

KIC 009409216

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})
009409216-01	OBS	No	1.127780	131.631941	5.5	9.774	7.7	7.3	1.78	7526	0.52	14199.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009409216-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

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

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

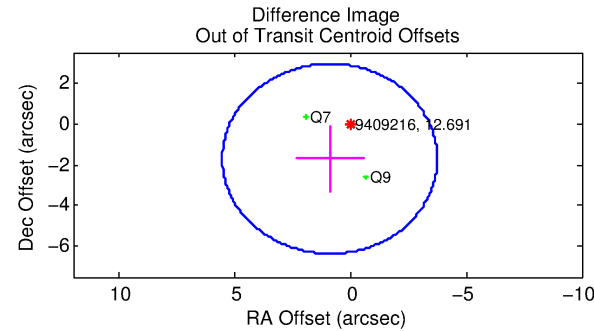
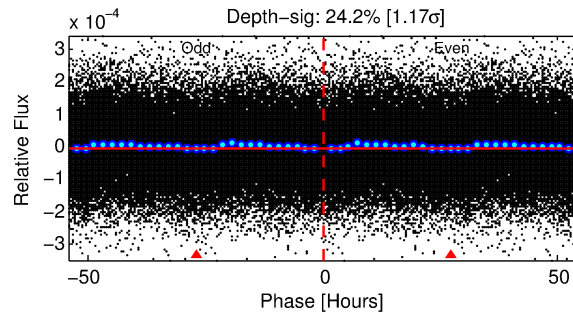
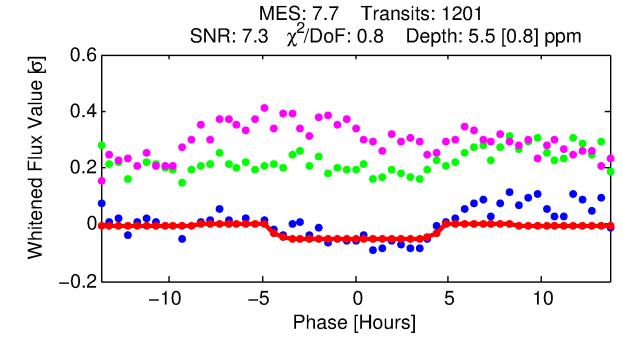
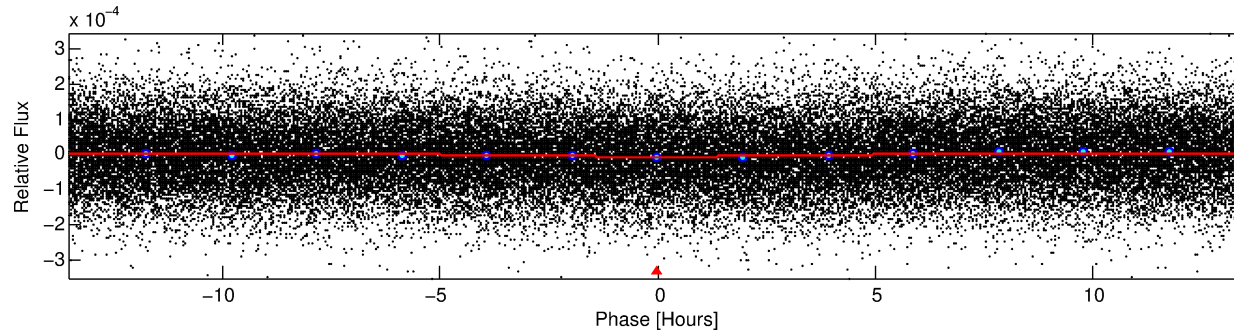
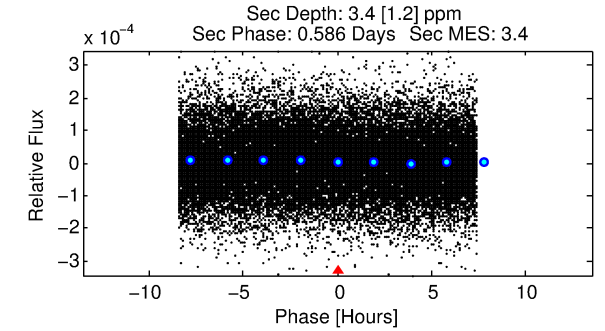
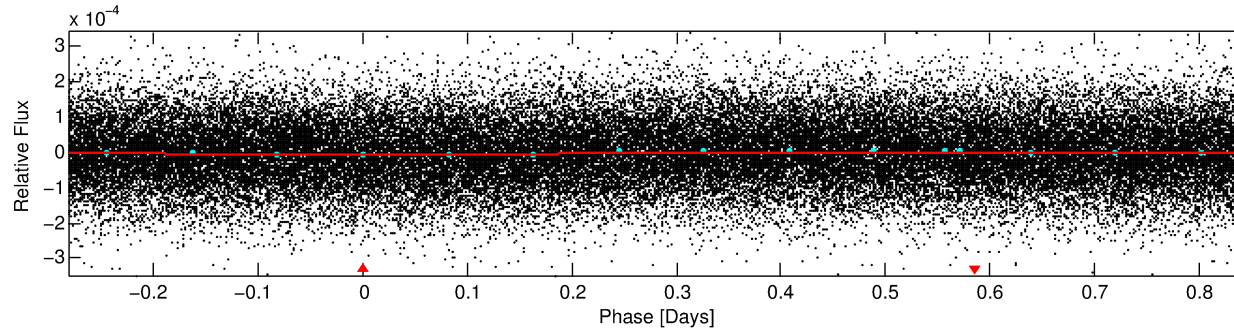
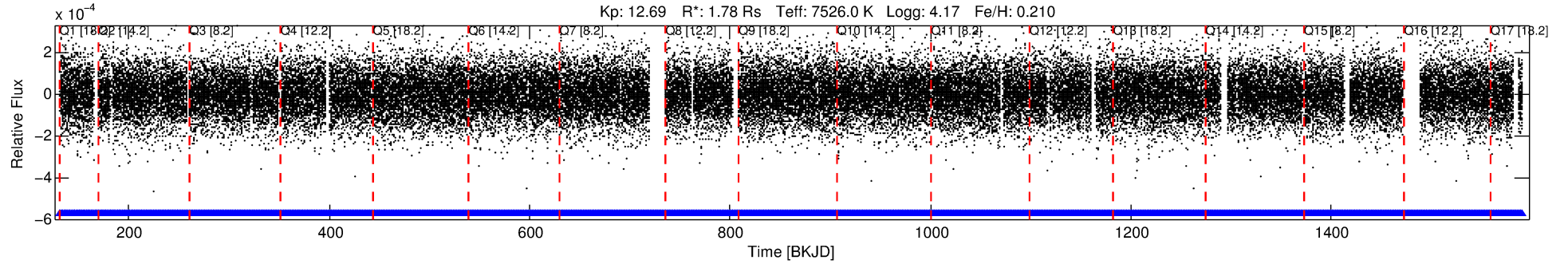
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009409216-01

No Significant Match Found

DV One-Page Summary

KIC: 9409216 Candidate: 1 of 1 Period: 1.128 d



DV Fit Results:

Period = 1.12778 [0.00003] d
Epoch = 131.6319 [0.0121] BKJD
Rp/R* = 0.0026 [0.0007]
a/R* = 1.01 [0.04]
b = 0.96 [0.15]
Seff = 14199.93 [5852.70]
Teq = 2784 [287] K
Rp = 0.51 [0.21] Re
a = 0.0254 [0.0066] AU
Ag = 4.55 [3.37] [1.05σ]
Teffp = 6286 [1052] K [3.21σ]

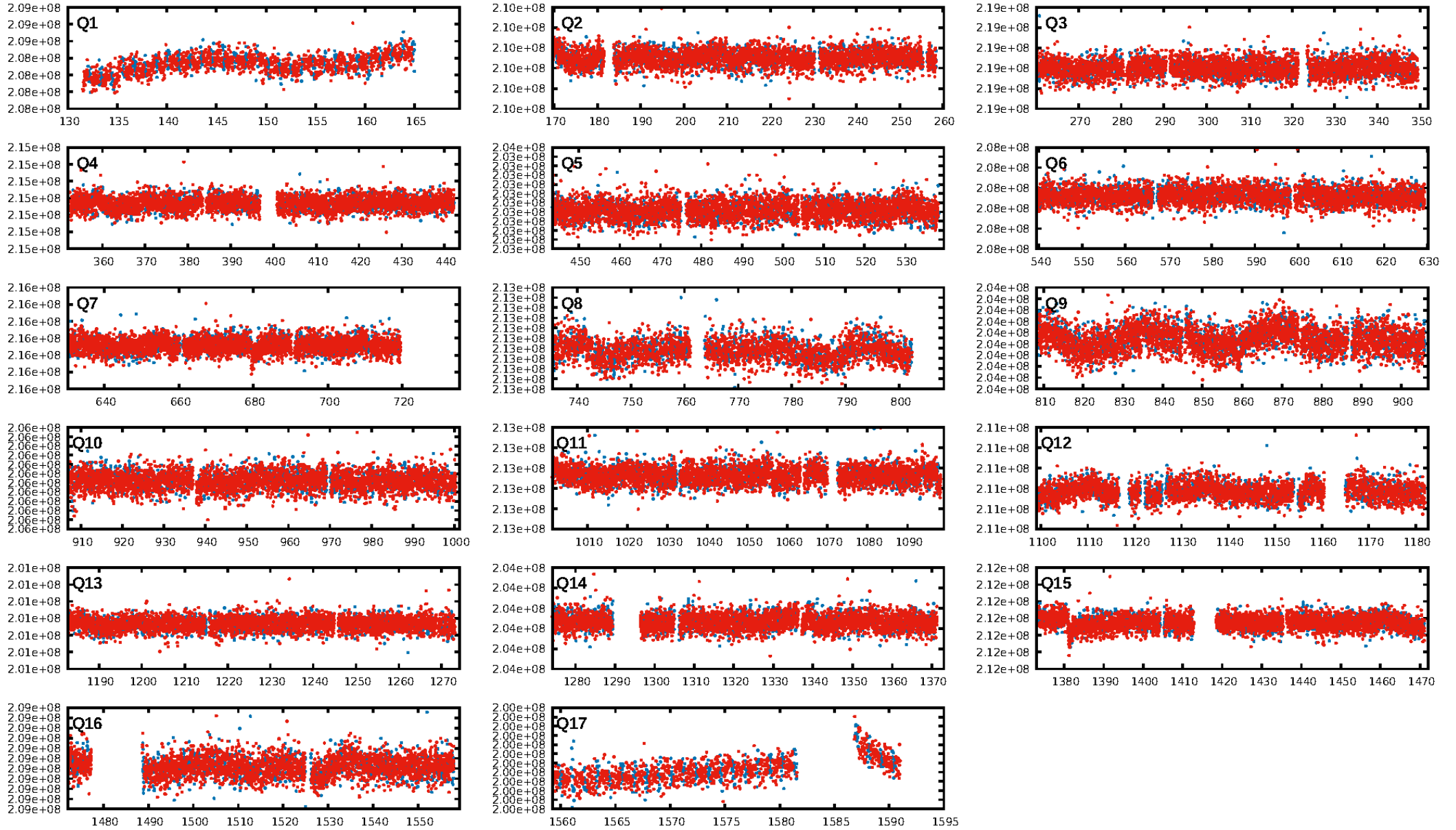
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1147/1147]
GhostDiagnostic-chr: 5.329
Centroid-sig: 91.8%
Centroid-so: 0.409 arcsec [0.26σ]
OotOffset-rm: 1.939 arcsec [1.25σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 2.043 arcsec [1.37σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [17/17]

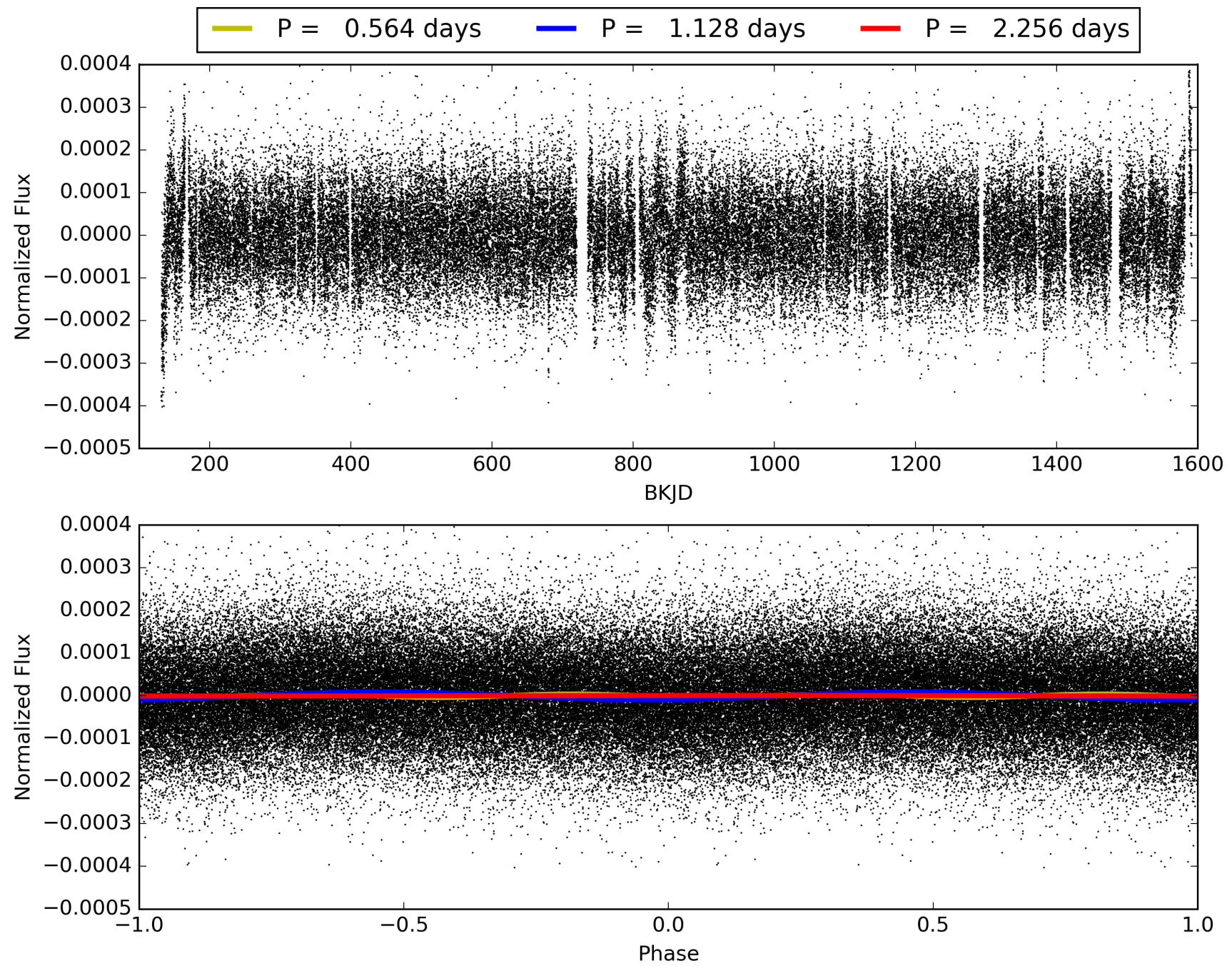
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:11:21 Z

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

TCE 009409216-01, PDC Light Curves

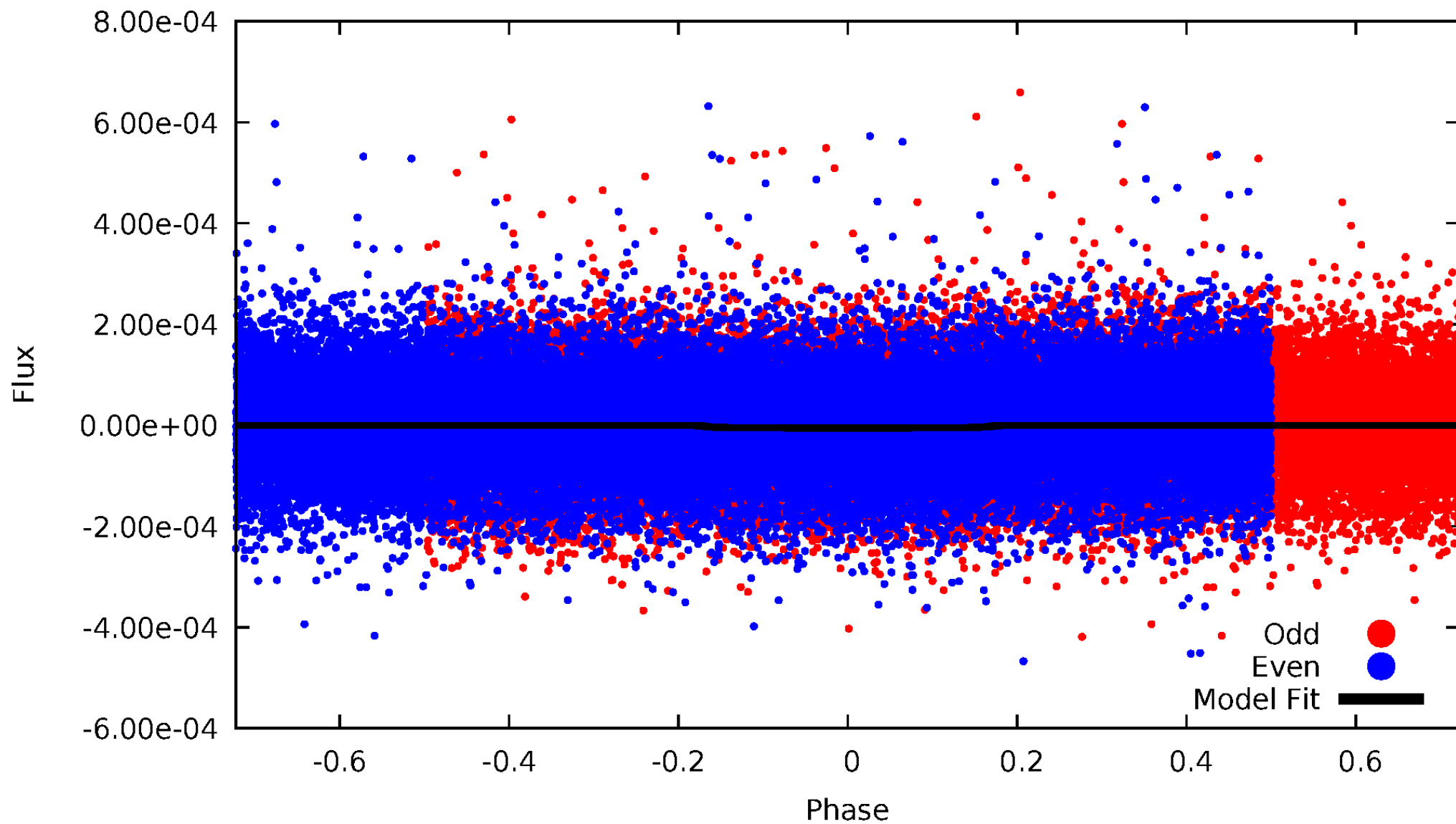


TCE 009409216-01



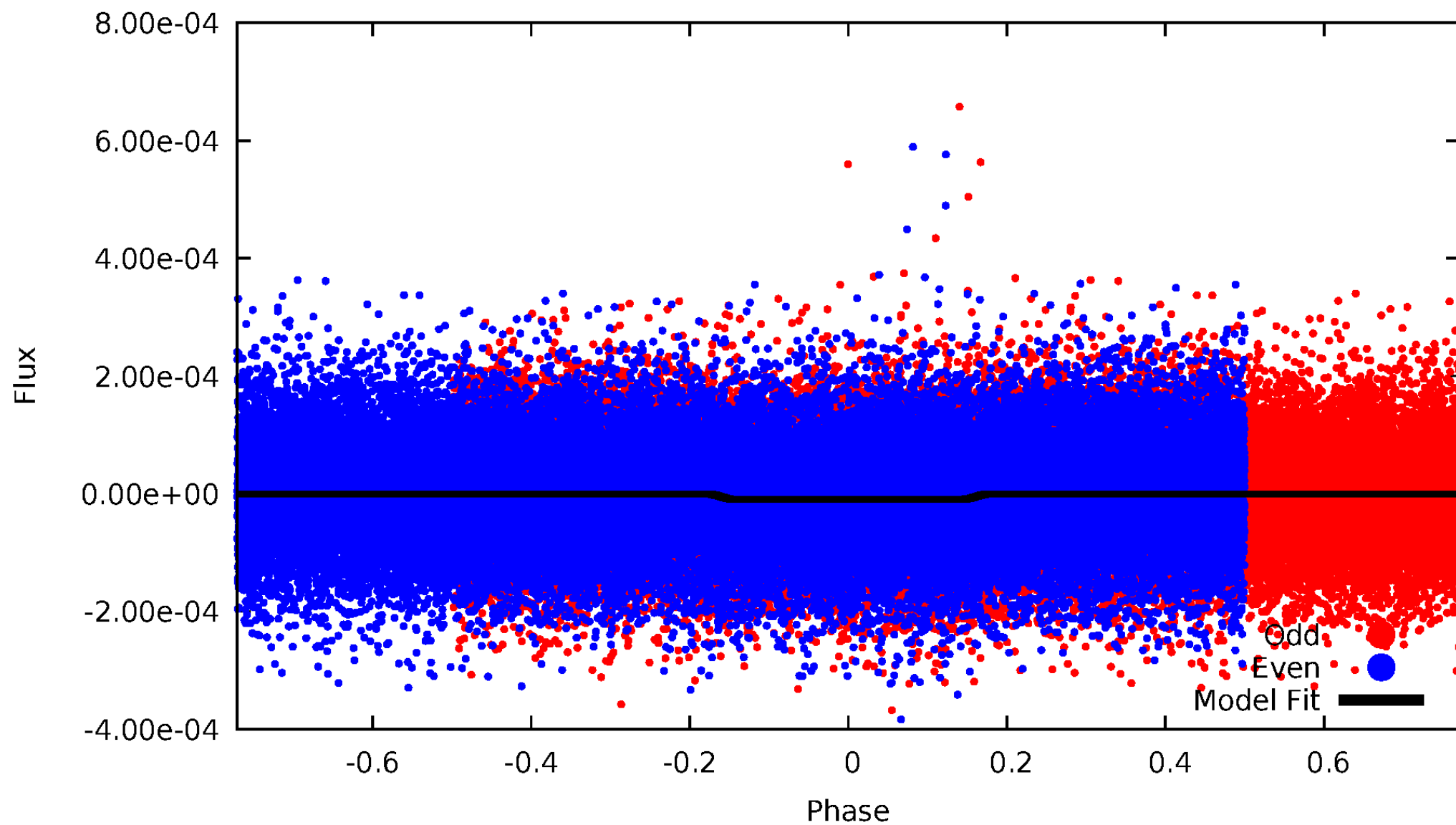
DV Odd/Even

TCE 009409216-01



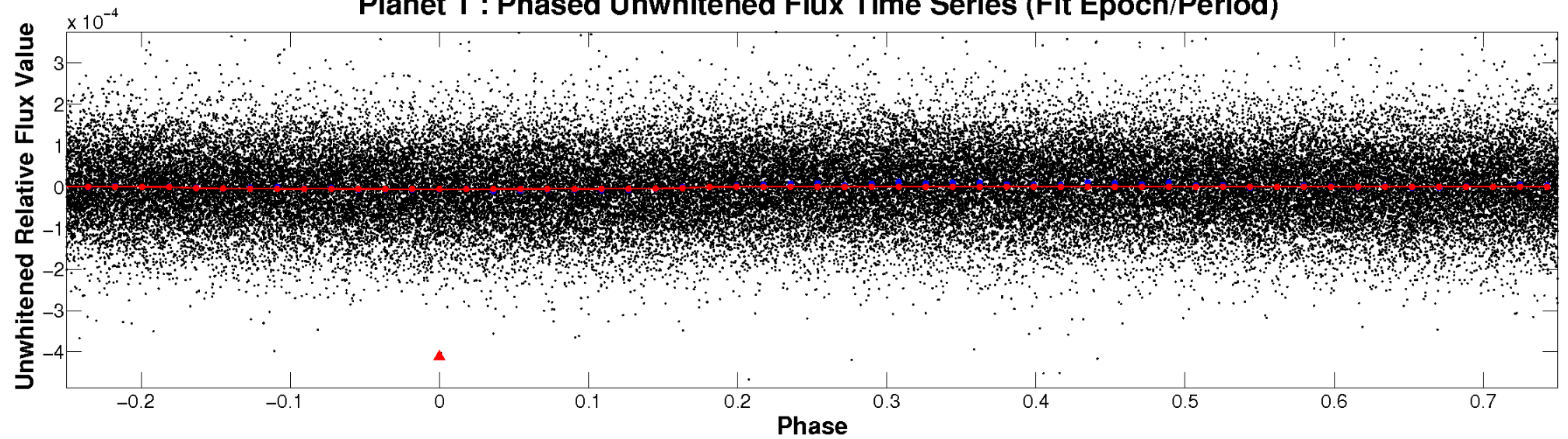
ALT Odd/Even

TCE 009409216-01

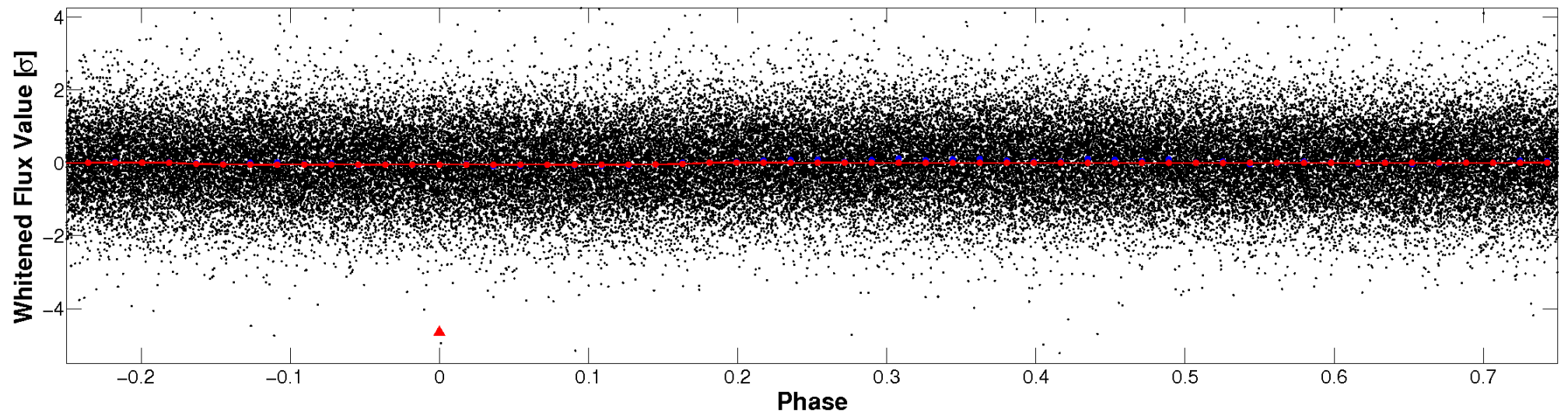


Non-Whitened Vs. Whitened Light Curve

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

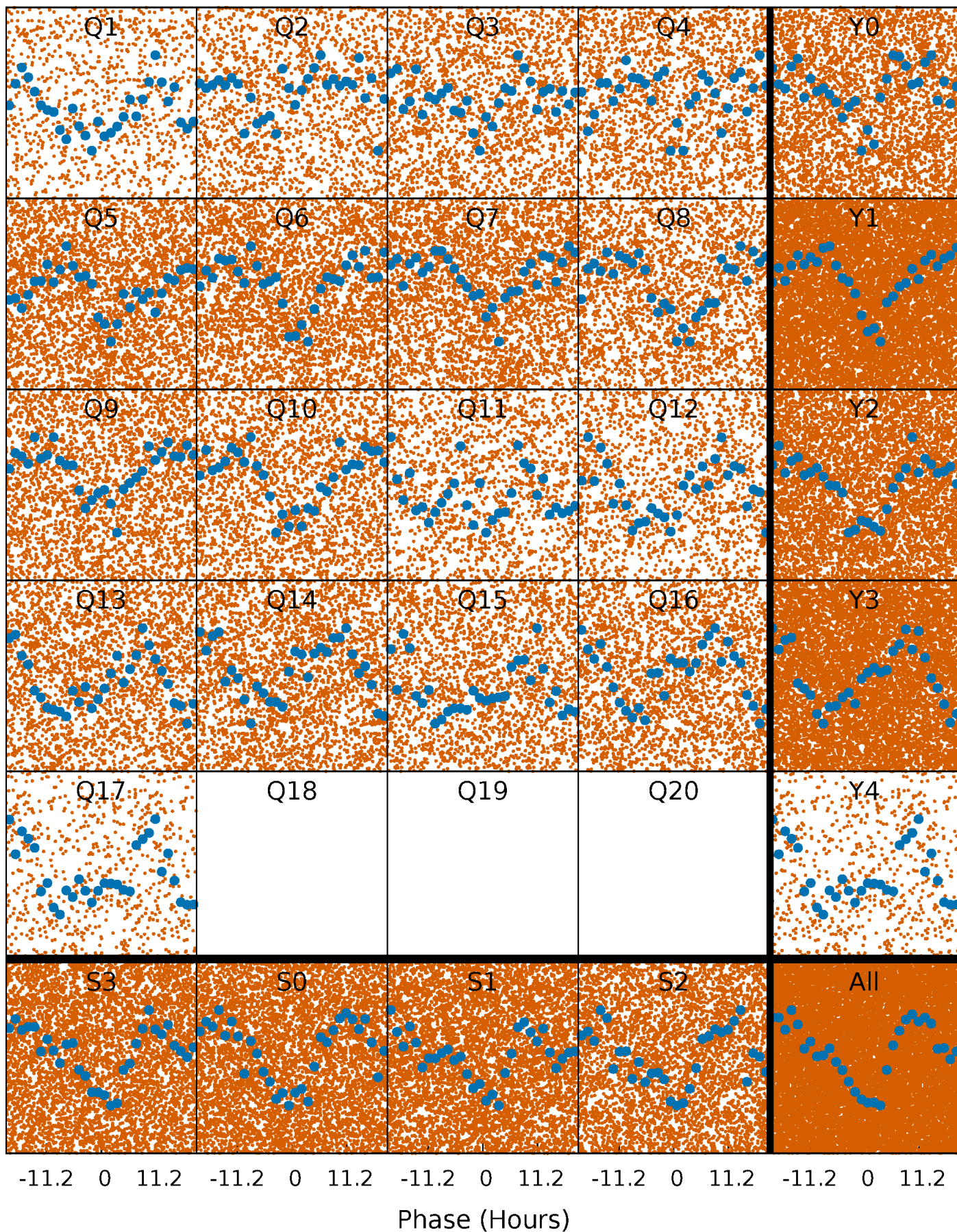


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



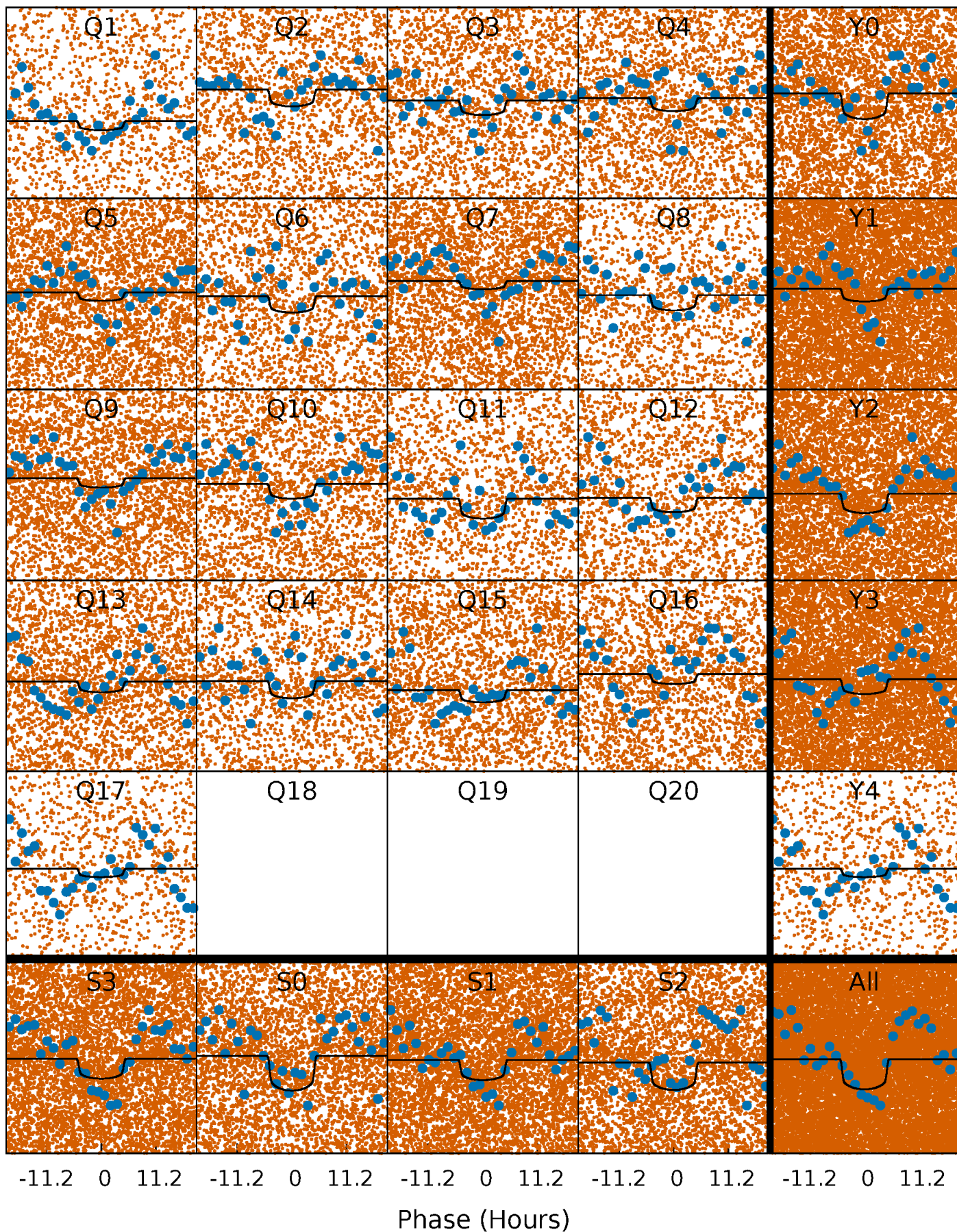
PDC Quarter-Phased Transit Curves

TCE 009409216-01 P= 1.127780 Days $T_0=131.631941$ (BKJD)



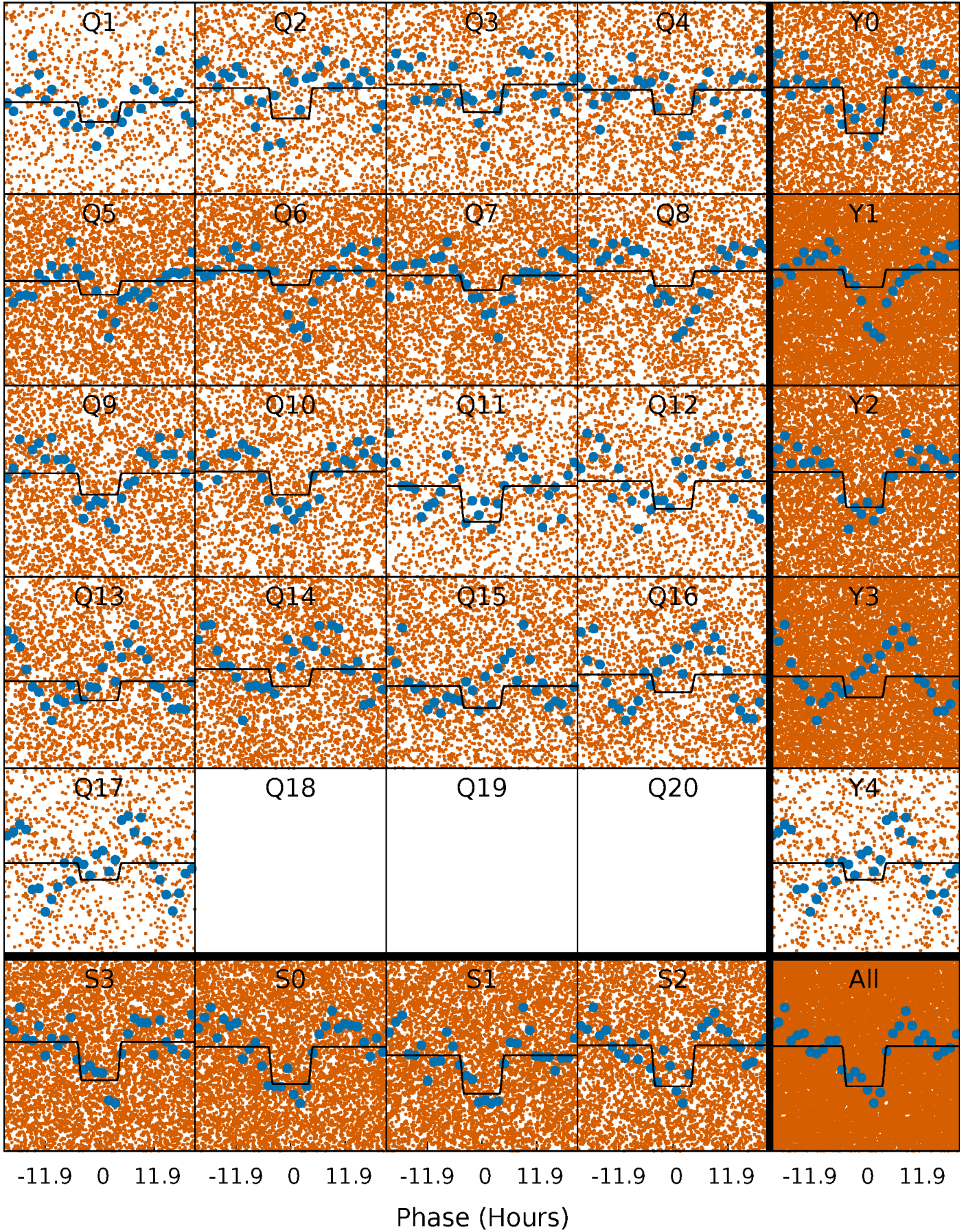
DV Quarter-Phased Transit Curves

TCE 009409216-01 P= 1.127780 Days $T_0=131.631941$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

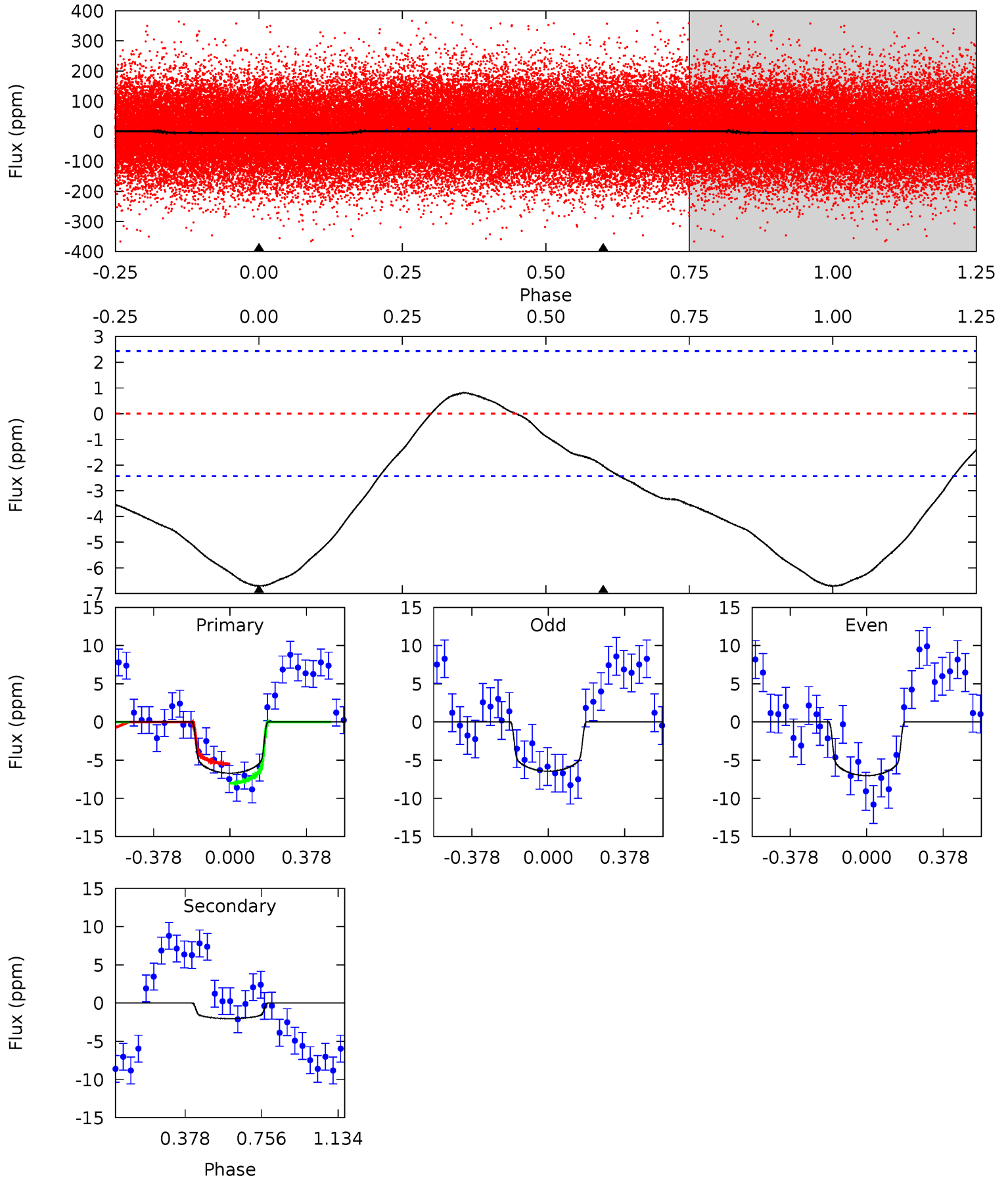
TCE 009409216-01 P= 1.127906 Days $T_0=131.562809$ (BKJD)



DV Model-Shift Uniqueness Test

009409216-01, P = 1.127780 Days, E = 130.504161 Days

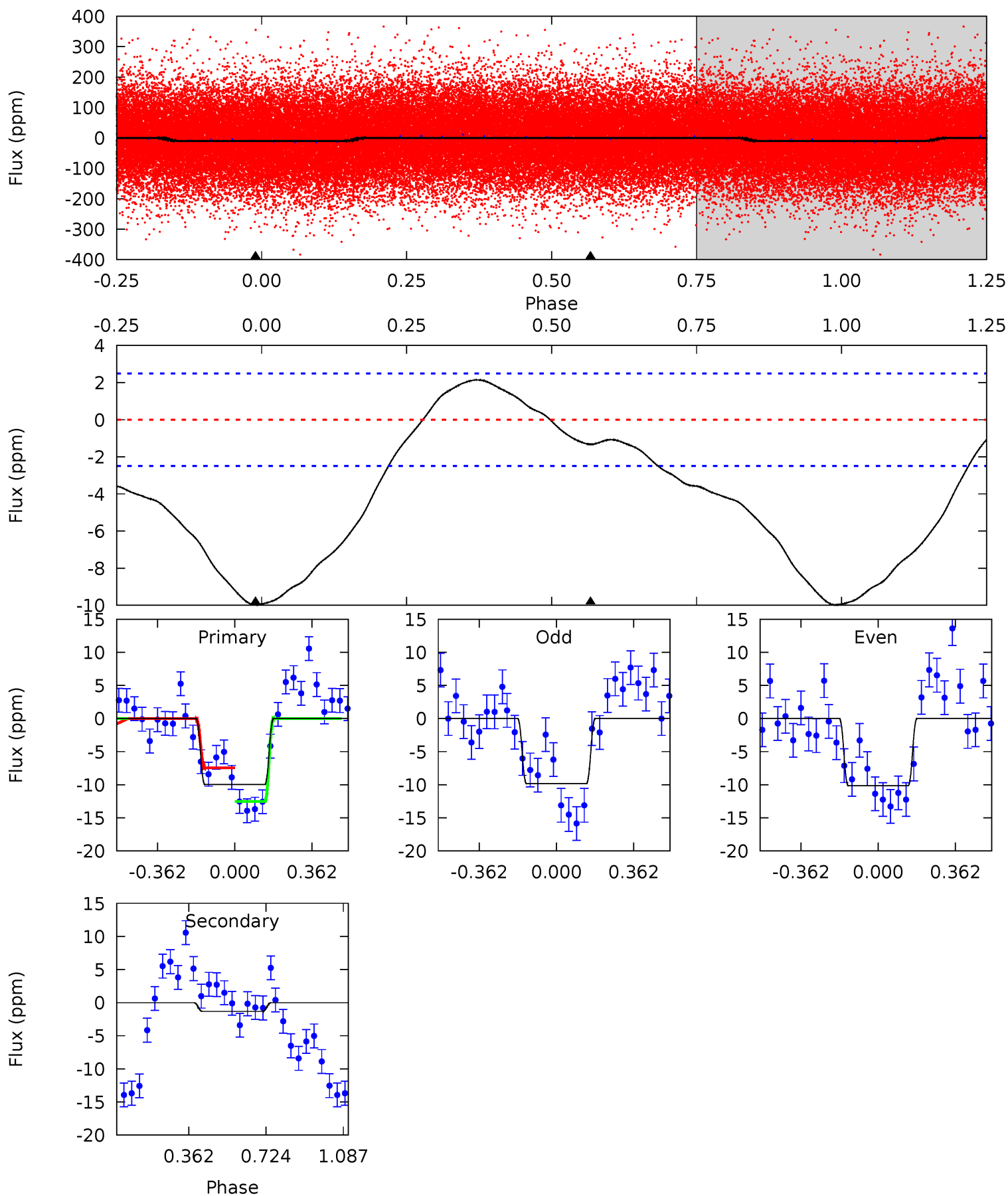
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	3.58	0	0	4.28	0.88	1.20	11.8	11.8	3.58	3.58	0.51	1.11	0.11	2.28



Alt Model-Shift Uniqueness Test

009409216-01, P = 1.127906 Days, E = 130.434903 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	2.28	0	0	4.29	0.91	1.94	17.2	17.2	2.28	2.28	0.26	1.04	0.18	4.46



Stellar Parameters For KIC 009409216

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7526^{+206}_{-353}	$4.169^{+0.070}_{-0.196}$	$0.210^{+0.100}_{-0.350}$	$1.783^{+0.562}_{-0.241}$	$1.710^{+0.214}_{-0.214}$	$0.425^{+0.157}_{-0.220}$
	+3%/-5%	+2%/-5%	+48%/-167%	+32%/-14%	+13%/-13%	+37%/-52%
Source	KIC0	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 009409216-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2 ± 1	$0.53^{+0.17}_{-0.15}$	3944^{+297}_{-224}	5256^{+1057}_{-726}	$2.353^{+2.769}_{-1.109}$
Alt.	-1 ± 1	$0.63^{+0.17}_{-0.16}$	3921^{+284}_{-212}	4360^{+758}_{-773}	$1.181^{+1.024}_{-0.607}$

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

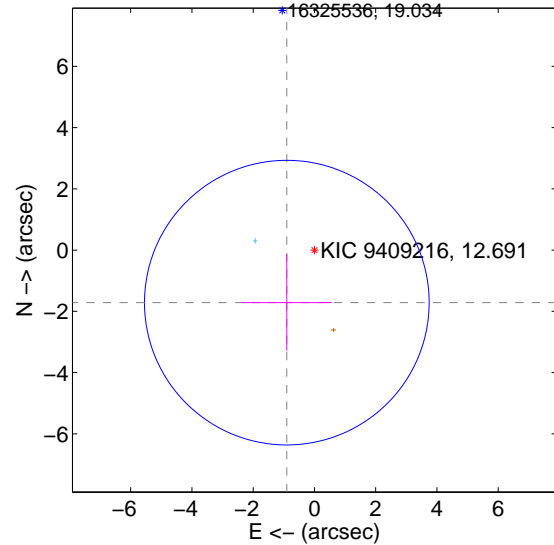
Supplemental centroid analysis for 009409216-01. Kepler magnitude: 12.69. Transit SNR 7.26

There are 1 quarters with good PRF difference image offsets

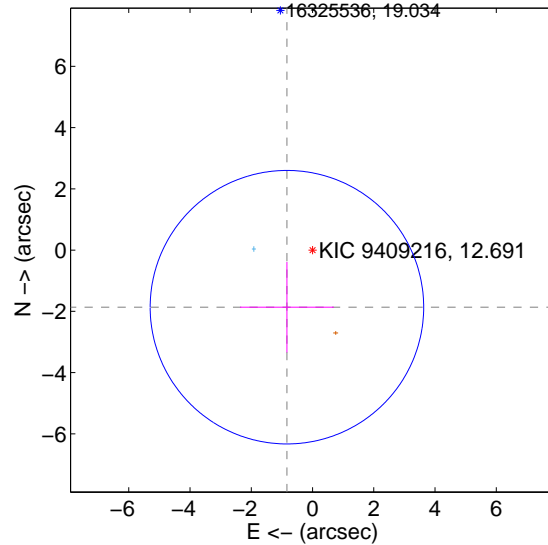
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.939 ± 1.549	1.25	0.902 ± 1.468	-1.716 ± 1.571
PRF-fit source offset from KIC position	2.043 ± 1.489	1.37	0.836 ± 1.535	-1.865 ± 1.479
photometric centroid source offset	0.41 ± 1.60	0.26	-0.41 ± 1.60	-0.03 ± 1.83

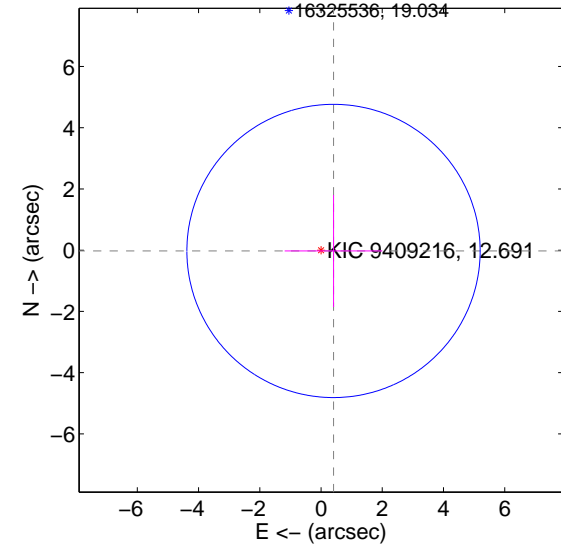
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

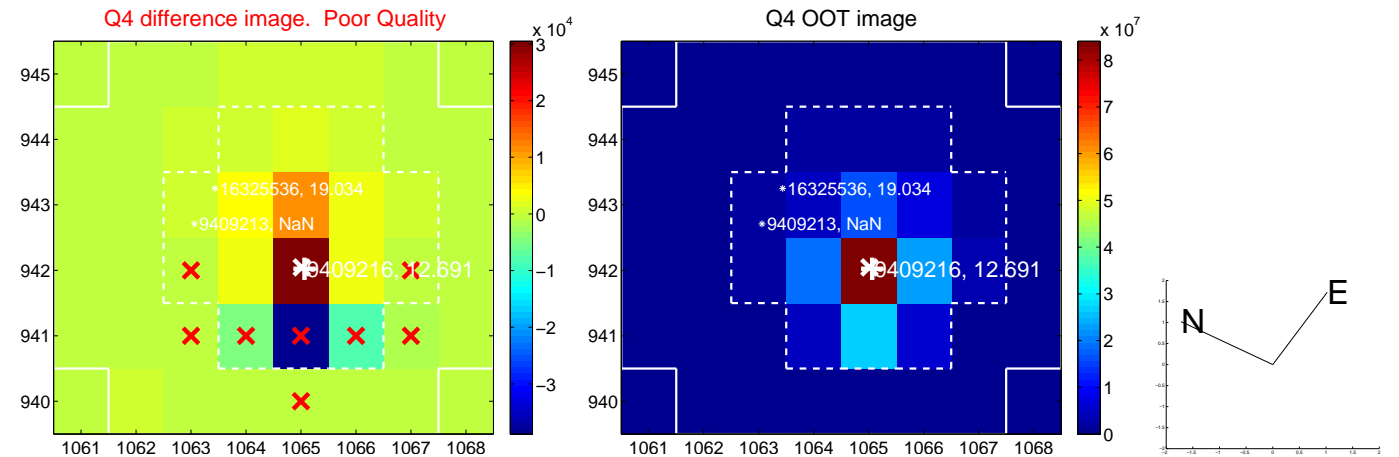
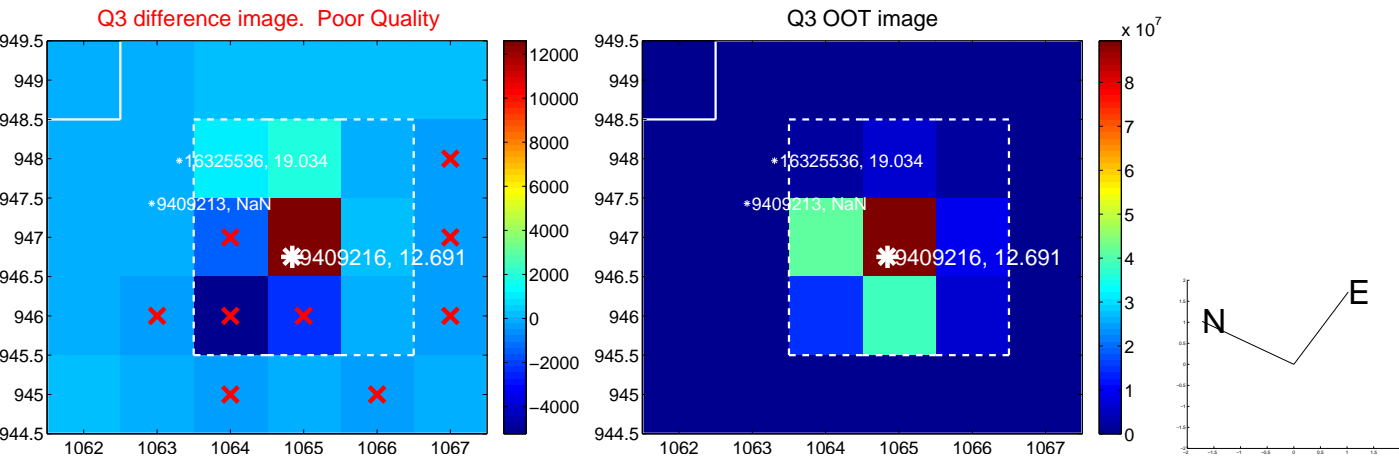
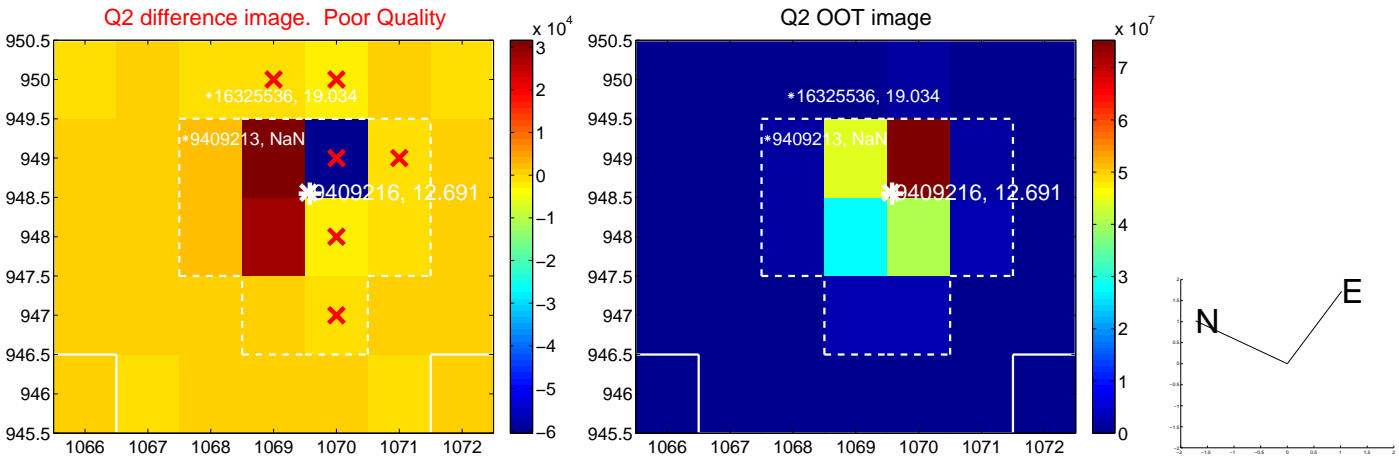
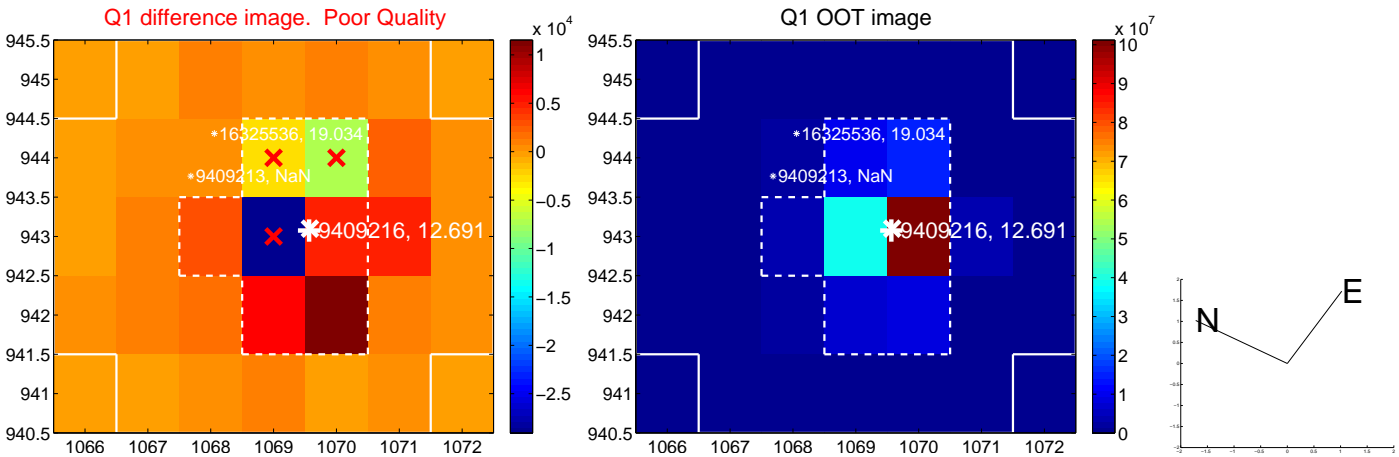


offset from photometric centroids

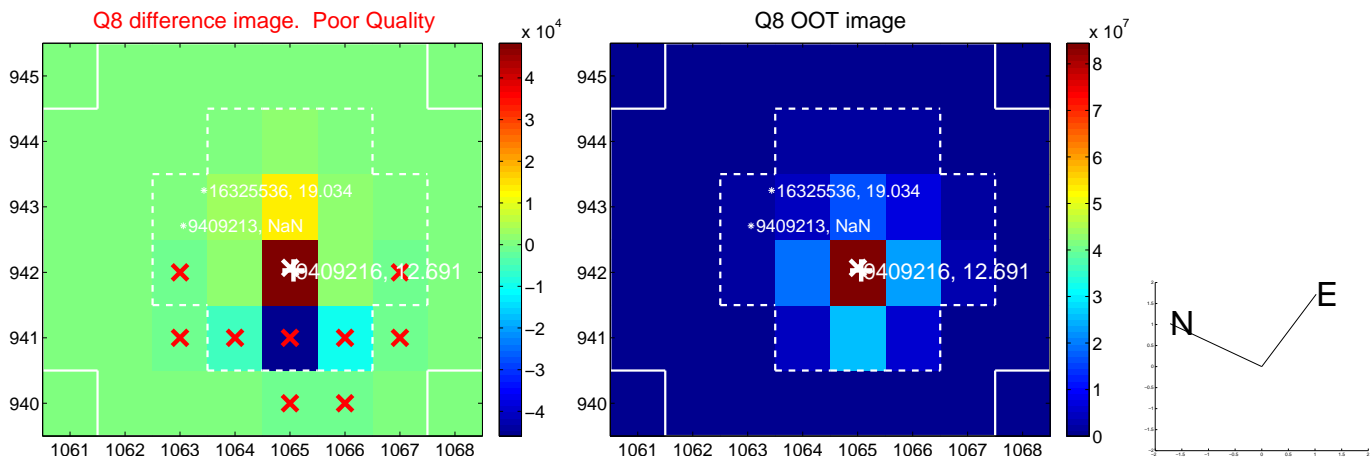
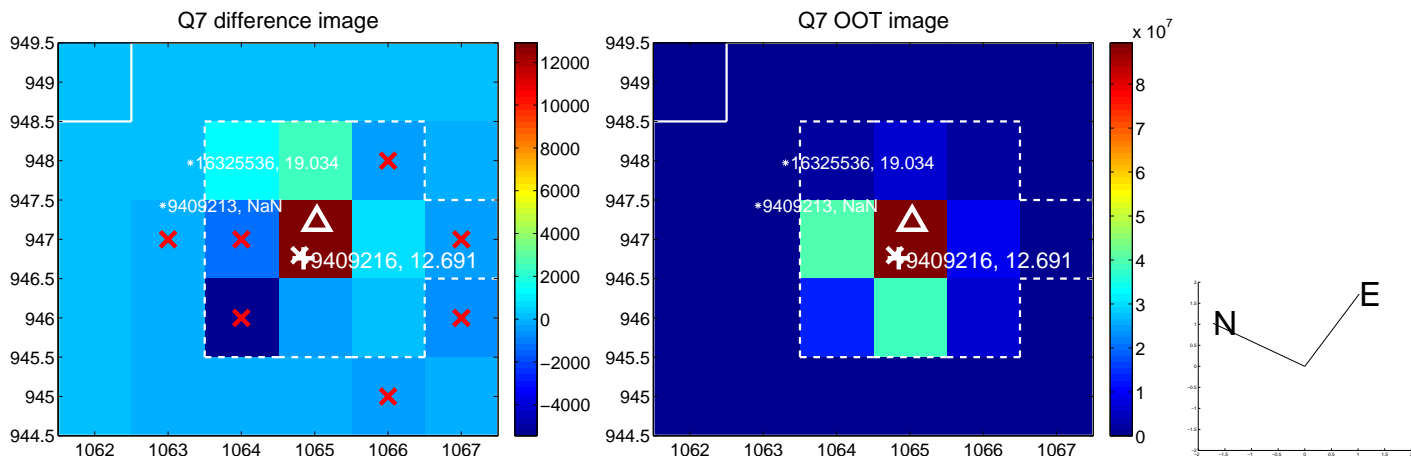
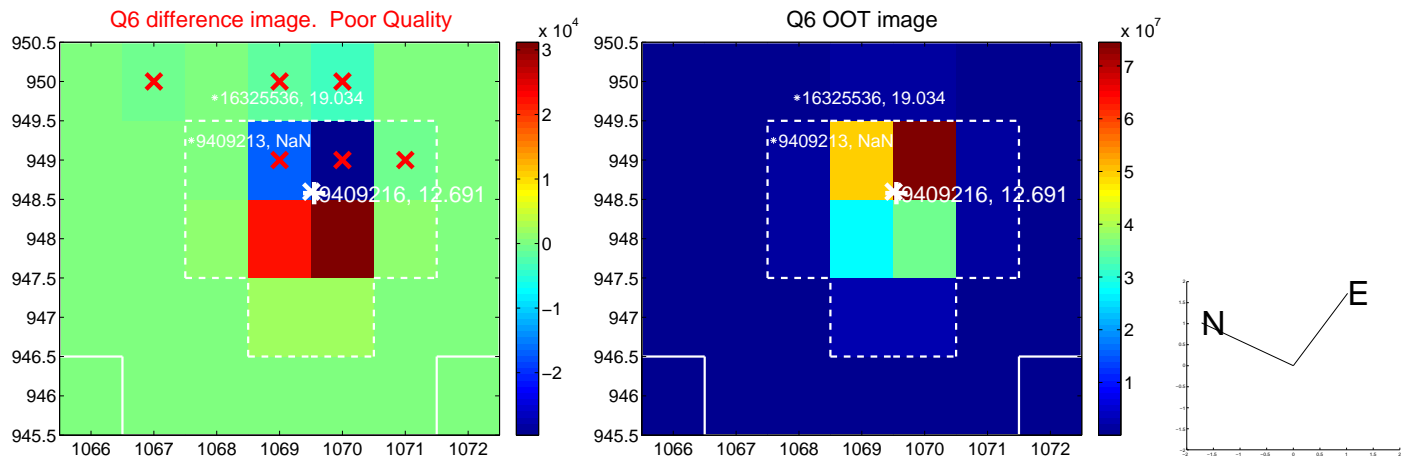
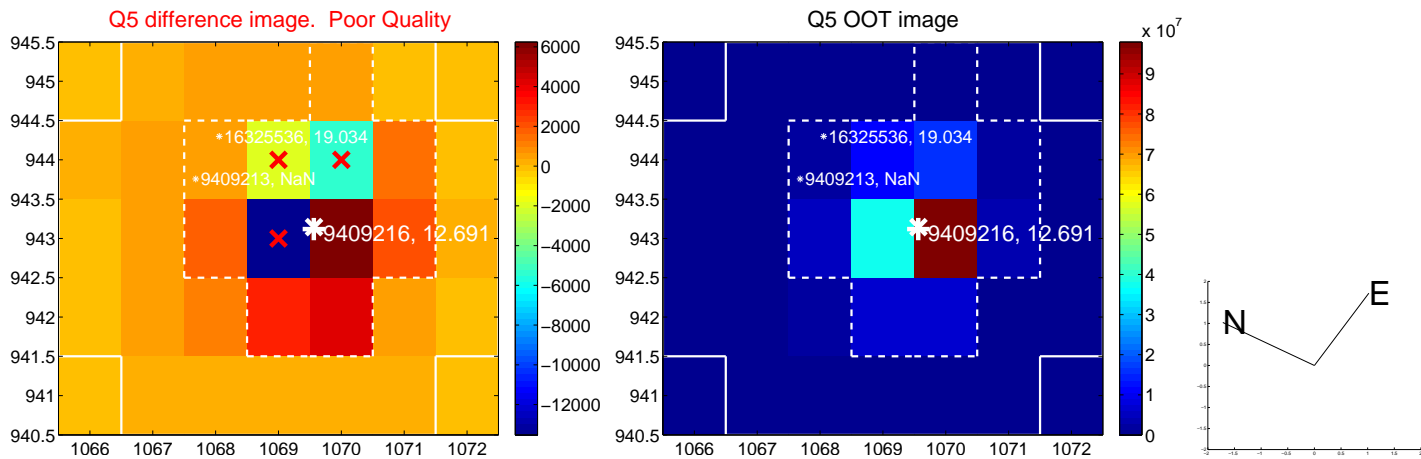


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

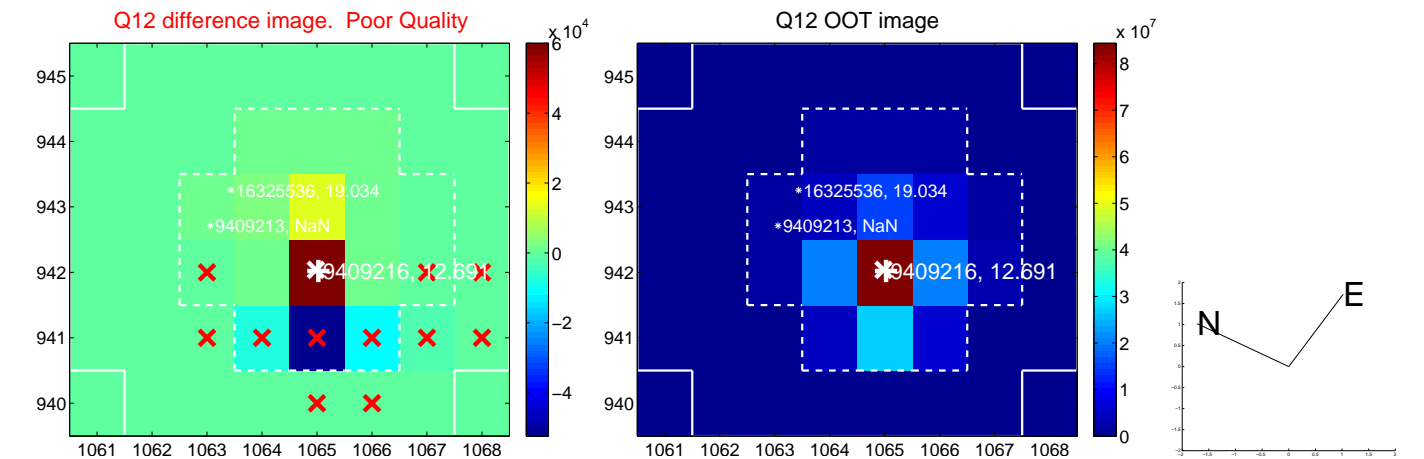
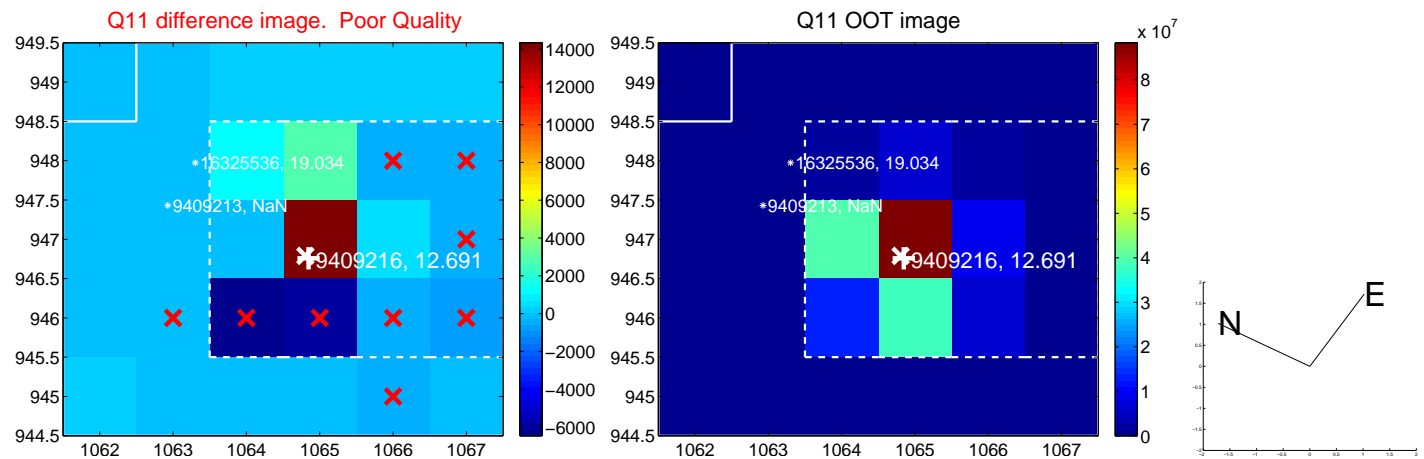
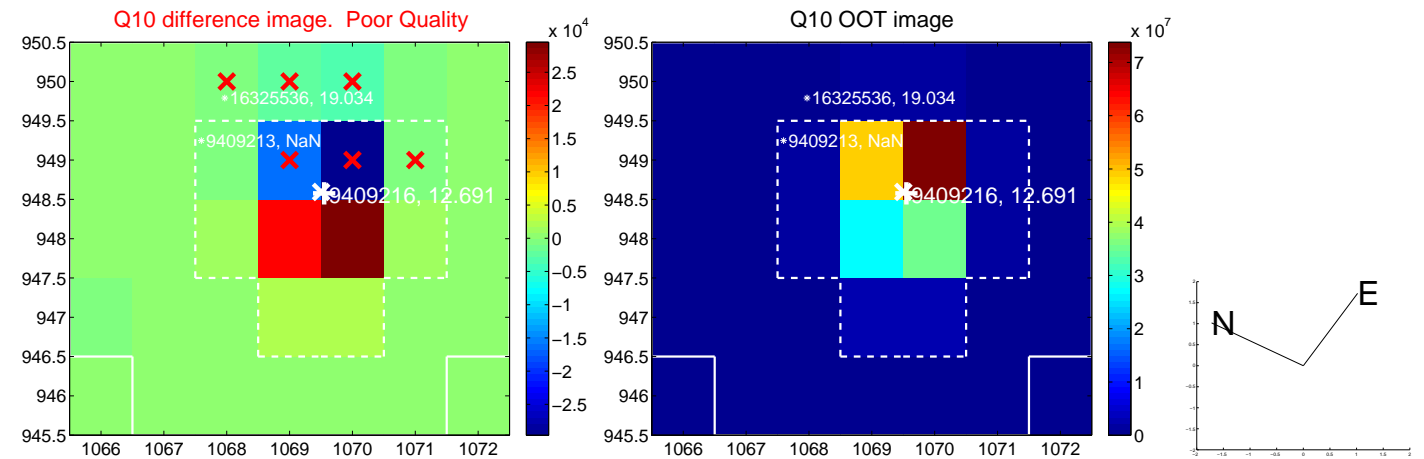
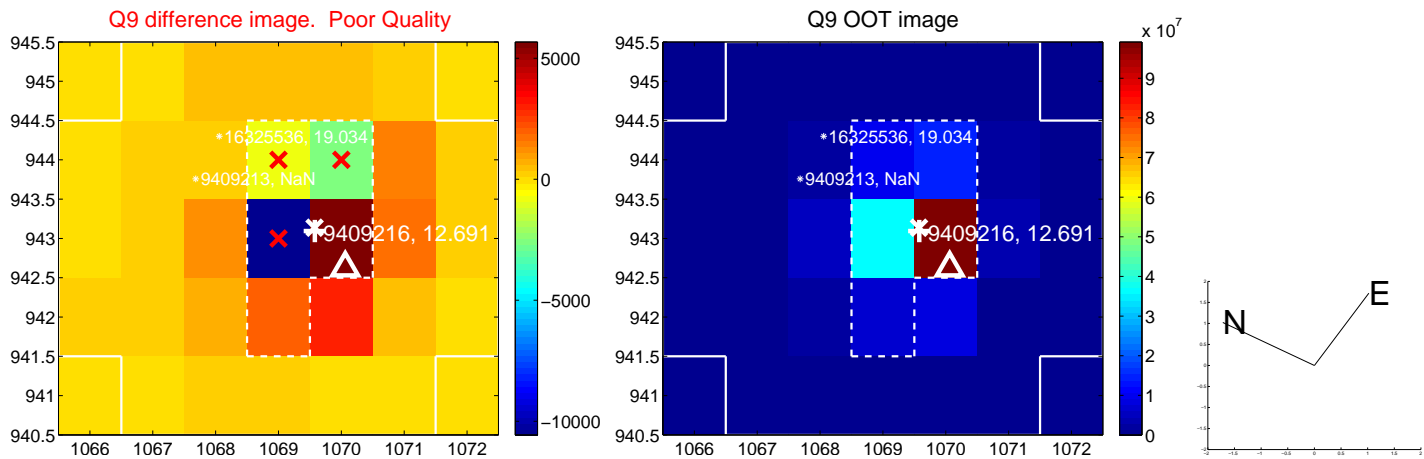
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



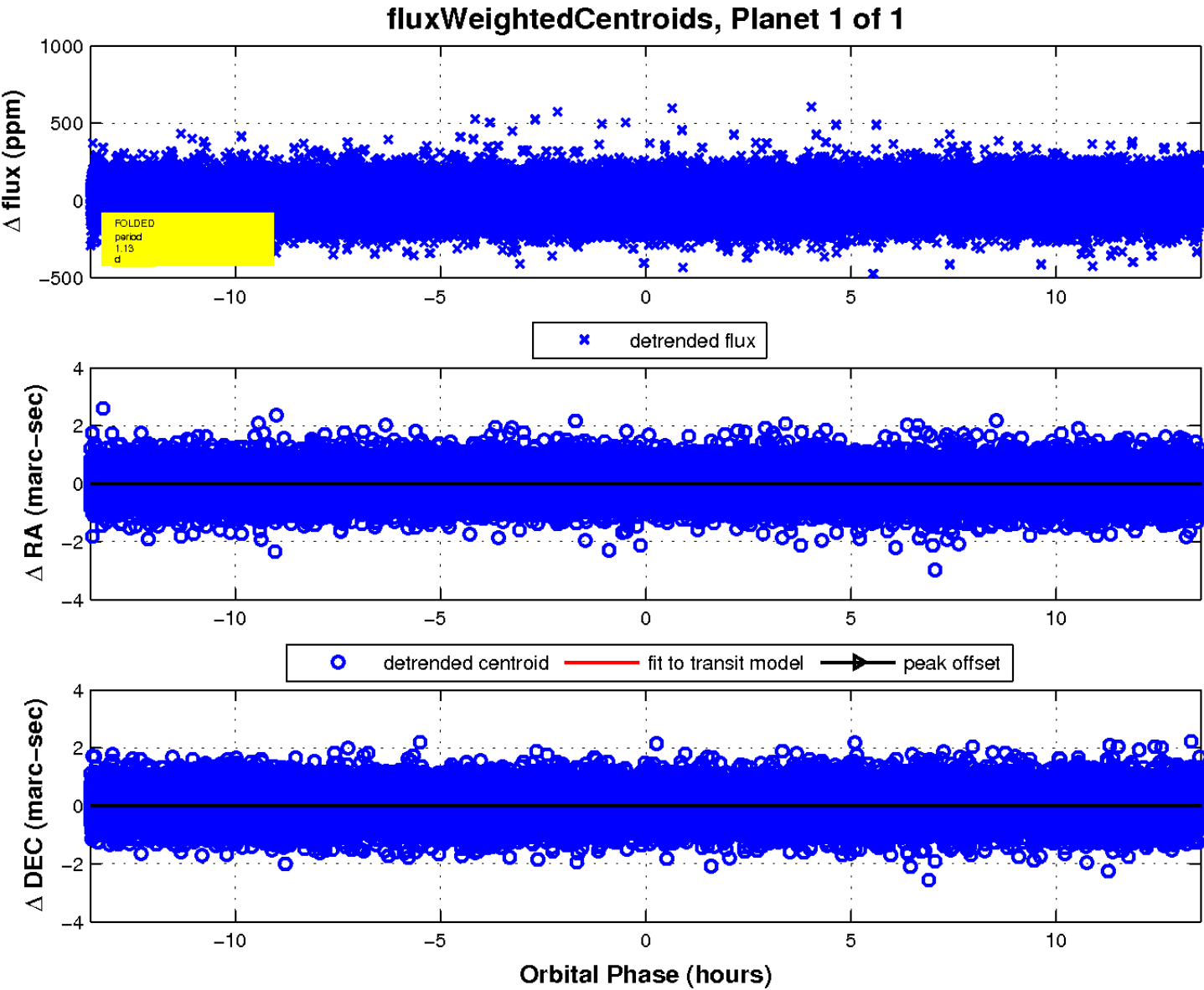
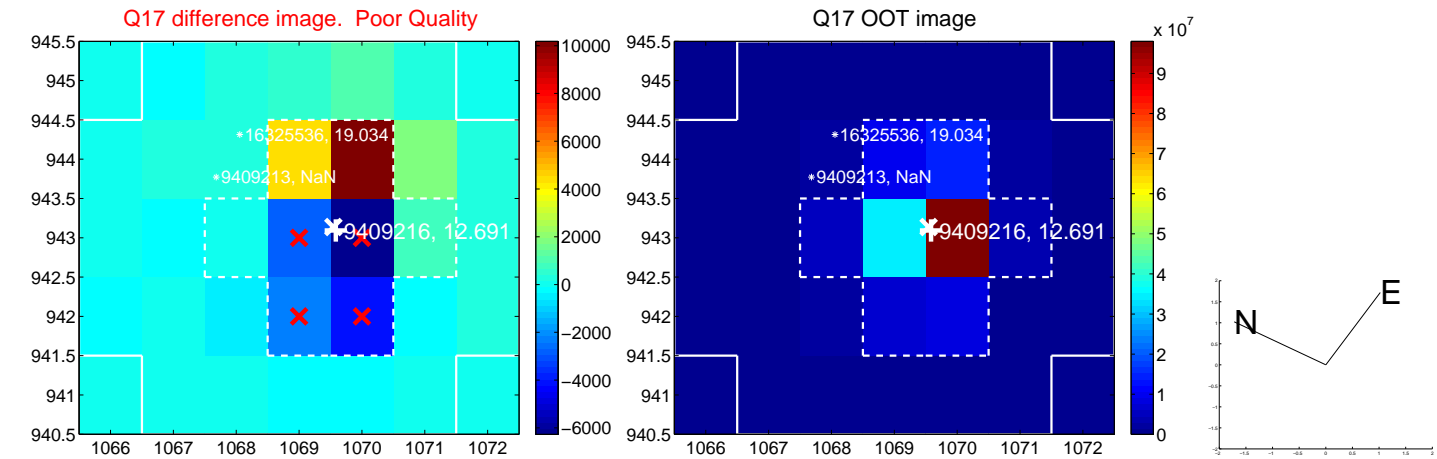
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

