

KIC 009827596

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 _⊕)
009827596-01	OBS	4855.01	1.457271	131.595397	50.4	3.958	12.5	11.3	1.01	6063	0.85	1818.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009827596-01	OBS	FP	0.00	0	0	0	1	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.

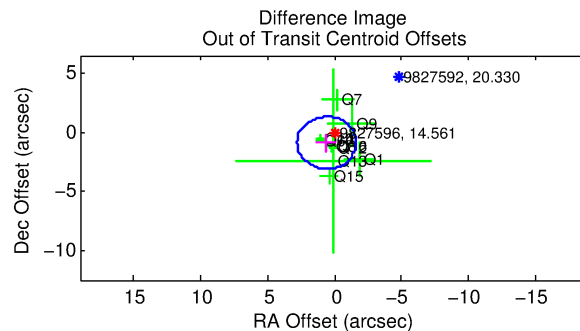
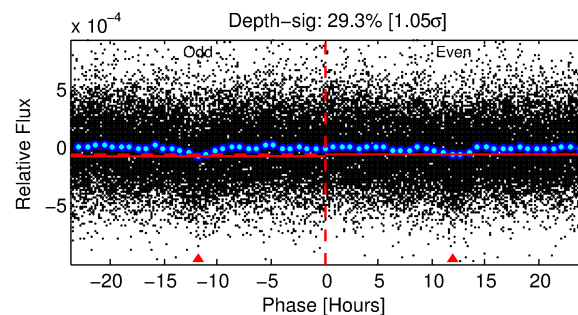
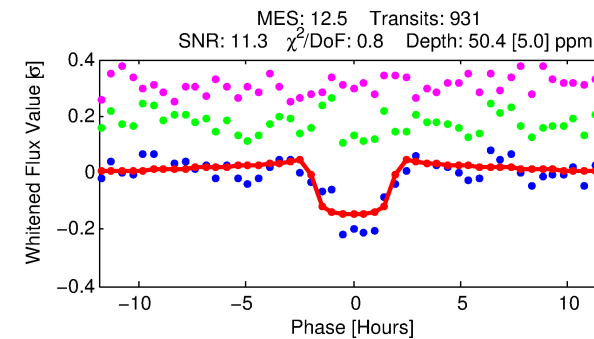
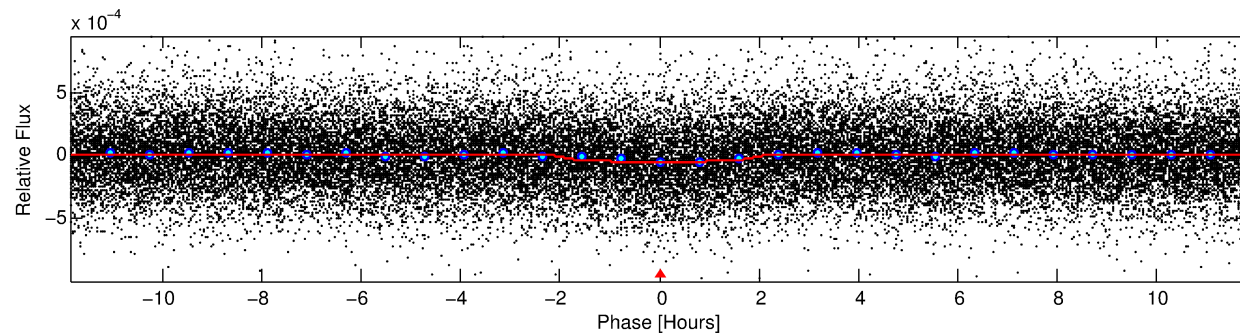
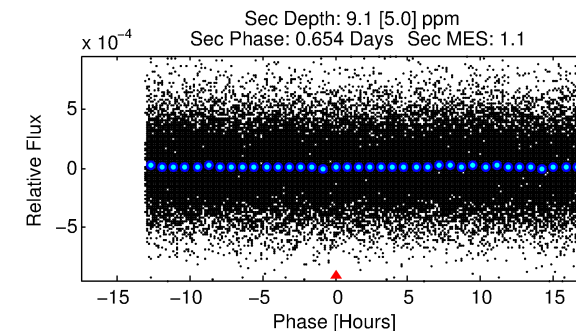
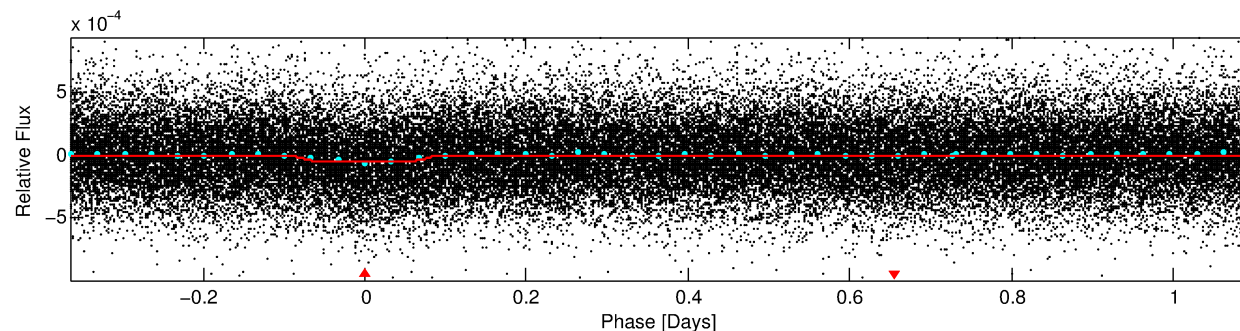
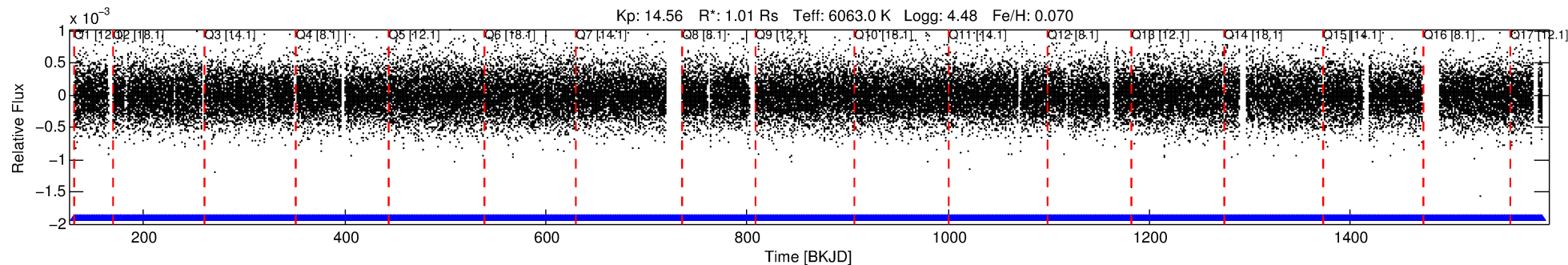
Ephemeris Match Information For 009827596-01

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
009827596-01	9827596	6211.01	9767392	1:1	529.6	133	-1	14.71	14.56	7489.60	Col-Anomaly	0	0.01	0.32

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: 9827596 Candidate: 1 of 1 Period: 1.457 d
KOI: K04855.01 Corr: 0.944



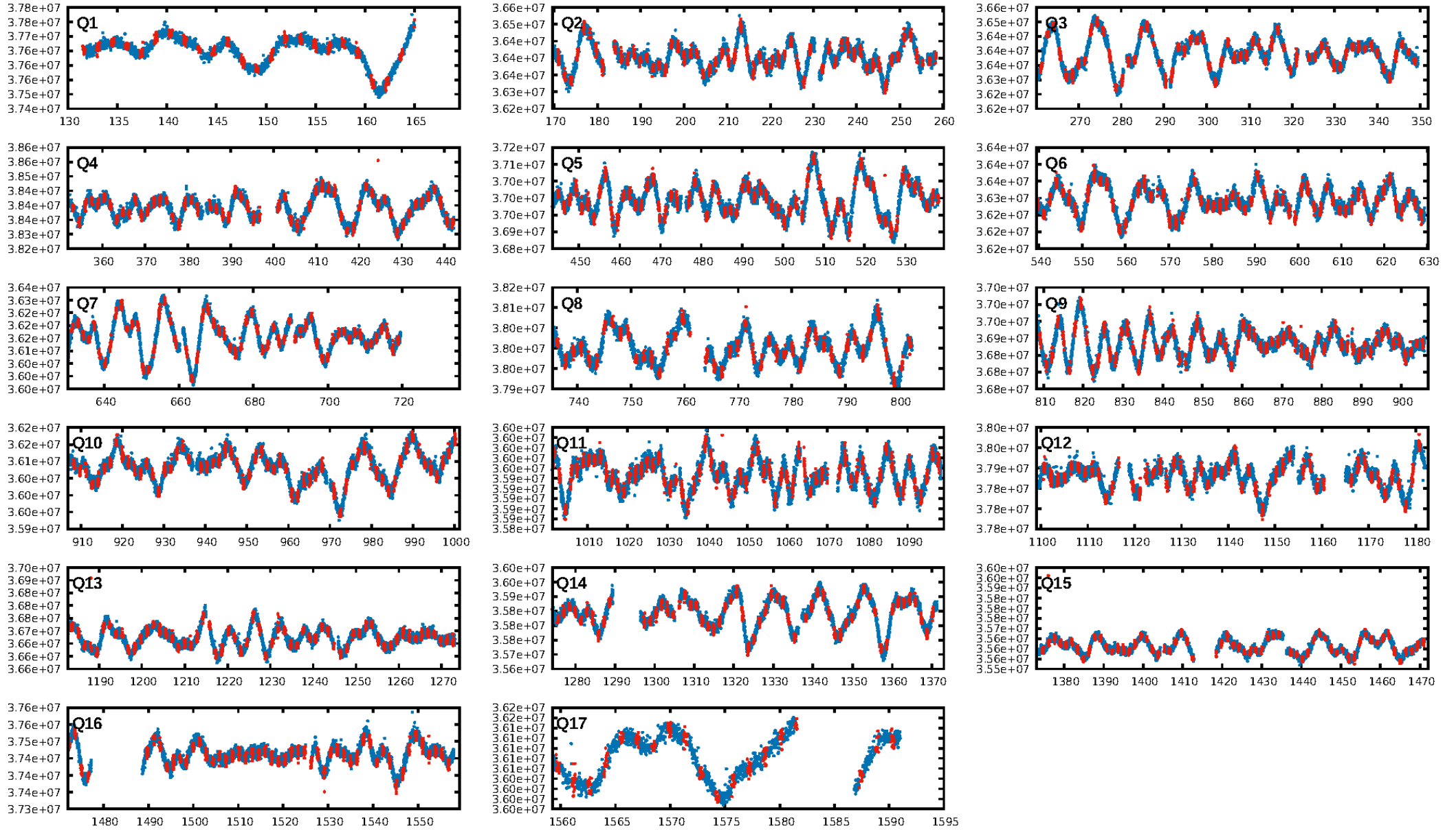
DV Fit Results:

Period = 1.45727 [0.00001] d
Epoch = 131.5954 [0.0035] BKJD
Rp/R* = 0.0077 [0.0031]
a/R* = 1.58 [1.98]
b = 0.90 [0.45]
Seff = 1818.49 [379.69]
Teff = 1665 [87] K
Rp = 0.85 [0.37] Re
a = 0.0261 [0.0036] AU
Ag = 4.73 [4.74] [0.79σ]
Teffp = 3796 [933] K [2.27σ]

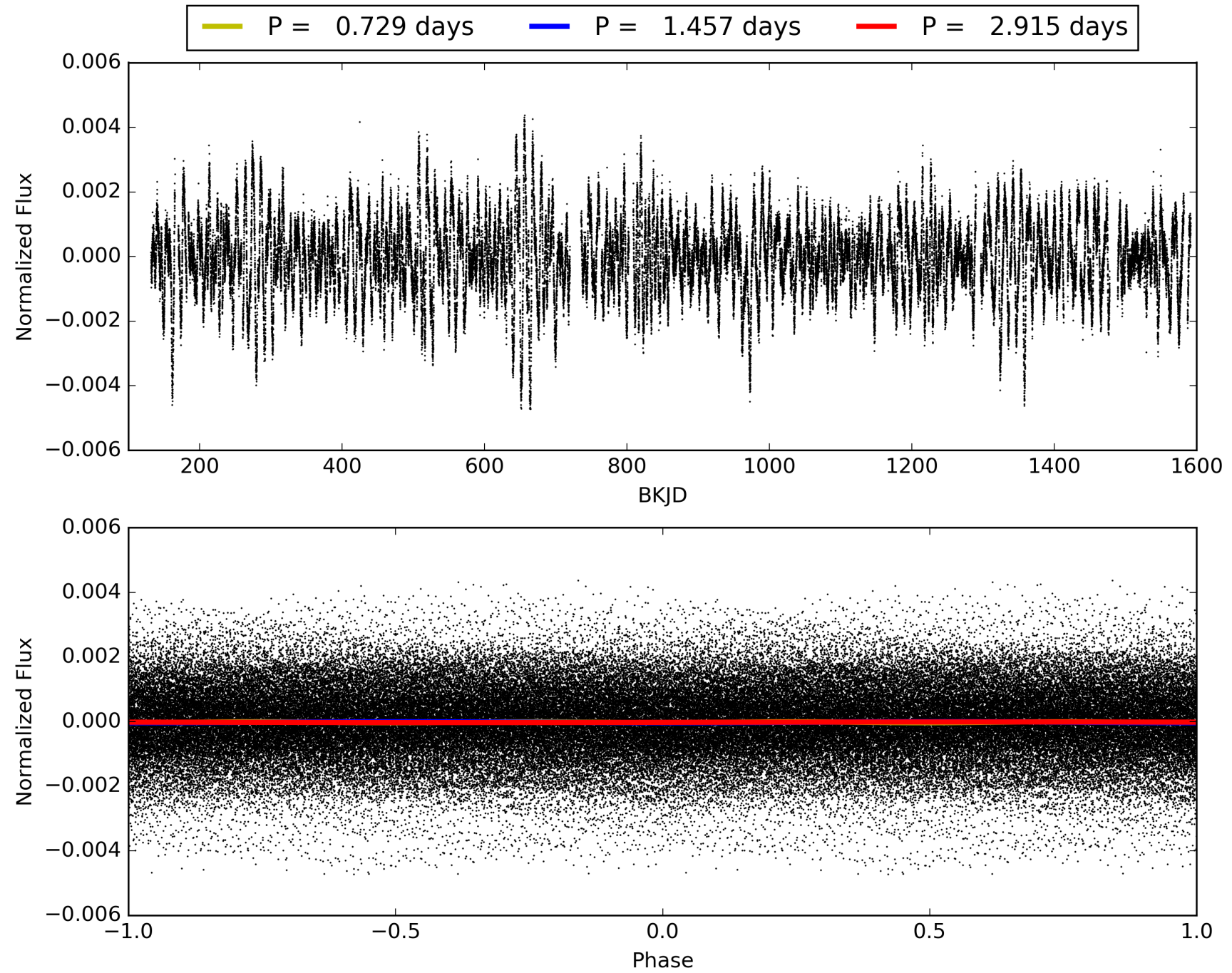
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.83e-34
RollingBand-fgt: 1.00 [889/889]
GhostDiagnostic-chr: 2.886
Centroid-sig: 0.0%
Centroid-so: 2.450 arcsec [2.80σ]
OotOffset-rm: 1.082 arcsec [1.47σ]
KicOffset-rm: 1.018 arcsec [1.38σ]
OotOffset-st: 3/2/3/3 [11]
KicOffset-st: 3/2/3/3 [11]
DiffImageQuality-fgm: 0.64 [7/11]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009827596-01, PDC Light Curves

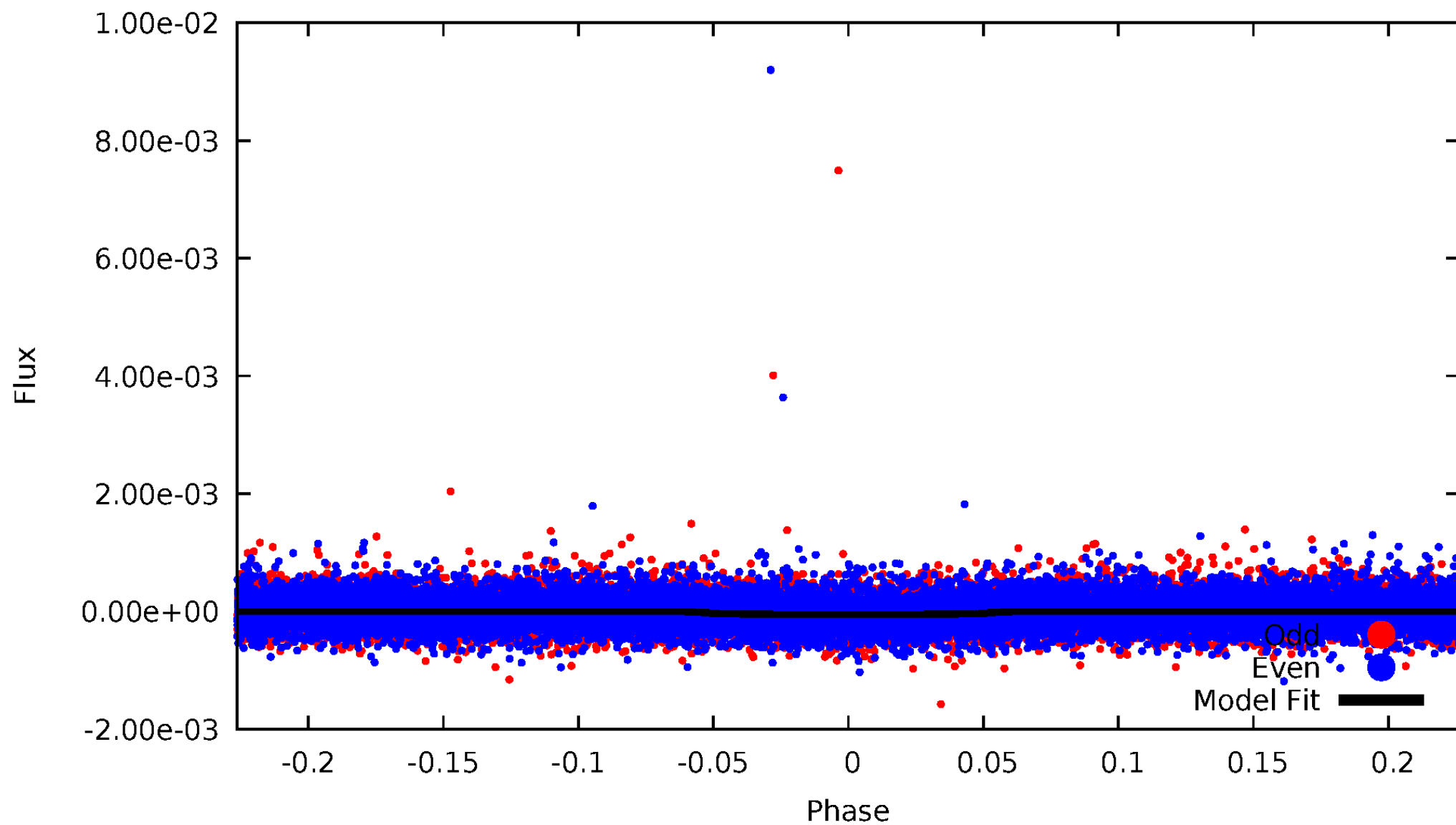


TCE 009827596-01



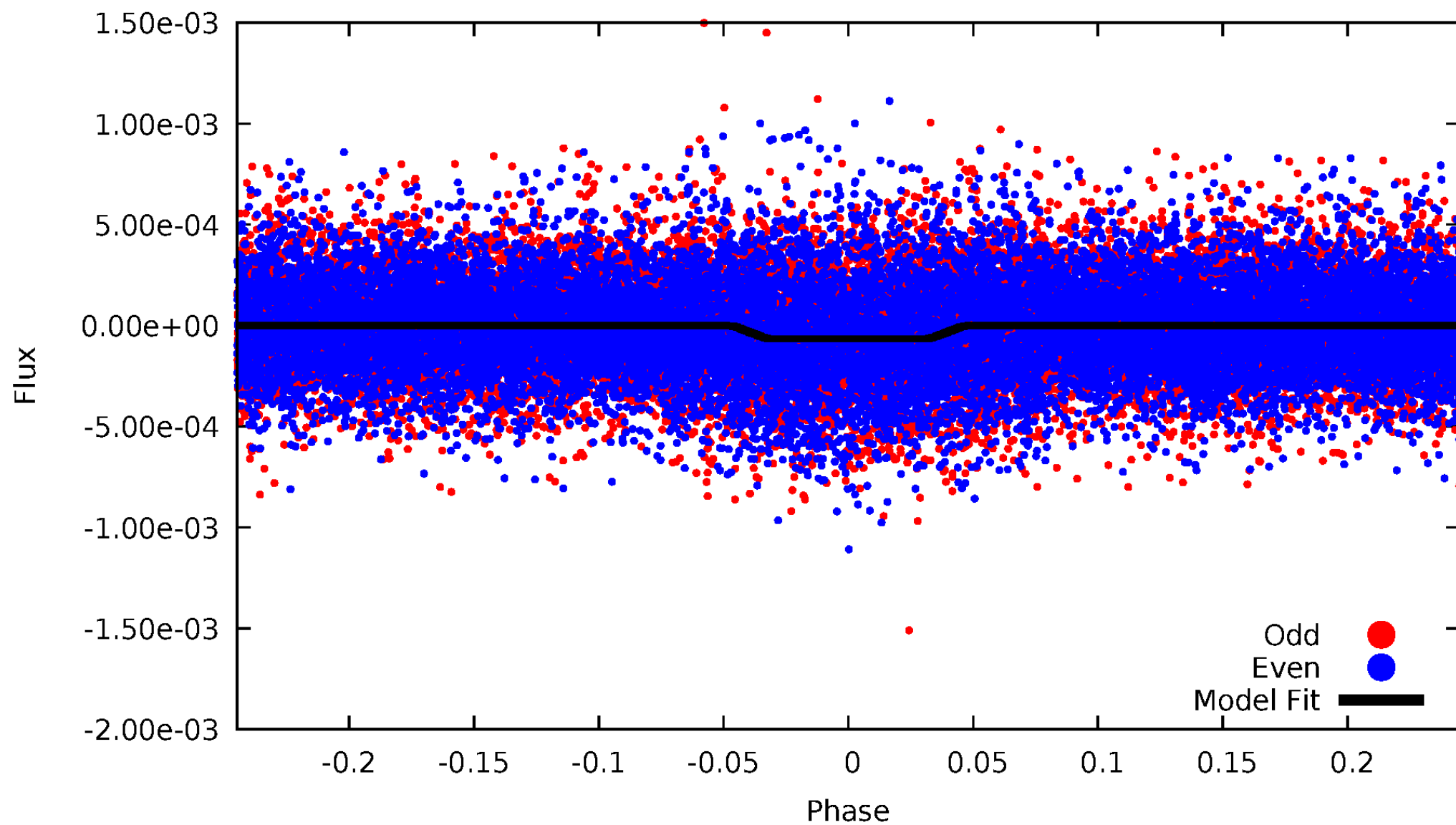
DV Odd/Even

TCE 009827596-01



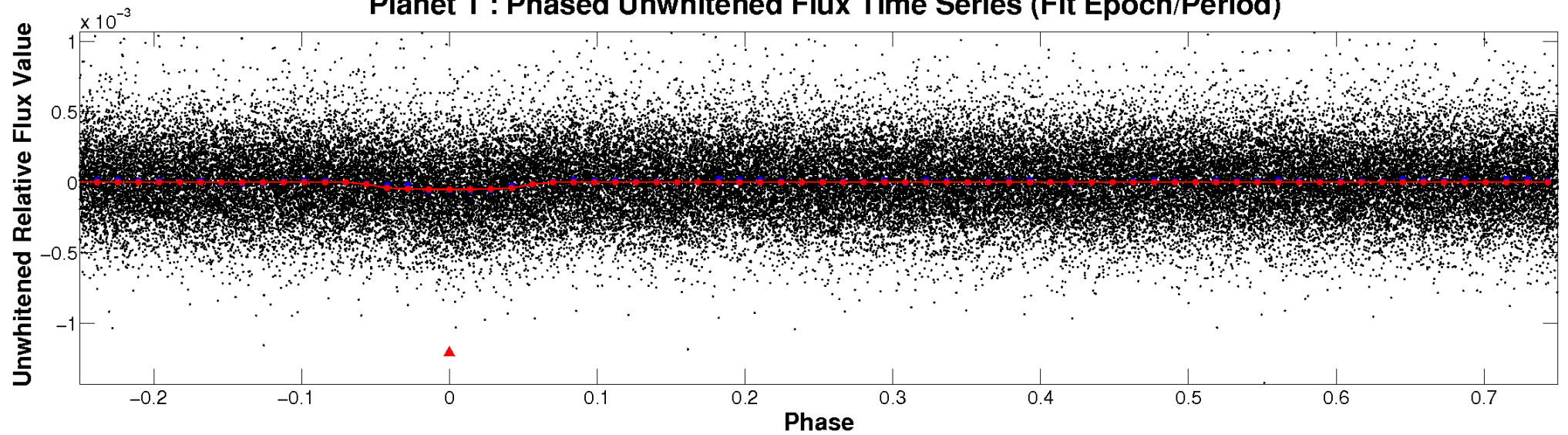
ALT Odd/Even

TCE 009827596-01

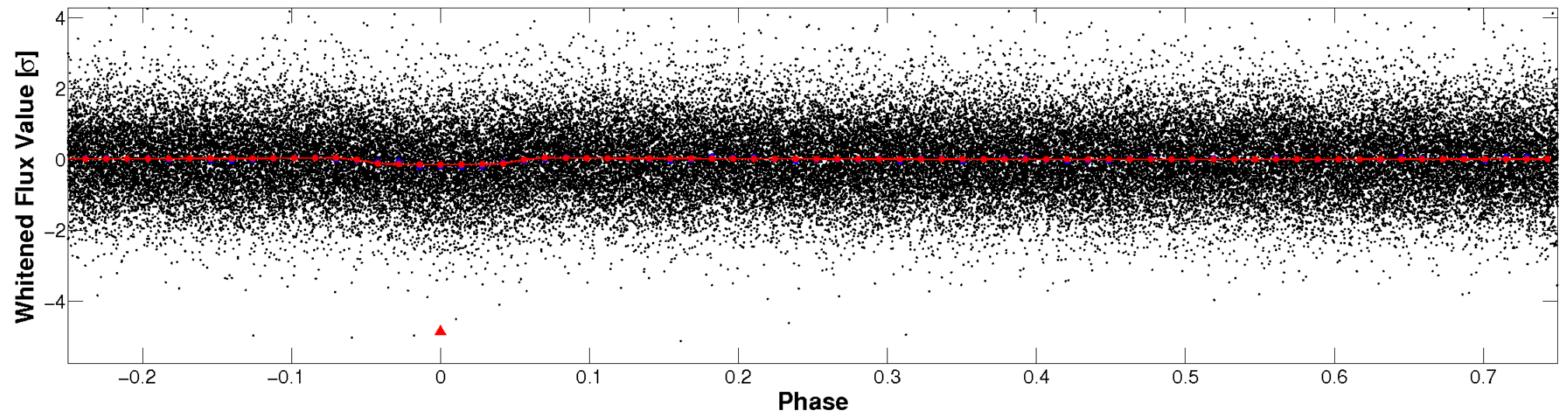


Non-Whitened Vs. Whitened Light Curve

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

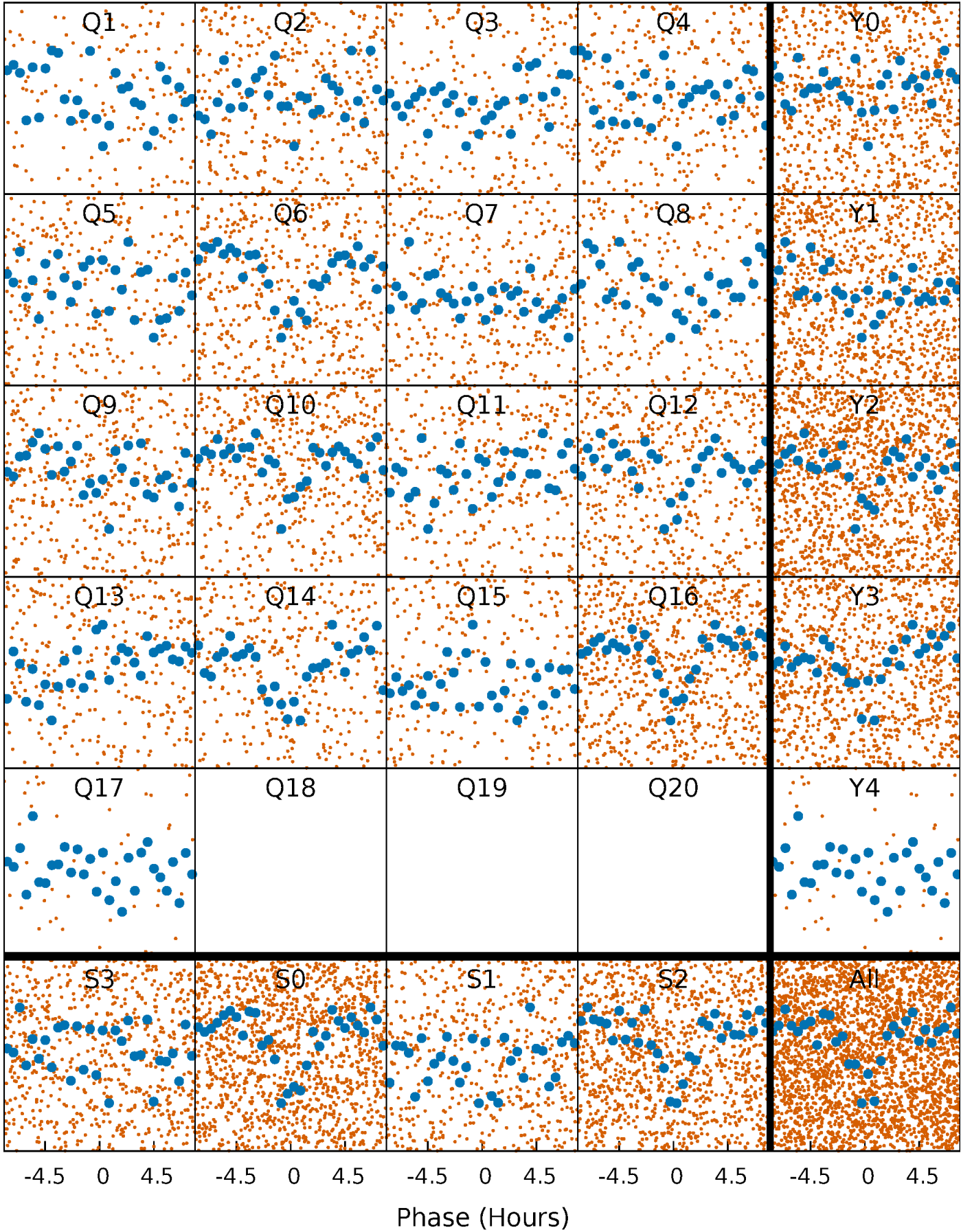


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



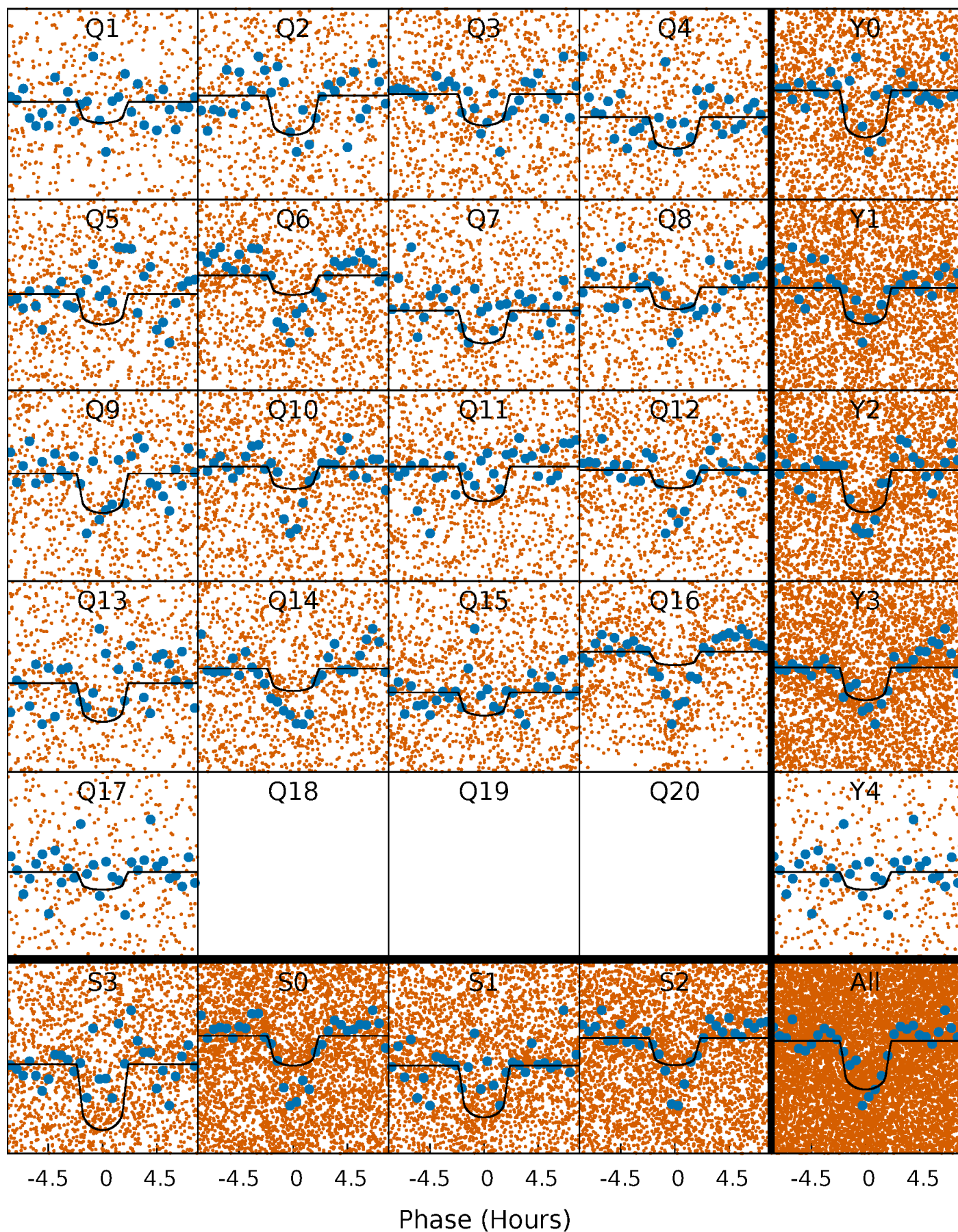
PDC Quarter-Phased Transit Curves

TCE 009827596-01 P= 1.457271 Days $T_0=131.595397$ (BKJD)



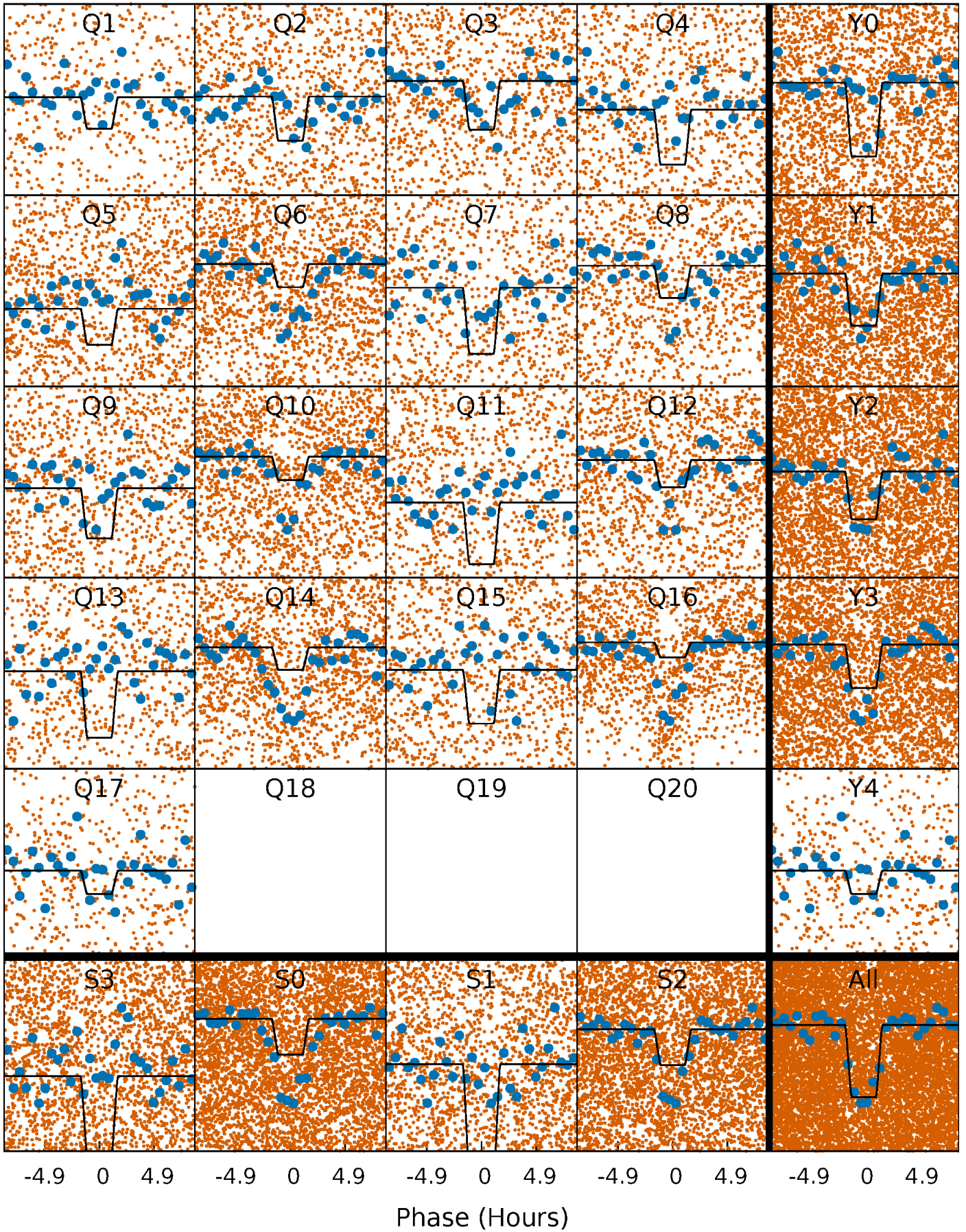
DV Quarter-Phased Transit Curves

TCE 009827596-01 P= 1.457271 Days $T_0=131.595397$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

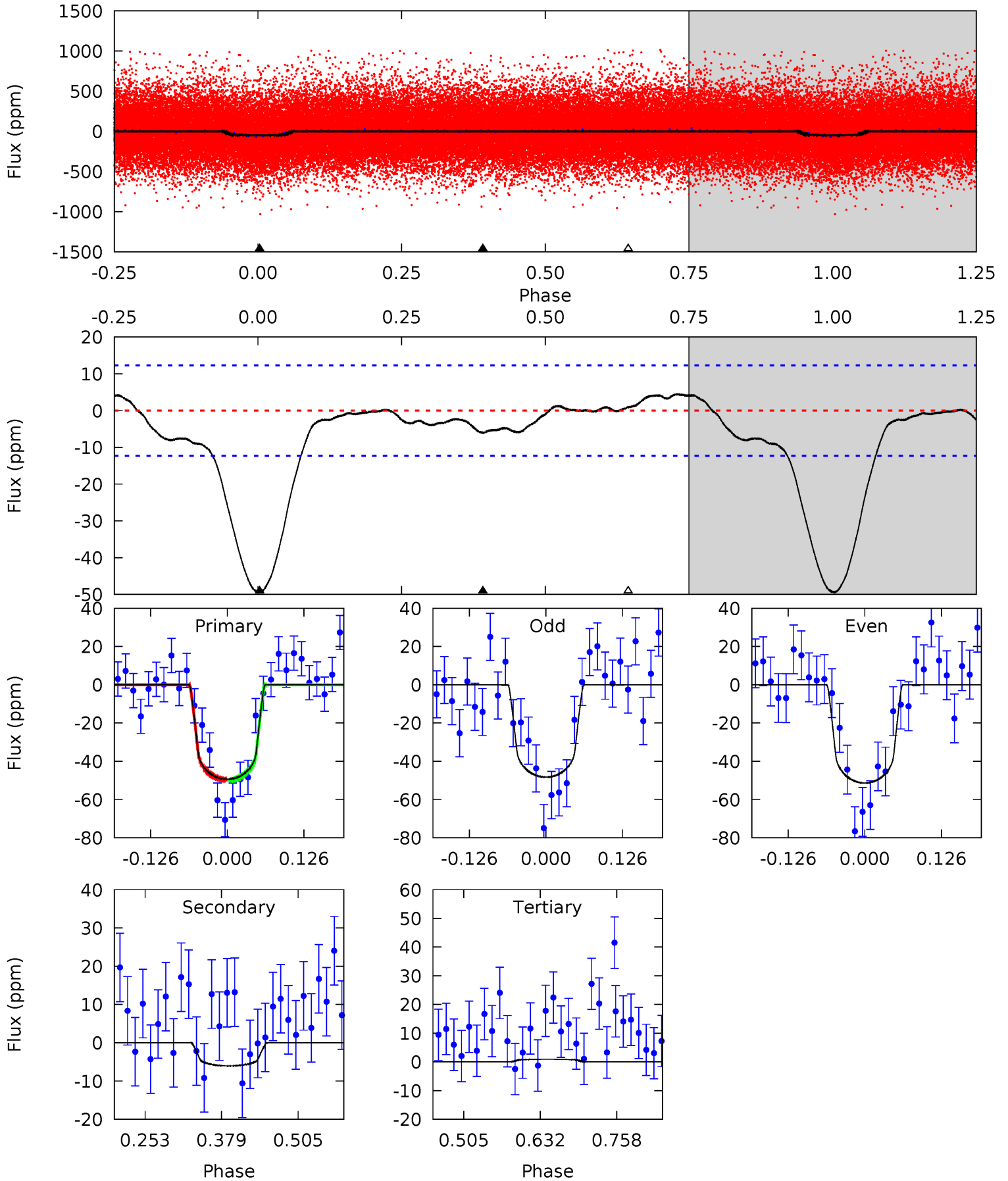
TCE 009827596-01 P= 1.457293 Days $T_0=131.587882$ (BKJD)



DV Model-Shift Uniqueness Test

009827596-01, P = 1.457271 Days, E = 130.138126 Days

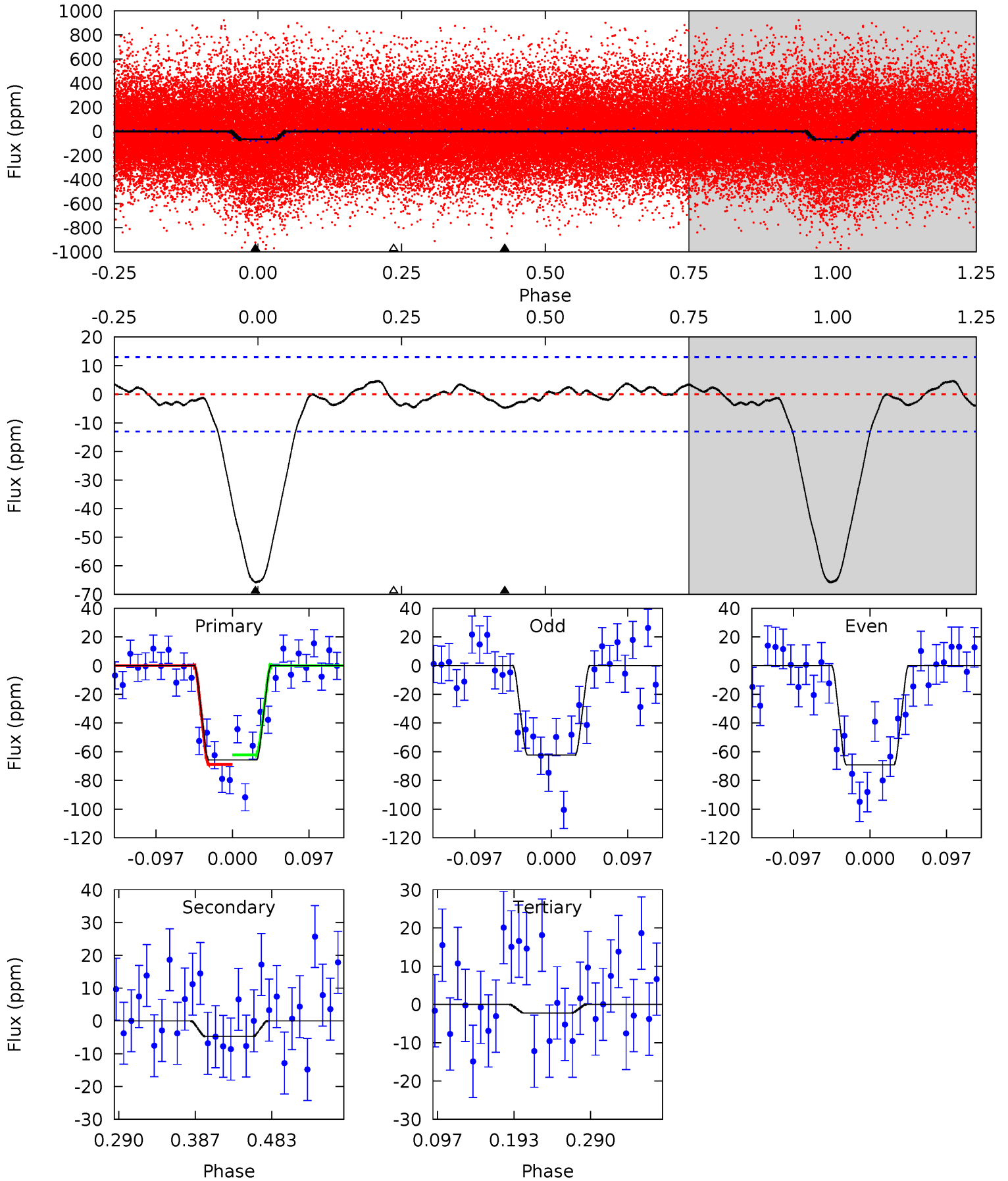
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	2.21	-0.33	0	4.52	1.53	1.21	18.4	18.1	2.55	2.21	0.57	0.86	0.08	0.06



Alt Model-Shift Uniqueness Test

009827596-01, P = 1.457293 Days, E = 130.130589 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	1.66	0.77	0	4.57	1.66	0.83	22.3	23.1	0.89	1.66	1.20	0.94	0.07	1.16



Stellar Parameters For KIC 009827596

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6063^{+78}_{-78}	$4.476^{+0.021}_{-0.112}$	$0.070^{+0.150}_{-0.150}$	$1.012^{+0.162}_{-0.043}$	$1.117^{+0.068}_{-0.068}$	$1.519^{+0.120}_{-0.507}$
	+1%/-1%	+0%/-3%	+214%/-214%	+16%/-4%	+6%/-6%	+8%/-33%
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 009827596-01 / KOI 4855.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 3	$0.88^{+0.34}_{-0.34}$	2352^{+83}_{-47}	3710^{+817}_{-565}	$2.788^{+5.259}_{-1.625}$
Alt.	-5 ± 3	$0.91^{+0.38}_{-0.34}$	2355^{+82}_{-52}	3469^{+798}_{-742}	$1.975^{+4.146}_{-1.356}$

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

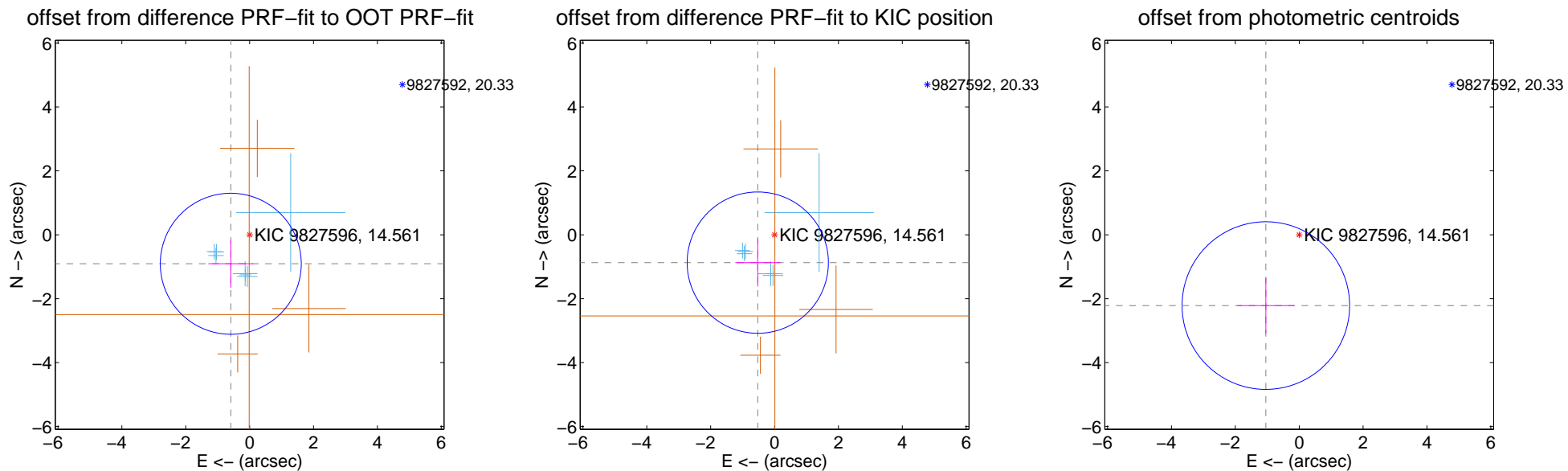
DV Centroid Data

Supplemental centroid analysis for 009827596-01. Kepler magnitude: 14.56. Transit SNR 11.27

There are 7 quarters with good PRF difference image offsets

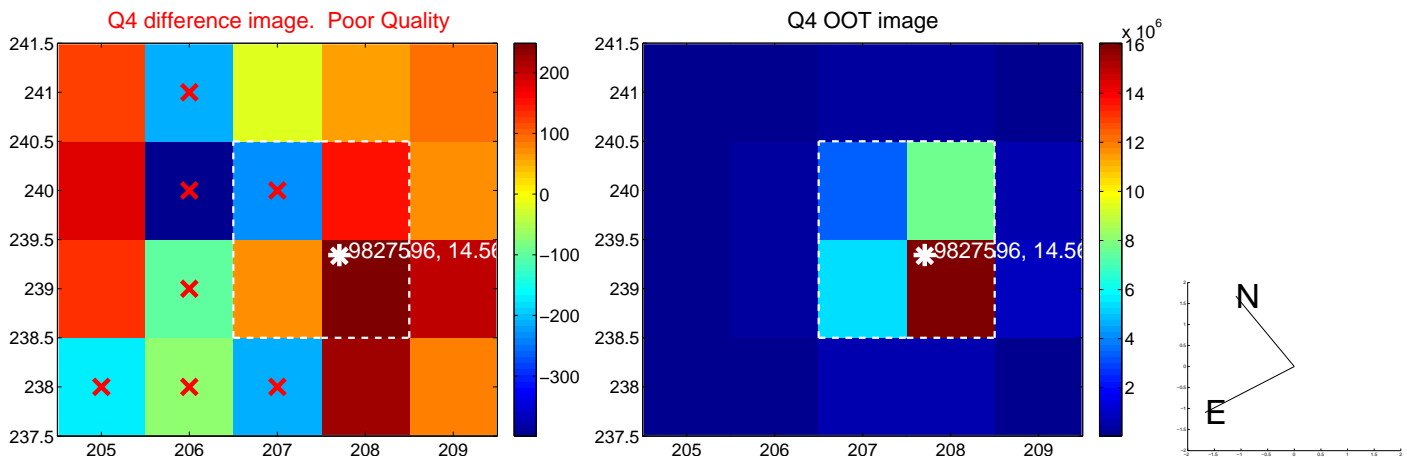
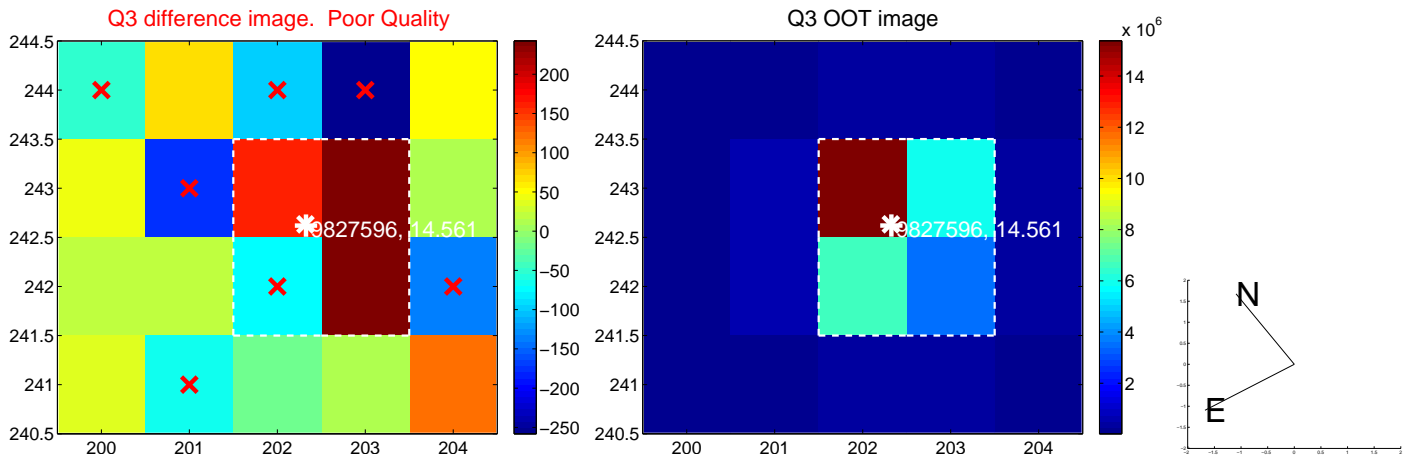
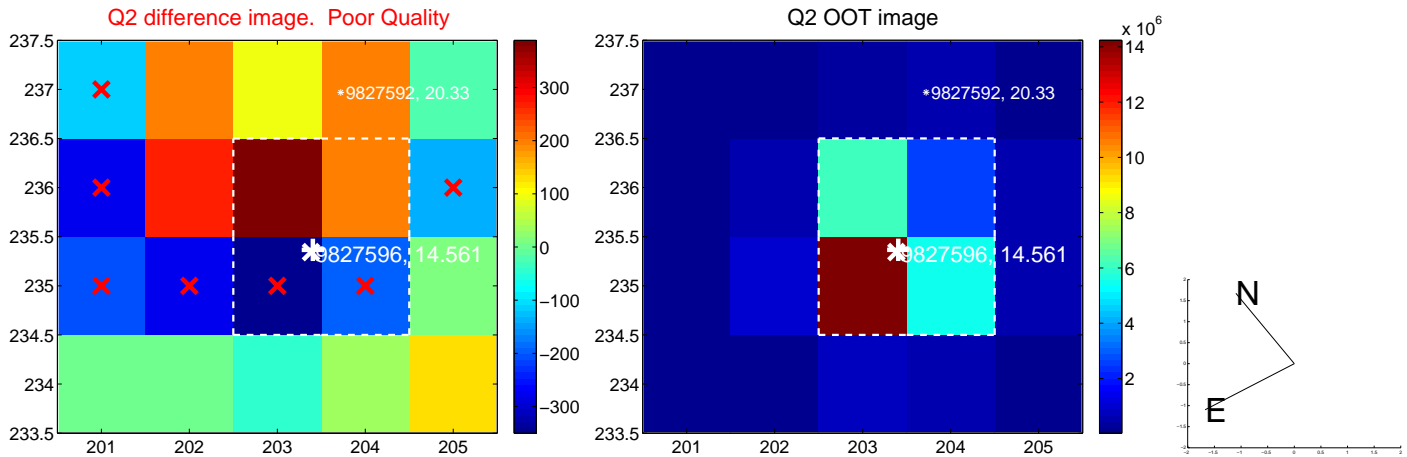
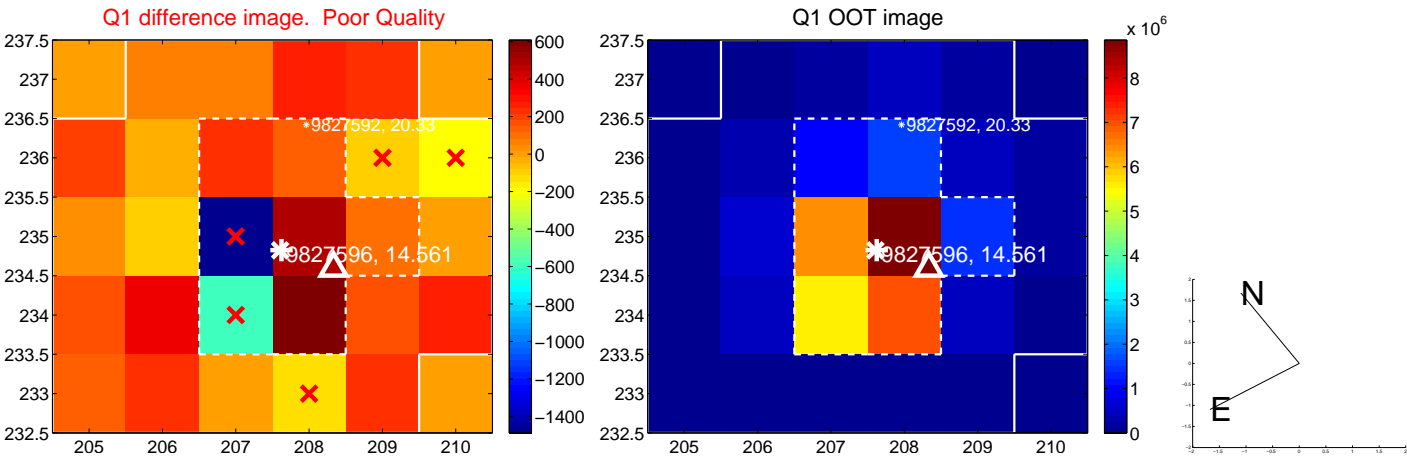
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.082 ± 0.736	1.47	0.590 ± 0.703	-0.907 ± 0.749
PRF-fit source offset from KIC position	1.018 ± 0.737	1.38	0.526 ± 0.703	-0.872 ± 0.749
photometric centroid source offset	2.45 ± 0.87	2.80	1.04 ± 0.89	-2.22 ± 0.87

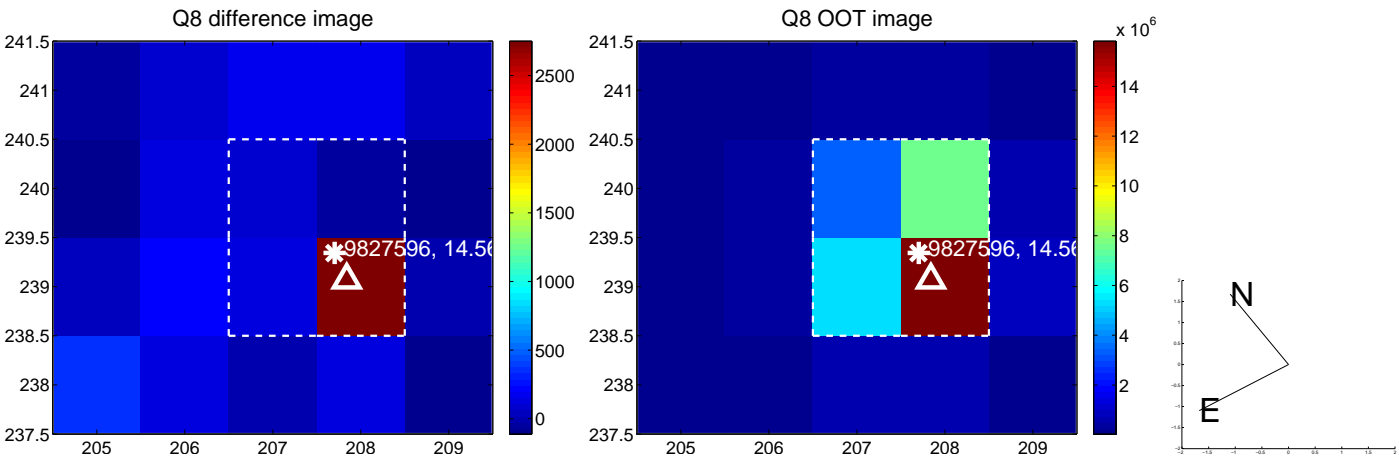
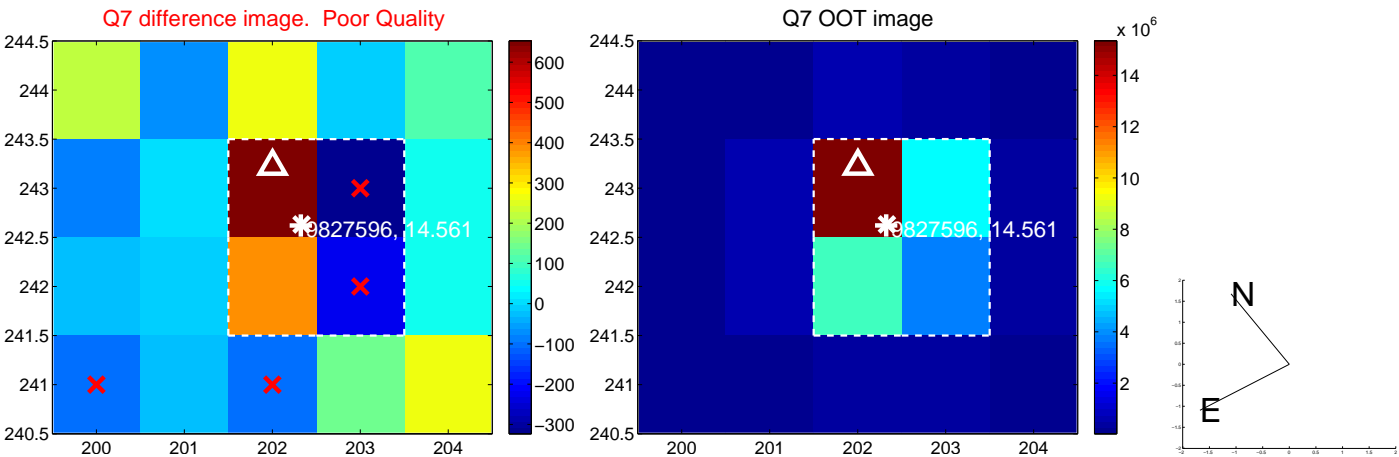
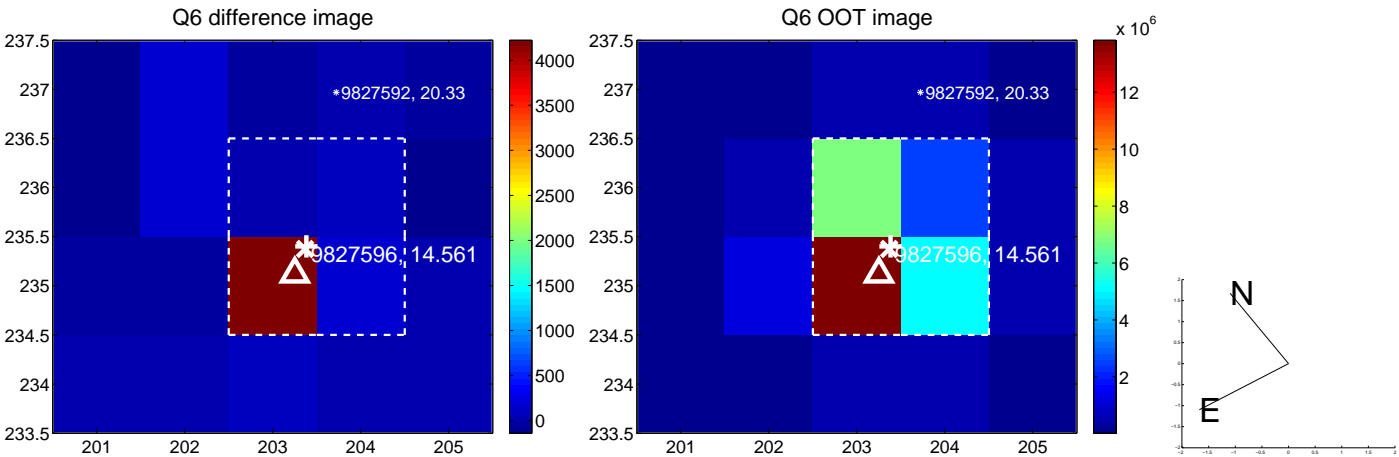
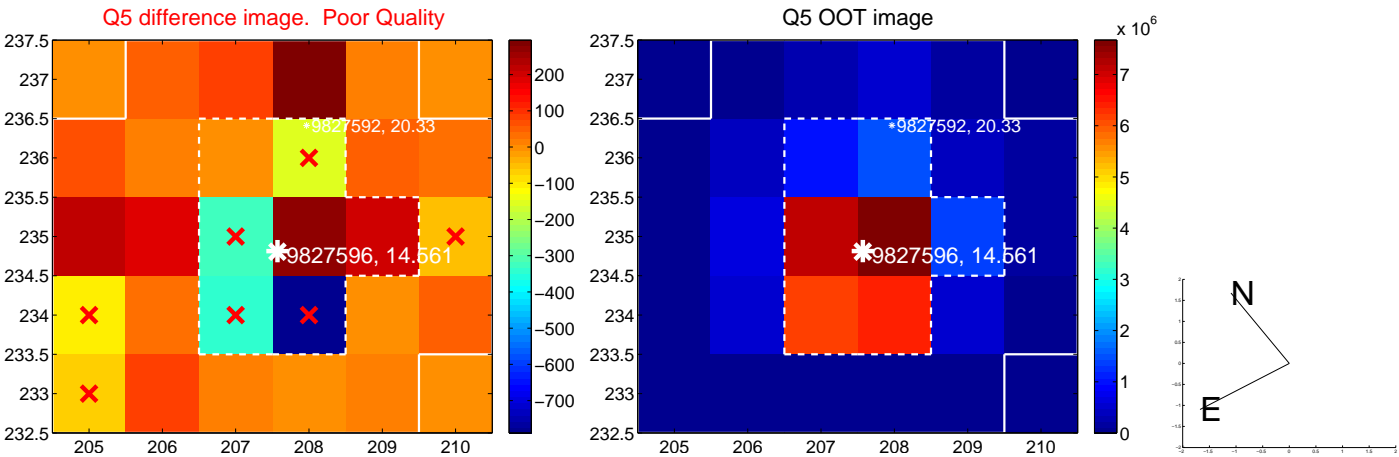


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

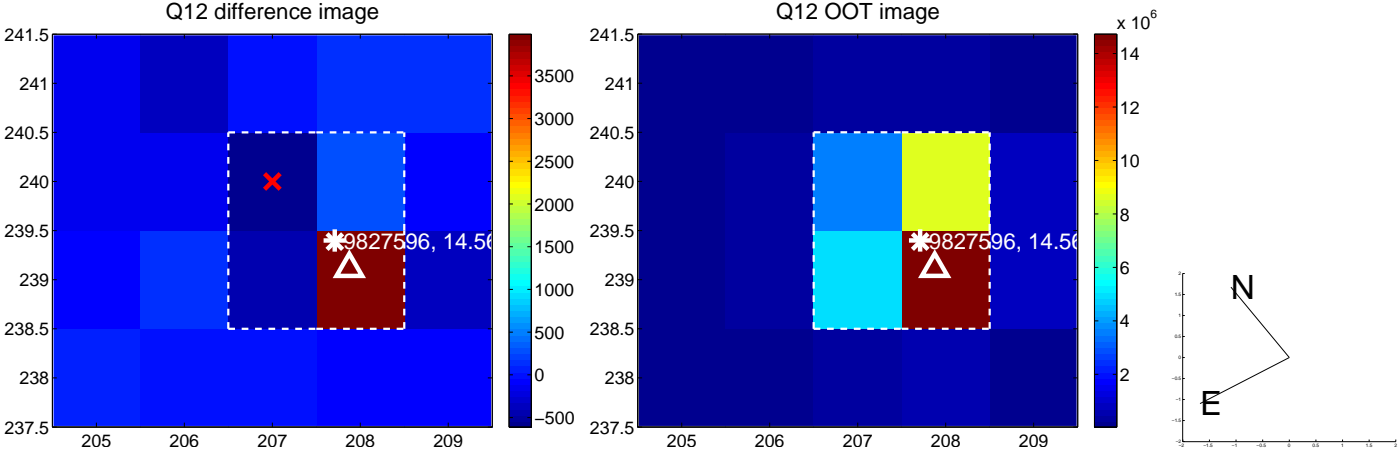
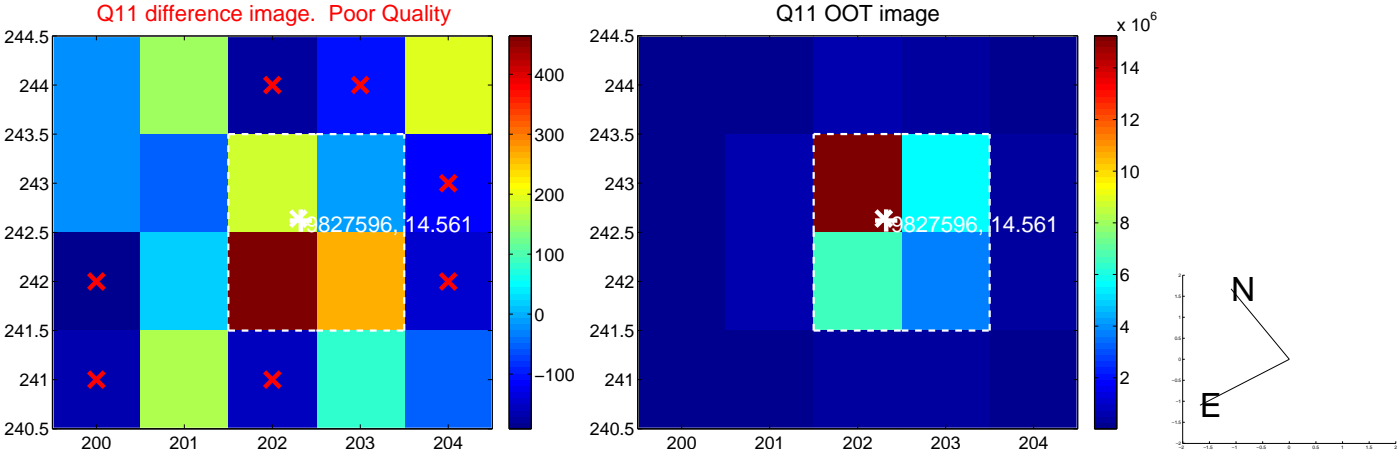
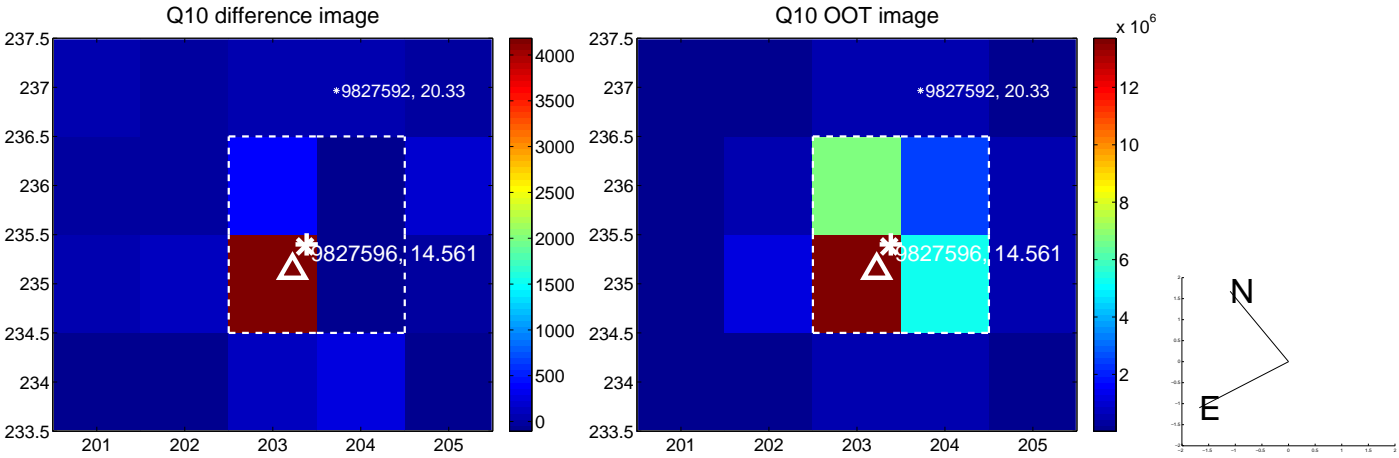
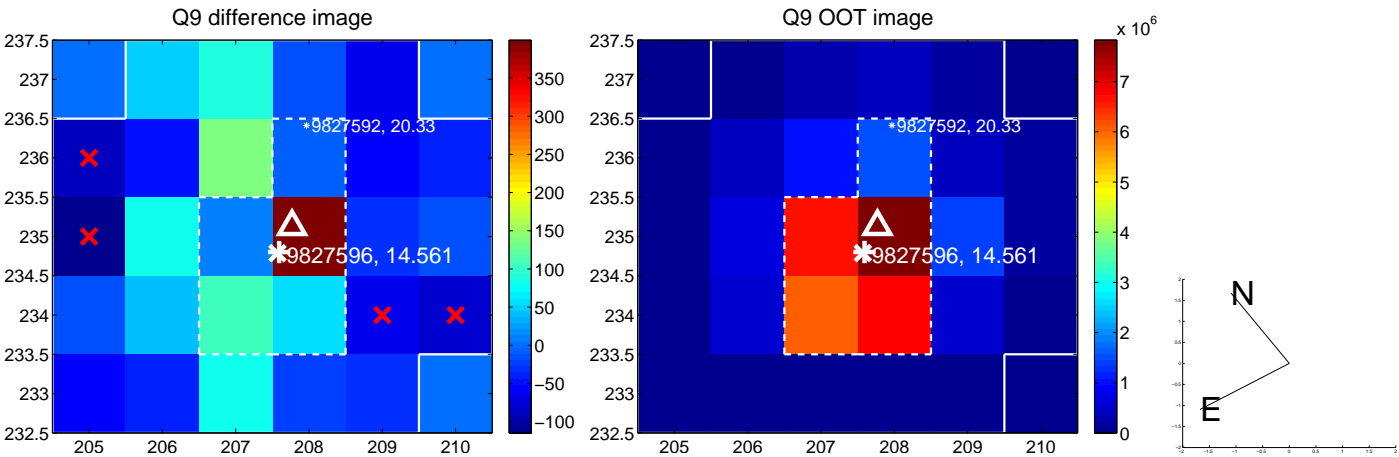
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



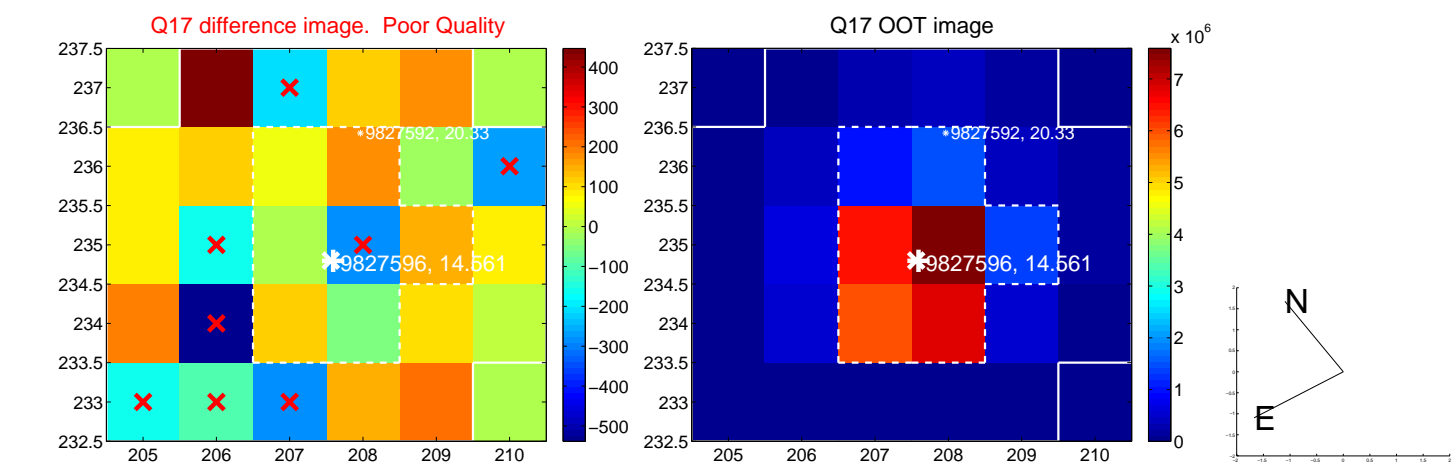
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



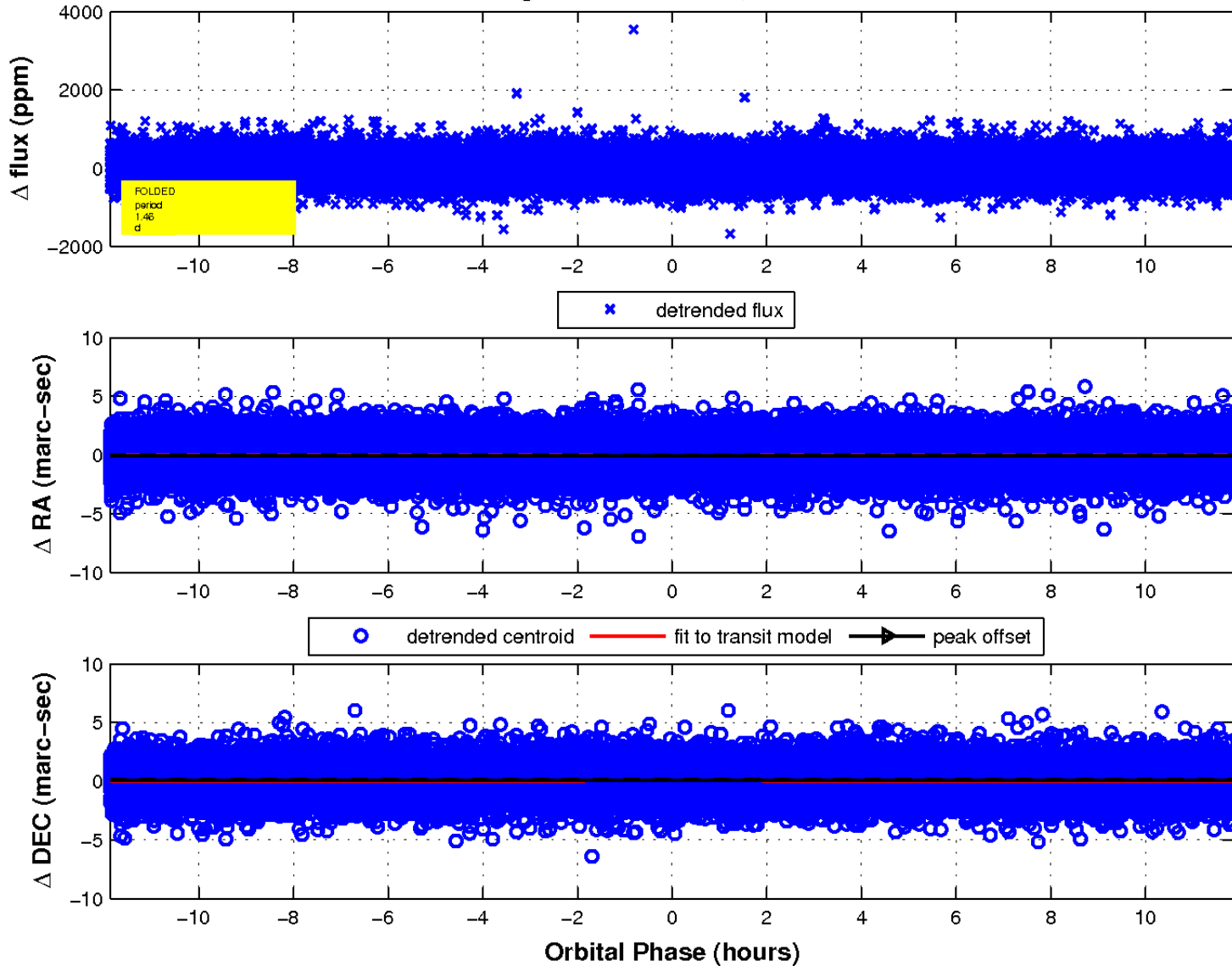
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

