

KIC 004946680

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})
004946680-01	OBS	6477.01	8.665265	132.215964	1827.3	3.050	176.0	177.5	2.39	6071	17.83	854.48
004946680-02	OBS	No	8.665267	135.908859	1291.0	3.138	129.1	128.5	2.39	6071	15.08	854.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946680-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004946680-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

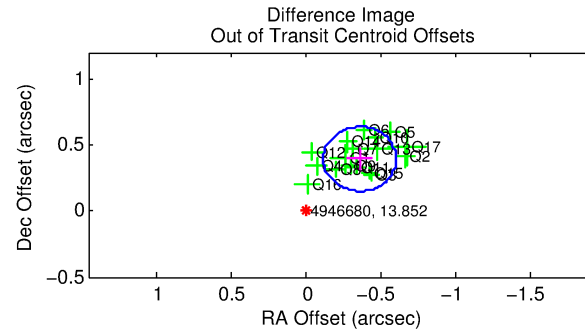
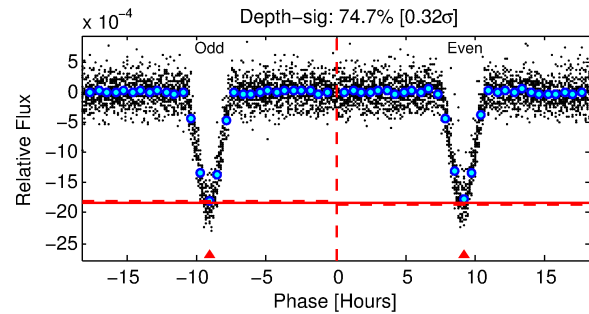
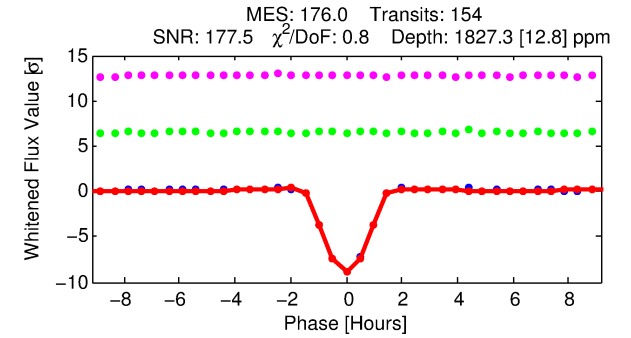
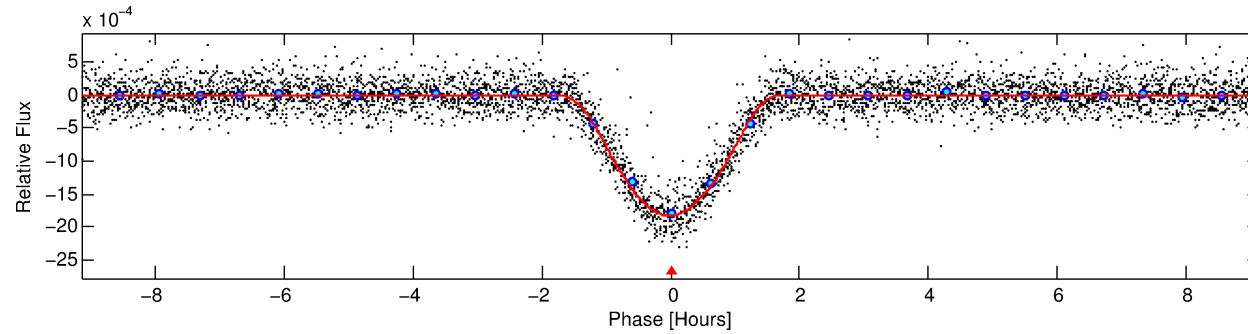
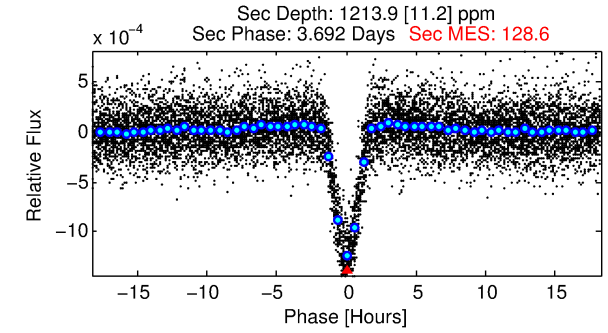
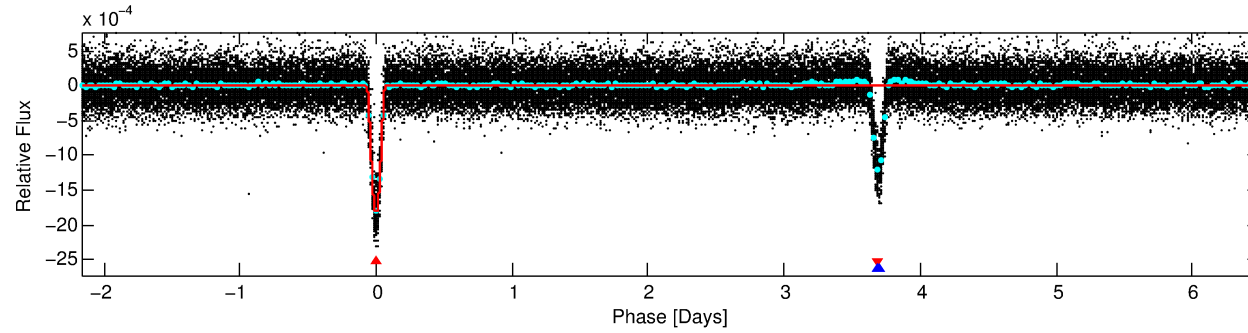
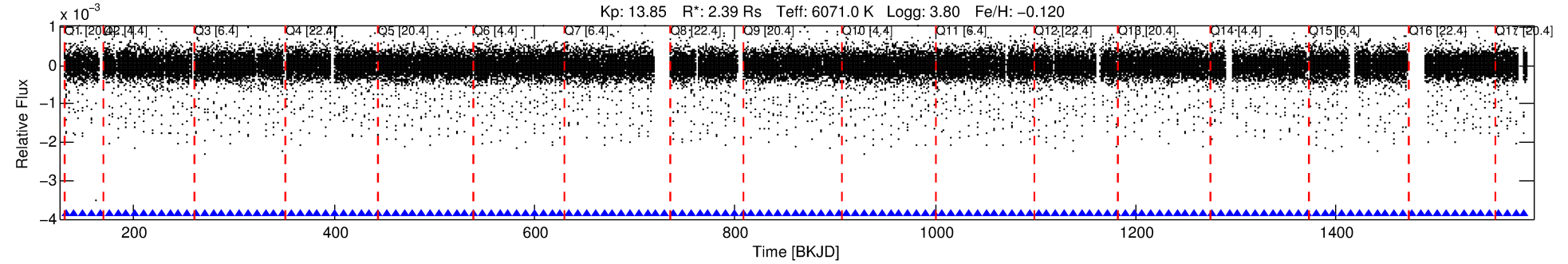
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946680-01

No Significant Match Found

DV One-Page Summary

KIC: 4946680 Candidate: 1 of 2 Period: 8.665 d
KOI: K06477.01 Corr: 0.991



DV Fit Results:

Period = 8.66526 [0.00000] d
Epoch = 132.2160 [0.0004] BKJD
Rp/R* = 0.0684 [0.0142]
a/R* = 8.70 [0.45]
b = 0.99 [0.02]
Seff = 854.48 [780.65]
Teq = 1379 [315] K
Rp = 17.83 [9.89] Re
a = 0.0902 [0.0487] AU
Ag = 17.07 [16.96] [0.95 σ]
Teffp = 4333 [474] K [5.19 σ]

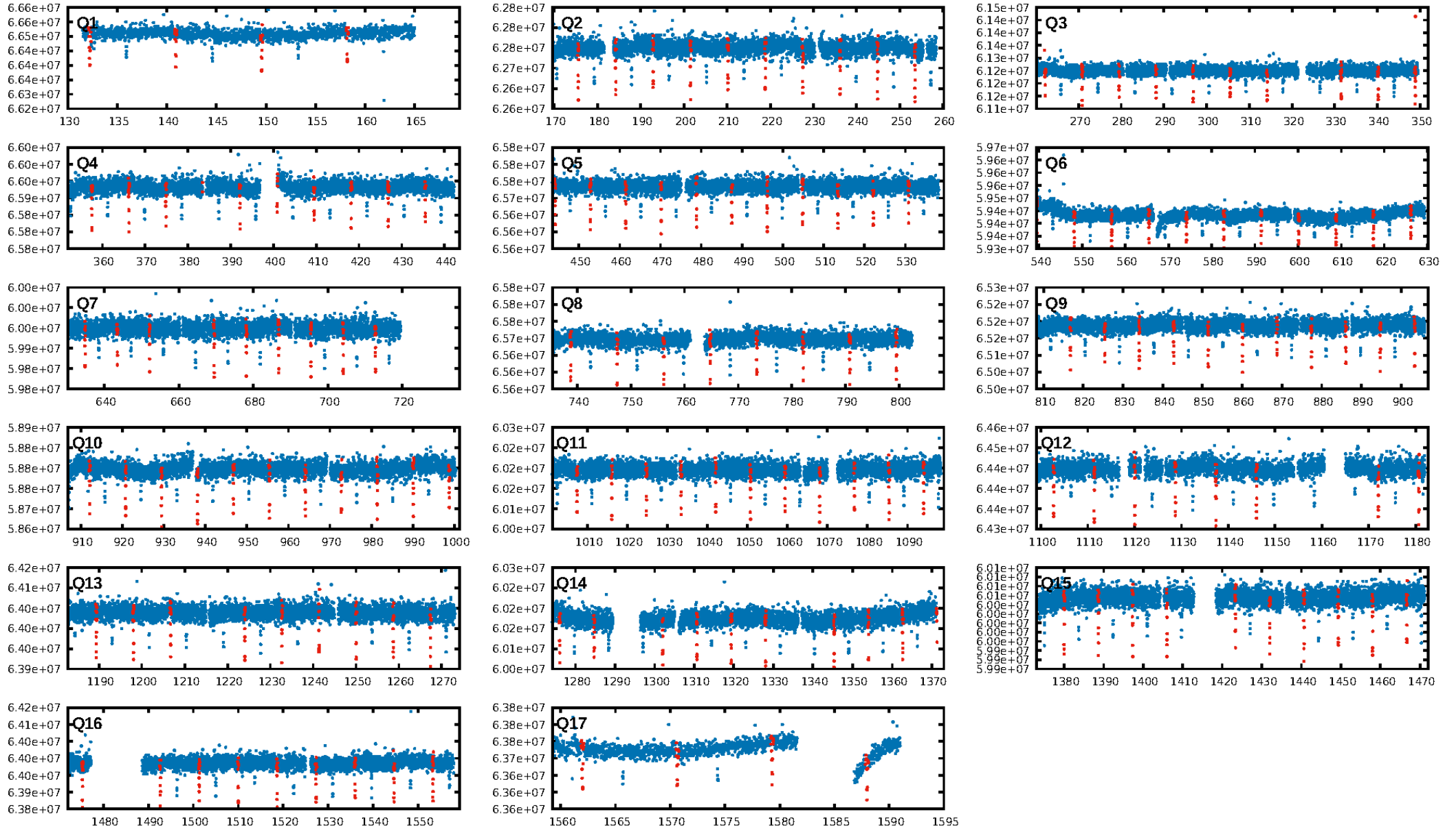
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 98.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [146/146]
GhostDiagnostic-chr: 7.355
Centroid-sig: 0.0%
Centroid-so: 0.394 arcsec [4.95 σ]
OotOffset-rm: 0.536 arcsec [6.61 σ]
KicOffset-rm: 0.493 arcsec [6.28 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]

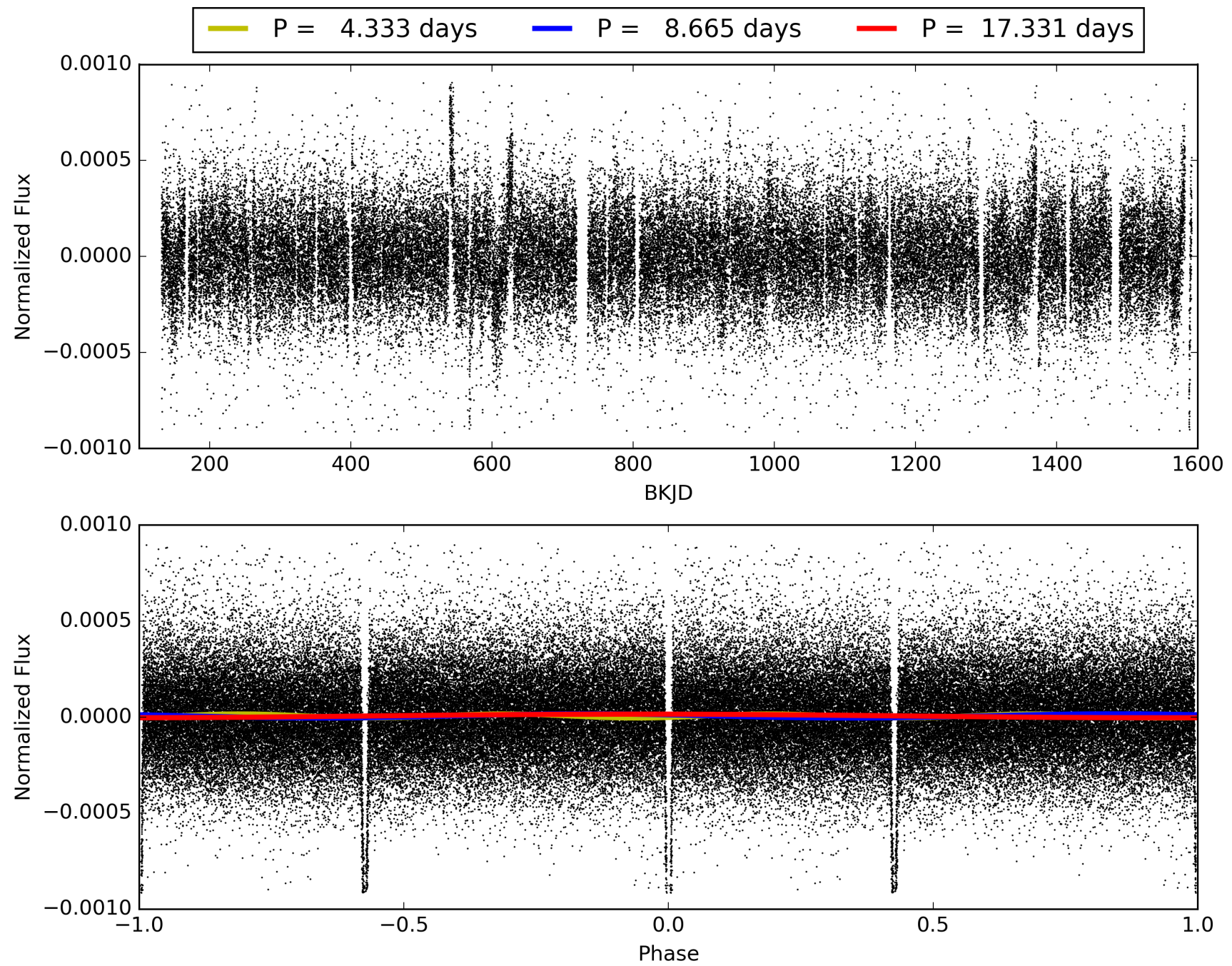
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:38:50 Z

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

TCE 004946680-01, PDC Light Curves

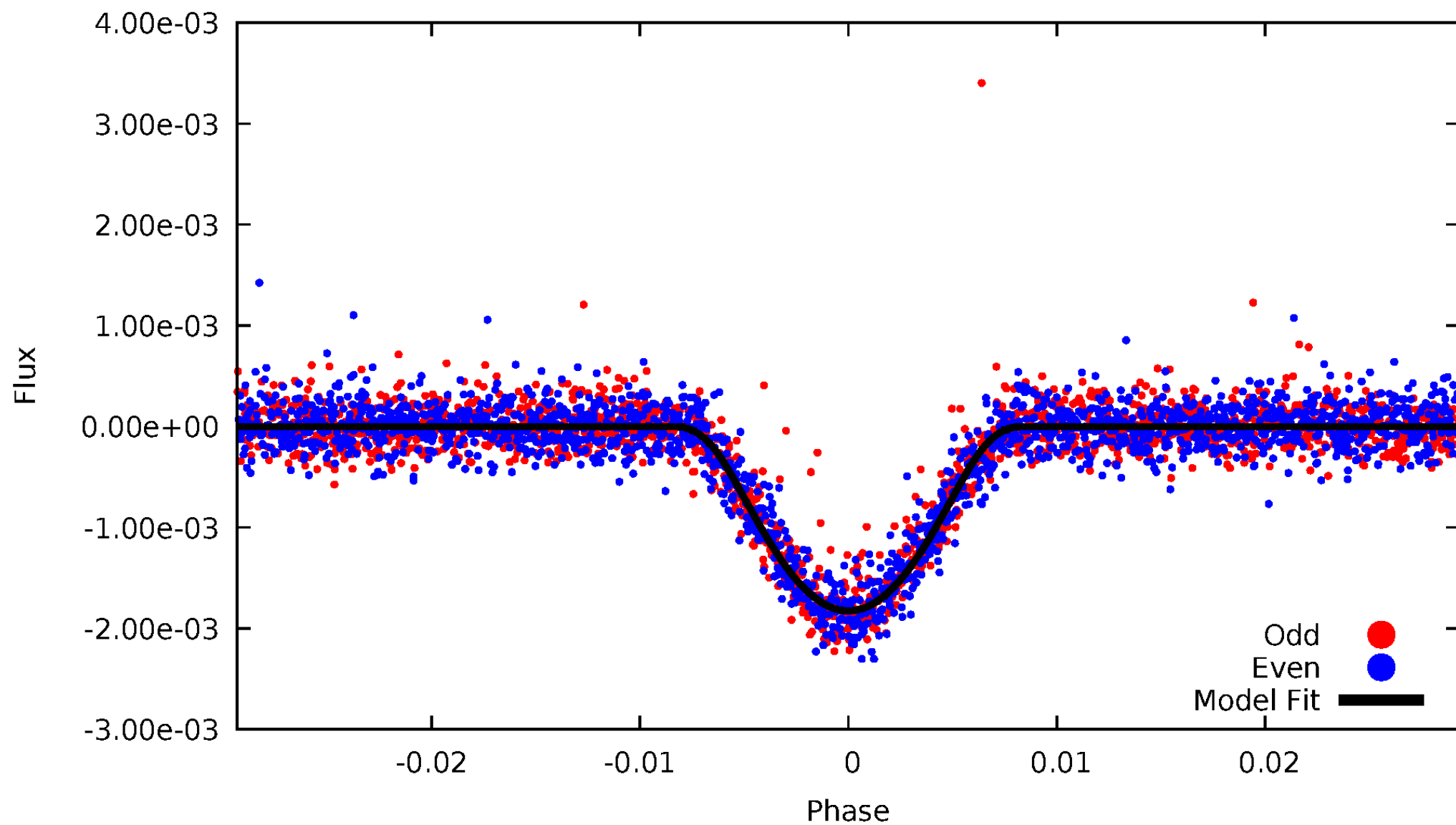


TCE 004946680-01



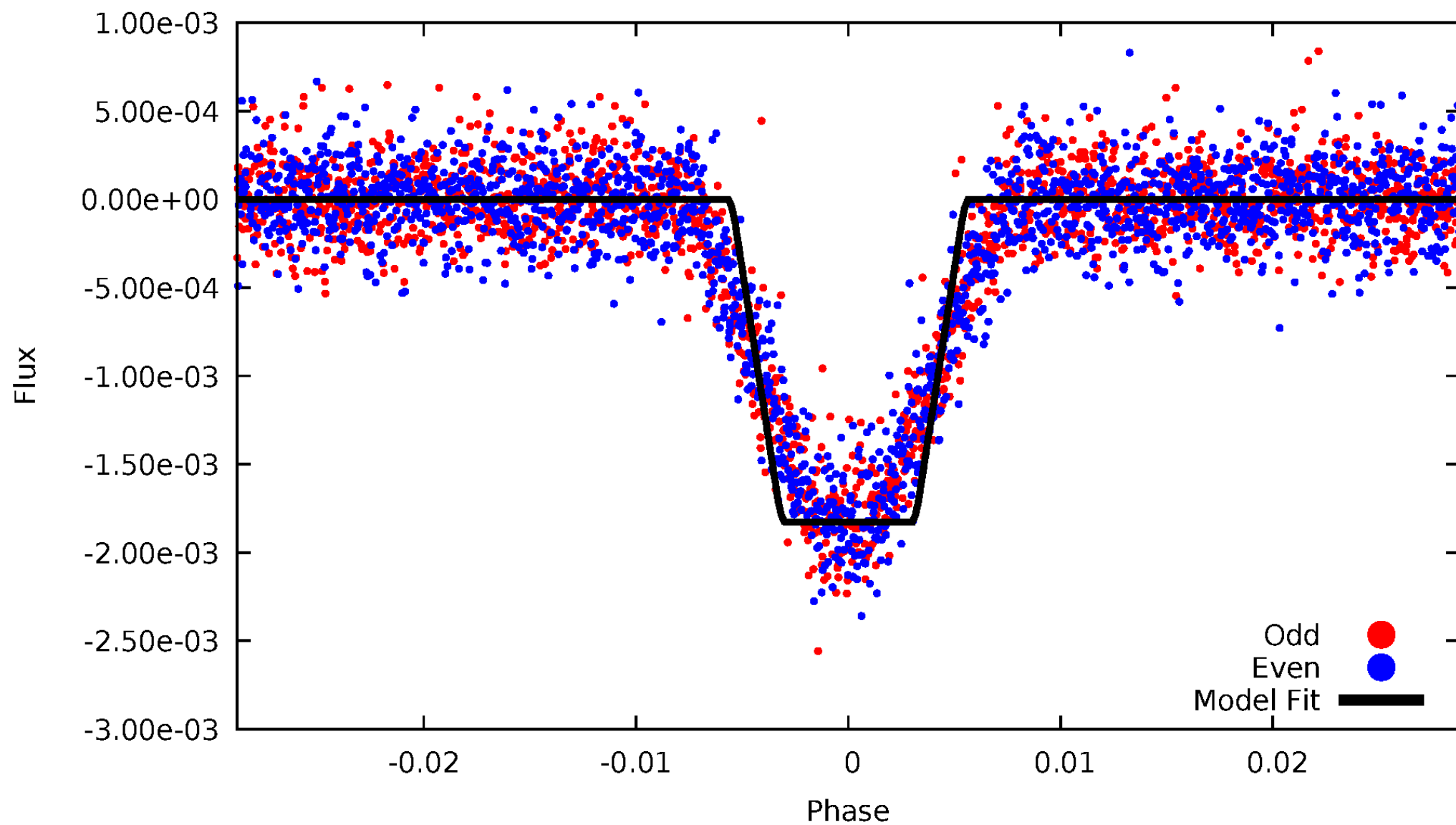
DV Odd/Even

TCE 004946680-01



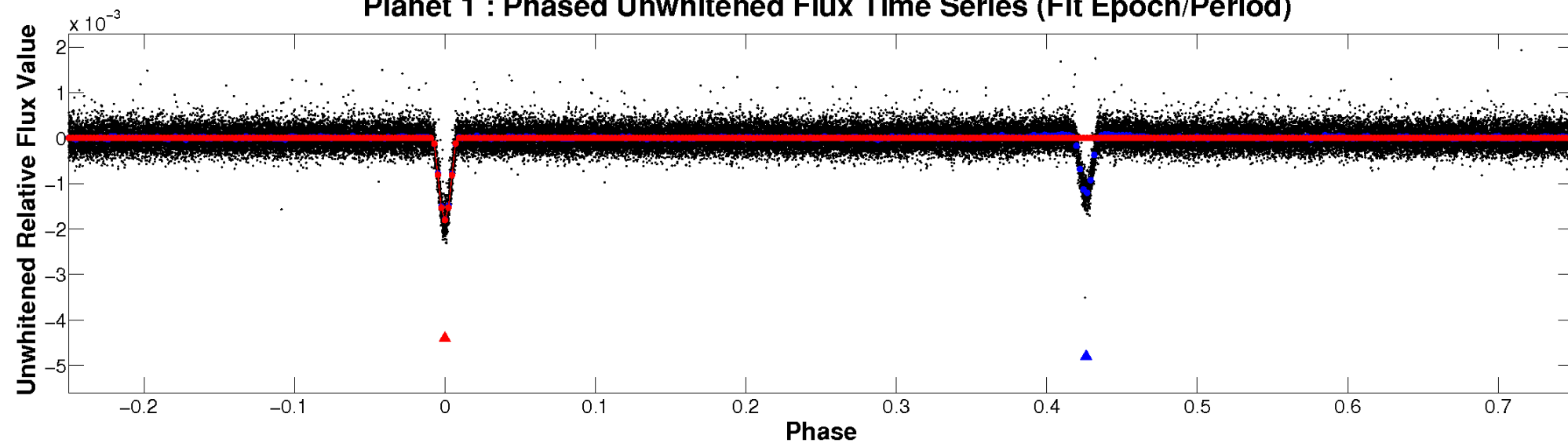
ALT Odd/Even

TCE 004946680-01

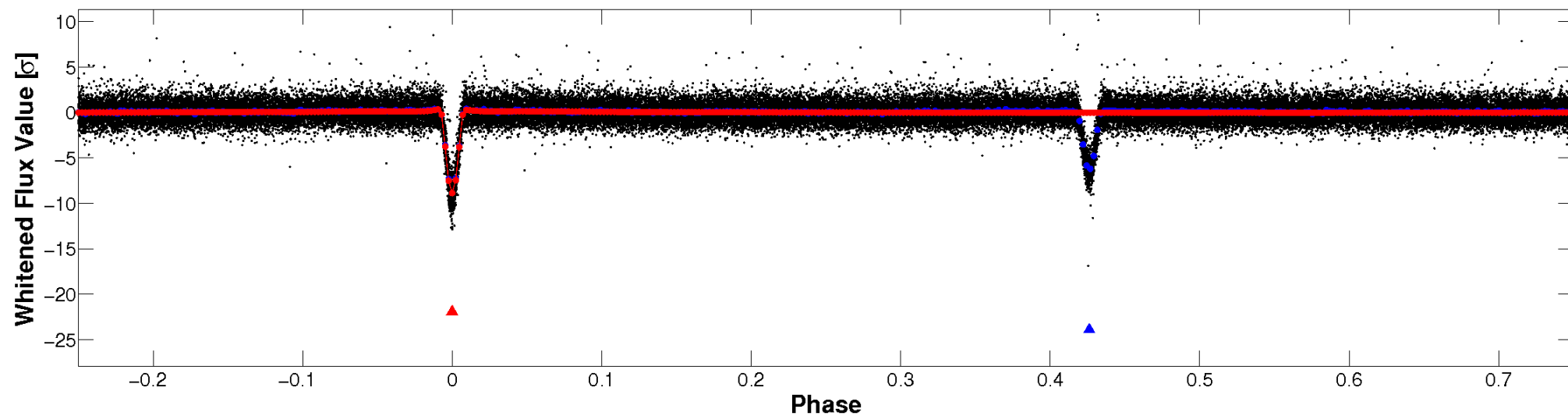


Non-Whitened Vs. Whitened Light Curve

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

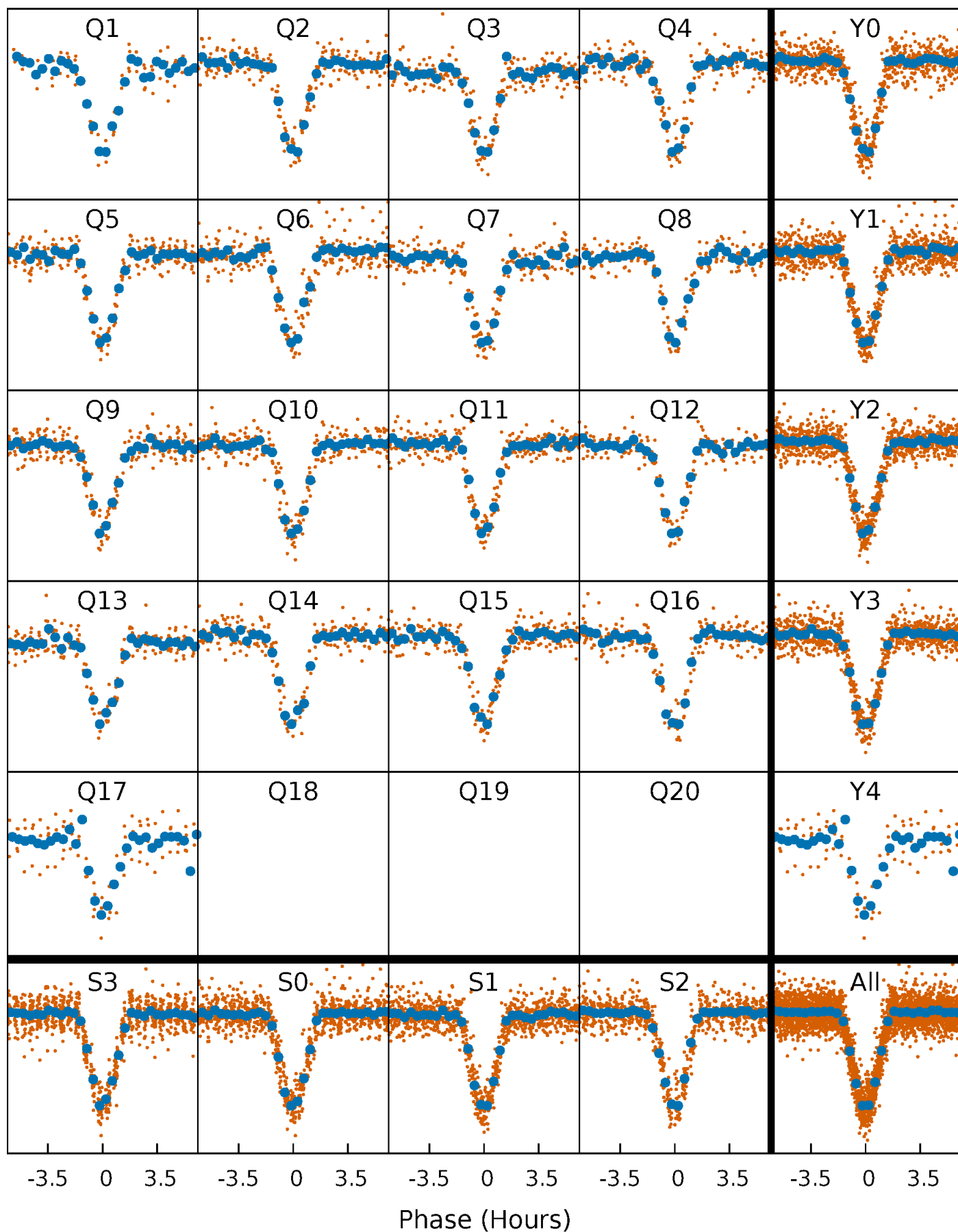


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



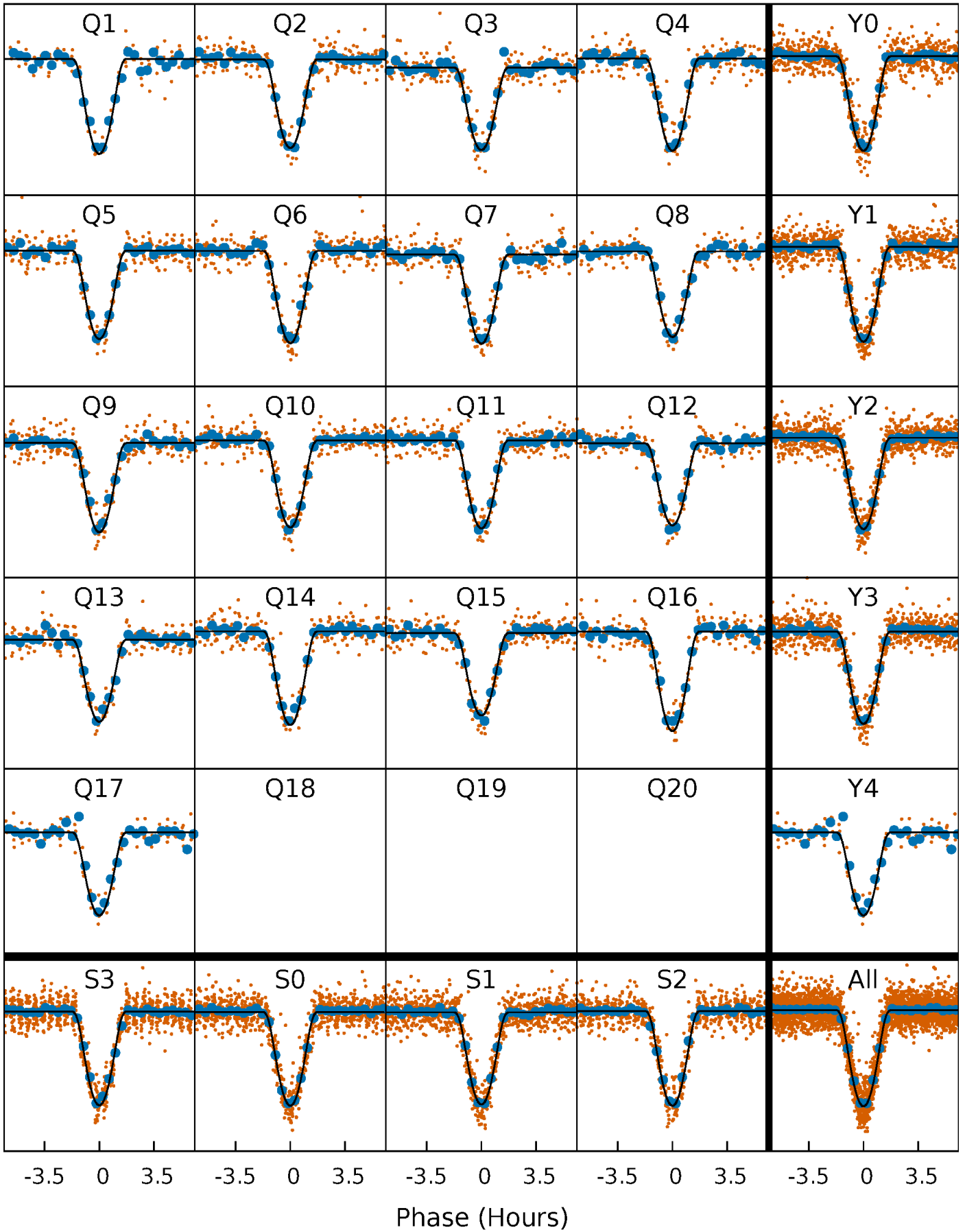
PDC Quarter-Phased Transit Curves

TCE 004946680-01 P= 8.665265 Days $T_0=132.215964$ (BKJD)



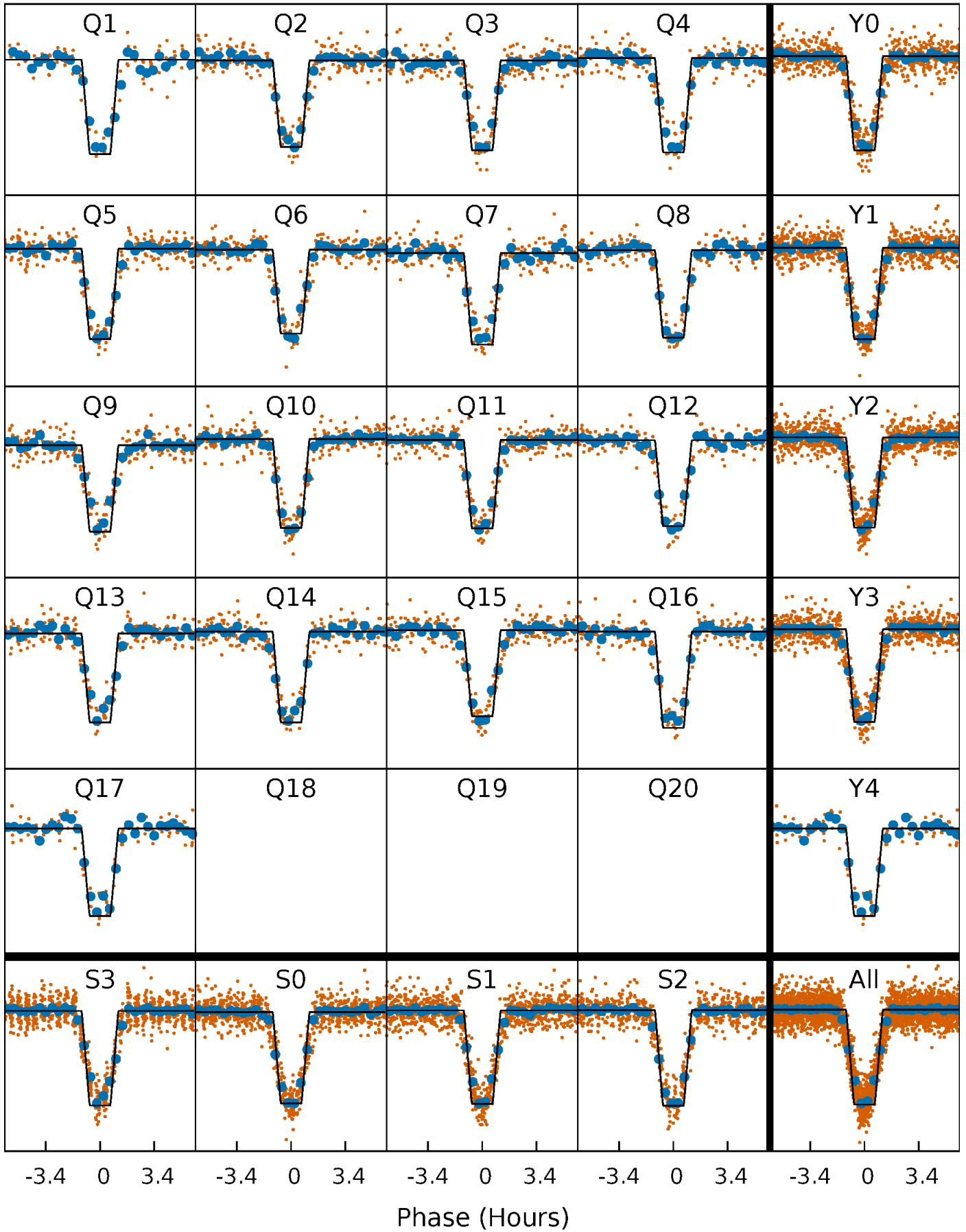
DV Quarter-Phased Transit Curves

TCE 004946680-01 P= 8.665265 Days $T_0=132.215964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

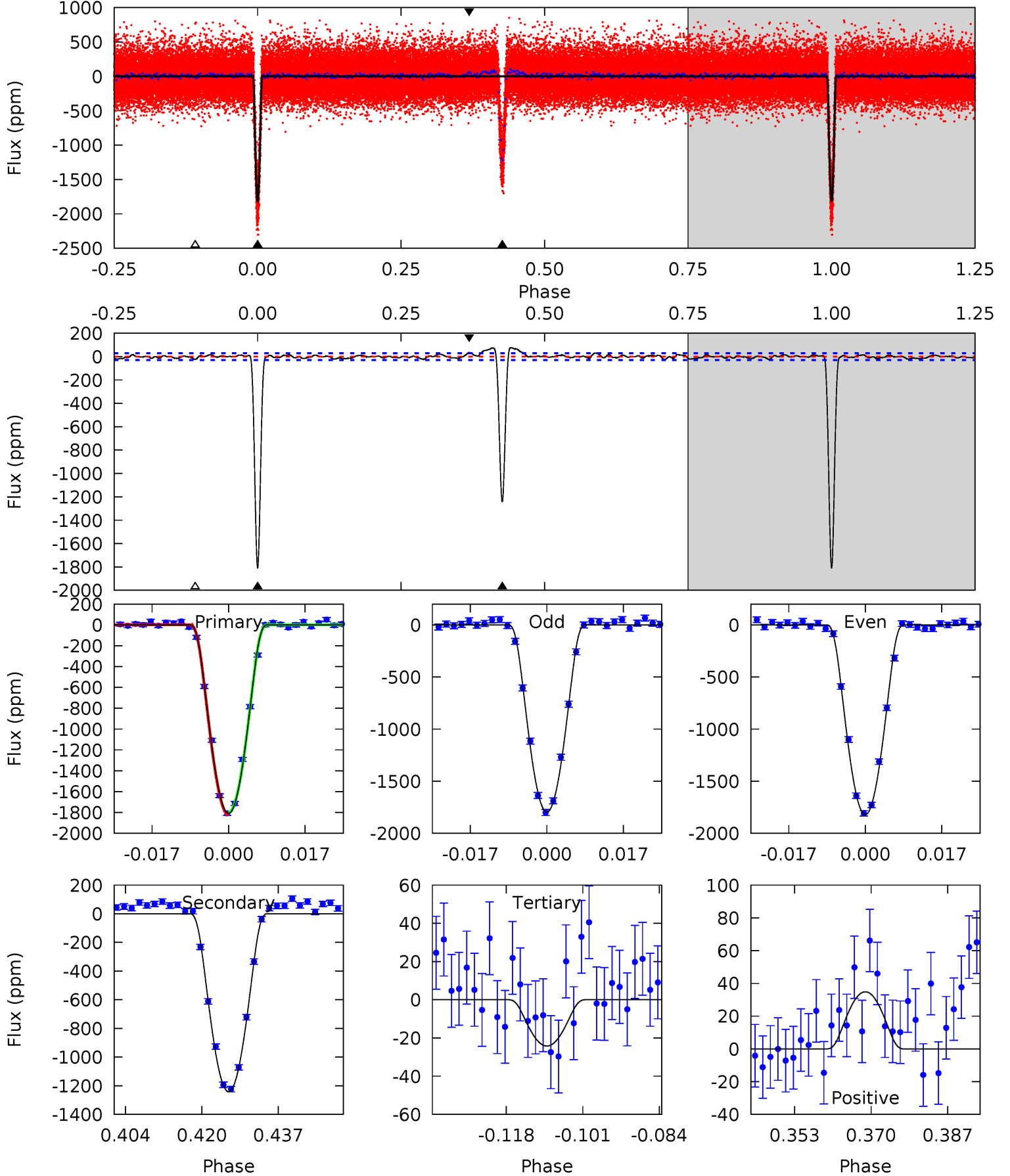
TCE 004946680-01 P= 8.665279 Days $T_0=132.214765$ (BKJD)



DV Model-Shift Uniqueness Test

004946680-01, P = 8.665265 Days, E = 123.550699 Days

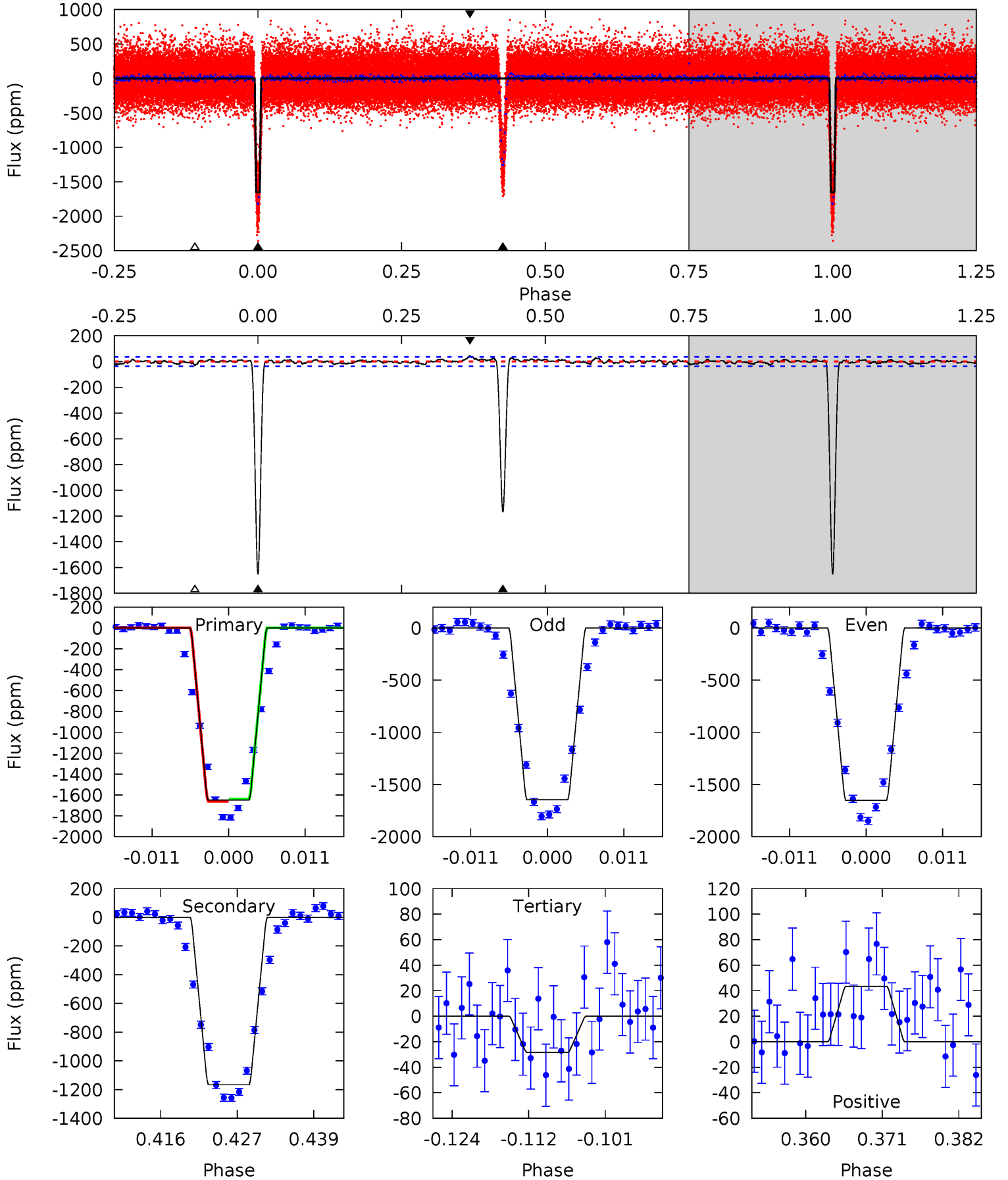
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
301.0	206.6	4.03	5.80	4.93	2.39	2.57	297.0	295.2	202.6	200.8	2.09	0.99	0.04	1.45



Alt Model-Shift Uniqueness Test

004946680-01, P = 8.665279 Days, E = 123.549486 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
224.1	158.4	3.86	5.90	5.00	2.53	1.51	220.2	218.1	154.6	152.5	0.36	1.00	0.03	1.30



Stellar Parameters For KIC 004946680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6071^{+213}_{-213}	$3.796^{+0.544}_{-0.128}$	$-0.120^{+0.300}_{-0.300}$	$2.389^{+0.527}_{-1.229}$	$1.301^{+0.201}_{-0.326}$	$0.134^{+0.823}_{-0.054}$
	+4%/-4%	+14%/-3%	+250%/-250%	+22%/-51%	+15%/-25%	+612%/-40%
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 004946680-01 / KOI 6477.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1242 ± 6	$16.58^{+4.85}_{-5.55}$	1875^{+147}_{-259}	4513^{+505}_{-344}	20^{+24}_{-8}
Alt.	-1166 ± 7	$9.99^{+4.40}_{-3.81}$	1869^{+165}_{-244}	5520^{+1188}_{-686}	52^{+85}_{-26}

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

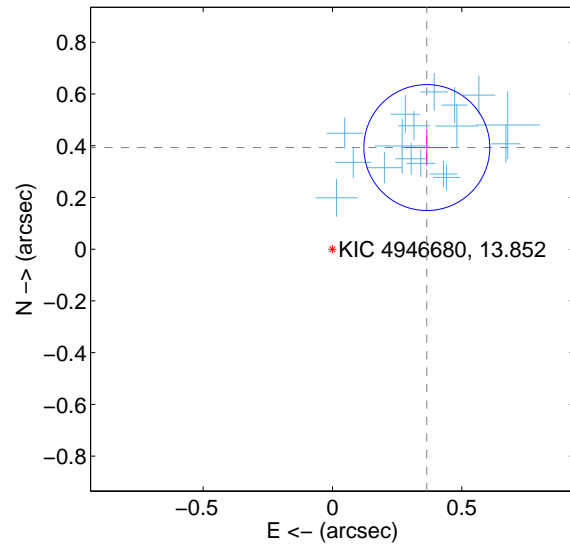
Supplemental centroid analysis for 004946680-01. Kepler magnitude: 13.85. Transit SNR 177.54

There are 17 quarters with good PRF difference image offsets

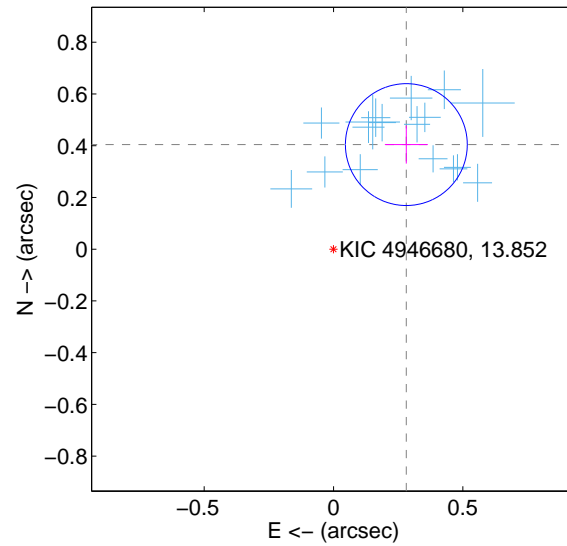
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.536 ± 0.081	6.61	-0.365 ± 0.083	0.393 ± 0.072
PRF-fit source offset from KIC position	0.493 ± 0.079	6.28	-0.282 ± 0.083	0.404 ± 0.073
photometric centroid source offset	0.39 ± 0.08	4.95	-0.29 ± 0.08	0.27 ± 0.08

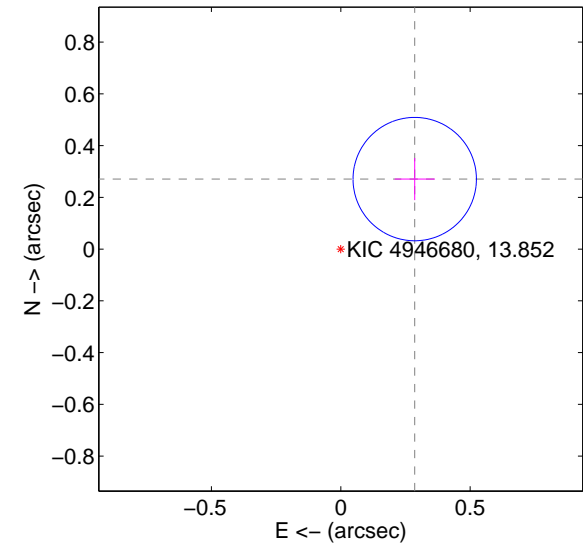
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

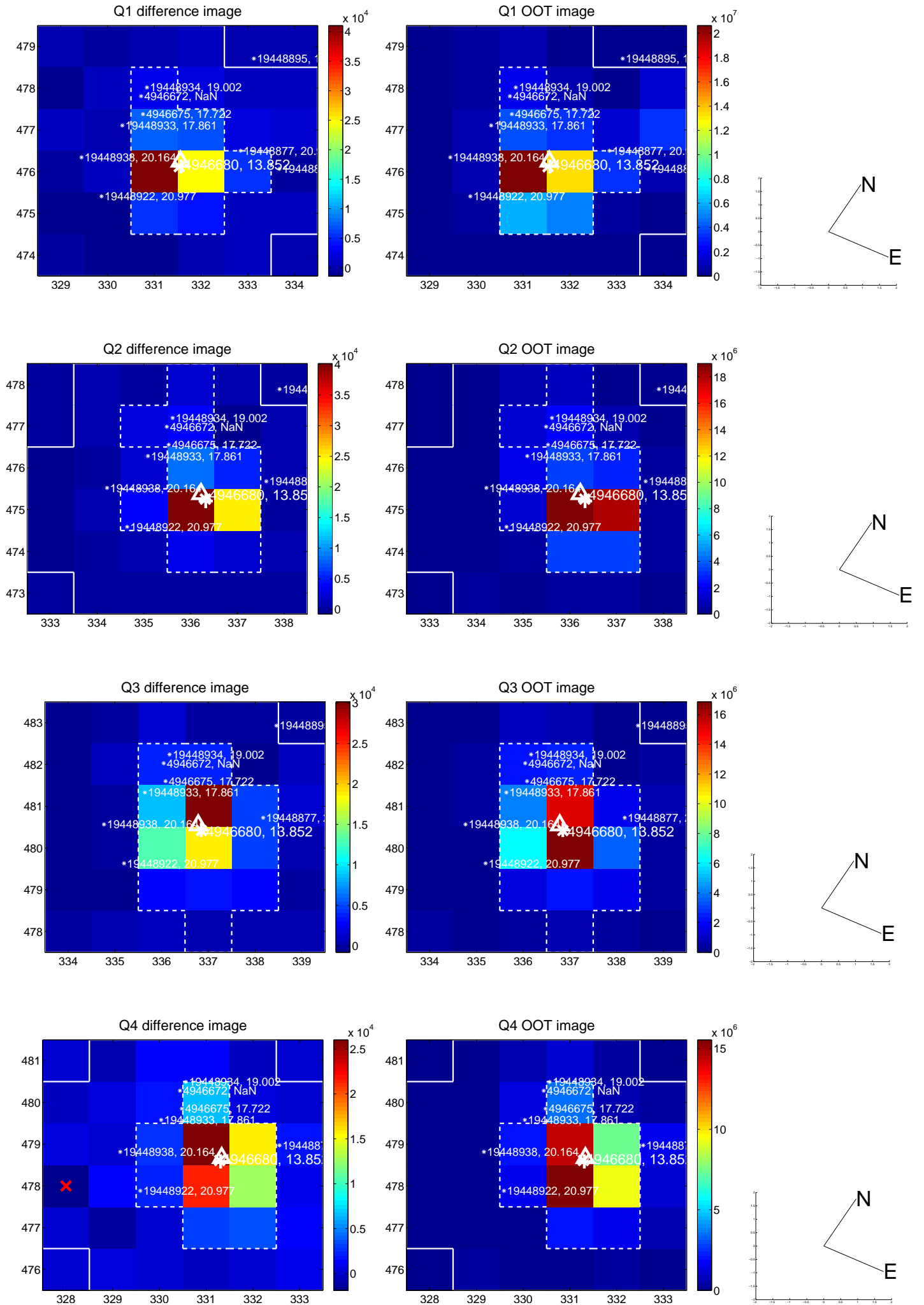


offset from photometric centroids

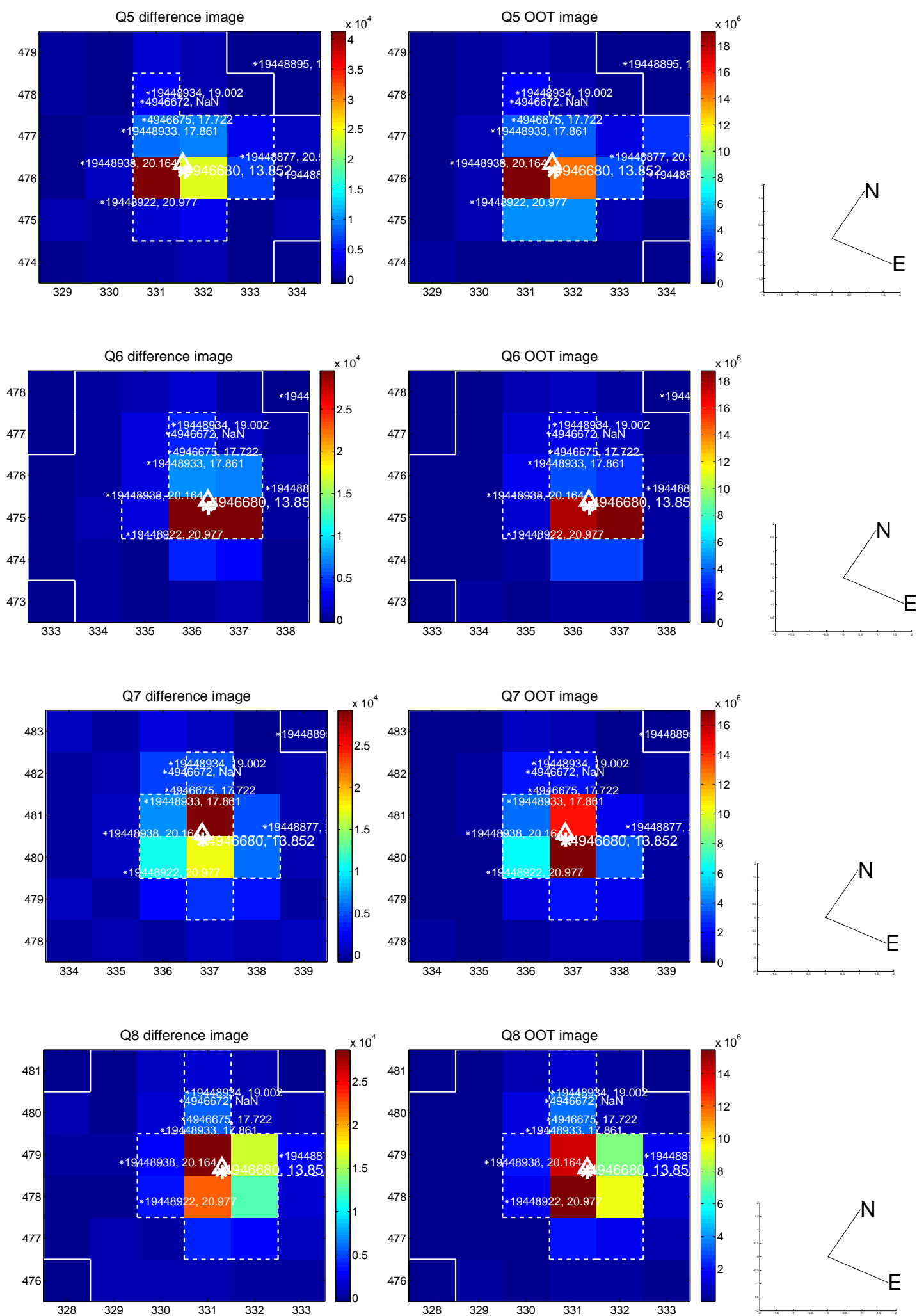


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

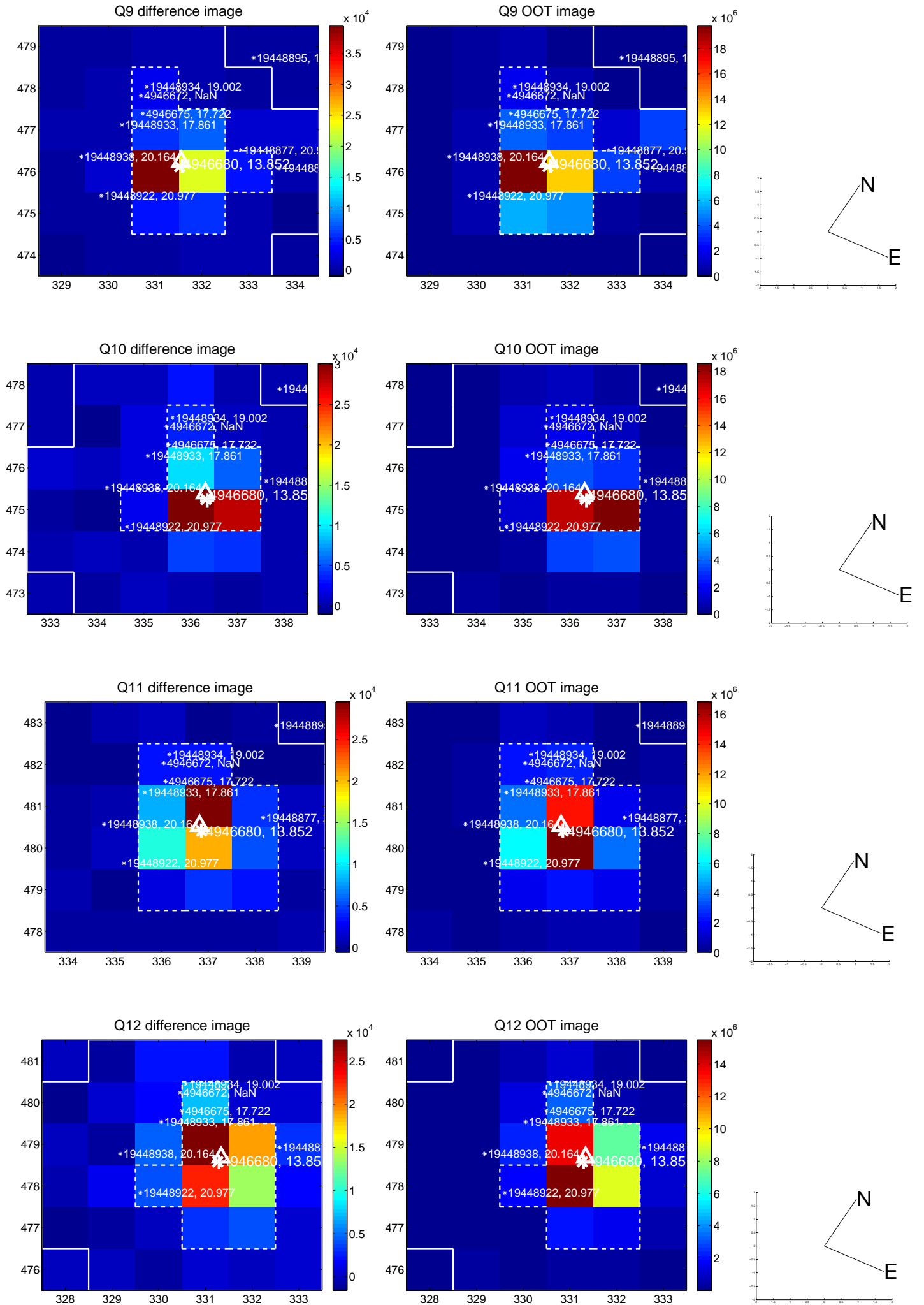
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



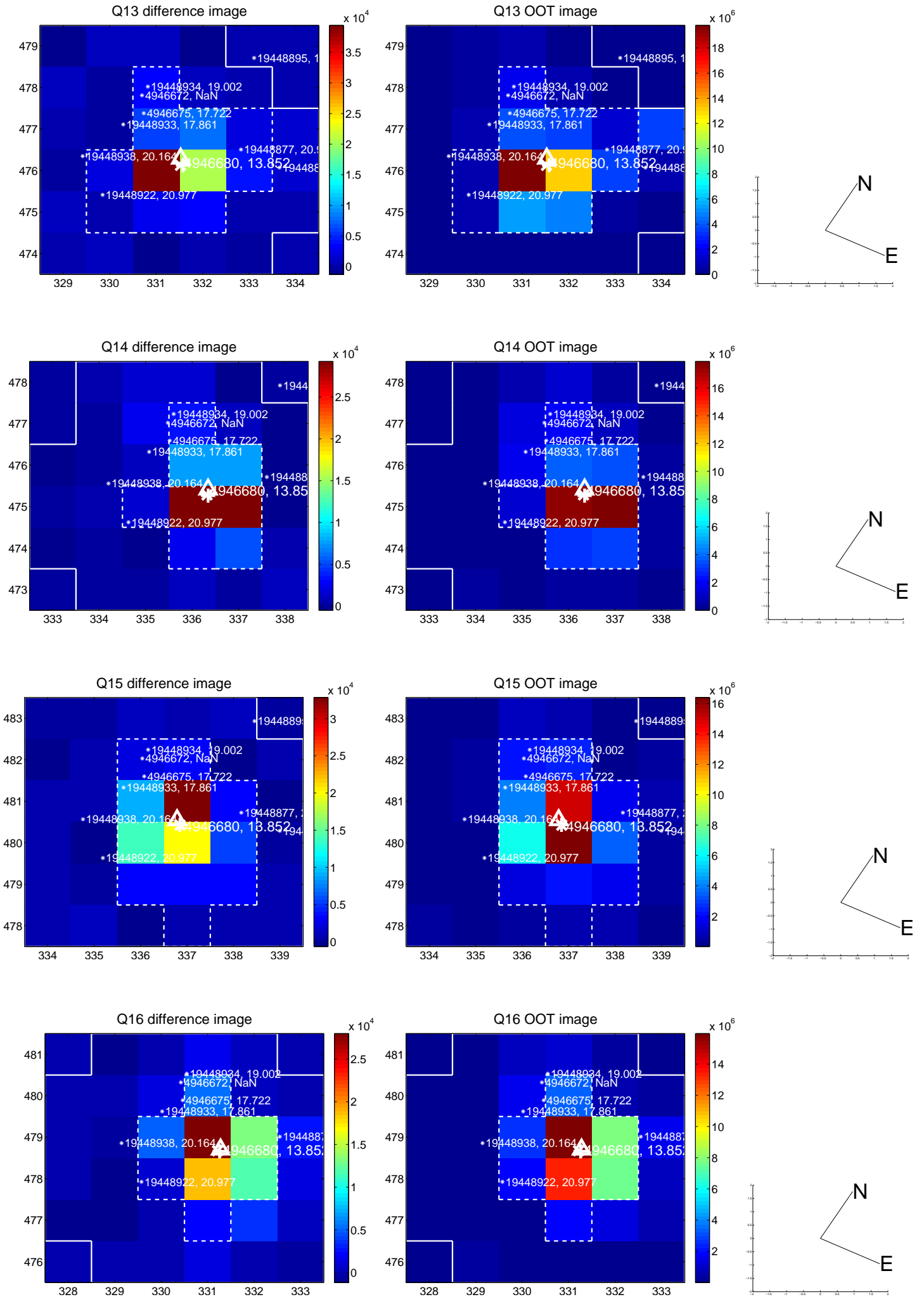
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



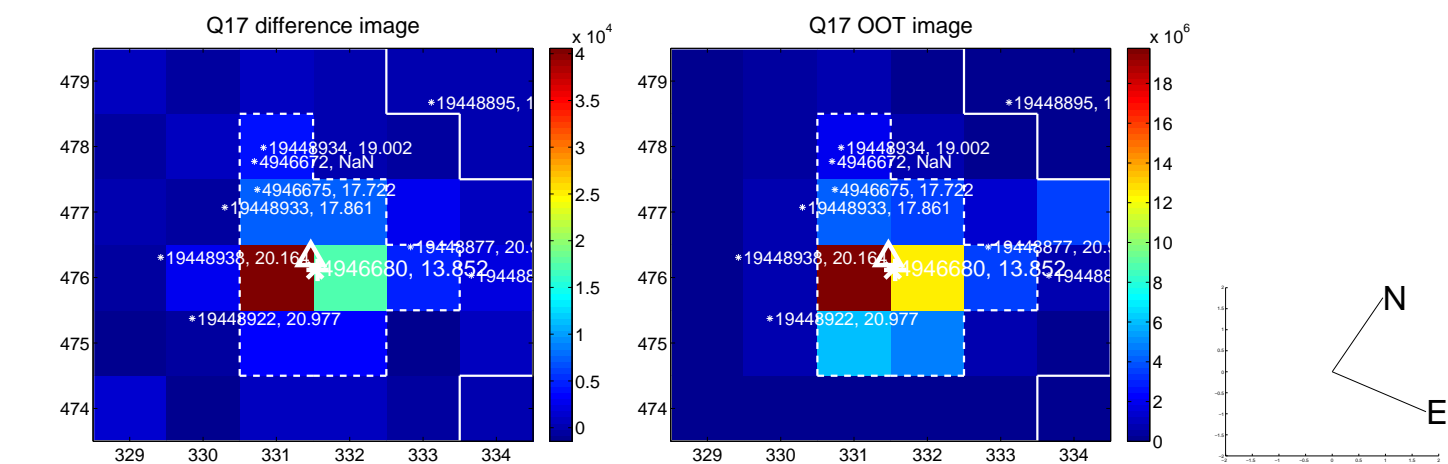
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



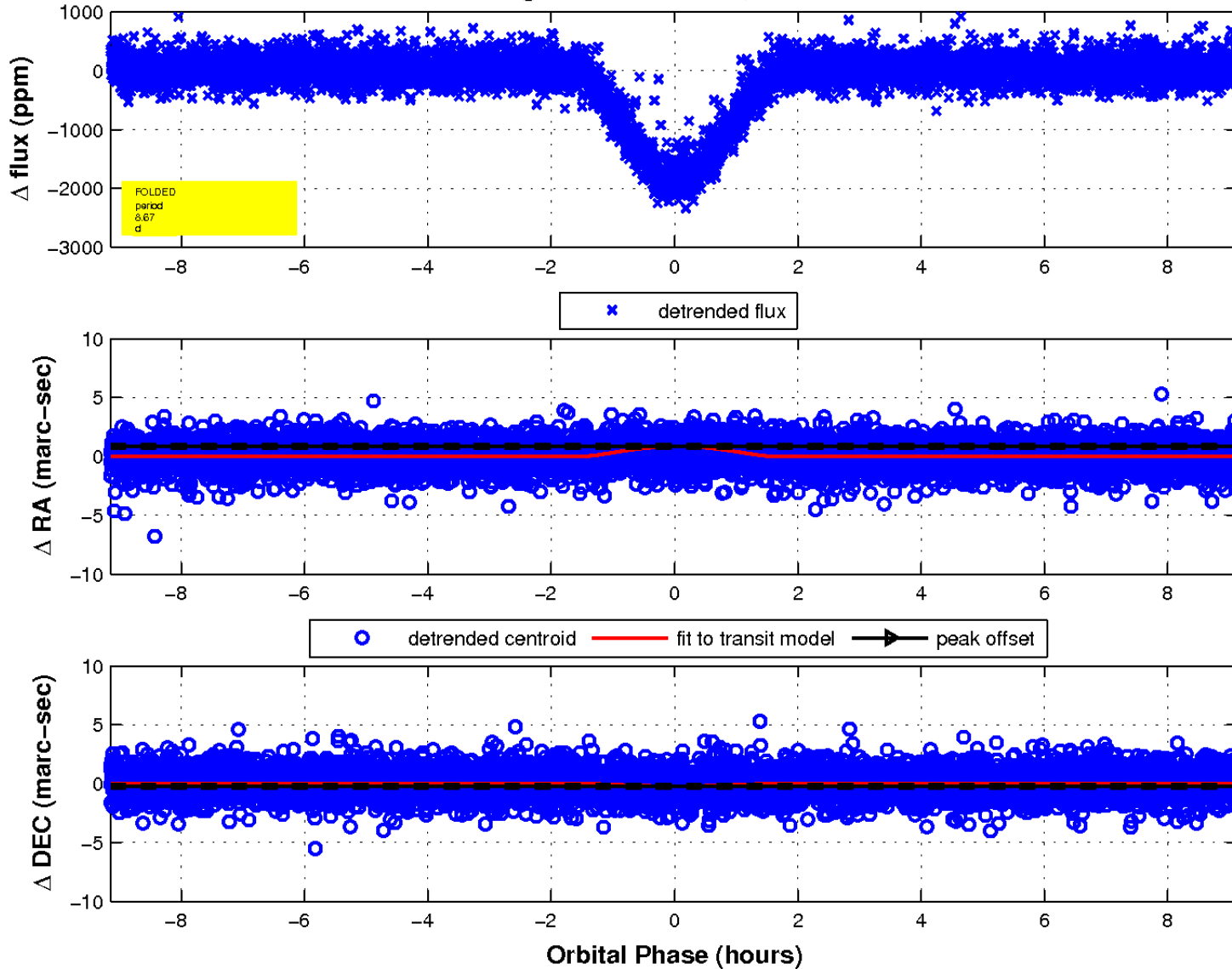
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

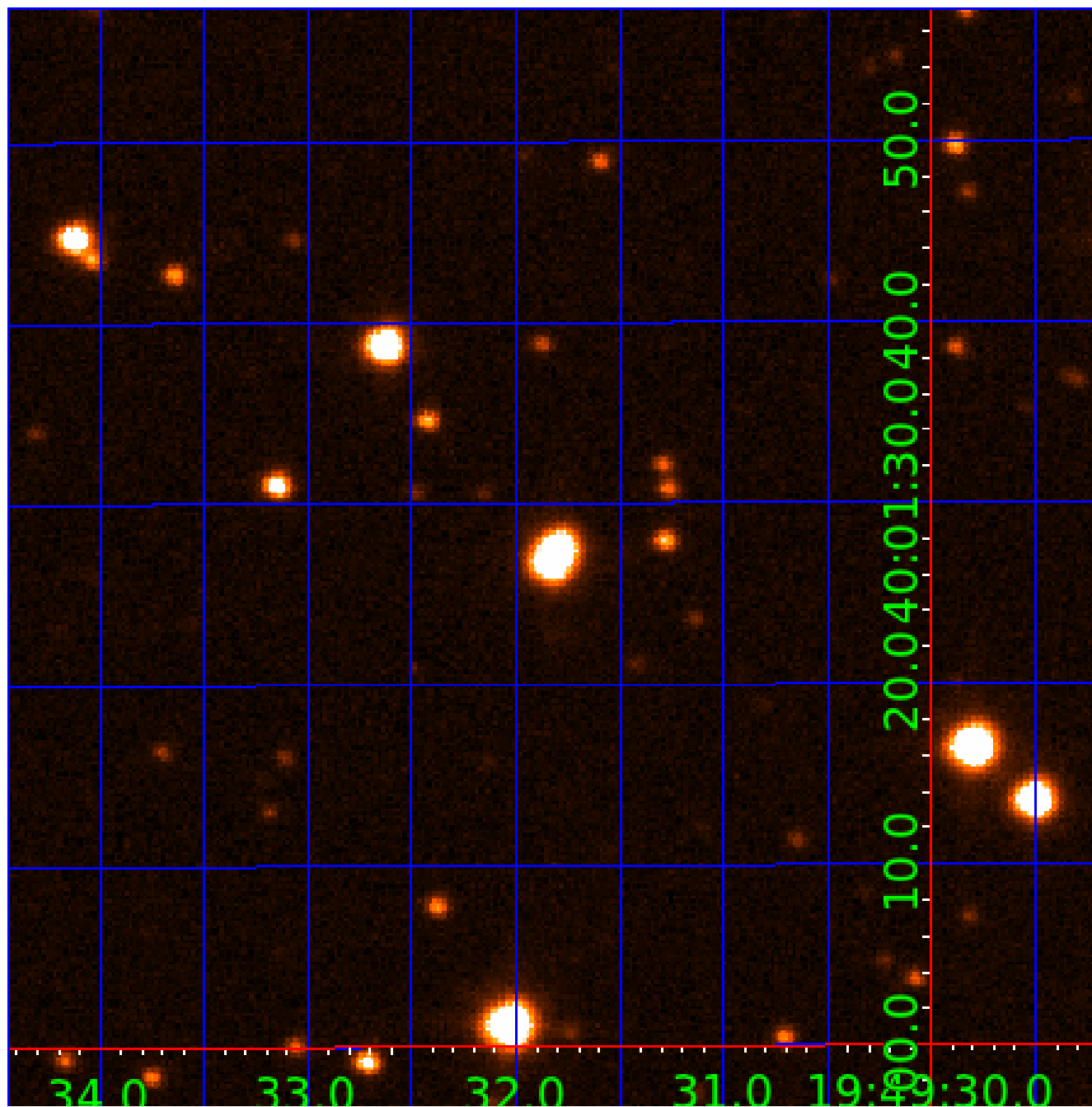


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004946680

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})
004946680-01	OBS	6477.01	8.665265	132.215964	1827.3	3.050	176.0	177.5	2.39	6071	17.83	854.48
004946680-02	OBS	No	8.665267	135.908859	1291.0	3.138	129.1	128.5	2.39	6071	15.08	854.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946680-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004946680-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

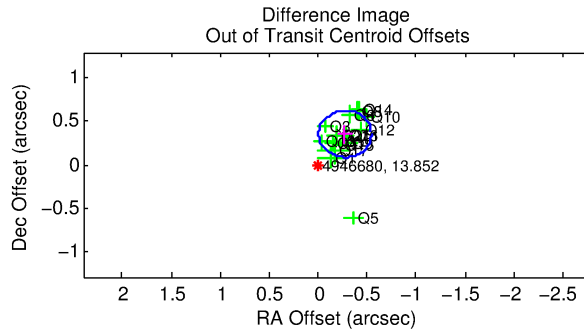
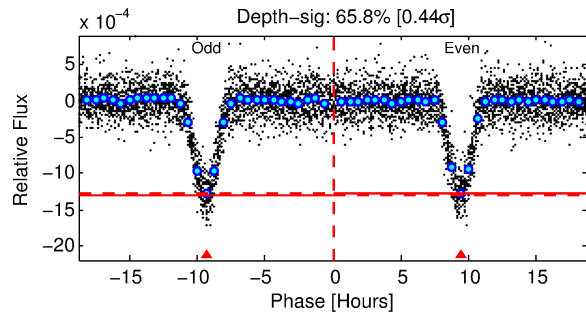
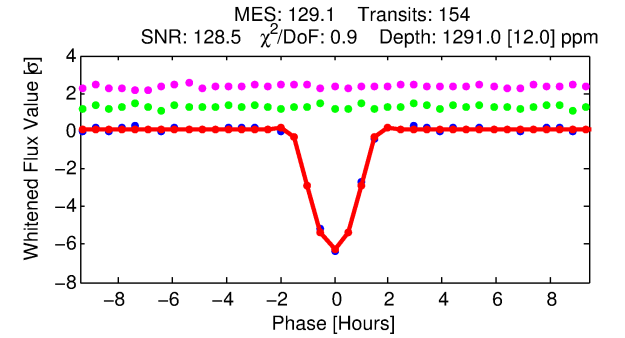
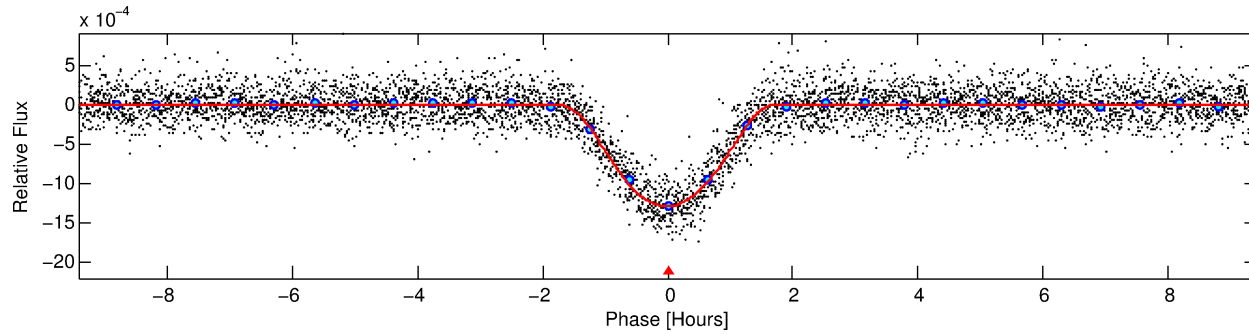
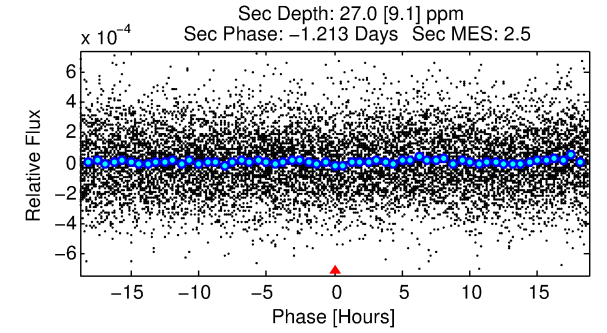
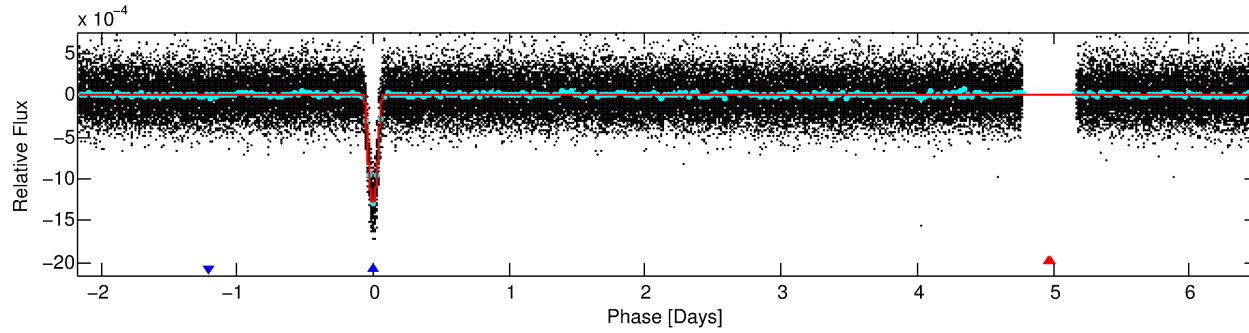
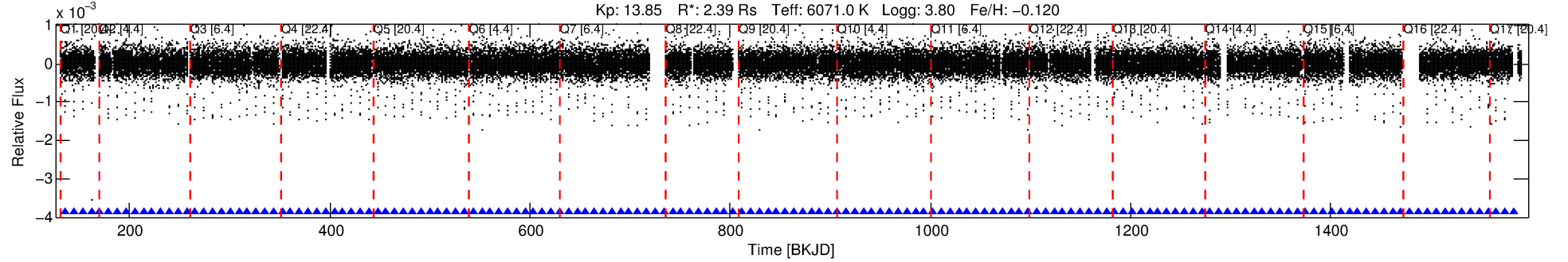
Ephemeris Match Information For 004946680-02

No Significant Match Found

DV One-Page Summary

KIC: 4946680 Candidate: 2 of 2 Period: 8.665 d
KOI: K06477 Corr: No Ephemeris Match

Kp: 13.85 R*: 2.39 Rs Teff: 6071.0 K Logg: 3.80 Fe/H: -0.120



DV Fit Results:

Period = 8.66527 [0.00001] d
Epoch = 135.9089 [0.0006] BKJD
Rp/R* = 0.0578 [0.0151]
a/R* = 7.80 [0.54]
b = 0.99 [0.02]
Seff = 854.48 [780.65]
Teq = 1379 [315] K
Rp = 15.08 [8.70] Re
a = 0.0902 [0.0487] AU
Ag = 0.53 [0.58] [-0.81σ]
Teffp = 1820 [290] K [1.03σ]

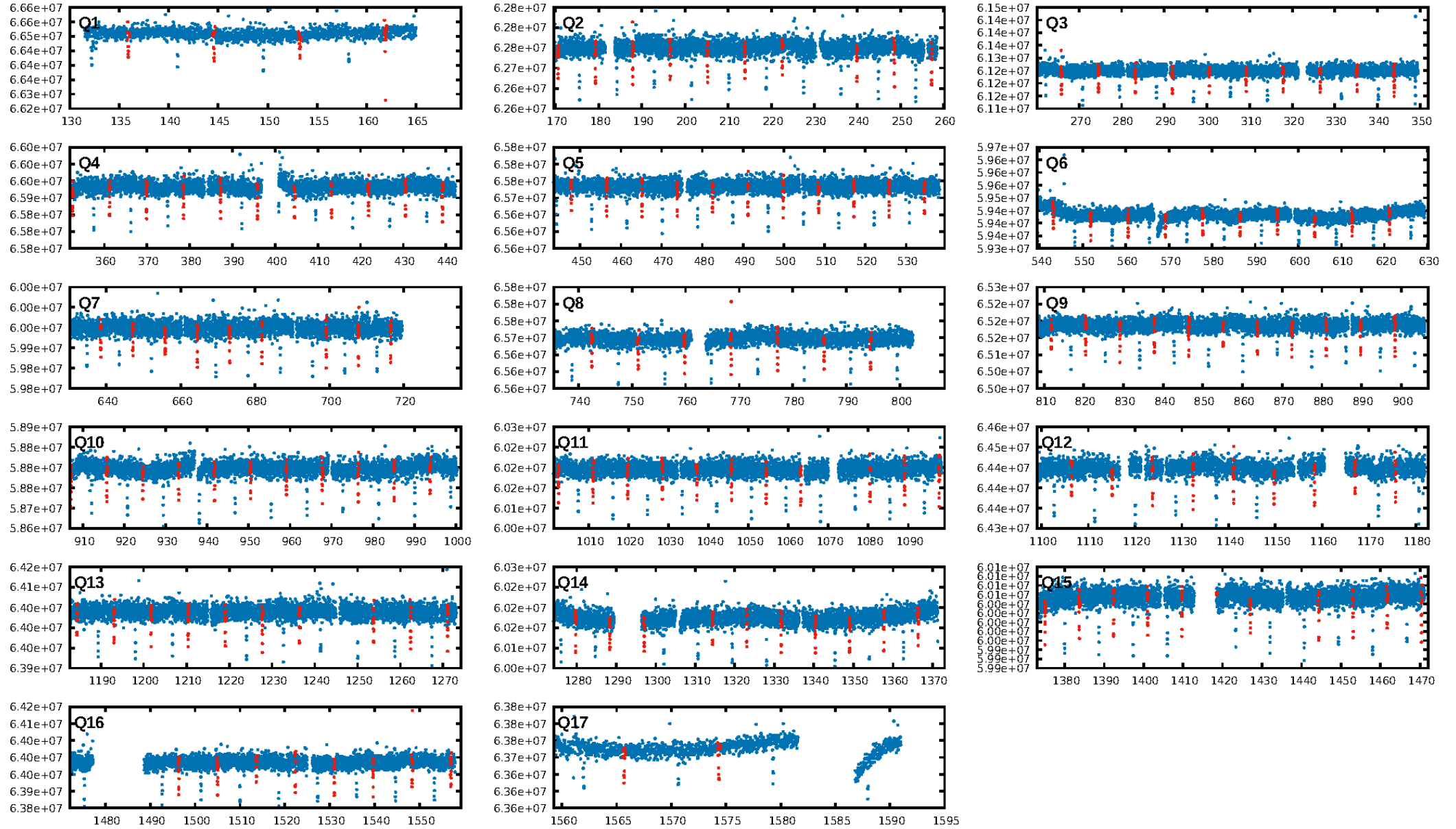
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [148/148]
GhostDiagnostic-chr: 7.188
Centroid-sig: 0.0%
Centroid-so: 0.179 arcsec [1.64σ]
OotOffset-rm: 0.450 arcsec [5.00σ]
KicOffset-rm: 0.447 arcsec [5.02σ]
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]

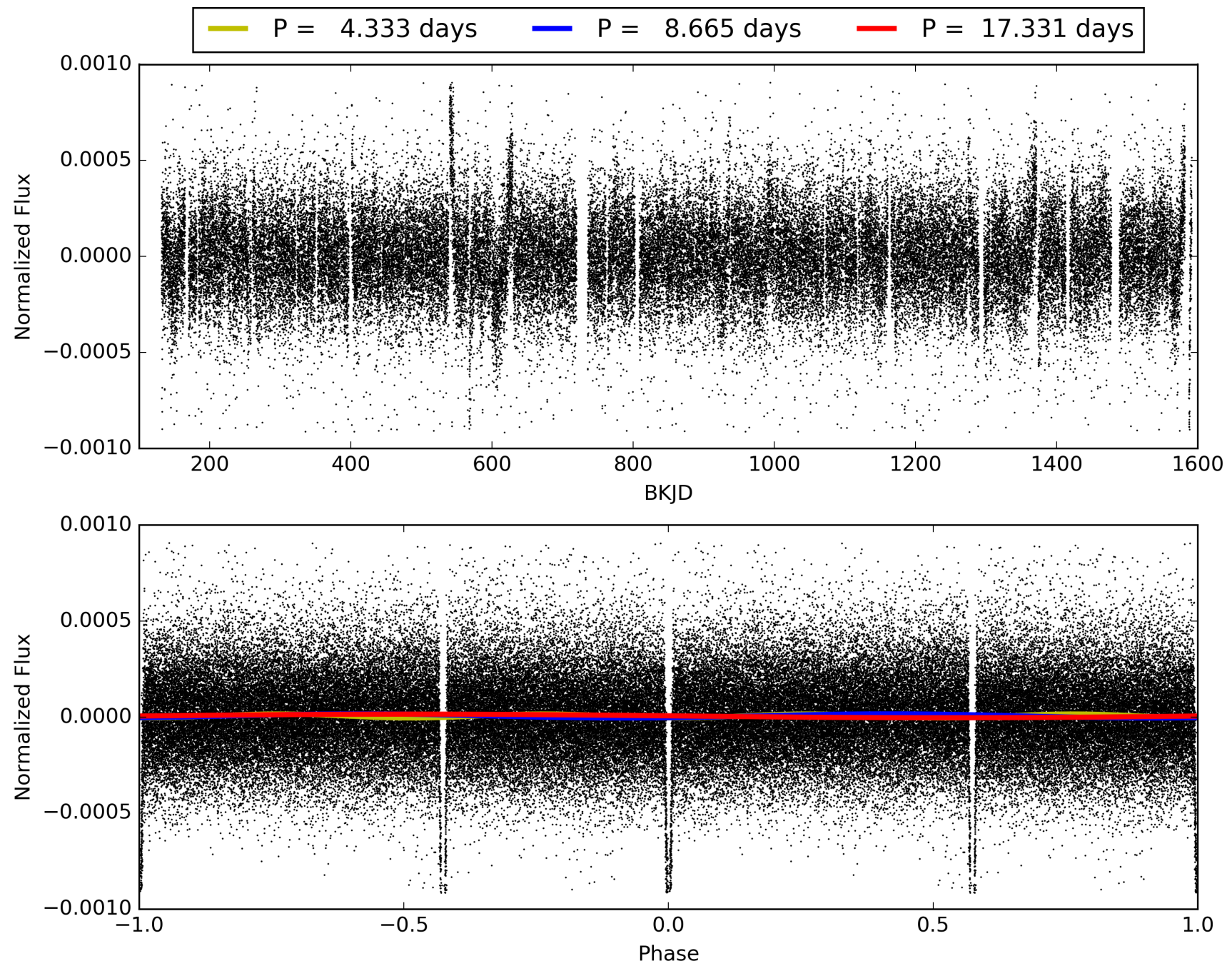
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:38:59 Z

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

TCE 004946680-02, PDC Light Curves

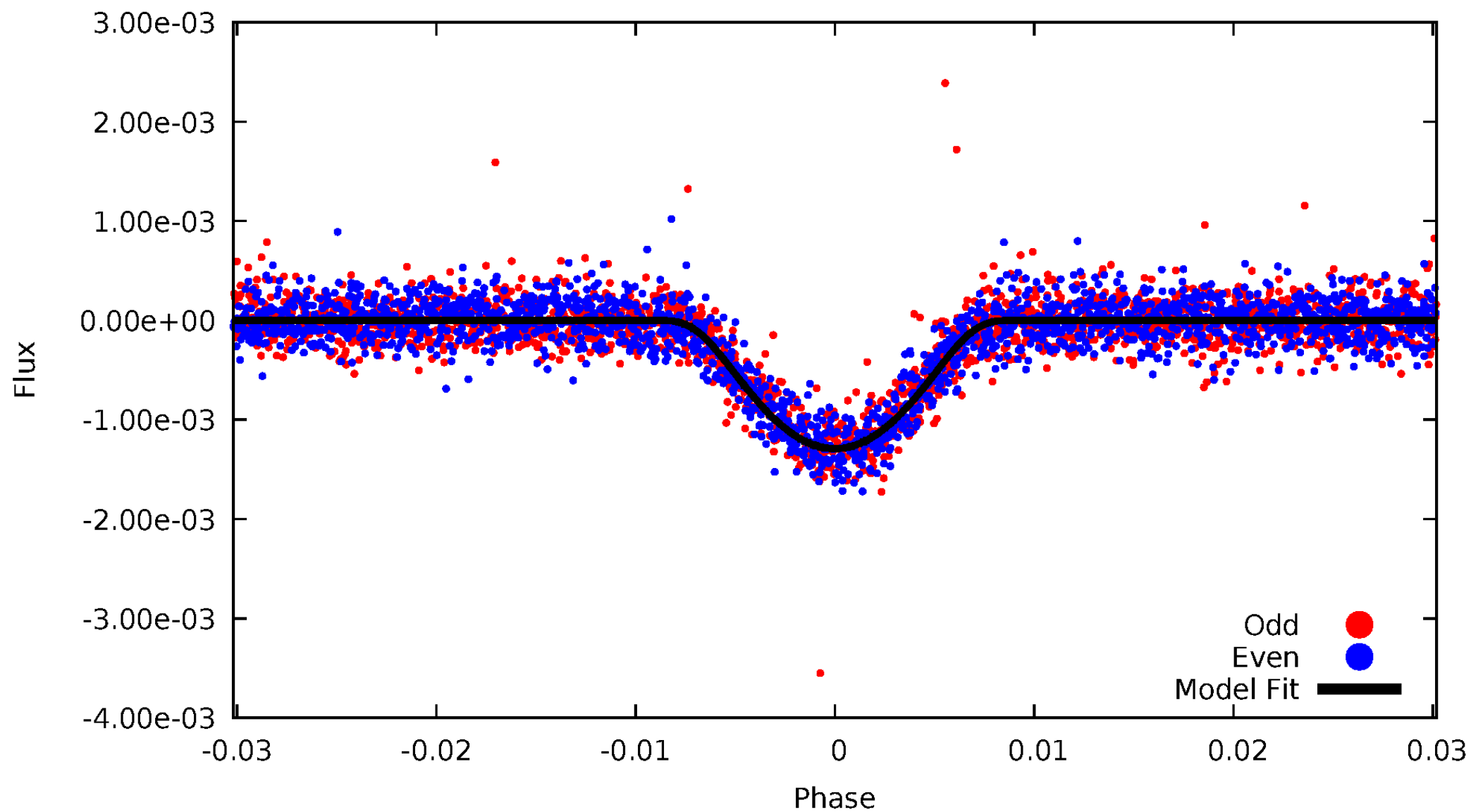


TCE 004946680-02



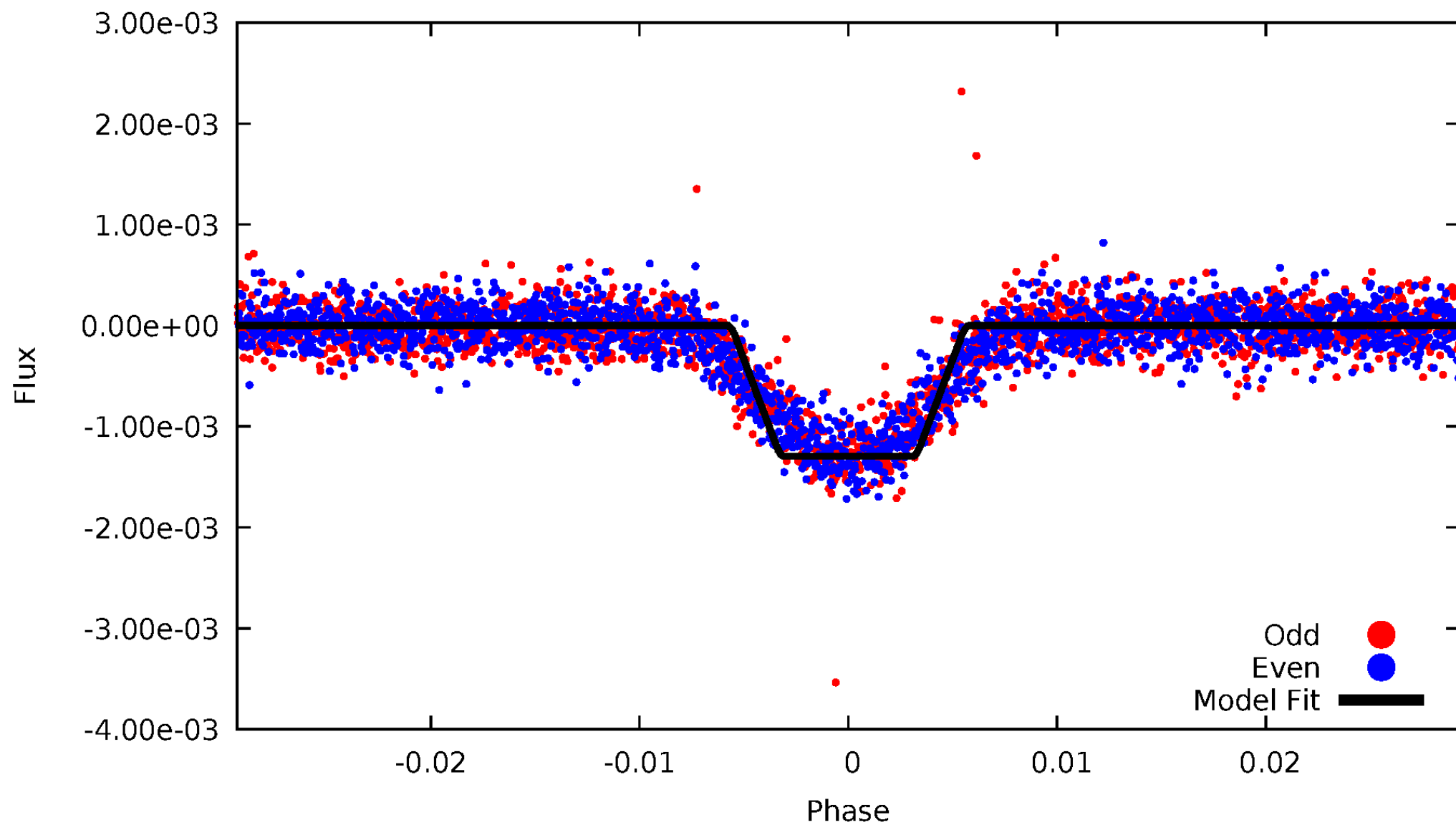
DV Odd/Even

TCE 004946680-02



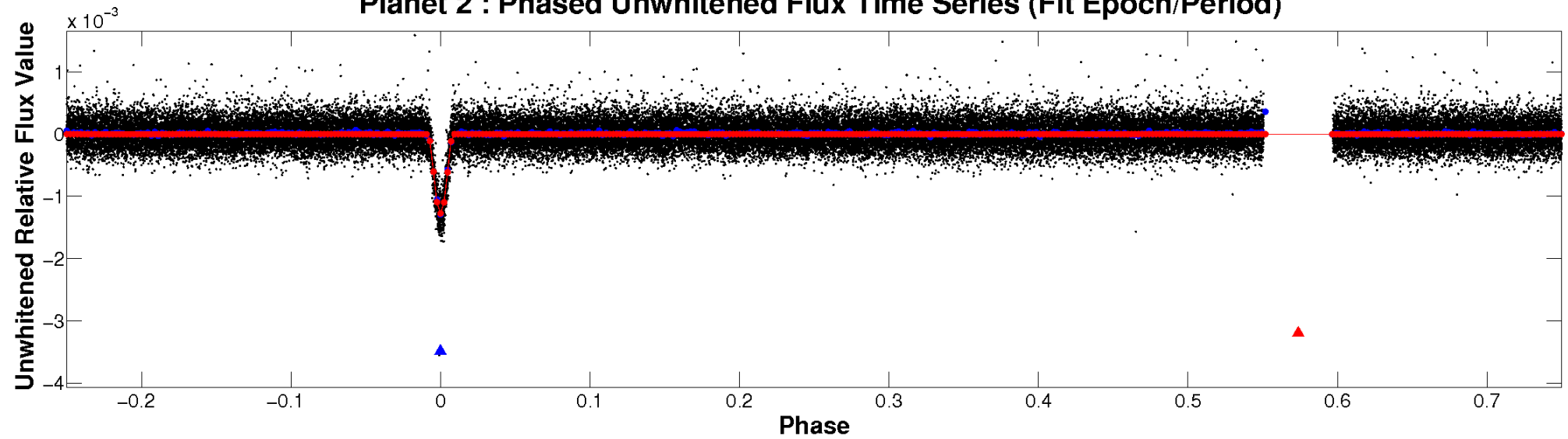
ALT Odd/Even

TCE 004946680-02

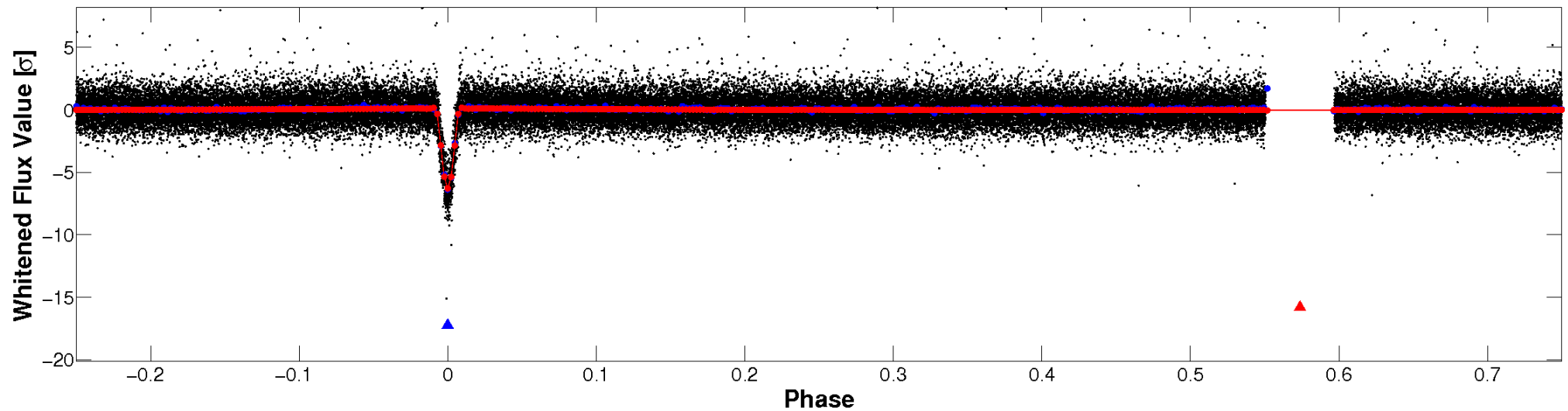


Non-Whitened Vs. Whitened Light Curve

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

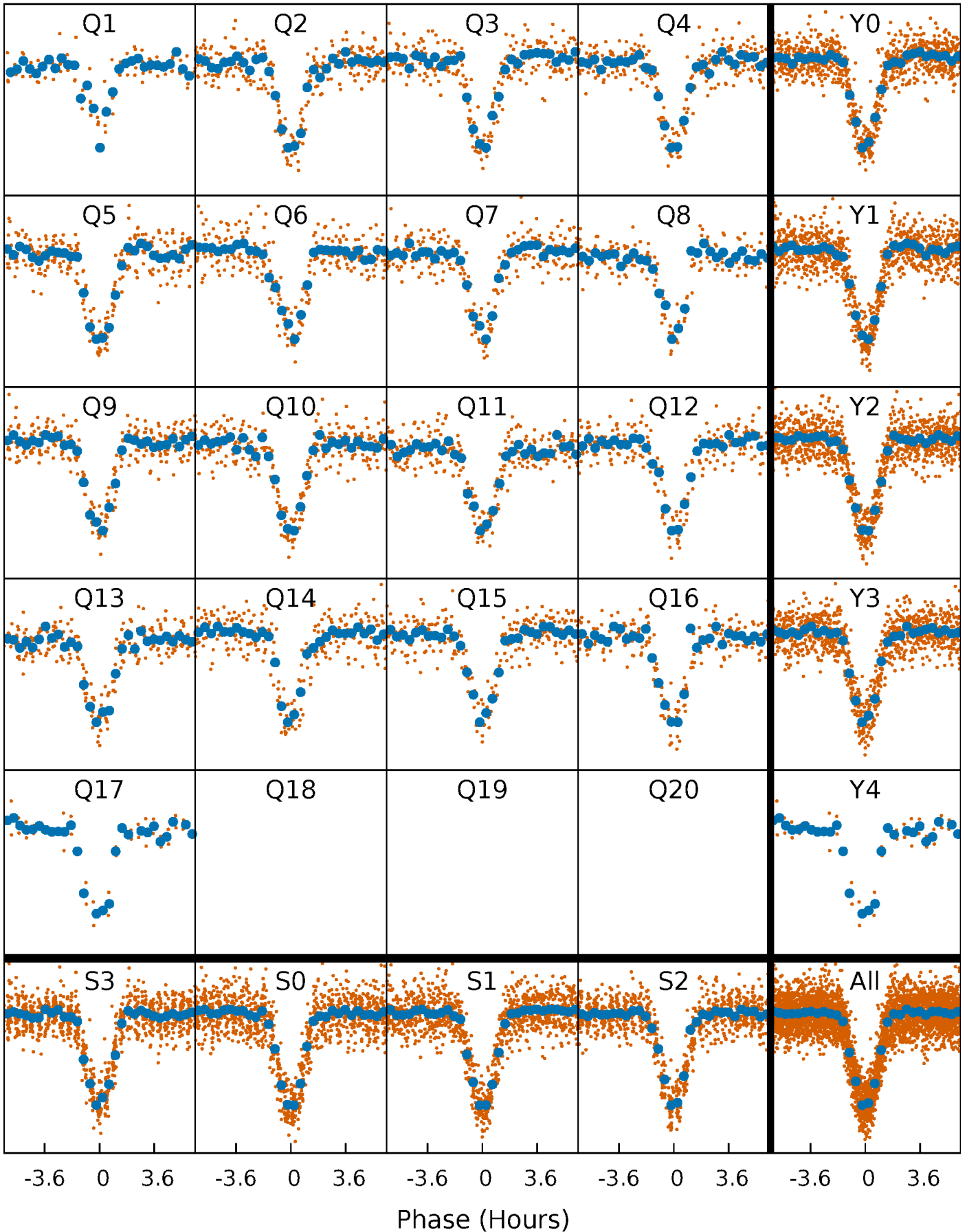


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



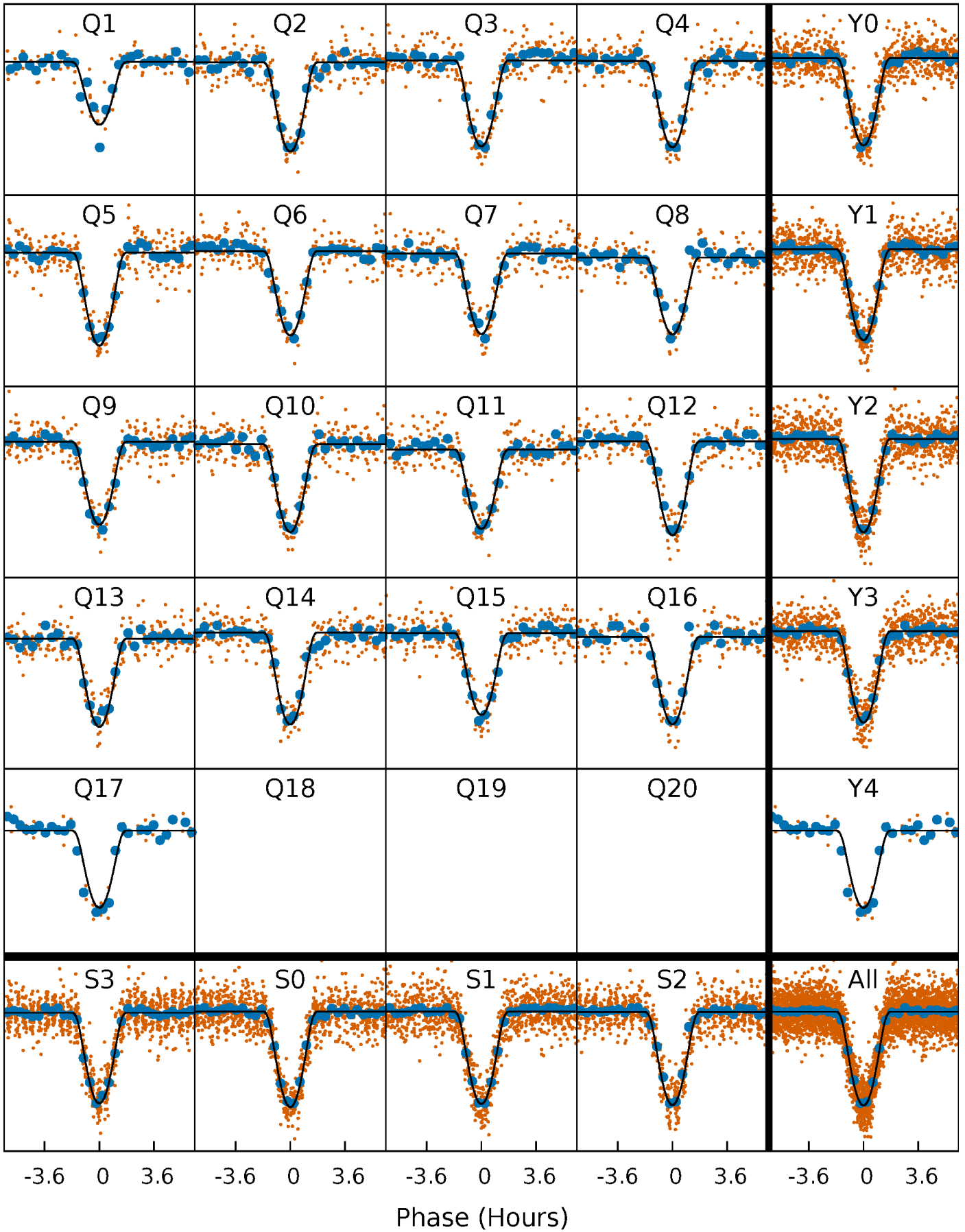
PDC Quarter-Phased Transit Curves

TCE 004946680-02 P= 8.665267 Days $T_0=135.908859$ (BKJD)



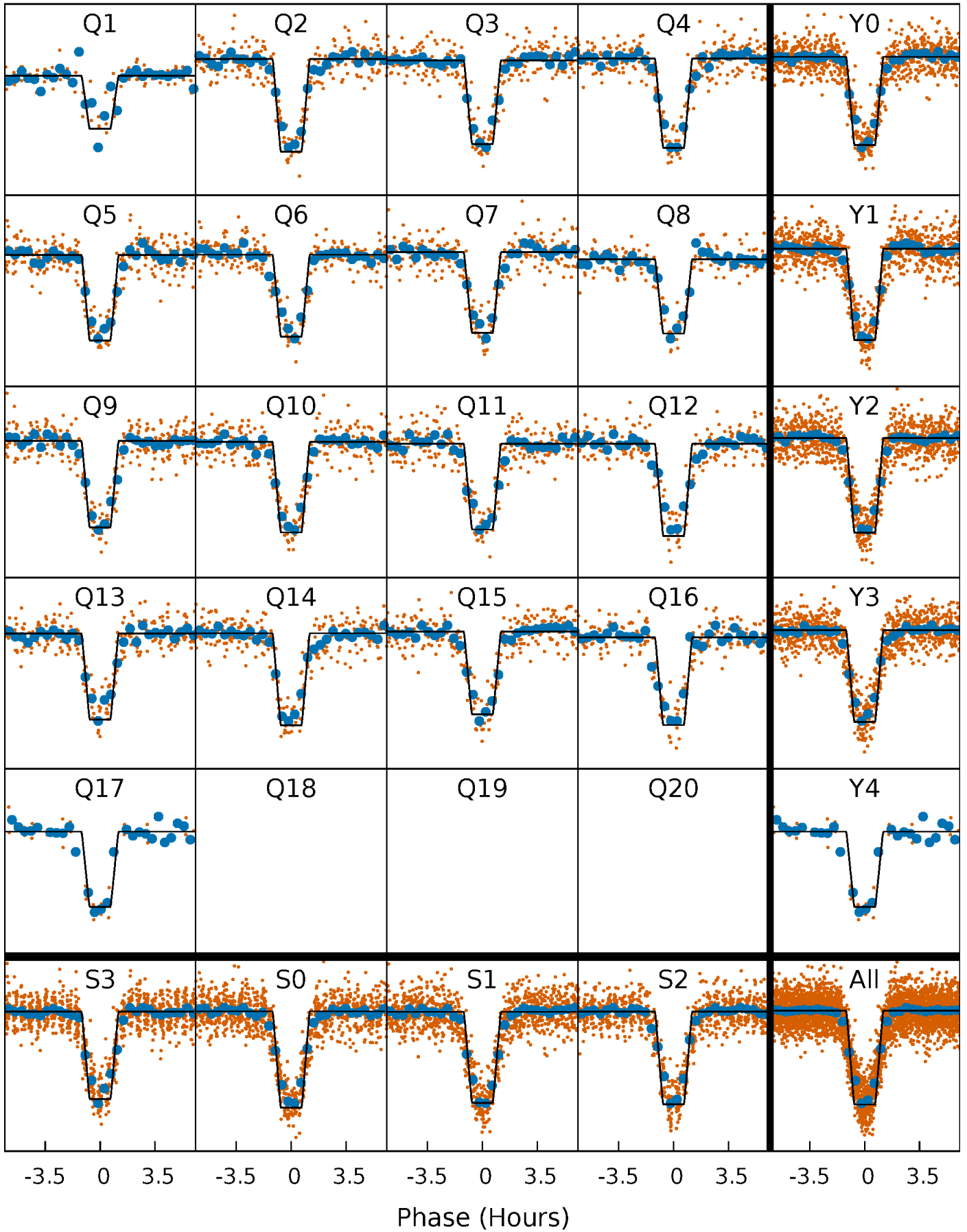
DV Quarter-Phased Transit Curves

TCE 004946680-02 $P = 8.665267$ Days $T_0 = 135.908859$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

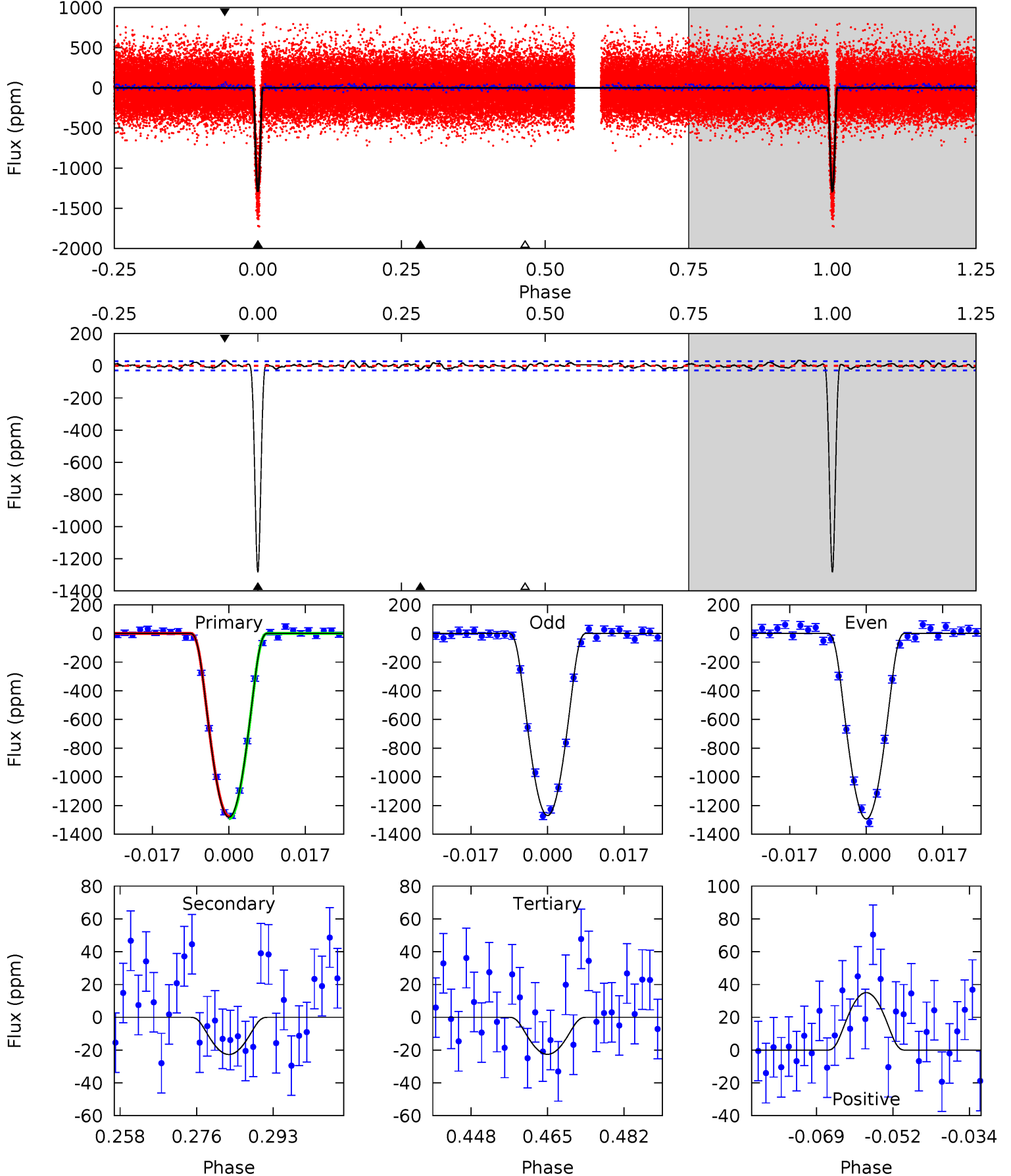
TCE 004946680-02 P= 8.665279 Days $T_0=135.907695$ (BKJD)



DV Model-Shift Uniqueness Test

004946680-02, P = 8.665267 Days, E = 127.243592 Days

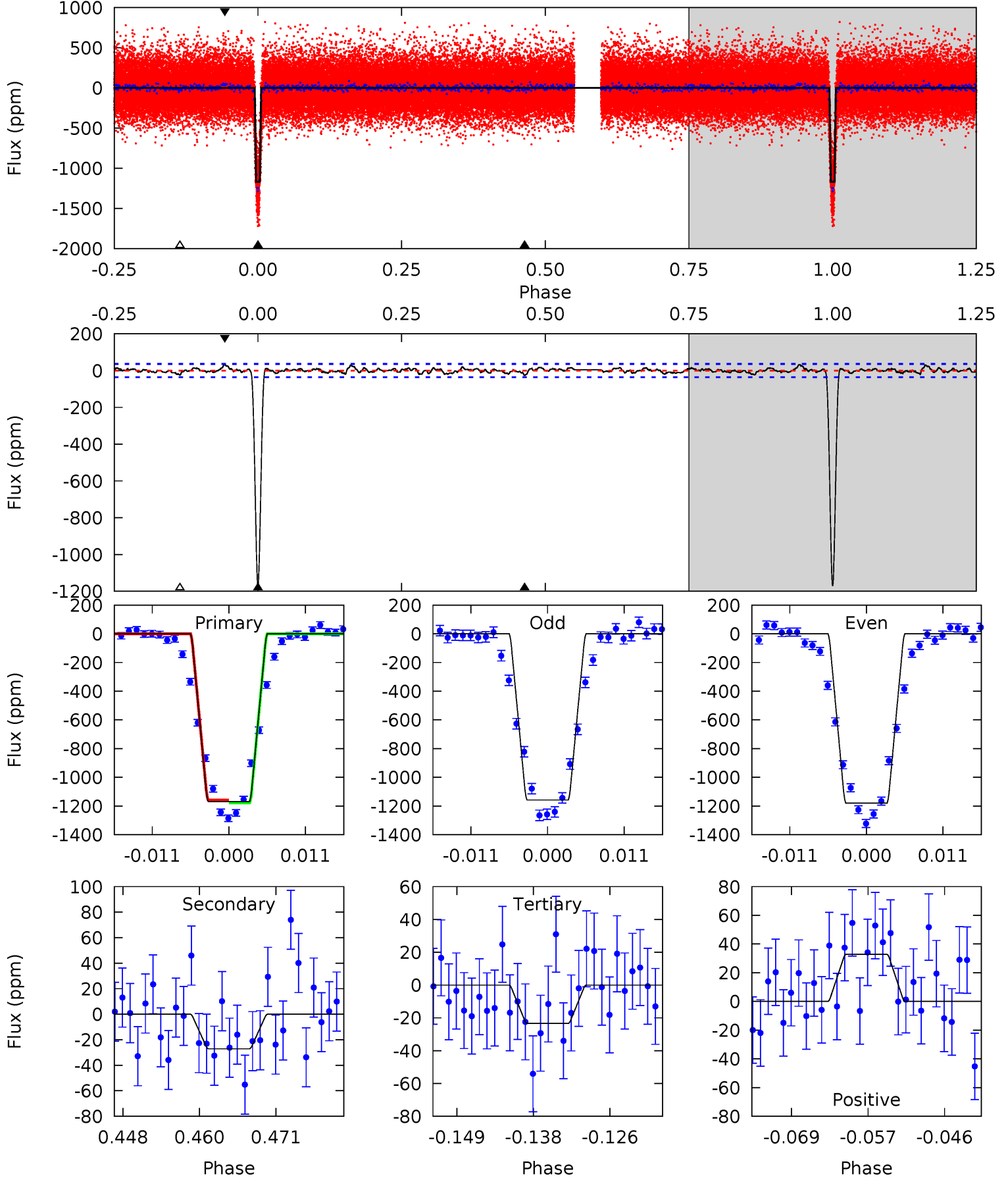
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
216.9	3.84	3.83	5.93	4.92	2.38	1.67	213.1	211.0	0.01	-2.09	2.04	0.99	0.03	1.42



Alt Model-Shift Uniqueness Test

004946680-02, P = 8.665279 Days, E = 127.242416 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
161.4	3.74	3.23	4.52	5.00	2.53	1.27	158.2	156.9	0.51	-0.78	1.53	0.99	0.03	1.34



Stellar Parameters For KIC 004946680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6071^{+213}_{-213}	$3.796^{+0.544}_{-0.128}$	$-0.120^{+0.300}_{-0.300}$	$2.389^{+0.527}_{-1.229}$	$1.301^{+0.201}_{-0.326}$	$0.134^{+0.823}_{-0.054}$
	+4%/-4%	+14%/-3%	+250%/-250%	+22%/-51%	+15%/-25%	+612%/-40%
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 004946680-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-23 ± 6	$13.63^{+5.02}_{-4.82}$	1879^{+141}_{-237}	2337^{+353}_{-4267}	$0.545^{+0.739}_{-0.275}$
Alt.	-27 ± 7	$8.18^{+4.25}_{-3.47}$	1863^{+155}_{-253}	2903^{+526}_{-390}	$1.787^{+3.331}_{-1.054}$

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

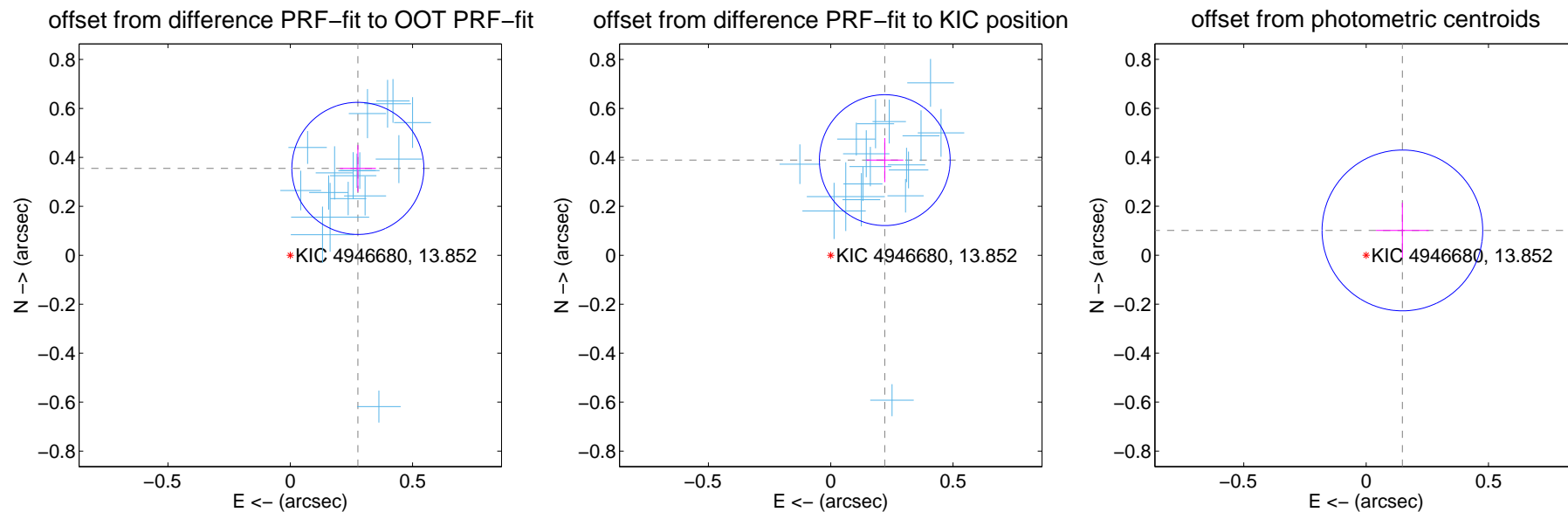
DV Centroid Data

Supplemental centroid analysis for 004946680-02. Kepler magnitude: 13.85. Transit SNR 128.51

There are 17 quarters with good PRF difference image offsets

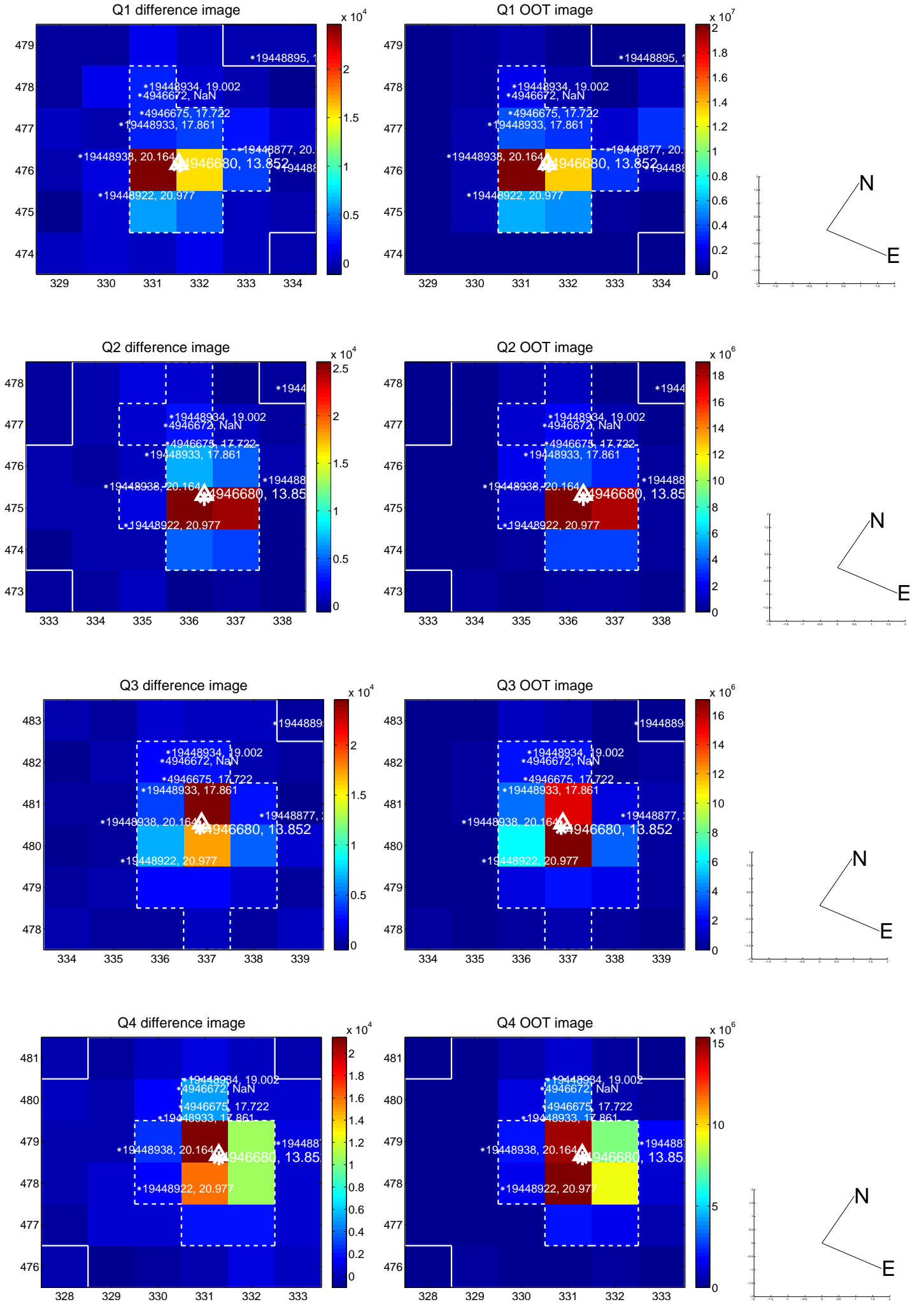
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.450 ± 0.090	5.00	-0.276 ± 0.074	0.355 ± 0.095
PRF-fit source offset from KIC position	0.447 ± 0.089	5.02	-0.221 ± 0.076	0.389 ± 0.090
photometric centroid source offset	0.18 ± 0.11	1.64	-0.15 ± 0.11	0.10 ± 0.11

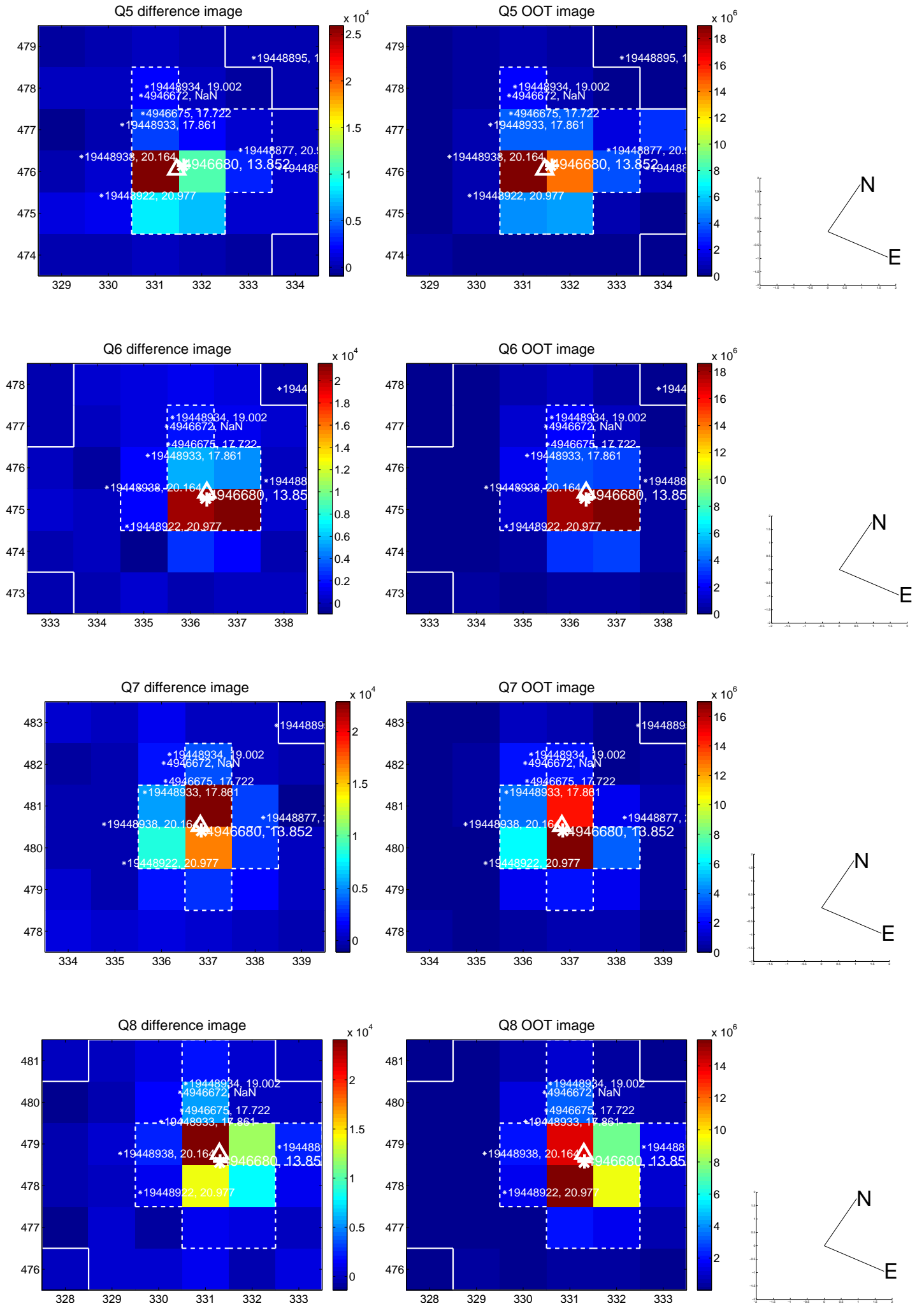


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

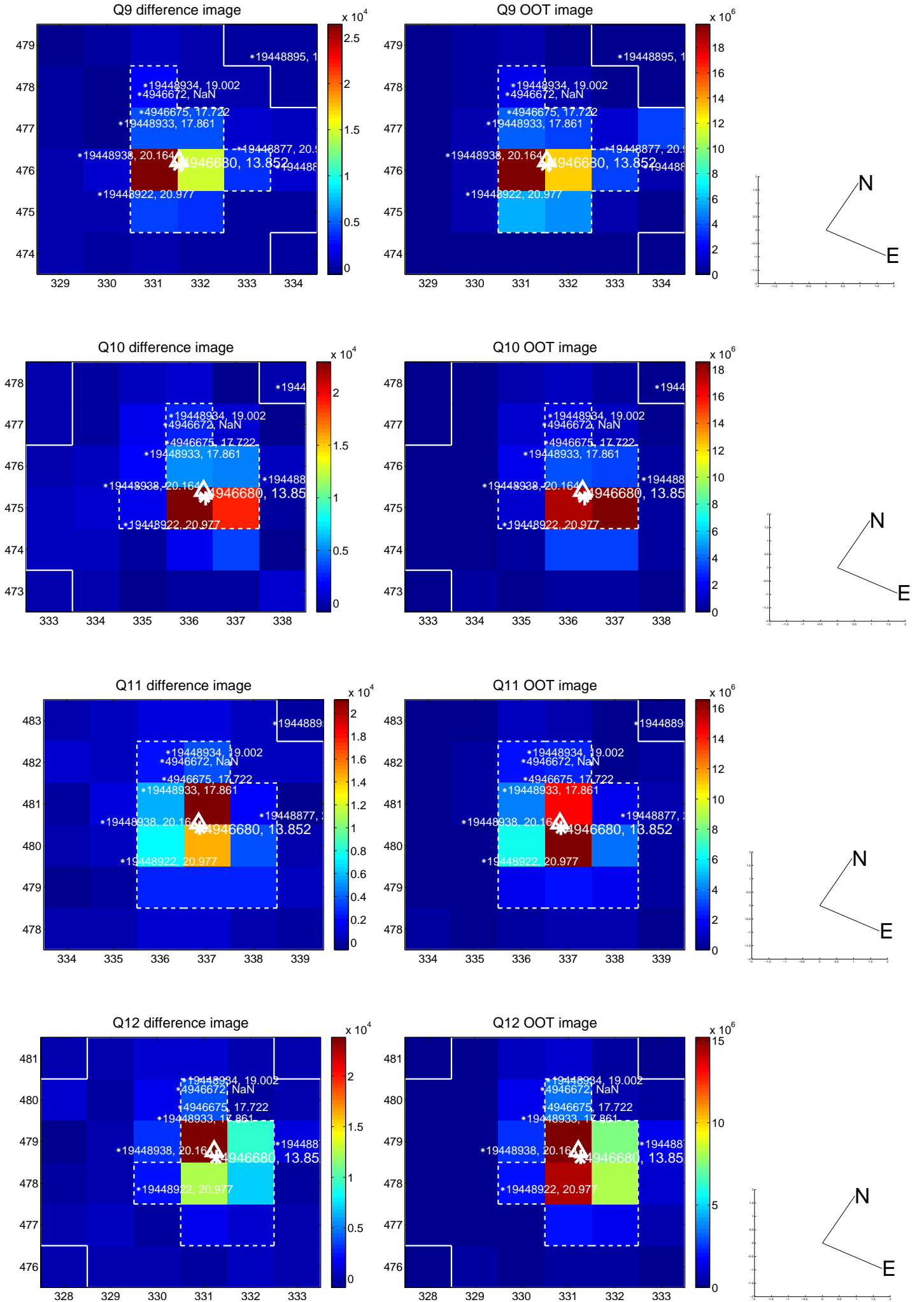
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



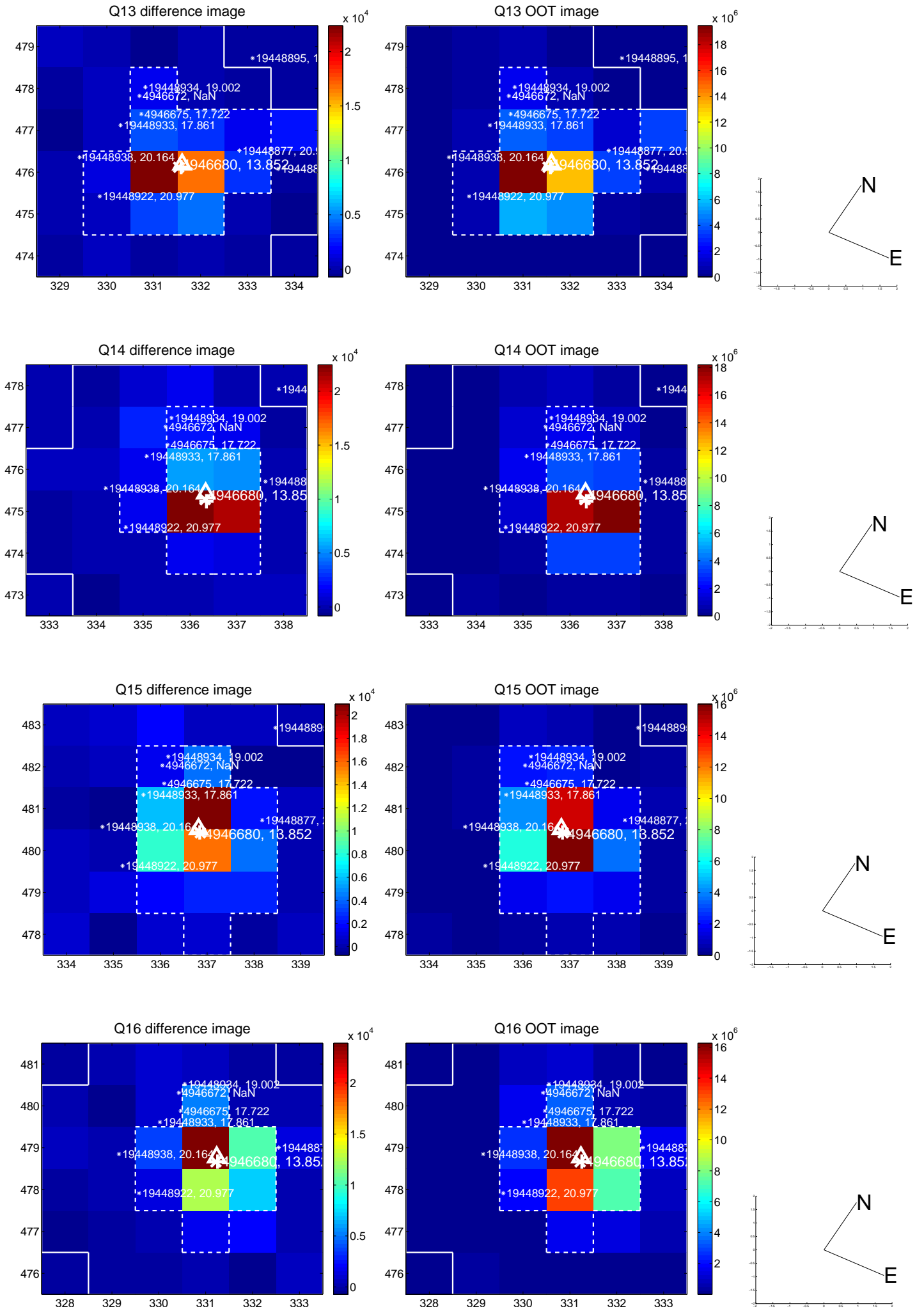
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

