

KIC 009031703

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})
009031703-01	OBS	4520.01	9.334463	137.588096	66.6	6.312	9.0	9.4	1.86	5354	1.87	324.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009031703-01	OBS	PC	0.95	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

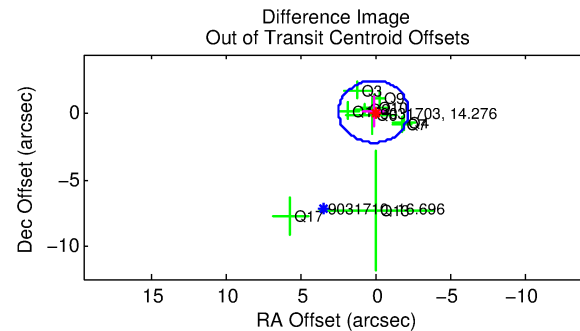
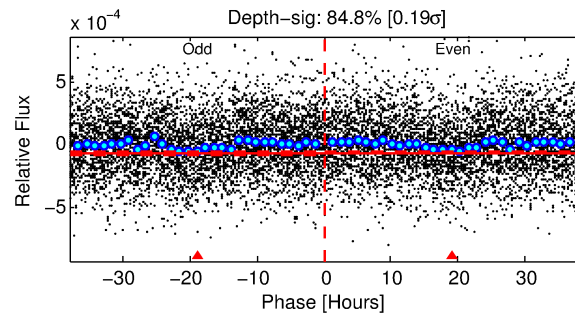
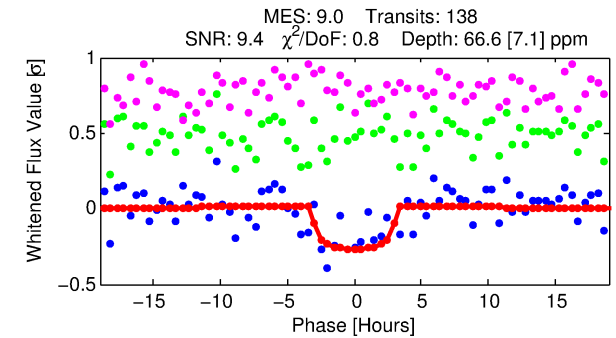
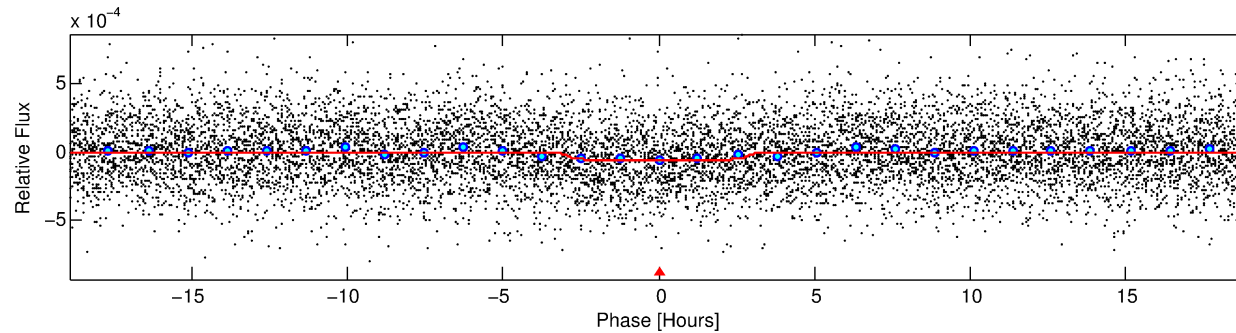
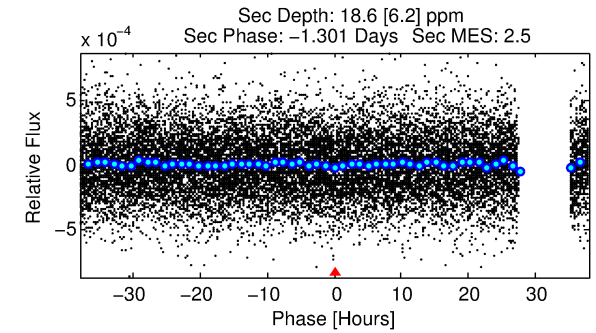
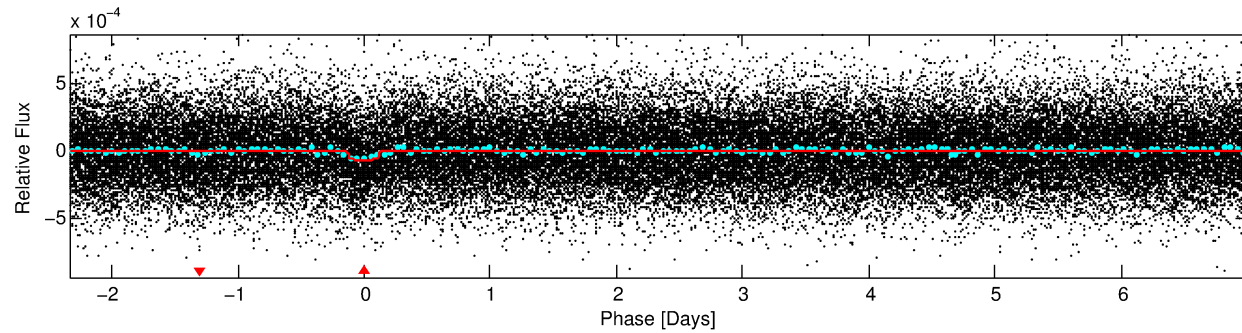
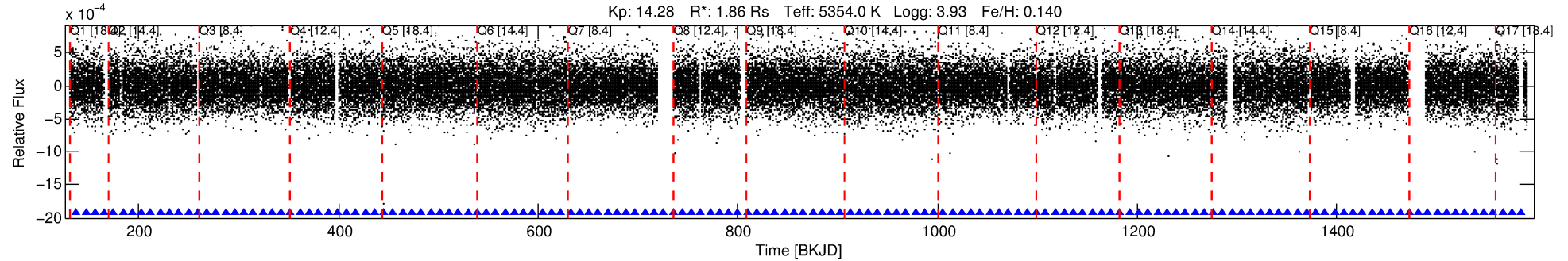
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009031703-01

No Significant Match Found

DV One-Page Summary

KIC: 9031703 Candidate: 1 of 1 Period: 9.334 d
KOI: K04520.01 Corr: 0.829



DV Fit Results:

Period = 9.33446 [0.00014] d
Epoch = 137.5881 [0.0117] BKJD
Rp/R* = 0.0092 [0.0037]
a/R* = 4.89 [8.40]
b = 0.92 [0.32]
Seff = 324.31 [90.00]
Teff = 1082 [75] K
Rp = 1.87 [0.85] Re
a = 0.0888 [0.0161] AU
Ag = 23.16 [21.08] [1.05σ]
Teffp = 3670 [800] K [3.22σ]

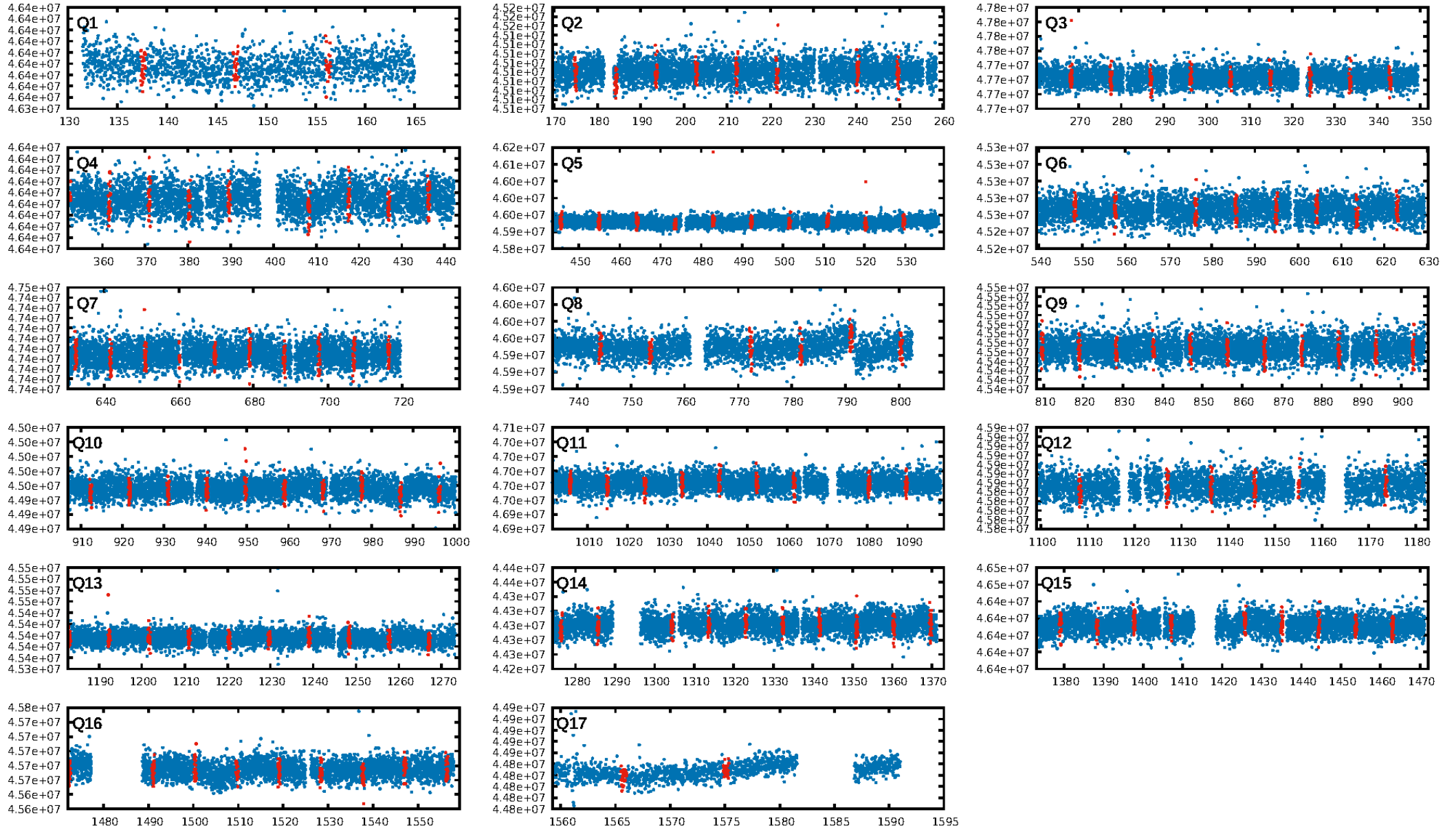
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.68e-19
RollingBand-fgt: 1.00 [133/133]
GhostDiagnostic-chr: 2.767
Centroid-sig: 4.4%
Centroid-so: 1.579 arcsec [1.42σ]
OotOffset-rm: 0.199 arcsec [0.26σ]
KicOffset-rm: 0.124 arcsec [0.17σ]
OotOffset-st: 4/2/1/3 [10]
KicOffset-st: 4/2/1/3 [10]
DiffImageQuality-fgm: 0.70 [7/10]
DiffImageOverlap-fno: 1.00 [17/17]

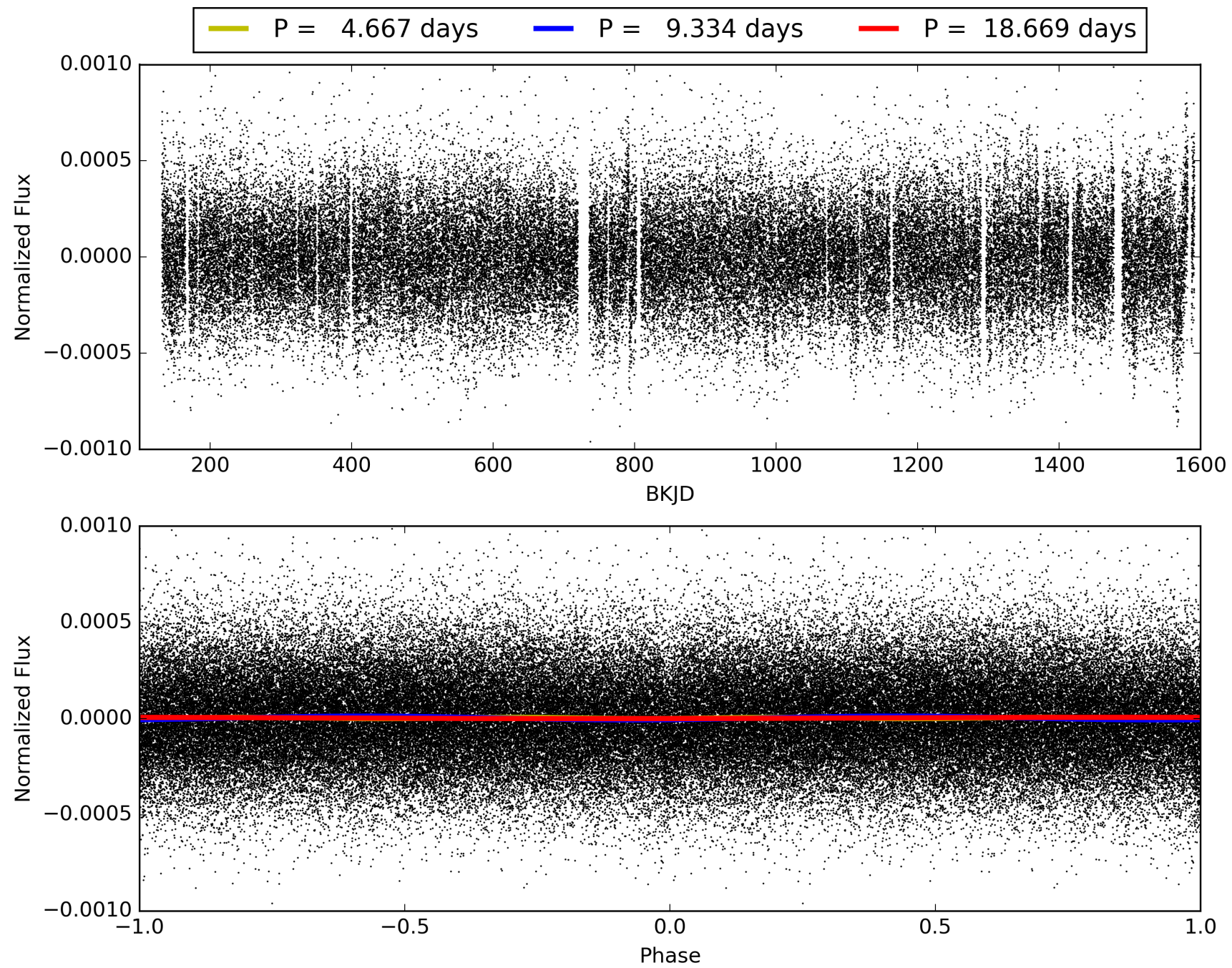
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:58:43 Z

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

TCE 009031703-01, PDC Light Curves

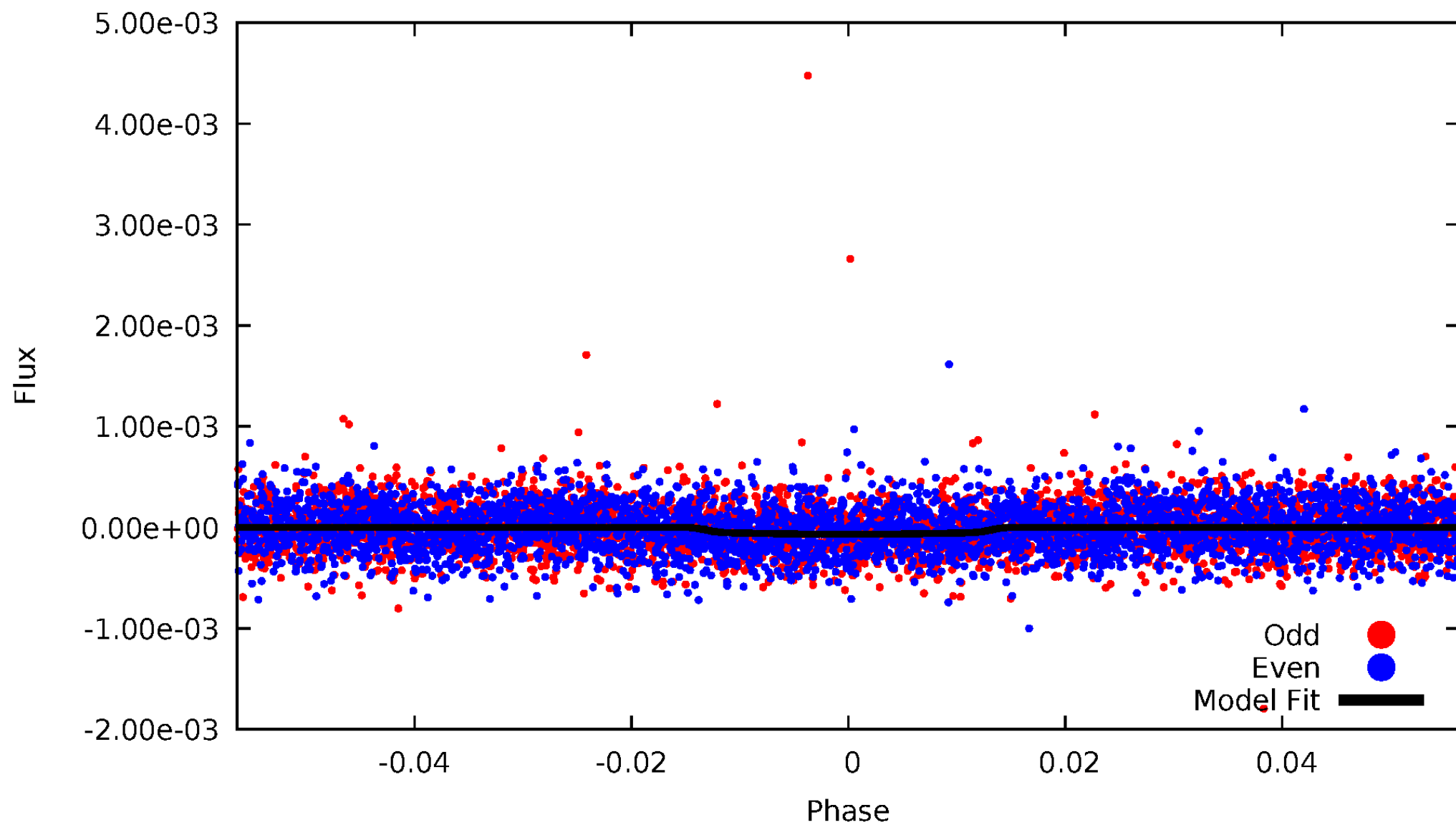


TCE 009031703-01



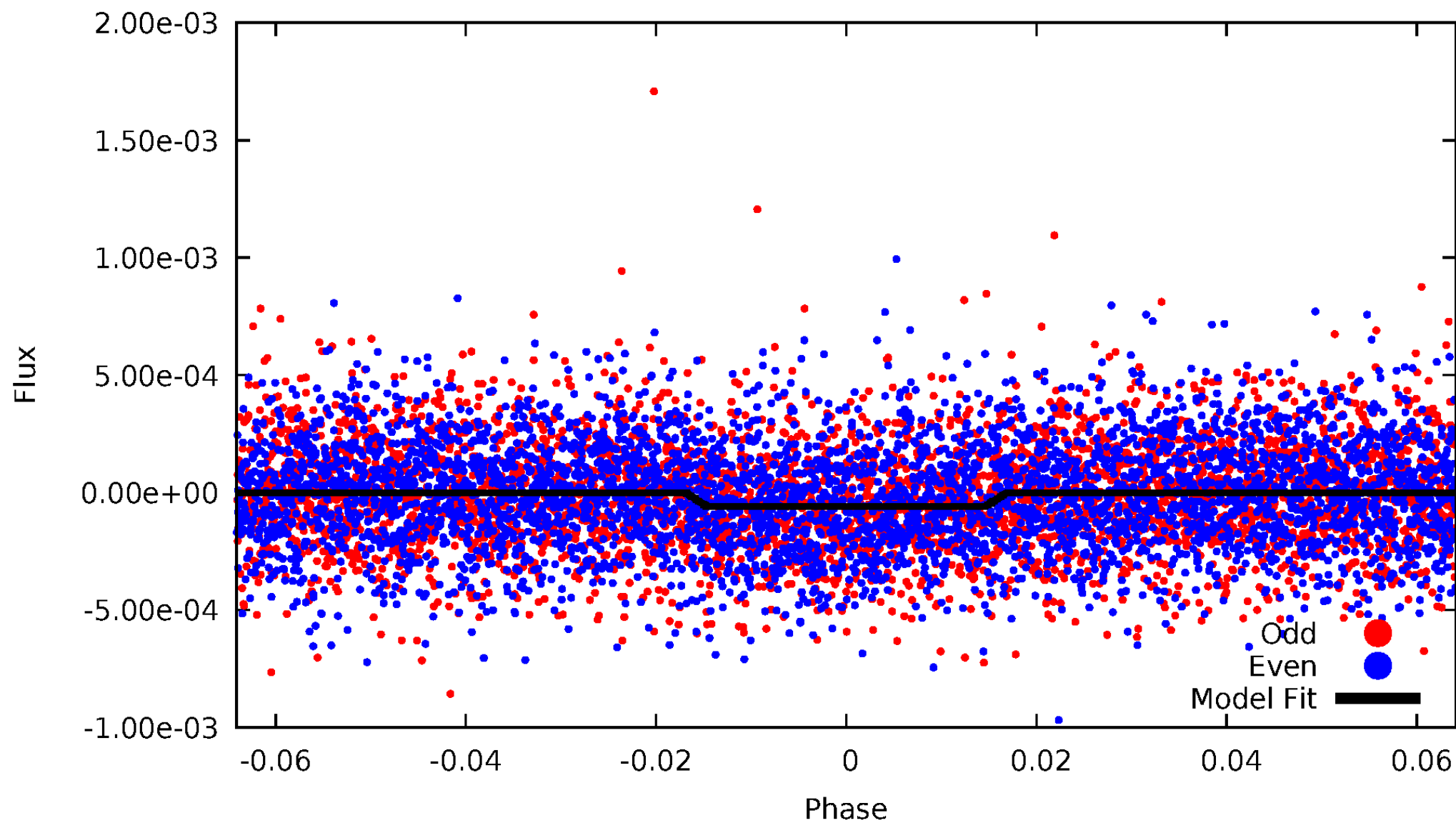
DV Odd/Even

TCE 009031703-01



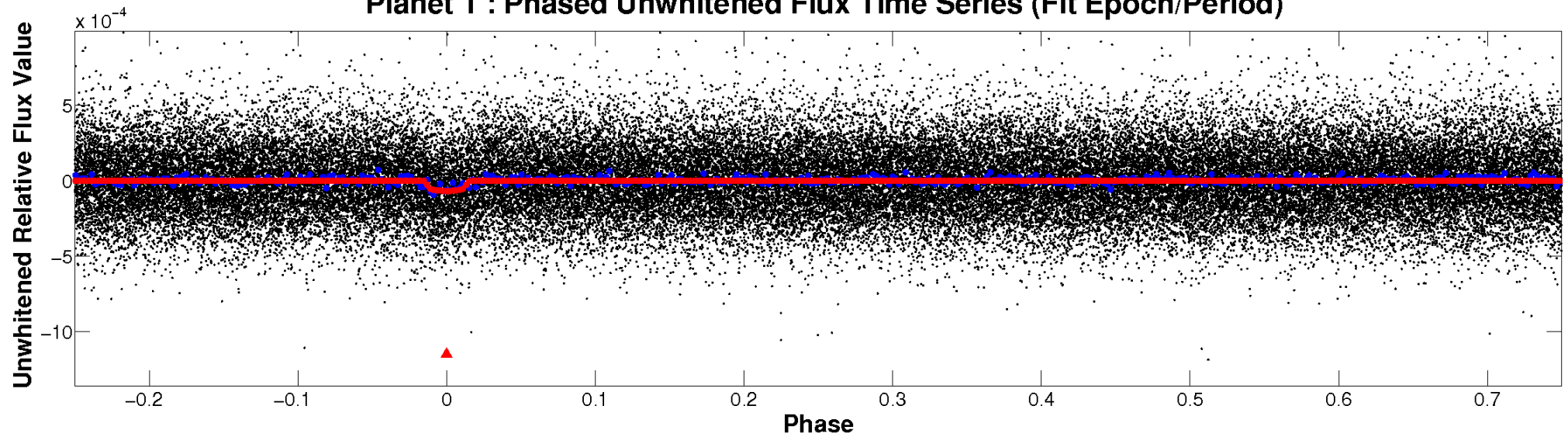
ALT Odd/Even

TCE 009031703-01

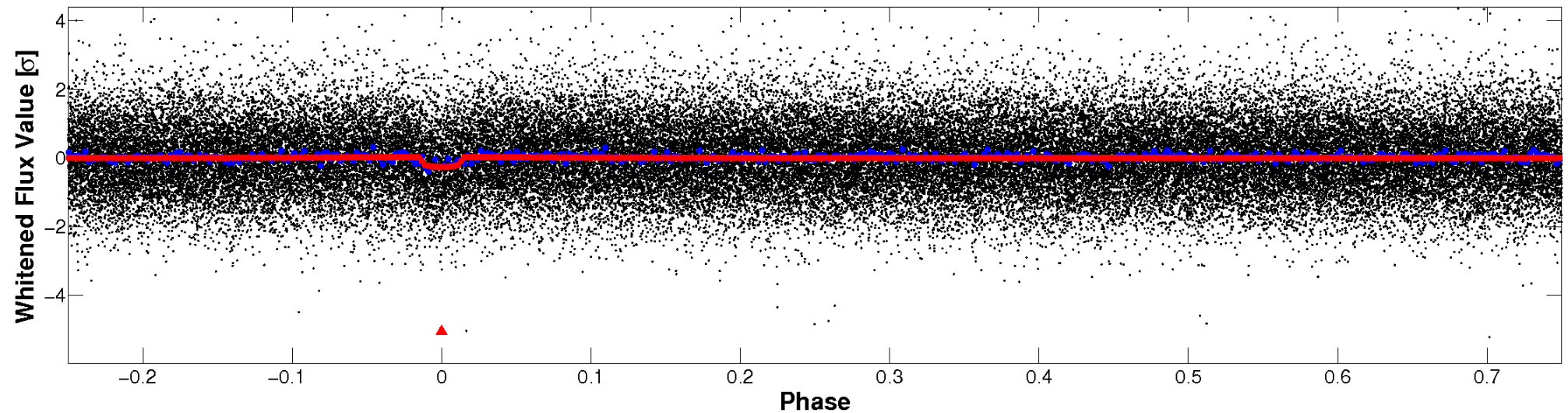


Non-Whitened Vs. Whitened Light Curve

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

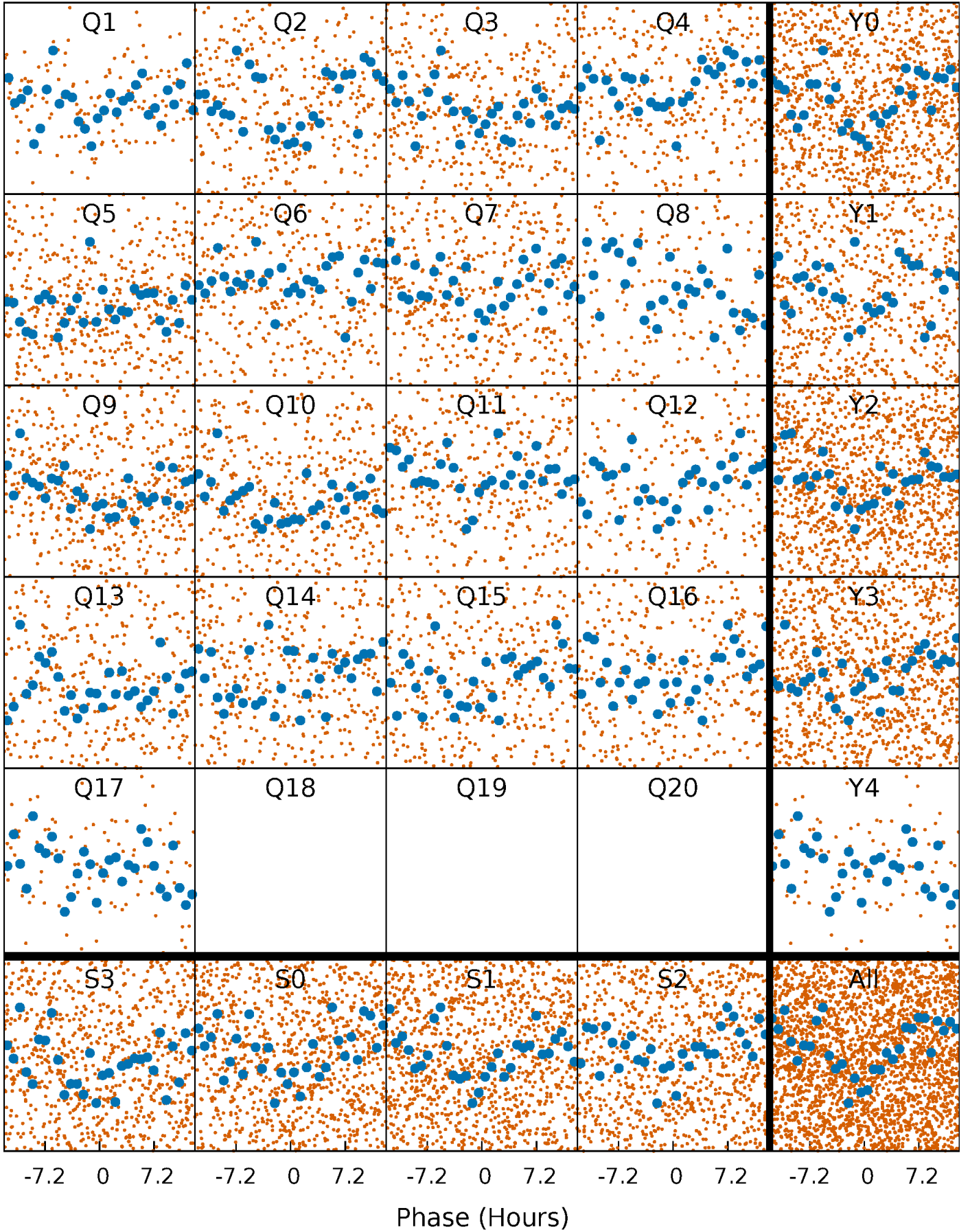


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



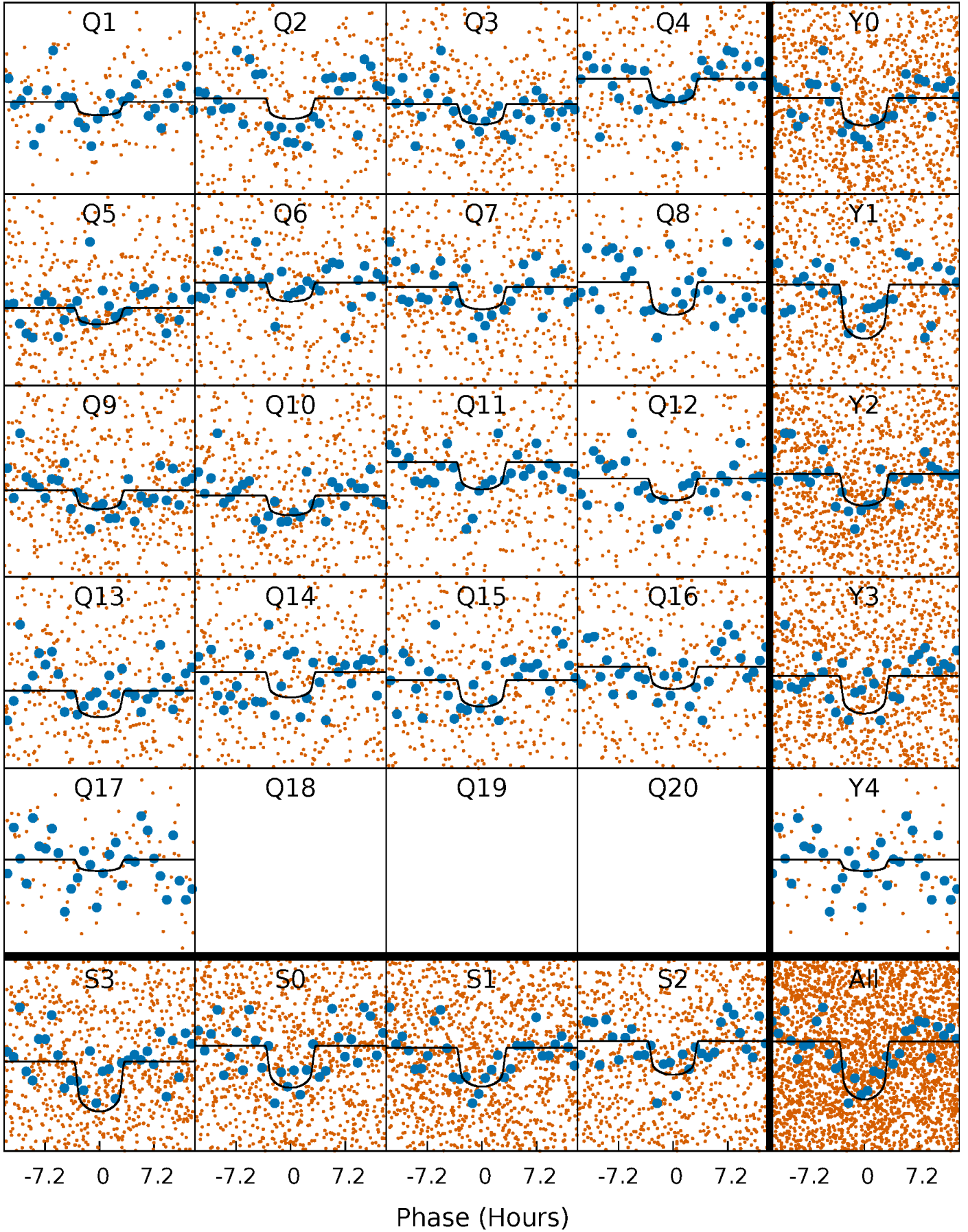
PDC Quarter-Phased Transit Curves

TCE 009031703-01 P= 9.334463 Days $T_0=137.588096$ (BKJD)



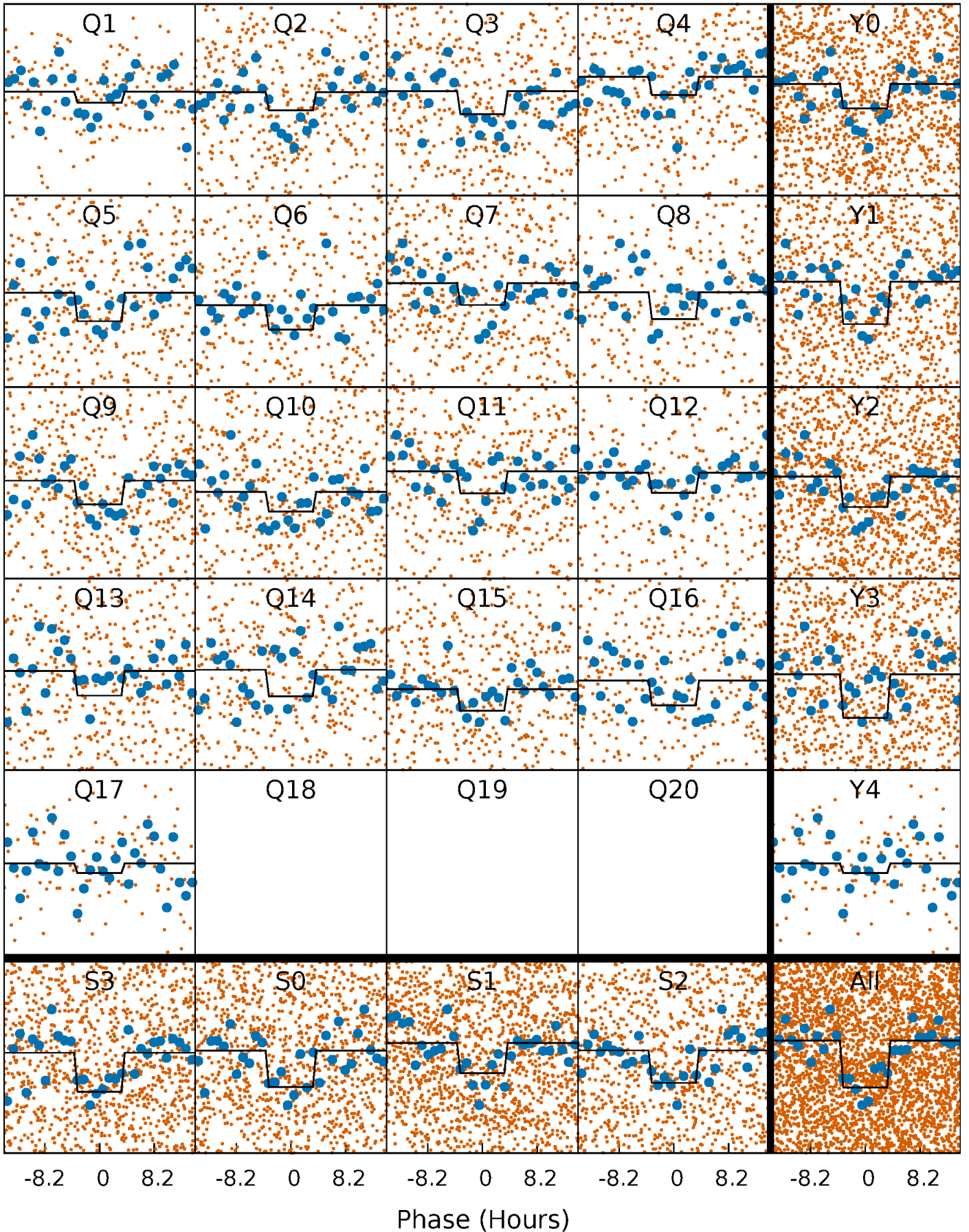
DV Quarter-Phased Transit Curves

TCE 009031703-01 P= 9.334463 Days $T_0=137.588096$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

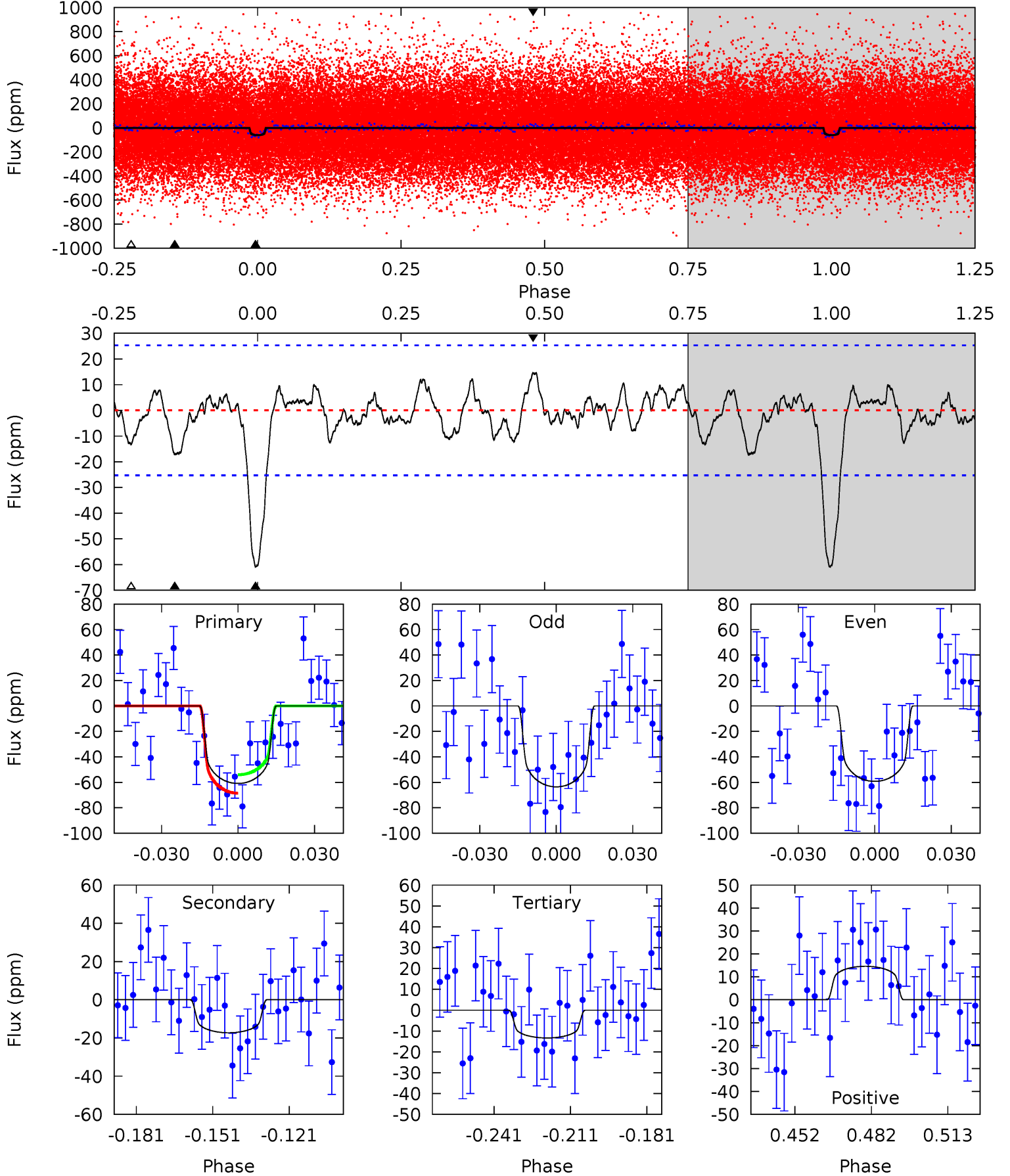
TCE 009031703-01 P= 9.334032 Days $T_0=137.599815$ (BKJD)



DV Model-Shift Uniqueness Test

009031703-01, P = 9.334463 Days, E = 128.253633 Days

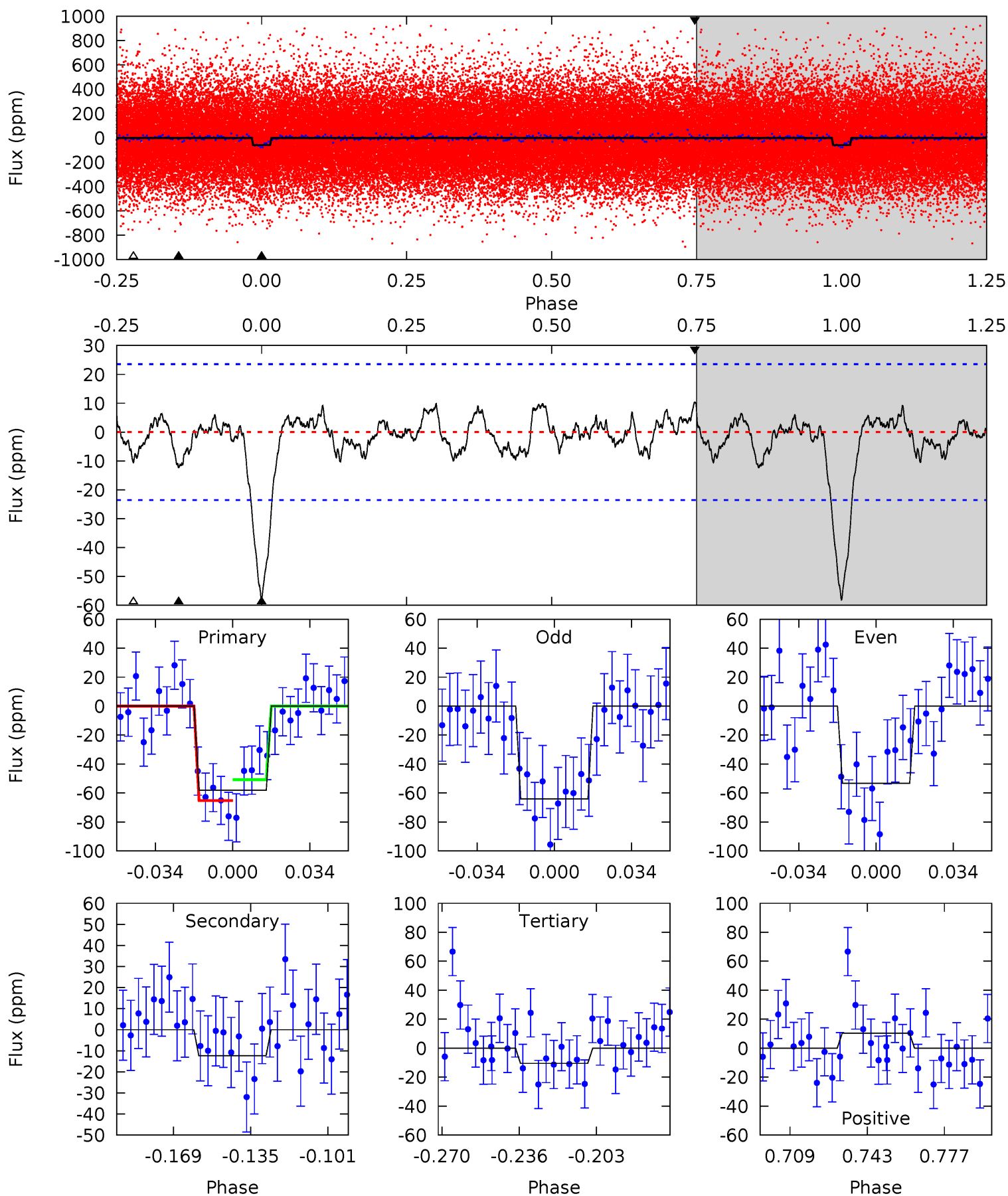
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	3.29	2.54	2.78	4.81	2.17	1.10	9.05	8.80	0.75	0.51	0.41	0.96	0.19	1.38



Alt Model-Shift Uniqueness Test

009031703-01, P = 9.334032 Days, E = 128.265783 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	2.51	2.14	2.11	4.79	2.12	0.95	9.66	9.69	0.37	0.40	1.10	1.11	0.15	1.46



Stellar Parameters For KIC 009031703

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5354^{+88}_{-72}	$3.927^{+0.150}_{-0.100}$	$0.140^{+0.150}_{-0.100}$	$1.863^{+0.321}_{-0.392}$	$1.071^{+0.135}_{-0.122}$	$0.233^{+0.184}_{-0.075}$
	+2%/-1%	+4%/-3%	+107%/-71%	+17%/-21%	+13%/-11%	+79%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009031703-01 / KOI 4520.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 5	$1.82^{+0.82}_{-0.76}$	1512^{+67}_{-75}	3945^{+905}_{-505}	23^{+47}_{-13}
Alt.	-12 ± 5	$1.49^{+0.78}_{-0.67}$	1511^{+69}_{-81}	3956^{+1052}_{-584}	23^{+61}_{-14}

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 $A_{obs} \gg 1.0$

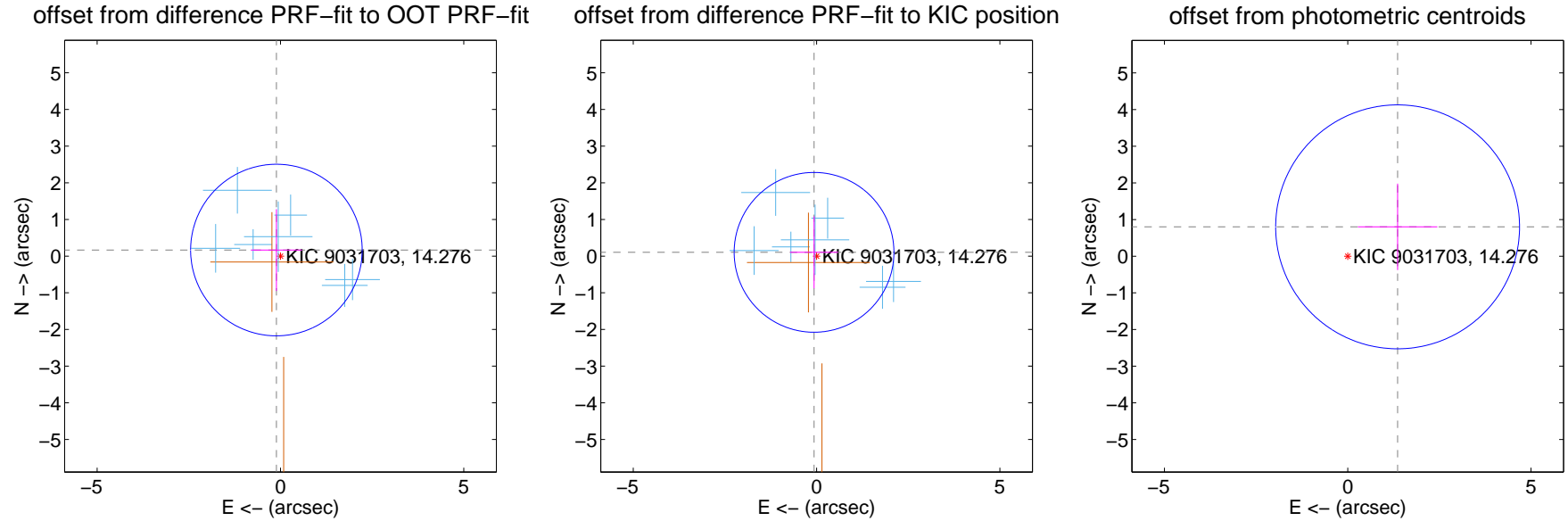
DV Centroid Data

Supplemental centroid analysis for 009031703-01. Kepler magnitude: 14.28. Transit SNR 9.41

There are 7 quarters with good PRF difference image offsets

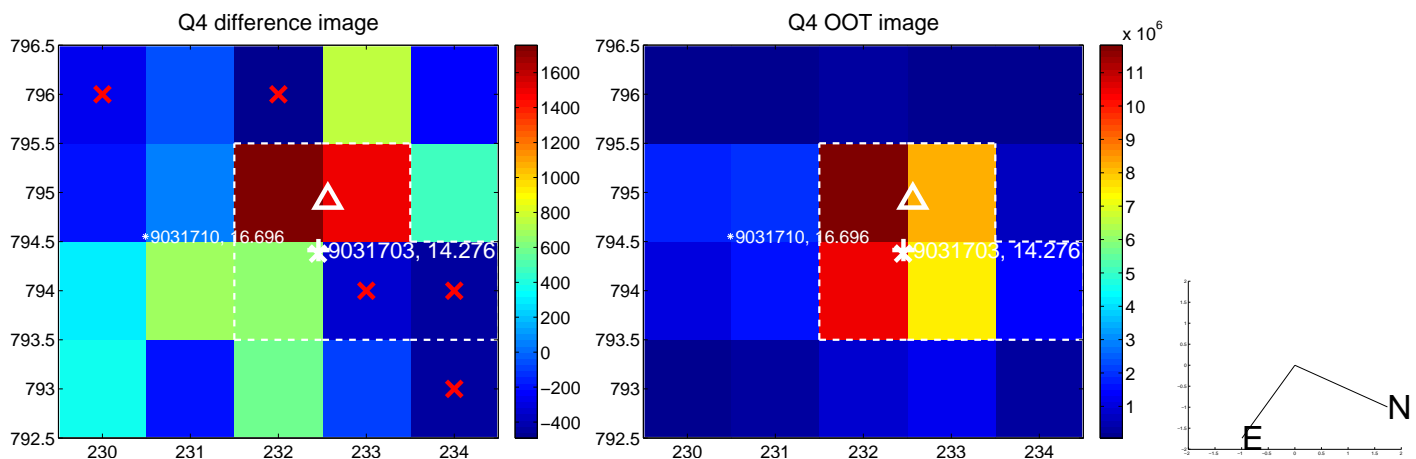
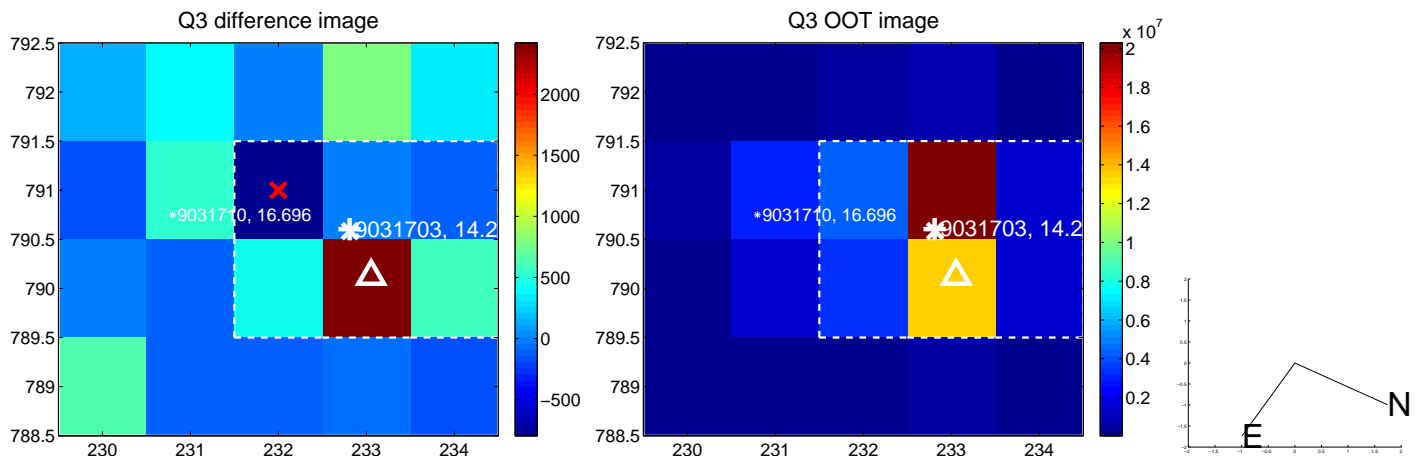
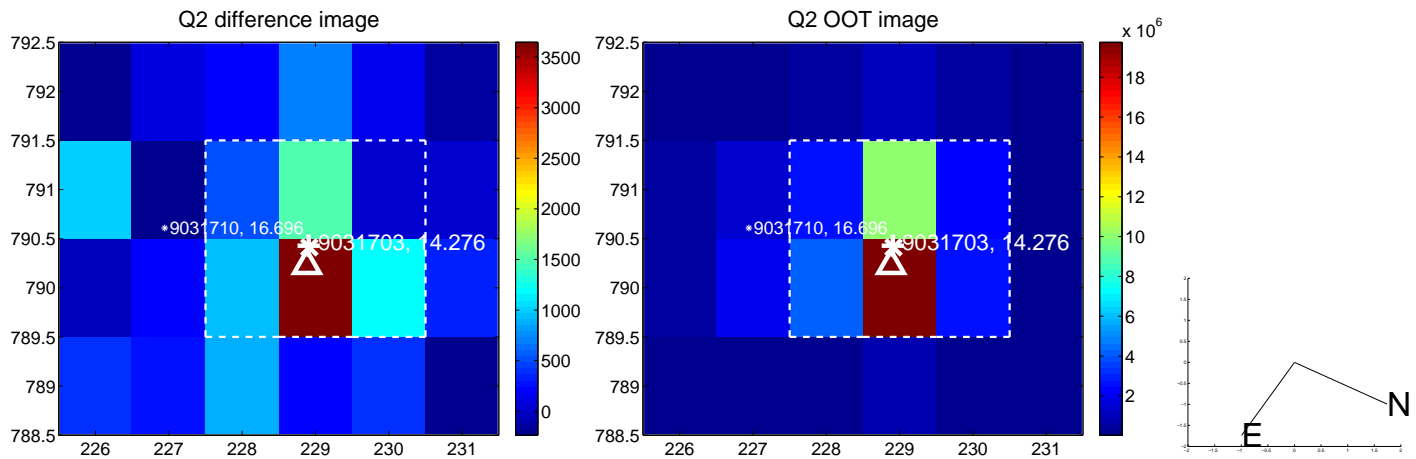
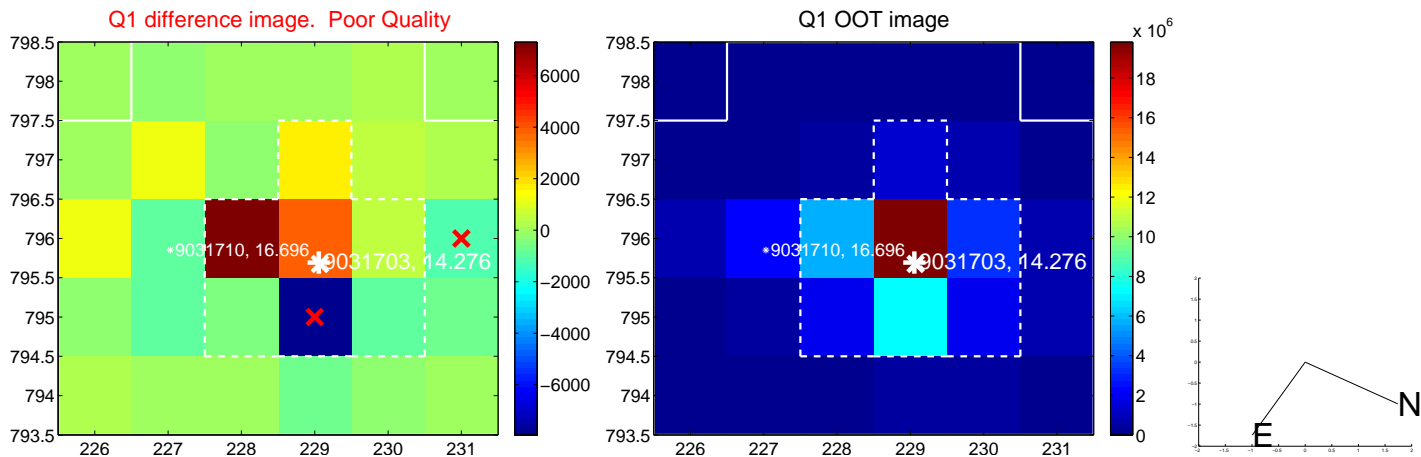
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.199 ± 0.780	0.26	0.111 ± 0.698	0.166 ± 1.116
PRF-fit source offset from KIC position	0.124 ± 0.726	0.17	0.069 ± 0.655	0.103 ± 0.983
photometric centroid source offset	1.58 ± 1.11	1.42	-1.36 ± 1.08	0.80 ± 1.18

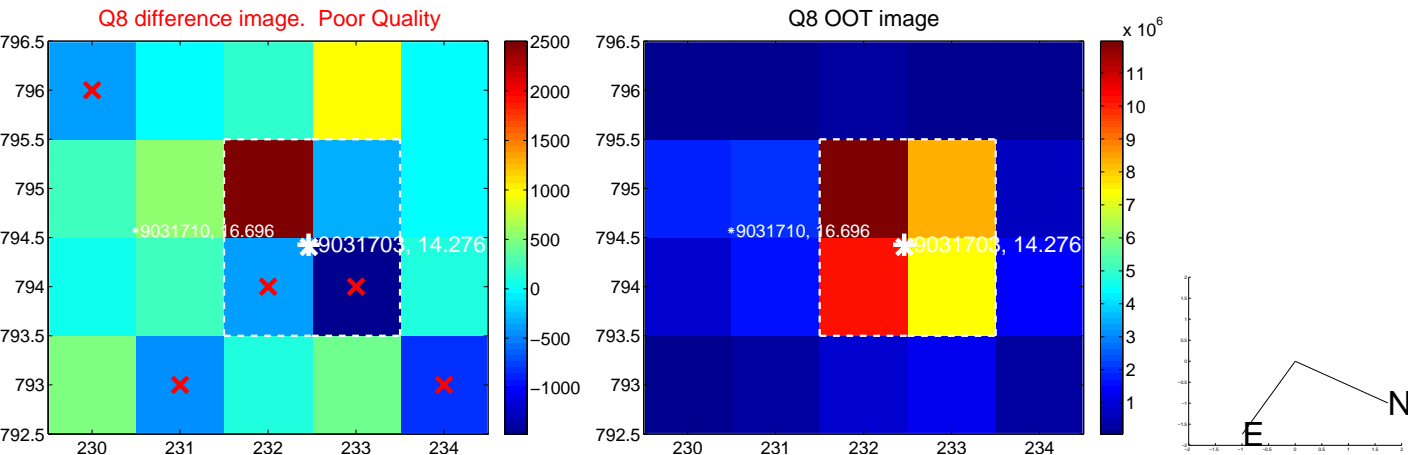
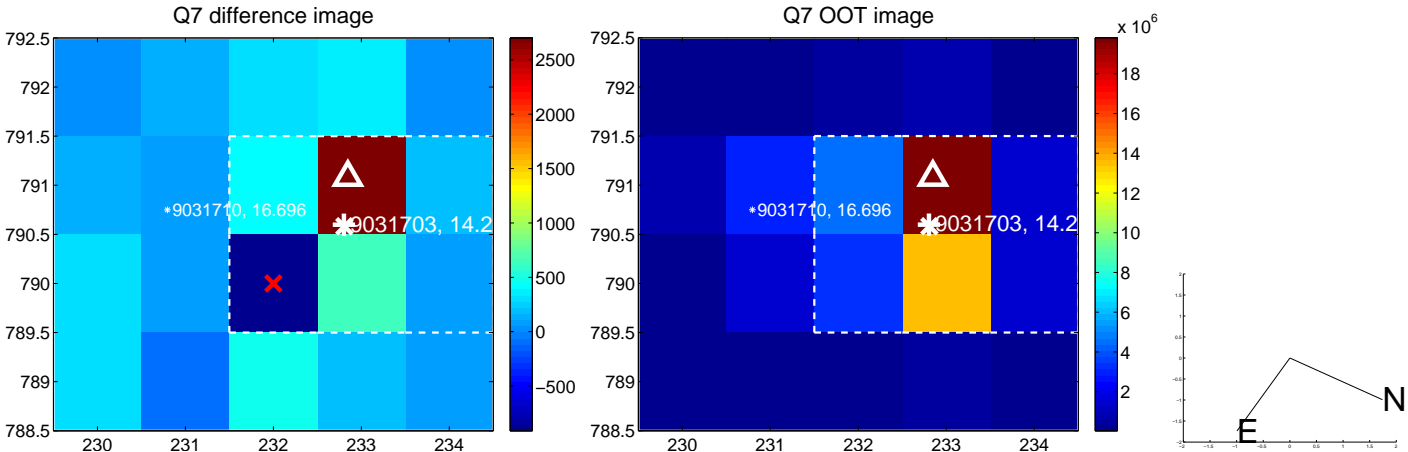
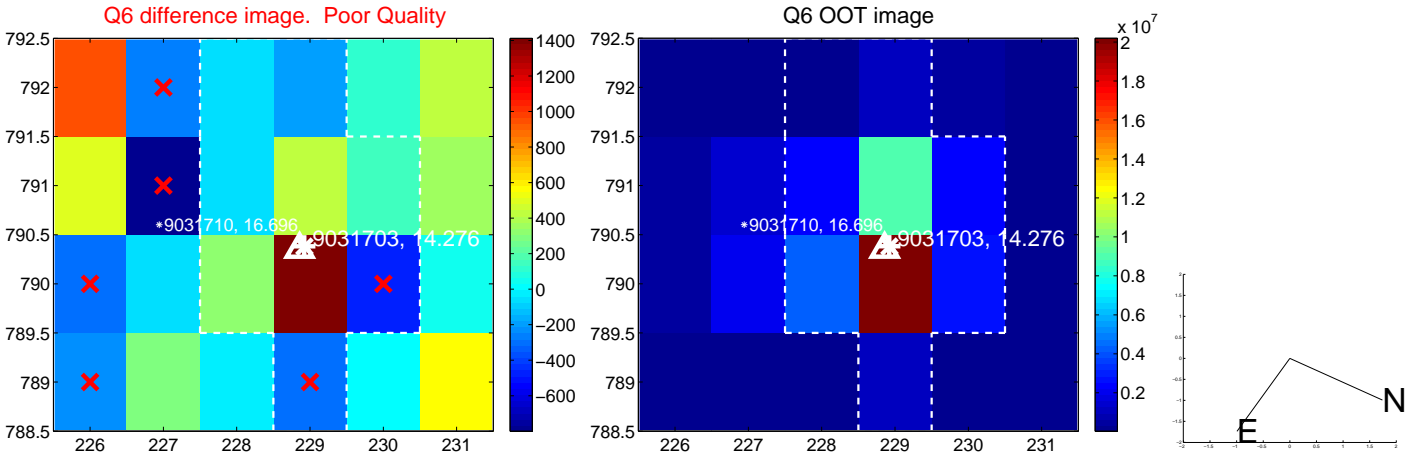
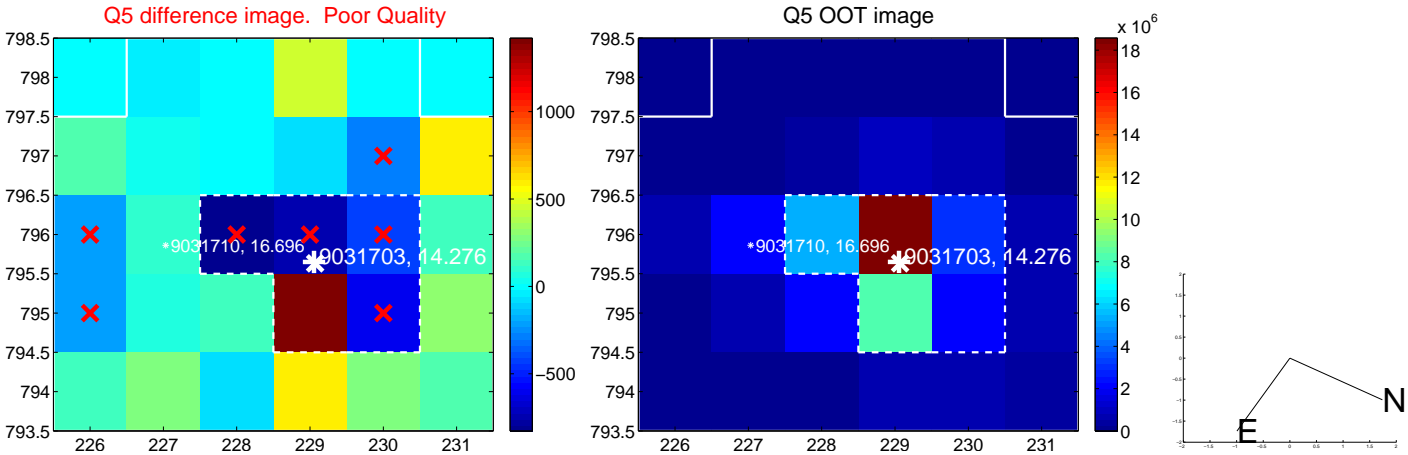


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

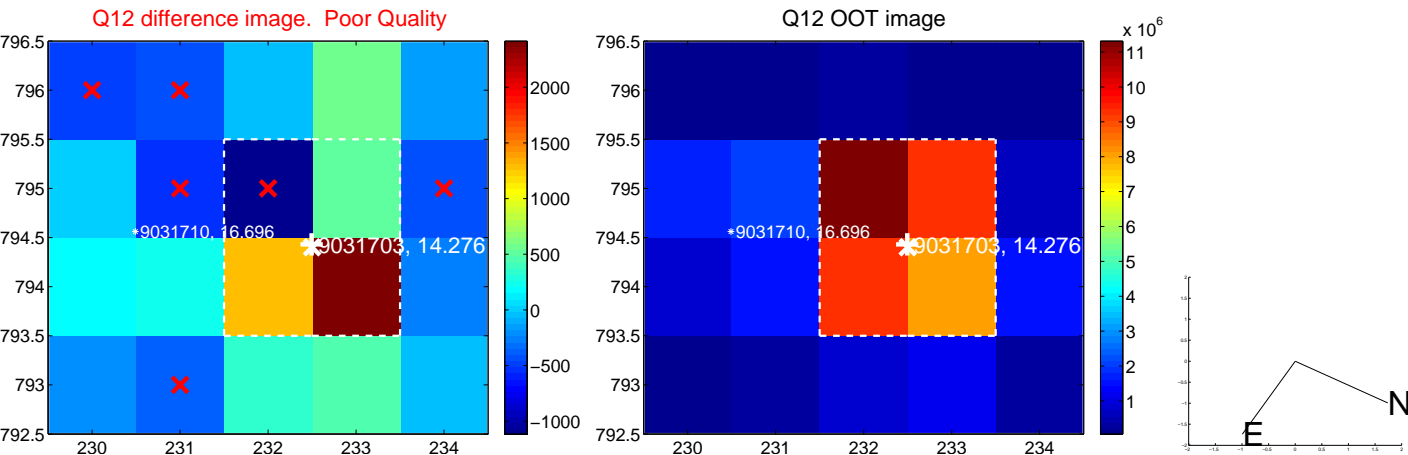
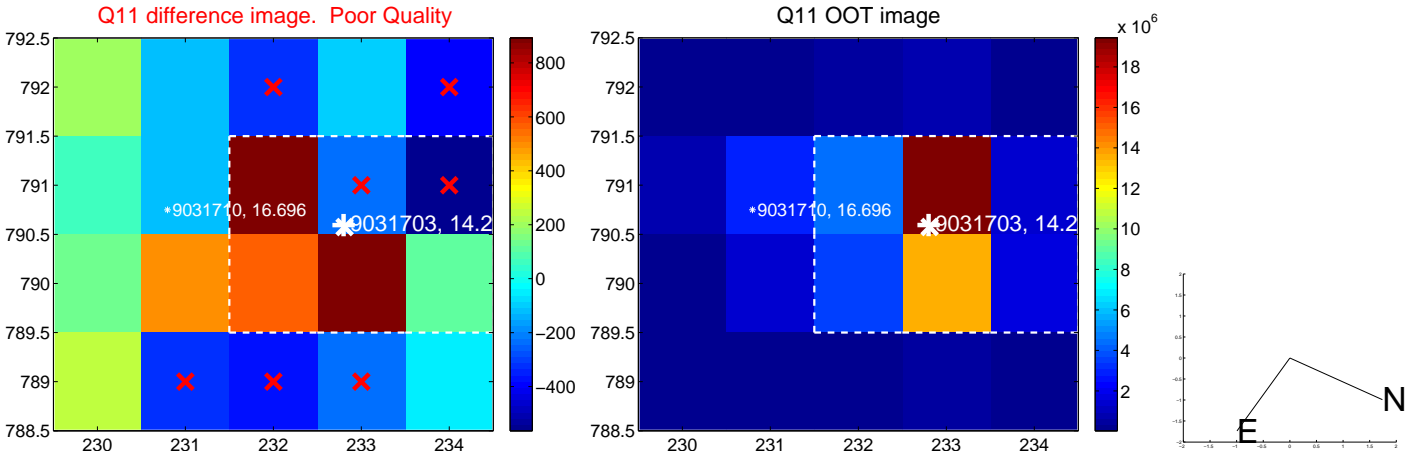
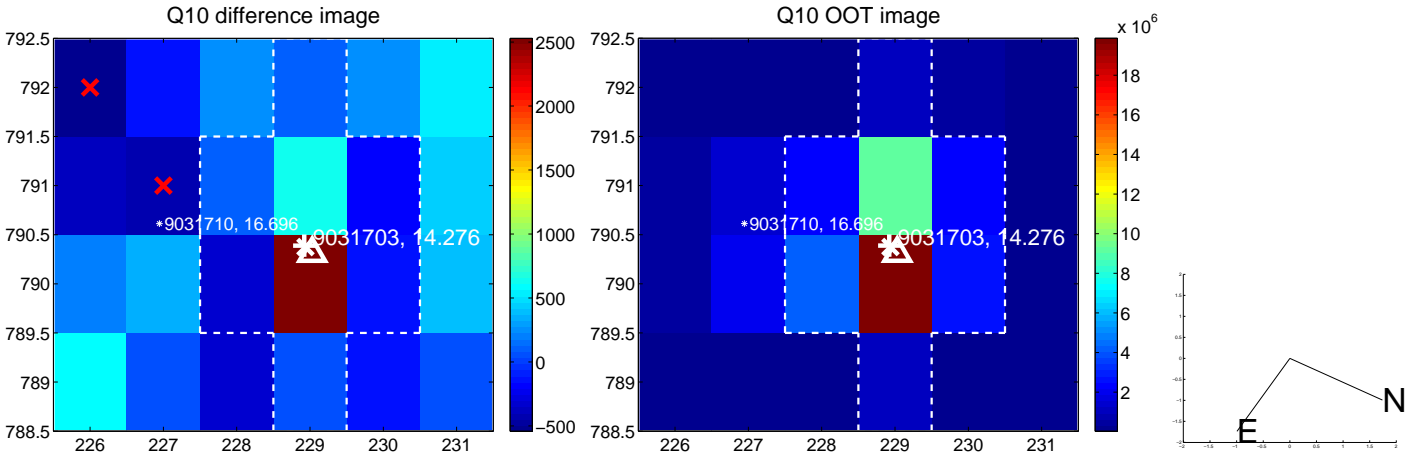
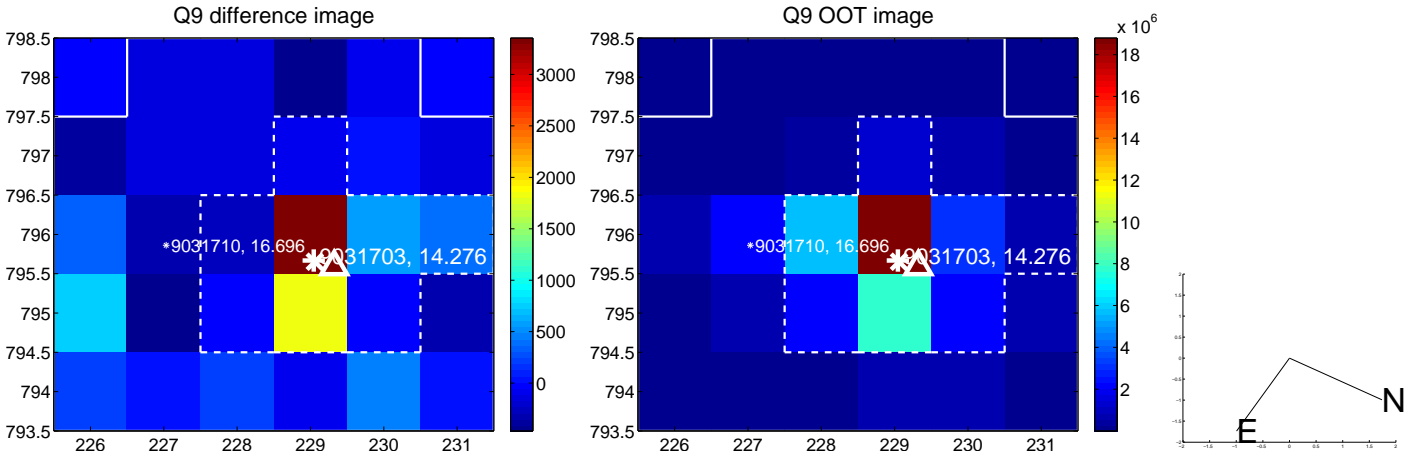
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



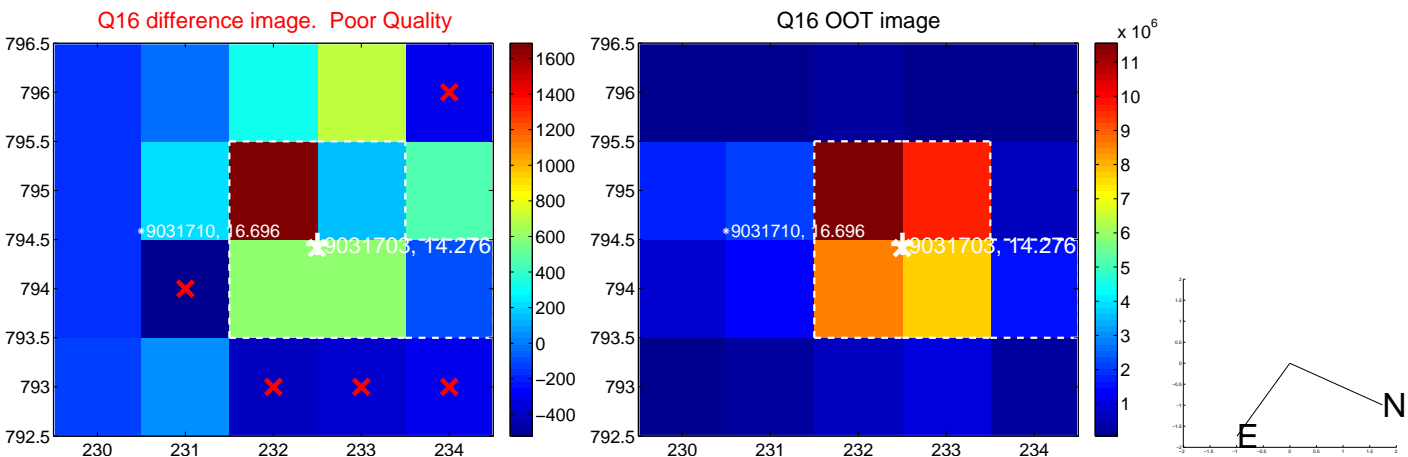
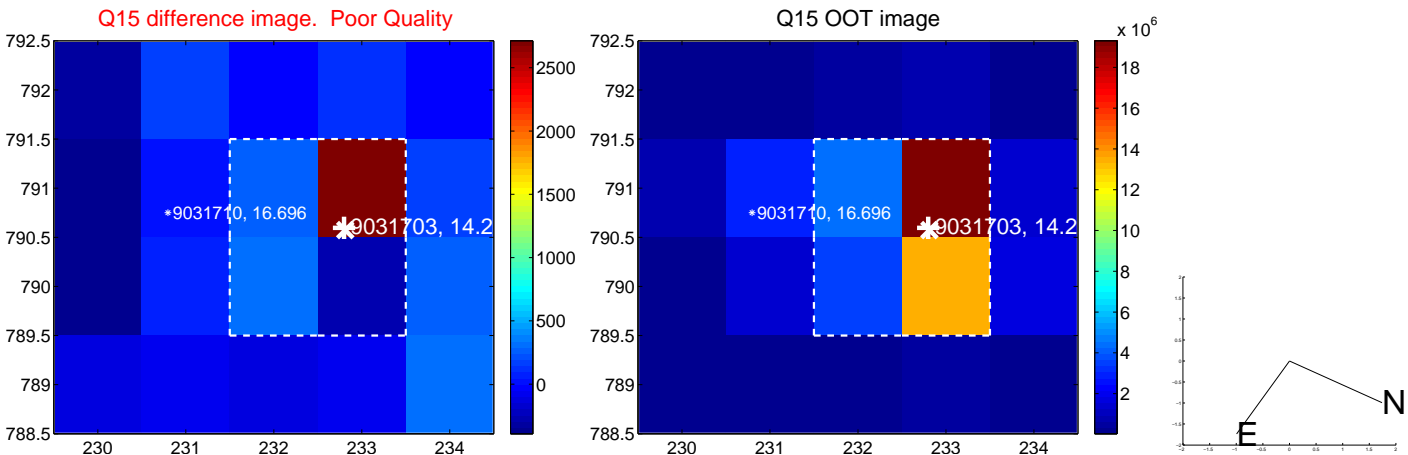
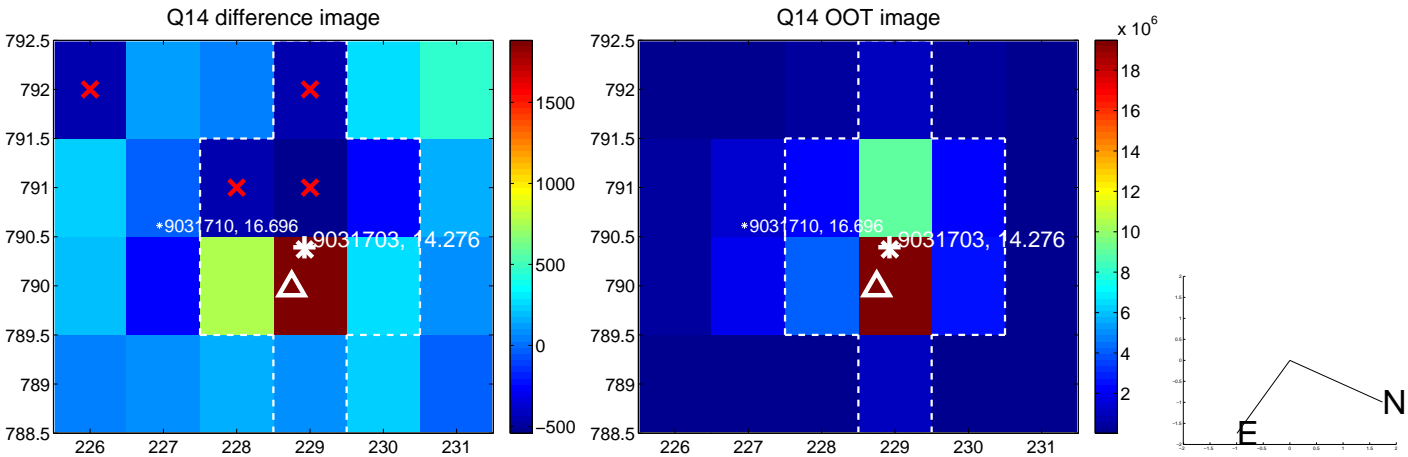
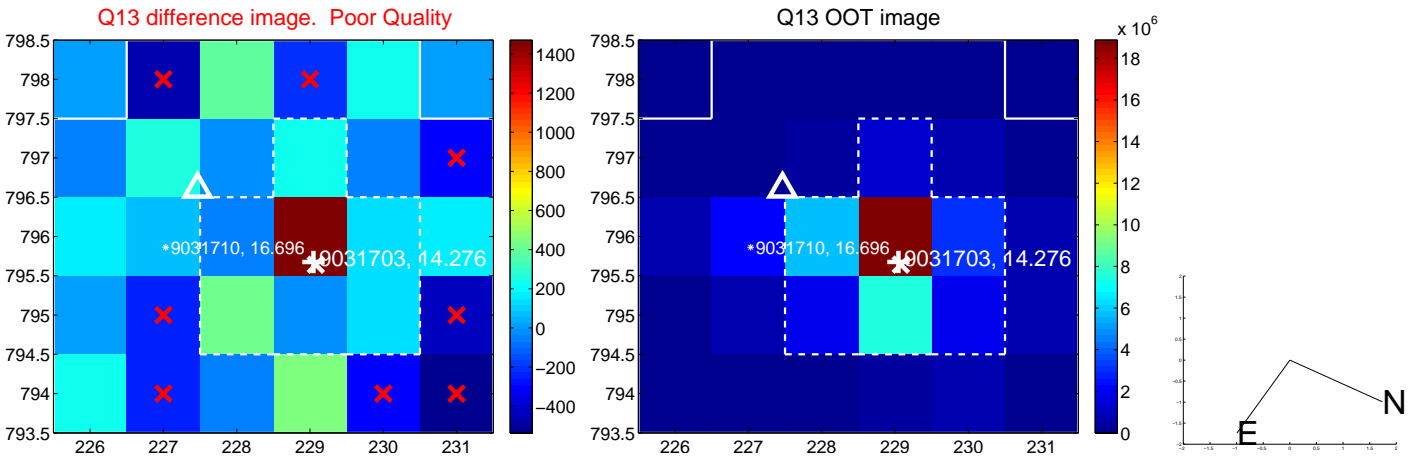
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

