

KIC 009837083

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})
009837083-01	OBS	3719.01	0.623393	131.912040	42817.4	1.277	1162.0	1456.1	0.64	4330	19.65	855.39
009837083-02	OBS	No	0.623394	131.595369	35180.5	1.500	1118.7	-1.0	0.64	4330	11.60	855.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009837083-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009837083-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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 009837083-01

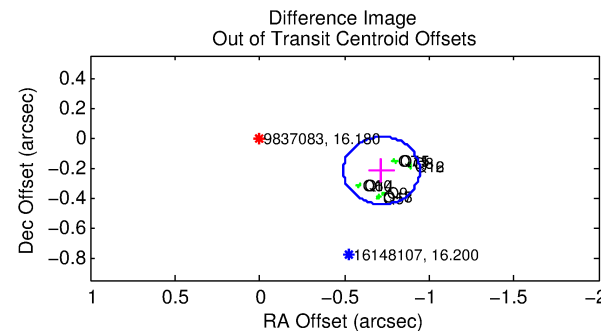
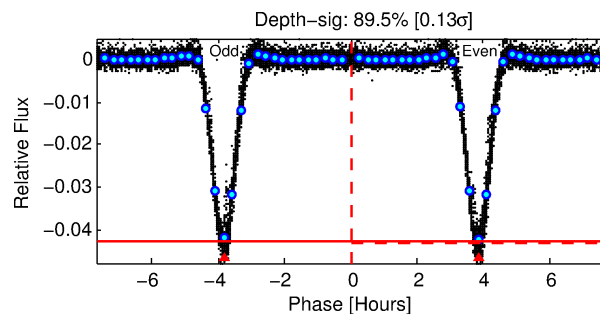
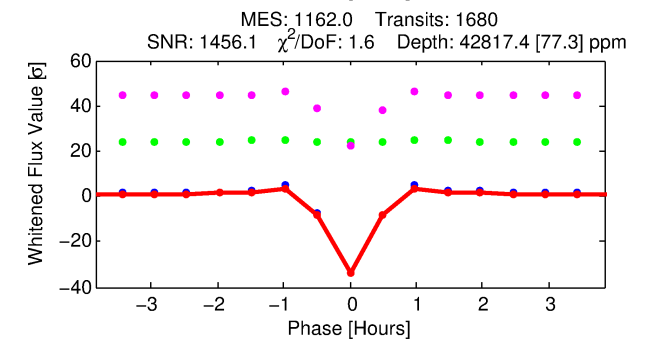
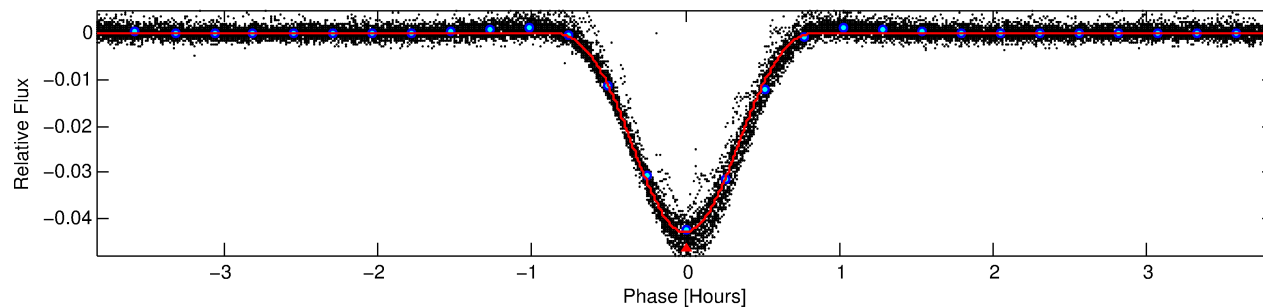
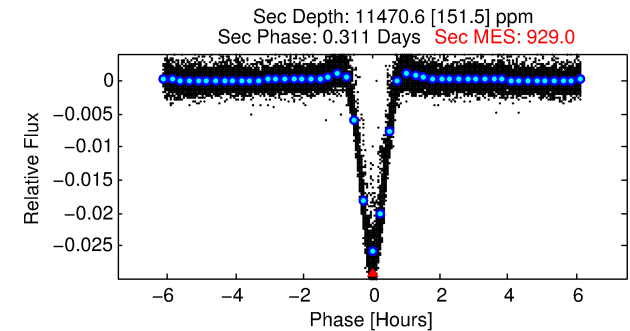
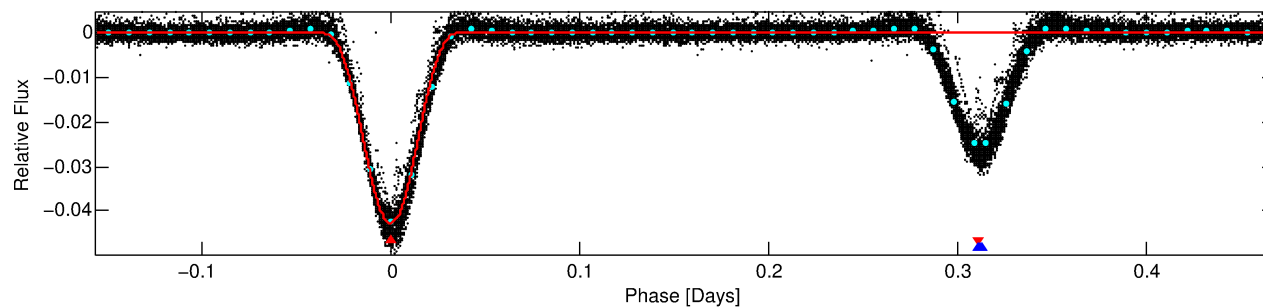
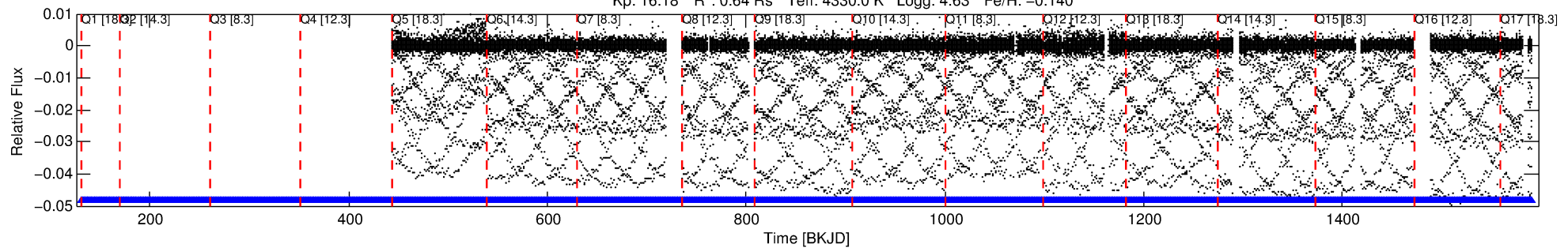
No Significant Match Found

DV One-Page Summary

KIC: 9837083 Candidate: 1 of 2 Period: 0.623 d

KOI: K03719 Corr: No Ephemeris Match

Kp: 16.18 R*: 0.64 Rs Teff: 4330.0 K Logg: 4.63 Fe/H: -0.140



DV Fit Results:

Period = 0.62339 [0.00000] d
Epoch = 131.9120 [0.0000] BKJD
Rp/R* = 0.2818 [0.0302]
a/R* = 3.56 [0.02]
b = 0.90 [0.05]
Seff = 855.39 [150.38]
Teff = 1379 [61] K
Rp = 19.65 [2.82] Re
a = 0.0123 [0.0009] AU
Ag = 2.46 [0.59] [2.49σ]
Teffp = 2669 [172] K [7.08σ]

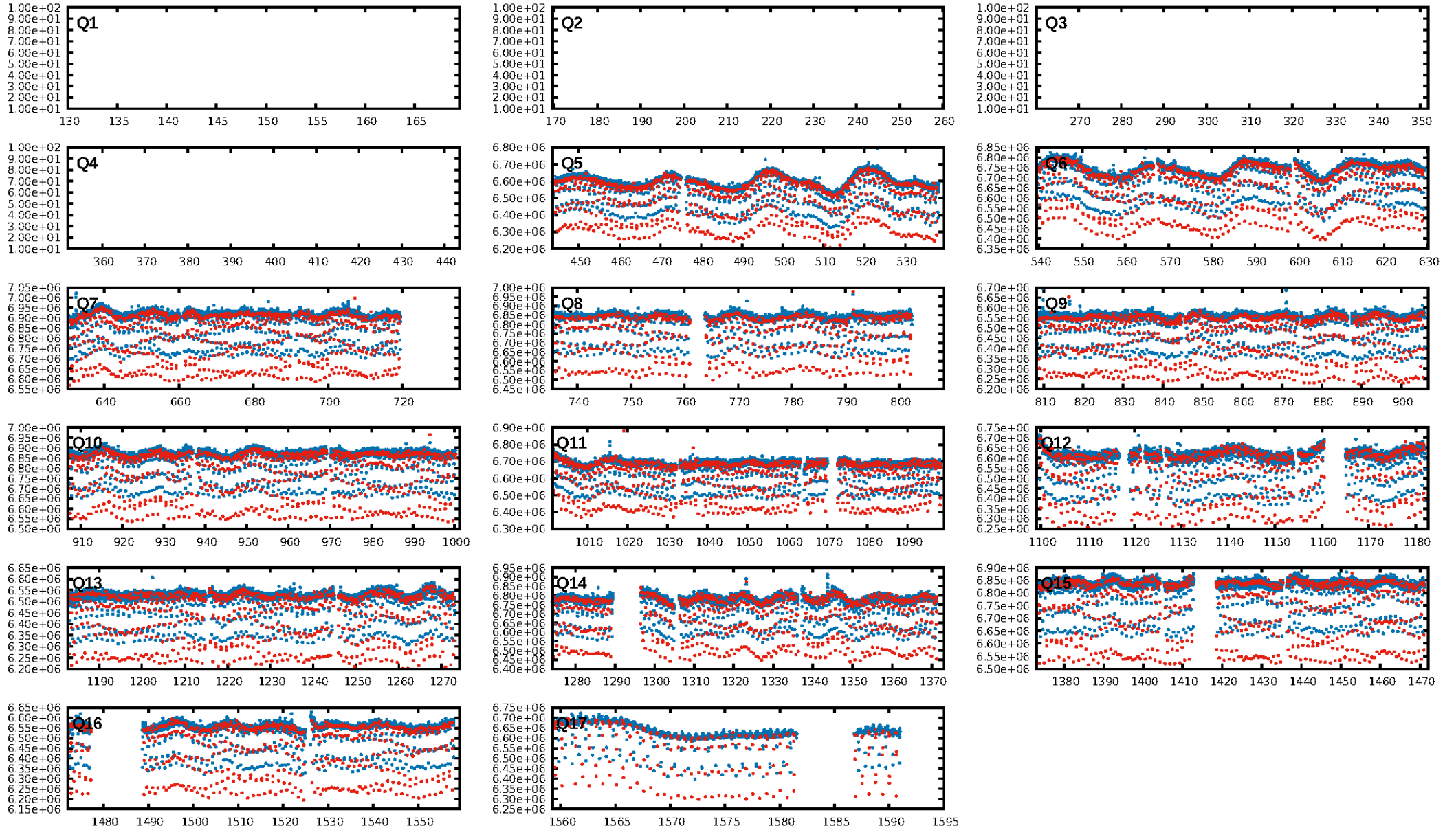
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1637/1637]
GhostDiagnostic-chr: 4.086
Centroid-sig: 0.0%
Centroid-so: 0.607 arcsec [90.98σ]
OotOffset-rm: 0.752 arcsec [10.01σ]
KicOffset-rm: 1.005 arcsec [13.72σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

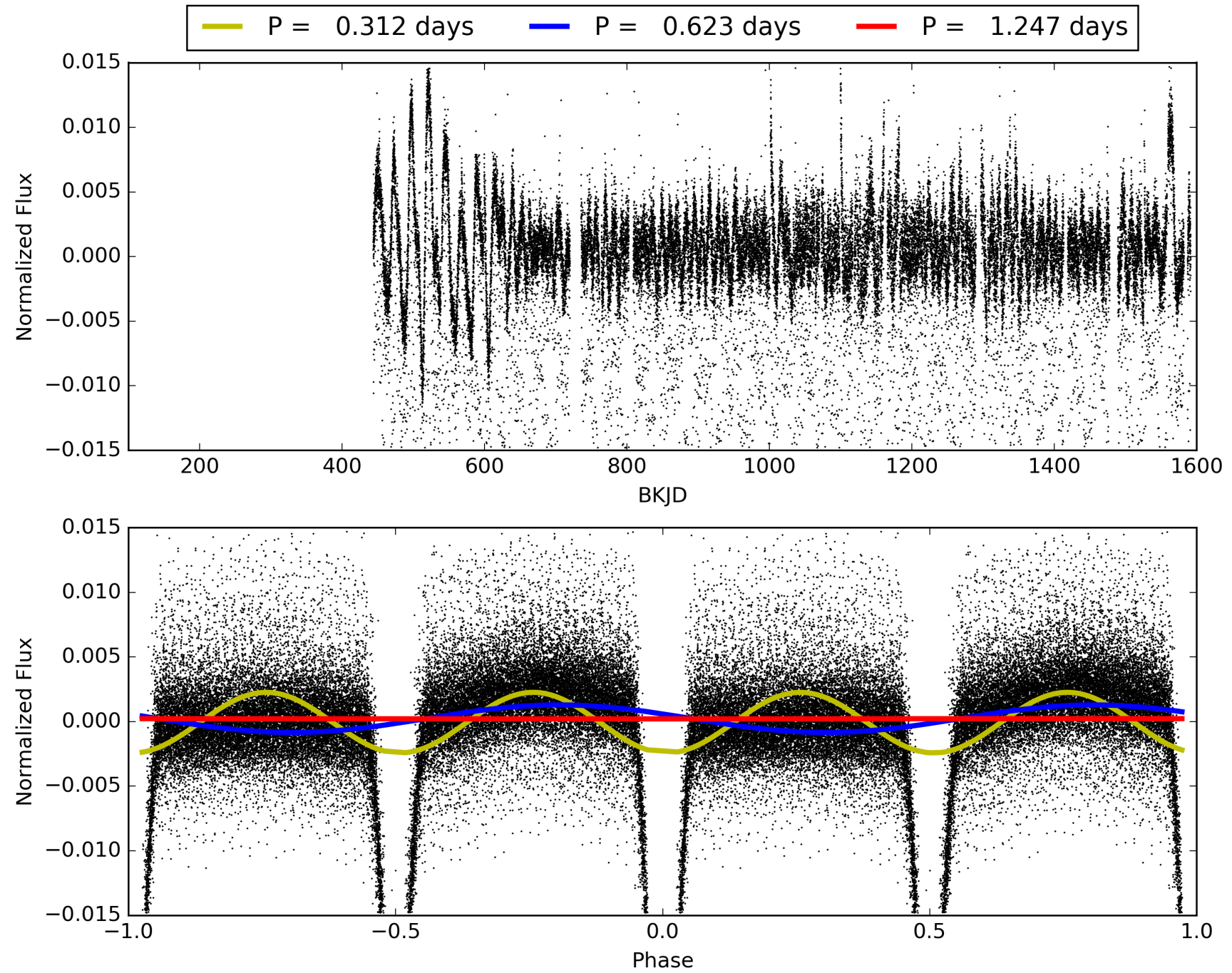
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:18:59 Z

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

TCE 009837083-01, PDC Light Curves

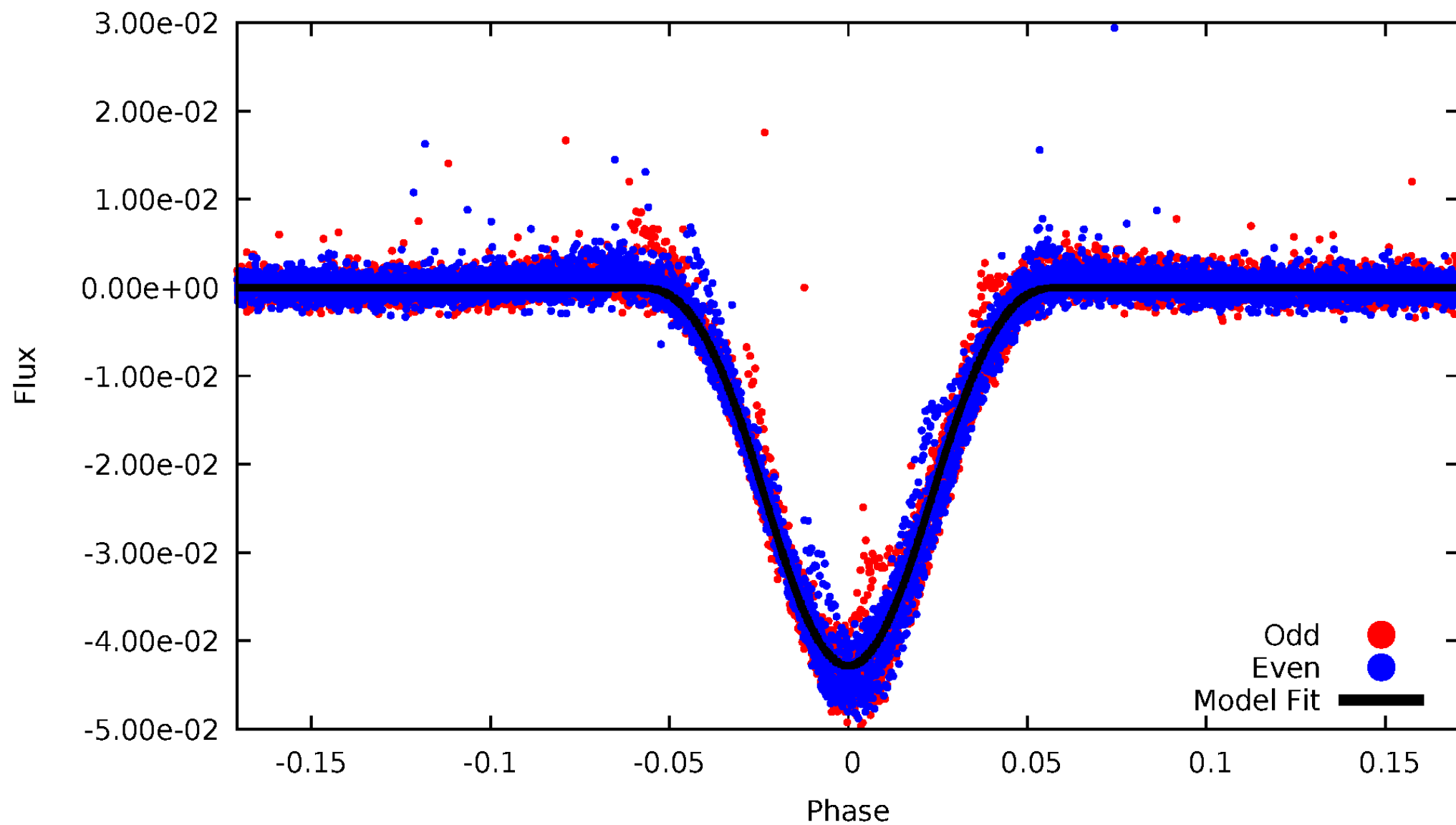


TCE 009837083-01



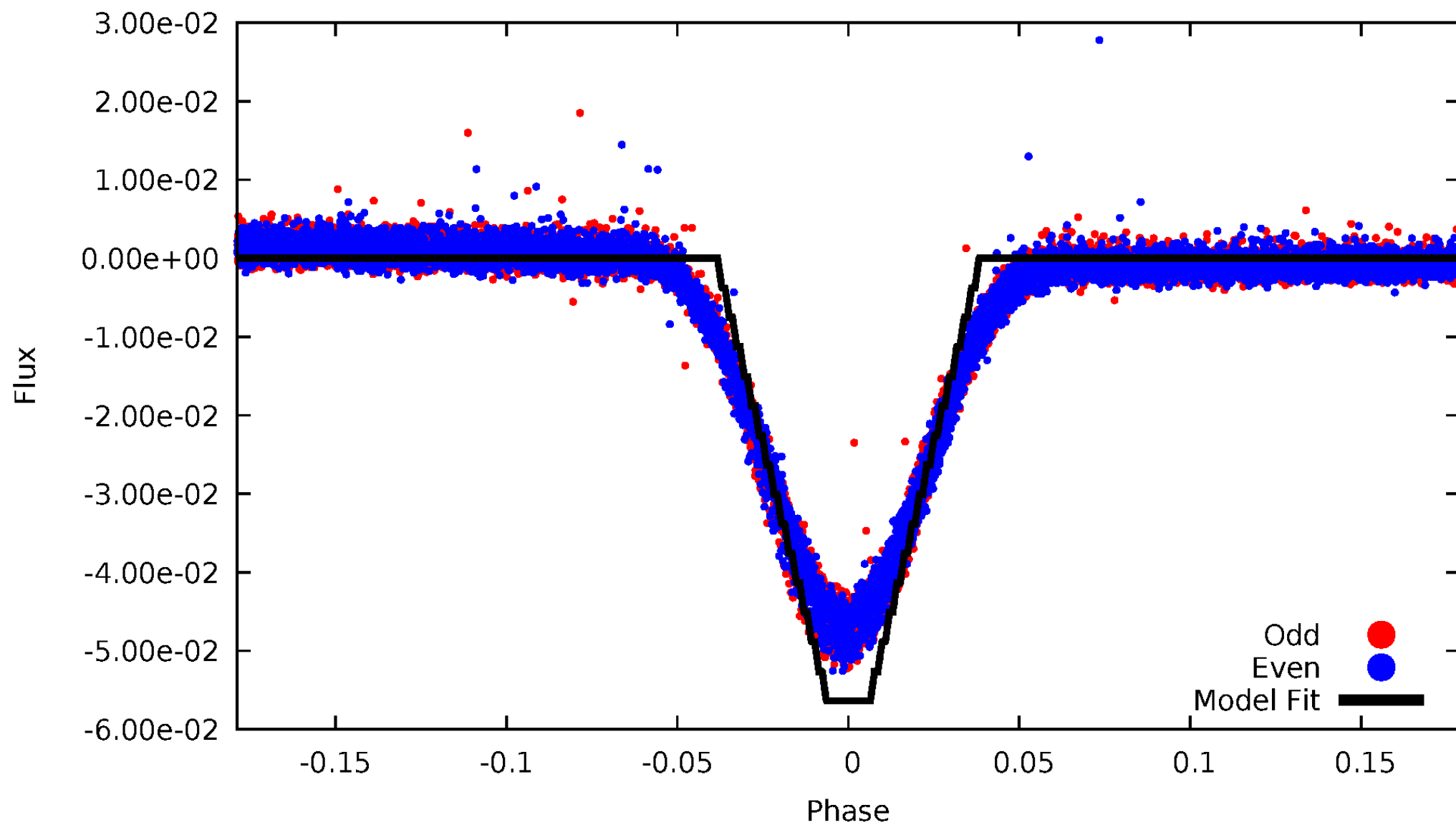
DV Odd/Even

TCE 009837083-01



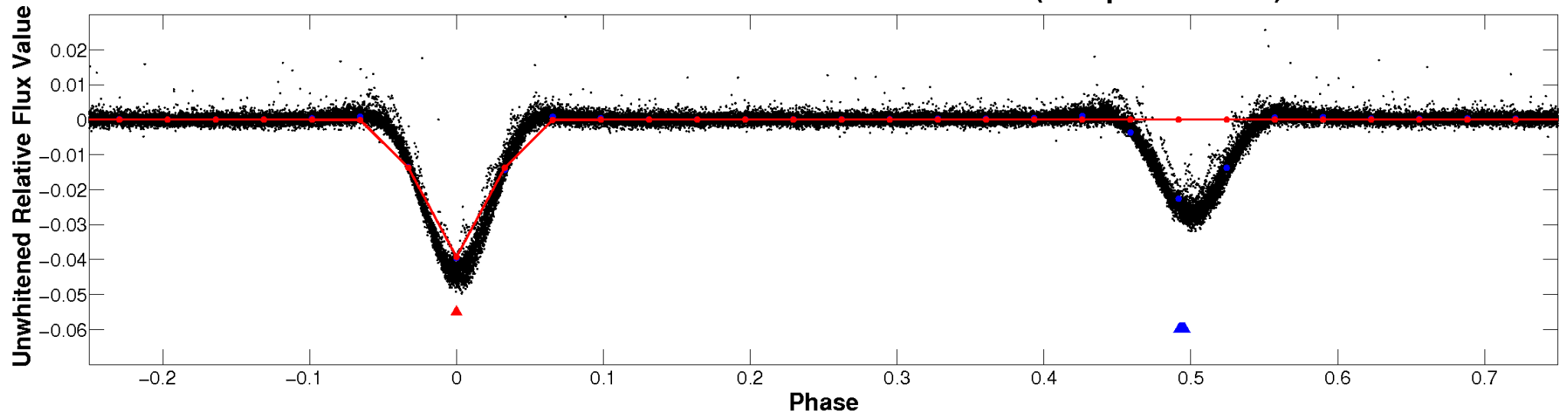
ALT Odd/Even

TCE 009837083-01

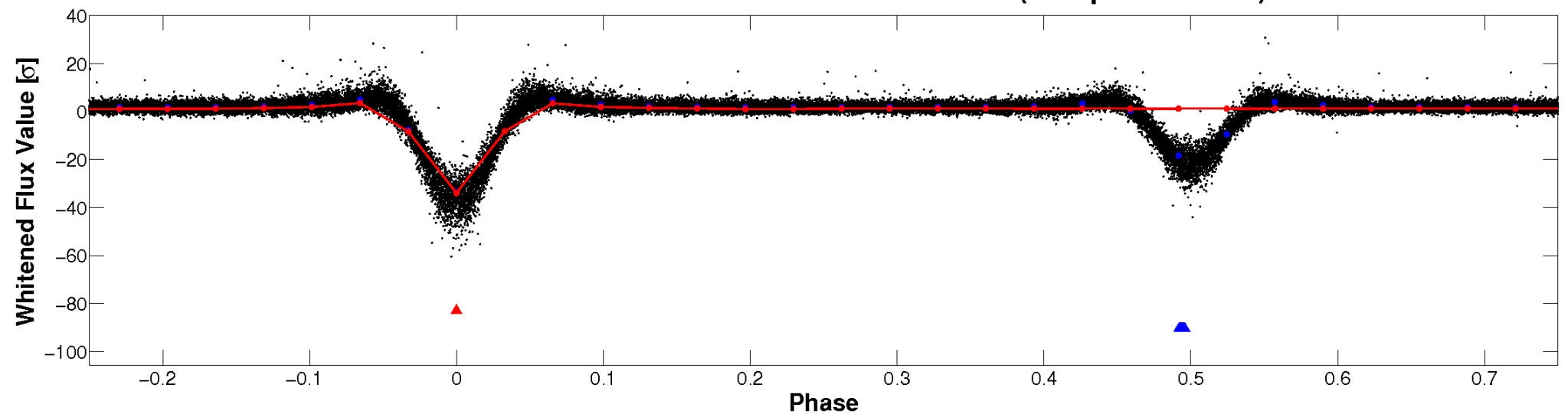


Non-Whitened Vs. Whitened Light Curve

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

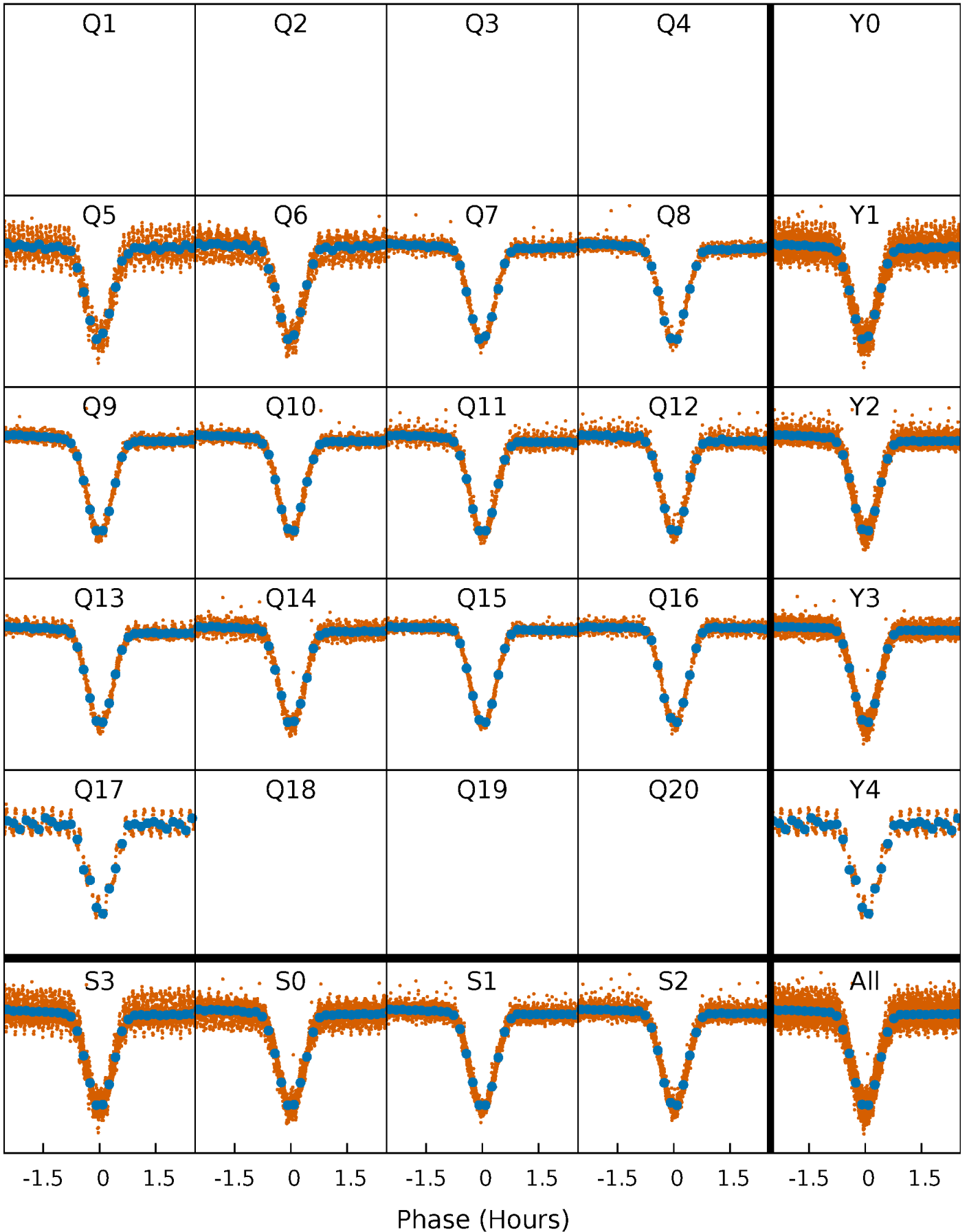


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



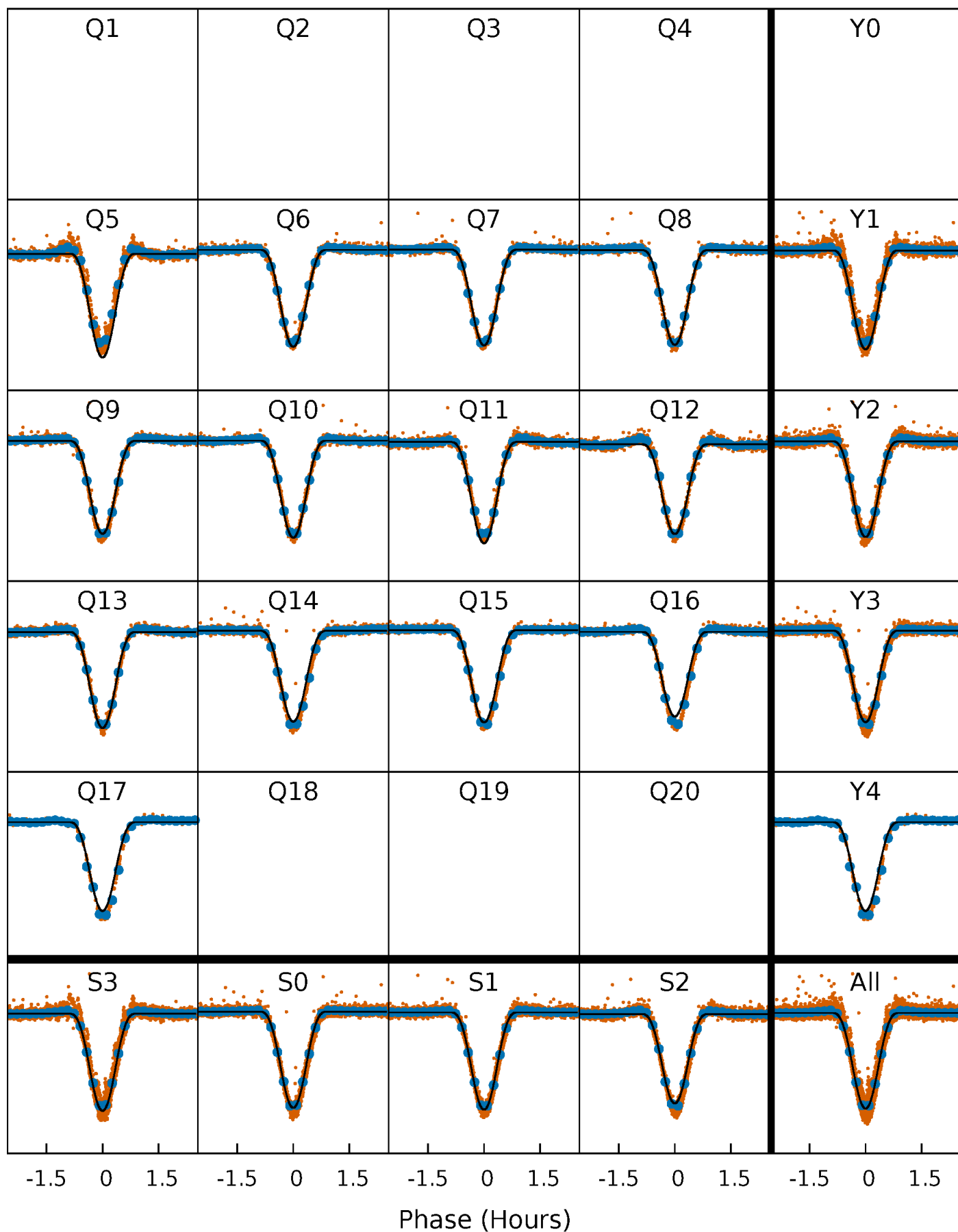
PDC Quarter-Phased Transit Curves

TCE 009837083-01 P= 0.623393 Days $T_0=131.912040$ (BKJD)



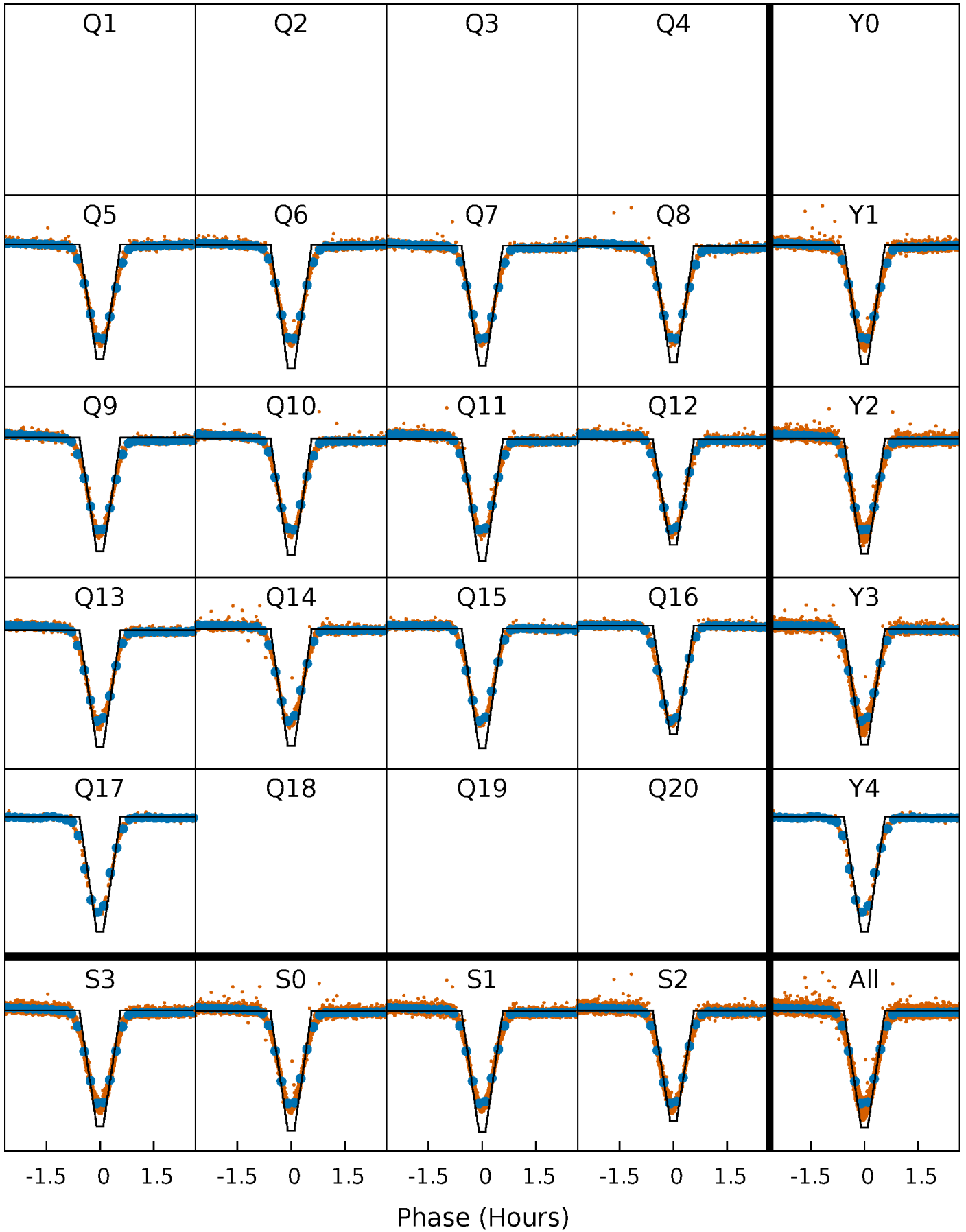
DV Quarter-Phased Transit Curves

TCE 009837083-01 P= 0.623393 Days $T_0=131.912040$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

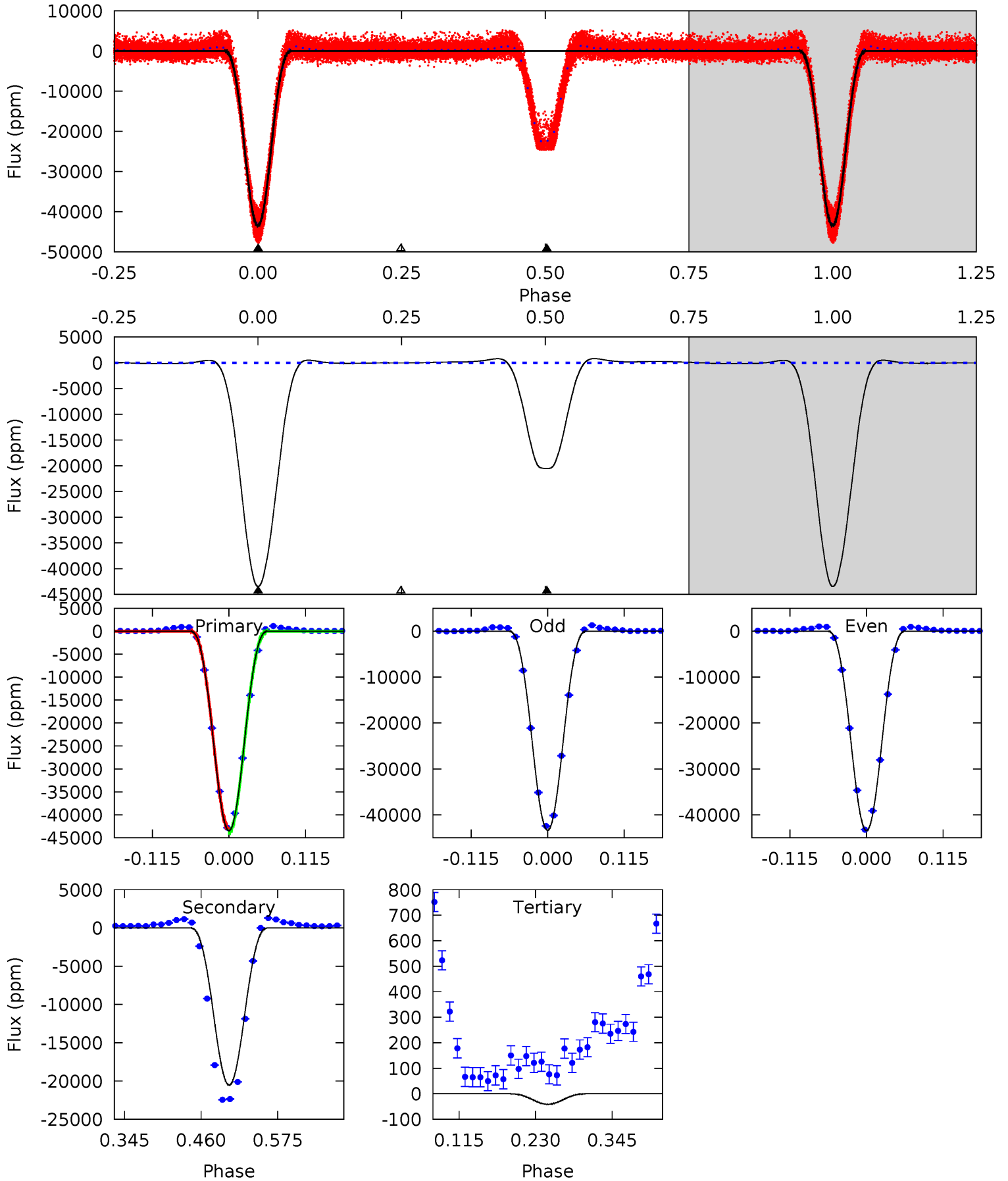
TCE 009837083-01 $P = 0.623395$ Days $T_0 = 131.909420$ (BKJD)



DV Model-Shift Uniqueness Test

009837083-01, P = 0.623393 Days, E = 131.912040 Days

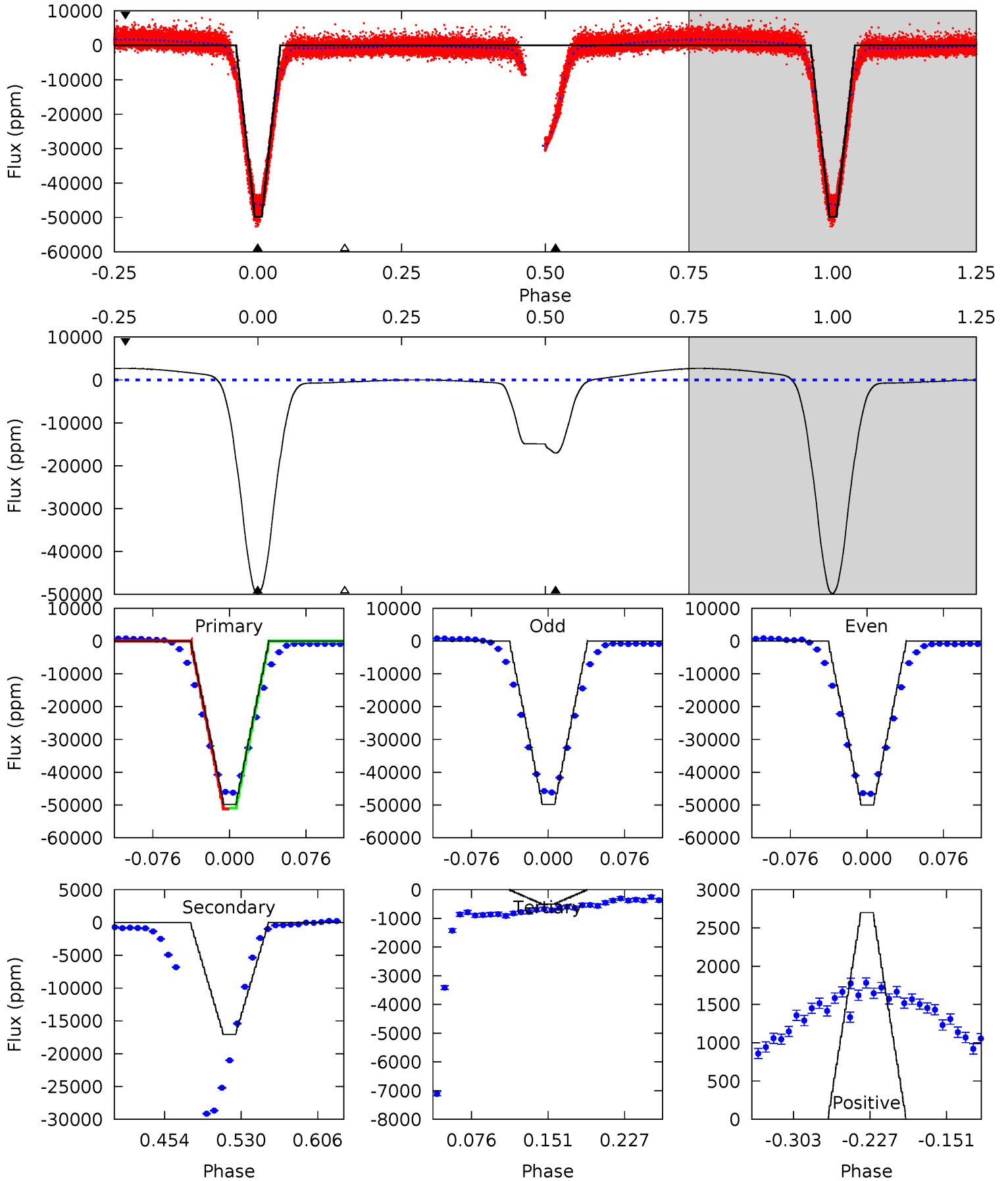
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3303	1561	3.11	0	4.54	1.58	10.5	3300	3303	1558	1561	2.80	1.00	0.02	25.7



Alt Model-Shift Uniqueness Test

009837083-01, P = 0.623395 Days, E = 131.909420 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2009	688.2	20.2	109.0	4.62	1.78	54.8	1989	1900	668.0	579.3	3.83	1.01	0.05	4.23



Stellar Parameters For KIC 009837083

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4330^{+154}_{-154}	$4.628^{+0.053}_{-0.025}$	$-0.140^{+0.300}_{-0.300}$	$0.639^{+0.046}_{-0.061}$	$0.632^{+0.064}_{-0.057}$	$3.416^{+0.793}_{-0.363}$
	+4%/-4%	+1%/-1%	+214%/-214%	+7%/-10%	+10%/-9%	+23%/-11%
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 009837083-01 / KOI 3719.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20532 ± 13	$19.26^{+2.35}_{-2.00}$	1914^{+76}_{-79}	3417^{+168}_{-148}	$4.697^{+1.156}_{-0.932}$
Alt.	-17060 ± 25	$16.34^{+2.30}_{-2.16}$	1914^{+72}_{-73}	3498^{+192}_{-161}	$5.402^{+1.792}_{-1.188}$

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

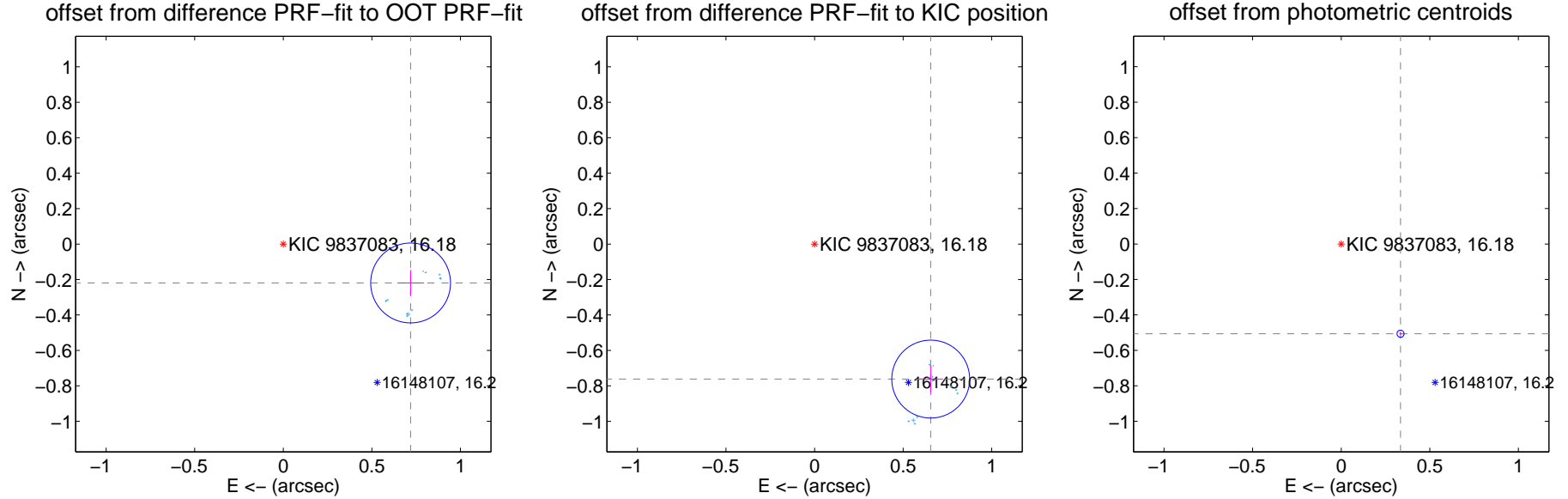
DV Centroid Data

Supplemental centroid analysis for 009837083-01. Kepler magnitude: 16.18. Transit SNR 1456.12

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.752 ± 0.075	10.01	-0.719 ± 0.075	-0.219 ± 0.073
PRF-fit source offset from KIC position	1.005 ± 0.073	13.72	-0.656 ± 0.070	-0.762 ± 0.076
photometric centroid source offset	0.61 ± 0.01	90.98	-0.33 ± 0.01	-0.51 ± 0.01

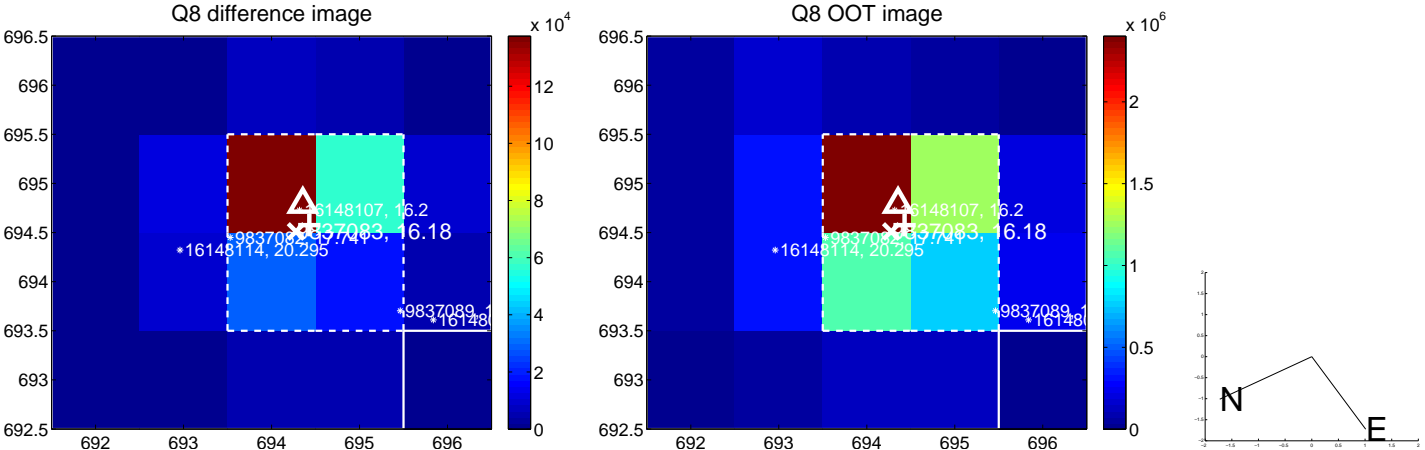
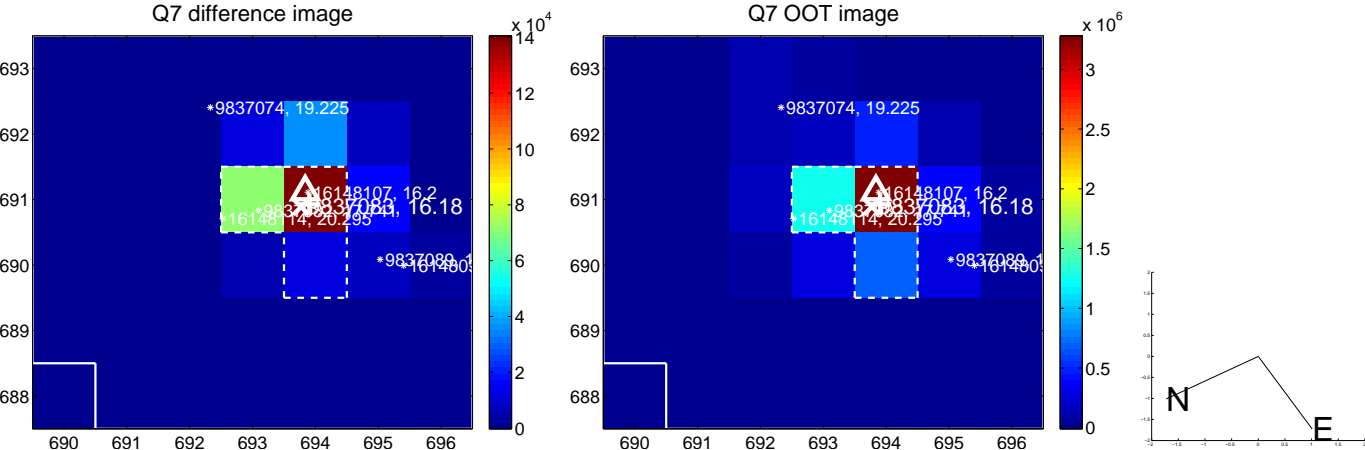
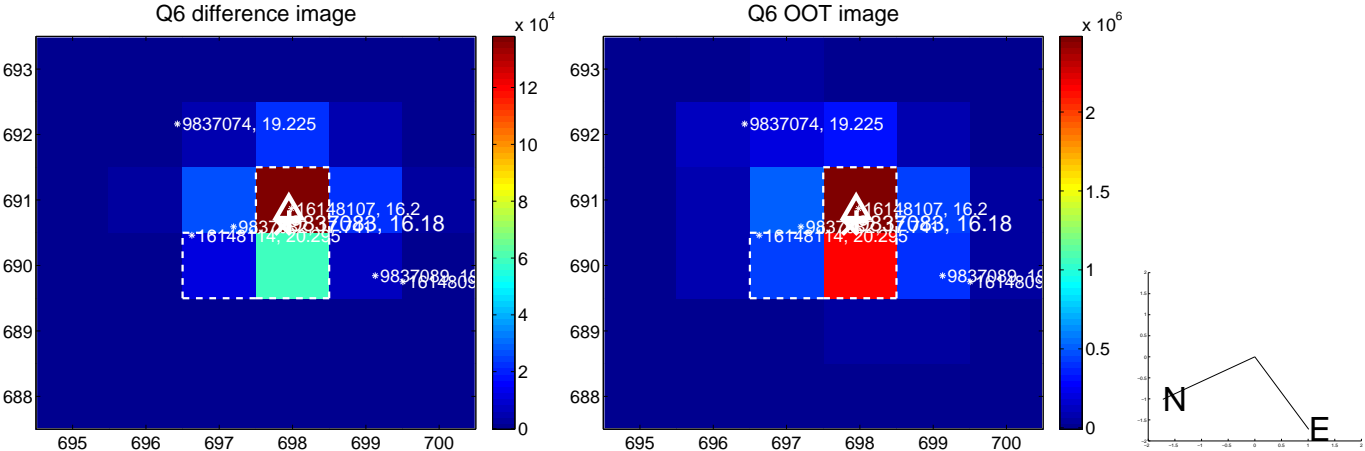
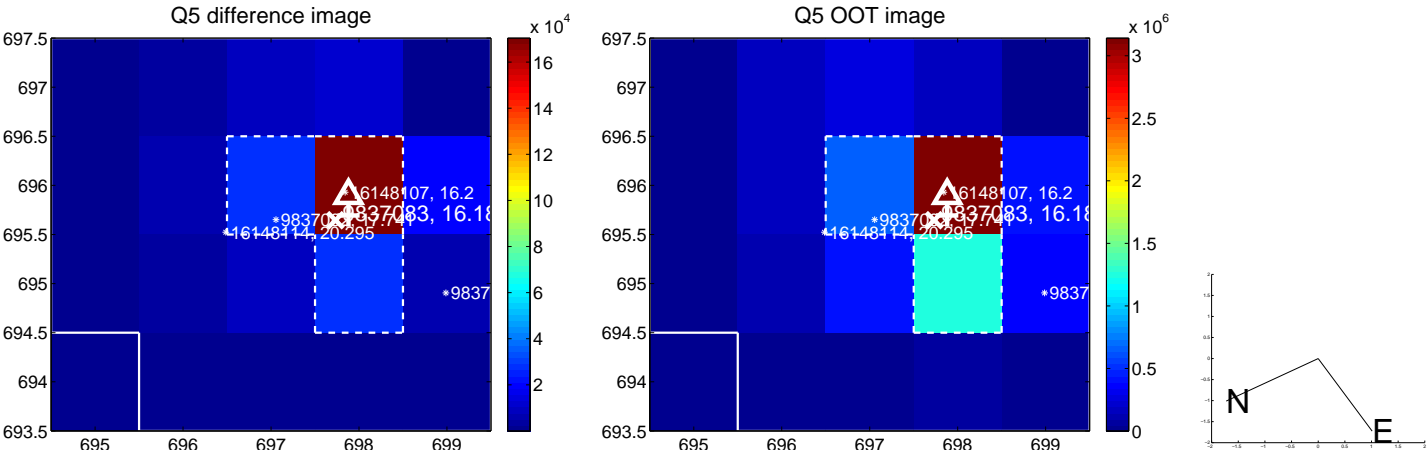


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

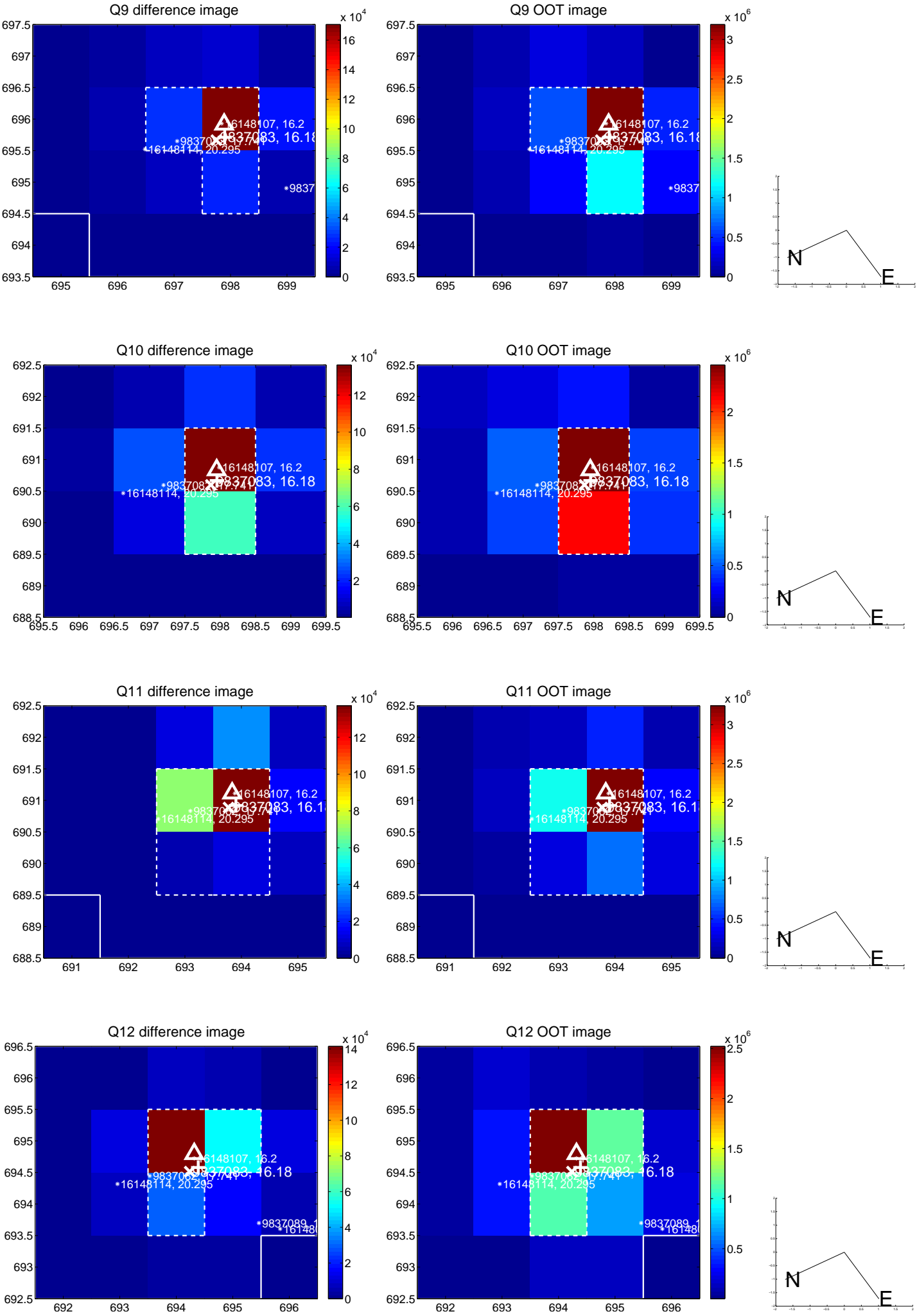
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



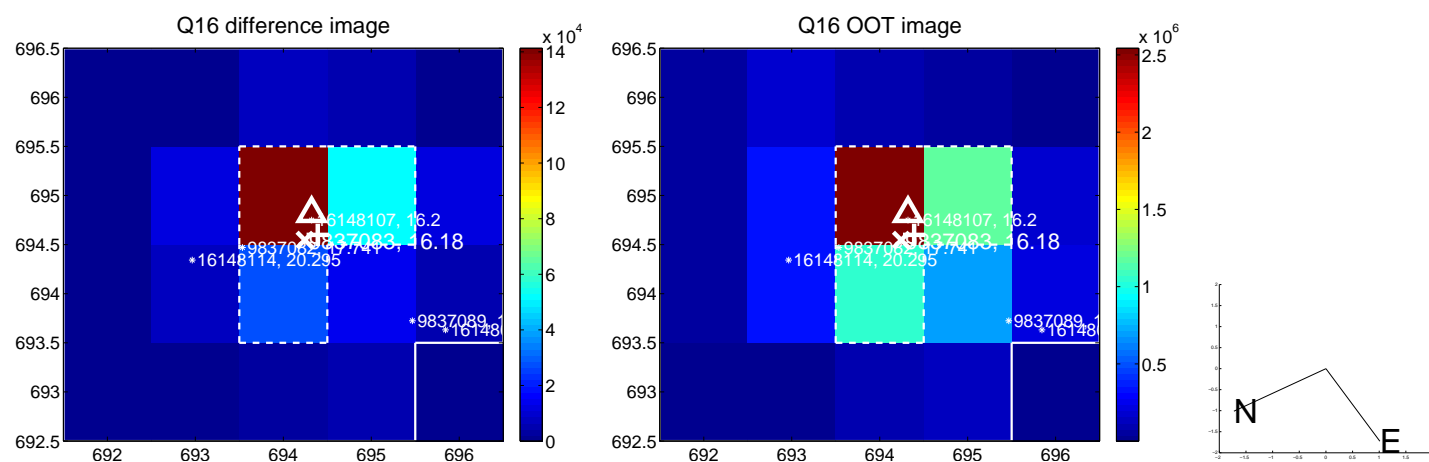
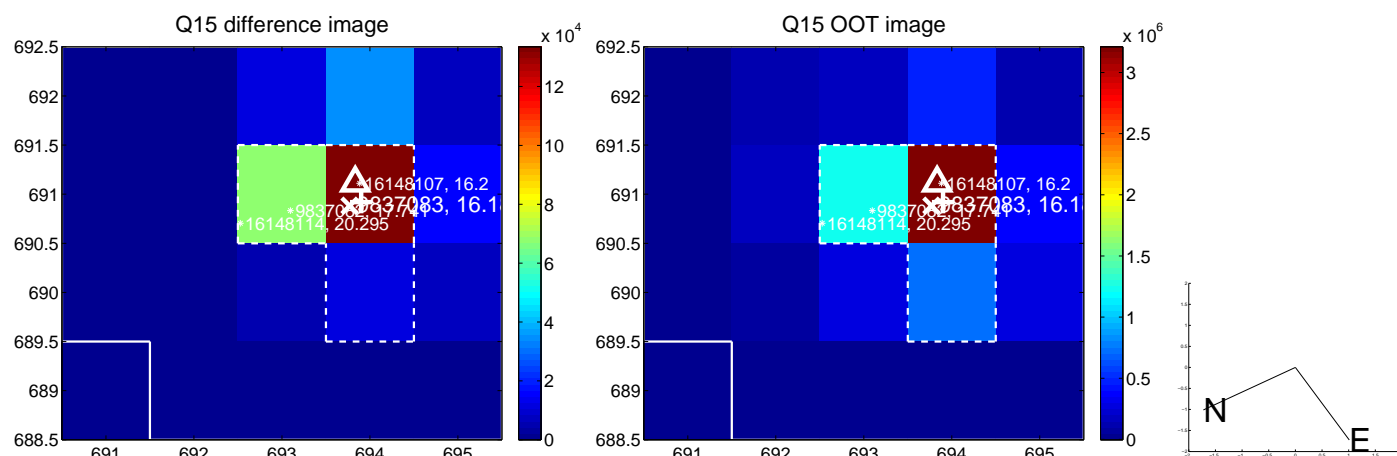
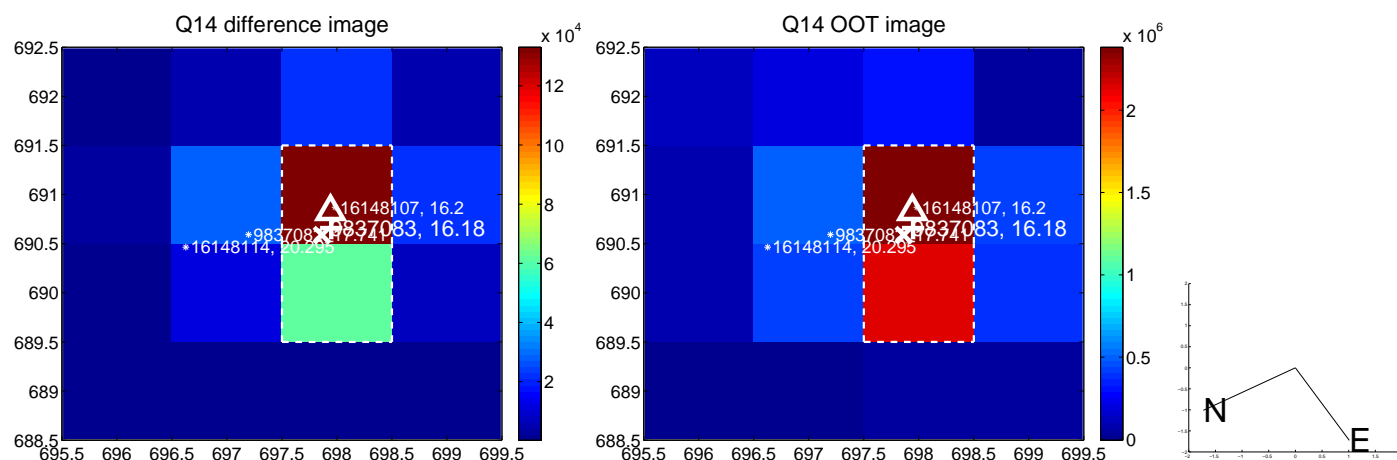
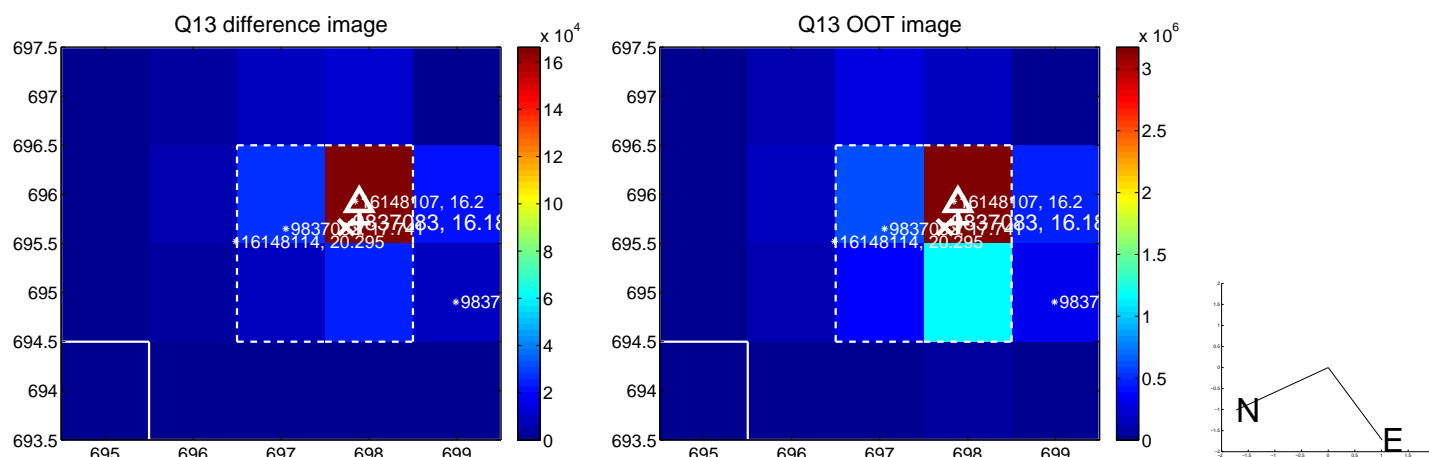
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



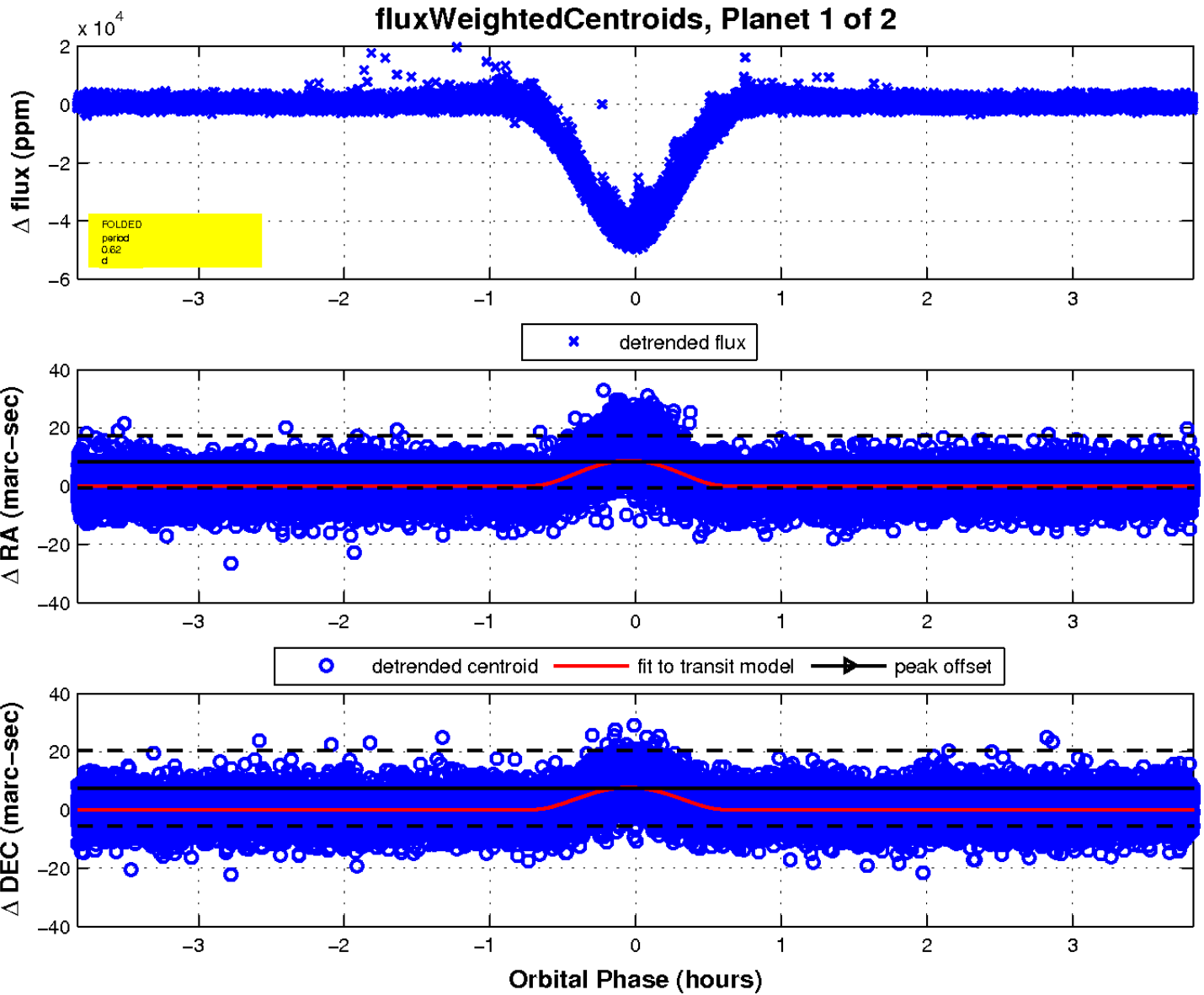
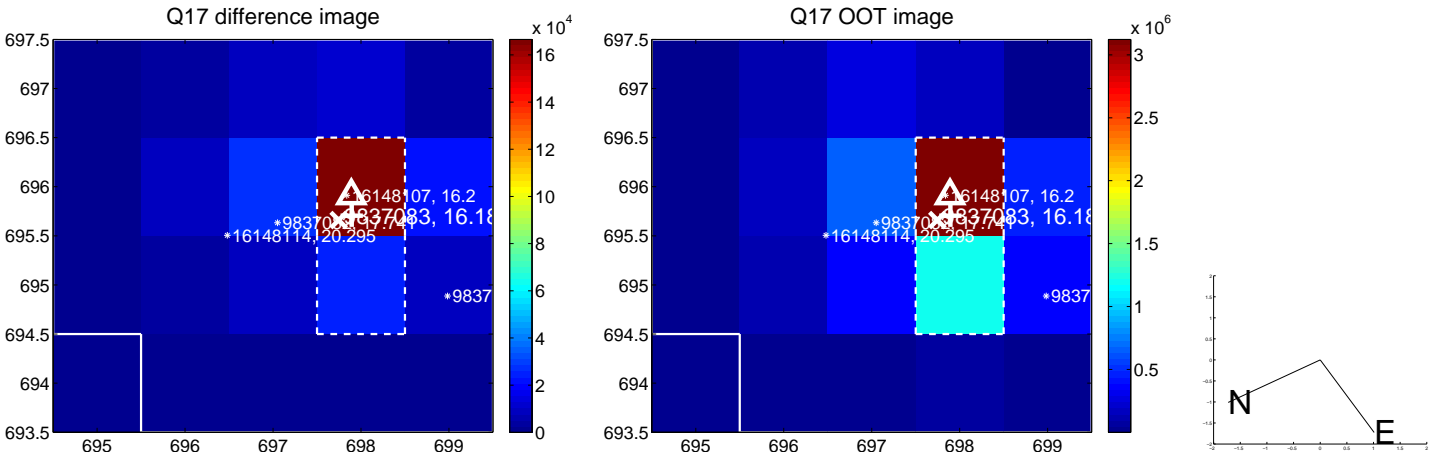
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

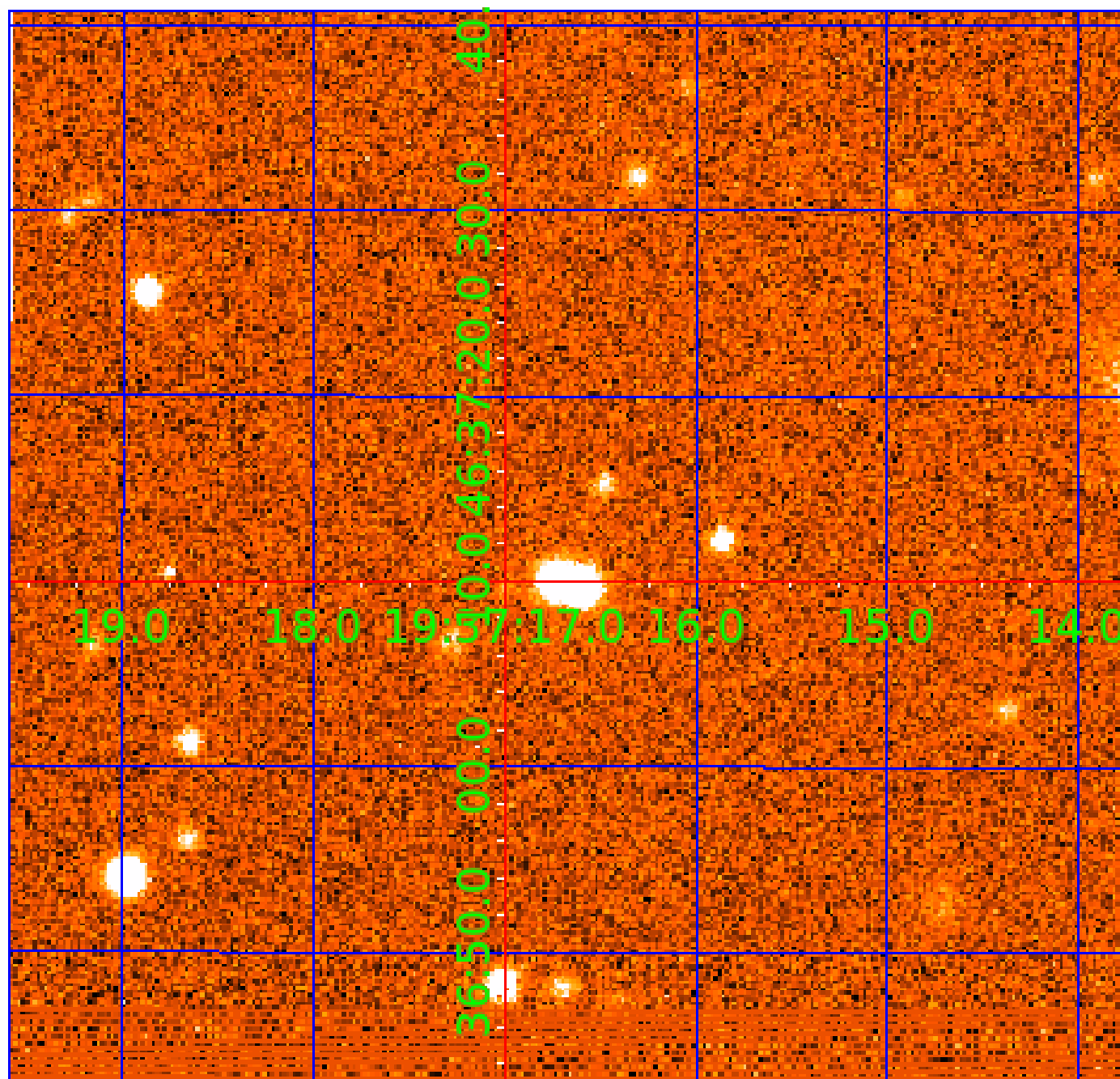


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009837083

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})
009837083-01	OBS	3719.01	0.623393	131.912040	42817.4	1.277	1162.0	1456.1	0.64	4330	19.65	855.39
009837083-02	OBS	No	0.623394	131.595369	35180.5	1.500	1118.7	-1.0	0.64	4330	11.60	855.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009837083-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009837083-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

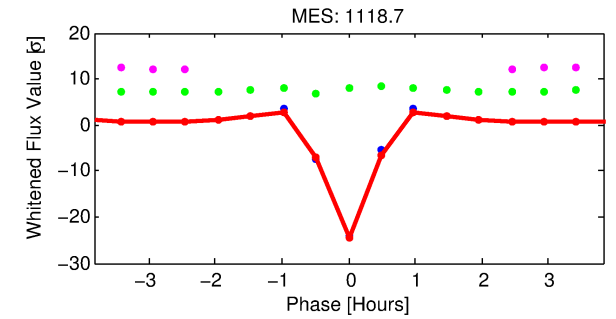
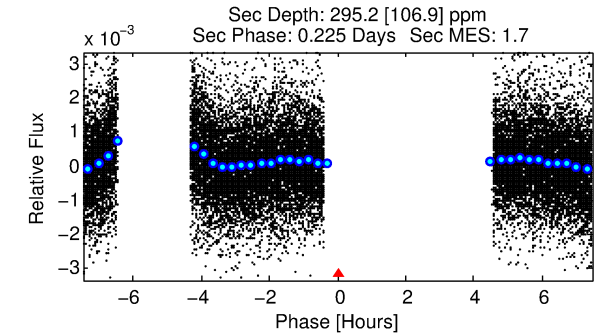
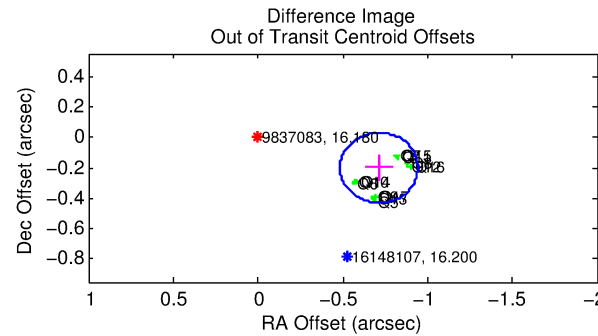
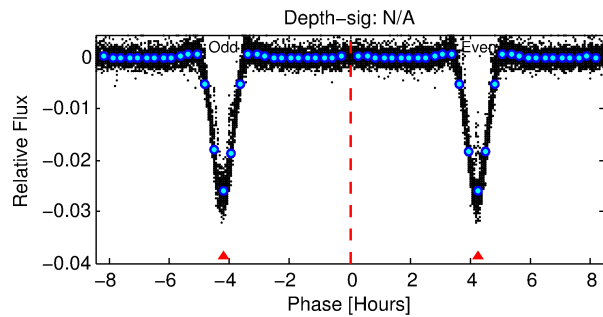
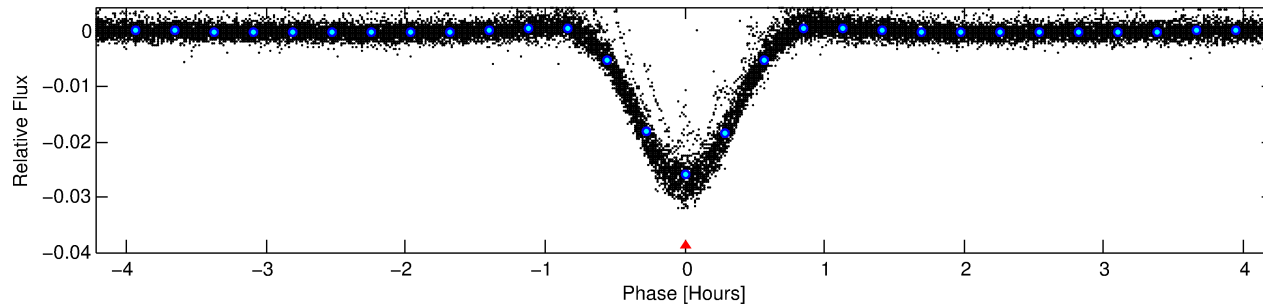
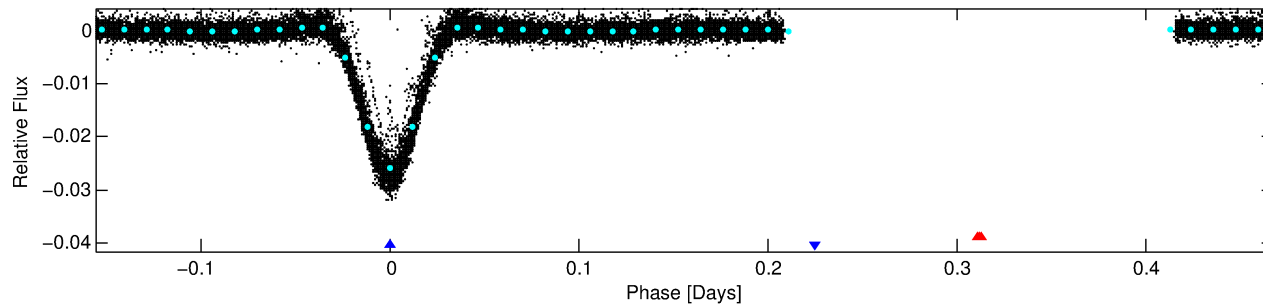
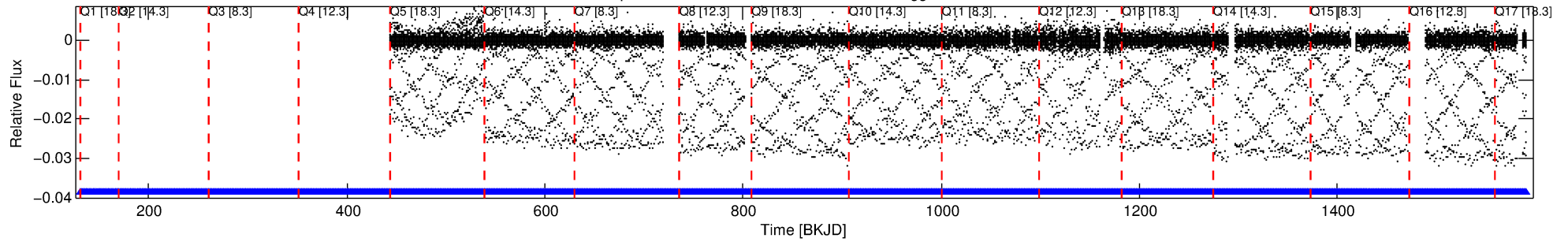
Ephemeris Match Information For 009837083-02

No Significant Match Found

DV One-Page Summary

KIC: 9837083 Candidate: 2 of 2 Period: 0.623 d
KOI: K03719.01 Corr: 0.942

Kp: 16.18 R*: 0.64 Rs Teff: 4330.0 K Logg: 4.63 Fe/H: -0.140



TPS TCE Results:

Period = 0.62339 d
Epoch = 131.5954 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]

LongPeriod-sig: N/A

ModelChiSquare2-sig: N/A

ModelChiSquareGoF-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 1.00 [1638/1638]

GhostDiagnostic-chr: 3.933

Centroid-sig: 0.0%

Centroid-so: 0.370 arcsec [46.16 σ]

OotOffset-rm: 0.740 arcsec [9.66 σ]

KicOffset-rm: 0.989 arcsec [13.03 σ]

OotOffset-st: 3/3/3/4 [13]

KicOffset-st: 3/3/3/4 [13]

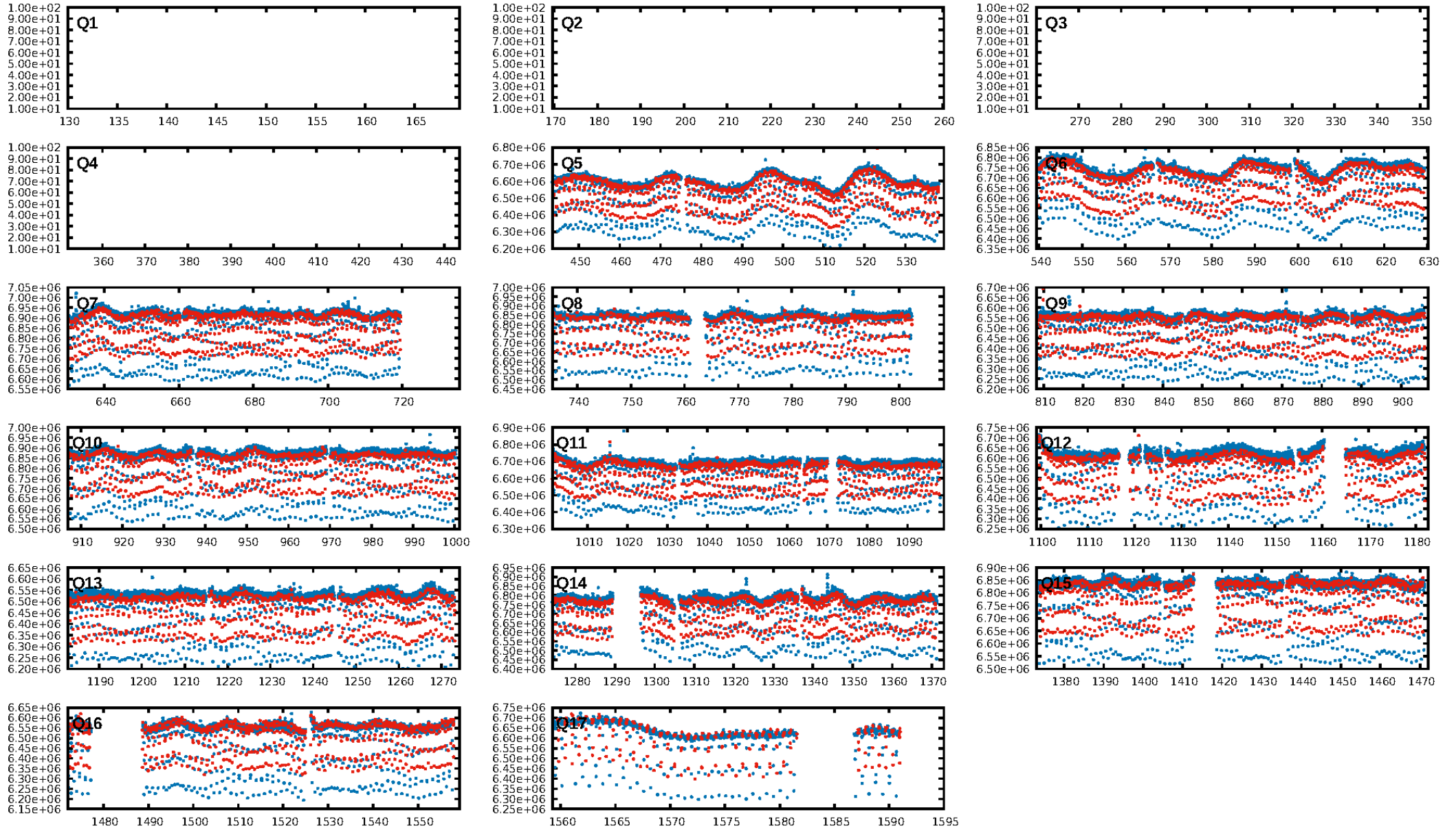
DiffImageQuality-fgm: 1.00 [13/13]

DiffImageOverlap-fno: 1.00 [13/13]

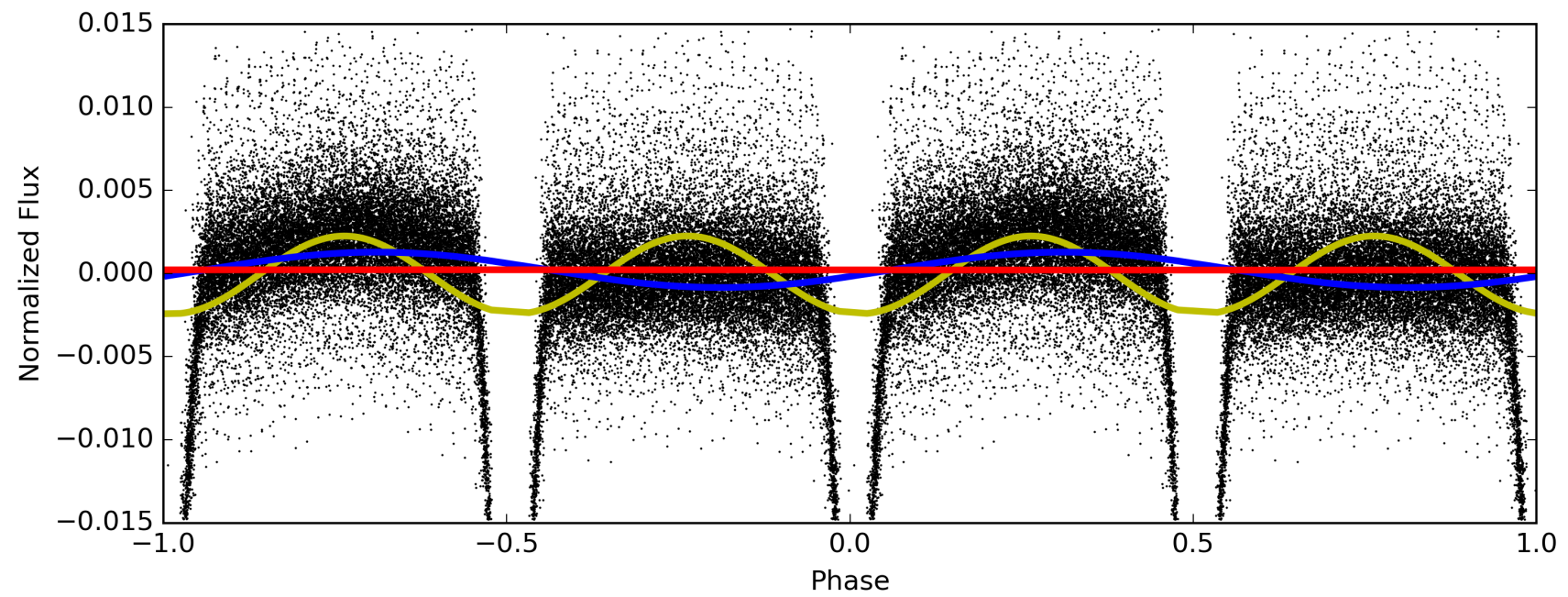
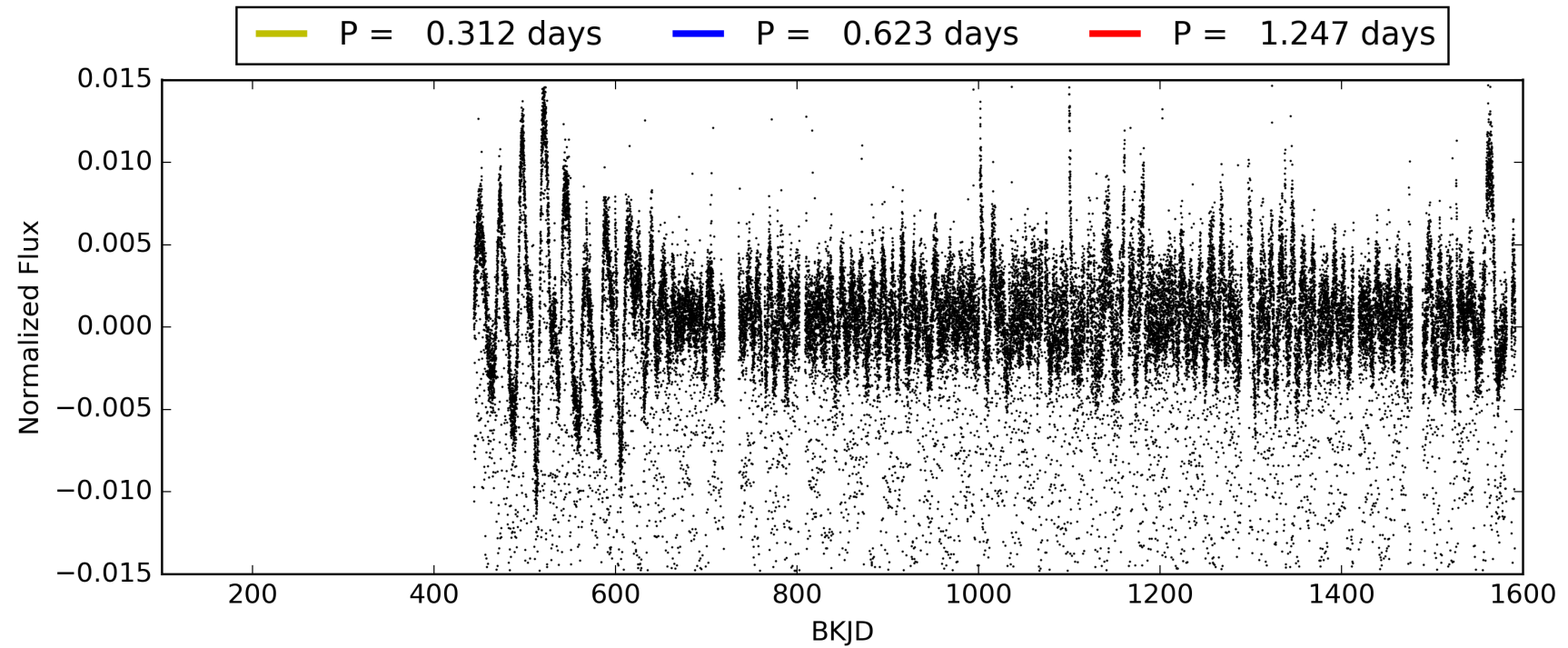
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:19:07 Z

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

TCE 009837083-02, PDC Light Curves

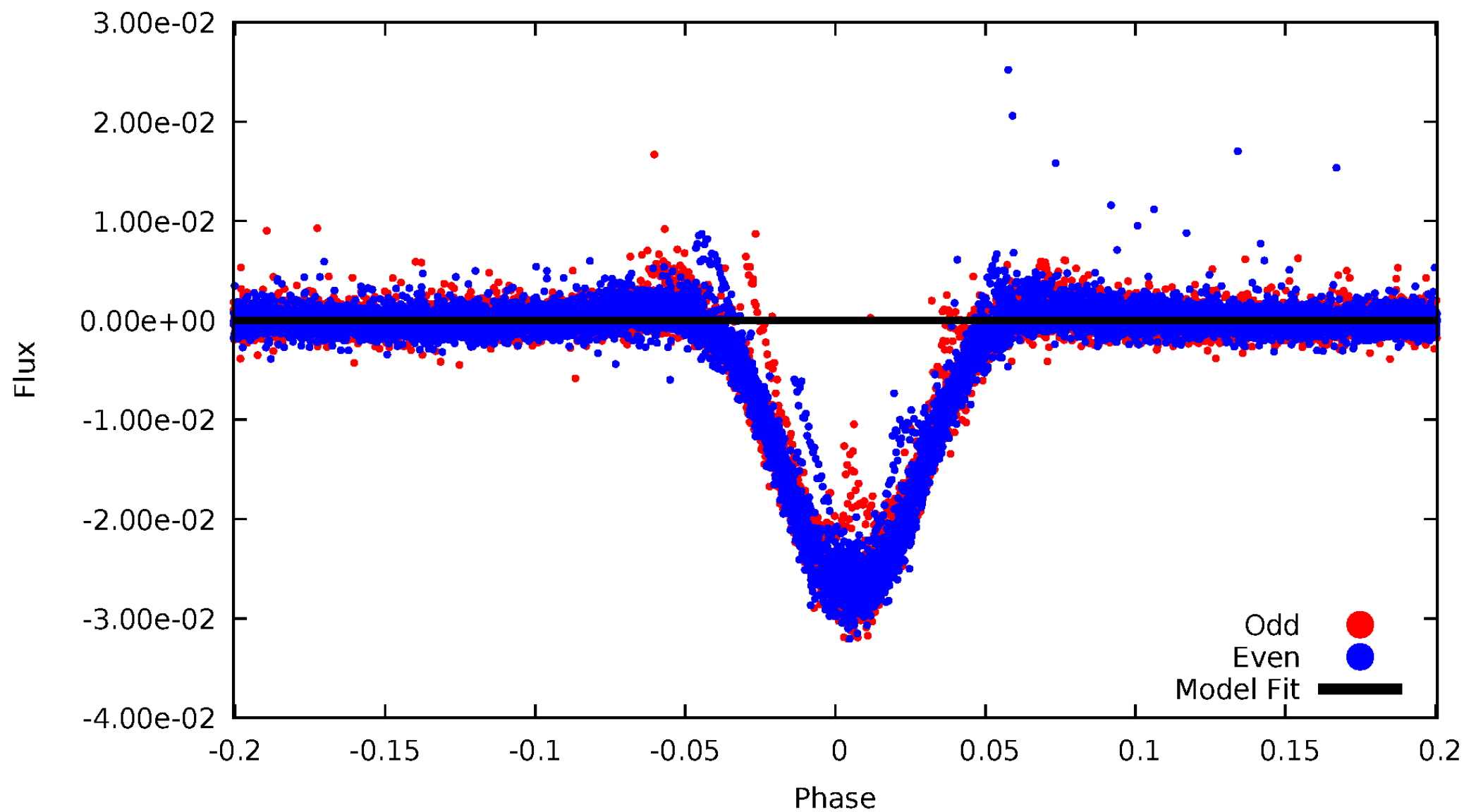


TCE 009837083-02



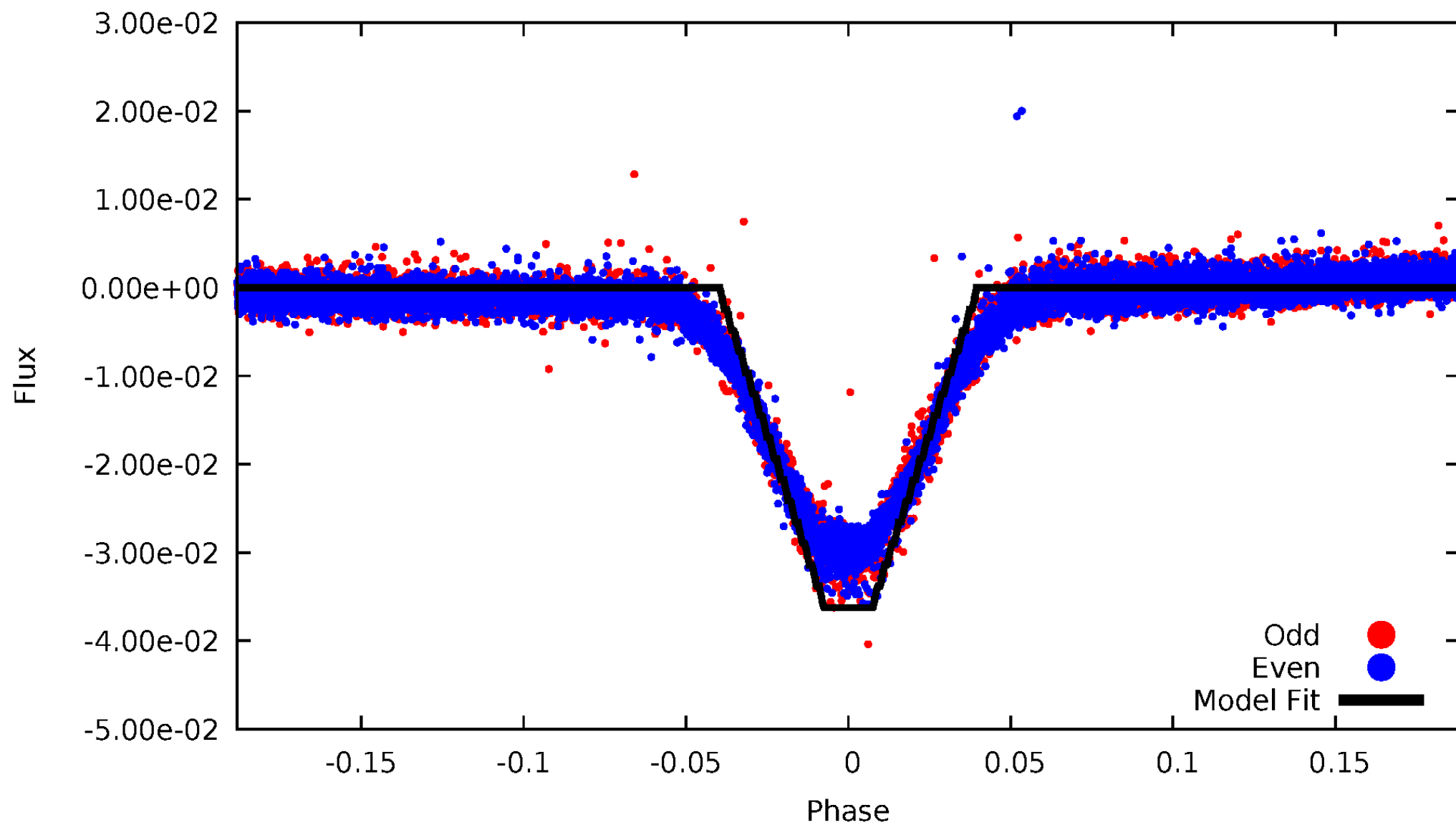
DV Odd/Even

TCE 009837083-02



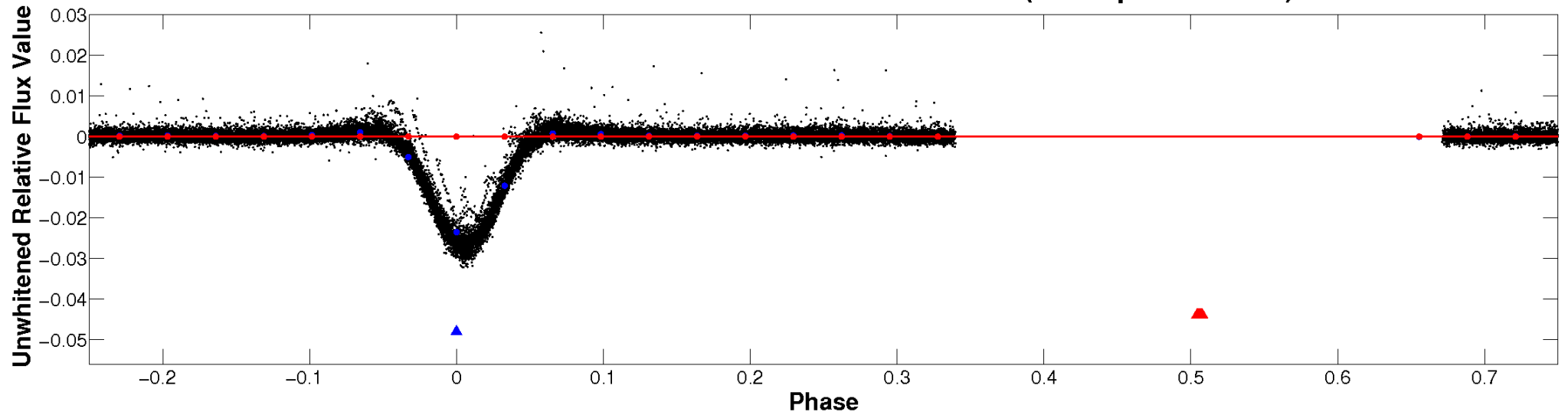
ALT Odd/Even

TCE 009837083-02

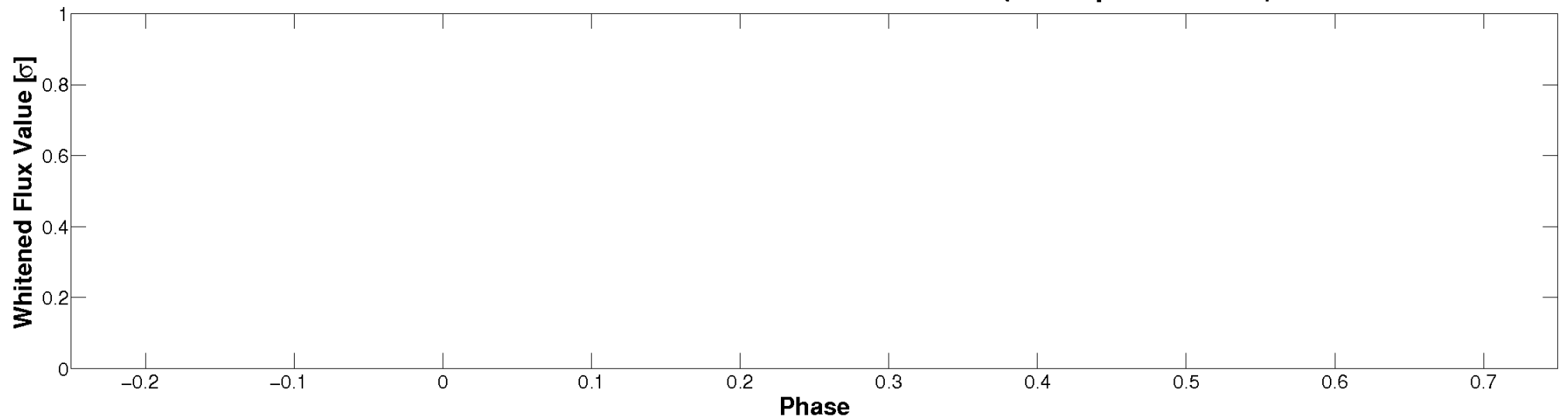


Non-Whitened Vs. Whitened Light Curve

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

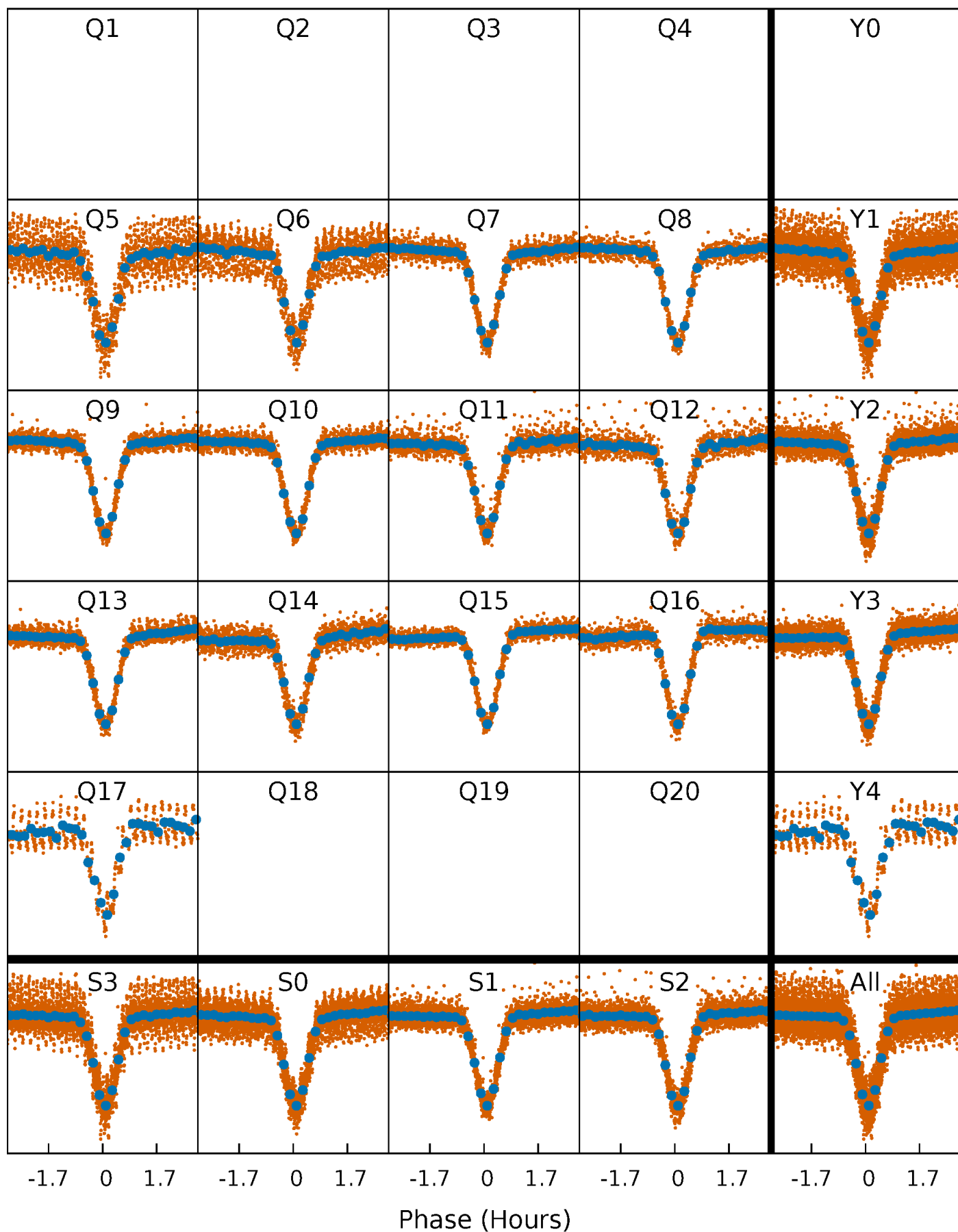


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



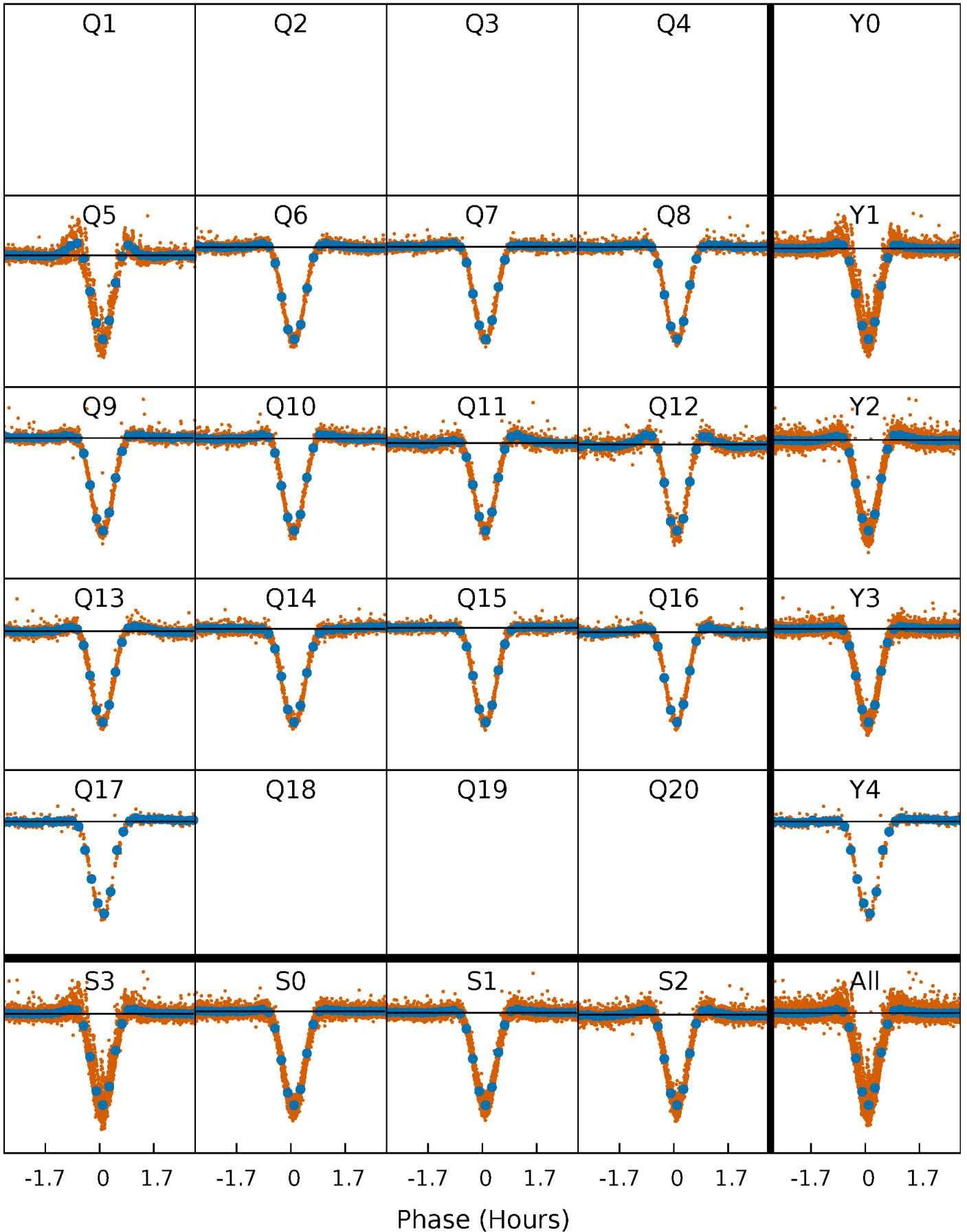
PDC Quarter-Phased Transit Curves

TCE 009837083-02 P= 0.623394 Days $T_0=131.595369$ (BKJD)



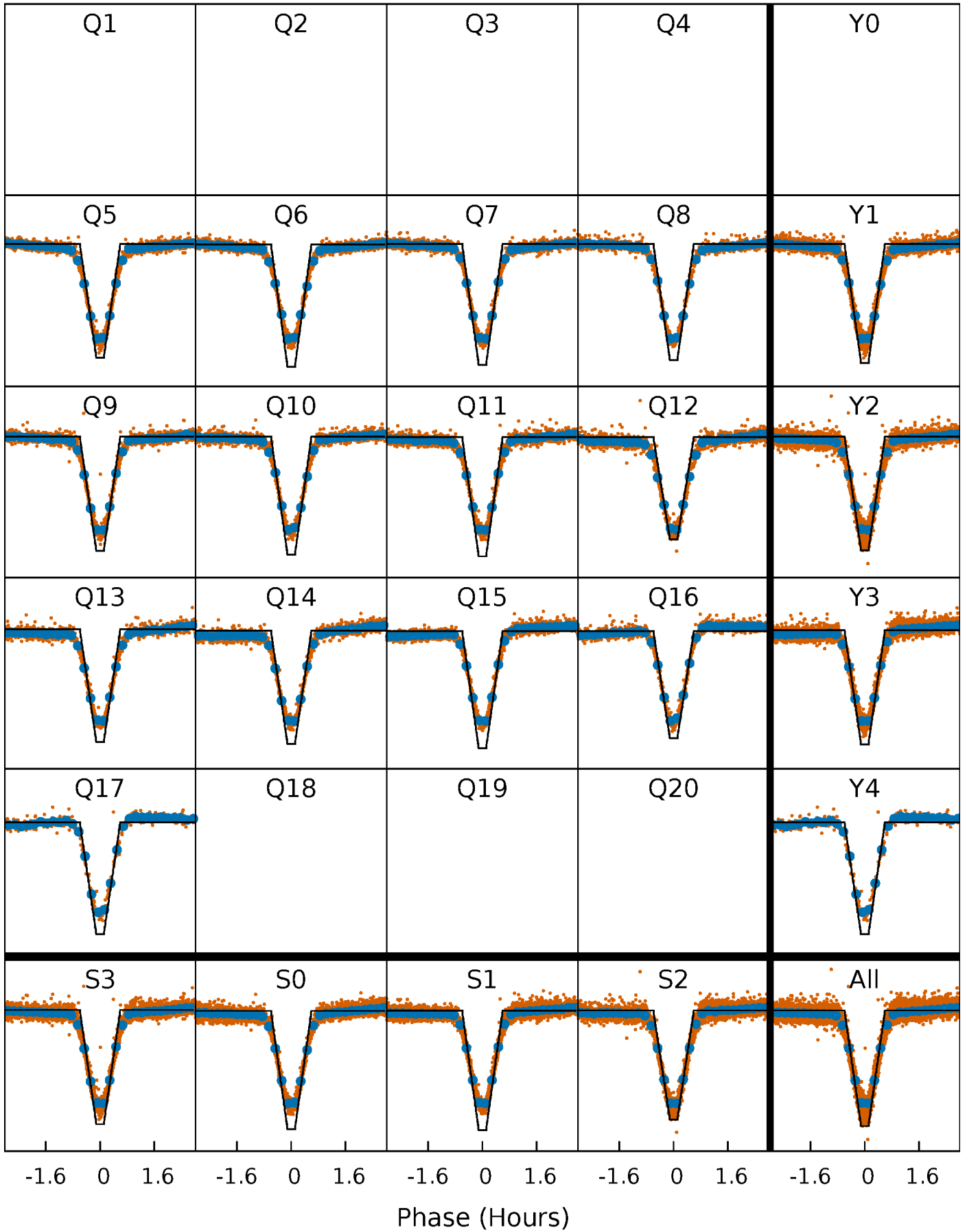
DV Quarter-Phased Transit Curves

TCE 009837083-02 $P = 0.623394$ Days $T_0 = 131.595369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

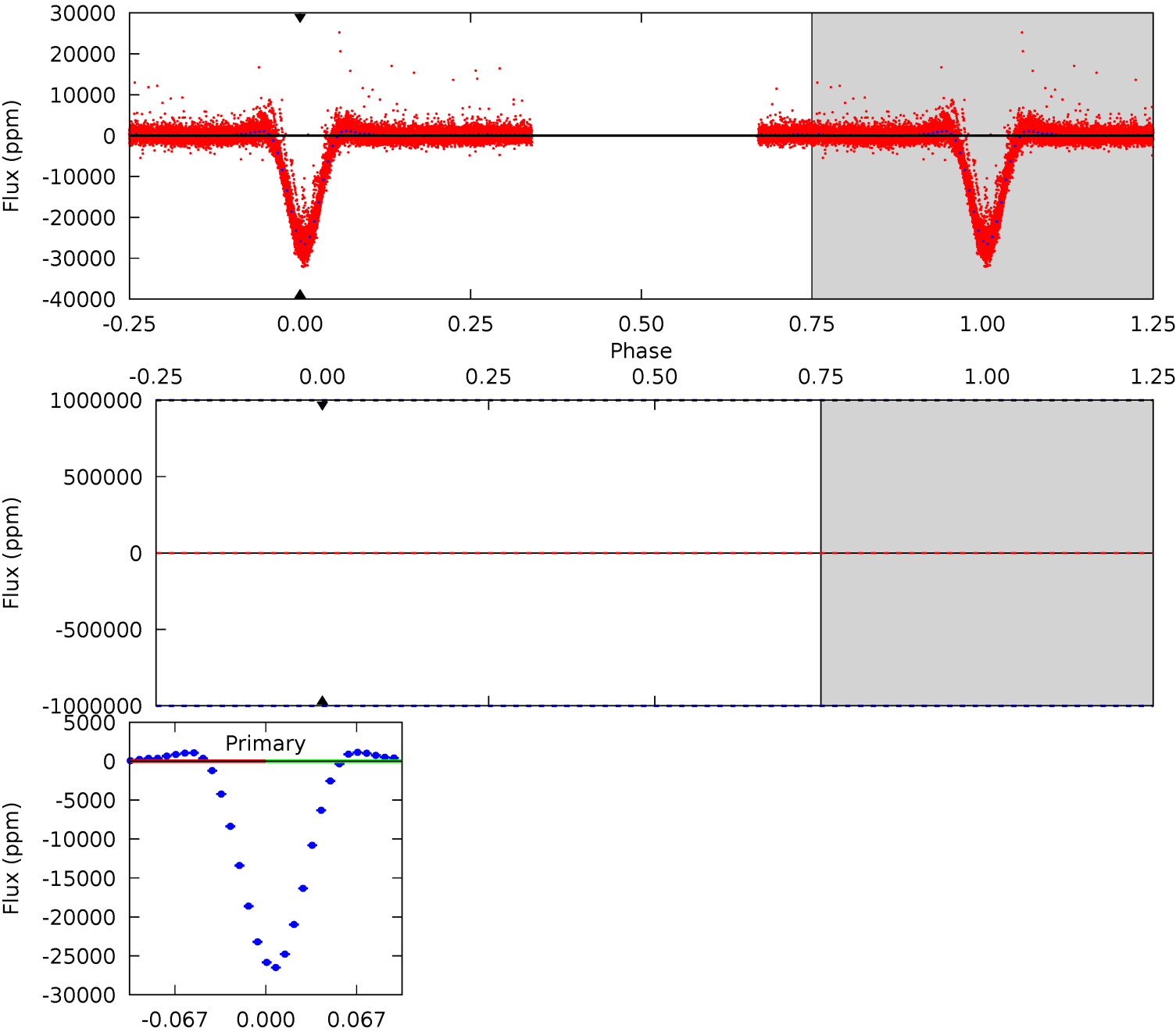
TCE 009837083-02 P= 0.623394 Days $T_0=131.598891$ (BKJD)



DV Model-Shift Uniqueness Test

009837083-02, P = 0.623394 Days, E = 131.595369 Days

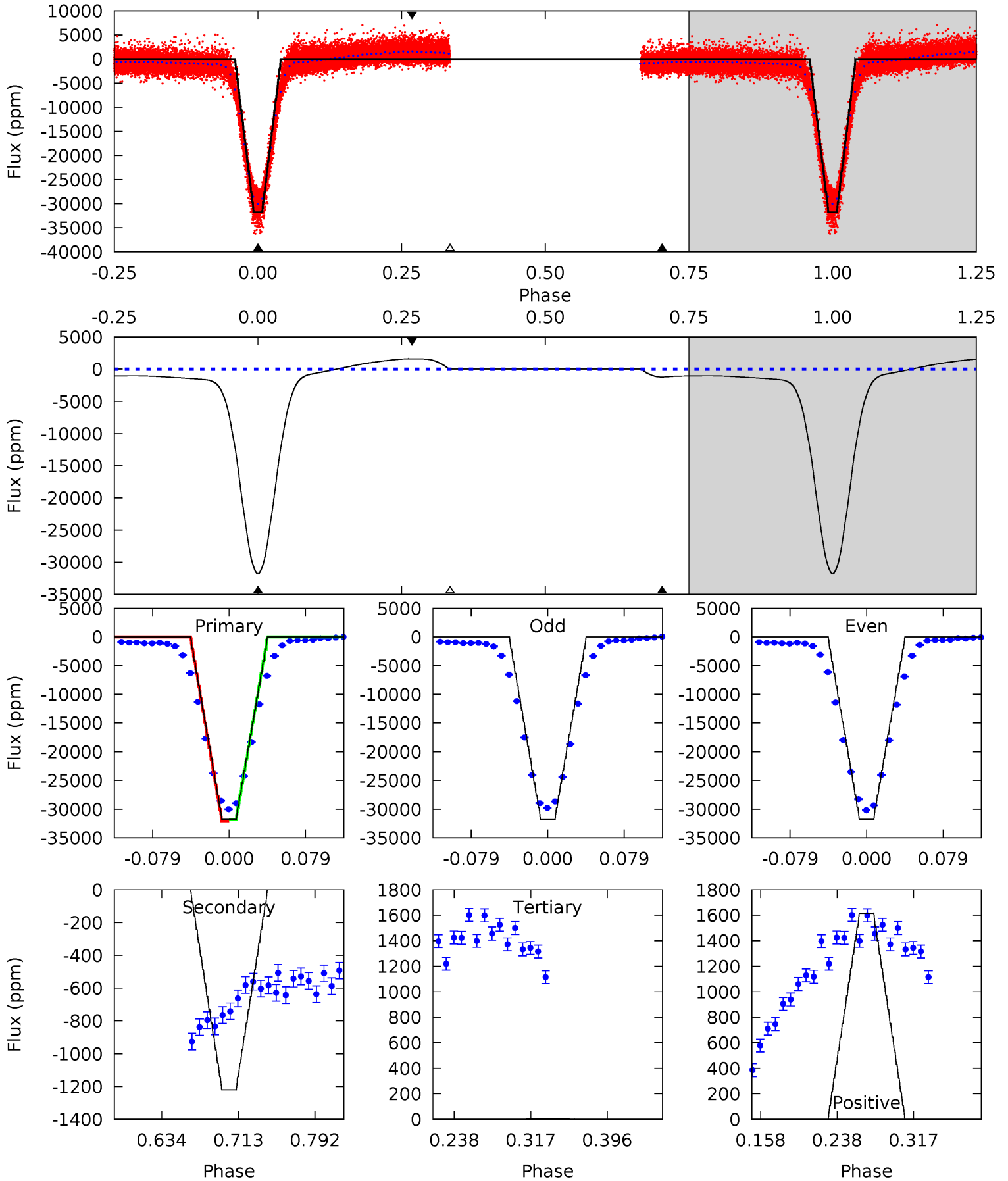
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009837083-02, P = 0.623394 Days, E = 131.598891 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1323	50.8	-0.18	67.2	4.61	1.76	48.5	1323	1256	51.0	-16.4	0.74	1.01	0.05	0



Stellar Parameters For KIC 009837083

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4330^{+154}_{-154}	$4.628^{+0.053}_{-0.025}$	$-0.140^{+0.300}_{-0.300}$	$0.639^{+0.046}_{-0.061}$	$0.632^{+0.064}_{-0.057}$	$3.416^{+0.793}_{-0.363}$
	+4%/-4%	+1%/-1%	+214%/-214%	+7%/-10%	+10%/-9%	+23%/-11%
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 009837083-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$12.17^{+6.08}_{-6.27}$	1913^{+74}_{-70}	2810^{+3644}_{-8571}	$1.613^{+98.340}_{-71.689}$
Alt.	-1221 ± 24	$13.63^{+7.04}_{-6.69}$	1915^{+79}_{-73}	2342^{+668}_{-4329}	$0.564^{+1.524}_{-0.326}$

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

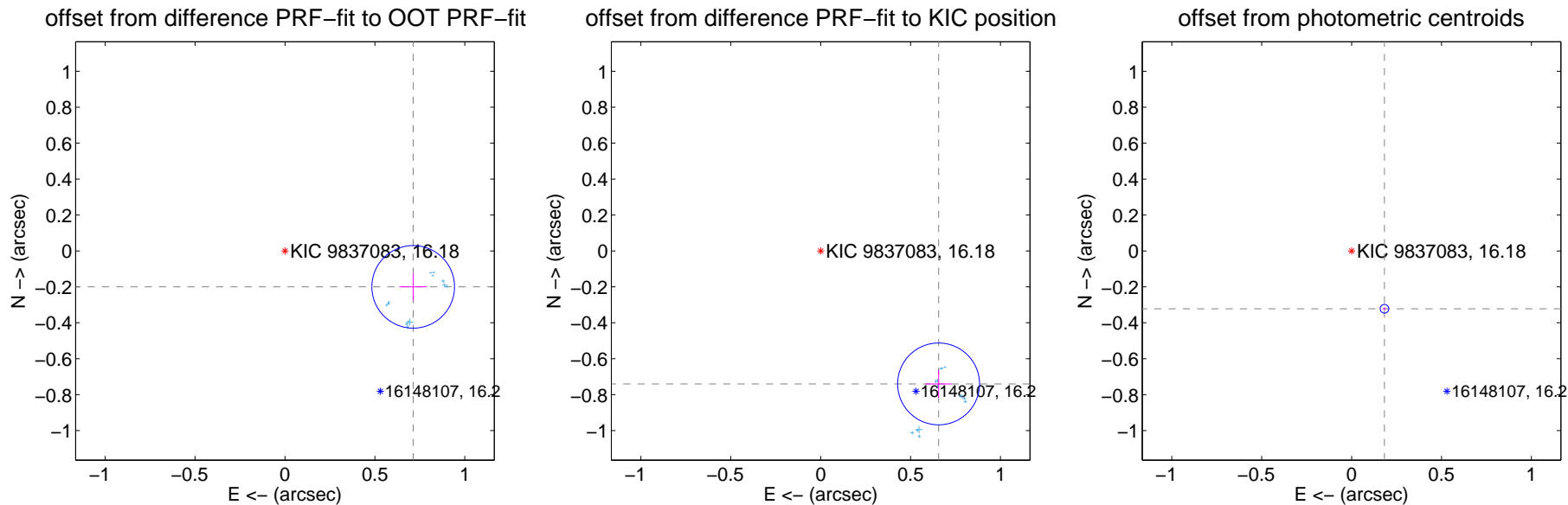
DV Centroid Data

Supplemental centroid analysis for 009837083-02. Kepler magnitude: 16.18. Transit SNR -1.00

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.740 ± 0.077	9.66	-0.713 ± 0.077	-0.200 ± 0.075
PRF-fit source offset from KIC position	0.989 ± 0.076	13.03	-0.656 ± 0.072	-0.740 ± 0.079
photometric centroid source offset	0.37 ± 0.01	46.16	-0.18 ± 0.01	-0.32 ± 0.01

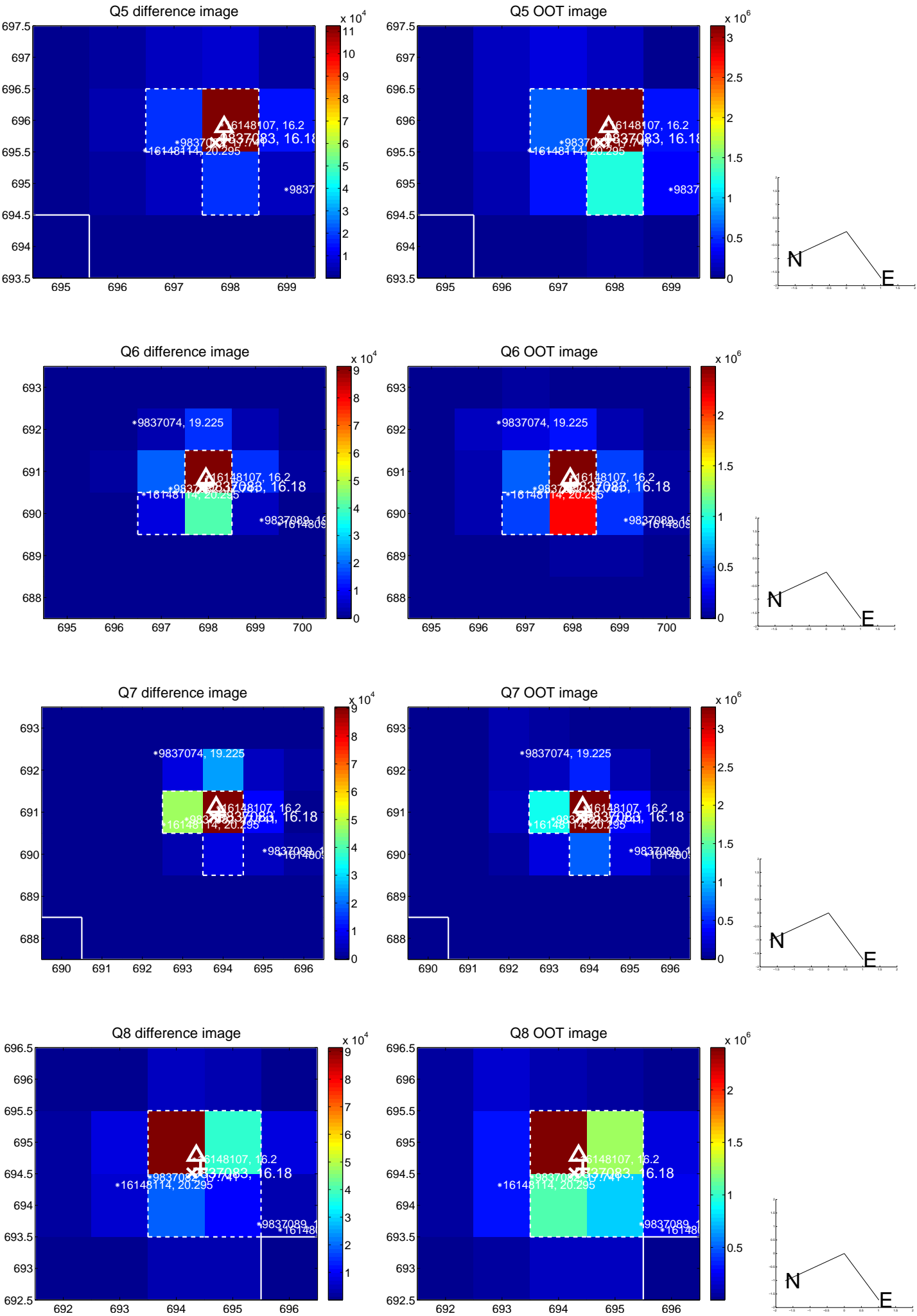


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

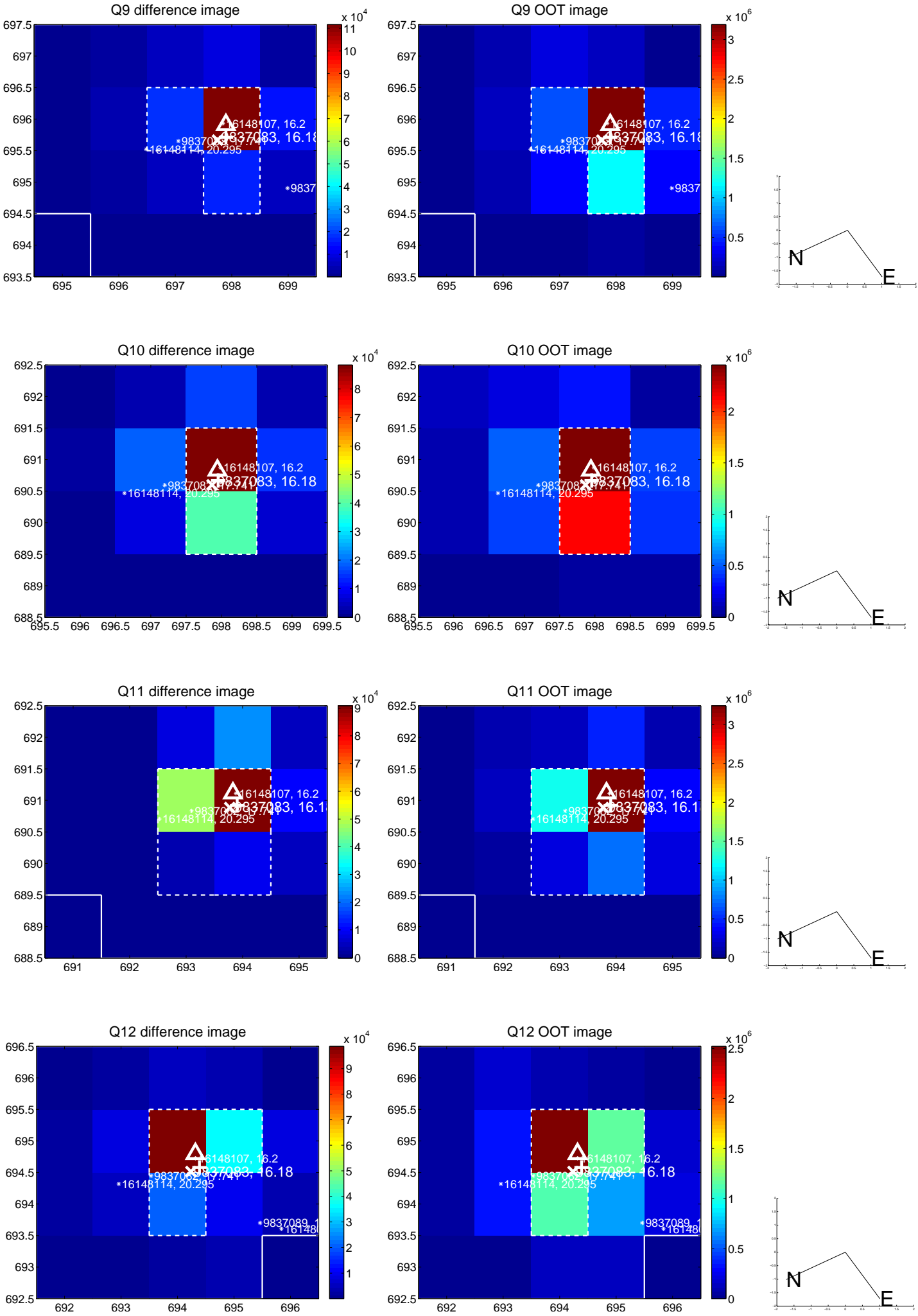
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



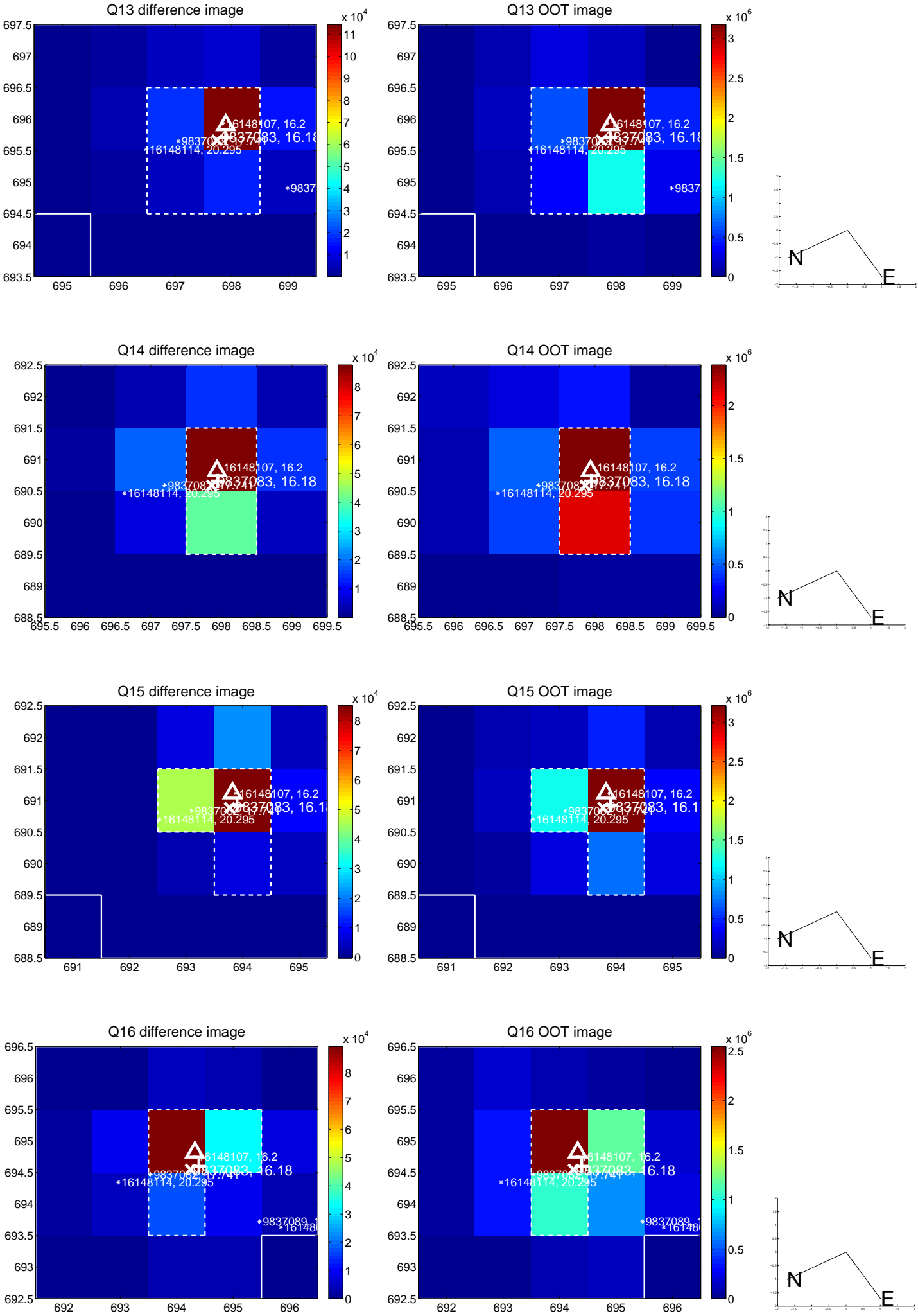
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



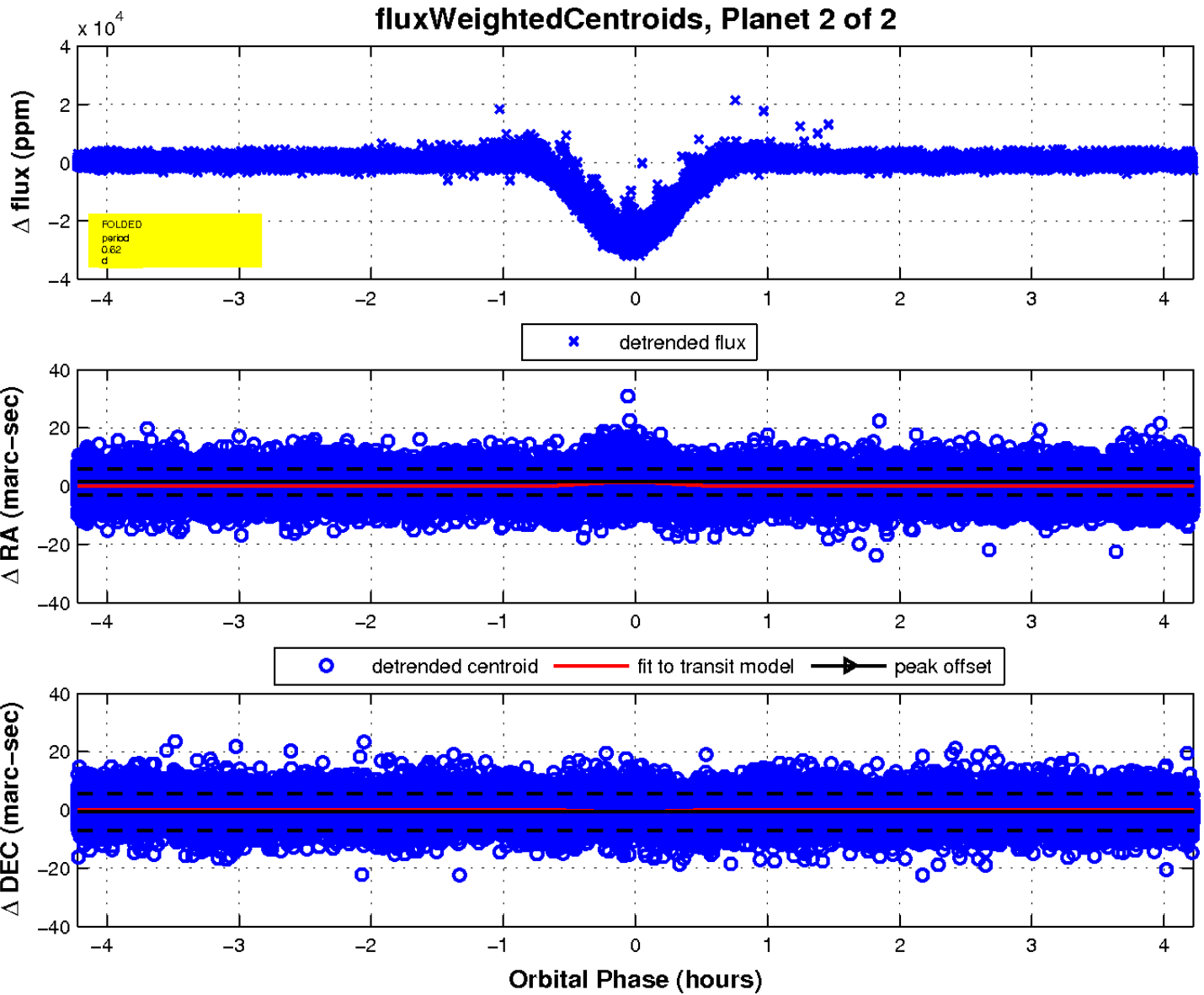
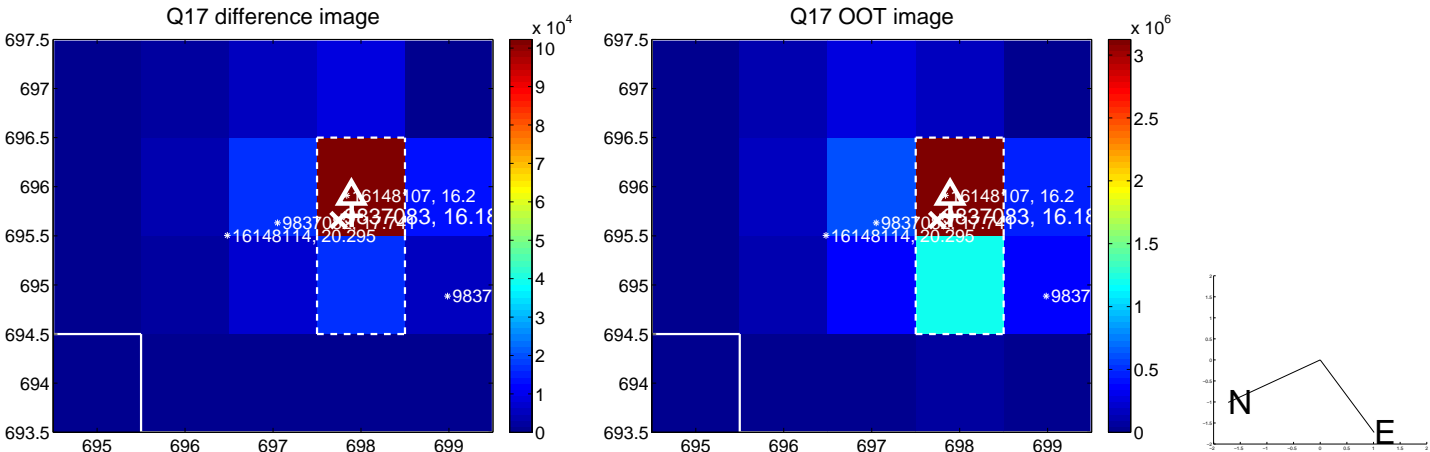
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

