

KIC 009053112

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 _⊕)
009053112-01	OBS	0702.01	1.274759	131.671884	56.6	2.872	27.8	14.3	2.87	5365	2.31	9219.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009053112-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_RESOLVED_OFFSET—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 009053112-01

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
009053112-01	9053112	009053086-01	9053086	1:1	14.3	-3	2	14.03	13.75	707.11	Direct-PRF	0	4.55	2.49

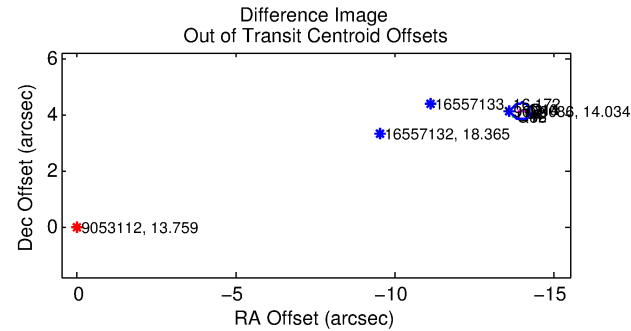
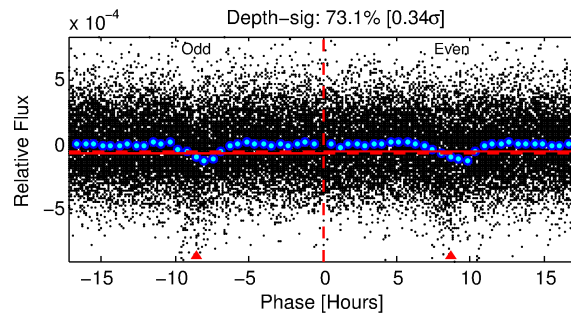
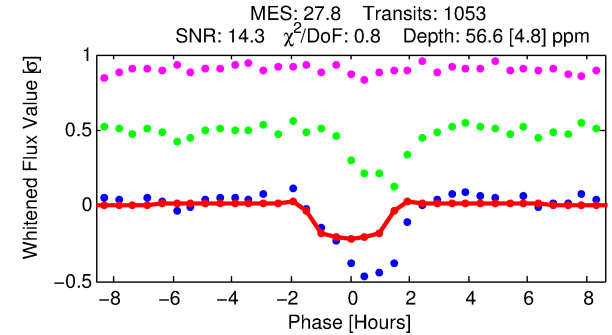
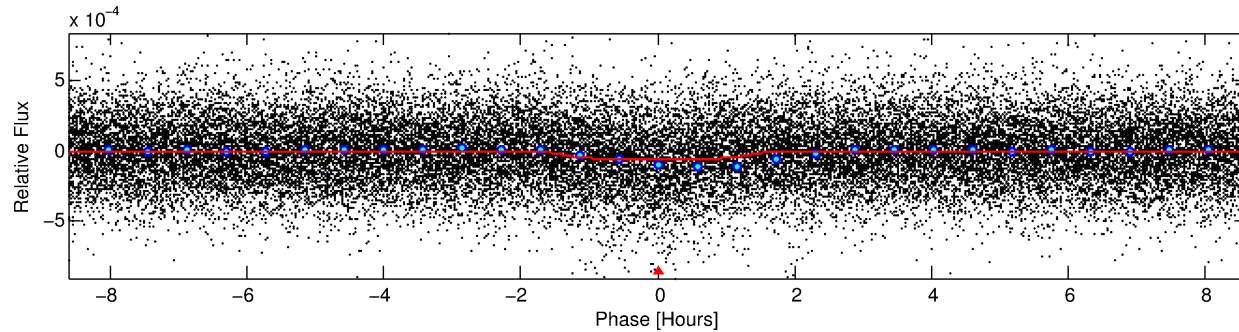
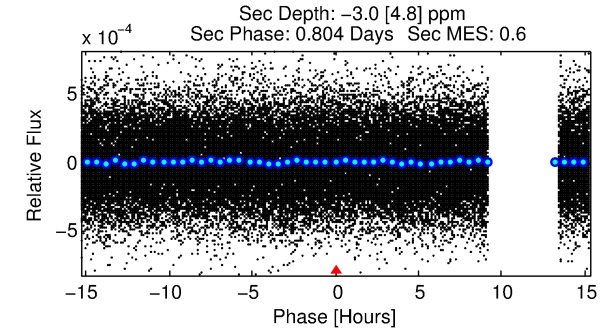
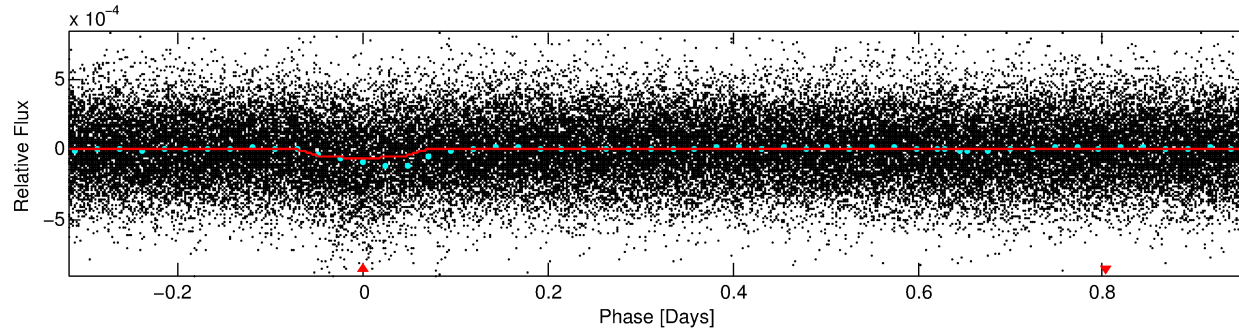
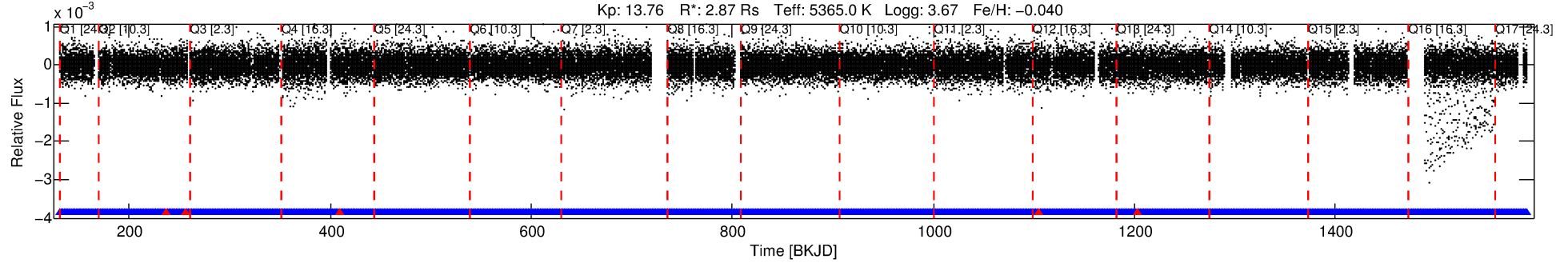
Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period 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: 9053112 Candidate: 1 of 1 Period: 1.275 d

KOI: K00702.01 Corr: 0.793

Kp: 13.76 R*: 2.87 Rs Teff: 5365.0 K Logg: 3.67 Fe/H: -0.040



DV Fit Results:

Period = 1.27476 [0.00001] d
Epoch = 131.6719 [0.0026] BKJD
Rp/R* = 0.0074 [0.0025]
a/R* = 2.56 [2.92]
b = 0.71 [0.96]
Seff = 9219.89 [12363.60]
Teq = 2499 [838] K
Rp = 2.31 [1.77] Re
a = 0.0258 [0.0200] AU
Ag = N/A
Teffp = N/A

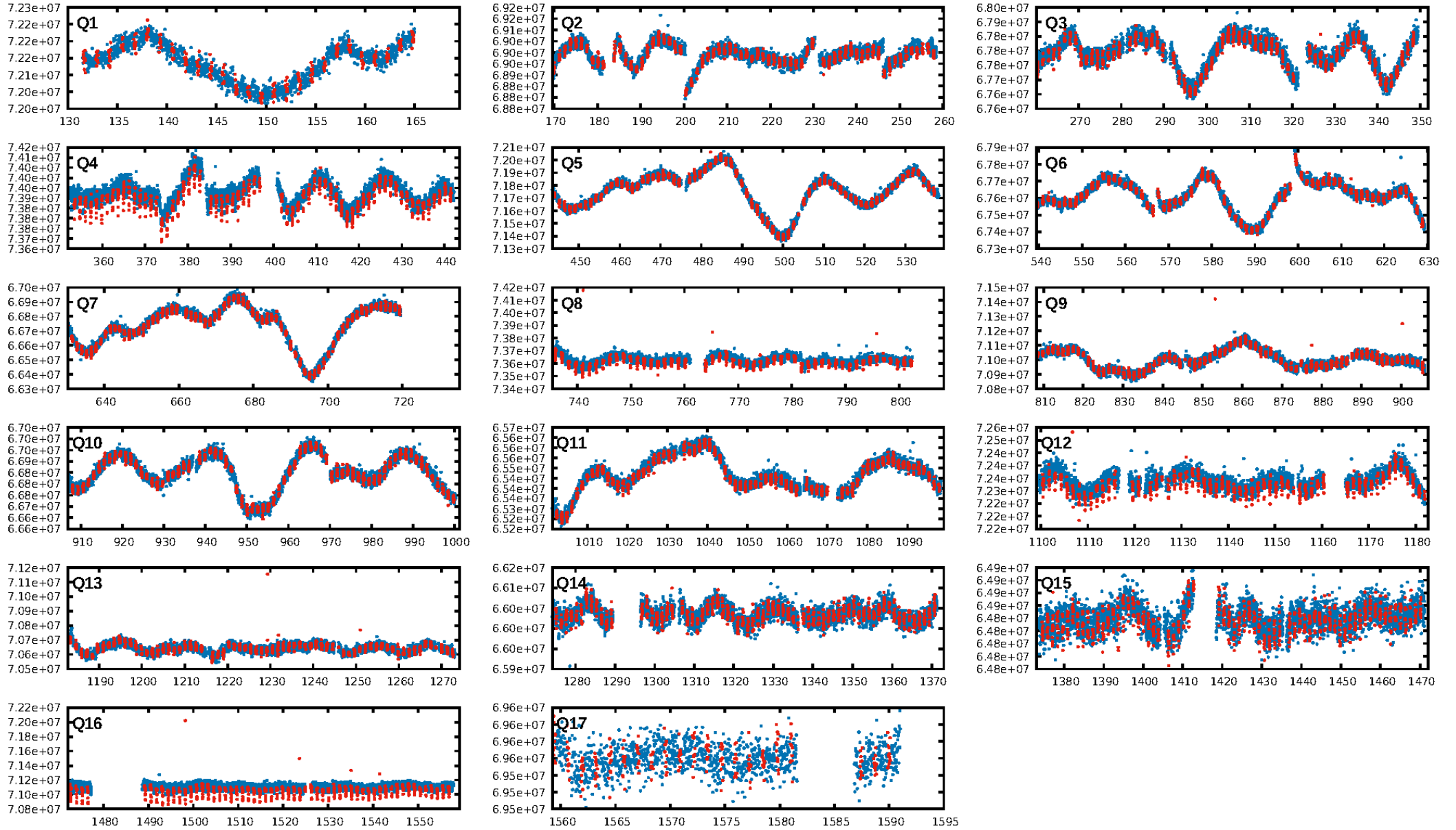
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.94e-156
RollingBand-fgt: 1.00 [1000/1005]
GhostDiagnostic-chr: -0.2267
Centroid-sig: N/A
Centroid-so: 114.195 arcsec [126.97σ]
OotOffset-rm: 14.558 arcsec [147.43σ]
KicOffset-rm: 14.570 arcsec [188.04σ]
OotOffset-st: 4/0/4/0 [8]
KicOffset-st: 4/0/4/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [17/17]

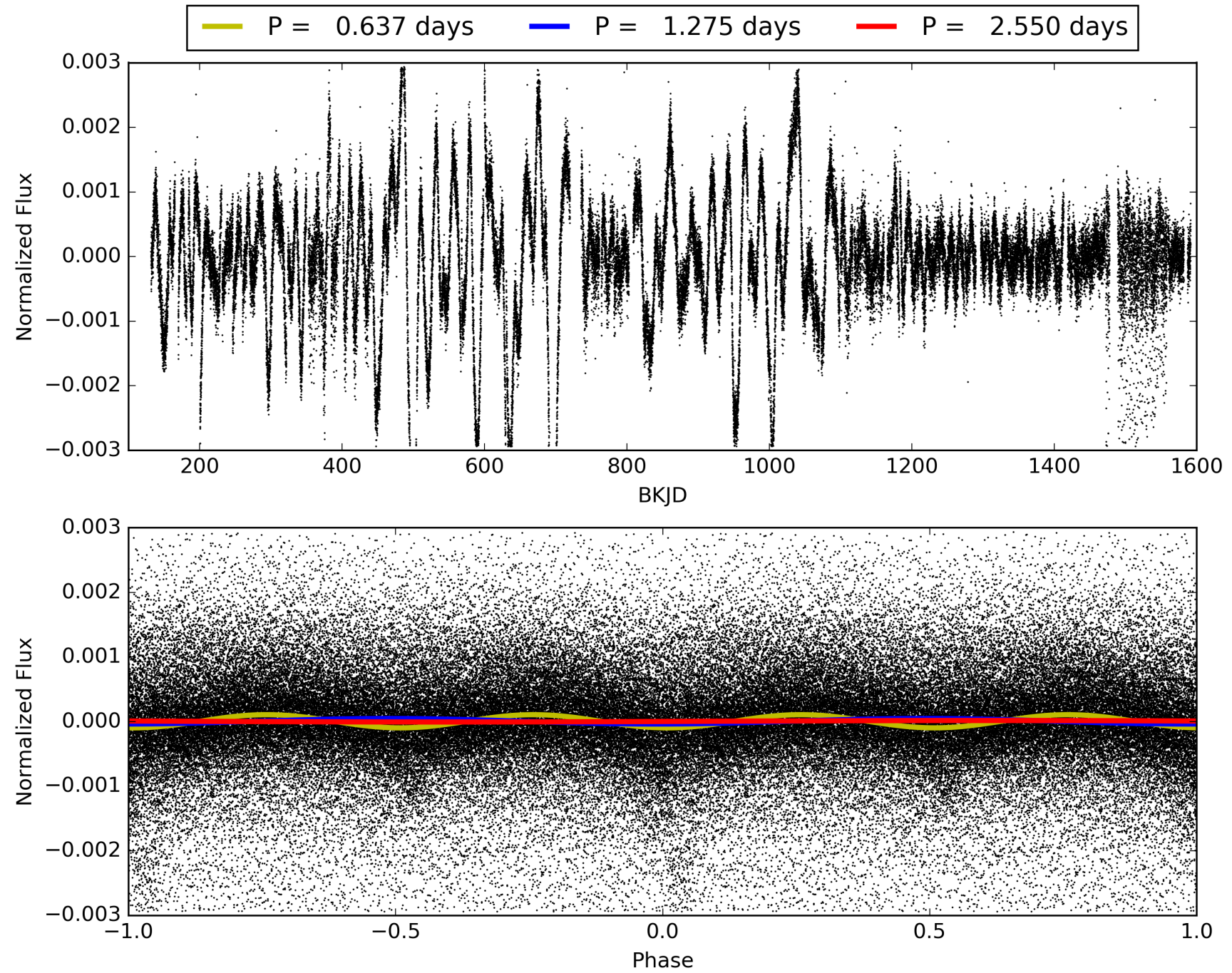
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:58:48 Z

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

TCE 009053112-01, PDC Light Curves

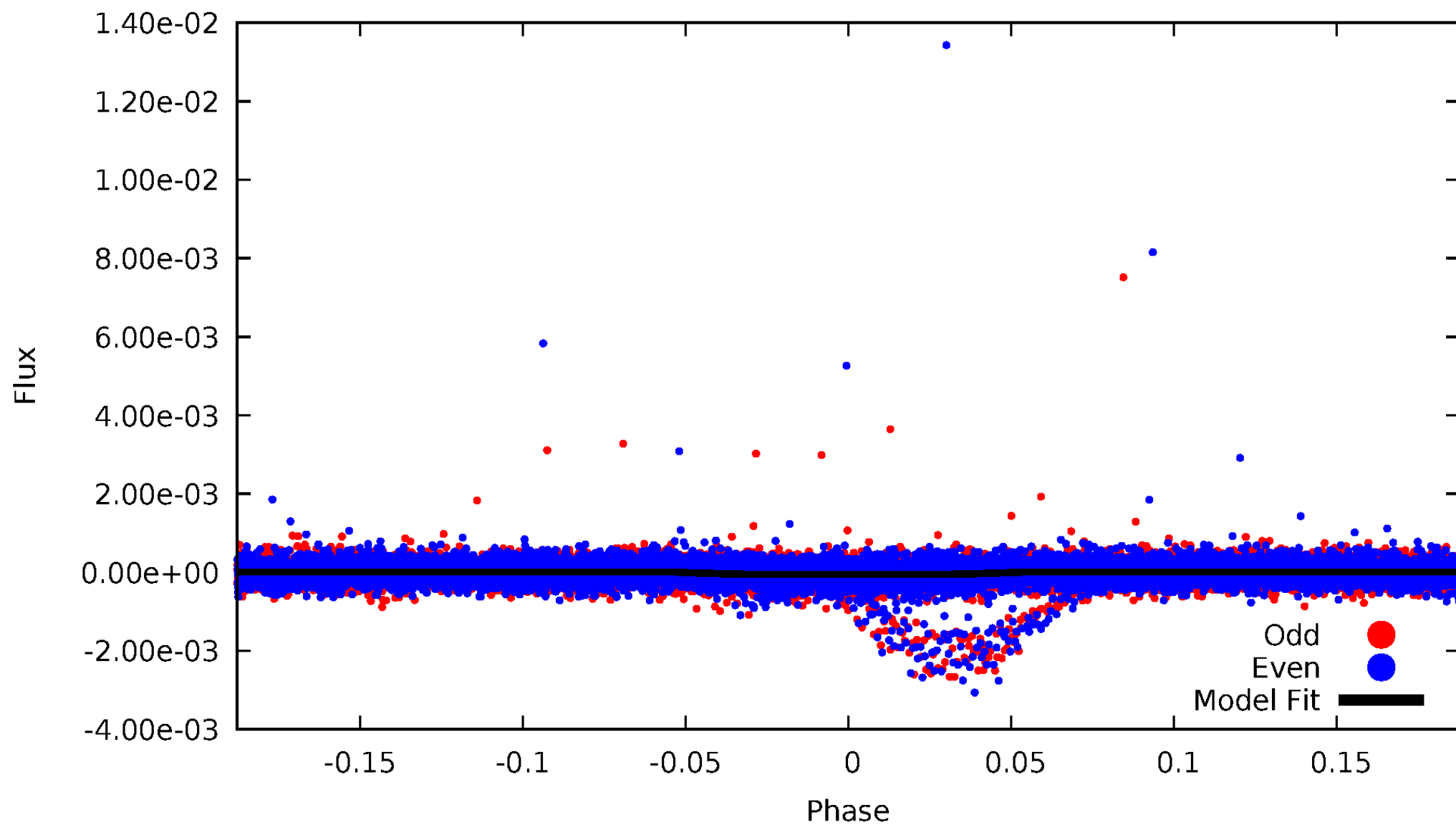


TCE 009053112-01



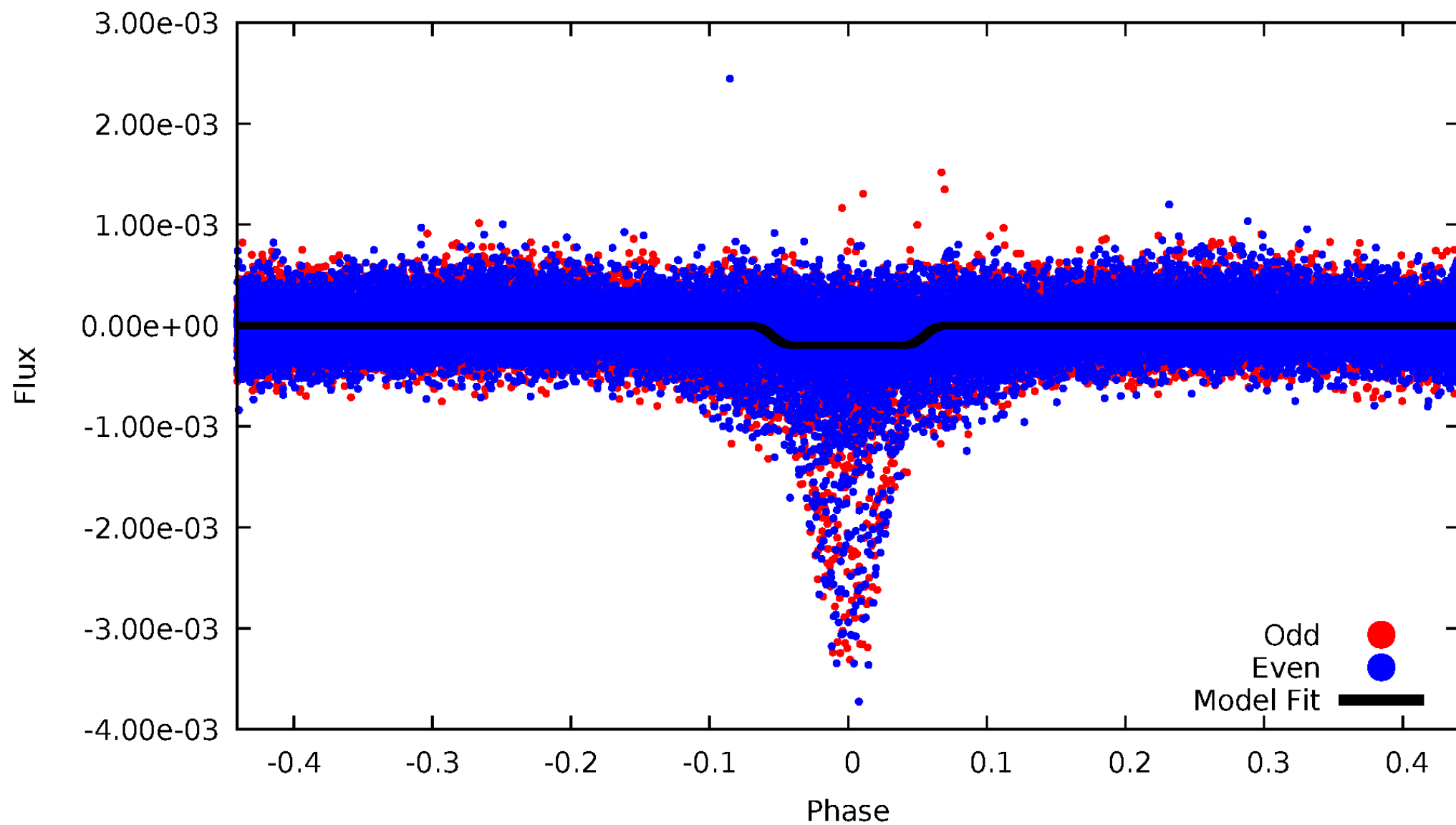
DV Odd/Even

TCE 009053112-01

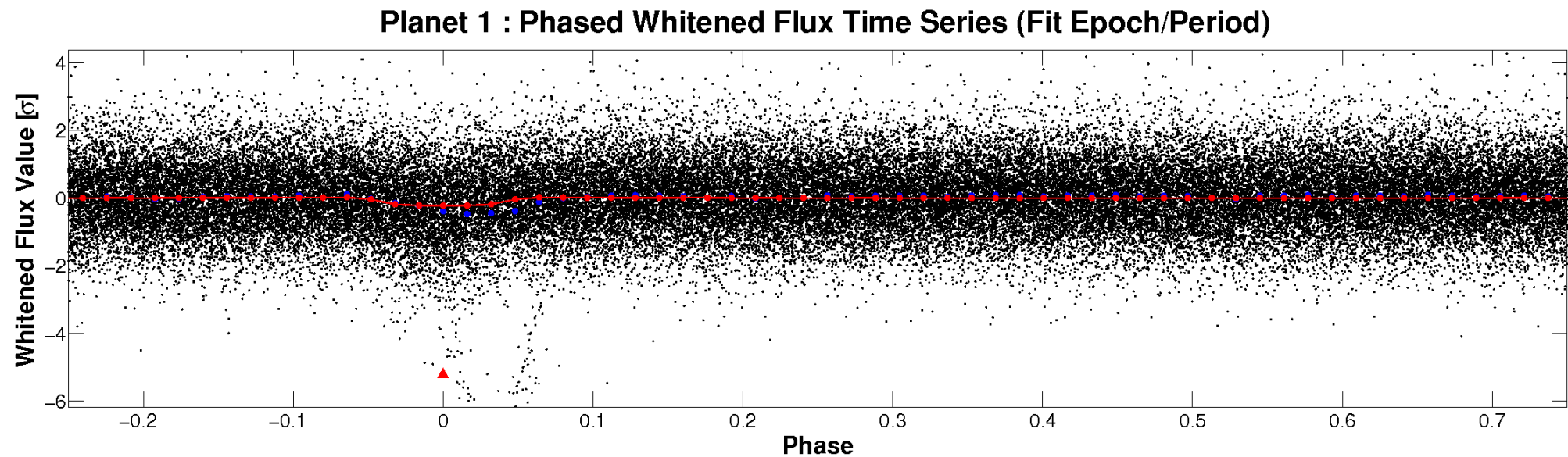
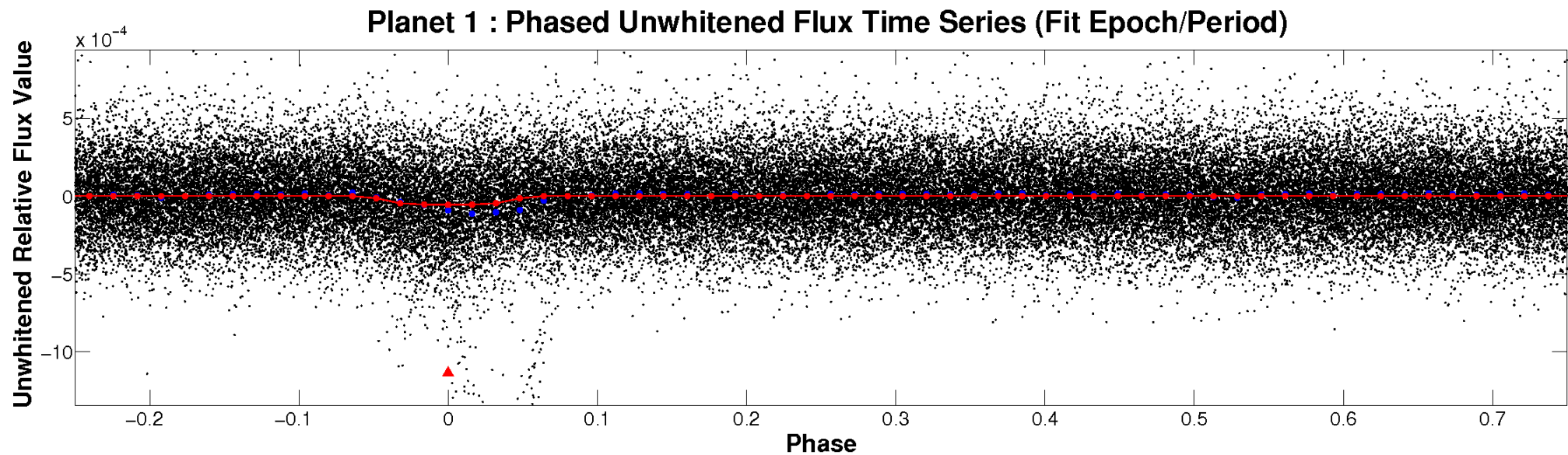


ALT Odd/Even

TCE 009053112-01

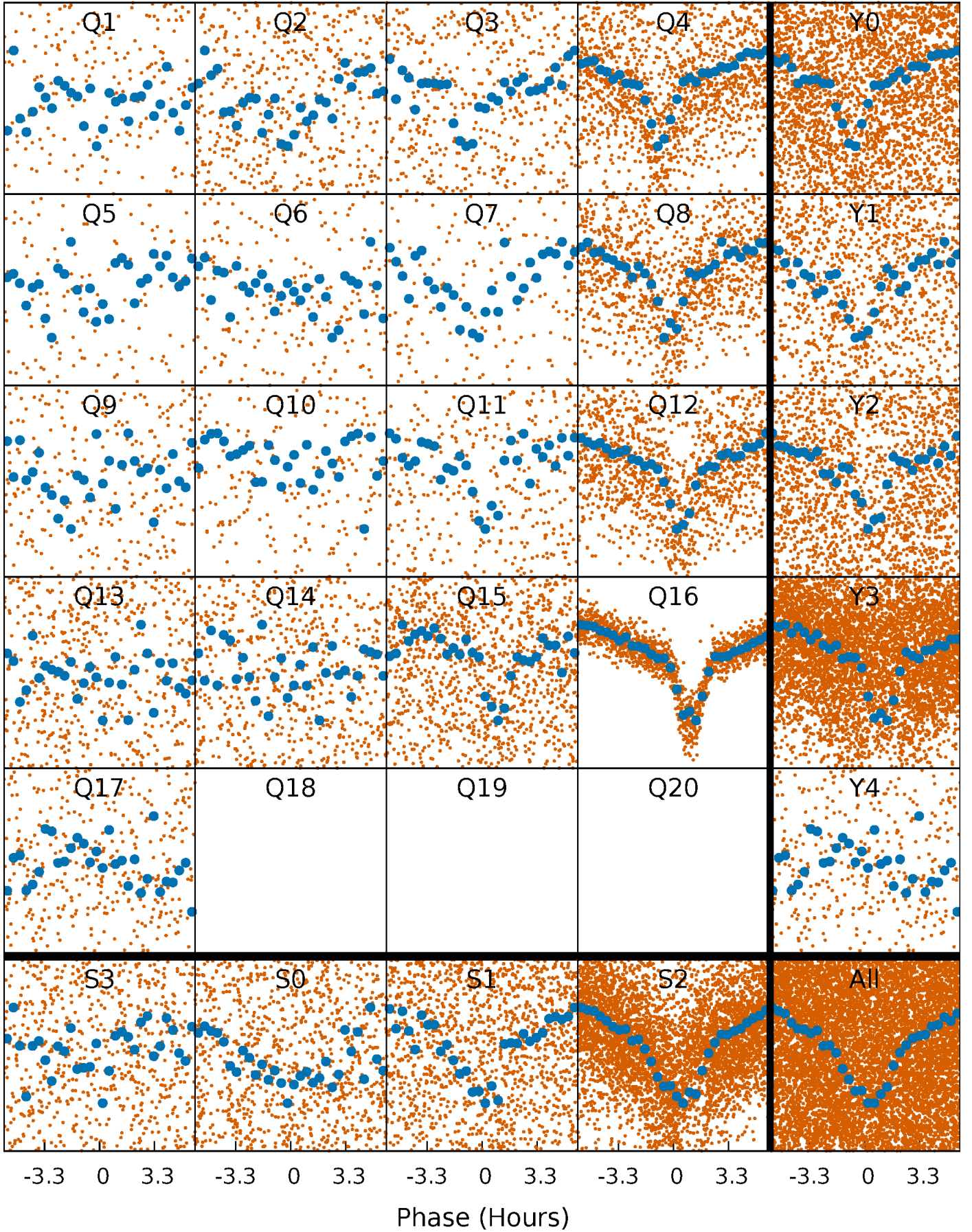


Non-Whitened Vs. Whitened Light Curve



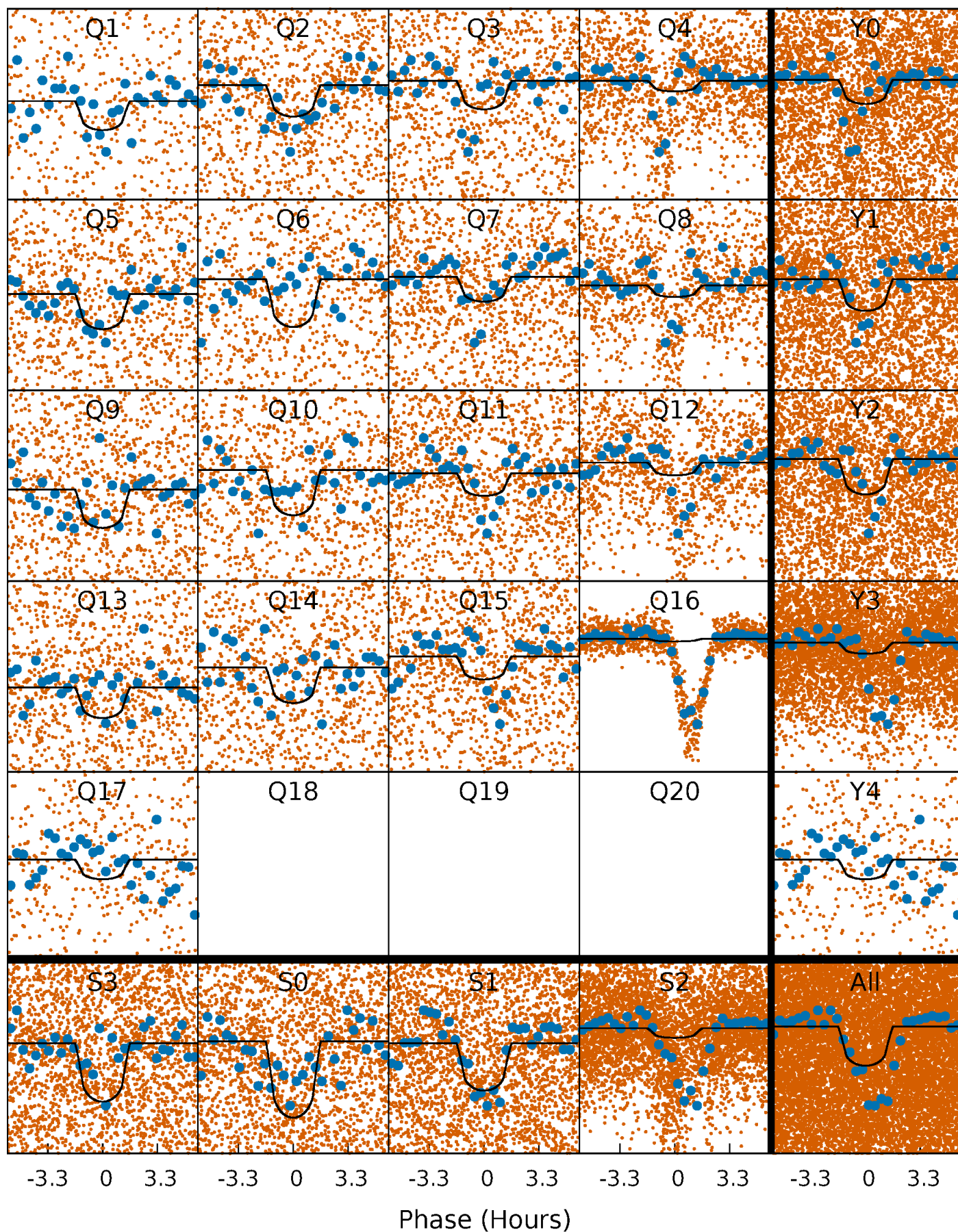
PDC Quarter-Phased Transit Curves

TCE 009053112-01 P= 1.274759 Days $T_0=131.671884$ (BKJD)



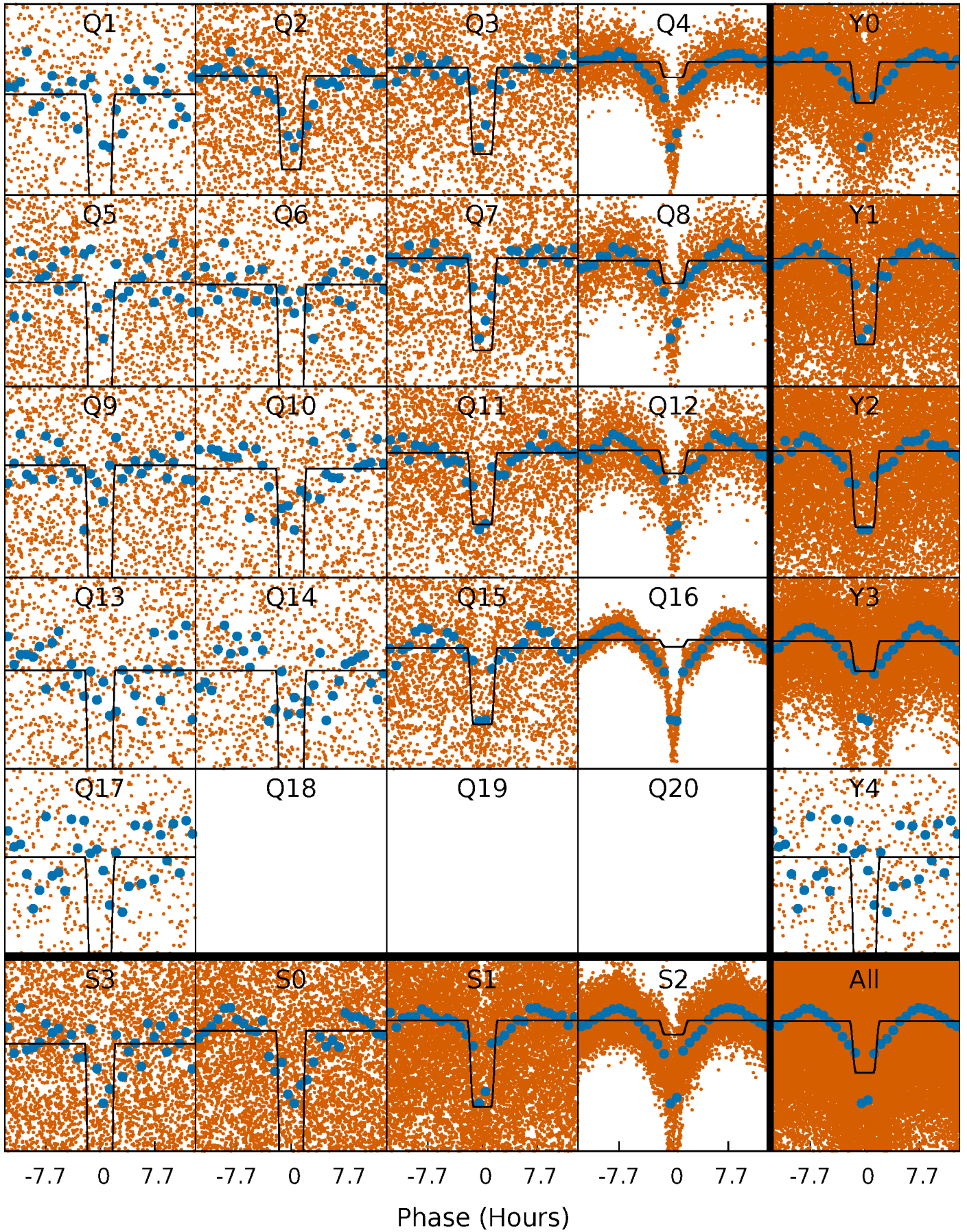
DV Quarter-Phased Transit Curves

TCE 009053112-01 P= 1.274759 Days $T_0=131.671884$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

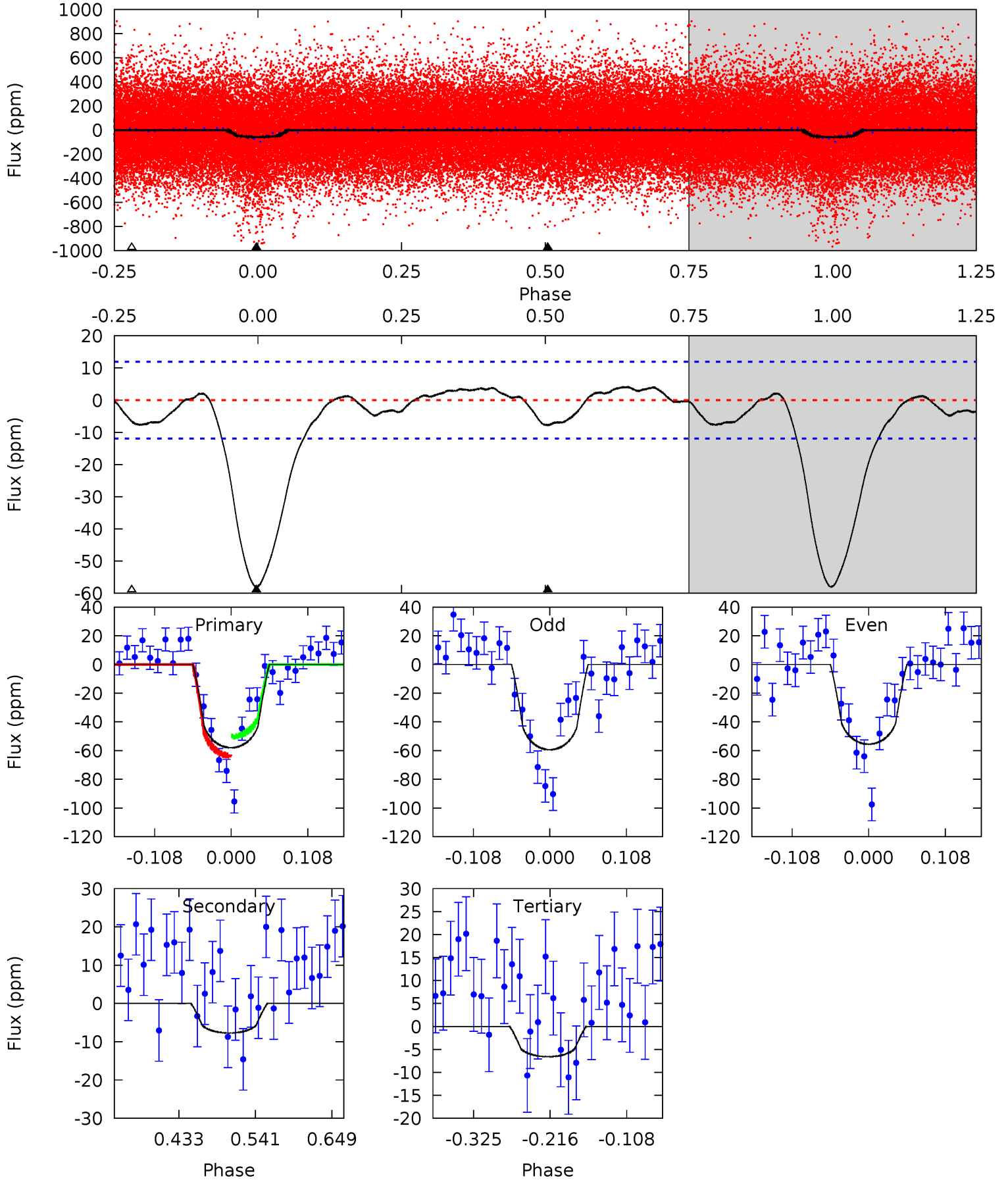
TCE 009053112-01 P= 1.274837 Days $T_0=131.628580$ (BKJD)



DV Model-Shift Uniqueness Test

009053112-01, P = 1.274759 Days, E = 130.397125 Days

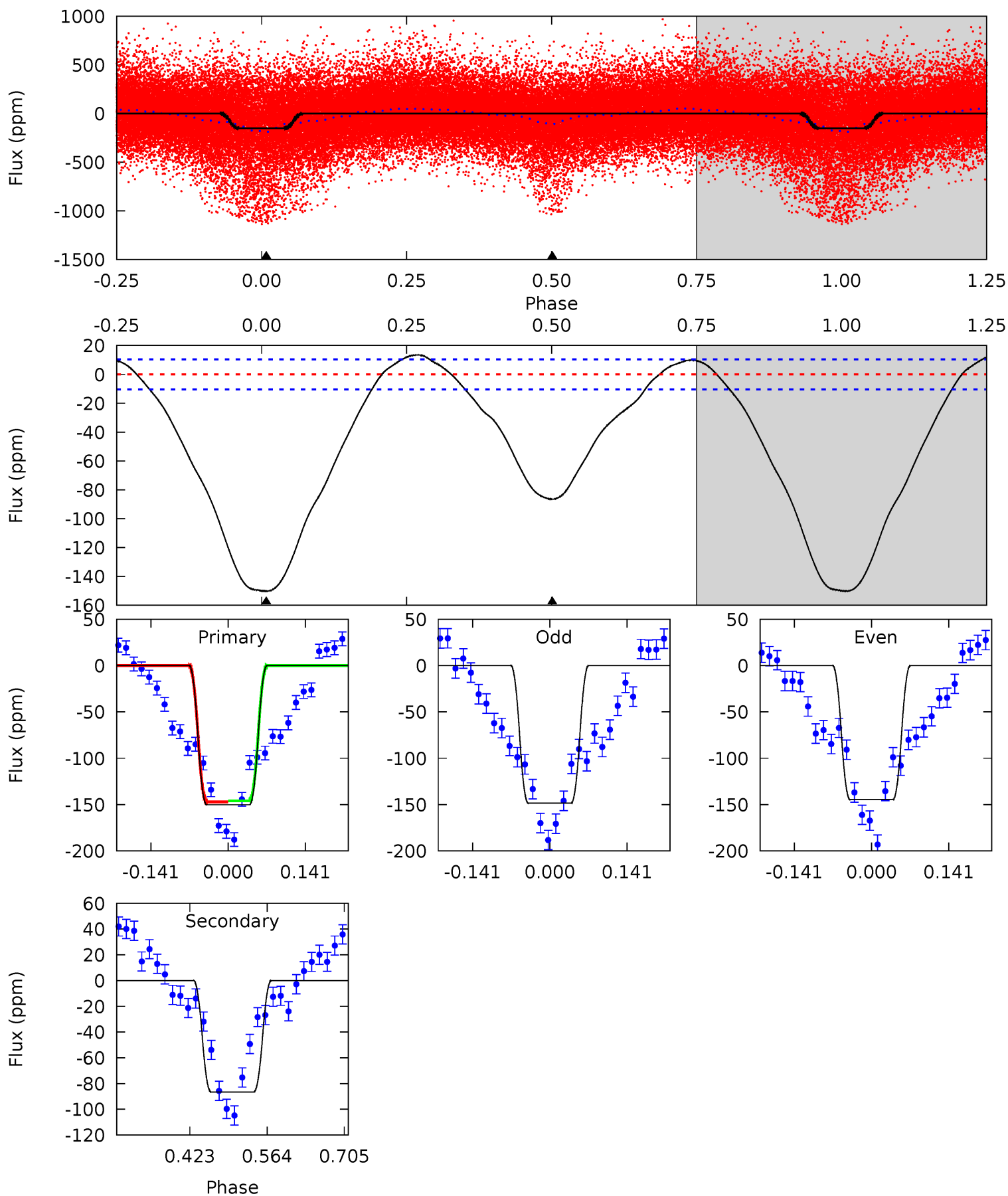
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	2.95	2.51	0	4.55	1.61	1.32	19.6	22.1	0.43	2.95	0.74	1.73	0.07	2.58



Alt Model-Shift Uniqueness Test

009053112-01, P = 1.274837 Days, E = 130.353743 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.9	37.4	0	0	4.49	1.47	6.64	64.9	64.9	37.4	37.4	0.84	2.25	0.08	0.28



Stellar Parameters For KIC 009053112

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5365^{+191}_{-175}	$3.669^{+0.816}_{-0.204}$	$-0.040^{+0.300}_{-0.300}$	$2.872^{+0.844}_{-1.969}$	$1.403^{+0.214}_{-0.500}$	$0.083^{+1.426}_{-0.048}$
	+4%/-3%	+22%/-6%	+750%/-750%	+29%/-69%	+15%/-36%	+1709%/-57%
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 009053112-01 / KOI 0702.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-8 ± 3	$2.05^{+0.98}_{-0.91}$	3430^{+353}_{-591}	3308^{+809}_{-5857}	$0.632^{+1.643}_{-0.367}$
Alt.	-86 ± 2	$4.01^{+1.35}_{-1.58}$	3390^{+397}_{-632}	4363^{+450}_{-357}	$1.931^{+2.695}_{-0.834}$

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 $A_{obs} \gg 1.0$

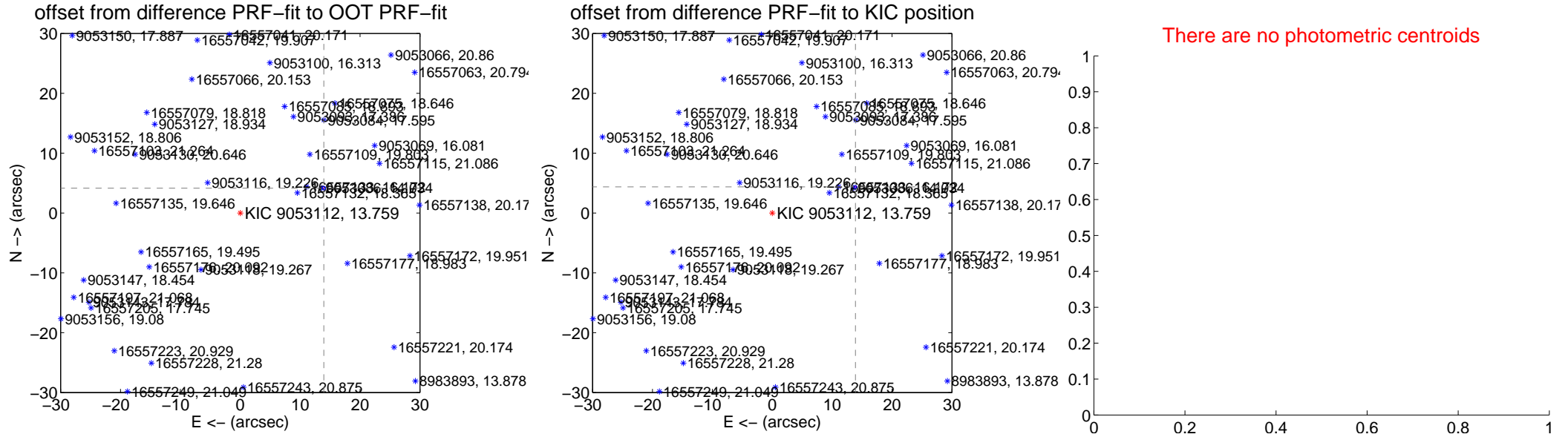
DV Centroid Data

Supplemental centroid analysis for 009053112-01. Kepler magnitude: 13.76. Transit SNR 14.34

There are 8 quarters with good PRF difference image offsets

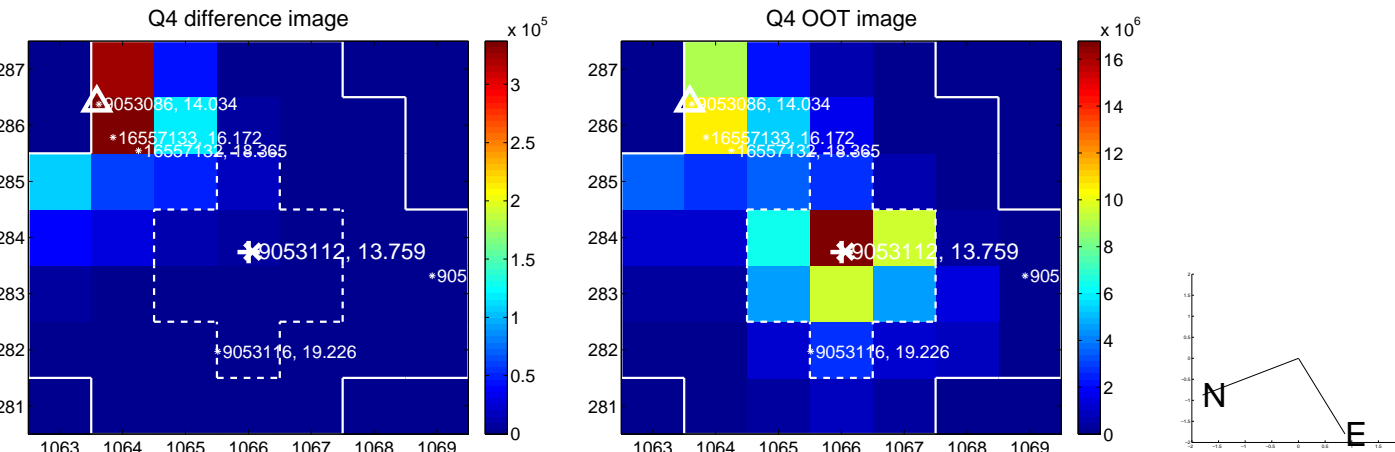
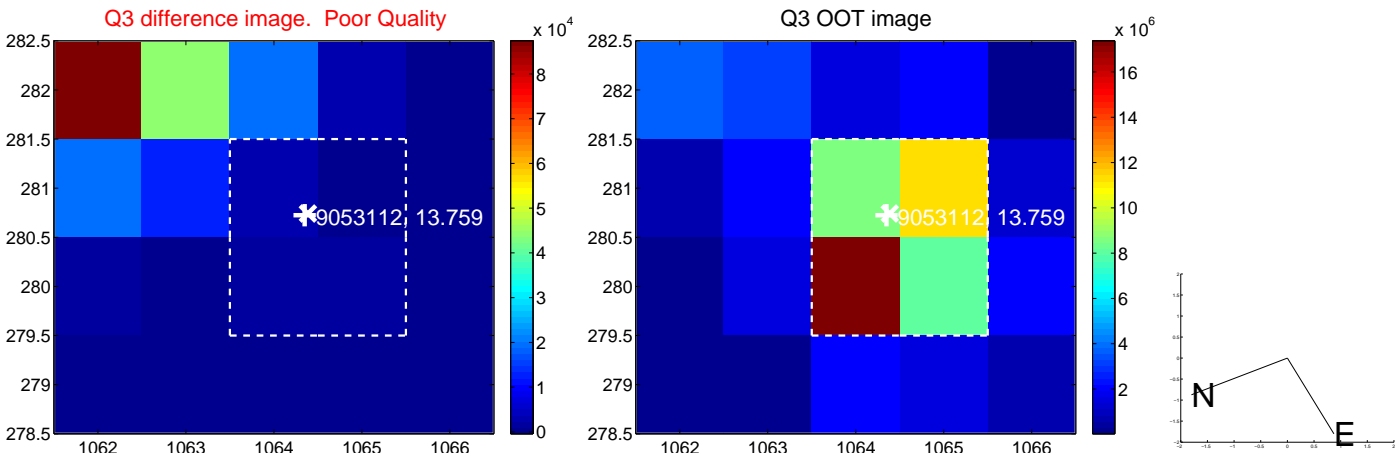
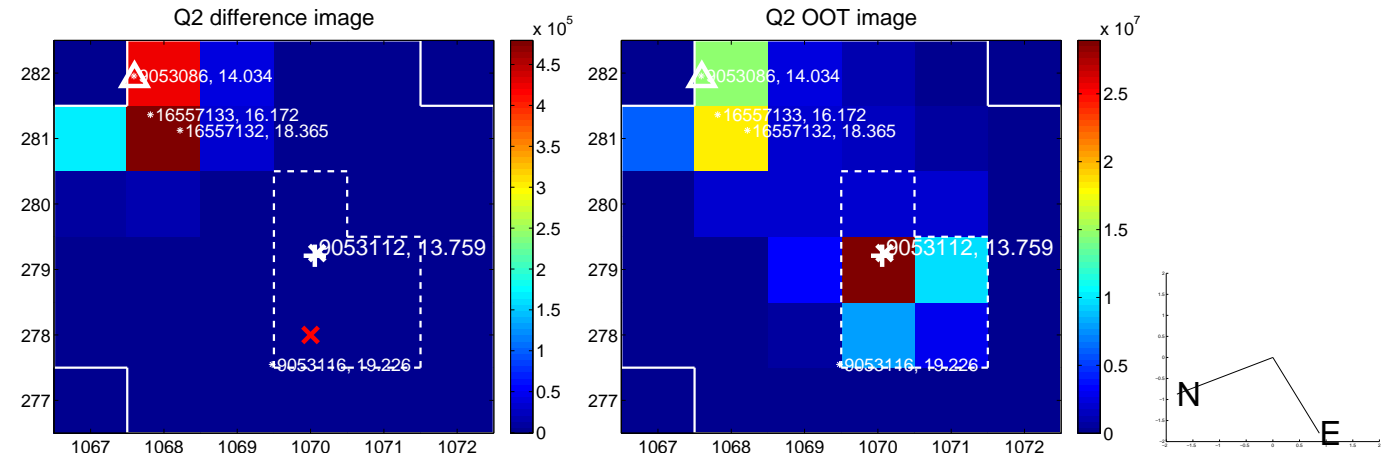
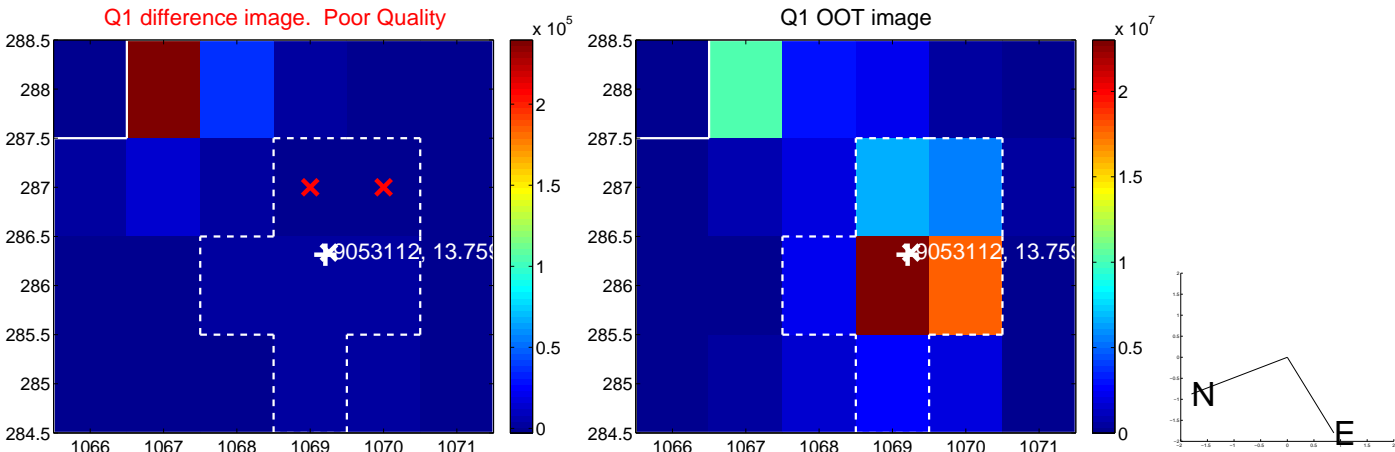
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	14.558 \pm 0.099	147.43	-13.952 \pm 0.093	4.156 \pm 0.076
PRF-fit source offset from KIC position	14.570 \pm 0.077	188.04	-13.900 \pm 0.072	4.370 \pm 0.081
photometric centroid source offset	—	—	—	—

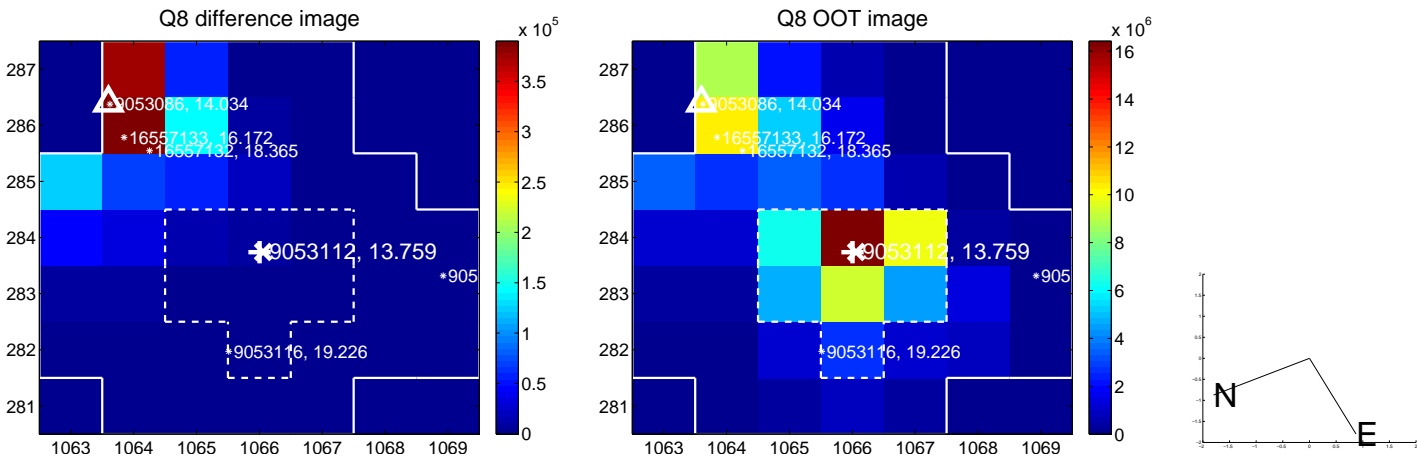
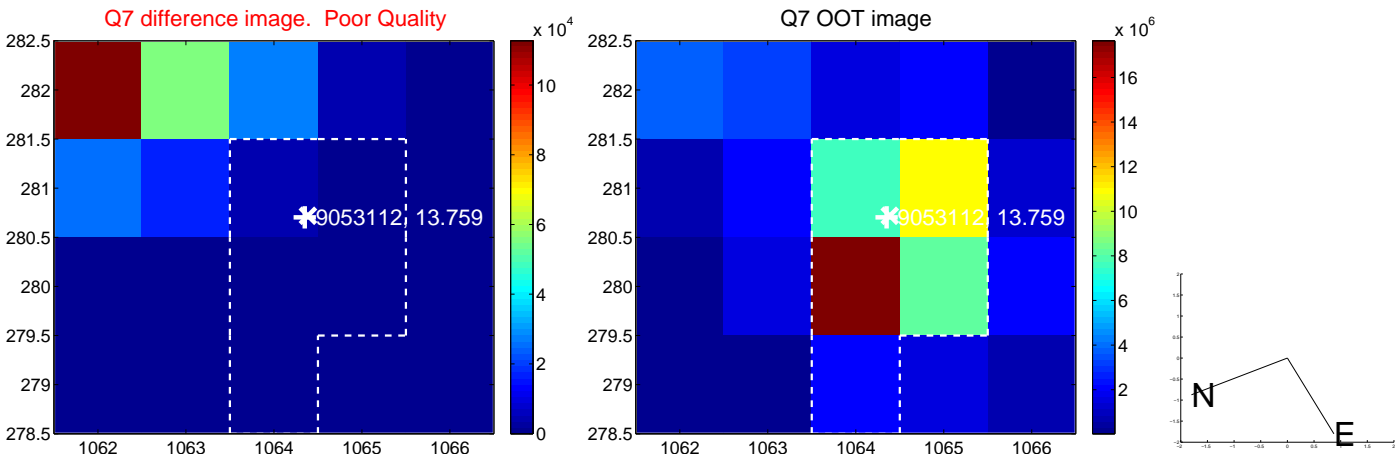
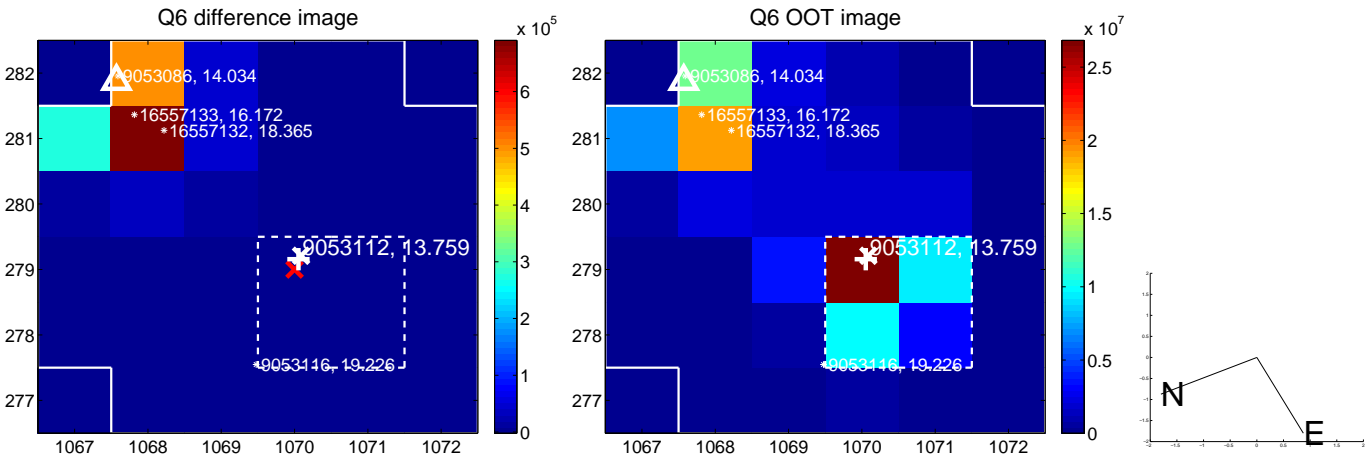
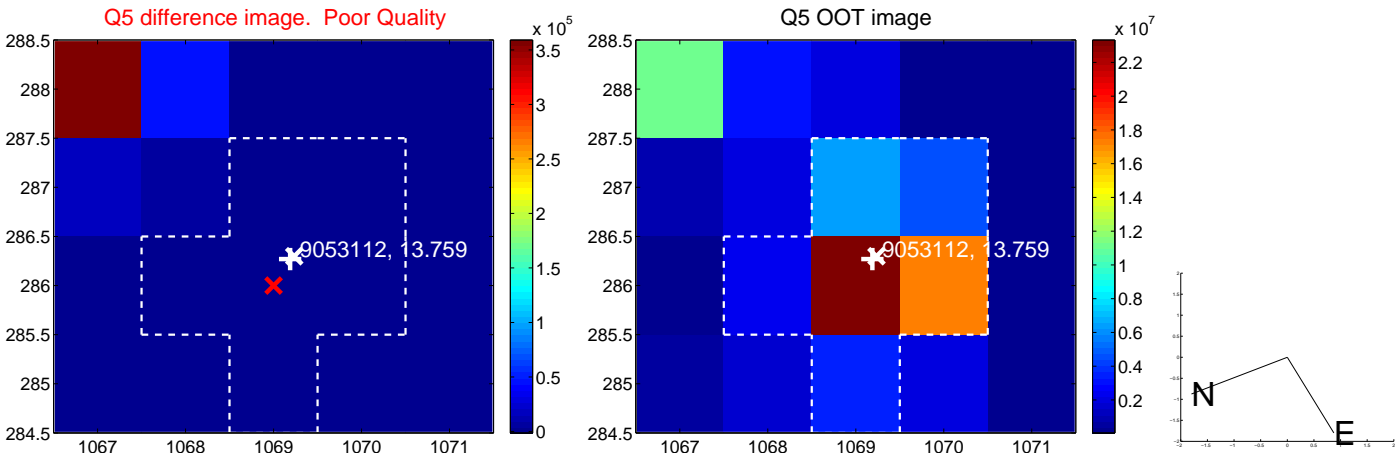


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

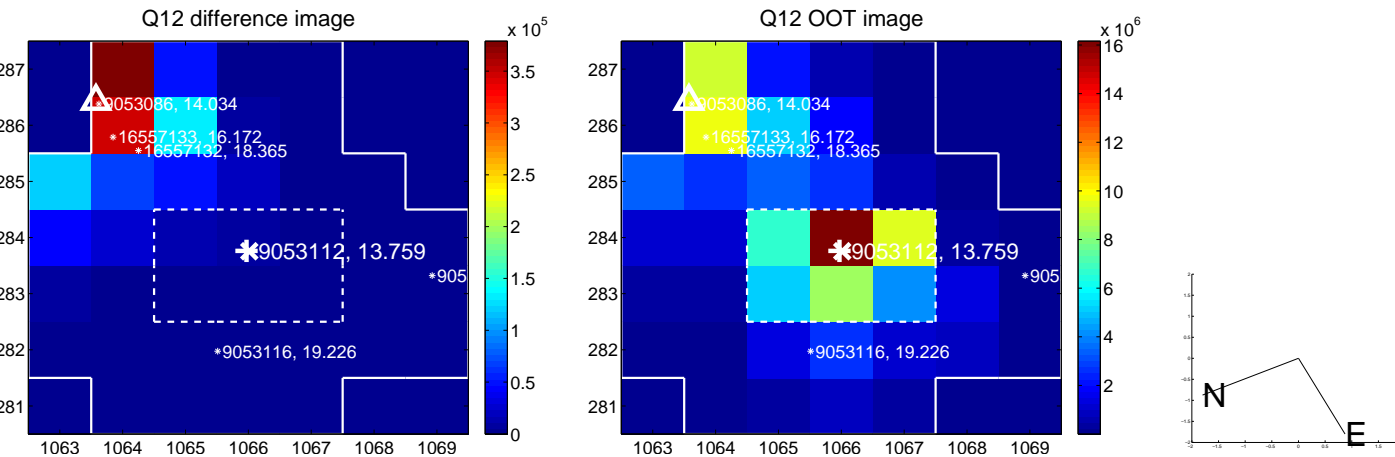
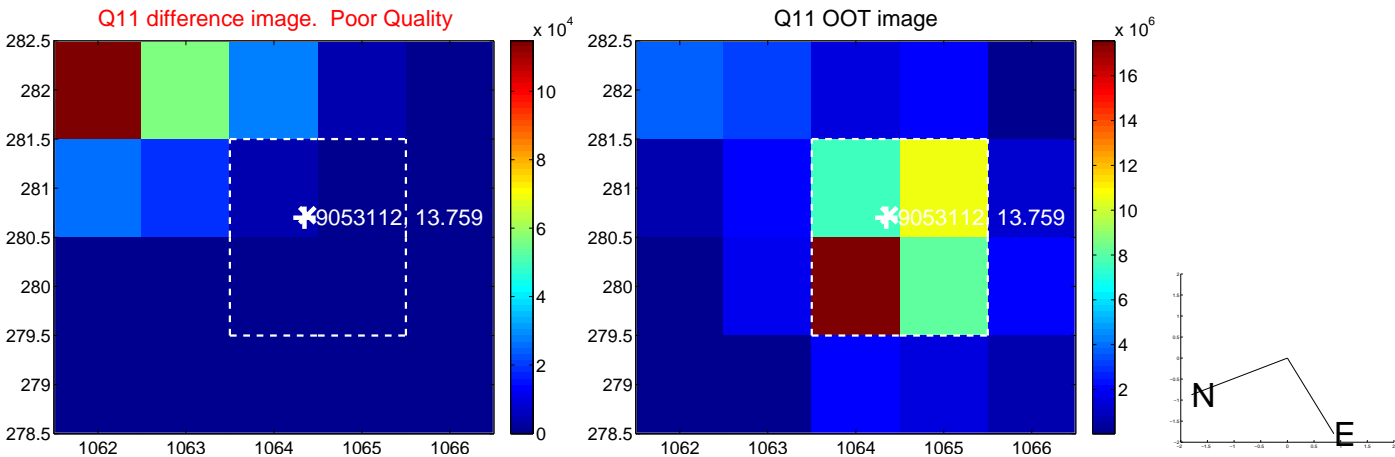
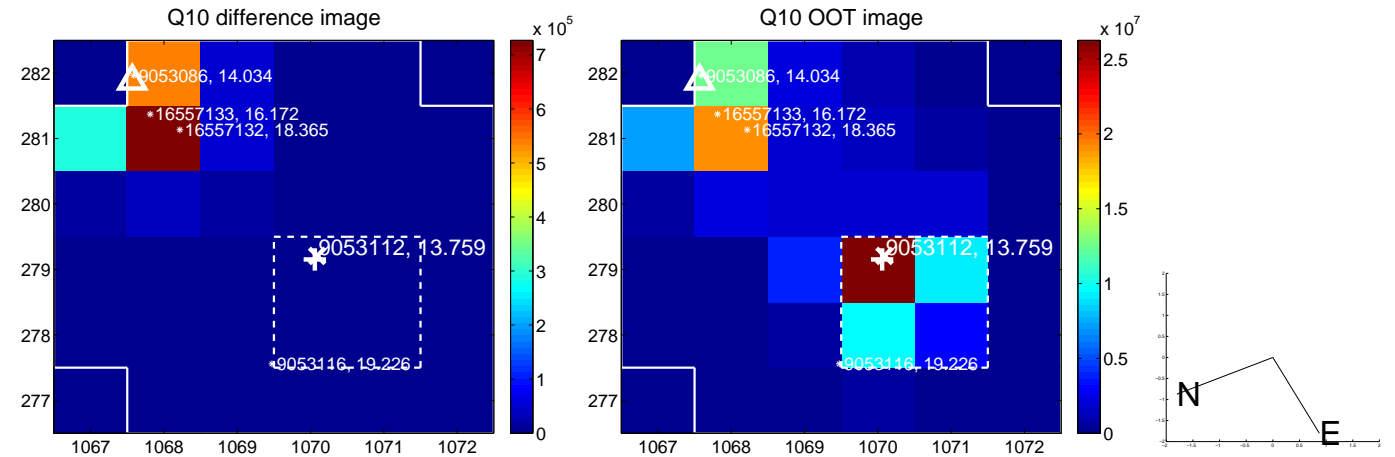
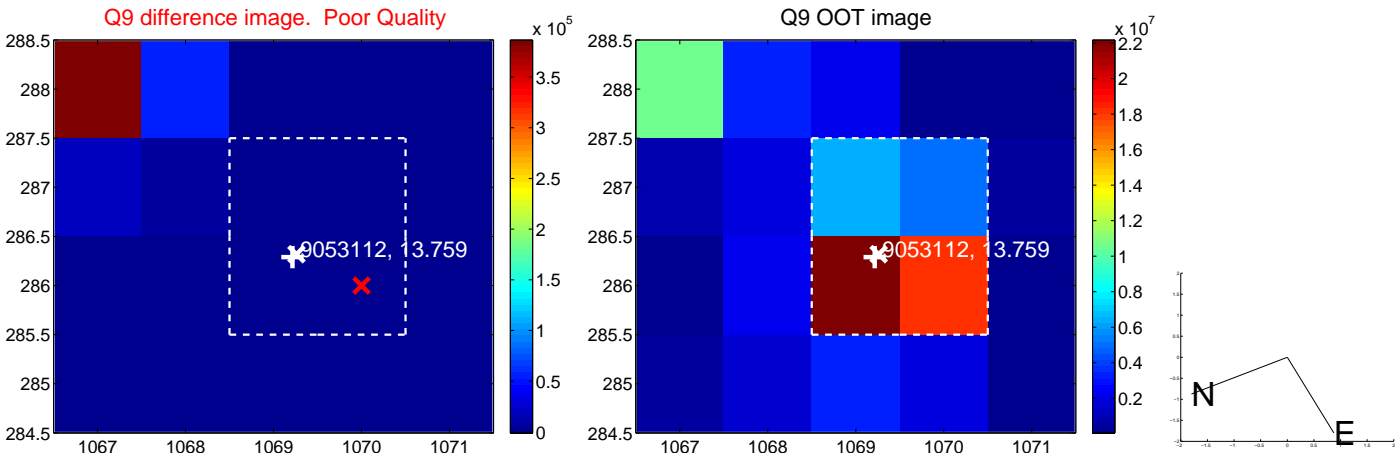
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



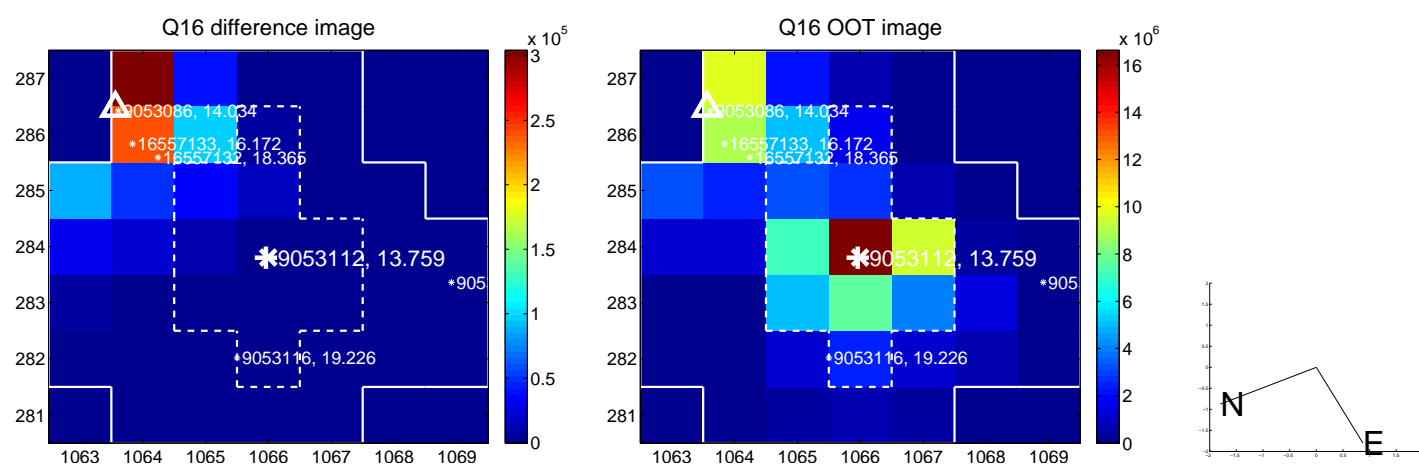
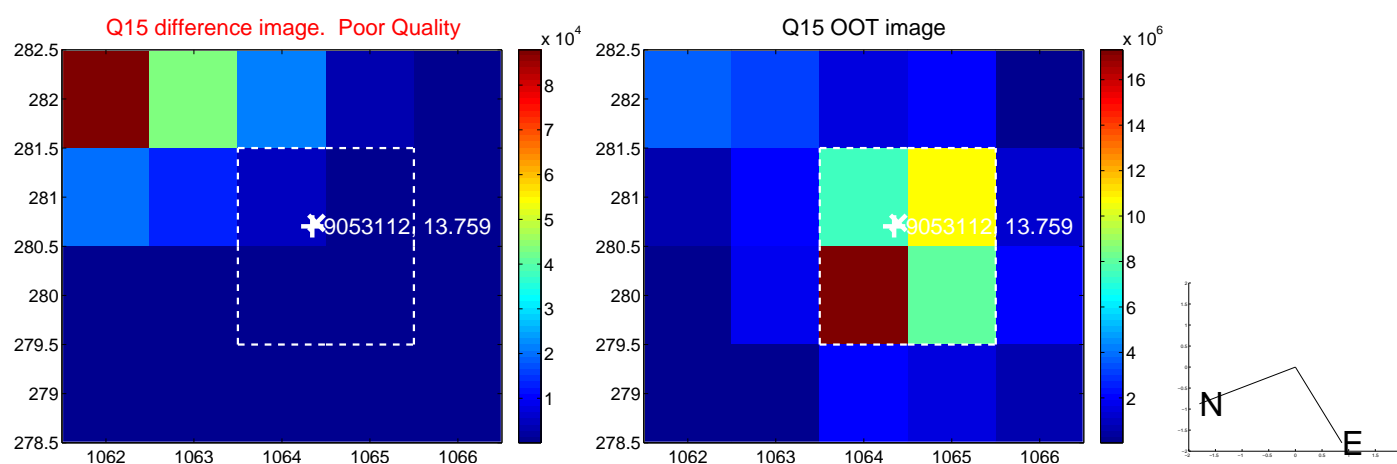
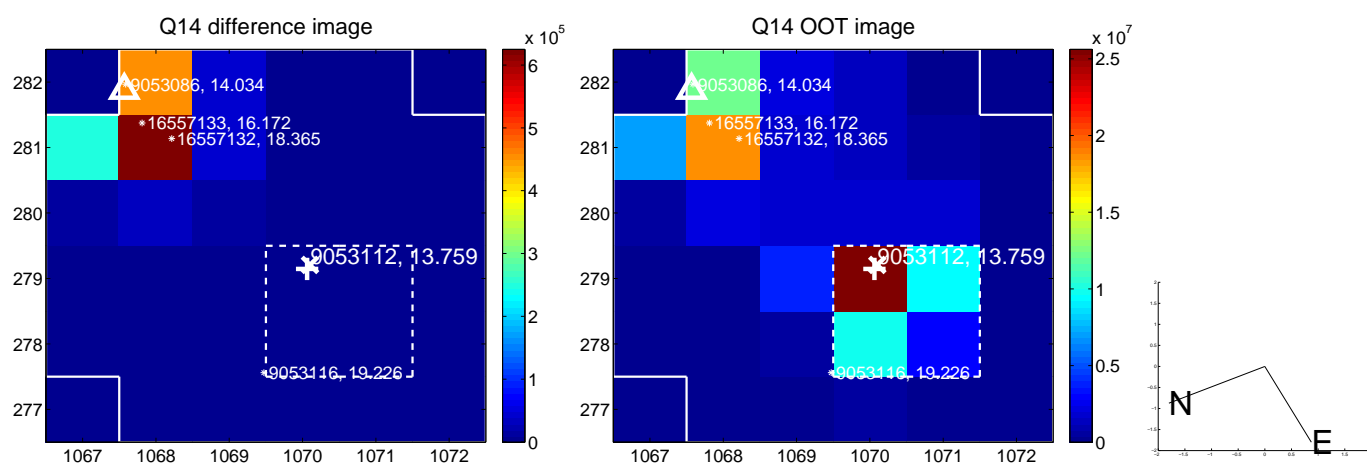
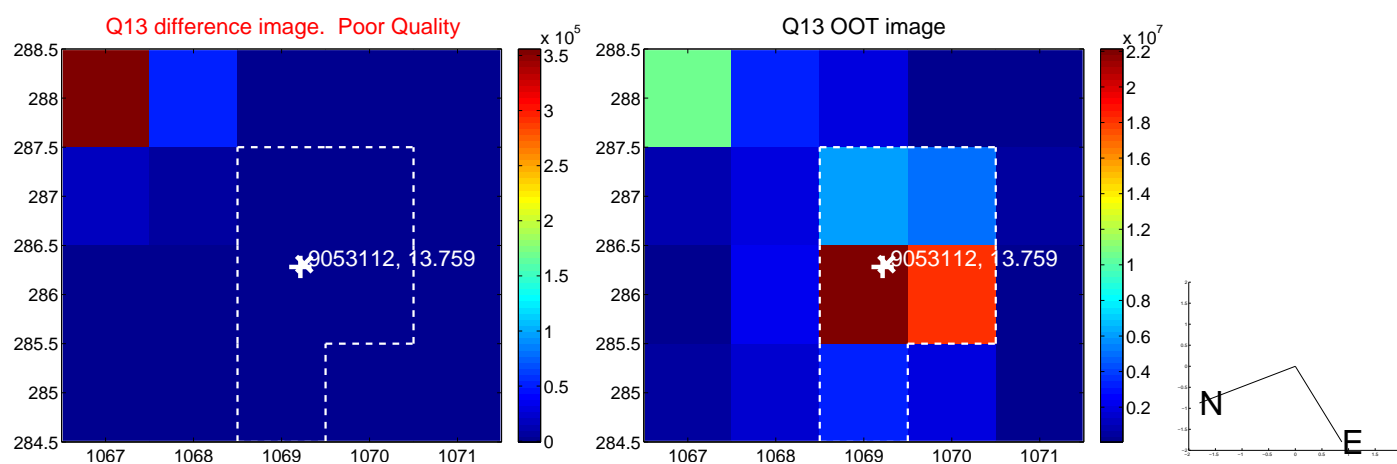
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



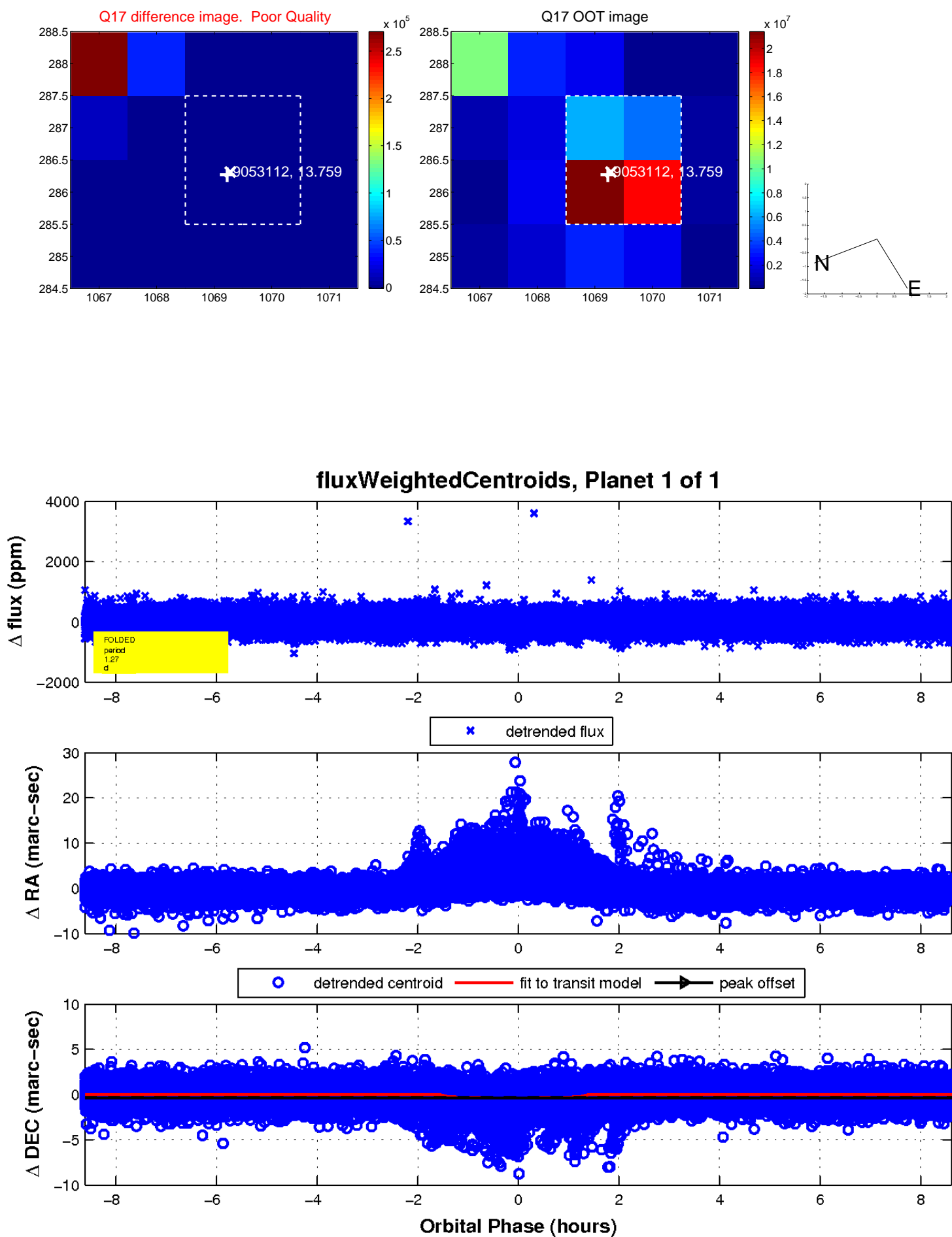
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

