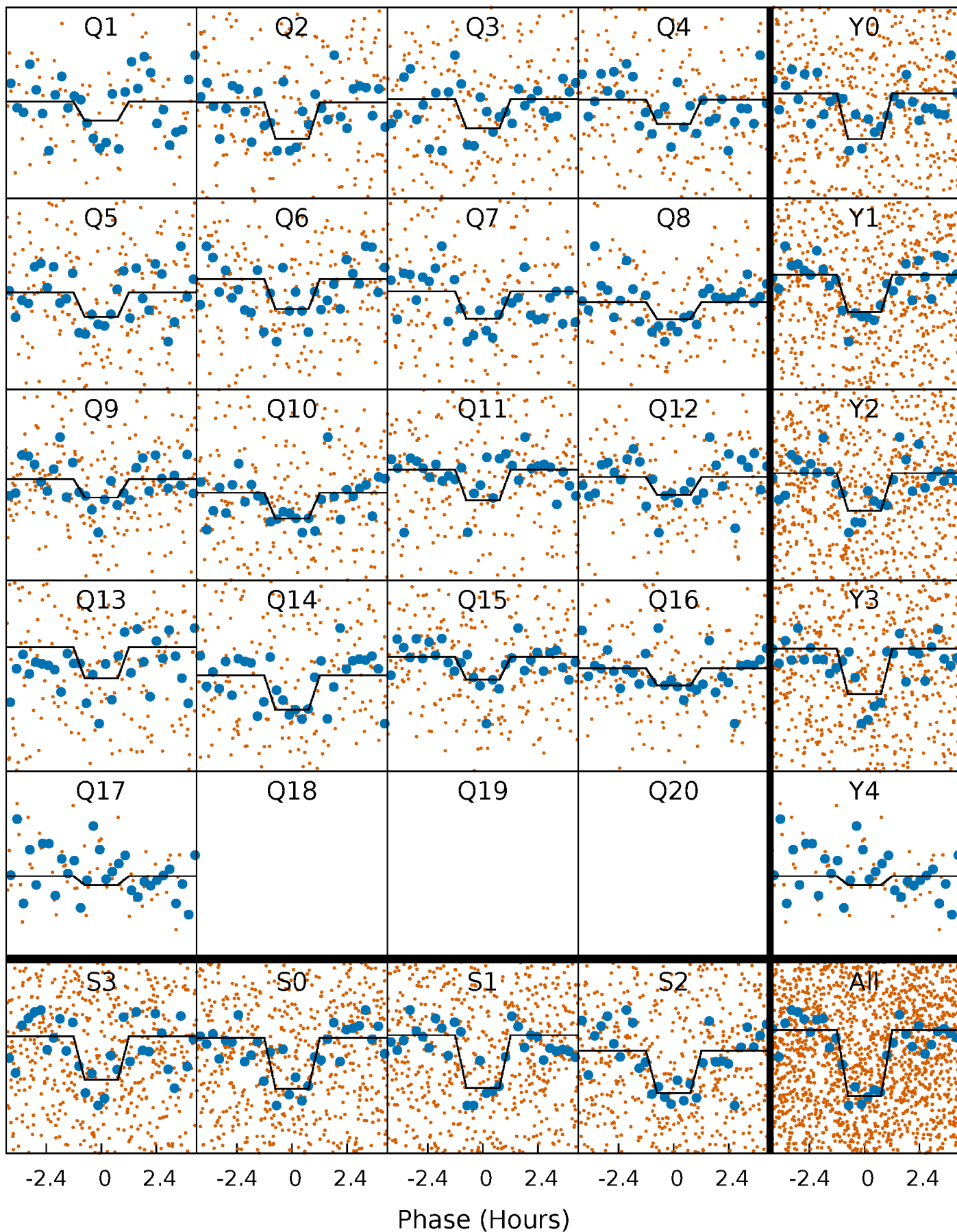
DV Quarter-Phased Transit Curves

TCE 009509343-01 P= 6.392677 Days $T_0=135.612125$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

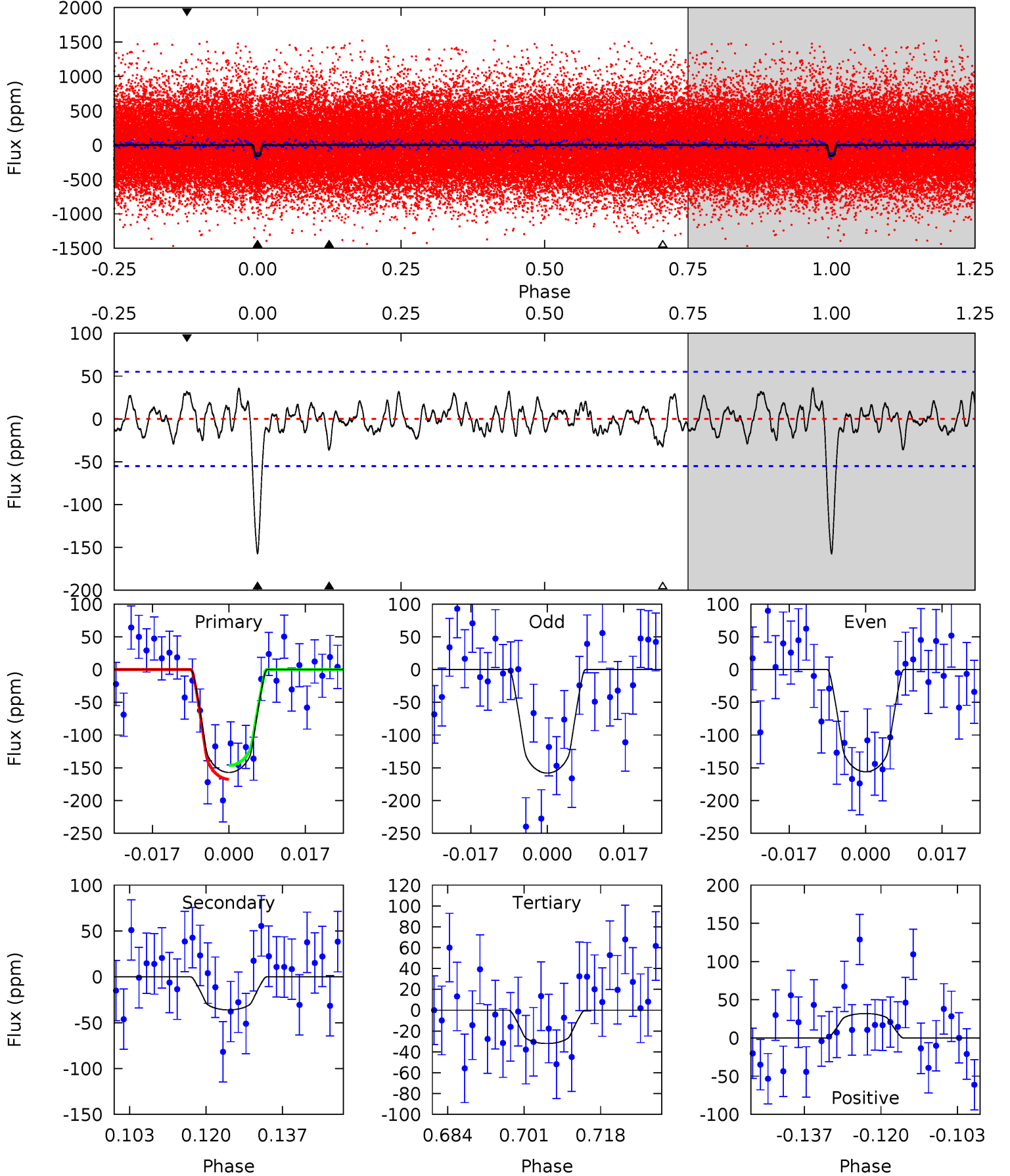
TCE 009509343-01 P= 6.392669 Days $T_0=135.612931$ (BKJD)



DV Model-Shift Uniqueness Test

009509343-01, P = 6.392677 Days, E = 129.219448 Days

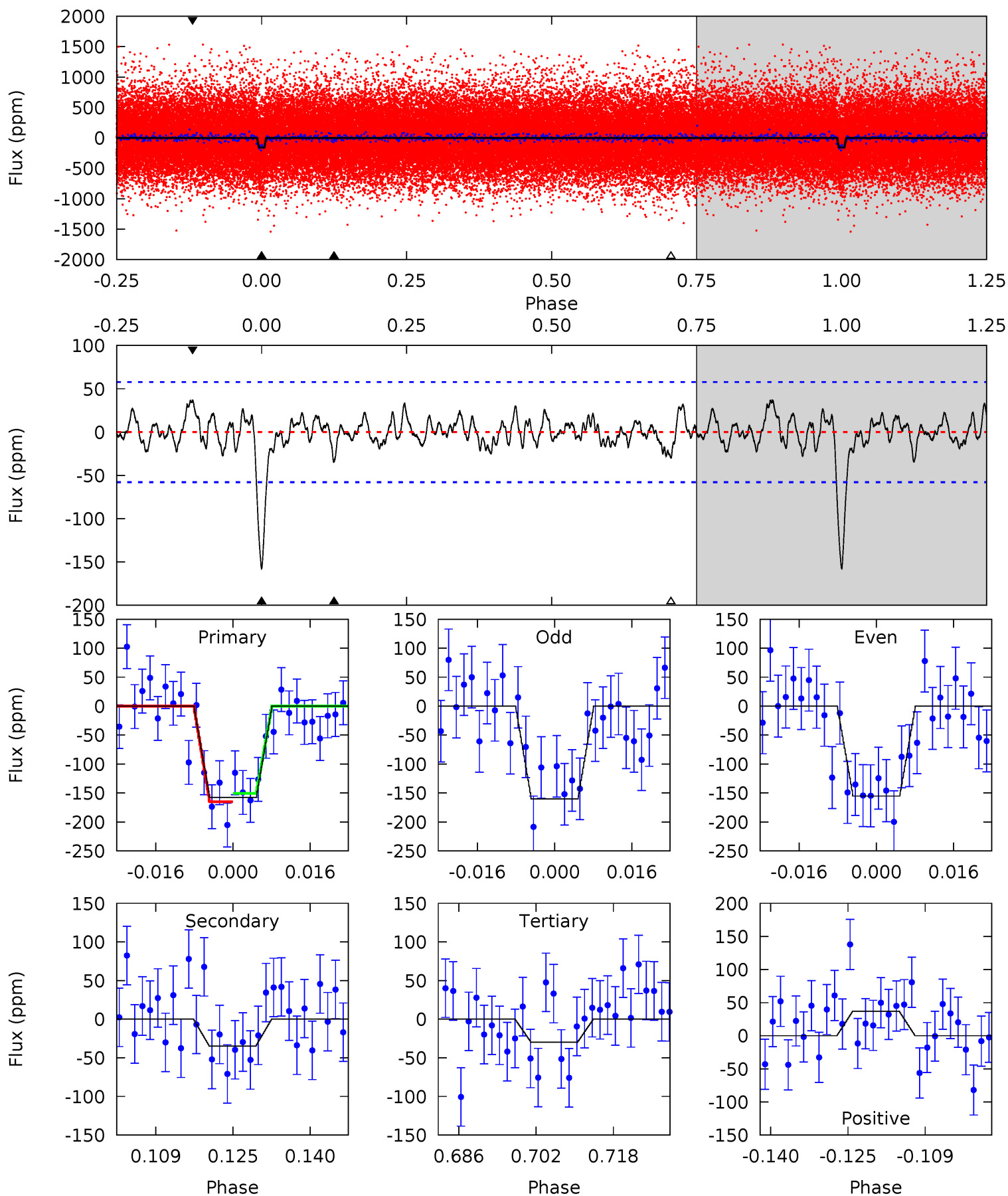
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	3.22	2.86	2.86	4.92	2.38	1.17	11.2	11.2	0.36	0.36	0.09	1.16	0.18	0.94



Alt Model-Shift Uniqueness Test

009509343-01, P = 6.392669 Days, E = 129.220262 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	2.97	2.55	3.15	4.94	2.42	1.10	11.0	10.3	0.43	-0.18	0.21	0.95	0.19	0.61



Stellar Parameters For KIC 009509343

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5248^{+86}_{-78}	$4.416^{+0.112}_{-0.056}$	$0.160^{+0.150}_{-0.150}$	$0.943^{+0.074}_{-0.099}$	$0.844^{+0.064}_{-0.032}$	$1.418^{+0.641}_{-0.258}$
	+2%/-1%	+3%/-1%	+94%/-94%	+8%/-10%	+8%/-4%	+45%/-18%
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 009509343-01 / KOI 4346.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 11	$1.72^{+1.11}_{-1.03}$	1236^{+37}_{-42}	3554^{+1394}_{-549}	28^{+130}_{-19}
Alt.	-35 ± 12	$1.42^{+1.17}_{-0.93}$	1240^{+33}_{-45}	3740^{+2077}_{-654}	37^{+292}_{-26}

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

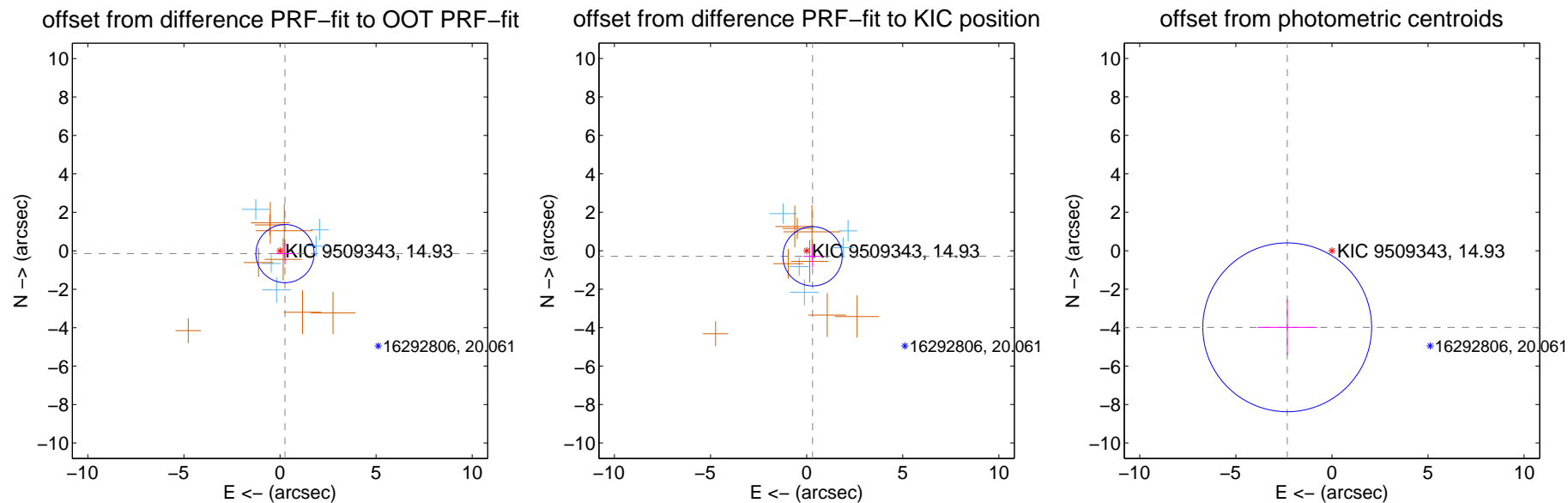
DV Centroid Data

Supplemental centroid analysis for 009509343-01. Kepler magnitude: 14.93. Transit SNR 11.03

There are 5 quarters with good PRF difference image offsets

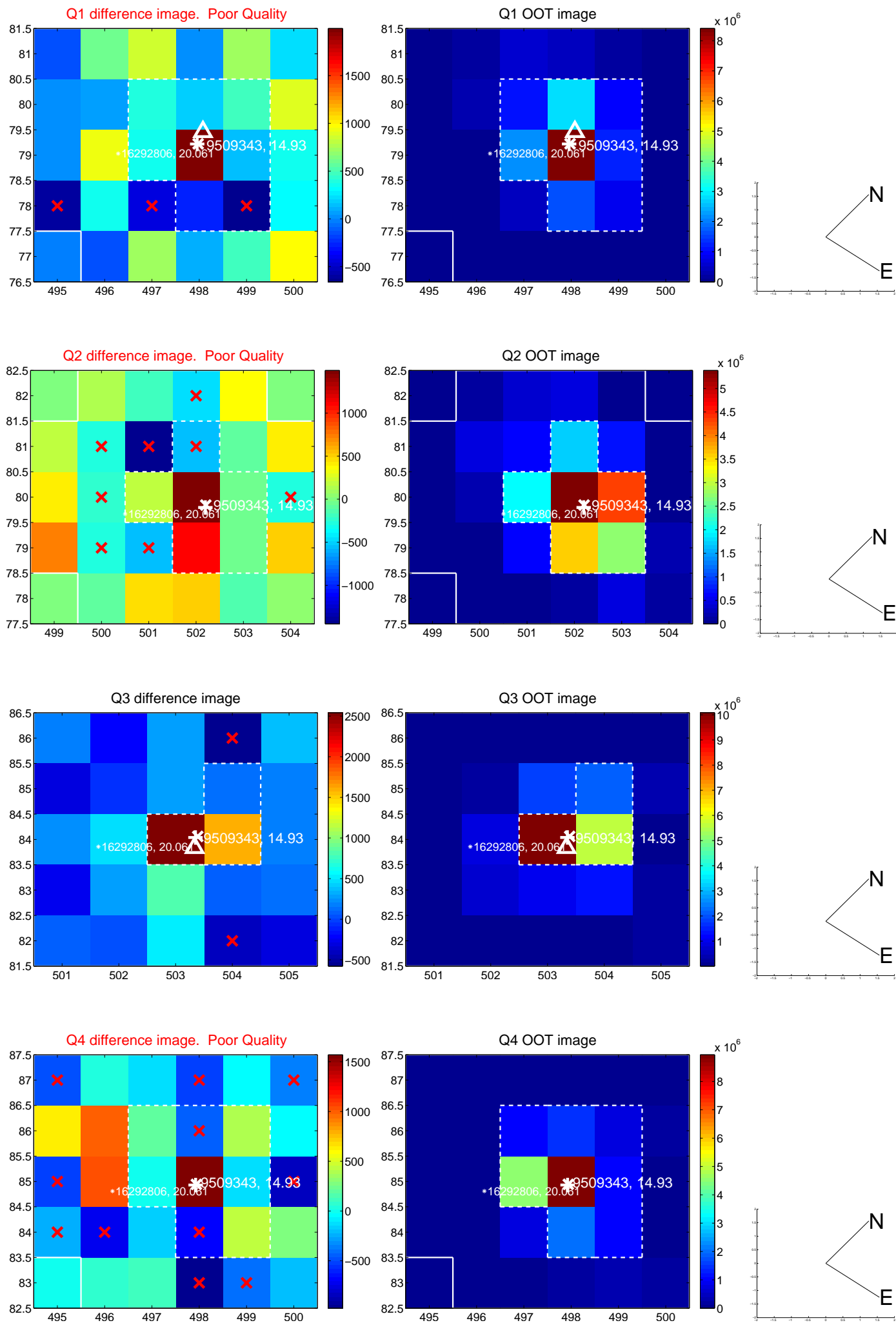
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.298 ± 0.505	0.59	-0.260 ± 0.486	-0.146 ± 0.559
PRF-fit source offset from KIC position	0.424 ± 0.514	0.82	-0.309 ± 0.475	-0.290 ± 0.554
photometric centroid source offset	4.61 ± 1.46	3.15	2.33 ± 1.54	-3.98 ± 1.44

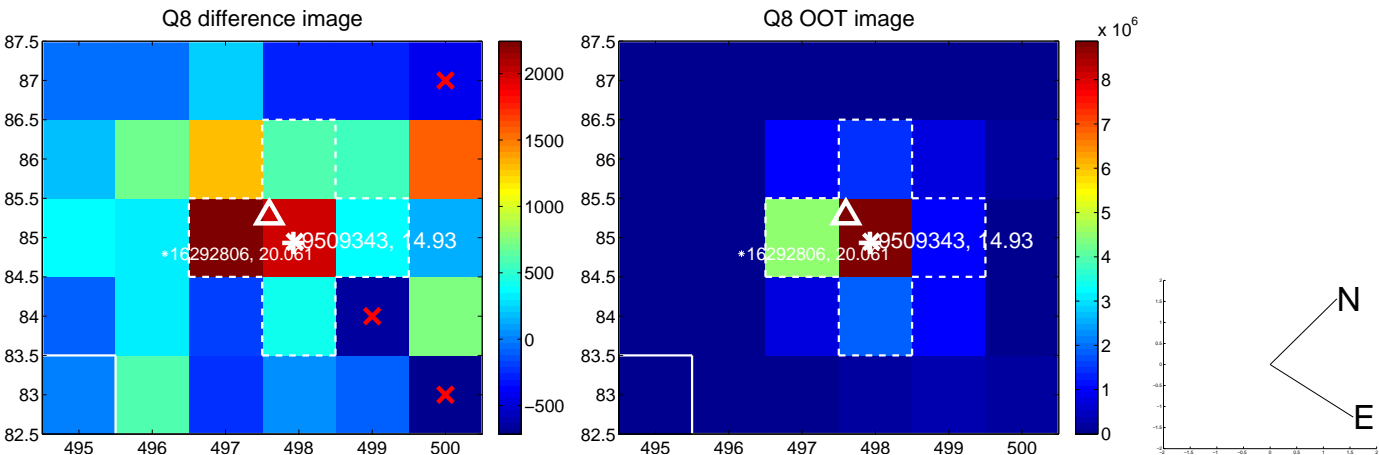
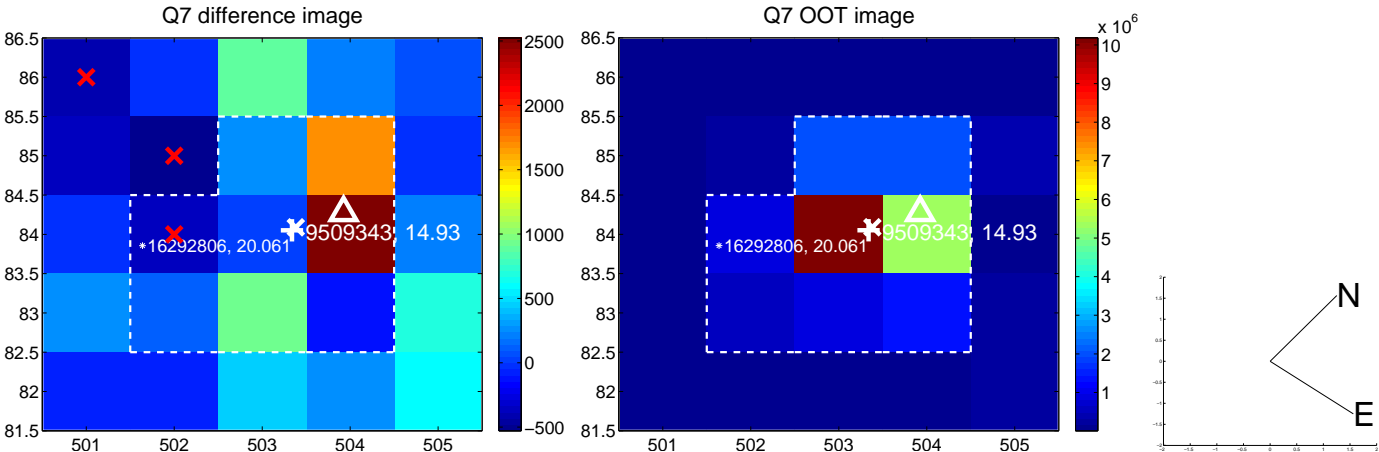
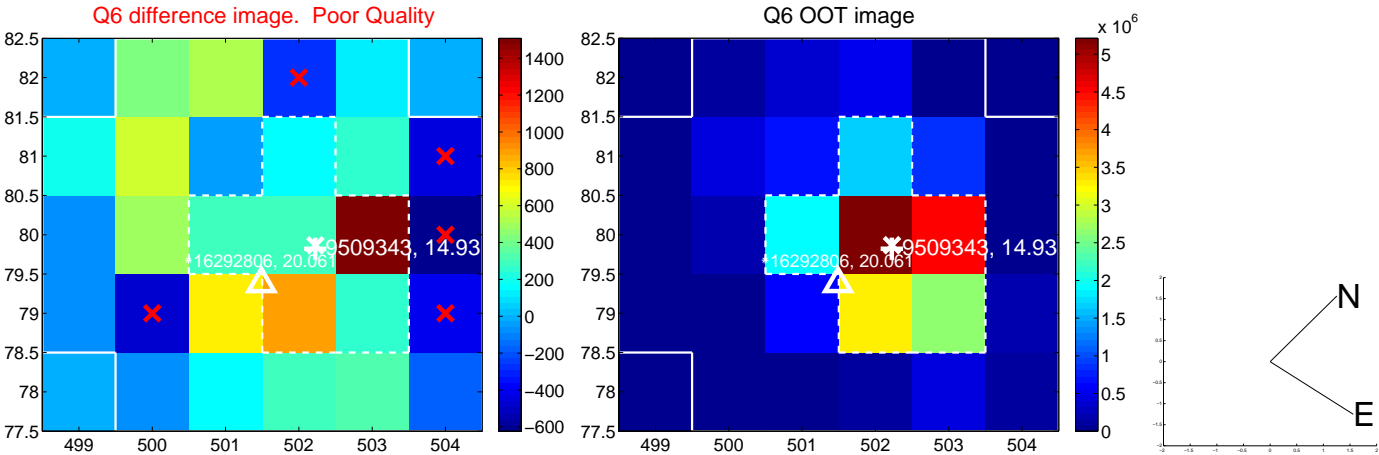
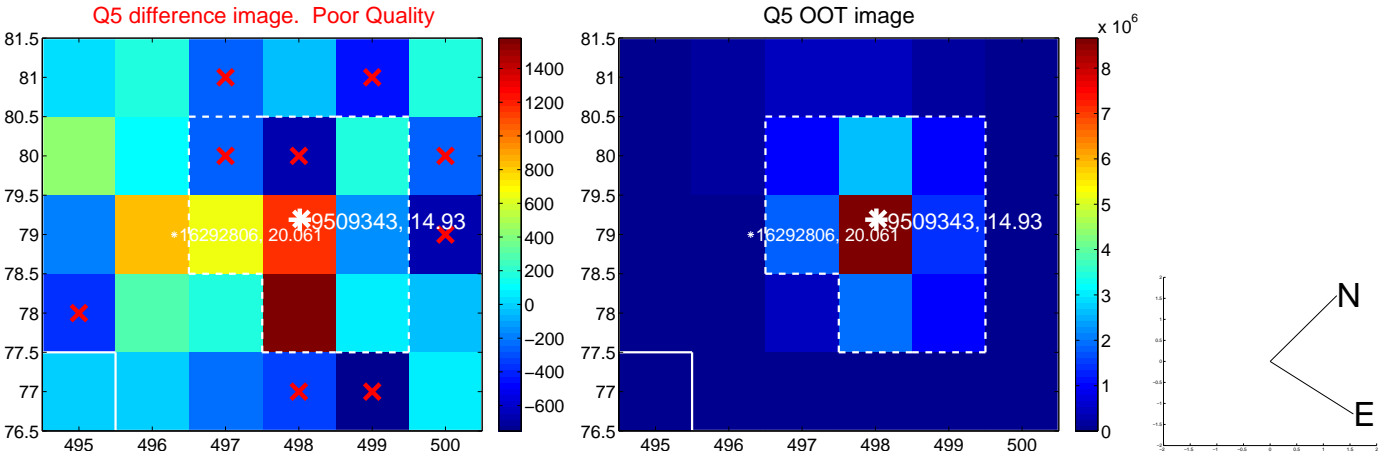


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

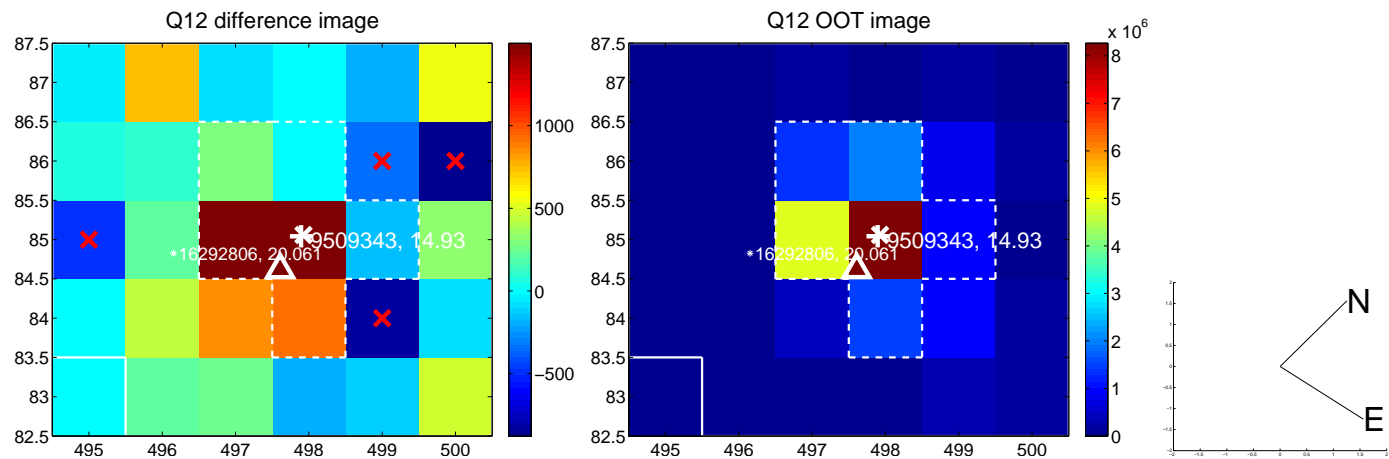
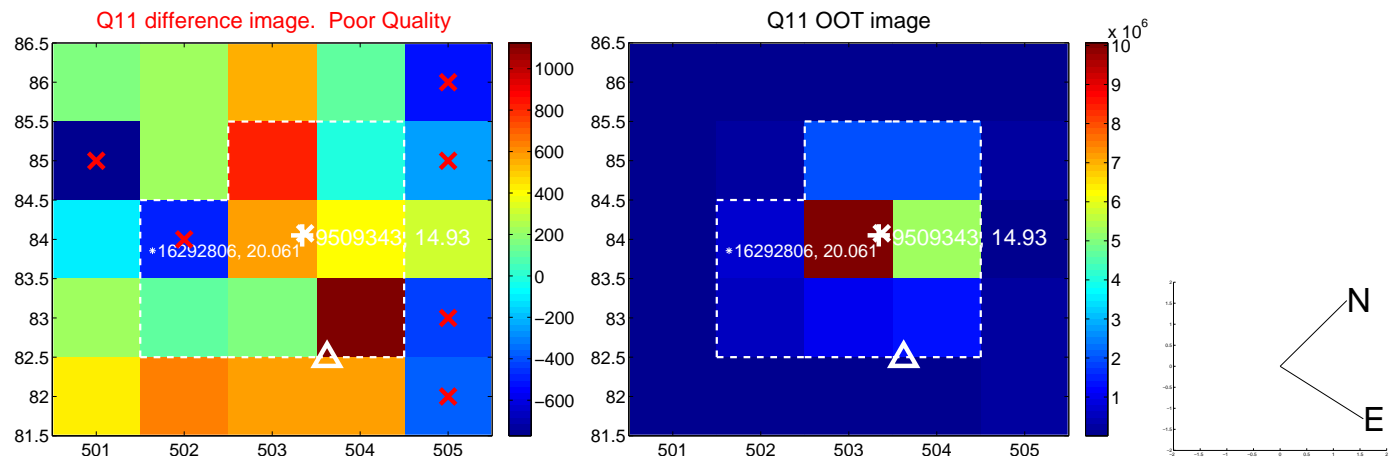
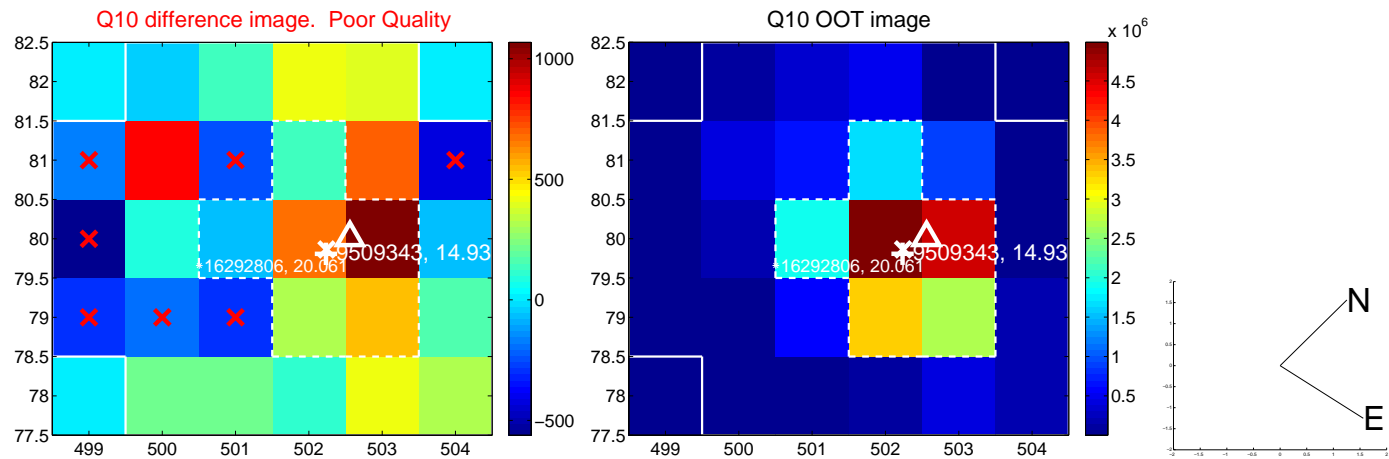
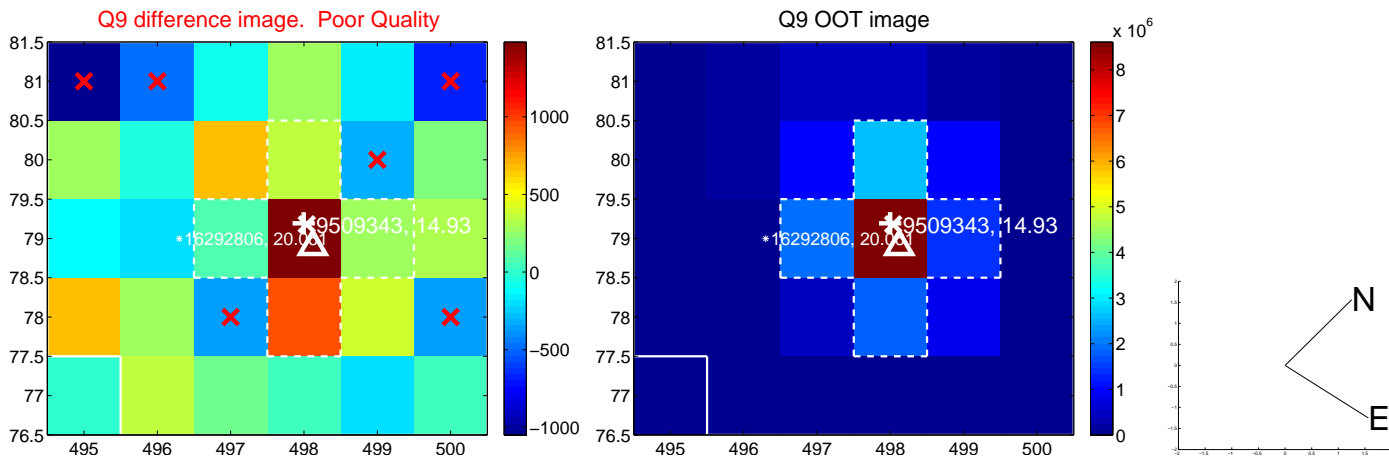
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



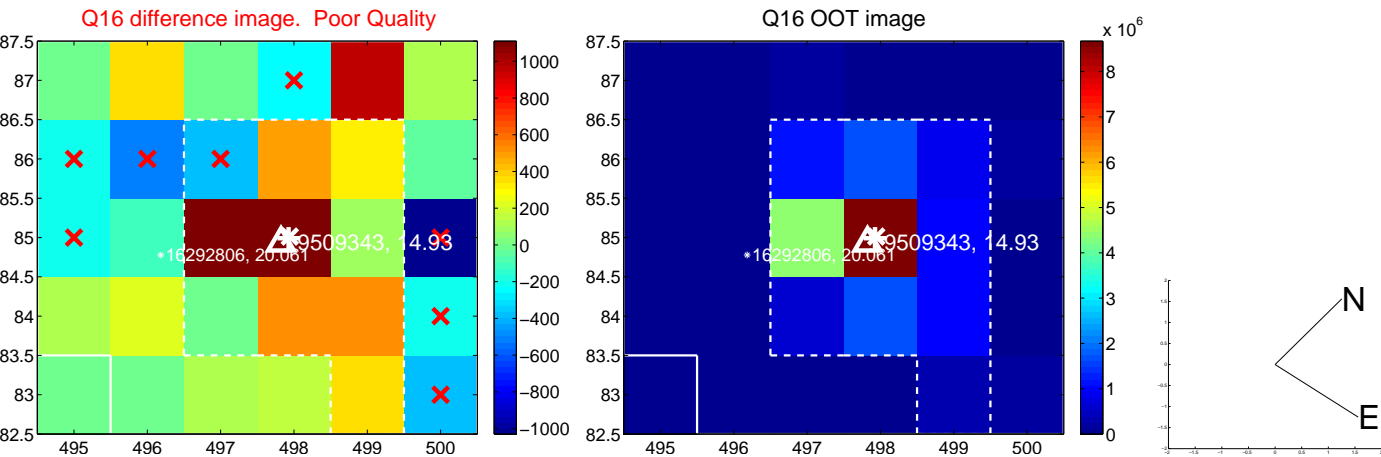
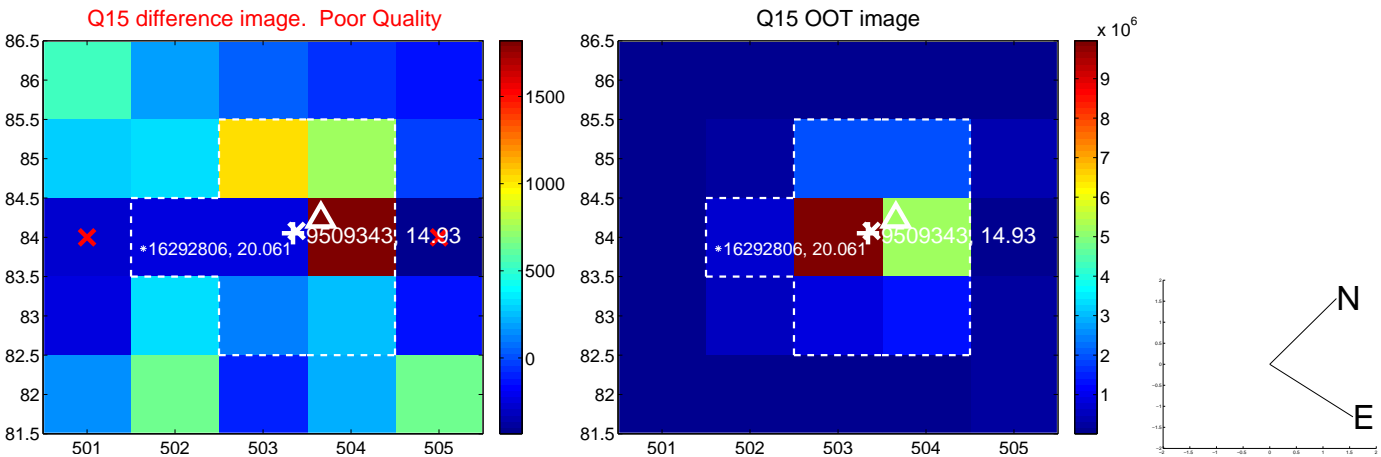
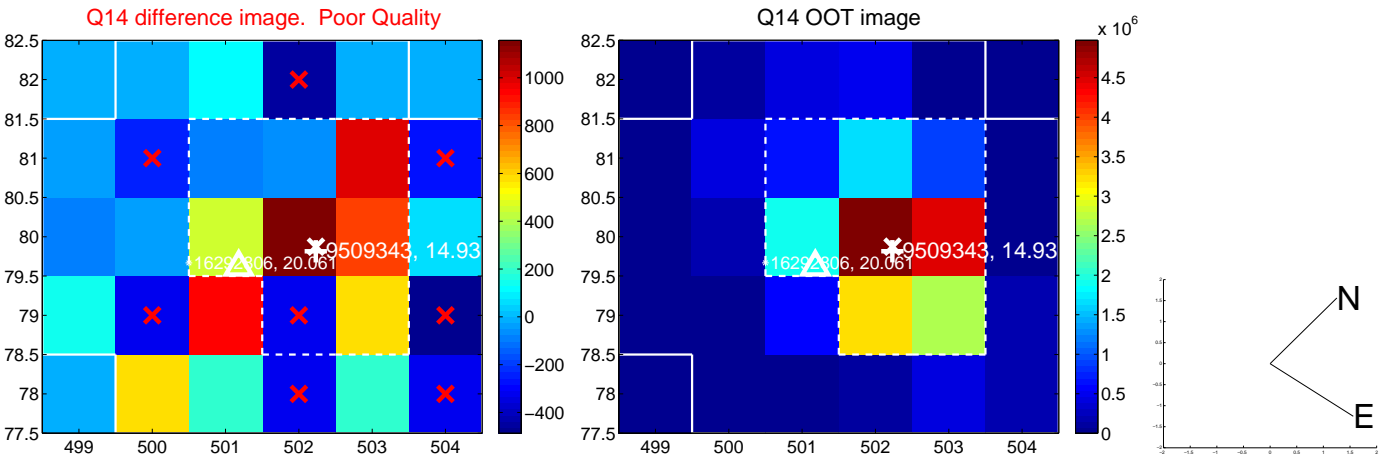
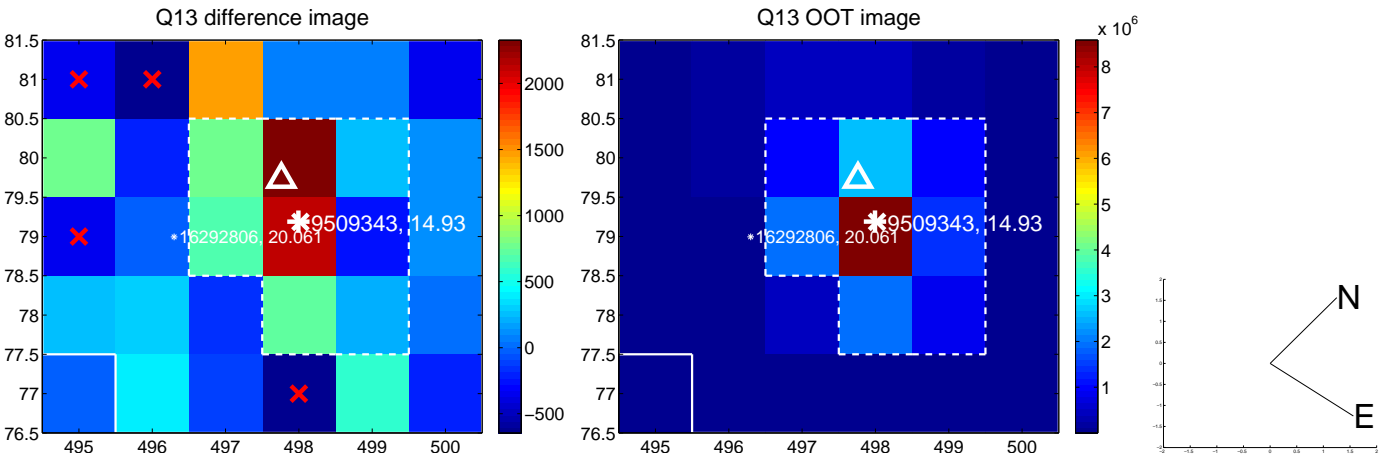
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



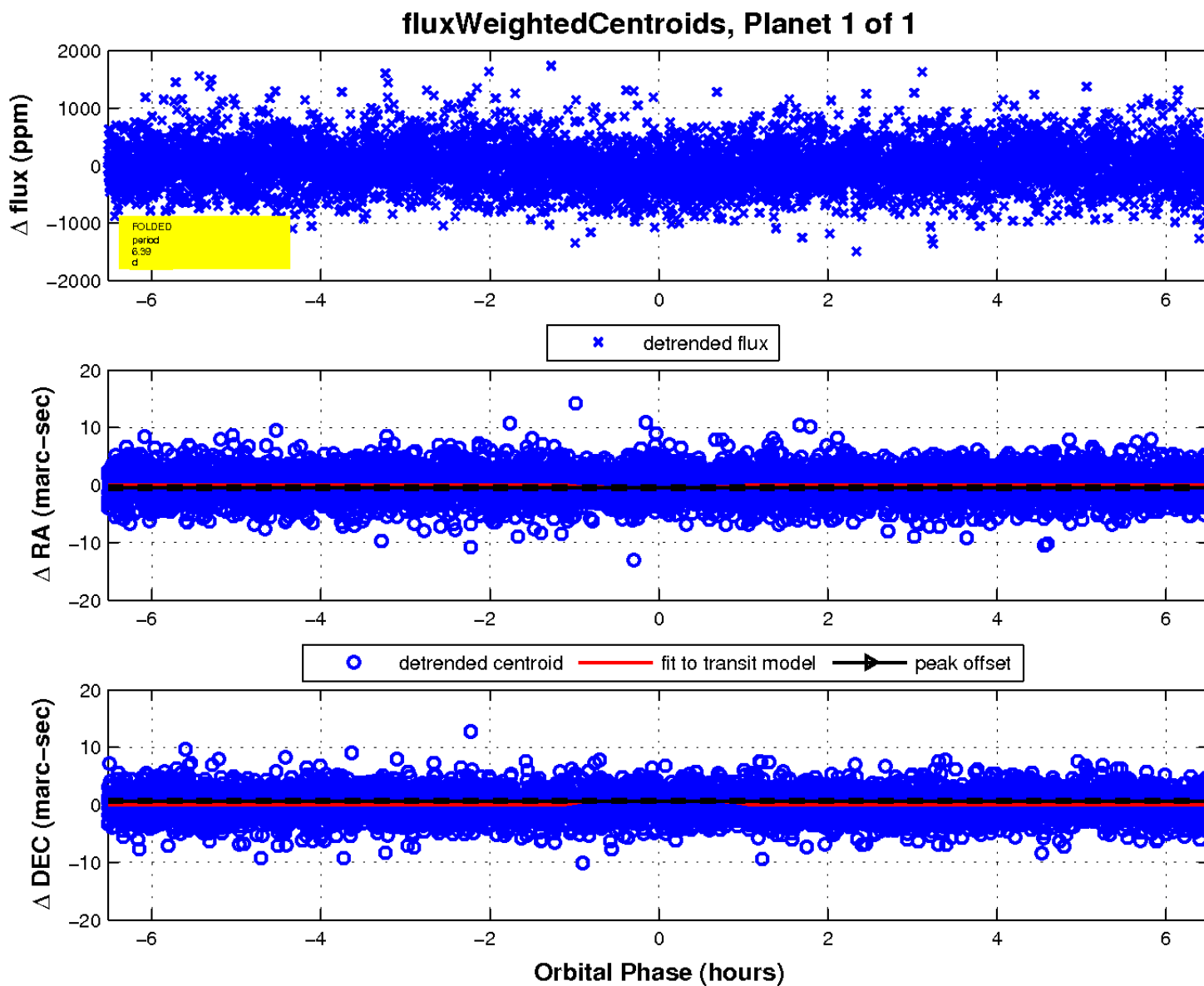
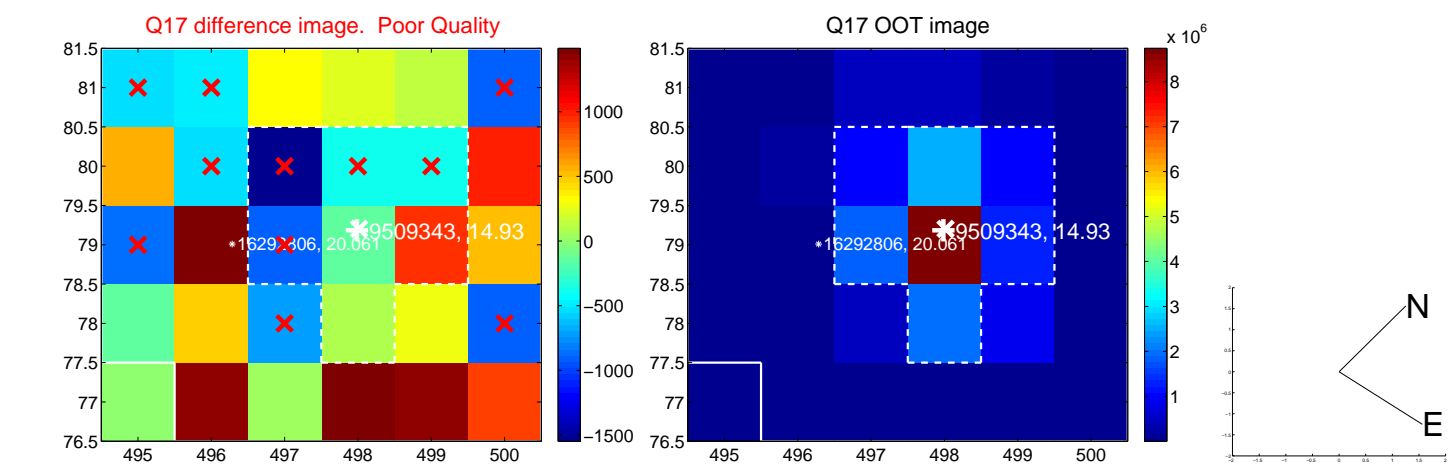
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

