

KIC 001293031

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})
001293031-01	OBS	4162.01	1.078715	132.551880	33.1	0.561	9.1	5.7	5.30	6341	3.24	59512.66
001293031-02	OBS	No	1.078742	132.012168	16.4	5.598	9.1	7.0	5.30	6341	2.15	59510.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001293031-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
001293031-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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.

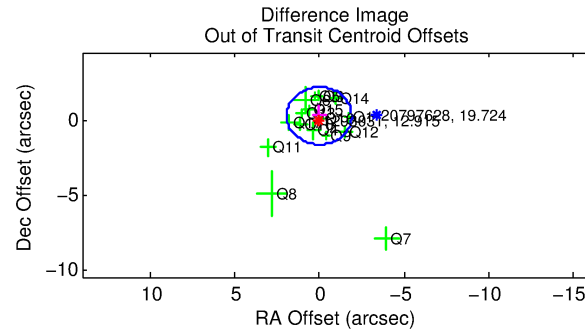
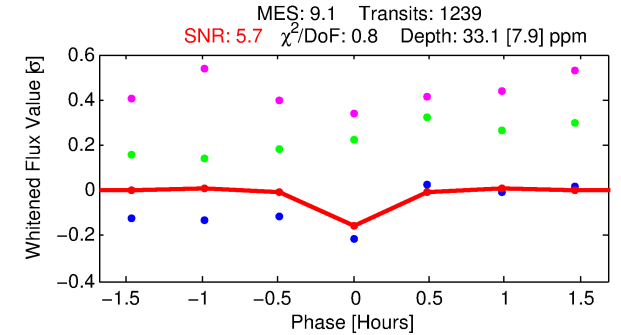
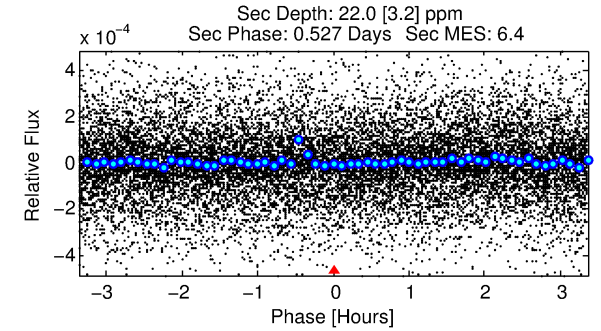
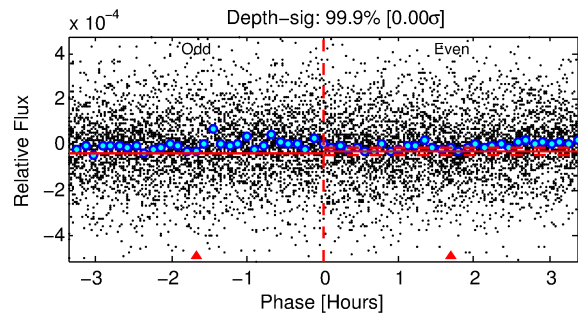
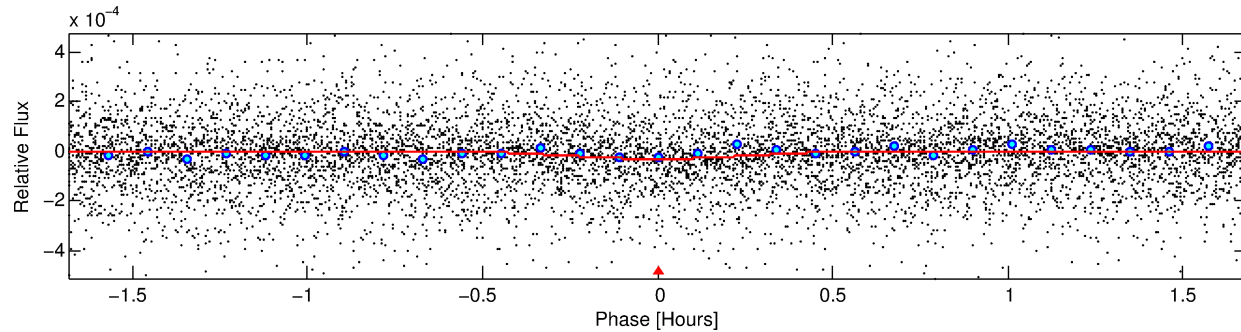
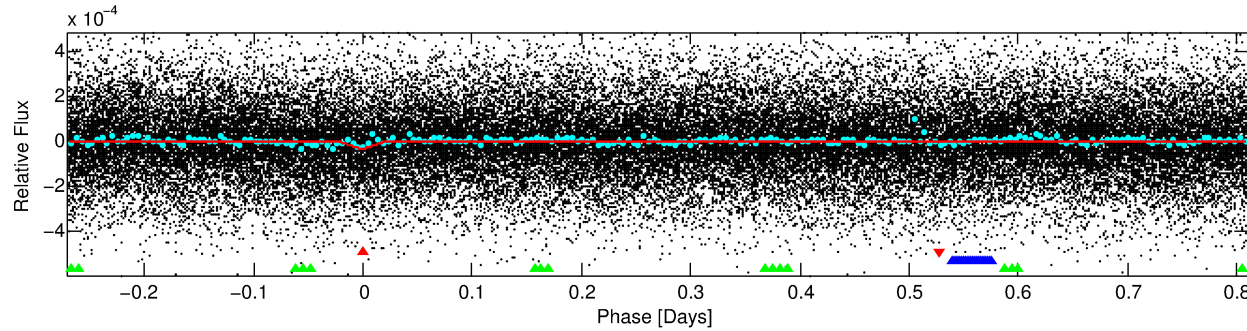
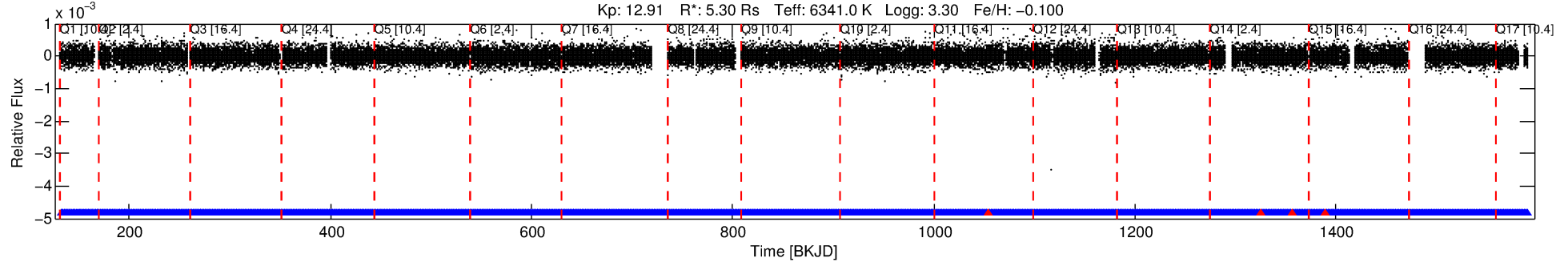
Ephemeris Match Information For 001293031-01

No Significant Match Found

DV One-Page Summary

KIC: 1293031 Candidate: 1 of 3 Period: 1.079 d
KOI: K04162 Corr: No Ephemeris Match

Kp: 12.91 R*: 5.30 Rs Teff: 6341.0 K Logg: 3.30 Fe/H: -0.100



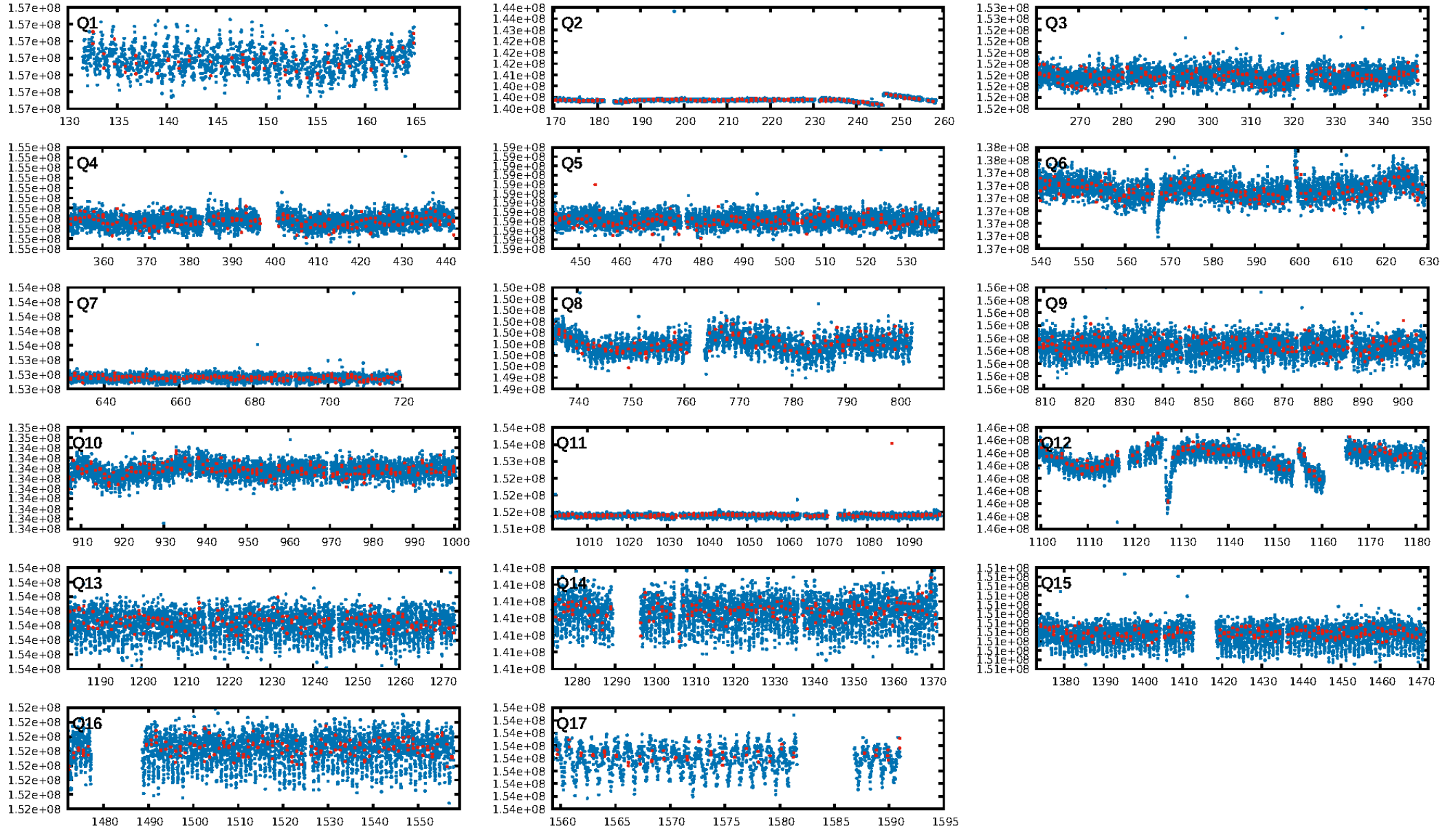
DV Fit Results:

Period = 1.07872 [0.00002] d
Epoch = 132.5519 [0.0019] BKJD
Rp/R* = 0.0056 [0.0034]
a/R* = 12.94 [40.61]
b = 0.49 [4.95]
Seff = 59512.66 [40649.90]
Teq = 3983 [680] K
Rp = 3.24 [2.42] Re
a = 0.0262 [0.0109] AU
Ag = 0.79 [1.10] [-0.20σ]
Teffp = 5797 [1786] K [0.95σ]

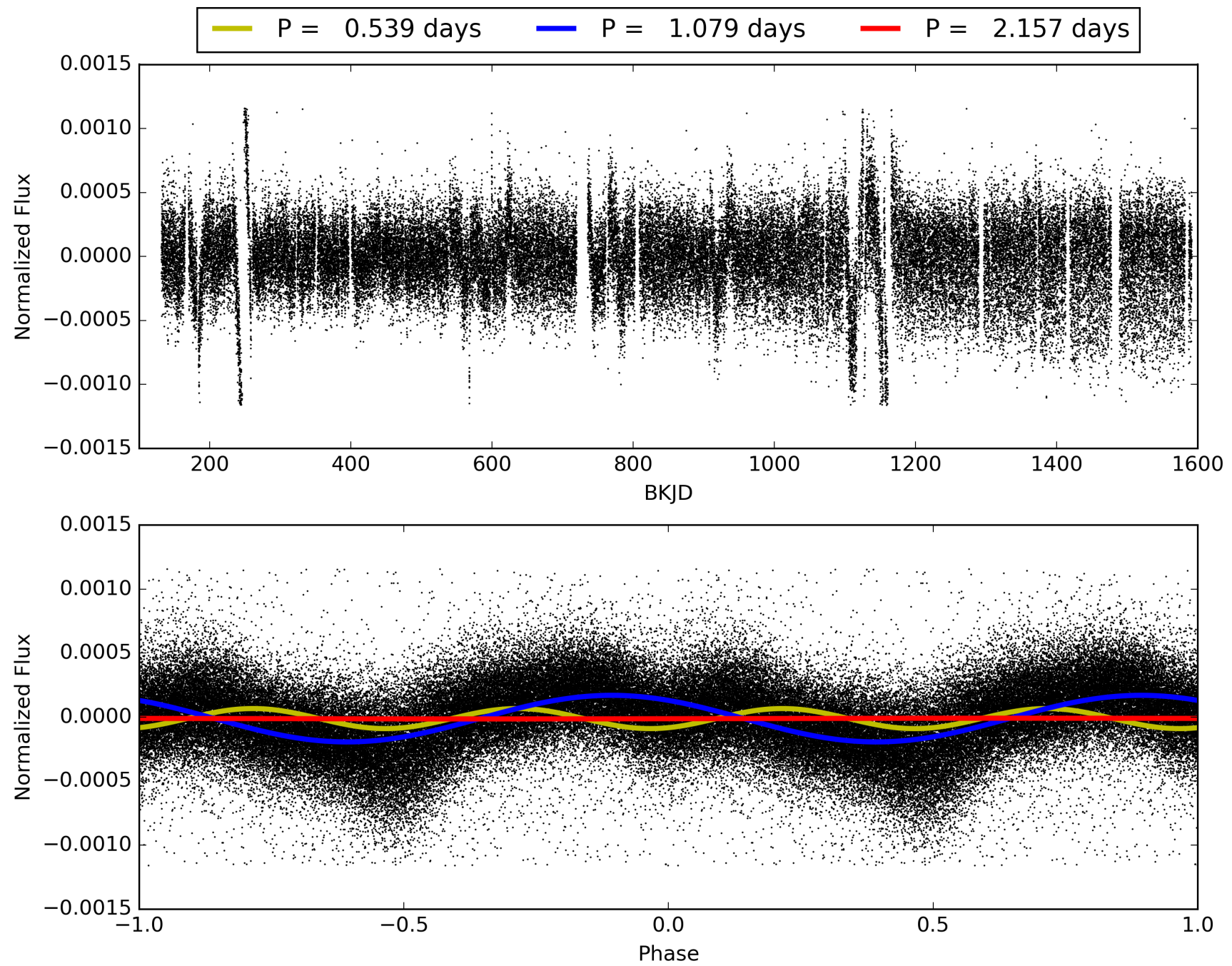
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.92e-20
RollingBand-fgt: 1.00 [1178/1182]
GhostDiagnostic-chr: 1.782
Centroid-sig: N/A
Centroid-so: 1.114 arcsec [0.58σ]
OotOffset-rm: 0.261 arcsec [0.41σ]
KicOffset-rm: 0.186 arcsec [0.30σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 001293031-01, PDC Light Curves

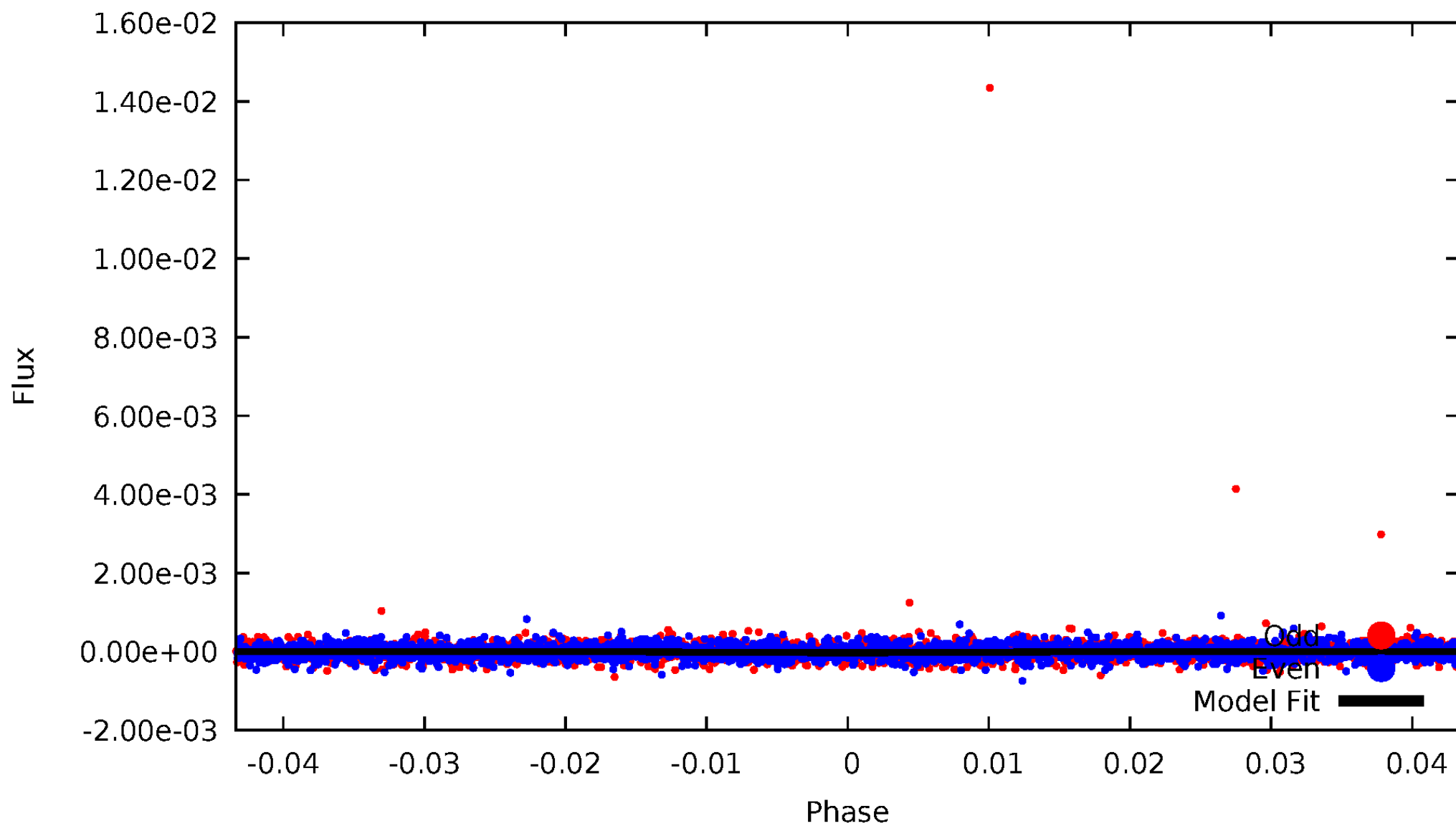


TCE 001293031-01



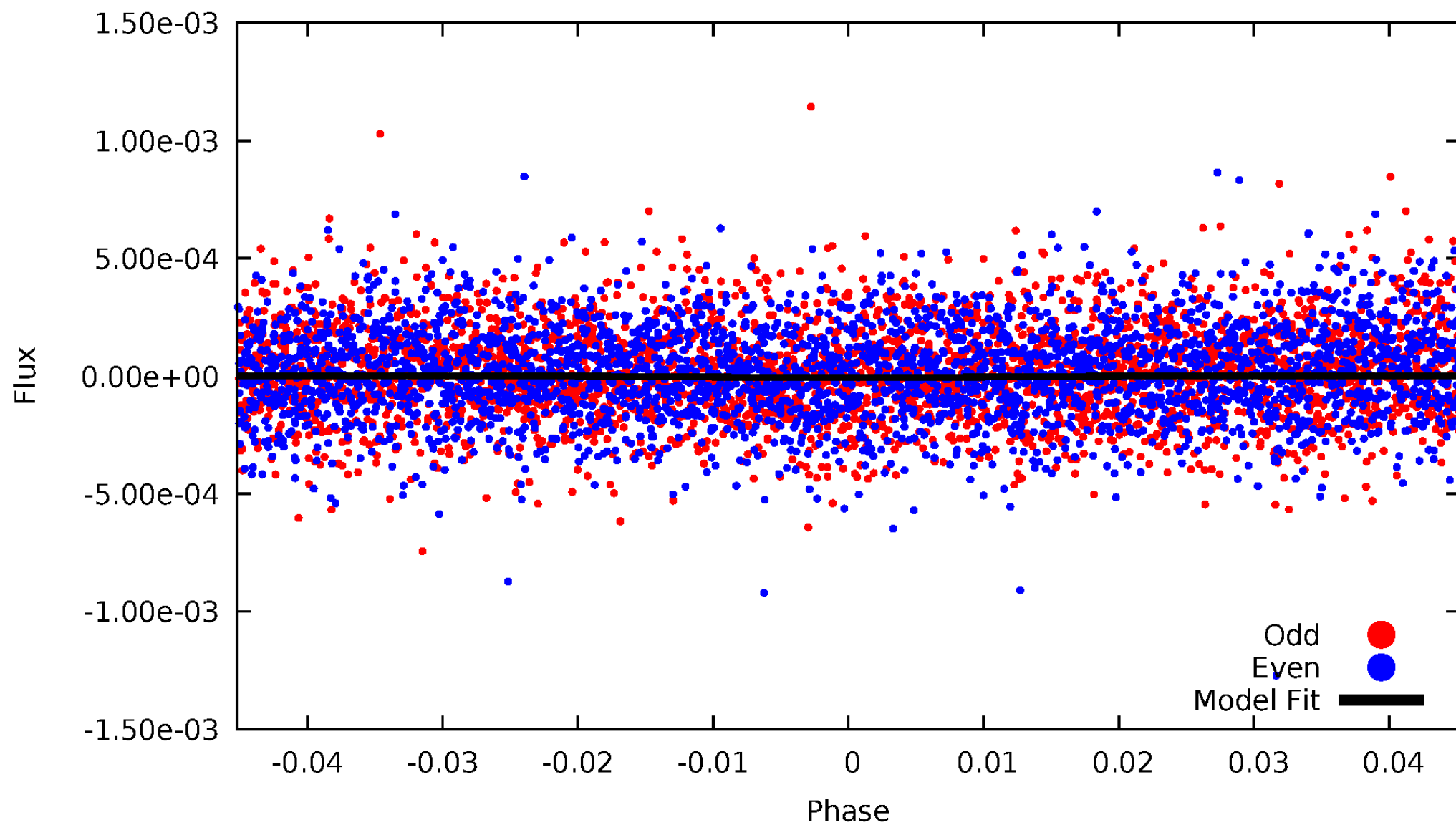
DV Odd/Even

TCE 001293031-01



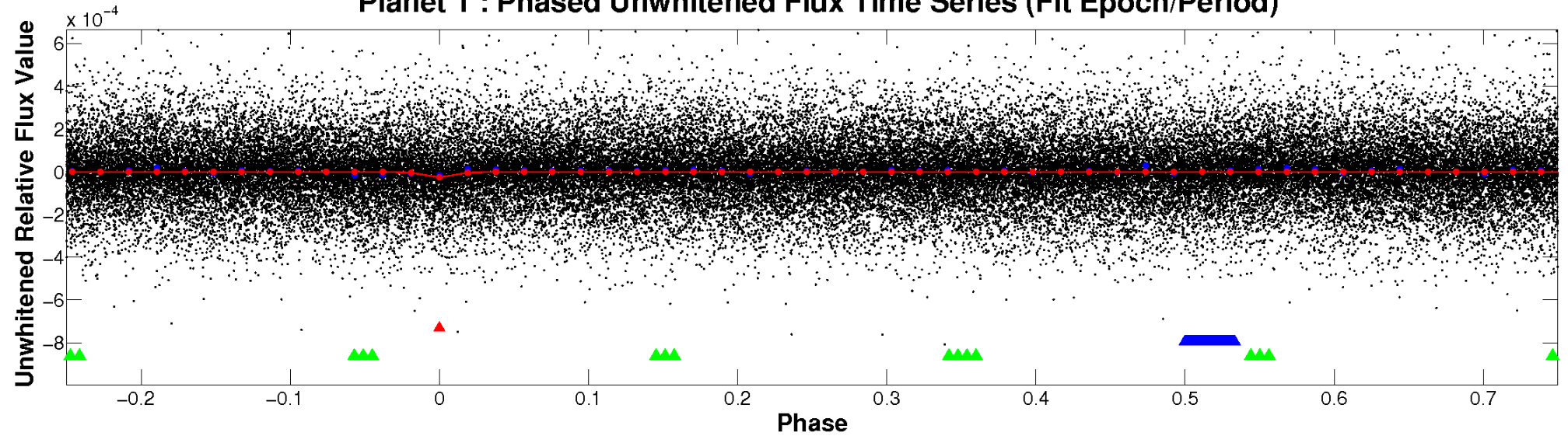
ALT Odd/Even

TCE 001293031-01

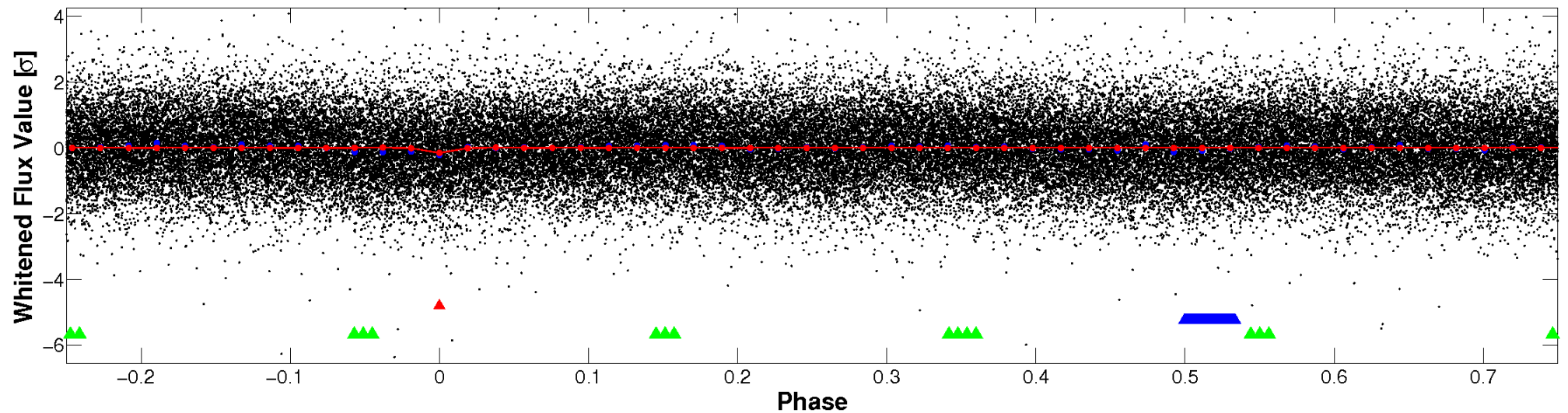


Non-Whitened Vs. Whitened Light Curve

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

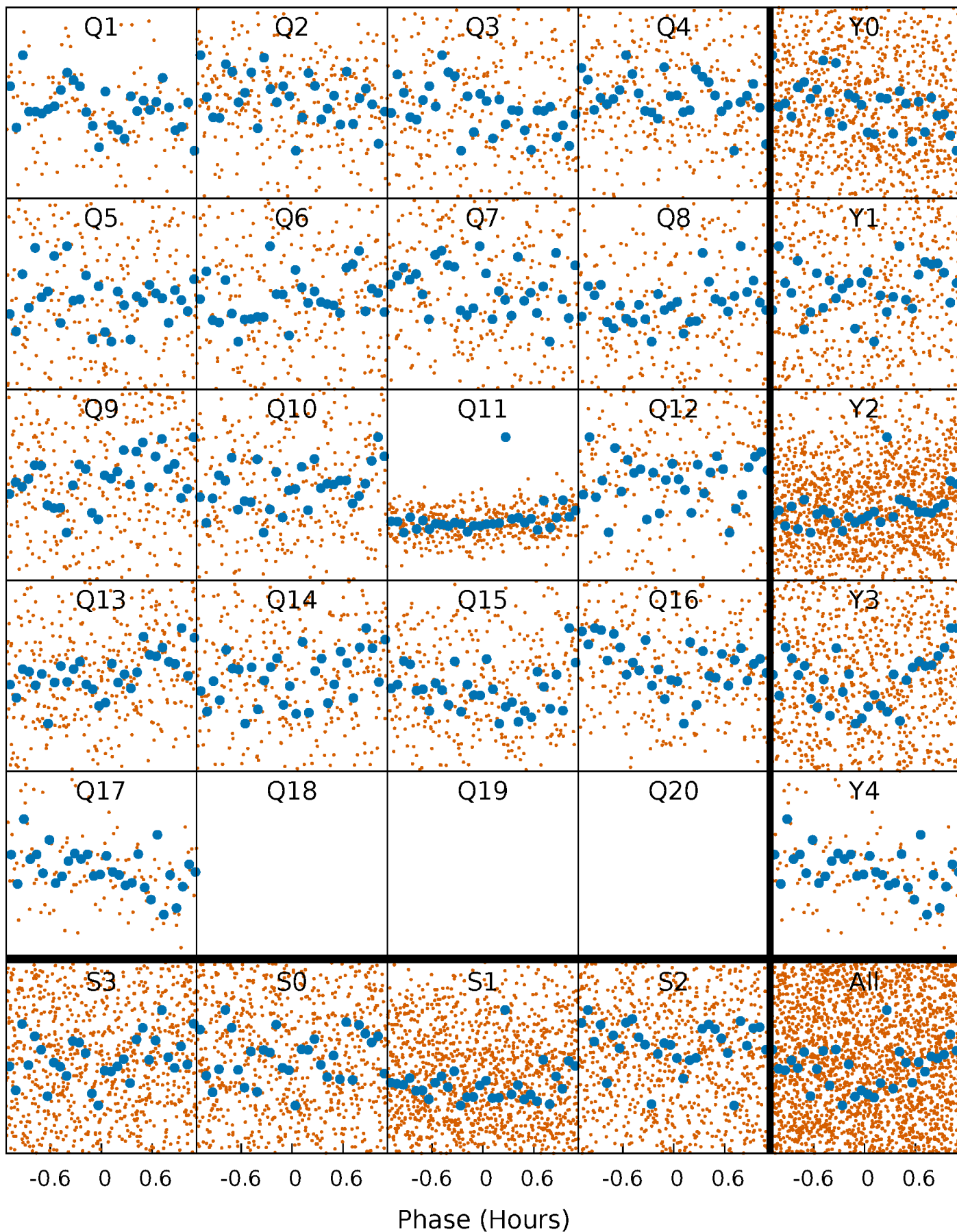


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



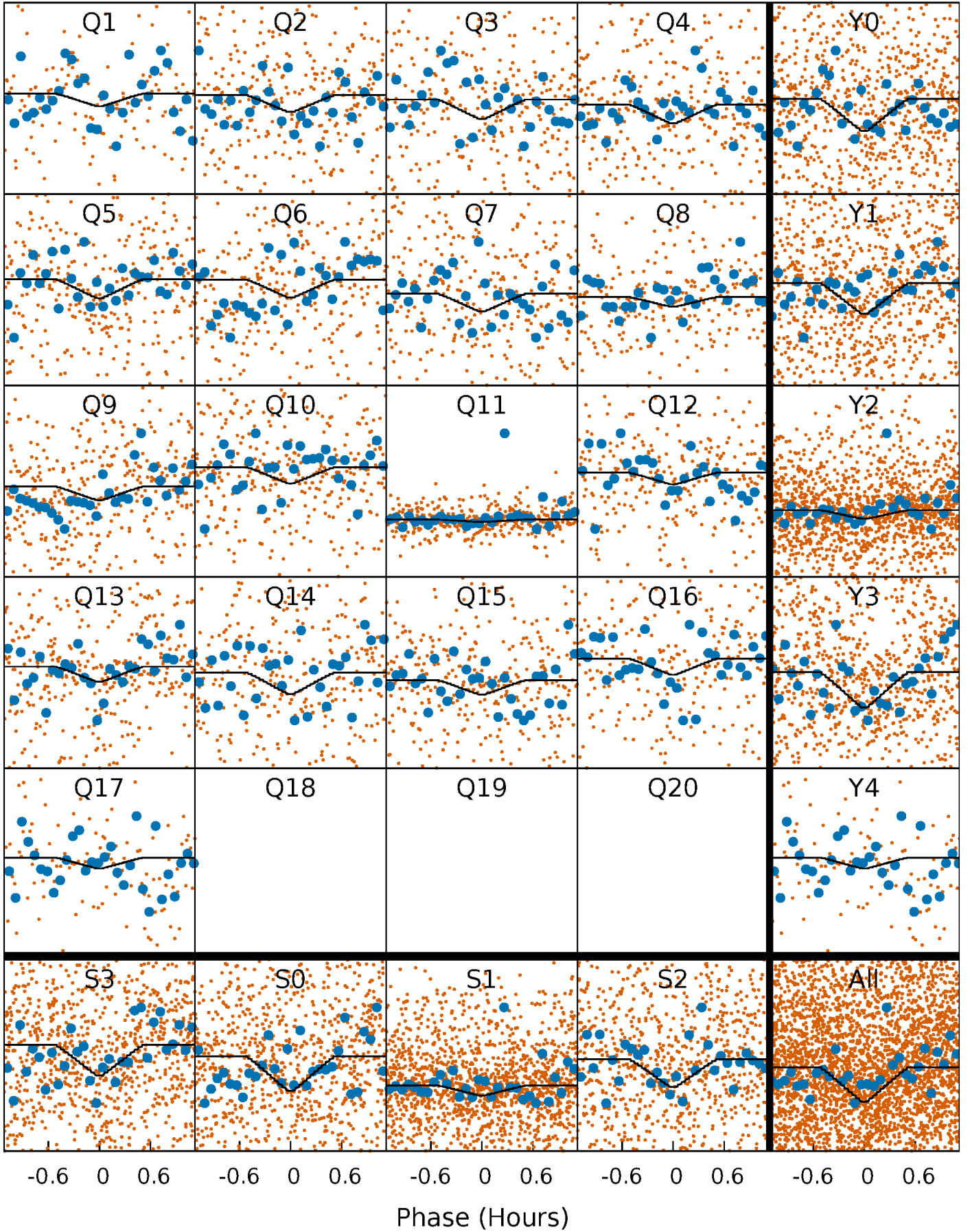
PDC Quarter-Phased Transit Curves

TCE 001293031-01 P= 1.078715 Days $T_0=132.551880$ (BKJD)



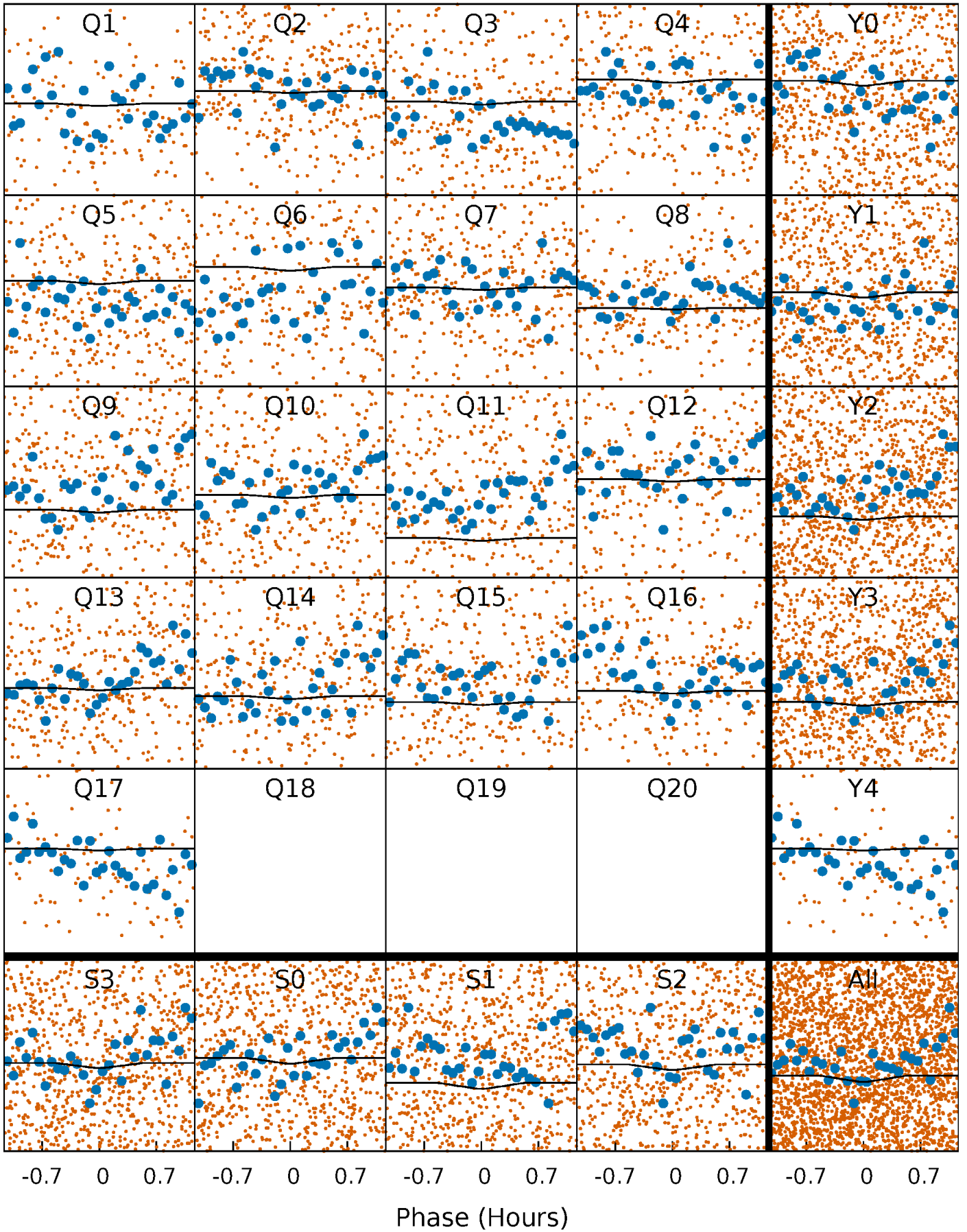
DV Quarter-Phased Transit Curves

TCE 001293031-01 P= 1.078715 Days $T_0=132.551880$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

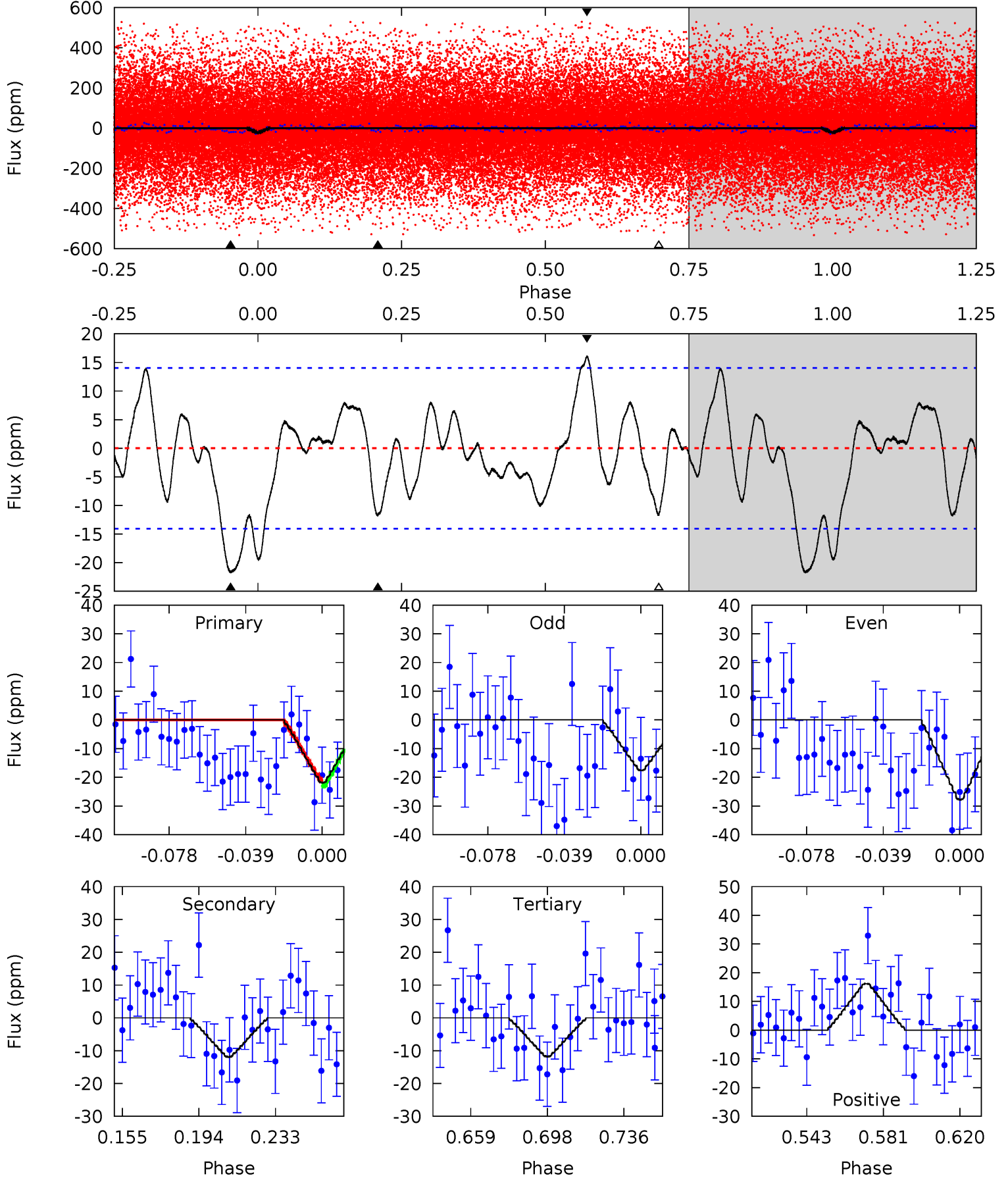
TCE 001293031-01 P= 1.078705 Days $T_0=132.562562$ (BKJD)



DV Model-Shift Uniqueness Test

001293031-01, P = 1.078715 Days, E = 131.473165 Days

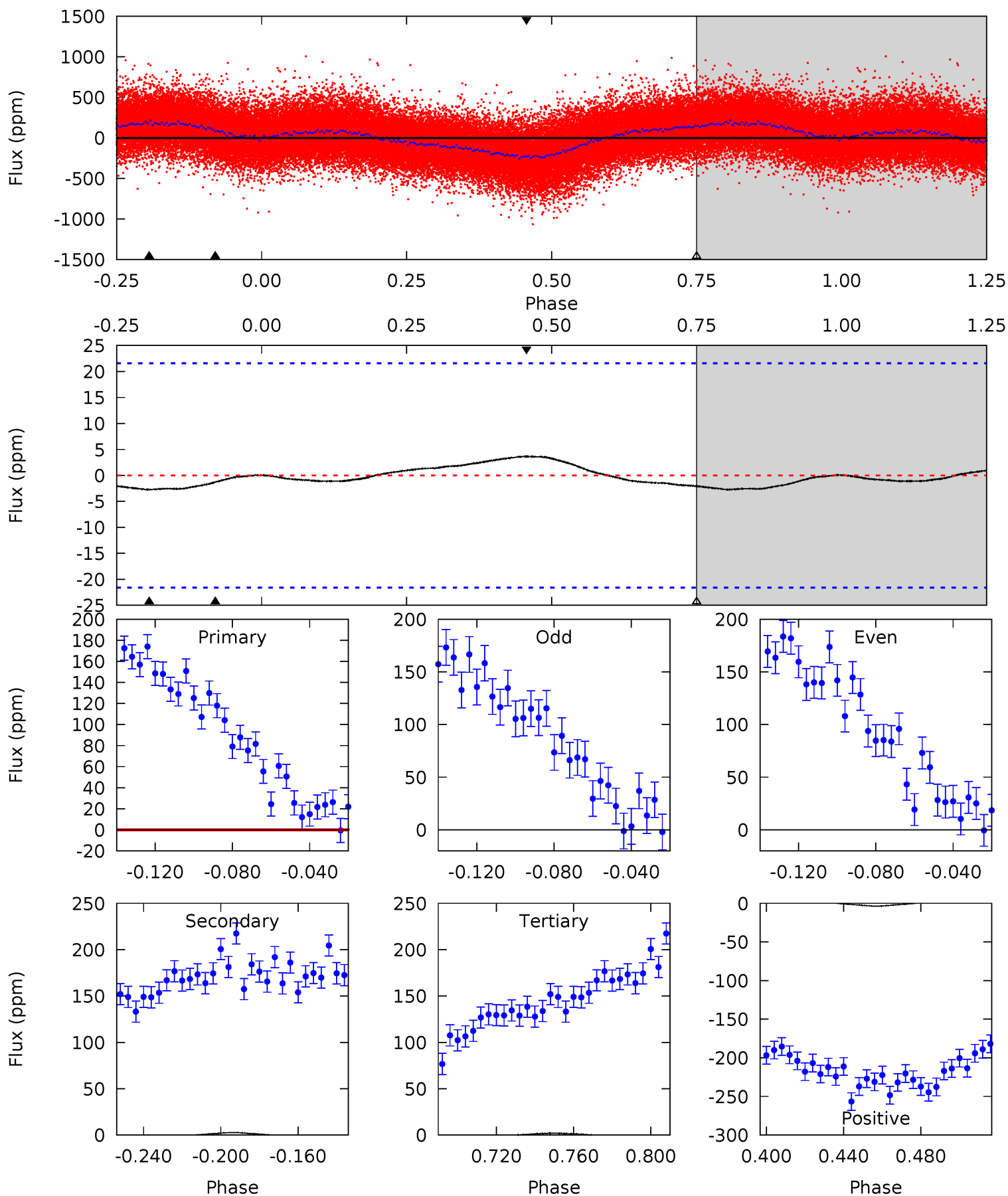
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.40	4.02	3.99	5.49	4.76	2.07	2.14	3.41	1.91	0.03	-1.47	1.73	0.40	0.43	0.31



Alt Model-Shift Uniqueness Test

001293031-01, P = 1.078705 Days, E = 131.483857 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.29	0.60	0.46	0.80	4.75	2.05	0.39	-0.17	-0.51	0.14	-0.20	0.06	-0.41	0.57	0.46



Stellar Parameters For KIC 001293031

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6341^{+195}_{-195}	$3.301^{+0.396}_{-0.066}$	$-0.100^{+0.350}_{-0.300}$	$5.302^{+0.253}_{-2.276}$	$2.050^{+0.110}_{-0.411}$	$0.019^{+0.062}_{-0.003}$
	+3%/-3%	+12%/-2%	+350%/-300%	+5%/-43%	+5%/-20%	+319%/-16%
Source	PHO1	FLK73	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 001293031-01 / KOI 4162.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 3	$2.98^{+2.06}_{-1.62}$	5471^{+264}_{-543}	4039^{+2956}_{-8021}	$0.469^{+1.793}_{-0.303}$
Alt.	-3 ± 5	$1.94^{+1.69}_{-1.28}$	5476^{+259}_{-549}	-3860^{+10178}_{-1189}	$0.178^{+1.627}_{-0.336}$

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

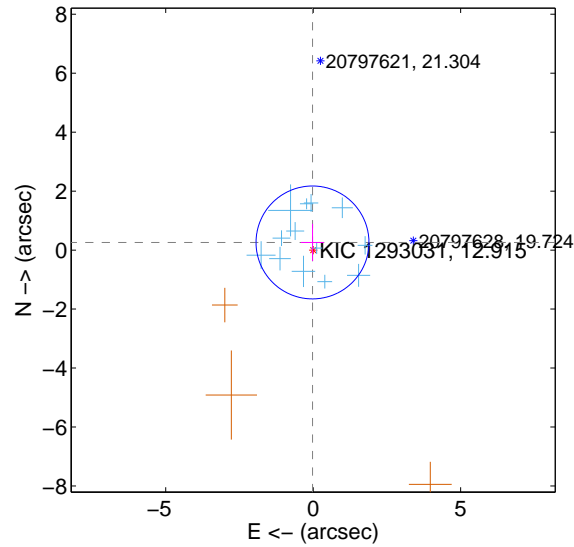
Supplemental centroid analysis for 001293031-01. Kepler magnitude: 12.91. Transit SNR 5.71

There are 13 quarters with good PRF difference image offsets

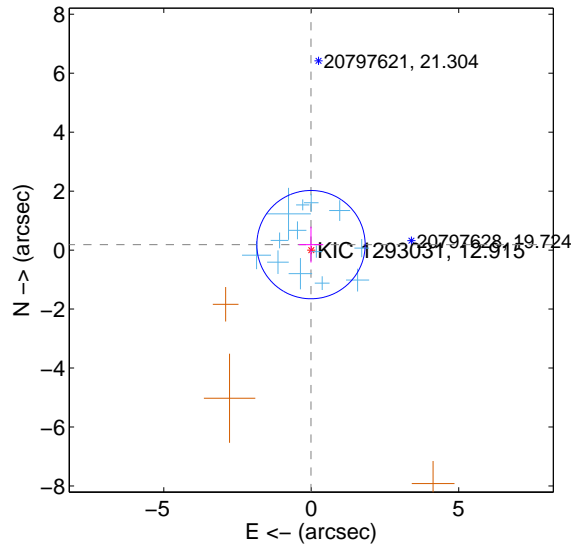
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.261 ± 0.638	0.41	0.023 ± 0.391	0.260 ± 0.631
PRF-fit source offset from KIC position	0.186 ± 0.612	0.30	0.009 ± 0.415	0.186 ± 0.608
photometric centroid source offset	1.11 ± 1.91	0.58	0.71 ± 1.88	-0.86 ± 1.93

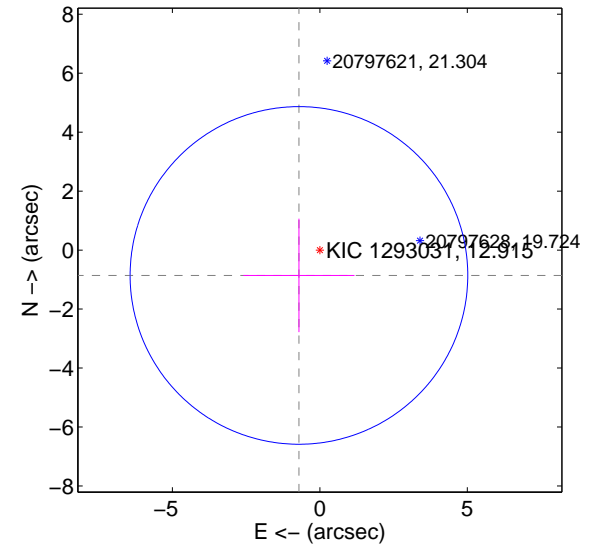
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

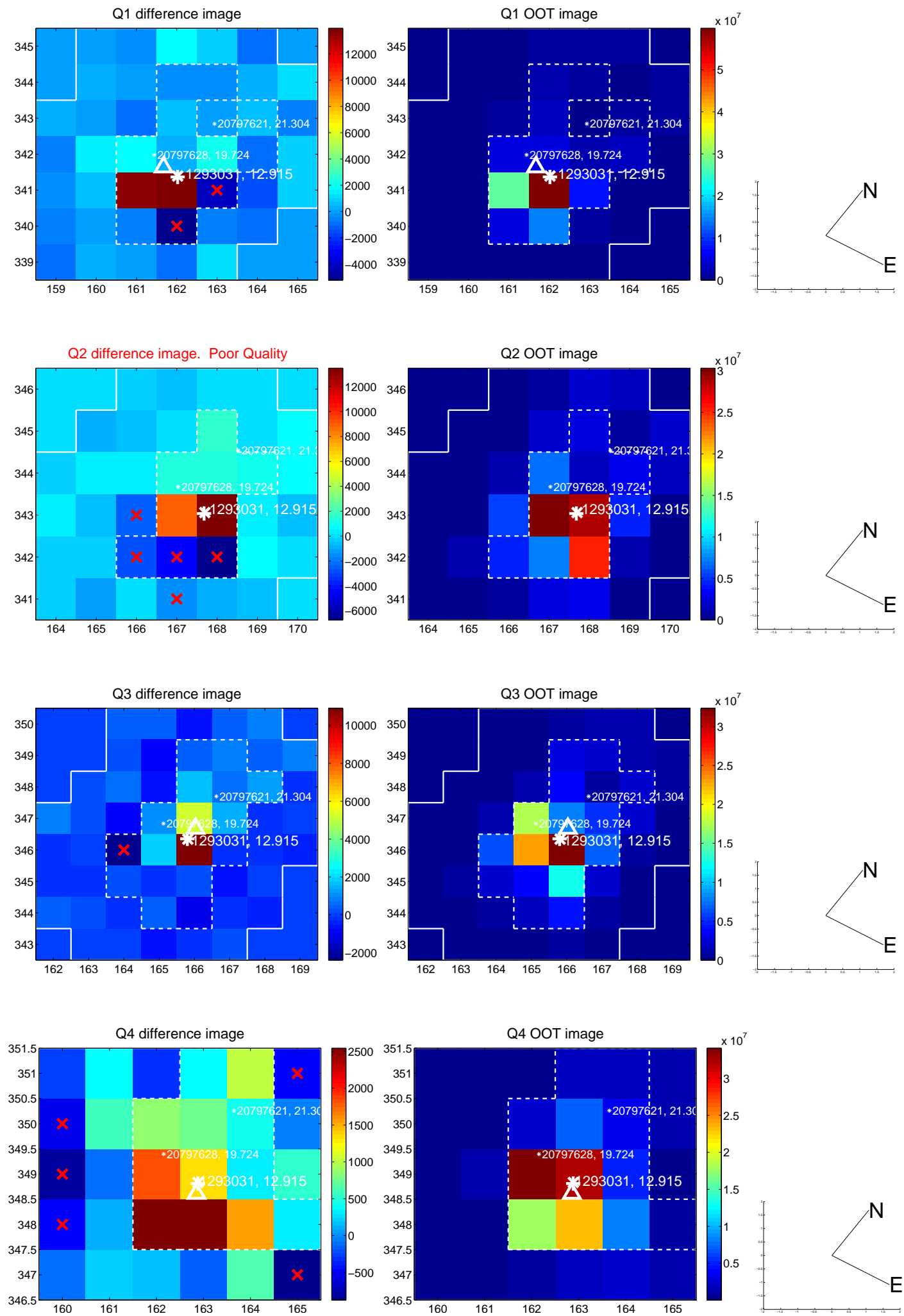


offset from photometric centroids

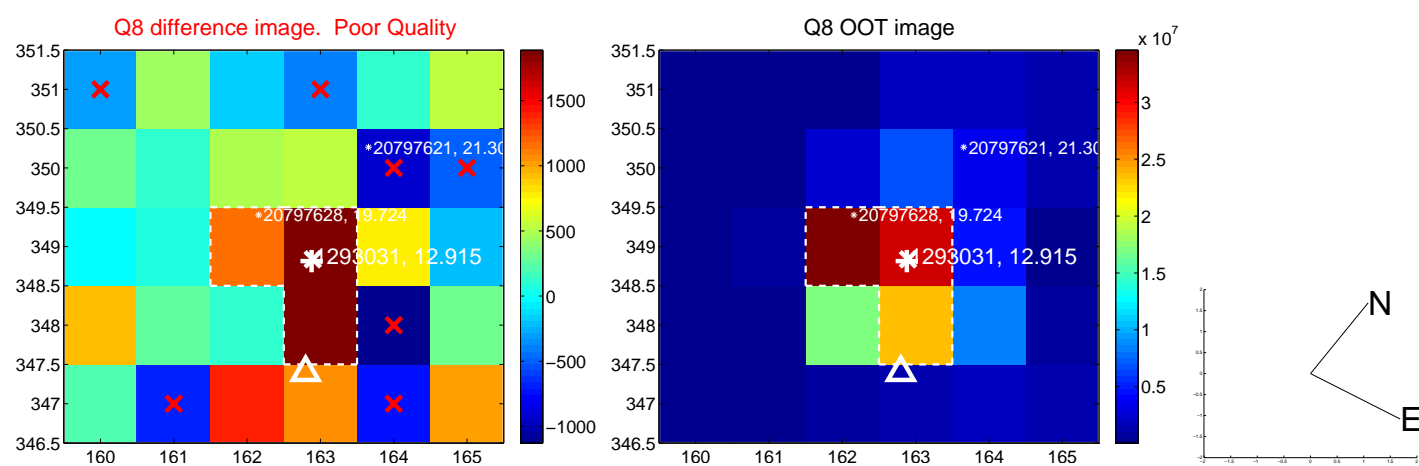
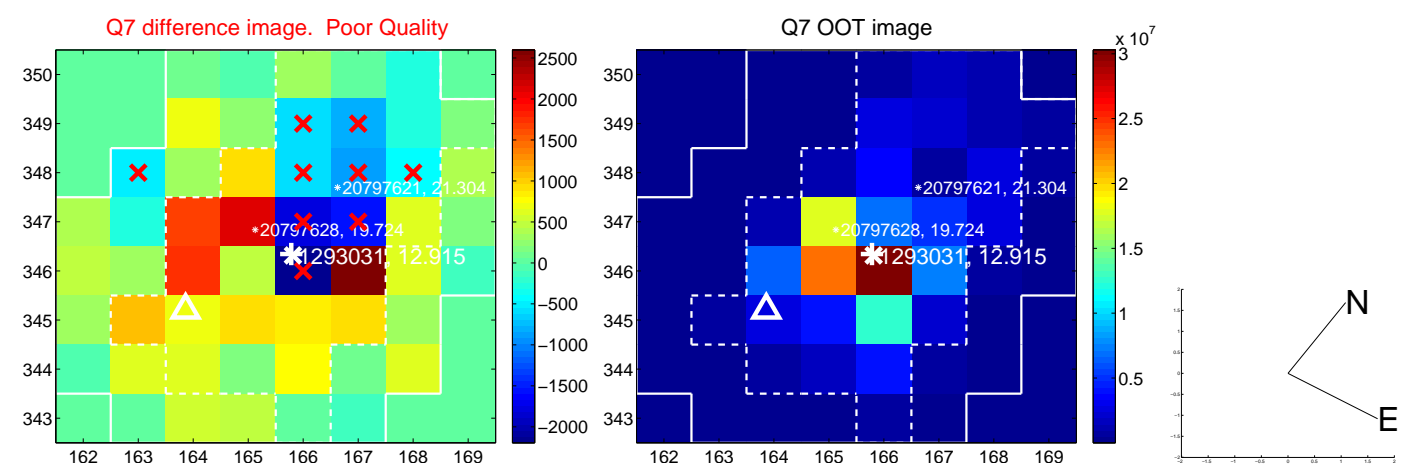
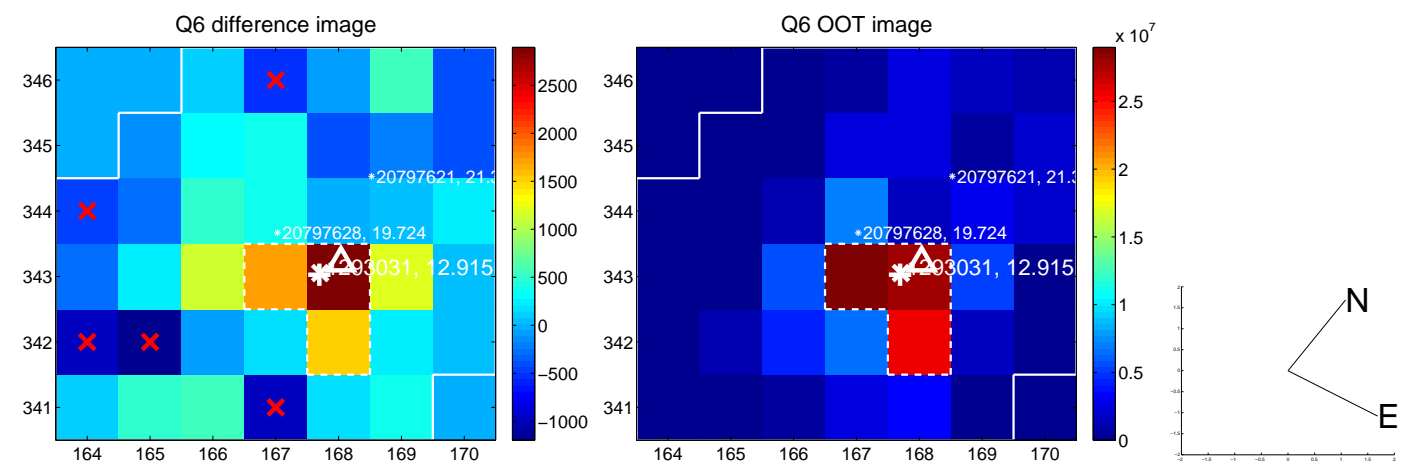
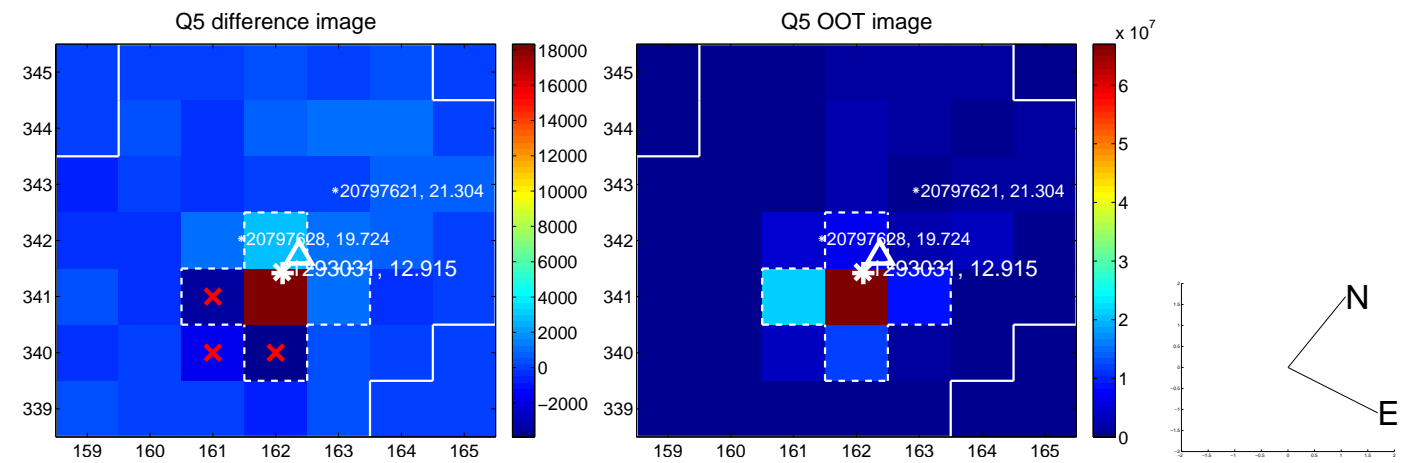


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

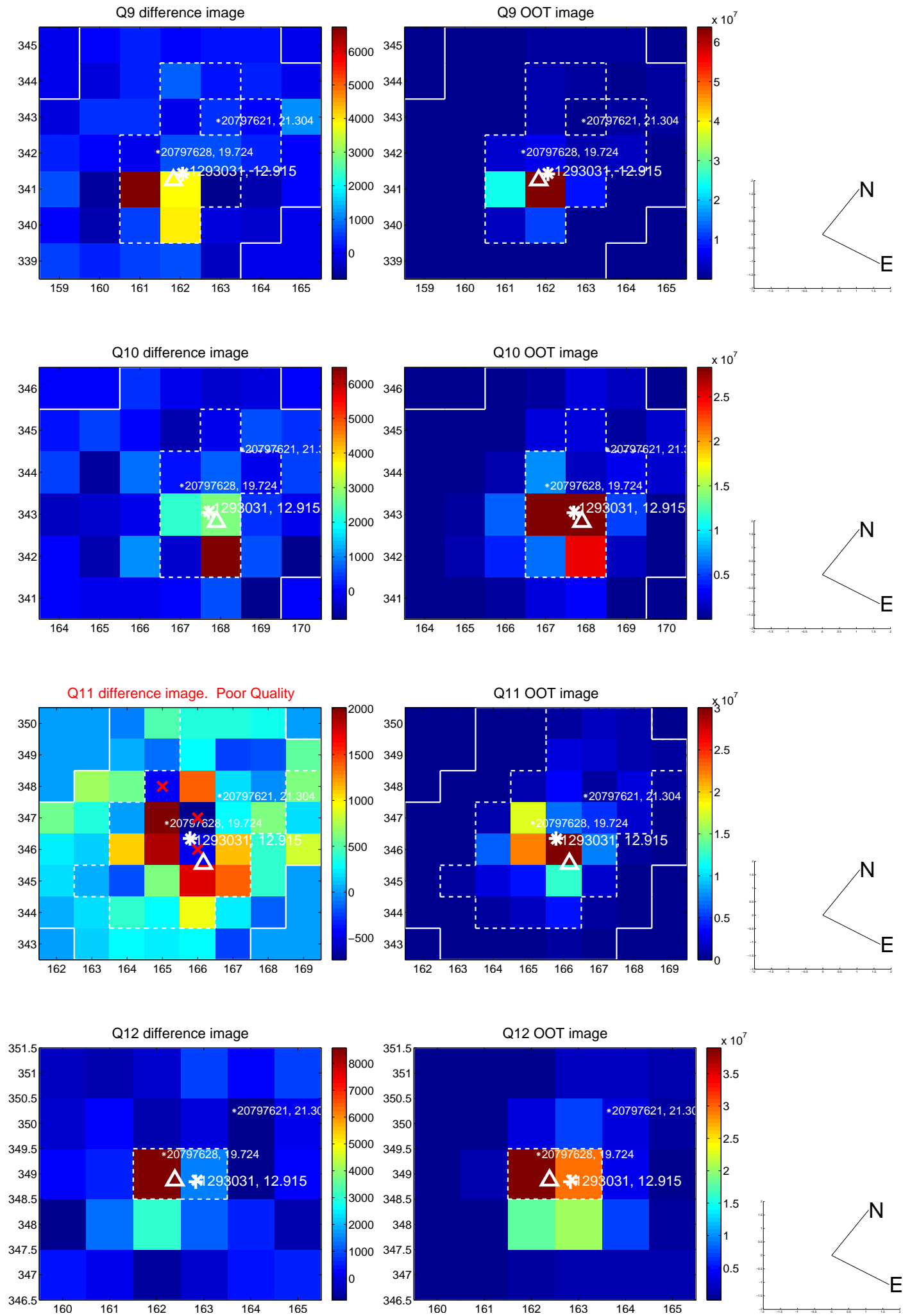
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



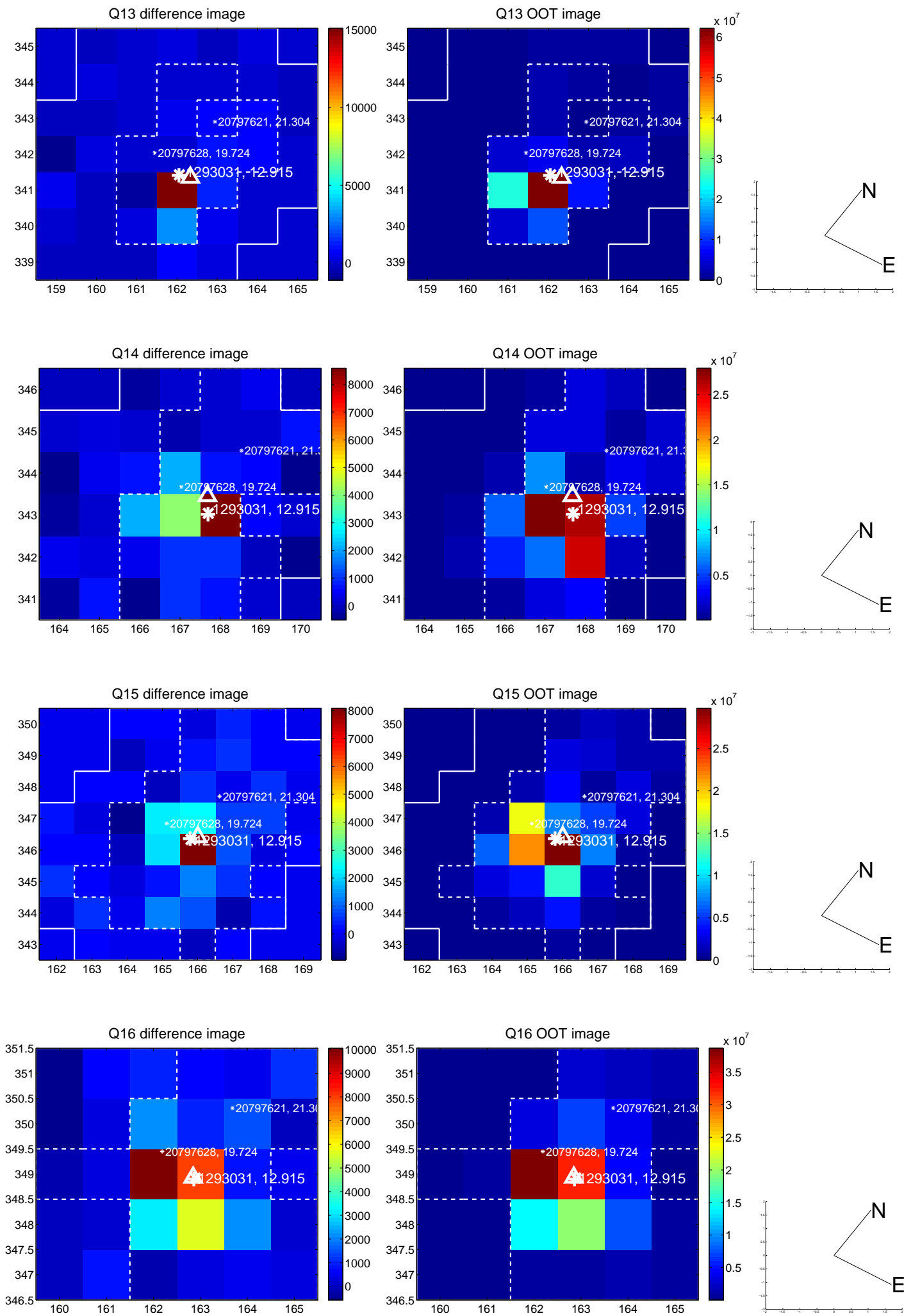
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



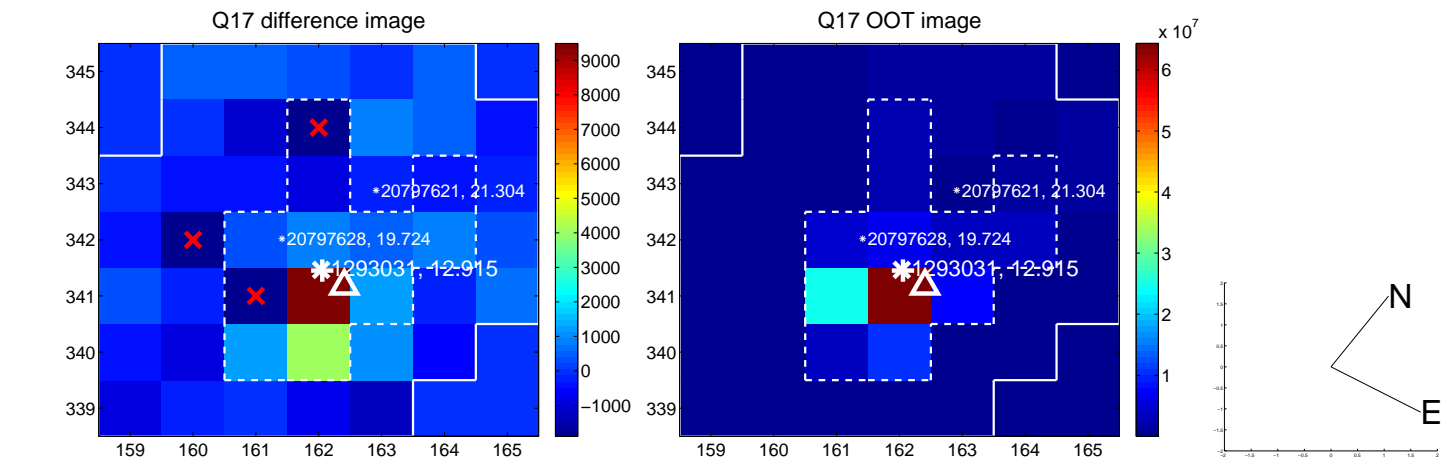
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



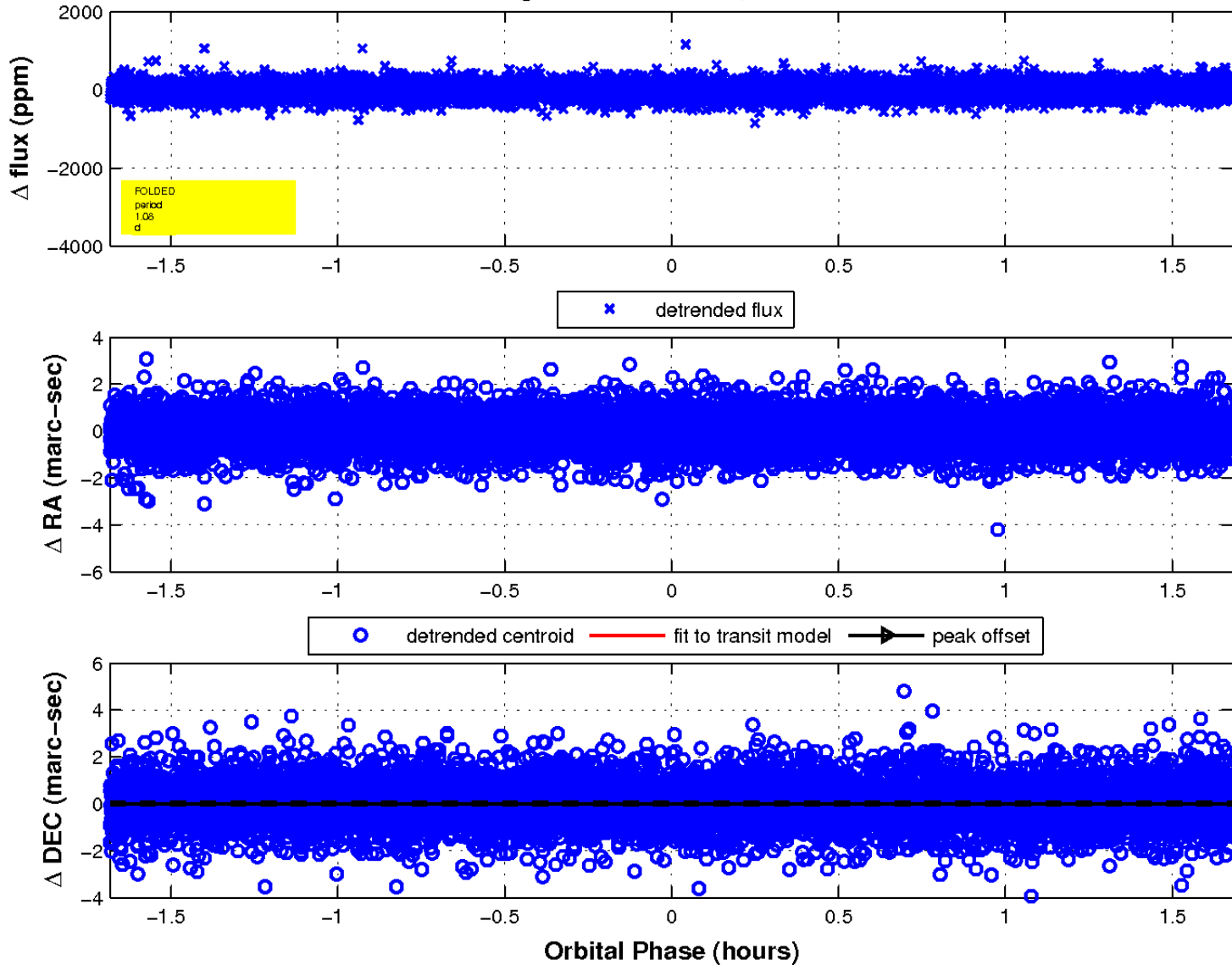
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

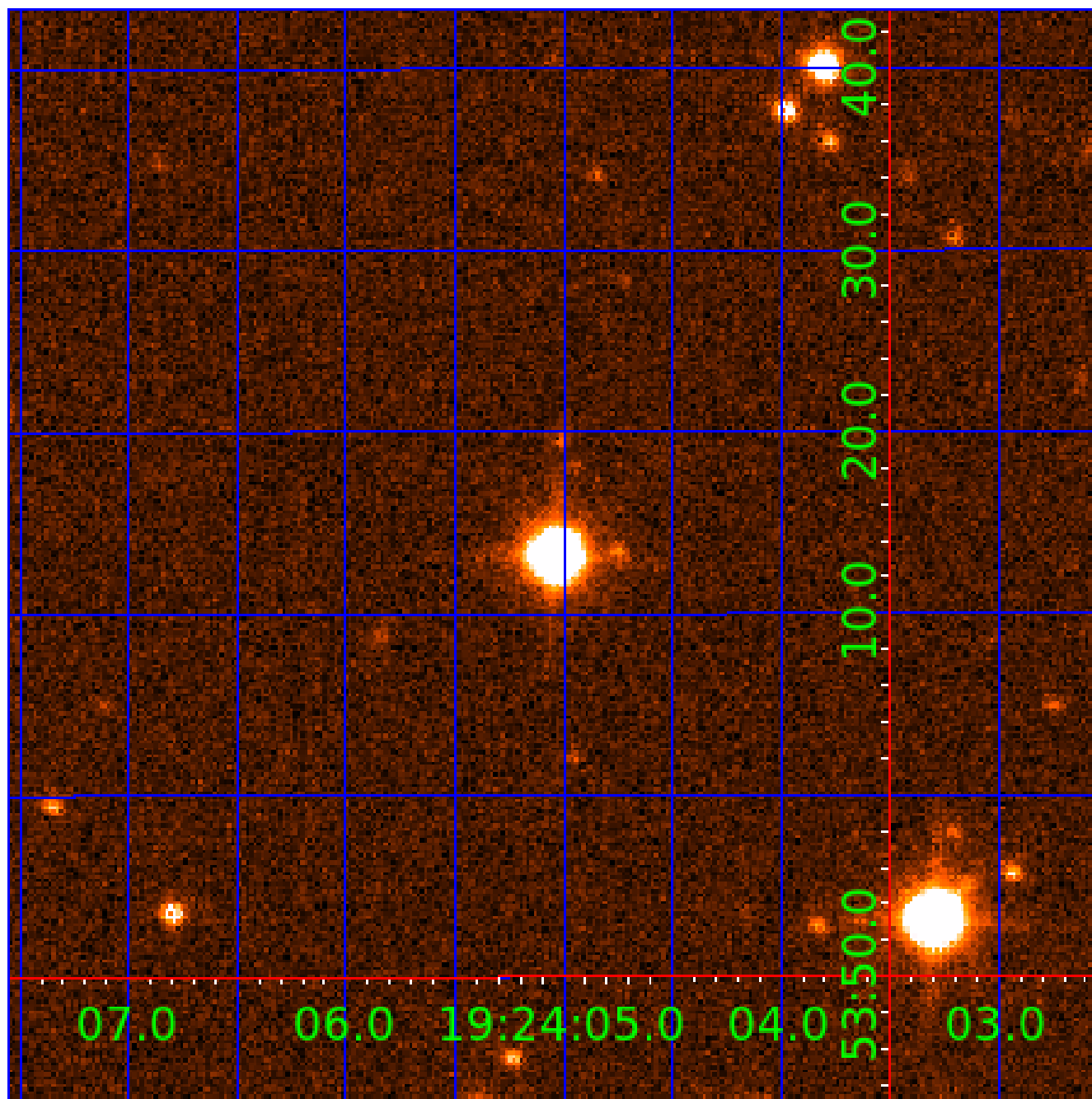


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 001293031

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})
001293031-01	OBS	4162.01	1.078715	132.551880	33.1	0.561	9.1	5.7	5.30	6341	3.24	59512.66
001293031-02	OBS	No	1.078742	132.012168	16.4	5.598	9.1	7.0	5.30	6341	2.15	59510.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001293031-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
001293031-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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.

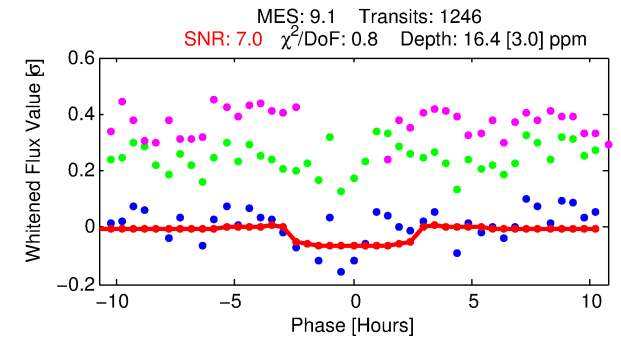
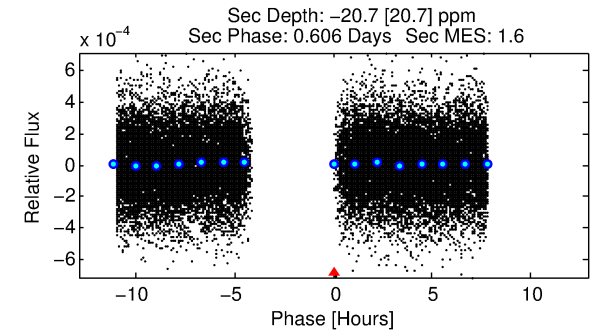
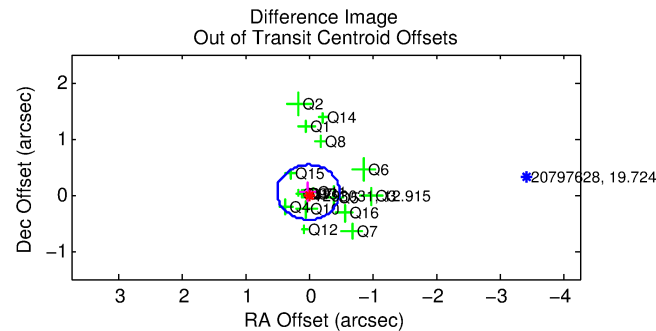
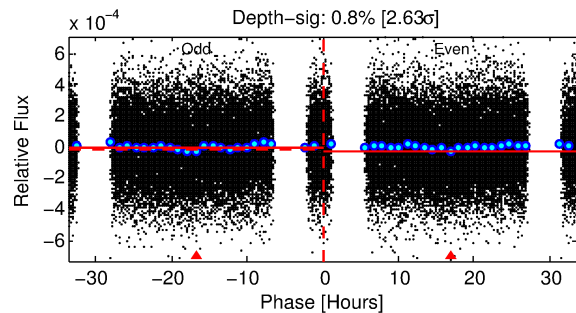
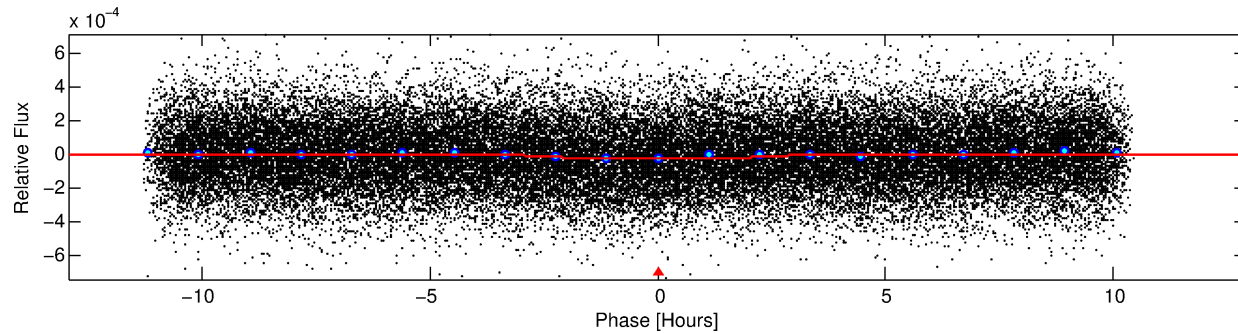
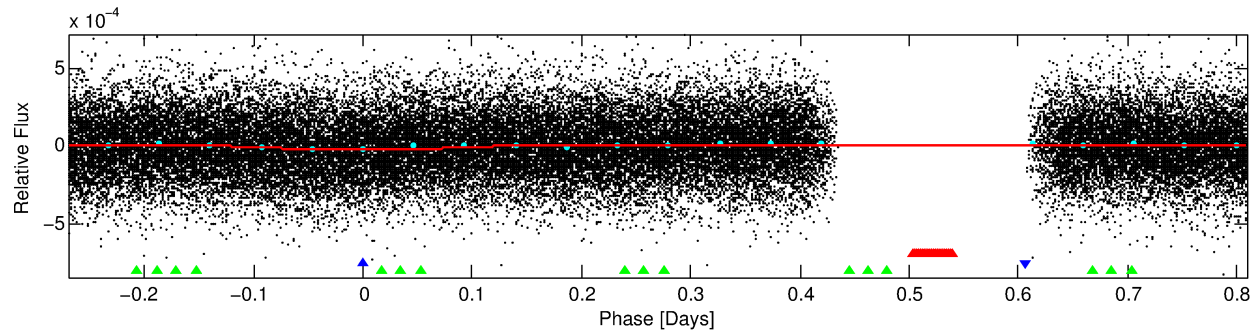
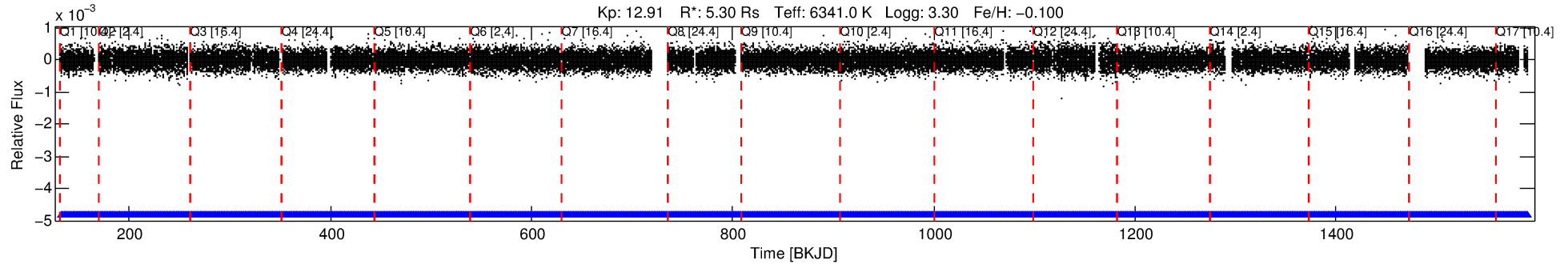
Ephemeris Match Information For 001293031-02

No Significant Match Found

DV One-Page Summary

KIC: 1293031 Candidate: 2 of 3 Period: 1.079 d
KOI: K04162 Corr: No Ephemeris Match

Kp: 12.91 R*: 5.30 Rs Teff: 6341.0 K Logg: 3.30 Fe/H: -0.100



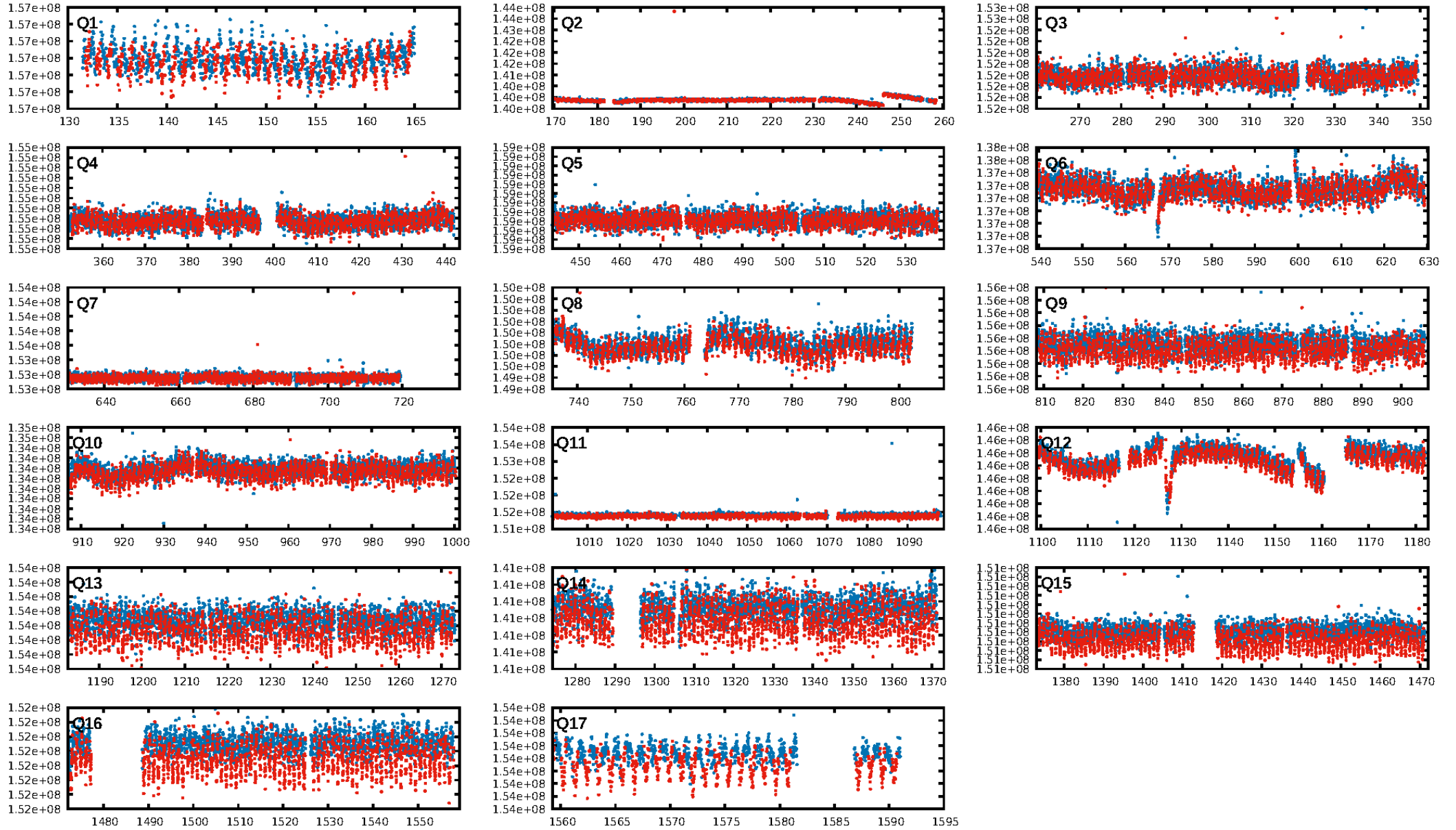
DV Fit Results:

Period = 1.07874 [0.00002] d
Epoch = 132.0122 [0.0069] BKJD
Rp/R* = 0.0037 [0.0044]
a/R* = 1.59 [5.73]
b = 0.14 [43.13]
Seff = 59510.68 [40648.54]
Teff = 3983 [680] K
Rp = 2.15 [2.68] Re
a = 0.0262 [0.0109] AU
Ag = N/A
Teffp = N/A

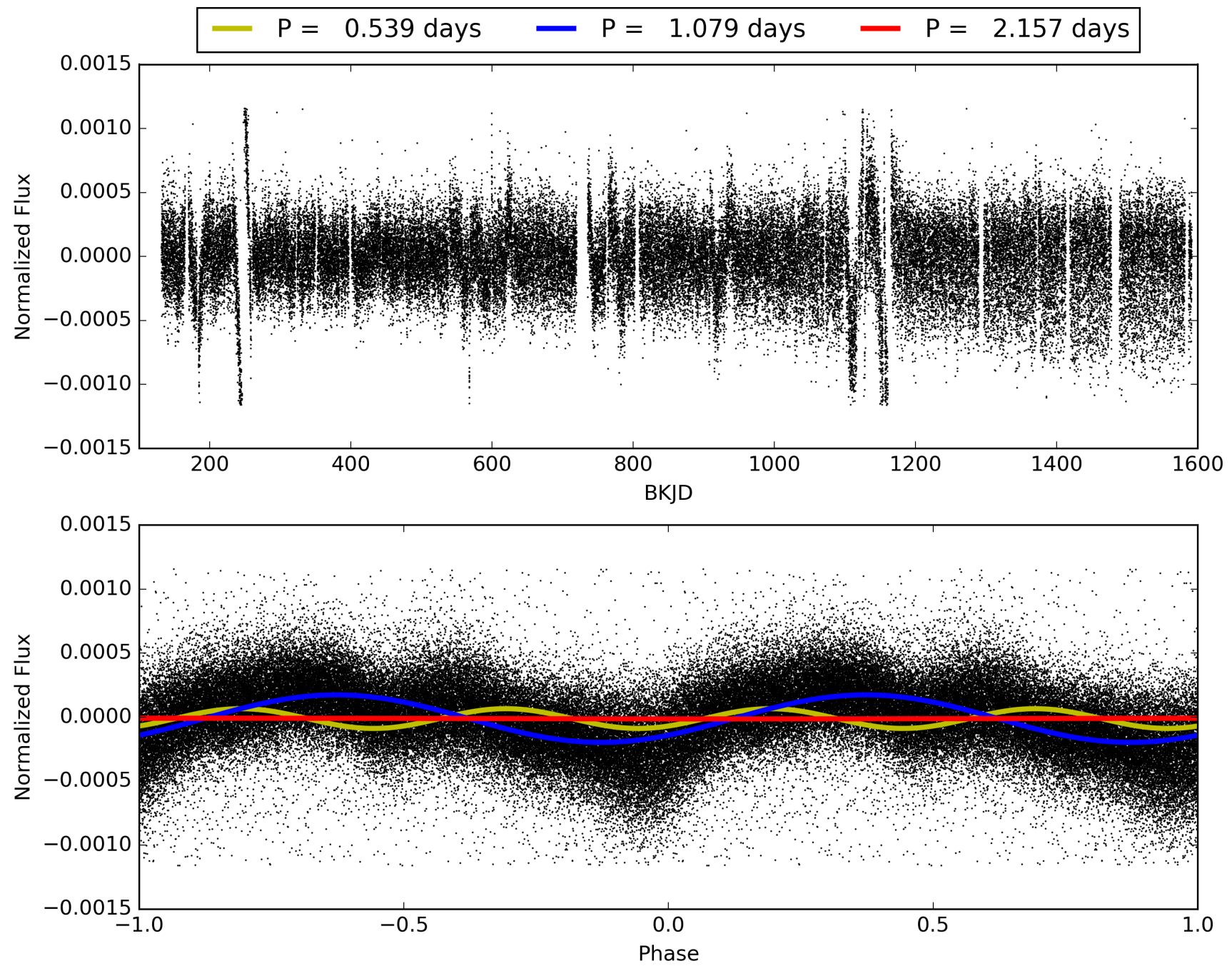
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [315.40σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.04e-20
RollingBand-fgt: 1.00 [1190/1190]
GhostDiagnostic-chr: 0.5116
Centroid-sig: N/A
Centroid-so: 0.362 arcsec [0.29σ]
OotOffset-rm: 0.051 arcsec [0.31σ]
KicOffset-rm: 0.081 arcsec [0.49σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.94 [16/17]

TCE 001293031-02, PDC Light Curves

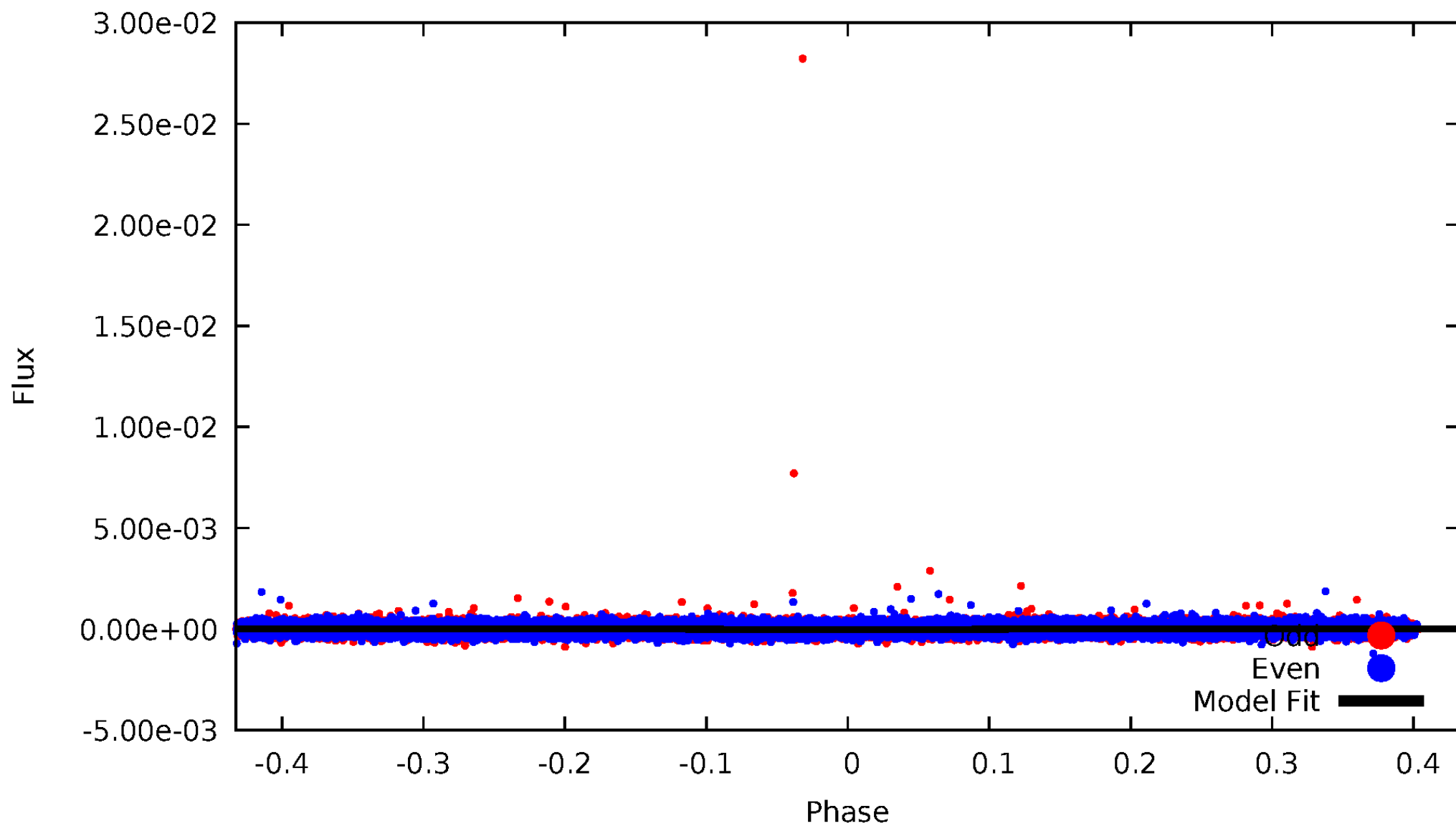


TCE 001293031-02



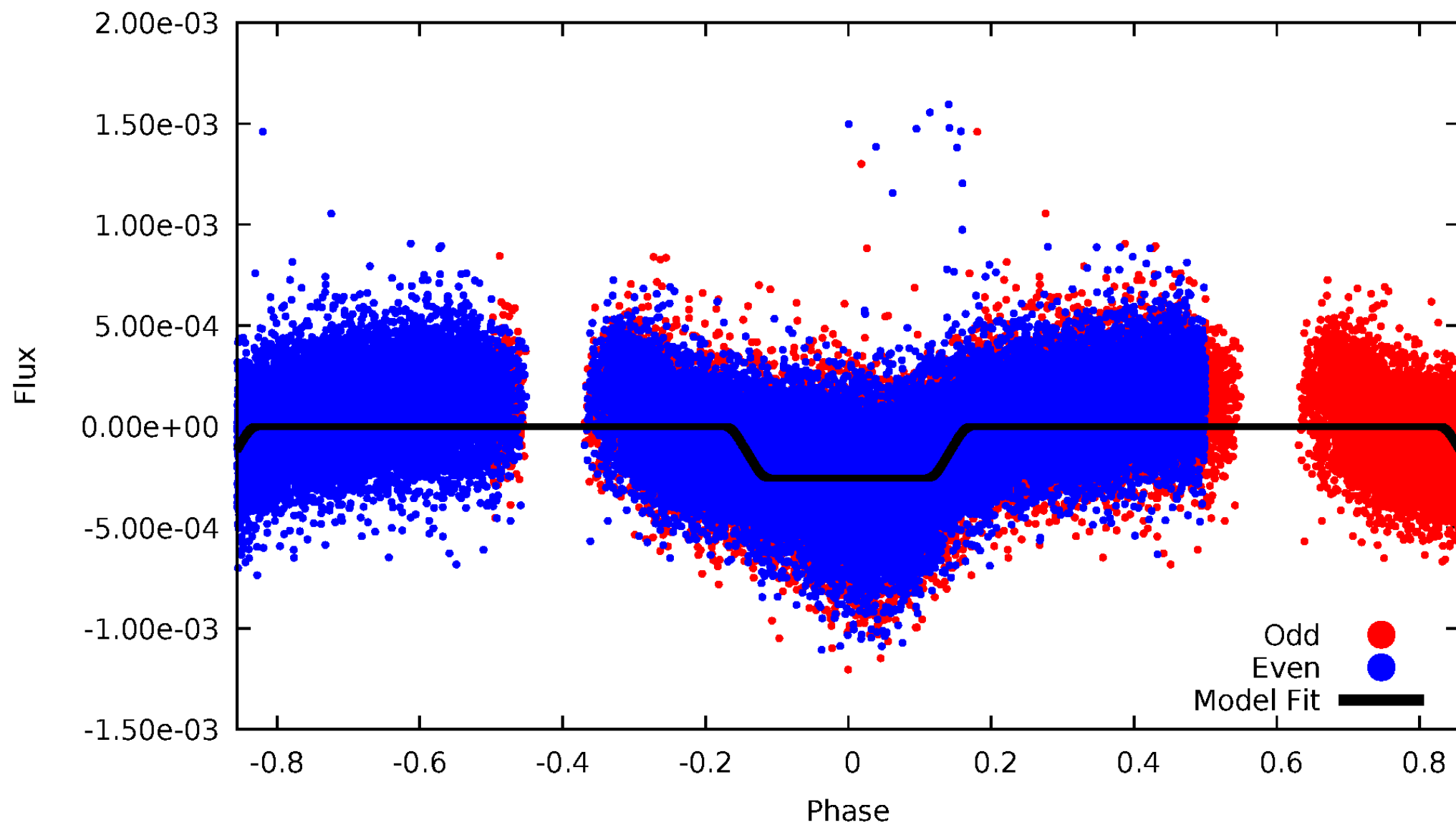
DV Odd/Even

TCE 001293031-02



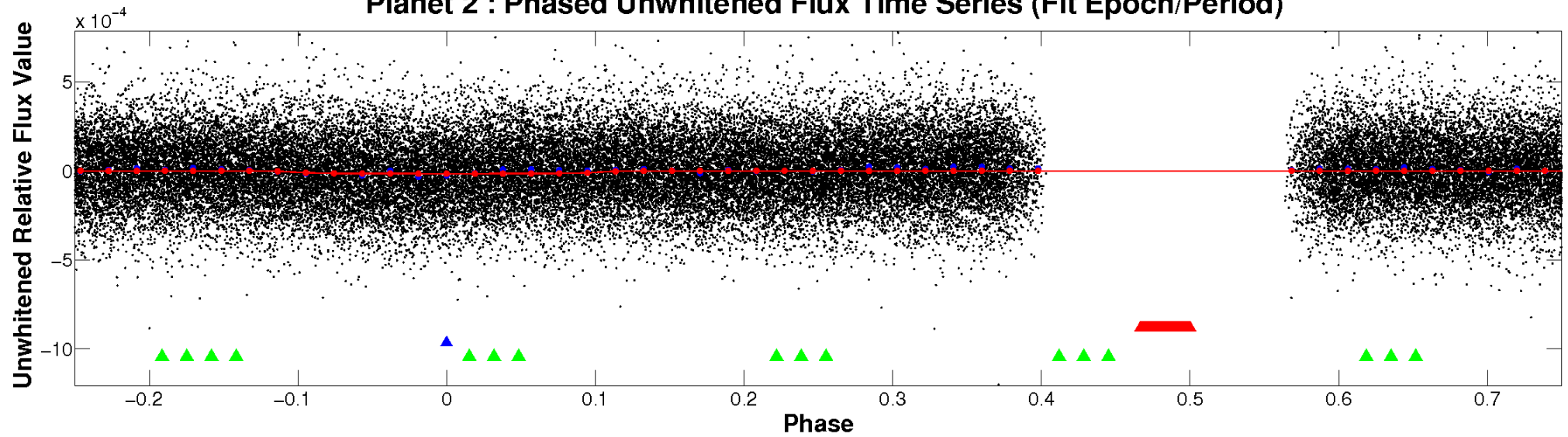
ALT Odd/Even

TCE 001293031-02

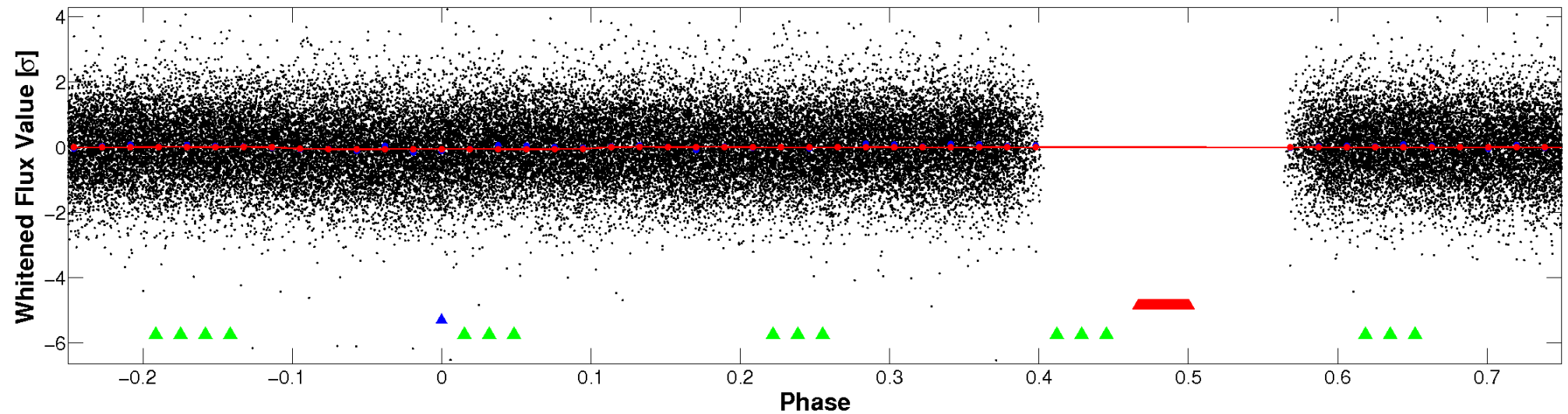


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

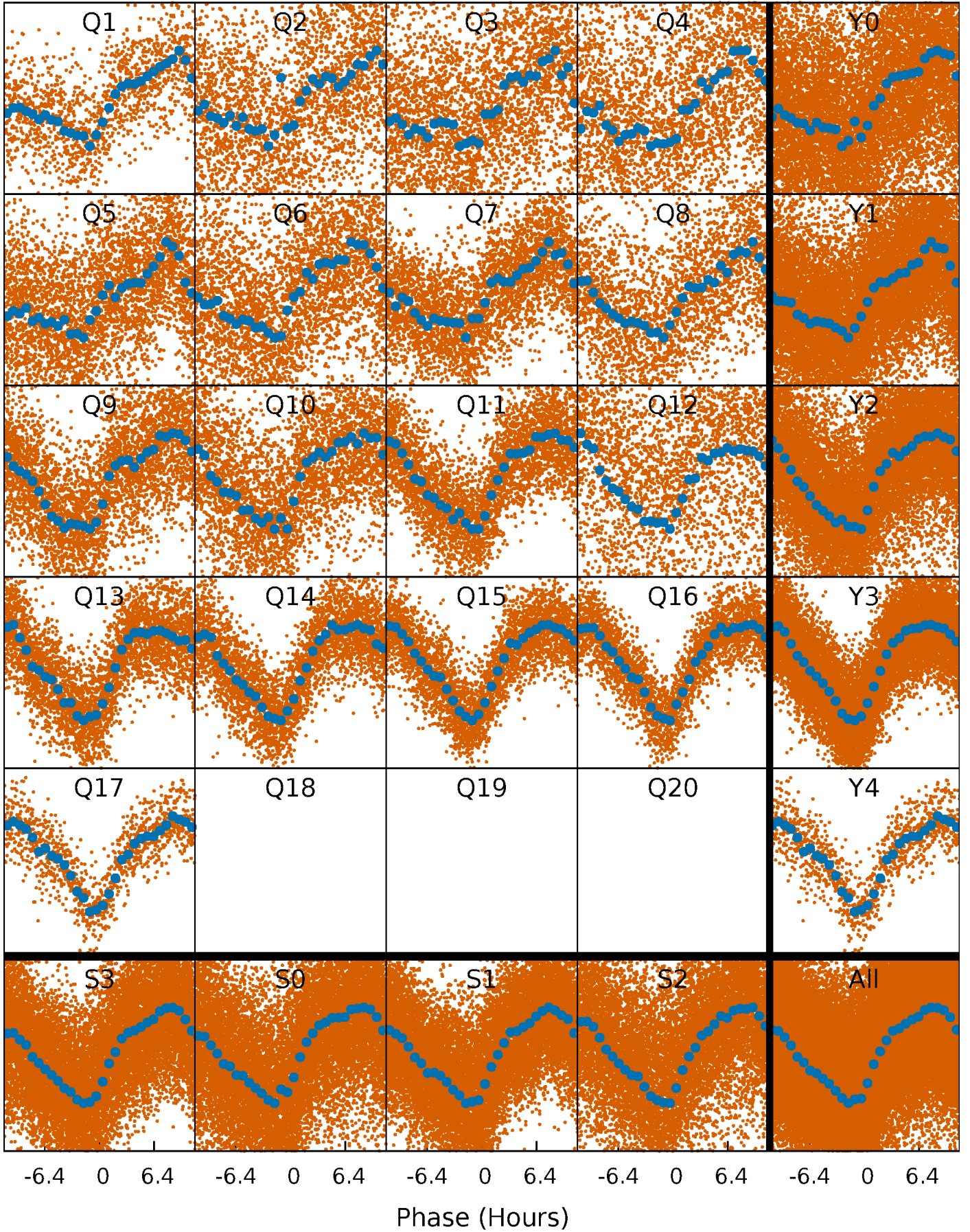


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



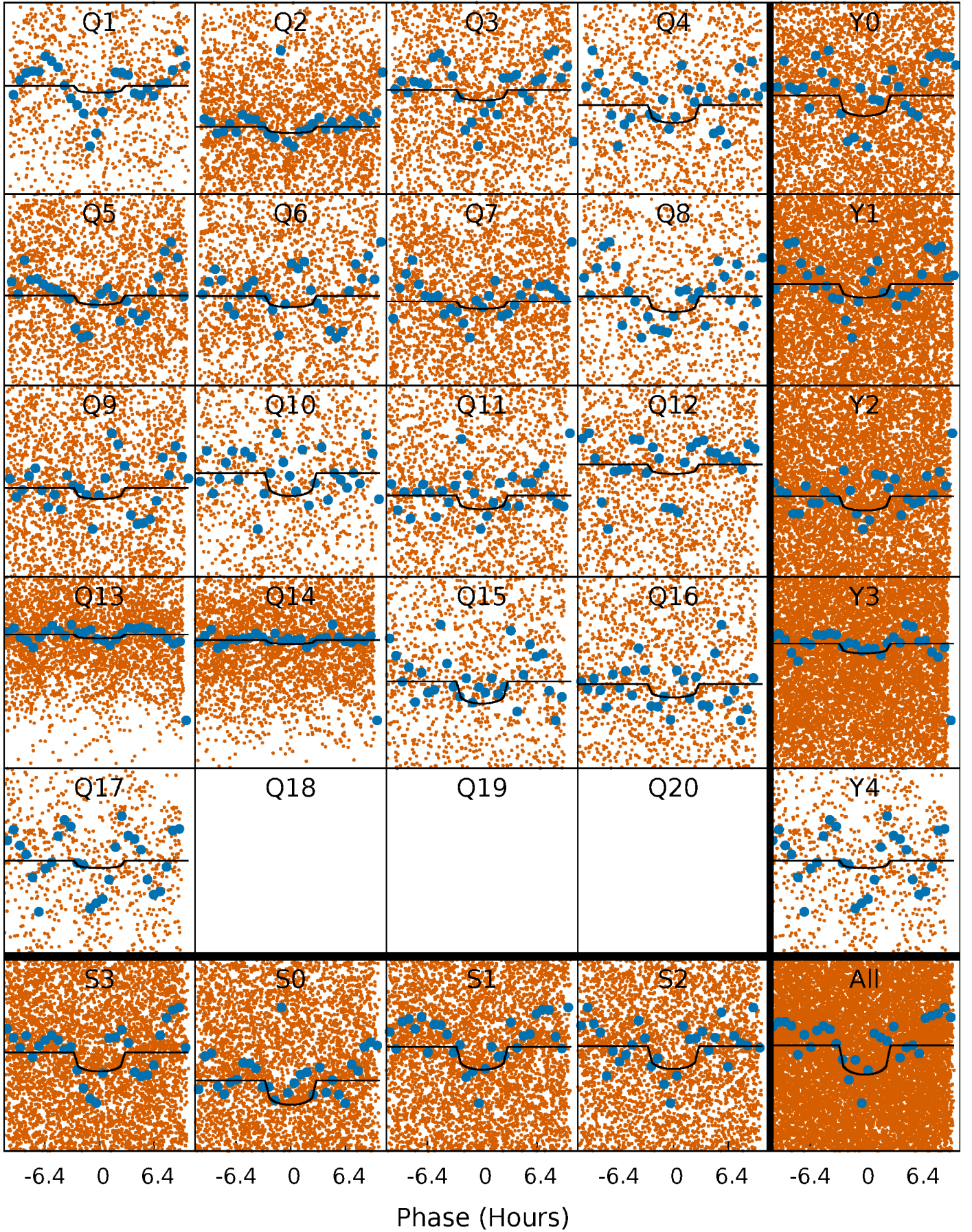
PDC Quarter-Phased Transit Curves

TCE 001293031-02 P= 1.078742 Days $T_0=132.012169$ (BKJD)



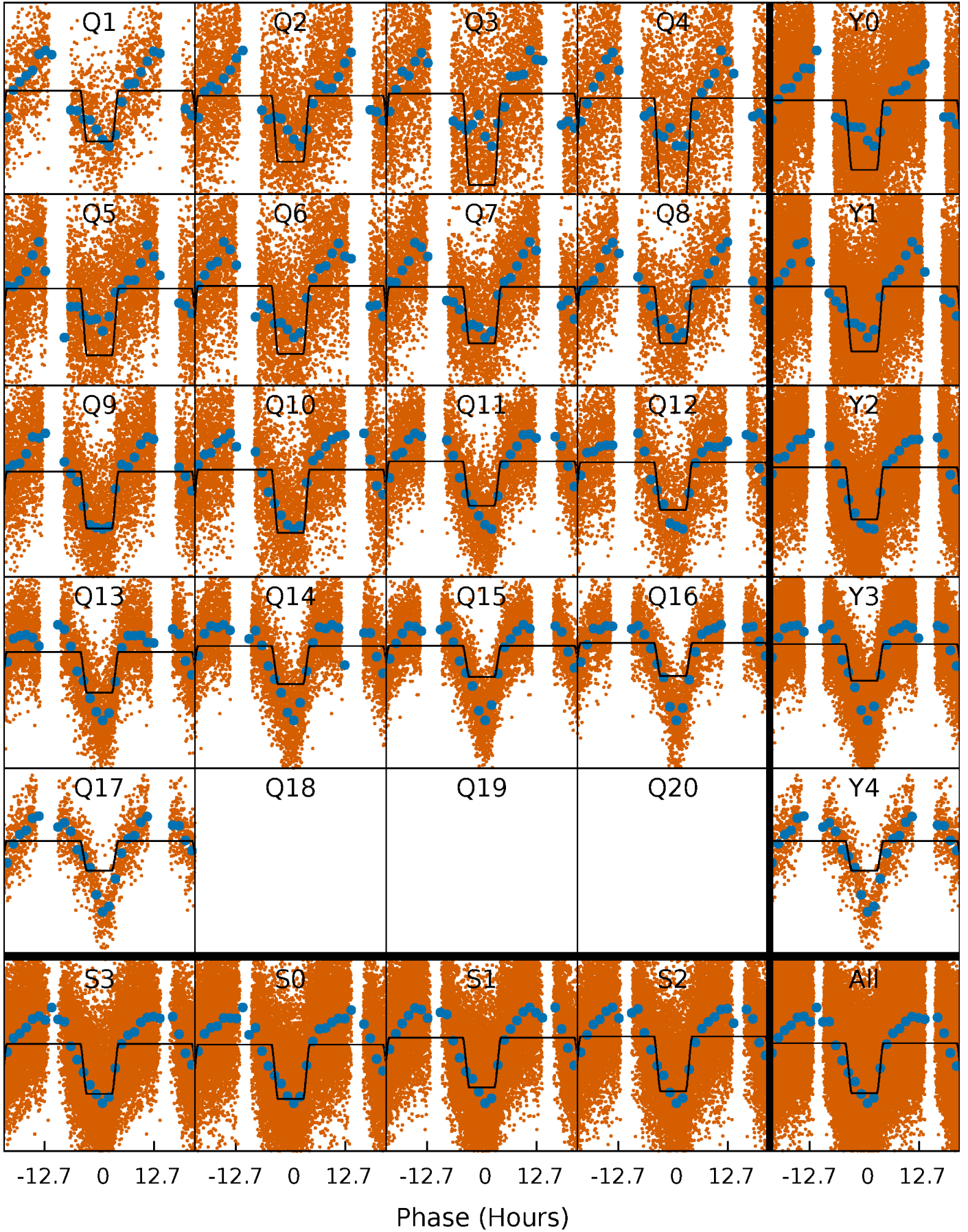
DV Quarter-Phased Transit Curves

TCE 001293031-02 P= 1.078742 Days $T_0=132.012169$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

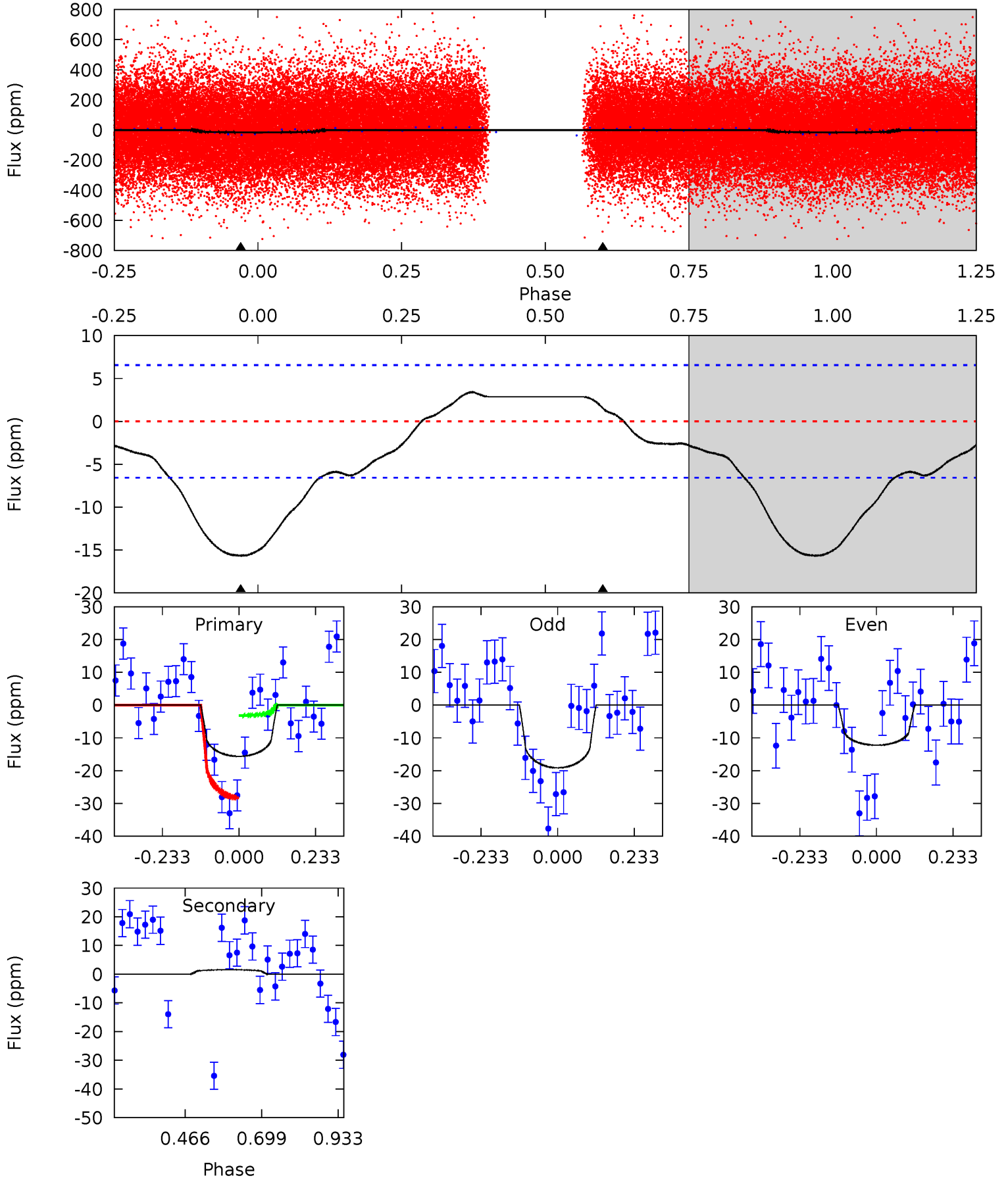
TCE 001293031-02 P= 1.078807 Days $T_0=131.853919$ (BKJD)



DV Model-Shift Uniqueness Test

001293031-02, P = 1.078742 Days, E = 130.933427 Days

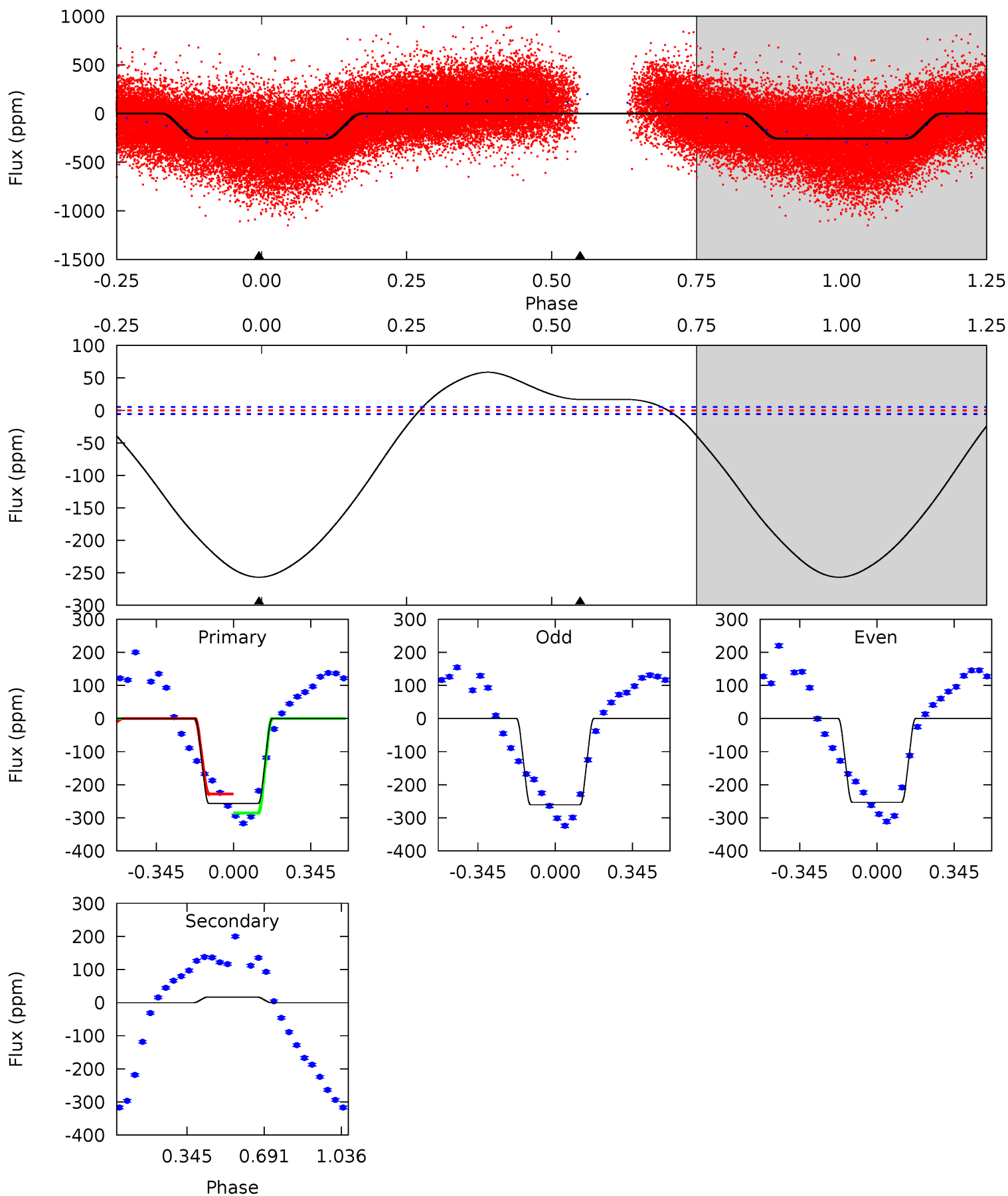
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	-1.04	0	0	4.38	1.19	1.65	10.5	10.5	-1.04	-1.04	2.31	0.62	0.18	8.35



Alt Model-Shift Uniqueness Test

001293031-02, P = 1.078807 Days, E = 130.775112 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
200.9	-13.2	0	0	4.30	0.94	18.4	200.9	200.9	-13.2	-13.2	2.78	1.06	0.19	23.1



Stellar Parameters For KIC 001293031

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6341^{+195}_{-195}	$3.301^{+0.396}_{-0.066}$	$-0.100^{+0.350}_{-0.300}$	$5.302^{+0.253}_{-2.276}$	$2.050^{+0.110}_{-0.411}$	$0.019^{+0.062}_{-0.003}$
	+3%/-3%	+12%/-2%	+350%/-300%	+5%/-43%	+5%/-20%	+319%/-16%
Source	PHO1	FLK73	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 001293031-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	2 ± 1	$2.56^{+2.27}_{-1.72}$	5471^{+255}_{-536}	-4860^{+365}_{-1038}	$-0.068^{+0.062}_{-0.648}$
Alt.	17 ± 1	$8.64^{+2.81}_{-2.84}$	5486^{+239}_{-576}	-4883^{+302}_{-248}	$-0.084^{+0.035}_{-0.105}$

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 $A_{obs} \gg 1.0$

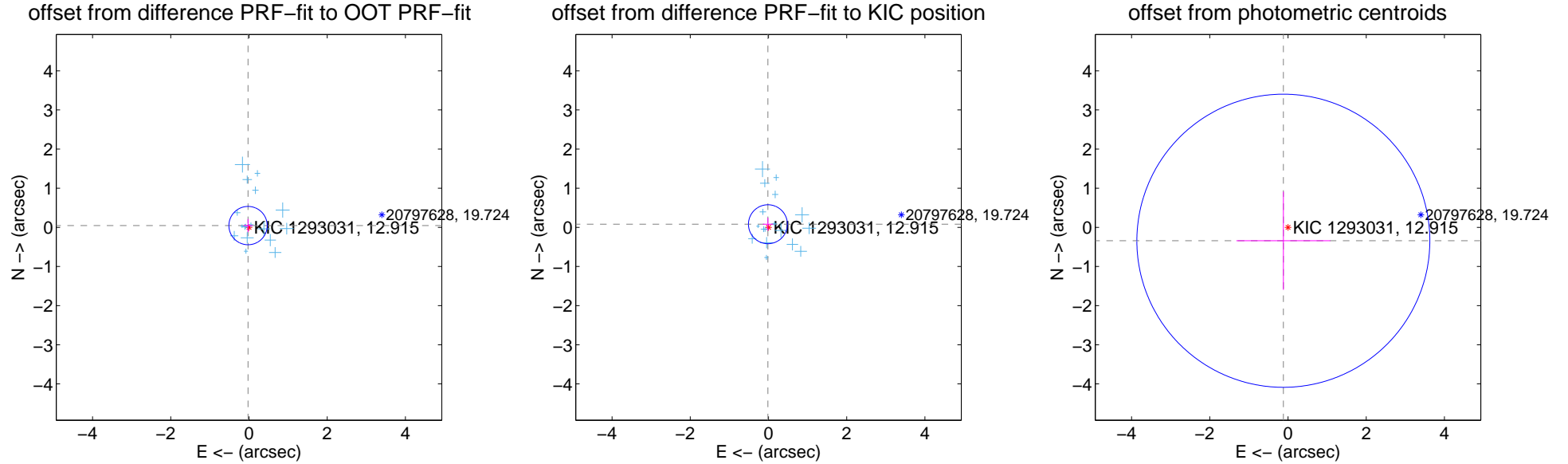
DV Centroid Data

Supplemental centroid analysis for 001293031-02. Kepler magnitude: 12.91. Transit SNR 7.02

There are 17 quarters with good PRF difference image offsets

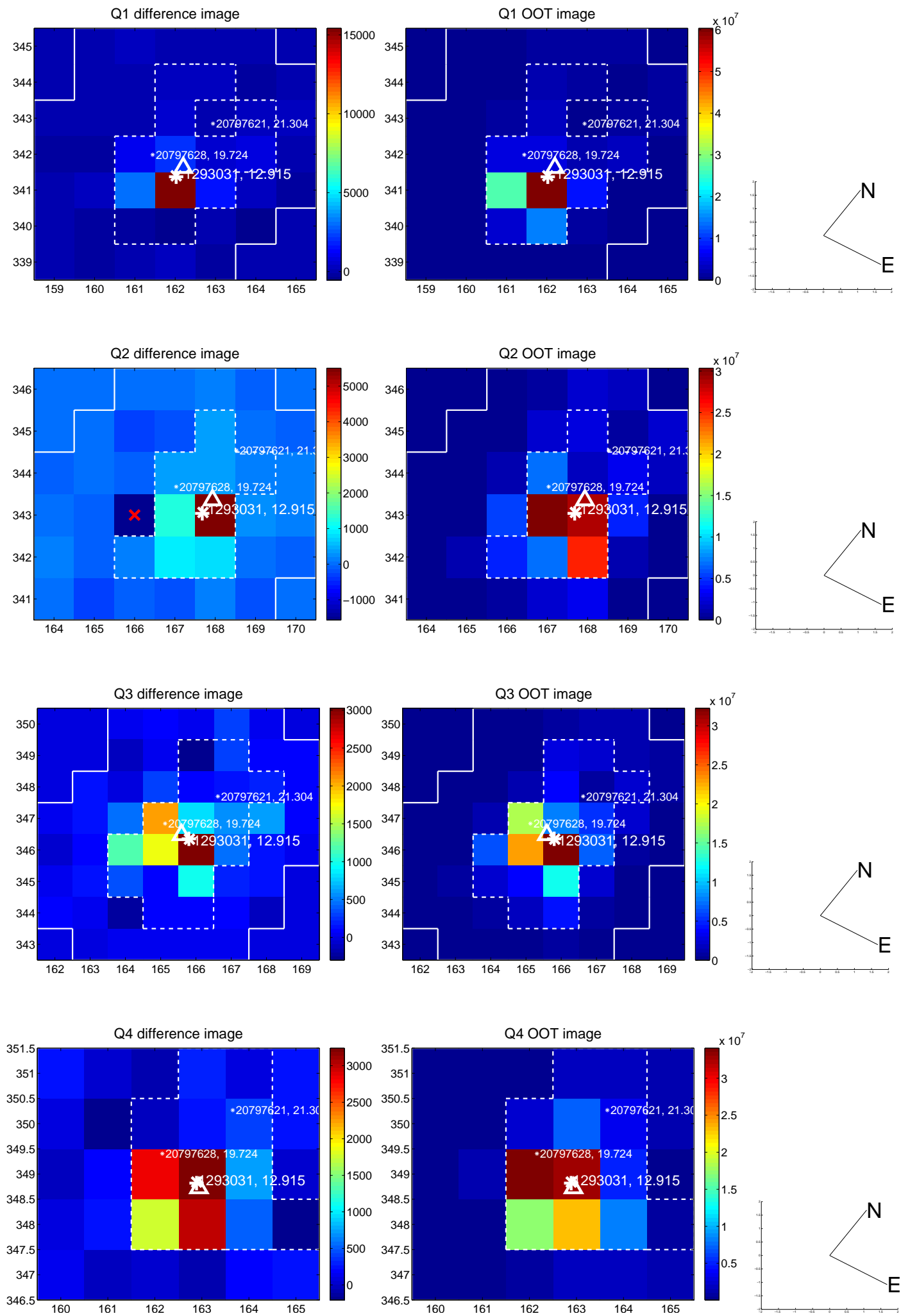
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.051 ± 0.163	0.31	0.024 ± 0.114	0.045 ± 0.167
PRF-fit source offset from KIC position	0.081 ± 0.166	0.49	0.014 ± 0.130	0.080 ± 0.165
photometric centroid source offset	0.36 ± 1.25	0.29	0.12 ± 1.20	-0.34 ± 1.25

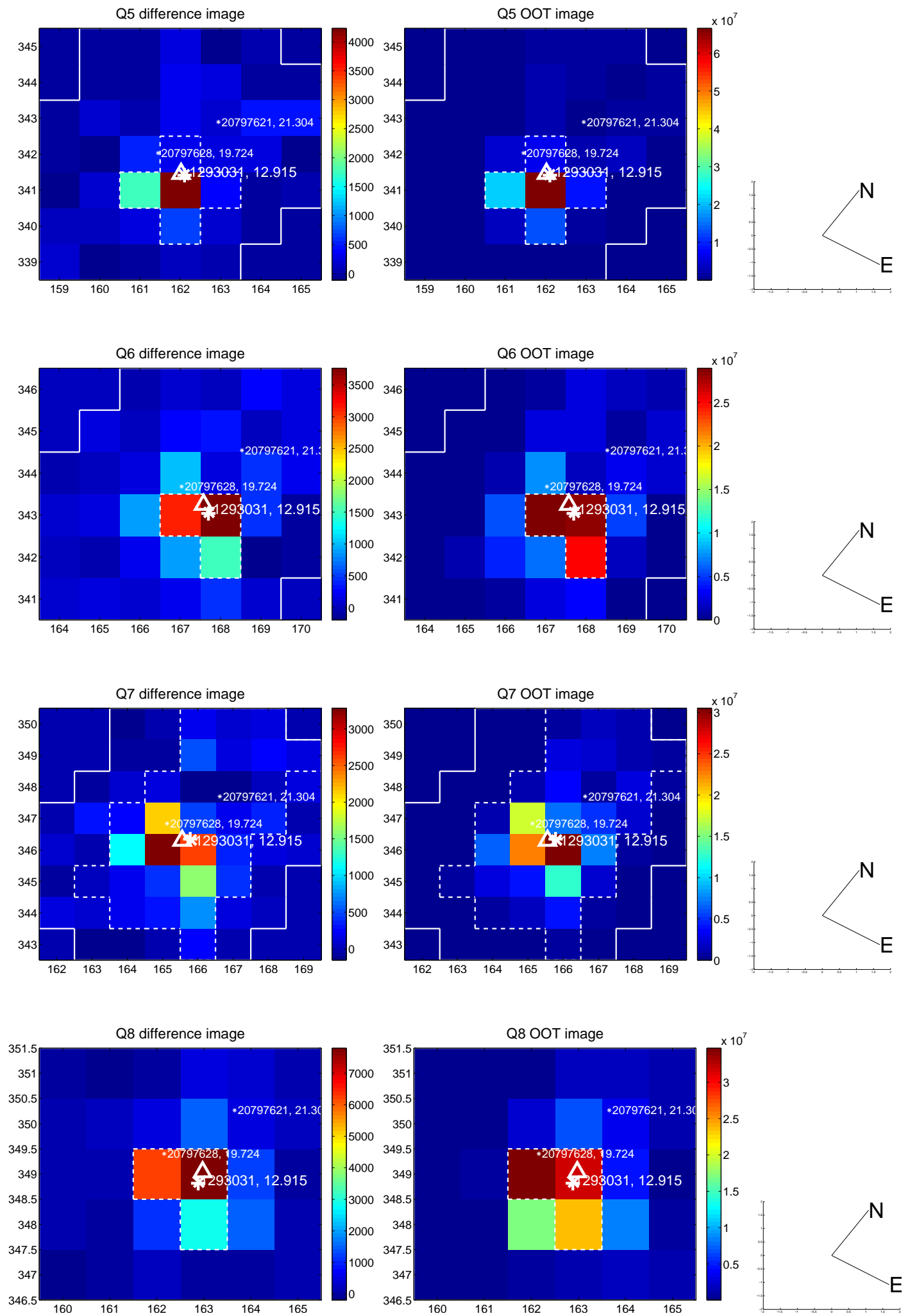


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

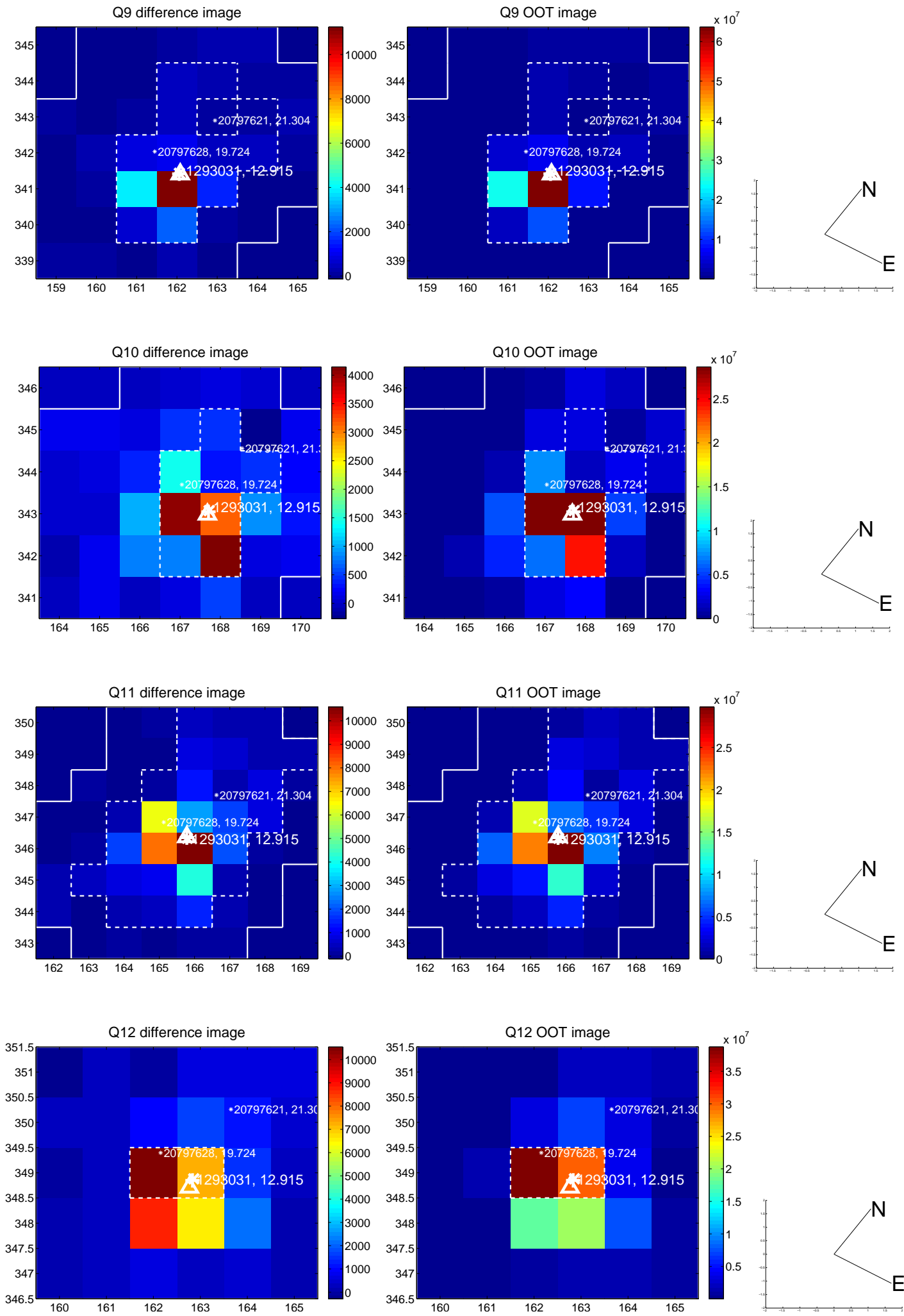
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



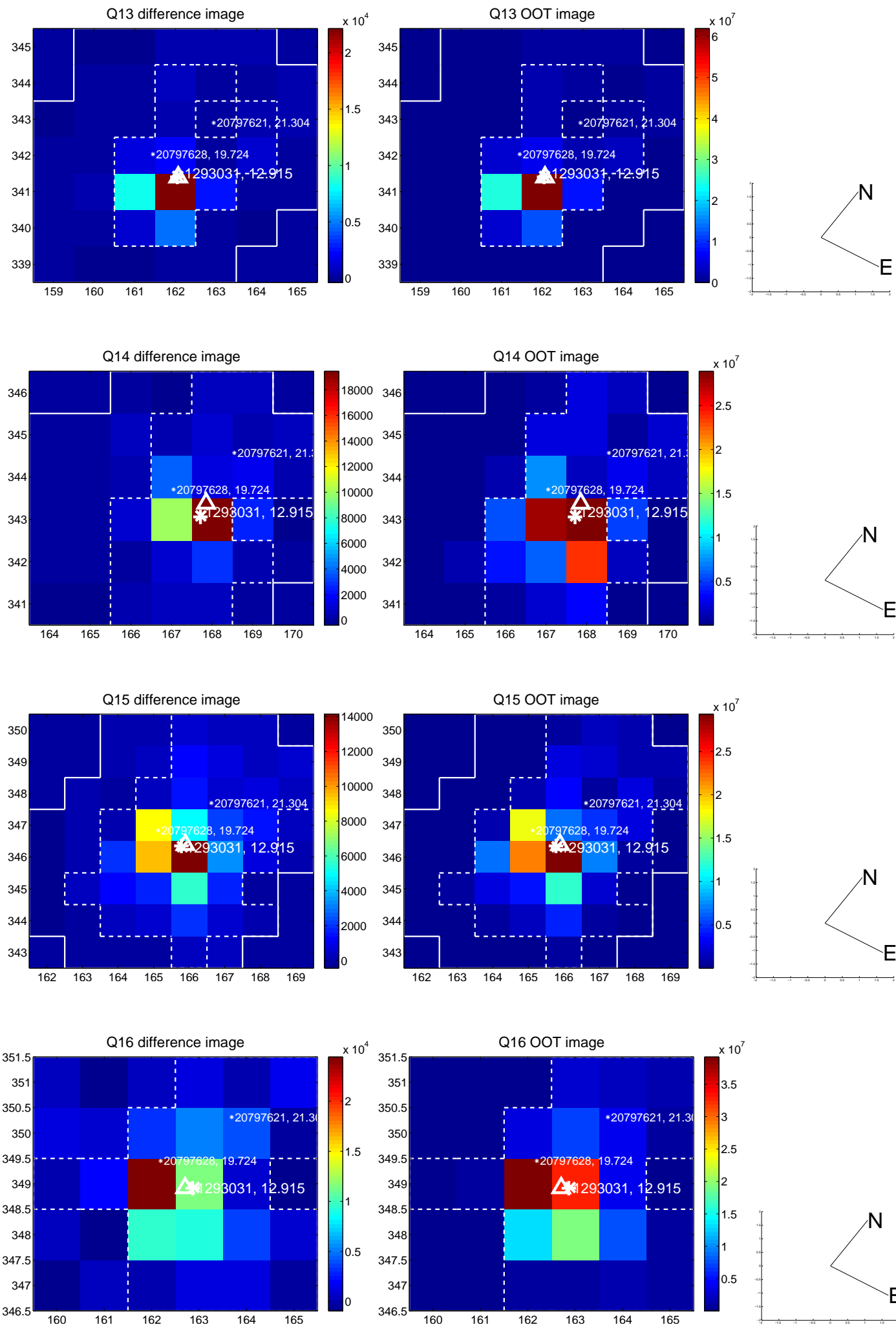
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



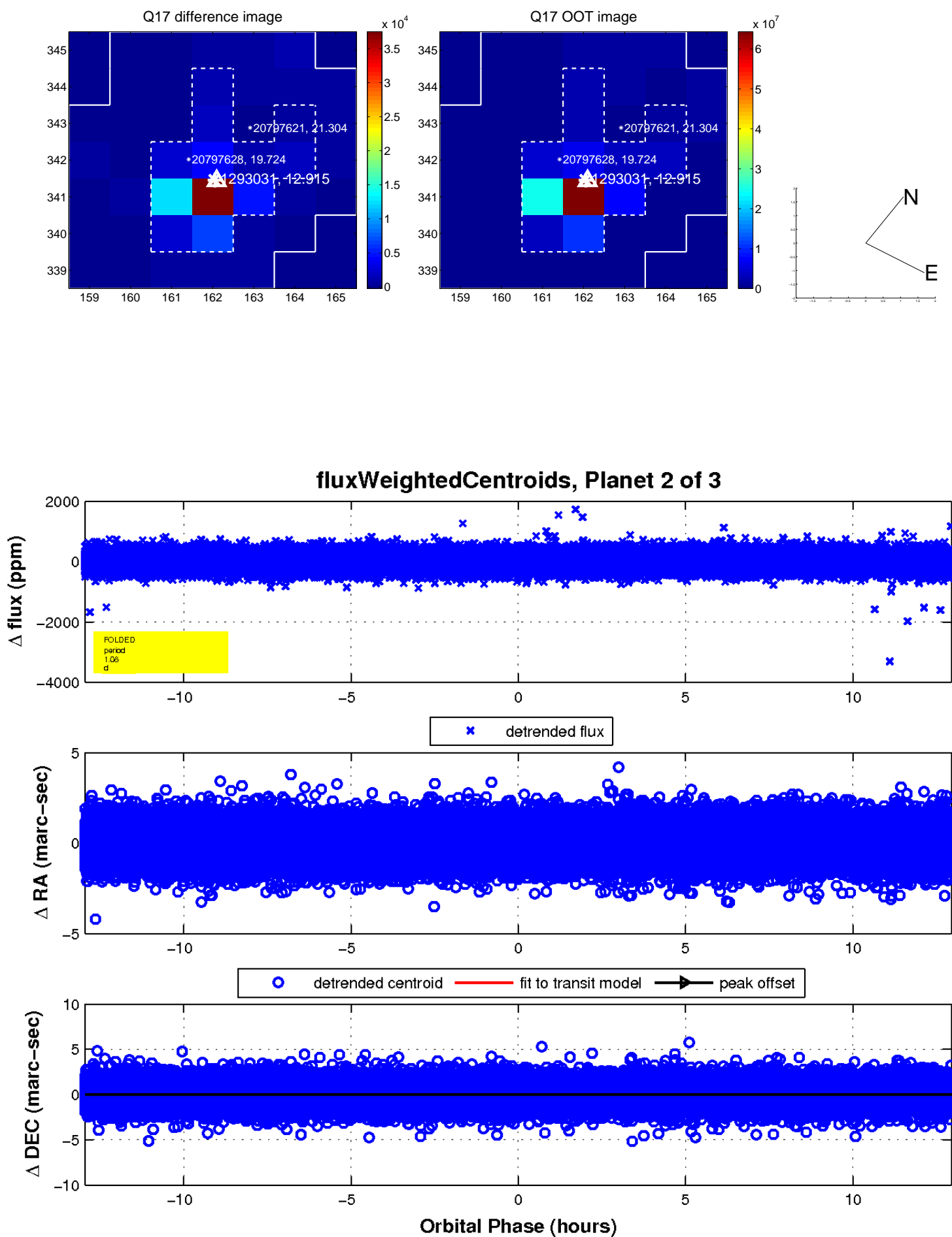
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

