

KIC 010978763

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})
010978763-01	OBS	1931.01	4.977616	134.672431	278.8	2.724	27.3	28.9	1.02	5353	2.06	259.32
010978763-02	OBS	1931.03	6.988098	132.563672	185.8	3.409	16.1	16.8	1.02	5353	1.69	164.96
010978763-03	OBS	1931.02	10.558369	136.348381	192.5	3.526	12.9	14.1	1.02	5353	1.70	95.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010978763-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010978763-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT
010978763-03	OBS	PC	0.98	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

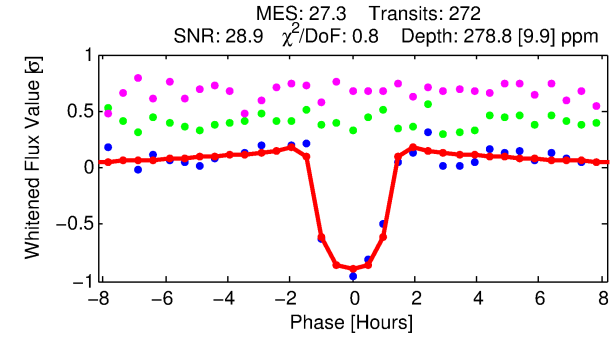
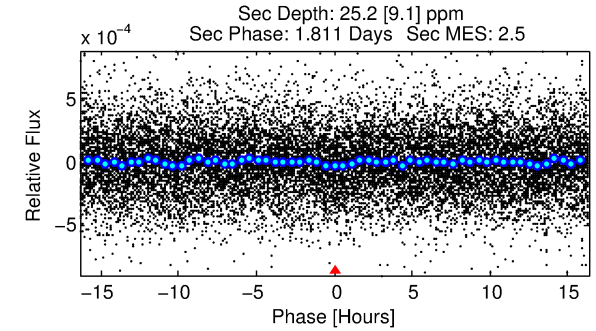
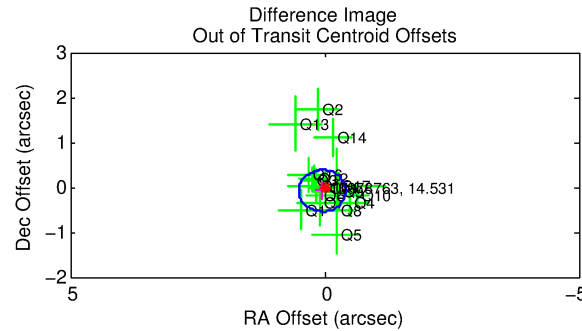
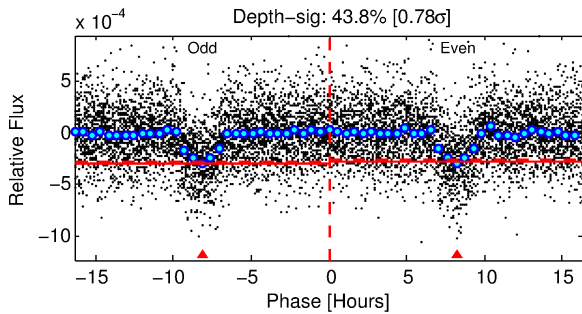
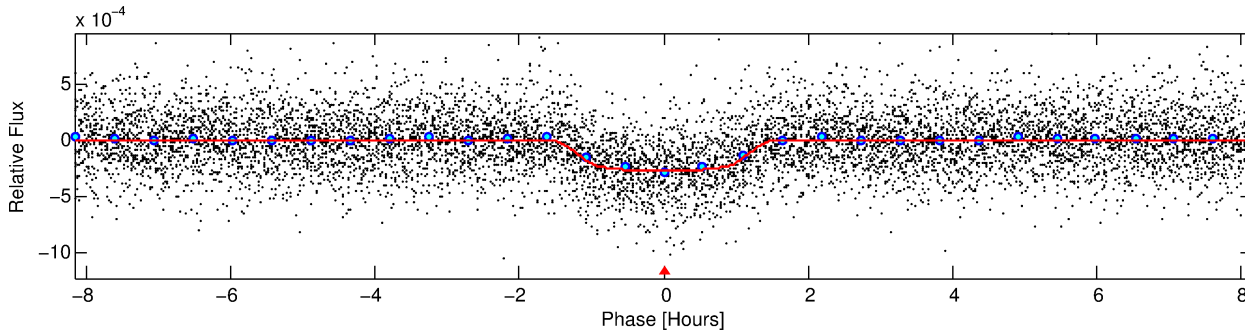
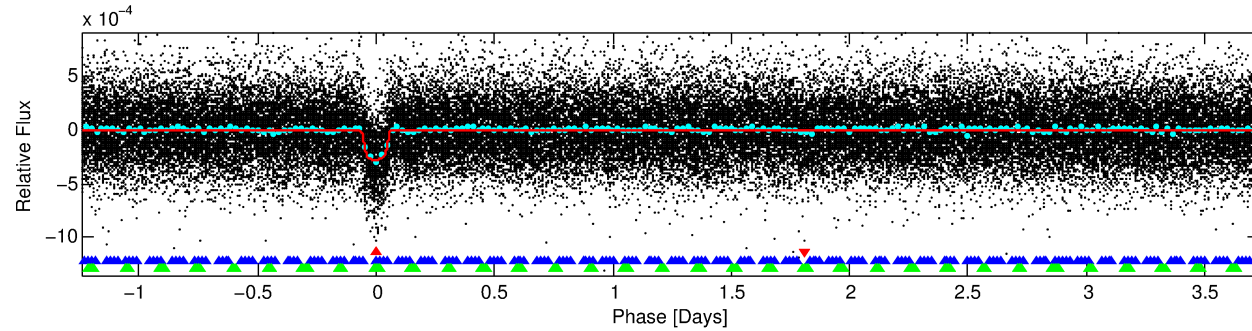
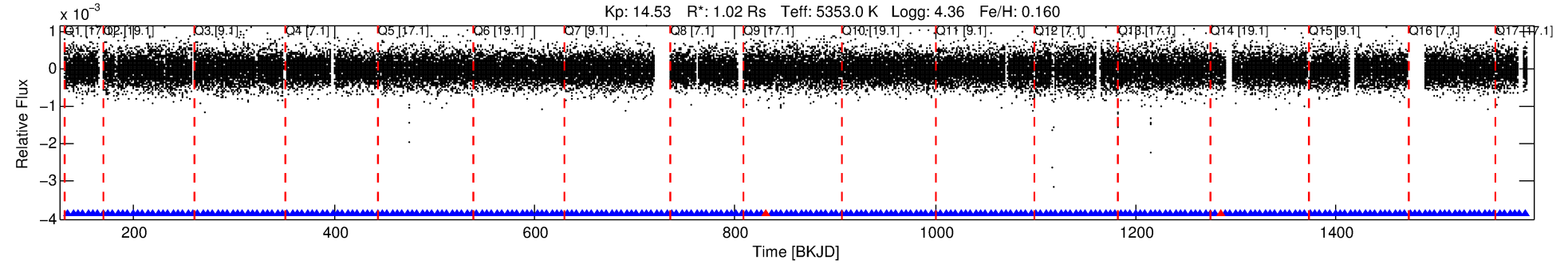
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010978763-01

No Significant Match Found

DV One-Page Summary

KIC: 10978763 Candidate: 1 of 3 Period: 4.978 d
KOI: K01931.01 Name: Kepler-339b Corr: 0.965



DV Fit Results:

Period = 4.97762 [0.00001] d
Epoch = 134.6724 [0.0014] BKJD
Rp/R* = 0.0185 [0.0032]
a/R* = 6.74 [4.80]
b = 0.90 [0.16]
Seff = 259.32 [61.50]
Teq = 1023 [61] K
Rp = 2.06 [0.46] Re
a = 0.0545 [0.0076] AU
Ag = 9.68 [5.32] [1.63 σ]
Teffp = 2791 [351] K [4.96 σ]

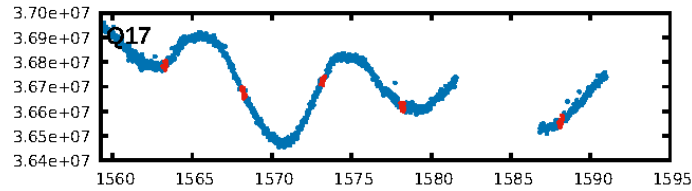
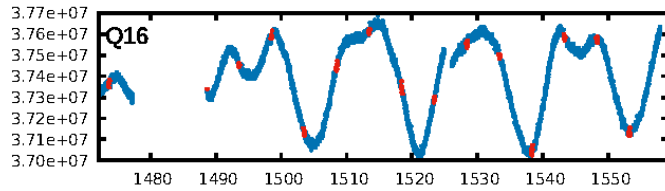
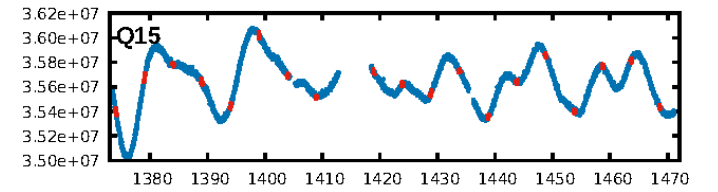
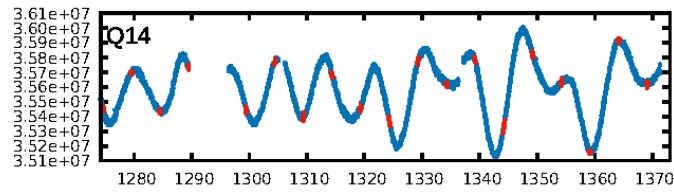
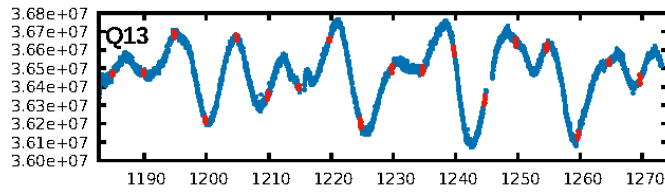
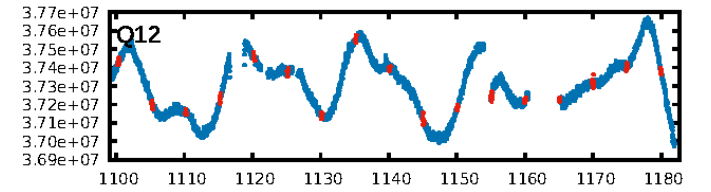
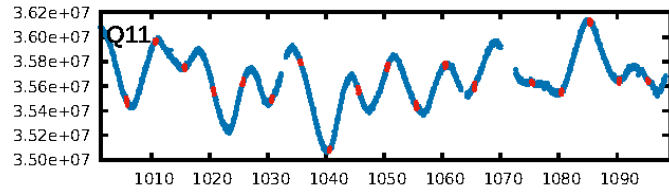
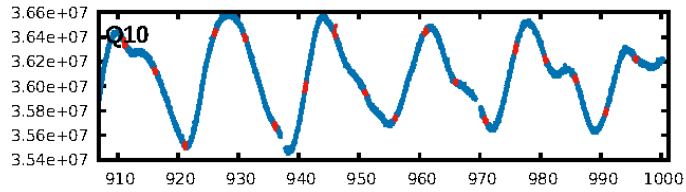
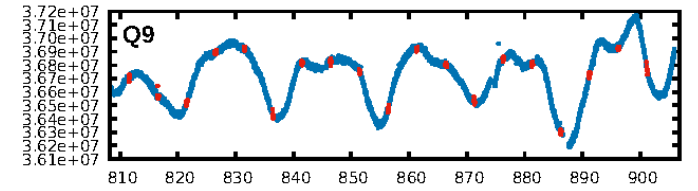
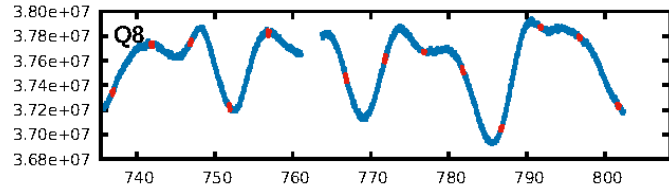
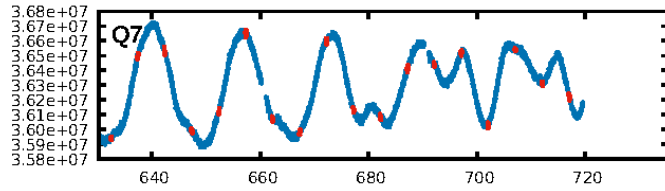
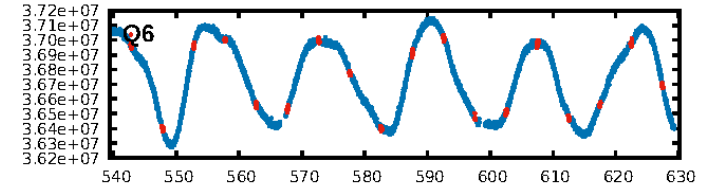
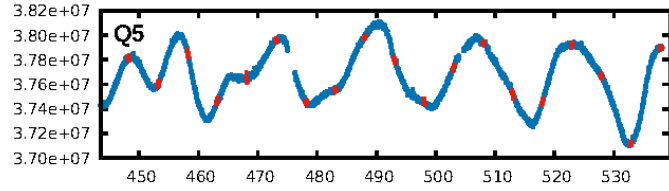
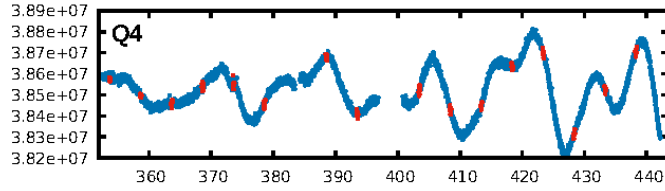
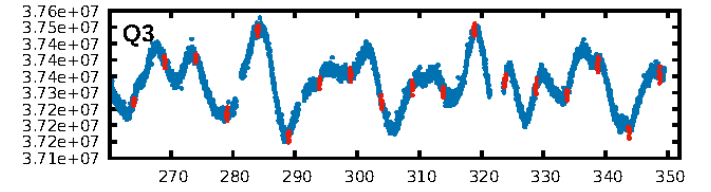
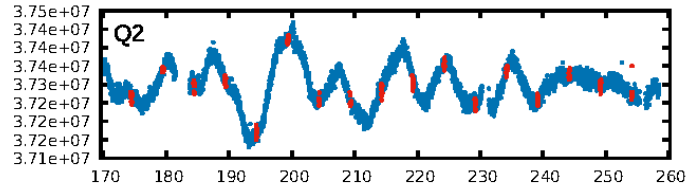
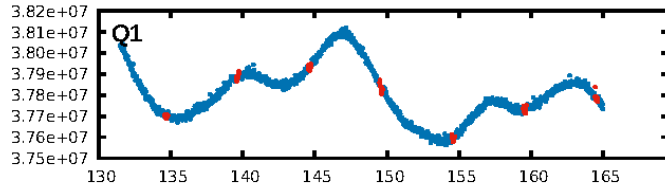
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.06 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.10e-157
RollingBand-fgt: 0.99 [258/260]
GhostDiagnostic-chr: 9.686
Centroid-sig: 4.2%
Centroid-so: 0.660 arcsec [1.93 σ]
OotOffset-rm: 0.097 arcsec [0.63 σ]
KicOffset-rm: 0.194 arcsec [1.19 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

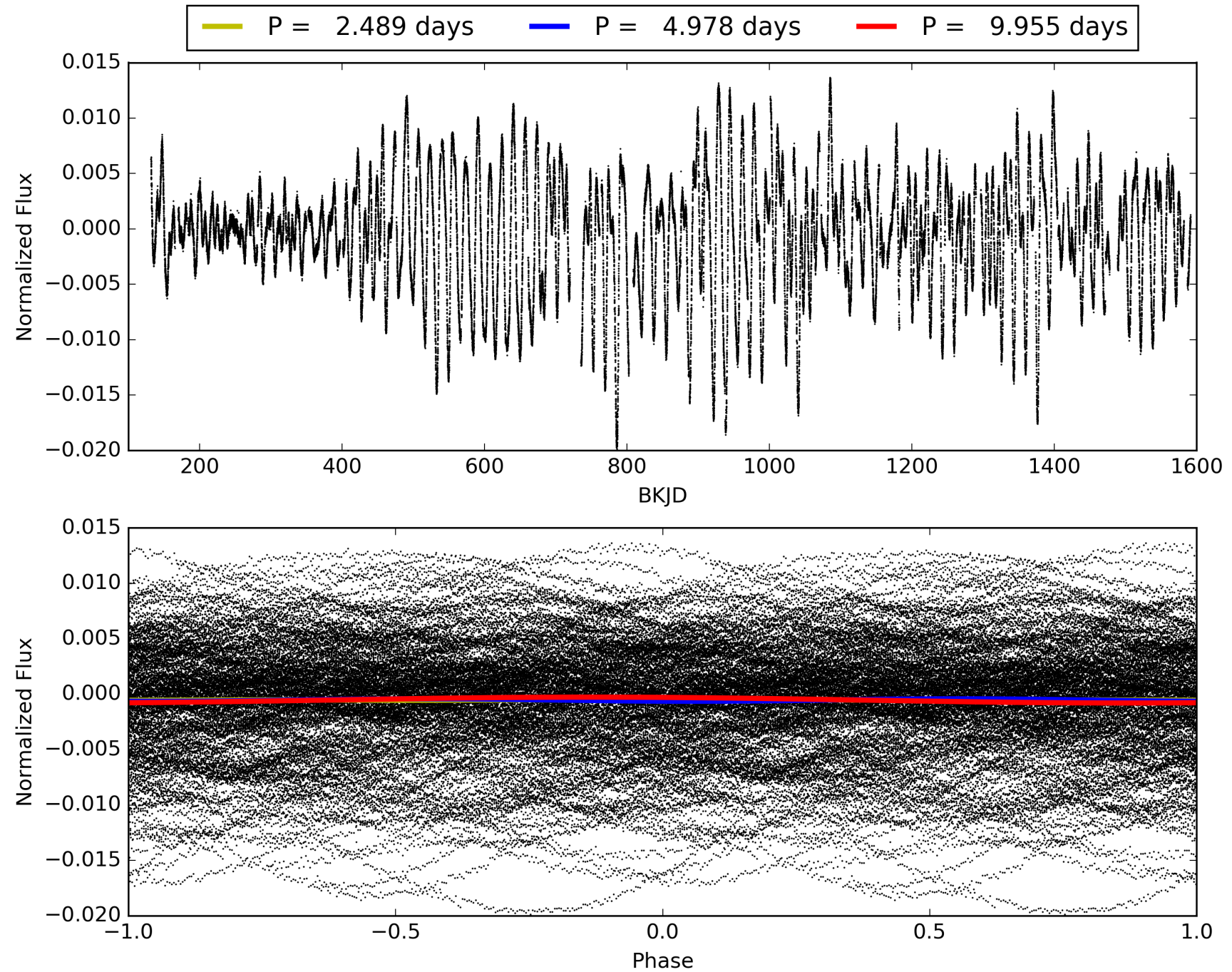
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:39:50 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010978763-01, PDC Light Curves

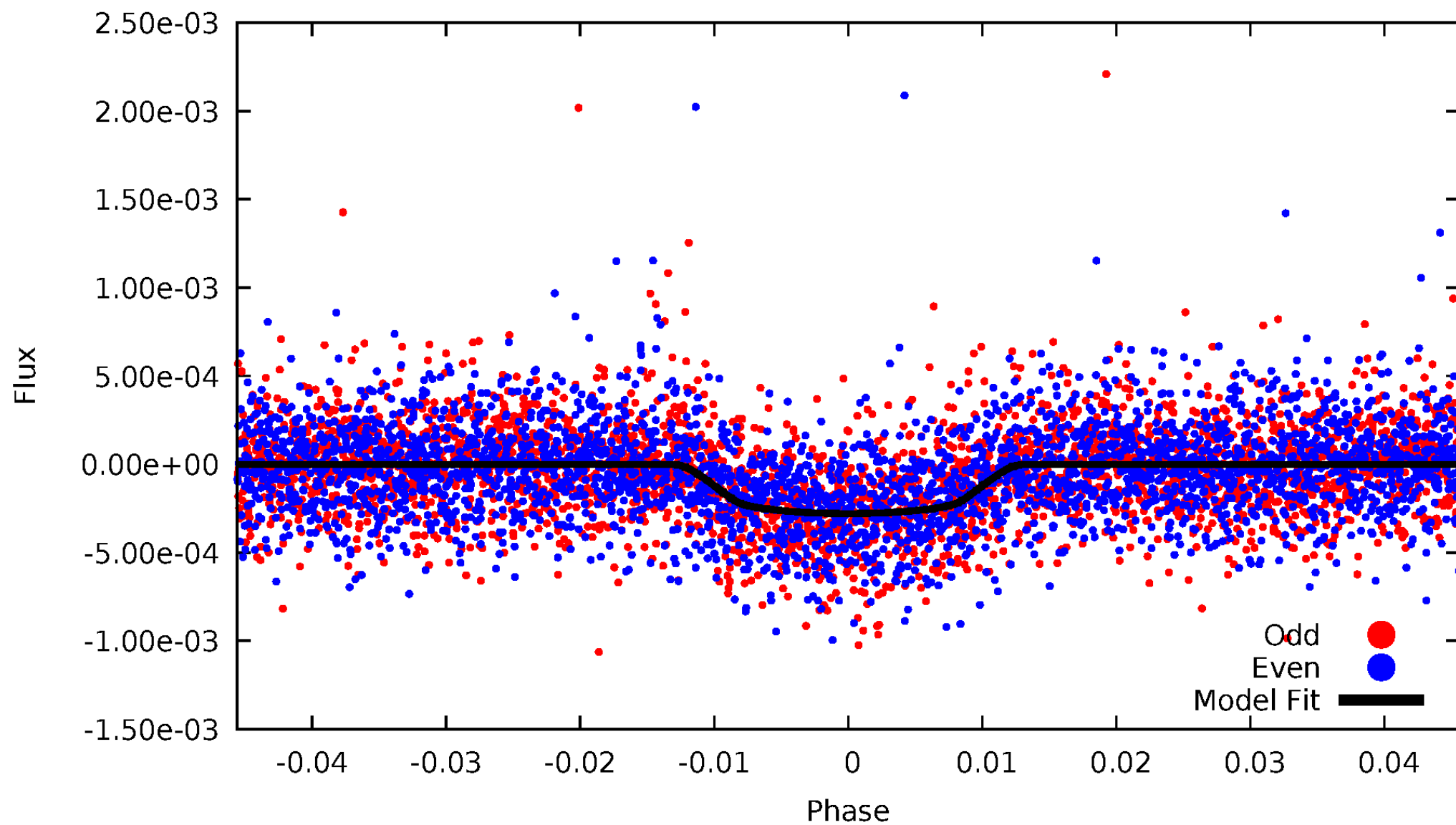


TCE 010978763-01



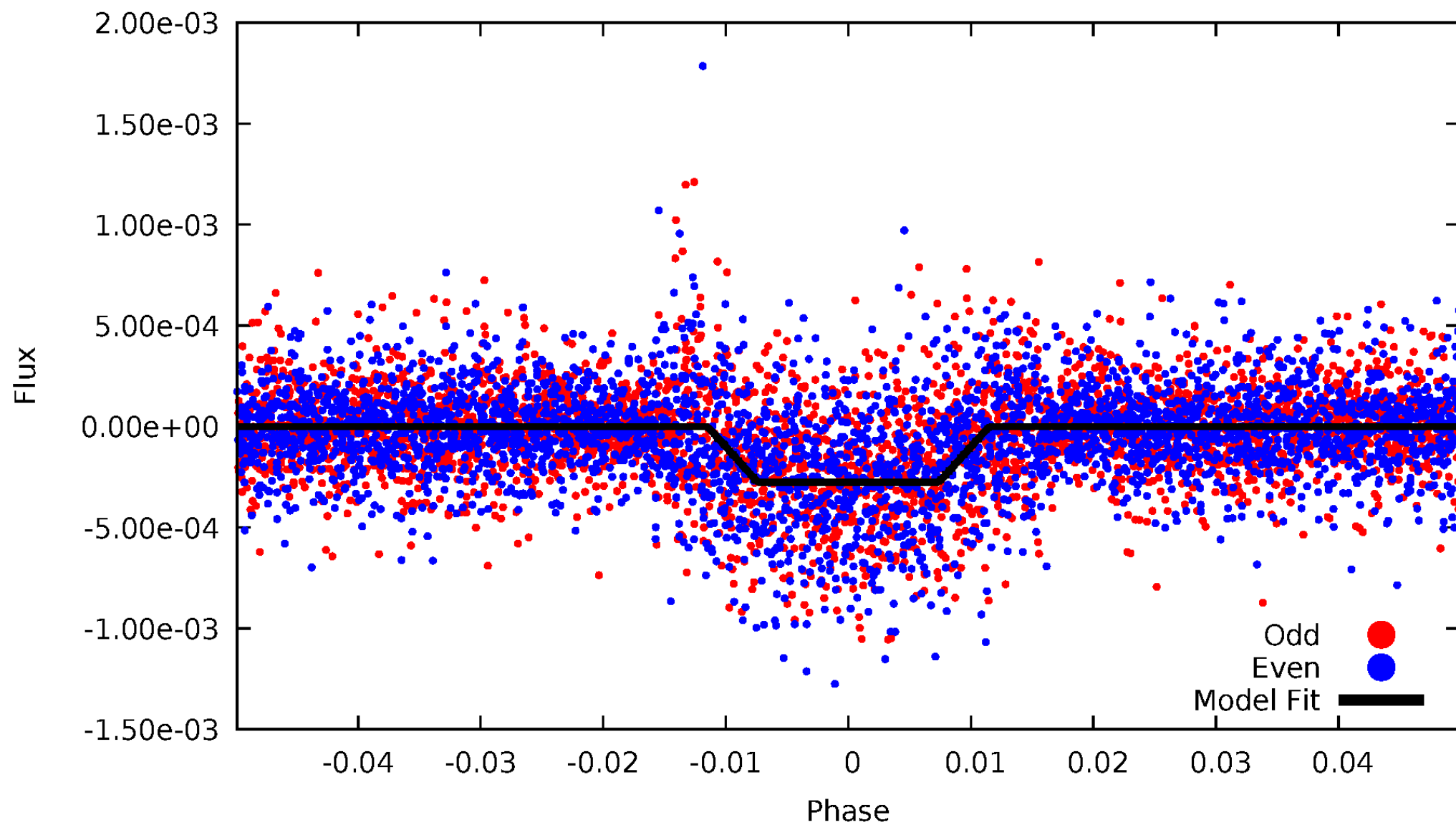
DV Odd/Even

TCE 010978763-01



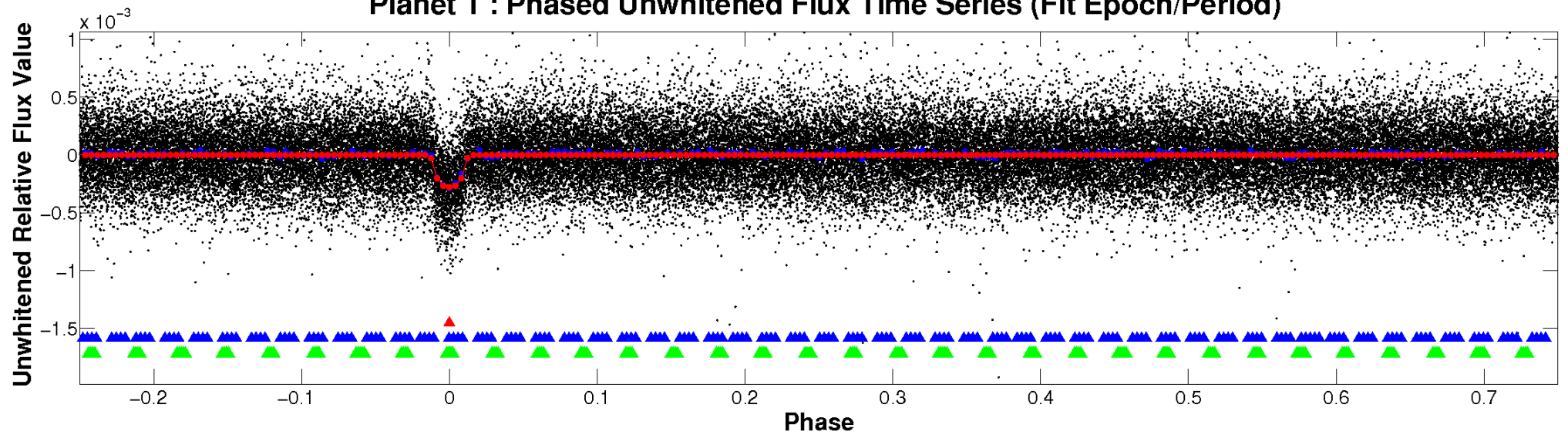
ALT Odd/Even

TCE 010978763-01

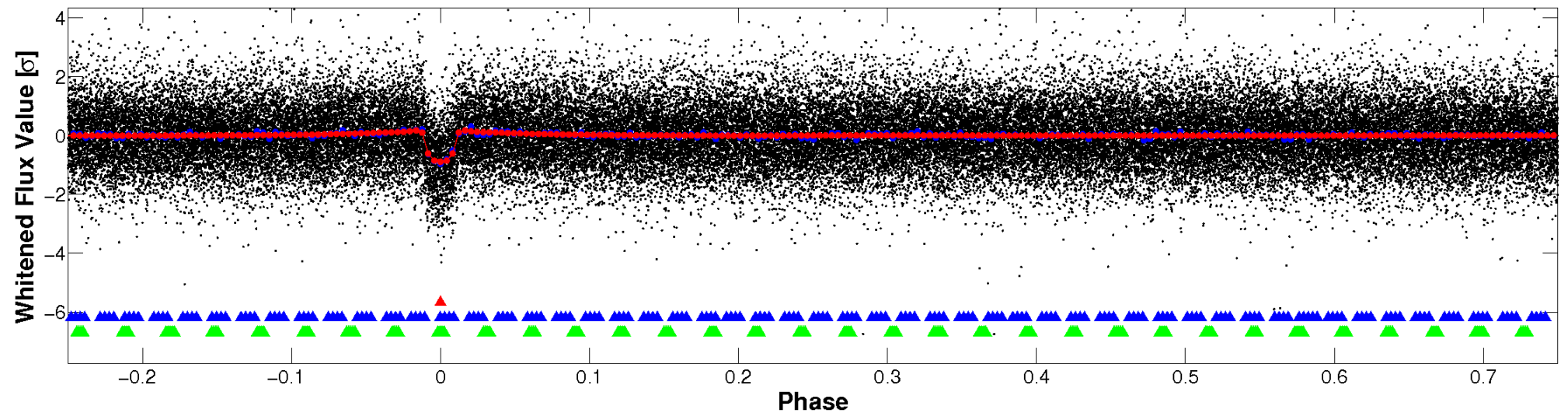


Non-Whitened Vs. Whitened Light Curve

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

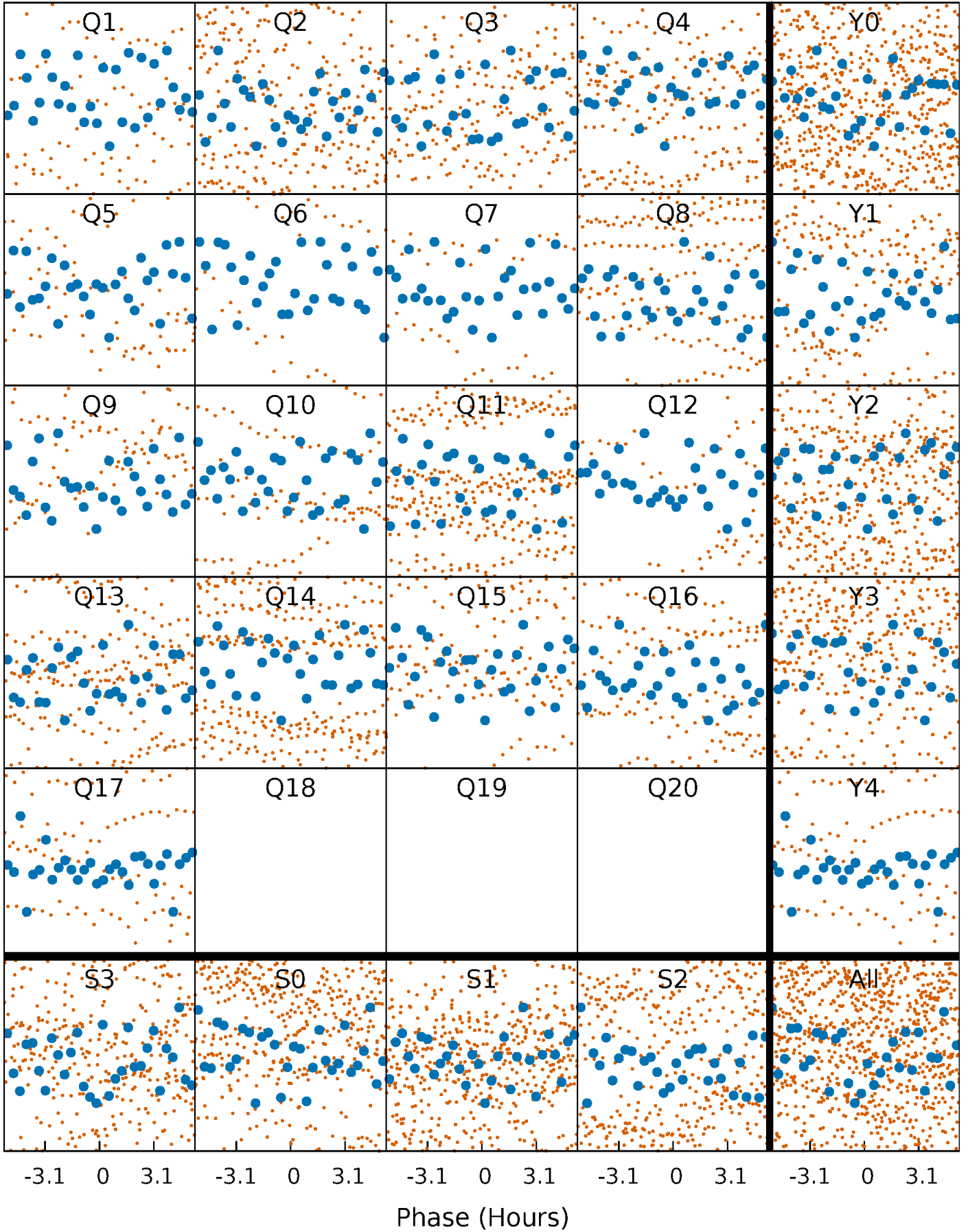


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



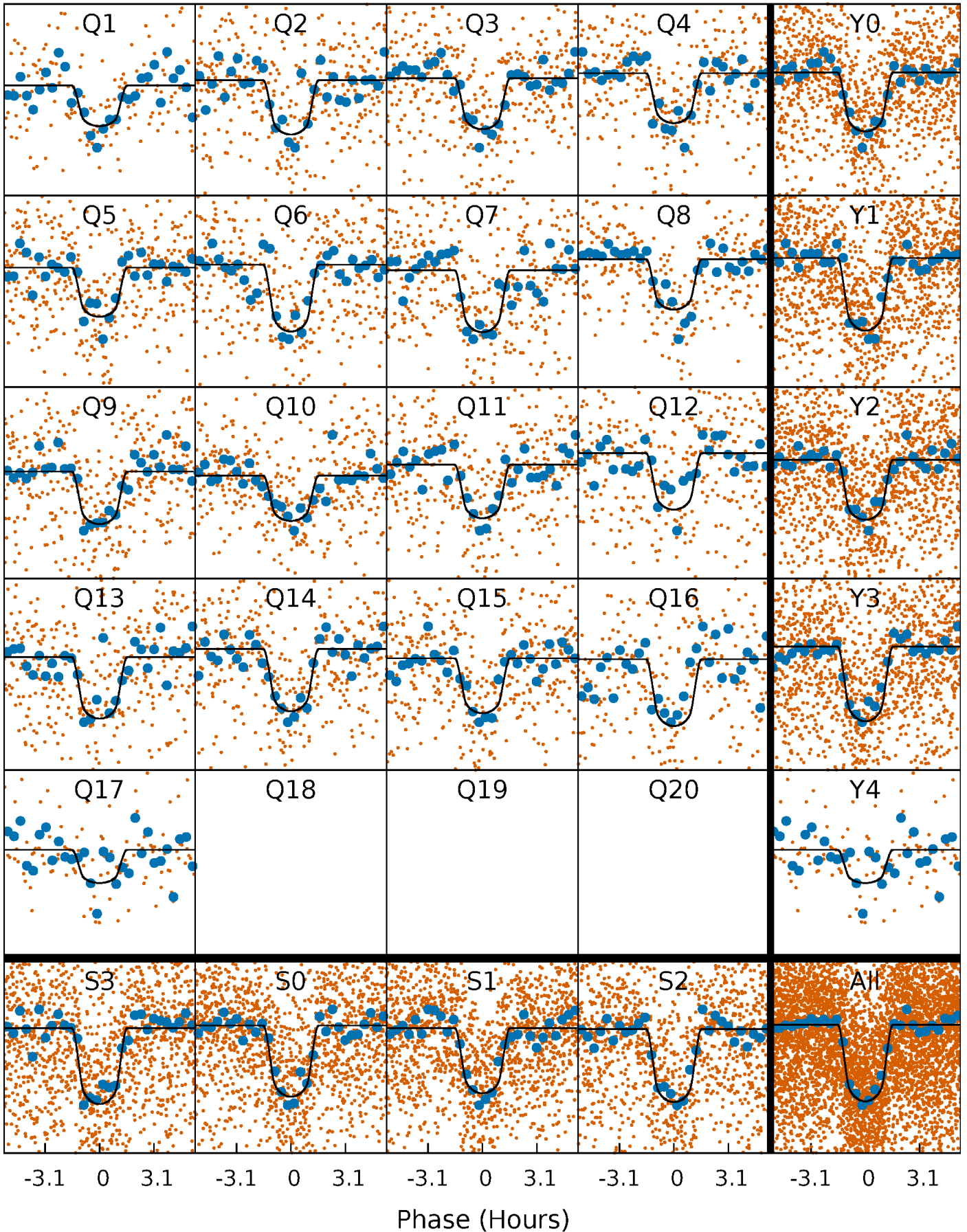
PDC Quarter-Phased Transit Curves

TCE 010978763-01 P= 4.977616 Days $T_0=134.672431$ (BKJD)



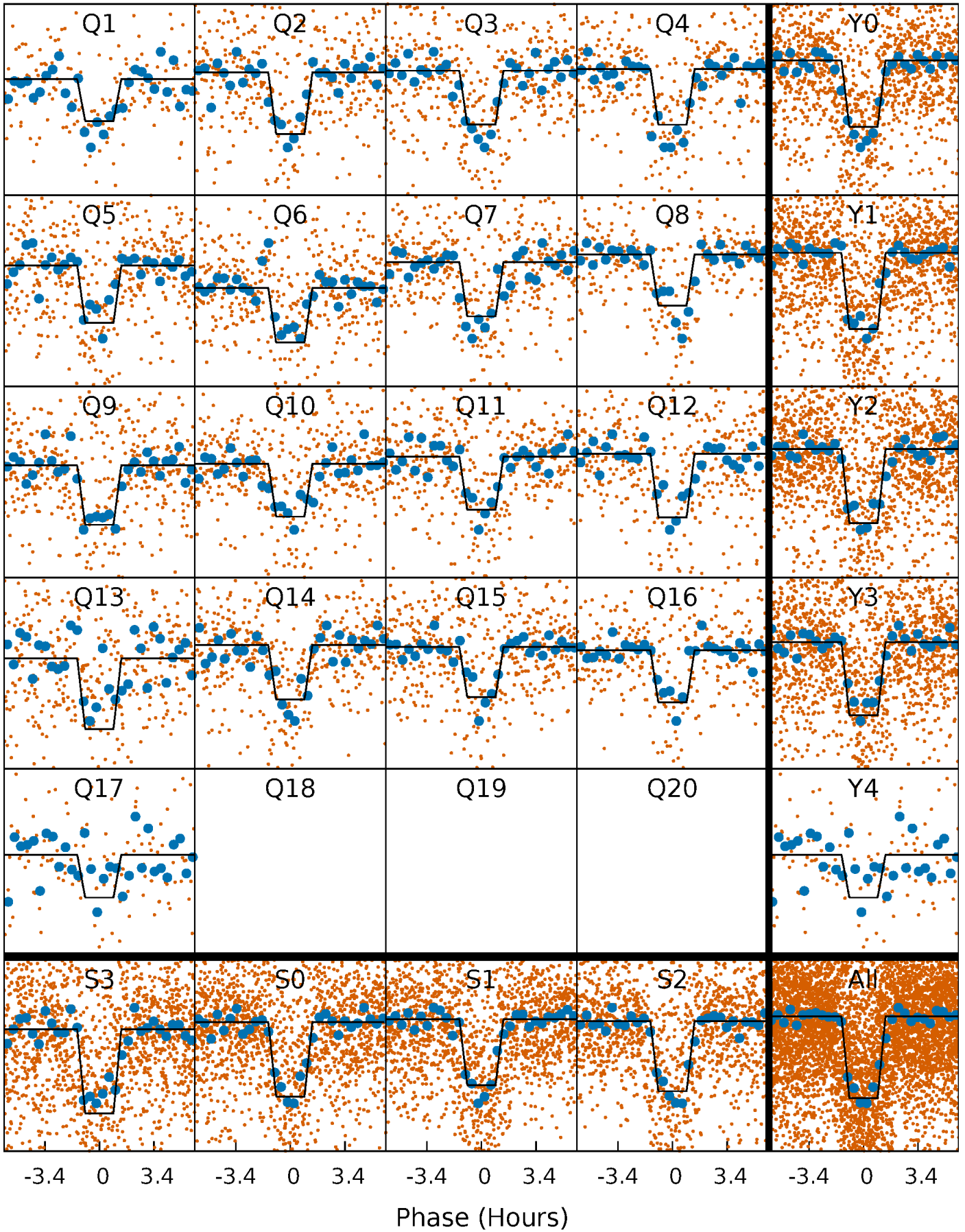
DV Quarter-Phased Transit Curves

TCE 010978763-01 P= 4.977616 Days $T_0=134.672431$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

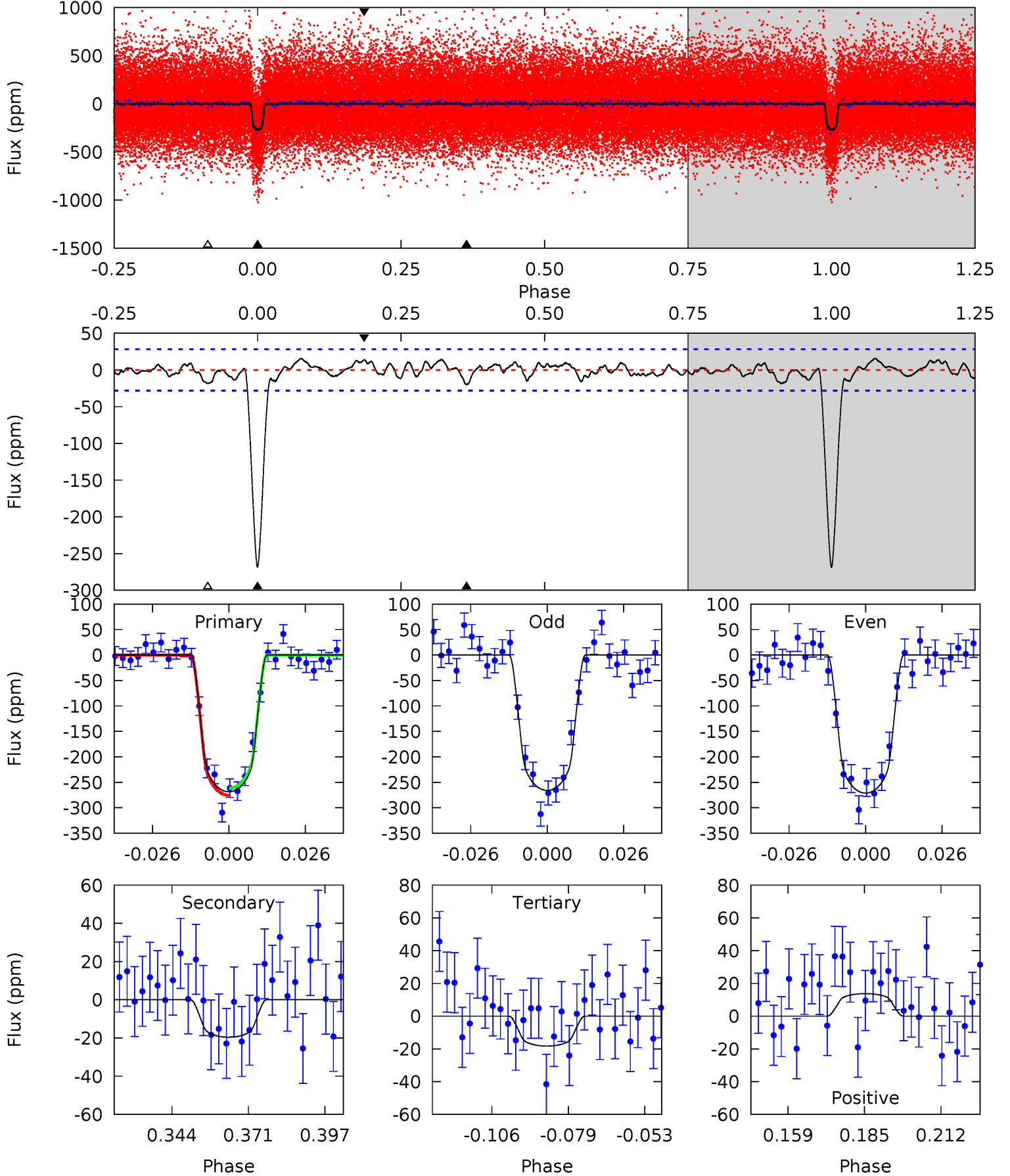
TCE 010978763-01 P= 4.977561 Days $T_0=134.679439$ (BKJD)



DV Model-Shift Uniqueness Test

010978763-01, P = 4.977616 Days, E = 129.694815 Days

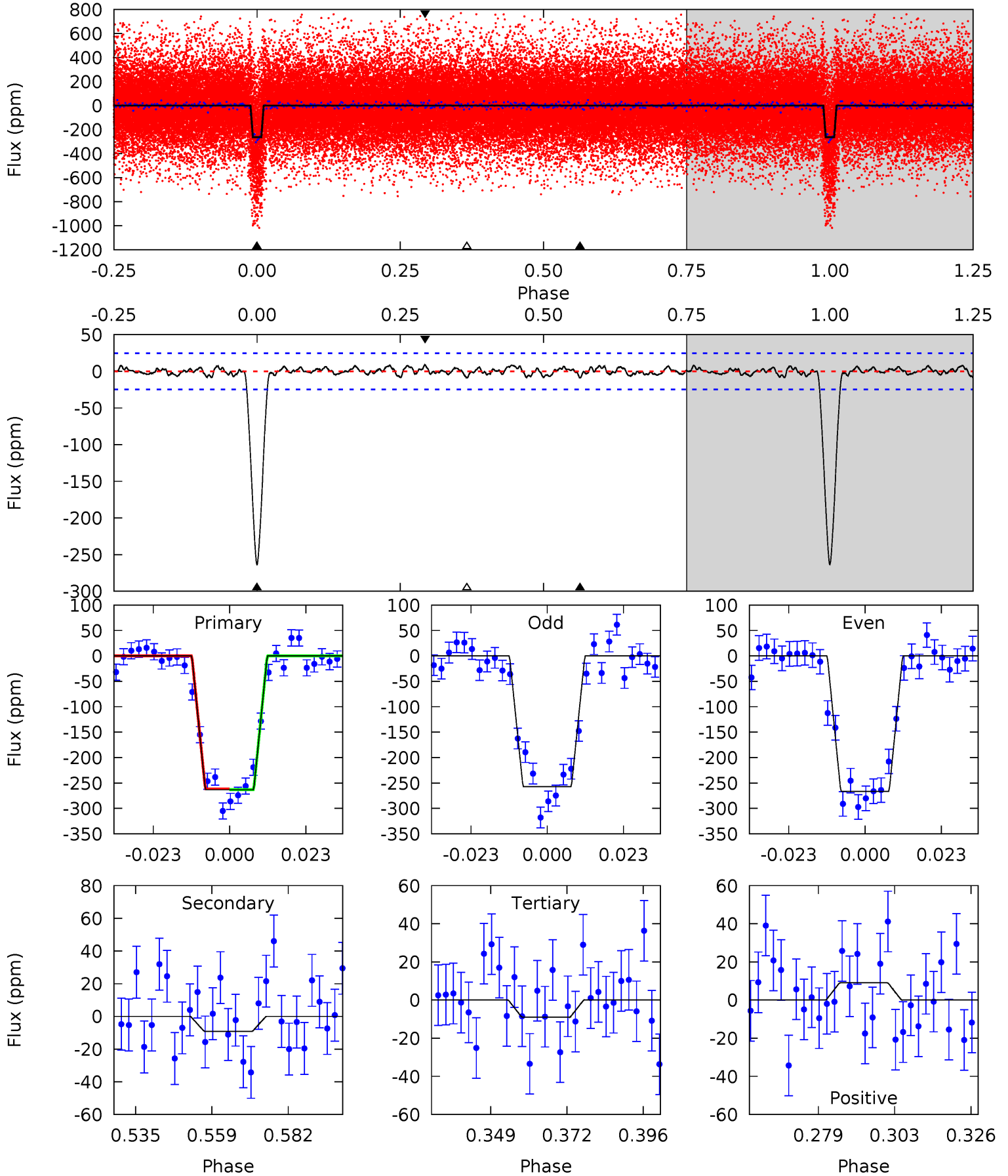
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.0	3.36	3.14	2.36	4.84	2.22	1.21	42.9	43.6	0.23	1.01	0.45	0.98	0.06	1.20



Alt Model-Shift Uniqueness Test

010978763-01, P = 4.977561 Days, E = 129.701878 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.7	1.78	1.77	1.77	4.86	2.27	0.75	50.0	50.0	0.02	0.01	0.88	0.98	0.03	0.13



Stellar Parameters For KIC 010978763

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5353^{+80}_{-72}	$4.358^{+0.137}_{-0.100}$	$0.160^{+0.150}_{-0.100}$	$1.023^{+0.141}_{-0.141}$	$0.870^{+0.064}_{-0.032}$	$1.146^{+0.686}_{-0.365}$
	+1%/-1%	+3%/-2%	+94%/-62%	+14%/-14%	+7%/-4%	+60%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010978763-01 / KOI 1931.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 6	$2.01^{+0.42}_{-0.37}$	1427^{+57}_{-64}	3182^{+251}_{-221}	$7.694^{+5.160}_{-3.004}$
Alt.	-9 ± 5	$1.82^{+0.40}_{-0.36}$	1427^{+61}_{-66}	2907^{+314}_{-380}	$4.154^{+4.318}_{-2.588}$

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 $A_{obs} \gg 1.0$

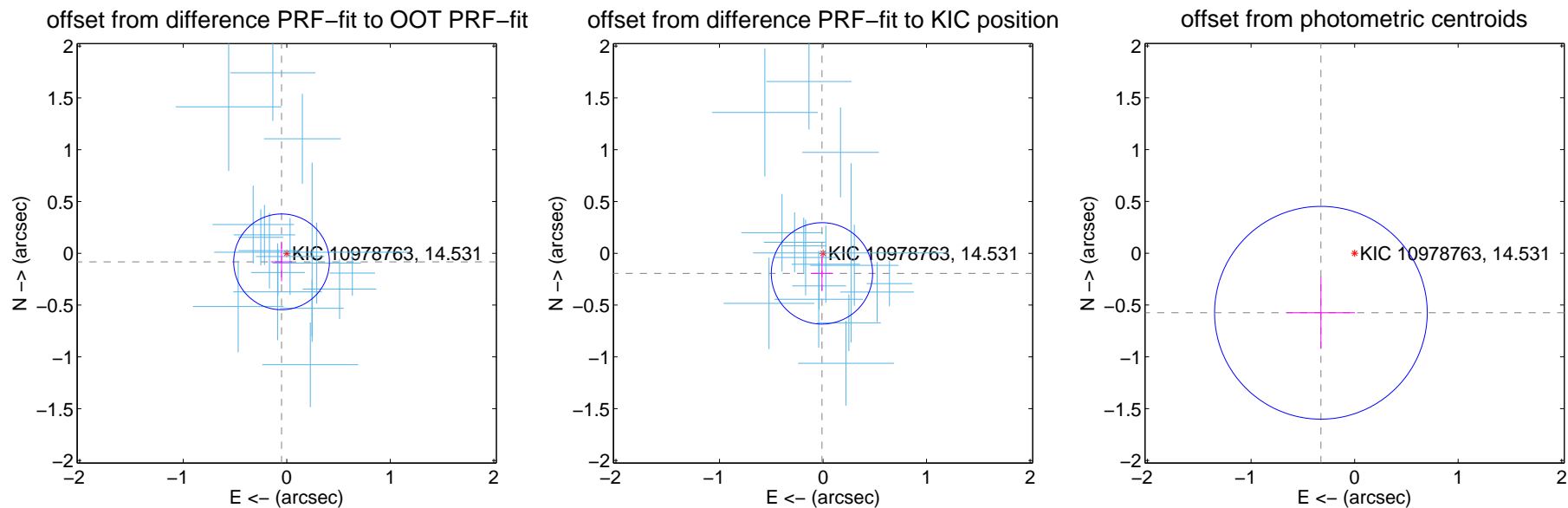
DV Centroid Data

Supplemental centroid analysis for 010978763-01. Kepler magnitude: 14.53. Transit SNR 28.89

There are 17 quarters with good PRF difference image offsets

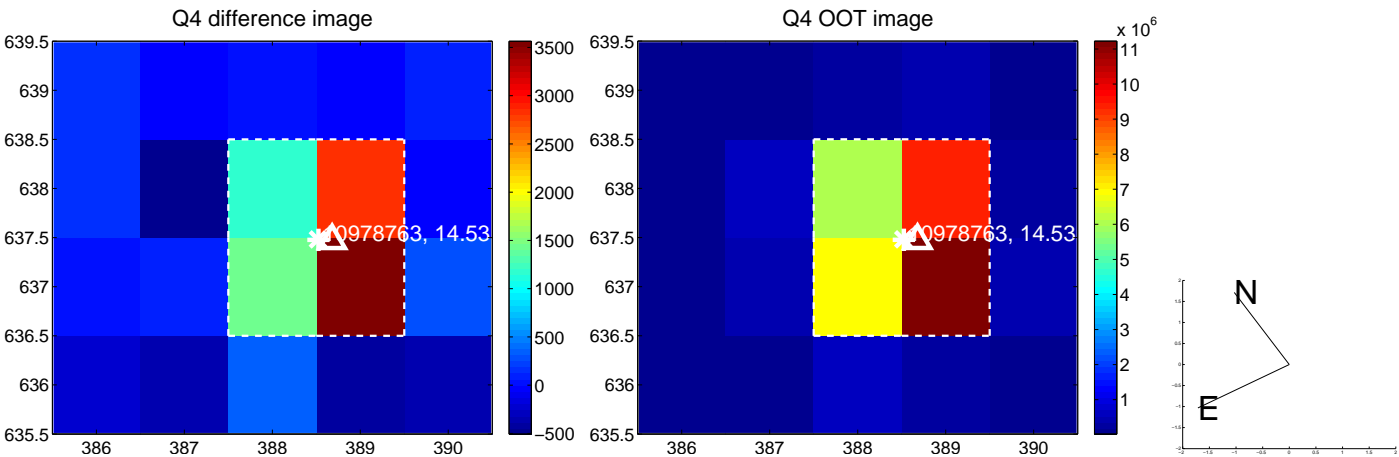
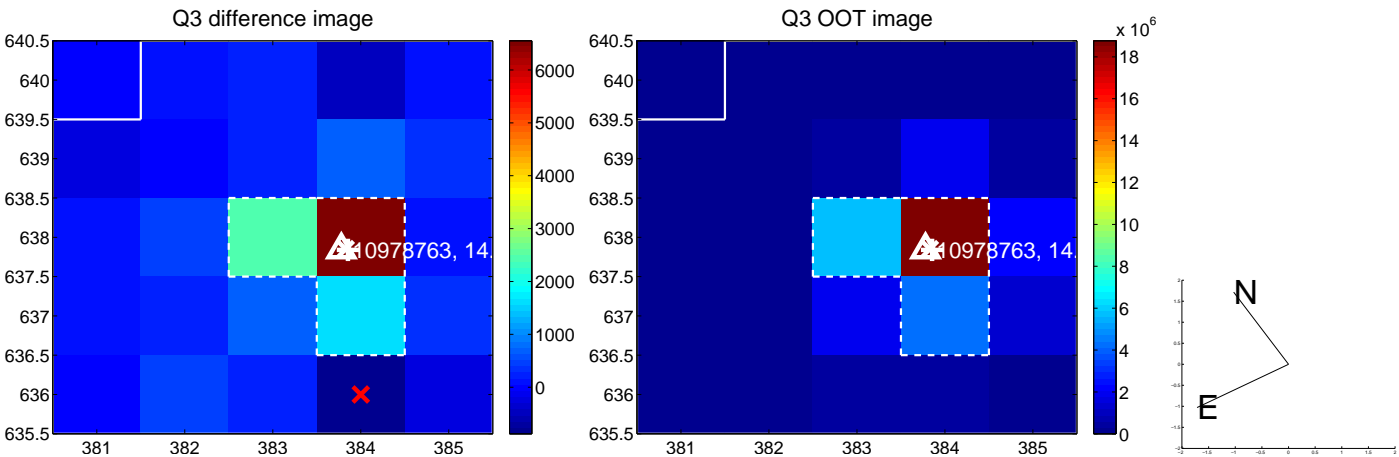
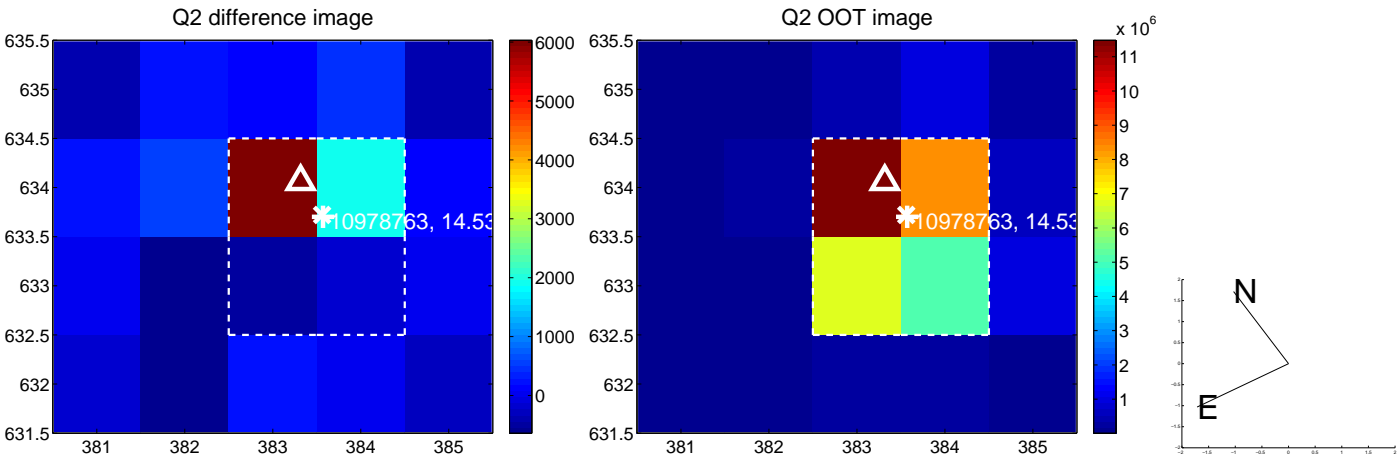
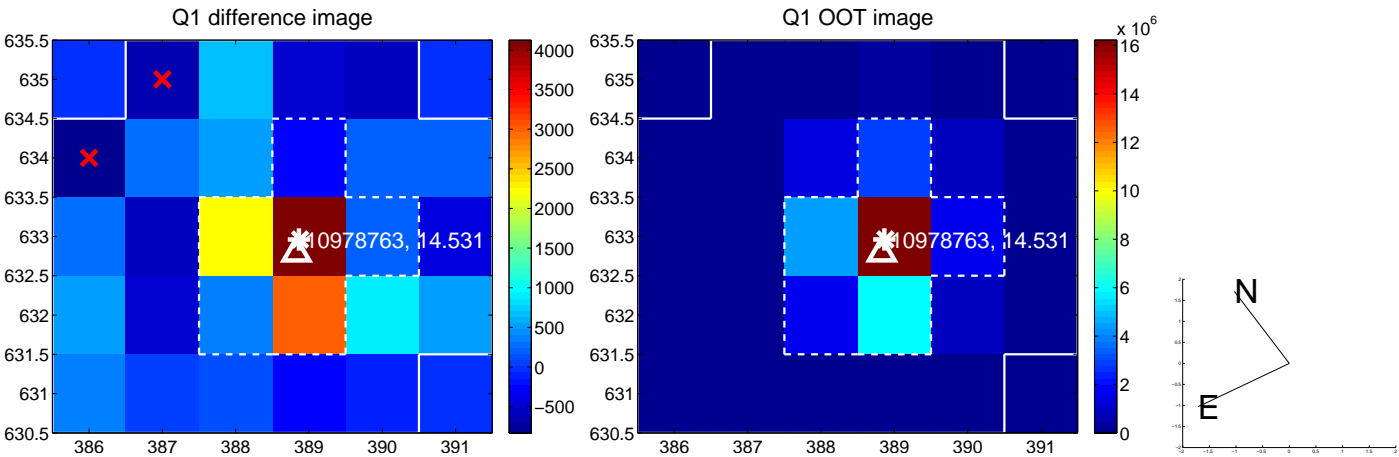
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.097 ± 0.154	0.63	0.050 ± 0.103	-0.083 ± 0.188
PRF-fit source offset from KIC position	0.194 ± 0.163	1.19	0.010 ± 0.106	-0.194 ± 0.165
photometric centroid source offset	0.66 ± 0.34	1.93	0.33 ± 0.33	-0.57 ± 0.35

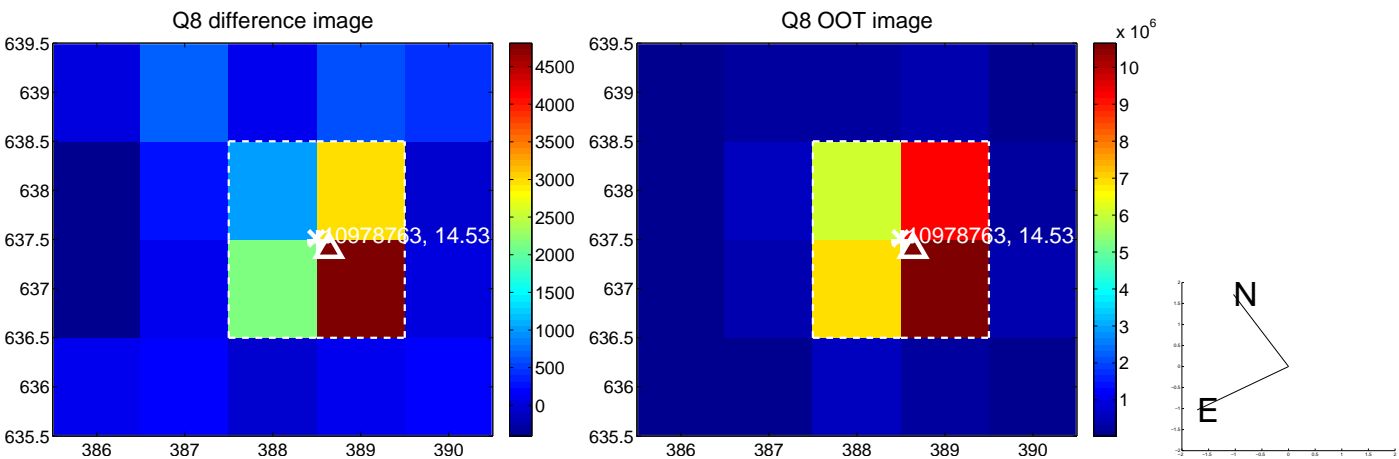
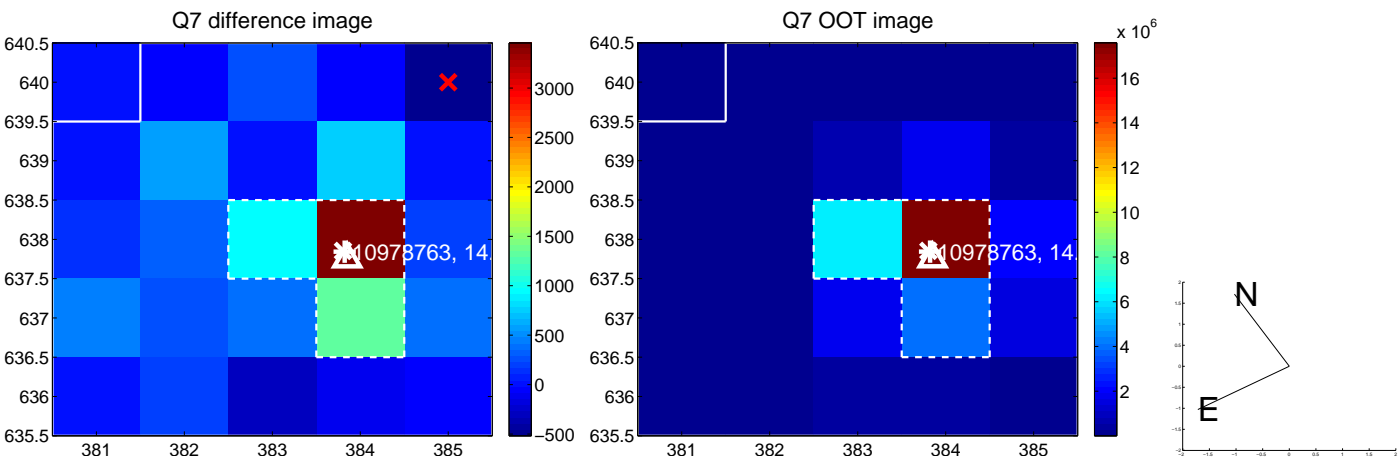
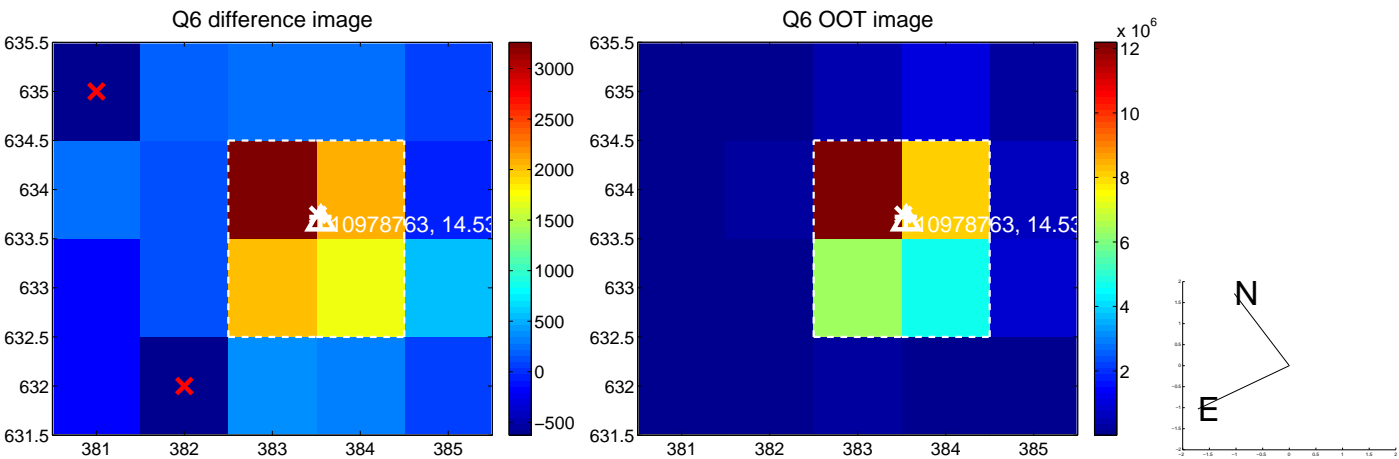
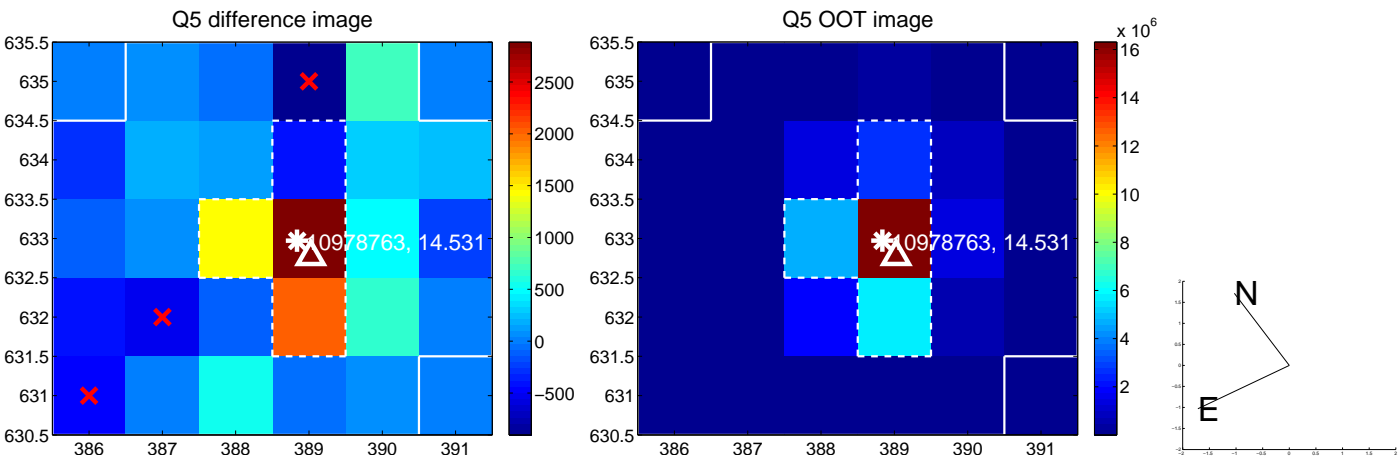


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

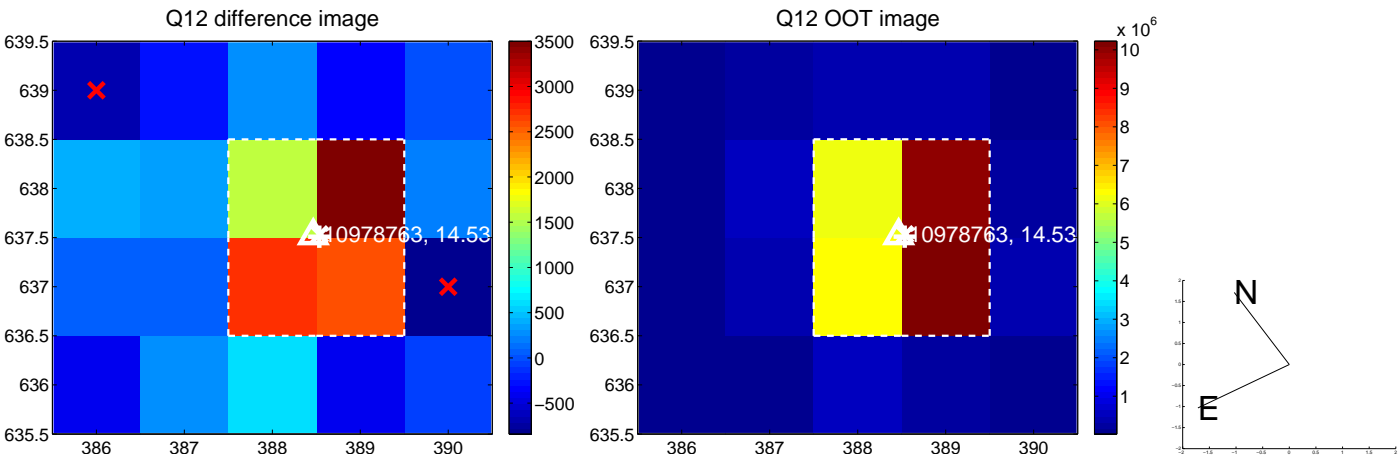
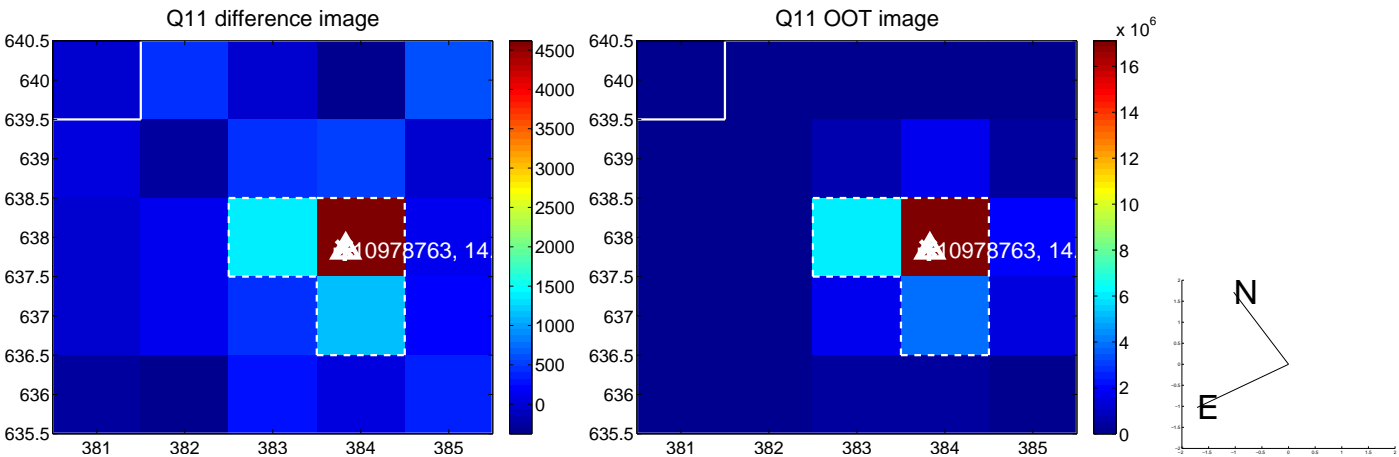
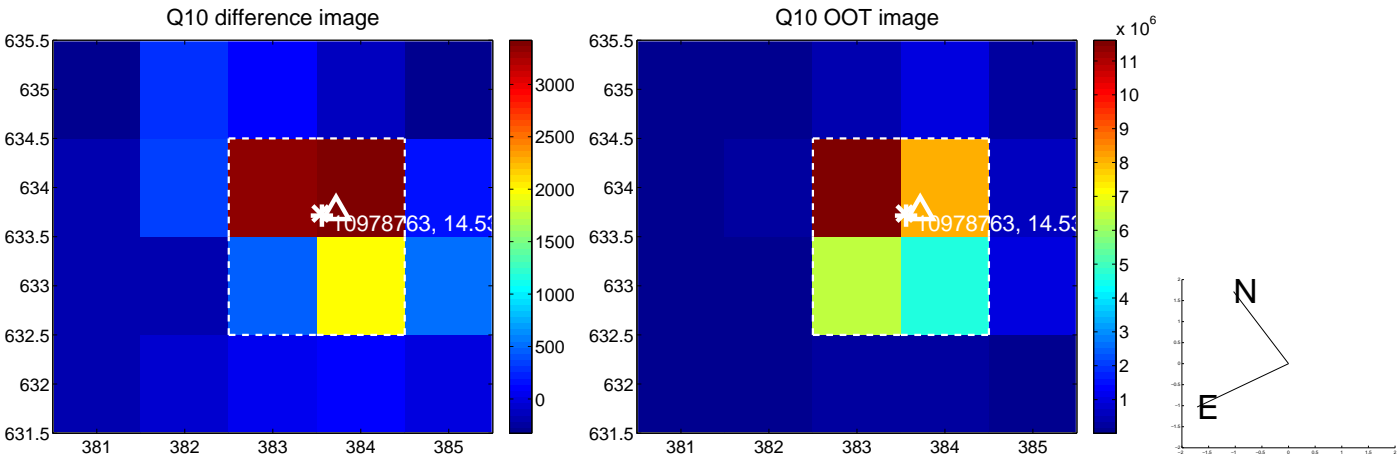
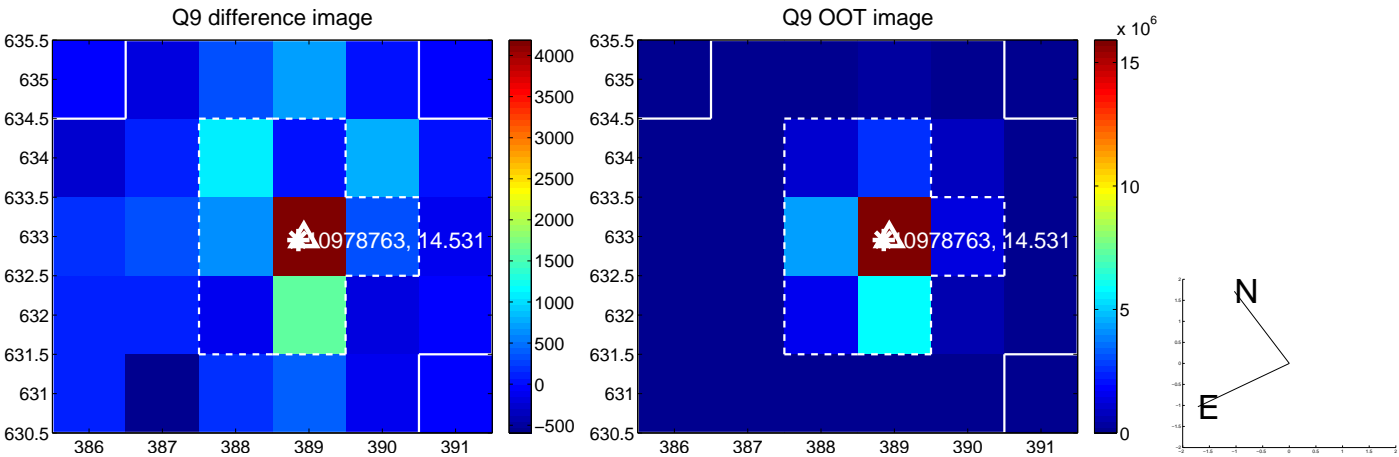
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



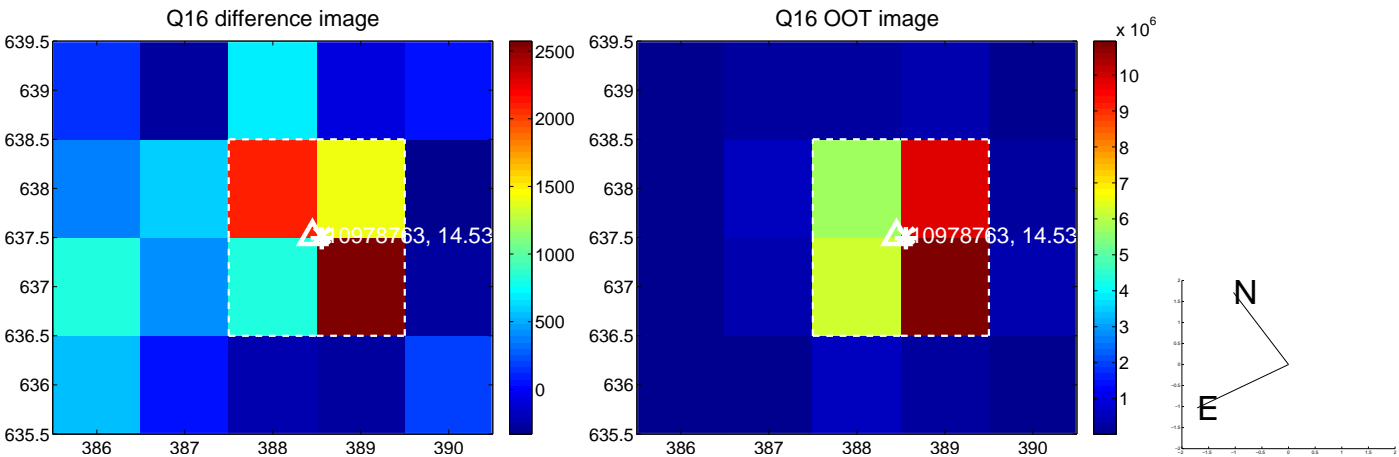
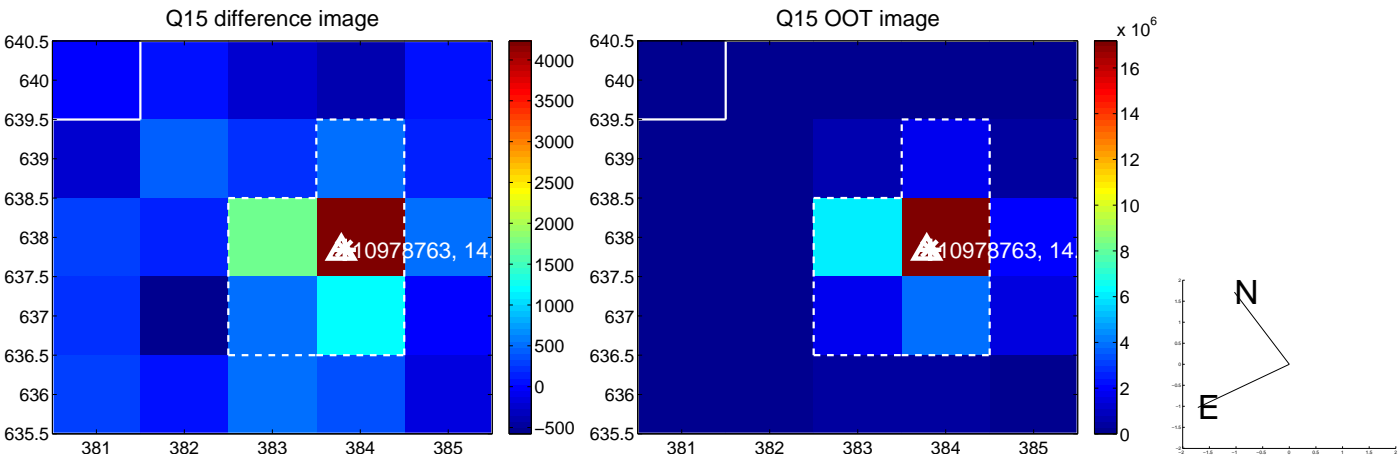
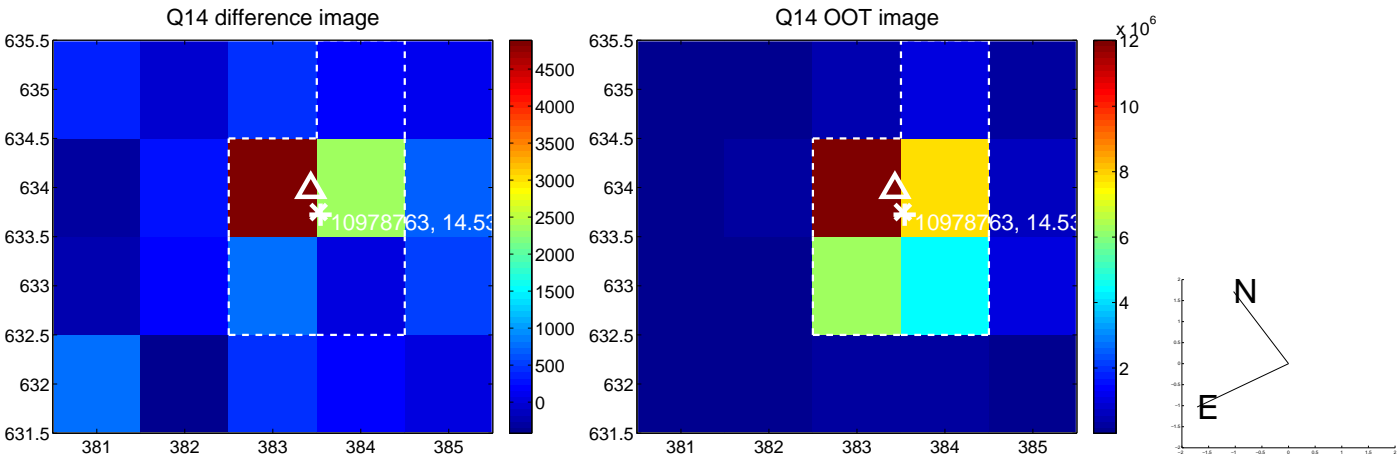
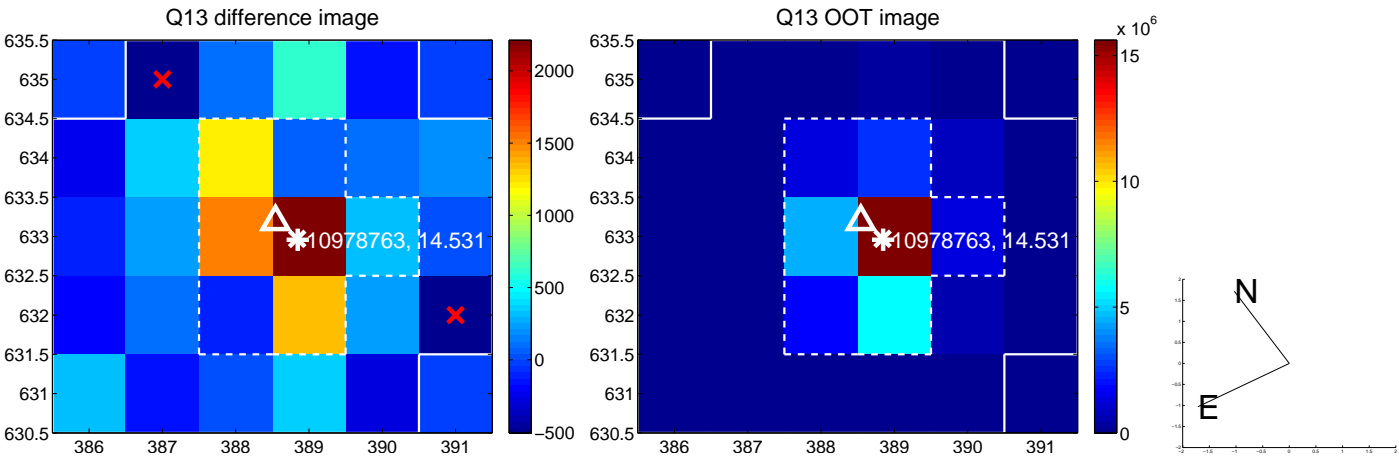
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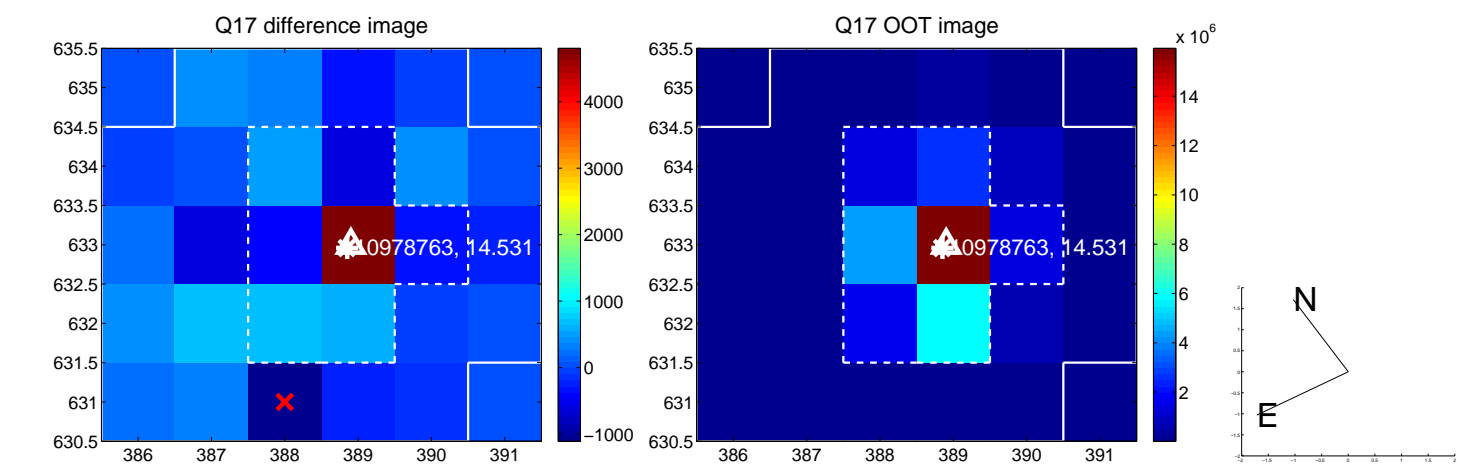
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



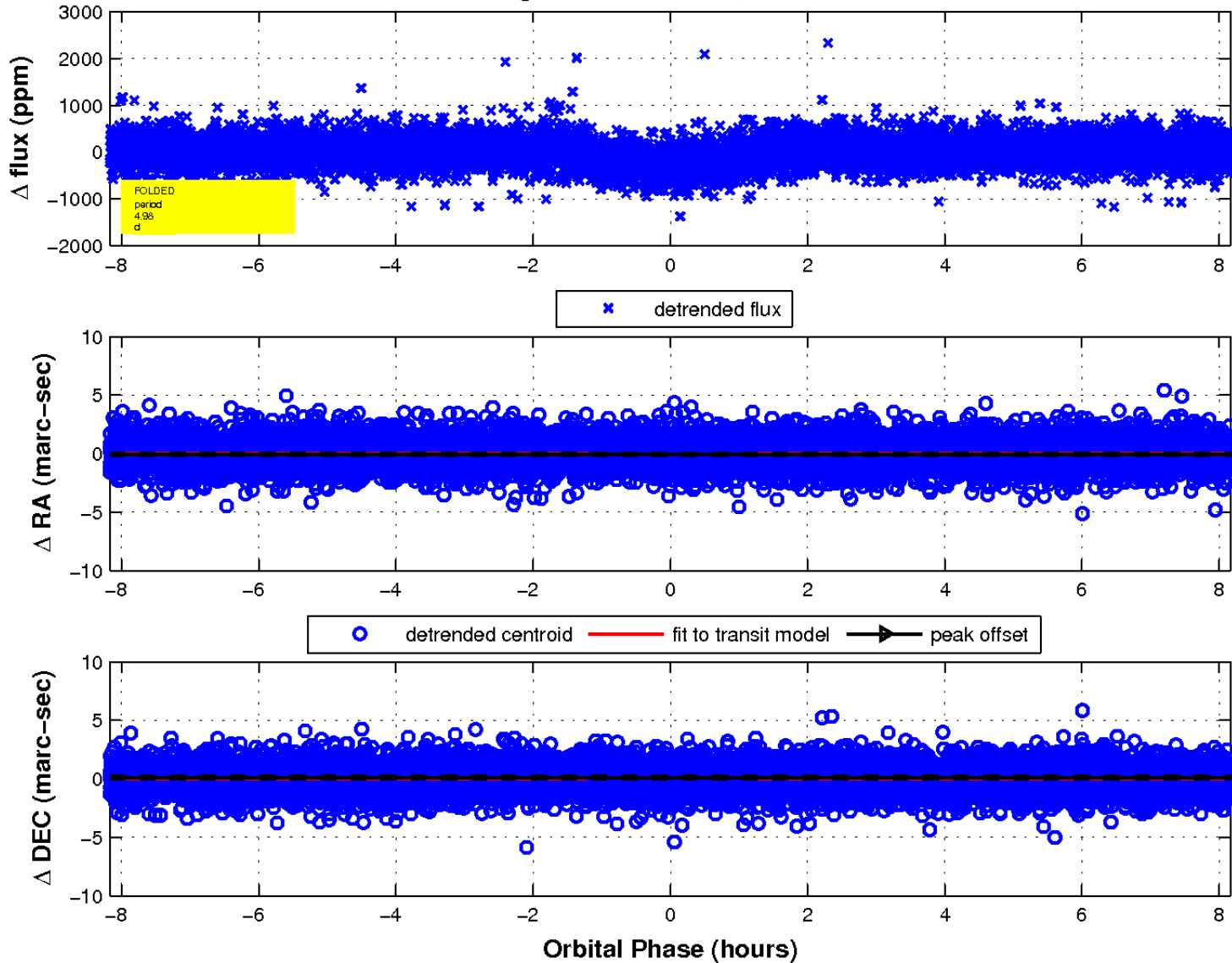
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

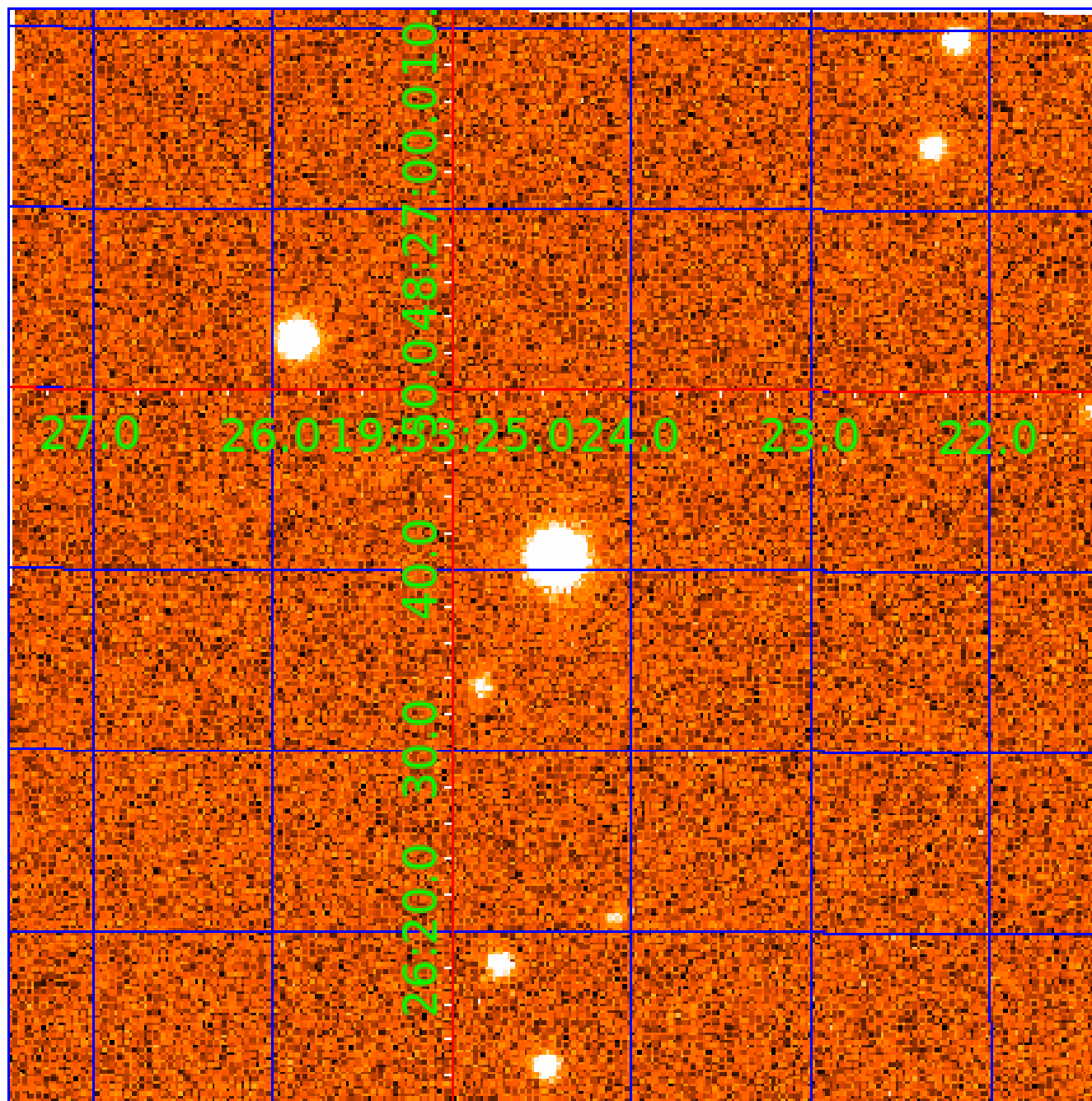


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 010978763

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010978763-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010978763-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT
010978763-03	OBS	PC	0.98	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

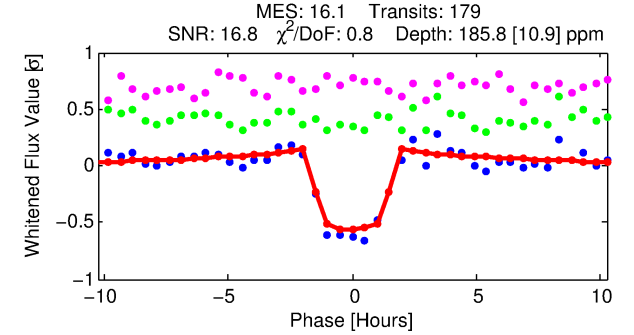
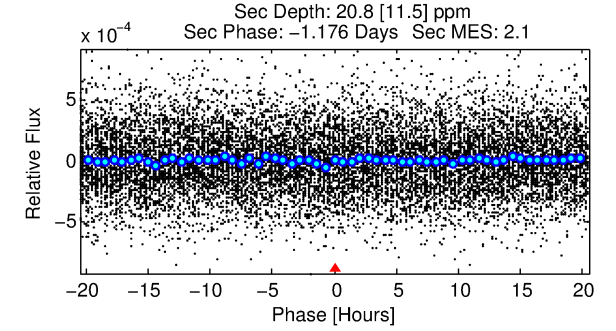
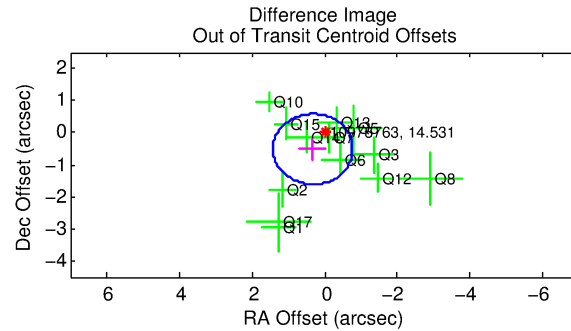
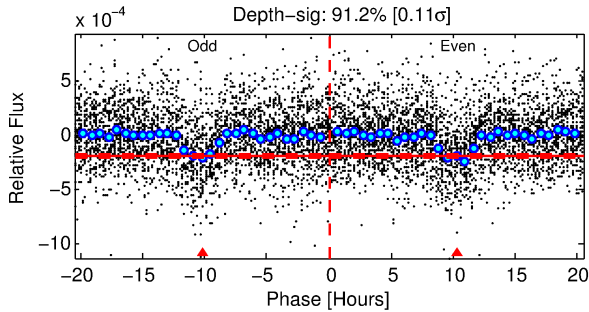
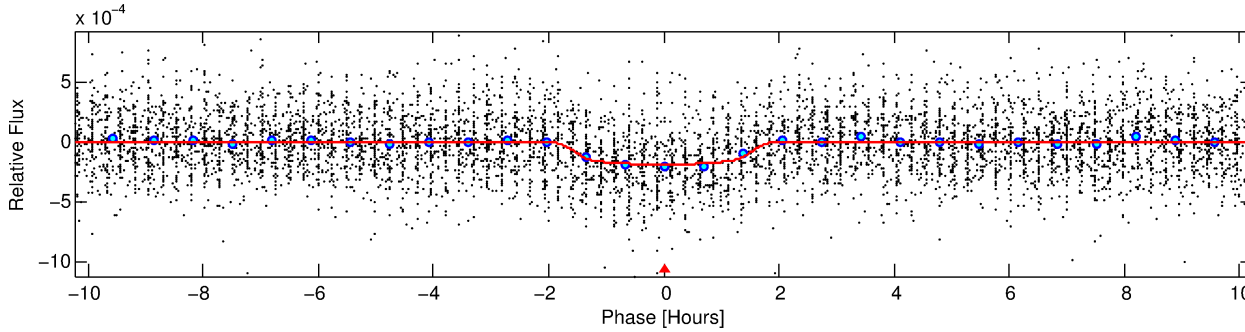
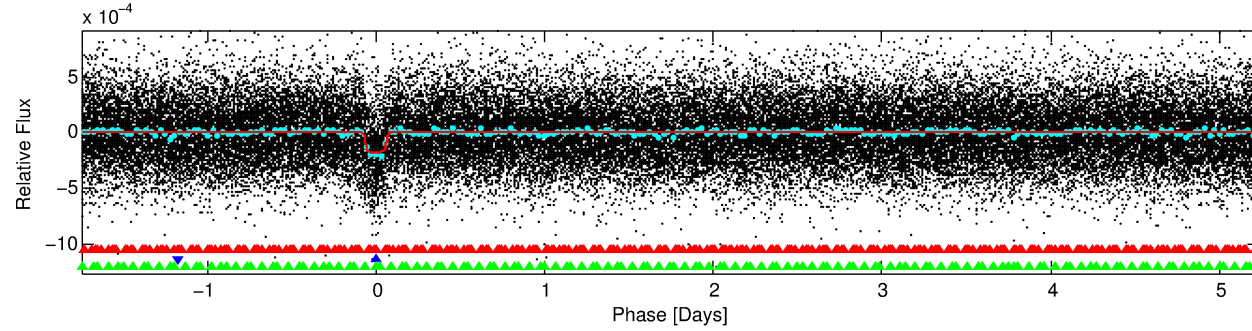
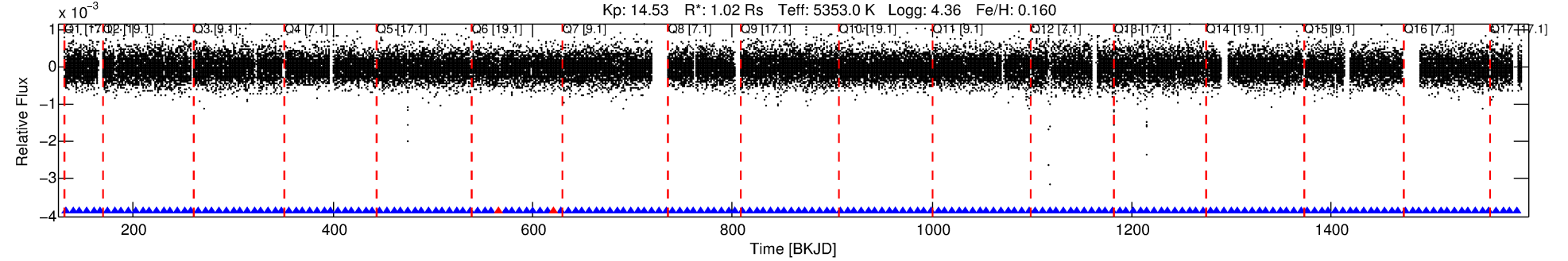
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010978763-02

No Significant Match Found

DV One-Page Summary

KIC: 10978763 Candidate: 2 of 3 Period: 6.988 d
KOI: K01931.03 Name: Kepler-339c Corr: 0.933



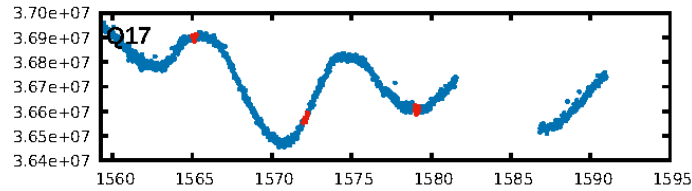
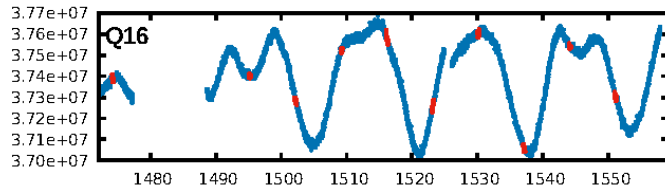
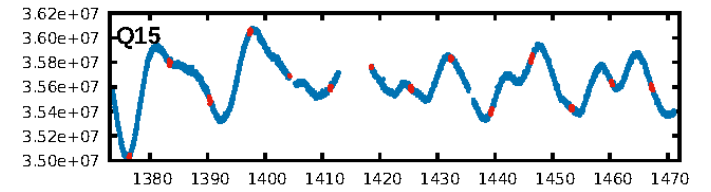
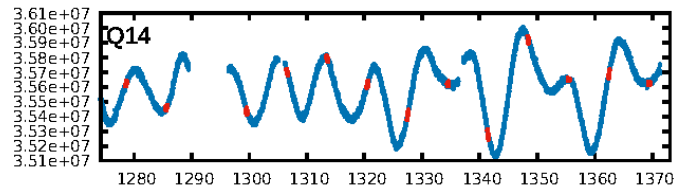
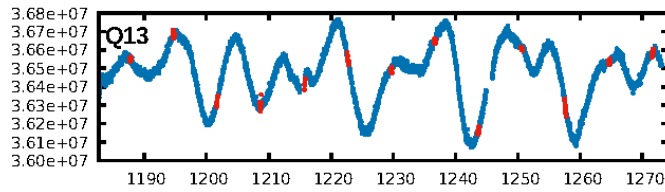
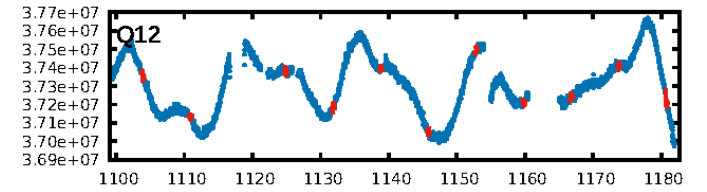
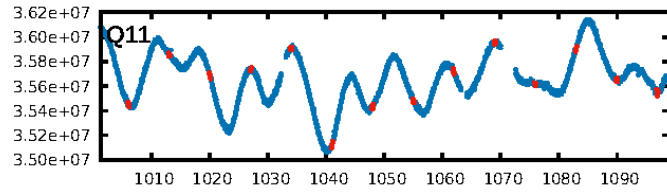
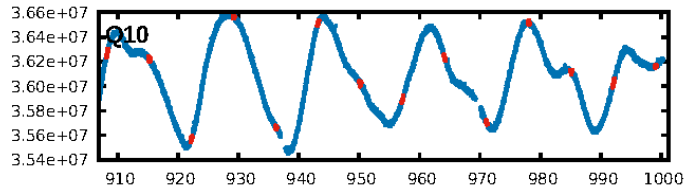
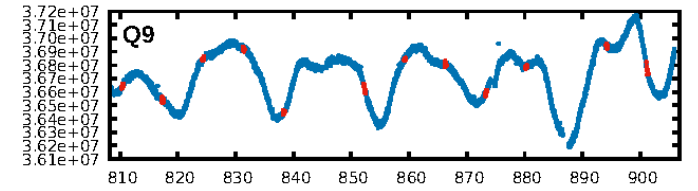
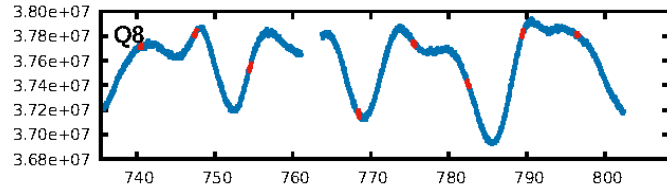
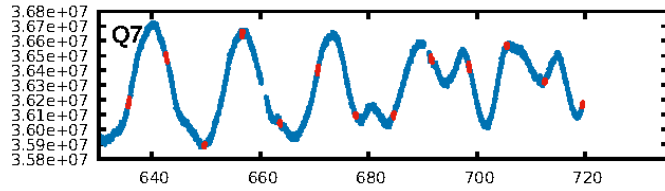
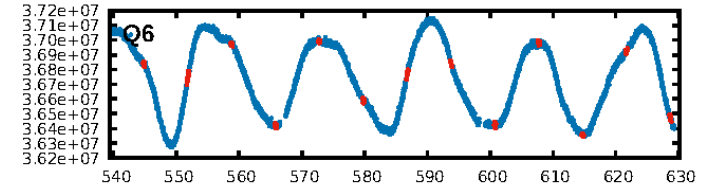
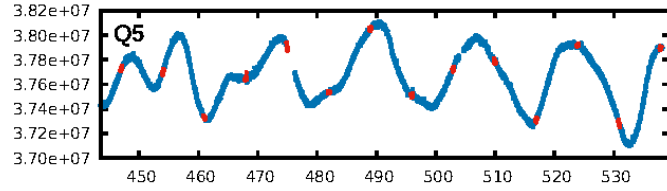
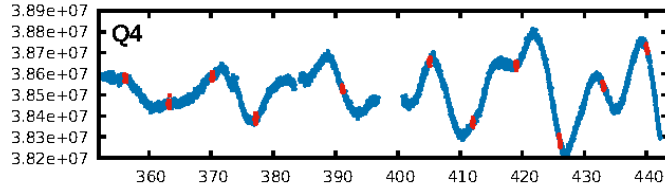
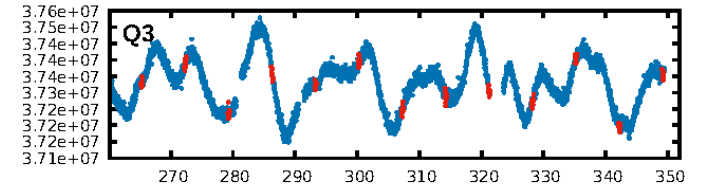
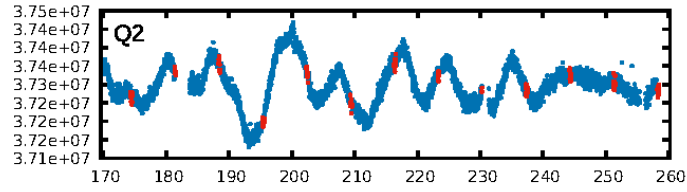
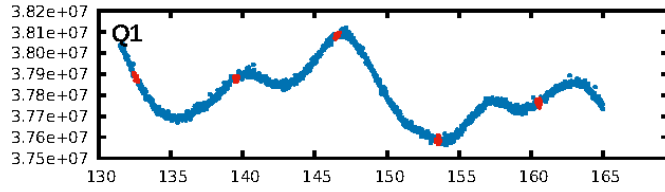
DV Fit Results:

Period = 6.98810 [0.00003] d
Epoch = 132.5637 [0.0035] BKJD
Rp/R* = 0.0151 [0.0034]
a/R* = 7.33 [6.97]
b = 0.90 [0.20]
Seff = 164.96 [39.12]
Teff = 914 [54] K
Rp = 1.69 [0.45] Re
a = 0.0683 [0.0095] AU
Ag = 18.77 [14.11] [1.26σ]
Teffp = 2941 [528] K [3.82σ]

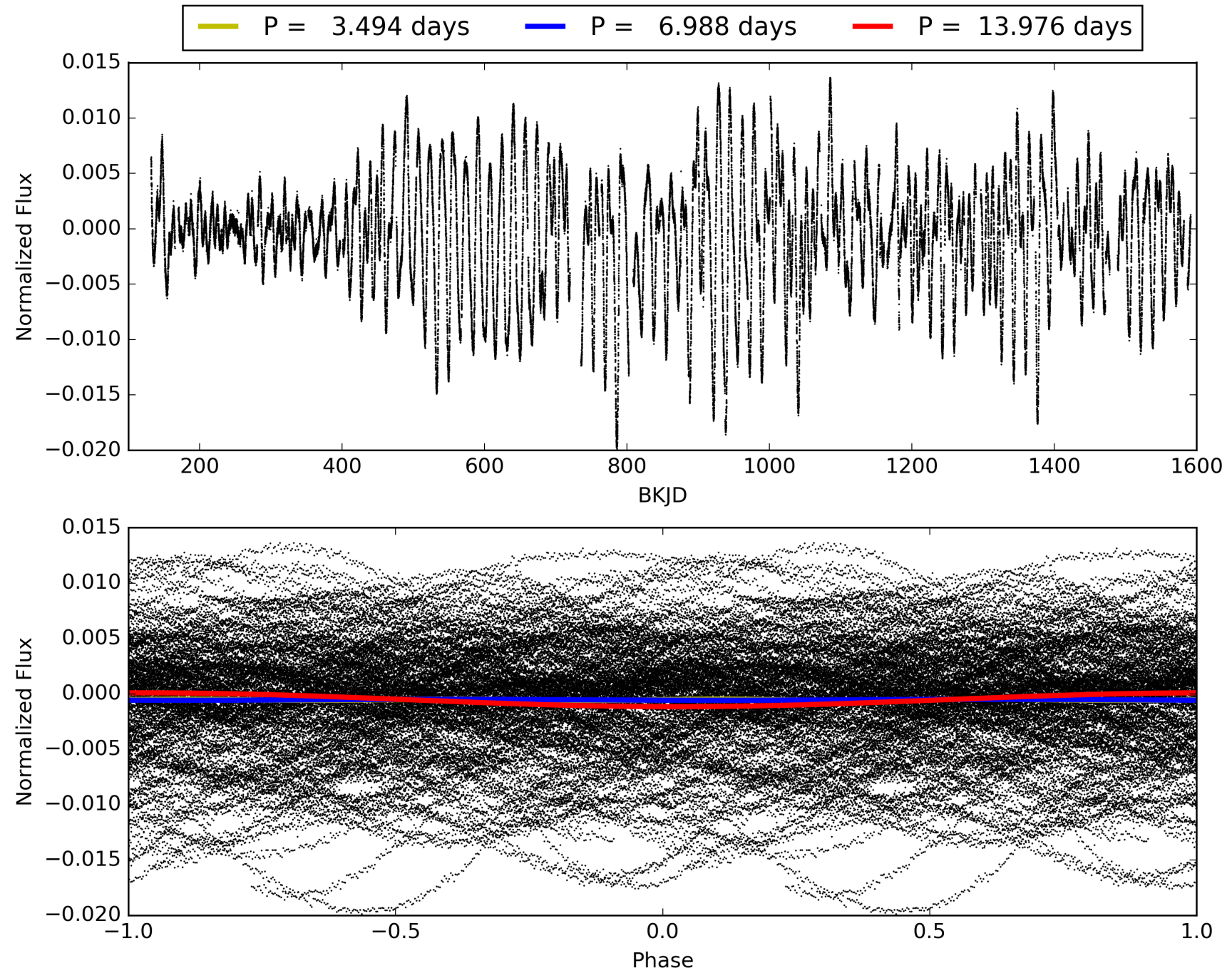
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.06σ]
LongPeriod-sig: 100.0% [17.47σ]
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.34e-55
RollingBand-fgt: 0.99 [170/172]
GhostDiagnostic-chr: 10.66
Centroid-sig: 18.1%
Centroid-so: 0.735 arcsec [1.33σ]
OotOffset-rm: 0.613 arcsec [1.67σ]
KicOffset-rm: 0.677 arcsec [1.91σ]
OotOffset-st: 4/3/2/4 [13]
KicOffset-st: 4/3/2/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010978763-02, PDC Light Curves

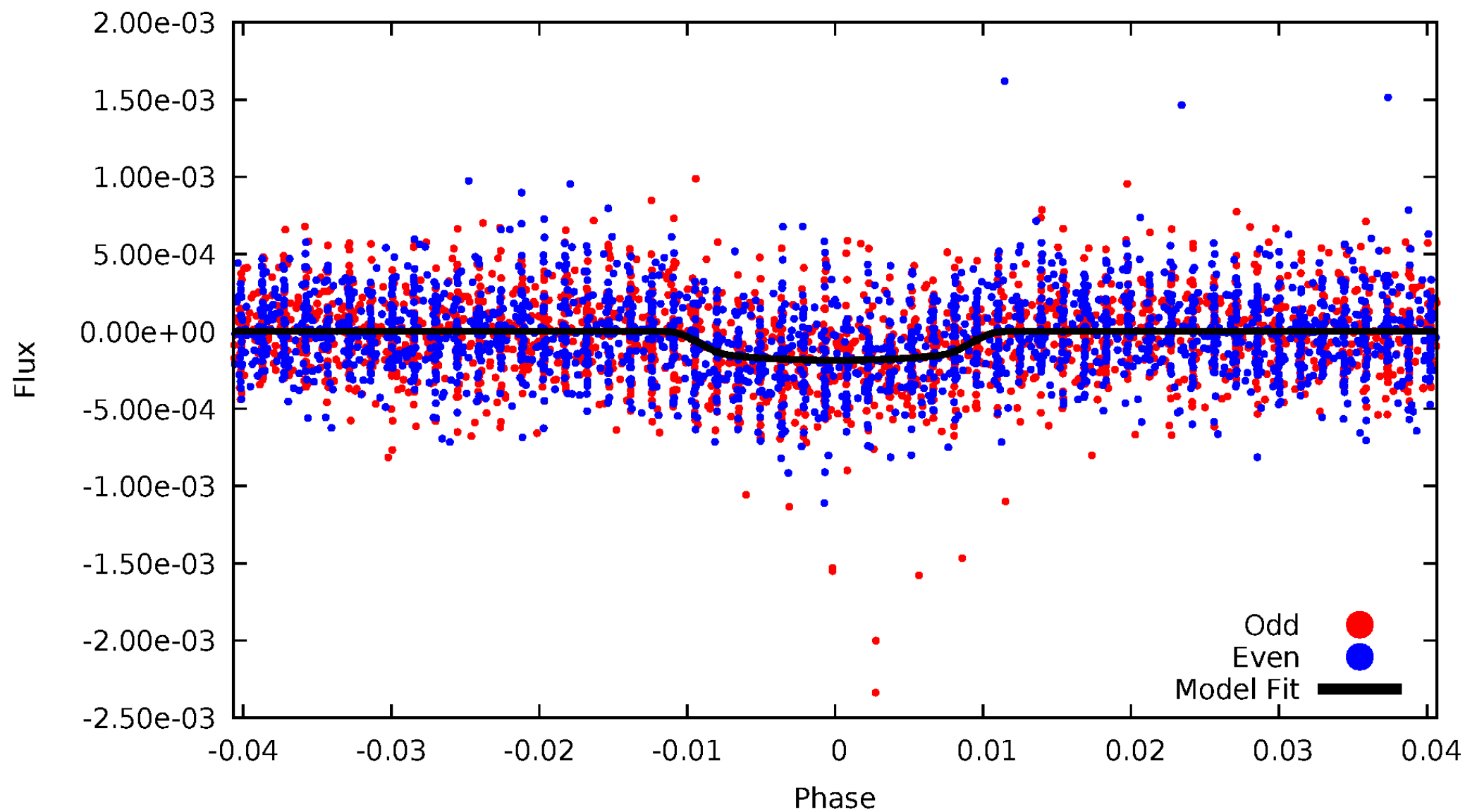


TCE 010978763-02



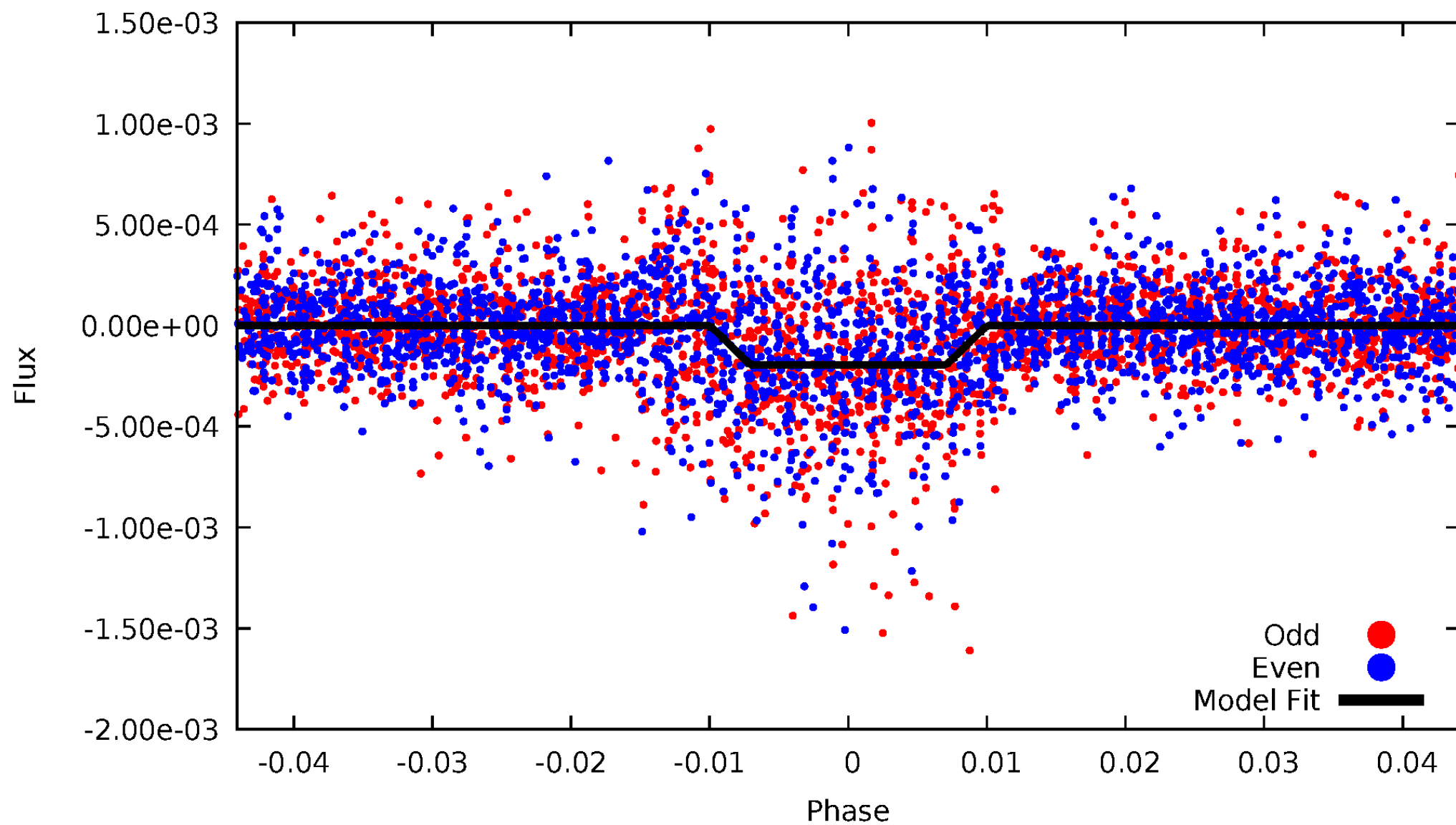
DV Odd/Even

TCE 010978763-02



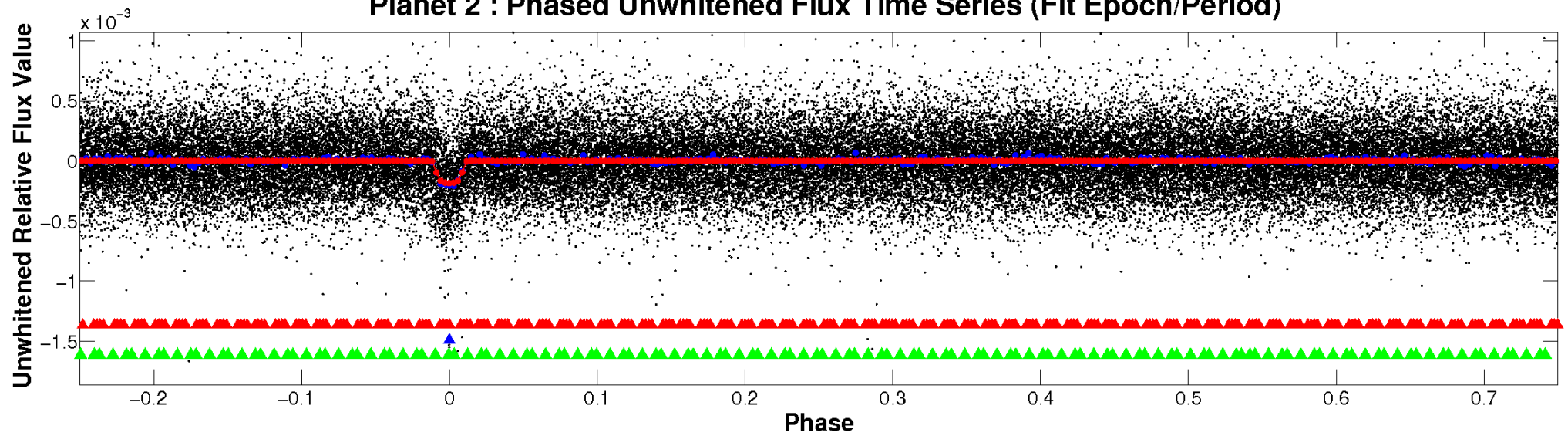
ALT Odd/Even

TCE 010978763-02

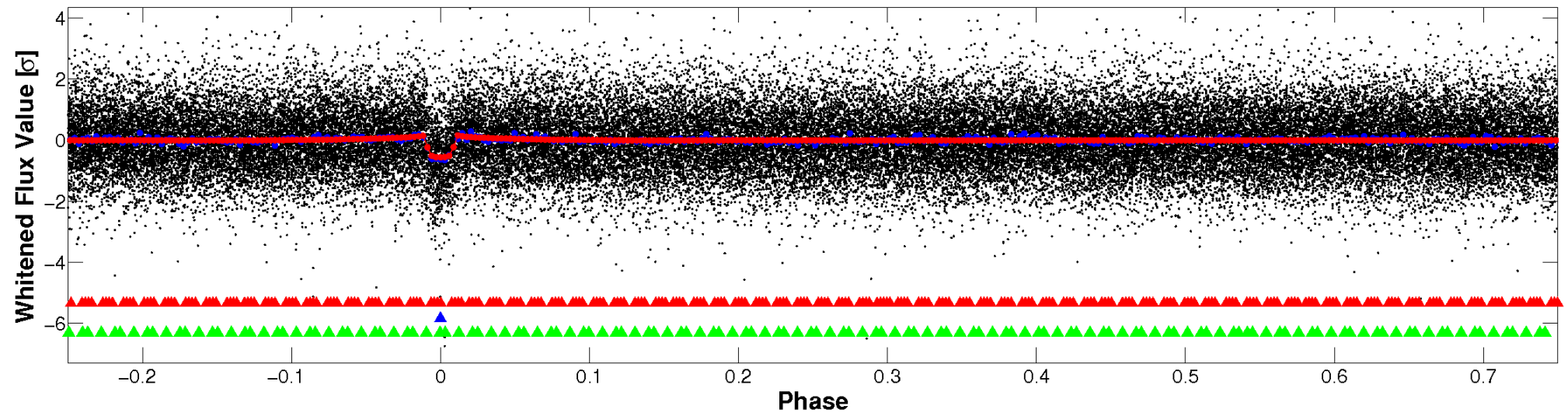


Non-Whitened Vs. Whitened Light Curve

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

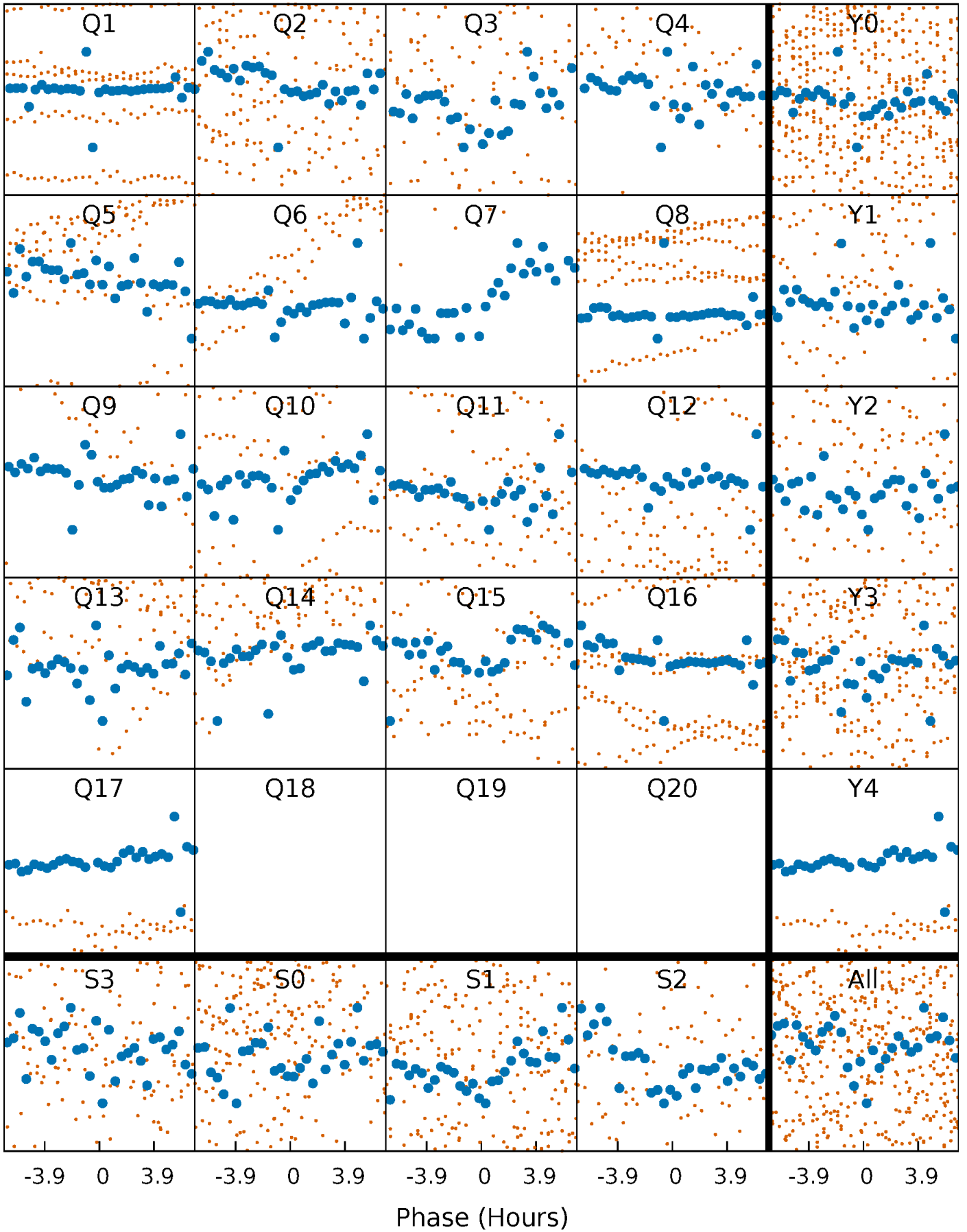


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



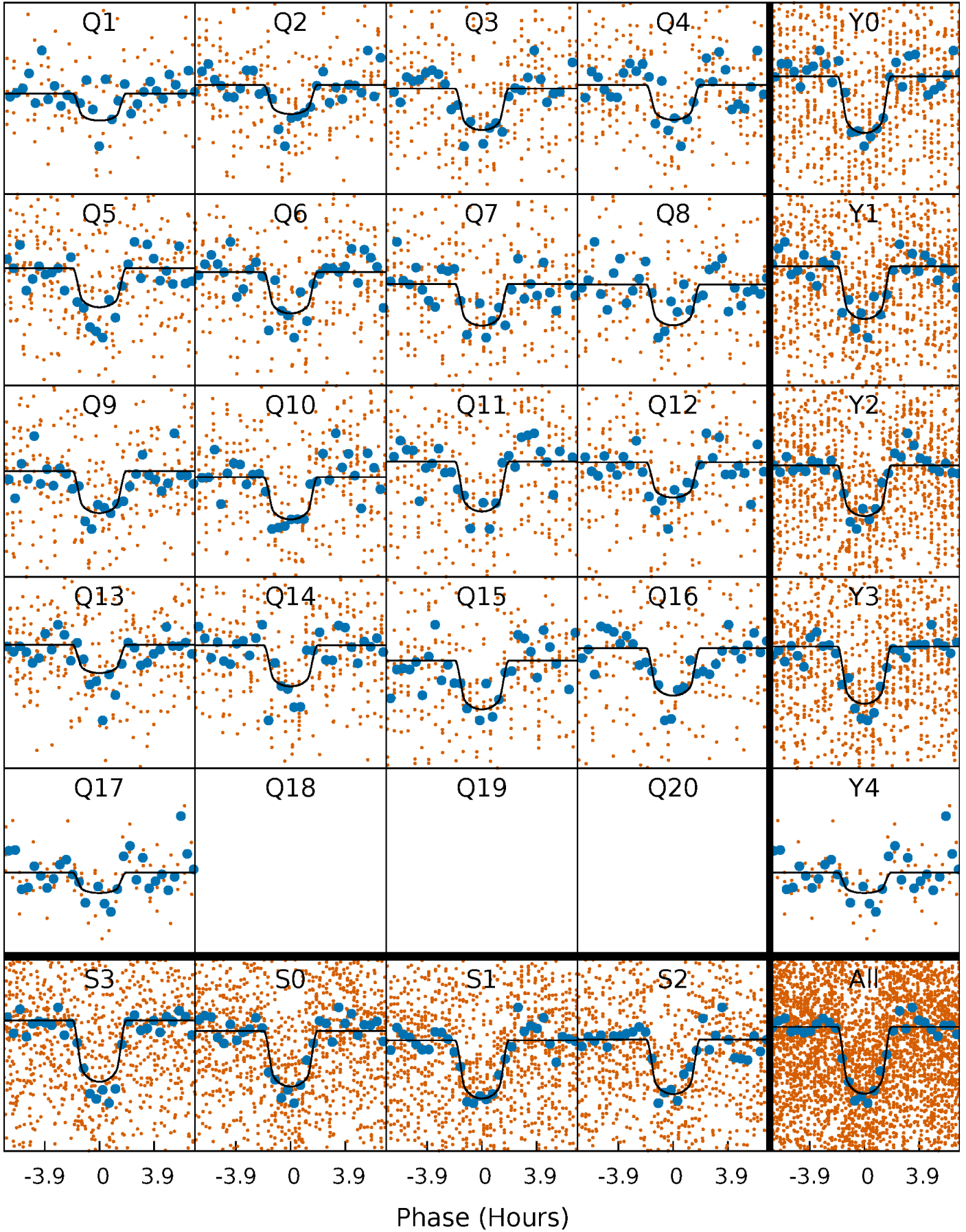
PDC Quarter-Phased Transit Curves

TCE 010978763-02 P= 6.988098 Days $T_0=132.563672$ (BKJD)



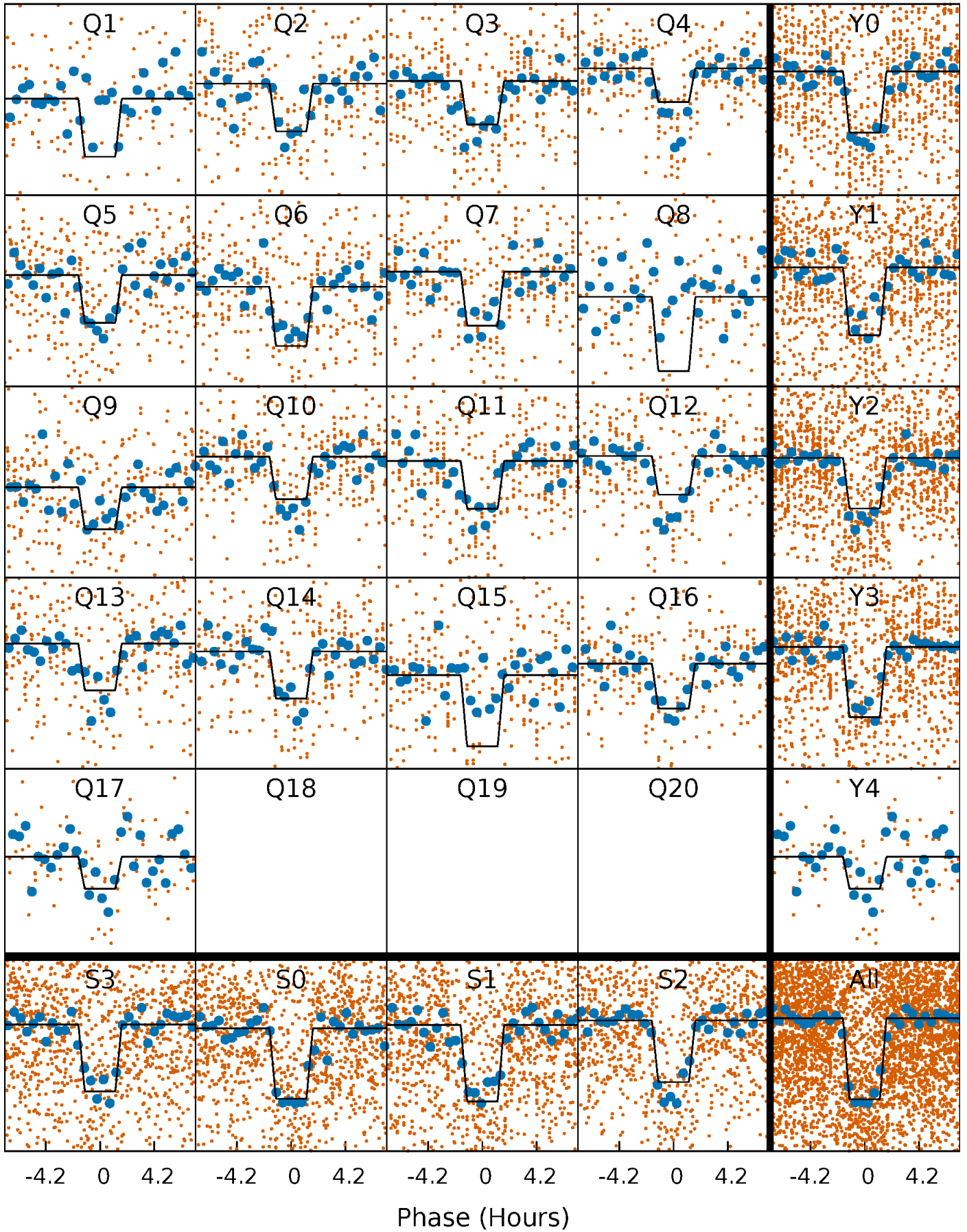
DV Quarter-Phased Transit Curves

TCE 010978763-02 P= 6.988098 Days $T_0=132.563672$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

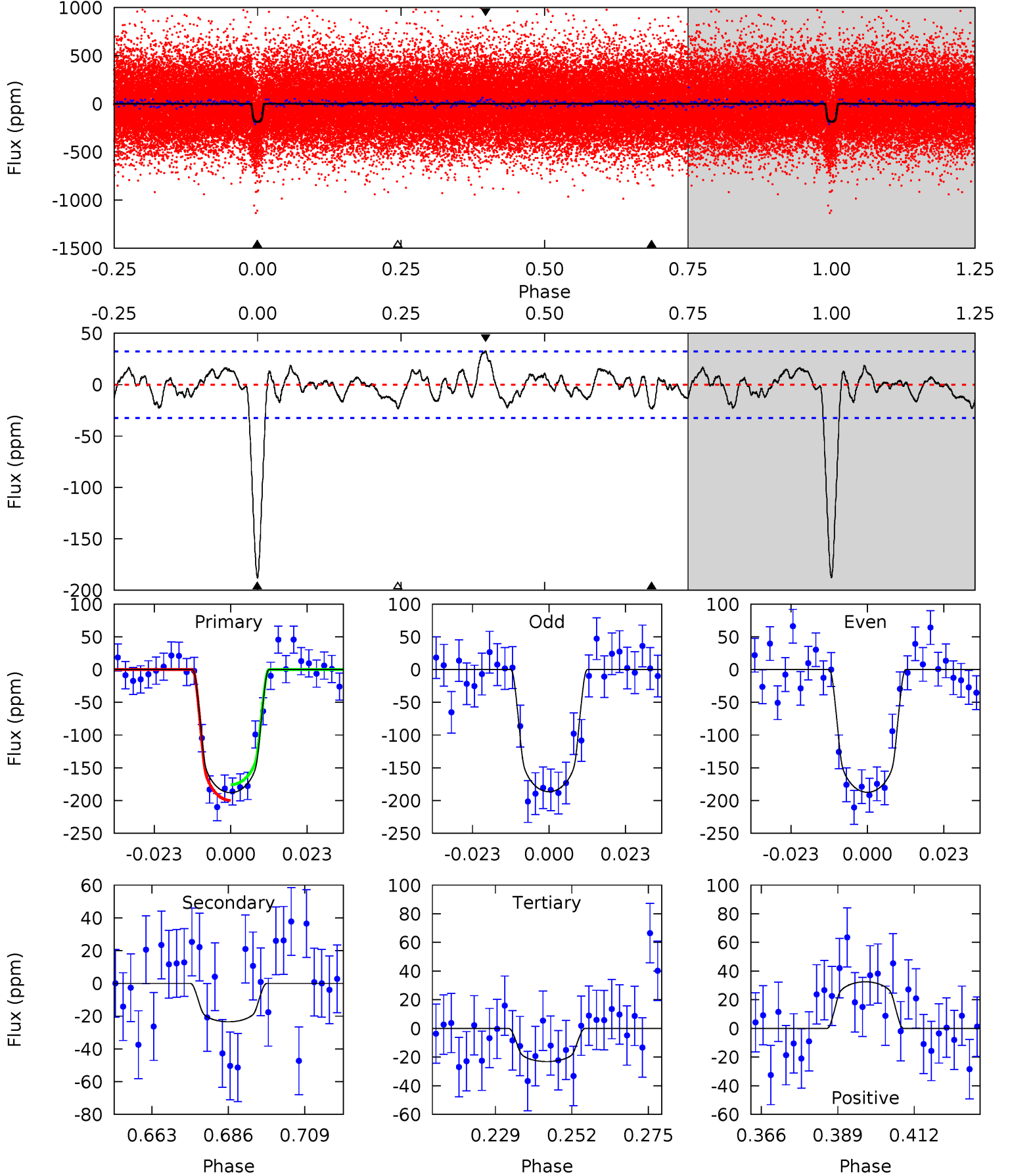
TCE 010978763-02 P= 6.988039 Days $T_0=132.568533$ (BKJD)



DV Model-Shift Uniqueness Test

010978763-02, P = 6.988098 Days, E = 125.575574 Days

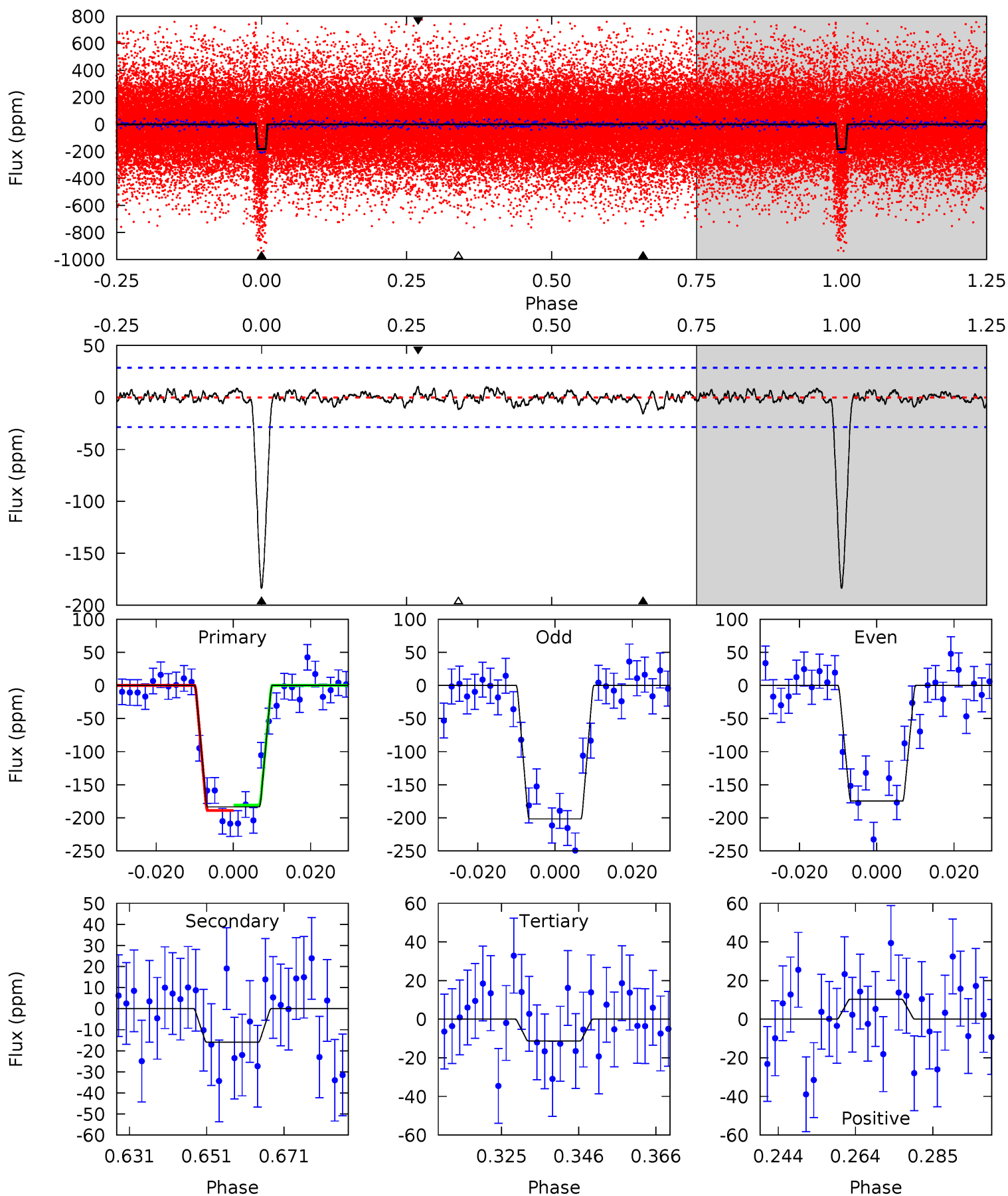
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	3.53	3.48	4.89	4.87	2.28	1.51	24.8	23.4	0.05	-1.36	0.06	1.09	0.15	1.82



Alt Model-Shift Uniqueness Test

010978763-02, P = 6.988039 Days, E = 125.580494 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.4	2.73	1.94	1.77	4.89	2.32	0.70	29.5	29.7	0.80	0.97	2.30	1.06	0.05	0.70



Stellar Parameters For KIC 010978763

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5353^{+80}_{-72}	$4.358^{+0.137}_{-0.100}$	$0.160^{+0.150}_{-0.100}$	$1.023^{+0.141}_{-0.141}$	$0.870^{+0.064}_{-0.032}$	$1.146^{+0.686}_{-0.365}$
	+1%/-1%	+3%/-2%	+94%/-62%	+14%/-14%	+7%/-4%	+60%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010978763-02 / KOI 1931.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-23 ± 7	$1.70^{+0.40}_{-0.44}$	1272^{+53}_{-60}	3467^{+347}_{-271}	20^{+18}_{-8}
Alt.	-16 ± 6	$1.57^{+0.43}_{-0.42}$	1274^{+48}_{-61}	3336^{+359}_{-275}	17^{+17}_{-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 $A_{obs} \gg 1.0$

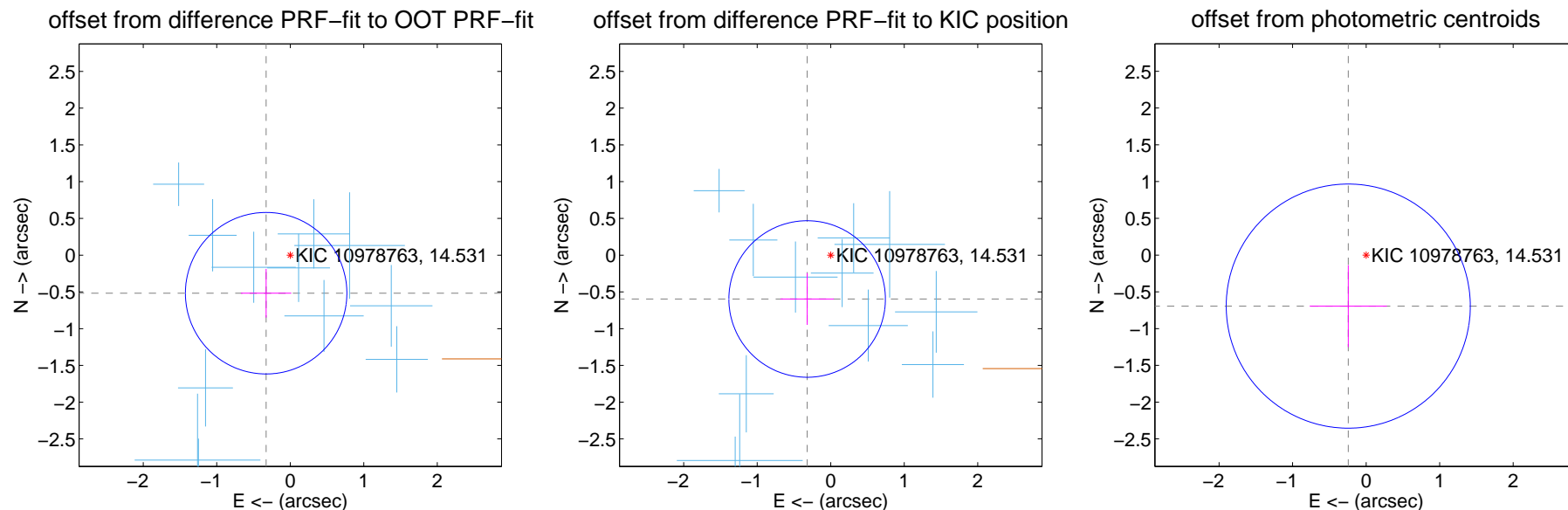
DV Centroid Data

Supplemental centroid analysis for 010978763-02. Kepler magnitude: 14.53. Transit SNR 16.84

There are 12 quarters with good PRF difference image offsets

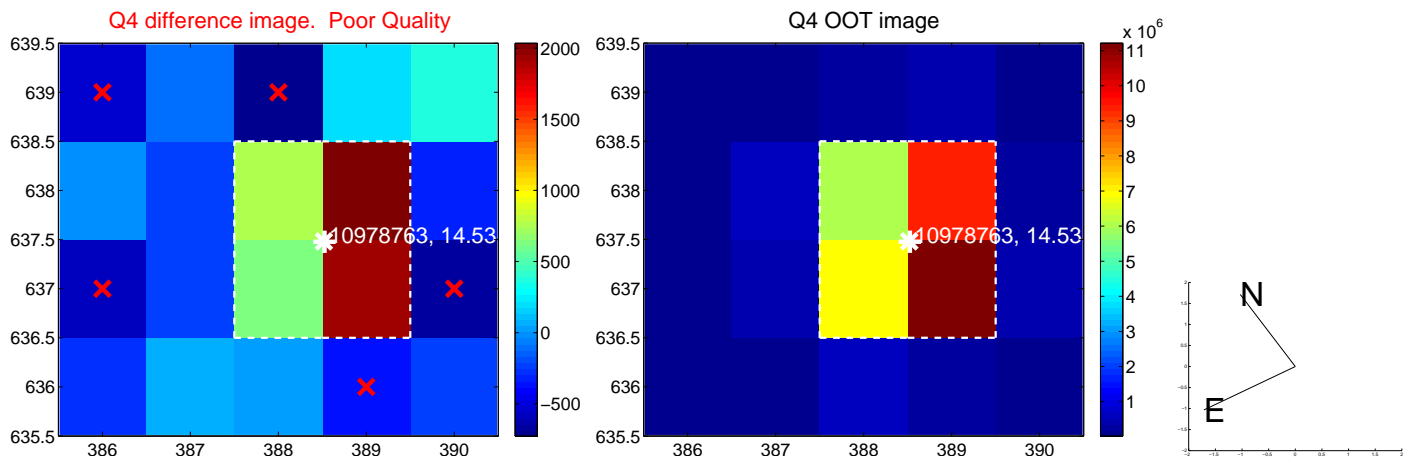
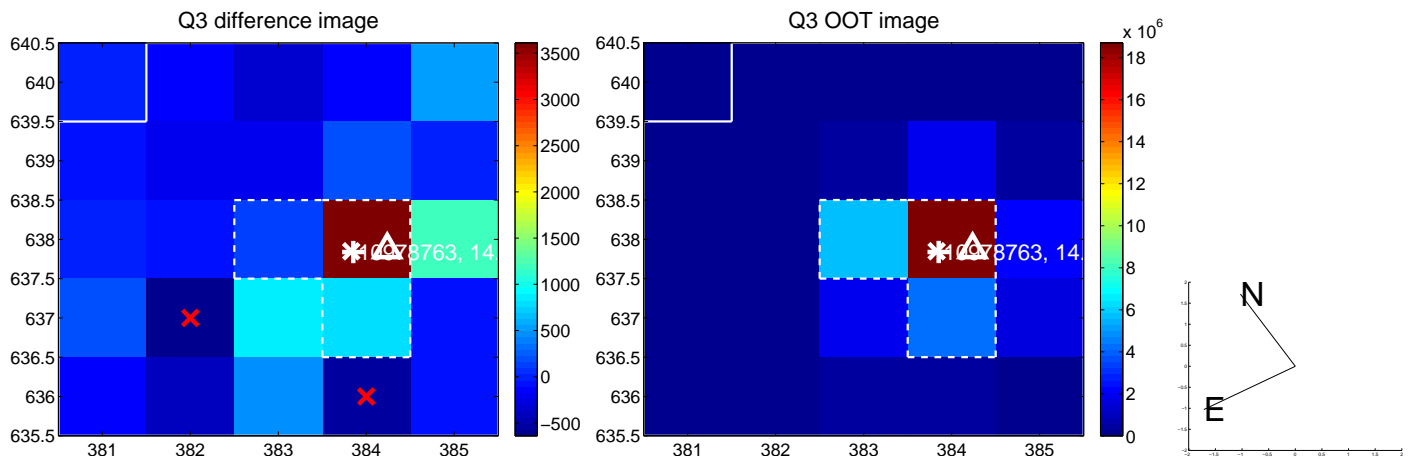
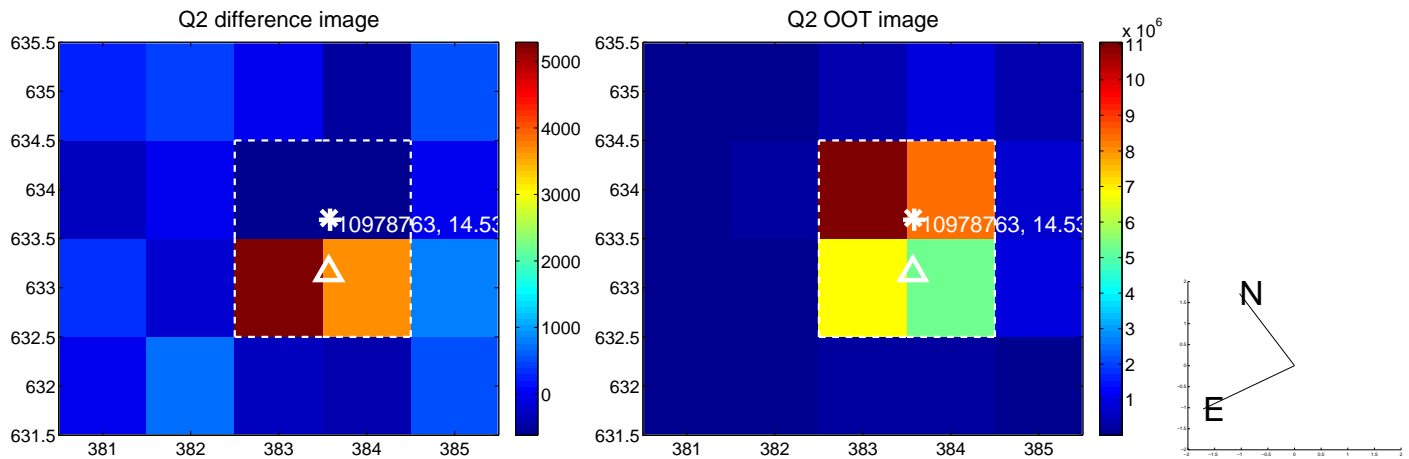
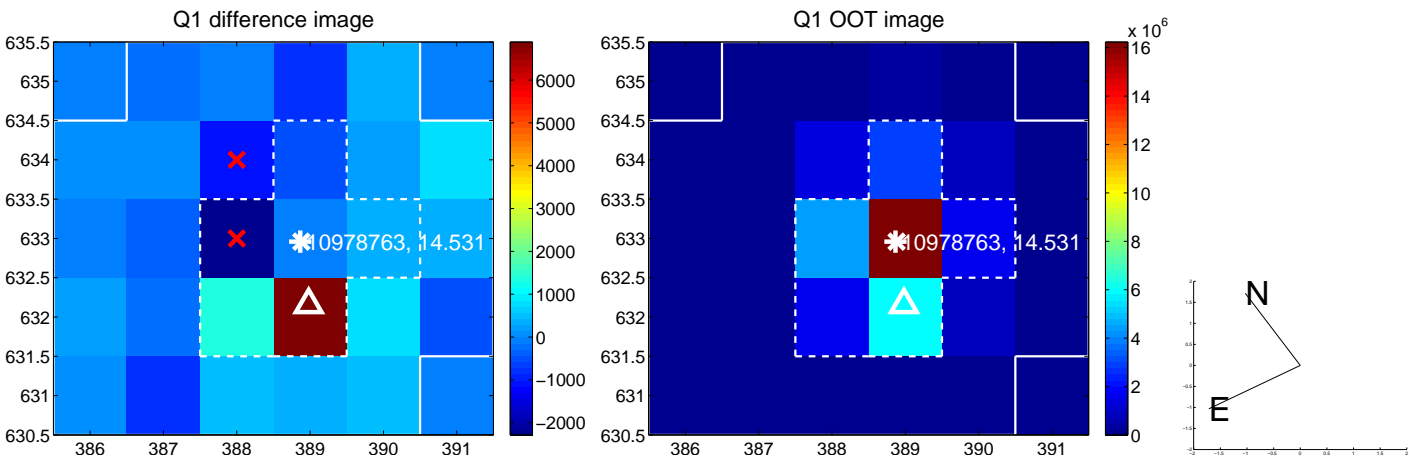
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.613 ± 0.366	1.67	0.328 ± 0.343	-0.518 ± 0.331
PRF-fit source offset from KIC position	0.677 ± 0.355	1.91	0.321 ± 0.363	-0.597 ± 0.353
photometric centroid source offset	0.74 ± 0.55	1.33	0.24 ± 0.53	-0.69 ± 0.56

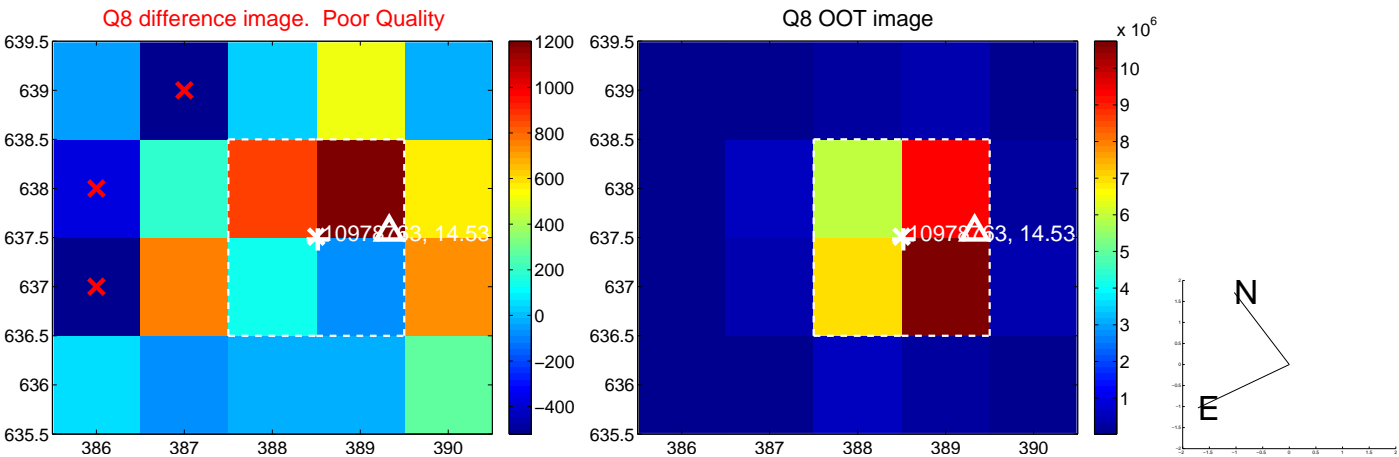
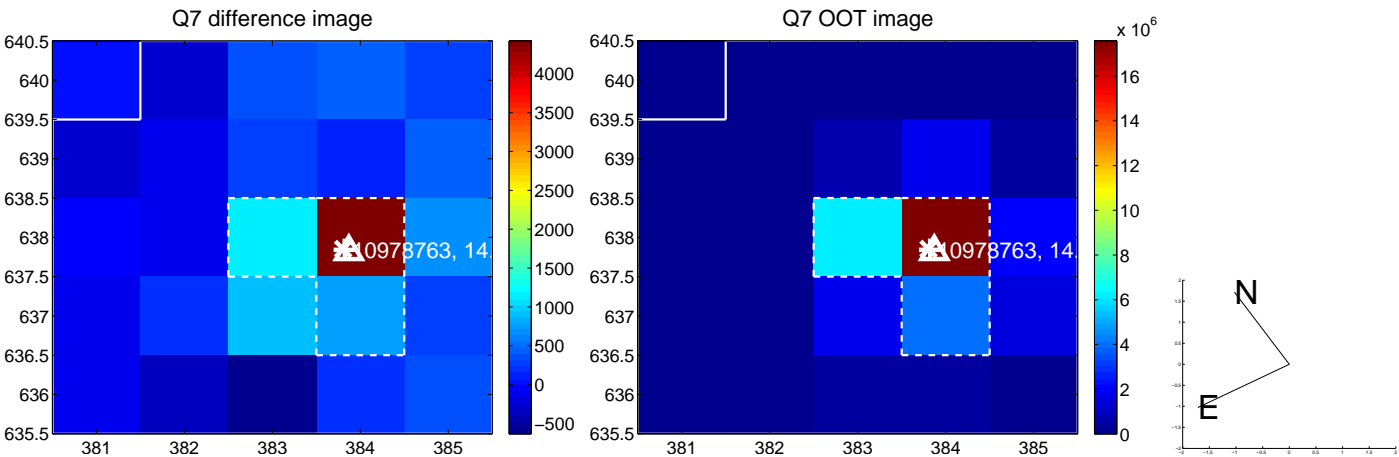
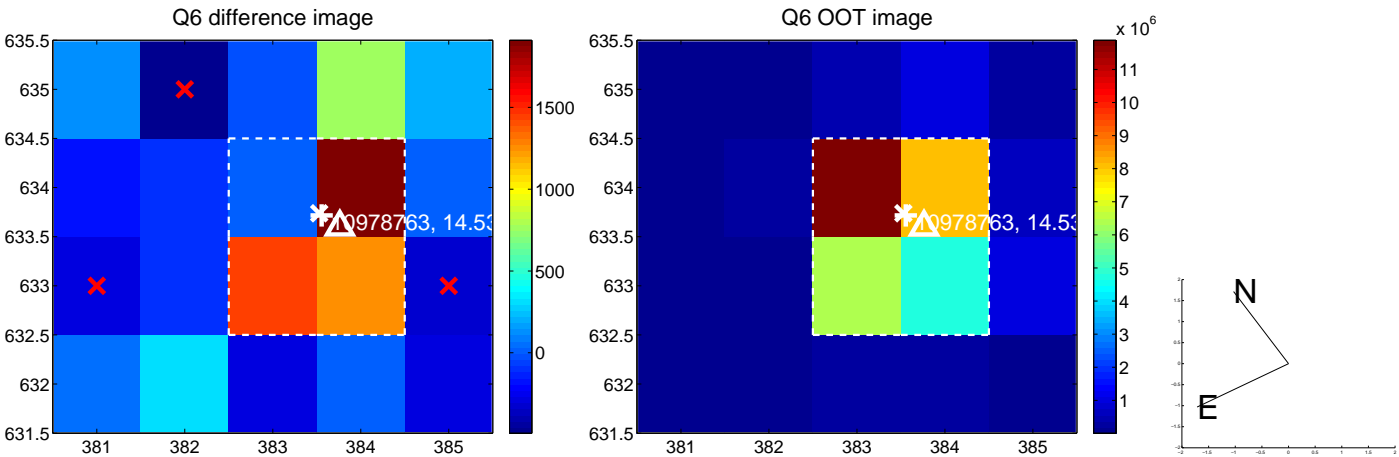
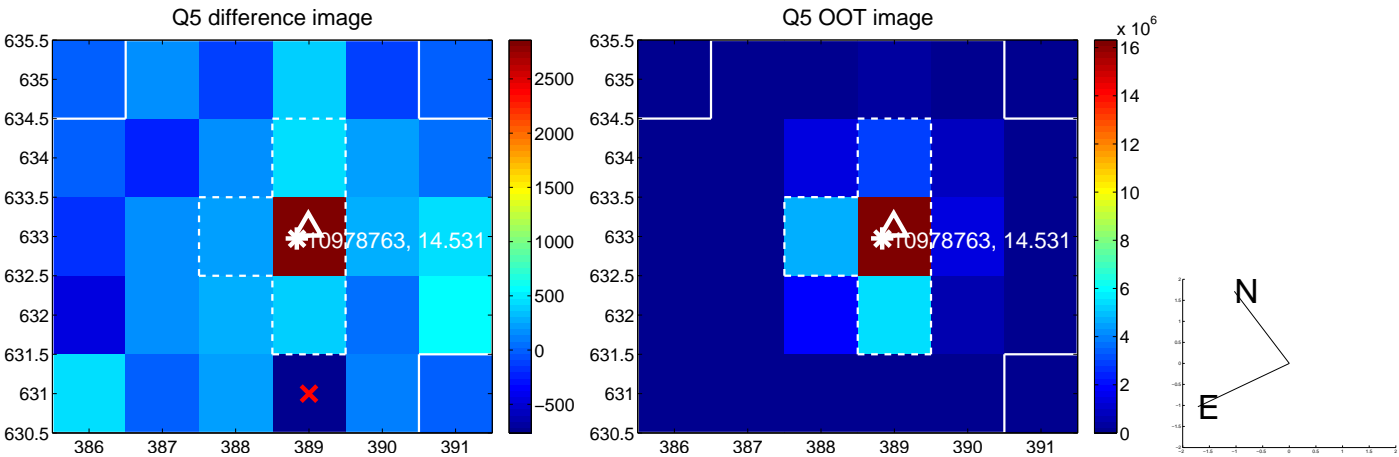


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

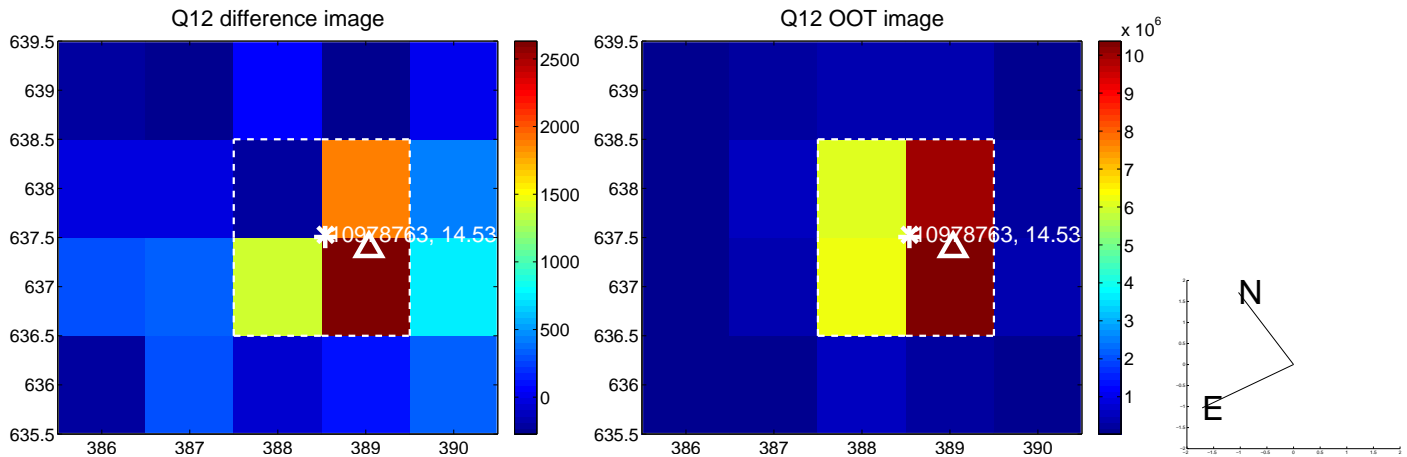
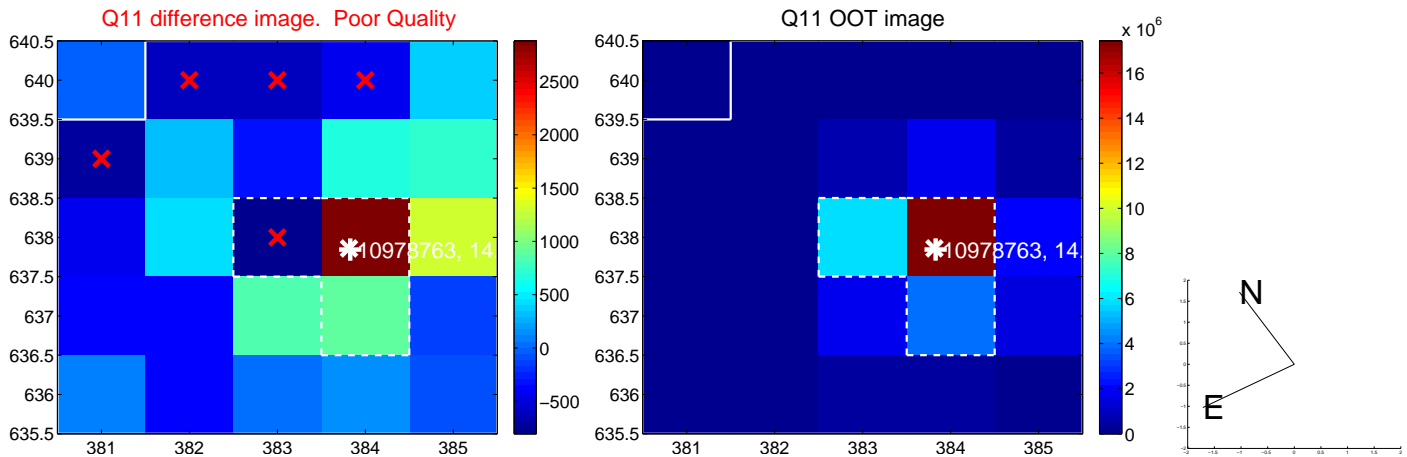
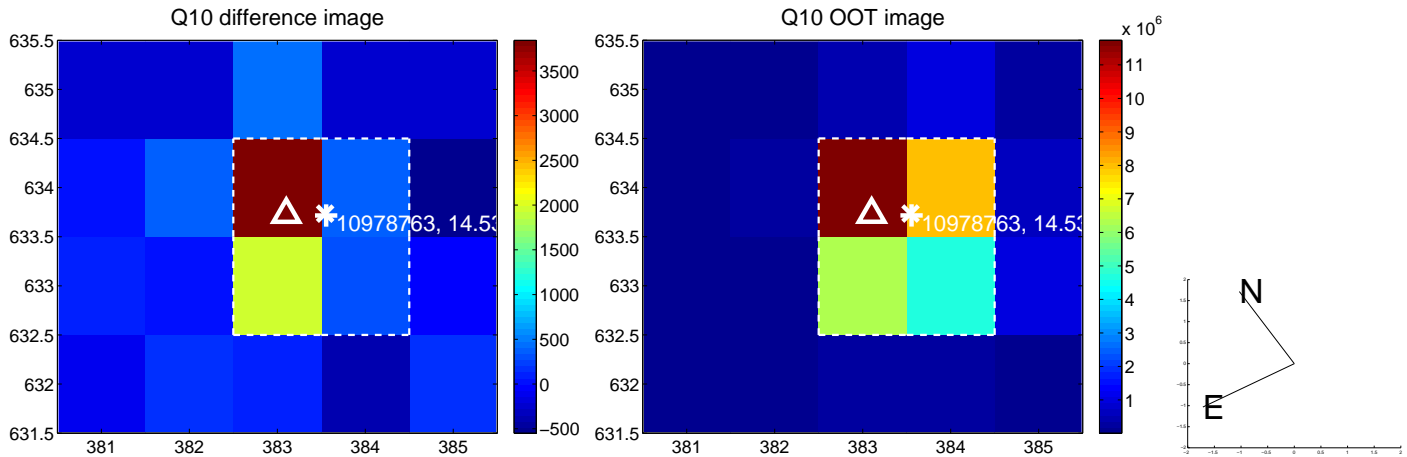
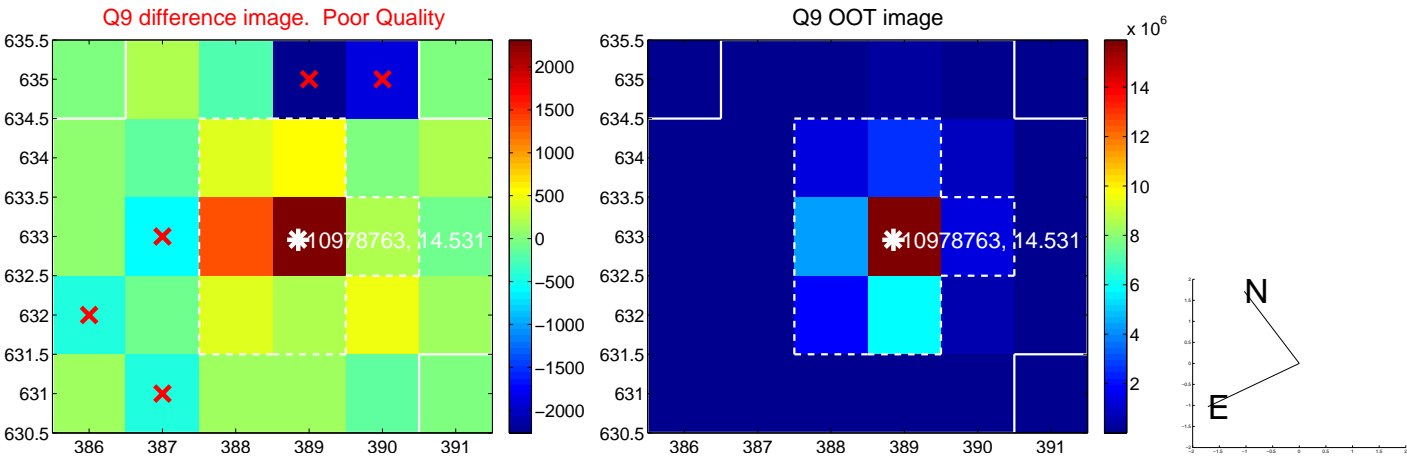
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



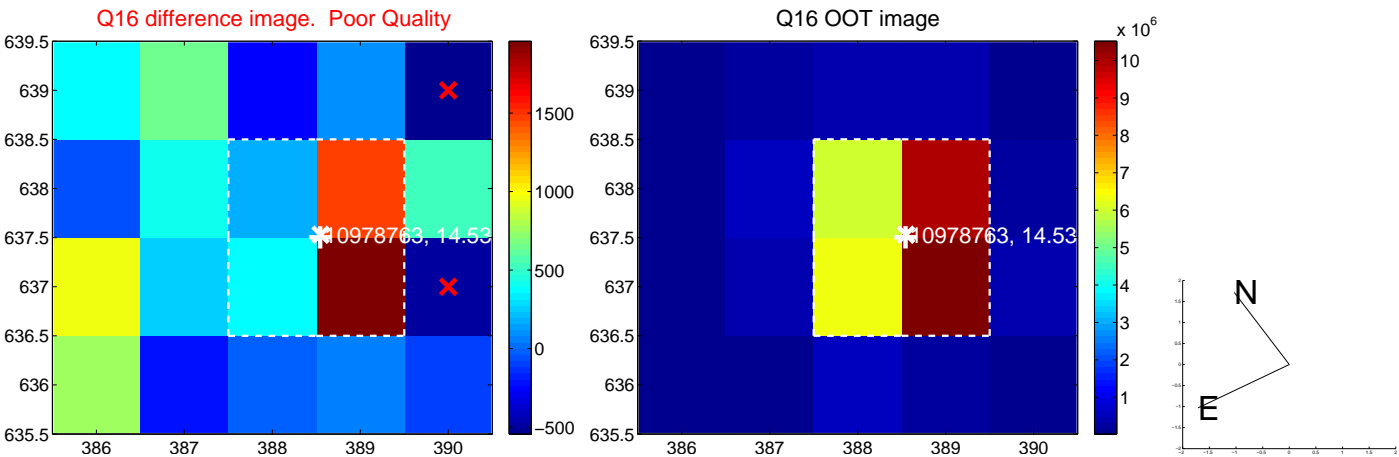
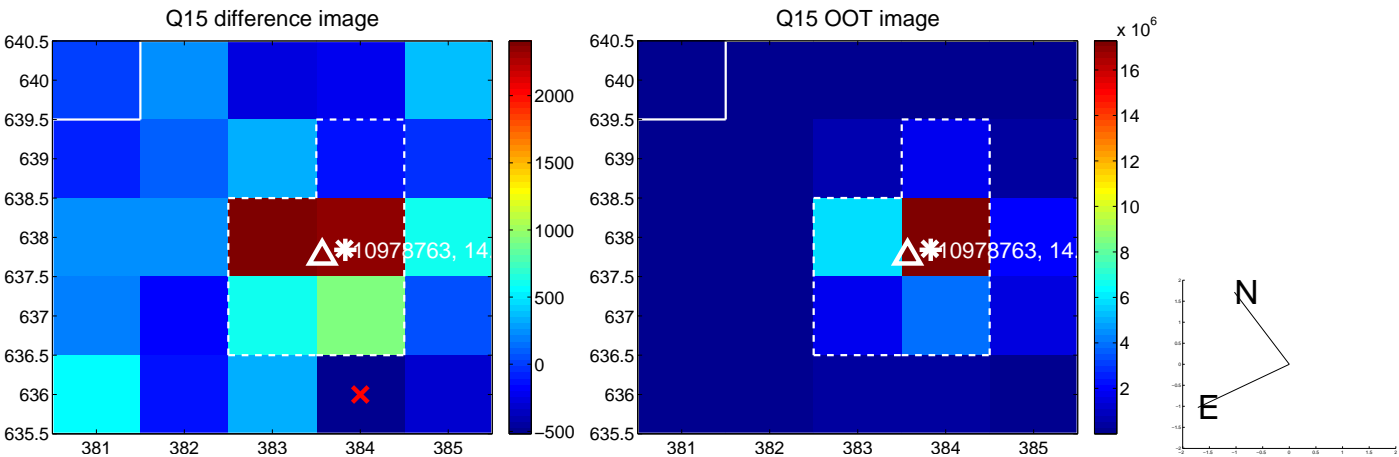
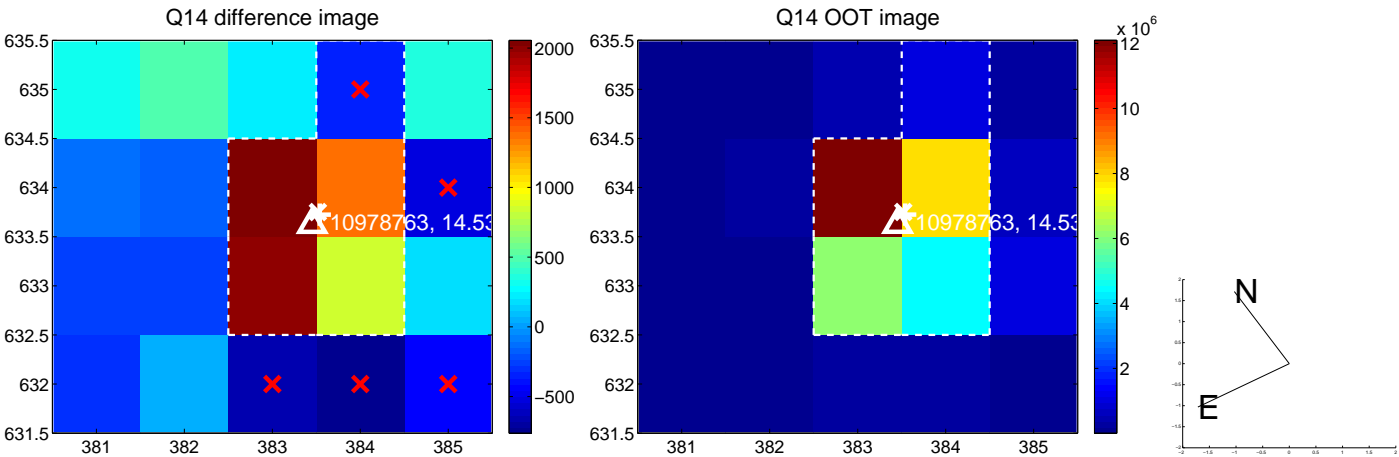
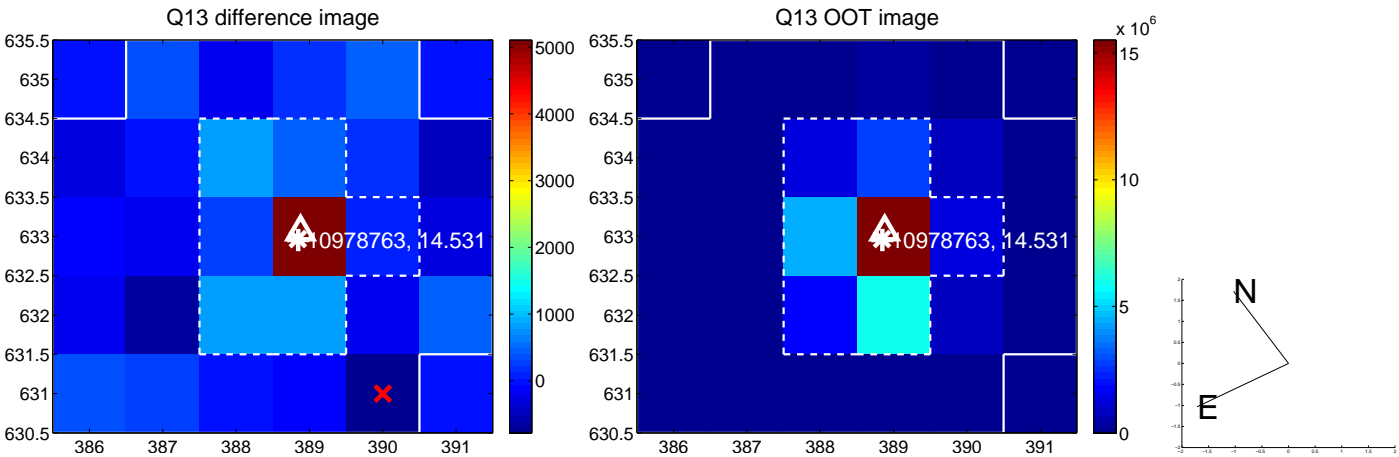
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



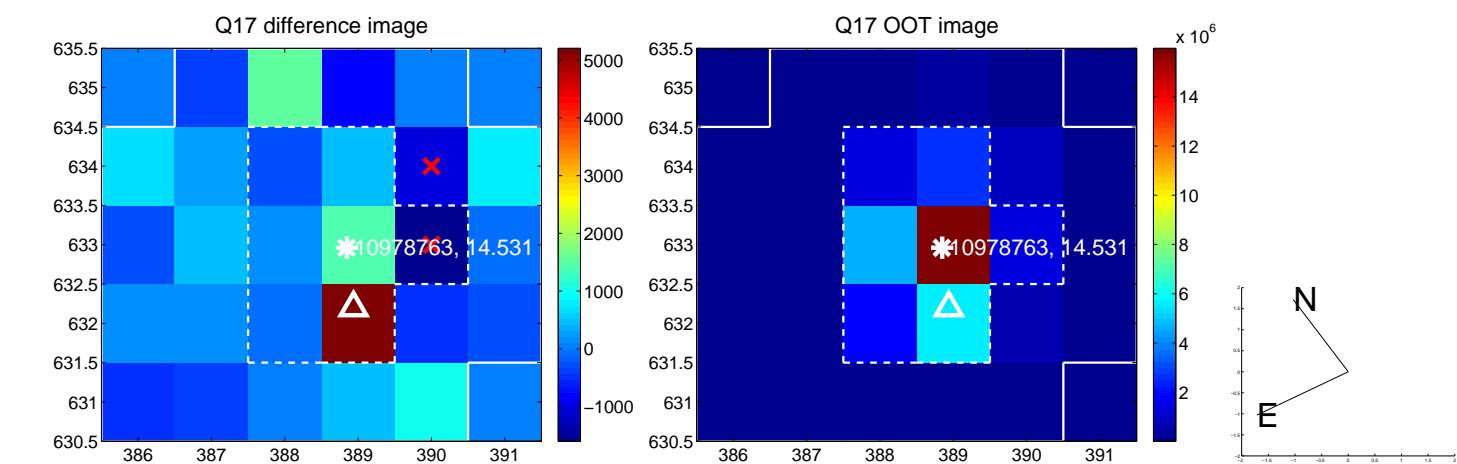
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



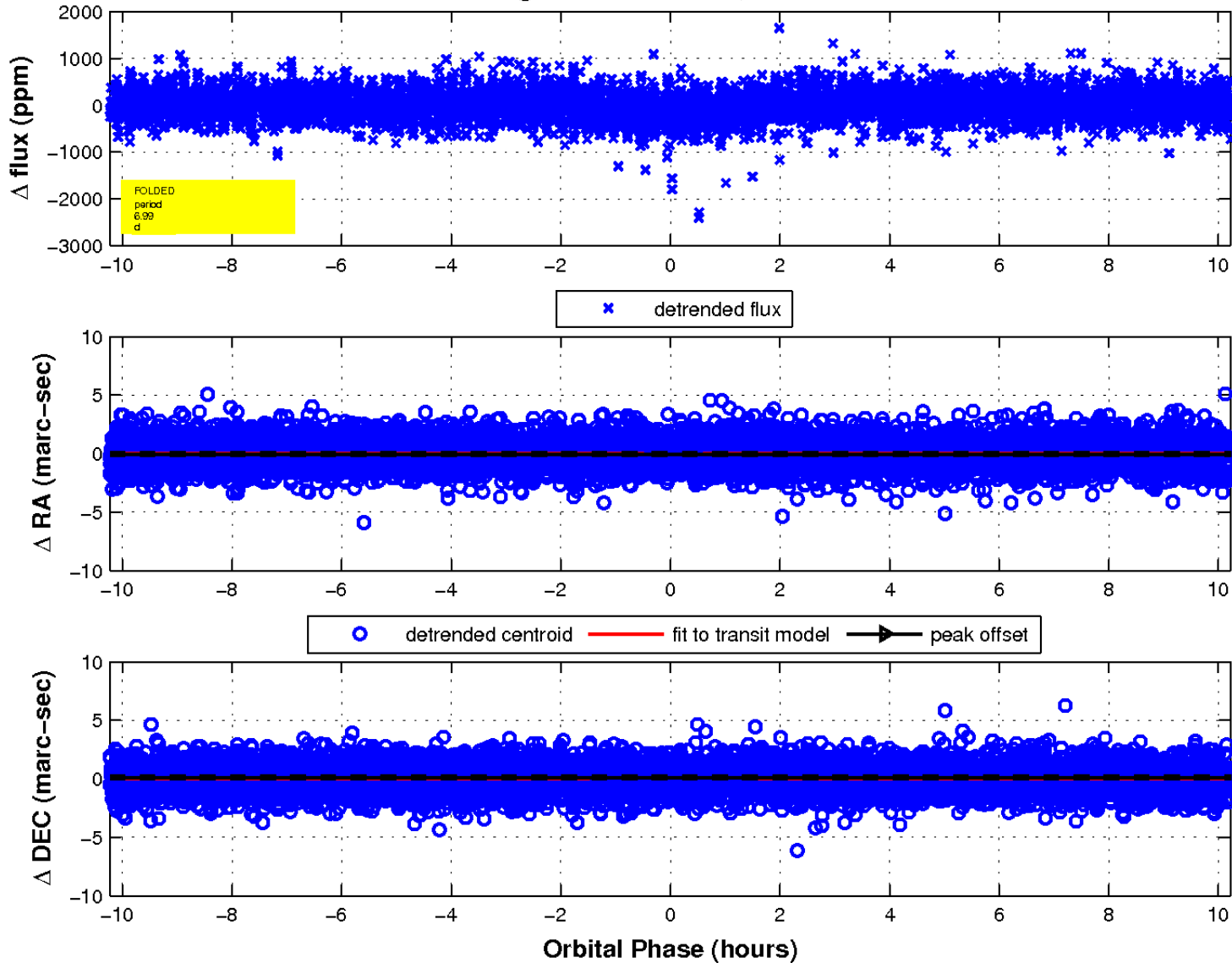
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

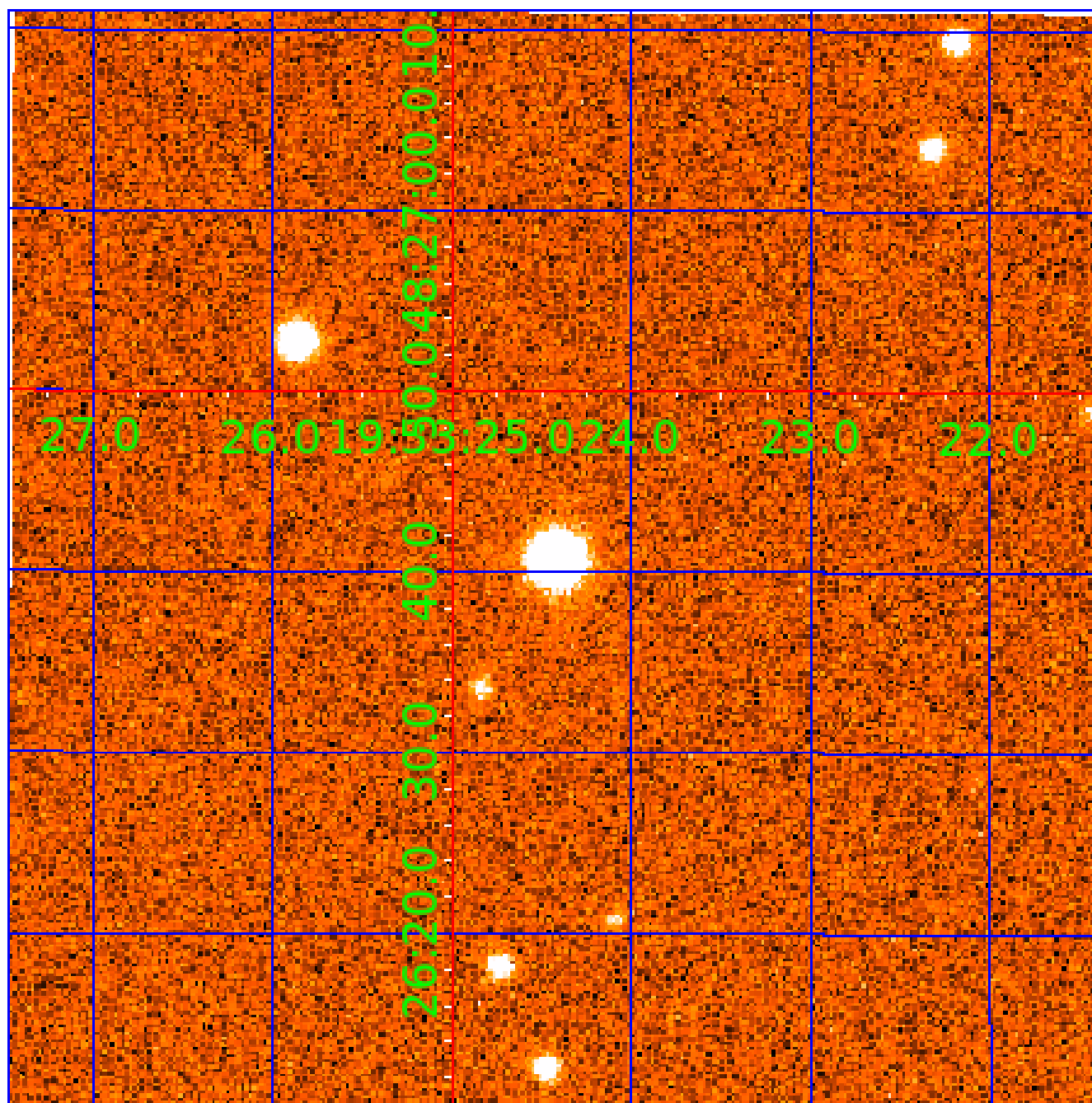


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 010978763

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})
010978763-01	OBS	1931.01	4.977616	134.672431	278.8	2.724	27.3	28.9	1.02	5353	2.06	259.32
010978763-02	OBS	1931.03	6.988098	132.563672	185.8	3.409	16.1	16.8	1.02	5353	1.69	164.96
010978763-03	OBS	1931.02	10.558369	136.348381	192.5	3.526	12.9	14.1	1.02	5353	1.70	95.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010978763-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010978763-02	OBS	PC	0.97	0	0	0	0	NO_COMMENT
010978763-03	OBS	PC	0.98	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

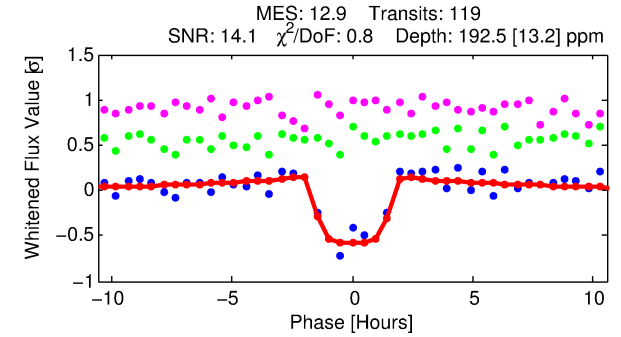
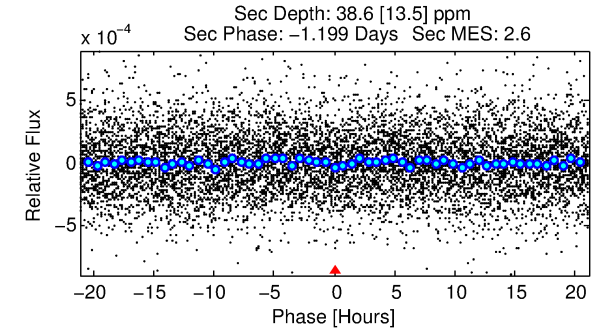
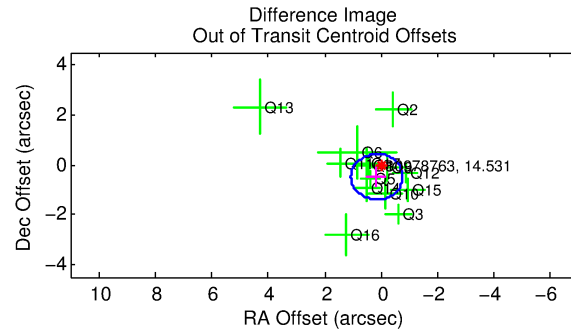
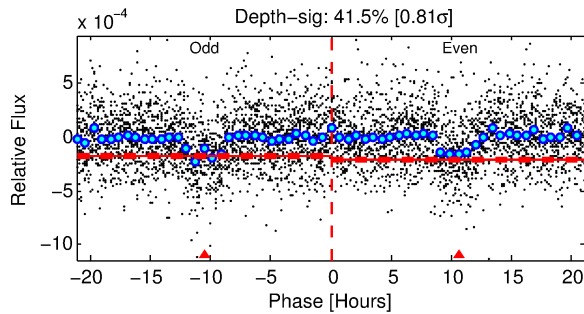
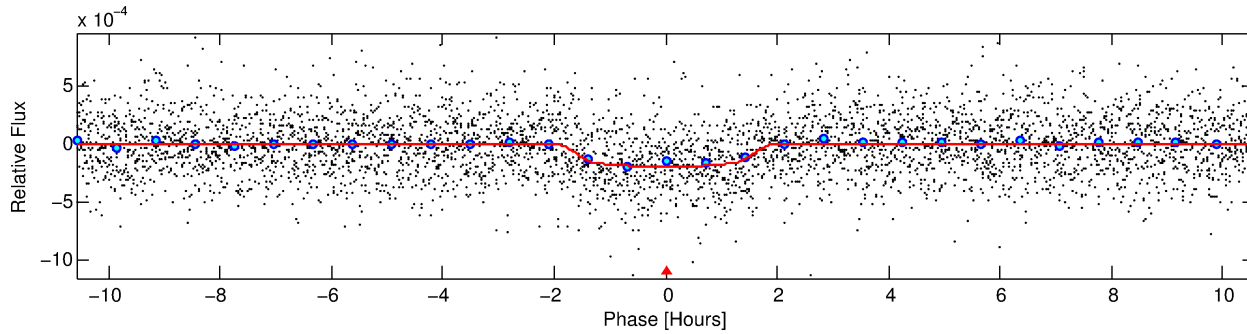
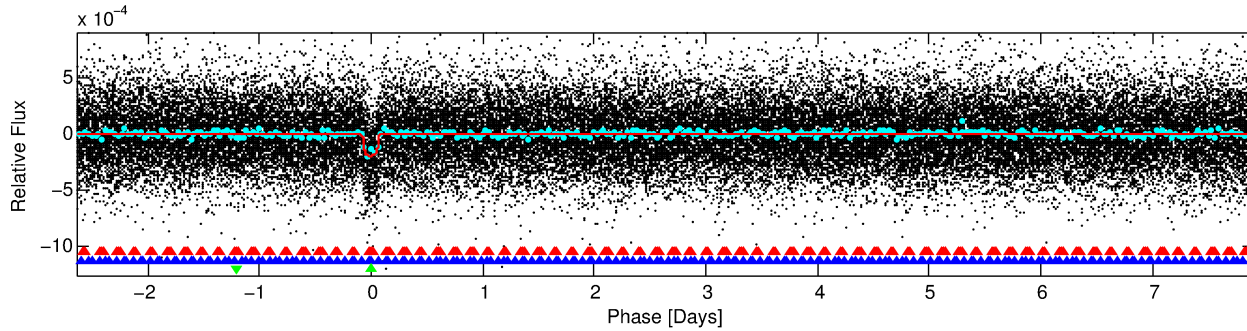
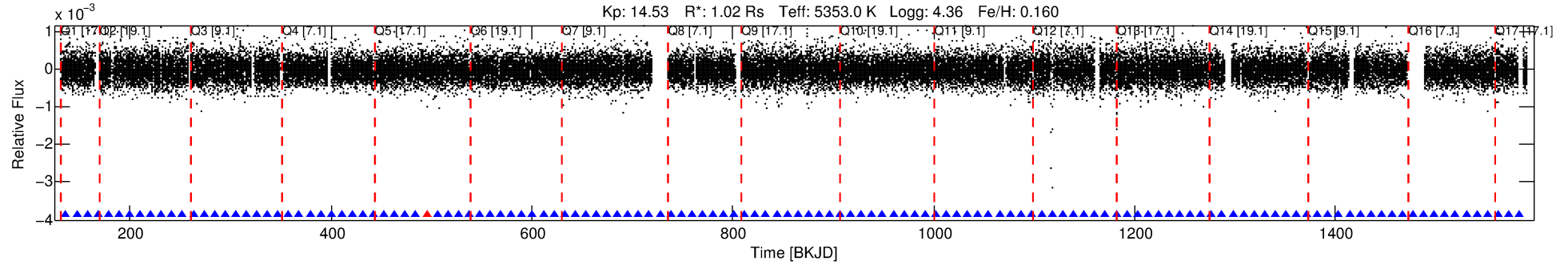
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010978763-03

No Significant Match Found

DV One-Page Summary

KIC: 10978763 Candidate: 3 of 3 Period: 10.558 d
KOI: K01931.02 Name: Kepler-339d Corr: 0.978



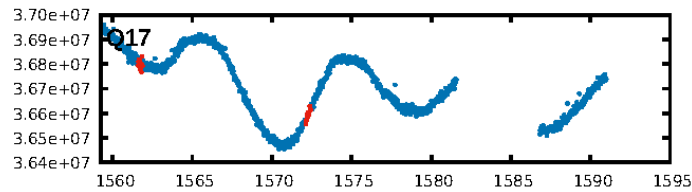
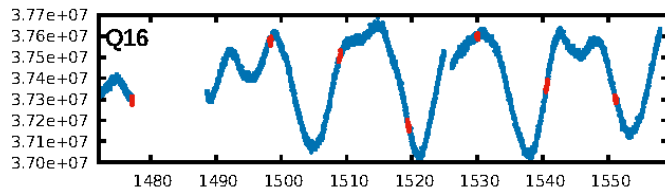
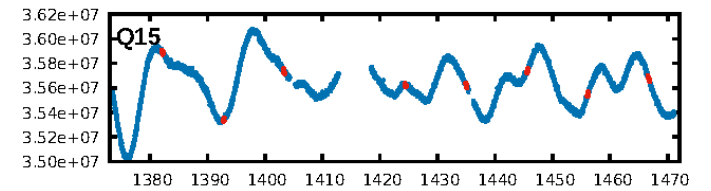
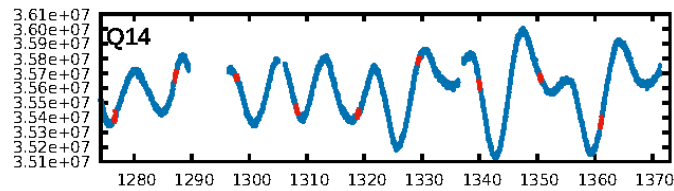
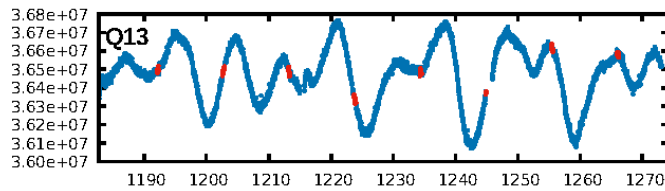
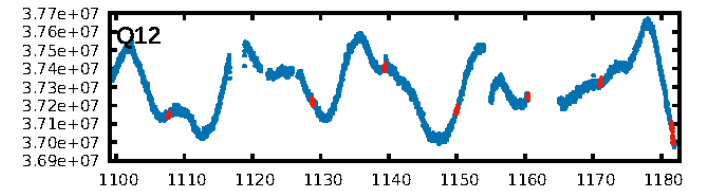
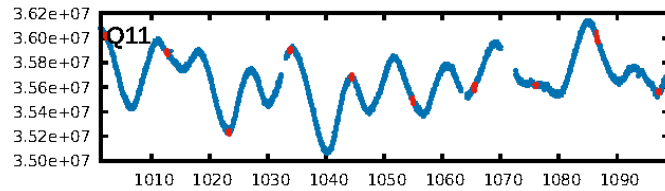
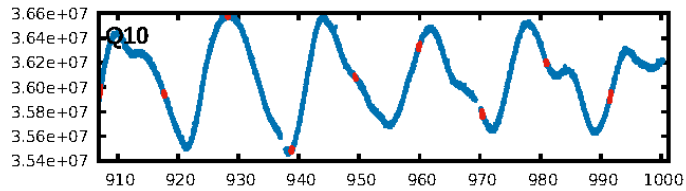
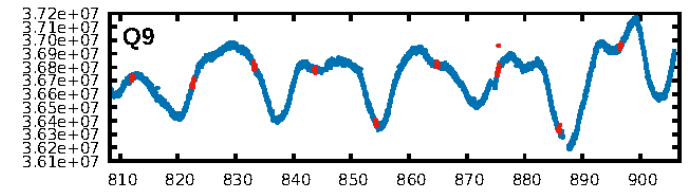
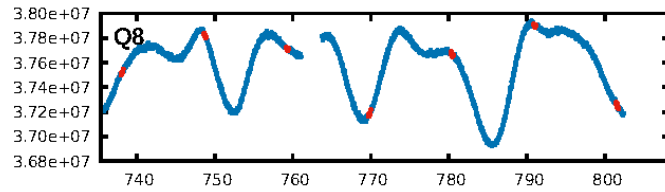
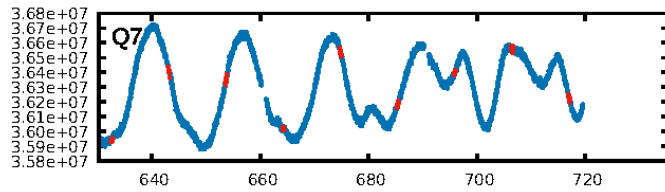
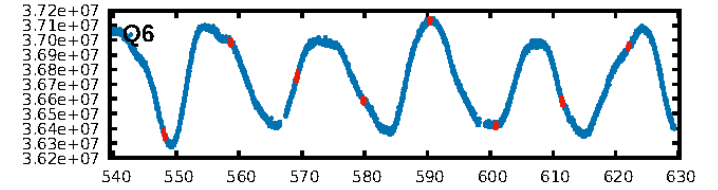
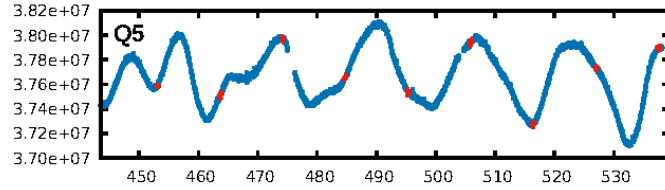
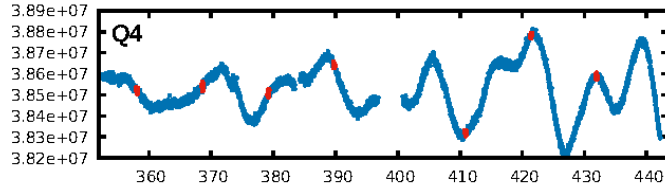
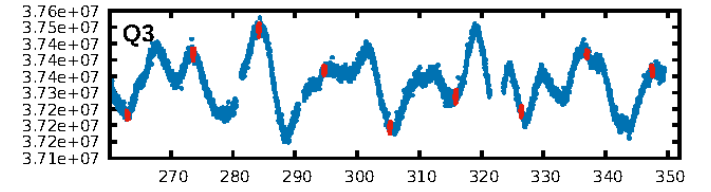
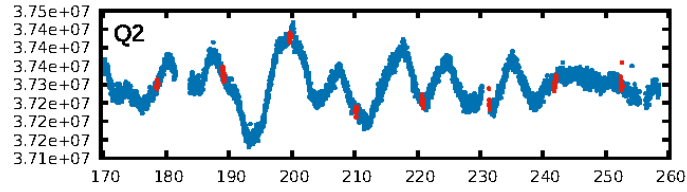
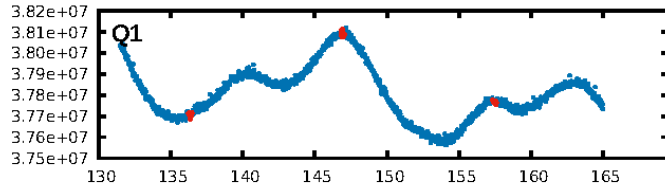
DV Fit Results:

Period = 10.55837 [0.00006] d
Epoch = 136.3484 [0.0043] BKJD
Rp/R* = 0.0152 [0.0052]
a/R* = 11.11 [15.91]
b = 0.89 [0.34]
Seff = 95.15 [22.57]
Teq = 796 [47] K
Rp = 1.70 [0.63] Re
a = 0.0900 [0.0126] AU
Ag = 59.52 [47.79] [1.22 σ]
Teffp = 3420 [660] K [3.97 σ]

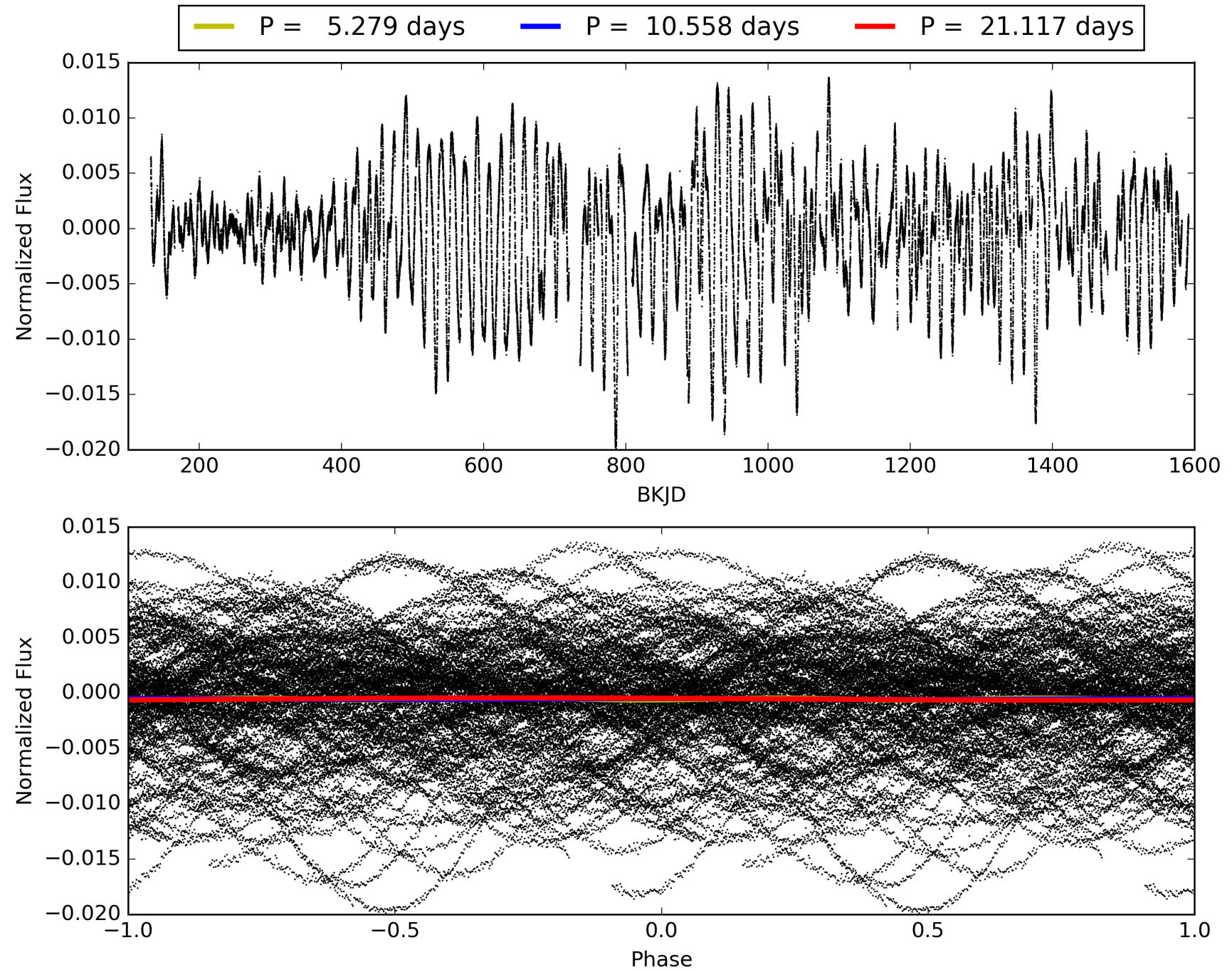
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.47 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.15e-37
RollingBand-fgt: 0.99 [113/114]
GhostDiagnostic-chr: 3.411
Centroid-sig: 0.4%
Centroid-so: 1.534 arcsec [2.48 σ]
OotOffset-rm: 0.510 arcsec [1.68 σ]
KicOffset-rm: 0.567 arcsec [1.73 σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010978763-03, PDC Light Curves

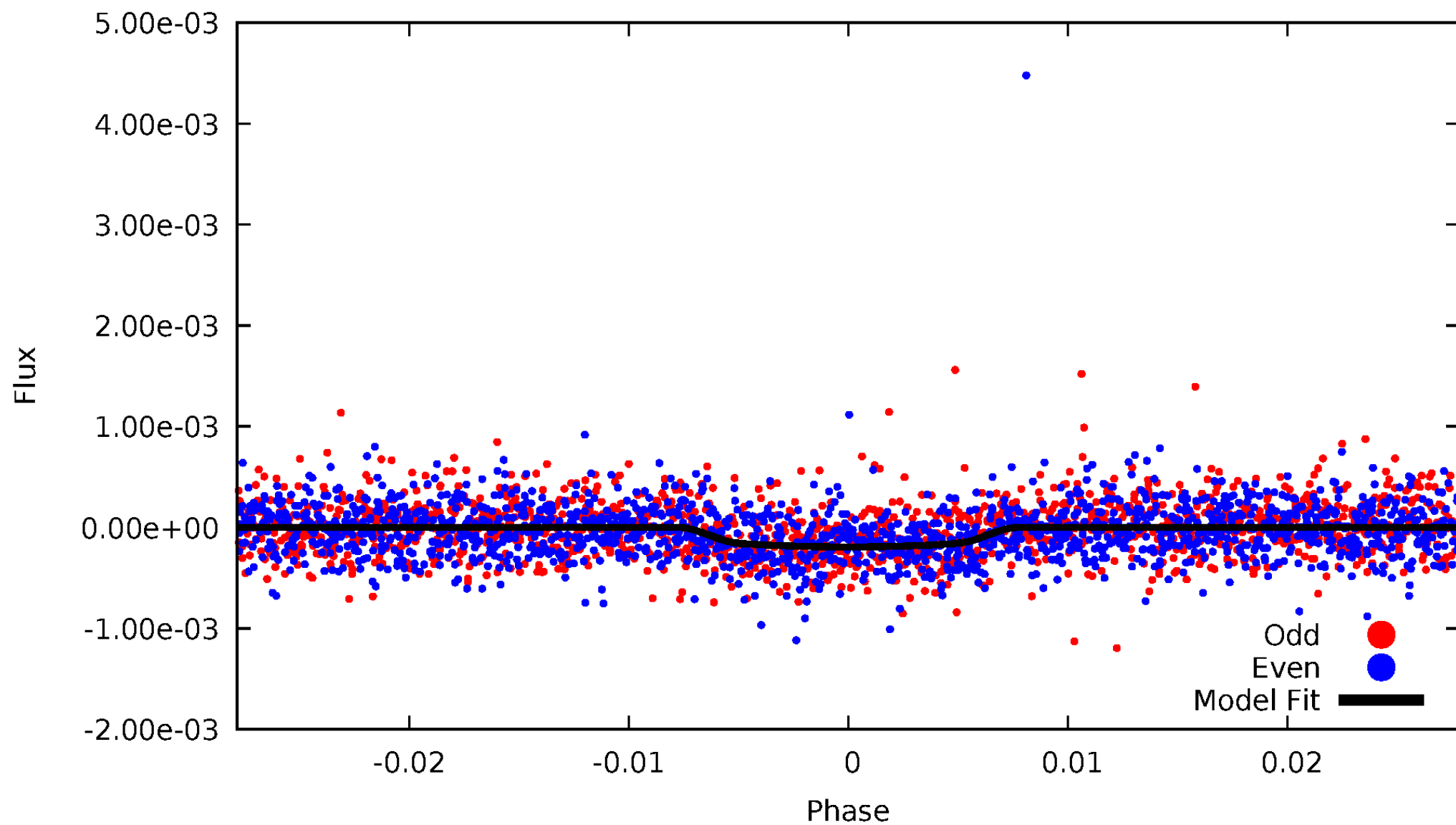


TCE 010978763-03



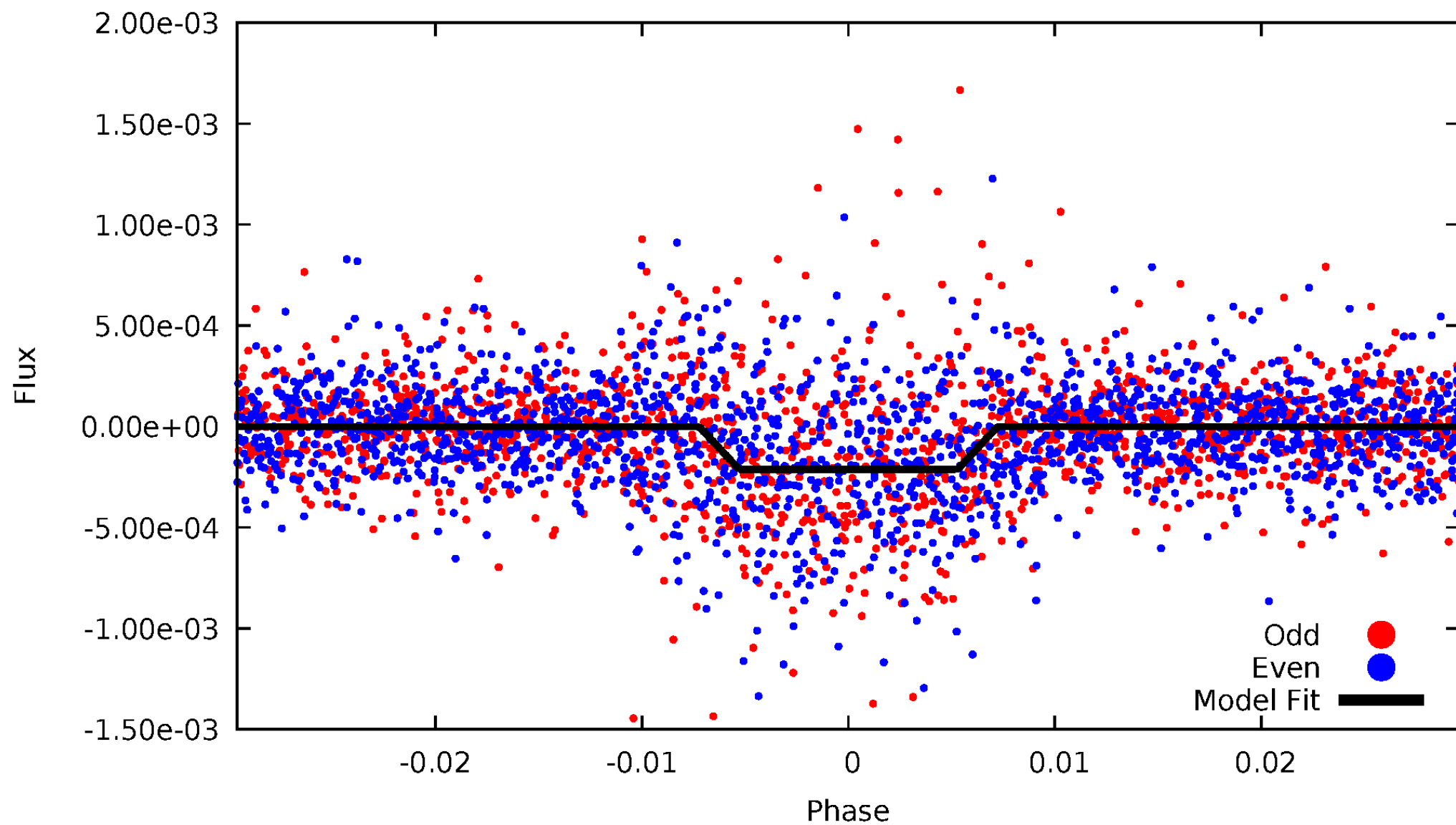
DV Odd/Even

TCE 010978763-03

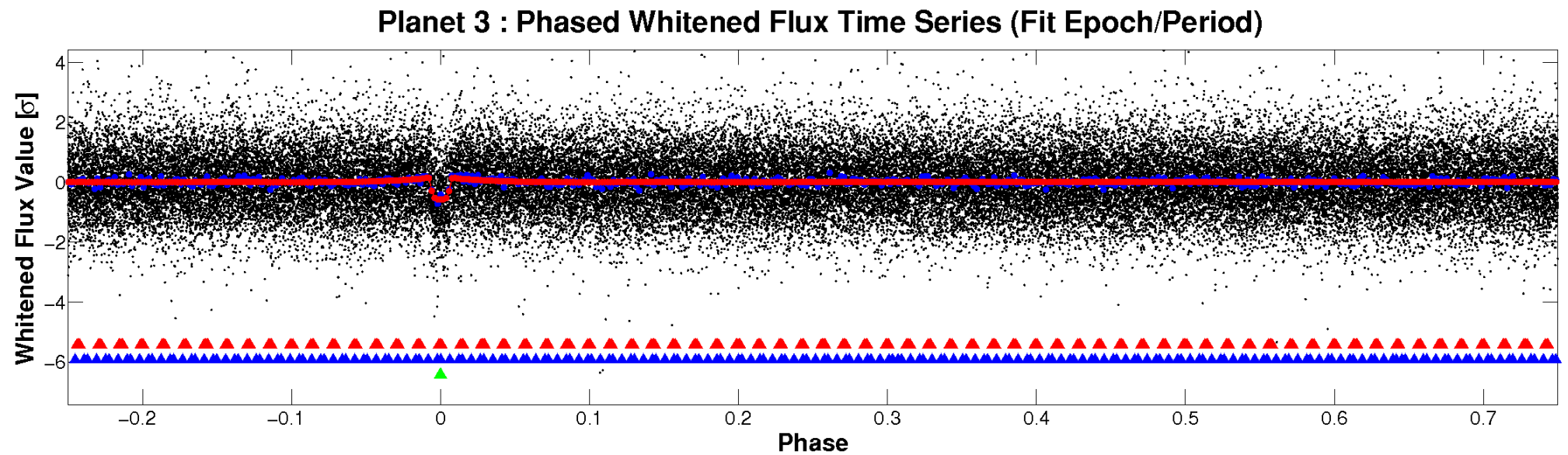
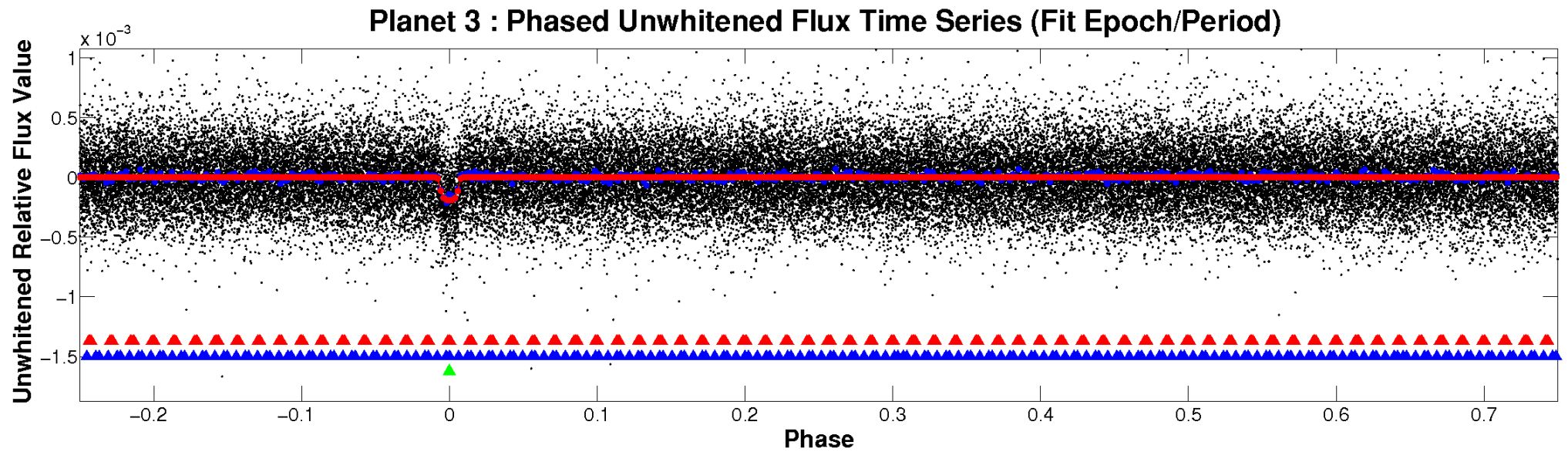


ALT Odd/Even

TCE 010978763-03

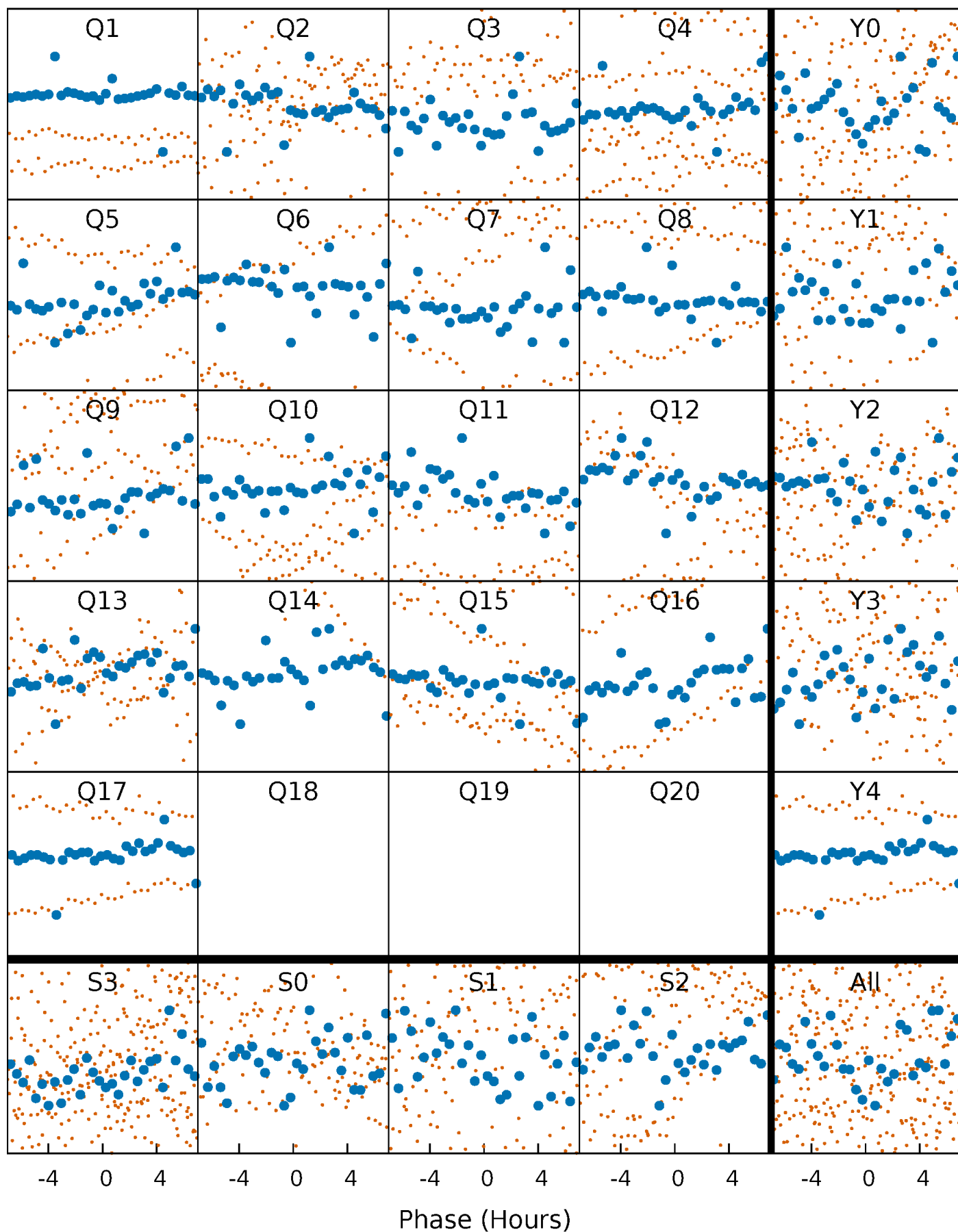


Non-Whitened Vs. Whitened Light Curve



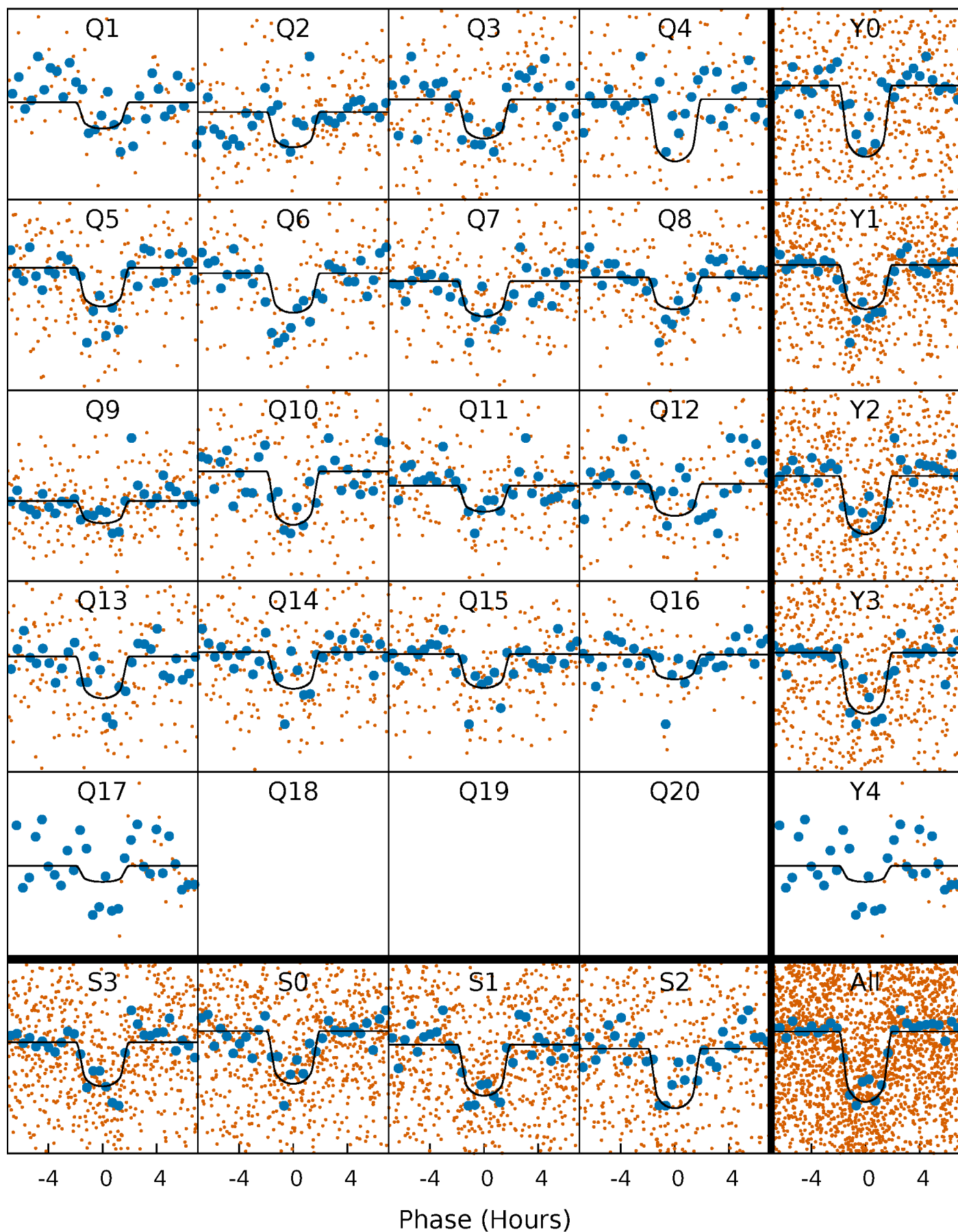
PDC Quarter-Phased Transit Curves

TCE 010978763-03 P= 10.558369 Days $T_0=136.348381$ (BKJD)



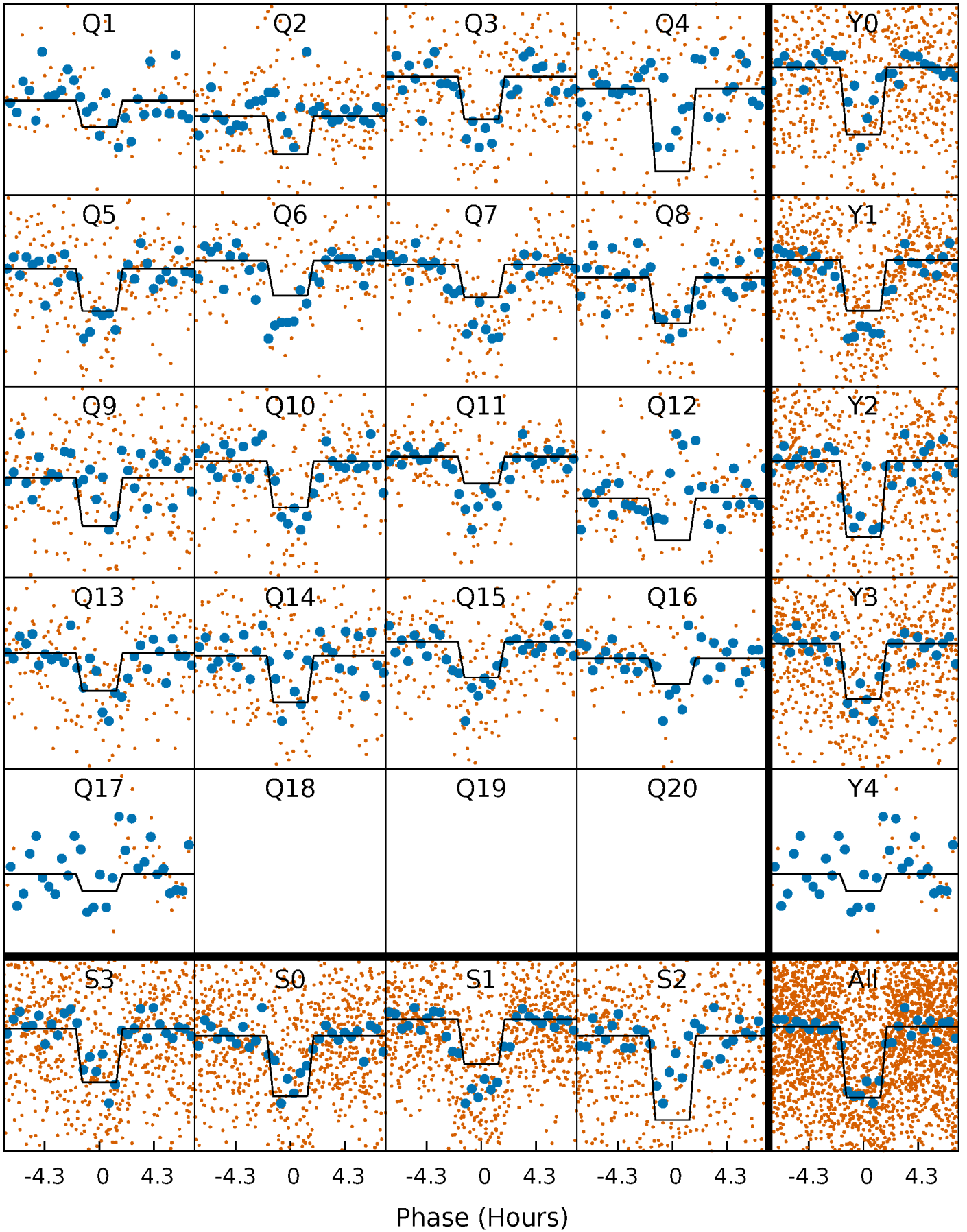
DV Quarter-Phased Transit Curves

TCE 010978763-03 P= 10.558369 Days $T_0=136.348381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

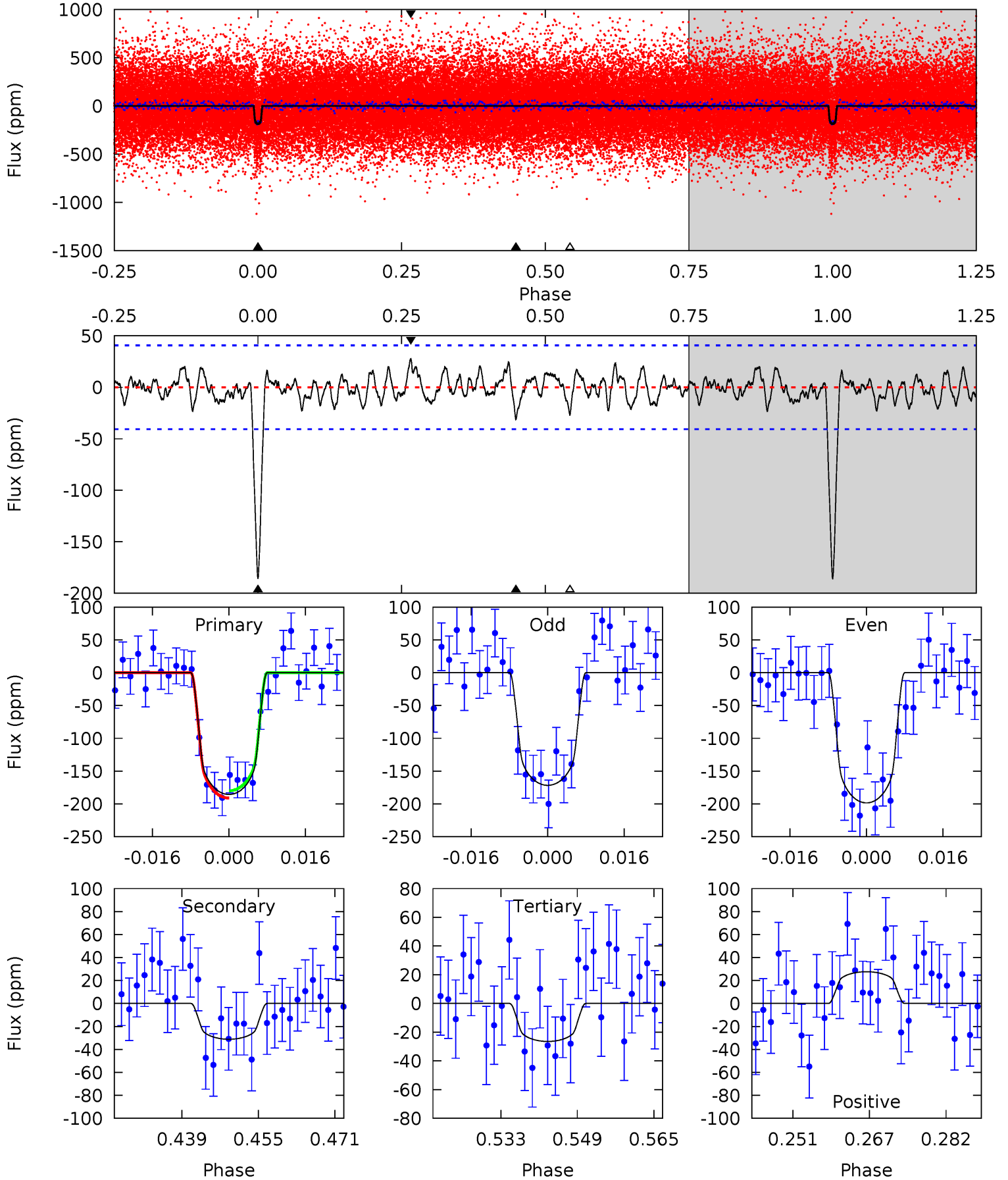
TCE 010978763-03 P= 10.558455 Days $T_0=136.341612$ (BKJD)



DV Model-Shift Uniqueness Test

010978763-03, P = 10.558369 Days, E = 125.790012 Days

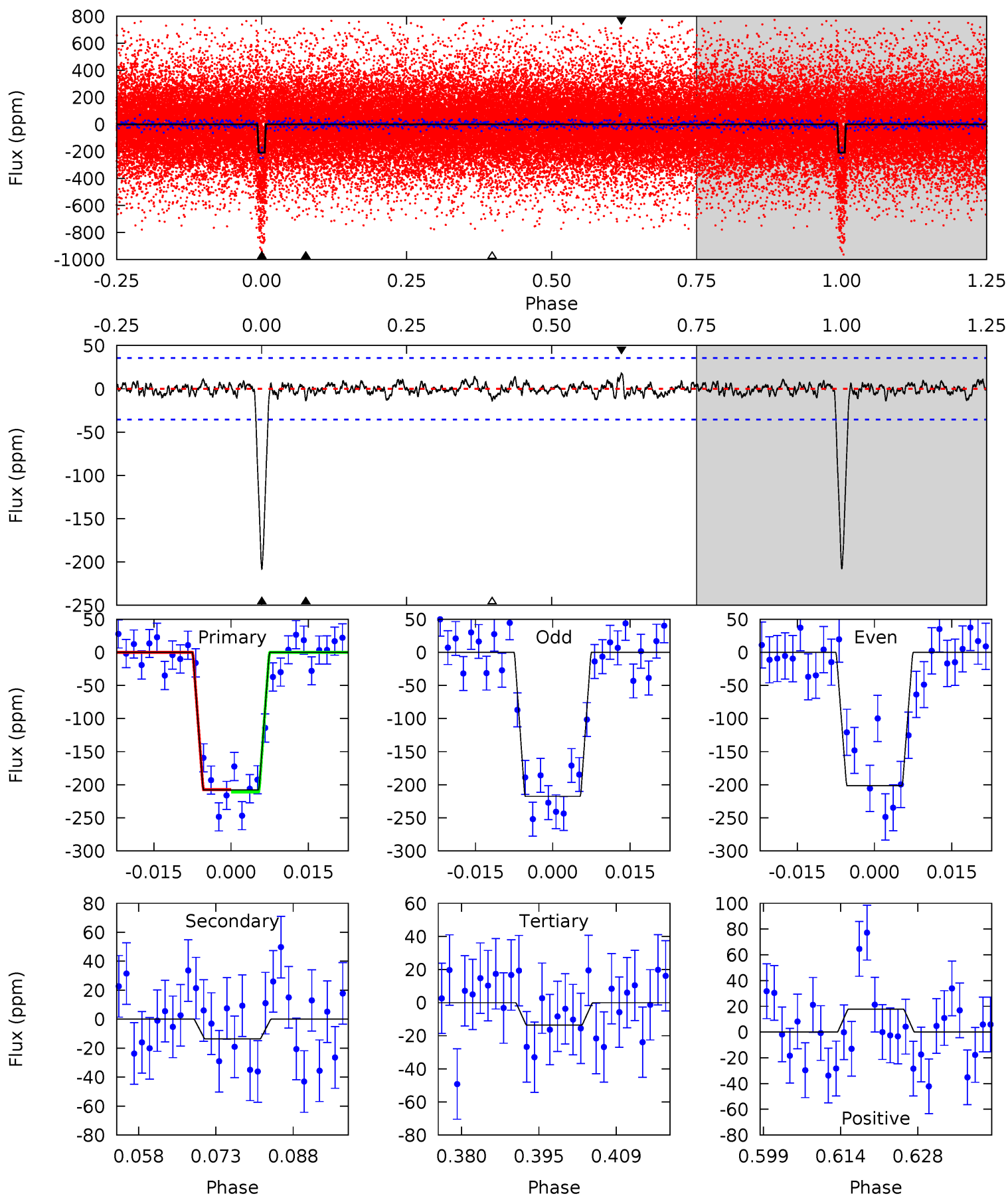
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	3.79	3.22	3.36	4.94	2.42	1.20	19.3	19.2	0.57	0.43	1.63	0.95	0.13	0.67



Alt Model-Shift Uniqueness Test

010978763-03, P = 10.558455 Days, E = 125.783157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.0	1.90	1.89	2.49	4.95	2.44	0.70	27.1	26.5	0.00	-0.59	1.12	1.01	0.08	0.26



Stellar Parameters For KIC 010978763

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5353^{+80}_{-72}	$4.358^{+0.137}_{-0.100}$	$0.160^{+0.150}_{-0.100}$	$1.023^{+0.141}_{-0.141}$	$0.870^{+0.064}_{-0.032}$	$1.146^{+0.686}_{-0.365}$
	+1%/-1%	+3%/-2%	+94%/-62%	+14%/-14%	+7%/-4%	+60%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 010978763-03 / KOI 1931.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-31 ± 8	$1.70^{+0.56}_{-0.61}$	1108^{+44}_{-47}	3630^{+604}_{-361}	48^{+69}_{-24}
Alt.	-14 ± 7	$1.64^{+0.56}_{-0.62}$	1110^{+45}_{-49}	3214^{+536}_{-427}	22^{+37}_{-14}

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 $A_{obs} \gg 1.0$

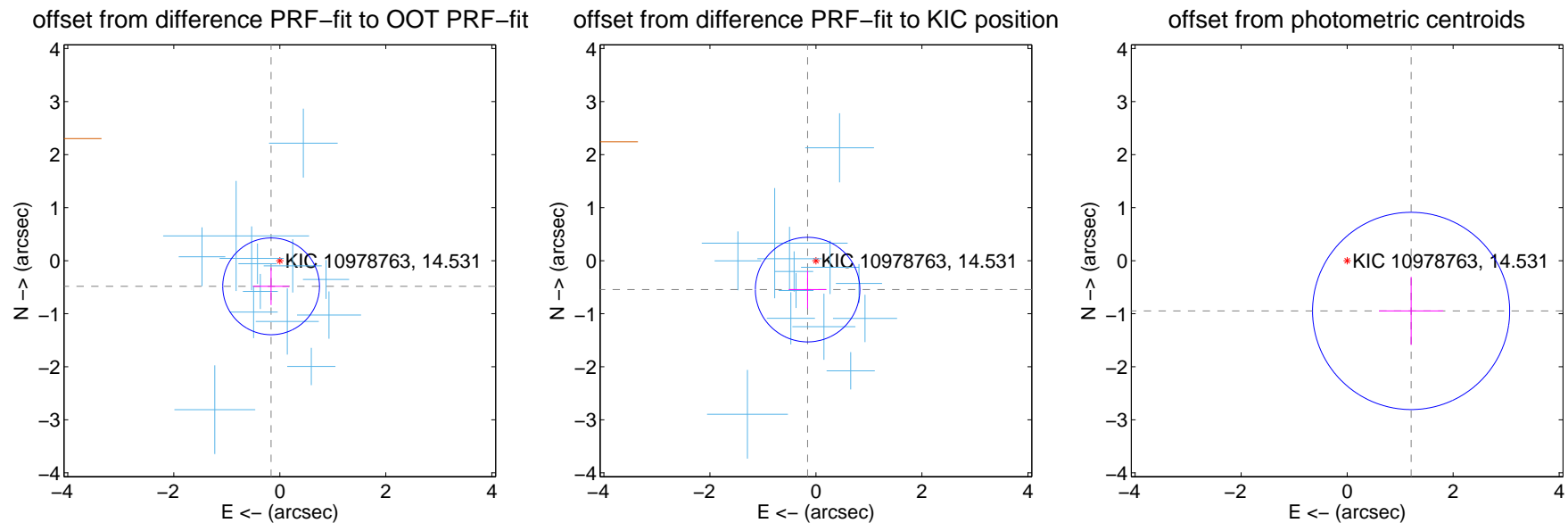
DV Centroid Data

Supplemental centroid analysis for 010978763-03. Kepler magnitude: 14.53. Transit SNR 14.07

There are 13 quarters with good PRF difference image offsets

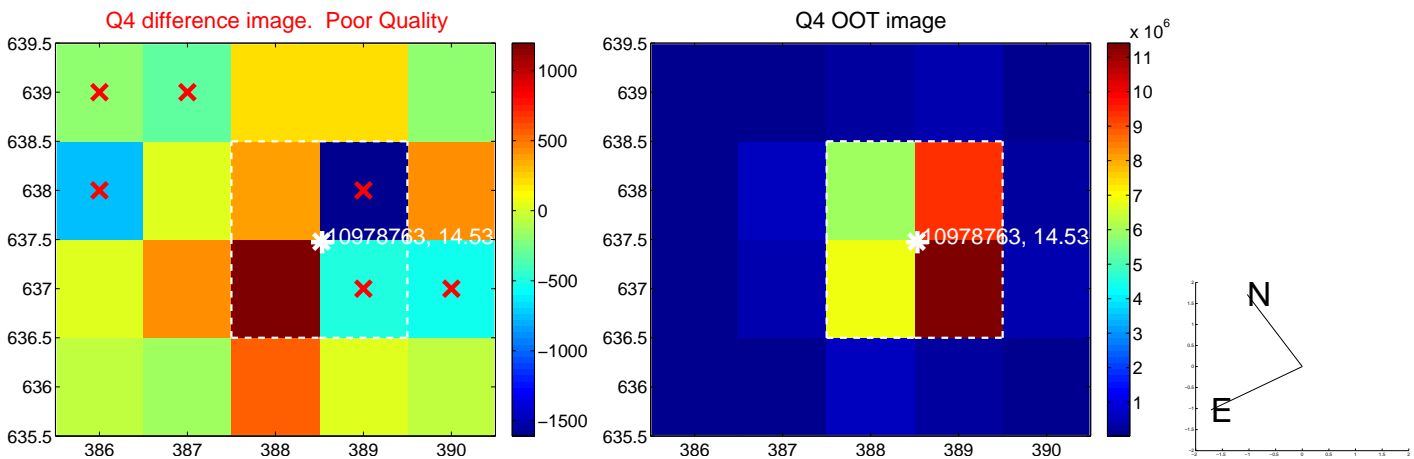
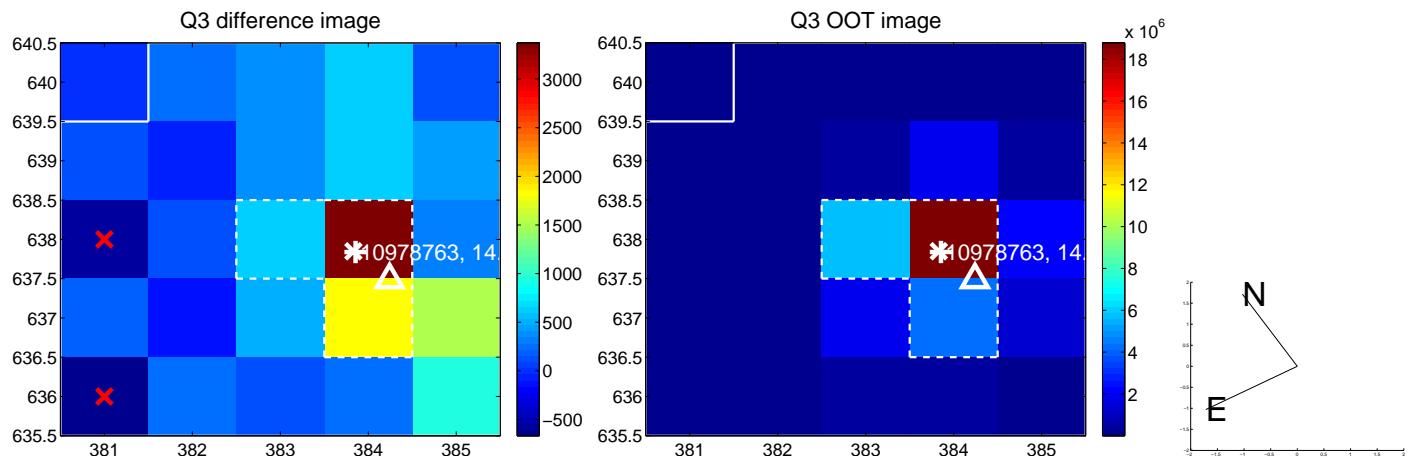
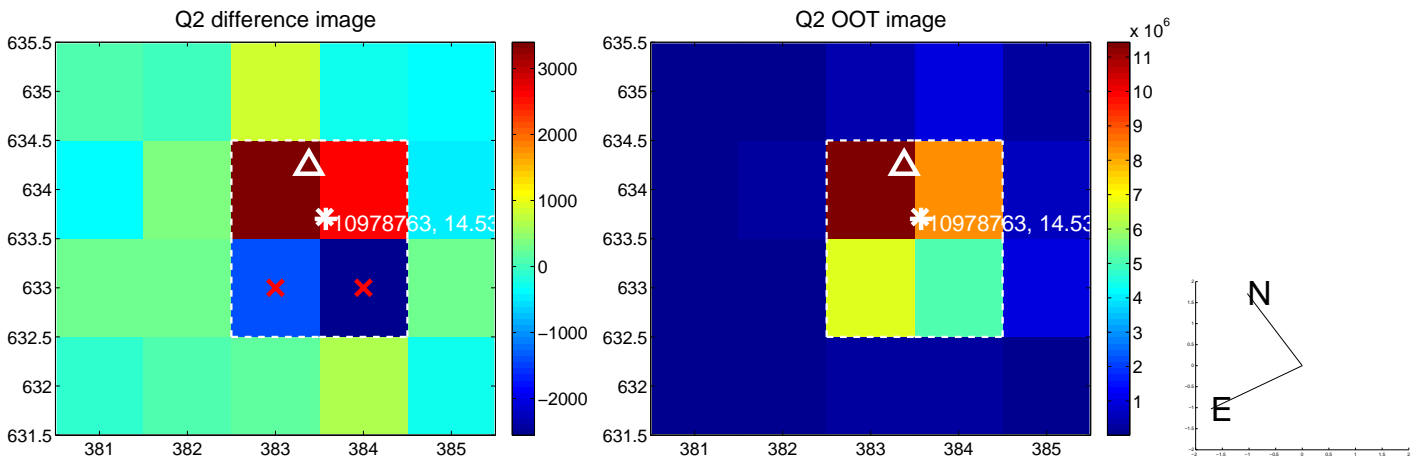
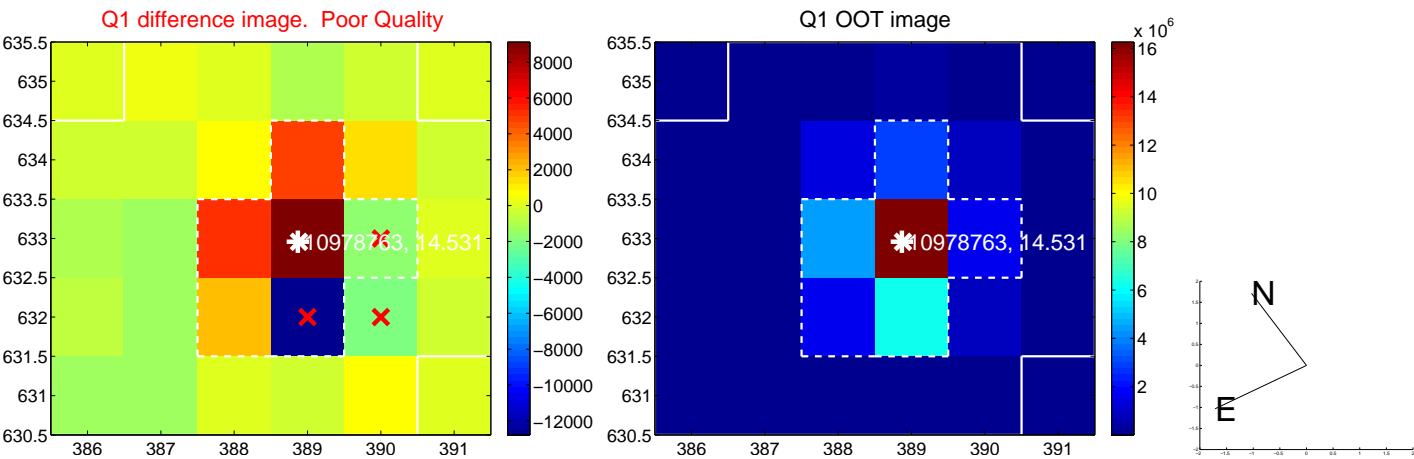
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.510 ± 0.304	1.68	0.164 ± 0.340	-0.483 ± 0.352
PRF-fit source offset from KIC position	0.567 ± 0.329	1.73	0.157 ± 0.356	-0.545 ± 0.356
photometric centroid source offset	1.53 ± 0.62	2.48	-1.21 ± 0.61	-0.95 ± 0.64

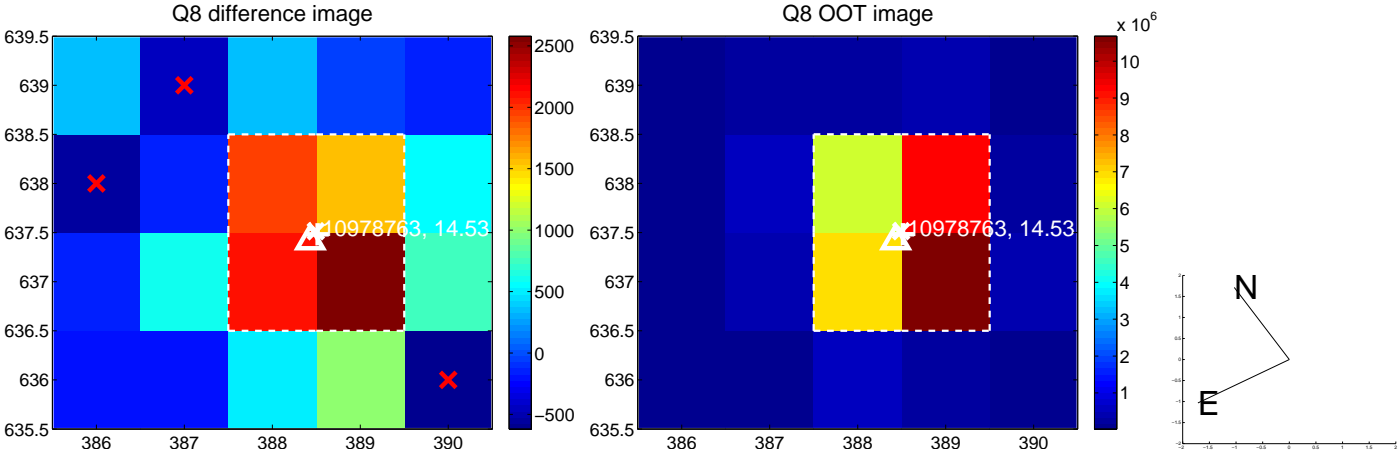
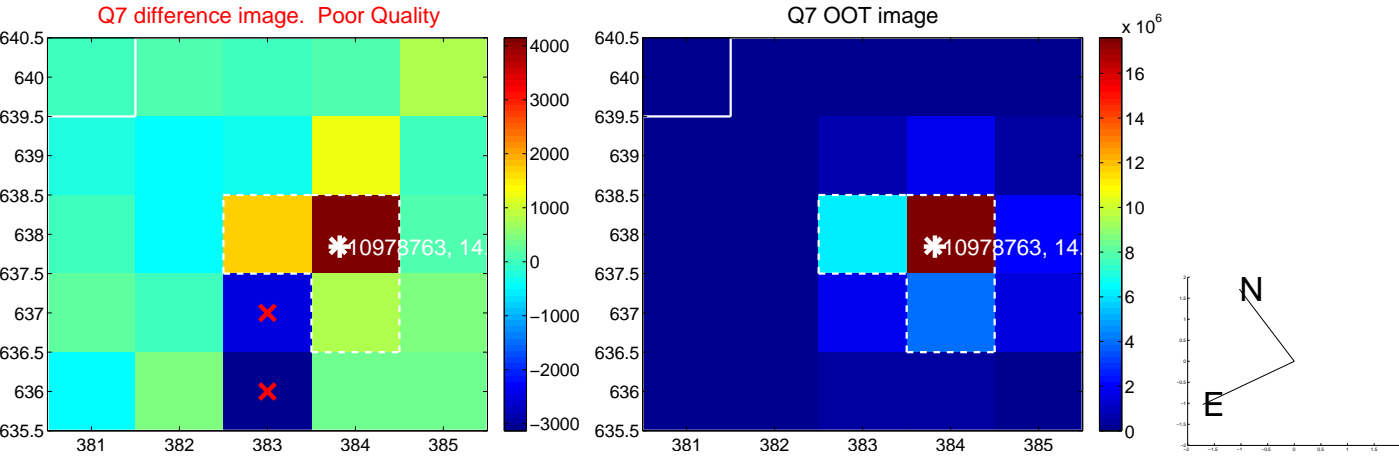
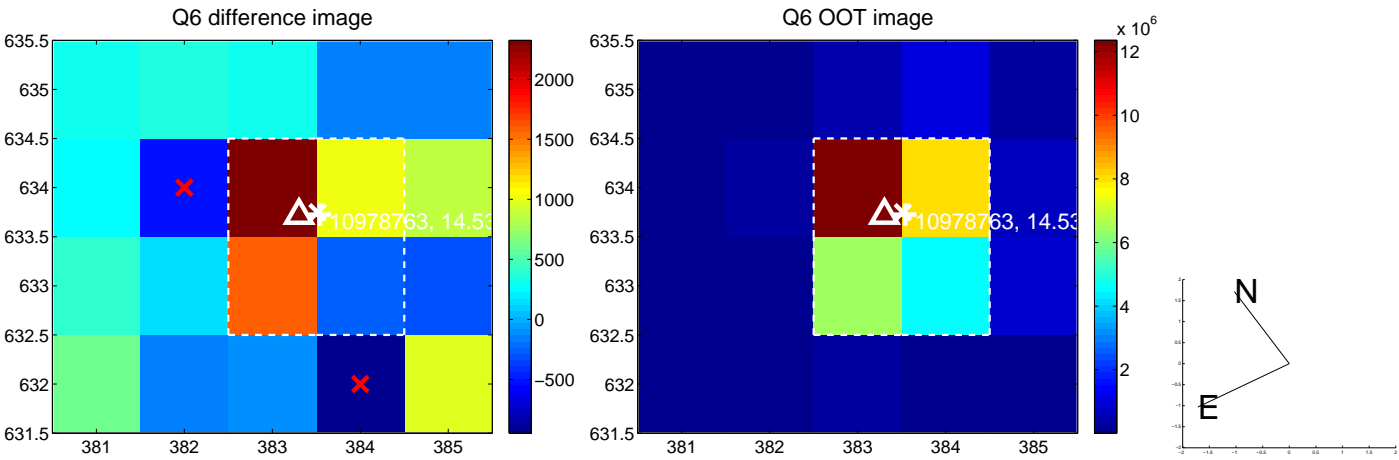
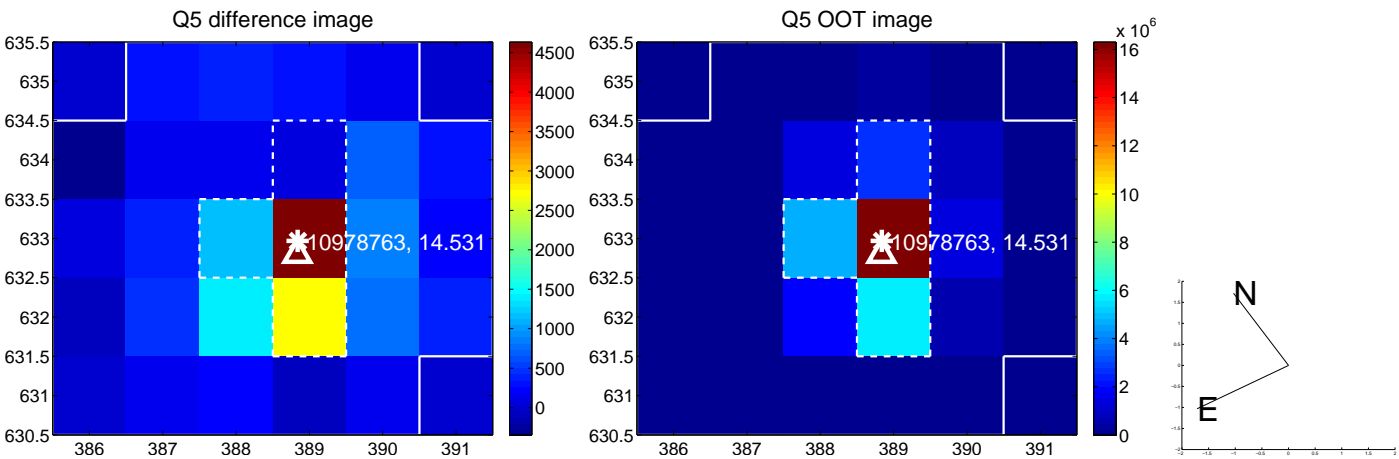


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

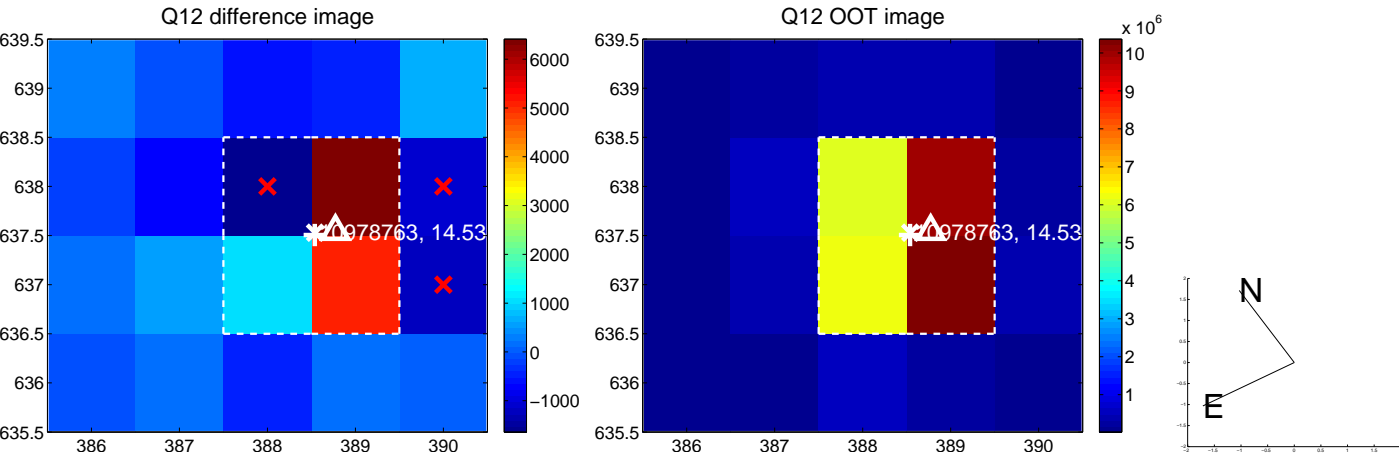
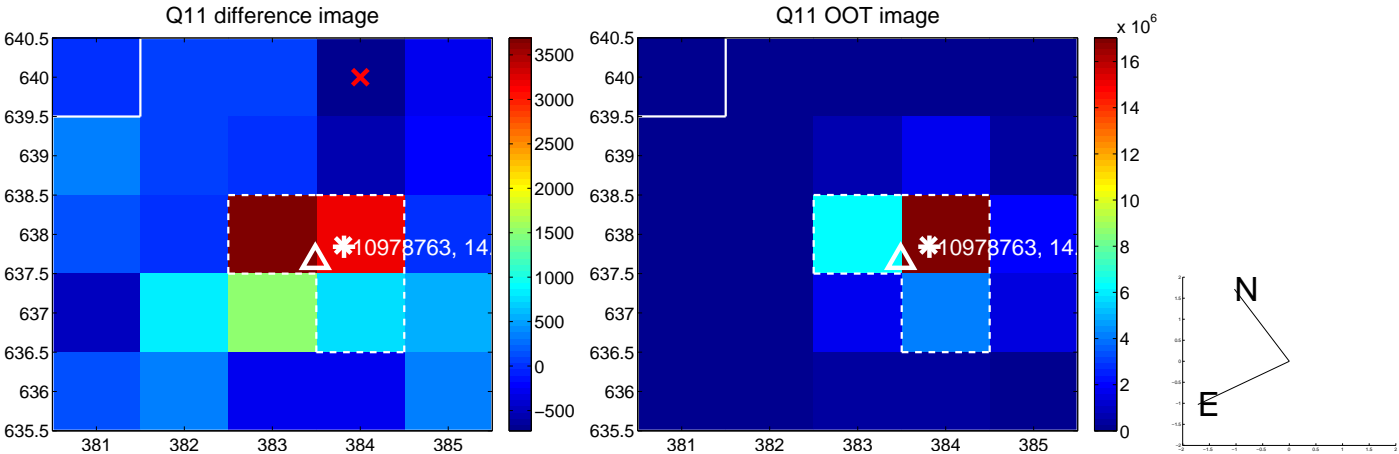
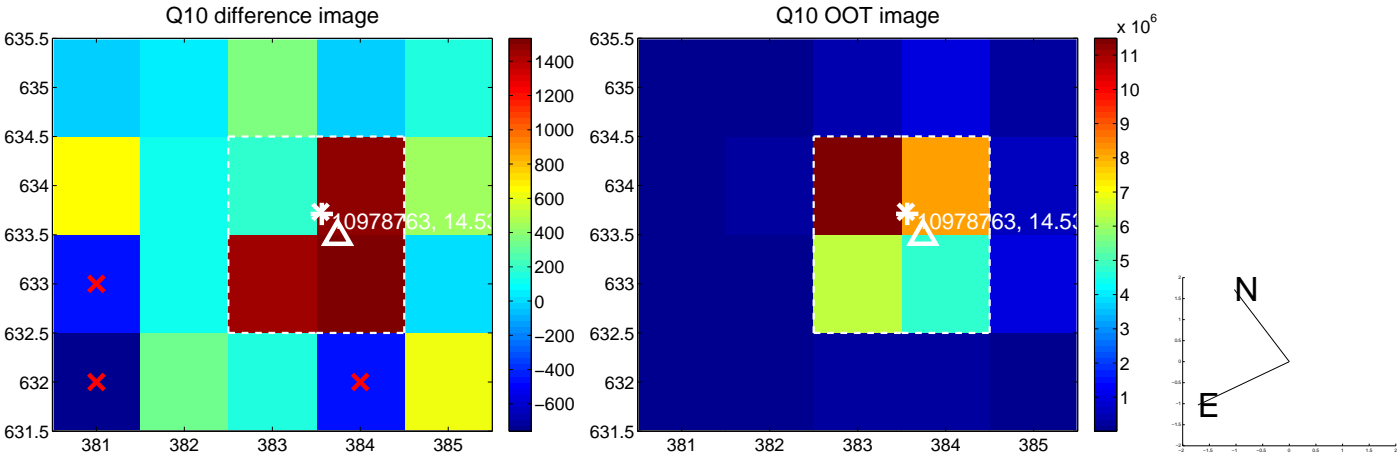
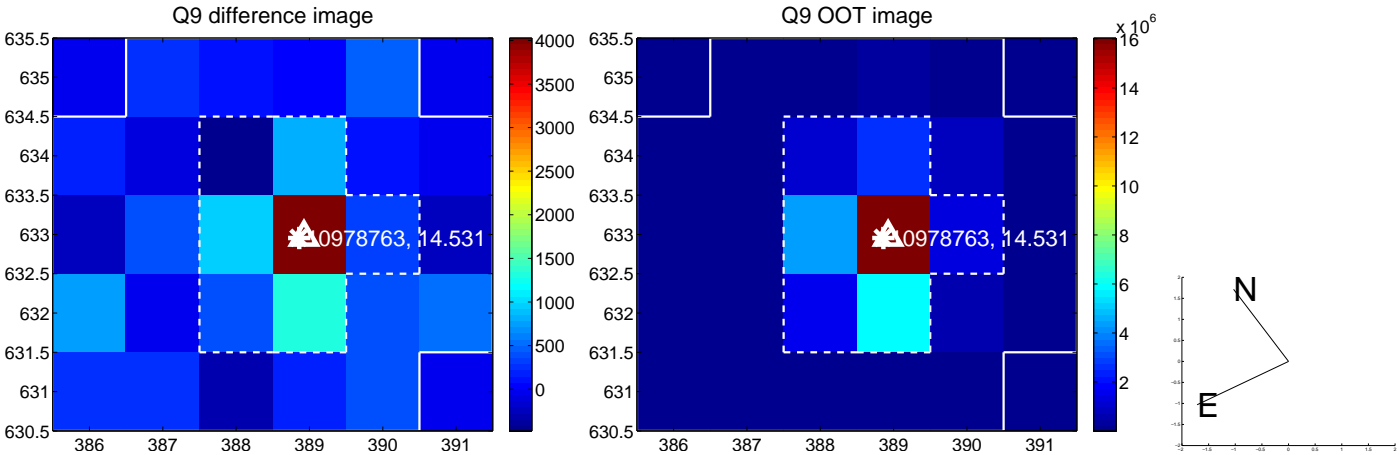
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



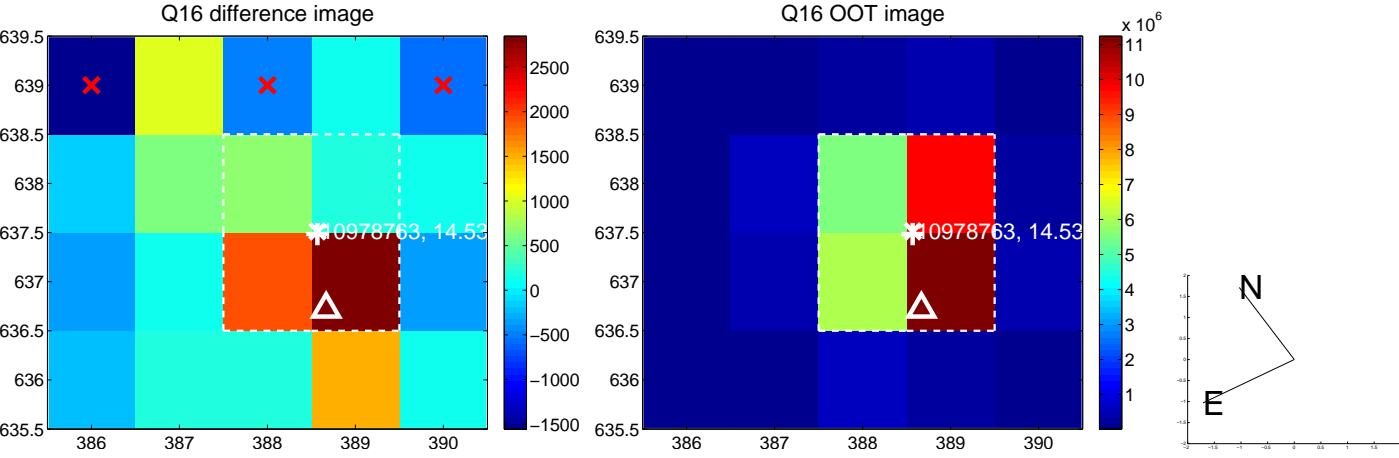
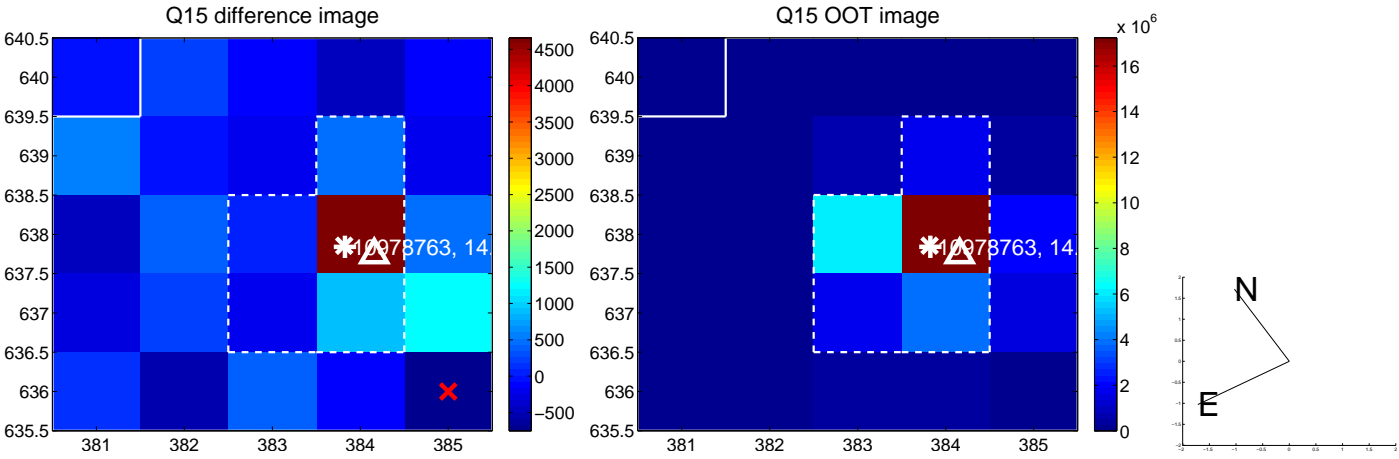
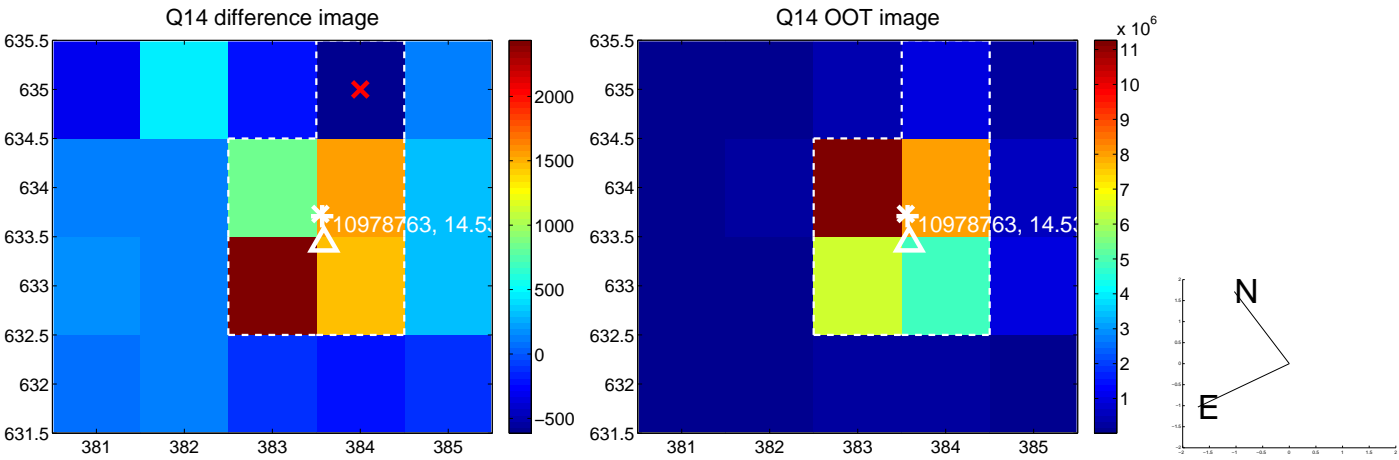
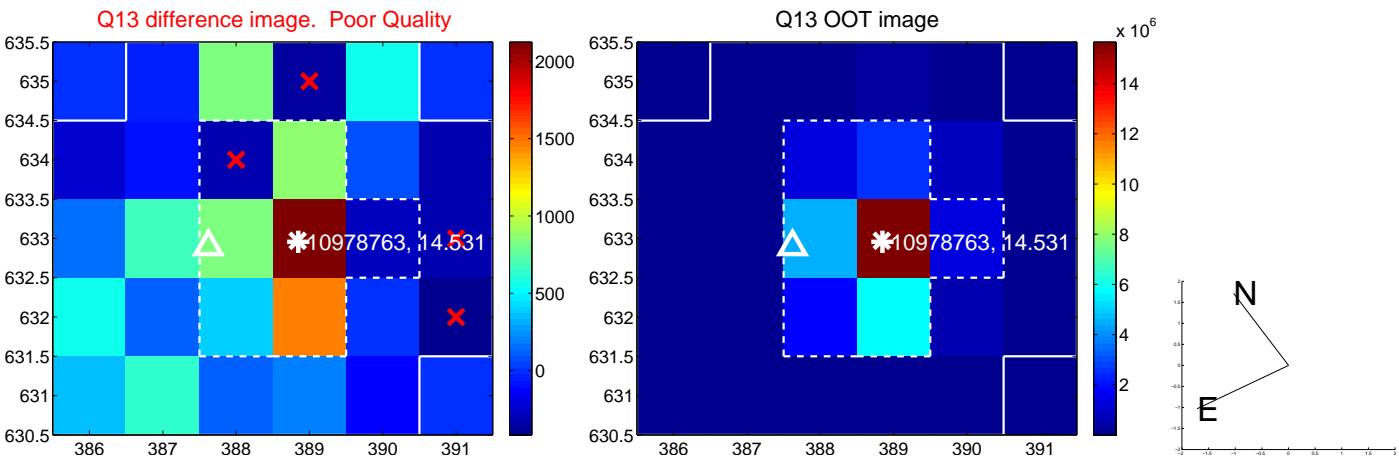
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



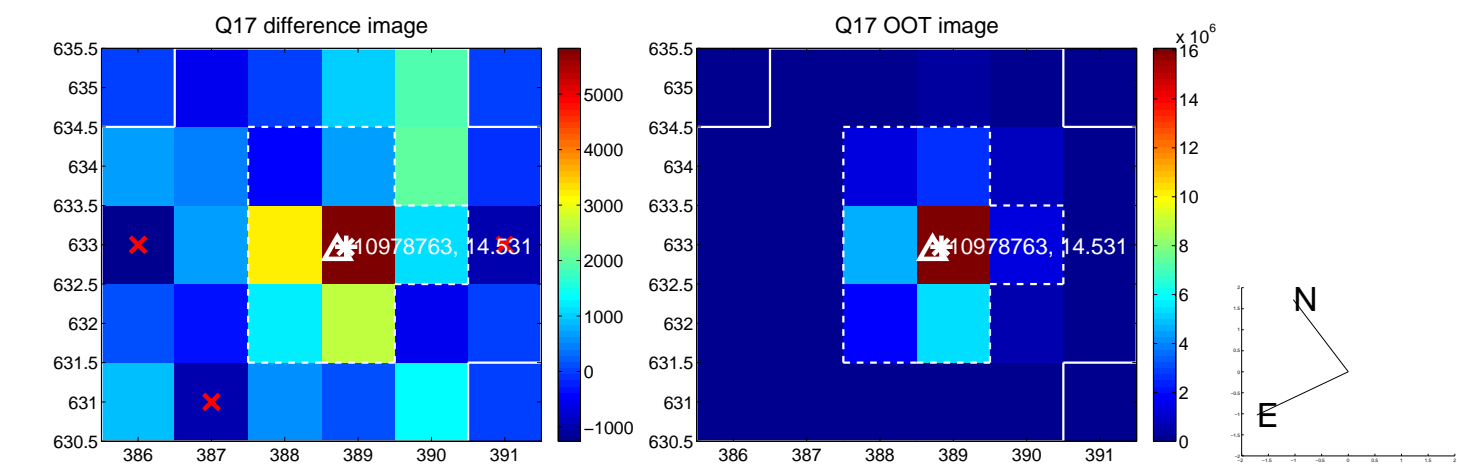
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



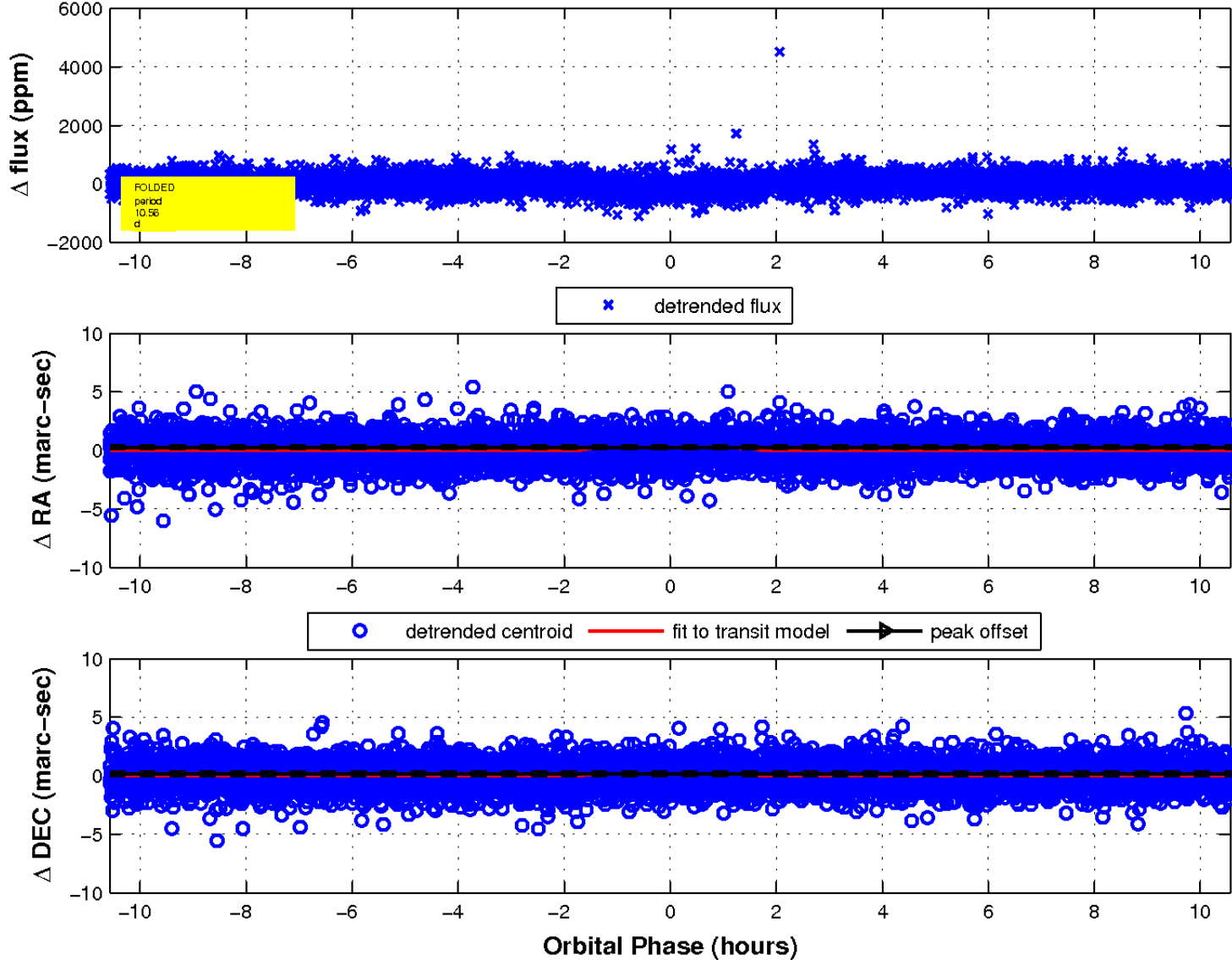
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

