

KIC 009221627

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})
009221627-01	OBS	7148.01	1.761388	132.982605	329.2	1.469	8.2	10.0	1.21	6544	2.28	2619.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009221627-01	OBS	PC	1.00	0	0	0	0	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.

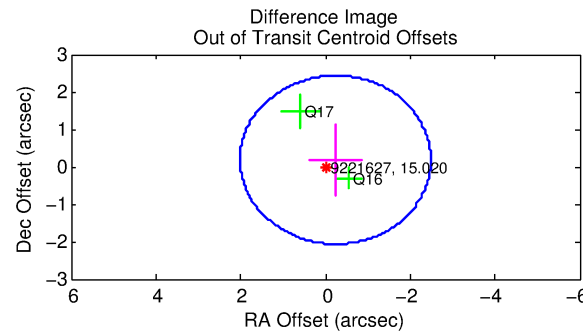
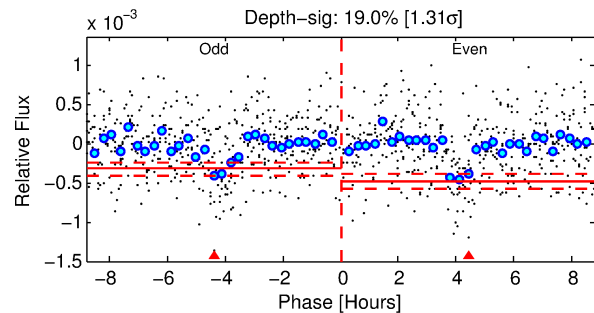
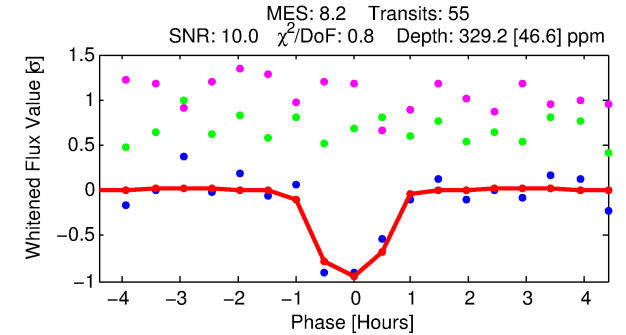
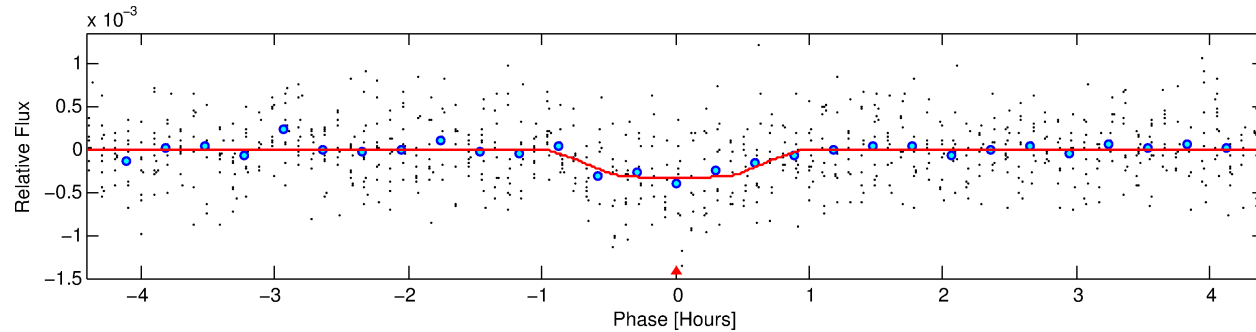
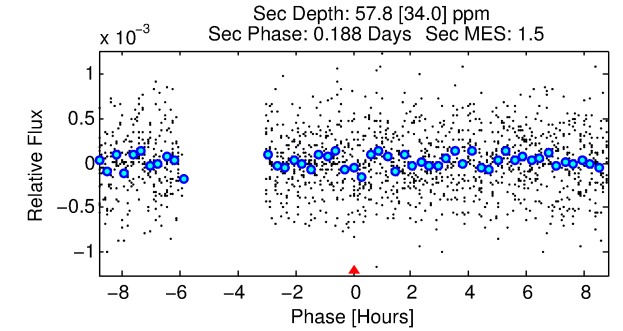
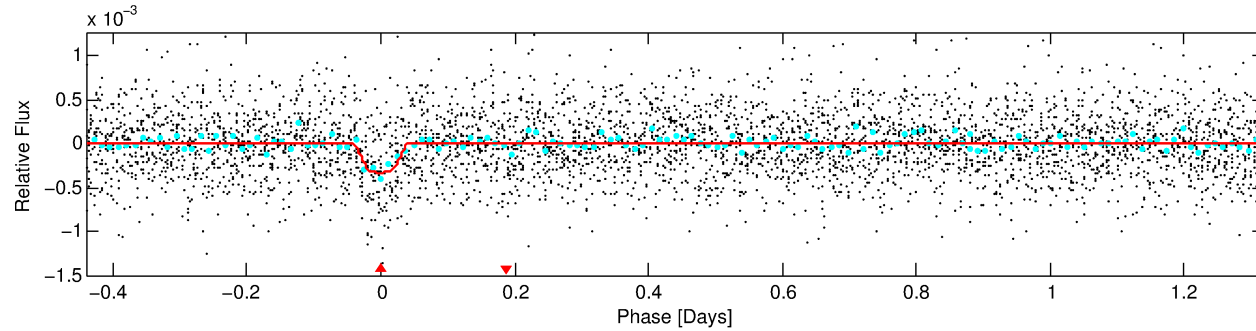
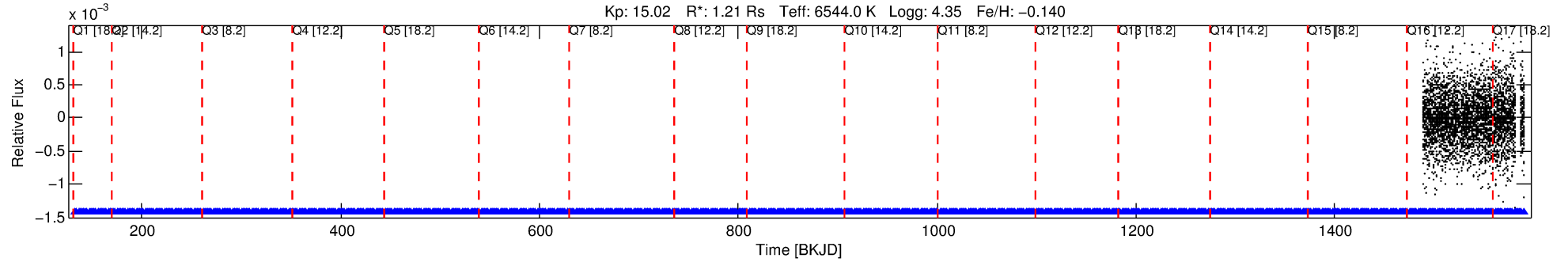
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009221627-01

No Significant Match Found

DV One-Page Summary

KIC: 9221627 Candidate: 1 of 1 Period: 1.761 d
KOI: K07148.01 Corr: 0.896



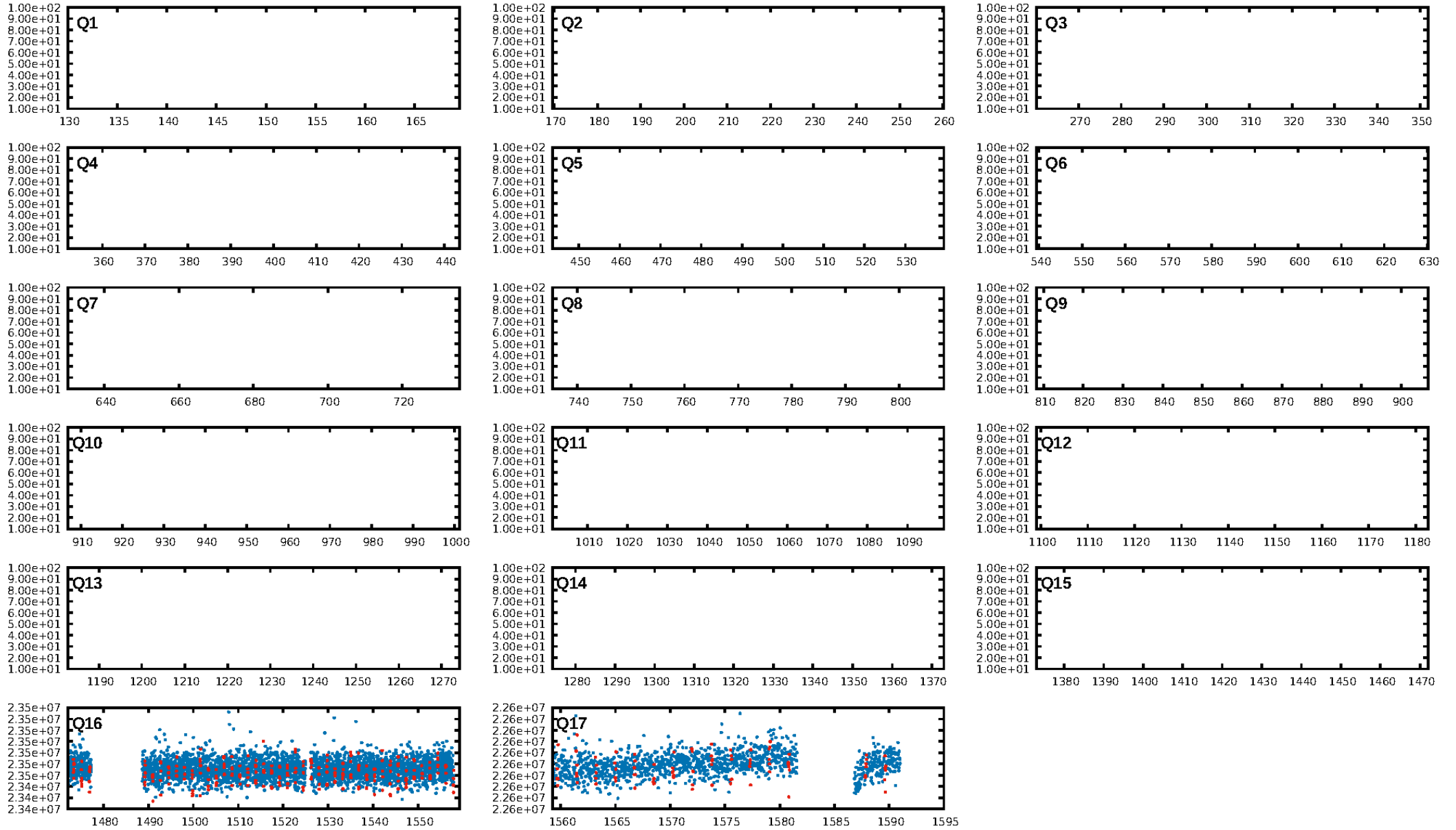
DV Fit Results:

Period = 1.76139 [0.00001] d
Epoch = 132.9826 [0.0023] BKJD
Rp/R* = 0.0173 [0.0118]
a/R* = 8.01 [28.63]
b = 0.53 [5.03]
Seff = 2619.78 [1129.38]
Teq = 1824 [197] K
Rp = 2.28 [1.74] Re
a = 0.0302 [0.0085] AU
Ag = 5.60 [8.63] [0.53 σ]
Teffp = 4339 [1622] K [1.54 σ]

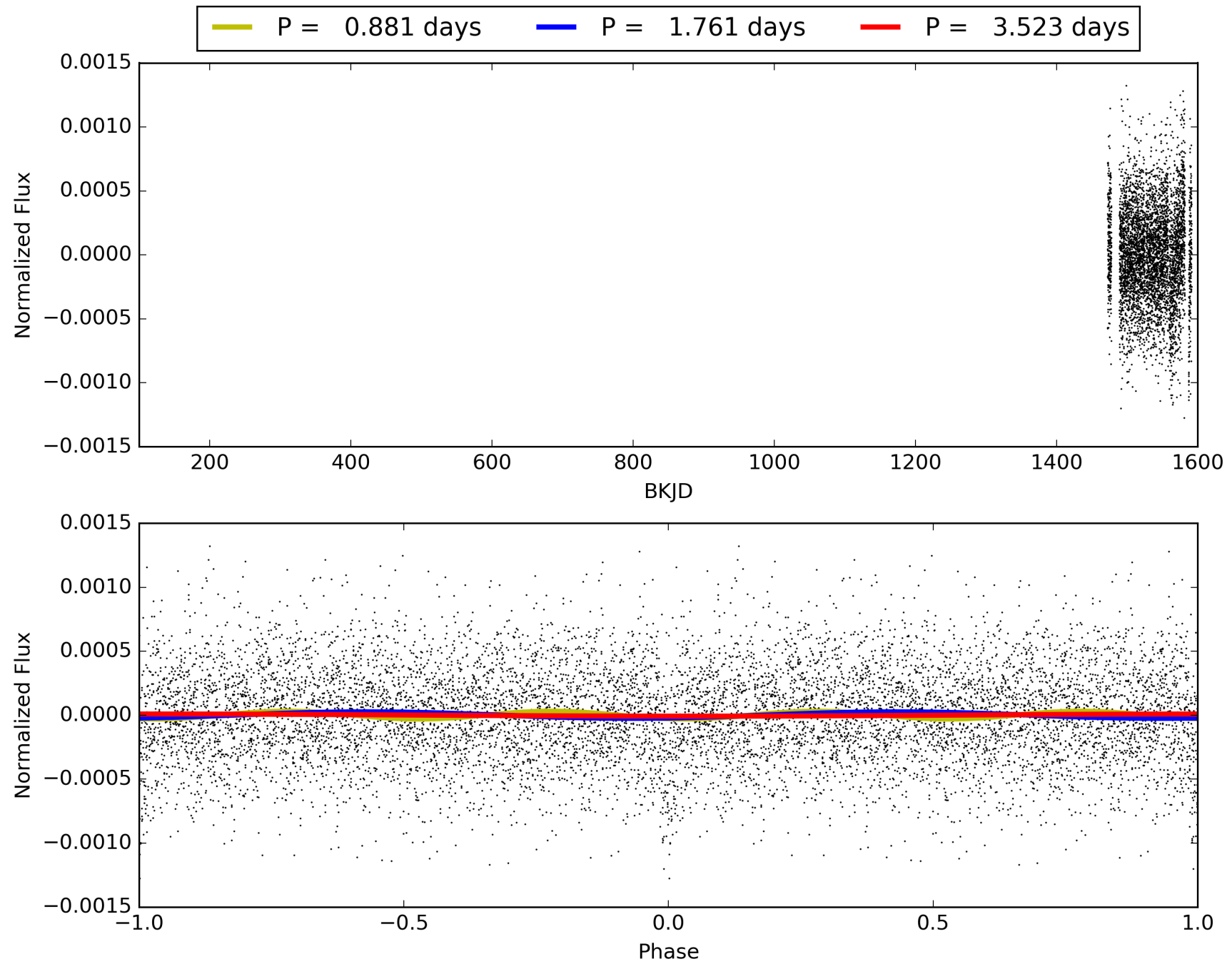
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.70e-15
RollingBand-fgt: 1.00 [40/40]
GhostDiagnostic-chr: 0.9124
Centroid-sig: 1.4%
Centroid-so: 2.591 arcsec [1.74 σ]
OotOffset-rm: 0.298 arcsec [0.40 σ]
KicOffset-rm: 0.275 arcsec [0.32 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009221627-01, PDC Light Curves

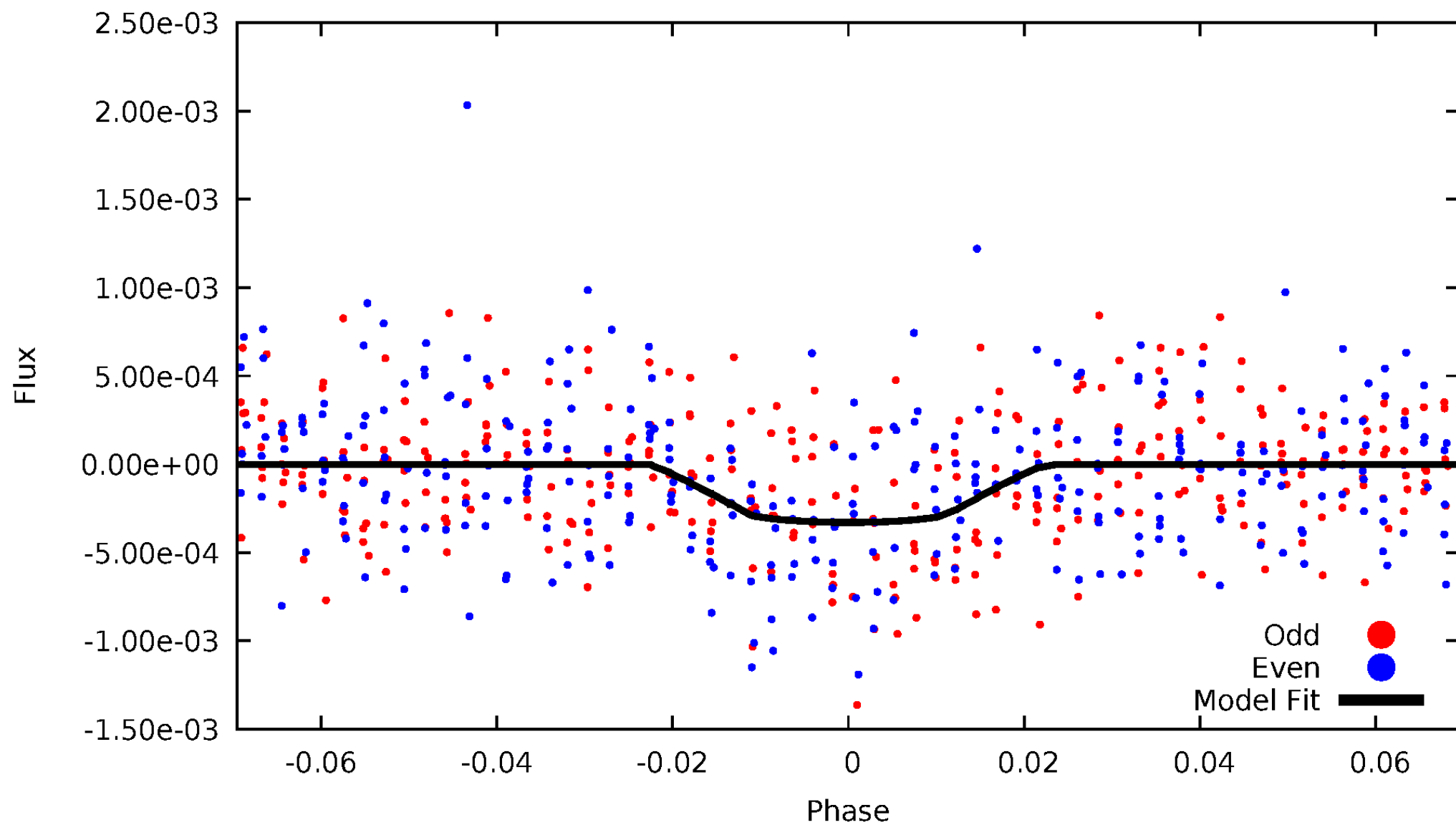


TCE 009221627-01



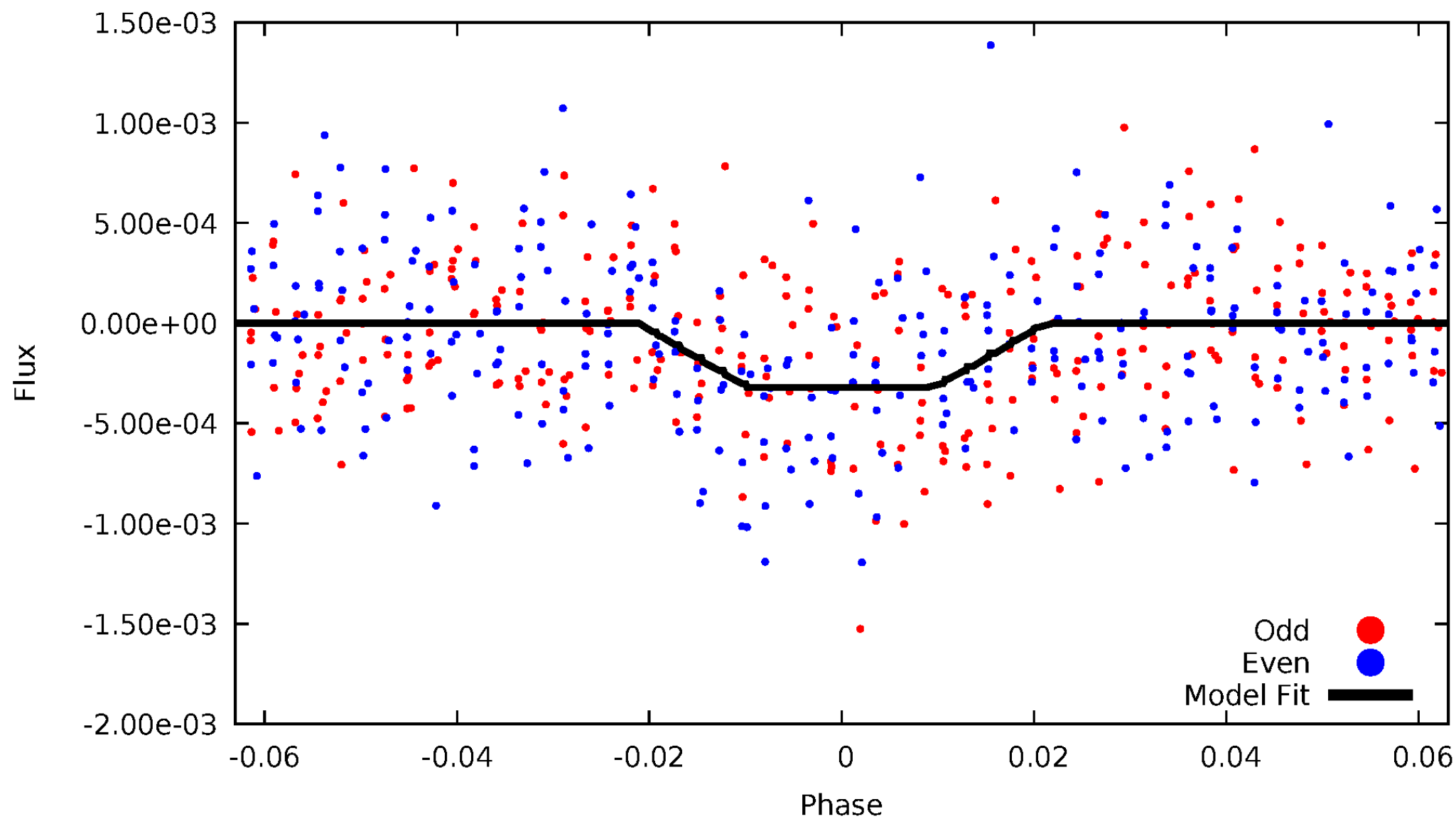
DV Odd/Even

TCE 009221627-01



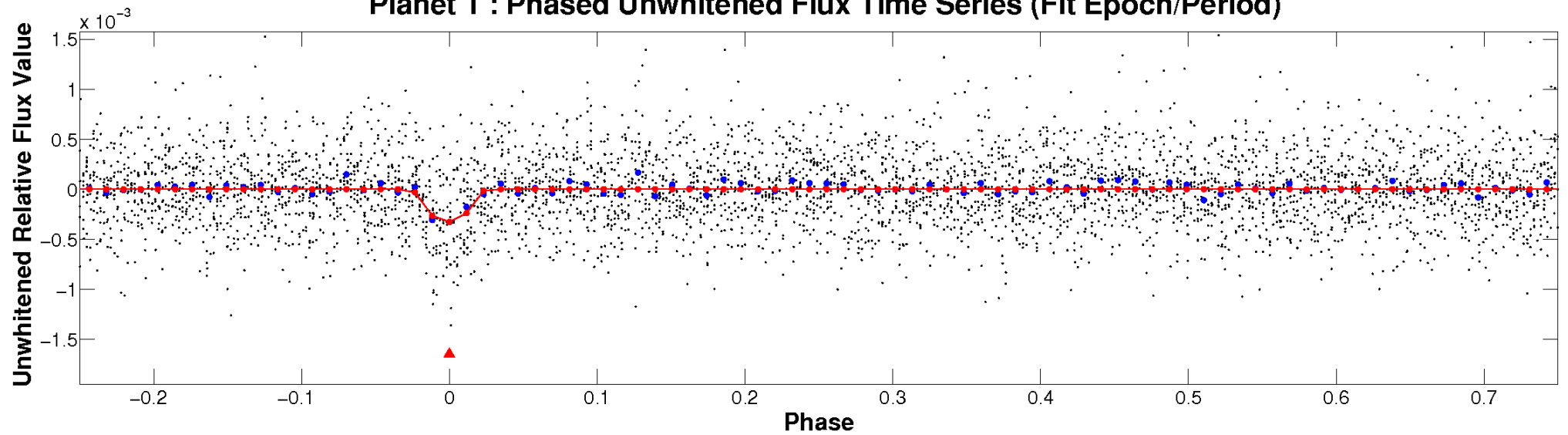
ALT Odd/Even

TCE 009221627-01

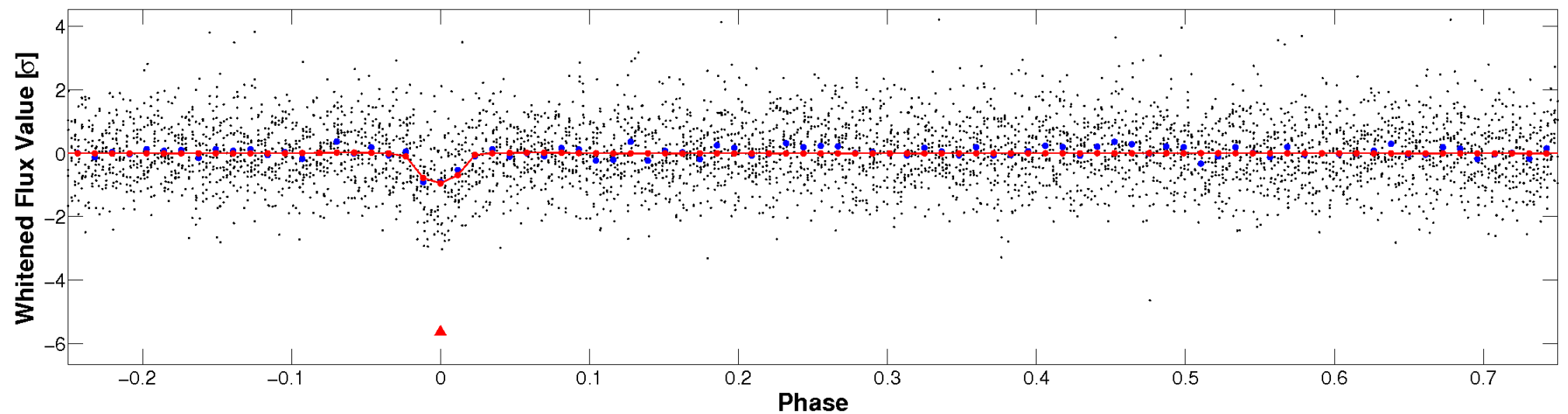


Non-Whitened Vs. Whitened Light Curve

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 009221627-01 P= 1.761388 Days $T_0=132.982605$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009221627-01 P= 1.761388 Days $T_0=132.982605$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

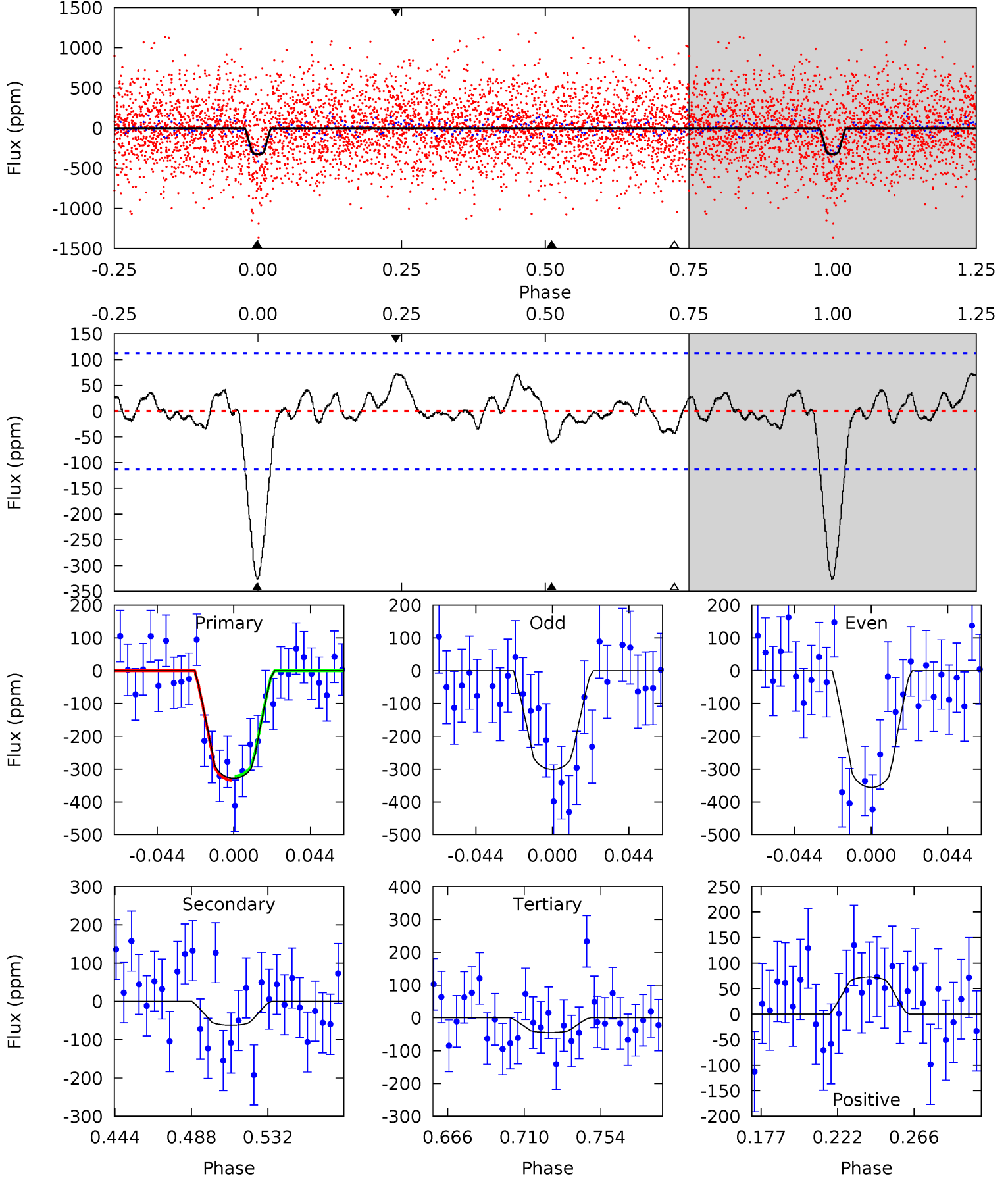
TCE 009221627-01 P= 1.761376 Days $T_0=132.990851$ (BKJD)



DV Model-Shift Uniqueness Test

009221627-01, P = 1.761388 Days, E = 132.982605 Days

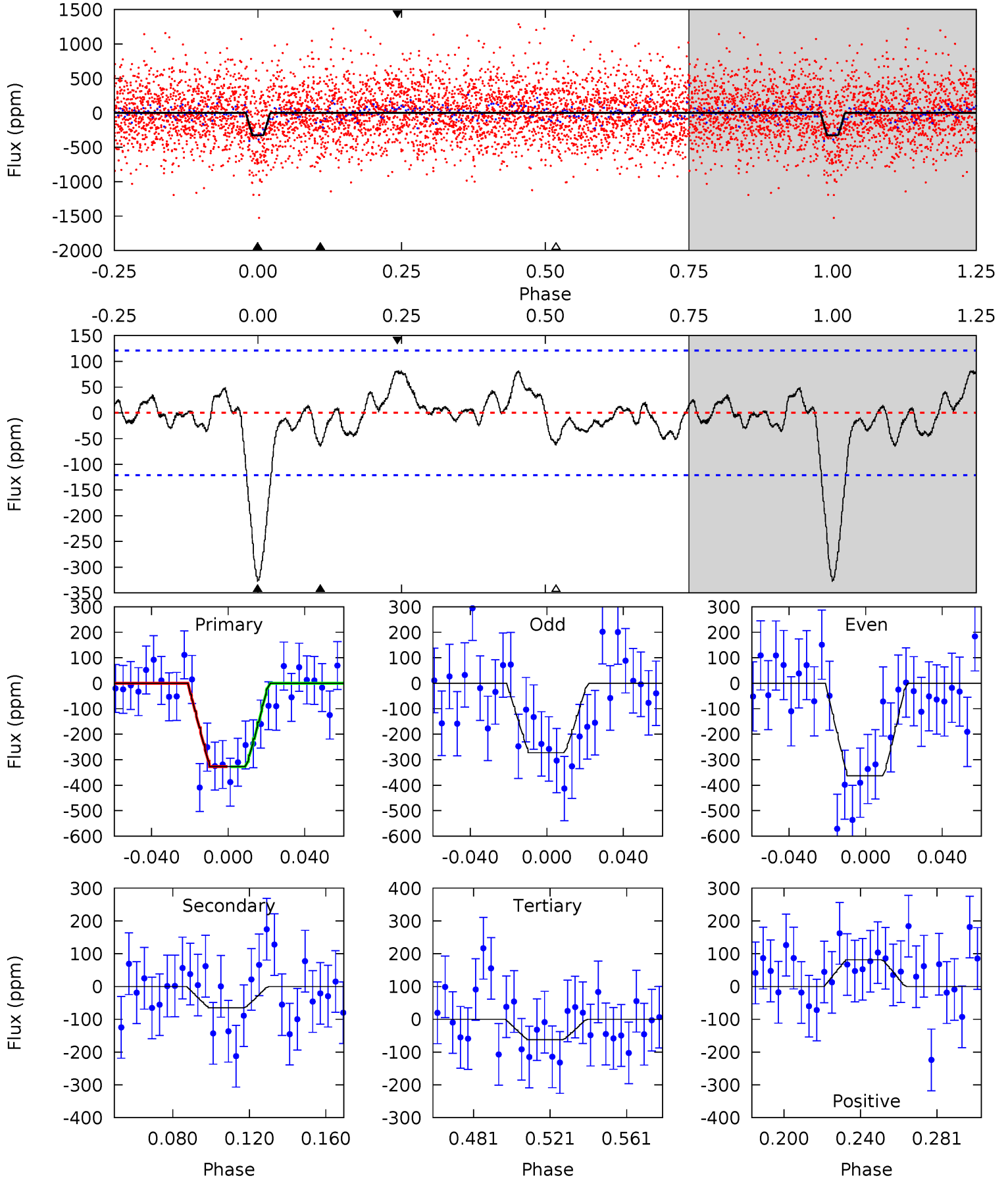
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	2.61	1.88	3.07	4.73	2.01	1.02	11.9	10.7	0.74	-0.46	1.17	0.89	0.18	0.27



Alt Model-Shift Uniqueness Test

009221627-01, P = 1.761376 Days, E = 132.990851 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	2.56	2.45	3.20	4.75	2.05	1.18	10.4	9.64	0.12	-0.64	1.79	0.85	0.20	0.01



Stellar Parameters For KIC 009221627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6544^{+181}_{-250}	$4.349^{+0.072}_{-0.217}$	$-0.140^{+0.250}_{-0.300}$	$1.207^{+0.411}_{-0.165}$	$1.193^{+0.192}_{-0.174}$	$0.954^{+0.357}_{-0.494}$
	+3%/-4%	+2%/-5%	+179%/-214%	+34%/-14%	+16%/-15%	+37%/-52%
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 009221627-01 / KOI 7148.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-62 ± 24	$2.61^{+1.65}_{-1.55}$	2605^{+205}_{-161}	4329^{+2220}_{-788}	$4.386^{+22.919}_{-2.789}$
Alt.	-65 ± 25	$2.66^{+1.63}_{-1.50}$	2586^{+214}_{-144}	4350^{+1744}_{-815}	$4.436^{+18.412}_{-2.829}$

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

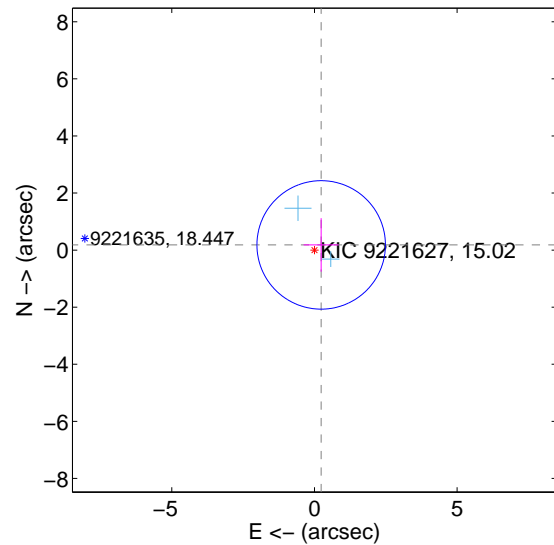
Supplemental centroid analysis for 009221627-01. Kepler magnitude: 15.02. Transit SNR 10.02

There are 2 quarters with good PRF difference image offsets

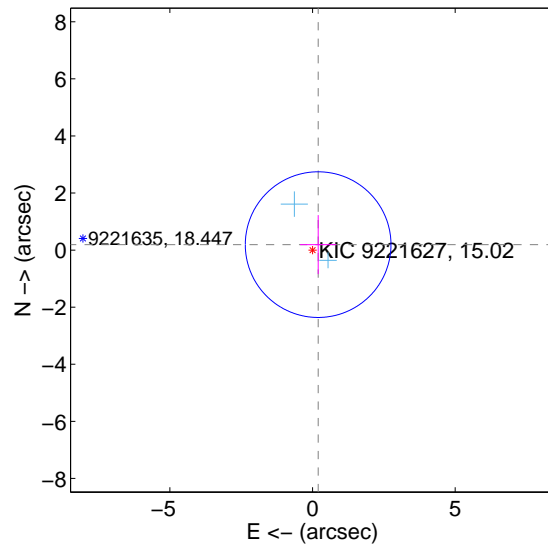
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.298 ± 0.750	0.40	-0.236 ± 0.614	0.182 ± 0.936
PRF-fit source offset from KIC position	0.275 ± 0.851	0.32	-0.197 ± 0.631	0.192 ± 1.033
photometric centroid source offset	2.59 ± 1.49	1.74	0.04 ± 1.04	2.59 ± 1.49

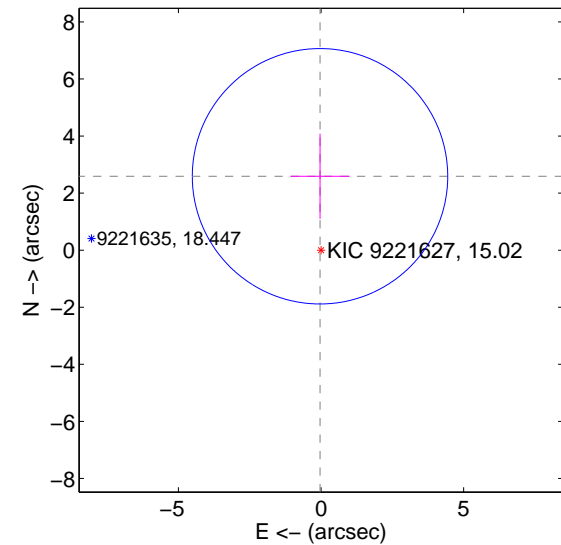
offset from difference PRF-fit to OOT PRF-fit



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.



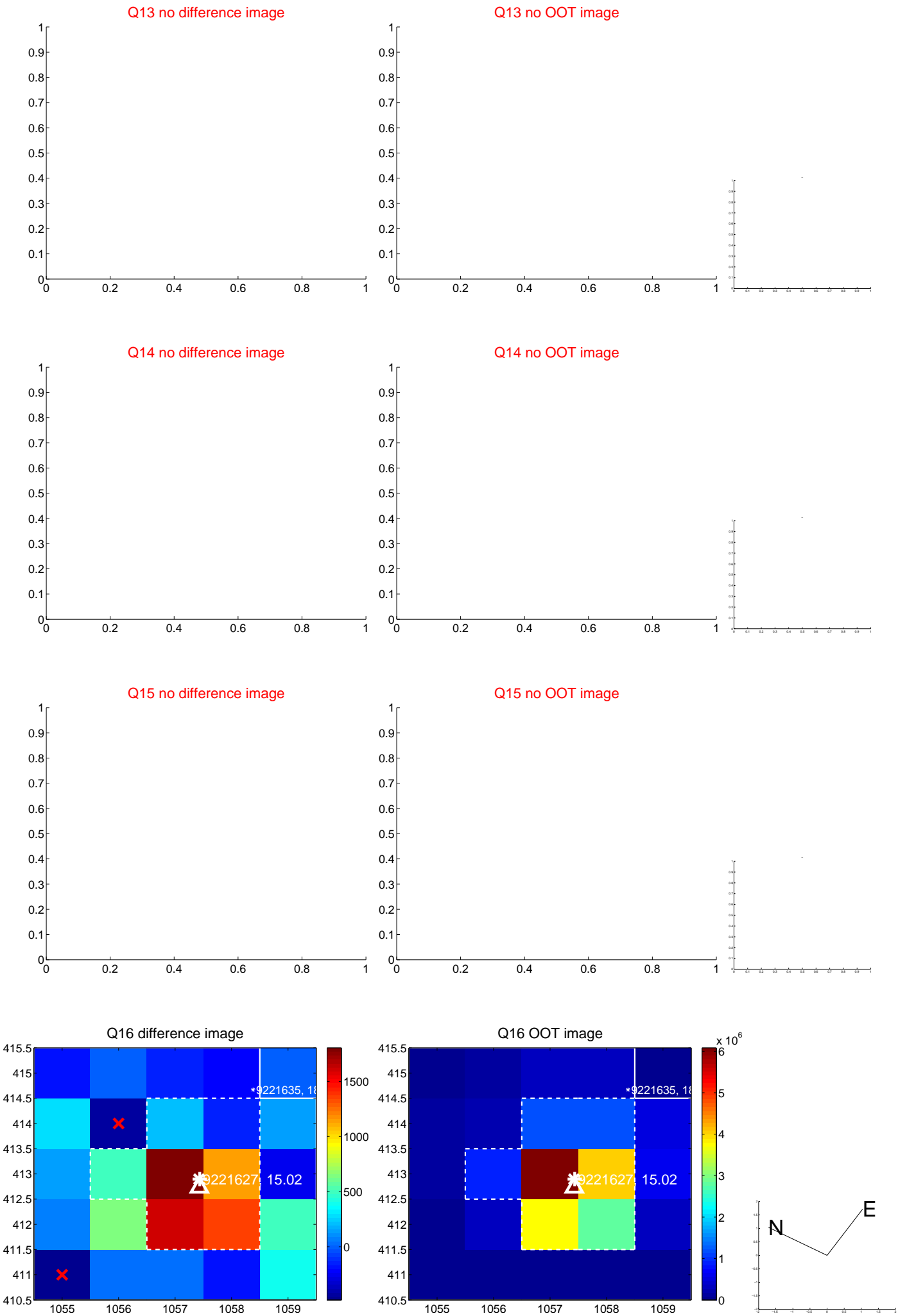
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



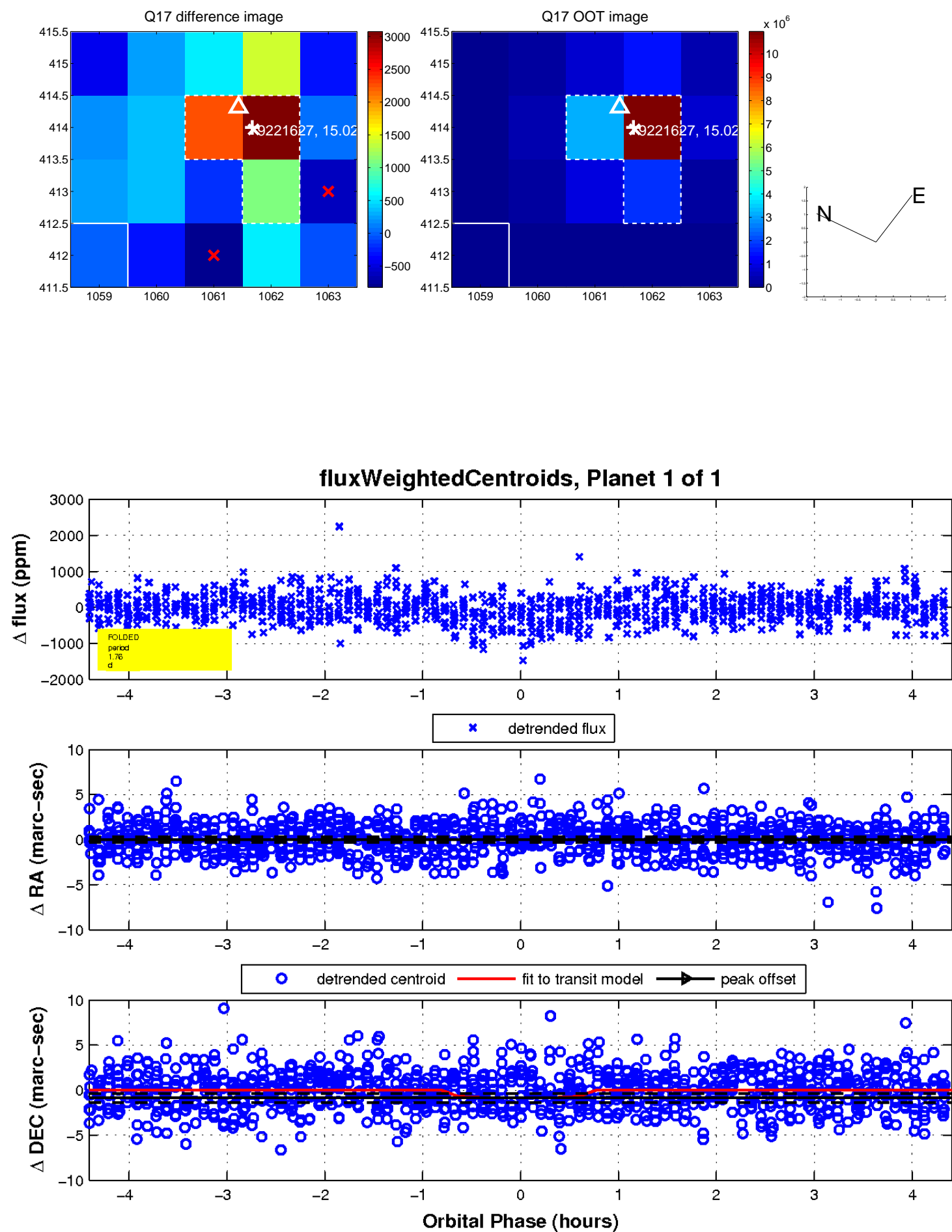
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UKIRT Image

Declination

