

KIC 004076976

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})
004076976-01	OBS	3124.01	4.880592	133.727218	91.8	12.173	12.0	13.2	0.52	4763	1.01	59.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004076976-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—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 004076976-01

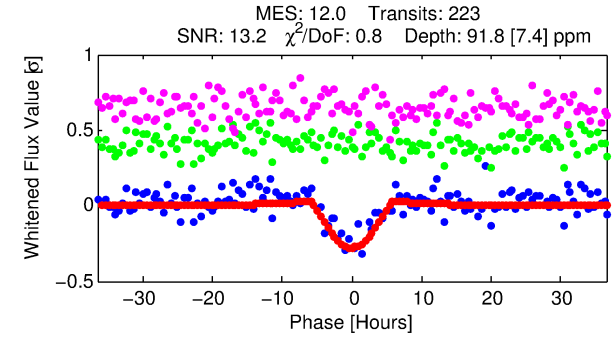
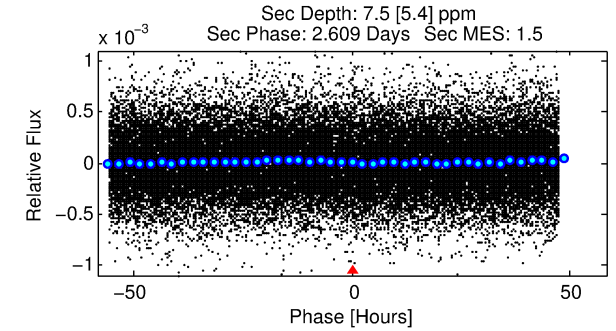
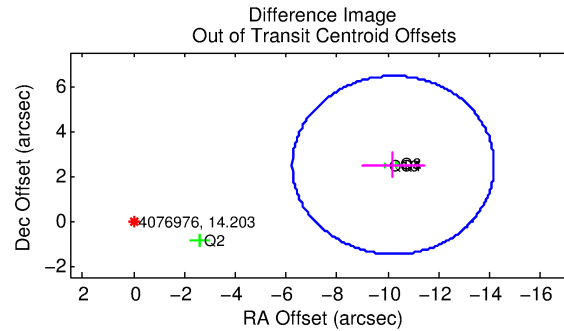
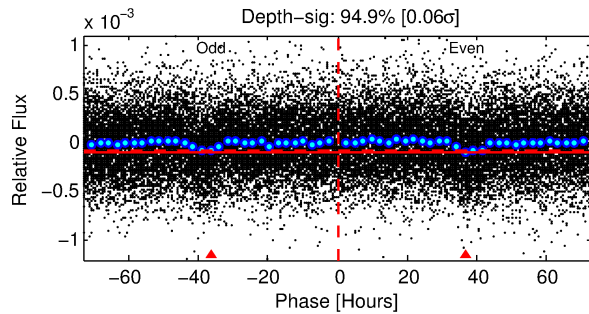
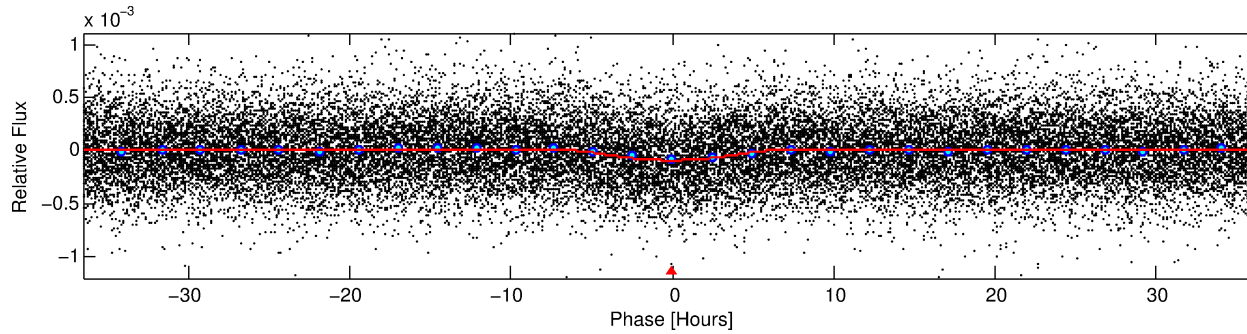
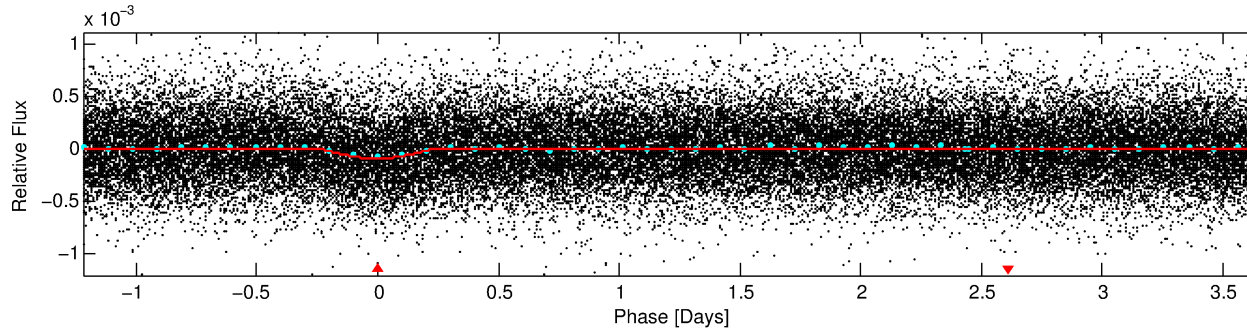
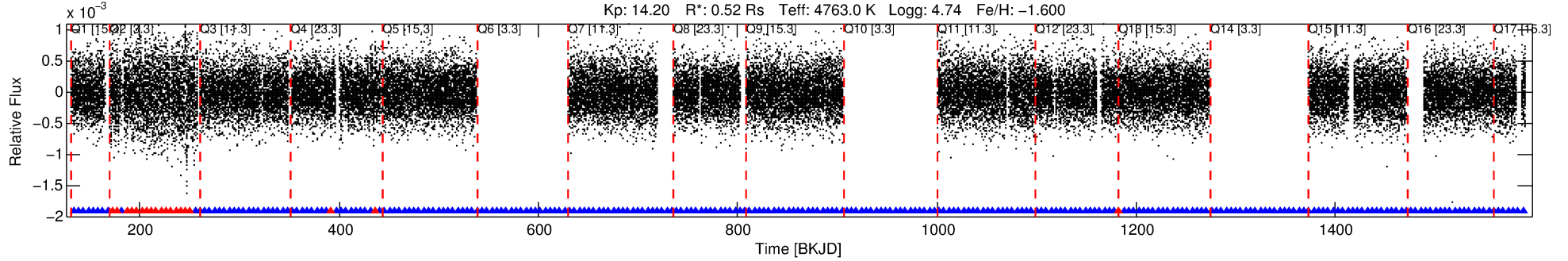
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004076976-01	4076976	6385.01	4076952	1:2	19.5	-3	-3	13.77	14.20	2261.70	Direct-PRF	0	0.16	0.96

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: 4076976 Candidate: 1 of 1 Period: 4.881 d
KOI: K03124.01 Corr: 0.834

Kp: 14.20 R*: 0.52 Rs Teff: 4763.0 K Logg: 4.74 Fe/H: -1.600



DV Fit Results:

Period = 4.88059 [0.00012] d
Epoch = 133.7272 [0.0206] BKJD
Rp/R* = 0.0180 [0.0390]
a/R* = 1.17 [0.15]
b = 1.00 [0.06]
Seff = 59.00 [9.41]
Teq = 707 [28] K
Rp = 1.01 [2.20] Re
a = 0.0456 [0.0025] AU
Ag = 8.34 [36.72] [0.20σ]
Teffp = 1857 [2046] K [0.56σ]

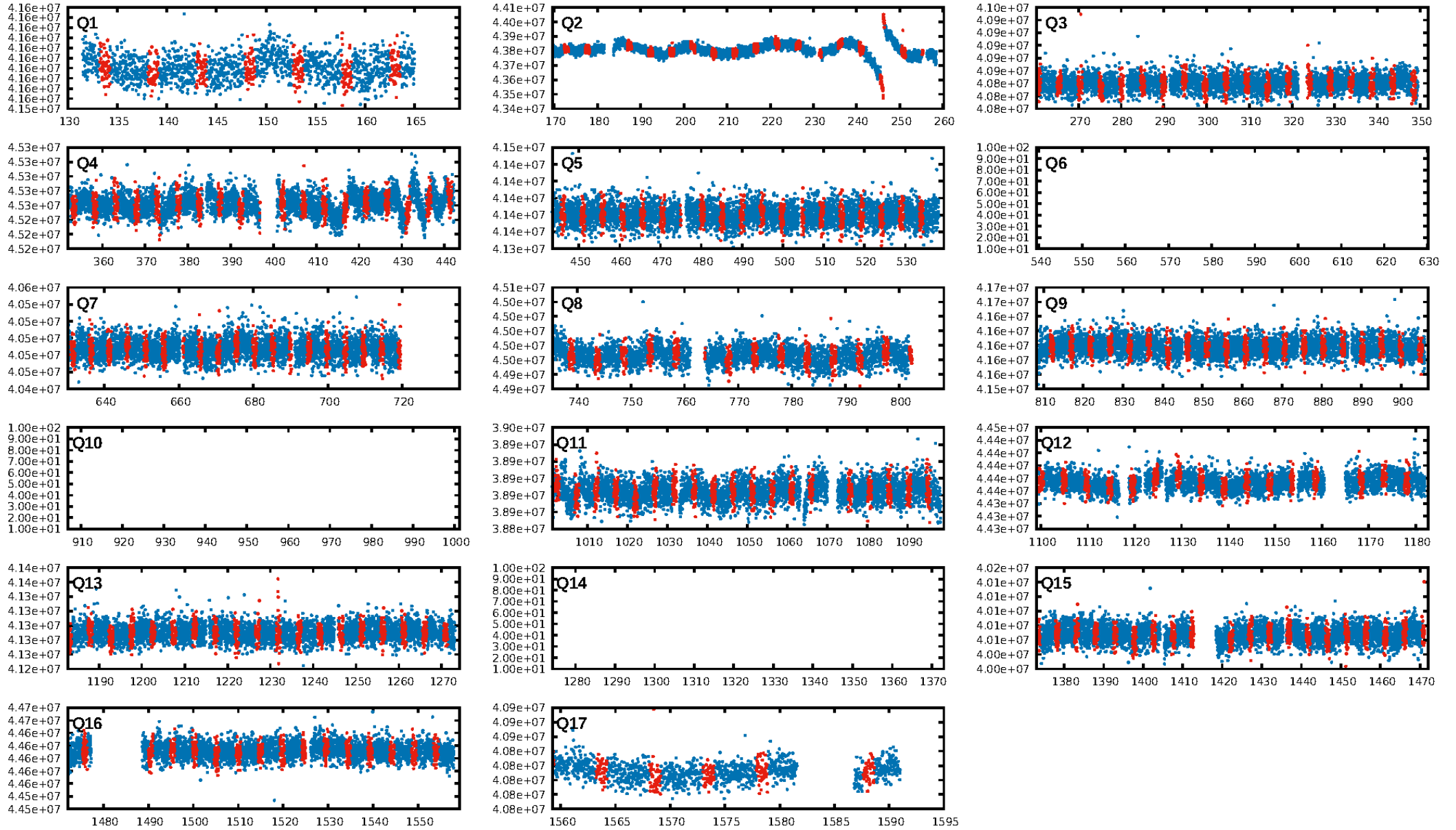
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.20e-30
RollingBand-fgt: 0.91 [192/211]
GhostDiagnostic-chr: -0.3238
Centroid-sig: 0.0%
Centroid-so: 29.251 arcsec [21.45σ]
OotOffset-rm: 10.509 arcsec [7.94σ]
KicOffset-rm: 10.551 arcsec [4.32σ]
OotOffset-st: 1/0/3/0 [4]
KicOffset-st: 1/0/3/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [14/14]

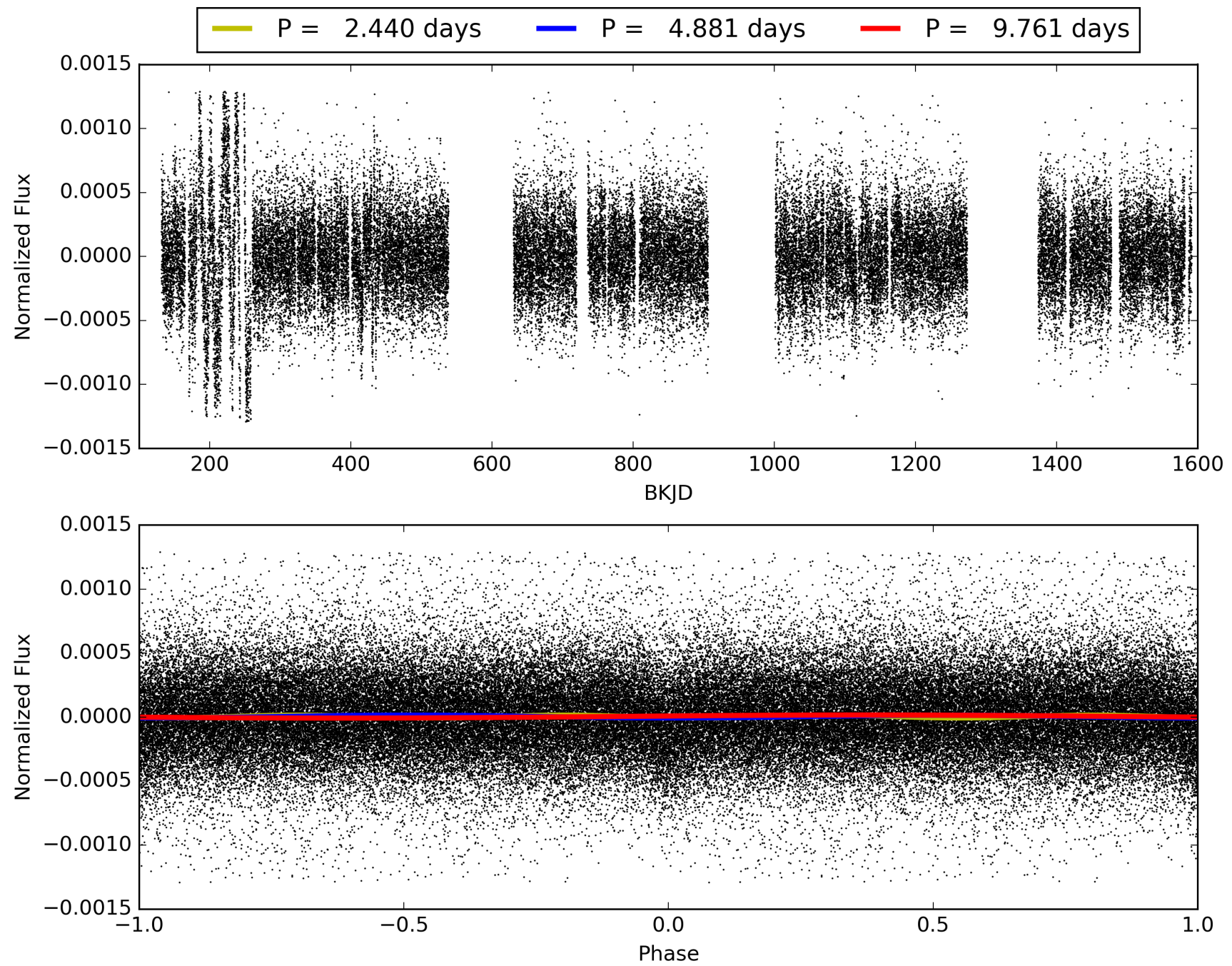
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:50:45 Z

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

TCE 004076976-01, PDC Light Curves

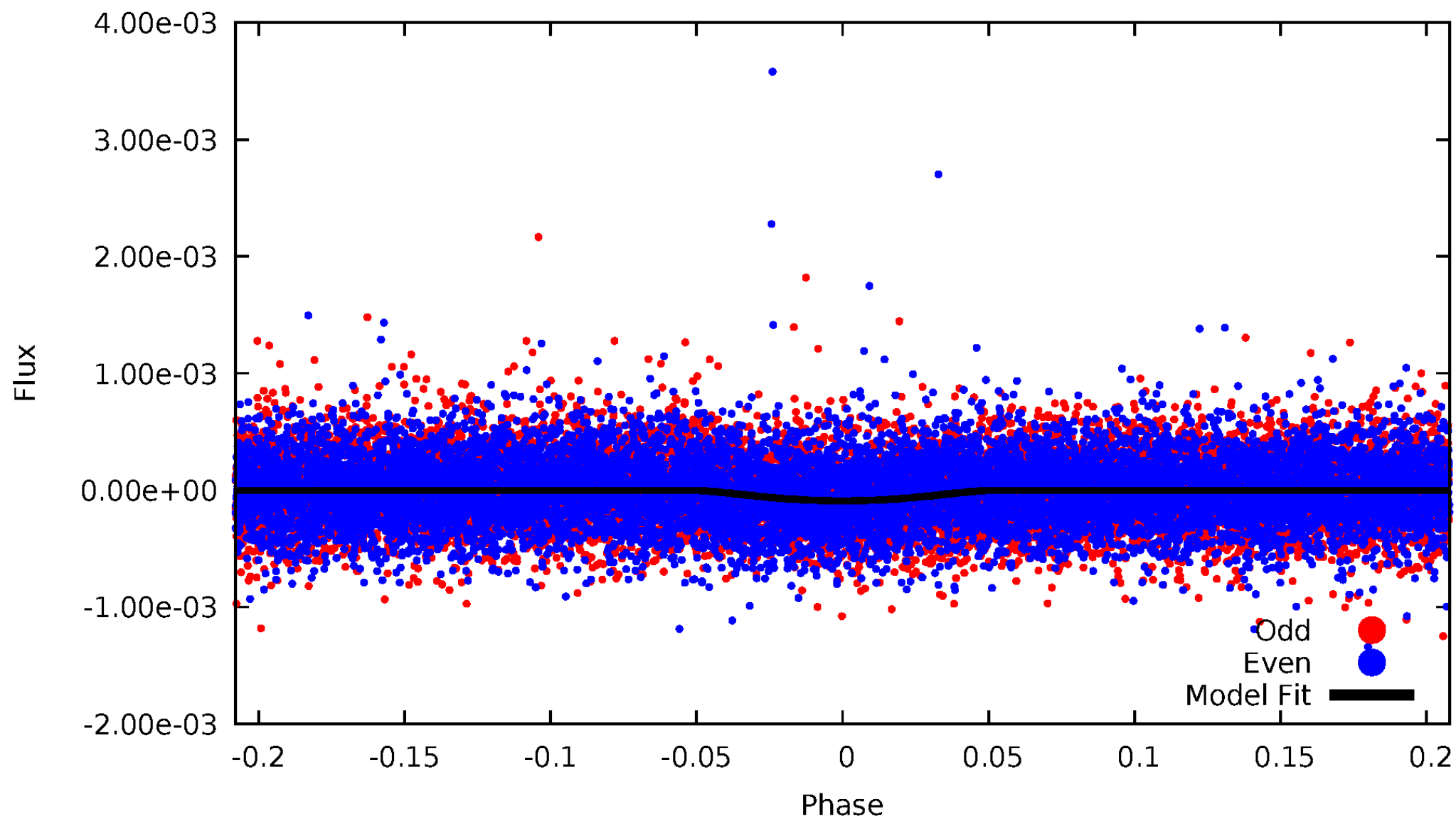


TCE 004076976-01



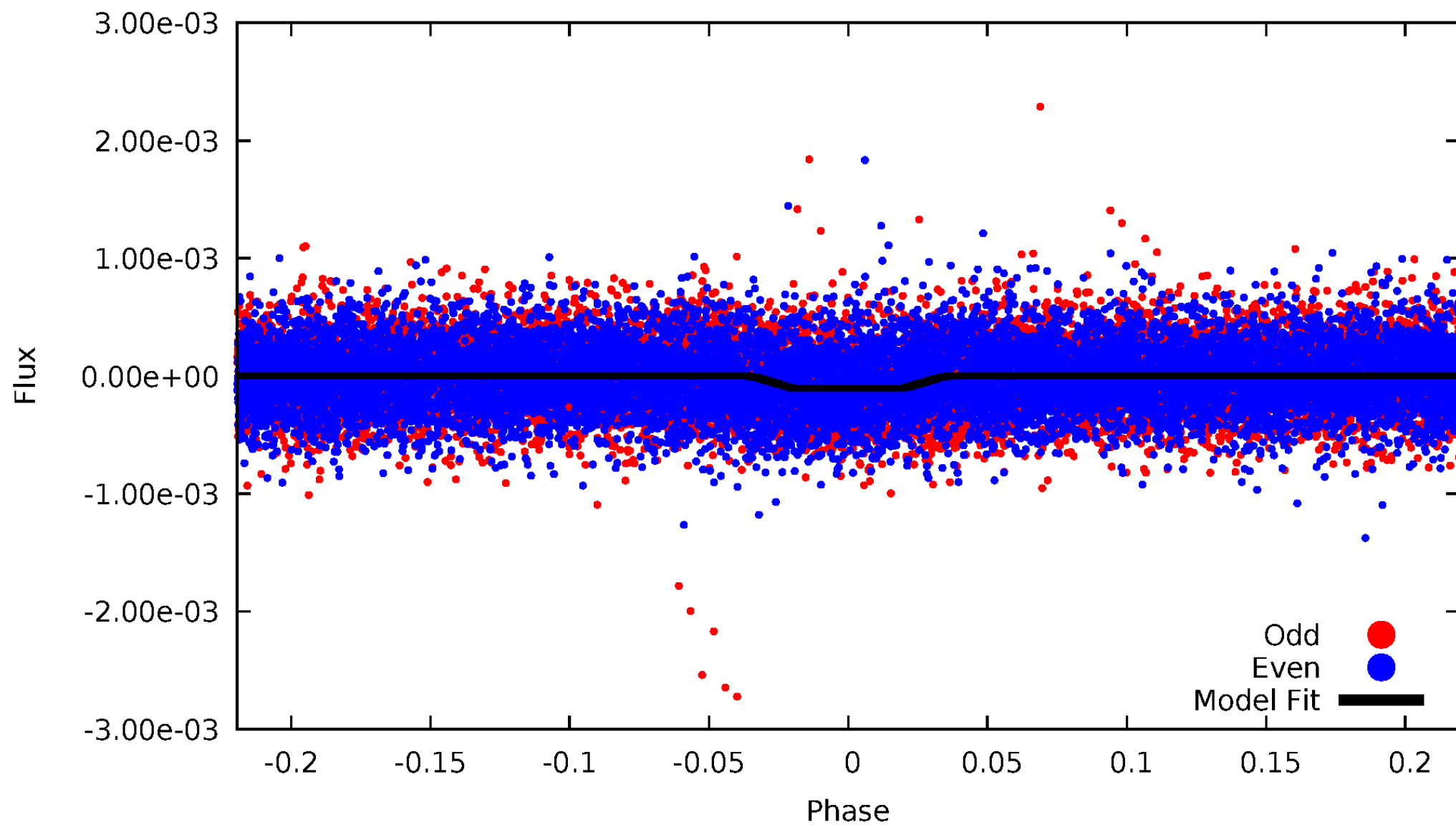
DV Odd/Even

TCE 004076976-01



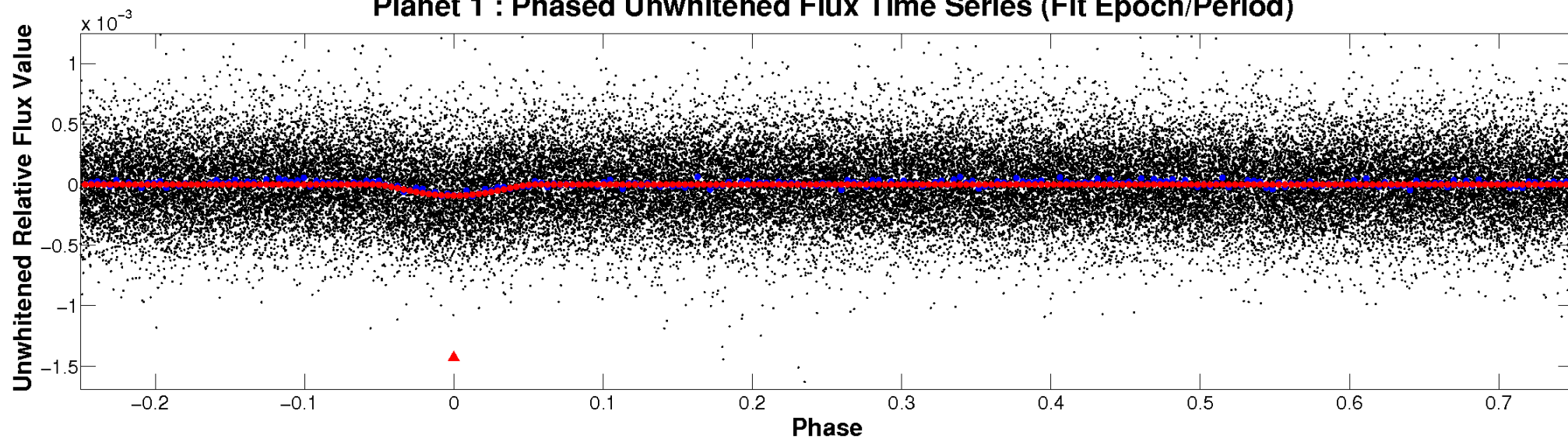
ALT Odd/Even

TCE 004076976-01

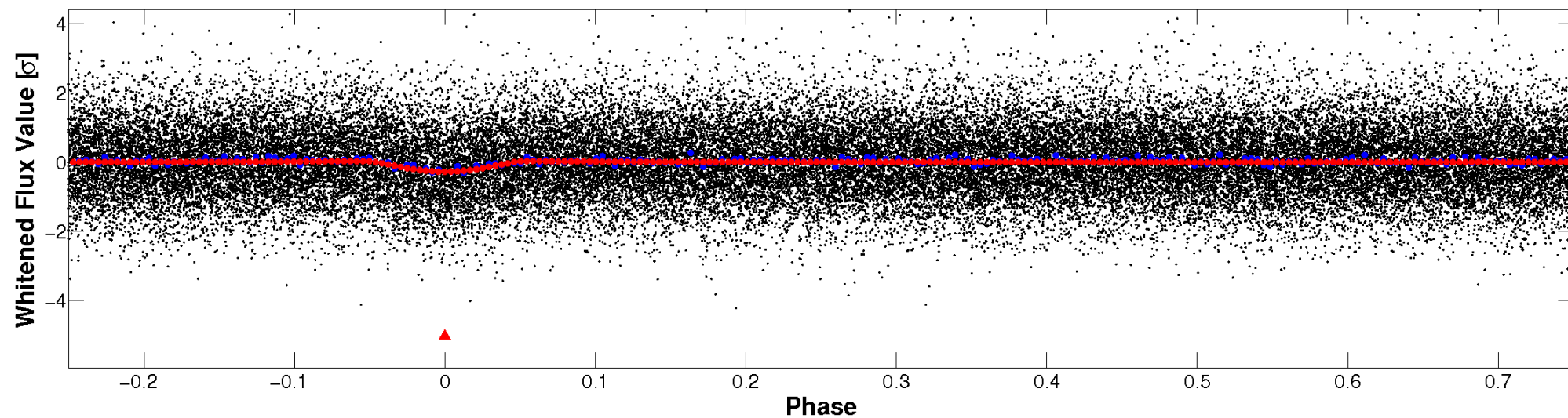


Non-Whitened Vs. Whitened Light Curve

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

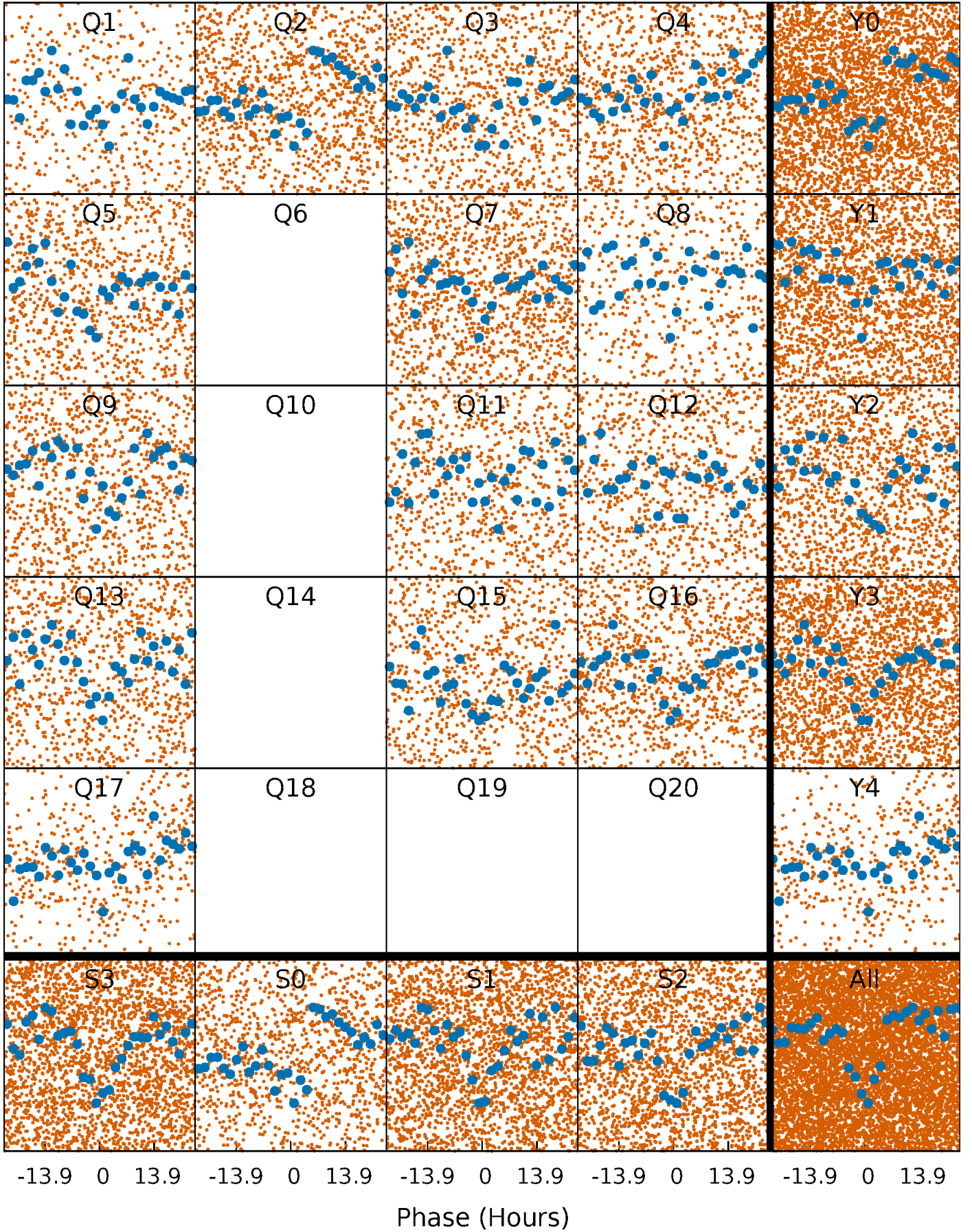


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



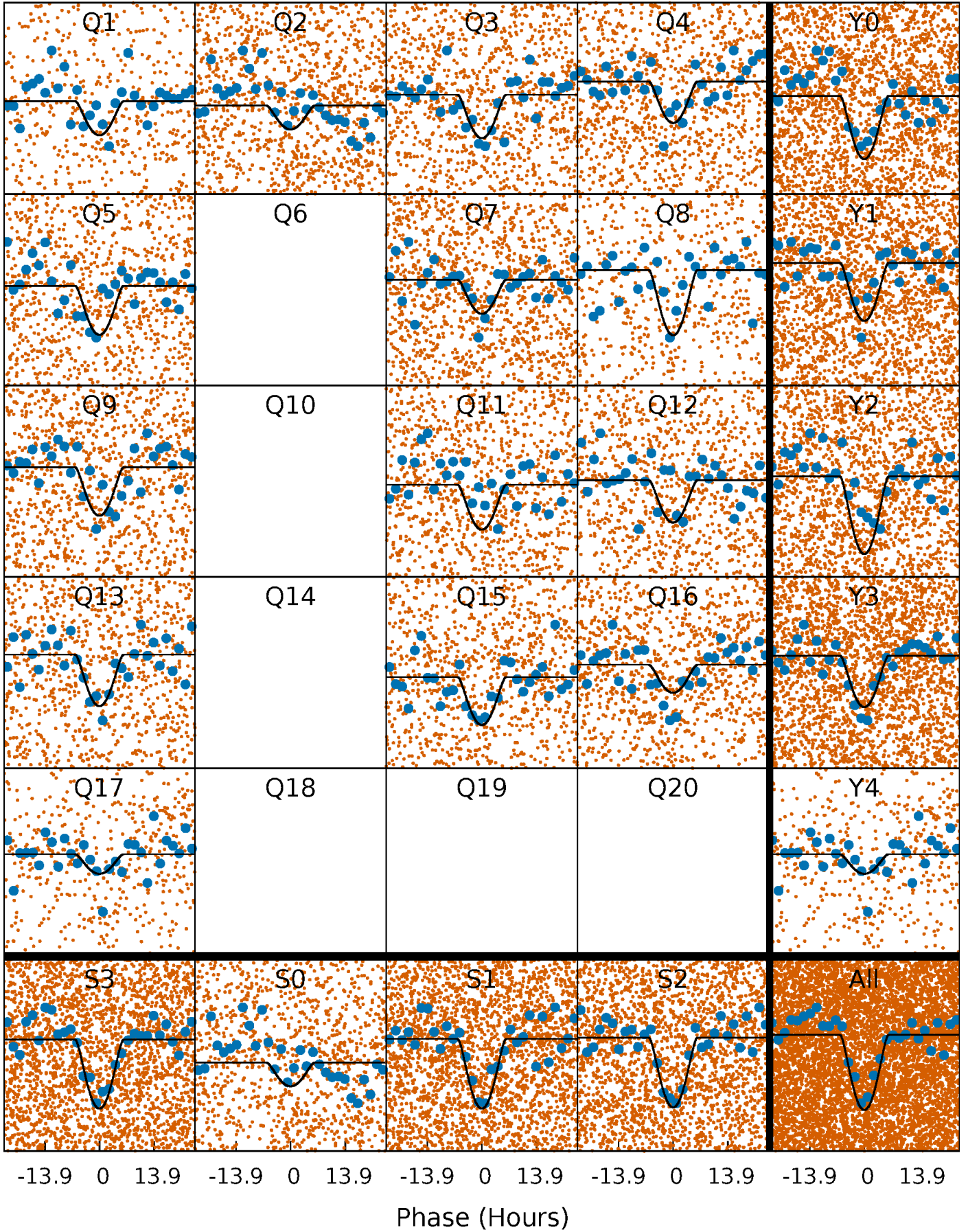
PDC Quarter-Phased Transit Curves

TCE 004076976-01 P= 4.880592 Days $T_0=133.727218$ (BKJD)



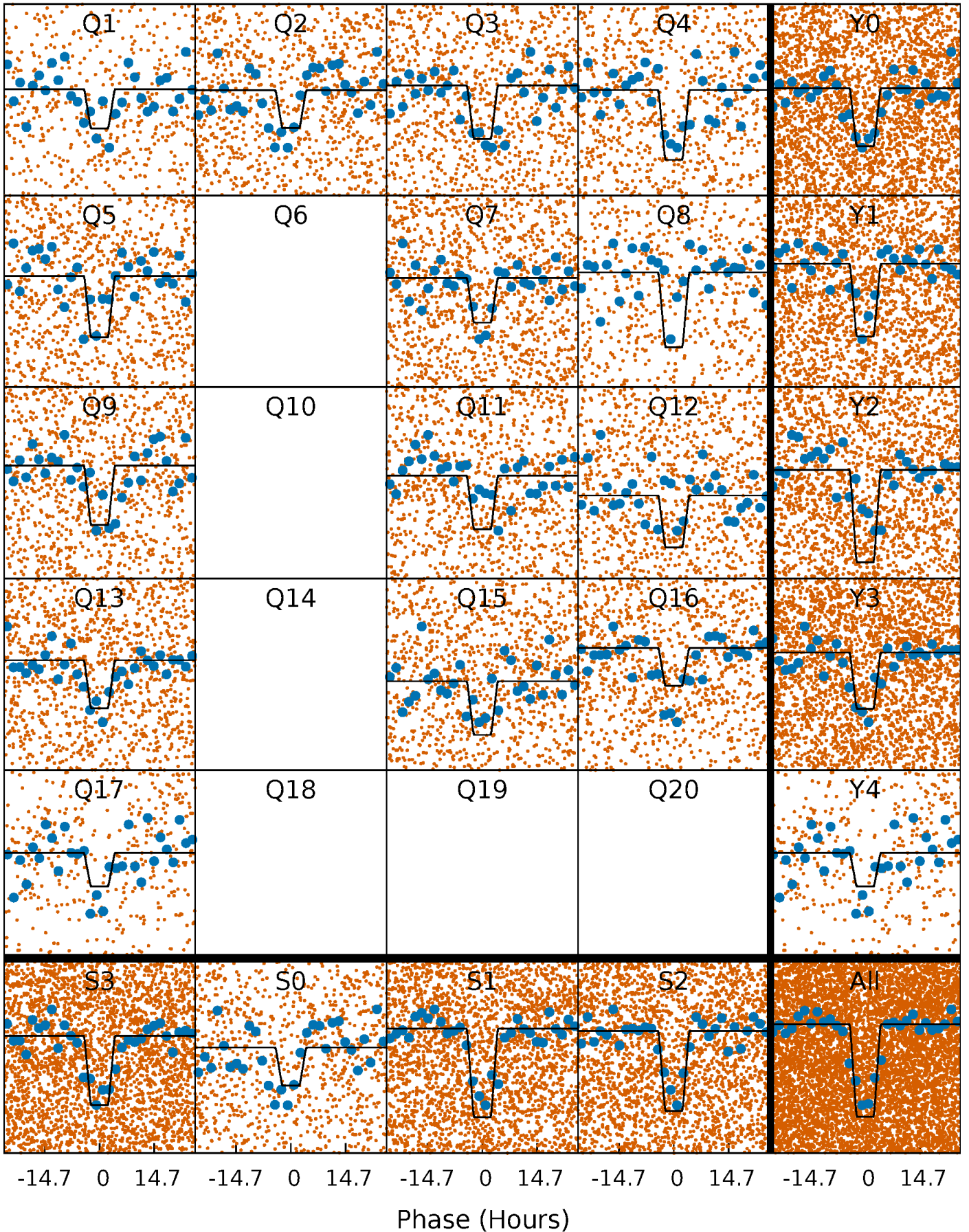
DV Quarter-Phased Transit Curves

TCE 004076976-01 P= 4.880592 Days $T_0=133.727218$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

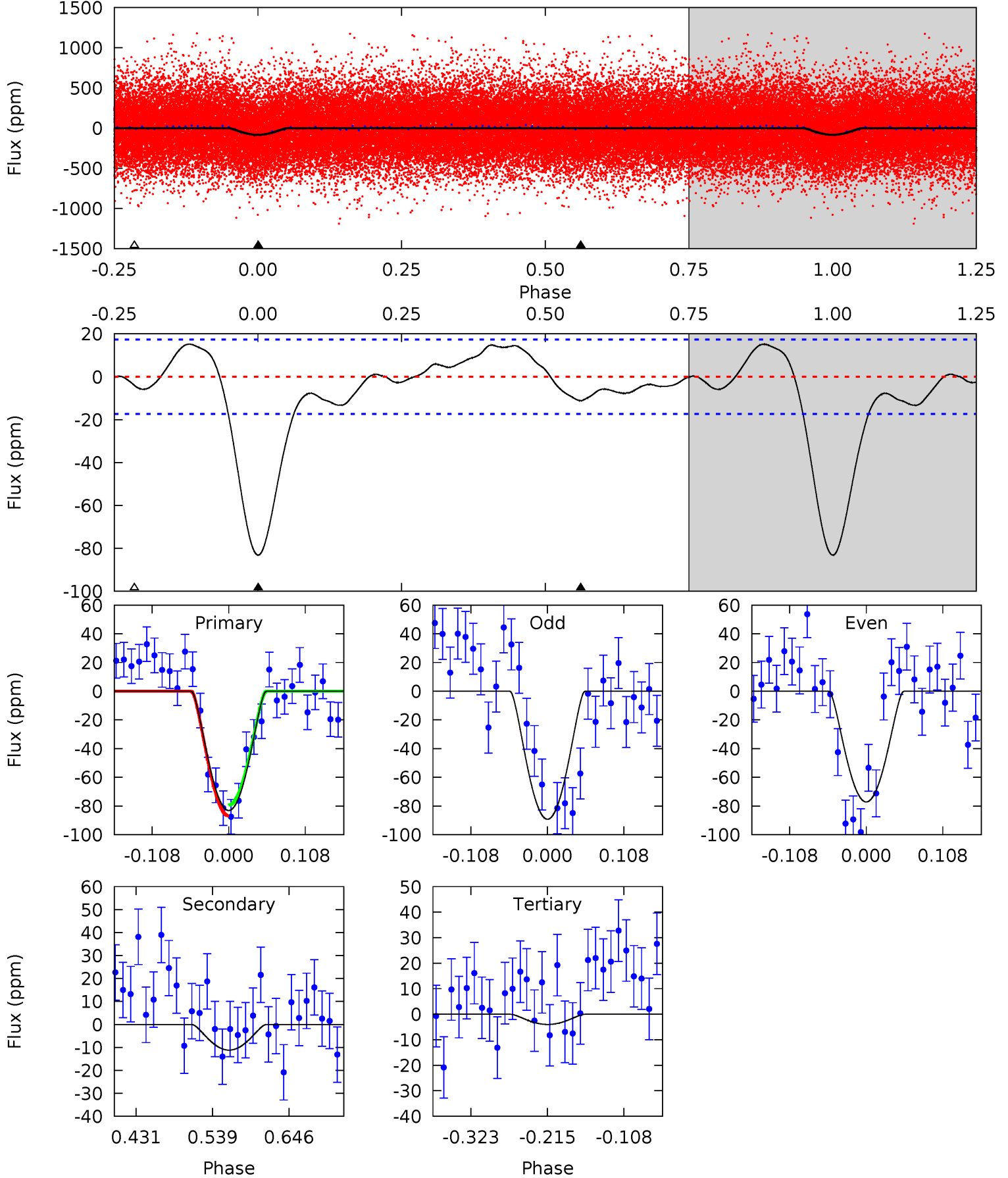
TCE 004076976-01 P= 4.880766 Days $T_0=133.695890$ (BKJD)



DV Model-Shift Uniqueness Test

004076976-01, P = 4.880592 Days, E = 128.846626 Days

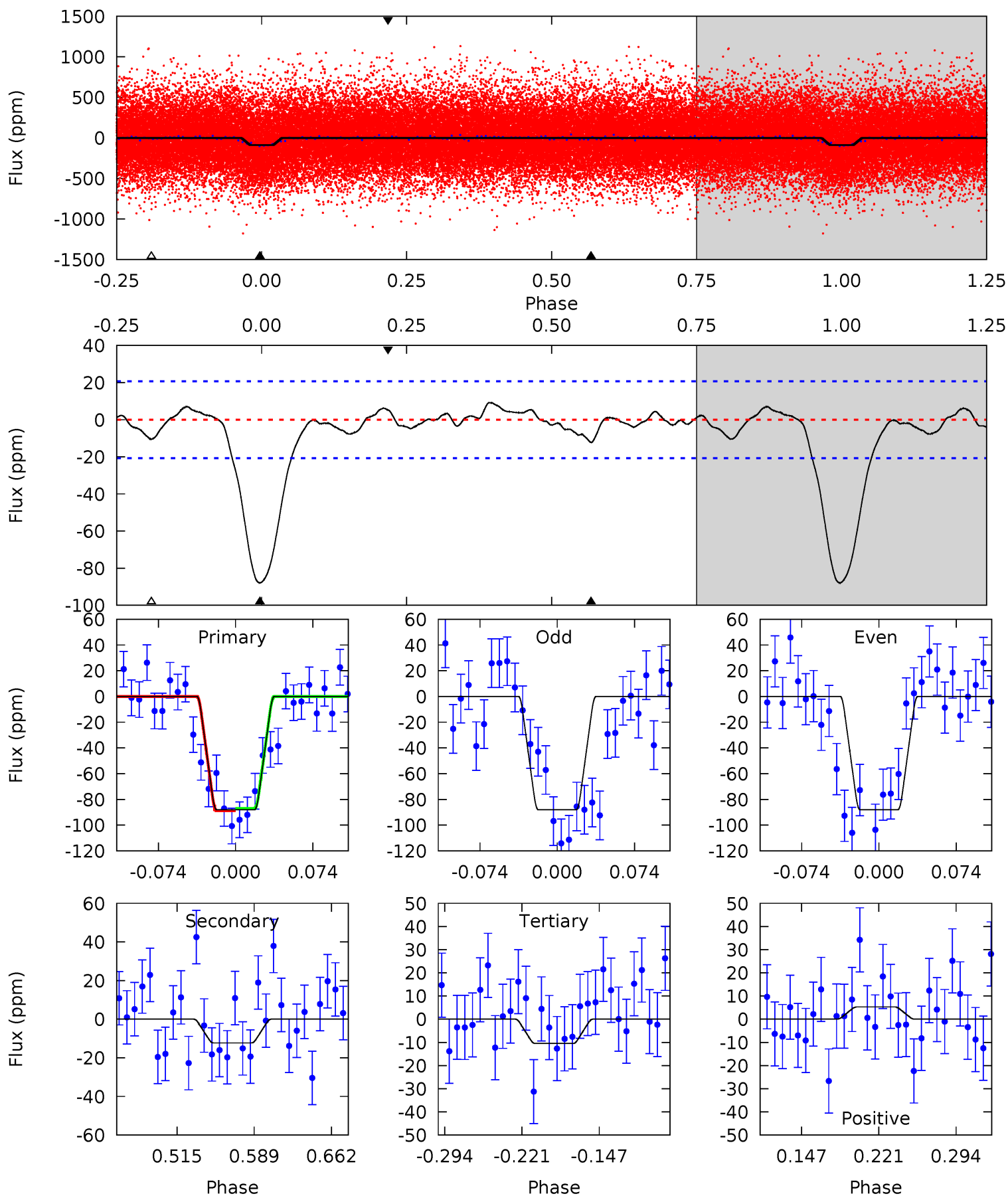
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	2.93	1.05	0	4.55	1.61	2.05	20.7	21.8	1.88	2.93	1.58	0.97	0.15	0.99



Alt Model-Shift Uniqueness Test

004076976-01, P = 4.880766 Days, E = 128.815124 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	2.75	2.34	1.18	4.63	1.79	0.92	17.3	18.5	0.41	1.57	0.01	0.96	0.09	0.22



Stellar Parameters For KIC 004076976

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4763^{+131}_{-164}	$4.738^{+0.045}_{-0.021}$	$-1.600^{+0.300}_{-0.250}$	$0.516^{+0.023}_{-0.032}$	$0.530^{+0.032}_{-0.021}$	$5.449^{+0.975}_{-0.462}$
	+3%/-3%	+1%/-0%	+19%/-16%	+4%/-6%	+6%/-4%	+18%/-8%
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 004076976-01 / KOI 3124.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 4	$1.84^{+1.62}_{-1.28}$	984^{+30}_{-37}	2343^{+890}_{-388}	$3.547^{+38.970}_{-2.607}$
Alt.	-12 ± 4	$1.72^{+1.71}_{-1.17}$	981^{+31}_{-36}	2380^{+903}_{-393}	$4.457^{+40.777}_{-3.384}$

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 $A_{\text{obs}} \gg 1.0$

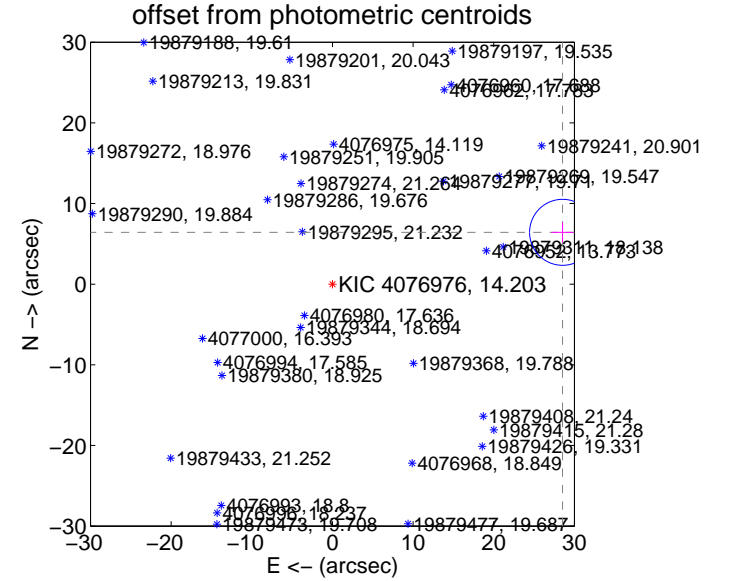
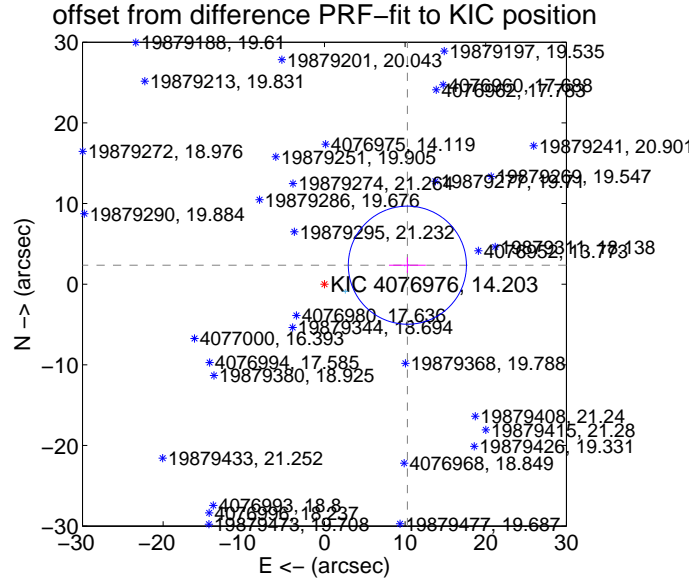
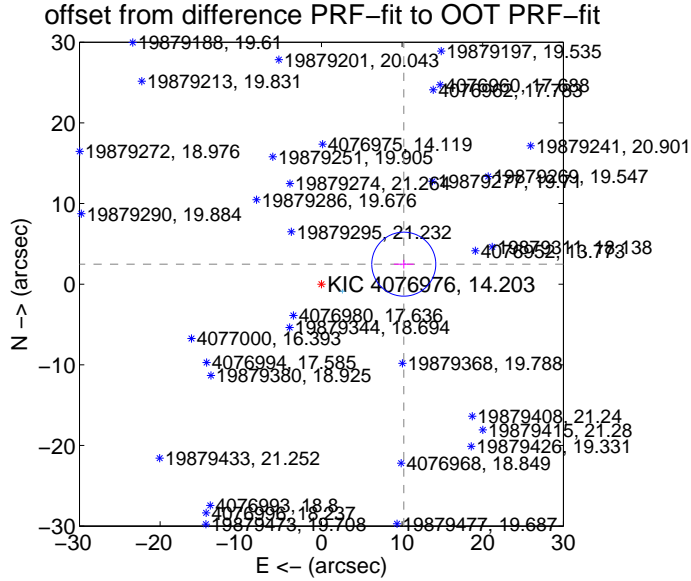
DV Centroid Data

Supplemental centroid analysis for 004076976-01. Kepler magnitude: 14.20. Transit SNR 13.17

There are 4 quarters with good PRF difference image offsets

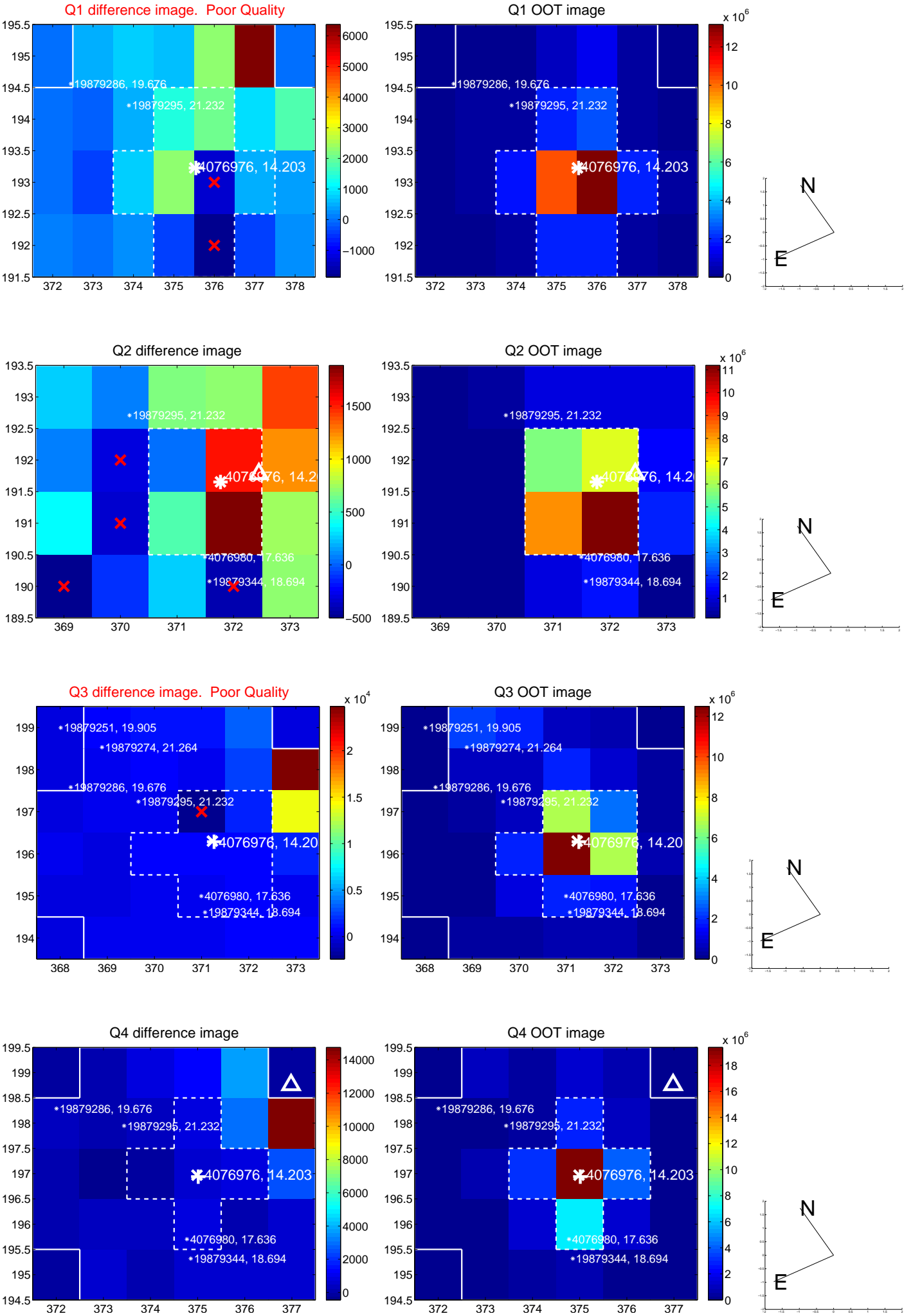
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.509 \pm 1.323	7.94	-10.212 \pm 1.232	2.479 \pm 0.537
PRF-fit source offset from KIC position	10.551 \pm 2.441	4.32	-10.285 \pm 2.285	2.353 \pm 0.961
photometric centroid source offset	29.25 \pm 1.36	21.45	-28.53 \pm 1.37	6.43 \pm 1.24

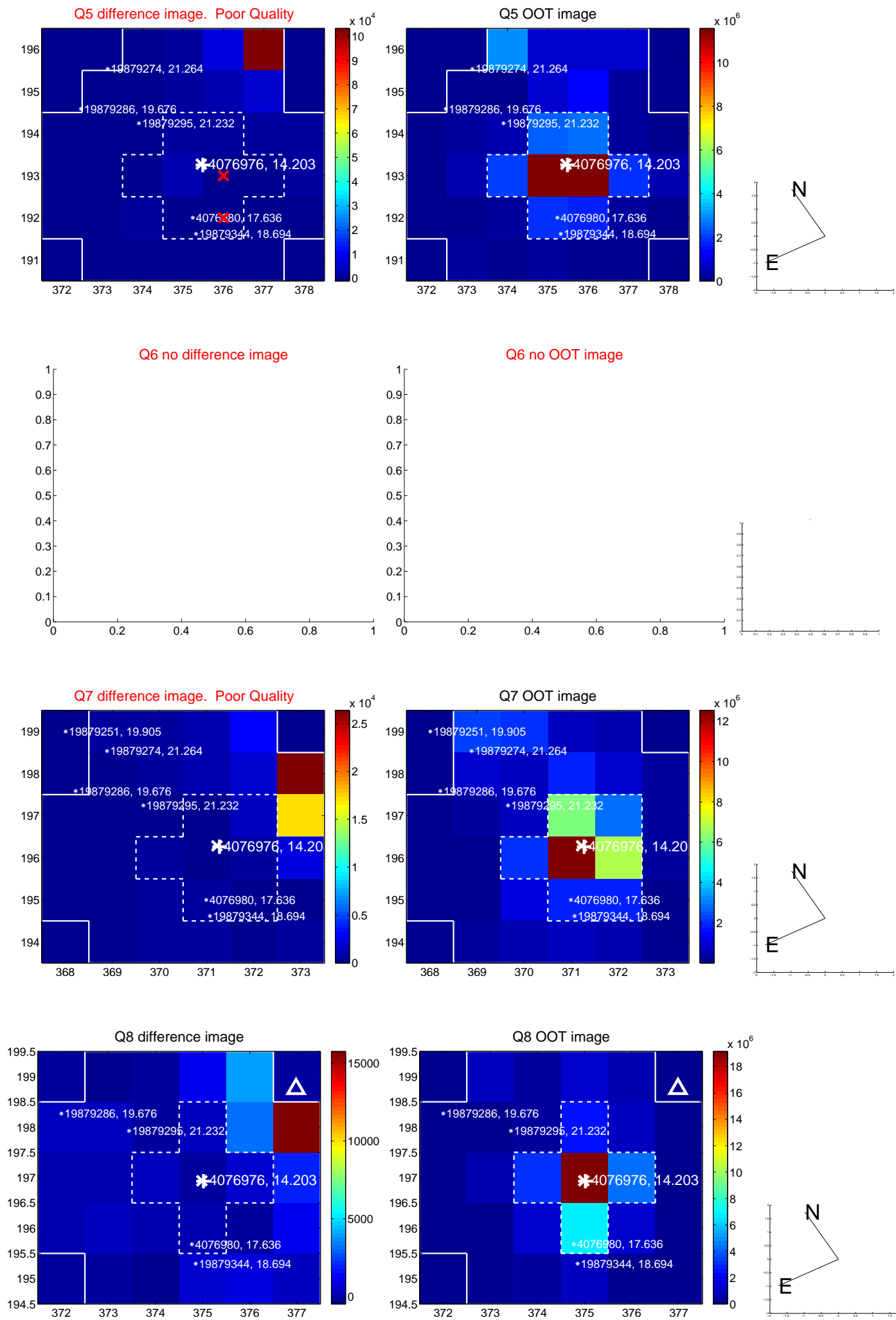


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

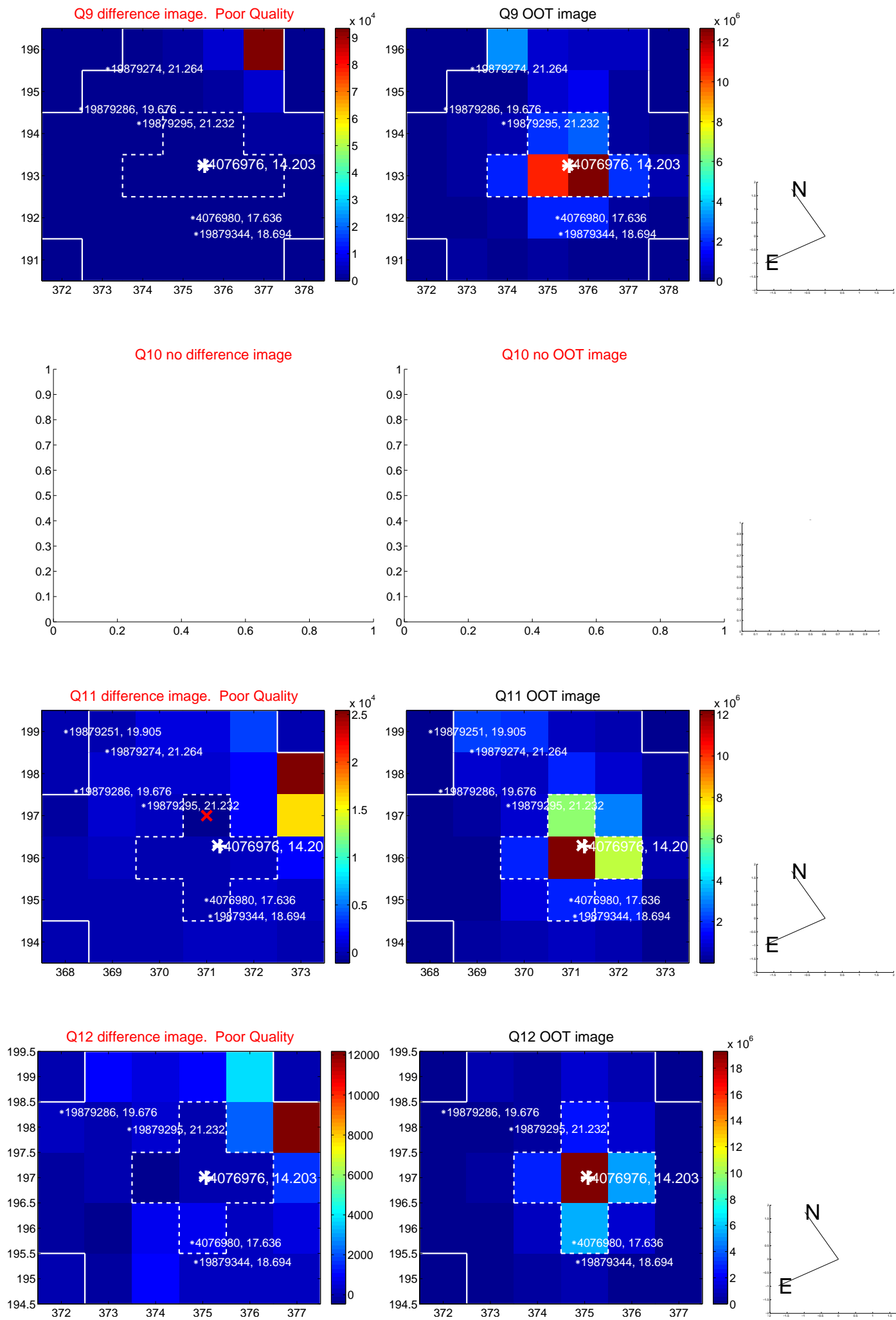
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



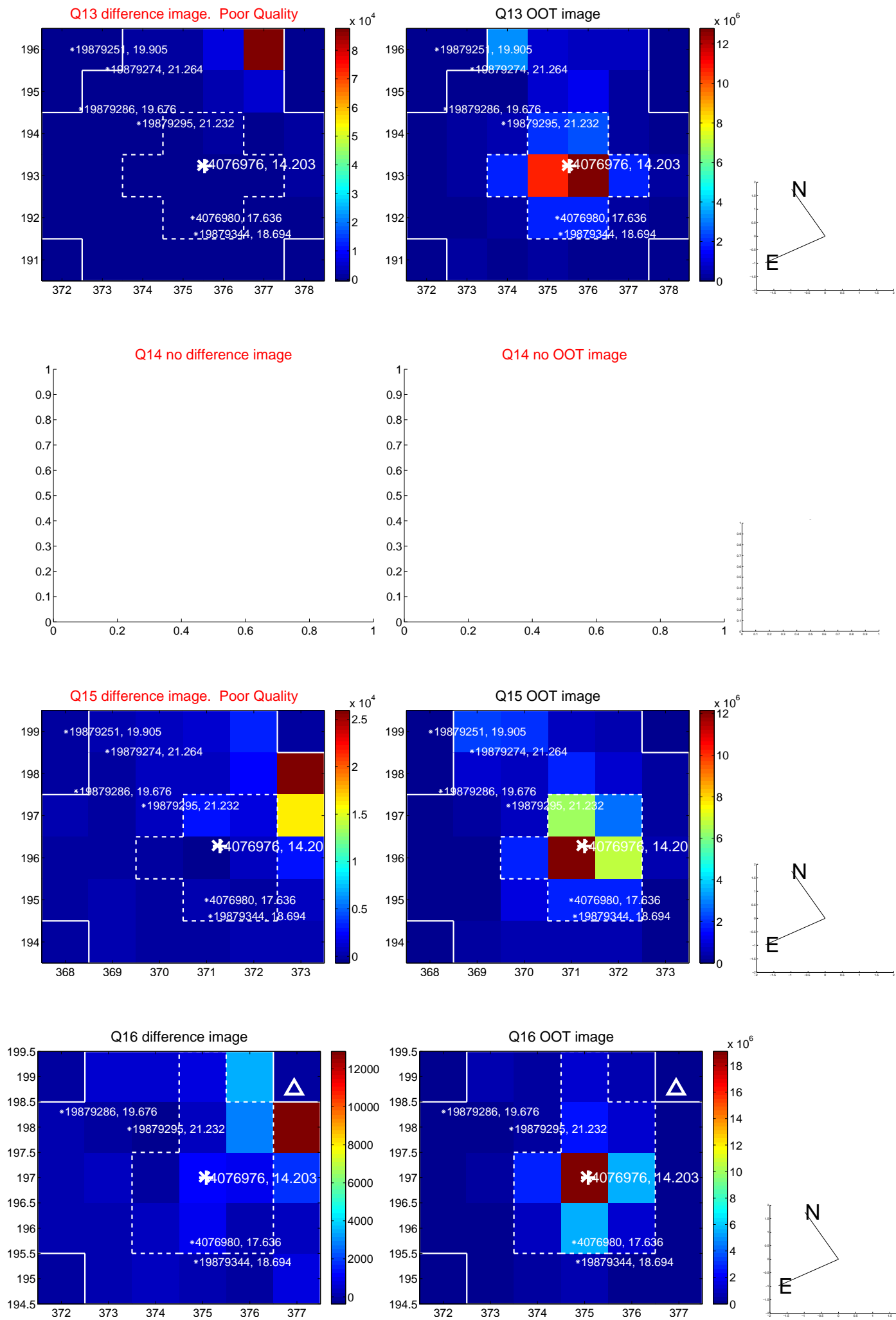
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



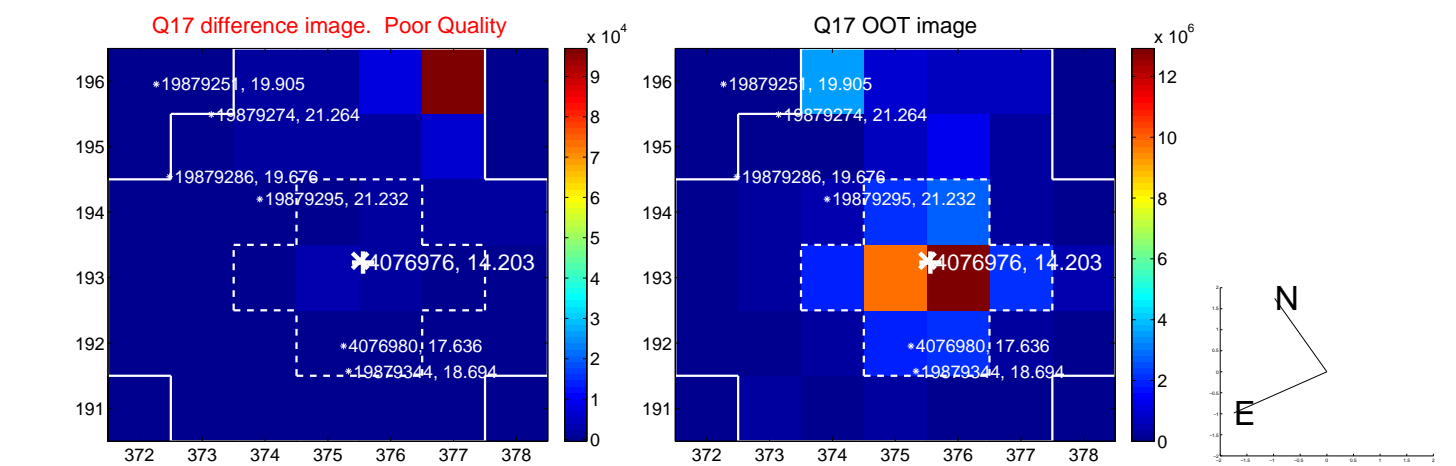
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



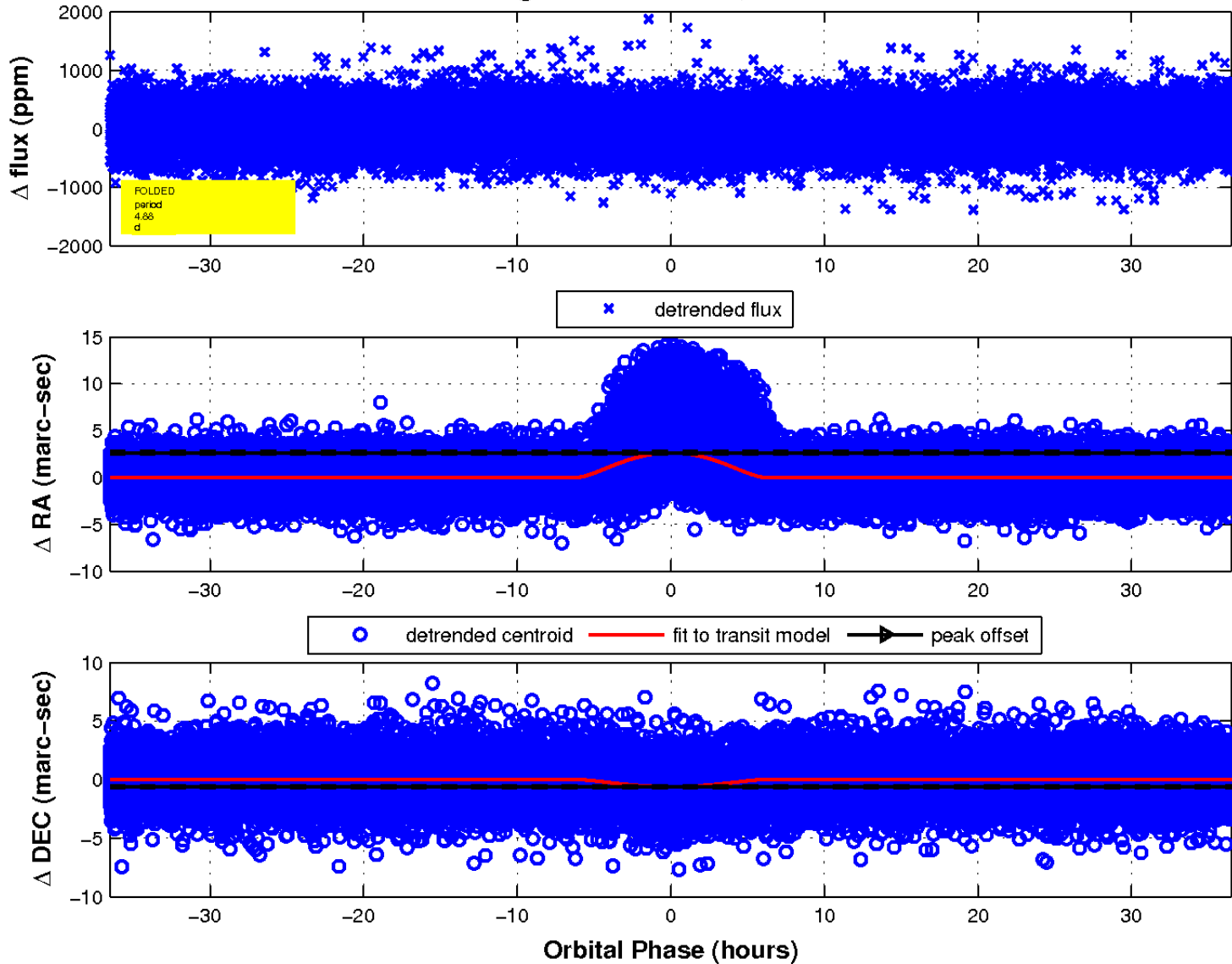
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

