

KIC 002159700

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})
002159700-01	OBS	No	383.833483	379.645090	166.9	3.953	10.7	9.7	34.42	3933	54.33	250.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002159700-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_POS_DV—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.

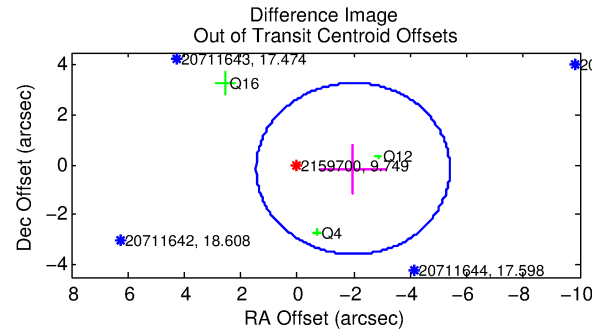
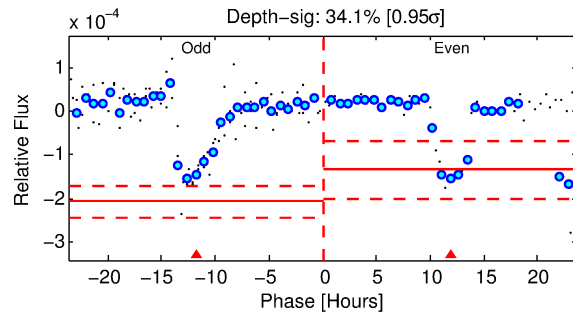
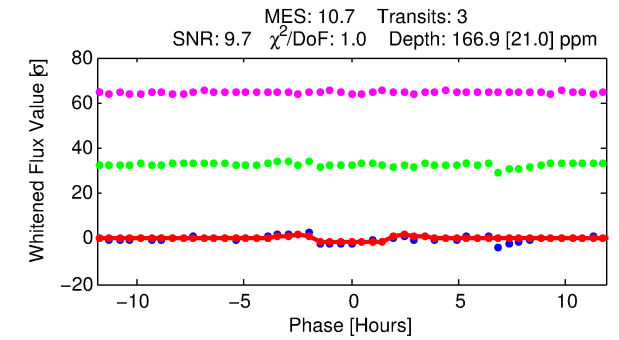
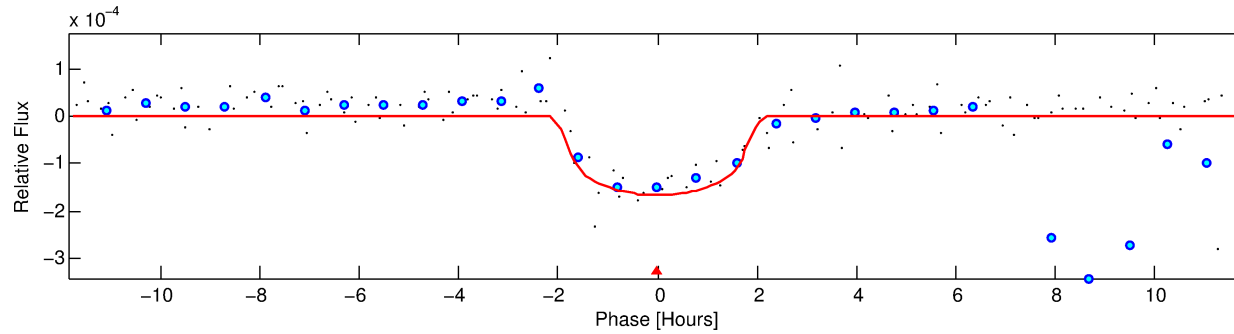
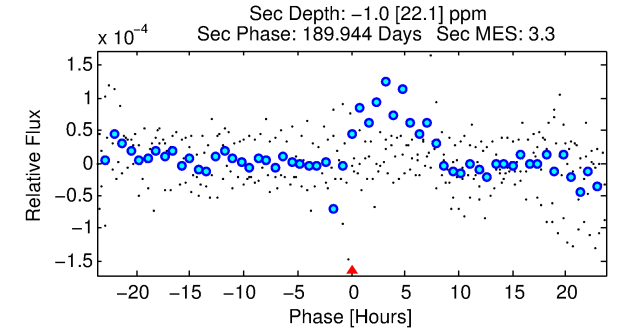
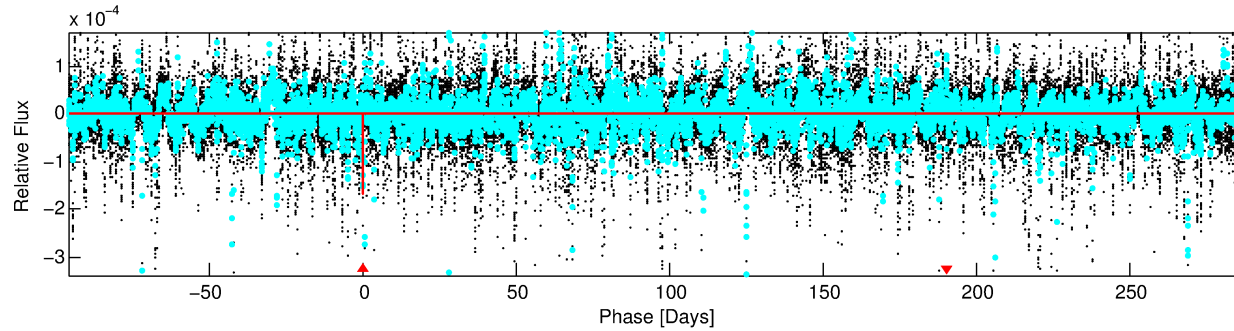
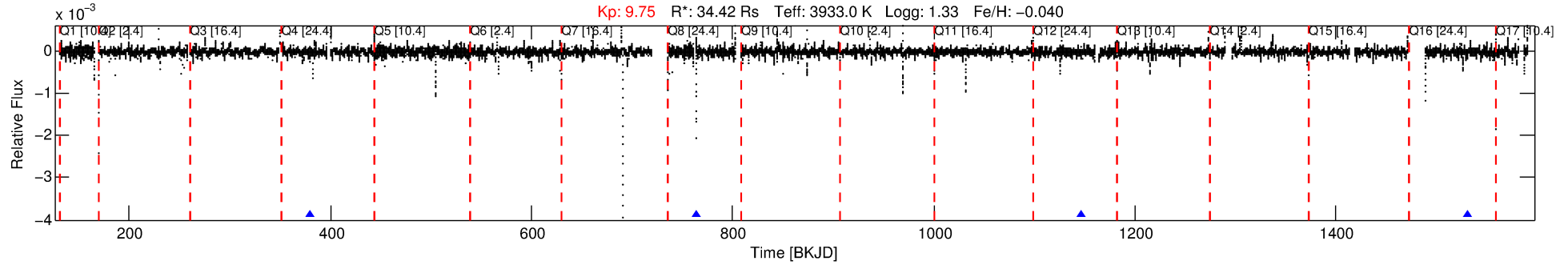
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002159700-01

No Significant Match Found

DV One-Page Summary

KIC: 2159700 Candidate: 1 of 1 Period: 383.833 d



DV Fit Results:

Period = 383.83348 [0.00264] d
Epoch = 379.6451 [0.0056] BKJD
Rp/R* = 0.0145 [0.0084]
a/R* = 382.03 [687.54]
b = 0.87 [0.50]
Seff = 250.10 [69.45]
Teq = 1014 [70] K
Rp = 54.33 [35.28] Re
a = 1.0076 [0.2143] AU
Ag = N/A
Teffp = N/A

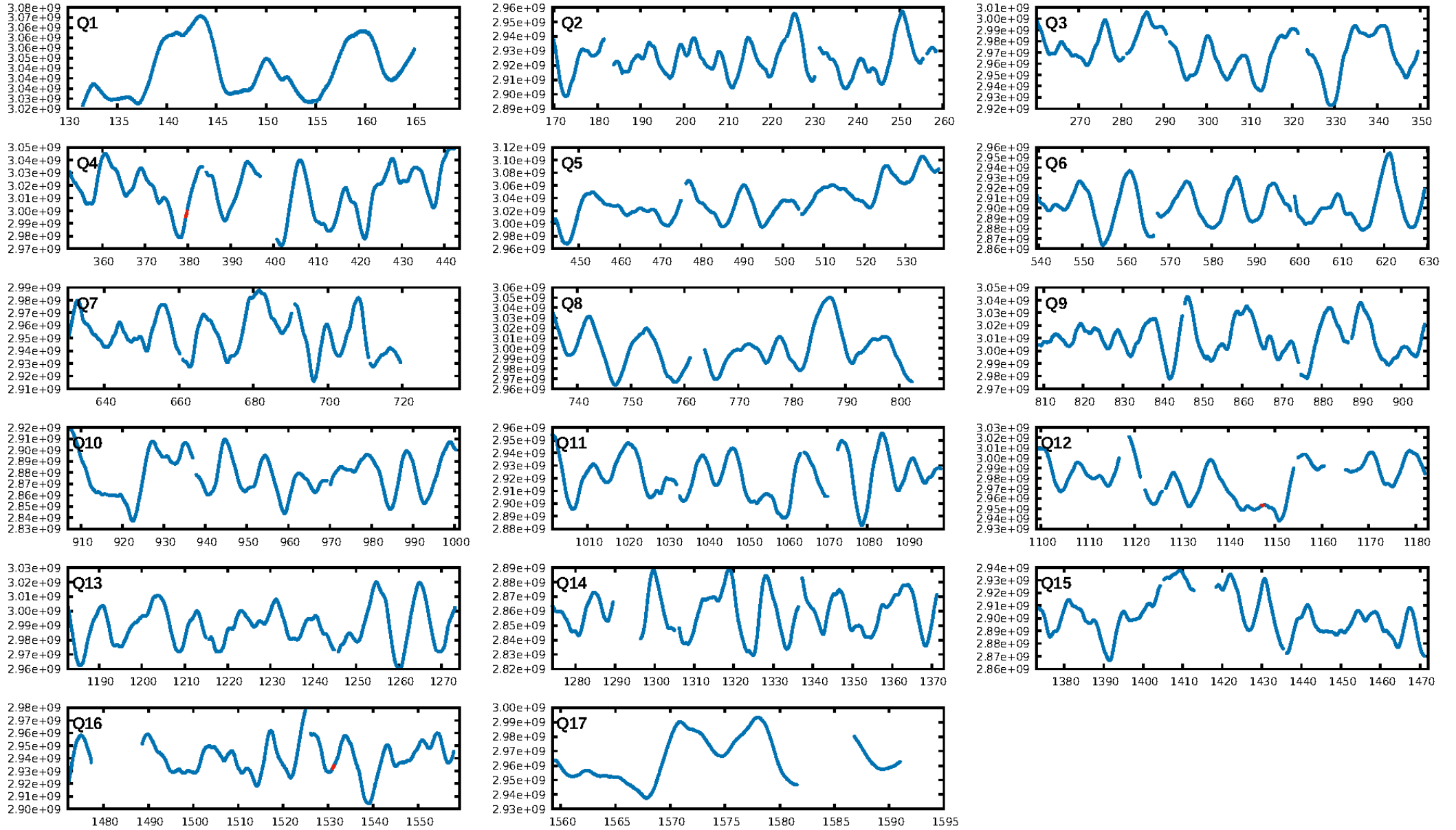
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.2%
ModelChiSquareGof-sig: 77.0%
Bootstrap-pfa: 2.69e-04
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 3.5%
Centroid-so: 2.601 arcsec [1.58σ]
OotOffset-rm: 1.980 arcsec [1.73σ]
KicOffset-rm: 2.904 arcsec [2.01σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

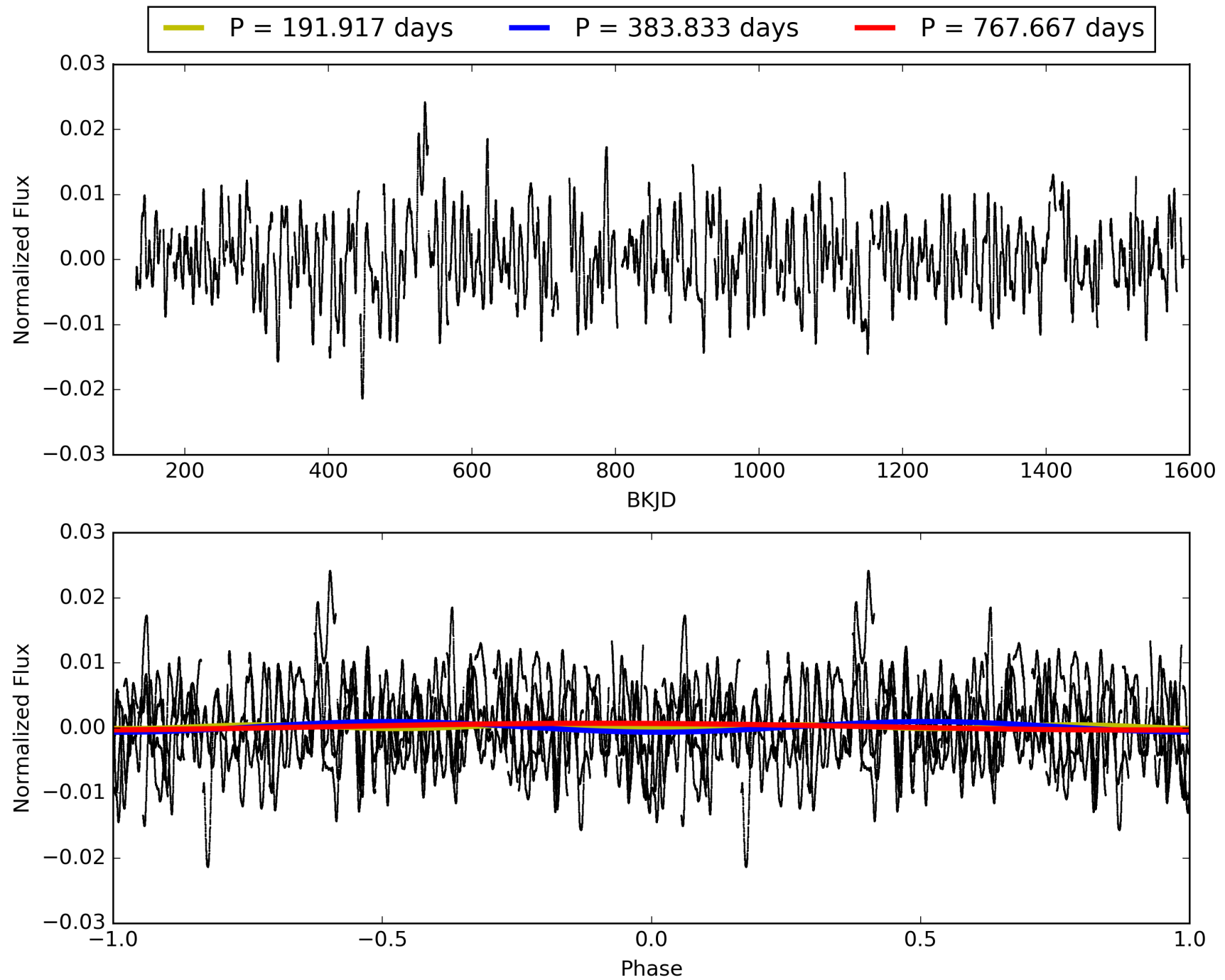
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:14:12 Z

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

TCE 002159700-01, PDC Light Curves

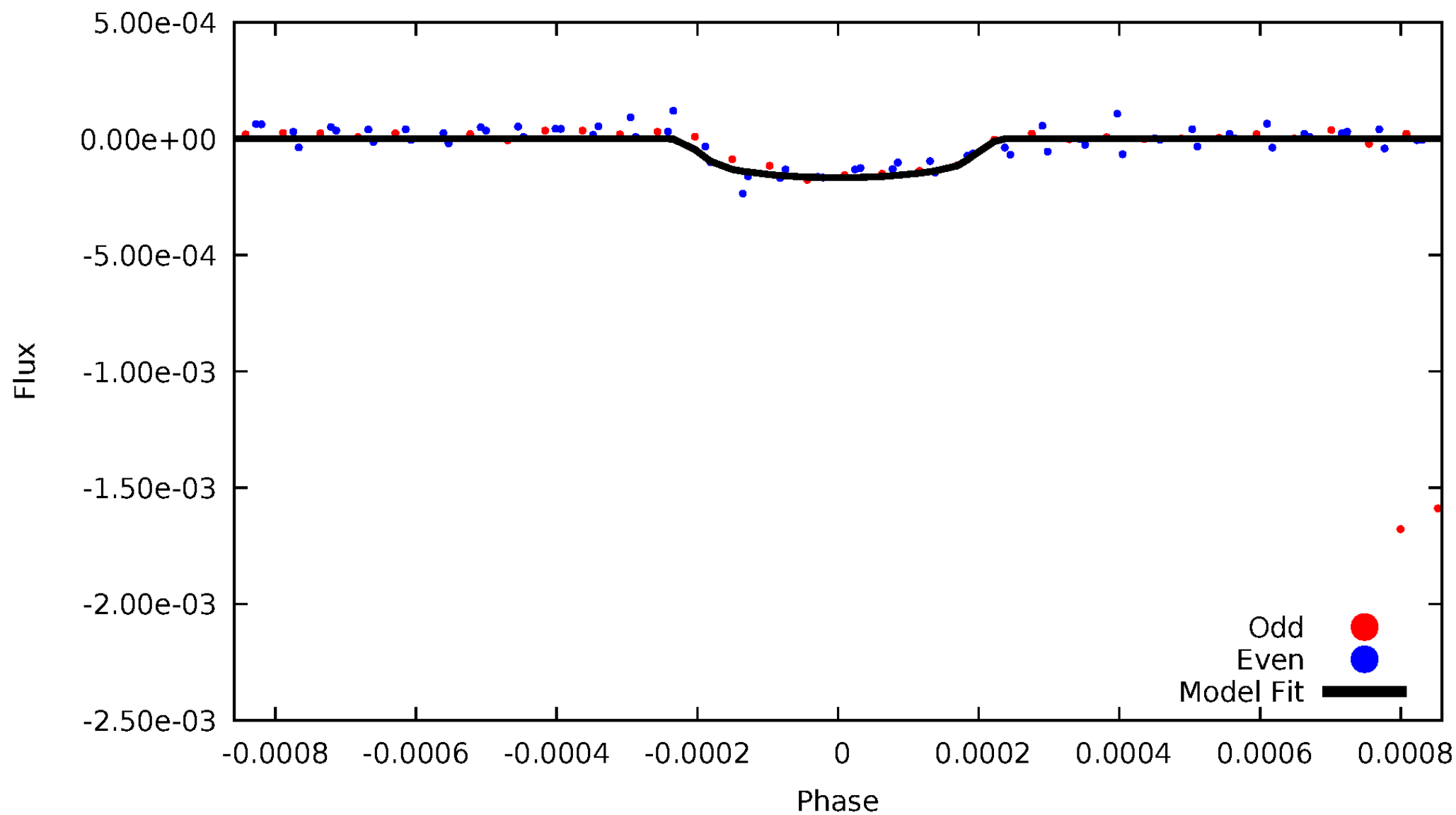


TCE 002159700-01



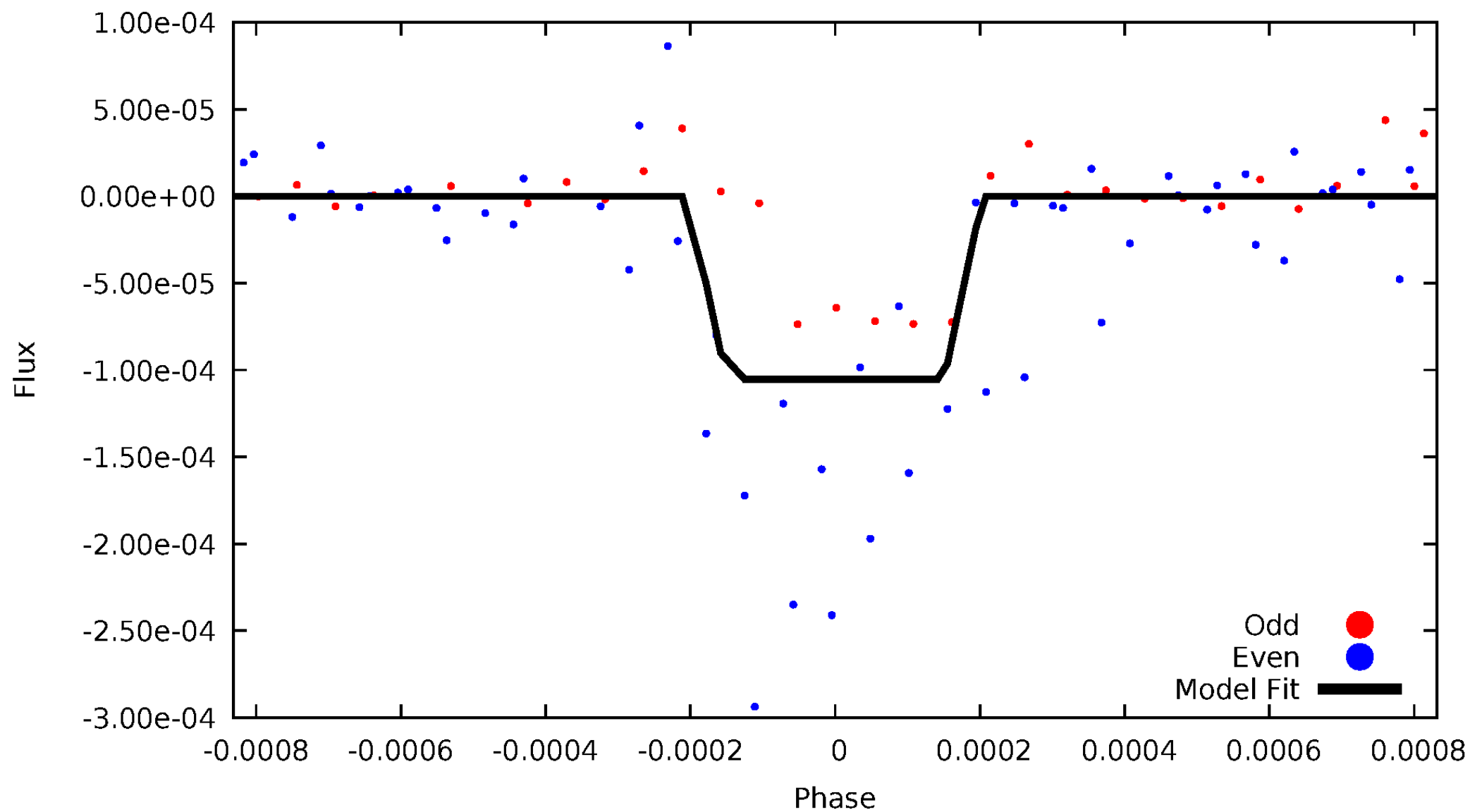
DV Odd/Even

TCE 002159700-01



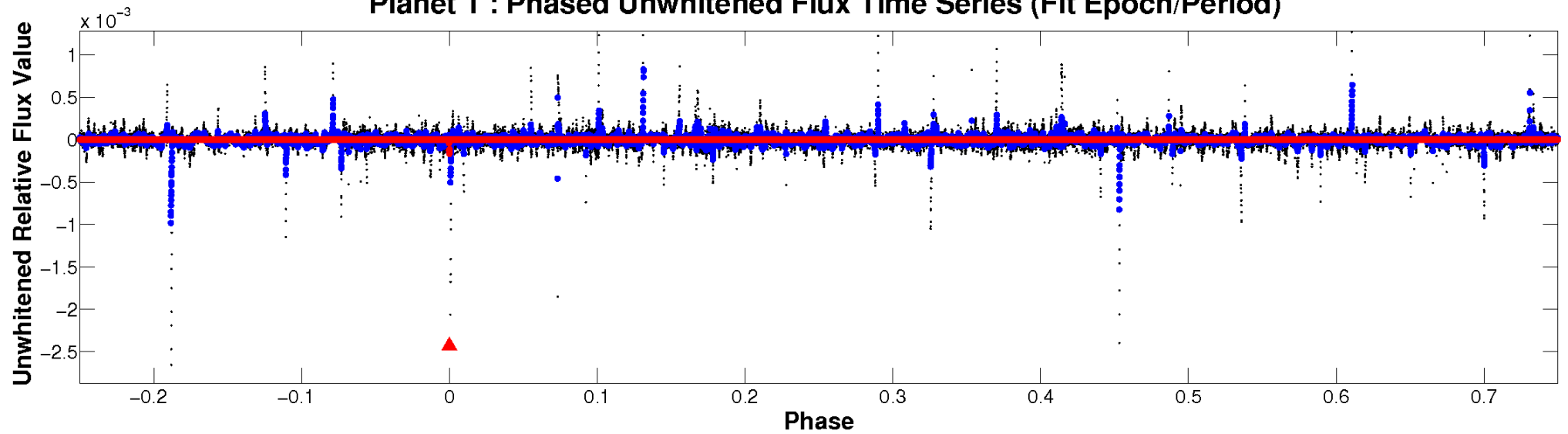
ALT Odd/Even

TCE 002159700-01

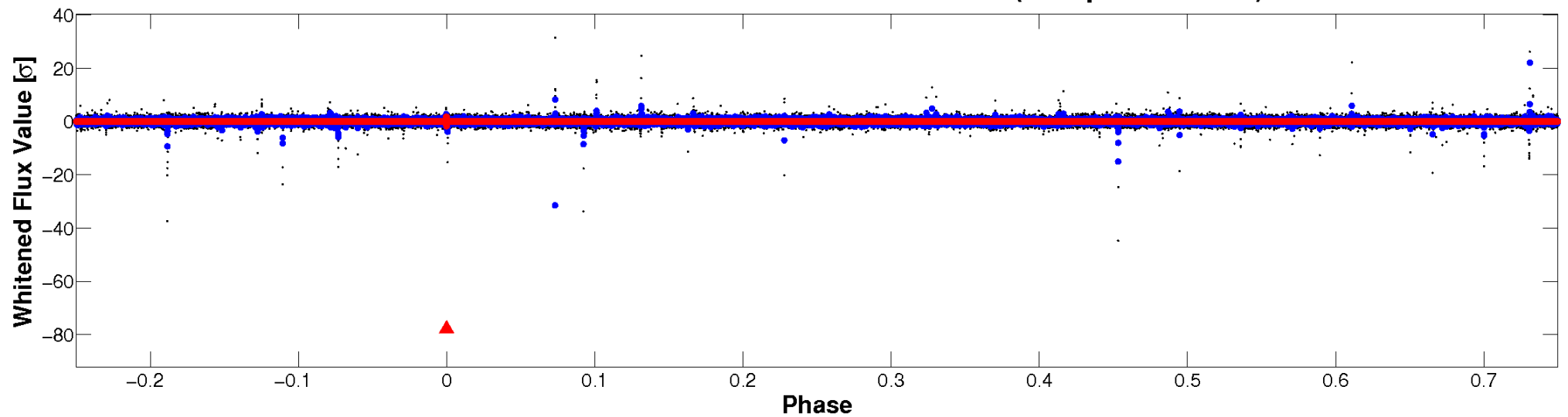


Non-Whitened Vs. Whitened Light Curve

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

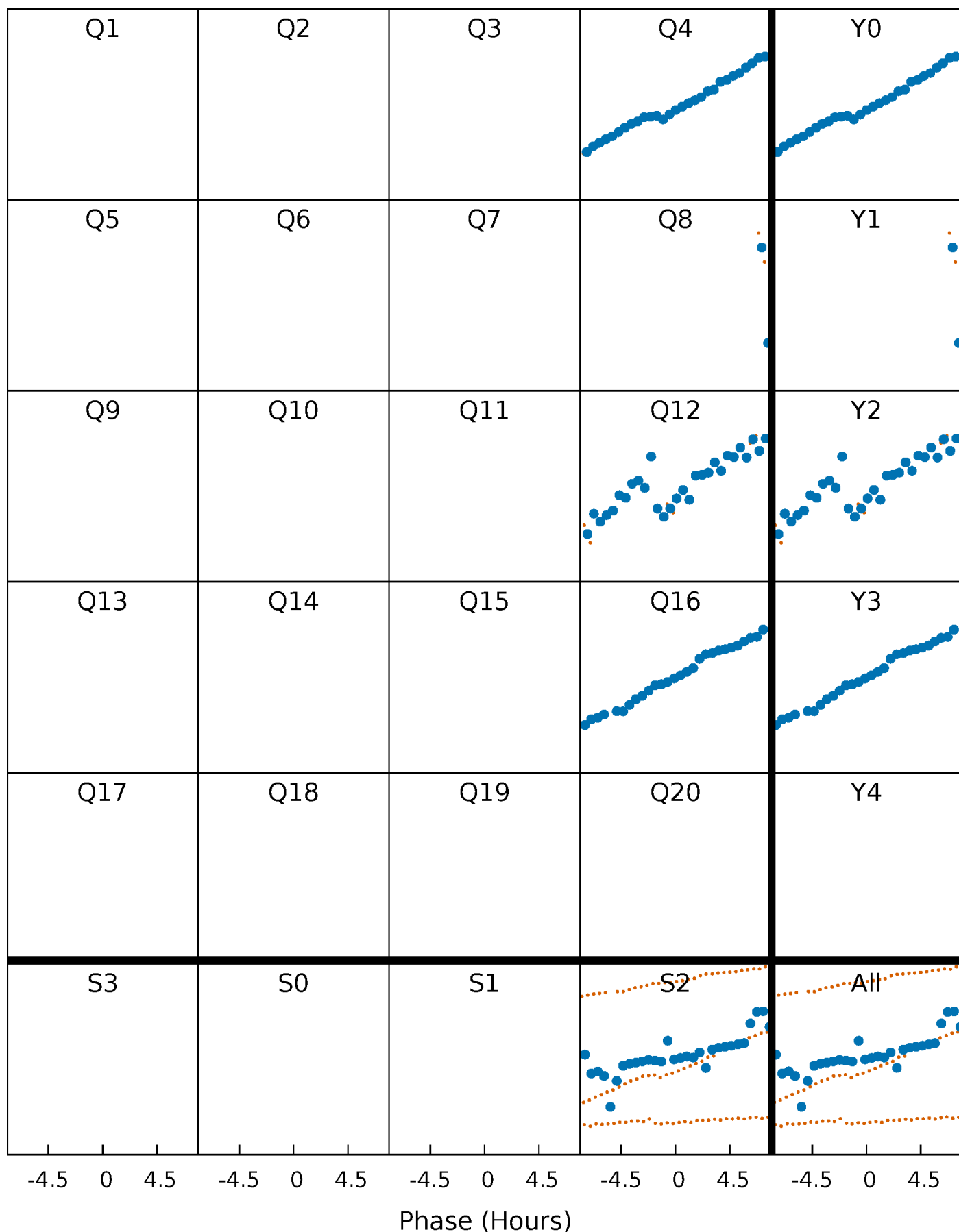


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



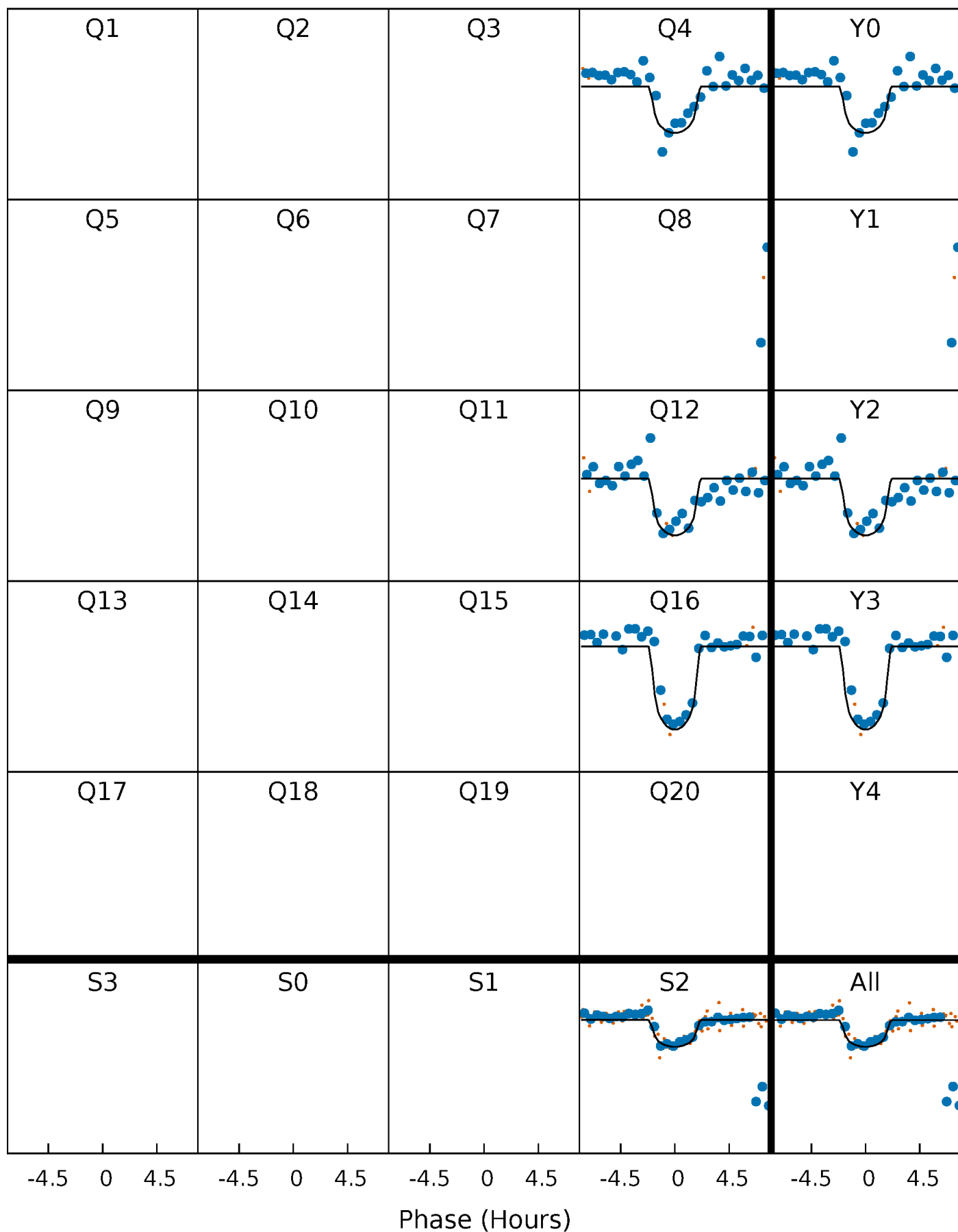
PDC Quarter-Phased Transit Curves

TCE 002159700-01 P=383.833483 Days $T_0=379.645090$ (BKJD)



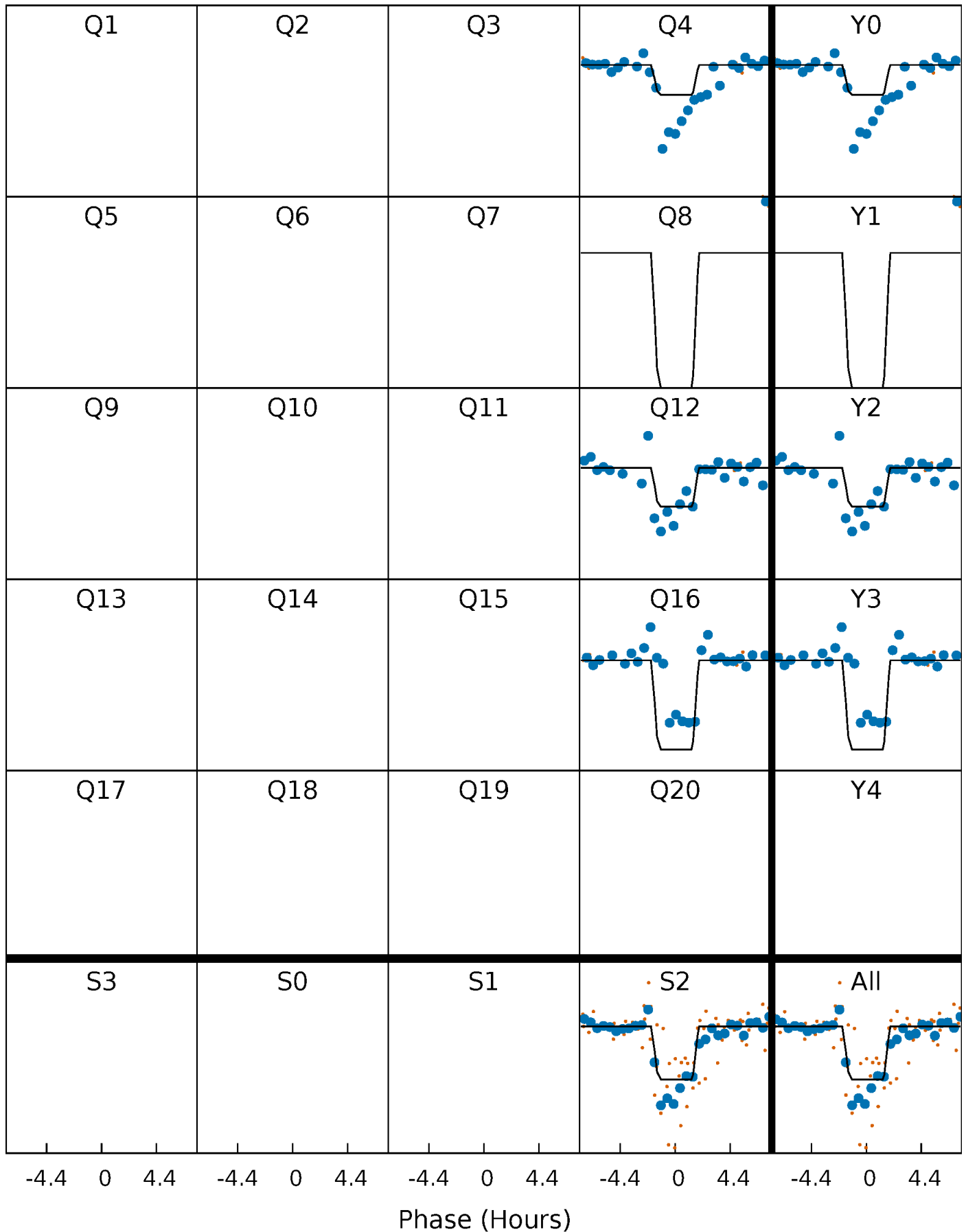
DV Quarter-Phased Transit Curves

TCE 002159700-01 P=383.833483 Days $T_0=379.645090$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

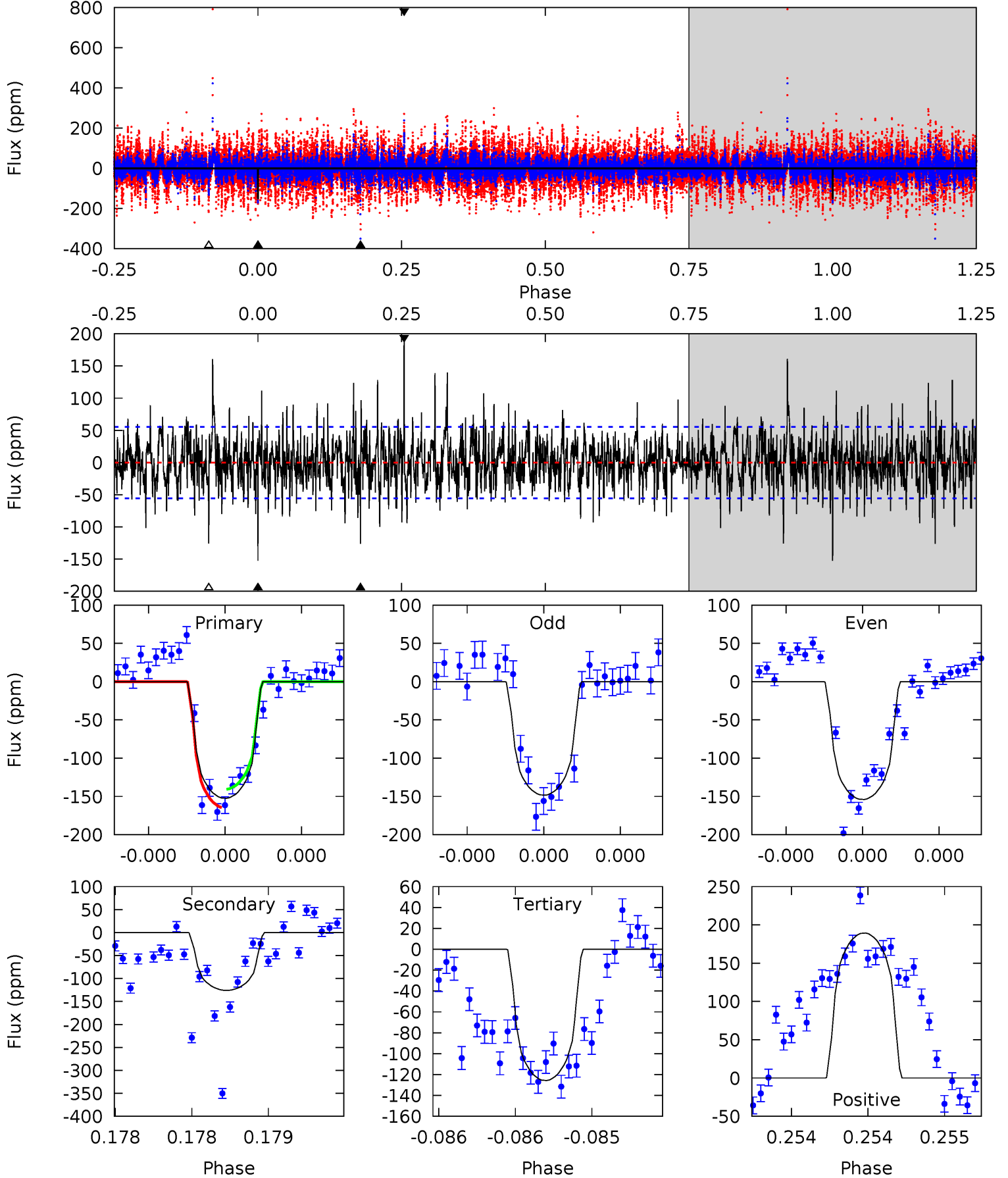
TCE 002159700-01 P=383.837613 Days $T_0=379.635716$ (BKJD)



DV Model-Shift Uniqueness Test

002159700-01, P = 383.833483 Days, E = 379.645090 Days

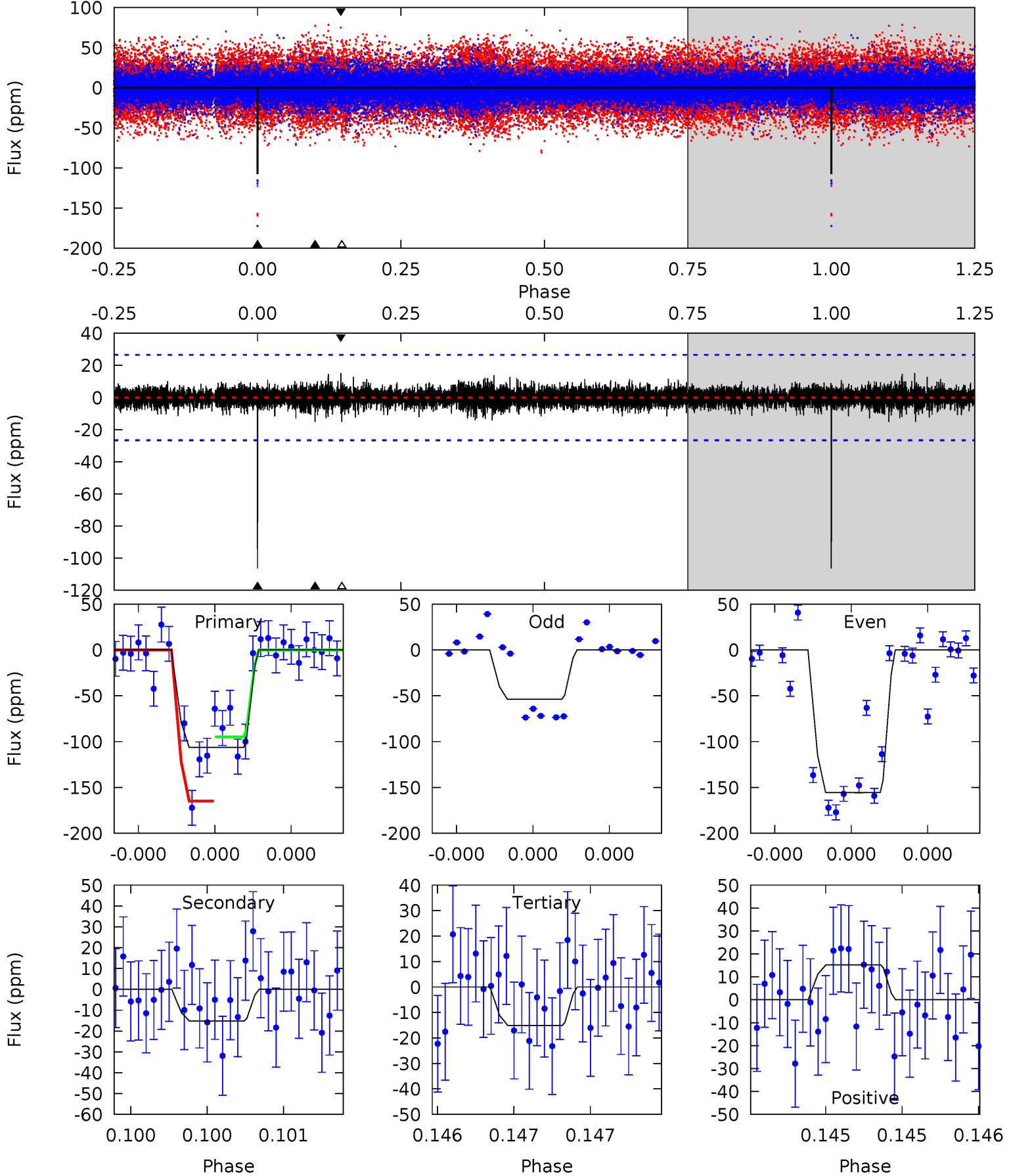
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	12.7	12.6	19.0	5.58	3.49	2.84	2.69	-3.72	0.01	-6.39	0.22	1.02	0.55	1.21



Alt Model-Shift Uniqueness Test

002159700-01, P = 383.837613 Days, E = 379.635716 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.5	3.21	3.19	3.22	5.62	3.56	0.64	19.3	19.3	0.02	-0.01	12.5	1.02	0.13	6.89



Stellar Parameters For KIC 002159700

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3933^{+79}_{-55}	$1.331^{+0.120}_{-0.120}$	$-0.040^{+0.150}_{-0.150}$	$34.416^{+9.894}_{-4.240}$	$0.925^{+0.480}_{-0.024}$	$0.000^{+0.000}_{-0.000}$
	+2%/-1%	+9%/-9%	+375%/-375%	+29%/-12%	+52%/-3%	+48%/-38%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 002159700-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-126 ± 10	$57.28^{+31.35}_{-29.14}$	1416^{+72}_{-63}	3567^{+1078}_{-452}	23^{+70}_{-13}
Alt.	-15 ± 5	$45.70^{+31.26}_{-27.93}$	1418^{+86}_{-60}	2781^{+929}_{-412}	$4.224^{+24.942}_{-2.862}$

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

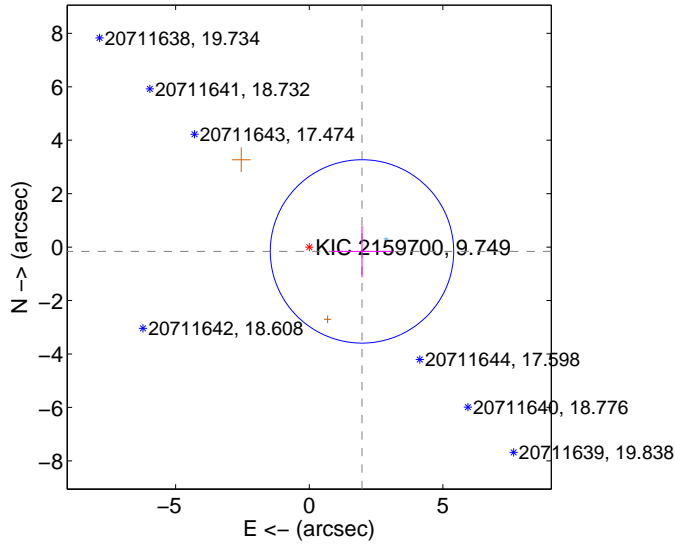
Supplemental centroid analysis for 002159700-01. **Kepler magnitude: 9.75.** Transit SNR 9.74

There are 1 quarters with good PRF difference image offsets

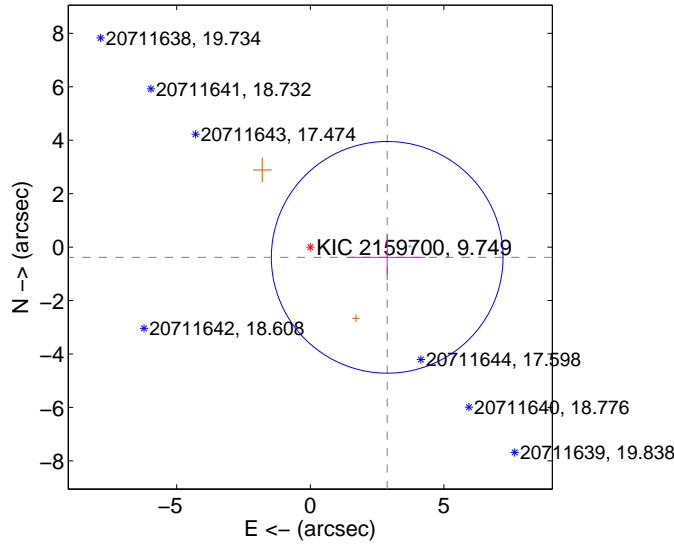
The direct PRF centroid is offset from the target star catalog position by about 0.84 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.980 ± 1.144	1.73	-1.974 ± 1.145	-0.161 ± 0.967
PRF-fit source offset from KIC position	2.904 ± 1.445	2.01	-2.878 ± 1.425	-0.383 ± 0.857
photometric centroid source offset	2.60 ± 1.65	1.58	-1.54 ± 1.48	-2.10 ± 1.73

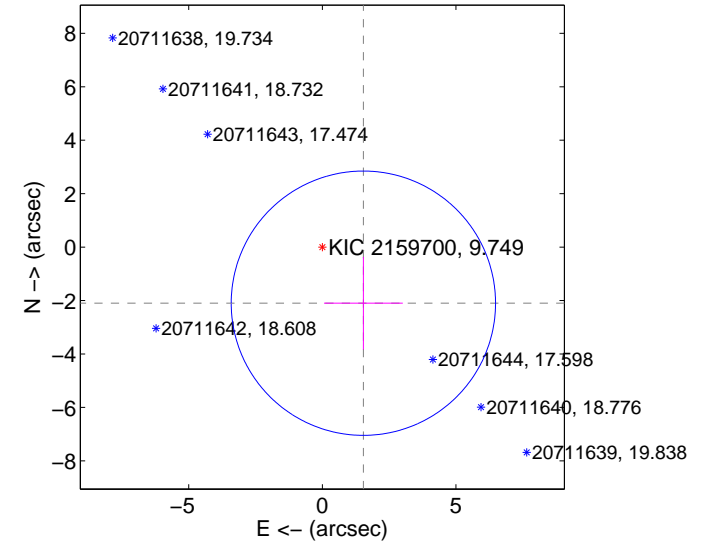
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

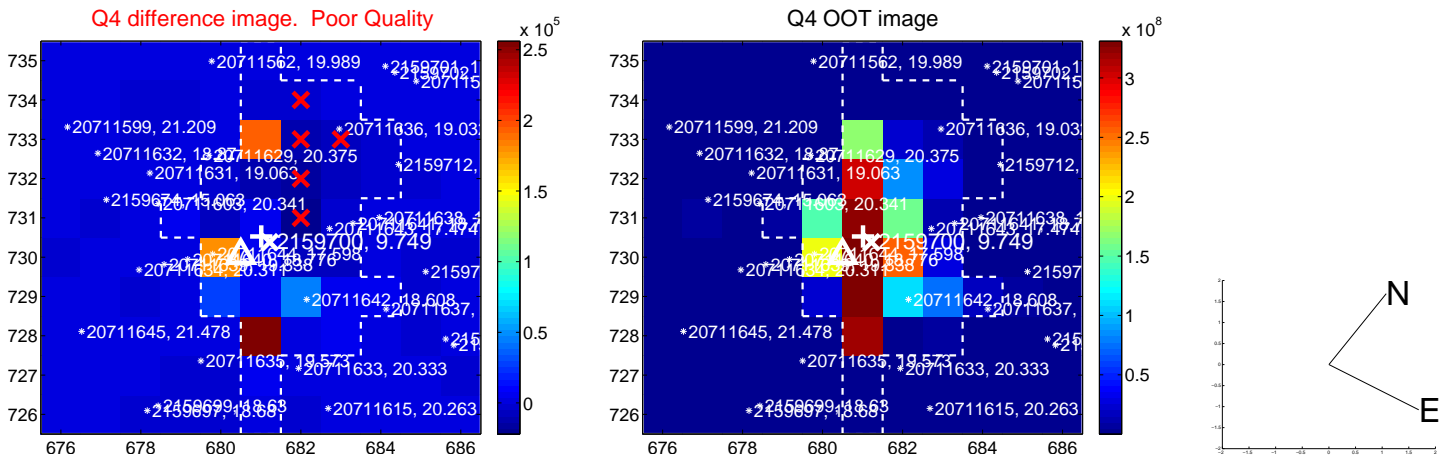
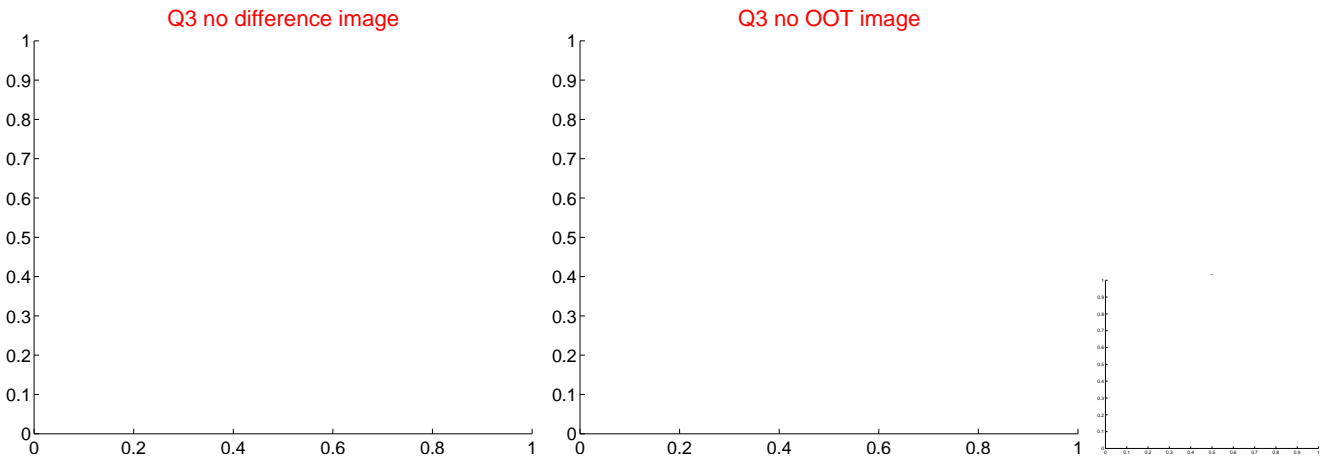
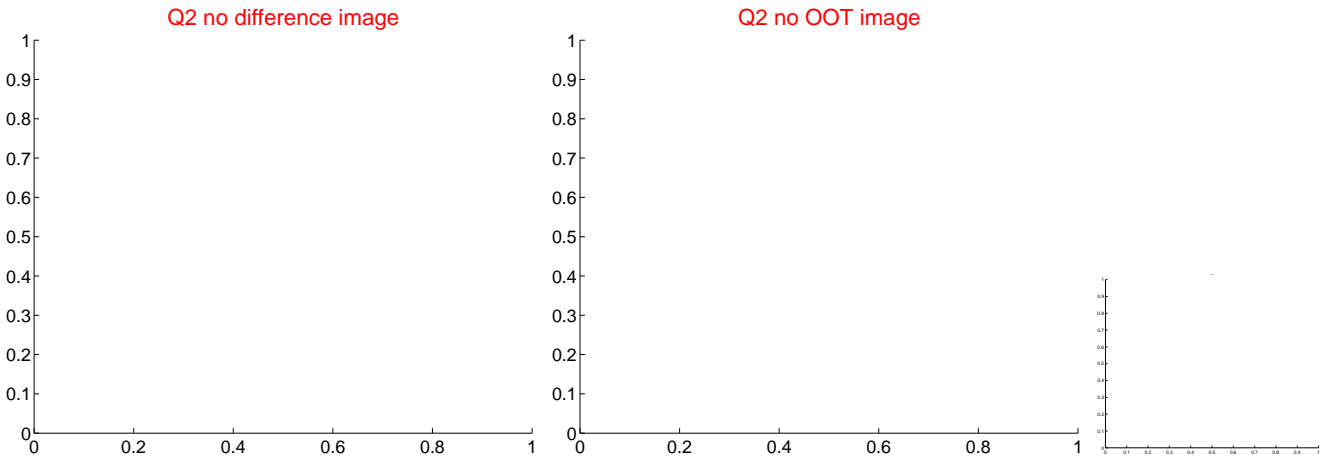
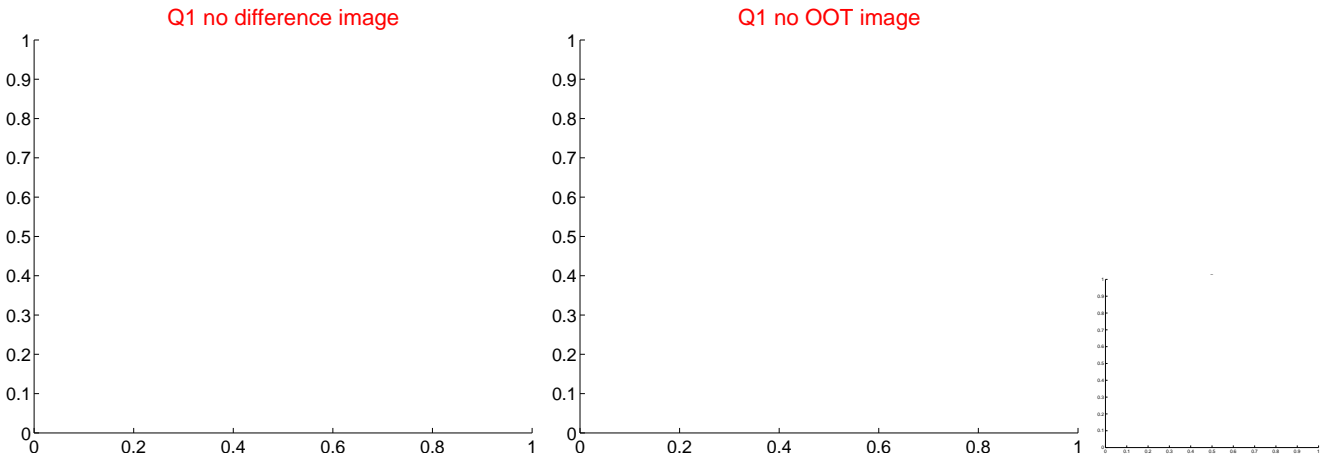


offset from photometric centroids



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



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

Q9 no difference image



Q9 no OOT image



Q10 no difference image



Q10 no OOT image



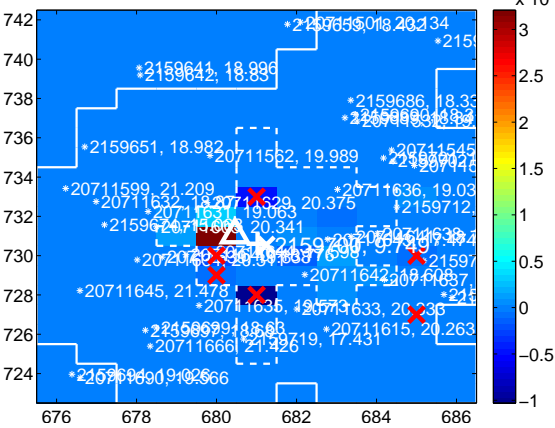
Q11 no difference image



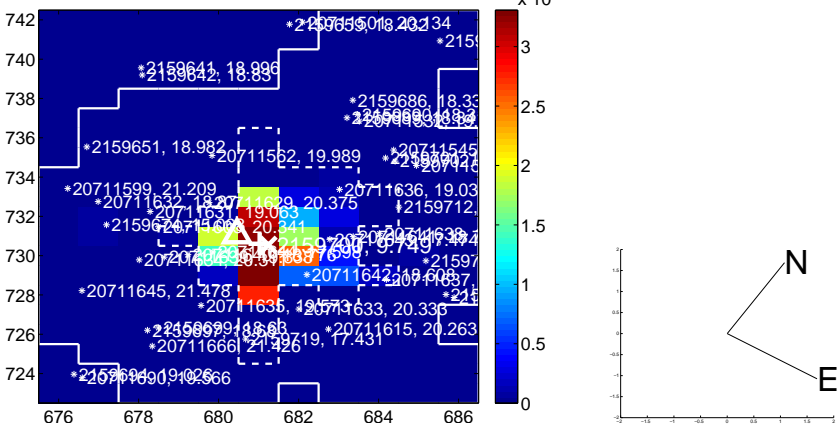
Q11 no OOT image



Q12 difference image



Q12 OOT image



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

Q13 no difference image



Q13 no OOT image



Q14 no difference image



Q14 no OOT image



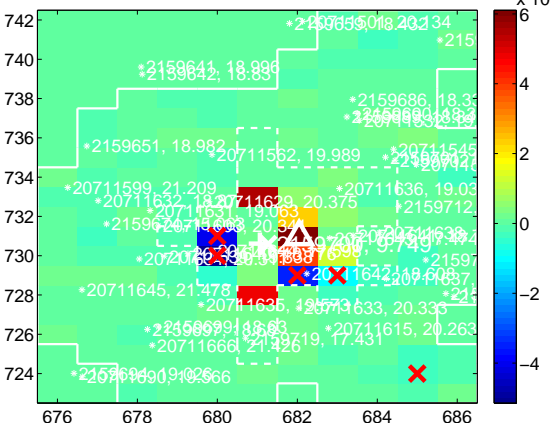
Q15 no difference image



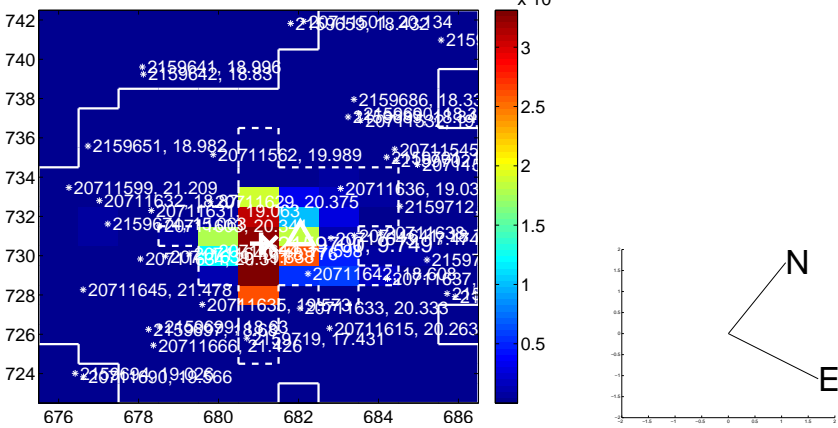
Q15 no OOT image



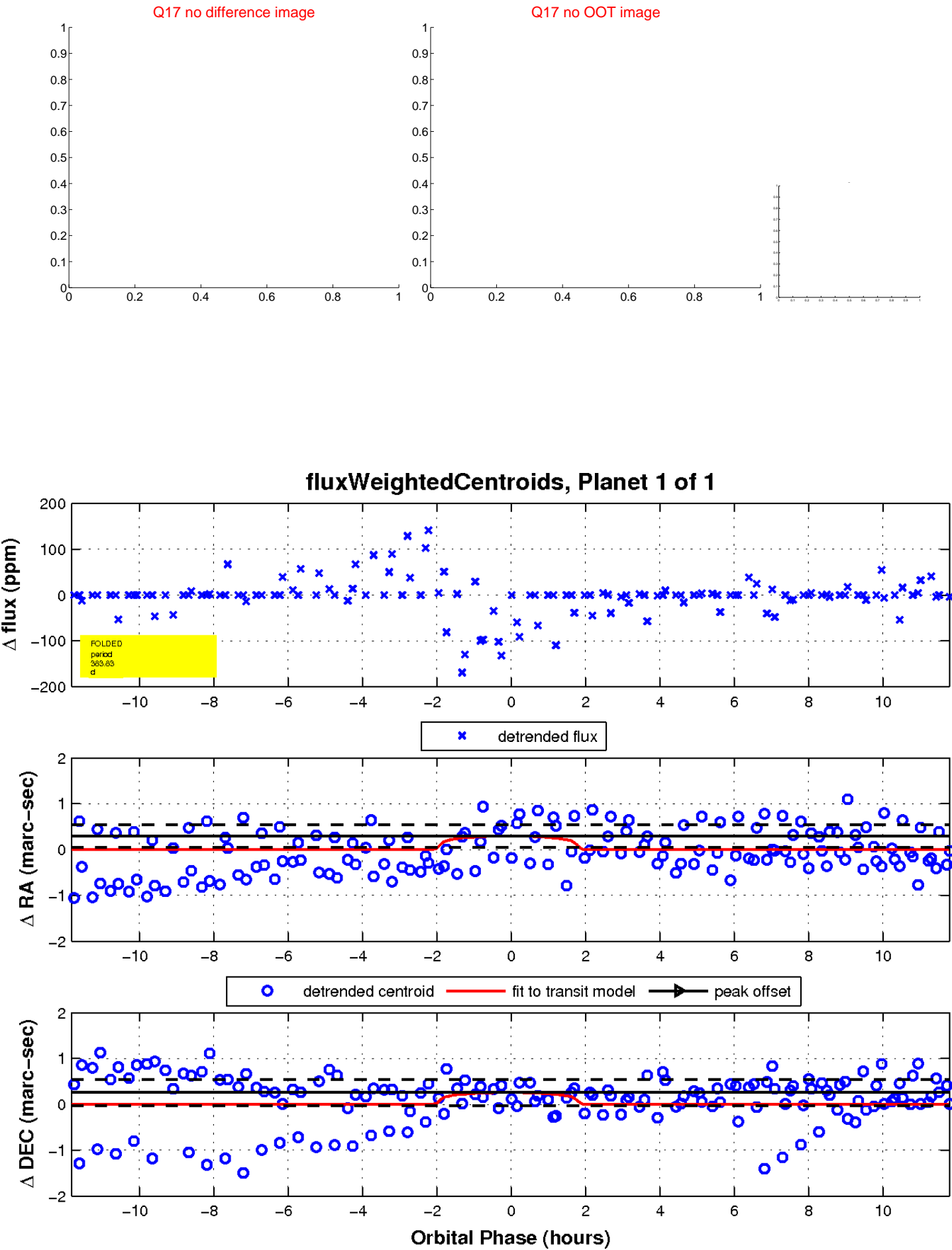
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

