

KIC 008570245

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})
008570245-01	OBS	No	509.359833	542.797625	540.9	3.522	7.2	7.5	0.94	6092	2.40	0.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008570245-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

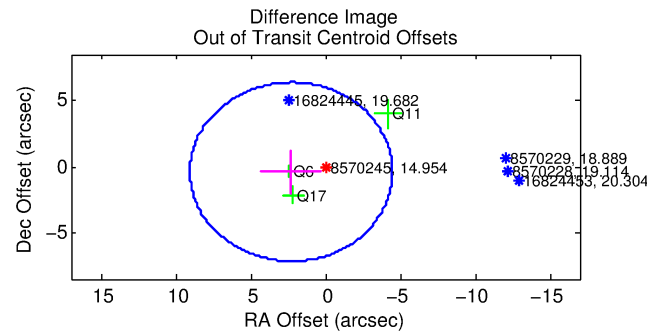
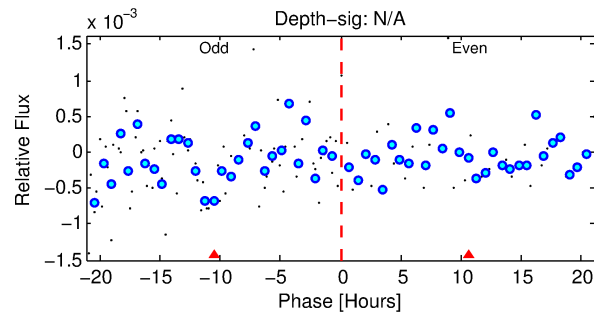
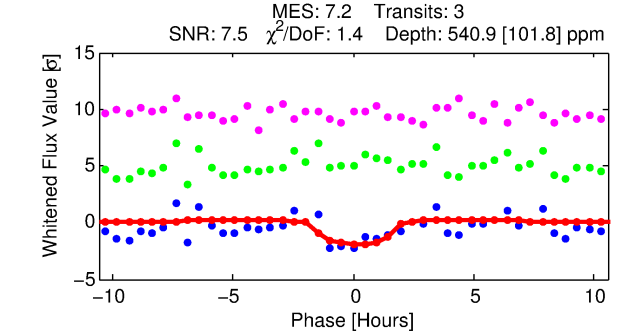
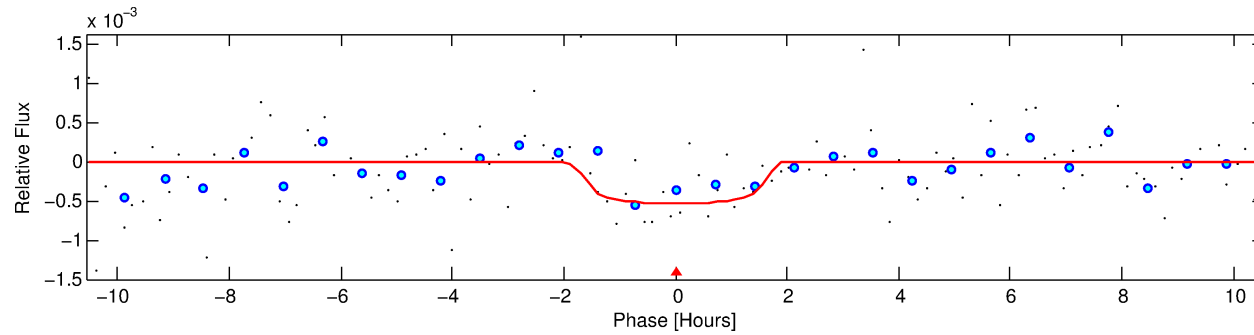
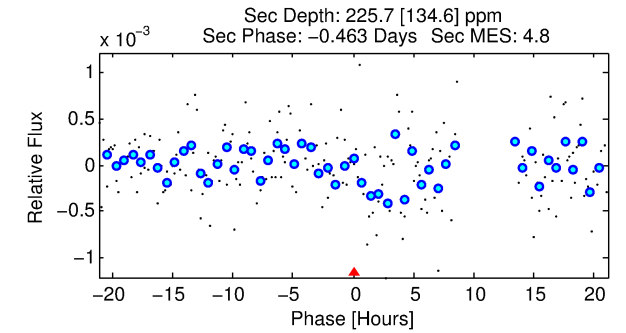
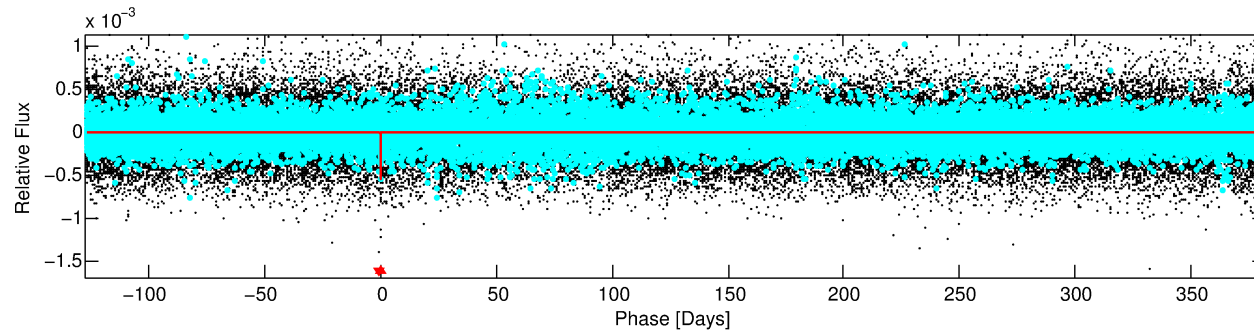
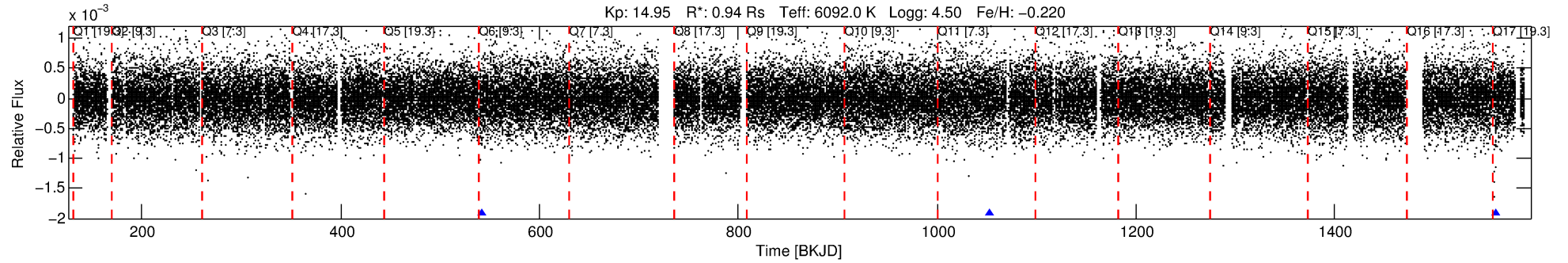
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008570245-01

No Significant Match Found

DV One-Page Summary

KIC: 8570245 Candidate: 1 of 1 Period: 509.360 d



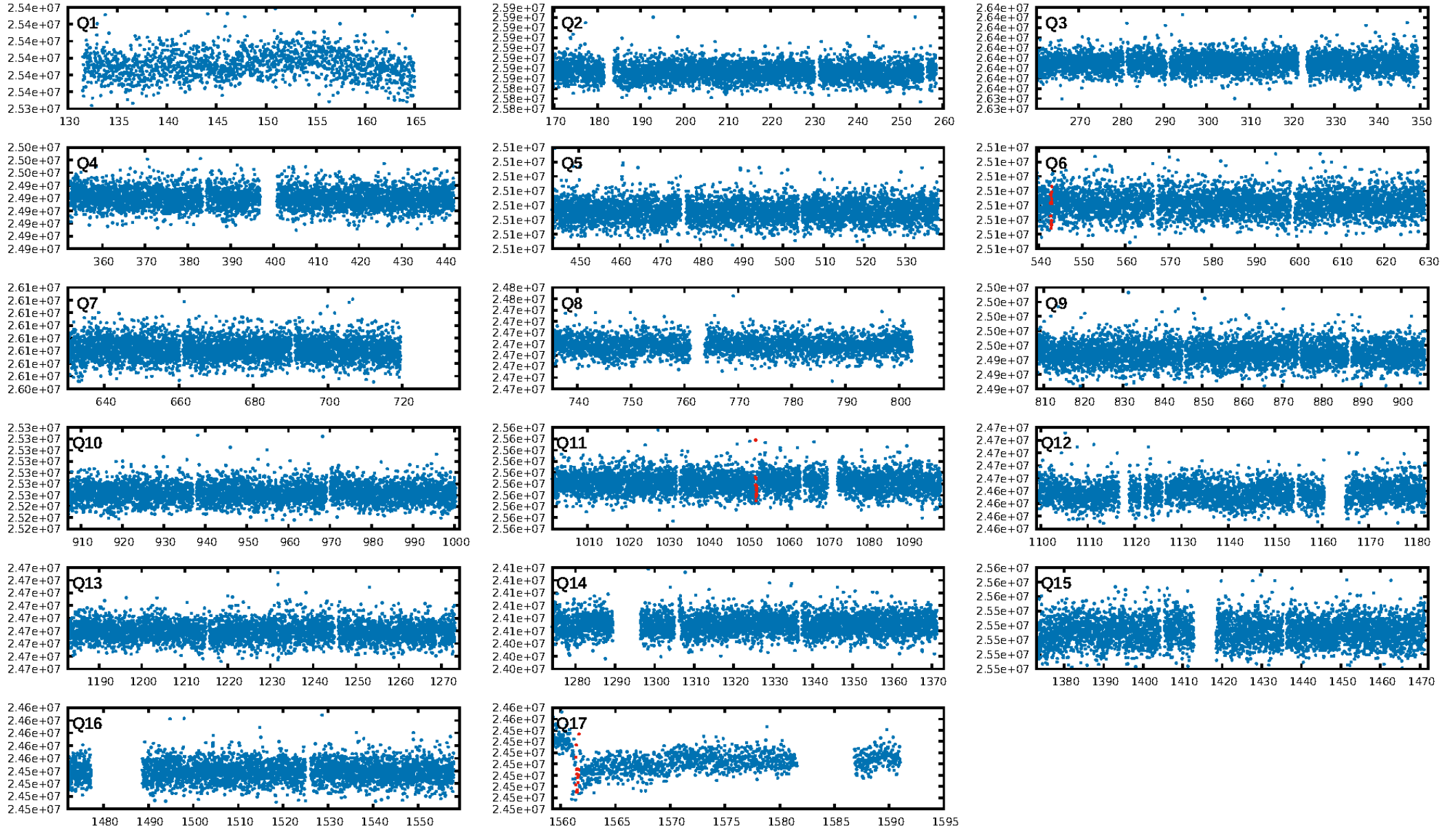
DV Fit Results:

Period = 509.35983 [0.00965] d
Epoch = 542.7976 [0.0128] BKJD
Rp/R* = 0.0233 [0.0284]
a/R* = 743.24 [4511.76]
b = 0.77 [3.22]
Seff = 0.70 [0.30]
Teff = 233 [25] K
Rp = 2.40 [3.02] Re
a = 1.2552 [0.3478] AU
Ag = 33955.13 [86162.71] [0.39σ]
Teffp = 4889 [3065] K [1.52σ]

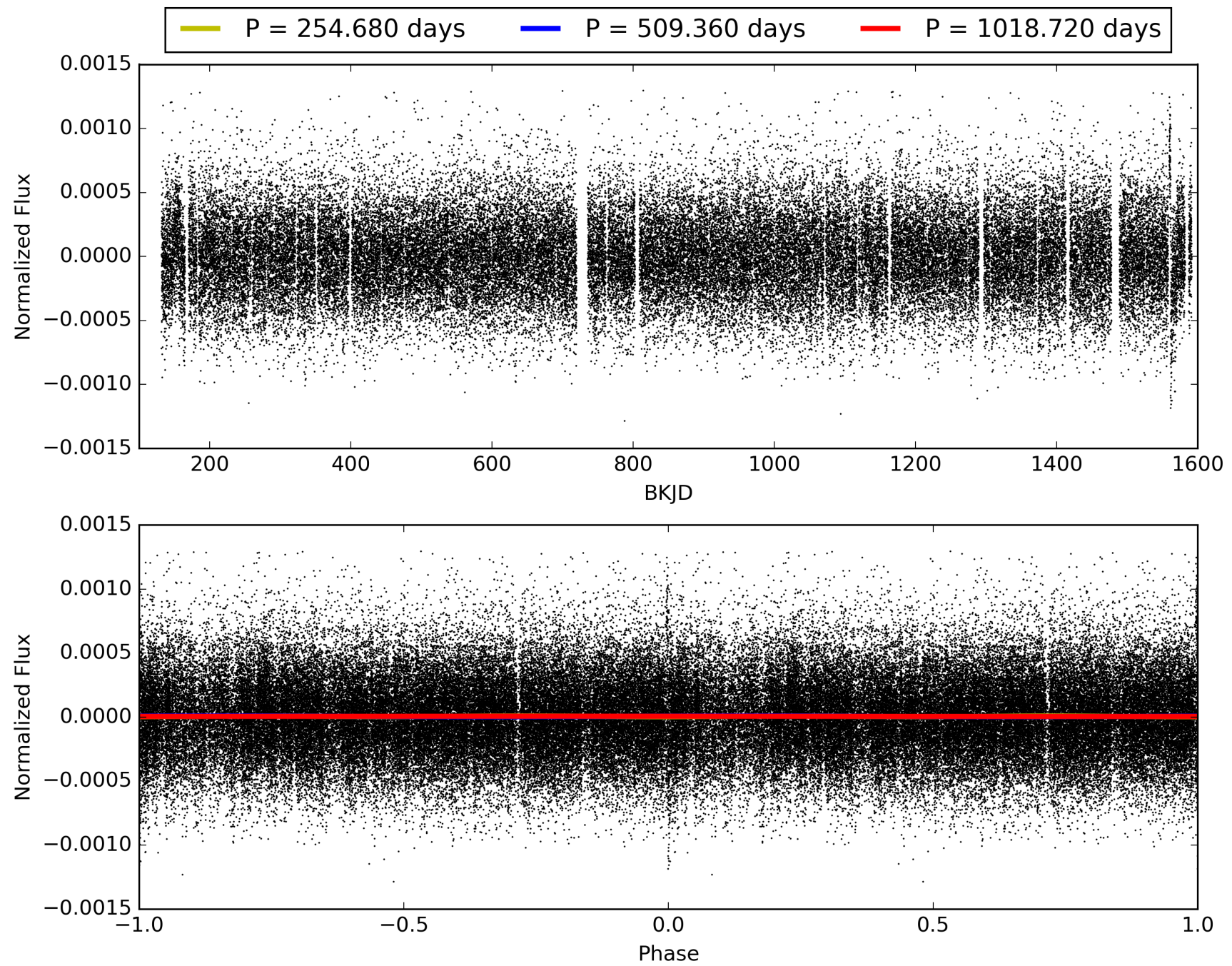
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 17.9%
ModelChiSquareGof-sig: 94.1%
Bootstrap-pfa: 1.14e-11
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 5.045
Centroid-sig: 22.6%
Centroid-so: 1.919 arcsec [0.99σ]
OotOffset-rm: 2.319 arcsec [1.03σ]
KicOffset-rm: 2.242 arcsec [1.08σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008570245-01, PDC Light Curves

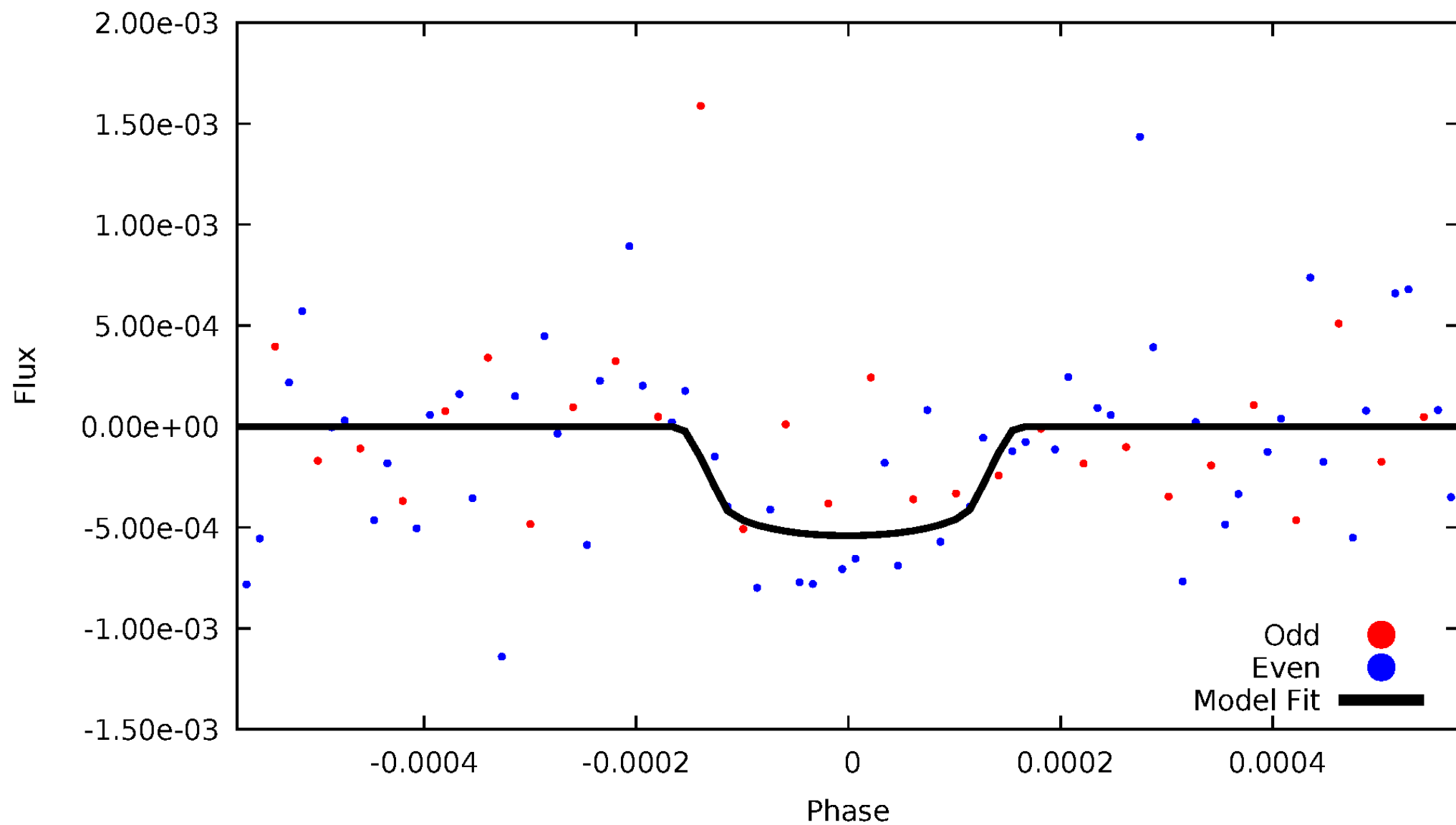


TCE 008570245-01



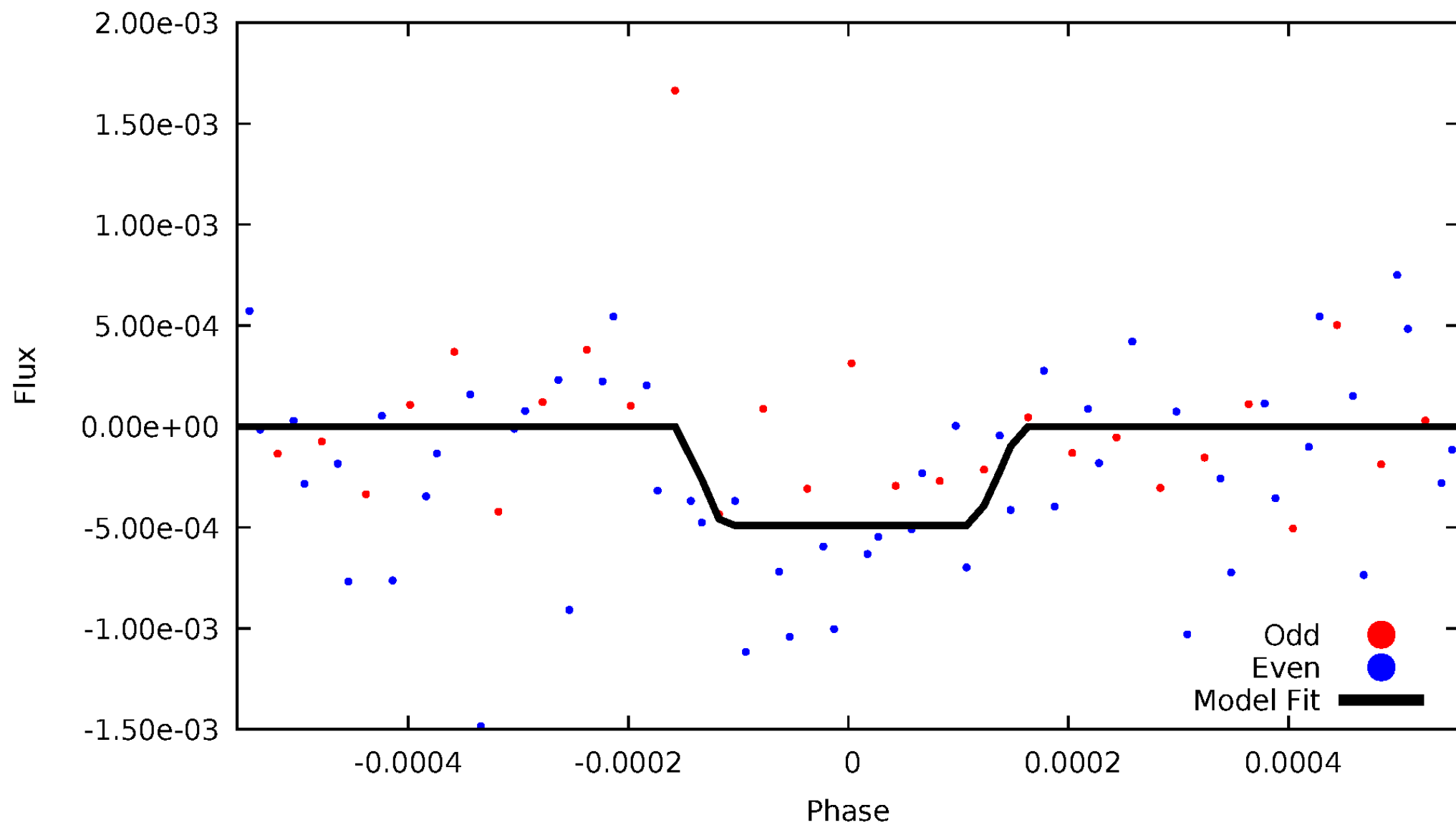
DV Odd/Even

TCE 008570245-01



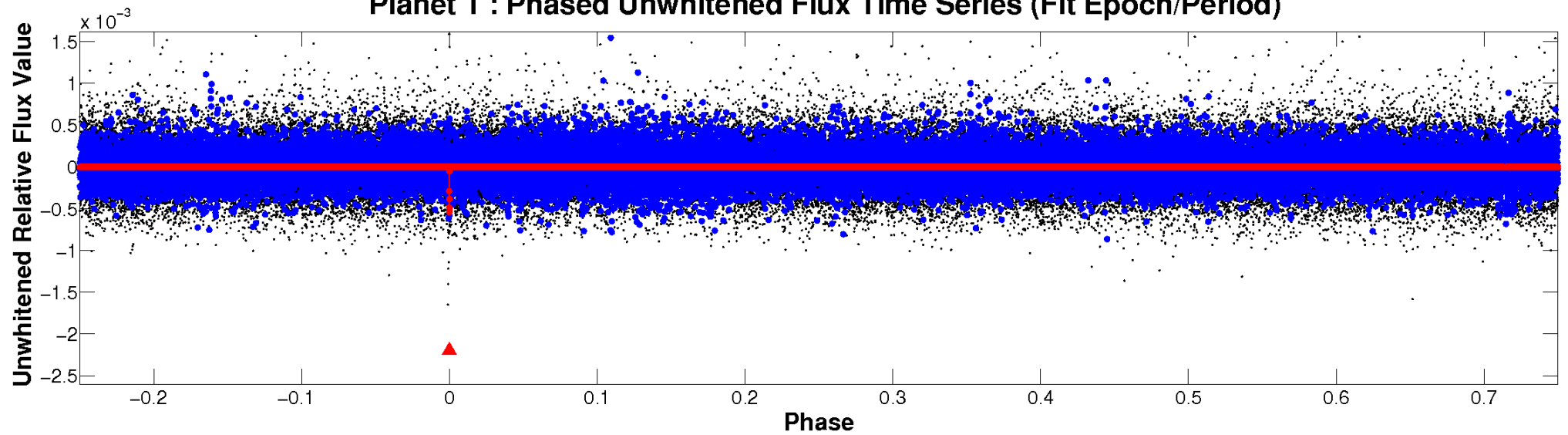
ALT Odd/Even

TCE 008570245-01

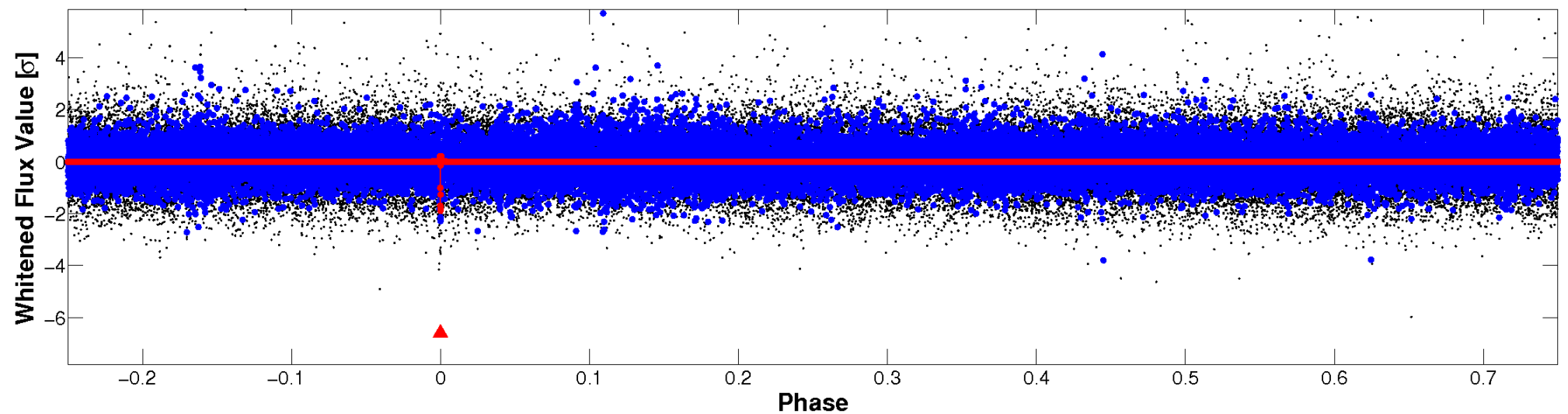


Non-Whitened Vs. Whitened Light Curve

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

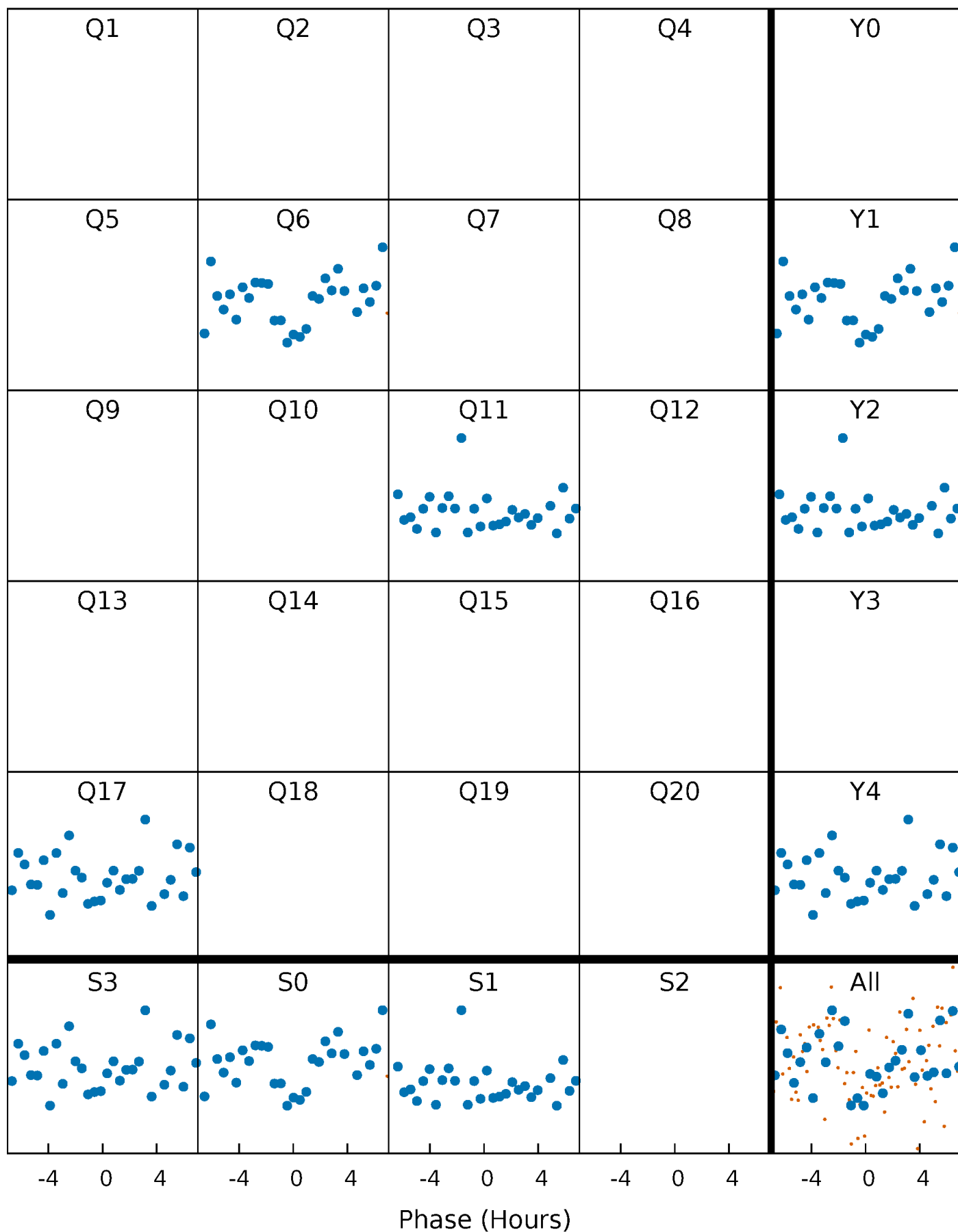


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



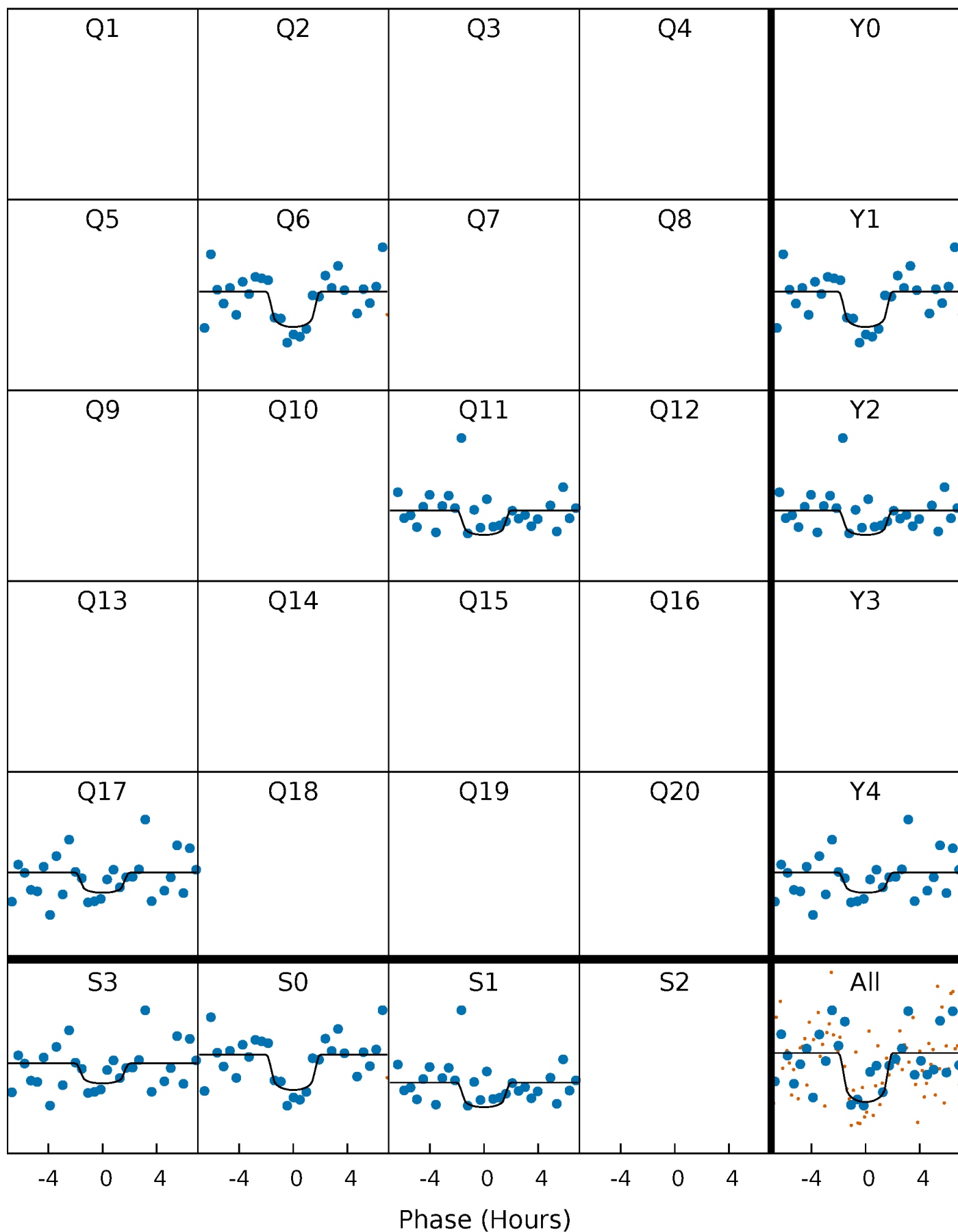
PDC Quarter-Phased Transit Curves

TCE 008570245-01 P=509.359833 Days $T_0=542.797625$ (BKJD)



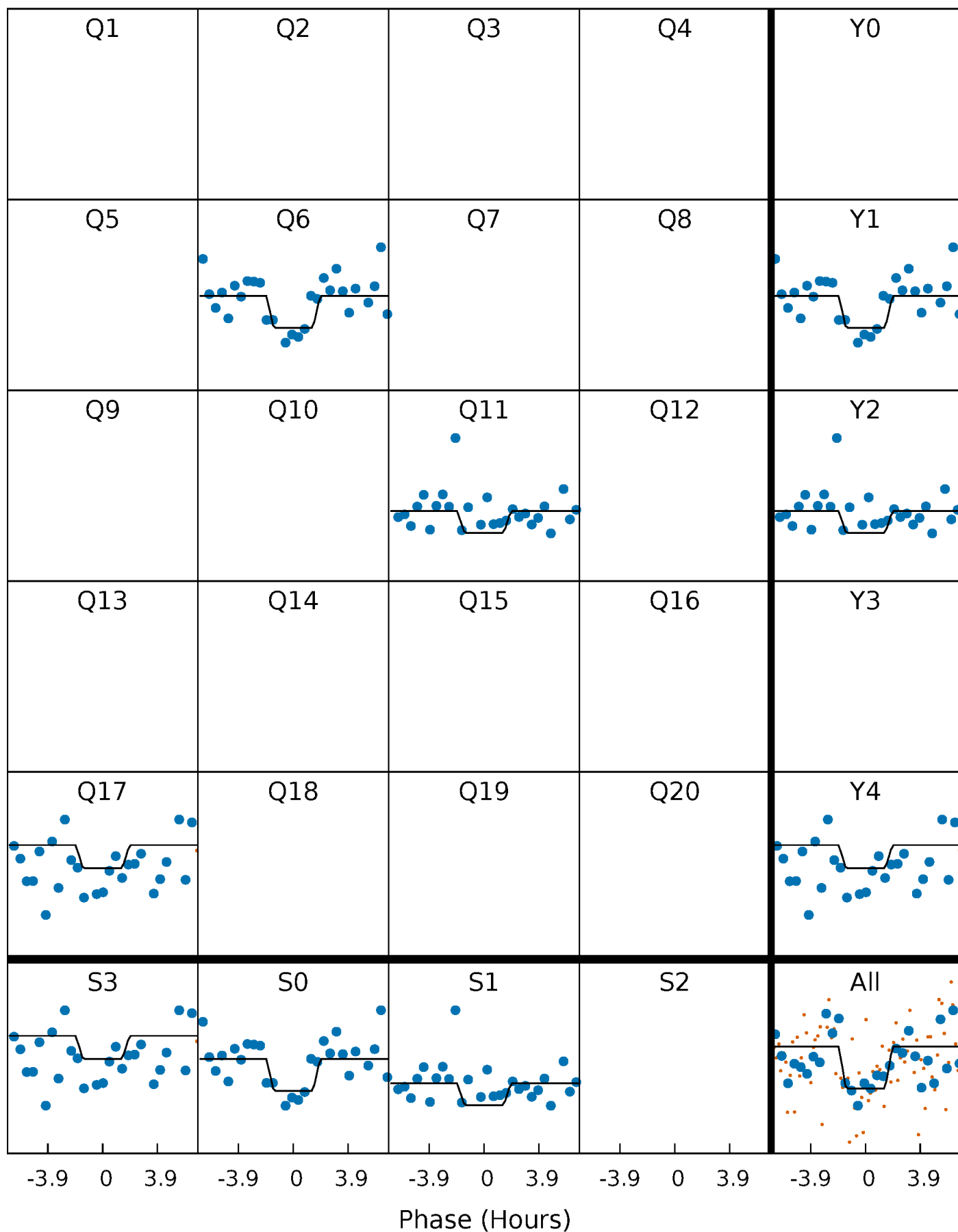
DV Quarter-Phased Transit Curves

TCE 008570245-01 P=509.359833 Days $T_0=542.797625$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

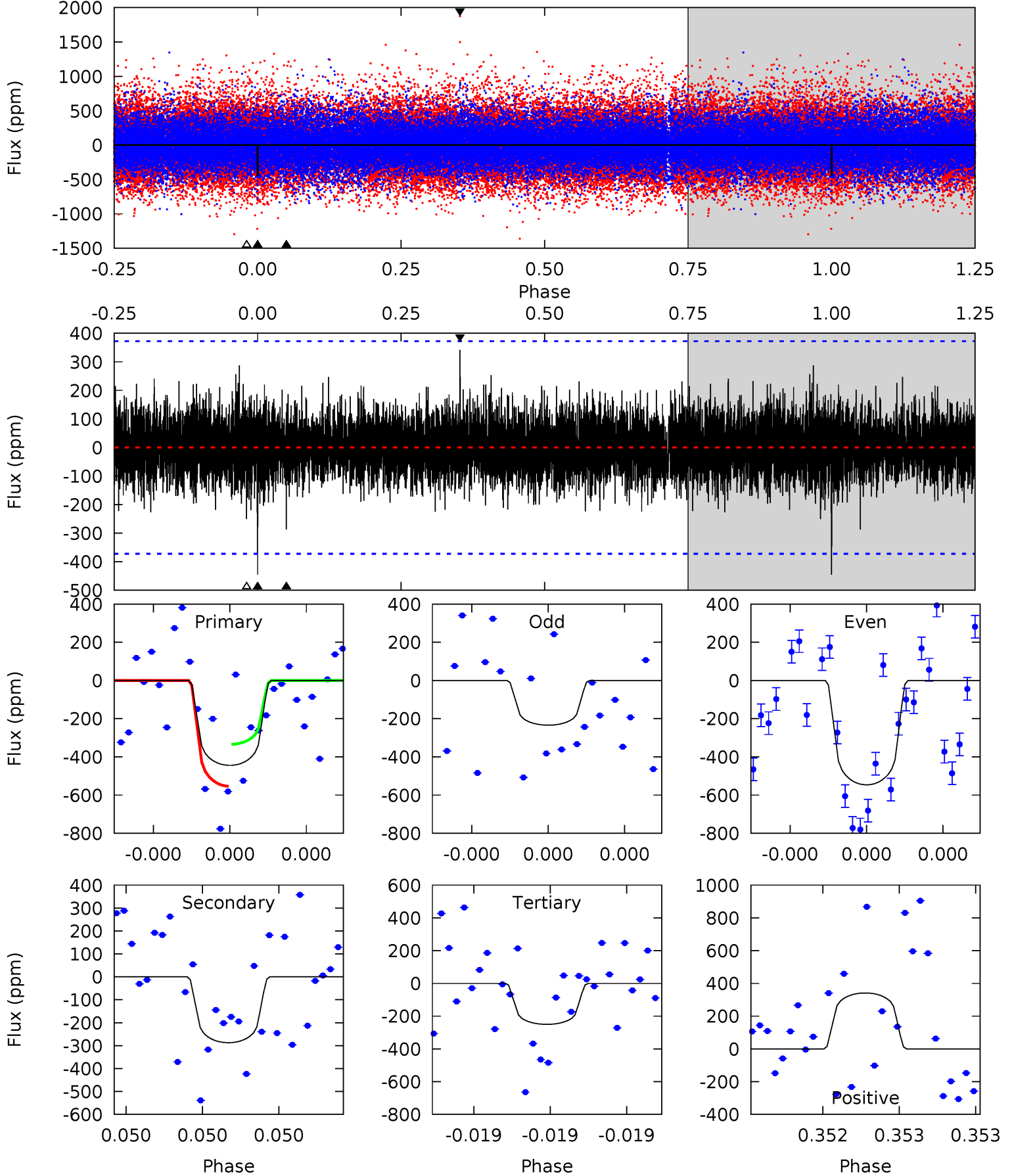
TCE 008570245-01 P=509.354161 Days $T_0=542.812616$ (BKJD)



DV Model-Shift Uniqueness Test

008570245-01, P = 509.359833 Days, E = 33.437792 Days

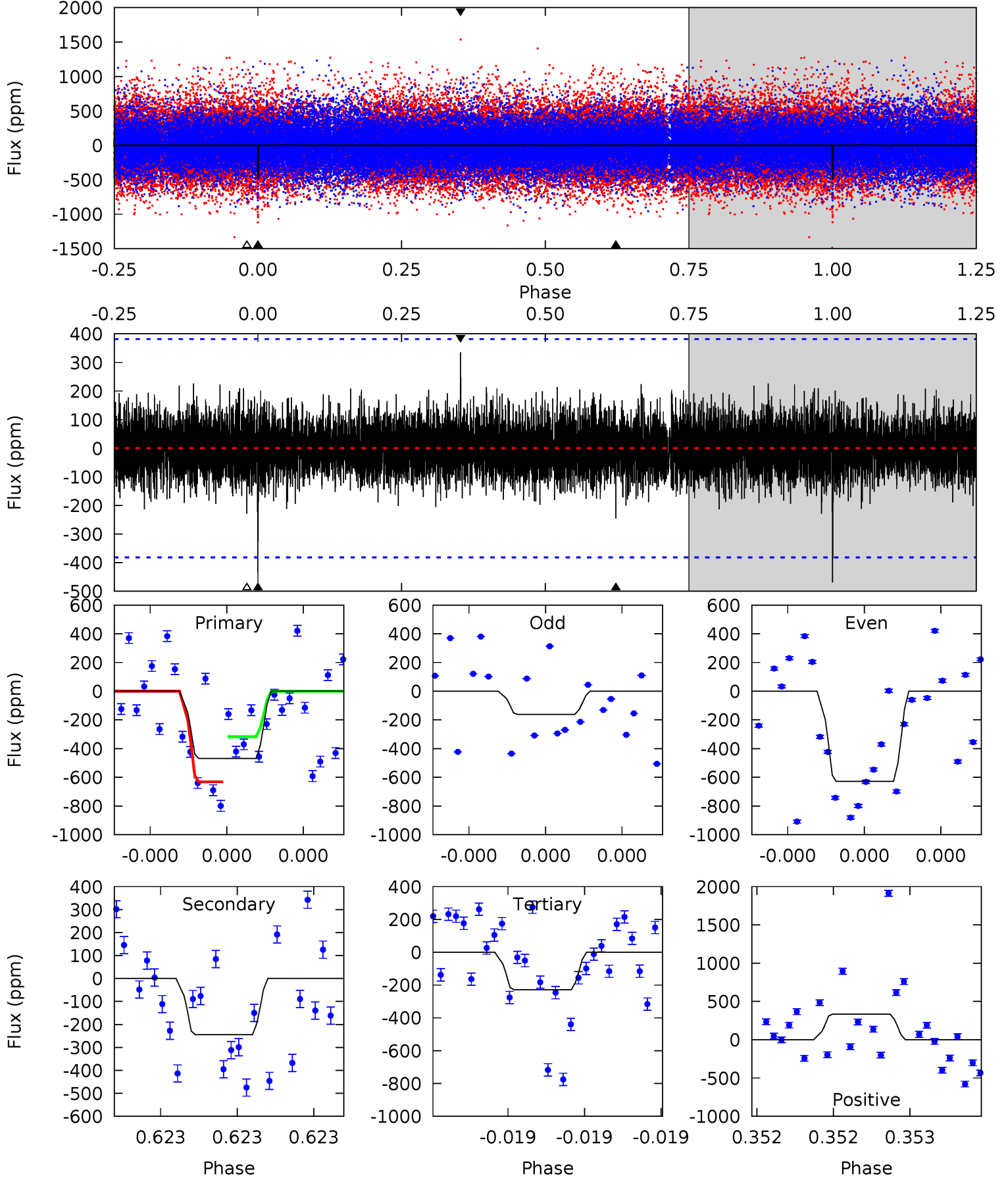
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.75	4.36	3.80	5.19	5.66	3.61	1.06	2.95	1.56	0.56	-0.83	2.24	0.85	0.43	1.67



Alt Model-Shift Uniqueness Test

008570245-01, P = 509.354161 Days, E = 33.458455 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.98	3.64	3.40	4.98	5.67	3.63	0.95	3.58	2.00	0.24	-1.34	3.37	1.01	0.42	2.32



Stellar Parameters For KIC 008570245

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6092^{+181}_{-200}	$4.496^{+0.054}_{-0.229}$	$-0.220^{+0.250}_{-0.300}$	$0.943^{+0.303}_{-0.101}$	$1.016^{+0.139}_{-0.139}$	$1.707^{+0.382}_{-0.904}$
	+3%/-3%	+1%/-5%	+114%/-136%	+32%/-11%	+14%/-14%	+22%/-53%
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 008570245-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-287 ± 66	$3.38^{+2.93}_{-2.16}$	334^{+24}_{-17}	4597^{+2929}_{-894}	$20608^{+132682}_{-14521}$
Alt.	-245 ± 67	$3.15^{+2.71}_{-2.05}$	332^{+25}_{-16}	4591^{+3088}_{-938}	$20267^{+157902}_{-14620}$

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

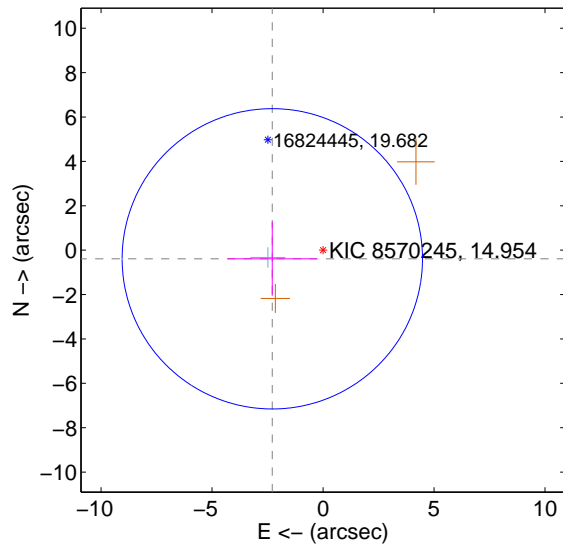
Supplemental centroid analysis for 008570245-01. Kepler magnitude: 14.95. Transit SNR 7.54

There are 1 quarters with good PRF difference image offsets

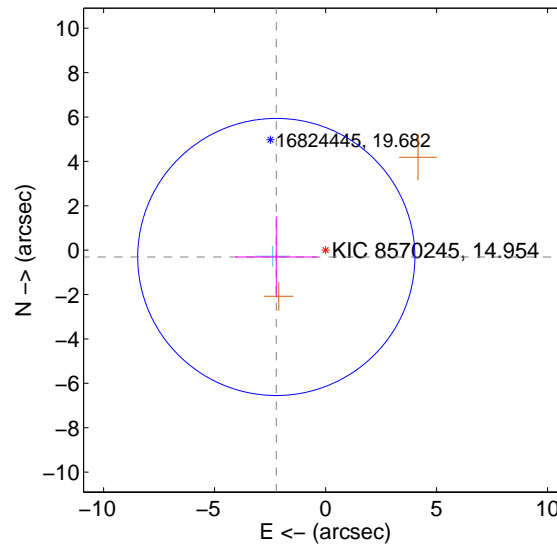
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.319 ± 2.256	1.03	2.286 ± 2.017	-0.389 ± 1.660
PRF-fit source offset from KIC position	2.242 ± 2.081	1.08	2.221 ± 1.858	-0.306 ± 1.827
photometric centroid source offset	1.92 ± 1.95	0.99	-1.52 ± 1.87	-1.17 ± 2.07

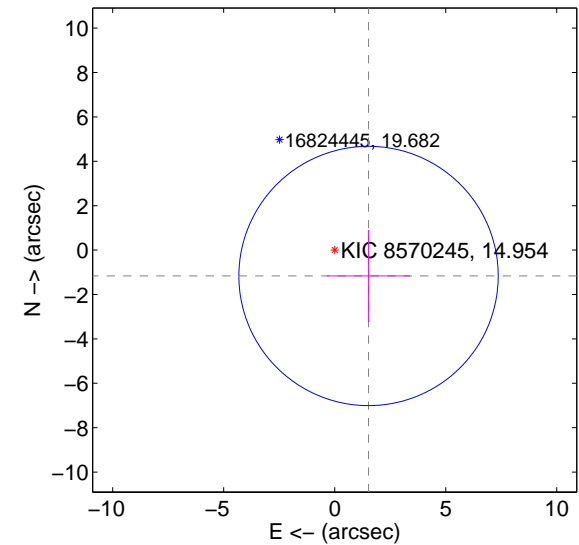
offset from difference PRF-fit to OOT PRF-fit



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.



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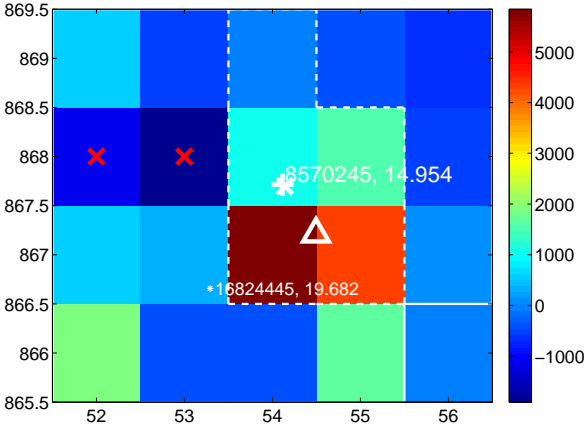
Q5 no difference image



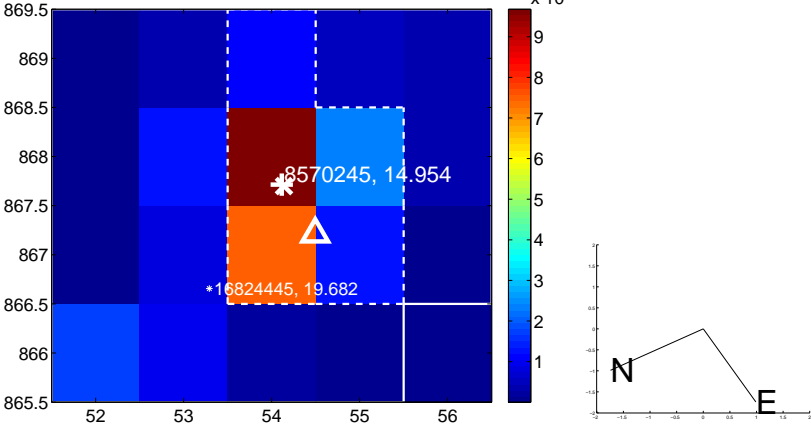
Q5 no OOT image



Q6 difference image



Q6 OOT image



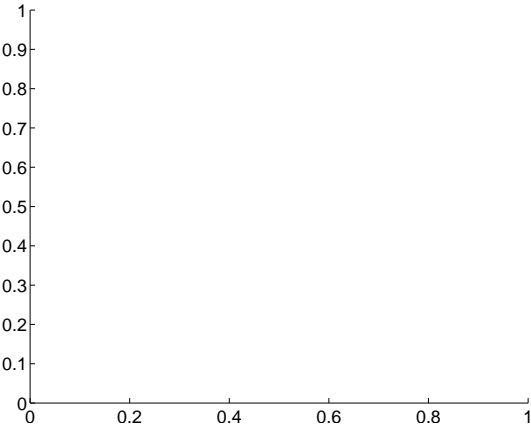
Q7 no difference image



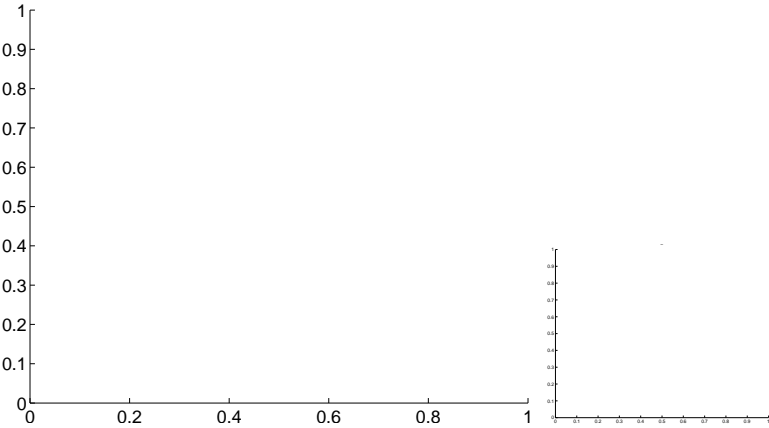
Q7 no OOT image



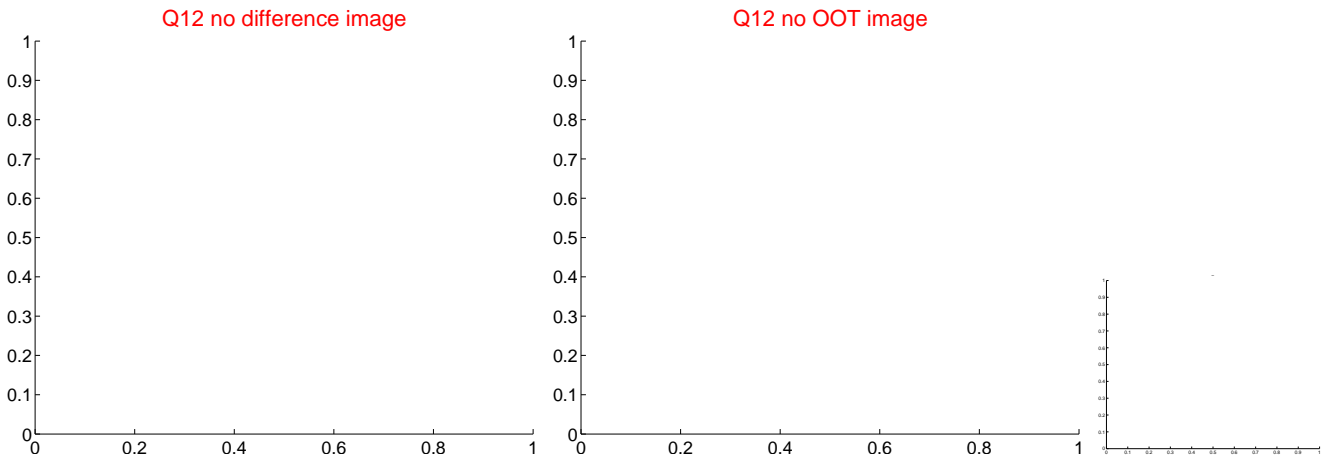
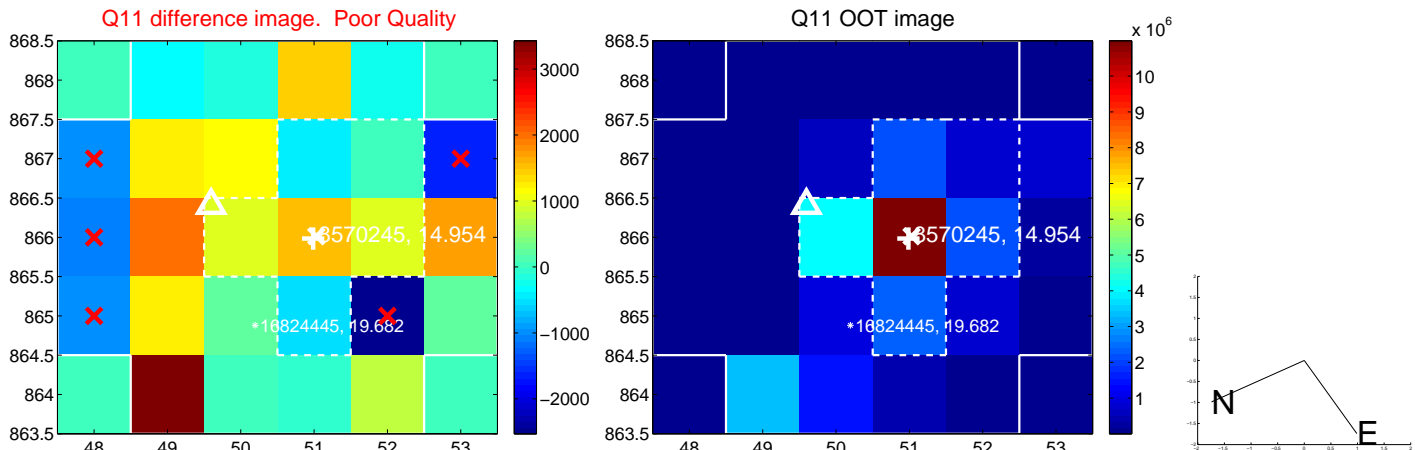
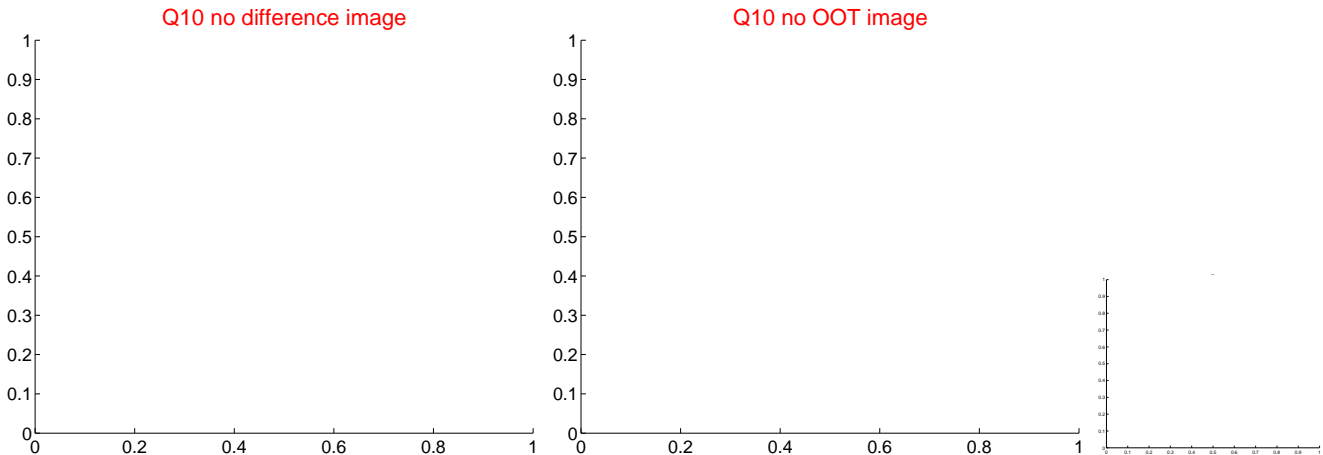
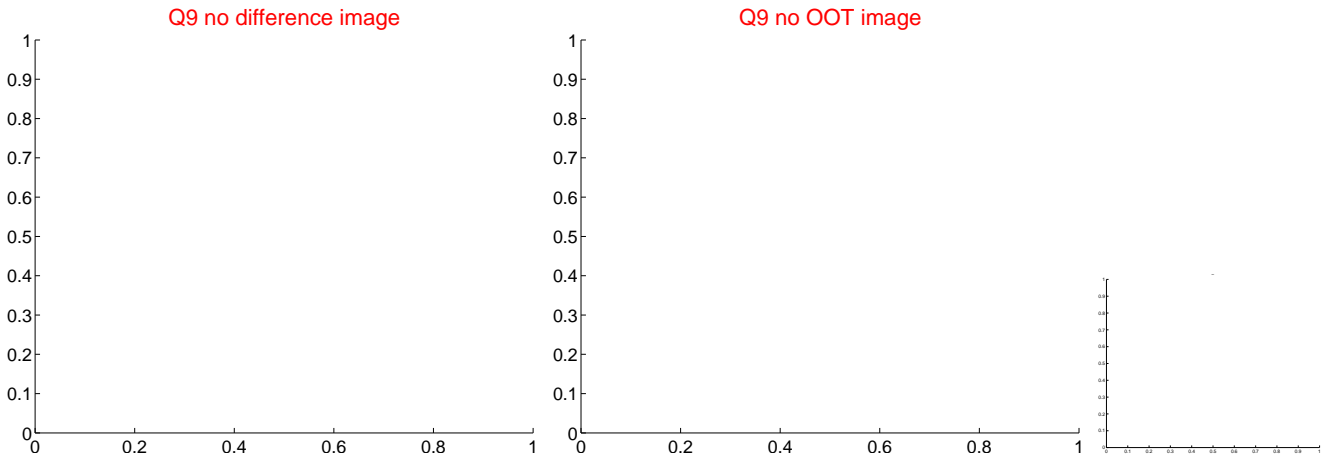
Q8 no difference image



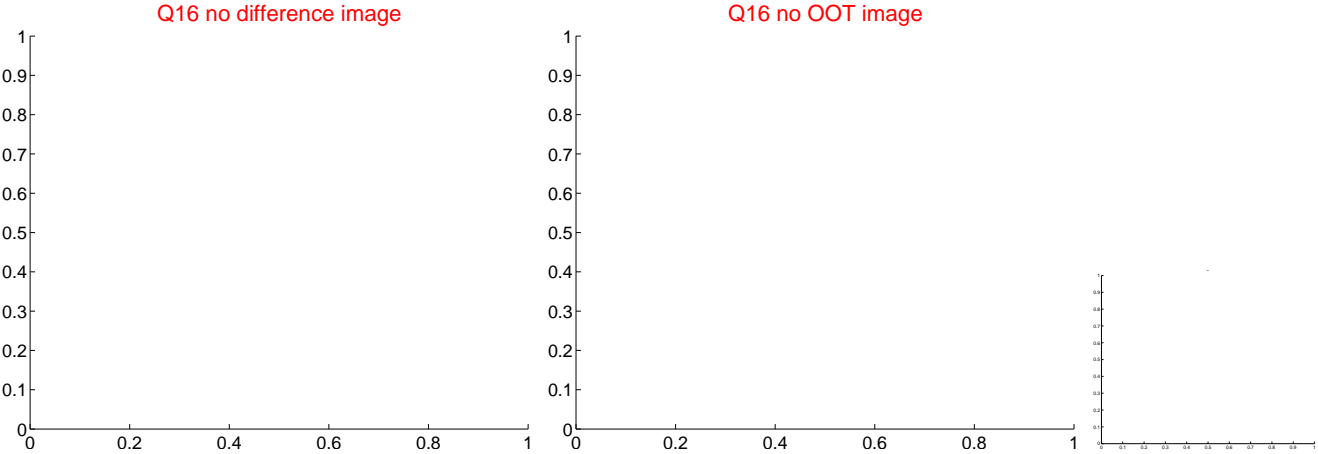
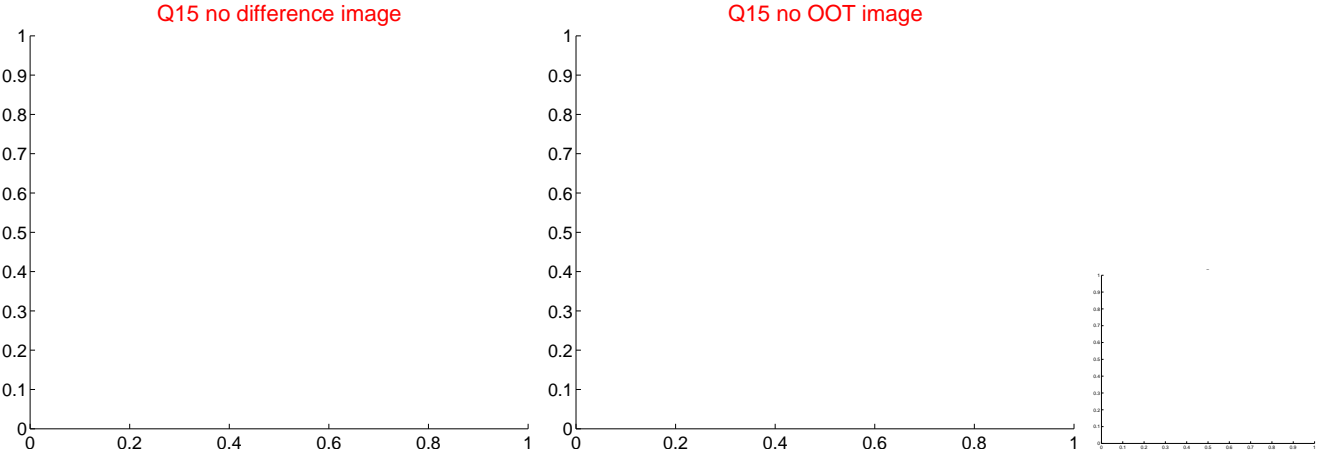
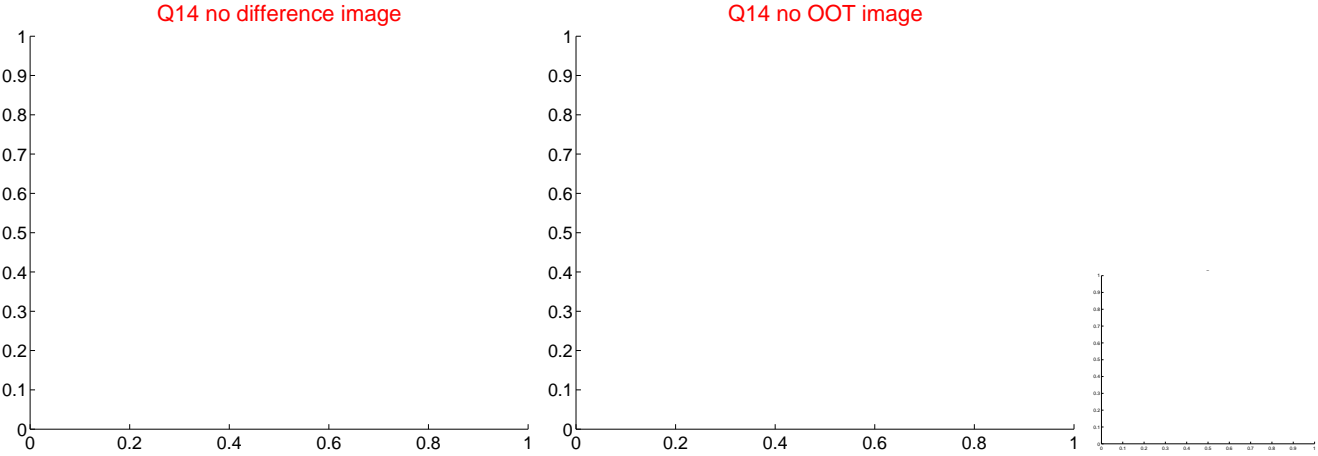
Q8 no OOT image



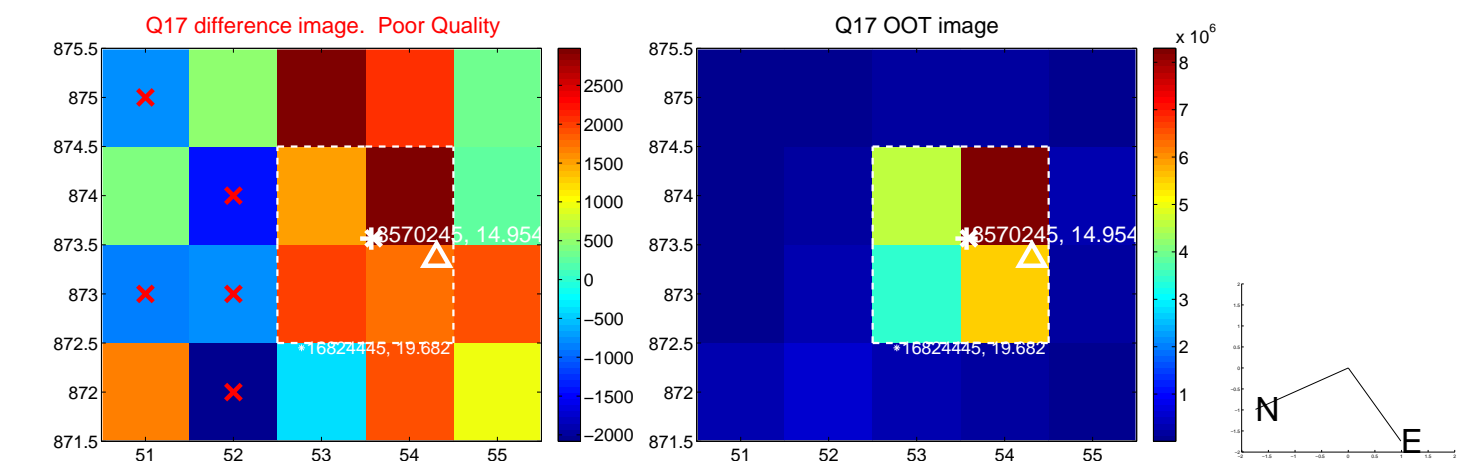
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



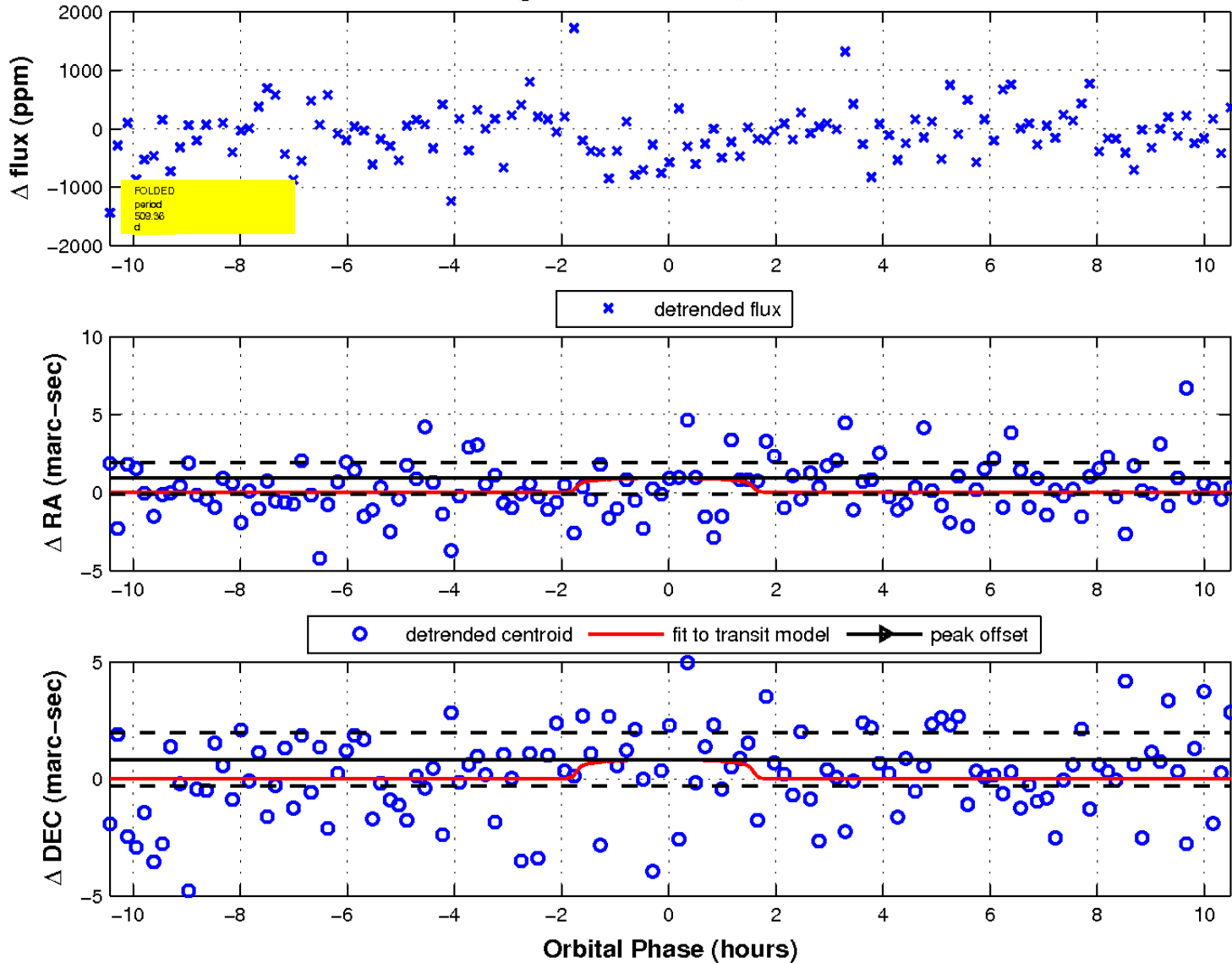
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

