

KIC 010407020

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})
010407020-01	OBS	3987.01	0.933695	131.555030	27.4	3.536	18.2	14.5	2.19	6985	1.33	22208.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407020-01	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 010407020-01

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
010407020-01	10407020	V2083-Cyg-pri	10342012	1:2	170.4	41	-13	6.90	13.37	7345.30	Direct-PRF	0	4.38	3.98

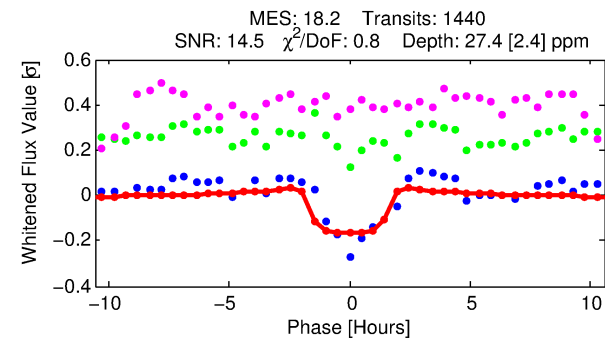
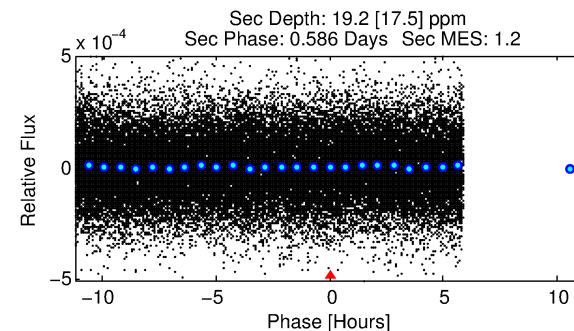
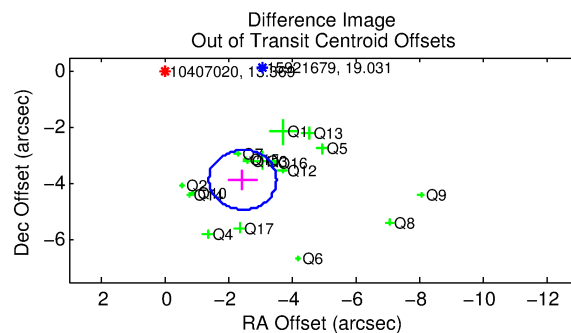
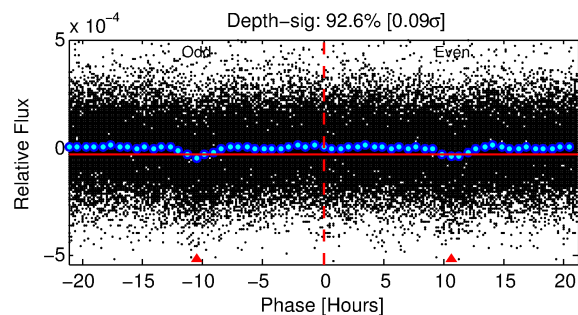
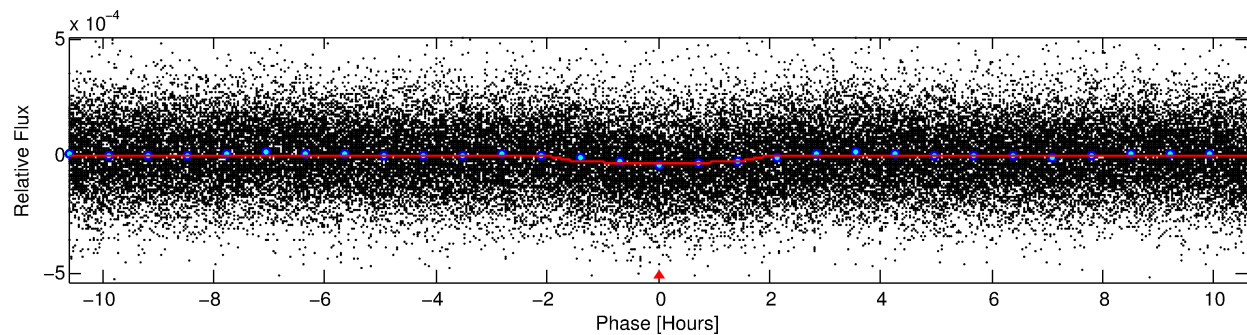
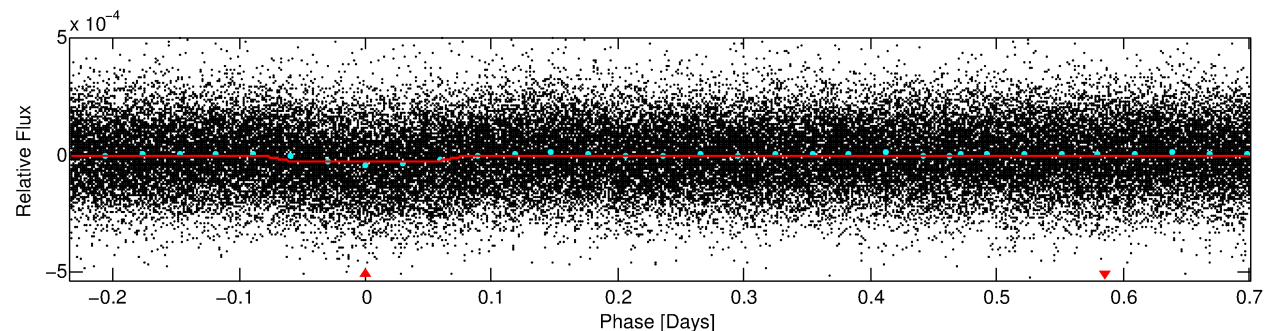
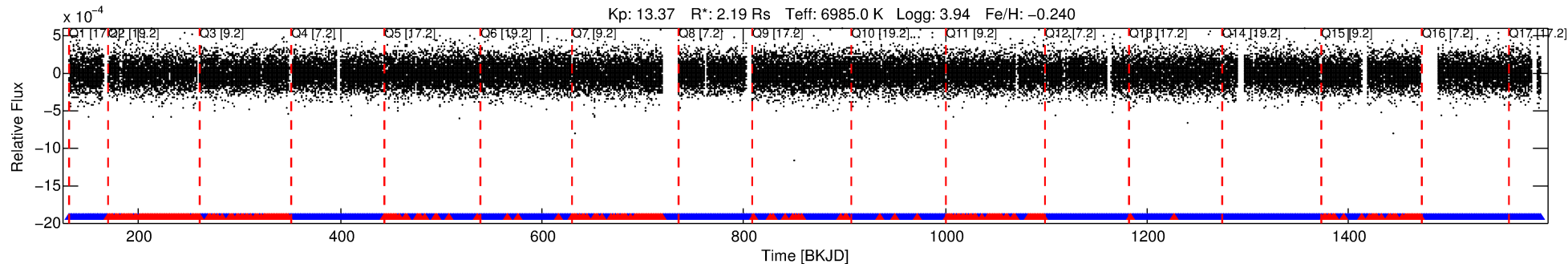
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 10407020 Candidate: 1 of 1 Period: 0.934 d

KOI: K03987.01 Corr: 0.858

Kp: 13.37 R*: 2.19 Rs Teff: 6985.0 K Logg: 3.94 Fe/H: -0.240



DV Fit Results:

Period = 0.93369 [0.00001] d
Epoch = 131.5550 [0.0024] BKJD
Rp/R* = 0.0056 [0.0015]
a/R* = 1.30 [0.89]
b = 0.90 [0.35]
Seff = 22208.51 [10066.62]
Teq = 3113 [353] K
Rp = 1.33 [0.55] Re
a = 0.0214 [0.0059] AU
Ag = 2.74 [3.13] [0.56σ]
Teffp = 6192 [1664] K [1.81σ]

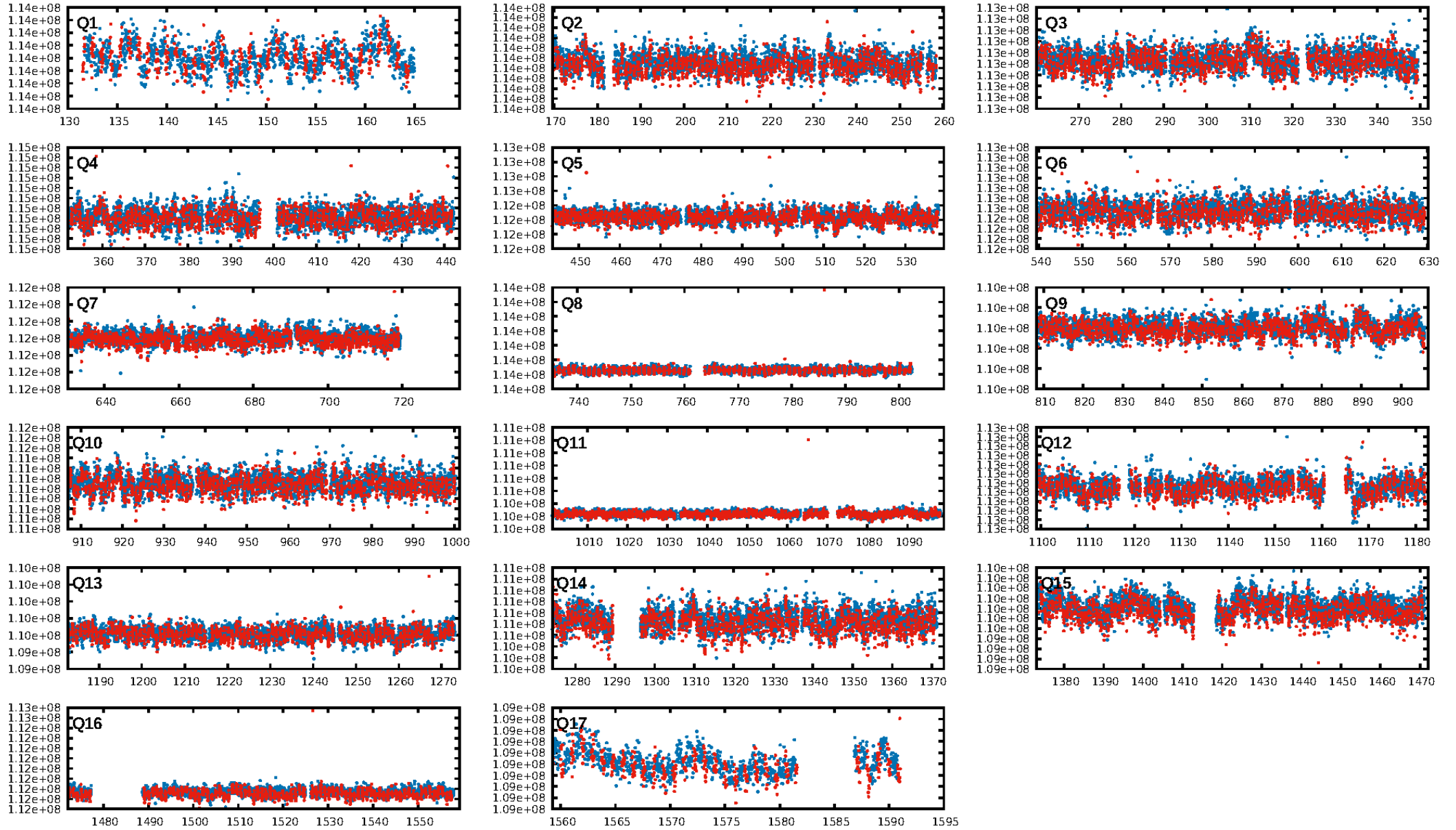
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.87e-62
RollingBand-fgt: 0.77 [1062/1374]
GhostDiagnostic-chr: -0.09061
Centroid-sig: 0.0%
Centroid-so: 2.995 arcsec [4.53σ]
OotOffset-rm: 4.581 arcsec [12.93σ]
KicOffset-rm: 4.387 arcsec [11.69σ]
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]

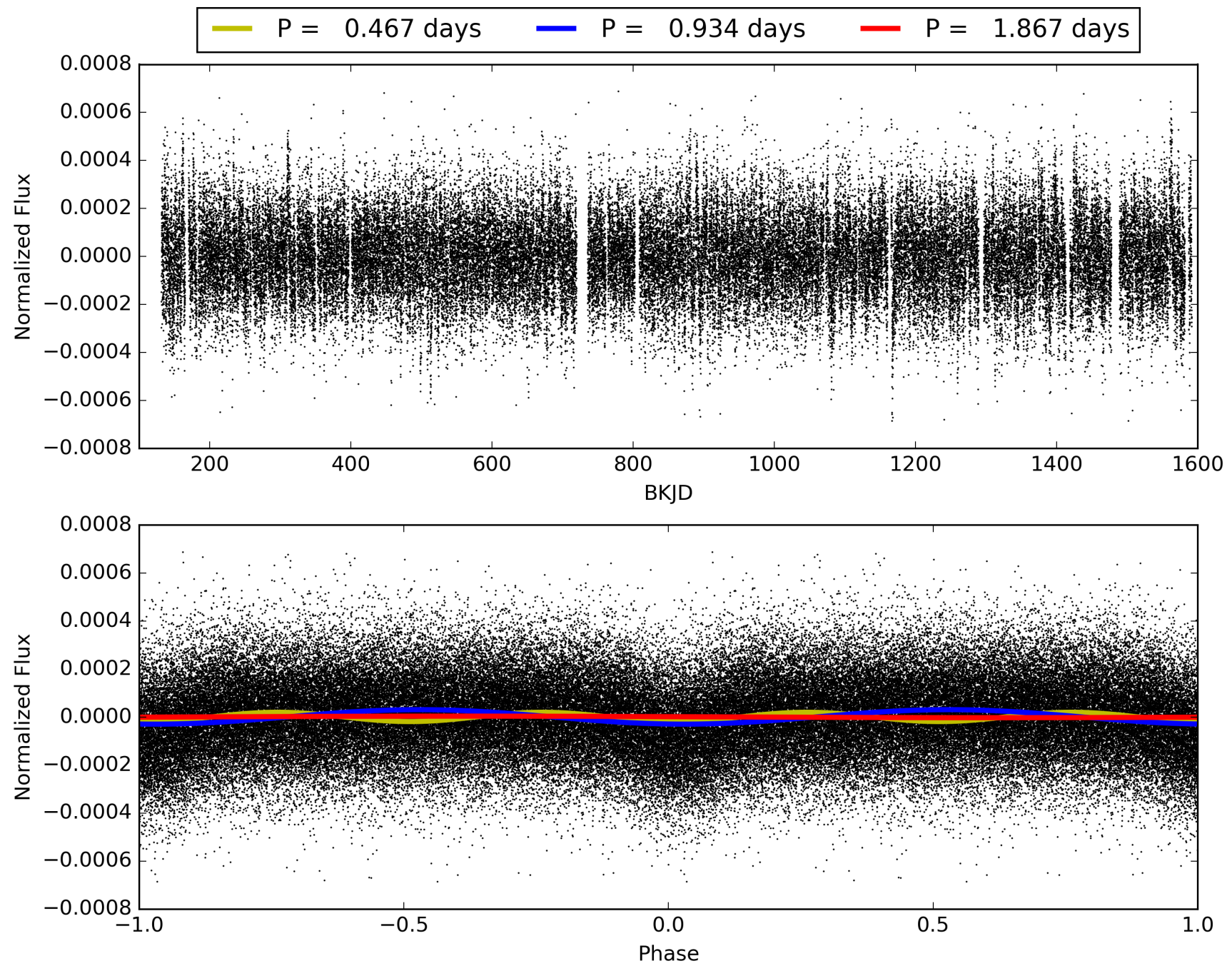
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:10:03 Z

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

TCE 010407020-01, PDC Light Curves

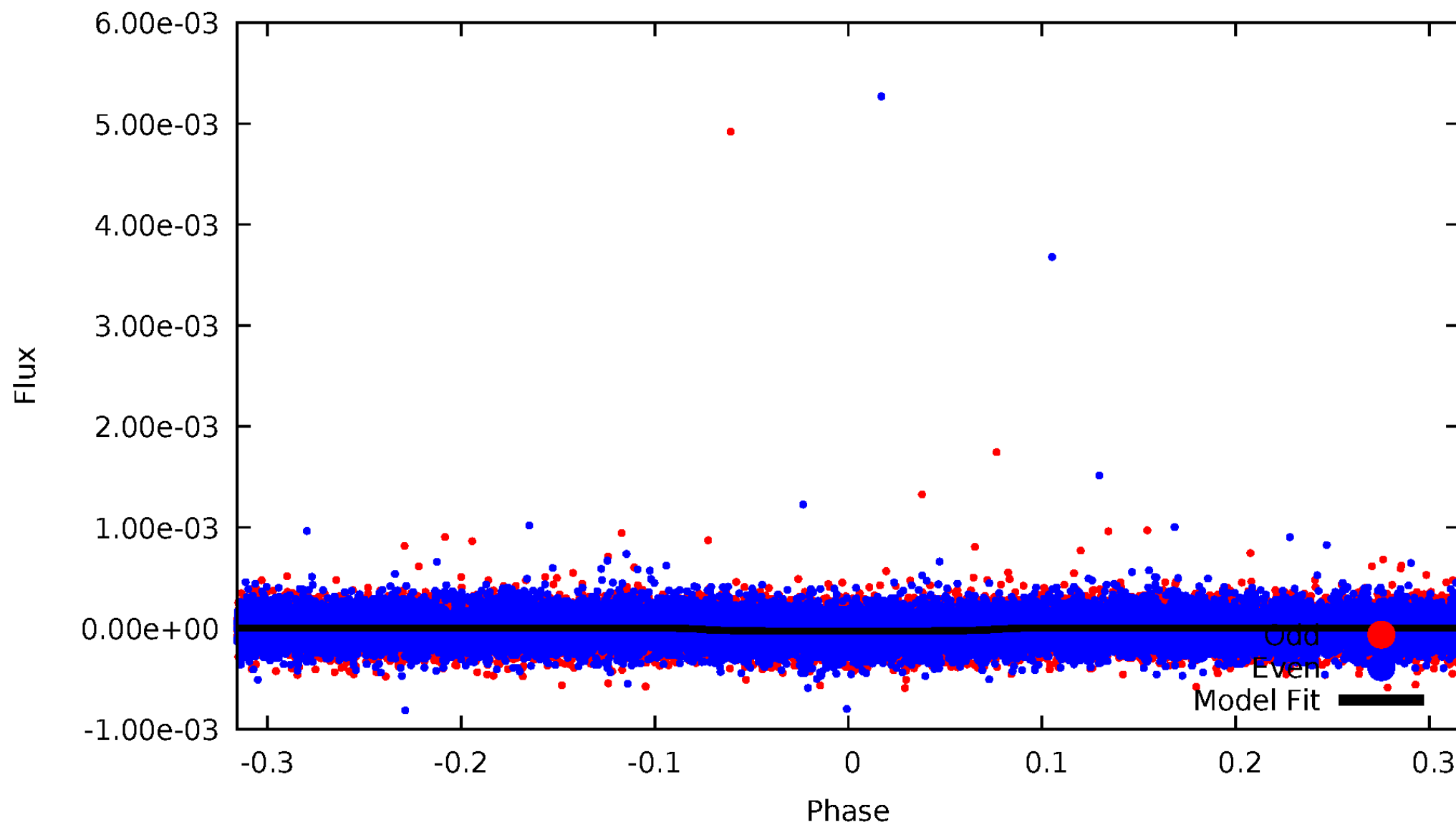


TCE 010407020-01



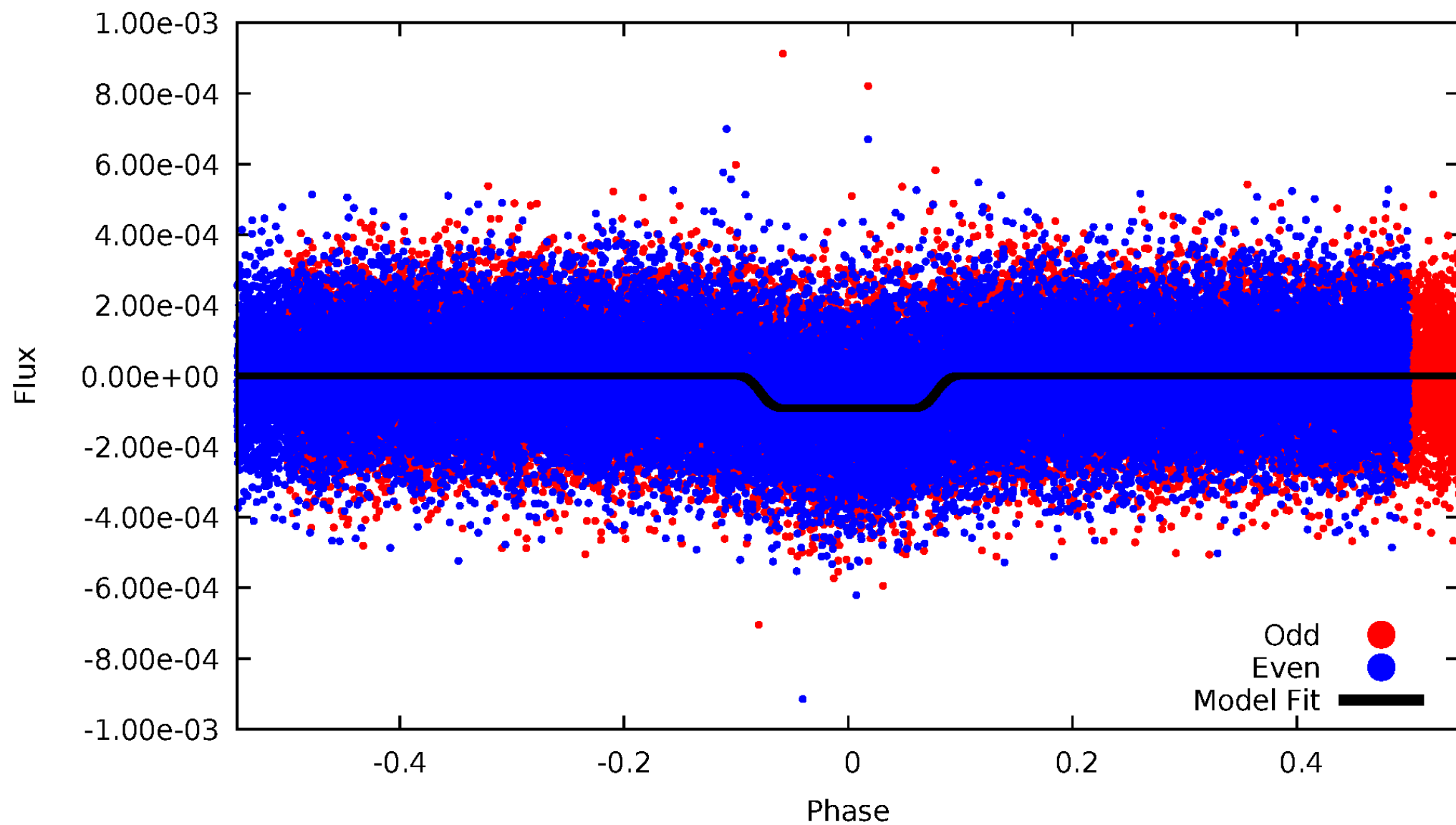
DV Odd/Even

TCE 010407020-01



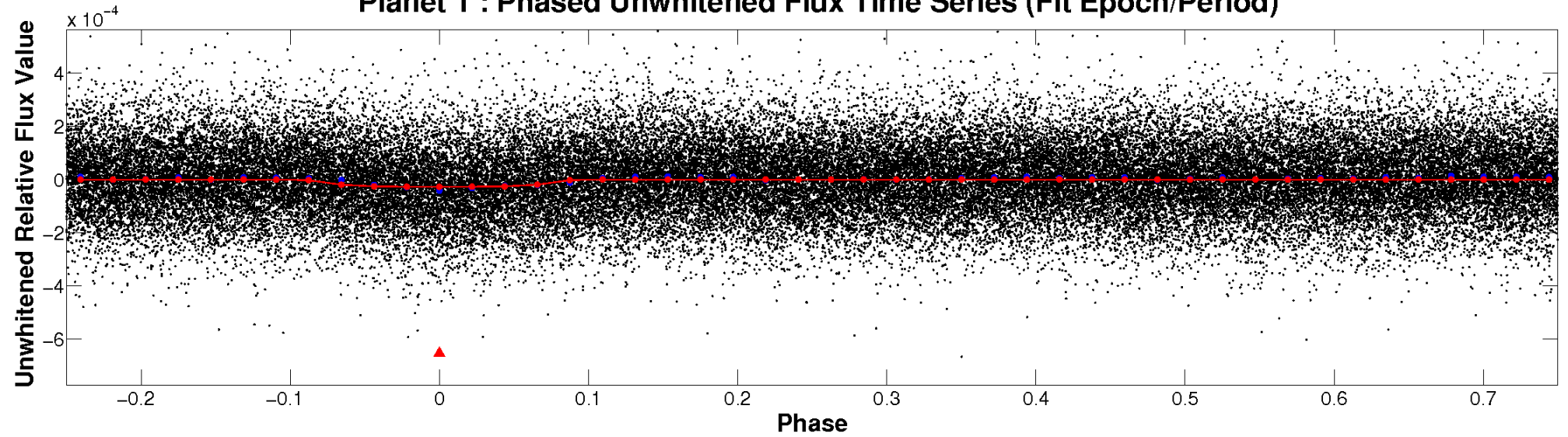
ALT Odd/Even

TCE 010407020-01

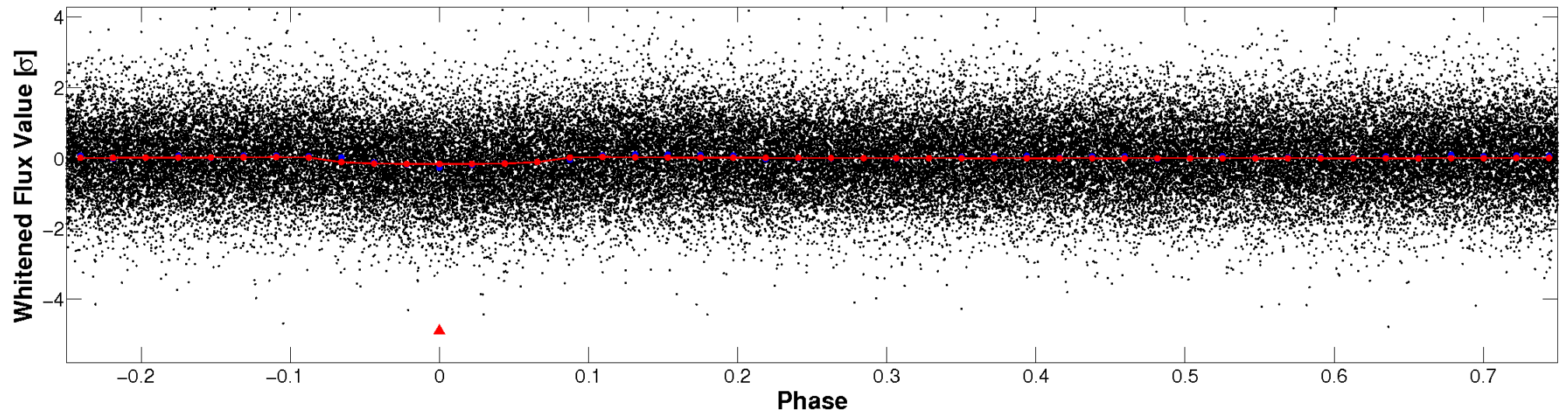


Non-Whitened Vs. Whitened Light Curve

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

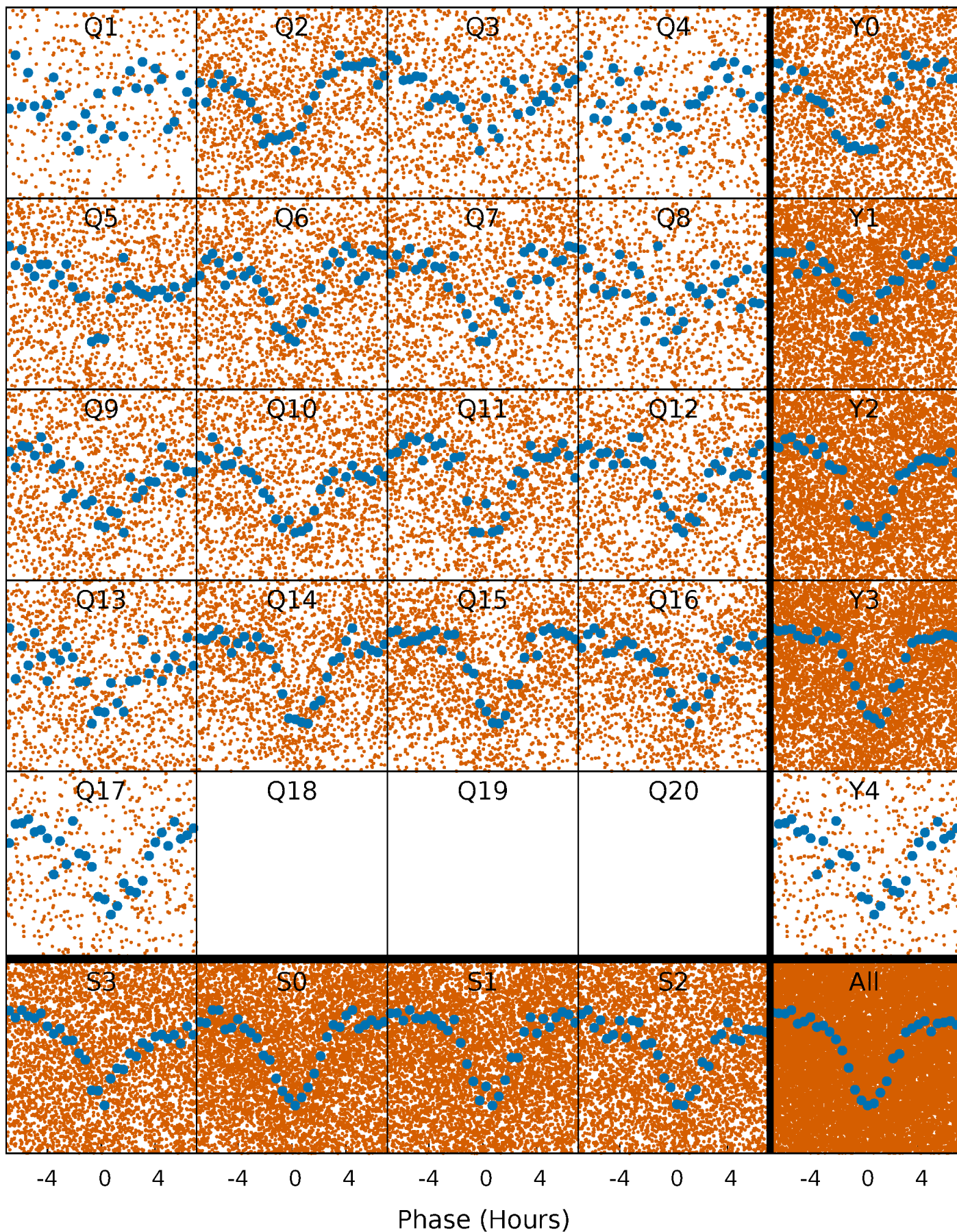


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



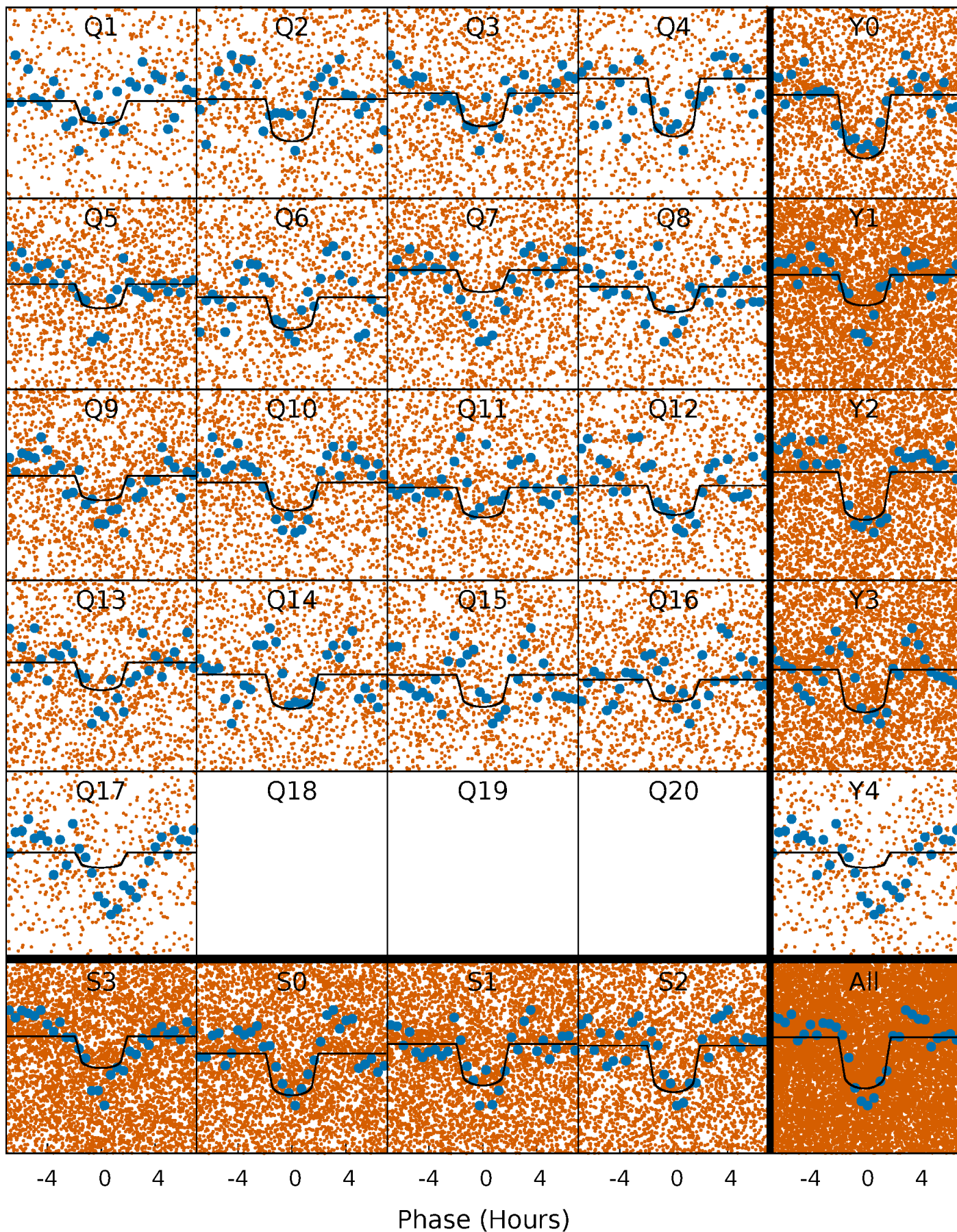
PDC Quarter-Phased Transit Curves

TCE 010407020-01 P= 0.933695 Days $T_0=131.555030$ (BKJD)



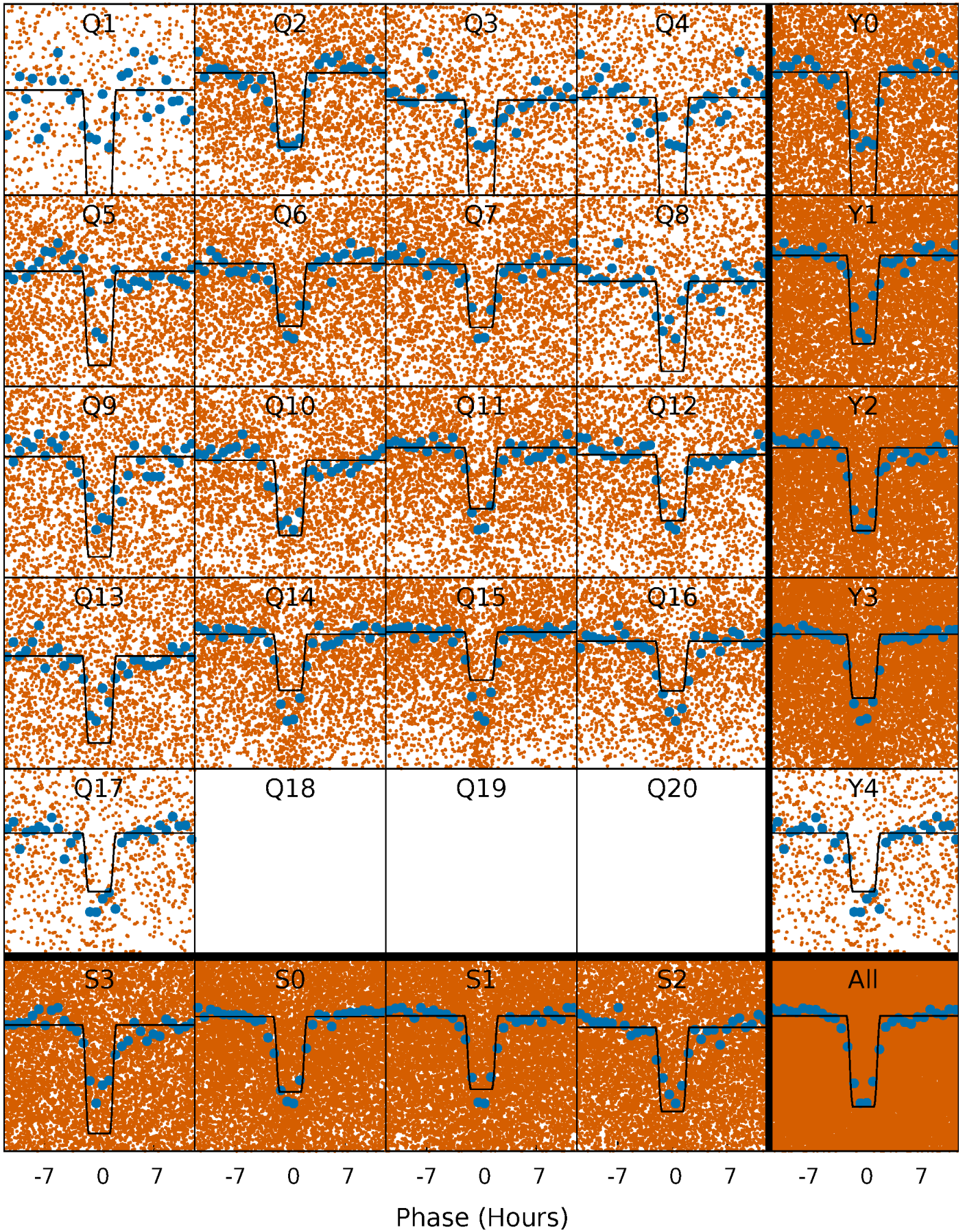
DV Quarter-Phased Transit Curves

TCE 010407020-01 P= 0.933695 Days $T_0=131.555030$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

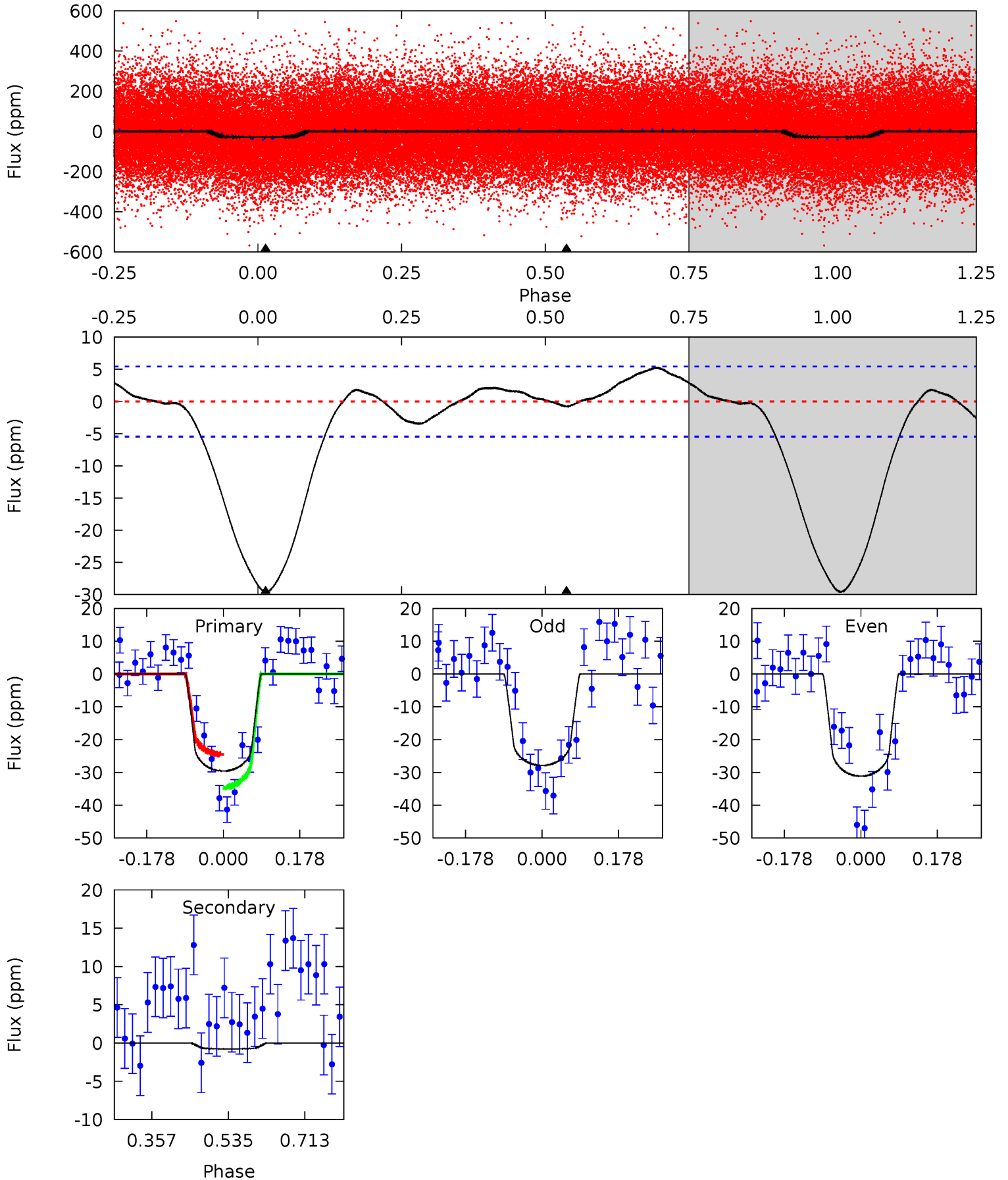
TCE 010407020-01 P= 0.933740 Days $T_0=131.527896$ (BKJD)



DV Model-Shift Uniqueness Test

010407020-01, P = 0.933695 Days, E = 130.621335 Days

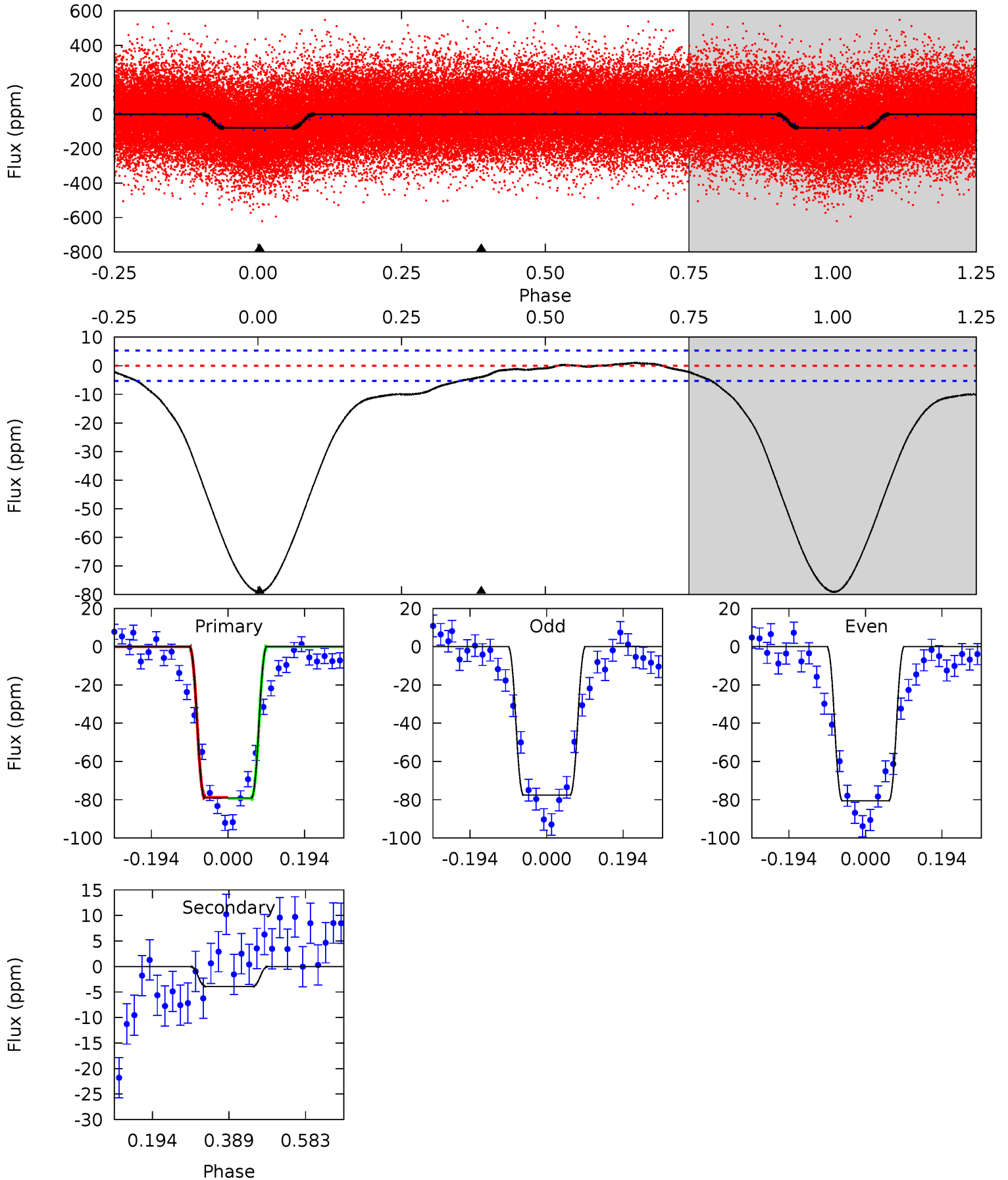
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.2	0.63	0	0	4.44	1.35	1.75	24.2	24.2	0.63	0.63	1.34	0.95	0.15	4.09



Alt Model-Shift Uniqueness Test

010407020-01, P = 0.933740 Days, E = 130.594156 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.9	3.29	0	0	4.42	1.30	1.96	65.9	65.9	3.29	3.29	1.20	0.98	0.01	0.23



Stellar Parameters For KIC 010407020

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6985^{+190}_{-285}	$3.936^{+0.241}_{-0.111}$	$-0.240^{+0.300}_{-0.300}$	$2.187^{+0.448}_{-0.672}$	$1.502^{+0.195}_{-0.292}$	$0.202^{+0.301}_{-0.079}$
	+3%/-4%	+6%/-3%	+125%/-125%	+20%/-31%	+13%/-19%	+149%/-39%
Source	PHO1	FLK73	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 010407020-01 / KOI 3987.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1 ± 1	$1.27^{+0.44}_{-0.37}$	4280^{+272}_{-323}	-3545^{+6694}_{-502}	$0.109^{+0.284}_{-0.185}$
Alt.	-4 ± 1	$2.19^{+0.51}_{-0.46}$	4268^{+265}_{-307}	-3172^{+6003}_{-428}	$0.211^{+0.134}_{-0.091}$

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

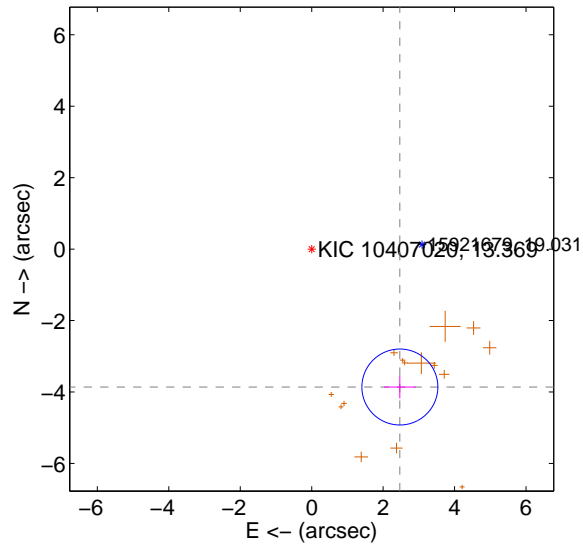
Supplemental centroid analysis for 010407020-01. Kepler magnitude: 13.37. Transit SNR 14.50

There are 0 quarters with good PRF difference image offsets

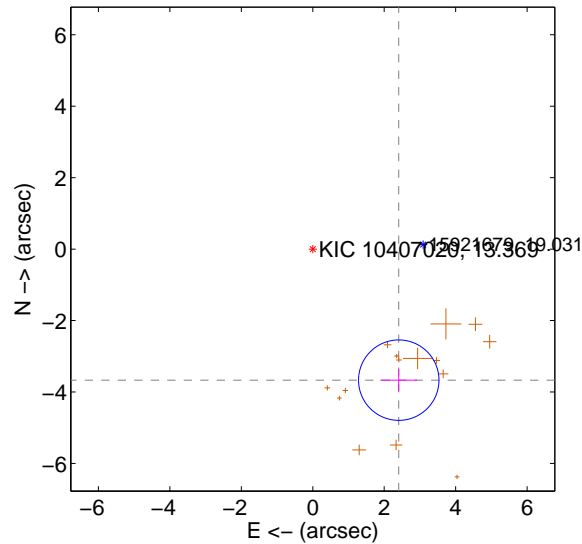
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.581 ± 0.354	12.93	-2.468 ± 0.443	-3.860 ± 0.318
PRF-fit source offset from KIC position	4.387 ± 0.375	11.69	-2.406 ± 0.516	-3.668 ± 0.310
photometric centroid source offset	3.00 ± 0.66	4.53	0.15 ± 0.65	-2.99 ± 0.66

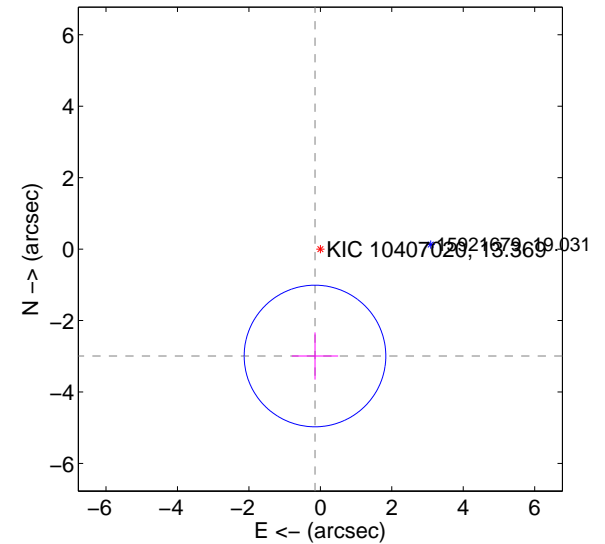
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

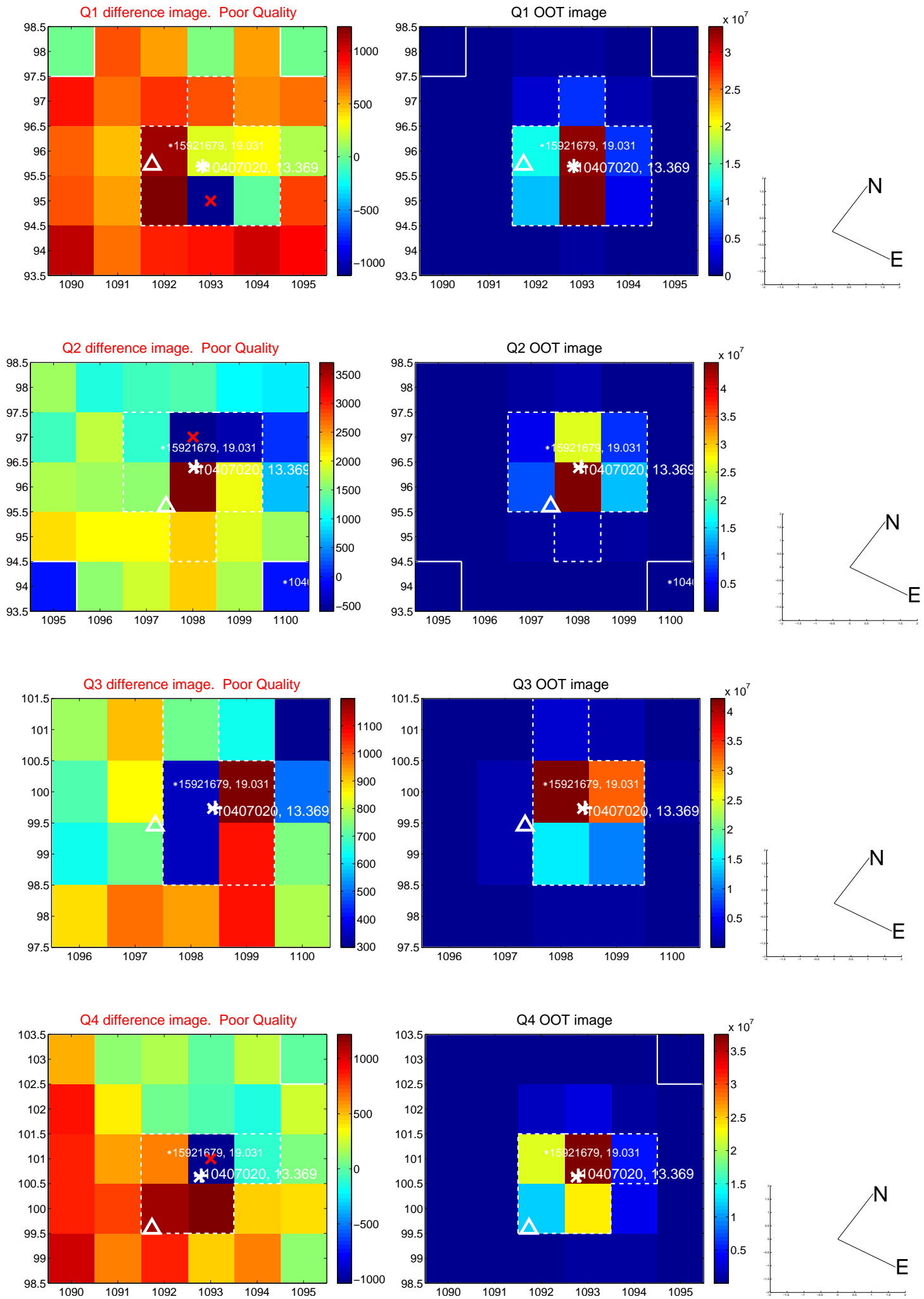


offset from photometric centroids

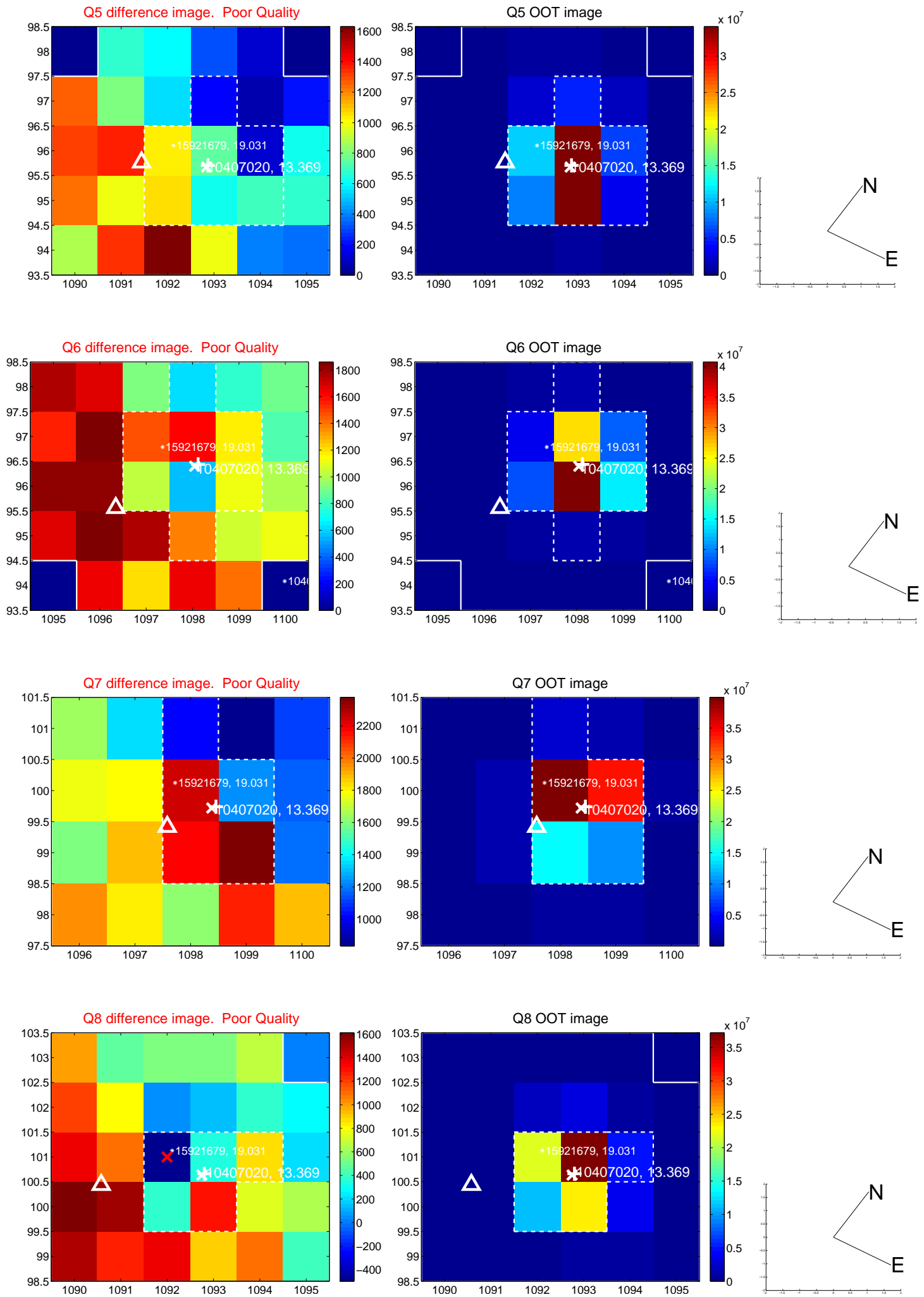


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

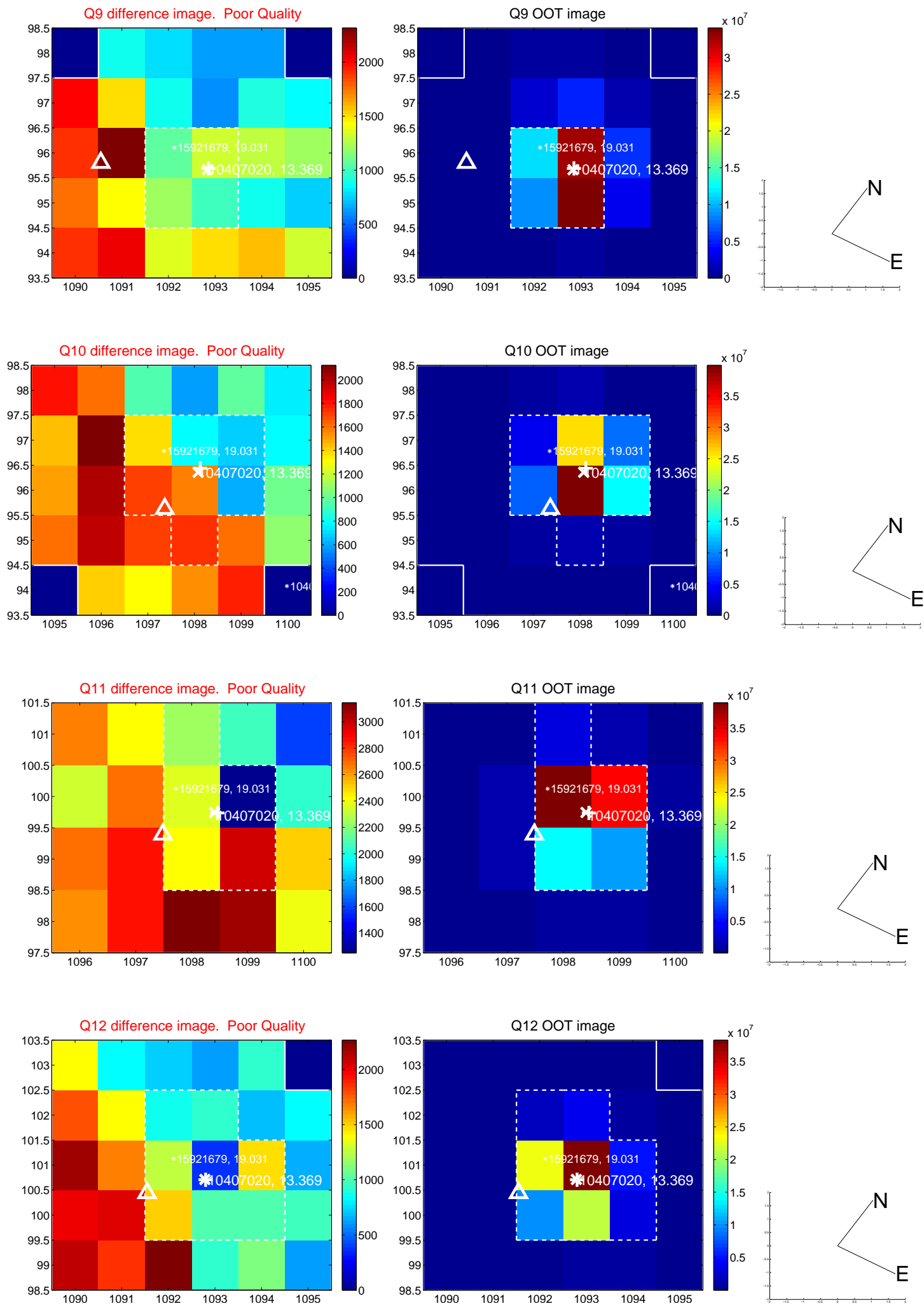
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



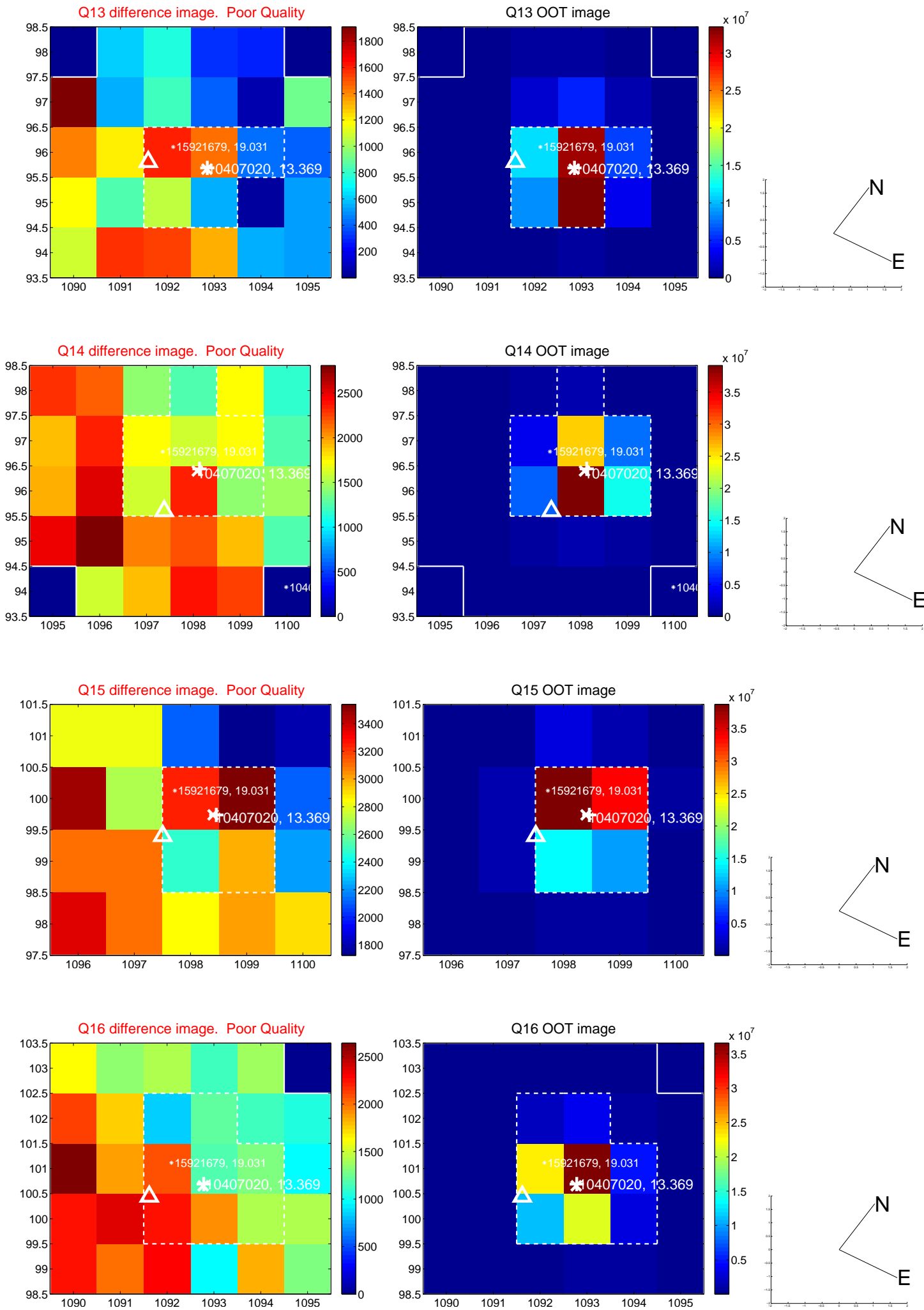
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



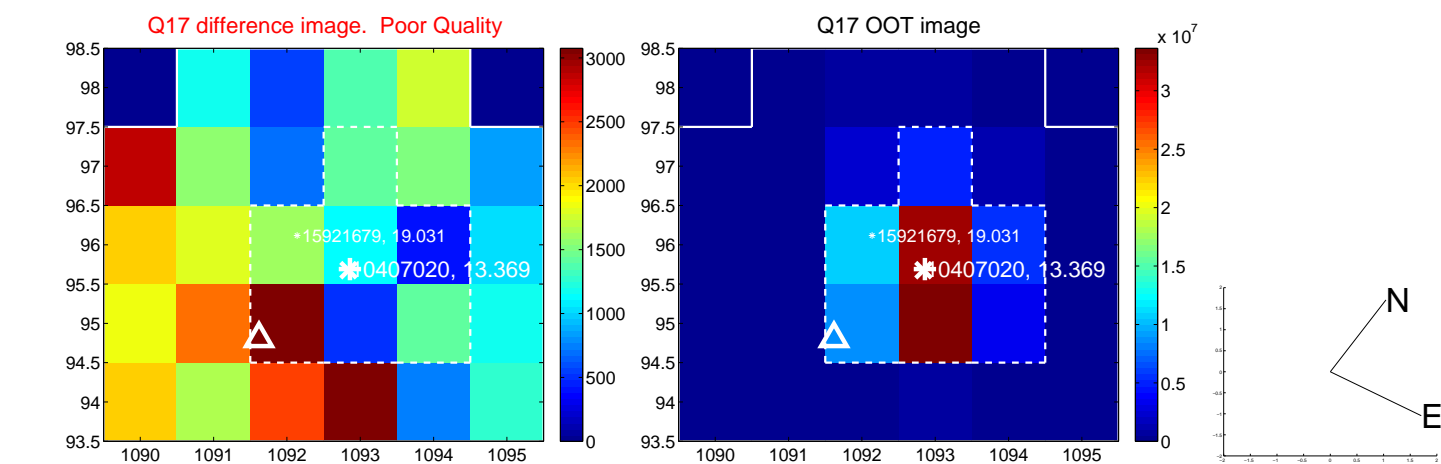
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



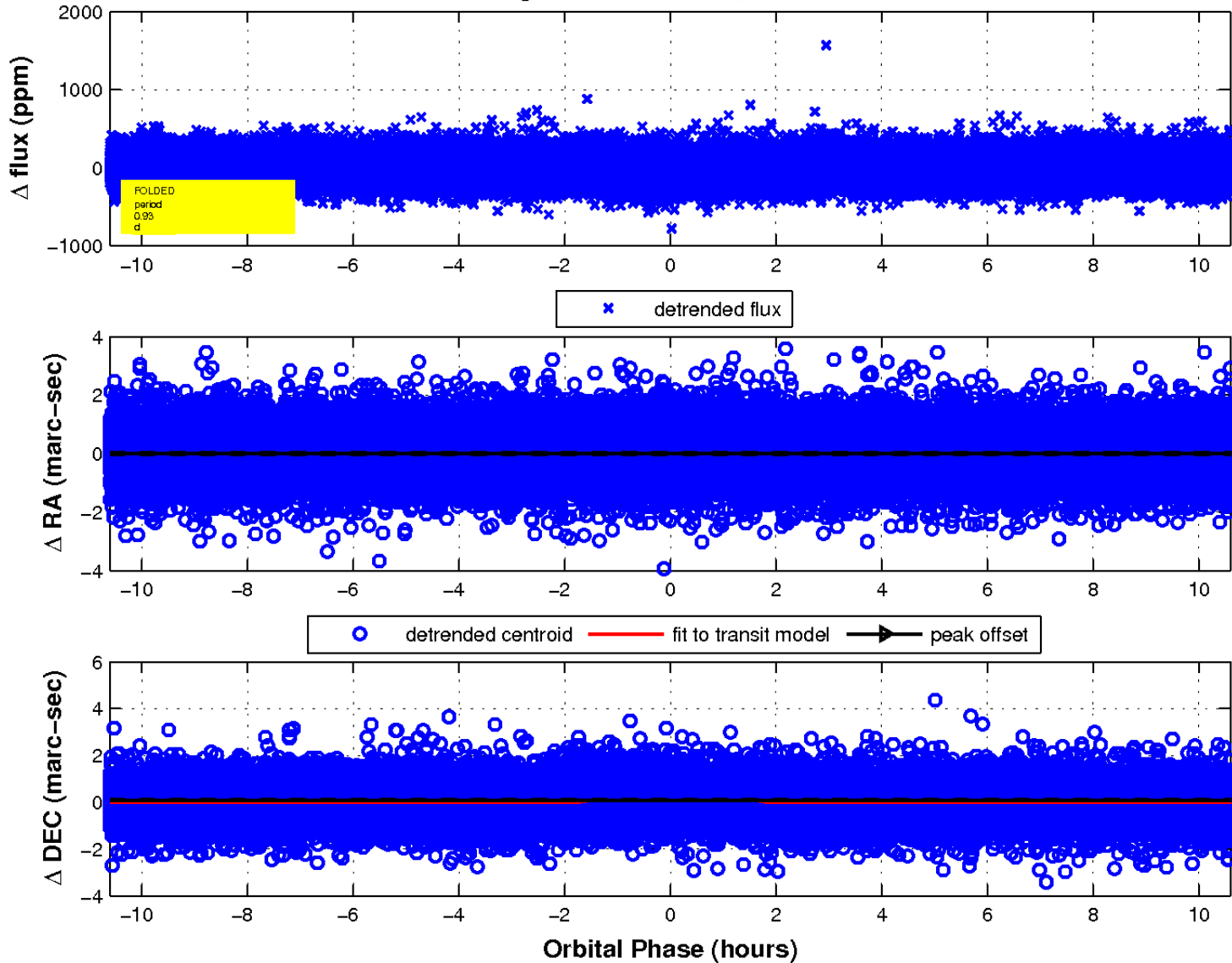
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

