

KIC 012107021

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})
012107021-01	OBS	0360.01	5.937142	135.960670	191.5	5.167	29.6	32.2	1.03	6102	2.60	297.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012107021-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—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.

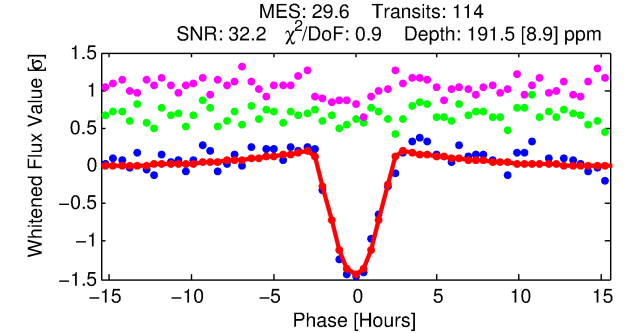
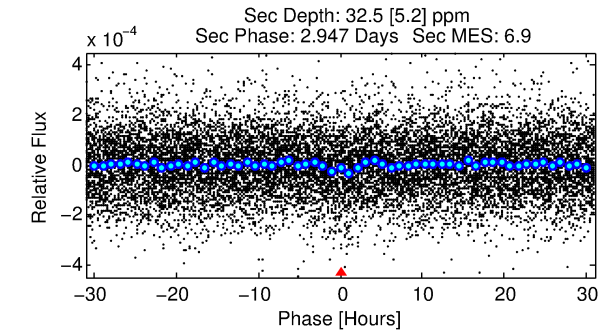
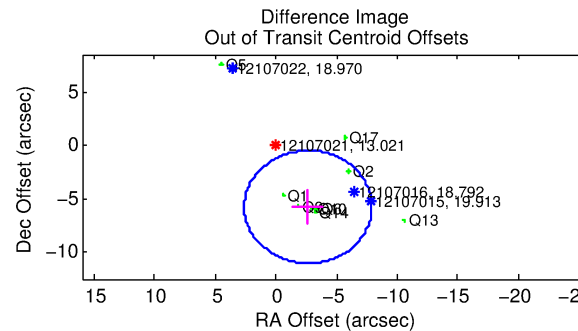
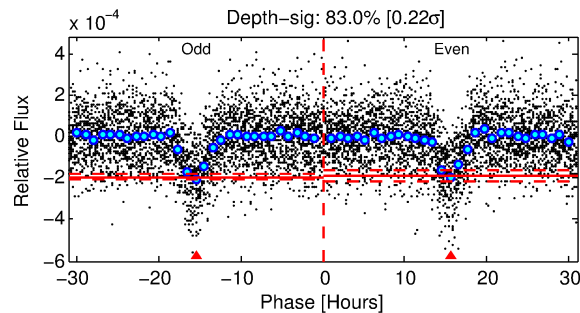
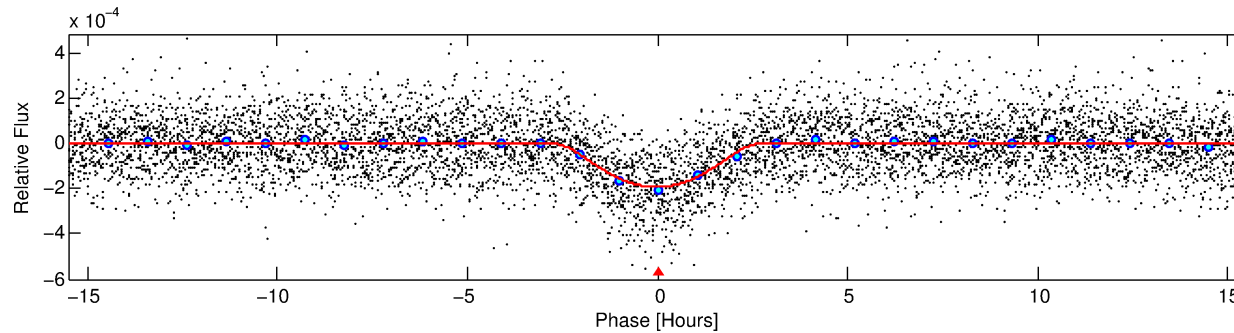
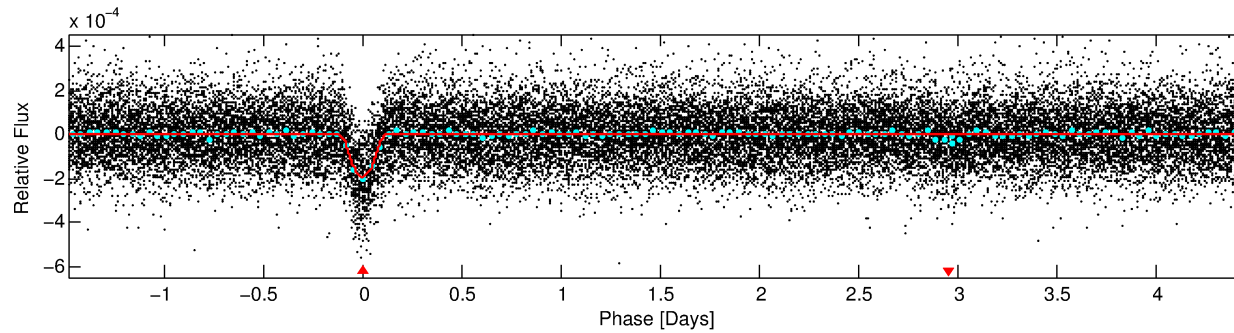
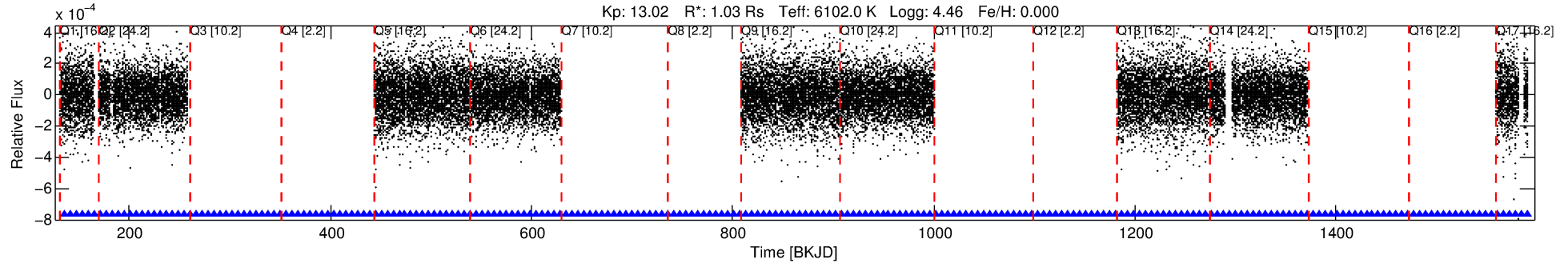
Ephemeris Match Information For 012107021-01

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
012107021-01	12107021	3895.01	12106934	1:1	121.0	2	31	18.36	13.02	237.23	Direct-PRF	1	0.33	0.18

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: 12107021 Candidate: 1 of 1 Period: 5.937 d
KOI: K00360.01 Corr: 0.897



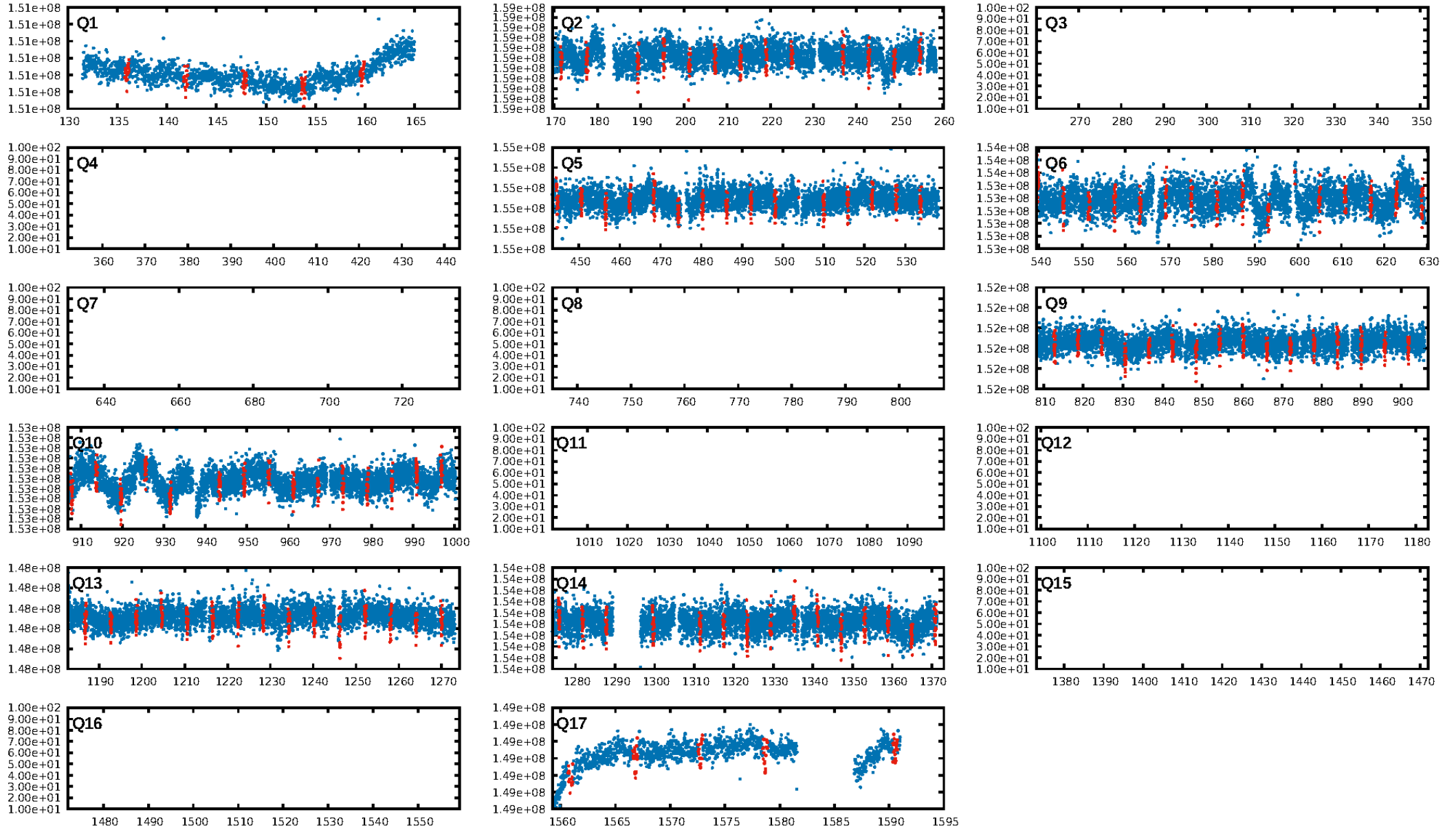
DV Fit Results:

Period = 5.93714 [0.00003] d
Epoch = 135.9607 [0.0034] BKJD
Rp/R* = 0.0232 [0.0169]
a/R* = 2.29 [0.41]
b = 1.00 [0.03]
Seff = 297.93 [61.90]
Teq = 1059 [55] K
Rp = 2.60 [1.93] Re
a = 0.0662 [0.0081] AU
Ag = 11.61 [17.18] [0.62 σ]
Teffp = 3024 [1112] K [1.76 σ]

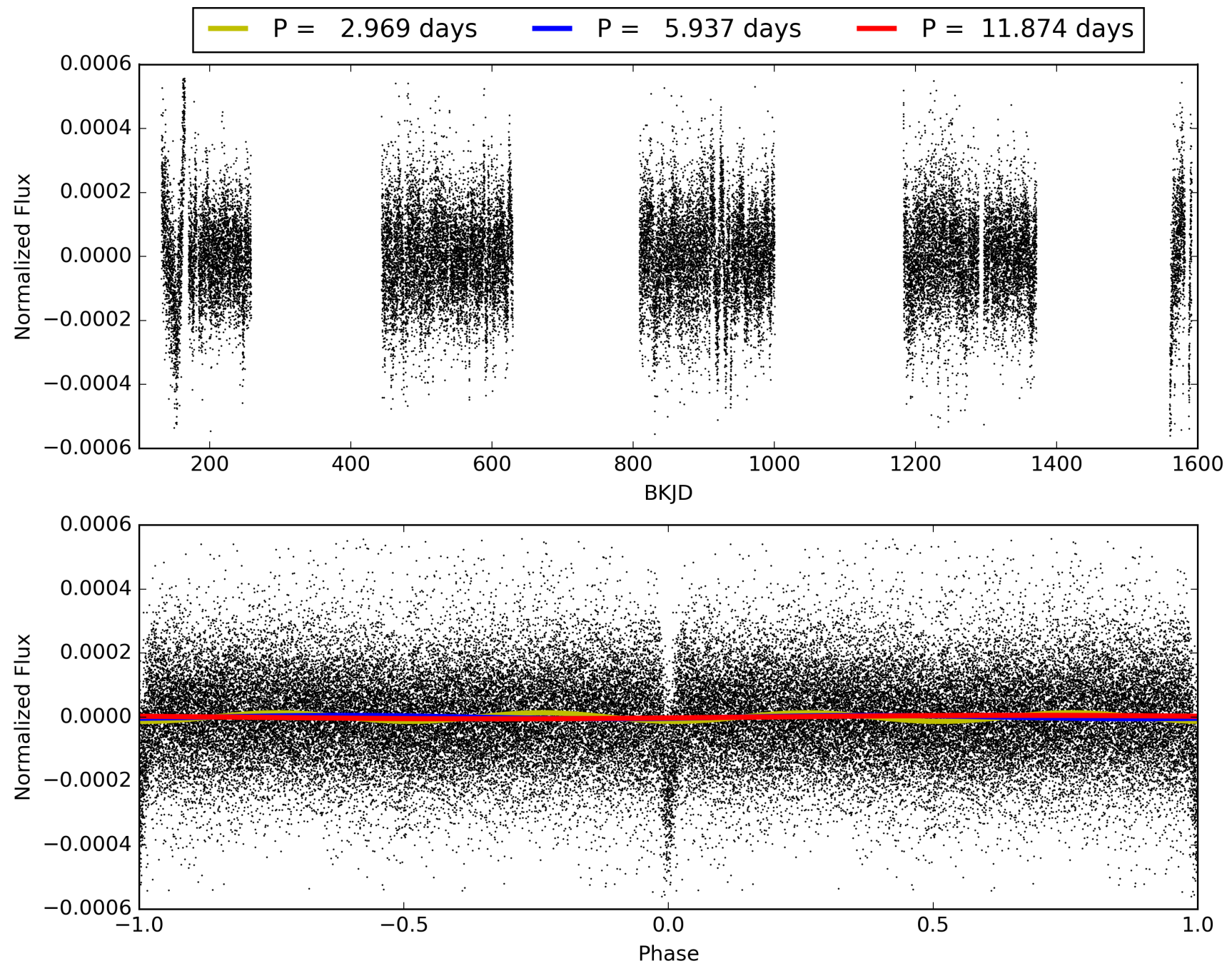
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 24.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.16e-190
RollingBand-fgt: 1.00 [104/104]
GhostDiagnostic-chr: 0.0007239
Centroid-sig: 0.0%
Centroid-so: 3.344 arcsec [8.33 σ]
OotOffset-rm: 6.348 arcsec [3.62 σ]
KicOffset-rm: 6.407 arcsec [3.69 σ]
OotOffset-st: 4/0/0/5 [9]
KicOffset-st: 4/0/0/5 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 1.00 [9/9]

TCE 012107021-01, PDC Light Curves

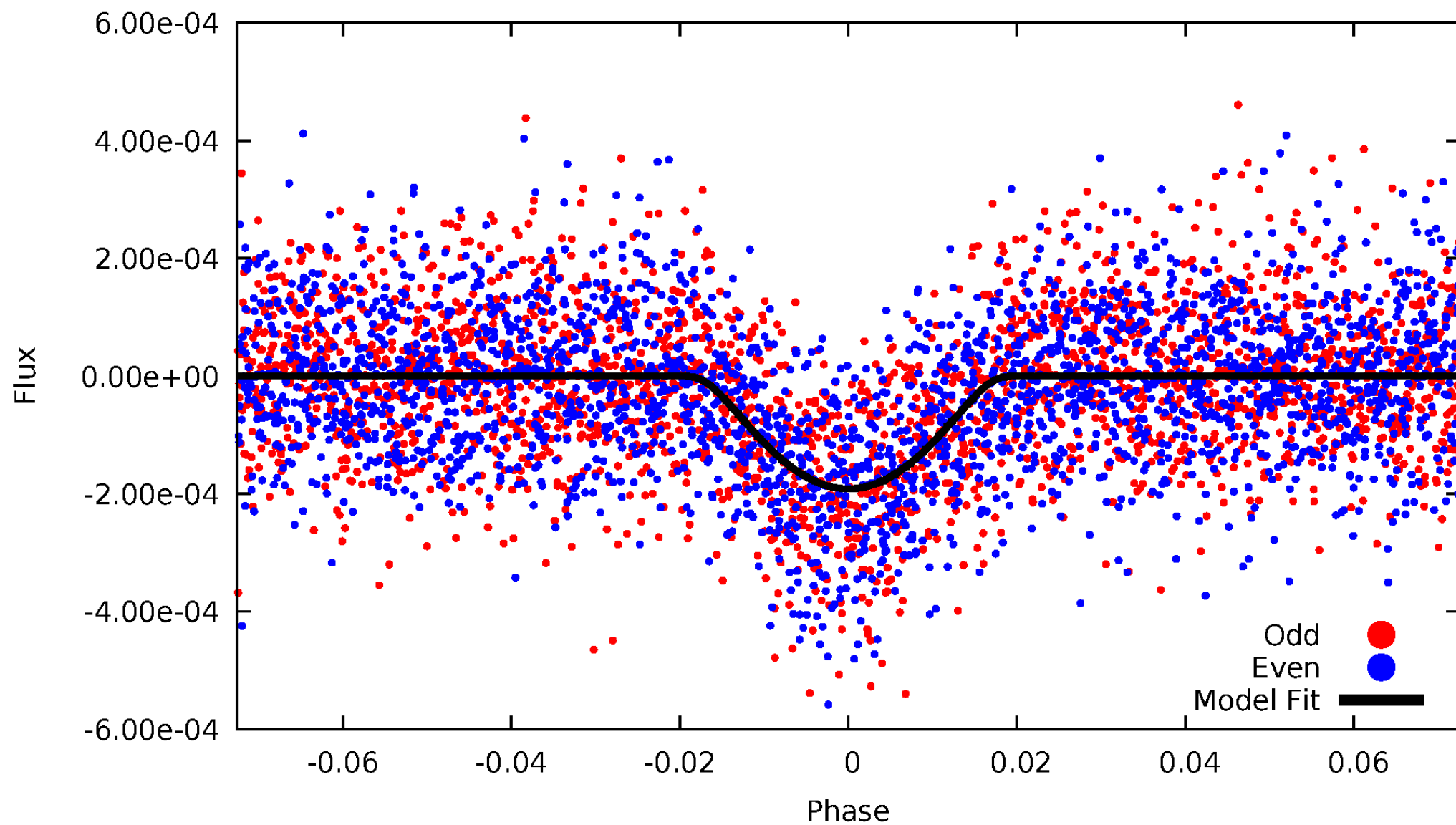


TCE 012107021-01



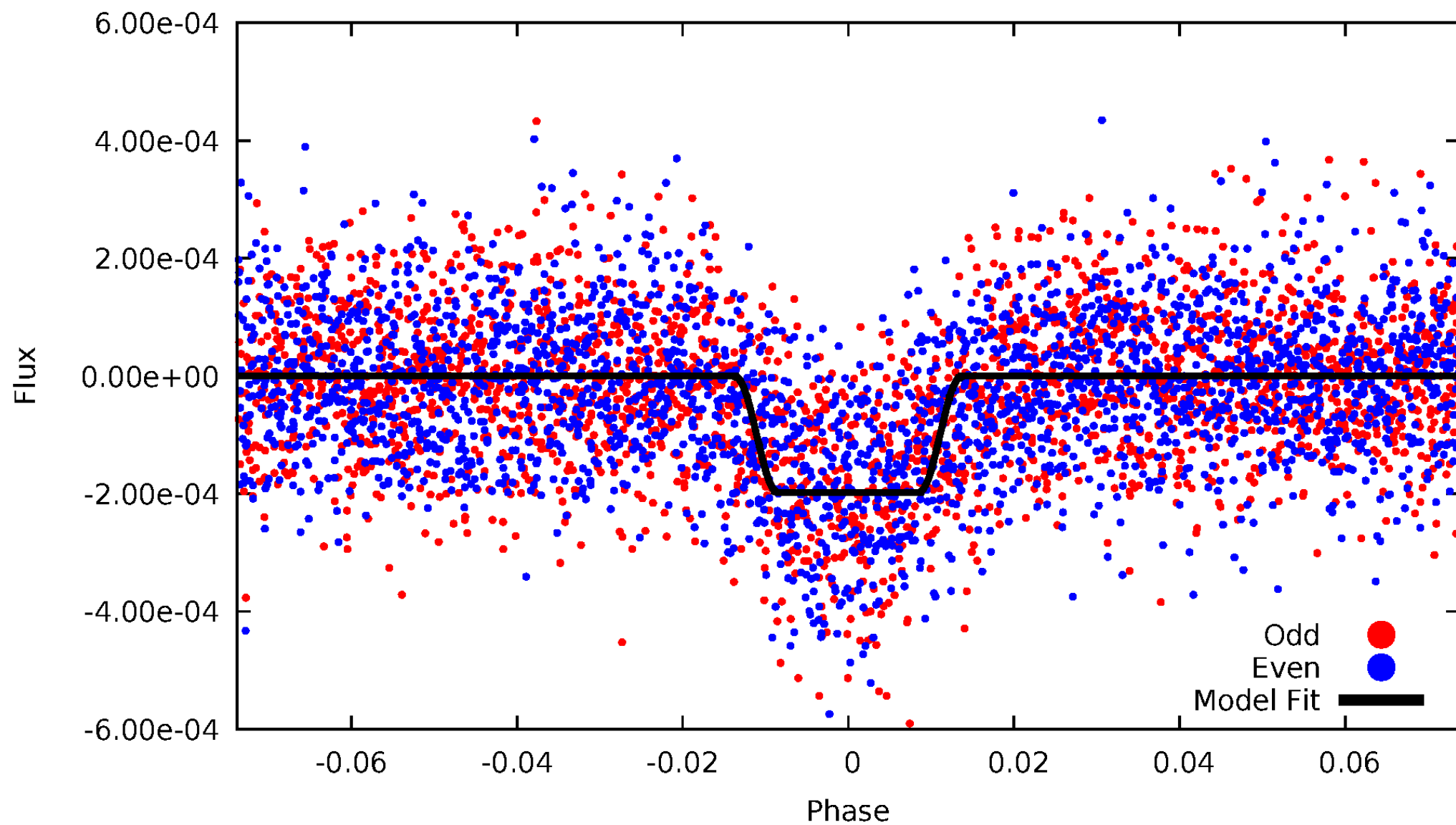
DV Odd/Even

TCE 012107021-01

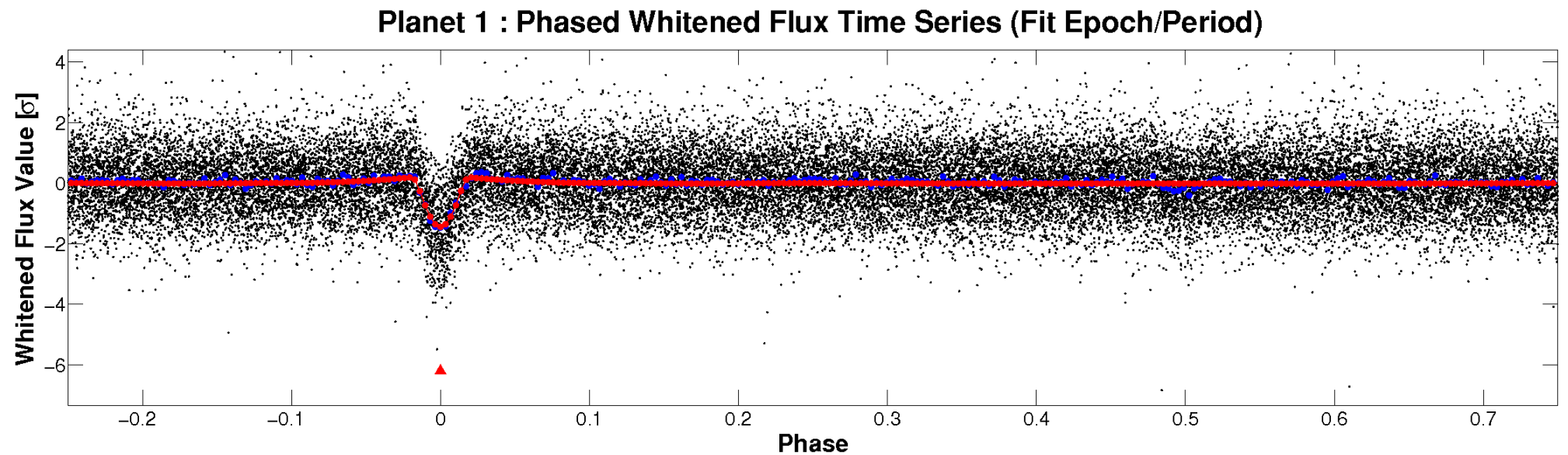
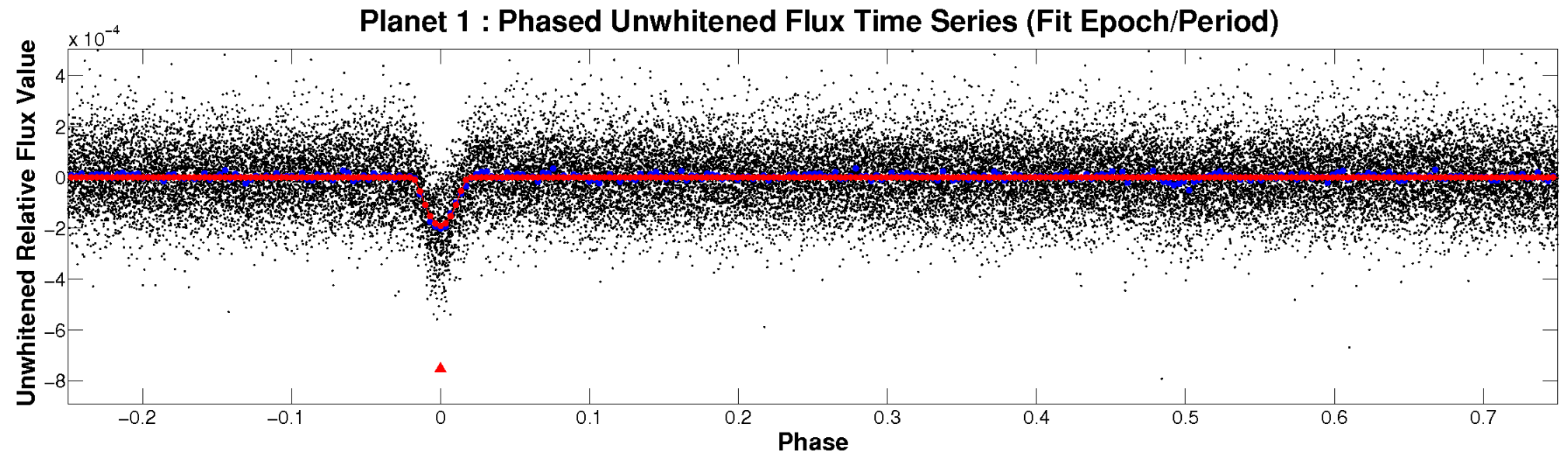


ALT Odd/Even

TCE 012107021-01

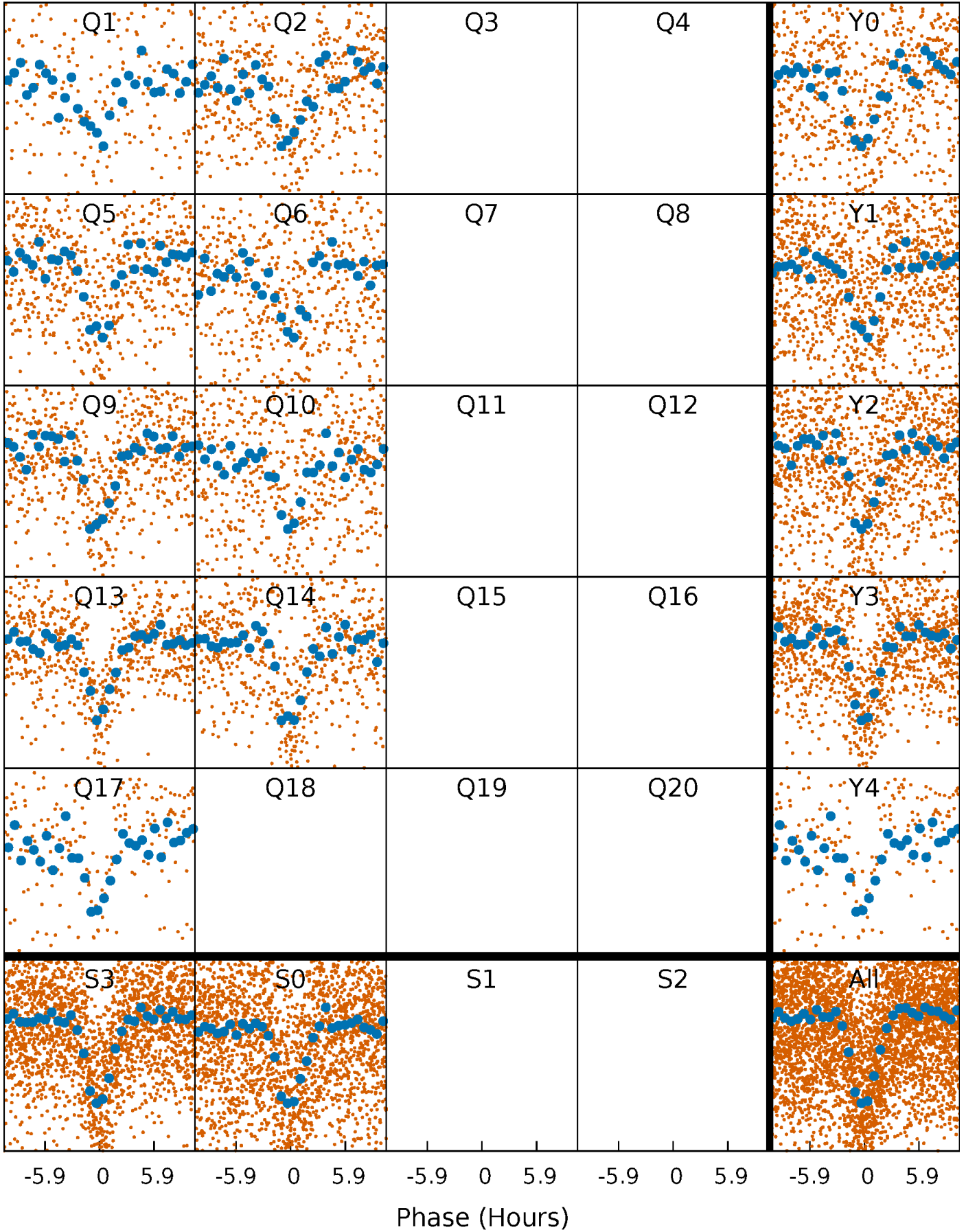


Non-Whitened Vs. Whitened Light Curve



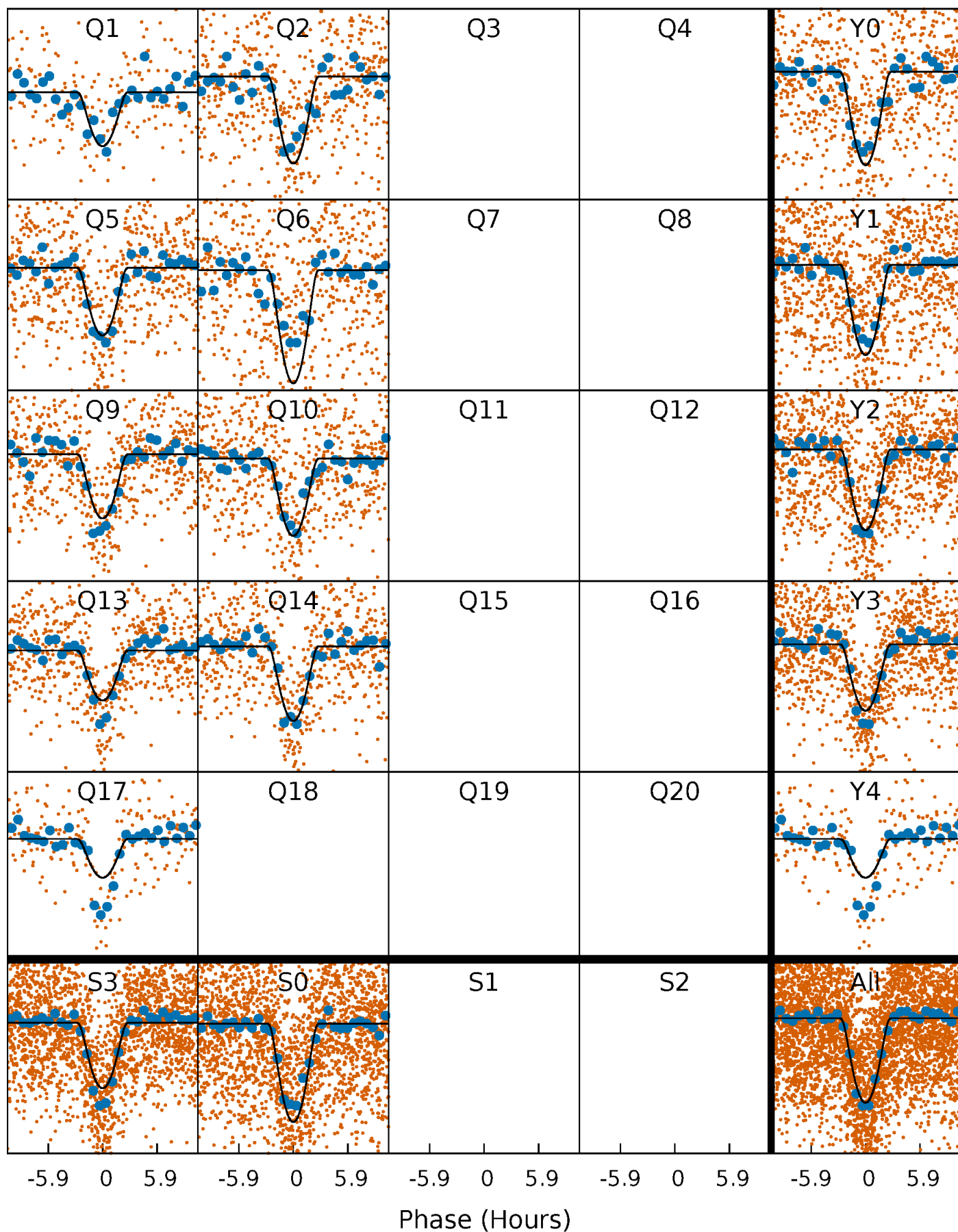
PDC Quarter-Phased Transit Curves

TCE 012107021-01 P= 5.937142 Days $T_0=135.960670$ (BKJD)



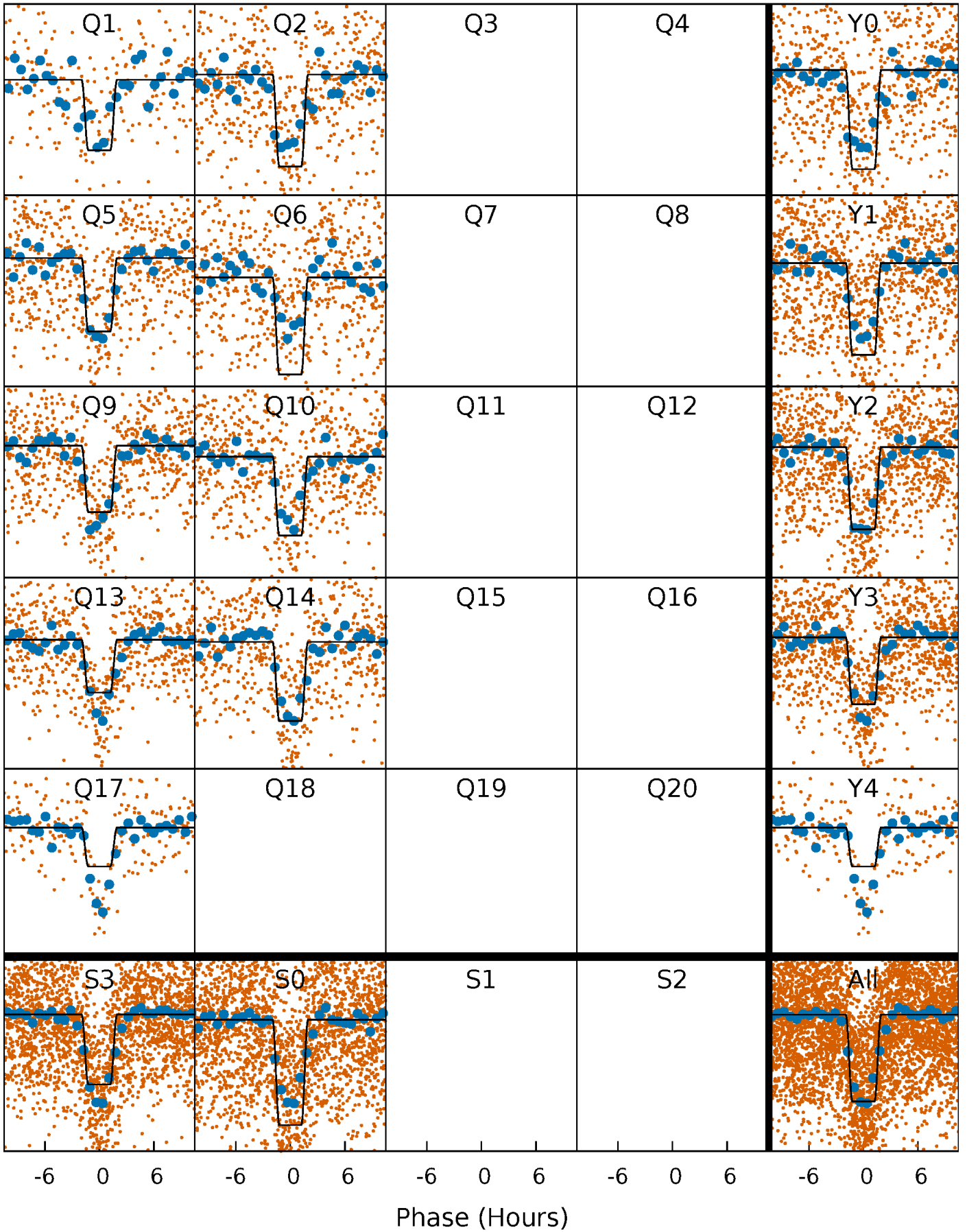
DV Quarter-Phased Transit Curves

TCE 012107021-01 P= 5.937142 Days $T_0=135.960670$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

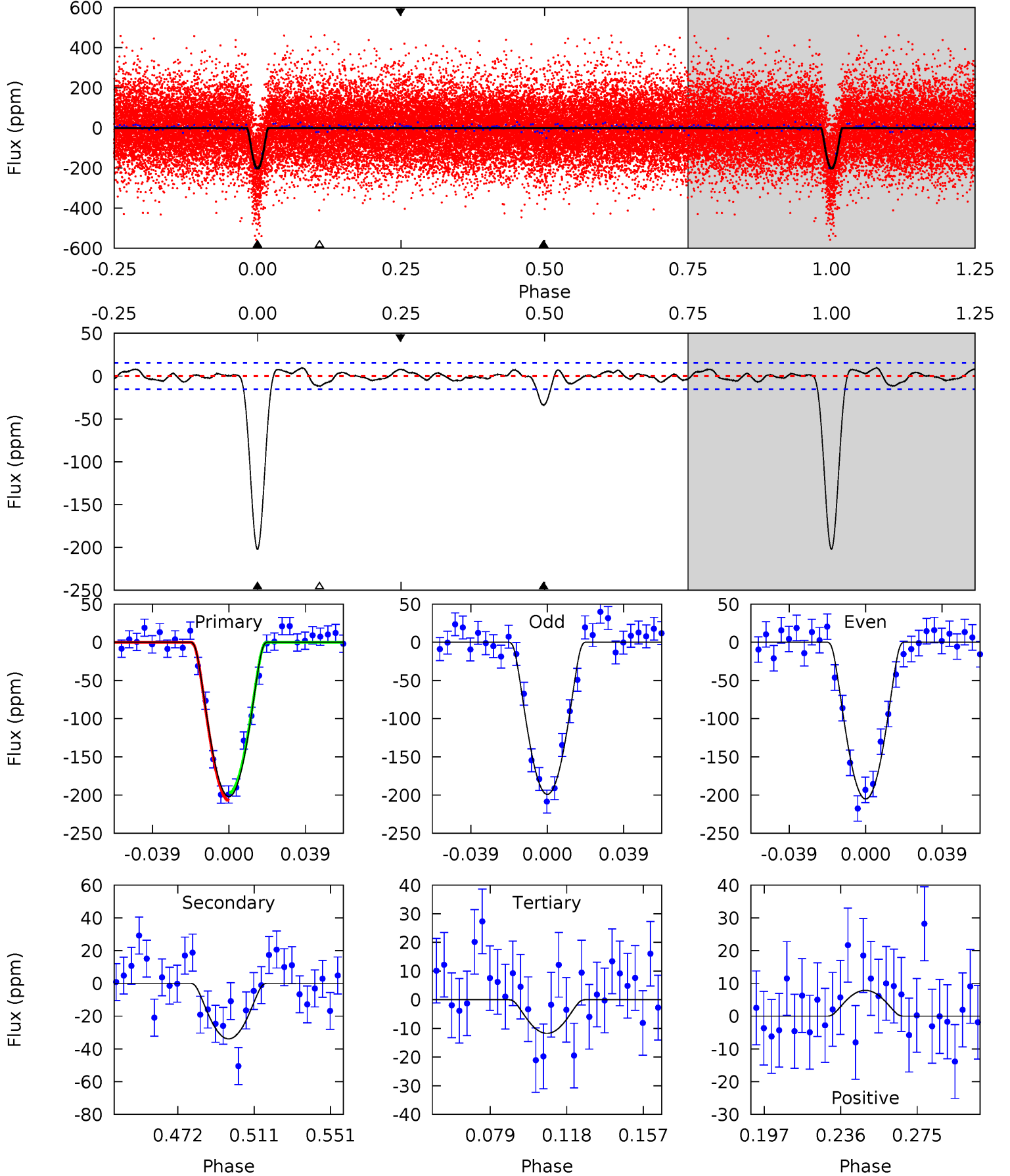
TCE 012107021-01 P= 5.937095 Days $T_0=135.965858$ (BKJD)



DV Model-Shift Uniqueness Test

012107021-01, P = 5.937142 Days, E = 130.023528 Days

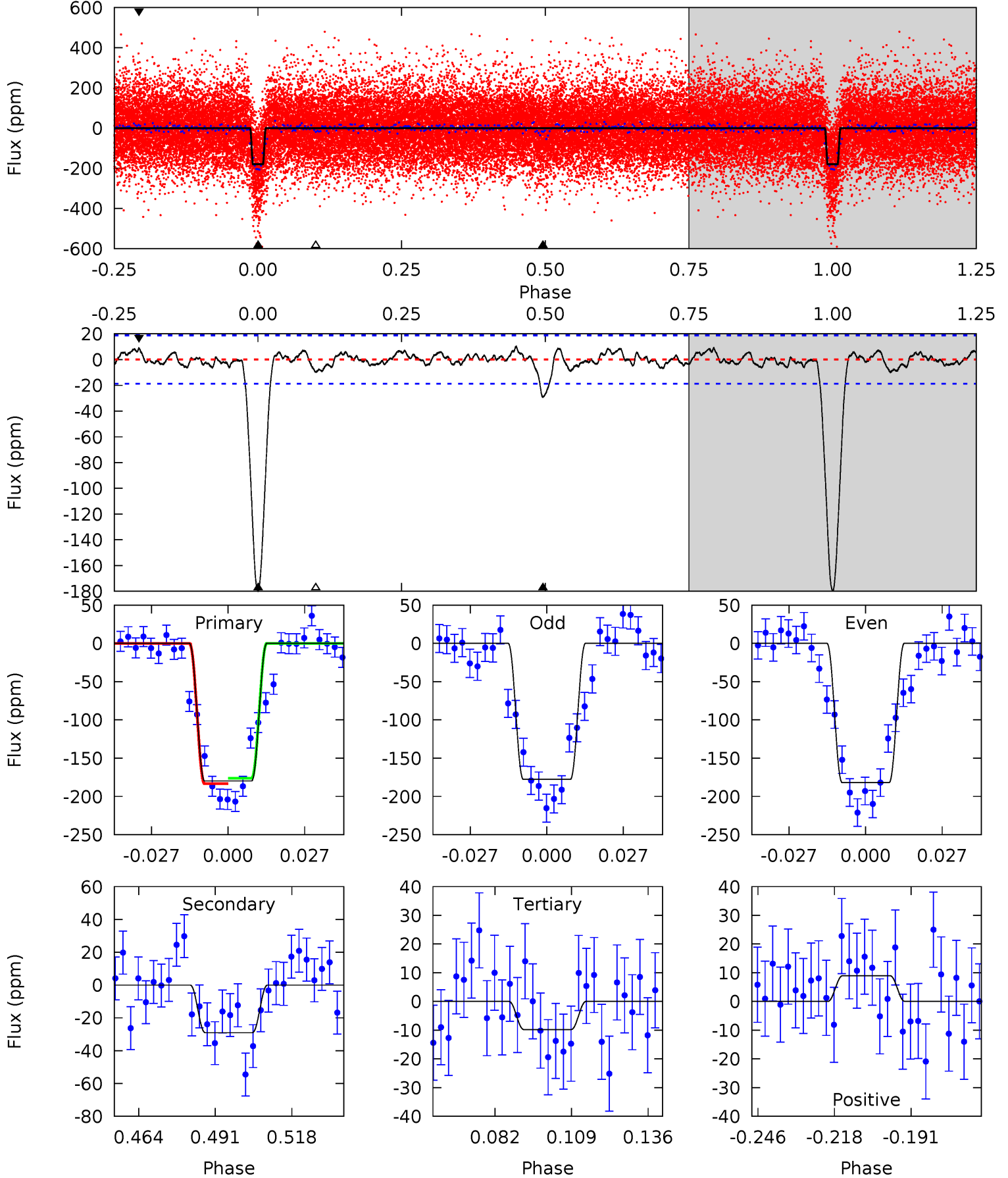
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.4	10.5	3.62	2.43	4.76	2.06	1.32	58.7	59.9	6.83	8.02	0.95	1.02	0.04	1.51



Alt Model-Shift Uniqueness Test

012107021-01, P = 5.937095 Days, E = 130.028763 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.3	7.47	2.52	2.31	4.83	2.21	1.00	43.7	44.0	4.95	5.16	0.54	0.99	0.05	0.91



Stellar Parameters For KIC 012107021

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6102^{+120}_{-144}	$4.457^{+0.035}_{-0.105}$	$0.000^{+0.150}_{-0.150}$	$1.026^{+0.140}_{-0.070}$	$1.099^{+0.067}_{-0.090}$	$1.433^{+0.236}_{-0.455}$
	+2%/-2%	+1%/-2%	+inf%/-inf%	+14%/-7%	+6%/-8%	+16%/-32%
Source	SPE18	SPE18	SPE18	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012107021-01 / KOI 0360.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-34 ± 3	$2.90^{+1.82}_{-1.72}$	1493^{+59}_{-48}	3402^{+1281}_{-476}	$9.518^{+46.359}_{-5.896}$
Alt.	-29 ± 4	$2.06^{+1.89}_{-1.32}$	1495^{+56}_{-48}	3726^{+1749}_{-705}	16^{+103}_{-12}

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

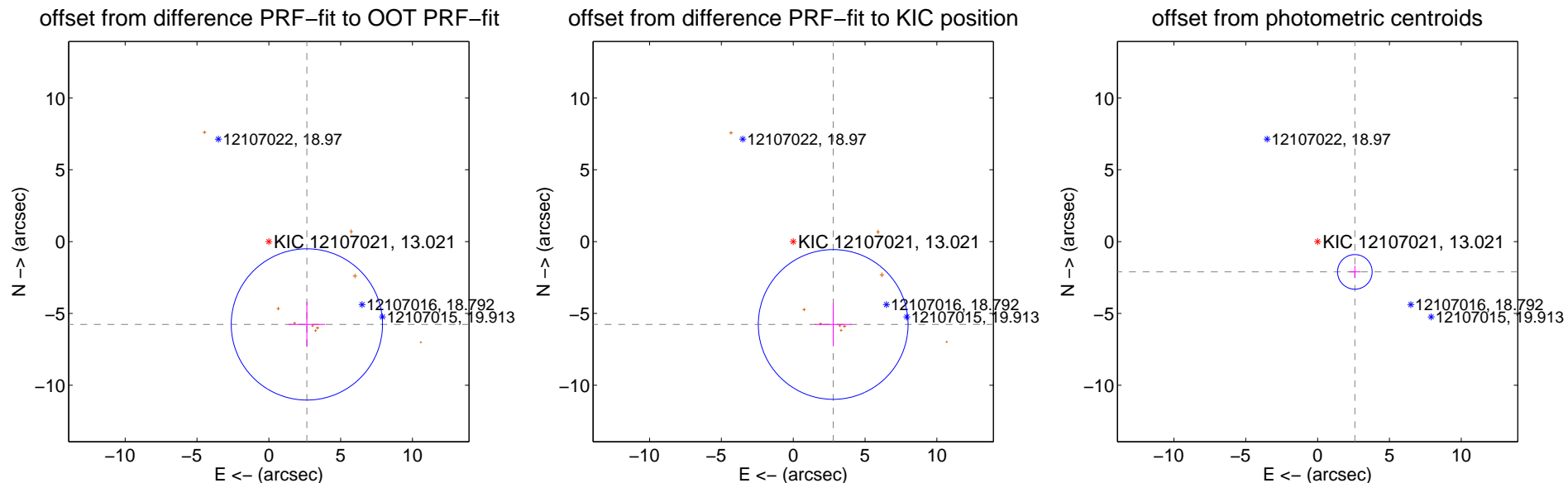
DV Centroid Data

Supplemental centroid analysis for 012107021-01. Kepler magnitude: 13.02. Transit SNR 32.20

There are 0 quarters with good PRF difference image offsets

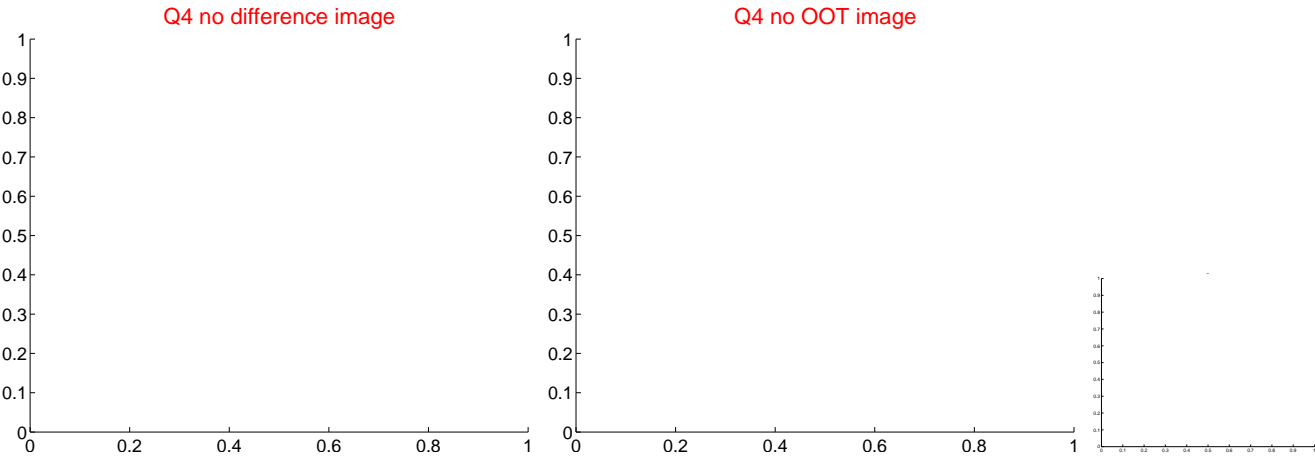
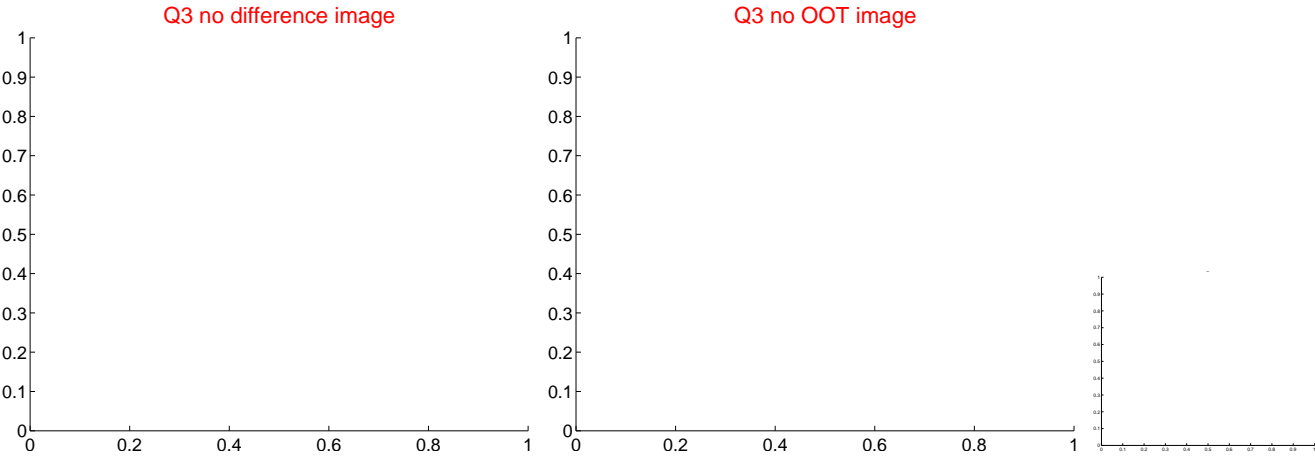
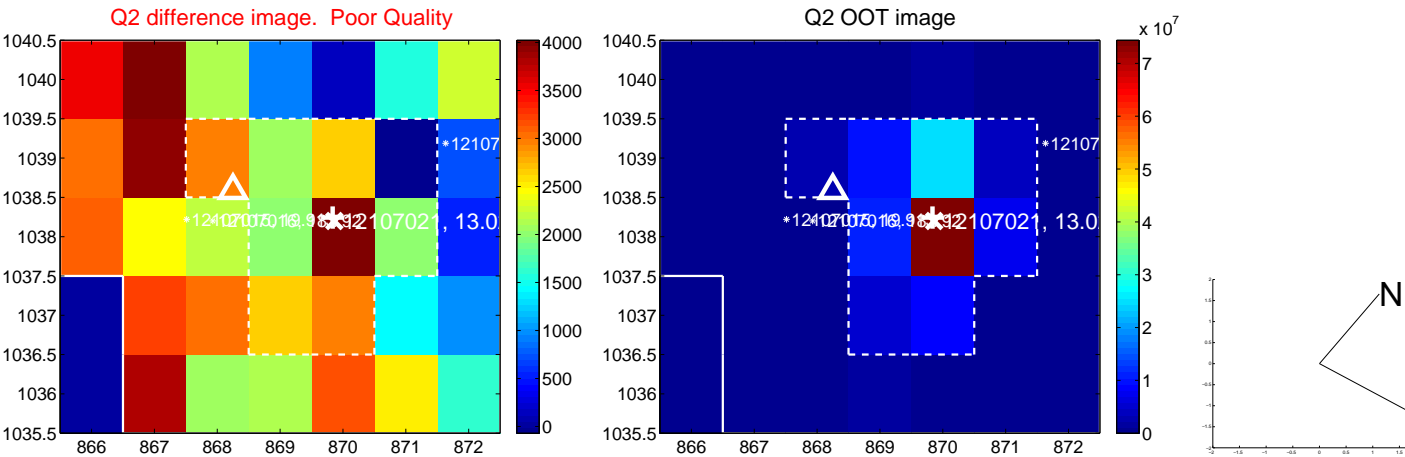
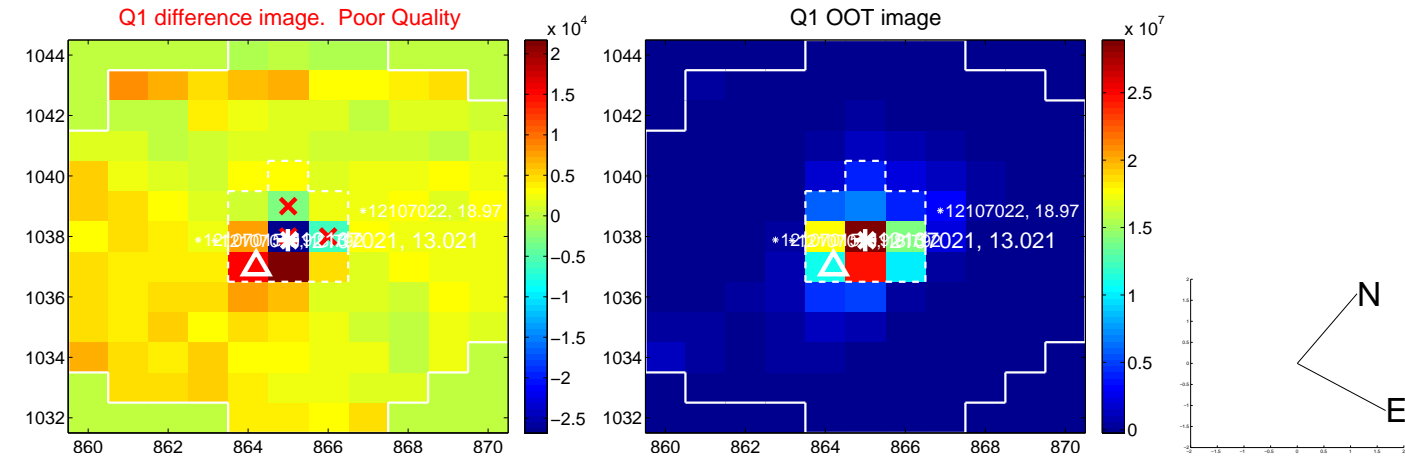
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.348 ± 1.755	3.62	-2.648 ± 1.264	-5.769 ± 1.563
PRF-fit source offset from KIC position	6.407 ± 1.738	3.69	-2.784 ± 1.274	-5.771 ± 1.496
photometric centroid source offset	3.34 ± 0.40	8.33	-2.59 ± 0.38	-2.11 ± 0.43

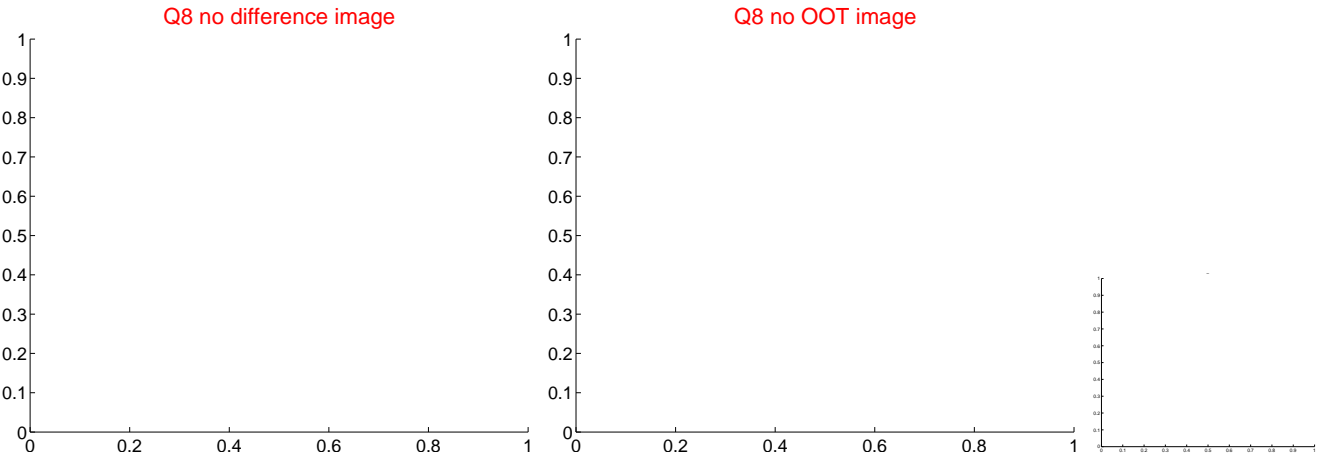
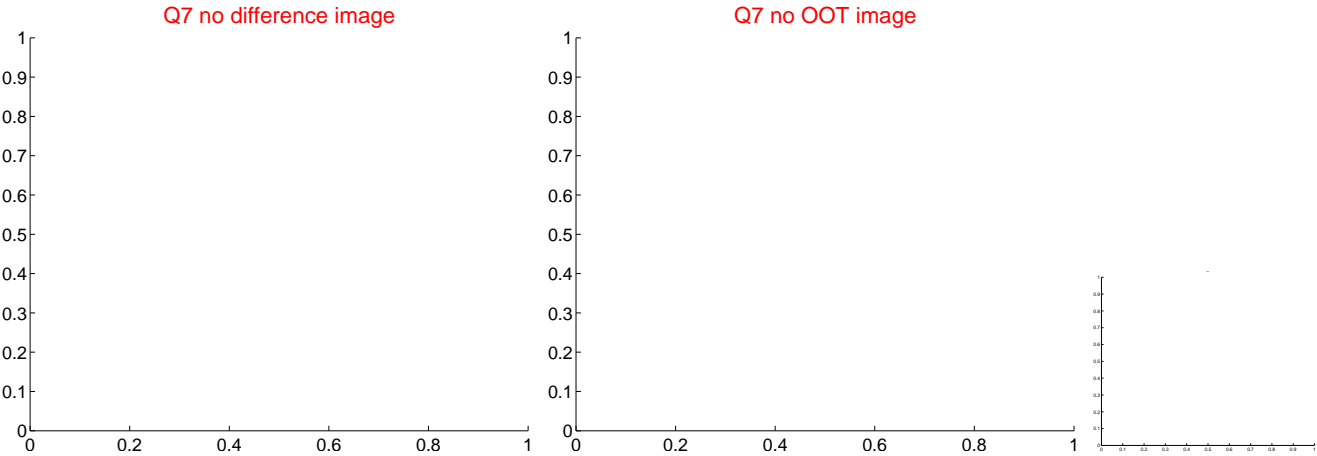
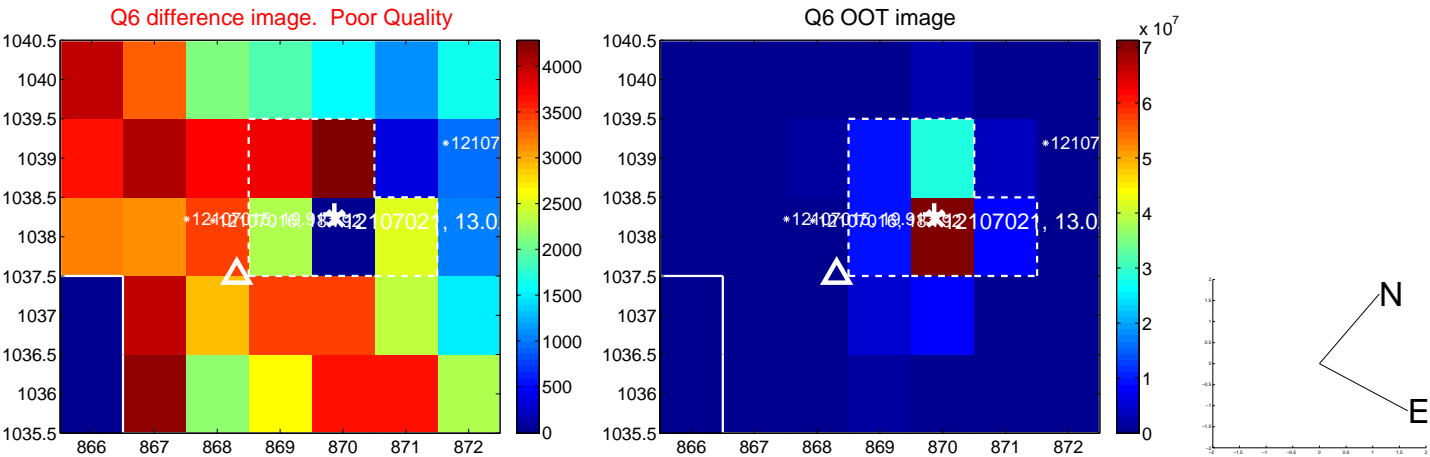
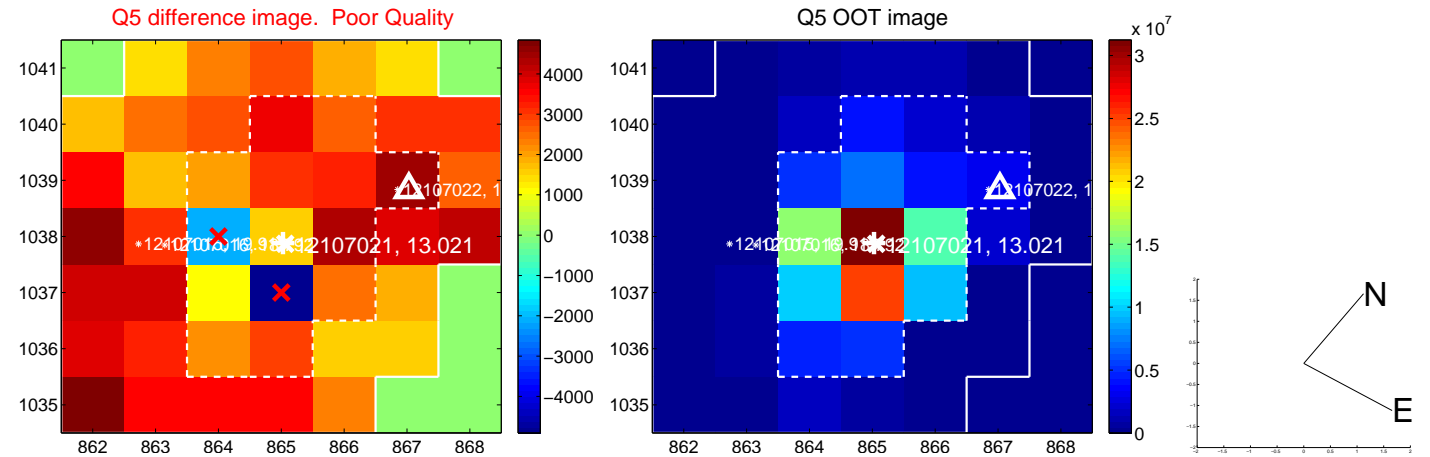


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

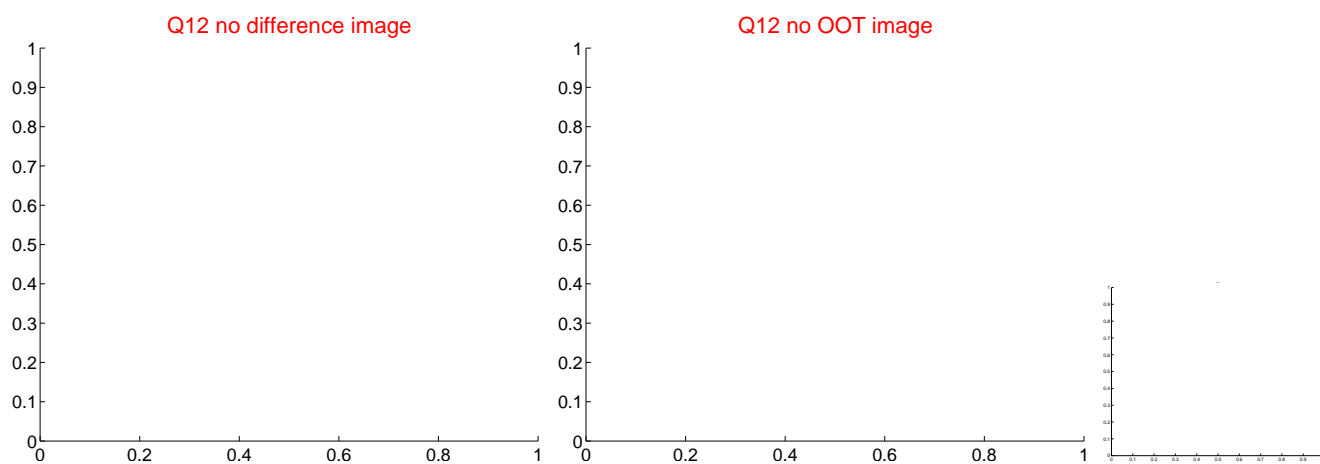
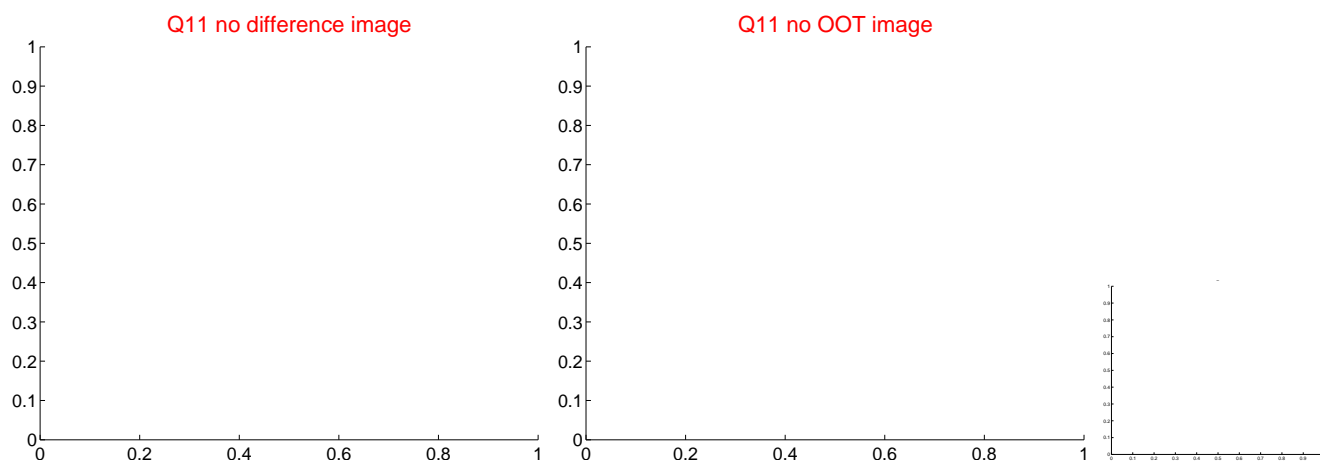
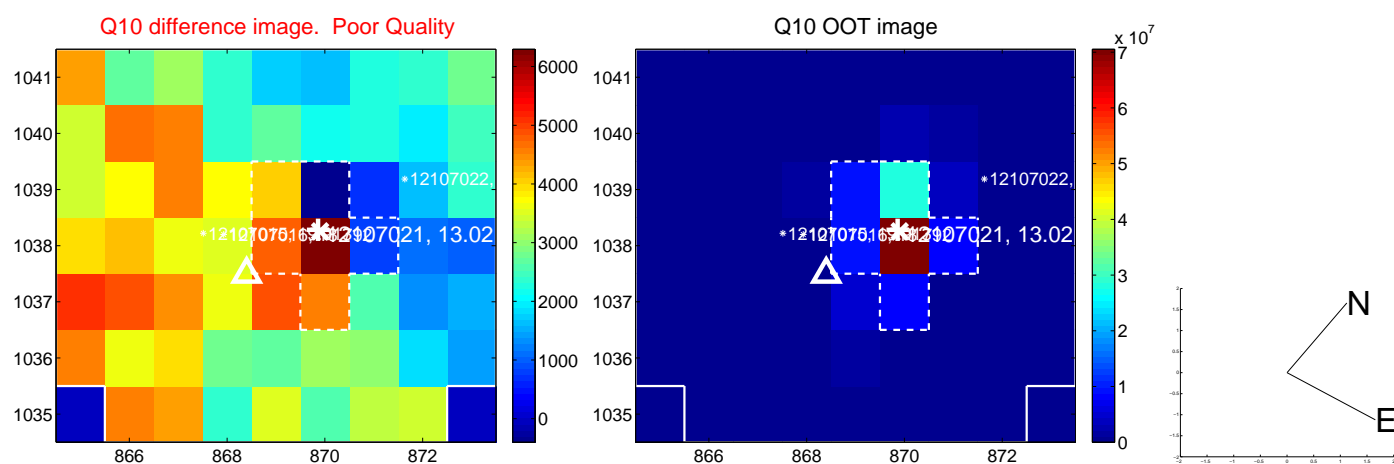
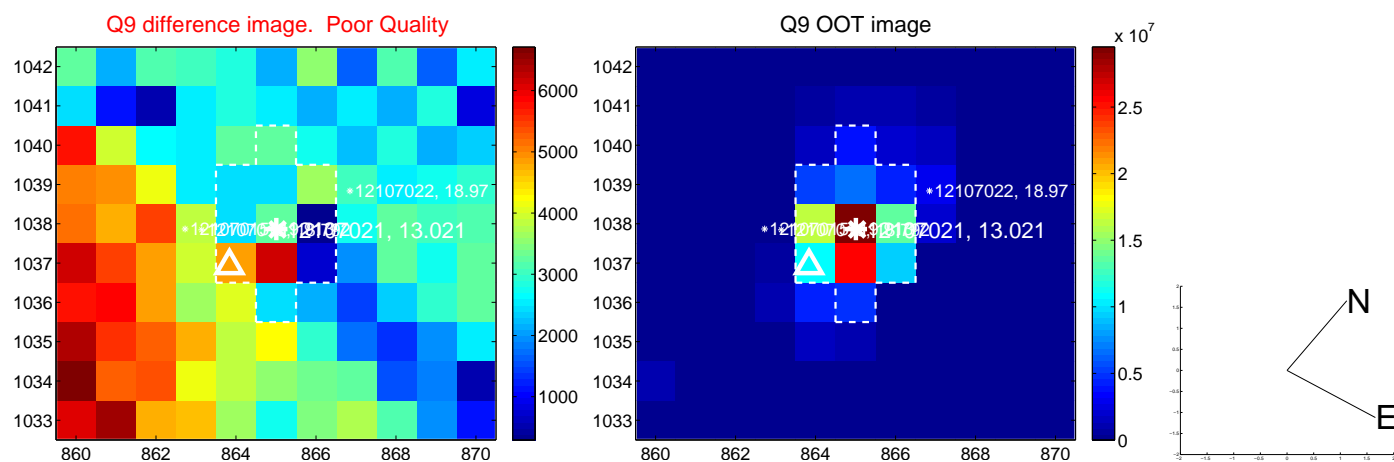
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



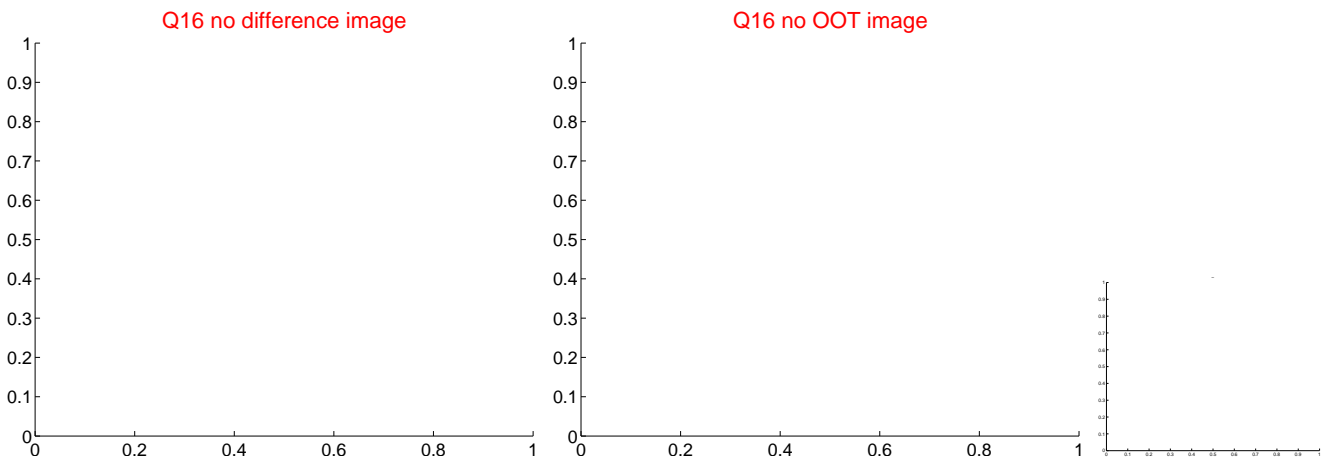
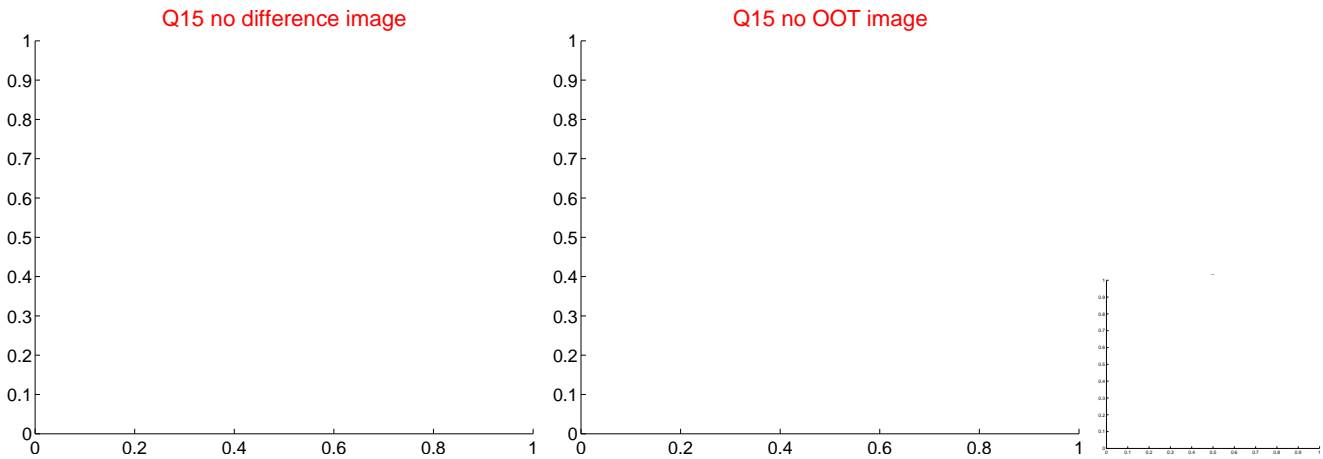
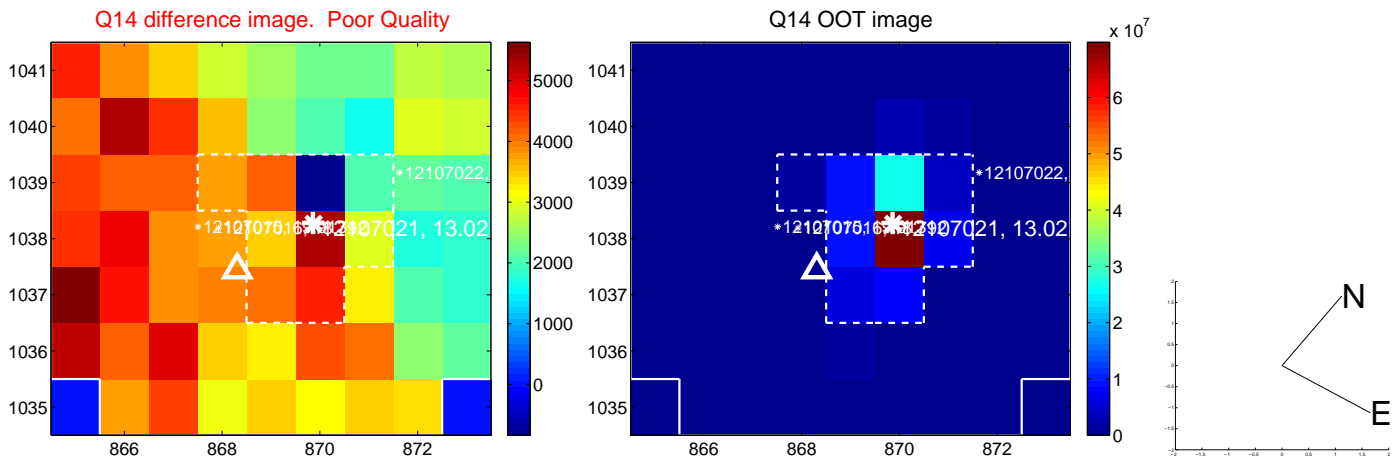
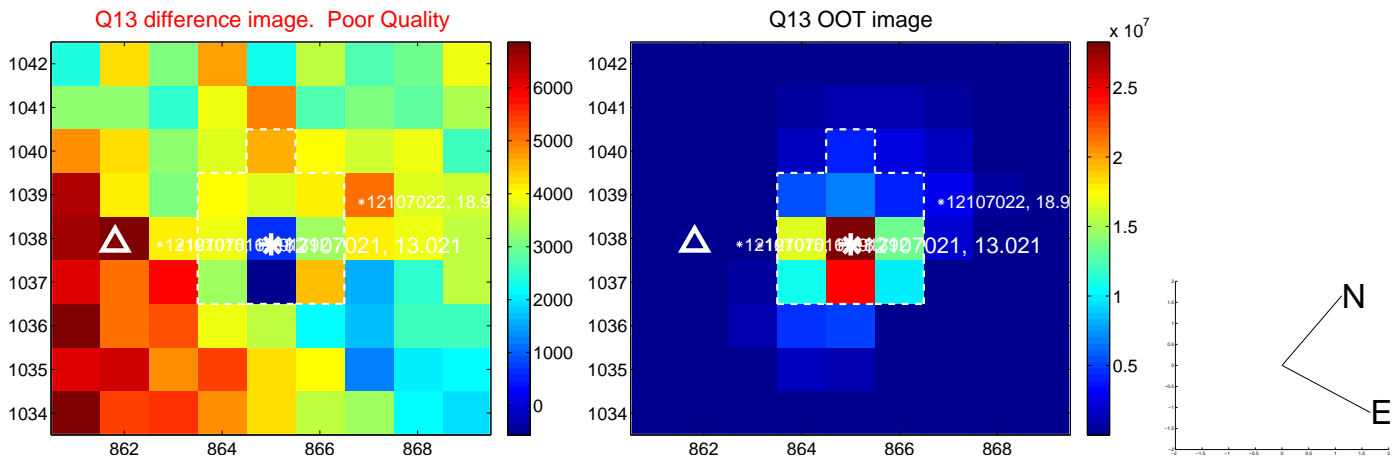
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

