

KIC 002987433

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})
002987433-01	OBS	4959.01	420.929277	196.685638	84944.5	17.373	1842.5	1376.6	1.20	6461	50.23	1.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002987433-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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.

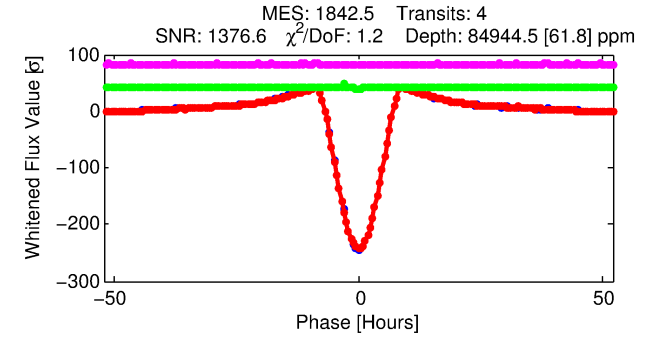
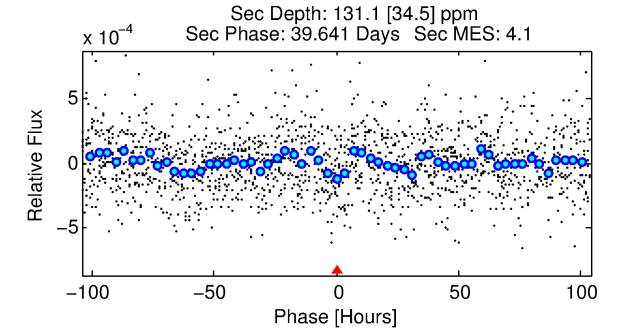
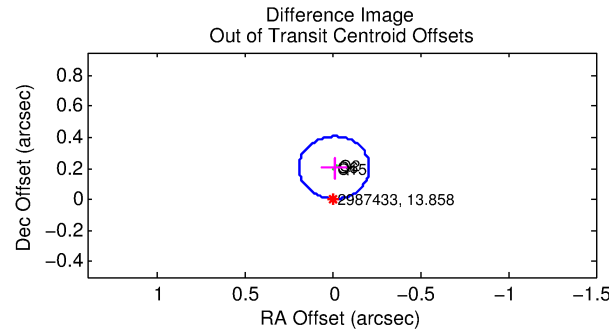
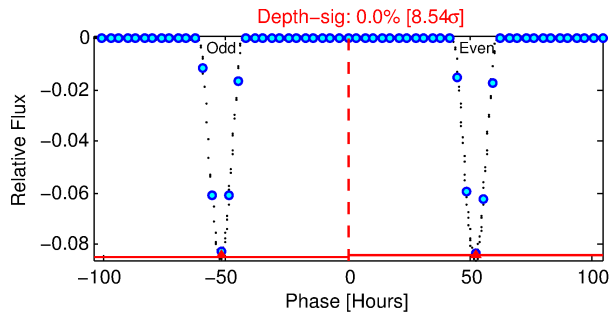
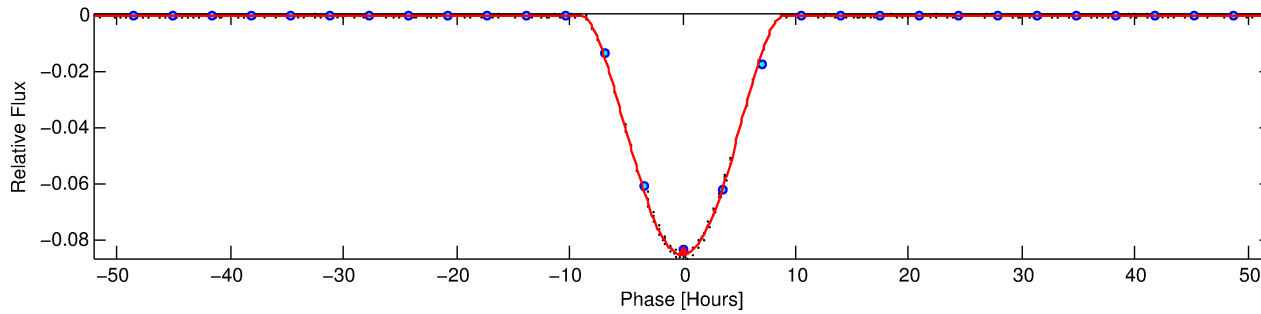
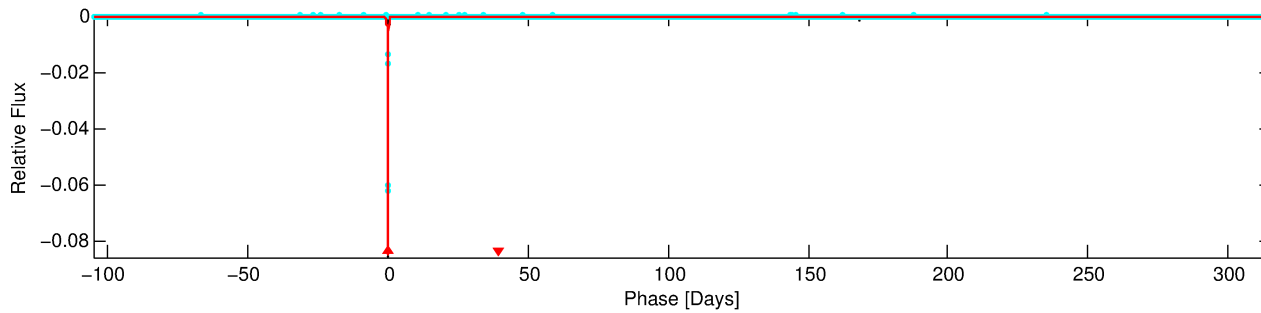
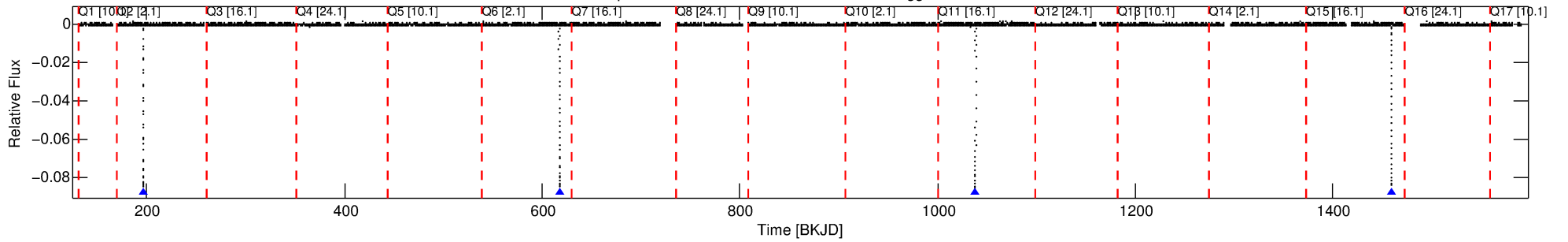
Ephemeris Match Information For 002987433-01

No Significant Match Found

DV One-Page Summary

KIC: 2987433 Candidate: 1 of 1 Period: 420.929 d
KOI: K04959.01 Corr: 0.998

Kp: 13.86 R*: 1.20 Rs Teff: 6461.0 K Logg: 4.32 Fe/H: -0.260



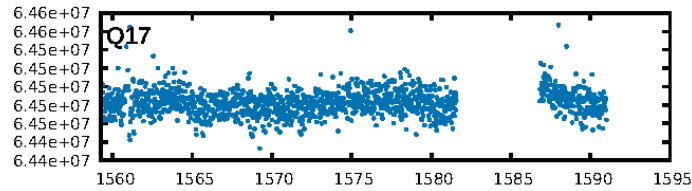
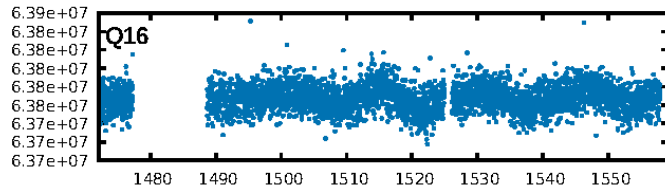
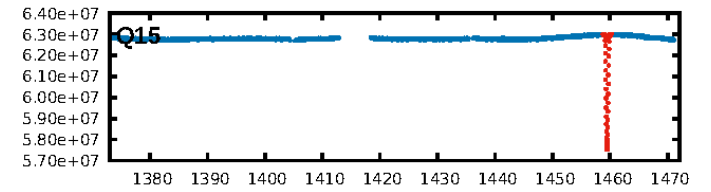
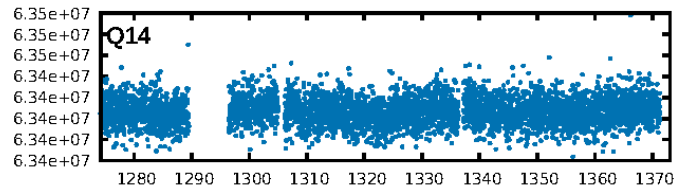
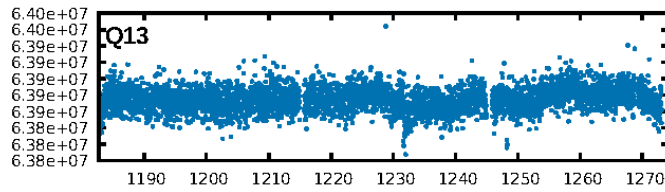
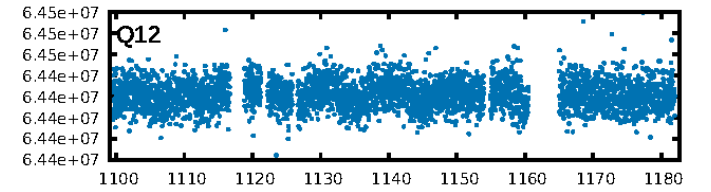
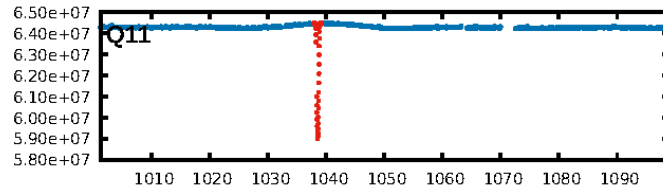
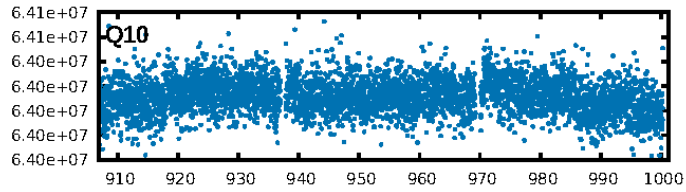
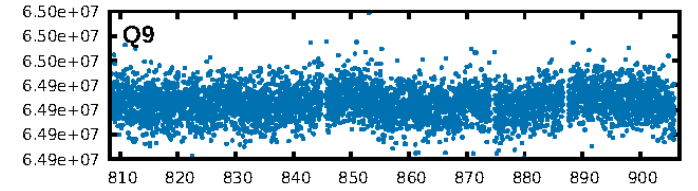
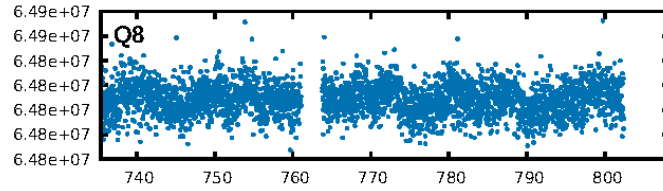
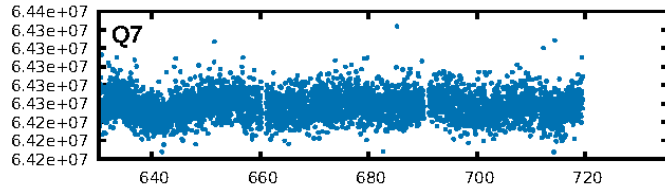
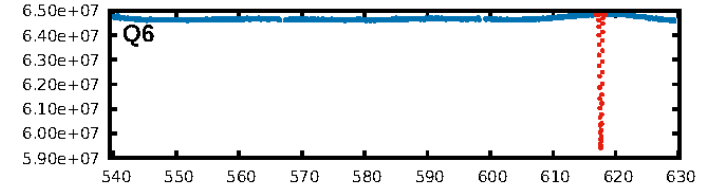
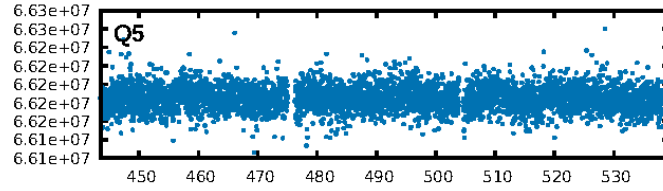
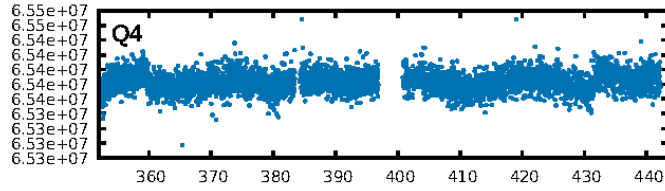
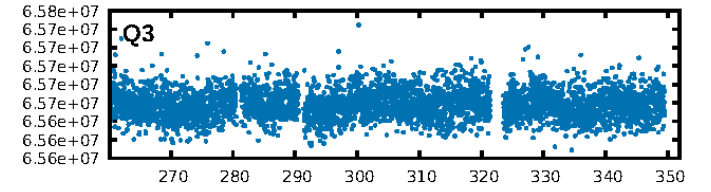
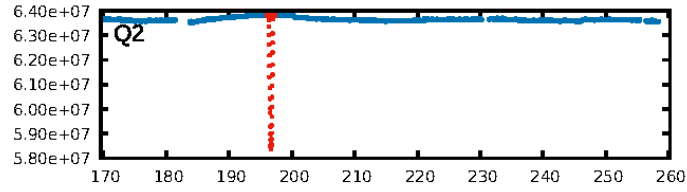
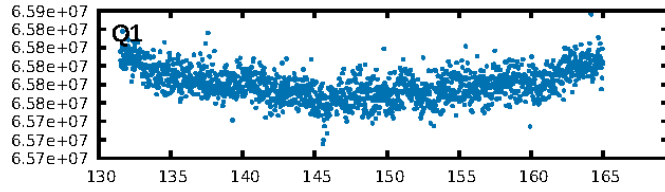
DV Fit Results:

Period = 420.92928 [0.00011] d
Epoch = 196.6856 [0.0002] BKJD
Rp/R* = 0.3846 [0.0141]
a/R* = 193.90 [0.18]
b = 0.91 [0.02]
Seff = 1.75 [0.67]
Teq = 293 [28] K
Rp = 50.23 [15.09] Re
a = 1.1313 [0.2815] AU
Ag = 36.59 [16.51] [2.16σ]
Teffp = 1115 [84] K [9.25σ]

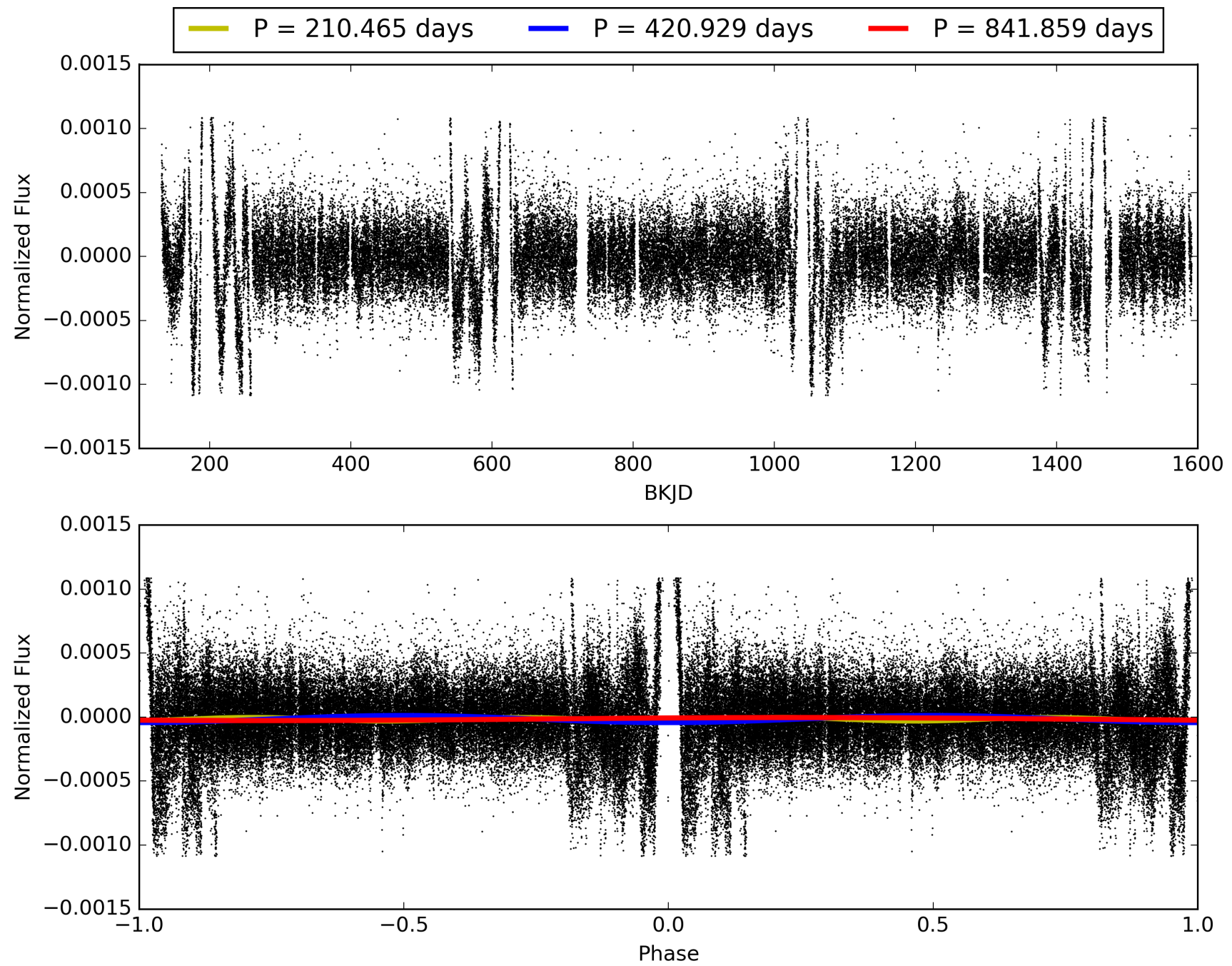
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 73.6%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 6.246
Centroid-sig: 0.0%
Centroid-so: 0.073 arcsec [13.73σ]
OotOffset-rm: 0.206 arcsec [3.07σ]
KicOffset-rm: 0.155 arcsec [2.10σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 002987433-01, PDC Light Curves

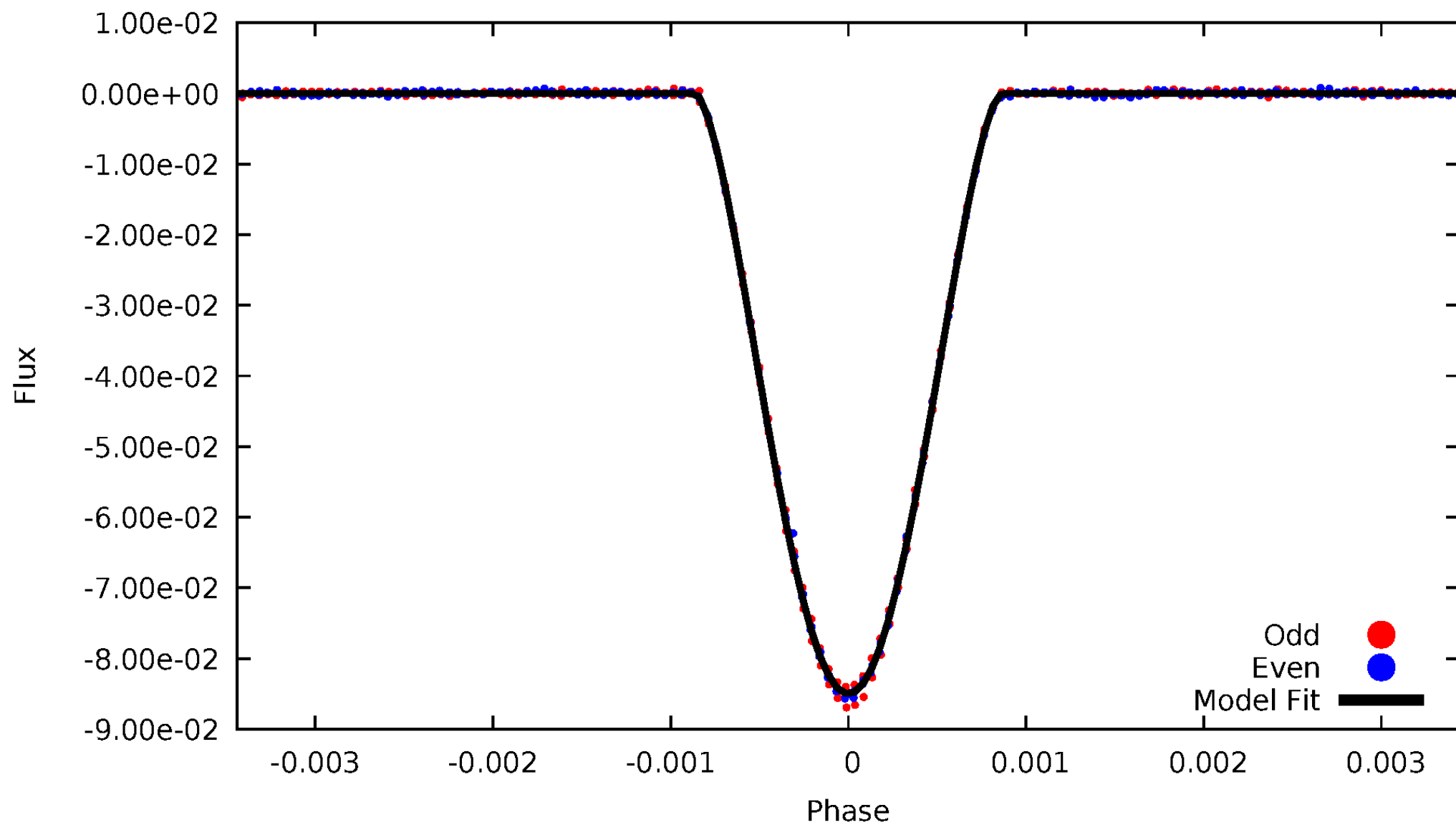


TCE 002987433-01



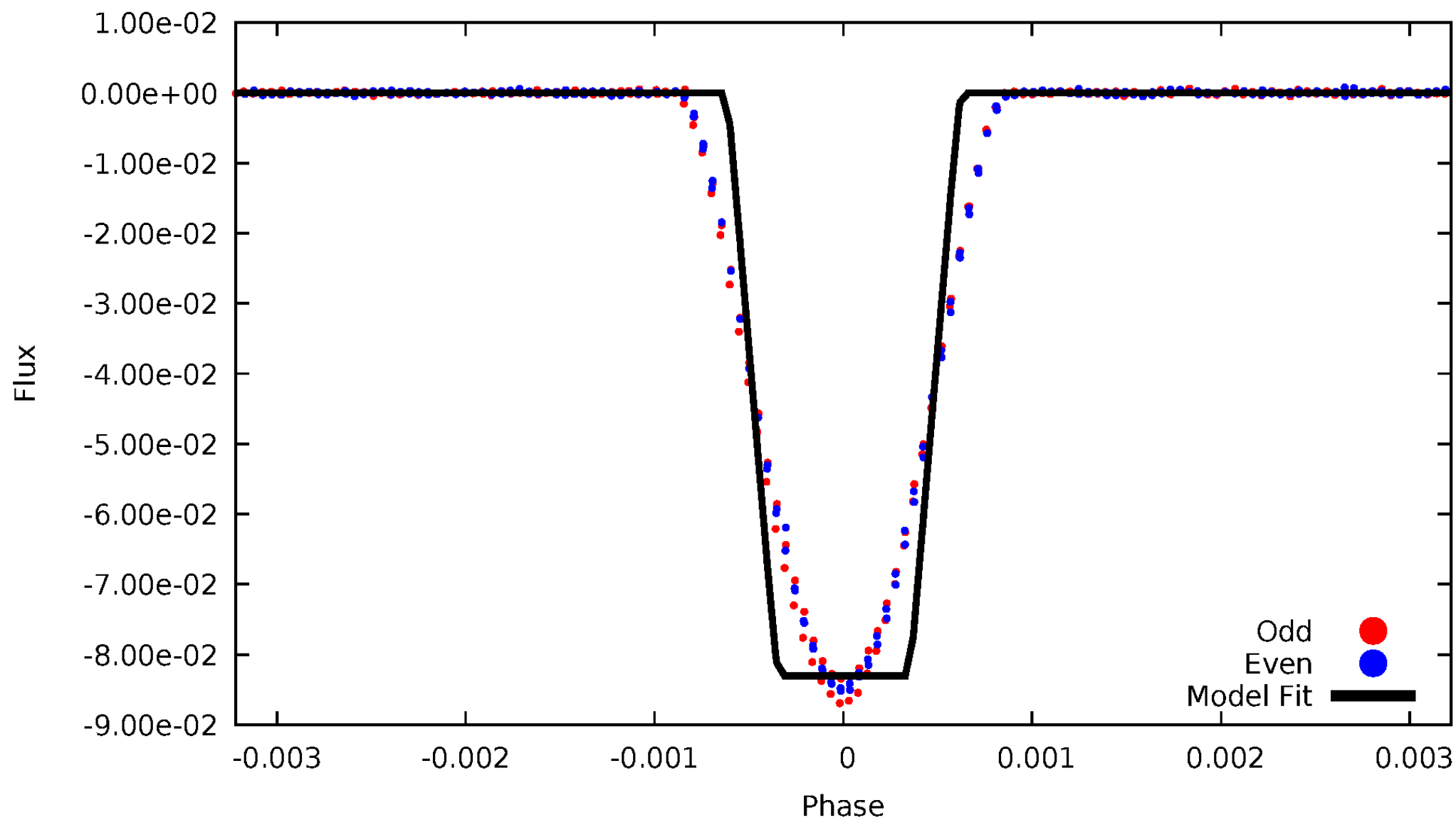
DV Odd/Even

TCE 002987433-01



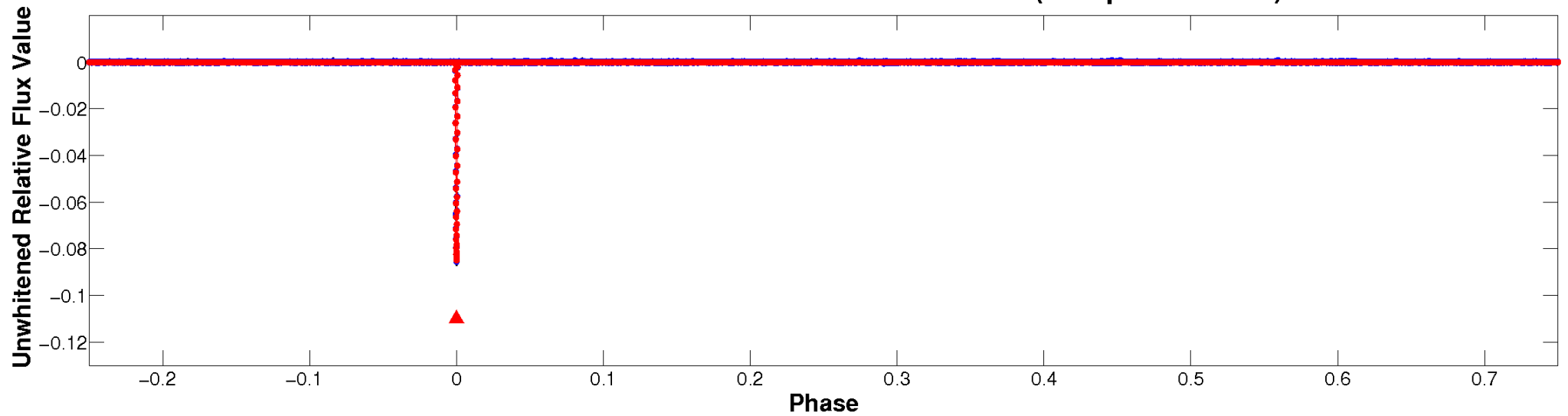
ALT Odd/Even

TCE 002987433-01

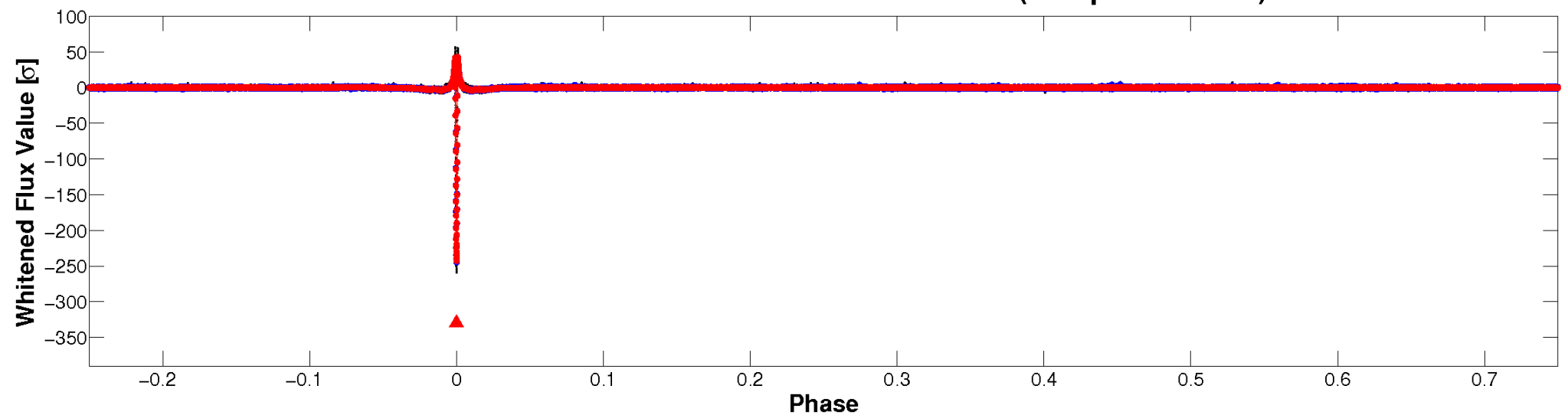


Non-Whitened Vs. Whitened Light Curve

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

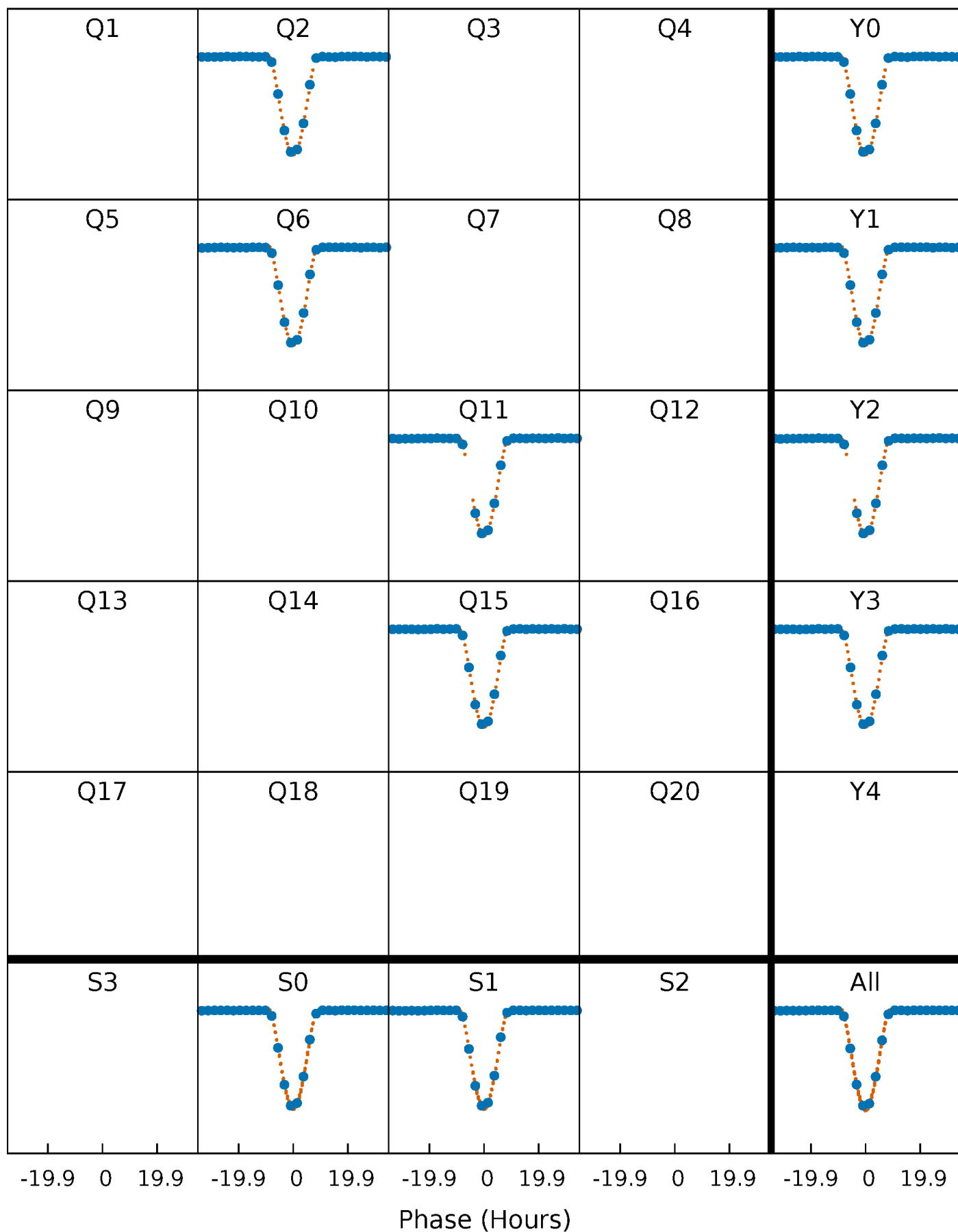


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



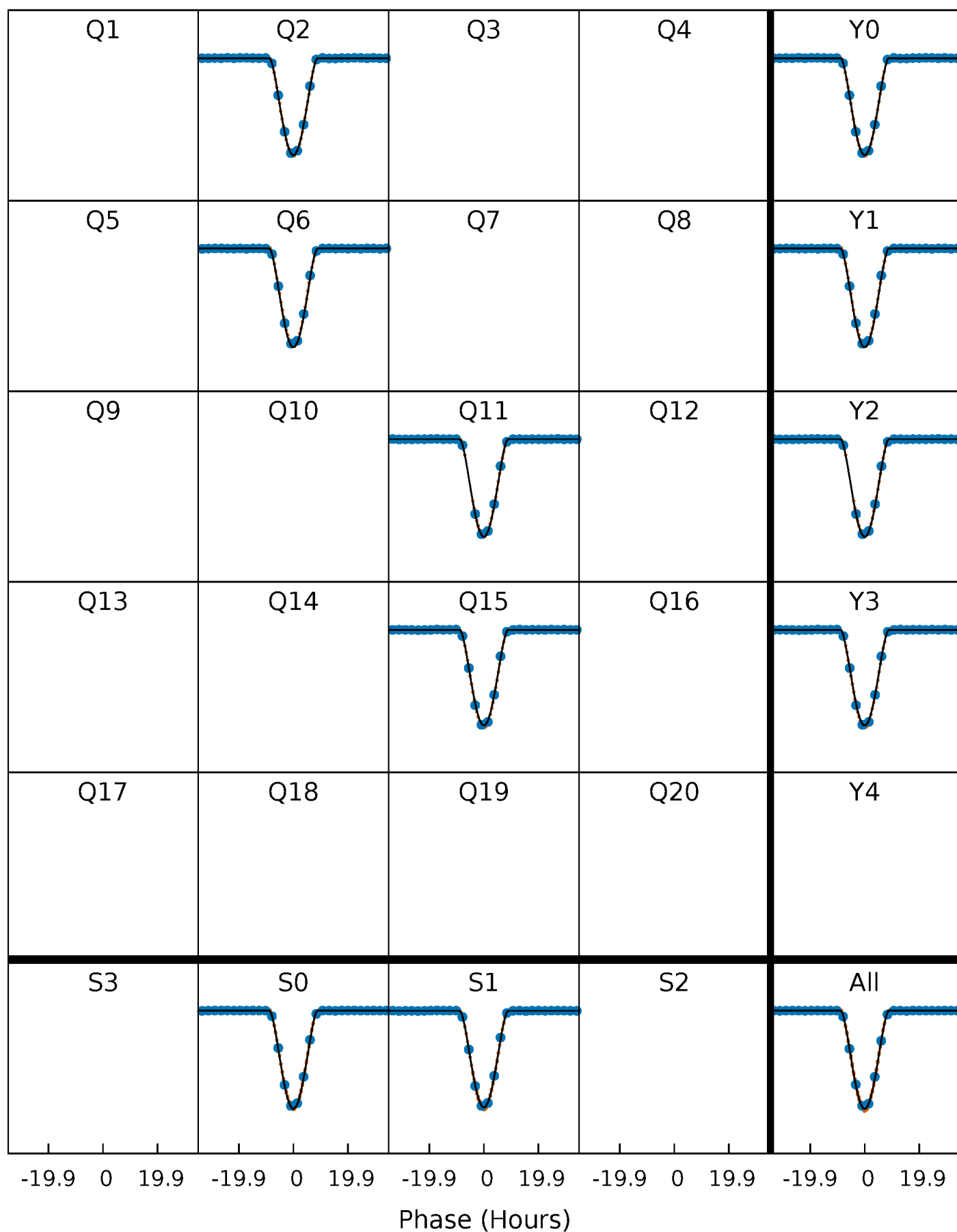
PDC Quarter-Phased Transit Curves

TCE 002987433-01 P=420.929277 Days $T_0=196.685638$ (BKJD)



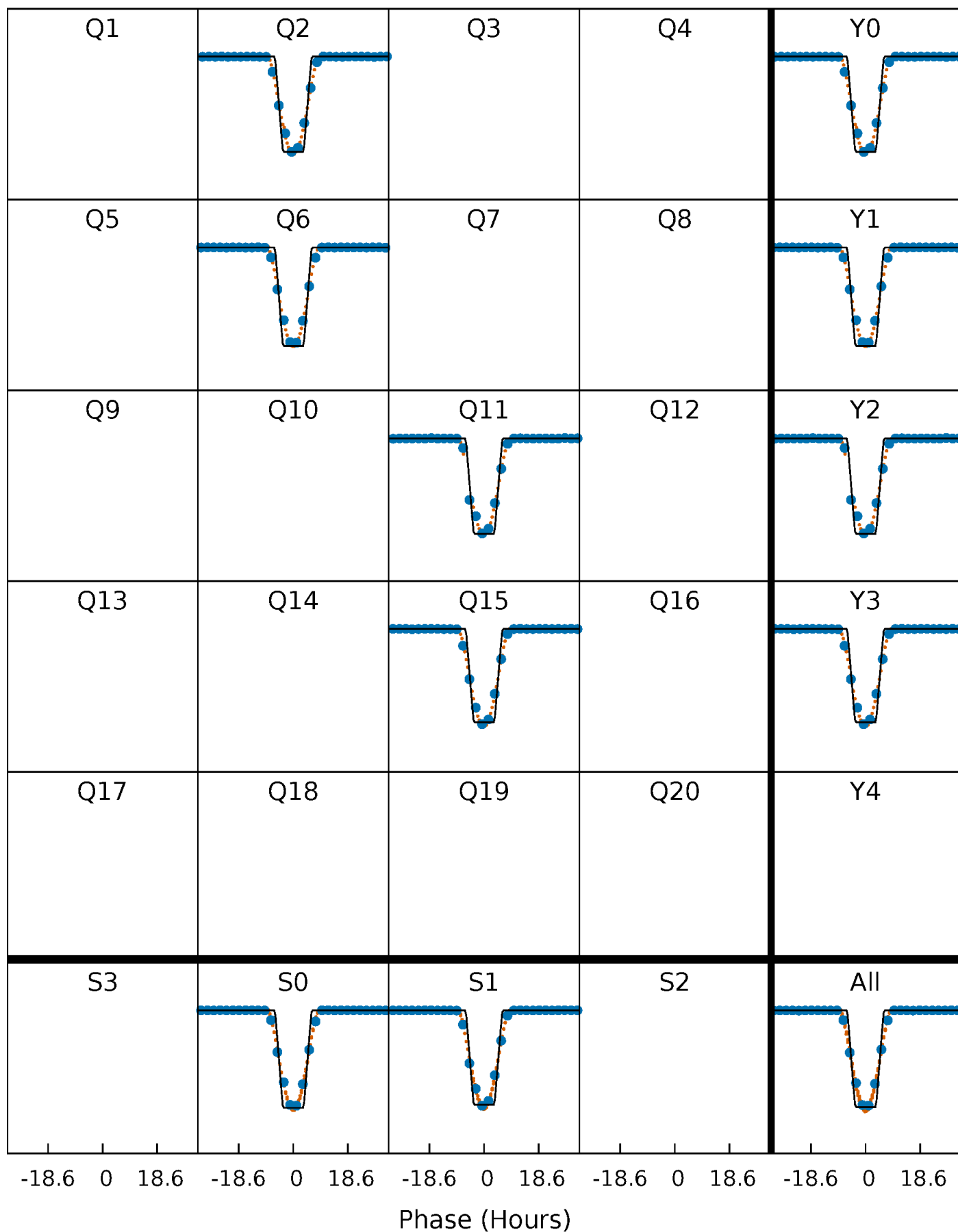
DV Quarter-Phased Transit Curves

TCE 002987433-01 P=420.929277 Days $T_0=196.685638$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

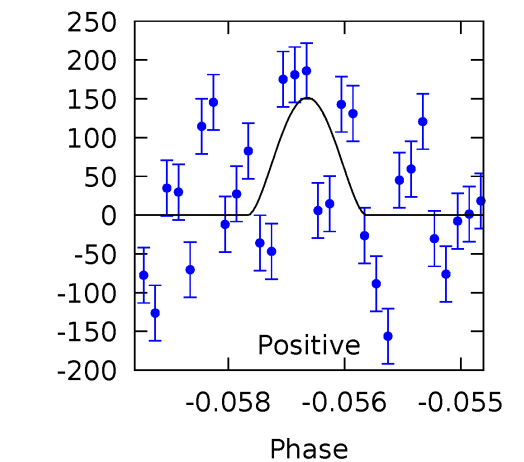
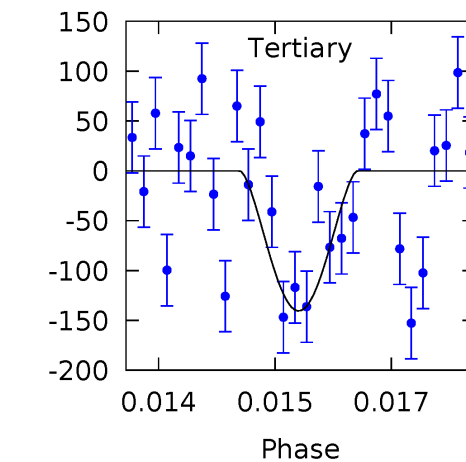
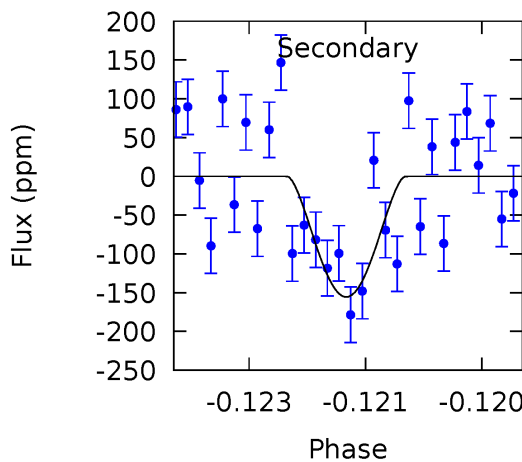
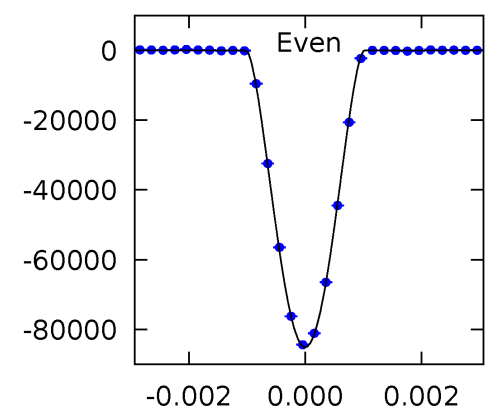
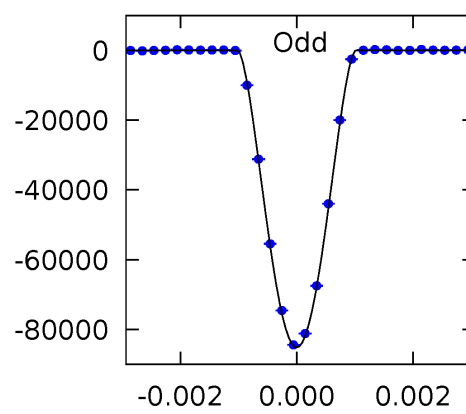
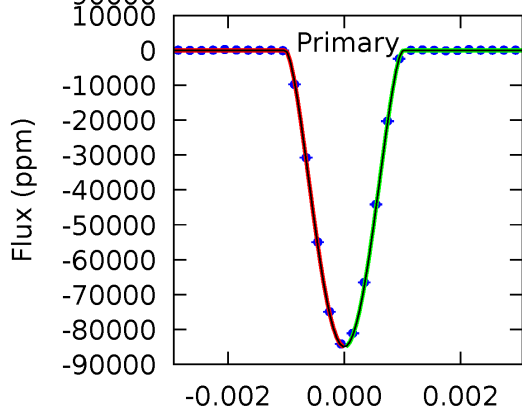
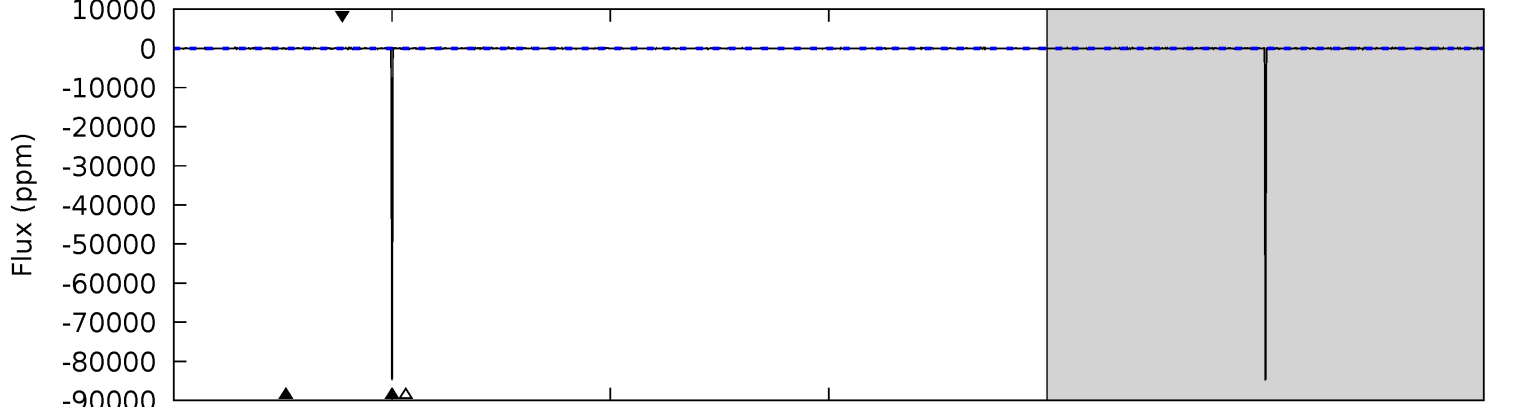
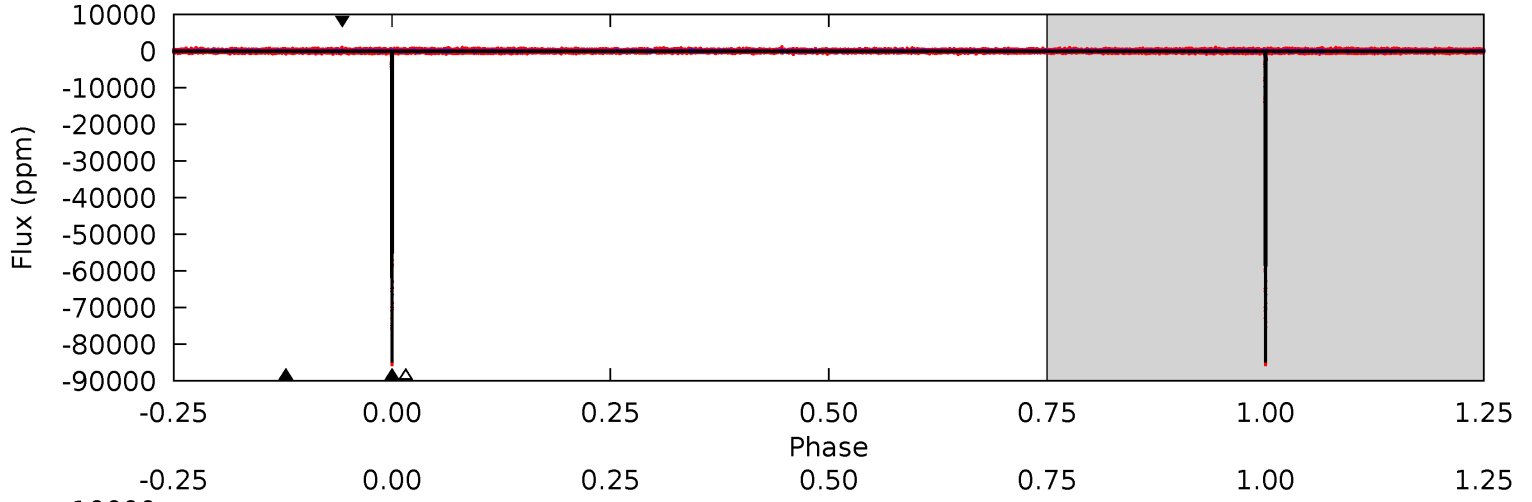
TCE 002987433-01 P=420.931336 Days $T_0=196.683101$ (BKJD)



DV Model-Shift Uniqueness Test

002987433-01, P = 420.929277 Days, E = 196.685638 Days

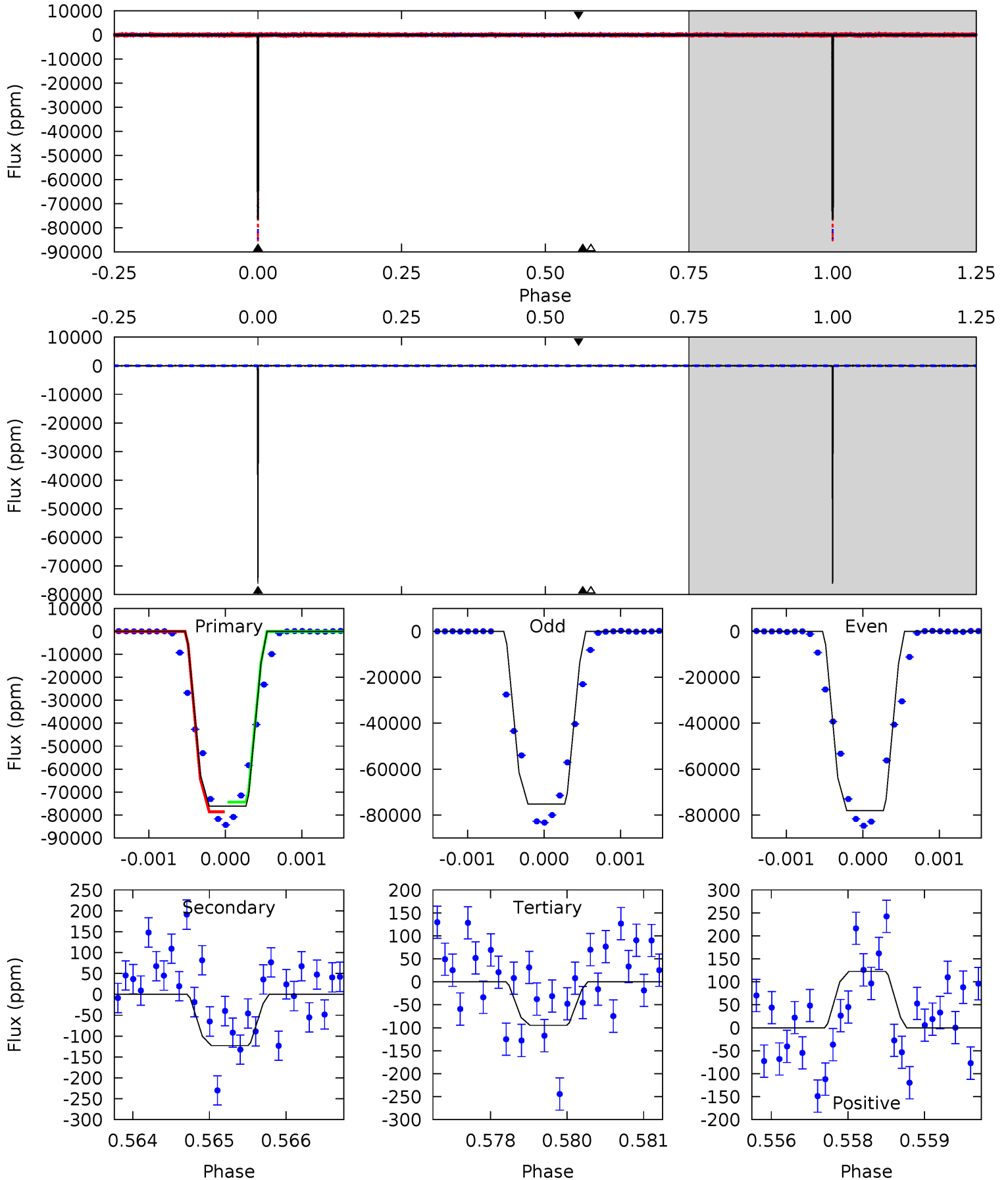
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4353	7.97	7.20	7.76	5.36	3.14	2.10	4346	4345	0.78	0.21	1.53	1.00	0.00	0



Alt Model-Shift Uniqueness Test

002987433-01, P = 420.931336 Days, E = 196.683101 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2763	4.46	3.44	4.45	5.42	3.23	1.00	2760	2759	1.02	0.01	56.7	1.00	0.00	0



Stellar Parameters For KIC 002987433

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6461^{+162}_{-211}	$4.319^{+0.105}_{-0.195}$	$-0.260^{+0.250}_{-0.300}$	$1.197^{+0.357}_{-0.192}$	$1.086^{+0.177}_{-0.129}$	$0.892^{+0.492}_{-0.453}$
	+3%/-3%	+2%/-5%	+96%/-115%	+30%/-16%	+16%/-12%	+55%/-51%
Source	PHO1	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 002987433-01 / KOI 4959.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-155 ± 19	$50.96^{+8.86}_{-4.94}$	413^{+30}_{-23}	2126^{+42}_{-41}	41^{+12}_{-11}
Alt.	-123 ± 28	$38.64^{+6.36}_{-4.36}$	415^{+29}_{-22}	2211^{+63}_{-68}	57^{+21}_{-18}

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

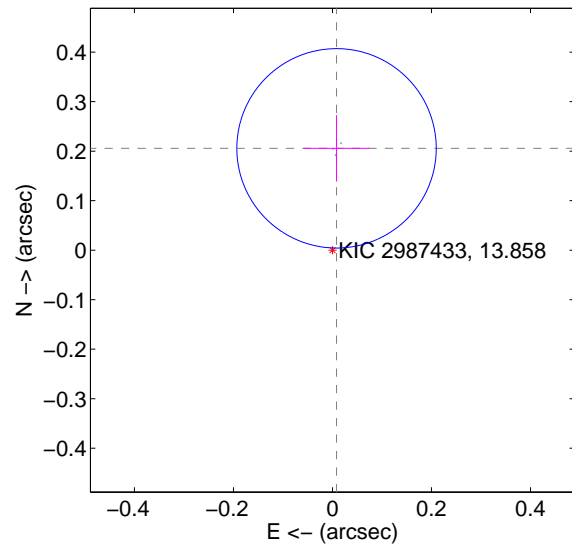
Supplemental centroid analysis for 002987433-01. Kepler magnitude: 13.86. Transit SNR 1376.60

There are 3 quarters with good PRF difference image offsets

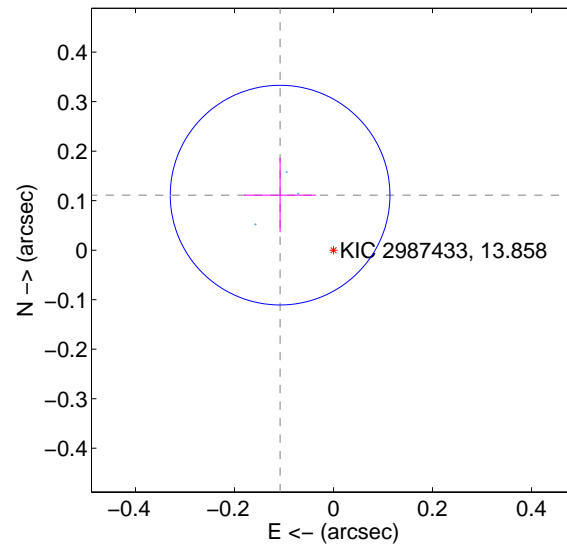
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.206 ± 0.067	3.07	-0.008 ± 0.067	0.206 ± 0.067
PRF-fit source offset from KIC position	0.155 ± 0.074	2.10	0.108 ± 0.073	0.111 ± 0.075
photometric centroid source offset	0.07 ± 0.01	13.73	0.07 ± 0.00	0.03 ± 0.01

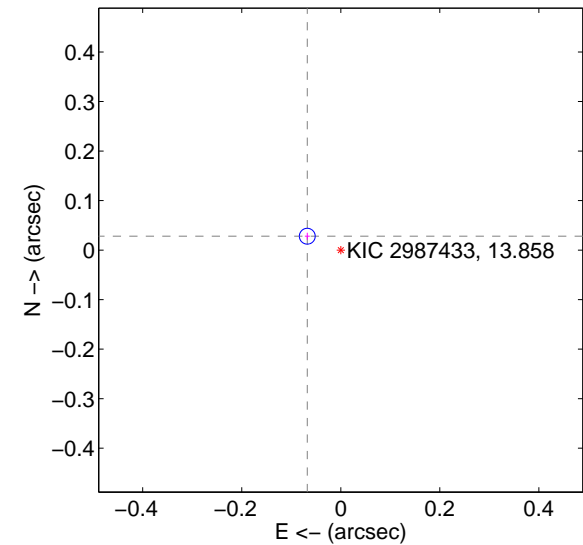
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

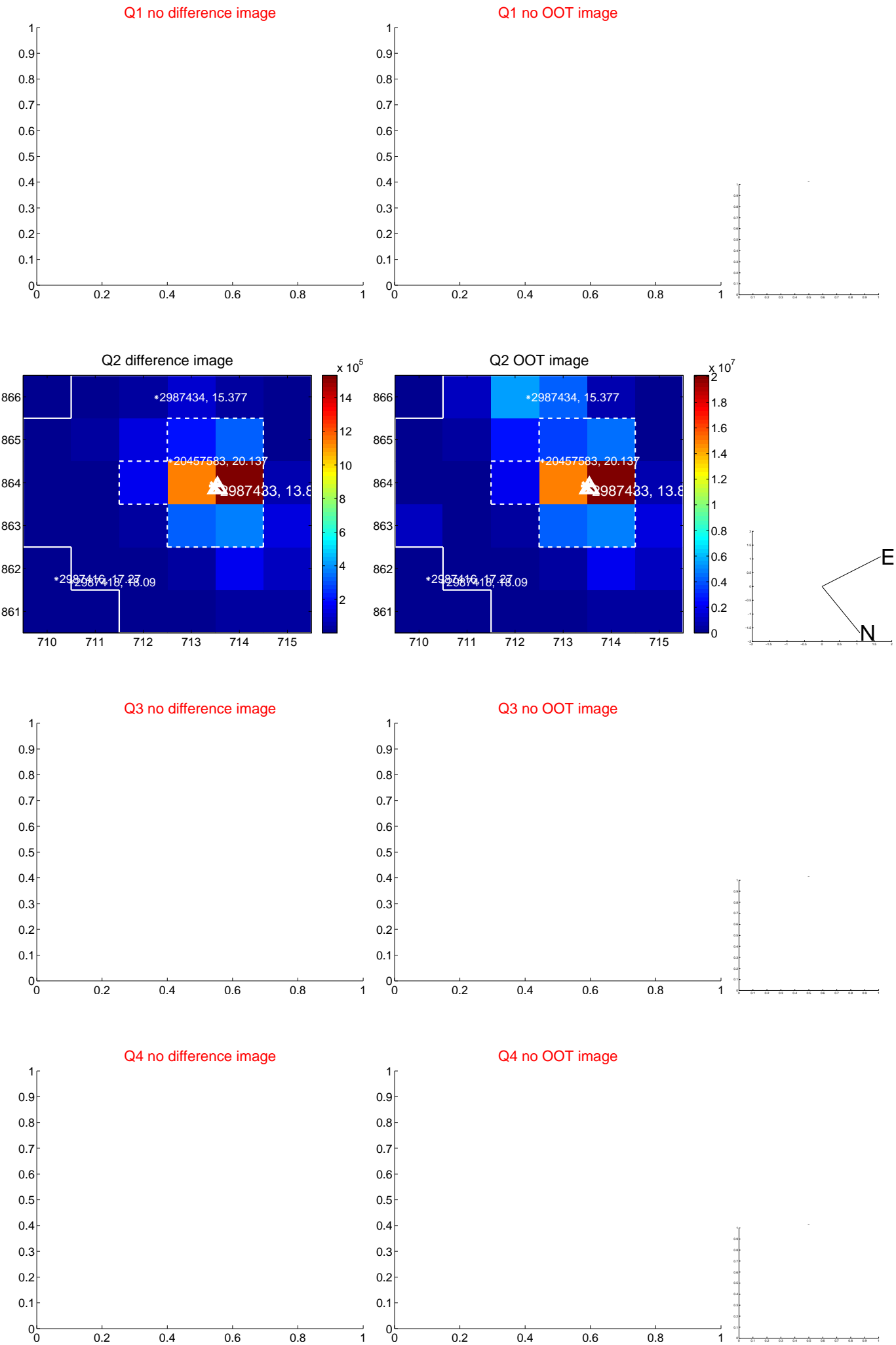


offset from photometric centroids

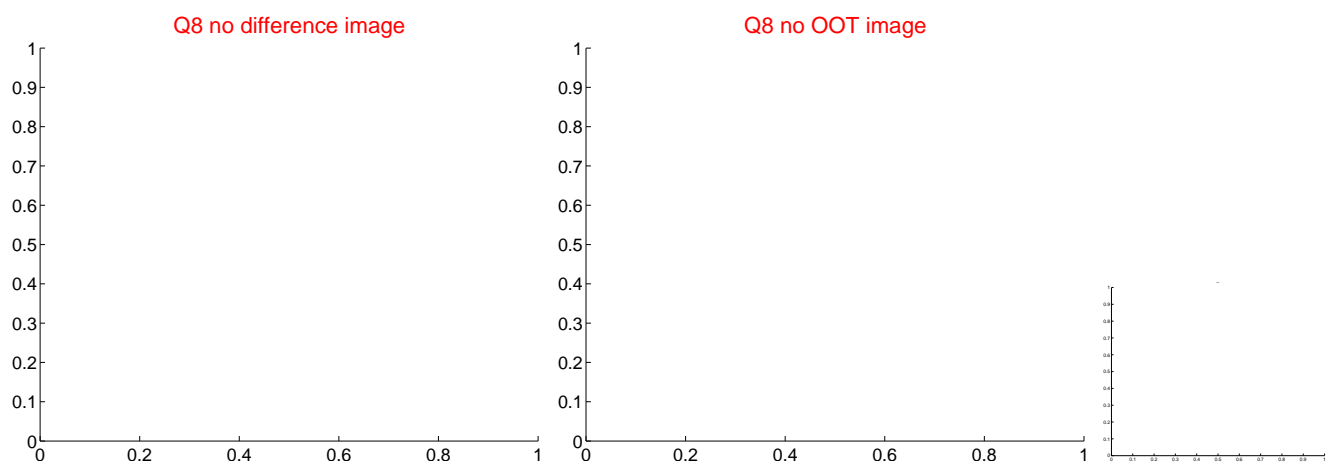
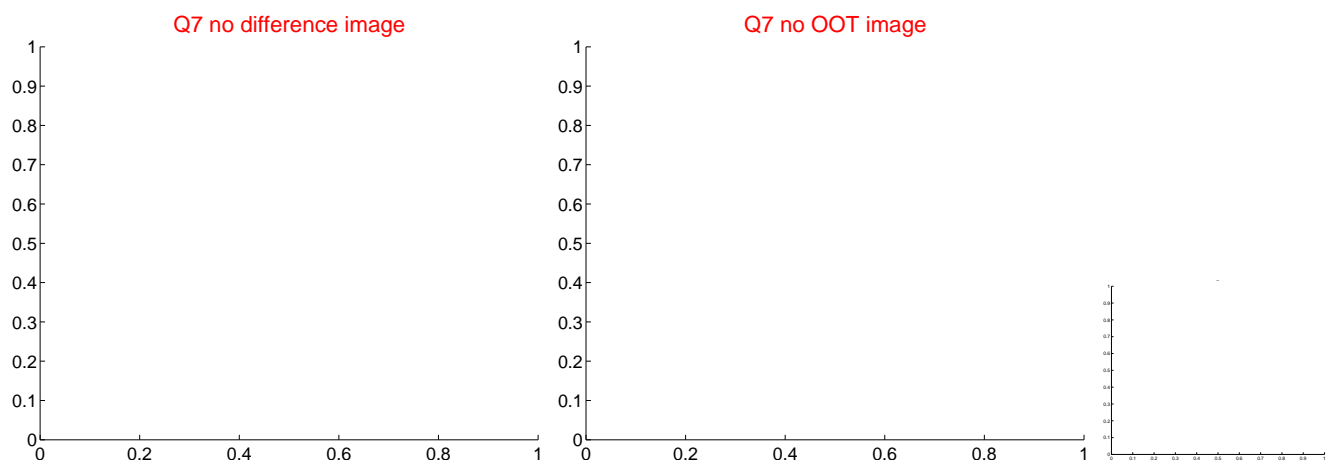
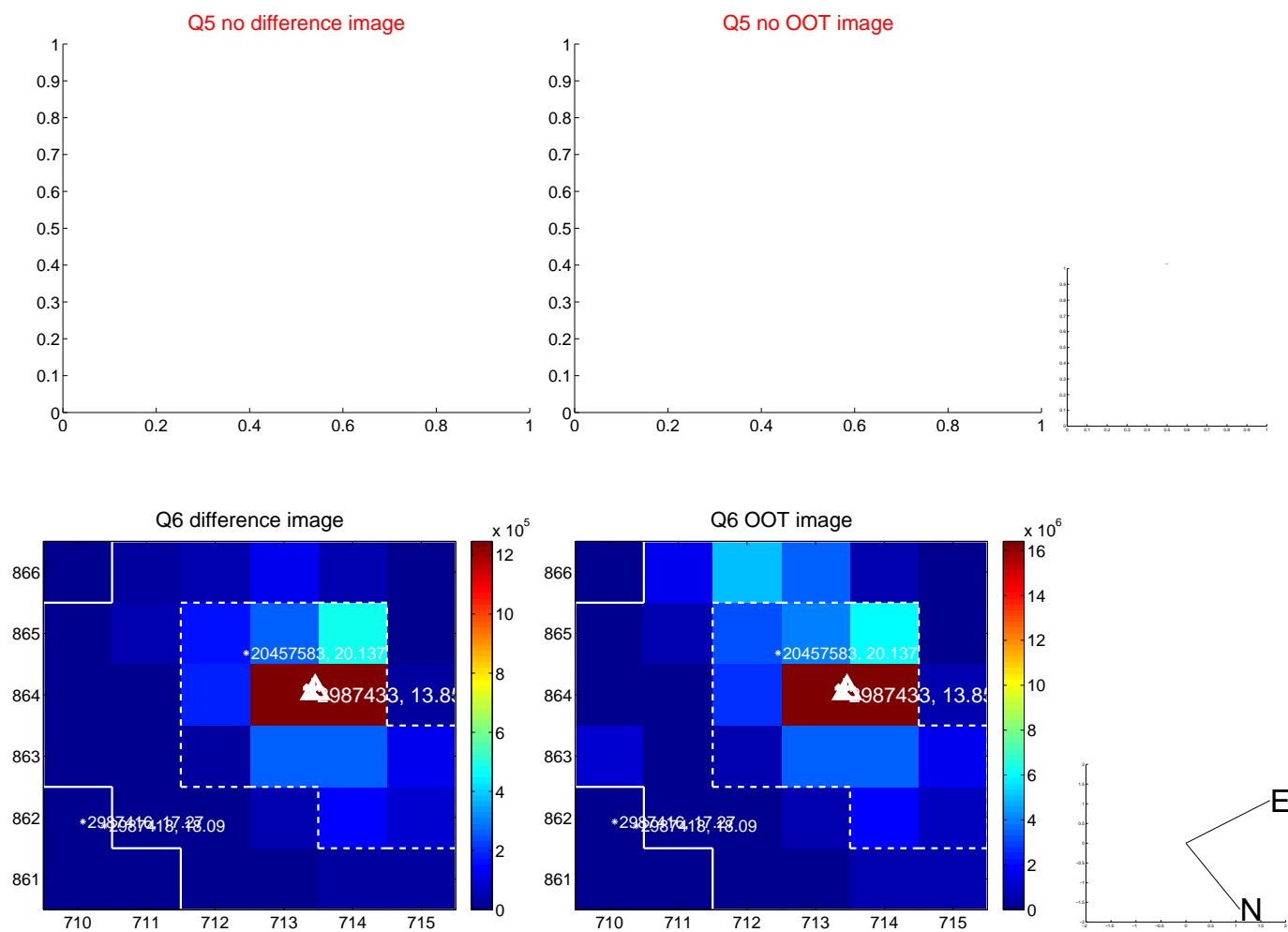


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



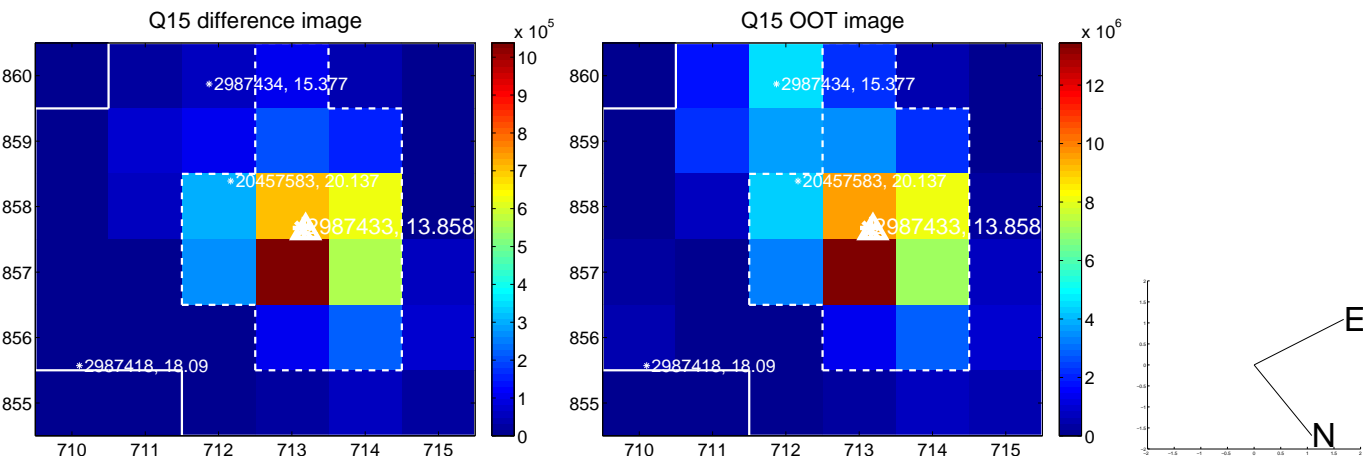
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



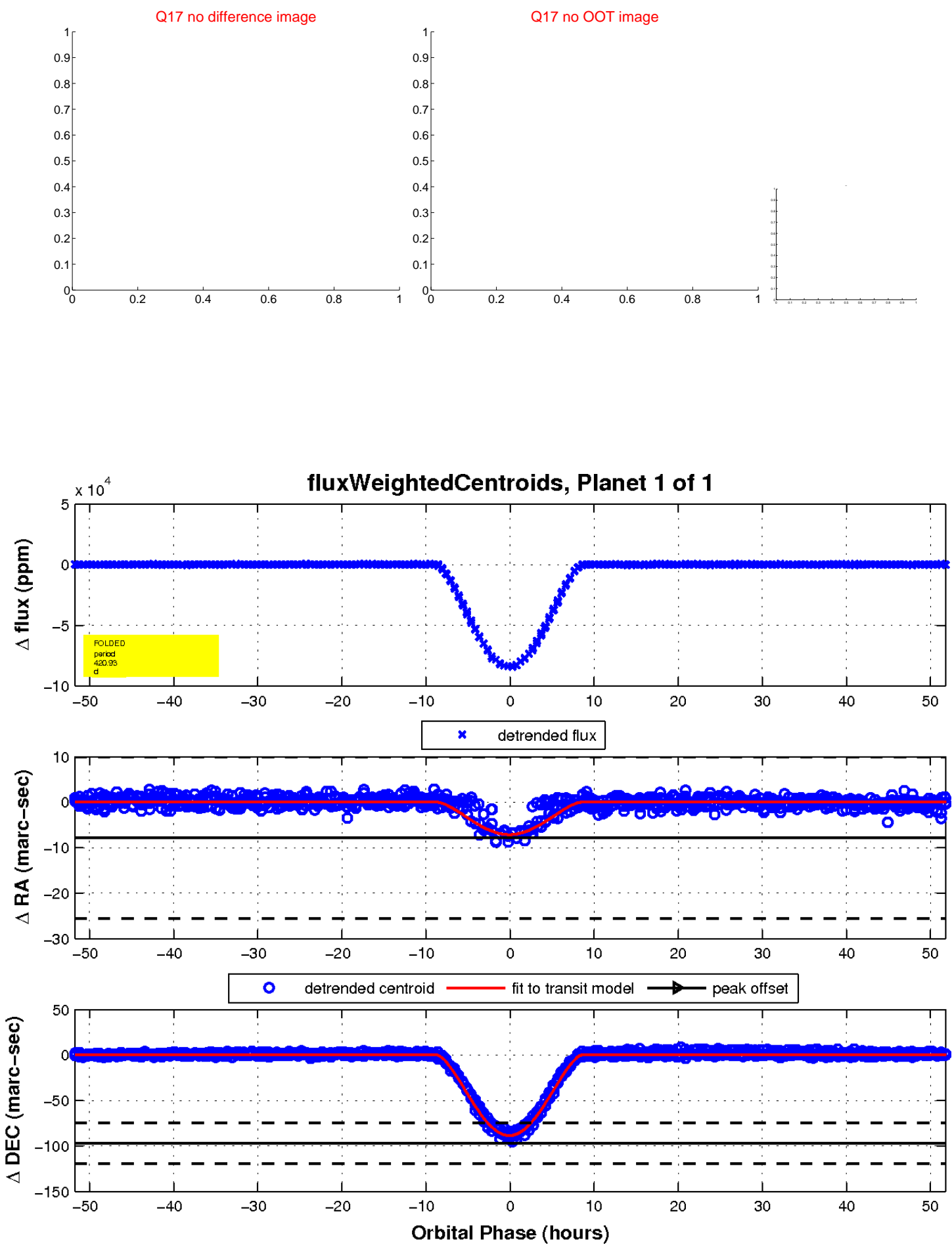
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UKIRT Image

Declination

