

KIC 009940978

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})
009940978-01	OBS	No	429.058247	245.946078	50.3	17.392	7.5	5.8	1.55	6238	1.20	2.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009940978-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

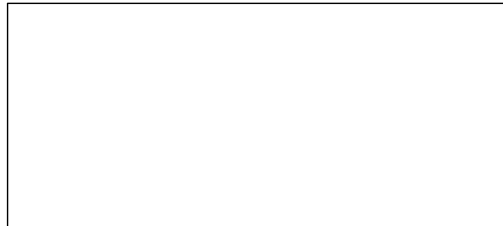
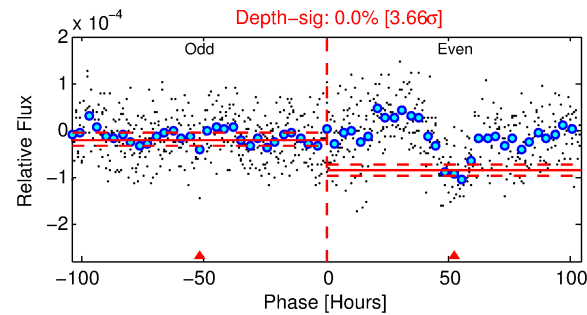
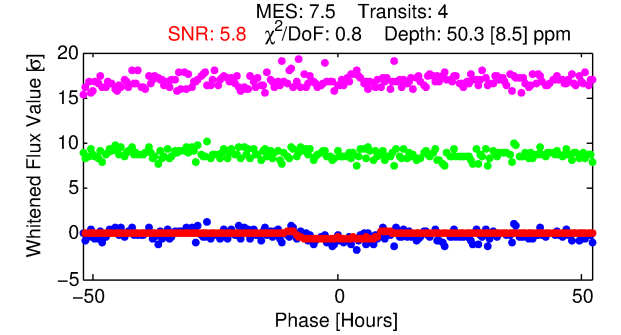
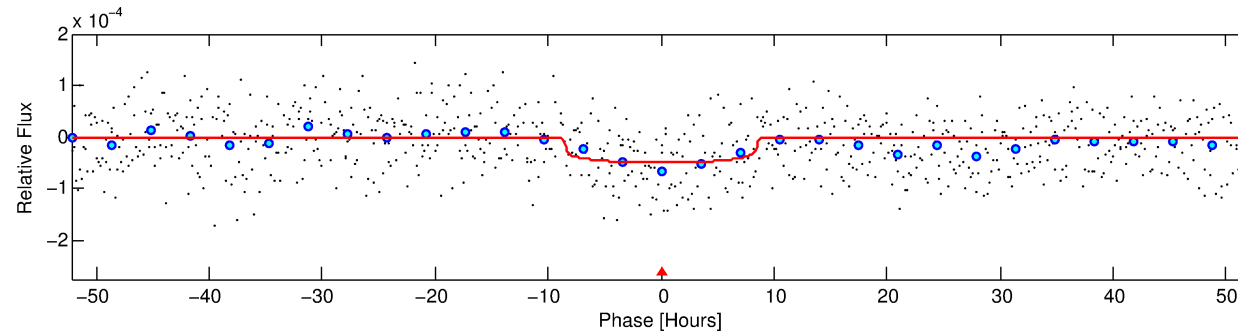
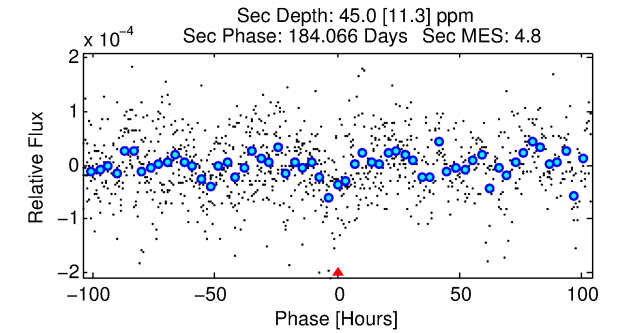
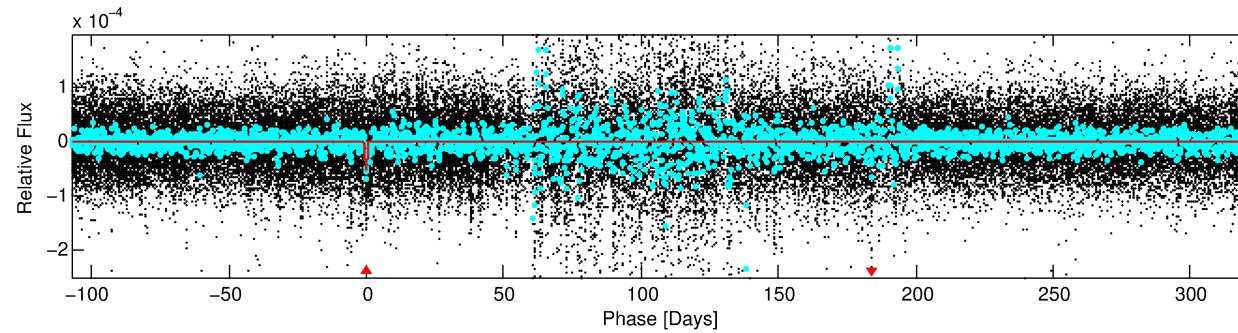
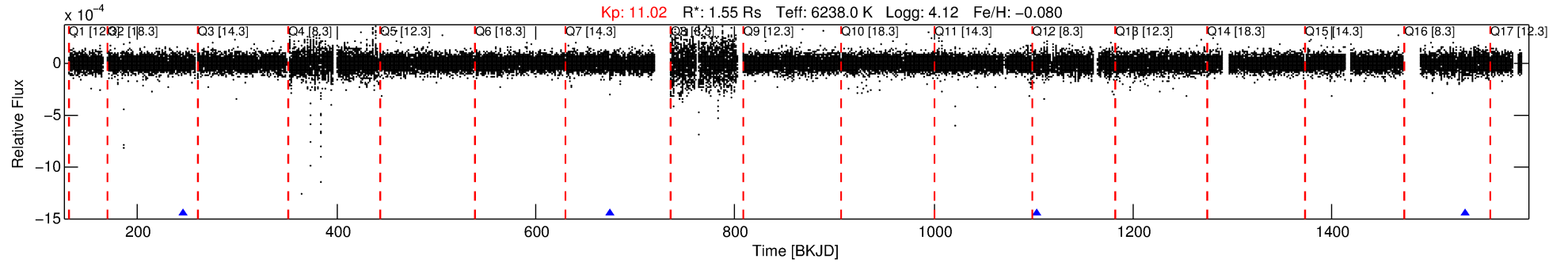
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009940978-01

No Significant Match Found

DV One-Page Summary

KIC: 9940978 Candidate: 1 of 1 Period: 429.058 d



DV Fit Results:

Period = 429.05825 [0.01120] d
Epoch = 245.9461 [0.0204] BKJD
Rp/R* = 0.0071 [0.0022]
a/R* = 123.59 [192.97]
b = 0.76 [0.86]
Seff = 2.40 [1.14]
Teq = 317 [38] K
Rp = 1.20 [0.53] Re
a = 1.1642 [0.3367] AU
Ag = 23427.44 [19017.22] [1.23σ]
Teffp = 6068 [1053] K [5.46σ]

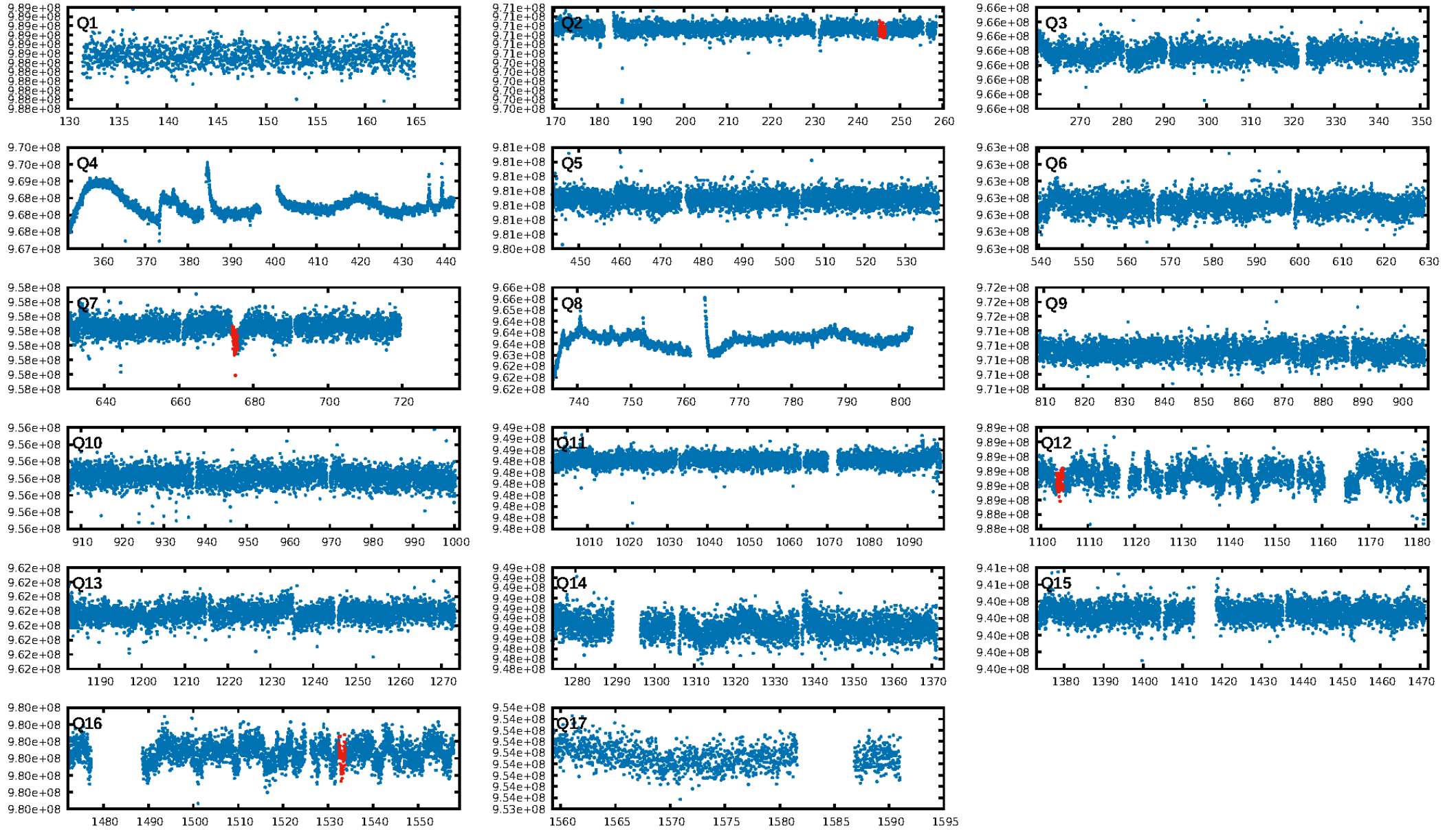
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.42e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.971
Centroid-sig: 10.7%
Centroid-so: 5.805 arcsec [1.68σ]
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]

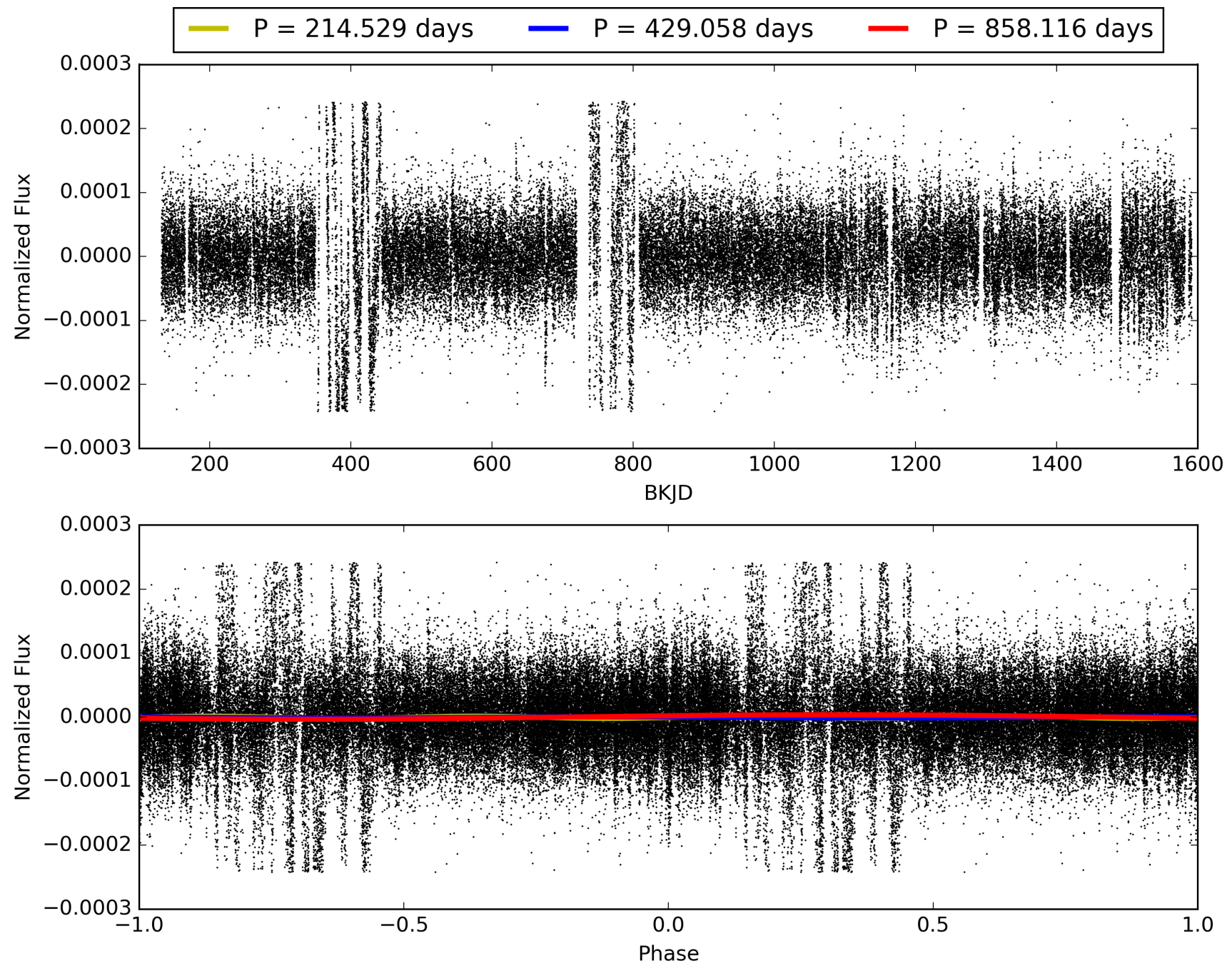
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:54:22 Z

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

TCE 009940978-01, PDC Light Curves

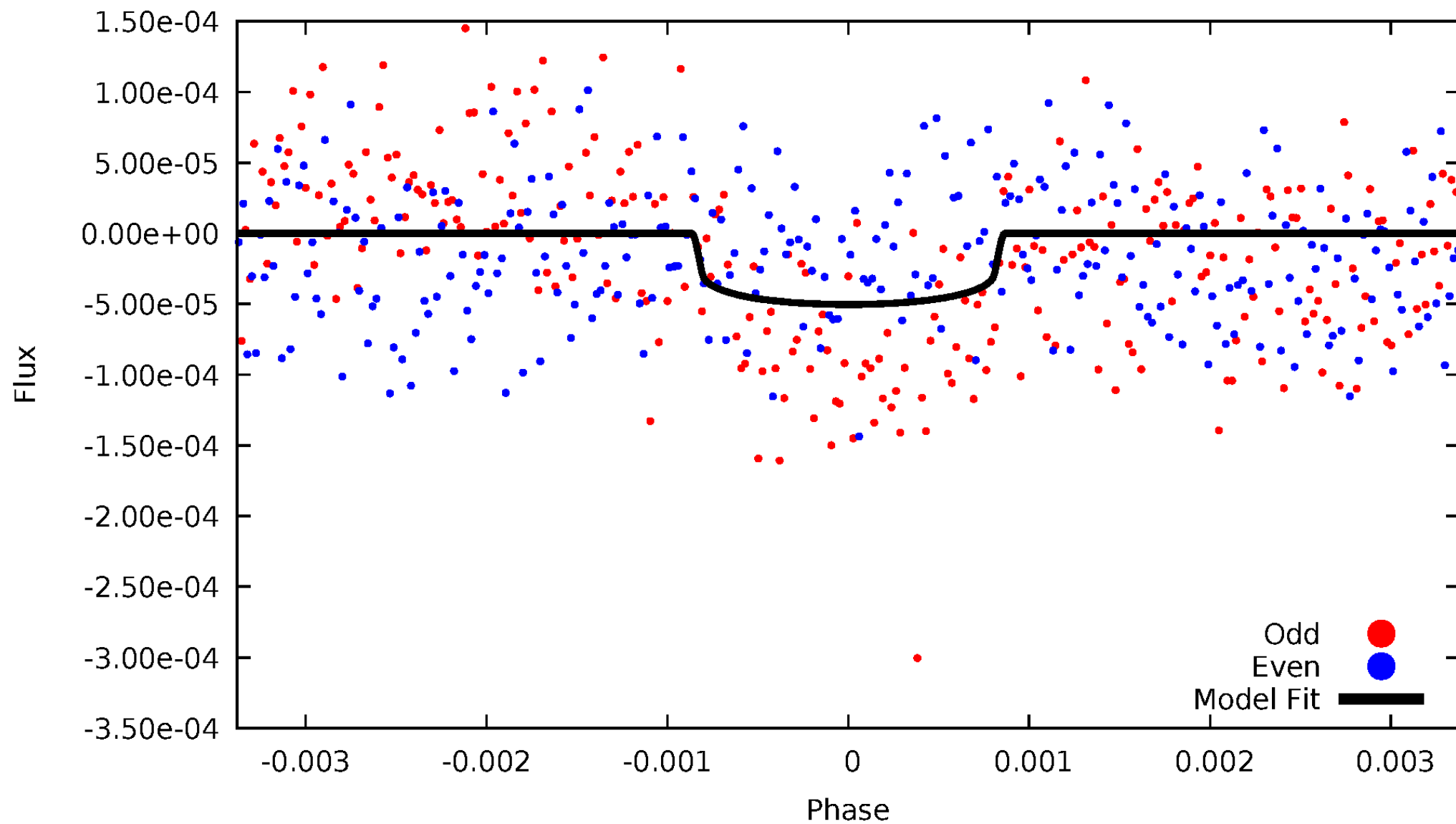


TCE 009940978-01



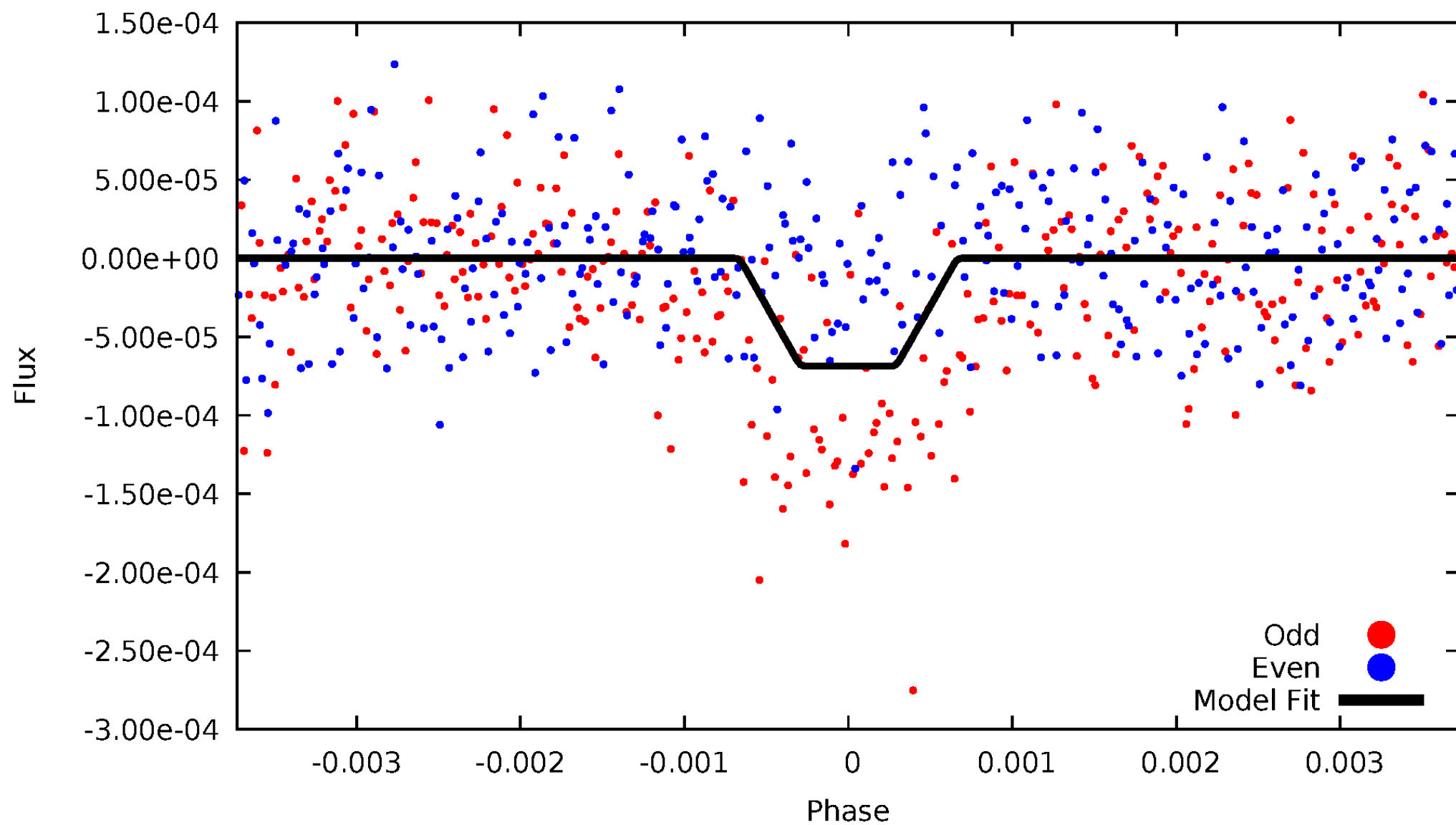
DV Odd/Even

TCE 009940978-01



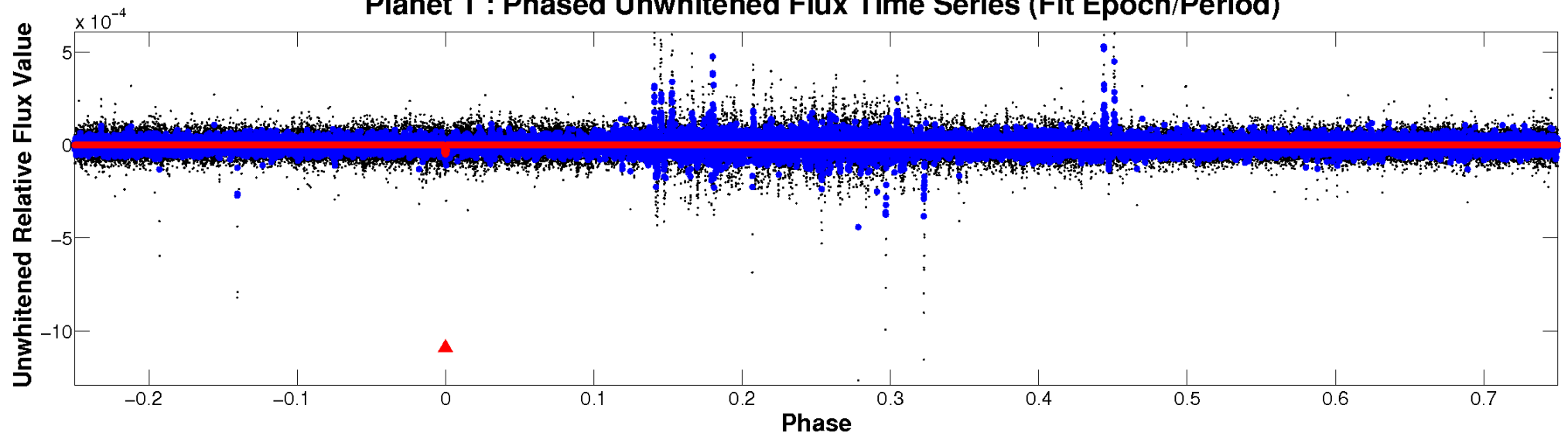
ALT Odd/Even

TCE 009940978-01

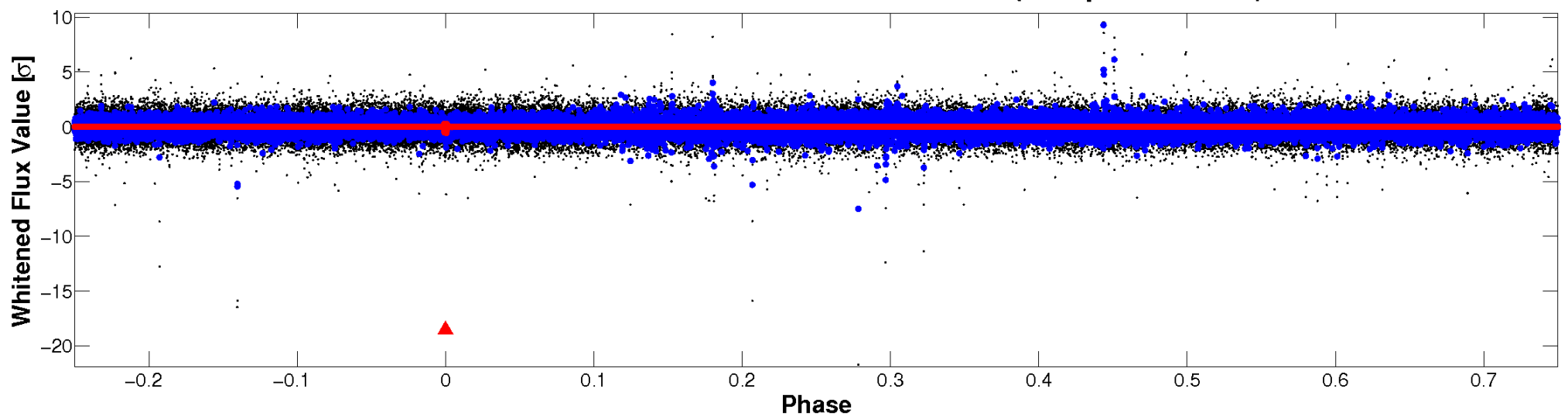


Non-Whitened Vs. Whitened Light Curve

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

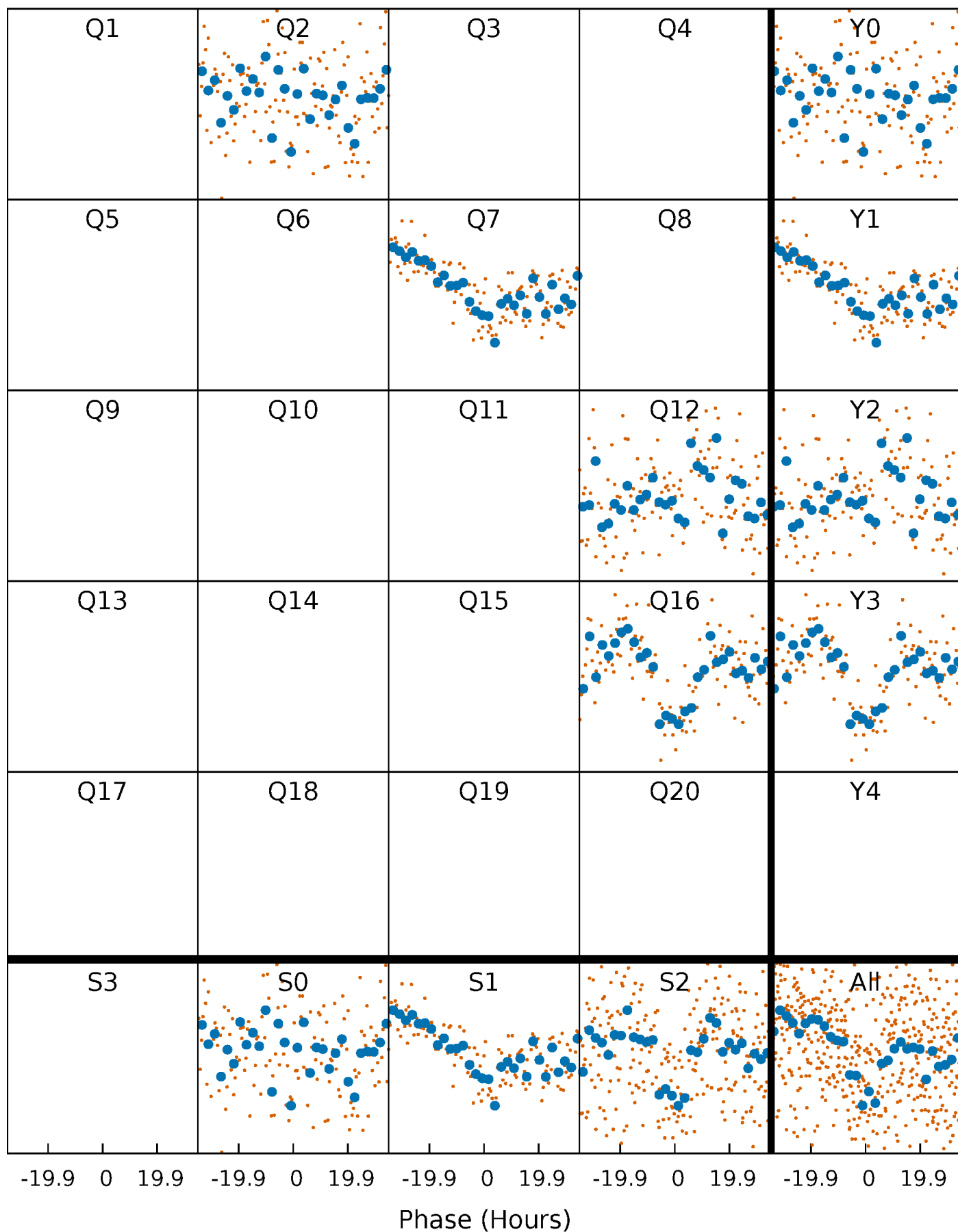


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



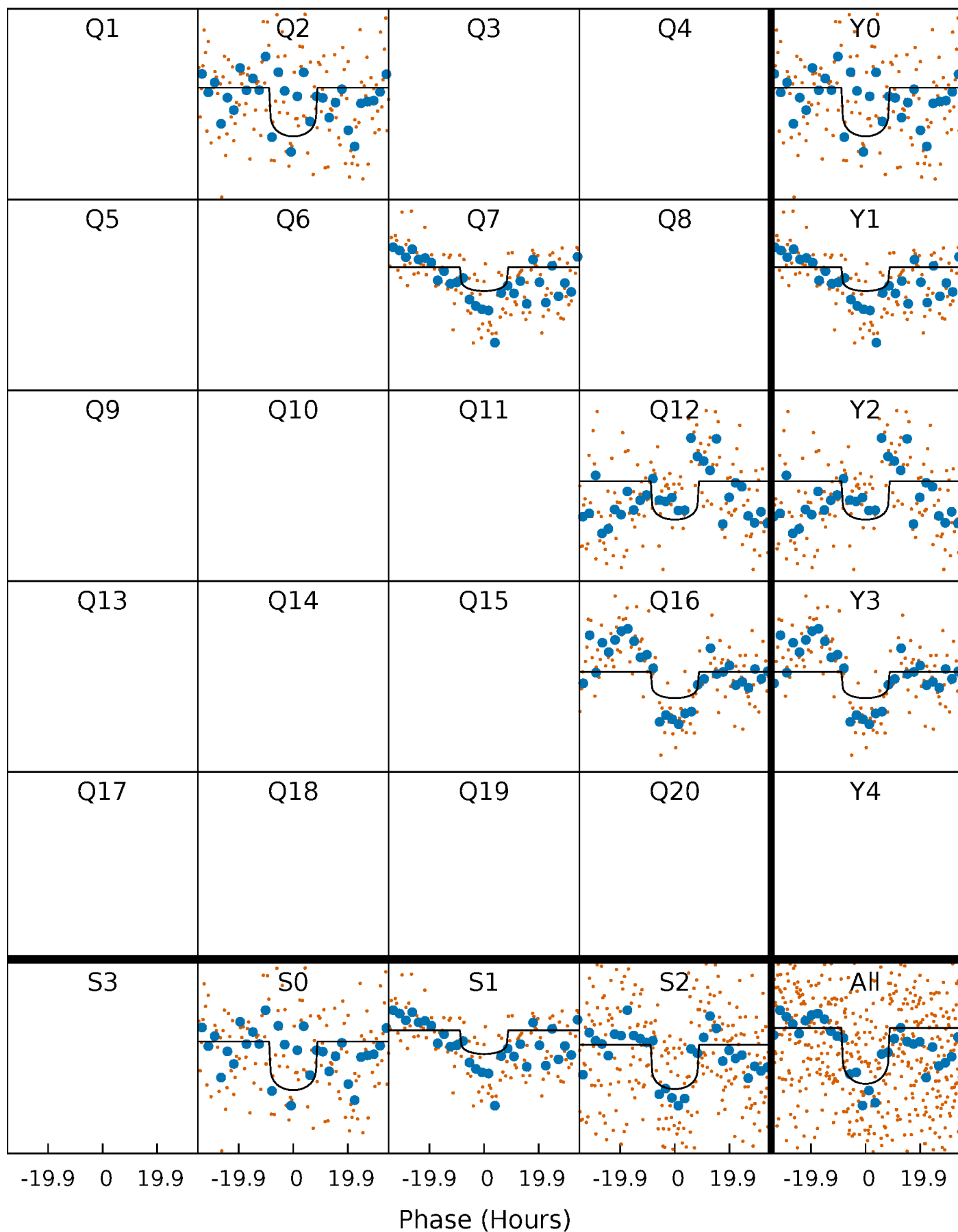
PDC Quarter-Phased Transit Curves

TCE 009940978-01 P=429.058247 Days $T_0=245.946078$ (BKJD)



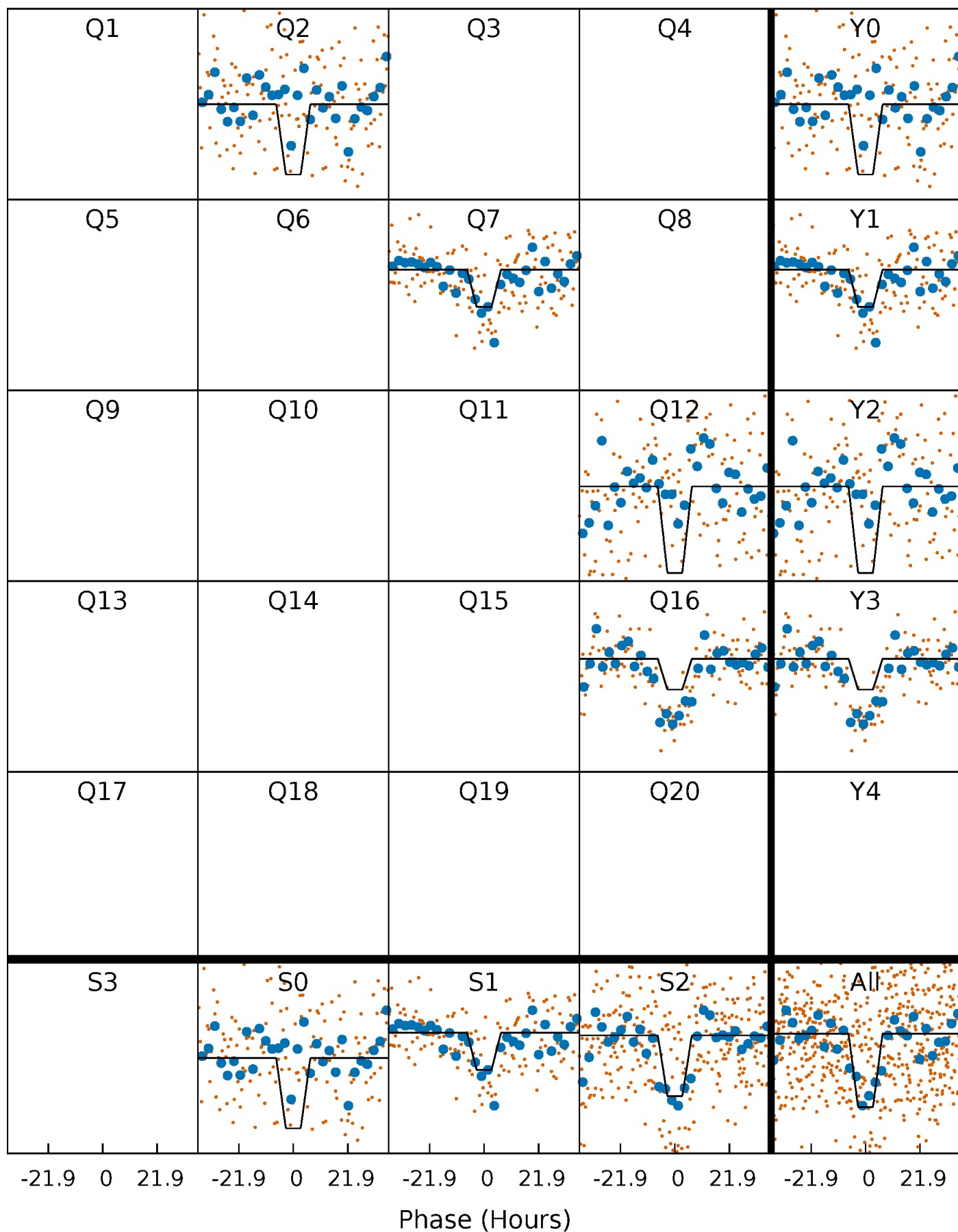
DV Quarter-Phased Transit Curves

TCE 009940978-01 P=429.058247 Days $T_0=245.946078$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

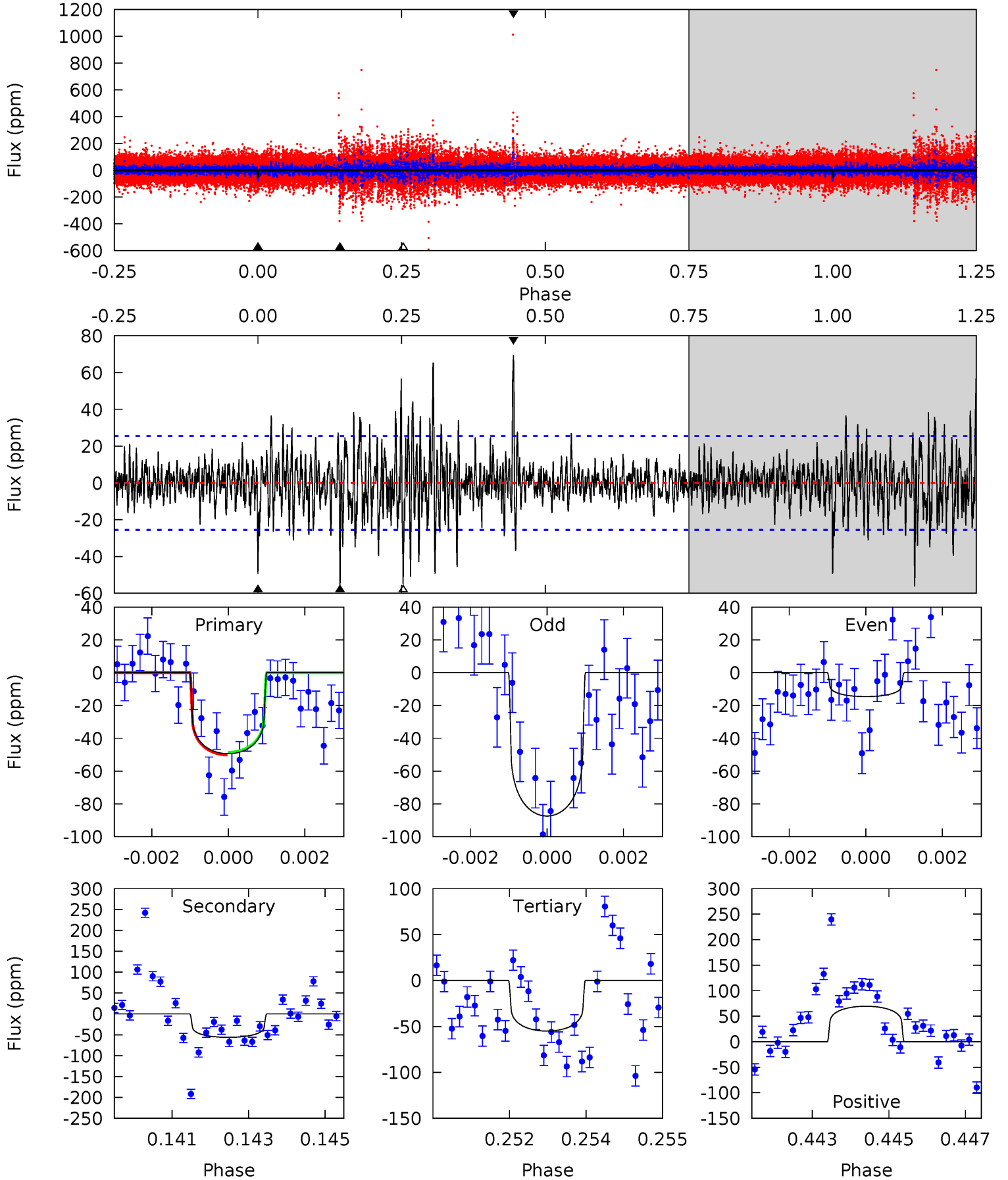
TCE 009940978-01 P=429.070704 Days $T_0=245.928104$ (BKJD)



DV Model-Shift Uniqueness Test

009940978-01, $P = 429.058247$ Days, $E = 245.946078$ Days

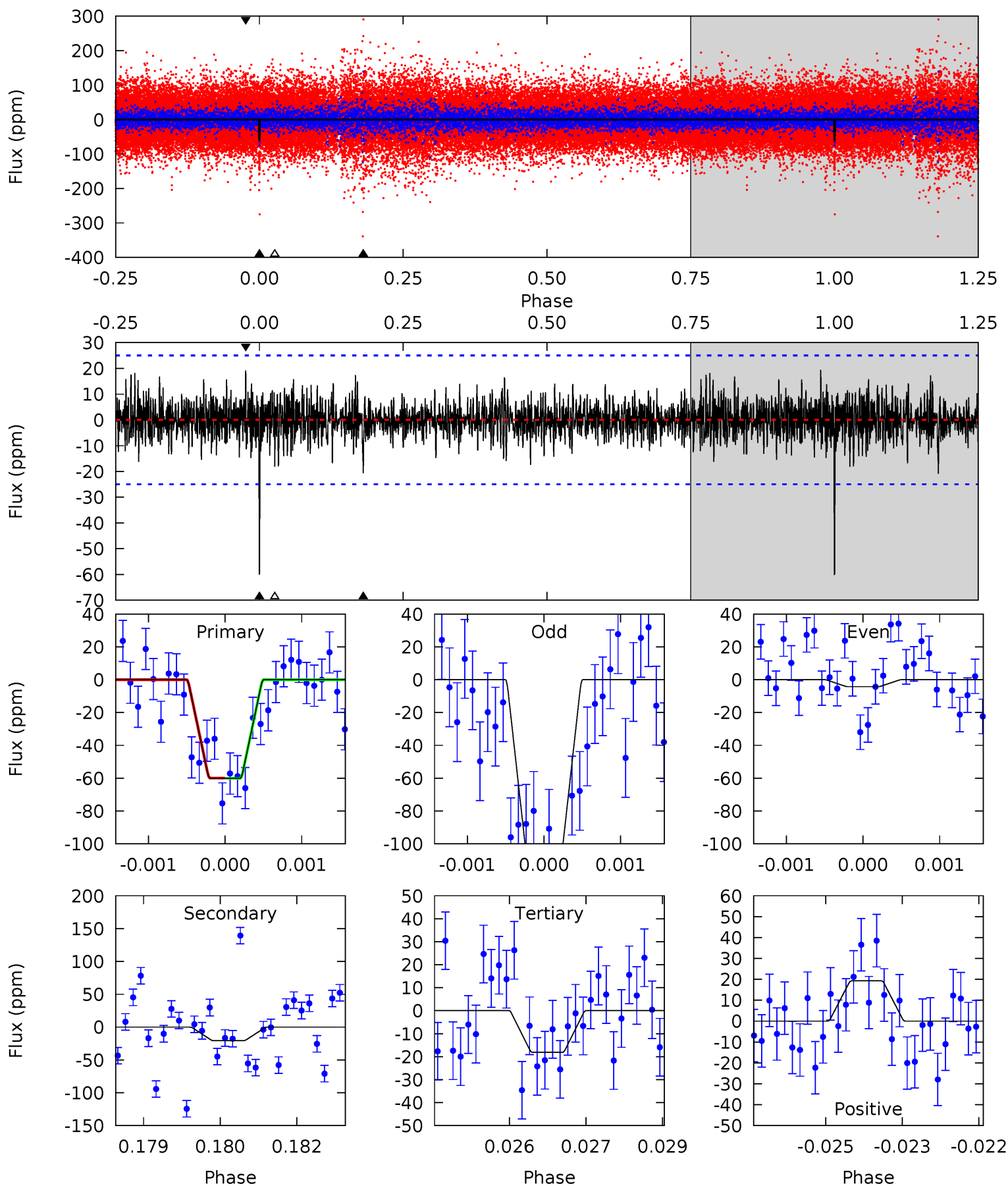
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	11.8	11.6	14.6	5.35	3.13	2.42	-1.19	-4.23	0.26	-2.78	7.24	1.03	0.55	0.17



Alt Model-Shift Uniqueness Test

009940978-01, P = 429.070704 Days, E = 245.928104 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	4.47	3.92	4.16	5.40	3.20	1.13	9.04	8.80	0.55	0.31	11.8	1.17	0.24	0.03



Stellar Parameters For KIC 009940978

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6238^{+199}_{-243}	$4.117^{+0.258}_{-0.172}$	$-0.080^{+0.250}_{-0.300}$	$1.547^{+0.444}_{-0.489}$	$1.140^{+0.194}_{-0.159}$	$0.434^{+0.703}_{-0.207}$
	+3%/-4%	+6%/-4%	+312%/-375%	+29%/-32%	+17%/-14%	+162%/-48%
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 009940978-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-56 ± 5	$1.17^{+0.45}_{-0.39}$	439^{+37}_{-38}	6402^{+1499}_{-864}	31308^{+36567}_{-15591}
Alt.	-21 ± 5	$1.35^{+0.46}_{-0.38}$	439^{+33}_{-36}	4736^{+732}_{-469}	8298^{+9138}_{-3789}

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

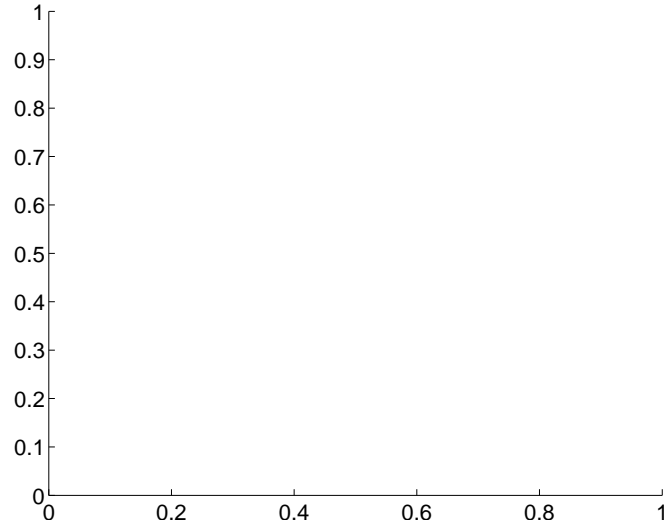
Supplemental centroid analysis for 009940978-01. **Kepler magnitude: 11.02.** Transit SNR 5.76

There are 0 quarters with good PRF difference image offsets

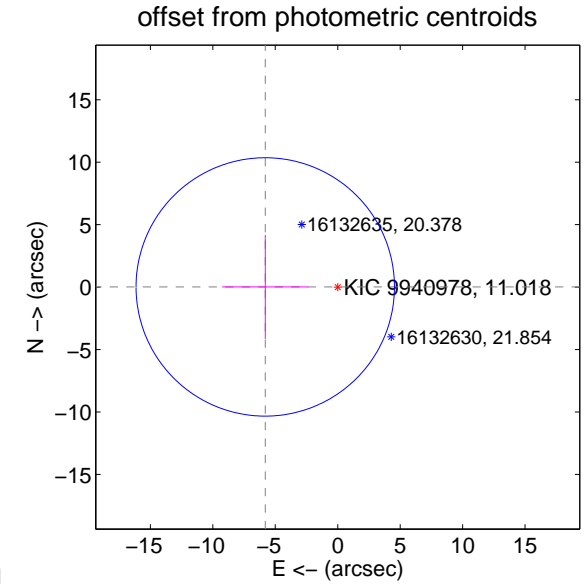
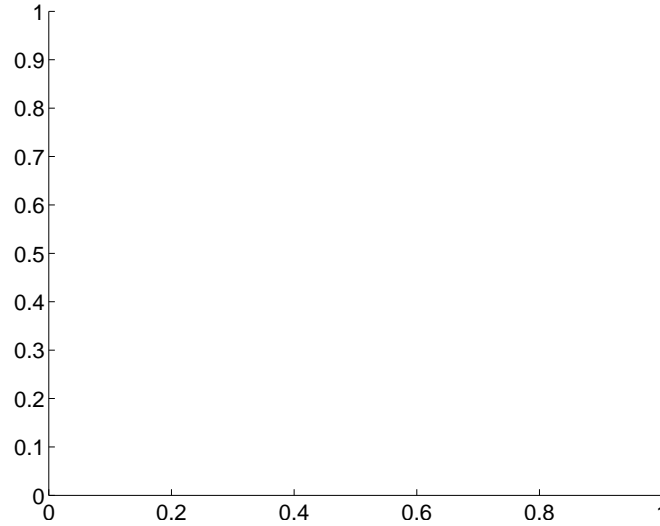
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	5.81 ± 3.45	1.68	5.81 ± 3.45	0.01 ± 4.17

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

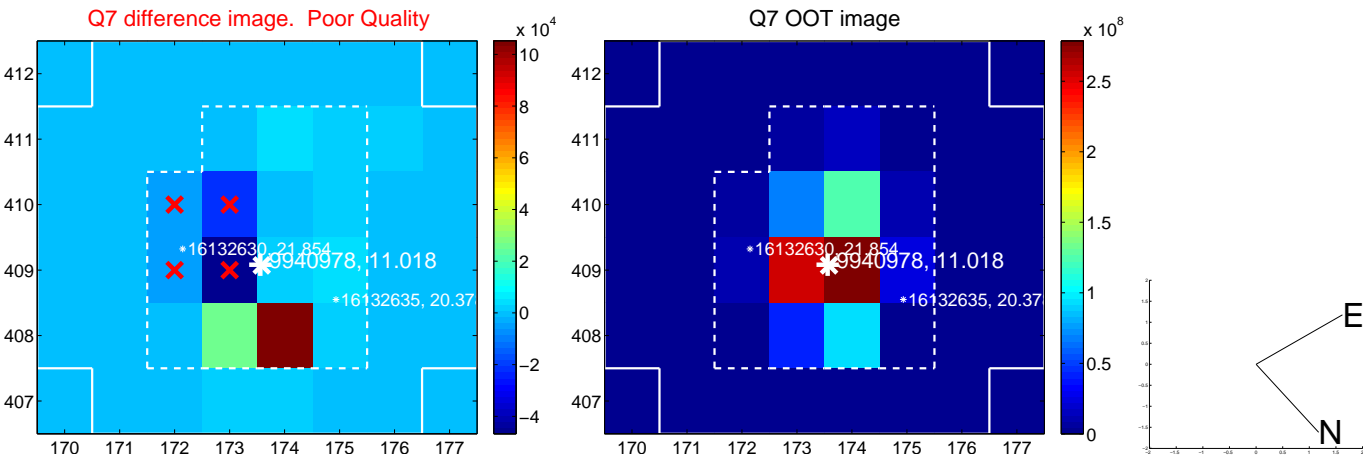


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



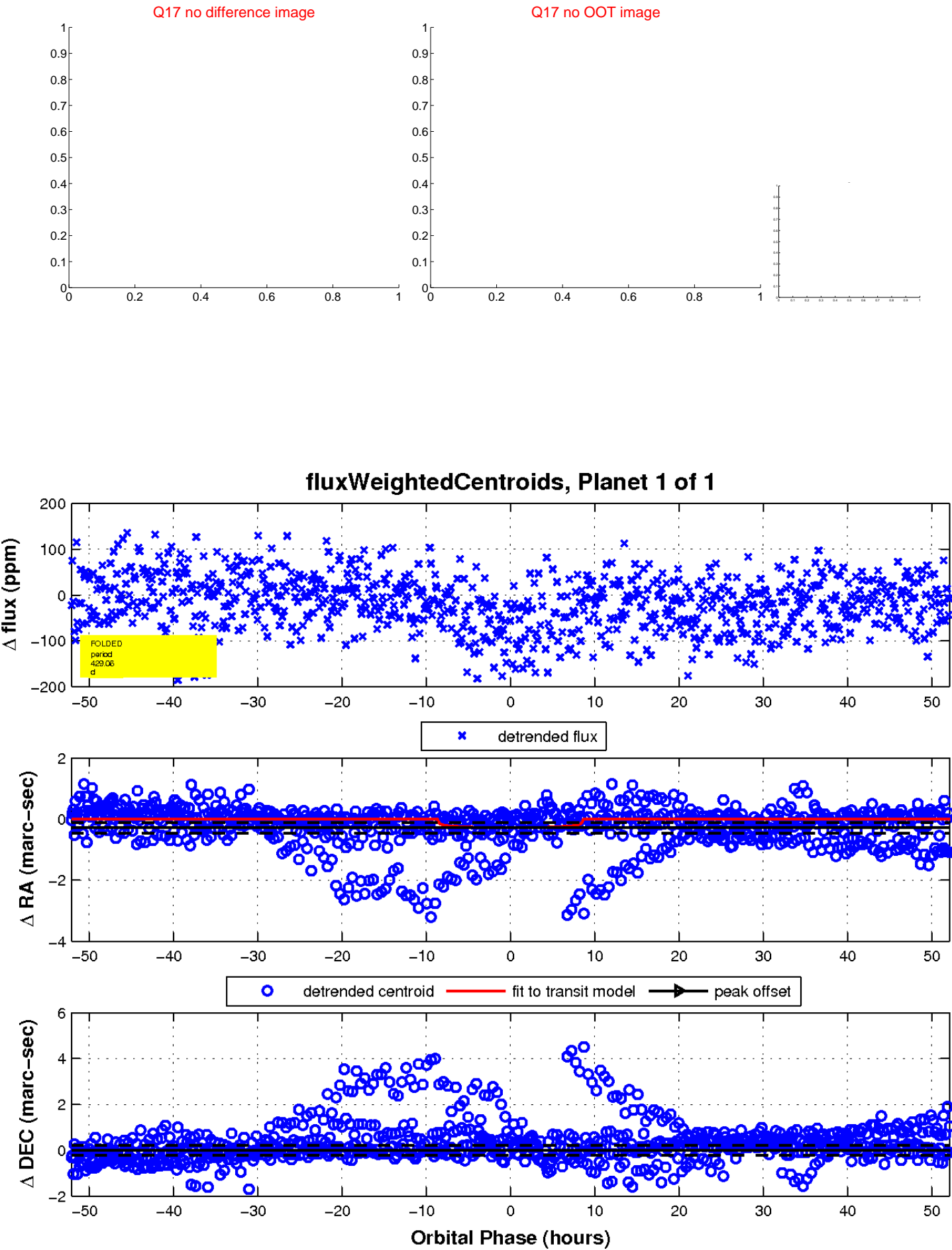
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



This astronomical image shows a field of stars against a dark background. A prominent, bright star is located near the center. A grid of blue lines is overlaid on the image, and a red crosshair marks the central star. The image includes green text labels for coordinates: '08.0', '07.0', '19:06:06.0', '50.046:53:00.0', '10.0', '20.0', '04.0', and '03.0'.

Declination