

KIC 009821996

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})
009821996-01	OBS	No	105.595353	178.406028	2713.8	2.248	9.3	6.4	0.57	3716	3.48	0.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009821996-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

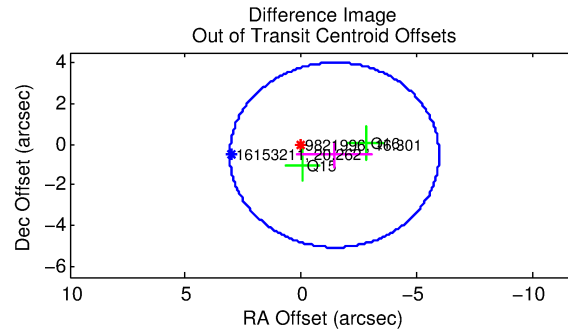
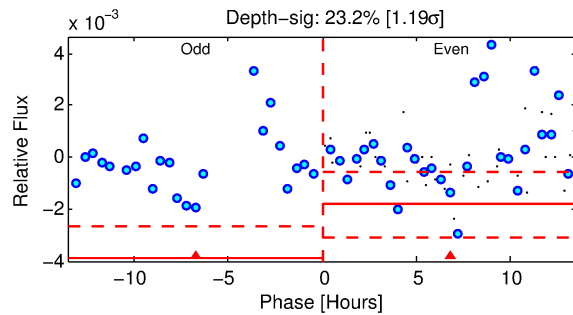
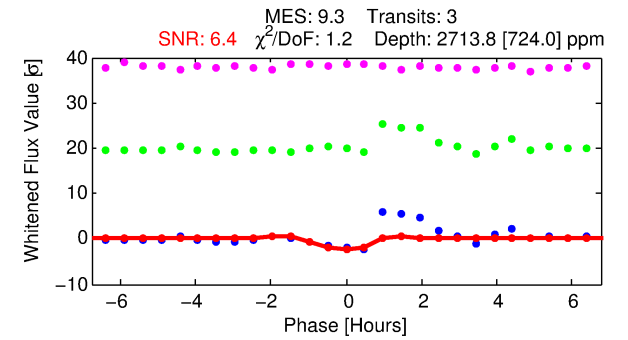
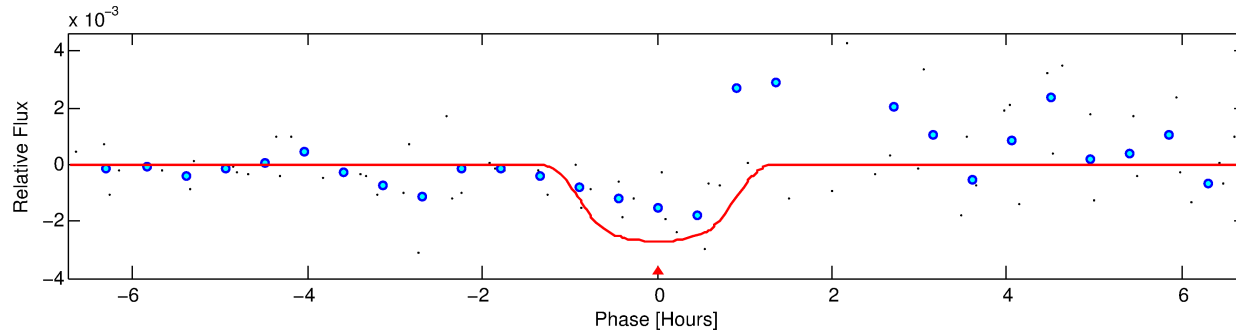
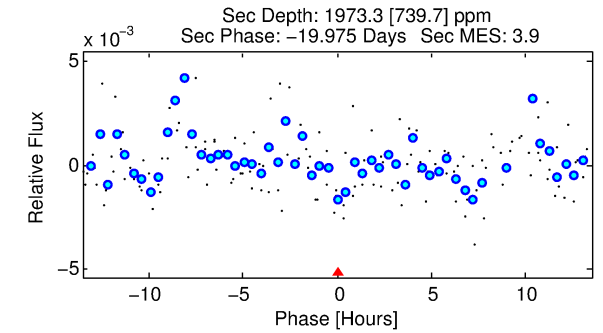
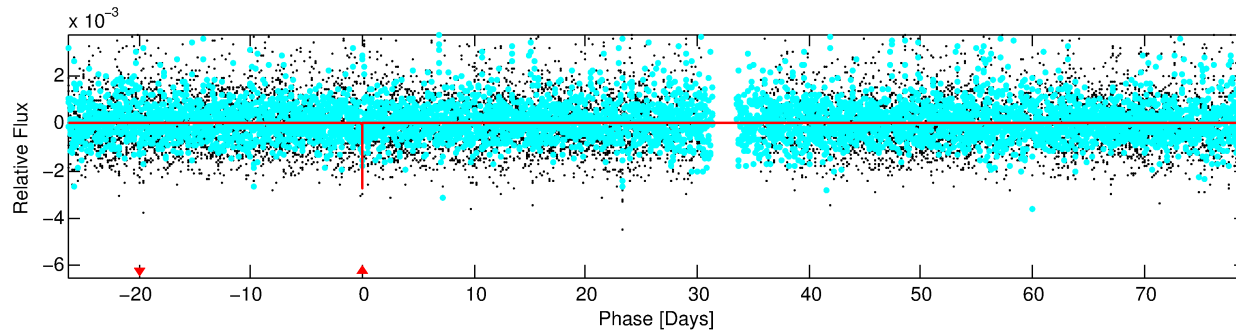
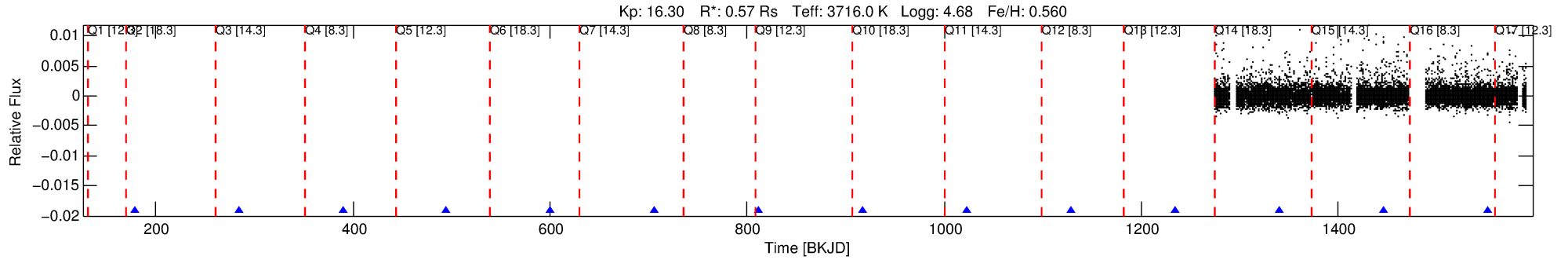
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009821996-01

No Significant Match Found

DV One-Page Summary

KIC: 9821996 Candidate: 1 of 1 Period: 105.595 d



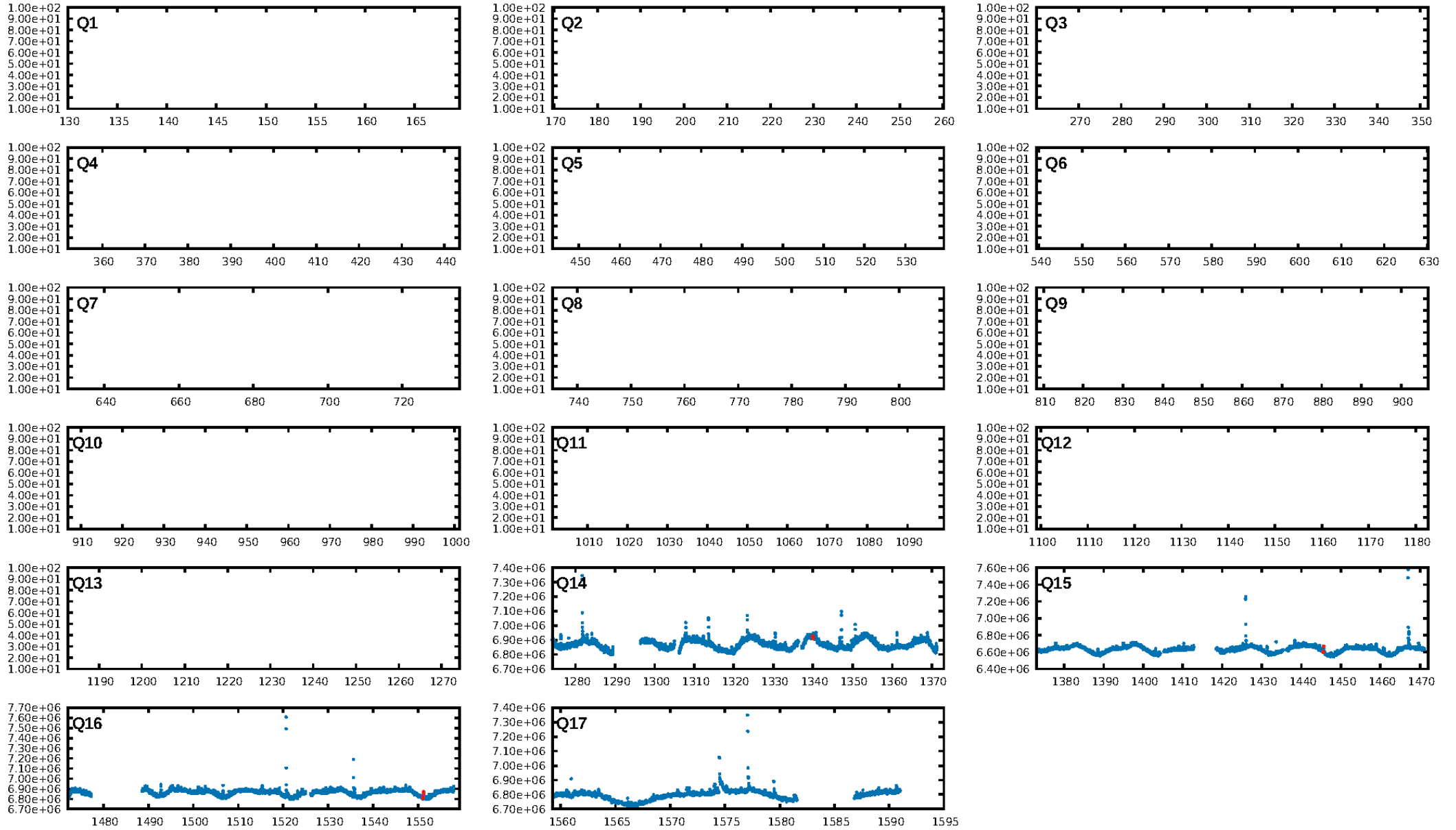
DV Fit Results:

Period = 105.59535 [0.00824] d
Epoch = 178.4060 [0.0994] BKJD
Rp/R* = 0.0557 [0.0662]
a/R* = 226.50 [941.19]
b = 0.85 [1.43]
Seff = 0.42 [0.09]
Teq = 206 [11] K
Rp = 3.48 [4.16] Re
a = 0.3631 [0.0385] AU
Ag = 11846.13 [28572.30] [0.41 σ]
Teff = 3319 [2002] K [1.55 σ]

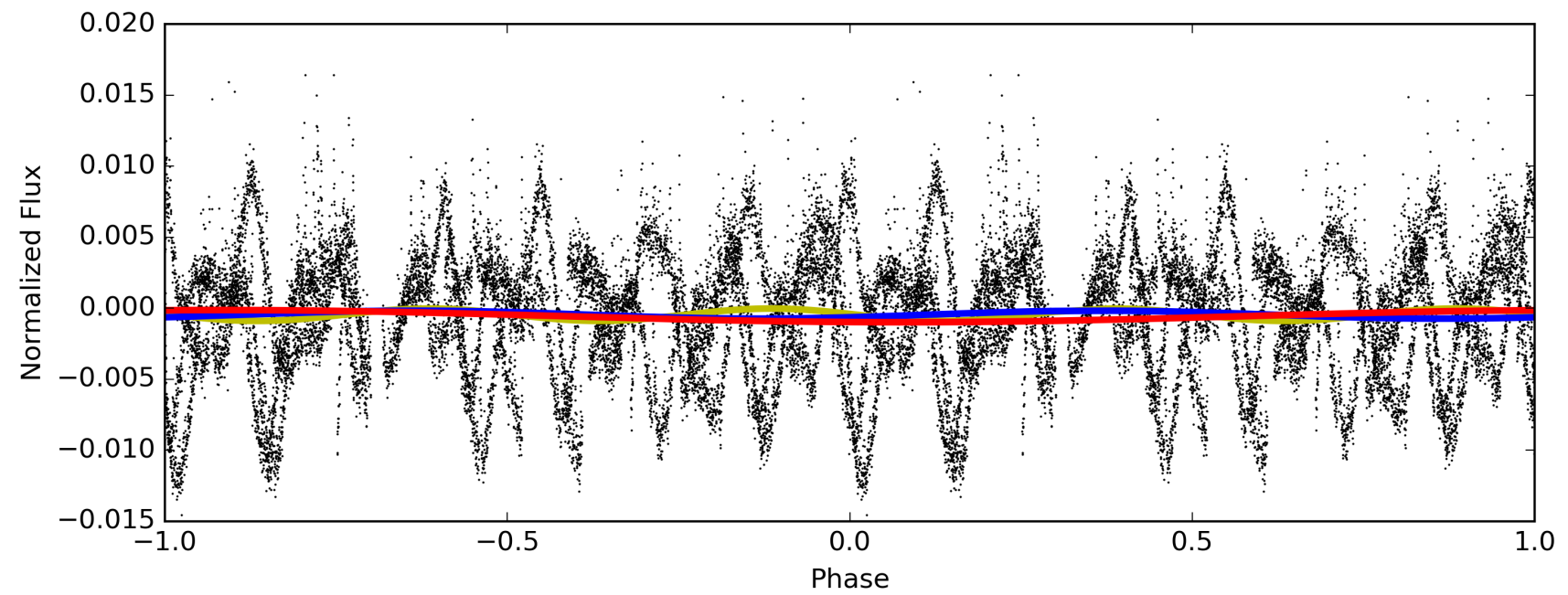
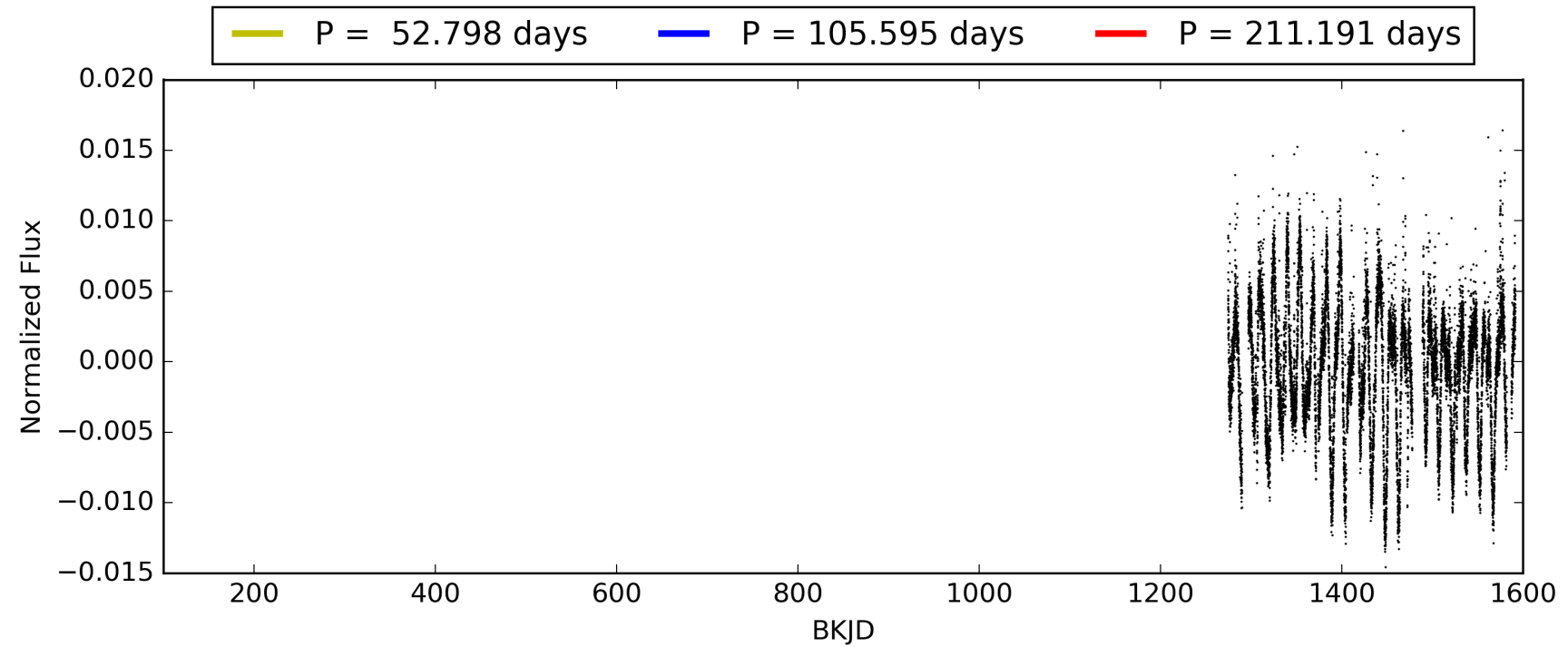
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.0%
ModelChiSquareGof-sig: 79.7%
Bootstrap-pfa: 2.08e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -31.23
Centroid-sig: 60.1%
Centroid-so: 1.088 arcsec [0.56 σ]
OotOffset-rm: 1.538 arcsec [1.02 σ]
KicOffset-rm: 1.595 arcsec [0.99 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009821996-01, PDC Light Curves

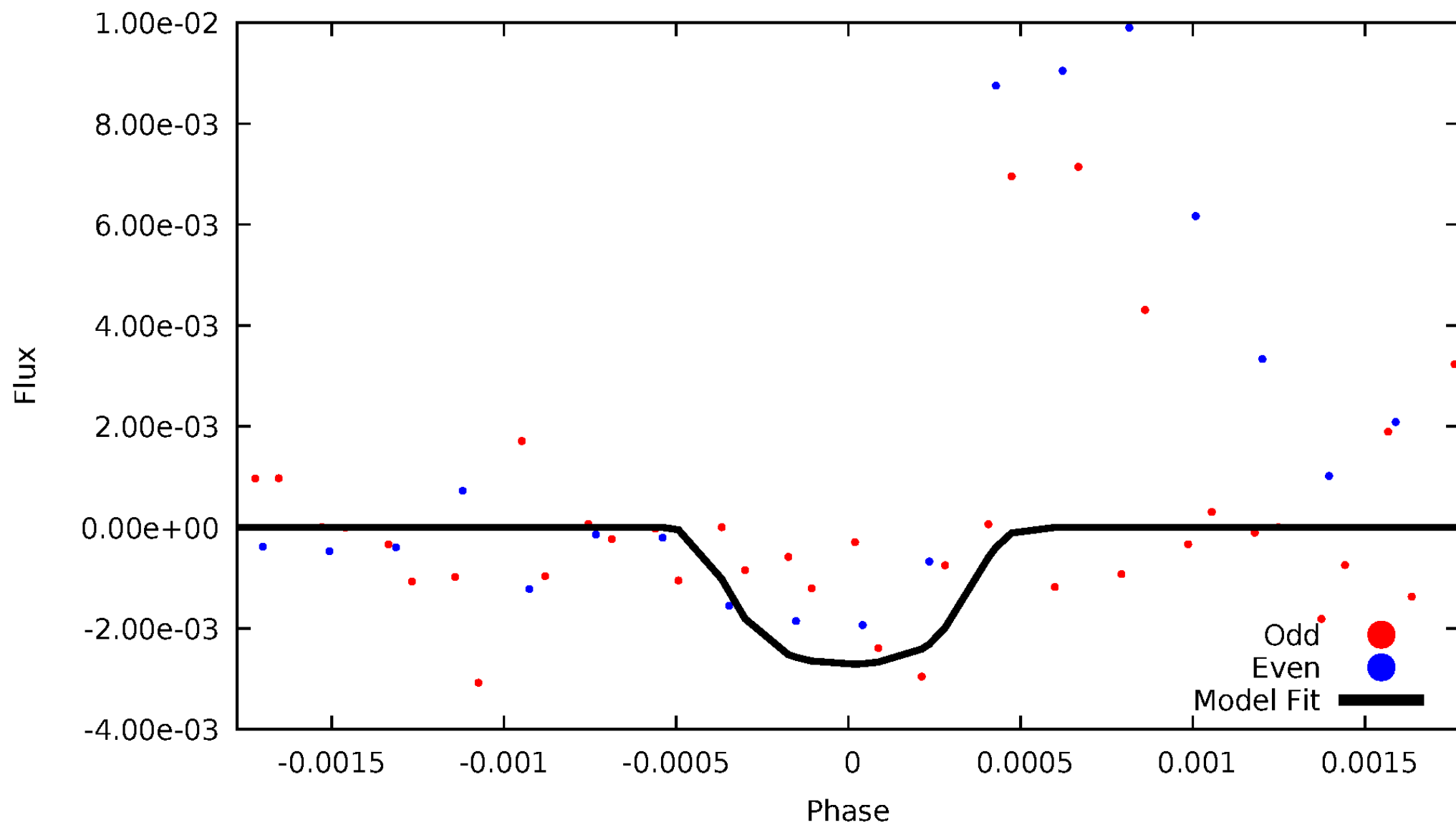


TCE 009821996-01



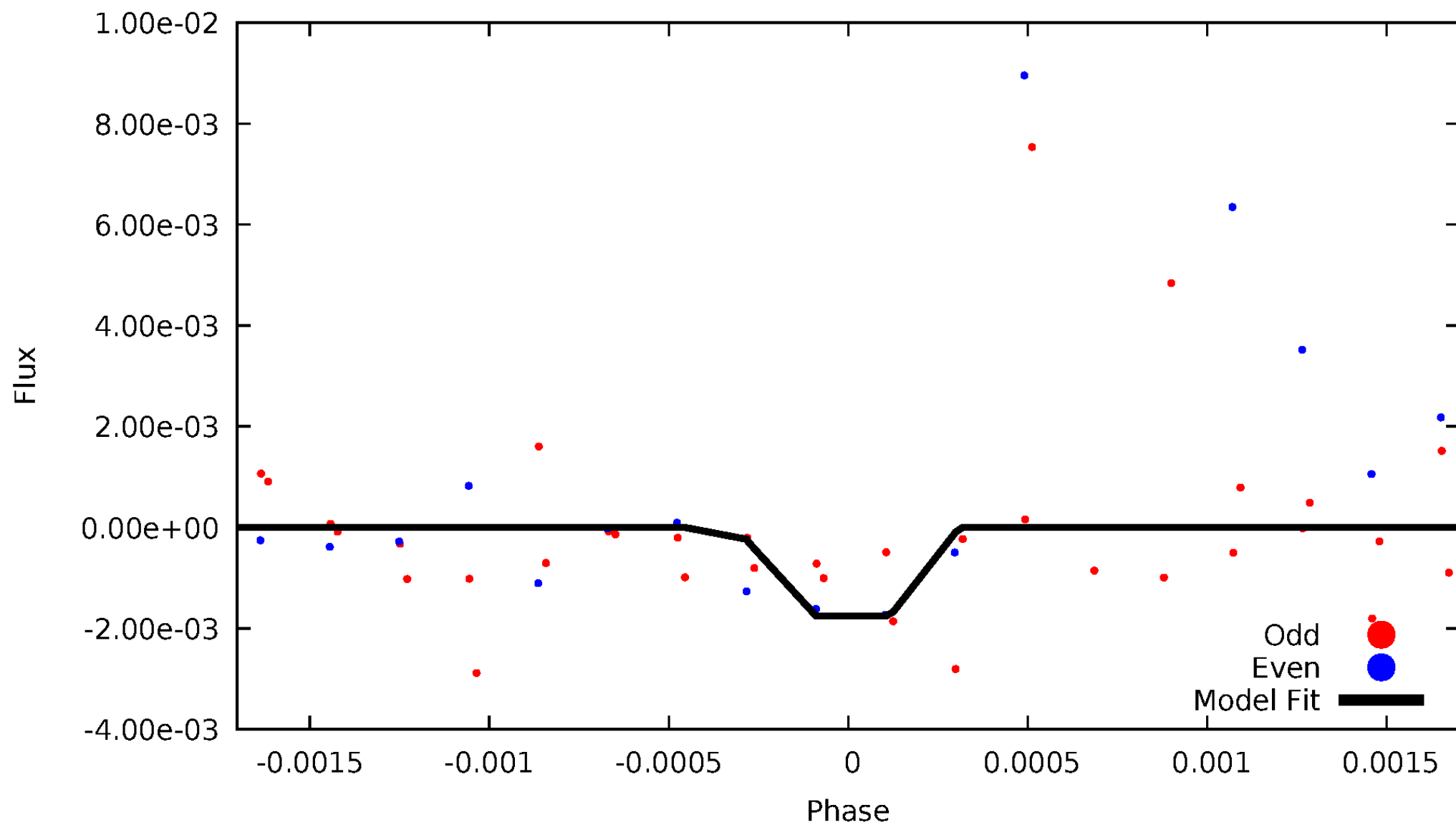
DV Odd/Even

TCE 009821996-01



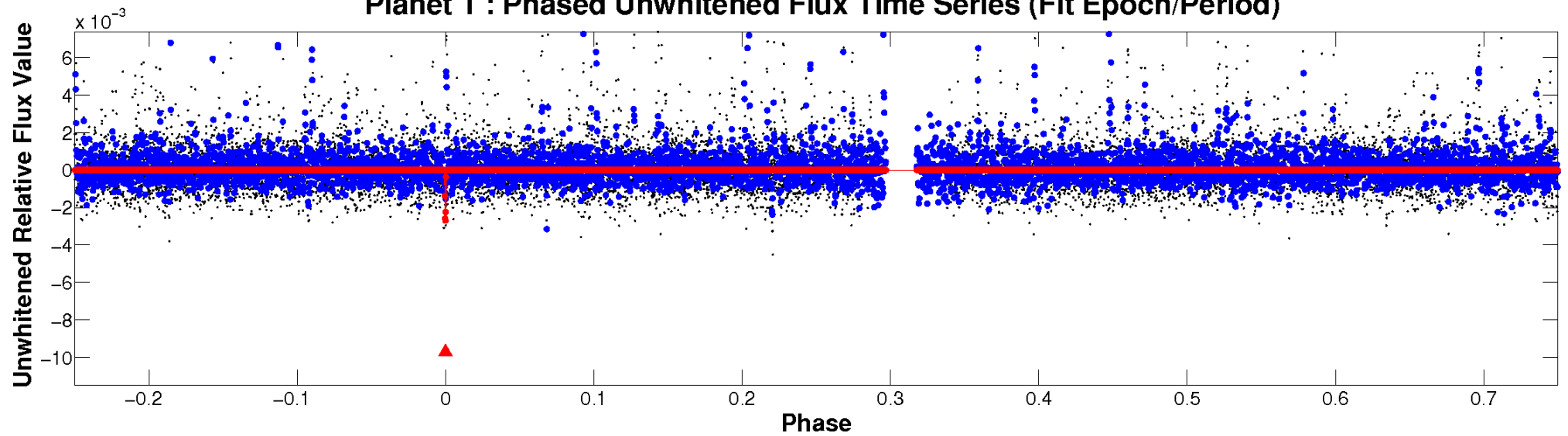
ALT Odd/Even

TCE 009821996-01

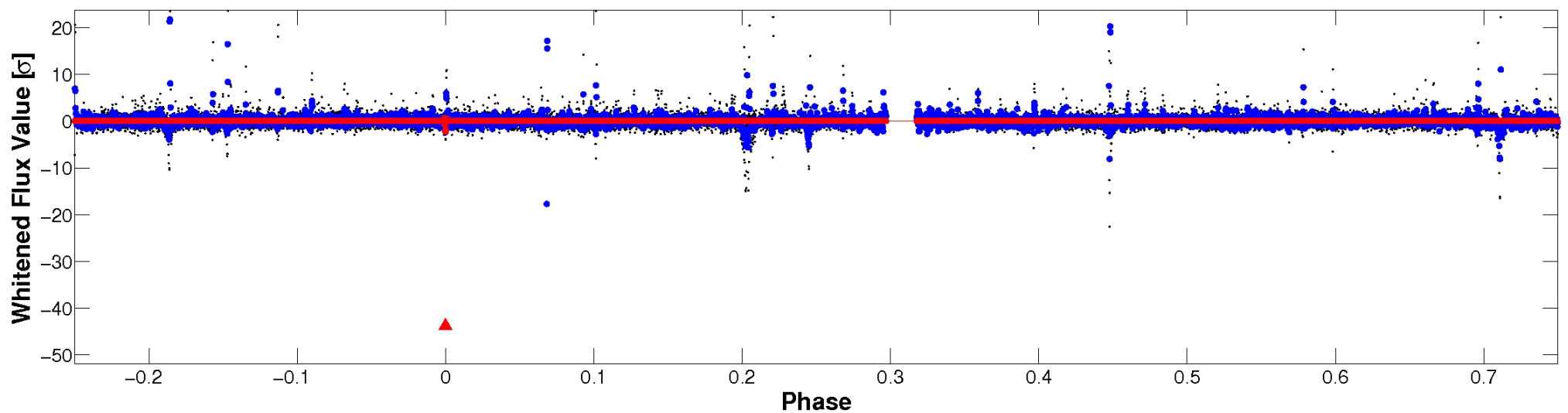


Non-Whitened Vs. Whitened Light Curve

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

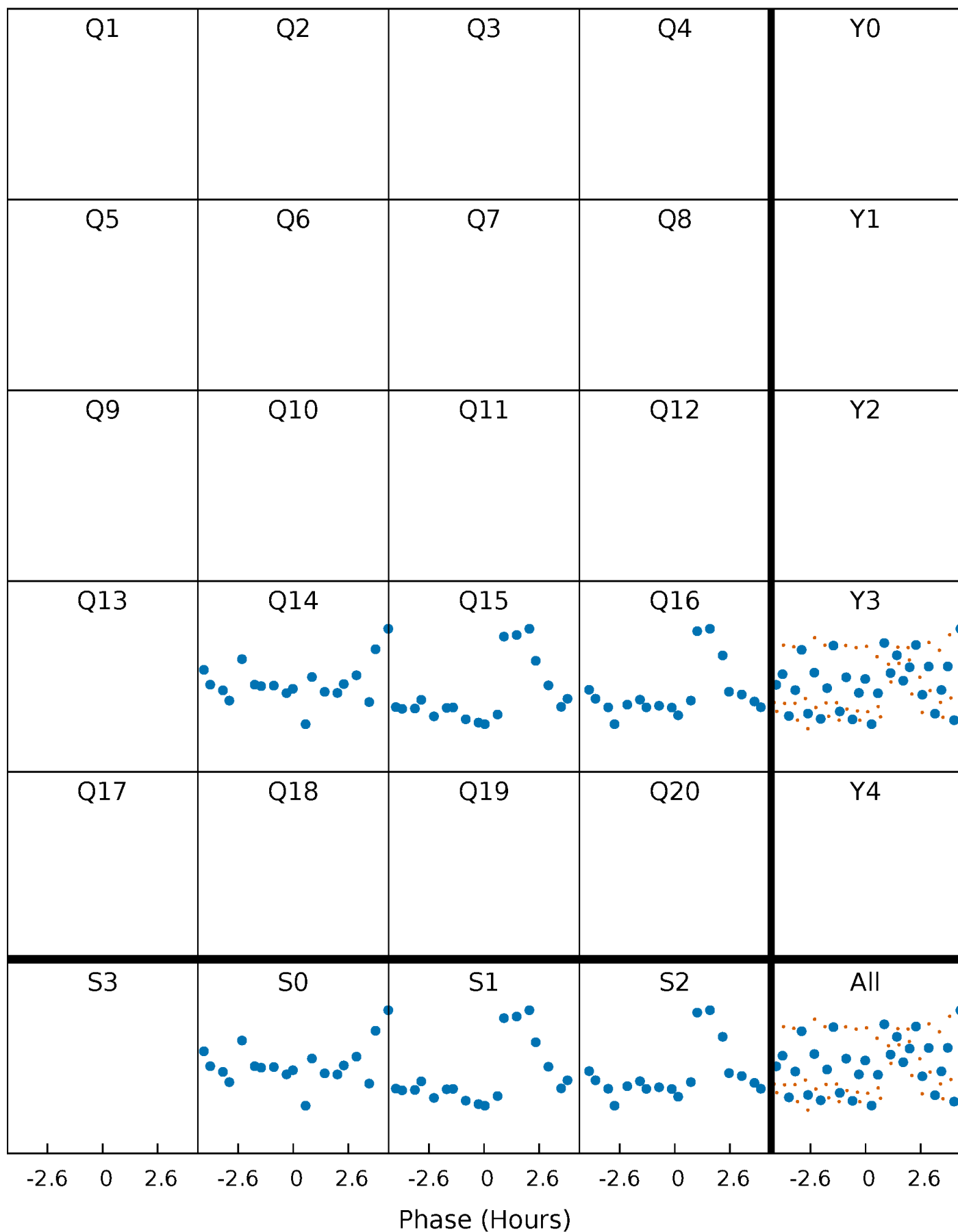


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



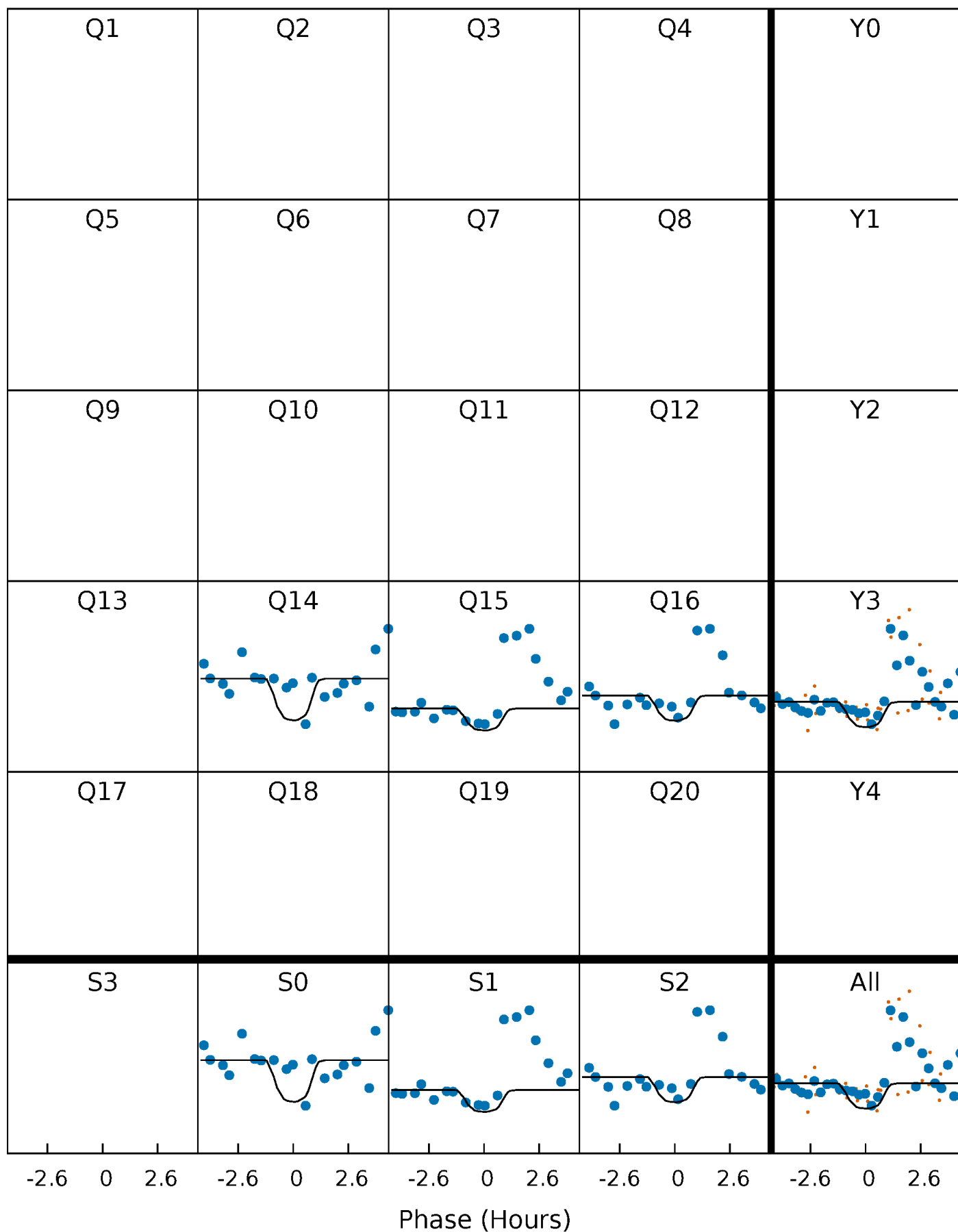
PDC Quarter-Phased Transit Curves

TCE 009821996-01 P=105.595353 Days $T_0=178.406028$ (BKJD)



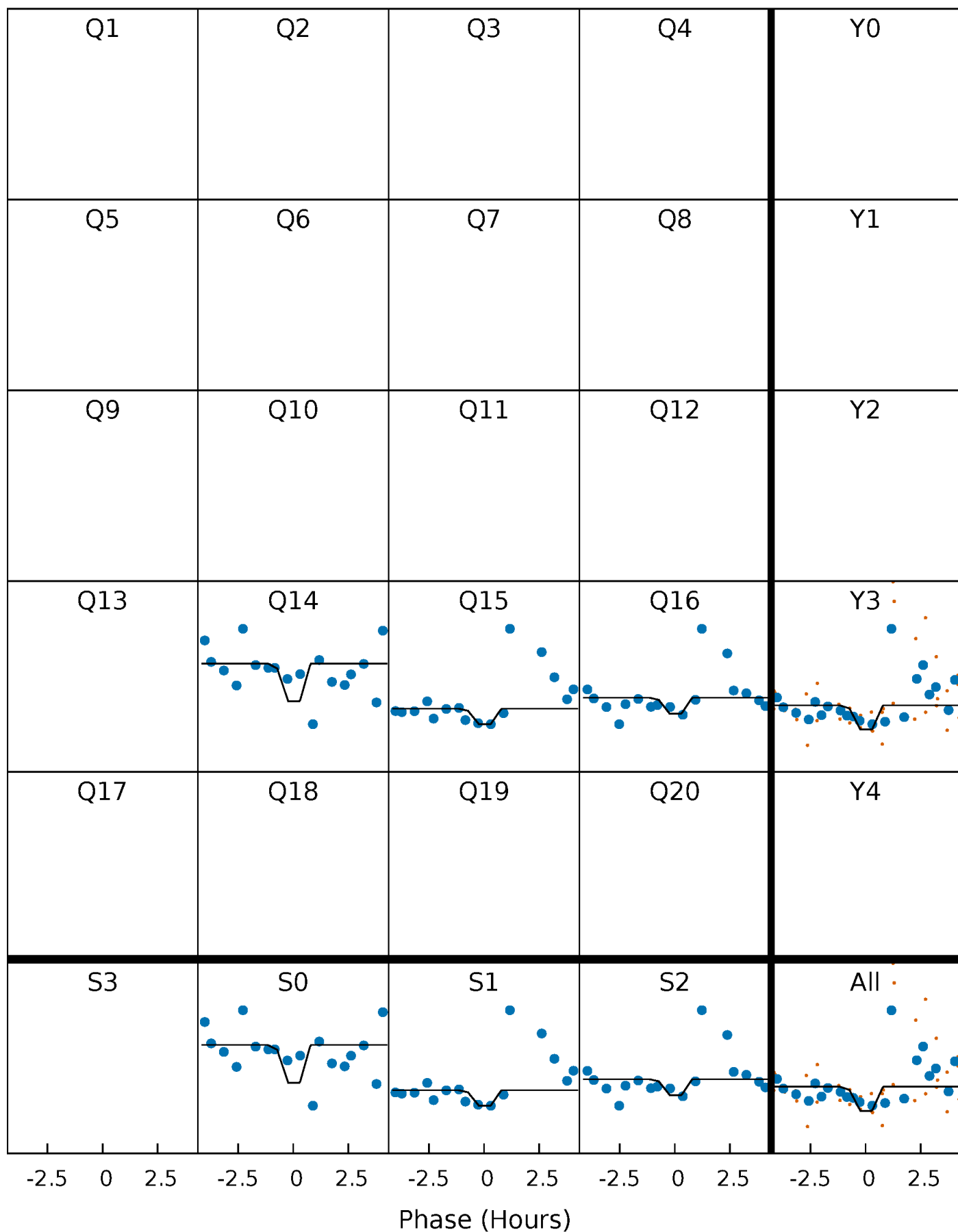
DV Quarter-Phased Transit Curves

TCE 009821996-01 $P=105.595353$ Days $T_0=178.406028$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

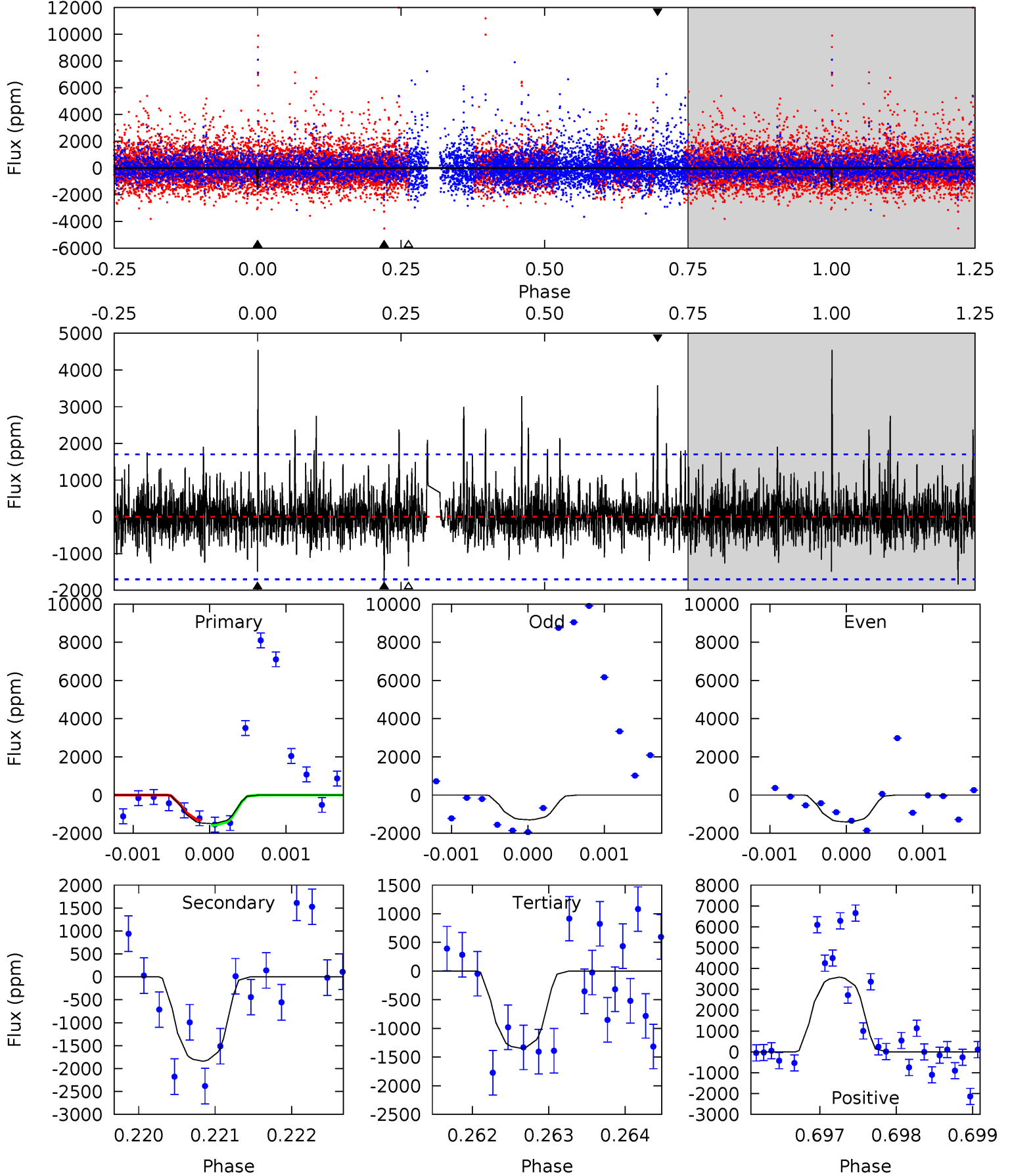
TCE 009821996-01 P=105.597900 Days $T_0=178.368935$ (BKJD)



DV Model-Shift Uniqueness Test

009821996-01, P = 105.595353 Days, E = 178.406028 Days

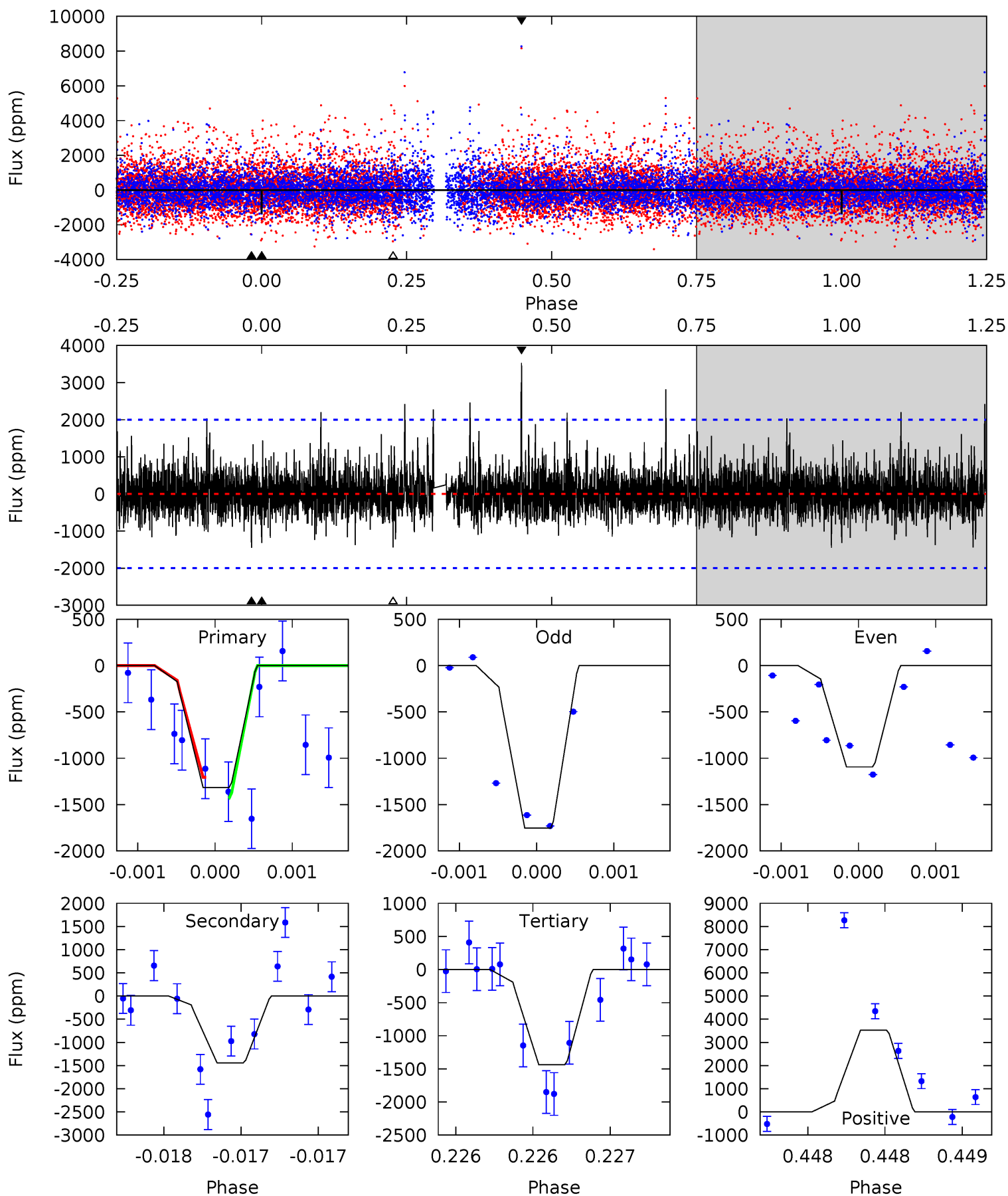
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.79	5.90	4.32	11.5	5.46	3.30	1.56	0.47	-6.70	1.59	-5.58	0.09	1.03	0.71	0.41



Alt Model-Shift Uniqueness Test

009821996-01, P = 105.597900 Days, E = 178.368935 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.65	4.01	3.98	9.78	5.55	3.44	1.22	-0.34	-6.13	0.03	-5.77	0.84	0.87	0.71	0.32



Stellar Parameters For KIC 009821996

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3716^{+118}_{-148}	$4.681^{+0.076}_{-0.022}$	$0.560^{+0.050}_{-0.300}$	$0.572^{+0.033}_{-0.076}$	$0.573^{+0.036}_{-0.068}$	$4.306^{+1.588}_{-0.403}$
	+3%/-4%	+2%/-0%	+9%/-54%	+6%/-13%	+6%/-12%	+37%/-9%
Source	KIC0	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 009821996-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1841 ± 312	$4.30^{+3.98}_{-2.76}$	284^{+11}_{-13}	3168^{+1331}_{-526}	7192^{+49507}_{-5201}
Alt.	-1446 ± 361	$3.97^{+3.36}_{-2.70}$	284^{+11}_{-13}	3123^{+1415}_{-478}	6646^{+55833}_{-4755}

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

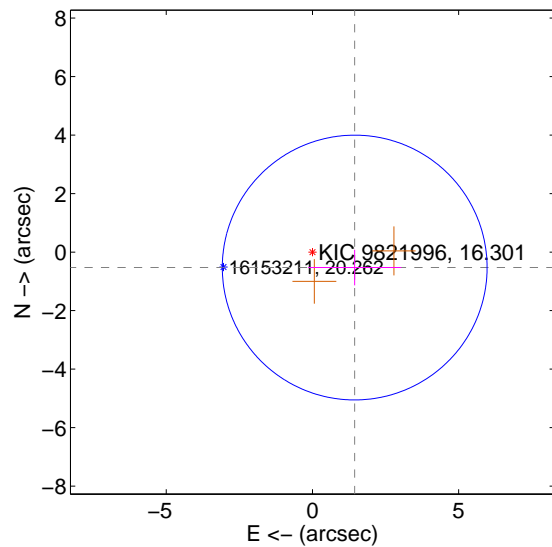
Supplemental centroid analysis for 009821996-01. Kepler magnitude: 16.30. Transit SNR 6.40

There are 0 quarters with good PRF difference image offsets

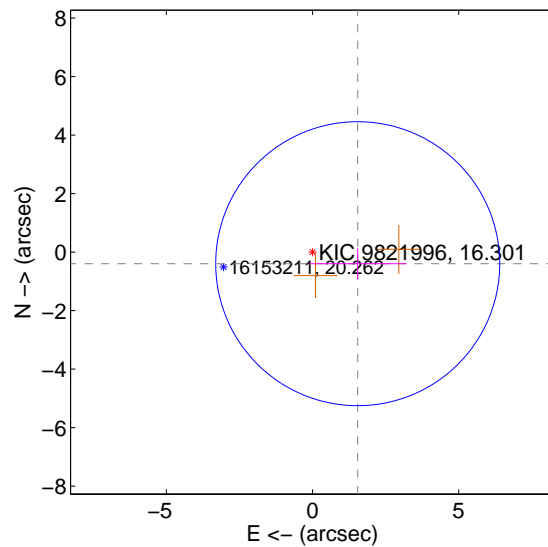
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.538 ± 1.509	1.02	-1.445 ± 1.591	-0.528 ± 0.610
PRF-fit source offset from KIC position	1.595 ± 1.618	0.99	-1.545 ± 1.665	-0.397 ± 0.527
photometric centroid source offset	1.09 ± 1.94	0.56	-1.03 ± 1.96	-0.34 ± 1.69

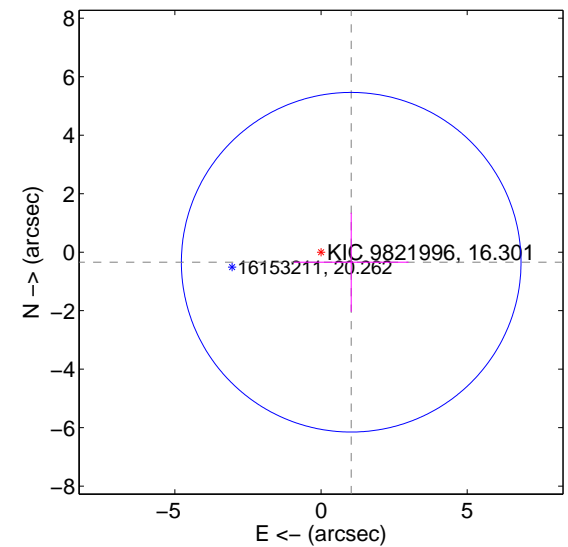
offset from difference PRF-fit to OOT PRF-fit



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.



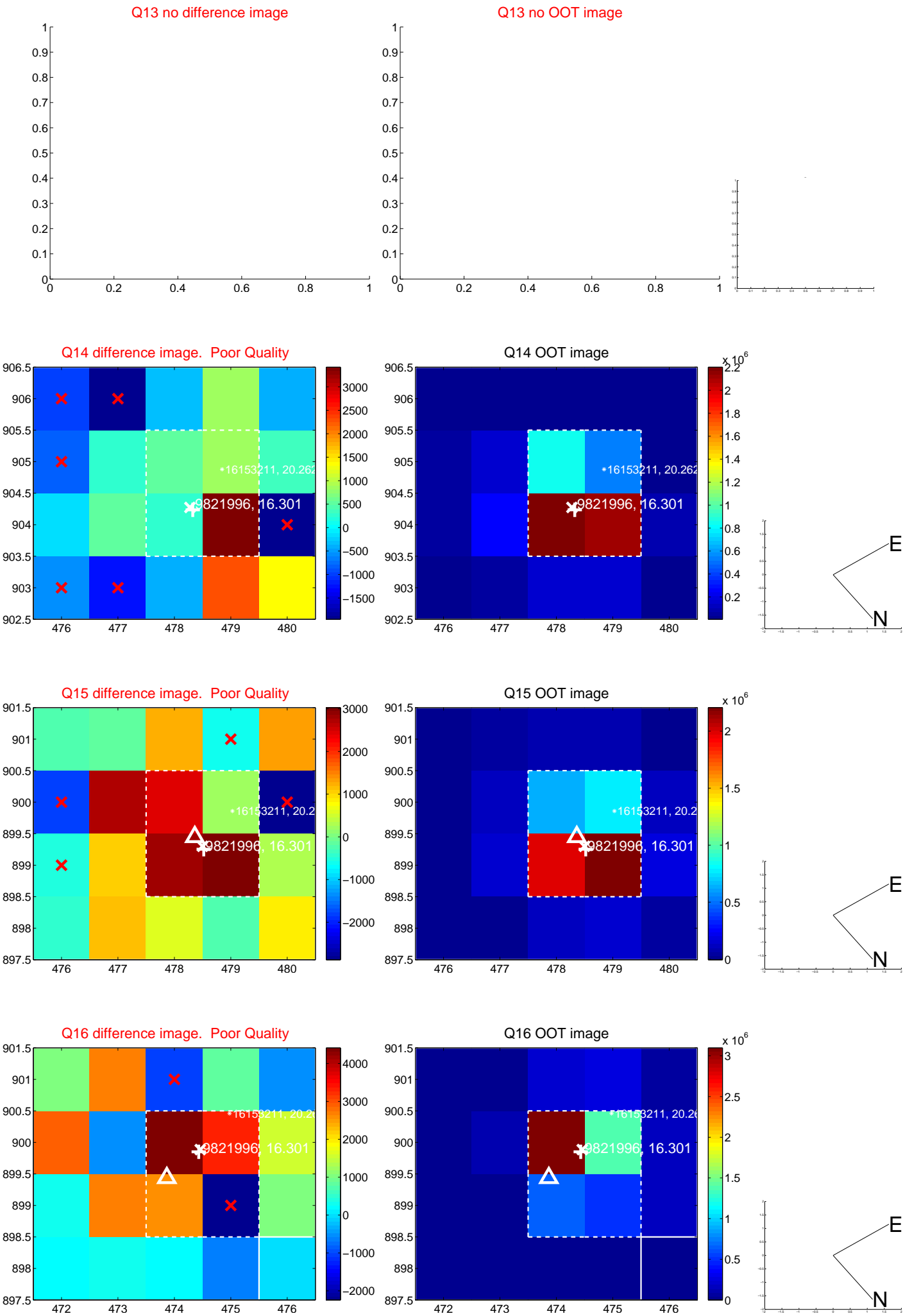
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



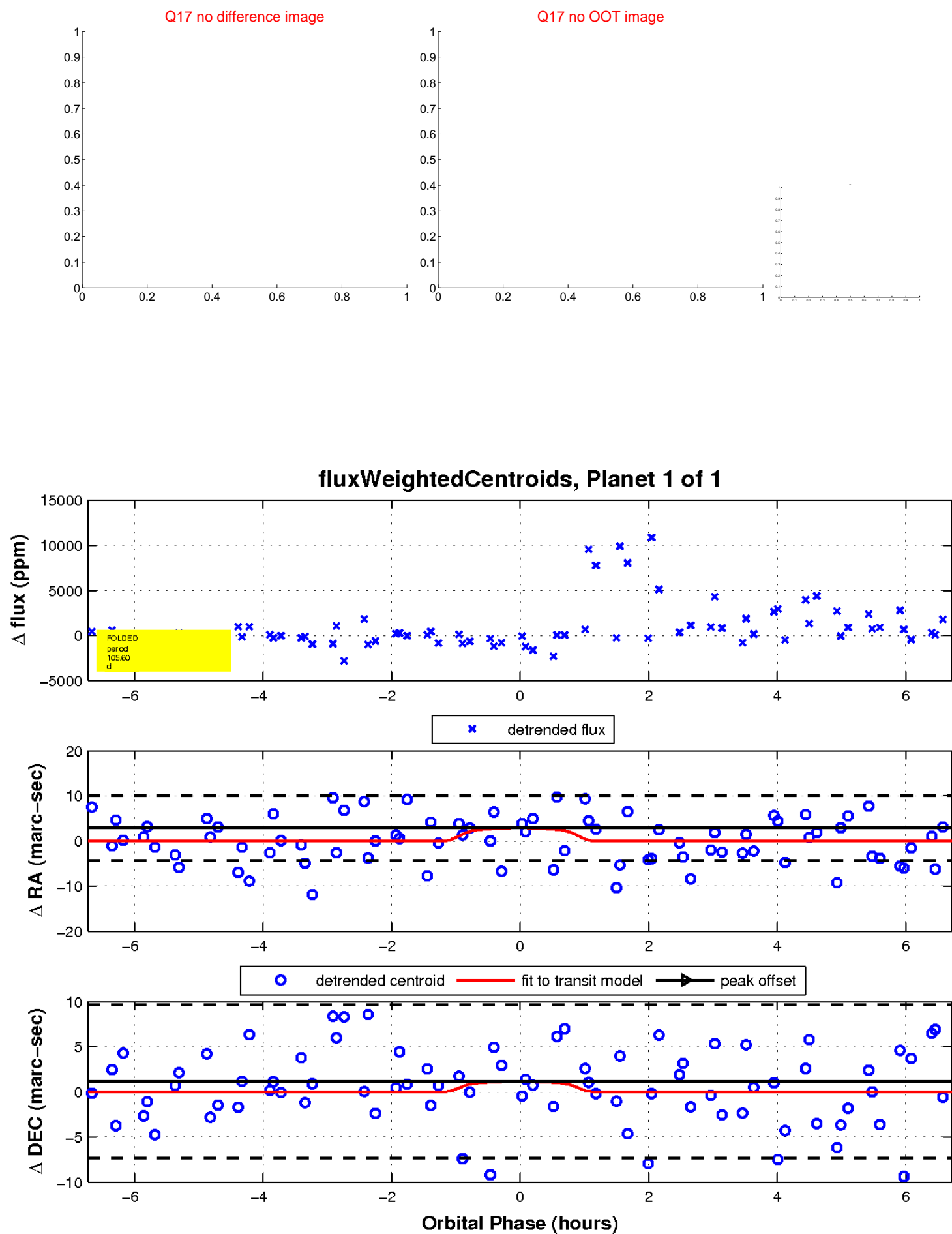
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

