

KIC 008973510

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})
008973510-01	OBS	No	404.552334	511.734498	584.8	14.886	7.5	7.1	0.79	5559	2.04	0.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008973510-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

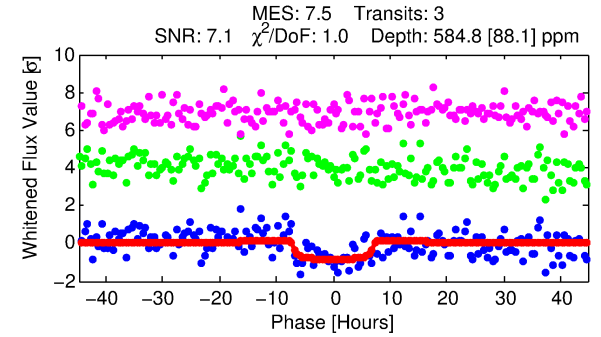
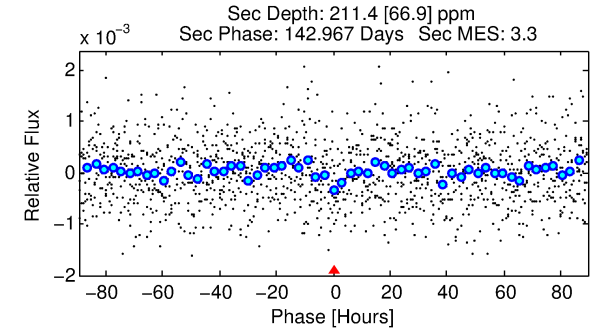
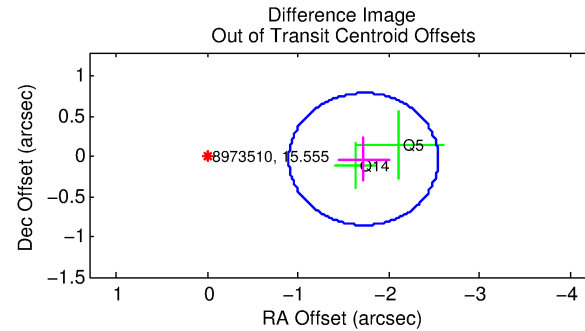
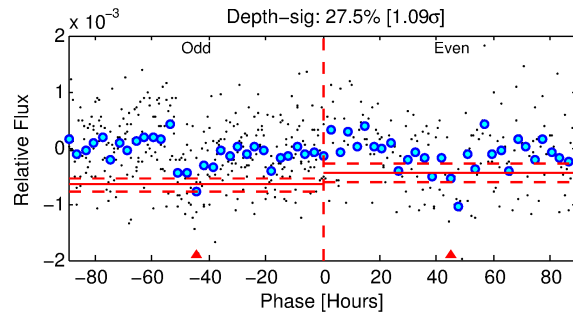
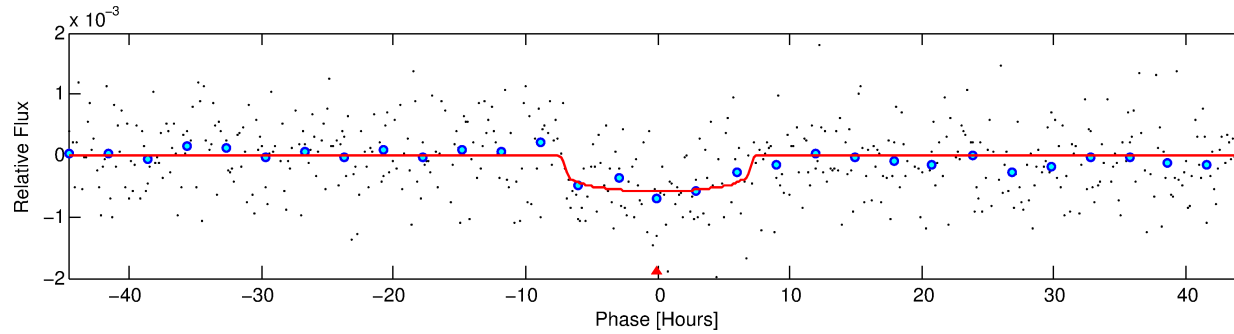
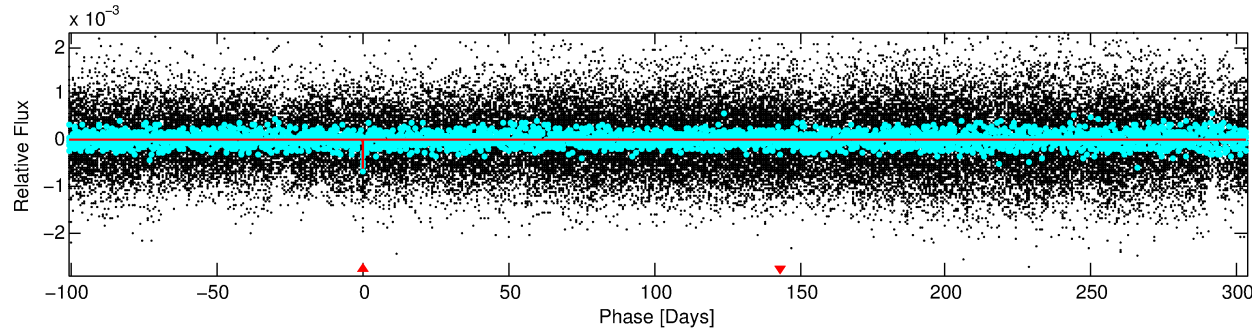
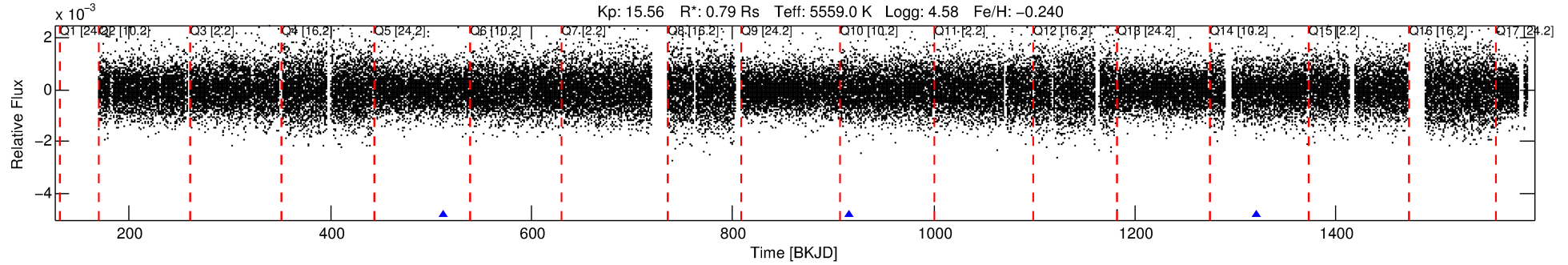
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008973510-01

No Significant Match Found

DV One-Page Summary

KIC: 8973510 Candidate: 1 of 1 Period: 404.552 d



DV Fit Results:

Period = 404.55233 [0.01939] d
Epoch = 511.7345 [0.0252] BKJD
Rp/R* = 0.0237 [0.0101]
a/R* = 152.81 [272.65]
b = 0.71 [1.25]
Seff = 0.51 [0.15]
Teq = 215 [16] K
Rp = 2.04 [0.99] Re
a = 1.0219 [0.1952] AU
Ag = 29085.52 [27568.26] [1.06σ]
Teffp = 4351 [997] K [4.15σ]

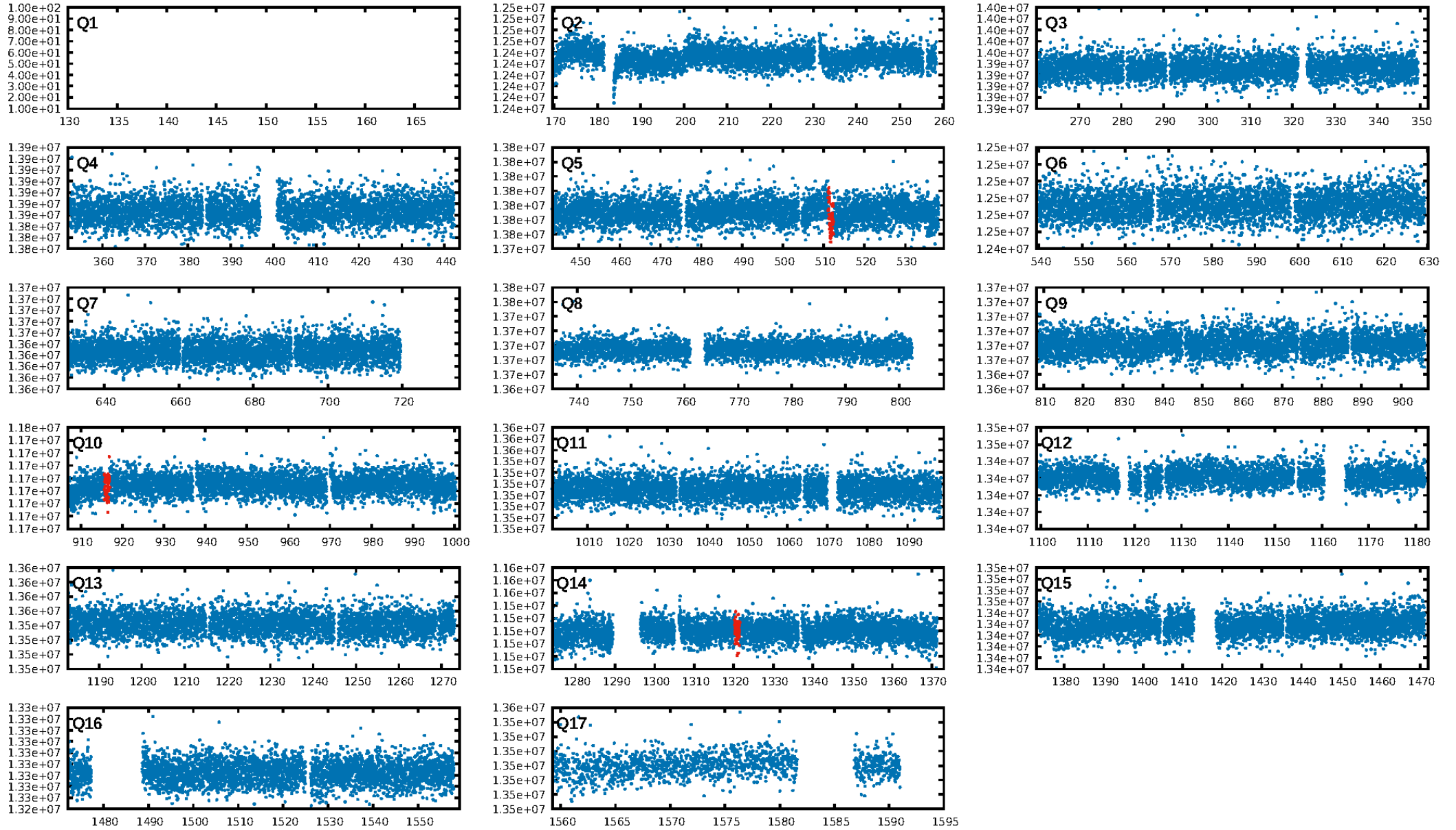
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.5%
ModelChiSquareGe-sig: 99.5%
Bootstrap-pfa: 1.72e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.664
Centroid-sig: 3.0%
Centroid-so: 3.116 arcsec [1.60σ]
OotOffset-rm: 1.721 arcsec [6.28σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 1.155 arcsec [2.45σ]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

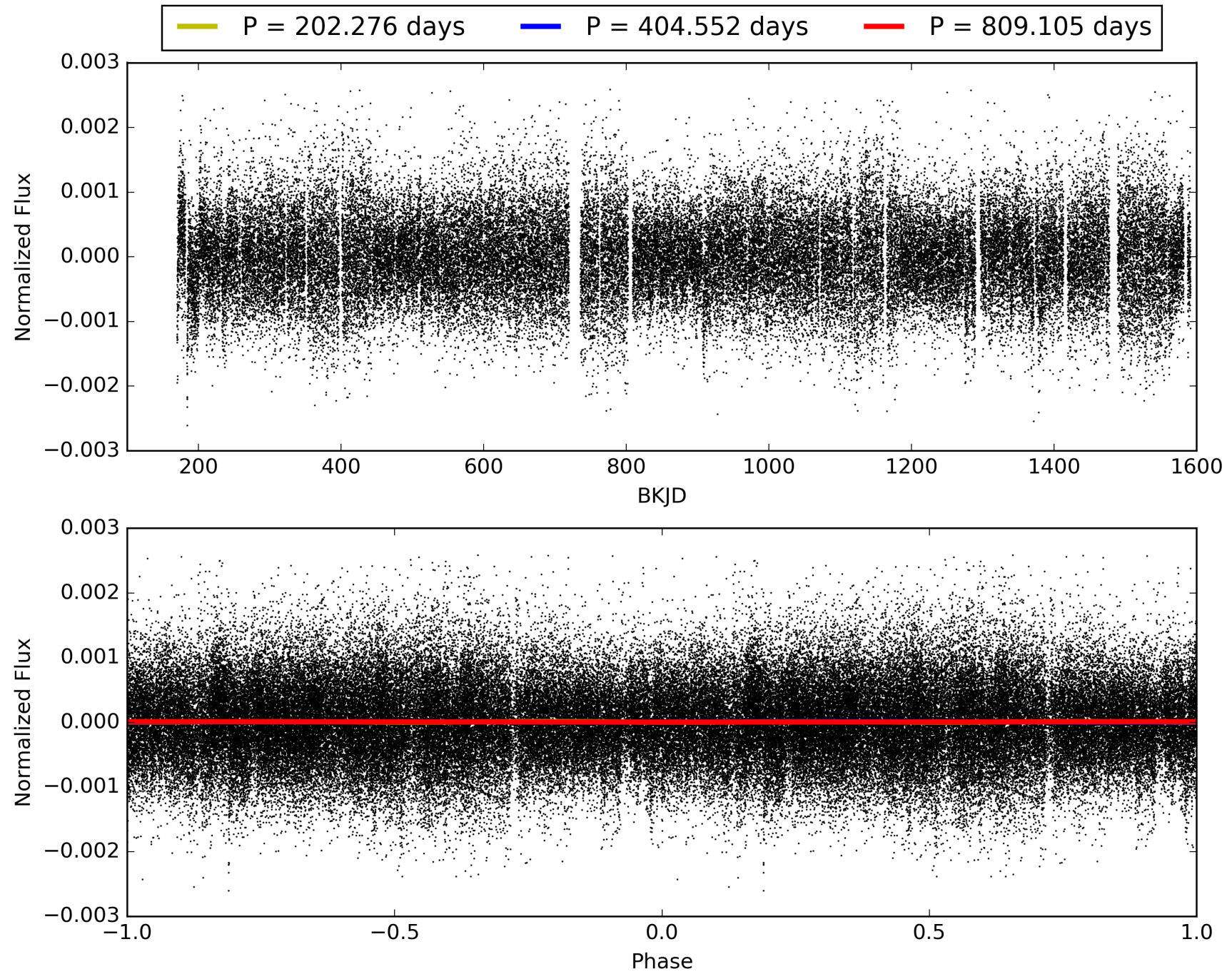
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:20:29 Z

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

TCE 008973510-01, PDC Light Curves

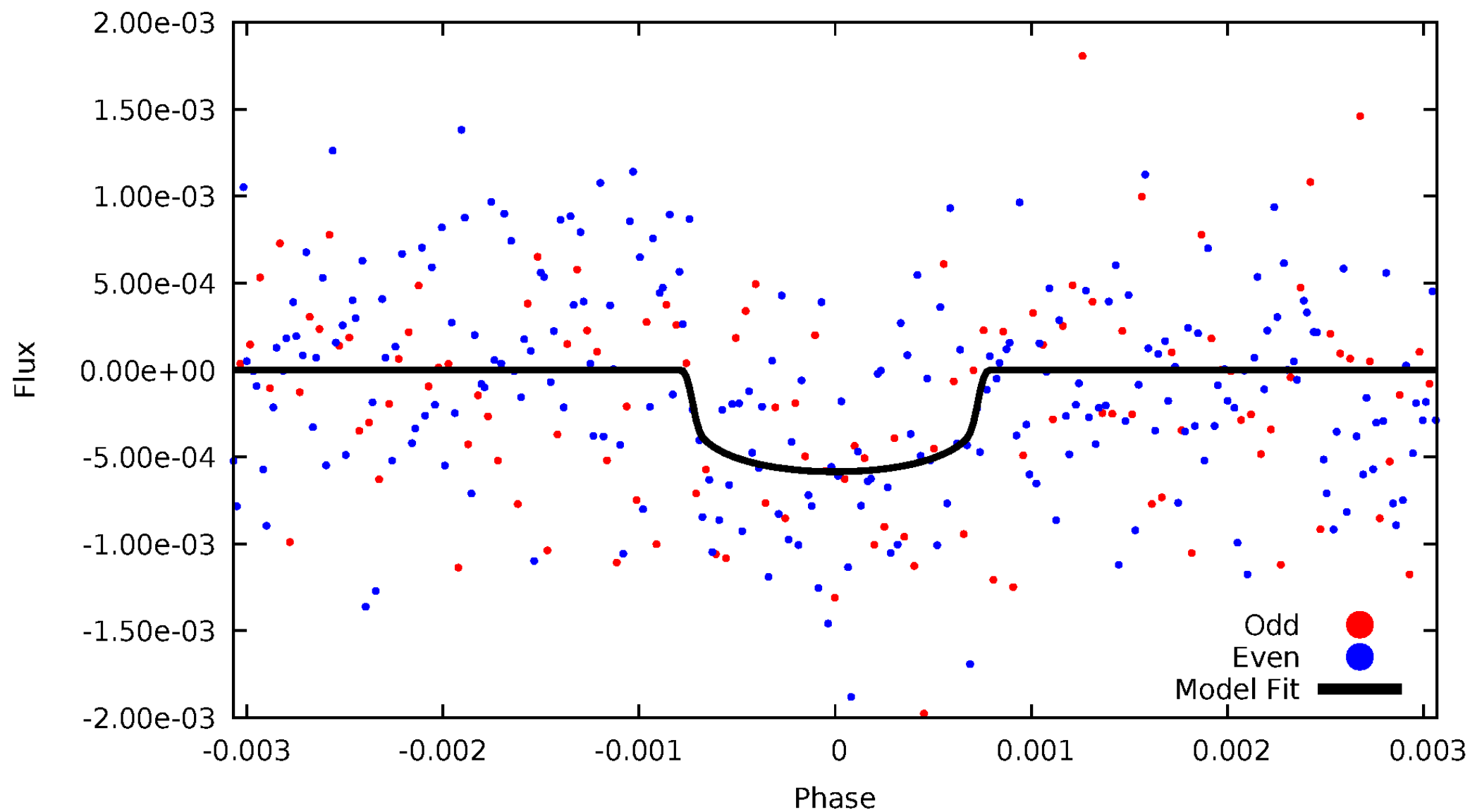


TCE 008973510-01



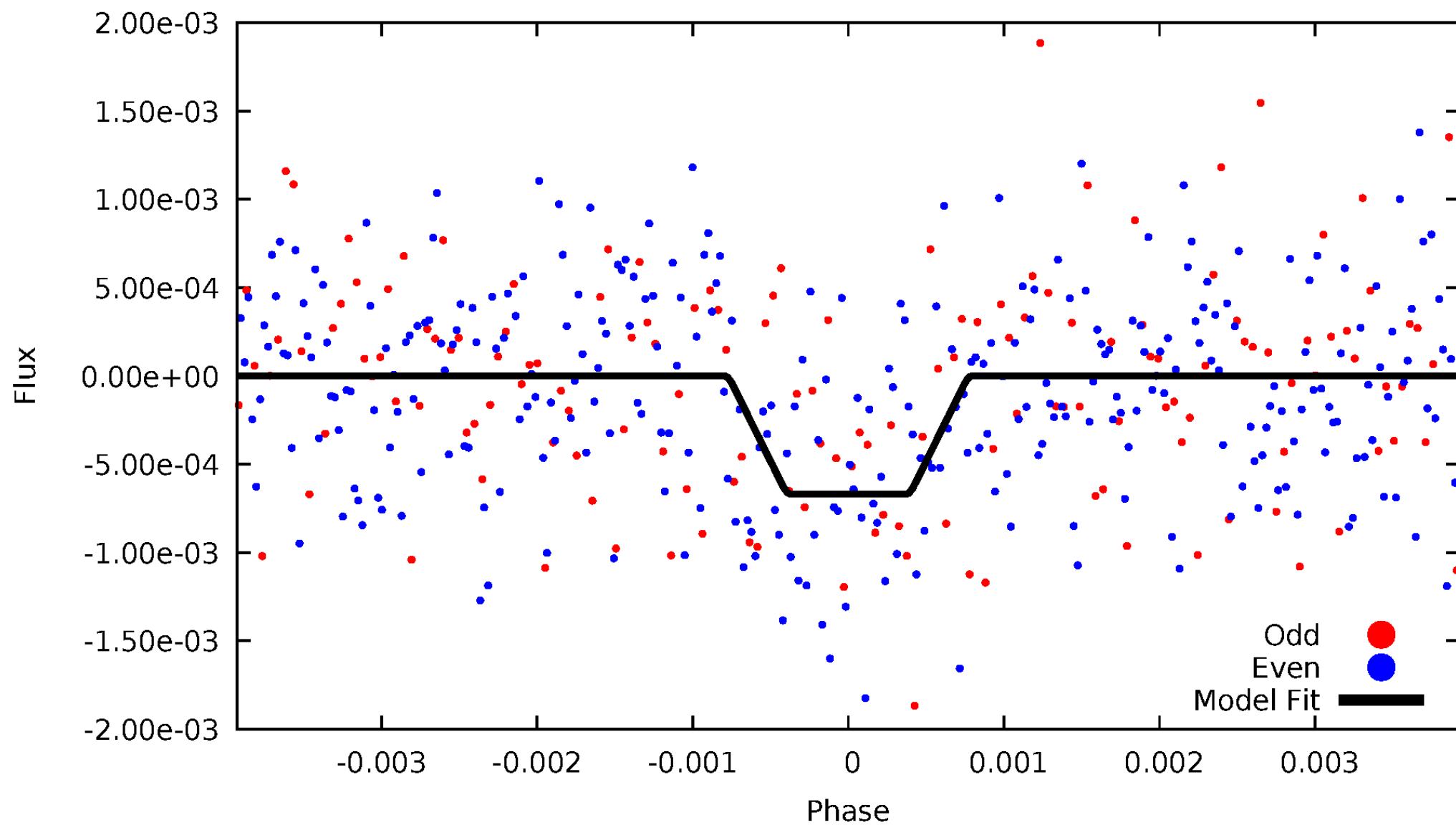
DV Odd/Even

TCE 008973510-01



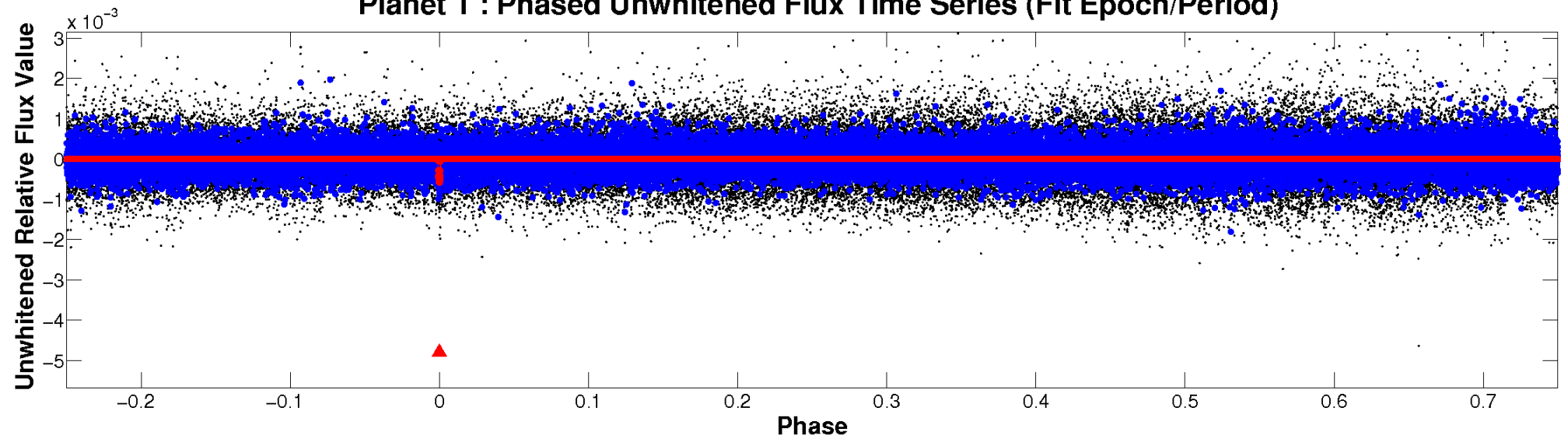
ALT Odd/Even

TCE 008973510-01

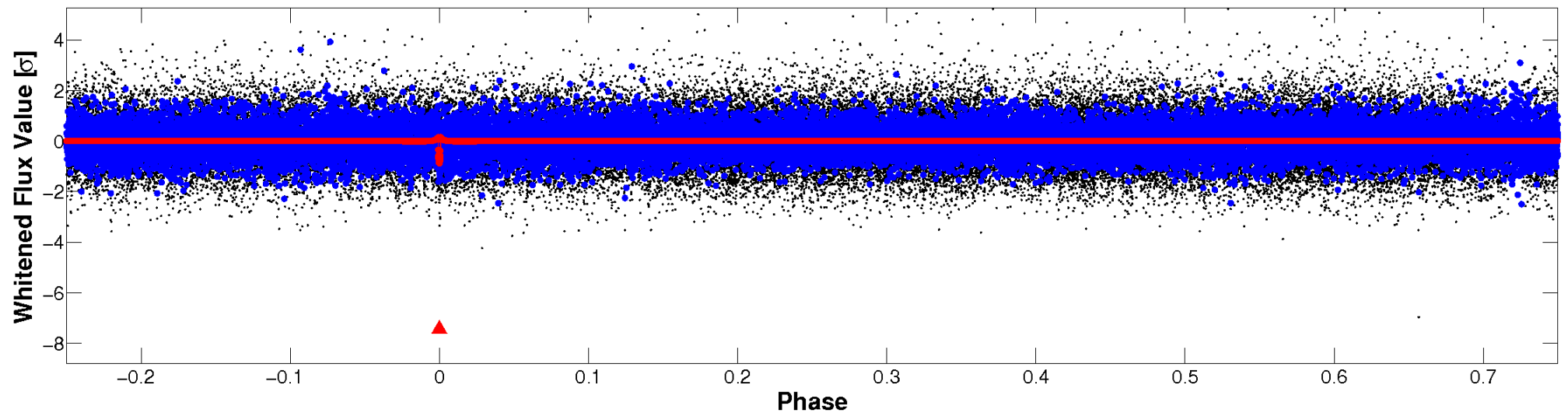


Non-Whitened Vs. Whitened Light Curve

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

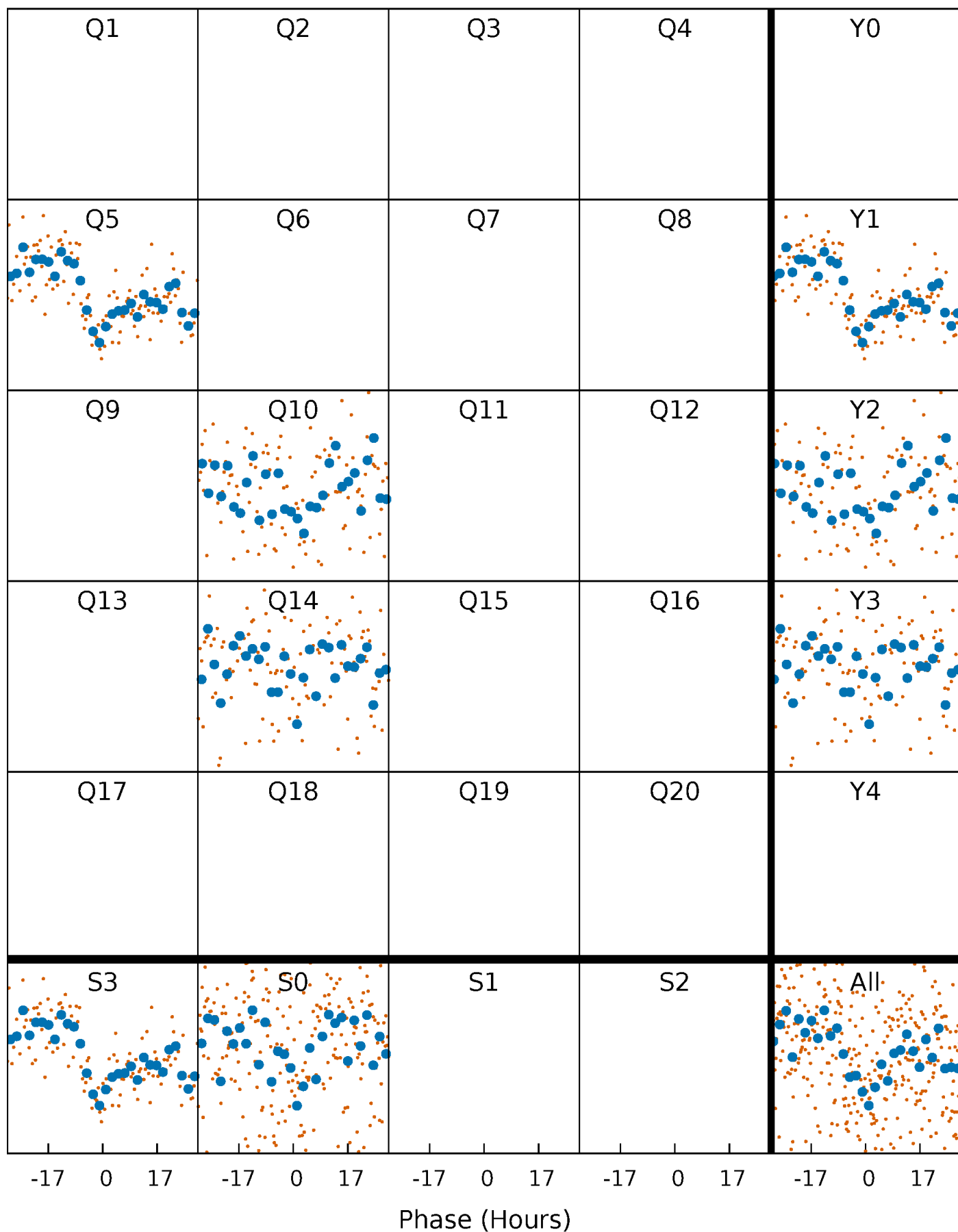


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



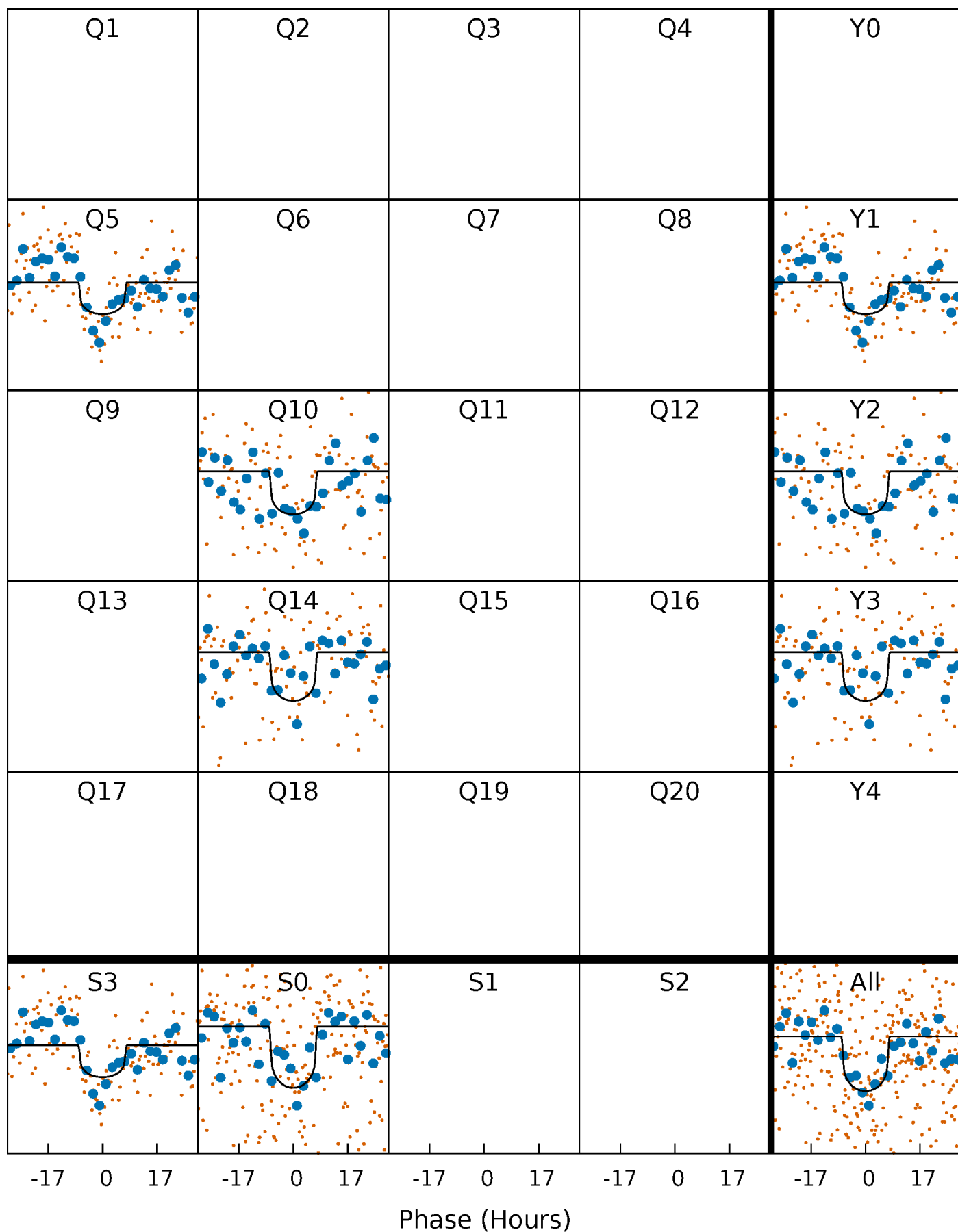
PDC Quarter-Phased Transit Curves

TCE 008973510-01 P=404.552334 Days $T_0=511.734498$ (BKJD)



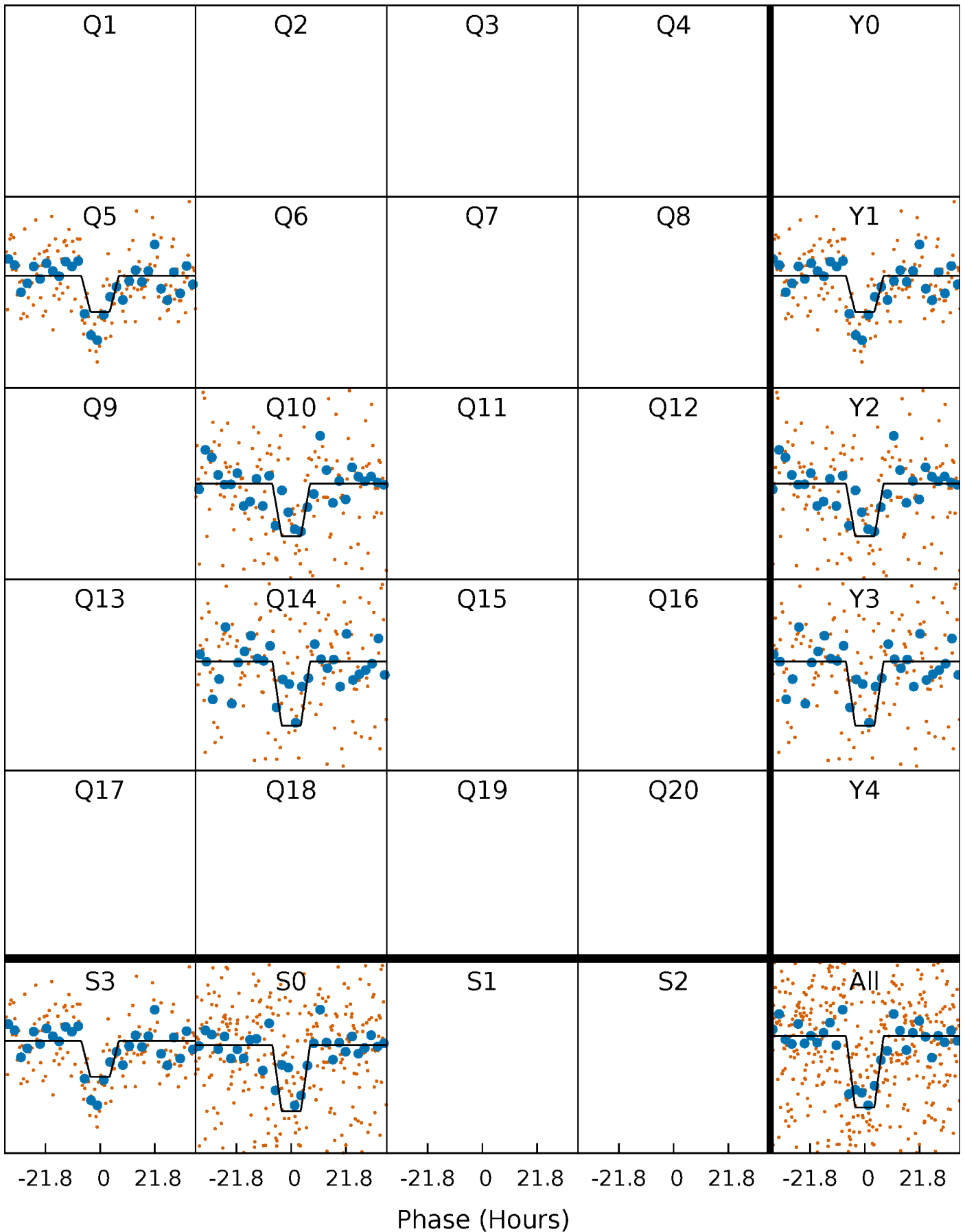
DV Quarter-Phased Transit Curves

TCE 008973510-01 $P=404.552334$ Days $T_0=511.734498$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

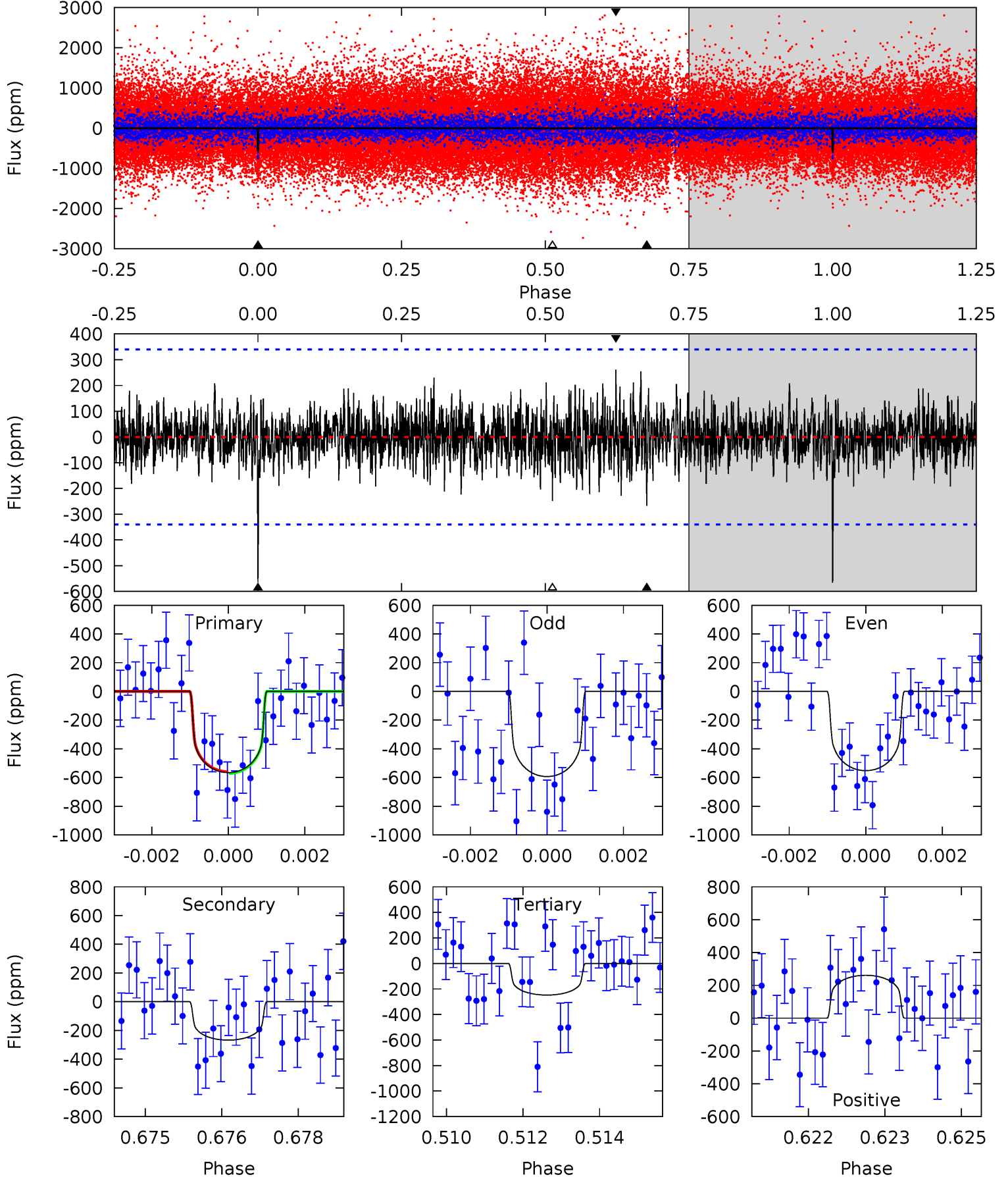
TCE 008973510-01 P=404.529998 Days $T_0=511.767755$ (BKJD)



DV Model-Shift Uniqueness Test

008973510-01, P = 404.552334 Days, E = 107.182164 Days

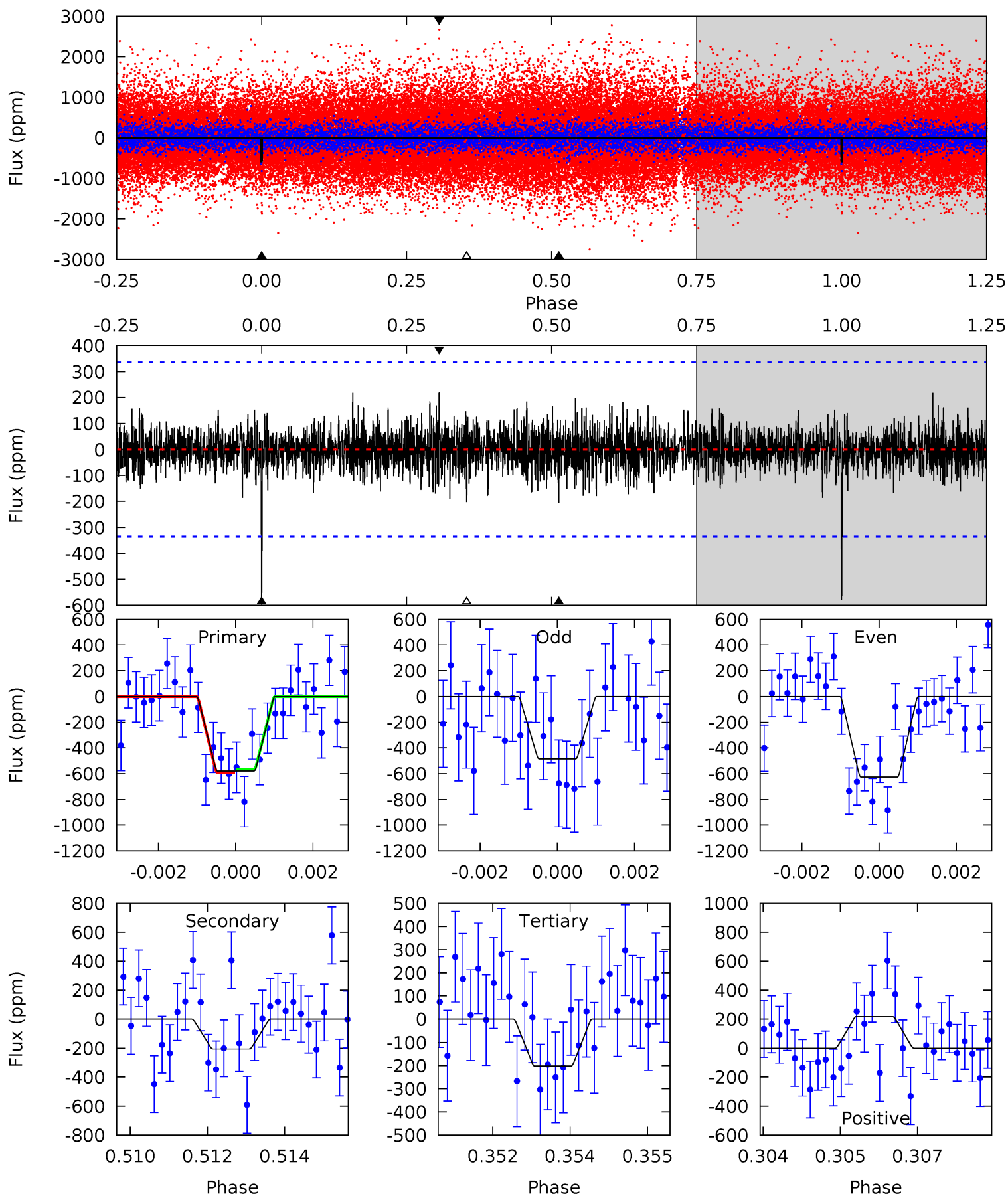
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.94	4.23	3.92	4.13	5.37	3.16	1.10	5.03	4.82	0.31	0.10	0.31	0.95	0.32	0.10



Alt Model-Shift Uniqueness Test

008973510-01, P = 404.529998 Days, E = 107.237757 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.26	3.29	3.23	3.48	5.37	3.16	0.94	6.03	5.78	0.05	-0.19	1.07	1.19	0.27	0.19



Stellar Parameters For KIC 008973510

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5559^{+167}_{-167}	$4.583^{+0.038}_{-0.143}$	$-0.240^{+0.300}_{-0.300}$	$0.789^{+0.185}_{-0.062}$	$0.876^{+0.090}_{-0.100}$	$2.508^{+0.482}_{-1.022}$
	+3%/-3%	+1%/-3%	+125%/-125%	+23%/-8%	+10%/-11%	+19%/-41%
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 008973510-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-267 ± 63	$2.17^{+0.85}_{-0.94}$	306^{+15}_{-13}	4674^{+1289}_{-619}	31157^{+66923}_{-15560}
Alt.	-205 ± 63	$2.37^{+0.92}_{-0.90}$	307^{+17}_{-13}	4272^{+994}_{-534}	19767^{+35518}_{-10200}

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

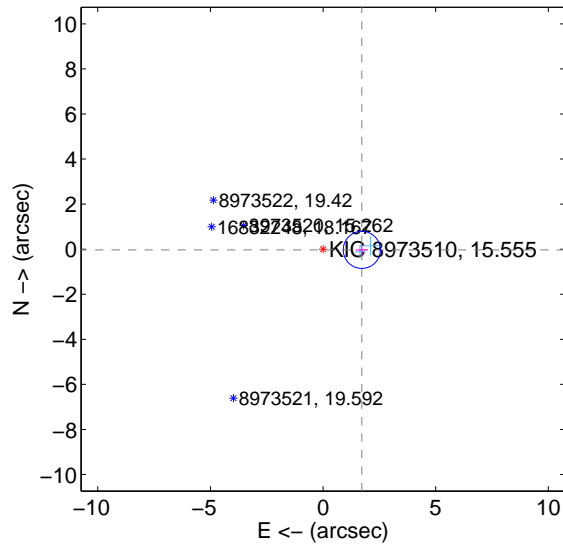
Supplemental centroid analysis for 008973510-01. Kepler magnitude: 15.55. Transit SNR 7.12

There are 2 quarters with good PRF difference image offsets

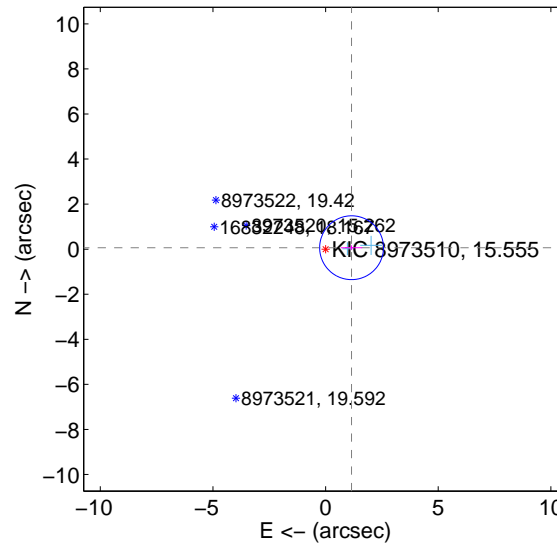
The direct PRF centroid is offset from the target star catalog position by about 0.68 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.721 ± 0.274	6.28	-1.721 ± 0.274	-0.031 ± 0.265
PRF-fit source offset from KIC position	1.155 ± 0.472	2.45	-1.153 ± 0.473	0.065 ± 0.105
photometric centroid source offset	3.12 ± 1.94	1.60	-3.07 ± 1.95	-0.52 ± 1.59

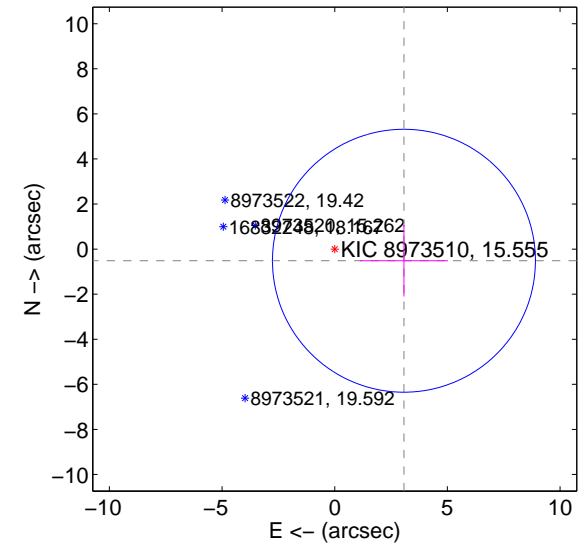
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

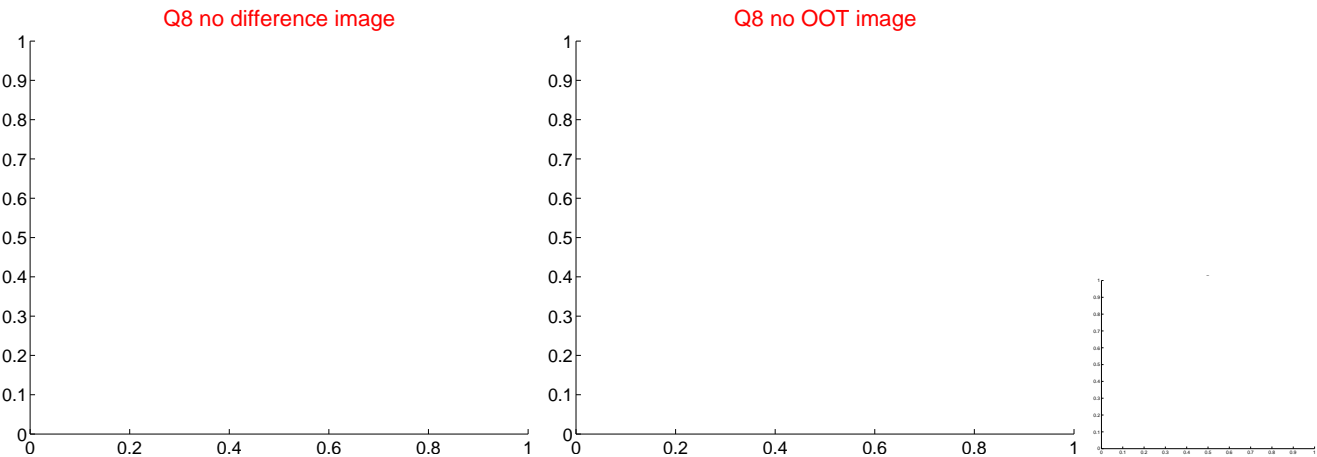
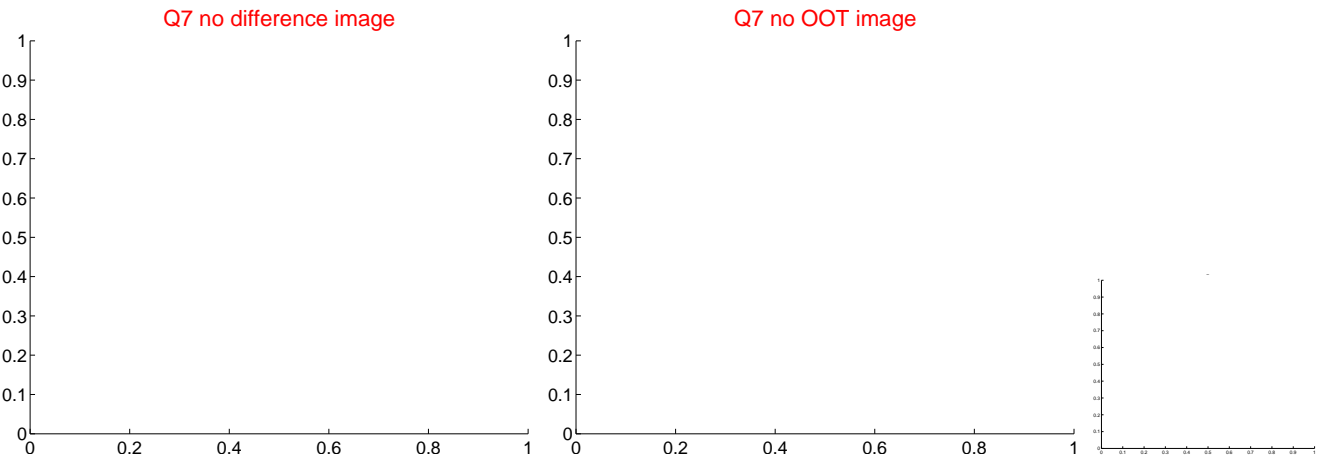
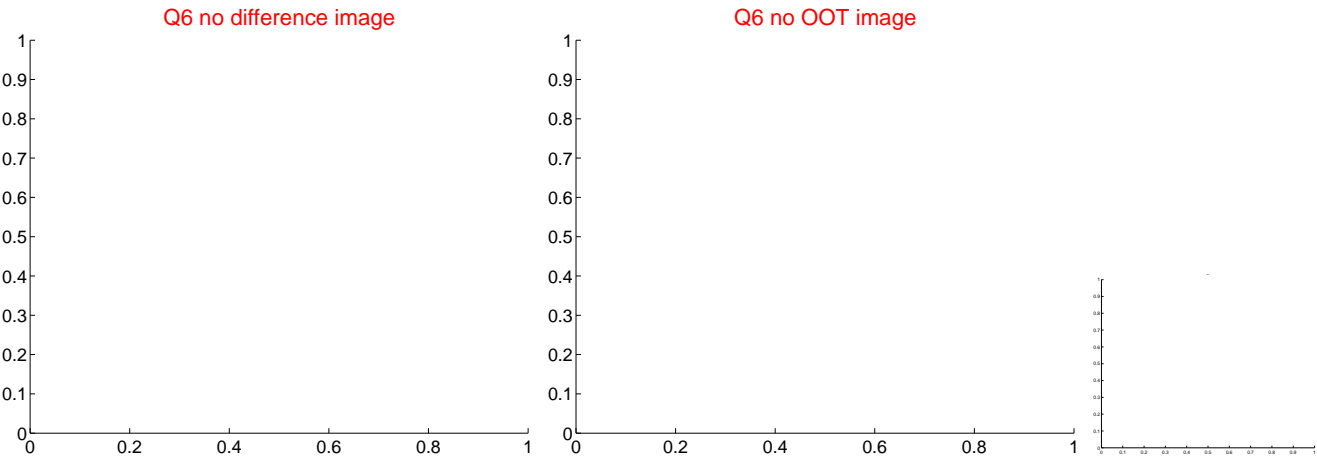
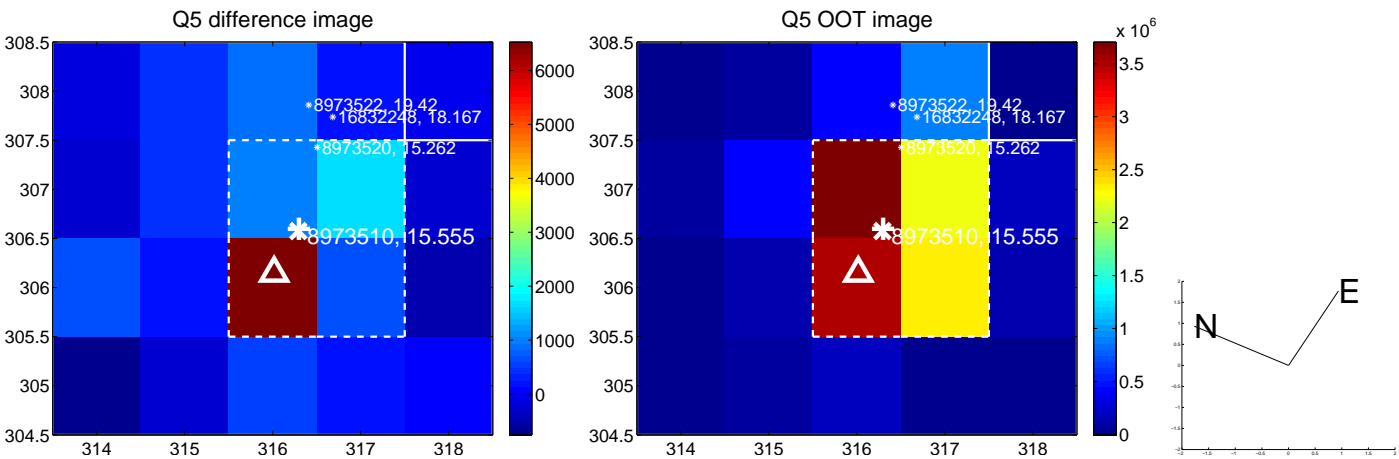


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

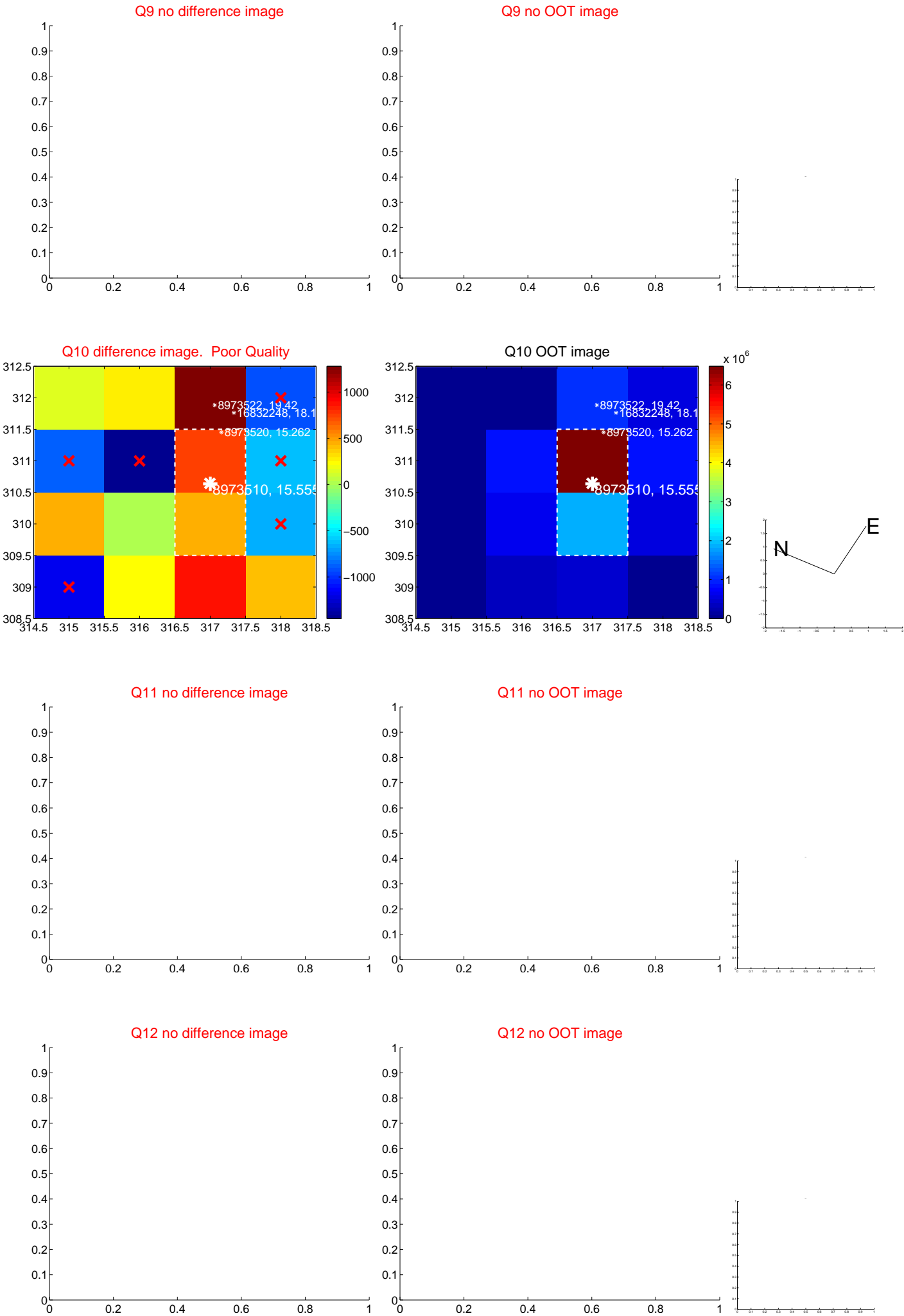
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



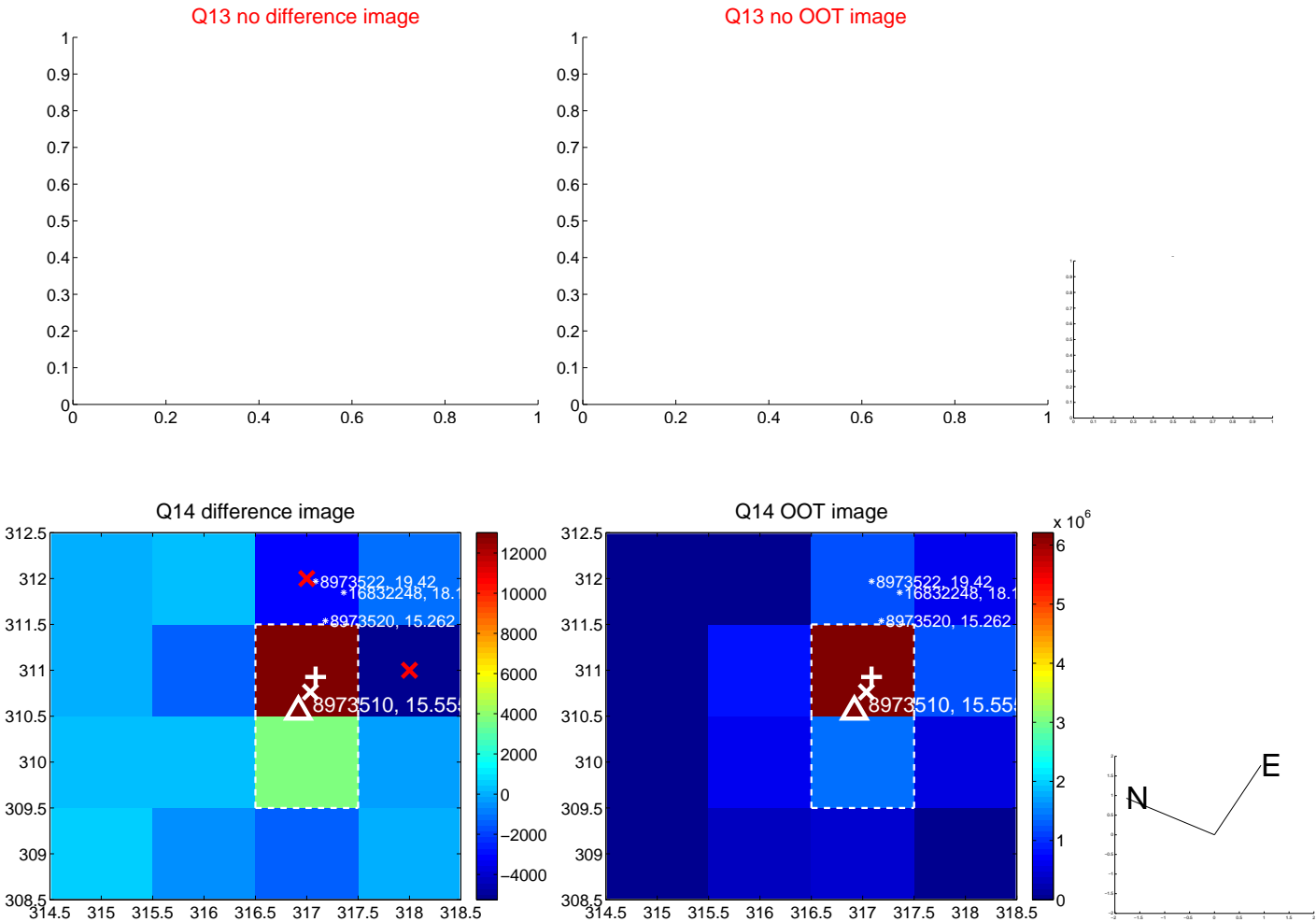
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



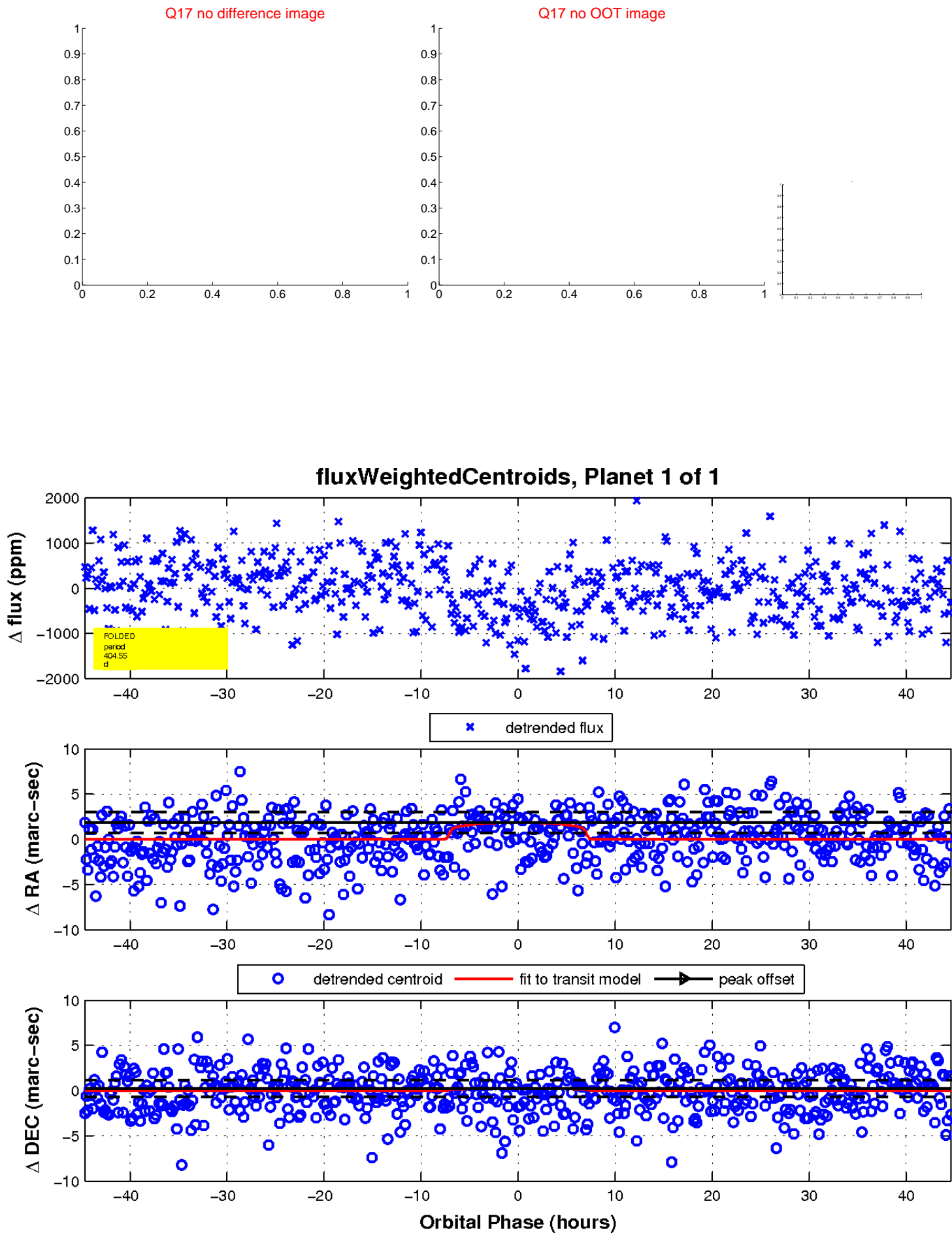
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

