

KIC 004172805

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})
004172805-01	OBS	4427.01	147.661498	243.952893	1025.8	6.394	10.8	10.6	0.49	3788	1.67	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004172805-01	OBS	PC	0.97	0	0	0	0	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 004172805-01

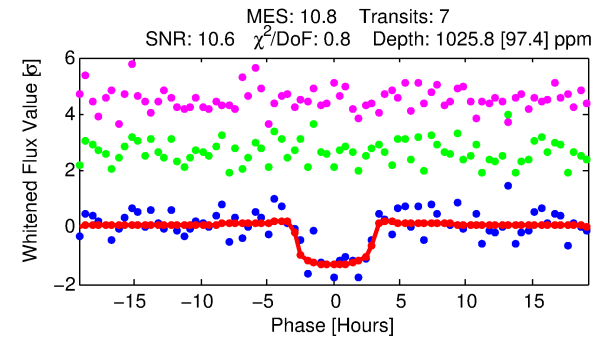
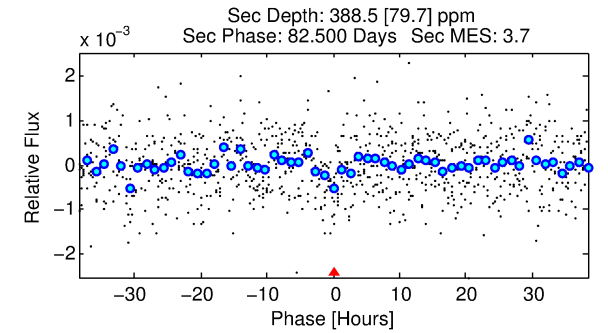
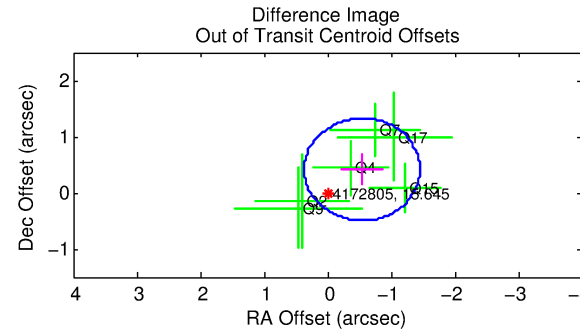
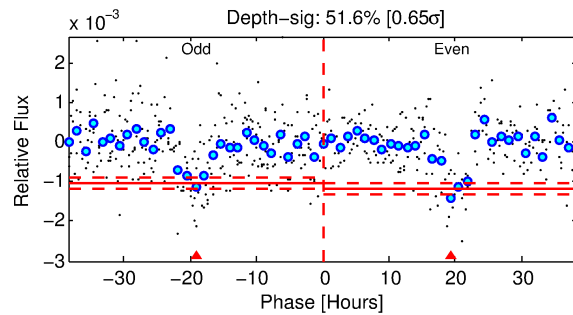
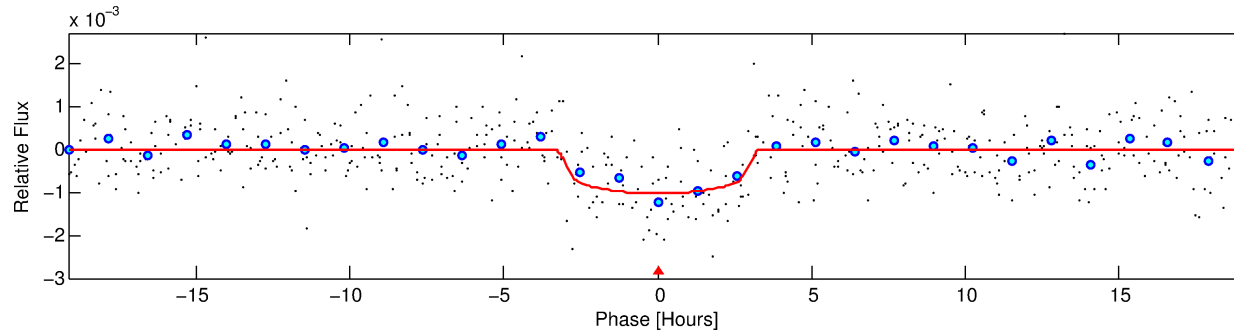
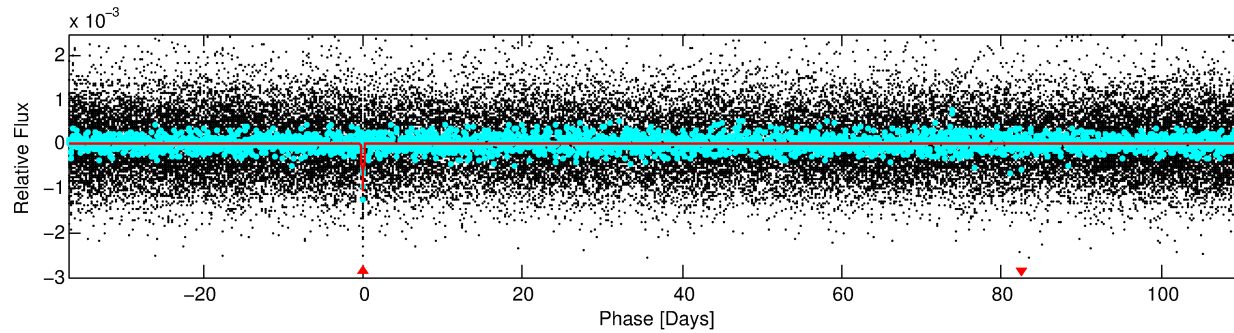
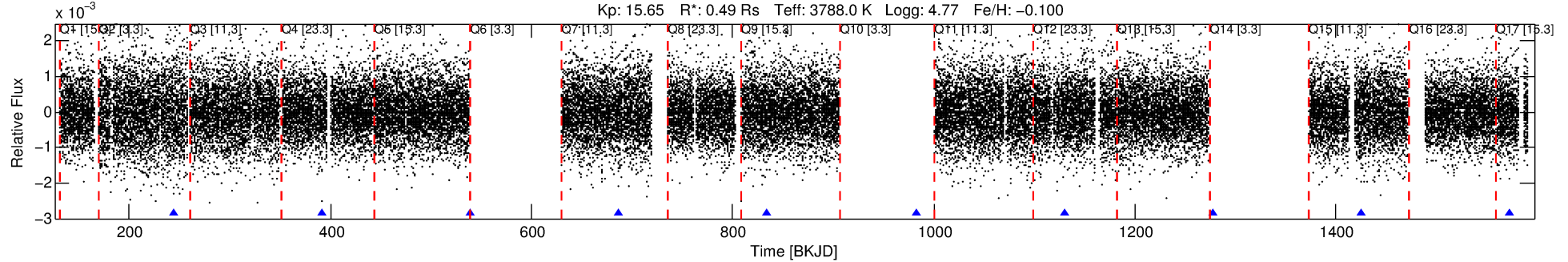
No Significant Match Found

DV One-Page Summary

KIC: 4172805 Candidate: 1 of 1 Period: 147.661 d

KOI: K04427.01 Corr: 0.974

Kp: 15.65 R*: 0.49 Rs Teff: 3788.0 K Logg: 4.77 Fe/H: -0.100



DV Fit Results:

Period = 147.66150 [0.00174] d
Epoch = 243.9529 [0.0099] BKJD
Rp/R* = 0.0312 [0.0114]
a/R* = 134.90 [216.29]
b = 0.69 [1.22]
Seff = 0.23 [0.03]
Teq = 176 [5] K
Rp = 1.67 [0.63] Re
a = 0.4399 [0.0280] AU
Ag = 14841.99 [11331.41] [1.31σ]
Teffp = 3010 [575] K [4.93σ]

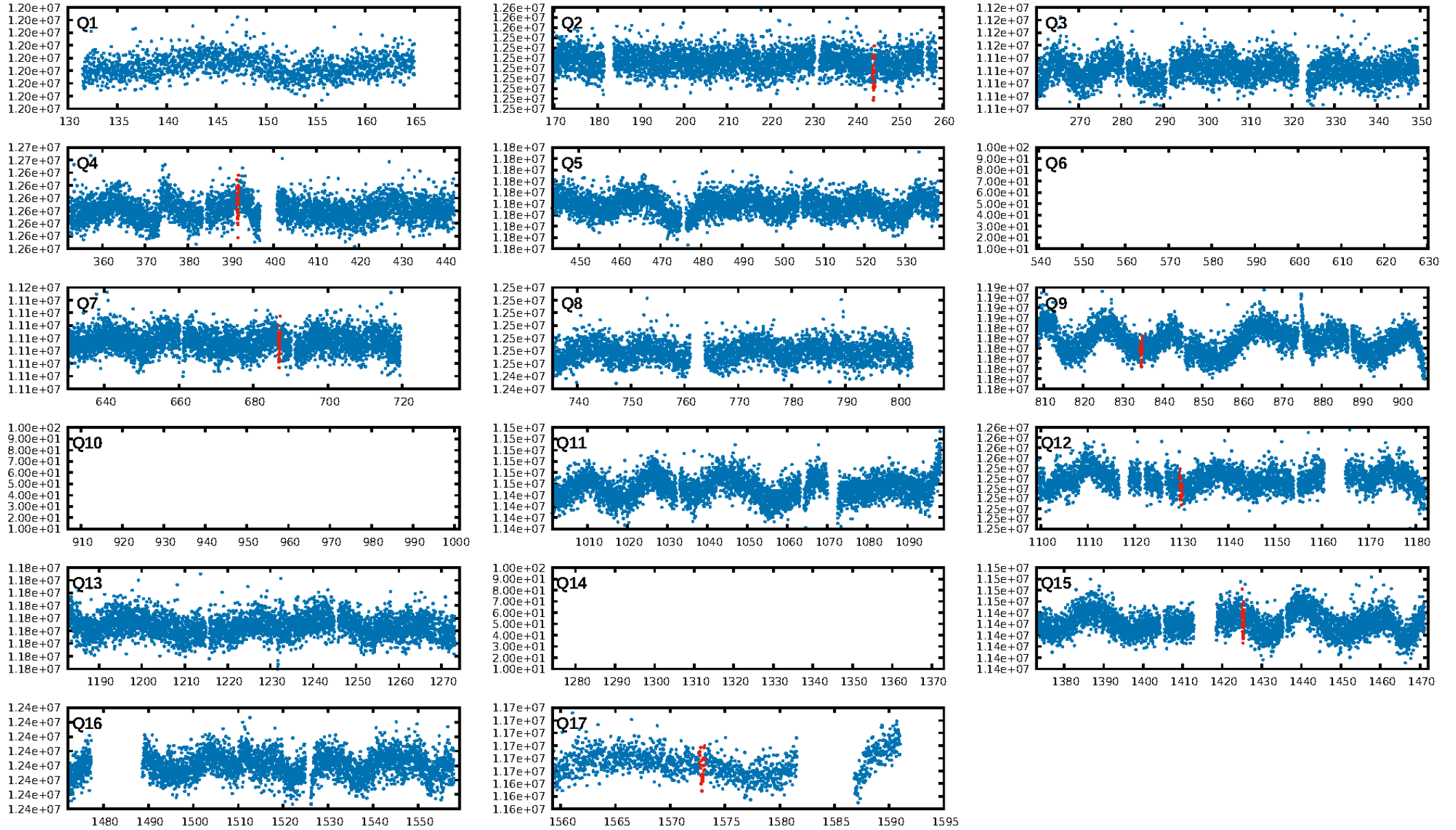
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 85.1%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 1.90e-24
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -17.19
Centroid-sig: 35.2%
Centroid-so: 1.174 arcsec [1.17σ]
OotOffset-rm: 0.684 arcsec [2.25σ]
OotOffset-st: 1/2/1/2 [6]
KicOffset-rm: 0.922 arcsec [3.20σ]
KicOffset-st: 1/2/1/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

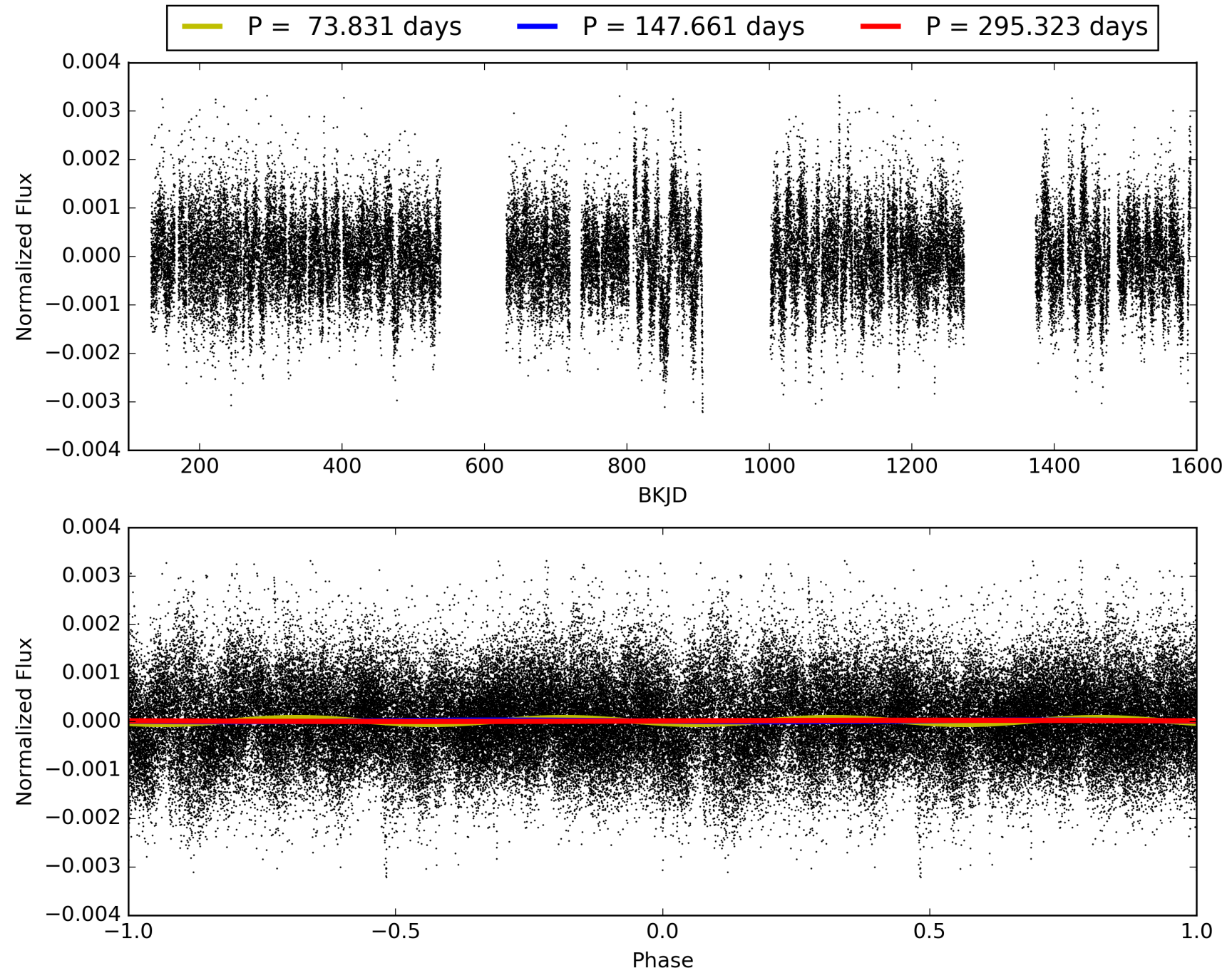
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:07:41 Z

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

TCE 004172805-01, PDC Light Curves

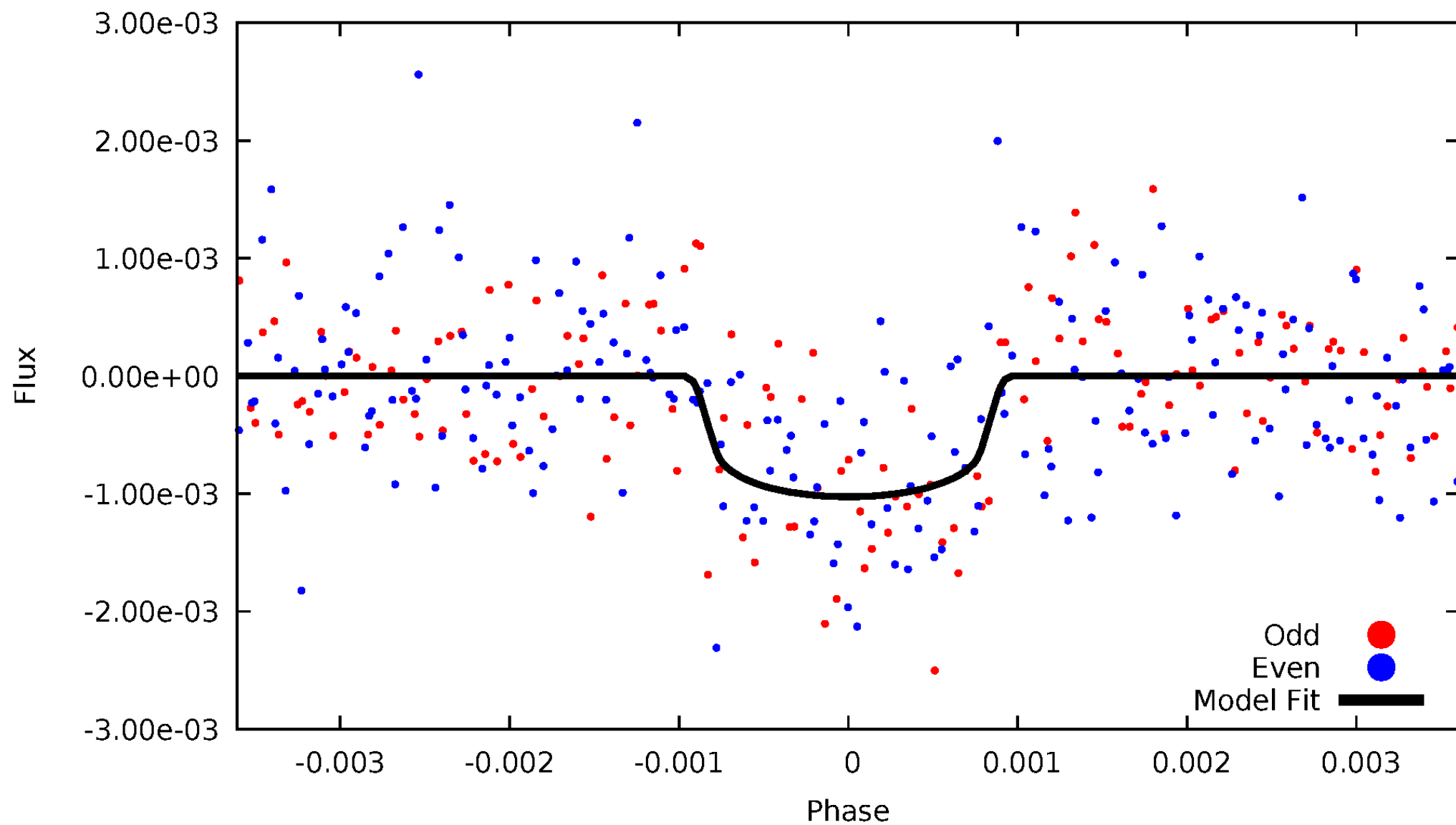


TCE 004172805-01



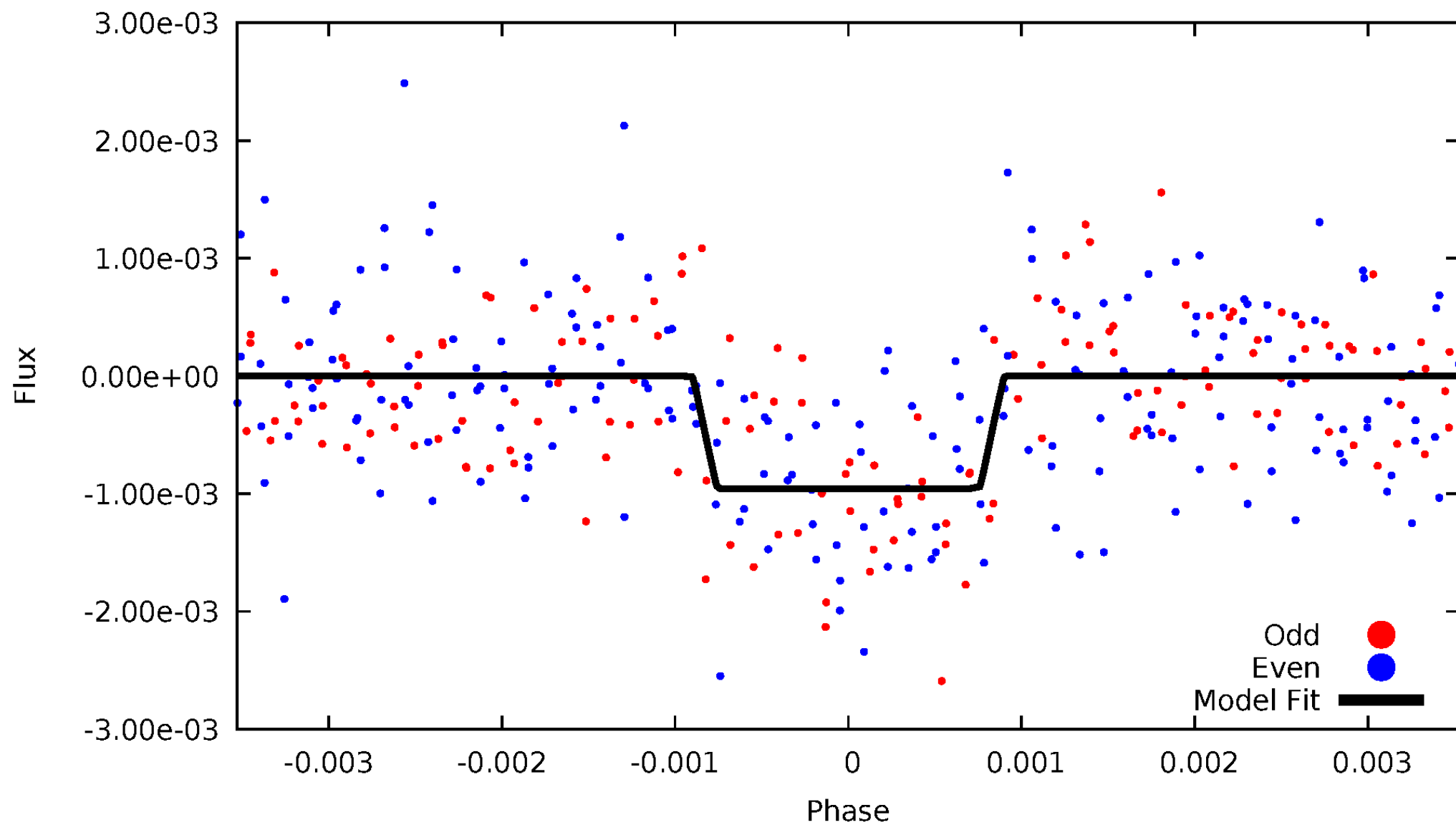
DV Odd/Even

TCE 004172805-01



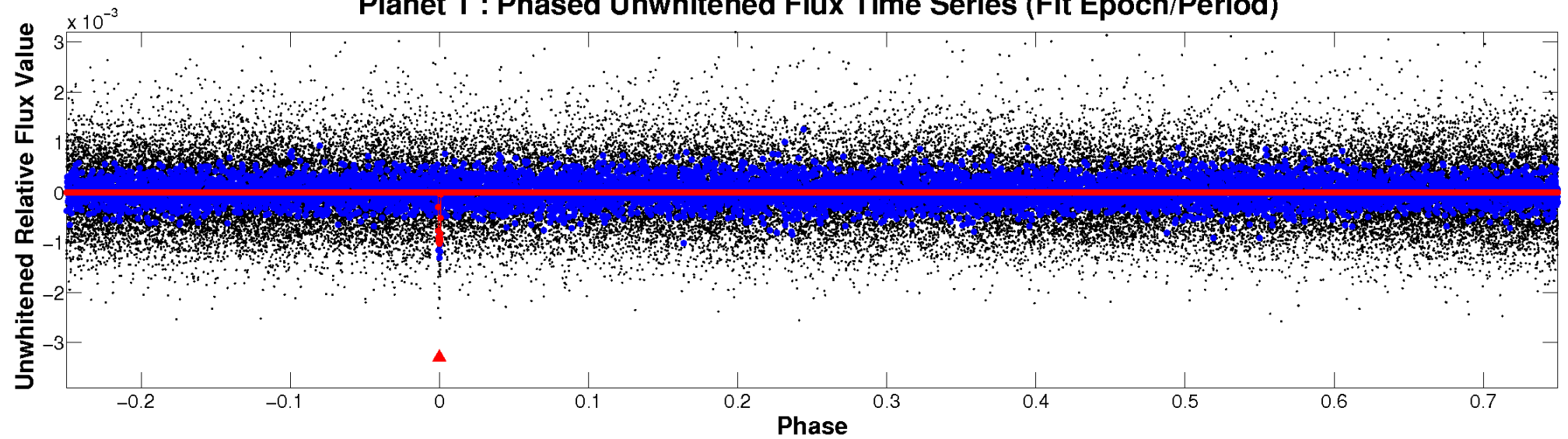
ALT Odd/Even

TCE 004172805-01

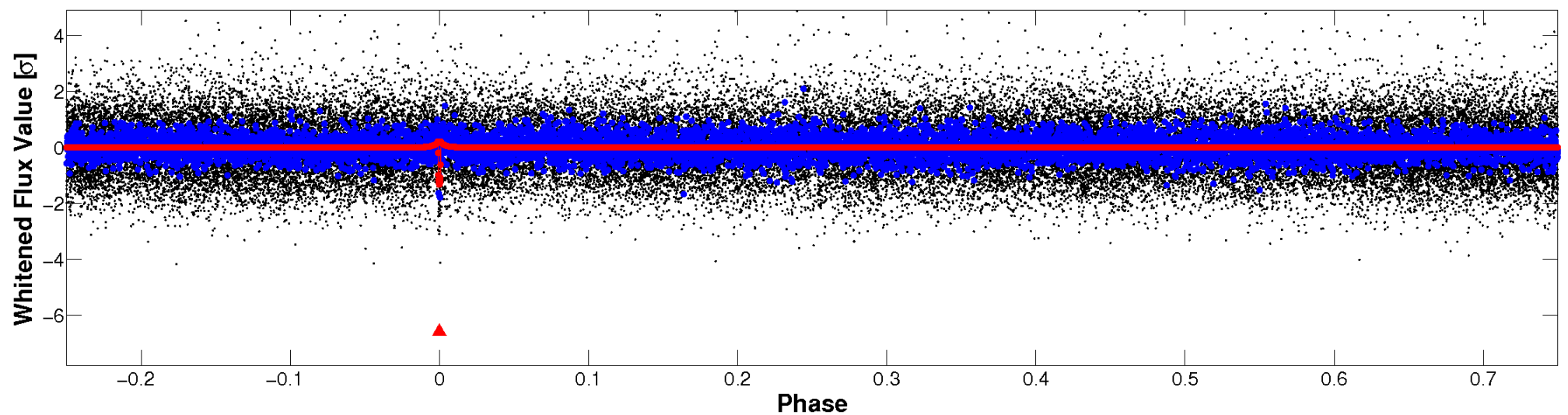


Non-Whitened Vs. Whitened Light Curve

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

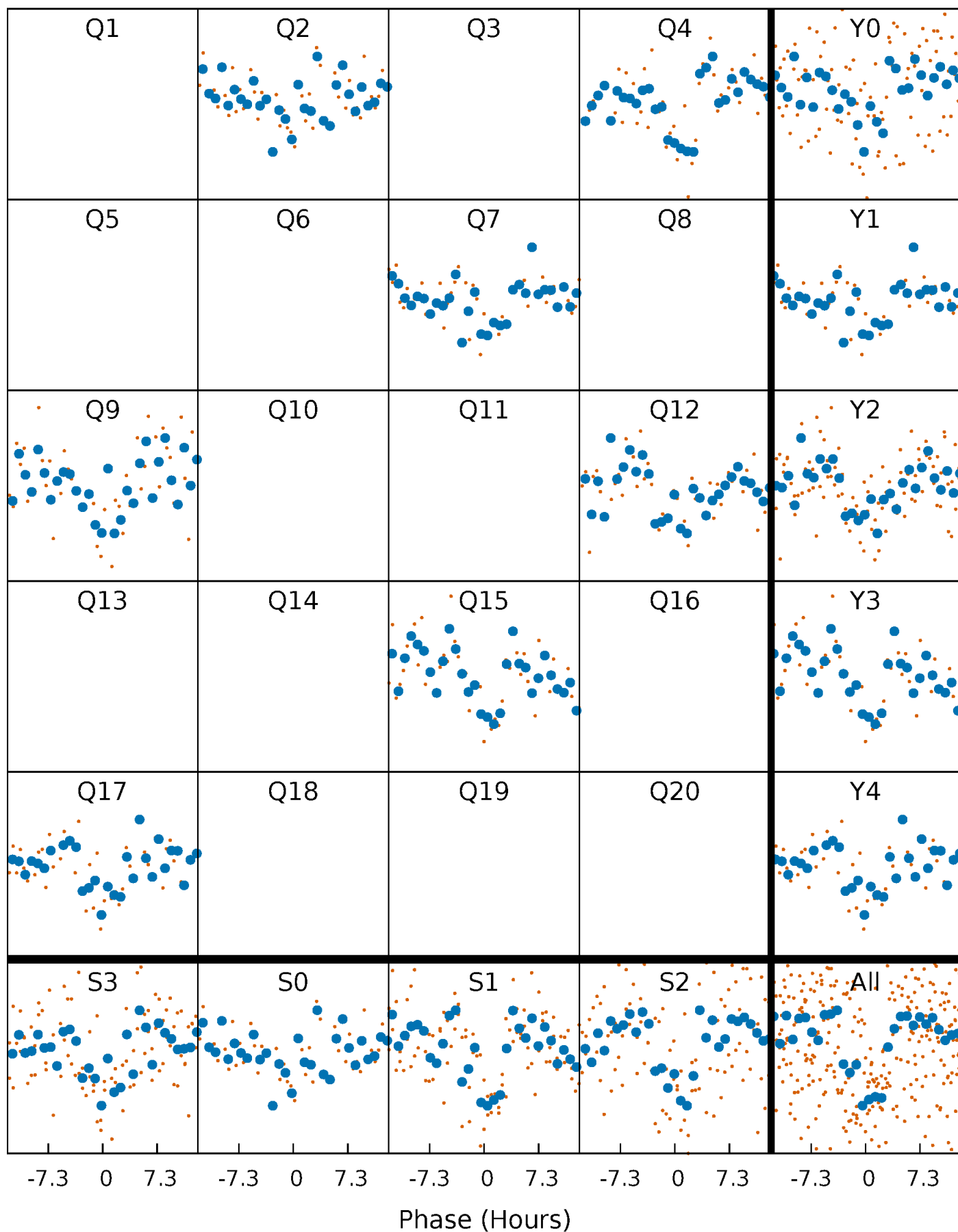


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



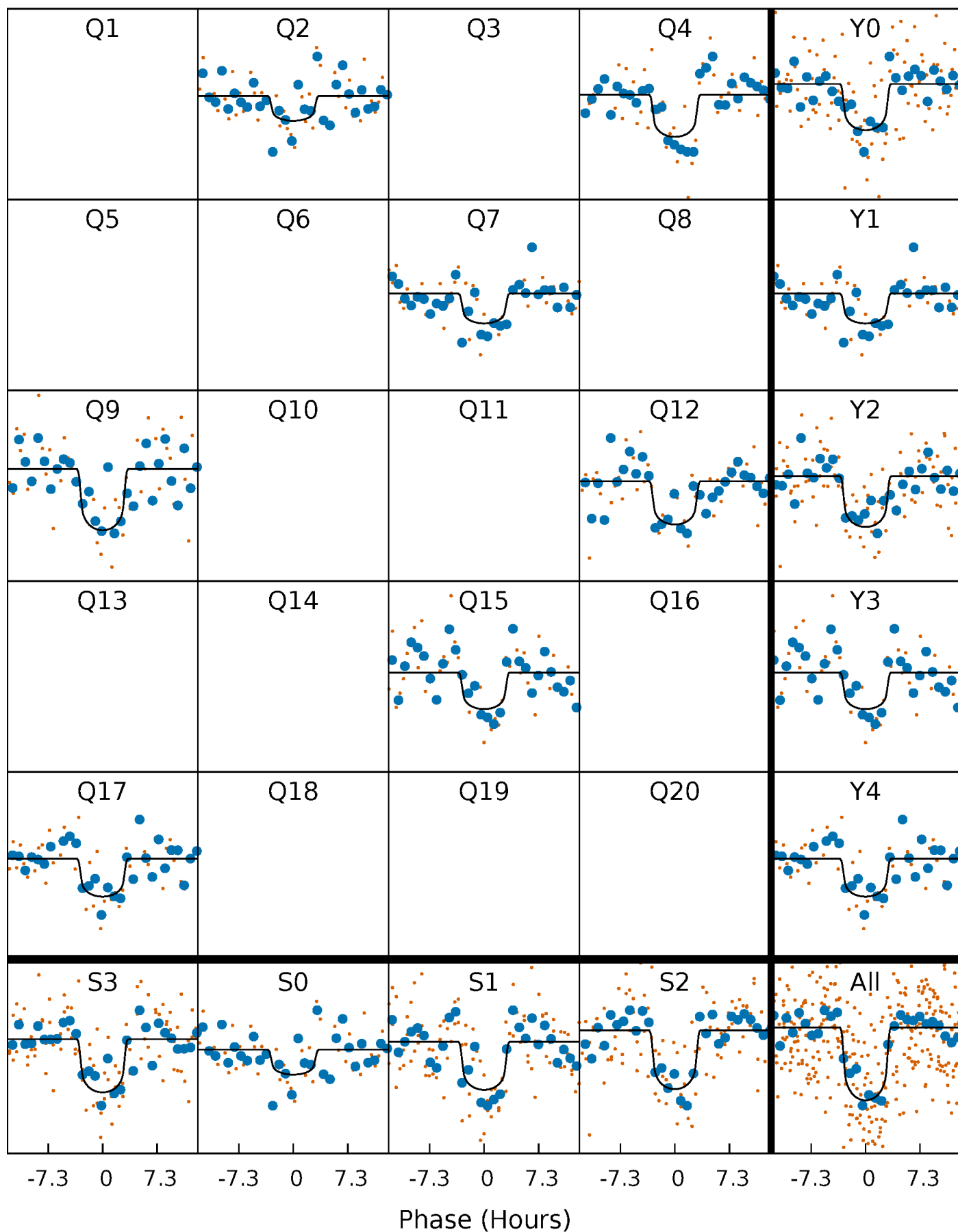
PDC Quarter-Phased Transit Curves

TCE 004172805-01 P=147.661498 Days $T_0=243.952893$ (BKJD)



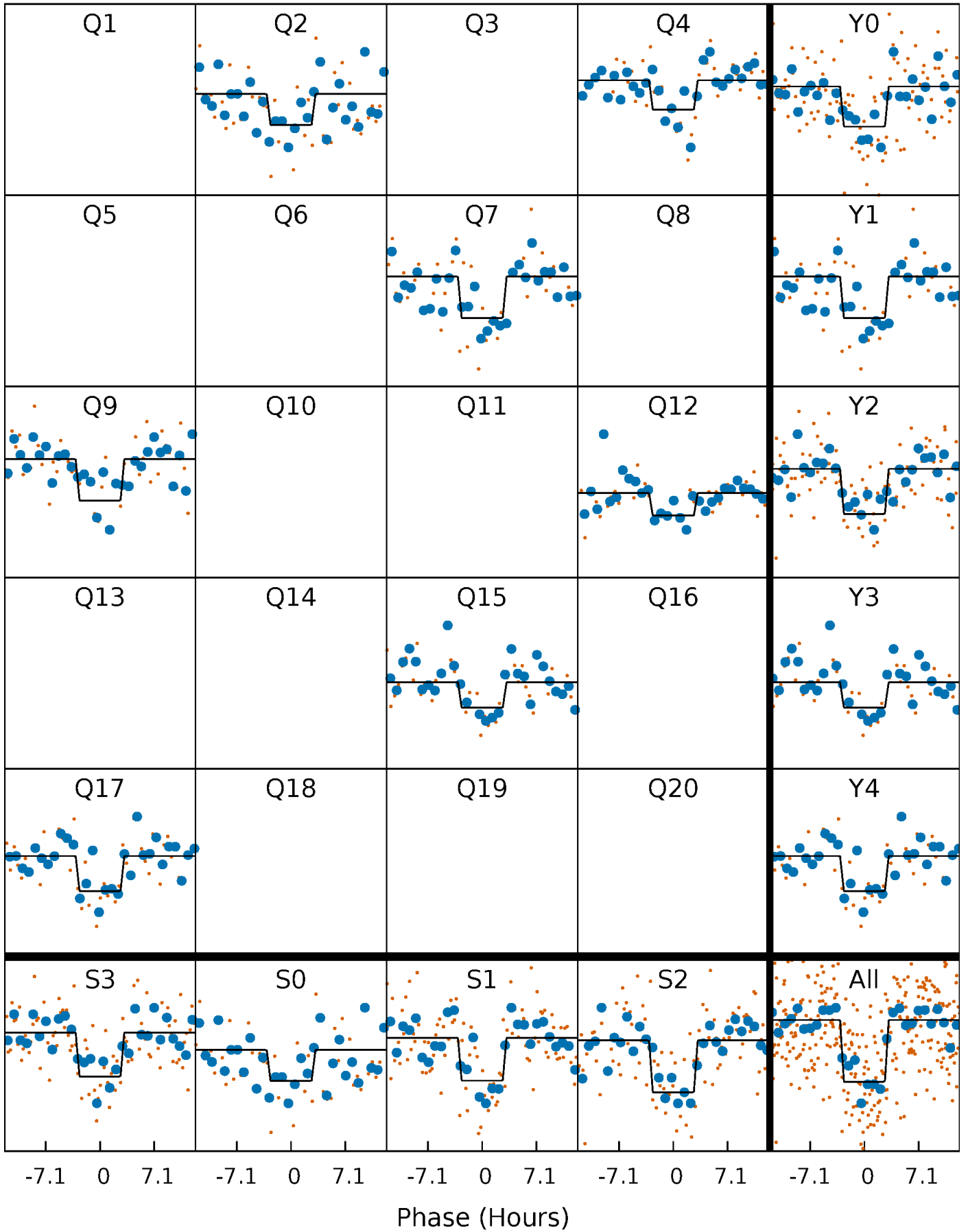
DV Quarter-Phased Transit Curves

TCE 004172805-01 P=147.661498 Days $T_0=243.952893$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

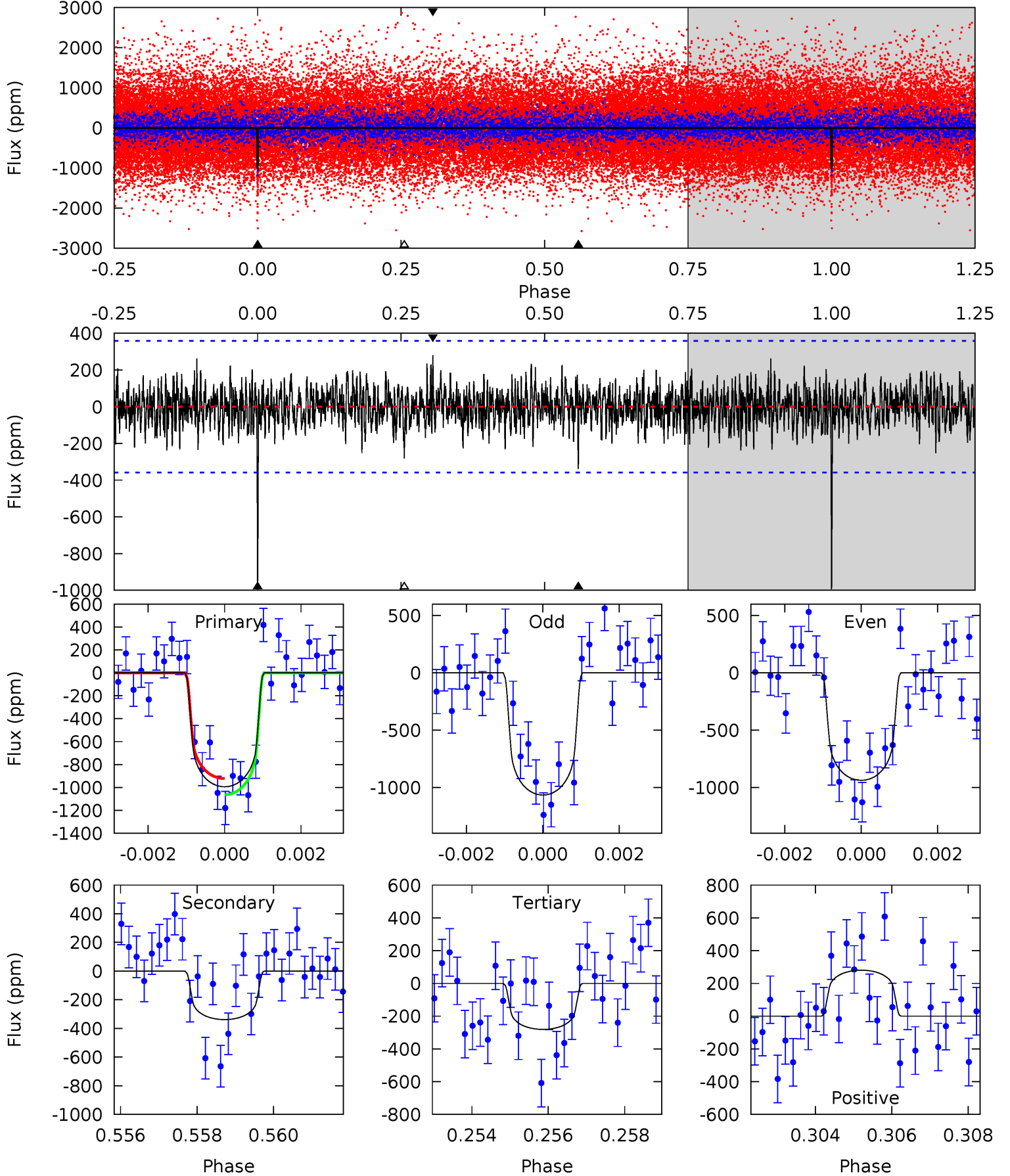
TCE 004172805-01 P=147.663086 Days $T_0=243.947184$ (BKJD)



DV Model-Shift Uniqueness Test

004172805-01, $P = 147.661498$ Days, $E = 96.291395$ Days

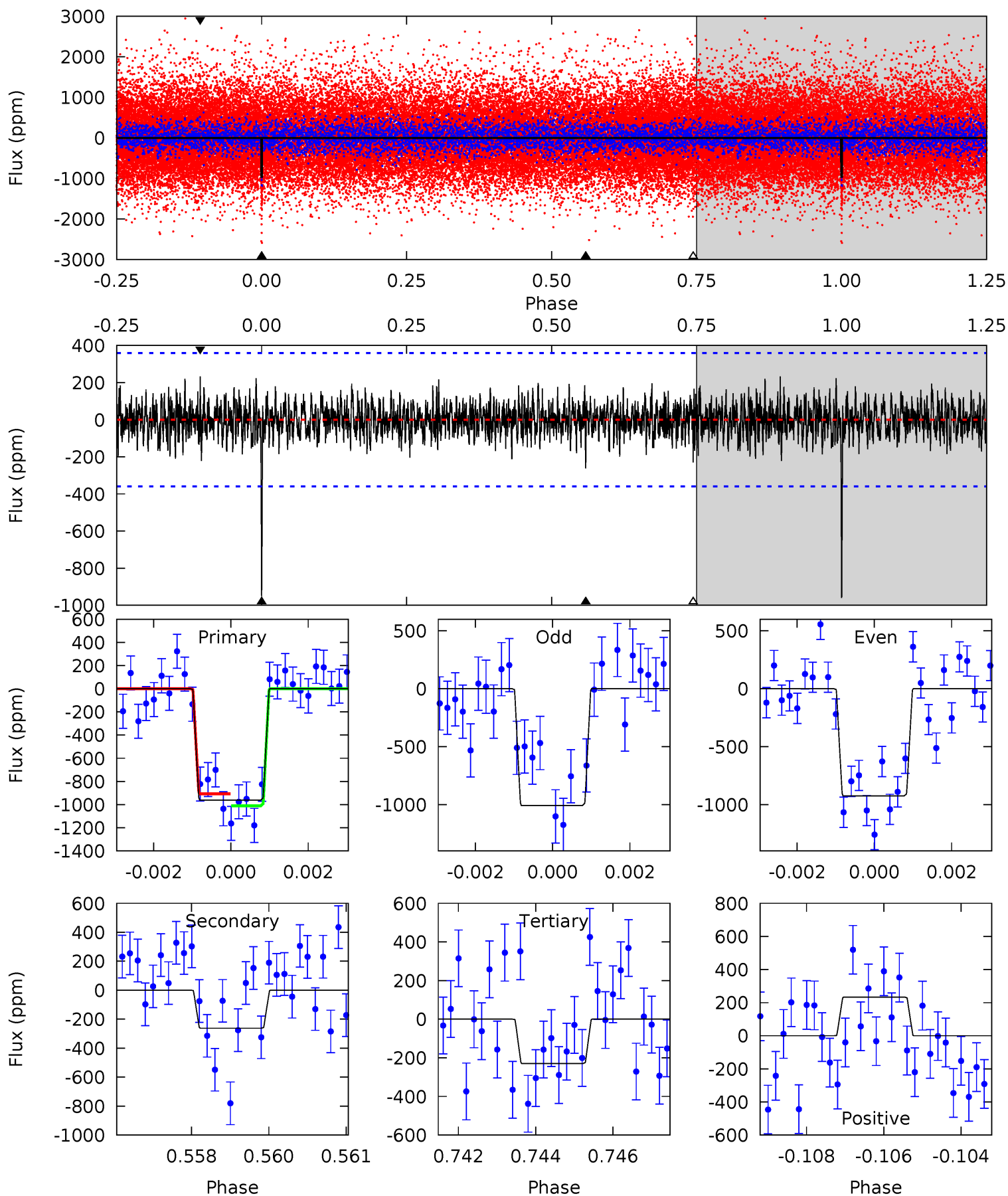
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	5.04	4.19	4.18	5.34	3.11	1.19	10.6	10.6	0.85	0.86	0.96	0.97	0.22	1.06



Alt Model-Shift Uniqueness Test

004172805-01, P = 147.663086 Days, E = 96.284098 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	3.91	3.41	3.47	5.34	3.12	1.02	10.9	10.8	0.49	0.43	0.61	1.00	0.20	0.77



Stellar Parameters For KIC 004172805

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3788^{+76}_{-84}	$4.774^{+0.036}_{-0.040}$	$-0.100^{+0.150}_{-0.150}$	$0.490^{+0.037}_{-0.041}$	$0.520^{+0.034}_{-0.042}$	$6.230^{+1.167}_{-0.982}$
	+2%/-2%	+1%/-1%	+150%/-150%	+8%/-8%	+7%/-8%	+19%/-16%
Source	SPE70	PHO2	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 004172805-01 / KOI 4427.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-338 ± 67	$1.68^{+0.67}_{-0.65}$	247^{+6}_{-6}	3191^{+527}_{-317}	12549^{+20481}_{-6307}
Alt.	-262 ± 67	$1.66^{+0.63}_{-0.63}$	247^{+7}_{-7}	3091^{+493}_{-308}	10051^{+16619}_{-5408}

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 $A_{obs} \gg 1.0$

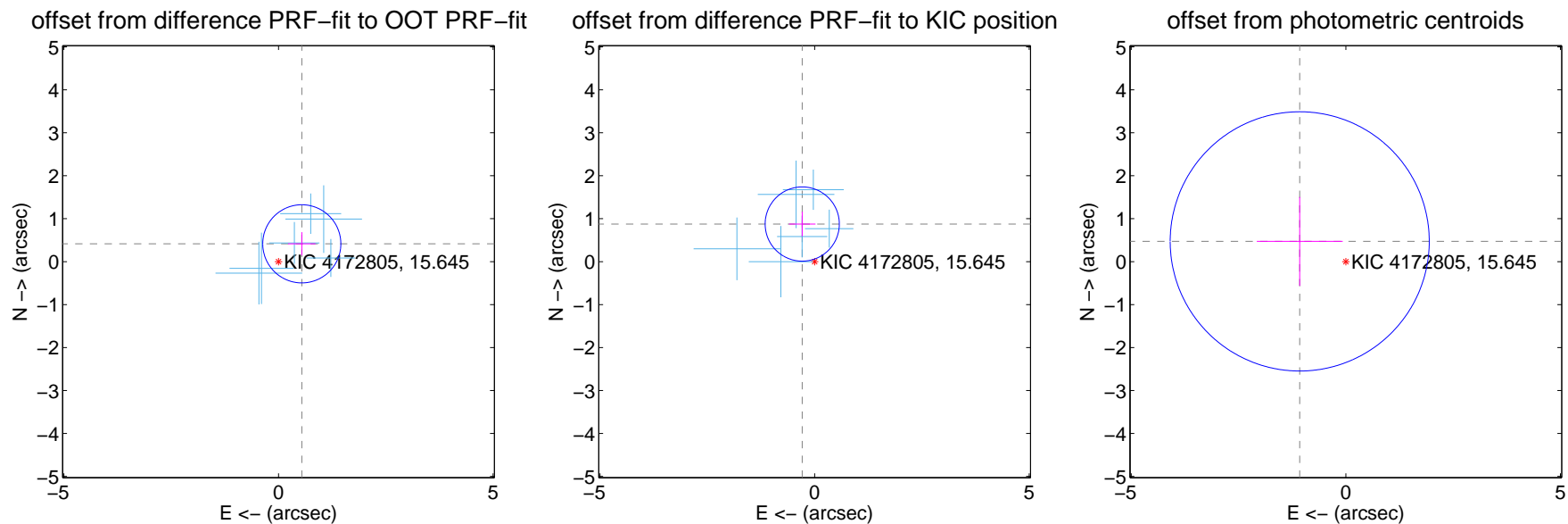
DV Centroid Data

Supplemental centroid analysis for 004172805-01. Kepler magnitude: 15.64. Transit SNR 10.63

There are 6 quarters with good PRF difference image offsets

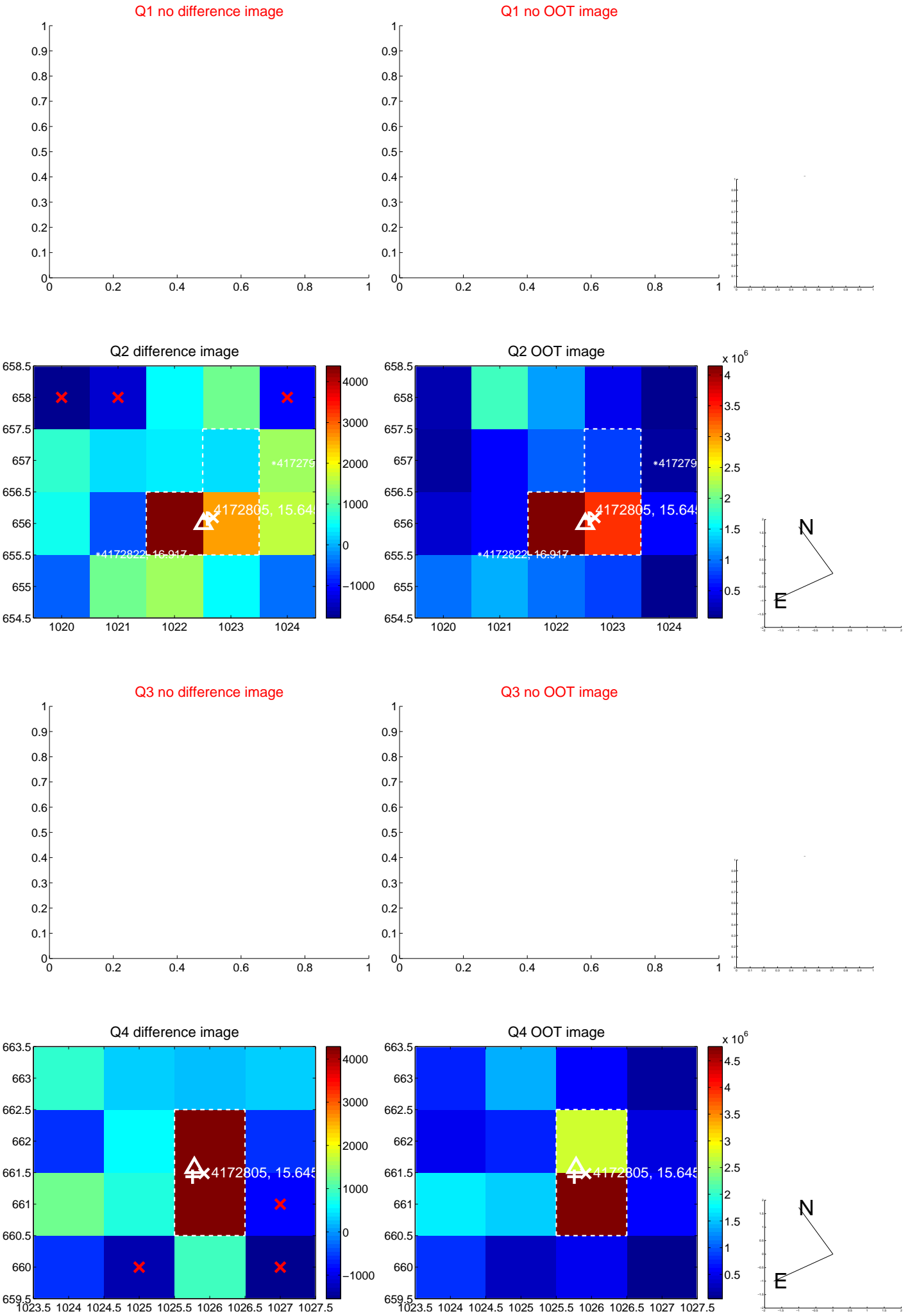
The direct PRF centroid is offset from the target star catalog position by about 1.59 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.684 ± 0.303	2.25	-0.543 ± 0.320	0.415 ± 0.271
PRF-fit source offset from KIC position	0.922 ± 0.288	3.20	0.288 ± 0.308	0.876 ± 0.286
photometric centroid source offset	1.17 ± 1.01	1.17	1.07 ± 1.00	0.47 ± 1.03

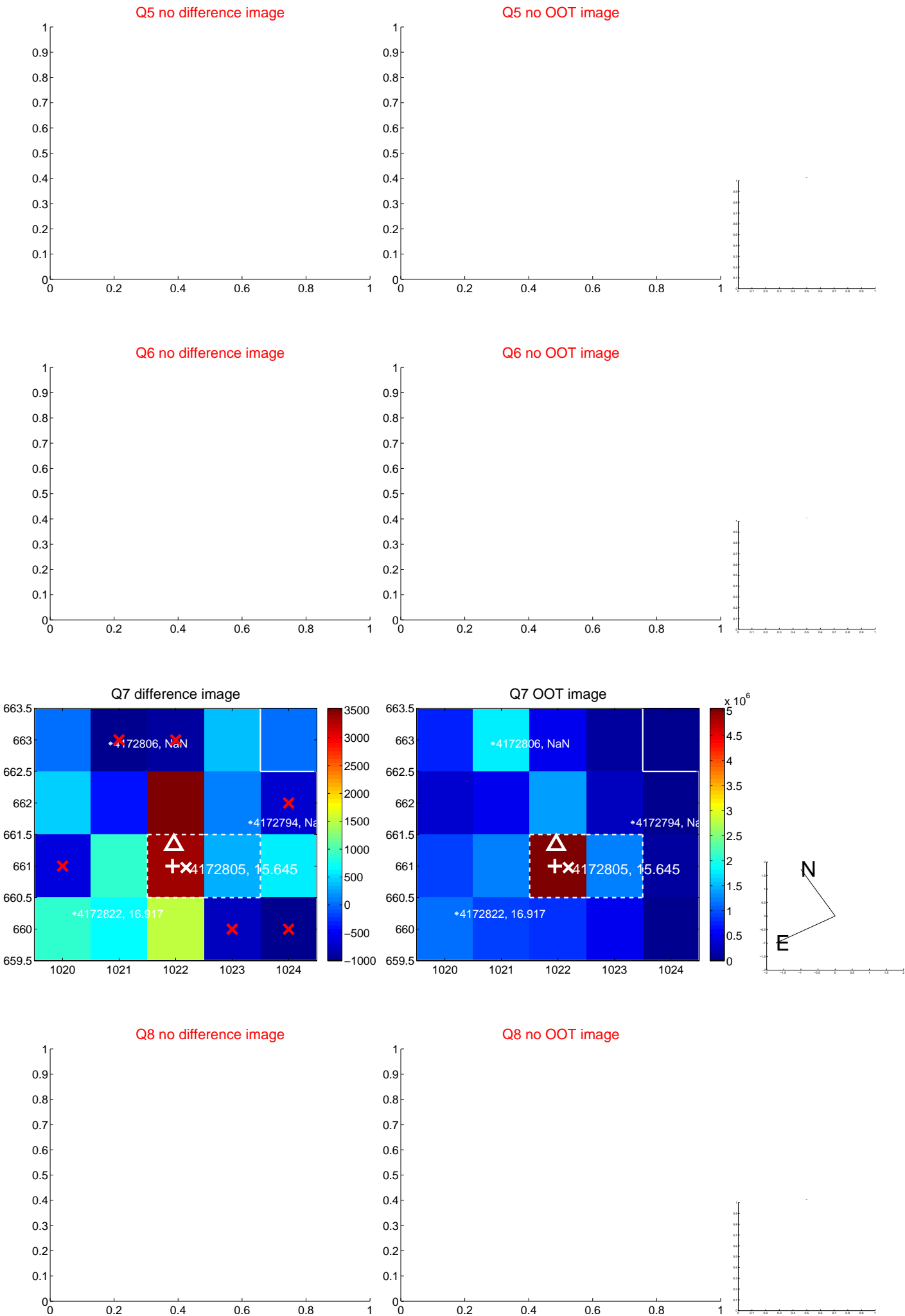


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

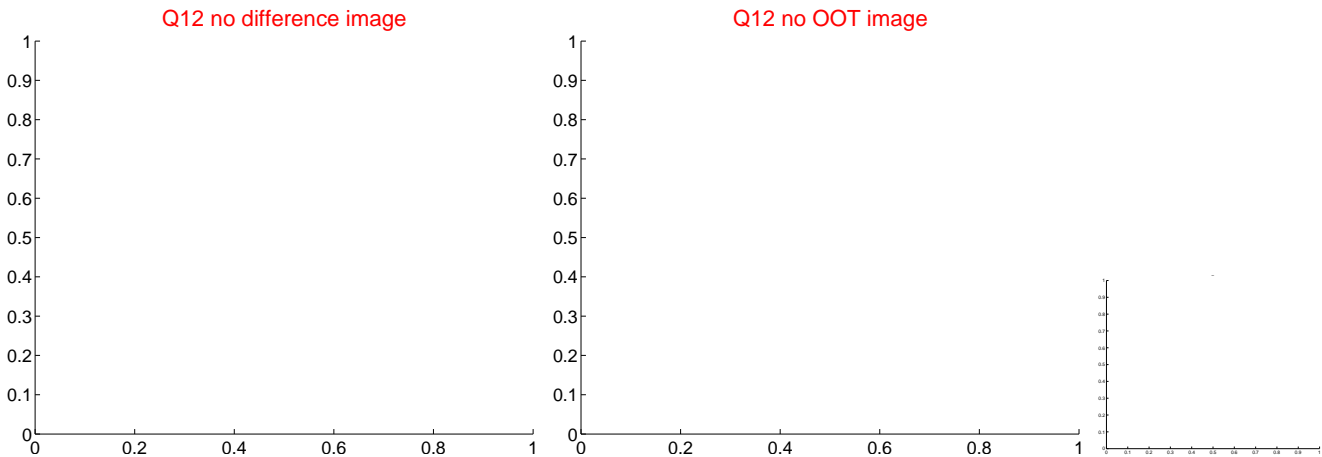
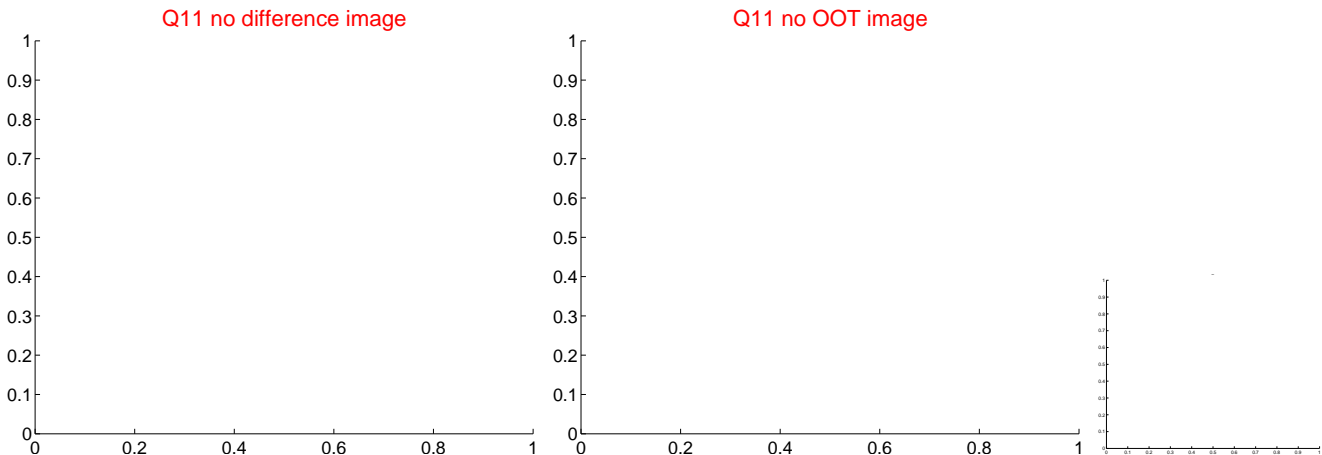
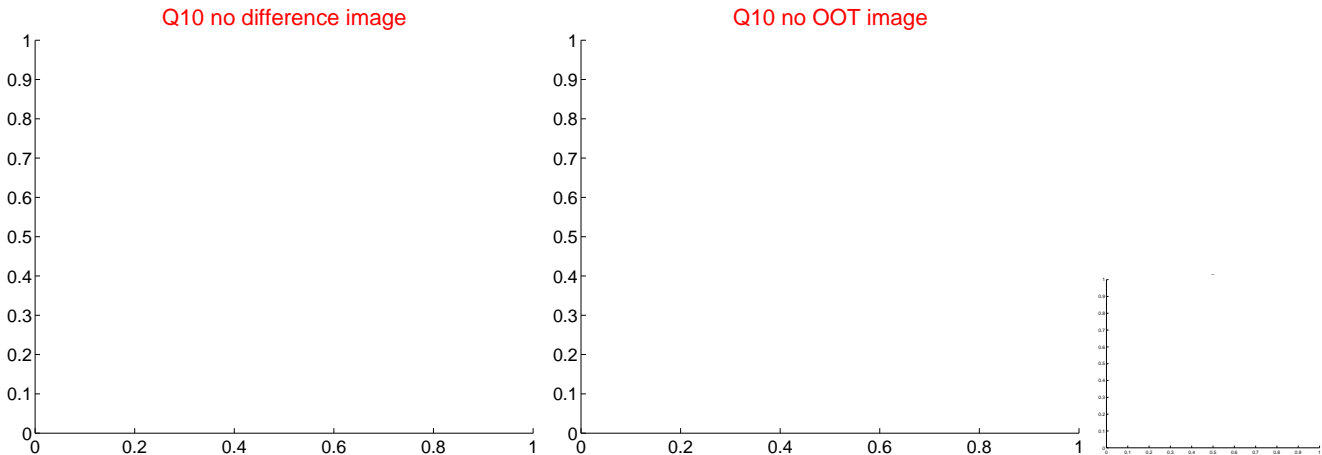
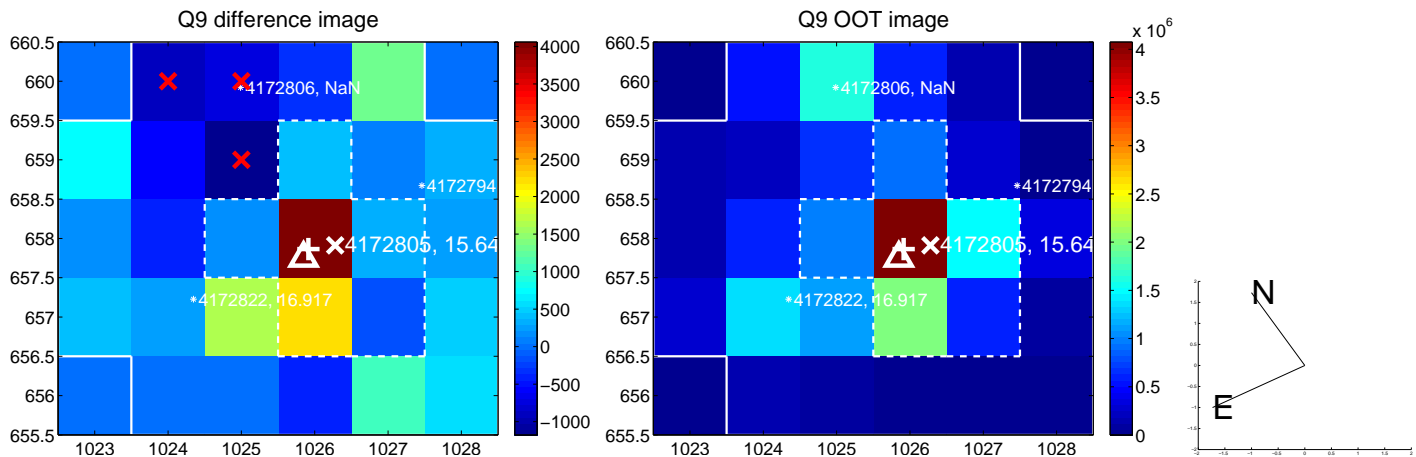
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



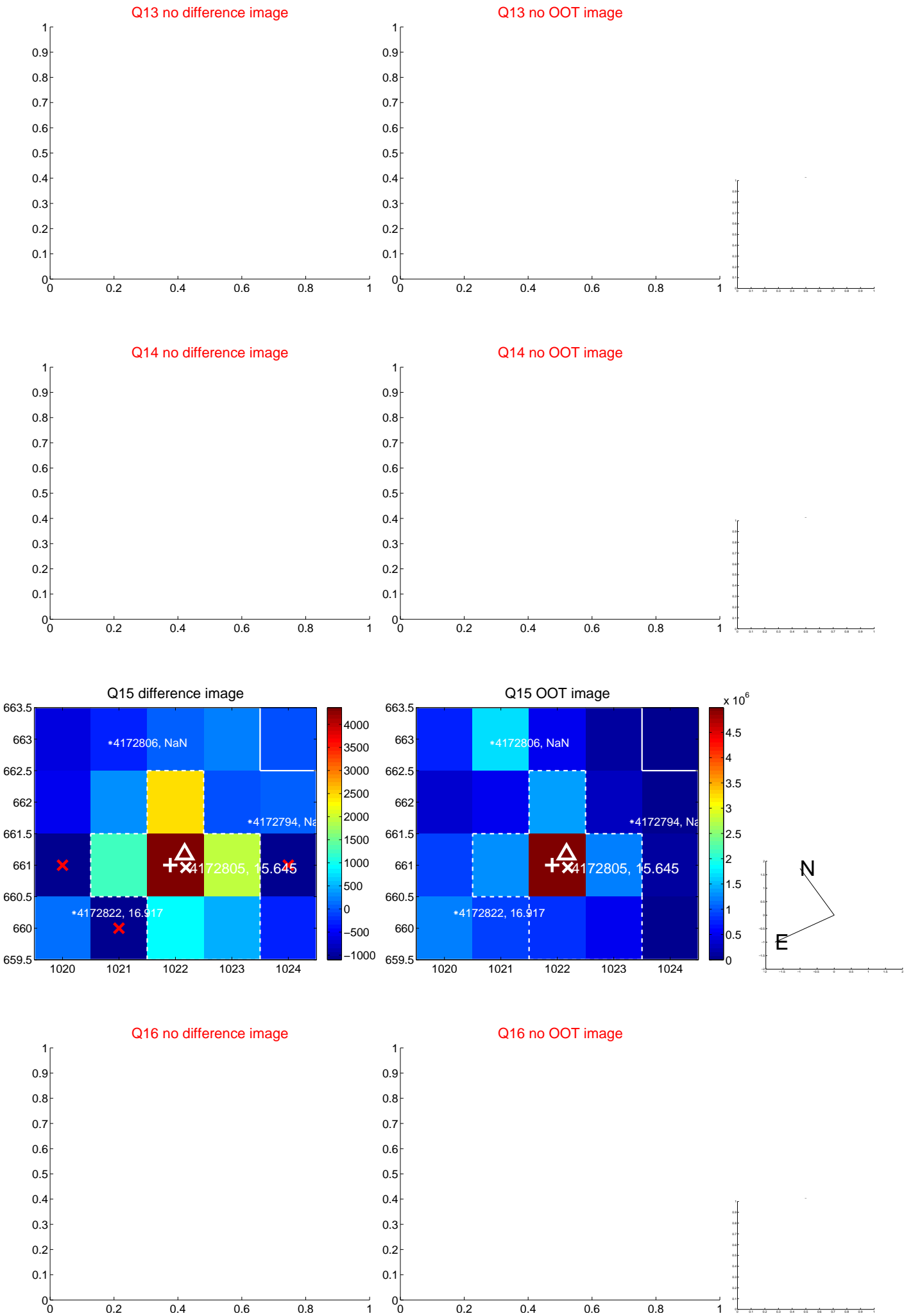
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



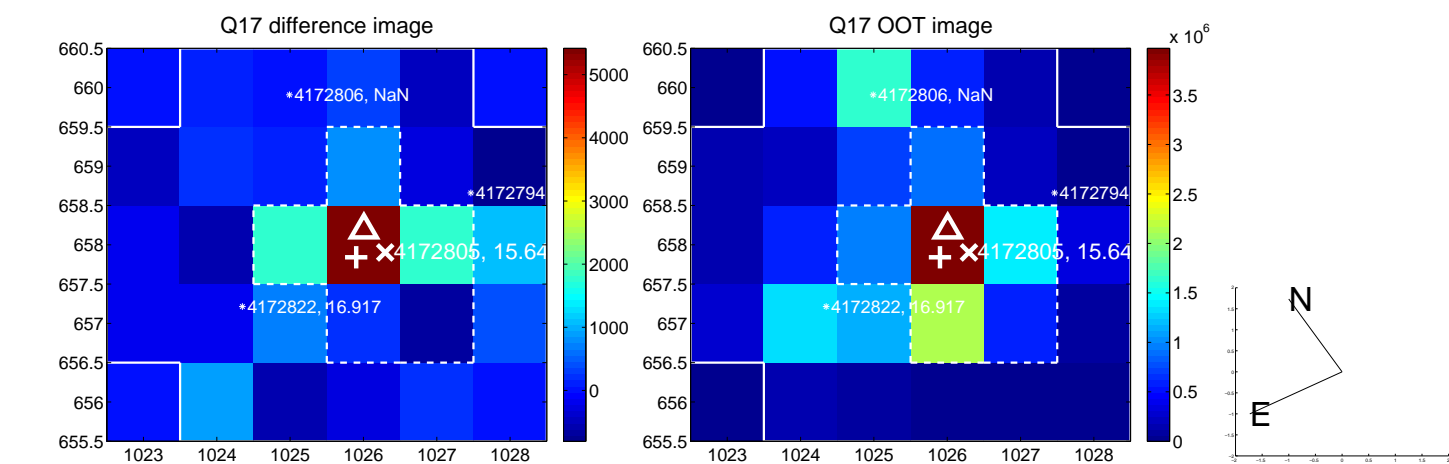
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



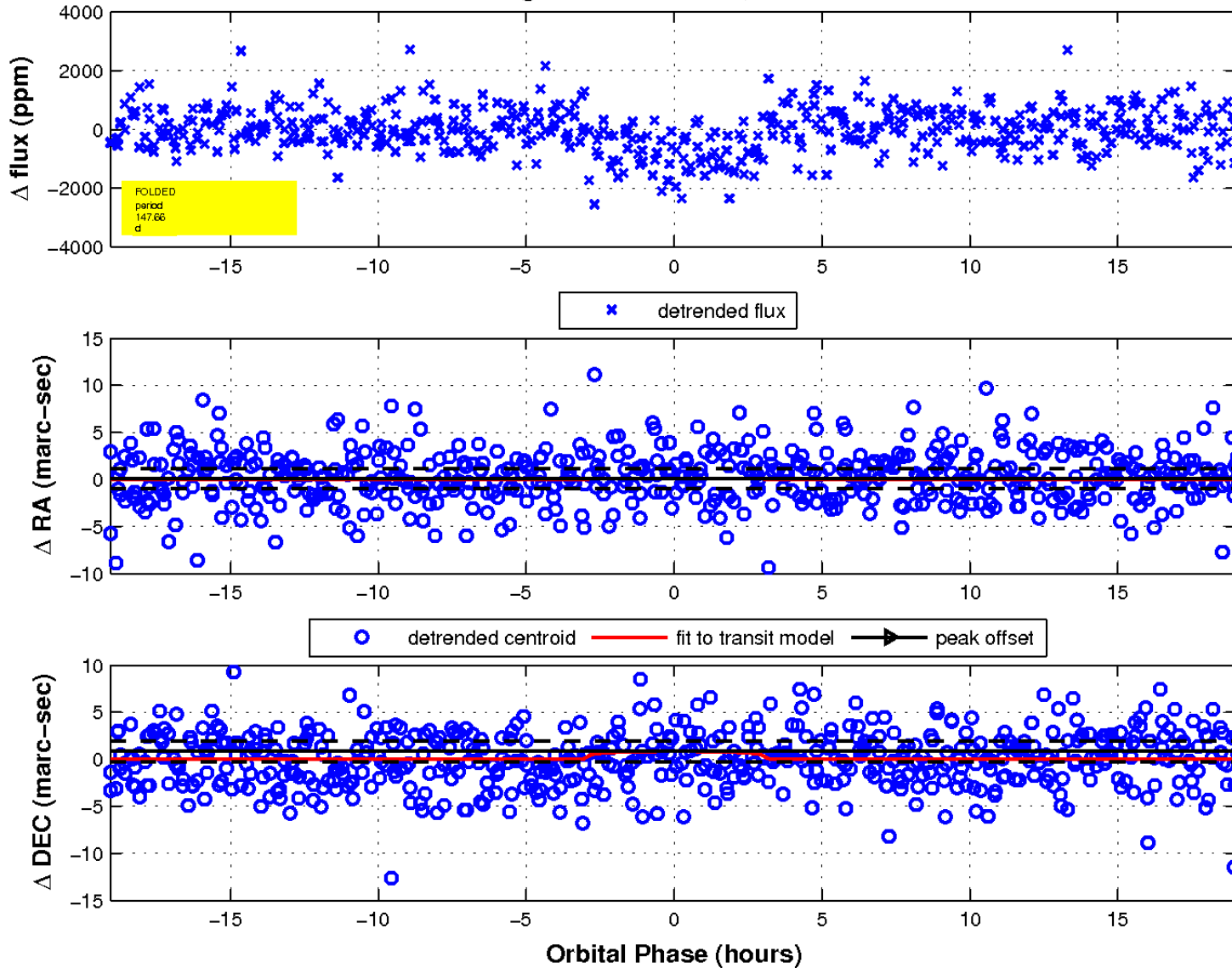
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

