

KIC 009518651

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
009518651-01	OBS	4433.01	2.178213	132.009253	41.6	2.102	8.4	9.1	0.97	6052	0.66	1114.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009518651-01	OBS	FP	0.00	0	0	1	1	CENT_FEW_DIFFS—HALO_GHOST—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.

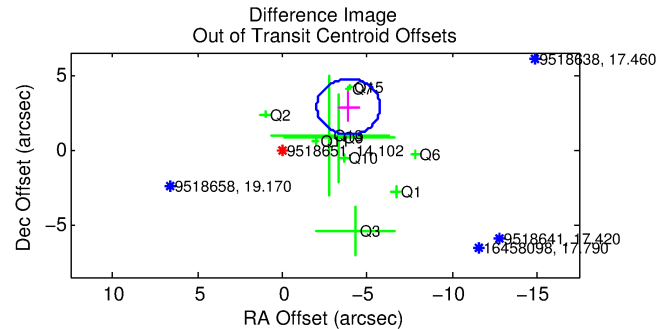
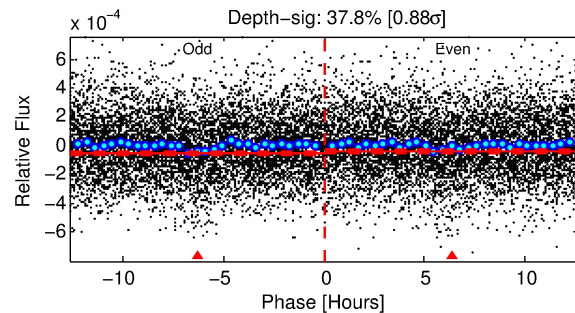
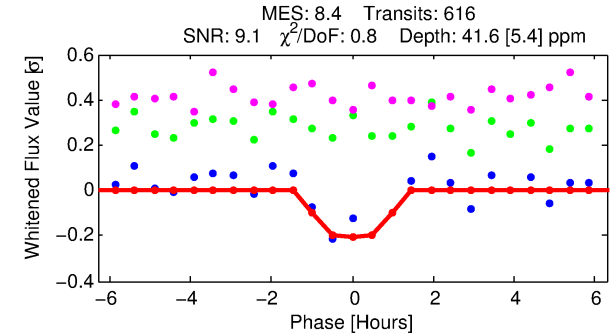
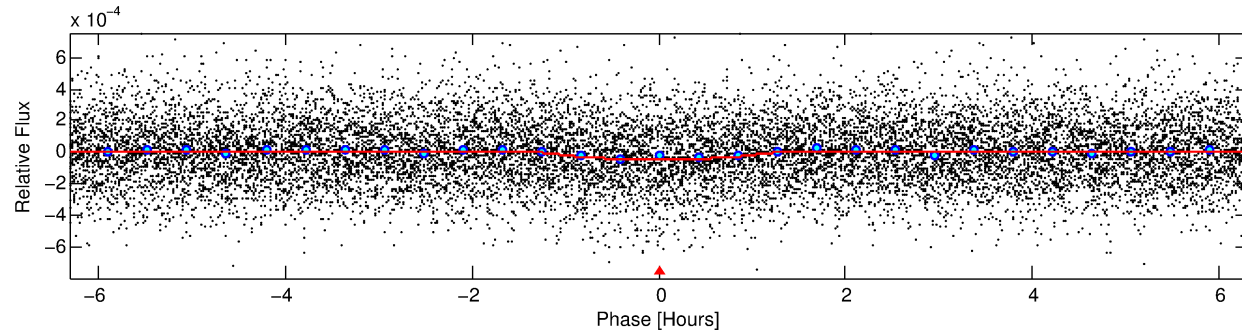
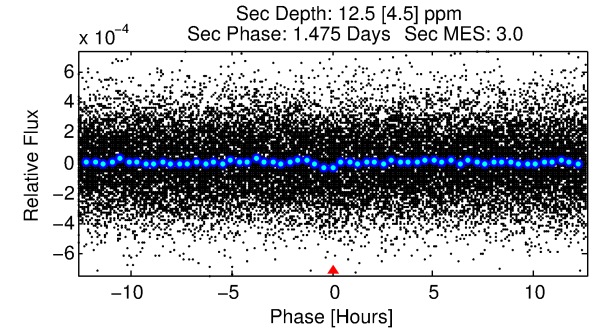
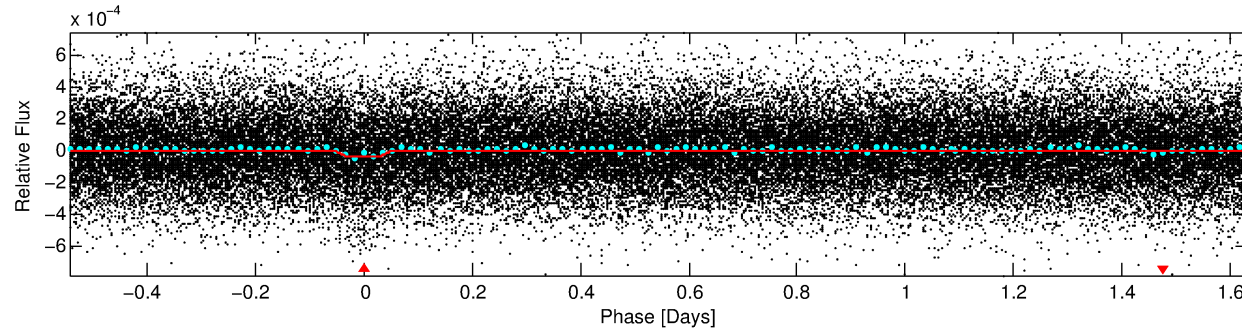
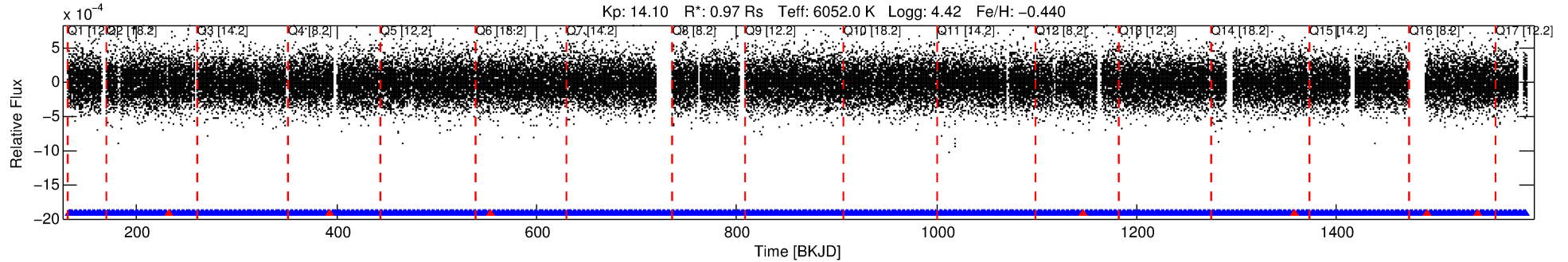
Ephemeris Match Information For 009518651-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
009518651-01	9518651	FL-Lyr-pri	9641031	1:1	771.8	-194	2	9.18	14.11	10359.00	Direct-PRF	0	1.86	0.75

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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 σ_P < 5.0 and σ_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: 9518651 Candidate: 1 of 1 Period: 2.178 d
KOI: K04433.01 Corr: 0.978



DV Fit Results:

Period = 2.17821 [0.00002] d
Epoch = 132.0093 [0.0039] BKJD
Rp/R* = 0.0062 [0.0022]
a/R* = 6.35 [10.84]
b = 0.62 [1.78]
Seff = 1114.91 [390.47]
Teq = 1473 [129] K
Rp = 0.66 [0.29] Re
a = 0.0318 [0.0072] AU
Ag = 16.17 [13.75] [1.10σ]
Teffp = 4569 [905] K [3.38σ]

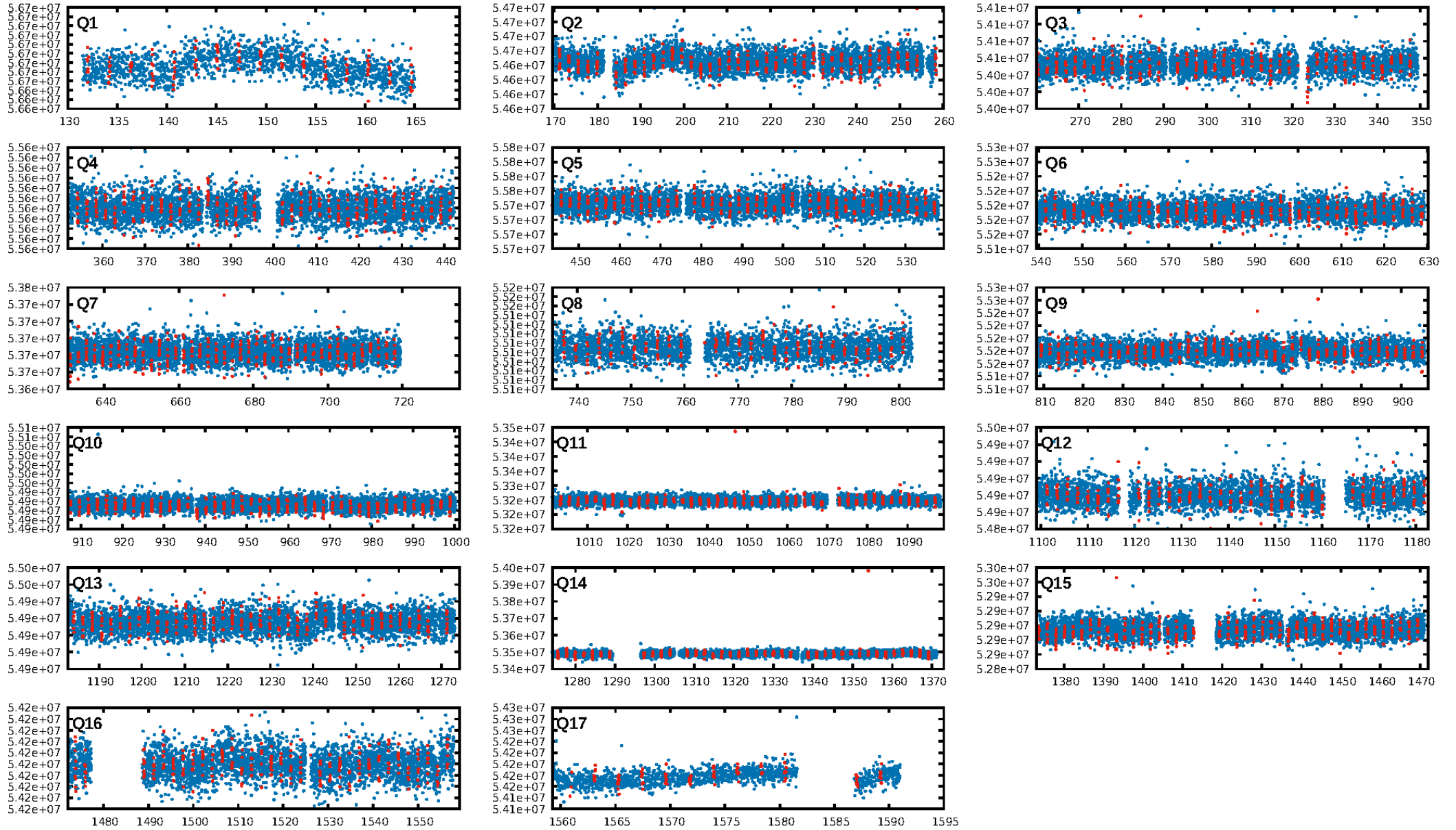
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.23e-17
RollingBand-fgt: 0.99 [581/588]
GhostDiagnostic-chr: 0.1482
Centroid-sig: 0.0%
Centroid-so: 9.324 arcsec [5.82σ]
OotOffset-rm: 4.838 arcsec [7.80σ]
KicOffset-rm: 4.974 arcsec [7.35σ]
OotOffset-st: 3/4/0/3 [10]
KicOffset-st: 3/4/0/3 [10]
DiffImageQuality-fgm: 0.00 [0/10]
DiffImageOverlap-fno: 1.00 [17/17]

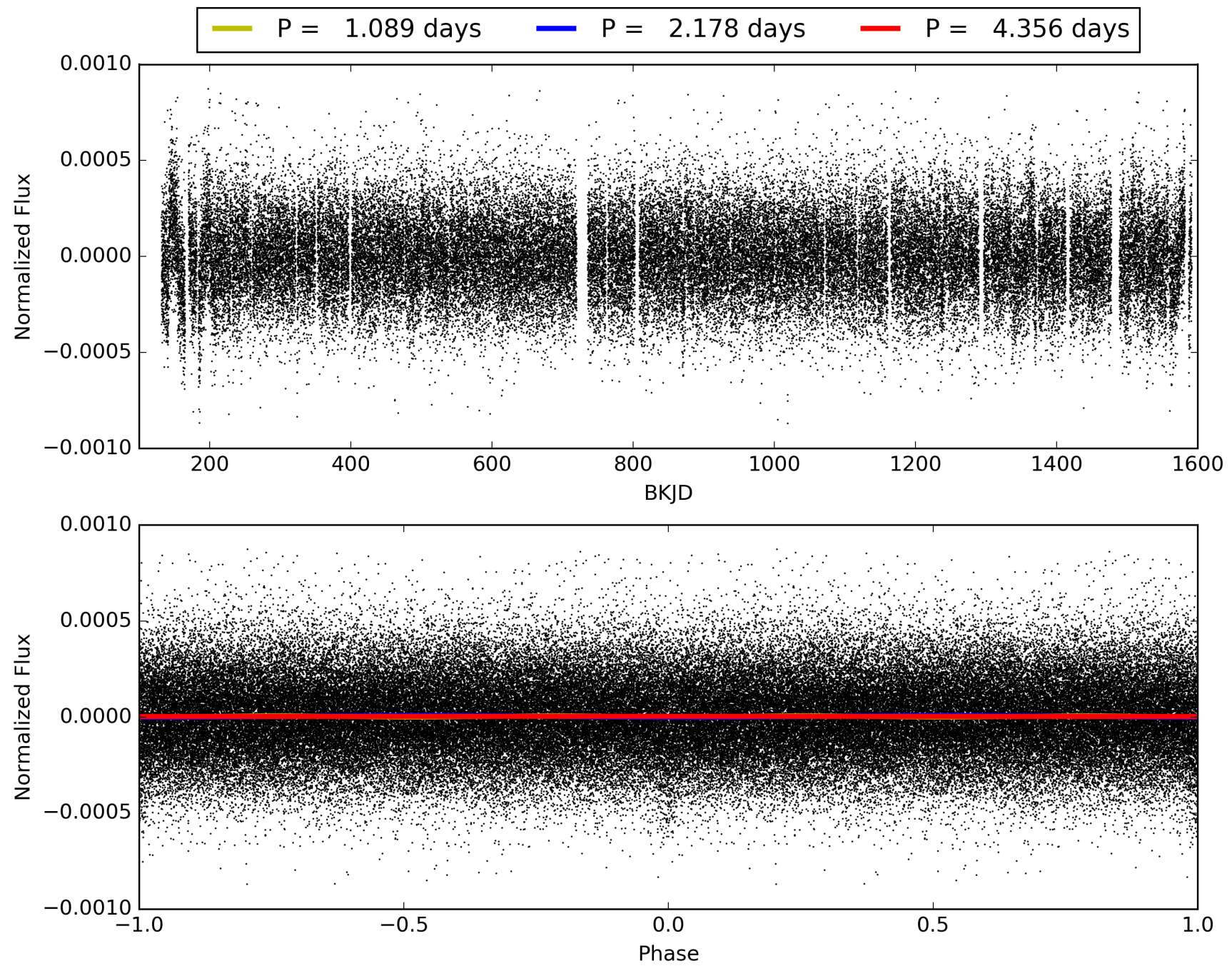
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:01:36 Z

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

TCE 009518651-01, PDC Light Curves

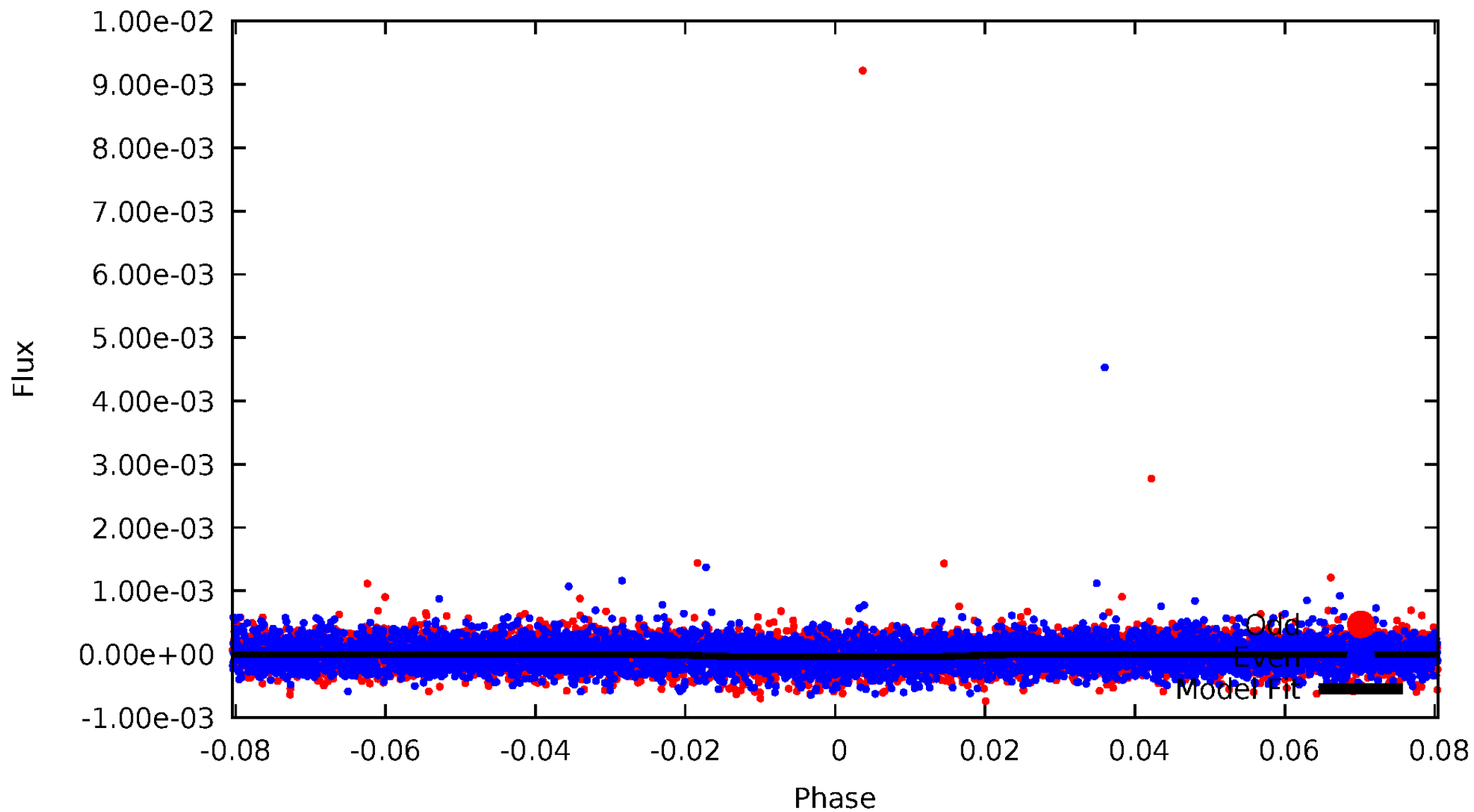


TCE 009518651-01



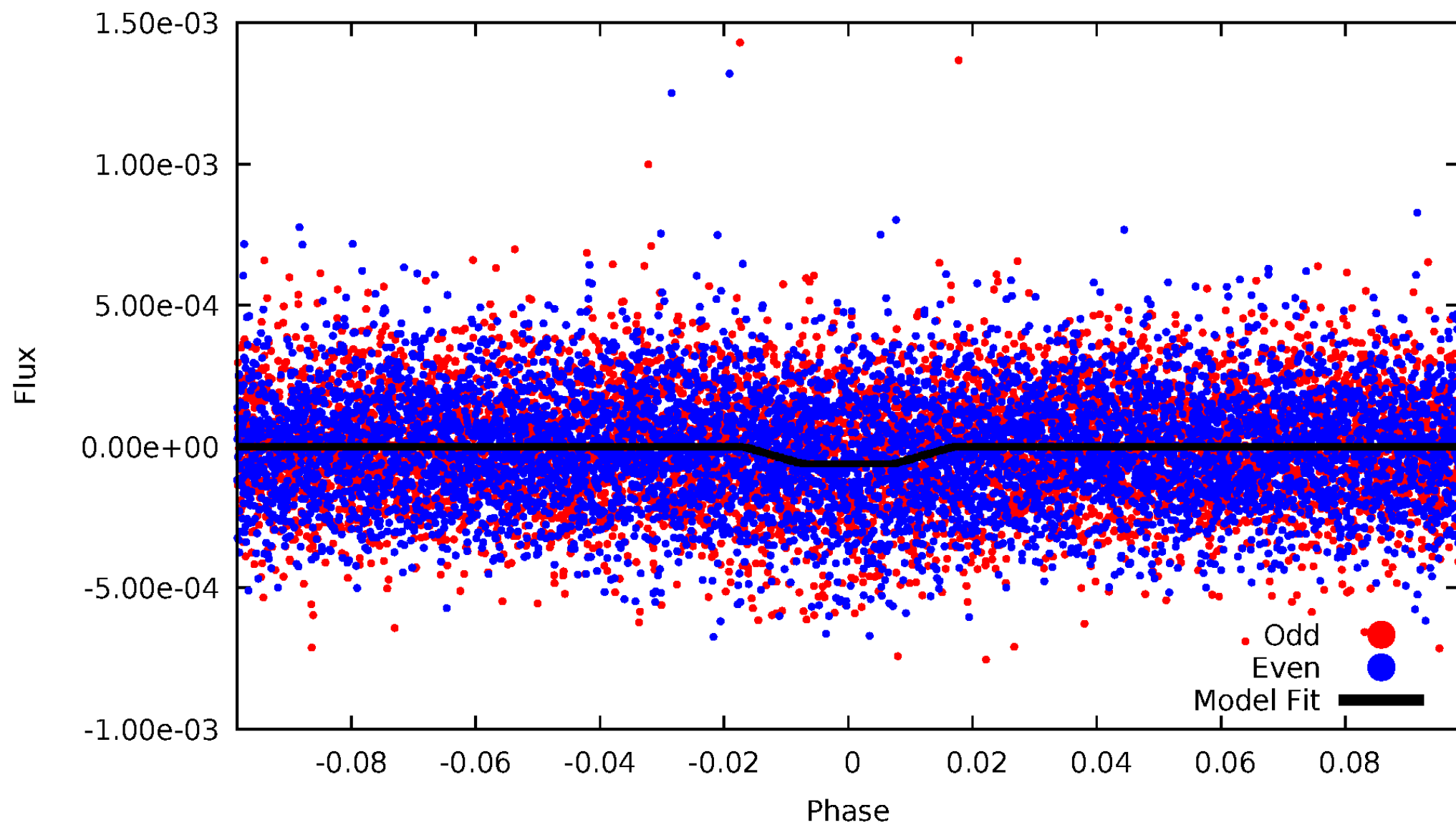
DV Odd/Even

TCE 009518651-01



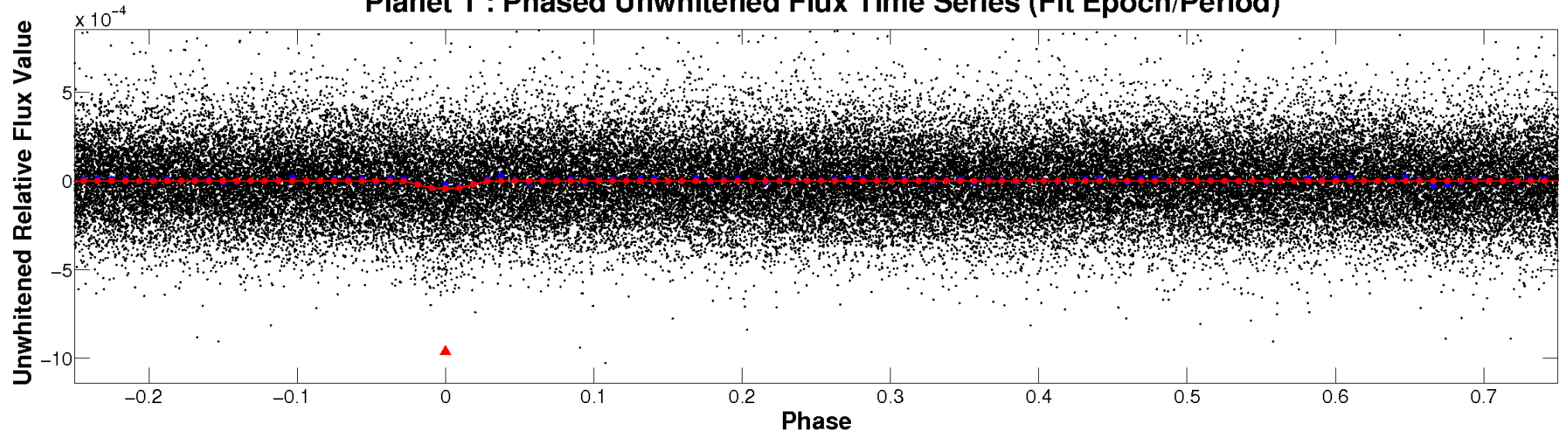
ALT Odd/Even

TCE 009518651-01

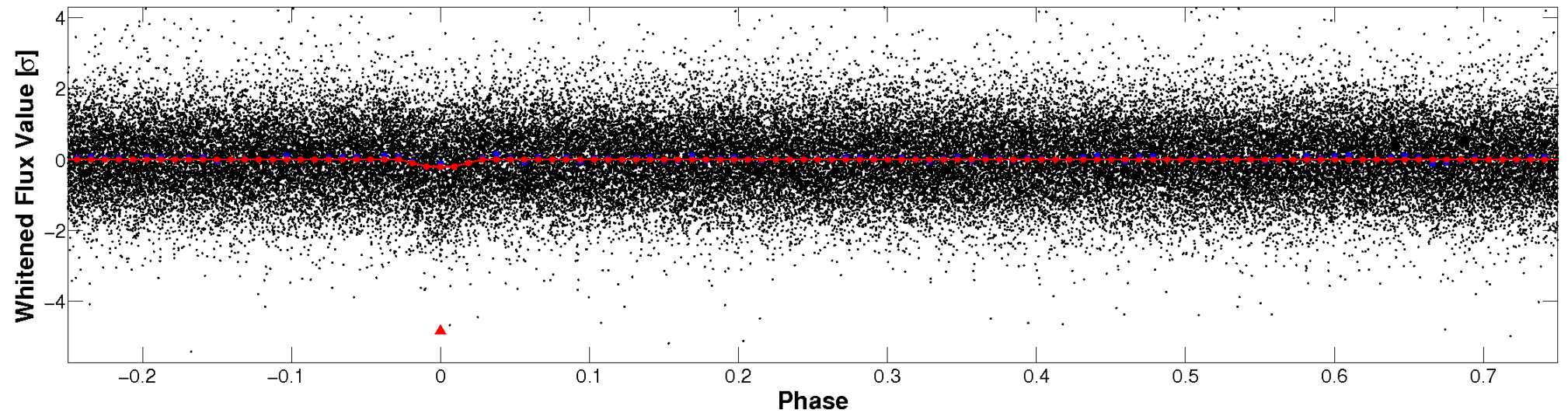


Non-Whitened Vs. Whitened Light Curve

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

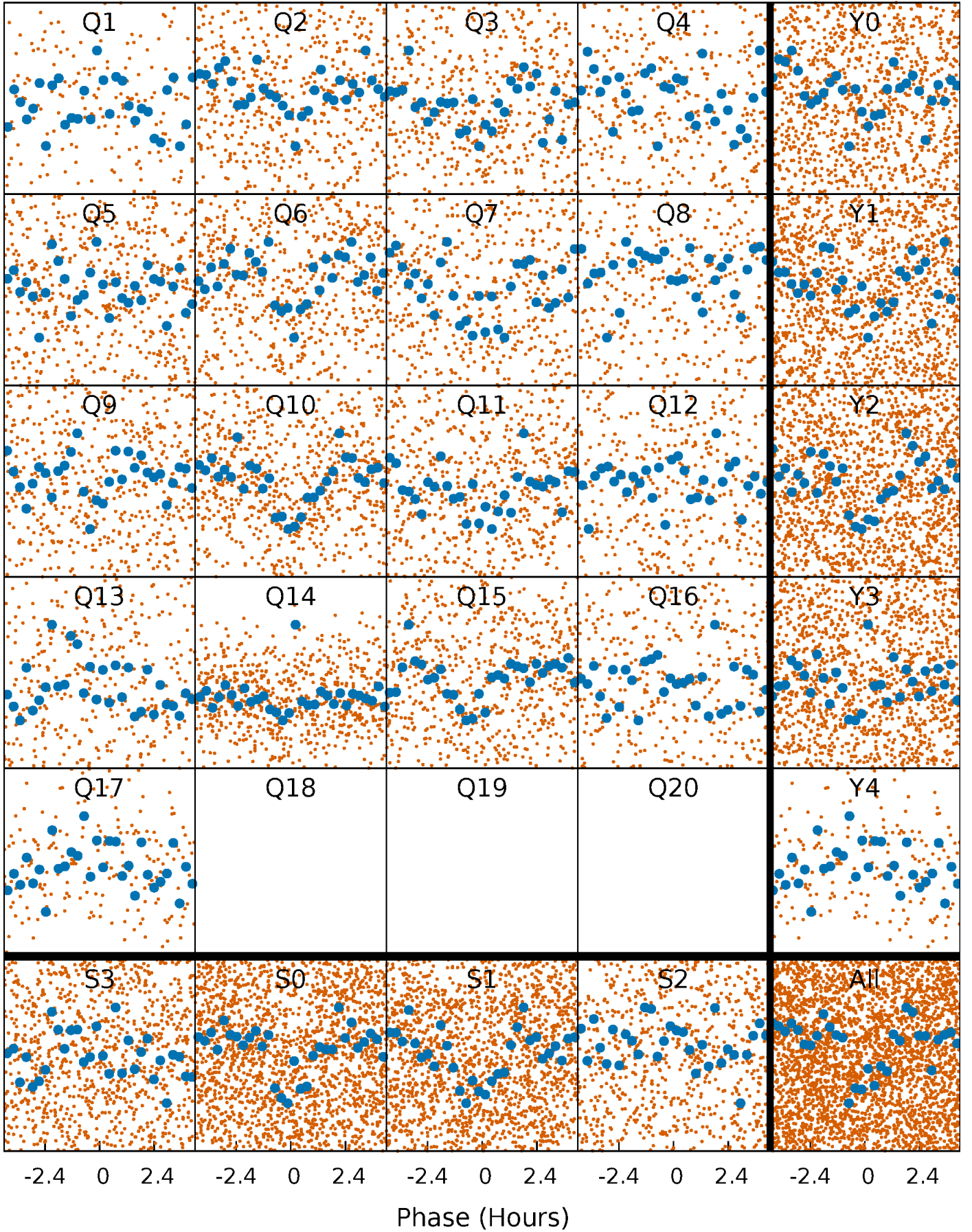


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



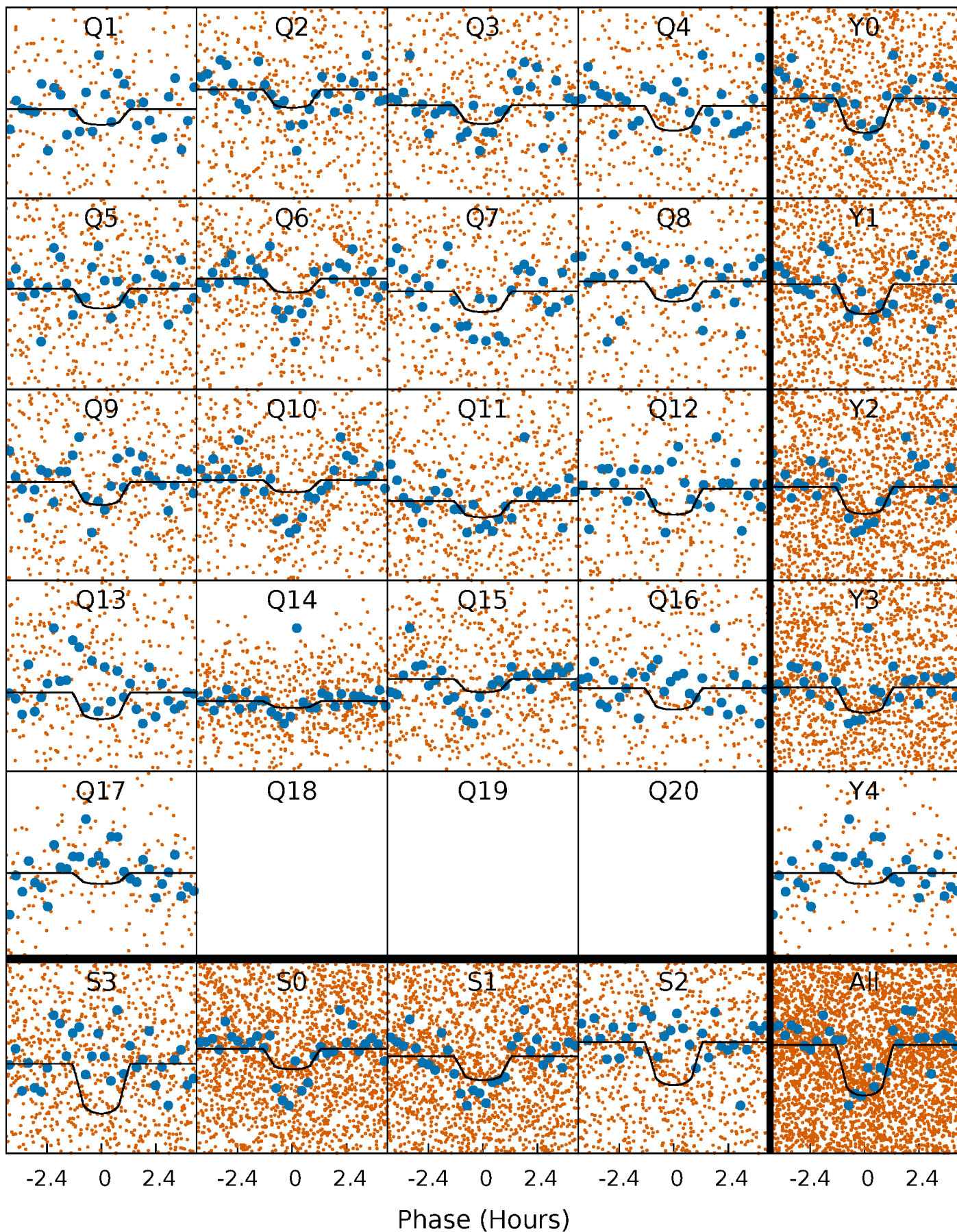
PDC Quarter-Phased Transit Curves

TCE 009518651-01 P= 2.178213 Days $T_0=132.009253$ (BKJD)



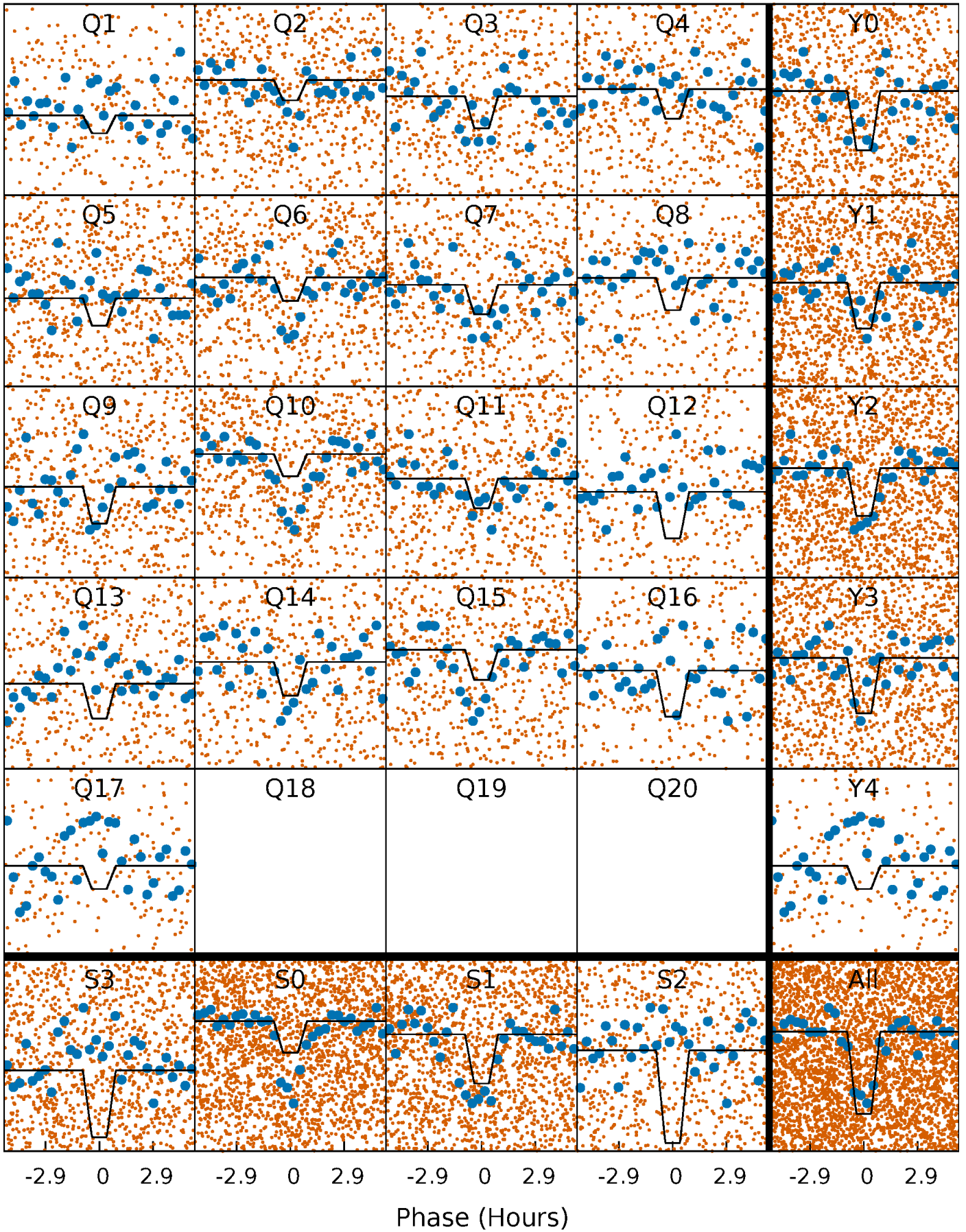
DV Quarter-Phased Transit Curves

TCE 009518651-01 P= 2.178213 Days $T_0=132.009253$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

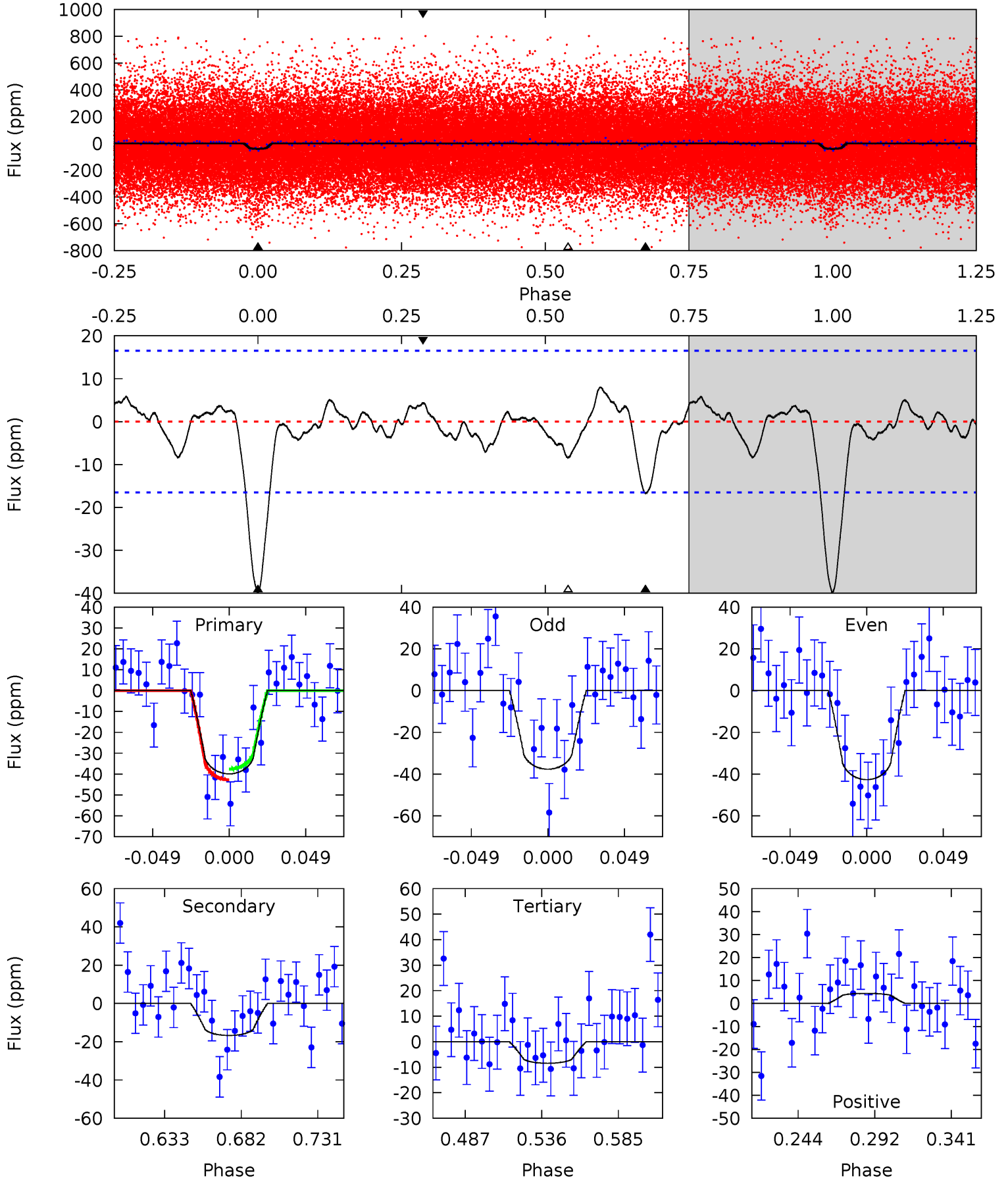
TCE 009518651-01 P= 2.178192 Days $T_0=132.014547$ (BKJD)



DV Model-Shift Uniqueness Test

009518651-01, P = 2.178213 Days, E = 129.831040 Days

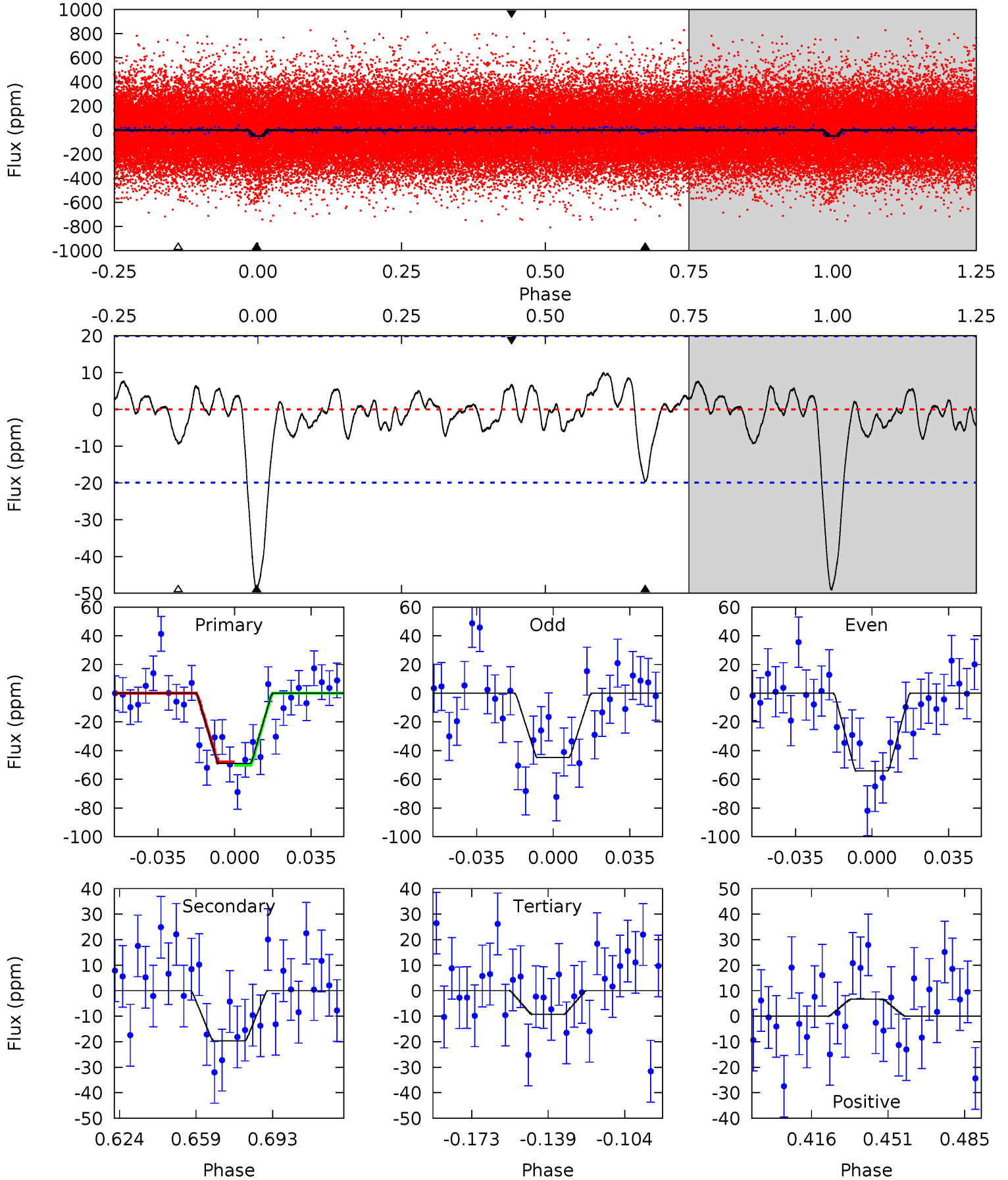
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	4.77	2.41	1.25	4.71	1.97	0.98	8.98	10.1	2.36	3.52	0.71	0.88	0.17	0.74



Alt Model-Shift Uniqueness Test

009518651-01, P = 2.178192 Days, E = 129.836355 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	4.72	2.23	1.60	4.78	2.11	0.94	9.54	10.2	2.48	3.12	1.13	1.13	0.17	0.28



Stellar Parameters For KIC 009518651

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6052^{+163}_{-181}	$4.422^{+0.105}_{-0.180}$	$-0.440^{+0.300}_{-0.300}$	$0.969^{+0.260}_{-0.140}$	$0.905^{+0.109}_{-0.099}$	$1.402^{+0.737}_{-0.695}$
	+3%/-3%	+2%/-4%	+68%/-68%	+27%/-14%	+12%/-11%	+53%/-50%
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 009518651-01 / KOI 4433.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-17 ± 4	$0.67^{+0.27}_{-0.25}$	2074^{+132}_{-107}	4949^{+1289}_{-615}	21^{+32}_{-11}
Alt.	-20 ± 4	$0.83^{+0.27}_{-0.25}$	2077^{+145}_{-117}	4750^{+708}_{-511}	16^{+15}_{-7}

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

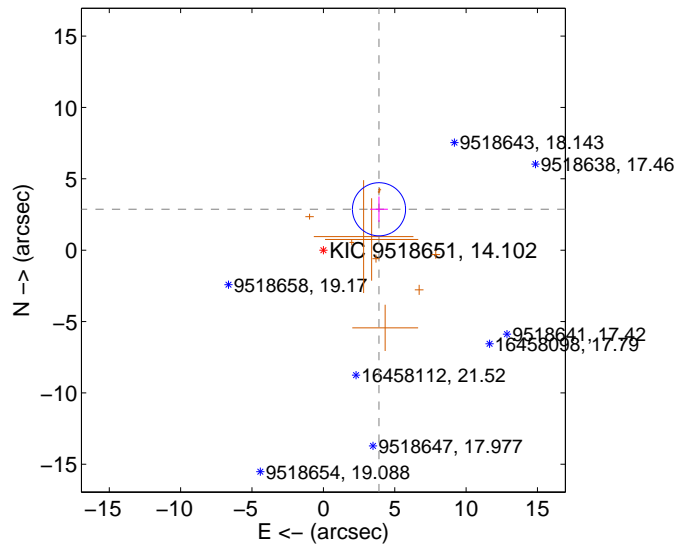
Supplemental centroid analysis for 009518651-01. Kepler magnitude: 14.10. Transit SNR 9.05

There are 0 quarters with good PRF difference image offsets

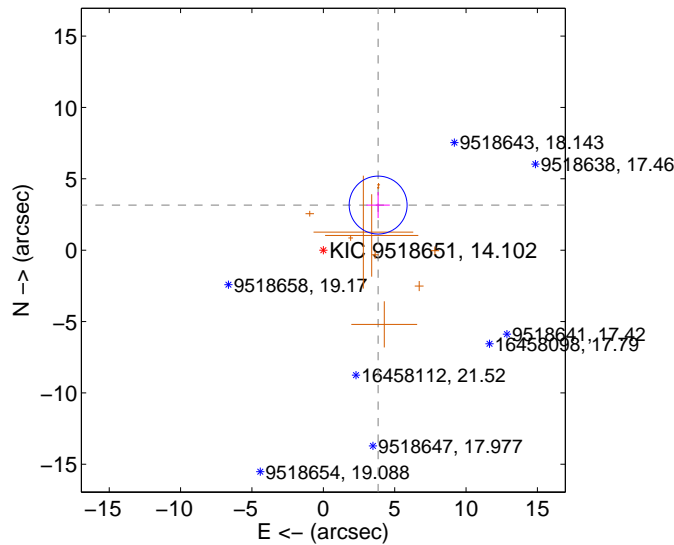
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.838 ± 0.621	7.80	-3.898 ± 0.626	2.865 ± 0.890
PRF-fit source offset from KIC position	4.974 ± 0.676	7.35	-3.841 ± 0.814	3.160 ± 0.910
photometric centroid source offset	9.32 ± 1.60	5.82	-9.17 ± 1.60	1.67 ± 1.55

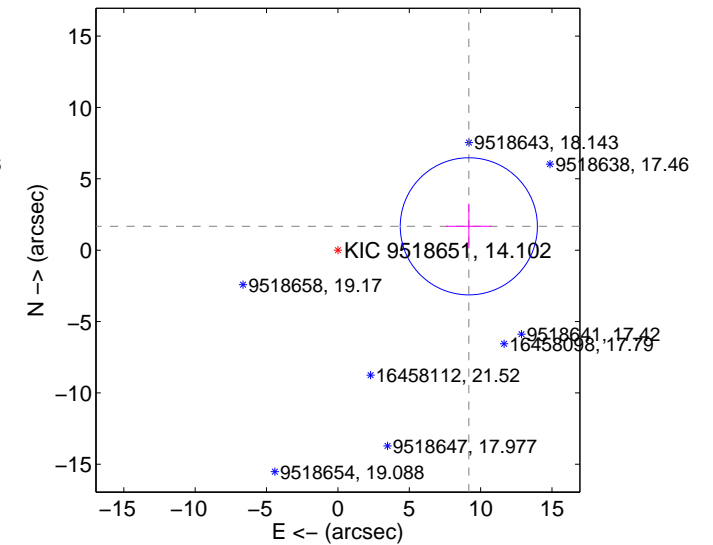
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

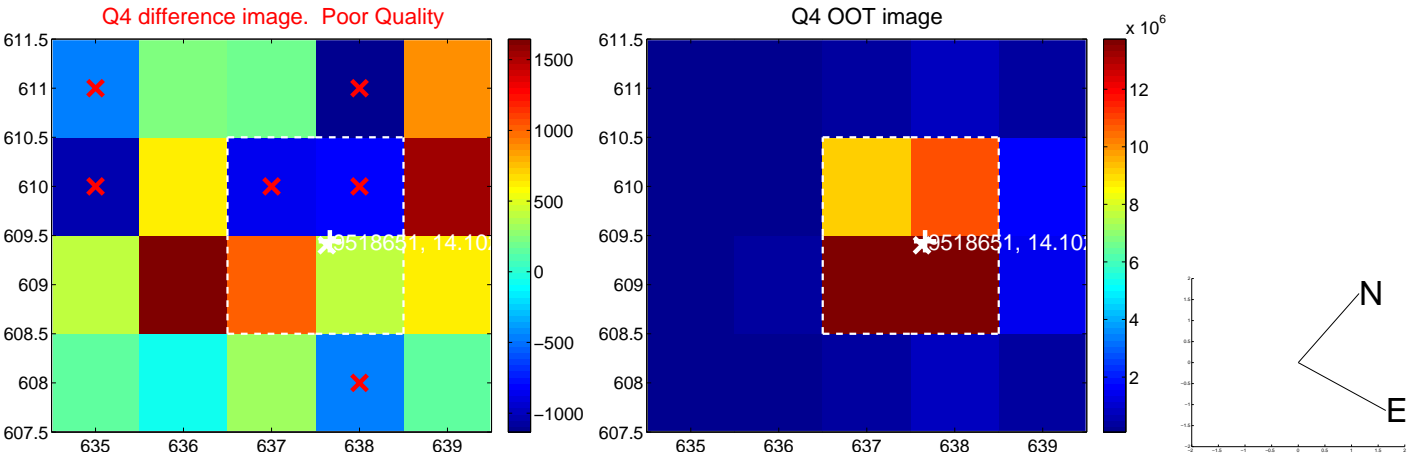
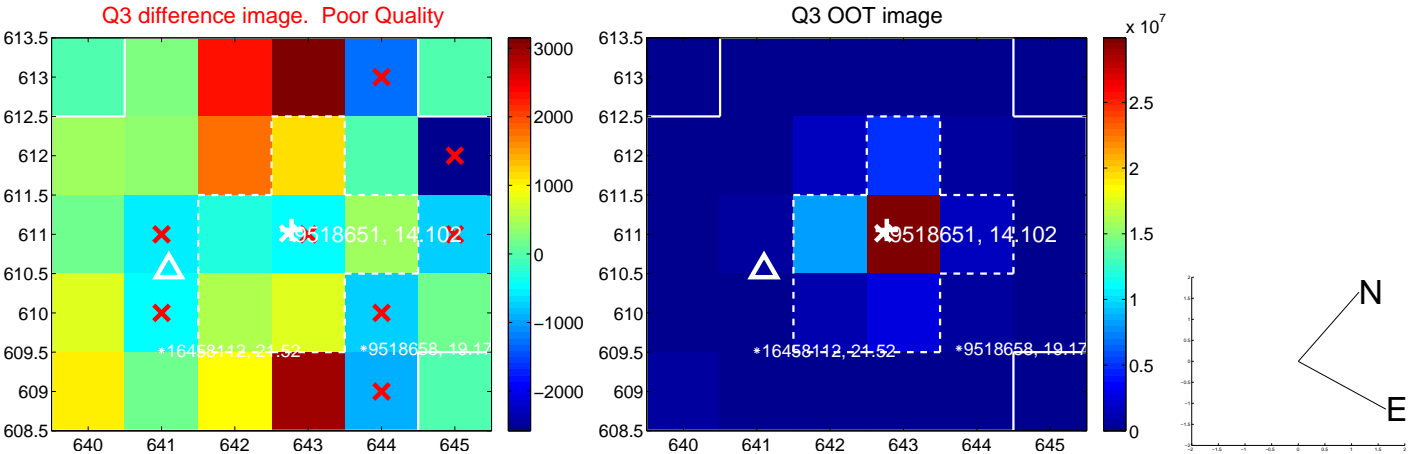
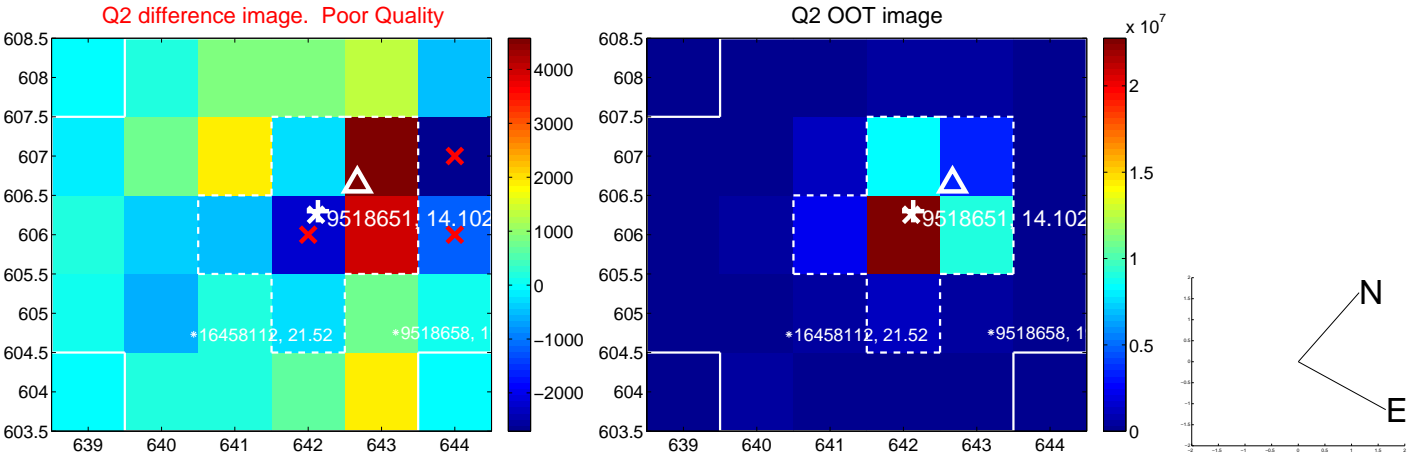
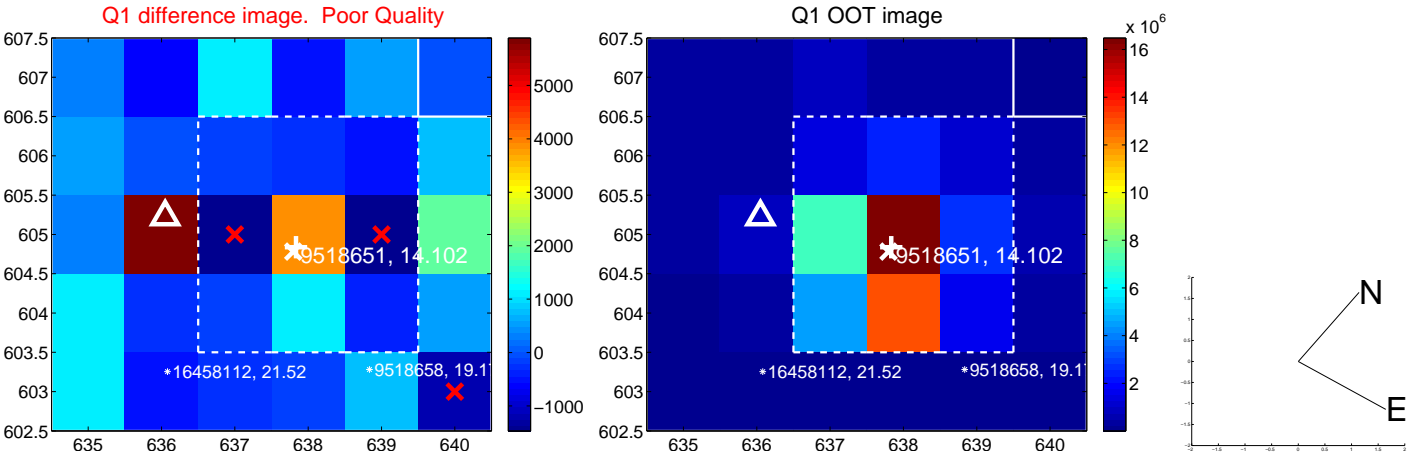


offset from photometric centroids

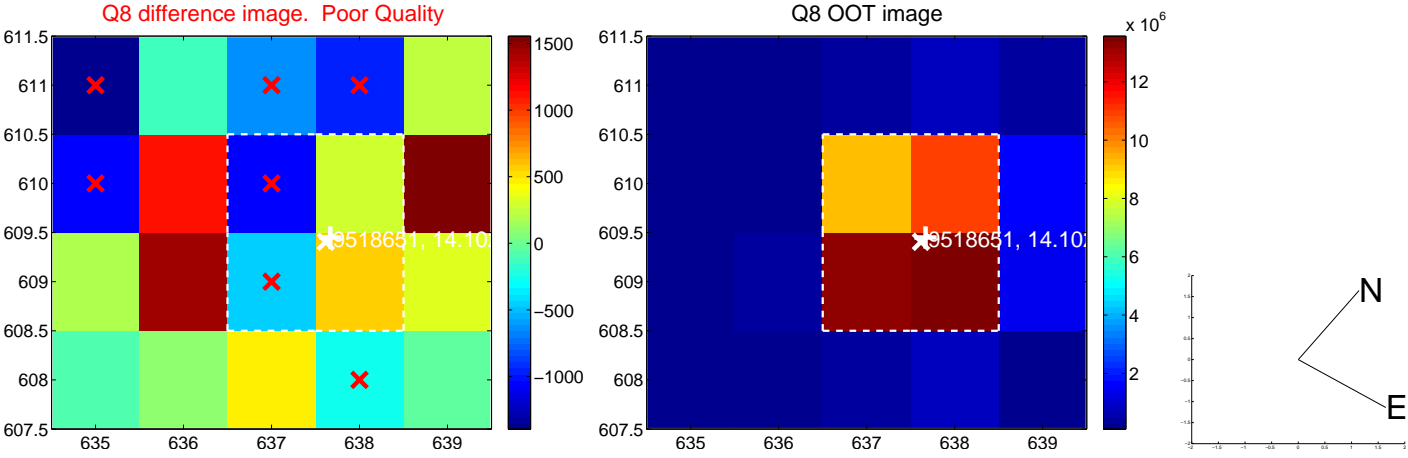
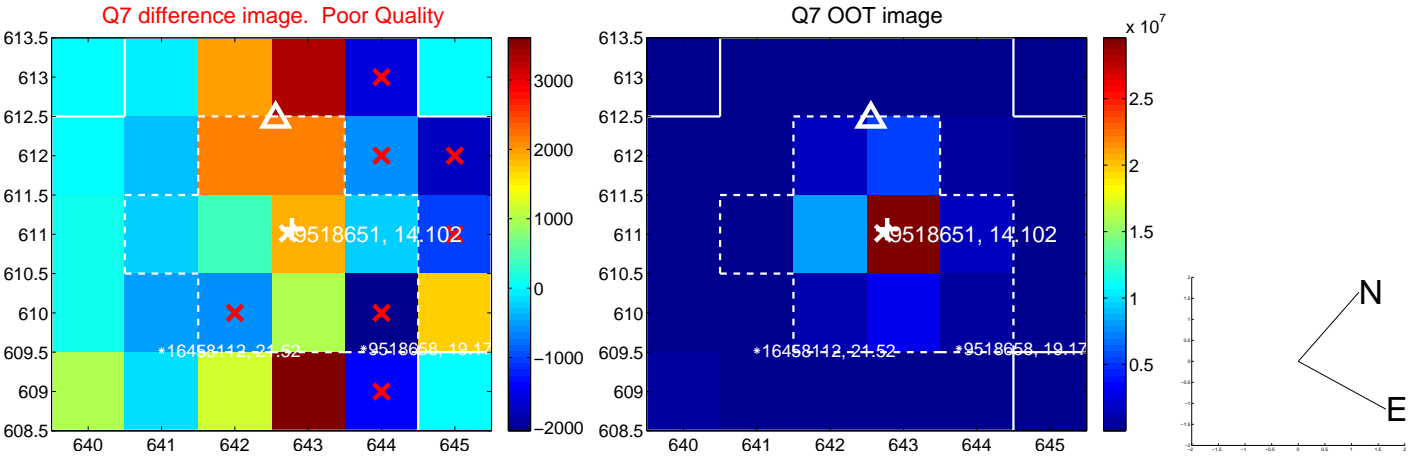
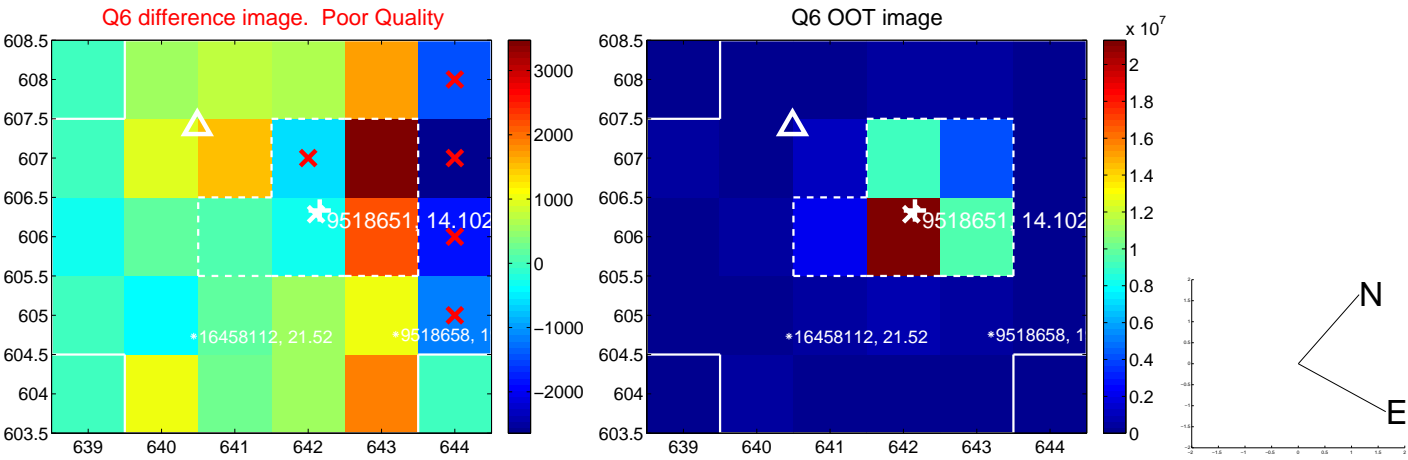
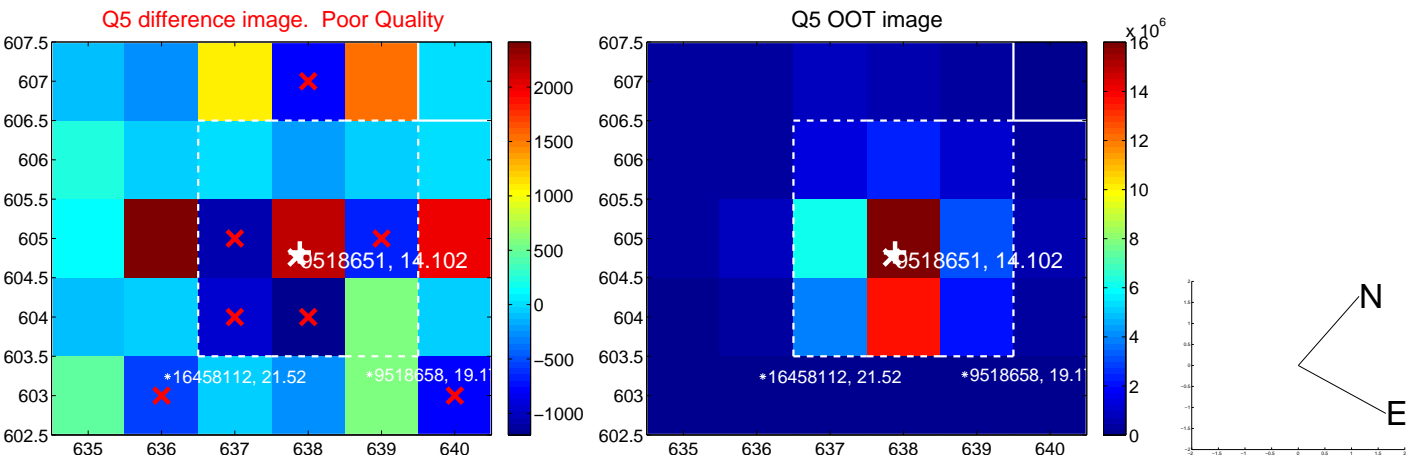


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

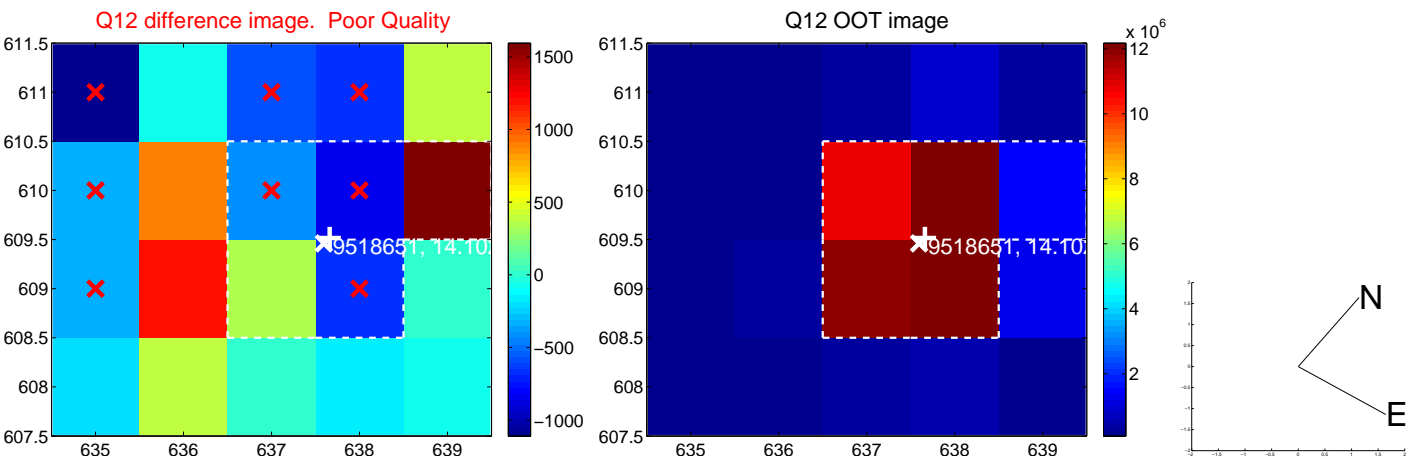
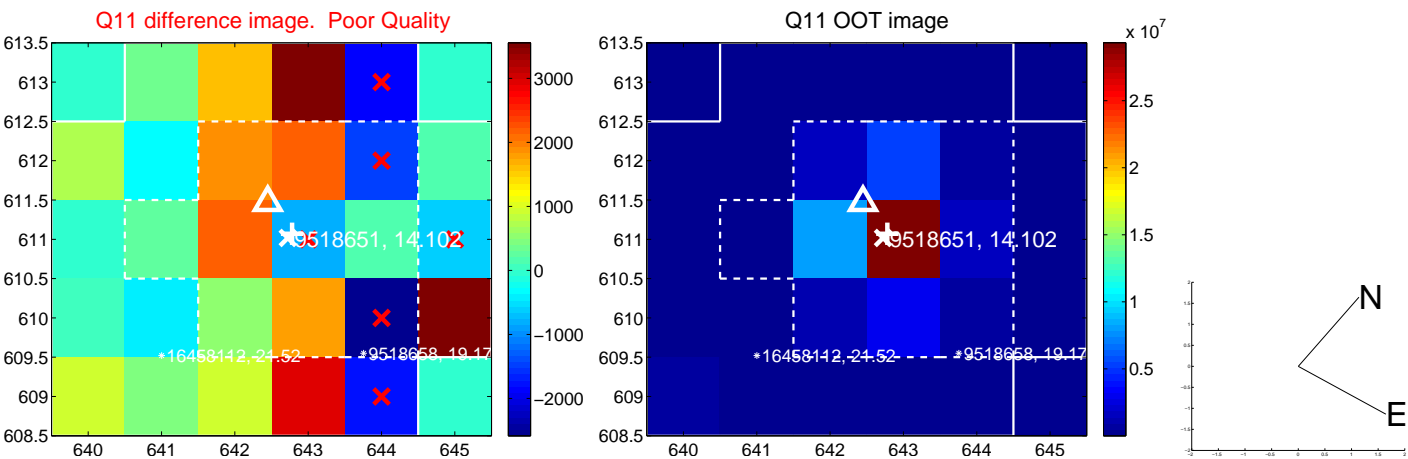
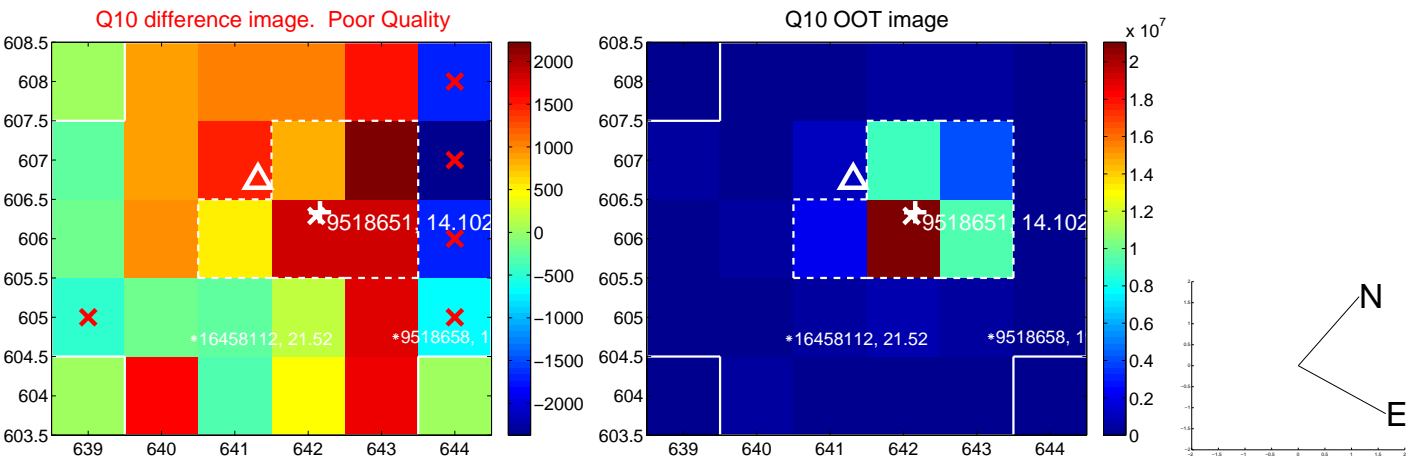
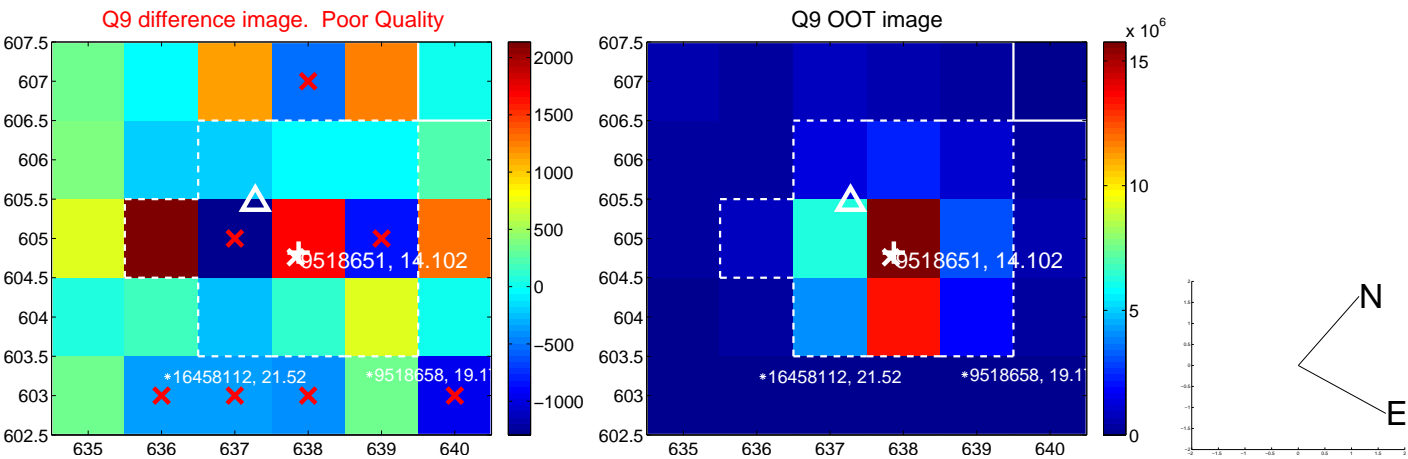
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



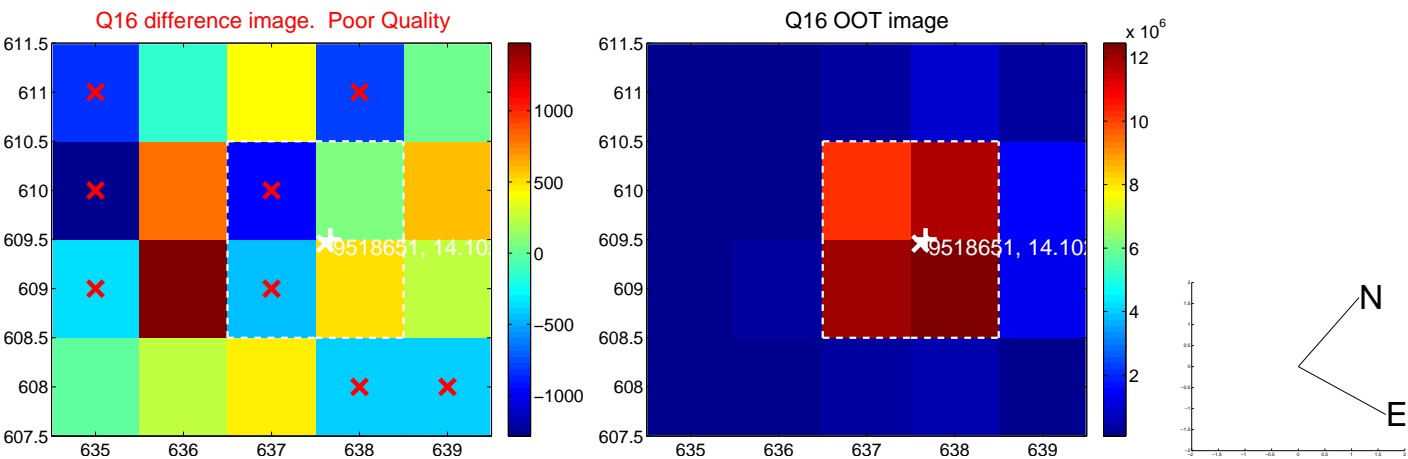
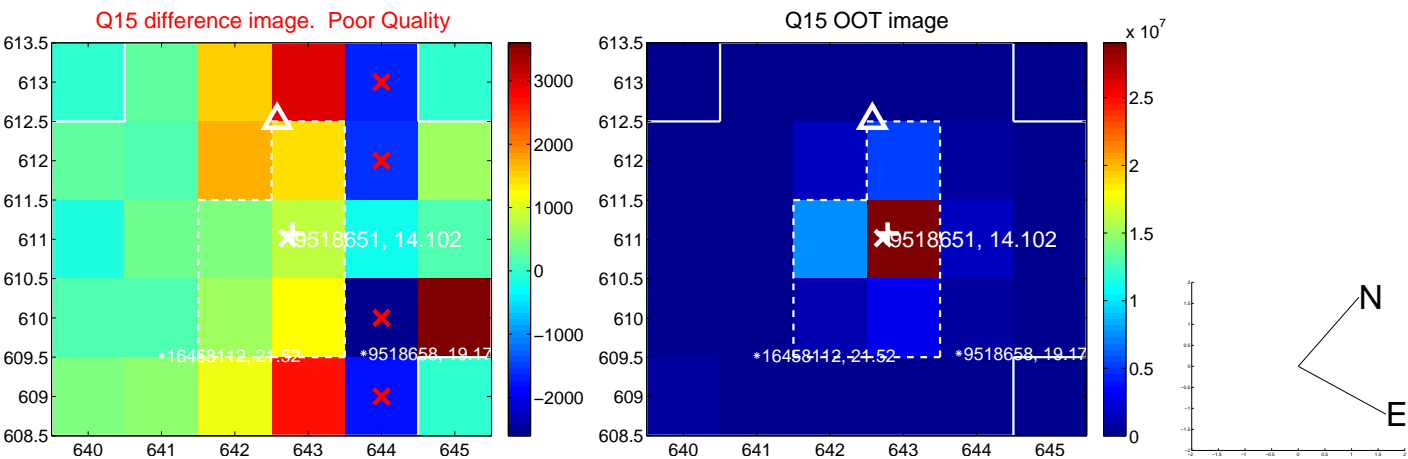
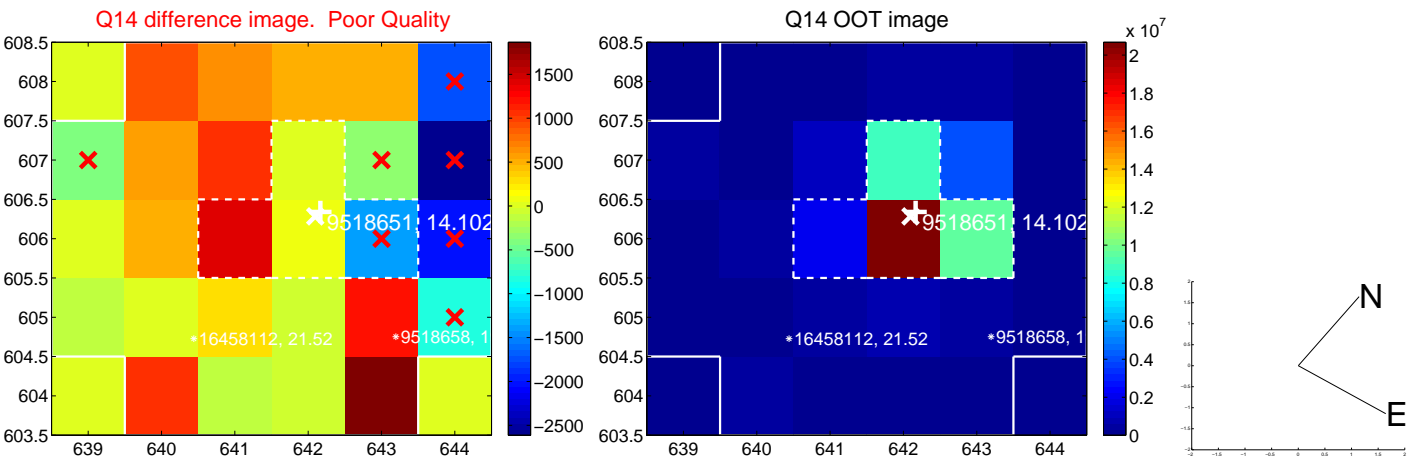
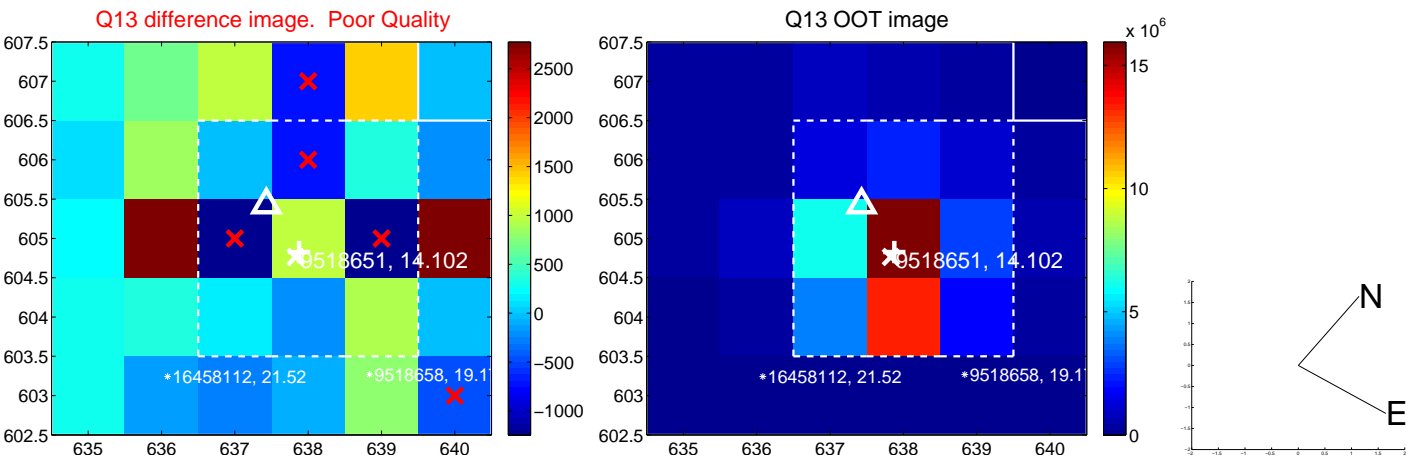
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



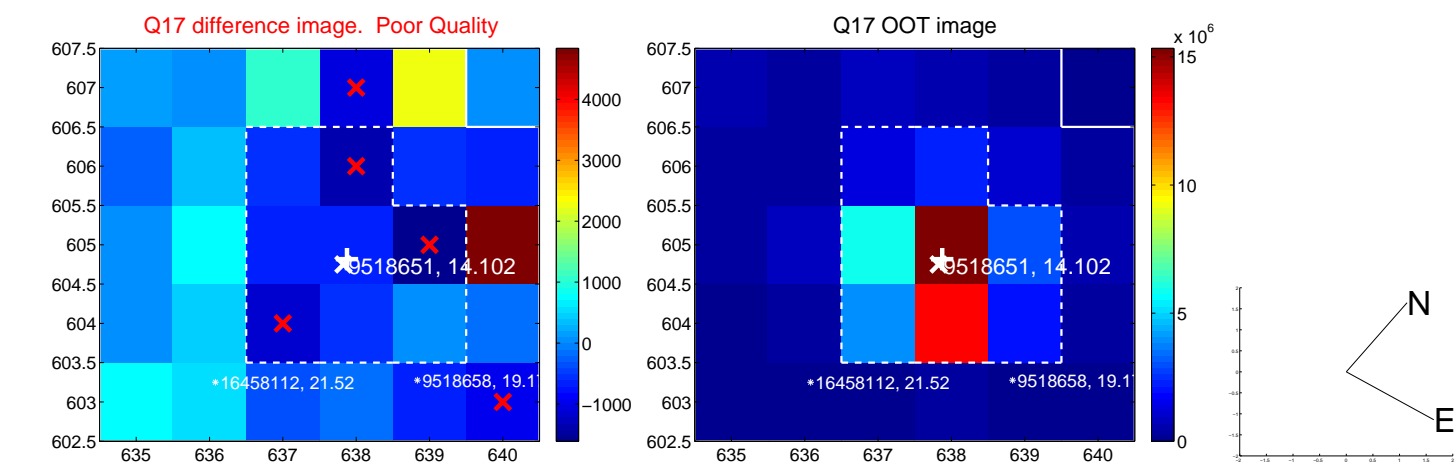
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



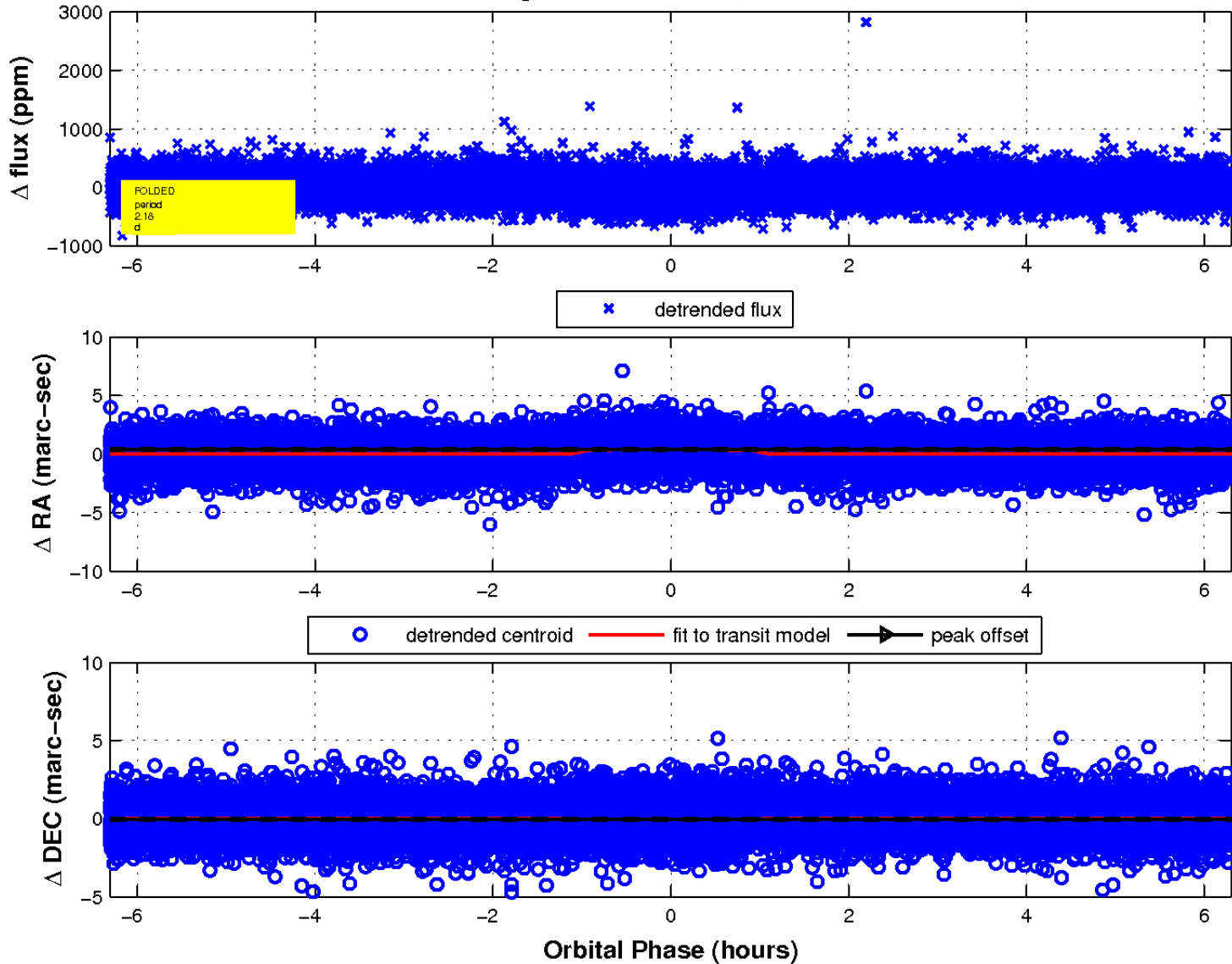
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

