

KIC 009159275

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})
009159275-01	OBS	0930.01	3.044742	132.443996	413.3	5.900	33.1	37.2	0.75	5525	2.78	317.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009159275-01	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 009159275-01

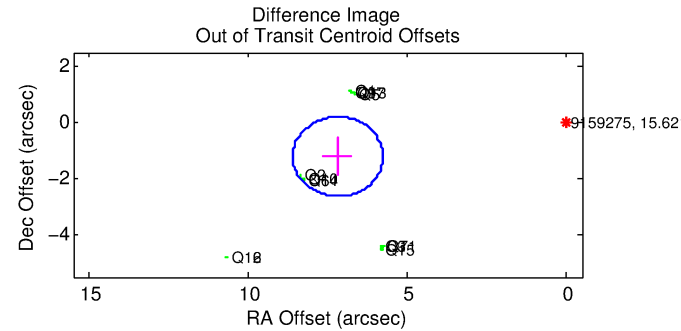
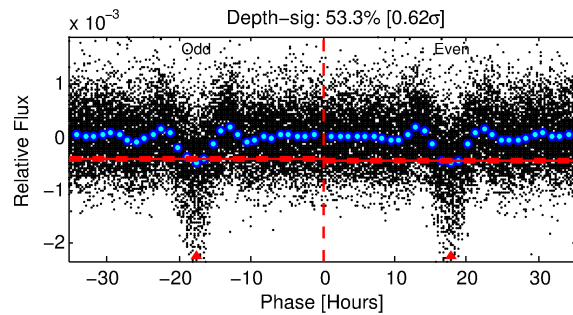
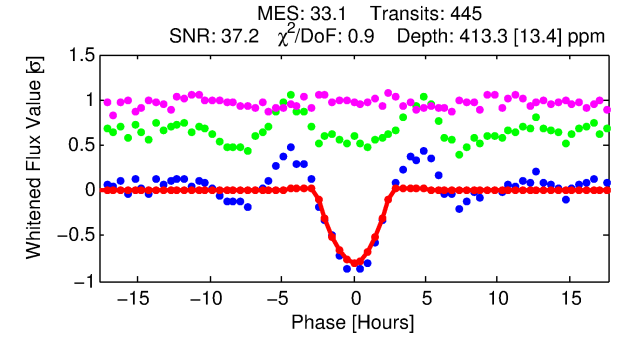
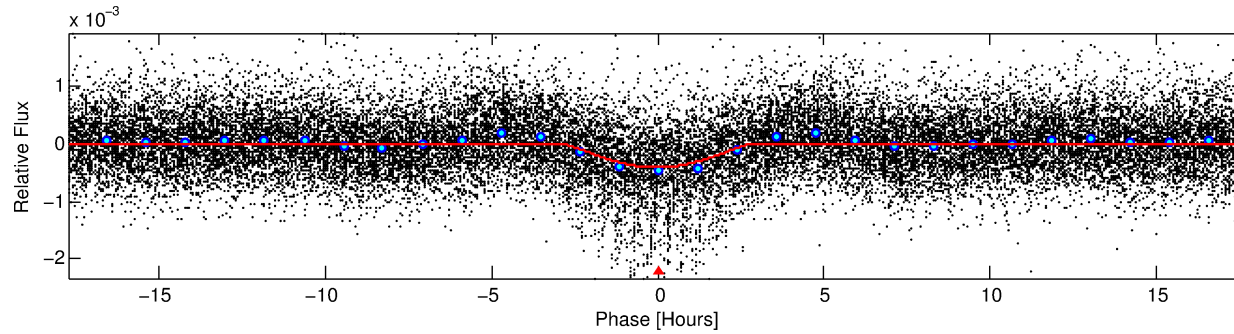
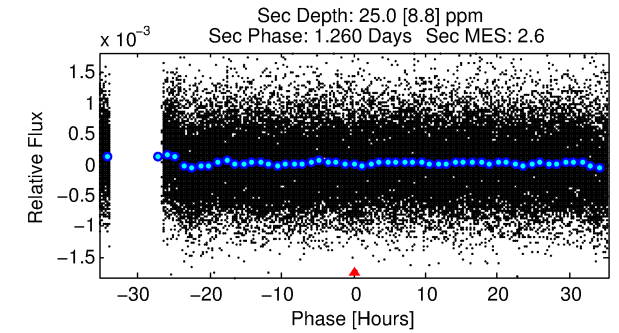
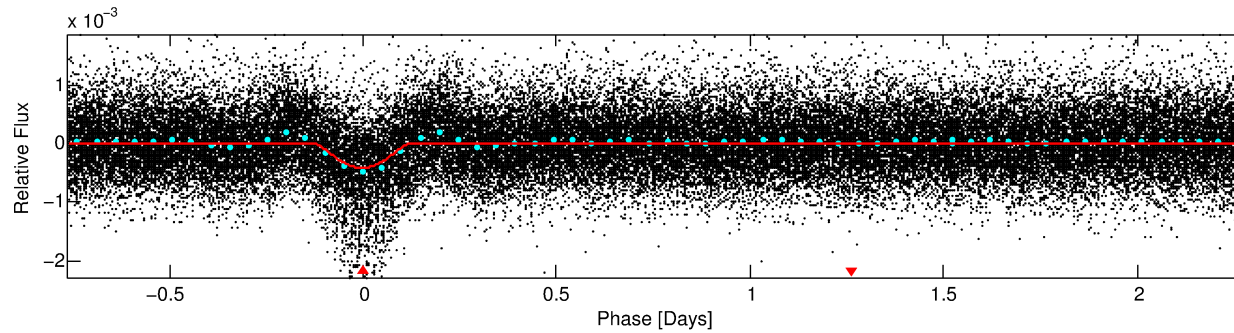
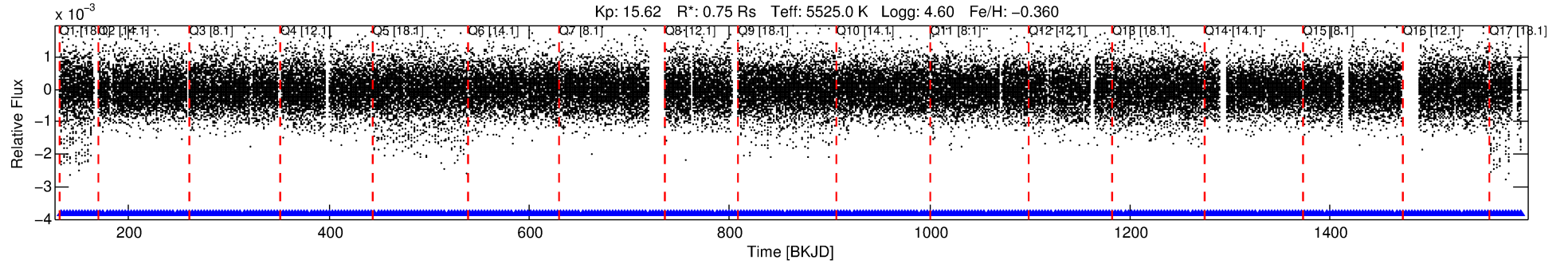
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009159275-01	9159275	009159301-pri	9159301	1:1	21.2	-5	3	12.15	15.62	1183.50	Direct-PRF	0	0.57	0.34

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: 9159275 Candidate: 1 of 1 Period: 3.045 d

KOI: K00930.01 Corr: 0.783



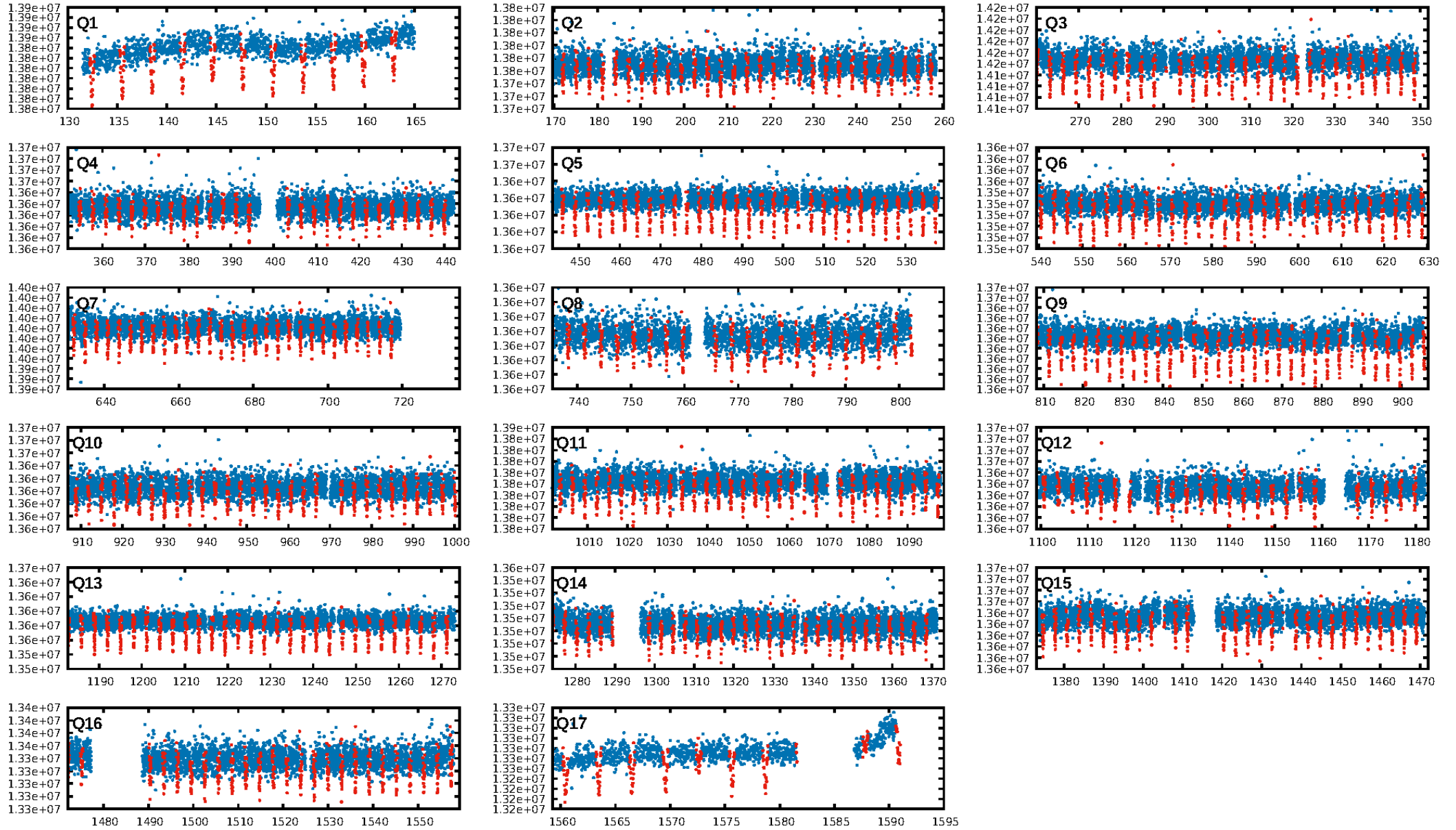
DV Fit Results:

Period = 3.04474 [0.00001] d
Epoch = 132.4440 [0.0036] BKJD
Rp/R* = 0.0338 [0.0237]
a/R* = 1.51 [0.15]
b = 0.99 [0.04]
Seff = 317.21 [81.39]
Teq = 1076 [69] K
Rp = 2.78 [2.02] Re
a = 0.0386 [0.0062] AU
Ag = 2.65 [3.87] [0.43σ]
Teff = 2123 [769] K [1.36σ]

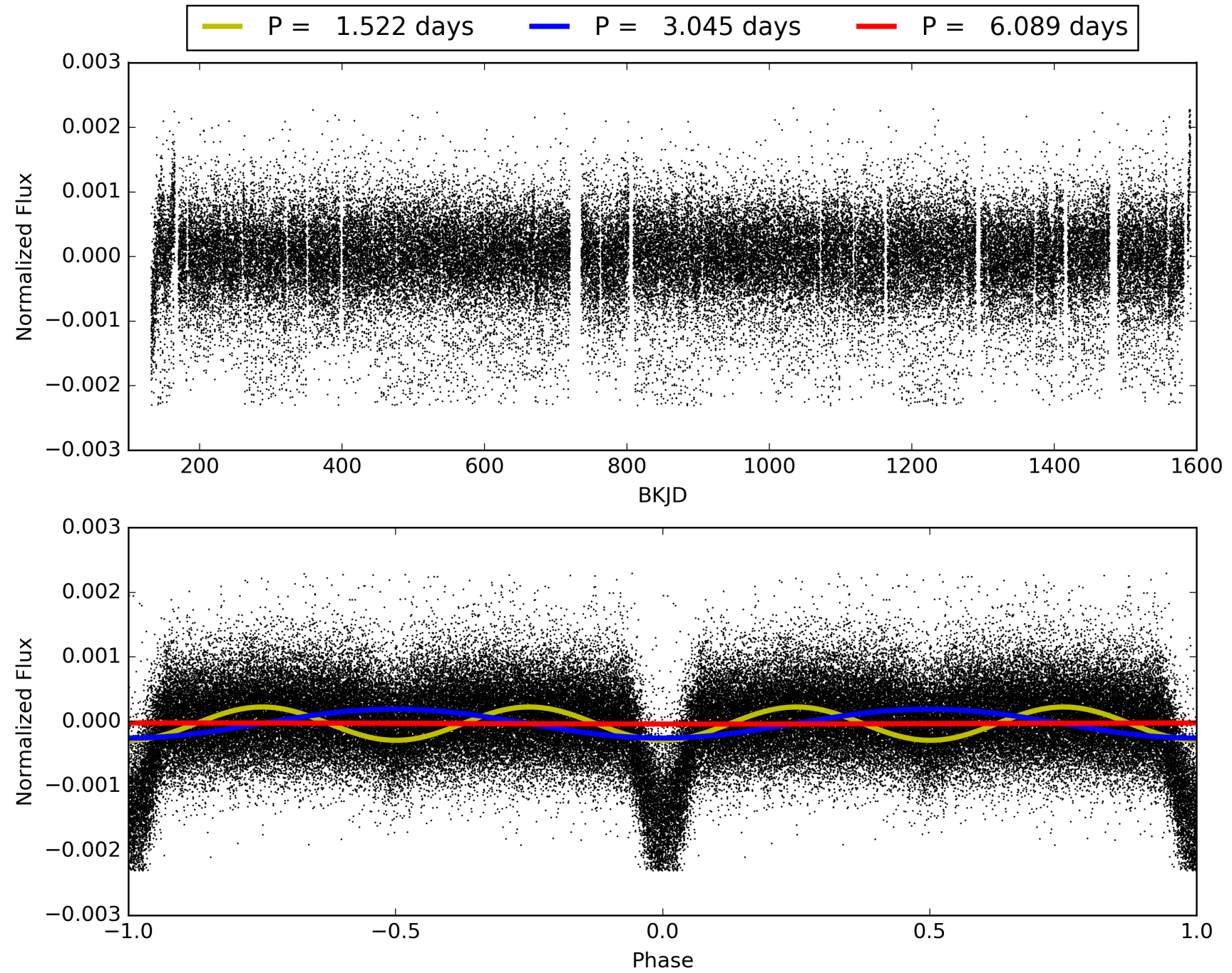
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.49e-229
RollingBand-fgt: 1.00 [425/425]
GhostDiagnostic-chr: -0.1589
Centroid-sig: 0.0%
Centroid-so: 59.662 arcsec [147.19σ]
OotOffset-rm: 7.286 arcsec [15.41σ]
KicOffset-rm: 7.166 arcsec [17.58σ]
OotOffset-st: 4/4/2/5 [15]
KicOffset-st: 4/4/2/5 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009159275-01, PDC Light Curves

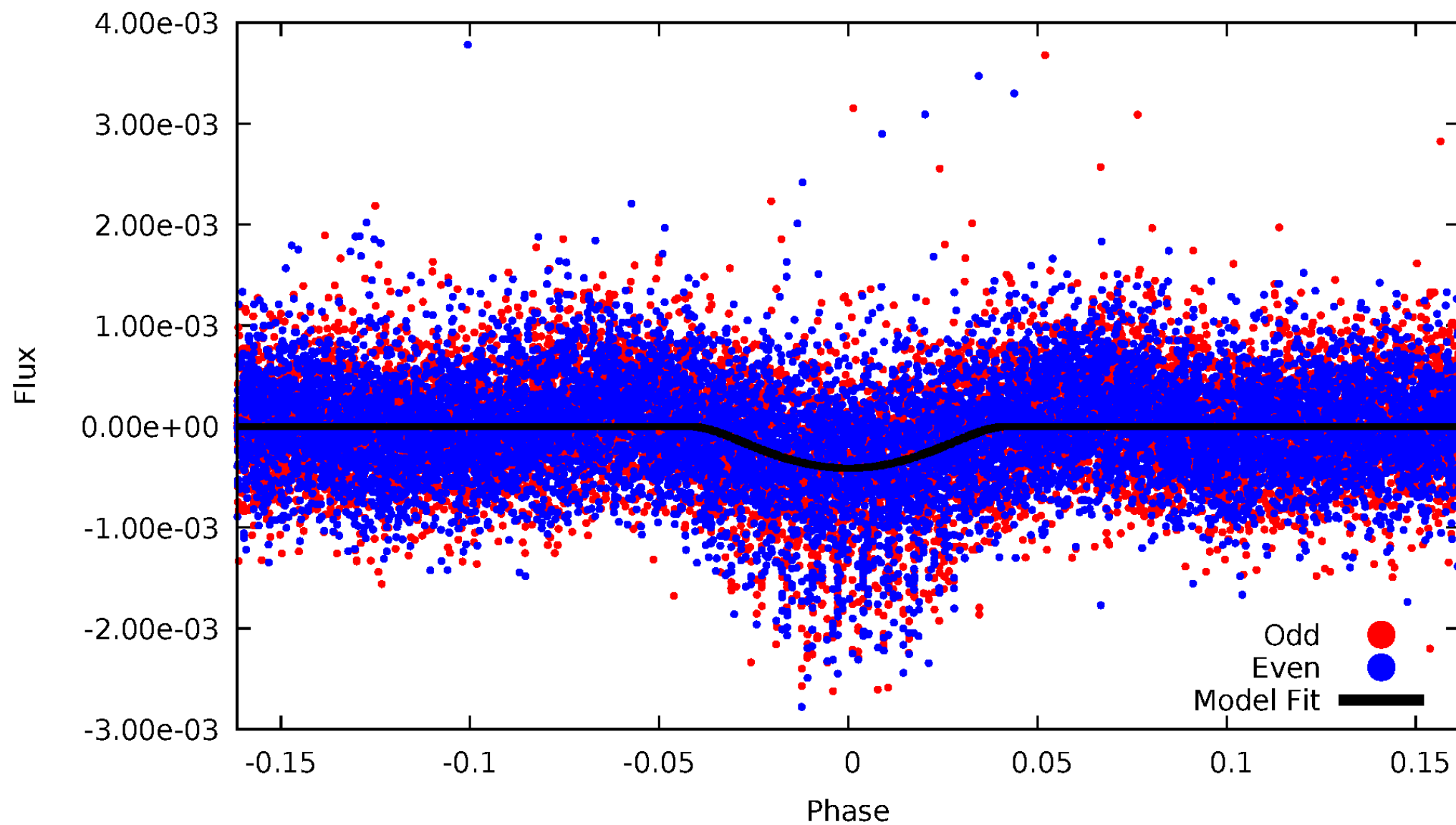


TCE 009159275-01



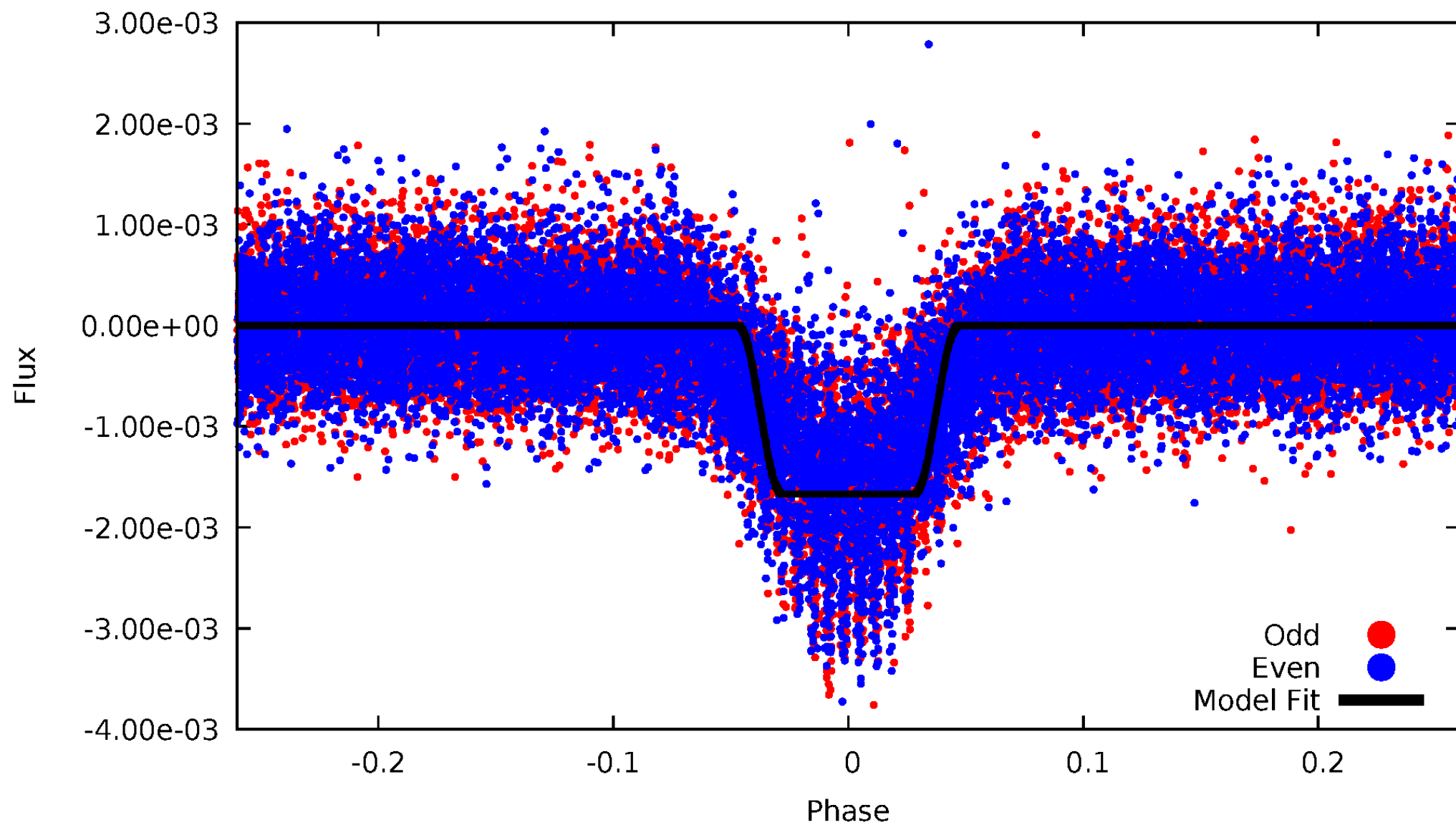
DV Odd/Even

TCE 009159275-01



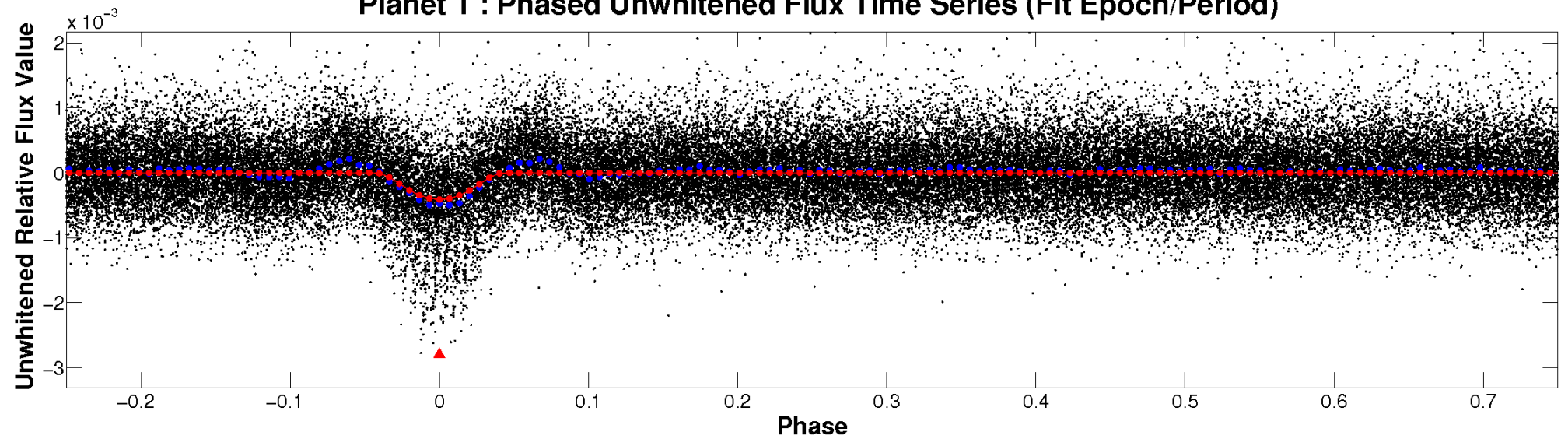
ALT Odd/Even

TCE 009159275-01

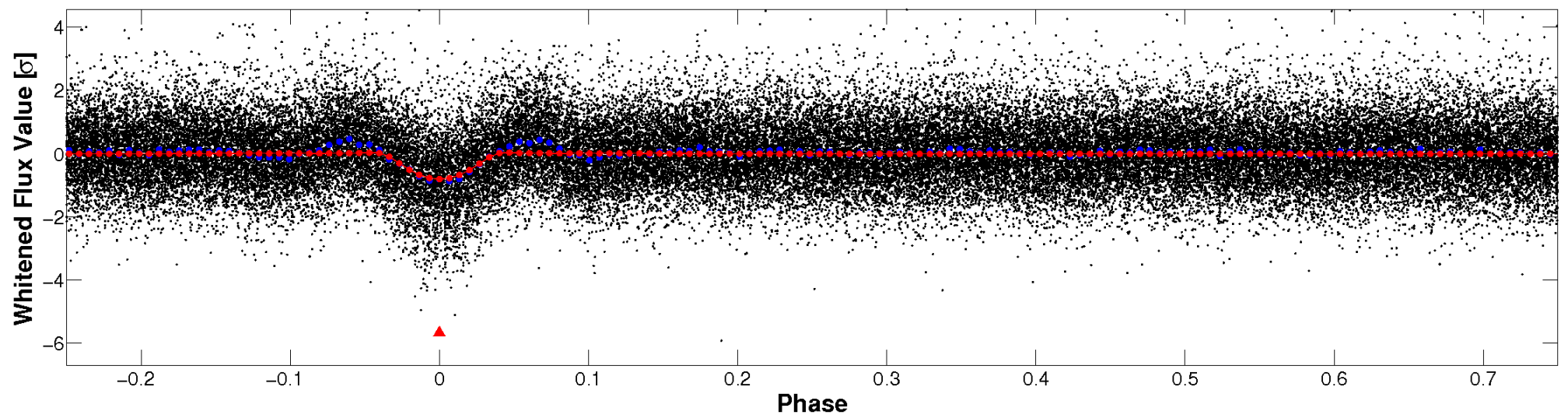


Non-Whitened Vs. Whitened Light Curve

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

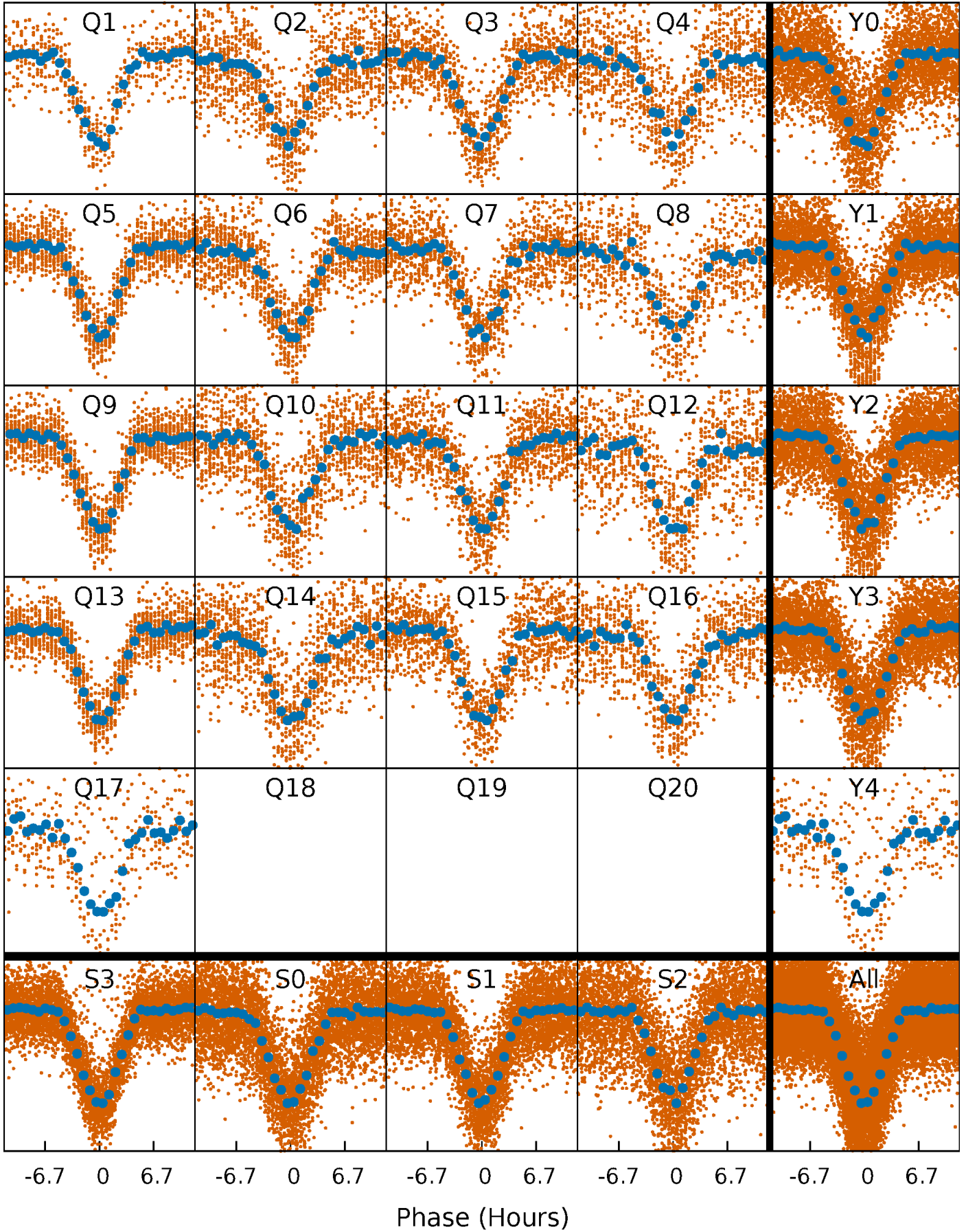


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



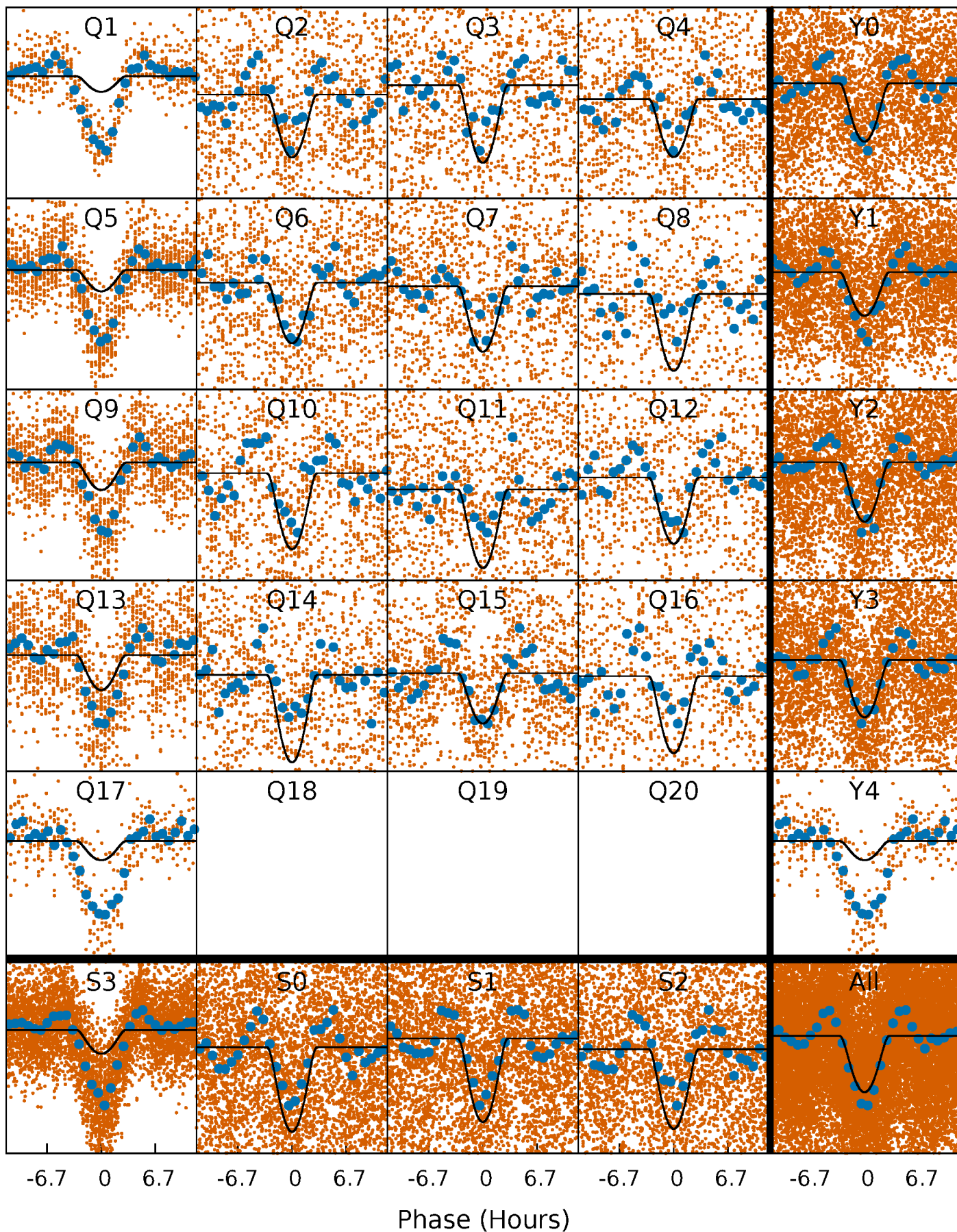
PDC Quarter-Phased Transit Curves

TCE 009159275-01 P= 3.044742 Days $T_0=132.443996$ (BKJD)



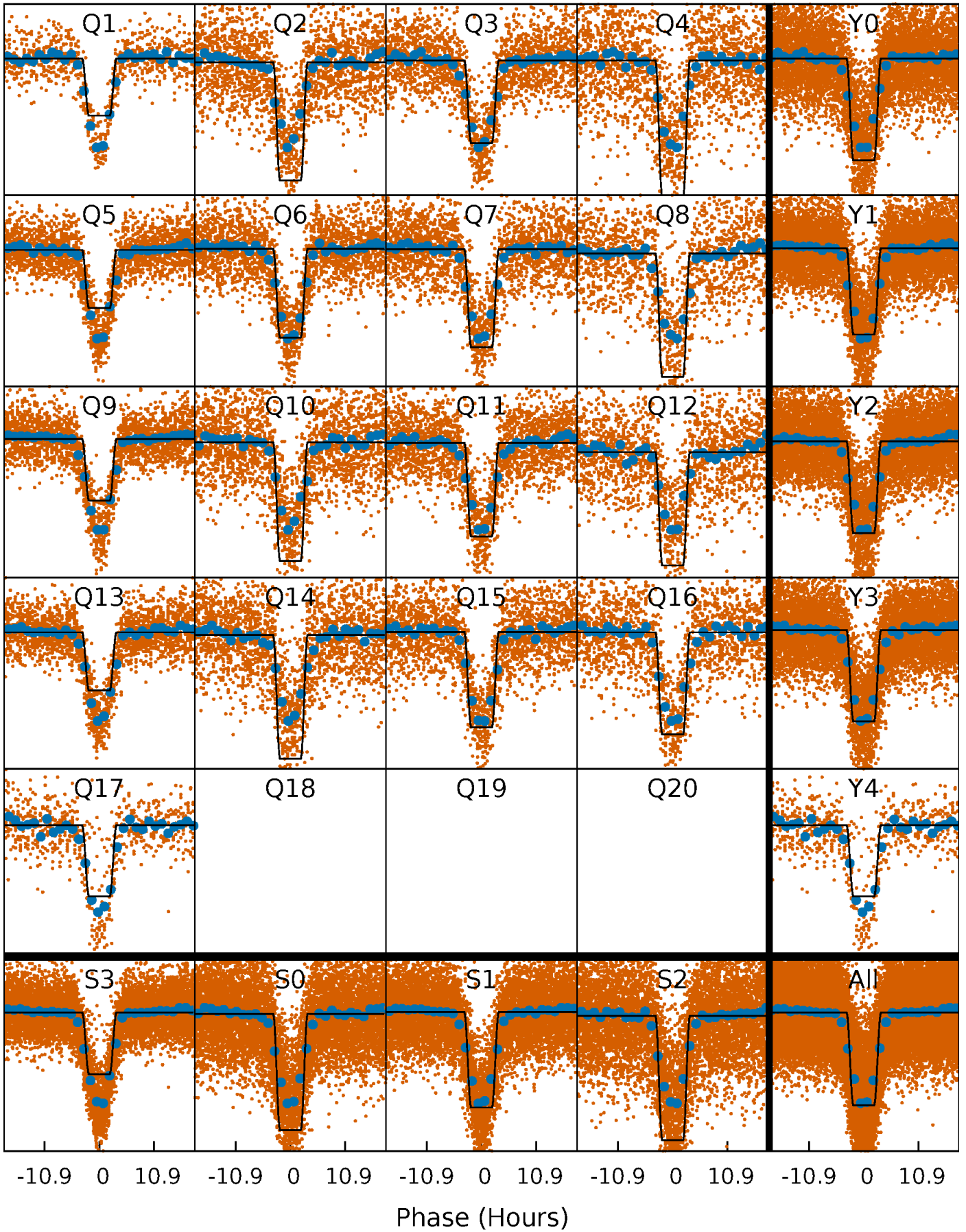
DV Quarter-Phased Transit Curves

TCE 009159275-01 P= 3.044742 Days $T_0=132.443996$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

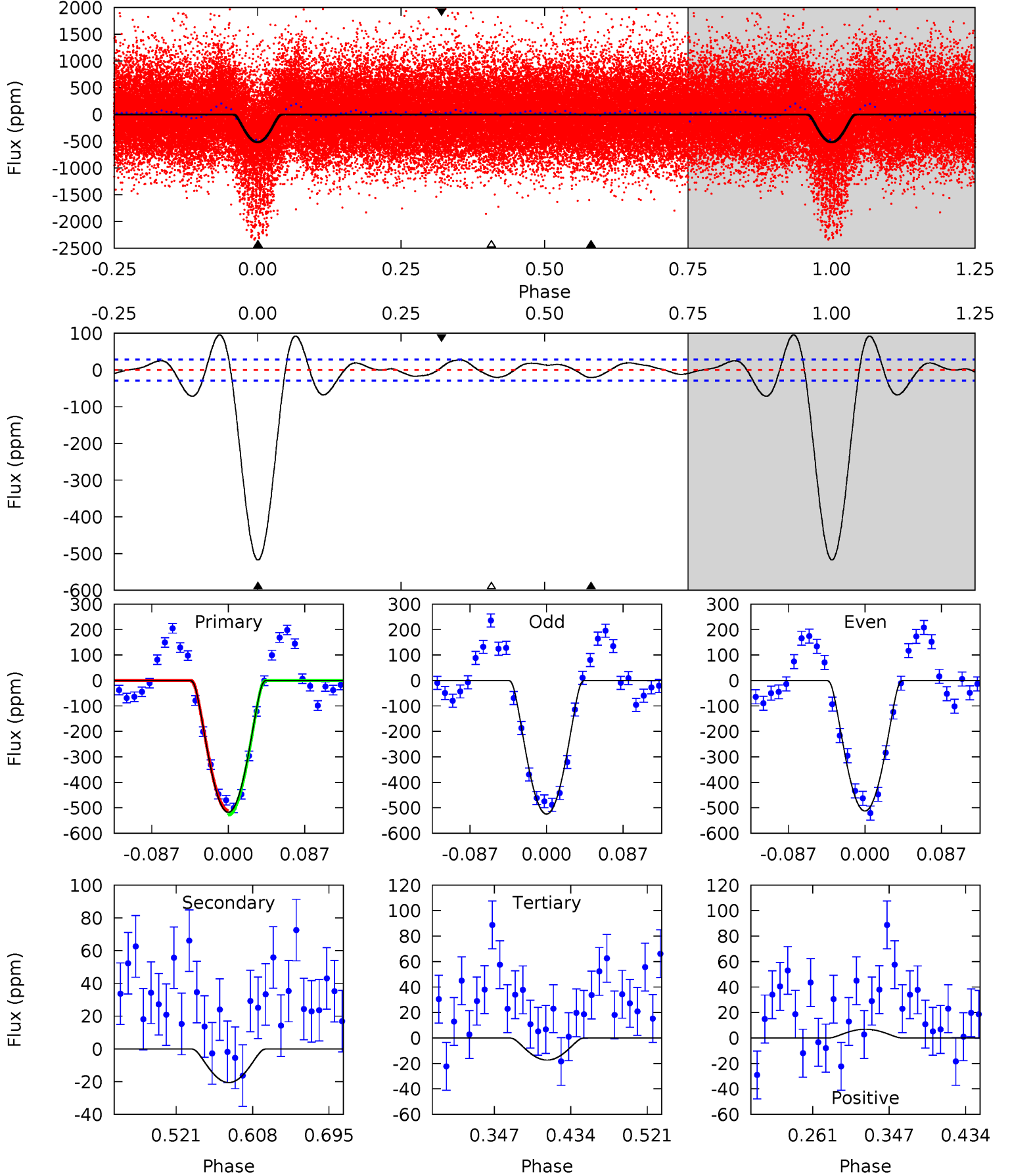
TCE 009159275-01 P= 3.044752 Days $T_0=132.441863$ (BKJD)



DV Model-Shift Uniqueness Test

009159275-01, P = 3.044742 Days, E = 129.399254 Days

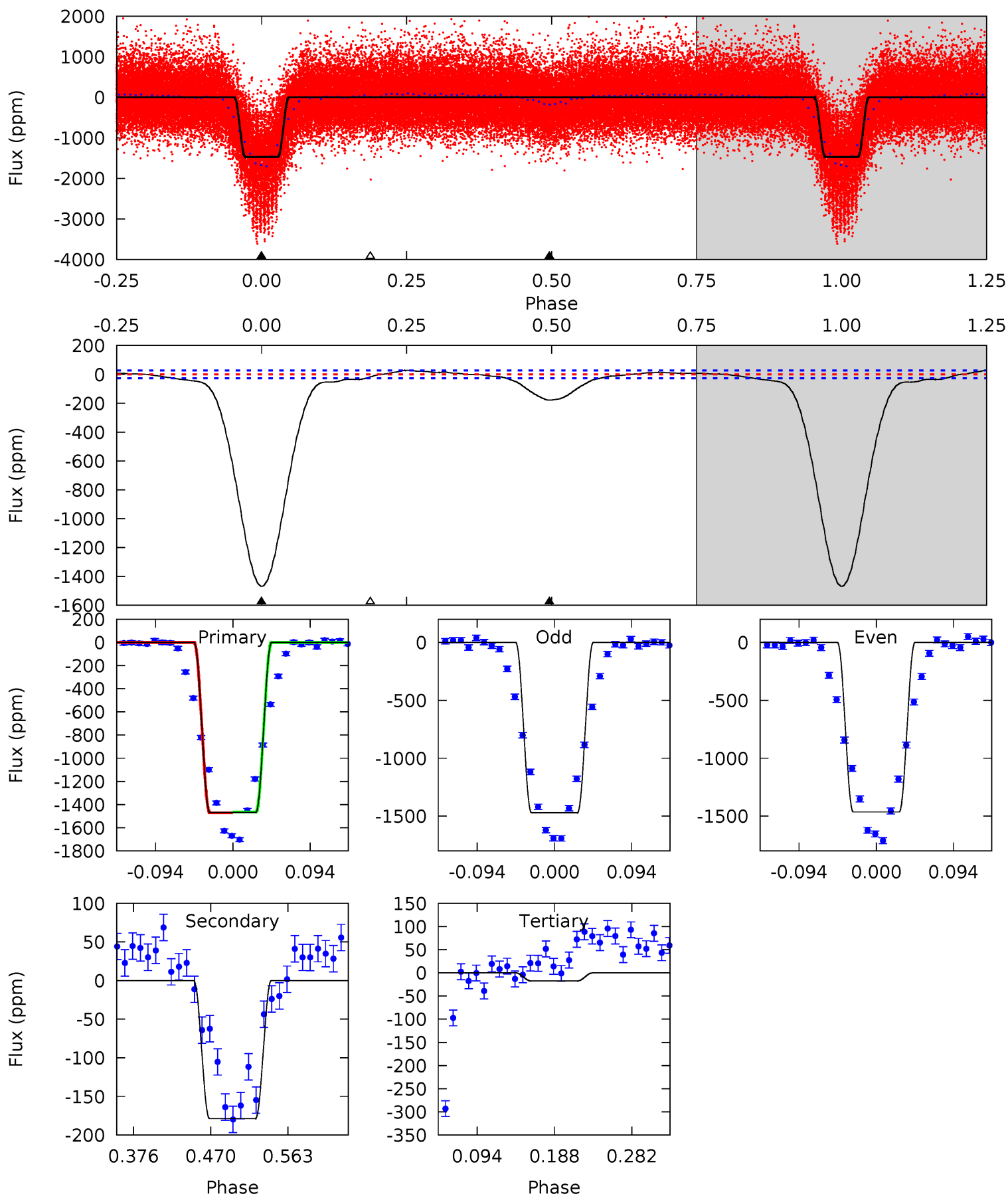
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.5	3.28	2.77	1.09	4.59	1.71	3.72	79.8	81.5	0.51	2.18	0.97	1.51	0.16	1.32



Alt Model-Shift Uniqueness Test

009159275-01, P = 3.044752 Days, E = 129.397111 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
245.2	29.9	2.93	0	4.58	1.68	3.94	242.3	245.2	26.9	29.9	0.59	1.09	0.02	0.54



Stellar Parameters For KIC 009159275

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5525^{+165}_{-165}	$4.603^{+0.032}_{-0.120}$	$-0.360^{+0.300}_{-0.300}$	$0.753^{+0.150}_{-0.060}$	$0.843^{+0.079}_{-0.097}$	$2.778^{+0.460}_{-1.019}$
	+3%/-3%	+1%/-3%	+83%/-83%	+20%/-8%	+9%/-12%	+17%/-37%
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 009159275-01 / KOI 0930.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21 ± 6	$3.03^{+1.91}_{-1.72}$	1528^{+76}_{-60}	2646^{+774}_{-405}	$1.686^{+7.393}_{-1.049}$
Alt.	-179 ± 6	$3.43^{+2.24}_{-1.79}$	1525^{+73}_{-59}	3584^{+1110}_{-503}	12^{+42}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

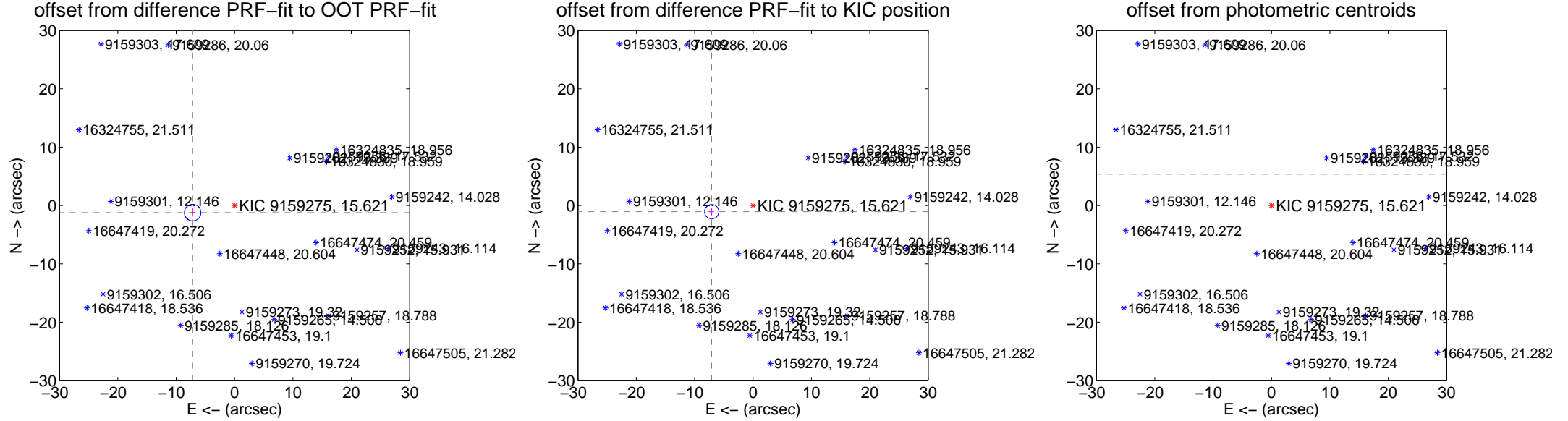
DV Centroid Data

Supplemental centroid analysis for 009159275-01. Kepler magnitude: 15.62. Transit SNR 37.24

There are 10 quarters with good PRF difference image offsets

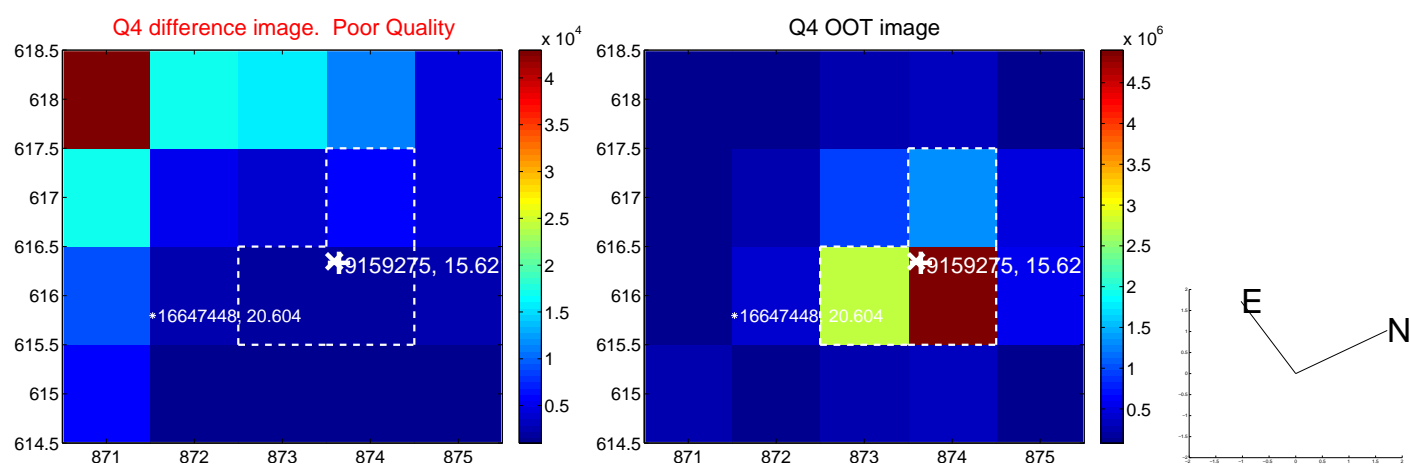
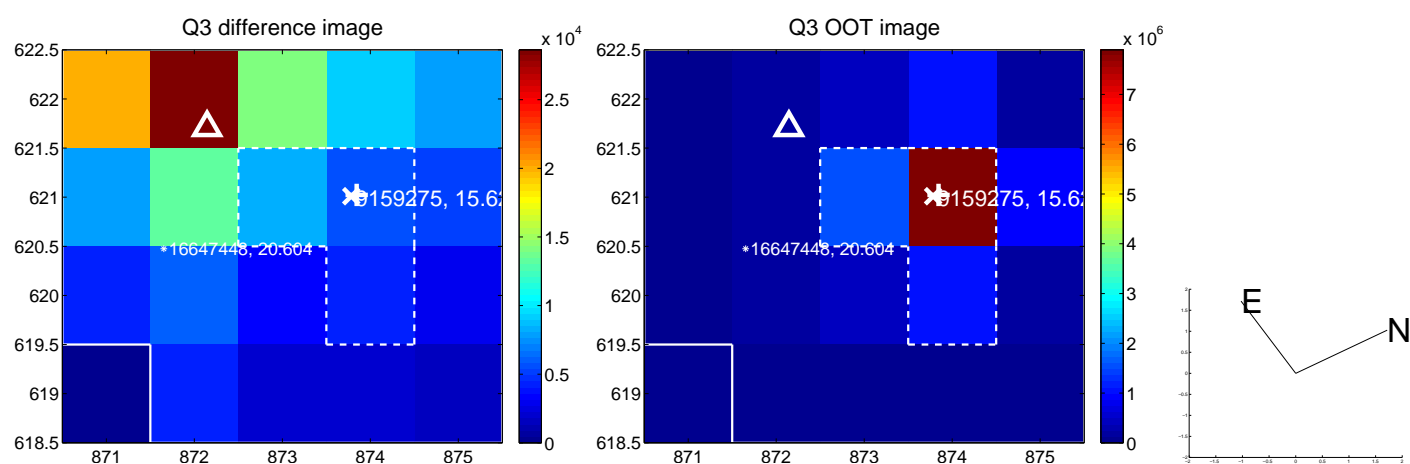
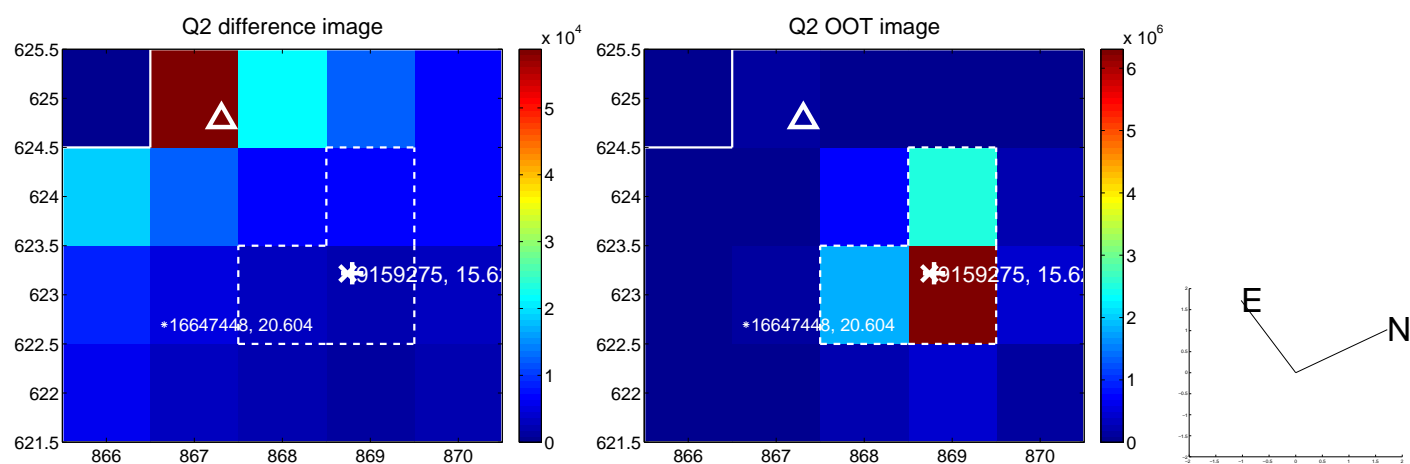
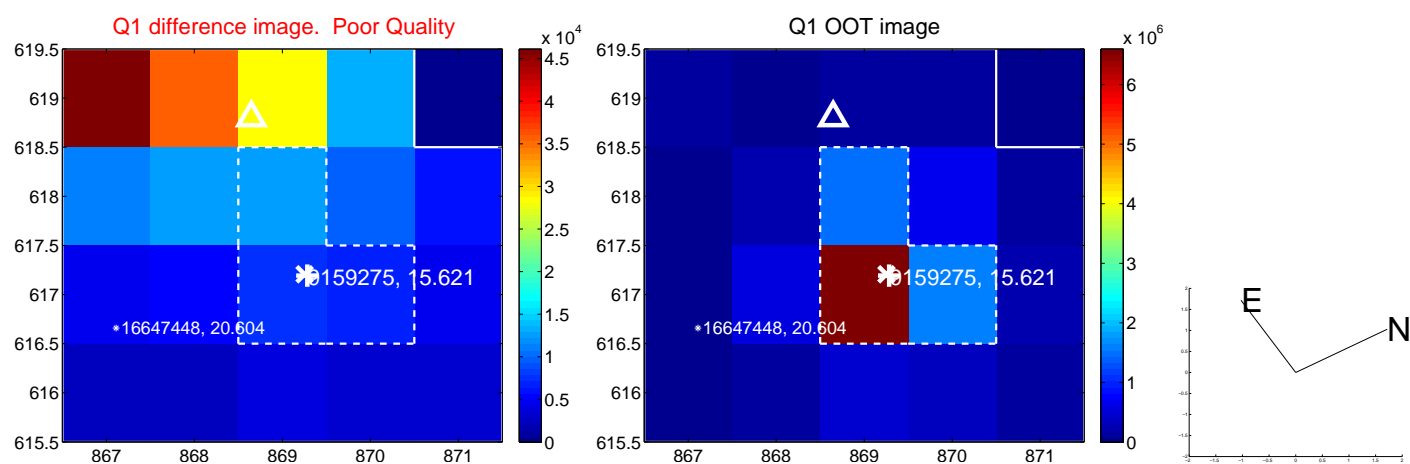
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.286 \pm 0.473	15.41	7.184 ± 0.434	-1.214 ± 0.672
PRF-fit source offset from KIC position	7.166 \pm 0.408	17.58	7.087 ± 0.401	-1.056 ± 0.644
photometric centroid source offset	59.66 \pm 0.41	147.19	59.42 ± 0.41	5.36 ± 0.44

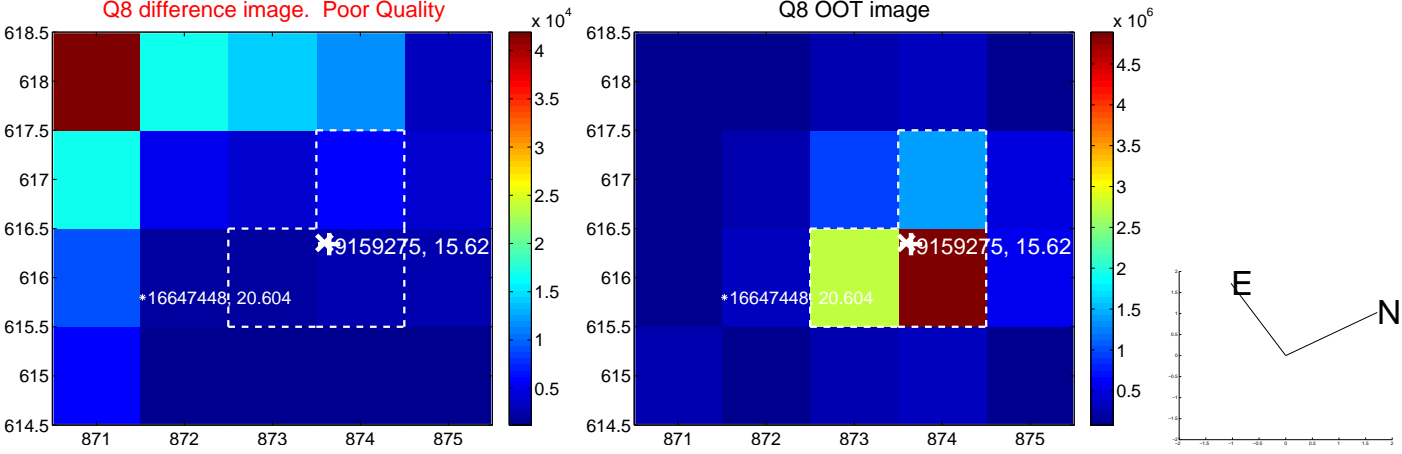
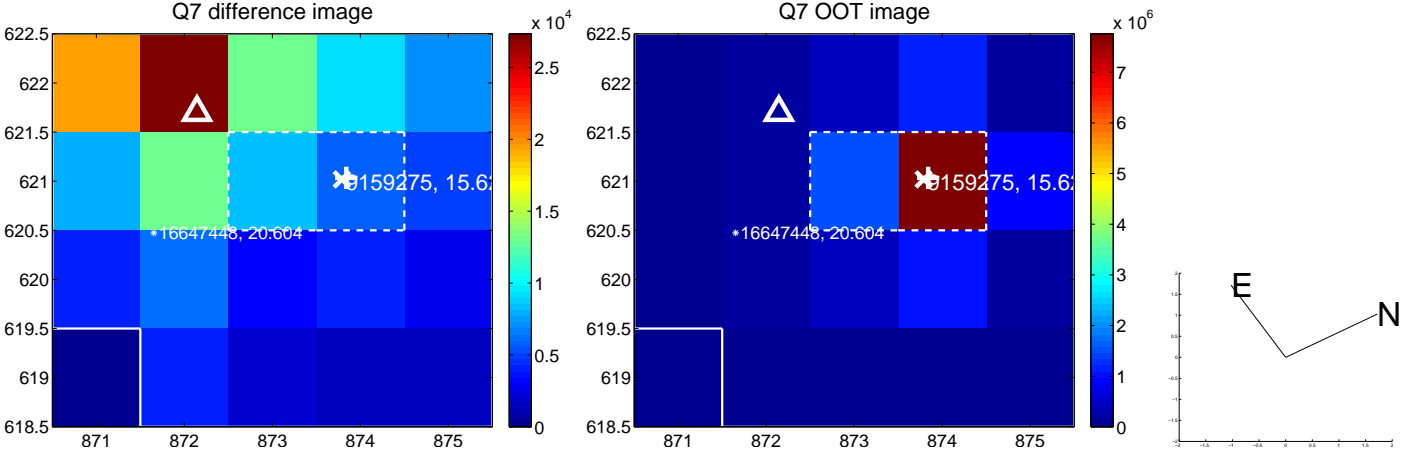
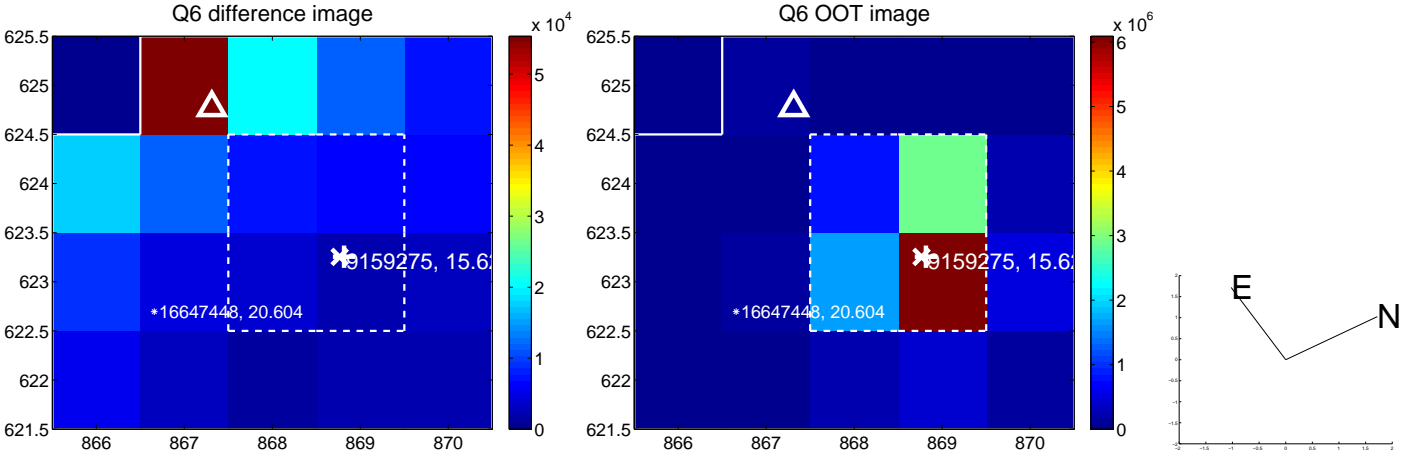
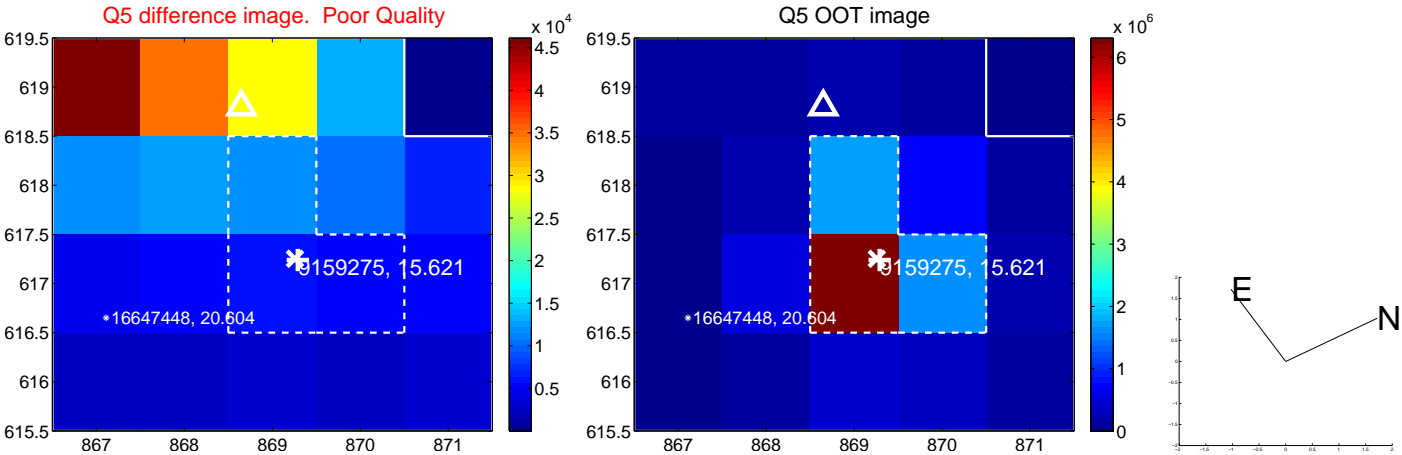


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

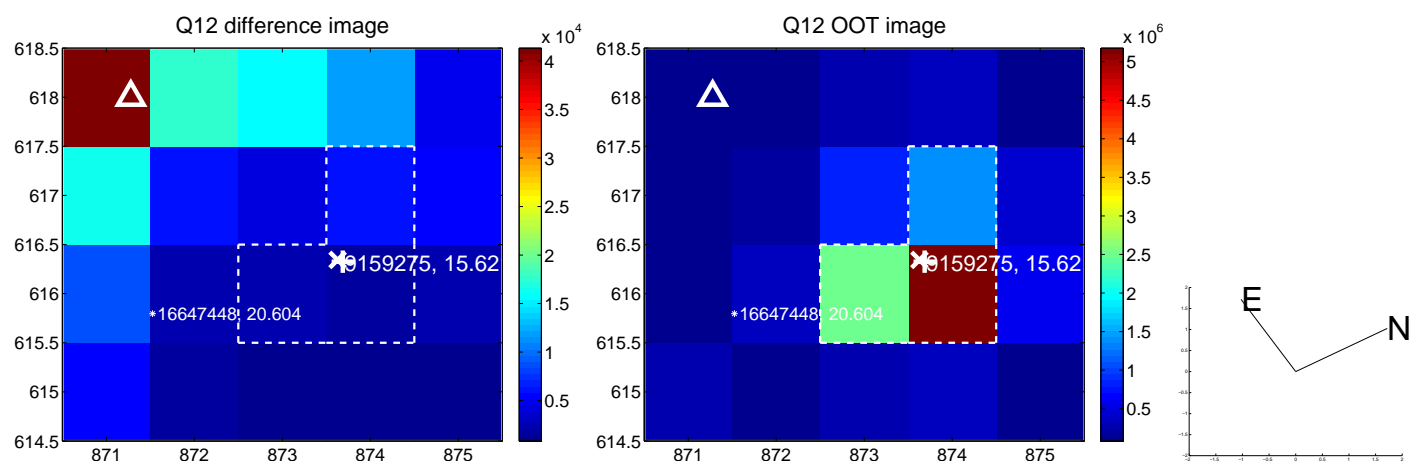
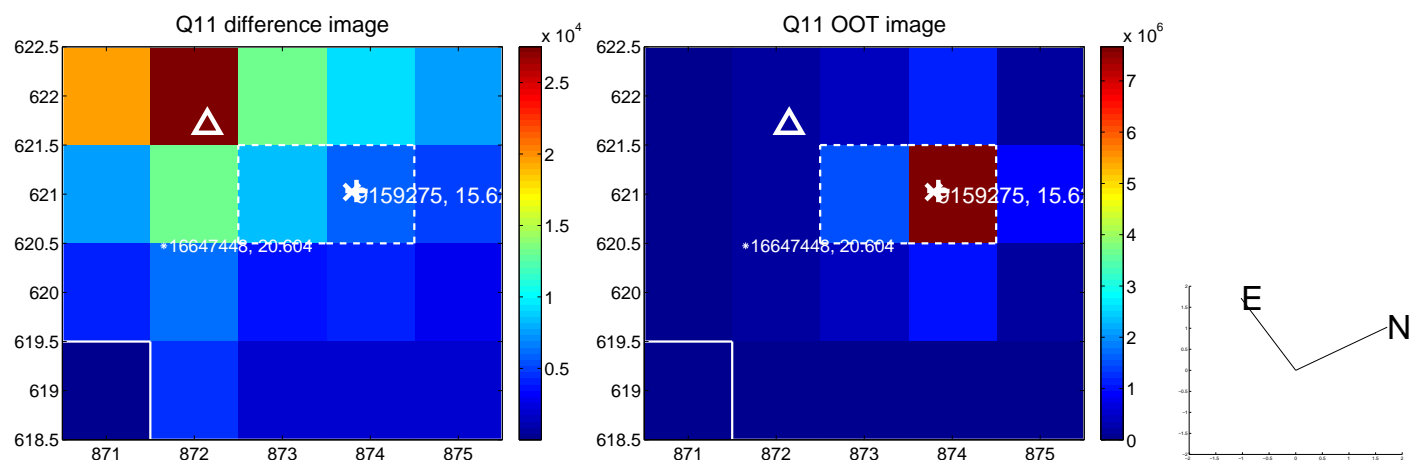
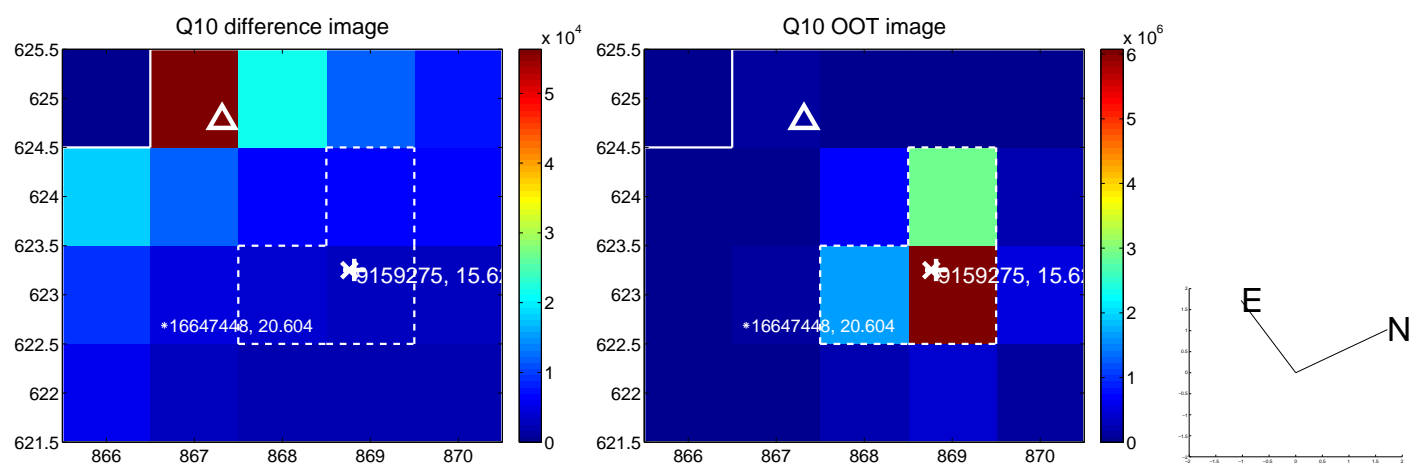
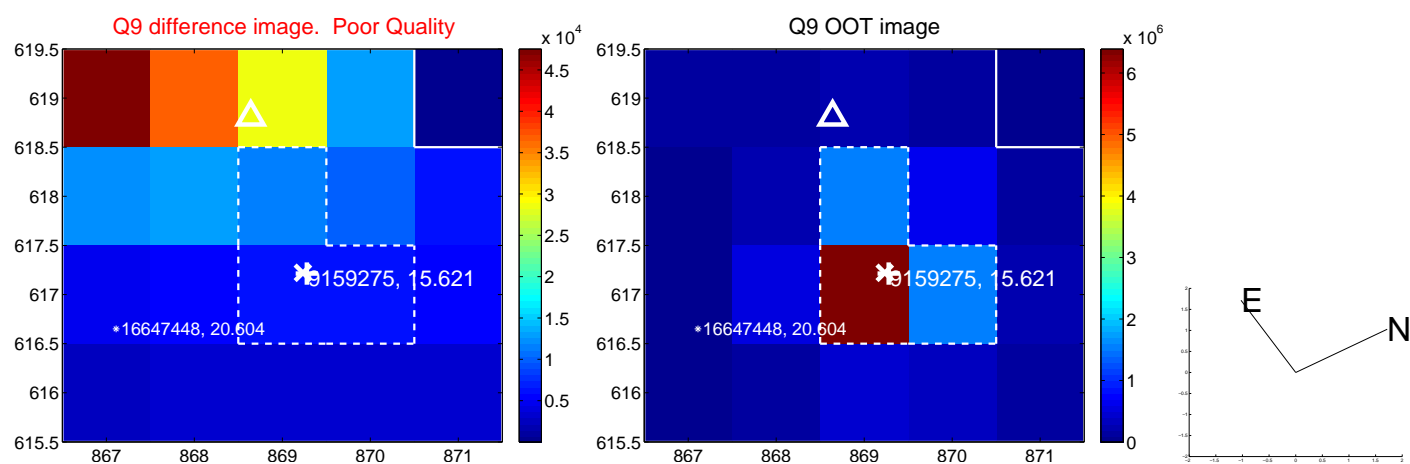
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



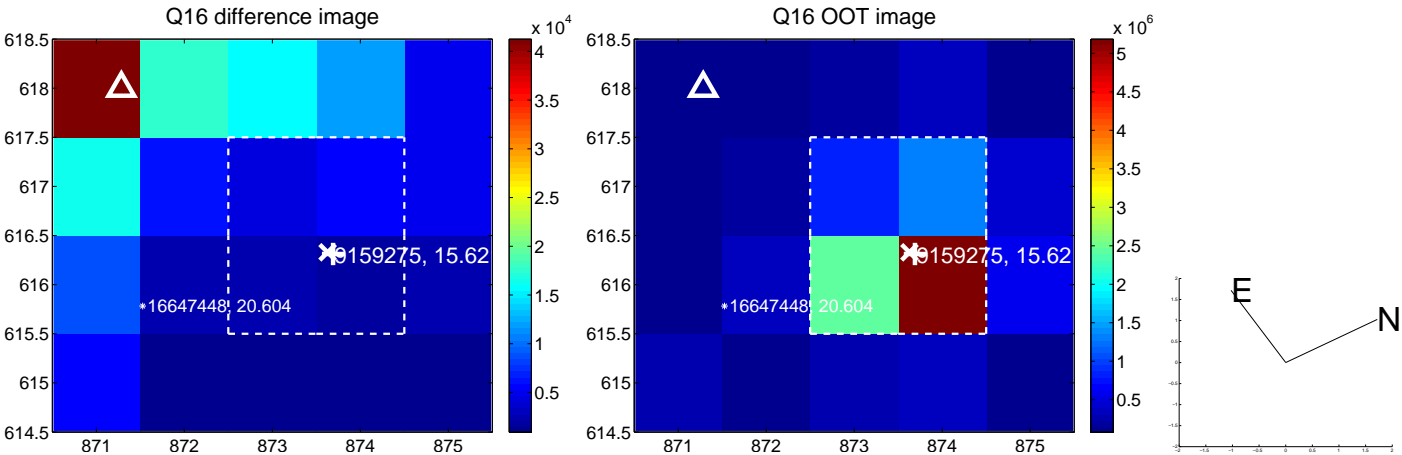
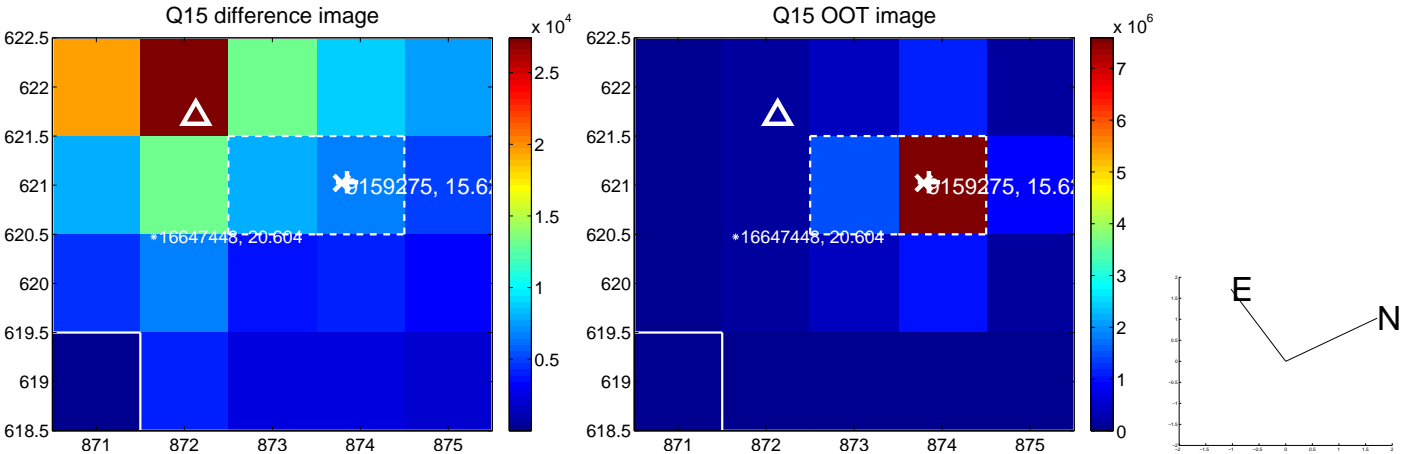
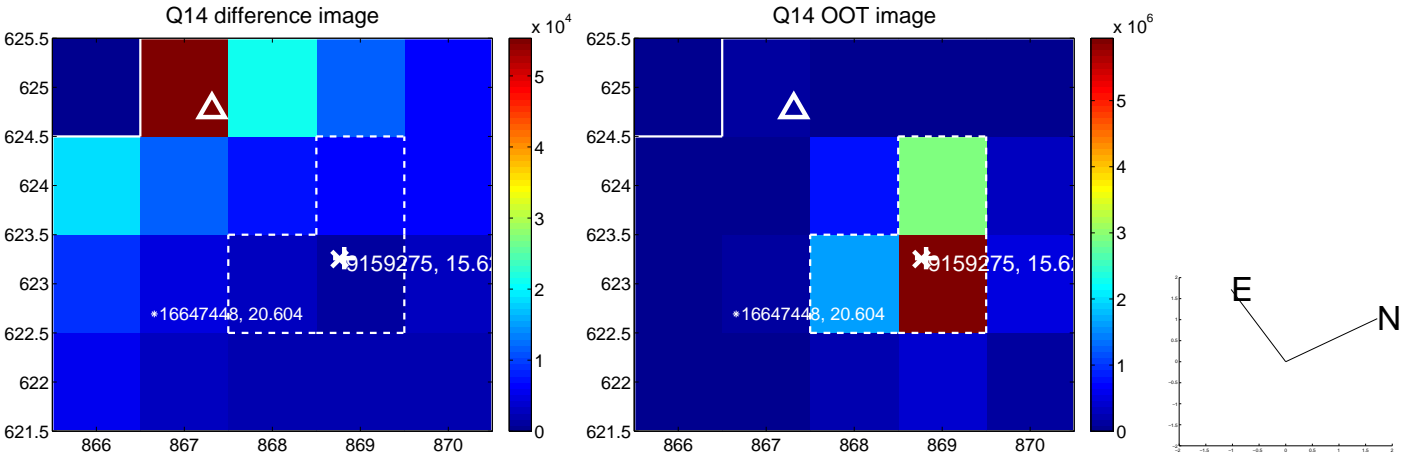
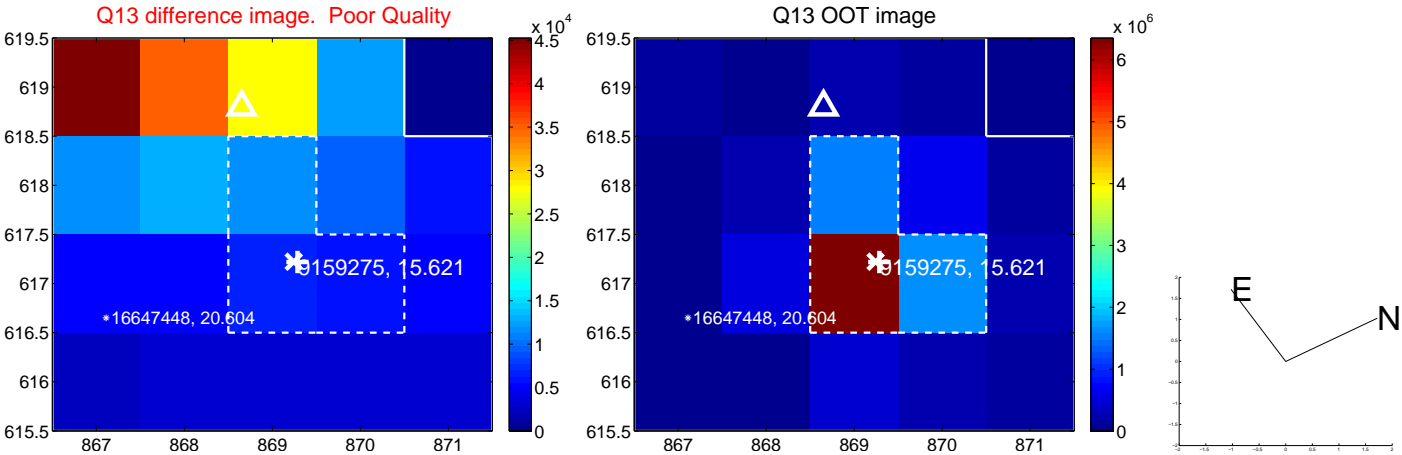
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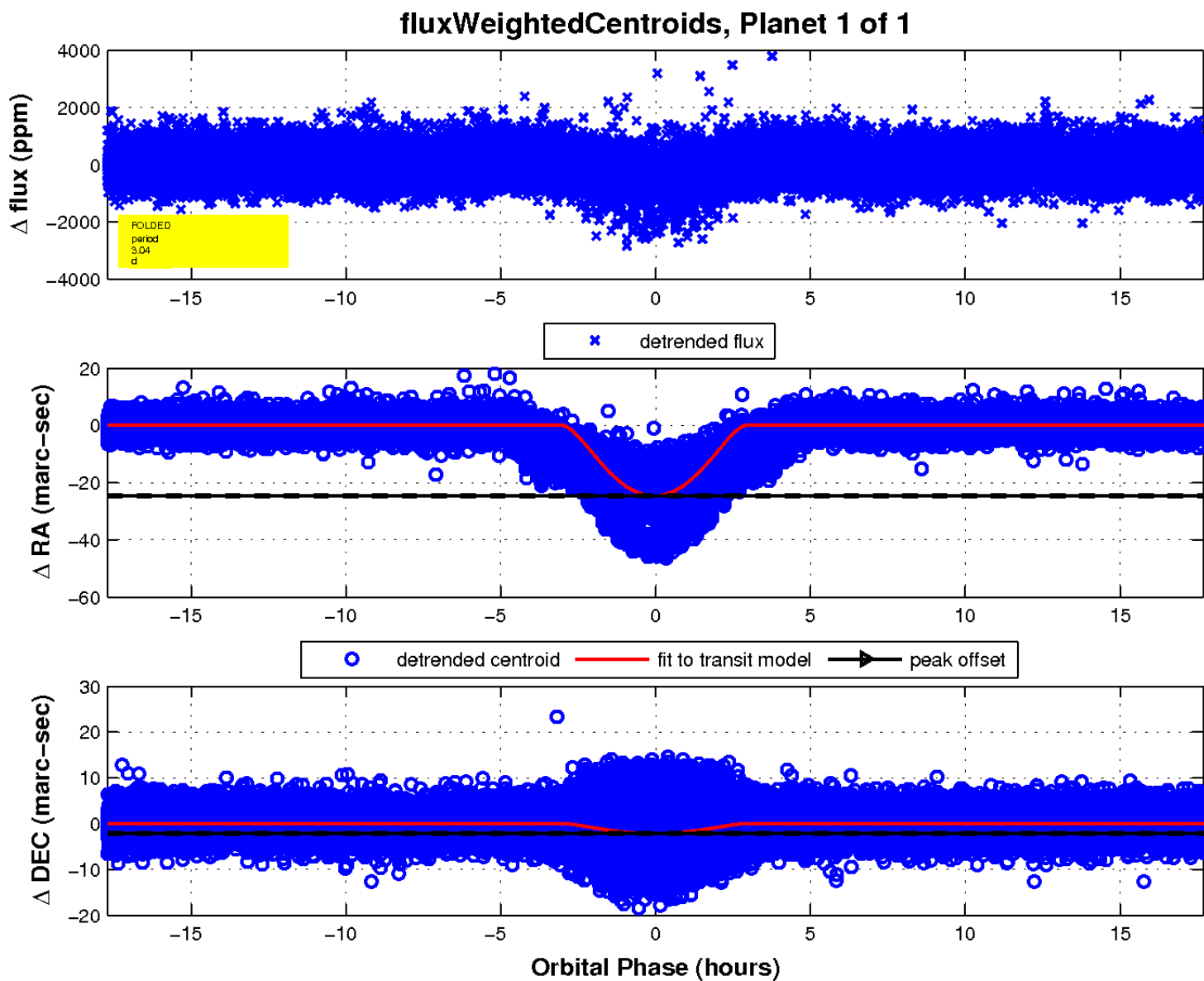
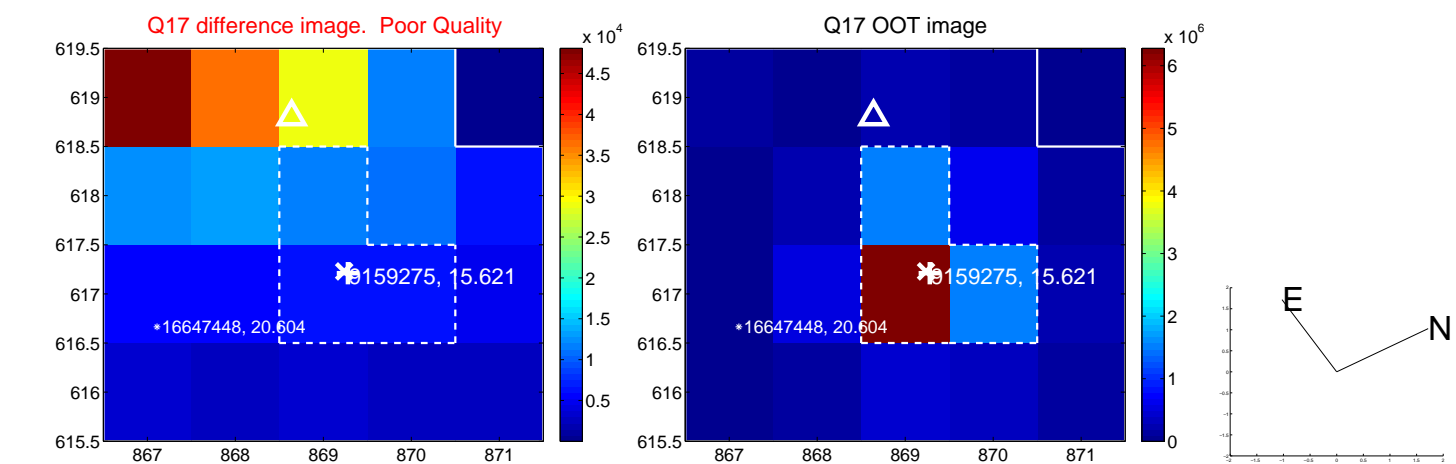
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Declination