

KIC 007431665

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})
007431665-01	OBS	6877.01	281.513154	171.687113	7056.1	28.925	23.6	45.8	10.71	4797	86.65	52.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007431665-01	OBS	FP	0.04	1	0	0	0	ALL_TRANS_CHASES—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.

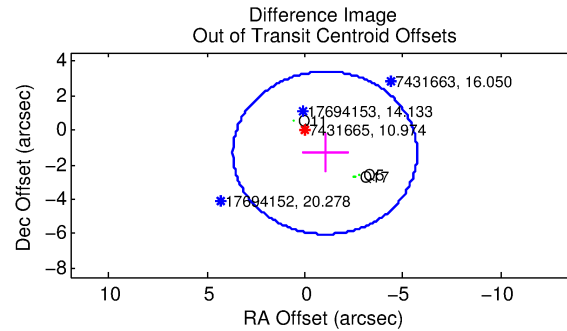
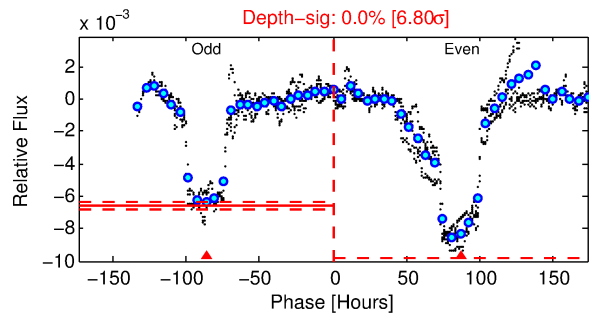
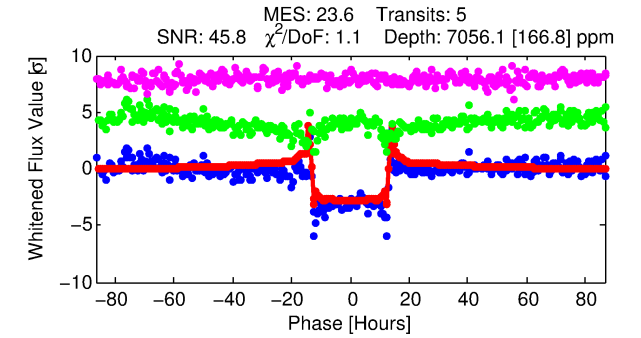
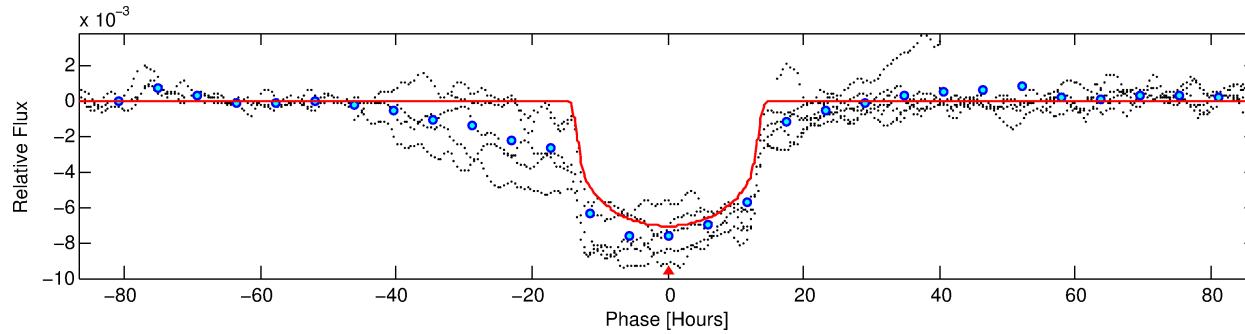
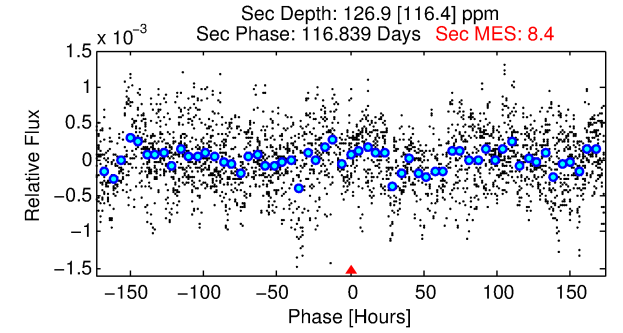
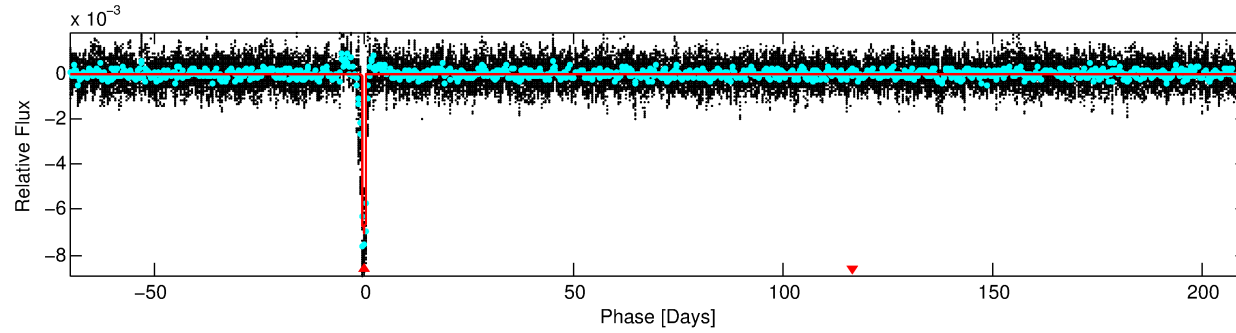
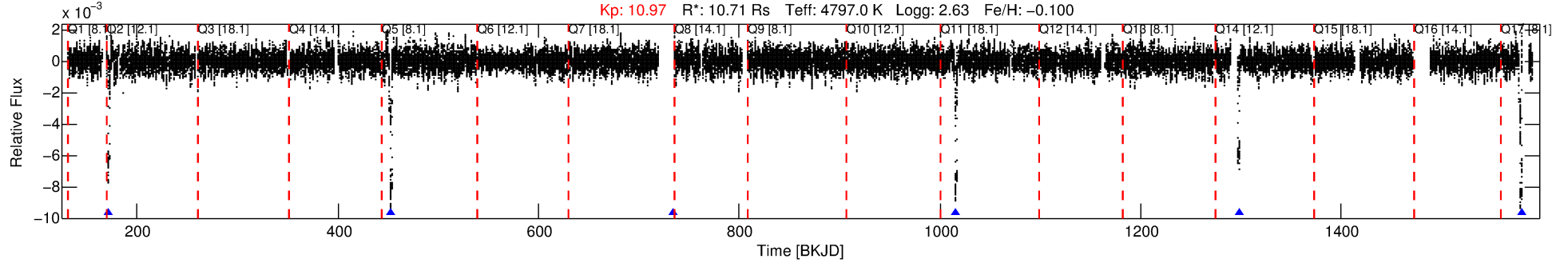
Ephemeris Match Information For 007431665-01

No Significant Match Found

DV One-Page Summary

KIC: 7431665 Candidate: 1 of 1 Period: 281.513 d
KOI: K06877 Corr: No Ephemeris Match

Kp: 10.97 R*: 10.71 Rs Teff: 4797.0 K Logg: 2.63 Fe/H: -0.100



DV Fit Results:

Period = 281.51315 [0.00079] d
Epoch = 171.6871 [0.0027] BKJD
Rp/R* = 0.0741 [0.0009]
a/R* = 79.86 [1.30]
b = 0.02 [1.06]
Seff = 52.15 [9.09]
Teff = 685 [30] K
Rp = 86.65 [18.55] Re
a = 1.0214 [0.1478] AU
Ag = 9.70 [9.02] [0.96σ]
Teffp = 1870 [431] K [2.74σ]

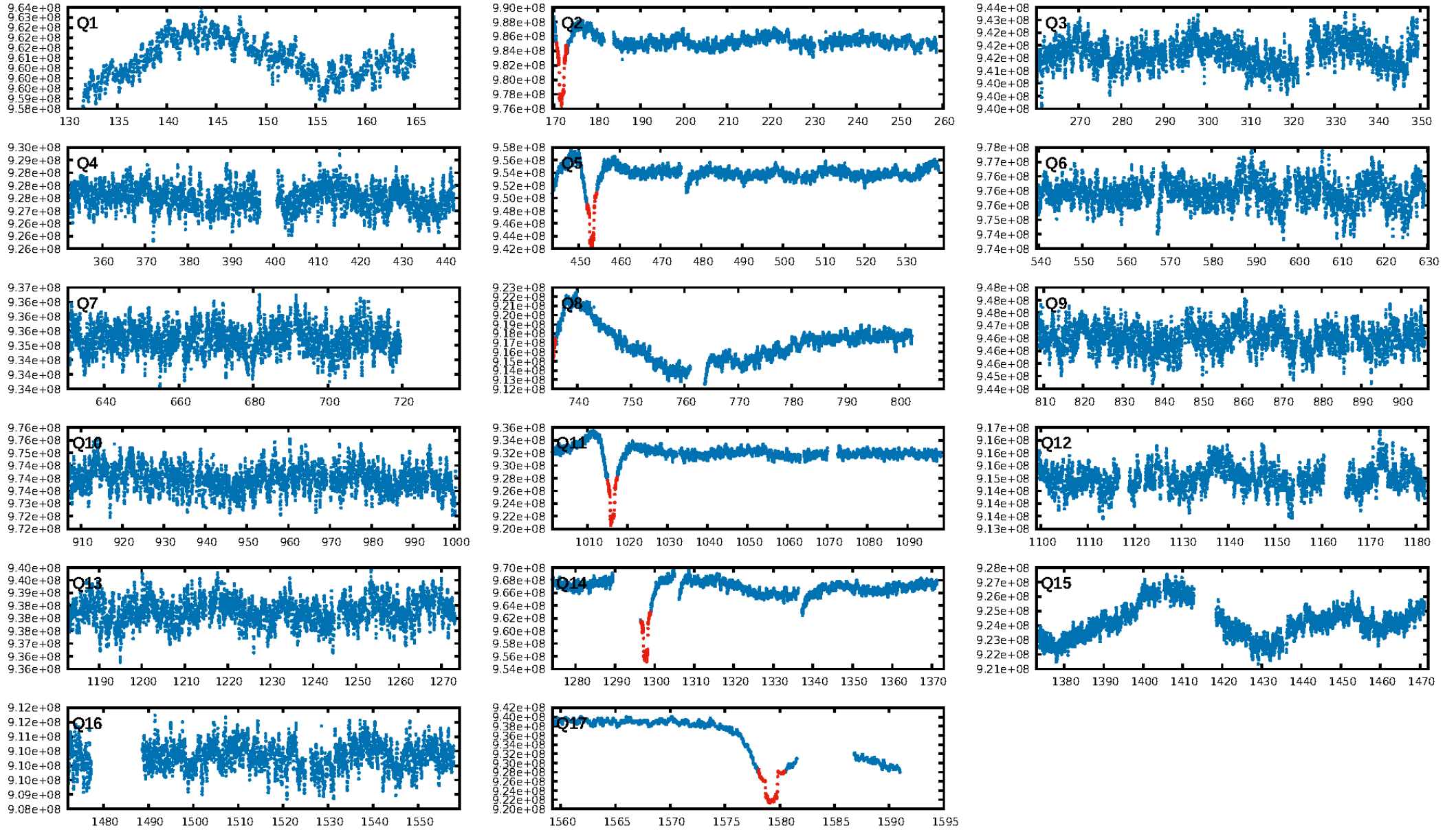
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 3.72e-35
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.9476
Centroid-sig: 0.0%
Centroid-so: 0.285 arcsec [10.47σ]
OotOffset-rm: 1.670 arcsec [1.06σ]
KicOffset-rm: 1.131 arcsec [1.01σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

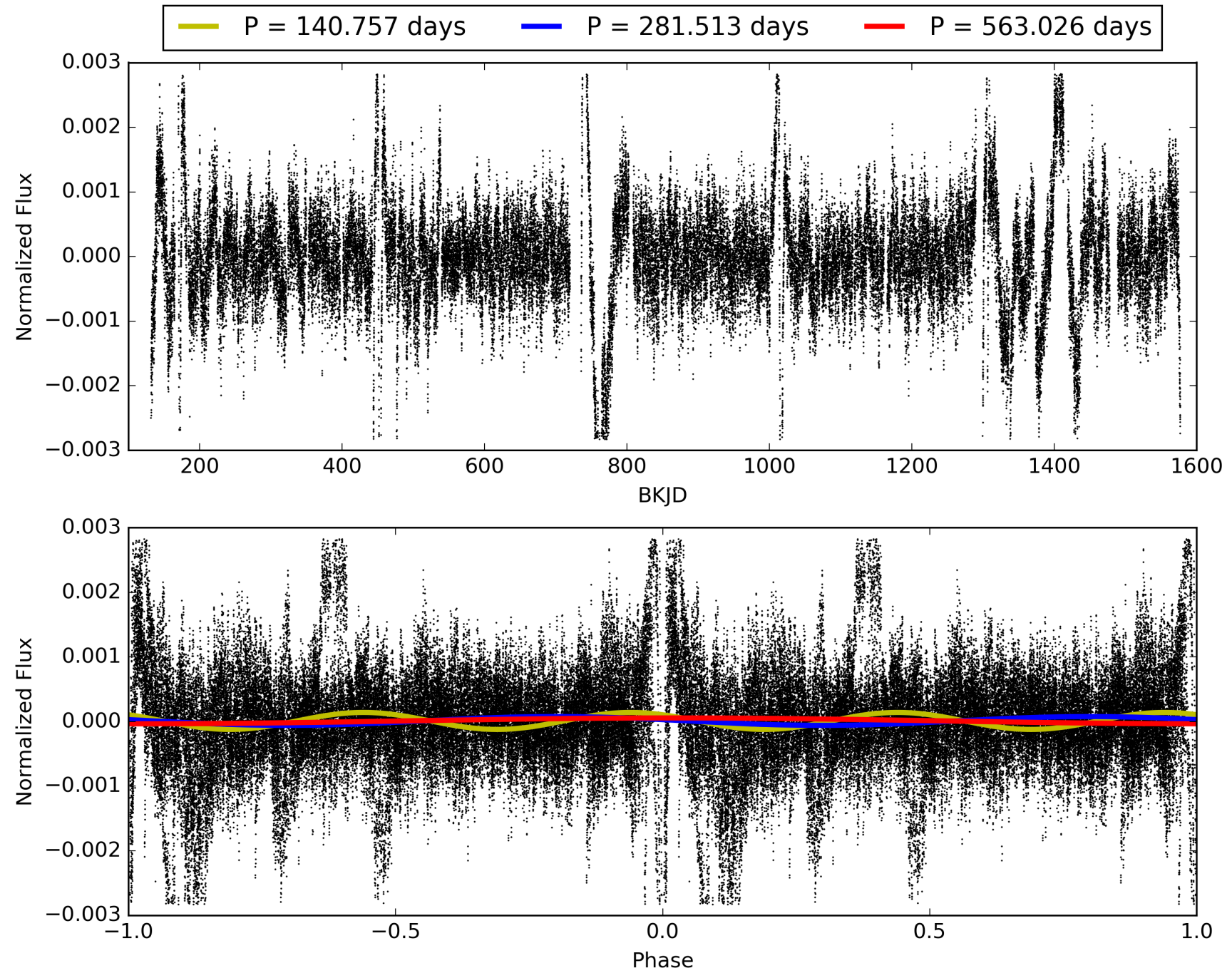
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:31:59 Z

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

TCE 007431665-01, PDC Light Curves

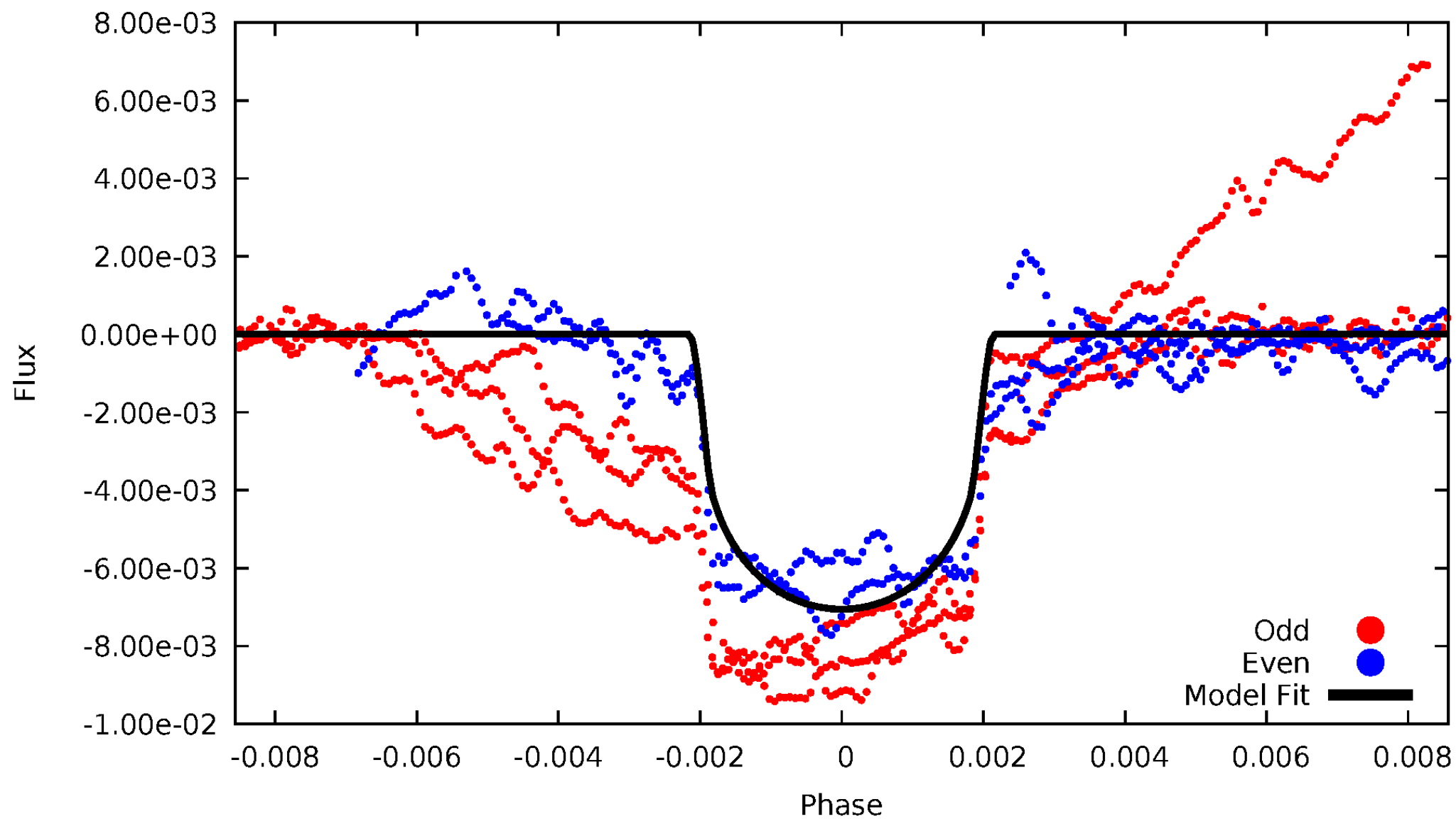


TCE 007431665-01



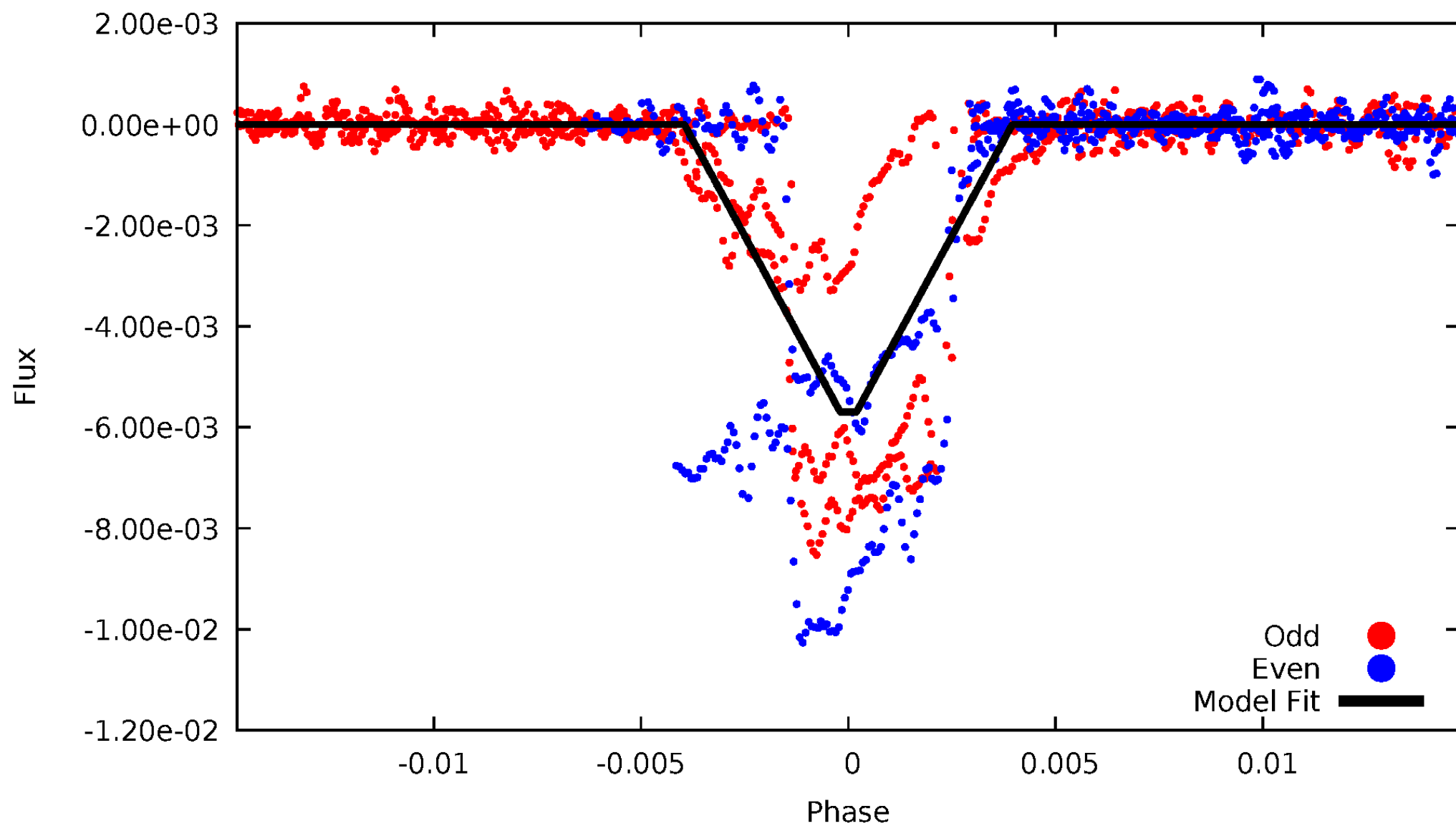
DV Odd/Even

TCE 007431665-01



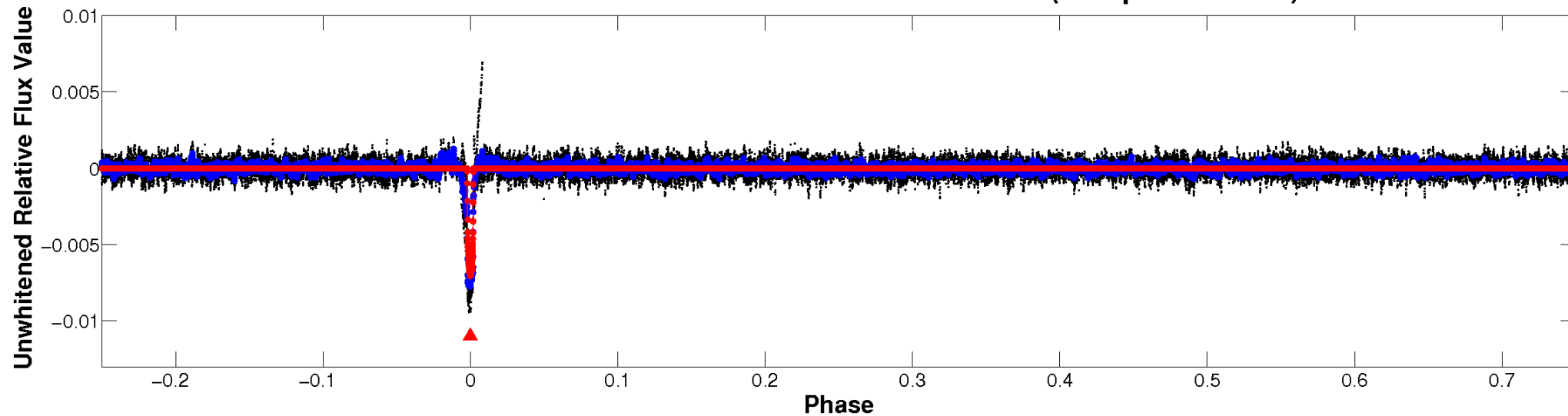
ALT Odd/Even

TCE 007431665-01

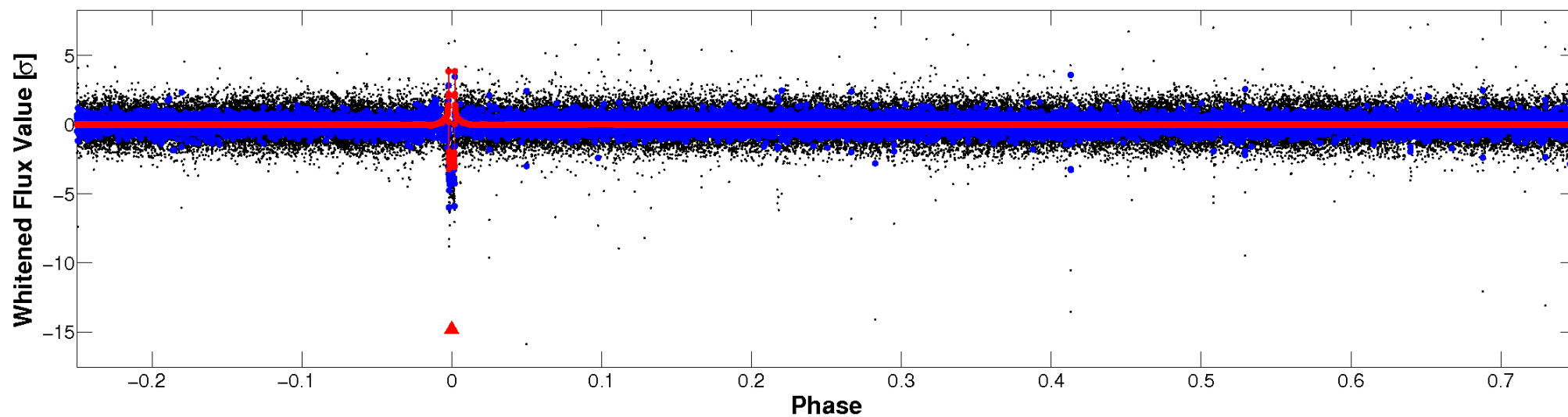


Non-Whitened Vs. Whitened Light Curve

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

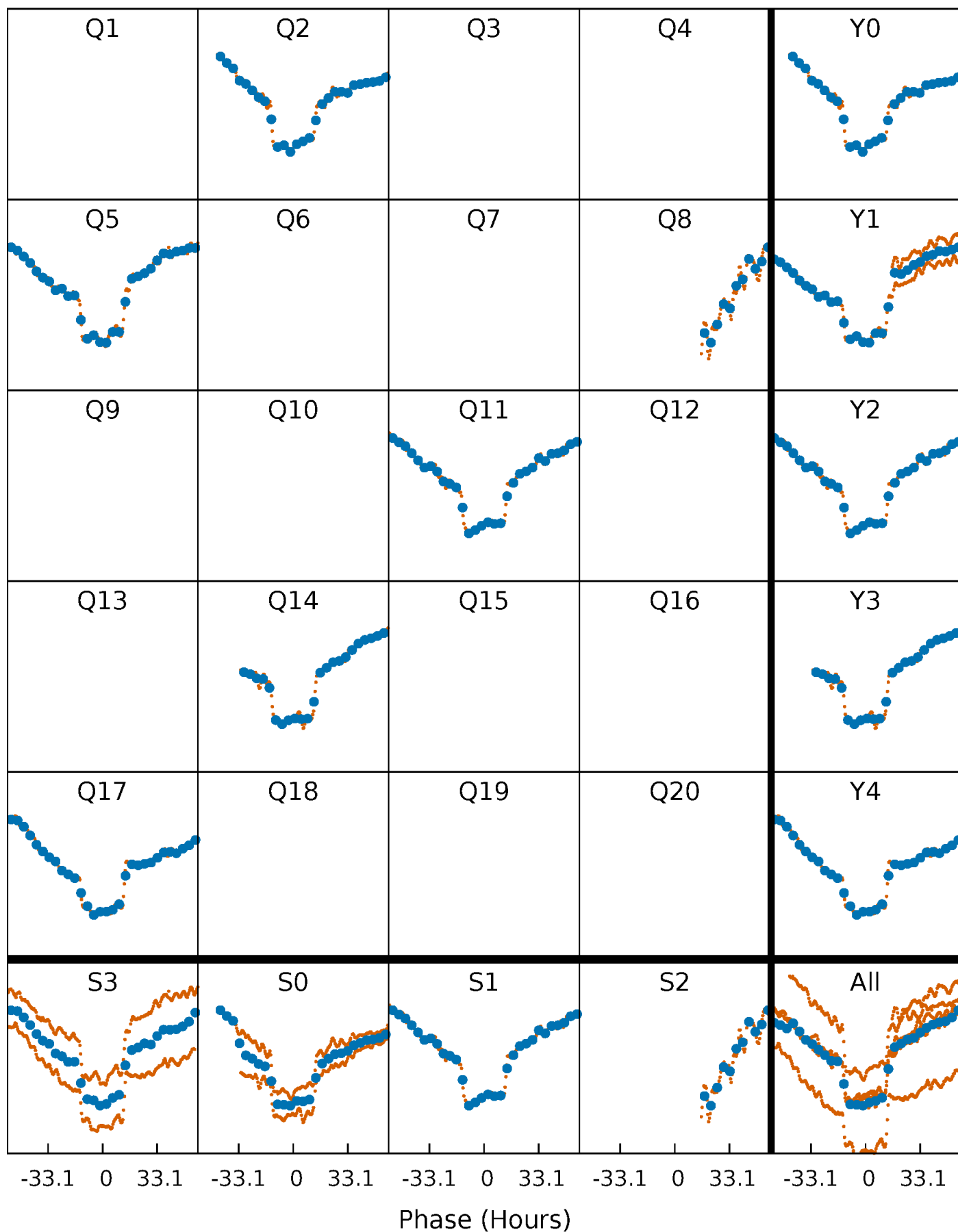


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



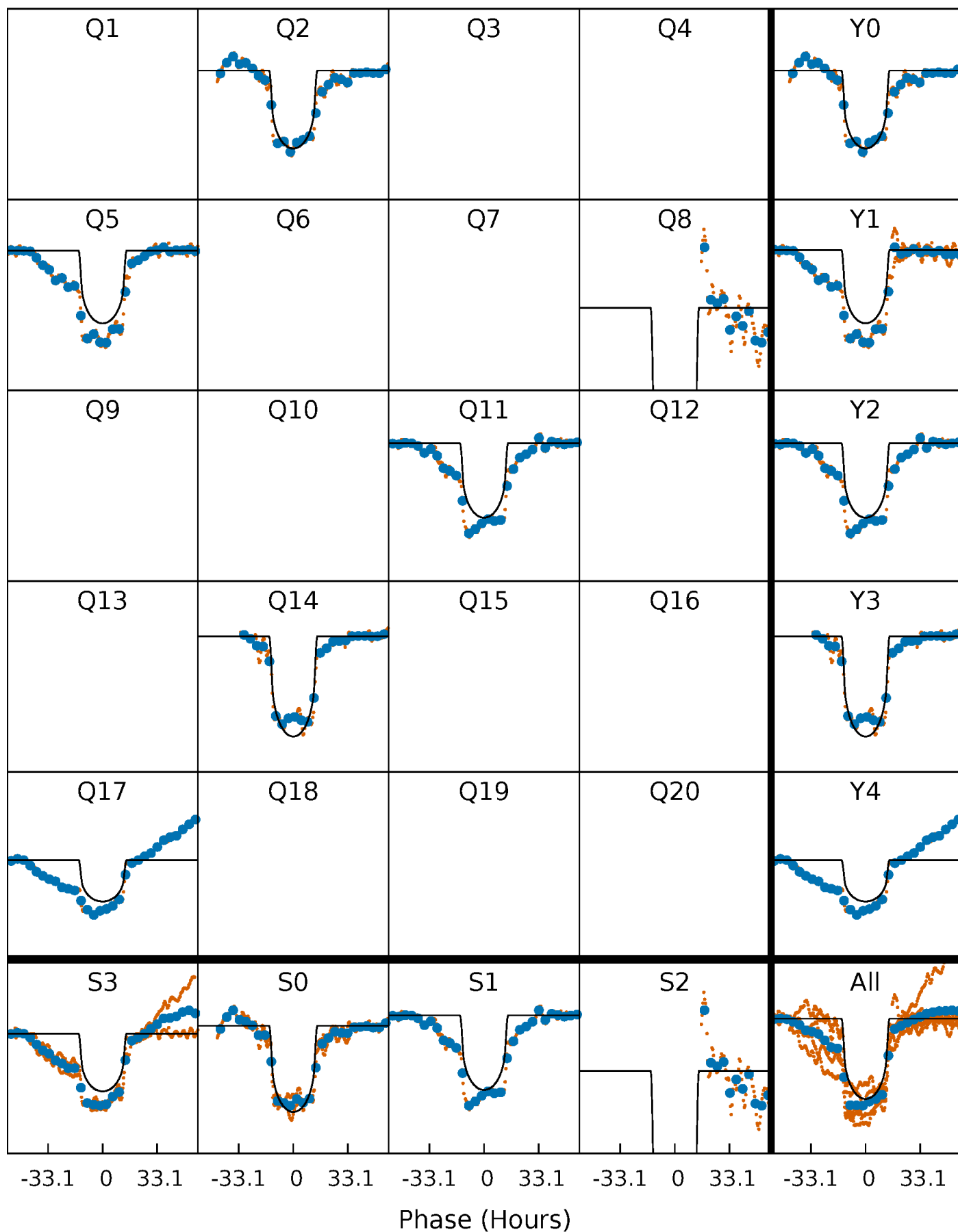
PDC Quarter-Phased Transit Curves

TCE 007431665-01 P=281.513154 Days $T_0=171.687113$ (BKJD)



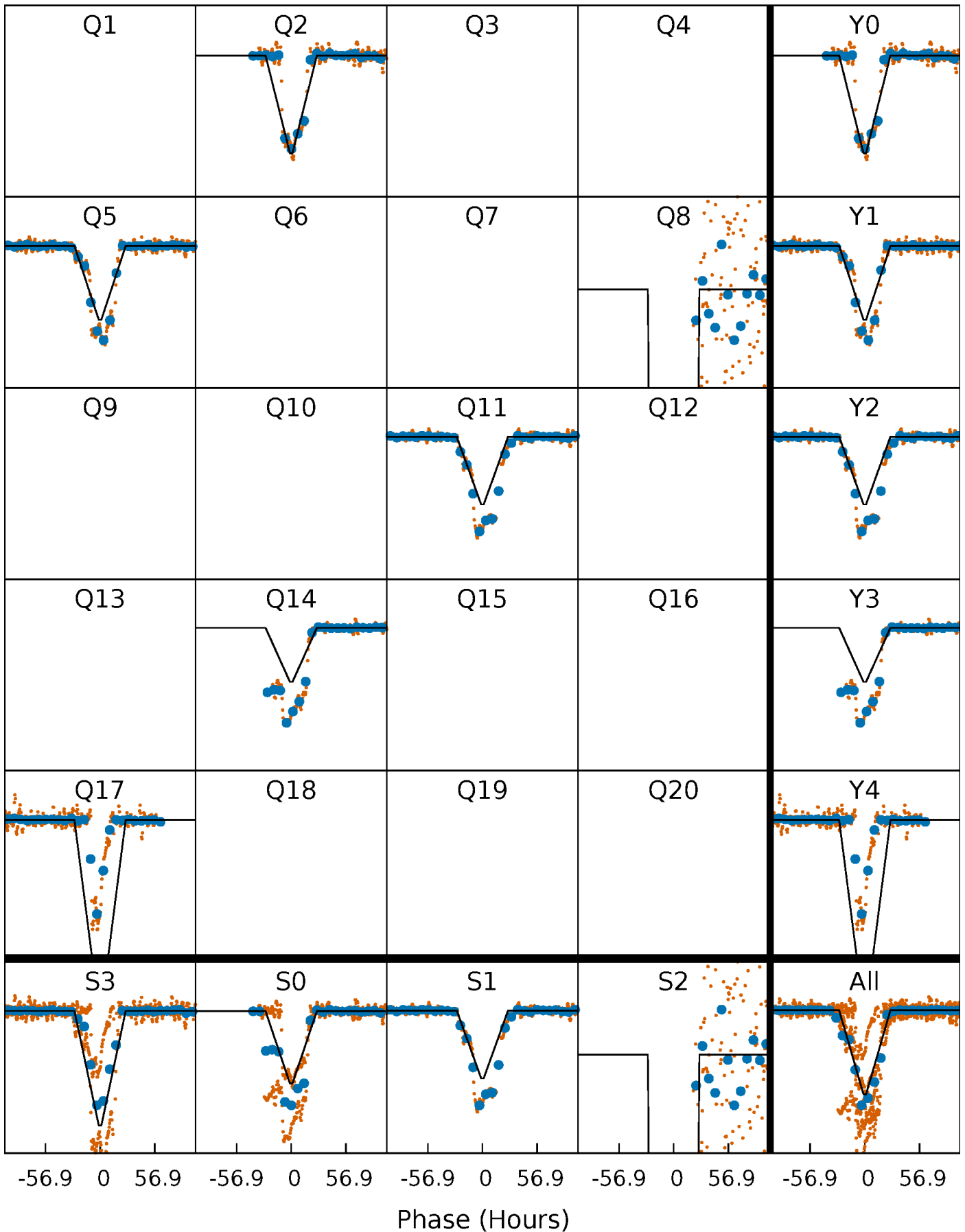
DV Quarter-Phased Transit Curves

TCE 007431665-01 P=281.513154 Days $T_0=171.687113$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

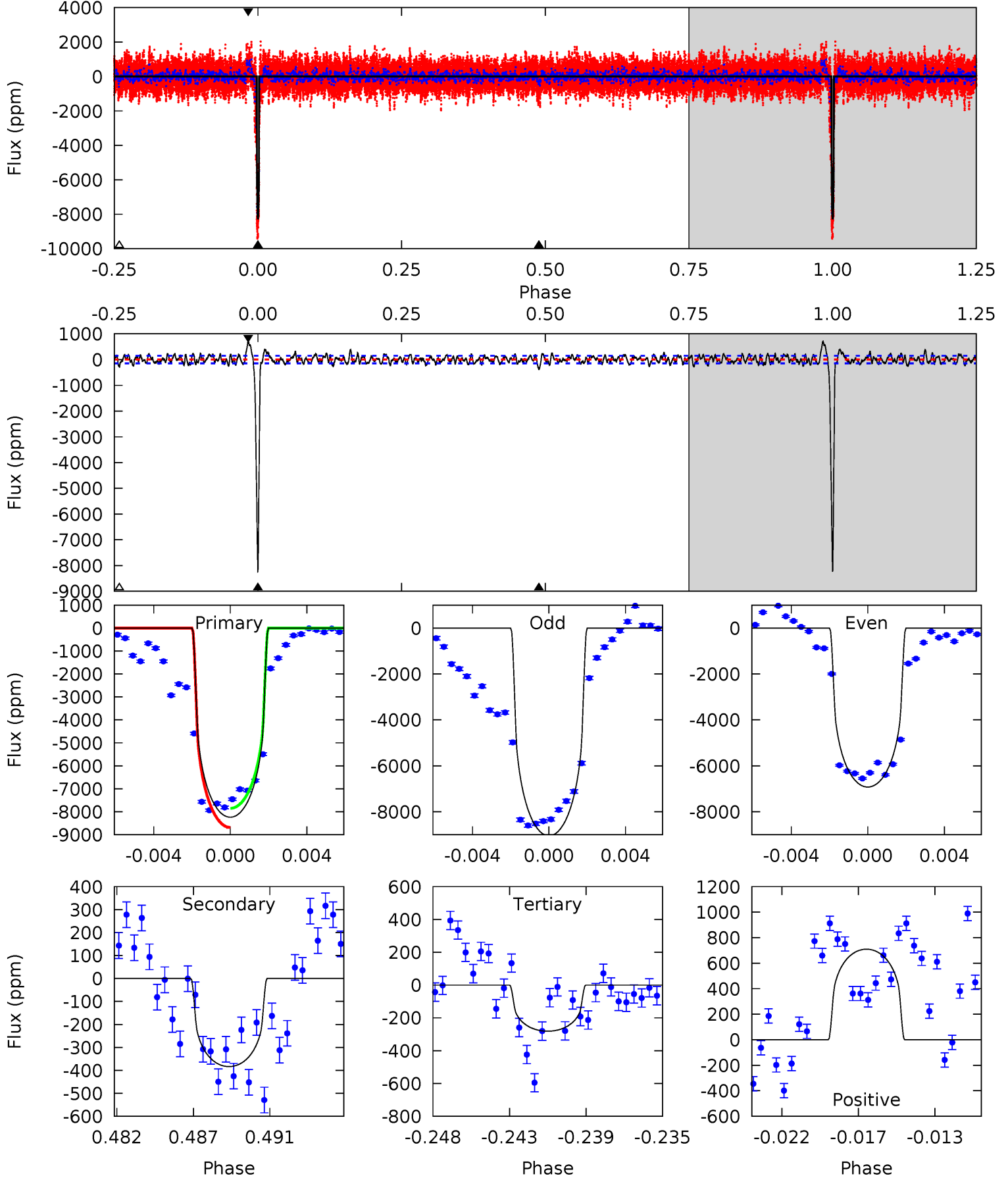
TCE 007431665-01 P=281.506345 Days $T_0=171.555777$ (BKJD)



DV Model-Shift Uniqueness Test

007431665-01, P = 281.513154 Days, E = 171.687113 Days

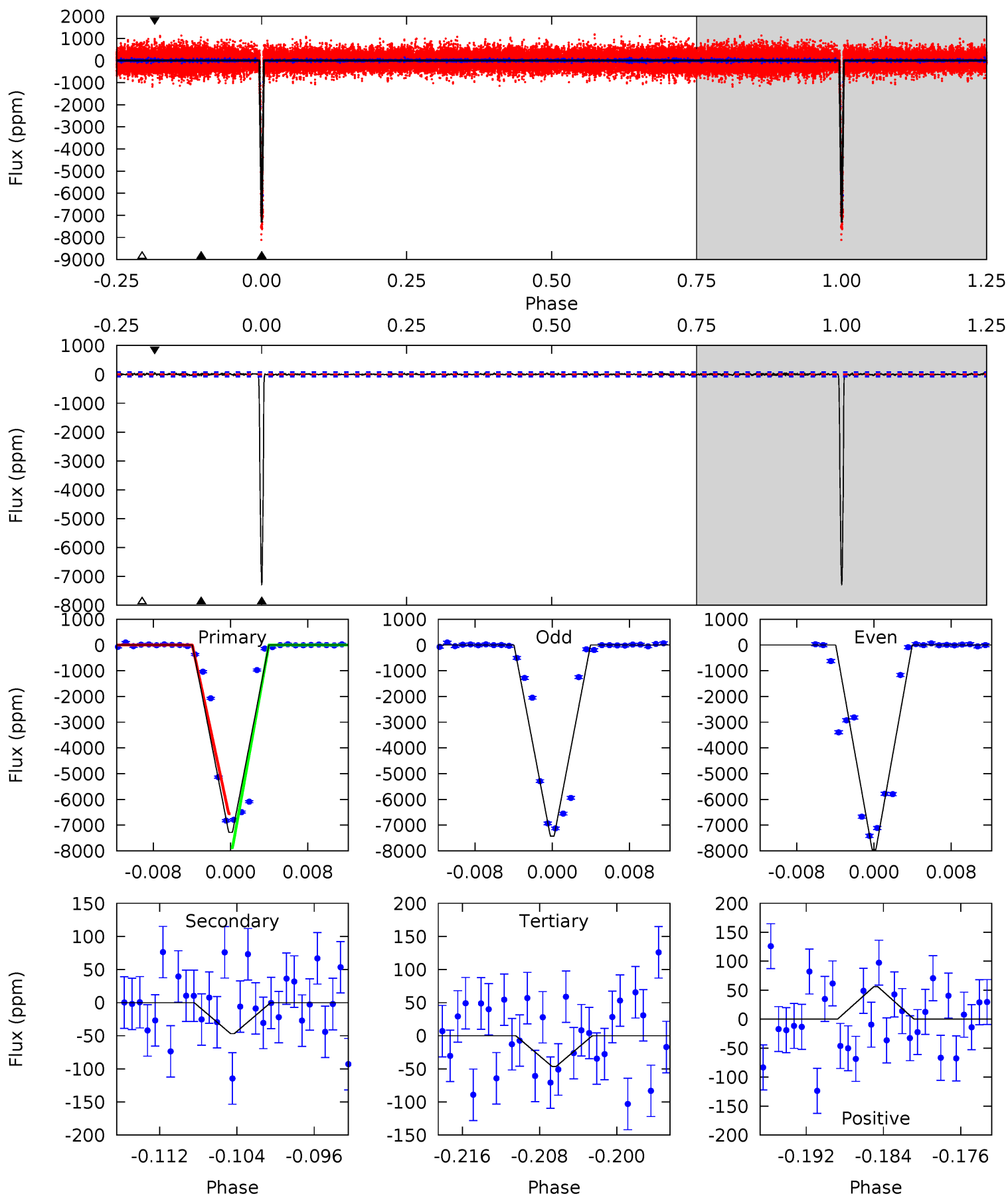
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
288.6	13.4	9.86	24.9	5.18	2.85	4.54	278.7	263.7	3.58	-11.4	37.3	0.95	0.08	14.4



Alt Model-Shift Uniqueness Test

007431665-01, P = 281.506345 Days, E = 171.555777 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
491.2	3.16	3.14	3.80	5.07	2.65	0.82	488.1	487.4	0.01	-0.64	21.0	0.91	0.01	0



Stellar Parameters For KIC 007431665

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4797^{+76}_{-104}	$2.632^{+0.033}_{-0.030}$	$-0.100^{+0.200}_{-0.250}$	$10.709^{+2.289}_{-2.289}$	$1.791^{+0.972}_{-0.729}$	$0.002^{+0.001}_{-0.000}$
	+2%/-2%	+1%/-1%	+200%/-250%	+21%/-21%	+54%/-41%	+31%/-14%
Source	PHO56	AST56	PHO56	DSEP		

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

Secondary Eclipse Parameters for KIC 007431665-01 / KOI 6877.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-384 ± 29	$87.29^{+14.44}_{-12.14}$	956^{+30}_{-34}	3044^{+51}_{-57}	29^{+4}_{-3}
Alt.	-47 ± 15	$91.39^{+14.93}_{-12.50}$	961^{+35}_{-33}	2293^{+85}_{-124}	$3.358^{+1.128}_{-1.198}$

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

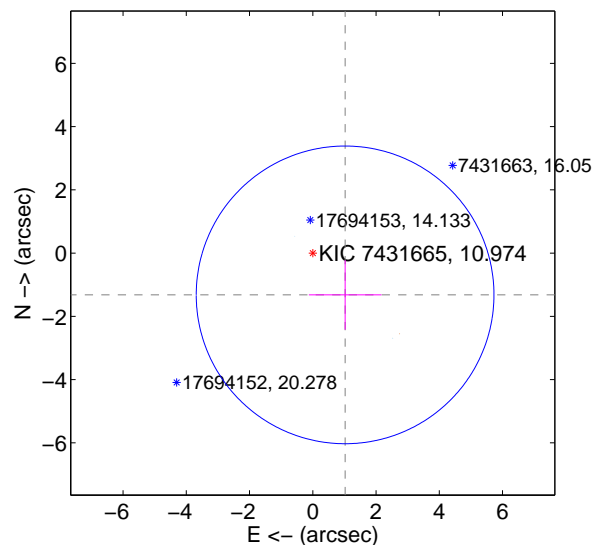
Supplemental centroid analysis for 007431665-01. **Kepler magnitude: 10.97.** Transit SNR 45.79

There are 2 quarters with good PRF difference image offsets

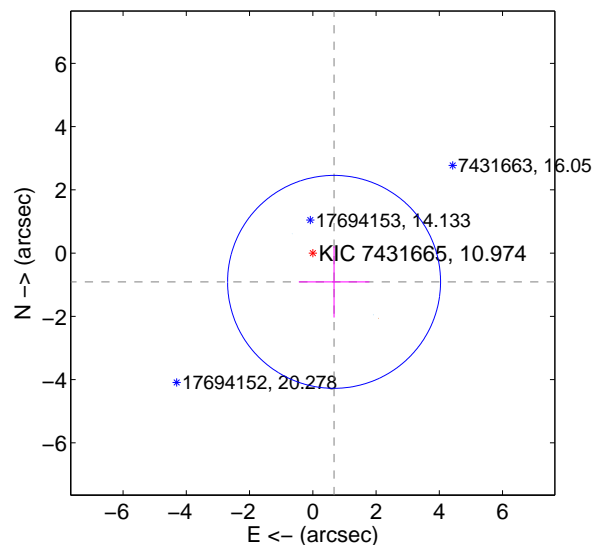
The direct PRF centroid is offset from the target star catalog position by about 0.96 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.670 ± 1.569	1.06	-1.022 ± 1.148	-1.321 ± 1.099
PRF-fit source offset from KIC position	1.131 ± 1.122	1.01	-0.672 ± 1.115	-0.910 ± 1.127
photometric centroid source offset	0.28 ± 0.03	10.47	0.23 ± 0.03	0.17 ± 0.02

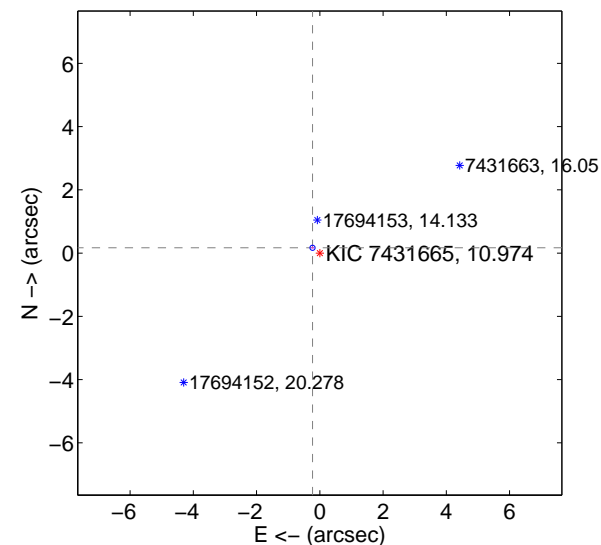
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

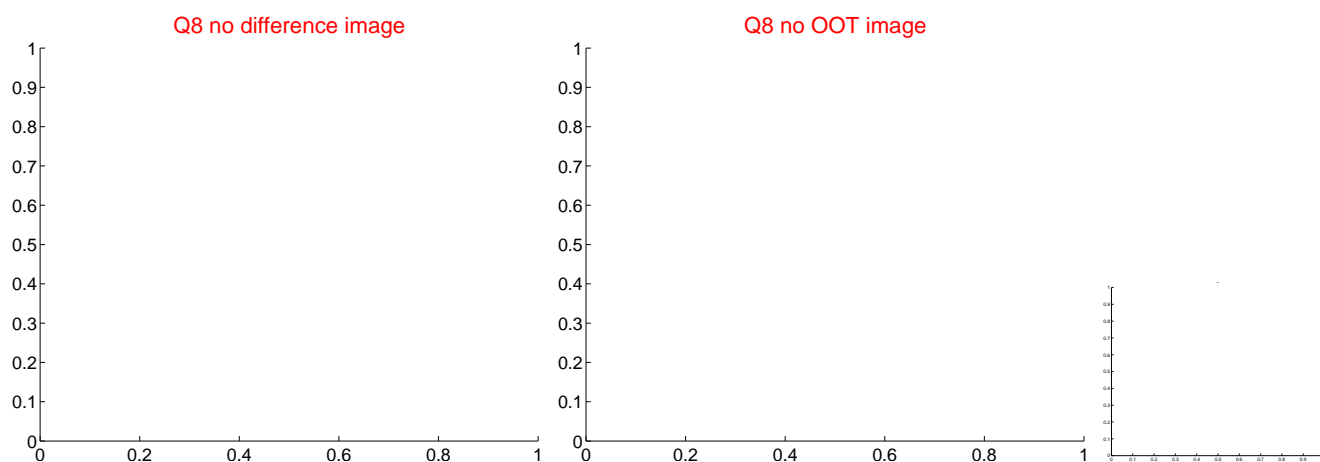
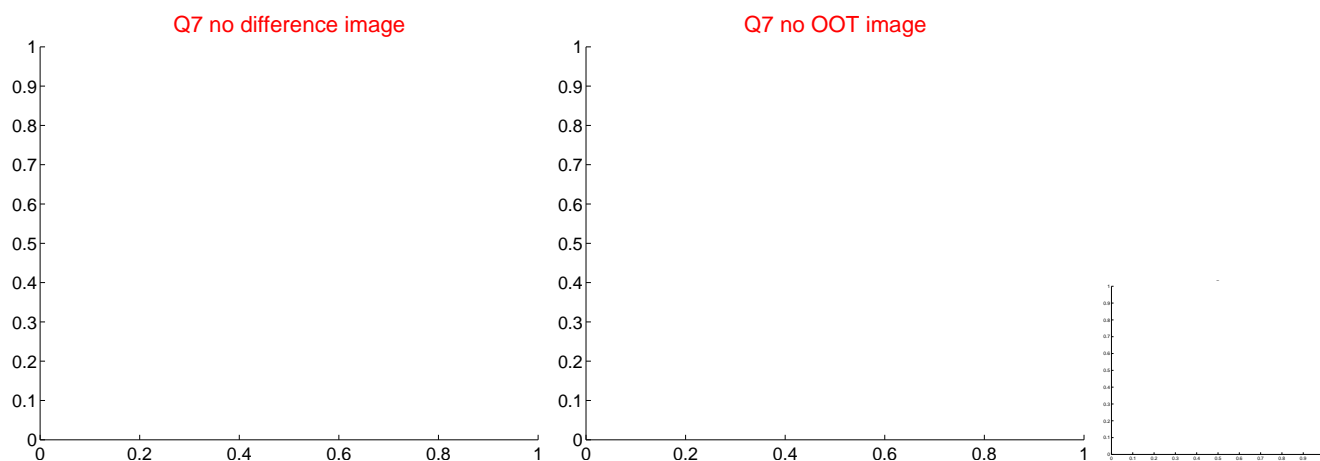
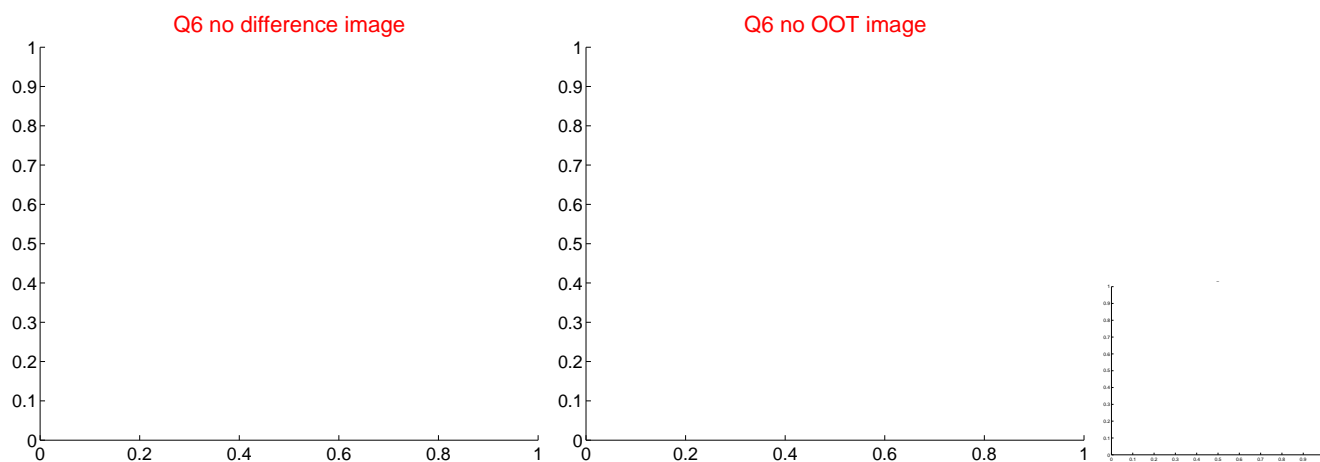
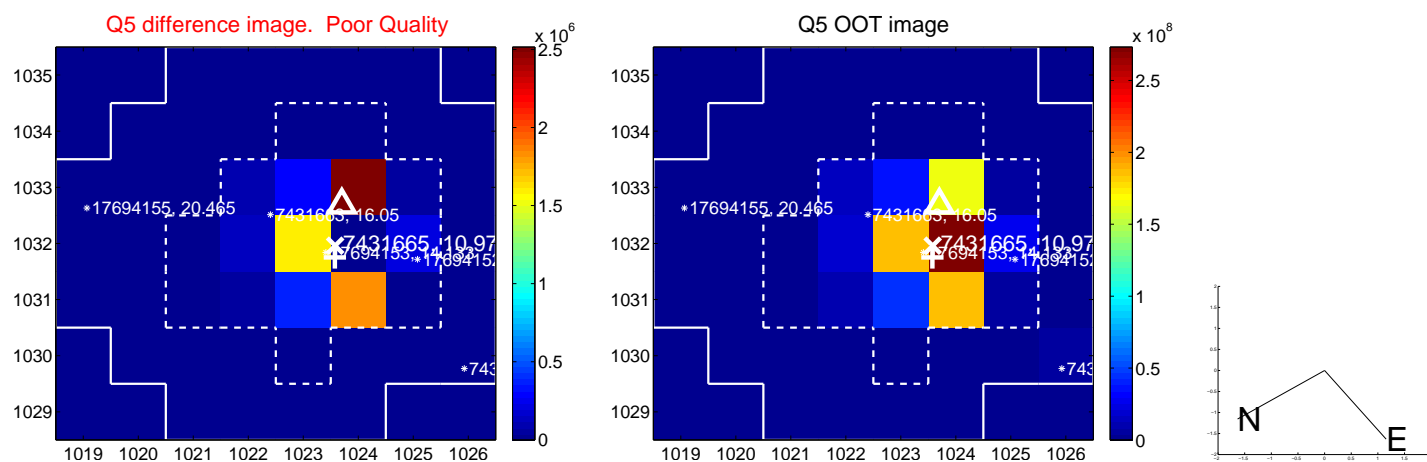


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

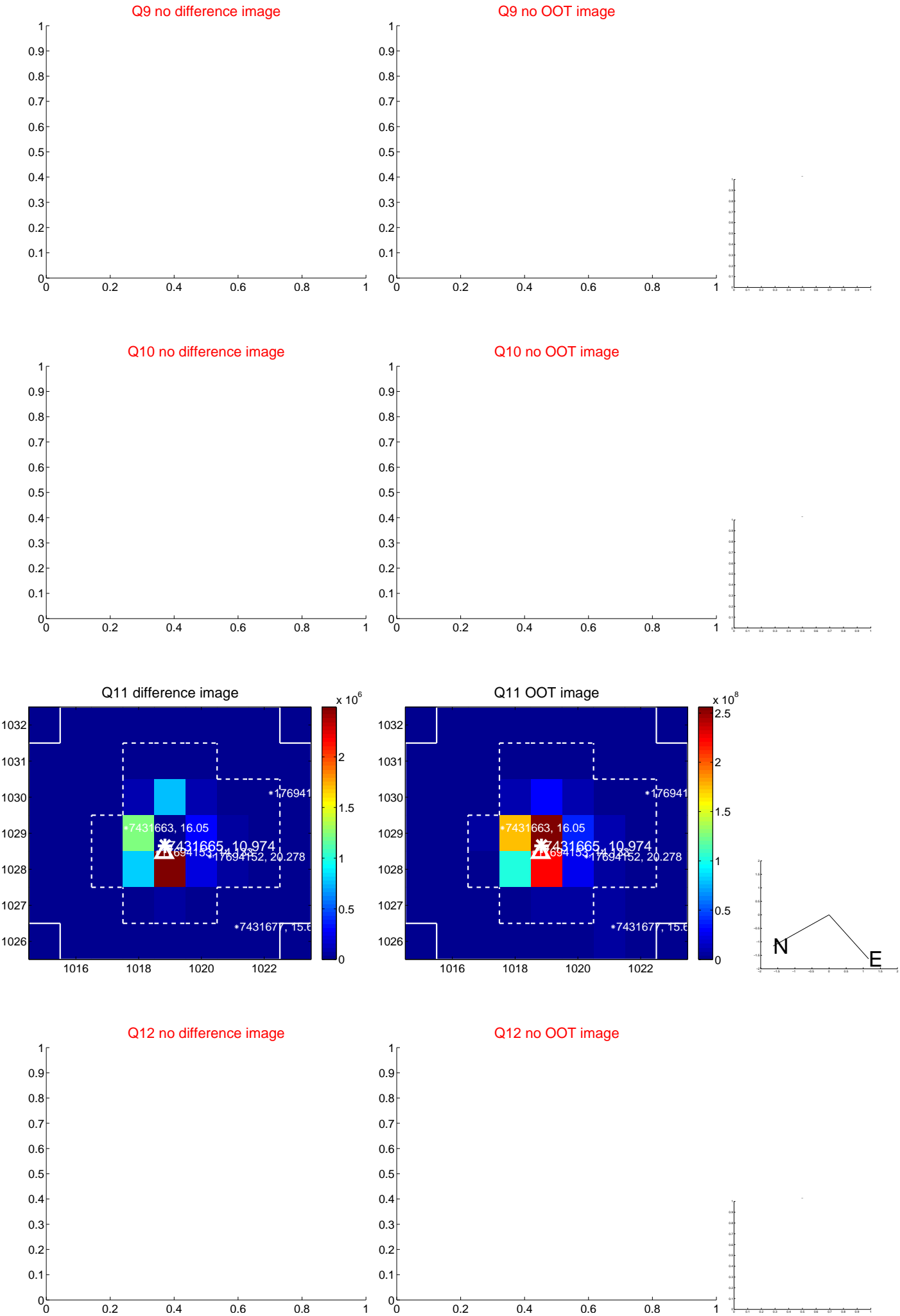
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



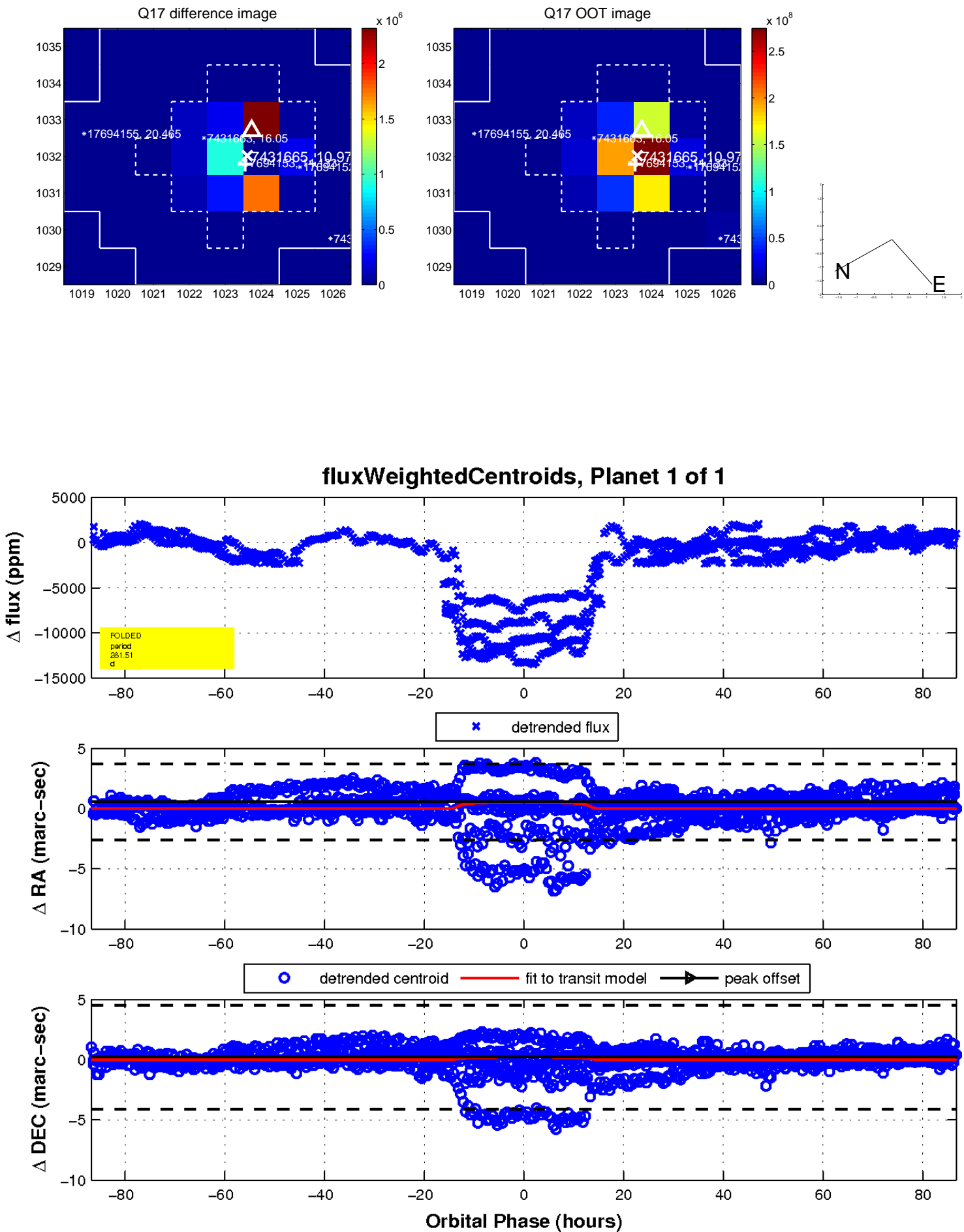
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

