

KIC 009899583

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
009899583-01	OBS	7248.01	1.332481	132.108527	52.3	4.664	13.2	13.5	1.00	6108	0.84	2105.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899583-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HALO_GHOST—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 009899583-01

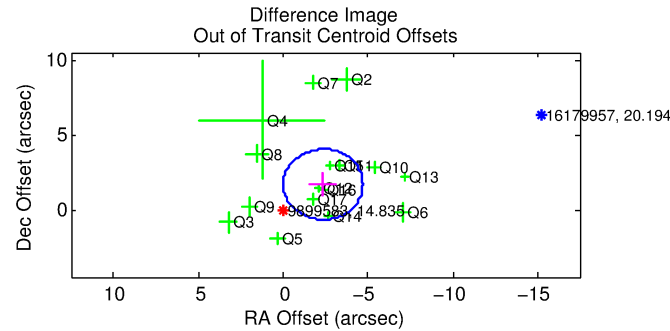
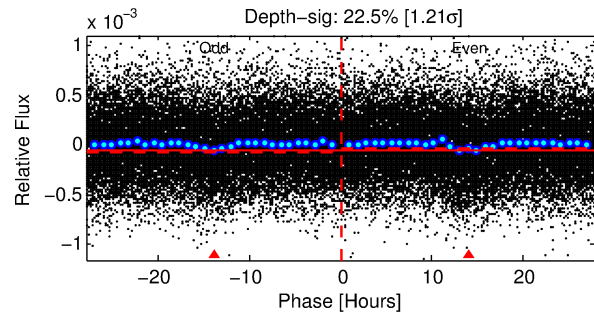
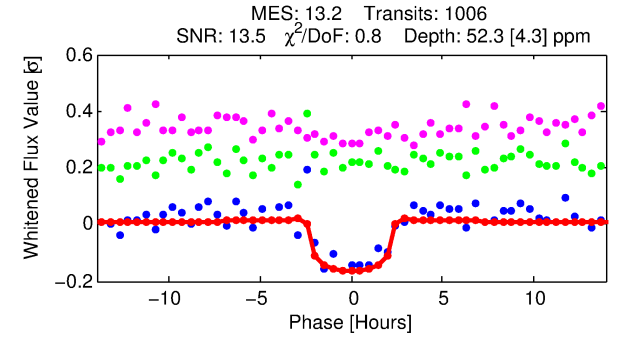
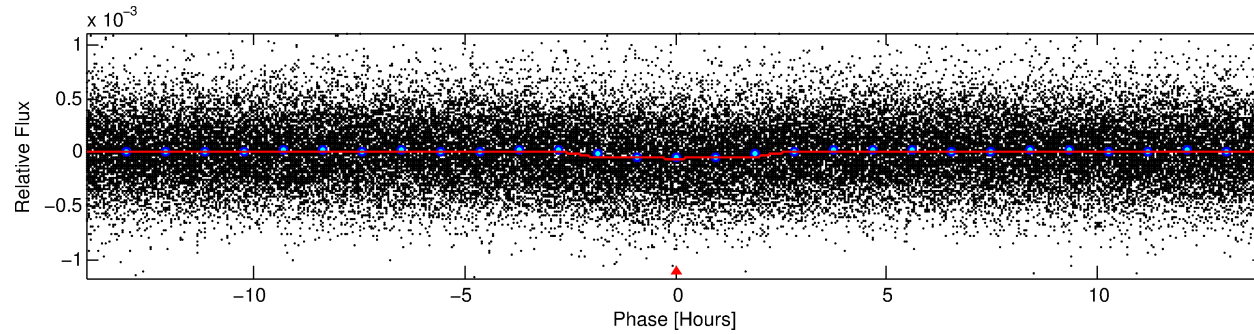
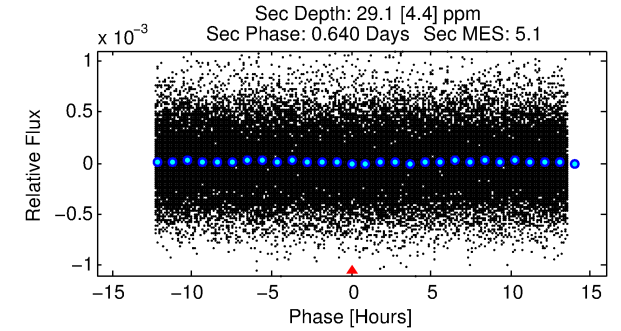
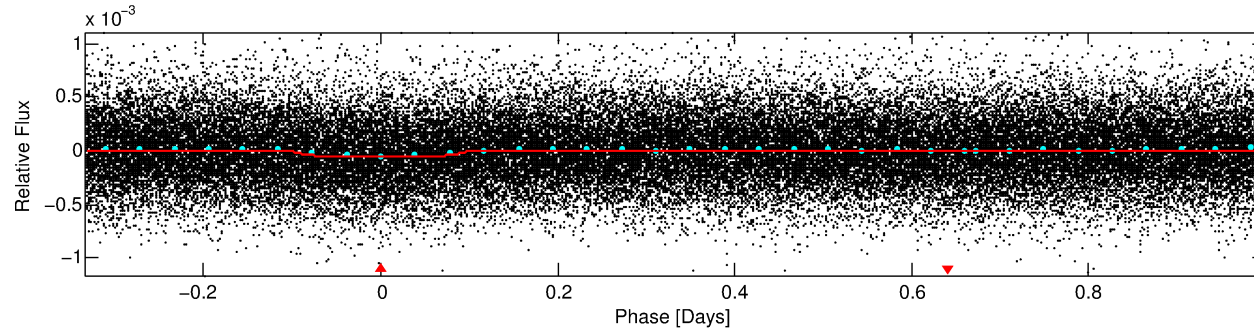
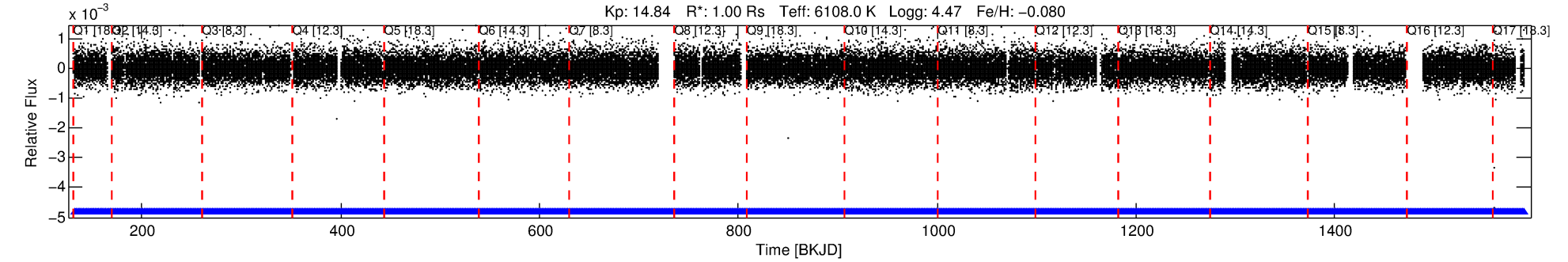
TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
009899583-01	9899583	BR-Cyg-pri	9899416	1:1	182.5	-19	42	10.03	14.84	12056.00	Direct-PRF	0	4.55	3.88

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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 σ_P < 5.0 and σ_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: 9899583 Candidate: 1 of 1 Period: 1.332 d

KOI: K07248.01 Corr: 0.859



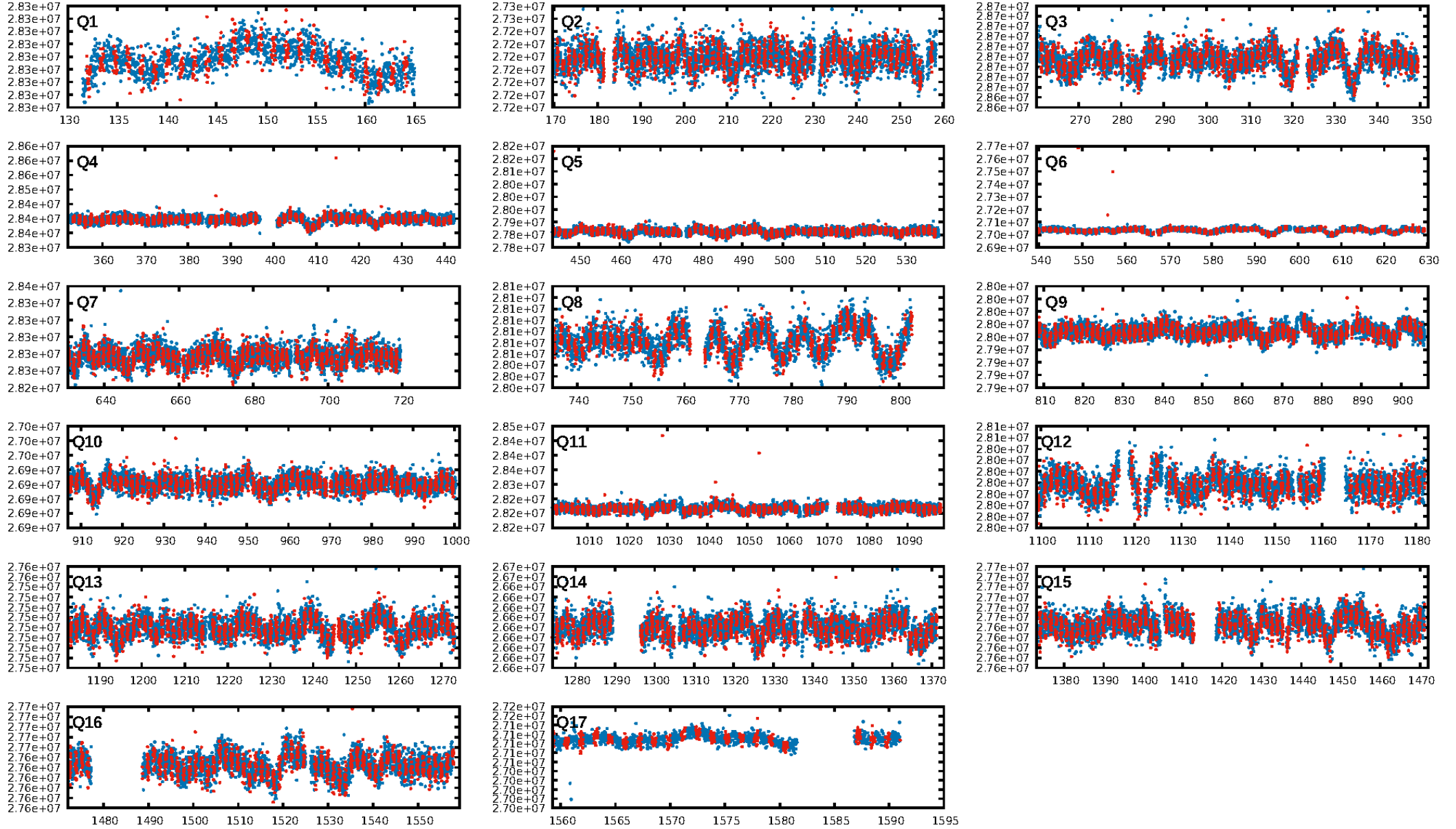
DV Fit Results:

Period = 1.33248 [0.00001] d
Epoch = 132.1085 [0.0039] BKJD
Rp/R* = 0.0077 [0.0030]
a/R* = 1.39 [1.37]
b = 0.89 [0.48]
Seff = 2105.74 [825.25]
Teff = 1727 [169] K
Rp = 0.84 [0.42] Re
a = 0.0243 [0.0063] AU
Ag = 13.24 [11.65] [1.05σ]
Teffp = 5095 [1028] K [3.23σ]

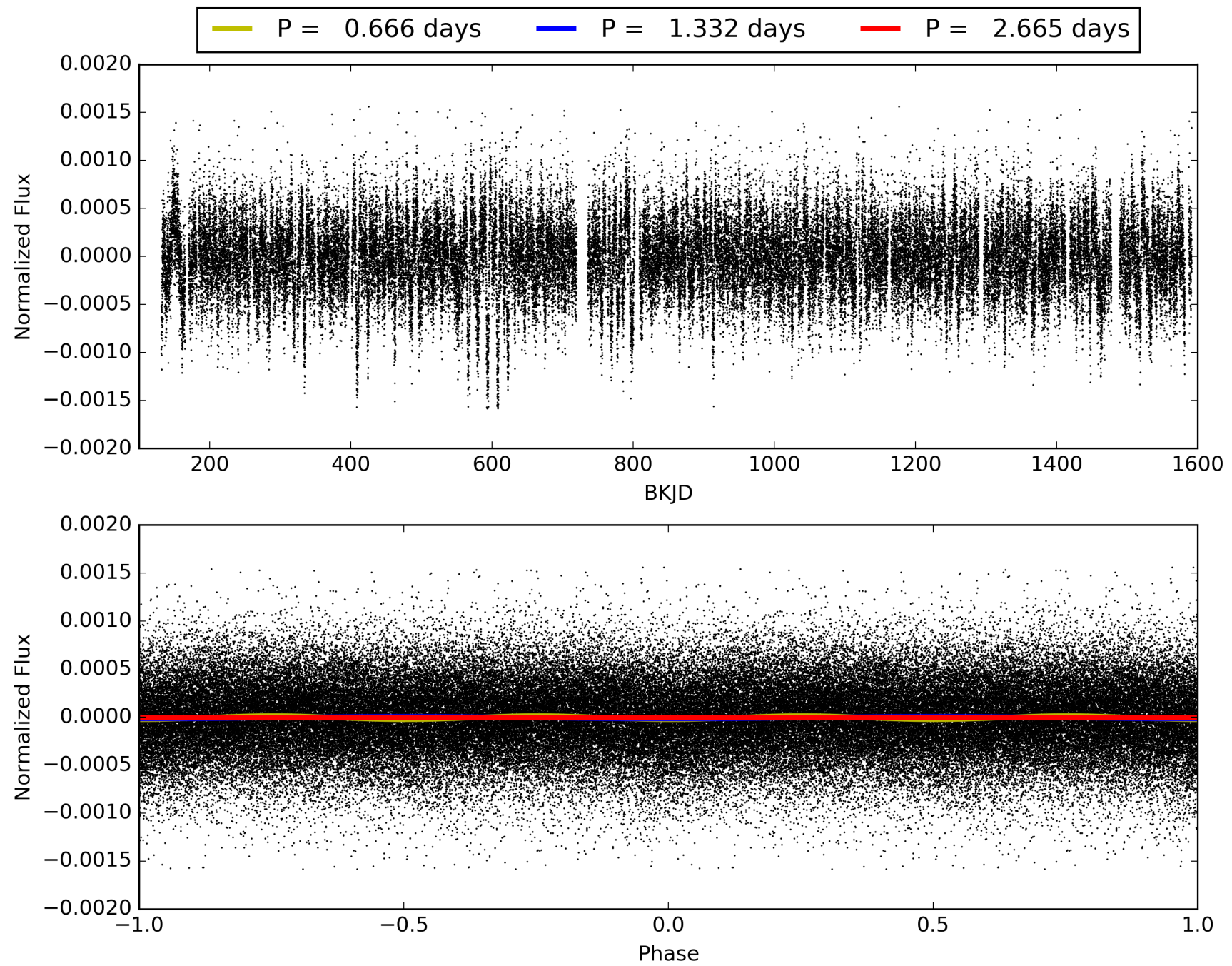
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.19e-37
RollingBand-fgt: 1.00 [961/961]
GhostDiagnostic-chr: -0.1495
Centroid-sig: 0.0%
Centroid-so: 5.204 arcsec [5.75σ]
OotOffset-rm: 2.896 arcsec [3.69σ]
KicOffset-rm: 2.930 arcsec [3.72σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.19 [3/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009899583-01, PDC Light Curves

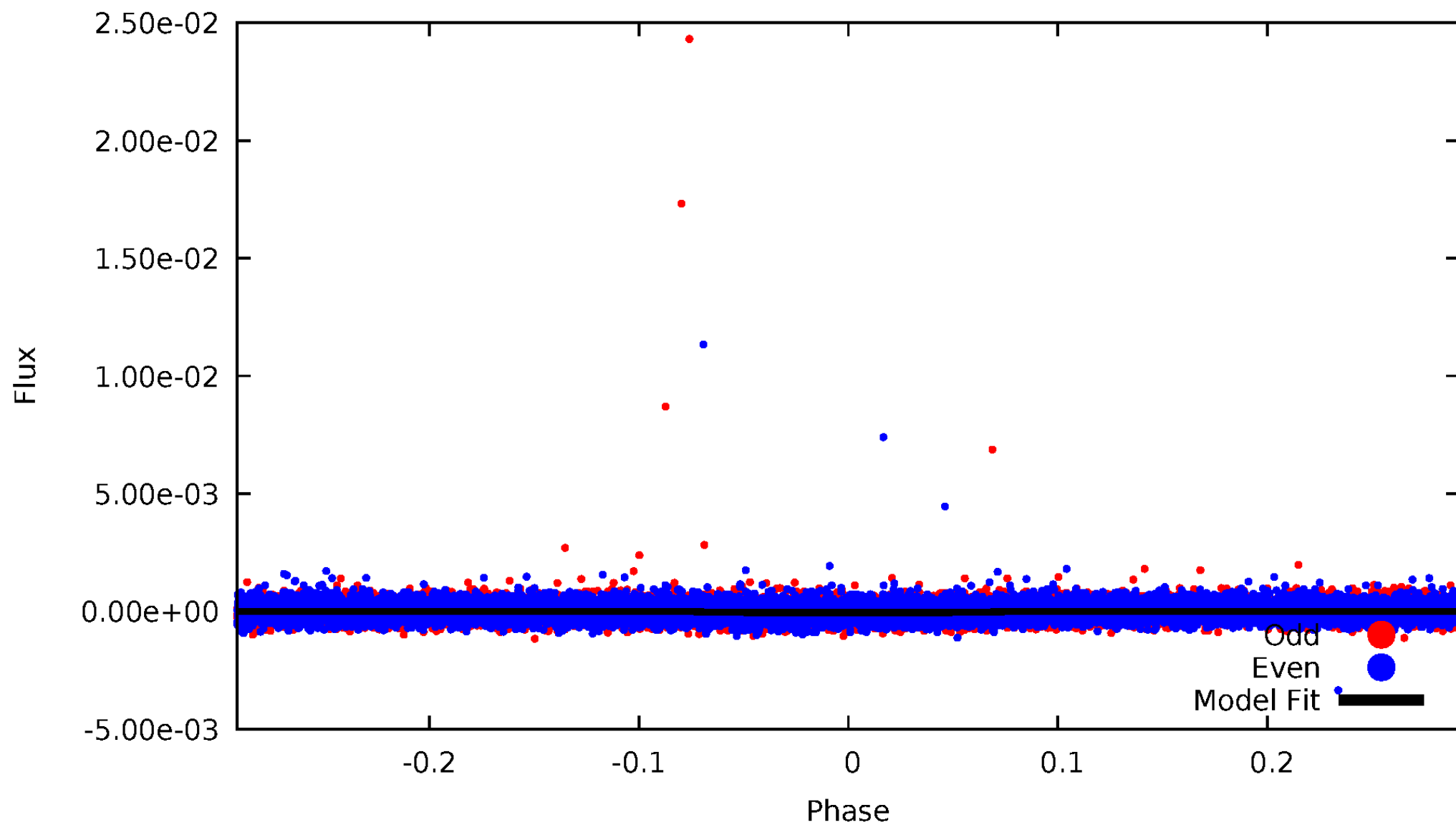


TCE 009899583-01



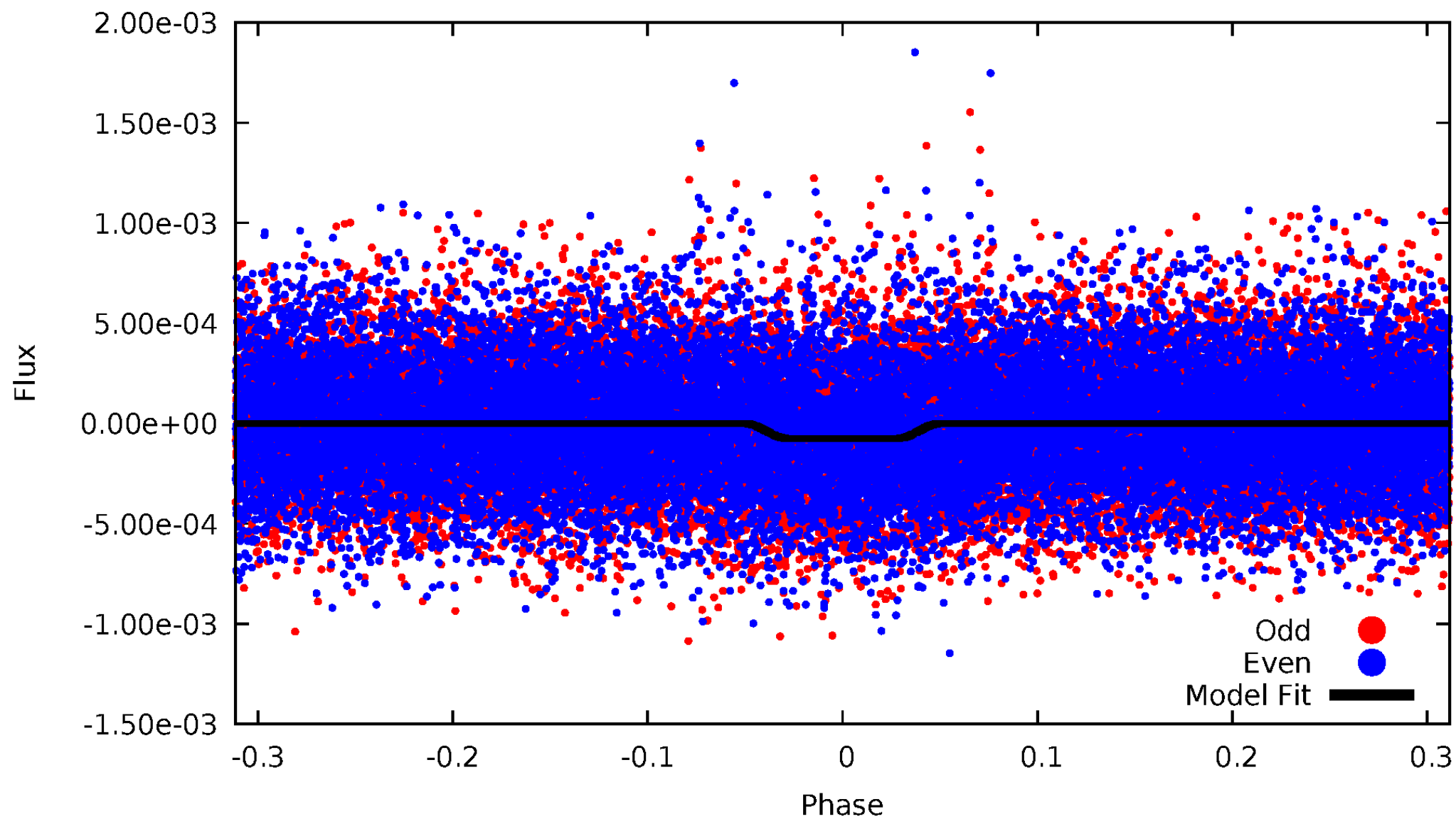
DV Odd/Even

TCE 009899583-01



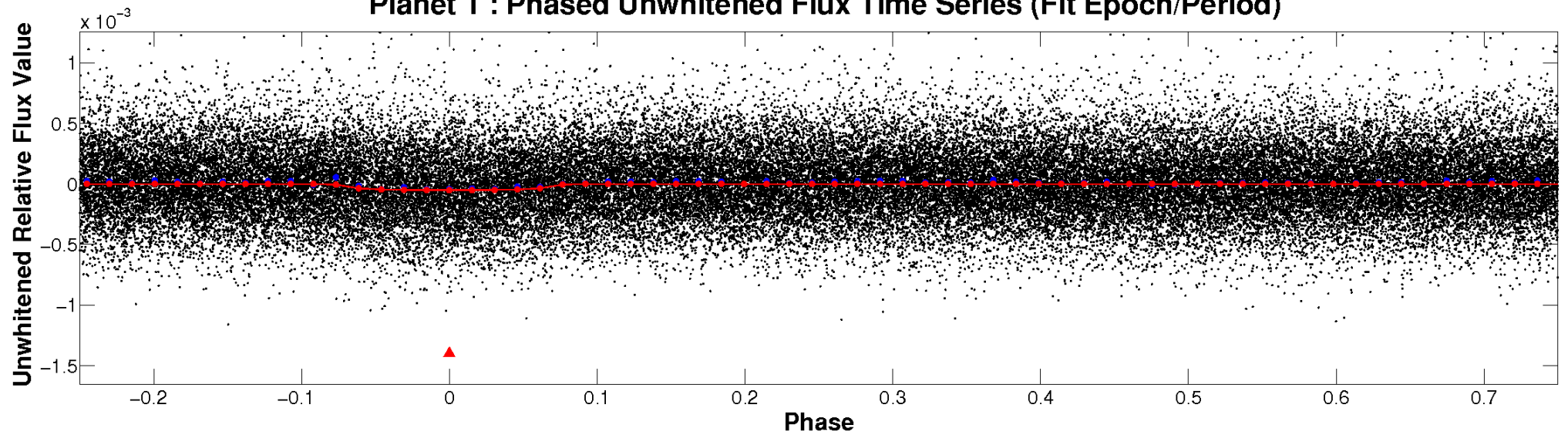
ALT Odd/Even

TCE 009899583-01

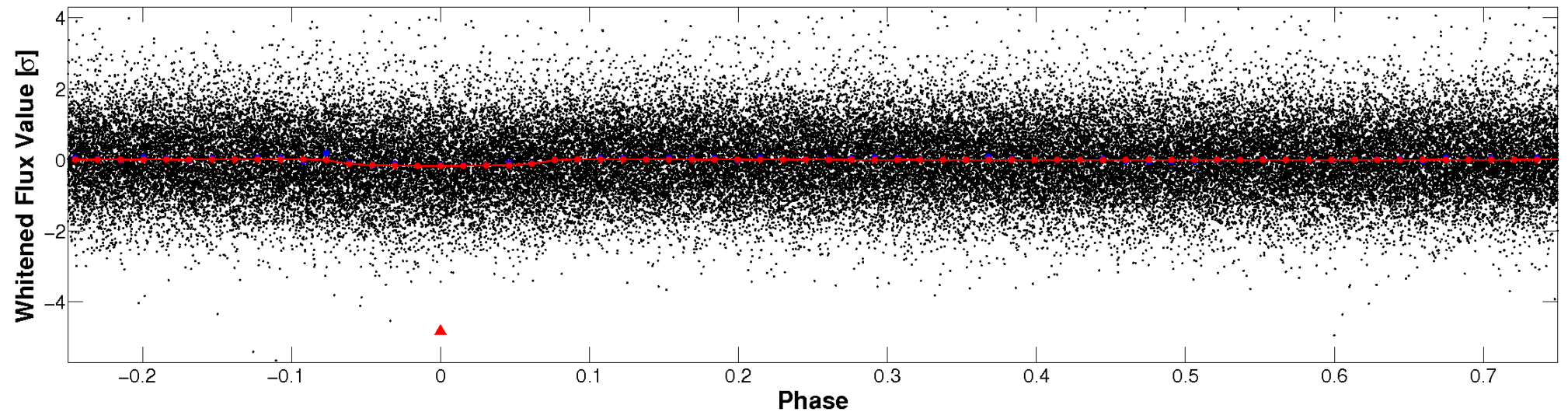


Non-Whitened Vs. Whitened Light Curve

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

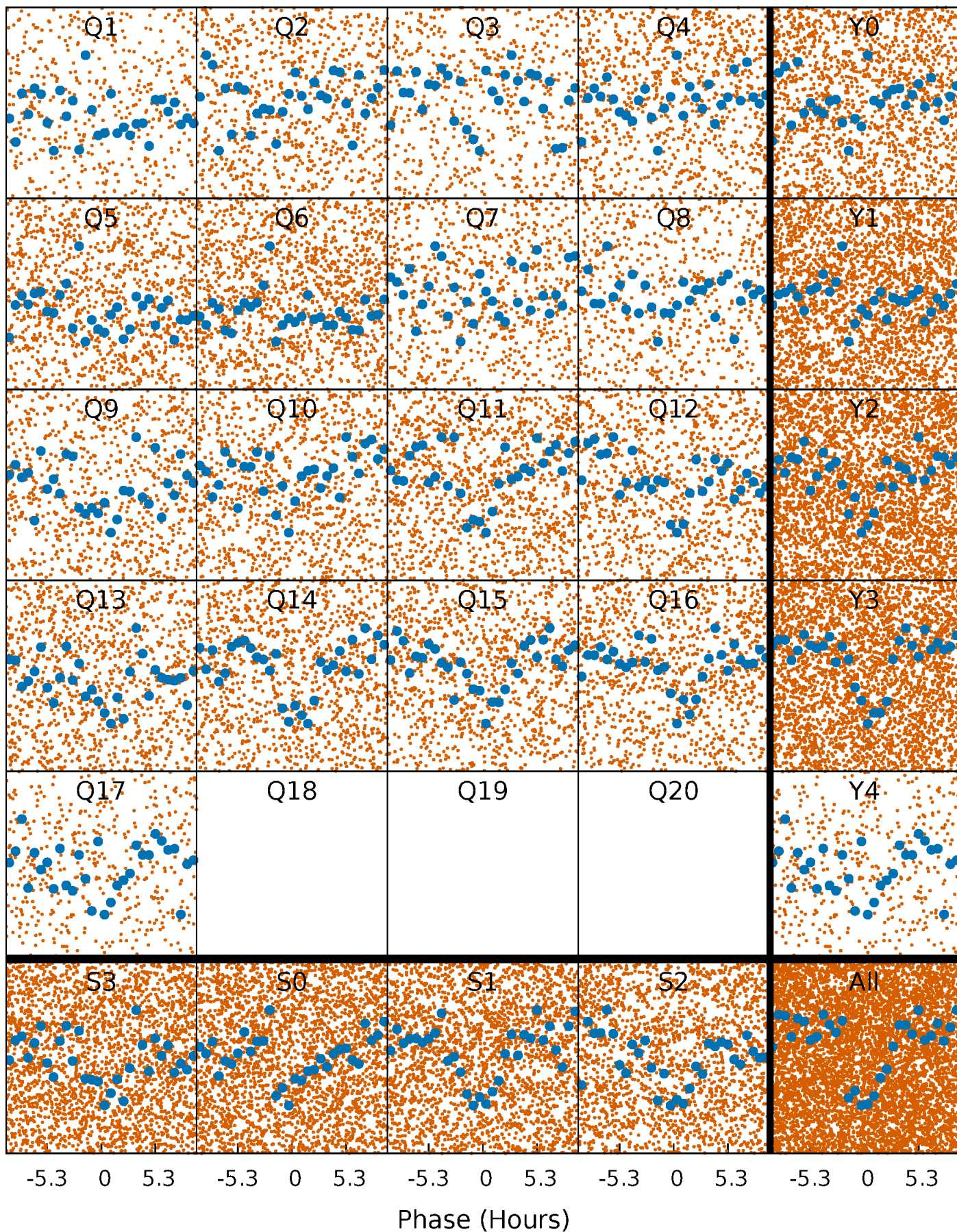


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



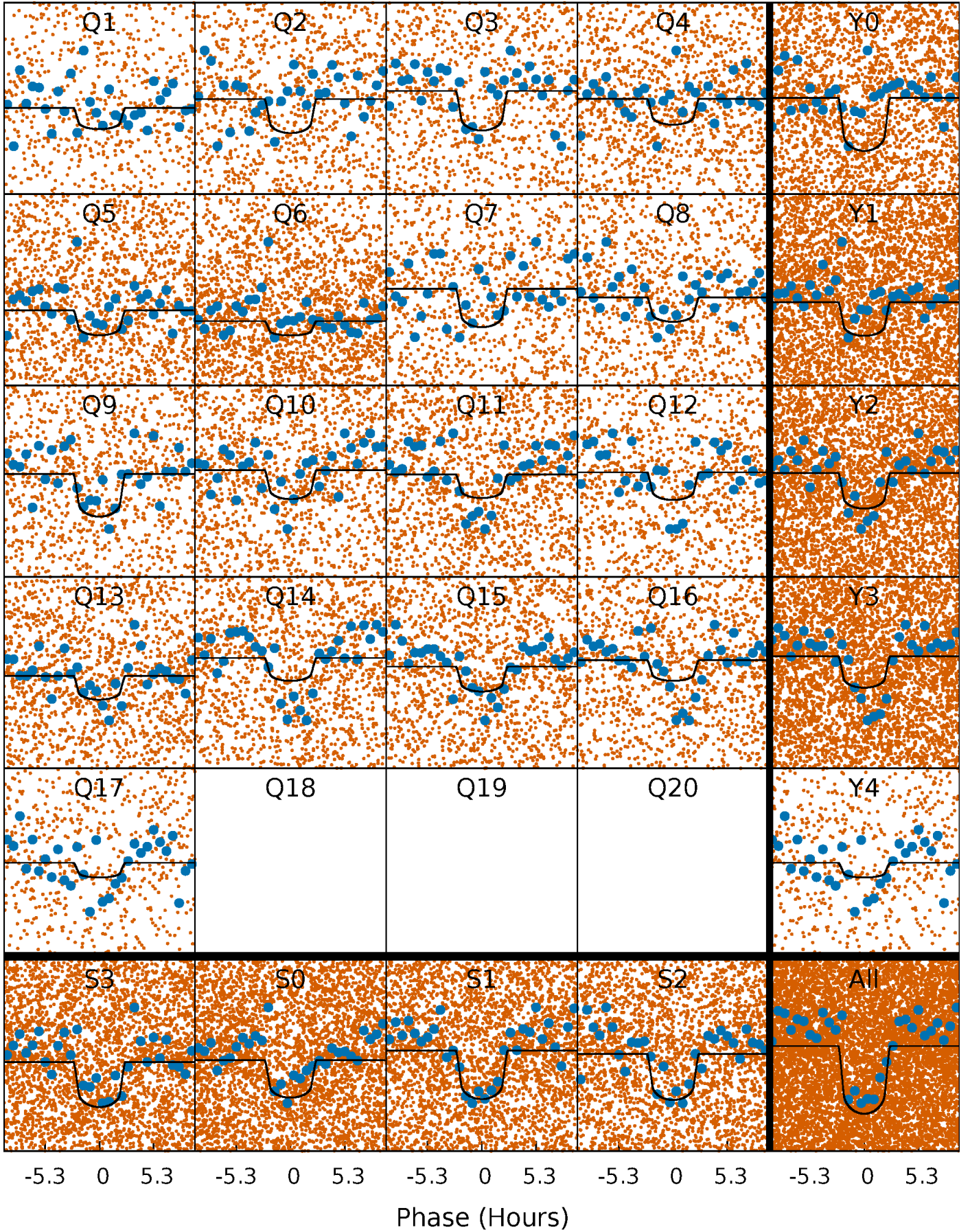
PDC Quarter-Phased Transit Curves

TCE 009899583-01 P= 1.332481 Days $T_0=132.108527$ (BKJD)



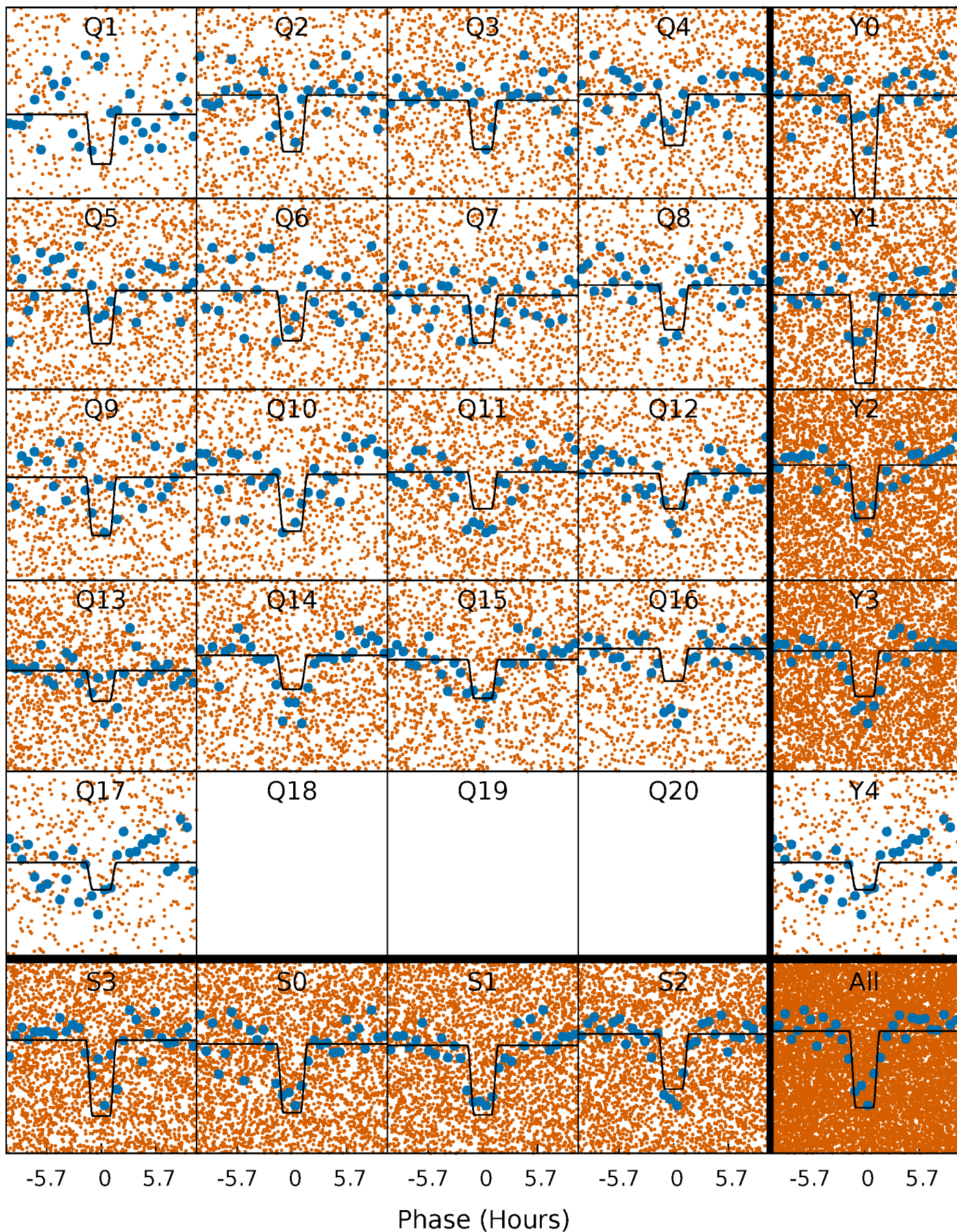
DV Quarter-Phased Transit Curves

TCE 009899583-01 P= 1.332481 Days $T_0=132.108527$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

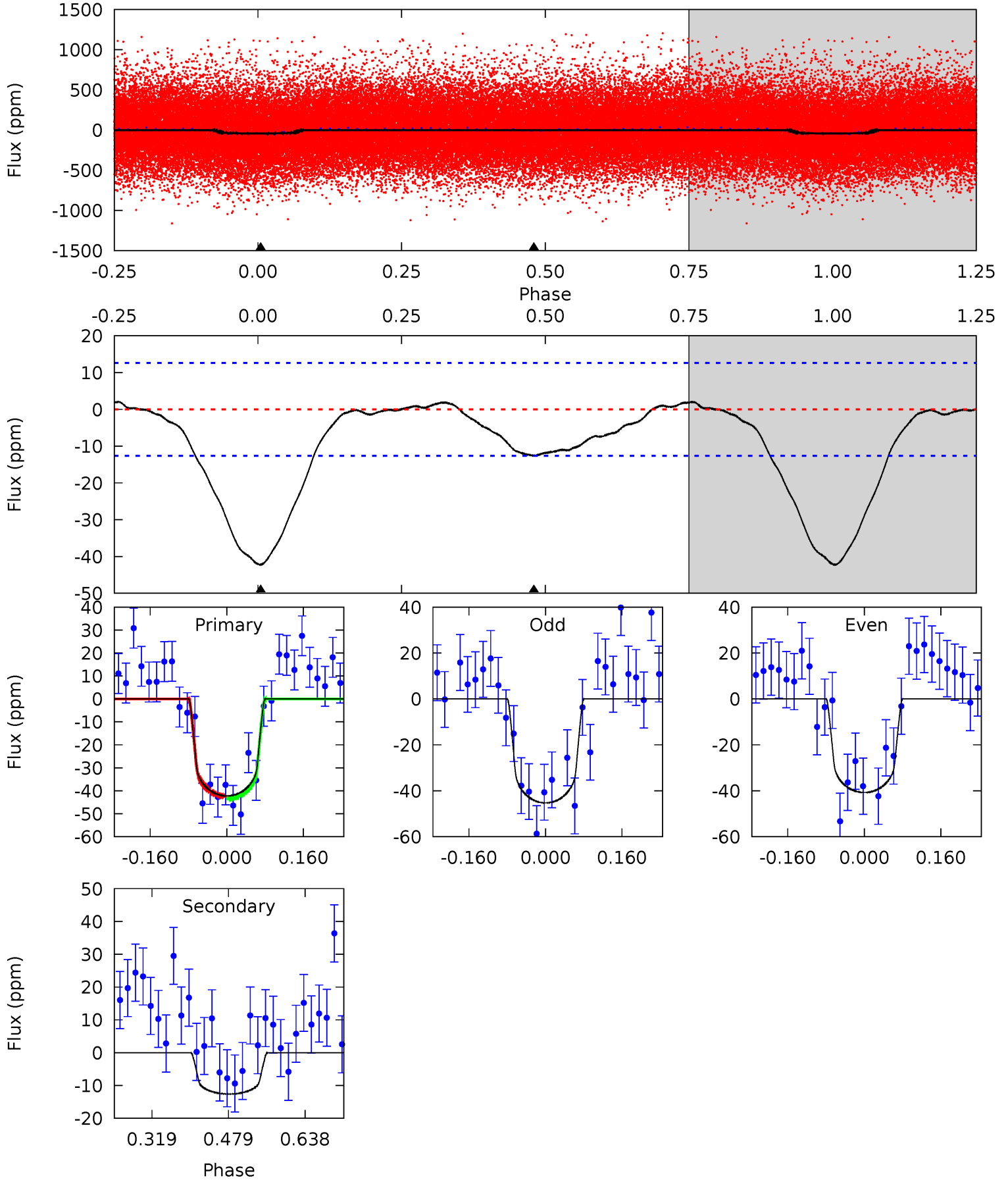
TCE 009899583-01 P= 1.332606 Days $T_0=132.019612$ (BKJD)



DV Model-Shift Uniqueness Test

009899583-01, P = 1.332481 Days, E = 130.776046 Days

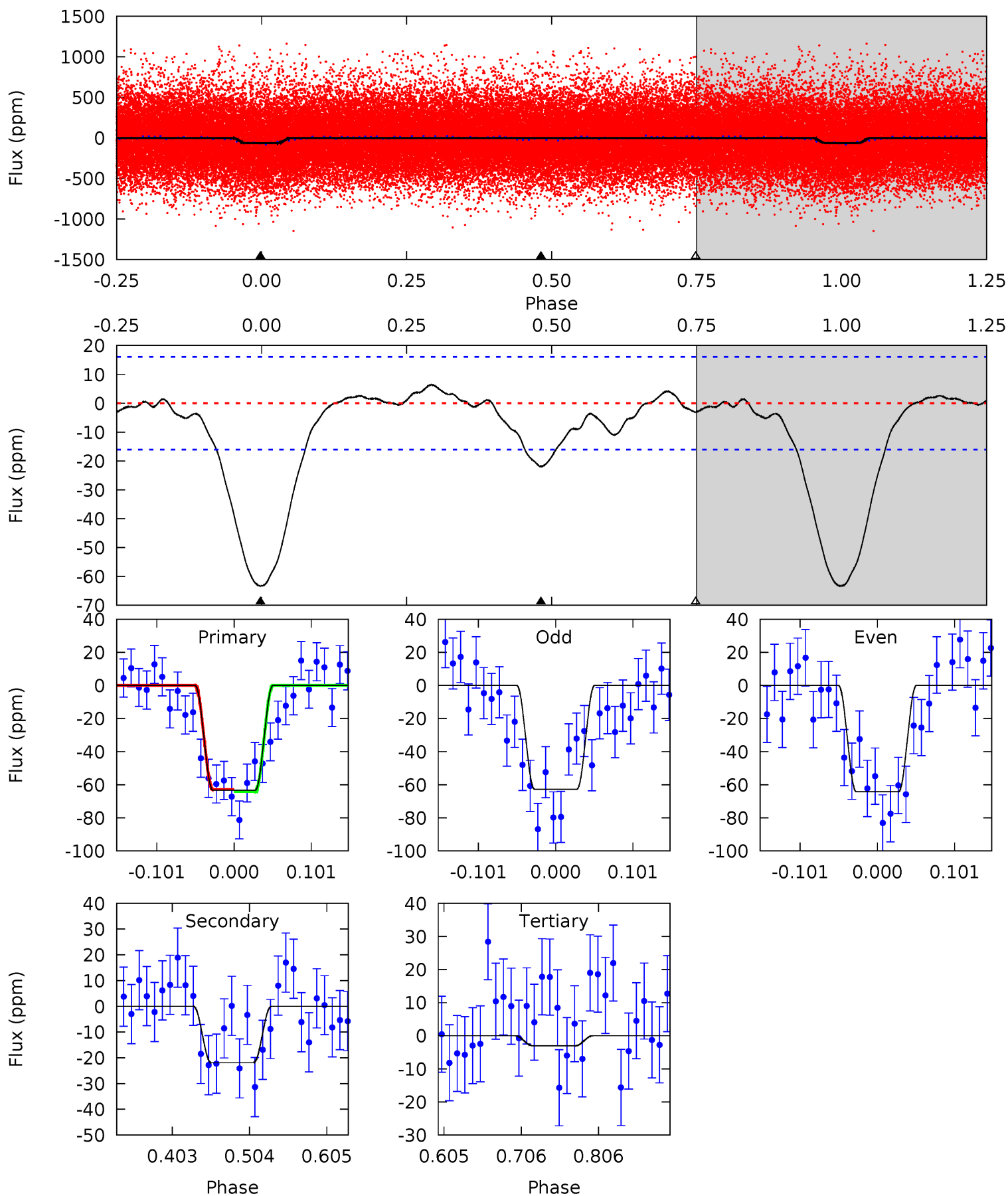
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	4.46	0	0	4.47	1.41	0.52	14.9	14.9	4.46	4.46	0.80	0.96	0.05	0.18



Alt Model-Shift Uniqueness Test

009899583-01, P = 1.332606 Days, E = 130.687006 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	6.23	0.86	0	4.56	1.64	1.03	17.1	18.0	5.36	6.23	0.22	0.94	0.09	0.19



Stellar Parameters For KIC 009899583

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6108^{+171}_{-192}	$4.471^{+0.050}_{-0.200}$	$-0.080^{+0.250}_{-0.350}$	$0.997^{+0.312}_{-0.104}$	$1.072^{+0.133}_{-0.148}$	$1.525^{+0.419}_{-0.790}$
	+3%/-3%	+1%/-4%	+312%/-438%	+31%/-10%	+12%/-14%	+27%/-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 009899583-01 / KOI 7248.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13 ± 3	$0.88^{+0.36}_{-0.36}$	2462^{+162}_{-118}	4278^{+1028}_{-542}	$4.994^{+9.093}_{-2.580}$
Alt.	-22 ± 4	$1.00^{+0.36}_{-0.36}$	2471^{+178}_{-117}	4594^{+960}_{-561}	$6.916^{+9.495}_{-3.295}$

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

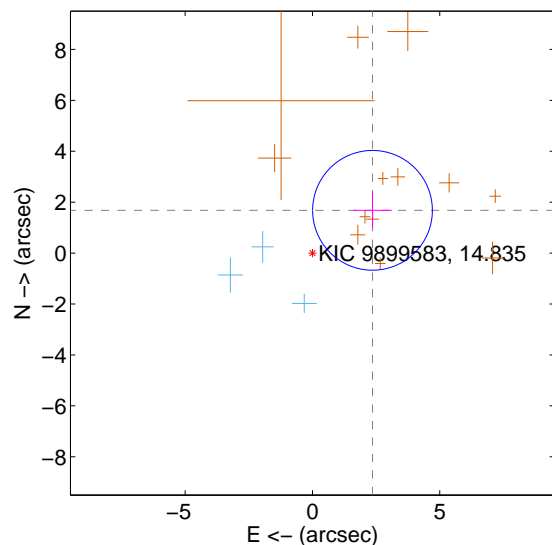
Supplemental centroid analysis for 009899583-01. Kepler magnitude: 14.84. Transit SNR 13.54

There are 3 quarters with good PRF difference image offsets

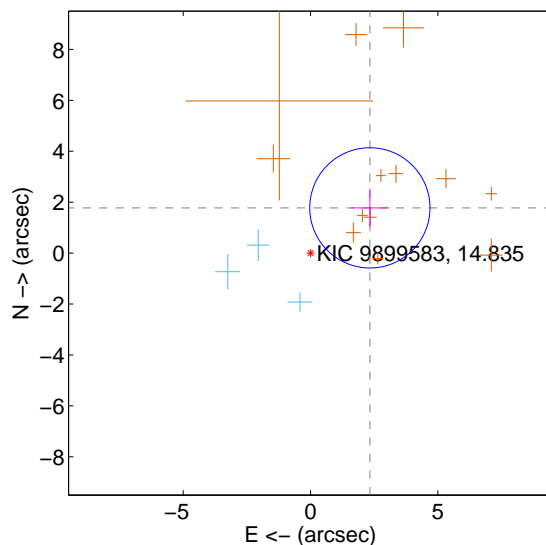
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.896 ± 0.784	3.69	-2.358 ± 0.759	1.680 ± 0.706
PRF-fit source offset from KIC position	2.930 ± 0.787	3.72	-2.330 ± 0.754	1.777 ± 0.748
photometric centroid source offset	5.20 ± 0.91	5.75	-4.95 ± 0.90	1.61 ± 0.93

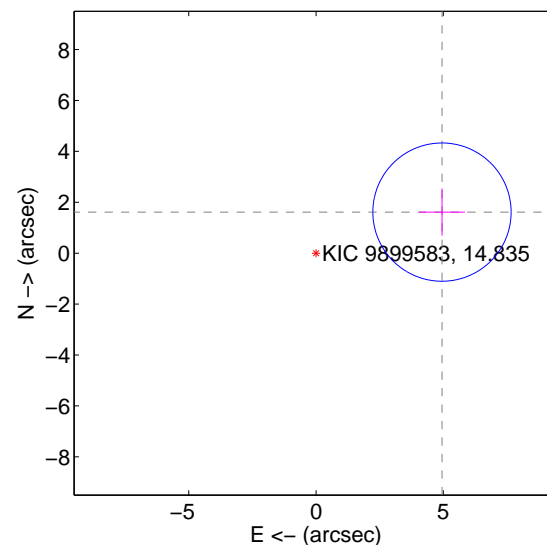
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

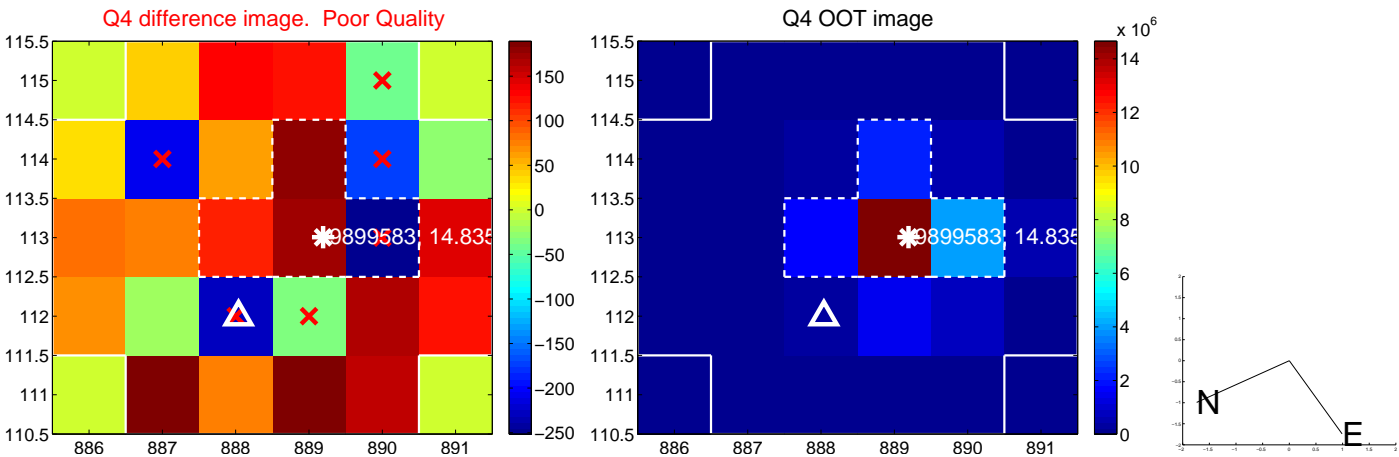
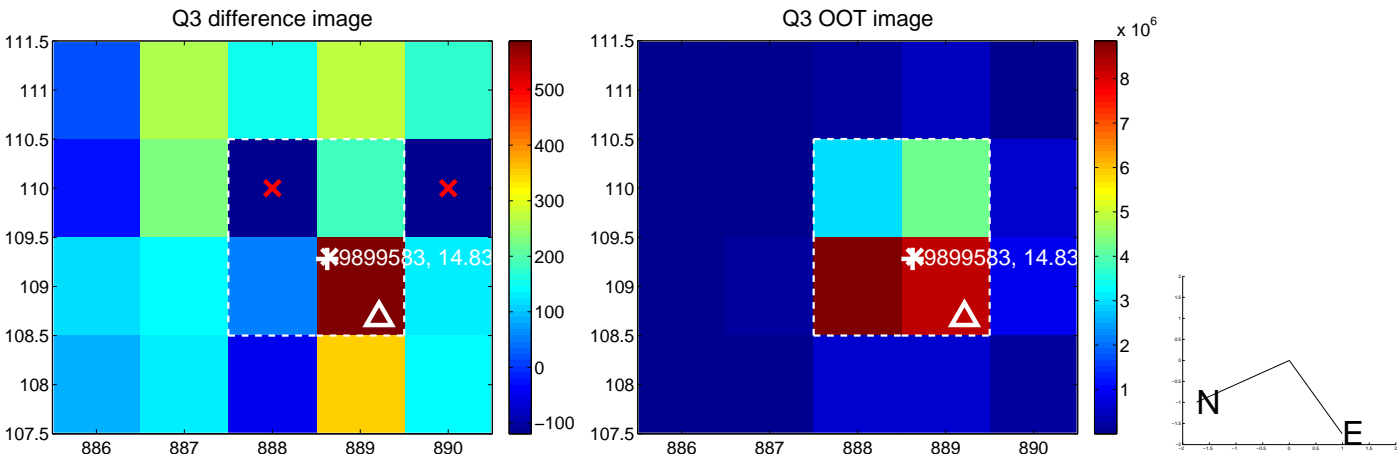
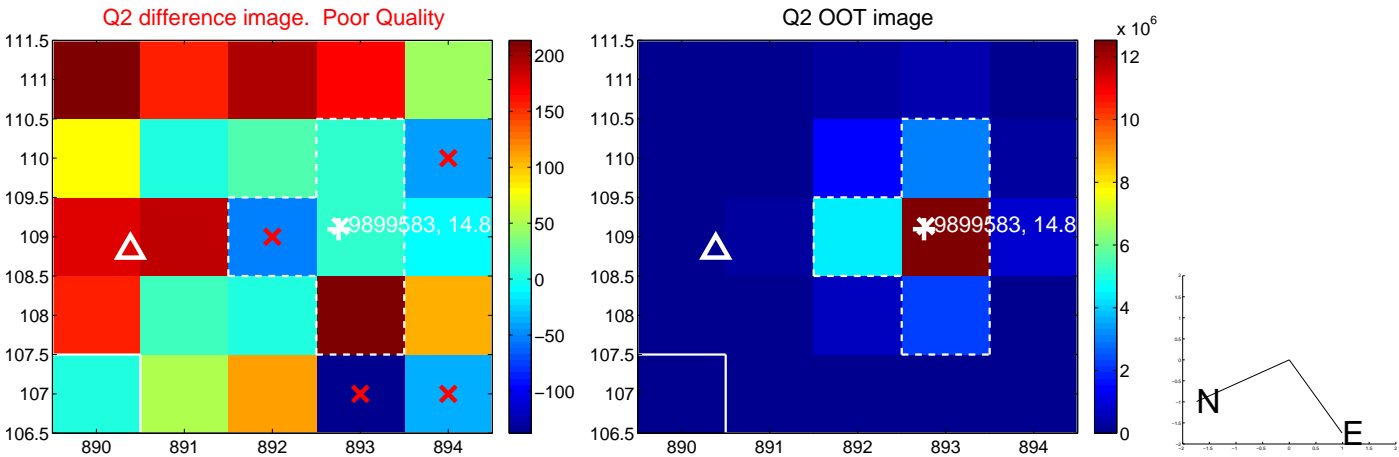
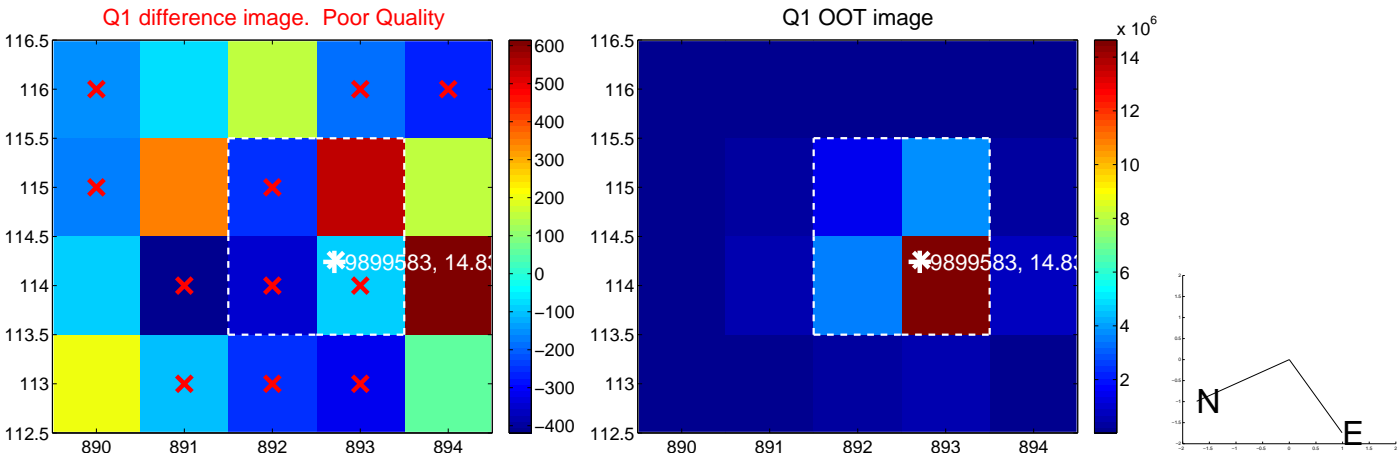


offset from photometric centroids

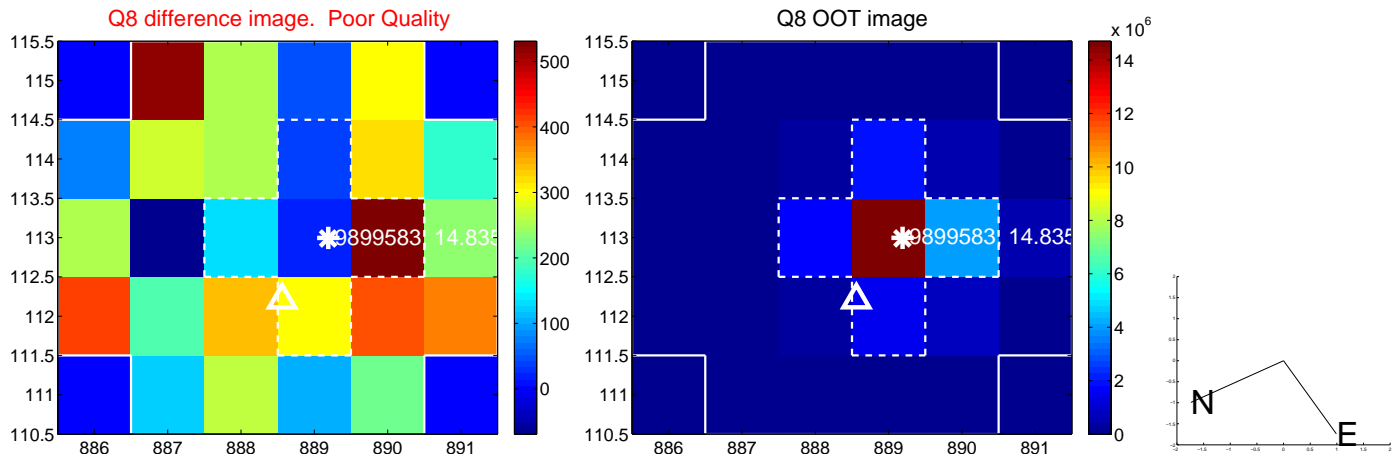
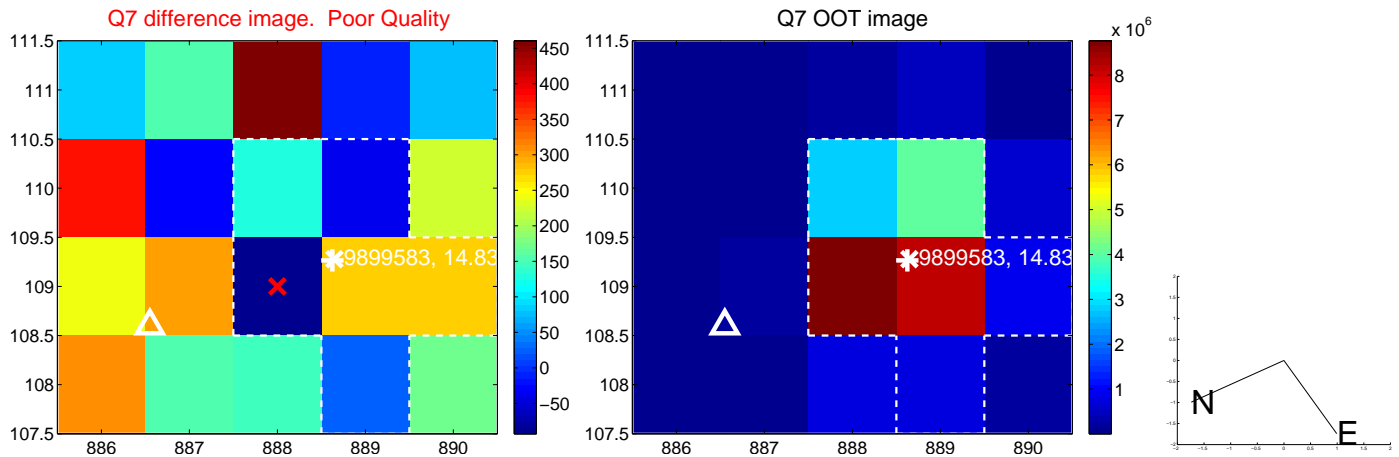
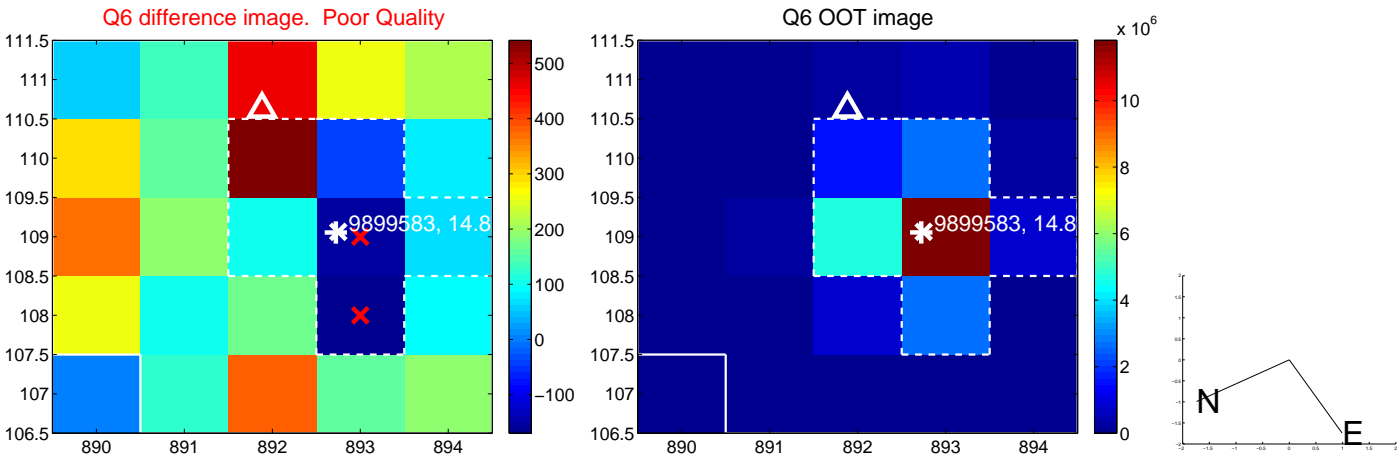
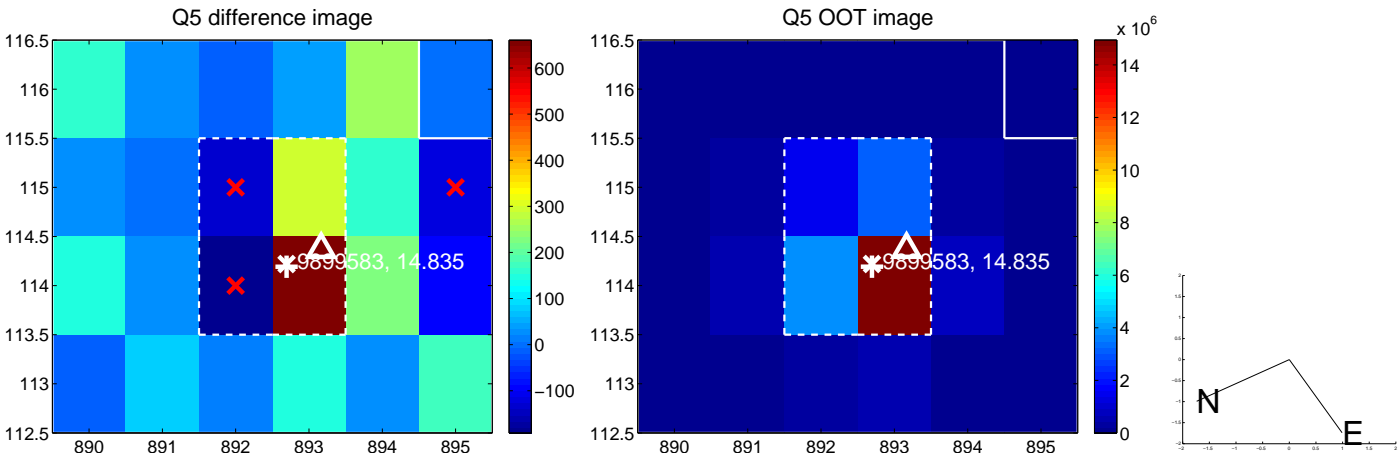


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

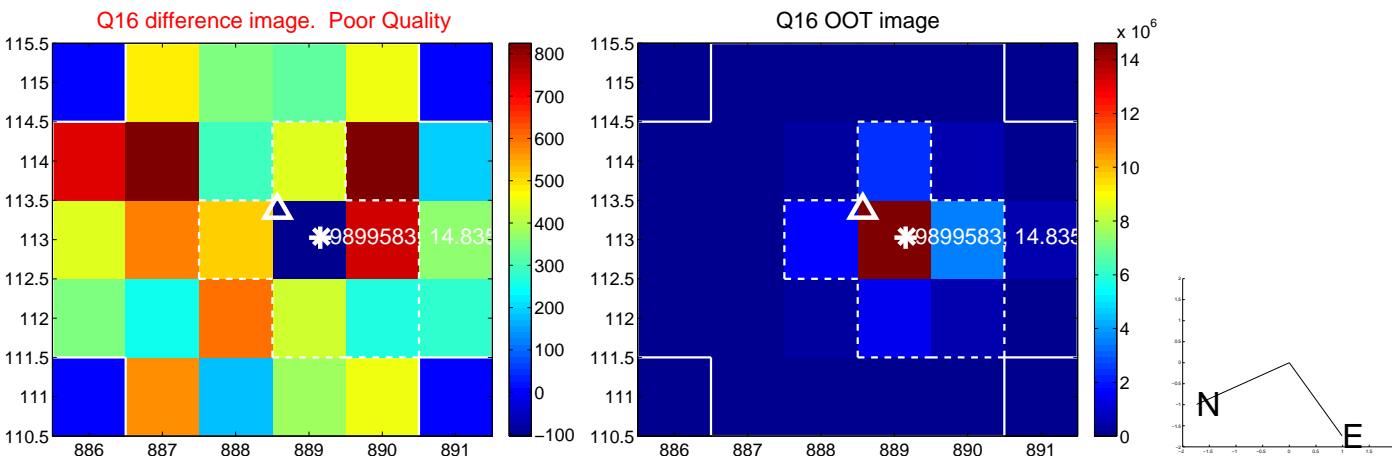
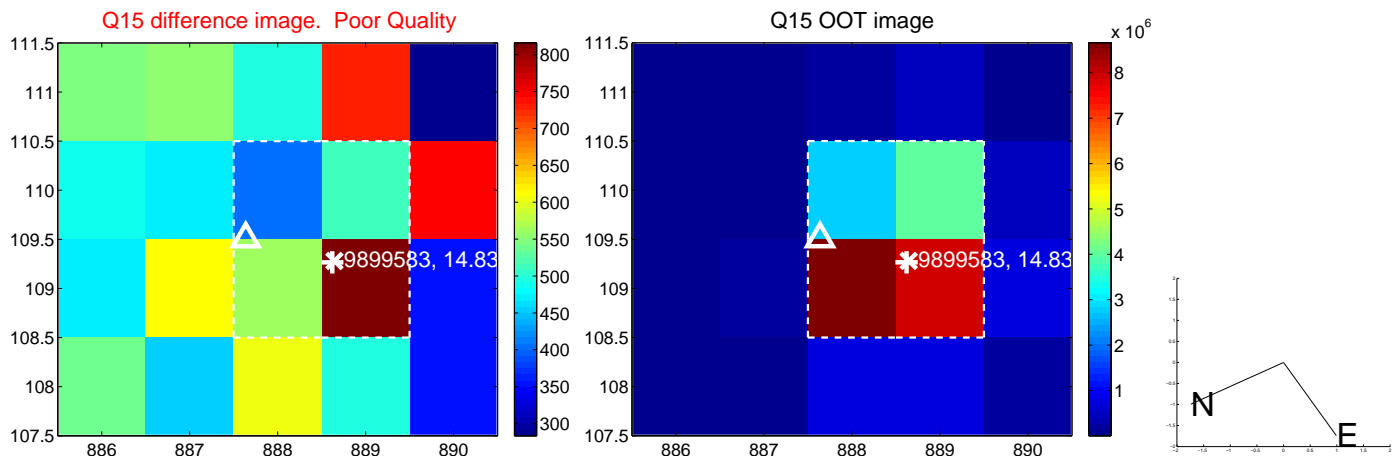
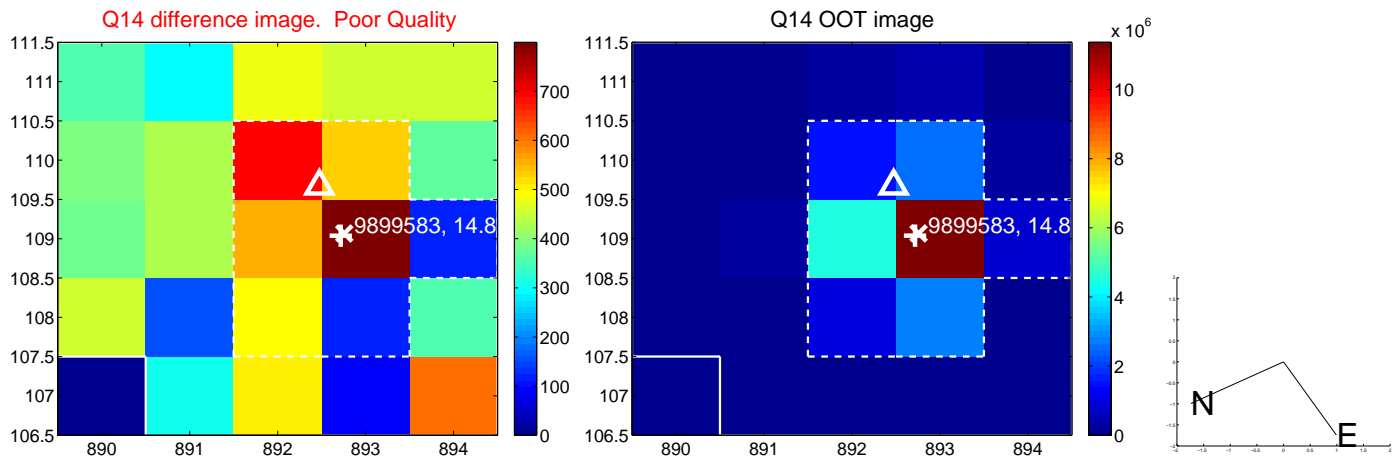
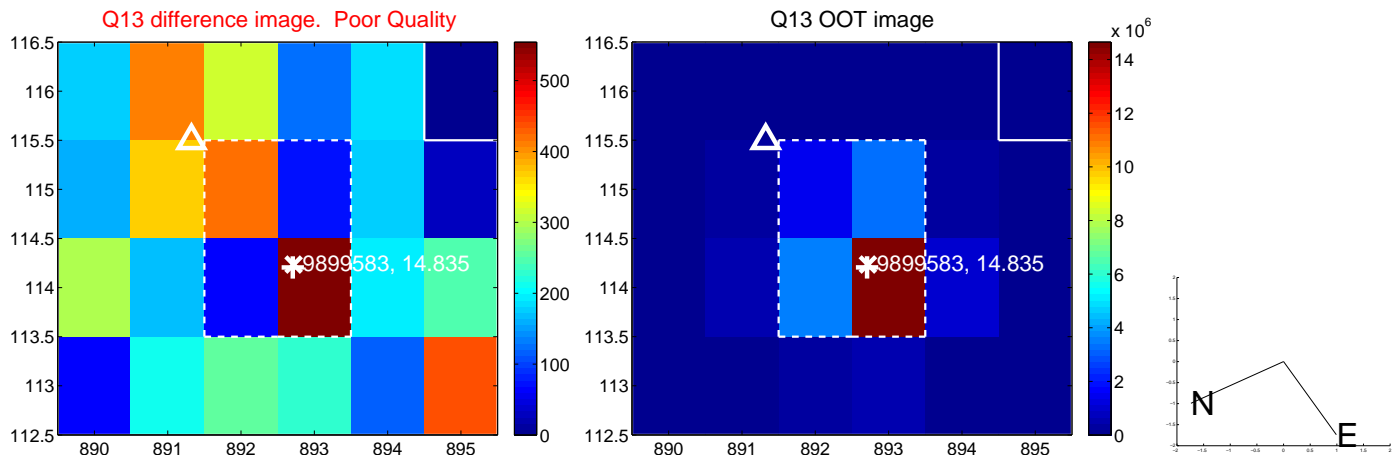
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



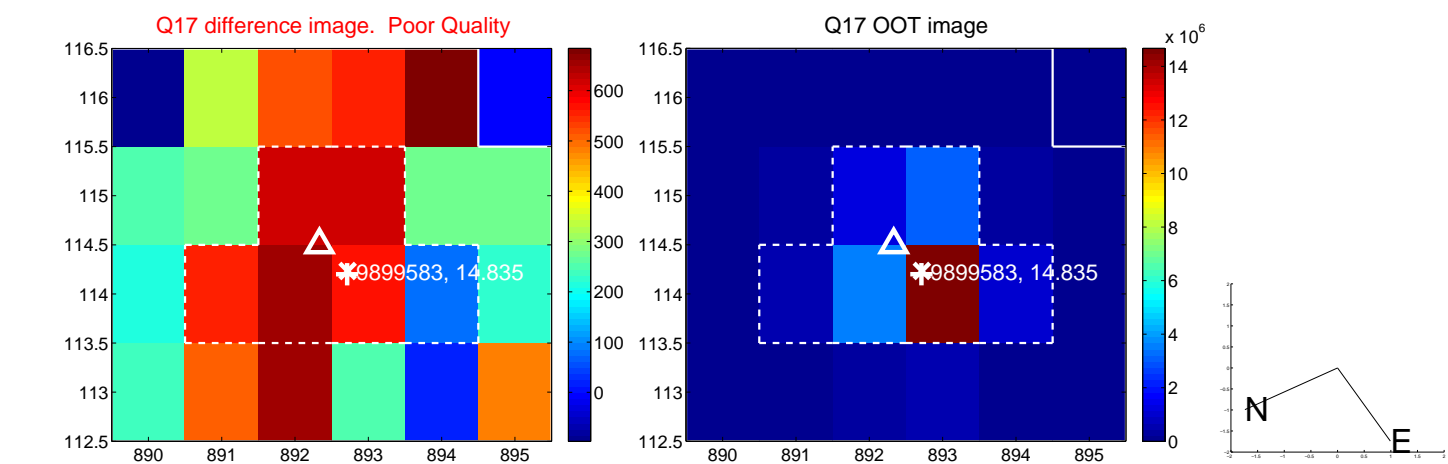
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



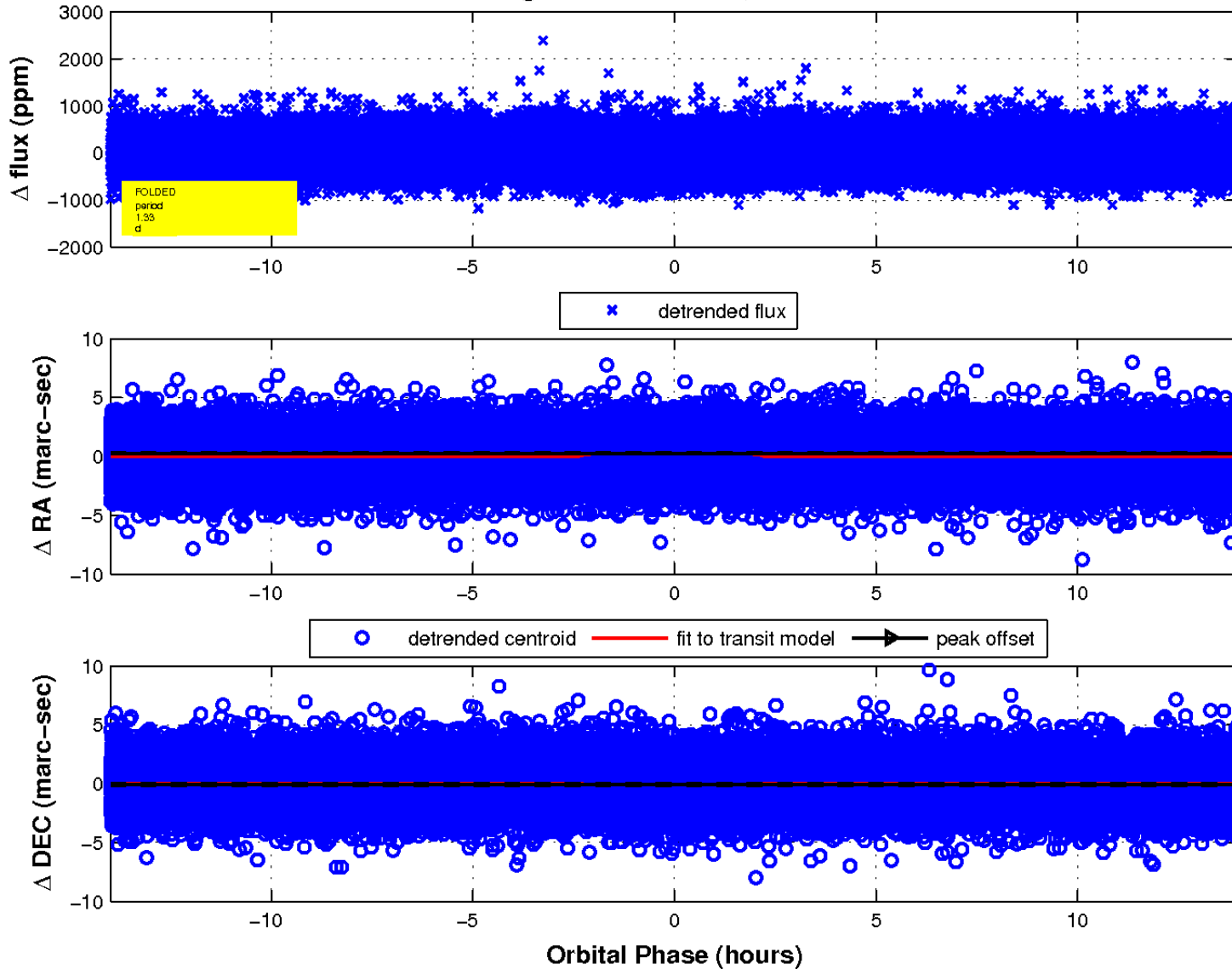
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

