

KIC 007731281

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})
007731281-01	OBS	5416.01	76.376700	146.370269	10971.0	5.177	39.1	38.1	0.58	3869	6.61	0.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007731281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—CENT_KIC_POS

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

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

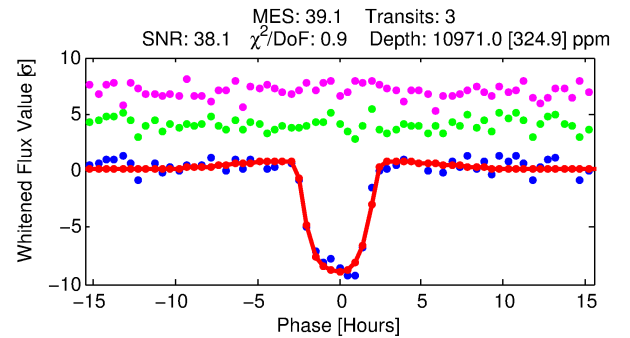
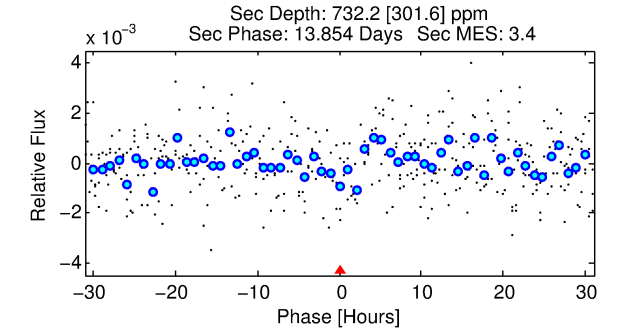
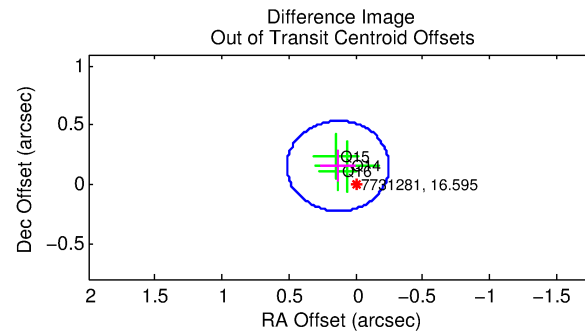
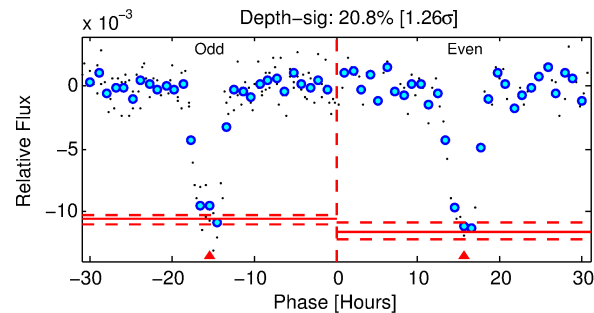
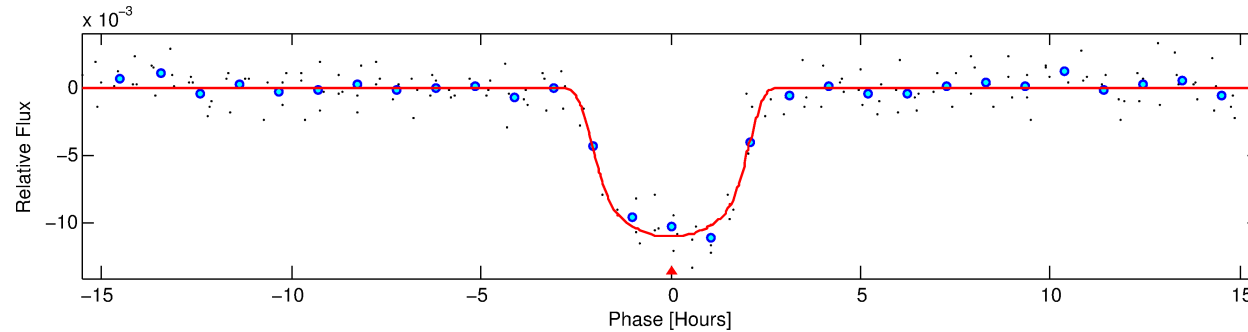
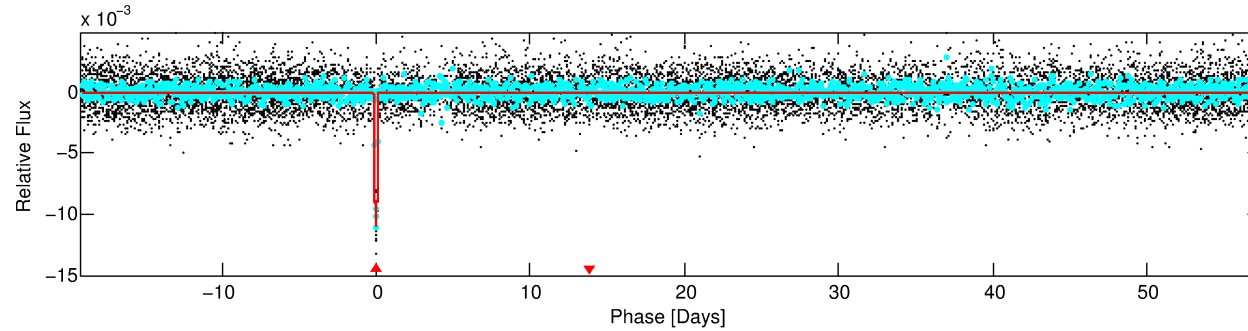
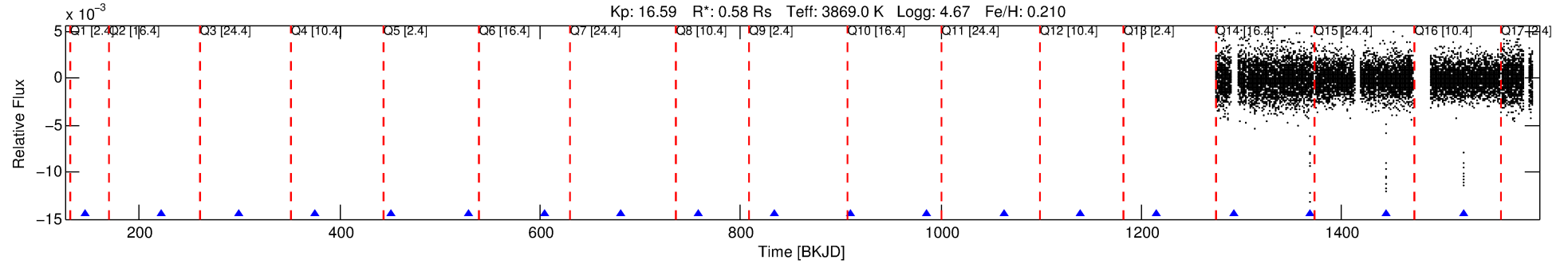
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007731281-01

No Significant Match Found

DV One-Page Summary

KIC: 7731281 Candidate: 1 of 1 Period: 76.377 d
KOI: K05416.01 Corr: 0.939



DV Fit Results:

Period = 76.37670 [0.00193] d
Epoch = 146.3703 [0.0334] BKJD
Rp/R* = 0.1038 [0.0066]
a/R* = 93.55 [19.69]
b = 0.73 [0.14]
Seff = 0.79 [0.16]
Teq = 240 [12] K
Rp = 6.61 [0.94] Re
a = 0.2951 [0.0293] AU
Ag = 802.21 [362.07] [2.21 σ]
Teffp = 1976 [226] K [7.68 σ]

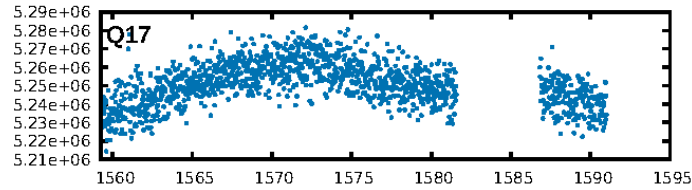
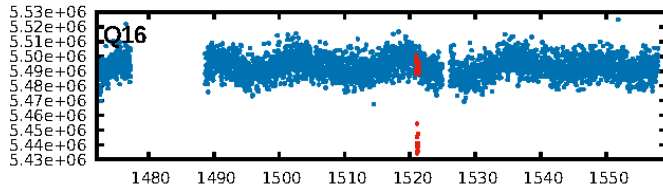
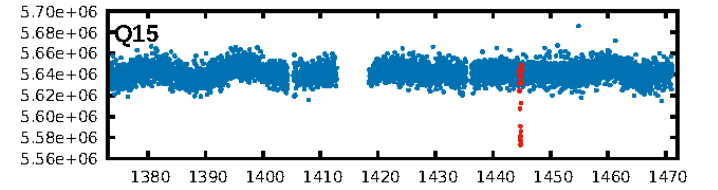
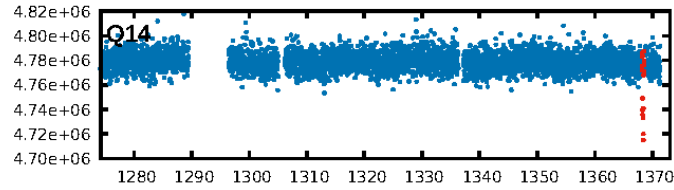
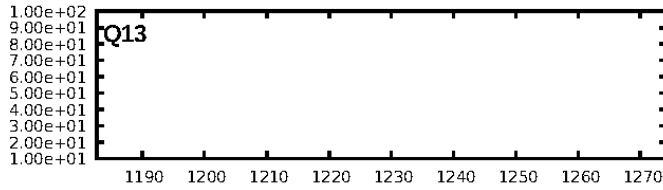
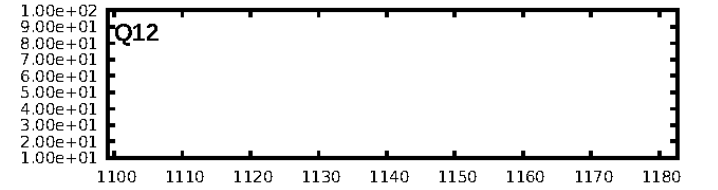
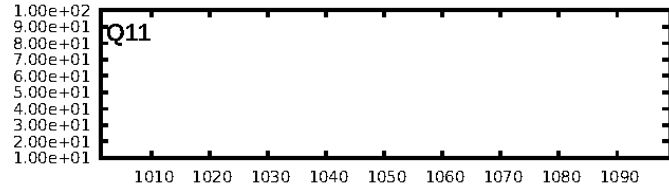
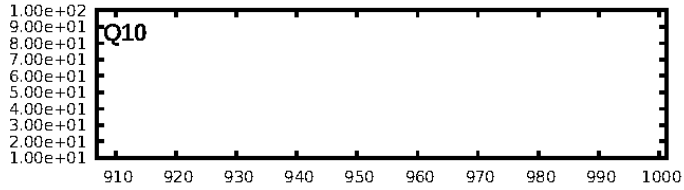
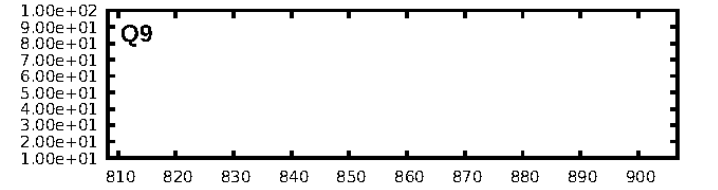
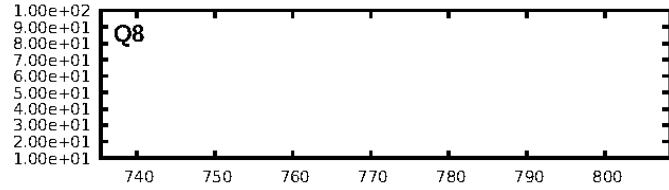
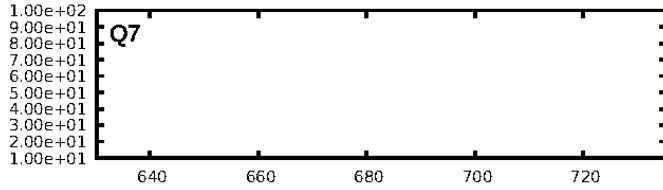
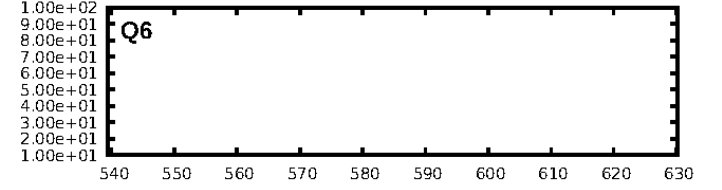
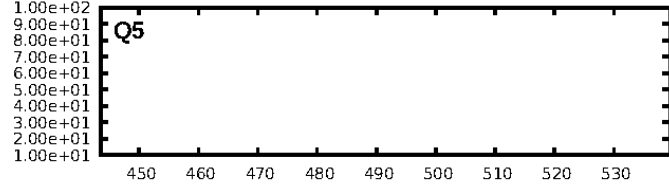
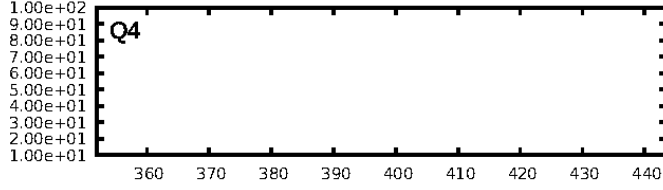
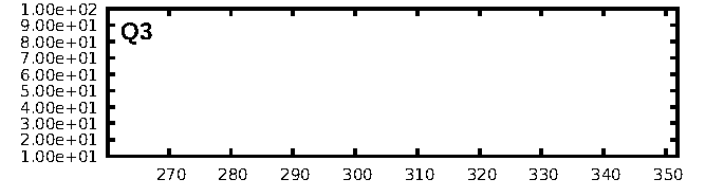
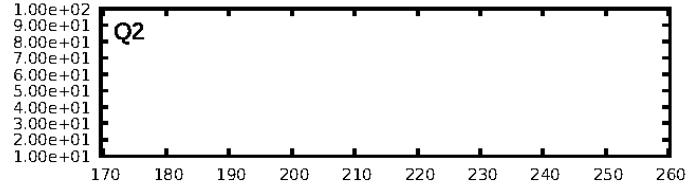
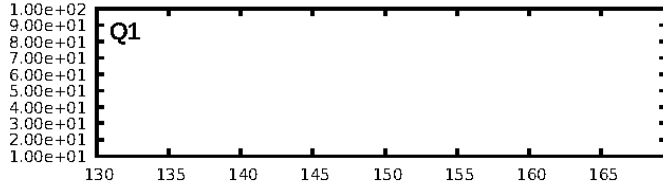
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 38.0%
ModelChiSquareGof-sig: 99.1%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.206
Centroid-sig: 24.3%
Centroid-so: 0.955 arcsec [2.24 σ]
OotOffset-rm: 0.206 arcsec [1.62 σ]
KicOffset-rm: 0.249 arcsec [1.97 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

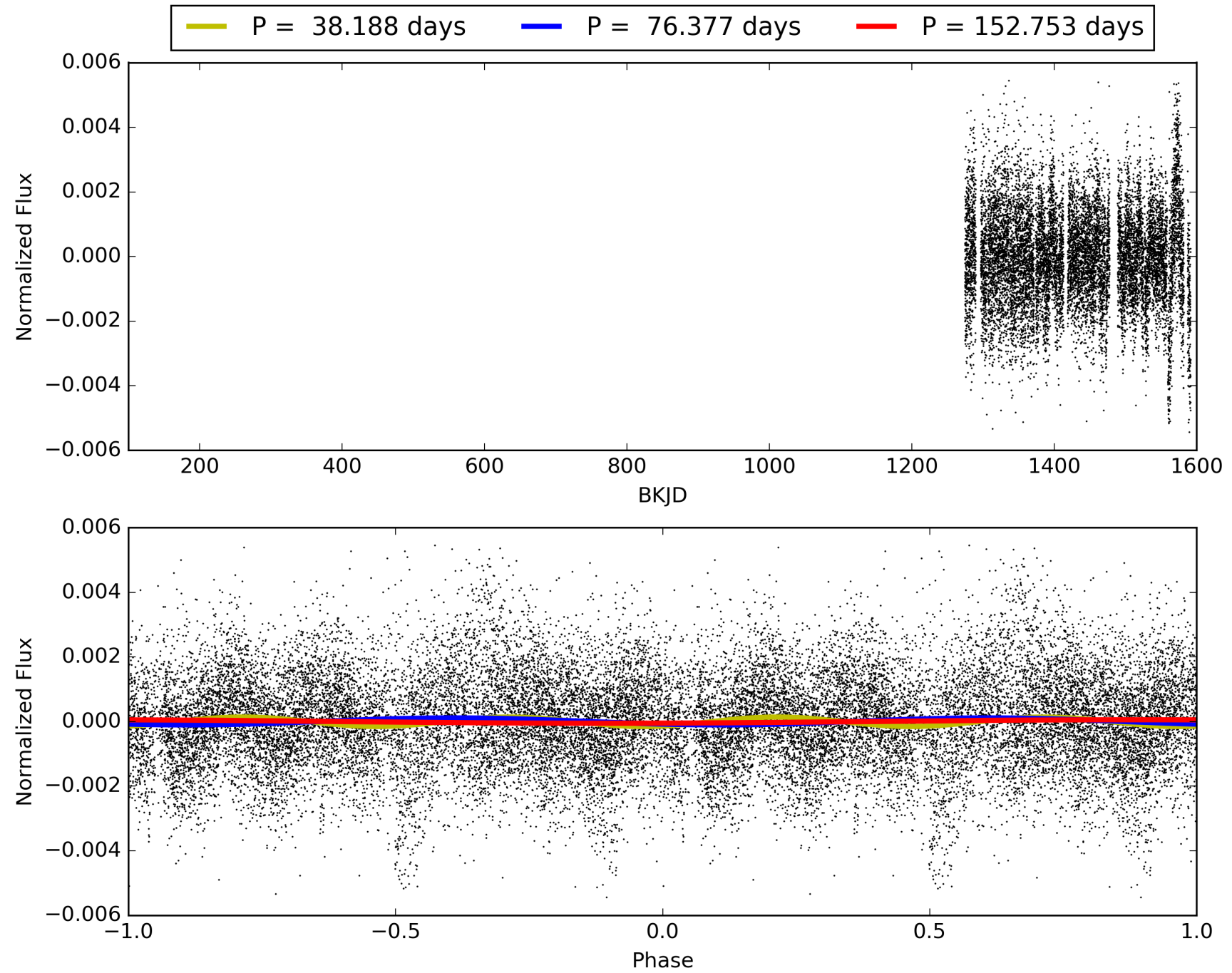
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:34:52 Z

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

TCE 007731281-01, PDC Light Curves

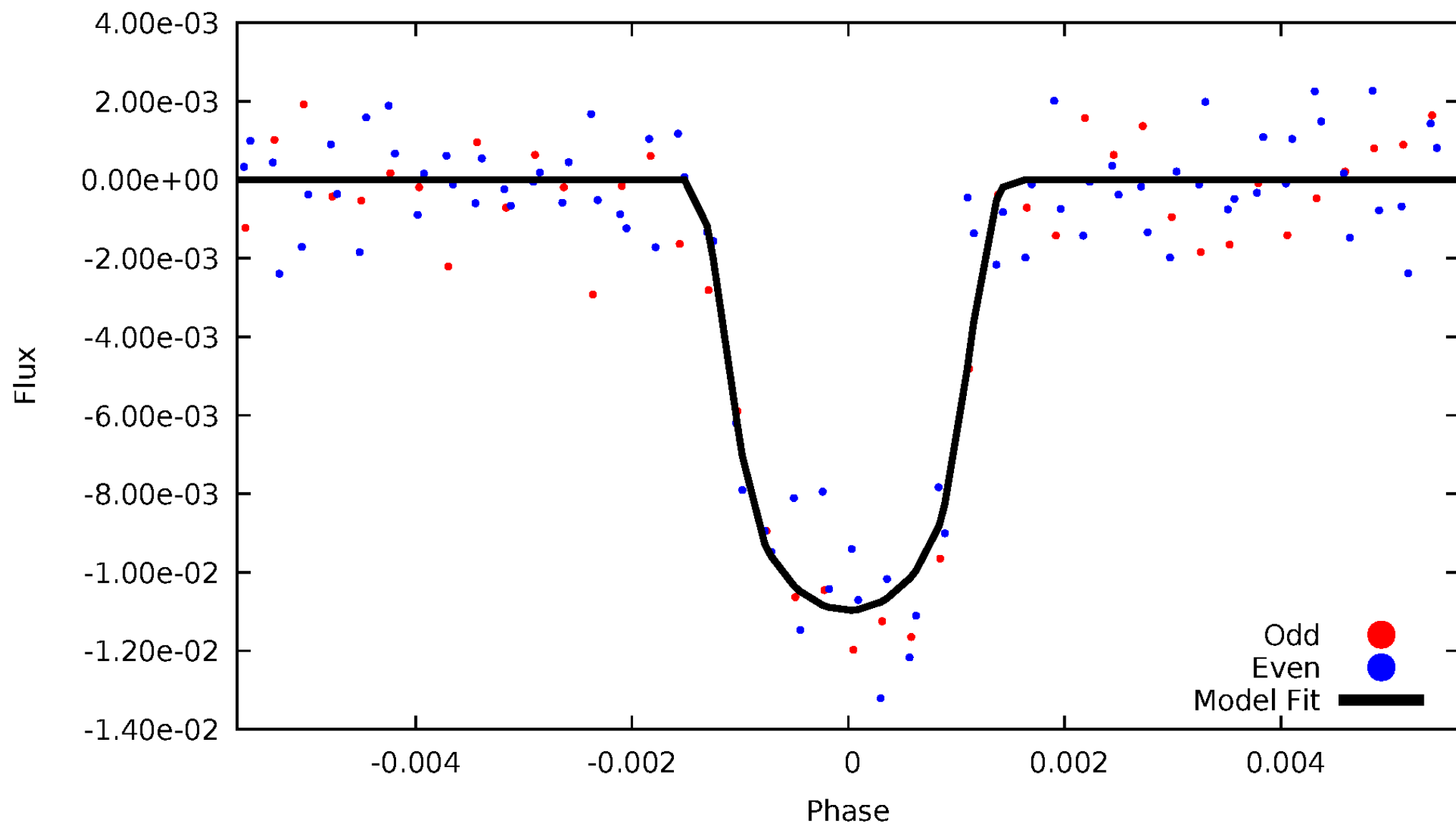


TCE 007731281-01



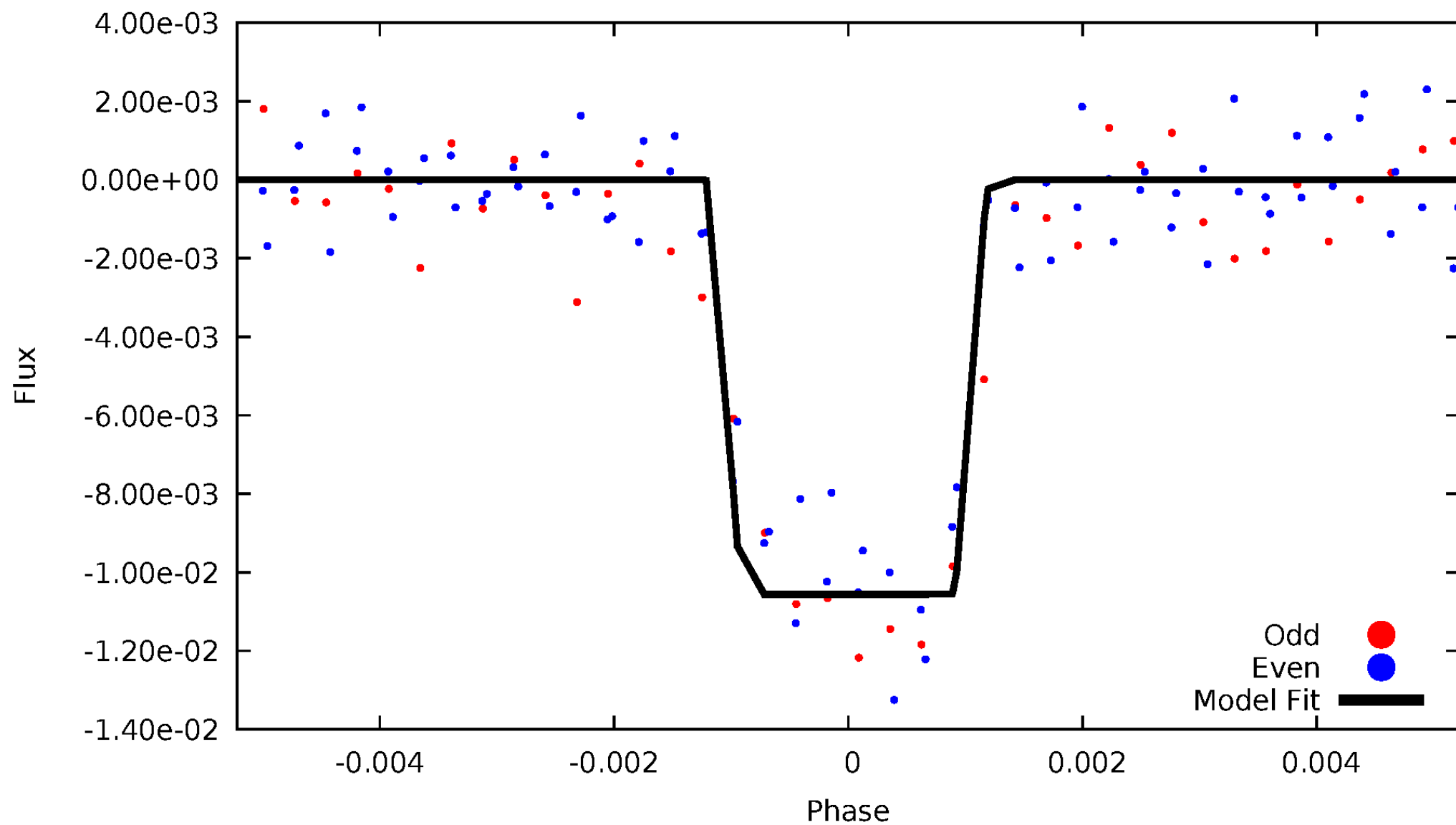
DV Odd/Even

TCE 007731281-01



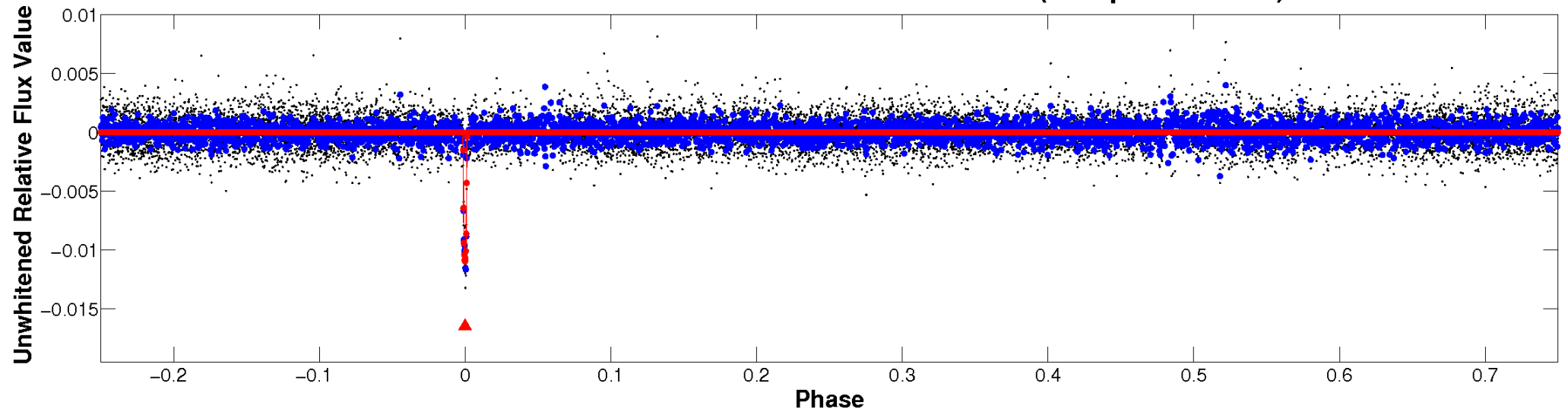
ALT Odd/Even

TCE 007731281-01

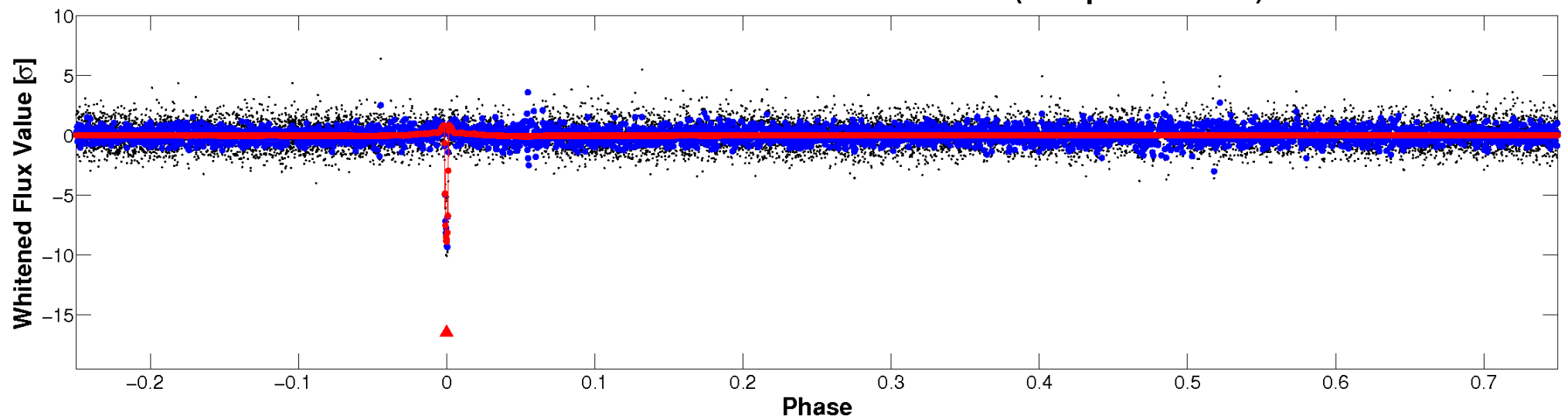


Non-Whitened Vs. Whitened Light Curve

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

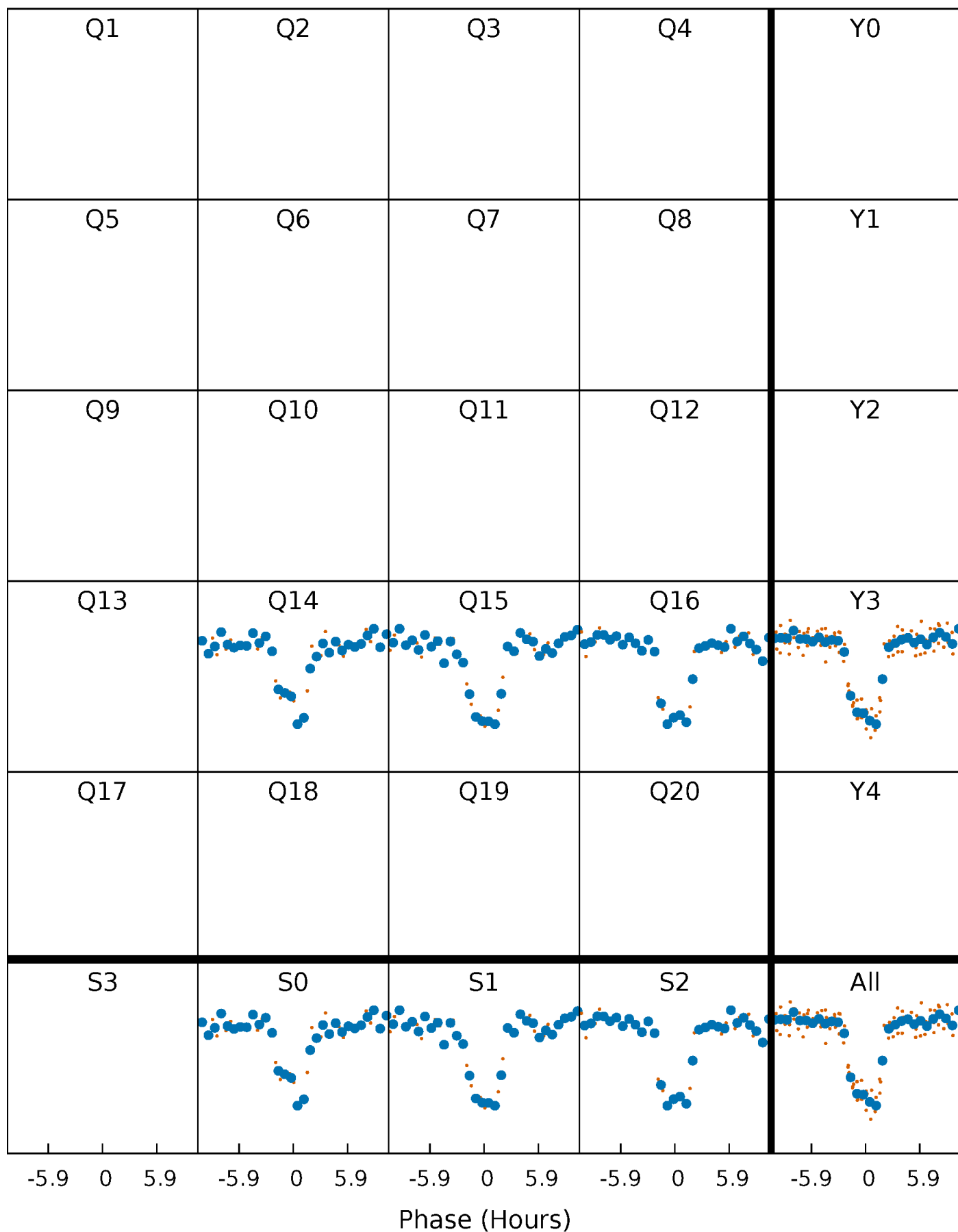


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



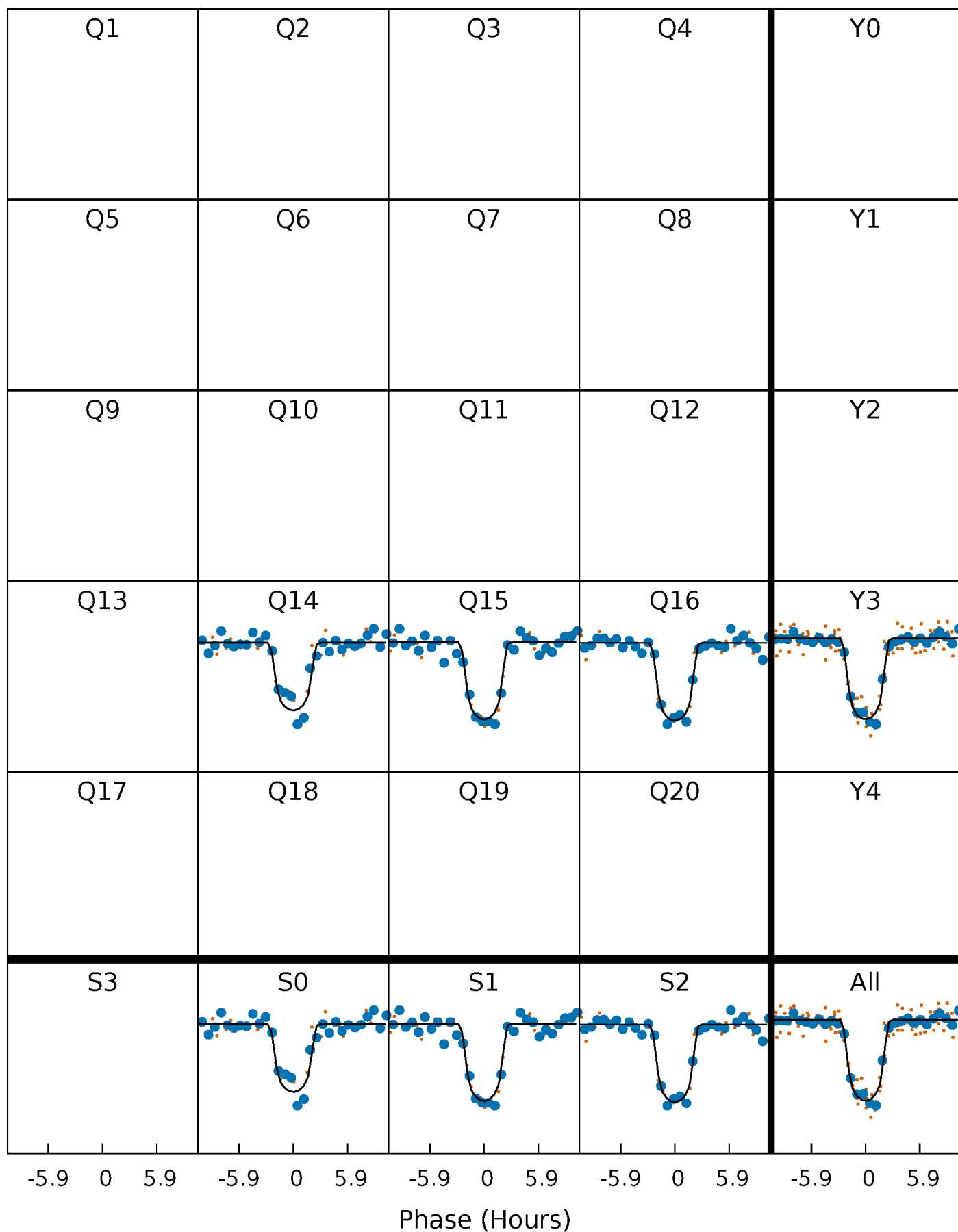
PDC Quarter-Phased Transit Curves

TCE 007731281-01 P= 76.376700 Days $T_0=146.370269$ (BKJD)



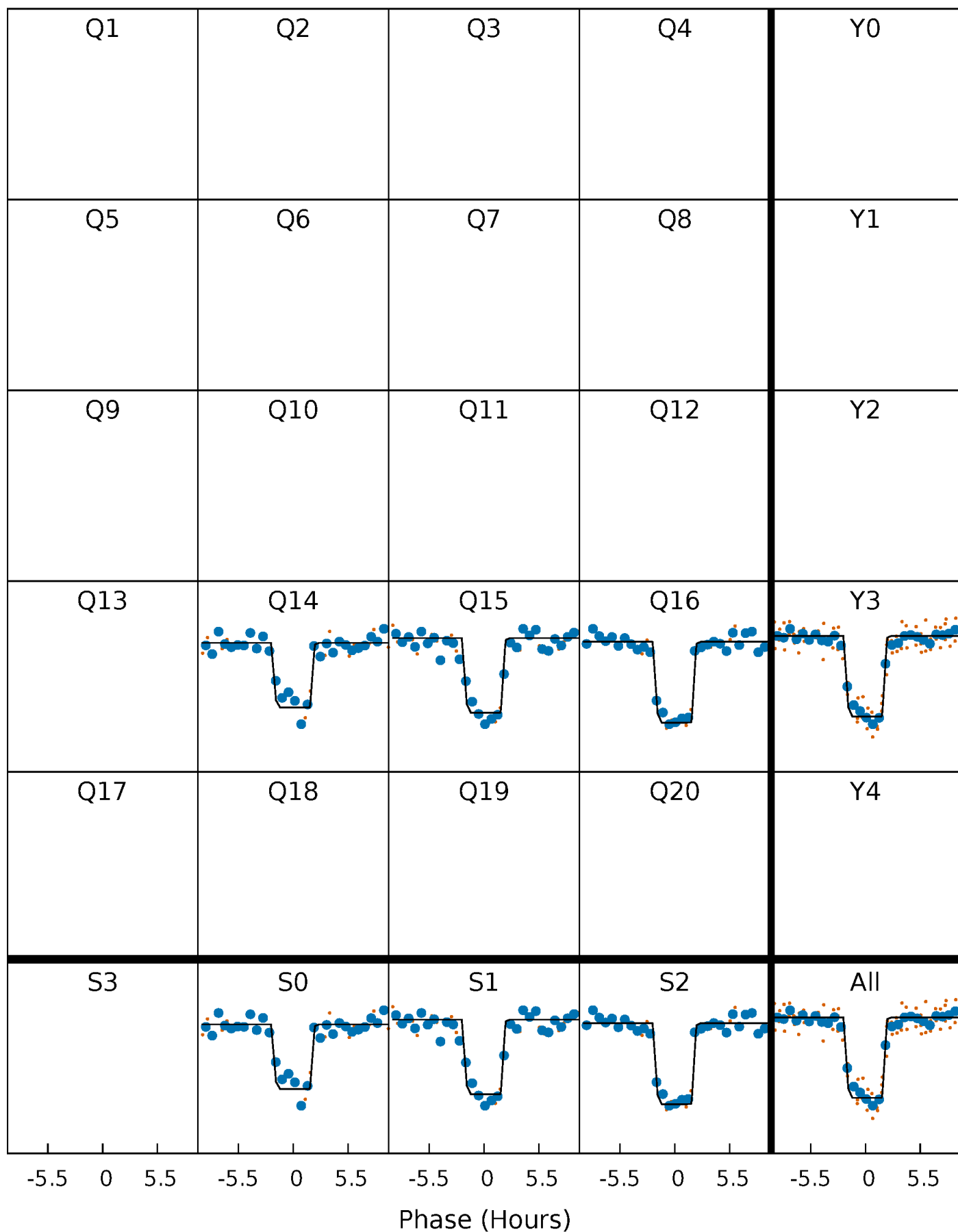
DV Quarter-Phased Transit Curves

TCE 007731281-01 P= 76.376700 Days $T_0=146.370269$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

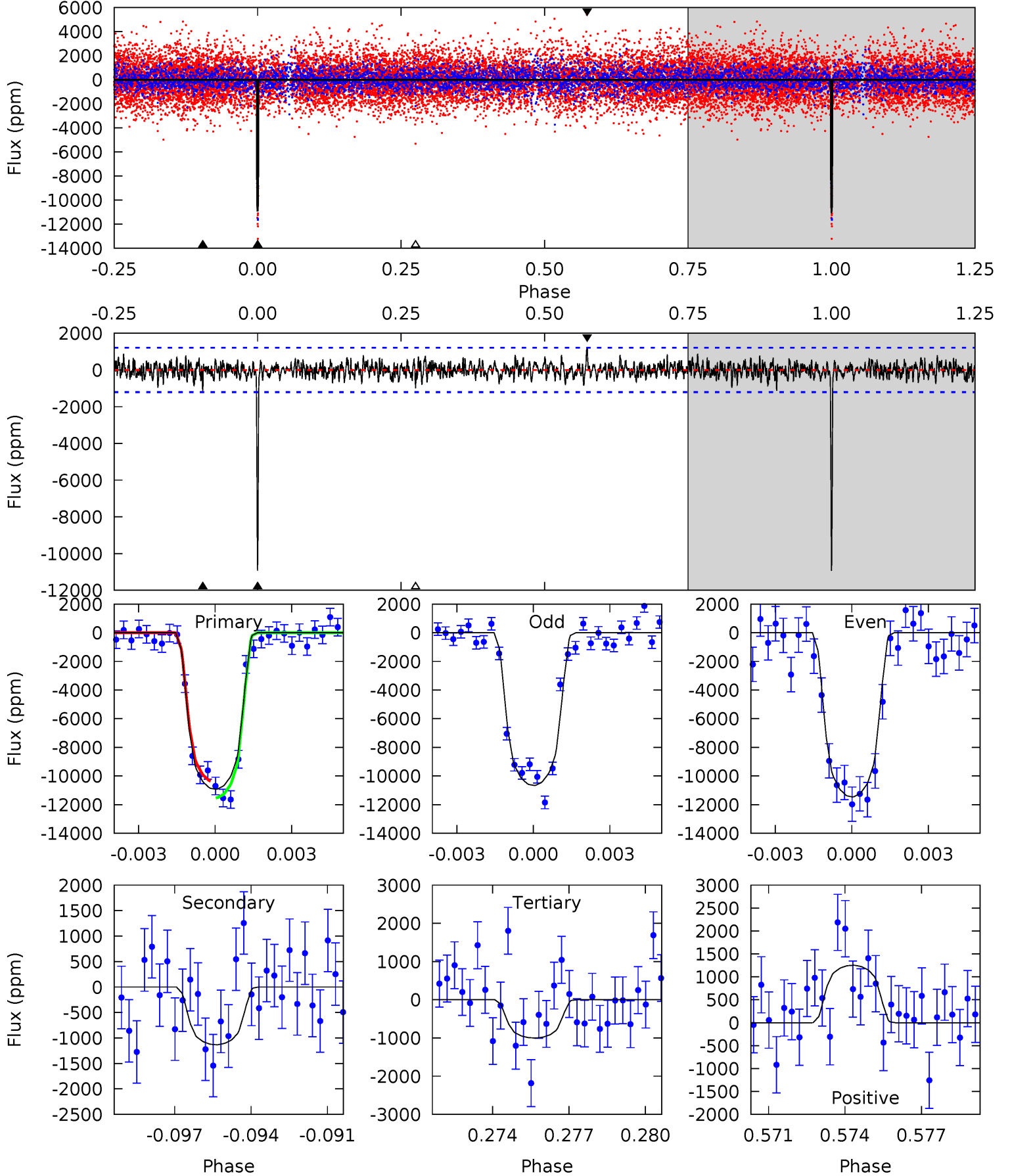
TCE 007731281-01 P= 76.380452 Days $T_0=146.303194$ (BKJD)



DV Model-Shift Uniqueness Test

007731281-01, $P = 76.376700$ Days, $E = 146.370269$ Days

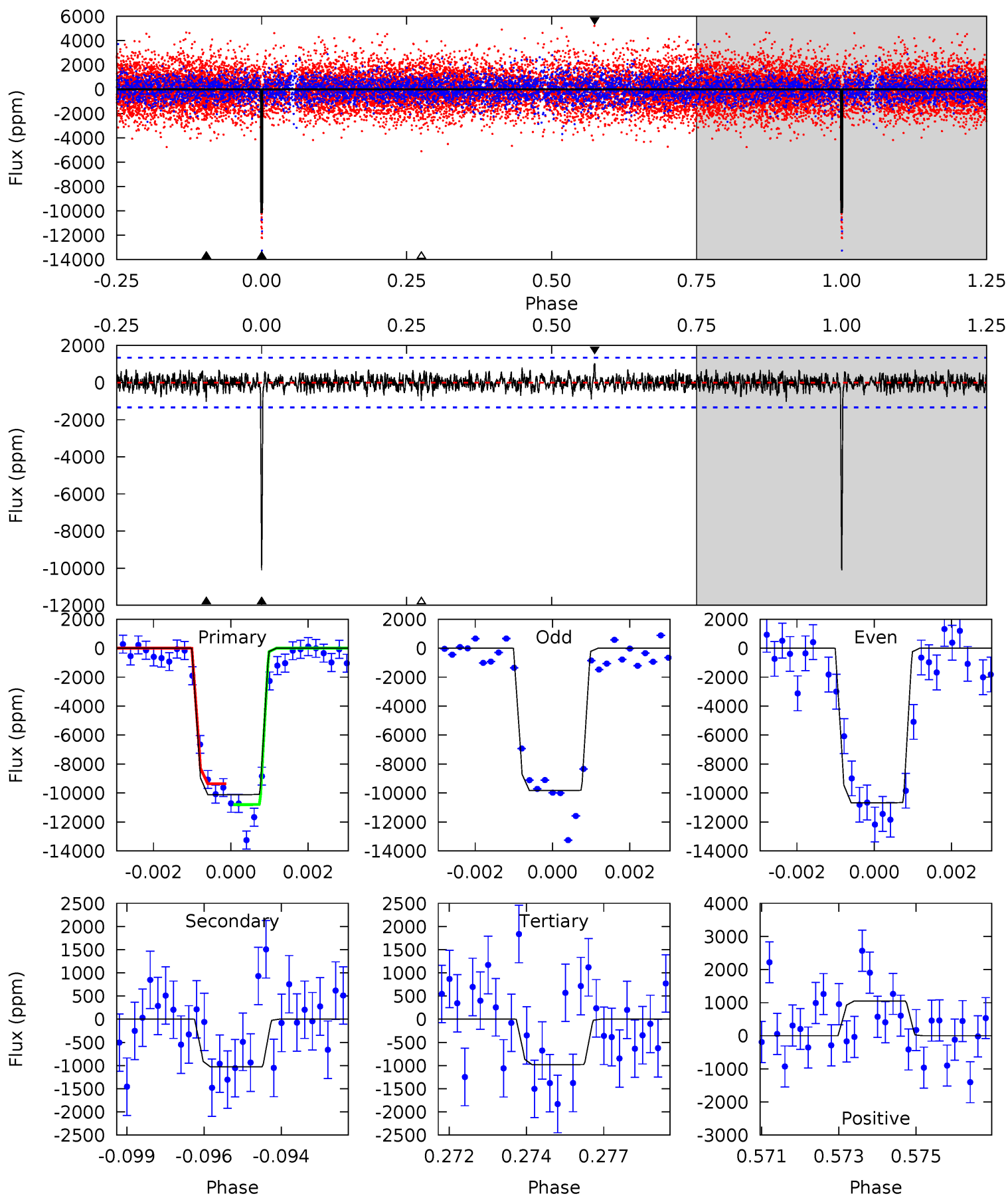
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.5	4.92	4.35	5.44	5.26	2.97	1.28	43.1	42.0	0.57	-0.52	1.63	0.98	0.10	2.50



Alt Model-Shift Uniqueness Test

007731281-01, P = 76.380452 Days, E = 146.303194 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.9	4.06	3.87	4.13	5.29	3.03	1.02	36.1	35.8	0.19	-0.06	1.55	0.99	0.09	2.84



Stellar Parameters For KIC 007731281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3869^{+133}_{-147}	$4.674^{+0.068}_{-0.023}$	$0.210^{+0.200}_{-0.300}$	$0.584^{+0.037}_{-0.074}$	$0.587^{+0.045}_{-0.067}$	$4.150^{+1.315}_{-0.462}$
	+3%/-4%	+1%/-0%	+95%/-143%	+6%/-13%	+8%/-11%	+32%/-11%
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 007731281-01 / KOI 5416.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1132 ± 230	$6.52^{+0.52}_{-0.53}$	332^{+14}_{-14}	2756^{+121}_{-124}	1295^{+353}_{-312}
Alt.	-1029 ± 253	$6.45^{+0.54}_{-0.57}$	332^{+13}_{-13}	2734^{+120}_{-130}	1212^{+373}_{-322}

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 $A_{obs} \gg 1.0$

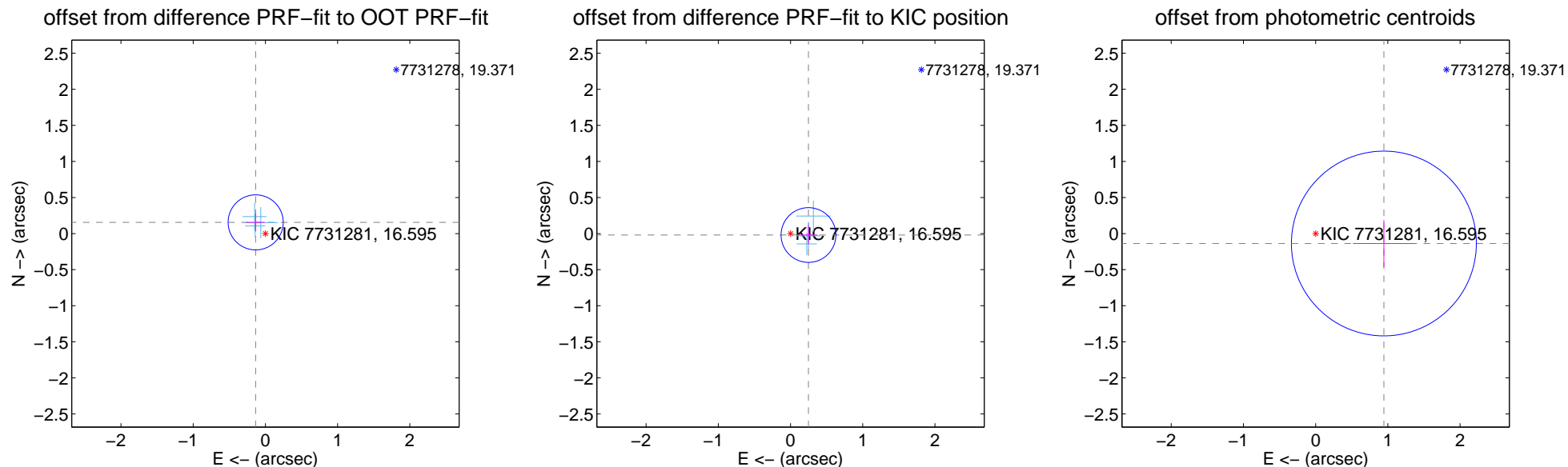
DV Centroid Data

Supplemental centroid analysis for 007731281-01. Kepler magnitude: 16.59. Transit SNR 38.11

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.206 ± 0.127	1.62	0.135 ± 0.126	0.155 ± 0.128
PRF-fit source offset from KIC position	0.249 ± 0.126	1.97	-0.249 ± 0.126	-0.020 ± 0.128
photometric centroid source offset	0.95 ± 0.43	2.24	-0.95 ± 0.43	-0.14 ± 0.33



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.



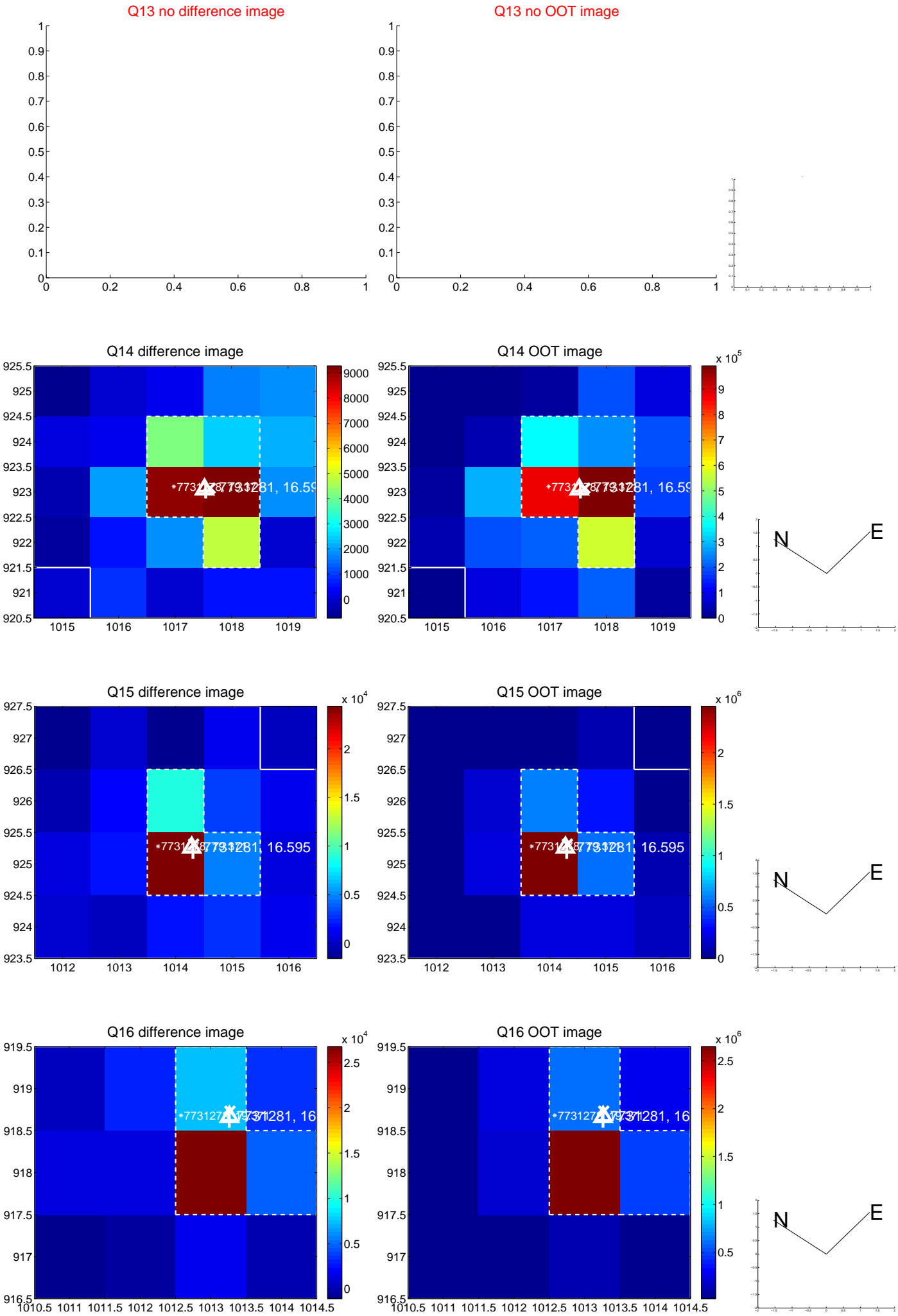
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



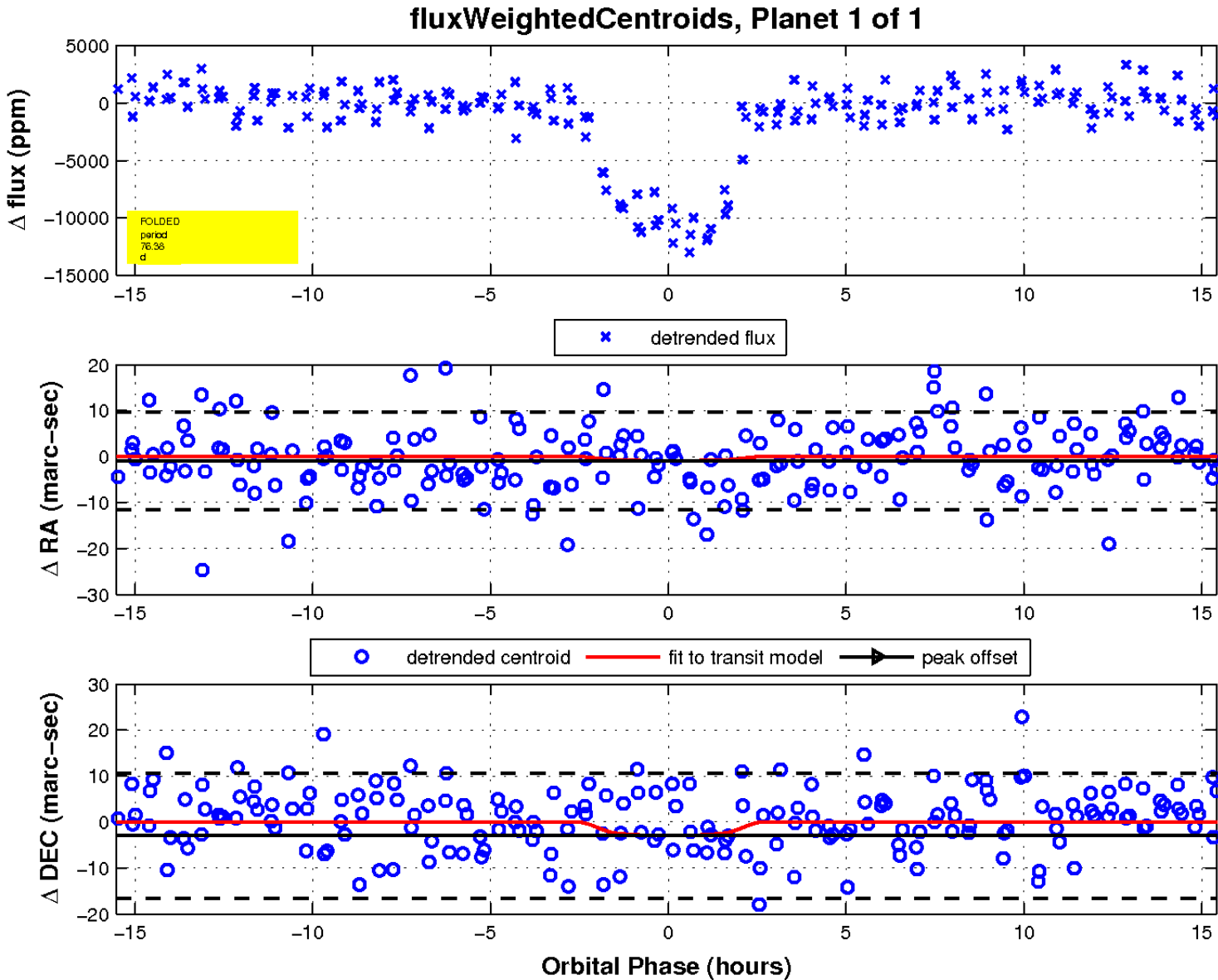
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination

