

KIC 009159242

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})
009159242-01	OBS	2566.01	3.044783	132.433349	70.1	7.339	17.6	18.8	0.98	5575	0.98	566.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009159242-01	OBS	FP	0.00	0	0	1	1	CENT_UNRESOLVED_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.

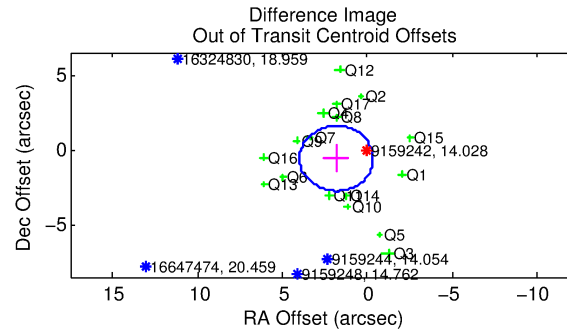
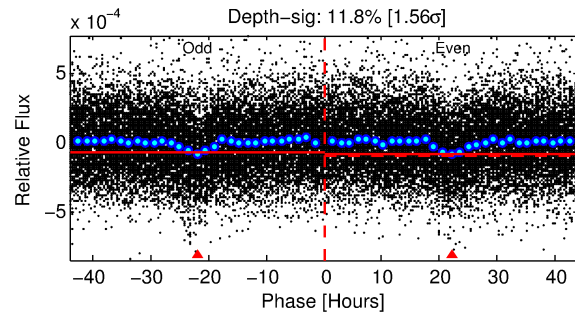
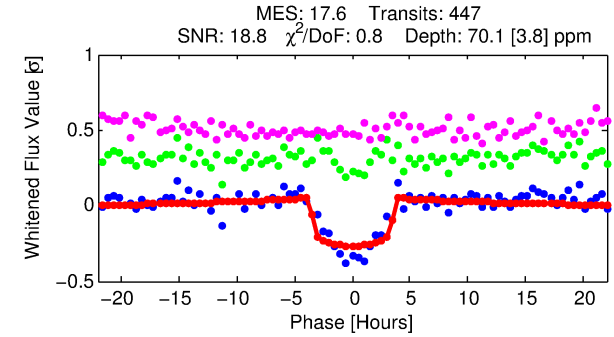
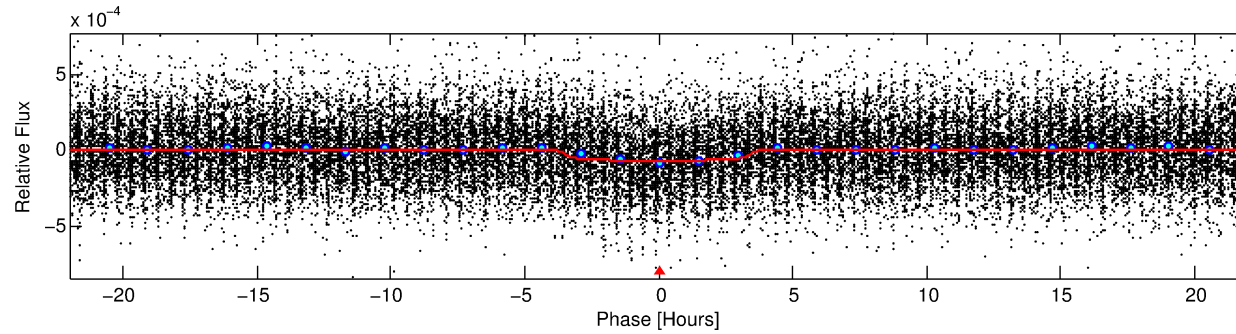
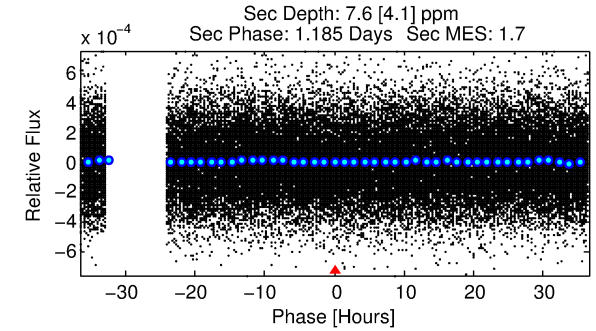
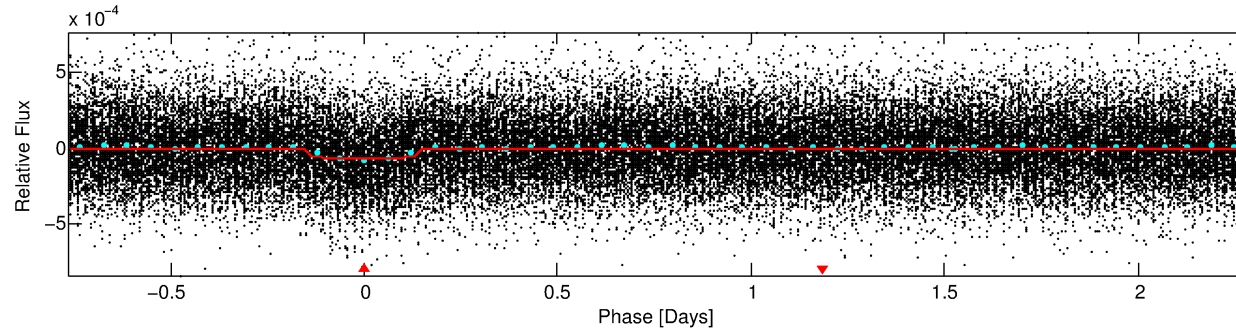
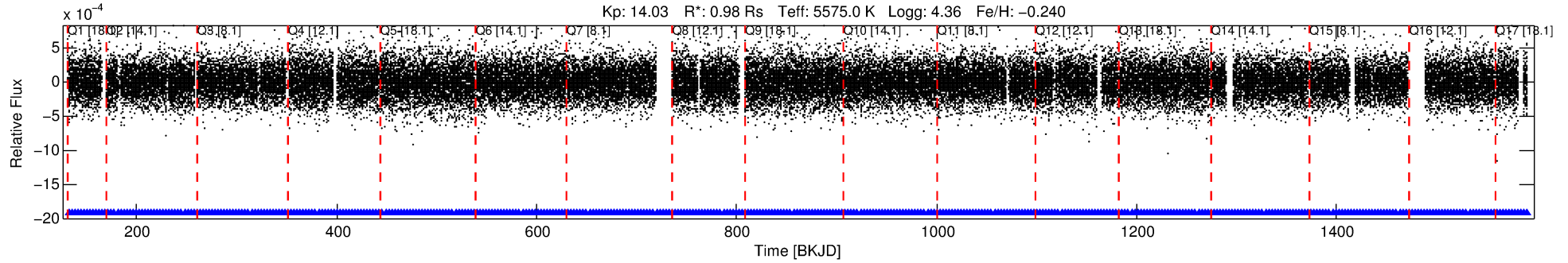
Ephemeris Match Information For 009159242-01

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
009159242-01	9159242	009159301-pri	9159301	1:1	48.2	-10	7	12.15	14.03	6982.90	Direct-PRF	0	0.25	0.18

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: 9159242 Candidate: 1 of 1 Period: 3.045 d
KOI: K02566.01 Corr: 0.901



DV Fit Results:

Period = 3.04478 [0.00002] d
Epoch = 132.4333 [0.0039] BKJD
Rp/R* = 0.0091 [0.0015]
a/R* = 1.72 [0.89]
b = 0.90 [0.17]
Seff = 566.61 [272.23]
Teq = 1244 [149] K
Rp = 0.98 [0.37] Re
a = 0.0383 [0.0117] AU
Ag = 6.44 [5.06] [1.07σ]
Teffp = 3064 [494] K [3.53σ]

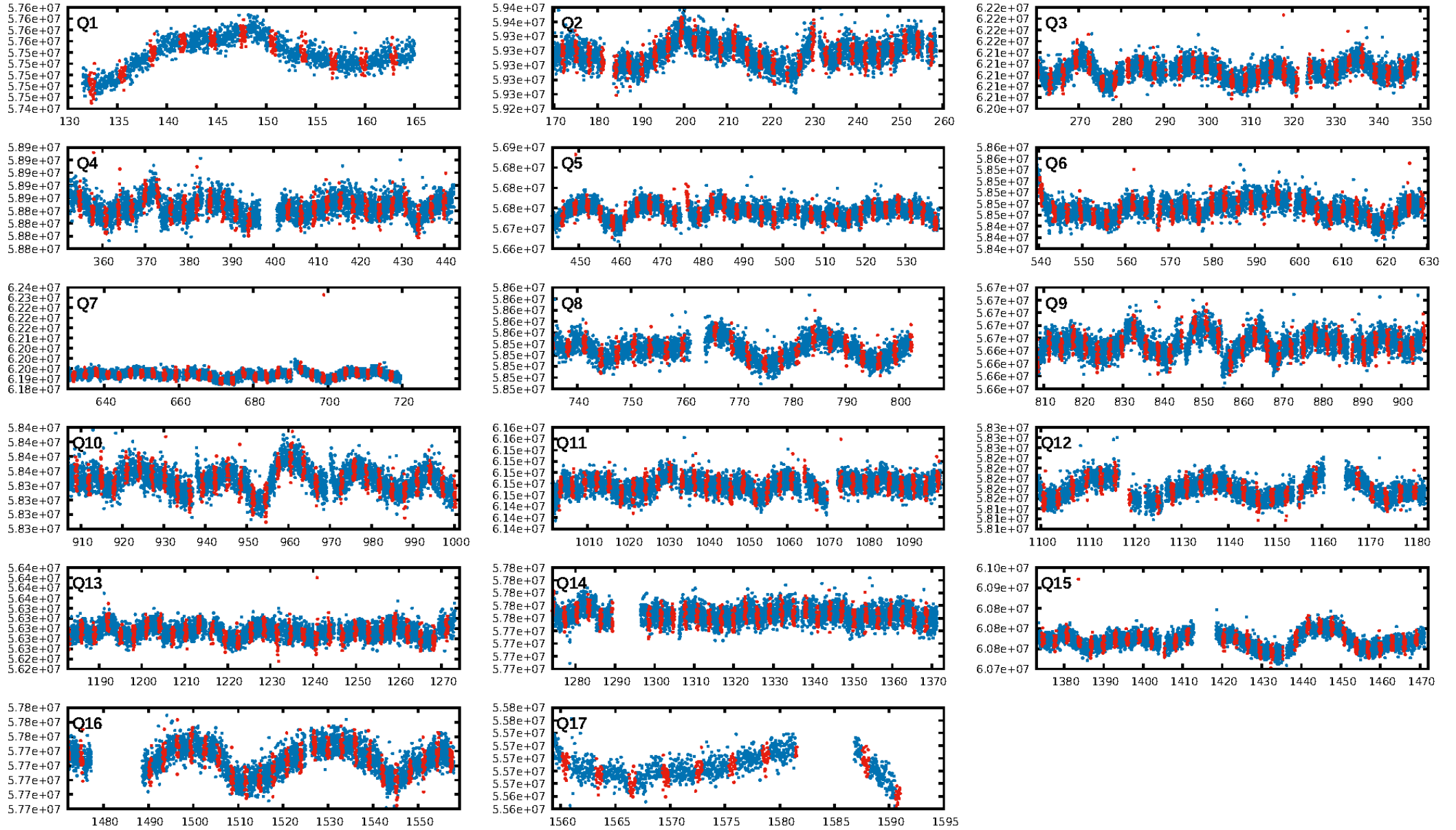
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.13e-61
RollingBand-fgt: 1.00 [427/427]
GhostDiagnostic-chr: -0.0008026
Centroid-sig: 0.0%
Centroid-so: 3.187 arcsec [7.41σ]
OotOffset-rm: 1.901 arcsec [2.62σ]
KicOffset-rm: 1.972 arcsec [2.72σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 1.00 [17/17]

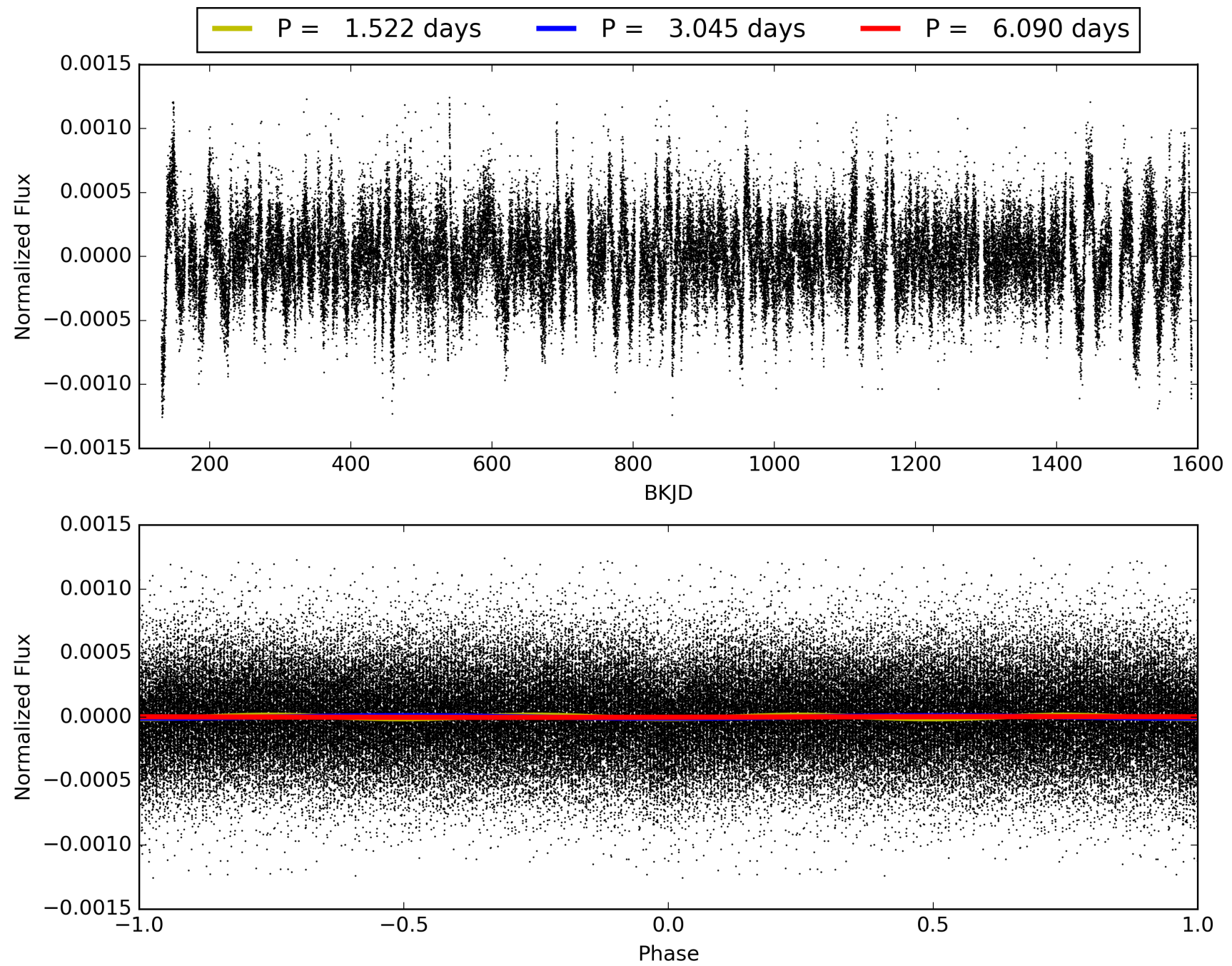
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:36:57 Z

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

TCE 009159242-01, PDC Light Curves

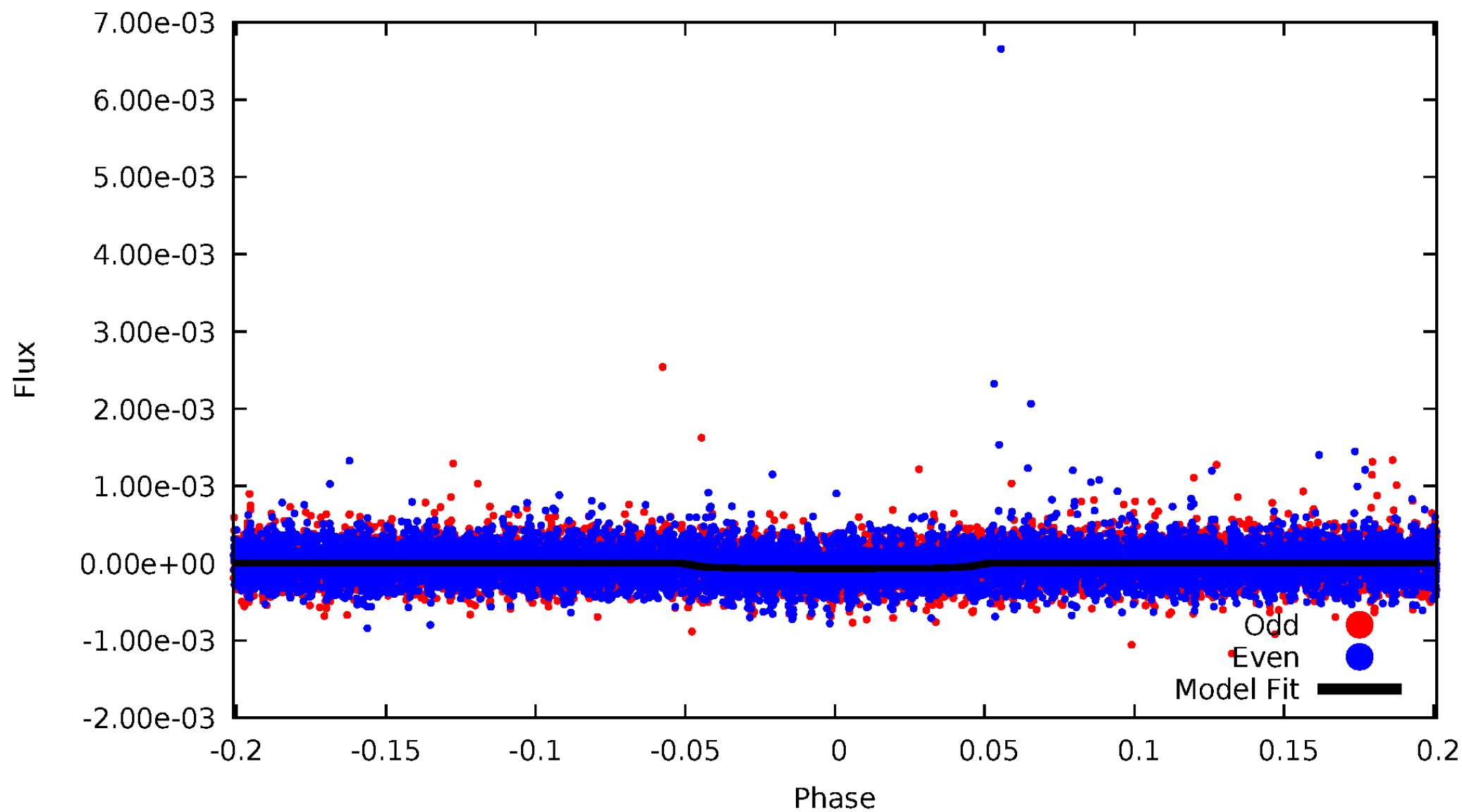


TCE 009159242-01



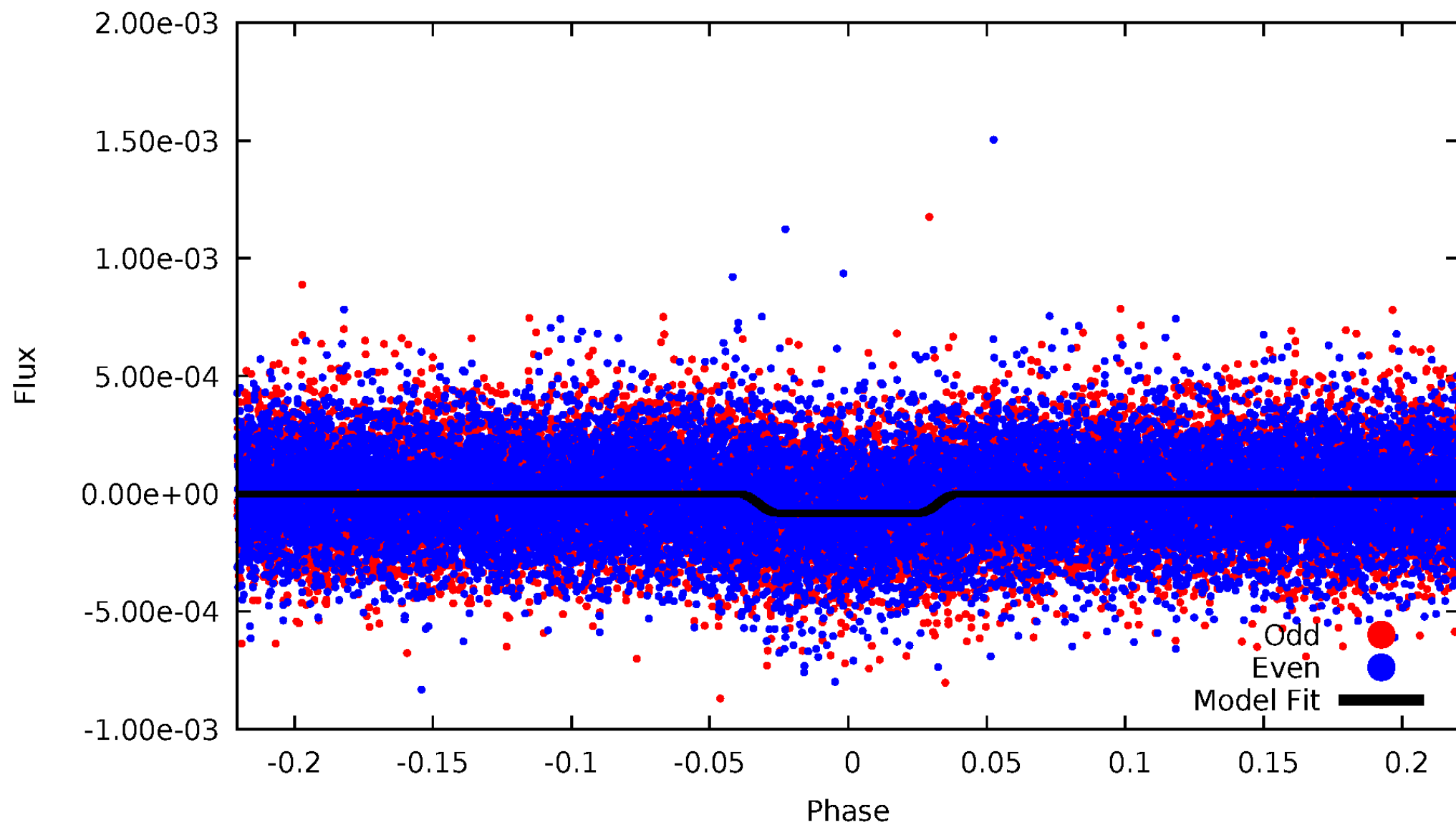
DV Odd/Even

TCE 009159242-01



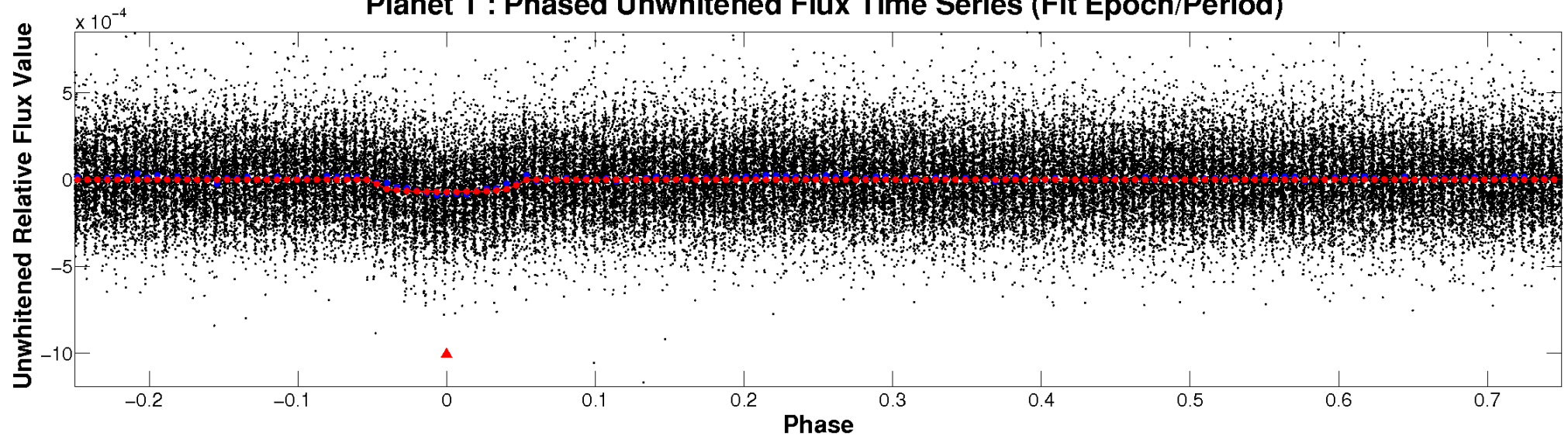
ALT Odd/Even

TCE 009159242-01

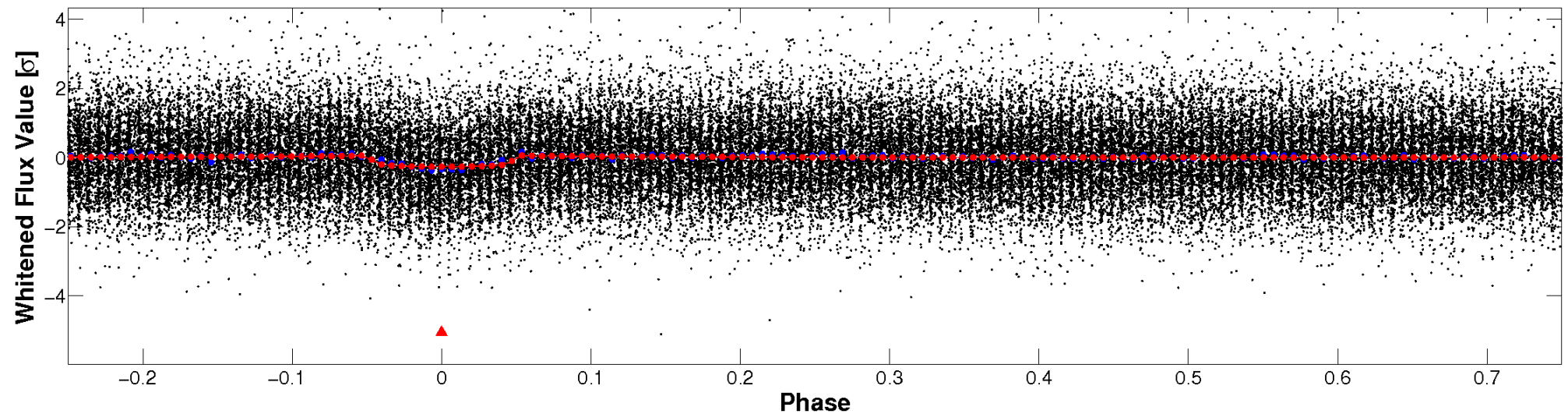


Non-Whitened Vs. Whitened Light Curve

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

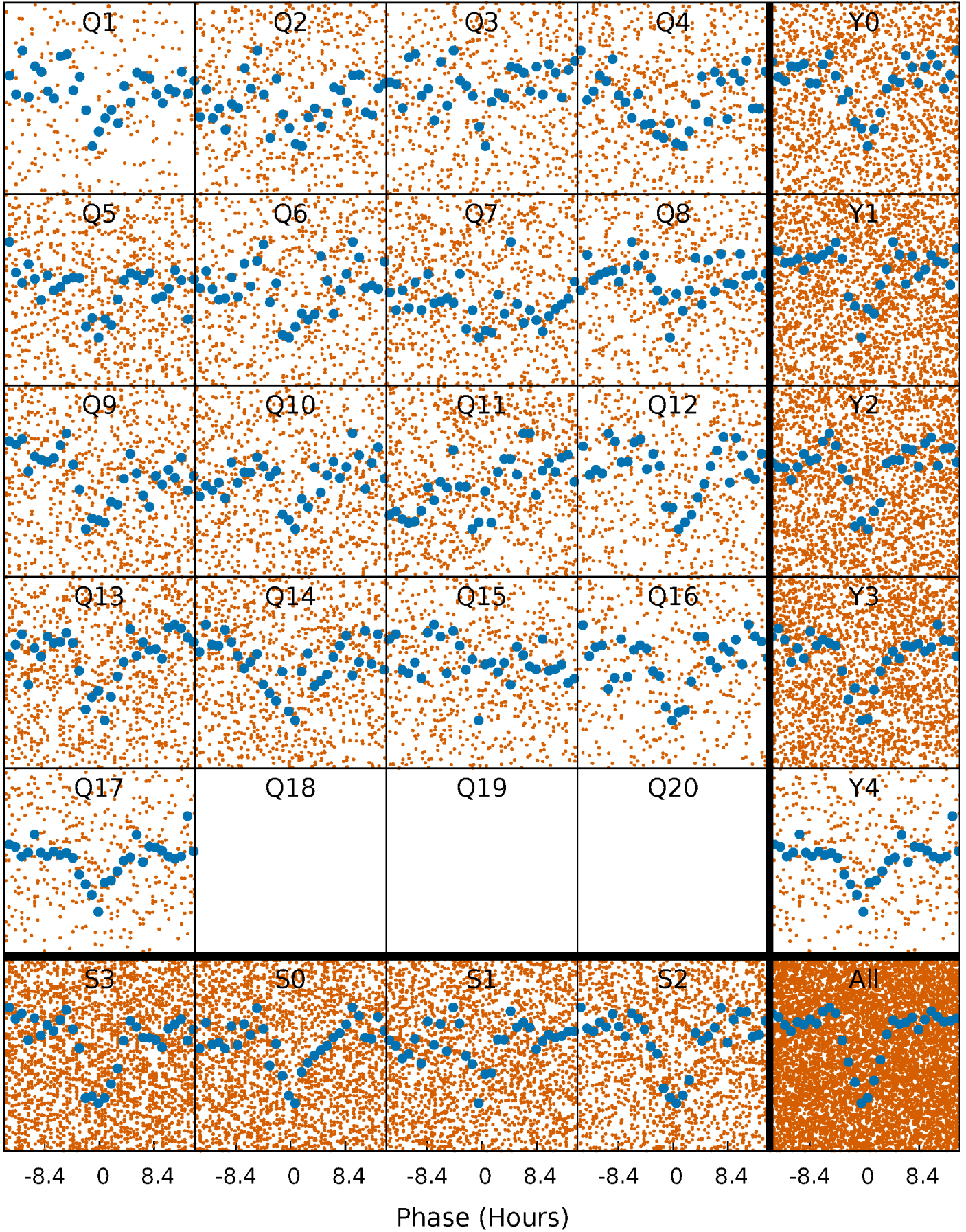


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



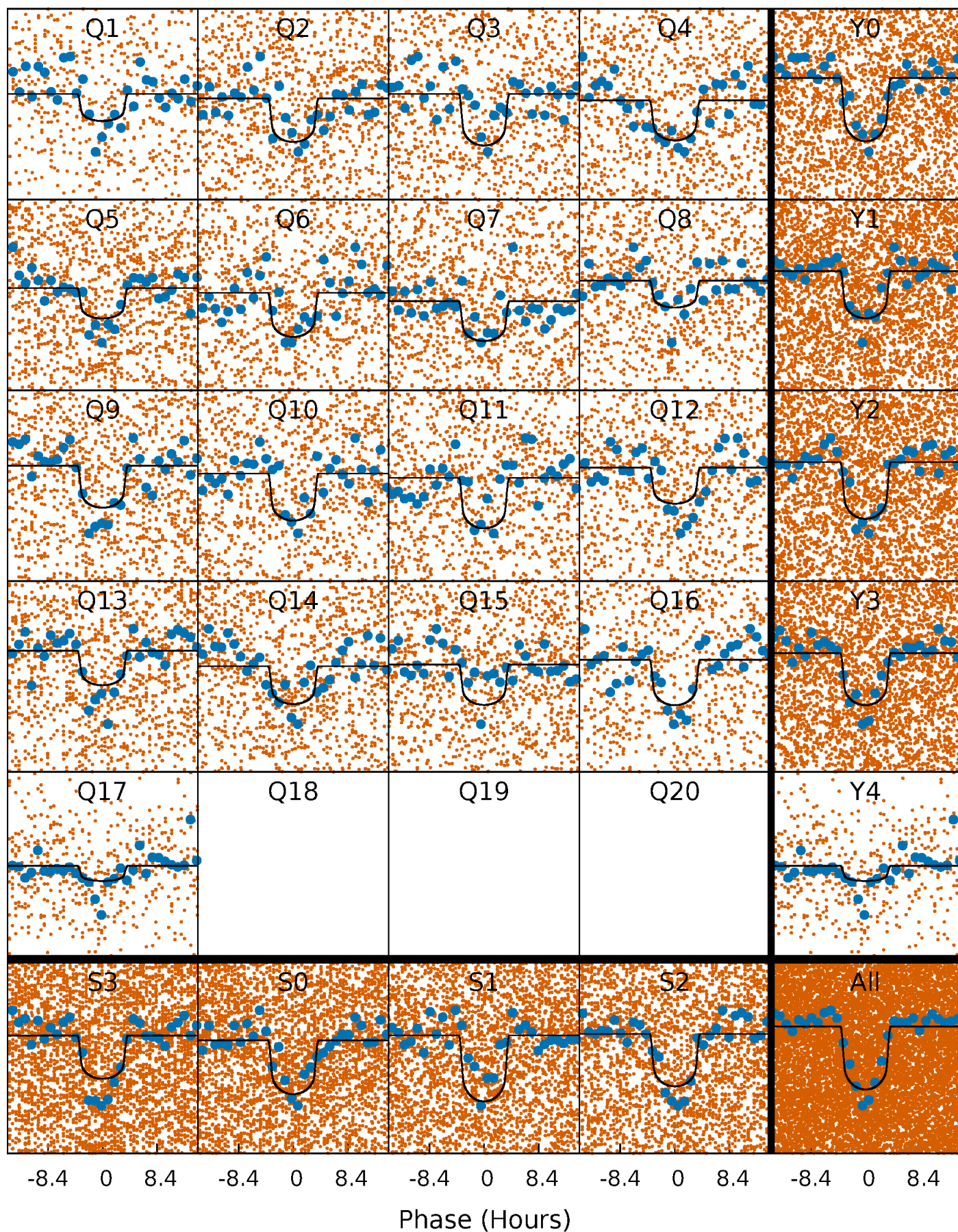
PDC Quarter-Phased Transit Curves

TCE 009159242-01 P= 3.044783 Days $T_0=132.433349$ (BKJD)



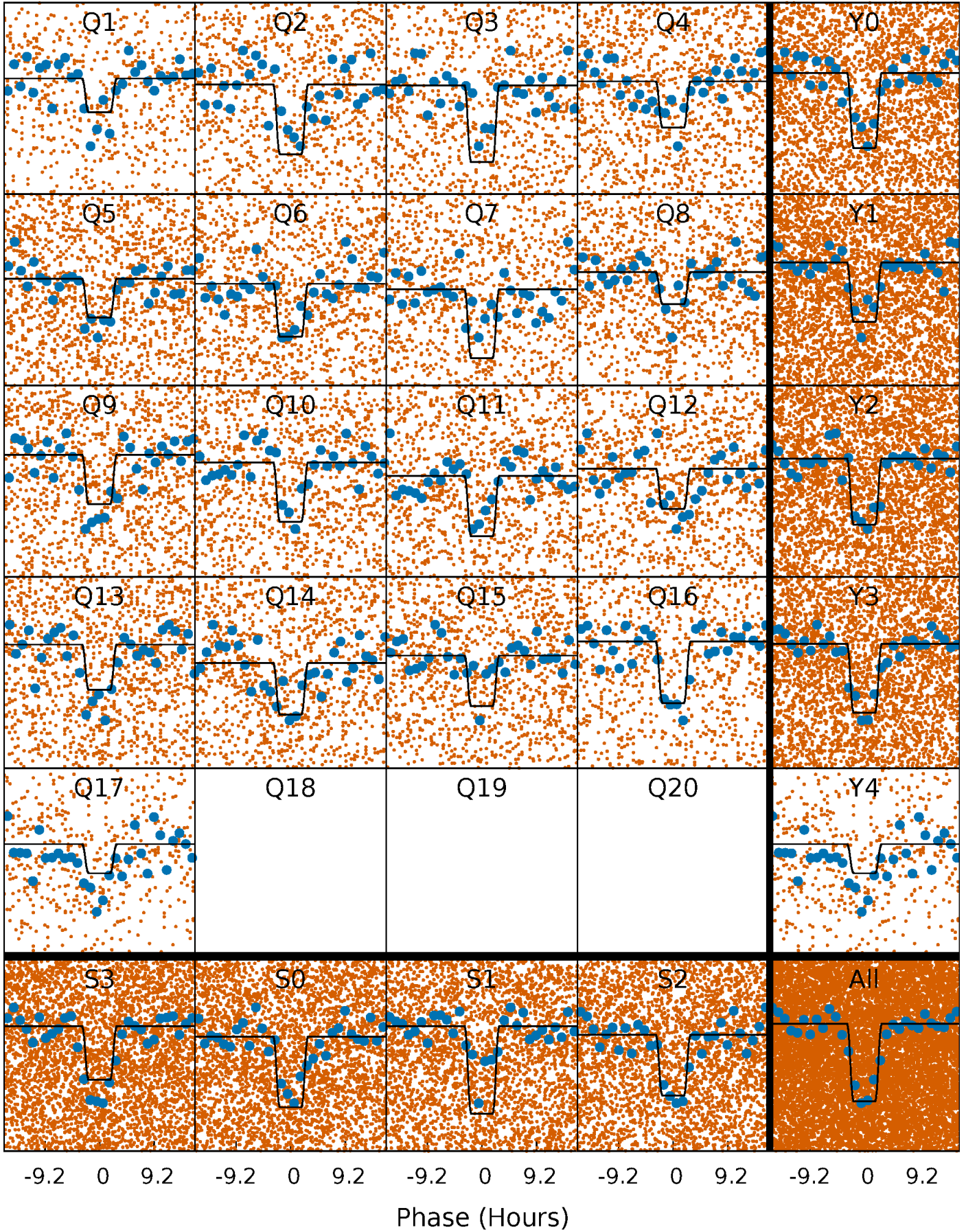
DV Quarter-Phased Transit Curves

TCE 009159242-01 P= 3.044783 Days $T_0=132.433349$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

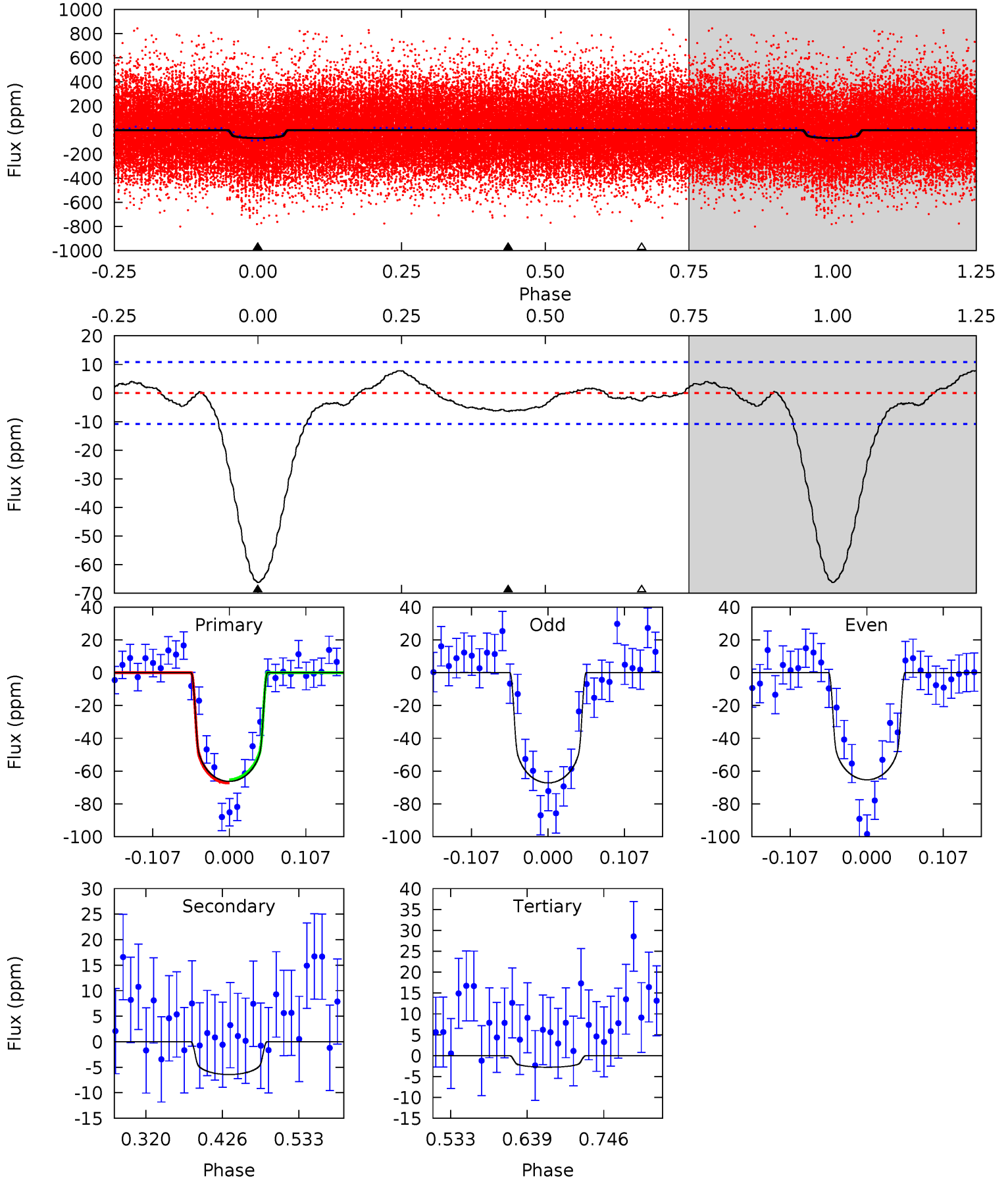
TCE 009159242-01 P= 3.044738 Days $T_0=132.443957$ (BKJD)



DV Model-Shift Uniqueness Test

009159242-01, P = 3.044783 Days, E = 129.388566 Days

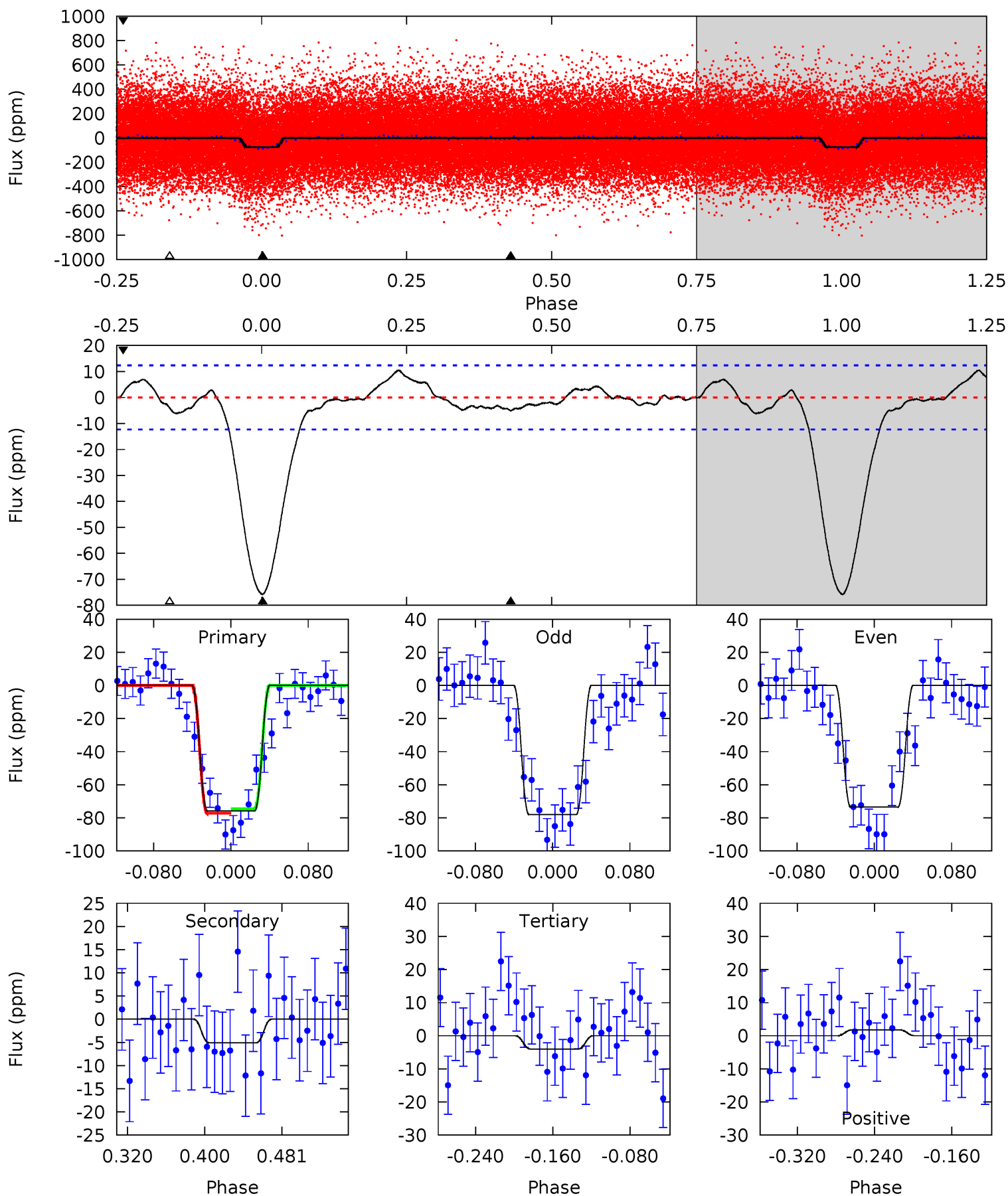
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.9	2.71	1.17	0	4.55	1.61	1.29	26.7	27.9	1.53	2.71	0.40	1.01	0.11	0.42



Alt Model-Shift Uniqueness Test

009159242-01, P = 3.044738 Days, E = 129.399219 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.4	1.90	1.50	0.66	4.61	1.75	1.38	26.9	27.7	0.40	1.24	0.84	1.03	0.12	0.49



Stellar Parameters For KIC 009159242

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5575^{+150}_{-167}	$4.363^{+0.198}_{-0.264}$	$-0.240^{+0.300}_{-0.300}$	$0.980^{+0.336}_{-0.196}$	$0.810^{+0.127}_{-0.063}$	$1.211^{+1.187}_{-0.715}$
	+3%/-3%	+5%/-6%	+125%/-125%	+34%/-20%	+16%/-8%	+98%/-59%
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 009159242-01 / KOI 2566.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6 ± 2	$0.99^{+0.27}_{-0.19}$	1744^{+168}_{-120}	3415^{+272}_{-304}	$5.269^{+4.111}_{-2.517}$
Alt.	-5 ± 3	$0.99^{+0.26}_{-0.21}$	1743^{+175}_{-136}	3233^{+353}_{-390}	$3.903^{+3.886}_{-2.288}$

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

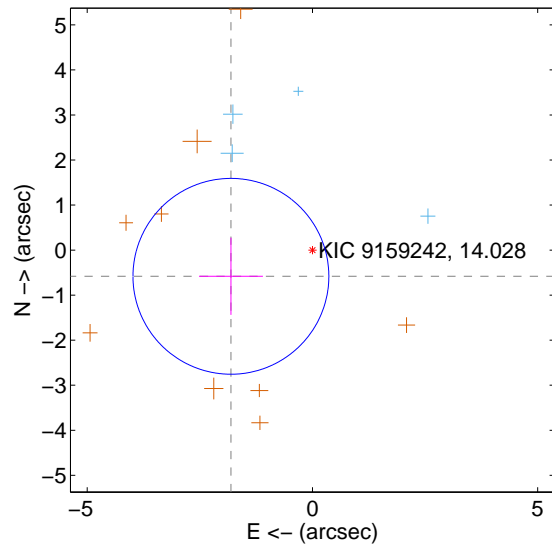
Supplemental centroid analysis for 009159242-01. Kepler magnitude: 14.03. Transit SNR 18.79

There are 4 quarters with good PRF difference image offsets

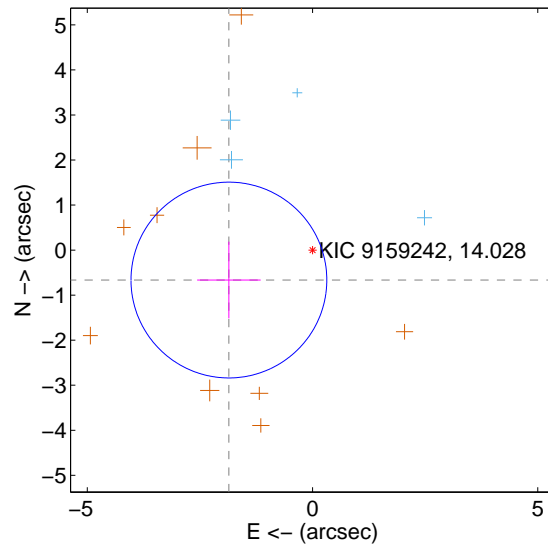
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.901 ± 0.725	2.62	1.810 ± 0.710	-0.582 ± 0.857
PRF-fit source offset from KIC position	1.972 ± 0.724	2.72	1.856 ± 0.706	-0.665 ± 0.852
photometric centroid source offset	3.19 ± 0.43	7.41	2.62 ± 0.42	1.82 ± 0.46

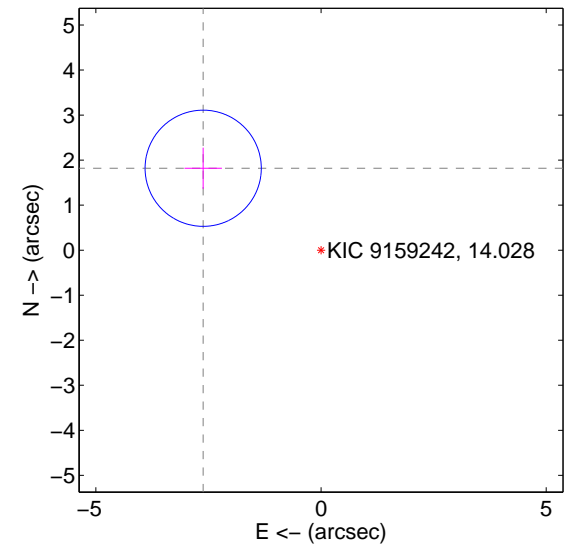
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

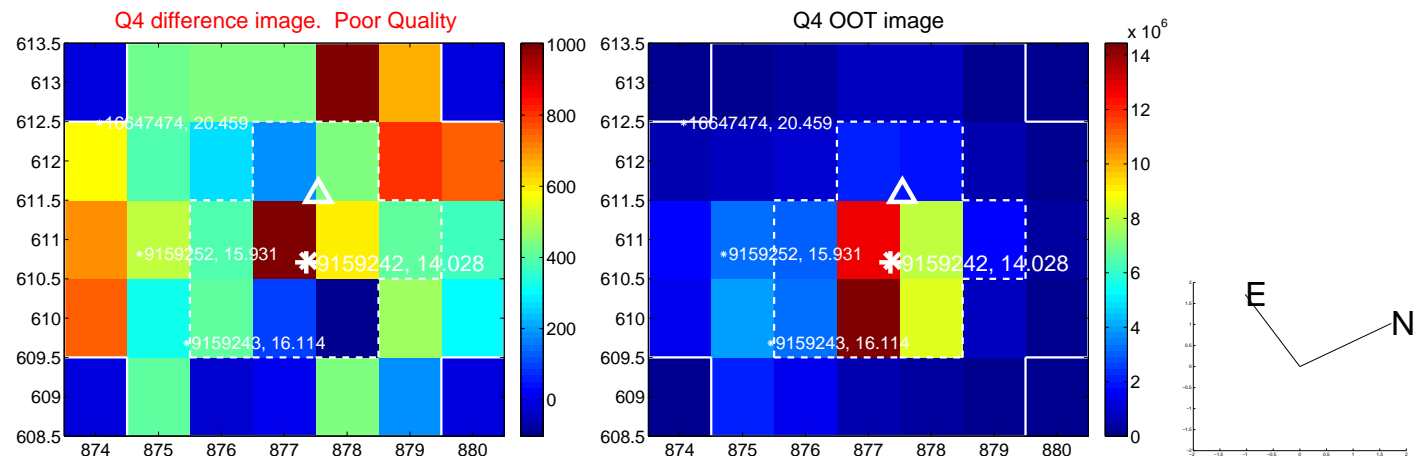
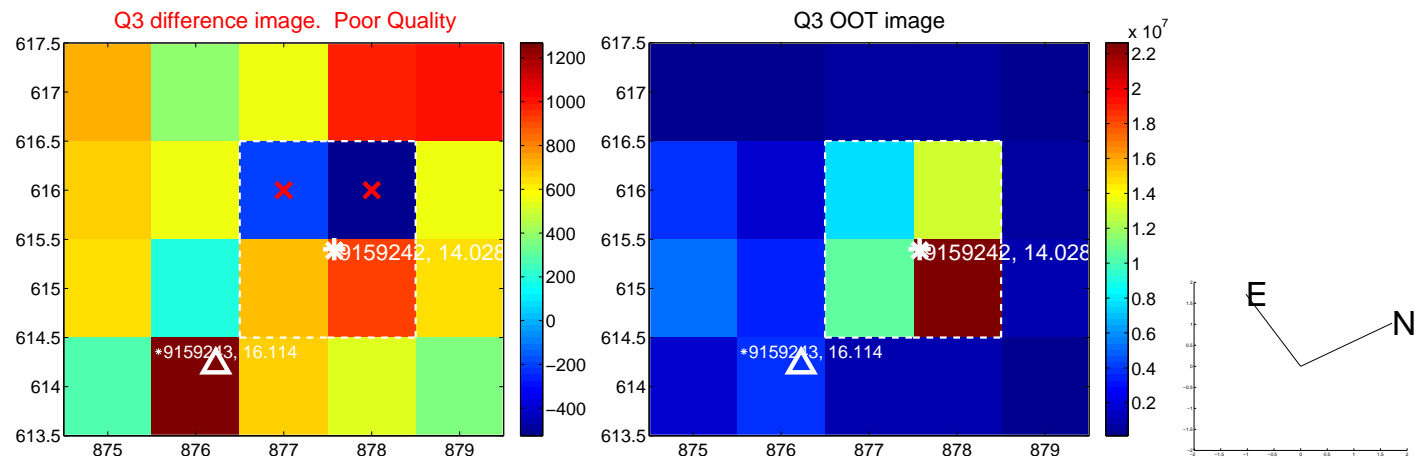
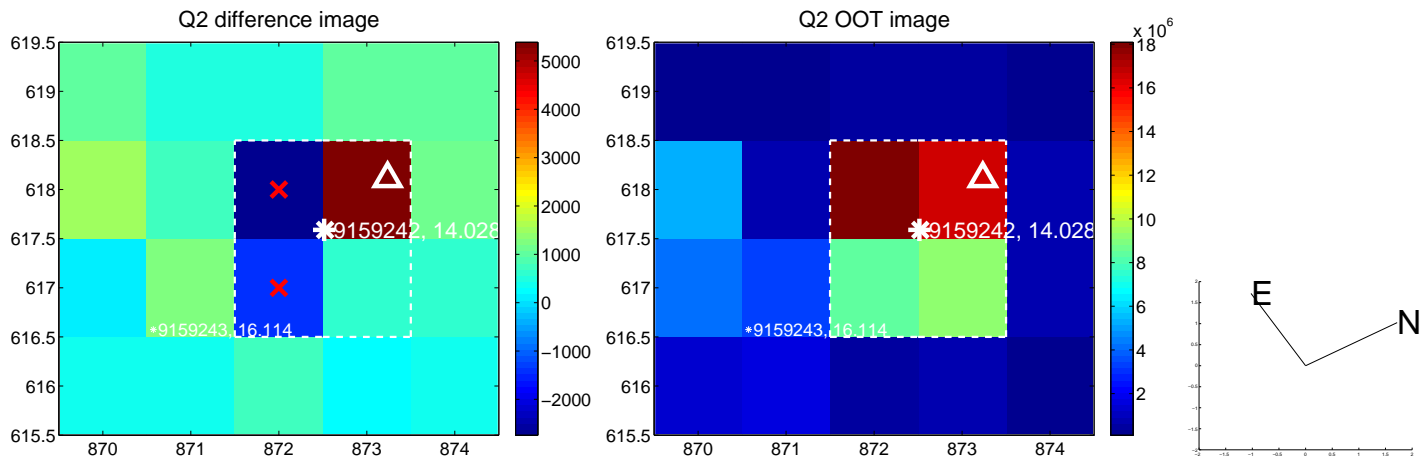
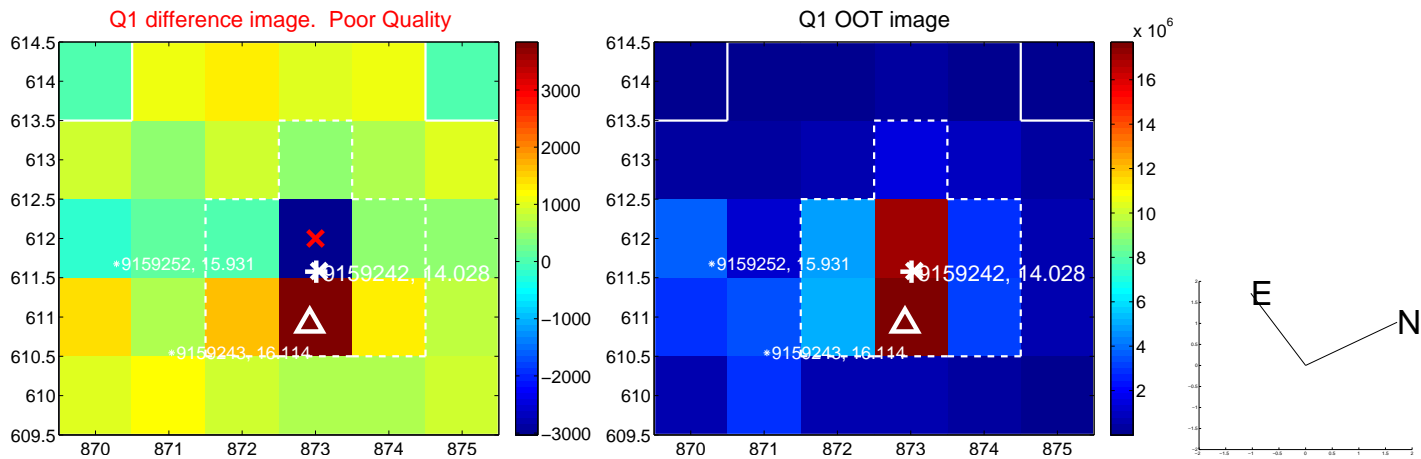


offset from photometric centroids

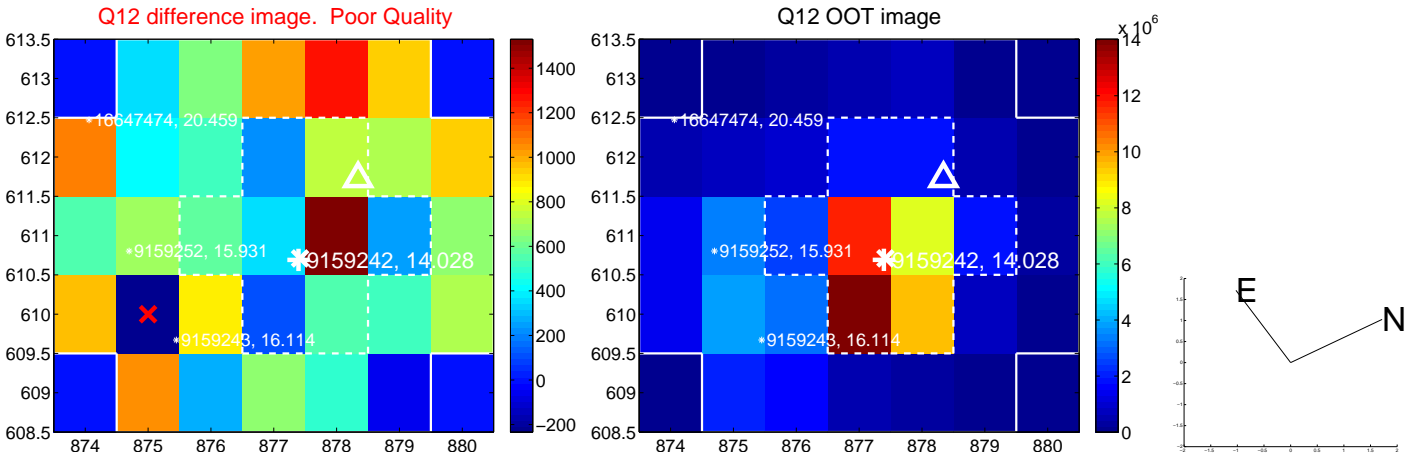
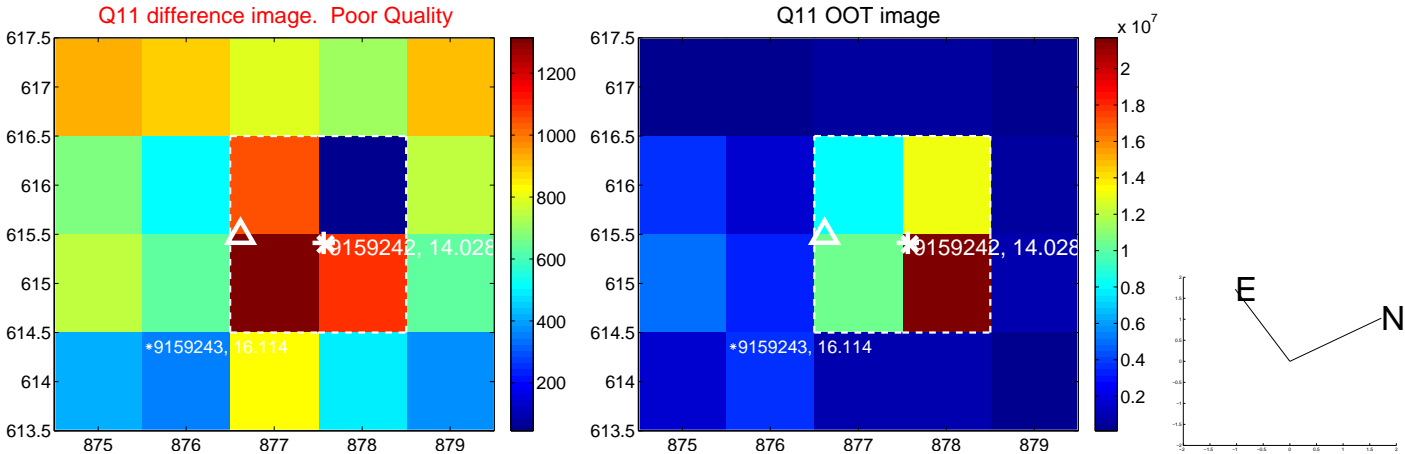
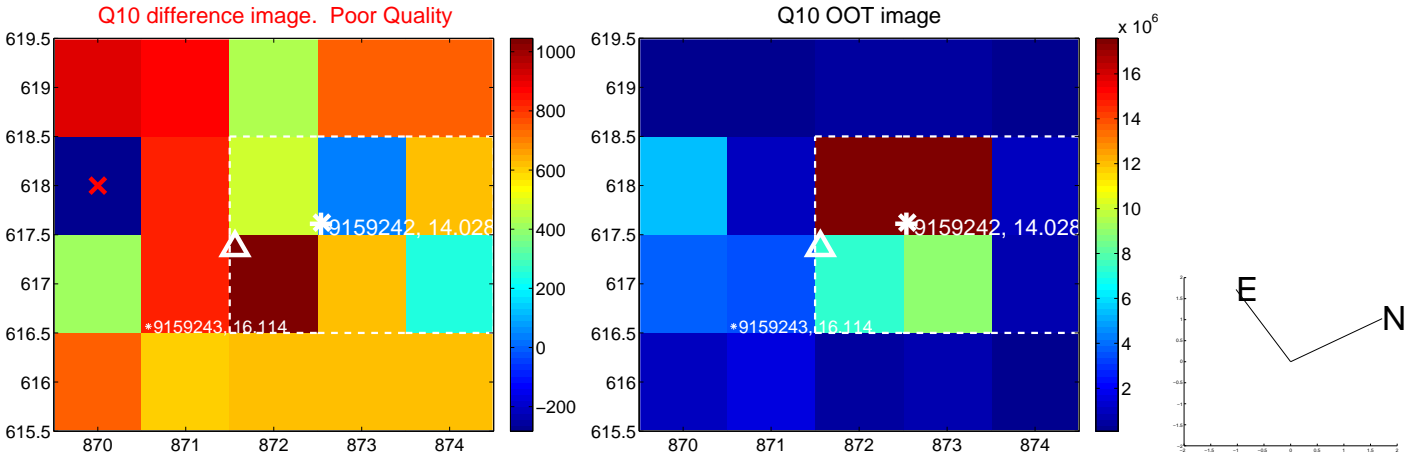
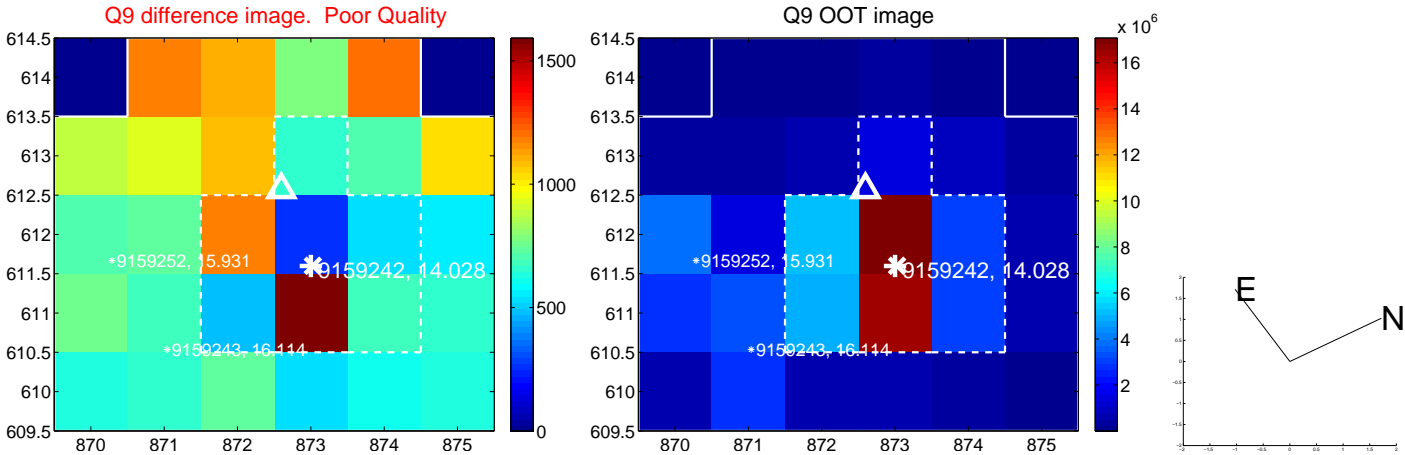


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

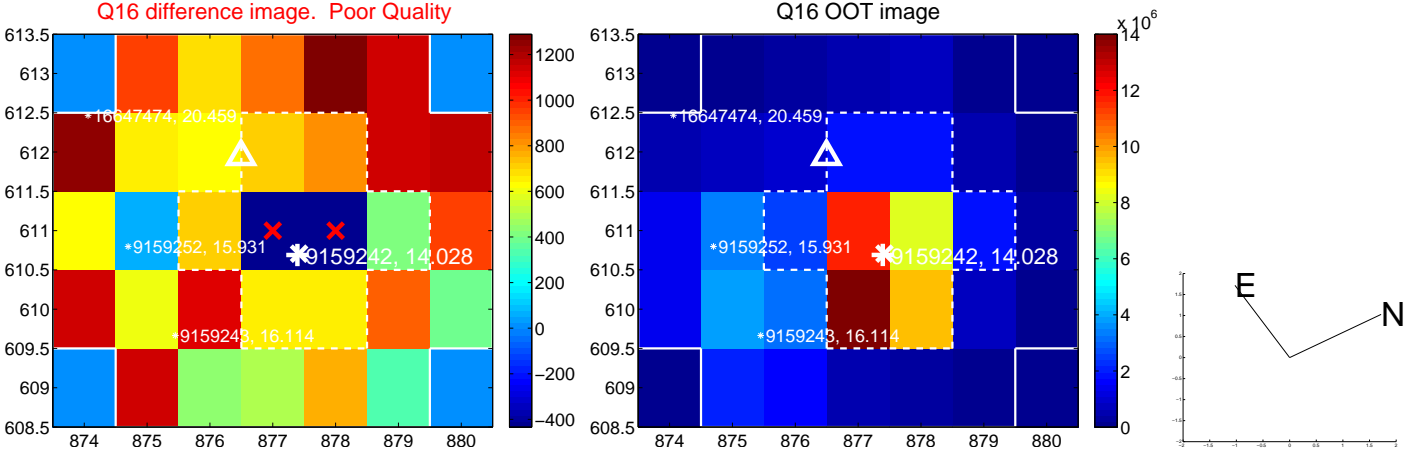
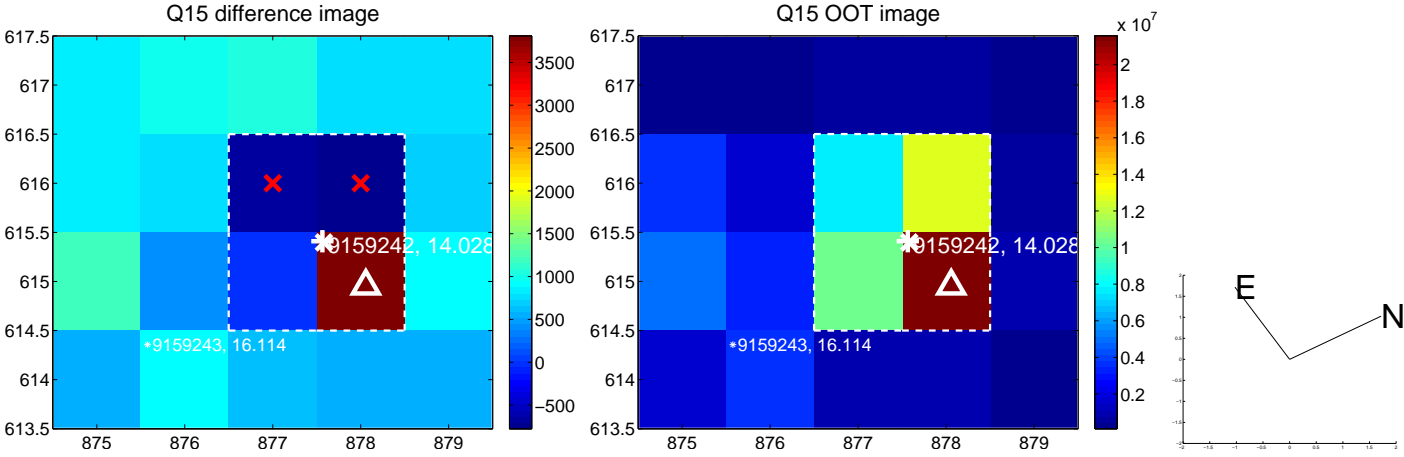
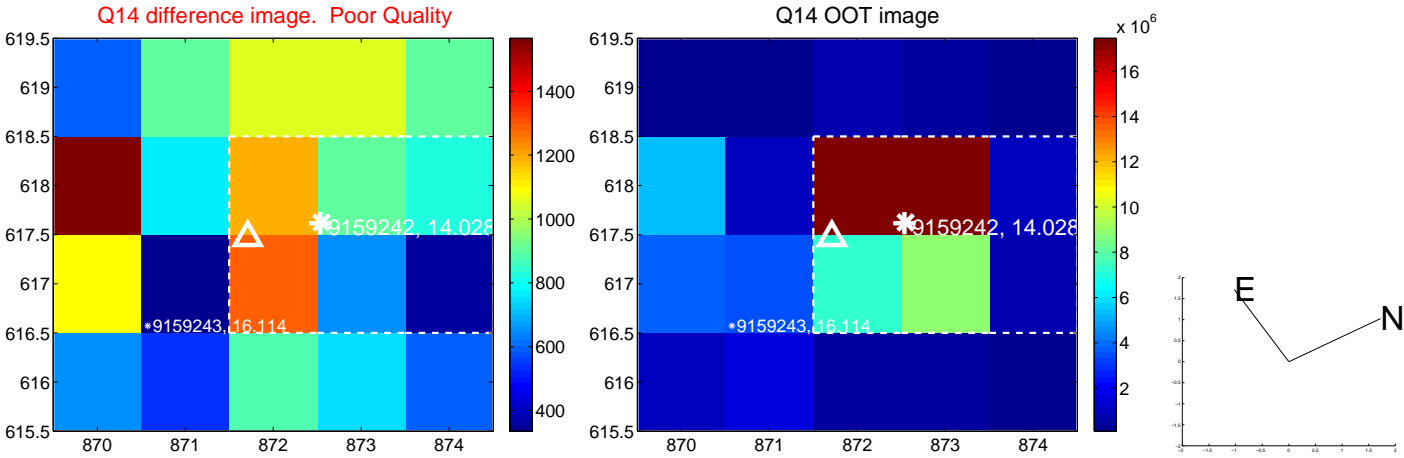
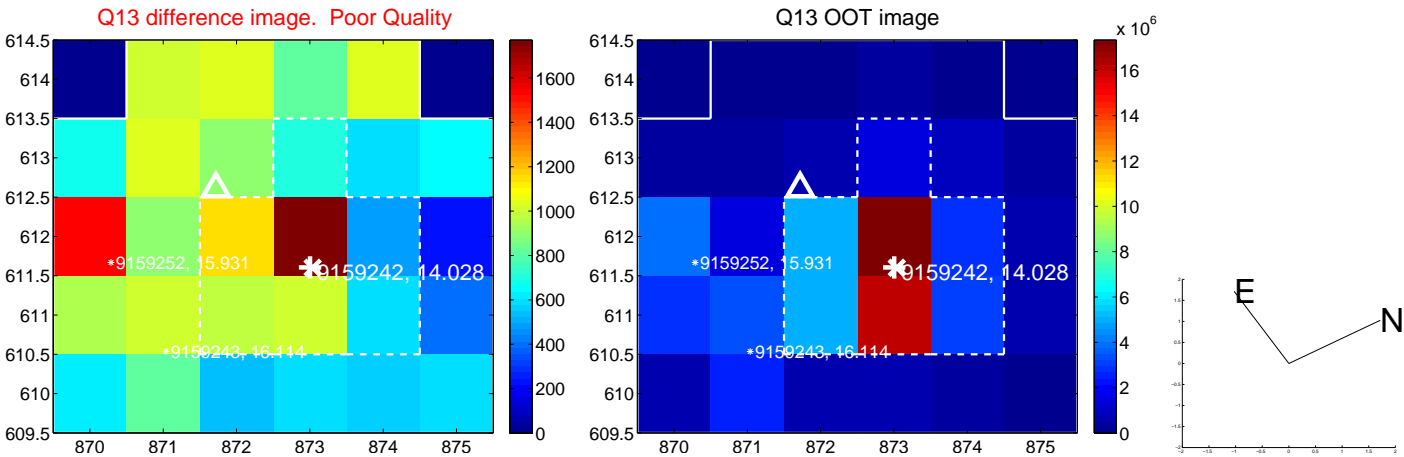
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



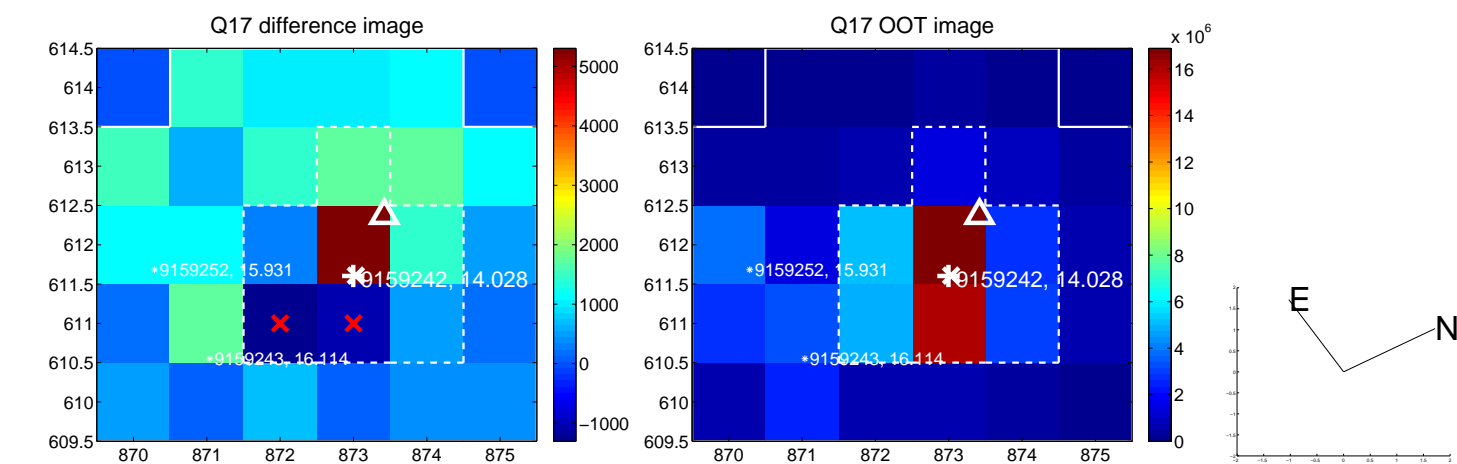
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



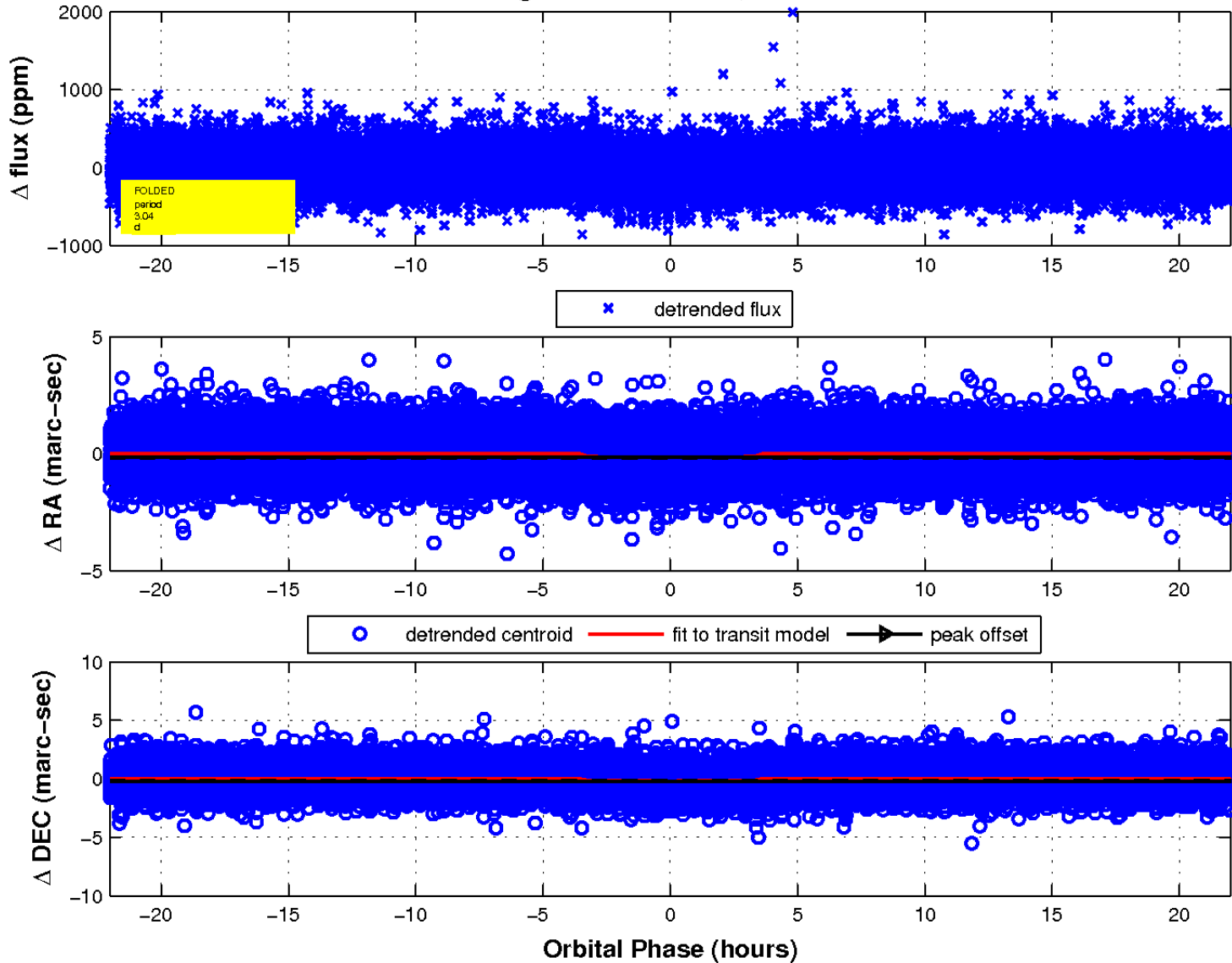
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

