

KIC 008870938

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})
008870938-01	OBS	No	627.002341	281.741001	403.5	17.700	8.0	4.1	0.83	5365	1.74	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008870938-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

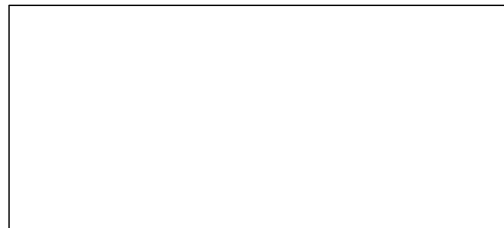
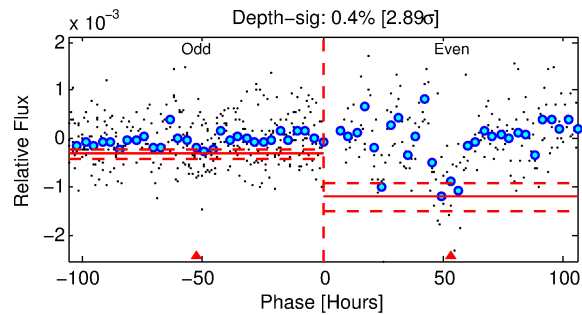
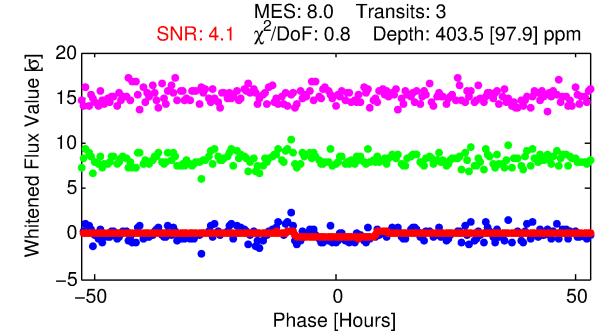
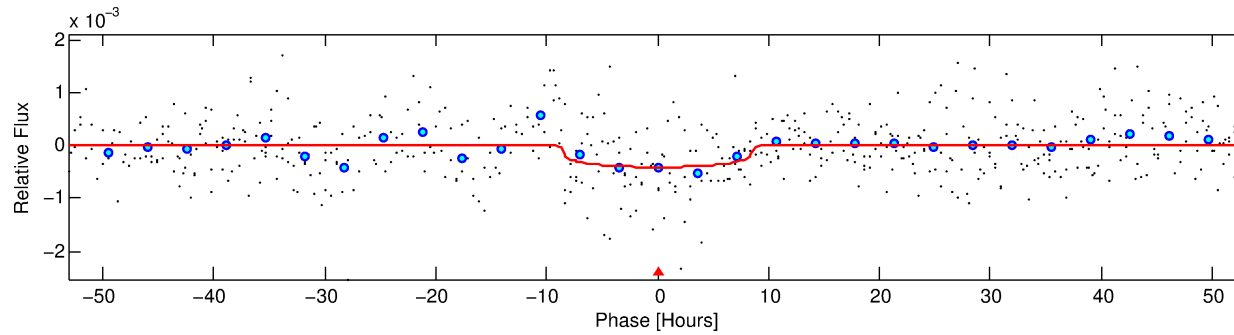
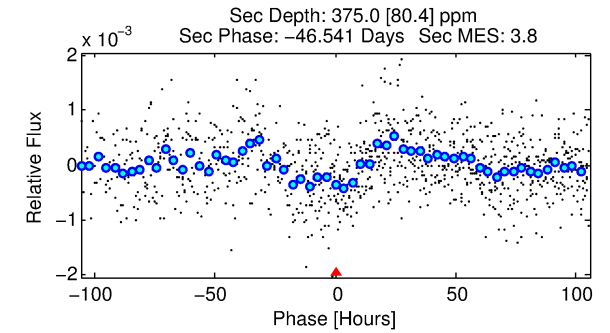
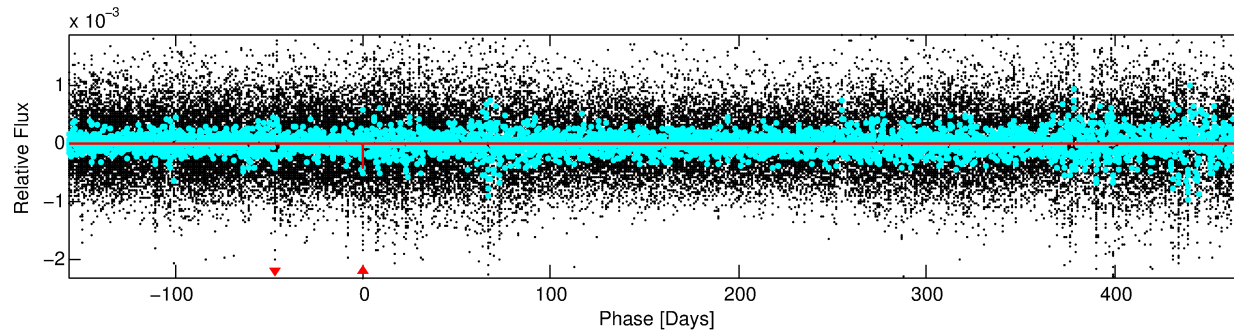
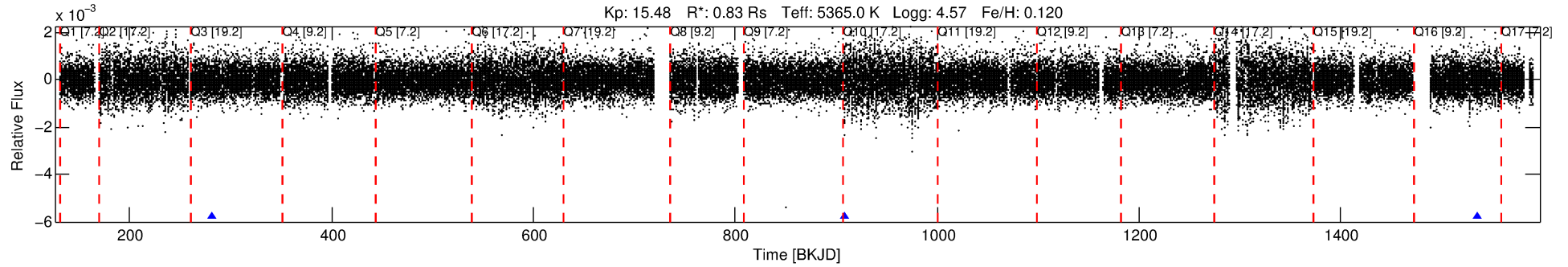
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008870938-01

No Significant Match Found

DV One-Page Summary

KIC: 8870938 Candidate: 1 of 1 Period: 627.002 d



DV Fit Results:

Period = 627.00234 [0.02666] d
Epoch = 281.7410 [0.0358] BKJD
Rp/R* = 0.0193 [0.0129]
a/R* = 214.23 [536.83]
b = 0.64 [2.31]
Seff = 0.26 [0.07]
Teq = 182 [12] K
Rp = 1.74 [1.22] Re
a = 1.4003 [0.2331] AU
Ag = 133501.22 [184267.84] [0.72σ]
Teffp = 5379 [1833] K [2.83σ]

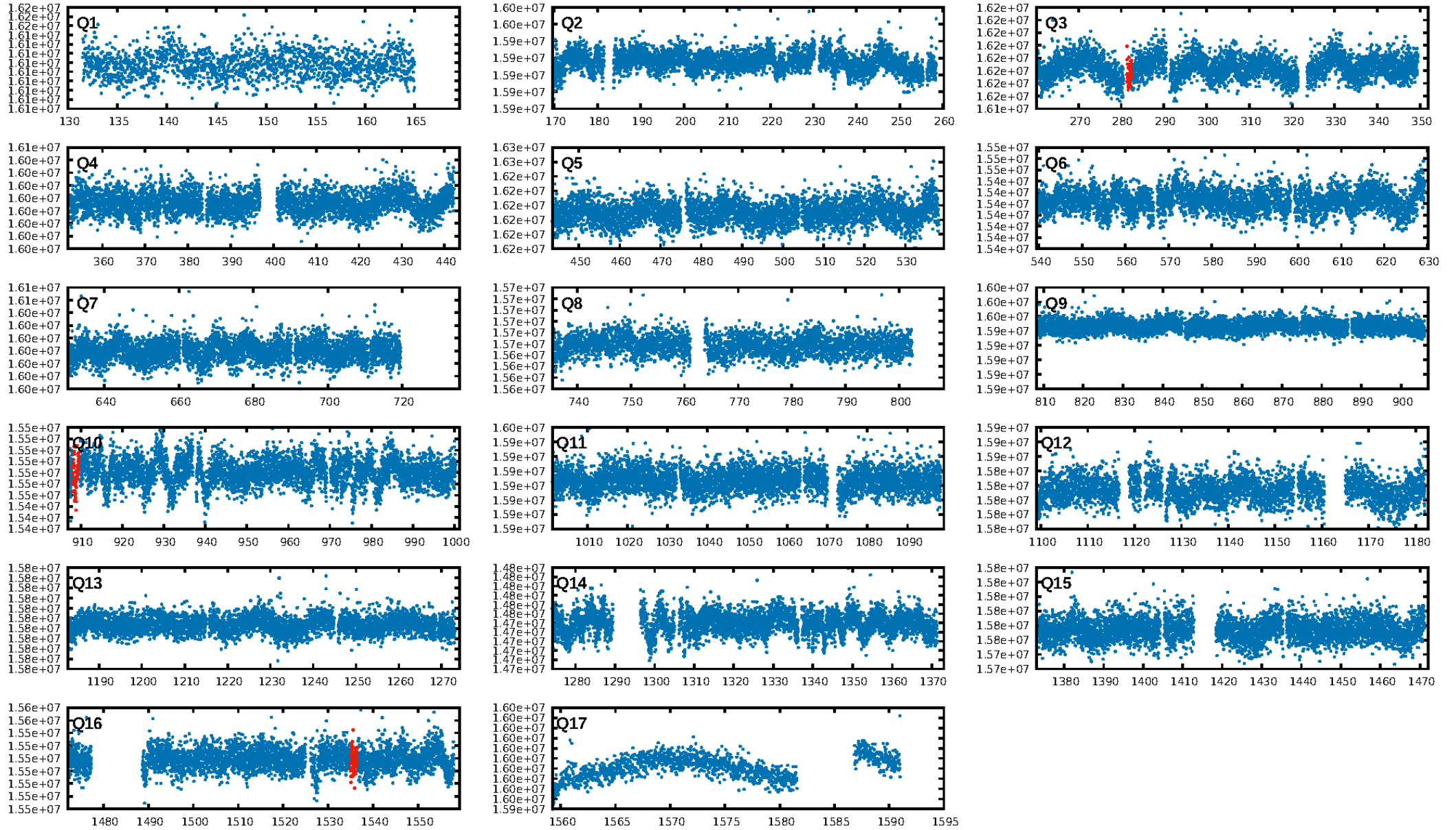
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 17.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.90e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.618
Centroid-sig: 22.1%
Centroid-so: 3.956 arcsec [1.20σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [1/1]

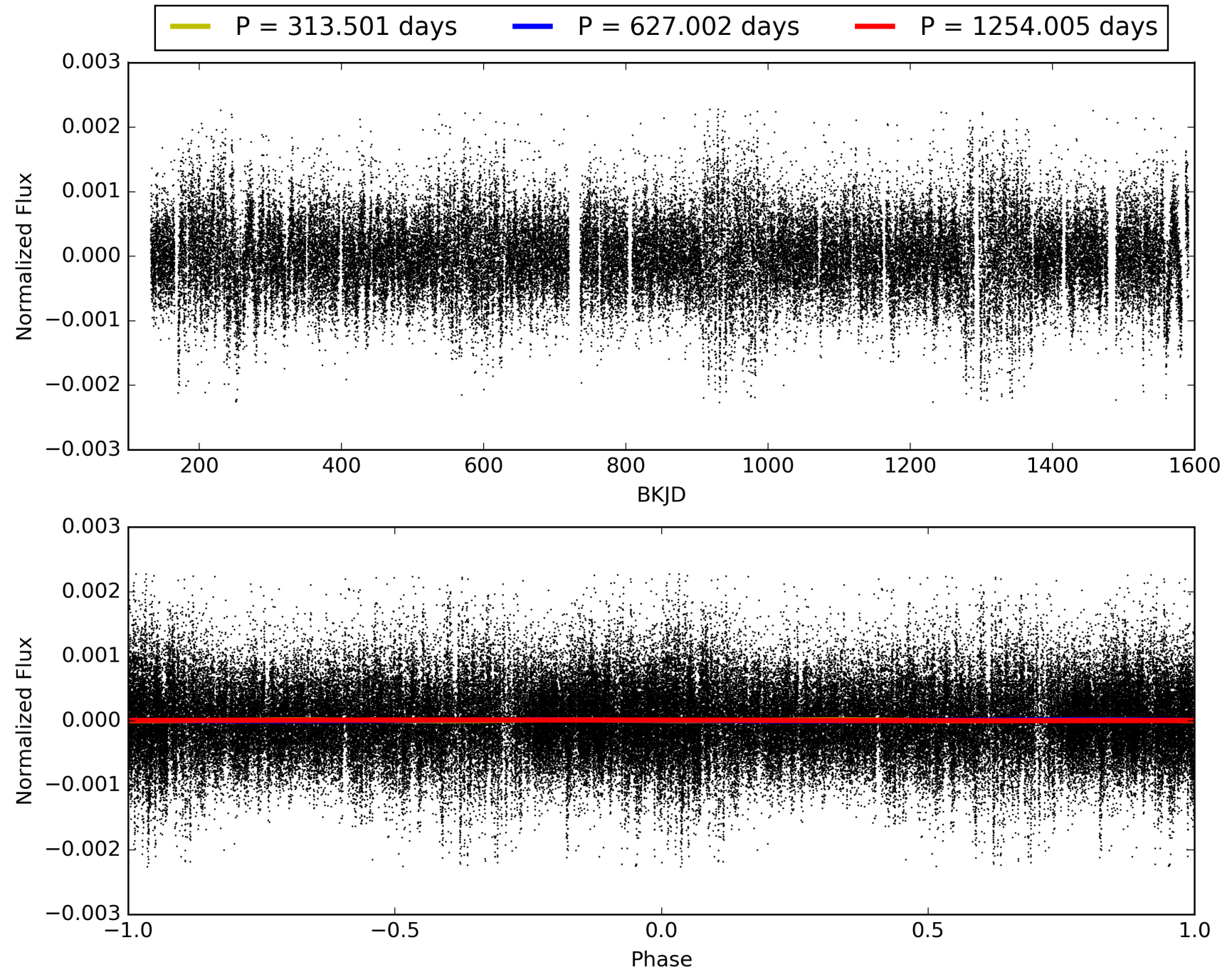
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:37:07 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008870938-01, PDC Light Curves

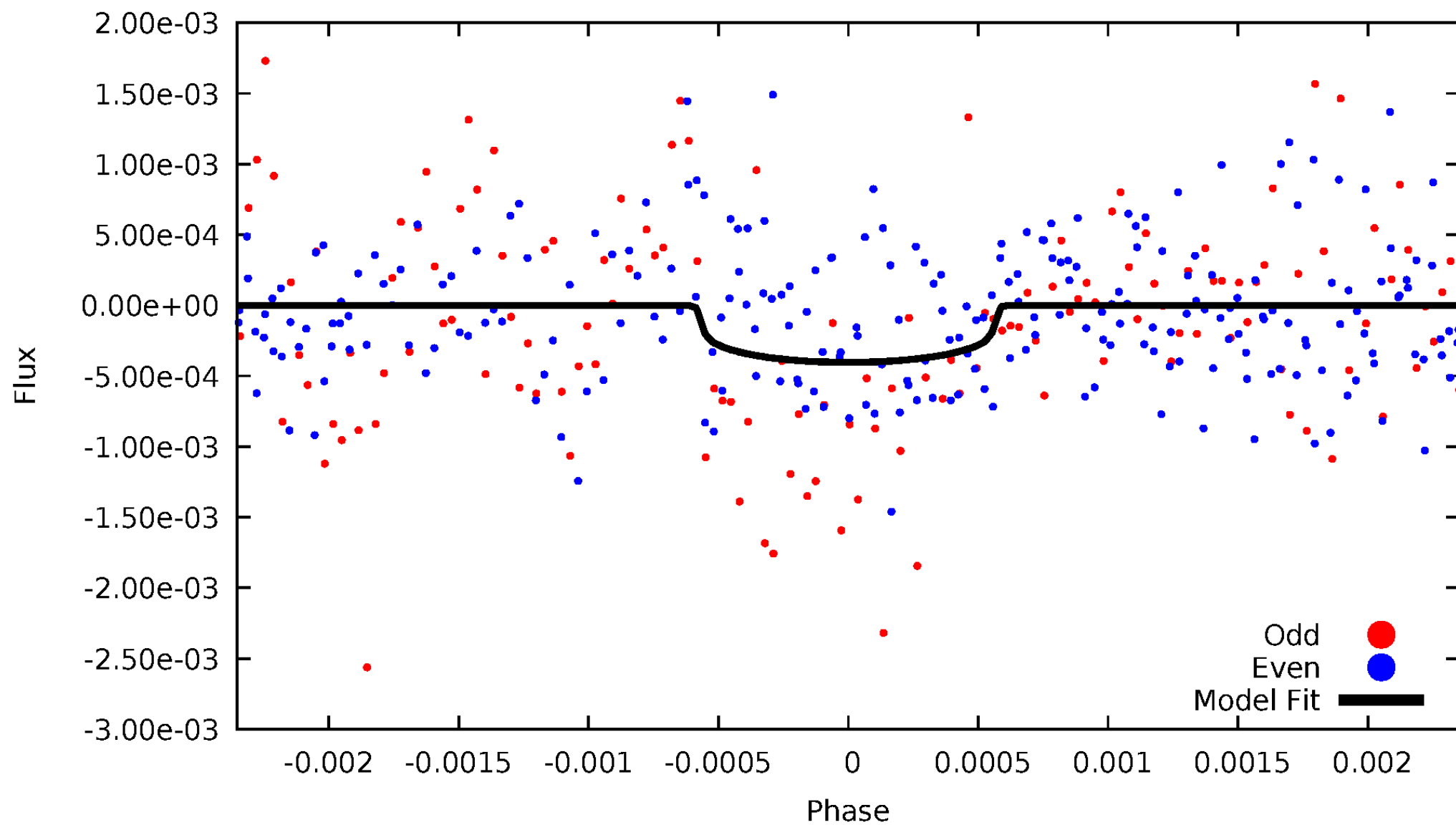


TCE 008870938-01



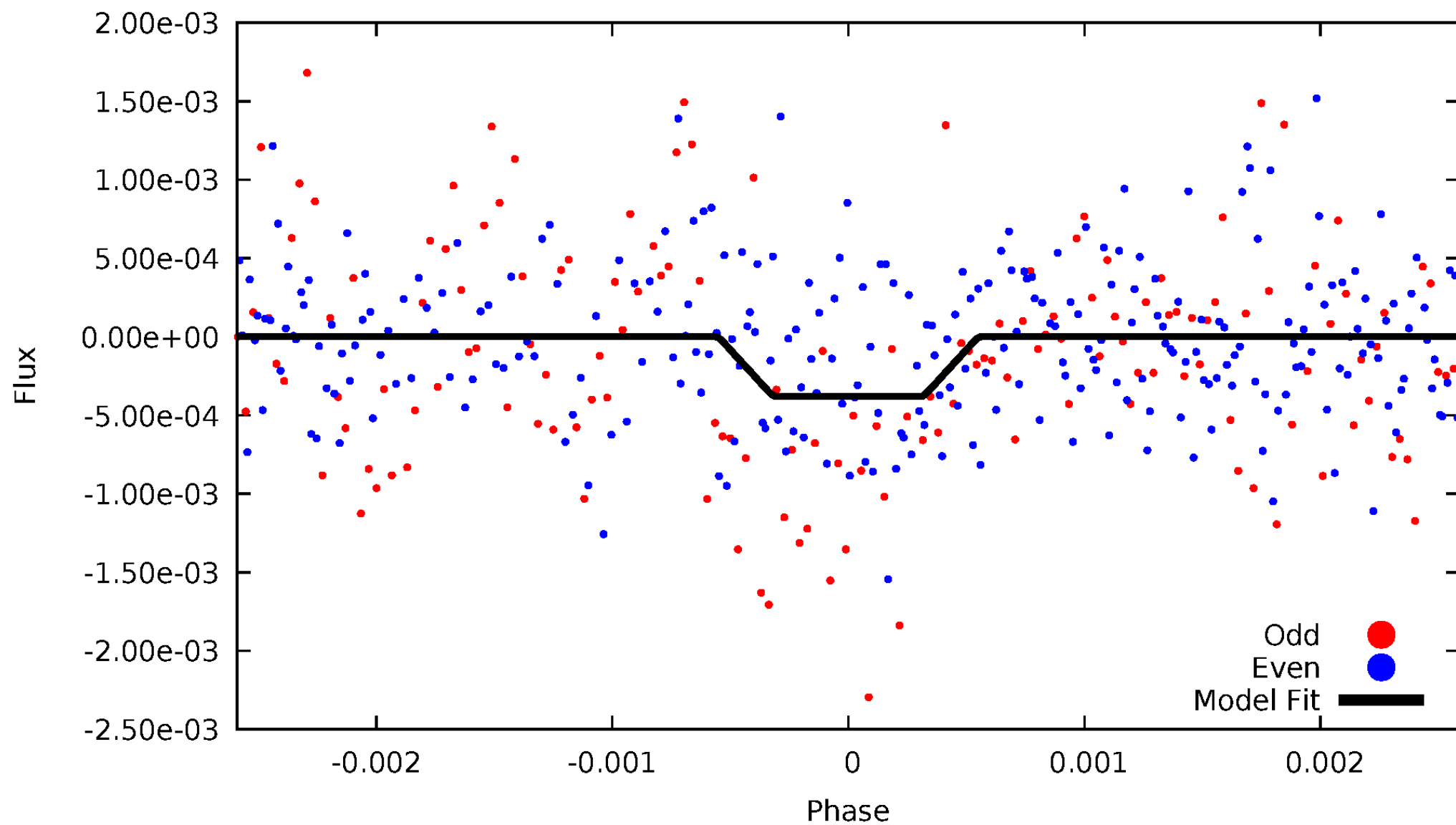
DV Odd/Even

TCE 008870938-01



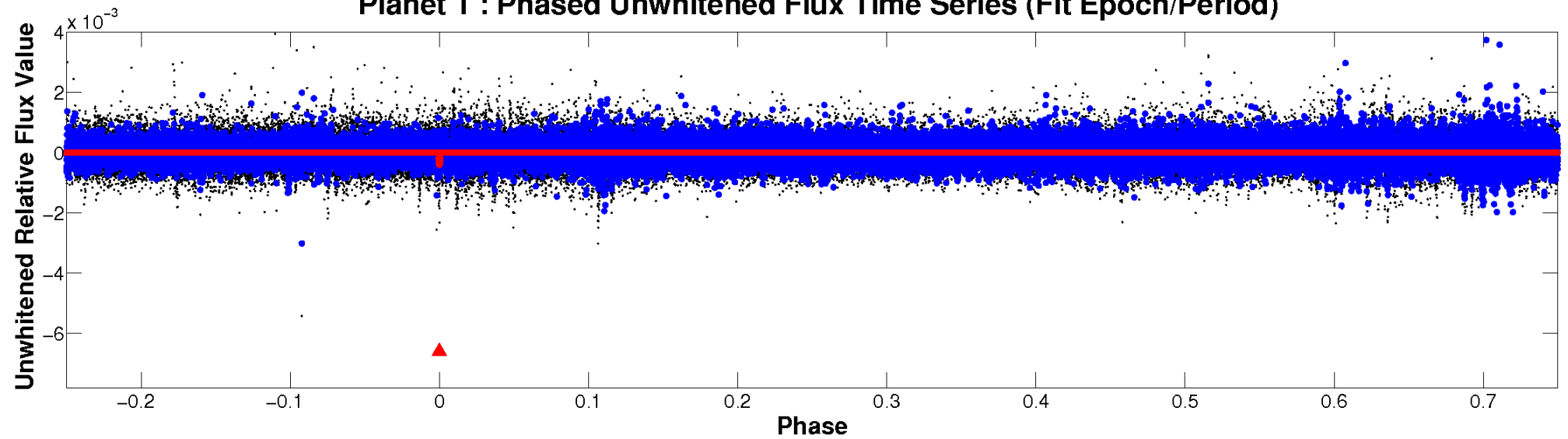
ALT Odd/Even

TCE 008870938-01

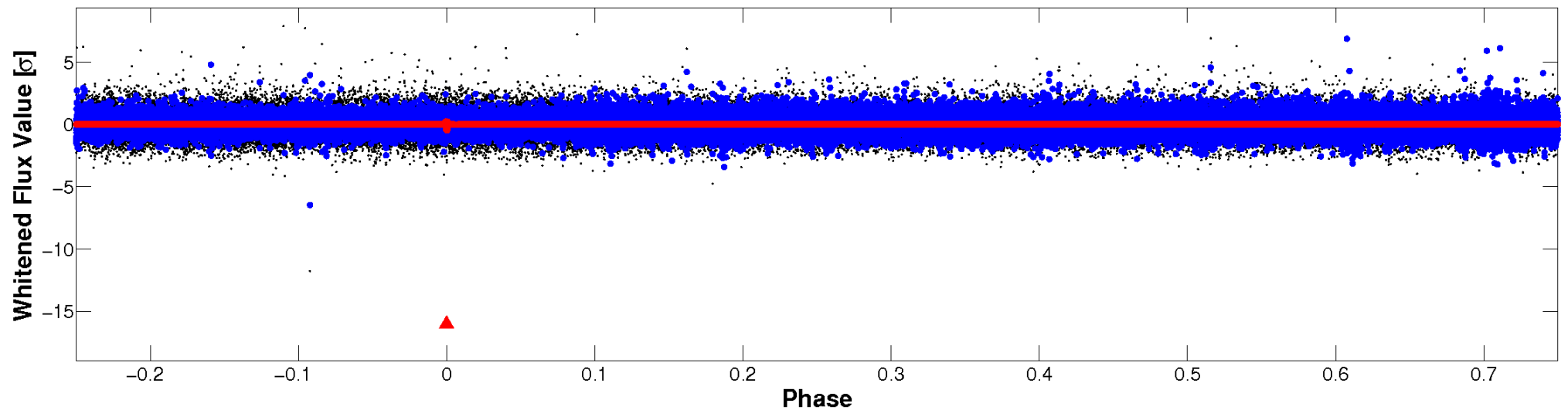


Non-Whitened Vs. Whitened Light Curve

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 008870938-01 P=627.002341 Days $T_0=281.741001$ (BKJD)



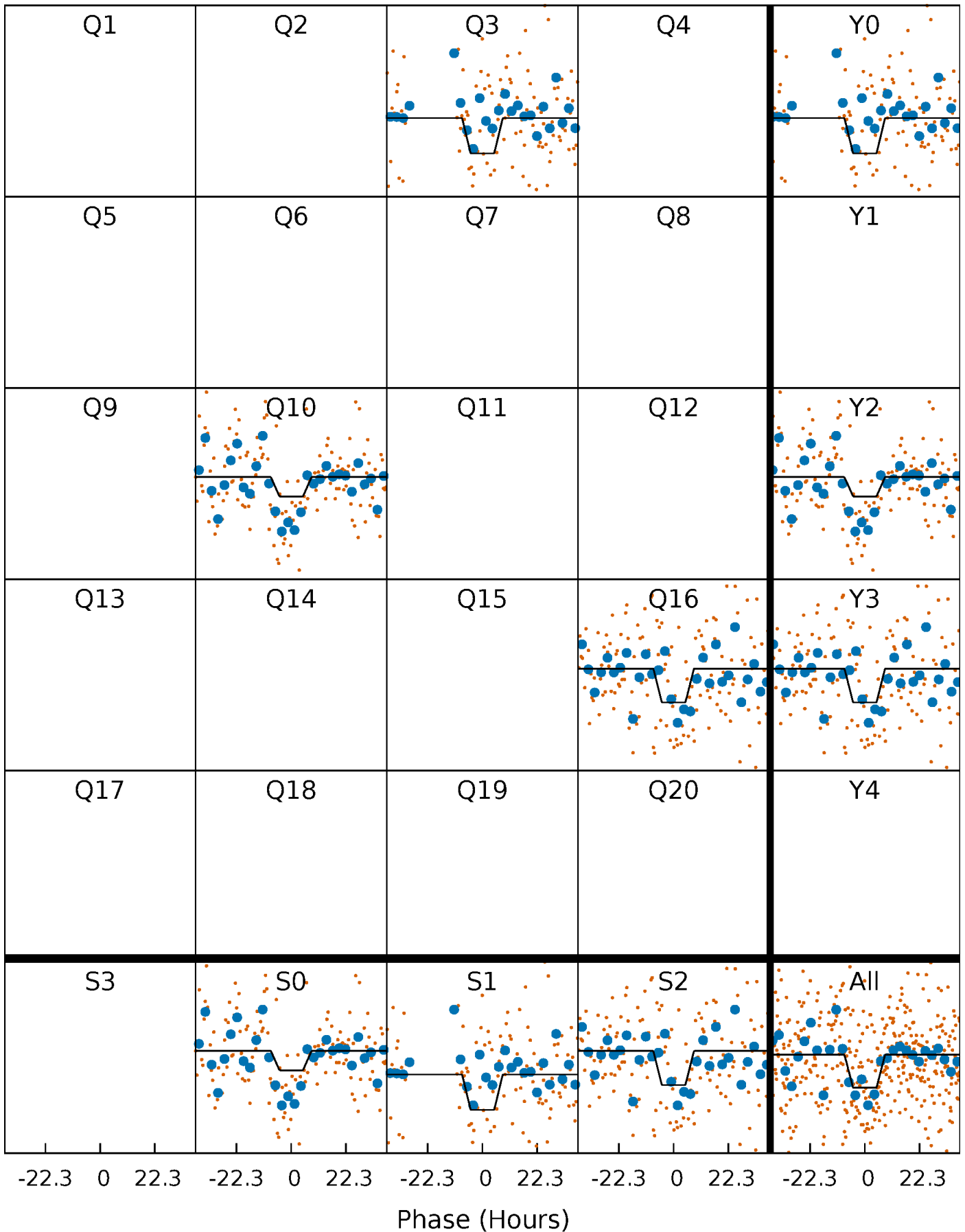
DV Quarter-Phased Transit Curves

TCE 008870938-01 P=627.002341 Days $T_0=281.741001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

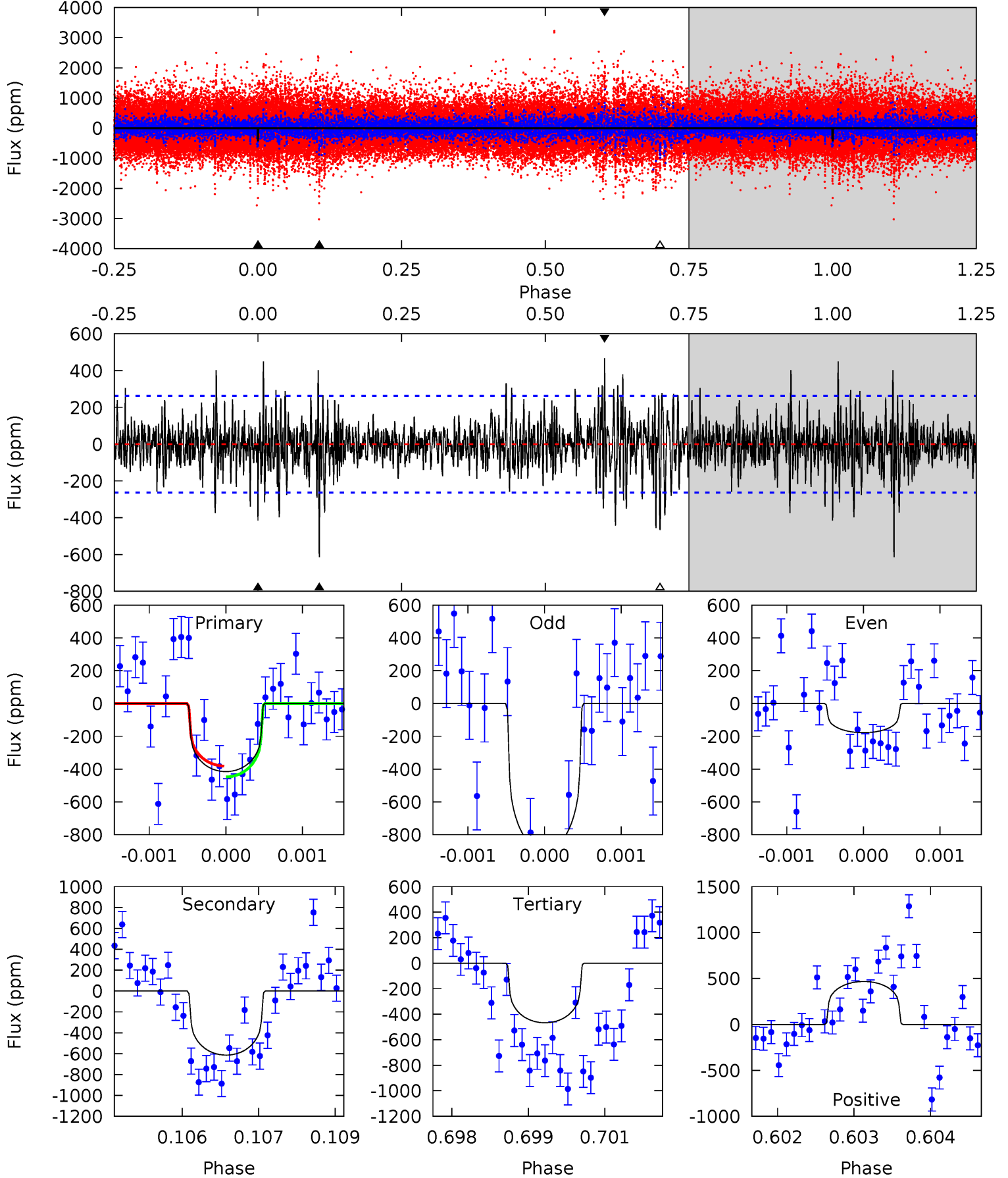
TCE 008870938-01 P=626.969733 Days $T_0=281.804022$ (BKJD)



DV Model-Shift Uniqueness Test

008870938-01, P = 627.002341 Days, E = 281.741001 Days

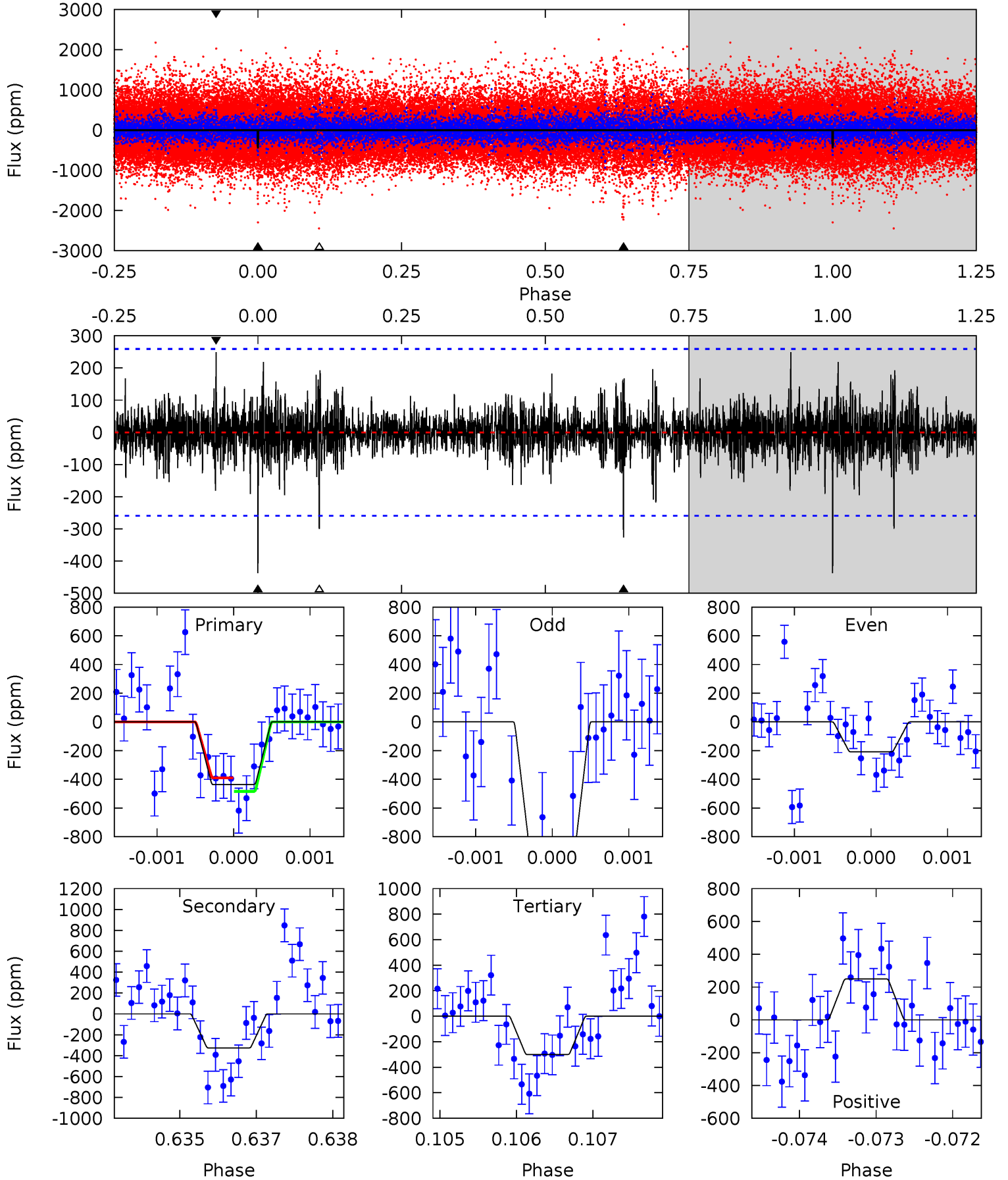
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.56	12.7	9.63	9.63	5.42	3.24	2.15	-1.07	-1.07	3.03	3.02	7.03	1.66	0.43	0.68



Alt Model-Shift Uniqueness Test

008870938-01, P = 626.969733 Days, E = 281.804022 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.16	6.84	6.28	5.22	5.43	3.26	1.05	2.87	3.94	0.55	1.62	7.23	1.42	0.36	0.99



Stellar Parameters For KIC 008870938

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5365^{+159}_{-159}	$4.571^{+0.025}_{-0.136}$	$0.120^{+0.250}_{-0.300}$	$0.828^{+0.161}_{-0.069}$	$0.928^{+0.058}_{-0.095}$	$2.307^{+0.387}_{-0.901}$
	+3%/-3%	+1%/-3%	+208%/-250%	+19%/-8%	+6%/-10%	+17%/-39%
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 008870938-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-614 ± 49	$1.89^{+1.15}_{-1.02}$	260^{+14}_{-10}	5958^{+3500}_{-1194}	$181338^{+684334}_{-110690}$
Alt.	-326 ± 48	$1.86^{+1.28}_{-0.99}$	260^{+13}_{-10}	5183^{+2579}_{-1013}	$99640^{+362476}_{-65017}$

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

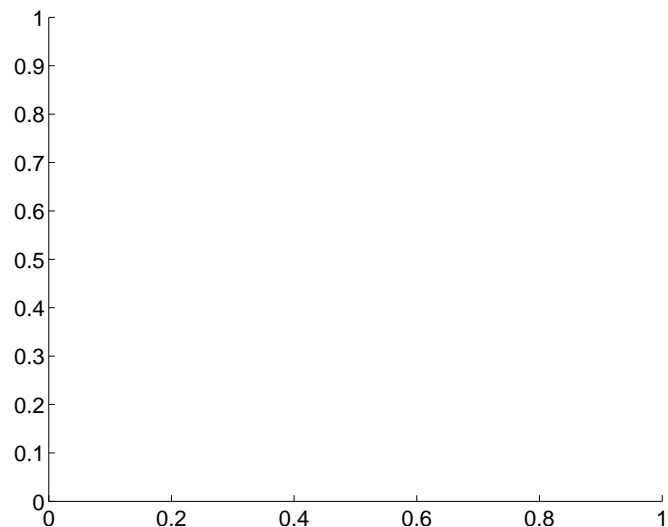
Supplemental centroid analysis for 008870938-01. Kepler magnitude: 15.48. Transit SNR 4.05

There are 0 quarters with good PRF difference image offsets

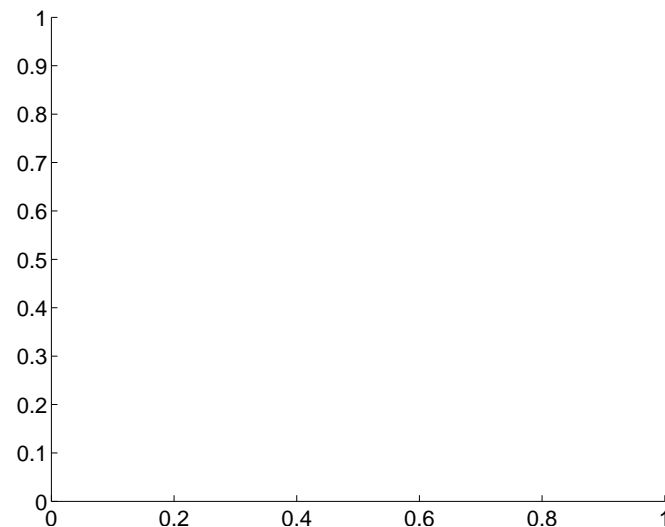
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	3.96 ± 3.29	1.20	-2.32 ± 3.18	-3.20 ± 3.35

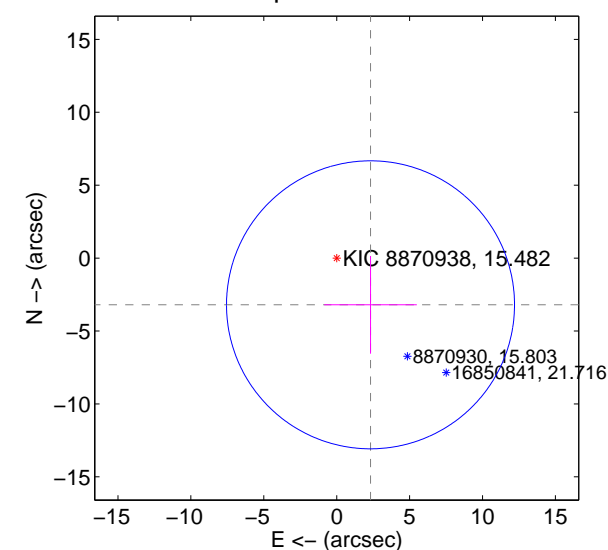
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



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.



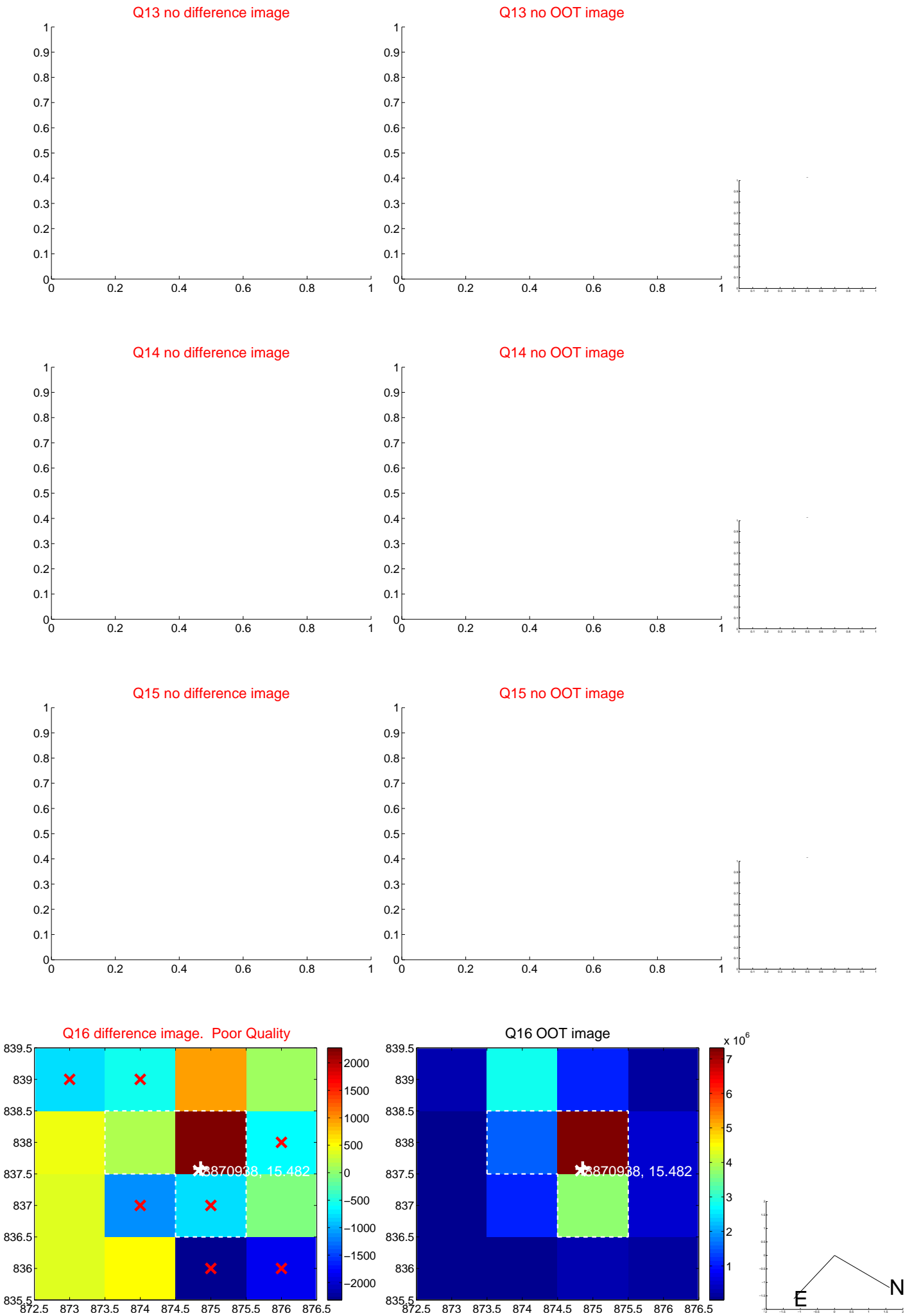
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



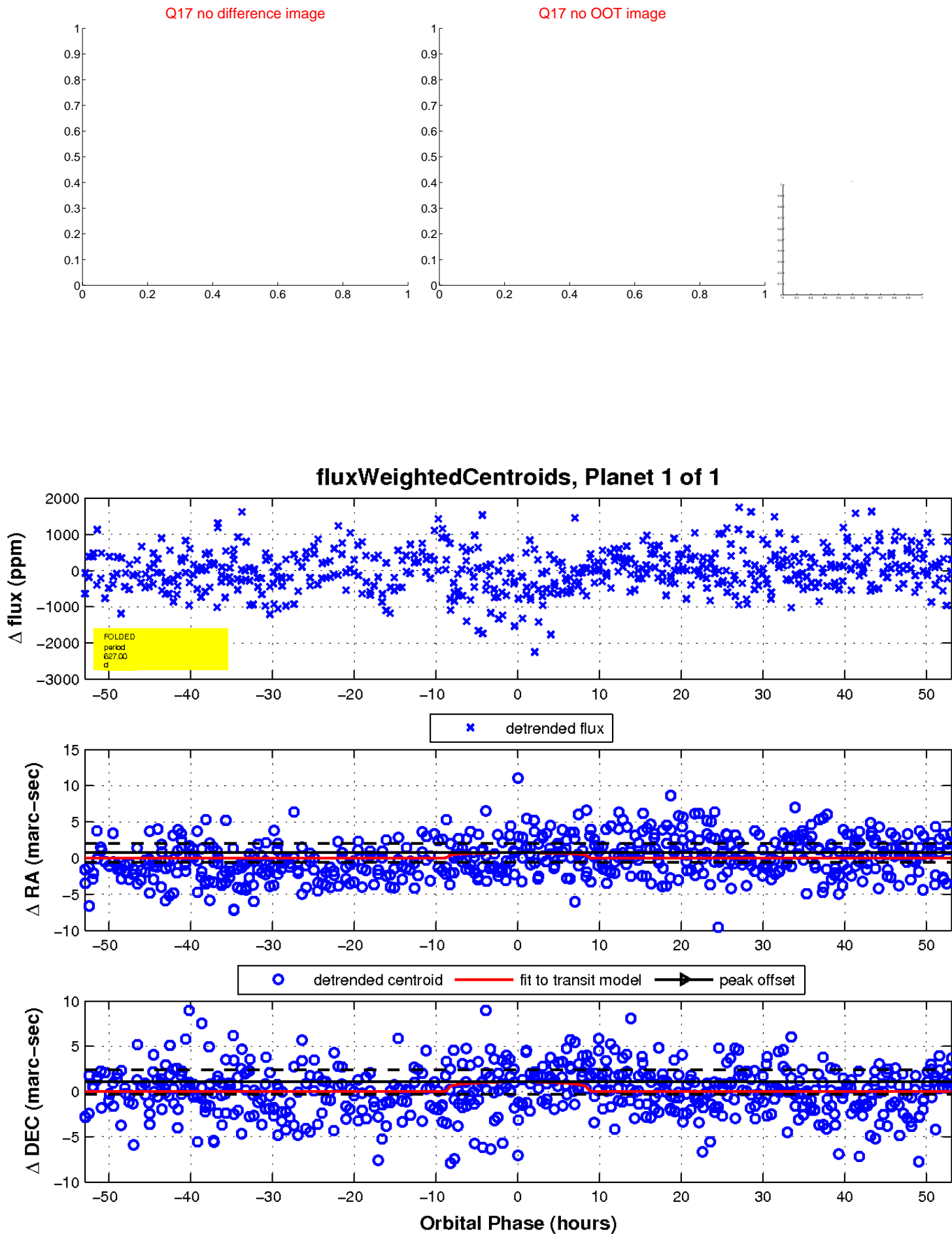
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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.



UKIRT Image

Declination

