

KIC 003836727

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})
003836727-01	OBS	No	7.635662	135.827758	39.4	24.178	8.0	7.3	0.77	5952	0.54	129.81
003836727-02	OBS	No	7.637199	138.680178	80.4	44.977	7.5	12.0	0.77	5952	1.33	129.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836727-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003836727-02	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.

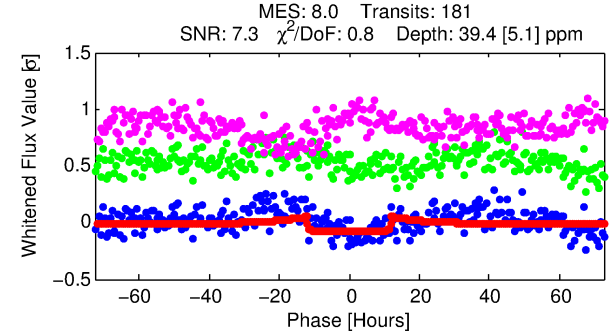
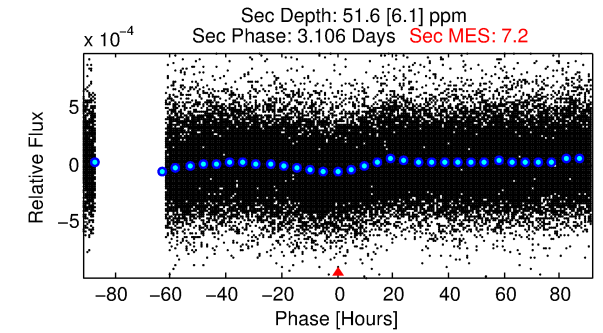
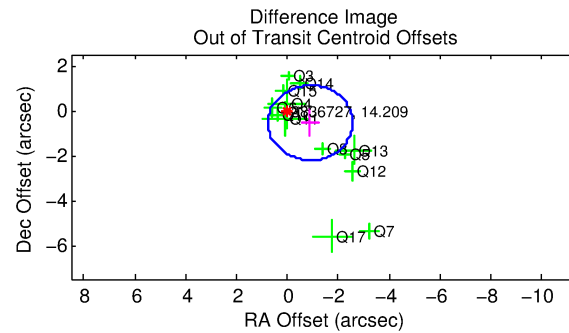
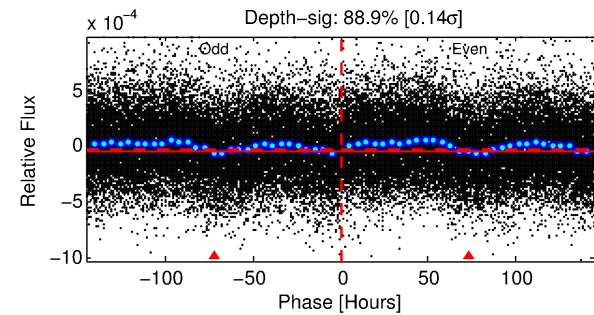
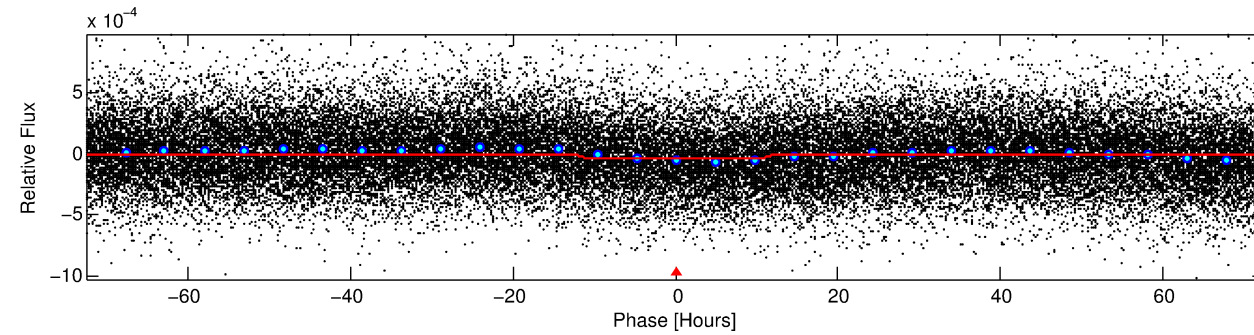
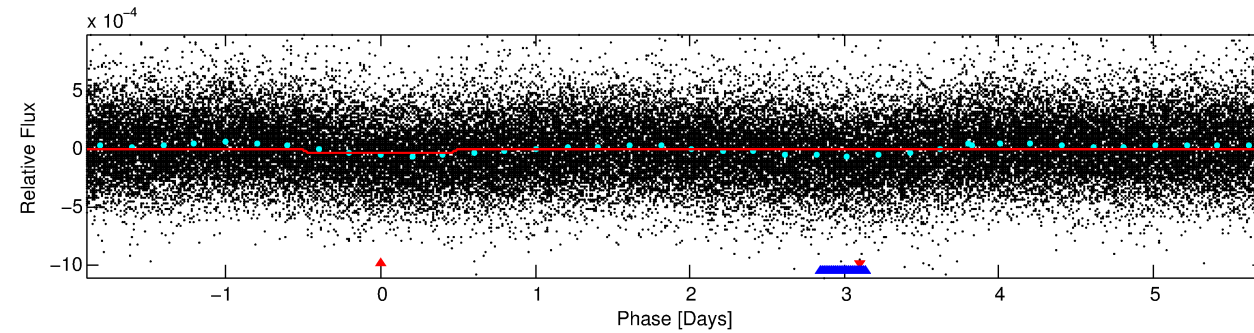
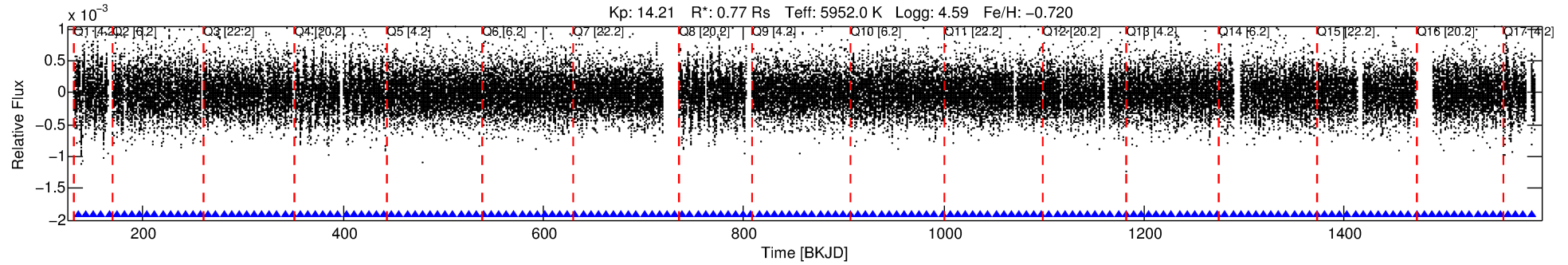
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003836727-01

No Significant Match Found

DV One-Page Summary

KIC: 3836727 Candidate: 1 of 2 Period: 7.636 d



DV Fit Results:

Period = 7.63566 [0.00023] d
Epoch = 135.8278 [0.0230] BKJD
Rp/R* = 0.0065 [0.0011]
a/R* = 1.62 [0.88]
b = 0.84 [0.32]
Seff = 129.81 [41.70]
Teff = 861 [69] K
Rp = 0.54 [0.16] Re
a = 0.0715 [0.0146] AU
Ag = 493.83 [236.94] [2.08 σ]
Teffp = 6273 [608] K [8.84 σ]

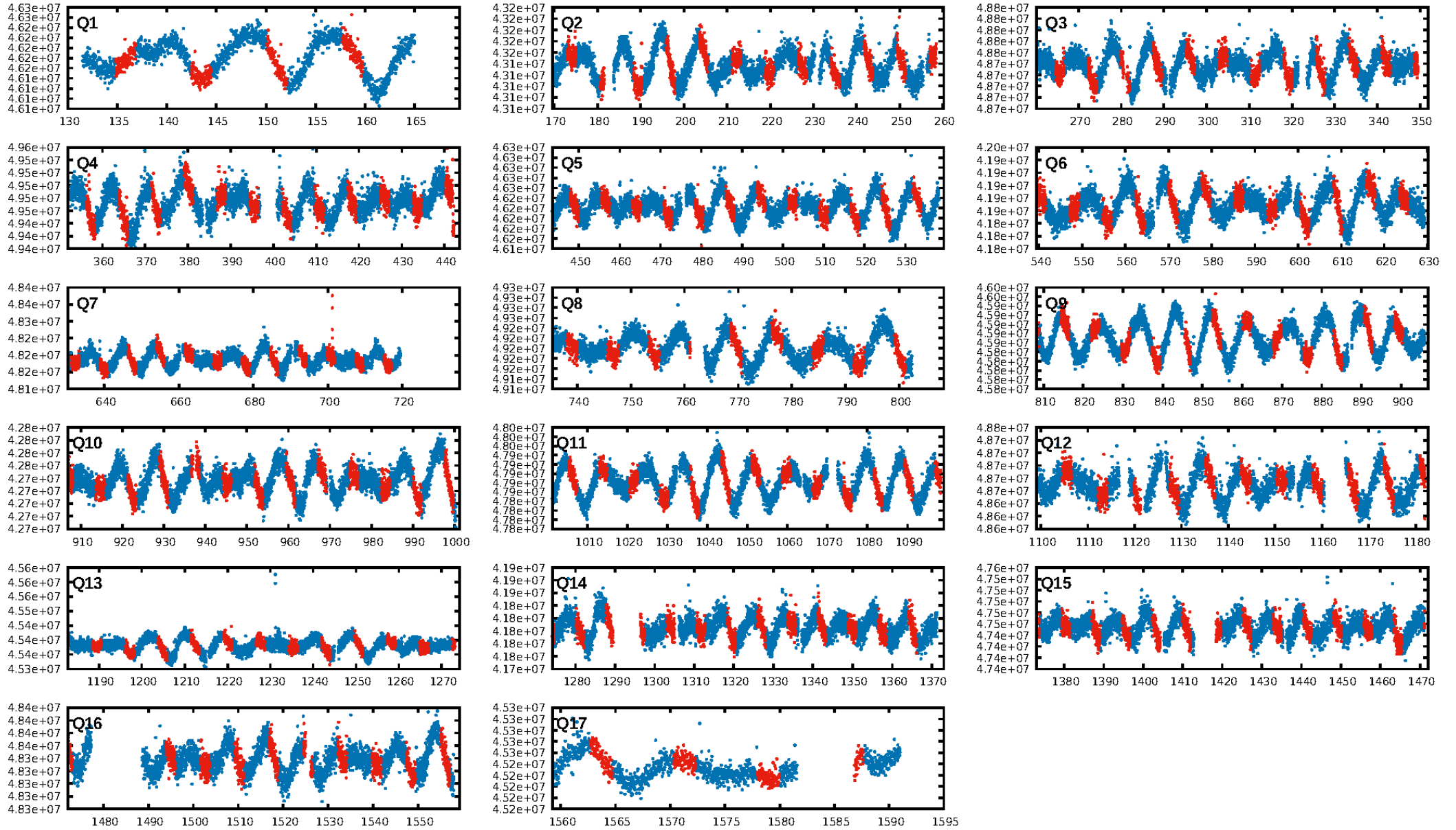
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: 99.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [173/173]
GhostDiagnostic-chr: 1.232
Centroid-sig: 0.3%
Centroid-so: 2.621 arcsec [1.78 σ]
OotOffset-rm: 1.055 arcsec [1.90 σ]
KicOffset-rm: 1.071 arcsec [1.67 σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 1.00 [17/17]

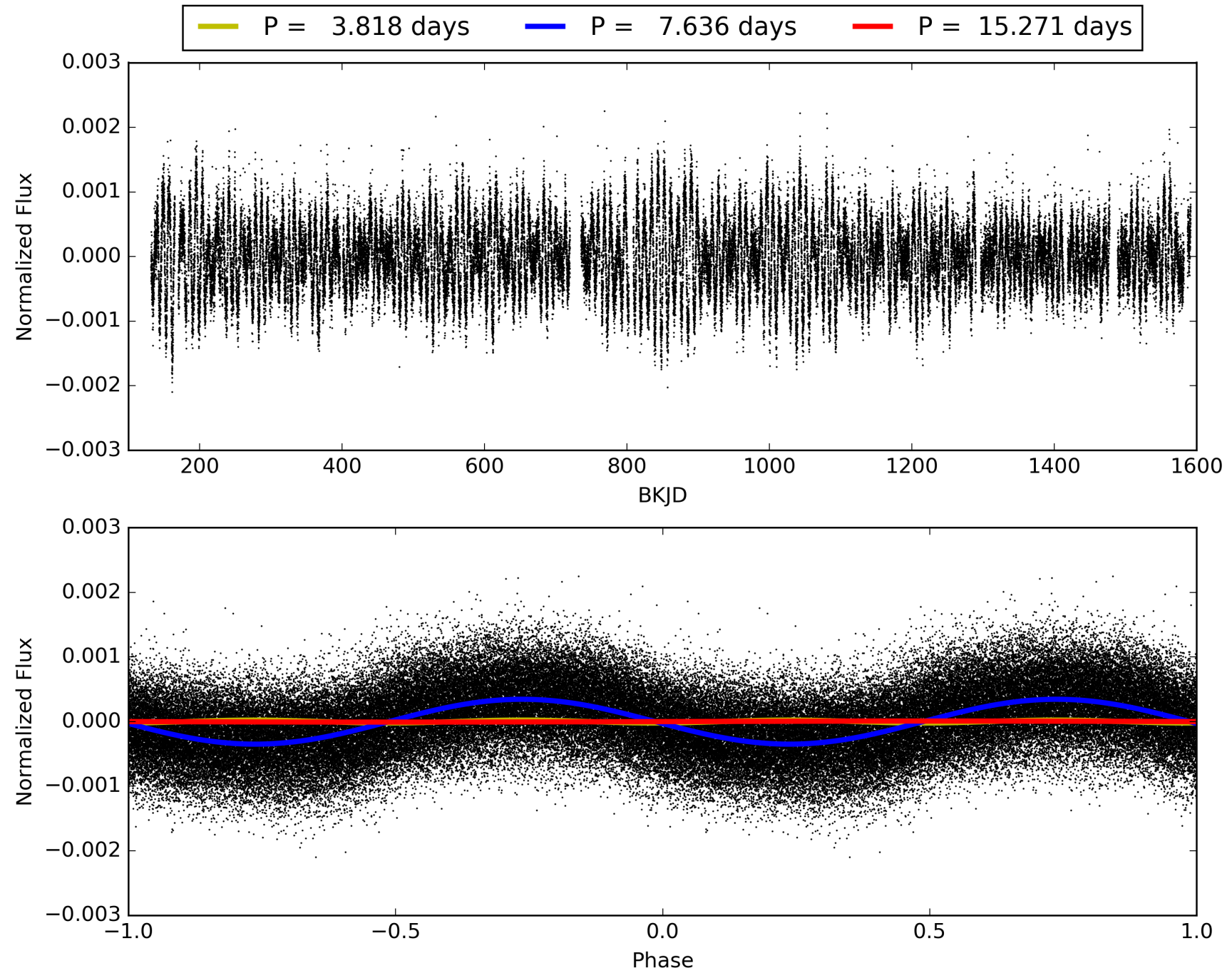
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:06:07 Z

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

TCE 003836727-01, PDC Light Curves

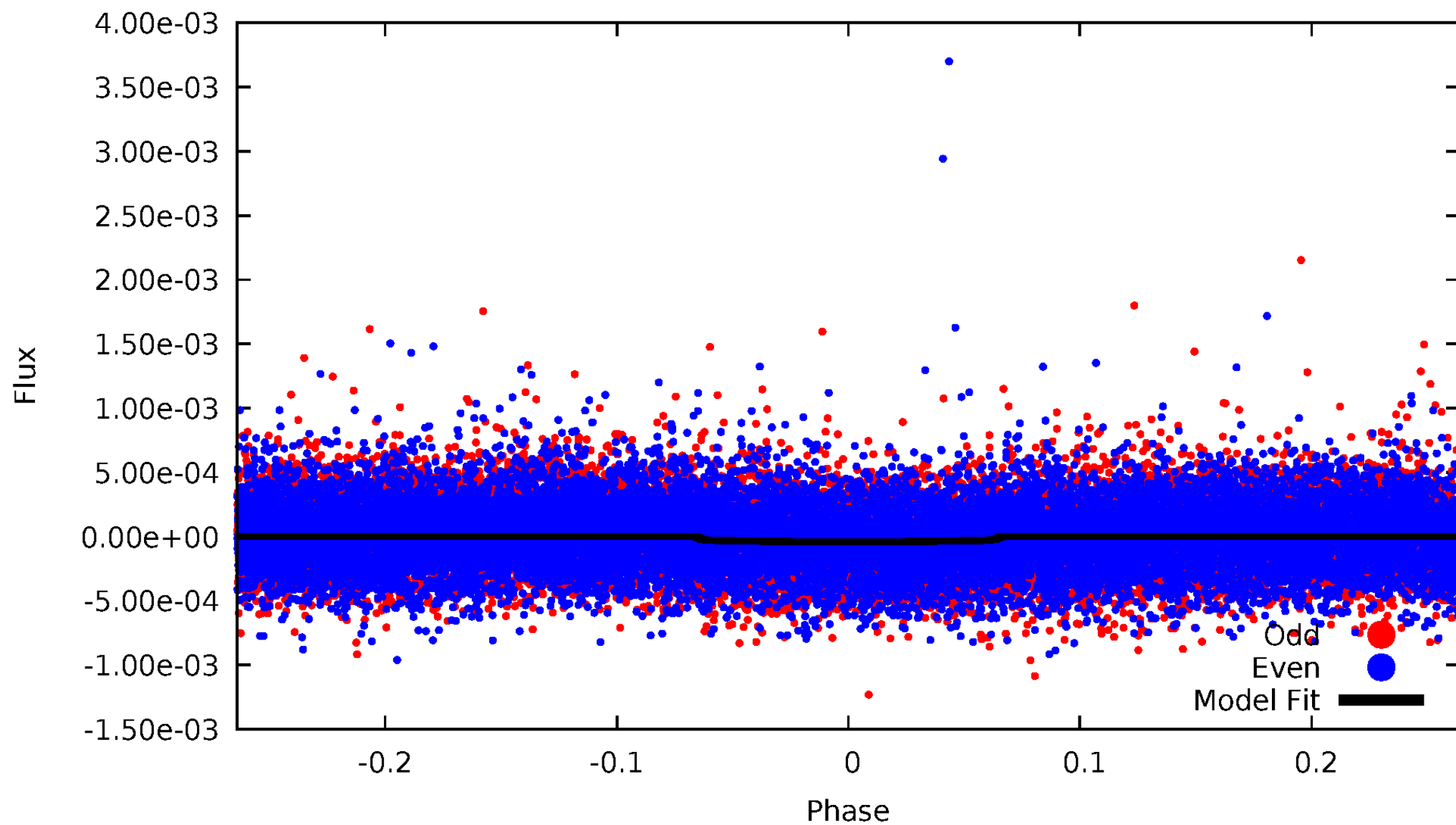


TCE 003836727-01



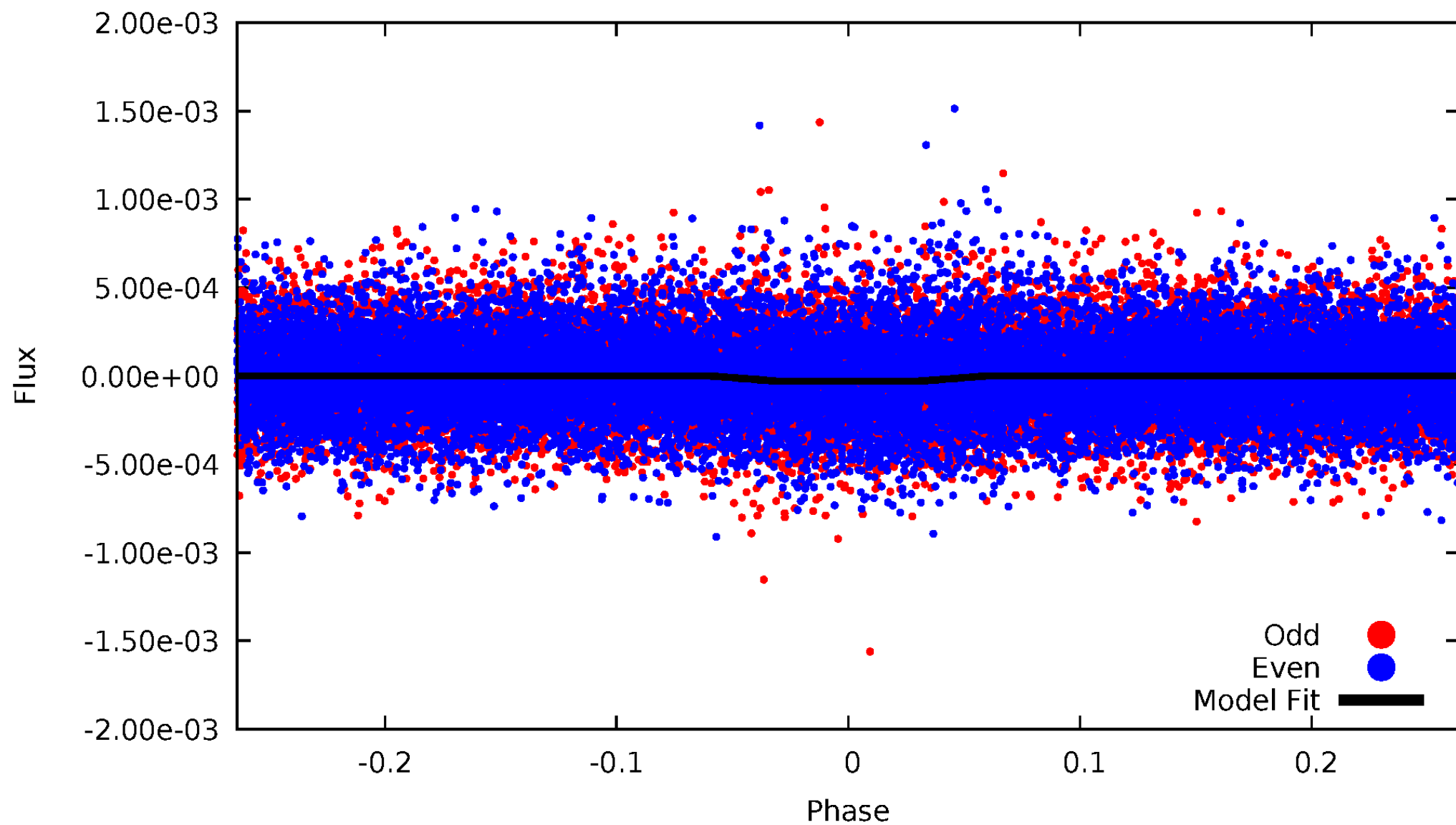
DV Odd/Even

TCE 003836727-01

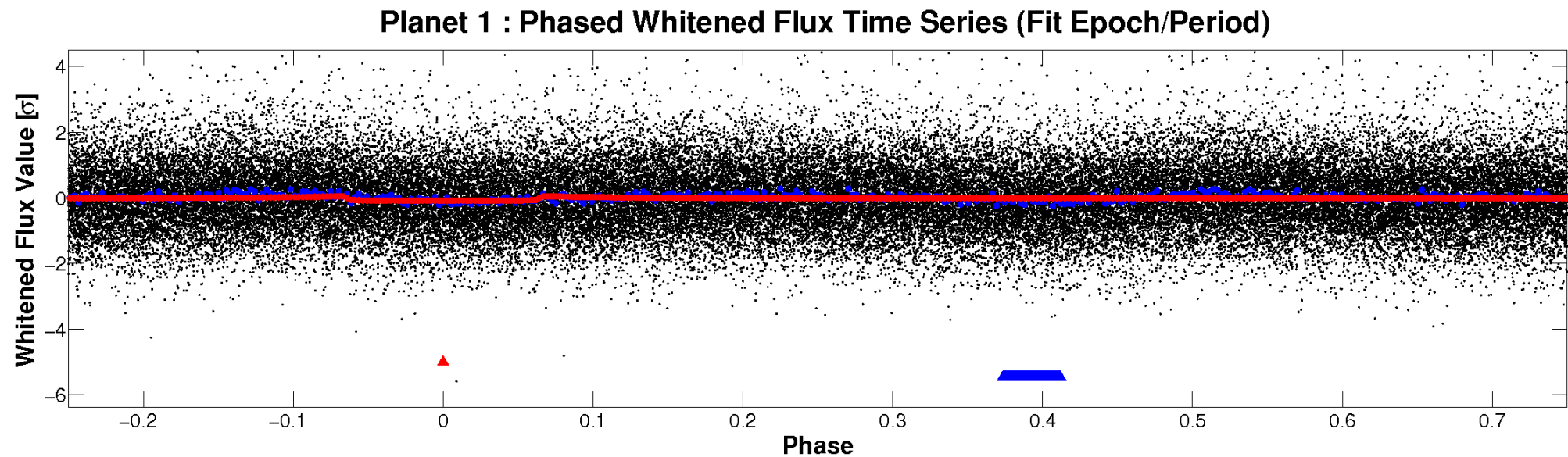
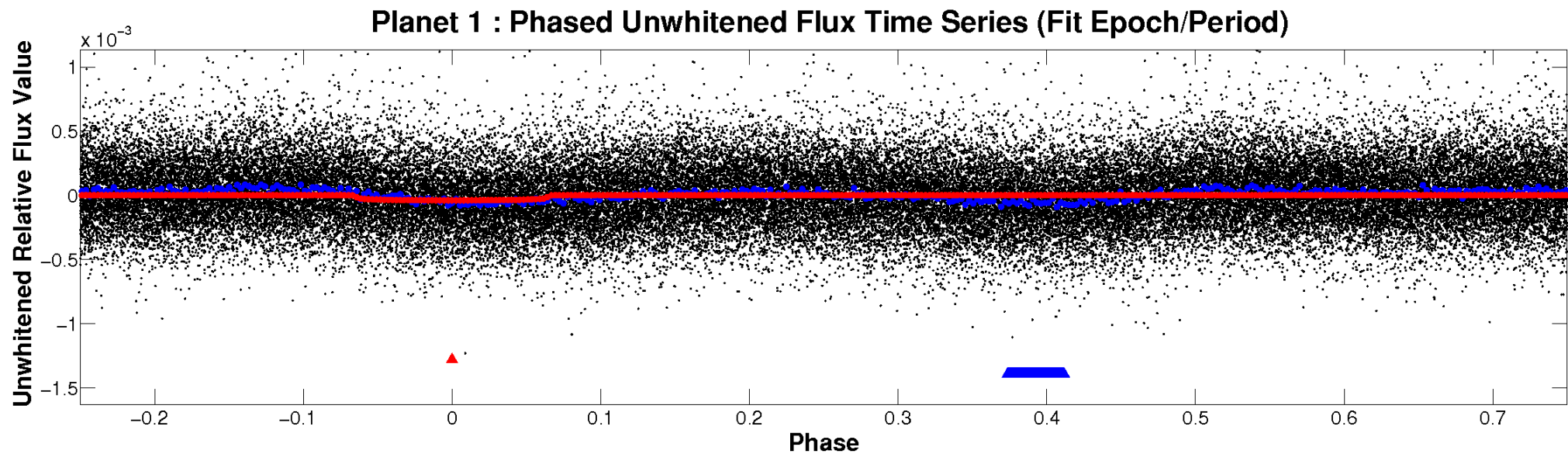


ALT Odd/Even

TCE 003836727-01

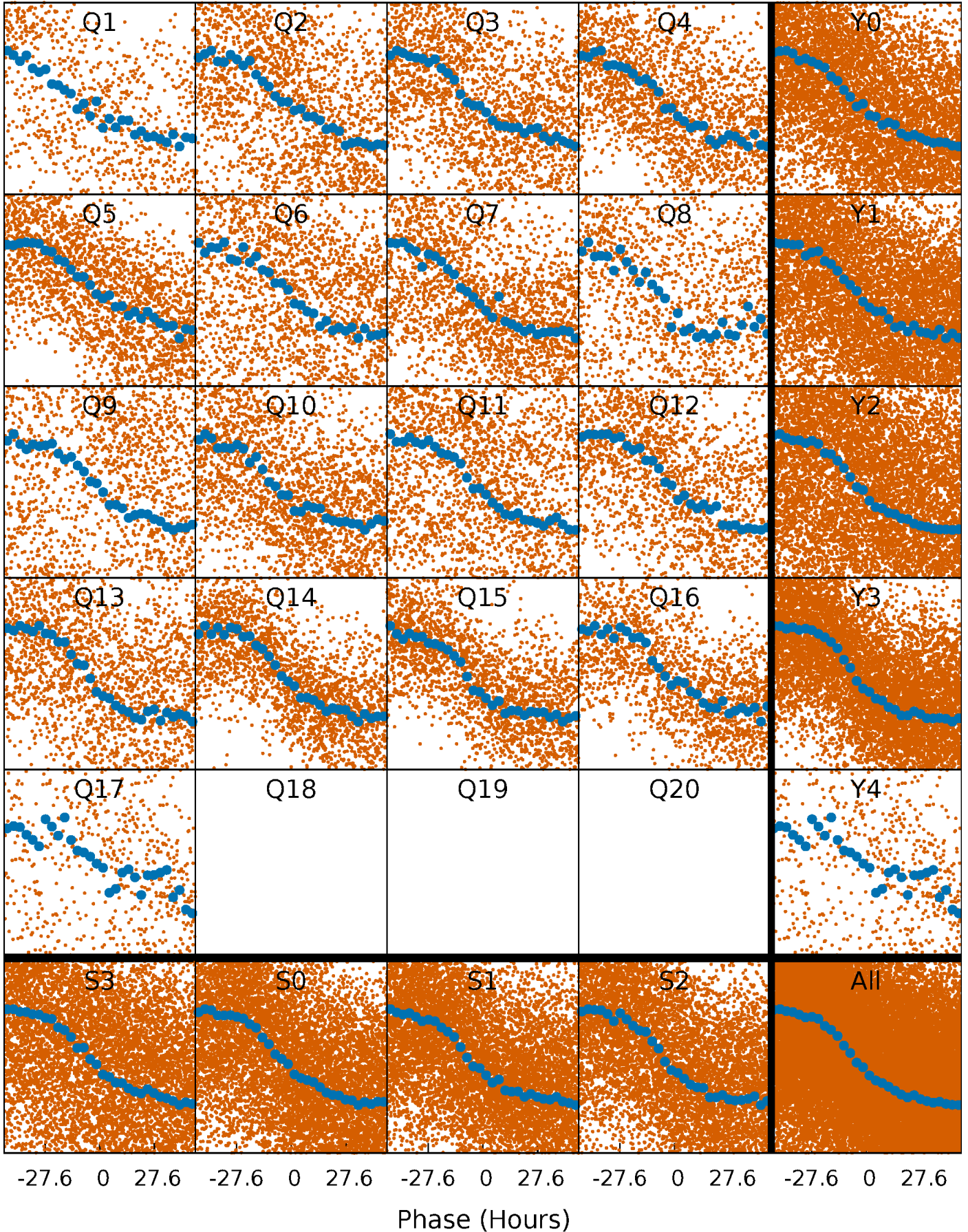


Non-Whitened Vs. Whitened Light Curve



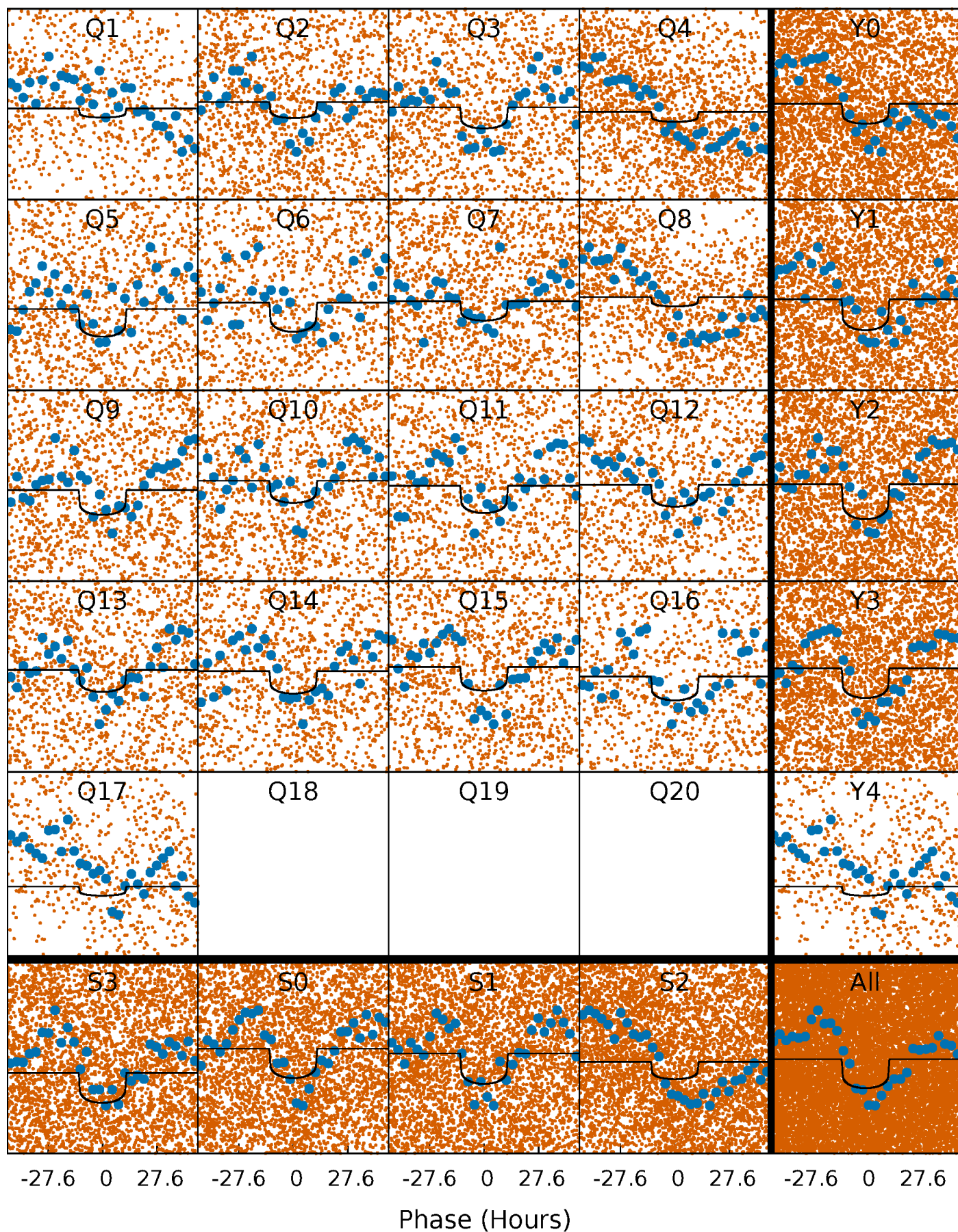
PDC Quarter-Phased Transit Curves

TCE 003836727-01 P= 7.635662 Days $T_0=135.827758$ (BKJD)



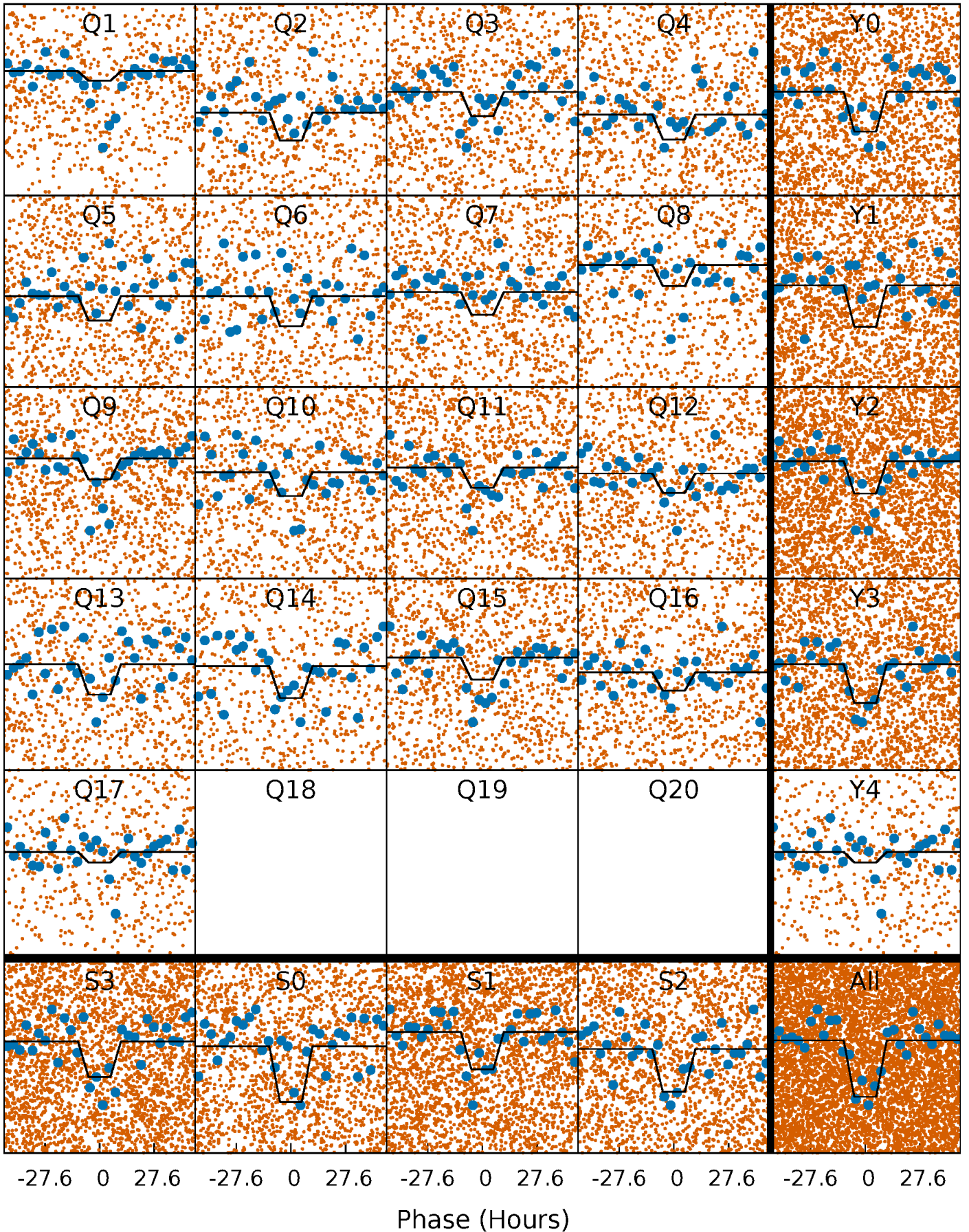
DV Quarter-Phased Transit Curves

TCE 003836727-01 P= 7.635662 Days $T_0=135.827758$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

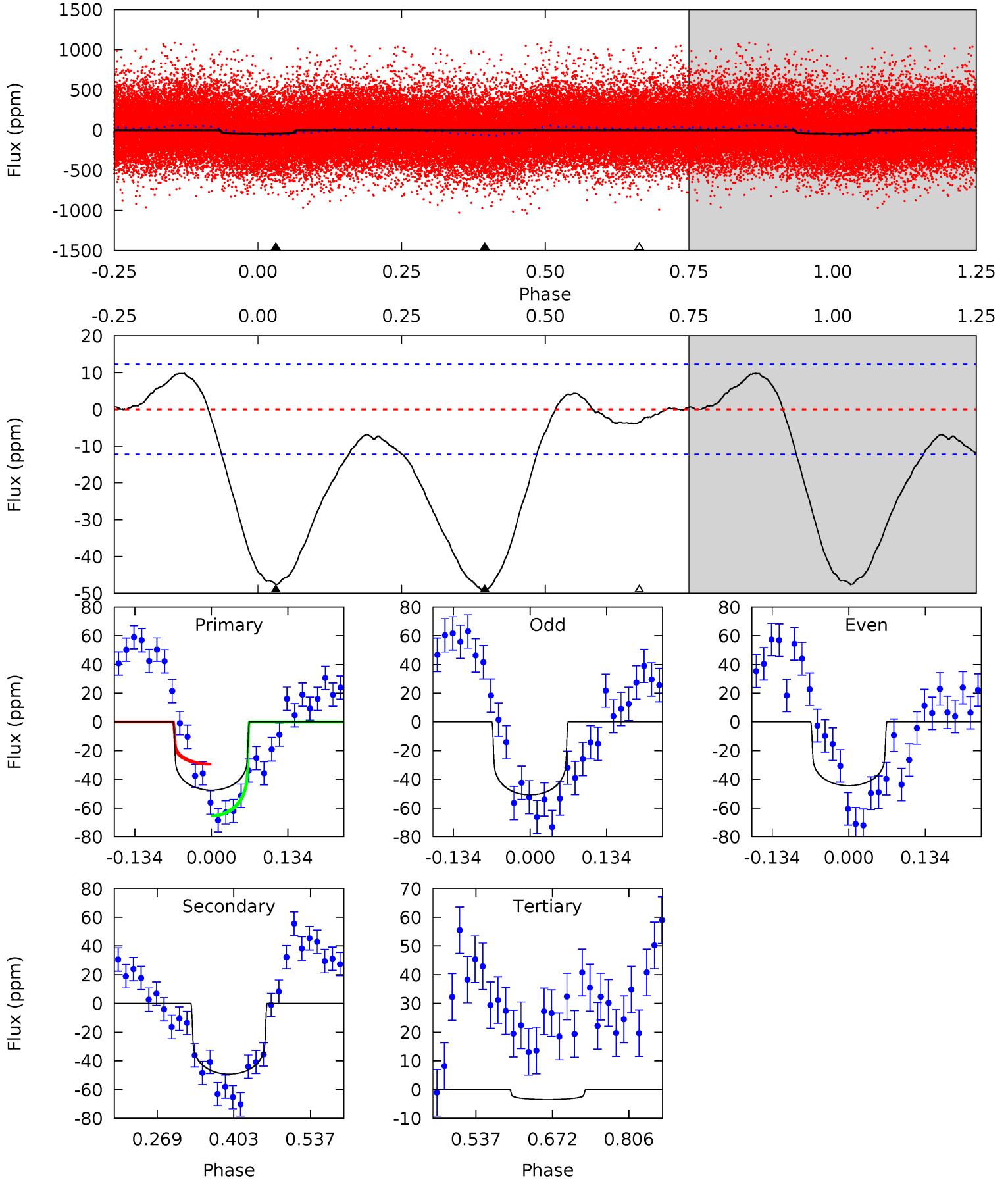
TCE 003836727-01 P= 7.635562 Days $T_0=135.837570$ (BKJD)



DV Model-Shift Uniqueness Test

003836727-01, P = 7.635662 Days, E = 128.192096 Days

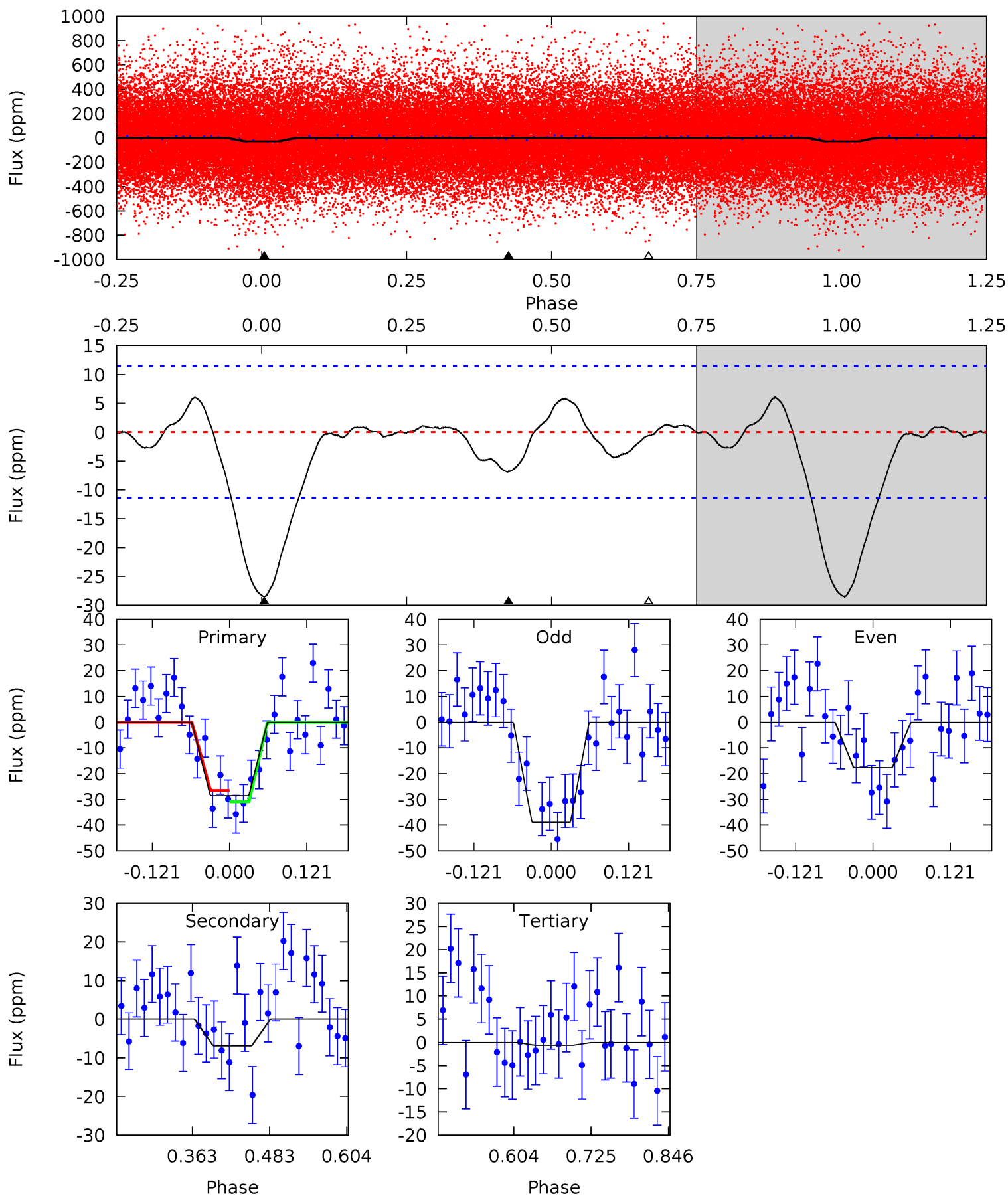
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	18.1	1.28	0	4.50	1.50	2.09	16.2	17.5	16.8	18.1	1.19	1.03	0.17	6.61



Alt Model-Shift Uniqueness Test

003836727-01, P = 7.635562 Days, E = 128.202008 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	2.71	0.24	0	4.52	1.55	0.74	11.0	11.3	2.47	2.71	4.19	1.13	0.17	0.87



Stellar Parameters For KIC 003836727

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5952^{+161}_{-161}	$4.589^{+0.032}_{-0.168}$	$-0.720^{+0.300}_{-0.300}$	$0.768^{+0.182}_{-0.061}$	$0.836^{+0.079}_{-0.079}$	$2.596^{+0.419}_{-1.163}$
	+3%/-3%	+1%/-4%	+42%/-42%	+24%/-8%	+9%/-9%	+16%/-45%
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 003836727-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-49 ± 3	$0.57^{+0.12}_{-0.11}$	1226^{+70}_{-46}	6229^{+679}_{-553}	429^{+247}_{-135}
Alt.	-7 ± 3	$0.48^{+0.10}_{-0.11}$	1229^{+73}_{-49}	4336^{+537}_{-415}	81^{+66}_{-37}

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

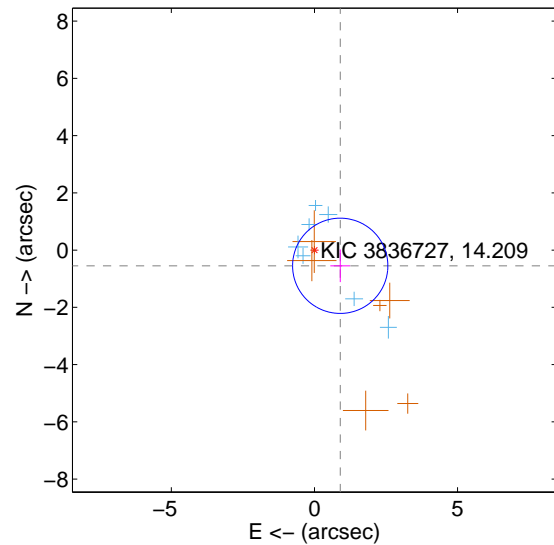
Supplemental centroid analysis for 003836727-01. Kepler magnitude: 14.21. Transit SNR 7.33

There are 7 quarters with good PRF difference image offsets

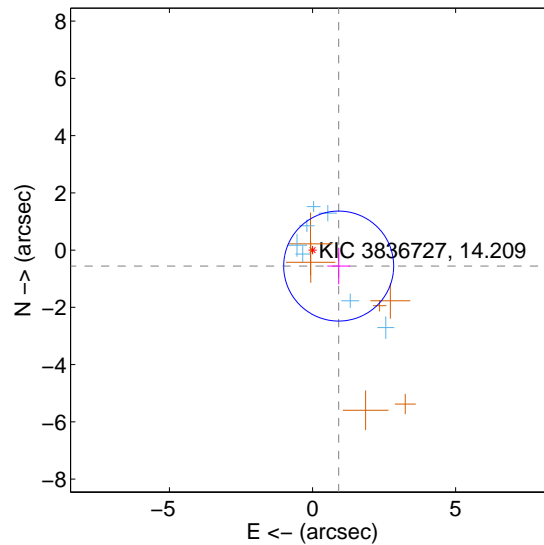
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.055 ± 0.555	1.90	-0.901 ± 0.345	-0.548 ± 0.571
PRF-fit source offset from KIC position	1.071 ± 0.640	1.67	-0.914 ± 0.398	-0.558 ± 0.641
photometric centroid source offset	2.62 ± 1.47	1.78	1.05 ± 1.26	2.40 ± 1.51

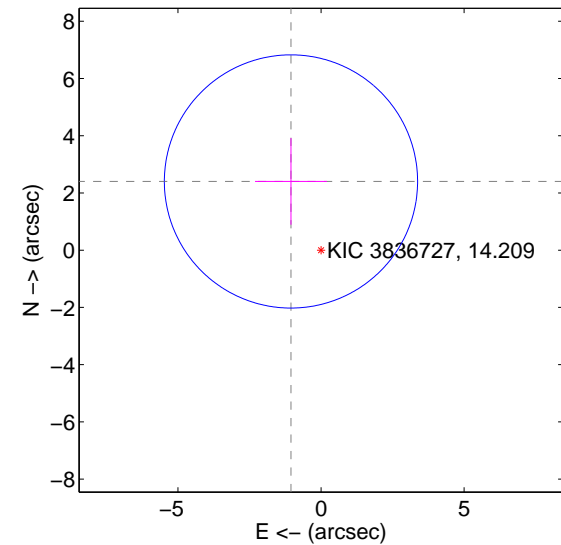
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

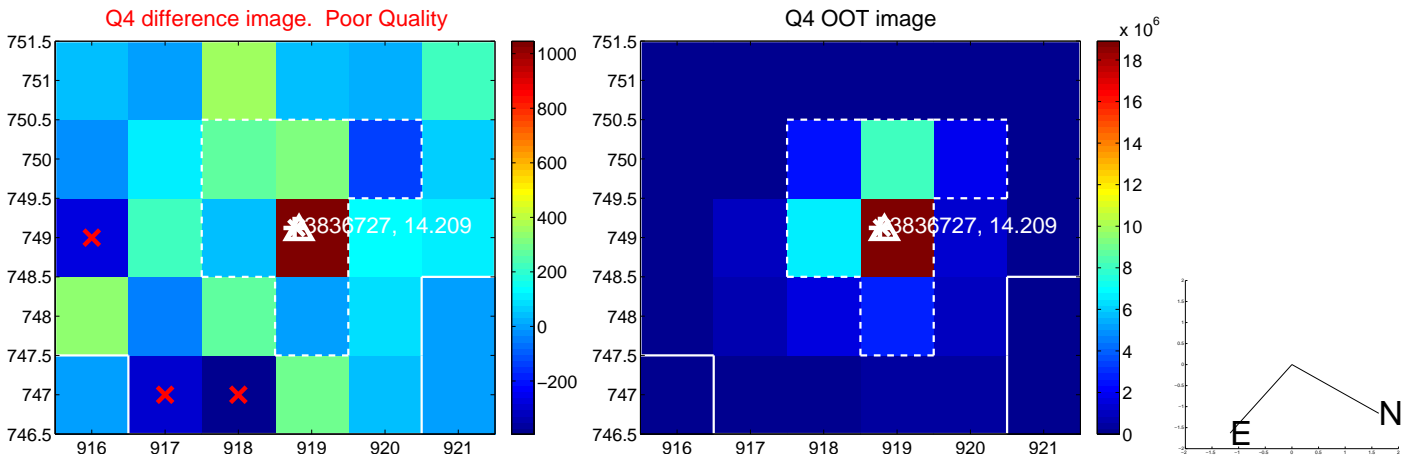
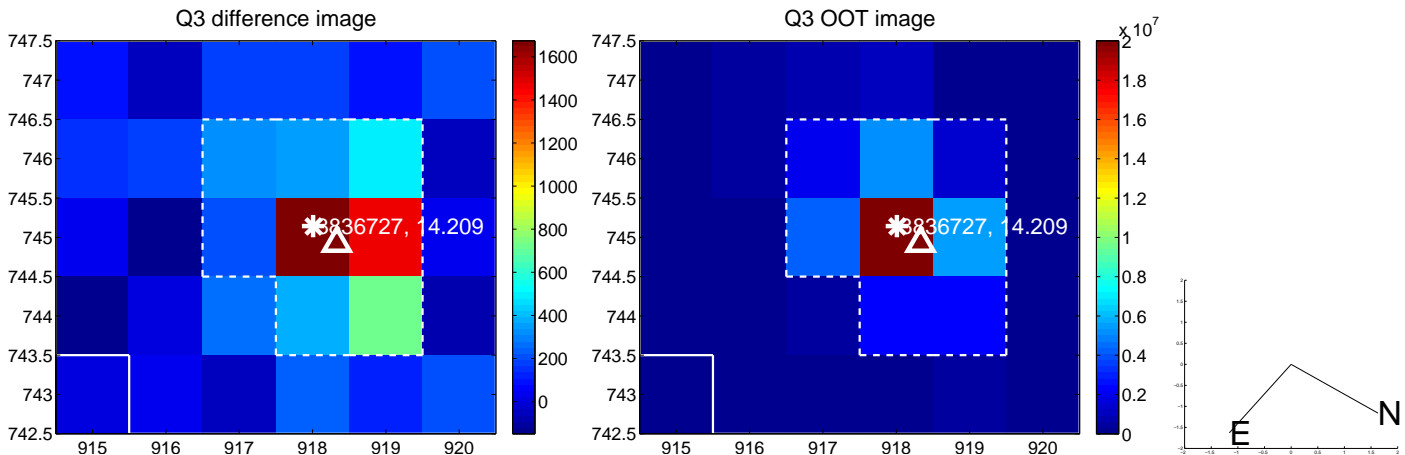
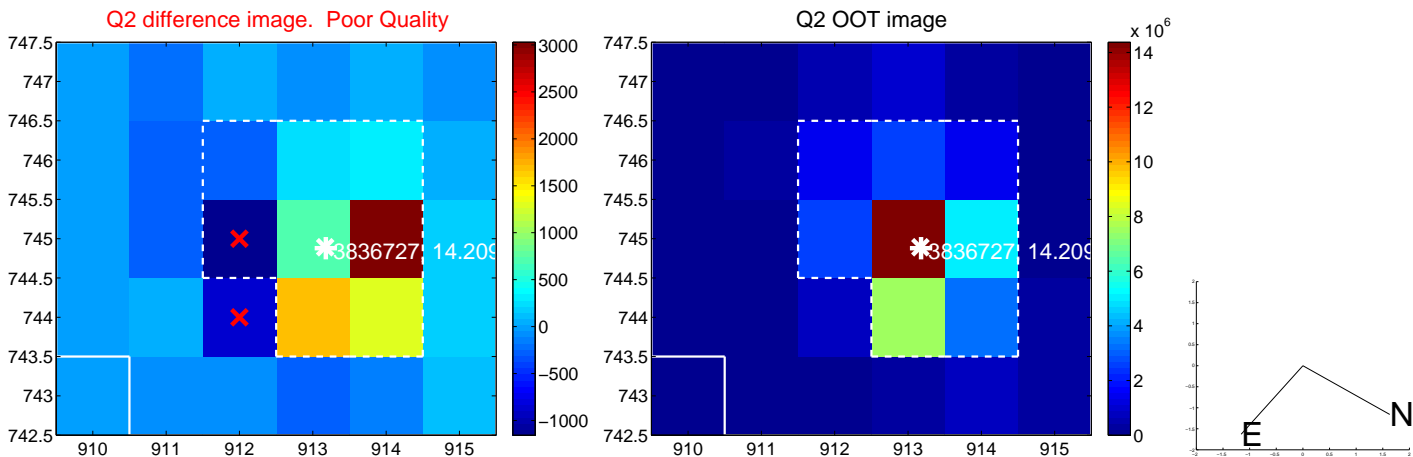
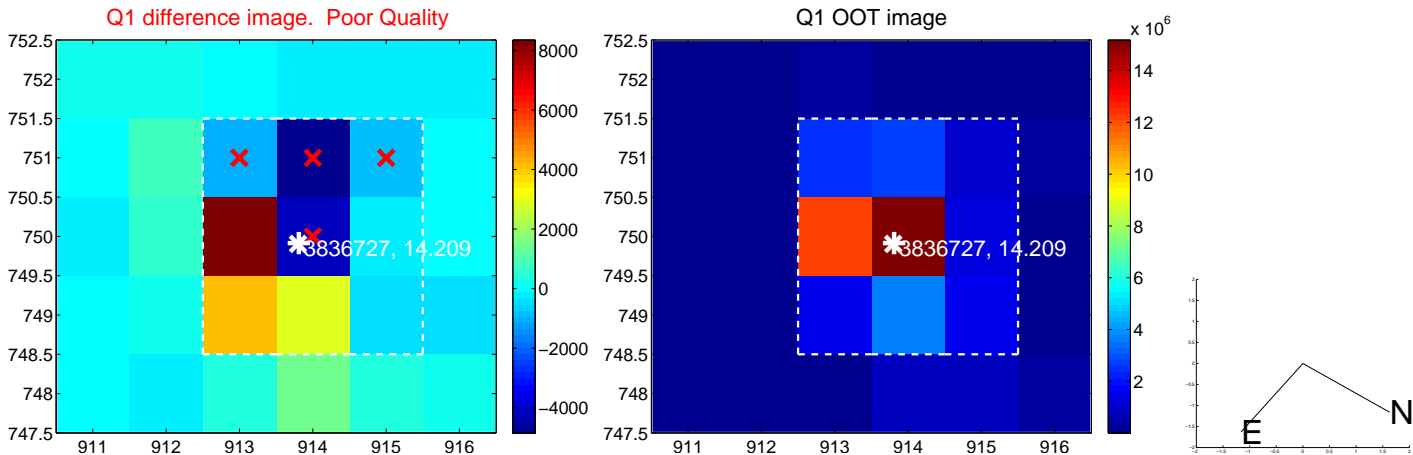


offset from photometric centroids

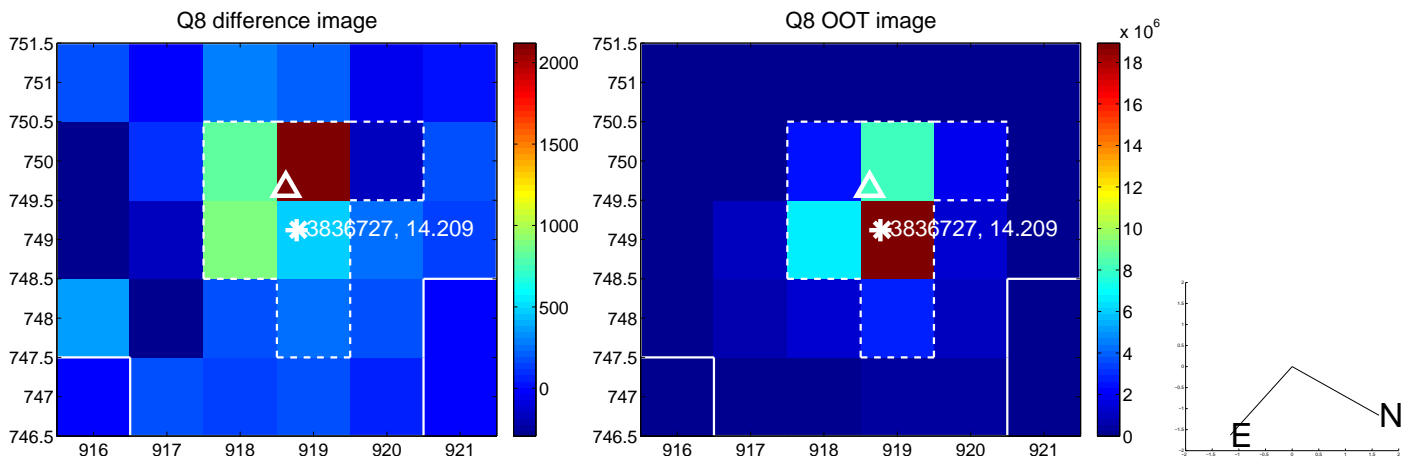
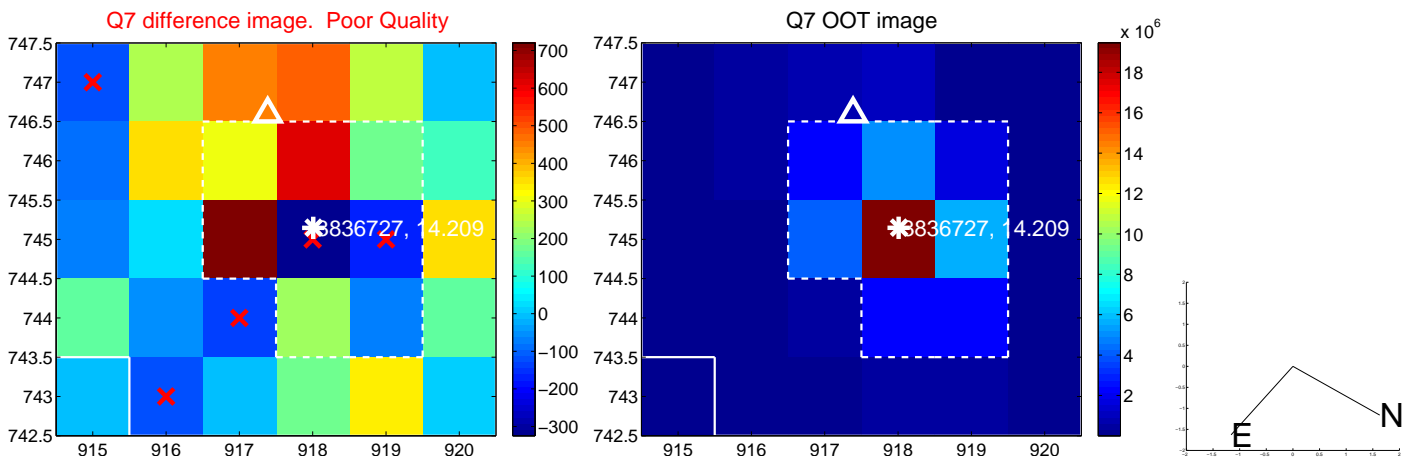
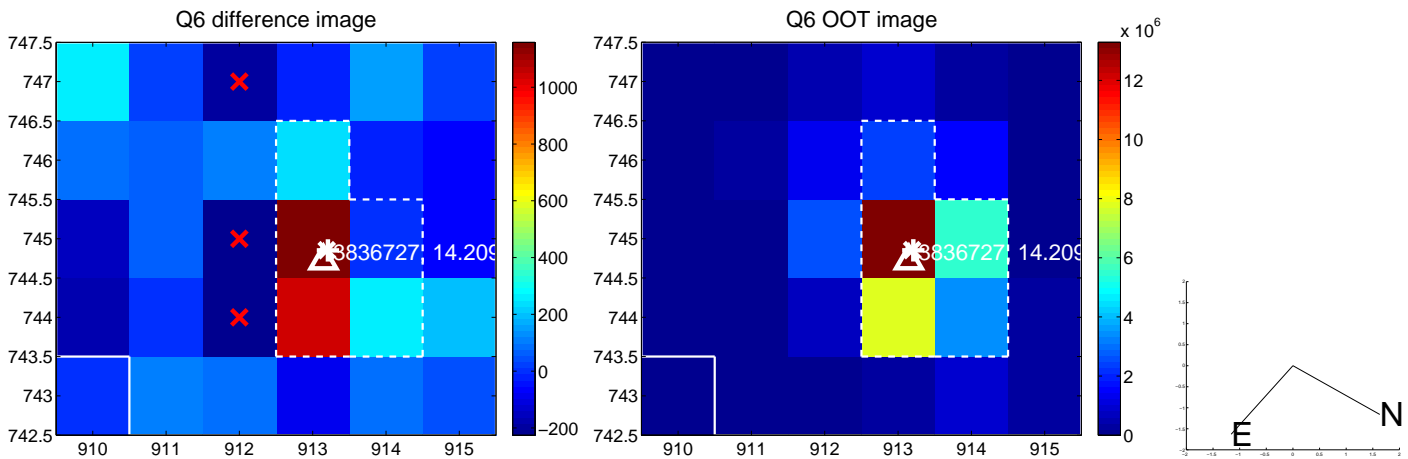
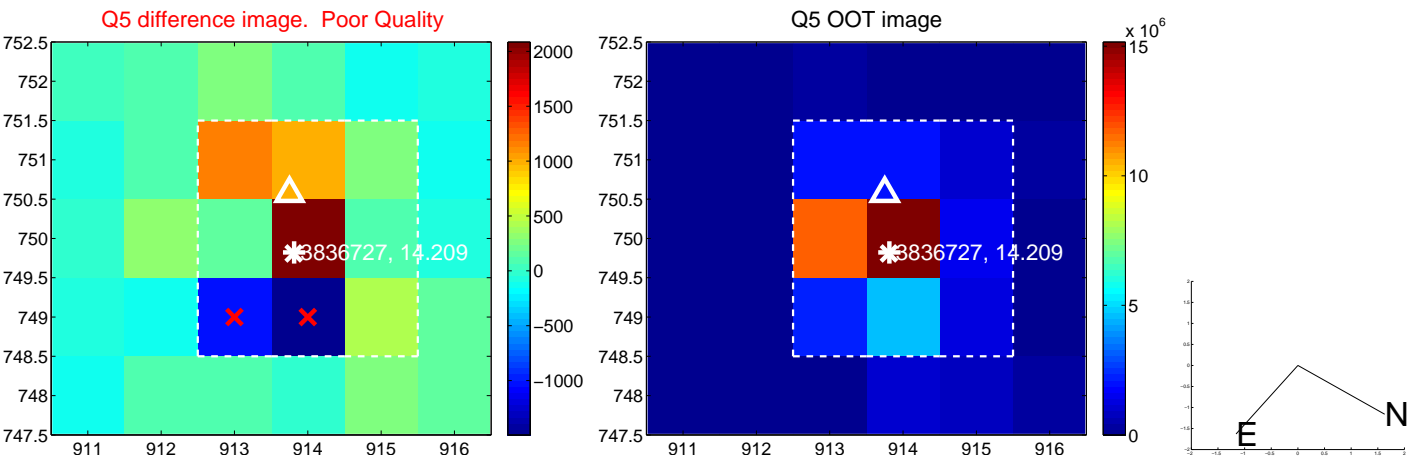


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

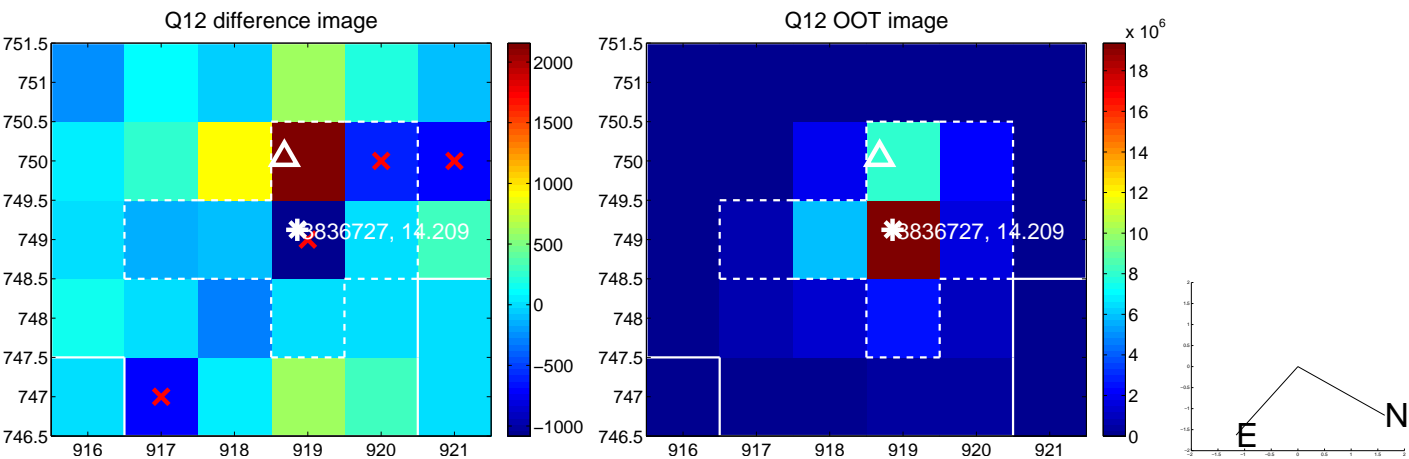
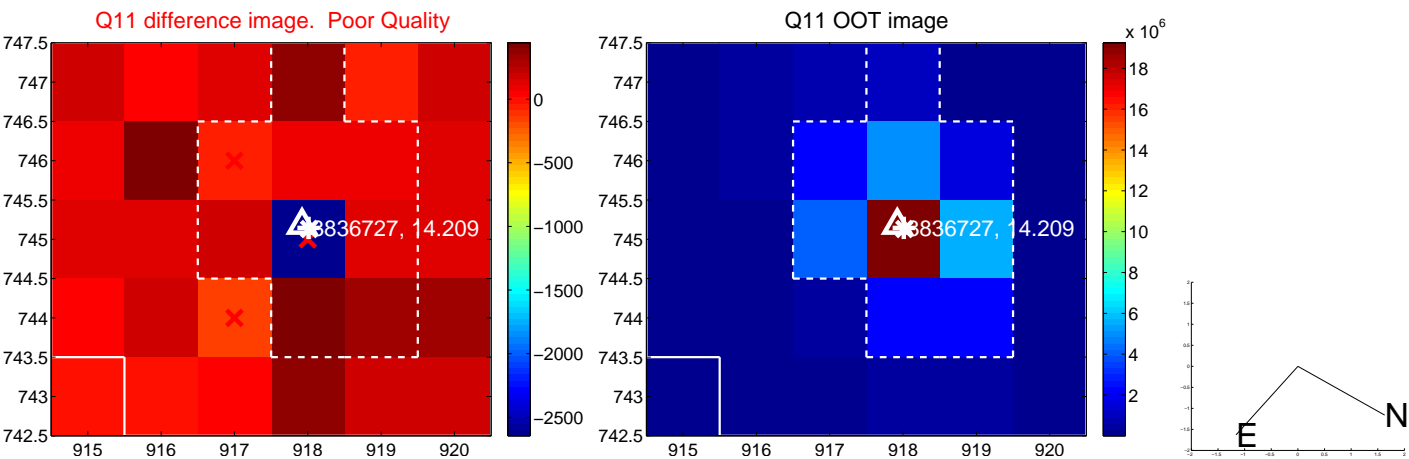
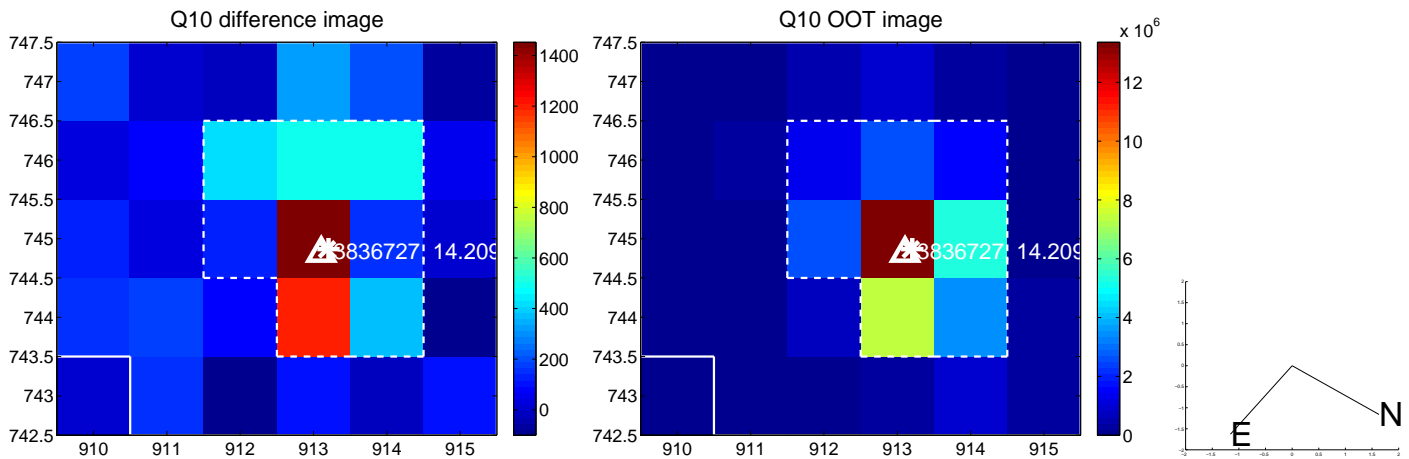
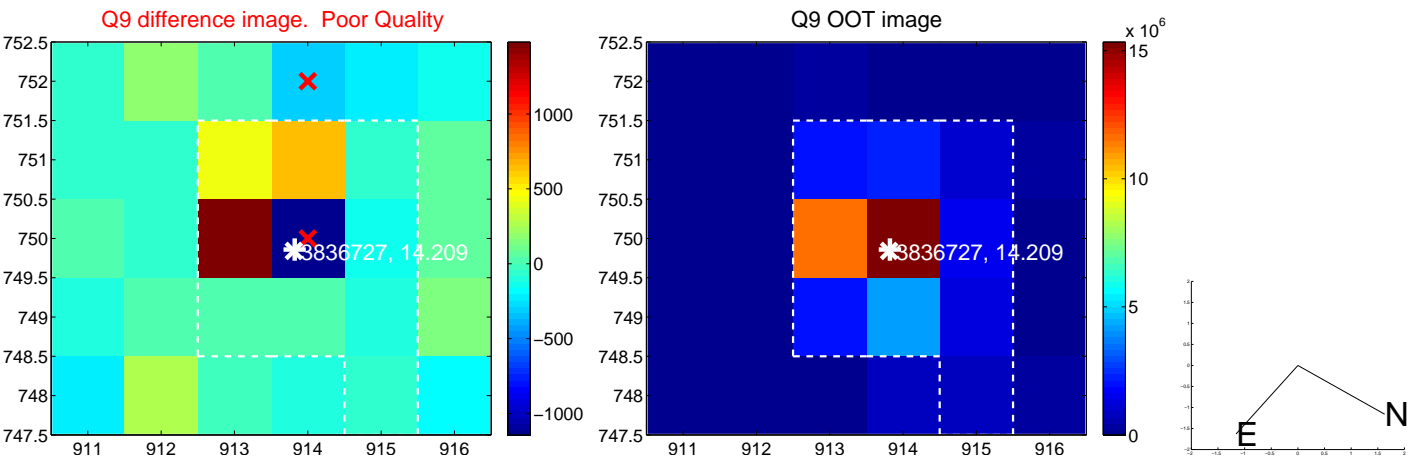
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



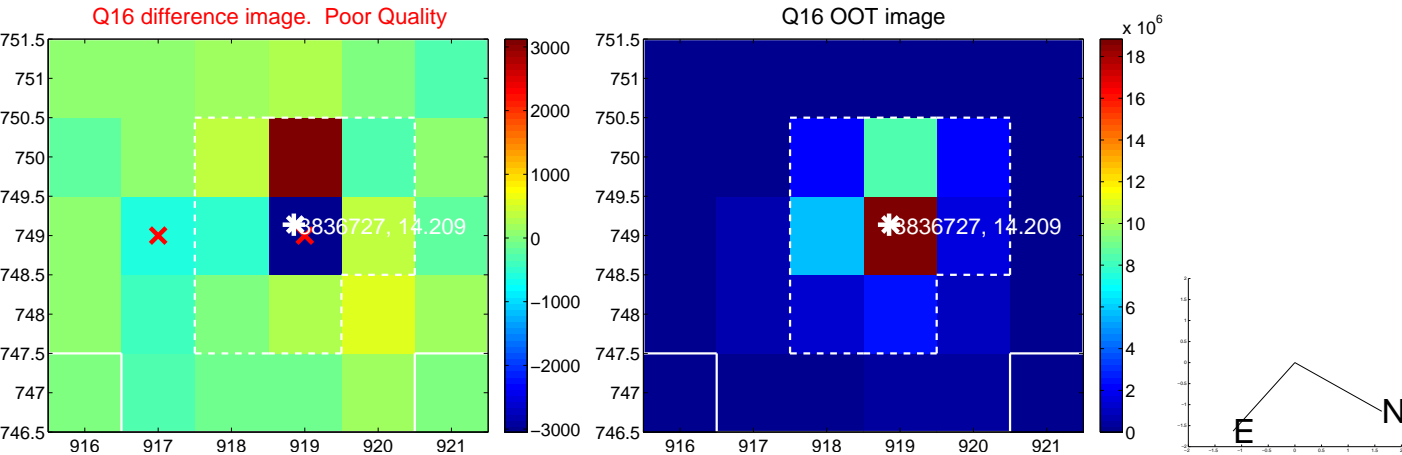
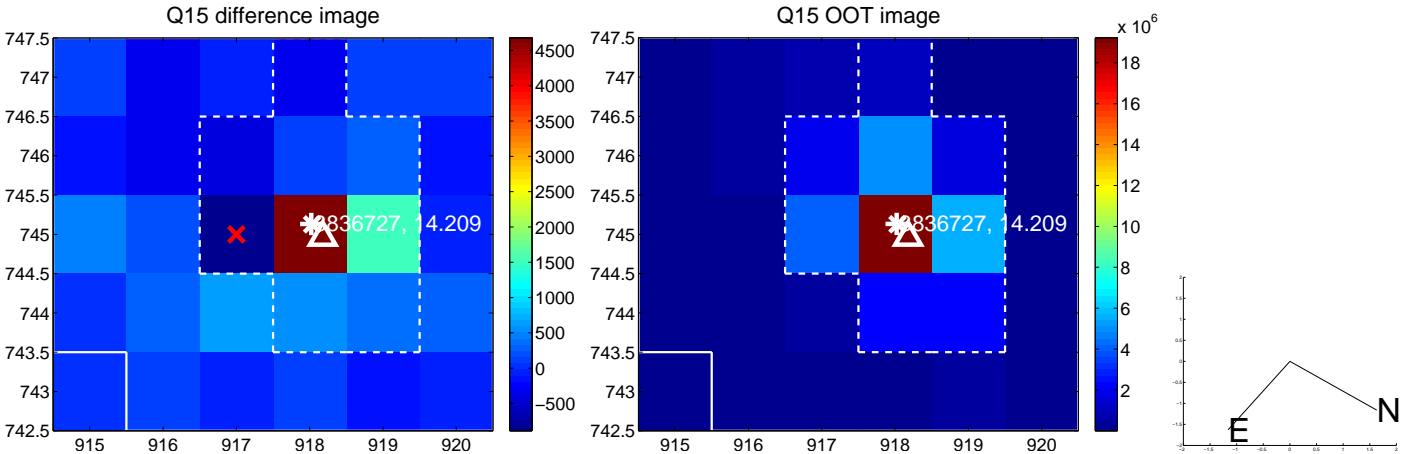
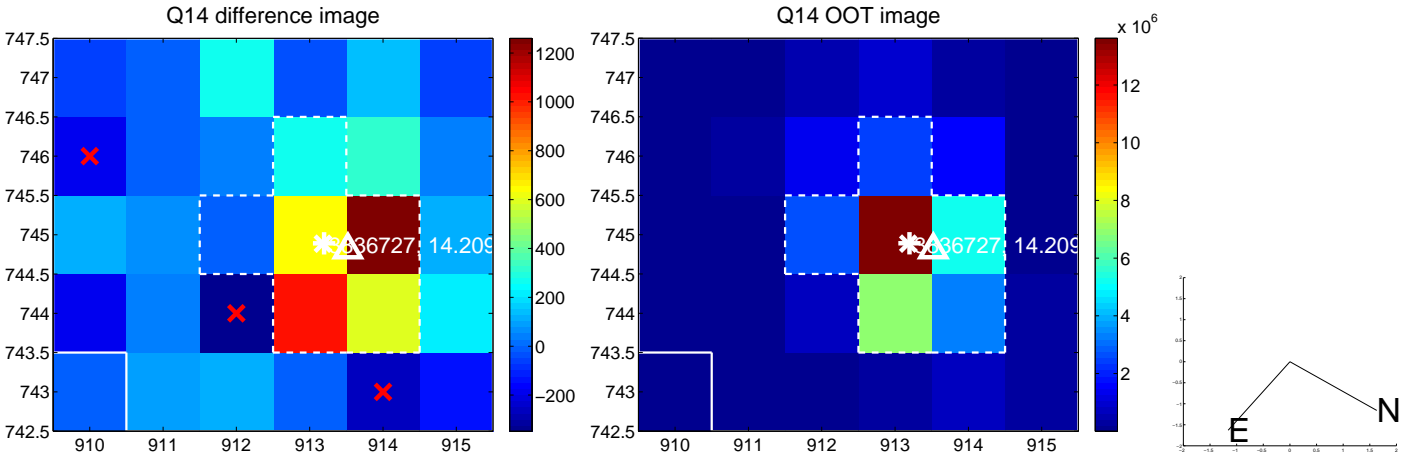
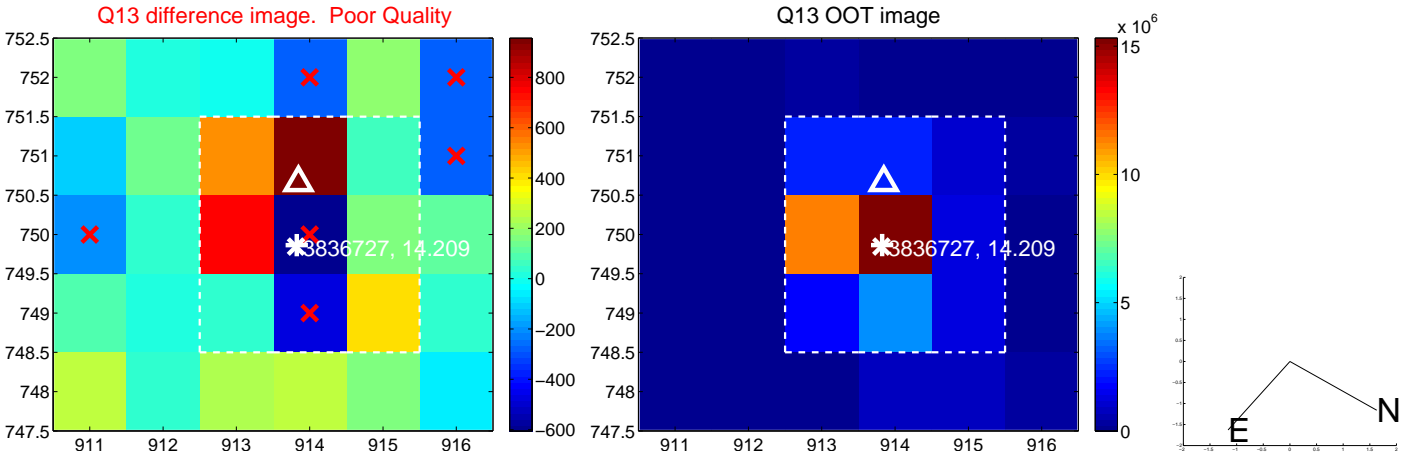
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



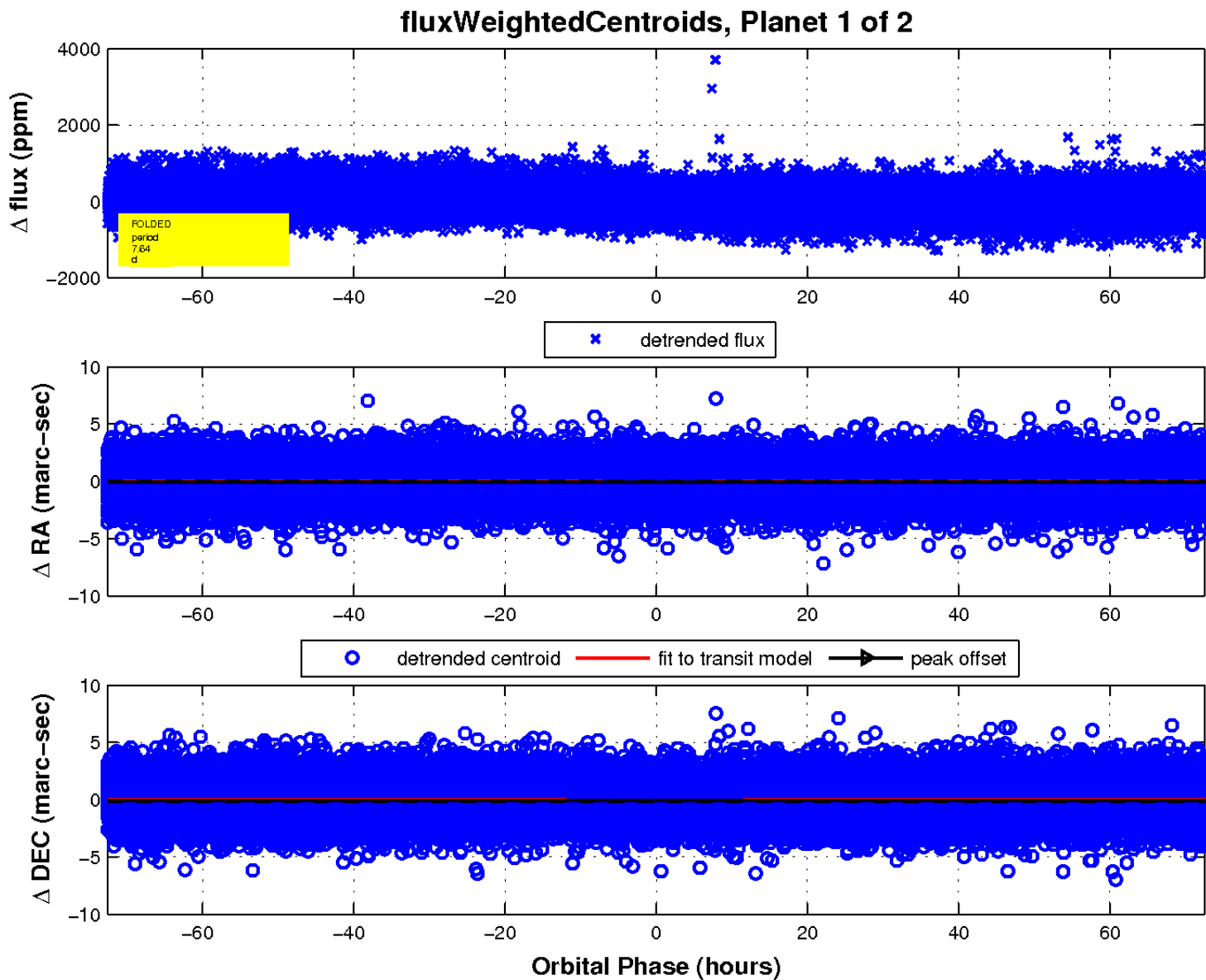
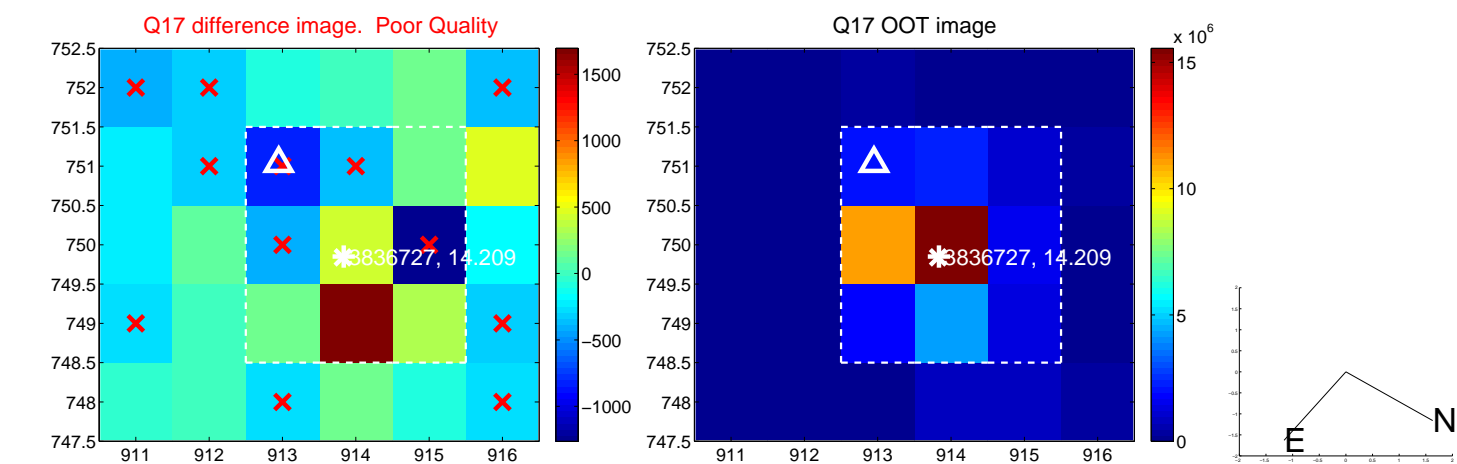
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

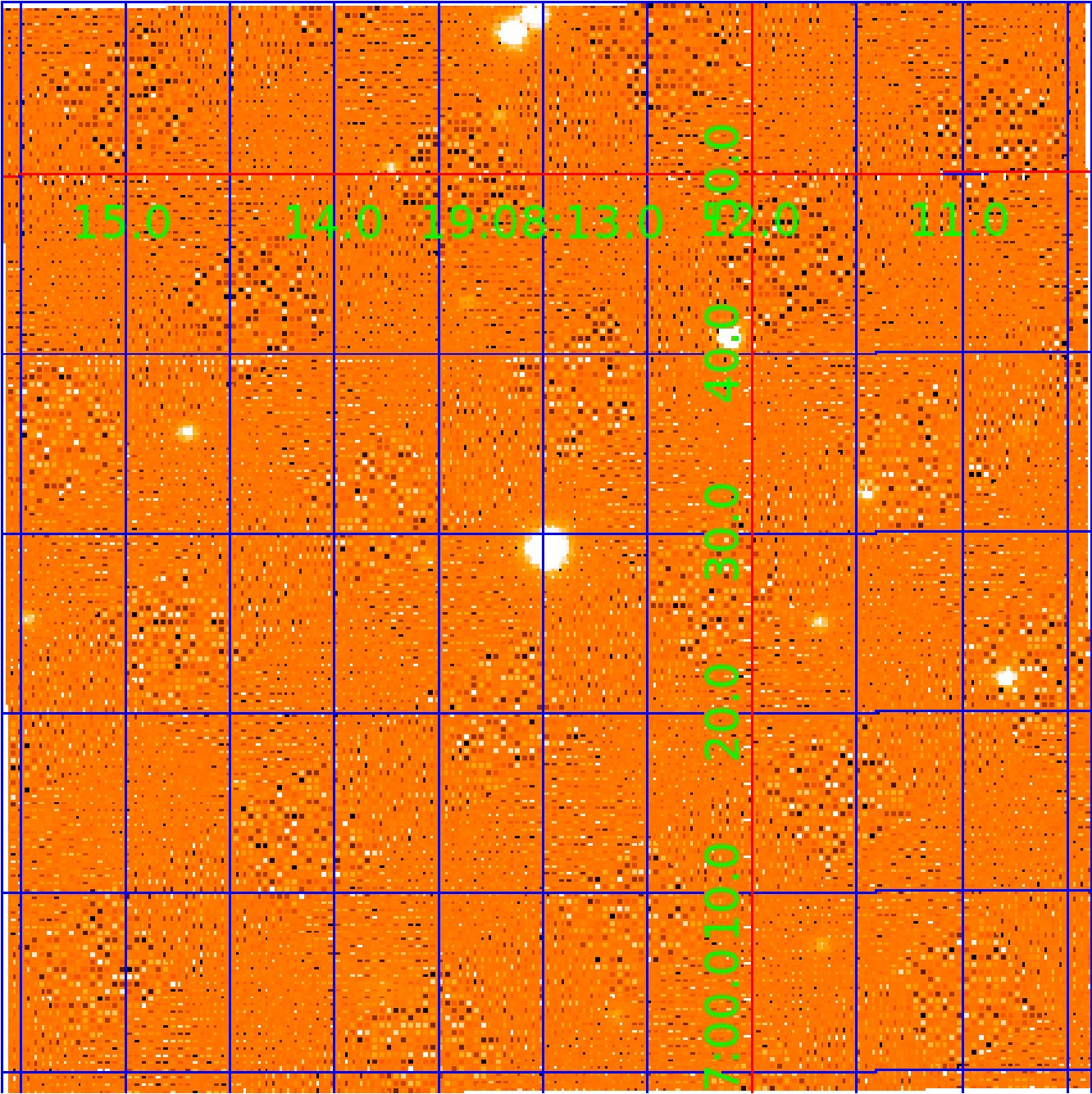


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003836727

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})
003836727-01	OBS	No	7.635662	135.827758	39.4	24.178	8.0	7.3	0.77	5952	0.54	129.81
003836727-02	OBS	No	7.637199	138.680178	80.4	44.977	7.5	12.0	0.77	5952	1.33	129.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836727-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003836727-02	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.

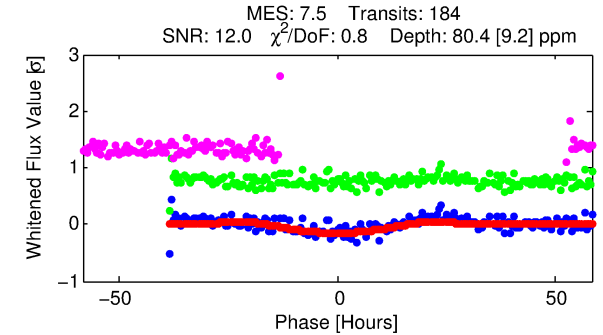
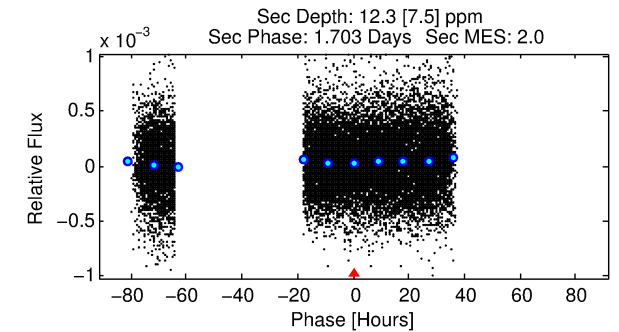
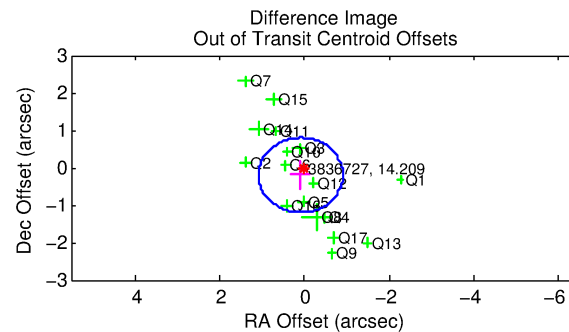
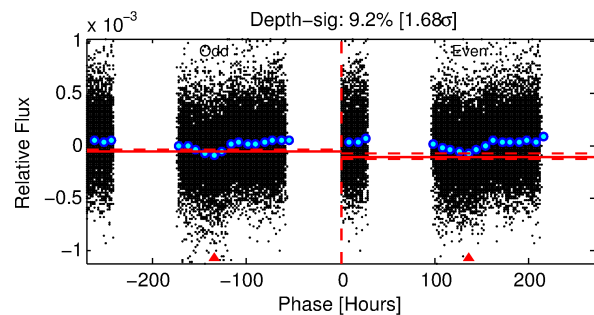
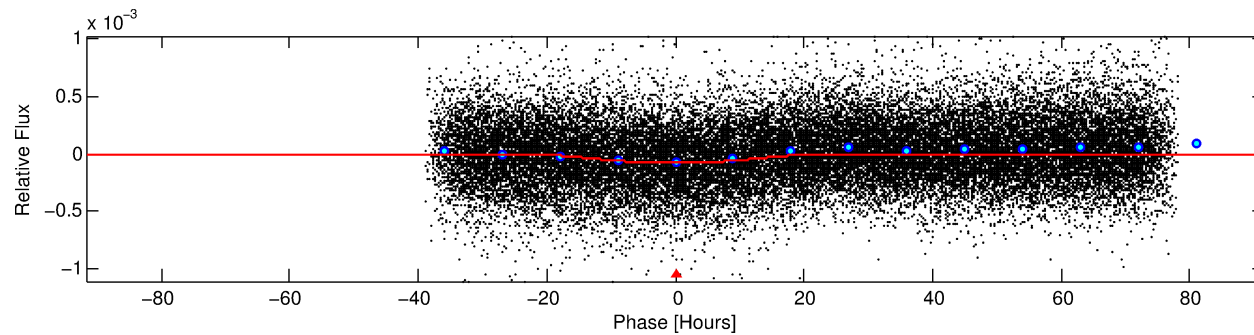
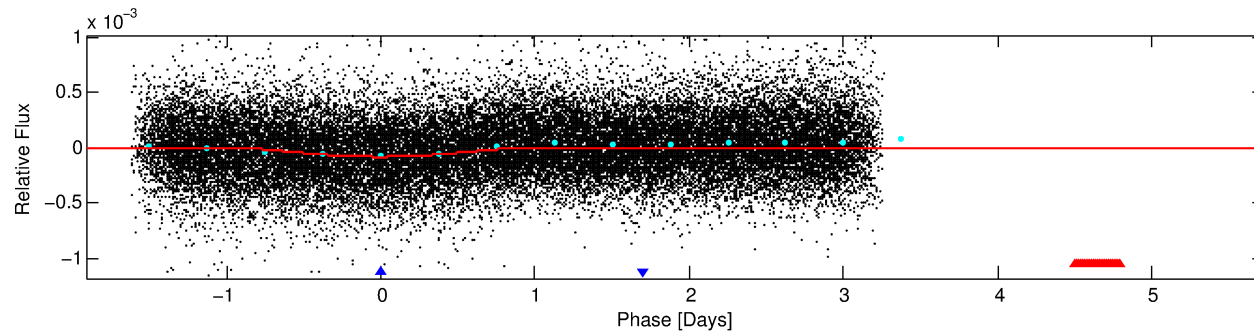
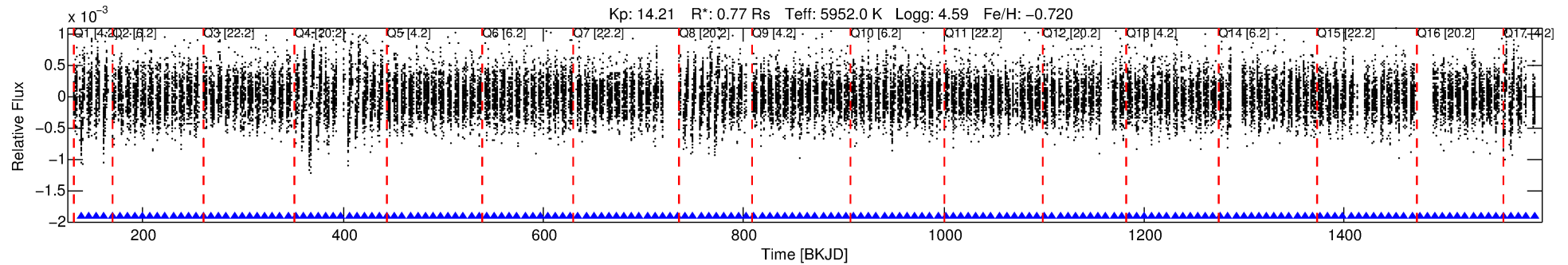
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003836727-02

No Significant Match Found

DV One-Page Summary

KIC: 3836727 Candidate: 2 of 2 Period: 7.637 d



DV Fit Results:

Period = 7.63720 [0.00064] d
Epoch = 138.6802 [0.0710] BKJD
Rp/R* = 0.0159 [0.0177]
a/R* = 1.03 [0.01]
b = 1.00 [0.03]
Seff = 129.78 [41.69]
Teff = 861 [69] K
Rp = 1.33 [1.51] Re
a = 0.0715 [0.0146] AU
Ag = 19.42 [45.15] [0.41 σ]
Teffp = 2793 [1612] K [1.20 σ]

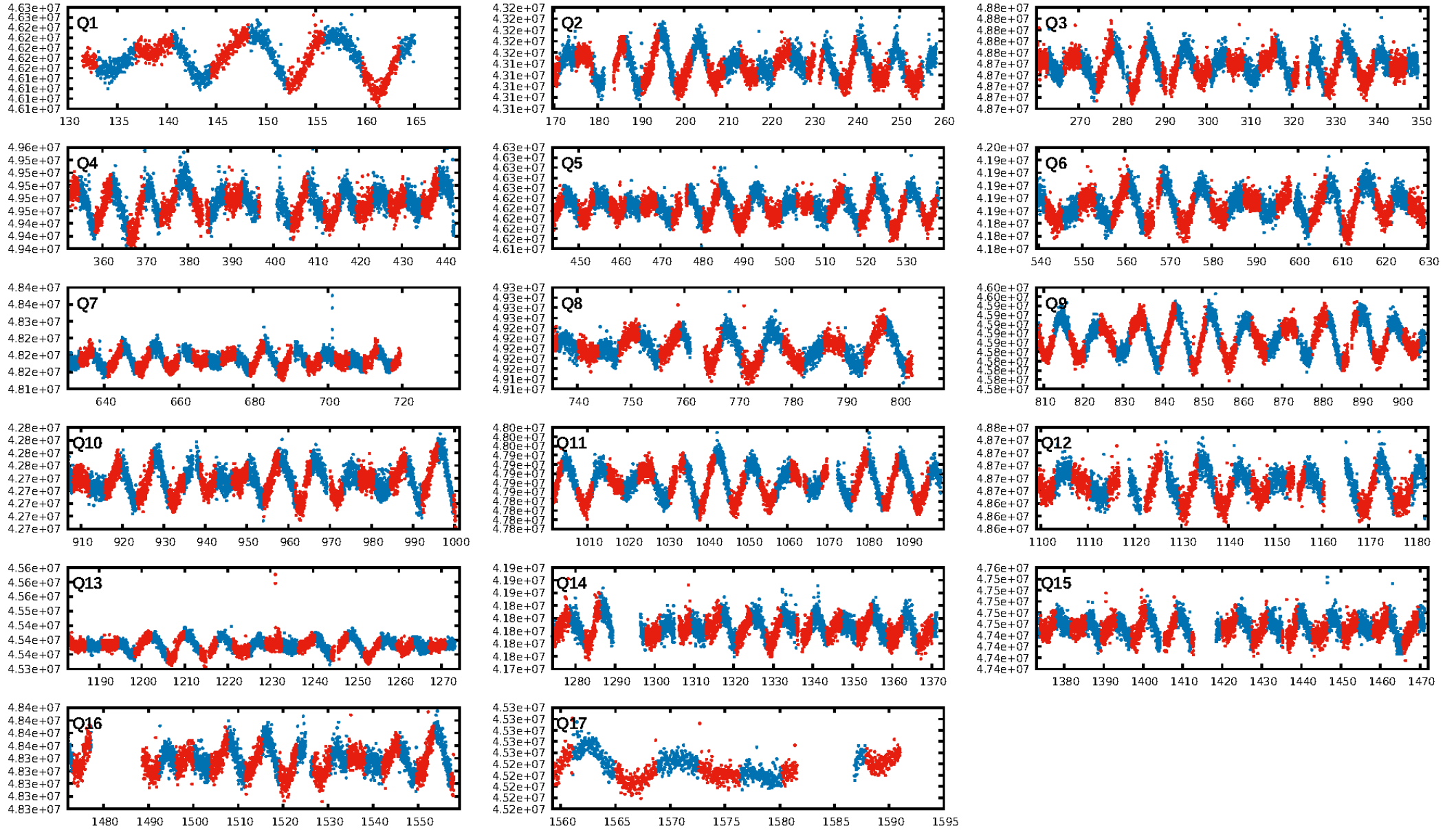
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [174/174]
GhostDiagnostic-chr: 1.521
Centroid-sig: 0.5%
Centroid-so: 1.262 arcsec [1.76 σ]
OotOffset-rm: 0.217 arcsec [0.65 σ]
KicOffset-rm: 0.217 arcsec [0.65 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.00 [0/17]

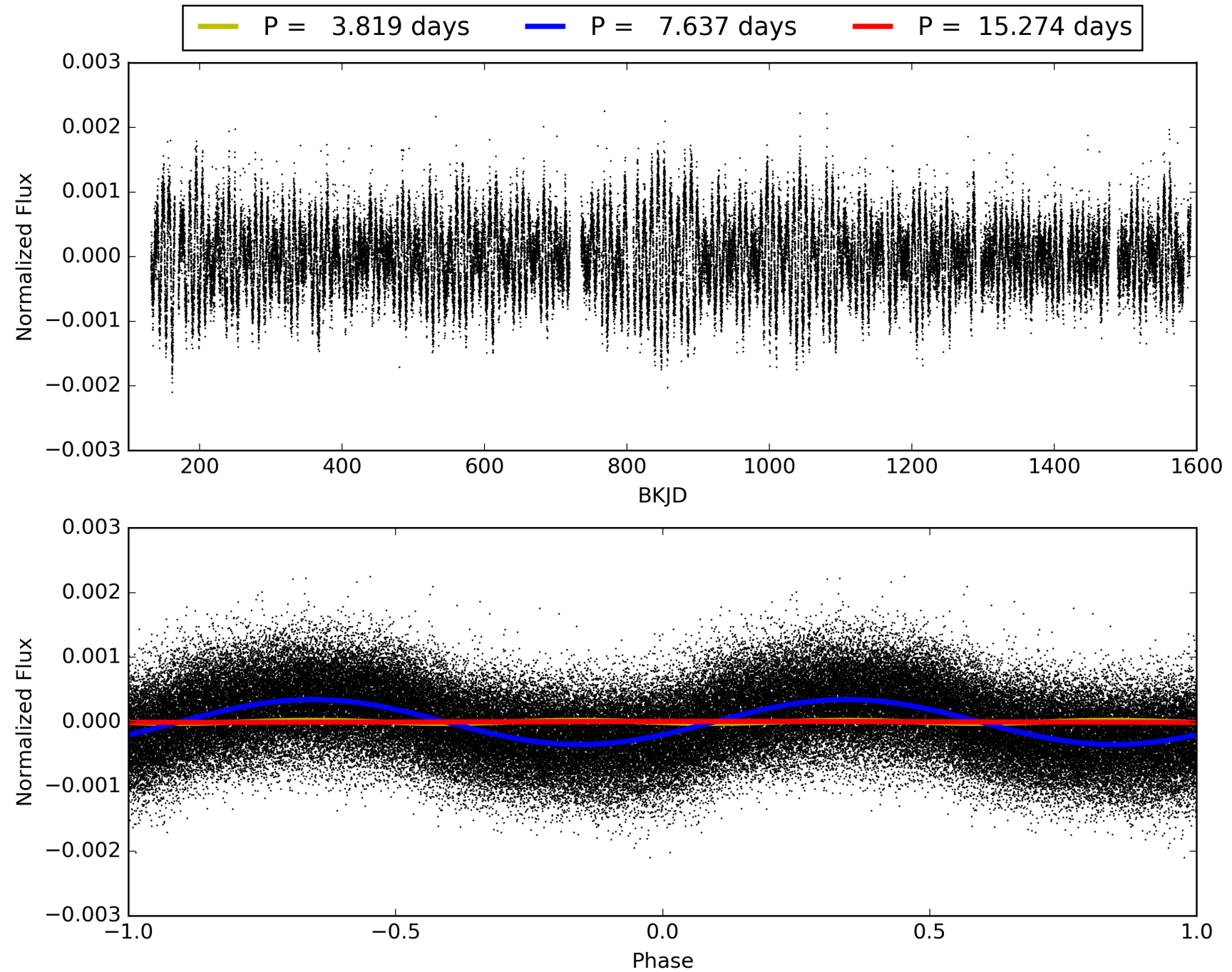
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:06:21 Z

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

TCE 003836727-02, PDC Light Curves

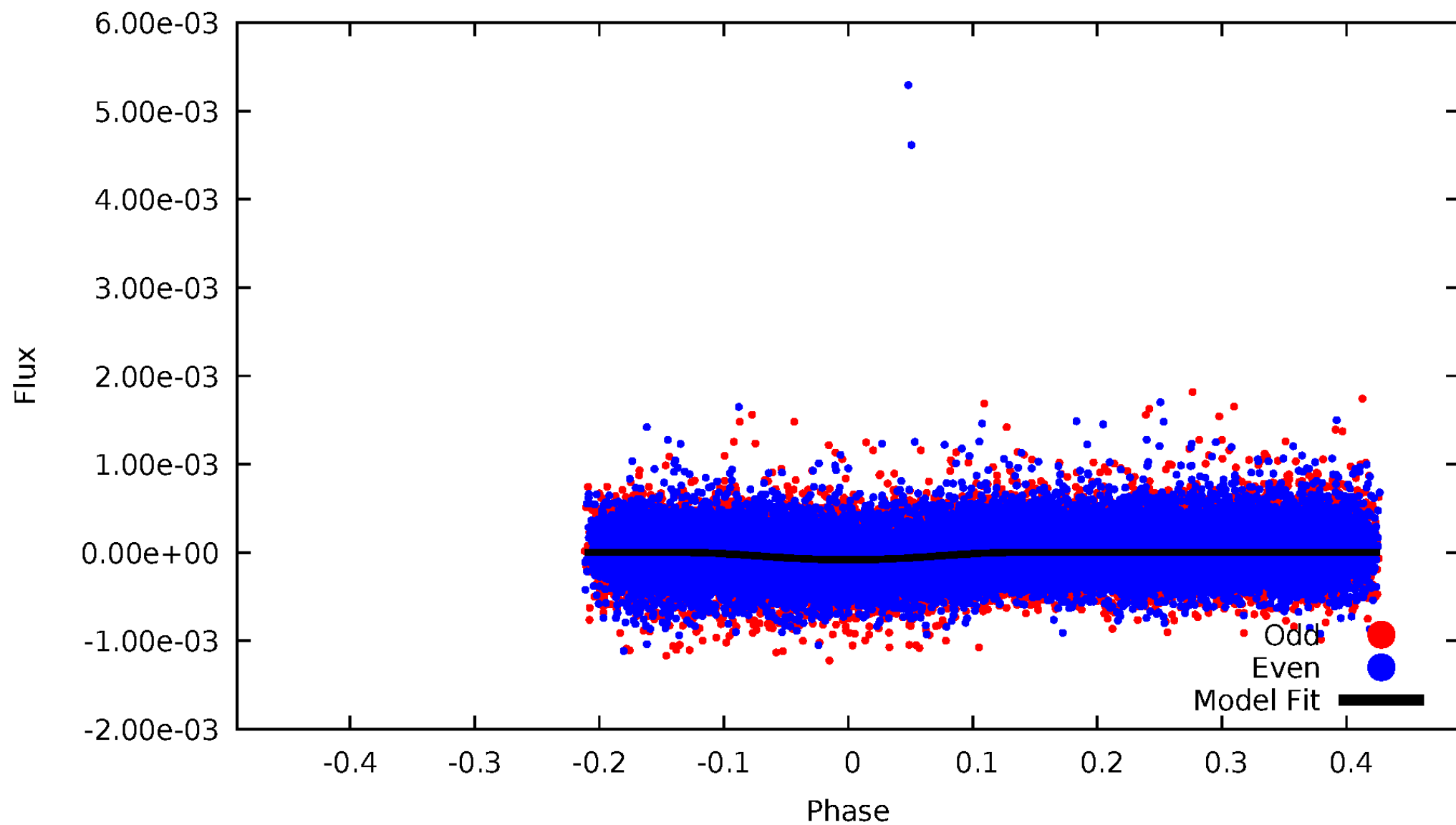


TCE 003836727-02



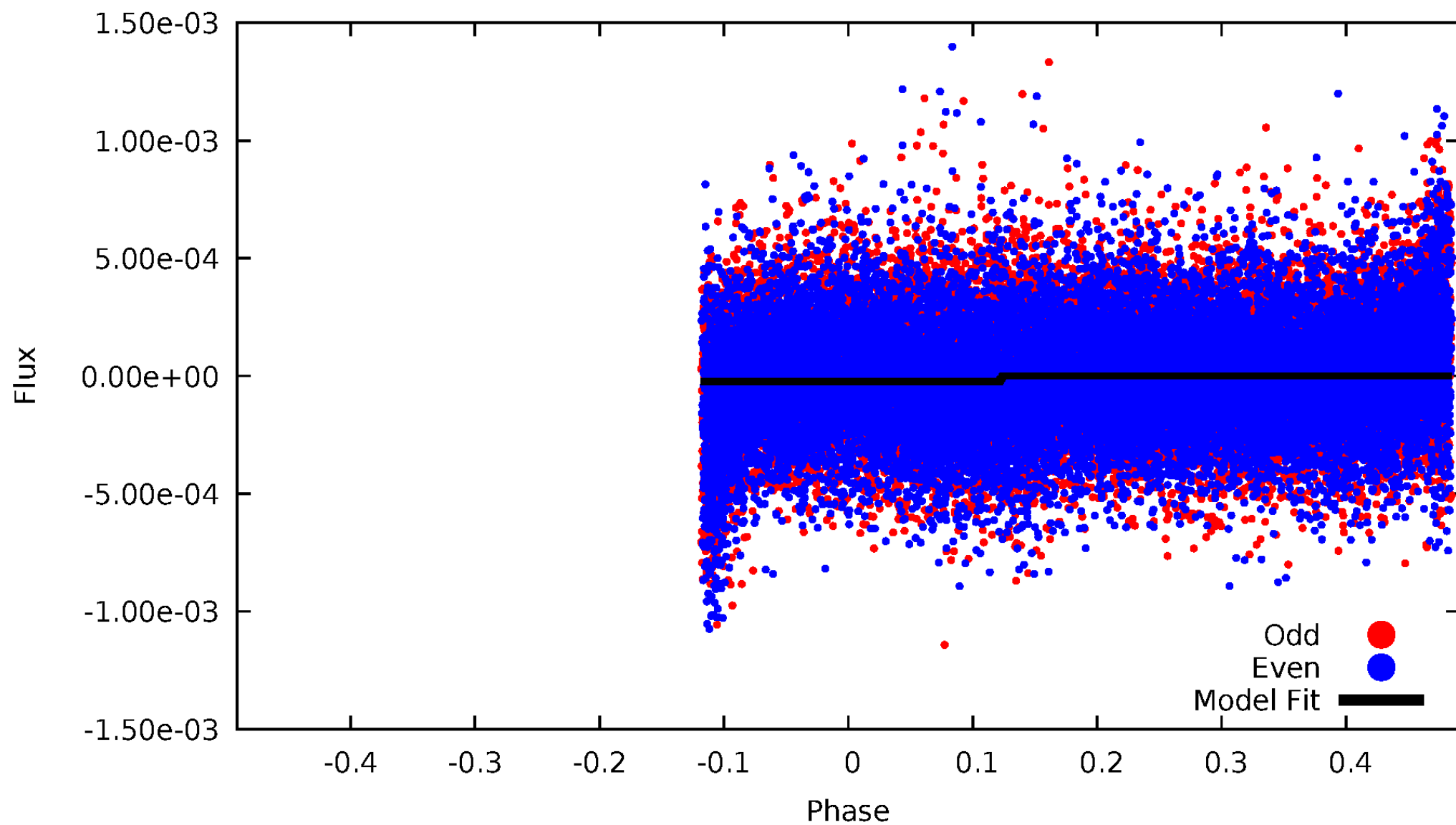
DV Odd/Even

TCE 003836727-02



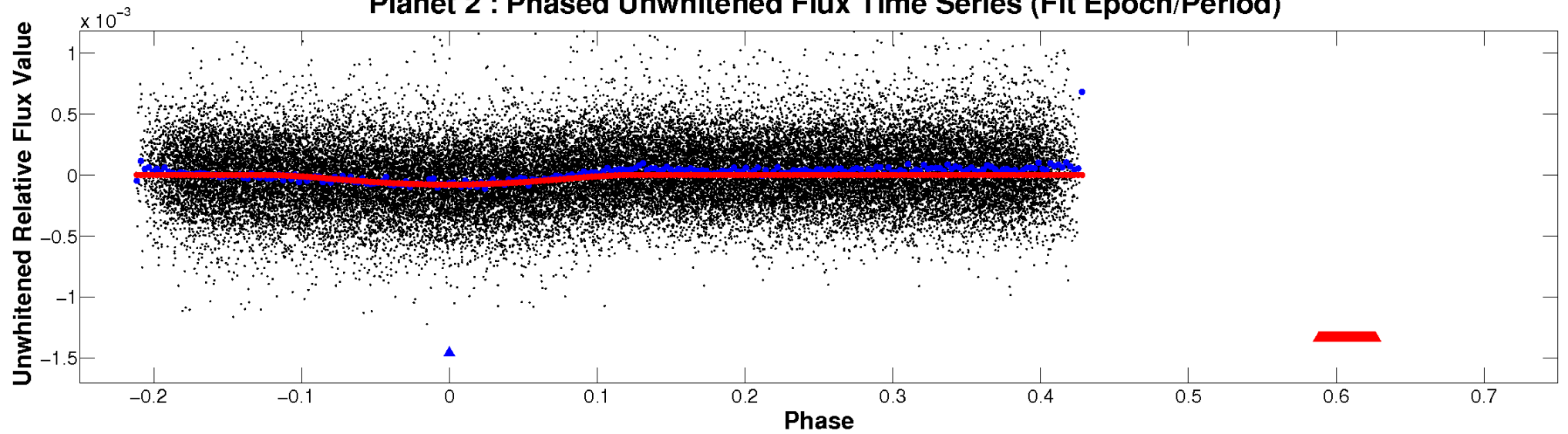
ALT Odd/Even

TCE 003836727-02

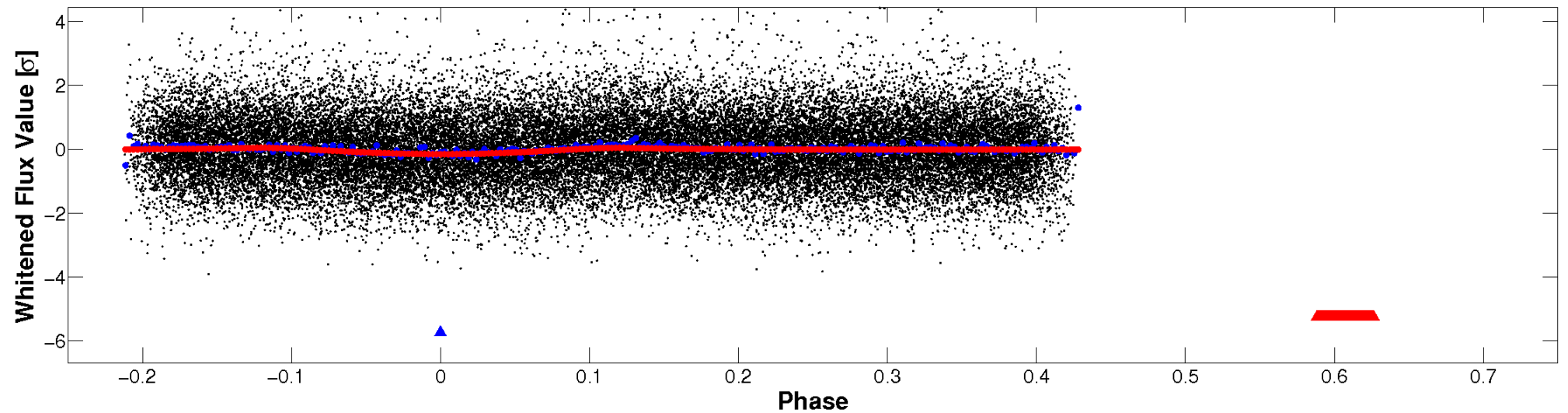


Non-Whitened Vs. Whitened Light Curve

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

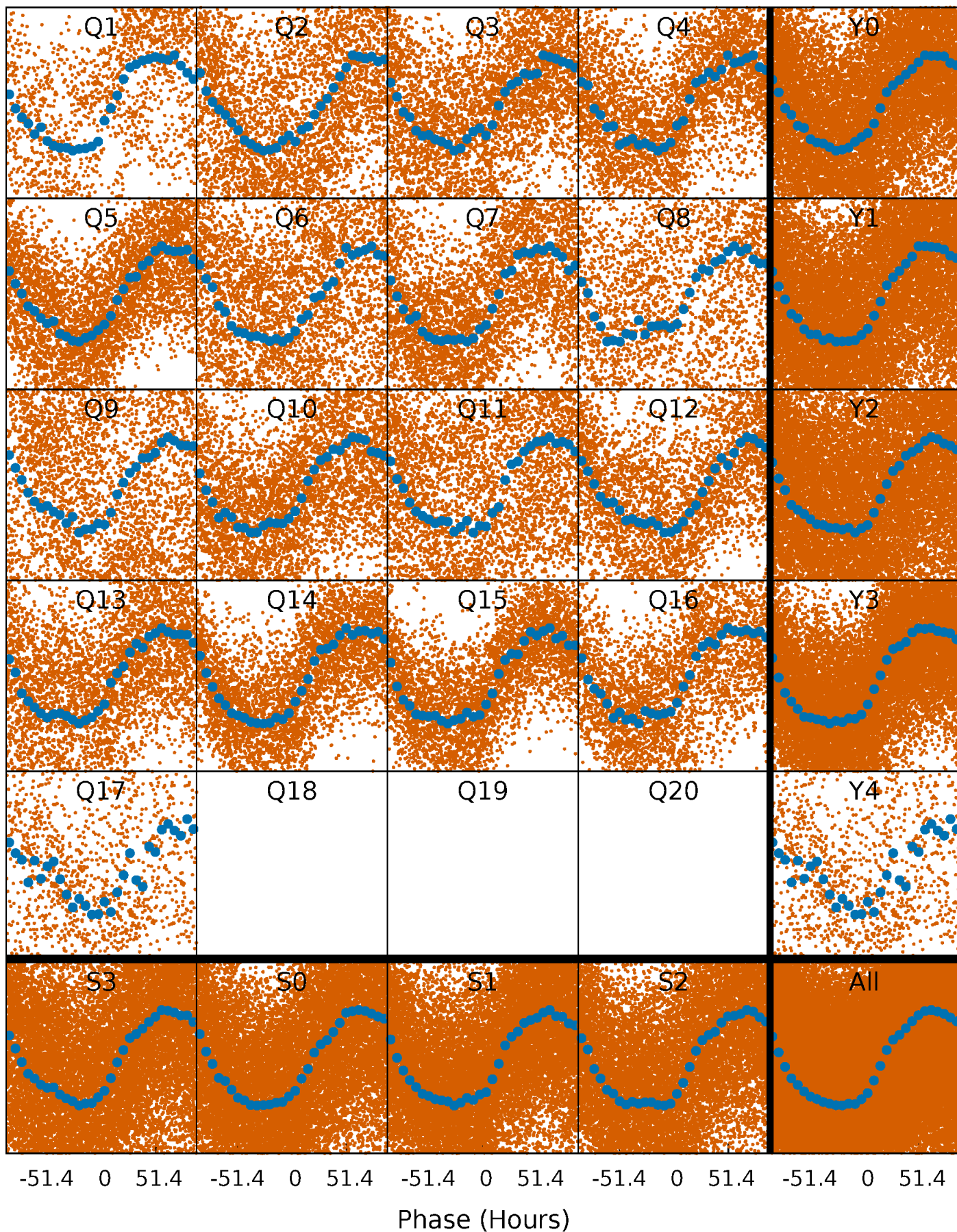


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



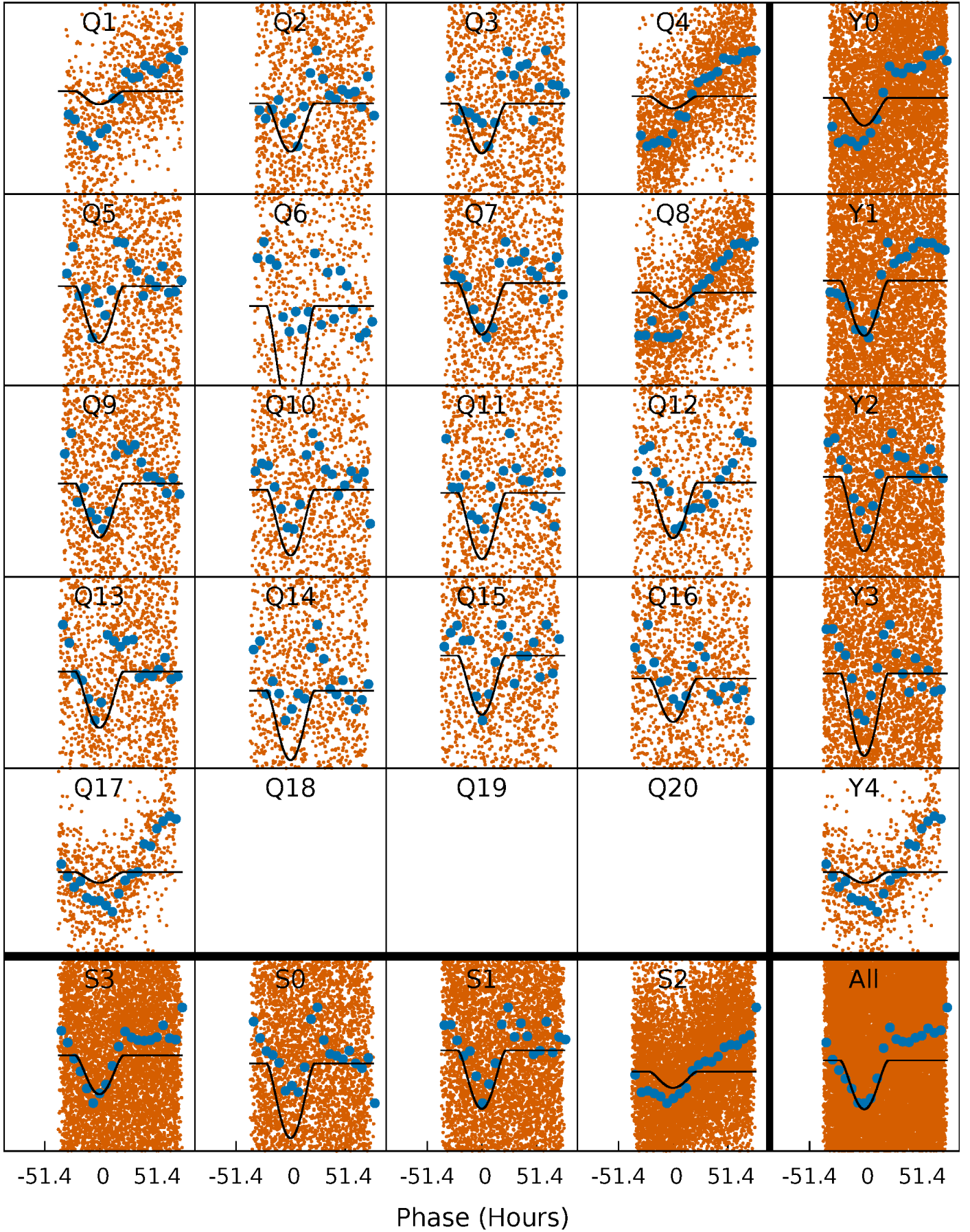
PDC Quarter-Phased Transit Curves

TCE 003836727-02 P= 7.637199 Days $T_0=138.680178$ (BKJD)



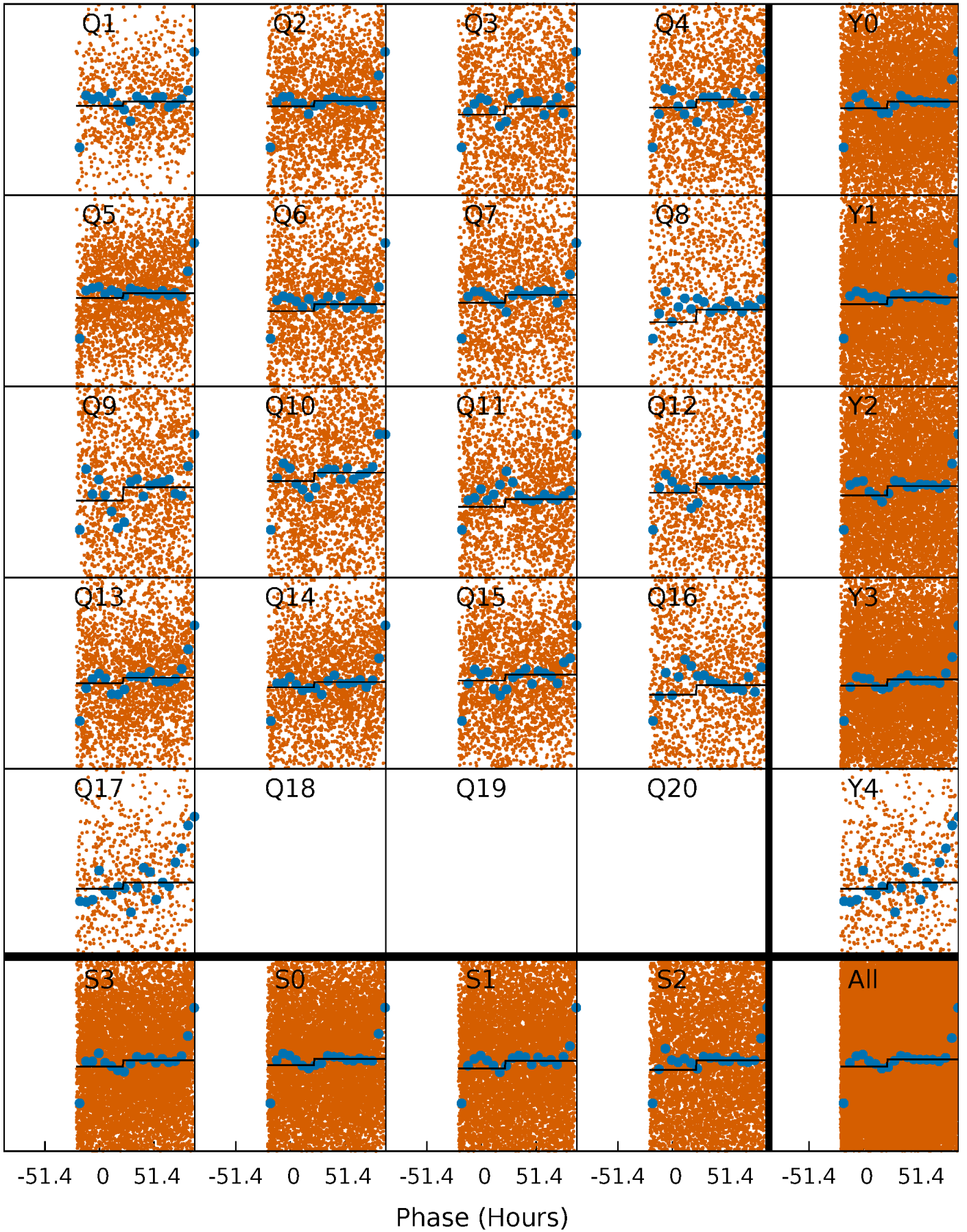
DV Quarter-Phased Transit Curves

TCE 003836727-02 $P = 7.637199$ Days $T_0 = 138.680178$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

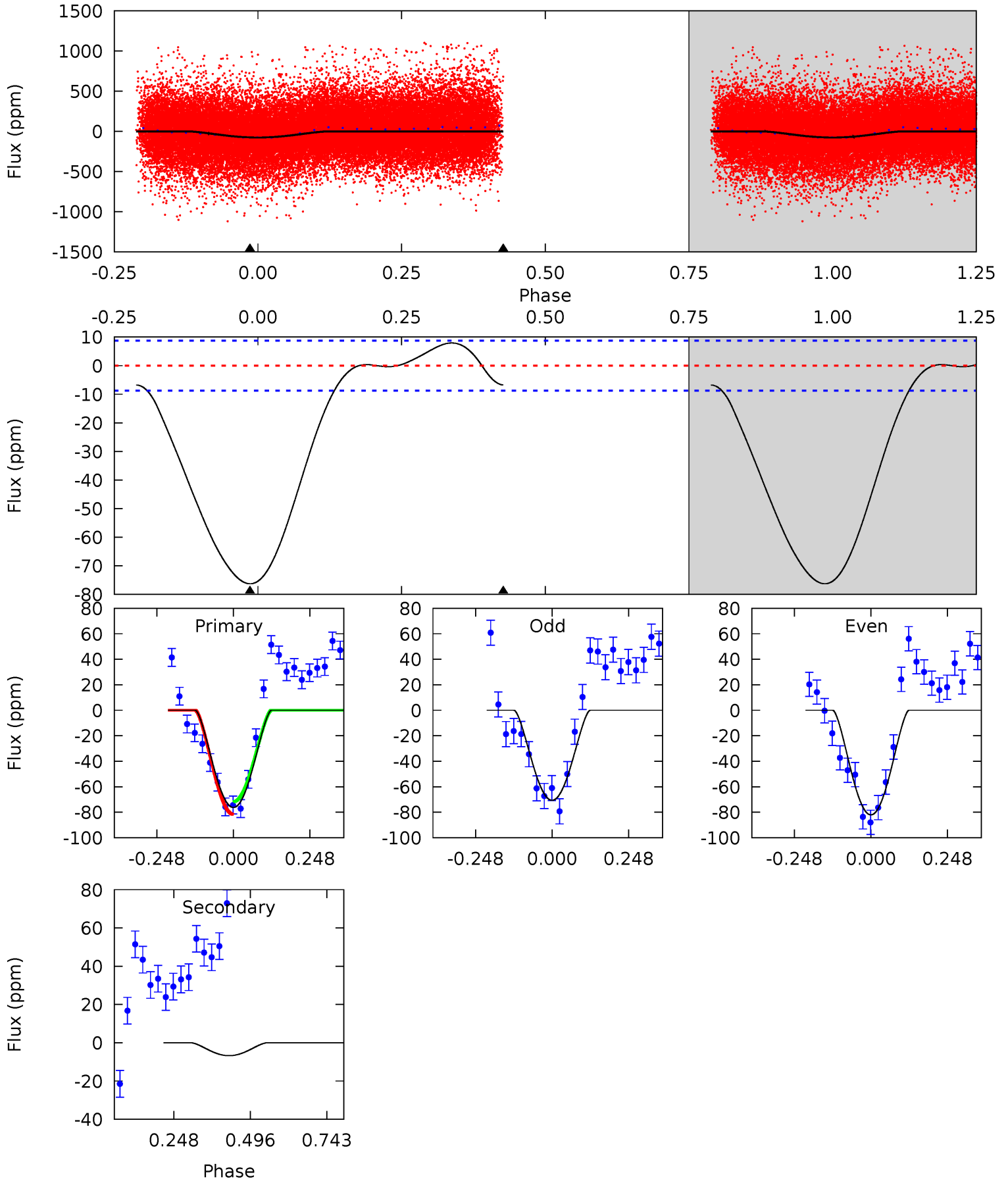
TCE 003836727-02 $P = 7.635562$ Days $T_0 = 138.254334$ (BKJD)



DV Model-Shift Uniqueness Test

003836727-02, P = 7.637199 Days, E = 131.042979 Days

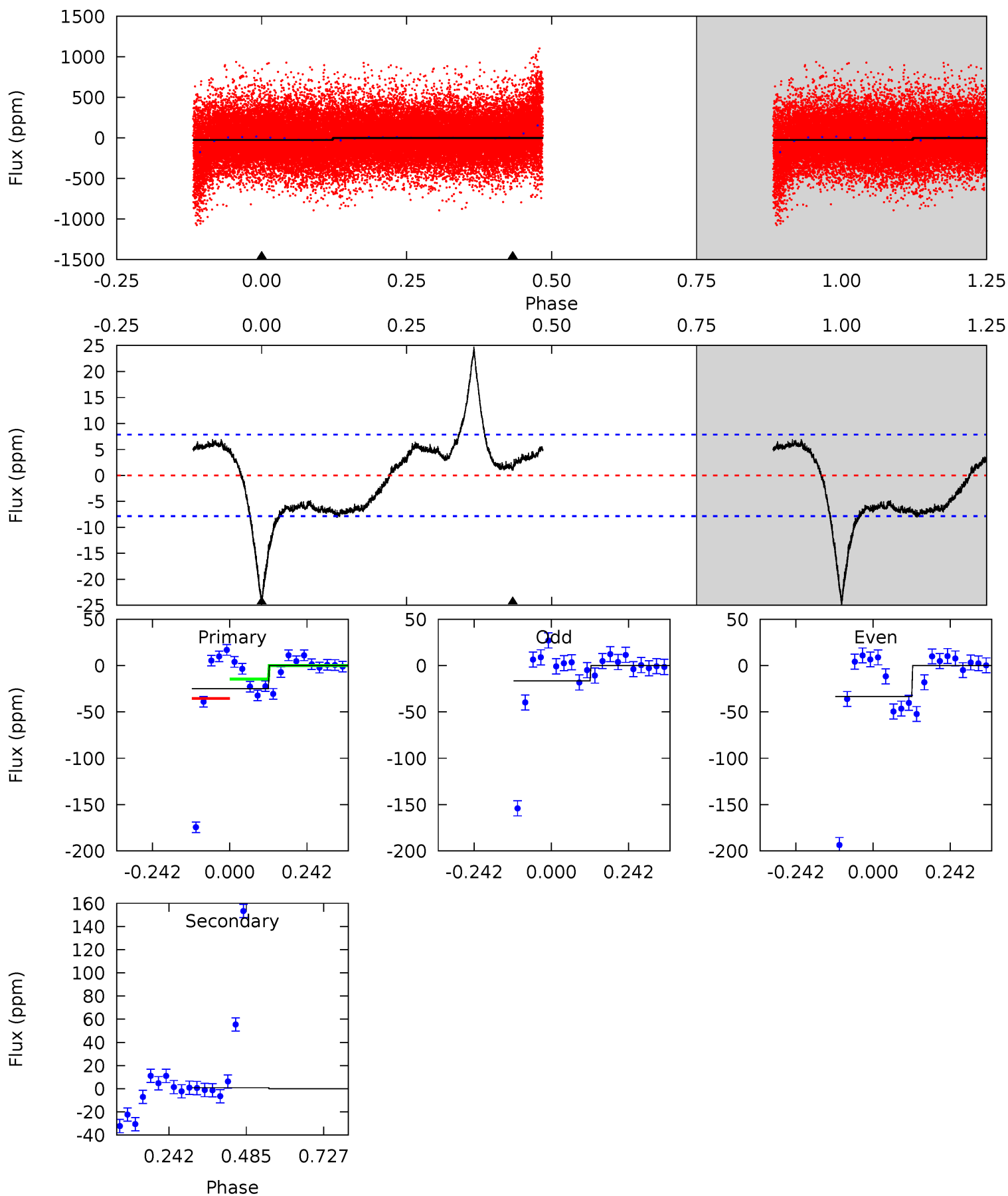
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.0	3.36	0	0	4.37	1.16	0.41	38.0	38.0	3.36	3.36	2.83	1.29	0.09	2.41



Alt Model-Shift Uniqueness Test

003836727-02, P = 7.635562 Days, E = 130.618772 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	-0.51	0	0	4.38	1.17	1.36	13.9	13.9	-0.51	-0.51	4.68	1.16	0.50	4.30



Stellar Parameters For KIC 003836727

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5952^{+161}_{-161}	$4.589^{+0.032}_{-0.168}$	$-0.720^{+0.300}_{-0.300}$	$0.768^{+0.182}_{-0.061}$	$0.836^{+0.079}_{-0.079}$	$2.596^{+0.419}_{-1.163}$
	+3%/-3%	+1%/-4%	+42%/-42%	+24%/-8%	+9%/-9%	+16%/-45%
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 003836727-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 2	$1.71^{+1.49}_{-1.04}$	1229^{+72}_{-46}	2865^{+933}_{-458}	$6.199^{+32.821}_{-4.424}$
Alt.	1 ± 2	$1.25^{+1.26}_{-0.89}$	1230^{+71}_{-51}	-2328^{+4692}_{-1012}	$-0.818^{+2.479}_{-15.725}$

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

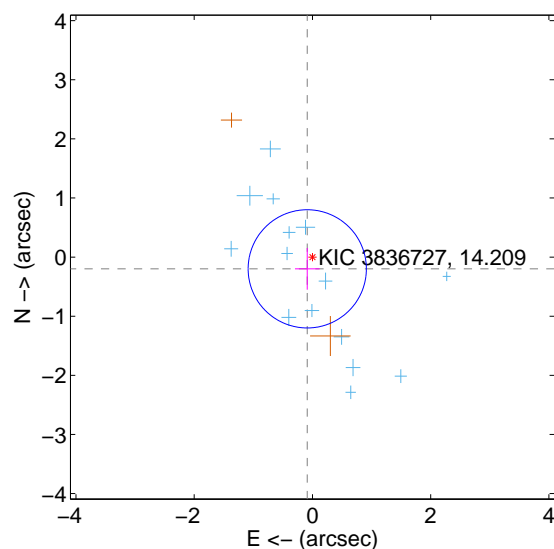
Supplemental centroid analysis for 003836727-02. Kepler magnitude: 14.21. Transit SNR 12.00

There are 15 quarters with good PRF difference image offsets

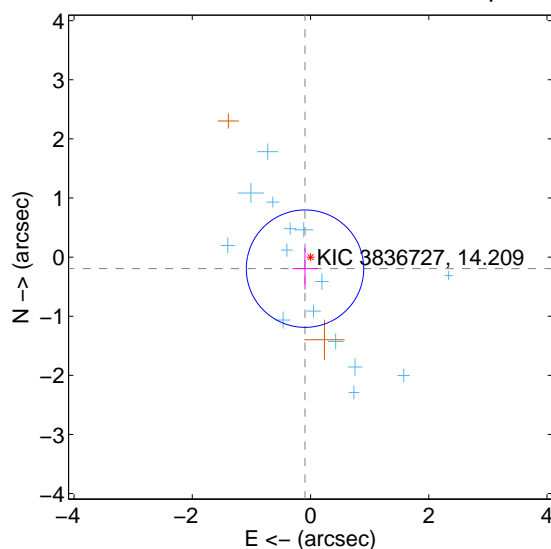
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.217 ± 0.333	0.65	0.088 ± 0.208	-0.199 ± 0.352
PRF-fit source offset from KIC position	0.217 ± 0.331	0.65	0.093 ± 0.213	-0.195 ± 0.352
photometric centroid source offset	1.26 ± 0.72	1.76	0.88 ± 0.64	0.91 ± 0.78

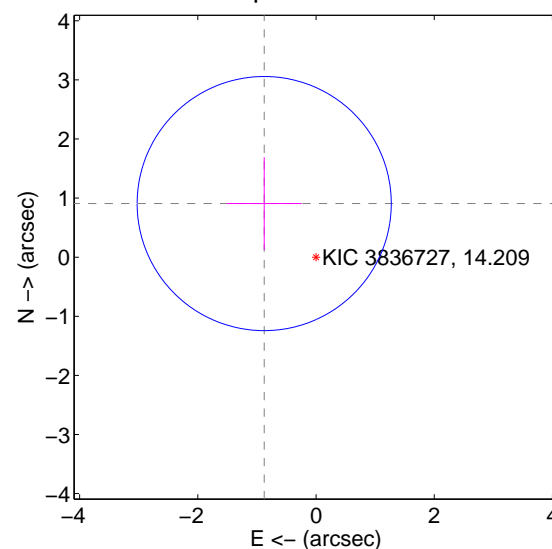
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

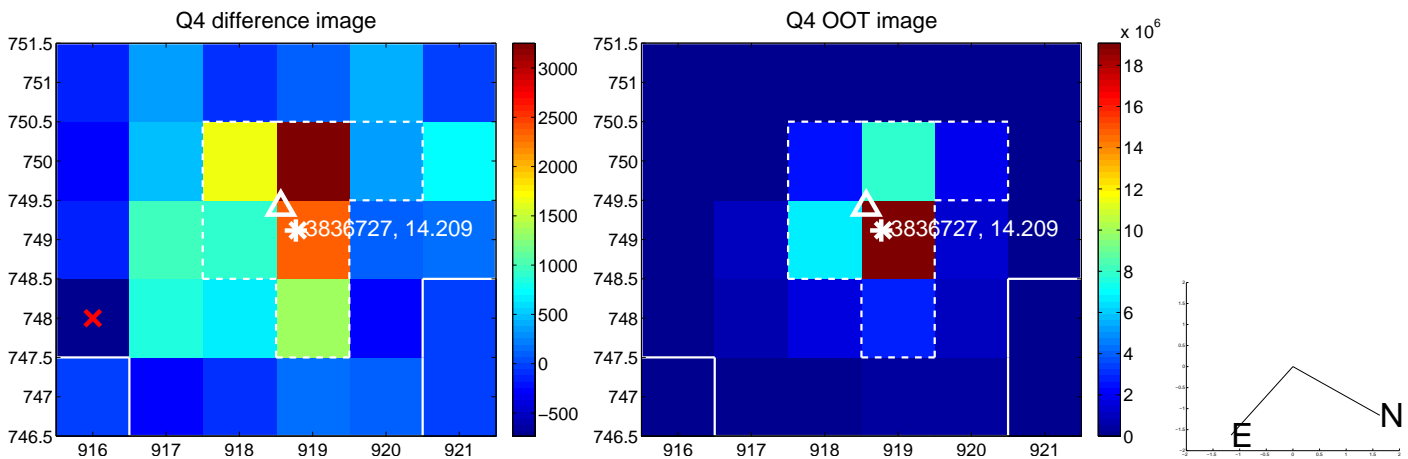
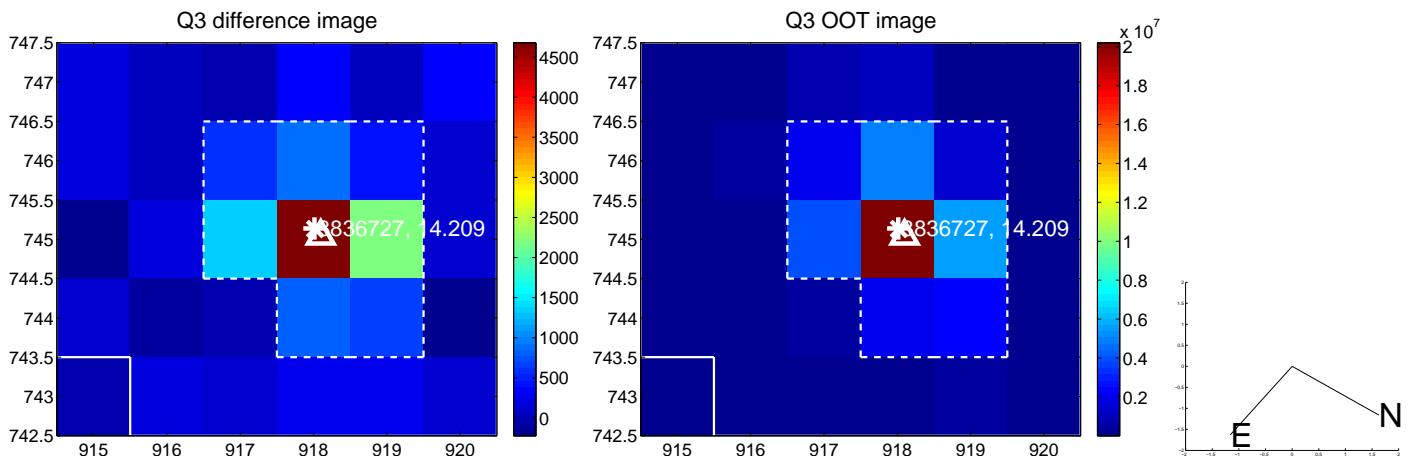
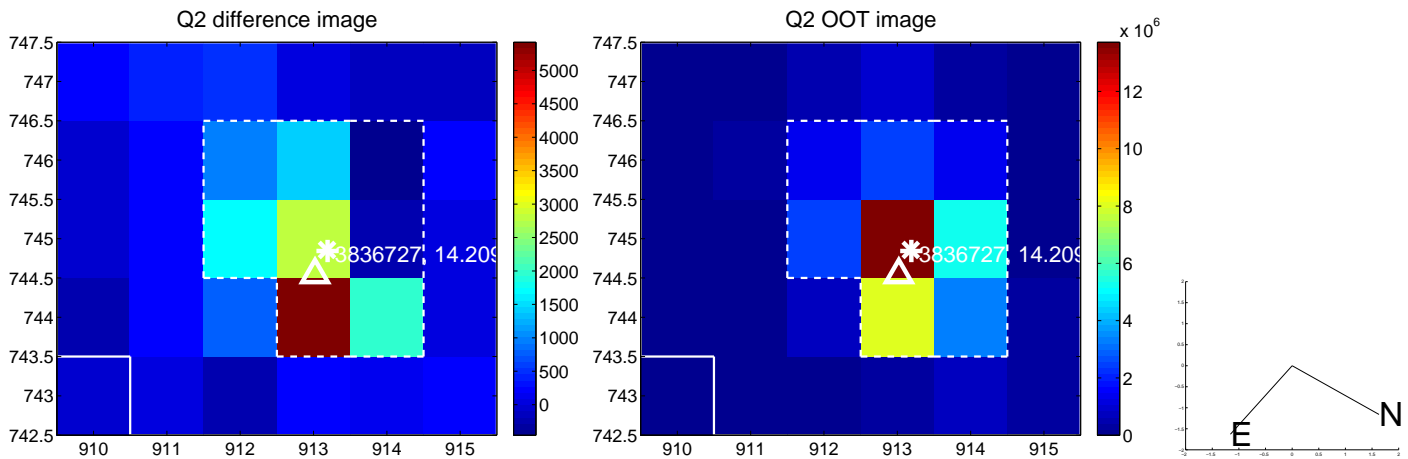
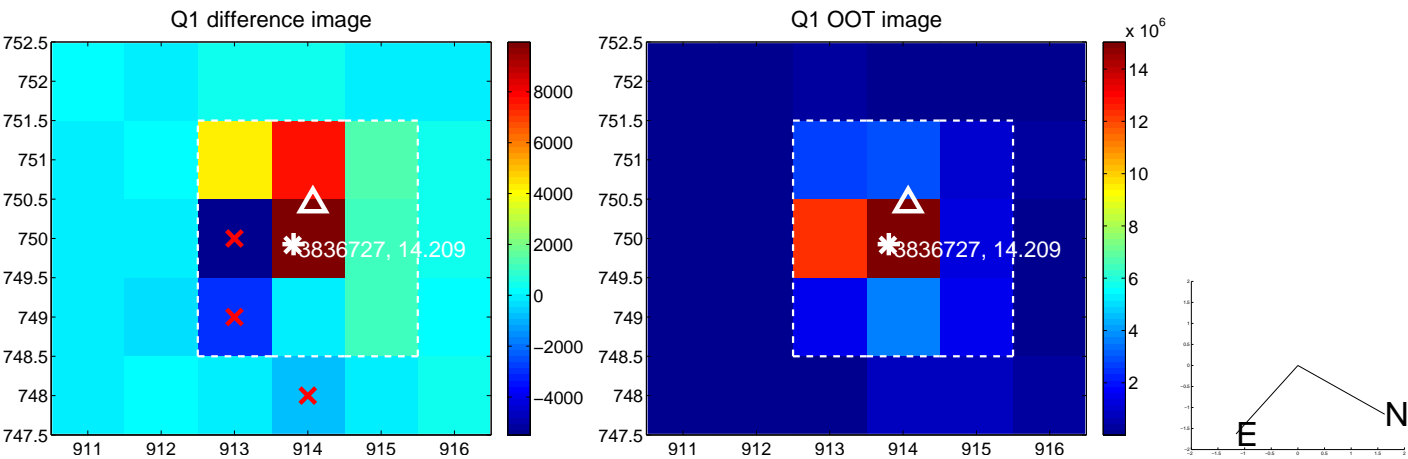


offset from photometric centroids

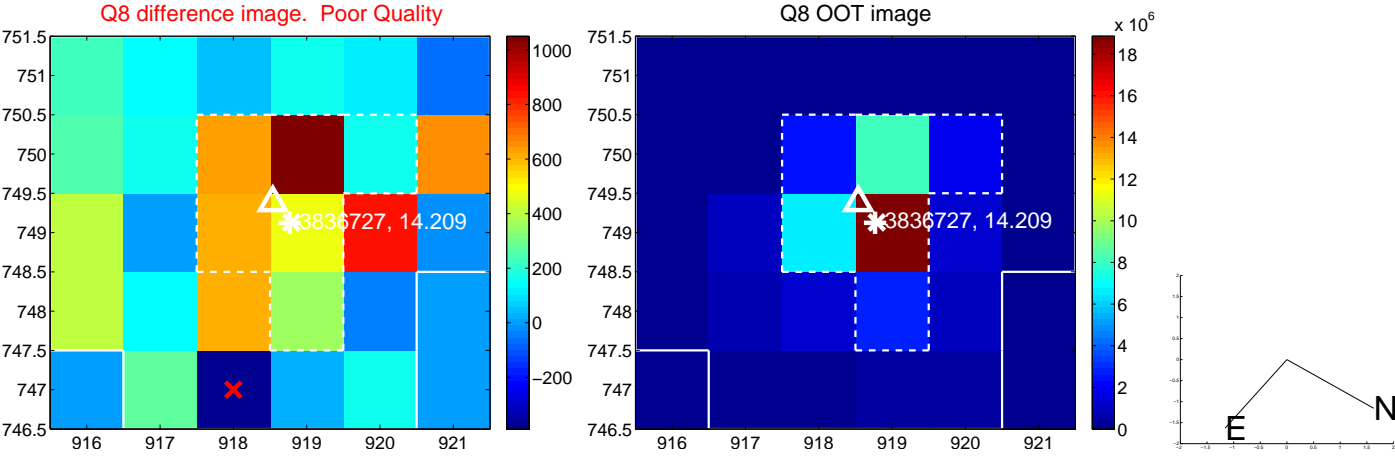
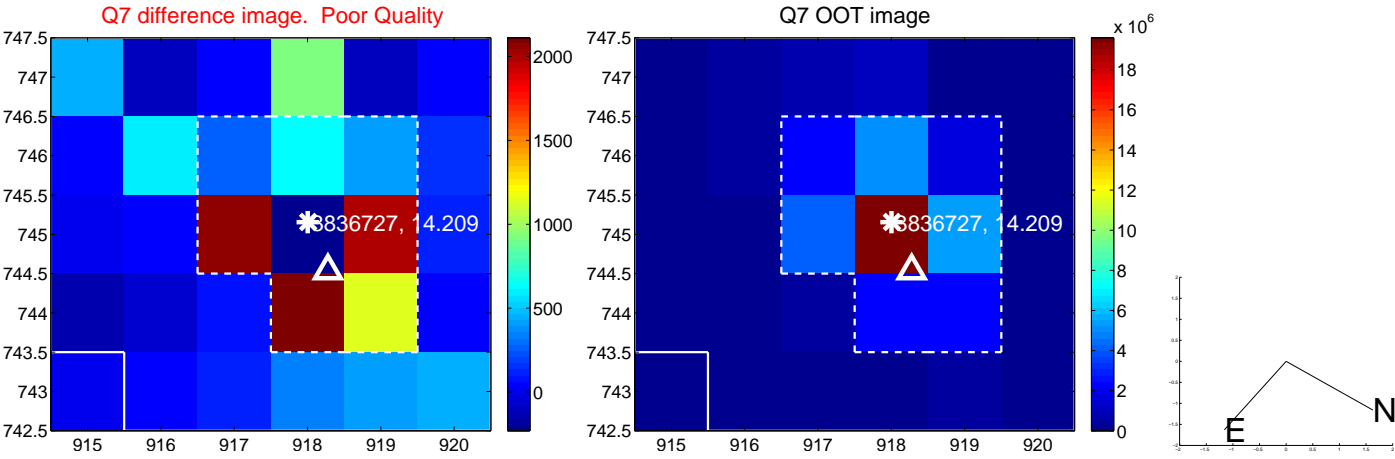
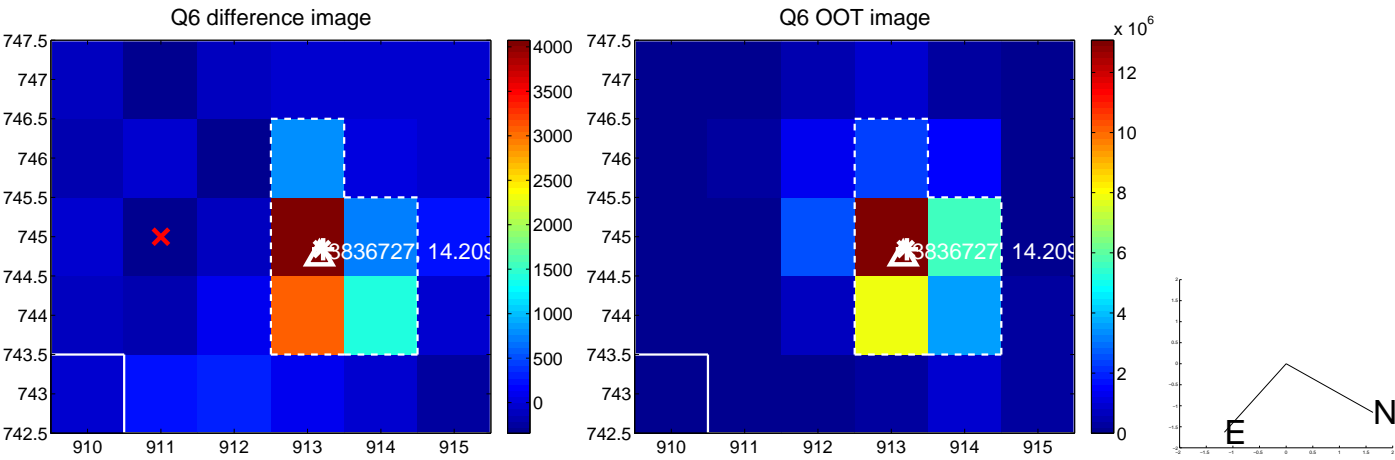
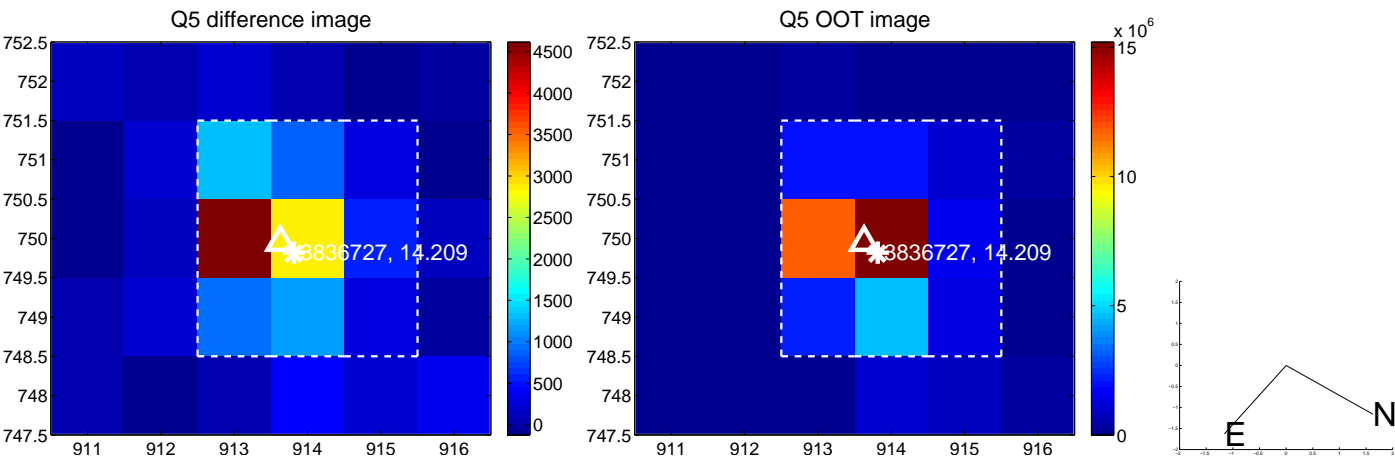


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

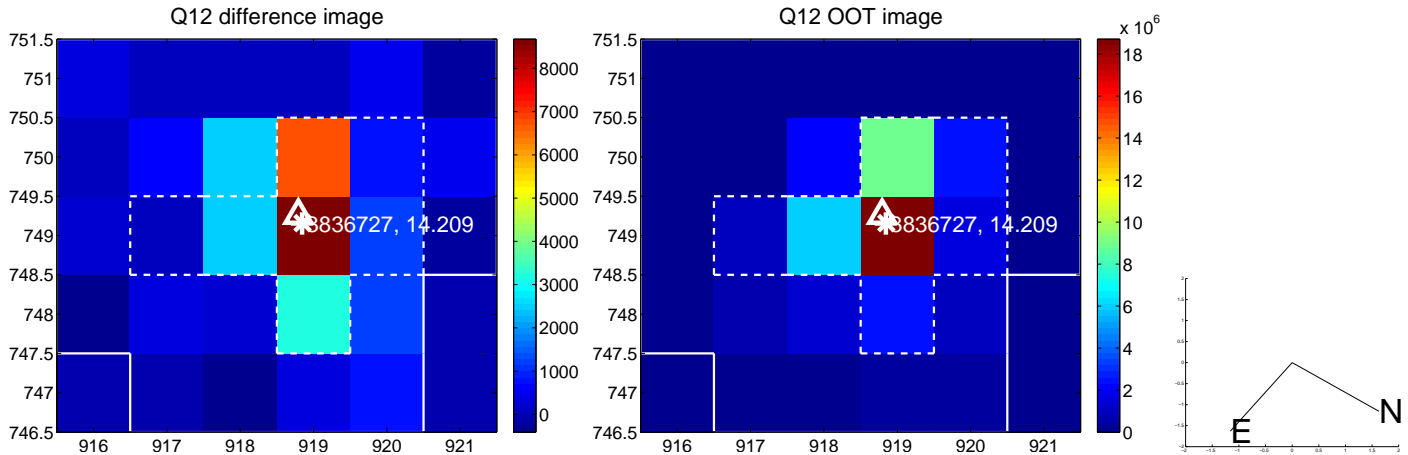
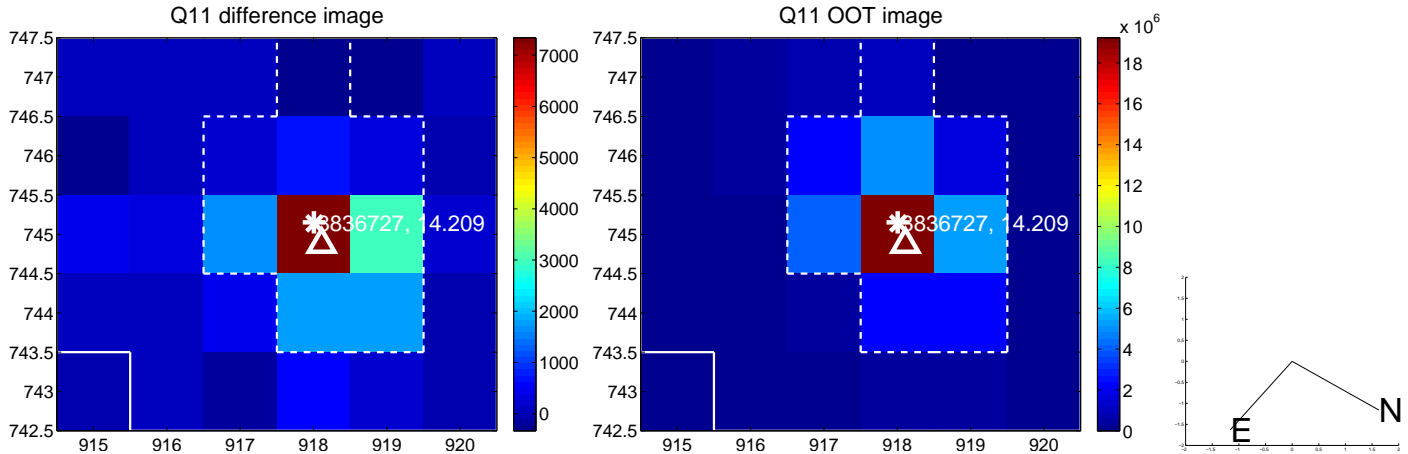
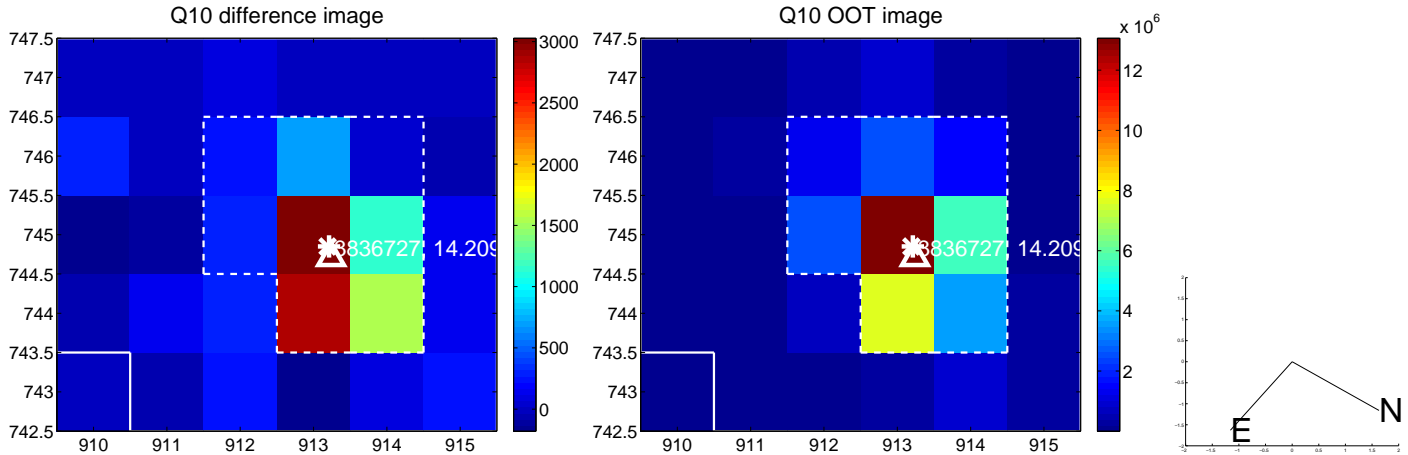
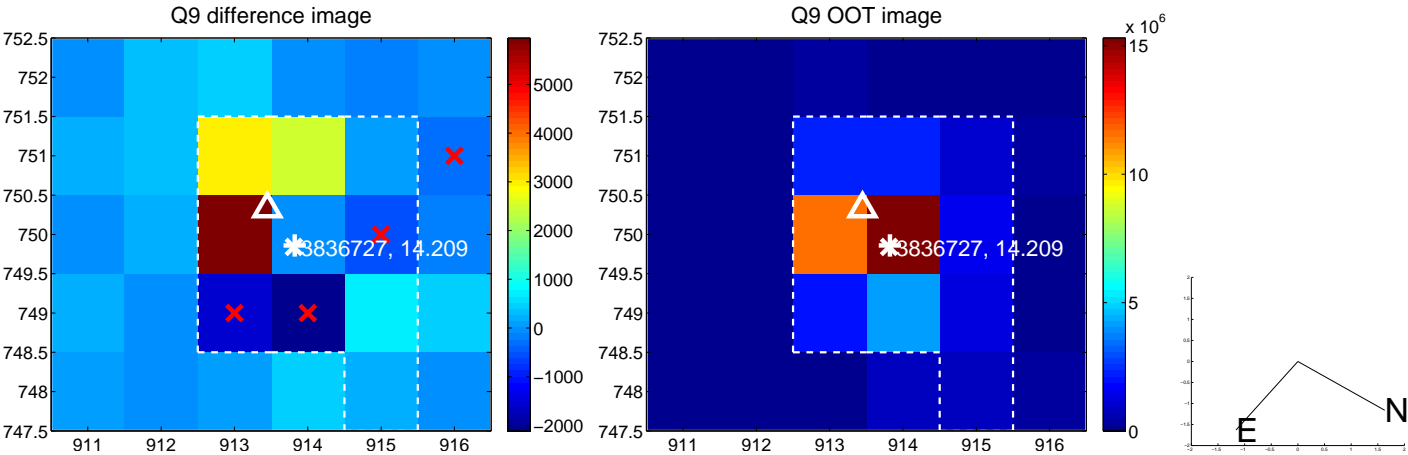
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



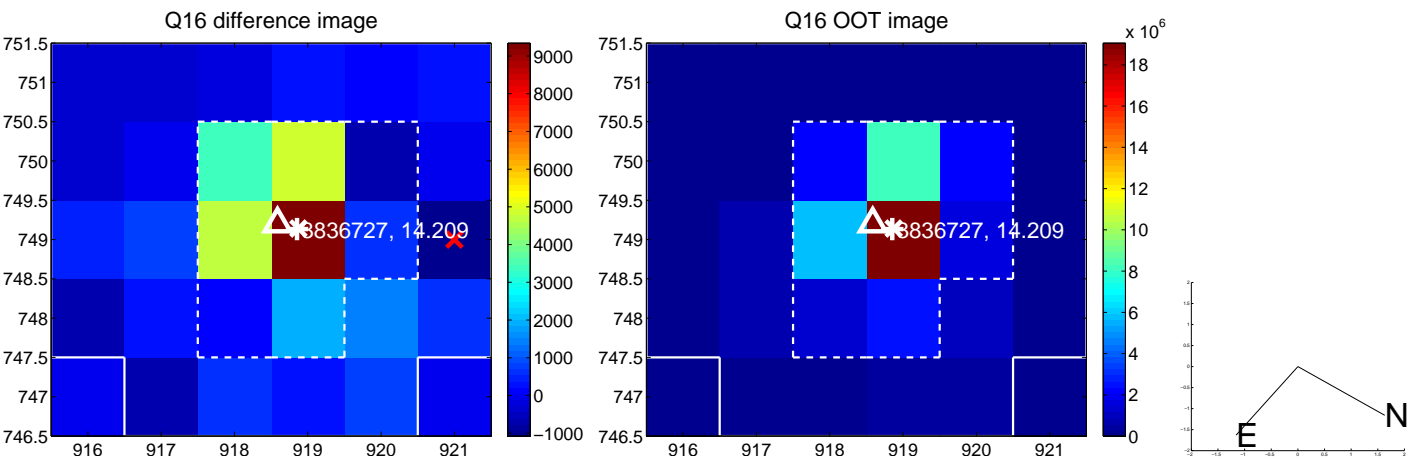
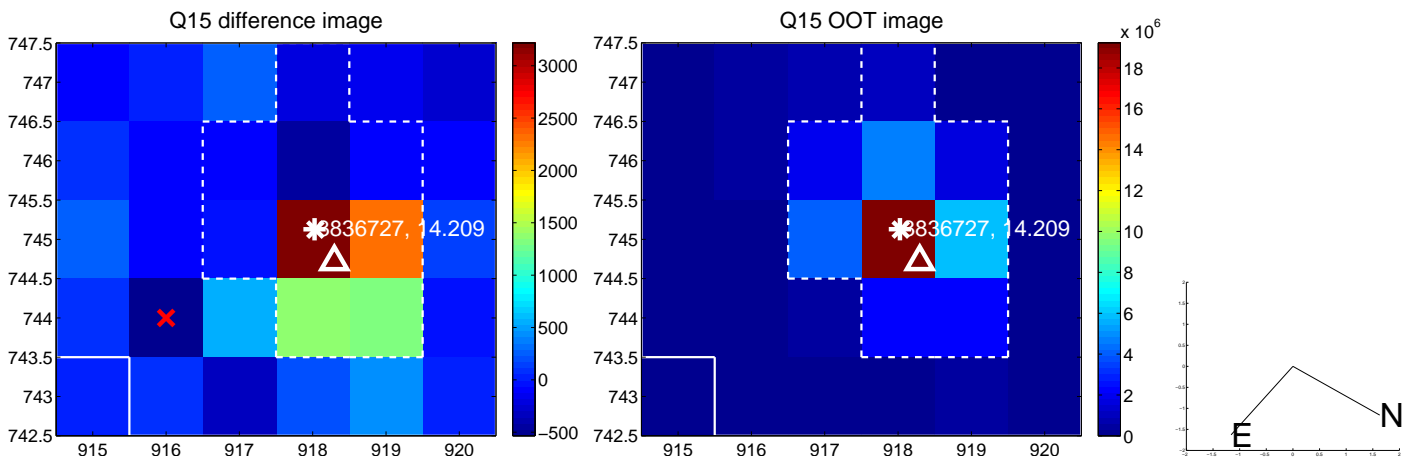
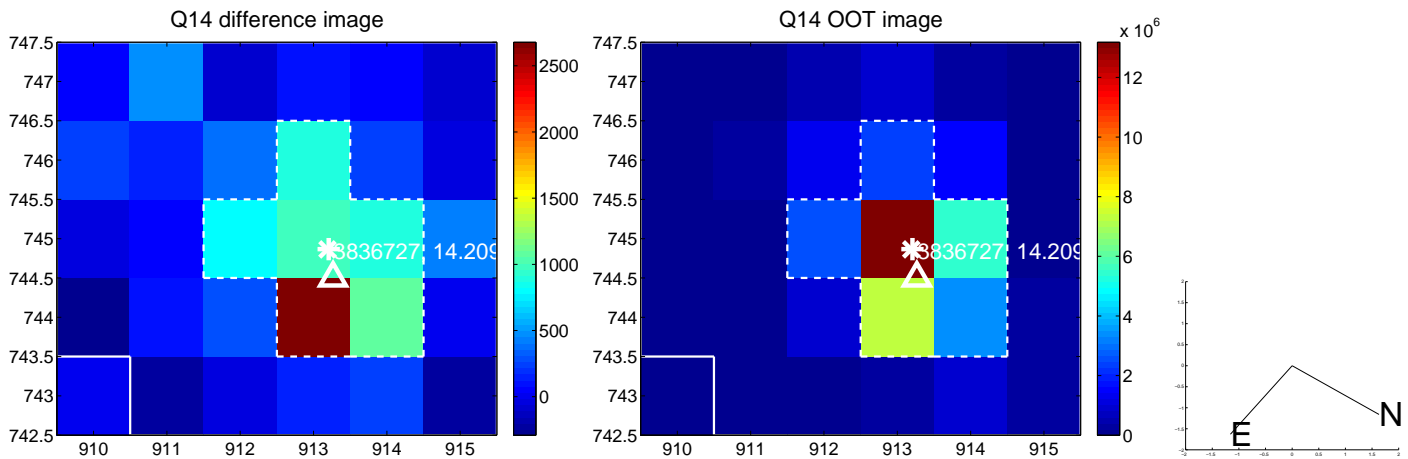
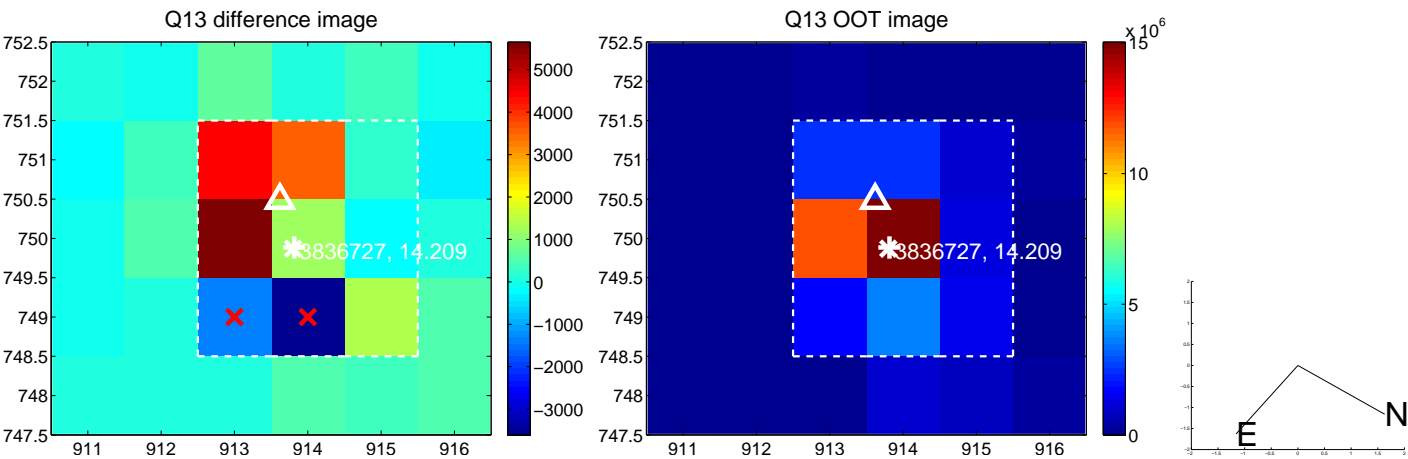
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



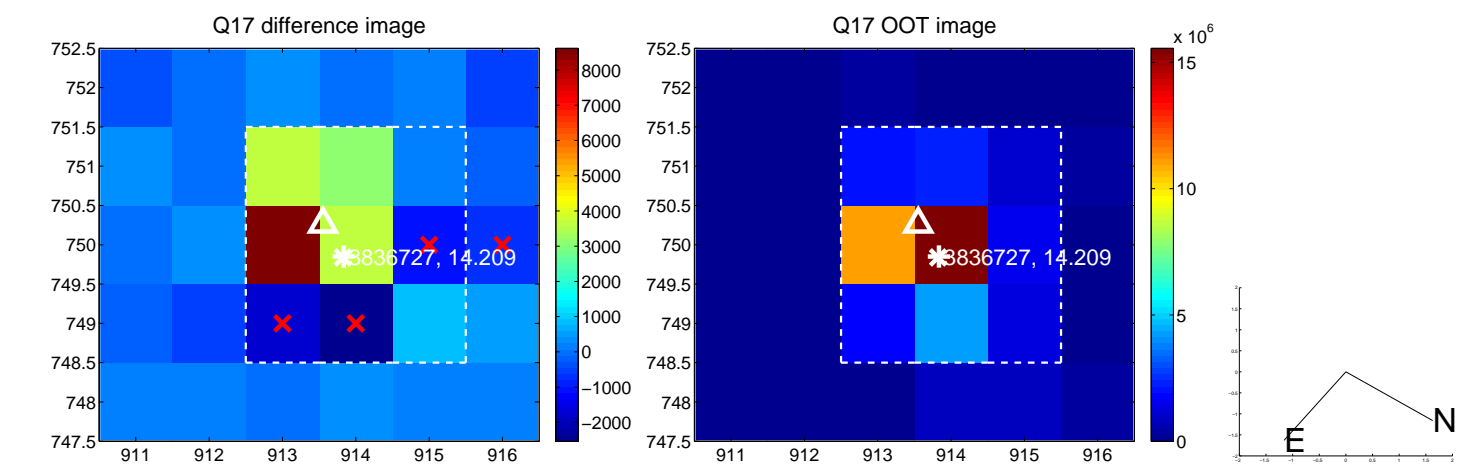
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



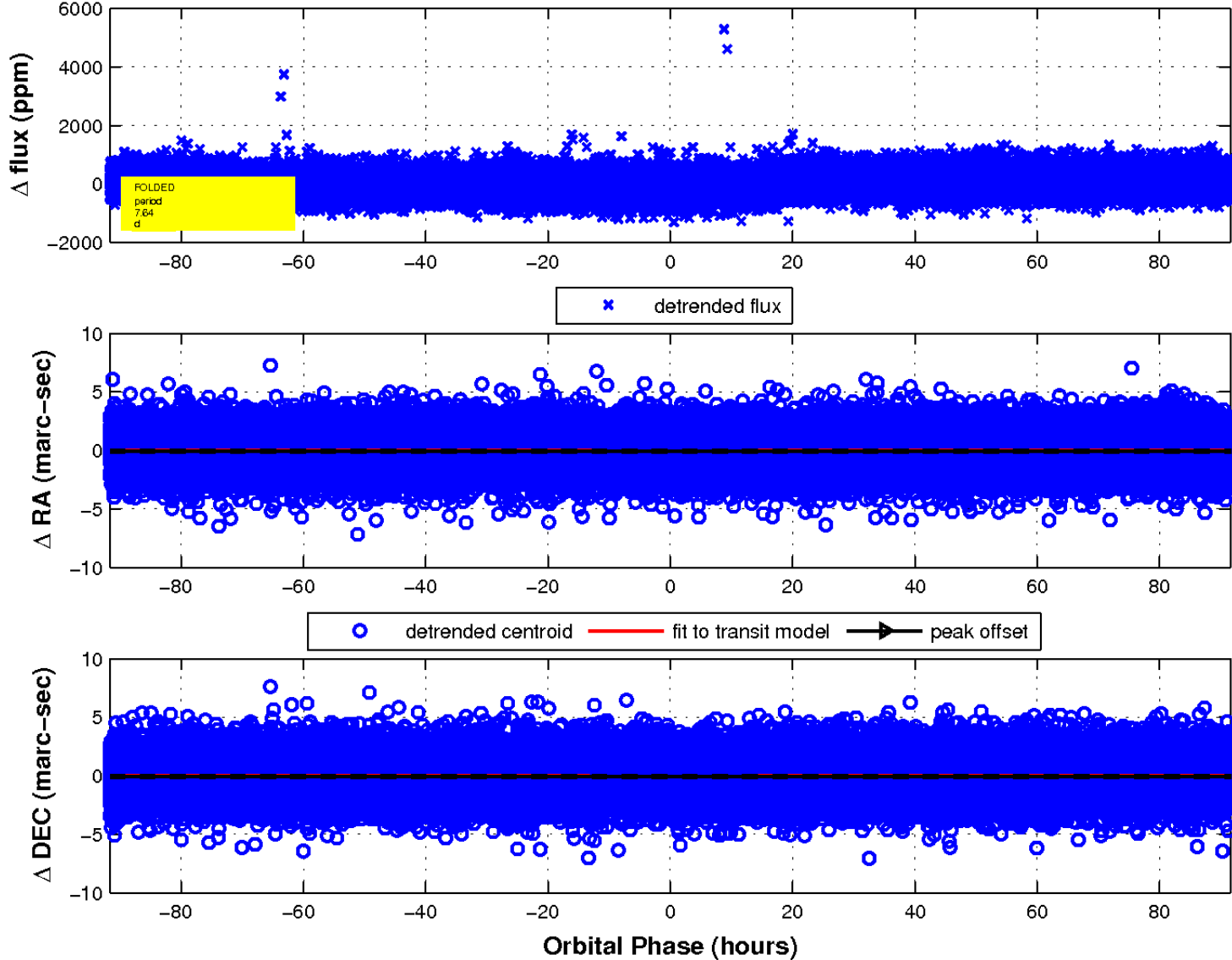
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

