

KIC 009970139

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})
009970139-01	OBS	No	0.545943	131.712120	20.8	1.404	8.3	10.9	1.68	7259	0.82	31220.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009970139-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

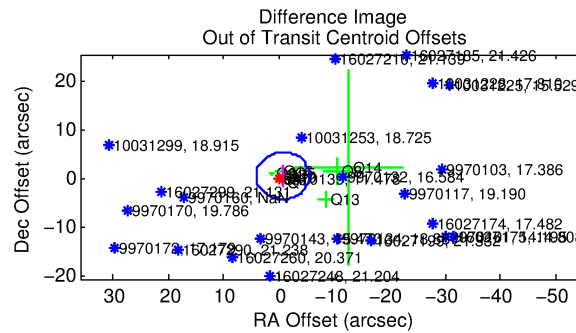
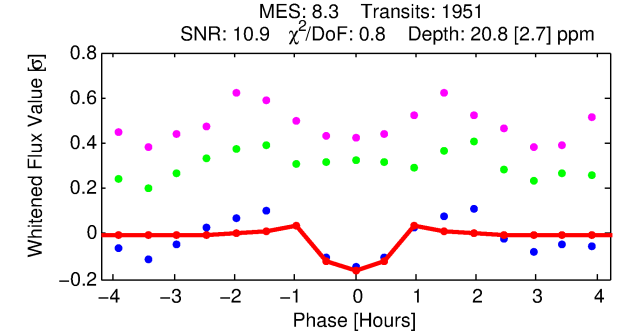
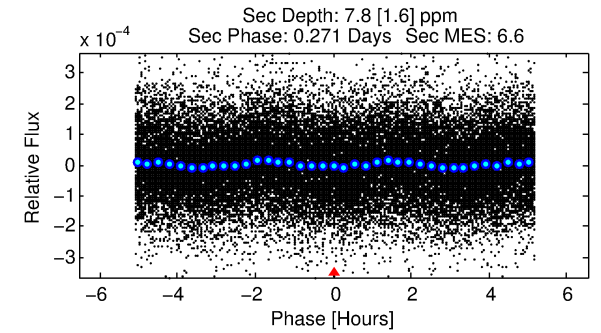
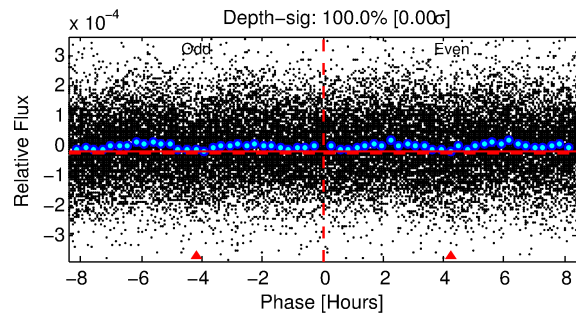
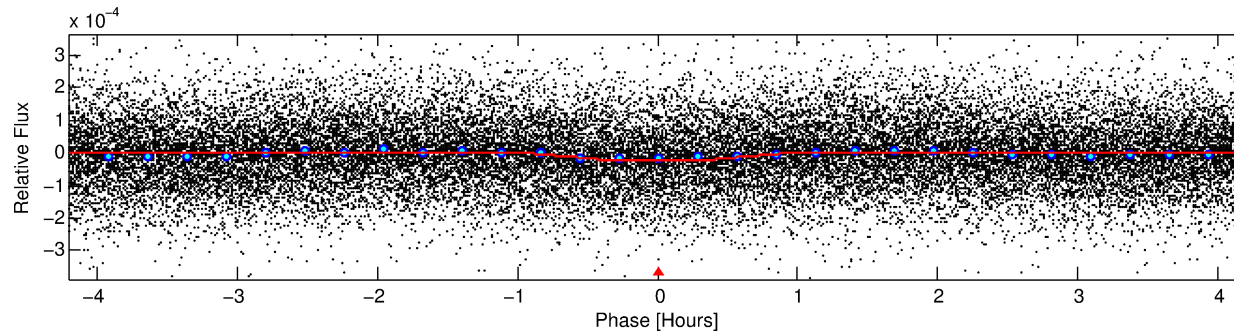
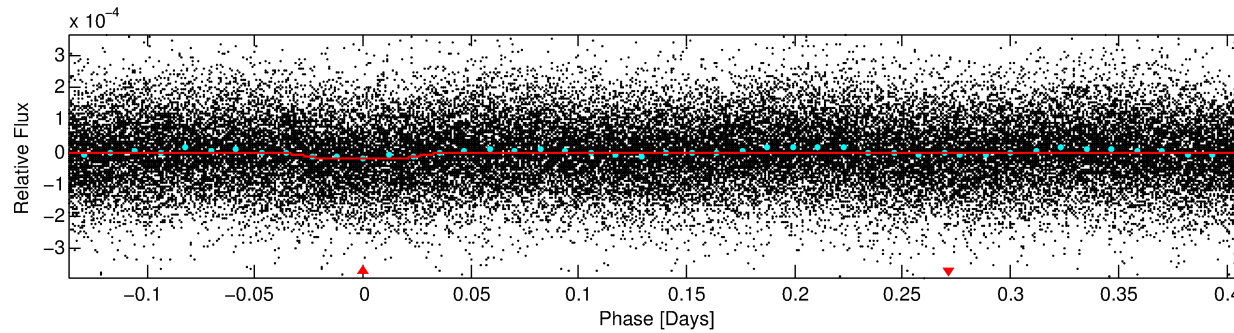
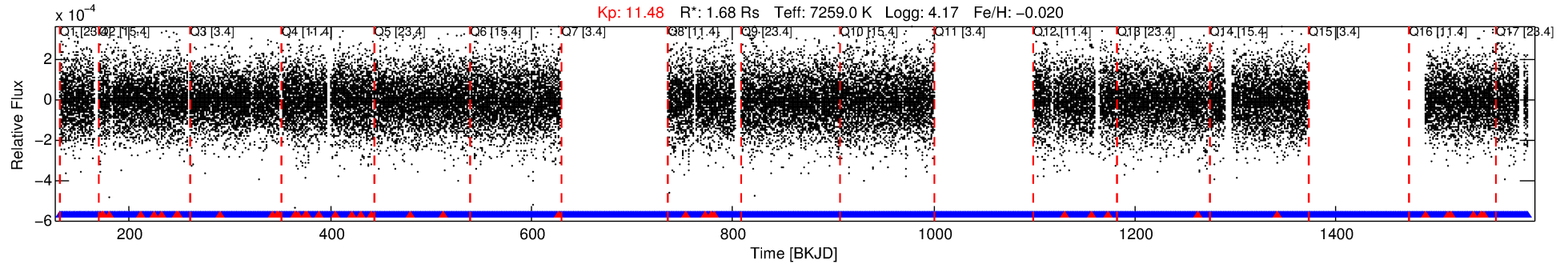
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009970139-01

No Significant Match Found

DV One-Page Summary

KIC: 9970139 Candidate: 1 of 1 Period: 0.546 d



DV Fit Results:

Period = 0.54594 [0.00001] d
Epoch = 131.7121 [0.0015] BKJD
 $R_p/R^* = 0.0045$ [0.0006]
 $a/R^* = 2.29$ [1.24]
 $b = 0.70$ [0.49]
 $\text{Seff} = 31220.01$ [13103.03]
 $T_{\text{eq}} = 3389$ [356] K
 $R_p = 0.83$ [0.29] R_{e}
 $a = 0.0150$ [0.0041] AU
 $A_g = 1.42$ [0.71] [0.59 σ]
 $T_{\text{eff}} = 5723$ [527] K [3.67 σ]

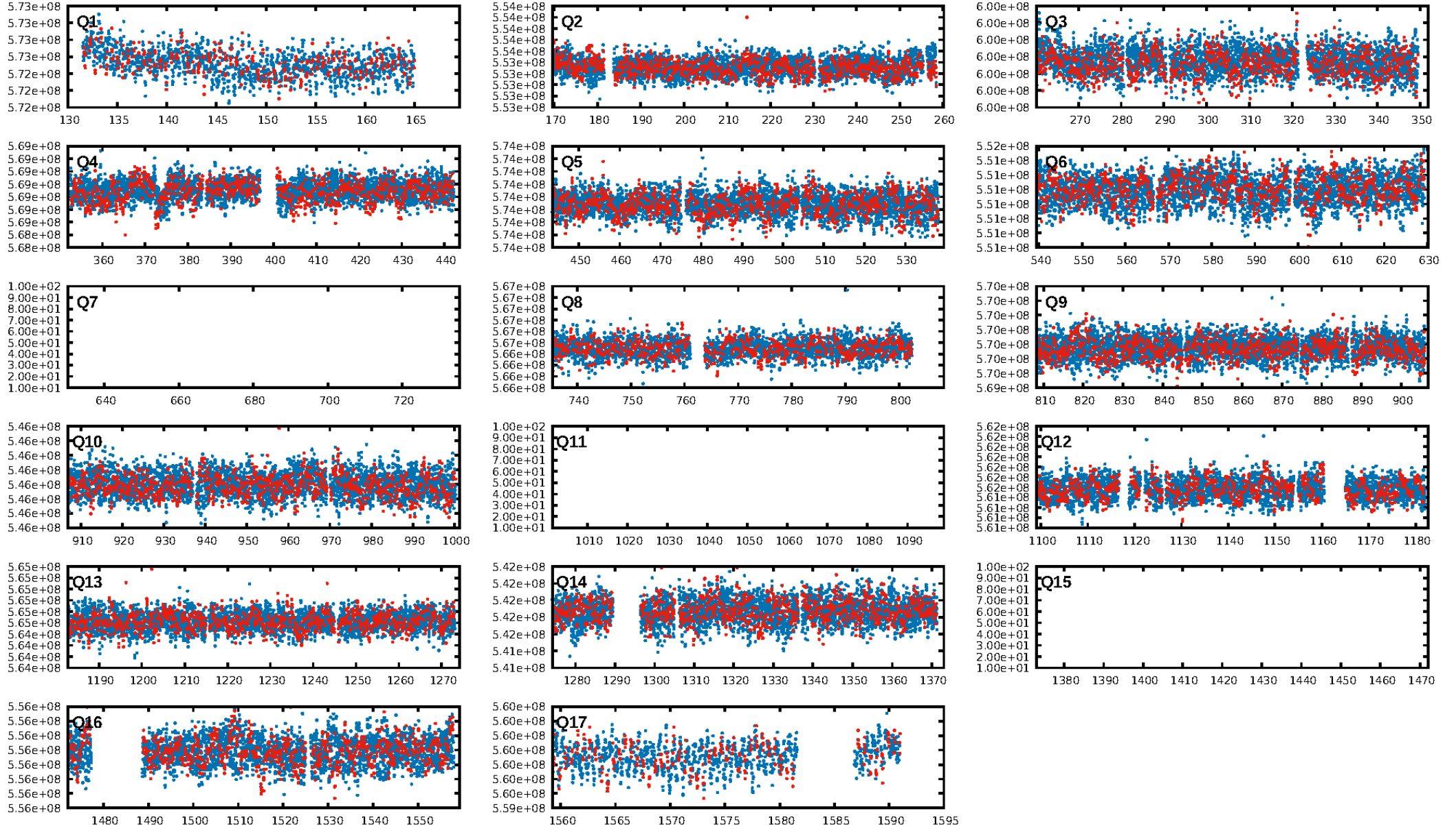
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.34e-13
RollingBand-fgt: 0.98 [1799/1840]
GhostDiagnostic-chr: 5.656
Centroid-sig: 7.6%
Centroid-so: 0.820 arcsec [1.35 σ]
OotOffset-rm: 0.908 arcsec [0.57 σ]
KicOffset-rm: 0.813 arcsec [0.44 σ]
OotOffset-st: 2/1/3/4 [10]
KicOffset-st: 2/1/3/4 [10]
DiffImageQuality-fgm: 0.70 [7/10]
DiffImageOverlap-fno: 1.00 [14/14]

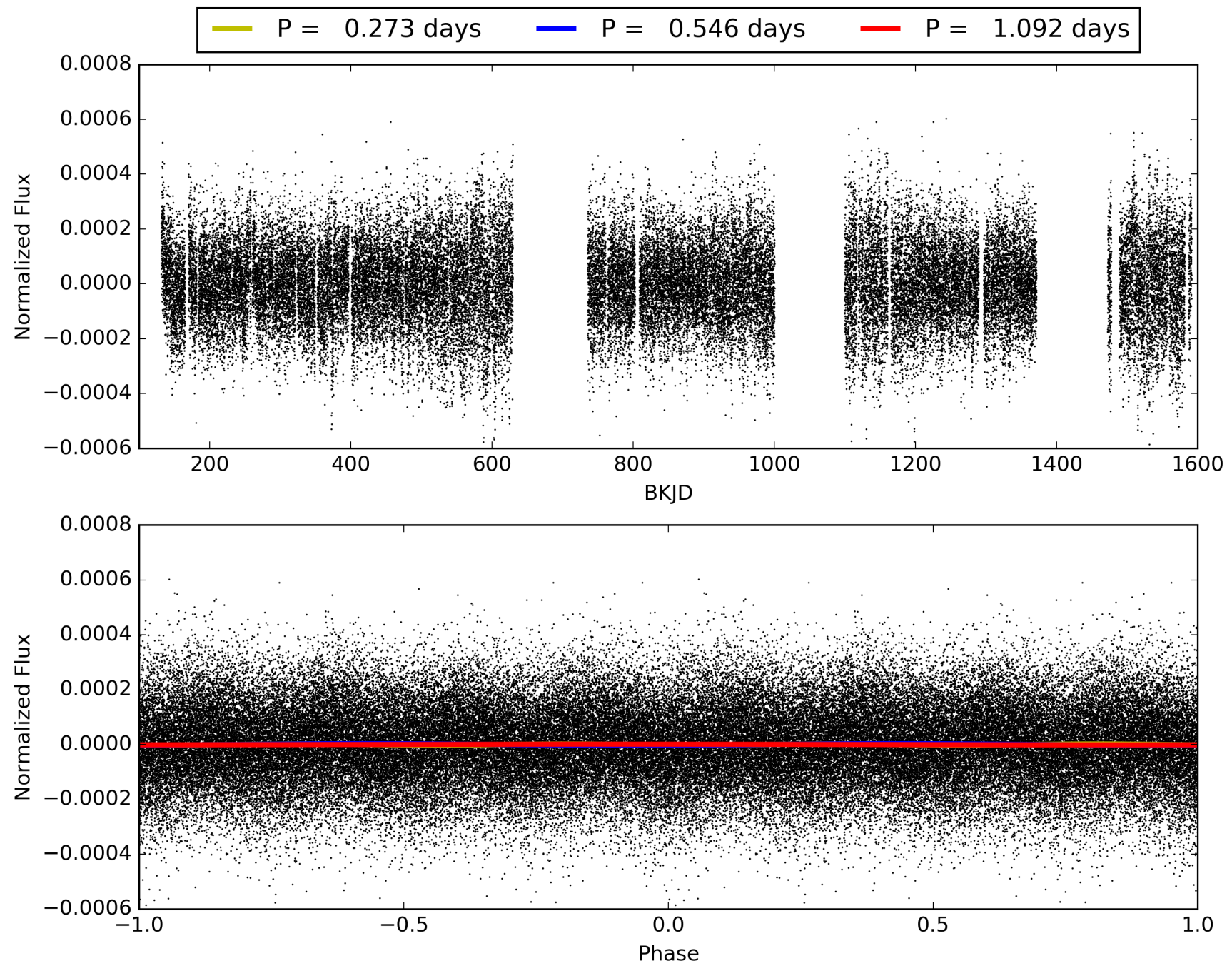
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:38:31 Z

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

TCE 009970139-01, PDC Light Curves

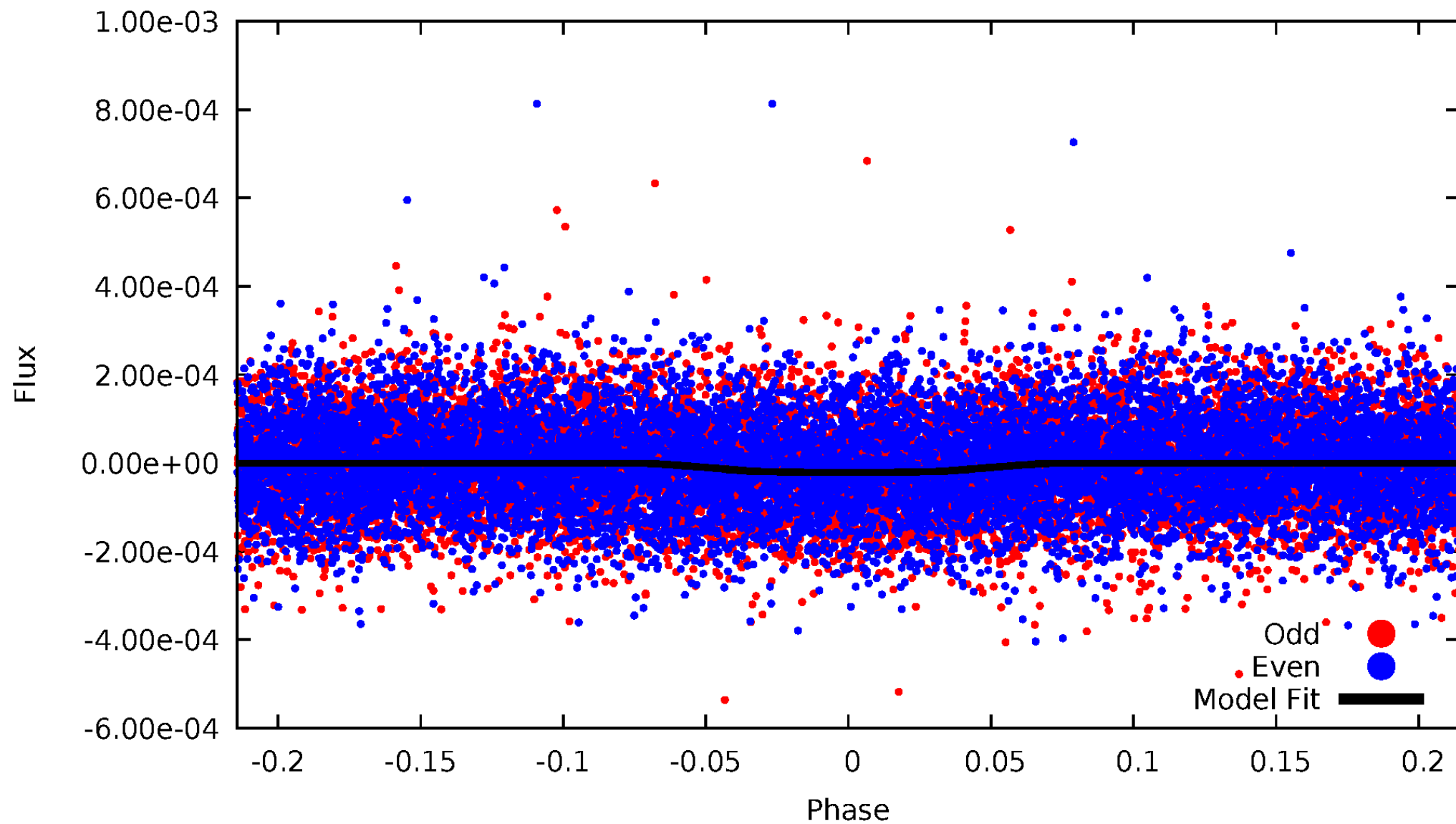


TCE 009970139-01



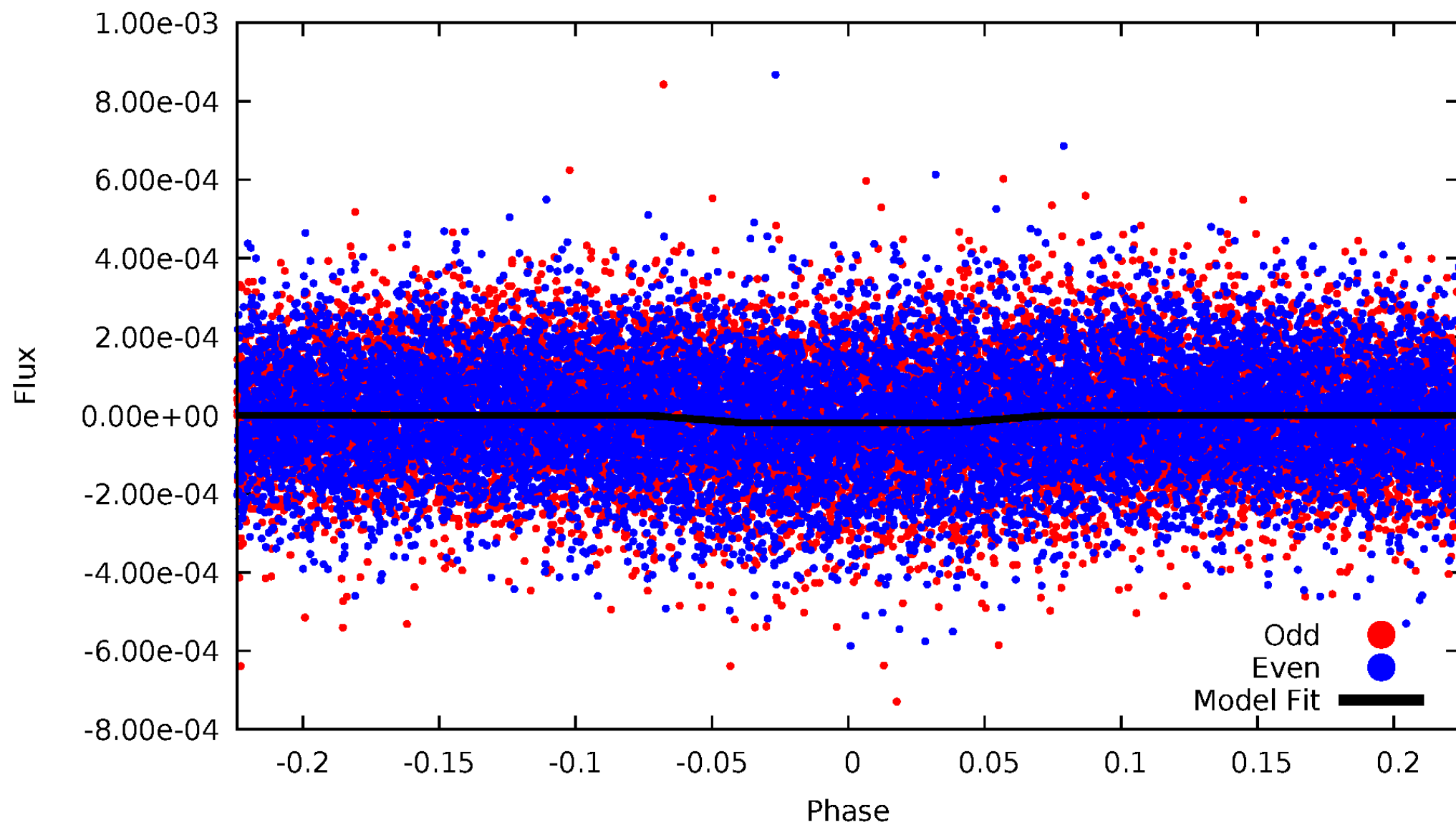
DV Odd/Even

TCE 009970139-01



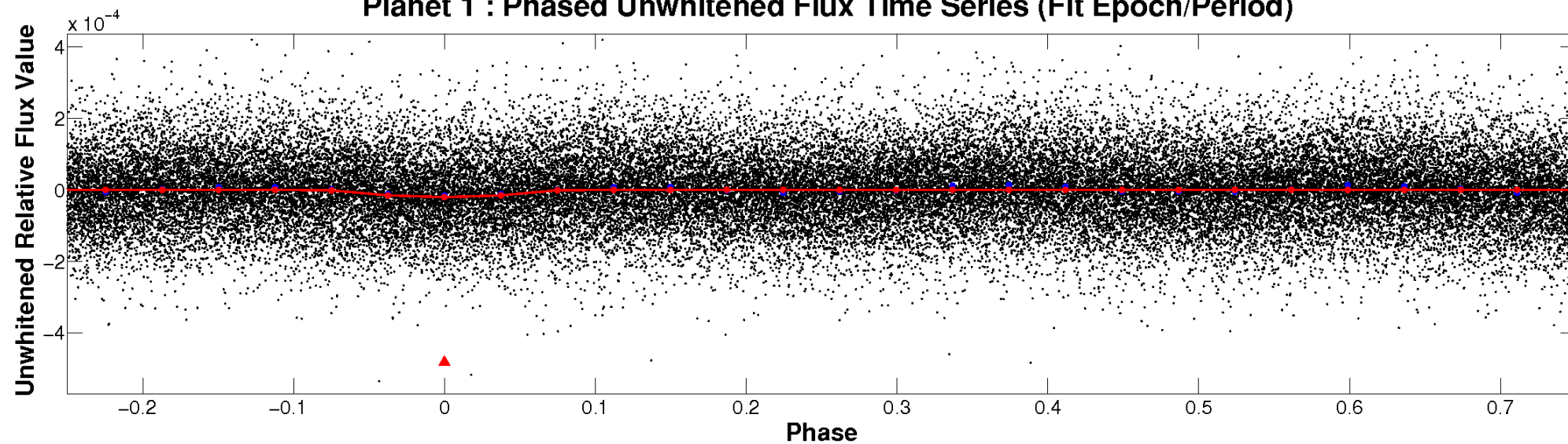
ALT Odd/Even

TCE 009970139-01

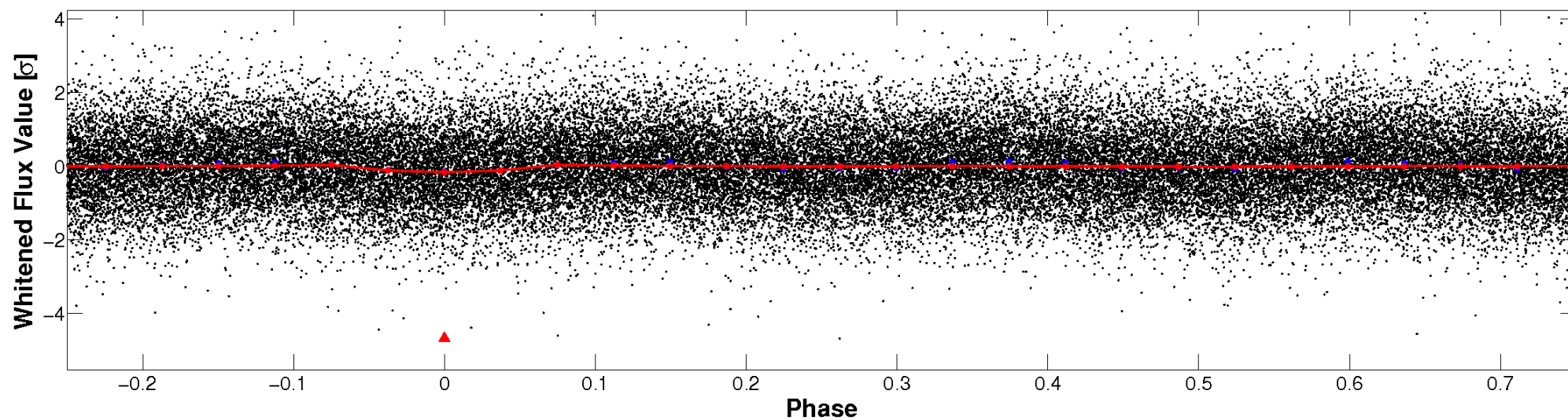


Non-Whitened Vs. Whitened Light Curve

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

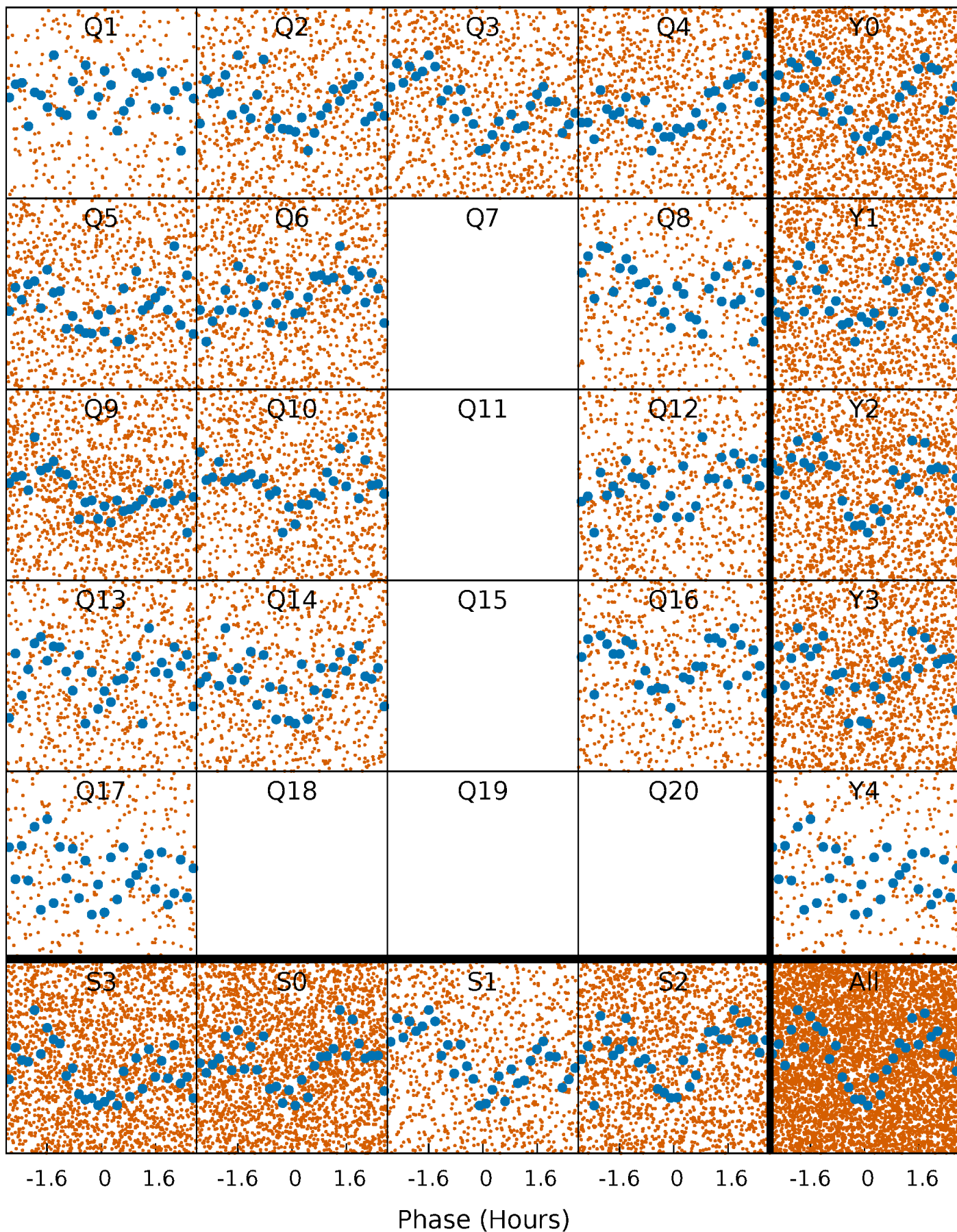


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



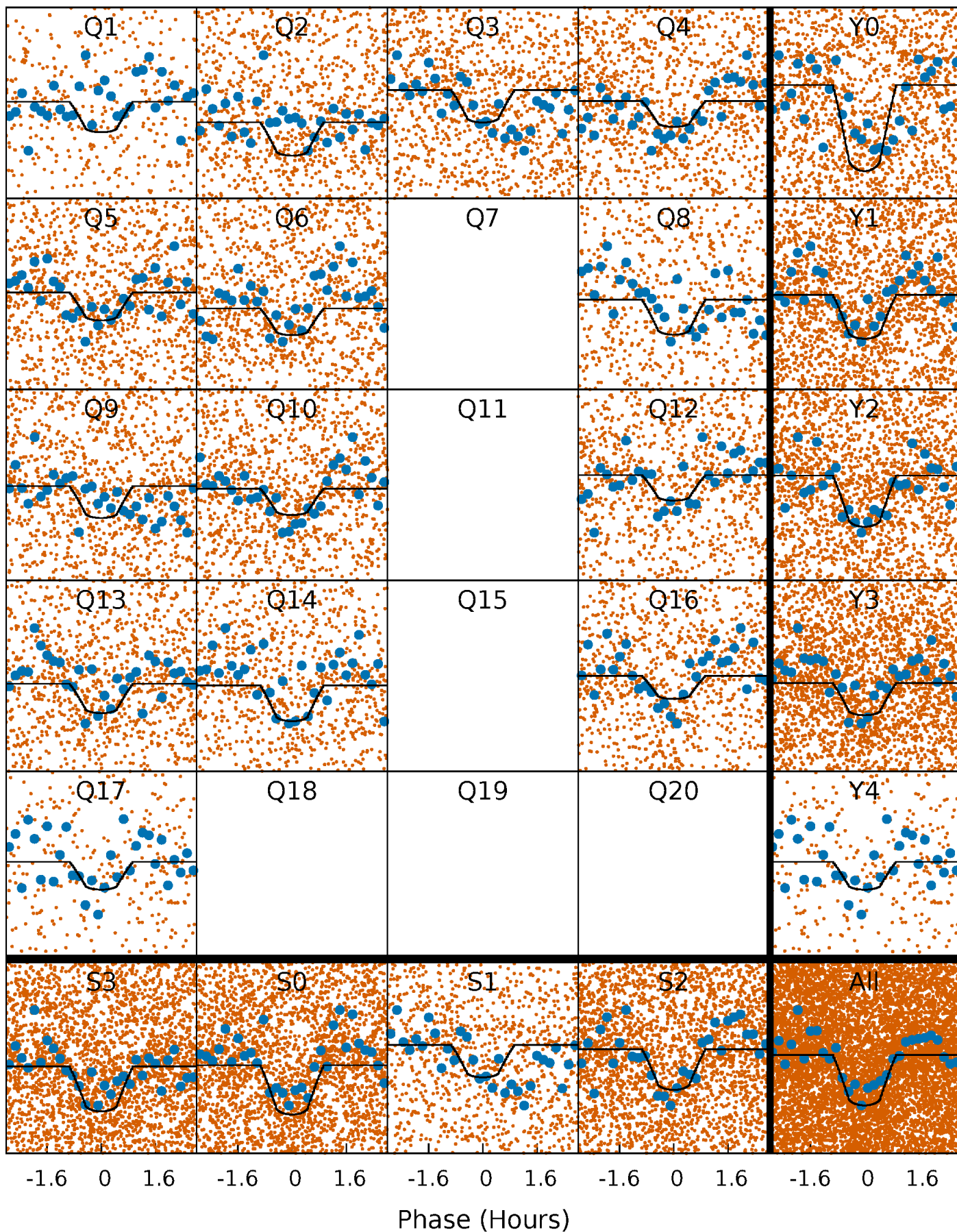
PDC Quarter-Phased Transit Curves

TCE 009970139-01 P= 0.545943 Days $T_0=131.712120$ (BKJD)



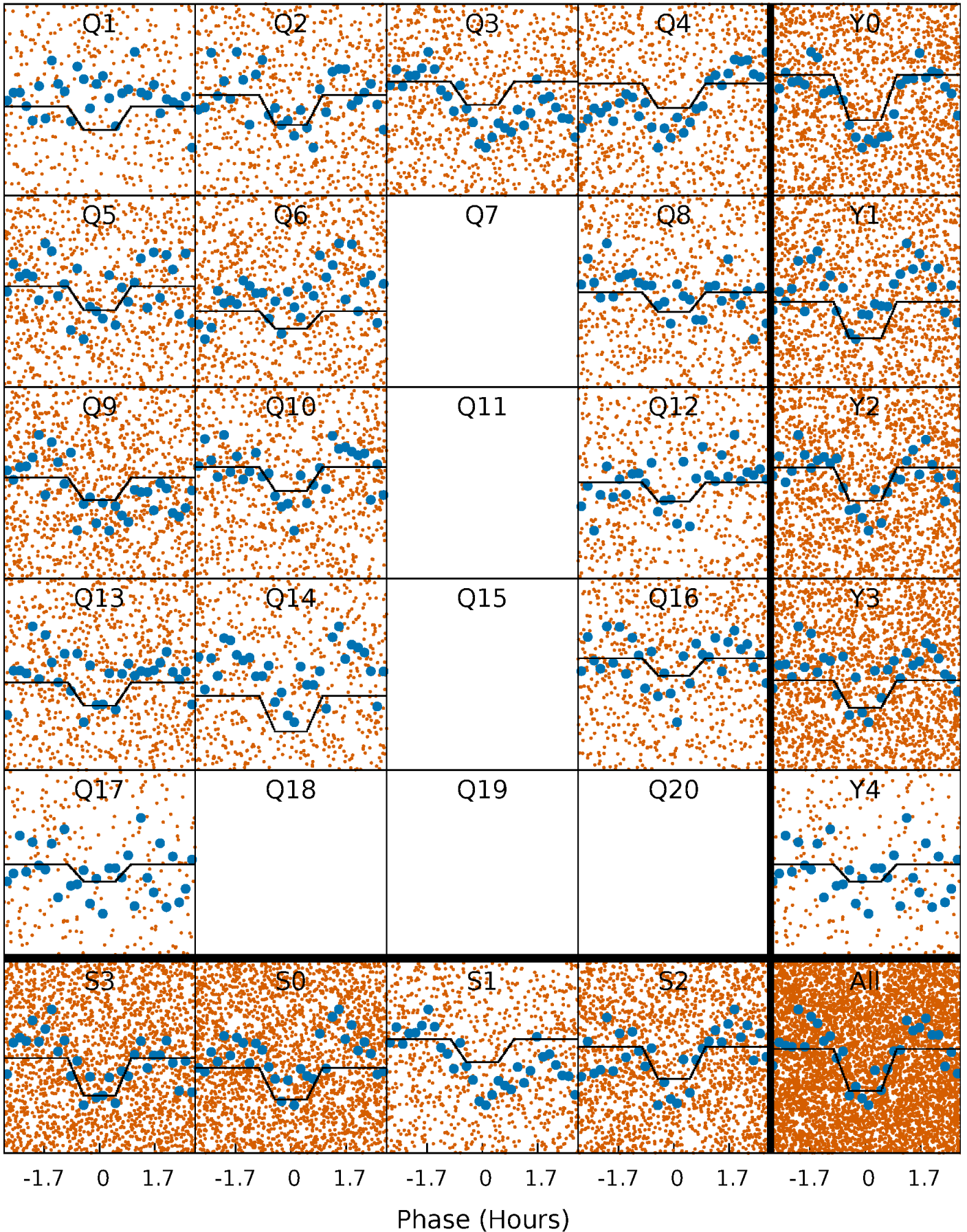
DV Quarter-Phased Transit Curves

TCE 009970139-01 P= 0.545943 Days $T_0=131.712120$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

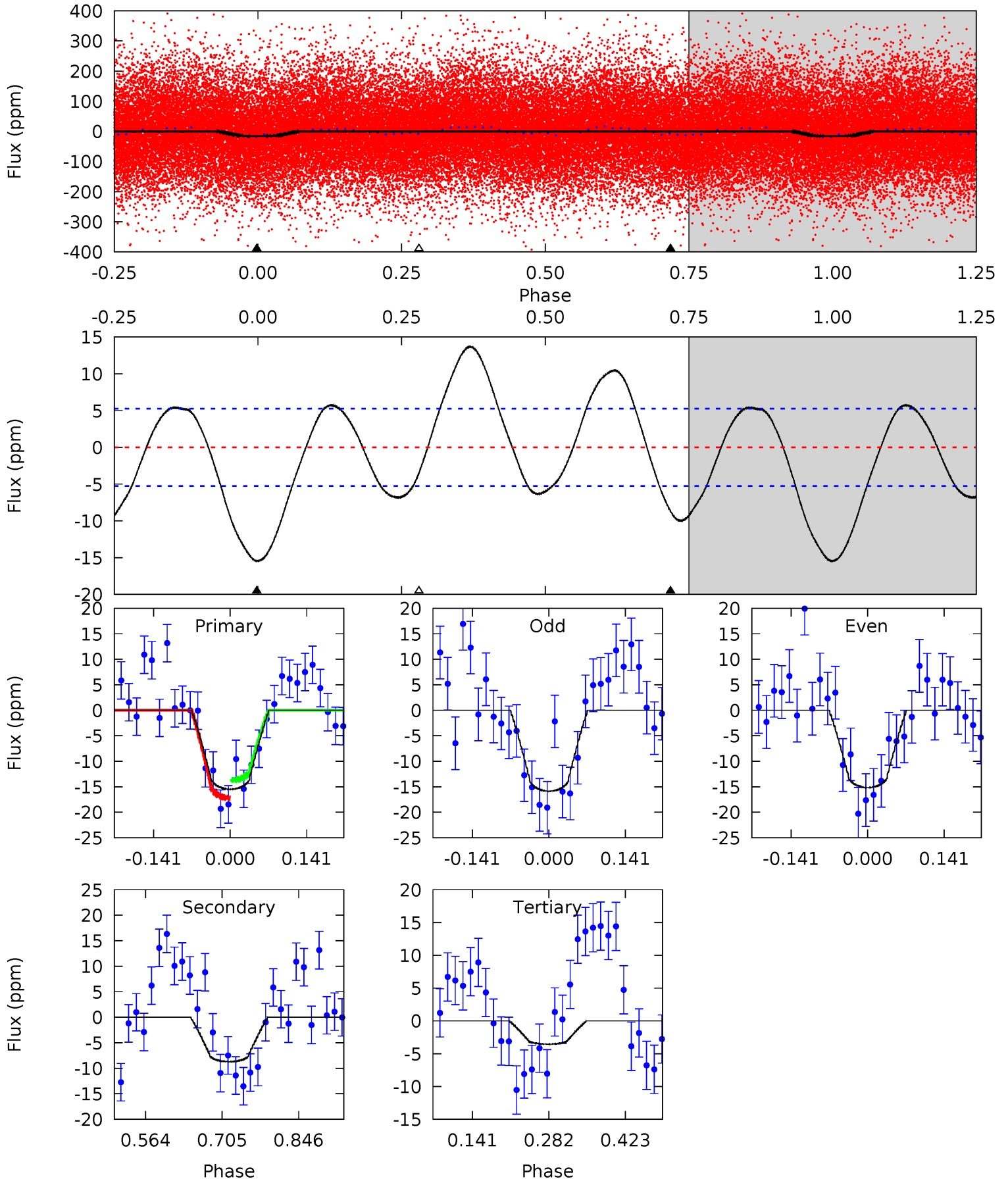
TCE 009970139-01 P= 0.545943 Days $T_0=131.712120$ (BKJD)



DV Model-Shift Uniqueness Test

009970139-01, P = 0.545943 Days, E = 131.166177 Days

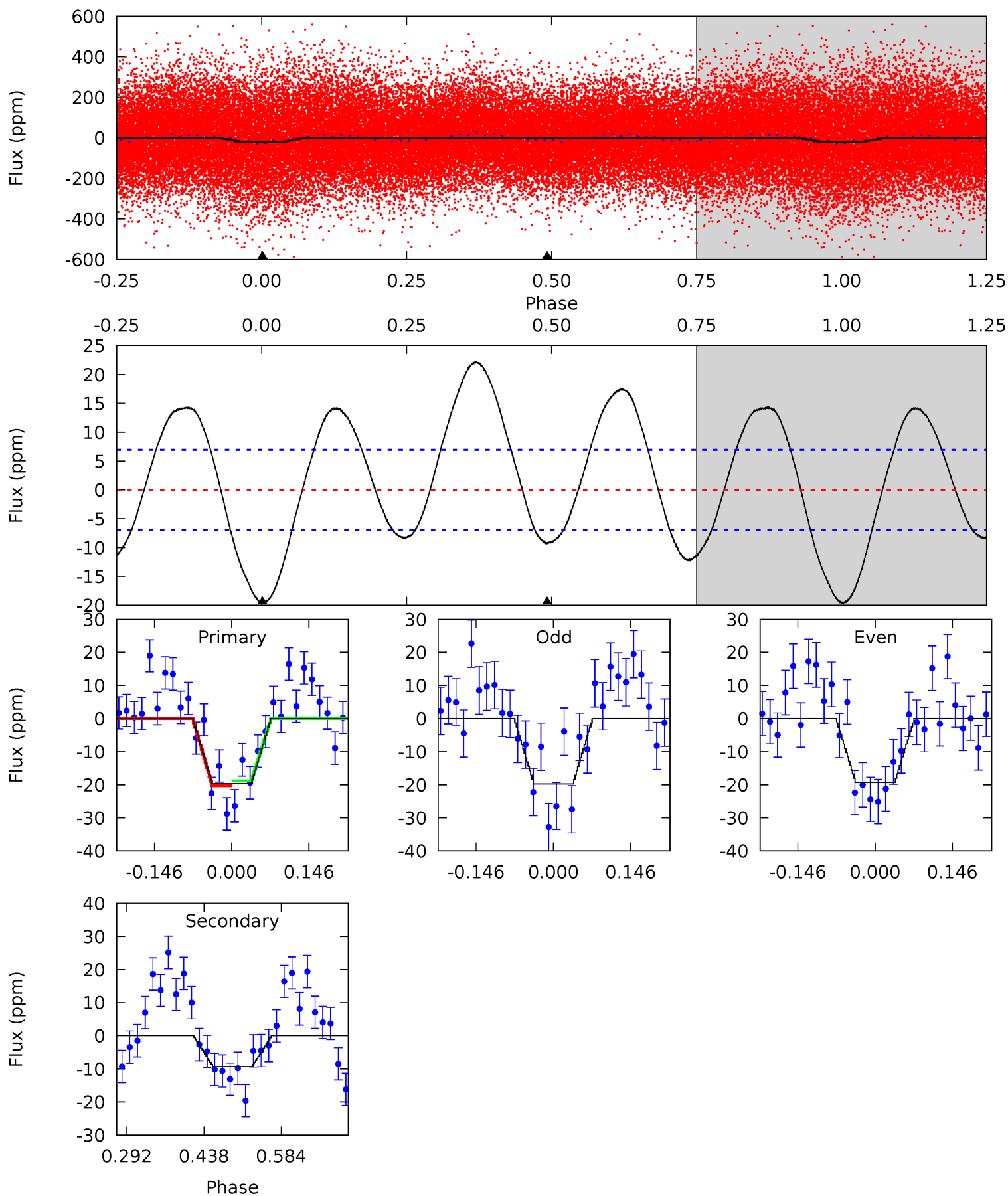
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	7.43	3.03	0	4.49	1.47	5.43	10.2	13.2	4.41	7.43	0.30	0.92	0.47	1.51



Alt Model-Shift Uniqueness Test

009970139-01, P = 0.545943 Days, E = 131.166177 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	5.99	0	0	4.48	1.45	5.62	12.7	12.7	5.99	5.99	0.13	1.13	0.53	0.48



Stellar Parameters For KIC 009970139

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7259^{+201}_{-316}	$4.167^{+0.109}_{-0.202}$	$-0.020^{+0.200}_{-0.350}$	$1.684^{+0.563}_{-0.303}$	$1.516^{+0.236}_{-0.236}$	$0.447^{+0.239}_{-0.236}$
	+3%/-4%	+3%/-5%	+1000%/-1750%	+33%/-18%	+16%/-16%	+54%/-53%
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 009970139-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-9 ± 1	$0.83^{+0.19}_{-0.13}$	4774^{+356}_{-290}	5492^{+519}_{-481}	$1.511^{+0.644}_{-0.476}$
Alt.	-9 ± 2	$0.84^{+0.17}_{-0.15}$	4762^{+398}_{-288}	5581^{+594}_{-526}	$1.581^{+0.743}_{-0.548}$

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

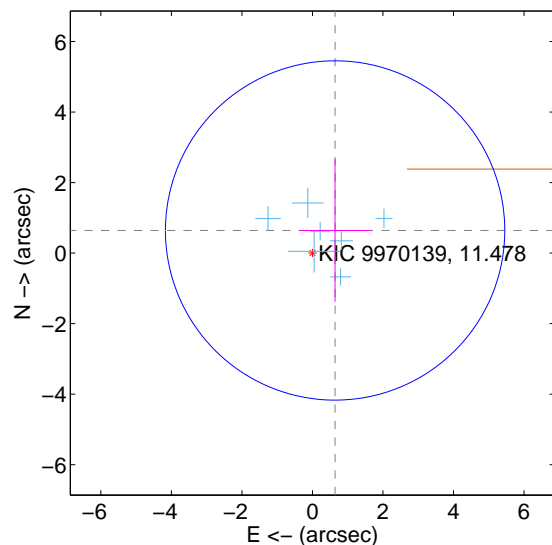
Supplemental centroid analysis for 009970139-01. **Kepler magnitude: 11.48.** Transit SNR 10.88

There are 7 quarters with good PRF difference image offsets

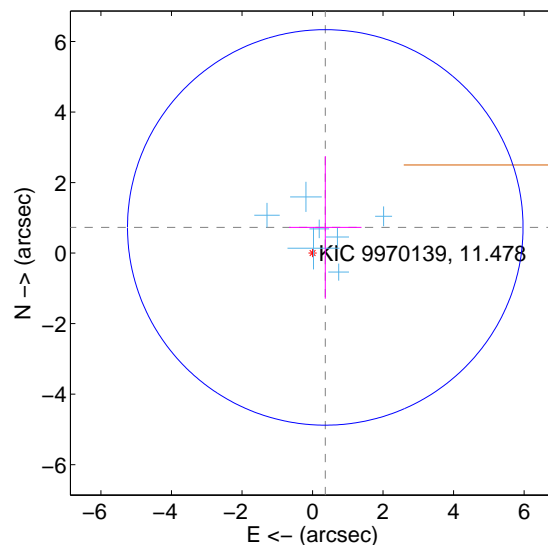
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.908 ± 1.603	0.57	-0.642 ± 1.025	0.641 ± 2.023
PRF-fit source offset from KIC position	0.813 ± 1.869	0.44	-0.362 ± 1.025	0.728 ± 2.023
photometric centroid source offset	0.82 ± 0.61	1.35	-0.67 ± 0.62	0.47 ± 0.58

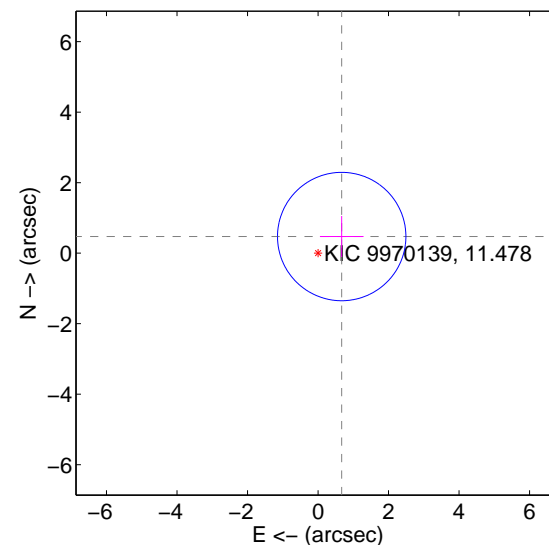
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

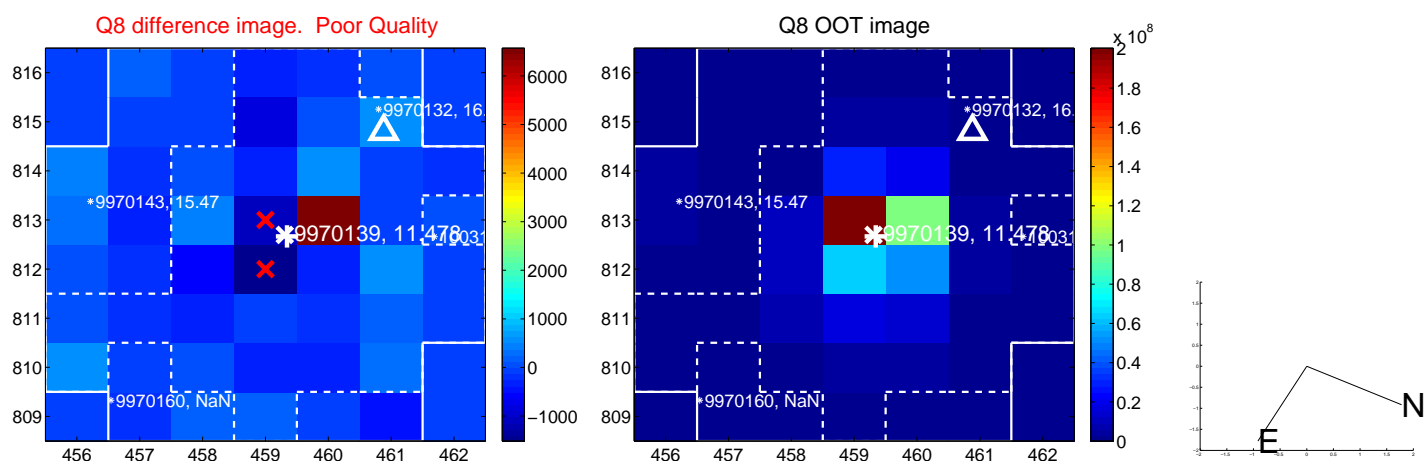
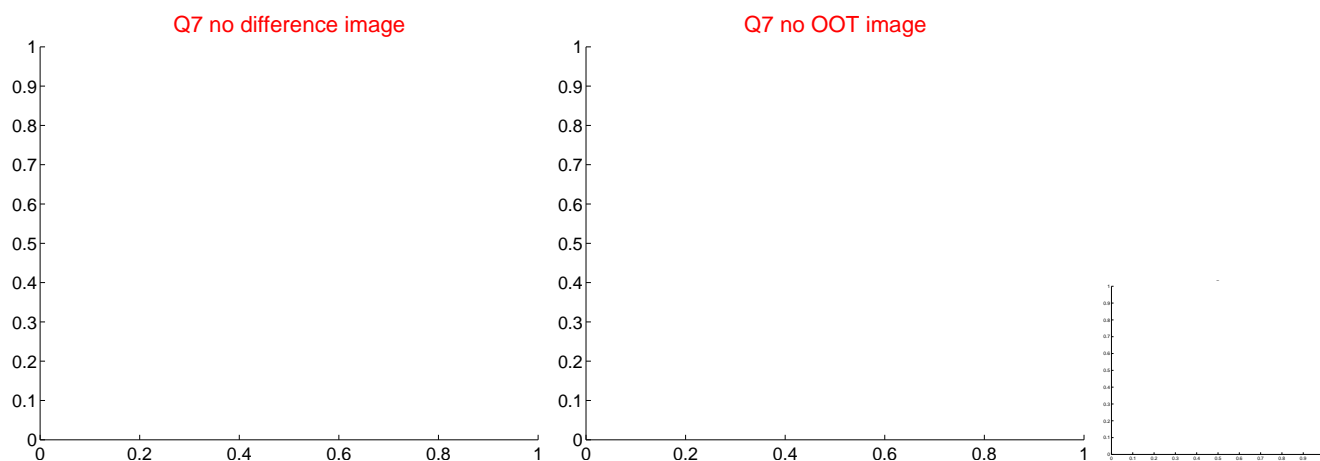
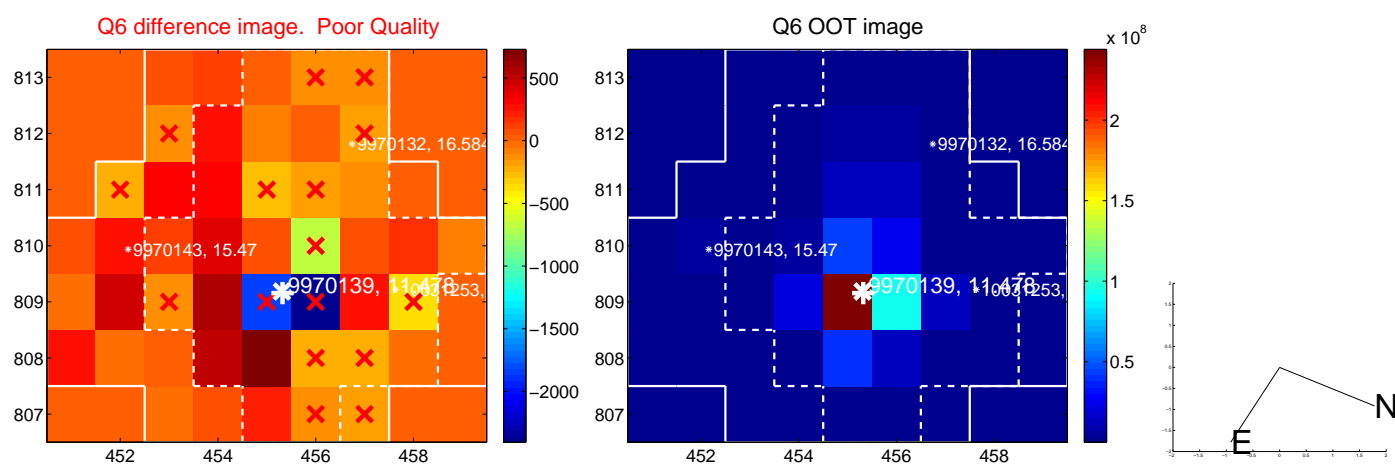
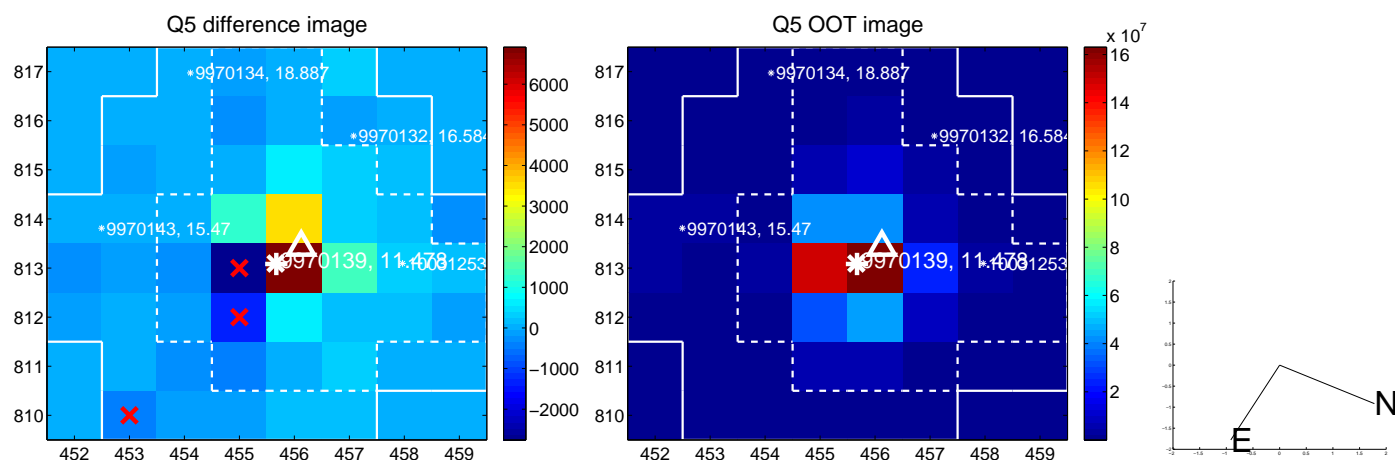


offset from photometric centroids

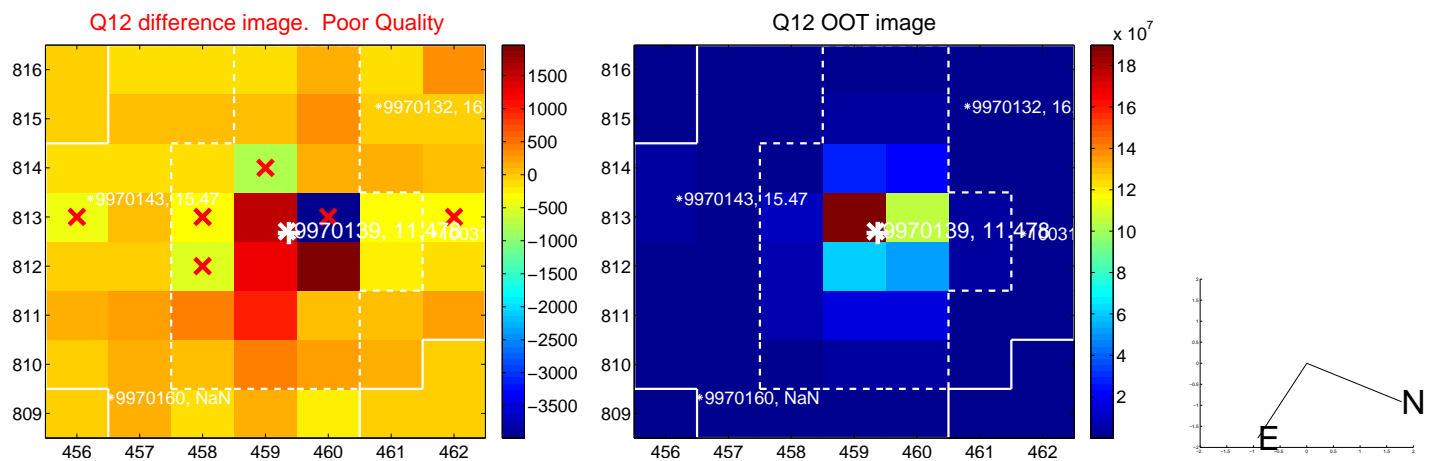
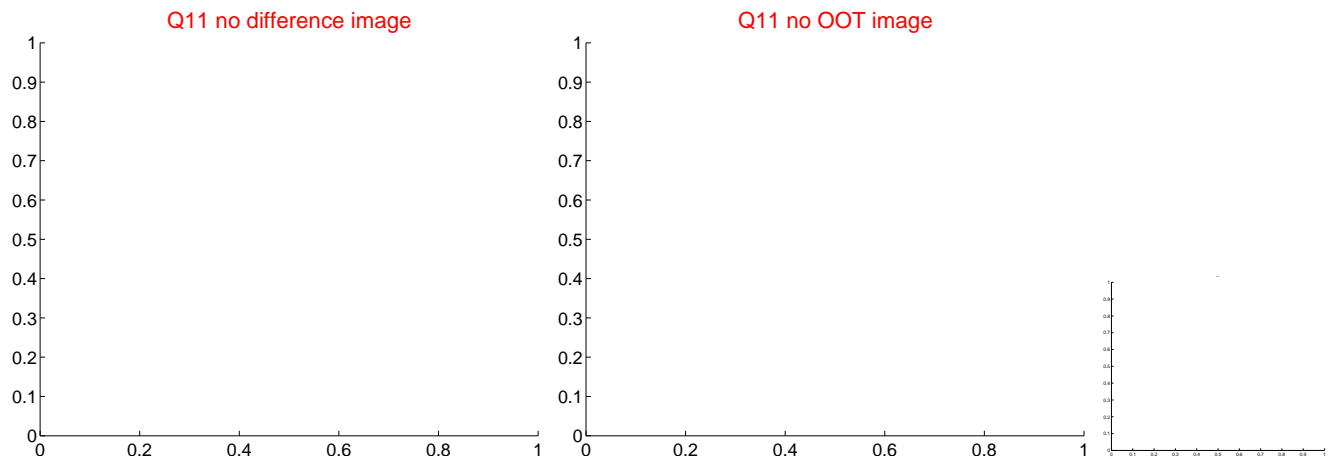
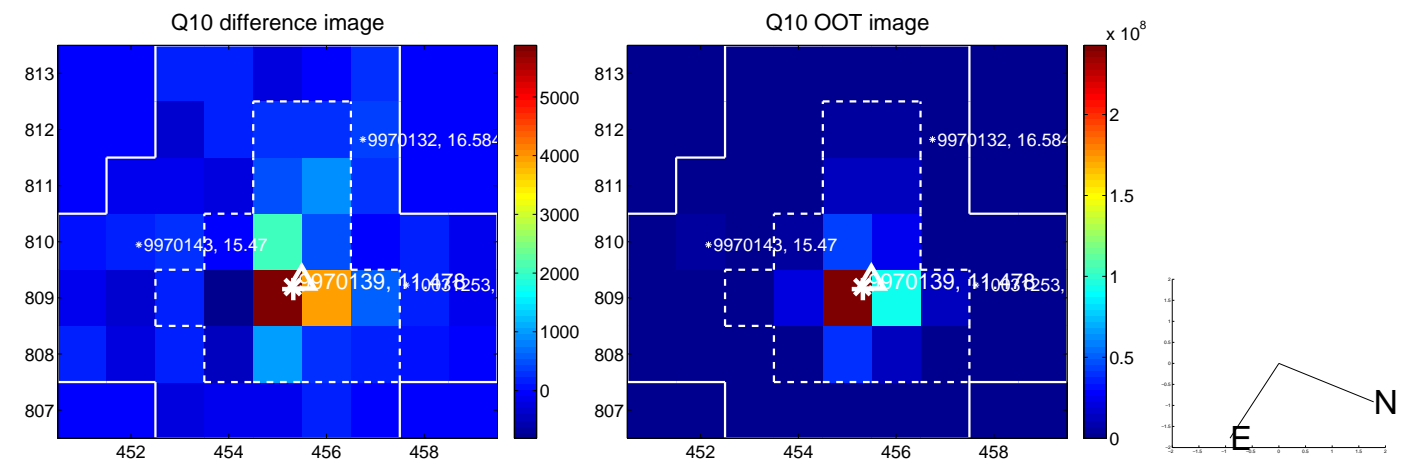
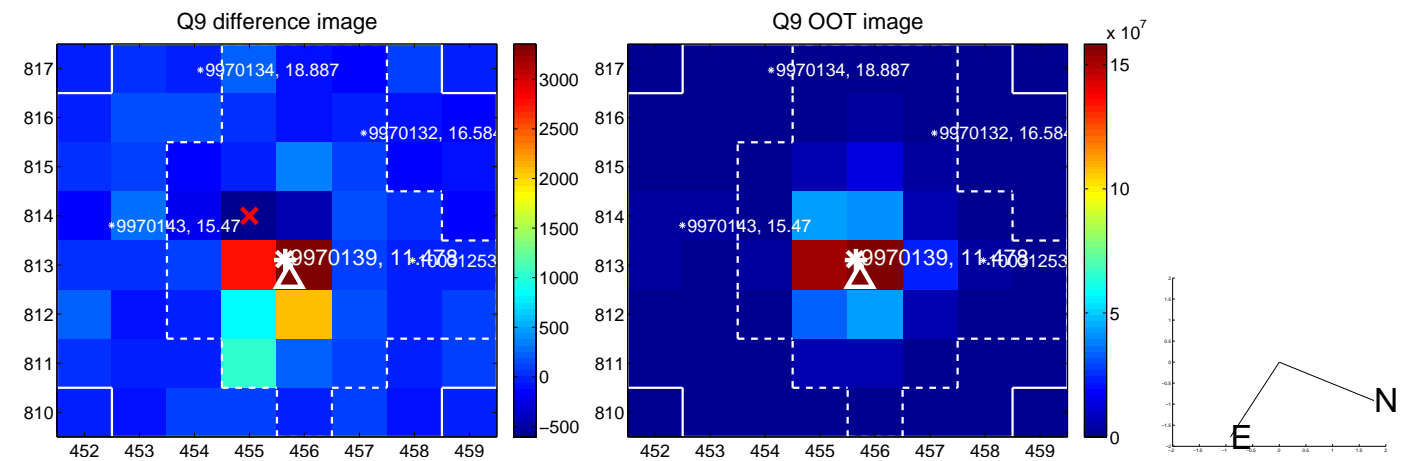


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

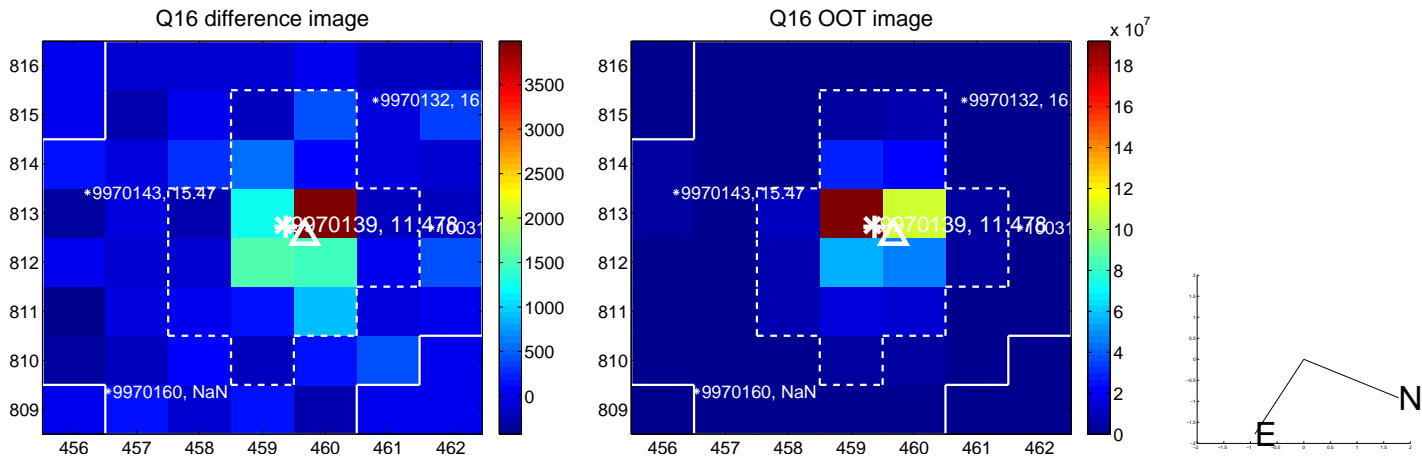
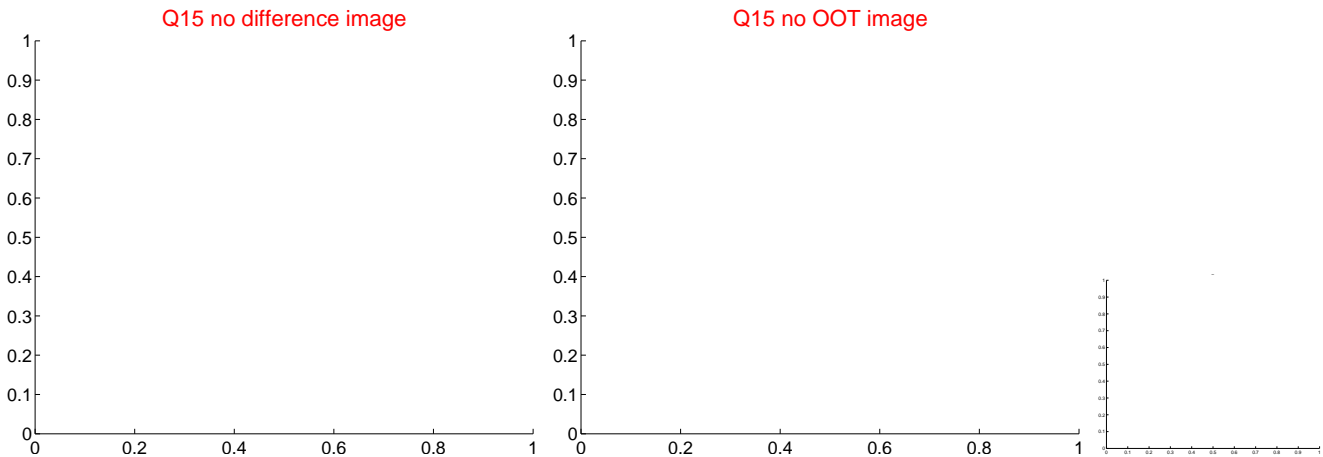
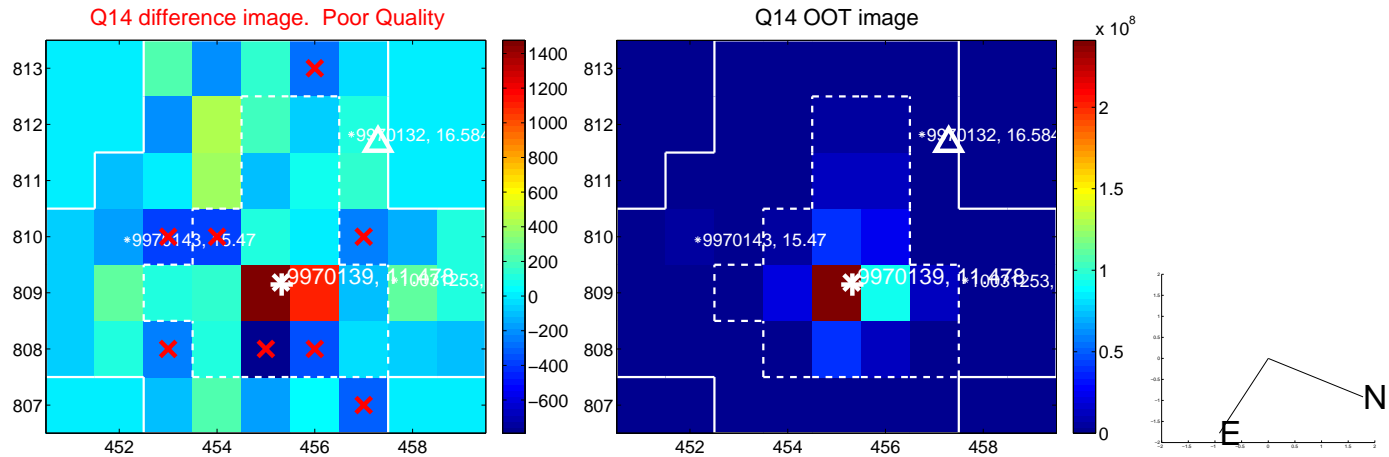
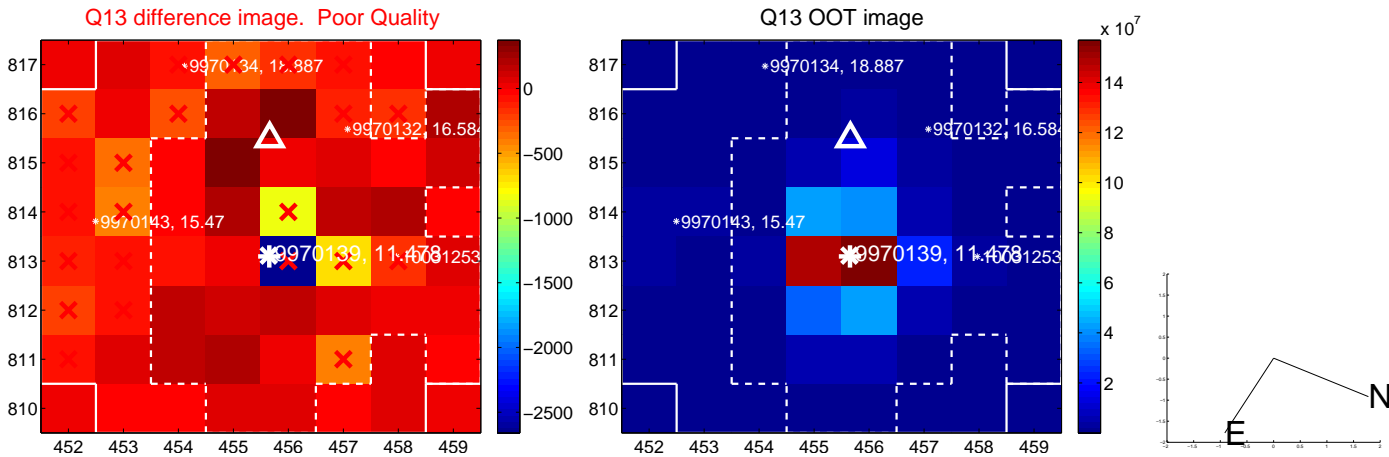
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

