

KIC 009110357

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})
009110357-01	OBS	0016.01	0.895279	131.617972	175.5	1.952	202.3	48.6	3.33	8040	6.94	77476.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009110357-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—CENT_RESOLVED_OFFSET—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.

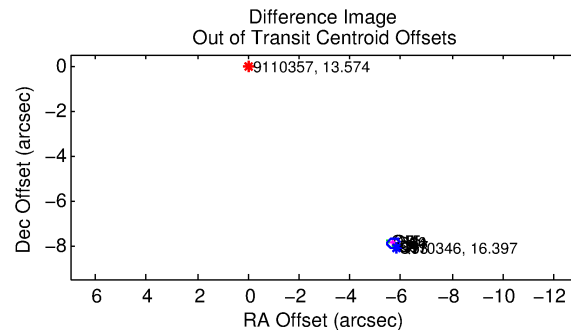
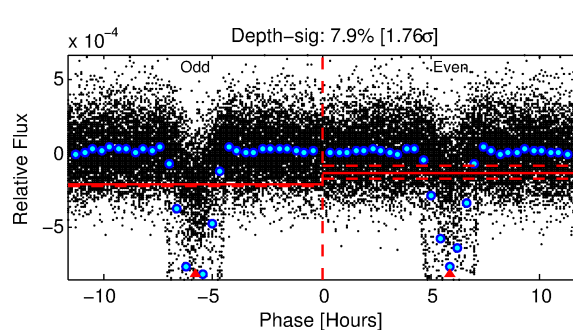
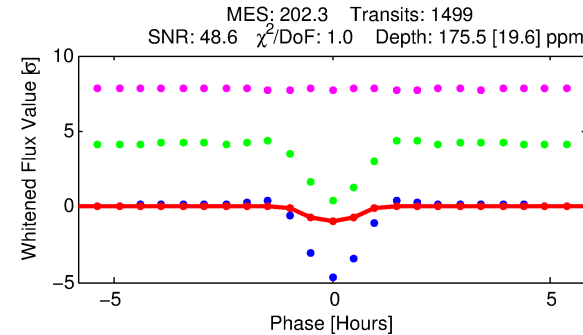
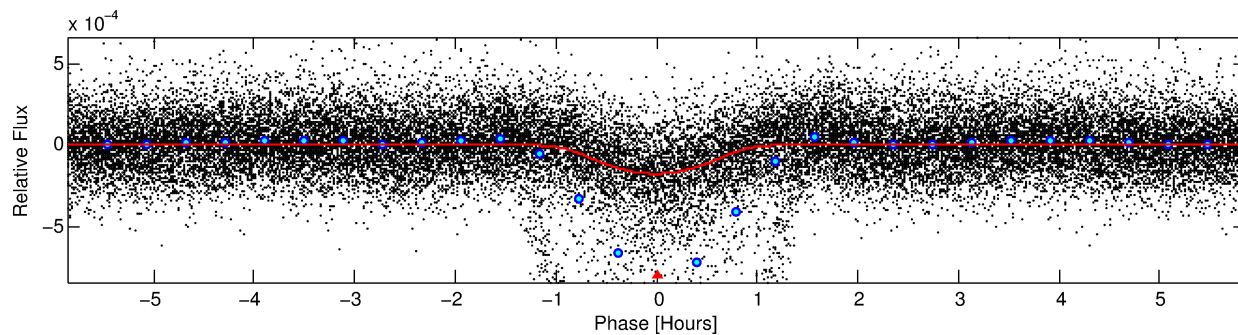
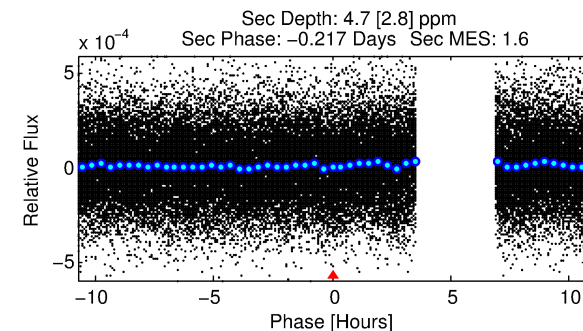
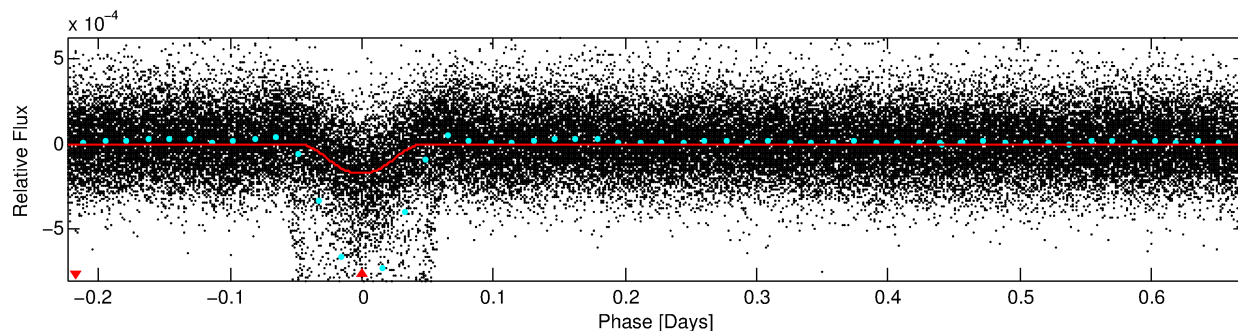
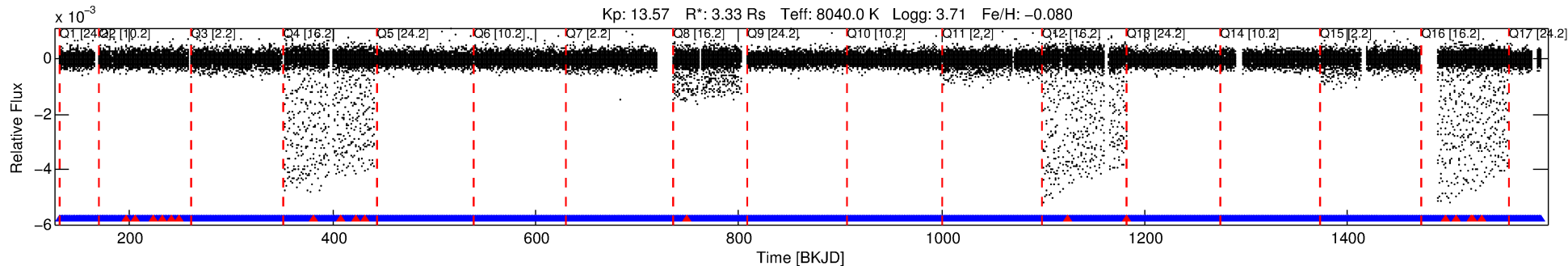
Ephemeris Match Information For 009110357-01

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
009110357-01	9110357	3607.01	9110346	1:1	9.9	2	-2	16.40	13.58	2065.00	Direct-PRF	0	0.33	0.35

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: 9110357 Candidate: 1 of 1 Period: 0.895 d
KOI: K00016.01 Corr: 0.818



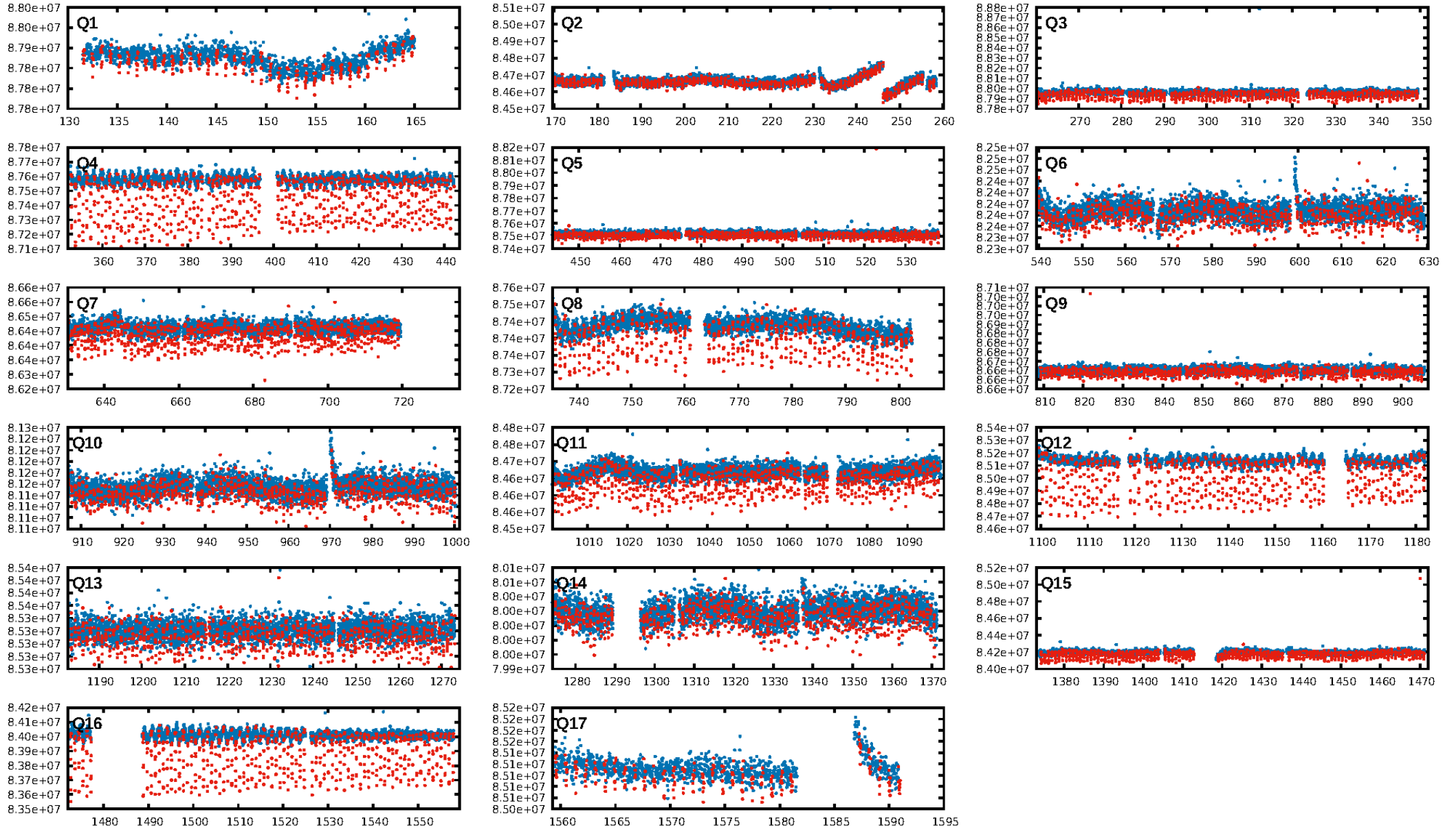
DV Fit Results:

Period = 0.89528 [0.00000] d
Epoch = 131.6180 [0.0005] BKJD
Rp/R* = 0.0191 [0.0076]
a/R* = 1.30 [0.08]
b = 0.99 [0.01]
Seff = 77476.19 [58751.21]
Teq = 4254 [807] K
Rp = 6.94 [4.37] Re
a = 0.0231 [0.0108] AU
Ag = 0.03 [0.04] [-27.70 σ]
Teffp = 2701 [676] K [-1.48 σ]

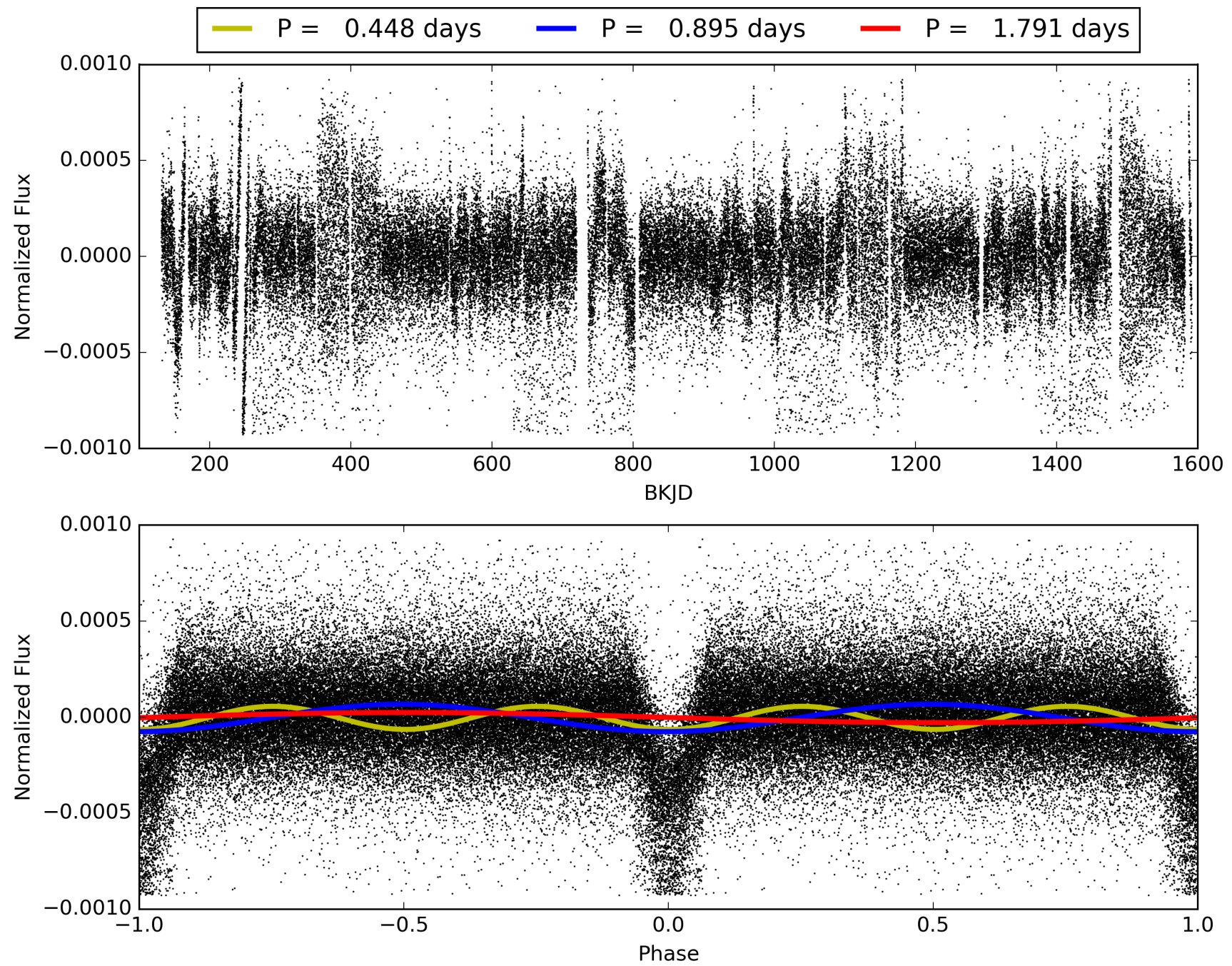
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [1413/1431]
GhostDiagnostic-chr: -0.4648
Centroid-sig: 0.0%
Centroid-so: 483.799 arcsec [1641.32 σ]
OotOffset-rm: 9.754 arcsec [126.13 σ]
KicOffset-rm: 9.938 arcsec [129.01 σ]
OotOffset-st: 4/4/2/5 [15]
KicOffset-st: 4/4/2/5 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009110357-01, PDC Light Curves

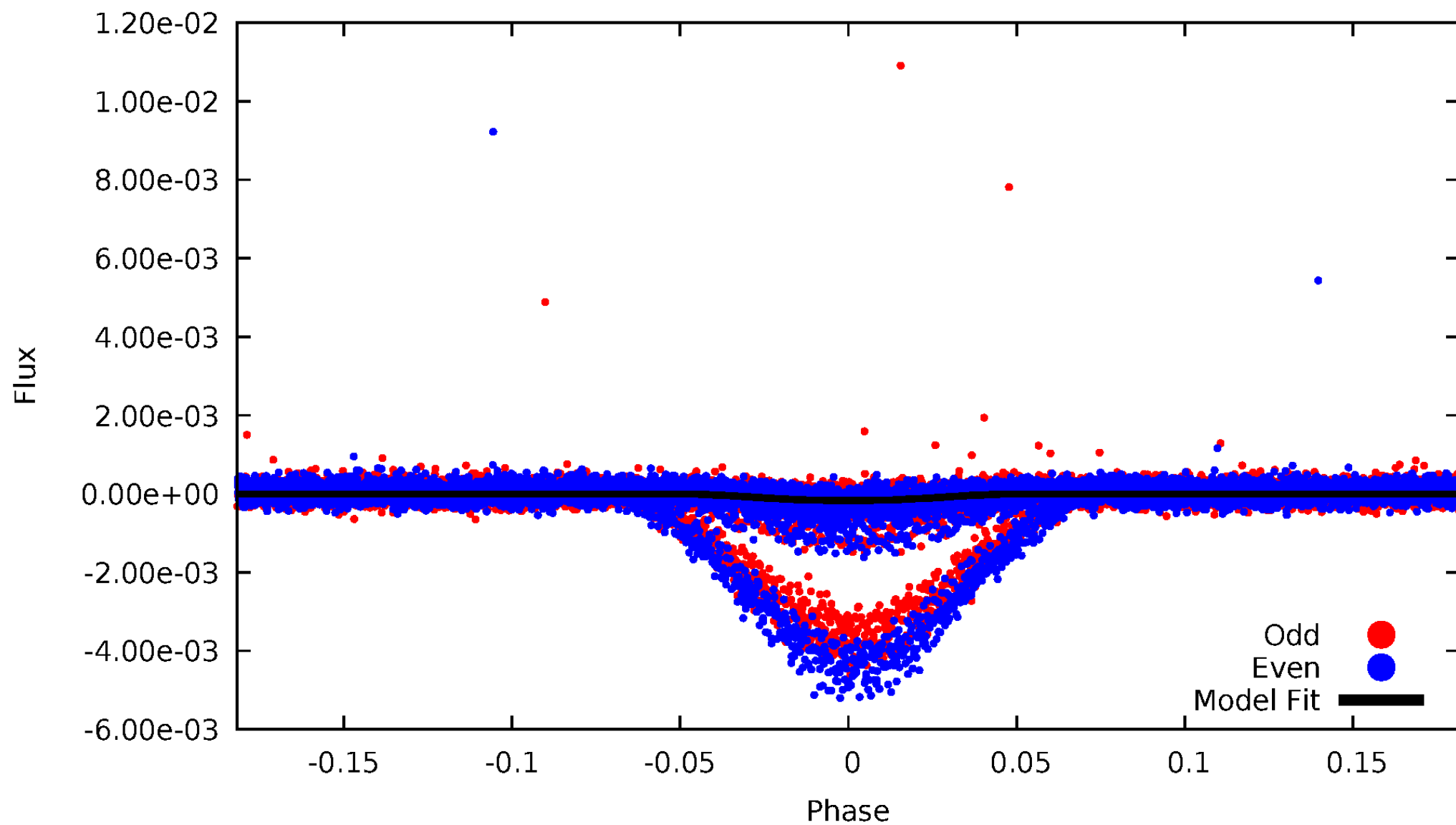


TCE 009110357-01



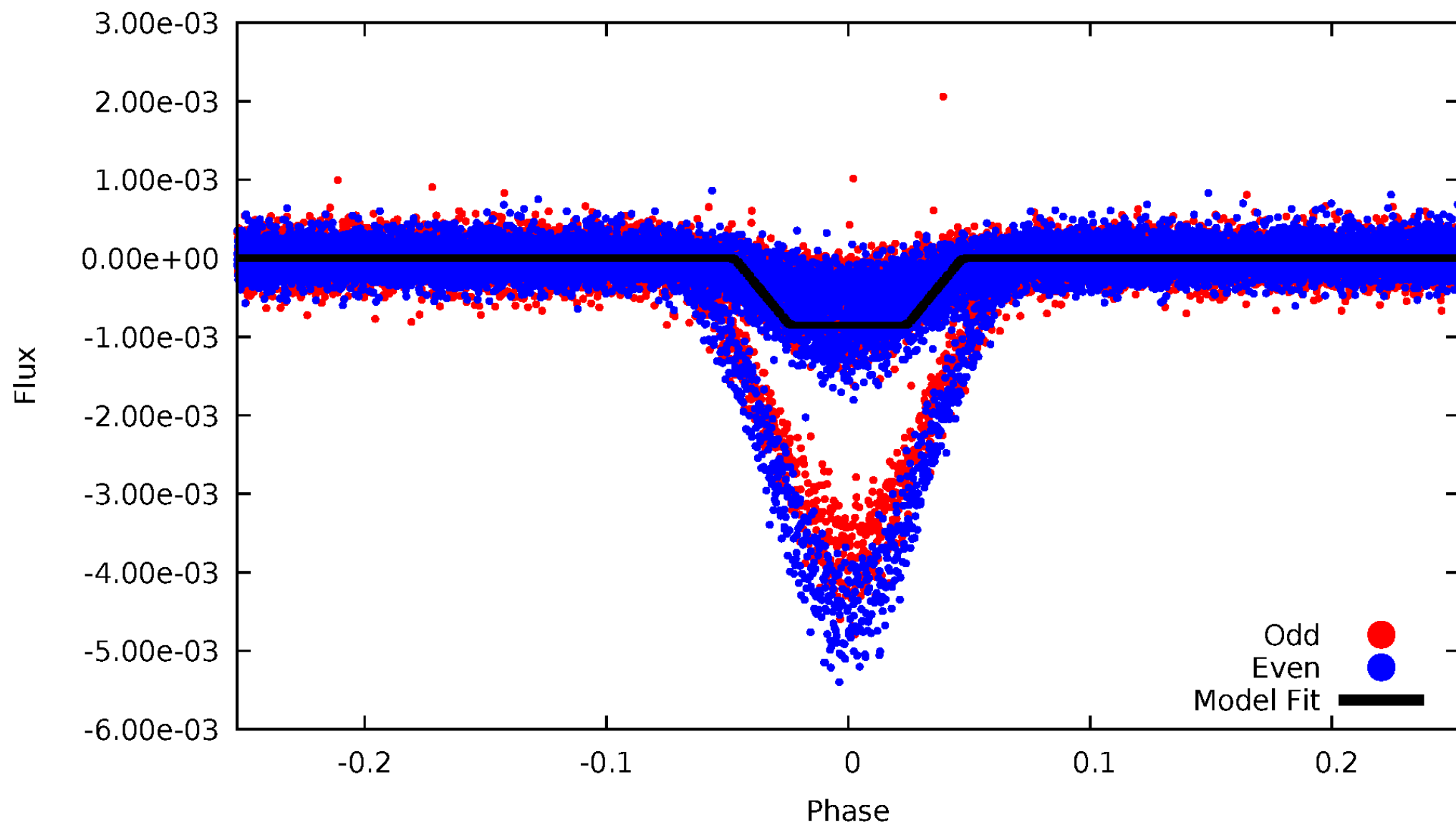
DV Odd/Even

TCE 009110357-01



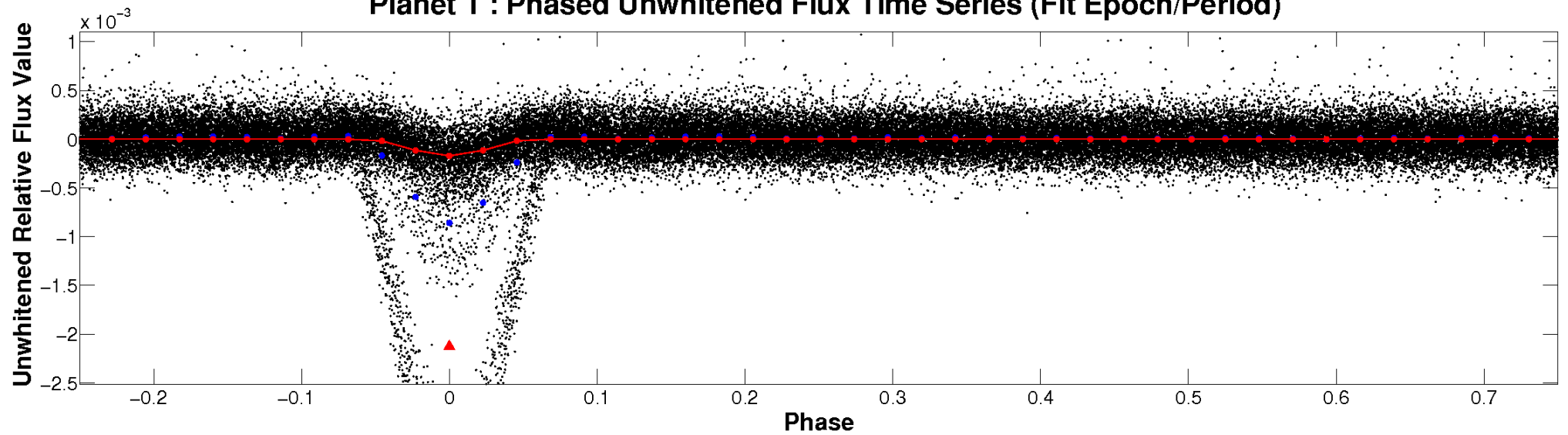
ALT Odd/Even

TCE 009110357-01

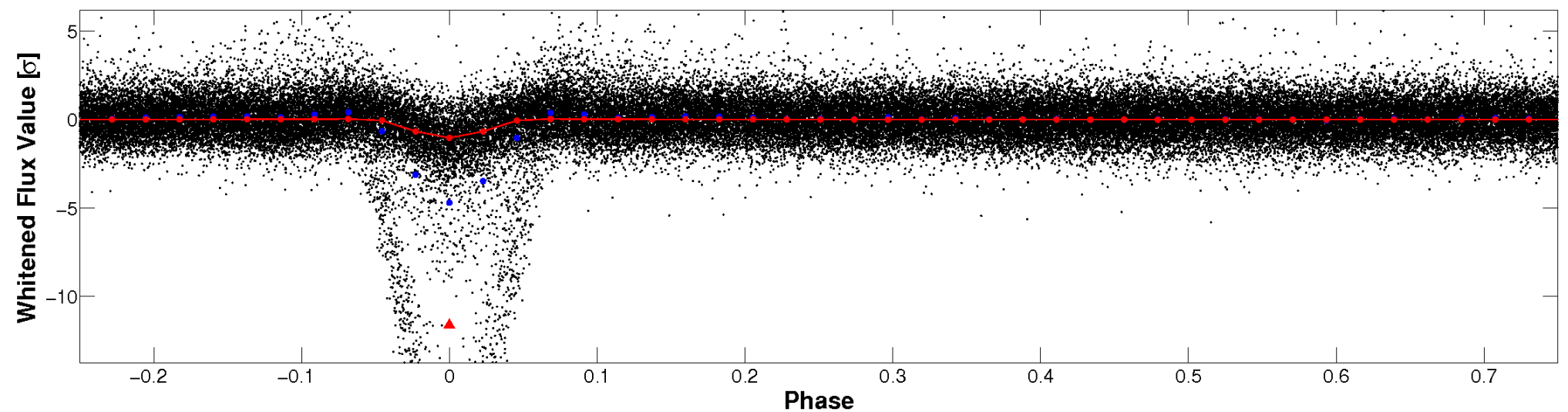


Non-Whitened Vs. Whitened Light Curve

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

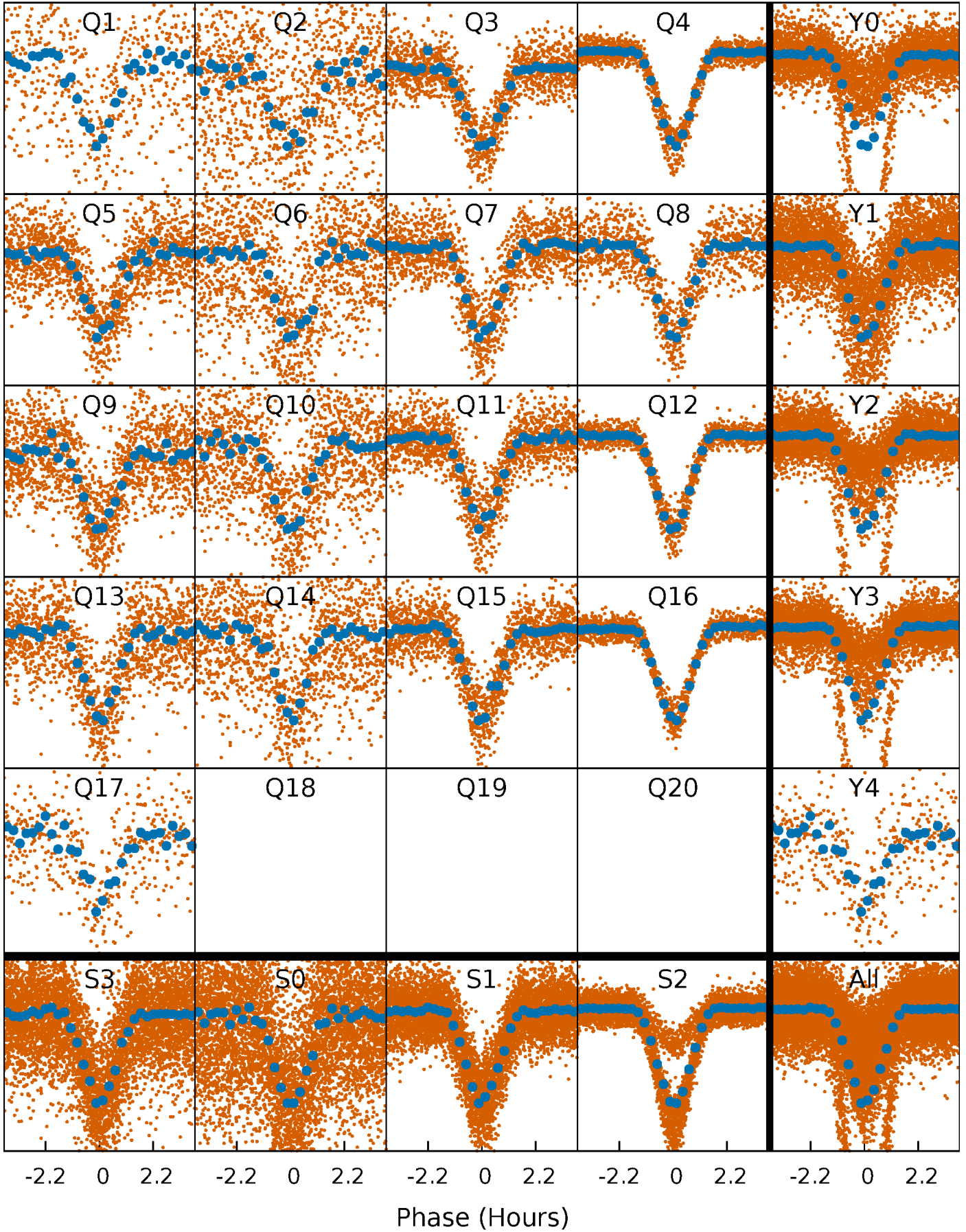


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



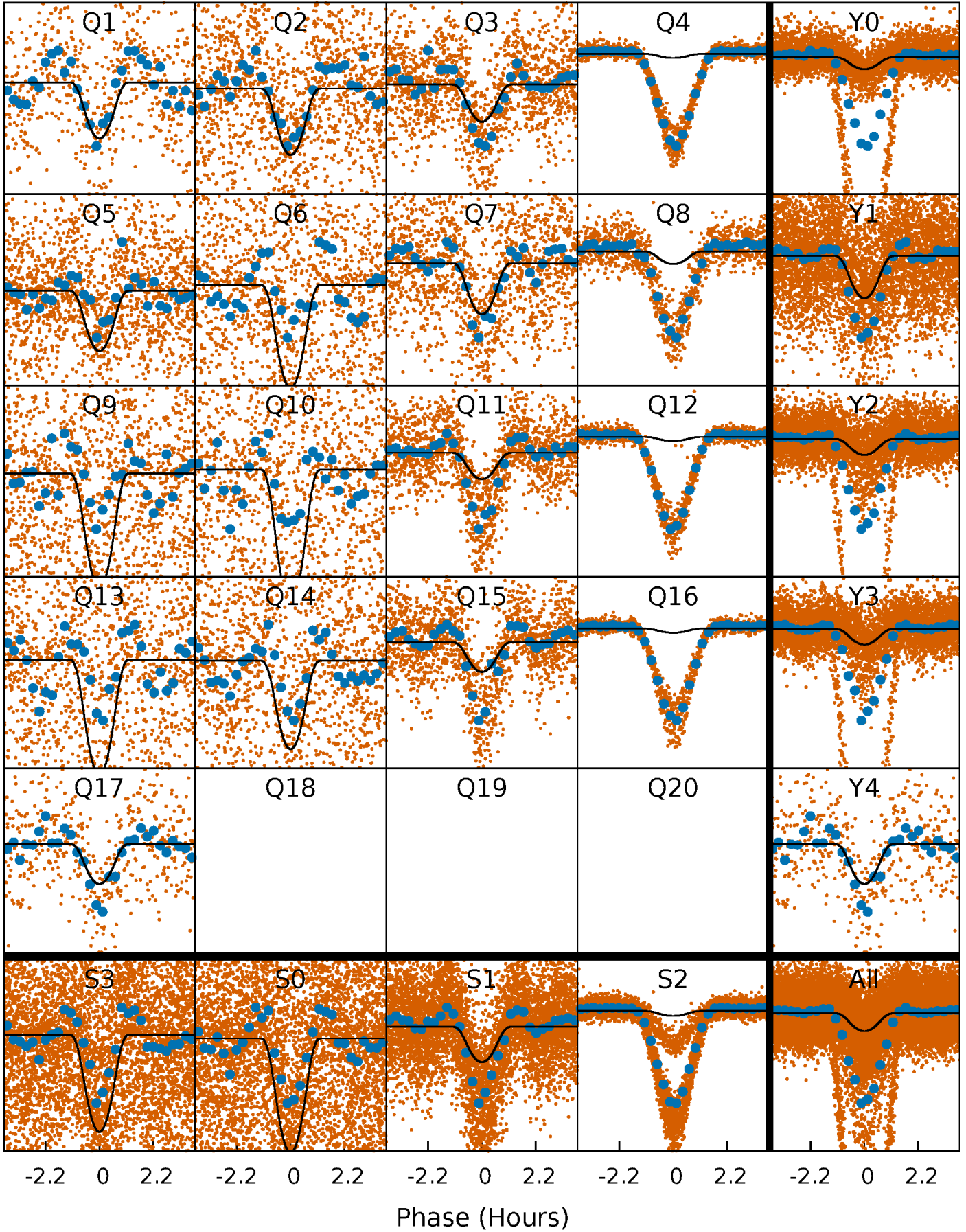
PDC Quarter-Phased Transit Curves

TCE 009110357-01 P= 0.895279 Days $T_0=131.617972$ (BKJD)



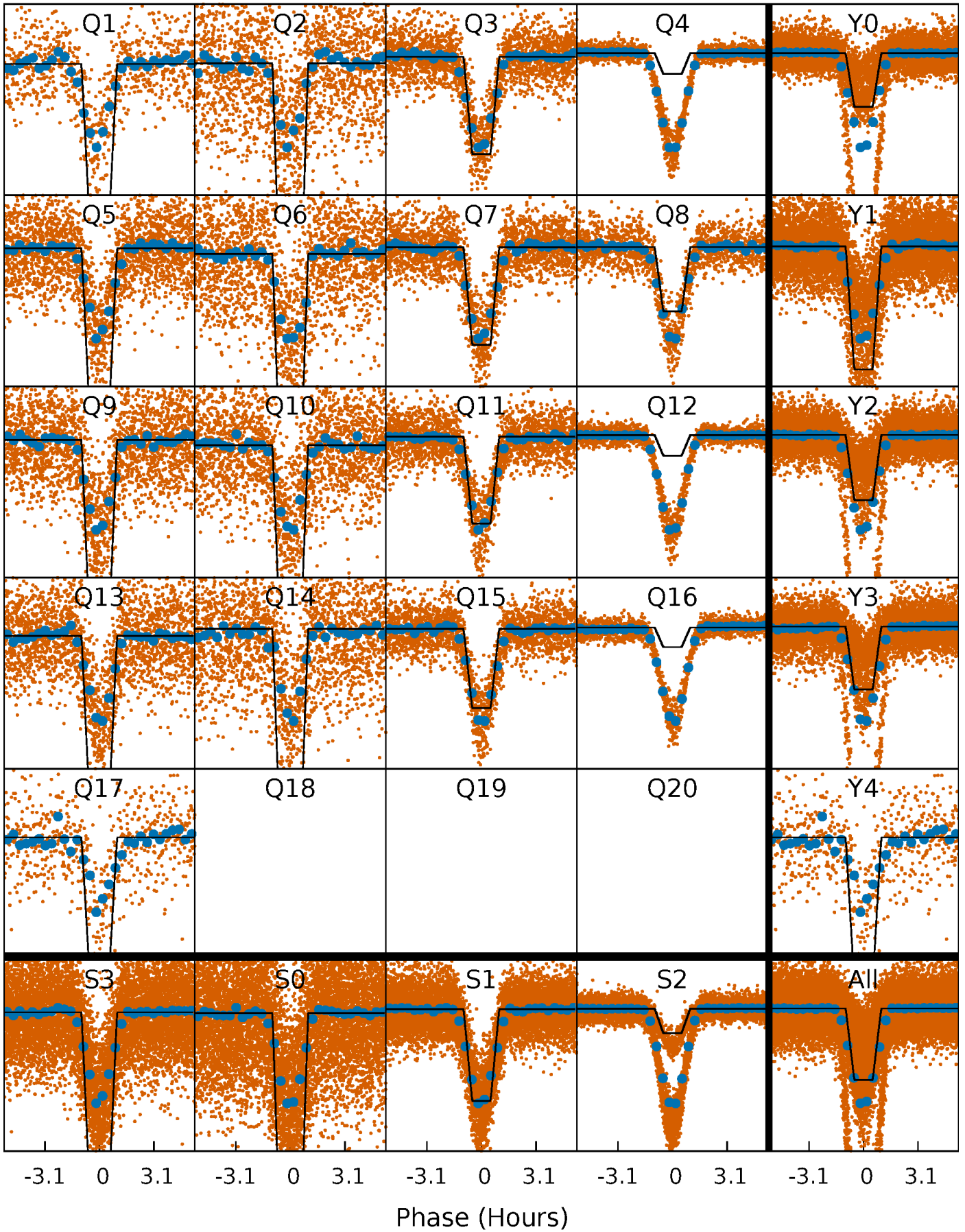
DV Quarter-Phased Transit Curves

TCE 009110357-01 P= 0.895279 Days $T_0=131.617972$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

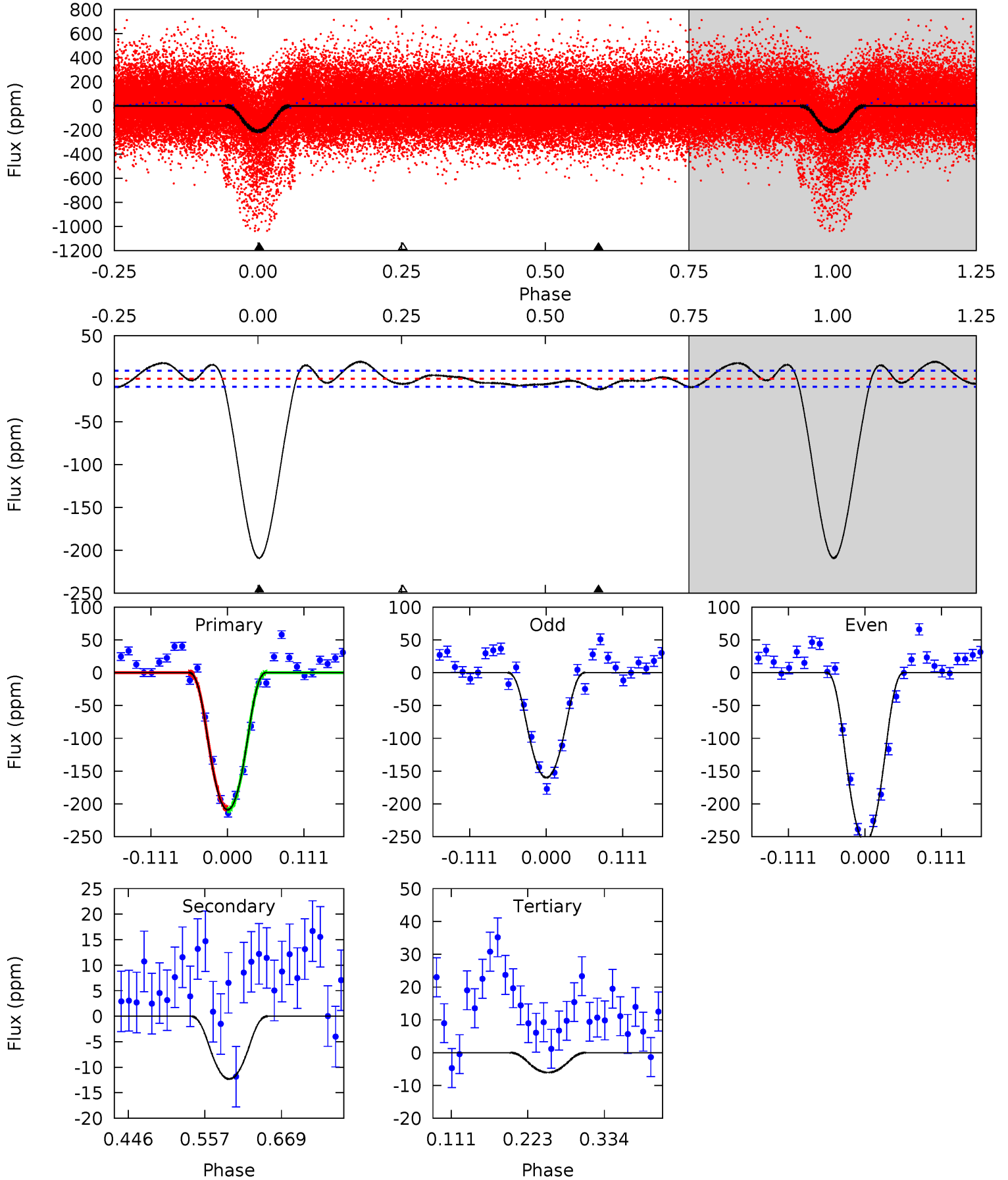
TCE 009110357-01 P= 0.895276 Days $T_0=131.622197$ (BKJD)



DV Model-Shift Uniqueness Test

009110357-01, P = 0.895279 Days, E = 130.722693 Days

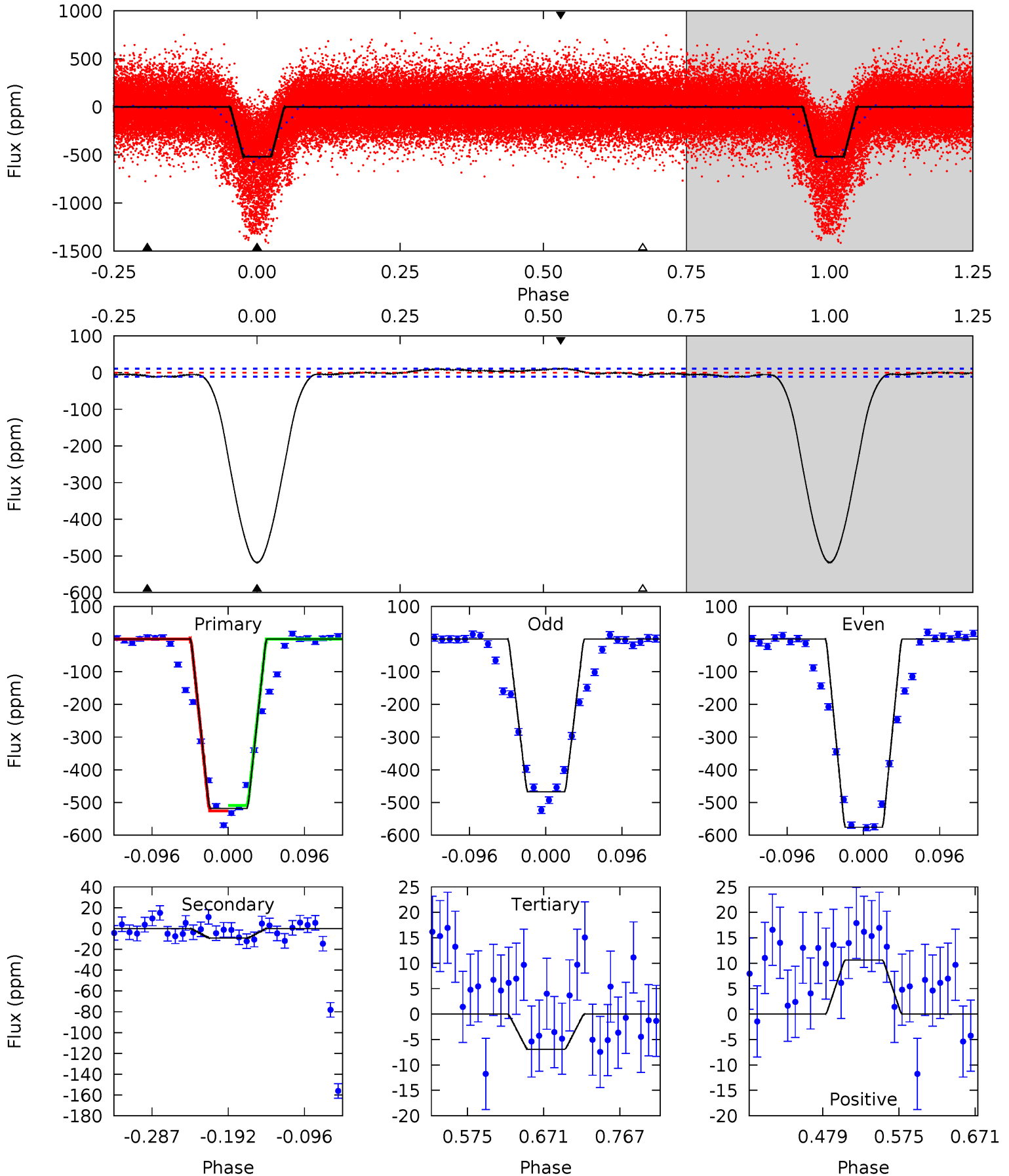
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
100.2	5.90	2.90	0	4.54	1.59	3.96	97.3	100.2	3.00	5.90	23.5	4.45	0.09	0.66



Alt Model-Shift Uniqueness Test

009110357-01, P = 0.895276 Days, E = 130.726921 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
217.9	3.89	2.91	4.47	4.57	1.67	2.07	215.0	213.4	0.98	-0.59	22.5	2.01	0.02	3.47



Stellar Parameters For KIC 009110357

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8040^{+224}_{-336}	$3.707^{+0.432}_{-0.108}$	$-0.080^{+0.250}_{-0.350}$	$3.325^{+0.817}_{-1.634}$	$2.053^{+0.350}_{-0.524}$	$0.079^{+0.313}_{-0.028}$
	+3%/-4%	+12%/-3%	+312%/-438%	+25%/-49%	+17%/-26%	+398%/-35%
Source	KIC0	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 009110357-01 / KOI 0016.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-12 ± 2	$6.39^{+2.94}_{-2.75}$	5731^{+466}_{-607}	-4347^{+1255}_{-399}	$0.091^{+0.173}_{-0.050}$
Alt.	-9 ± 2	$9.71^{+3.47}_{-3.16}$	5745^{+462}_{-634}	-4622^{+489}_{-306}	$0.029^{+0.033}_{-0.014}$

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

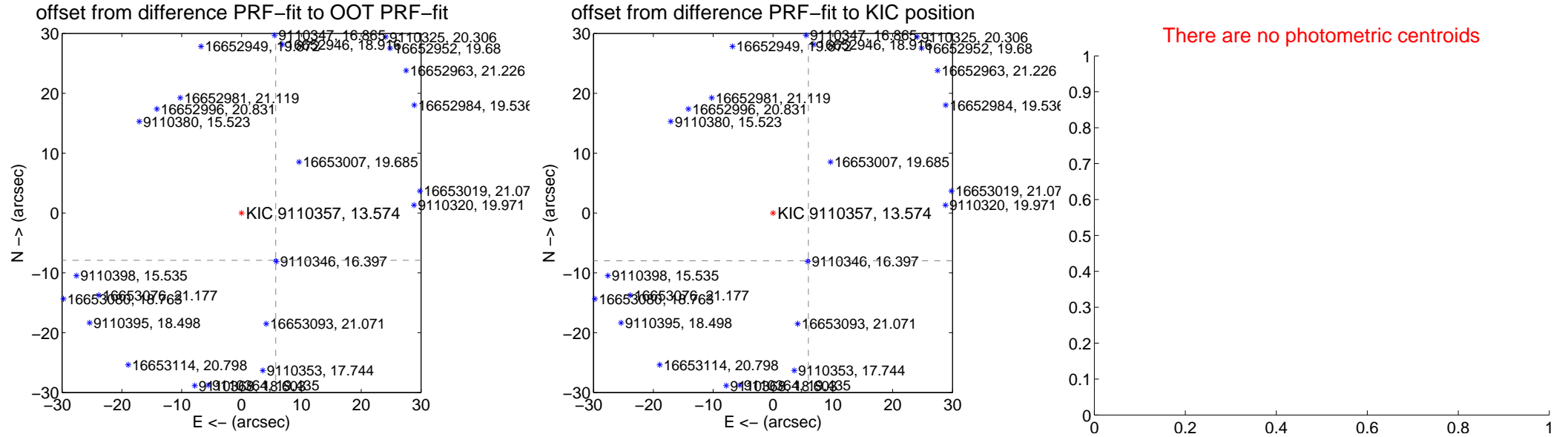
DV Centroid Data

Supplemental centroid analysis for 009110357-01. Kepler magnitude: 13.57. Transit SNR 48.61

There are 15 quarters with good PRF difference image offsets

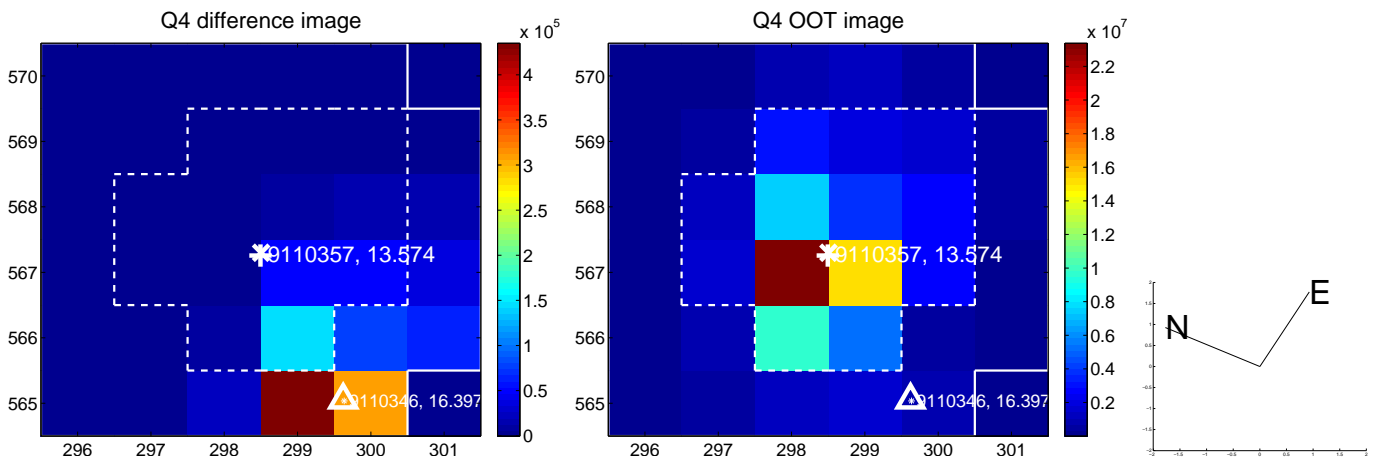
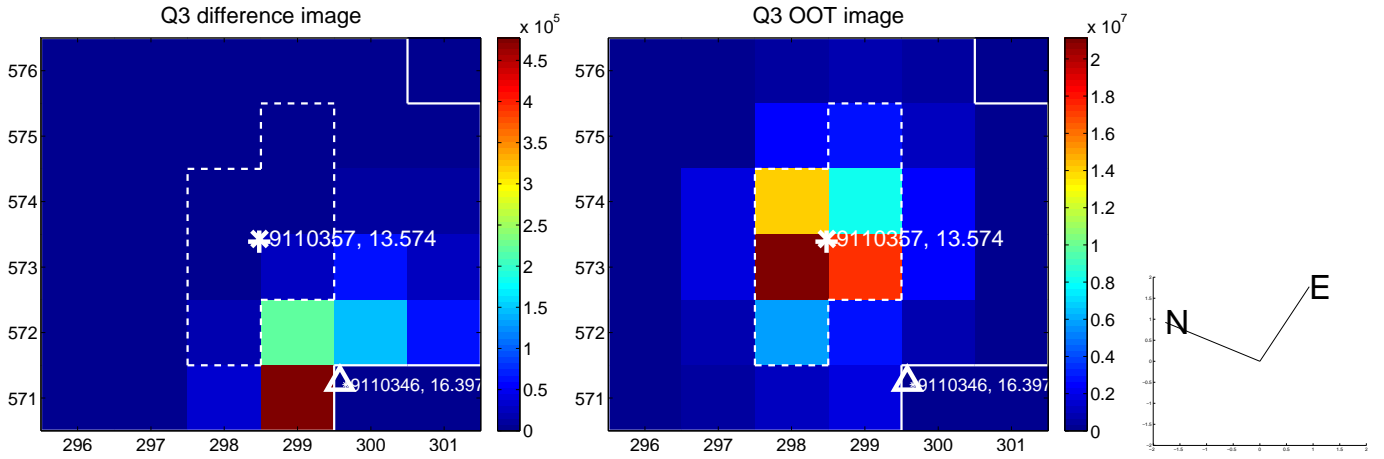
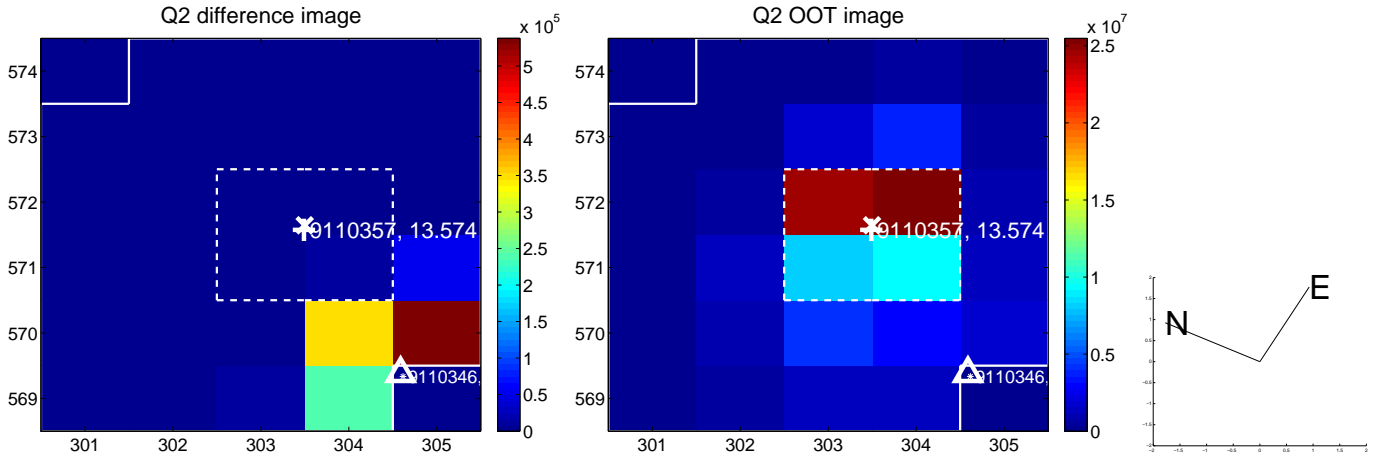
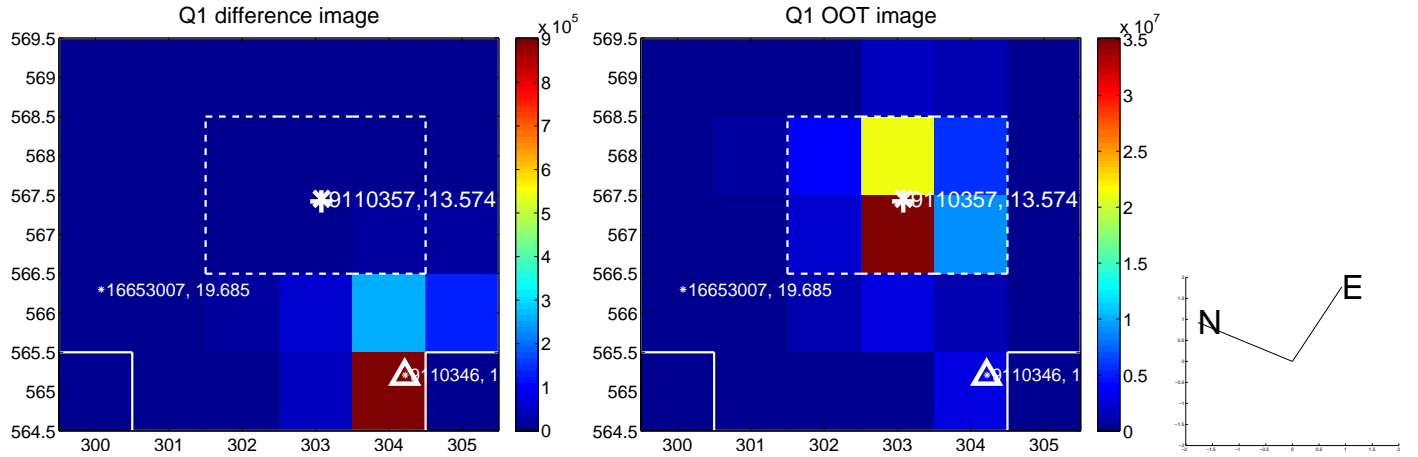
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.754 \pm 0.077	126.13	-5.711 \pm 0.071	-7.907 \pm 0.074
PRF-fit source offset from KIC position	9.938 \pm 0.077	129.01	-5.910 \pm 0.074	-7.990 \pm 0.073
photometric centroid source offset	—	—	—	—

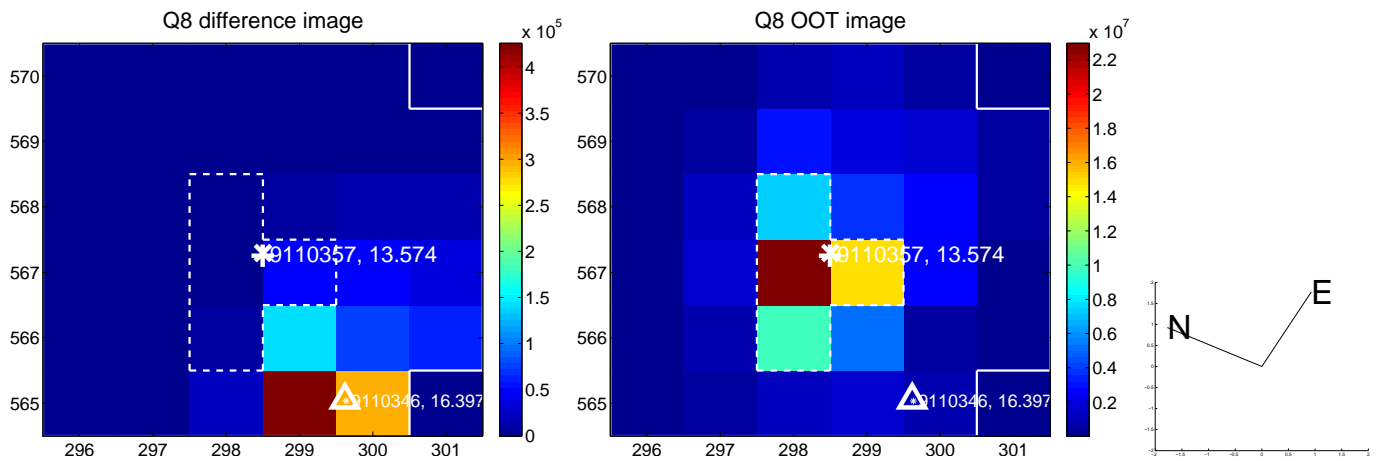
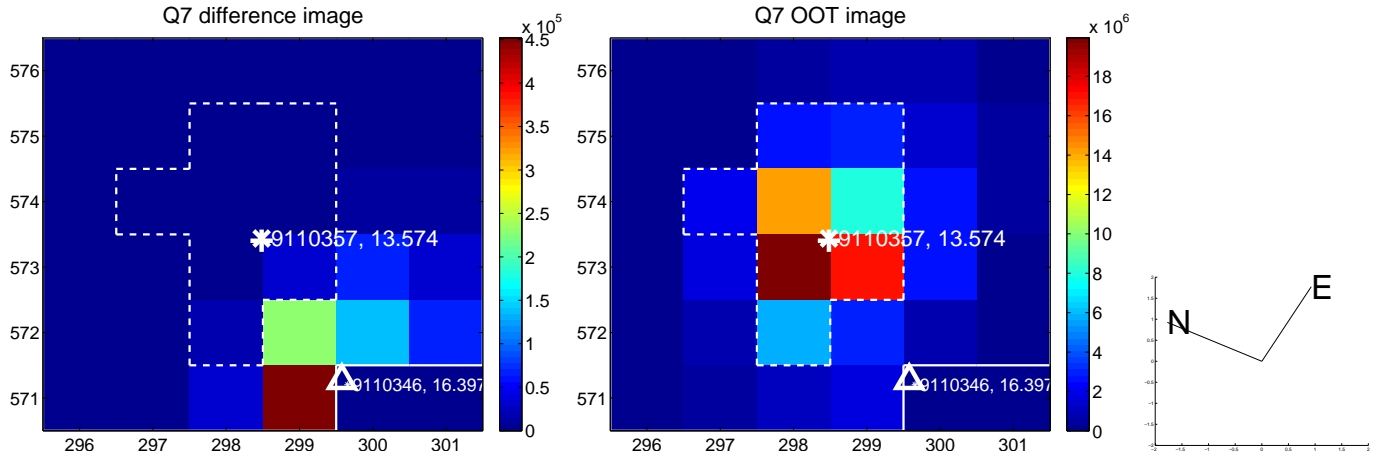
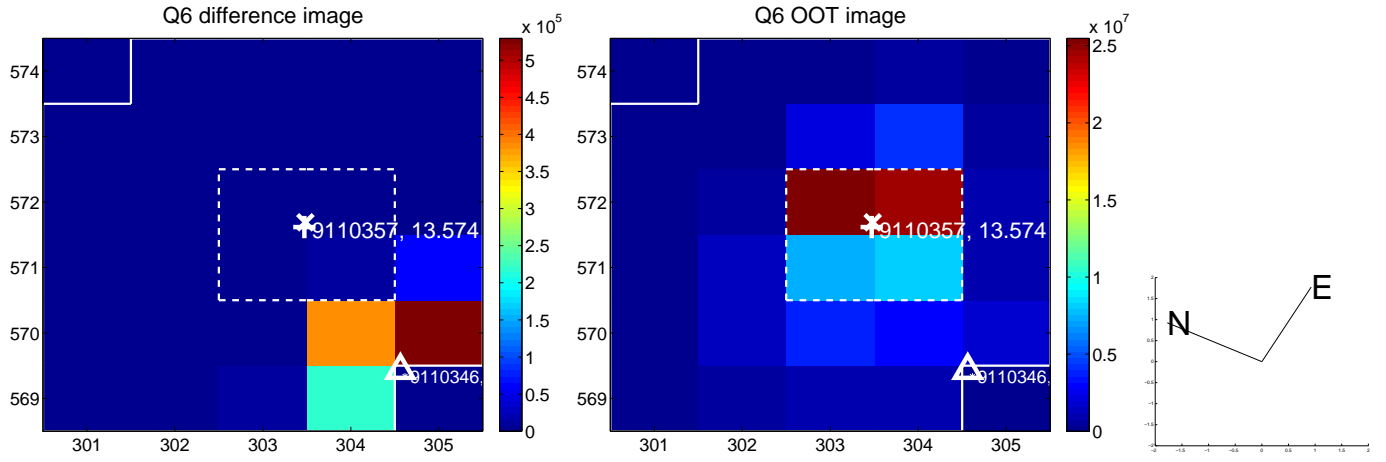
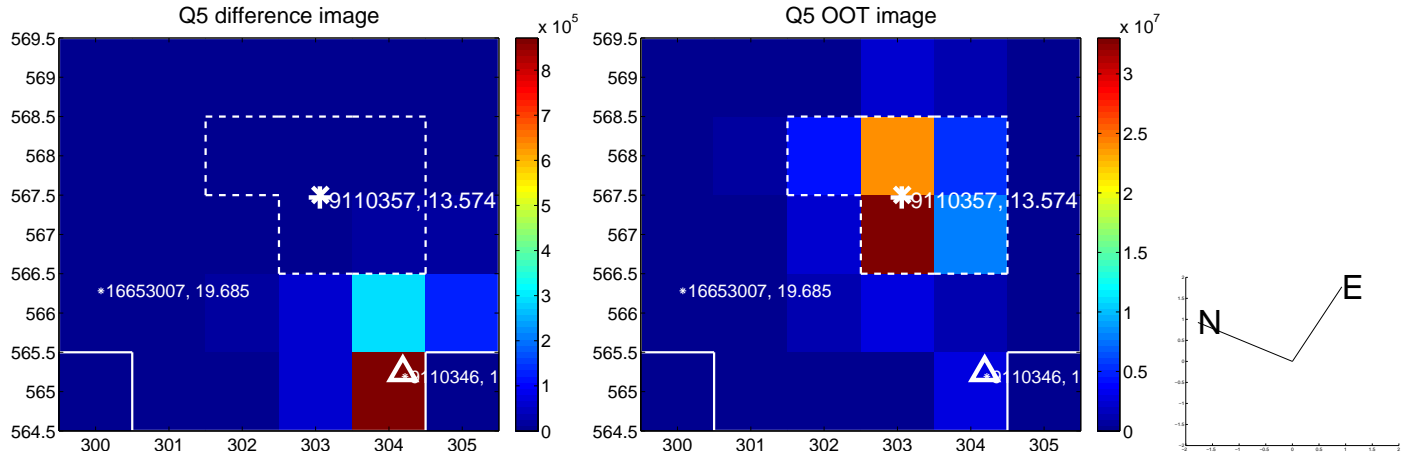


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

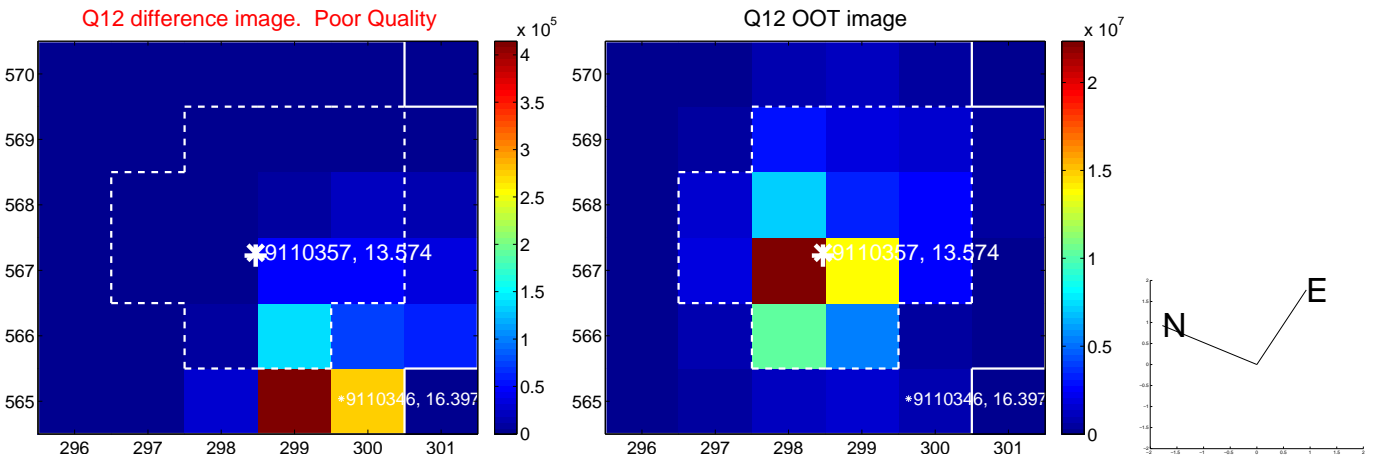
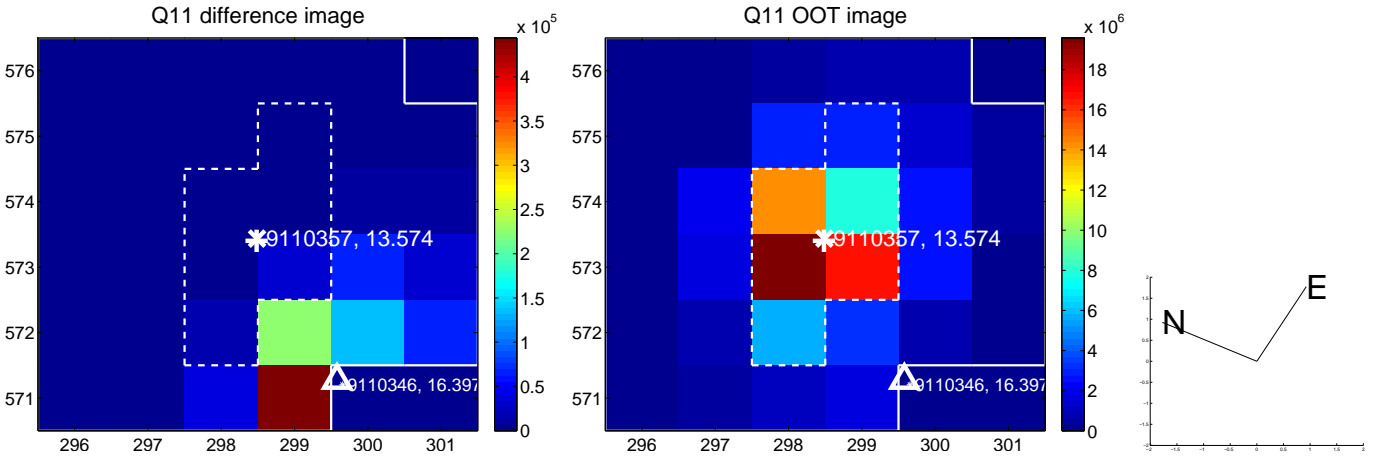
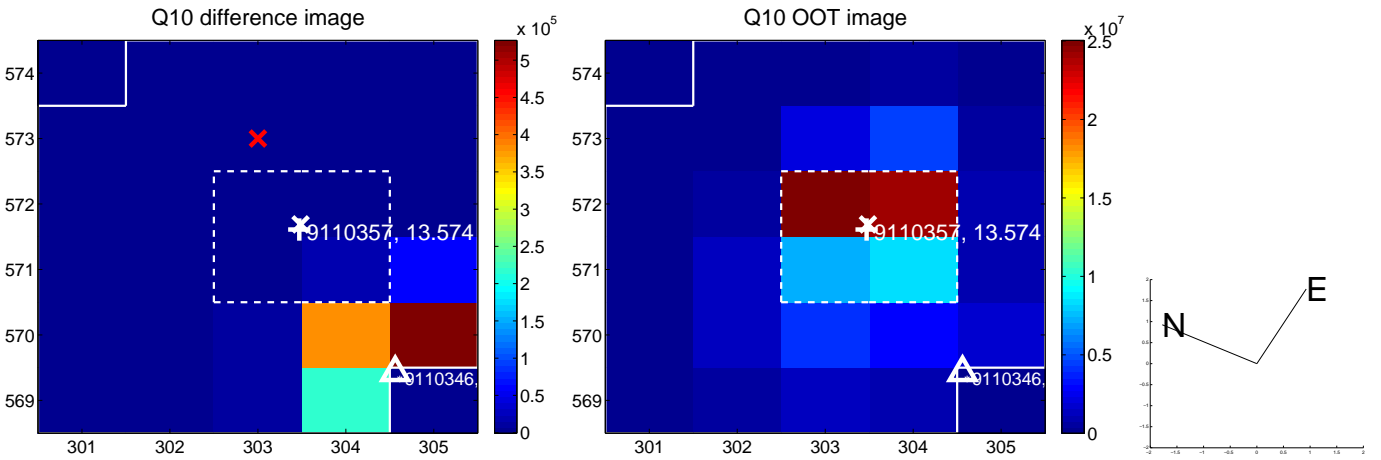
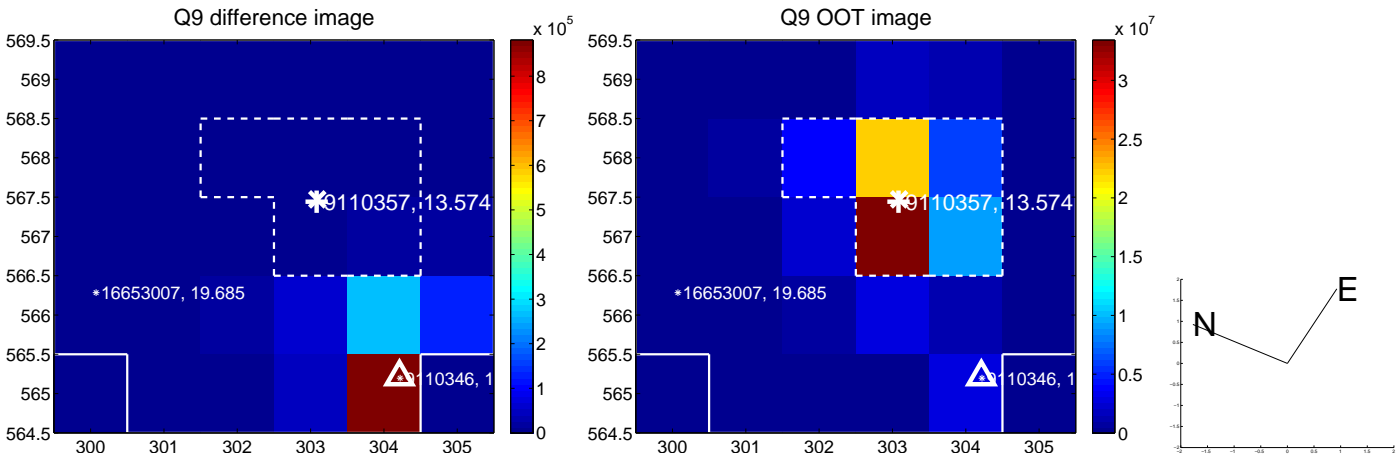
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



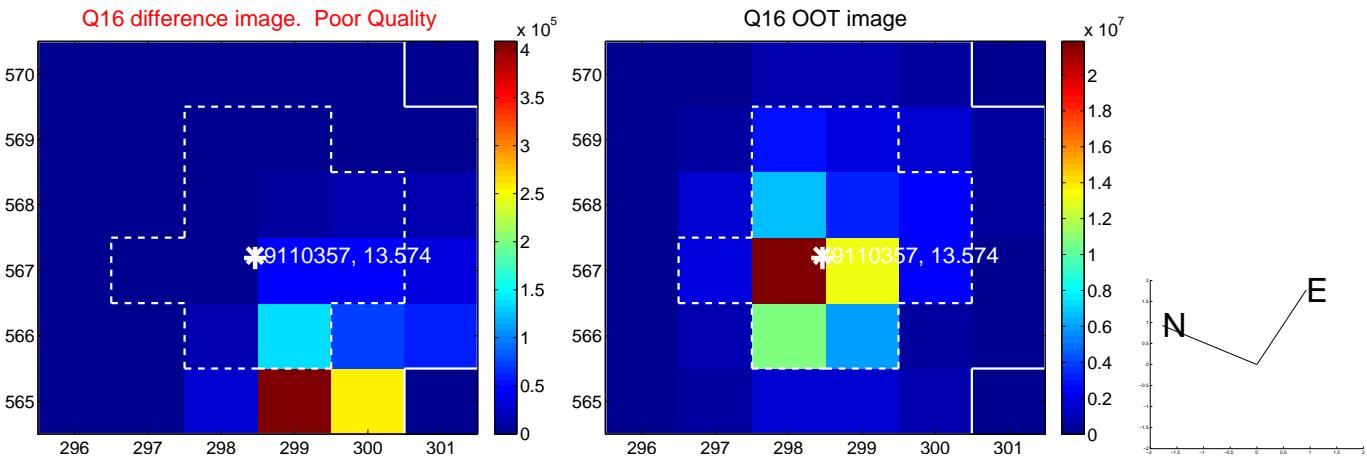
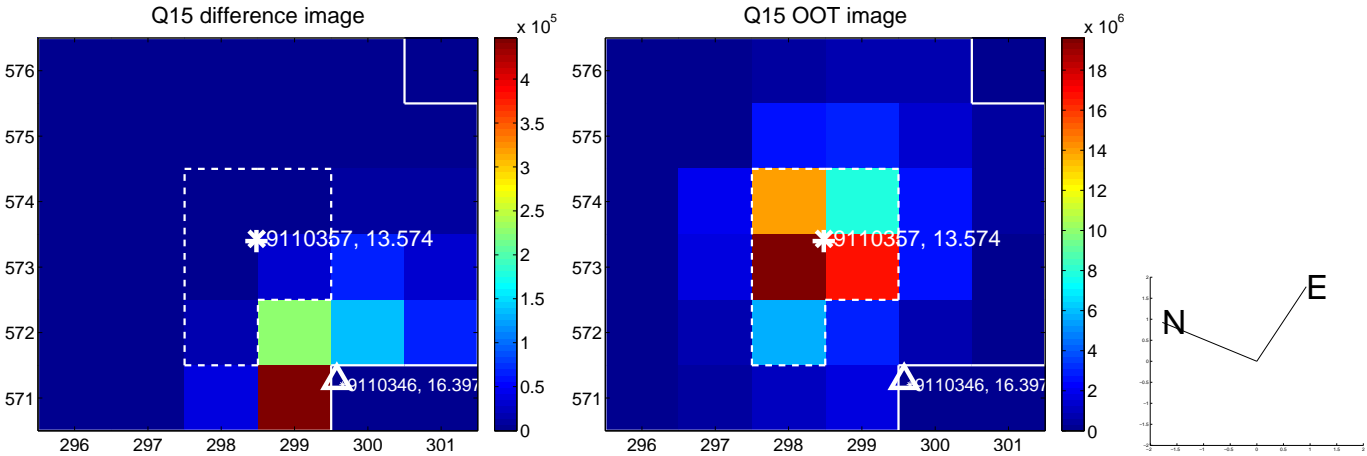
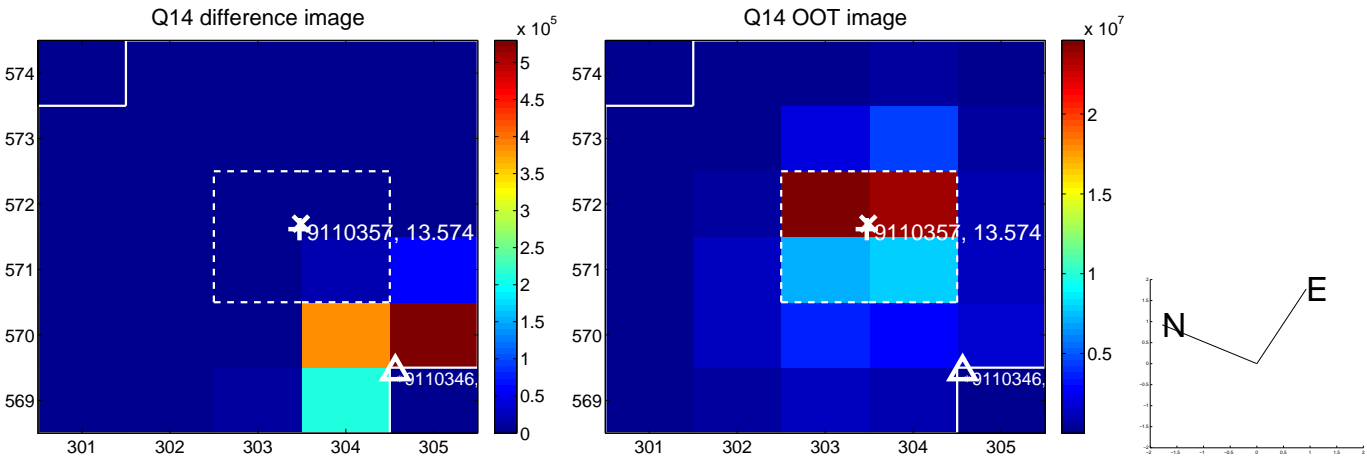
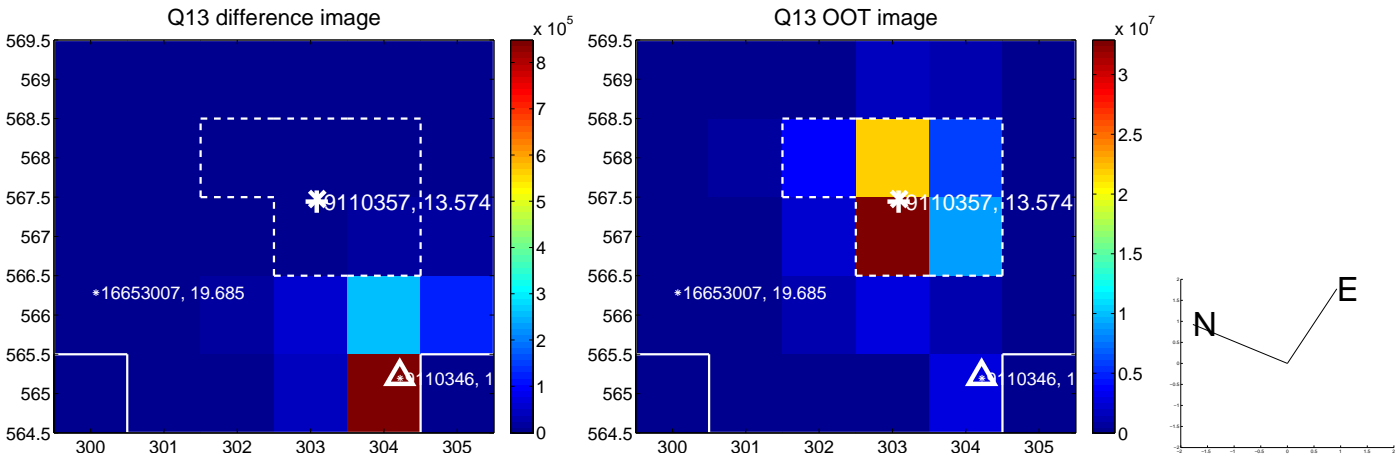
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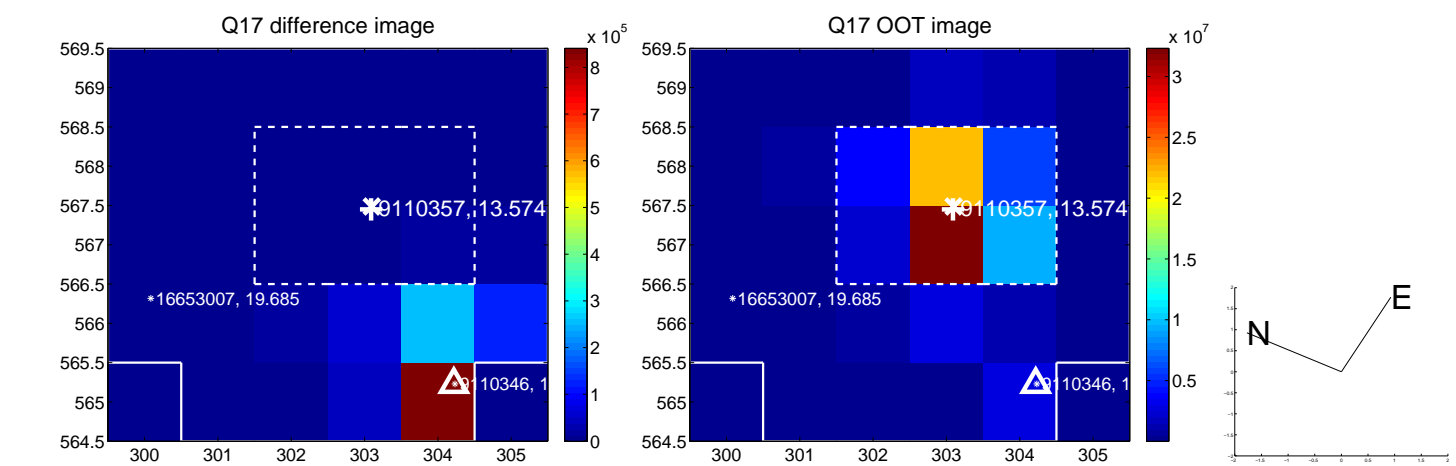
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



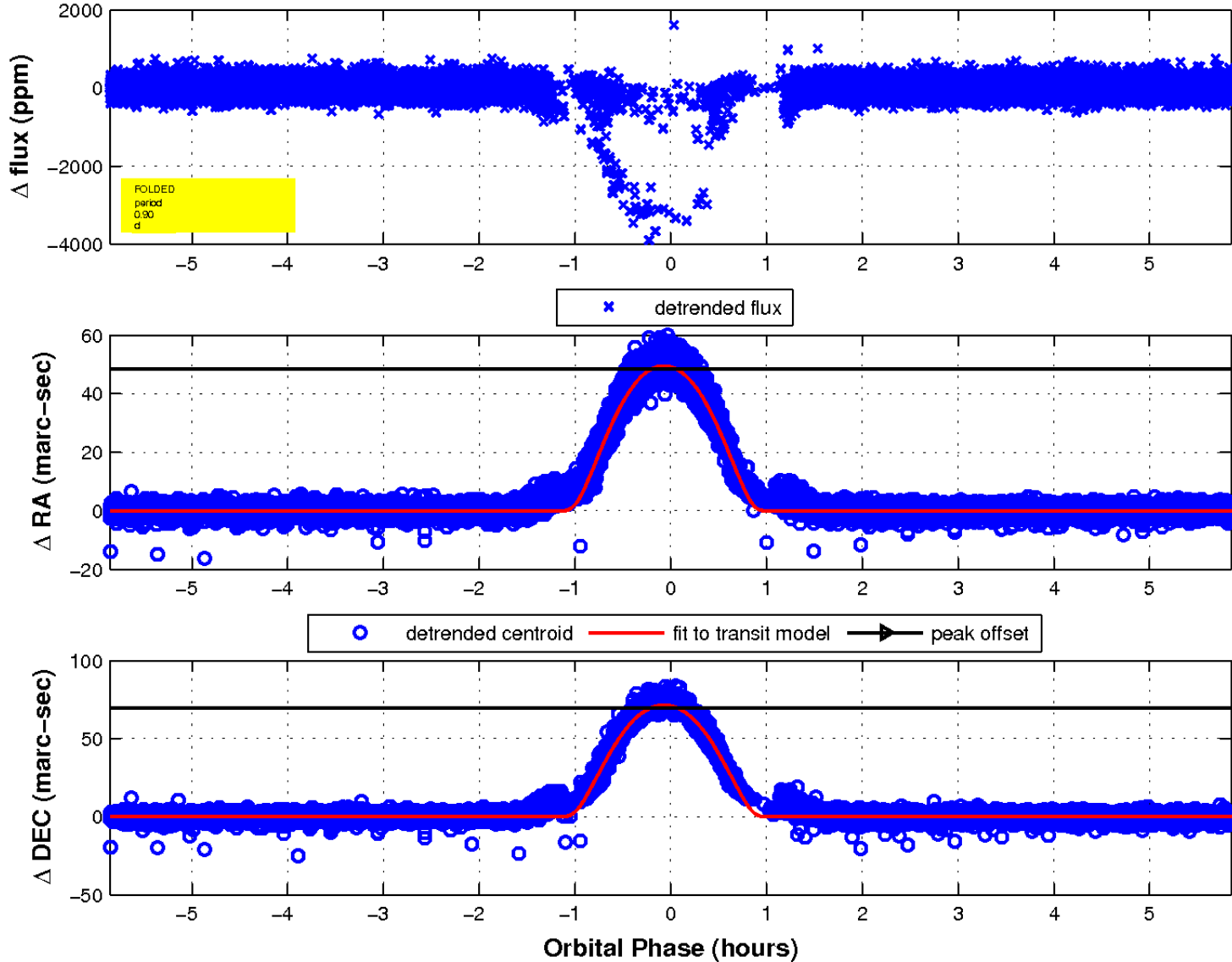
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fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

