

KIC 008431725

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})
008431725-01	OBS	No	434.138271	202.849858	643.2	21.477	7.3	8.6	0.79	5452	2.07	0.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008431725-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—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.

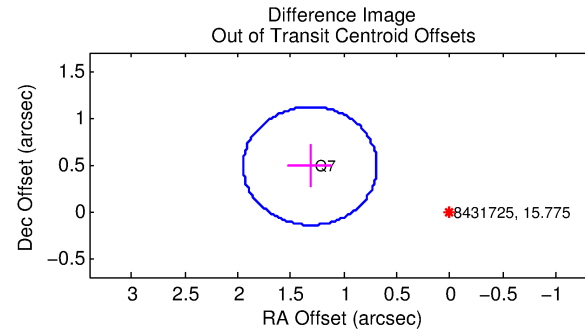
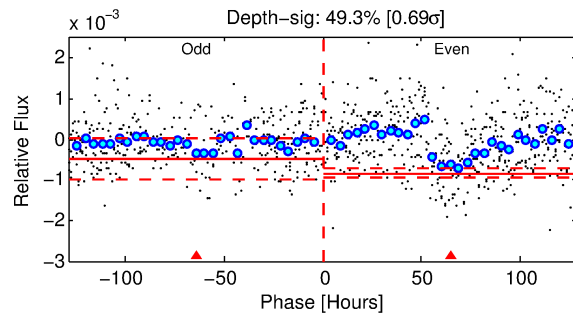
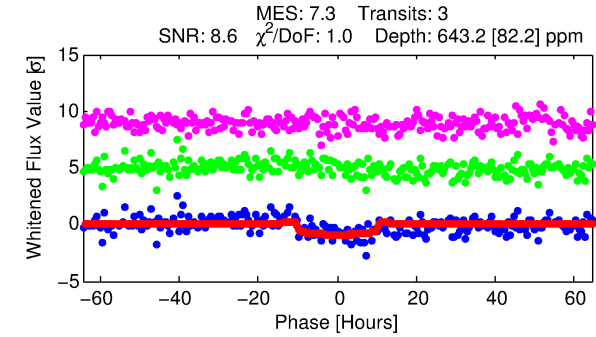
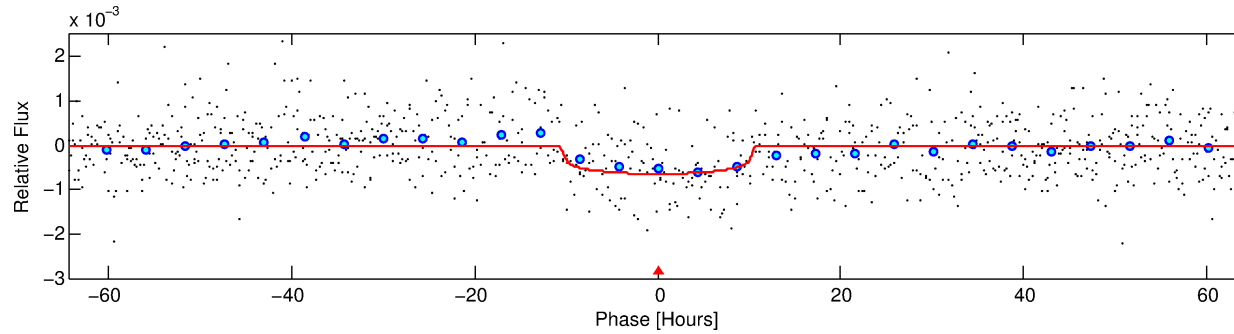
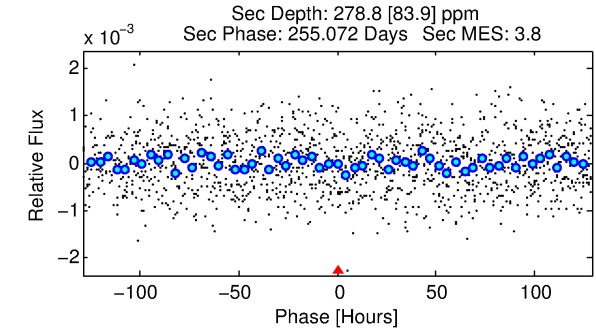
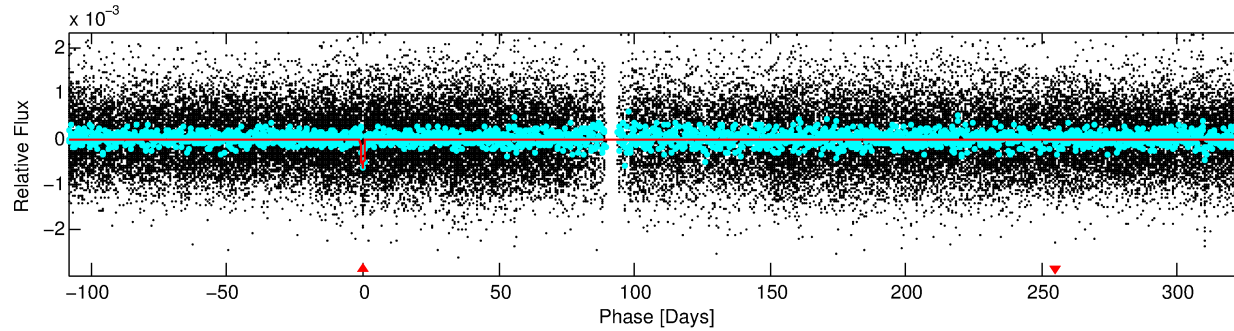
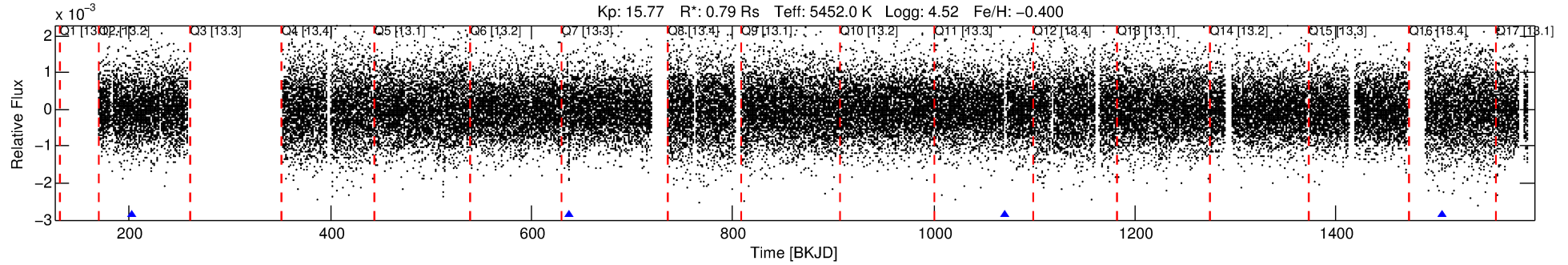
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008431725-01

No Significant Match Found

DV One-Page Summary

KIC: 8431725 Candidate: 1 of 1 Period: 434.138 d



DV Fit Results:

Period = 434.13827 [0.01624] d
Epoch = 202.8499 [0.0251] BKJD
Rp/R* = 0.0239 [0.0120]
a/R* = 133.75 [281.95]
b = 0.55 [2.73]
Seff = 0.48 [0.11]
Teq = 212 [13] K
Rp = 2.07 [1.10] Re
a = 1.0233 [0.1412] AU
Ag = 37516.27 [40163.32] [0.93σ]
Teff = 4559 [1208] K [3.60σ]

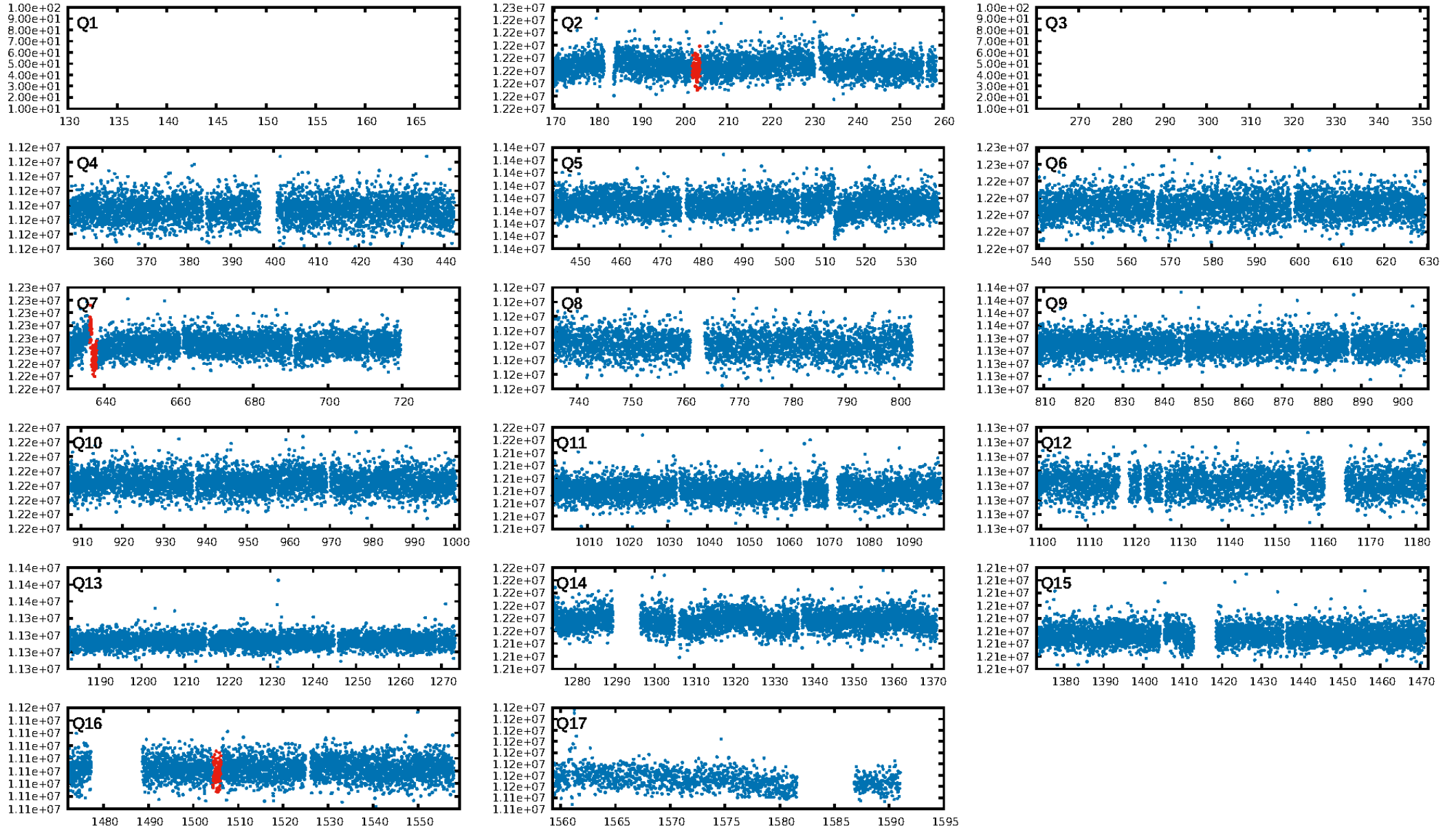
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 4.23e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.24
Centroid-sig: 4.2%
Centroid-so: 1.493 arcsec [1.10σ]
OotOffset-rm: 1.402 arcsec [6.66σ]
KicOffset-rm: 1.313 arcsec [6.28σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

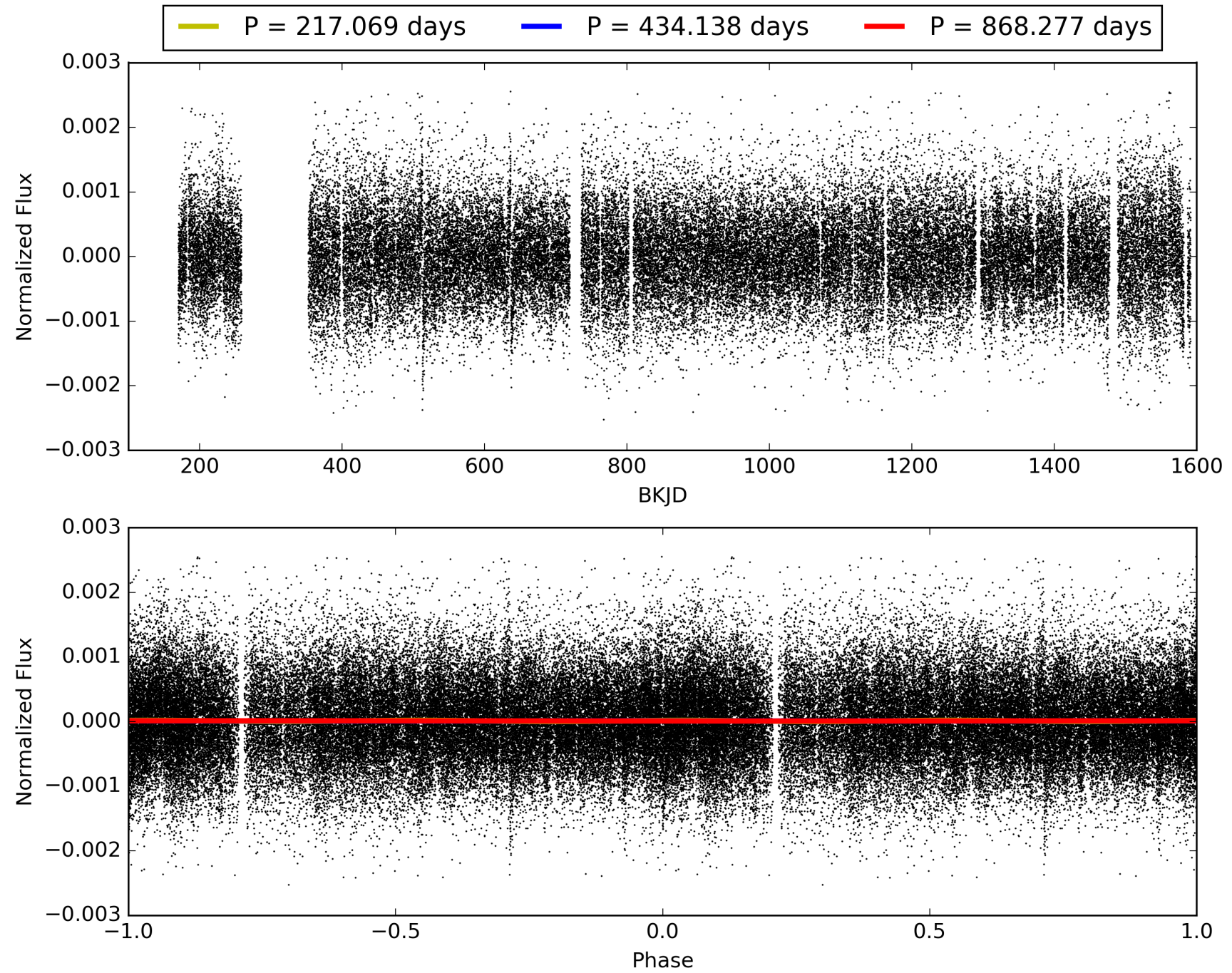
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:48:20 Z

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

TCE 008431725-01, PDC Light Curves

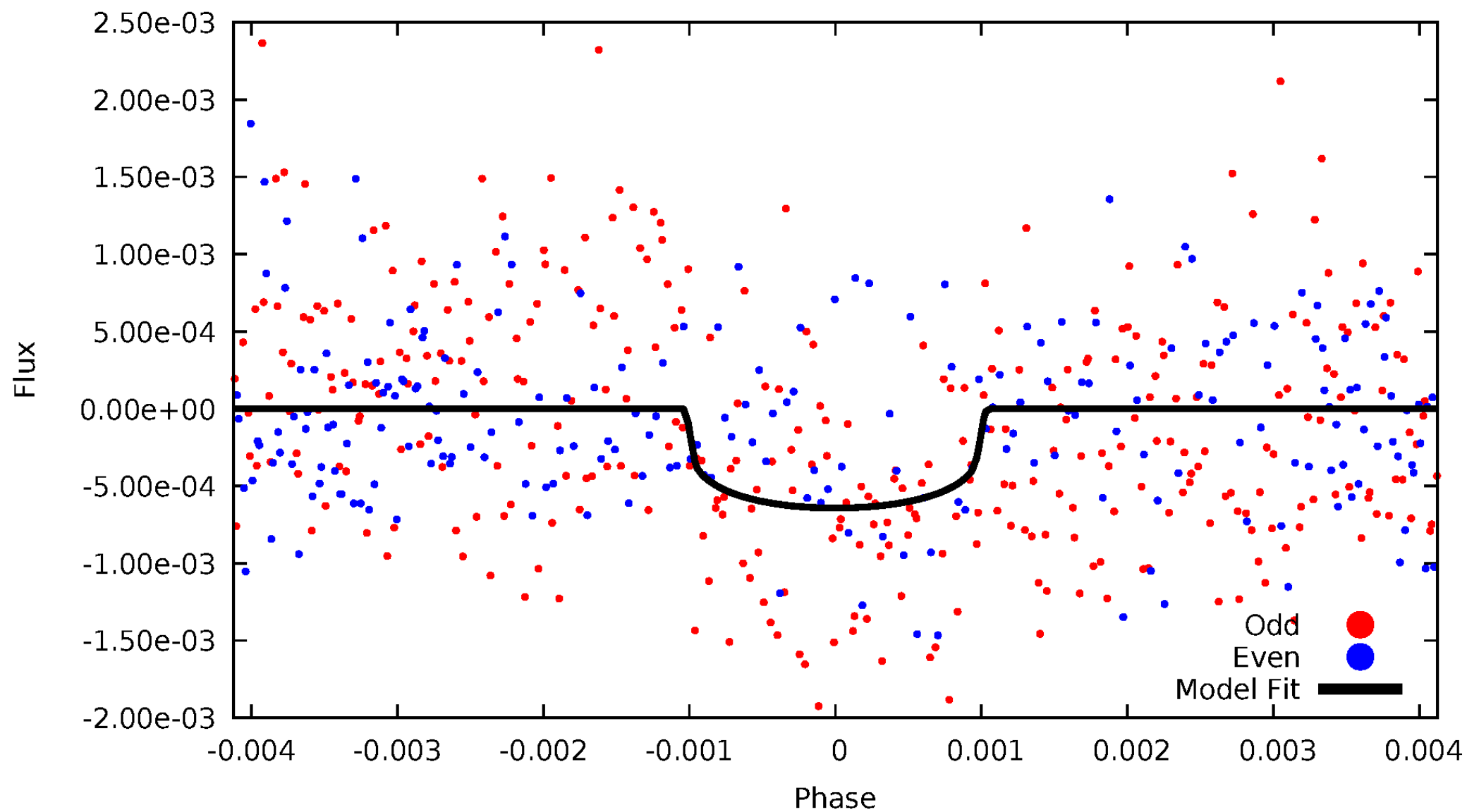


TCE 008431725-01



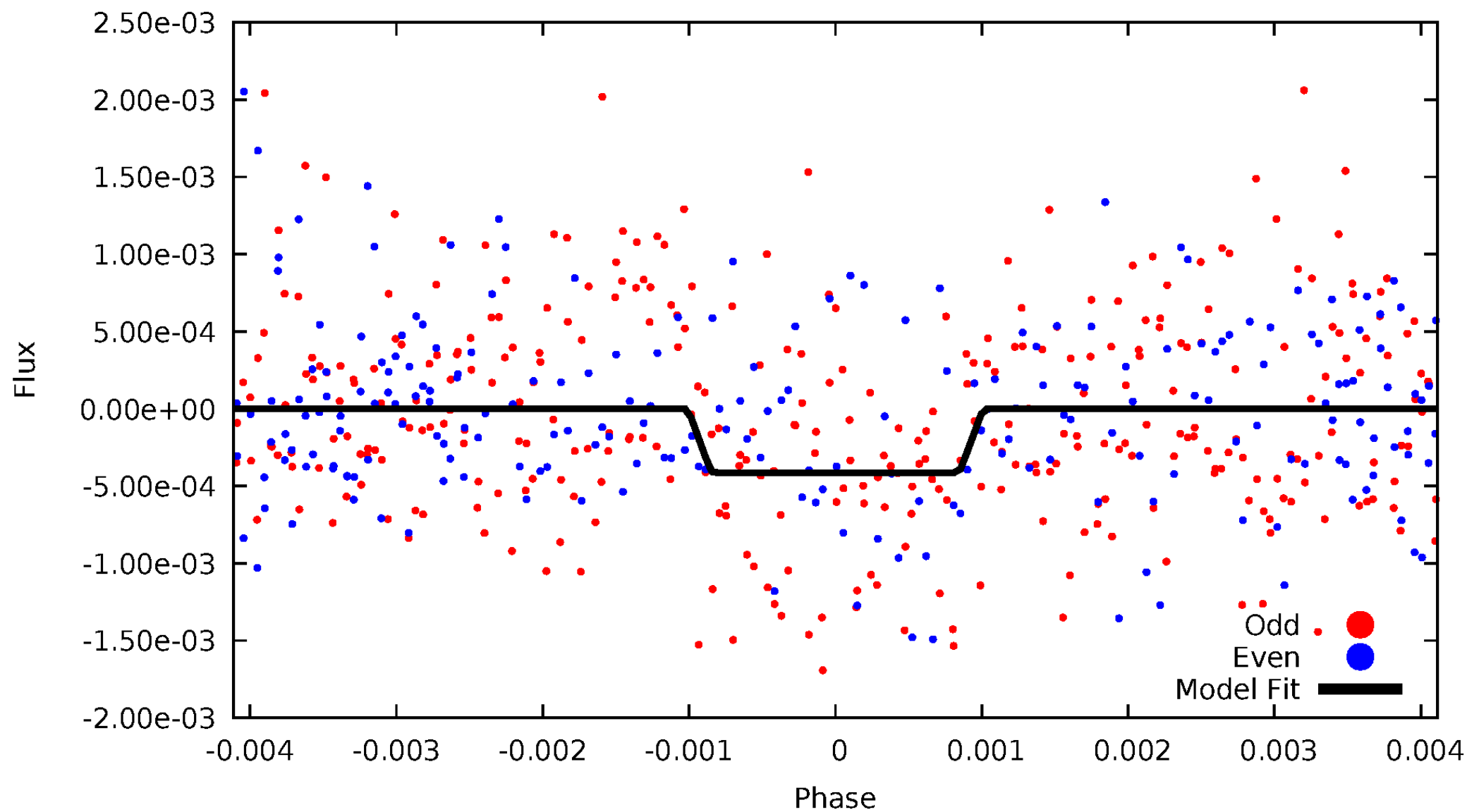
DV Odd/Even

TCE 008431725-01



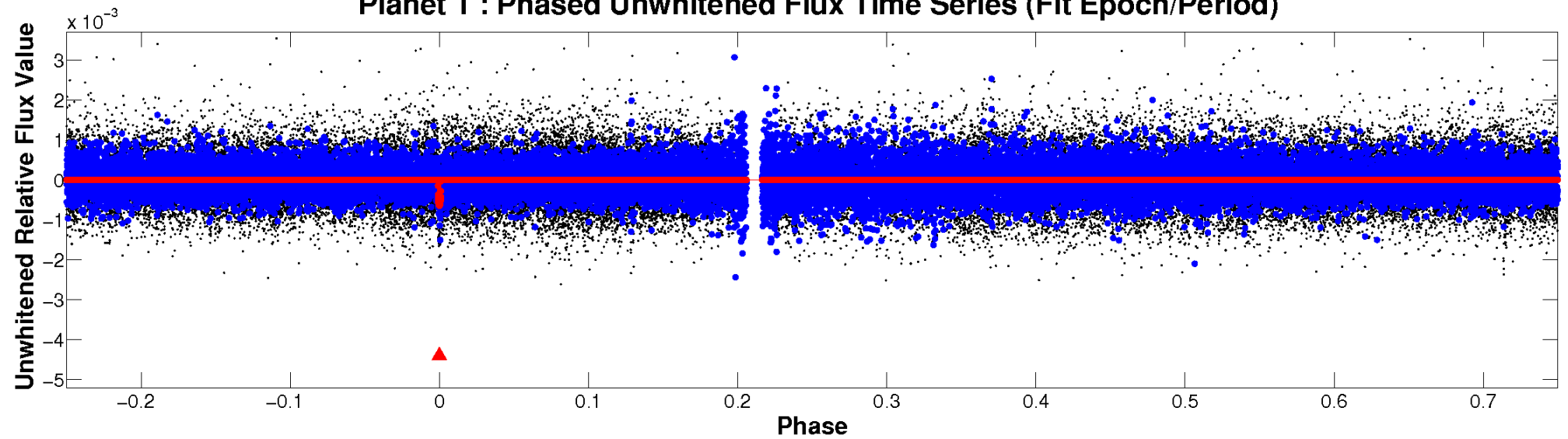
ALT Odd/Even

TCE 008431725-01

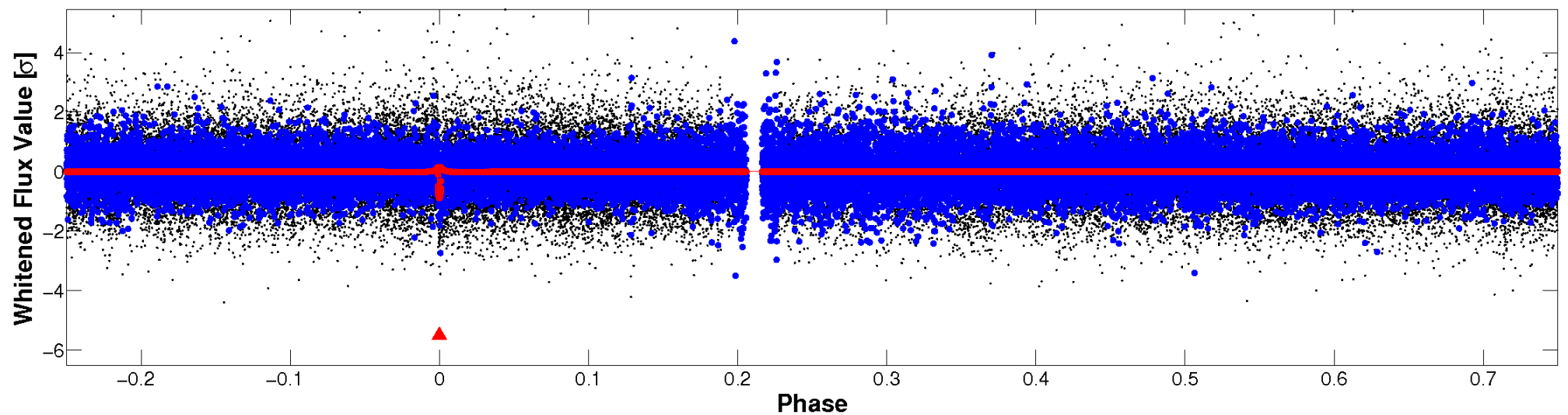


Non-Whitened Vs. Whitened Light Curve

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

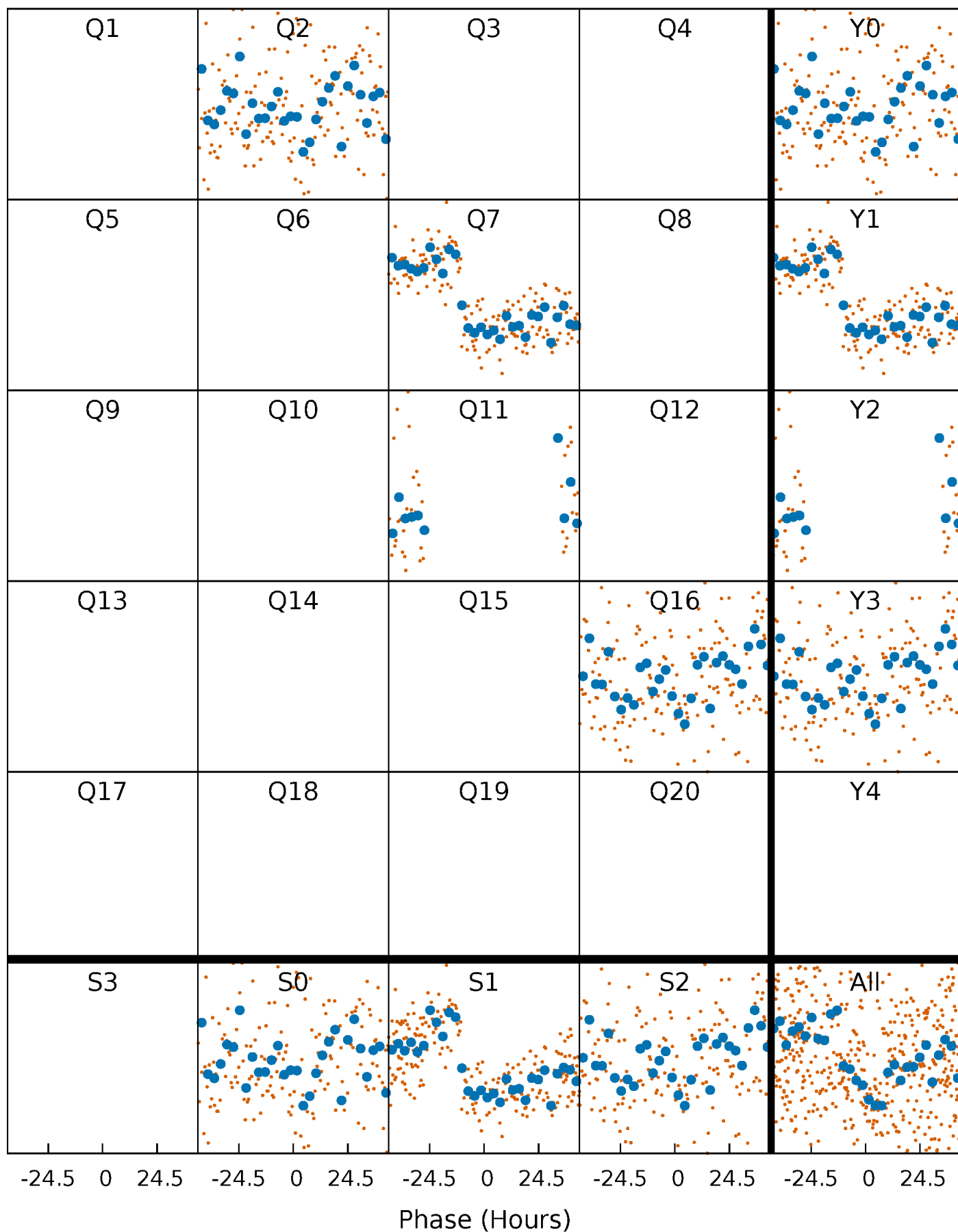


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



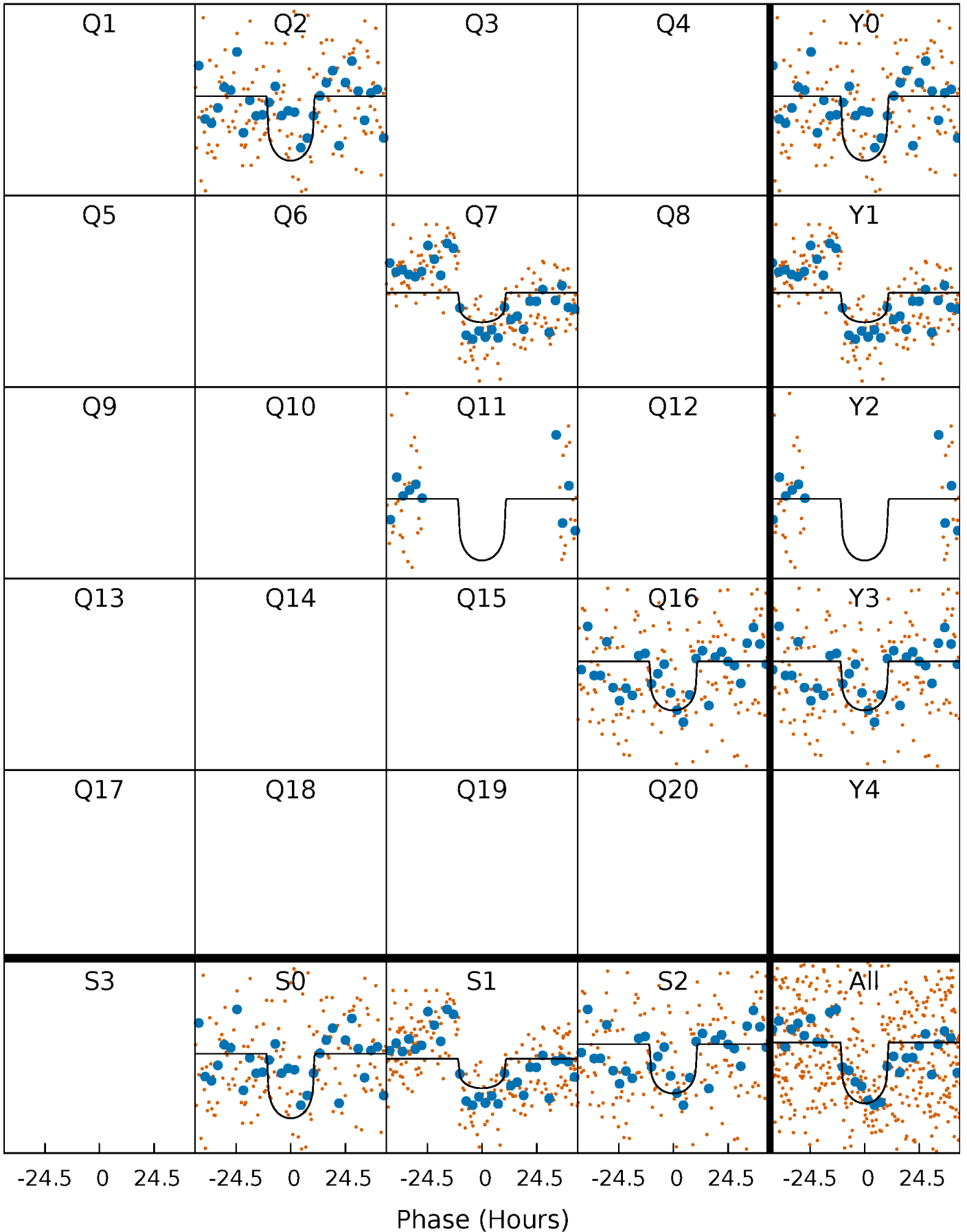
PDC Quarter-Phased Transit Curves

TCE 008431725-01 P=434.138271 Days $T_0=202.849858$ (BKJD)



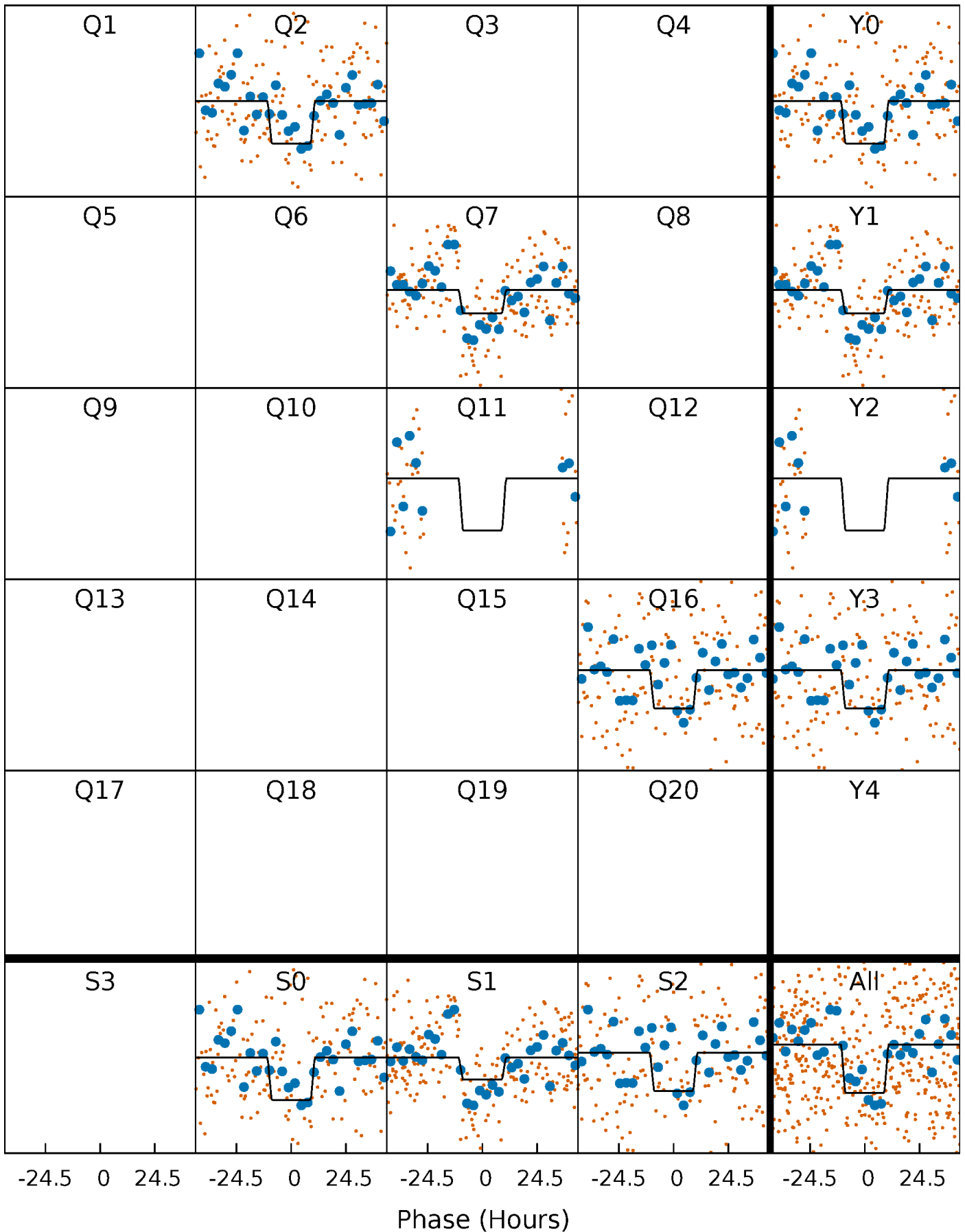
DV Quarter-Phased Transit Curves

TCE 008431725-01 P=434.138271 Days $T_0=202.849858$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

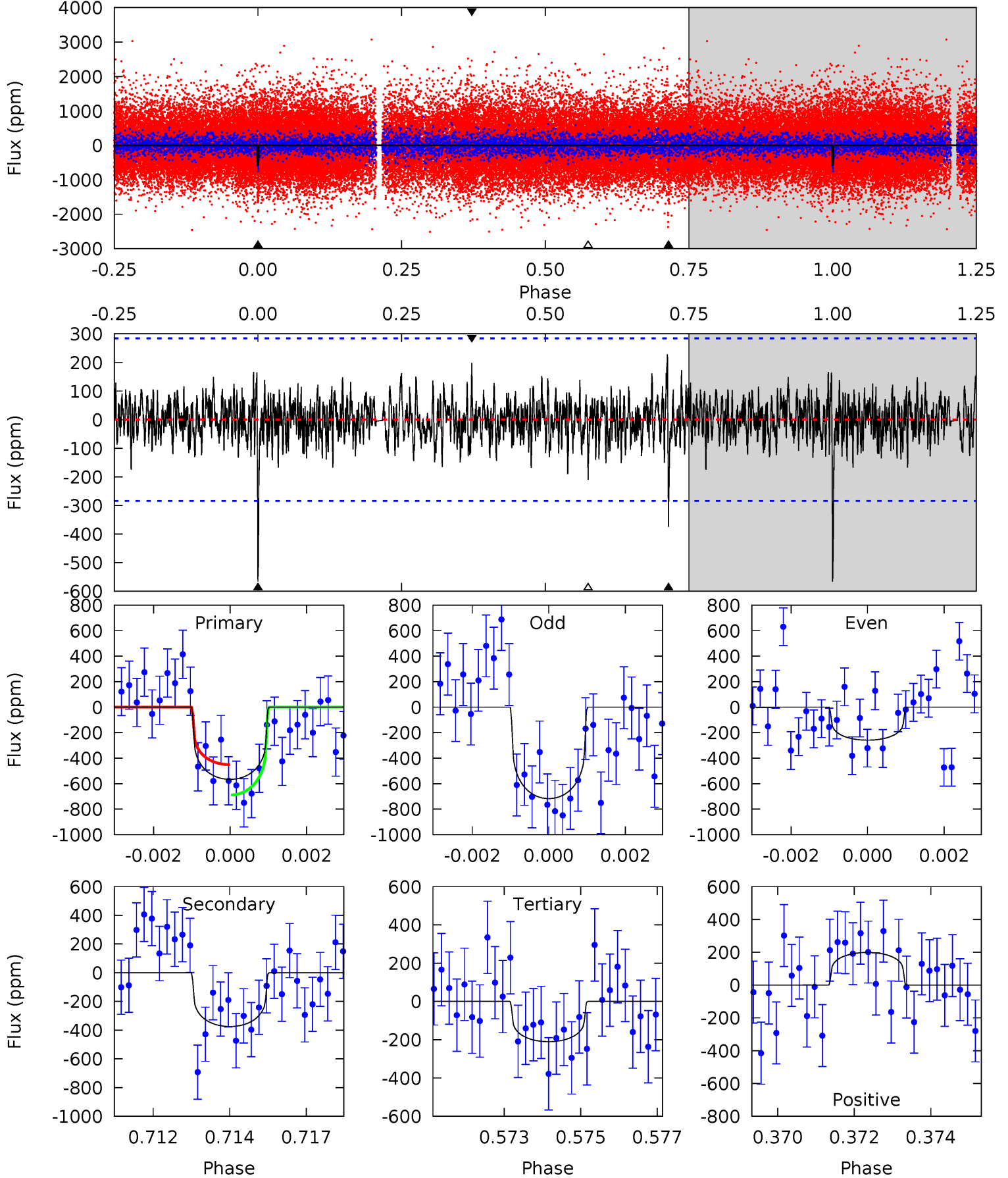
TCE 008431725-01 P=434.110982 Days $T_0=202.865101$ (BKJD)



DV Model-Shift Uniqueness Test

008431725-01, P = 434.138271 Days, E = 202.849858 Days

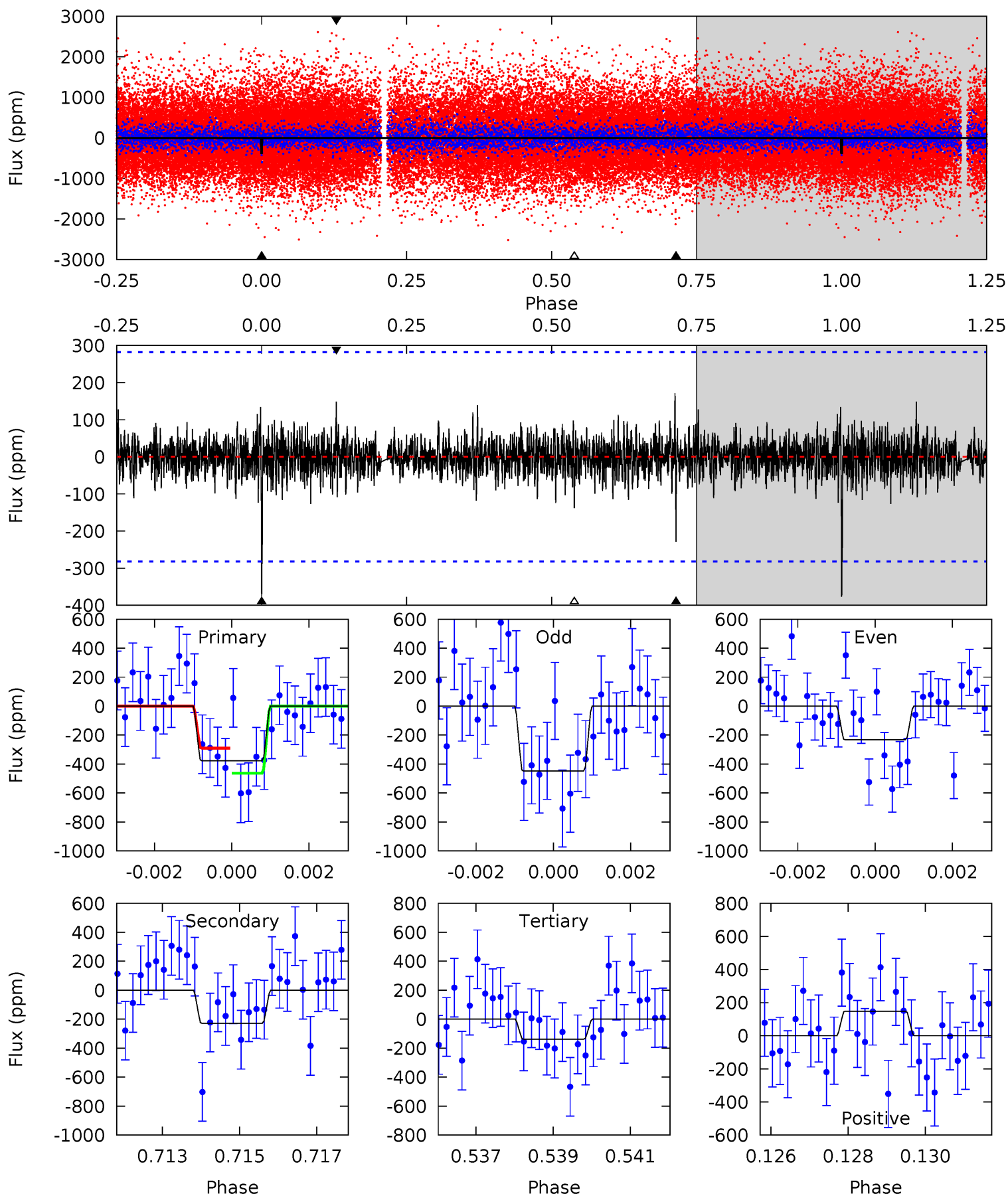
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	7.01	3.93	3.71	5.32	3.08	1.07	6.66	6.88	3.08	3.30	4.07	1.25	0.29	2.22



Alt Model-Shift Uniqueness Test

008431725-01, $P = 434.110982$ Days, $E = 202.865101$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.11	4.30	2.60	2.80	5.32	3.08	0.68	4.51	4.31	1.70	1.50	1.93	1.61	0.31	1.63



Stellar Parameters For KIC 008431725

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5452^{+179}_{-162}	$4.518^{+0.090}_{-0.110}$	$-0.400^{+0.350}_{-0.300}$	$0.794^{+0.130}_{-0.097}$	$0.758^{+0.108}_{-0.058}$	$2.135^{+0.823}_{-0.705}$
	+3%/-3%	+2%/-2%	+87%/-75%	+16%/-12%	+14%/-8%	+39%/-33%
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 008431725-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-375 ± 53	$2.10^{+1.02}_{-1.01}$	297^{+16}_{-15}	4966^{+1834}_{-720}	$48878^{+130258}_{-26613}$
Alt.	-228 ± 53	$1.94^{+0.98}_{-0.99}$	297^{+15}_{-14}	4658^{+1740}_{-736}	$34911^{+108797}_{-20218}$

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

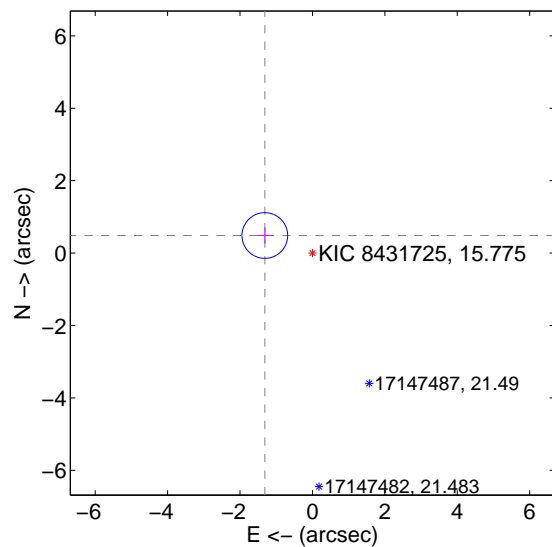
Supplemental centroid analysis for 008431725-01. Kepler magnitude: 15.78. Transit SNR 8.62

There are 1 quarters with good PRF difference image offsets

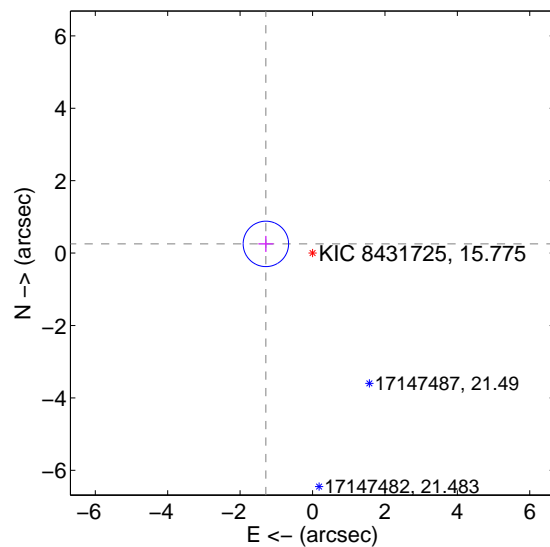
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.402 \pm 0.210	6.66	1.315 \pm 0.209	0.486 \pm 0.223
PRF-fit source offset from KIC position	1.313 \pm 0.209	6.28	1.288 \pm 0.209	0.254 \pm 0.223
photometric centroid source offset	1.49 \pm 1.36	1.10	0.66 \pm 1.37	1.34 \pm 1.36

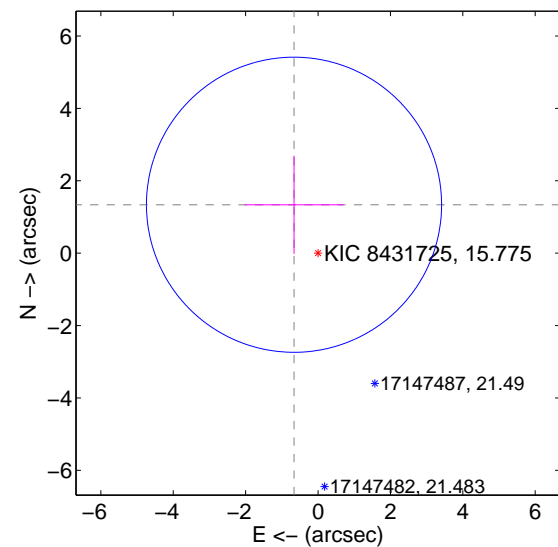
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

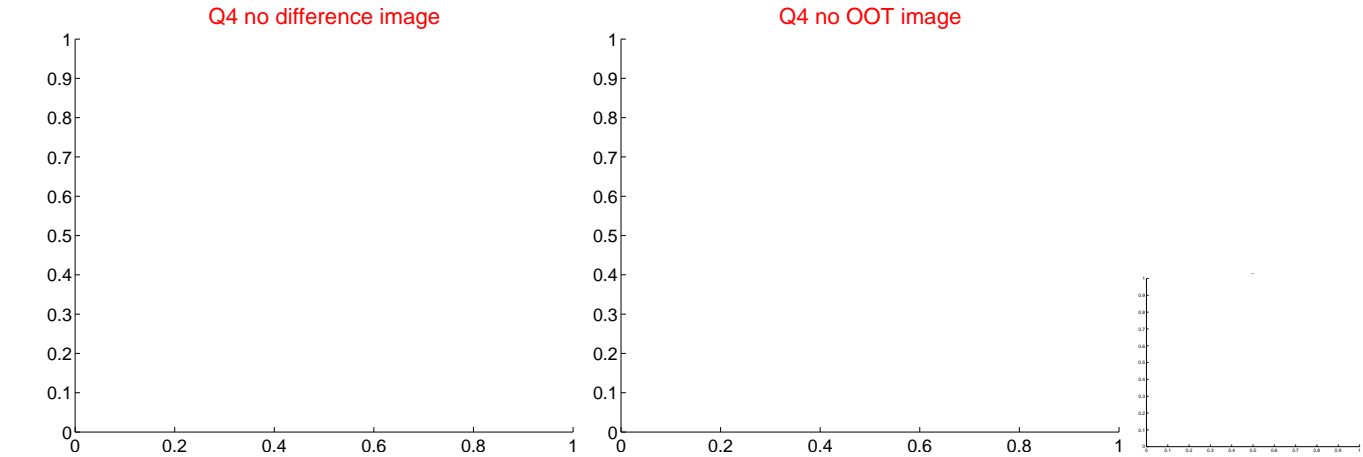
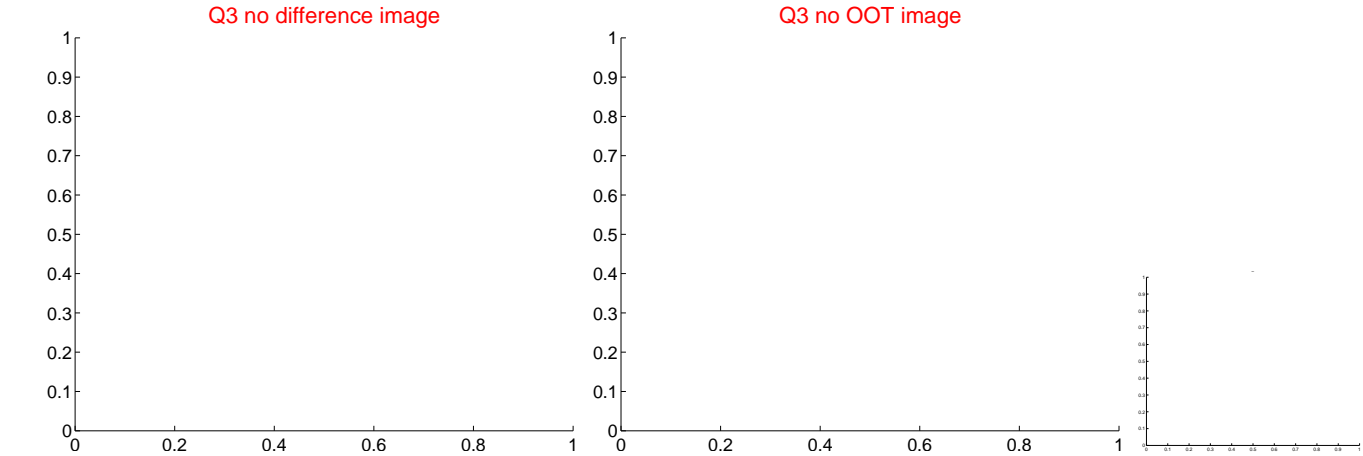
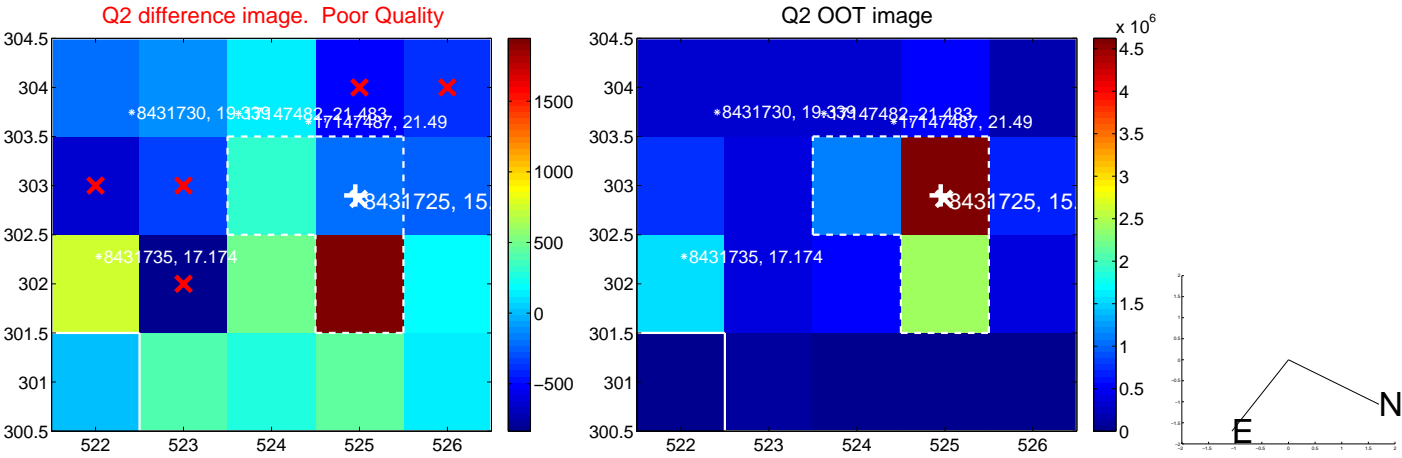
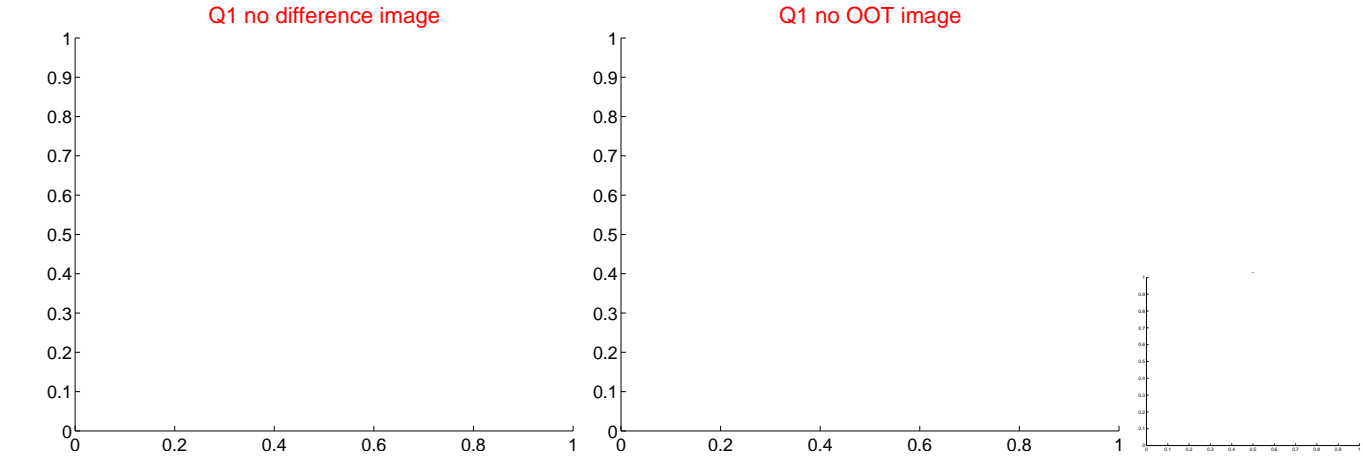


offset from photometric centroids

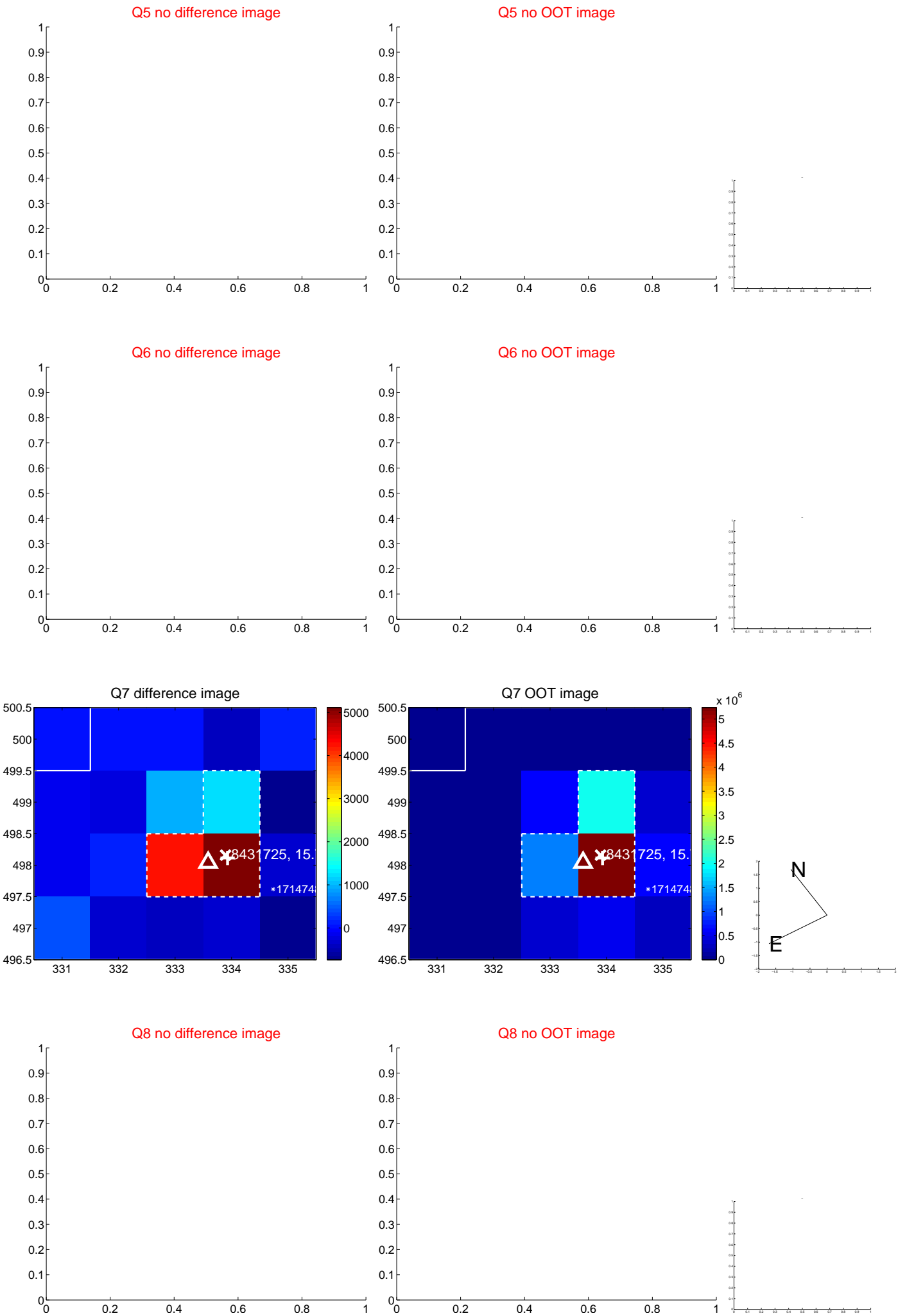


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



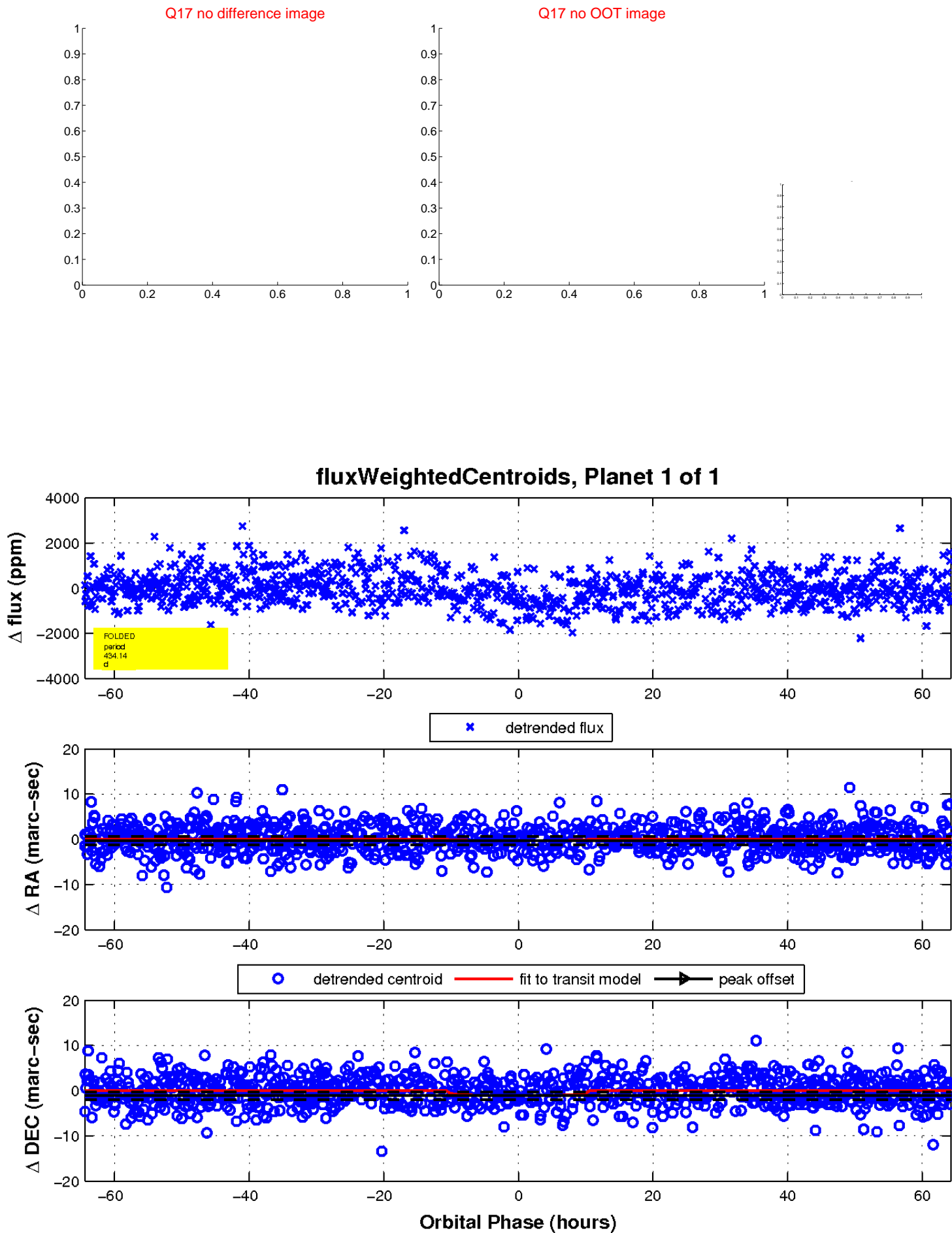
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

