

KIC 009851271

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})
009851271-01	OBS	2003.01	8.480289	135.854128	342.6	6.954	31.6	34.0	1.08	5910	2.51	194.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009851271-01	OBS	FP	0.00	0	0	1	1	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.

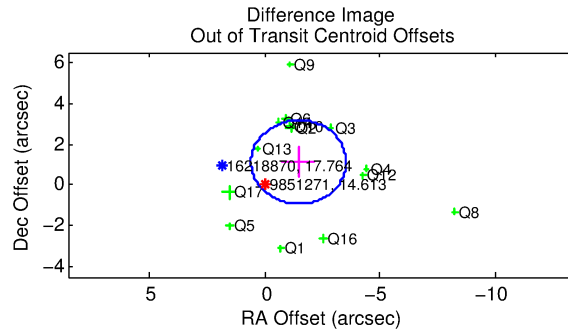
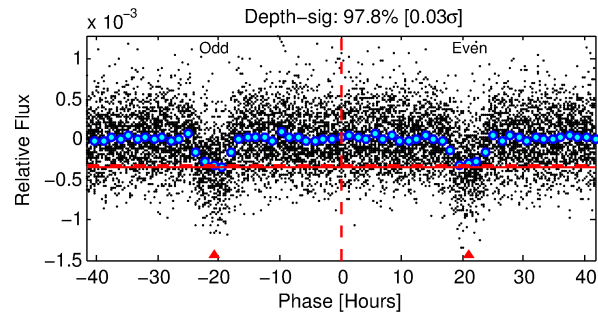
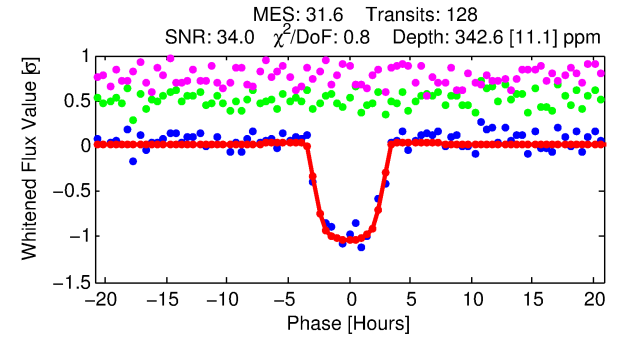
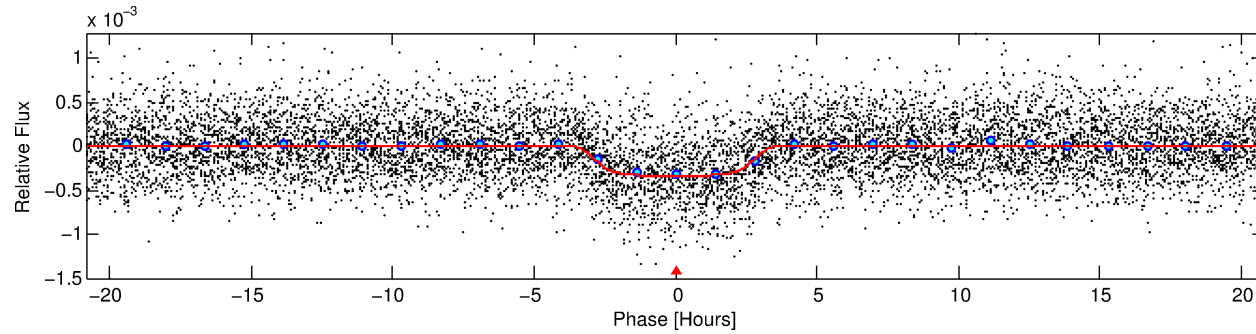
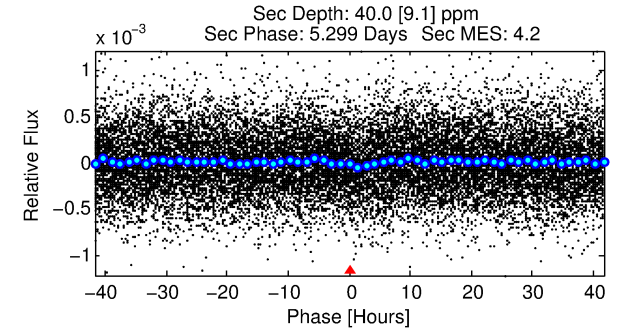
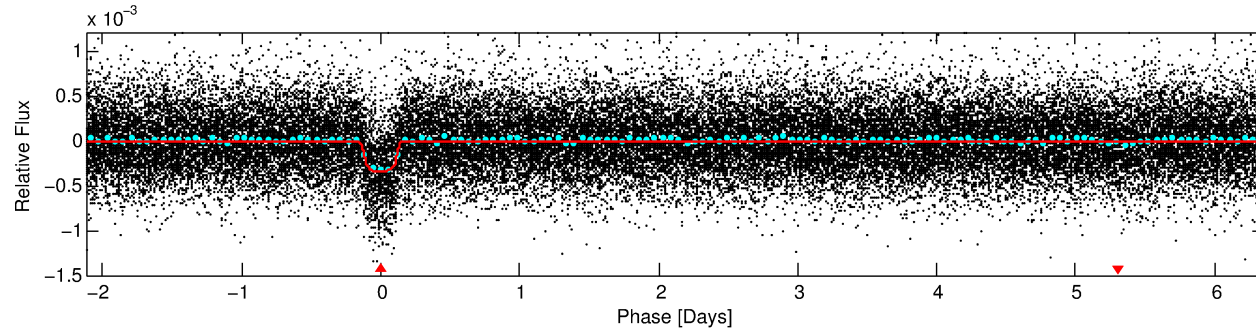
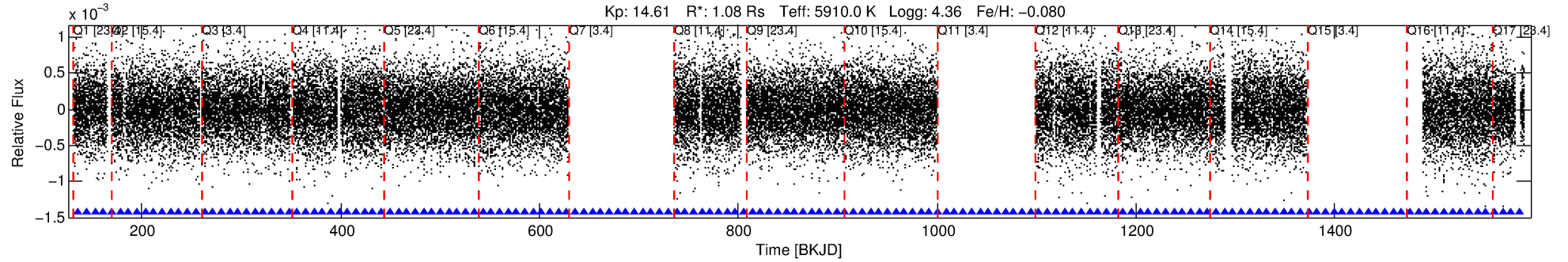
Ephemeris Match Information For 009851271-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009851271-01	9851271	009851142-pri	9851142	1:1	91.0	-14	-18	7.63	14.61	265.60	Direct-PRF	0	0.05	0.04

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 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 $\sigma_P < 5.0$ and $\sigma_T < 5.0$. 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: 9851271 Candidate: 1 of 1 Period: 8.480 d
KOI: K02003.01 Corr: 0.946



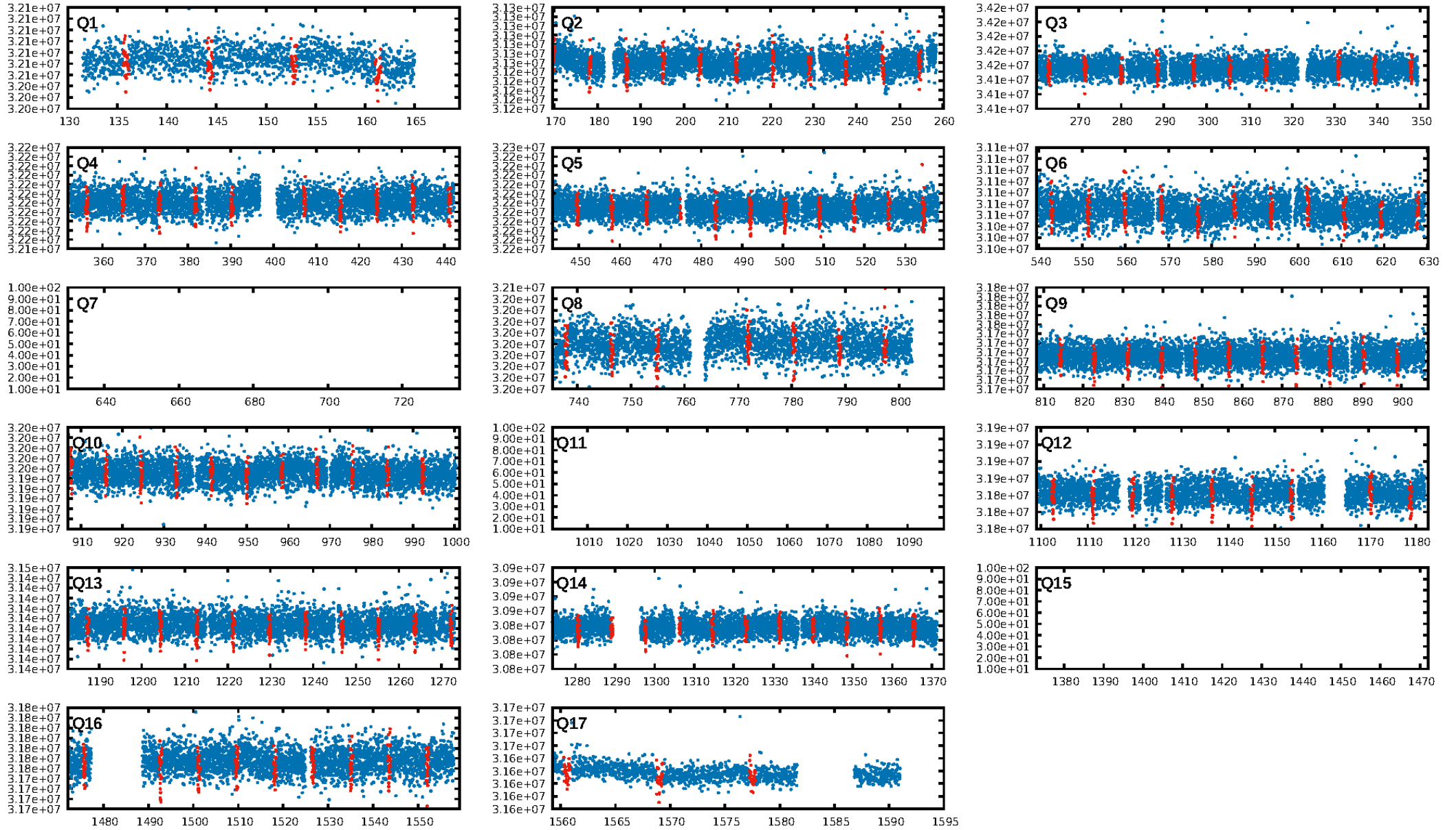
DV Fit Results:

Period = 8.48029 [0.00005] d
Epoch = 135.8541 [0.0041] BKJD
Rp/R* = 0.0214 [0.0007]
a/R* = 3.64 [0.40]
b = 0.95 [0.01]
Seff = 194.29 [73.62]
Teff = 952 [90] K
Rp = 2.51 [0.75] Re
a = 0.0809 [0.0200] AU
Ag = 22.78 [9.73] [2.24 σ]
Teffp = 3216 [217] K [9.64 σ]

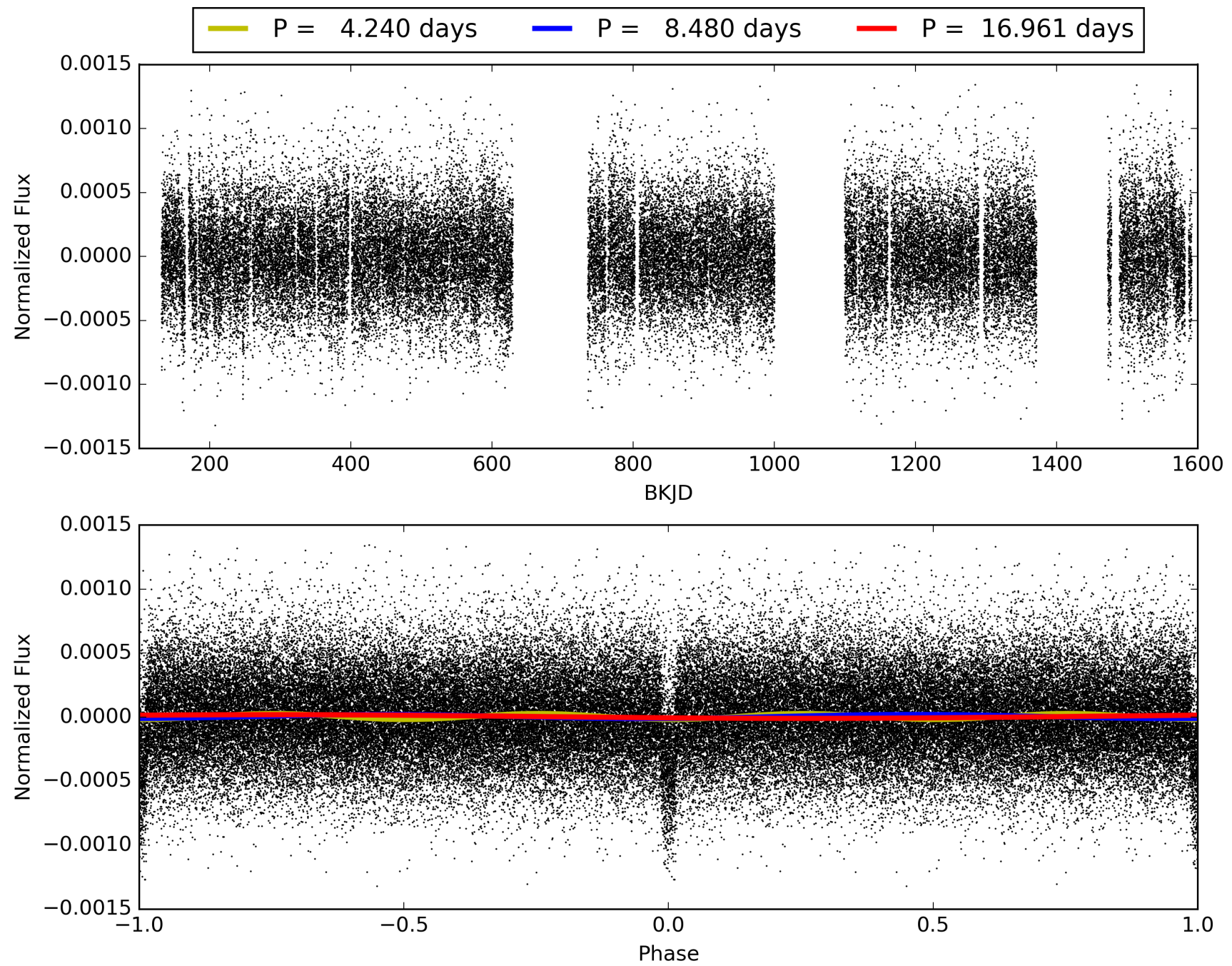
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.77e-224
RollingBand-fgt: 1.00 [121/121]
GhostDiagnostic-chr: -0.09413
Centroid-sig: 0.0%
Centroid-so: 2.810 arcsec [6.27 σ]
OotOffset-rm: 1.847 arcsec [2.70 σ]
KicOffset-rm: 1.903 arcsec [2.82 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 009851271-01, PDC Light Curves

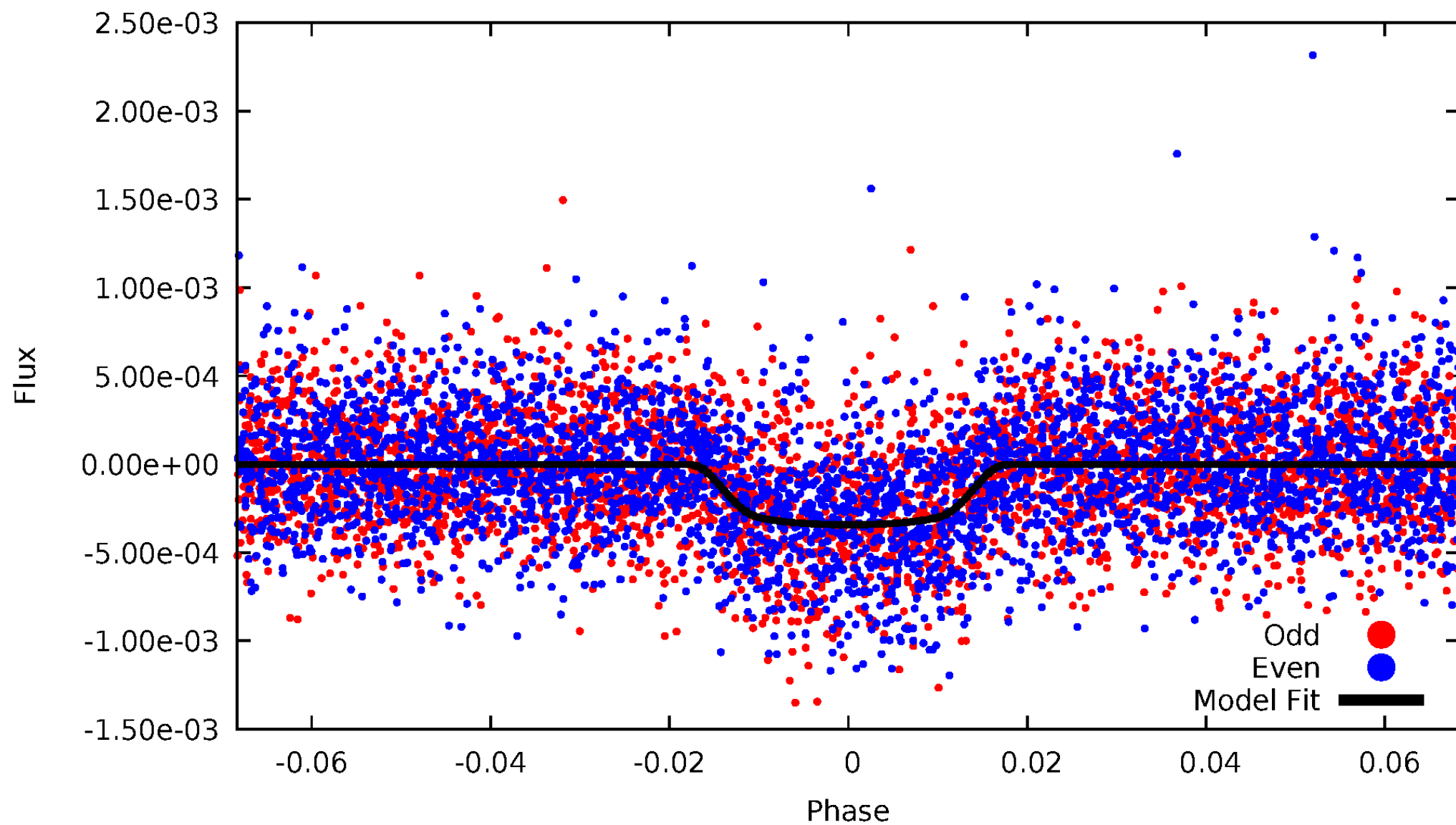


TCE 009851271-01



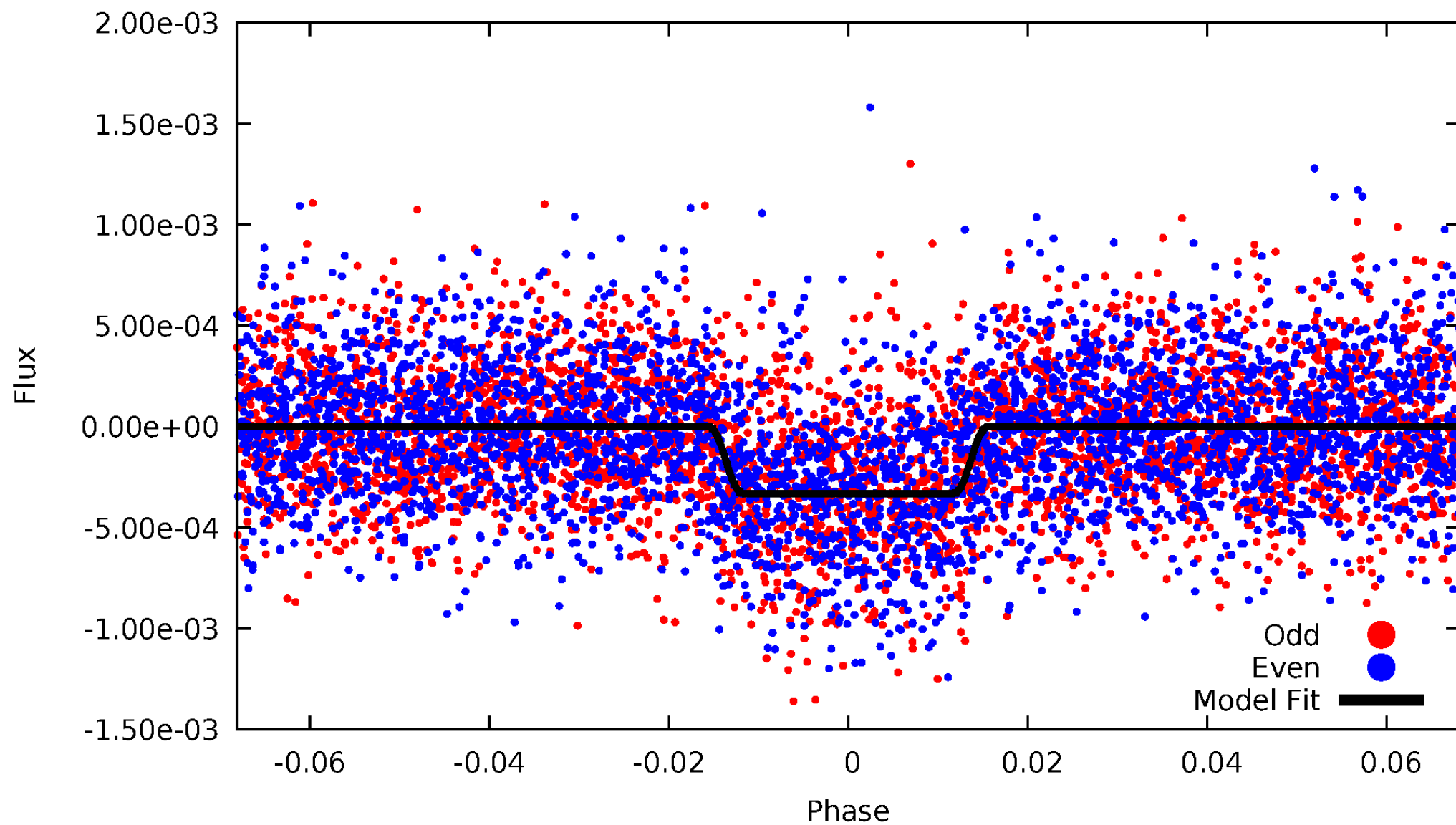
DV Odd/Even

TCE 009851271-01

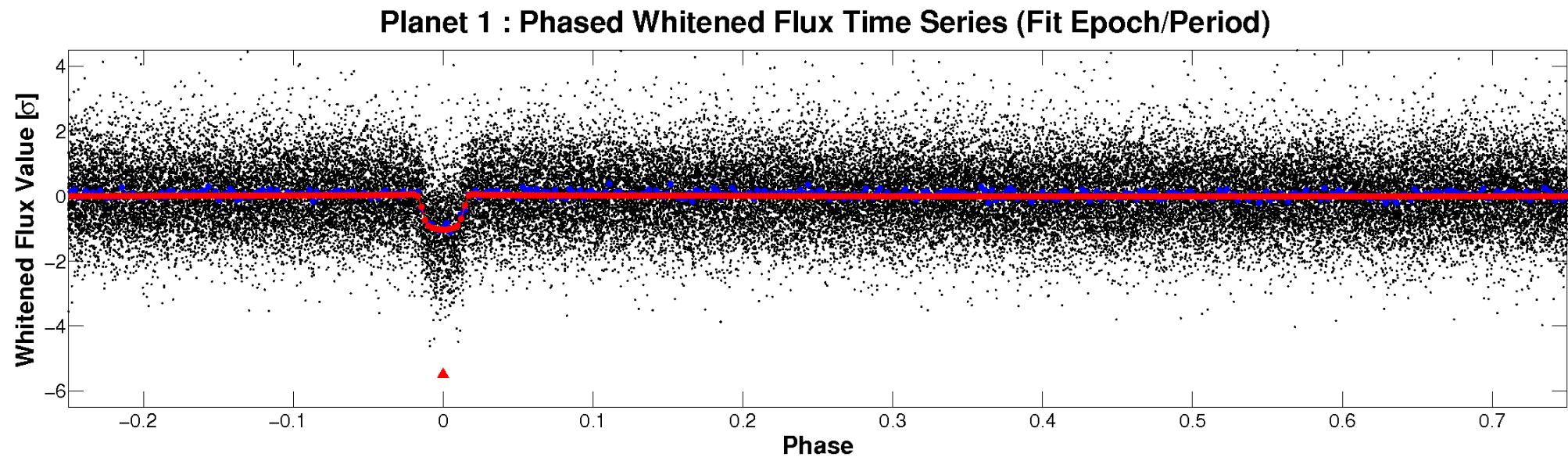
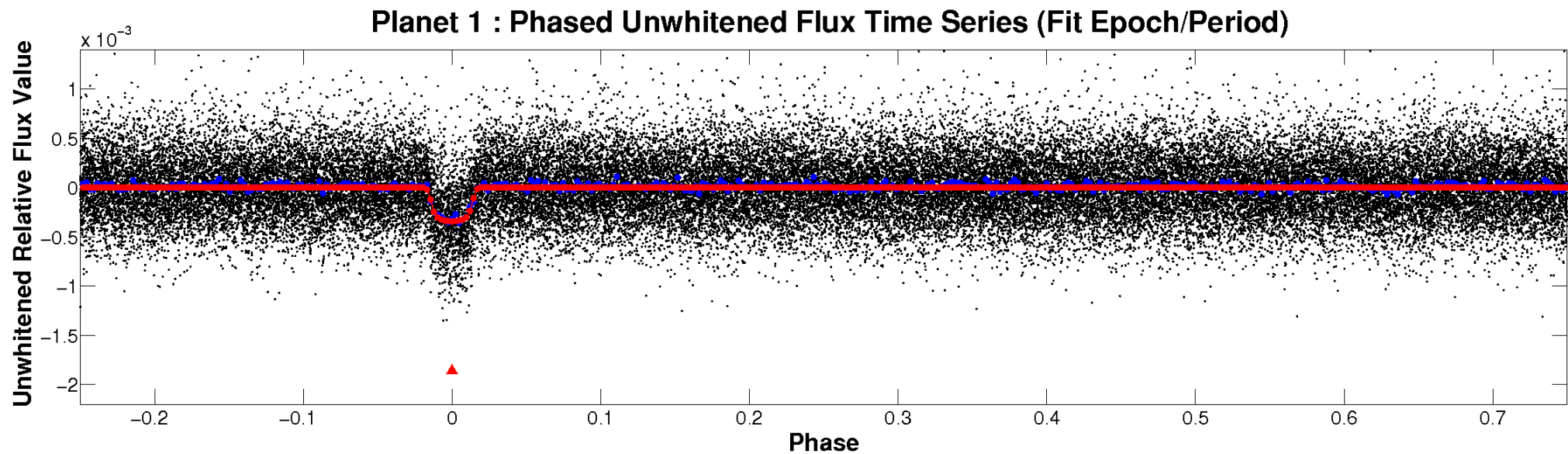


ALT Odd/Even

TCE 009851271-01

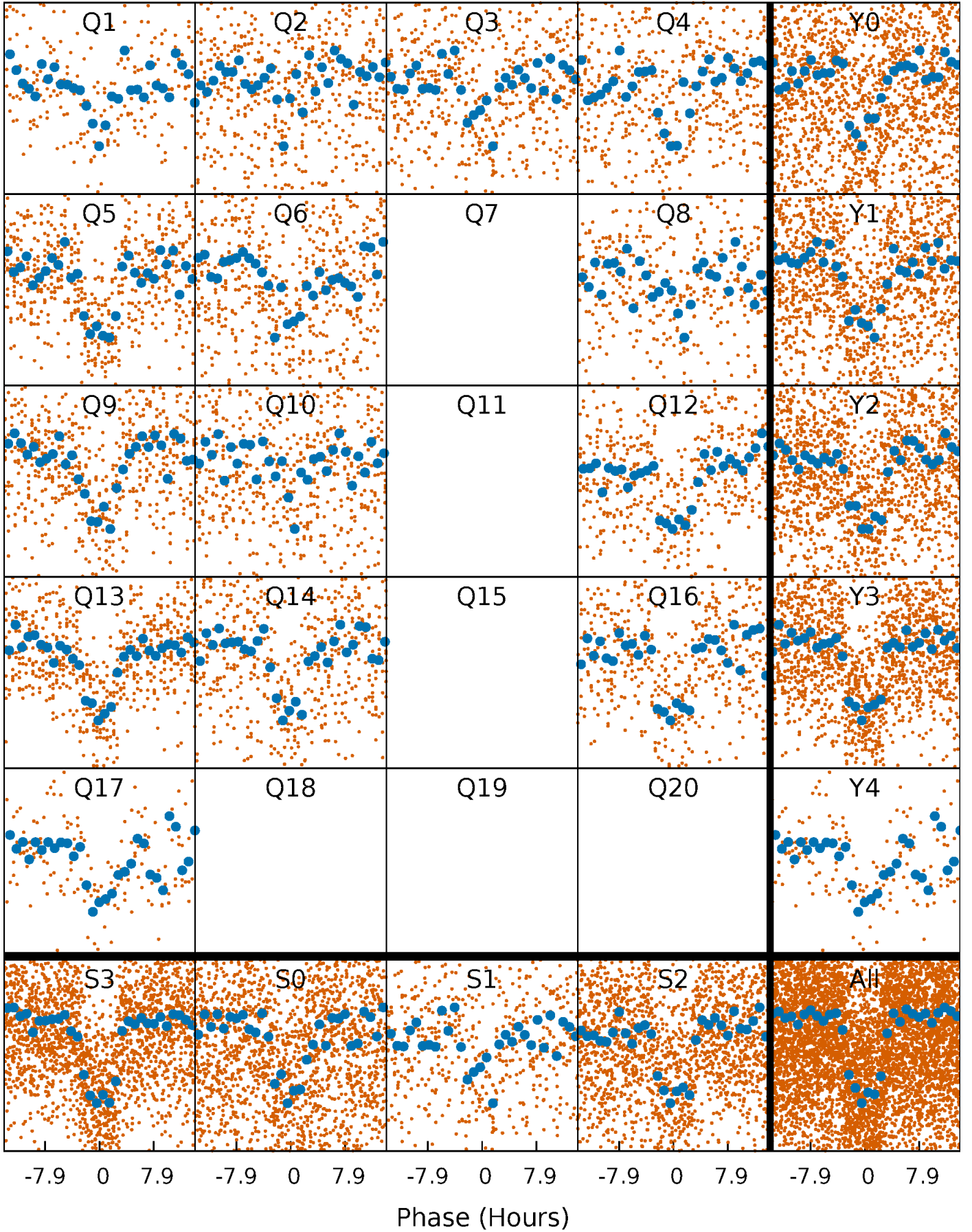


Non-Whitened Vs. Whitened Light Curve



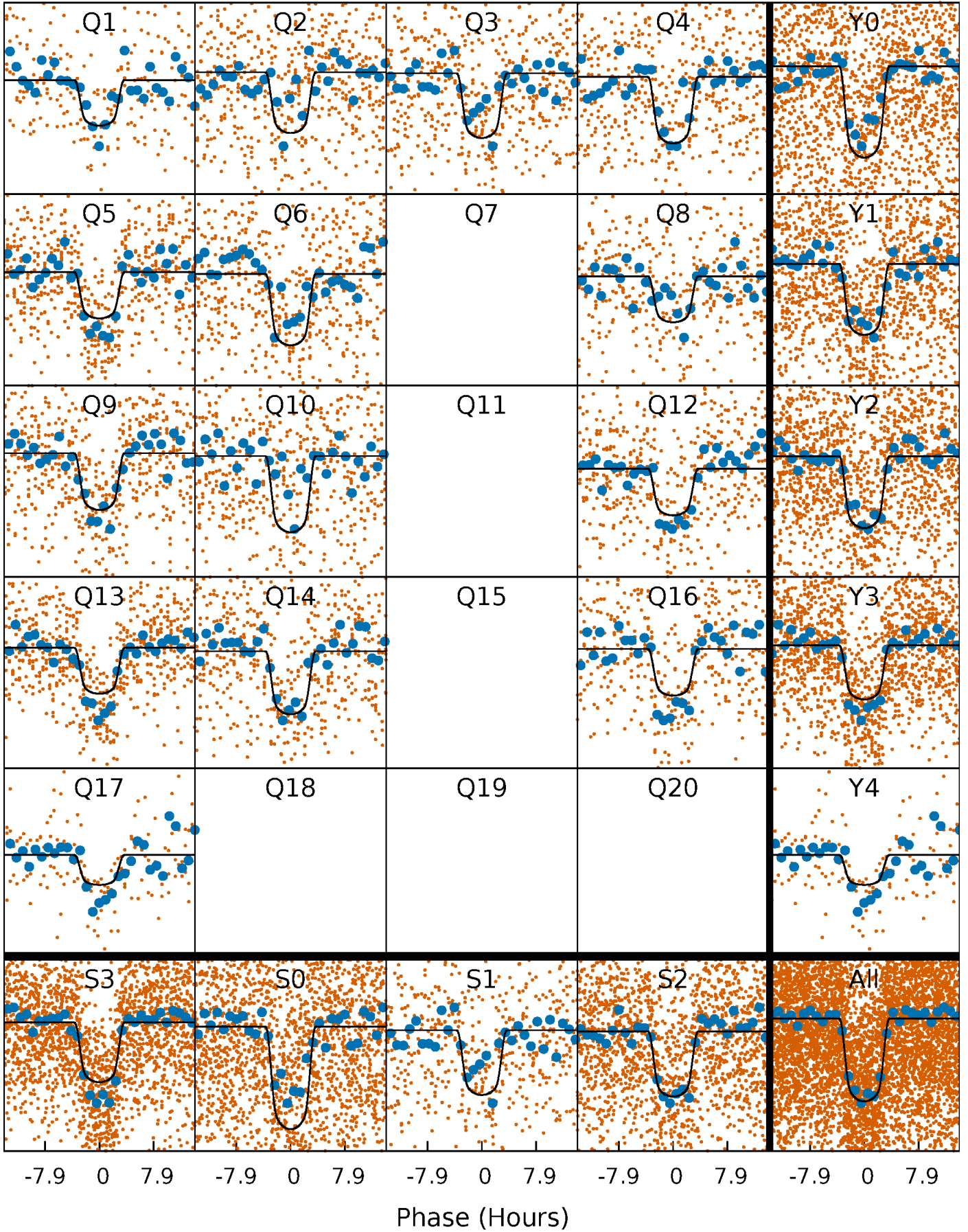
PDC Quarter-Phased Transit Curves

TCE 009851271-01 P= 8.480289 Days $T_0=135.854128$ (BKJD)



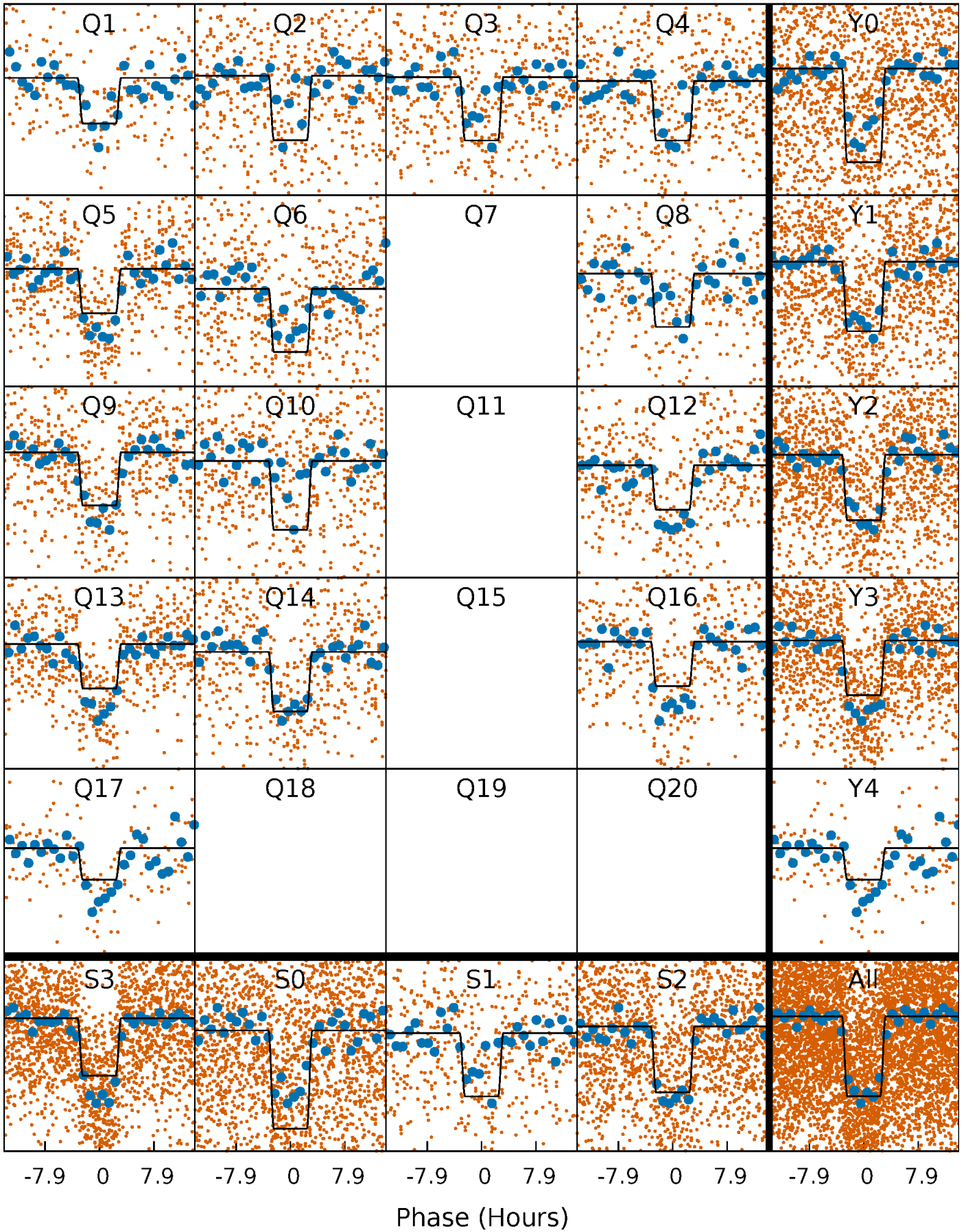
DV Quarter-Phased Transit Curves

TCE 009851271-01 P= 8.480289 Days $T_0=135.854128$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

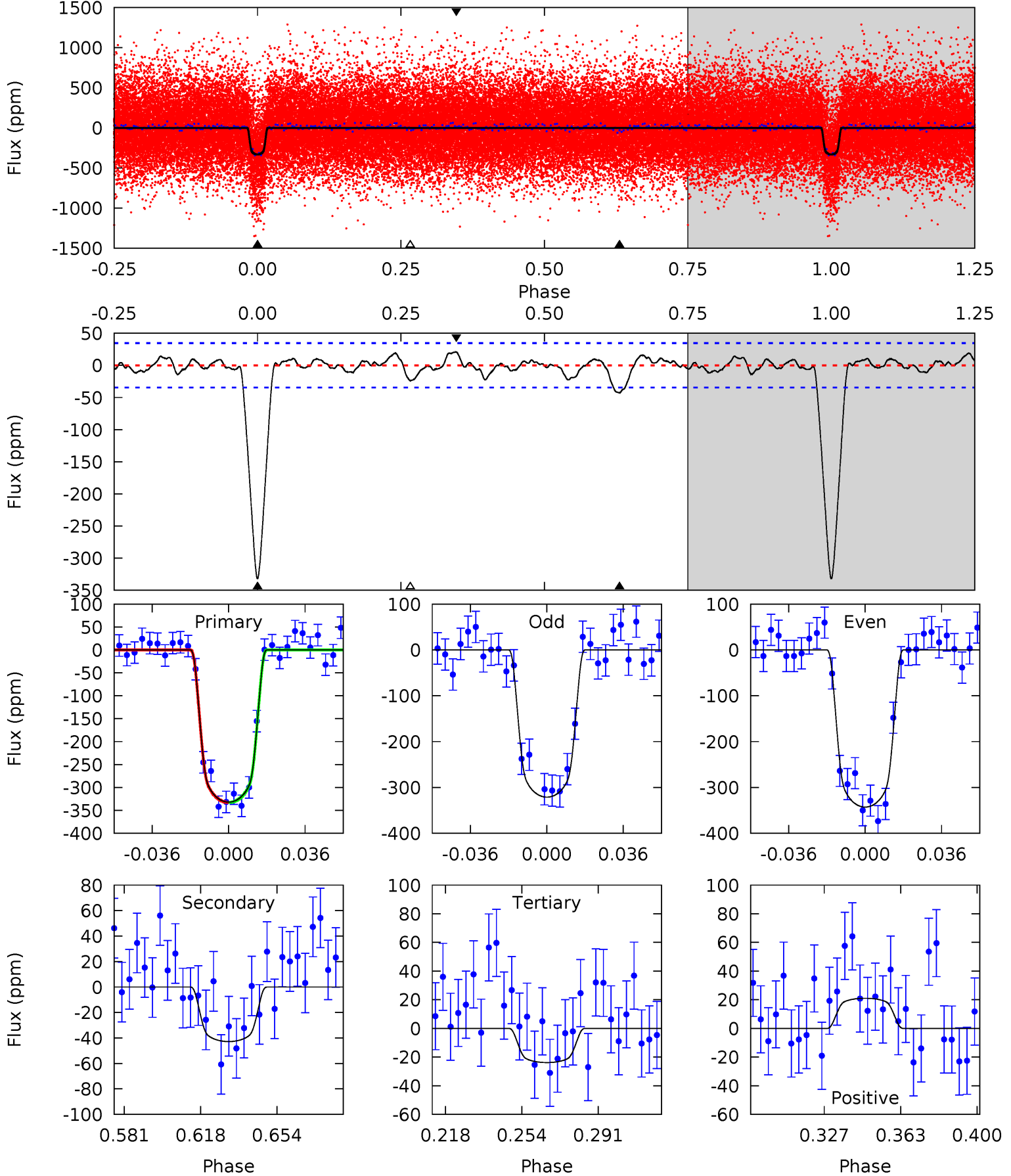
TCE 009851271-01 P= 8.480296 Days $T_0=135.854475$ (BKJD)



DV Model-Shift Uniqueness Test

009851271-01, P = 8.480289 Days, E = 127.373839 Days

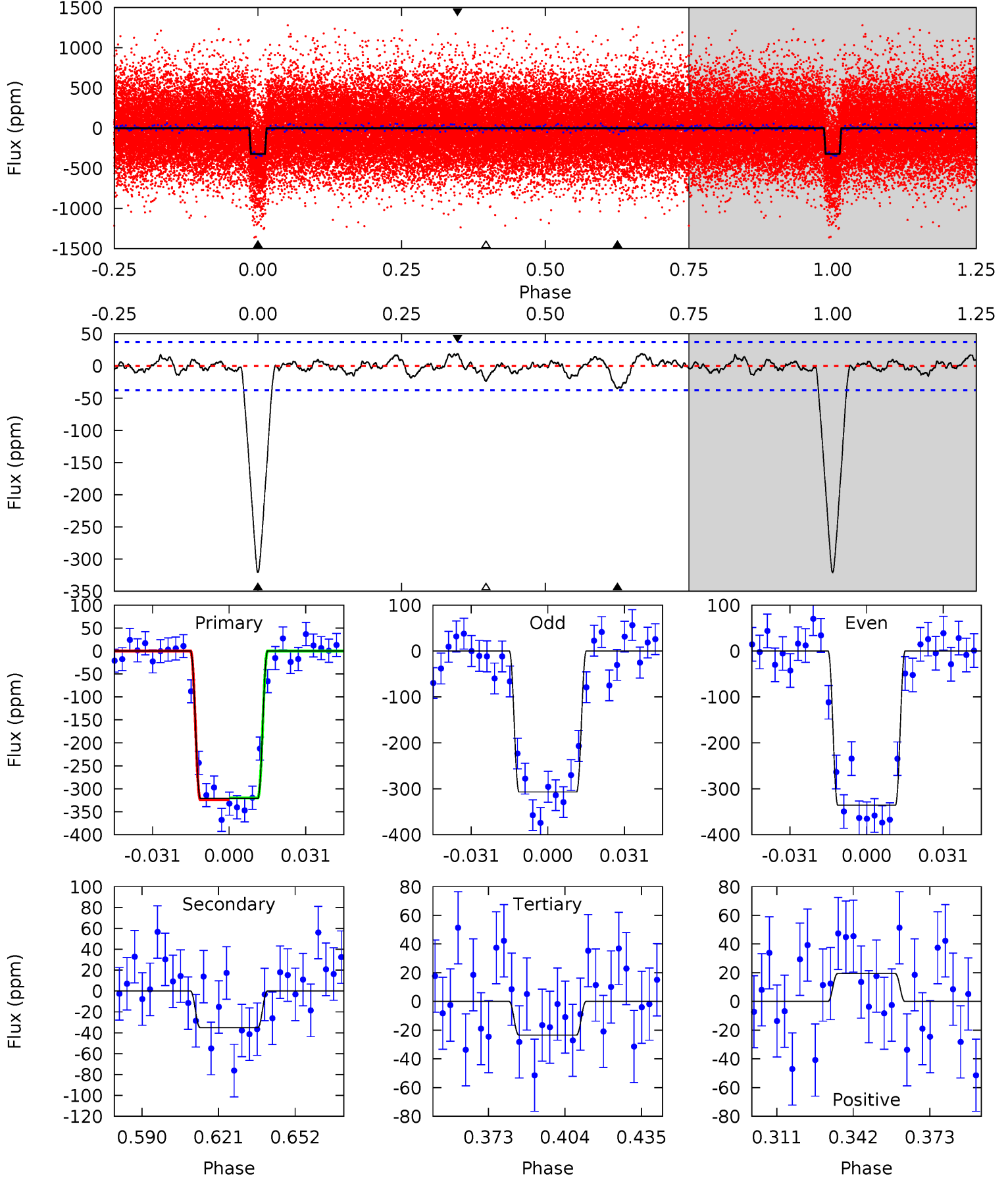
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.9	5.92	3.29	2.91	4.77	2.09	1.22	42.6	42.9	2.63	3.01	1.50	0.98	0.06	0.01



Alt Model-Shift Uniqueness Test

009851271-01, P = 8.480296 Days, E = 127.374179 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.2	4.51	3.01	2.50	4.80	2.16	1.04	38.2	38.7	1.50	2.01	1.86	0.96	0.06	0.23



Stellar Parameters For KIC 009851271

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5910^{+158}_{-193}	$4.364^{+0.128}_{-0.192}$	$-0.080^{+0.300}_{-0.300}$	$1.078^{+0.322}_{-0.173}$	$0.982^{+0.140}_{-0.115}$	$1.103^{+0.663}_{-0.566}$
	+3%/-3%	+3%/-4%	+375%/-375%	+30%/-16%	+14%/-12%	+60%/-51%
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 009851271-01 / KOI 2003.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-43 ± 7	$2.54^{+0.40}_{-0.26}$	1334^{+107}_{-80}	3678^{+137}_{-151}	24^{+7}_{-7}
Alt.	-35 ± 8	$2.14^{+0.40}_{-0.21}$	1332^{+104}_{-71}	3759^{+162}_{-187}	26^{+10}_{-8}

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 $A_{\text{obs}} \gg 1.0$

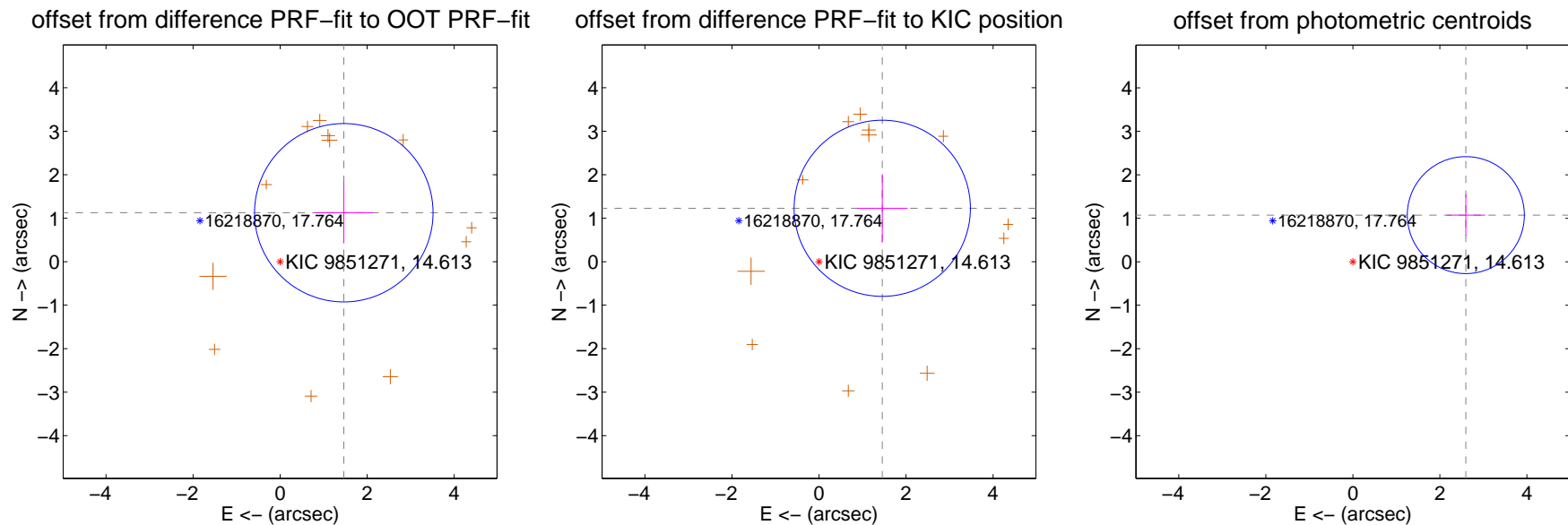
DV Centroid Data

Supplemental centroid analysis for 009851271-01. Kepler magnitude: 14.61. Transit SNR 34.03

There are 1 quarters with good PRF difference image offsets

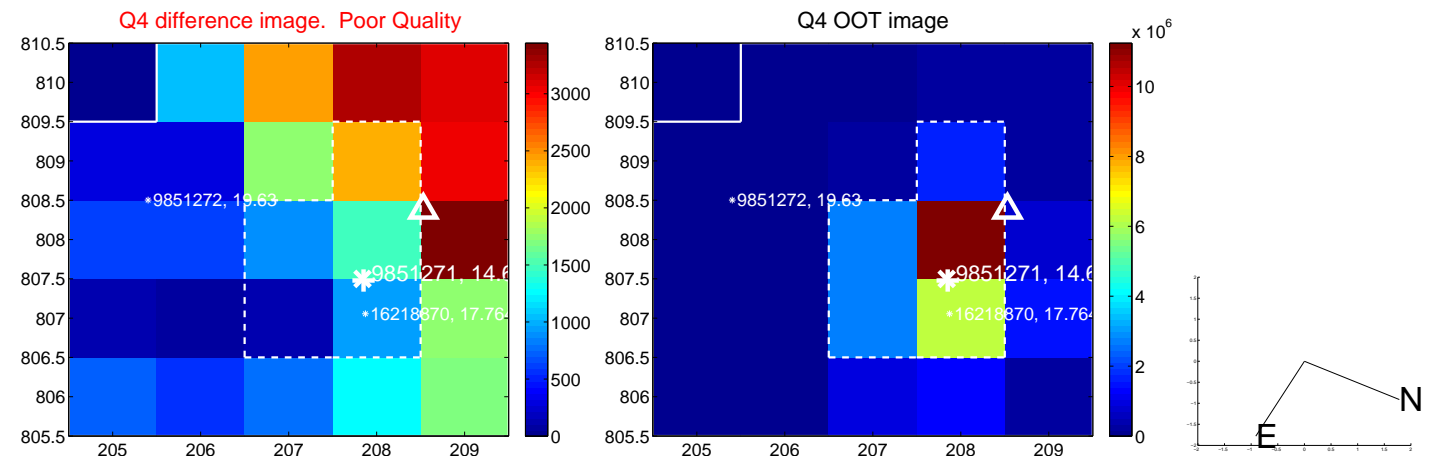
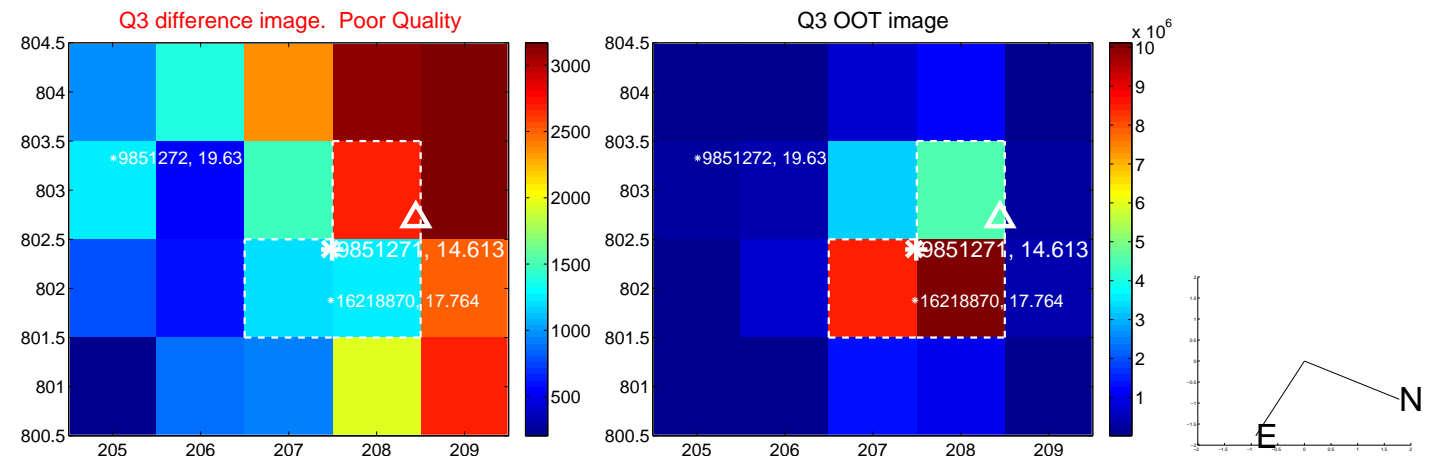
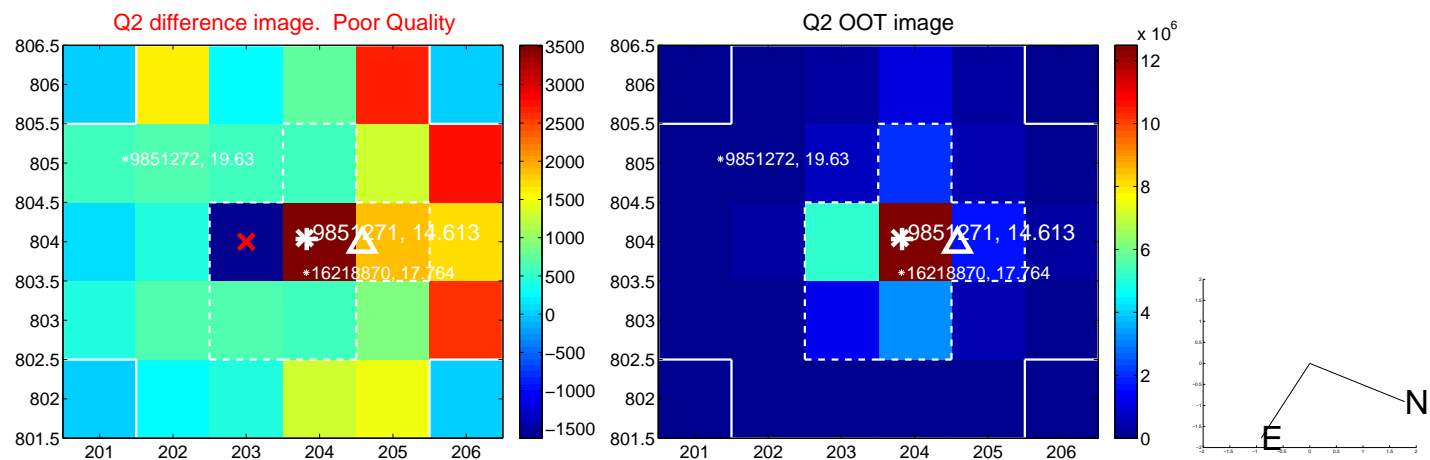
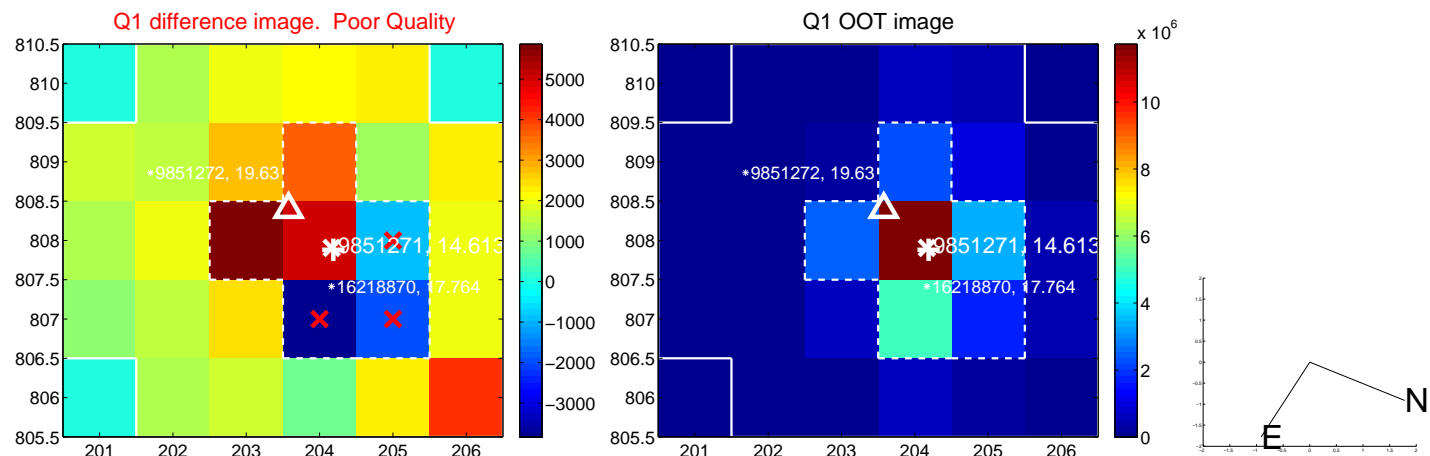
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.847 ± 0.684	2.70	-1.464 ± 0.668	1.126 ± 0.706
PRF-fit source offset from KIC position	1.903 ± 0.675	2.82	-1.454 ± 0.583	1.228 ± 0.787
photometric centroid source offset	2.81 ± 0.45	6.27	-2.60 ± 0.44	1.07 ± 0.48

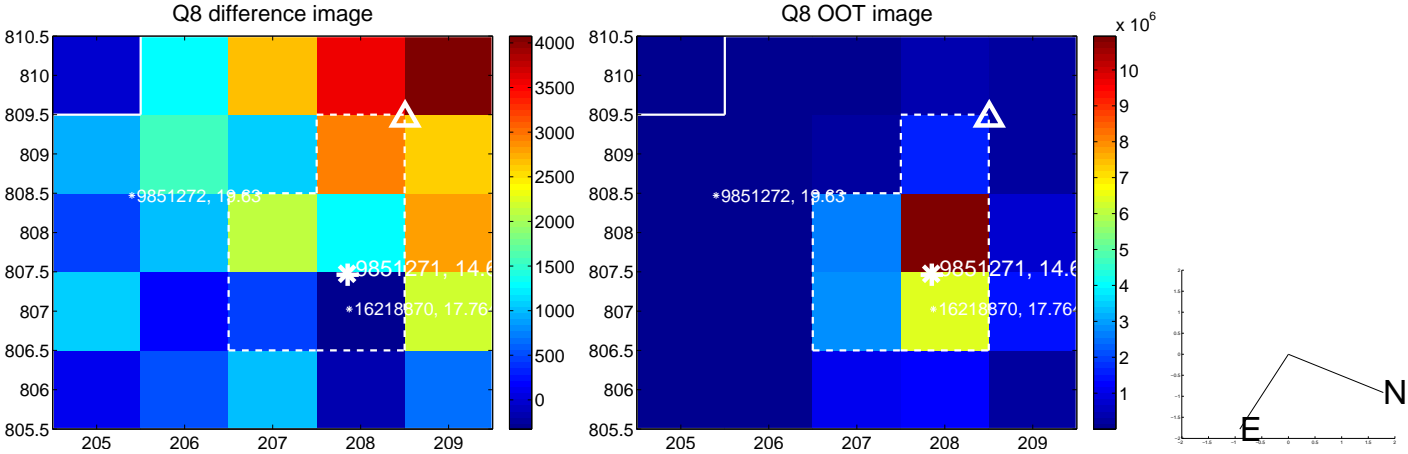
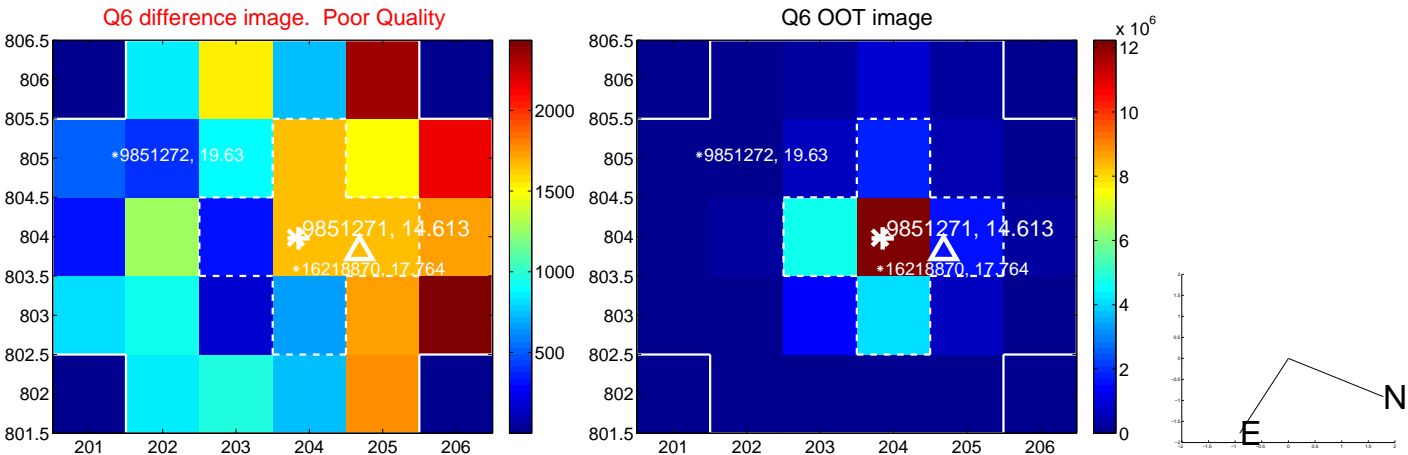
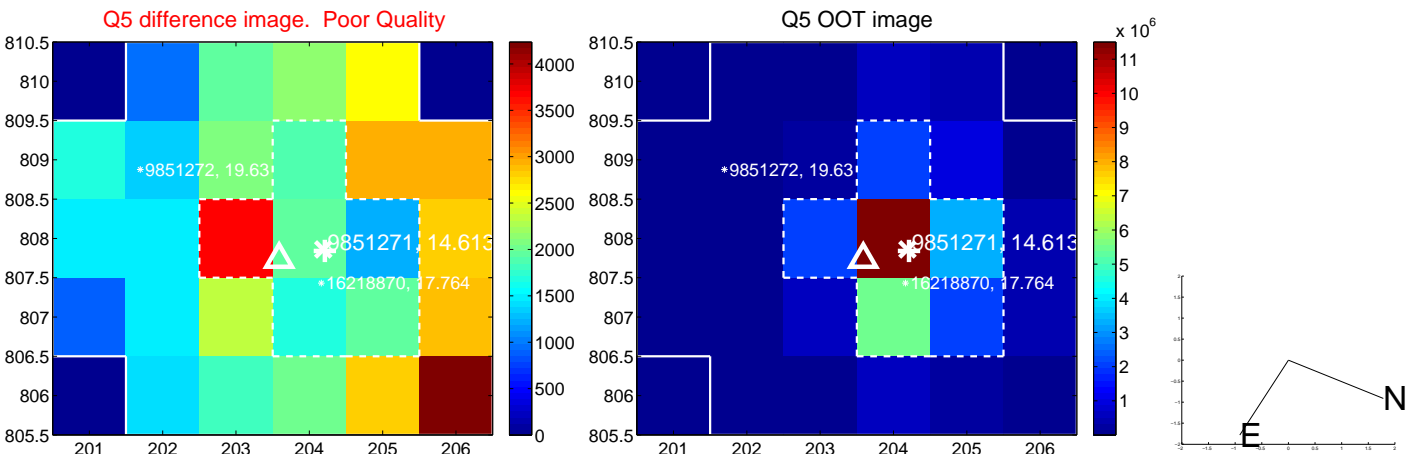


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

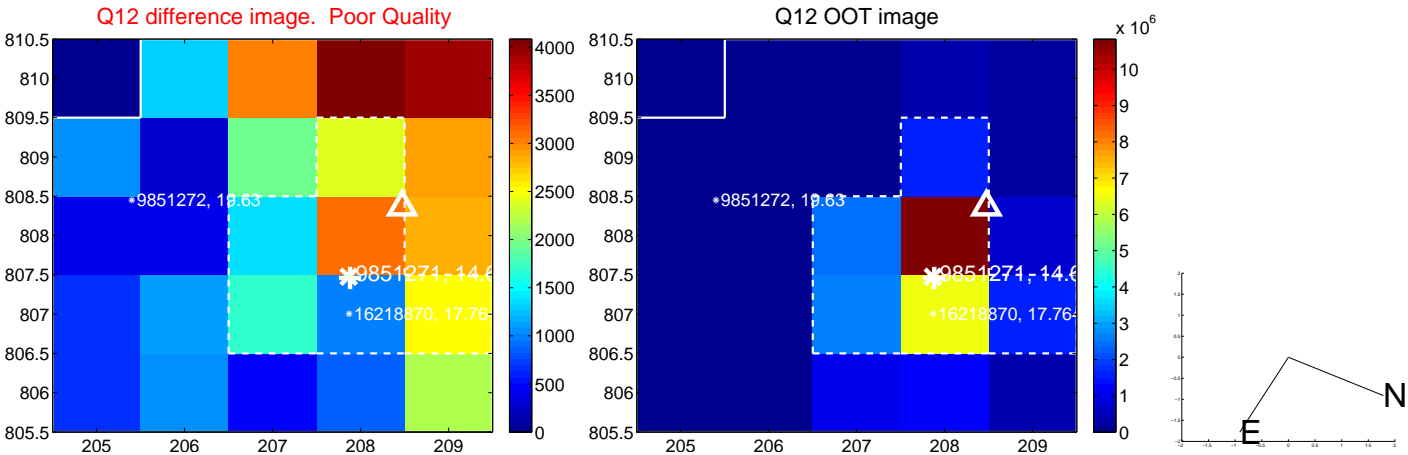
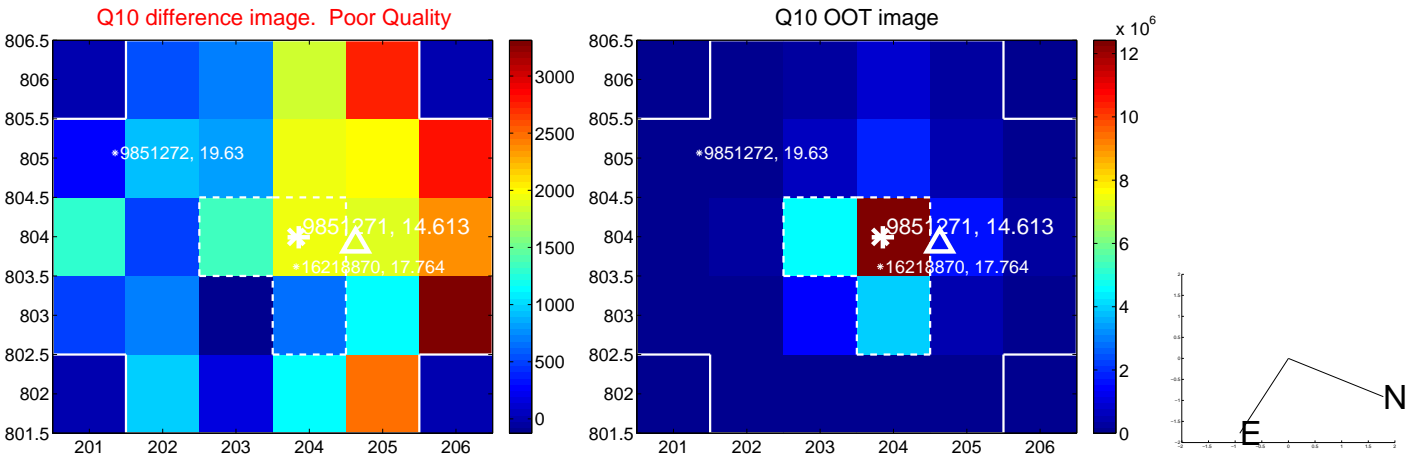
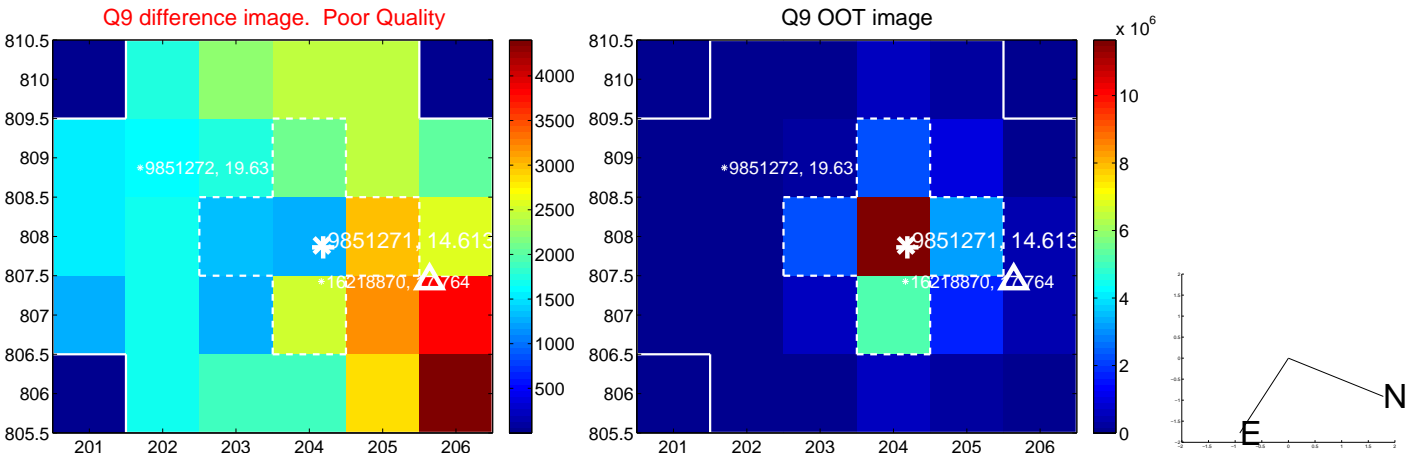
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



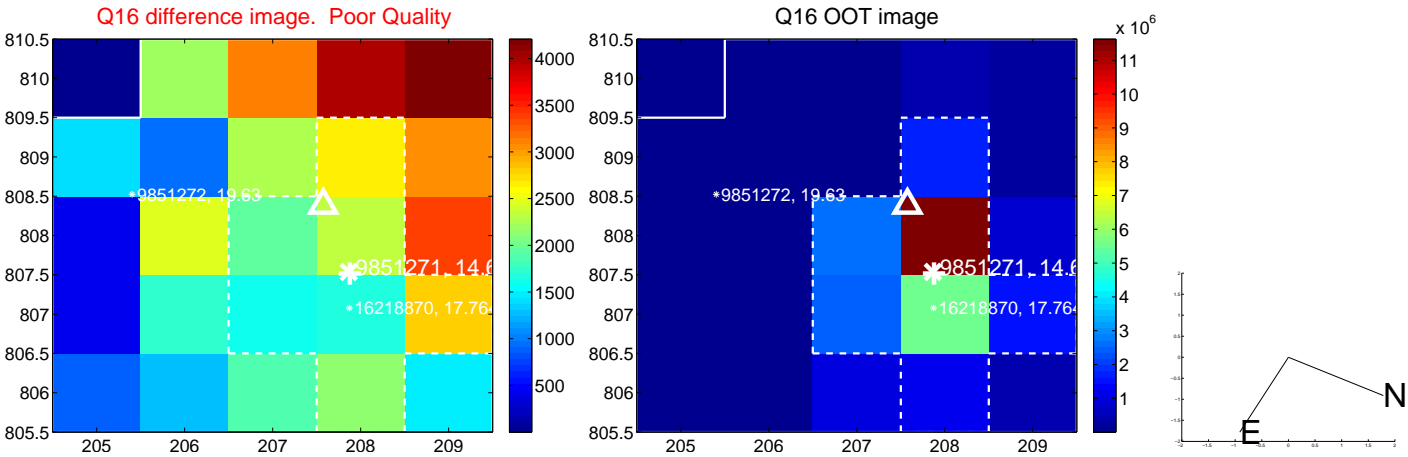
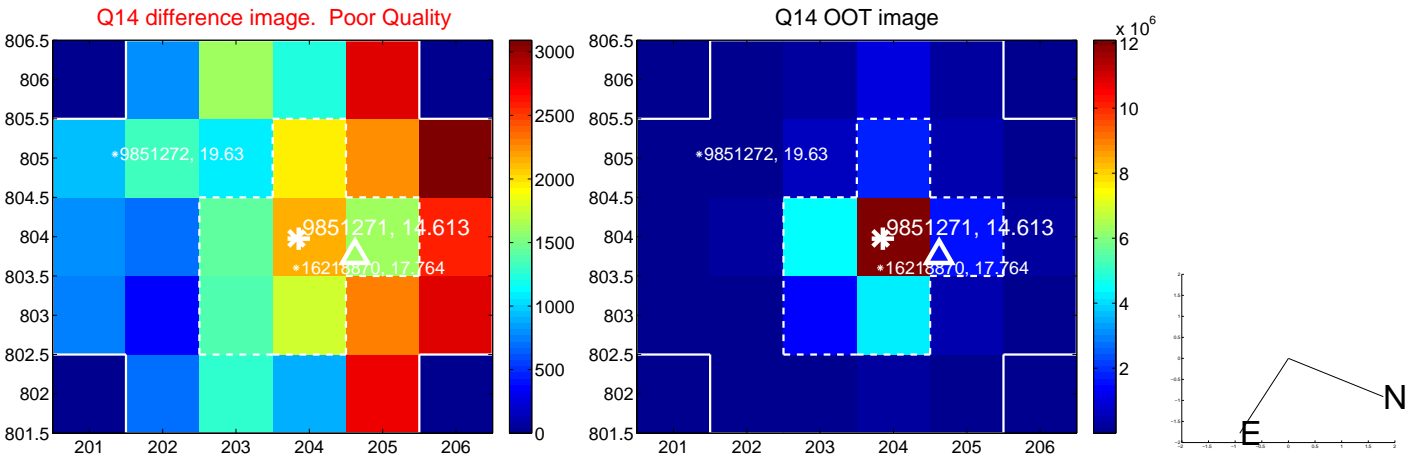
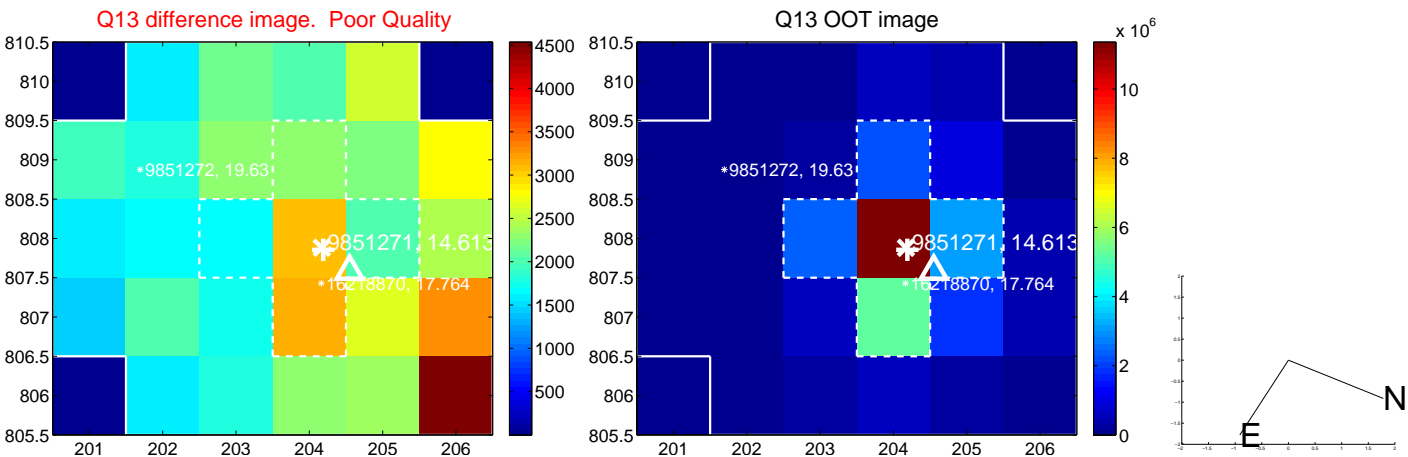
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



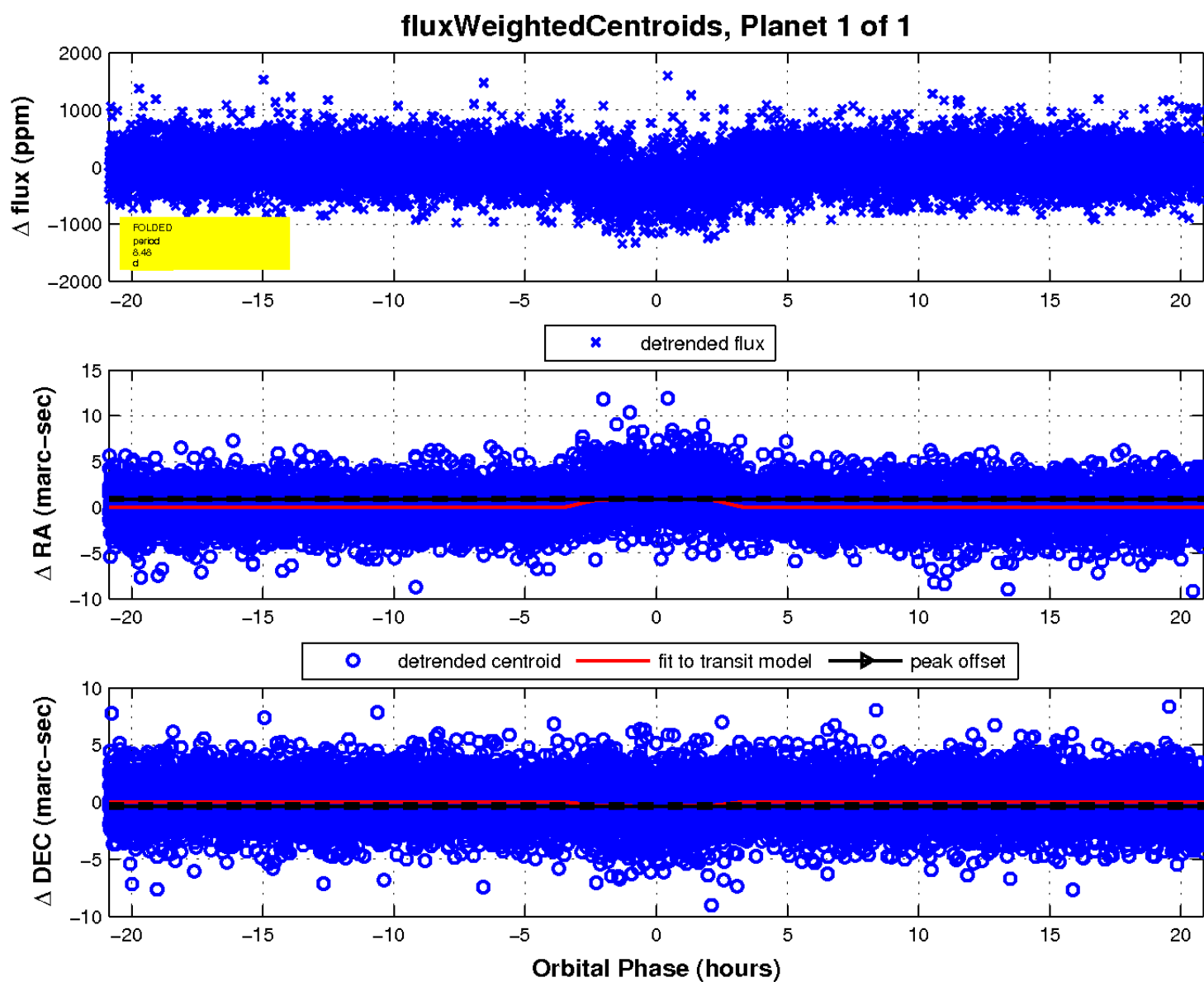
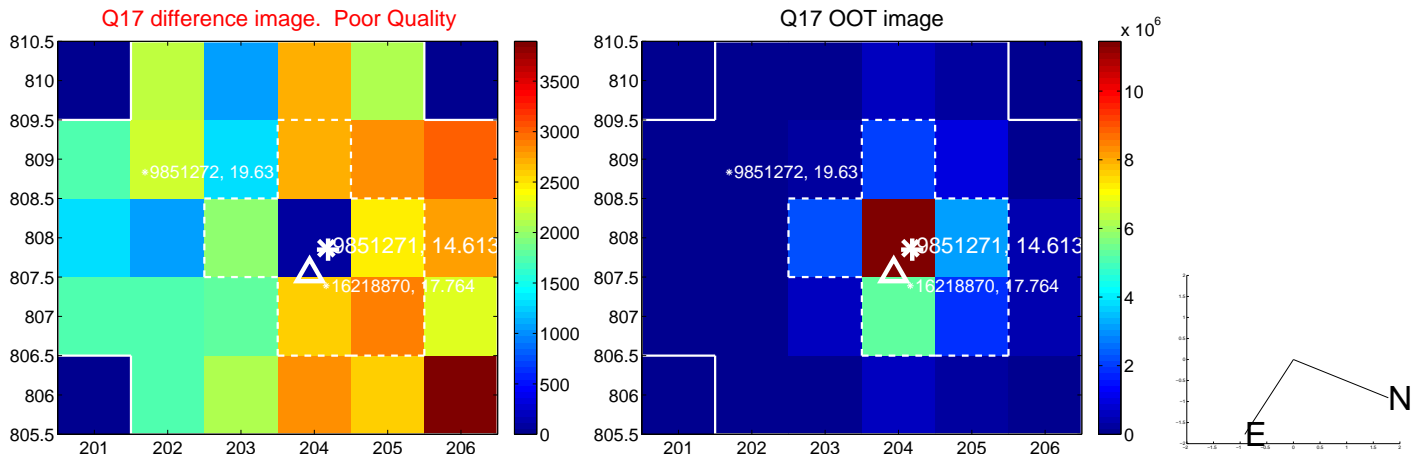
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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UKIRT Image

Declination

