

KIC 009406089

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})
009406089-01	OBS	No	392.051723	244.661001	313.9	12.629	7.1	7.3	1.78	5188	3.53	2.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009406089-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

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

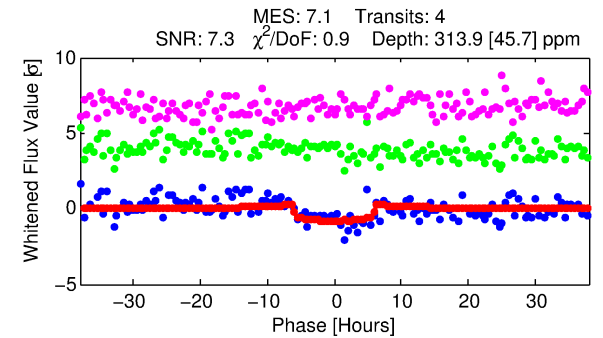
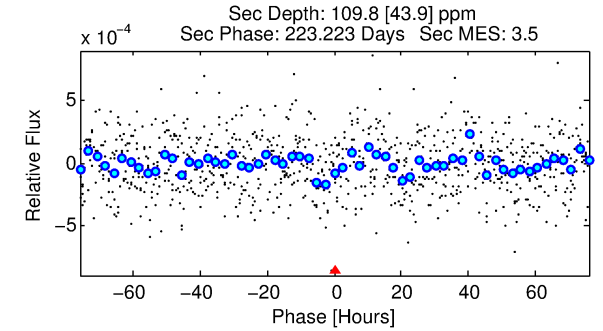
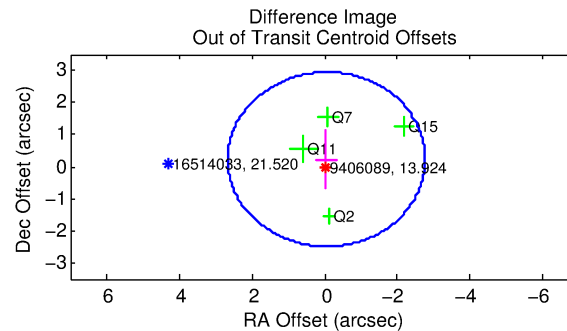
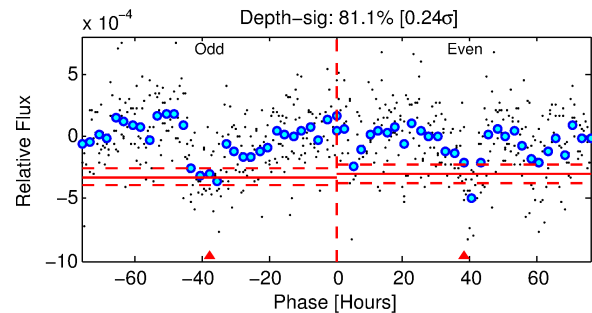
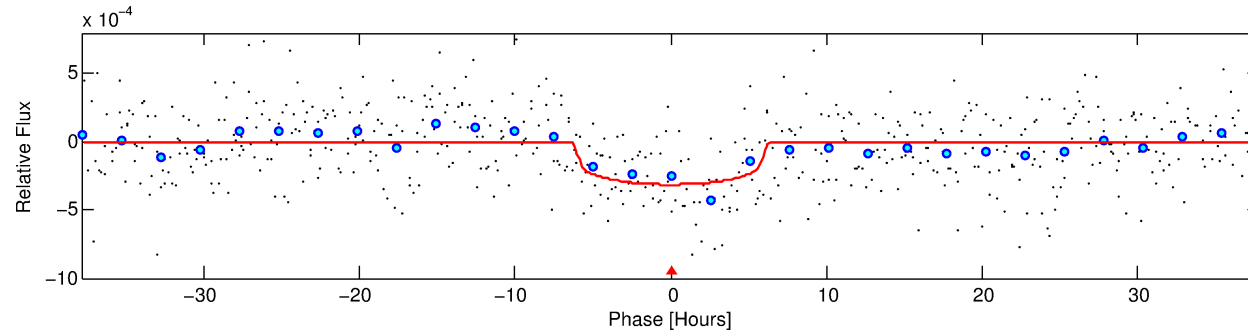
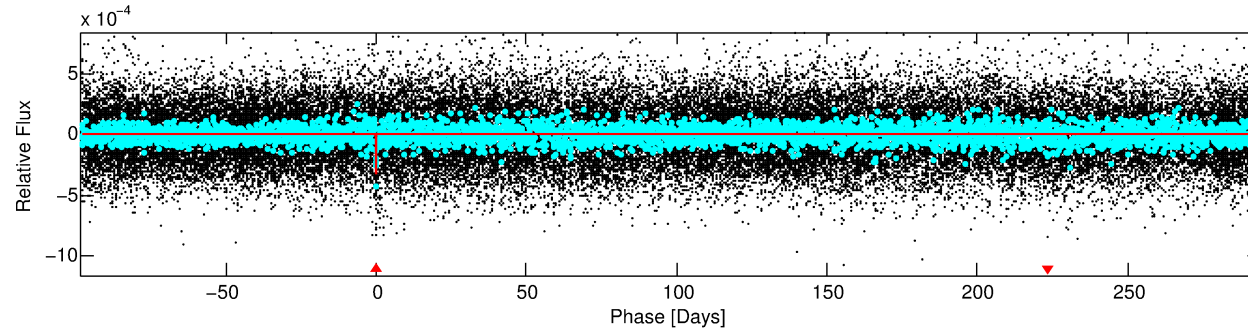
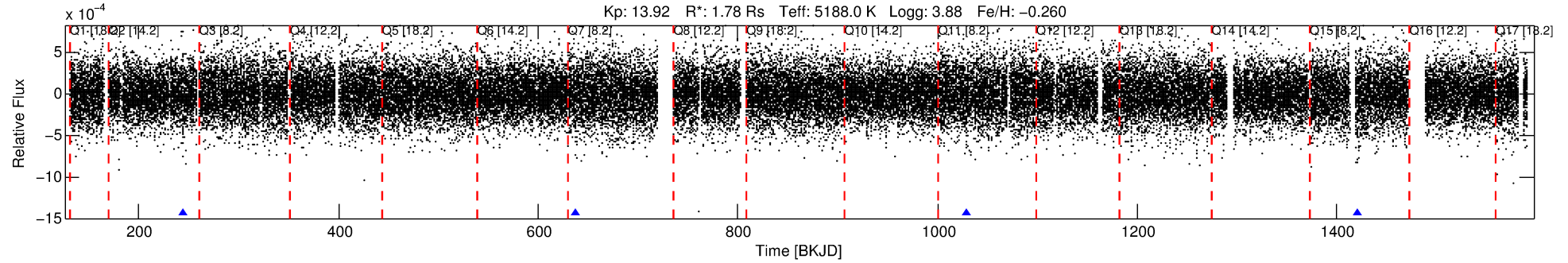
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009406089-01

No Significant Match Found

DV One-Page Summary

KIC: 9406089 Candidate: 1 of 1 Period: 392.052 d



DV Fit Results:

Period = 392.05172 [0.01062] d
Epoch = 244.6610 [0.0184] BKJD
Rp/R* = 0.0182 [0.0056]
a/R* = 146.65 [175.01]
b = 0.81 [0.52]
Seff = 2.05 [2.34]
Teq = 305 [87] K
Rp = 3.53 [2.45] Re
a = 1.0001 [0.6723] AU
Ag = 4851.24 [6564.95] [0.74 σ]
Teffp = 3937 [733] K [4.92 σ]

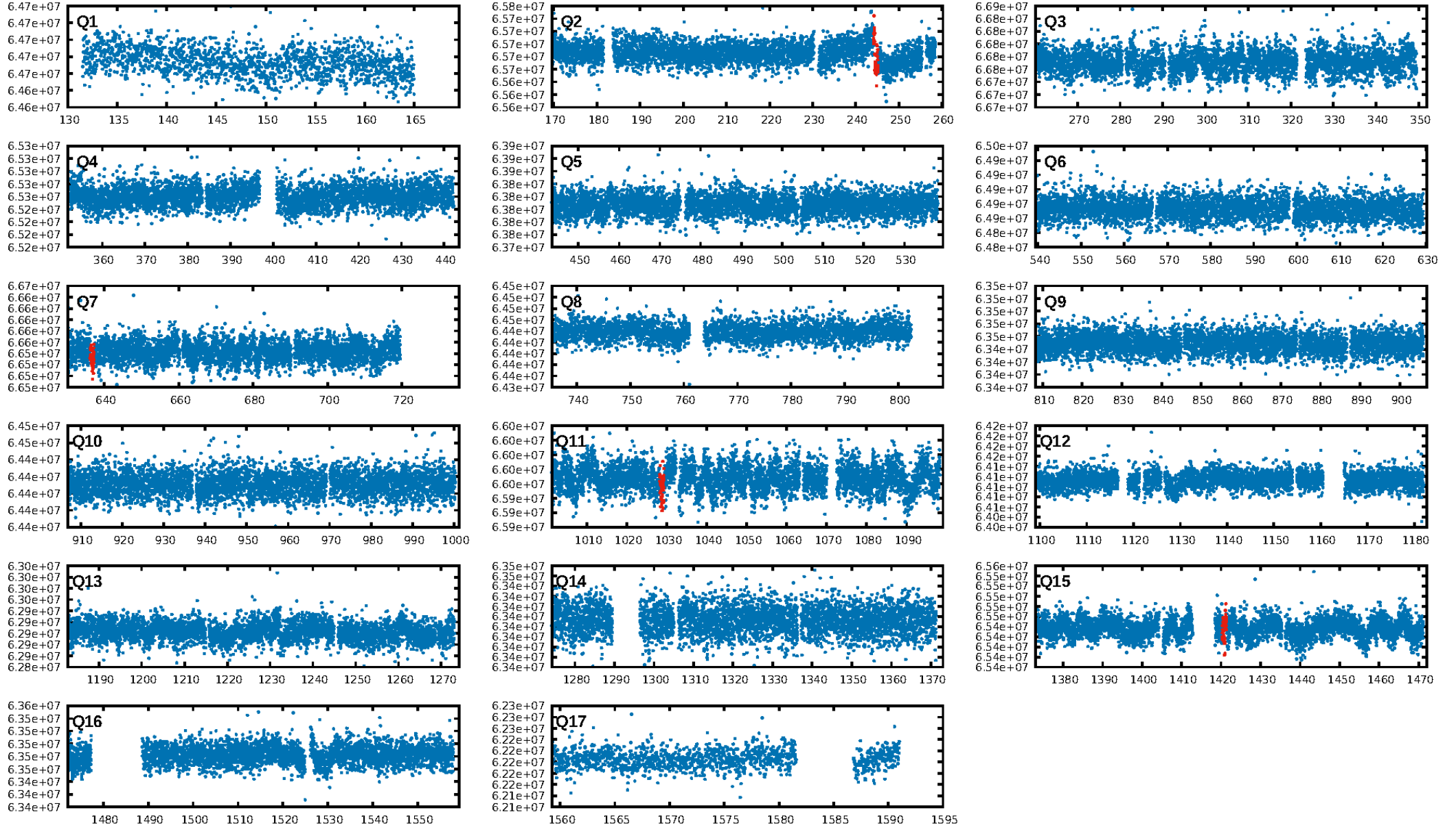
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 38.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.26e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 9.263
Centroid-sig: 2.6%
Centroid-so: 2.172 arcsec [1.99 σ]
OotOffset-rm: 0.233 arcsec [0.26 σ]
KicOffset-rm: 0.369 arcsec [0.39 σ]
OotOffset-st: 1/3/0/0 [4]
KicOffset-st: 1/3/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

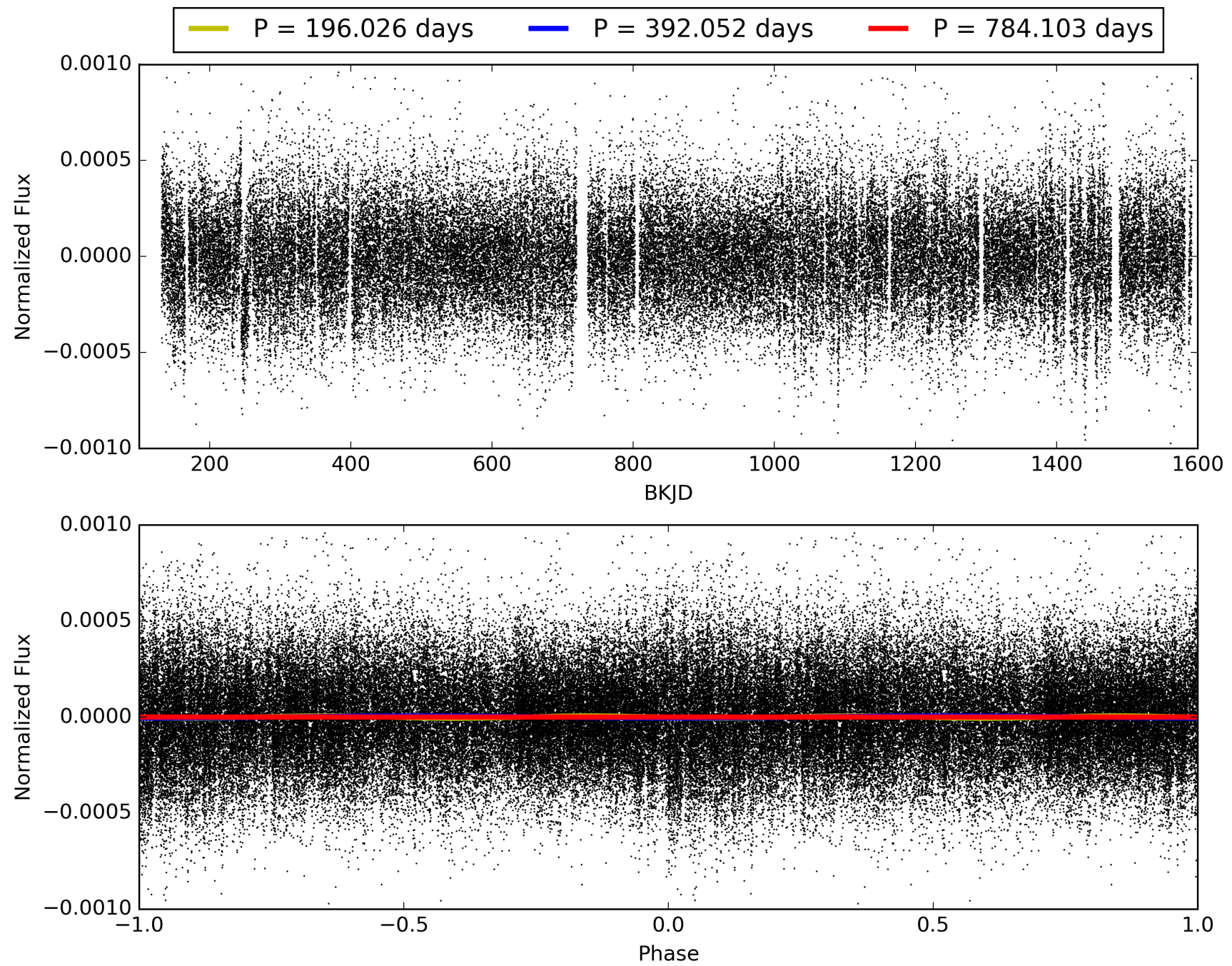
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:57:20 Z

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

TCE 009406089-01, PDC Light Curves

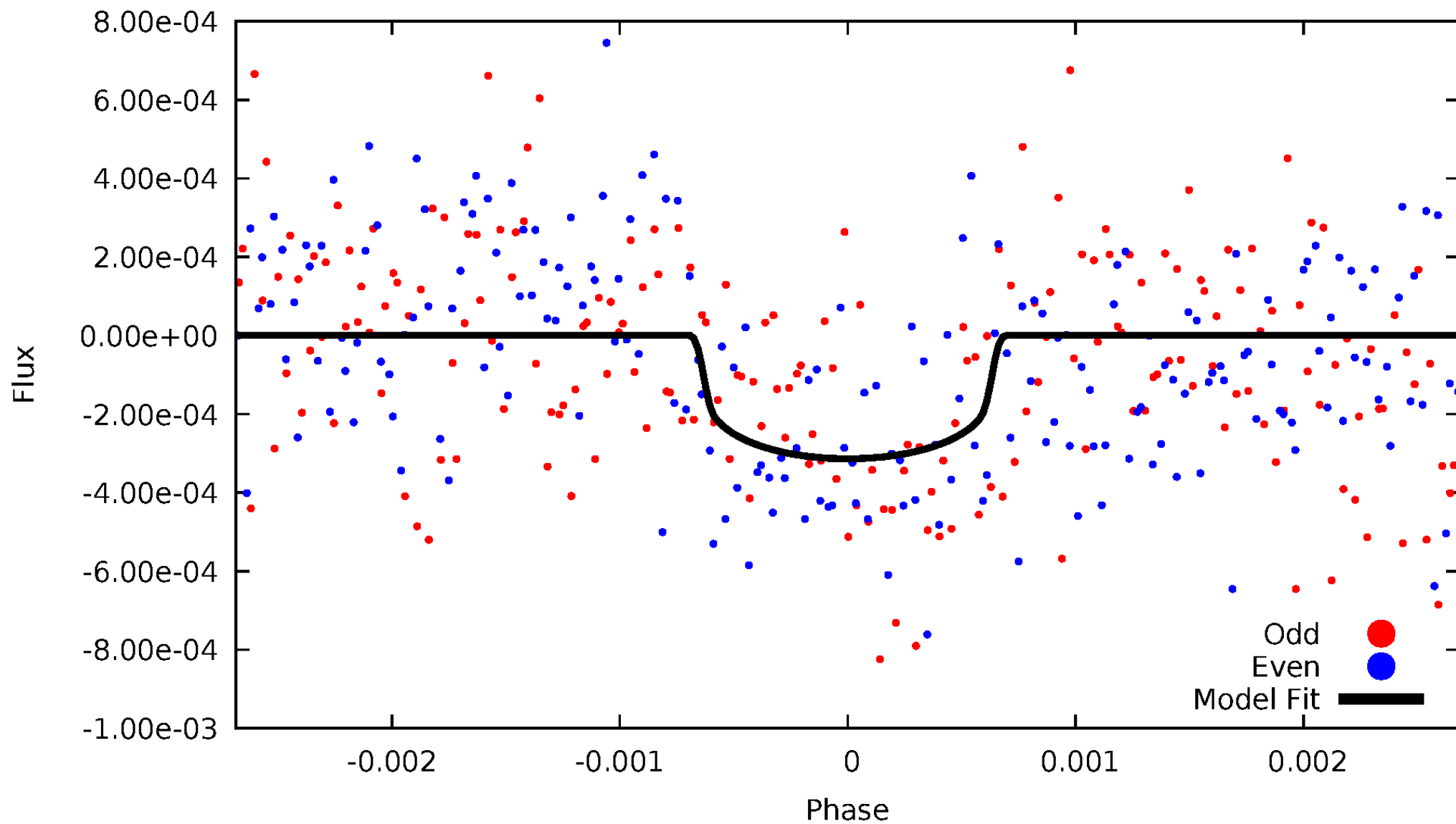


TCE 009406089-01



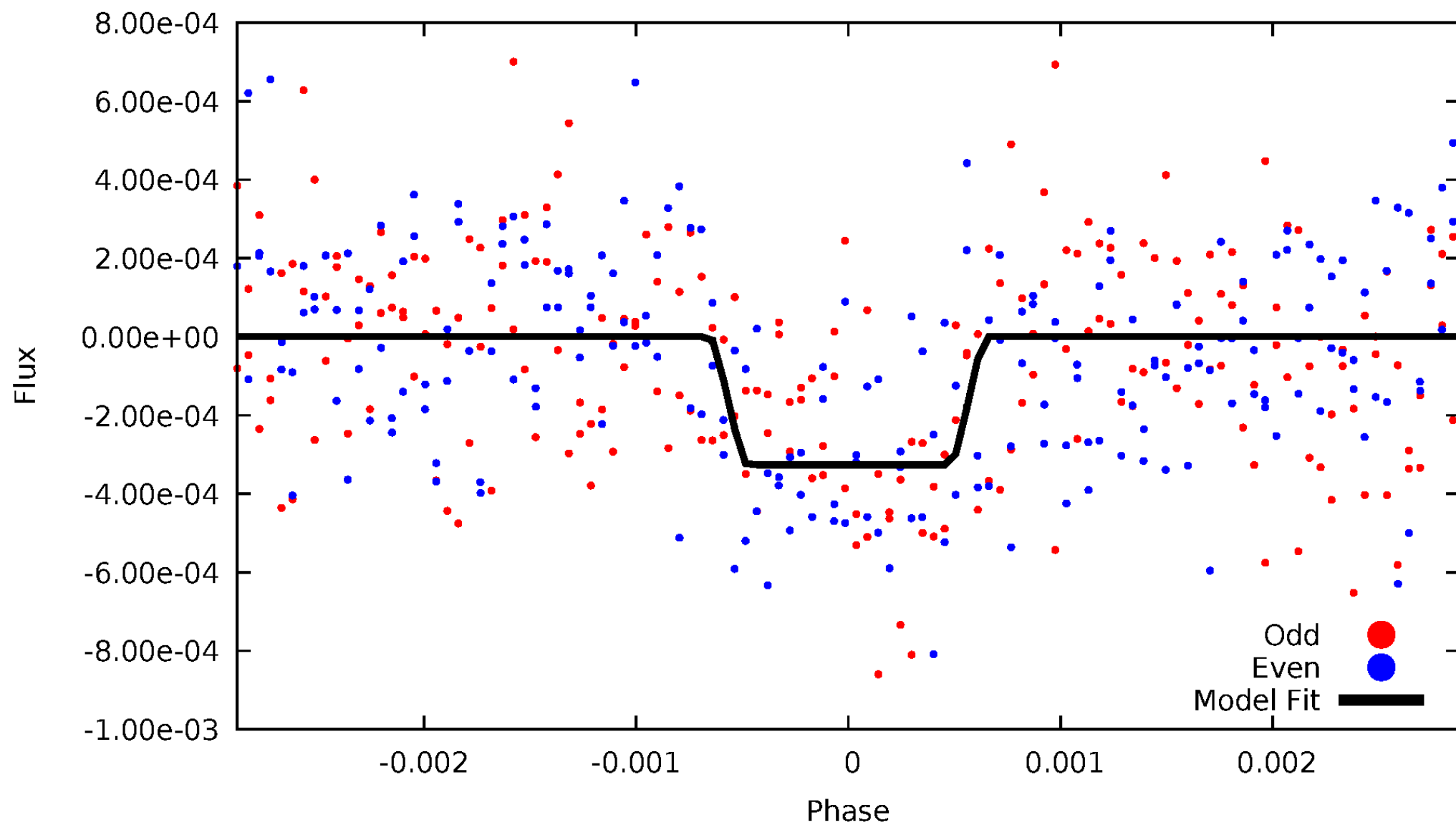
DV Odd/Even

TCE 009406089-01



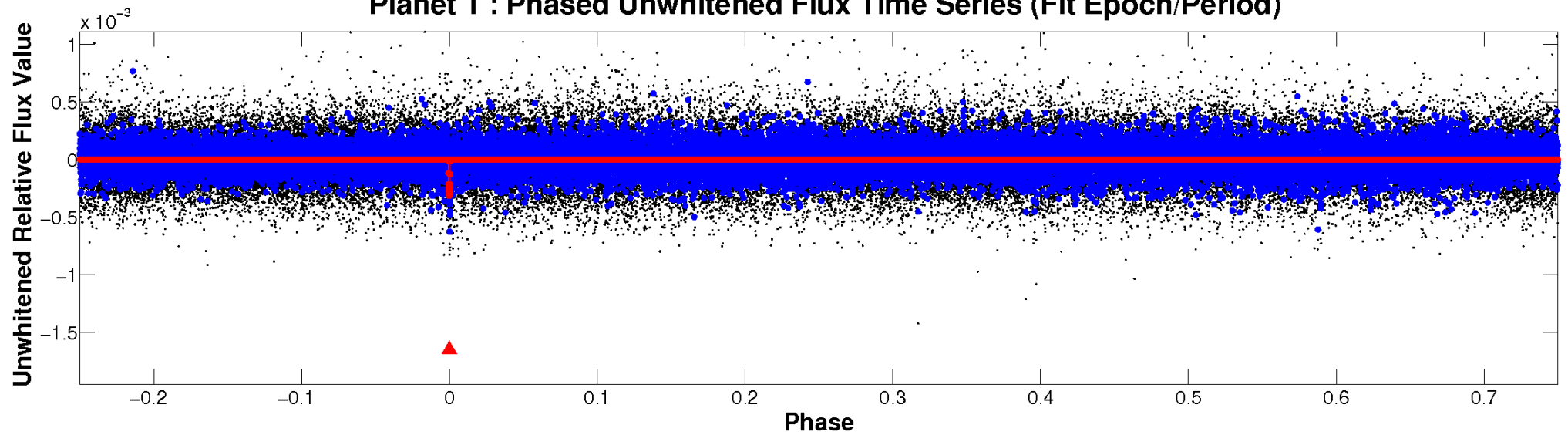
ALT Odd/Even

TCE 009406089-01

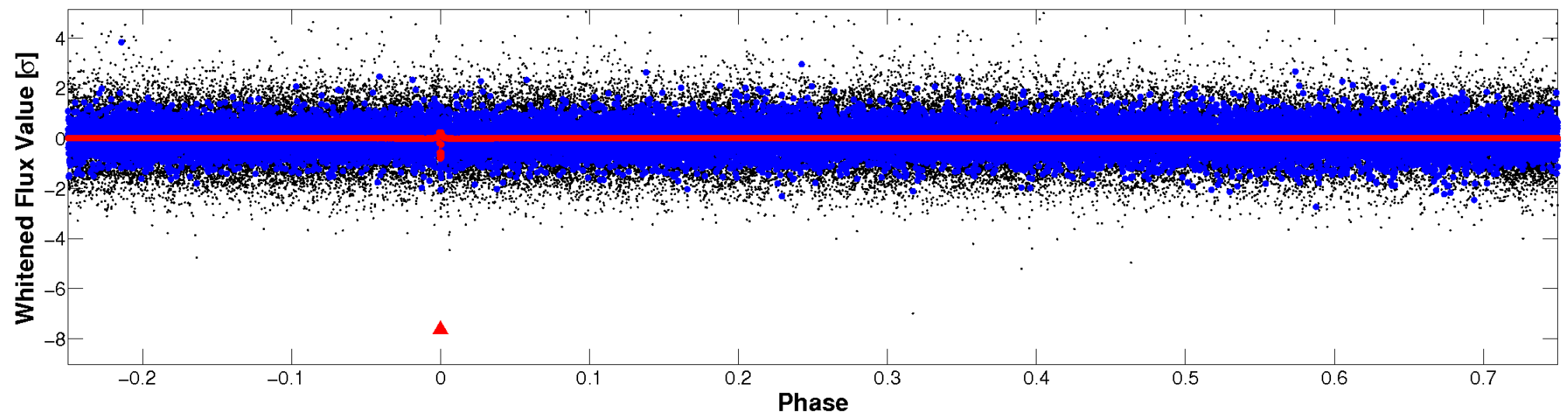


Non-Whitened Vs. Whitened Light Curve

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

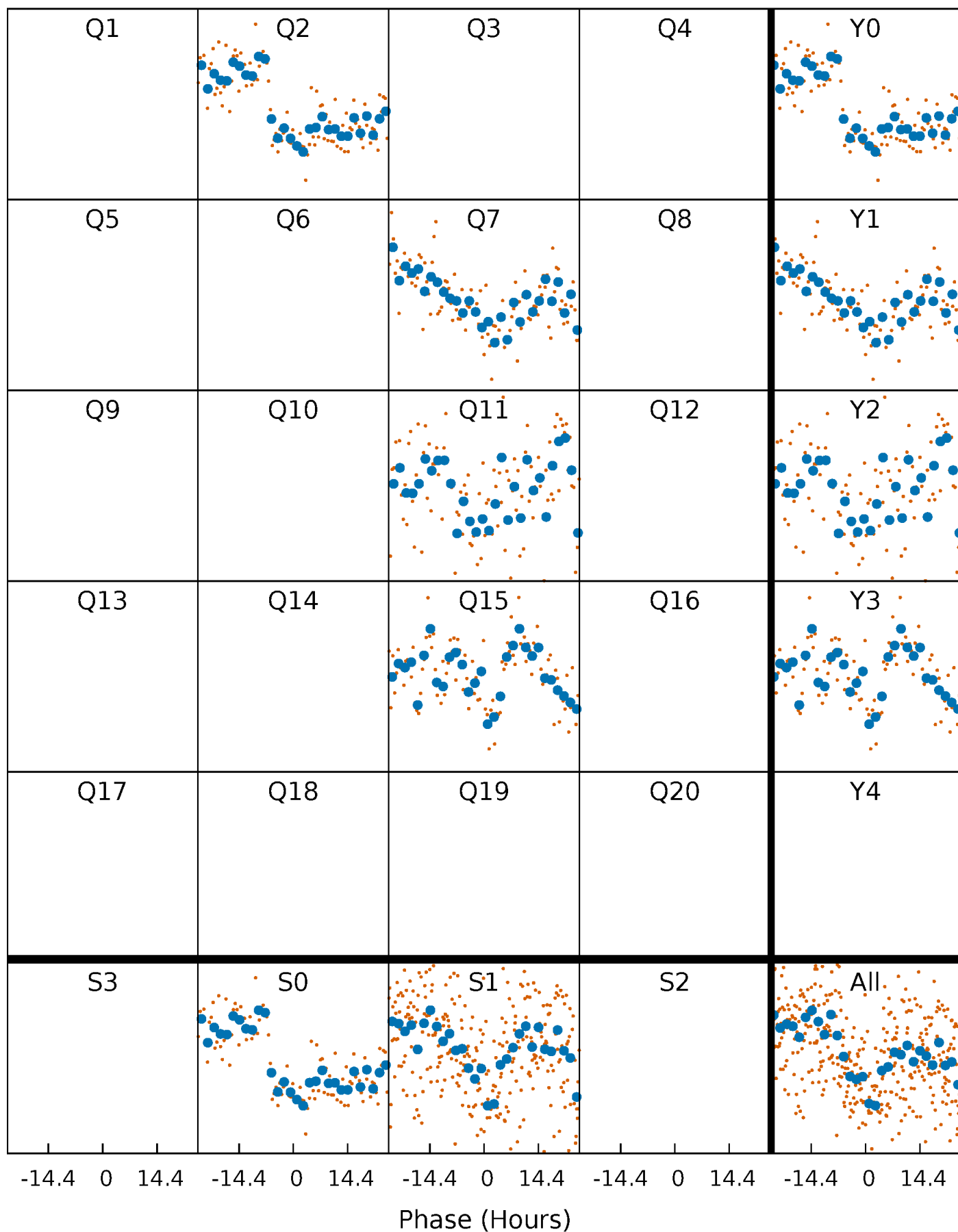


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



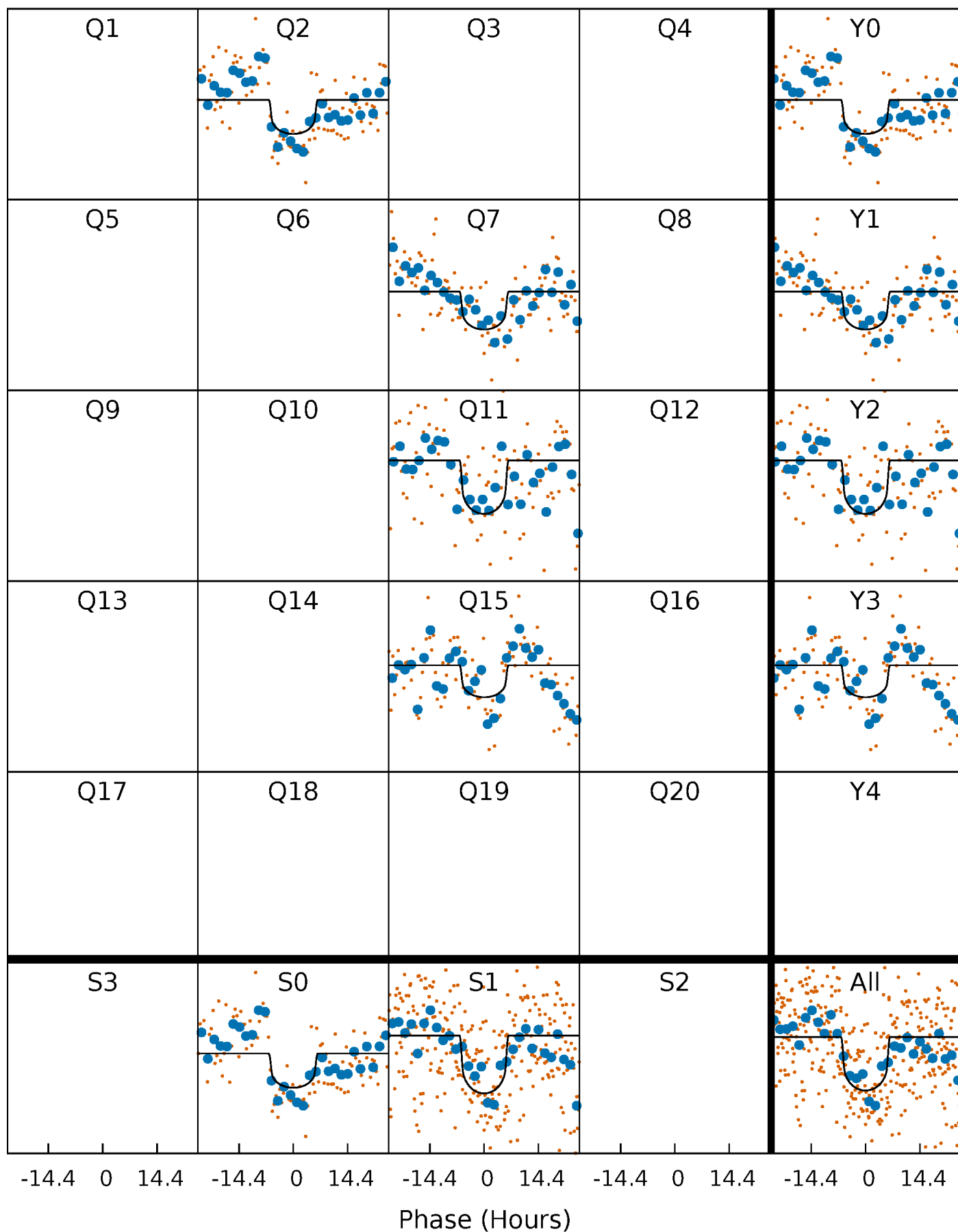
PDC Quarter-Phased Transit Curves

TCE 009406089-01 P=392.051723 Days $T_0=244.661001$ (BKJD)



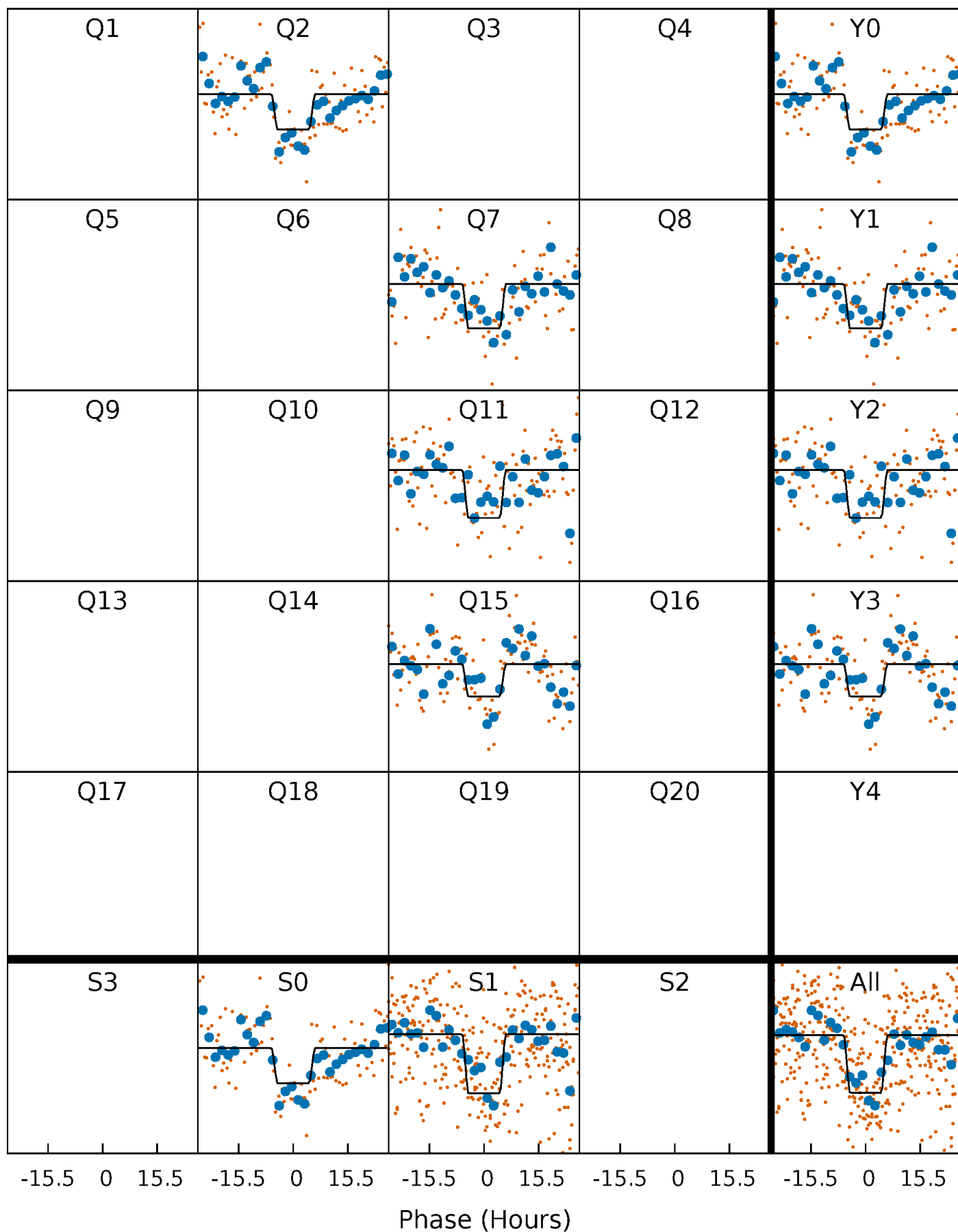
DV Quarter-Phased Transit Curves

TCE 009406089-01 P=392.051723 Days $T_0=244.661001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

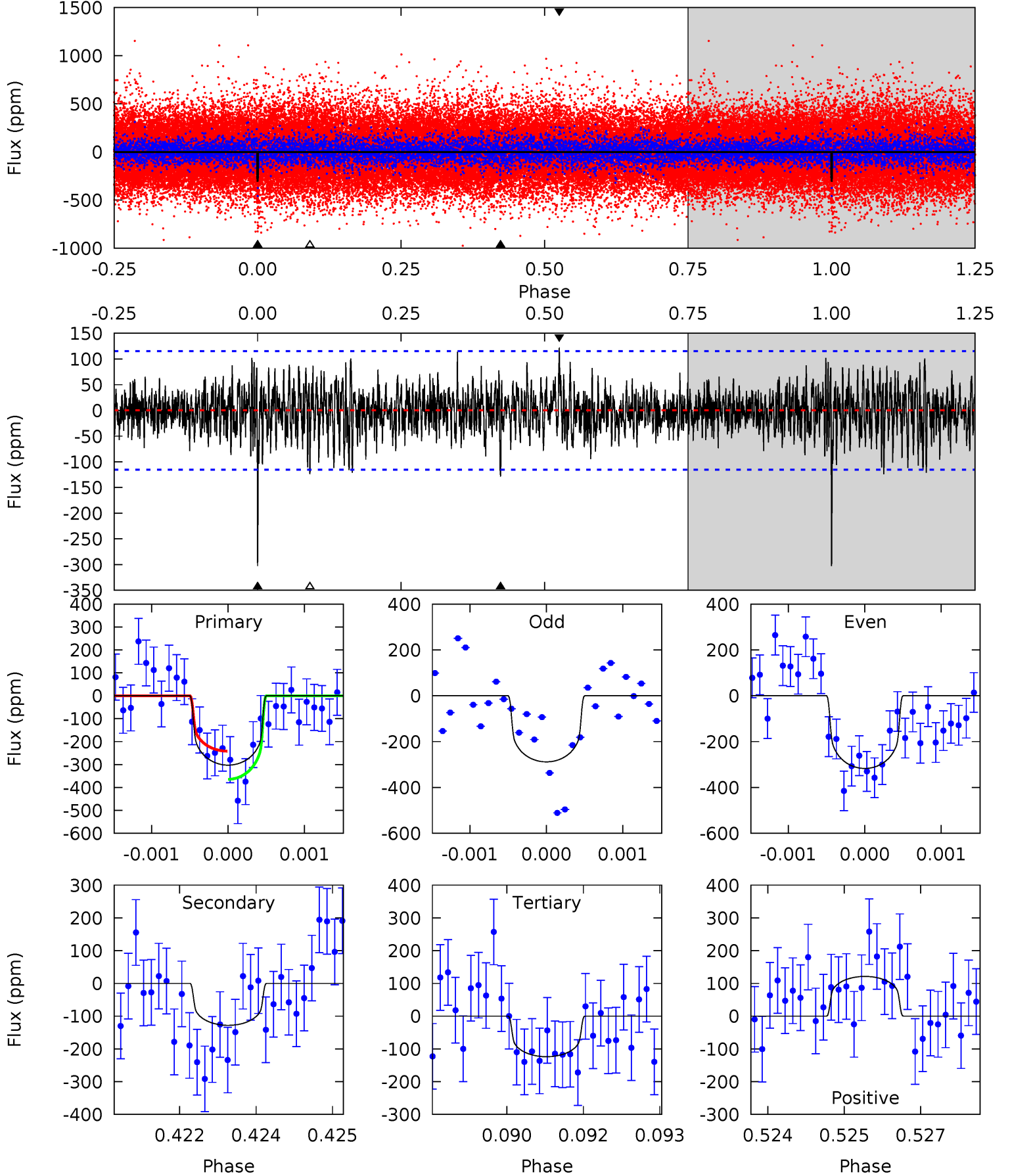
TCE 009406089-01 P=392.058716 Days $T_0=244.640351$ (BKJD)



DV Model-Shift Uniqueness Test

009406089-01, $P = 392.051723$ Days, $E = 244.661001$ Days

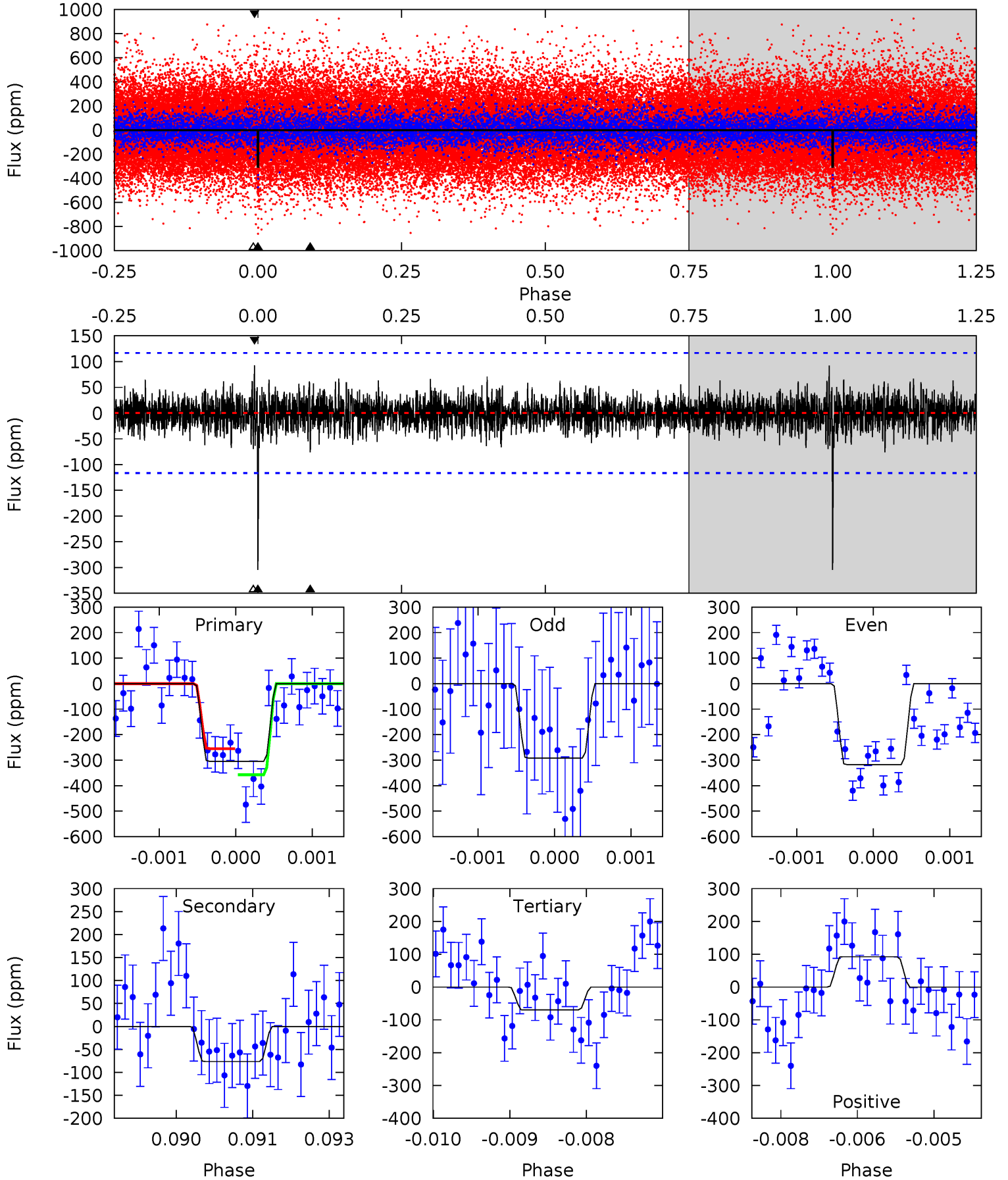
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	5.99	5.79	5.67	5.39	3.20	1.56	8.36	8.48	0.20	0.32	0.67	1.05	0.29	2.87



Alt Model-Shift Uniqueness Test

009406089-01, P = 392.058716 Days, E = 244.640351 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	3.54	3.24	4.28	5.41	3.23	0.96	10.9	9.83	0.30	-0.74	0.60	1.05	0.23	2.37



Stellar Parameters For KIC 009406089

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5188^{+153}_{-153}	$3.877^{+0.689}_{-0.371}$	$-0.260^{+0.350}_{-0.250}$	$1.777^{+1.106}_{-1.106}$	$0.869^{+0.186}_{-0.139}$	$0.218^{+2.776}_{-0.151}$
	+3%/-3%	+18%/-10%	+135%/-96%	+62%/-62%	+21%/-16%	+1272%/-69%
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 009406089-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-128 ± 21	$3.33^{+1.88}_{-1.42}$	420^{+81}_{-76}	4278^{+615}_{-425}	6438^{+13261}_{-3975}
Alt.	-76 ± 22	$3.33^{+1.97}_{-1.36}$	424^{+68}_{-69}	3886^{+618}_{-390}	3730^{+6808}_{-2359}

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

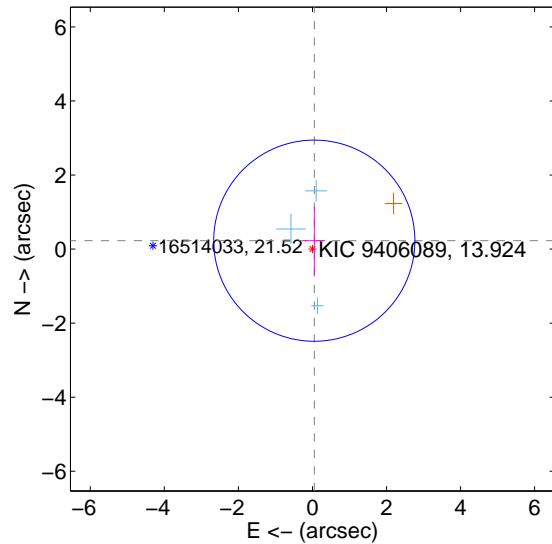
Supplemental centroid analysis for 009406089-01. Kepler magnitude: 13.92. Transit SNR 7.27

There are 3 quarters with good PRF difference image offsets

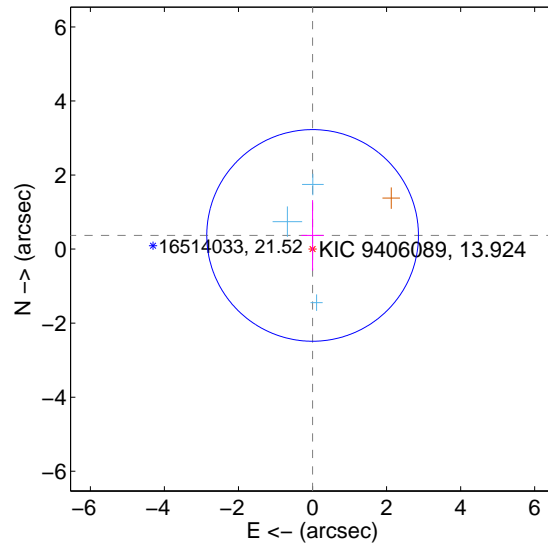
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.233 ± 0.906	0.26	-0.050 ± 0.296	0.227 ± 0.925
PRF-fit source offset from KIC position	0.369 ± 0.953	0.39	-0.002 ± 0.303	0.369 ± 0.953
photometric centroid source offset	2.17 ± 1.09	1.99	2.14 ± 1.09	-0.38 ± 1.15

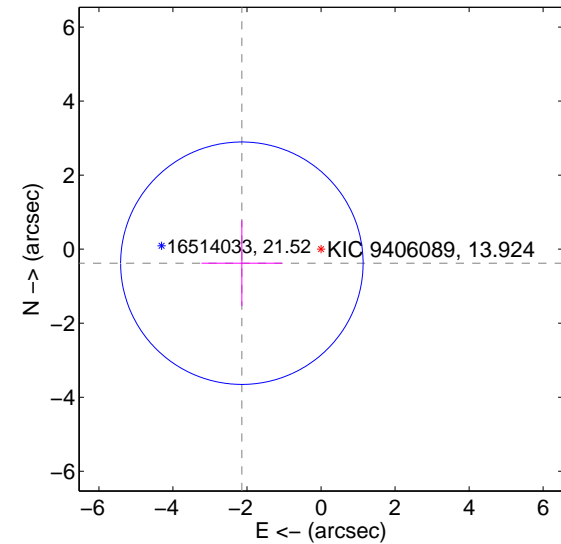
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

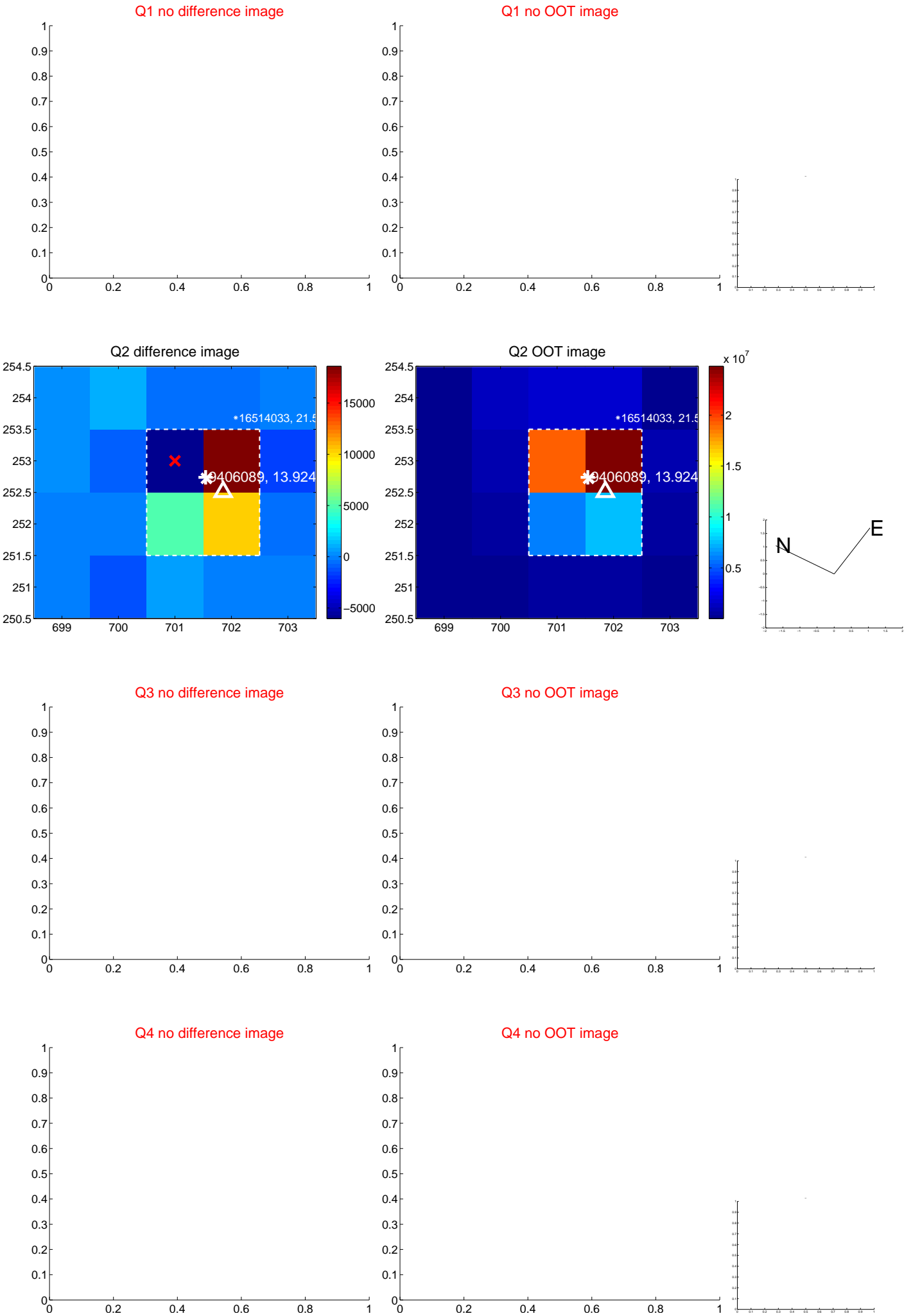


offset from photometric centroids

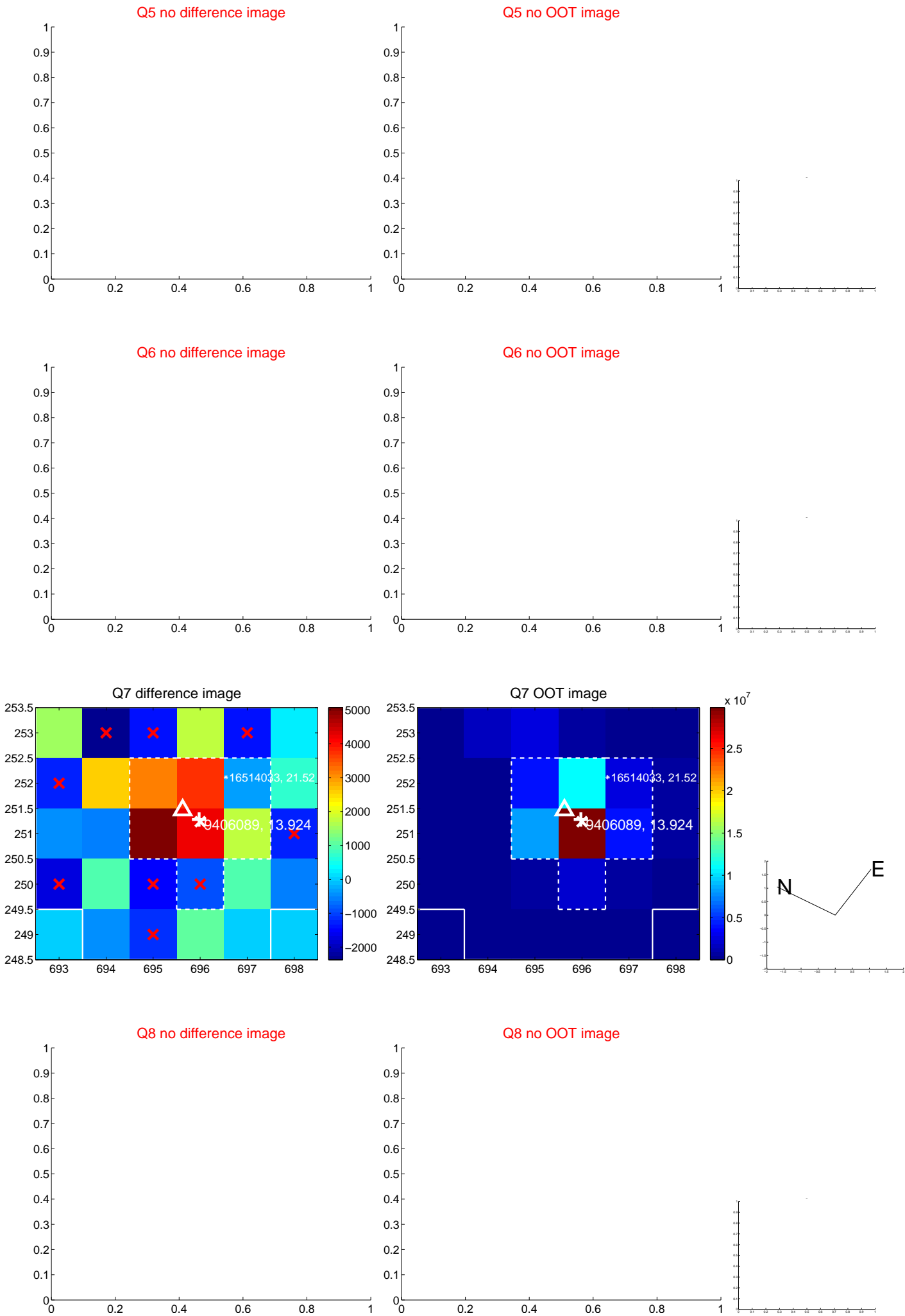


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

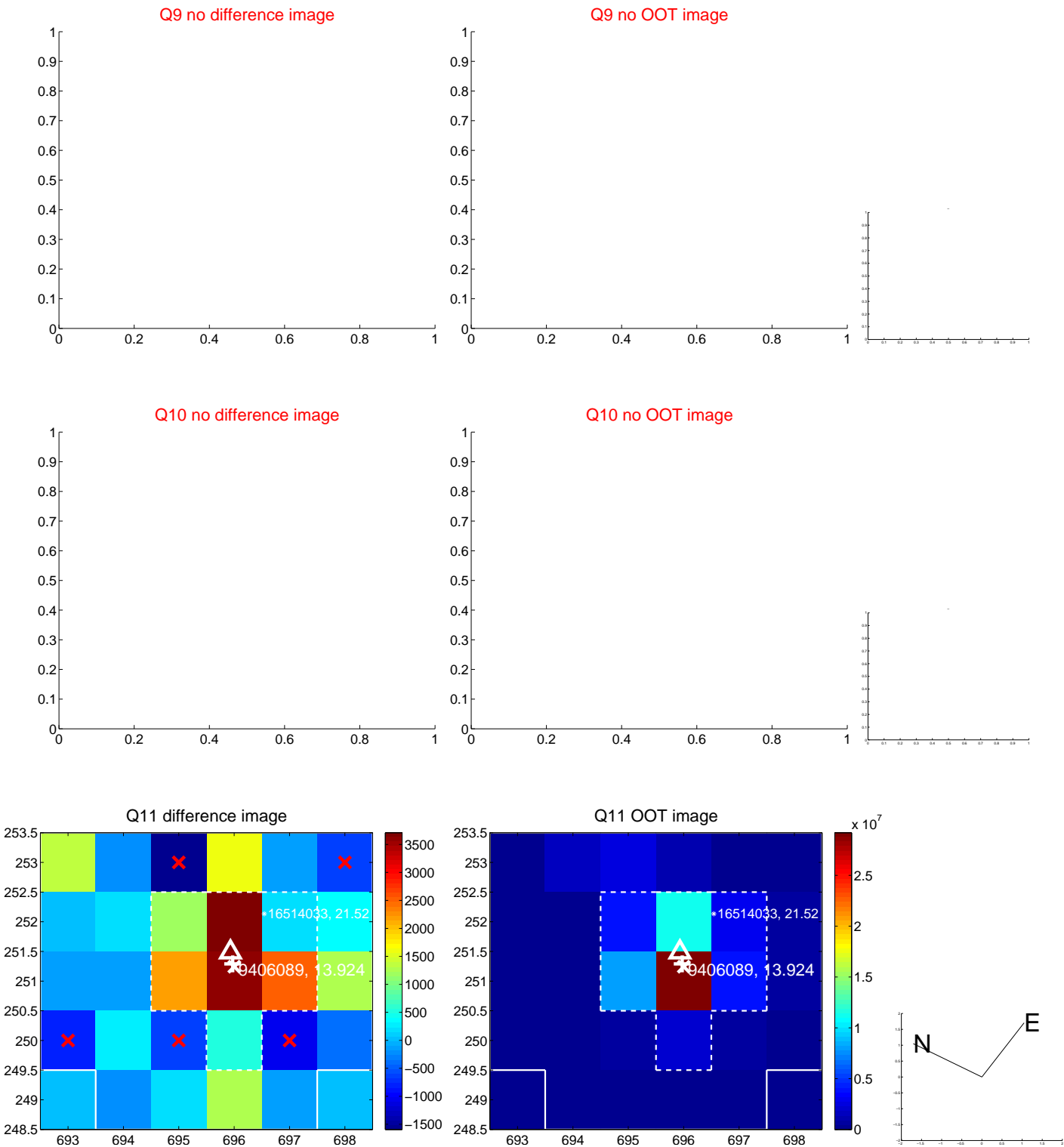
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



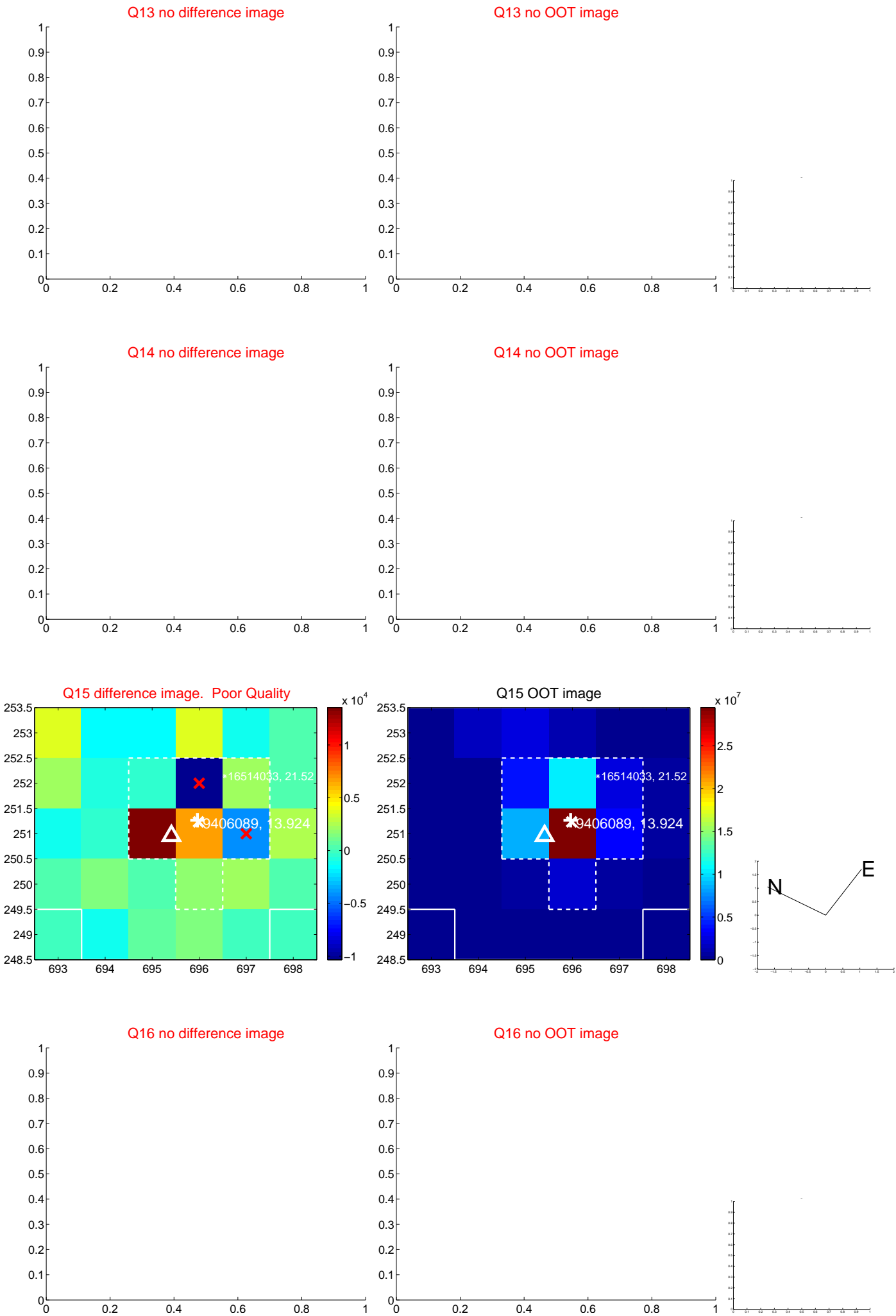
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



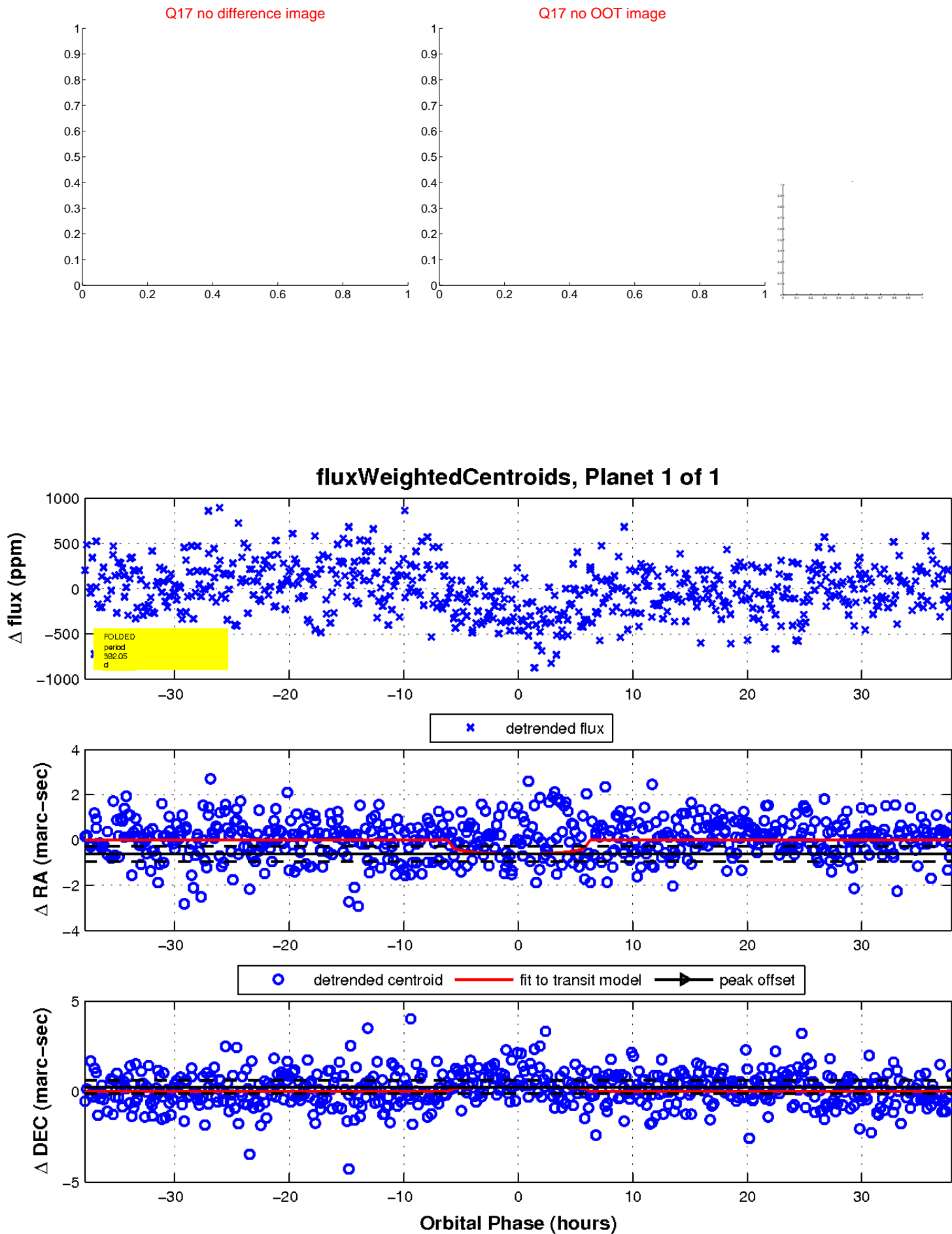
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

