

KIC 009842937

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})
009842937-01	OBS	2567.01	4.988425	133.748178	198.5	9.287	18.5	21.9	0.96	5695	1.81	292.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009842937-01	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 009842937-01

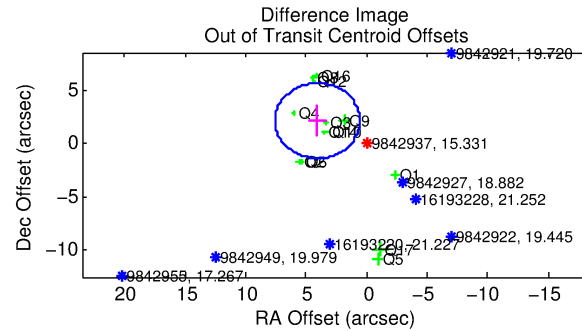
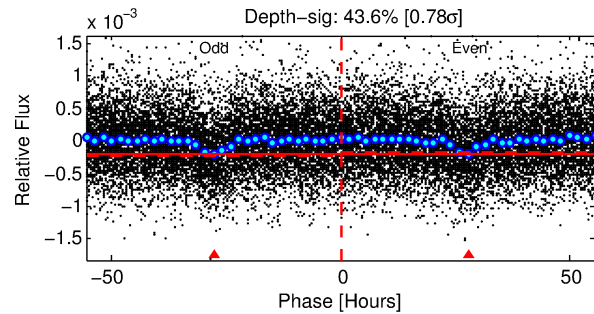
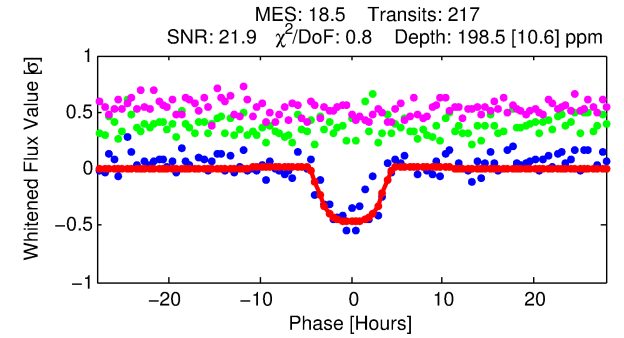
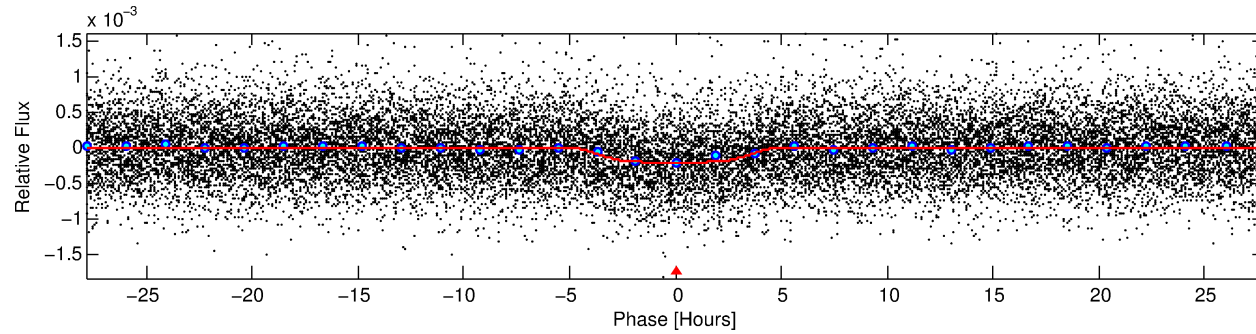
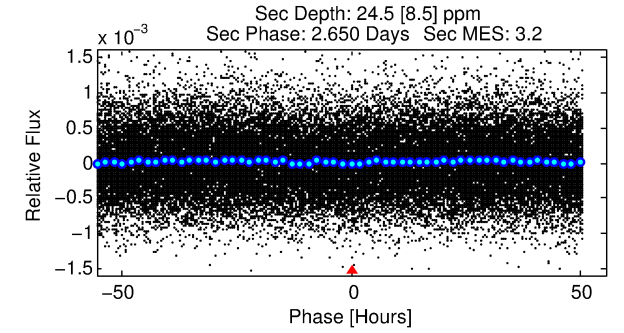
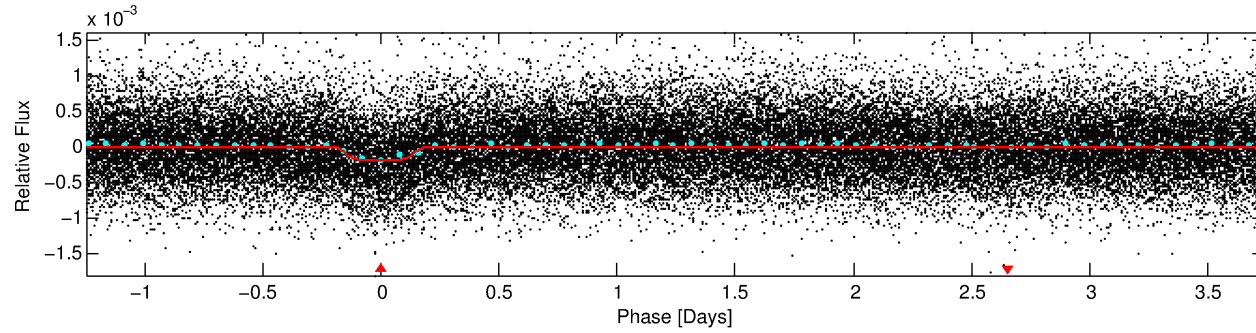
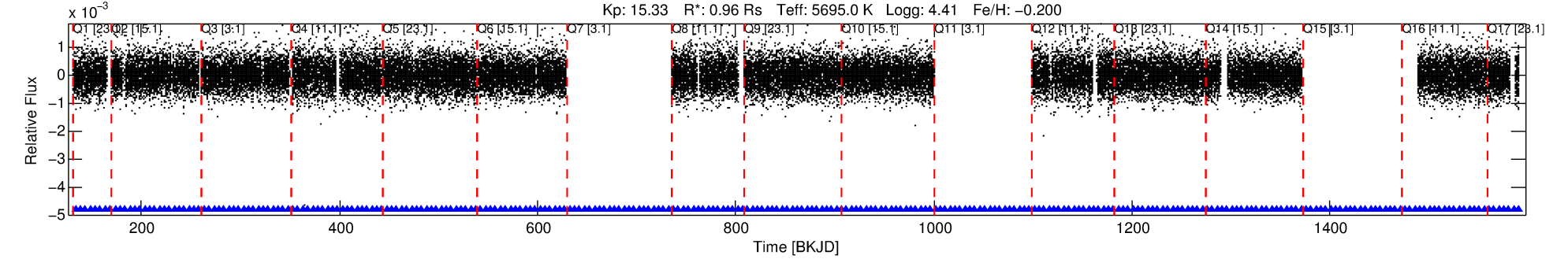
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009842937-01	9842937	009842890-pri	9842890	1:1	40.0	9	3	15.75	15.33	4.02	Direct-PRF	1	0.50	0.51

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: 9842937 Candidate: 1 of 1 Period: 4.988 d

KOI: K02567.01 Corr: 0.890



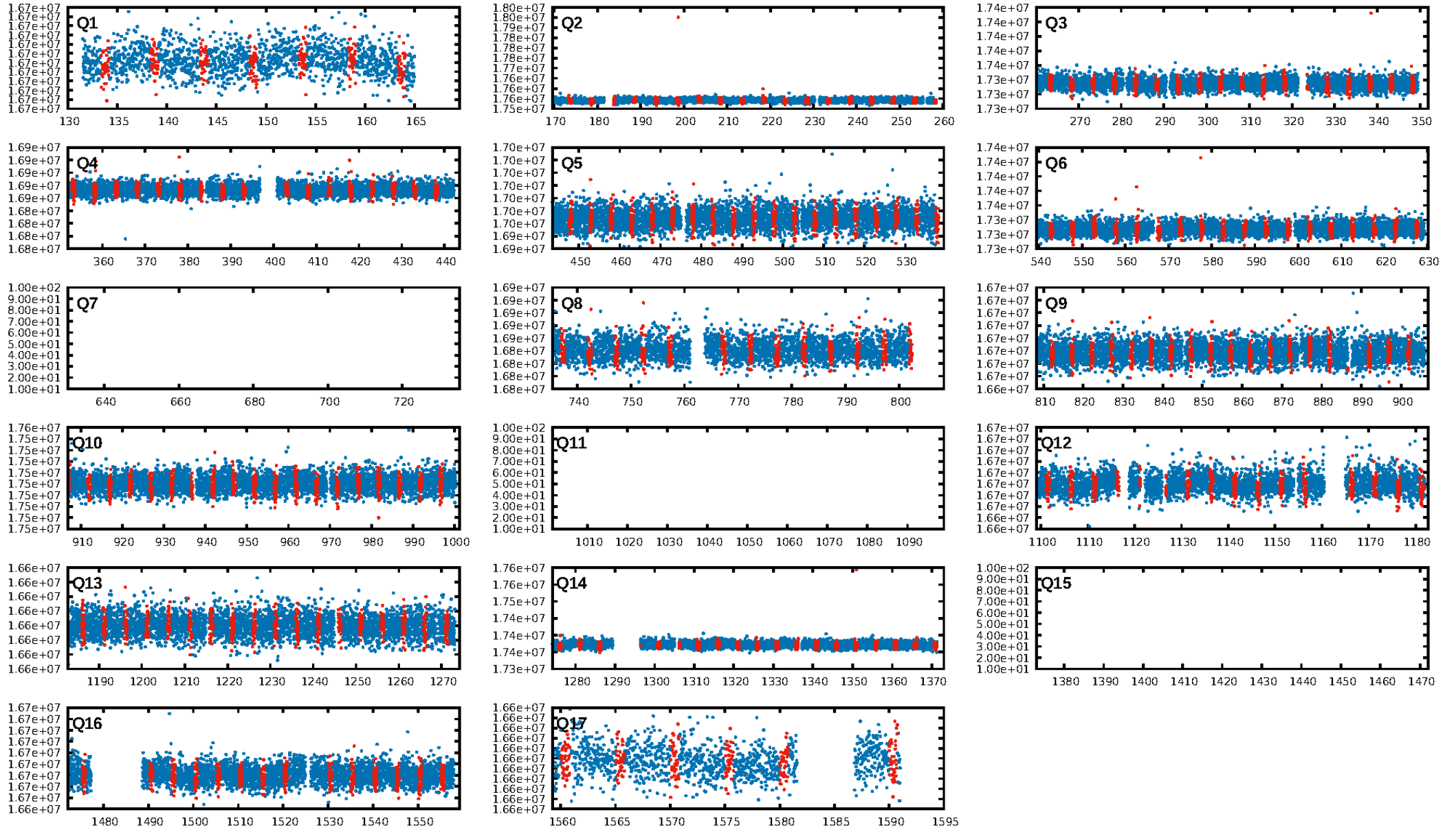
DV Fit Results:

Period = 4.98843 [0.00006] d
Epoch = 133.7482 [0.0086] BKJD
Rp/R* = 0.0172 [0.0007]
a/R* = 1.58 [0.13]
b = 0.97 [0.01]
Seff = 292.91 [105.27]
Teq = 1055 [95] K
Rp = 1.81 [0.50] Re
a = 0.0545 [0.0127] AU
Ag = 12.25 [6.03] [1.86σ]
Teffp = 3051 [287] K [6.60σ]

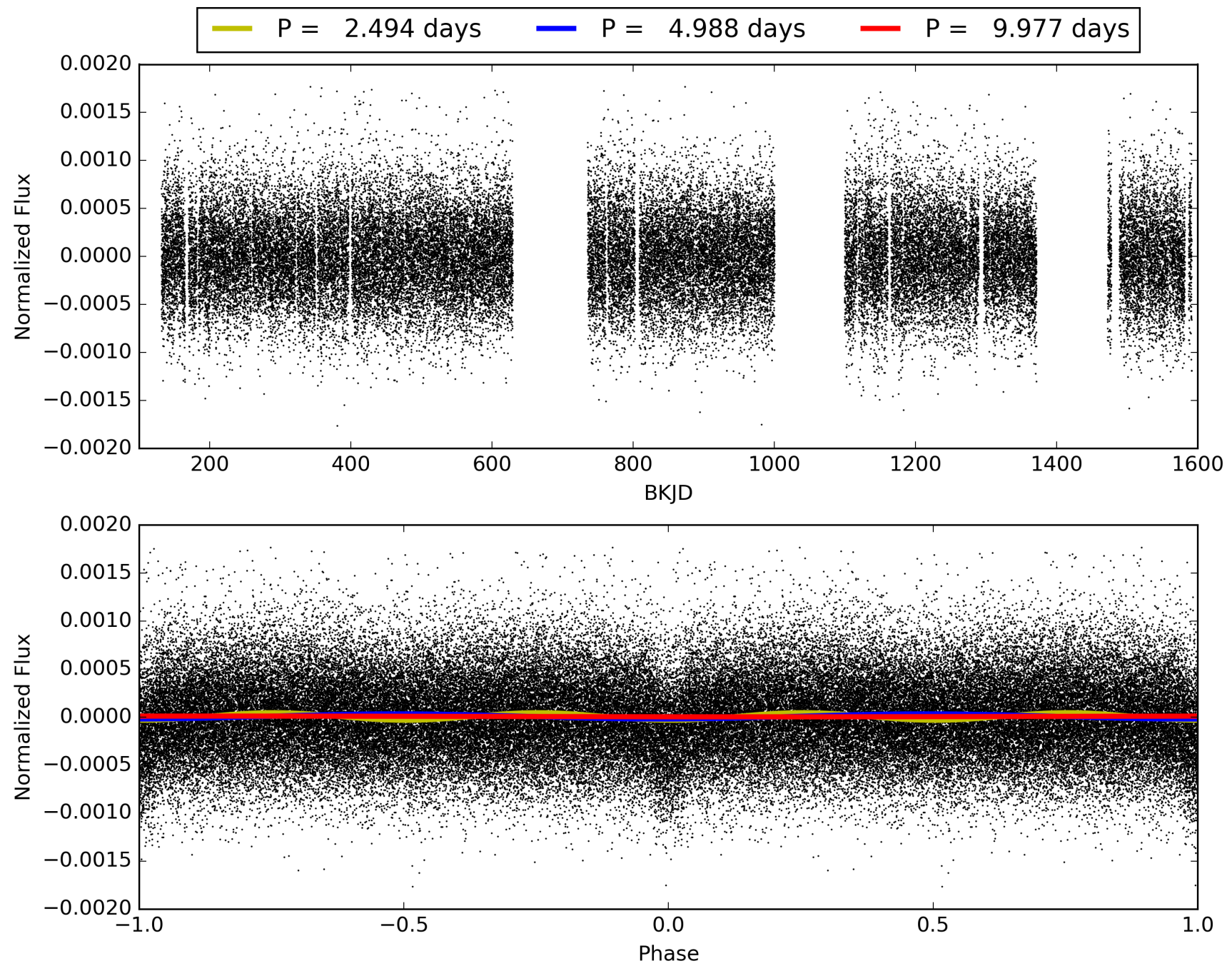
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.63e-75
RollingBand-fgt: 1.00 [204/204]
GhostDiagnostic-chr: -0.1873
Centroid-sig: 0.0%
Centroid-so: 5.794 arcsec [8.66σ]
OotOffset-rm: 4.594 arcsec [3.93σ]
KicOffset-rm: 4.614 arcsec [3.68σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 0.23 [3/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 009842937-01, PDC Light Curves

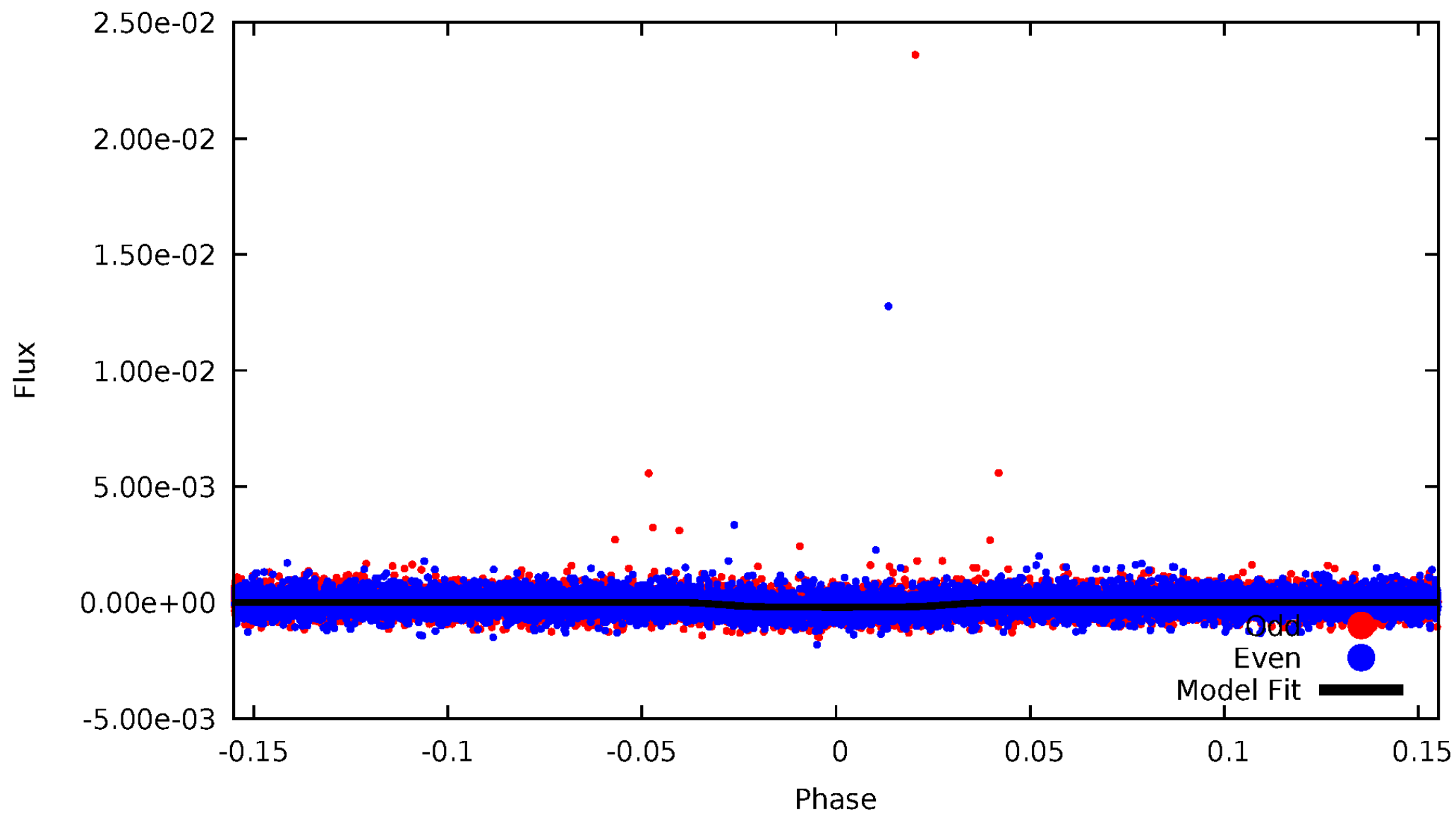


TCE 009842937-01



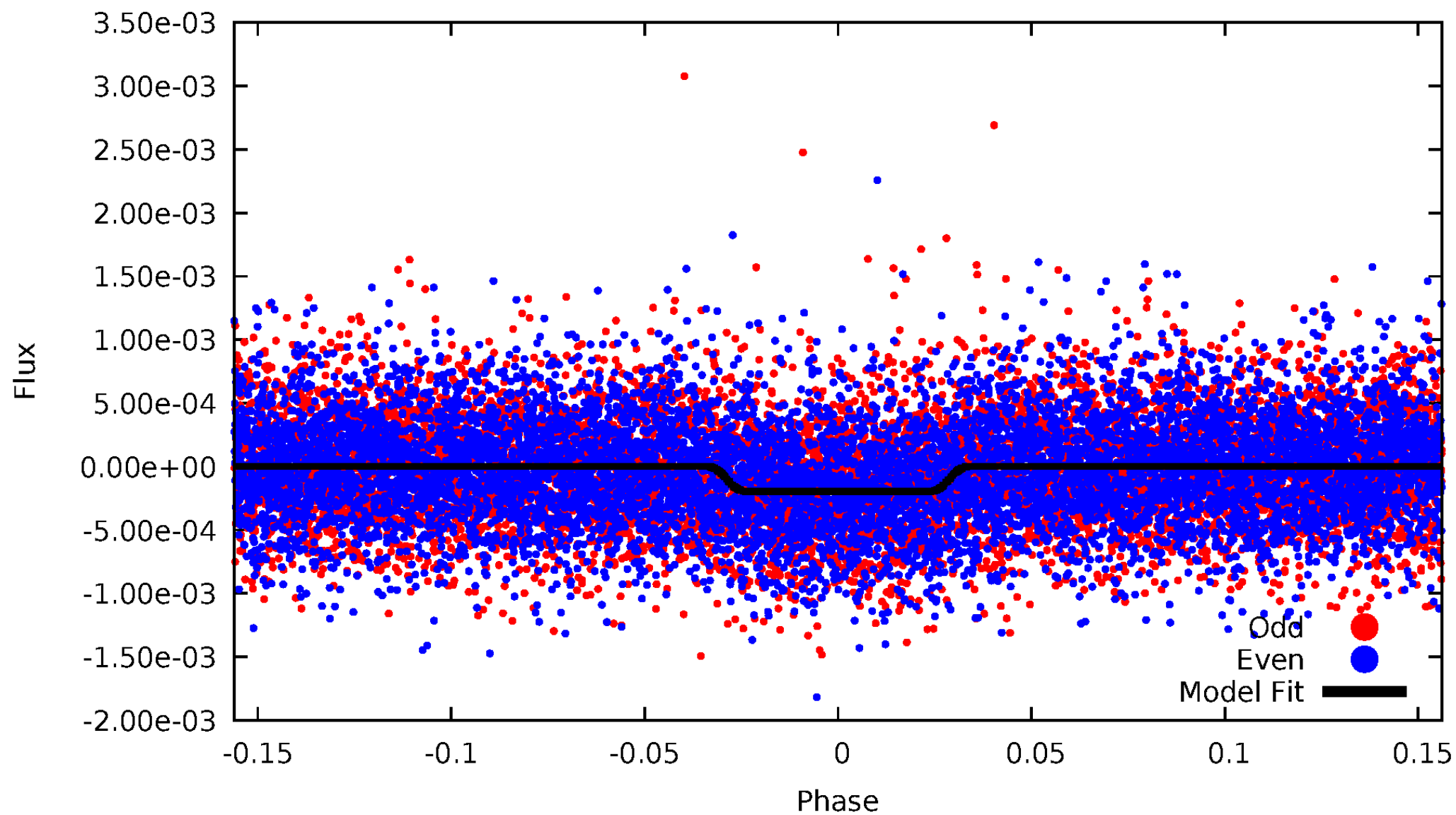
DV Odd/Even

TCE 009842937-01



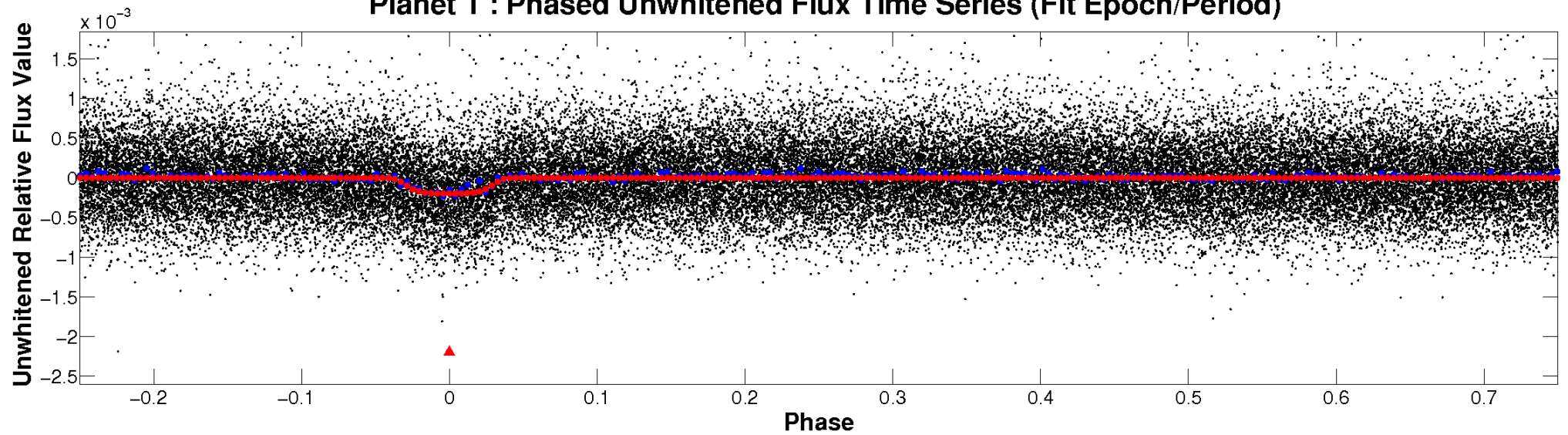
ALT Odd/Even

TCE 009842937-01

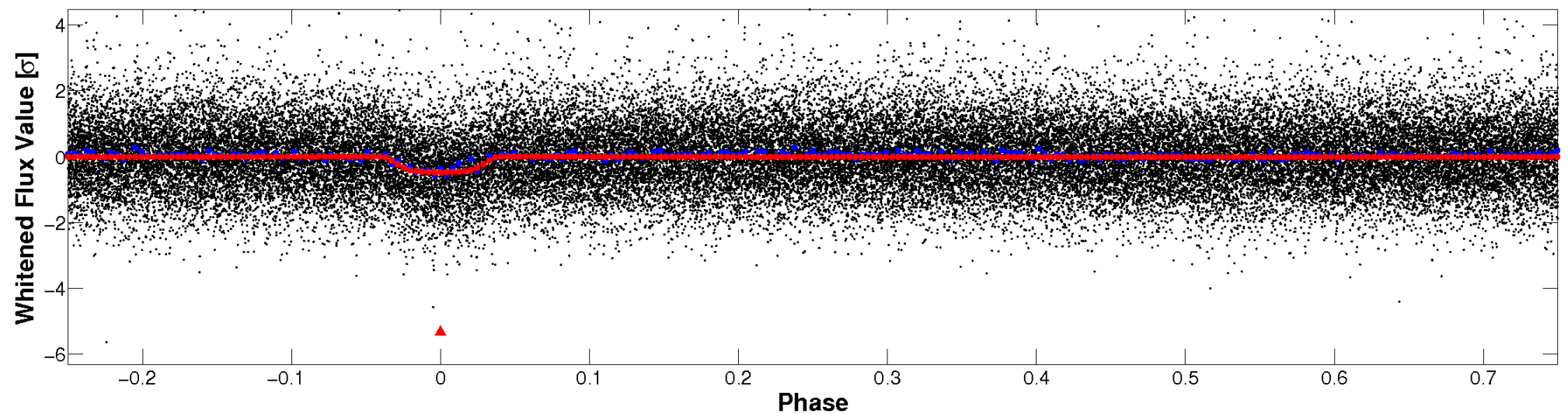


Non-Whitened Vs. Whitened Light Curve

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

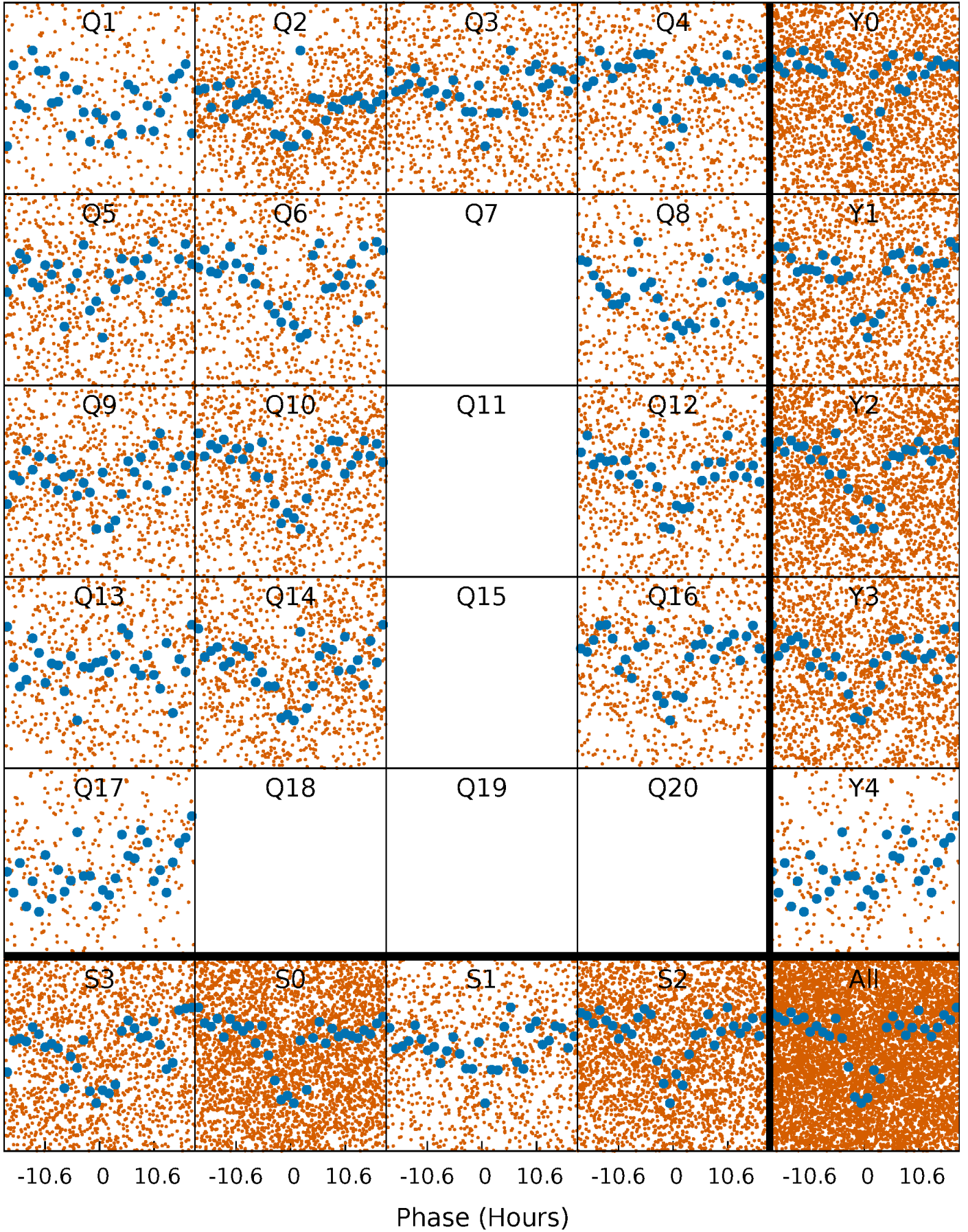


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



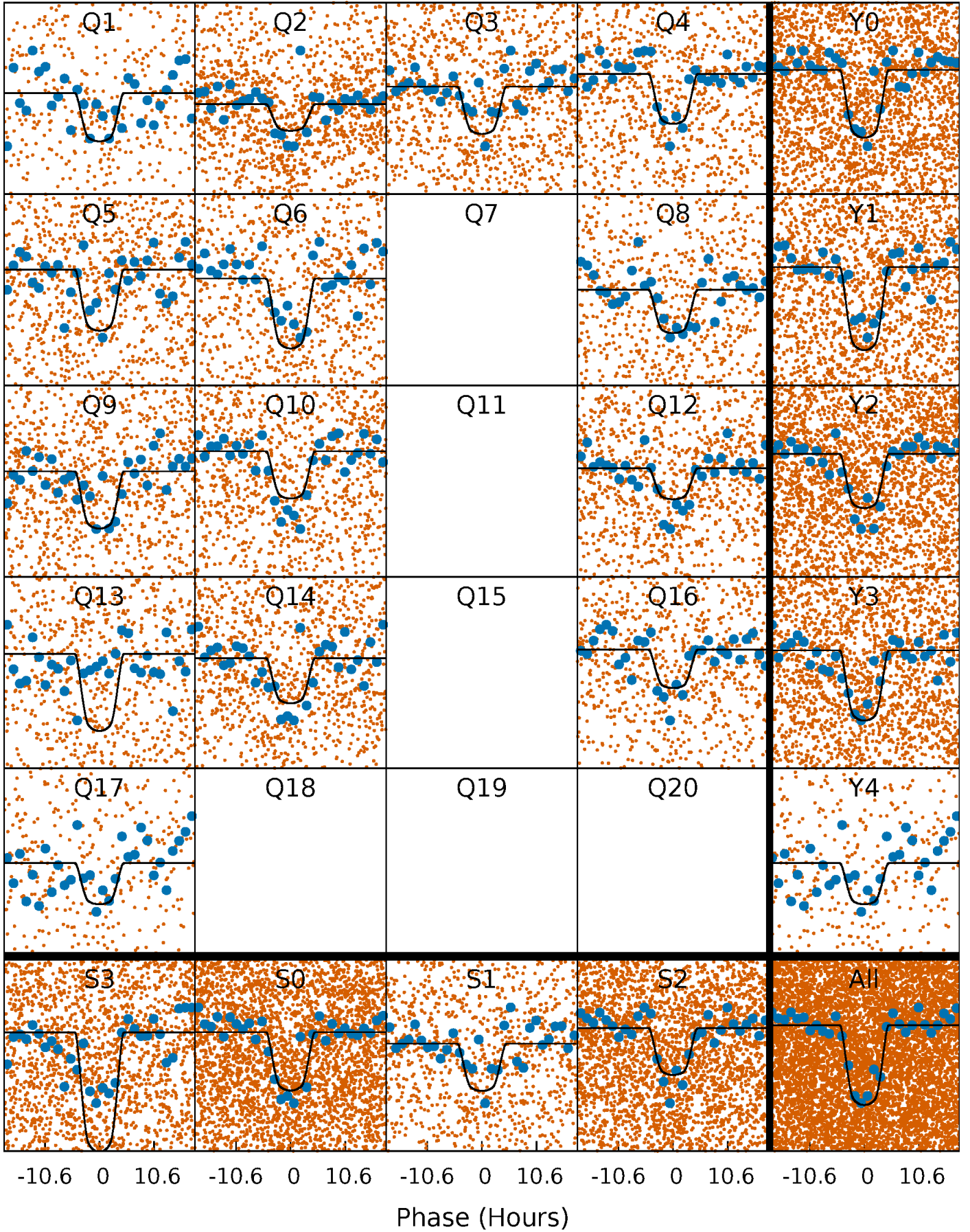
PDC Quarter-Phased Transit Curves

TCE 009842937-01 P= 4.988425 Days $T_0=133.748178$ (BKJD)



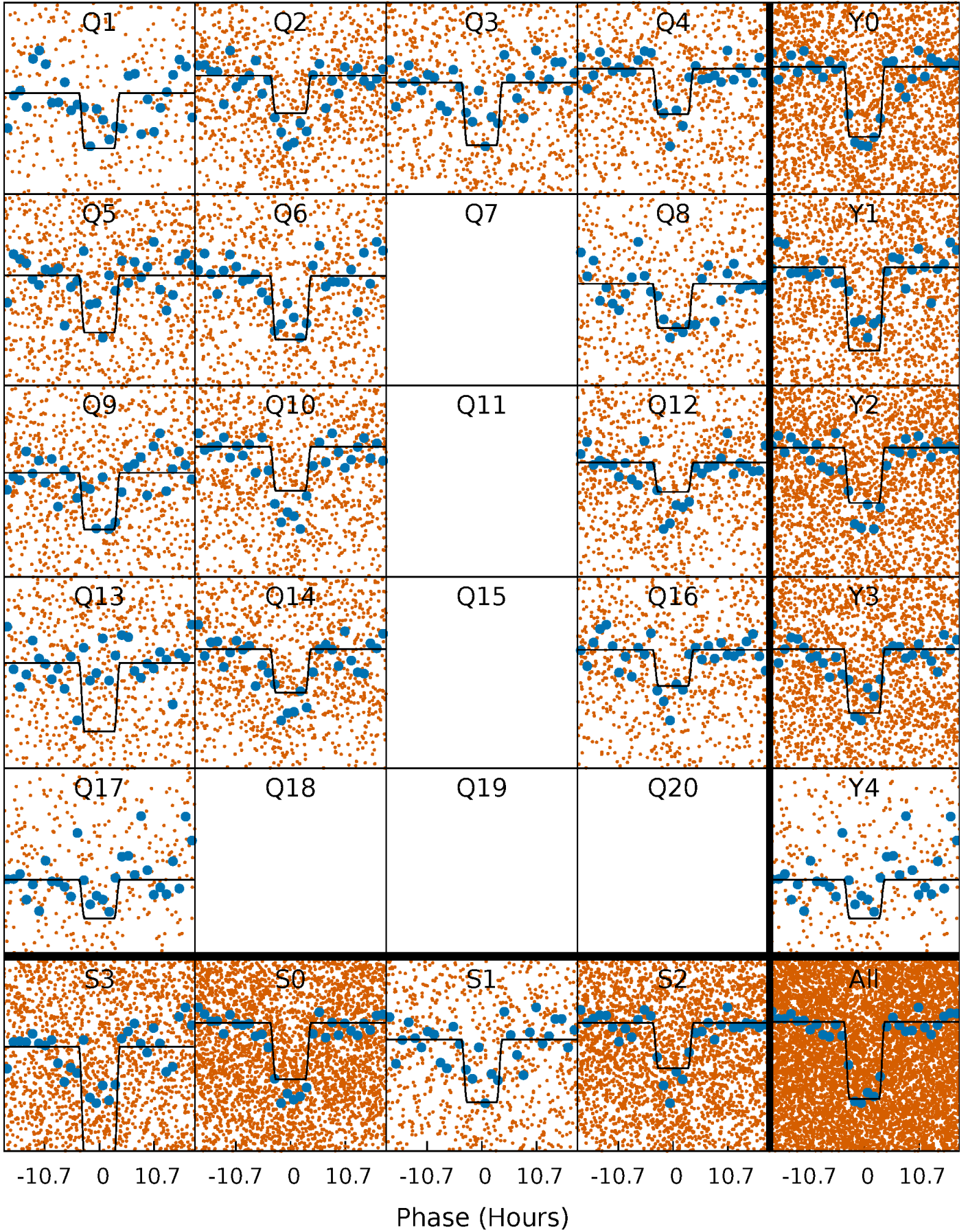
DV Quarter-Phased Transit Curves

TCE 009842937-01 P= 4.988425 Days $T_0=133.748178$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

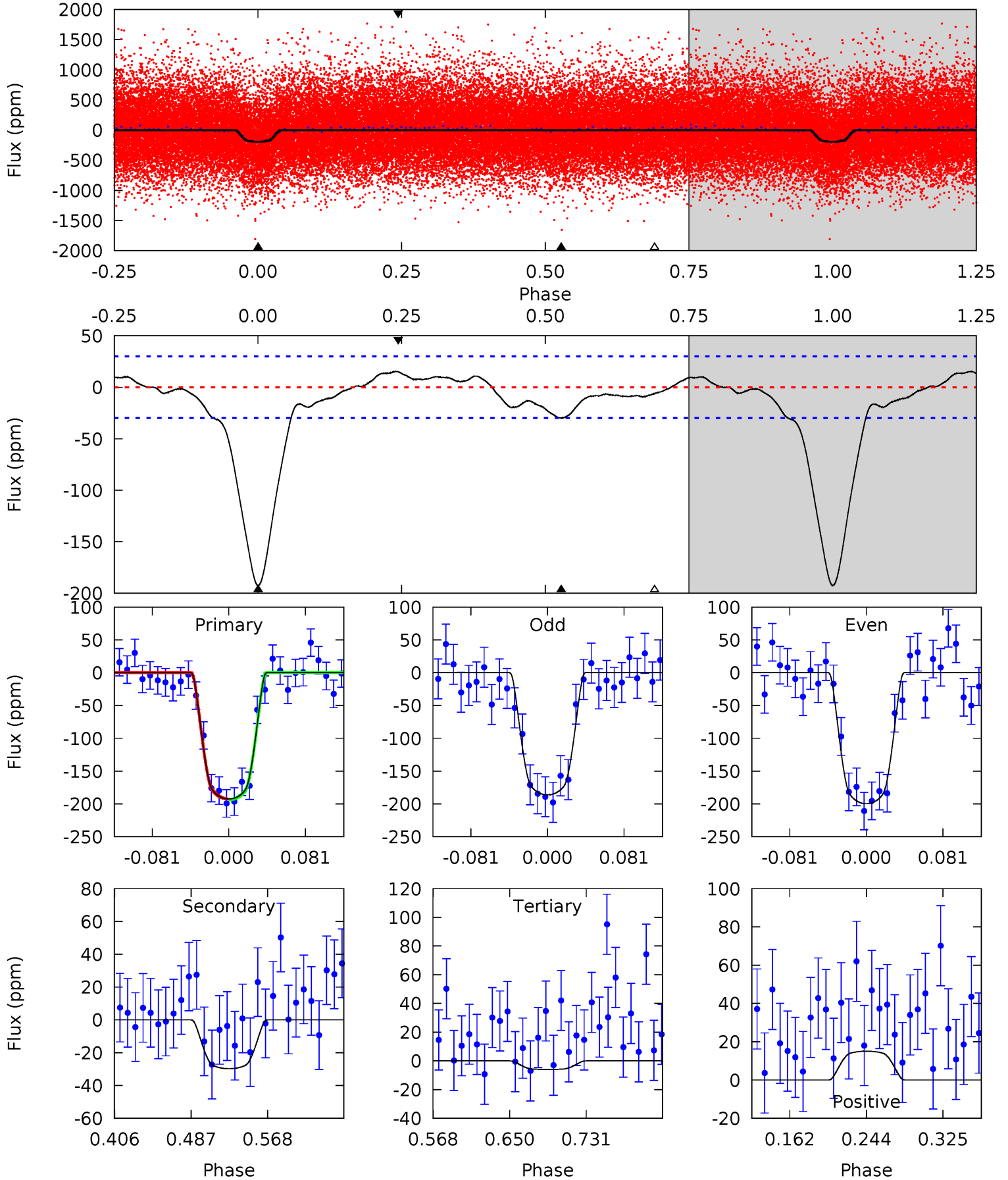
TCE 009842937-01 P= 4.988475 Days $T_0=133.742717$ (BKJD)



DV Model-Shift Uniqueness Test

009842937-01, P = 4.988425 Days, E = 128.759753 Days

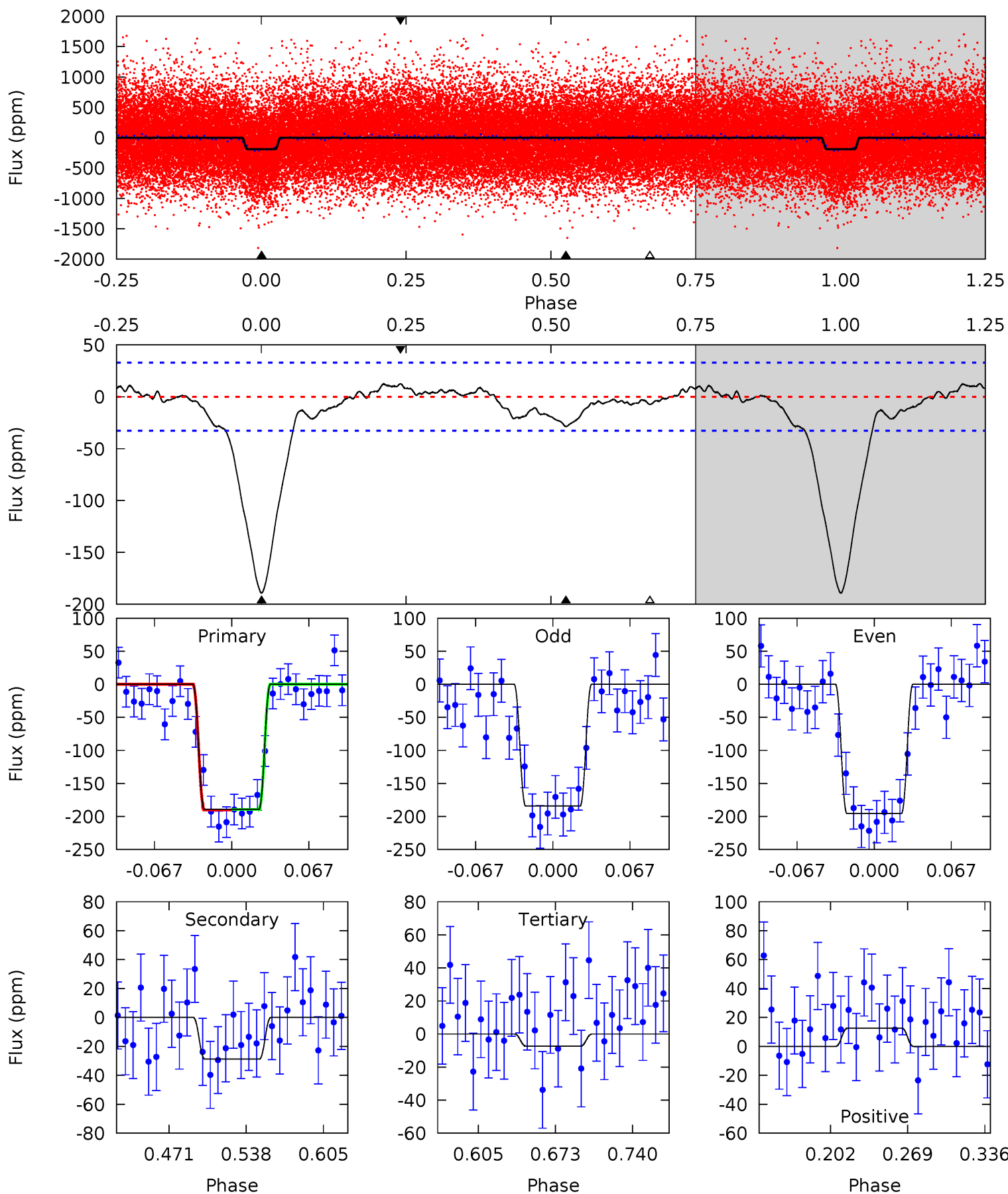
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.7	4.59	0.93	2.32	4.61	1.74	1.46	28.7	27.3	3.66	2.27	1.04	0.96	0.07	0.08



Alt Model-Shift Uniqueness Test

009842937-01, P = 4.988475 Days, E = 128.754242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	4.08	1.04	1.78	4.65	1.83	1.31	25.8	25.0	3.04	2.30	0.81	1.02	0.06	0.07



Stellar Parameters For KIC 009842937

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5695^{+169}_{-169}	$4.411^{+0.124}_{-0.186}$	$-0.200^{+0.300}_{-0.300}$	$0.961^{+0.264}_{-0.142}$	$0.868^{+0.122}_{-0.071}$	$1.376^{+0.801}_{-0.691}$
	+3%/-3%	+3%/-4%	+150%/-150%	+27%/-15%	+14%/-8%	+58%/-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 009842937-01 / KOI 2567.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-30 ± 6	$1.82^{+0.28}_{-0.19}$	1482^{+111}_{-84}	3632^{+151}_{-177}	14^{+5}_{-5}
Alt.	-29 ± 7	$1.48^{+0.24}_{-0.17}$	1480^{+112}_{-83}	3855^{+186}_{-228}	21^{+9}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

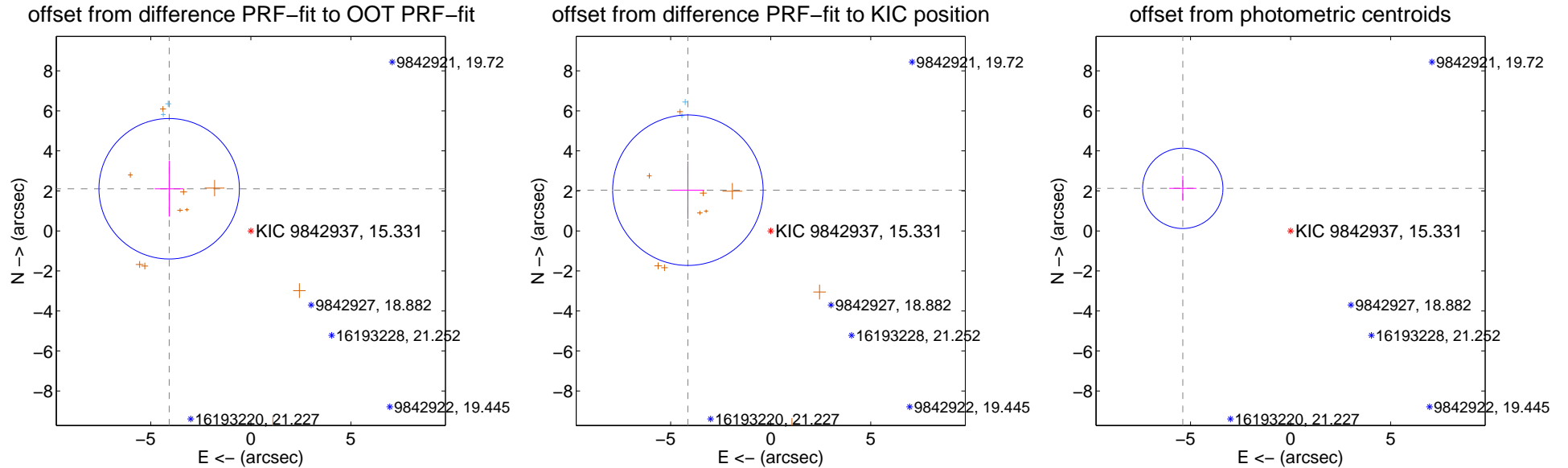
DV Centroid Data

Supplemental centroid analysis for 009842937-01. Kepler magnitude: 15.33. Transit SNR 21.89

There are 3 quarters with good PRF difference image offsets

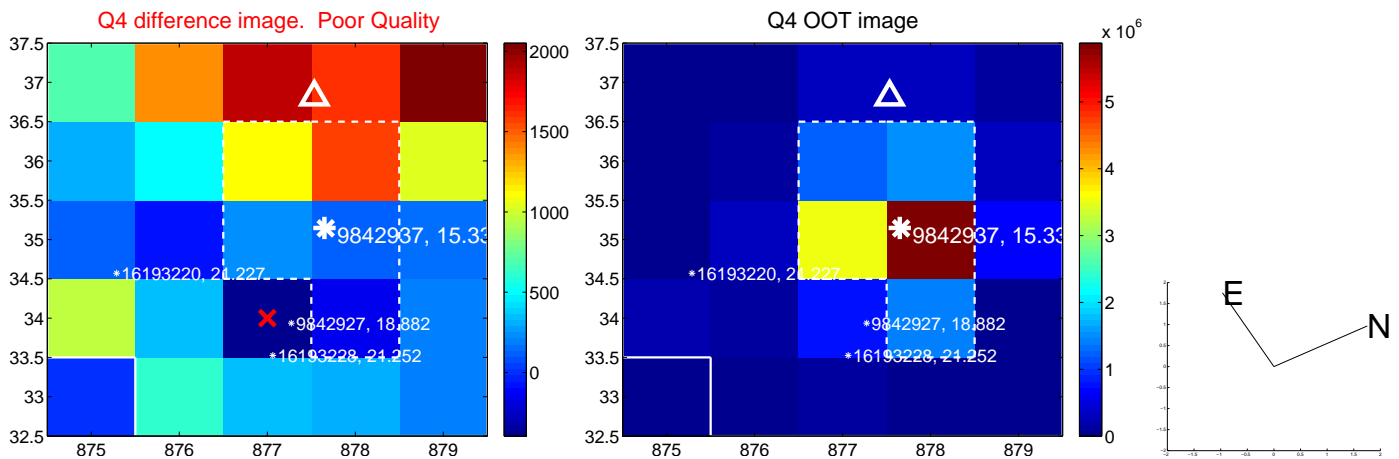
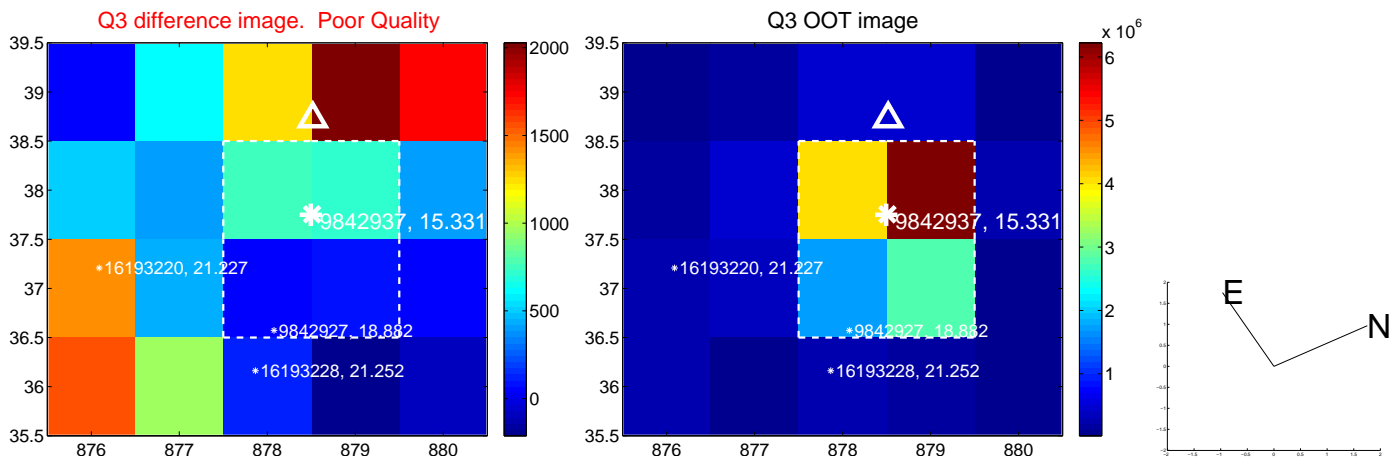
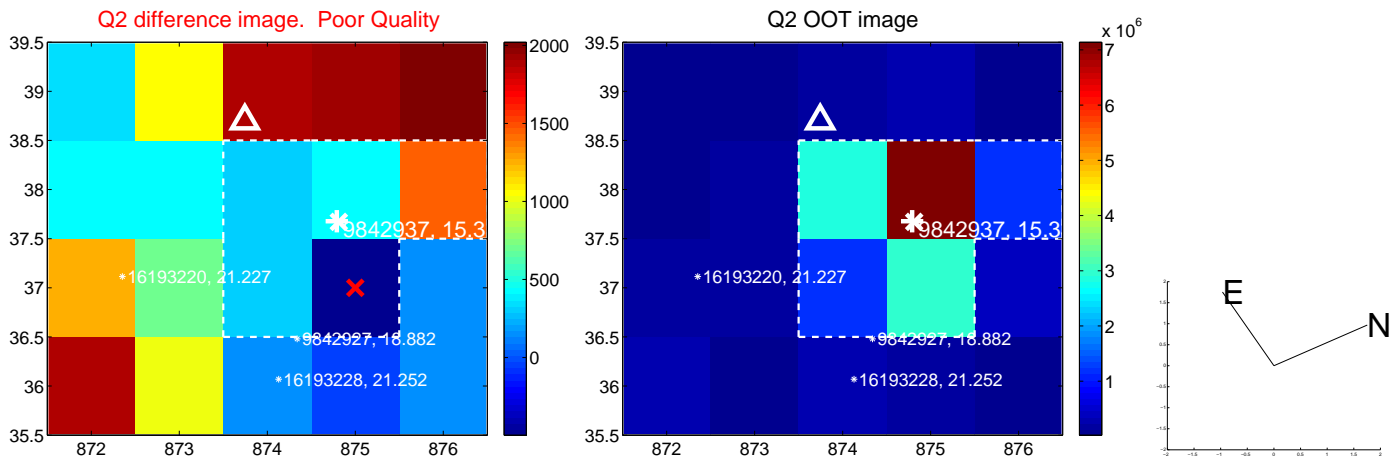
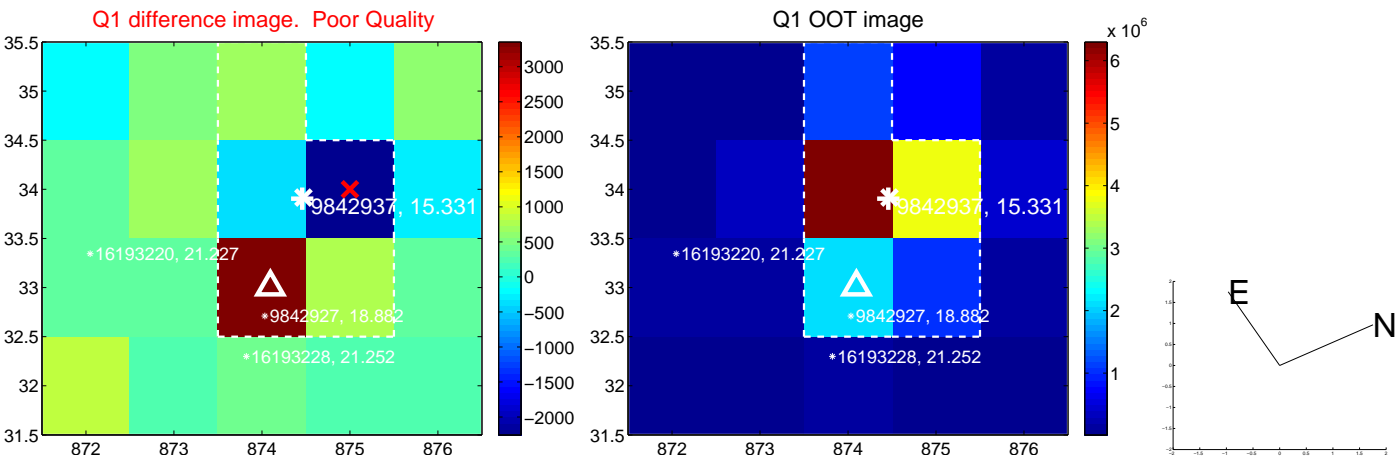
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.594 ± 1.170	3.93	4.082 ± 0.723	2.108 ± 1.392
PRF-fit source offset from KIC position	4.614 ± 1.254	3.68	4.140 ± 0.813	2.036 ± 1.438
photometric centroid source offset	5.79 ± 0.67	8.66	5.39 ± 0.68	2.13 ± 0.62

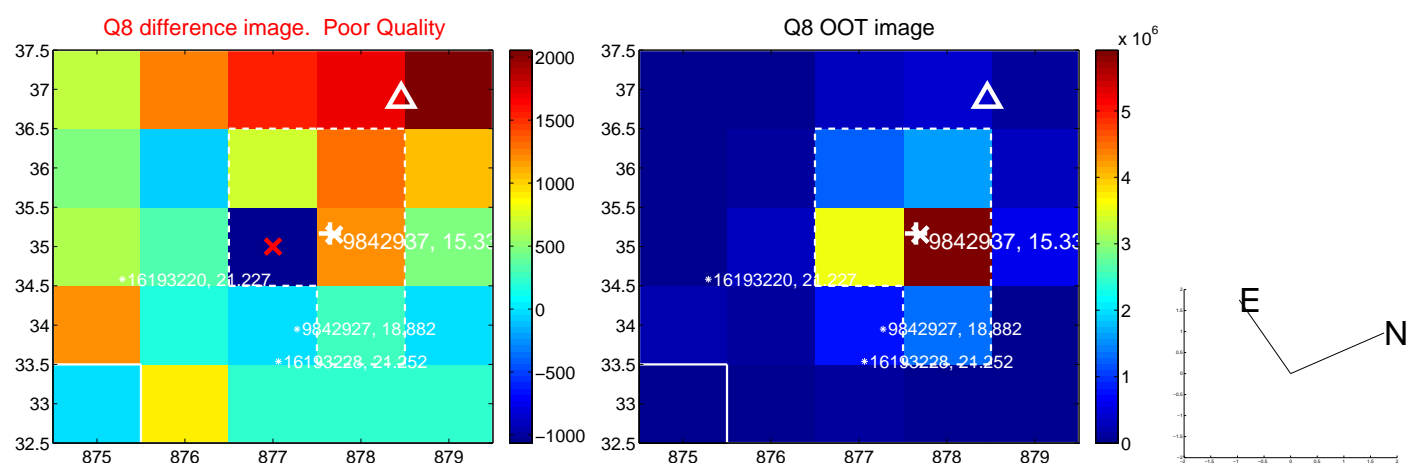
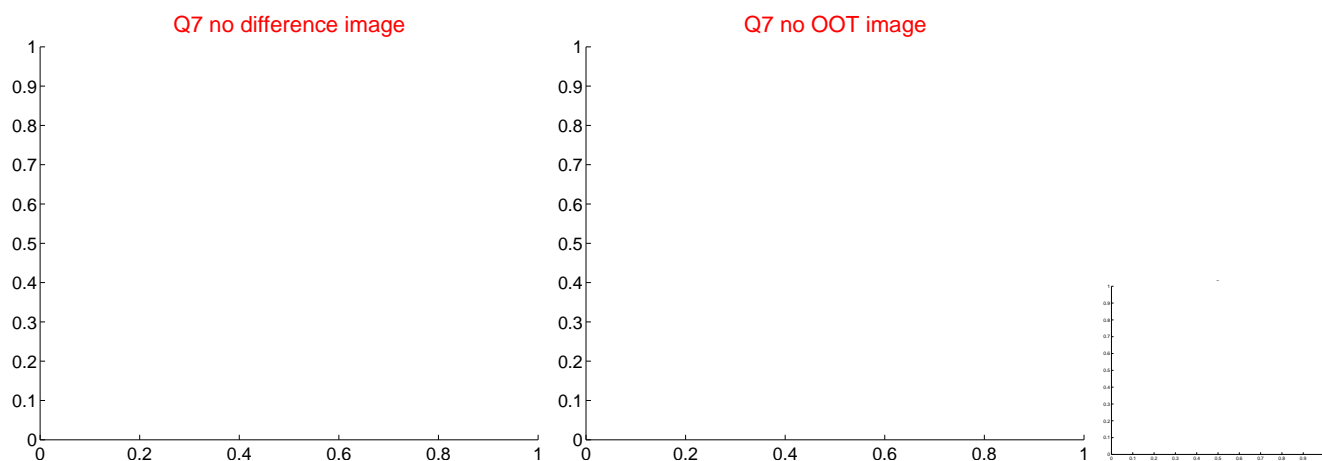
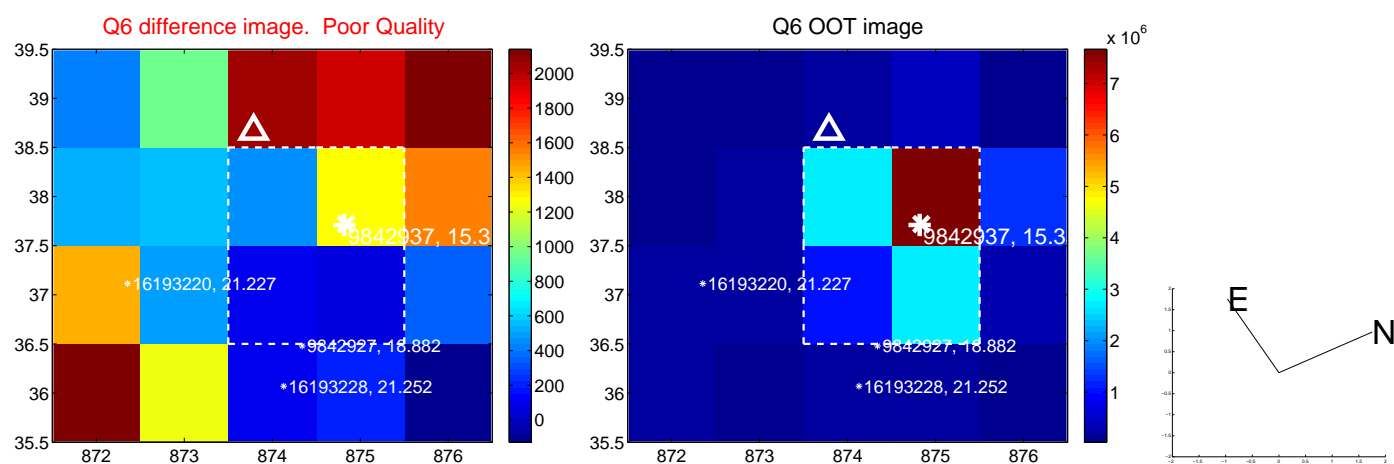
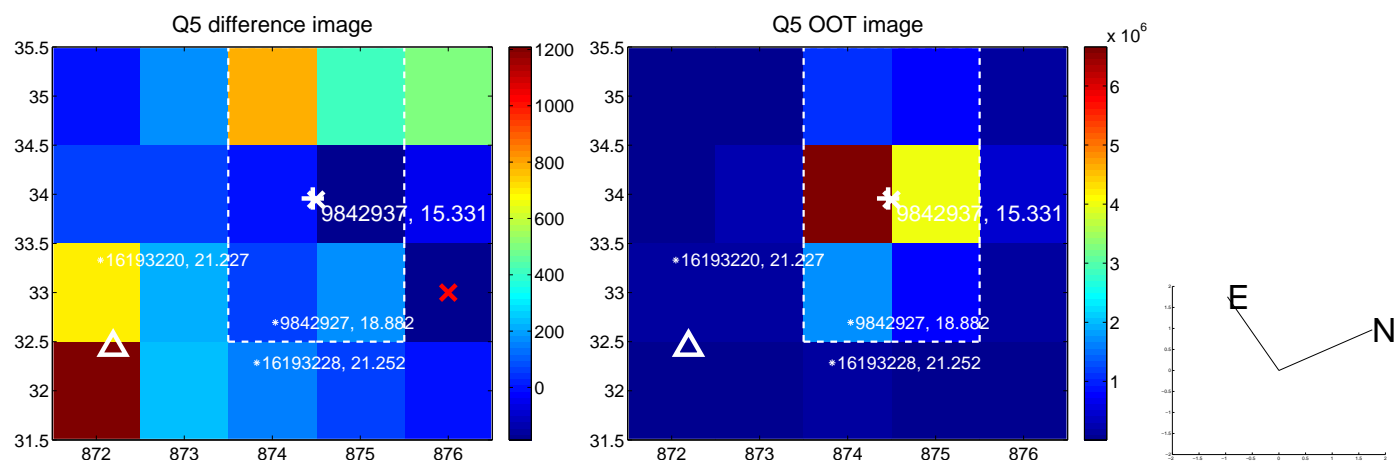


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

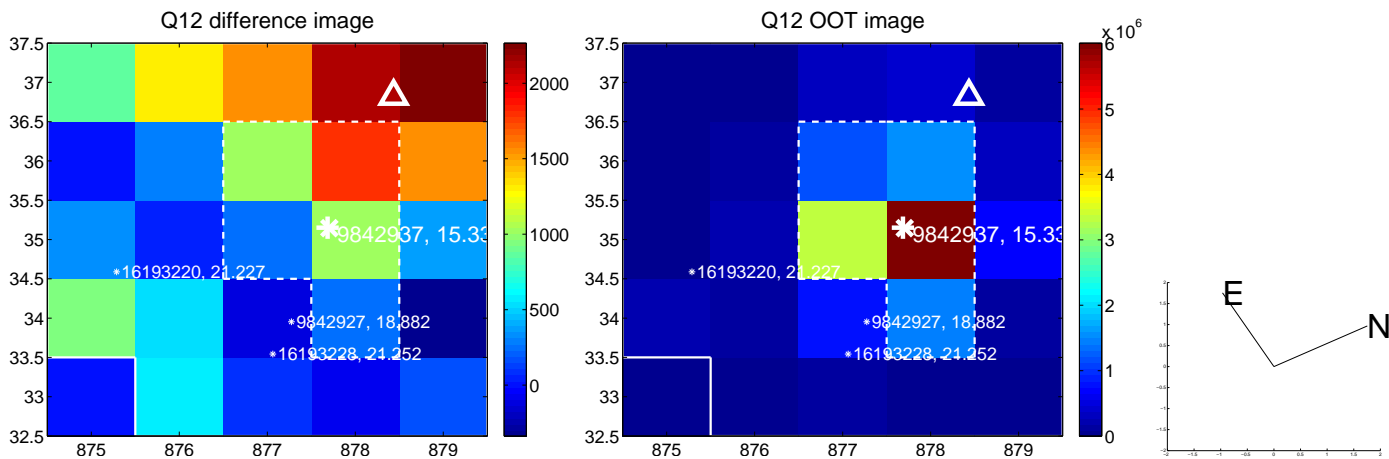
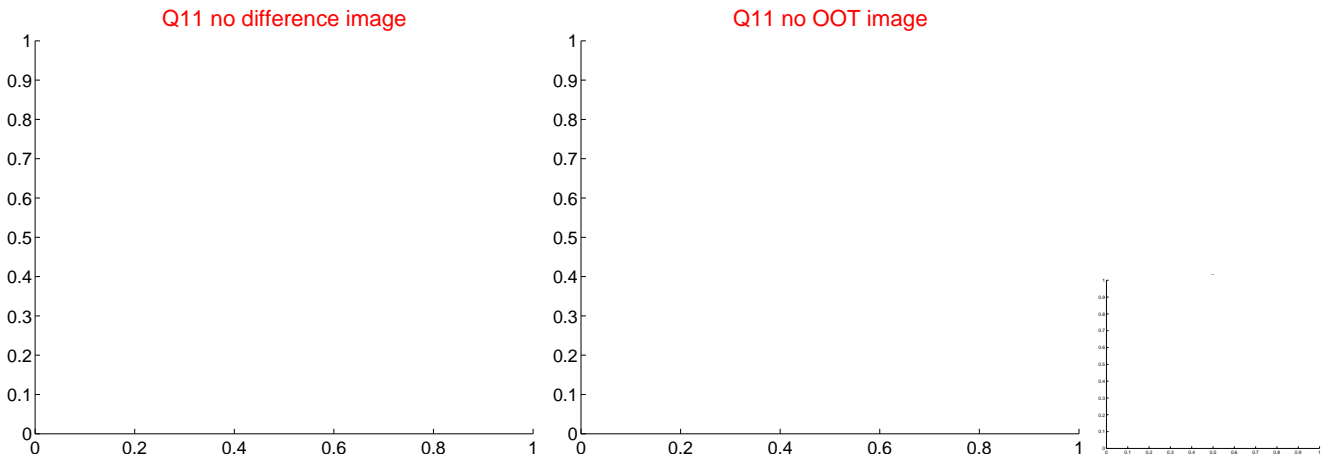
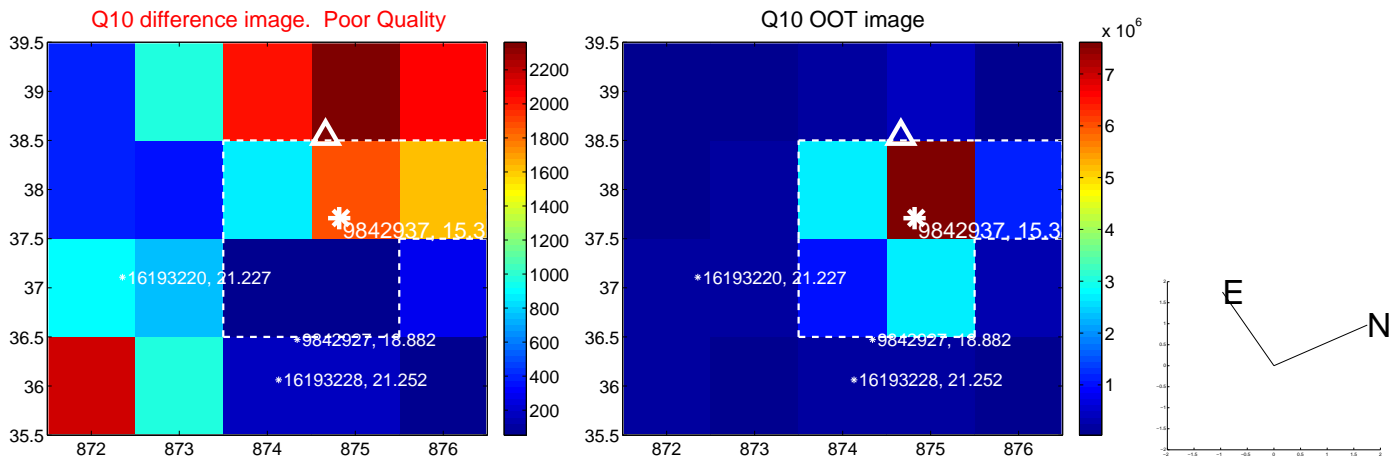
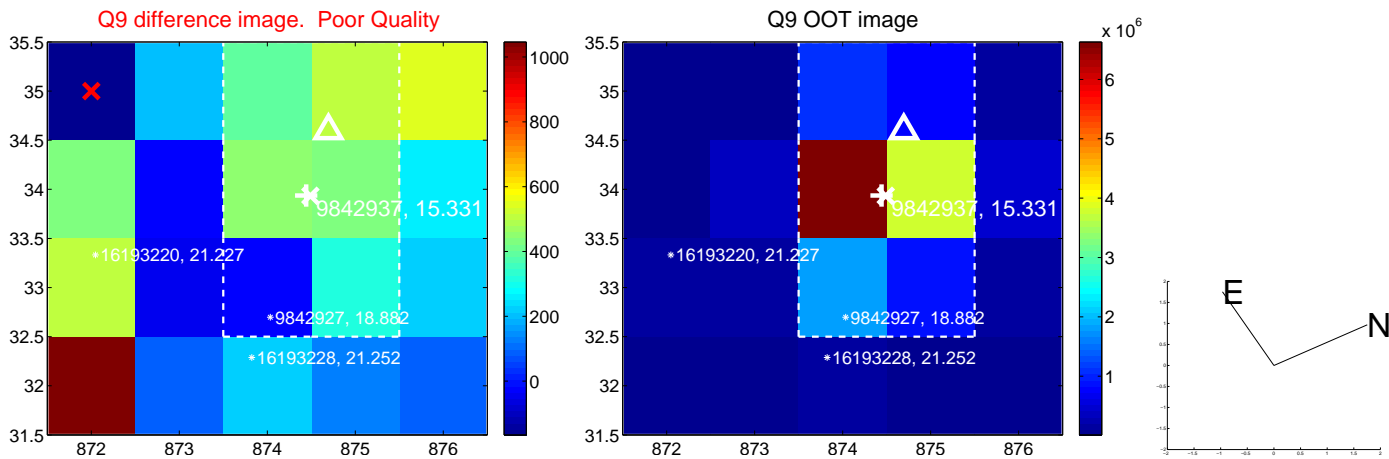
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



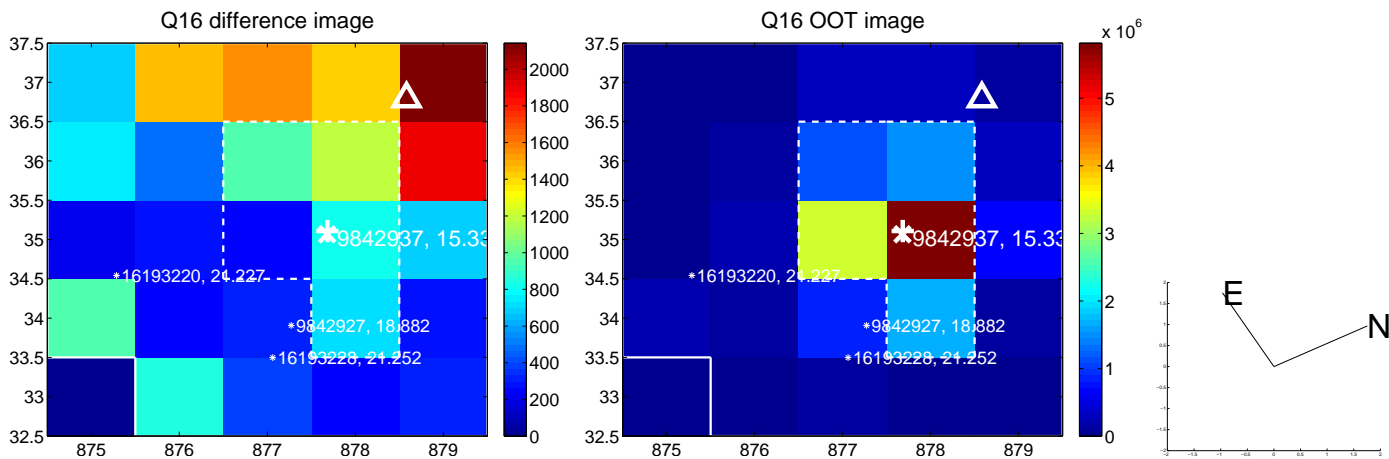
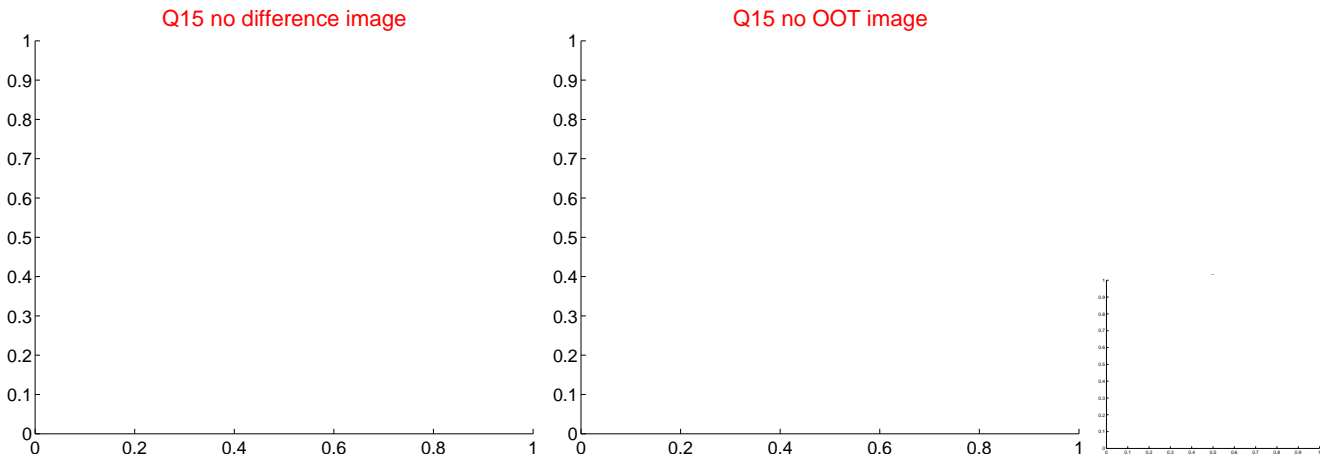
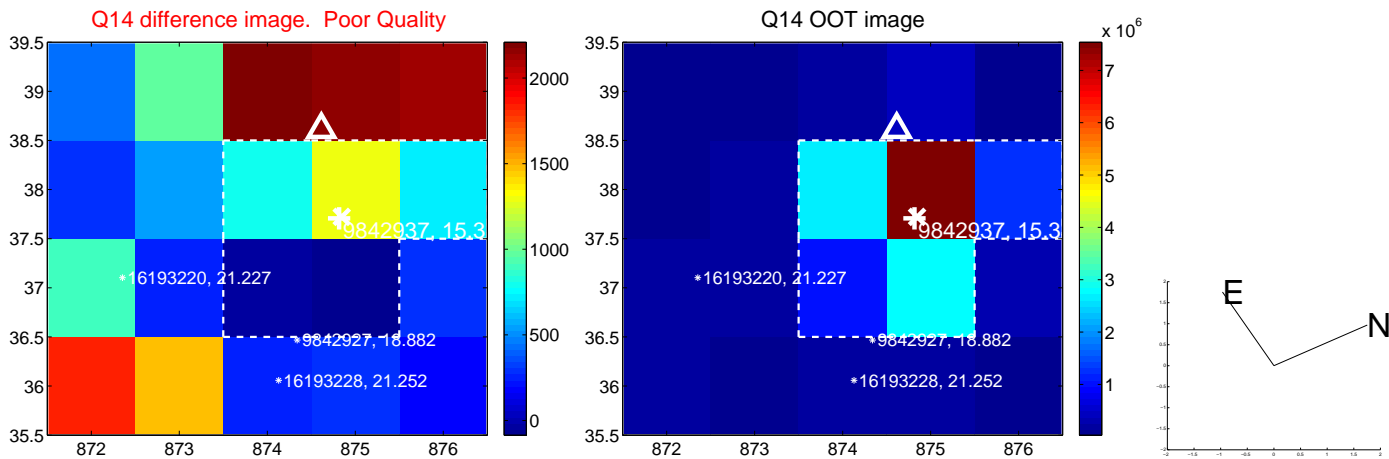
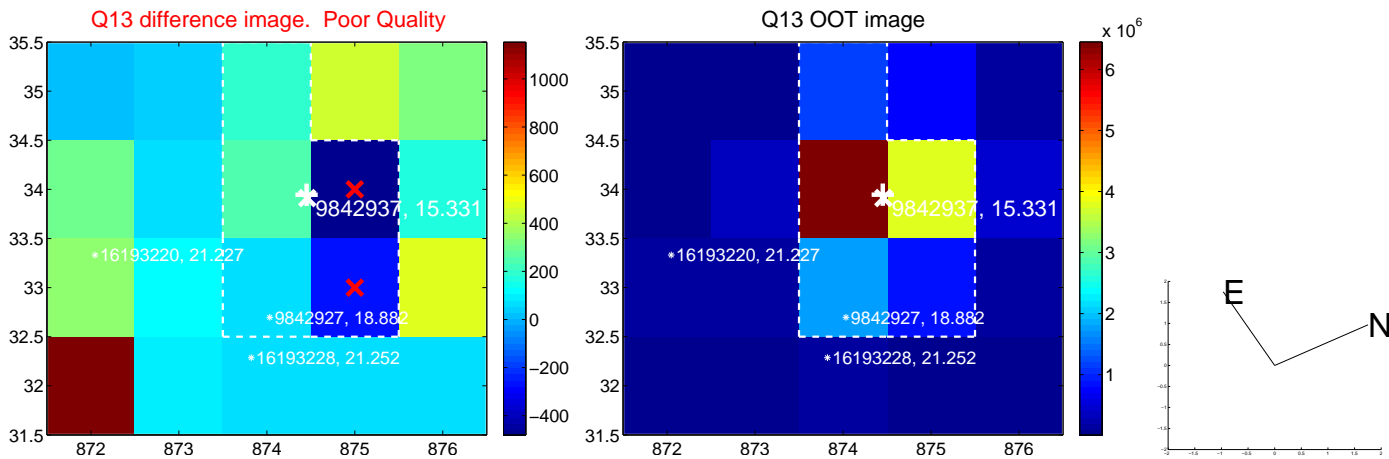
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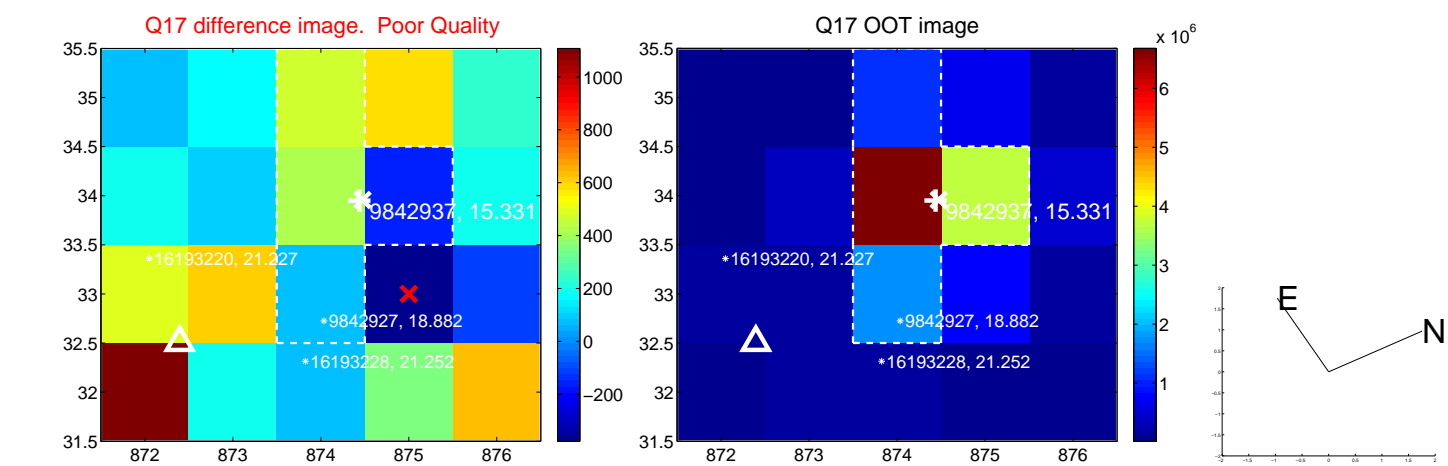
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



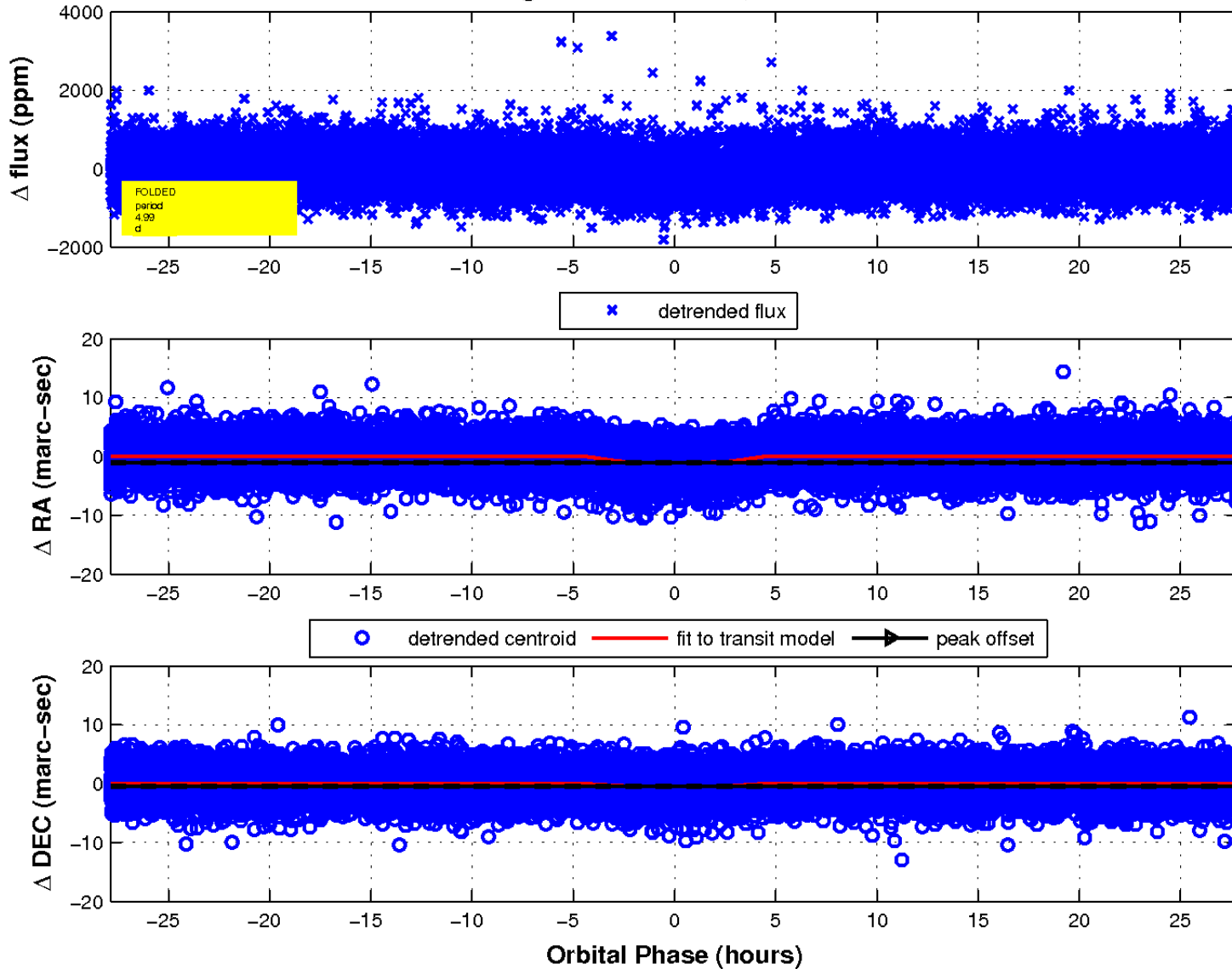
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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

