

KIC 009640962

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})
009640962-01	OBS	4177.01	1.089059	132.034312	134.5	2.962	15.9	15.9	0.83	5118	1.18	1069.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009640962-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

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 009640962-01

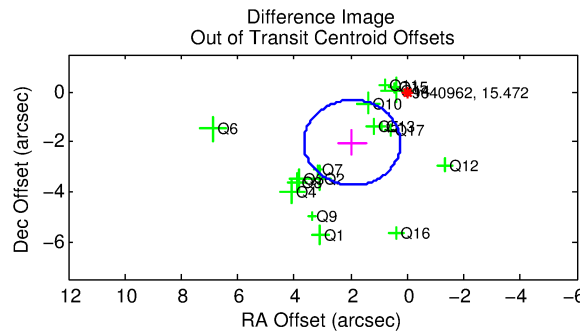
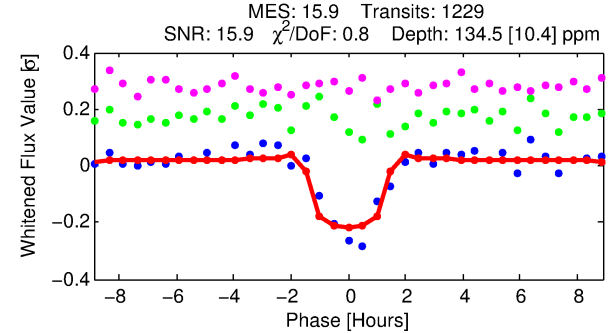
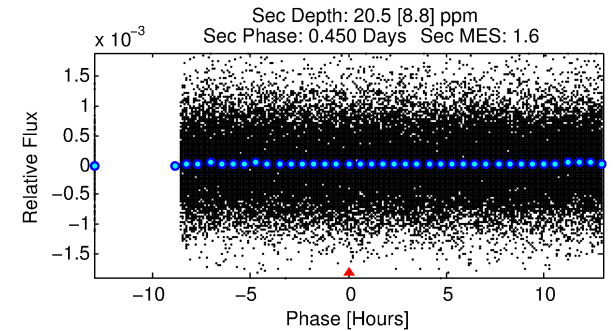
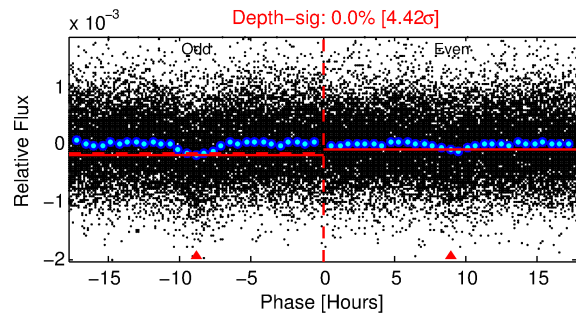
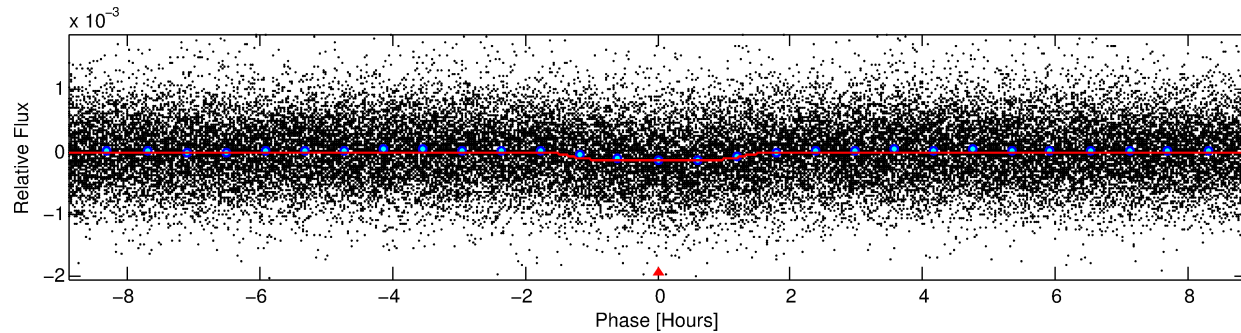
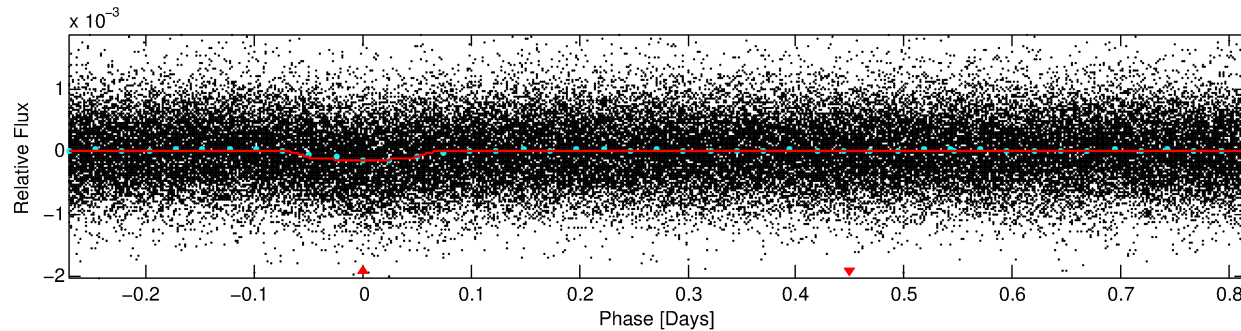
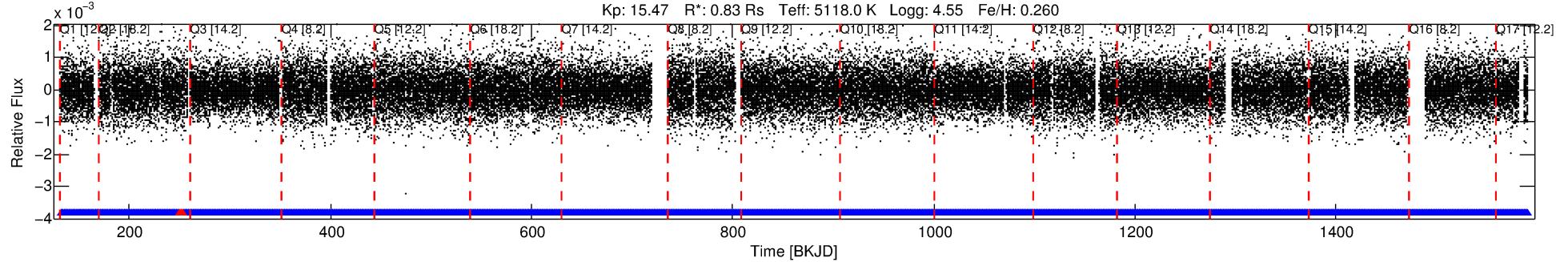
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009640962-01	9640962	FL-Lyr-pri	9641031	1:2	122.6	31	-5	9.18	15.47	3246.70	Direct-PRF	0	3.02	0.89

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9640962 Candidate: 1 of 1 Period: 1.089 d
KOI: K04177.01 Corr: 0.900

Kp: 15.47 R*: 0.83 Rs Teff: 5118.0 K Logg: 4.55 Fe/H: 0.260



DV Fit Results:

Period = 1.08906 [0.00001] d
Epoch = 132.0343 [0.0021] BKJD
Rp/R* = 0.0130 [0.0052]
a/R* = 1.59 [1.55]
b = 0.91 [0.33]
Seff = 1069.74 [204.58]
Teq = 1458 [70] K
Rp = 1.18 [0.49] Re
a = 0.0199 [0.0020] AU
Ag = 3.20 [2.93] [0.75σ]
Teffp = 3016 [687] K [2.26σ]

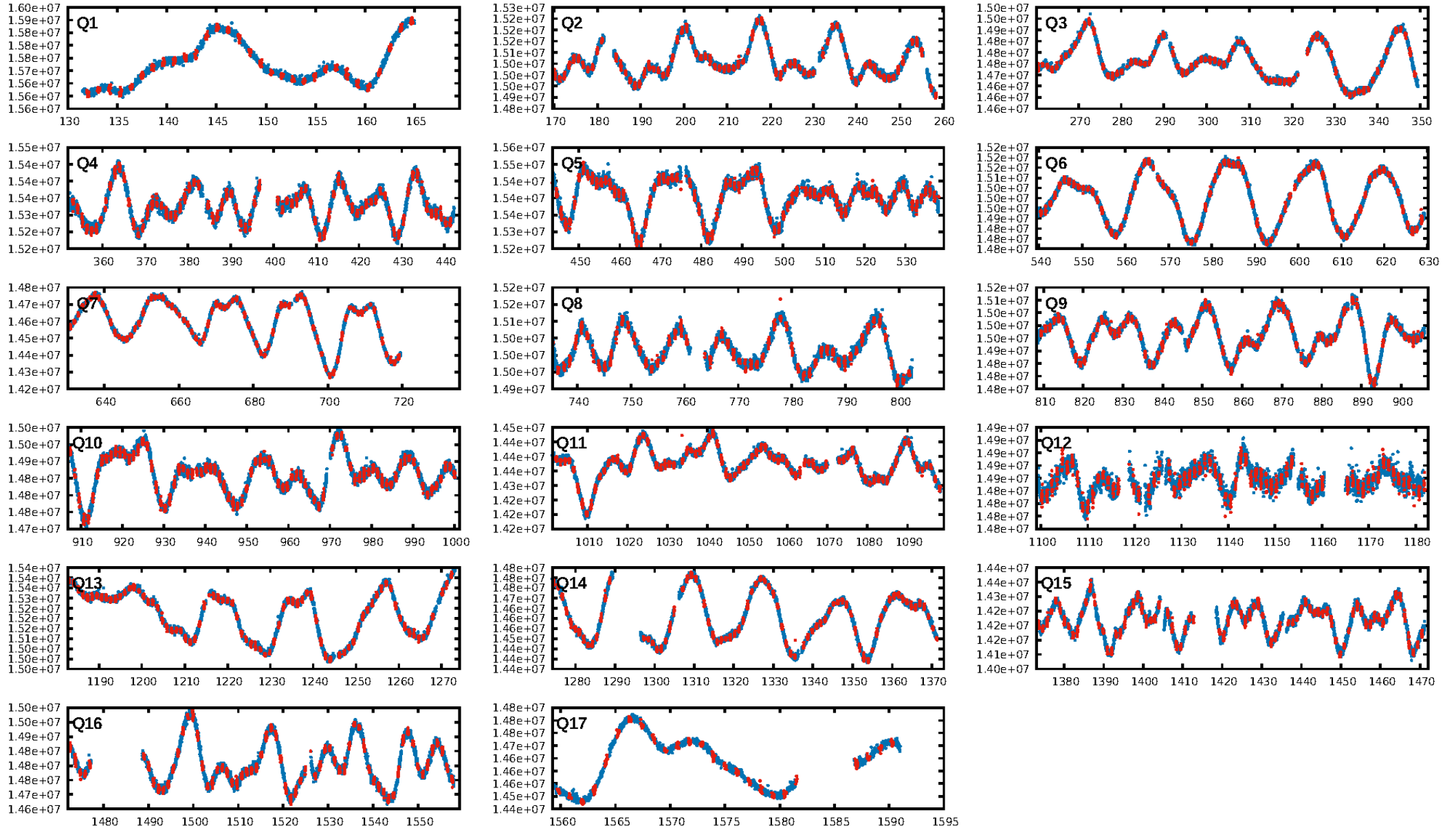
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.08e-52
RollingBand-fgt: 1.00 [1170/1173]
GhostDiagnostic-chr: -0.08949
Centroid-sig: 0.0%
Centroid-so: 5.186 arcsec [6.81σ]
OotOffset-rm: 2.819 arcsec [4.95σ]
KicOffset-rm: 2.797 arcsec [5.34σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

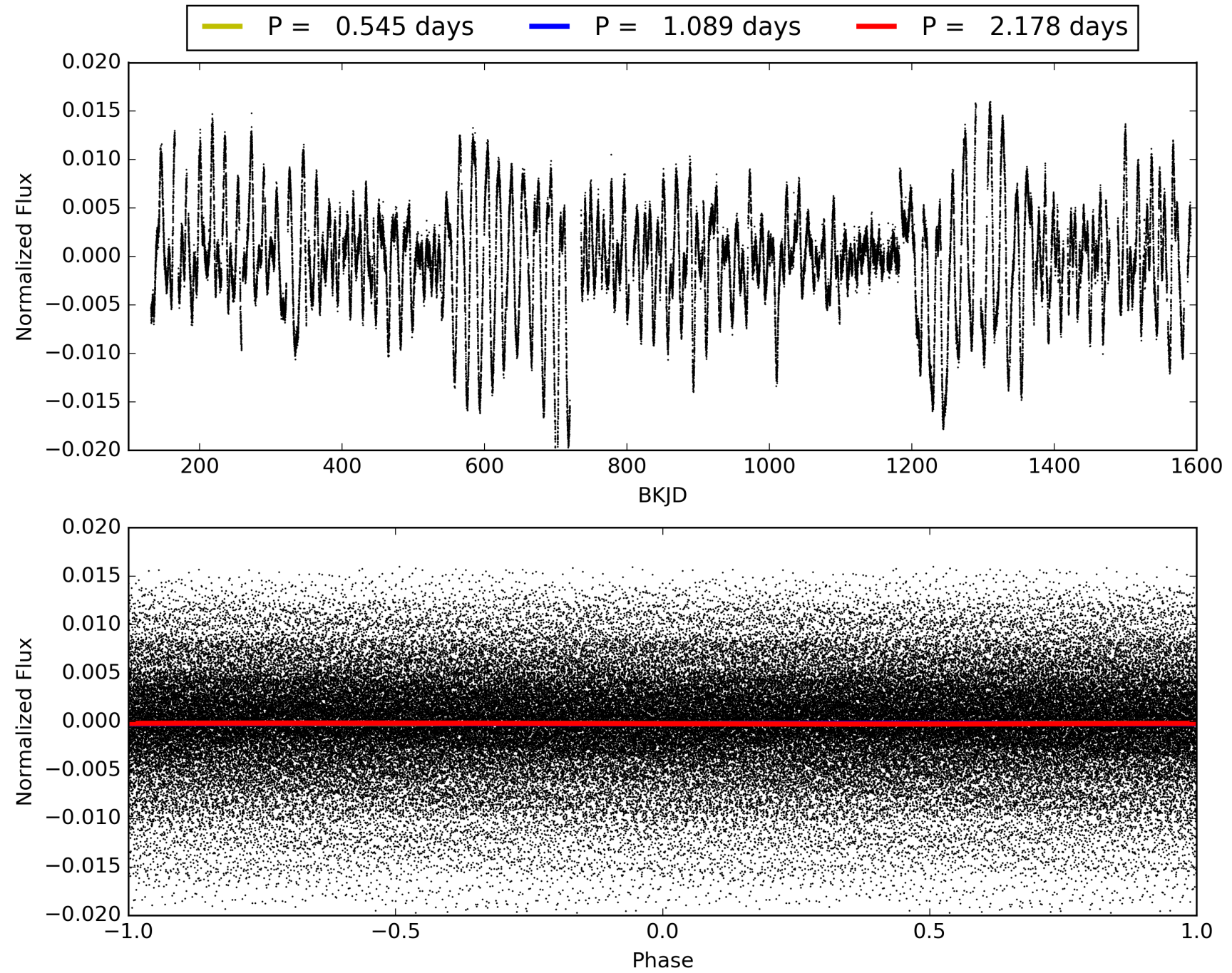
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:24:26 Z

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

TCE 009640962-01, PDC Light Curves

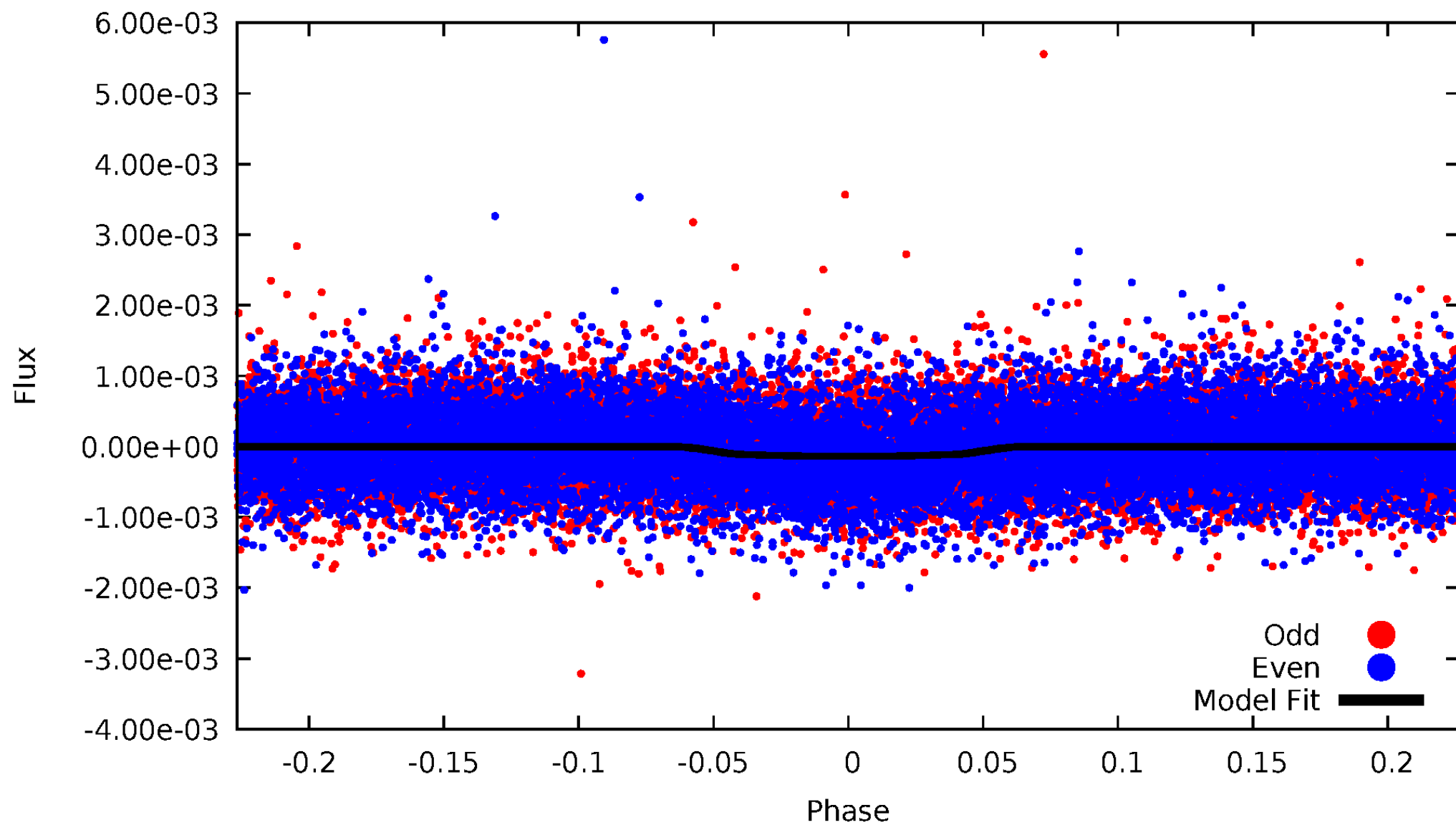


TCE 009640962-01



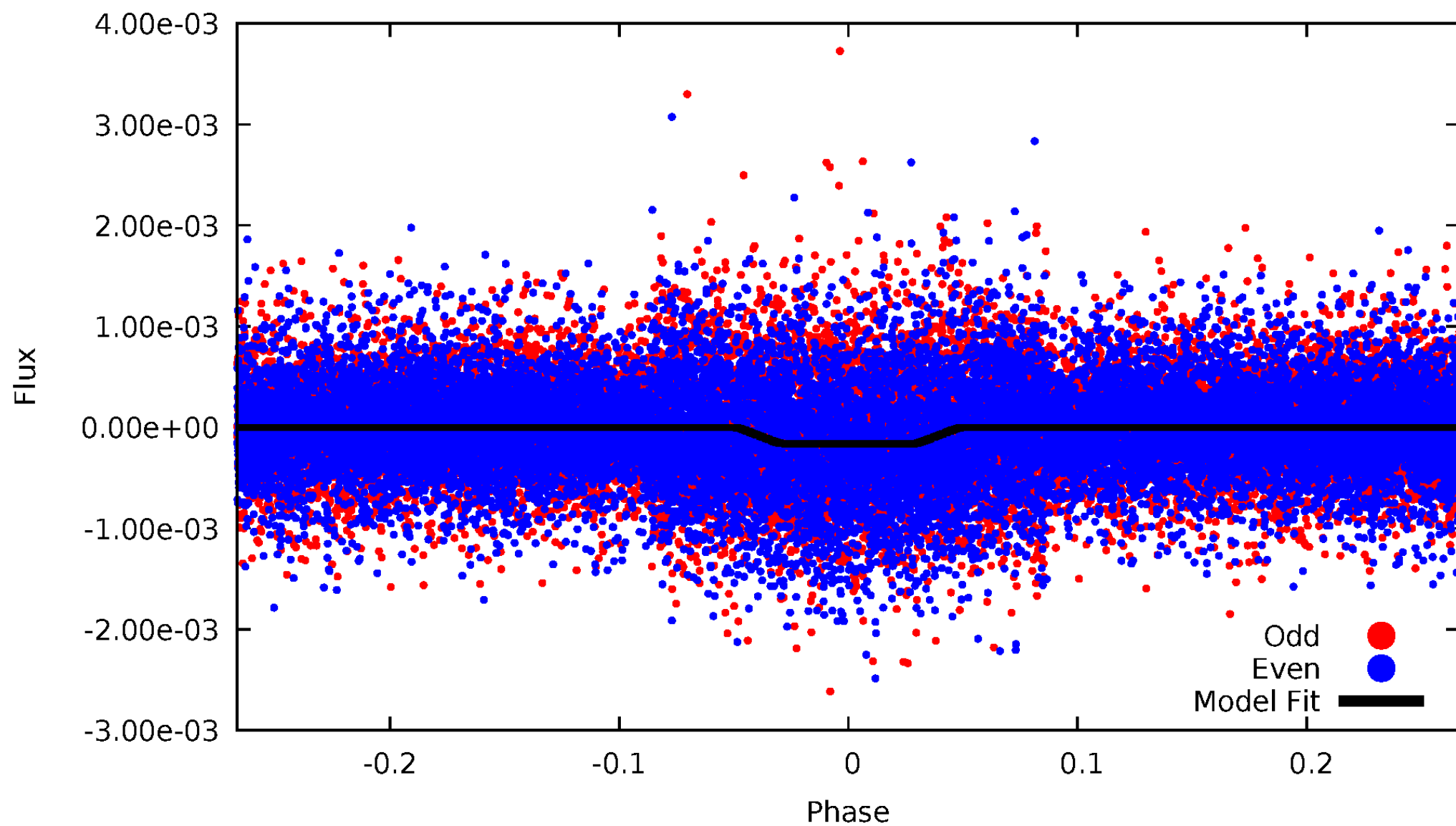
DV Odd/Even

TCE 009640962-01



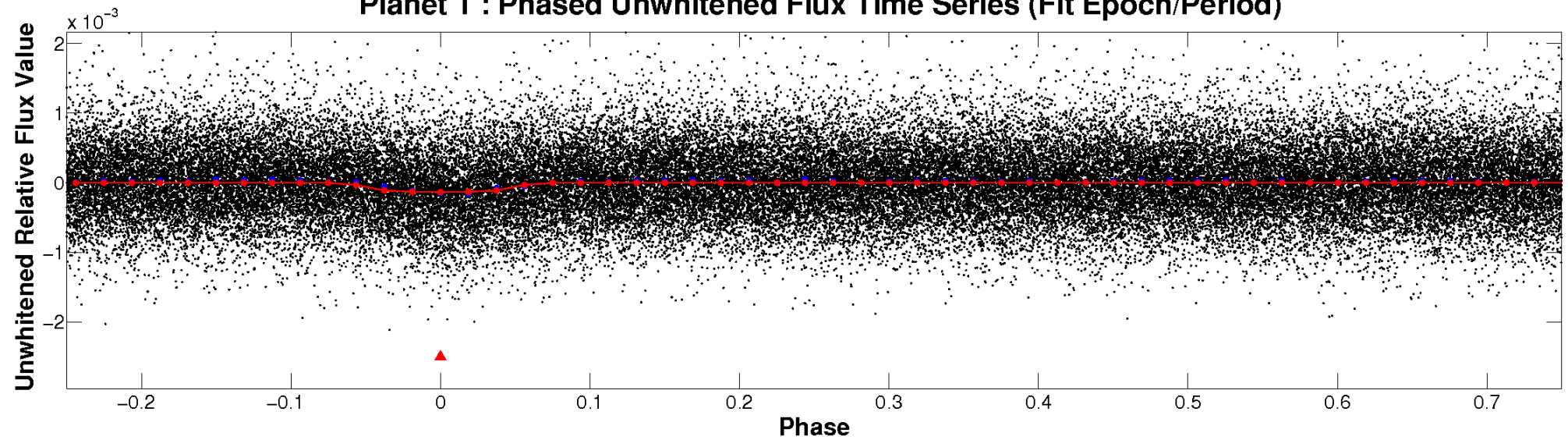
ALT Odd/Even

TCE 009640962-01

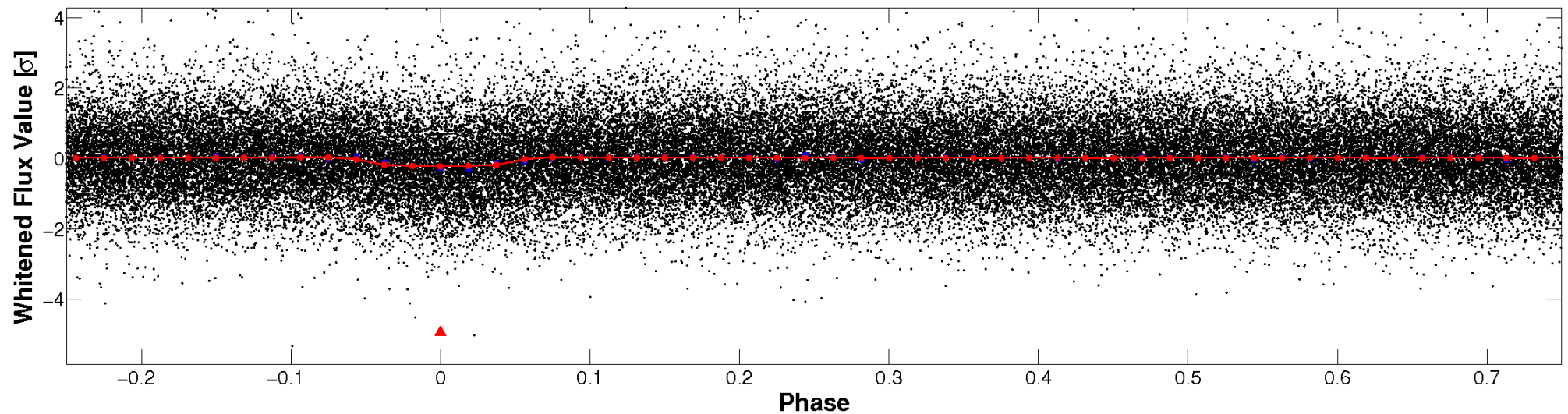


Non-Whitened Vs. Whitened Light Curve

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

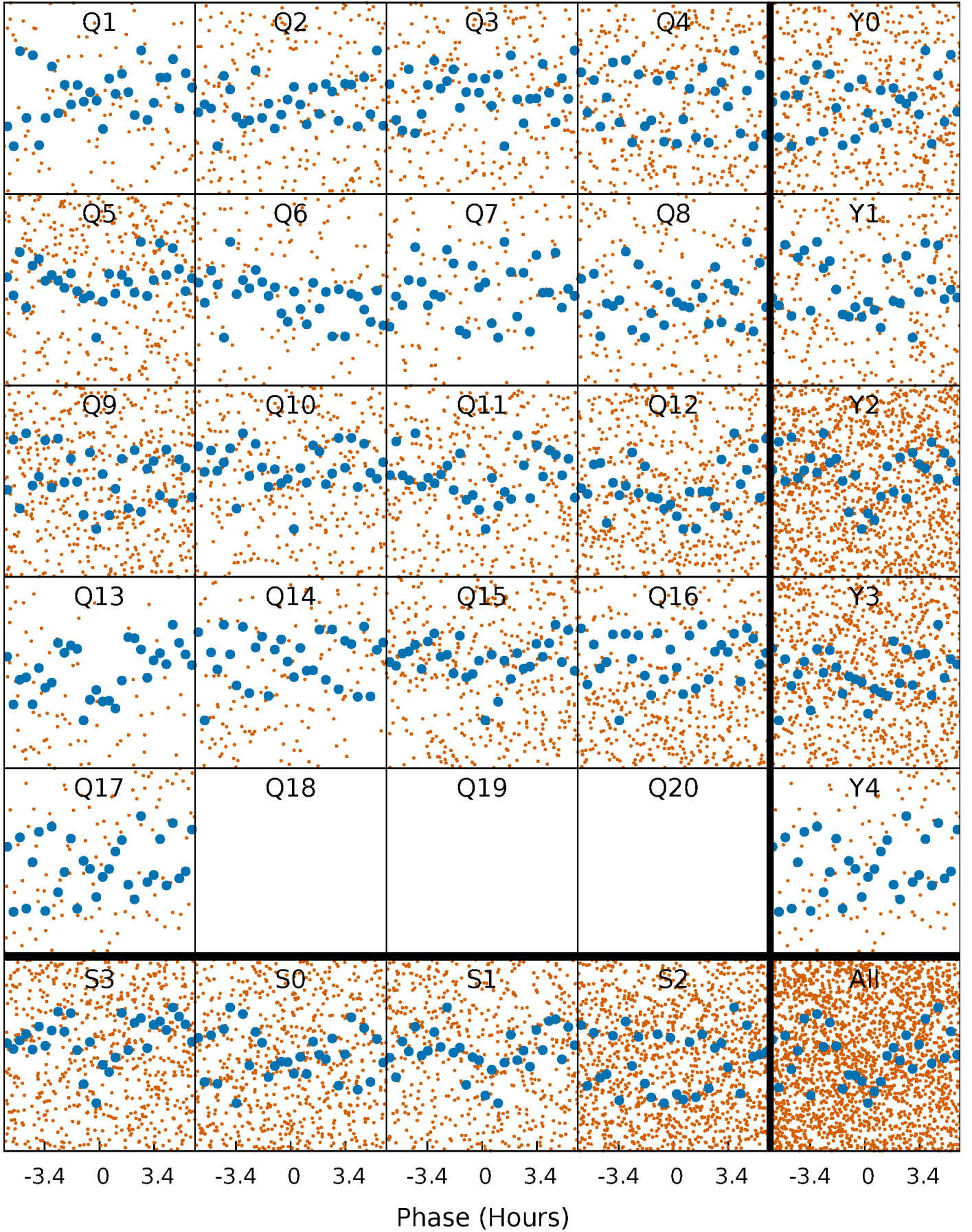


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



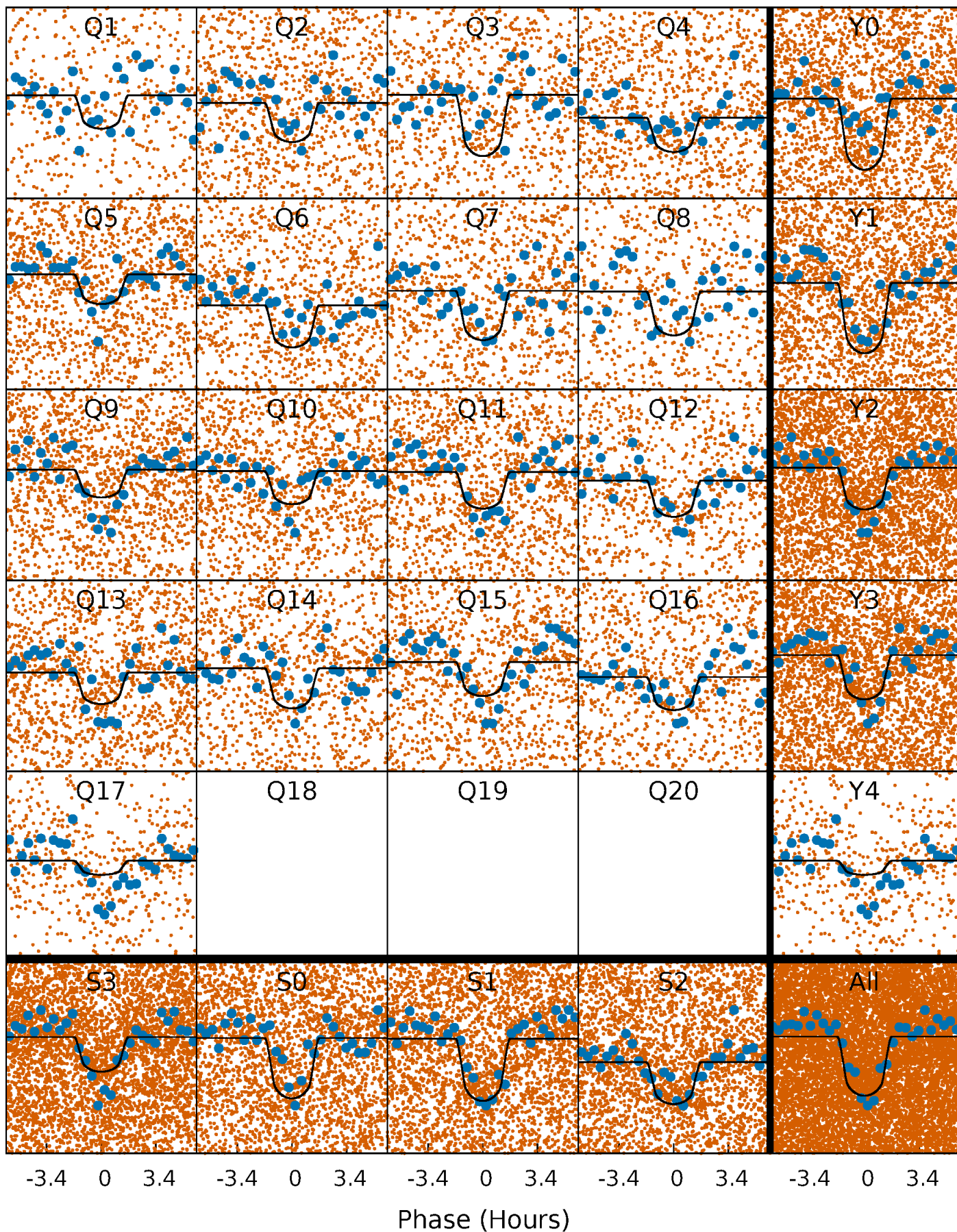
PDC Quarter-Phased Transit Curves

TCE 009640962-01 P= 1.089059 Days $T_0=132.034312$ (BKJD)



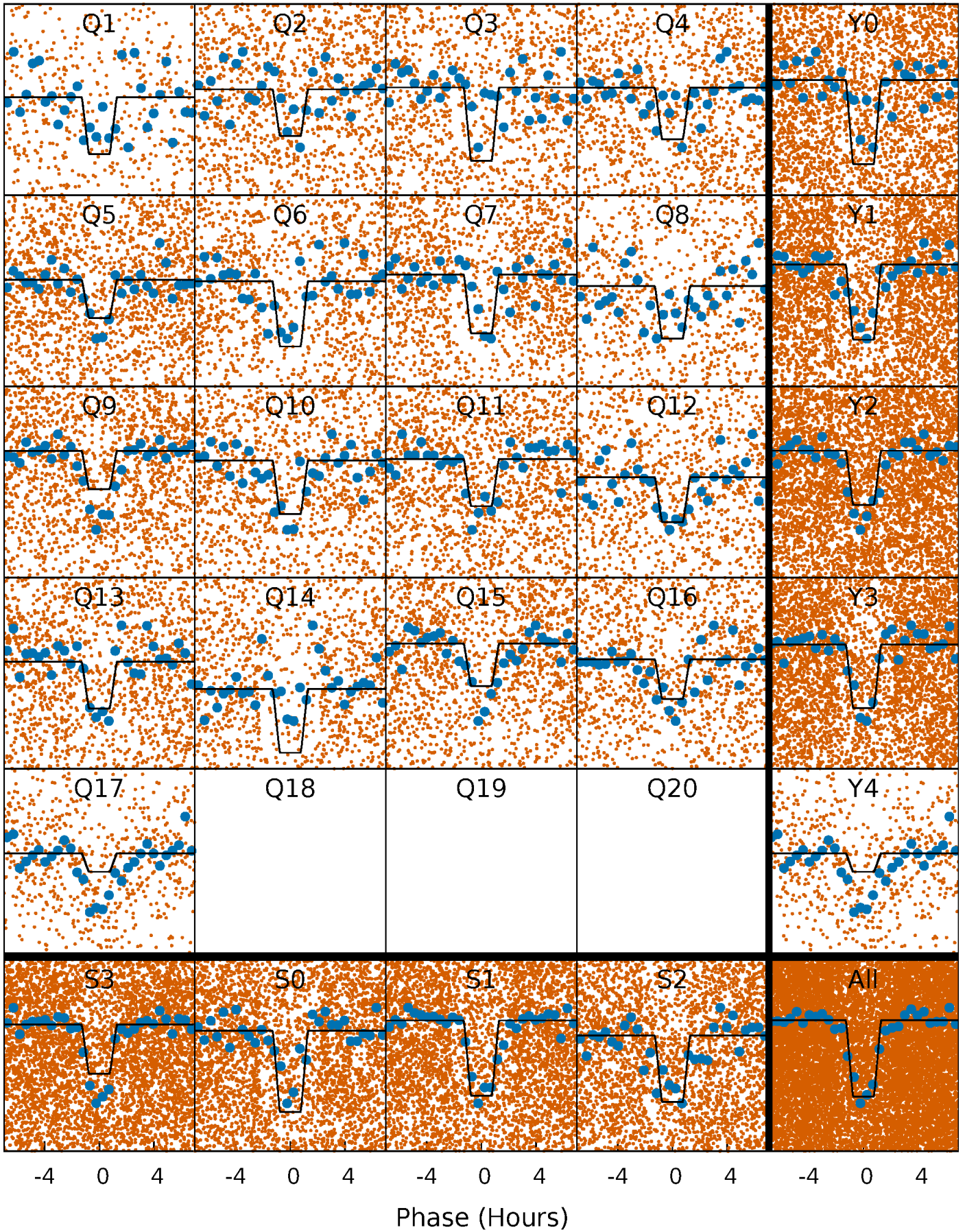
DV Quarter-Phased Transit Curves

TCE 009640962-01 P= 1.089059 Days $T_0=132.034312$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

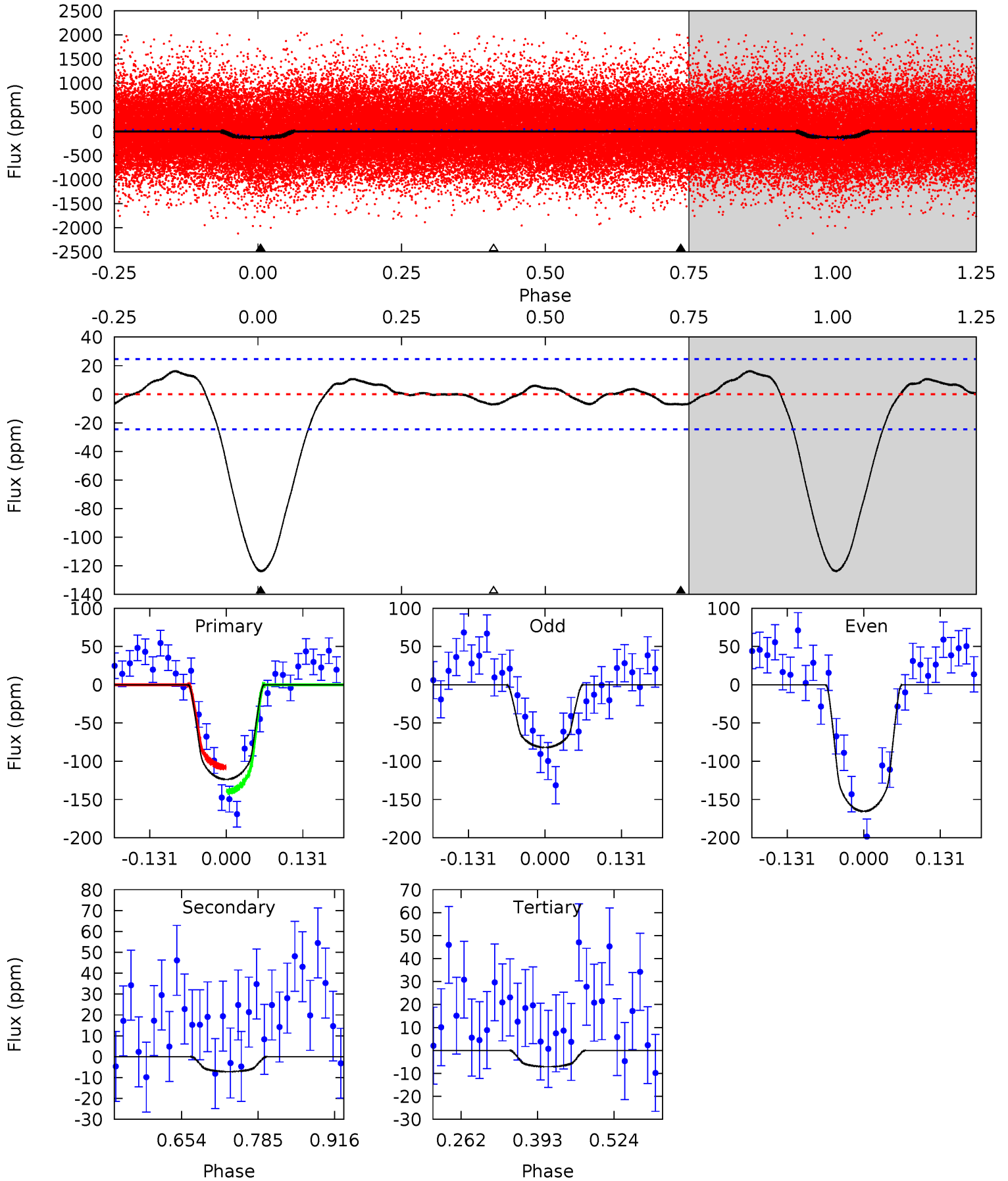
TCE 009640962-01 P= 1.089082 Days $T_0=132.022932$ (BKJD)



DV Model-Shift Uniqueness Test

009640962-01, P = 1.089059 Days, E = 130.945253 Days

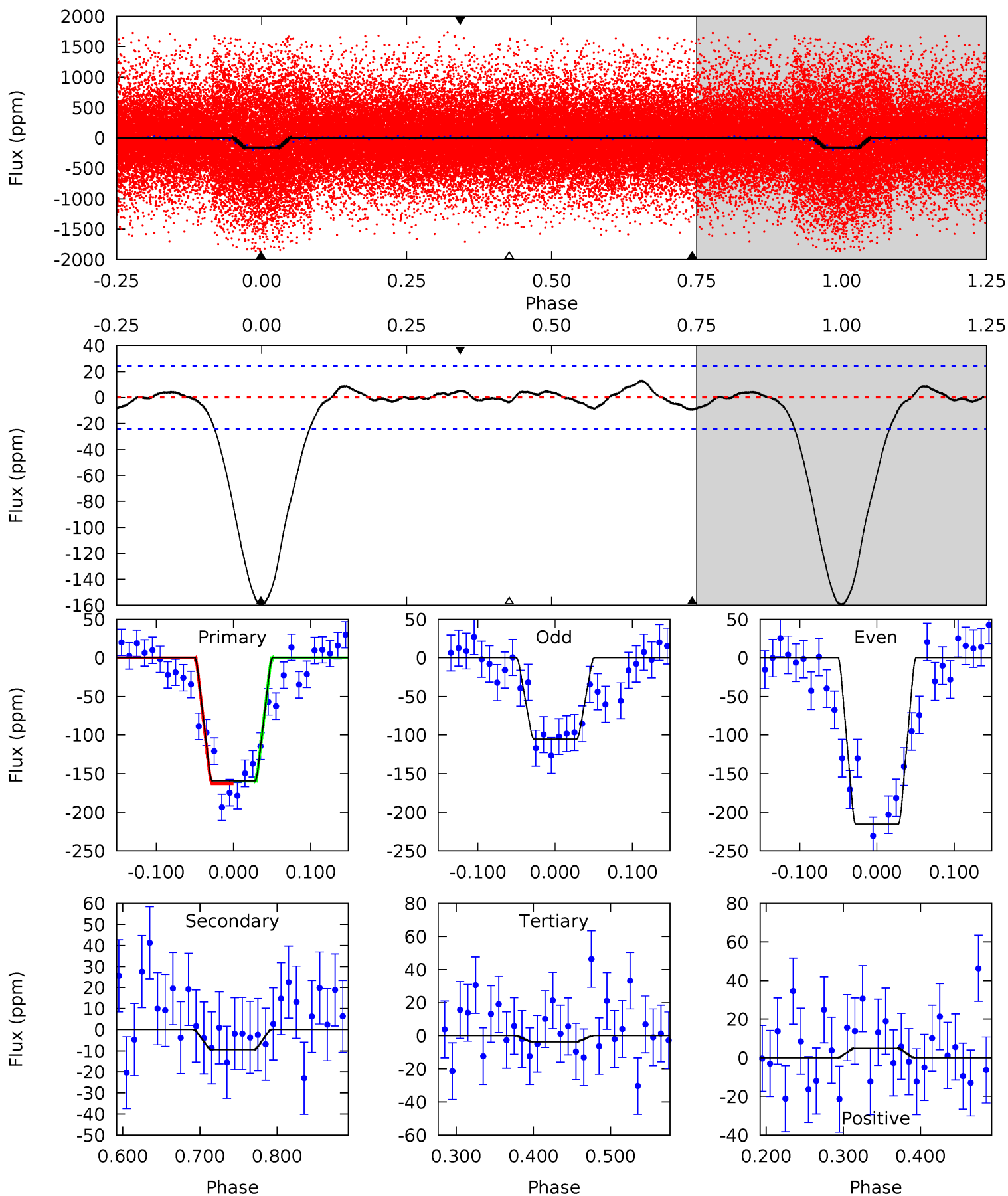
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	1.31	1.31	0	4.51	1.51	0.91	21.4	22.7	0.01	1.31	7.67	0.93	0.12	2.94



Alt Model-Shift Uniqueness Test

009640962-01, P = 1.089082 Days, E = 130.933850 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.0	1.78	0.70	0.93	4.56	1.64	0.70	29.3	29.1	1.07	0.84	10.3	0.90	0.07	0.32



Stellar Parameters For KIC 009640962

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5118^{+154}_{-154}	$4.547^{+0.042}_{-0.084}$	$0.260^{+0.200}_{-0.300}$	$0.830^{+0.092}_{-0.067}$	$0.883^{+0.052}_{-0.072}$	$2.179^{+0.399}_{-0.545}$
	+3%/-3%	+1%/-2%	+77%/-115%	+11%/-8%	+6%/-8%	+18%/-25%
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 009640962-01 / KOI 4177.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 5	$1.20^{+0.49}_{-0.45}$	2053^{+76}_{-75}	2769^{+608}_{-4938}	$0.962^{+1.931}_{-0.737}$
Alt.	-9 ± 5	$1.18^{+0.46}_{-0.45}$	2052^{+79}_{-78}	2964^{+618}_{-584}	$1.331^{+2.851}_{-0.838}$

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

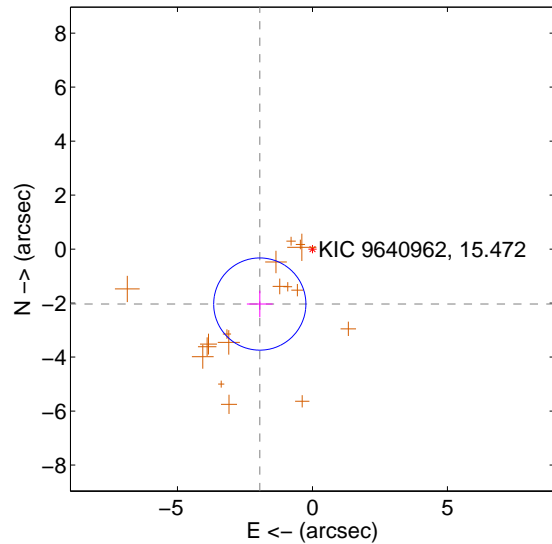
Supplemental centroid analysis for 009640962-01. Kepler magnitude: 15.47. Transit SNR 15.86

There are 0 quarters with good PRF difference image offsets

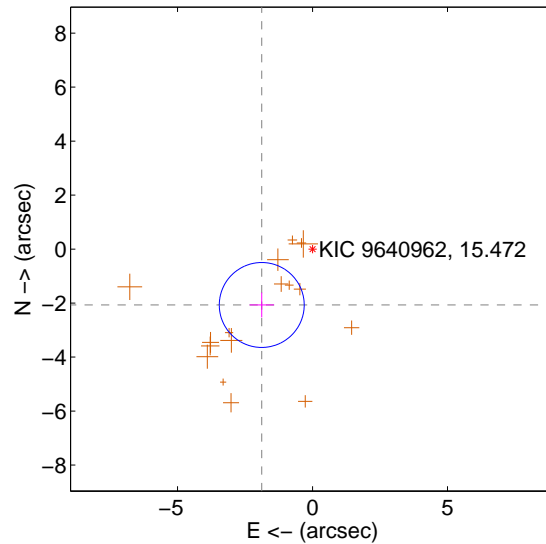
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.819 ± 0.569	4.95	1.950 ± 0.479	-2.035 ± 0.492
PRF-fit source offset from KIC position	2.797 ± 0.524	5.34	1.881 ± 0.452	-2.070 ± 0.460
photometric centroid source offset	5.19 ± 0.76	6.81	4.76 ± 0.75	-2.05 ± 0.83

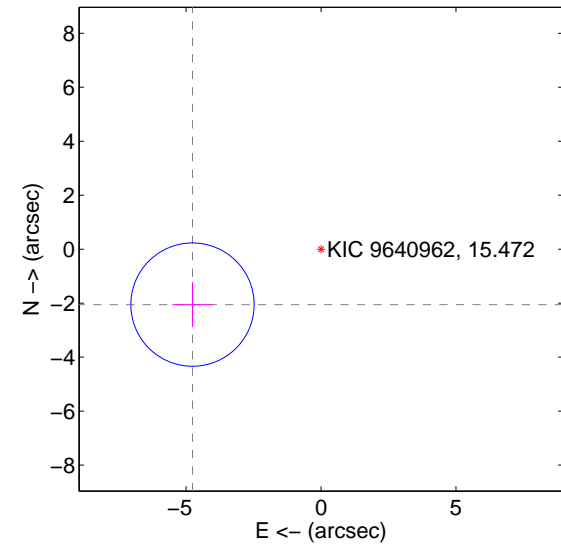
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

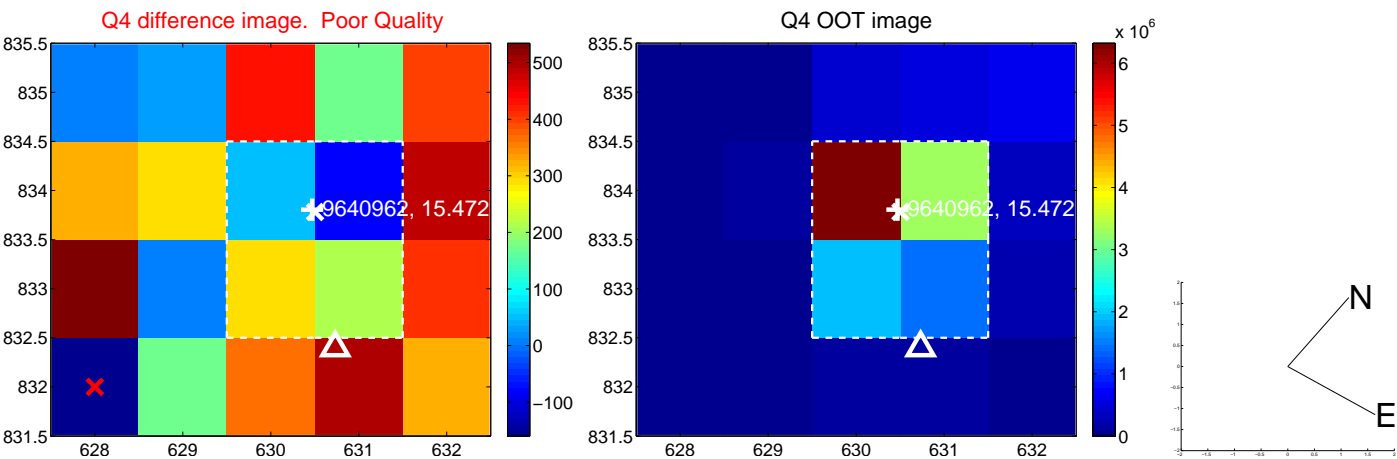
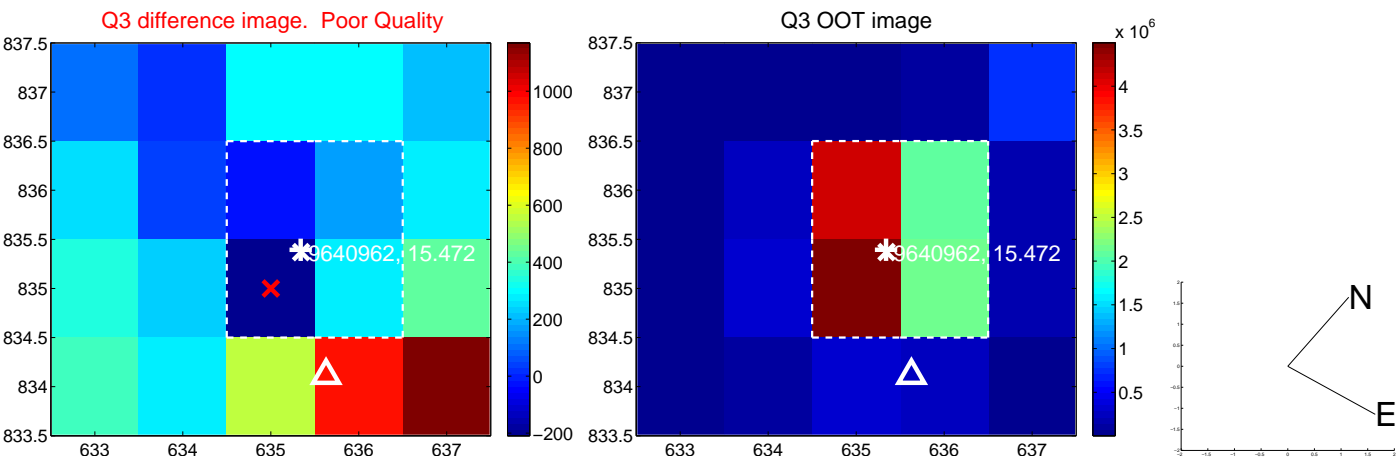
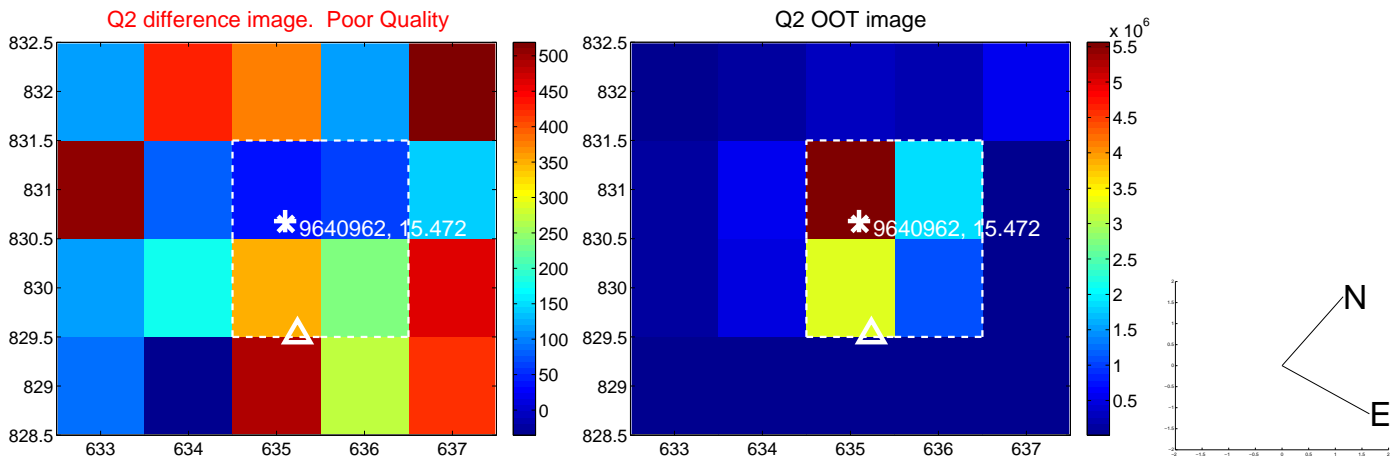
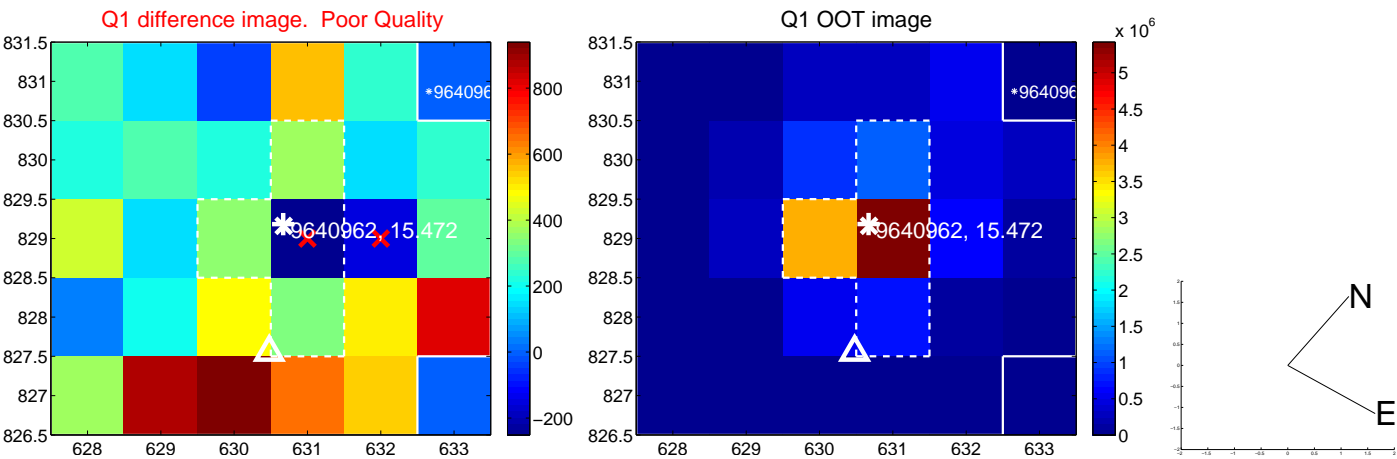


offset from photometric centroids

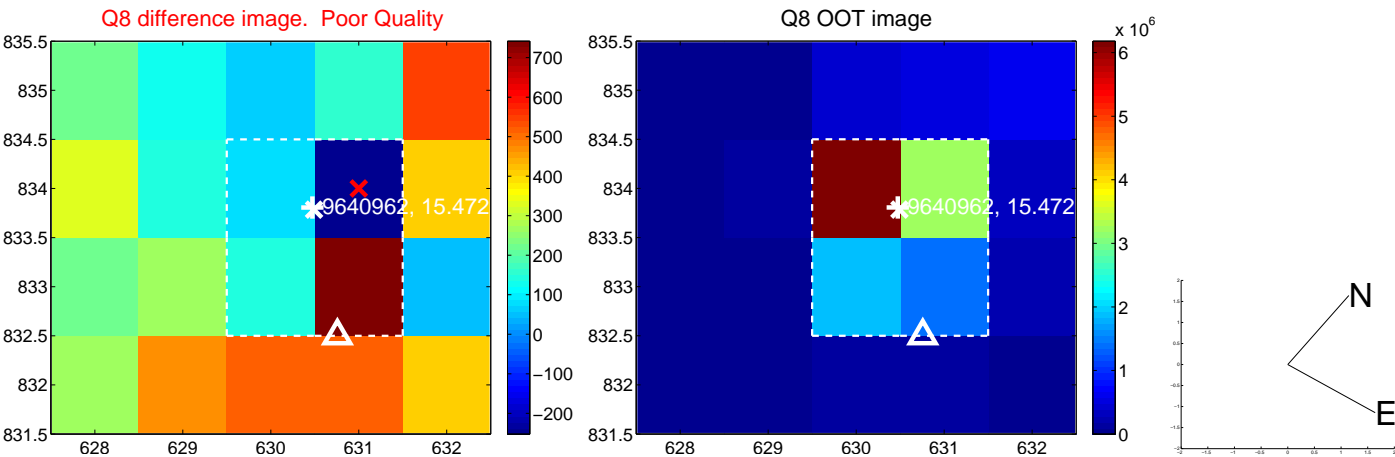
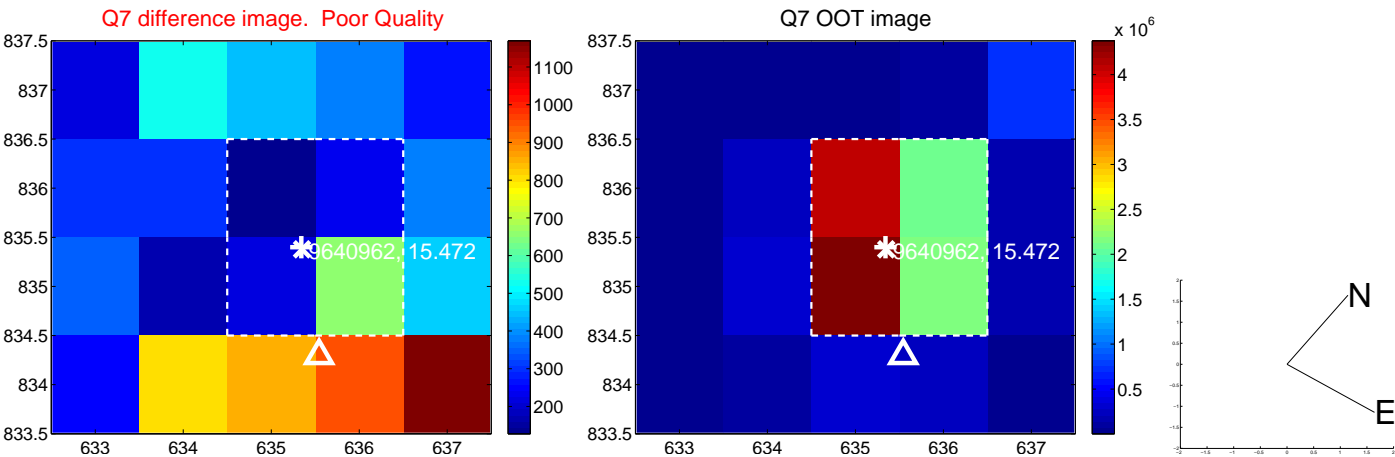
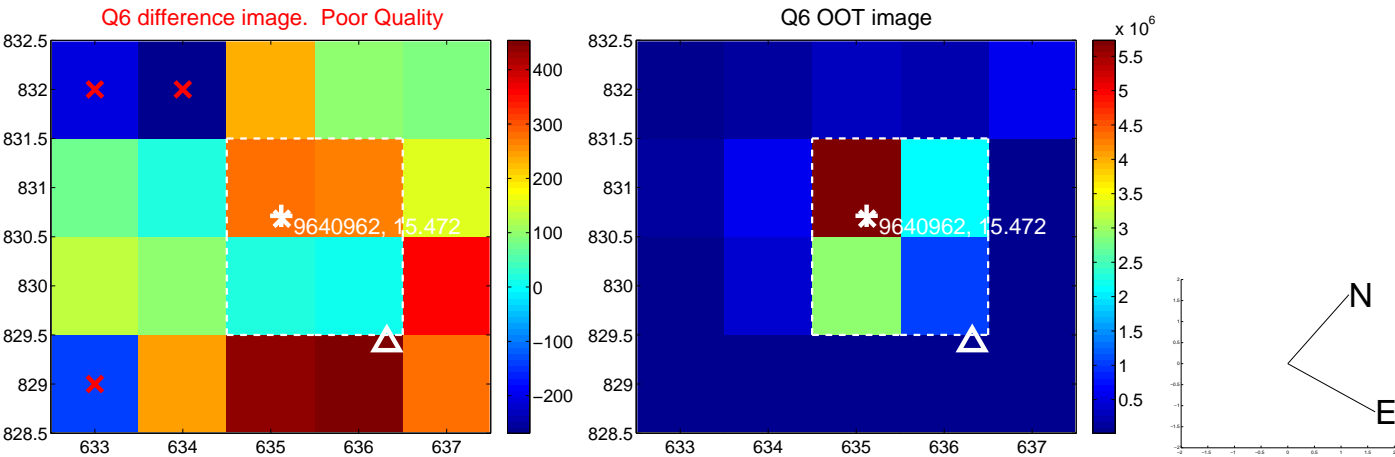
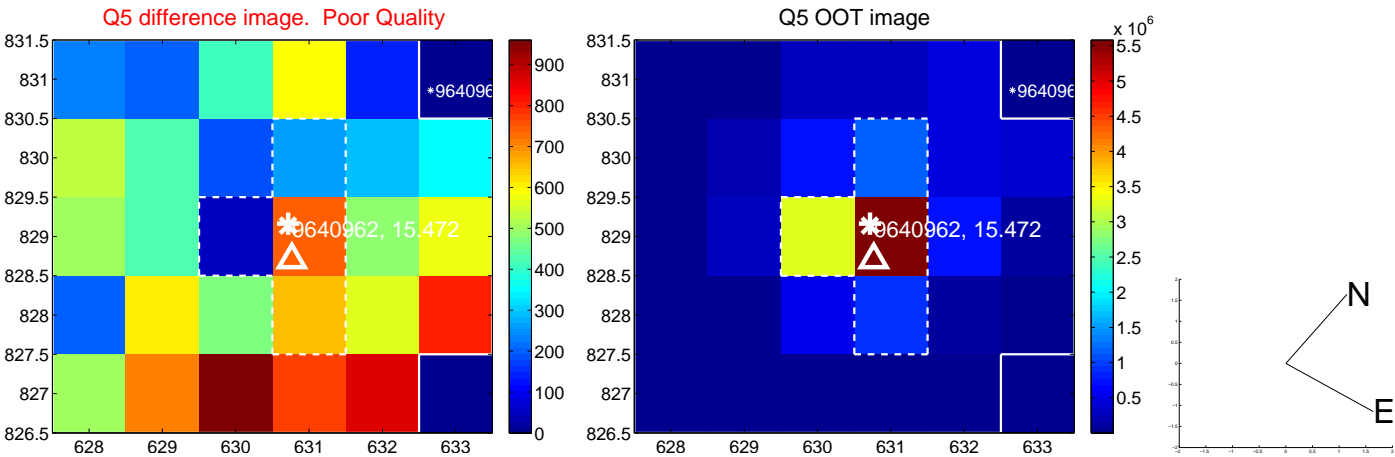


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

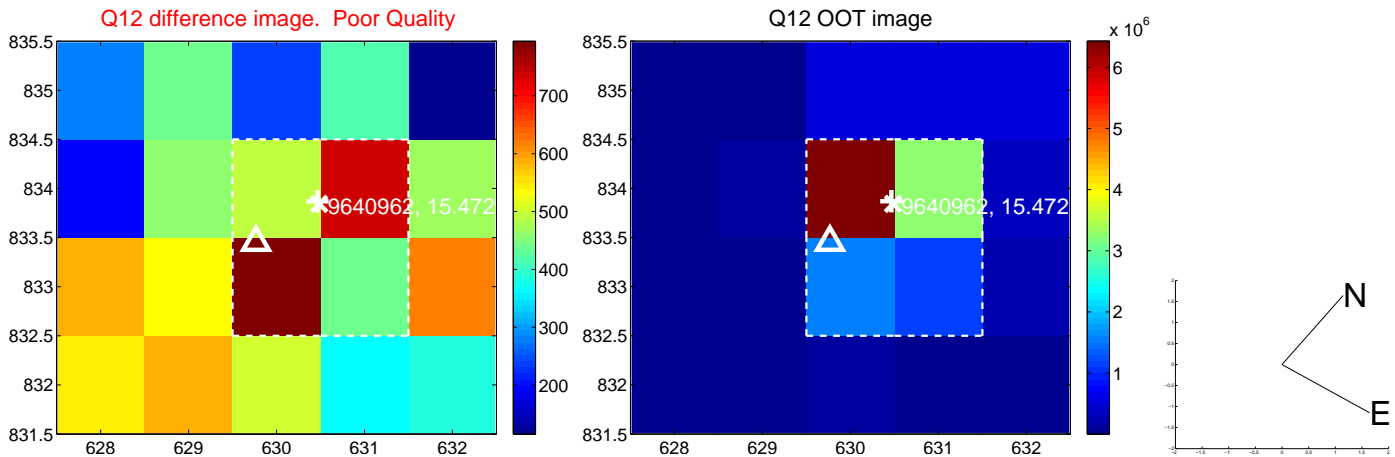
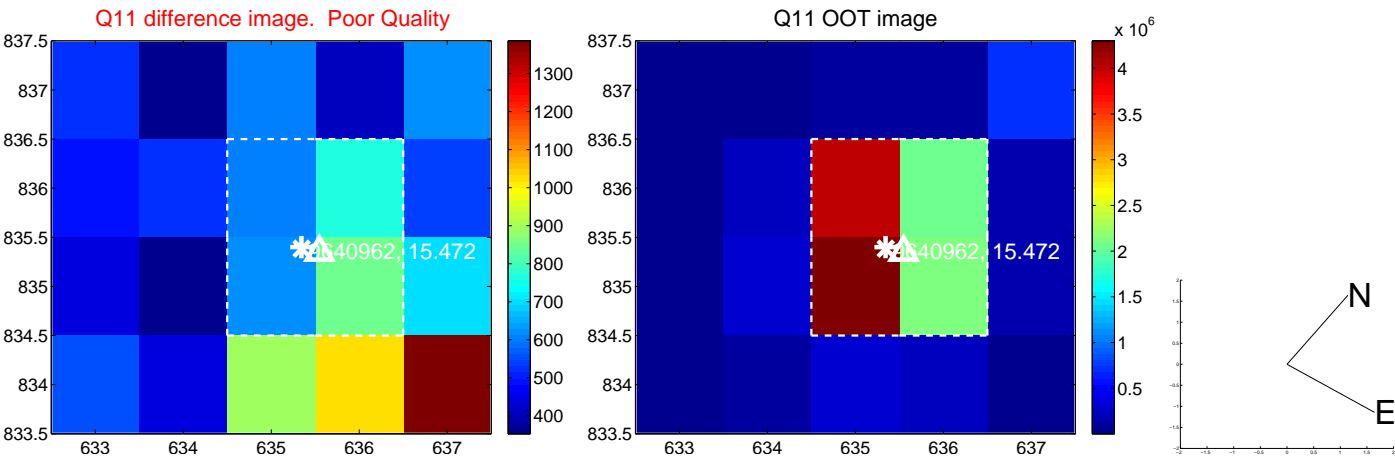
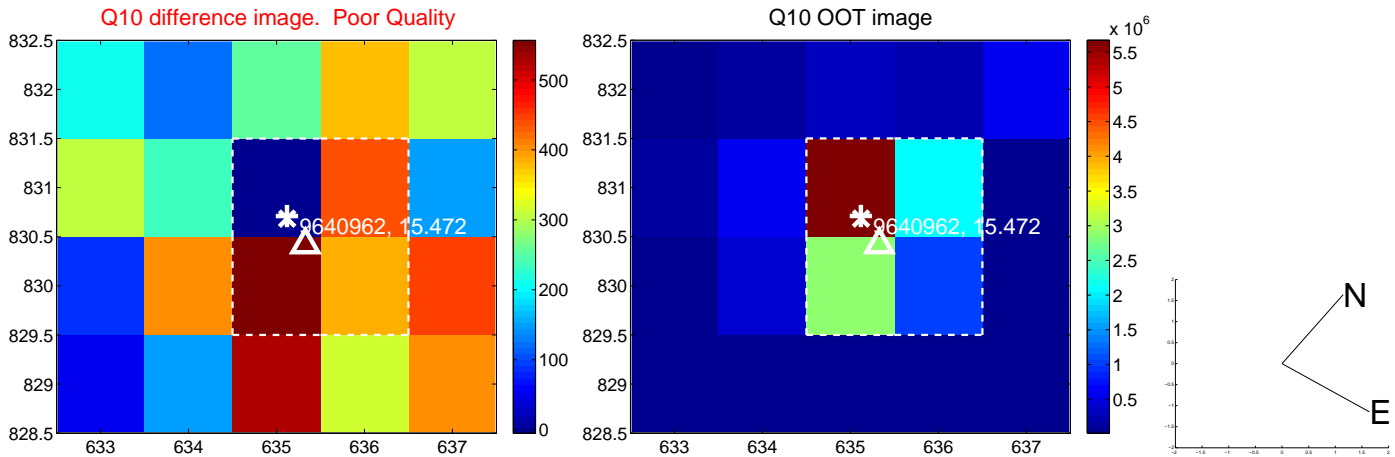
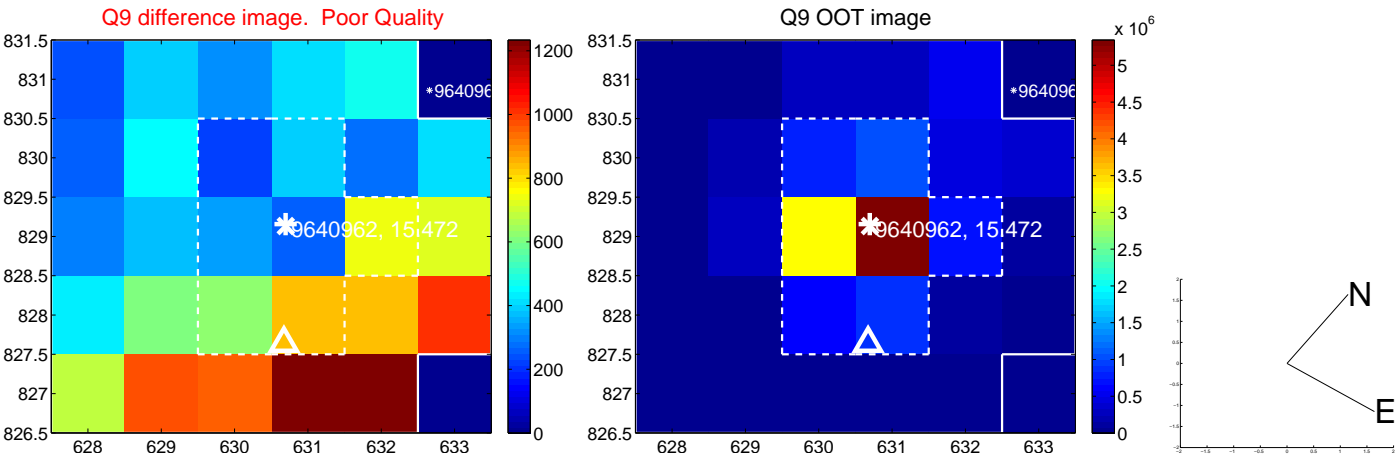
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



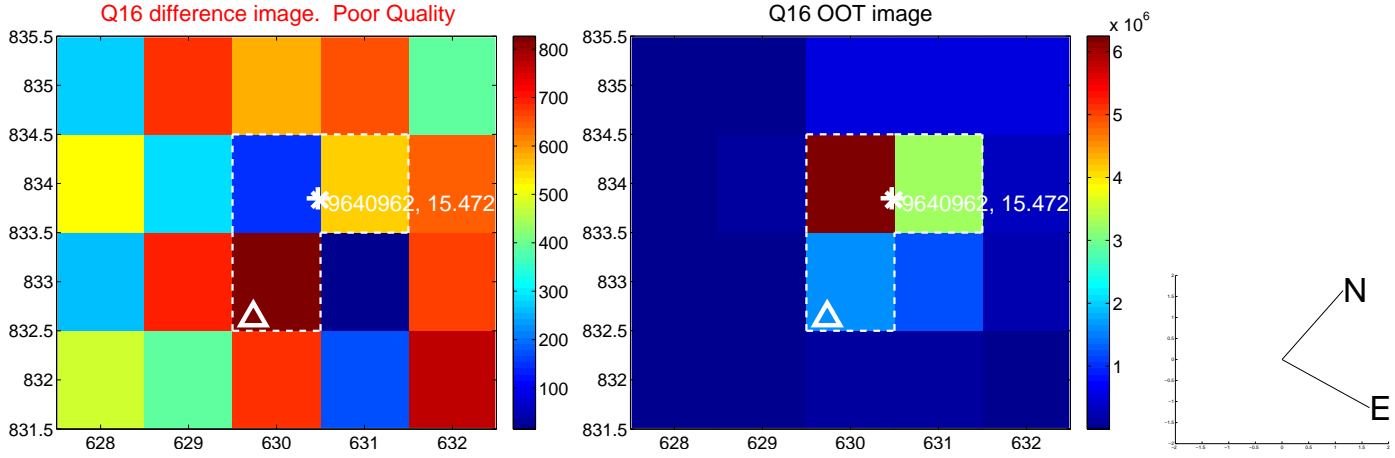
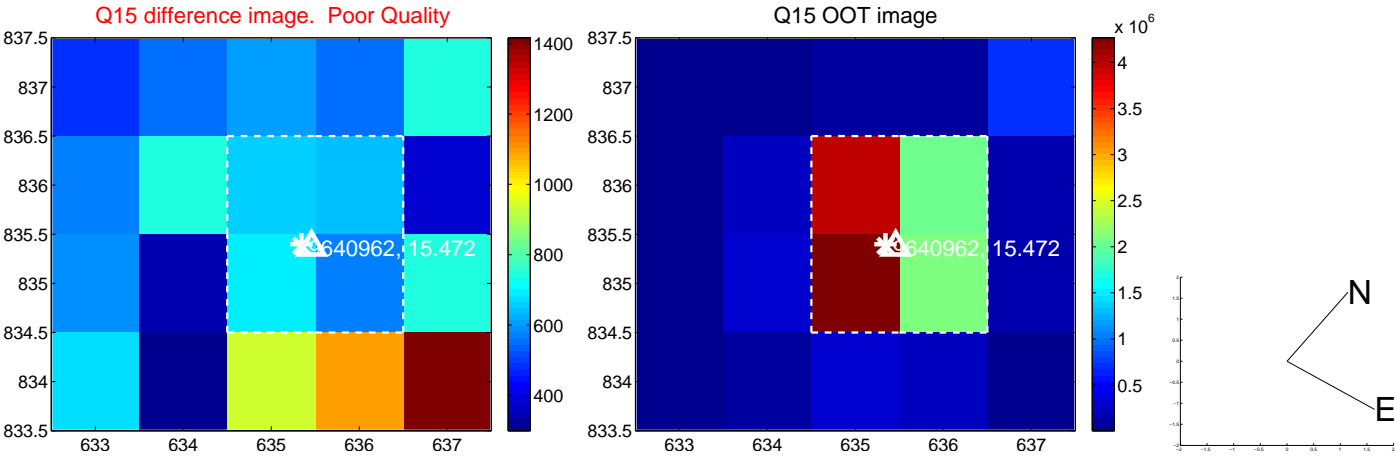
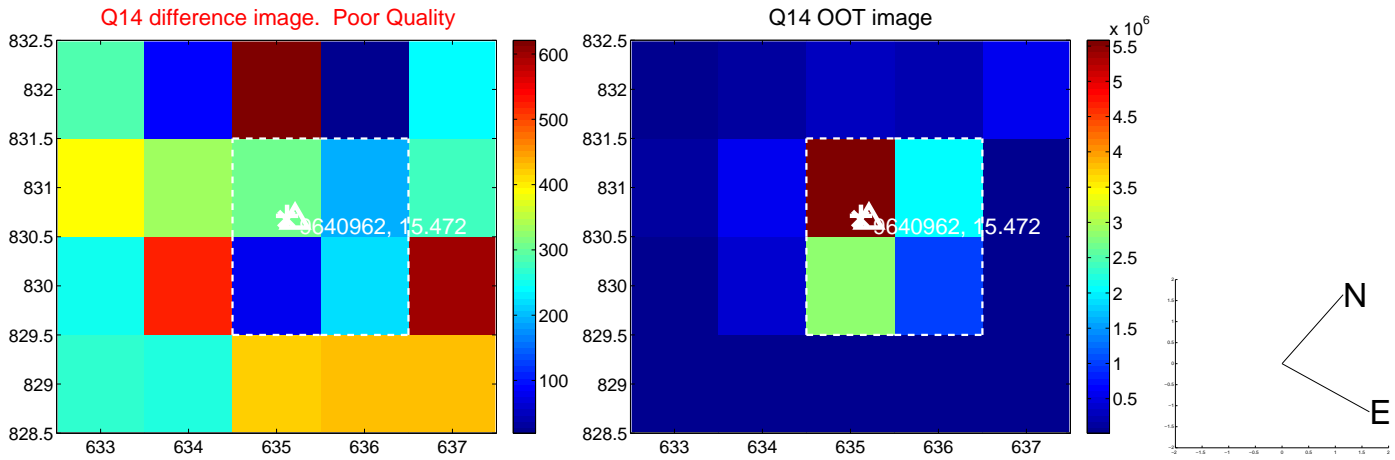
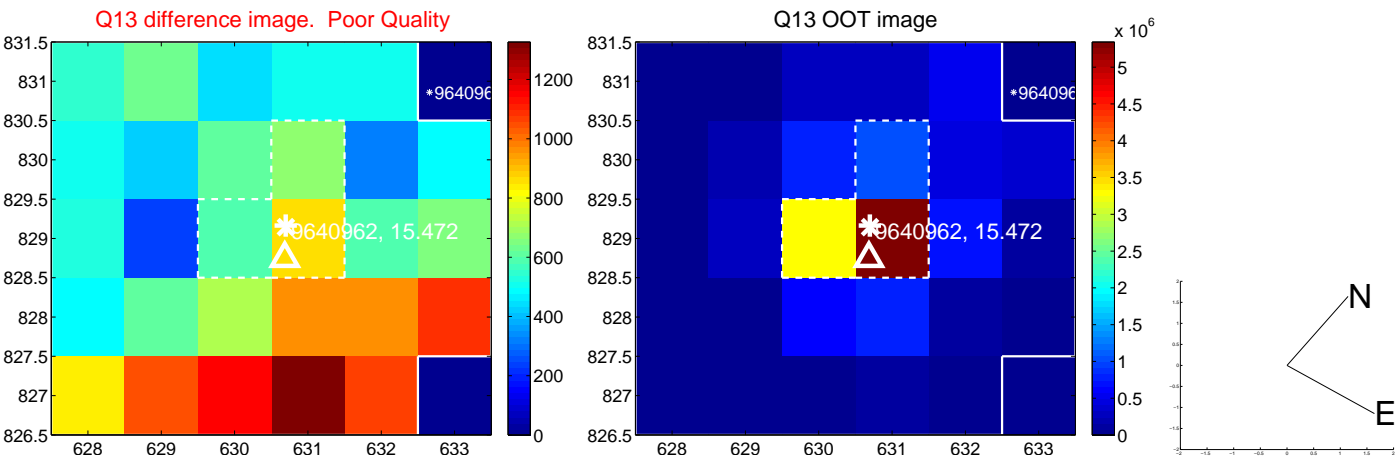
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



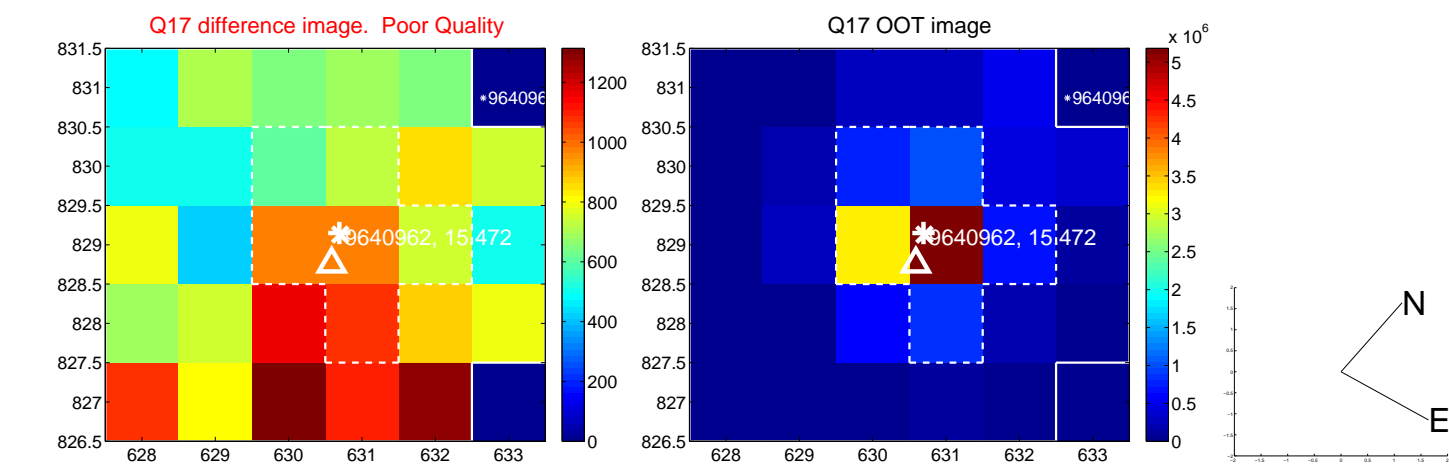
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



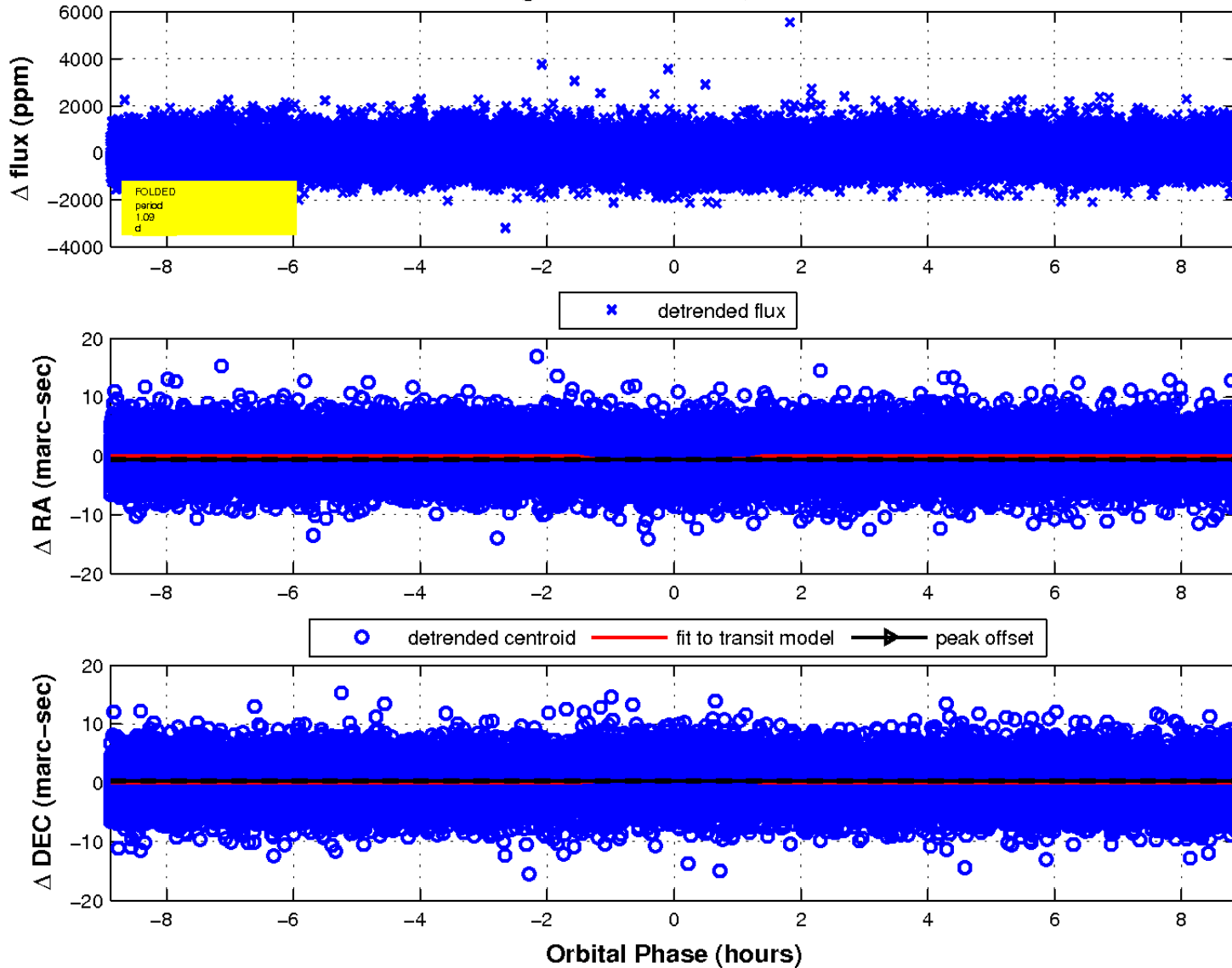
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

