

KIC 008439977

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})
008439977-01	OBS	No	364.872059	186.799413	434.8	22.632	7.8	7.0	1.17	6190	2.45	1.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008439977-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

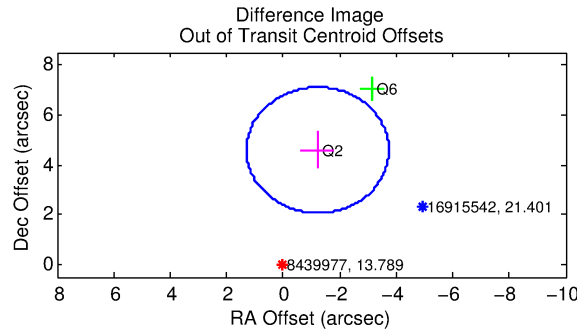
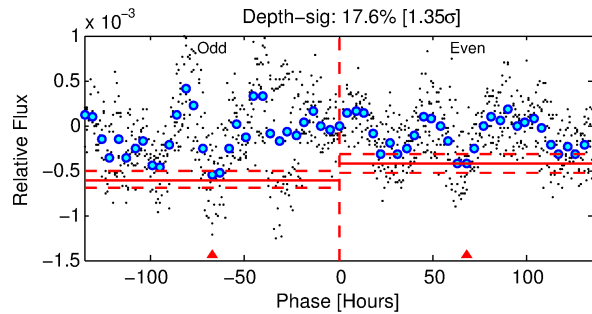
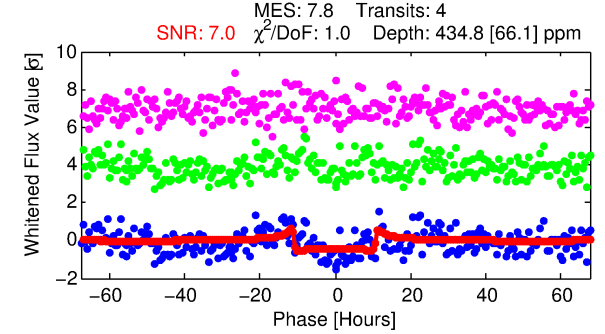
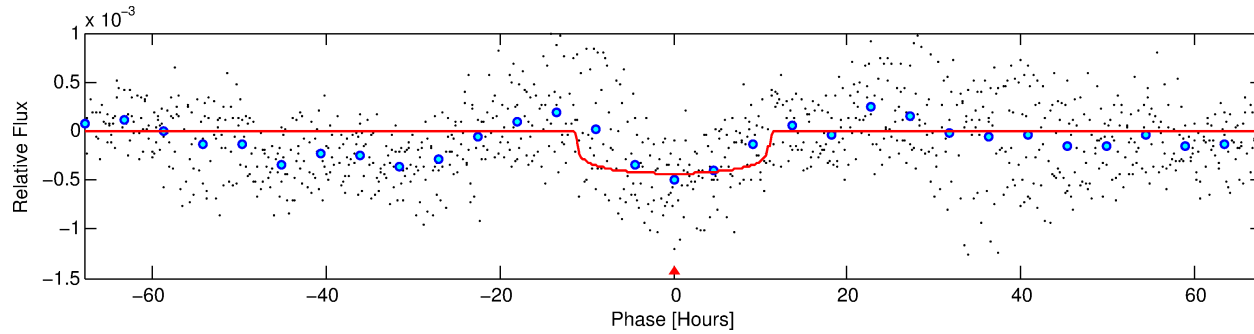
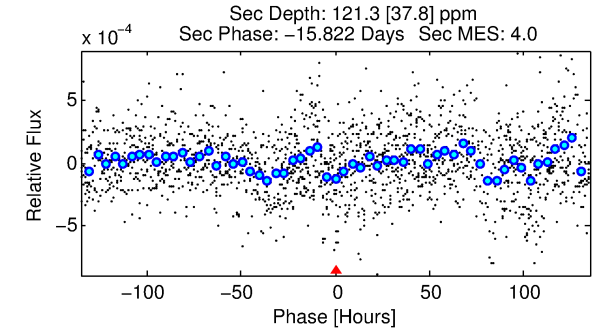
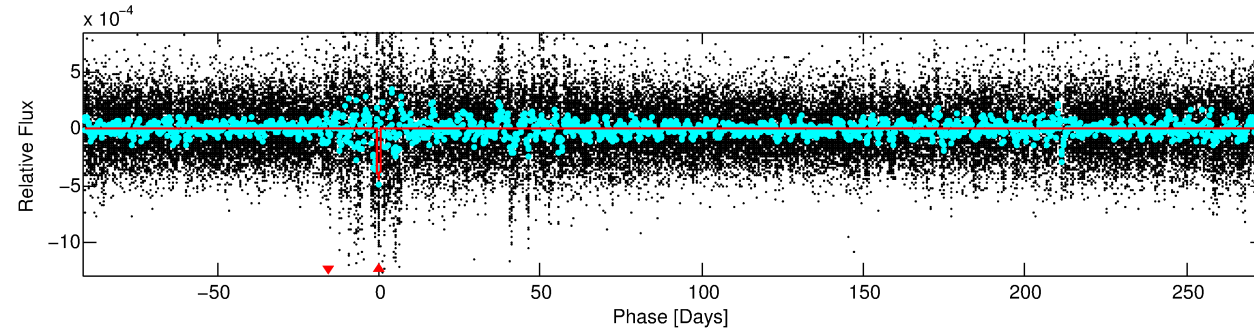
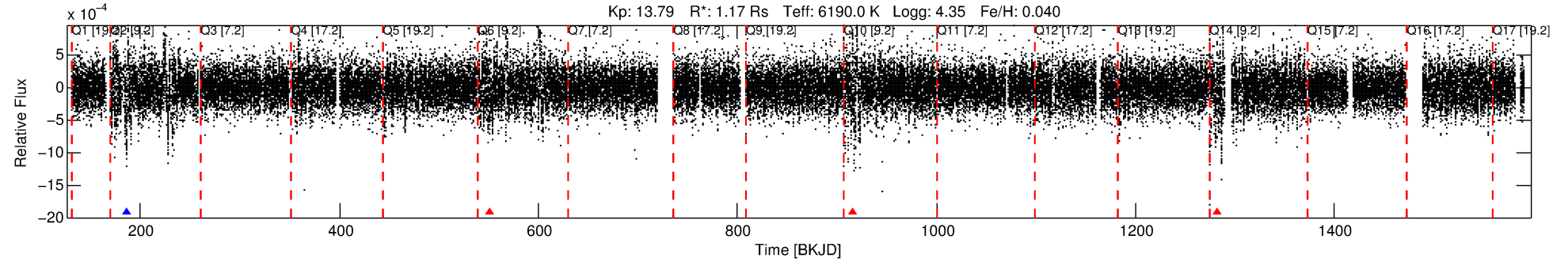
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008439977-01

No Significant Match Found

DV One-Page Summary

KIC: 8439977 Candidate: 1 of 1 Period: 364.872 d



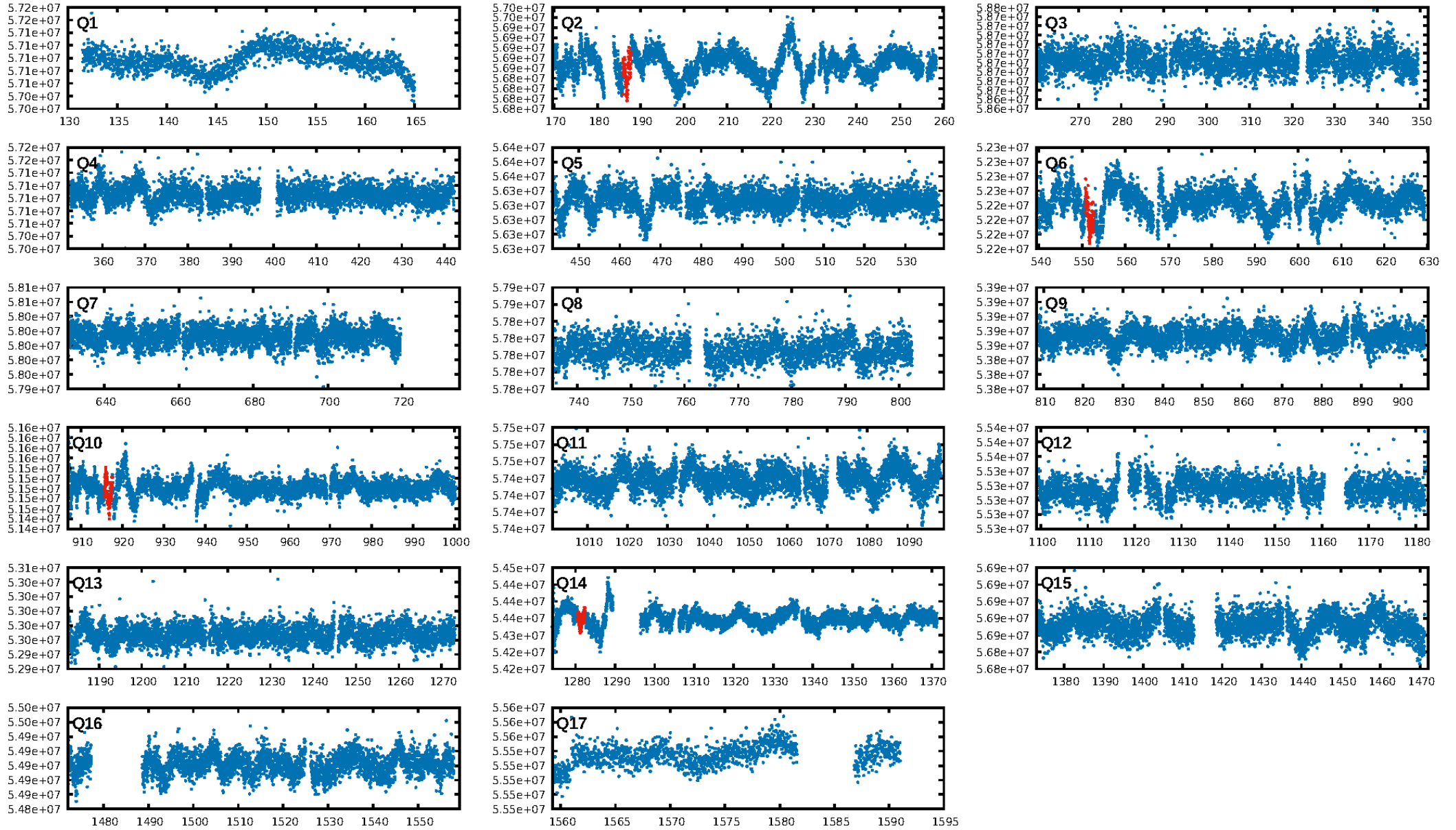
DV Fit Results:

Period = 364.87206 [0.00785] d
Epoch = 186.7994 [0.0141] BKJD
Rp/R* = 0.0193 [0.0067]
a/R* = 119.32 [195.03]
b = 0.32 [4.66]
Seff = 1.67 [0.71]
Teq = 290 [31] K
Rp = 2.45 [1.19] Re
a = 1.0344 [0.2857] AU
Ag = 11888.15 [10198.96] [1.17 σ]
Teffp = 4679 [914] K [4.80 σ]

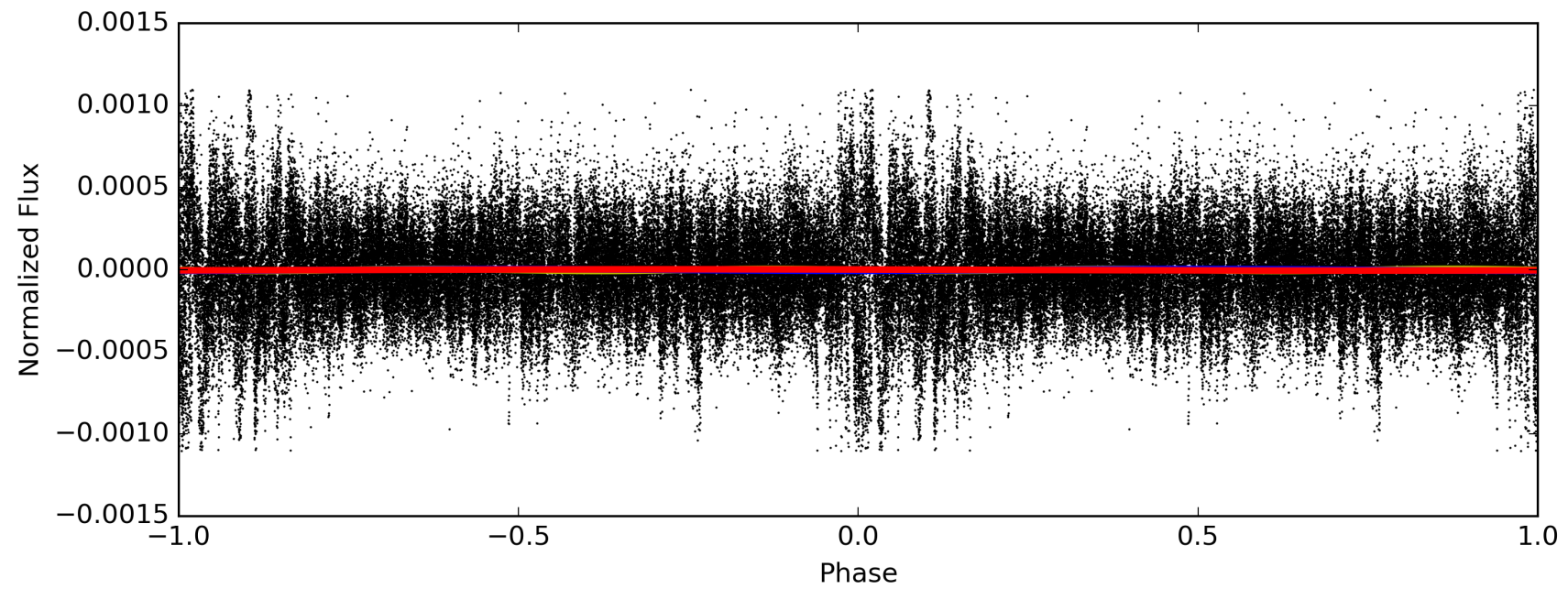
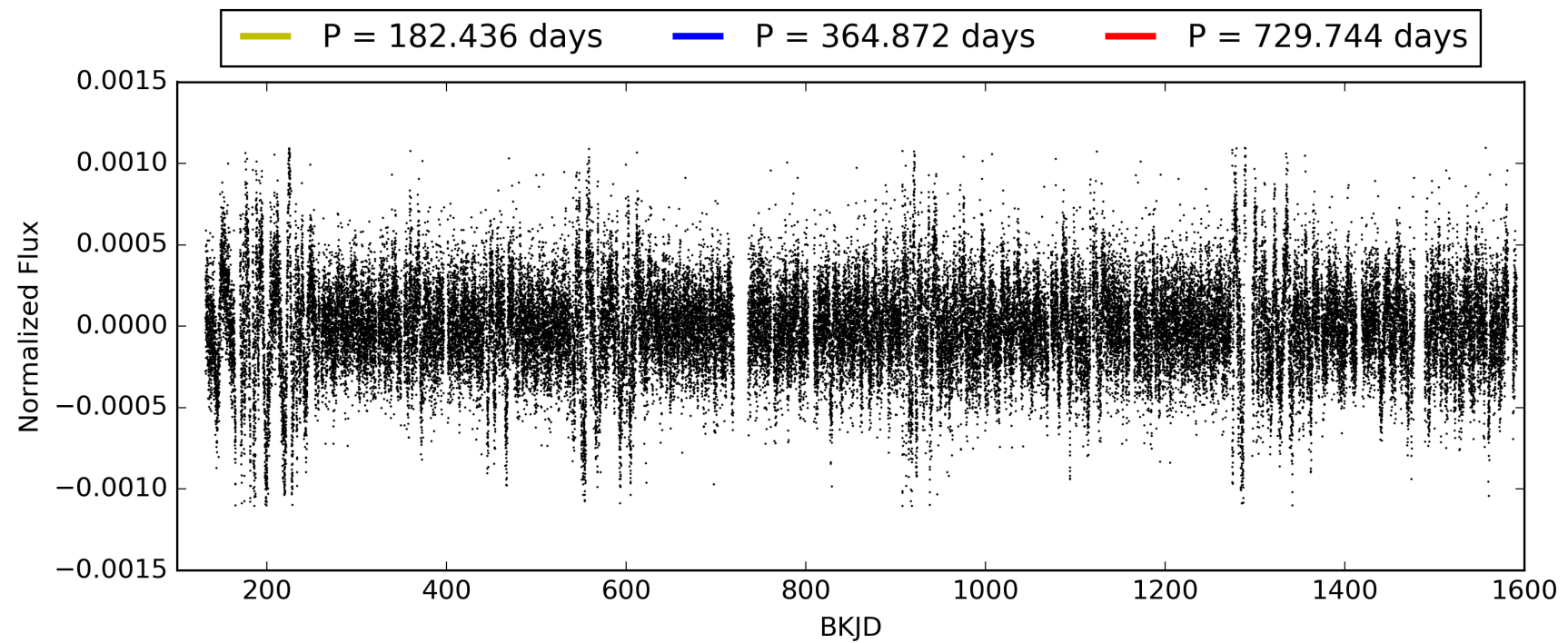
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 86.4%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 4.27e-11
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: 3.005
Centroid-sig: 0.0%
Centroid-so: 8.522 arcsec [3.65 σ]
OotOffset-rm: 4.739 arcsec [5.64 σ]
KicOffset-rm: 5.252 arcsec [4.09 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008439977-01, PDC Light Curves

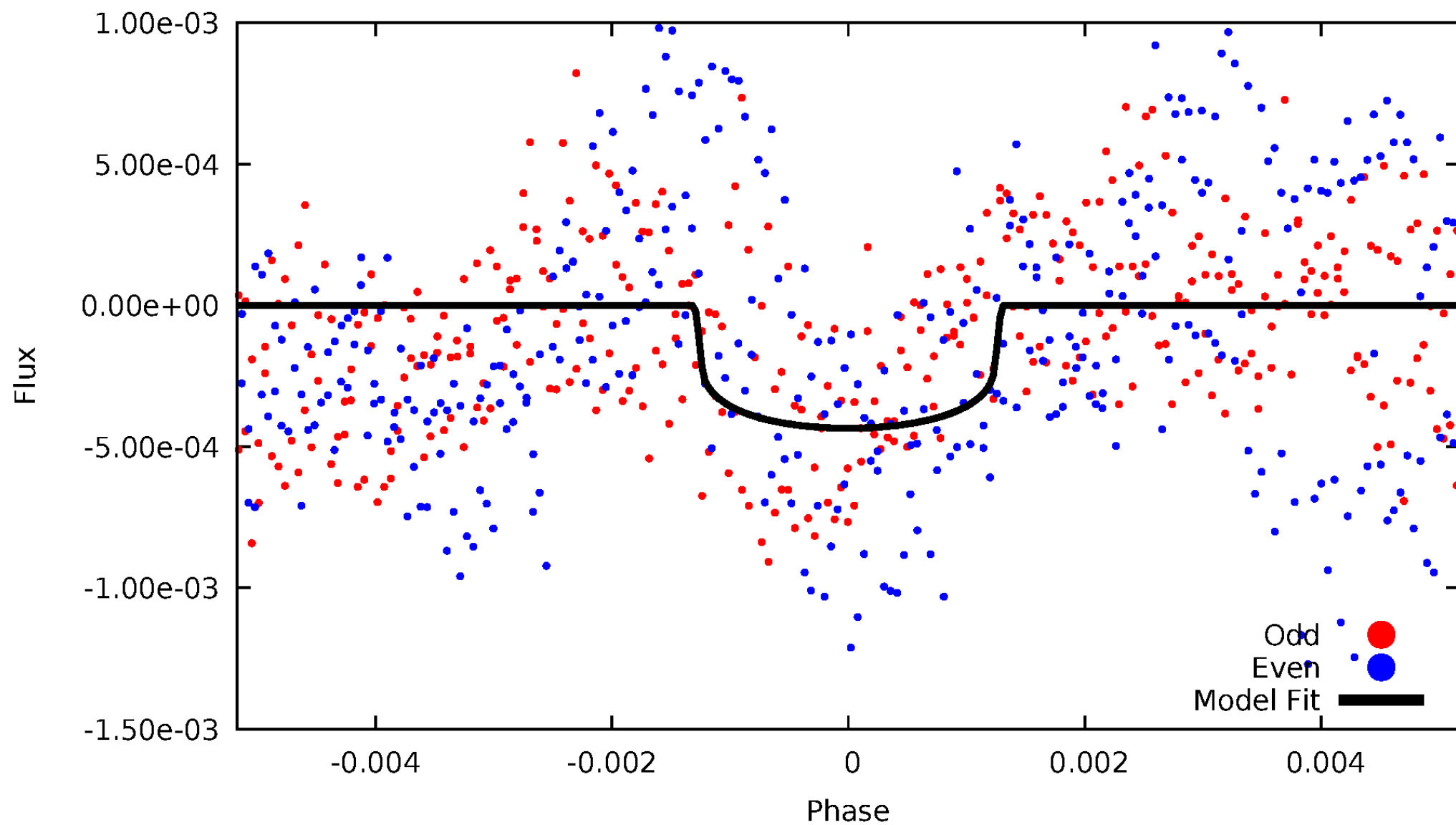


TCE 008439977-01



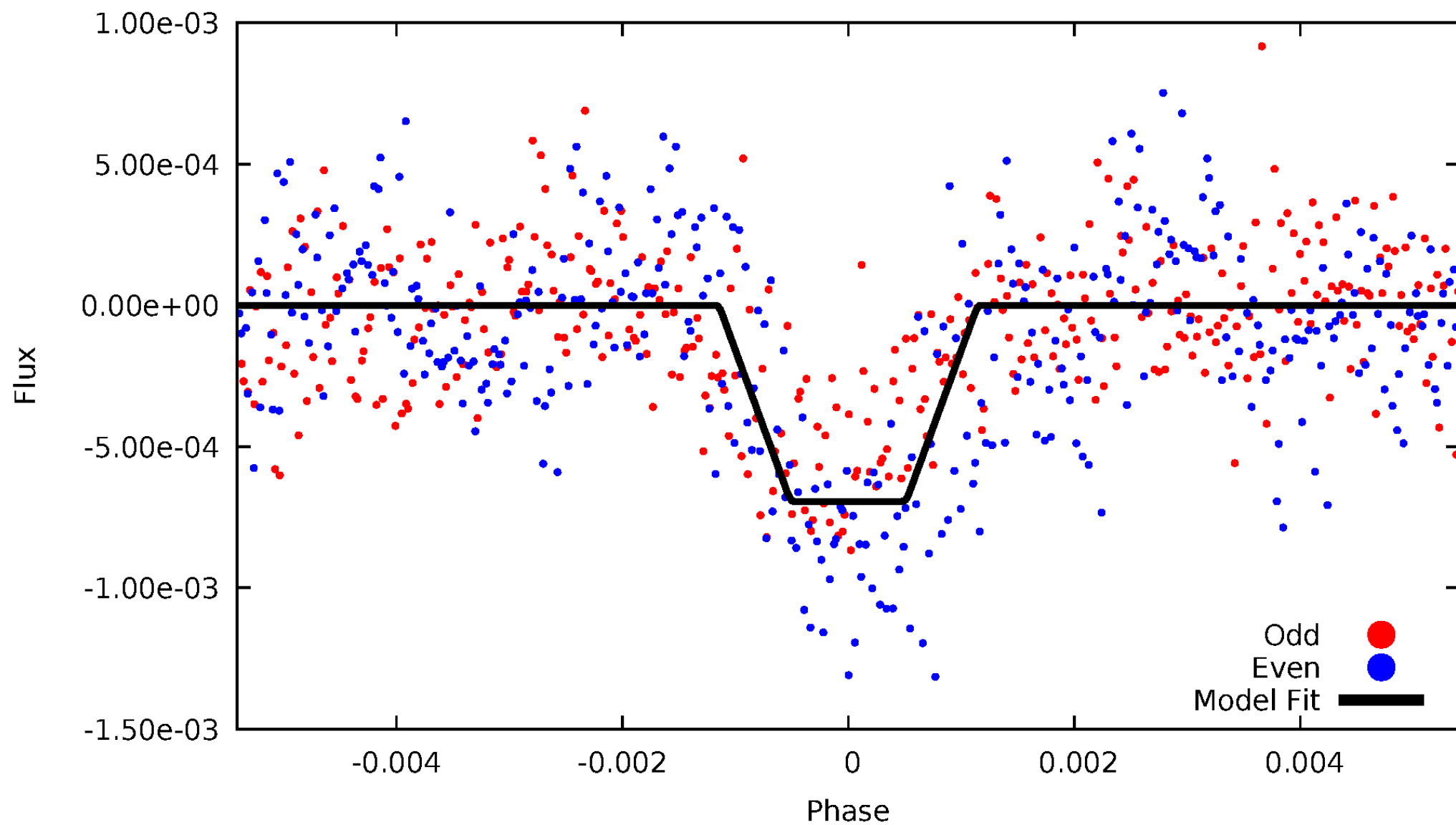
DV Odd/Even

TCE 008439977-01



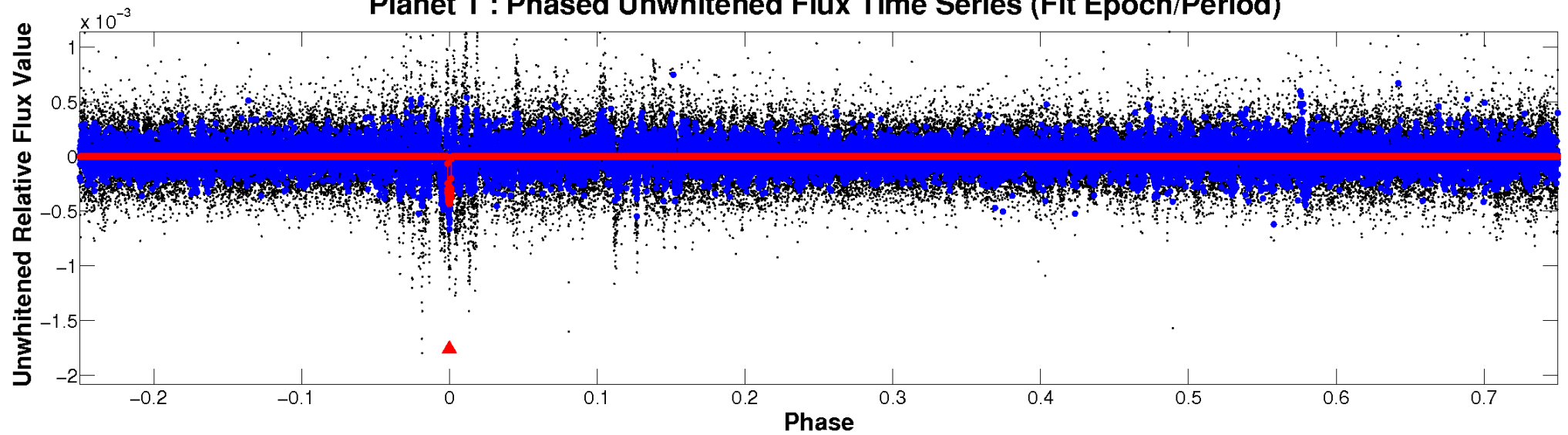
ALT Odd/Even

TCE 008439977-01

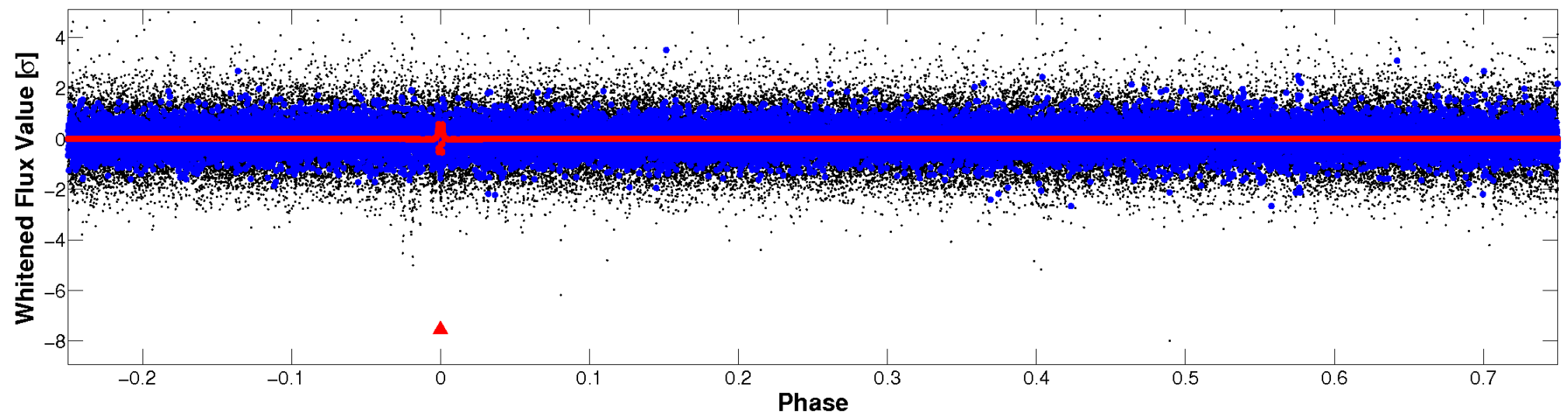


Non-Whitened Vs. Whitened Light Curve

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

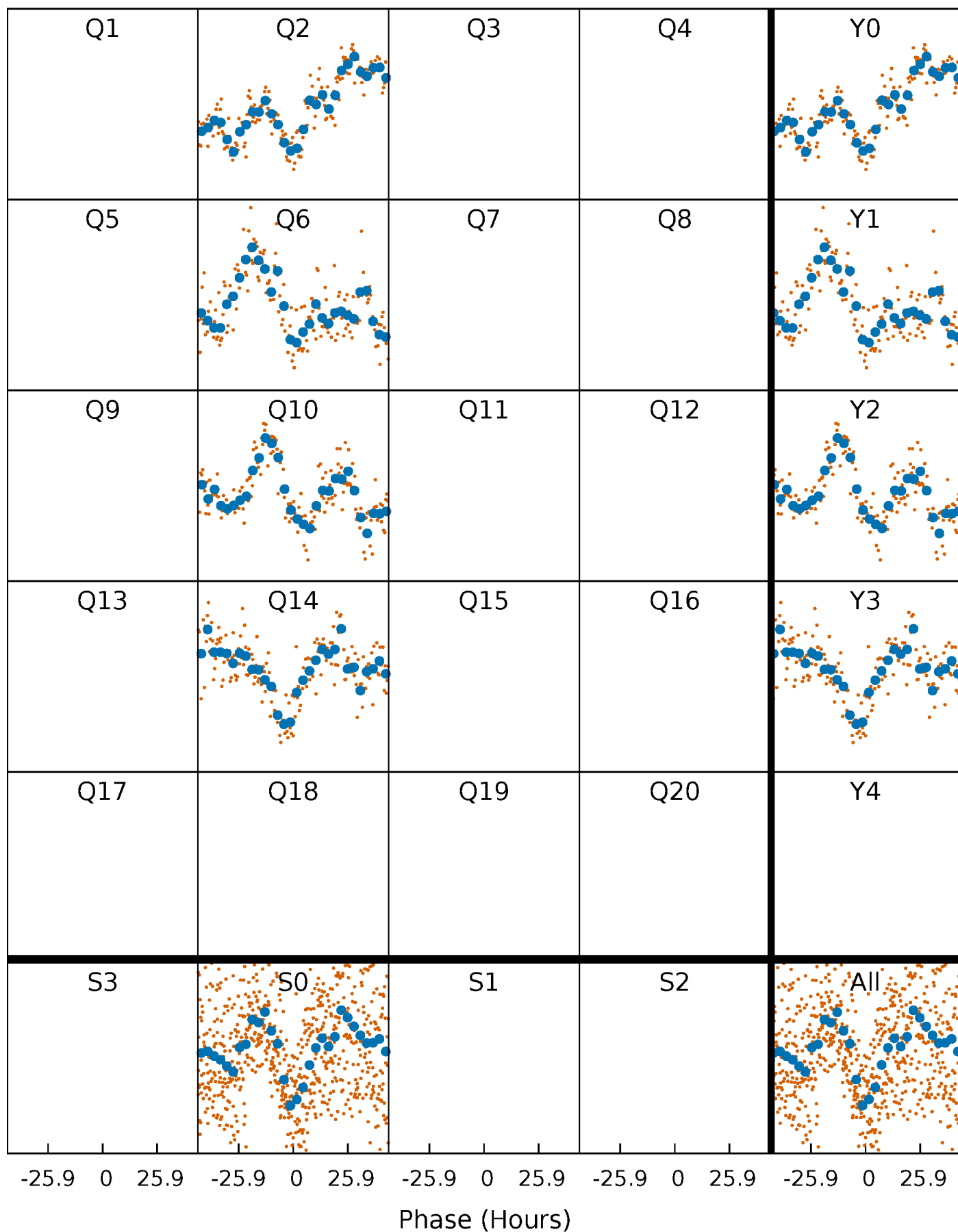


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



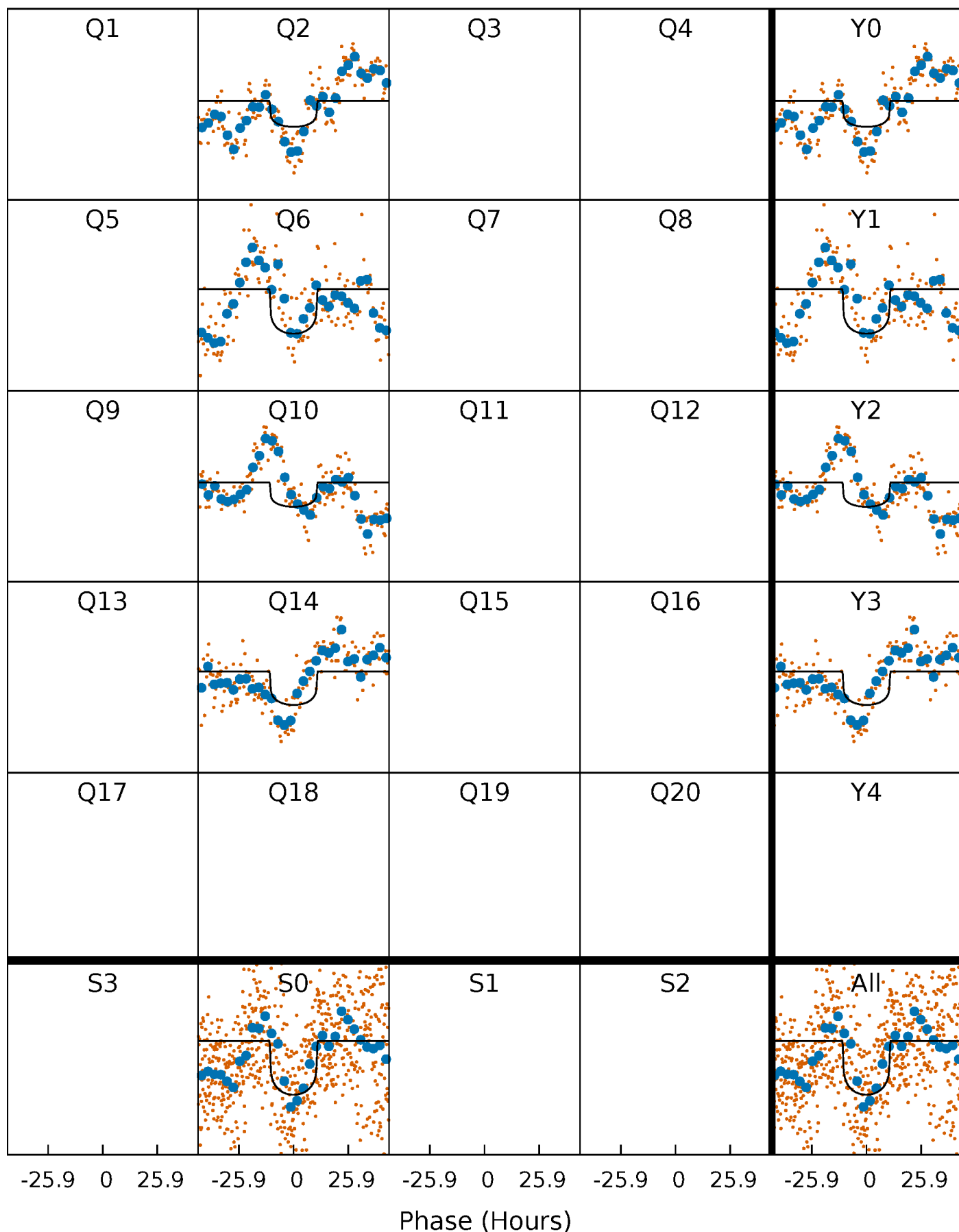
PDC Quarter-Phased Transit Curves

TCE 008439977-01 P=364.872059 Days $T_0=186.799413$ (BKJD)



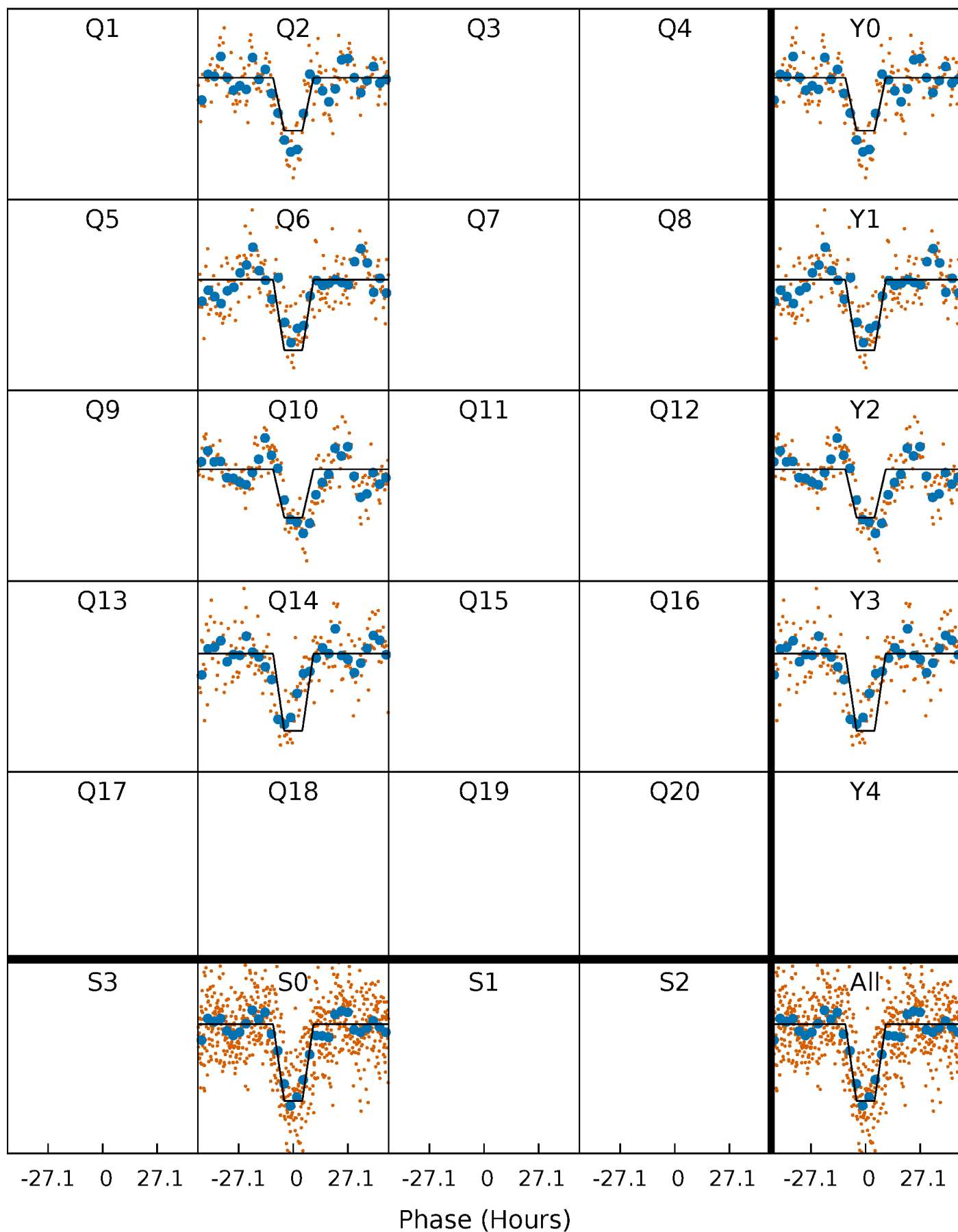
DV Quarter-Phased Transit Curves

TCE 008439977-01 P=364.872059 Days $T_0=186.799413$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

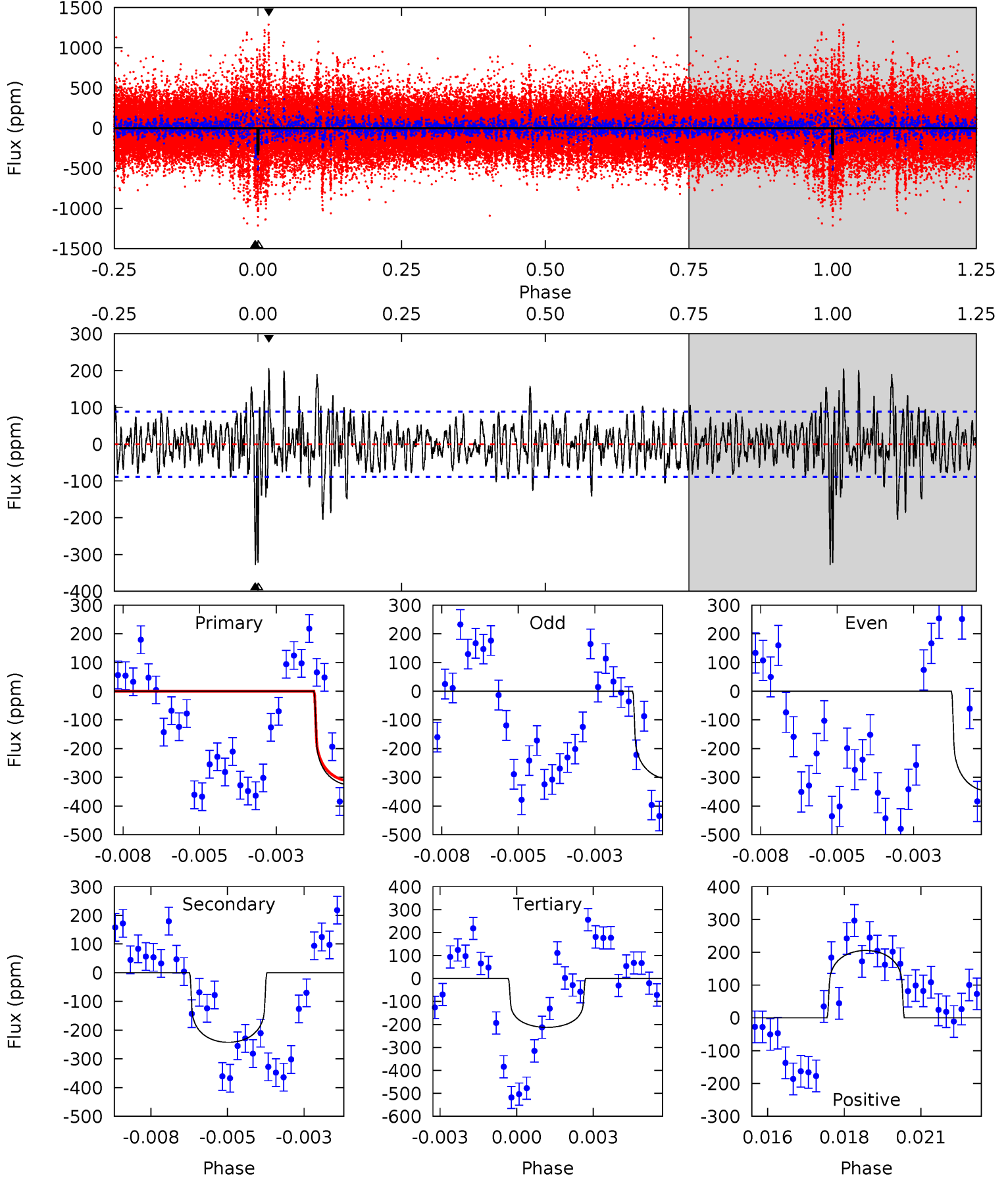
TCE 008439977-01 $P=364.875270$ Days $T_0=186.806600$ (BKJD)



DV Model-Shift Uniqueness Test

008439977-01, P = 364.872059 Days, E = 186.799413 Days

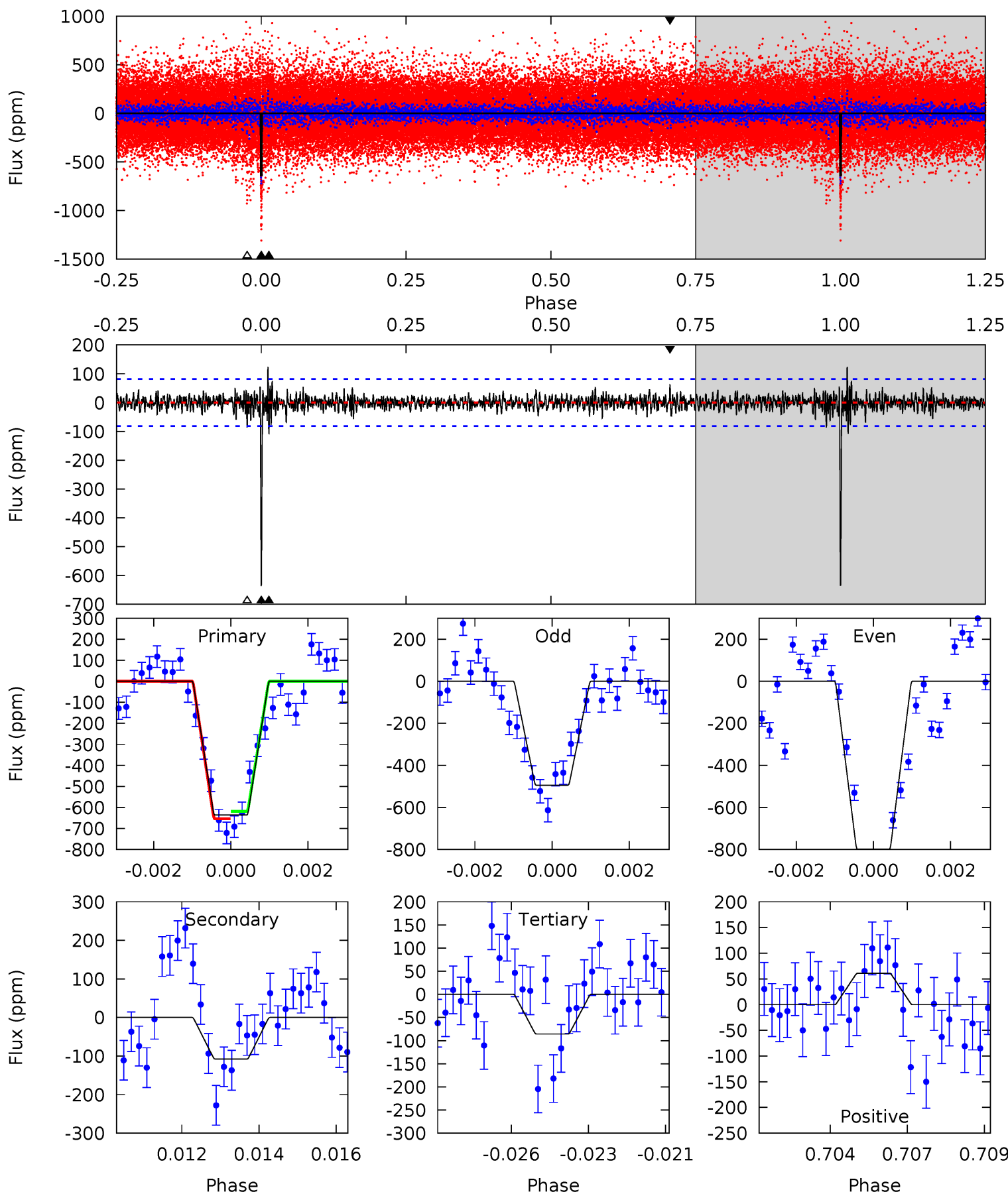
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	14.4	12.7	12.2	5.28	3.01	3.06	6.86	7.31	1.76	2.21	1.25	1.07	0.38	1.30



Alt Model-Shift Uniqueness Test

008439977-01, P = 364.875270 Days, E = 186.806600 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.2	6.97	5.55	3.95	5.30	3.04	1.11	35.6	37.2	1.43	3.02	9.96	1.03	0.16	1.15



Stellar Parameters For KIC 008439977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6190^{+195}_{-260}	$4.350^{+0.090}_{-0.210}$	$0.040^{+0.250}_{-0.300}$	$1.165^{+0.392}_{-0.168}$	$1.106^{+0.173}_{-0.142}$	$0.986^{+0.465}_{-0.499}$
	+3%/-4%	+2%/-5%	+625%/-750%	+34%/-14%	+16%/-13%	+47%/-51%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008439977-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-242±17	$2.49^{+1.08}_{-0.85}$	412^{+32}_{-23}	5620^{+1360}_{-727}	22387^{+29552}_{-11077}
Alt.	-108±15	$3.48^{+1.01}_{-0.96}$	410^{+30}_{-25}	4138^{+534}_{-334}	5137^{+4812}_{-2026}

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

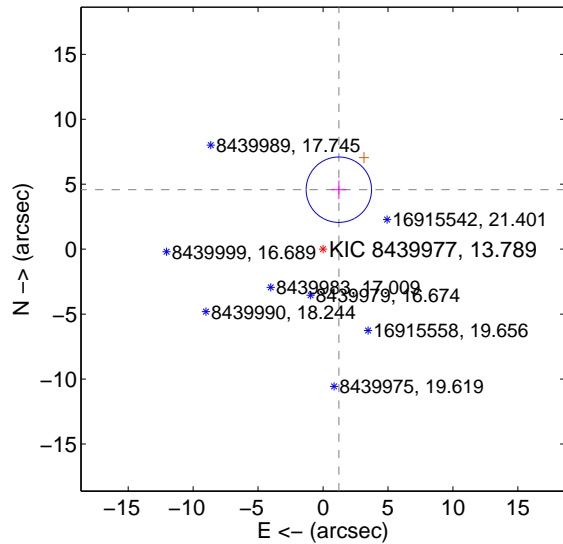
Supplemental centroid analysis for 008439977-01. Kepler magnitude: 13.79. Transit SNR 6.96

There are 1 quarters with good PRF difference image offsets

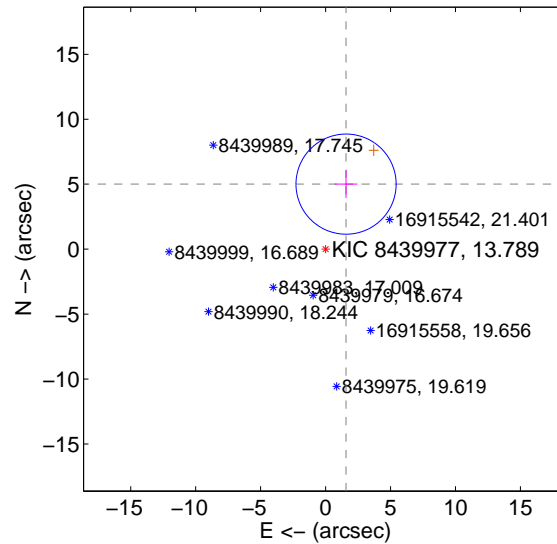
The direct PRF centroid is offset from the target star catalog position by about 0.80 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.739 \pm 0.840	5.64	-1.217 \pm 0.567	4.580 \pm 0.719
PRF-fit source offset from KIC position	5.252 \pm 1.285	4.09	-1.578 \pm 0.879	5.010 \pm 1.072
photometric centroid source offset	8.52 \pm 2.34	3.65	-6.73 \pm 2.37	5.23 \pm 2.27

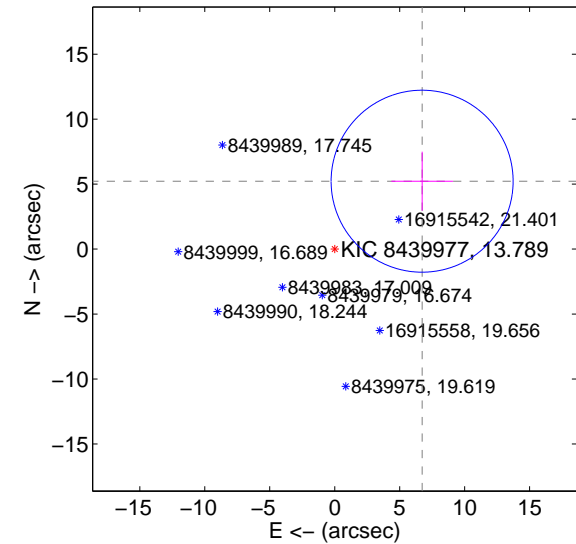
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

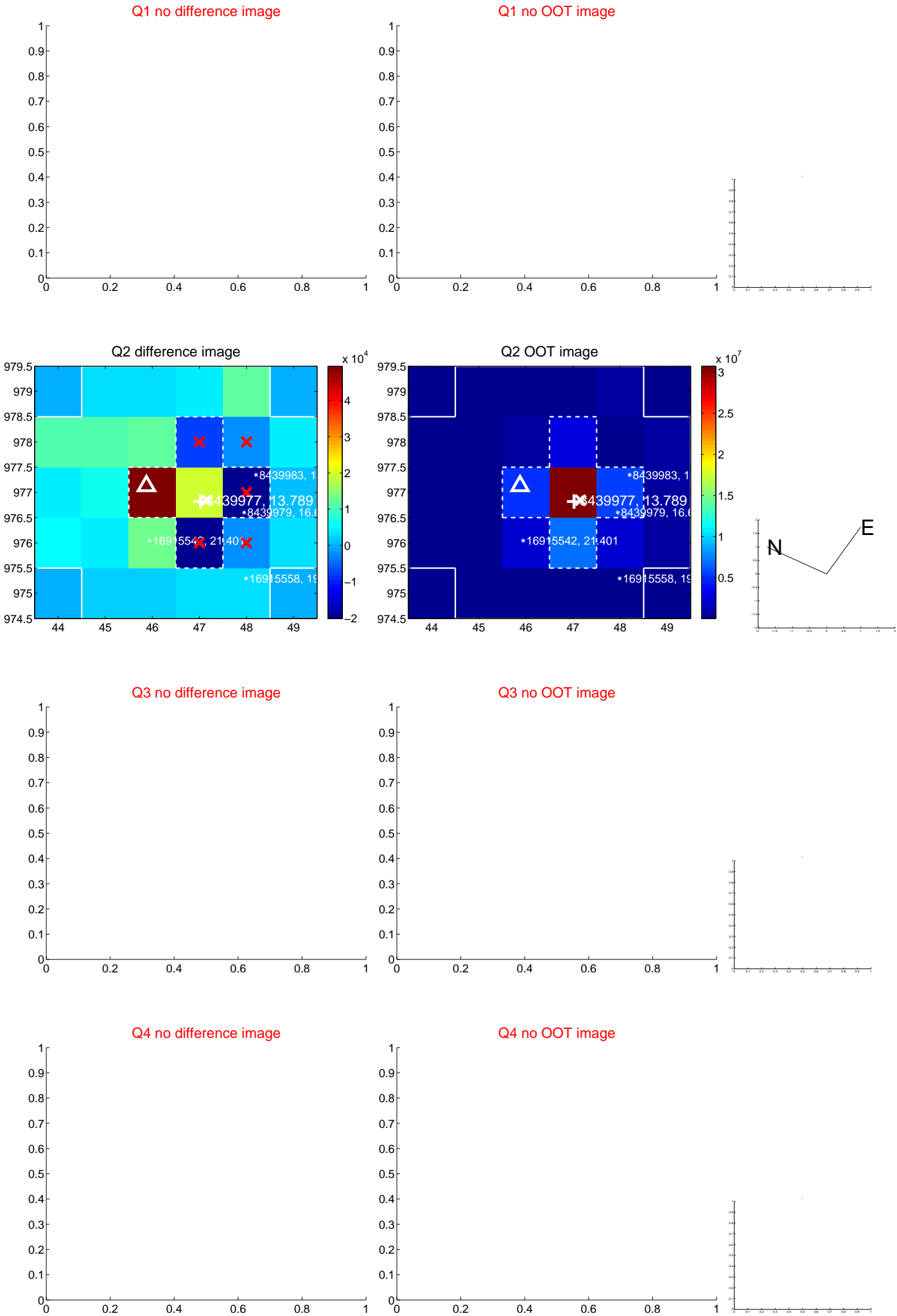


offset from photometric centroids

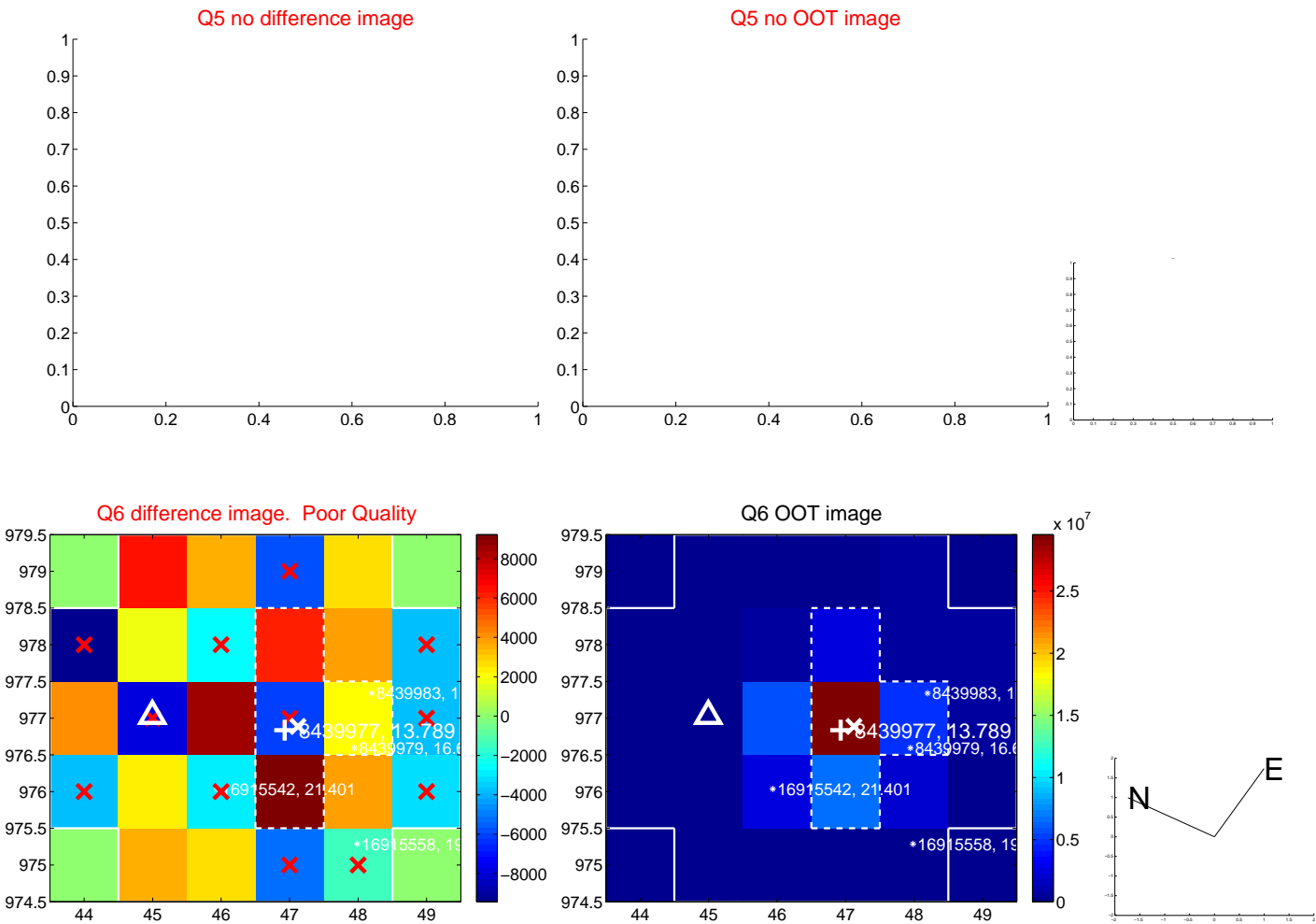


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

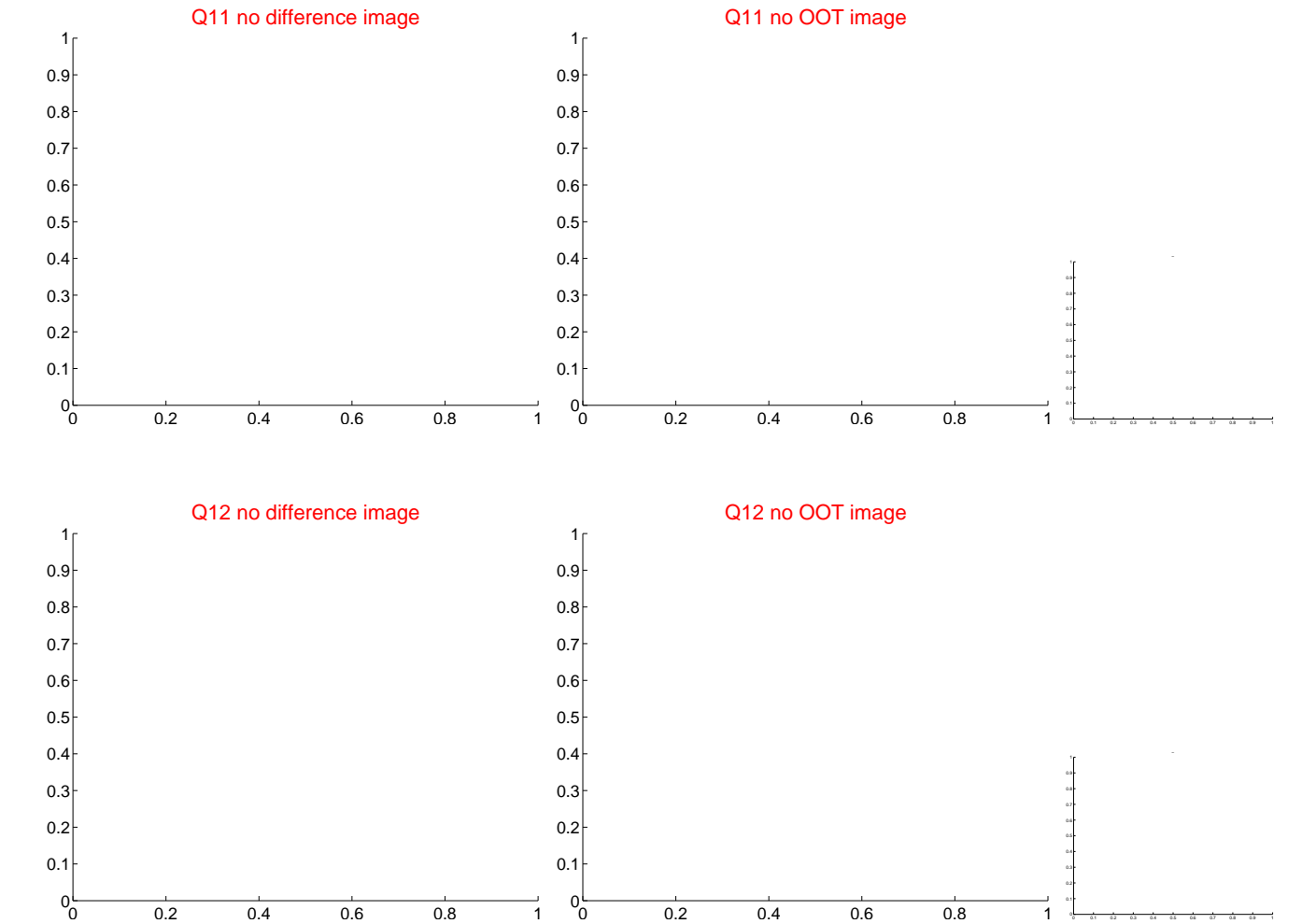
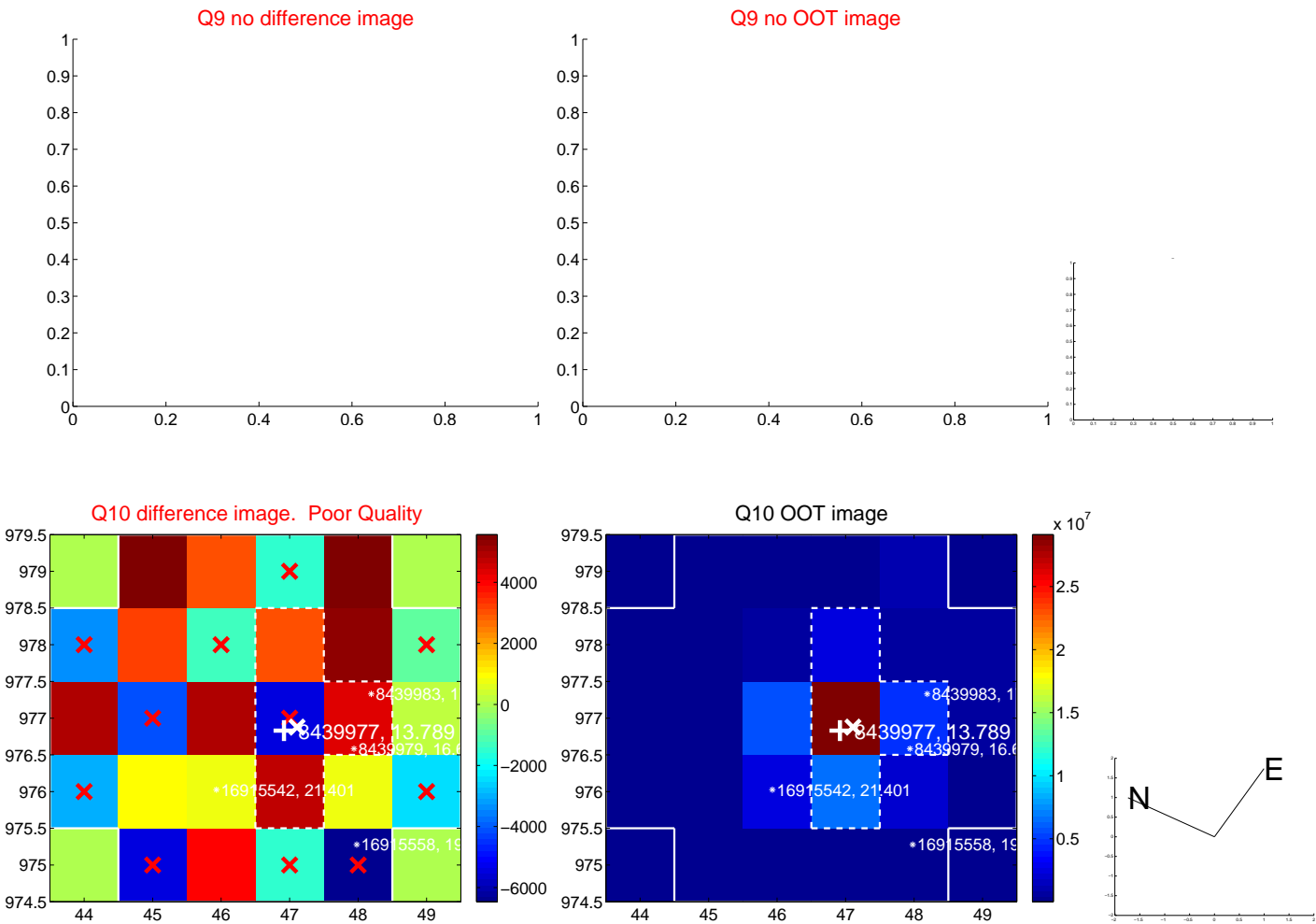
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



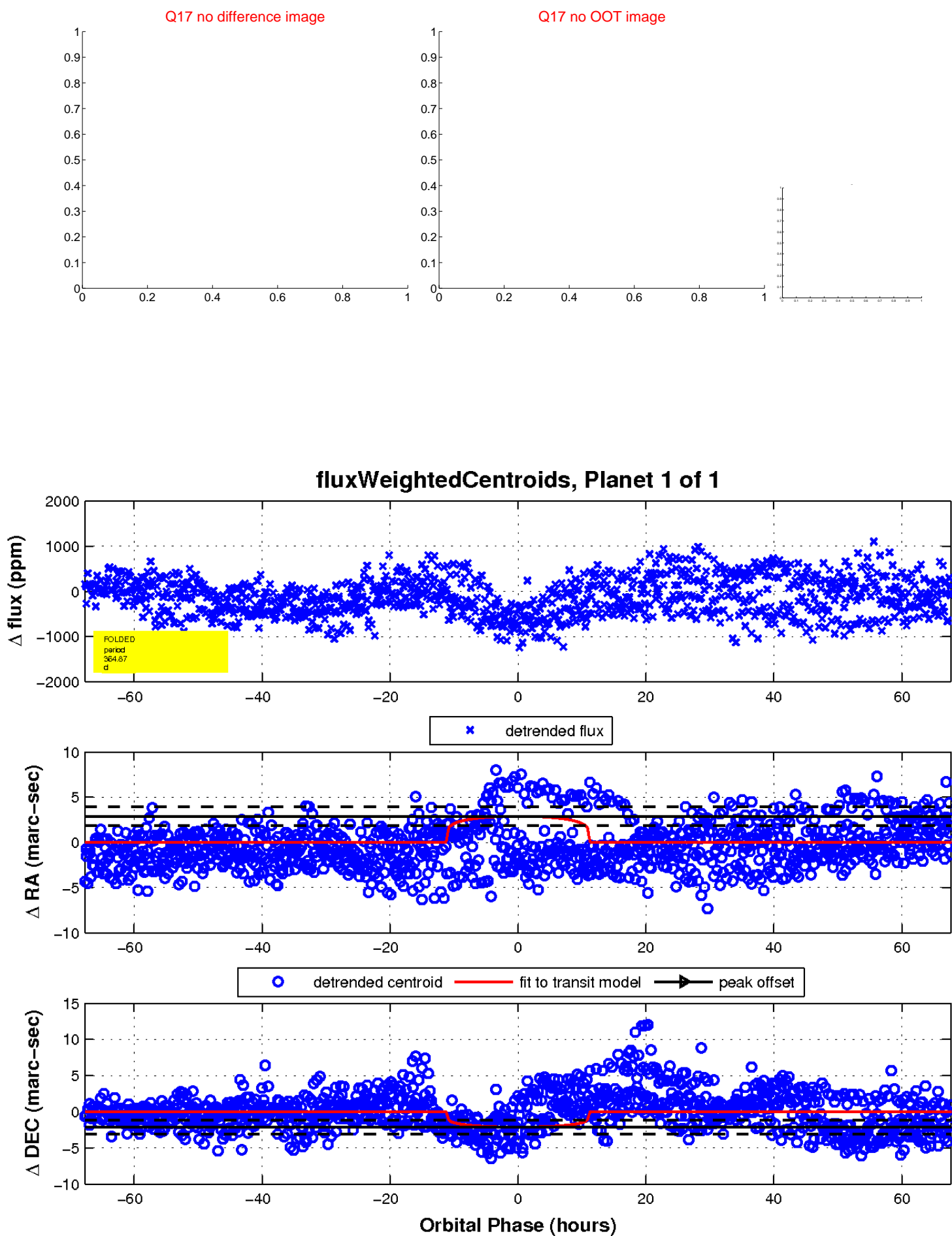
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

Declination

