

KIC 009899233

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})
009899233-01	OBS	4090.01	1.332559	132.053673	124.3	4.568	17.3	19.9	1.00	6077	1.32	2065.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899233-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—EPHEM_MATCH

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.

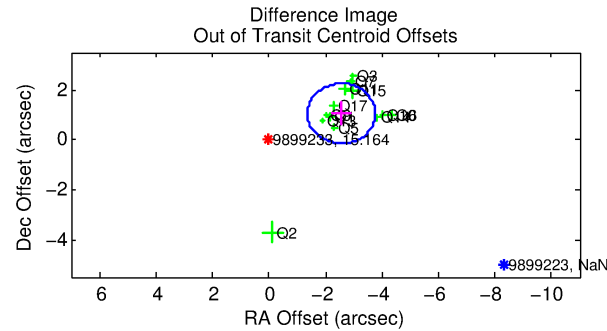
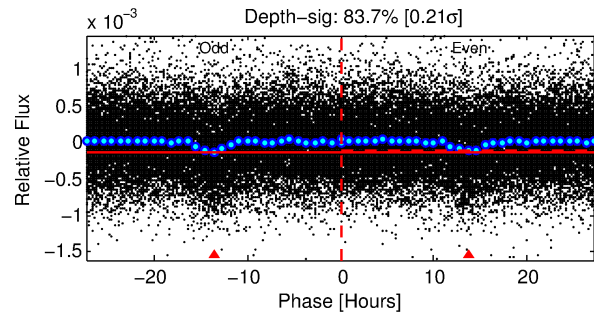
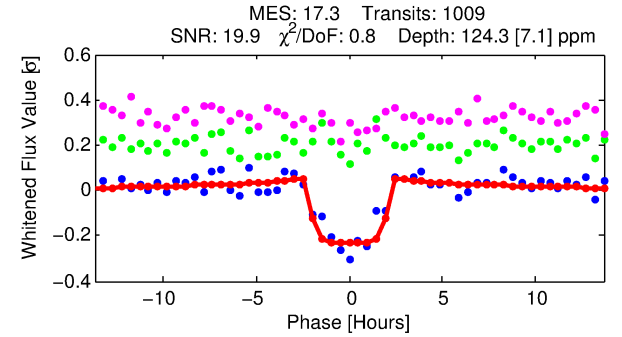
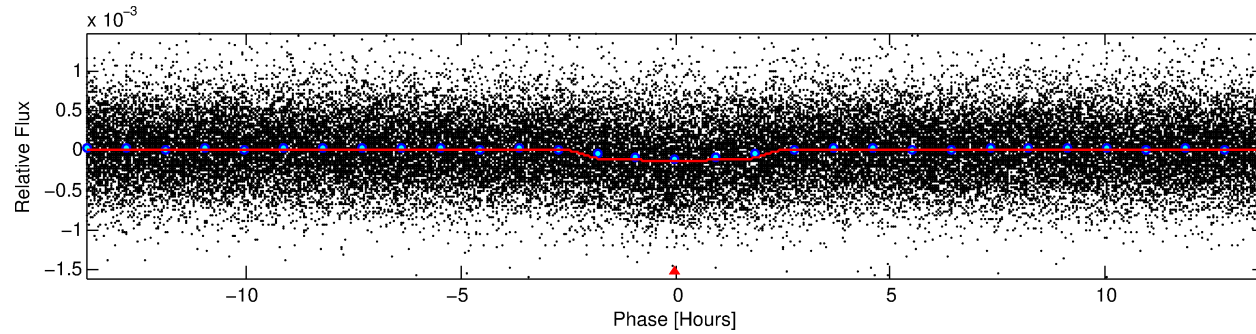
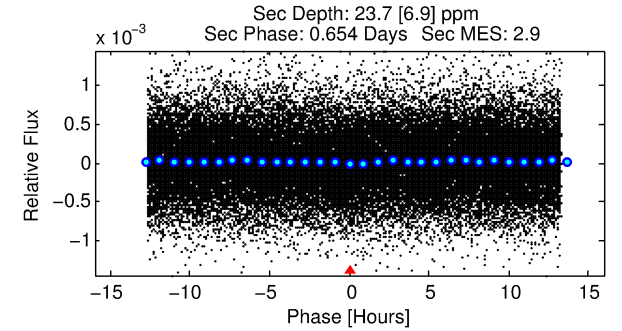
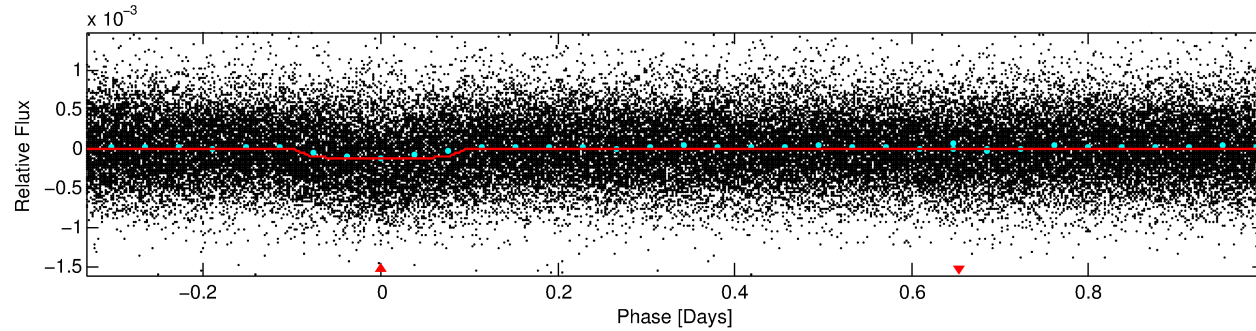
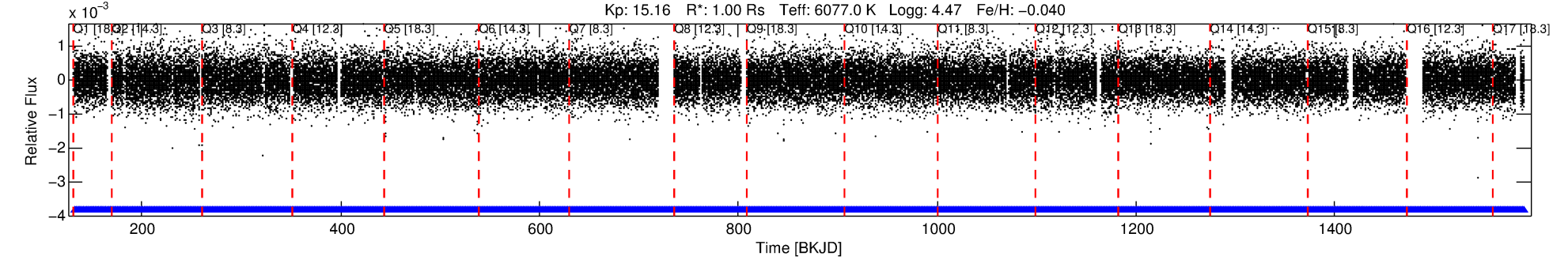
Ephemeris Match Information For 009899233-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009899233-01	9899233	BR-Cyg-pri	9899416	1:1	186.6	46	5	10.03	15.17	5394.10	Direct-PRF	0	0.27	0.27

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9899233 Candidate: 1 of 1 Period: 1.333 d
KOI: K04090.01 Corr: 0.962



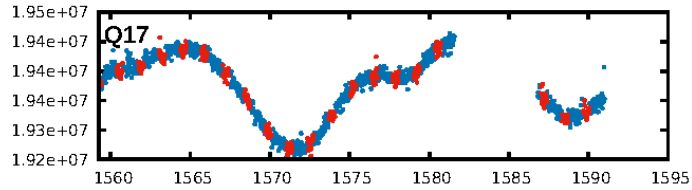
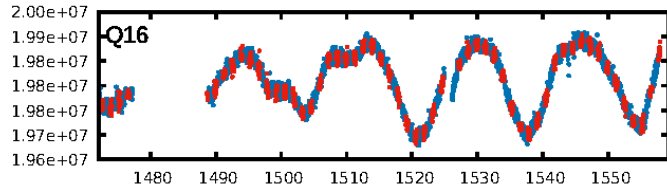
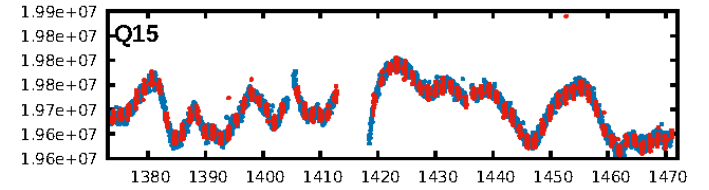
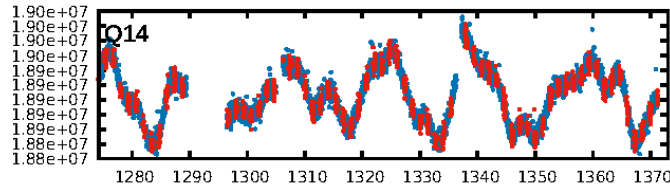
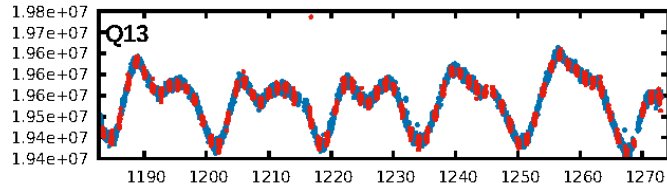
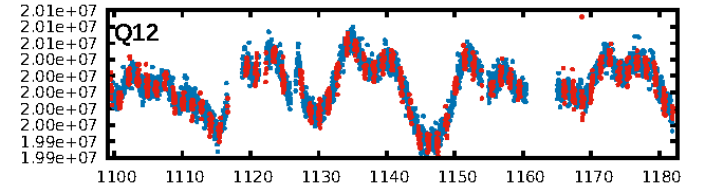
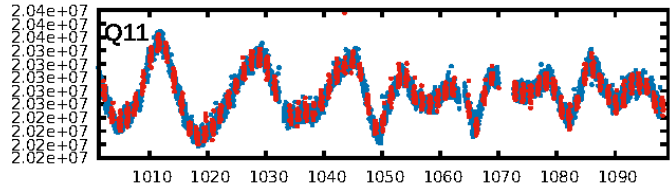
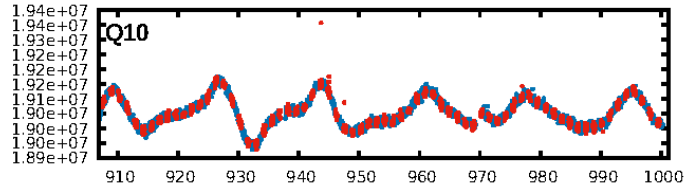
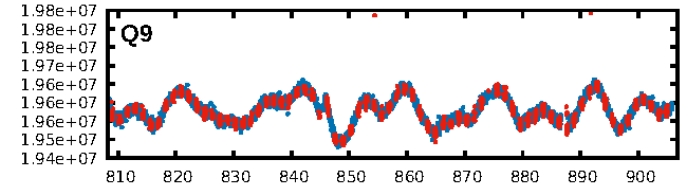
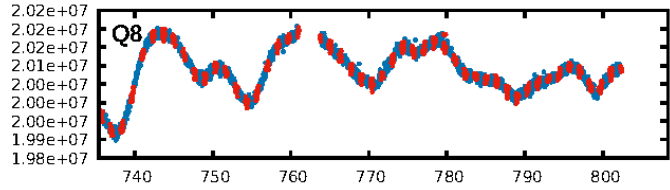
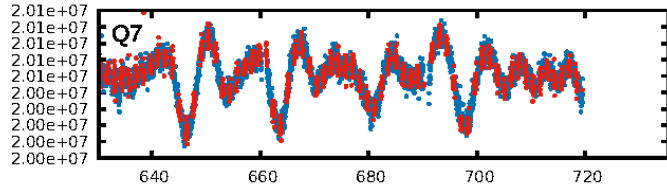
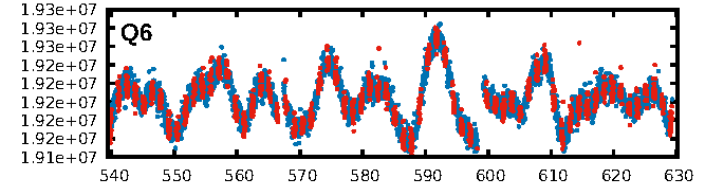
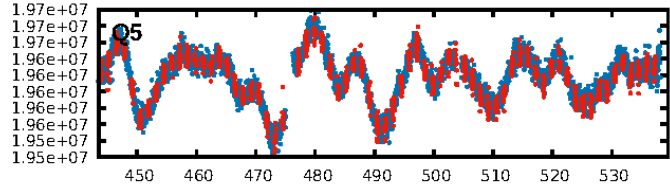
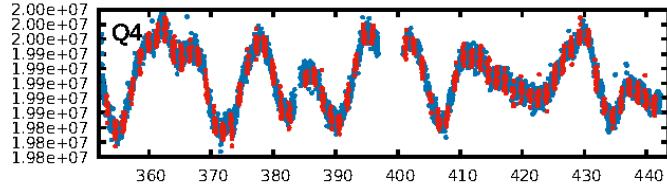
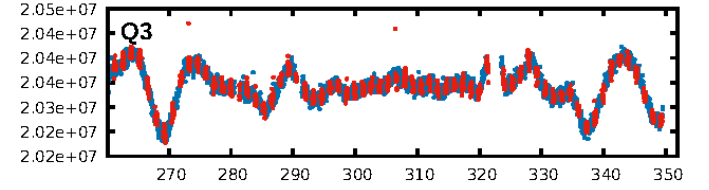
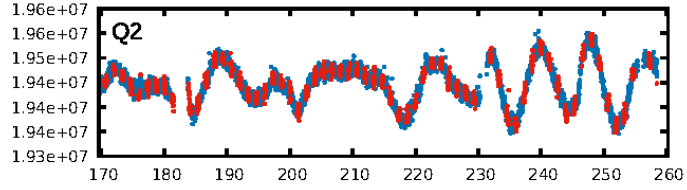
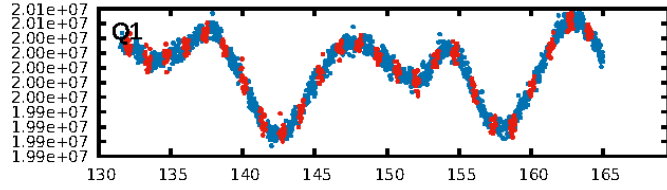
DV Fit Results:

Period = 1.33256 [0.00001] d
Epoch = 132.0537 [0.0022] BKJD
Rp/R* = 0.0121 [0.0020]
a/R* = 1.39 [0.56]
b = 0.90 [0.17]
Seff = 2065.92 [709.40]
Teff = 1719 [148] K
Rp = 1.32 [0.40] Re
a = 0.0243 [0.0052] AU
Ag = 4.43 [2.40] [1.43σ]
Teffp = 3857 [445] K [4.56σ]

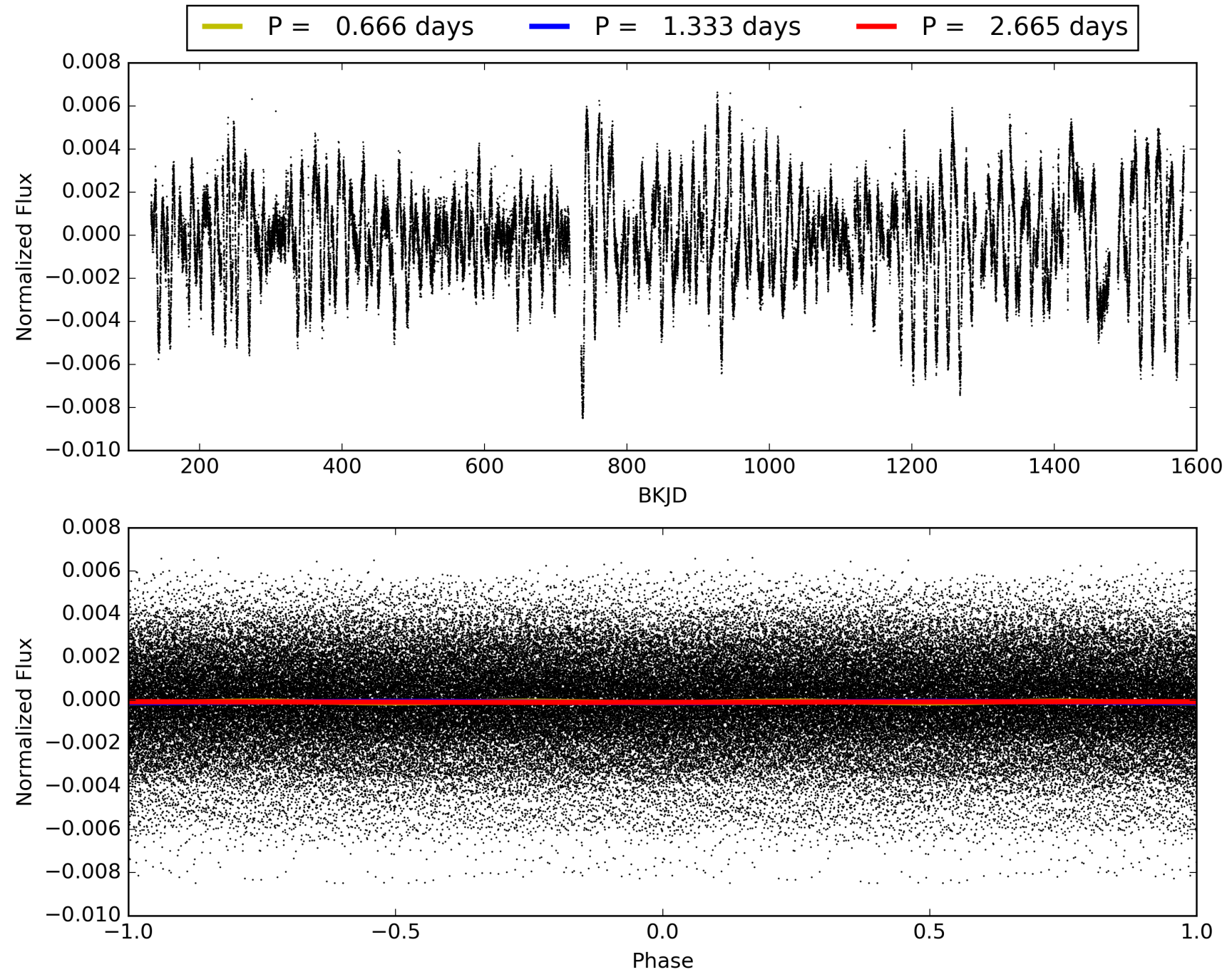
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.89e-59
RollingBand-fgt: 1.00 [964/964]
GhostDiagnostic-chr: 0.8246
Centroid-sig: 0.7%
Centroid-so: 0.881 arcsec [1.80σ]
OotOffset-rm: 2.766 arcsec [6.90σ]
KicOffset-rm: 2.737 arcsec [6.98σ]
OotOffset-st: 4/4/0/5 [13]
KicOffset-st: 4/4/0/5 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009899233-01, PDC Light Curves

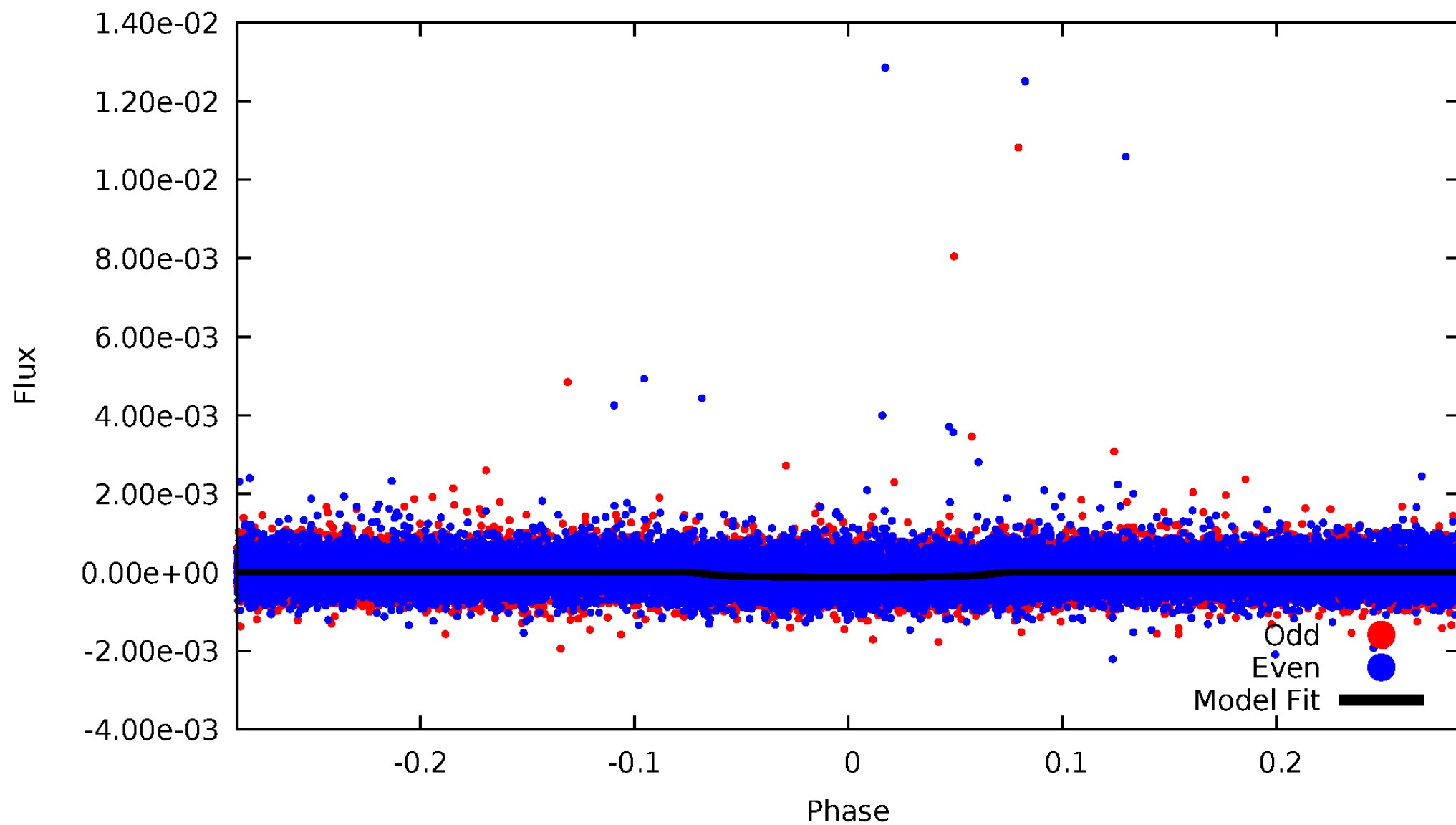


TCE 009899233-01



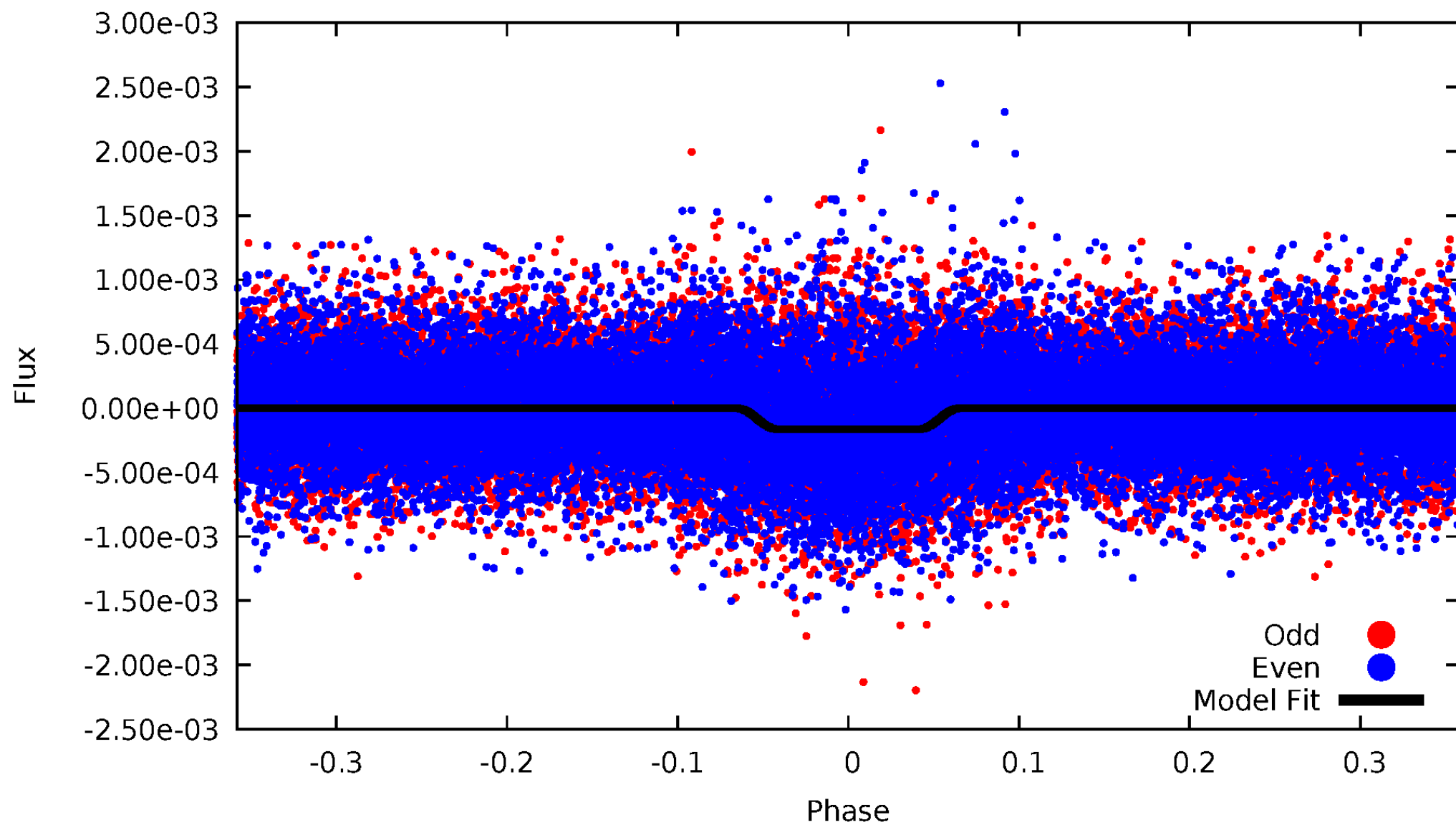
DV Odd/Even

TCE 009899233-01



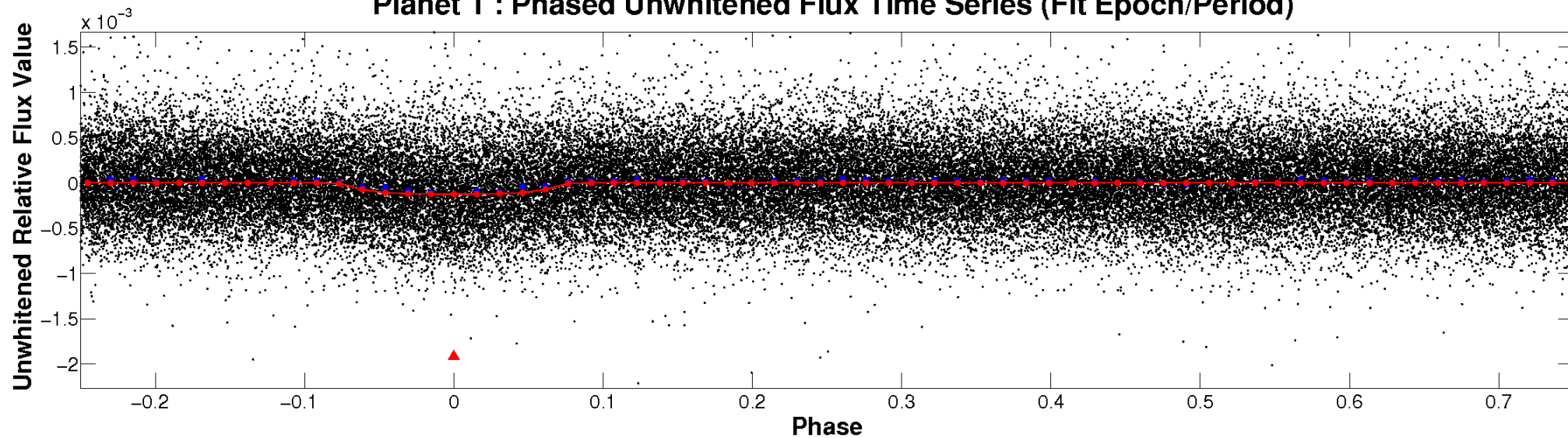
ALT Odd/Even

TCE 009899233-01

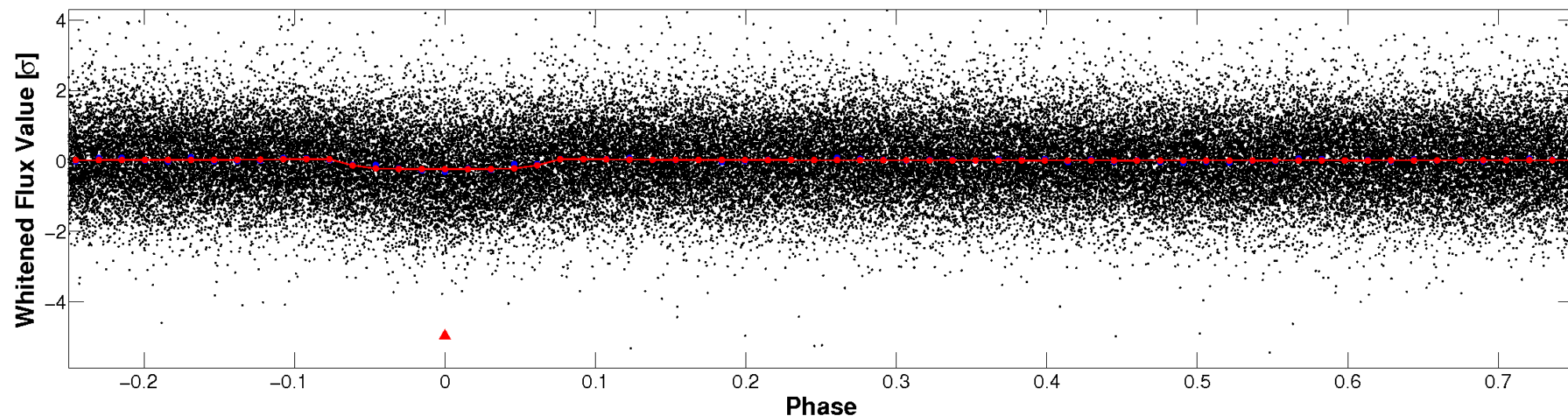


Non-Whitened Vs. Whitened Light Curve

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

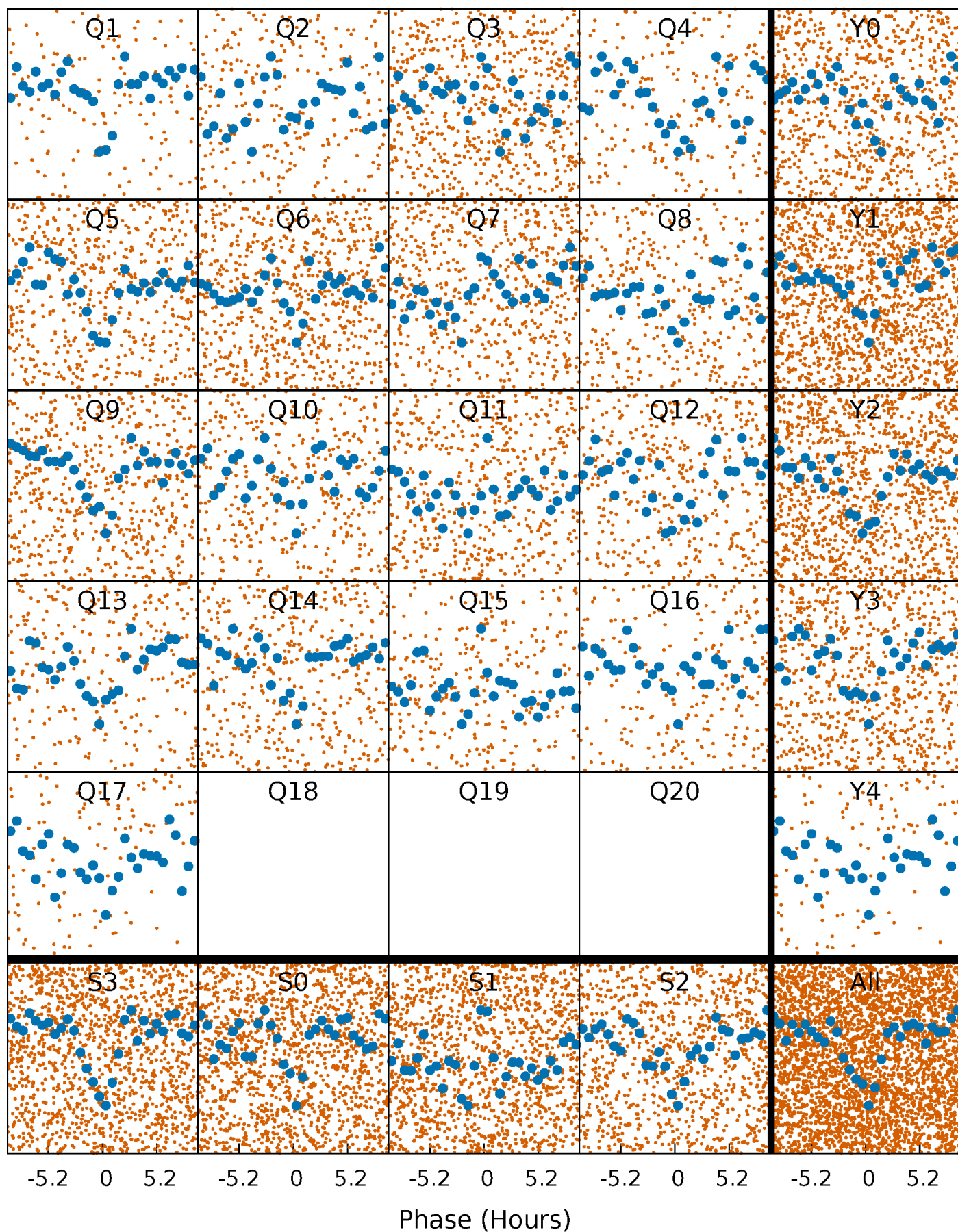


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



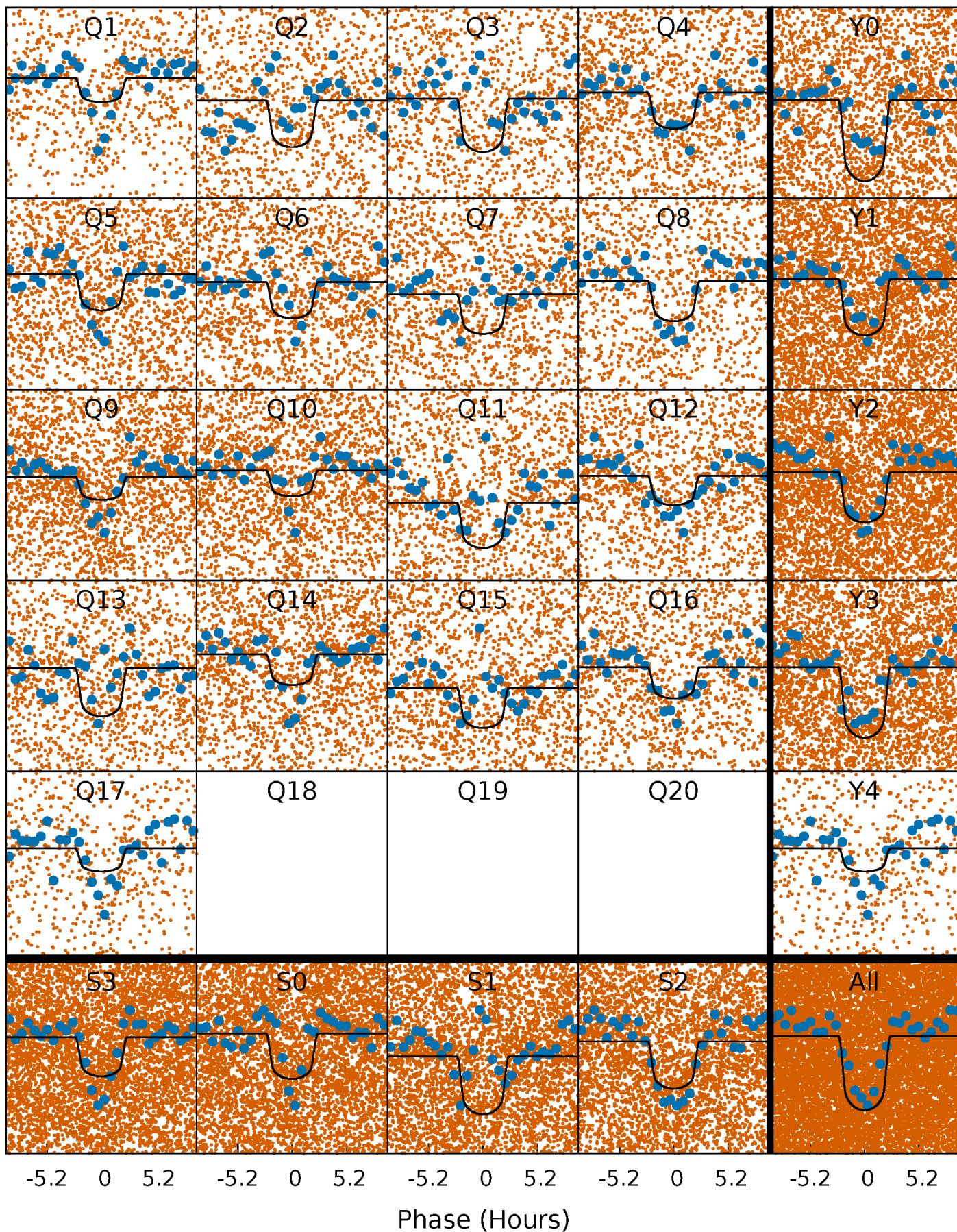
PDC Quarter-Phased Transit Curves

TCE 009899233-01 P= 1.332559 Days $T_0=132.053673$ (BKJD)



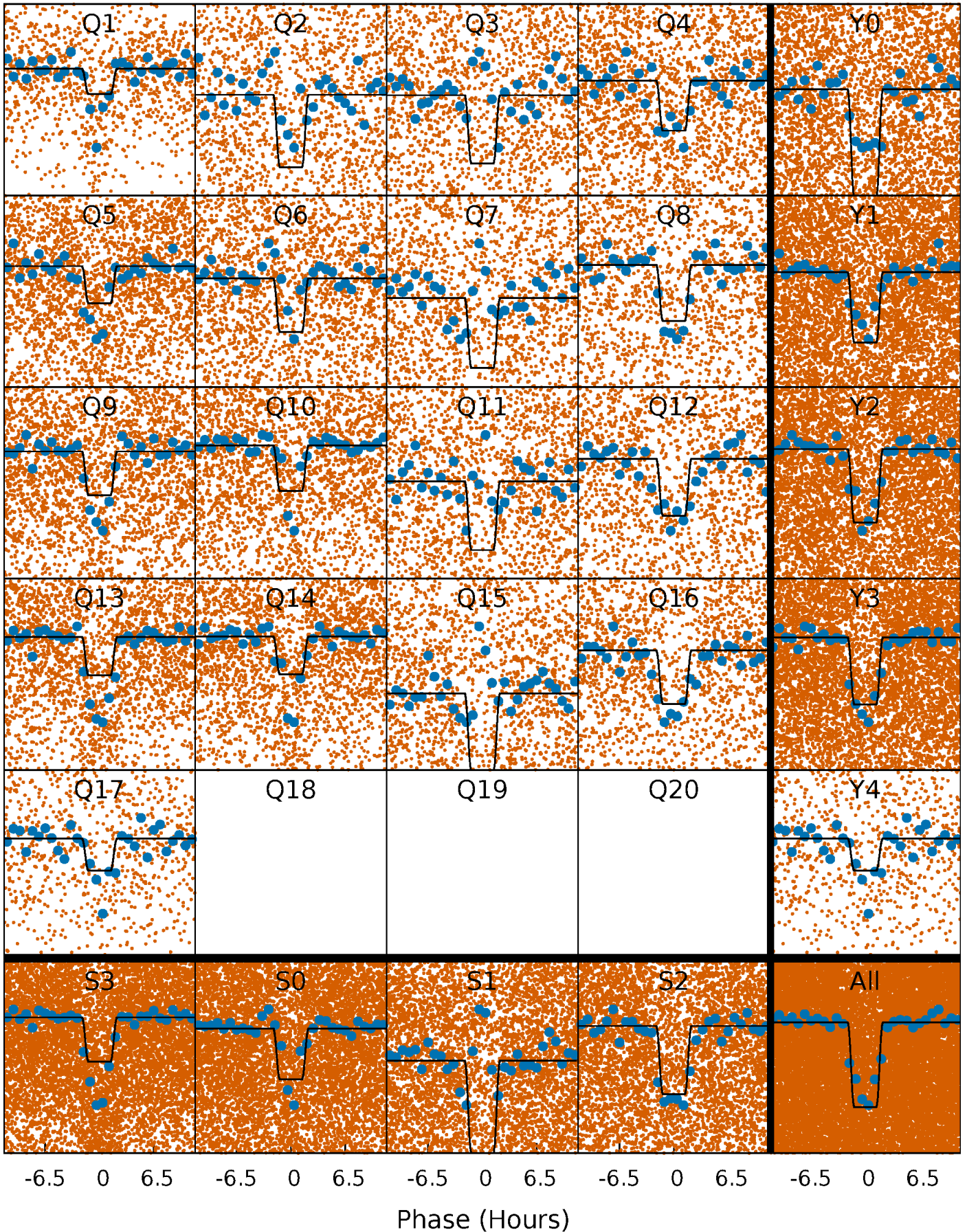
DV Quarter-Phased Transit Curves

TCE 009899233-01 P= 1.332559 Days $T_0=132.053673$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

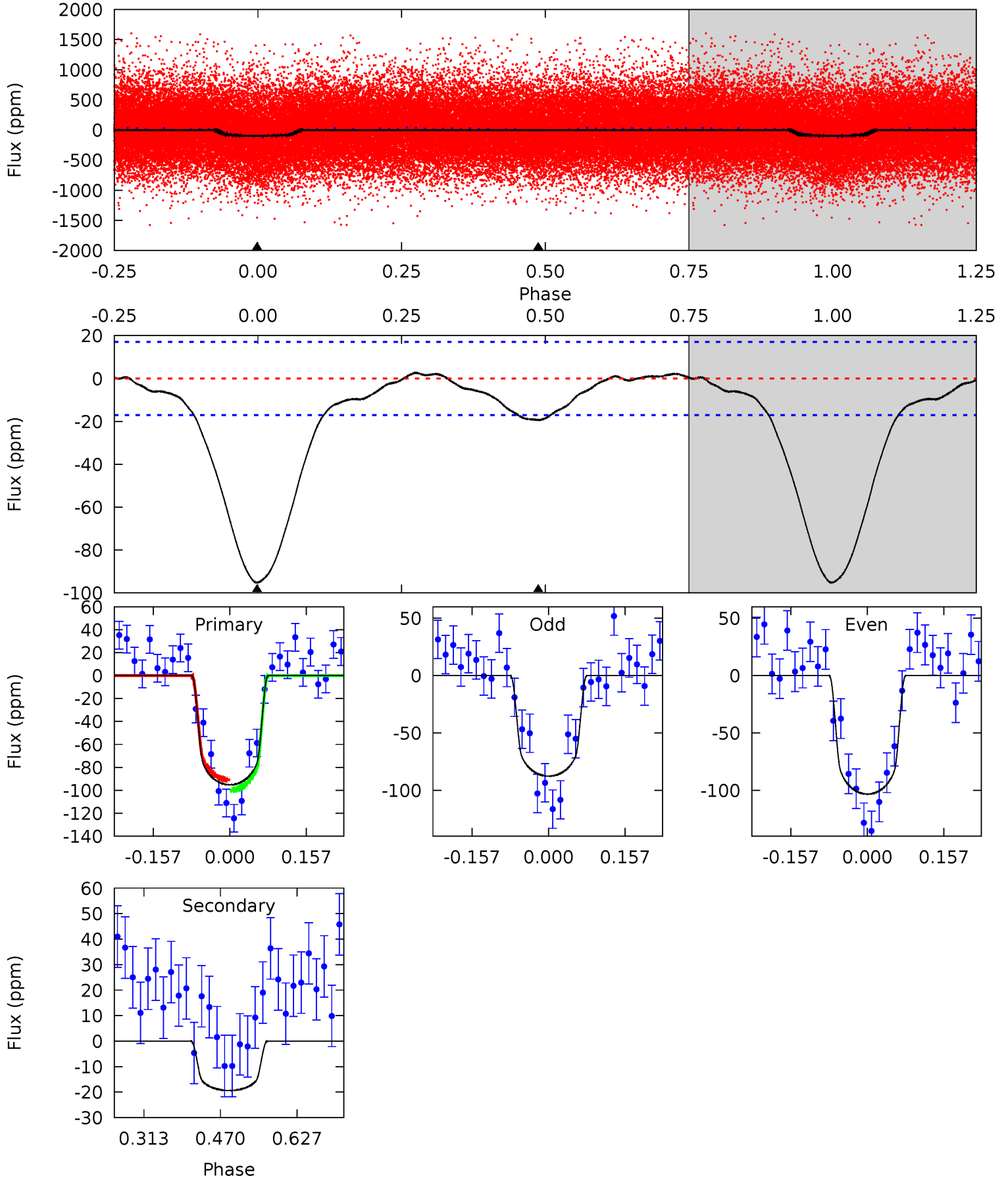
TCE 009899233-01 P= 1.332549 Days $T_0=132.060052$ (BKJD)



DV Model-Shift Uniqueness Test

009899233-01, P = 1.332559 Days, E = 130.721114 Days

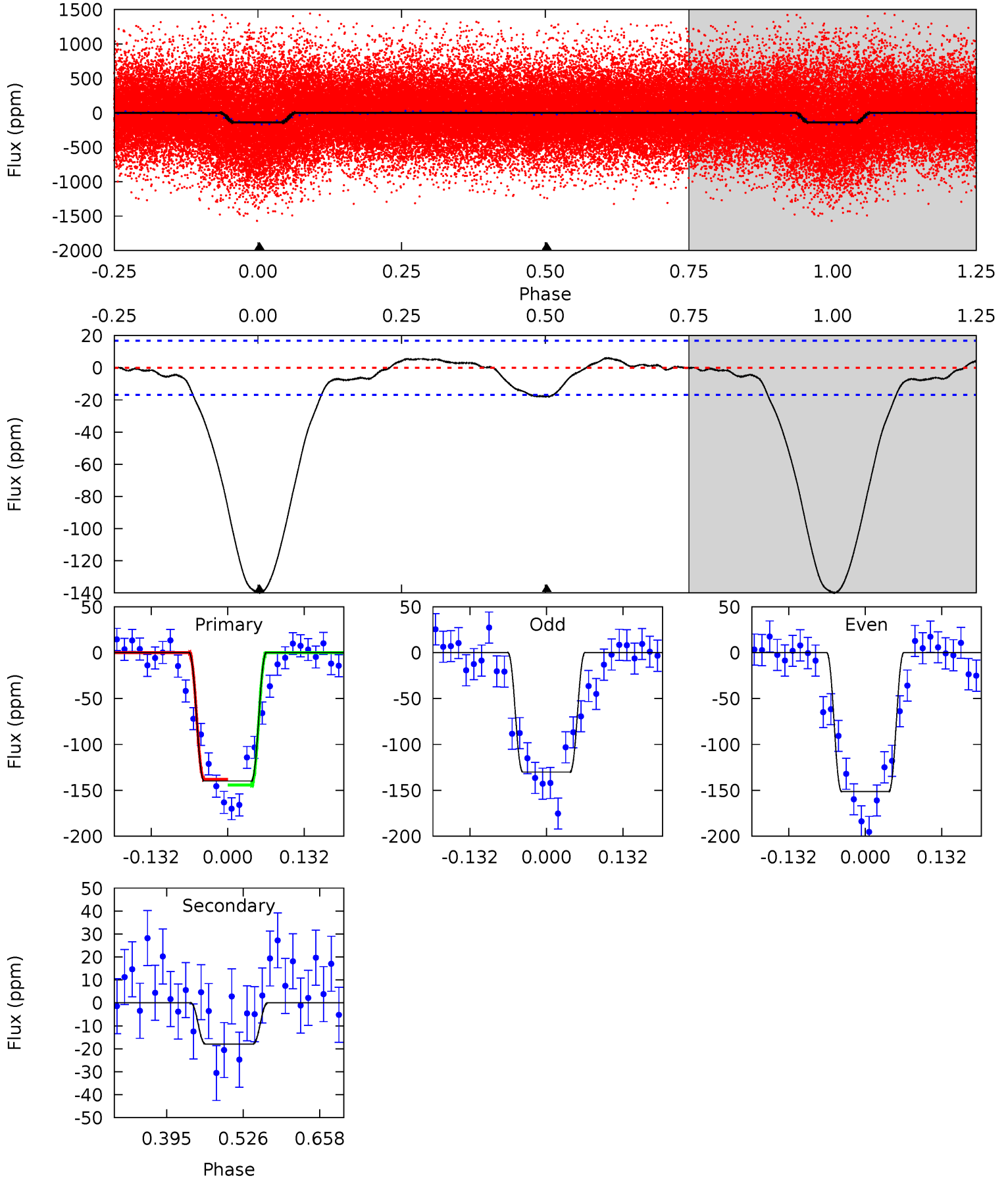
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	5.07	0	0	4.47	1.42	0.99	24.9	24.9	5.07	5.07	2.06	0.86	0.03	1.18



Alt Model-Shift Uniqueness Test

009899233-01, P = 1.332549 Days, E = 130.727503 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.4	4.80	0	0	4.51	1.51	1.06	37.4	37.4	4.80	4.80	2.84	0.92	0.04	0.84



Stellar Parameters For KIC 009899233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6077^{+168}_{-210}	$4.471^{+0.058}_{-0.173}$	$-0.040^{+0.250}_{-0.350}$	$0.999^{+0.252}_{-0.108}$	$1.077^{+0.126}_{-0.139}$	$1.519^{+0.436}_{-0.708}$
	+3%/-3%	+1%/-4%	+625%/-875%	+25%/-11%	+12%/-13%	+29%/-47%
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 009899233-01 / KOI 4090.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-19 ± 4	$1.36^{+0.28}_{-0.24}$	2446^{+149}_{-128}	3912^{+331}_{-310}	$3.313^{+1.656}_{-1.242}$
Alt.	-18 ± 4	$1.42^{+0.28}_{-0.25}$	2430^{+147}_{-111}	3778^{+314}_{-245}	$2.806^{+1.528}_{-0.978}$

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

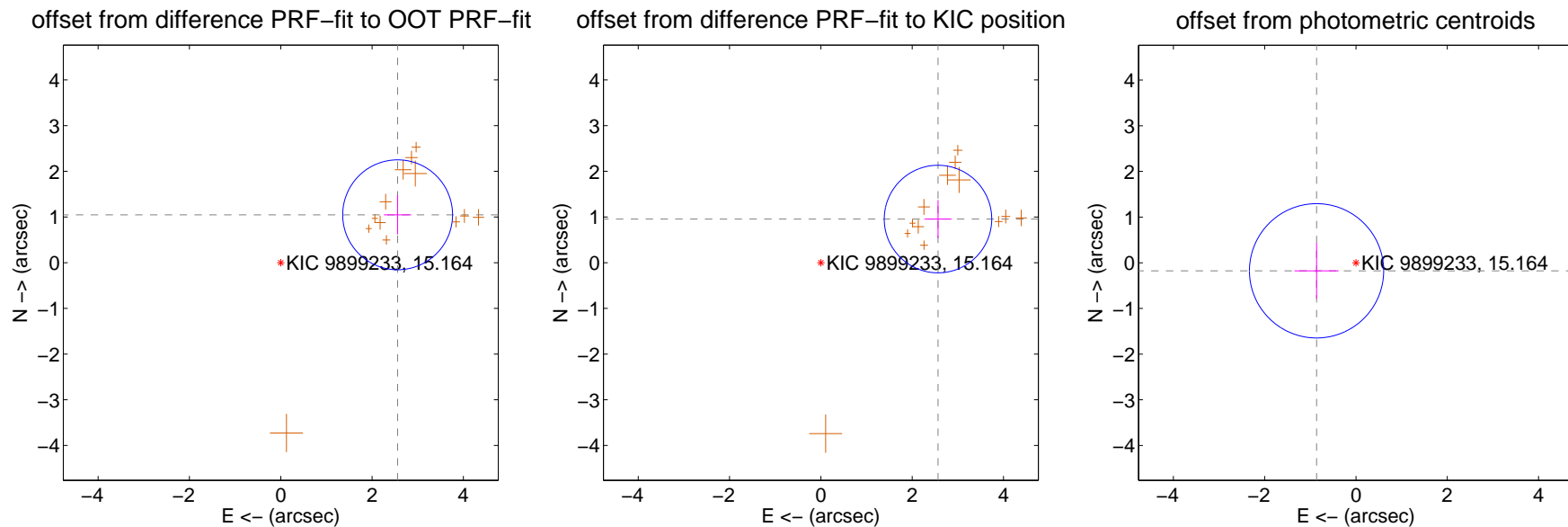
DV Centroid Data

Supplemental centroid analysis for 009899233-01. Kepler magnitude: 15.16. Transit SNR 19.90

There are 0 quarters with good PRF difference image offsets

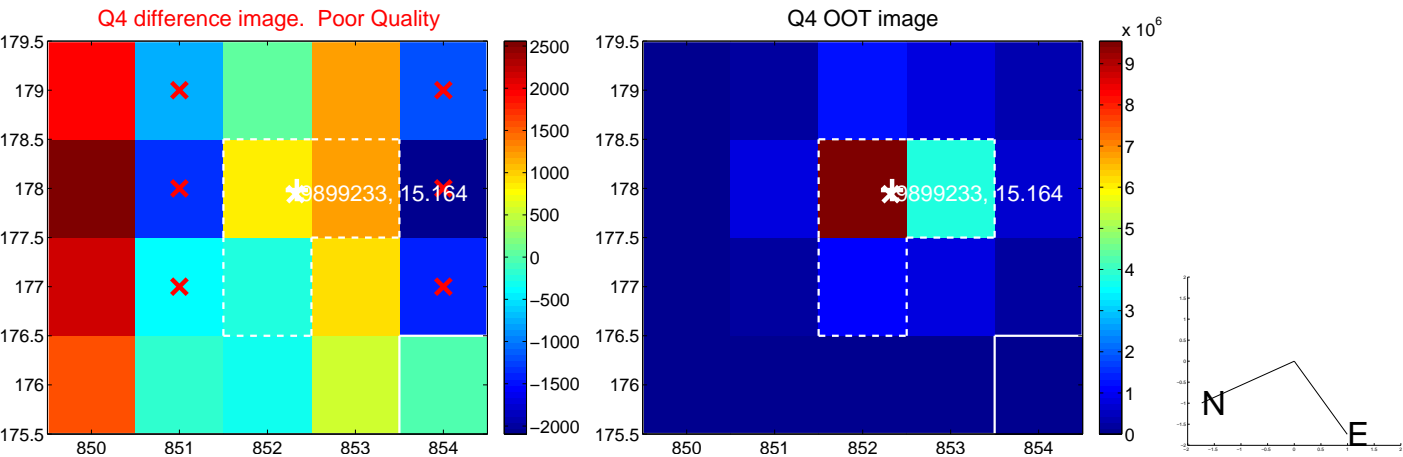
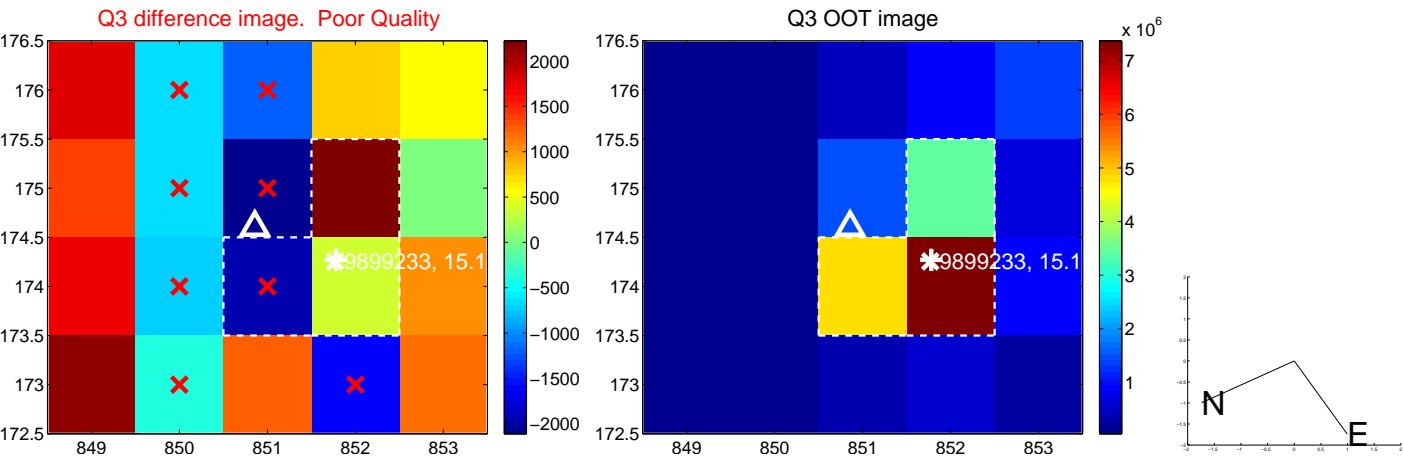
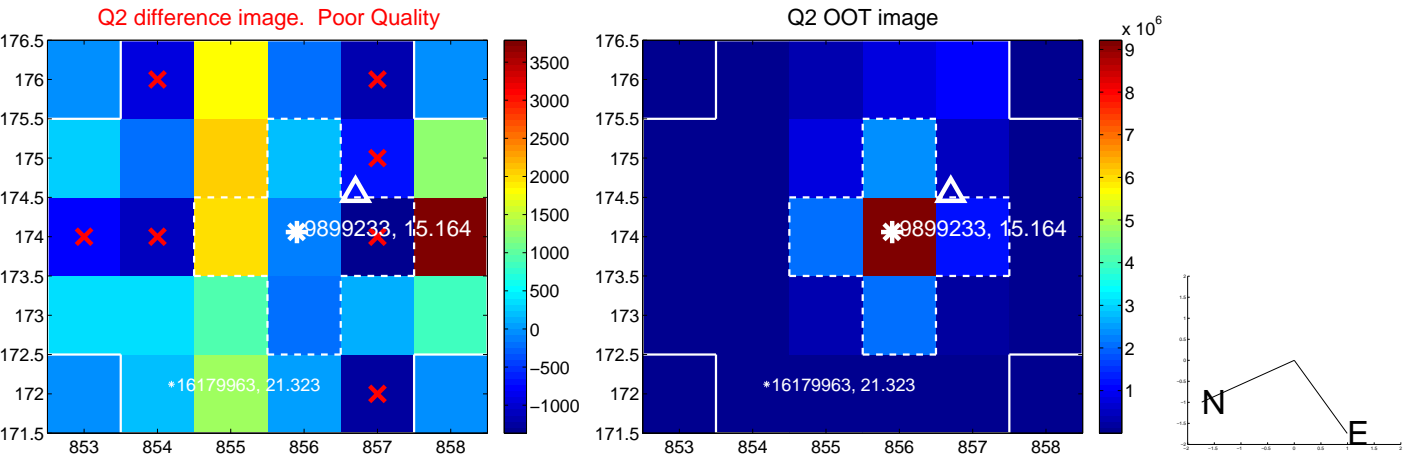
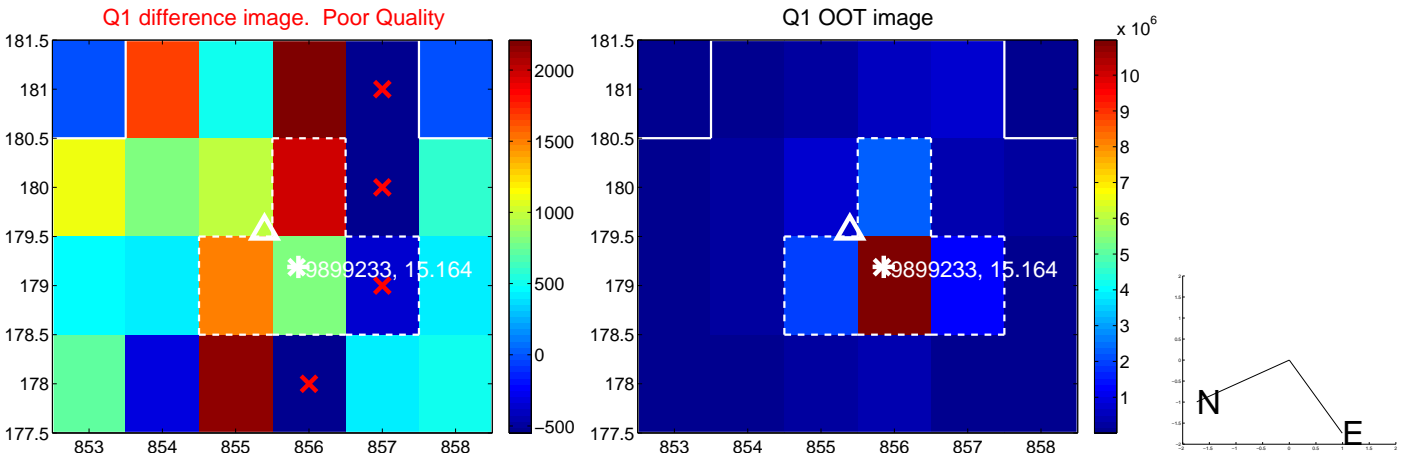
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.766 ± 0.401	6.90	-2.560 ± 0.300	1.048 ± 0.429
PRF-fit source offset from KIC position	2.737 ± 0.392	6.98	-2.565 ± 0.299	0.955 ± 0.417
photometric centroid source offset	0.88 ± 0.49	1.80	0.86 ± 0.48	-0.18 ± 0.61

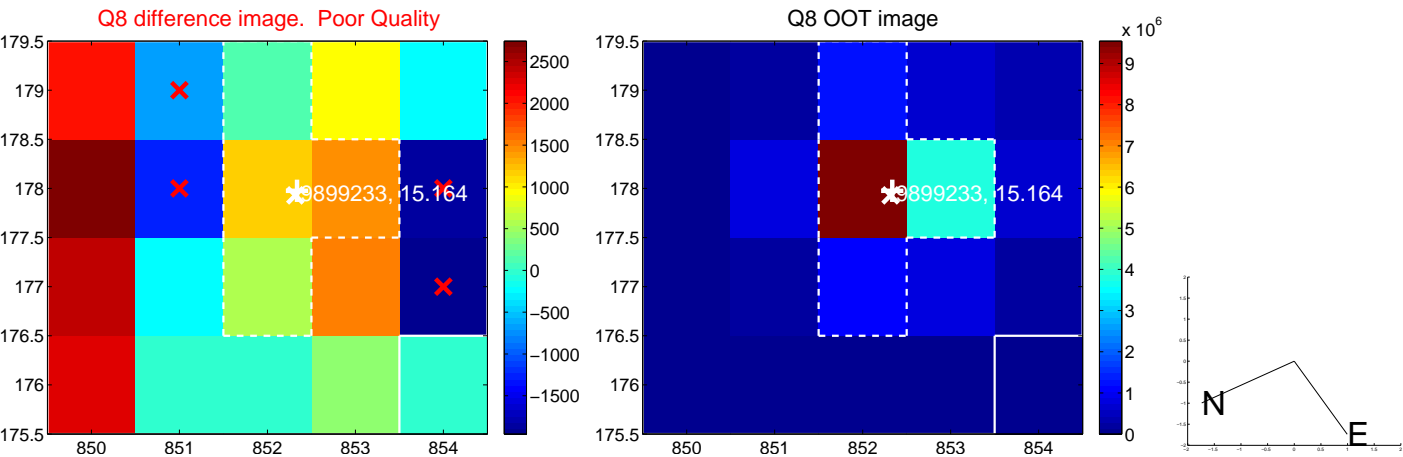
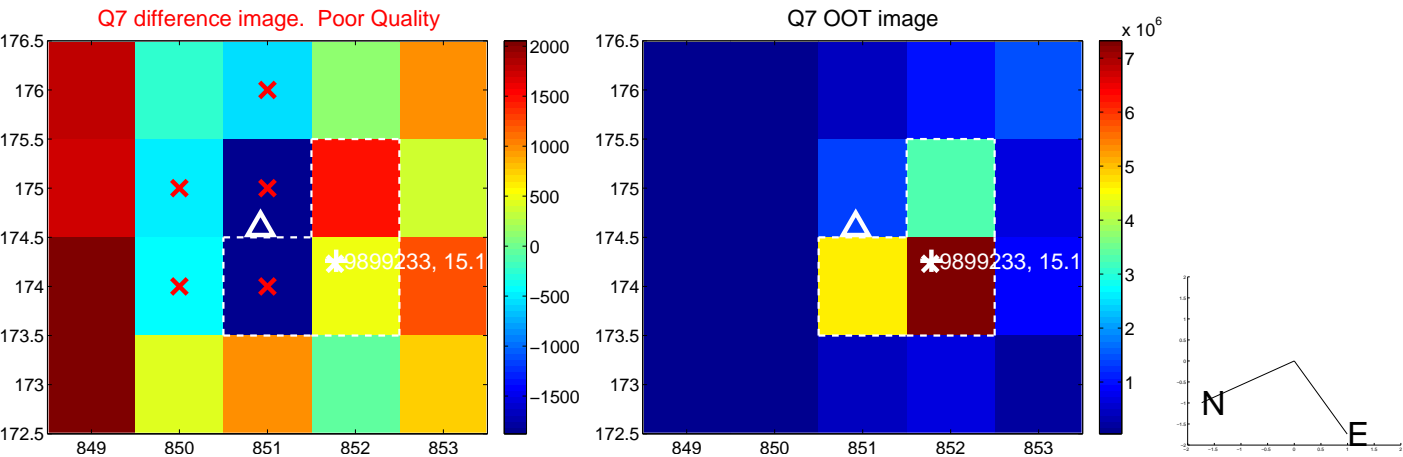
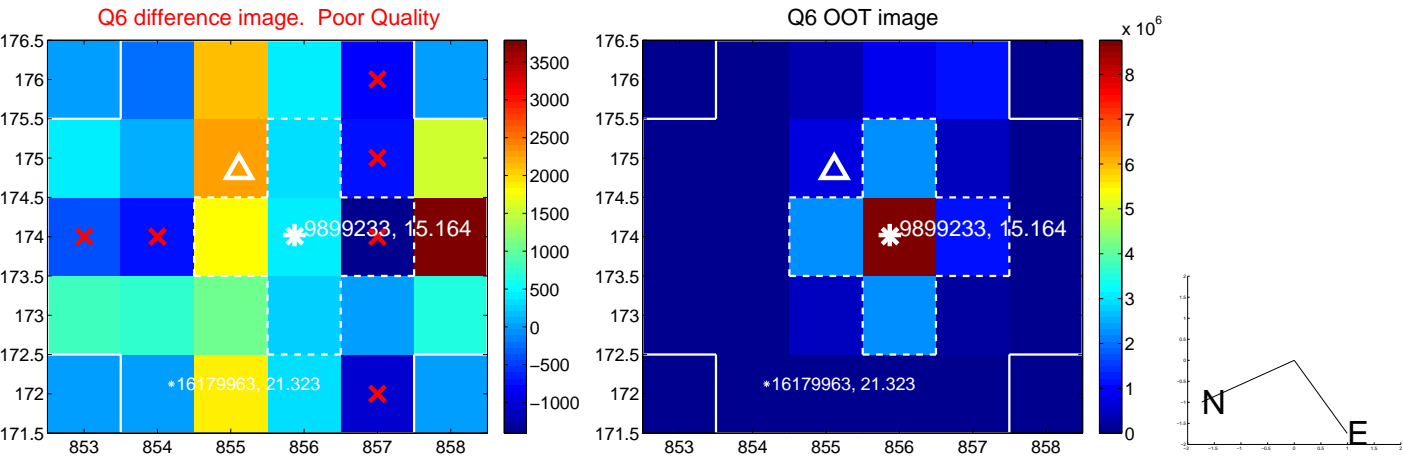
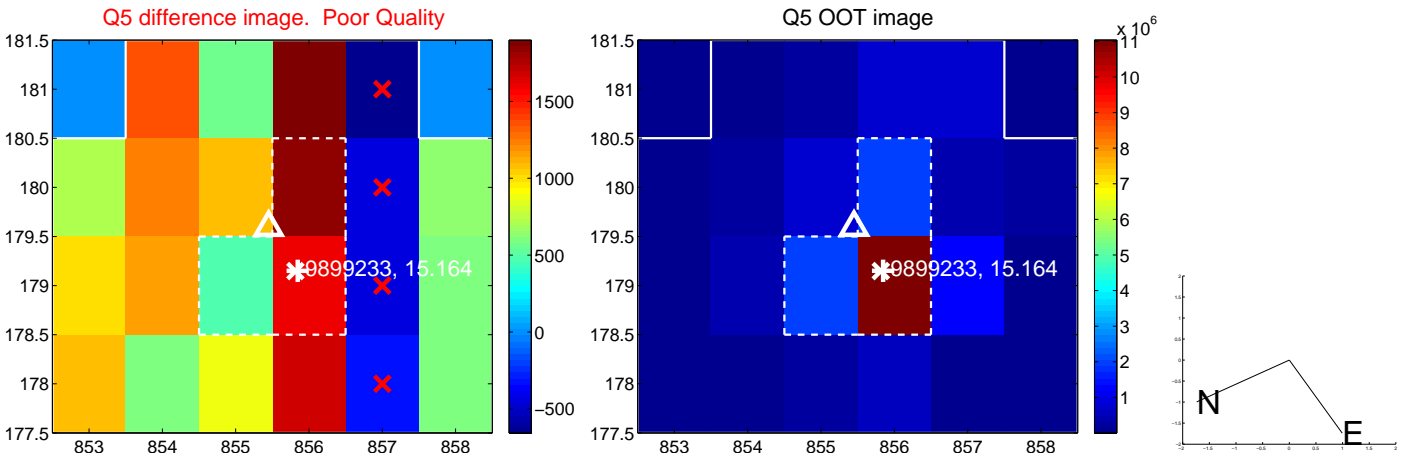


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

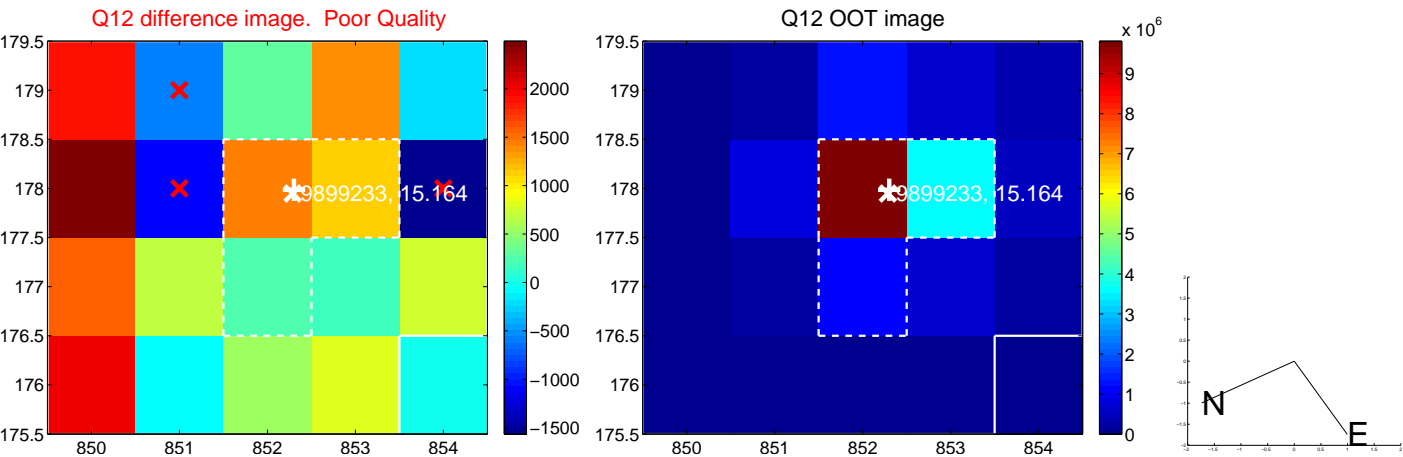
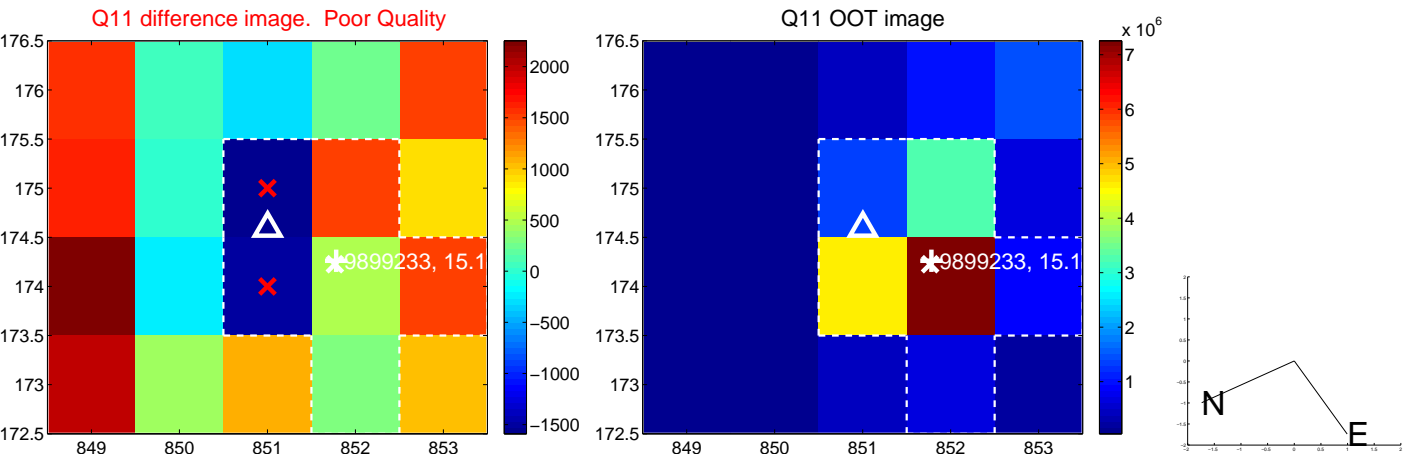
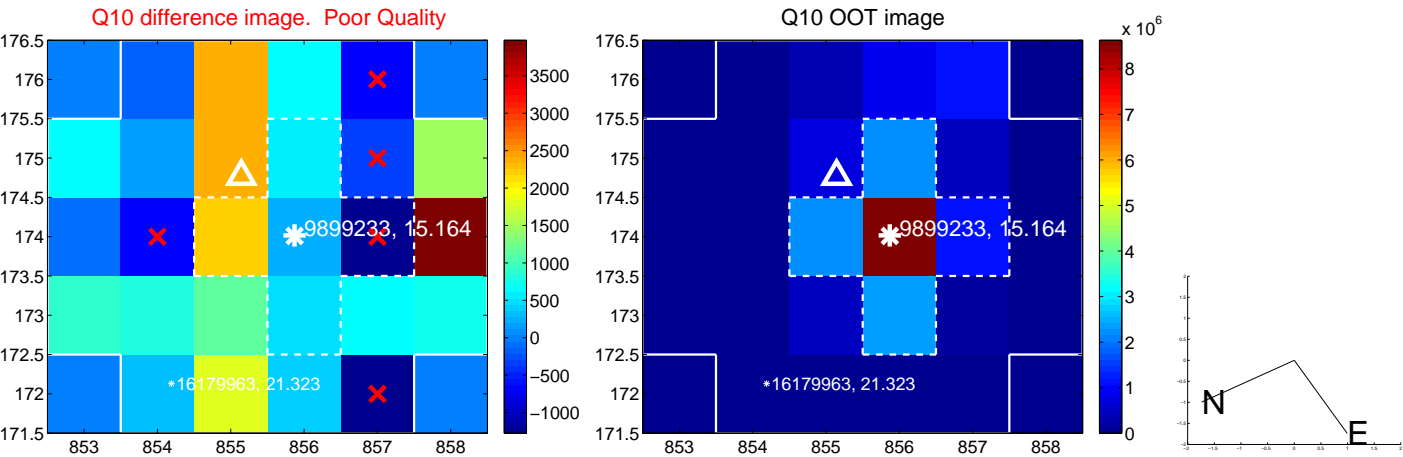
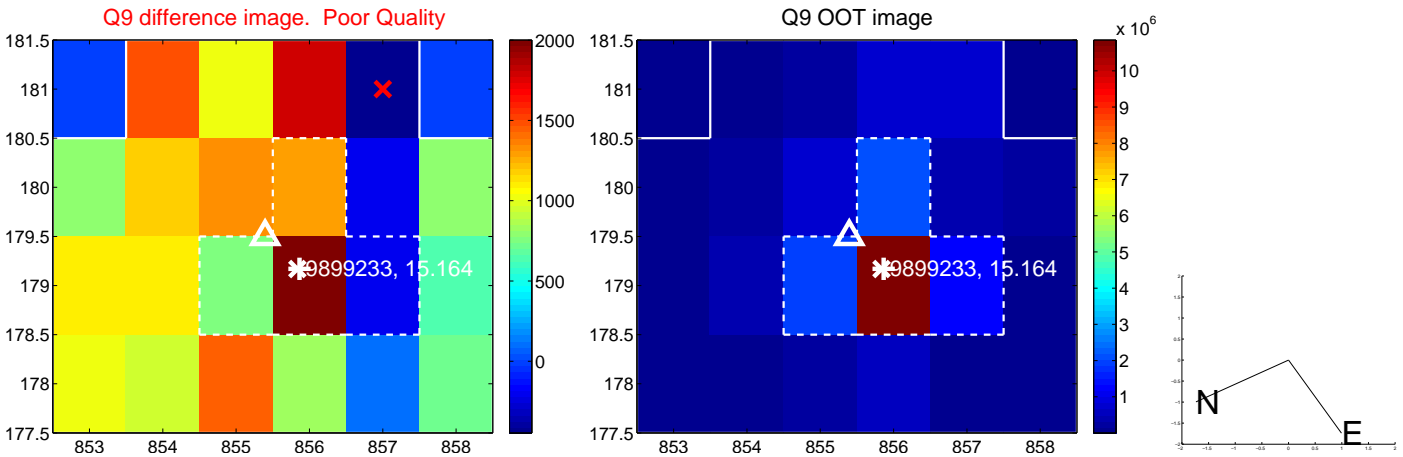
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



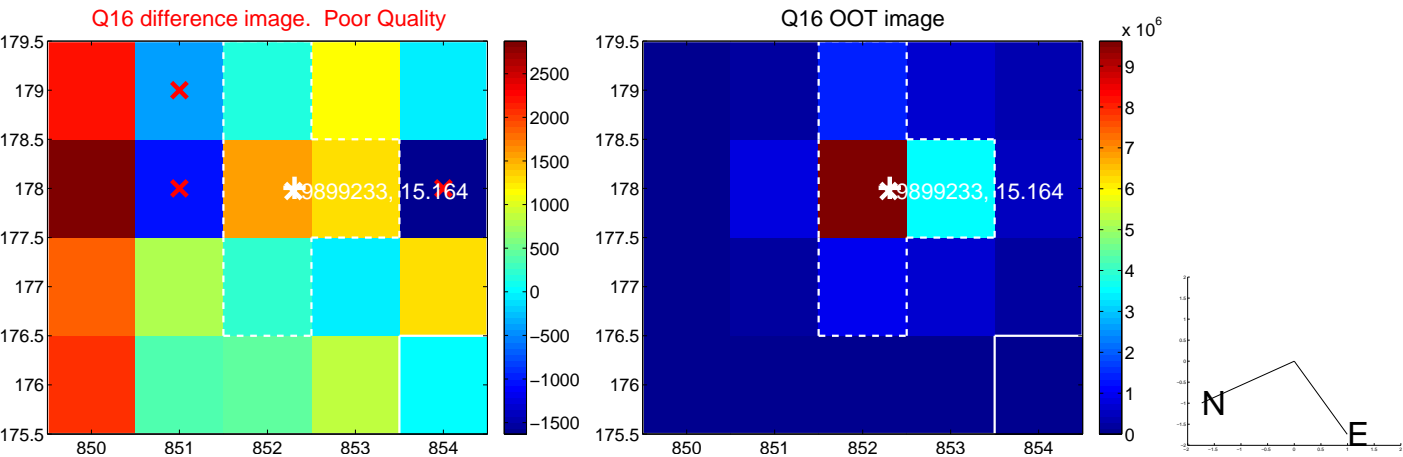
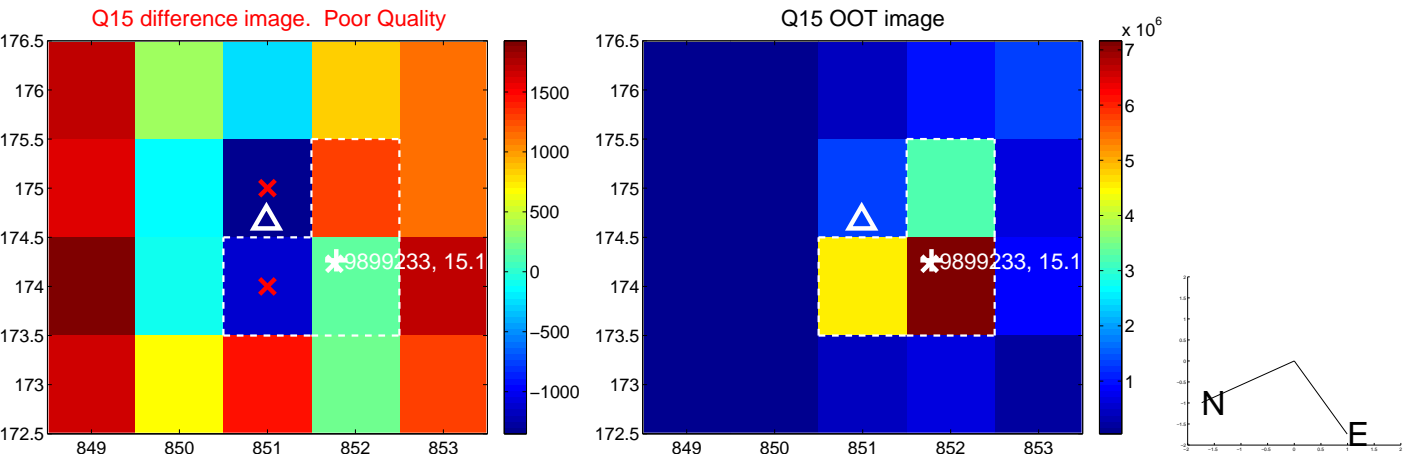
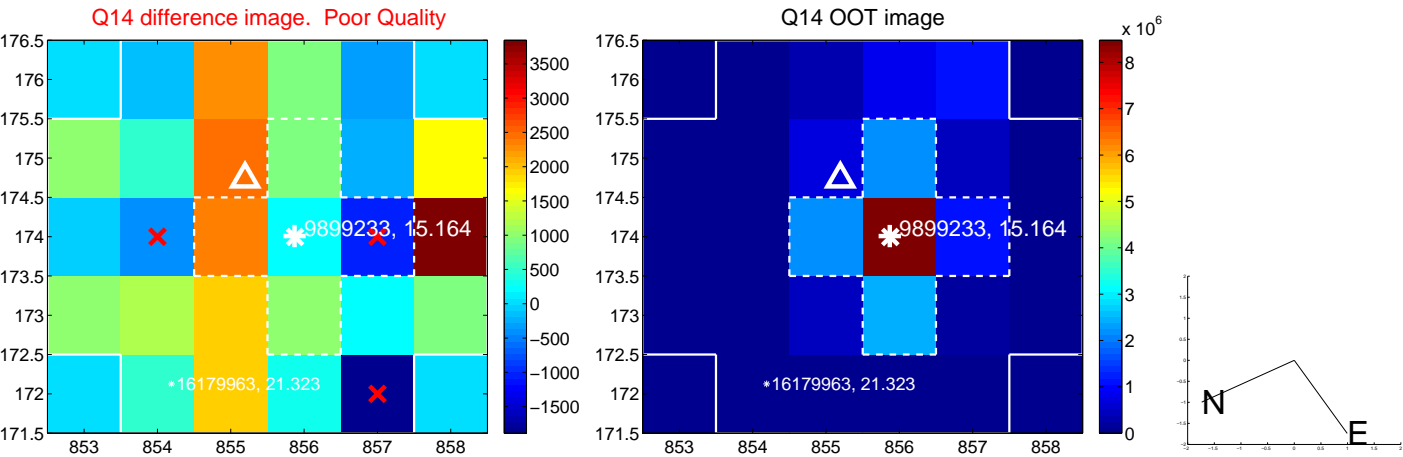
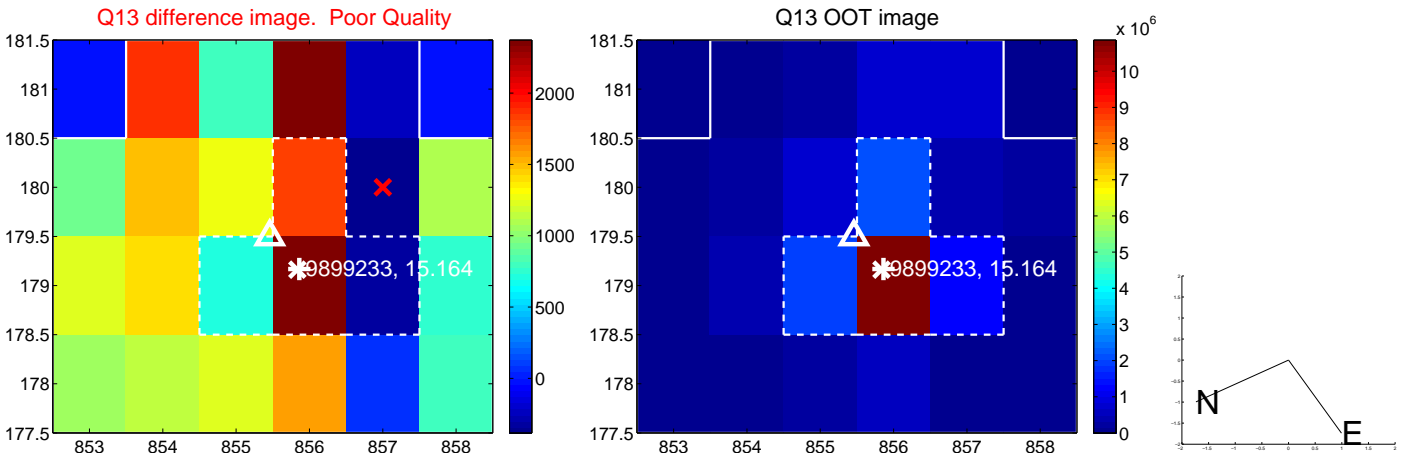
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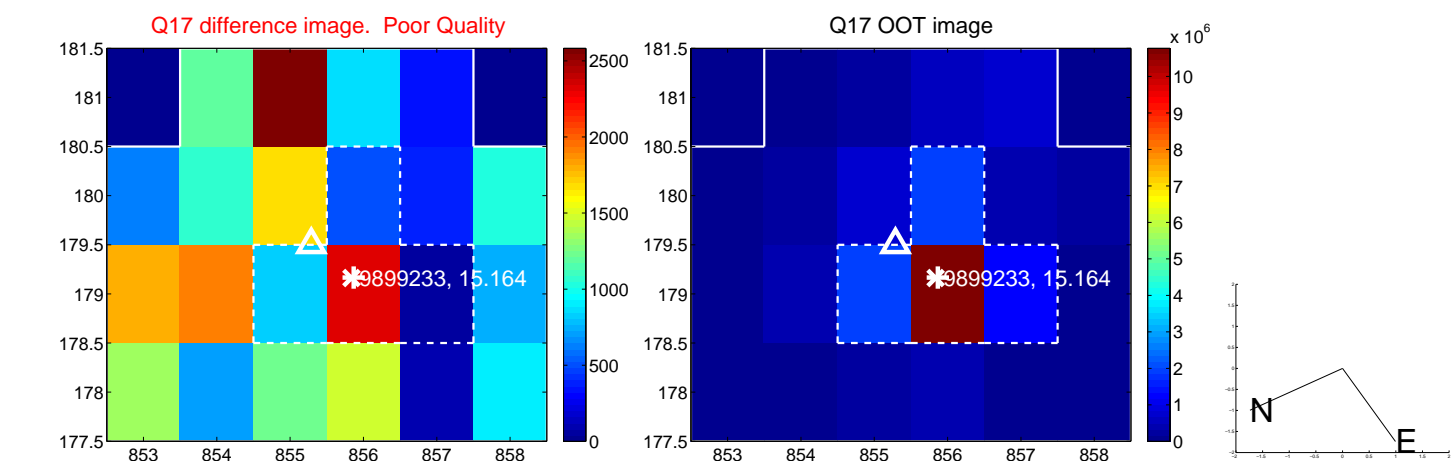
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



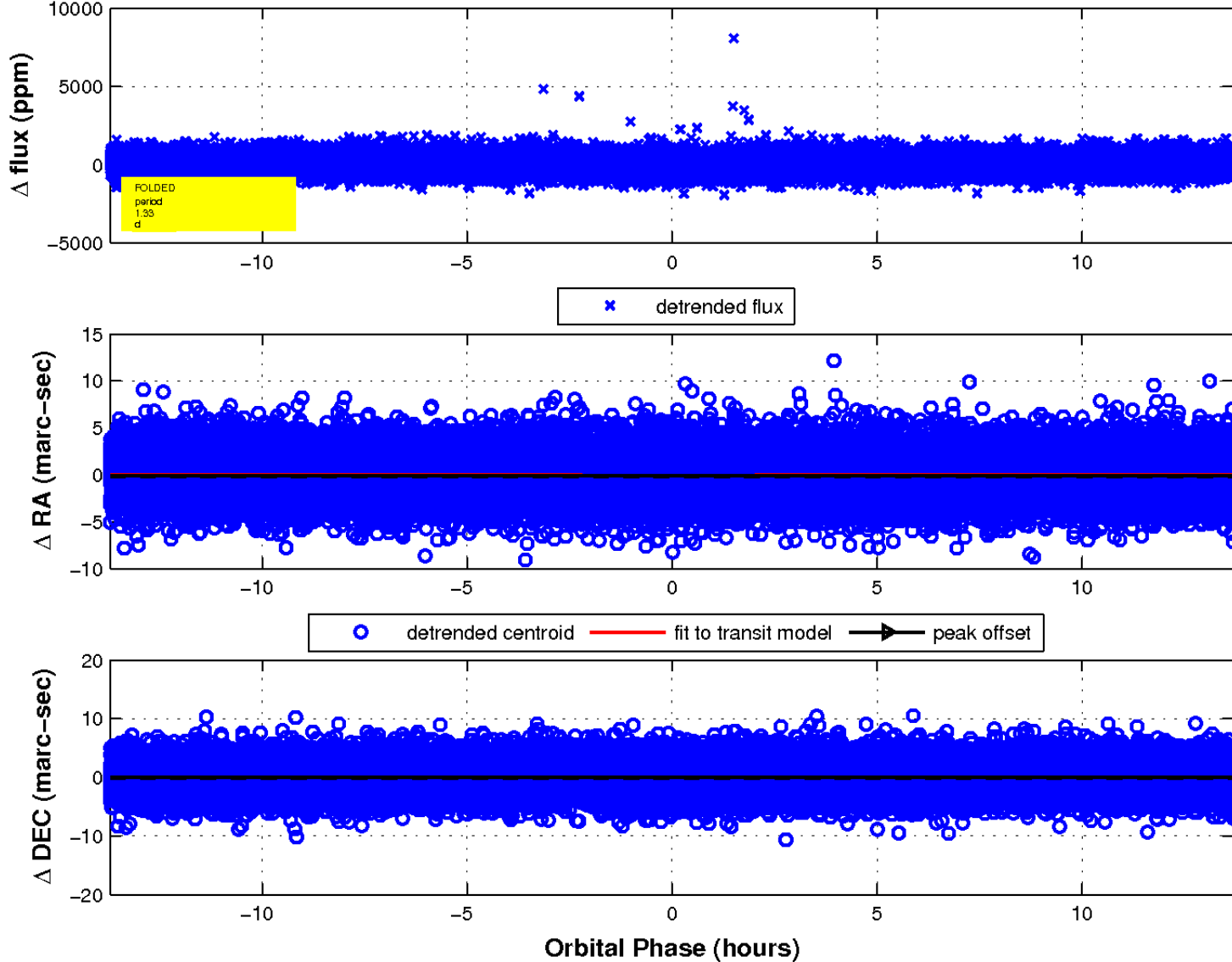
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

