

KIC 012116009

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})
012116009-01	OBS	No	449.016295	185.684008	2017.2	54.994	12.0	16.0	0.44	3636	3.79	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012116009-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

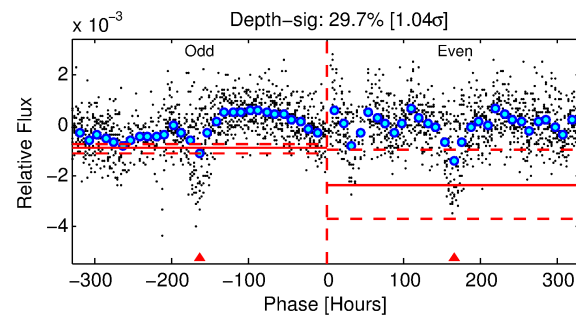
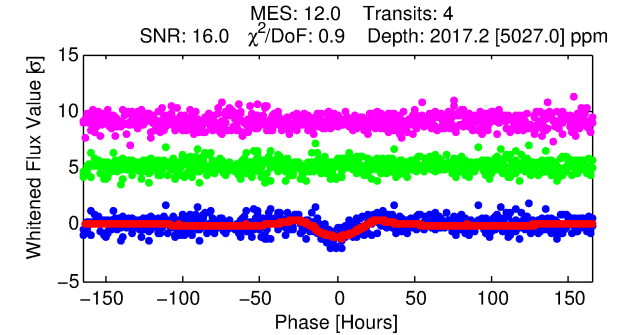
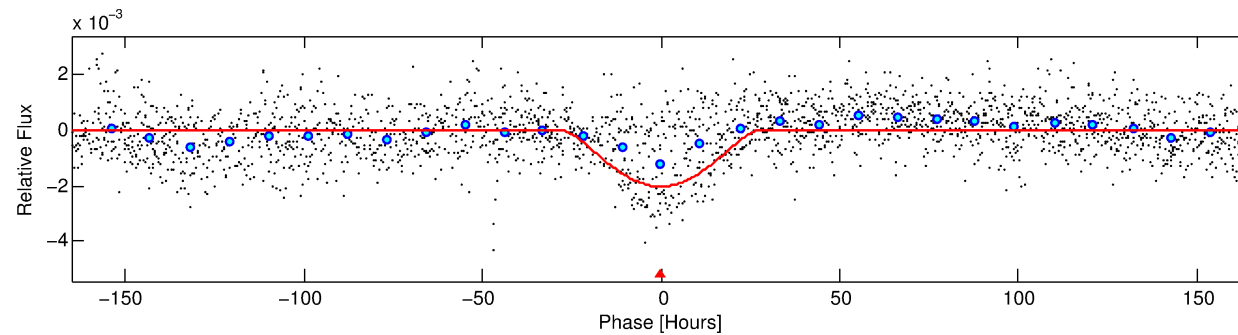
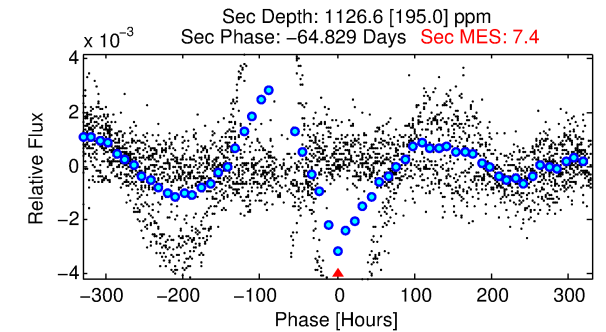
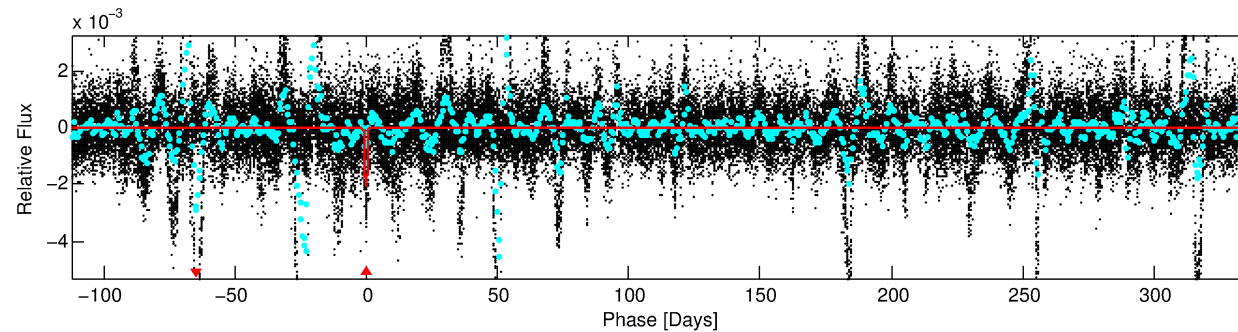
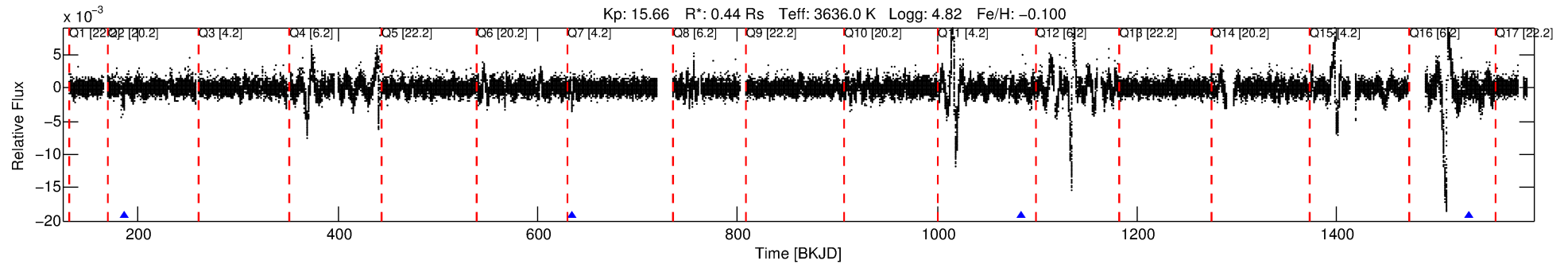
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012116009-01

No Significant Match Found

DV One-Page Summary

KIC: 12116009 Candidate: 1 of 1 Period: 449.016 d



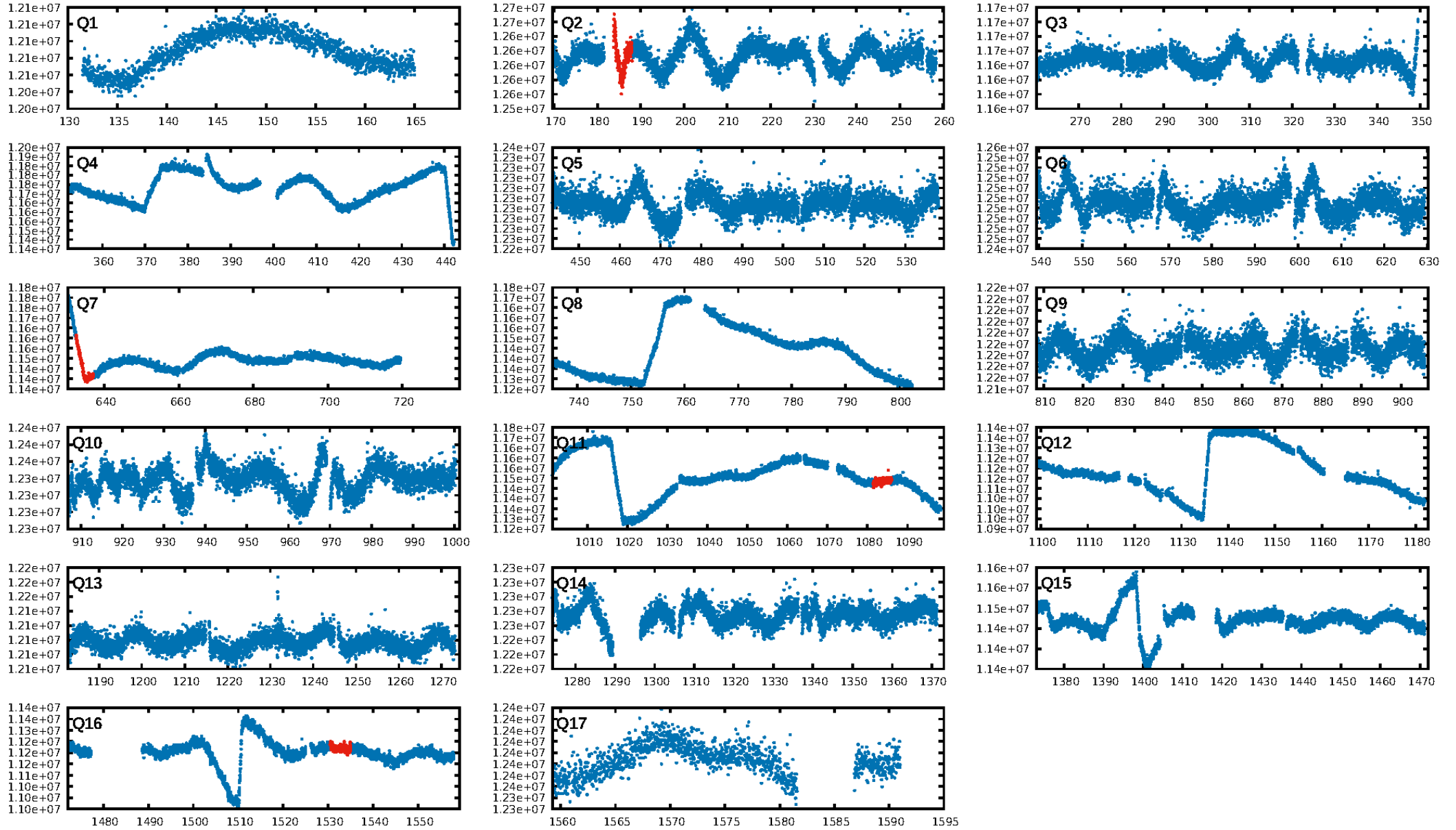
DV Fit Results:

Period = 449.01630 [0.04073] d
Epoch = 185.6840 [0.0497] BKJD
Rp/R* = 0.0795 [0.1198]
a/R* = 25.39 [7.97]
b = 1.00 [0.04]
Seff = 0.04 [0.01]
Teq = 113 [5] K
Rp = 3.79 [5.74] Re
a = 0.8828 [0.0857] AU
Ag = 33580.73 [101446.78] [0.33σ]
Teffp = 2362 [1784] K [1.26σ]

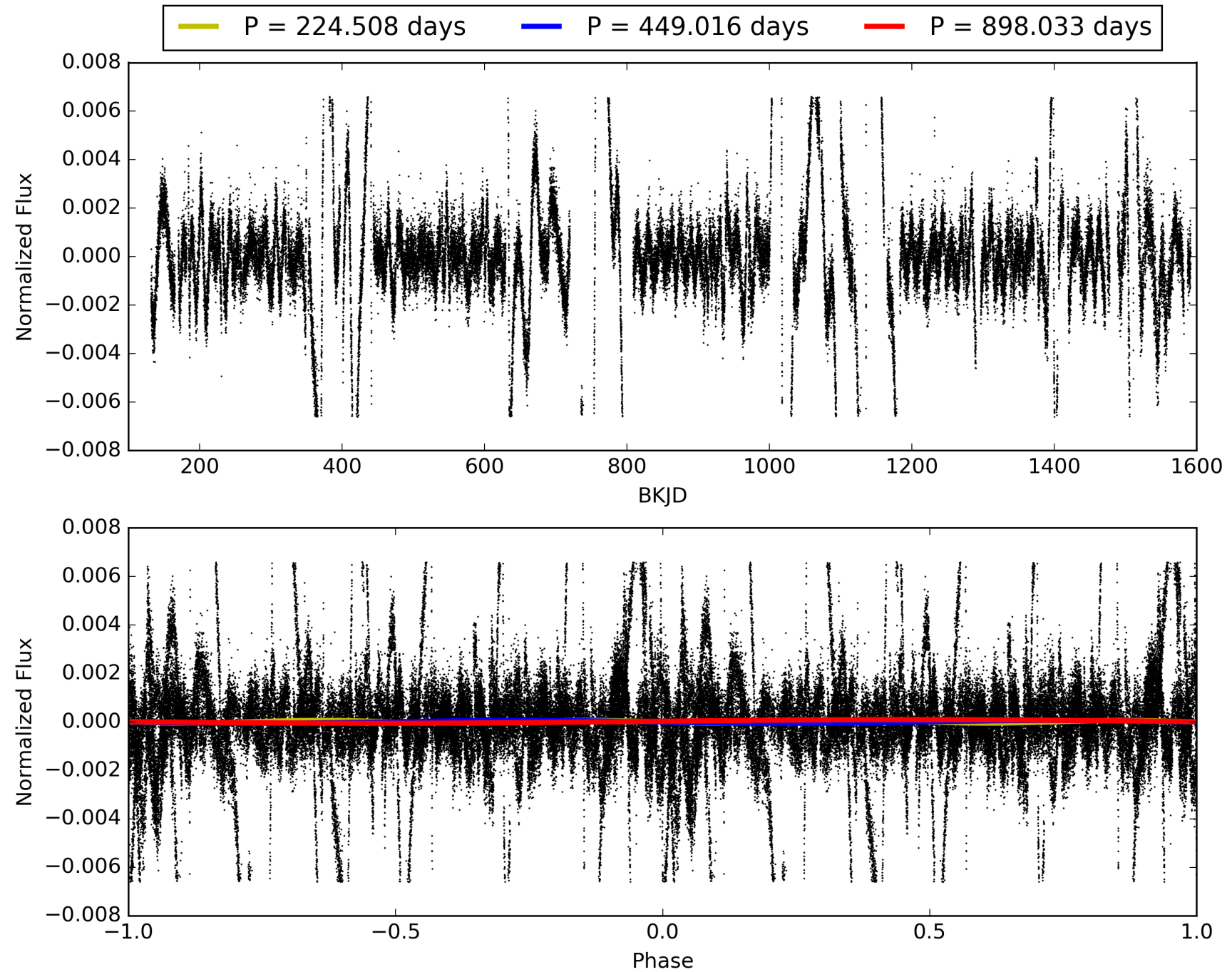
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.08e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -10.16
Centroid-sig: 13.5%
Centroid-so: 0.925 arcsec [1.16σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

TCE 012116009-01, PDC Light Curves

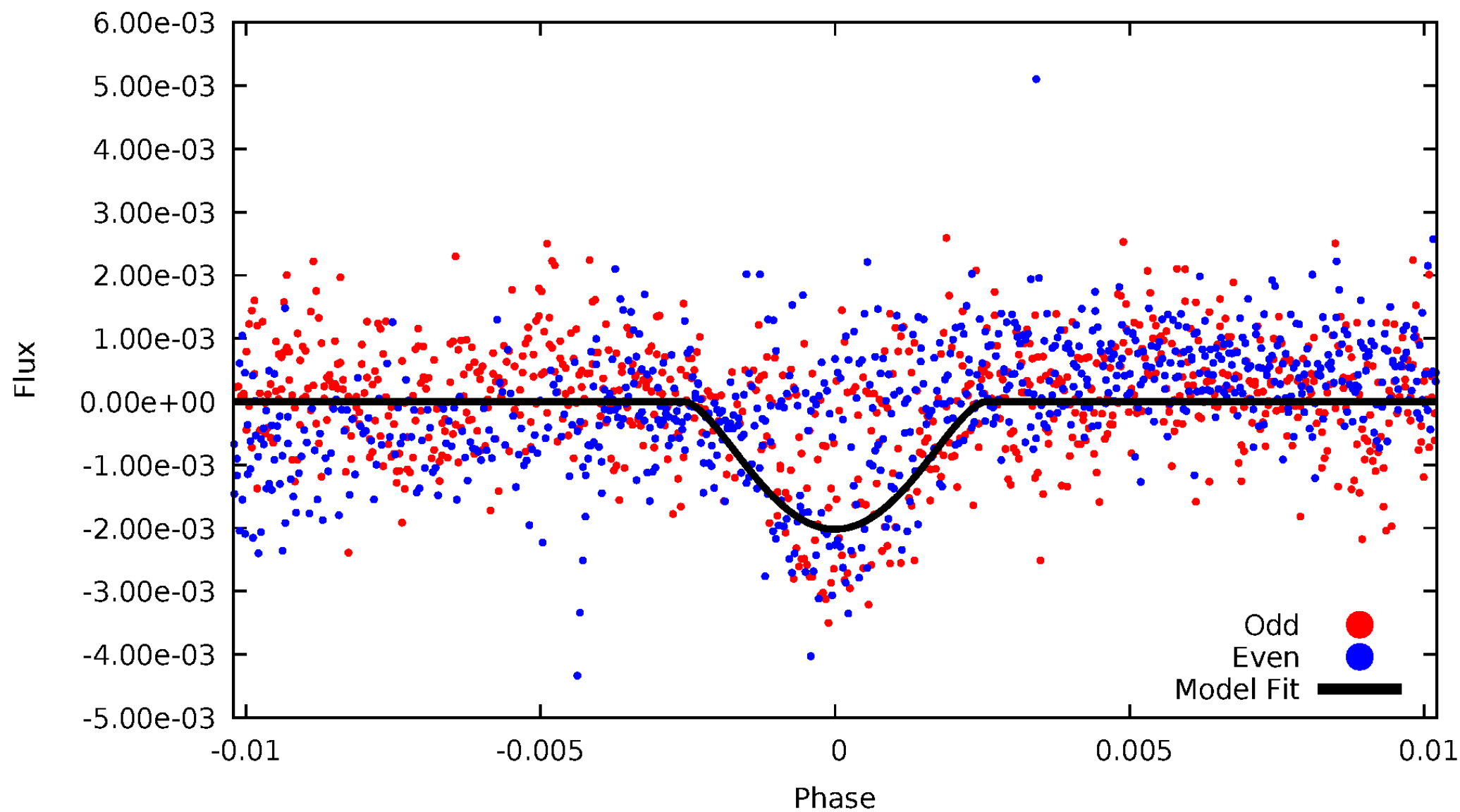


TCE 012116009-01



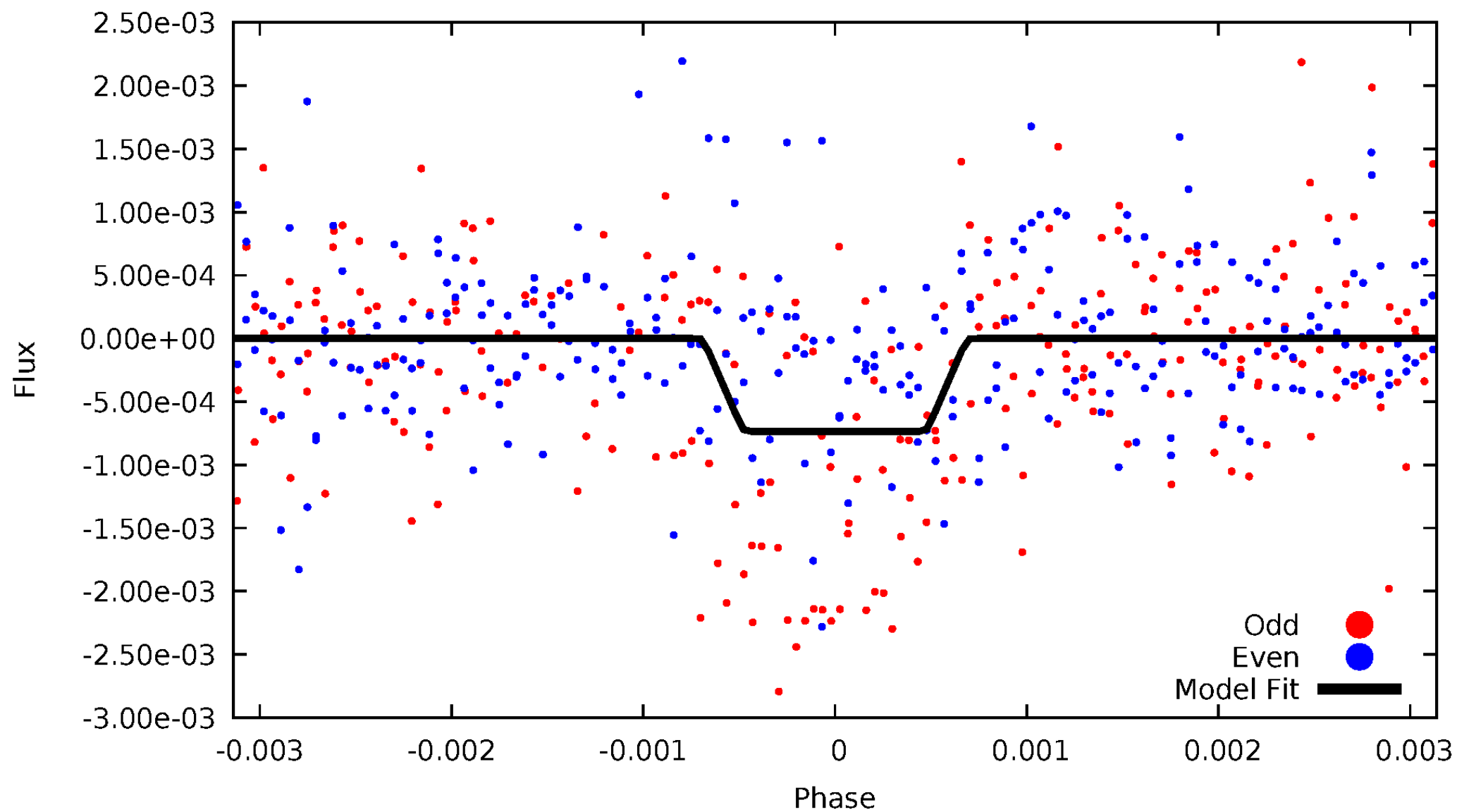
DV Odd/Even

TCE 012116009-01

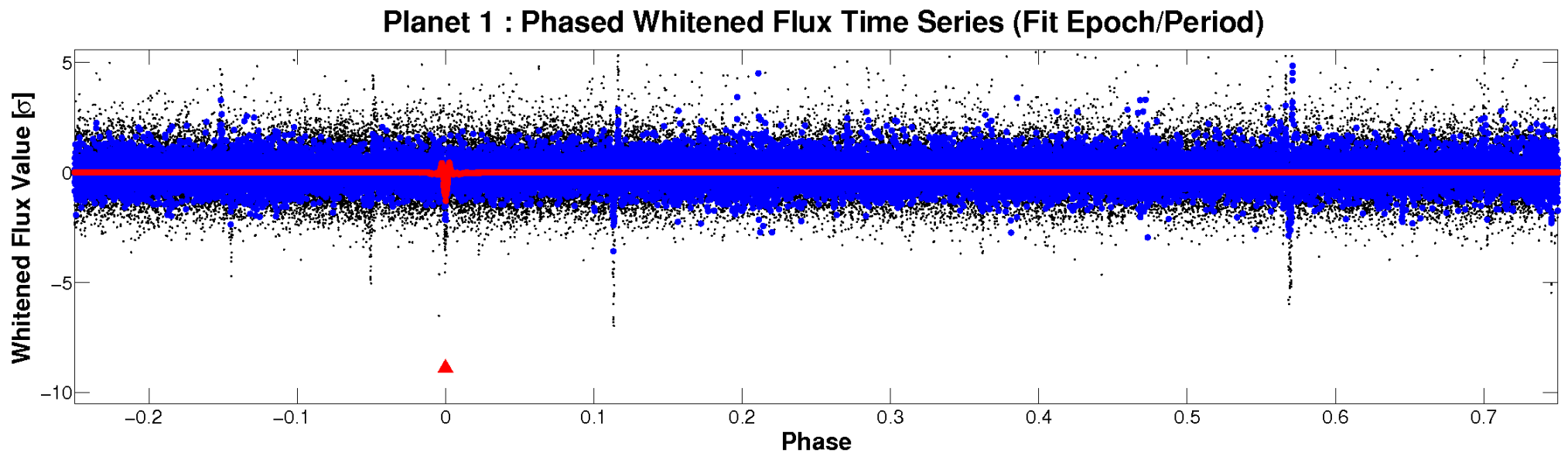
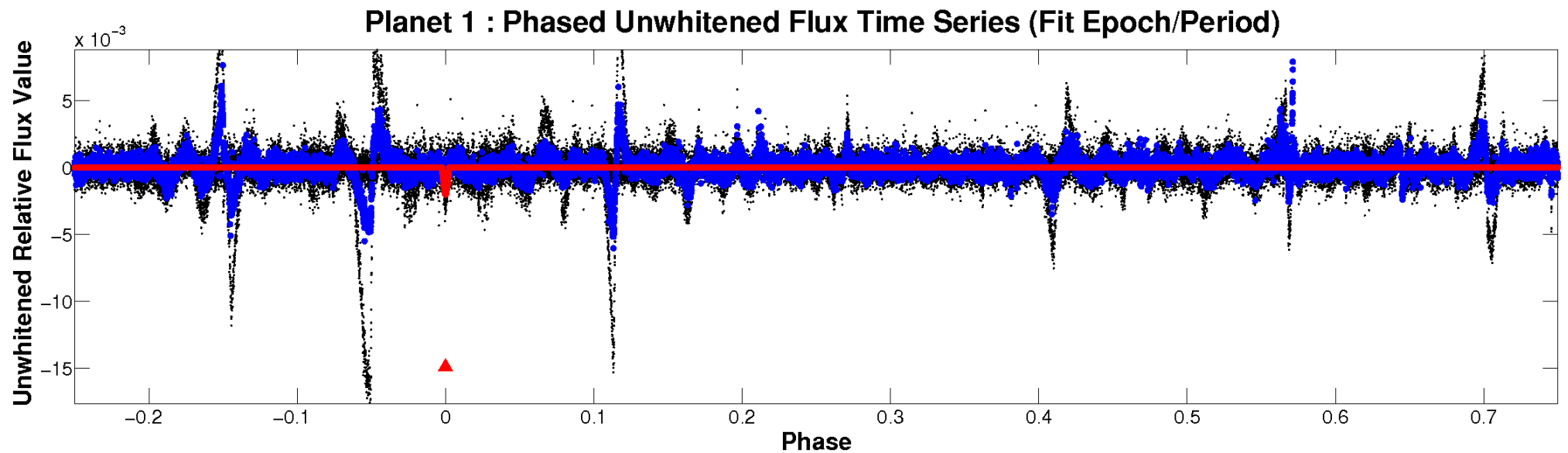


ALT Odd/Even

TCE 012116009-01

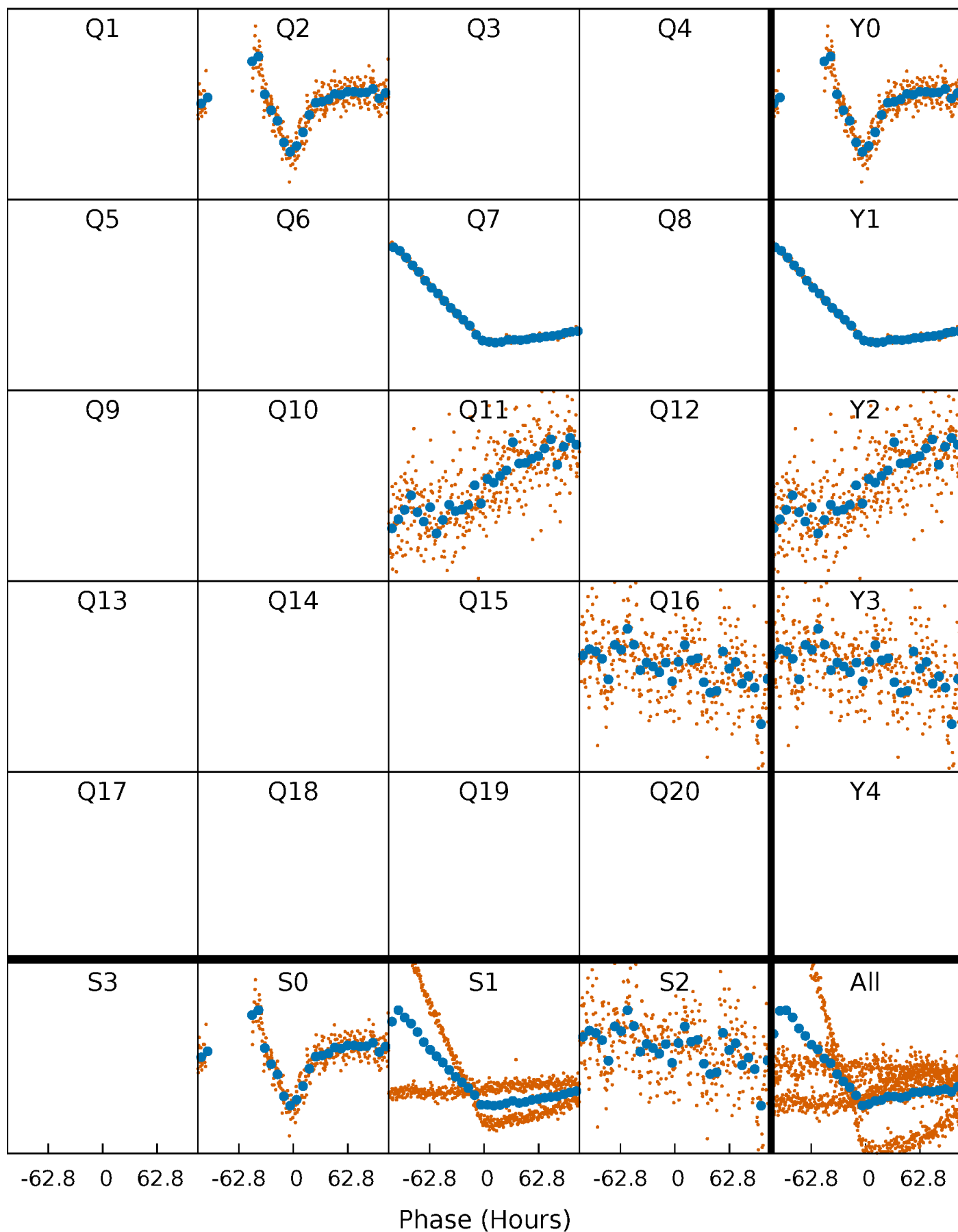


Non-Whitened Vs. Whitened Light Curve



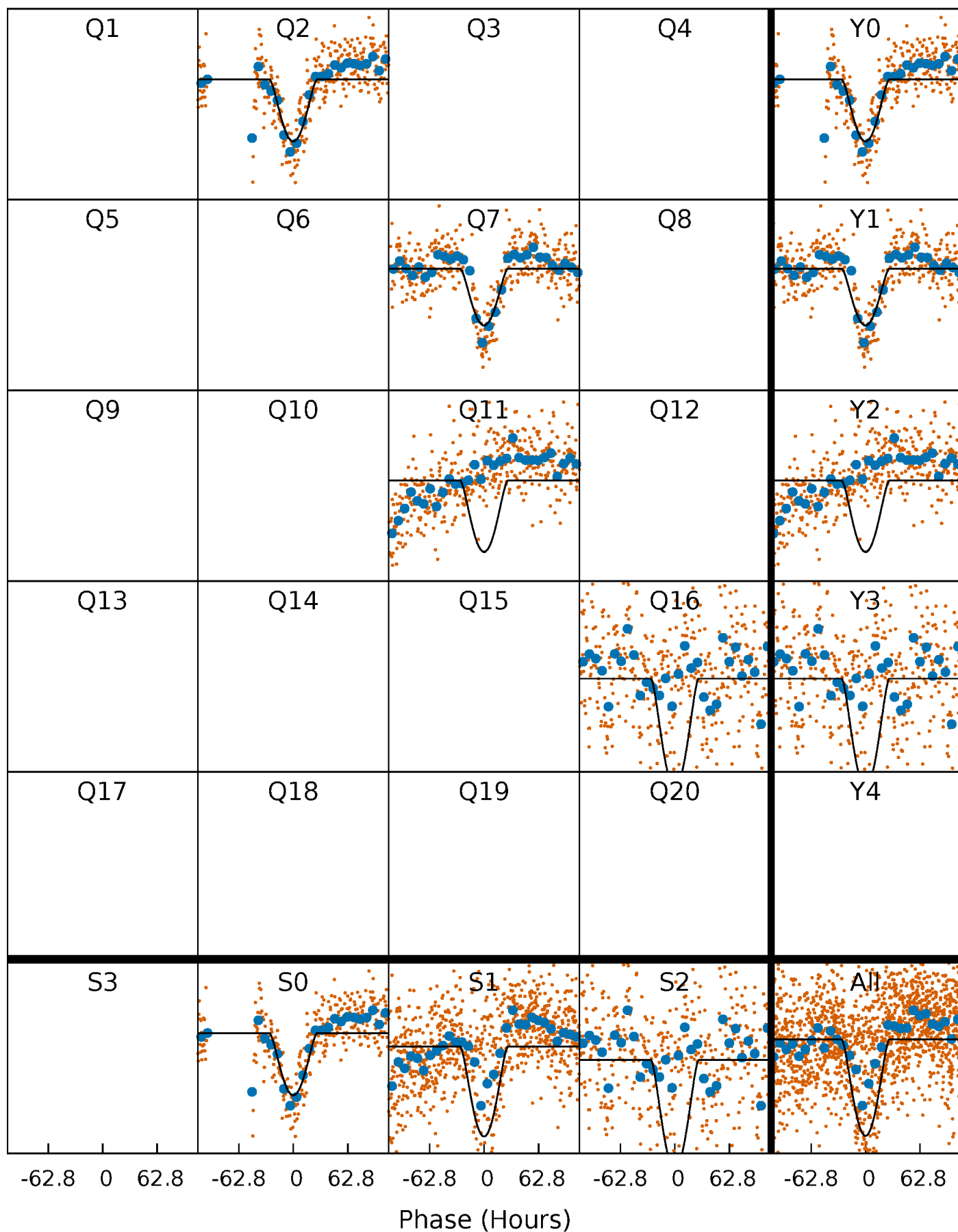
PDC Quarter-Phased Transit Curves

TCE 012116009-01 P=449.016295 Days $T_0=185.684008$ (BKJD)



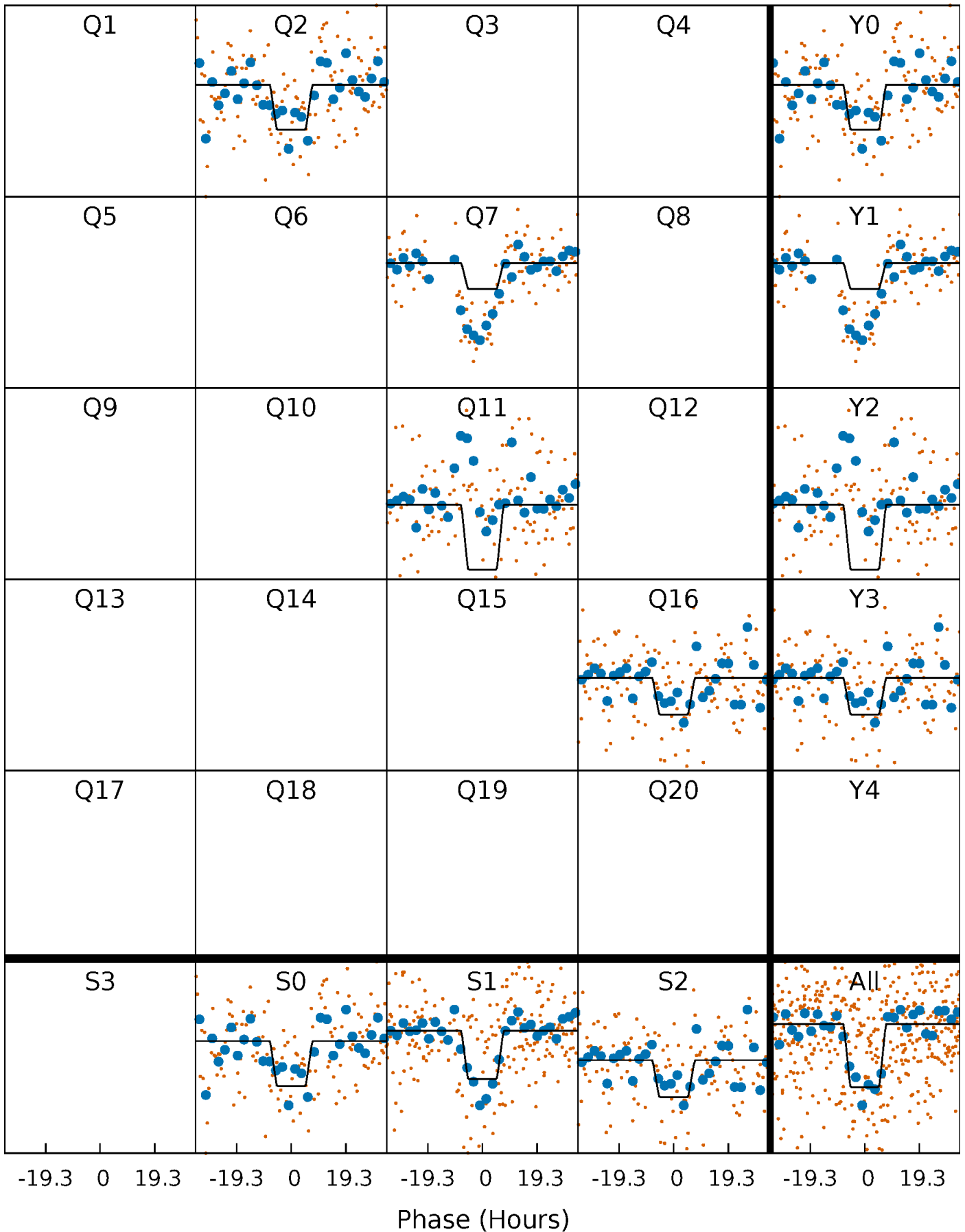
DV Quarter-Phased Transit Curves

TCE 012116009-01 P=449.016295 Days $T_0=185.684008$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

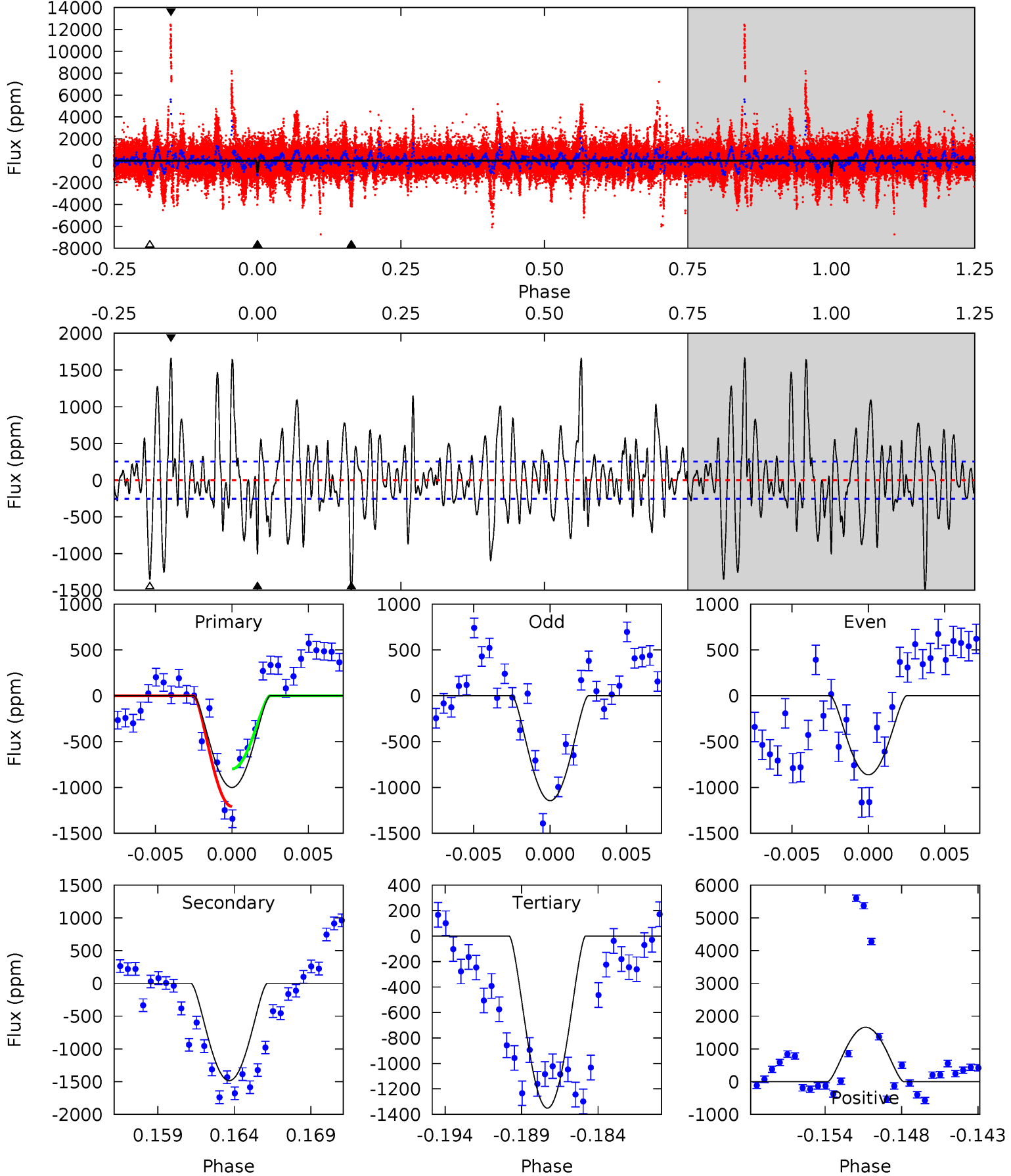
TCE 012116009-01 P=448.986614 Days $T_0=185.528966$ (BKJD)



DV Model-Shift Uniqueness Test

012116009-01, P = 449.016295 Days, E = 185.684008 Days

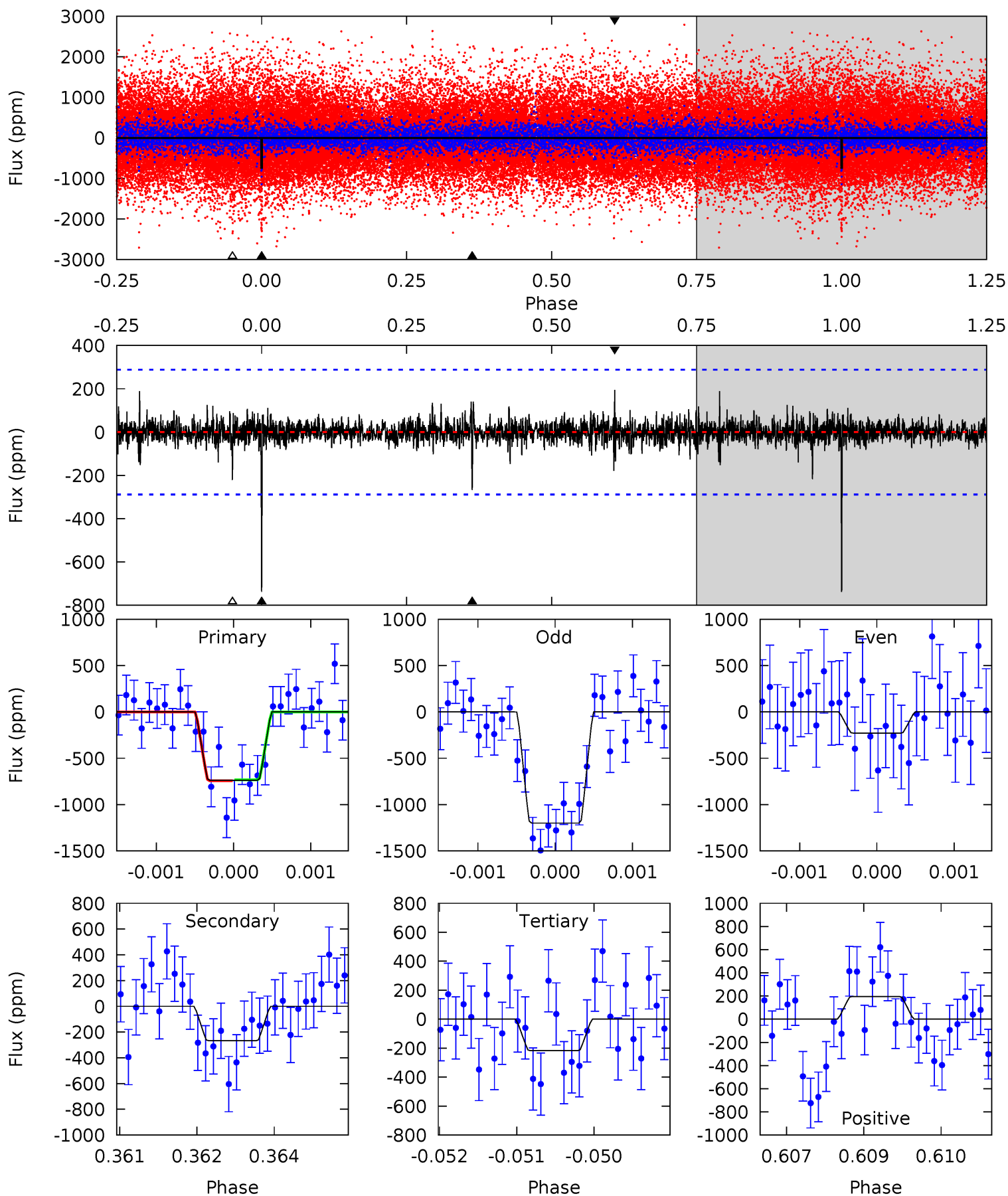
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	30.2	27.5	33.8	5.15	2.80	9.14	-7.13	-13.4	2.73	-3.55	2.20	0.93	0.53	4.18



Alt Model-Shift Uniqueness Test

012116009-01, P = 448.986614 Days, E = 185.528966 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	4.99	4.06	3.65	5.39	3.19	0.66	9.76	10.2	0.93	1.35	6.07	1.22	0.21	0.08



Stellar Parameters For KIC 012116009

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3636^{+87}_{-97}	$4.815^{+0.060}_{-0.045}$	$-0.100^{+0.100}_{-0.100}$	$0.437^{+0.046}_{-0.056}$	$0.455^{+0.043}_{-0.059}$	$7.682^{+2.442}_{-1.291}$
	+2%/-3%	+1%/-1%	+100%/-100%	+11%/-13%	+9%/-13%	+32%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012116009-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1486 ± 49	$5.24^{+4.87}_{-3.56}$	157^{+5}_{-6}	2684^{+1044}_{-403}	$23457^{+202503}_{-17196}$
Alt.	-267 ± 53	$4.43^{+4.61}_{-3.06}$	157^{+6}_{-5}	2263^{+805}_{-314}	5590^{+54981}_{-4209}

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 $A_{obs} \gg 1.0$

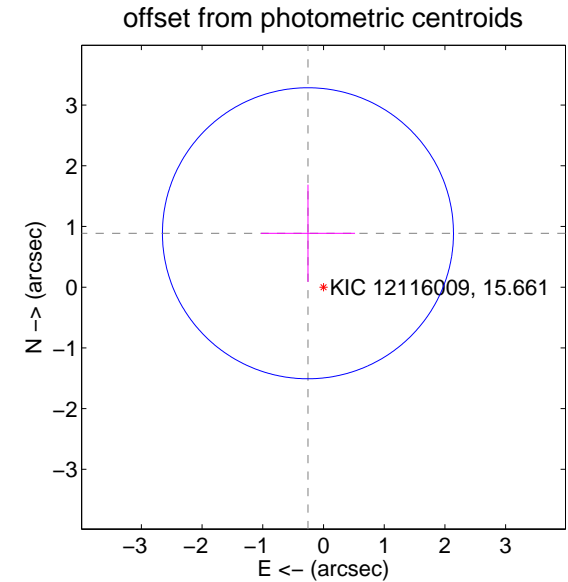
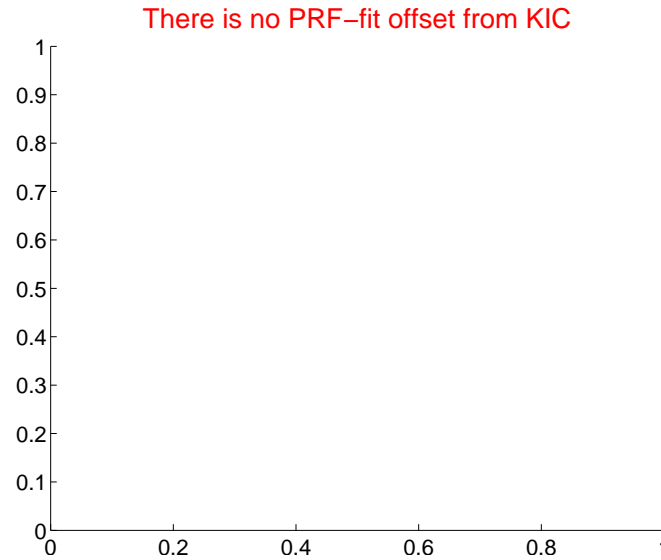
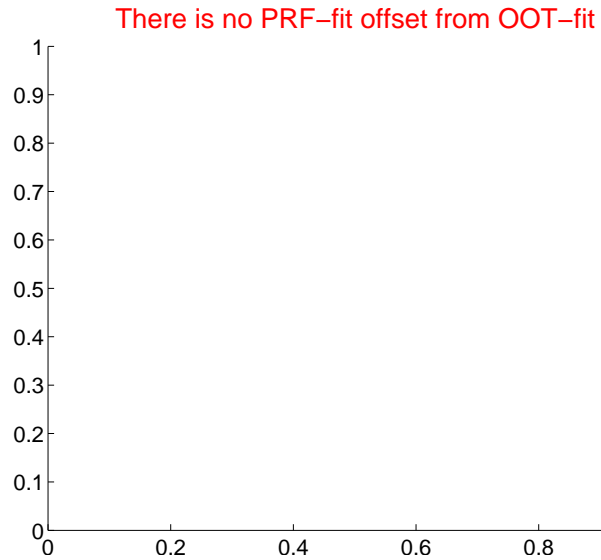
DV Centroid Data

Supplemental centroid analysis for 012116009-01. Kepler magnitude: 15.66. Transit SNR 16.03

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	0.92 ± 0.80	1.16	0.26 ± 0.77	0.89 ± 0.80



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.



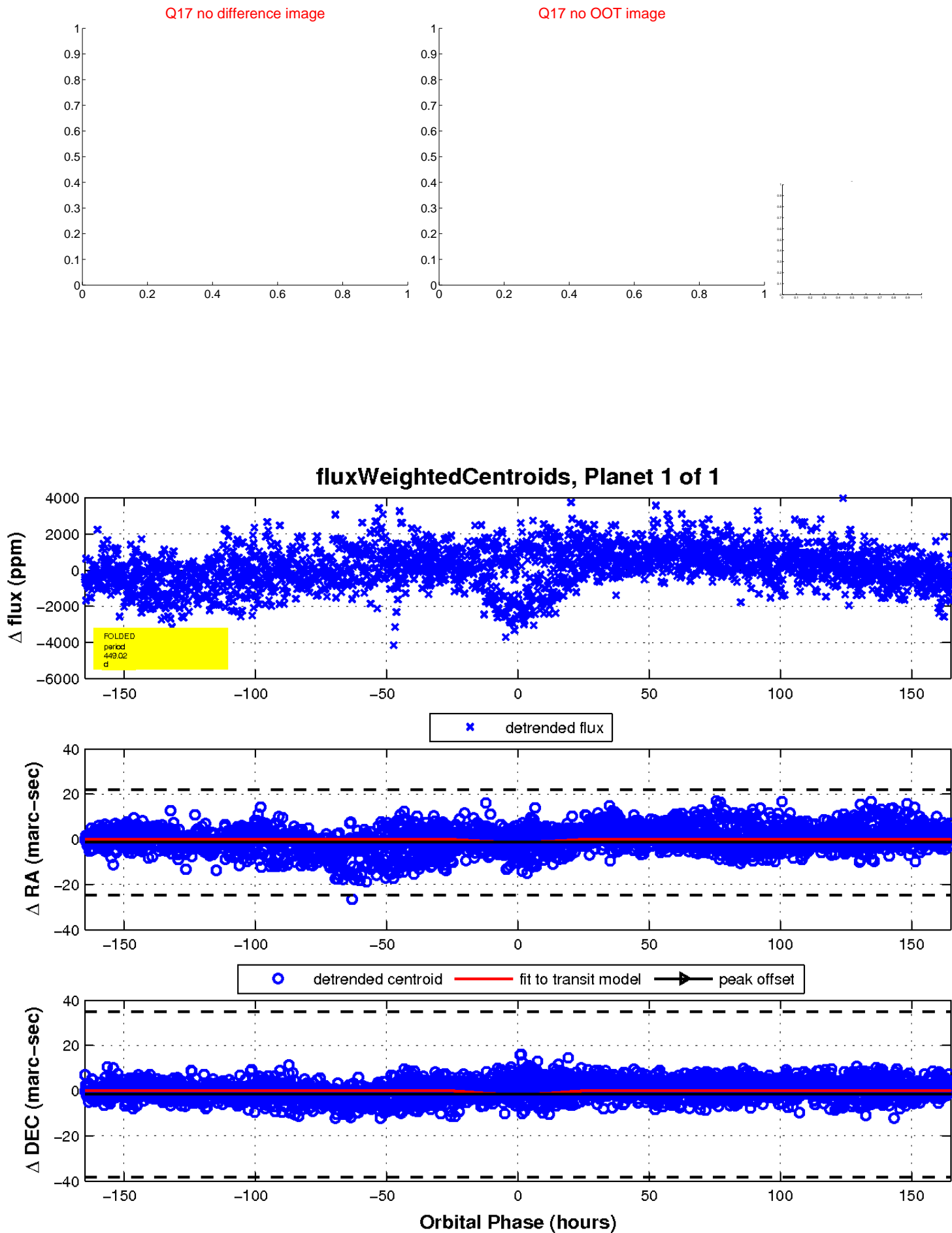
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

