

KIC 010294509

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})
010294509-01	OBS	4143.01	1.854445	132.514143	284.2	2.986	15.2	16.1	0.74	5341	1.52	526.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010294509-01	OBS	FP	0.00	0	0	0	1	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 010294509-01

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
010294509-01	10294509	010294608-pri	10294608	1:2	67.8	17	1	13.34	15.70	1580.30	Direct-PRF	0	3.75	1.38

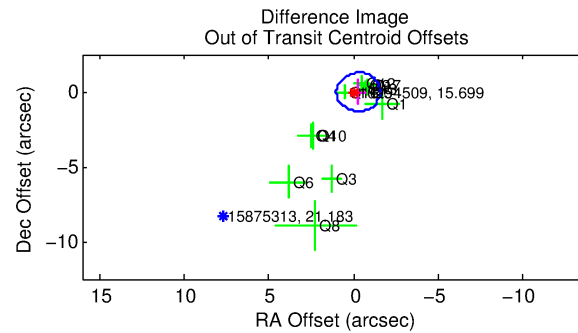
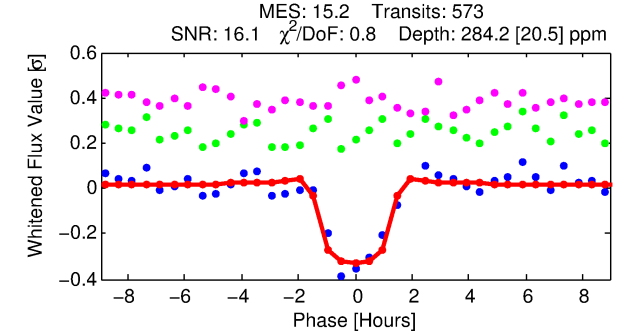
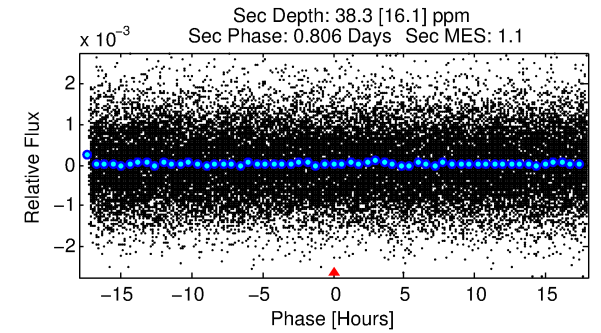
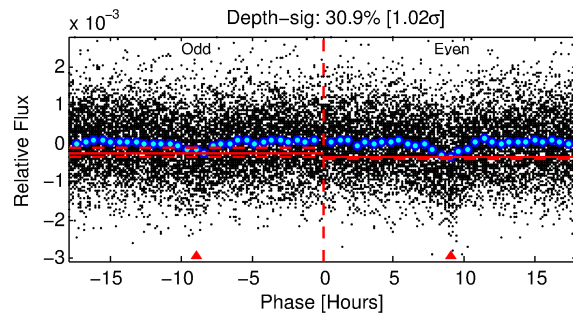
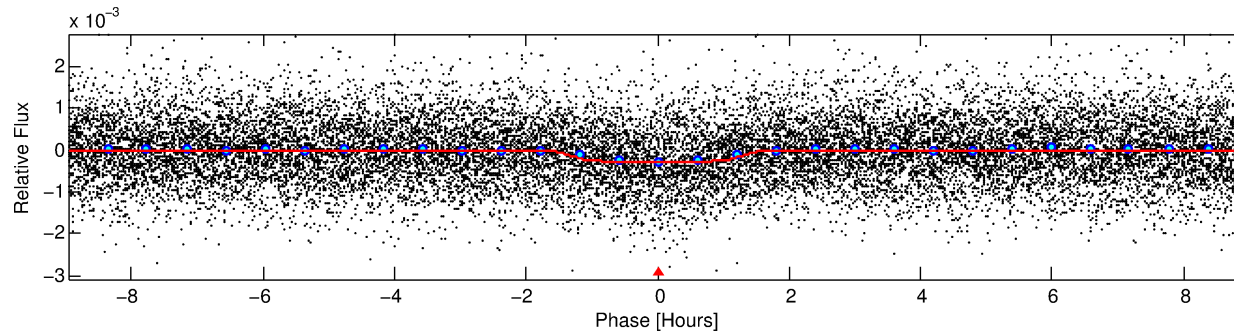
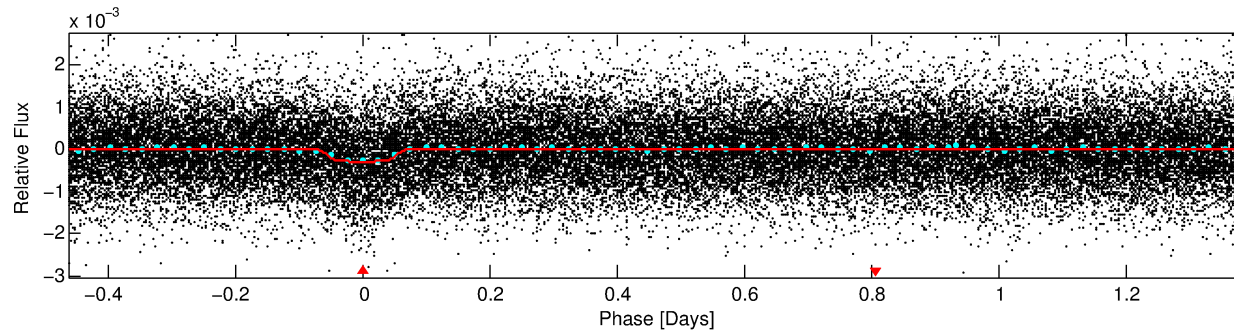
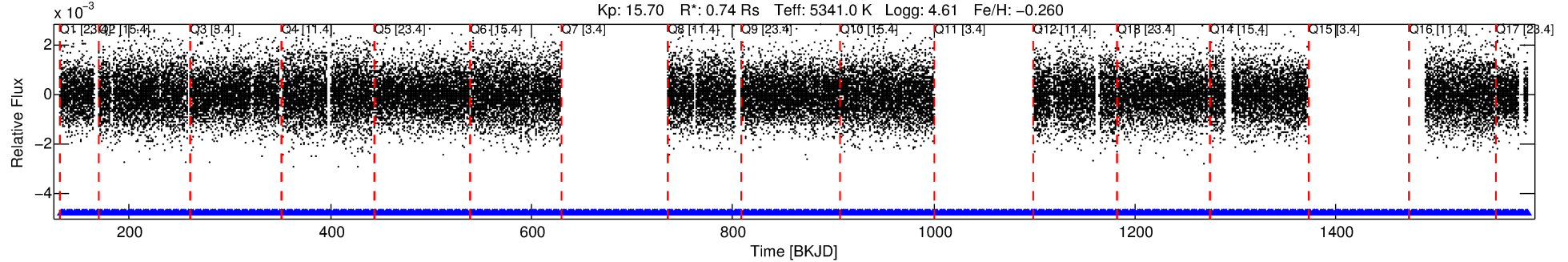
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 10294509 Candidate: 1 of 1 Period: 1.854 d

KOI: K04143.01 Corr: 0.954

Kp: 15.70 R*: 0.74 Rs Teff: 5341.0 K Logg: 4.61 Fe/H: -0.260



DV Fit Results:

Period = 1.85444 [0.00001] d
Epoch = 132.5141 [0.0024] BKJD
Rp/R* = 0.0187 [0.0046]
a/R* = 2.38 [2.11]
b = 0.91 [0.21]
Seff = 526.94 [115.85]
Teff = 1222 [67] K
Rp = 1.52 [0.45] Re
a = 0.0276 [0.0037] AU
Ag = 6.97 [4.70] [1.27σ]
Teffp = 3069 [506] K [3.62σ]

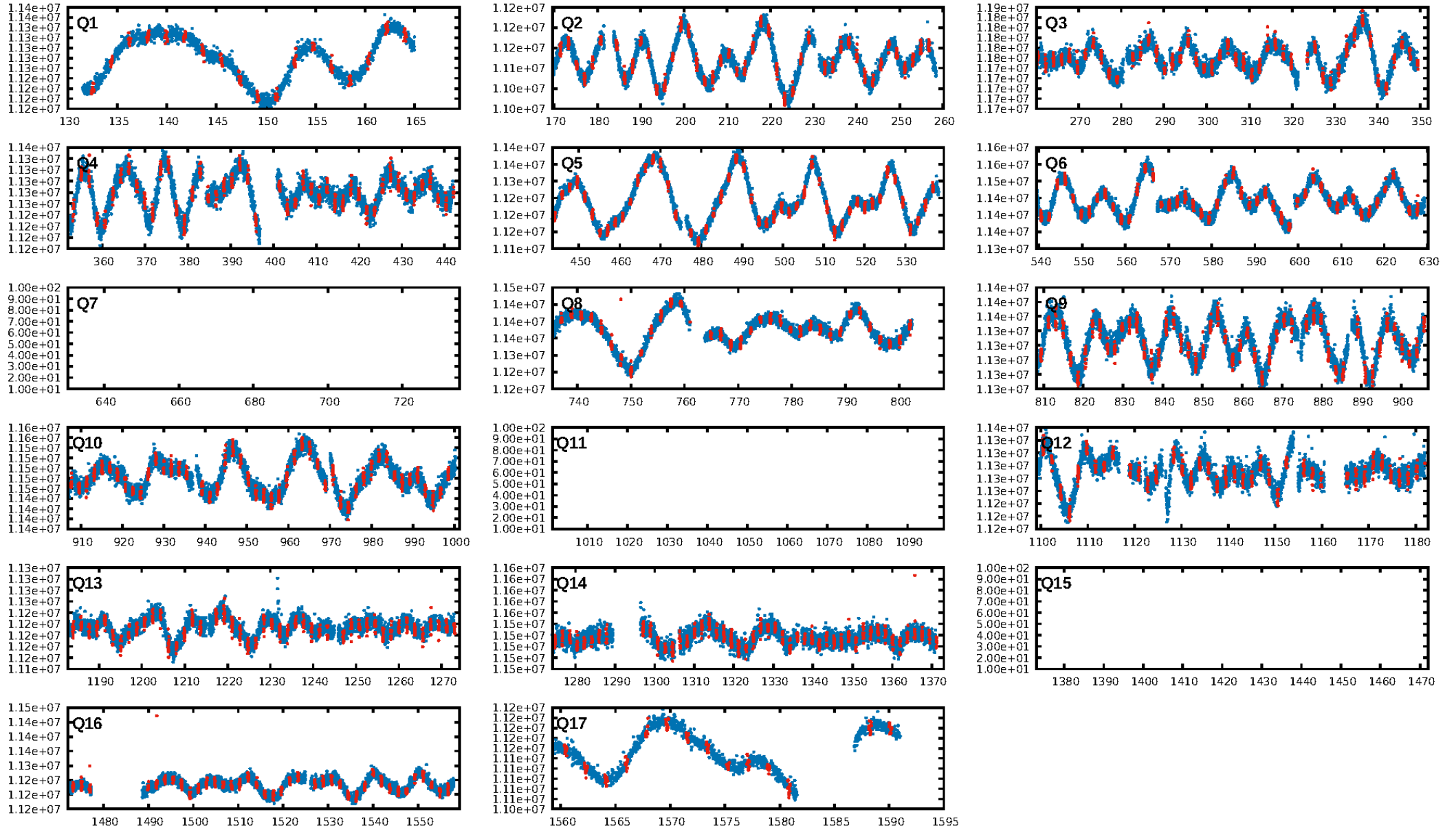
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.59e-50
RollingBand-fgt: 1.00 [541/541]
GhostDiagnostic-chr: 0.5926
Centroid-sig: 0.4%
Centroid-so: 1.386 arcsec [1.75σ]
OotOffset-rm: 0.274 arcsec [0.64σ]
KicOffset-rm: 0.340 arcsec [0.70σ]
OotOffset-st: 2/1/4/5 [12]
KicOffset-st: 2/1/4/5 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 1.00 [14/14]

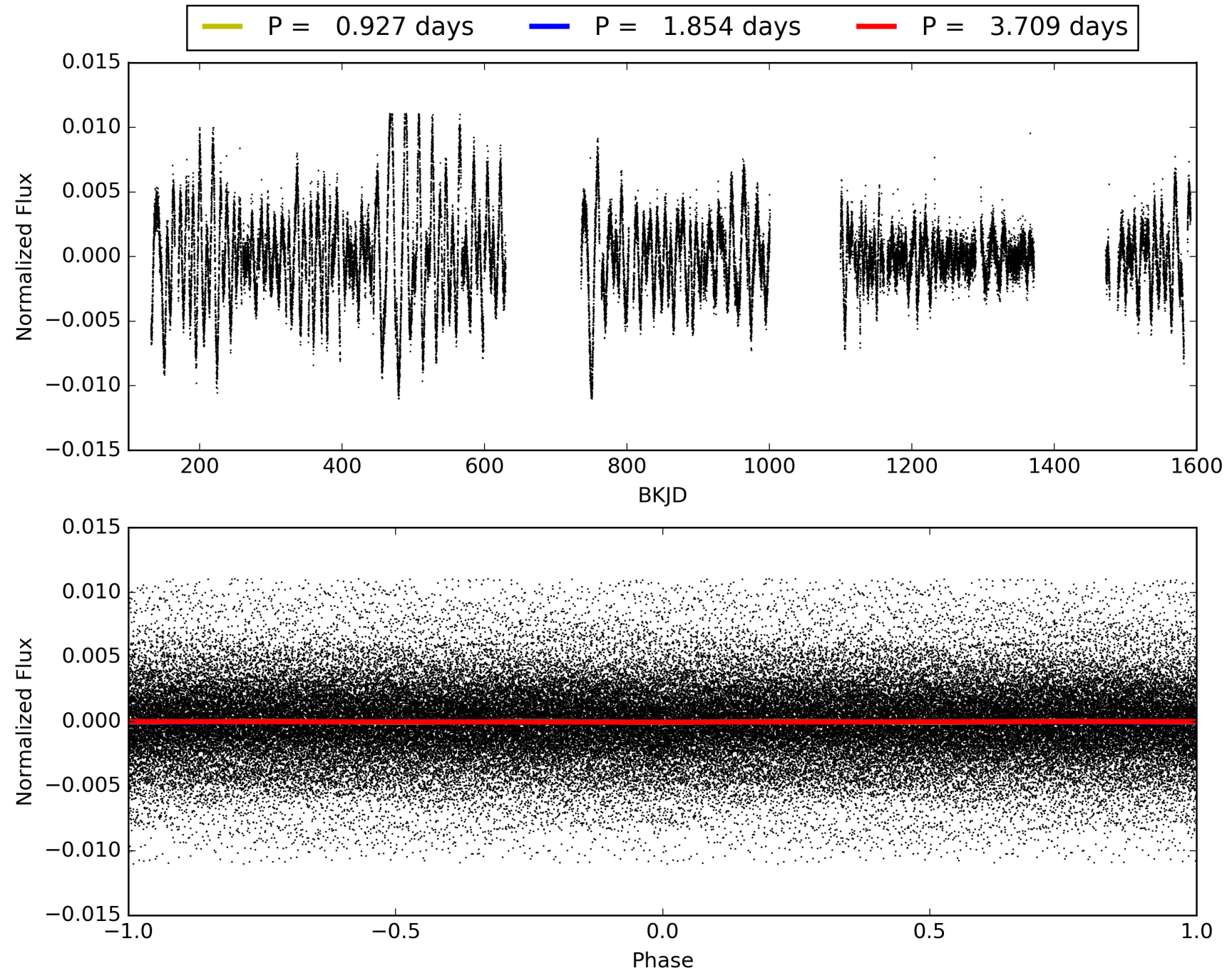
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:38:37 Z

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

TCE 010294509-01, PDC Light Curves

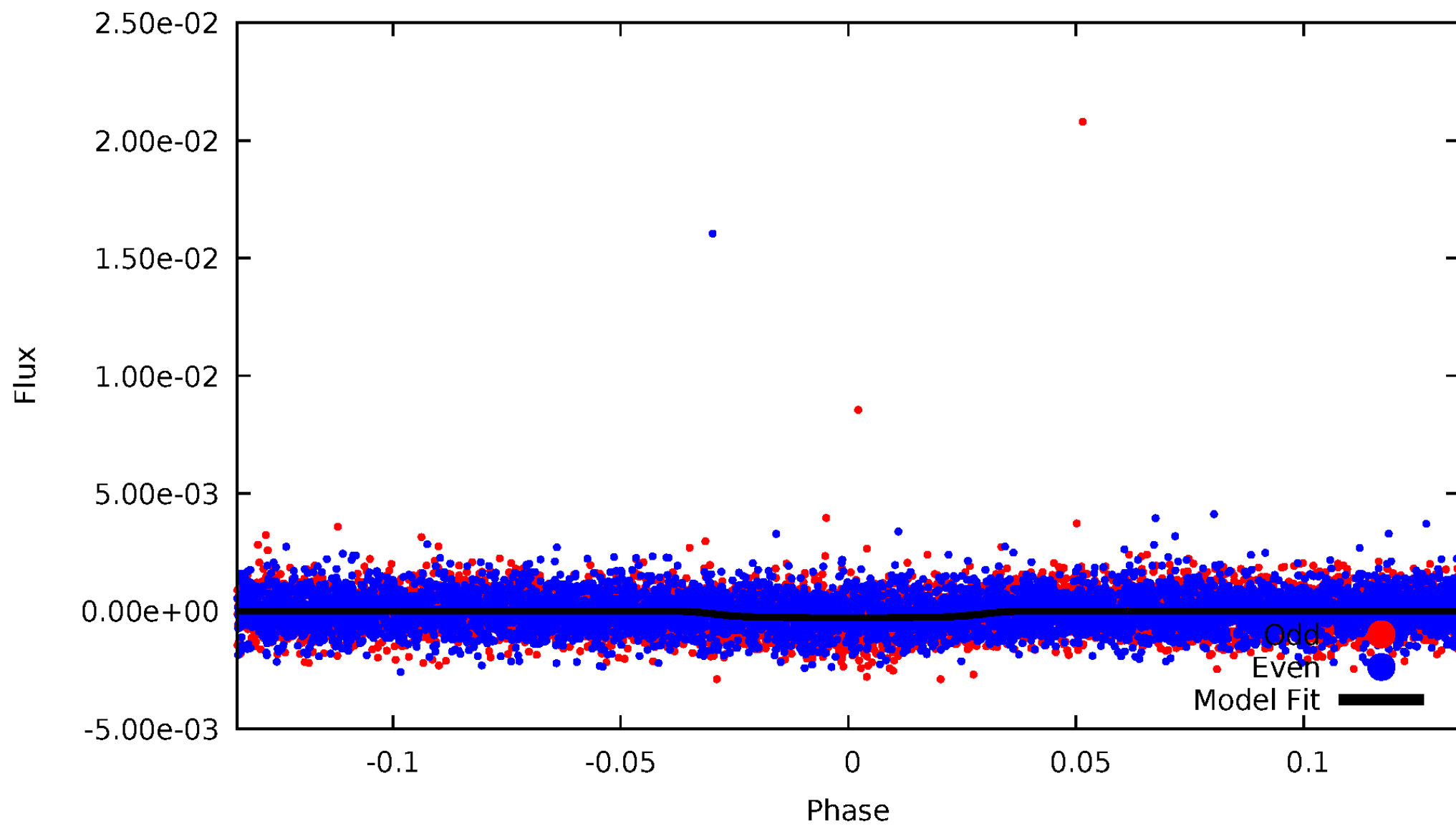


TCE 010294509-01



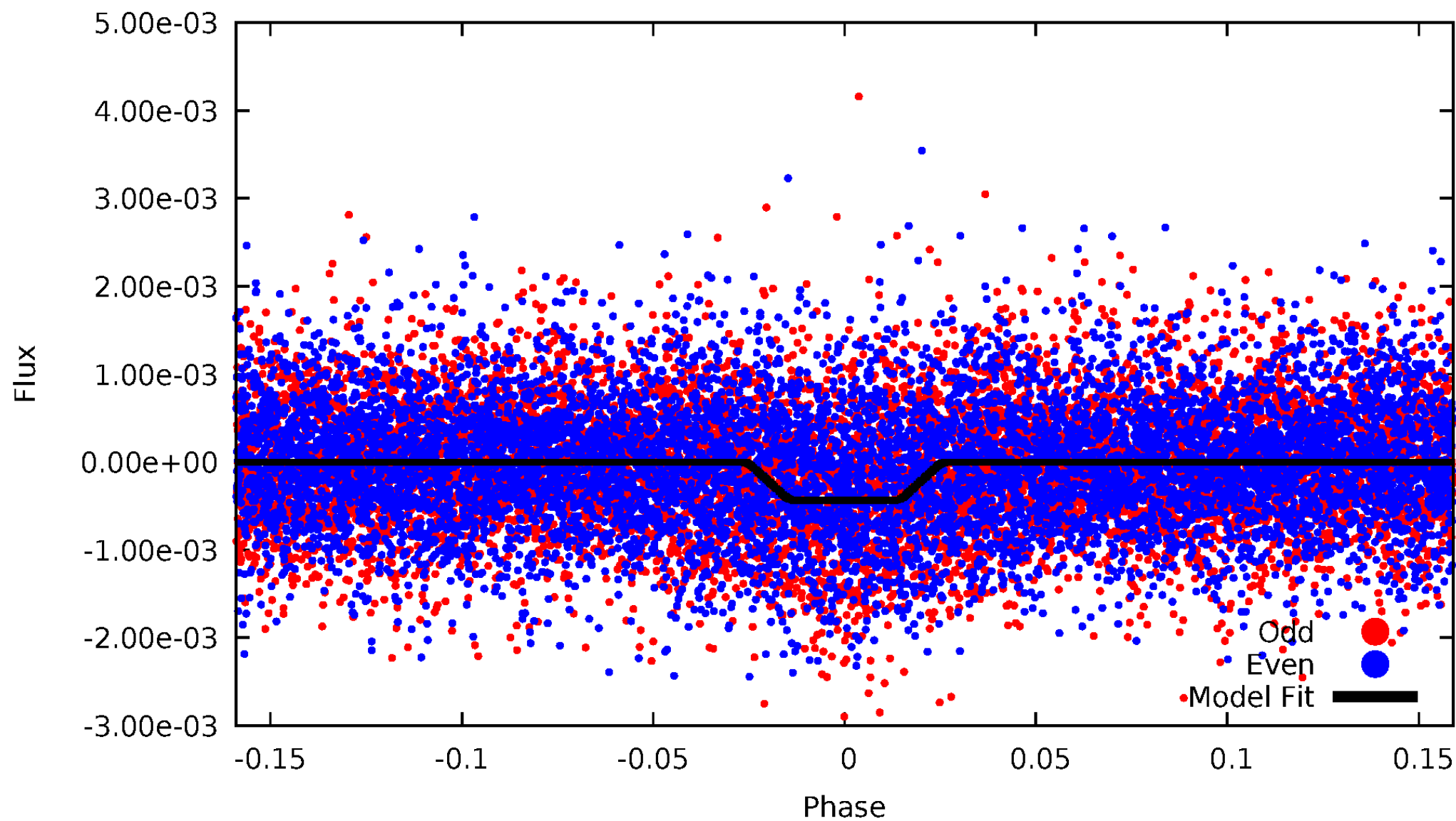
DV Odd/Even

TCE 010294509-01



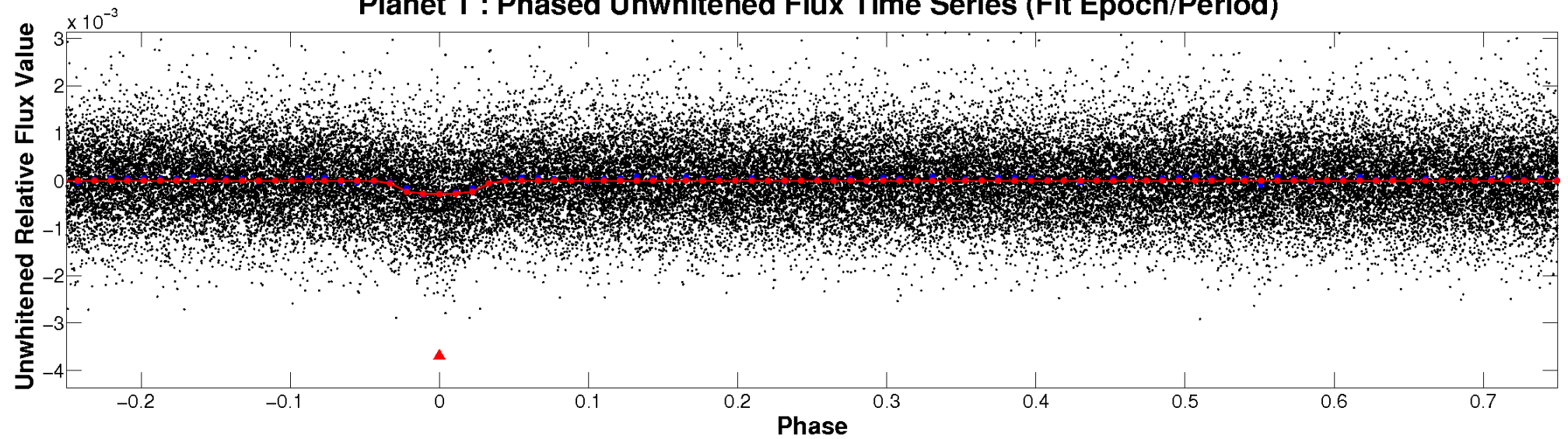
ALT Odd/Even

TCE 010294509-01

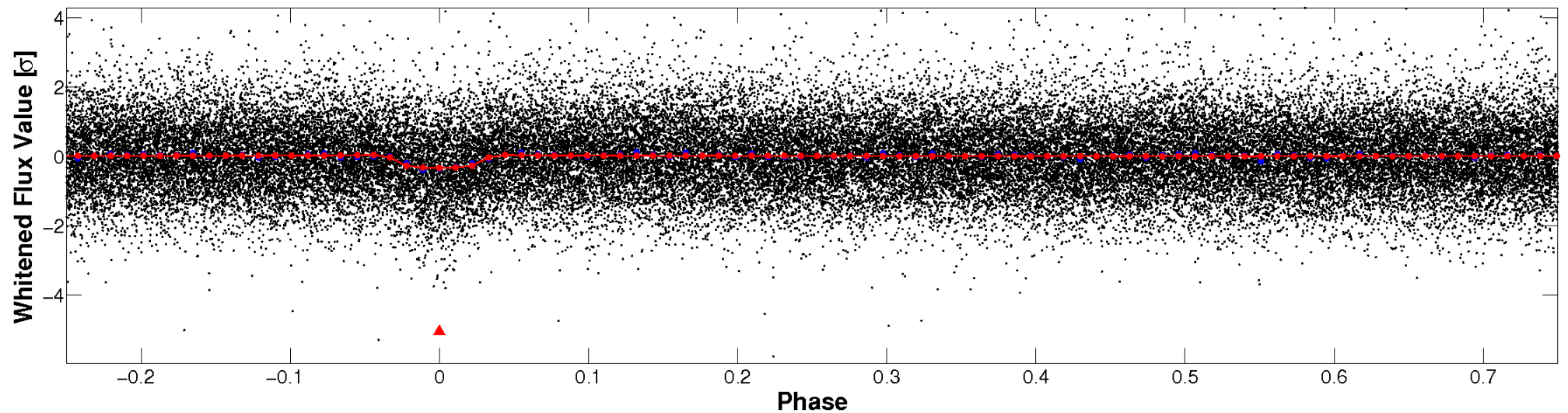


Non-Whitened Vs. Whitened Light Curve

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

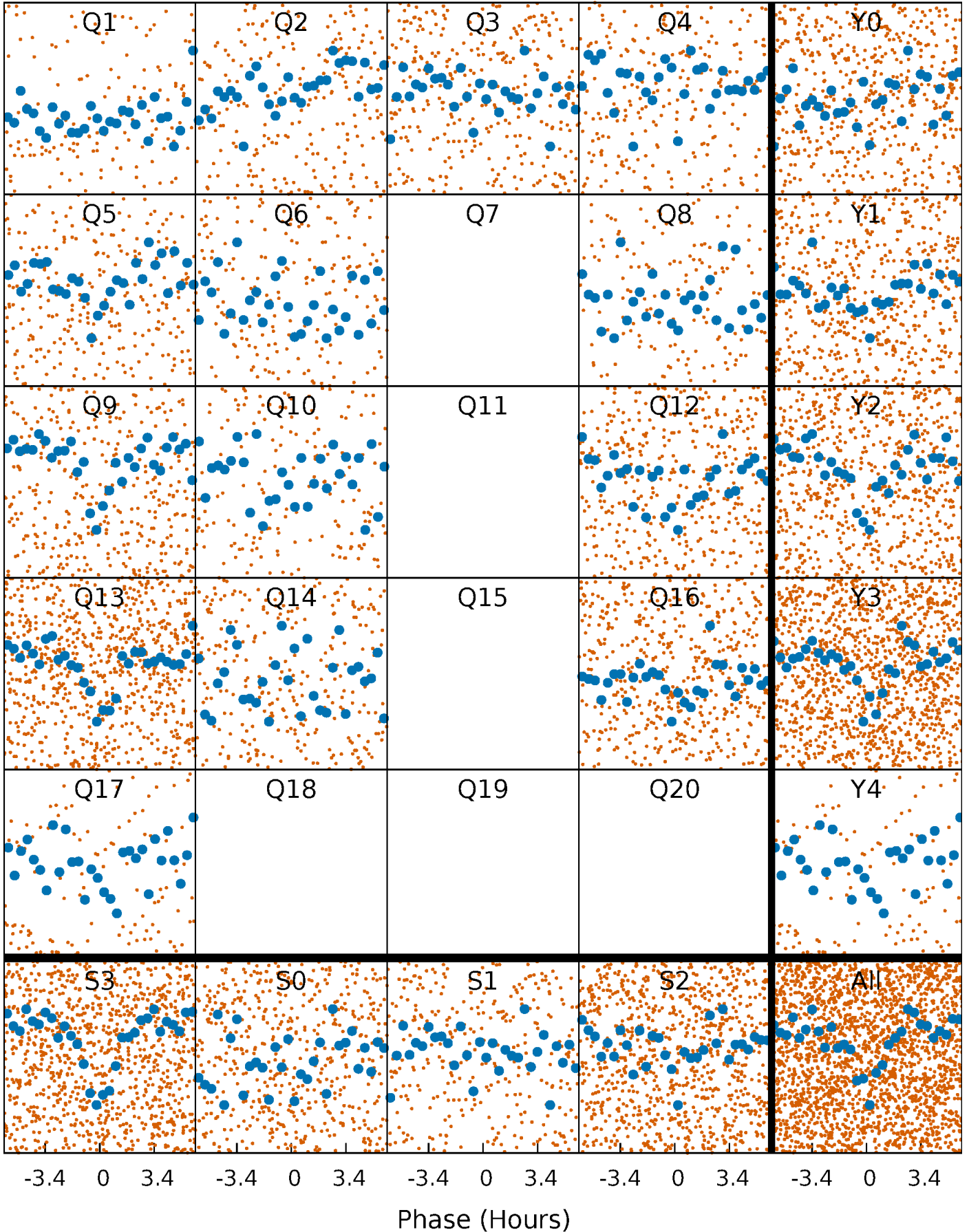


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



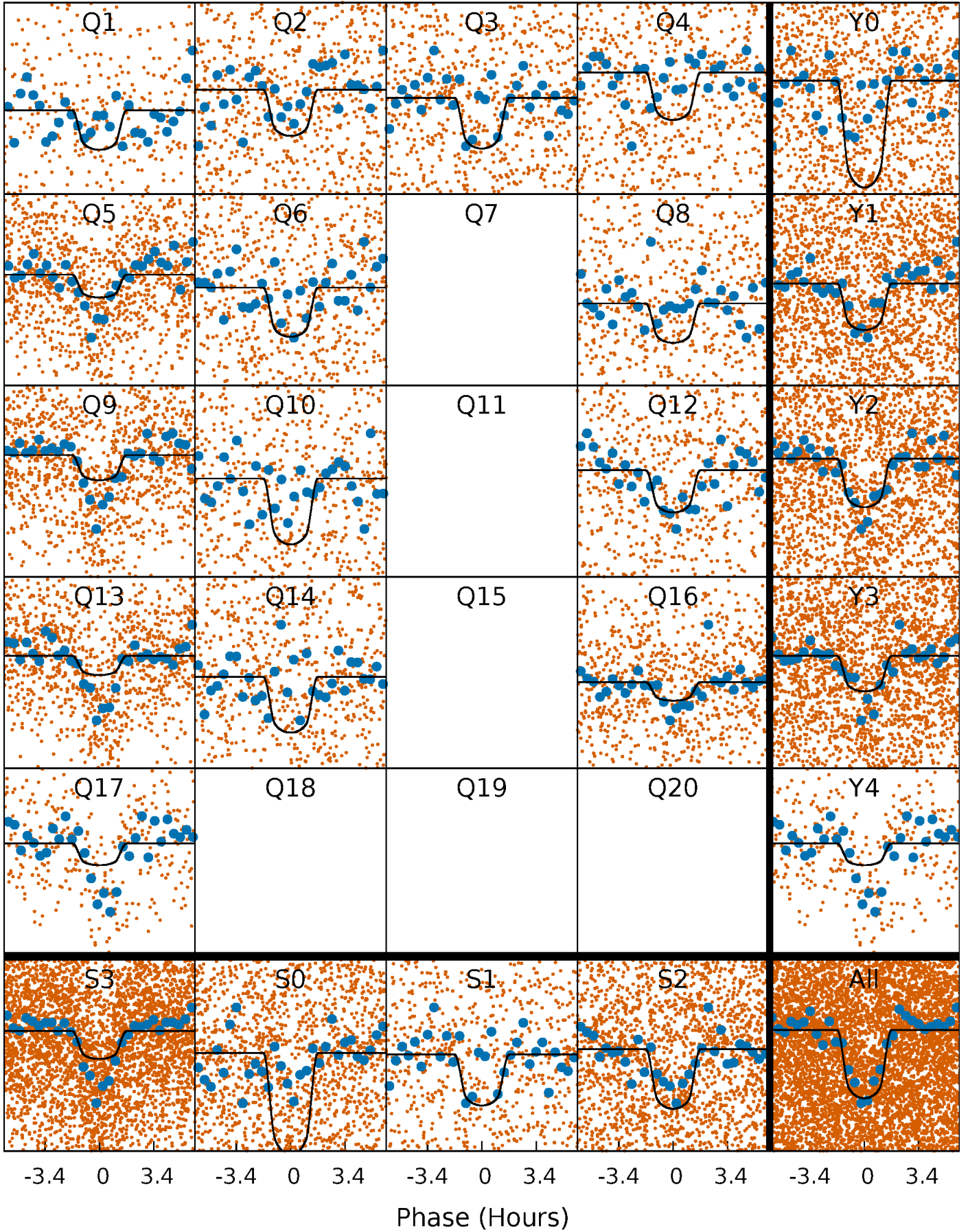
PDC Quarter-Phased Transit Curves

TCE 010294509-01 P= 1.854445 Days $T_0=132.514143$ (BKJD)



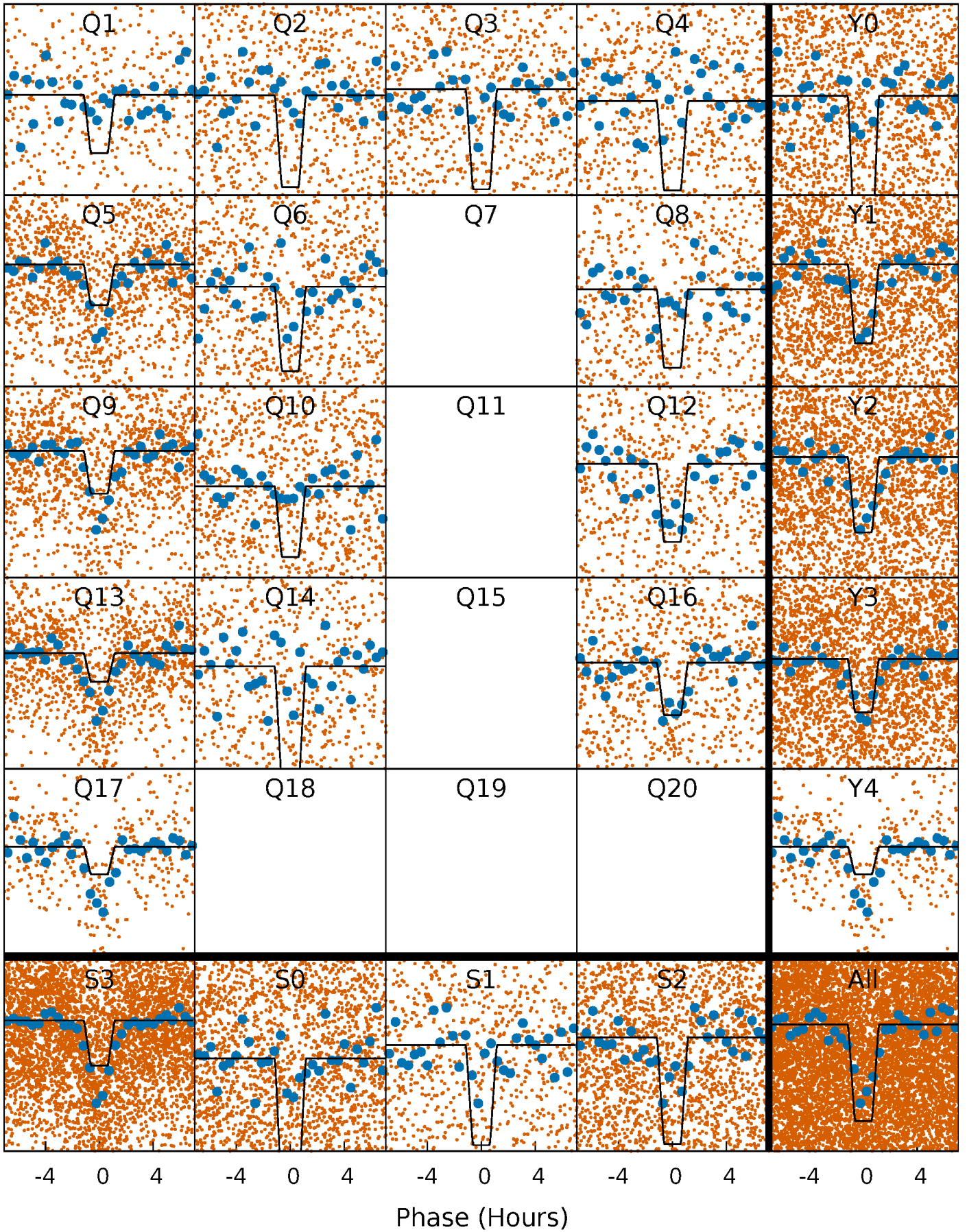
DV Quarter-Phased Transit Curves

TCE 010294509-01 P= 1.854445 Days $T_0=132.514143$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

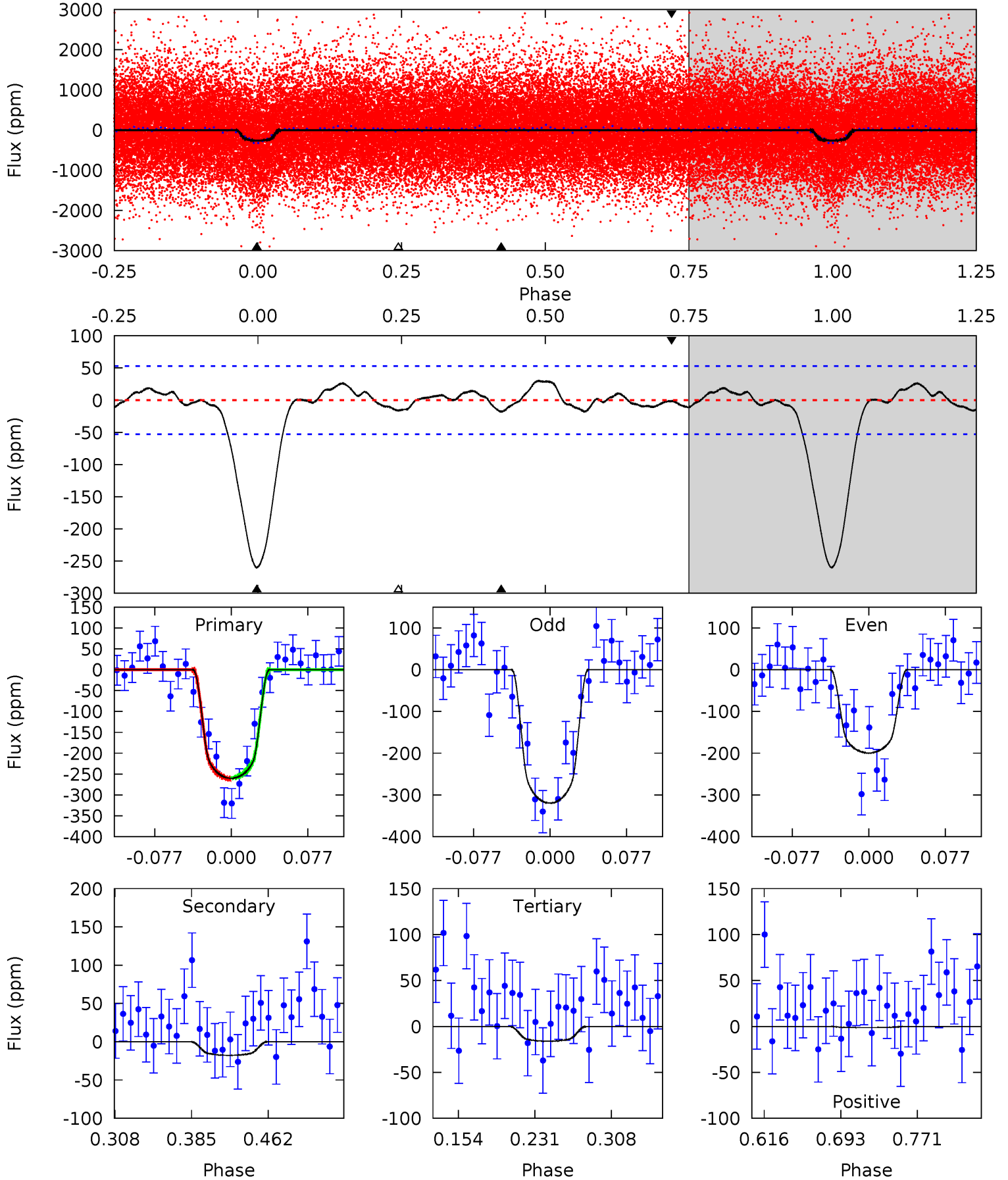
TCE 010294509-01 P= 1.854493 Days $T_0=132.492431$ (BKJD)



DV Model-Shift Uniqueness Test

010294509-01, P = 1.854445 Days, E = 130.659698 Days

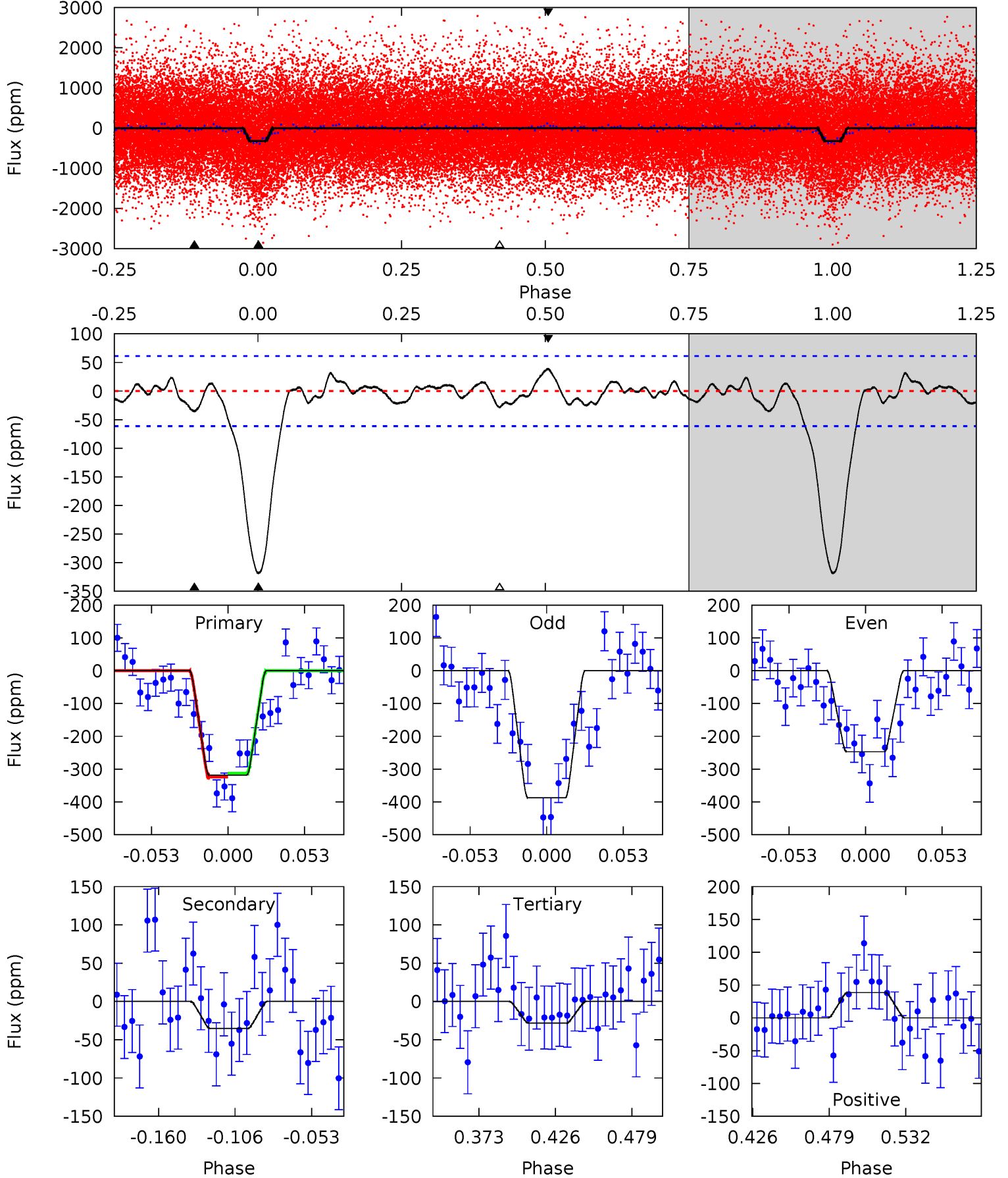
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	1.55	1.40	-0.11	4.62	1.77	0.93	21.3	22.8	0.15	1.66	5.23	0.95	0.10	0.10



Alt Model-Shift Uniqueness Test

010294509-01, P = 1.854493 Days, E = 130.637938 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	2.71	2.16	2.96	4.70	1.93	1.07	22.2	21.4	0.54	-0.26	5.39	1.02	0.11	0.44



Stellar Parameters For KIC 010294509

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5341^{+159}_{-159}	$4.609^{+0.032}_{-0.097}$	$-0.260^{+0.300}_{-0.300}$	$0.743^{+0.122}_{-0.057}$	$0.826^{+0.078}_{-0.096}$	$2.837^{+0.507}_{-0.849}$
	+3%/-3%	+1%/-2%	+115%/-115%	+16%/-8%	+9%/-12%	+18%/-30%
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 010294509-01 / KOI 4143.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 11	$1.55^{+0.39}_{-0.38}$	1724^{+78}_{-58}	3084^{+384}_{-501}	$3.039^{+3.410}_{-2.025}$
Alt.	-35 ± 13	$1.73^{+0.42}_{-0.41}$	1729^{+80}_{-65}	3313^{+350}_{-317}	$4.749^{+3.770}_{-2.130}$

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

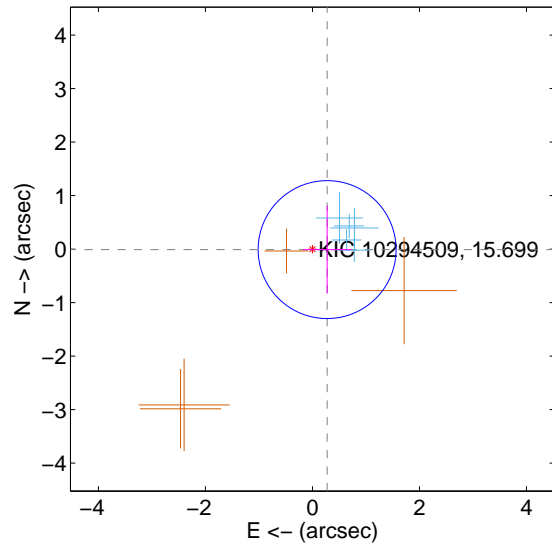
Supplemental centroid analysis for 010294509-01. Kepler magnitude: 15.70. Transit SNR 16.11

There are 5 quarters with good PRF difference image offsets

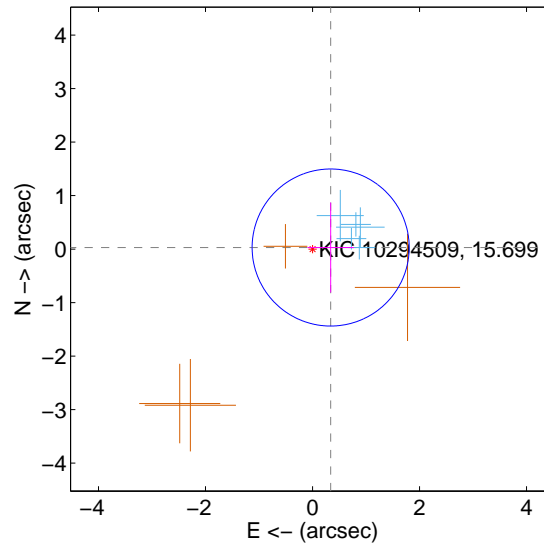
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.274 ± 0.430	0.64	-0.274 ± 0.449	-0.009 ± 0.820
PRF-fit source offset from KIC position	0.340 ± 0.489	0.70	-0.339 ± 0.435	0.029 ± 0.840
photometric centroid source offset	1.39 ± 0.79	1.75	-0.83 ± 0.74	-1.11 ± 0.82

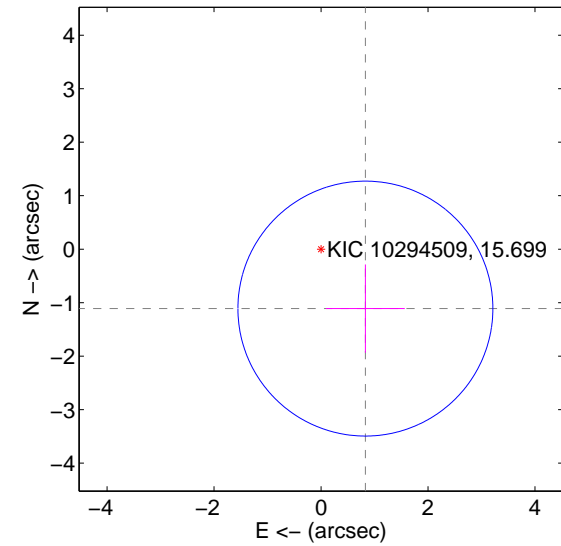
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

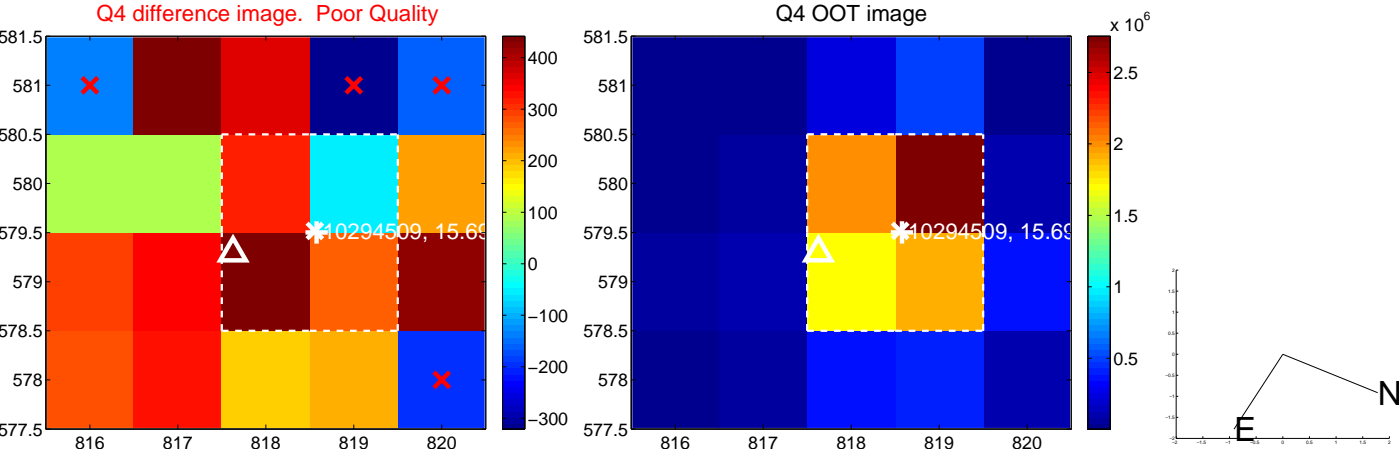
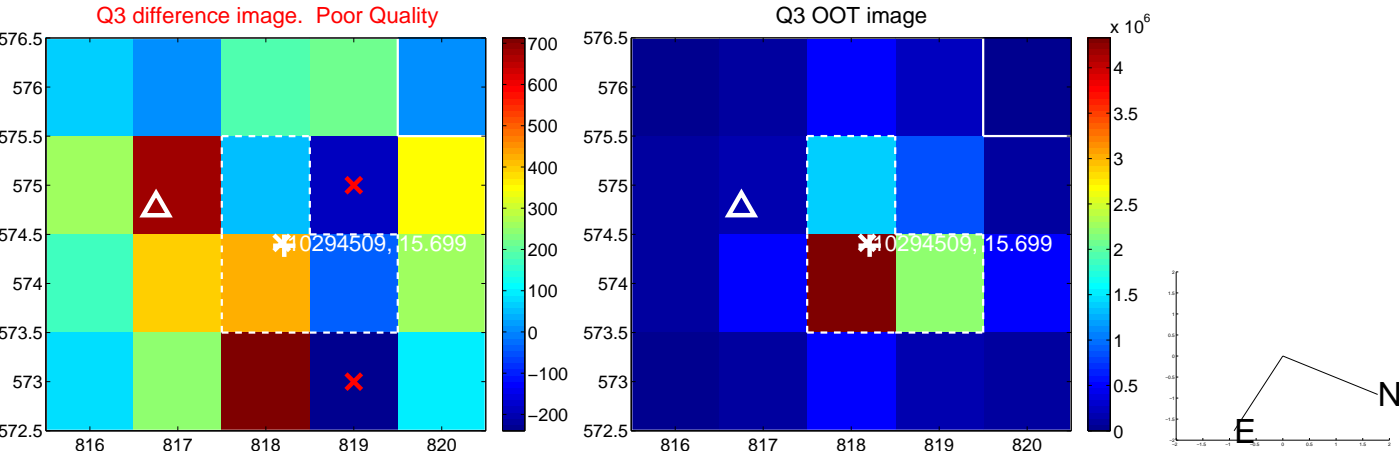
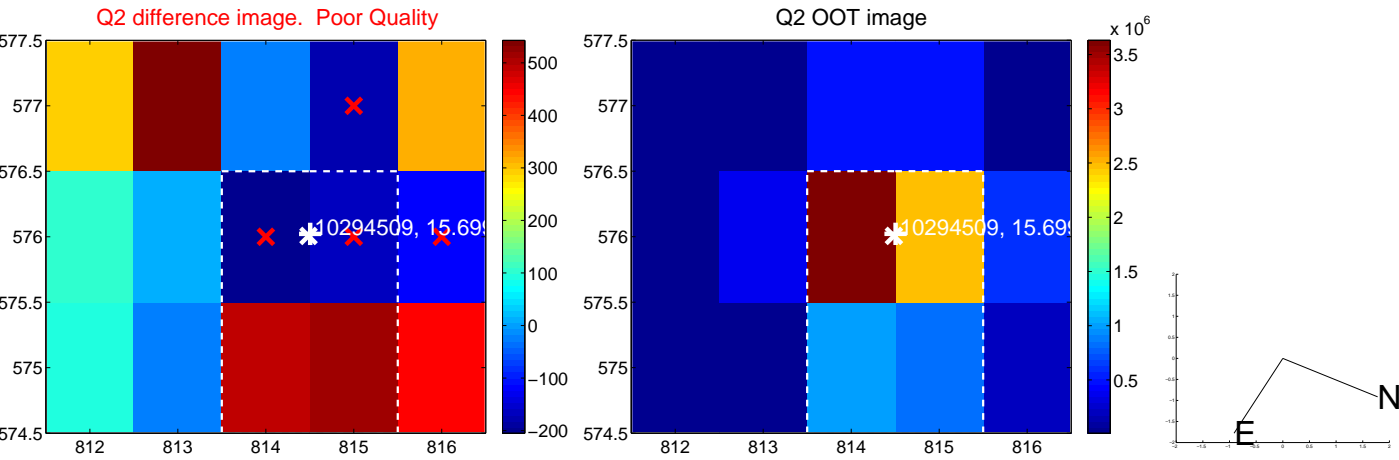
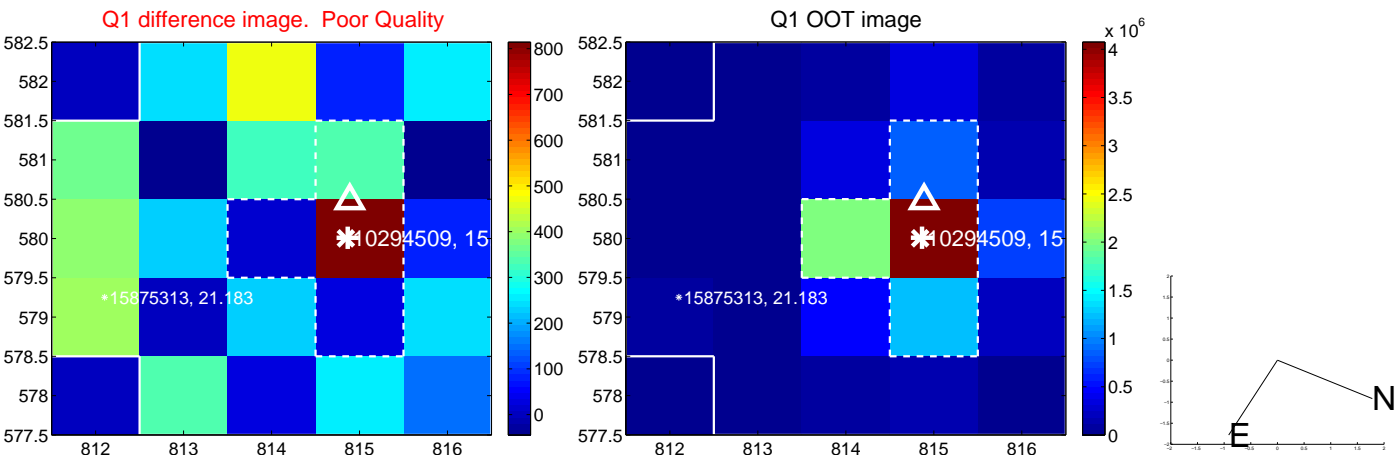


offset from photometric centroids

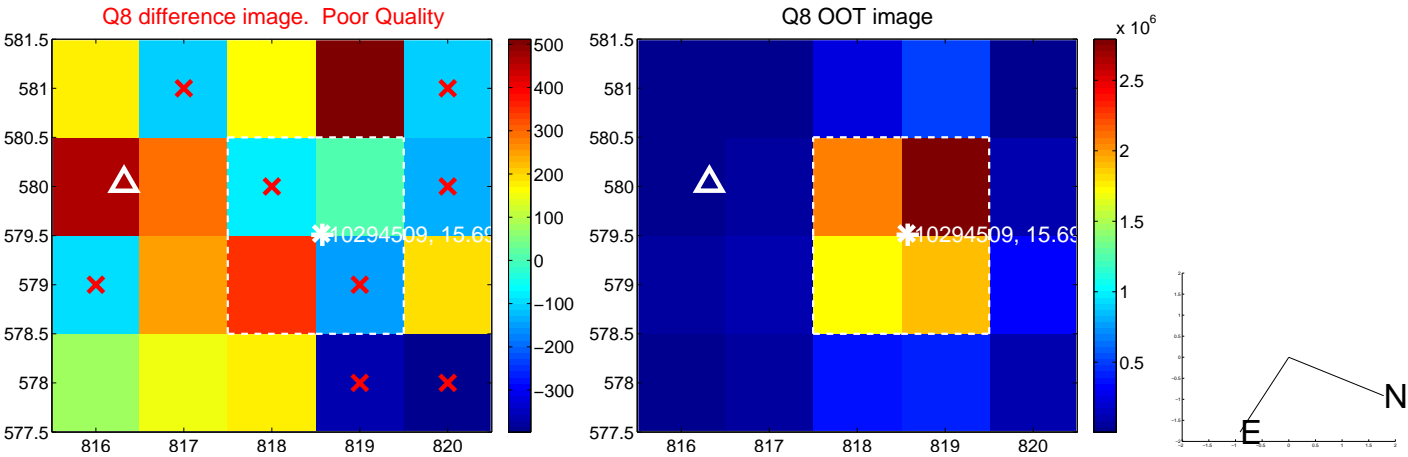
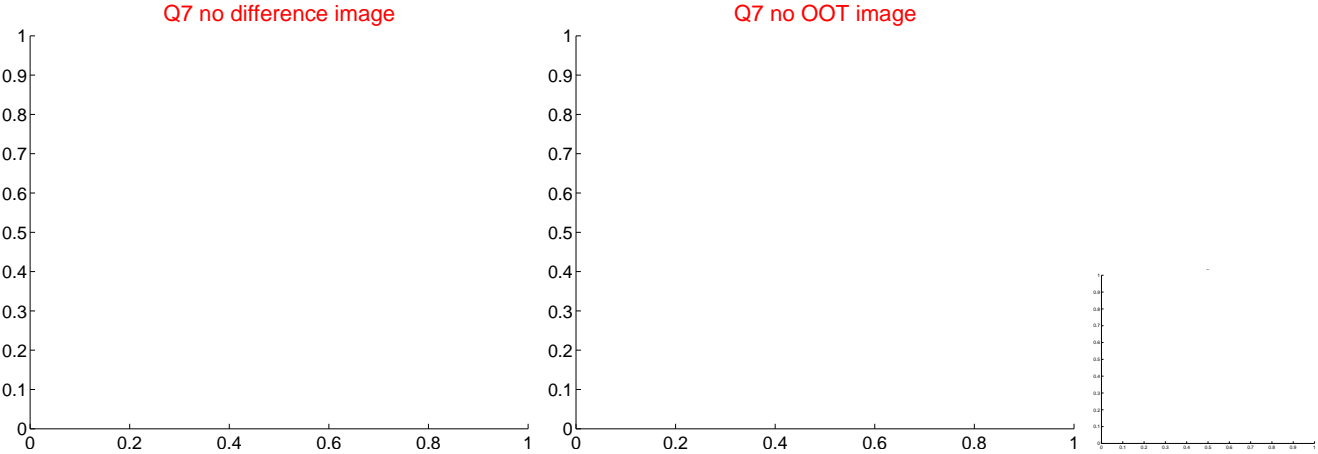
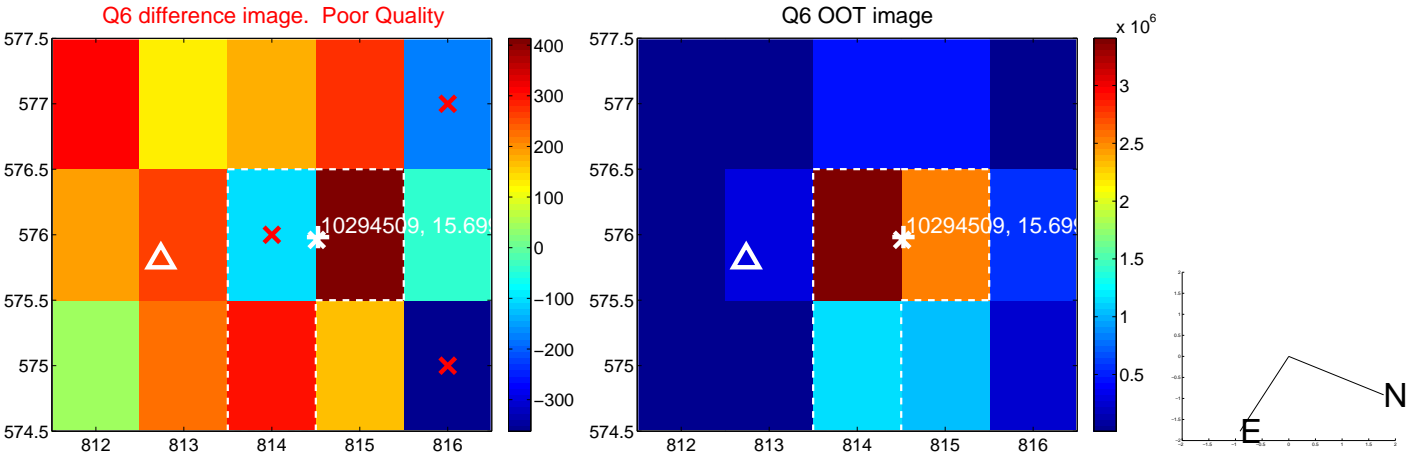
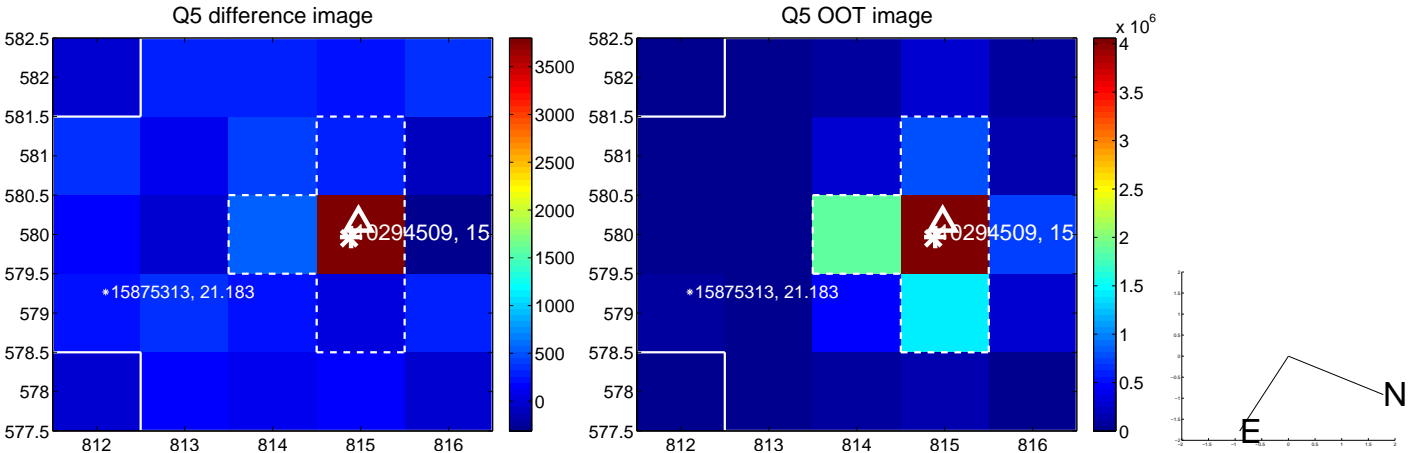


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

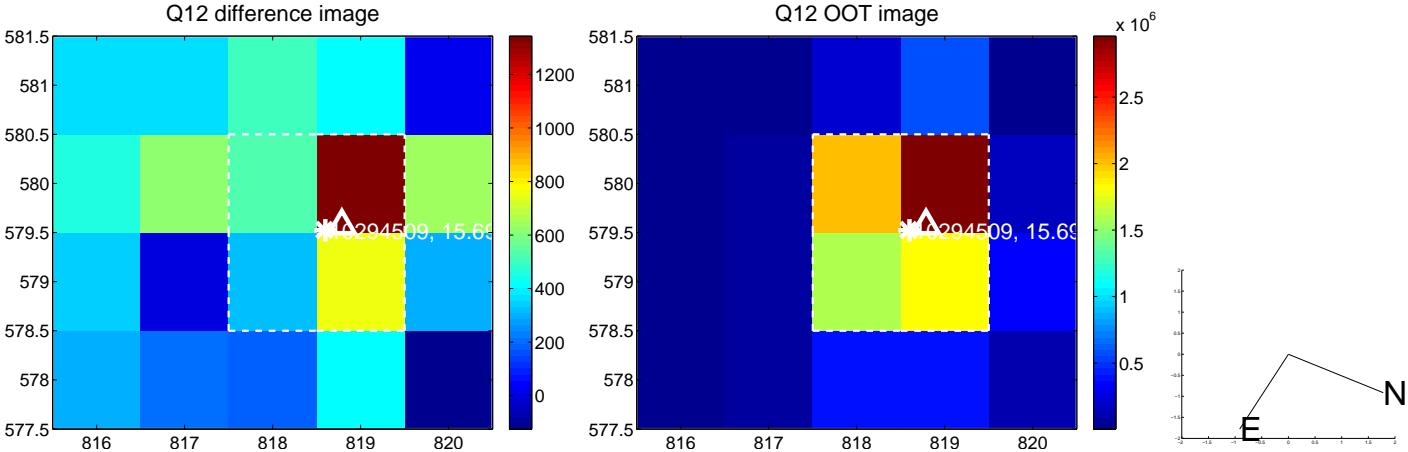
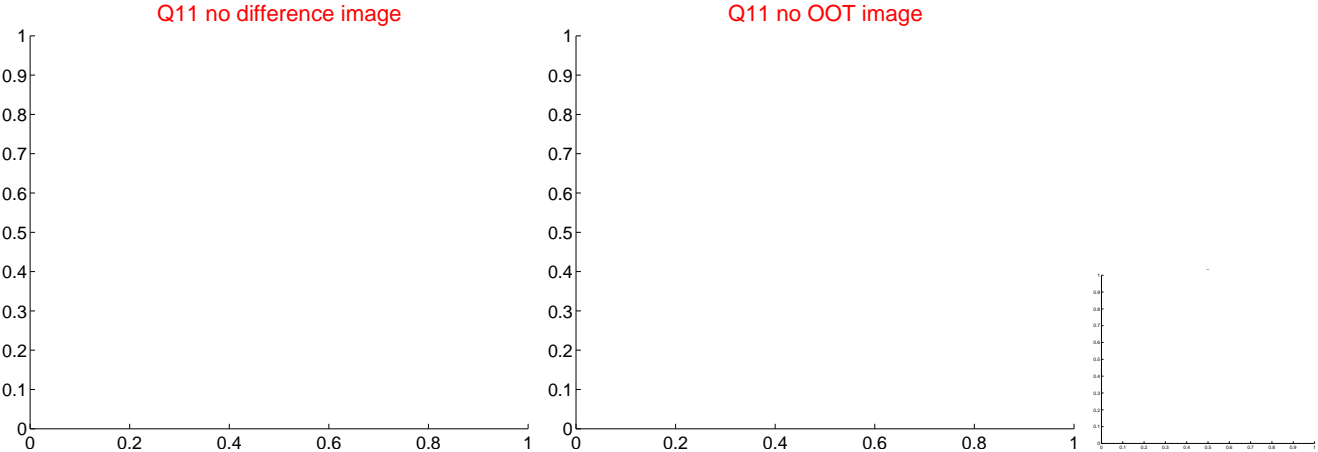
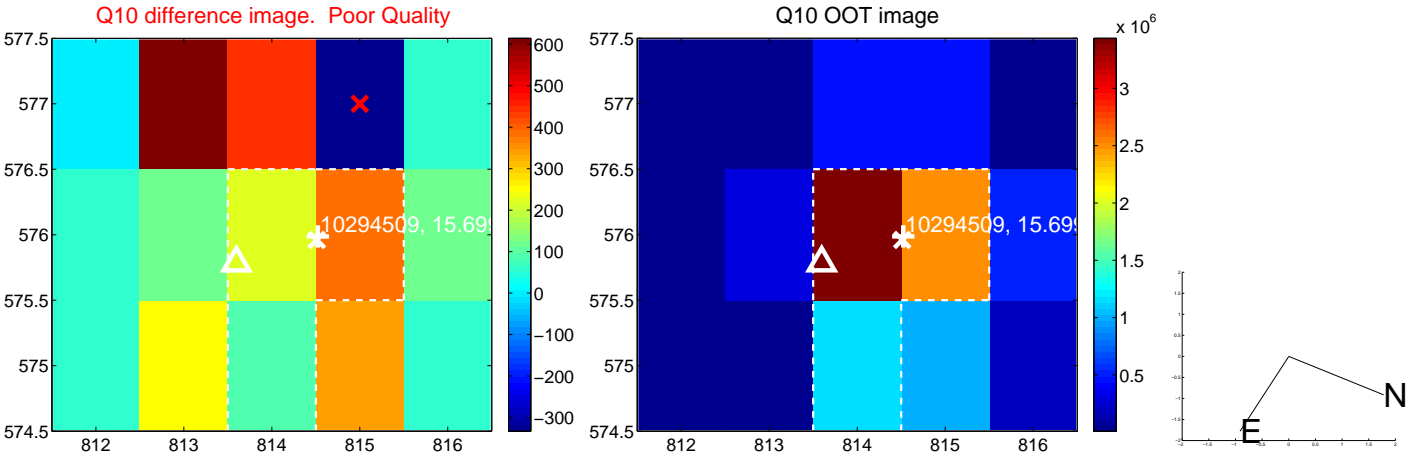
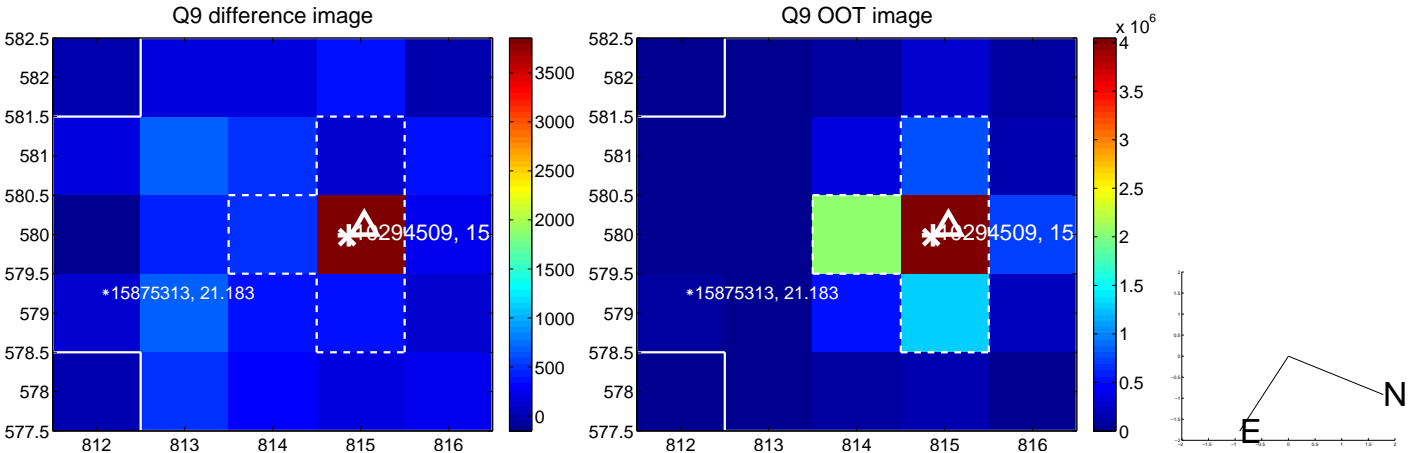
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



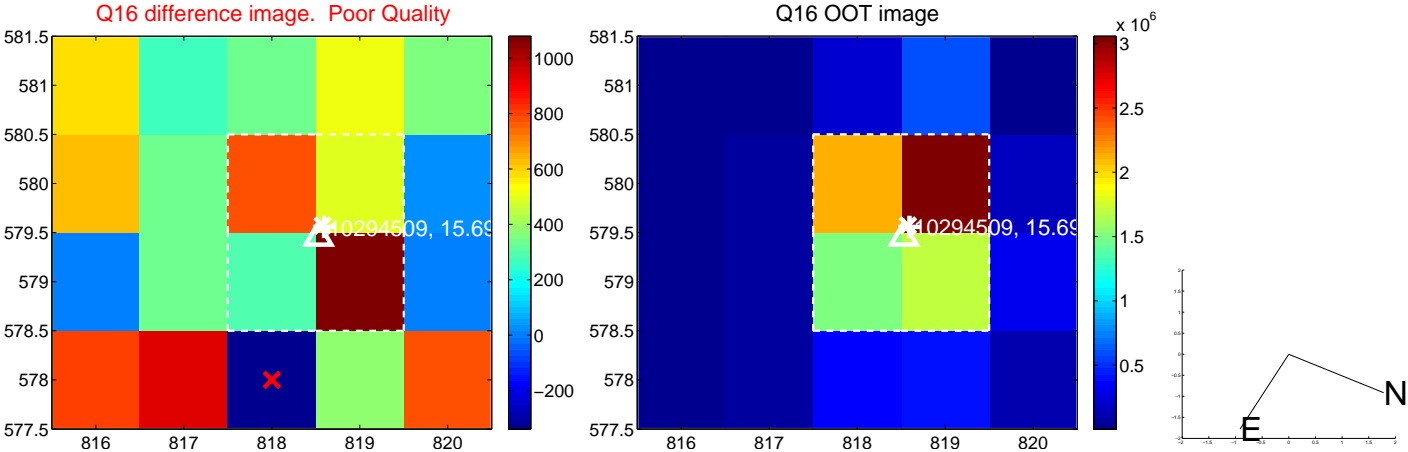
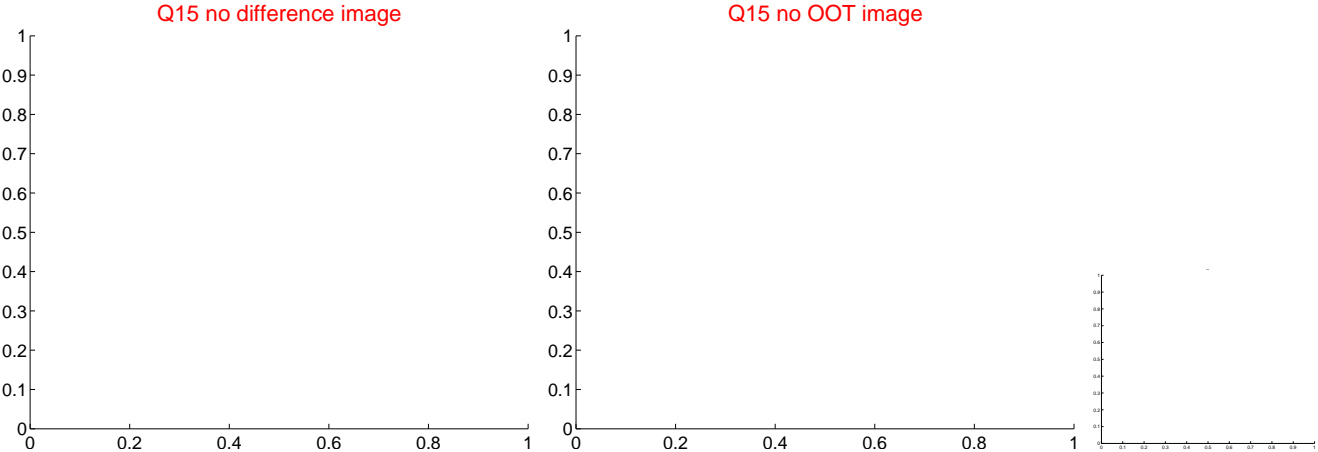
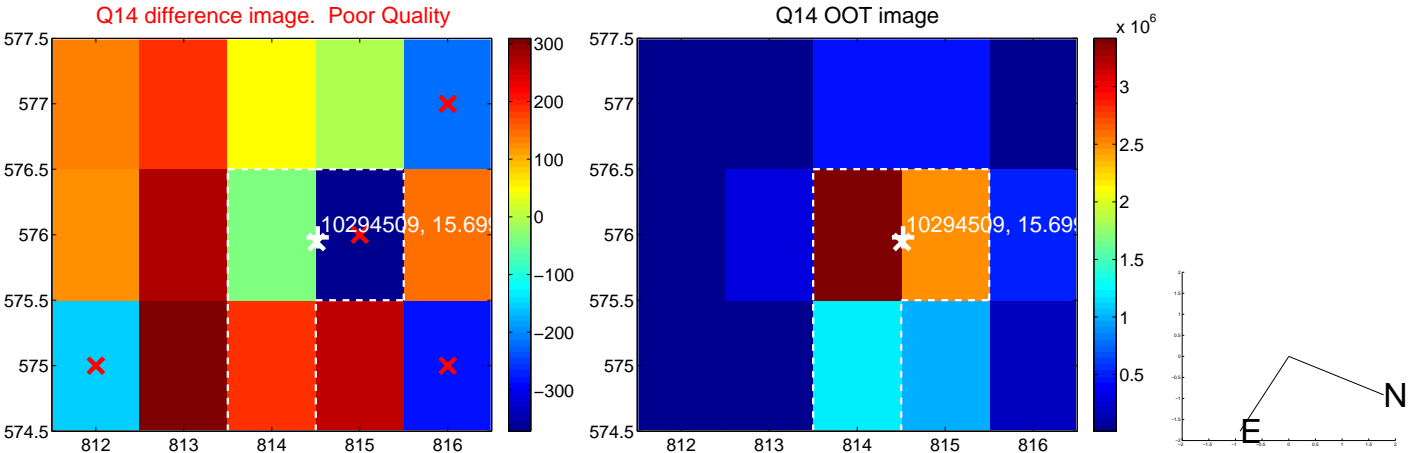
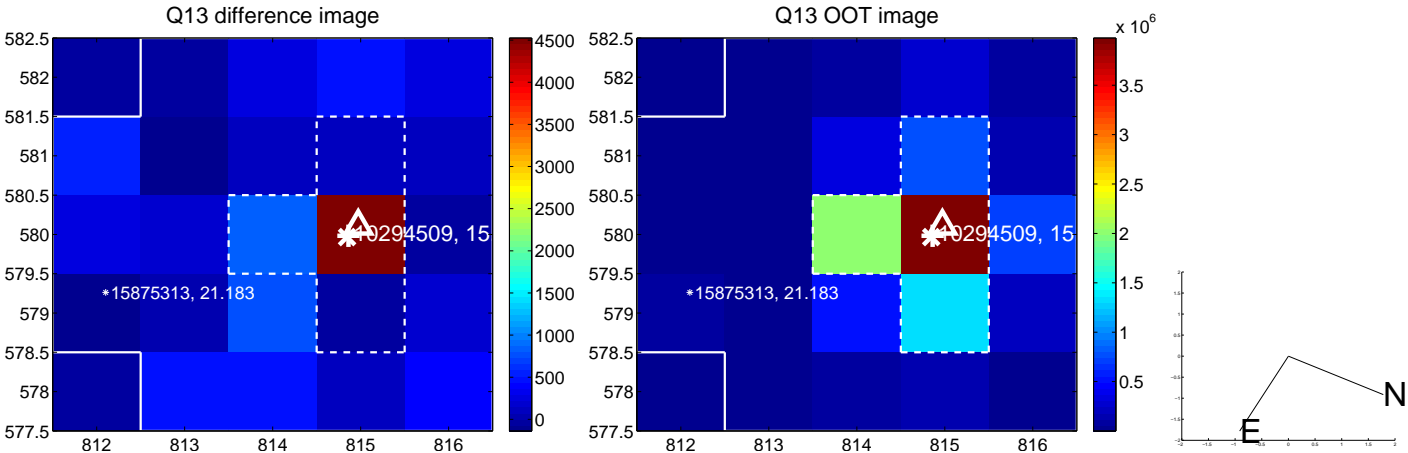
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

