

KIC 003852644

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})
003852644-01	OBS	No	0.604770	131.944097	61.7	2.769	12.6	10.3	1.79	8174	1.63	42897.61
003852644-02	OBS	No	0.947334	132.245986	114.9	3.782	9.3	9.2	1.79	8174	2.11	23580.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003852644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003852644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

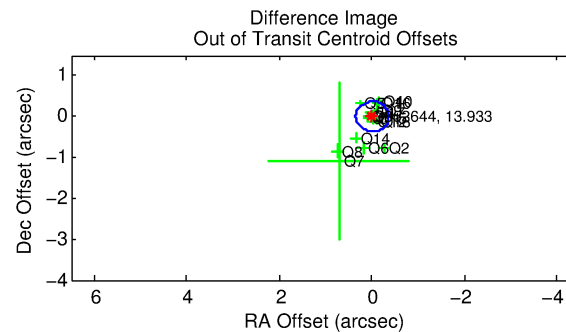
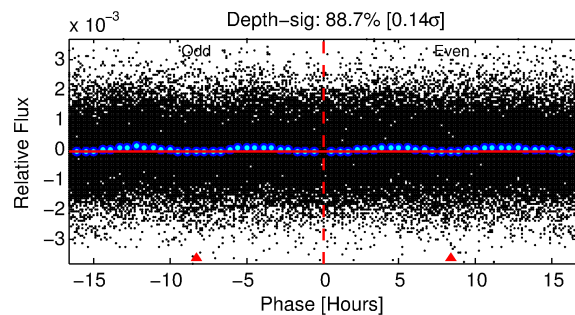
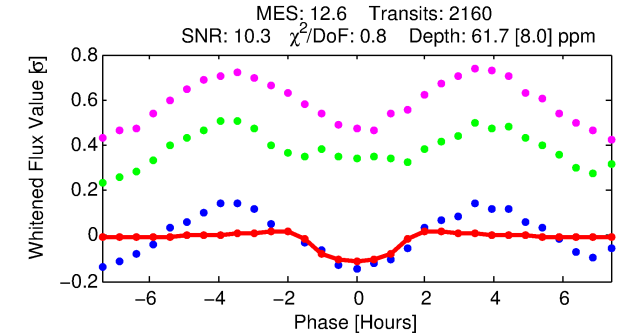
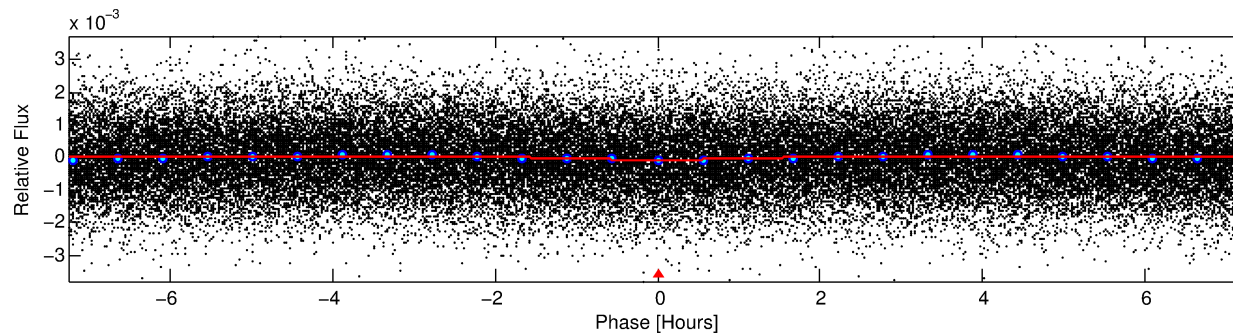
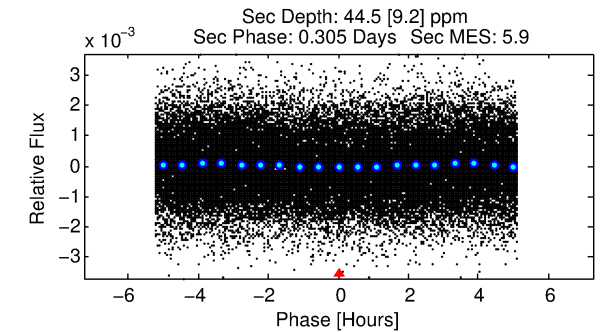
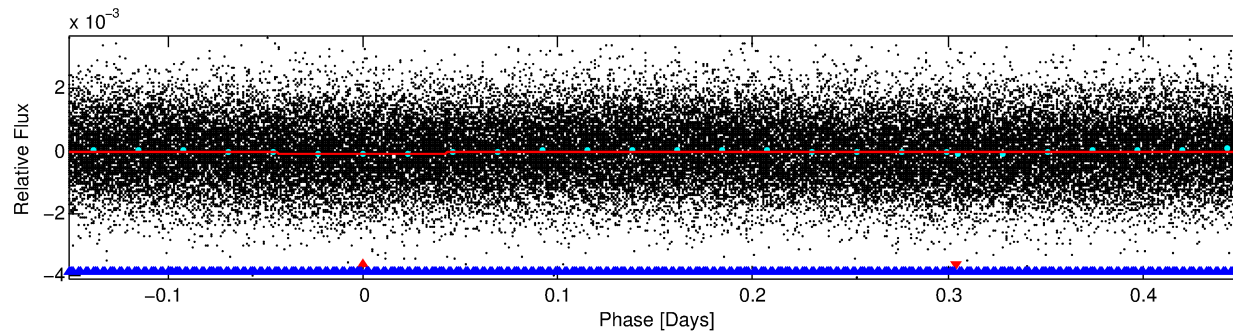
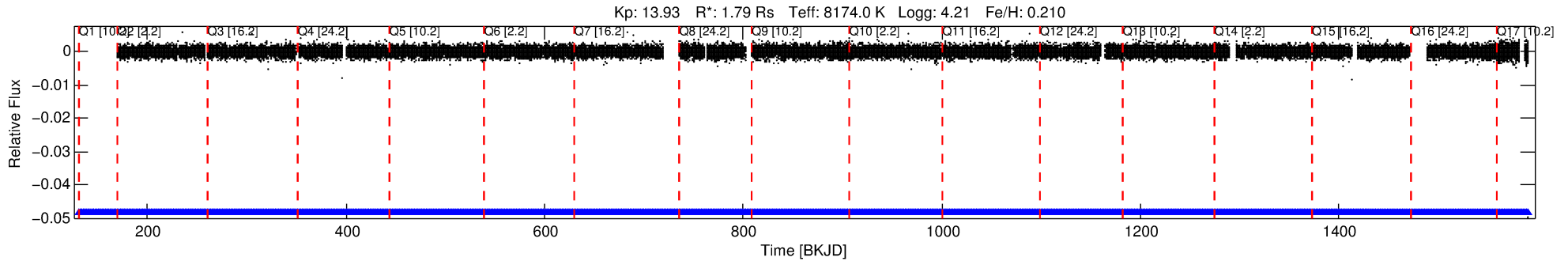
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003852644-01

No Significant Match Found

DV One-Page Summary

KIC: 3852644 Candidate: 1 of 2 Period: 0.605 d



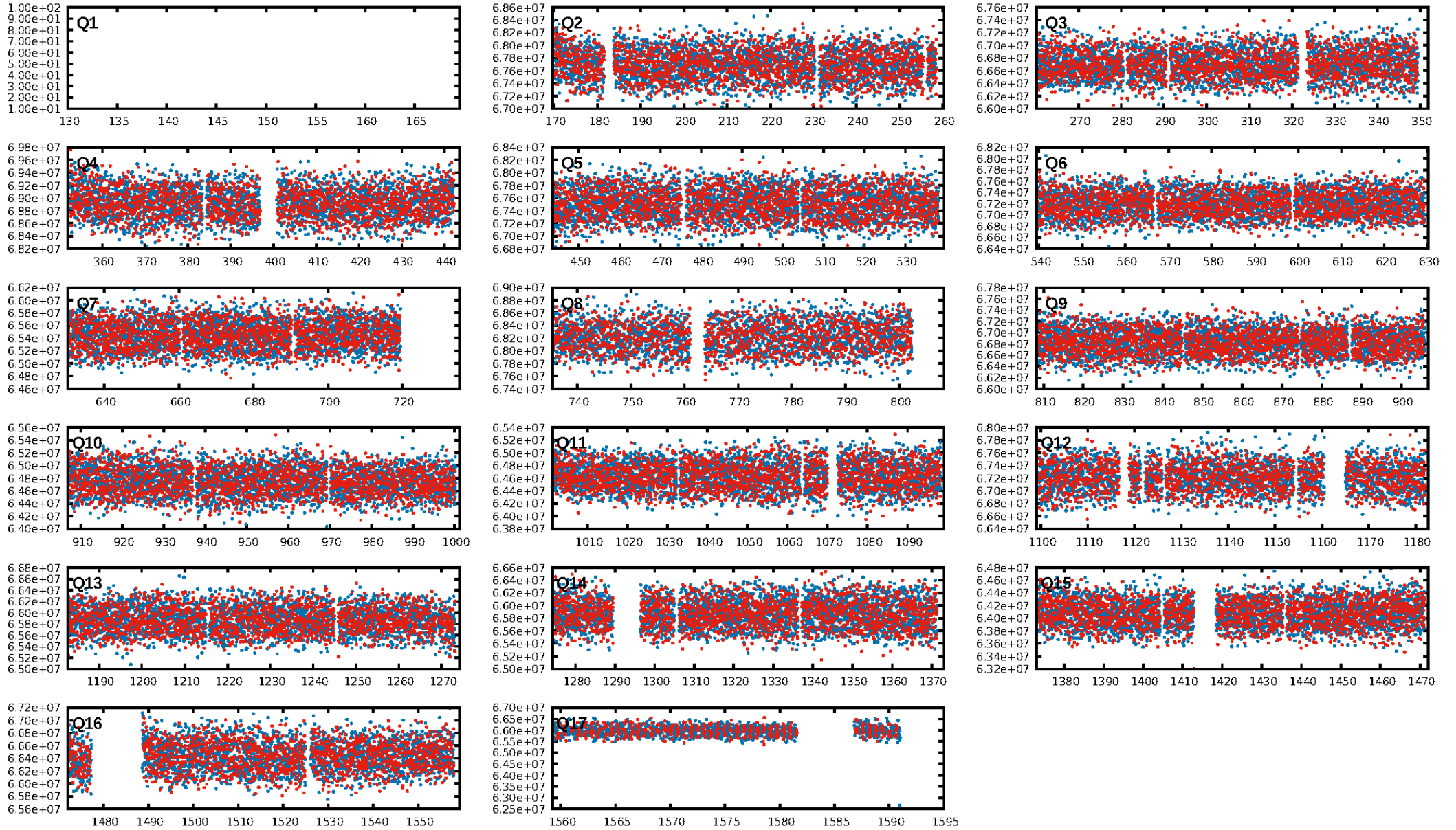
DV Fit Results:

Period = 0.60477 [0.00001] d
Epoch = 131.9441 [0.0036] BKJD
Rp/R* = 0.0083 [0.0065]
a/R* = 1.21 [1.94]
b = 0.90 [1.10]
Seff = 42897.61 [17879.80]
Teq = 3670 [382] K
Rp = 1.63 [1.37] Re
a = 0.0172 [0.0046] AU
Ag = 2.75 [4.45] [0.39σ]
Teffp = 7308 [2893] K [1.25σ]

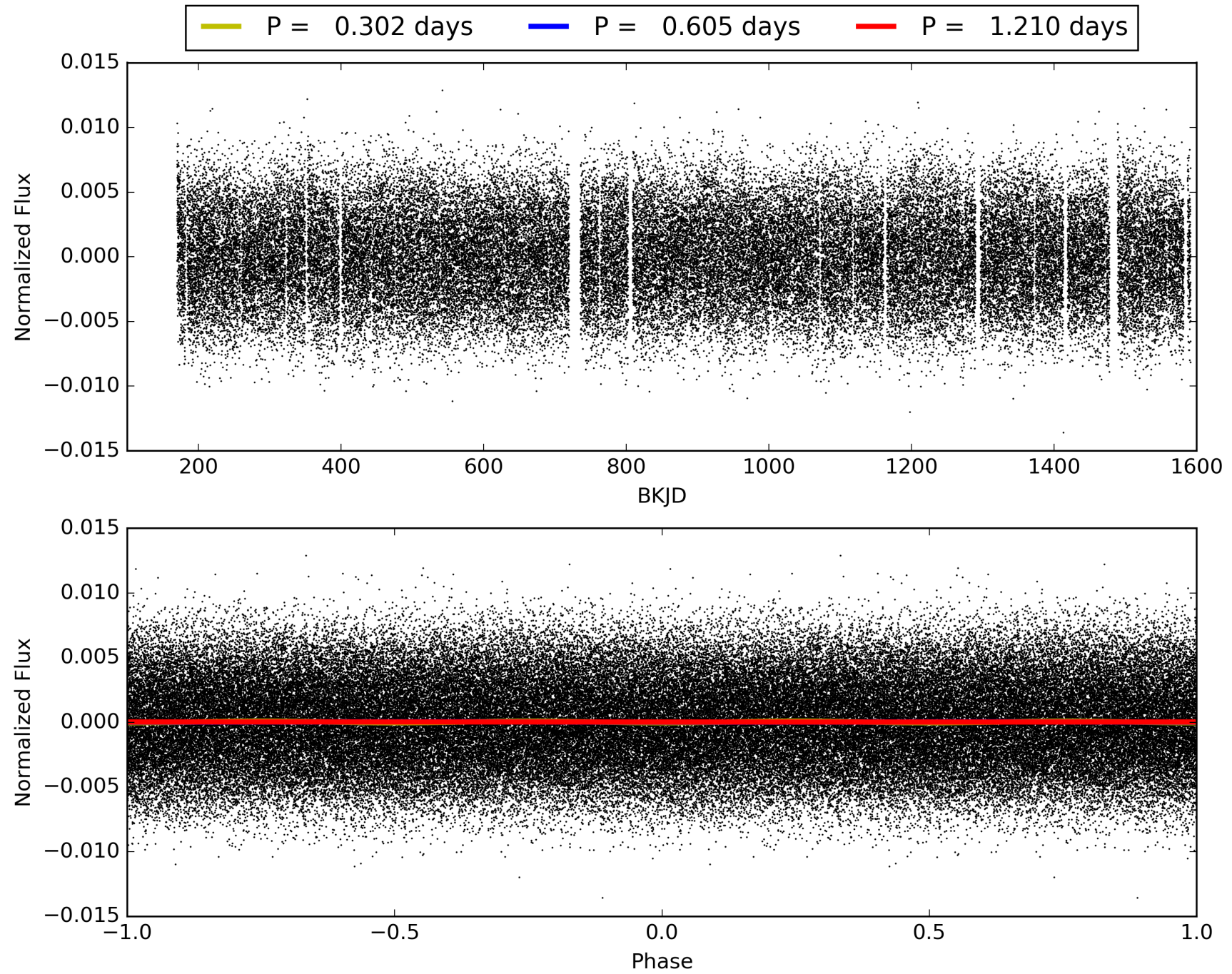
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 92.1% [1.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.45e-63
RollingBand-fgt: 1.00 [2115/2115]
GhostDiagnostic-chr: 6.541
Centroid-sig: 81.9%
Centroid-so: 0.123 arcsec [0.24σ]
OotOffset-rm: 0.007 arcsec [0.06σ]
KicOffset-rm: 0.126 arcsec [0.90σ]
OotOffset-st: 4/4/4 [16]
KicOffset-st: 4/4/4 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 003852644-01, PDC Light Curves

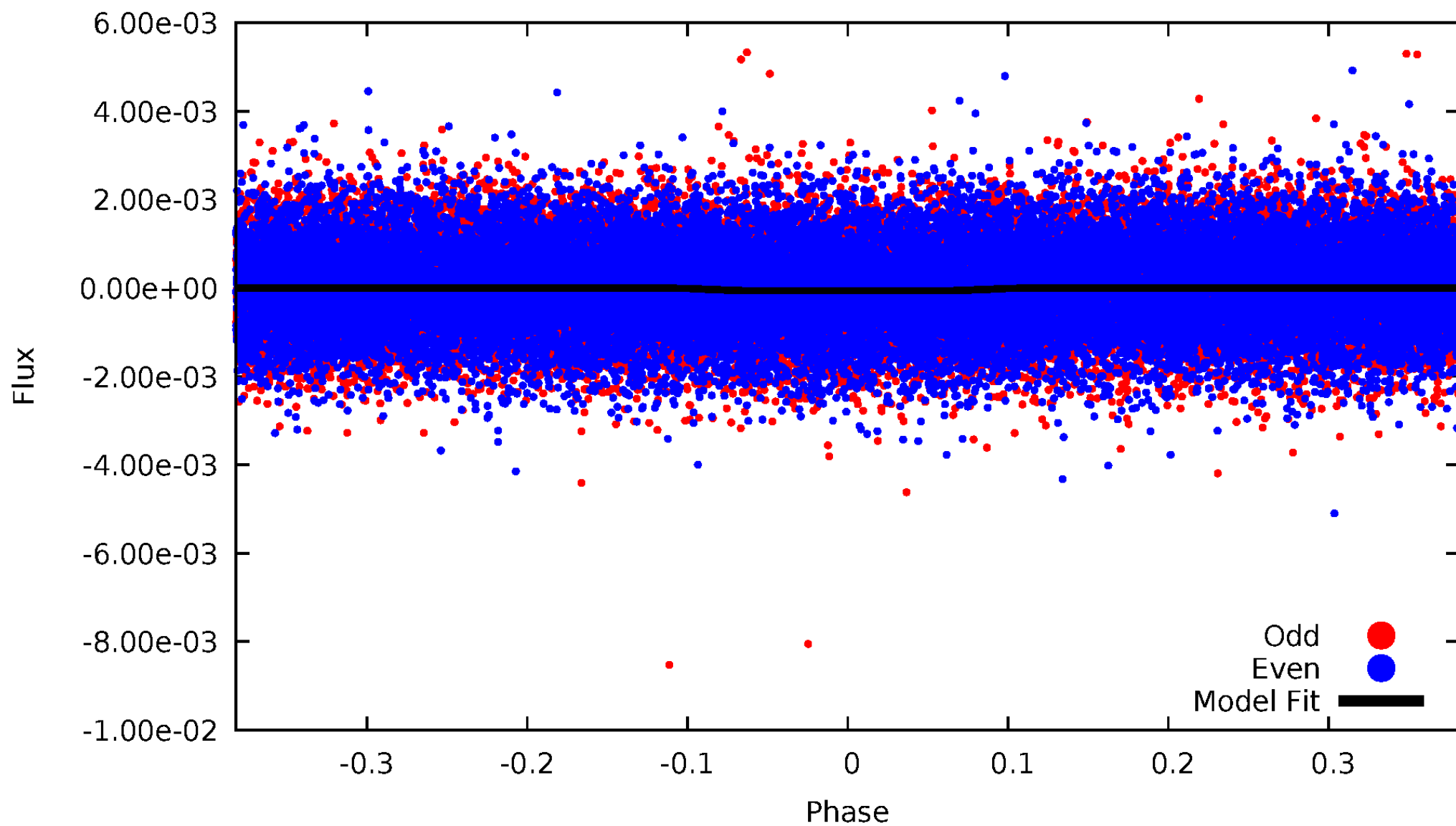


TCE 003852644-01



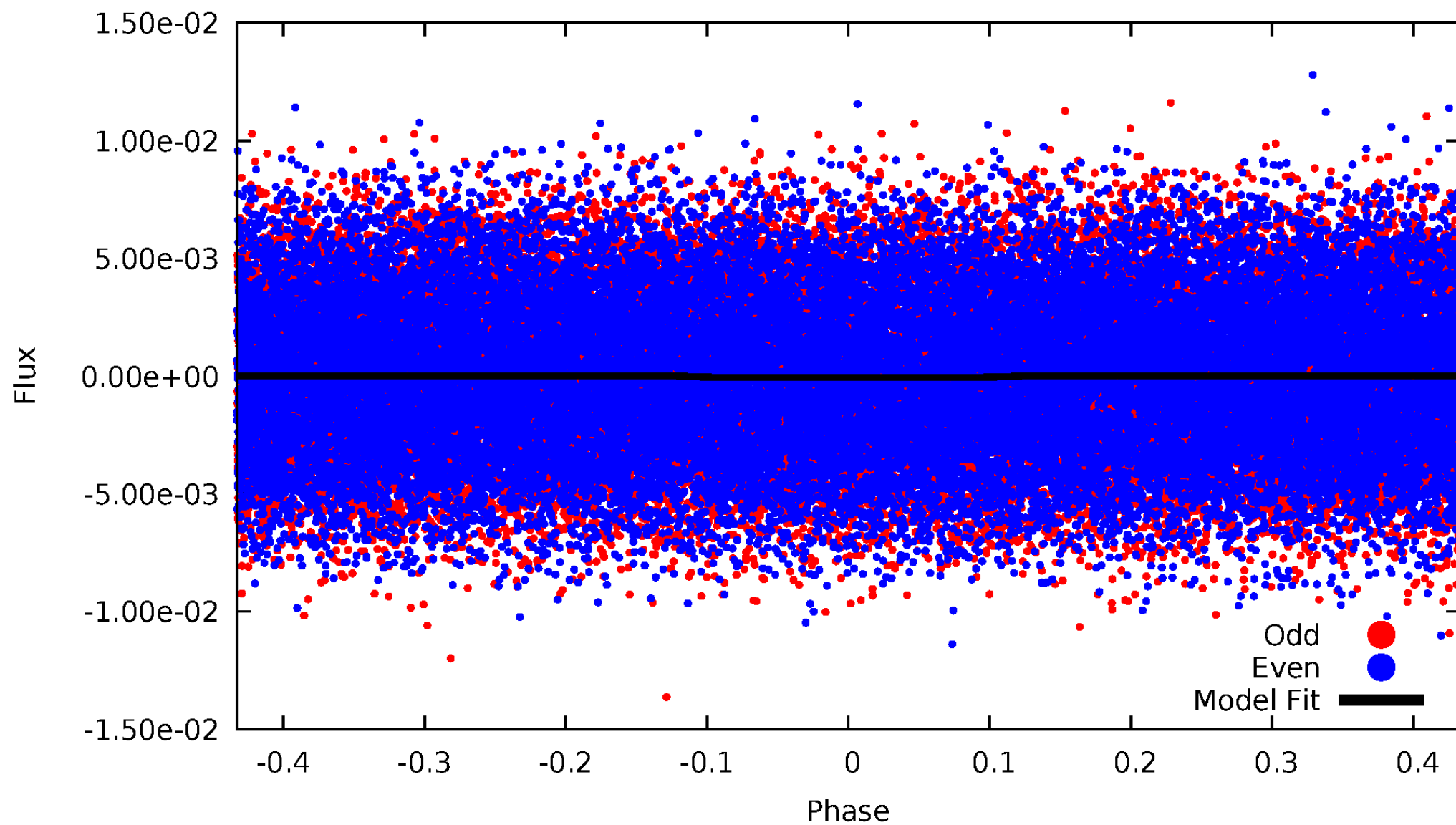
DV Odd/Even

TCE 003852644-01



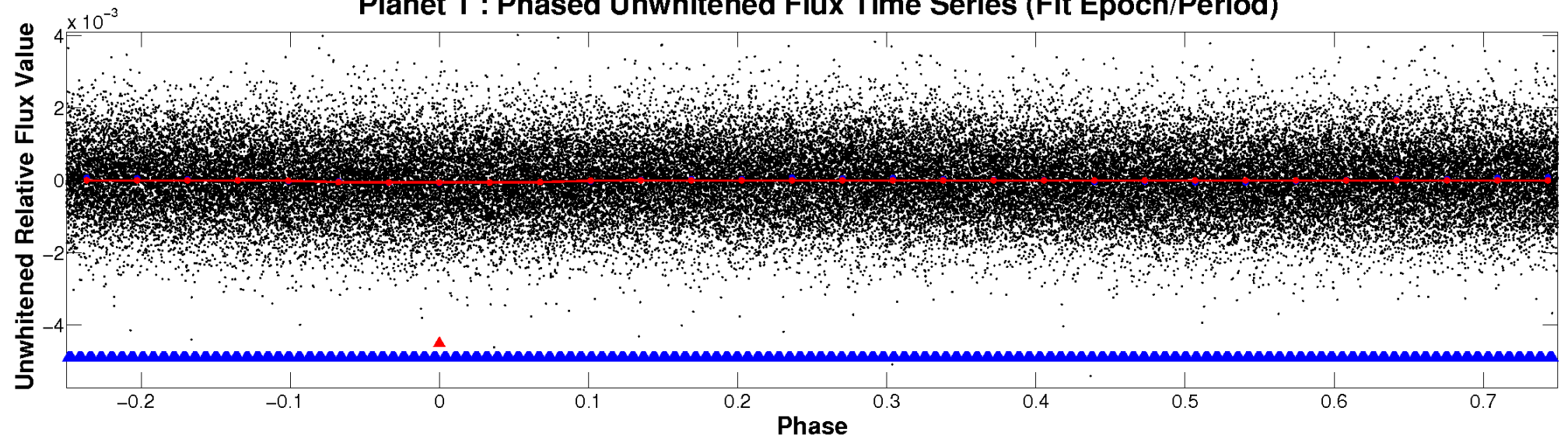
ALT Odd/Even

TCE 003852644-01

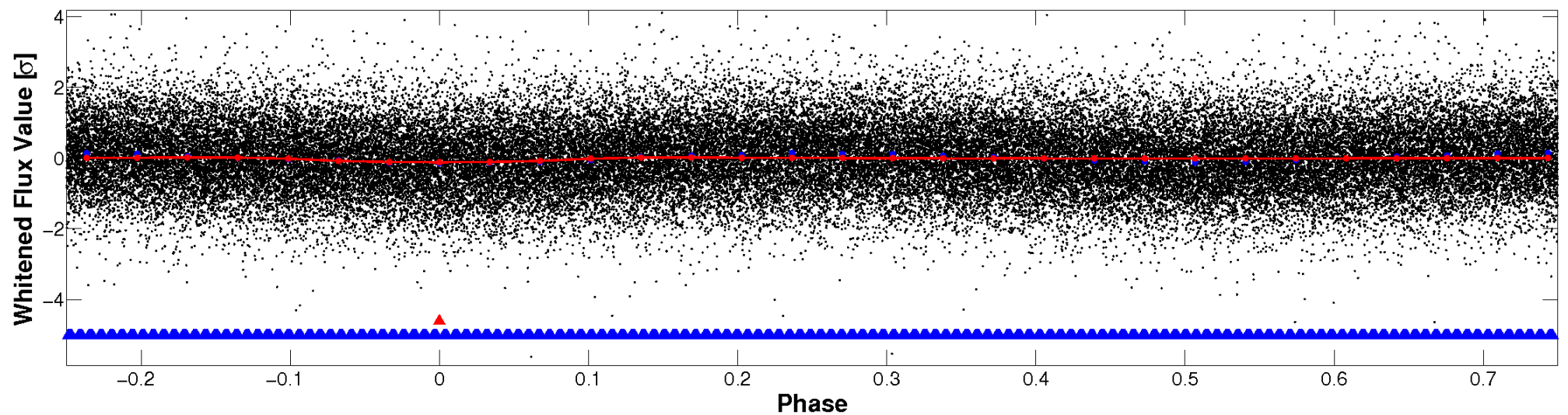


Non-Whitened Vs. Whitened Light Curve

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

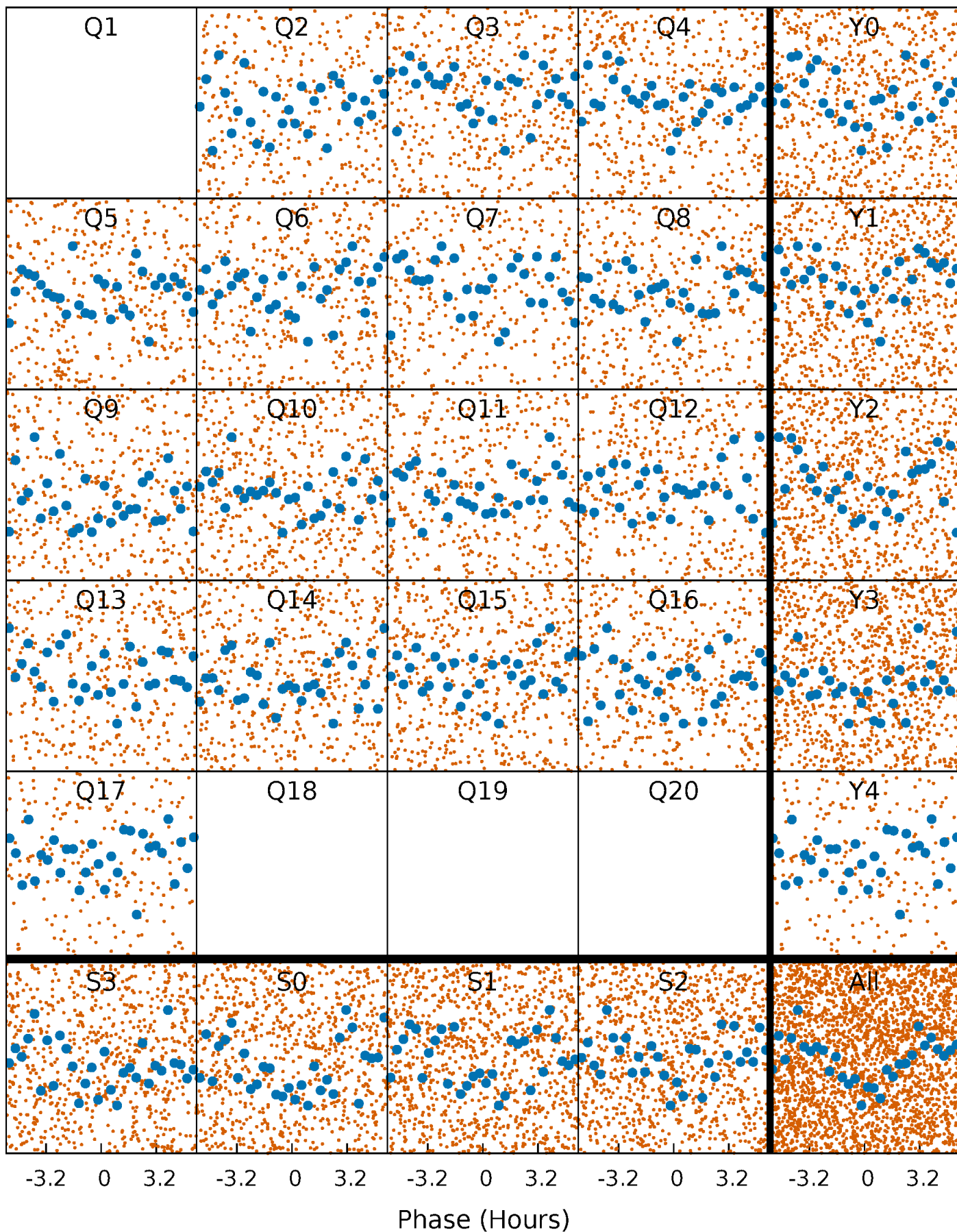


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



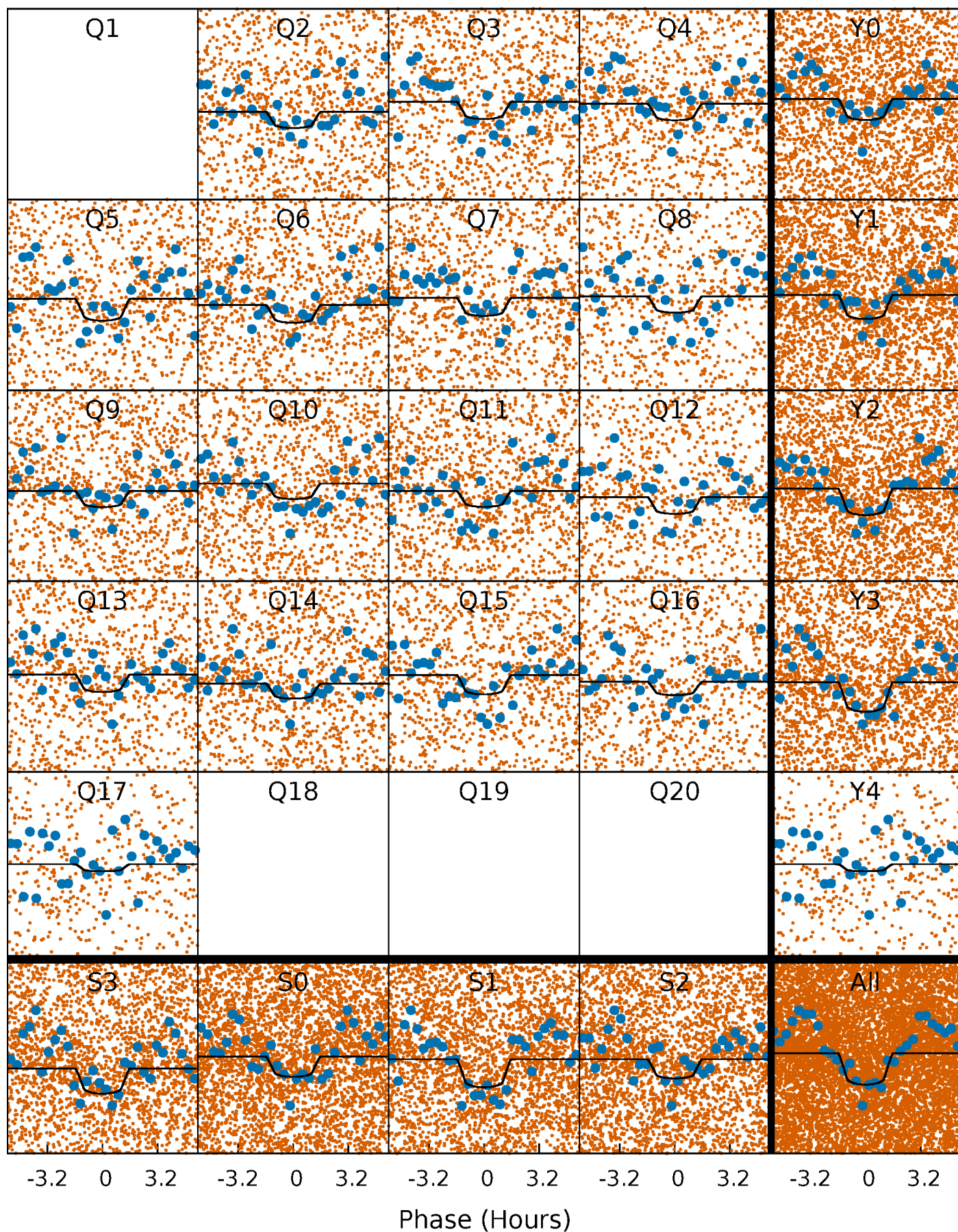
PDC Quarter-Phased Transit Curves

TCE 003852644-01 P= 0.604770 Days $T_0=131.944097$ (BKJD)



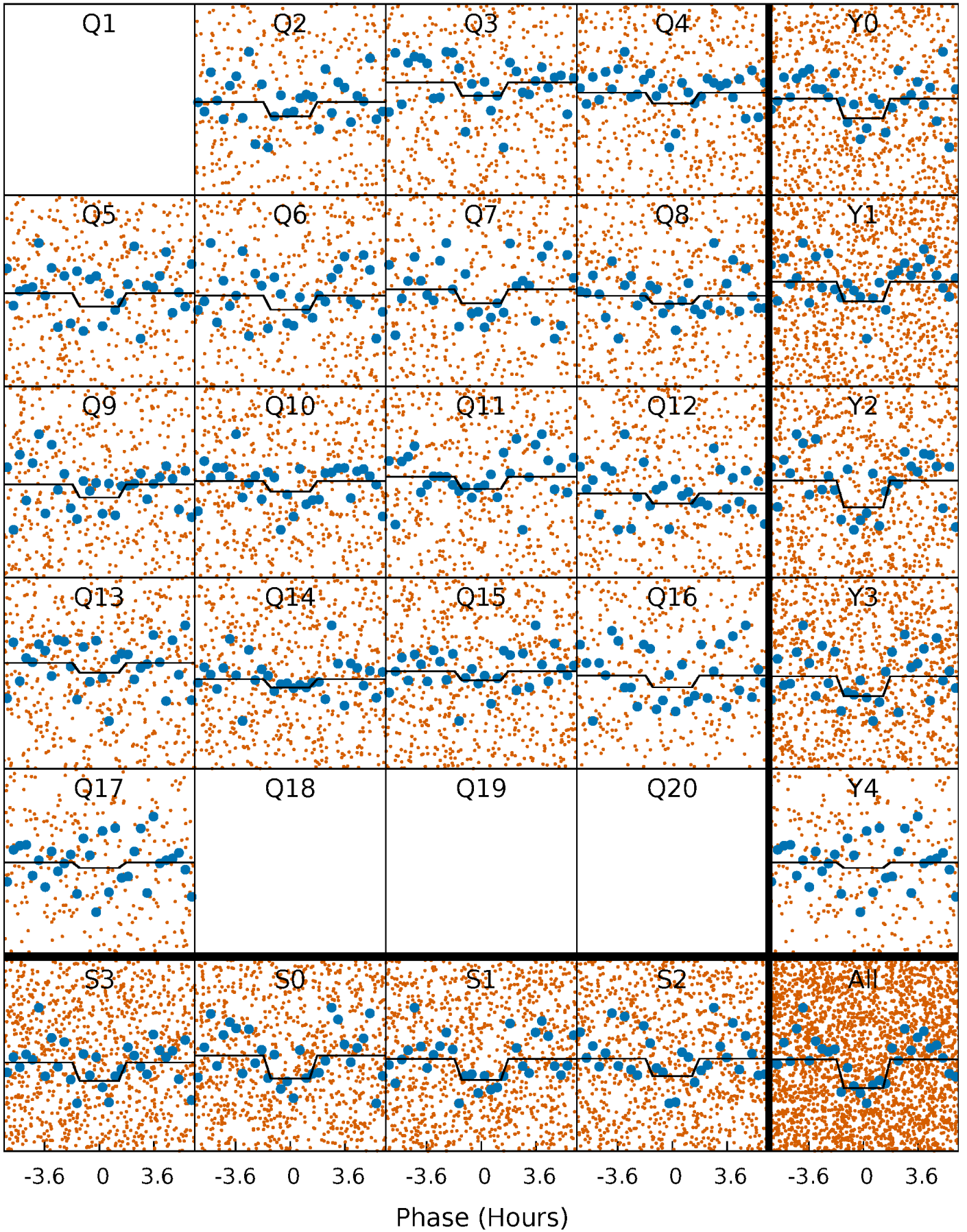
DV Quarter-Phased Transit Curves

TCE 003852644-01 P= 0.604770 Days $T_0=131.944097$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

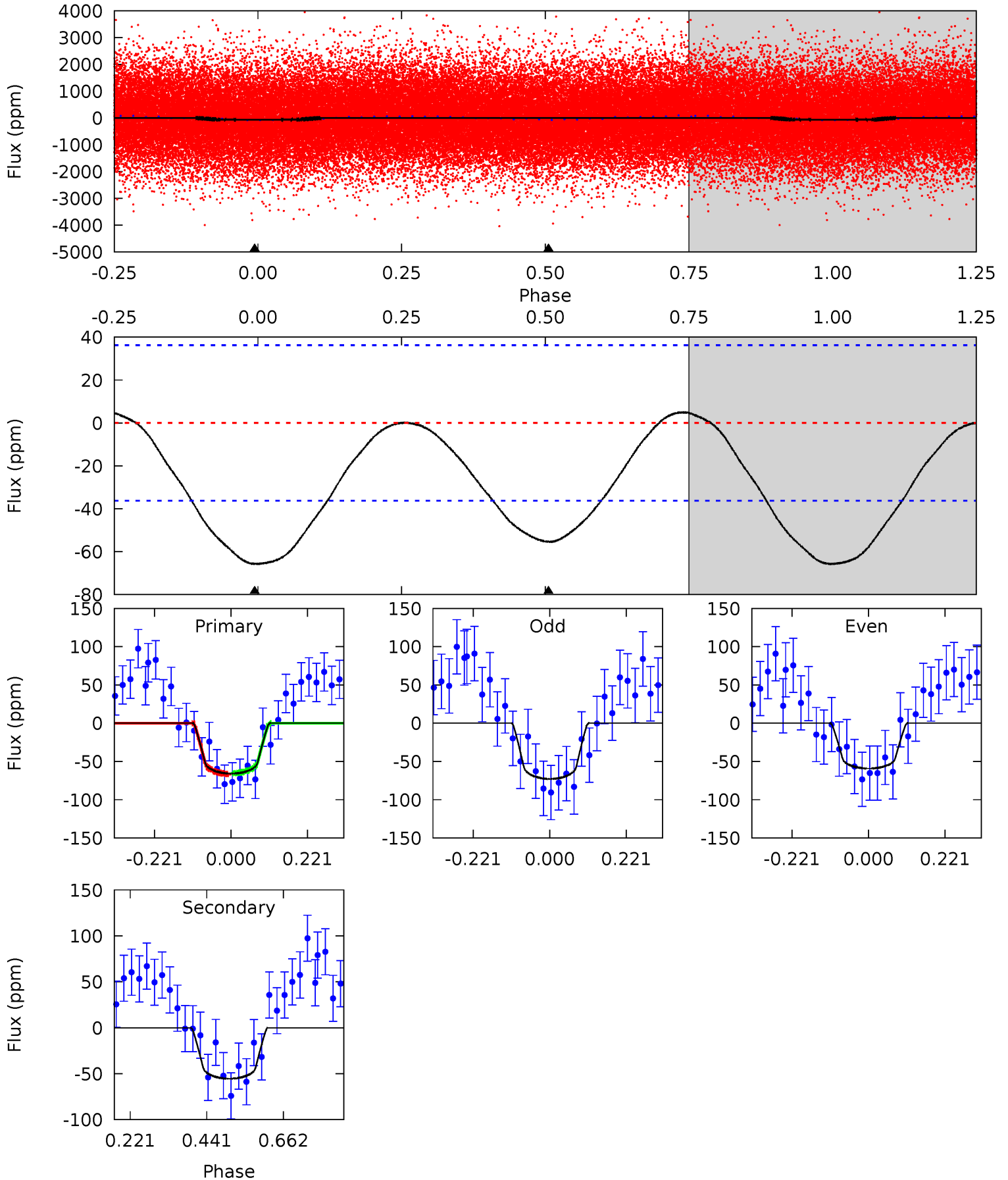
TCE 003852644-01 P= 0.604776 Days $T_0=131.943831$ (BKJD)



DV Model-Shift Uniqueness Test

003852644-01, P = 0.604770 Days, E = 131.944097 Days

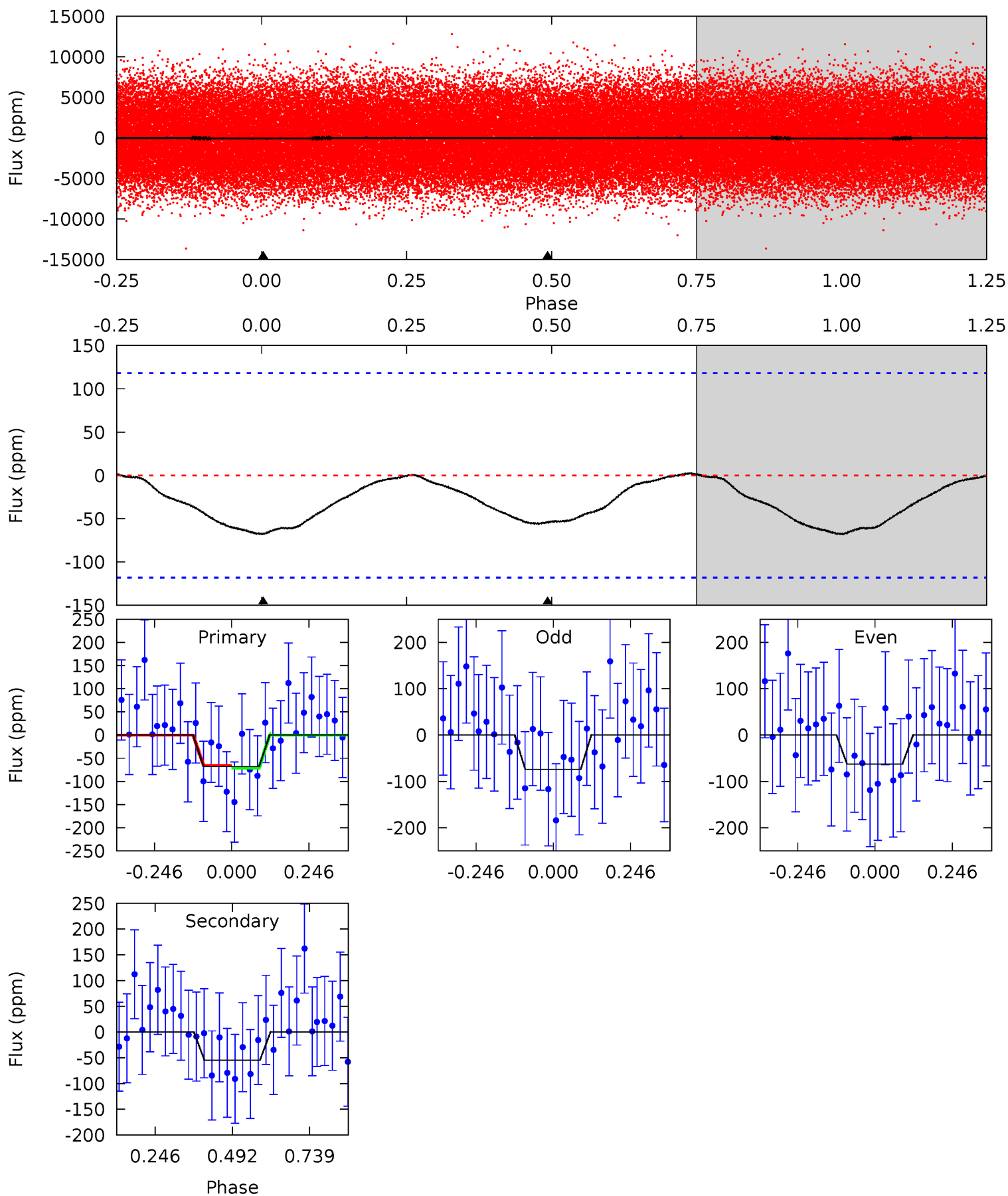
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.99	6.73	0	0	4.40	1.22	0.32	7.99	7.99	6.73	6.73	0.83	0.97	0.07	0.07



Alt Model-Shift Uniqueness Test

003852644-01, P = 0.604776 Days, E = 131.943831 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.52	2.02	0	0	4.37	1.16	0.06	2.52	2.52	2.02	2.02	0.21	1.15	0.04	0.10



Stellar Parameters For KIC 003852644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8174^{+228}_{-359}	$4.206^{+0.067}_{-0.202}$	$0.210^{+0.150}_{-0.500}$	$1.786^{+0.579}_{-0.248}$	$1.873^{+0.291}_{-0.291}$	$0.463^{+0.136}_{-0.252}$
	+3%/-4%	+2%/-5%	+71%/-238%	+32%/-14%	+16%/-16%	+29%/-54%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 003852644-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-55 ± 8	$1.76^{+1.34}_{-1.06}$	5207^{+374}_{-297}	7154^{+7075}_{-2133}	$2.770^{+13.518}_{-1.860}$
Alt.	-55 ± 27	$1.91^{+1.24}_{-1.13}$	5218^{+418}_{-286}	6683^{+6291}_{-2065}	$2.283^{+11.449}_{-1.616}$

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 $A_{obs} \gg 1.0$

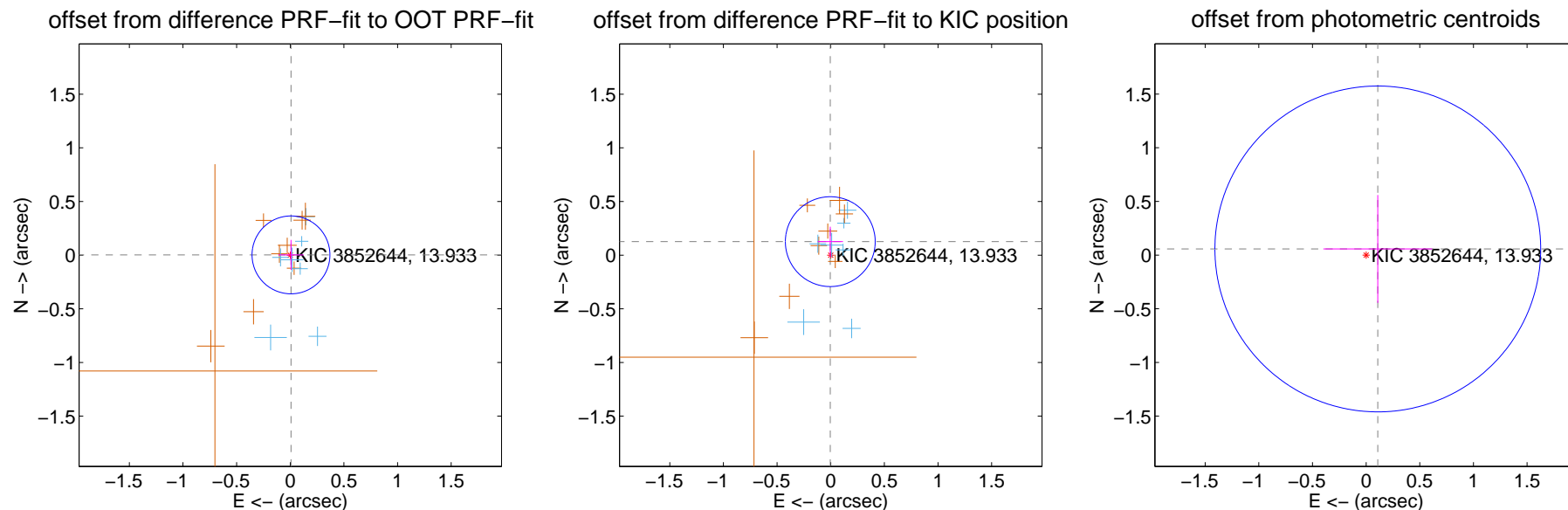
DV Centroid Data

Supplemental centroid analysis for 003852644-01. Kepler magnitude: 13.93. Transit SNR 10.26

There are 7 quarters with good PRF difference image offsets

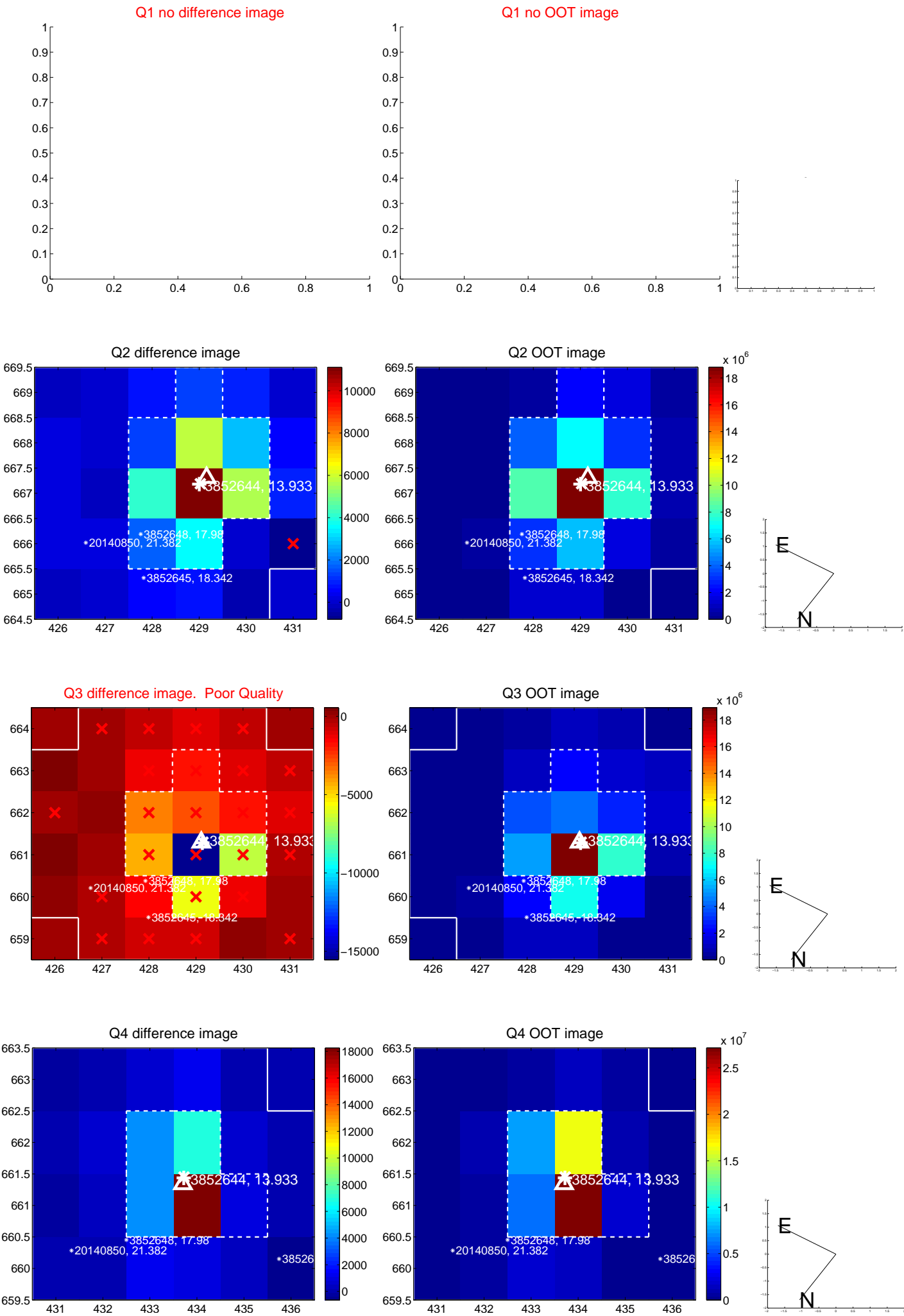
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.007 ± 0.121	0.06	-0.007 ± 0.118	0.003 ± 0.140
PRF-fit source offset from KIC position	0.126 ± 0.140	0.90	0.004 ± 0.118	0.126 ± 0.140
photometric centroid source offset	0.12 ± 0.51	0.24	-0.11 ± 0.51	0.06 ± 0.50

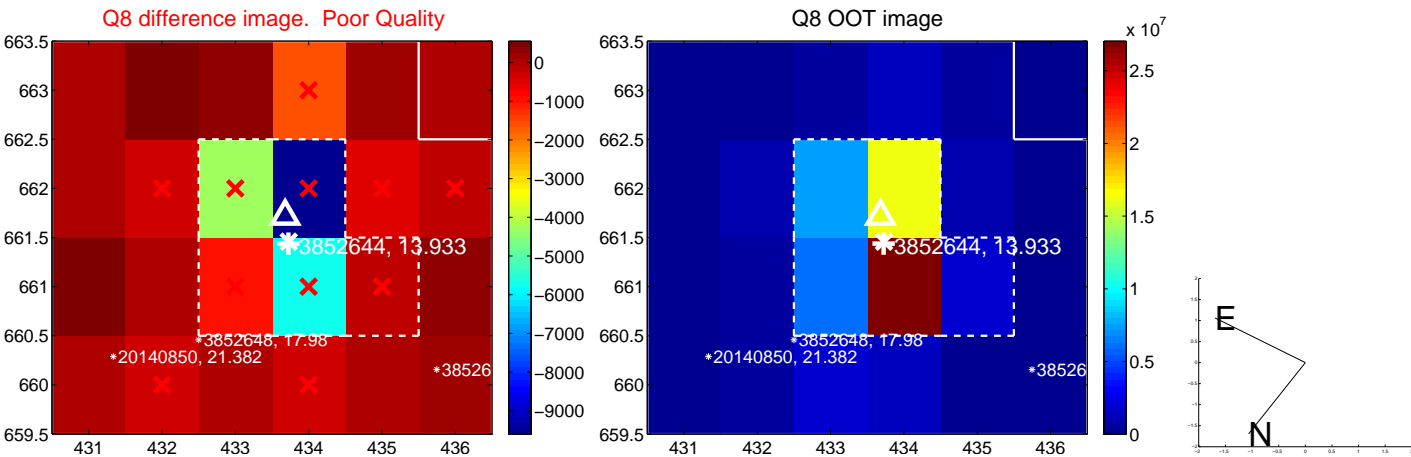
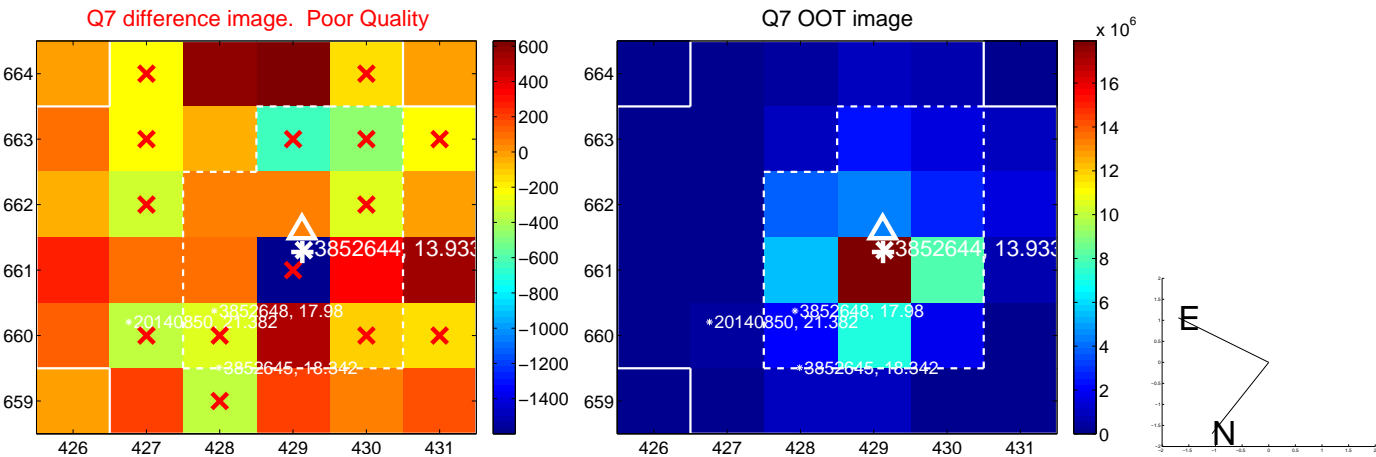
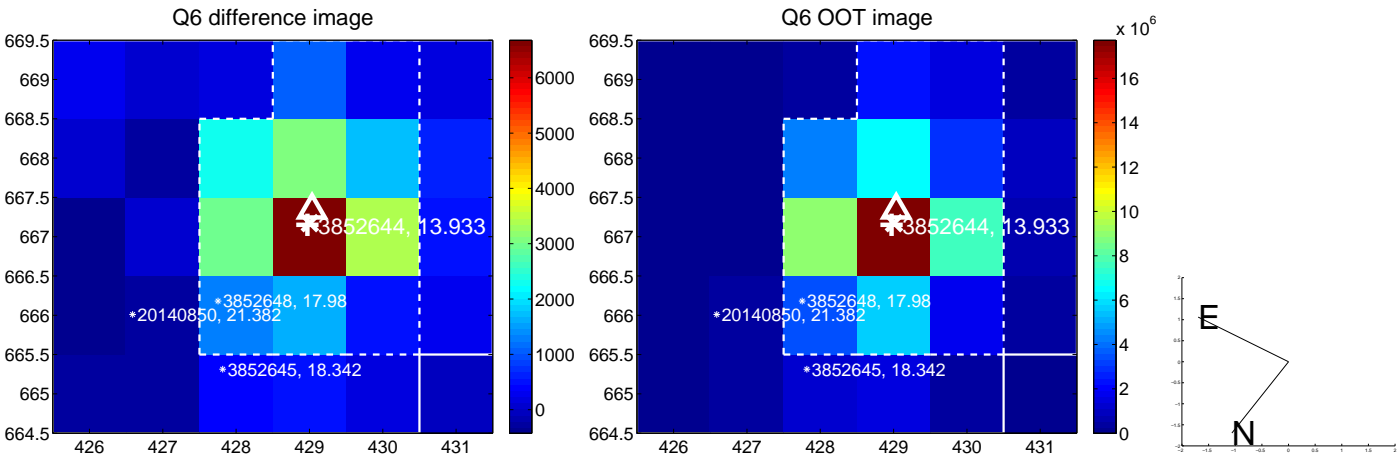
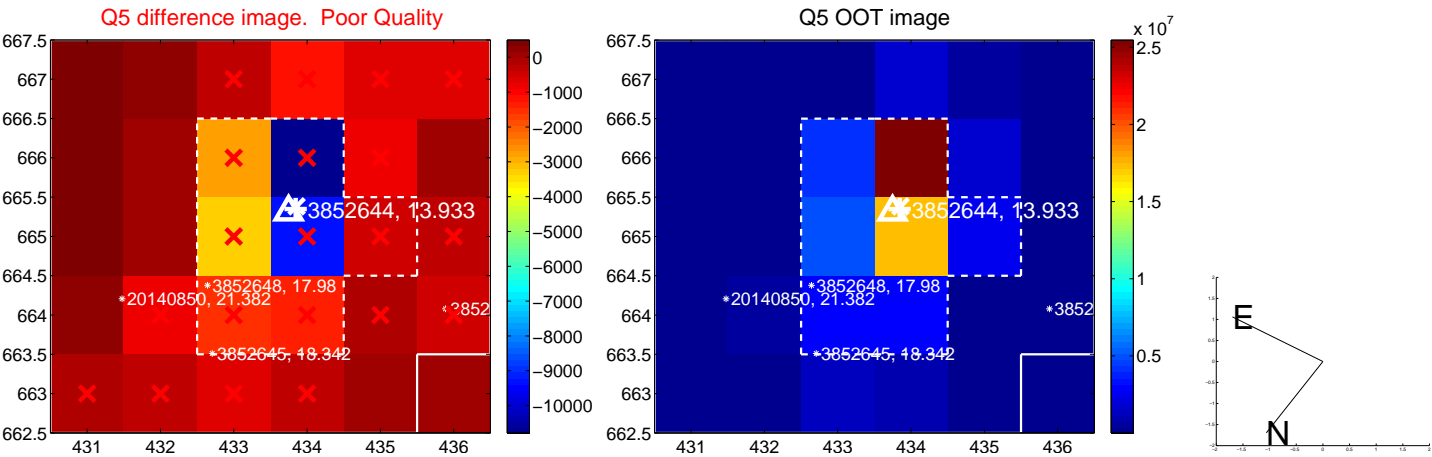


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

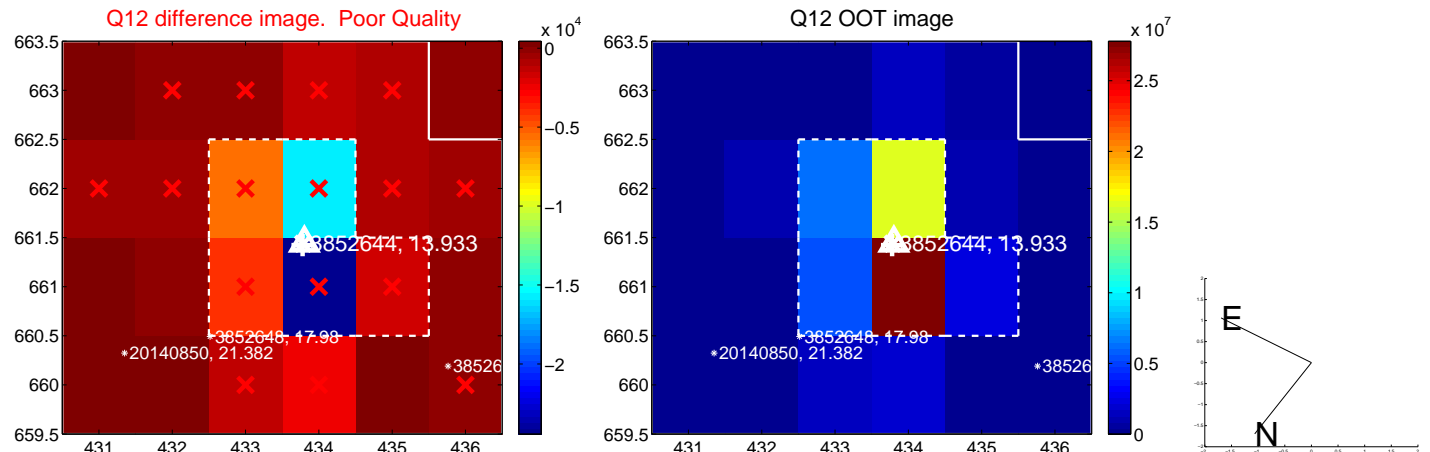
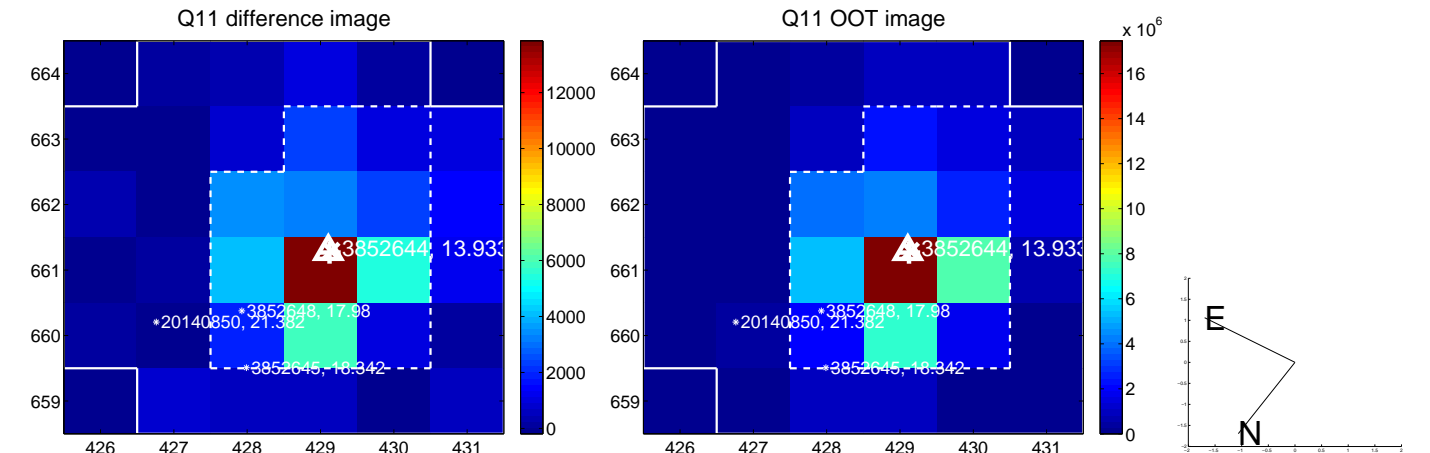
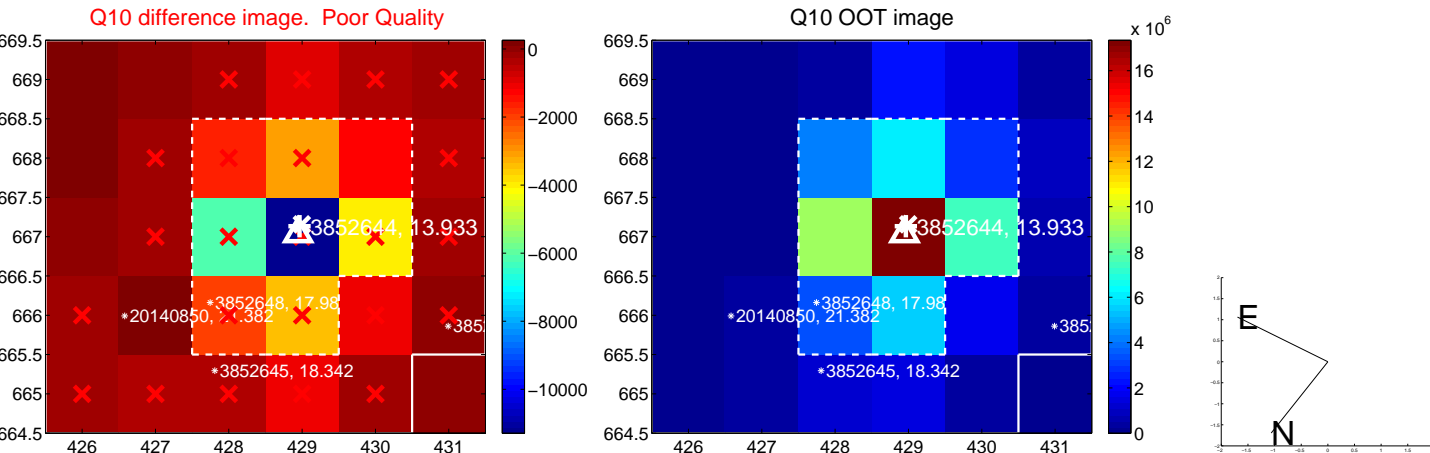
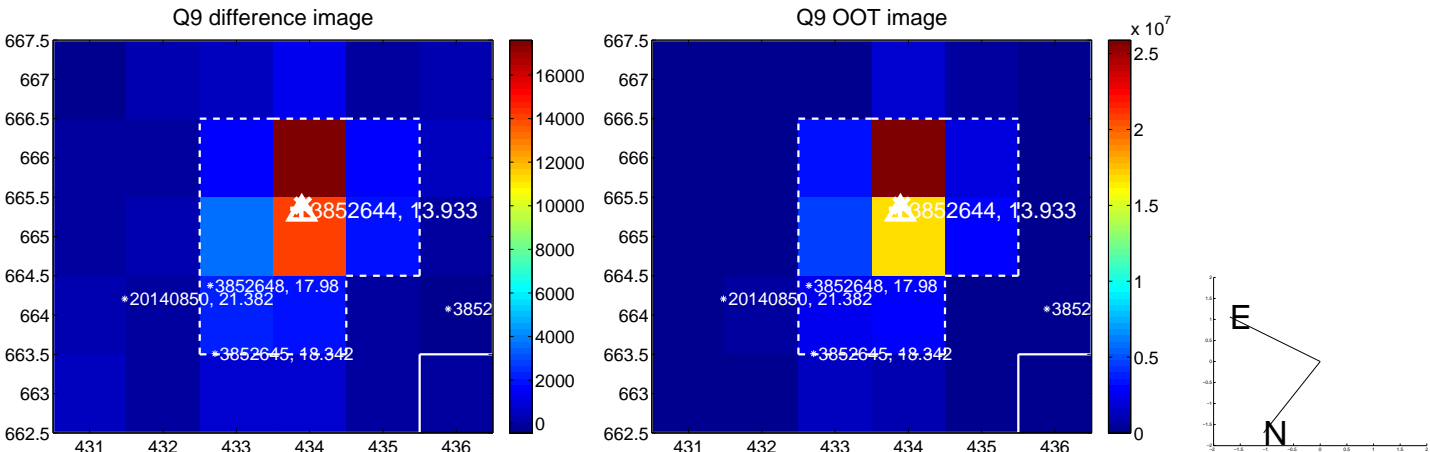
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



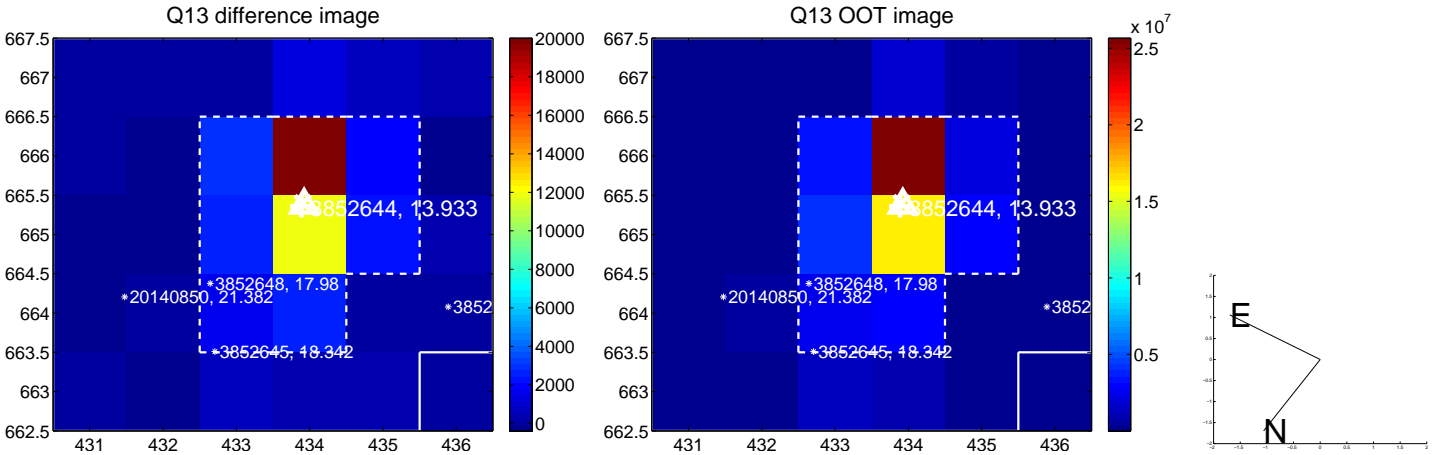
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



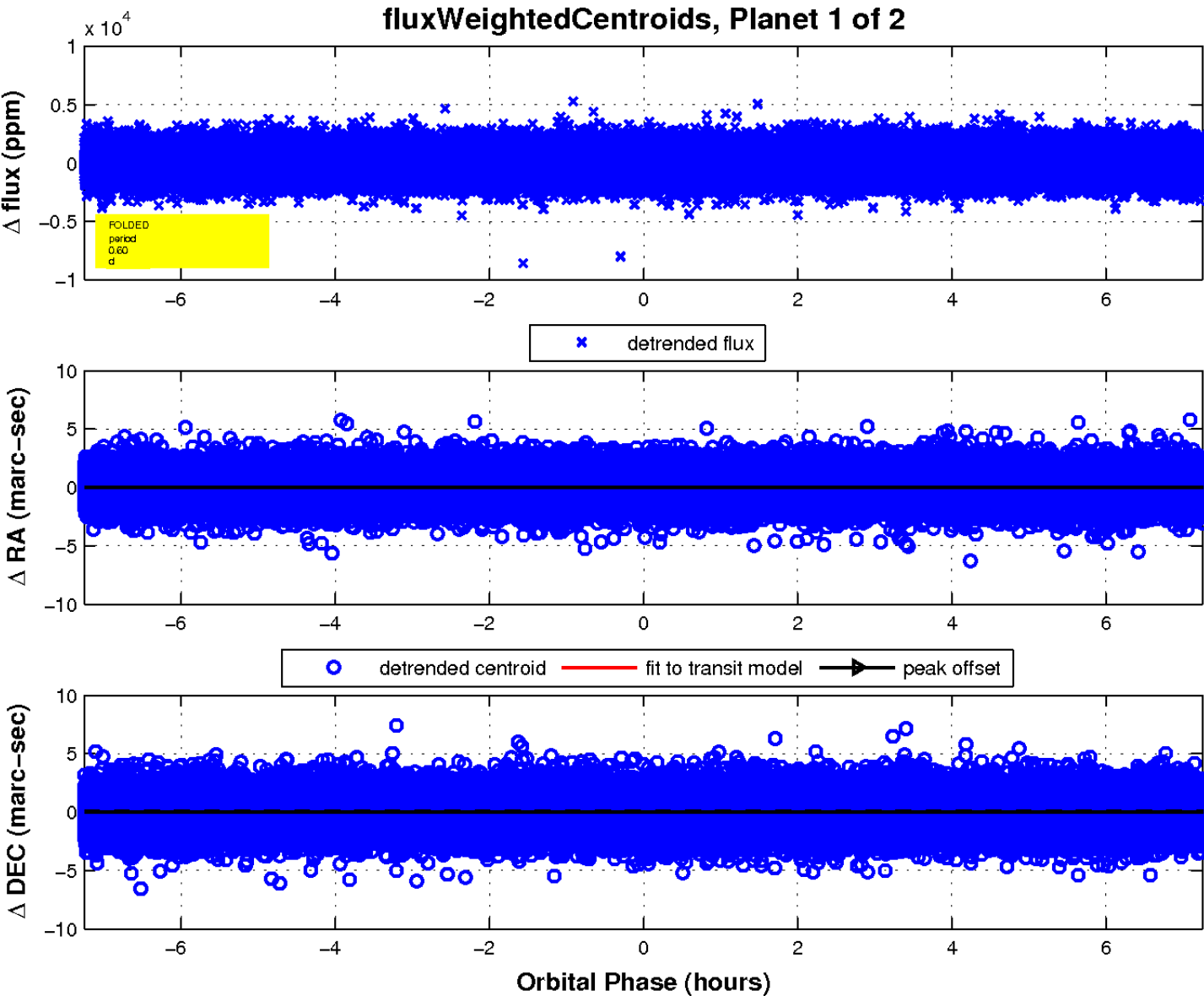
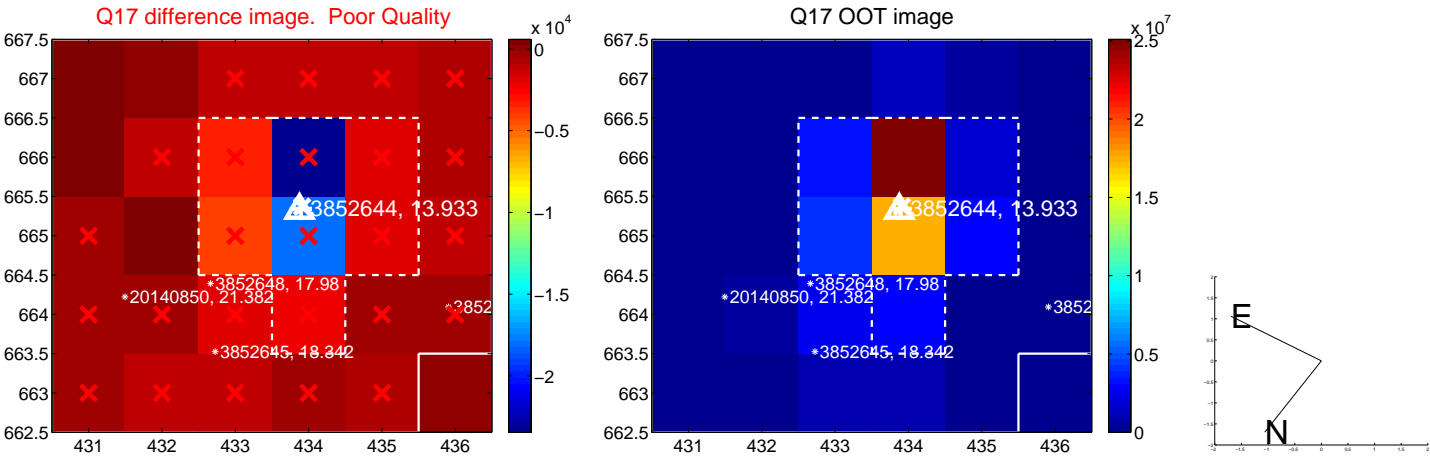
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

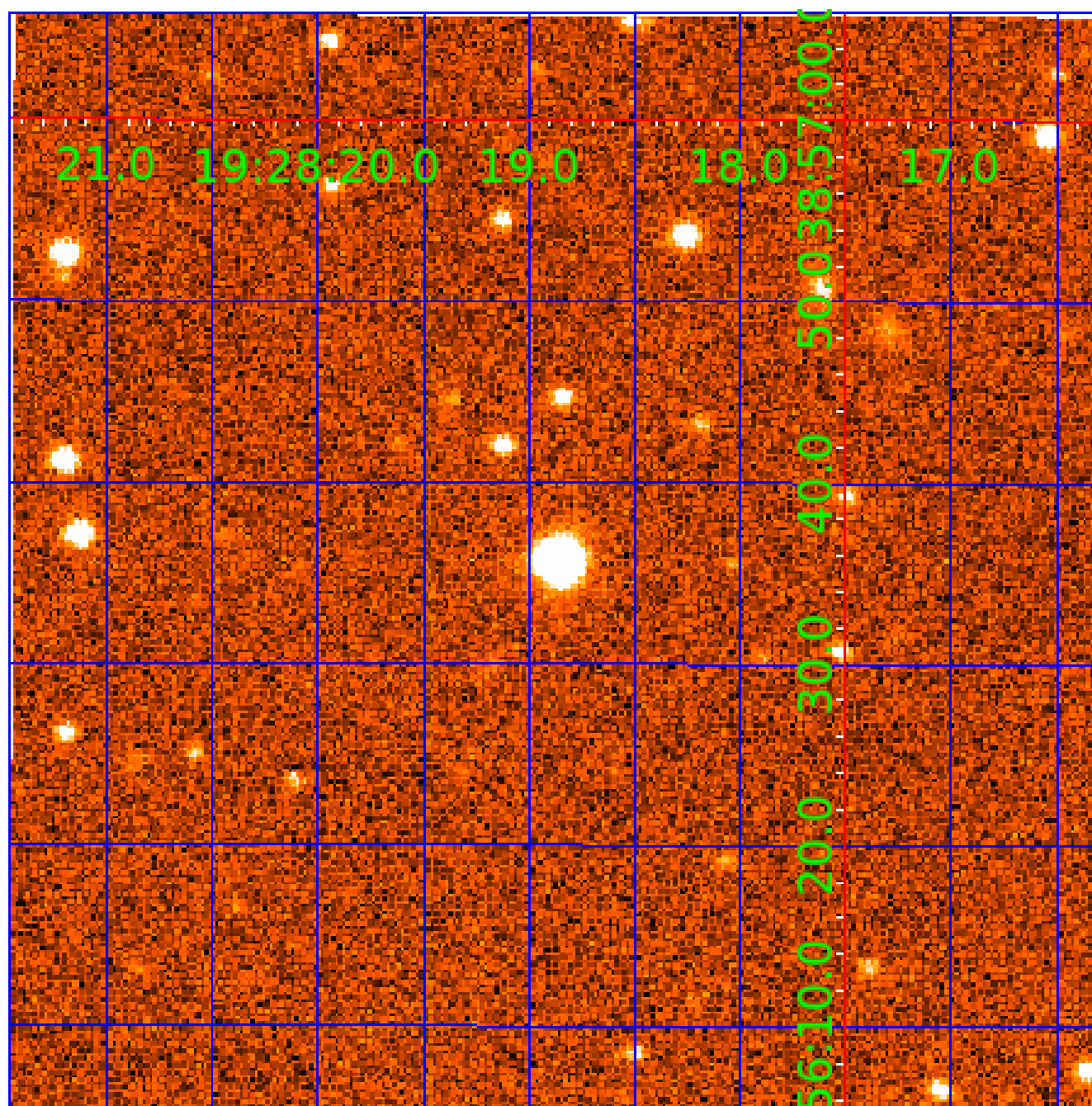


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003852644

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})
003852644-01	OBS	No	0.604770	131.944097	61.7	2.769	12.6	10.3	1.79	8174	1.63	42897.61
003852644-02	OBS	No	0.947334	132.245986	114.9	3.782	9.3	9.2	1.79	8174	2.11	23580.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003852644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003852644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

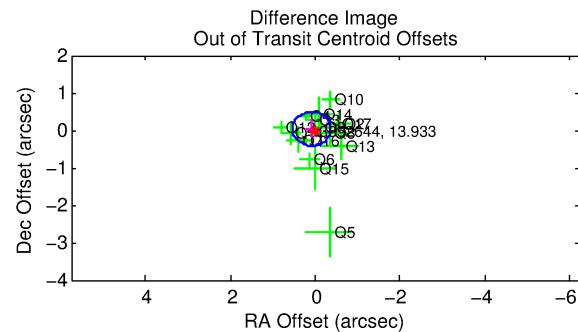
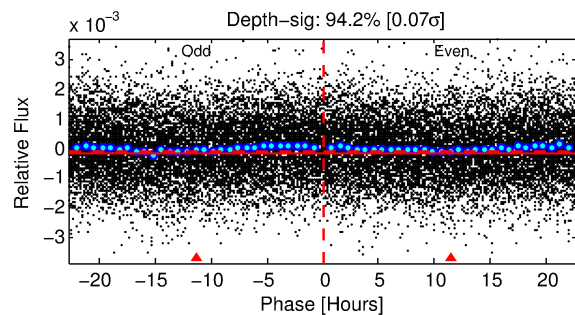
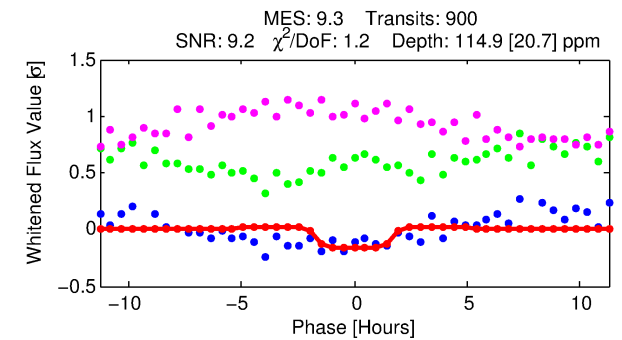
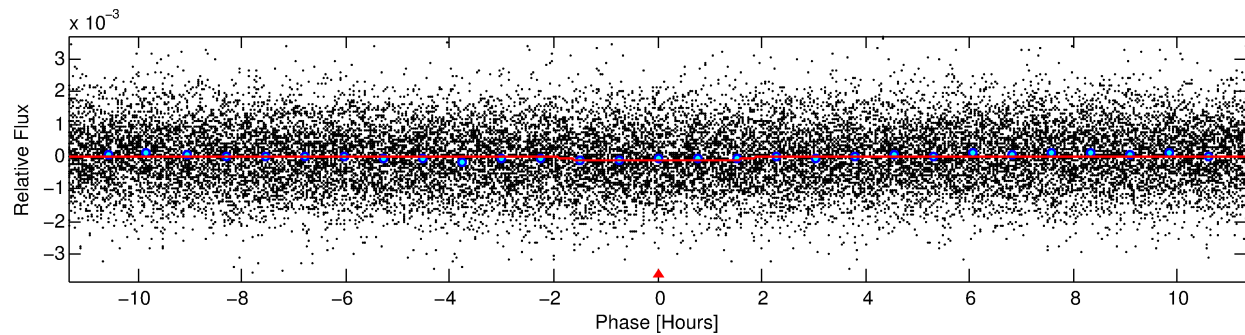
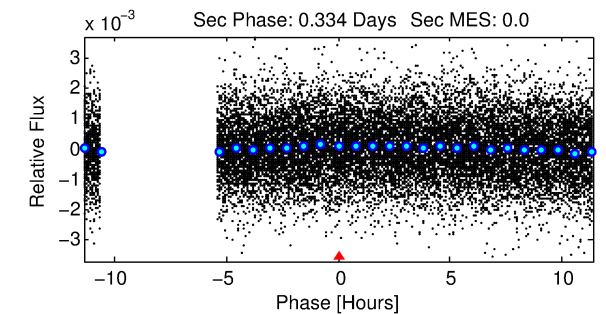
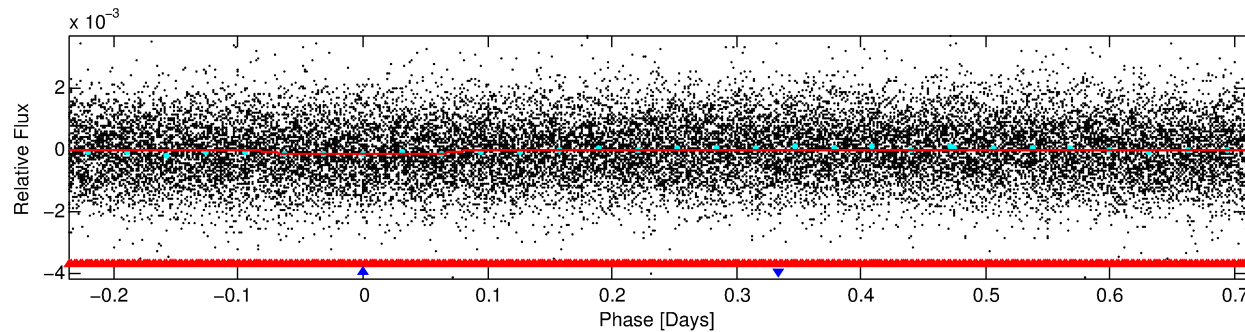
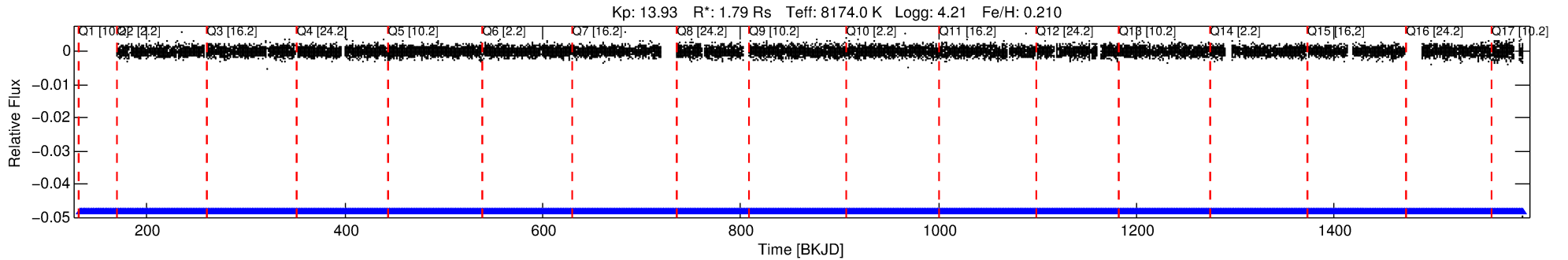
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003852644-02

No Significant Match Found

DV One-Page Summary

KIC: 3852644 Candidate: 2 of 2 Period: 0.947 d



DV Fit Results:

Period = 0.94733 [0.00002] d
Epoch = 132.2460 [0.0066] BKJD
Rp/R* = 0.0108 [0.0112]
a/R* = 1.48 [5.15]
b = 0.80 [2.97]
Seff = 23580.33 [9828.32]
Teff = 3160 [329] K
Rp = 2.11 [2.29] Re
a = 0.0233 [0.0062] AU
Ag = N/A
Teffp = N/A

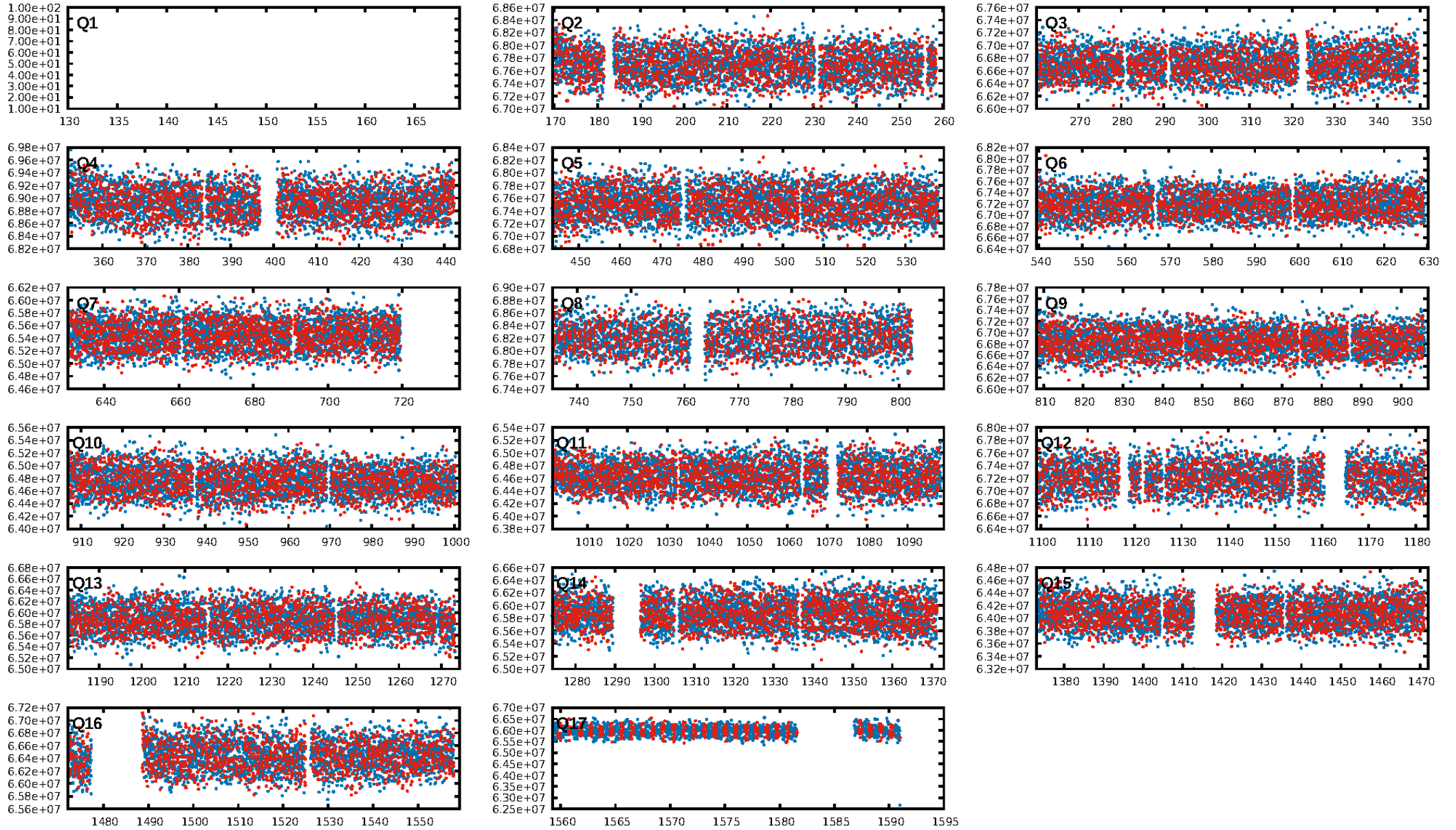
DV Diagnostic Results:

ShortPeriod-sig: 92.1% [1.75 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.89e-37
RollingBand-fgt: 1.00 [881/881]
GhostDiagnostic-chr: 1.216
Centroid-sig: 4.4%
Centroid-so: 0.647 arcsec [2.26 σ]
OotOffset-rm: 0.090 arcsec [0.60 σ]
KicOffset-rm: 0.161 arcsec [0.80 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/16]

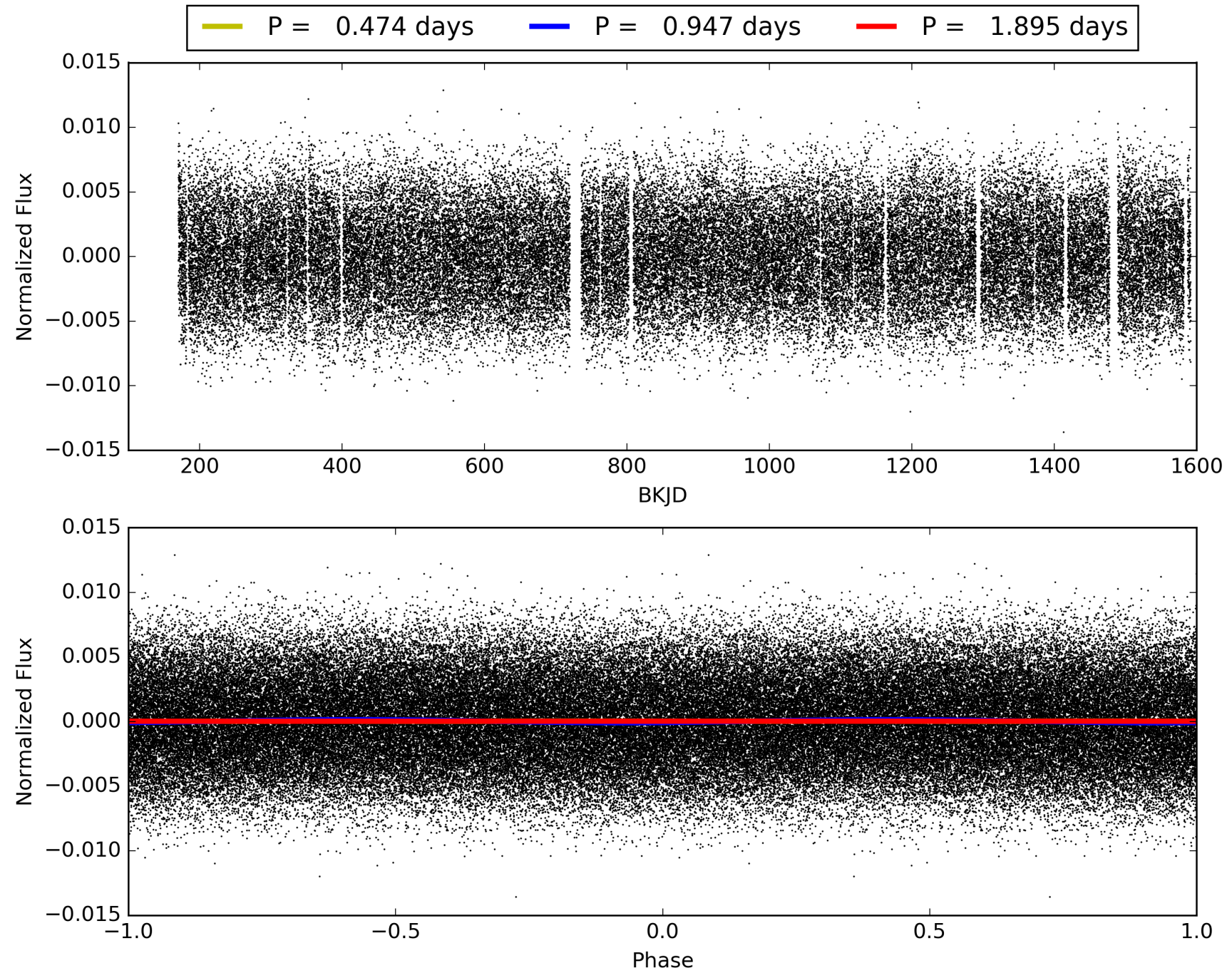
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:50:57 Z

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

TCE 003852644-02, PDC Light Curves

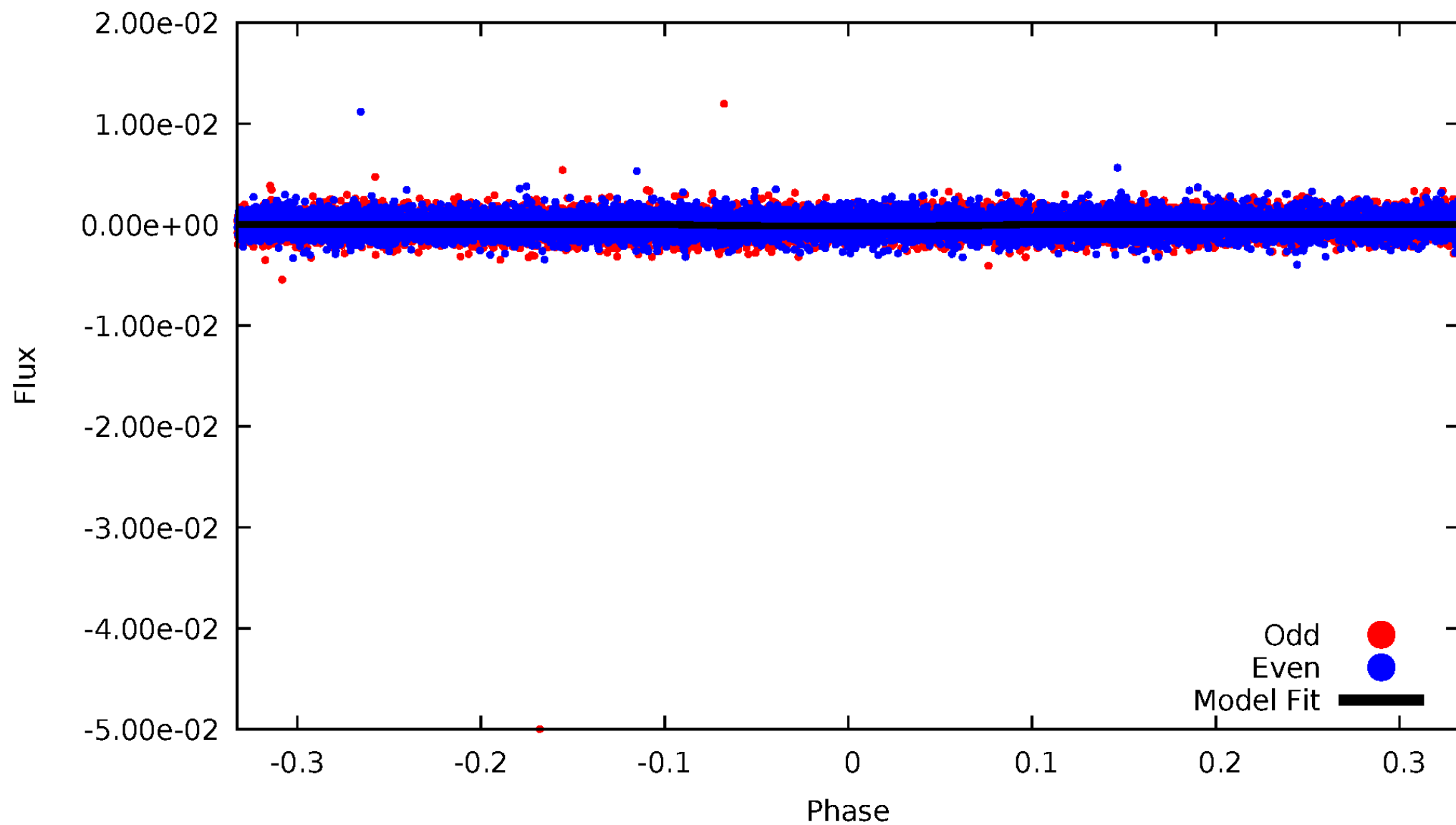


TCE 003852644-02



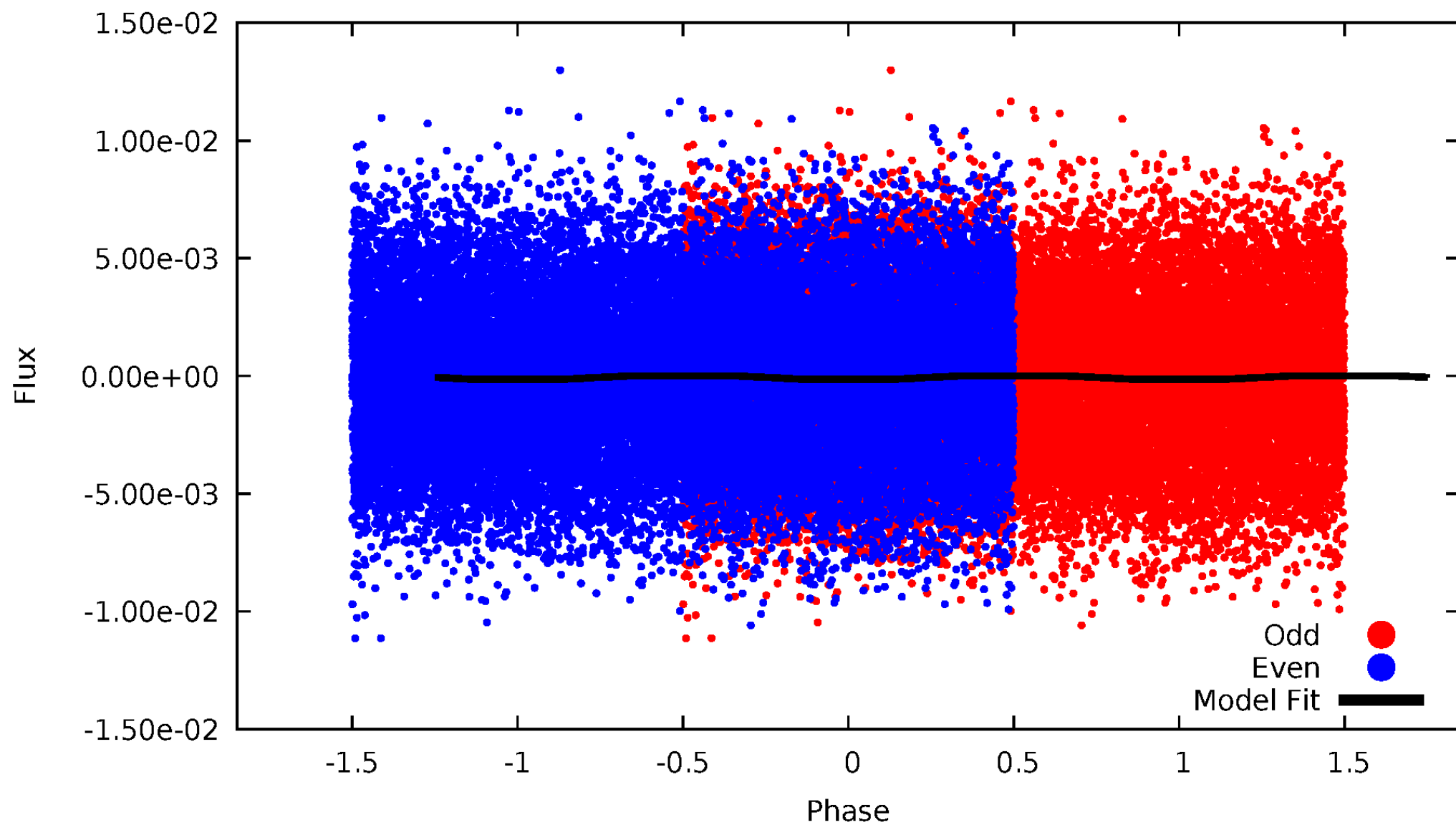
DV Odd/Even

TCE 003852644-02



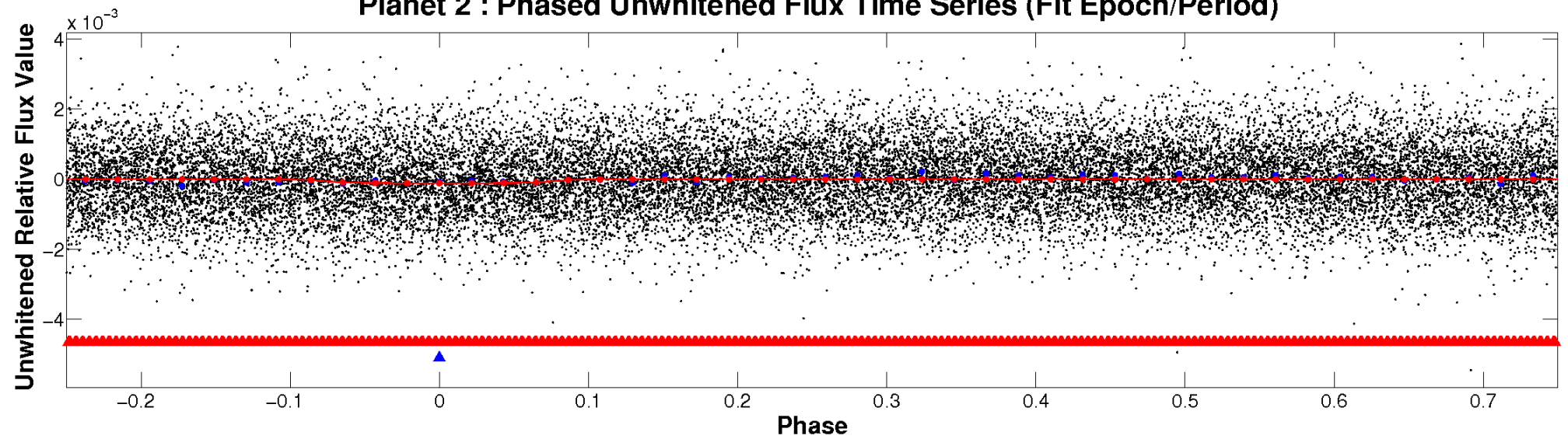
ALT Odd/Even

TCE 003852644-02

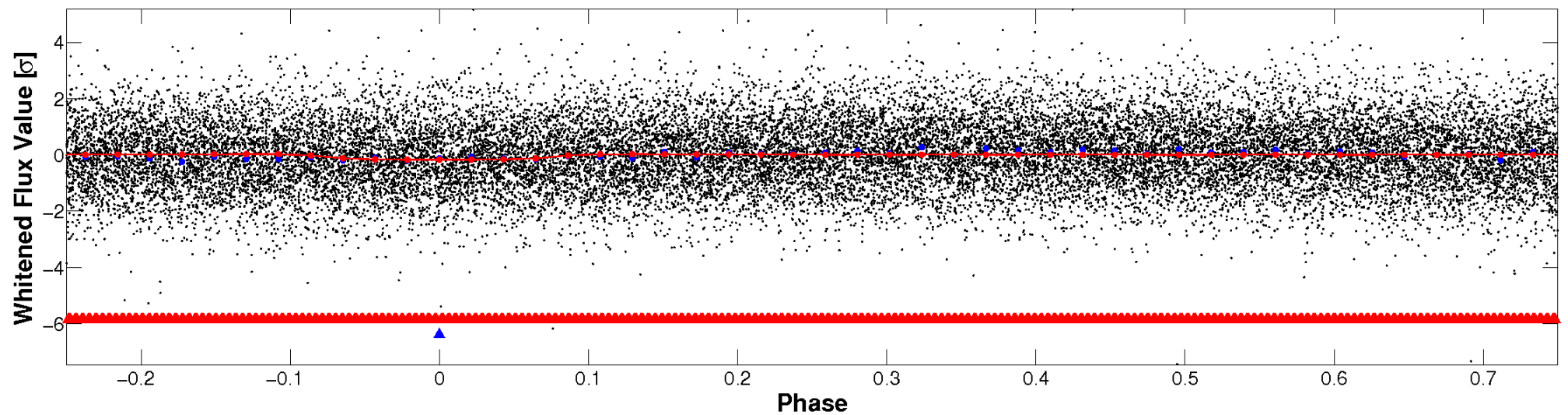


Non-Whitened Vs. Whitened Light Curve

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

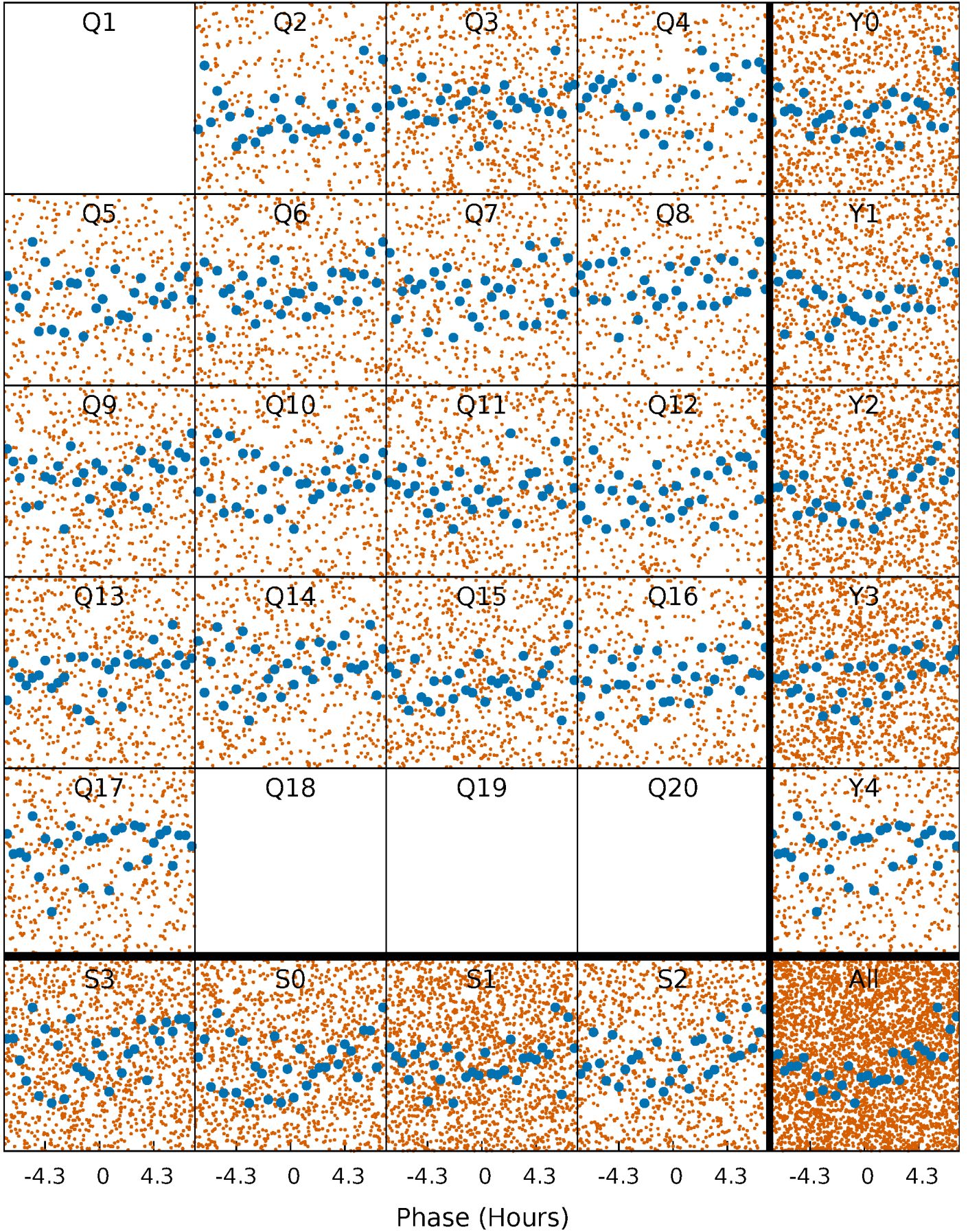


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



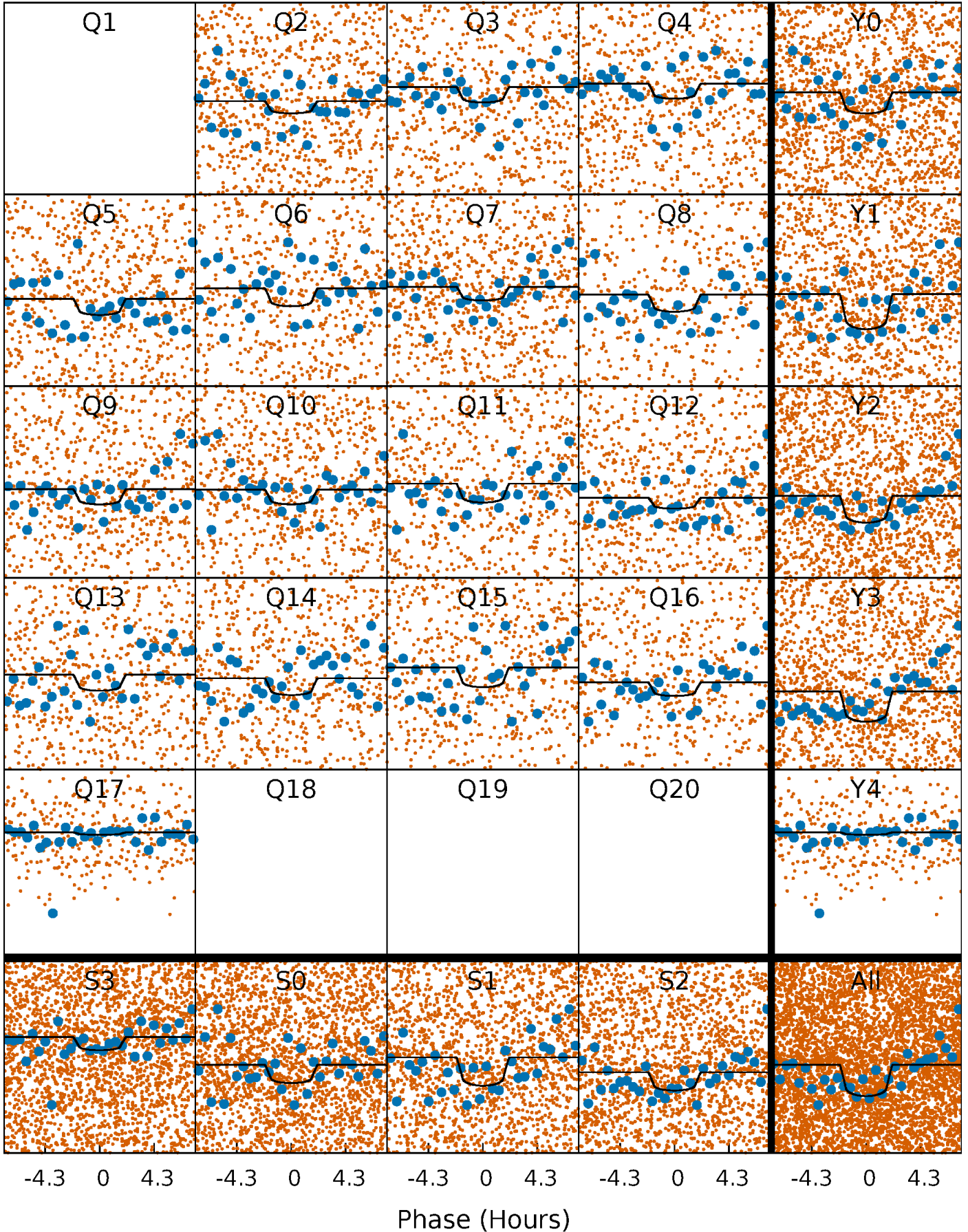
PDC Quarter-Phased Transit Curves

TCE 003852644-02 P= 0.947334 Days $T_0=132.245986$ (BKJD)



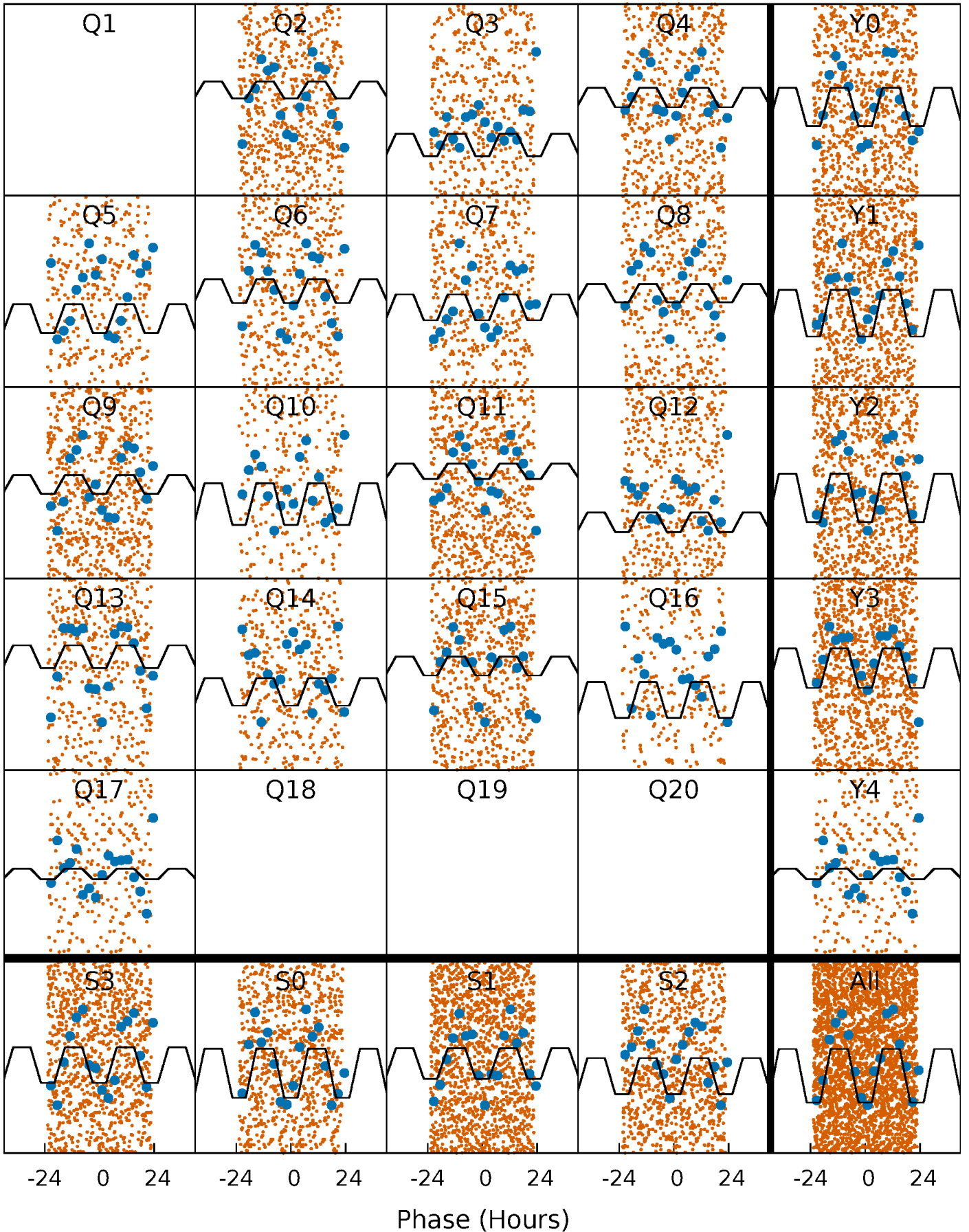
DV Quarter-Phased Transit Curves

TCE 003852644-02 P= 0.947334 Days $T_0=132.245986$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

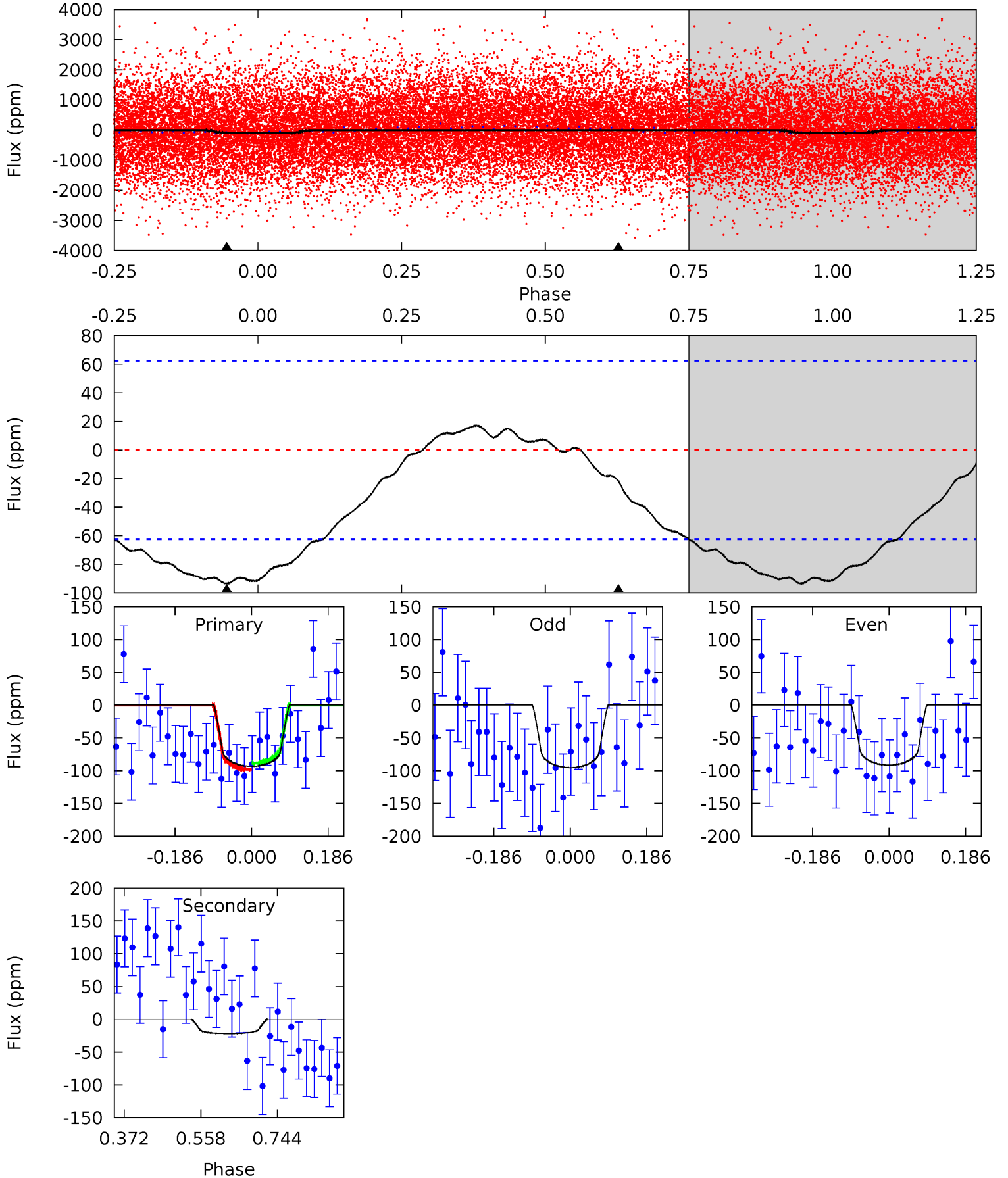
TCE 003852644-02 $P = 0.947230$ Days $T_0 = 132.250670$ (BKJD)



DV Model-Shift Uniqueness Test

003852644-02, P = 0.947334 Days, E = 132.245986 Days

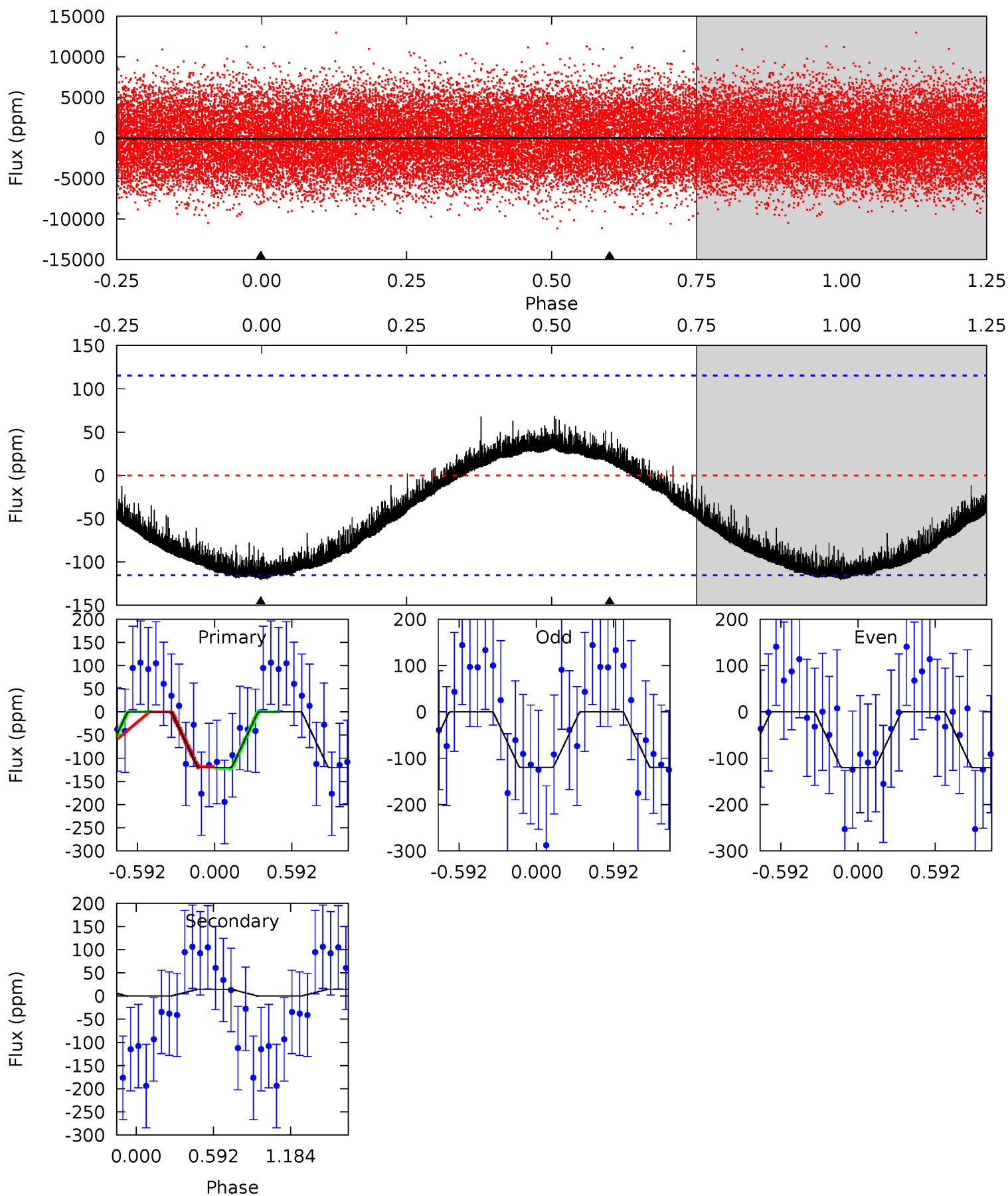
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.65	1.56	0	0	4.43	1.32	1.58	6.65	6.65	1.56	1.56	0.14	0.90	0.15	0.33



Alt Model-Shift Uniqueness Test

003852644-02, P = 0.947230 Days, E = 132.250670 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.35	-0.52	0	0	4.18	0.54	0.45	4.35	4.35	-0.52	-0.52	0.01	0.78	0.36	0.06



Stellar Parameters For KIC 003852644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8174^{+228}_{-359}	$4.206^{+0.067}_{-0.202}$	$0.210^{+0.150}_{-0.500}$	$1.786^{+0.579}_{-0.248}$	$1.873^{+0.291}_{-0.291}$	$0.463^{+0.136}_{-0.252}$
	+3%/-4%	+2%/-5%	+71%/-238%	+32%/-14%	+16%/-16%	+29%/-54%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 003852644-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 14	$2.73^{+2.07}_{-1.66}$	4488^{+307}_{-240}	4234^{+3063}_{-7668}	$0.748^{+4.201}_{-0.582}$
Alt.	14 ± 28	$2.86^{+2.17}_{-1.78}$	4479^{+332}_{-248}	-4518^{+7841}_{-2135}	$-0.323^{+0.739}_{-2.986}$

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 $A_{obs} \gg 1.0$

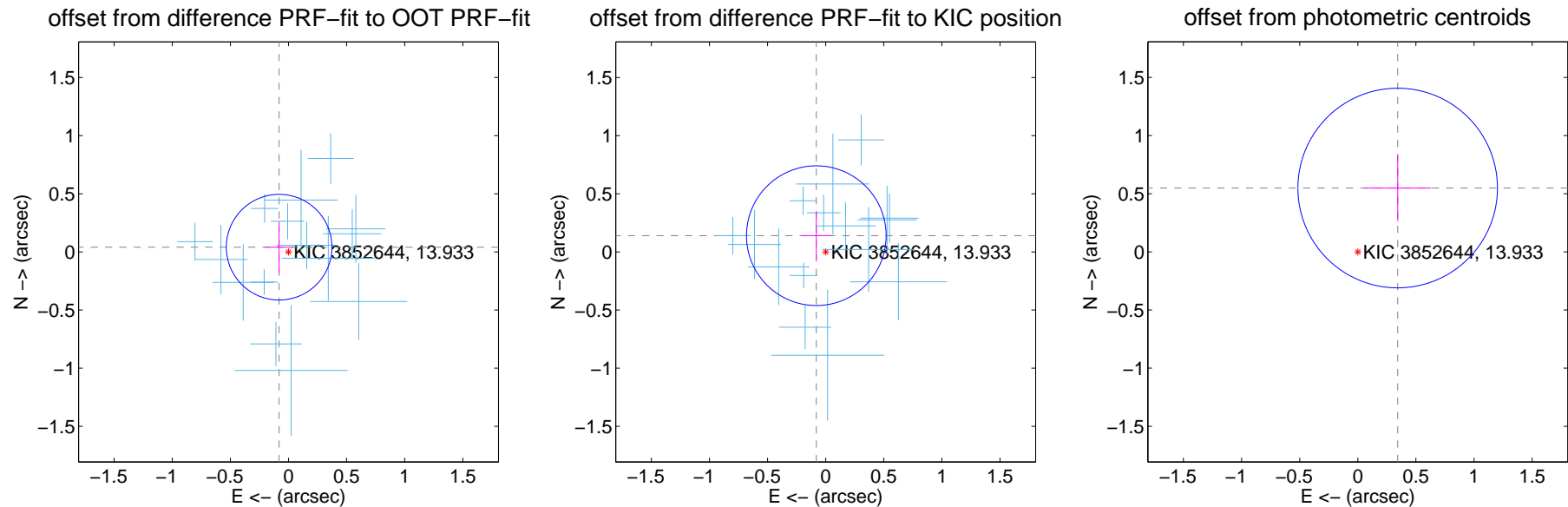
DV Centroid Data

Supplemental centroid analysis for 003852644-02. Kepler magnitude: 13.93. Transit SNR 9.15

There are 16 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.090 ± 0.151	0.60	0.081 ± 0.124	0.041 ± 0.221
PRF-fit source offset from KIC position	0.161 ± 0.200	0.80	0.080 ± 0.126	0.140 ± 0.209
photometric centroid source offset	0.65 ± 0.29	2.26	-0.34 ± 0.29	0.55 ± 0.29



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.

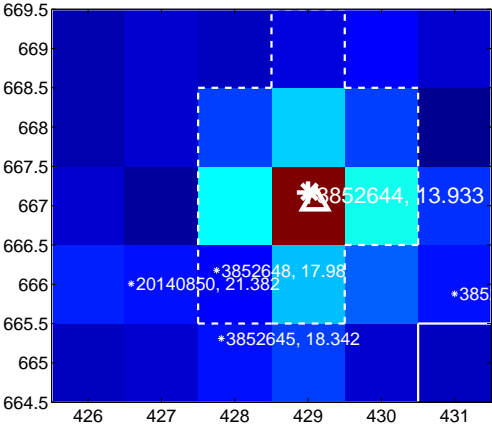
Q1 no difference image



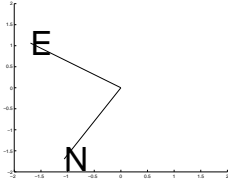
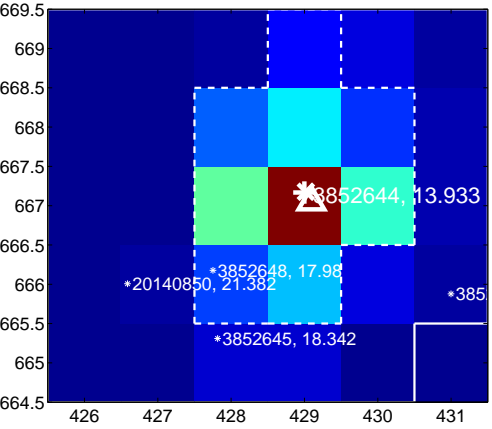
Q1 no OOT image



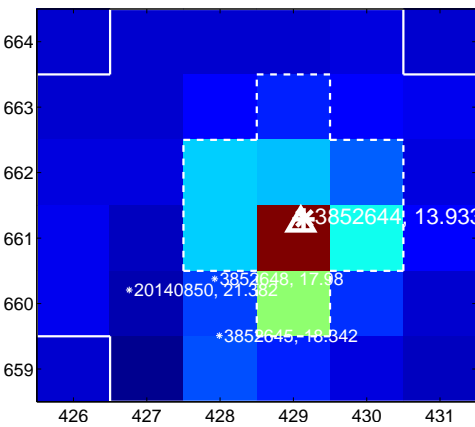
Q2 difference image



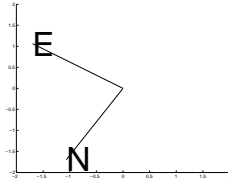
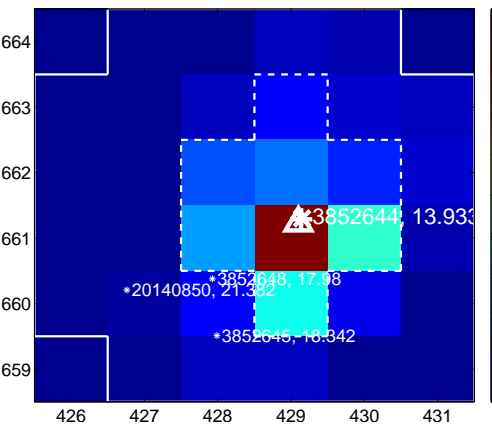
Q2 OOT image



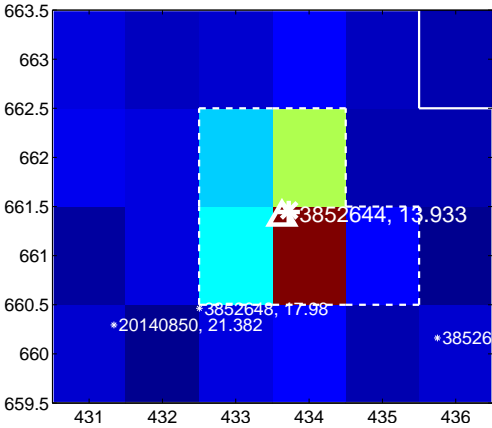
Q3 difference image



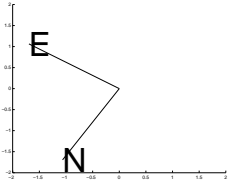
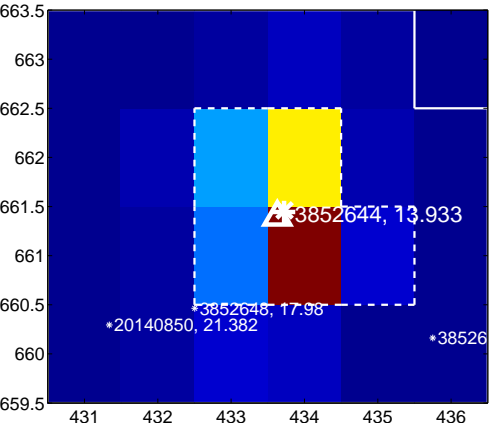
Q3 OOT image



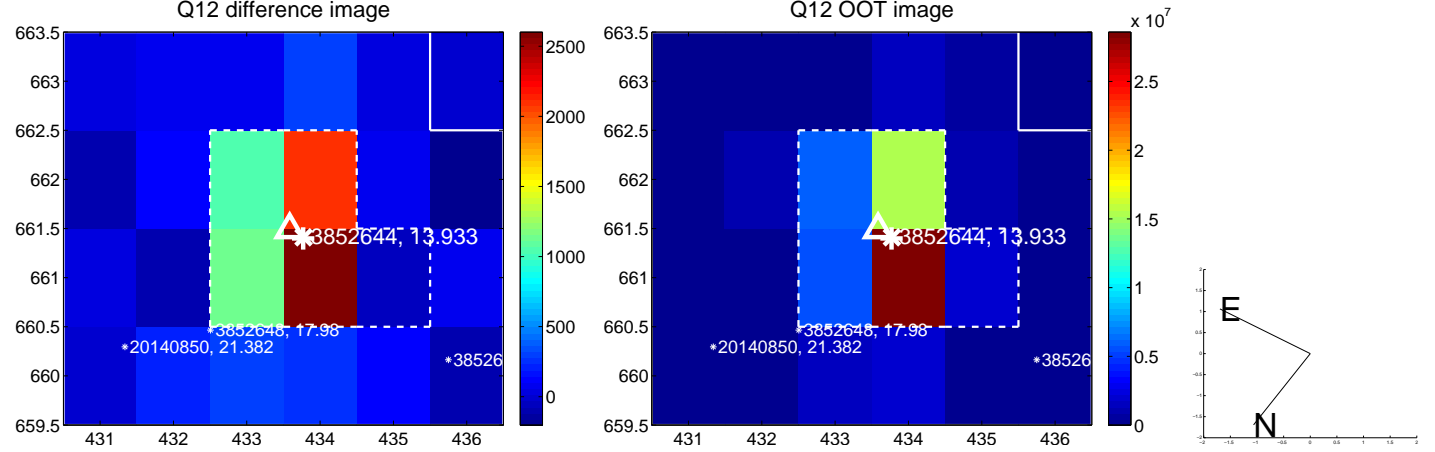
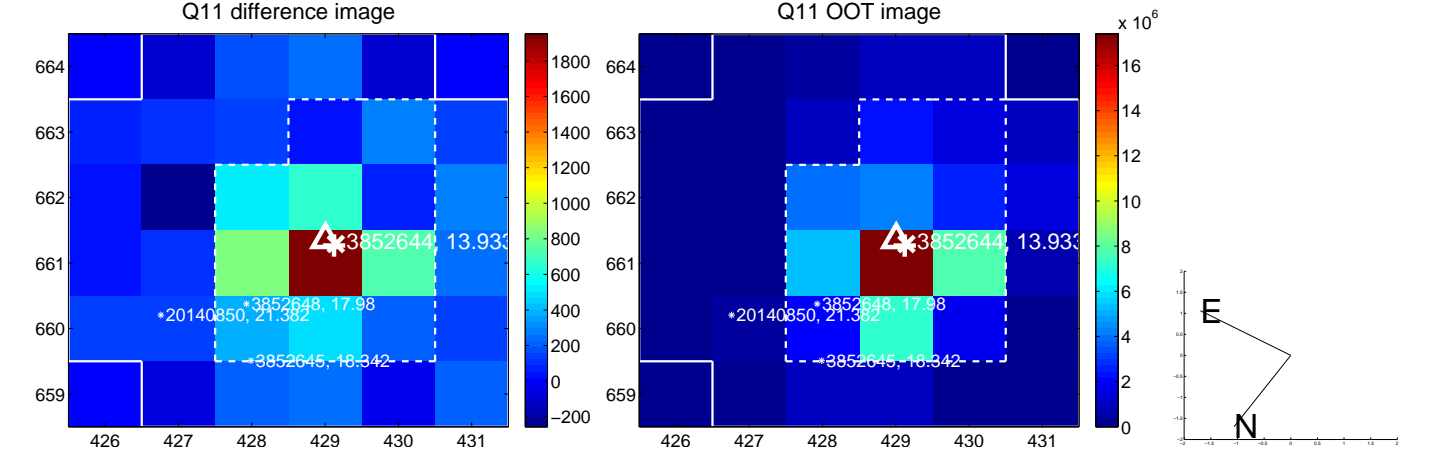
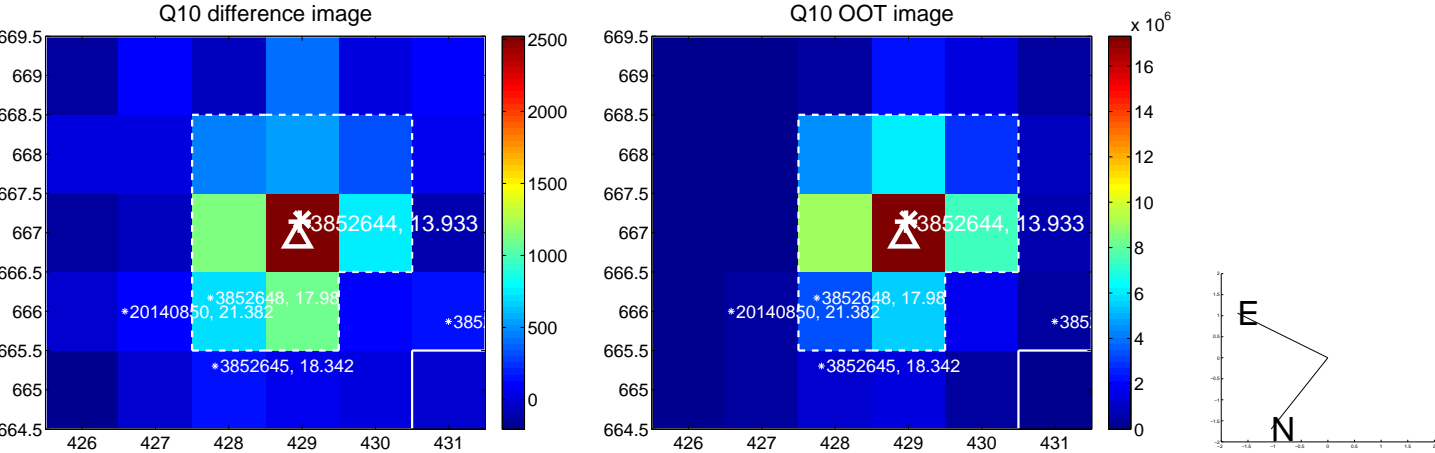
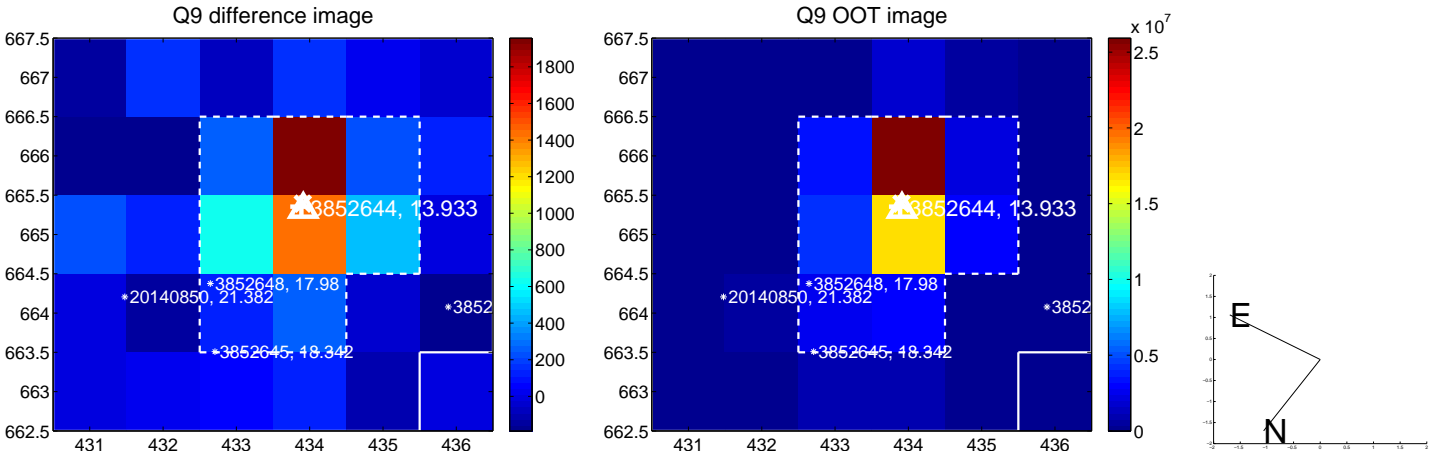
Q4 difference image



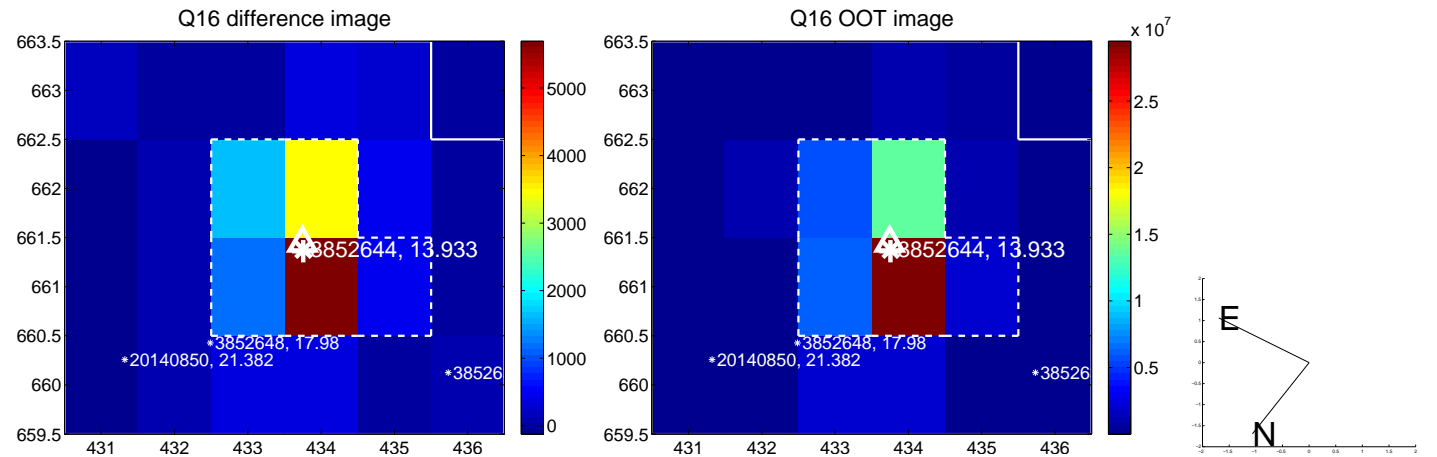
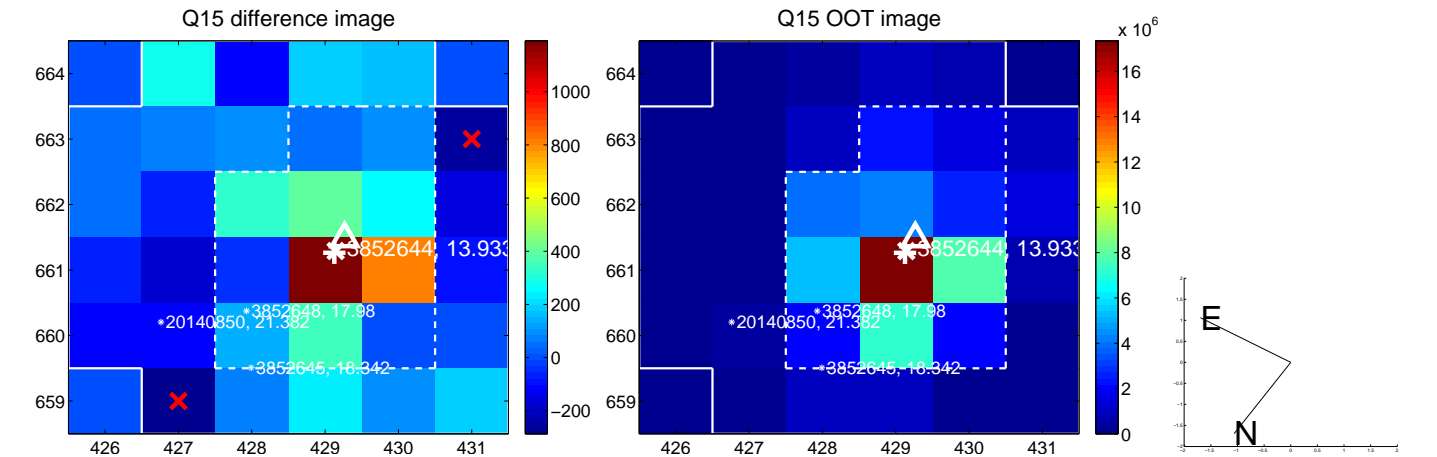
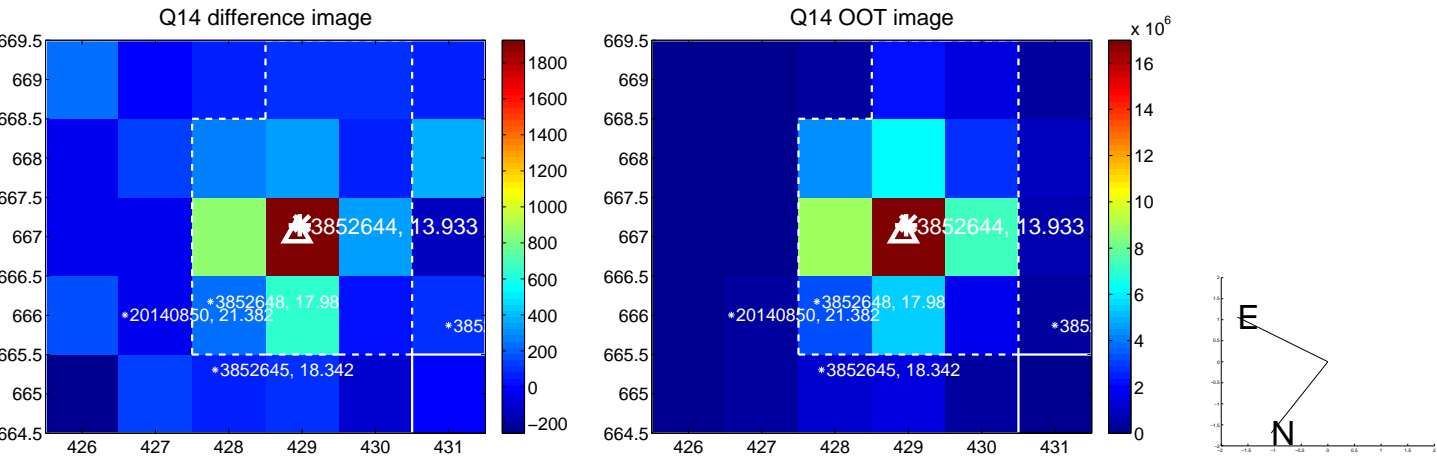
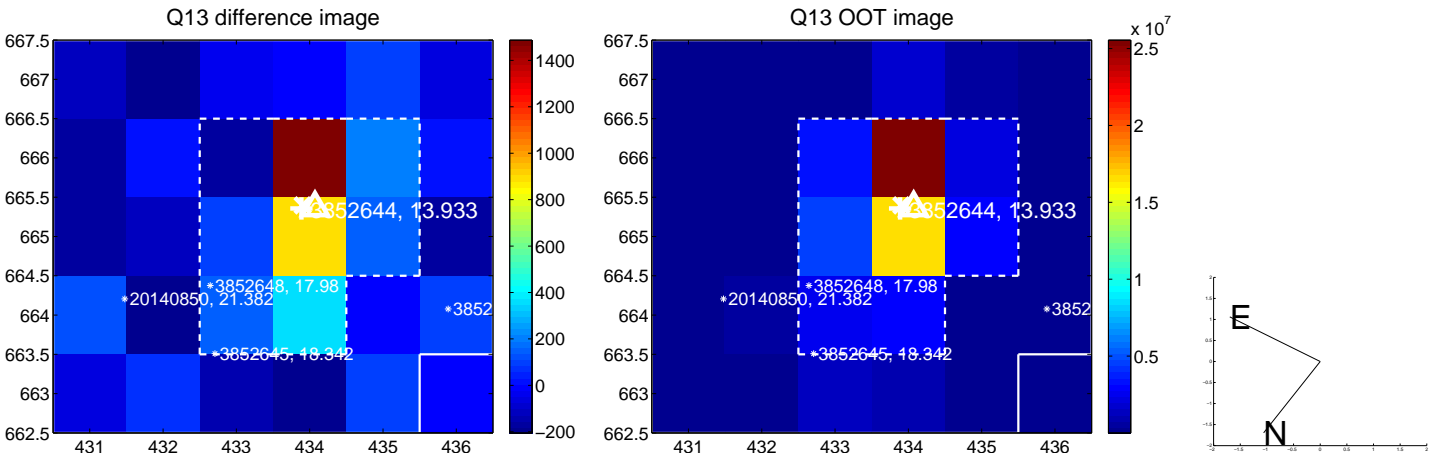
Q4 OOT image



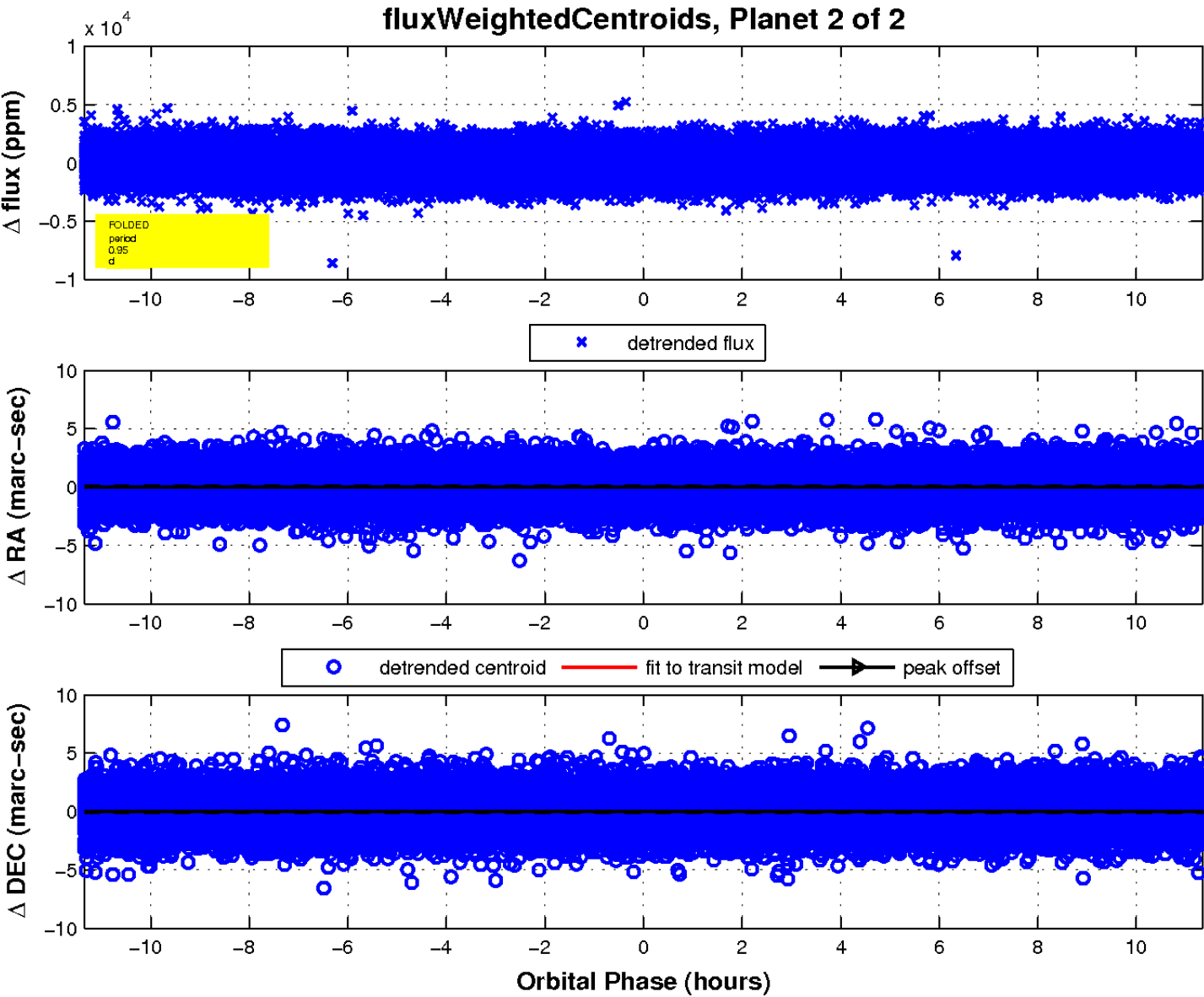
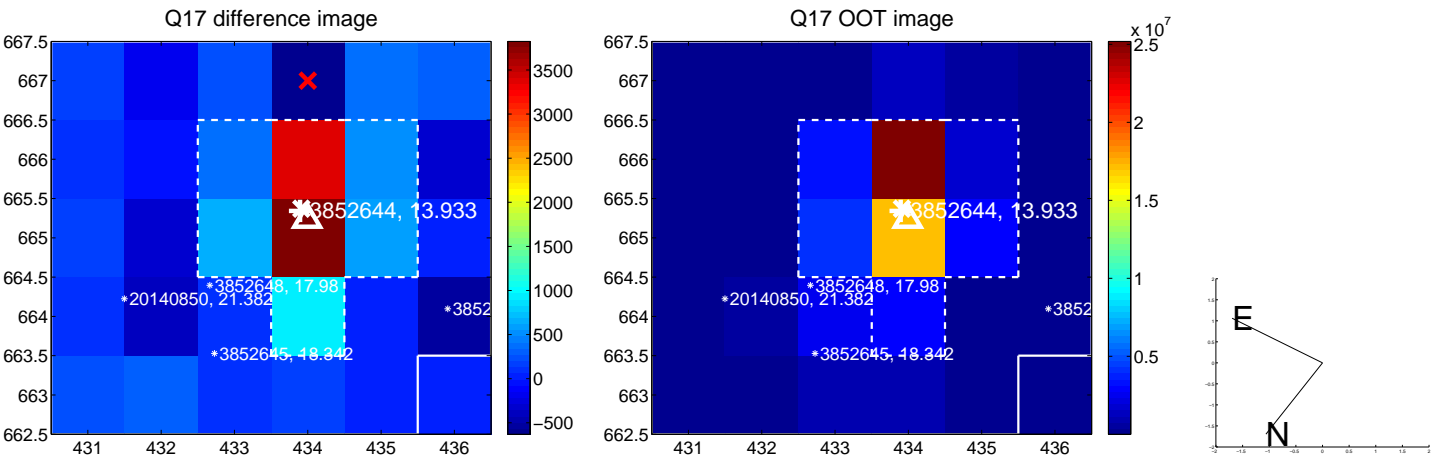
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

