

KIC 002860594

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})
002860594-01	OBS	6296.01	5.499944	132.816534	41663.3	10.213	2495.9	3764.0	2.63	7079	54.86	2947.01
002860594-02	OBS	No	2.749935	132.822147	5059.2	9.000	708.6	-1.0	2.63	7079	18.87	7426.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002860594-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
002860594-02	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.

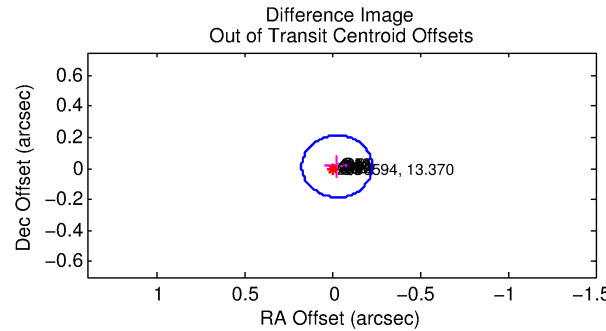
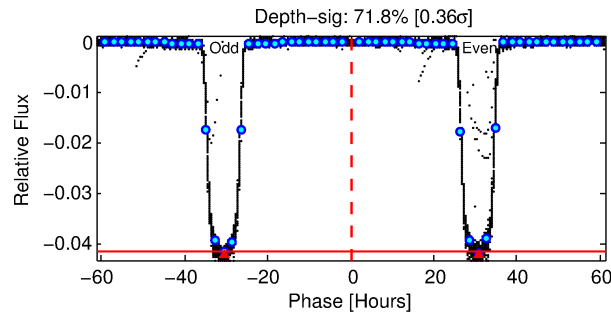
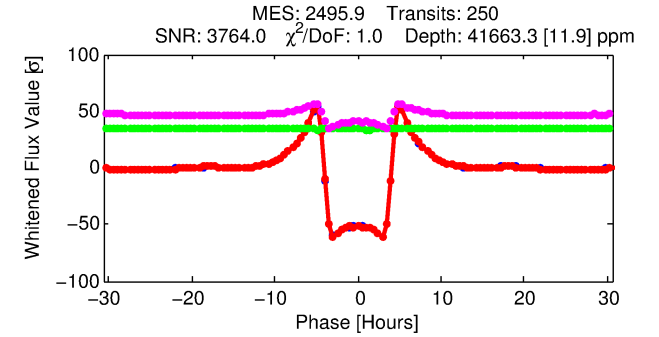
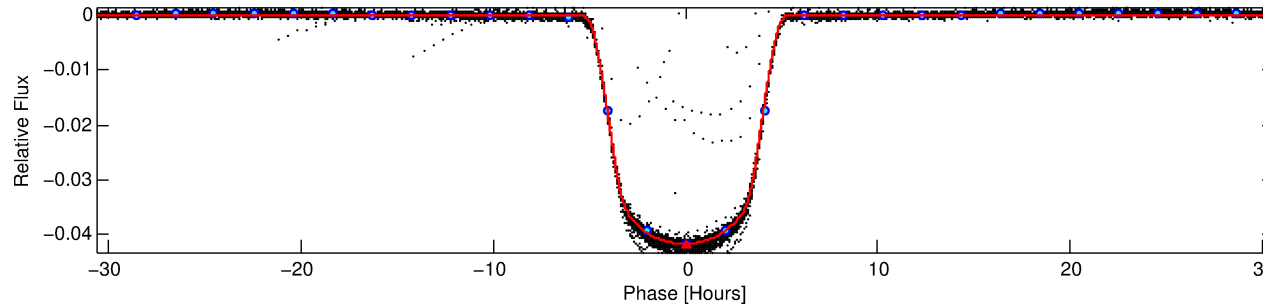
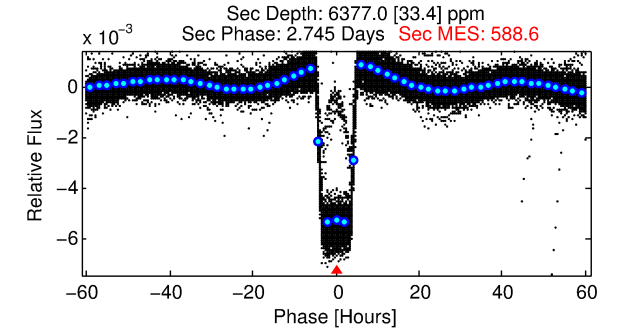
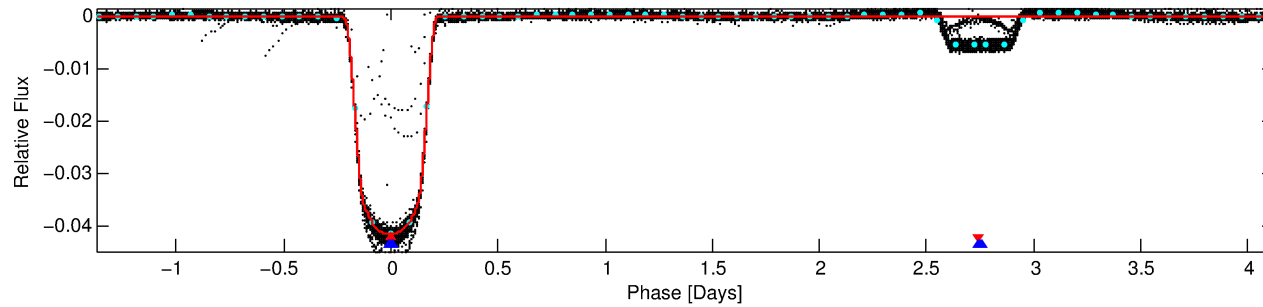
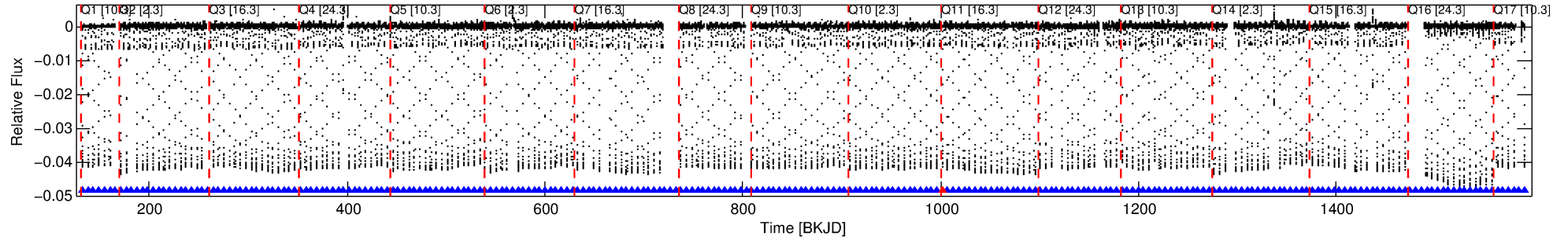
Ephemeris Match Information For 002860594-01

No Significant Match Found

DV One-Page Summary

KIC: 2860594 Candidate: 1 of 2 Period: 5.500 d
KOI: K06296.01 Corr: 0.944

Kp: 13.37 R*: 2.63 Rs Teff: 7079.0 K Logg: 3.83 Fe/H: -0.160



DV Fit Results:

Period = 5.49994 [0.00000] d
Epoch = 132.8165 [0.0000] BKJD
Rp/R* = 0.1909 [0.0000]
a/R* = 4.74 [0.00]
b = 0.35 [0.00]
Seff = 2947.01 [1021.27]
Teff = 1879 [163] K
Rp = 54.86 [13.60] Re
a = 0.0728 [0.0163] AU
Ag = 6.17 [2.12] [2.44σ]
Teffp = 4579 [55] K [15.73σ]

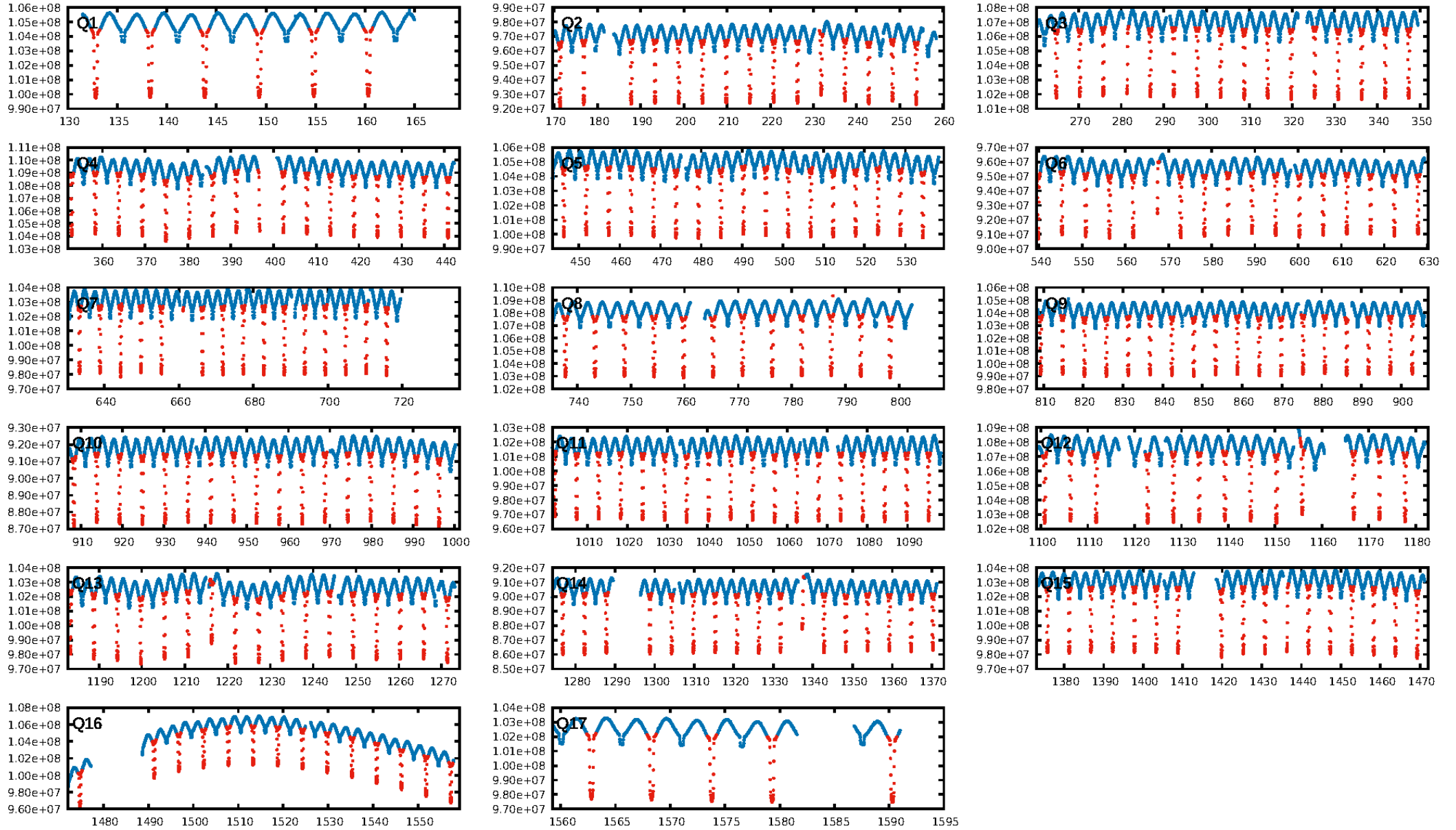
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.85σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [238/239]
GhostDiagnostic-chr: 1.854
Centroid-sig: 0.0%
Centroid-so: 0.360 arcsec [180.85σ]
OotOffset-rm: 0.029 arcsec [0.43σ]
KicOffset-rm: 0.079 arcsec [1.17σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

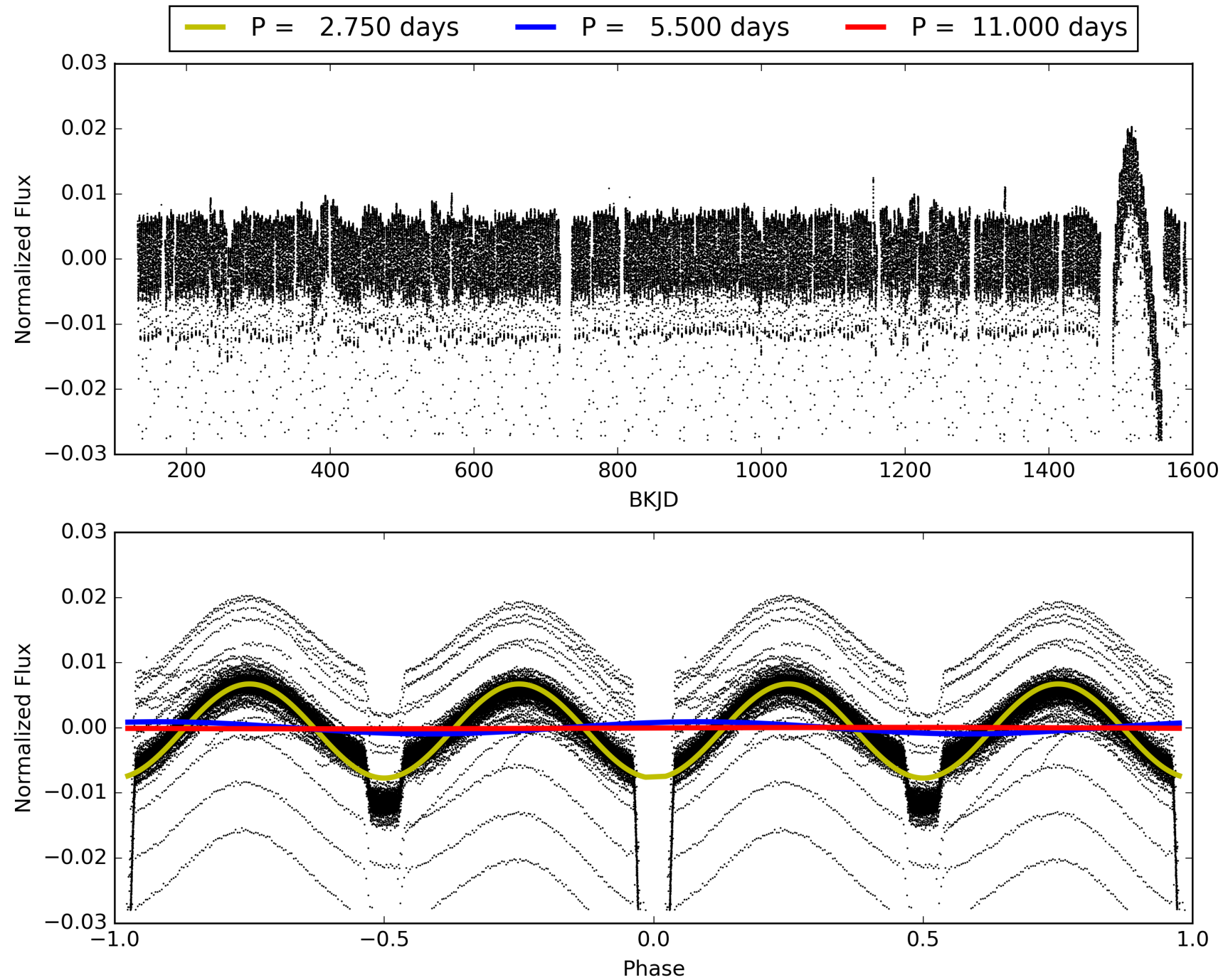
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:50:55 Z

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

TCE 002860594-01, PDC Light Curves

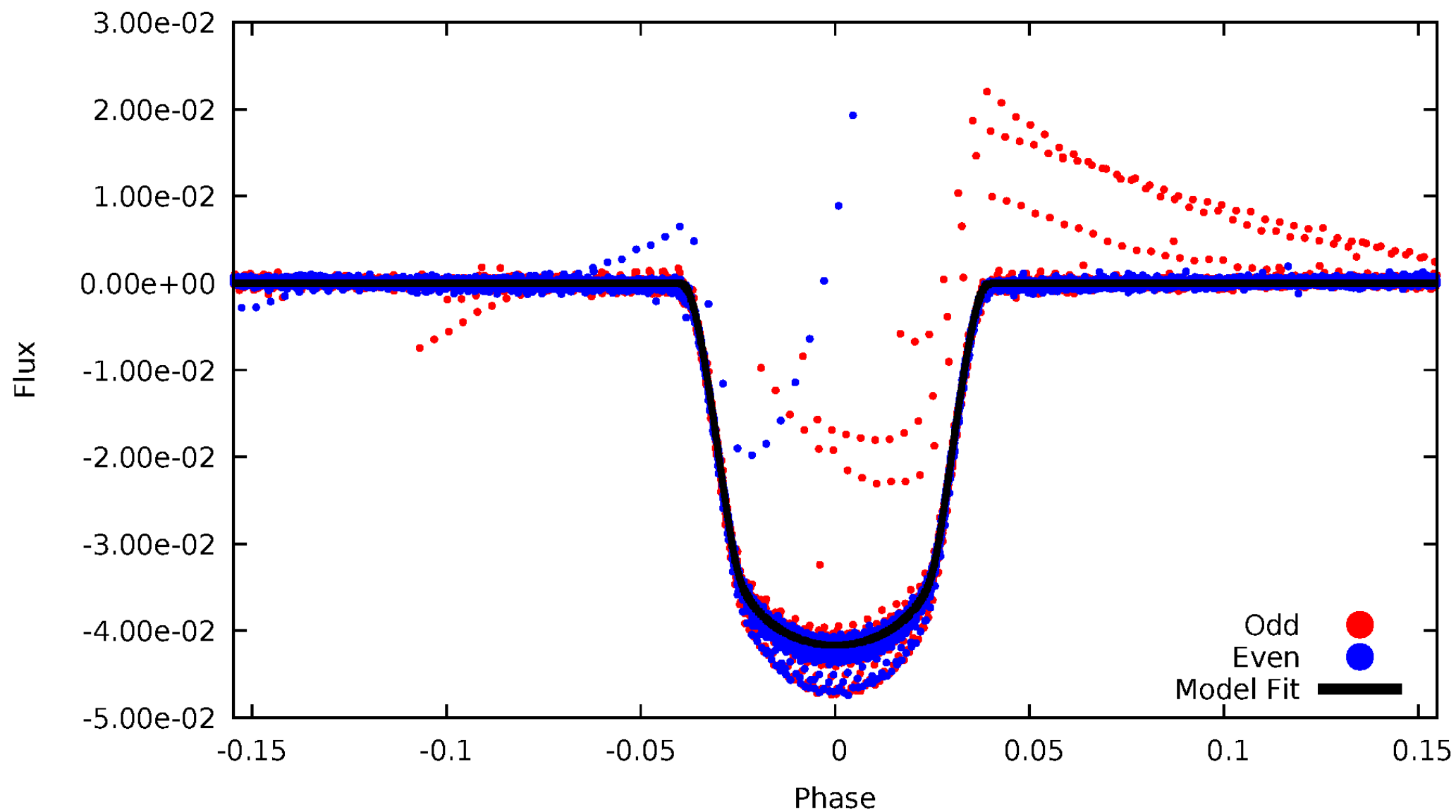


TCE 002860594-01



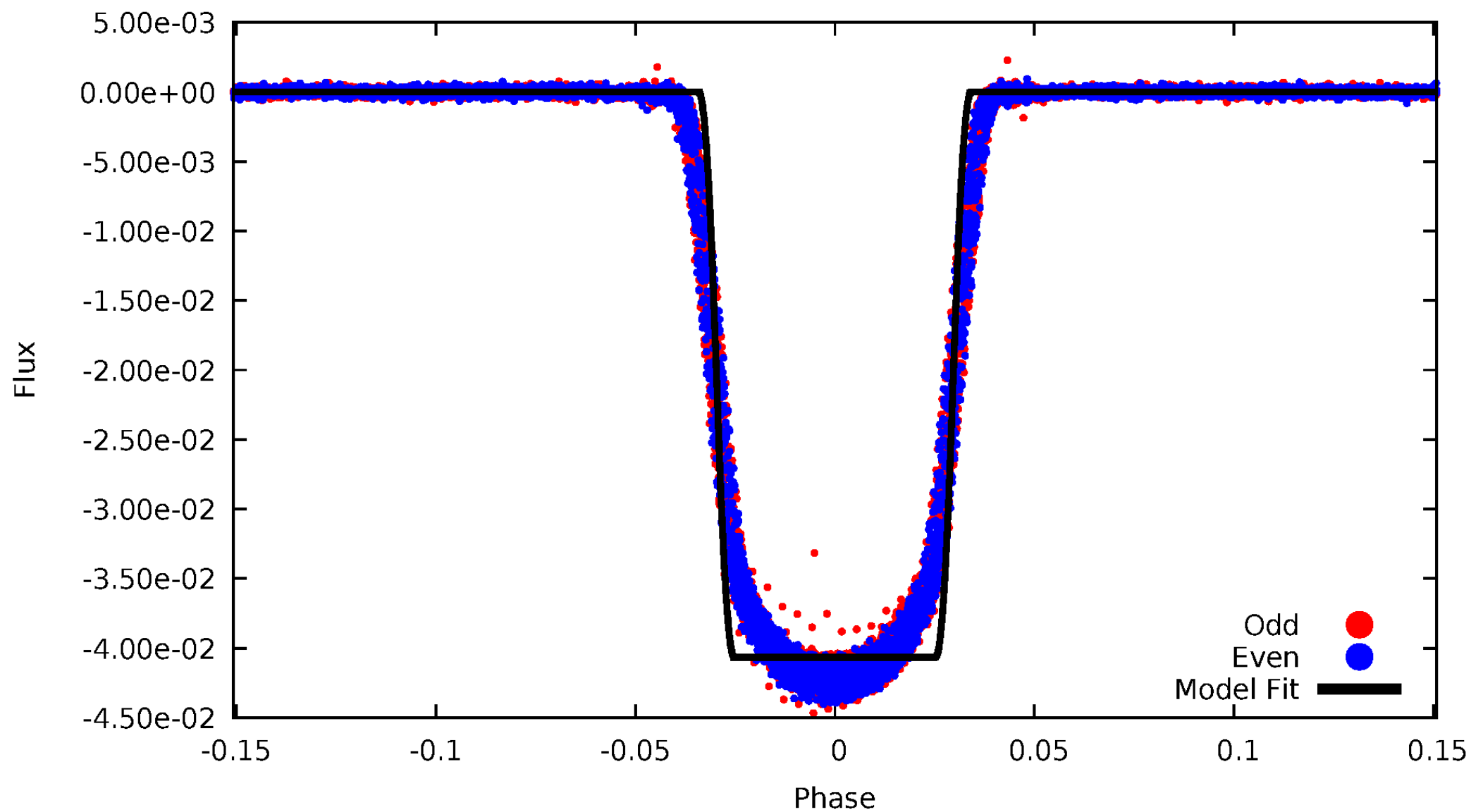
DV Odd/Even

TCE 002860594-01



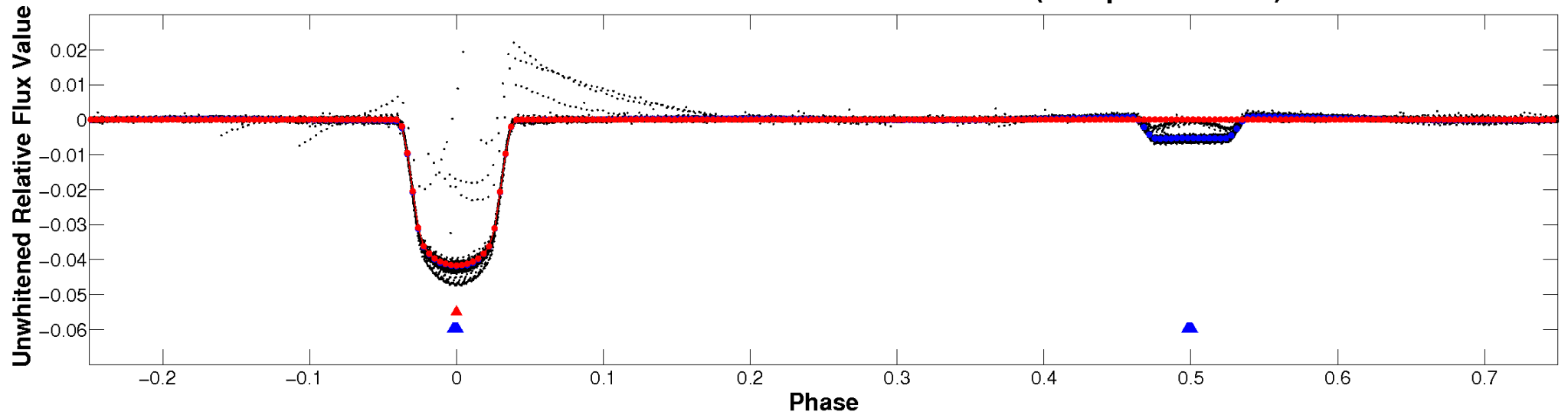
ALT Odd/Even

TCE 002860594-01

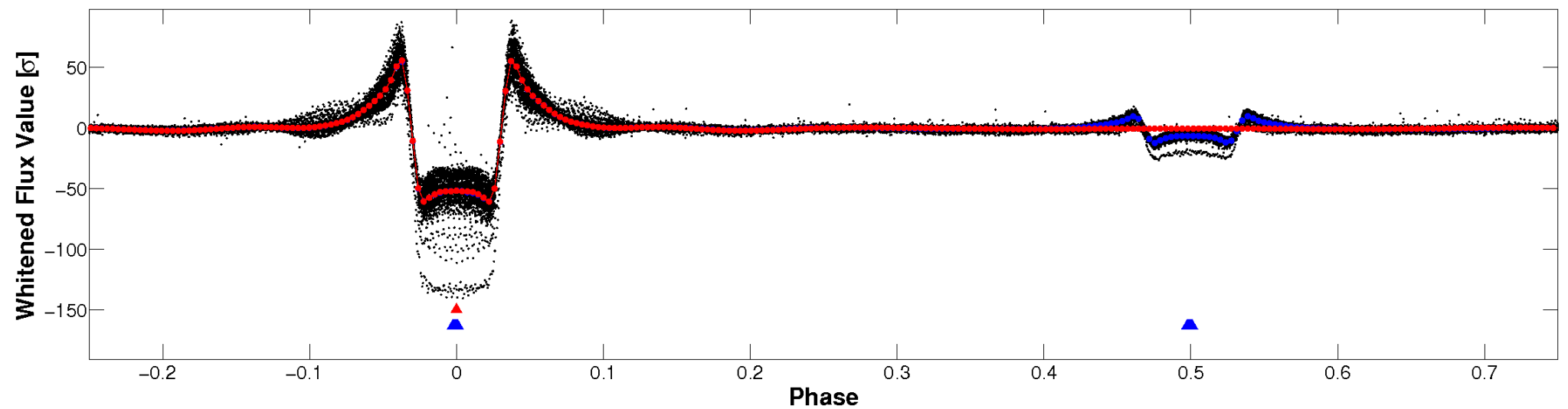


Non-Whitened Vs. Whitened Light Curve

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

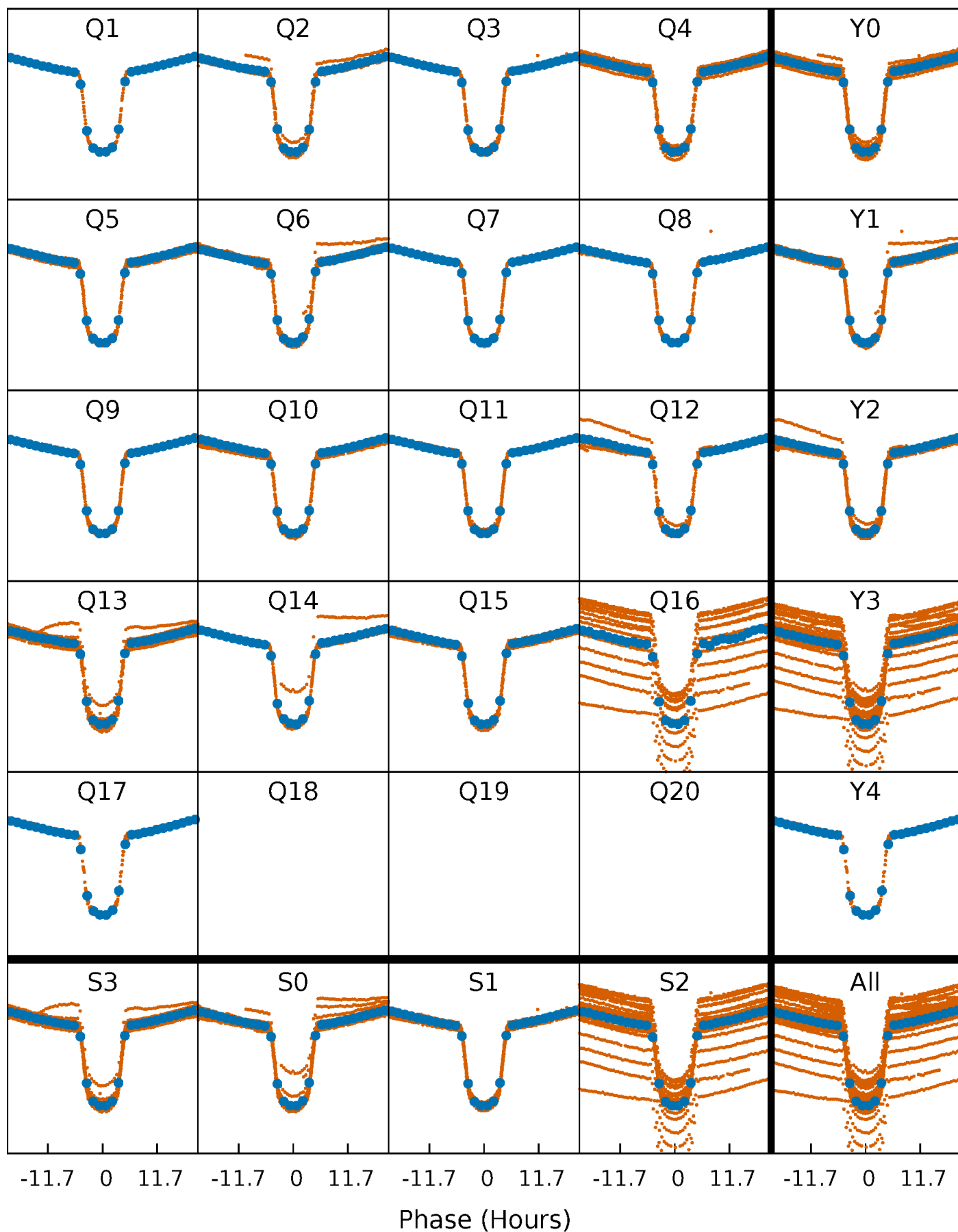


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



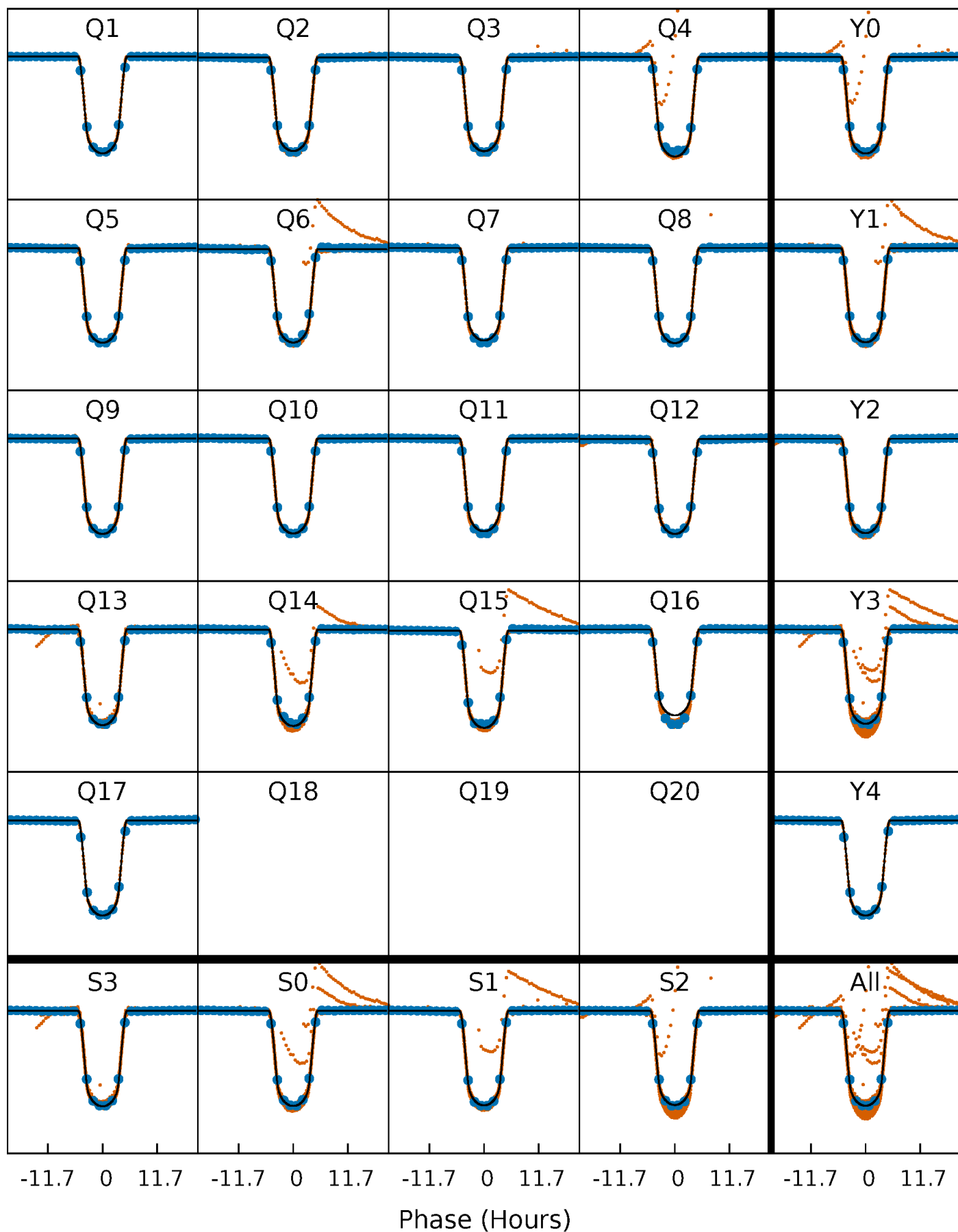
PDC Quarter-Phased Transit Curves

TCE 002860594-01 P= 5.499944 Days $T_0=132.816534$ (BKJD)



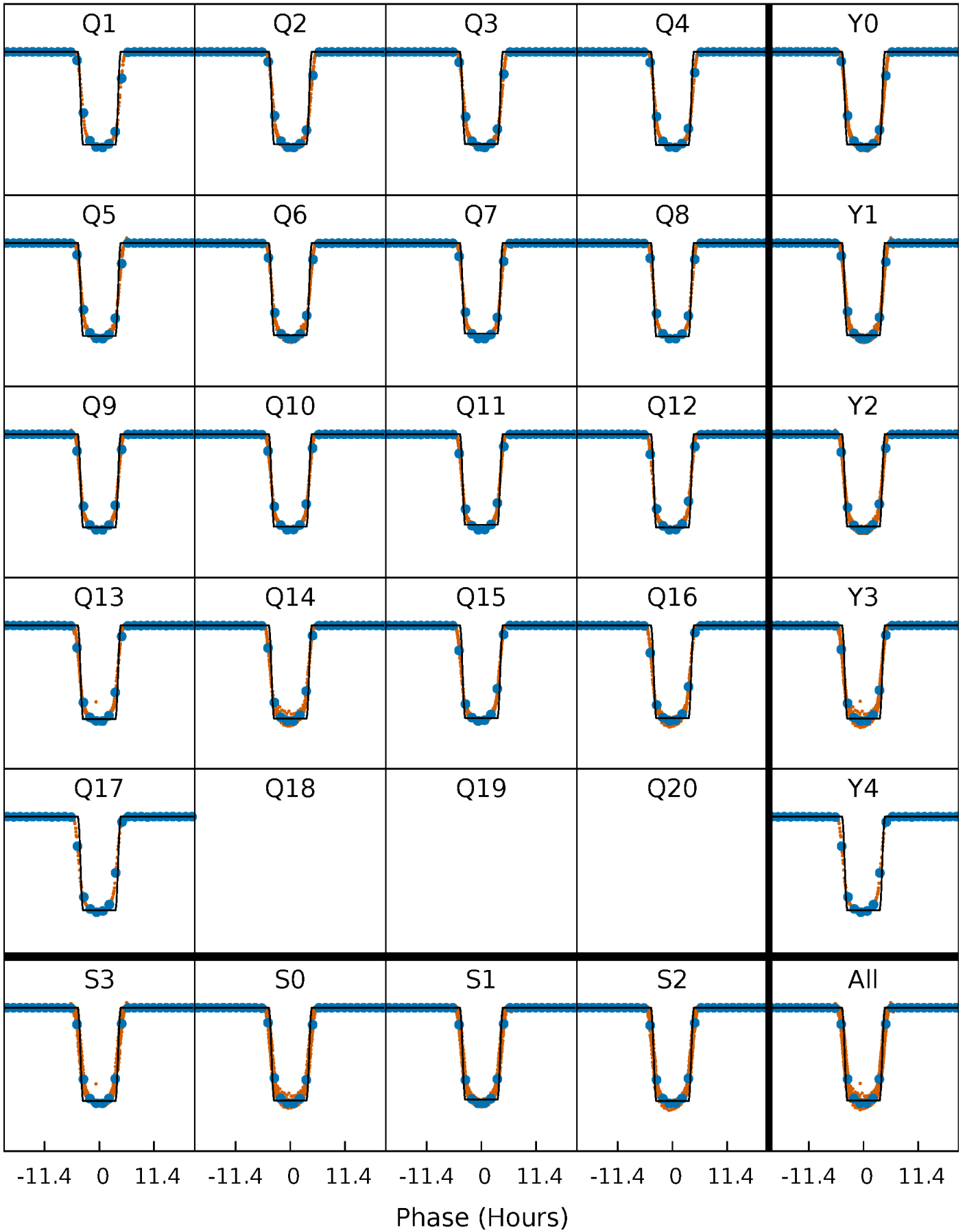
DV Quarter-Phased Transit Curves

TCE 002860594-01 P= 5.499944 Days $T_0=132.816534$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

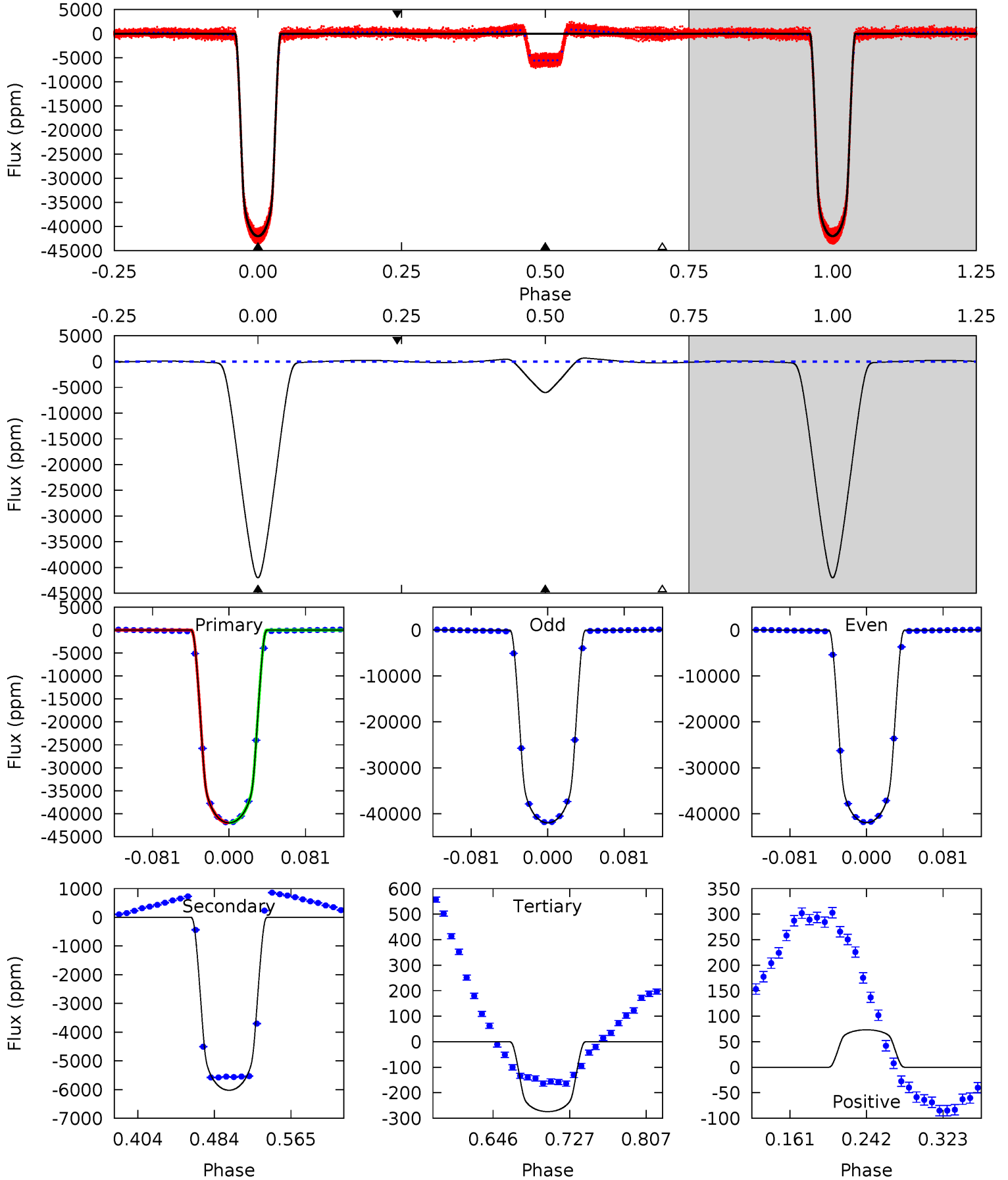
TCE 002860594-01 P= 5.500037 Days $T_0=132.804307$ (BKJD)



DV Model-Shift Uniqueness Test

002860594-01, P = 5.499944 Days, E = 127.316590 Days

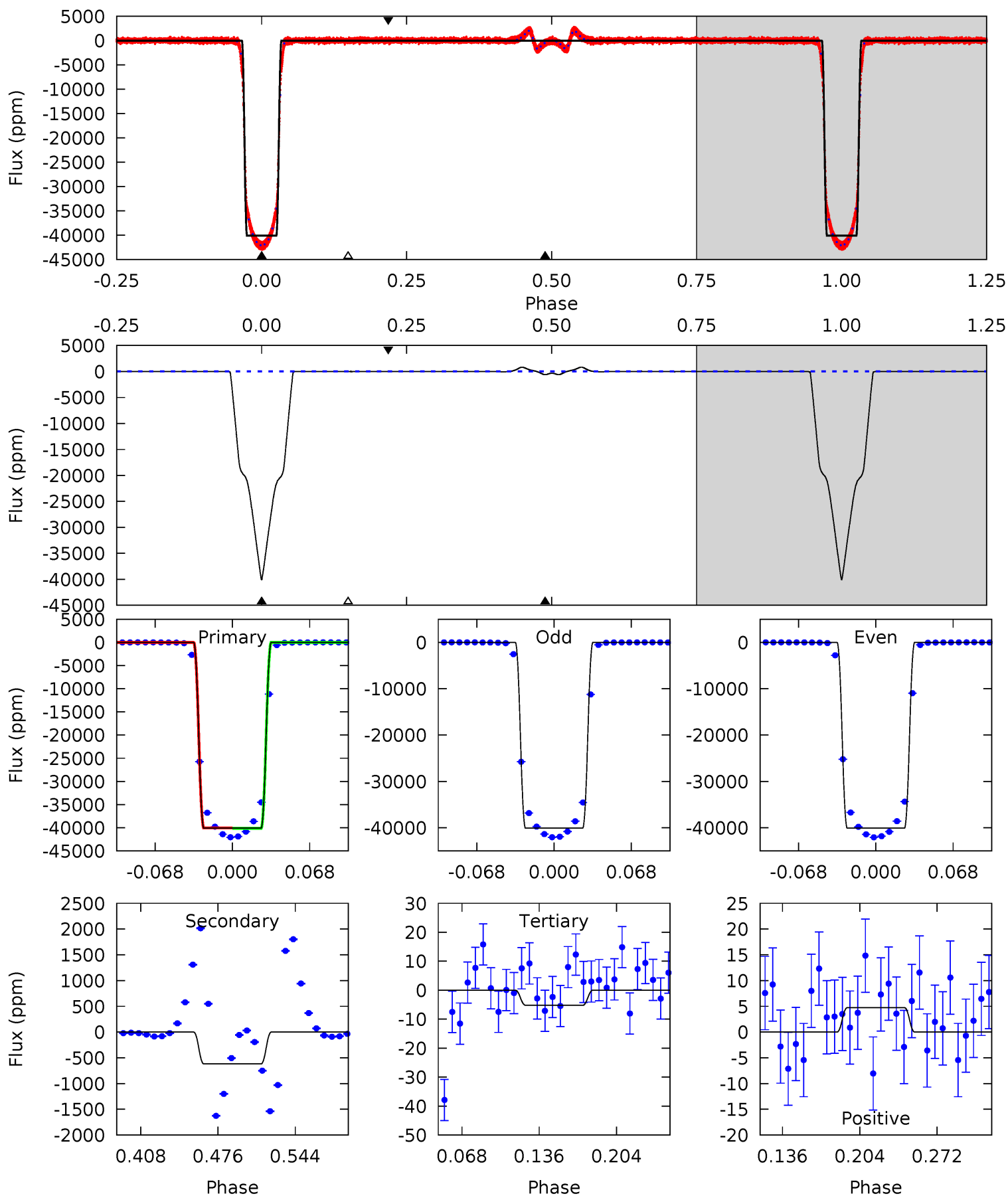
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9119	1308	59.5	15.9	4.61	1.75	38.1	9060	9103	1249	1292	3.30	1.00	0.02	6.03



Alt Model-Shift Uniqueness Test

002860594-01, P = 5.500037 Days, E = 127.304270 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11753	181.2	1.52	1.39	4.65	1.82	13.6	11751	11751	179.7	179.8	2.74	1.00	0.02	0



Stellar Parameters For KIC 002860594

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7079^{+74}_{-84}	$3.827^{+0.196}_{-0.098}$	$-0.160^{+0.150}_{-0.150}$	$2.634^{+0.436}_{-0.653}$	$1.695^{+0.139}_{-0.208}$	$0.131^{+0.133}_{-0.041}$
	+1%/-1%	+5%/-3%	+94%/-94%	+17%/-25%	+8%/-12%	+102%/-31%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 002860594-01 / KOI 6296.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-6023 ± 5	$53.78^{+5.37}_{-6.69}$	2595^{+122}_{-161}	4593^{+38}_{-40}	$6.068^{+1.776}_{-0.957}$
Alt.	-618 ± 3	$58.04^{+4.98}_{-7.78}$	2617^{+109}_{-160}	2771^{+98}_{-90}	$0.540^{+0.155}_{-0.080}$

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

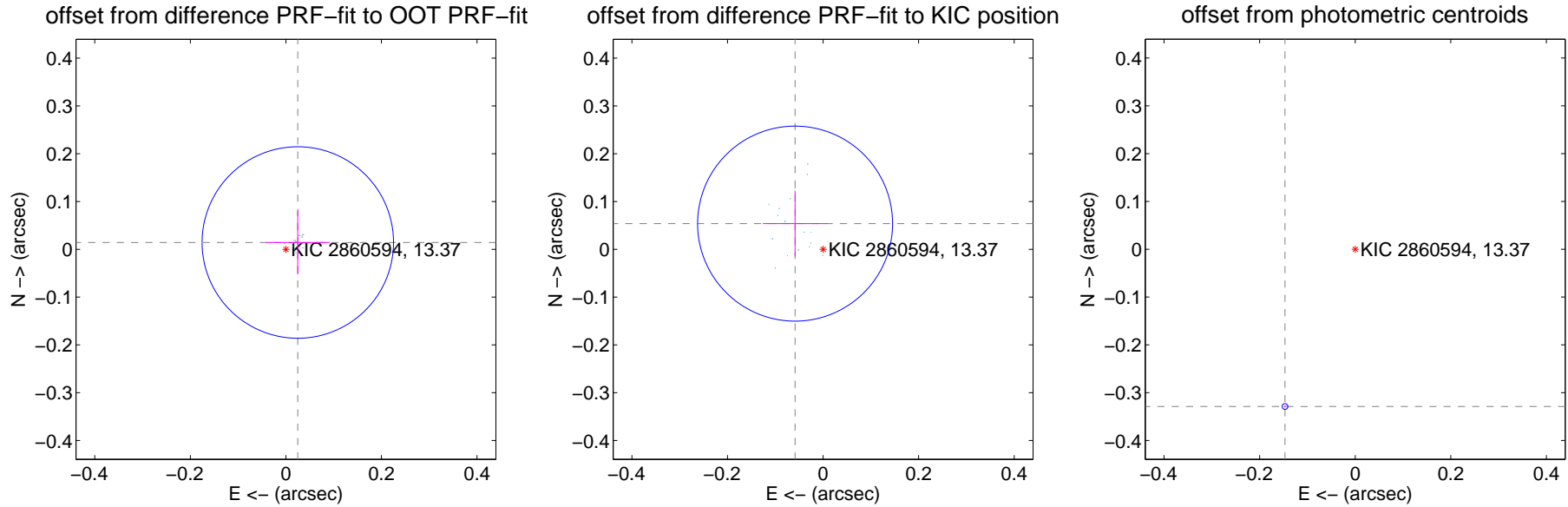
DV Centroid Data

Supplemental centroid analysis for 002860594-01. Kepler magnitude: 13.37. Transit SNR 3763.99

There are 17 quarters with good PRF difference image offsets

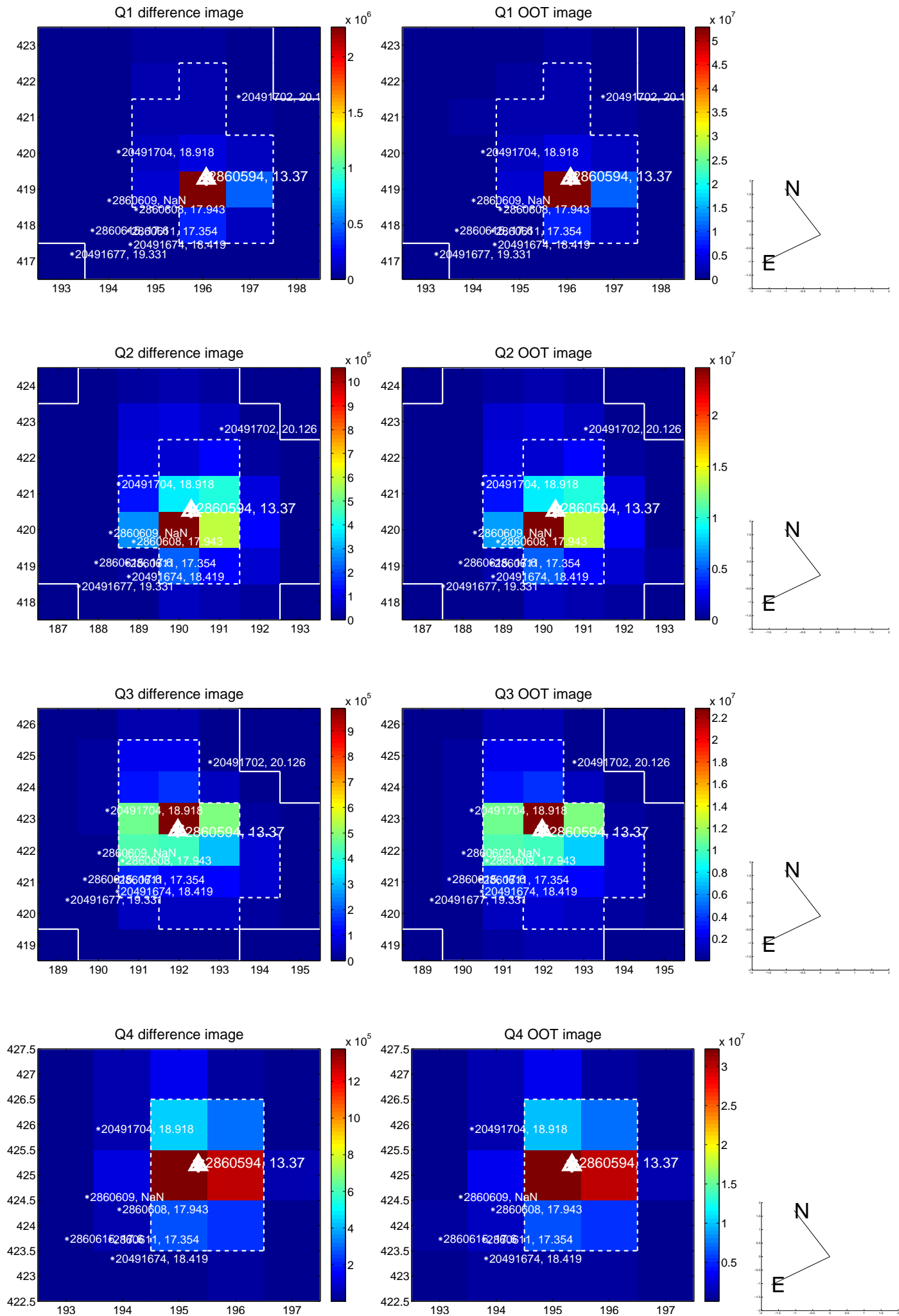
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.029 ± 0.067	0.43	-0.025 ± 0.067	0.014 ± 0.067
PRF-fit source offset from KIC position	0.079 ± 0.068	1.17	0.059 ± 0.067	0.054 ± 0.069
photometric centroid source offset	0.36 ± 0.00	180.85	0.15 ± 0.00	-0.33 ± 0.00

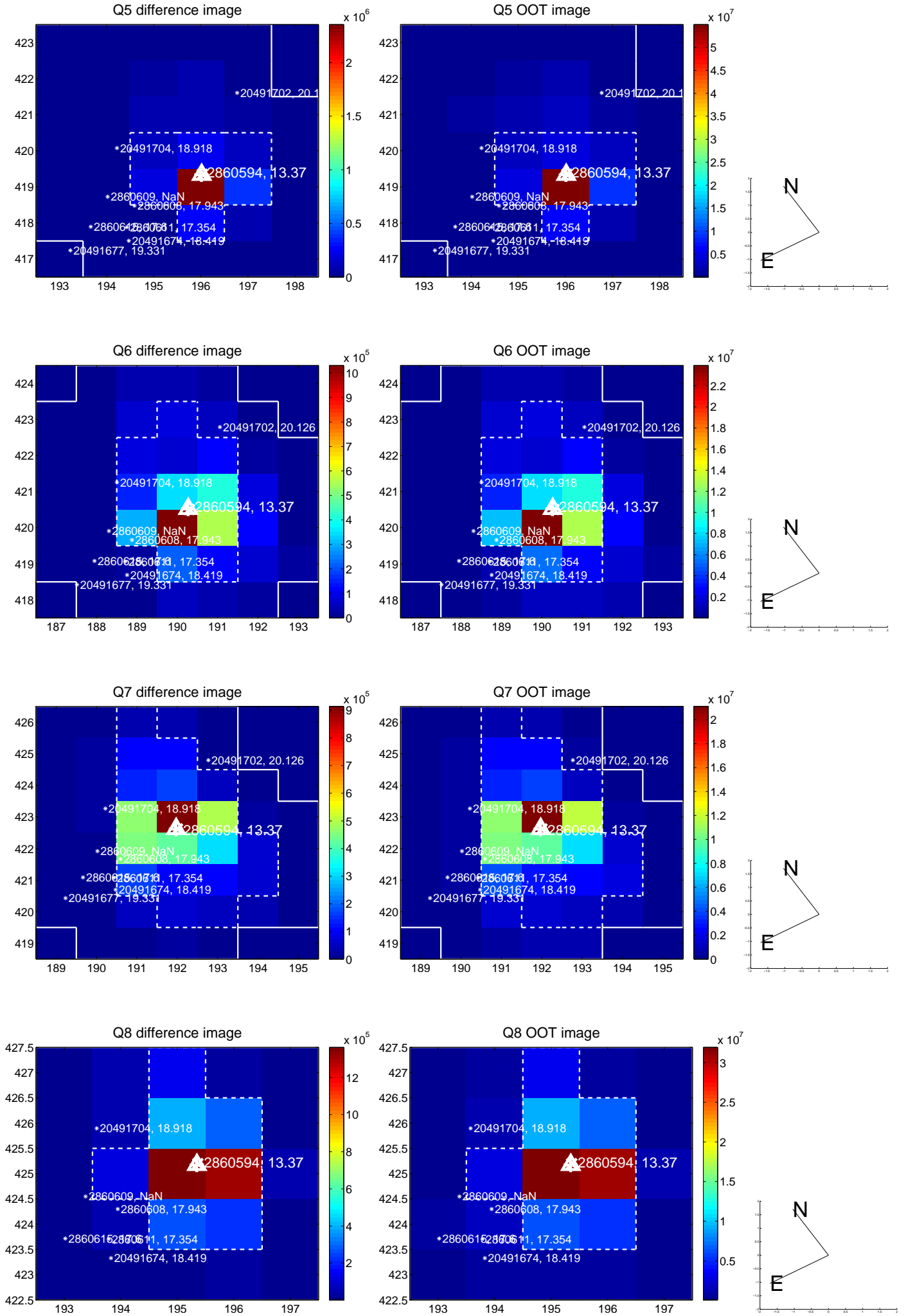


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

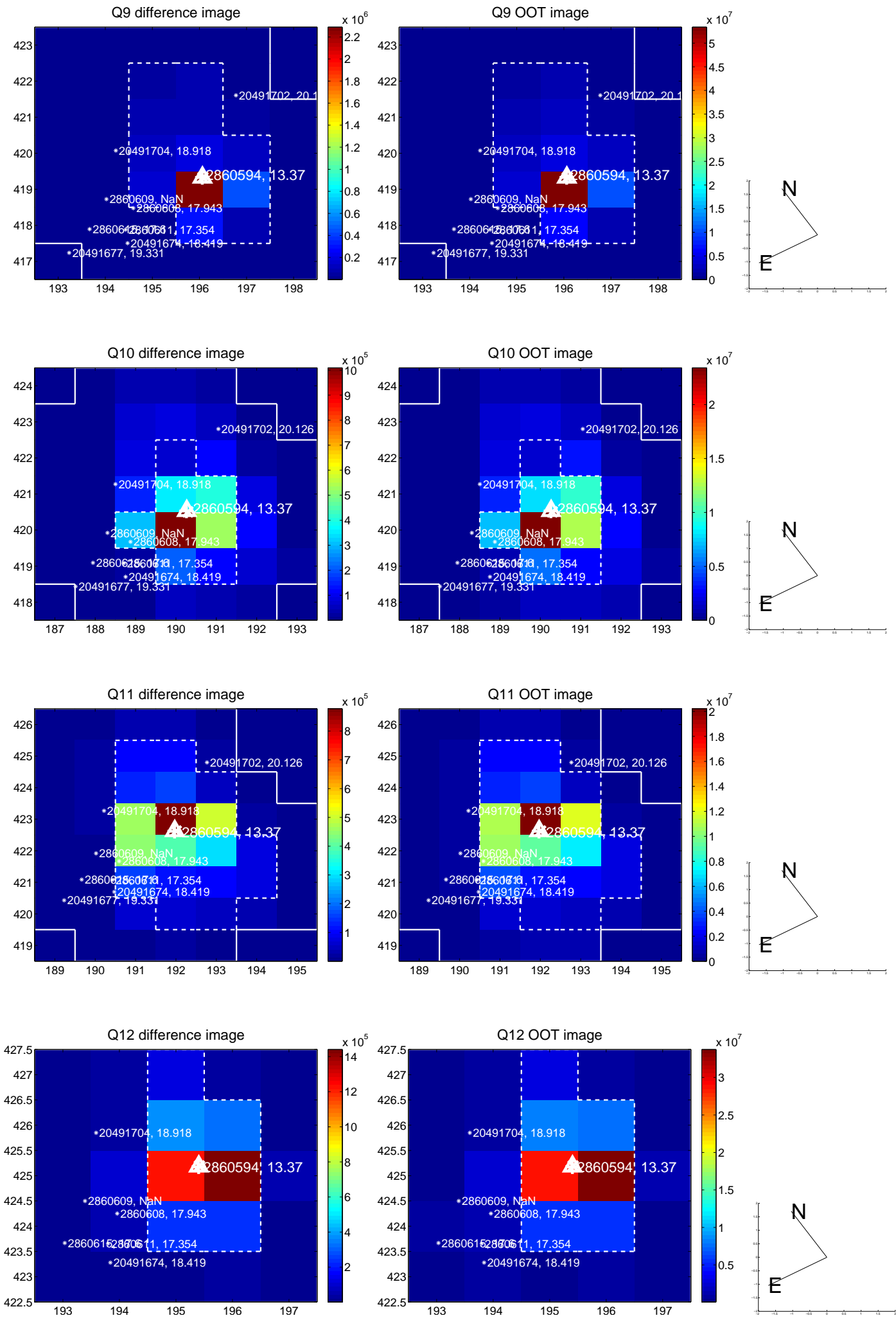
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



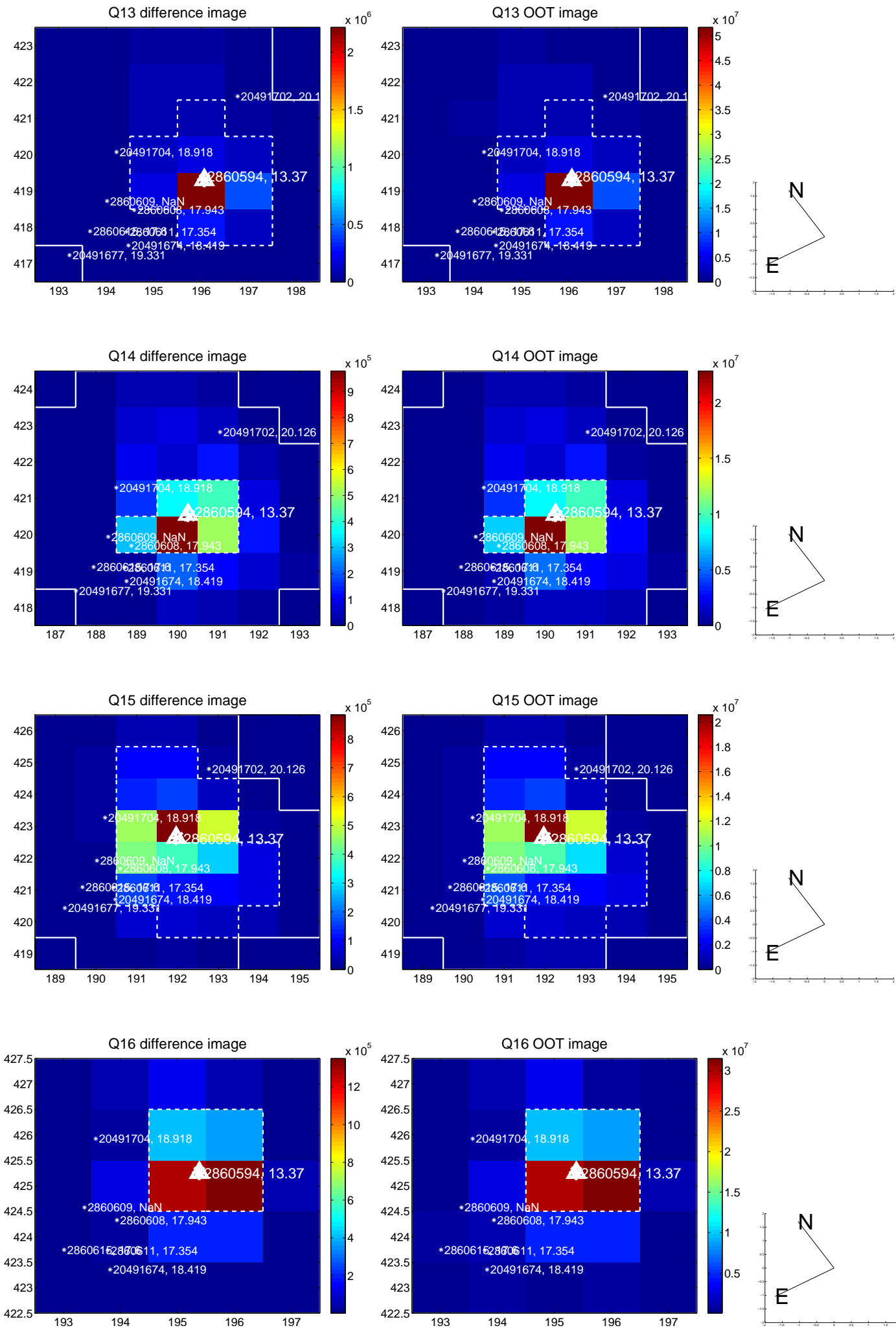
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



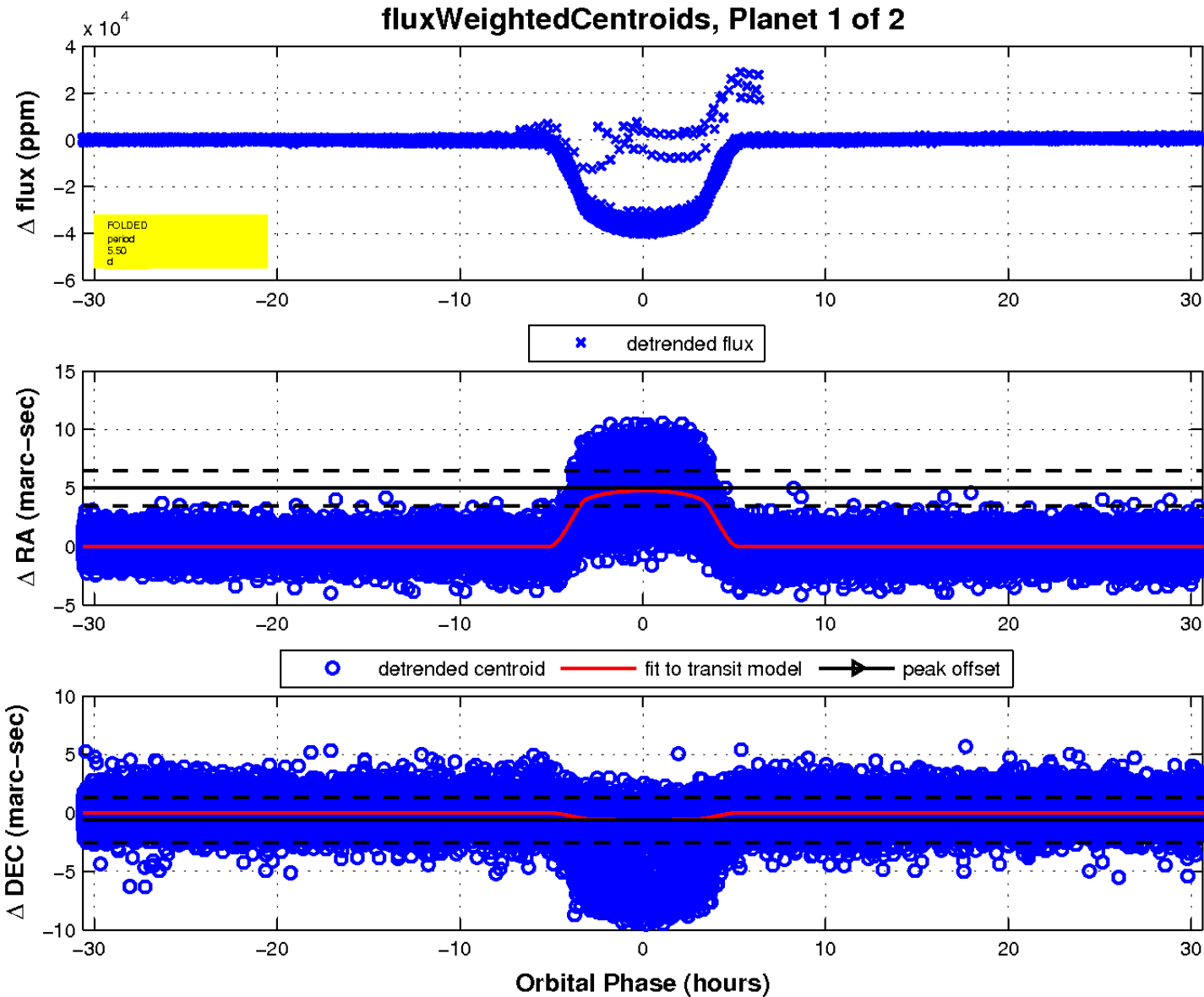
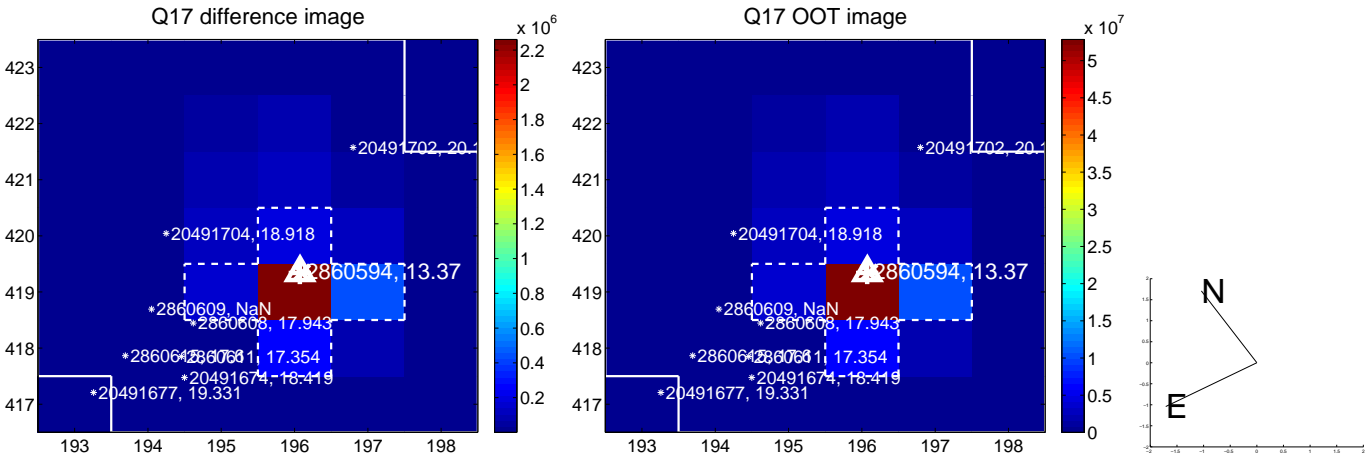
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

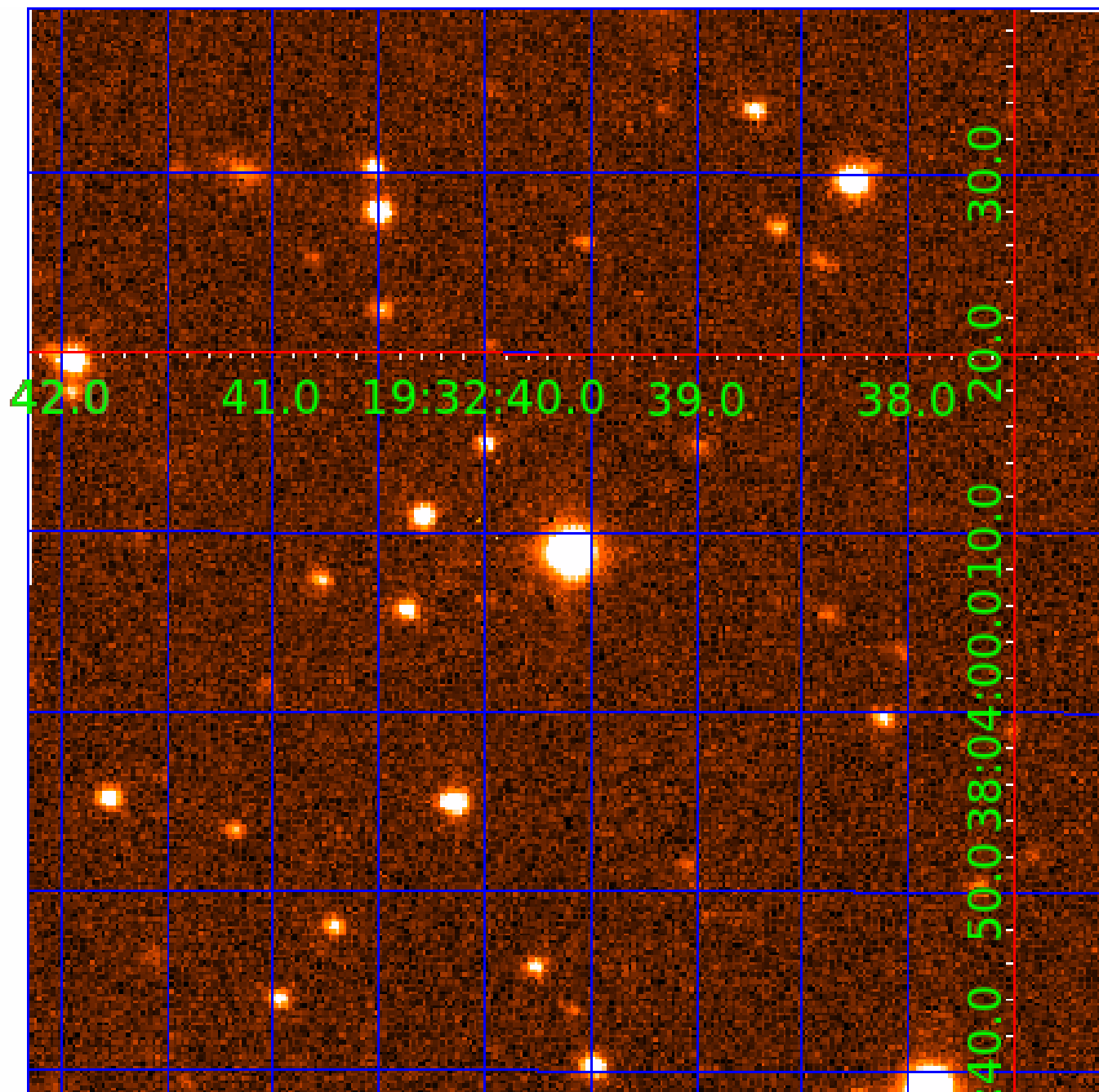


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002860594

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})
002860594-01	OBS	6296.01	5.499944	132.816534	41663.3	10.213	2495.9	3764.0	2.63	7079	54.86	2947.01
002860594-02	OBS	No	2.749935	132.822147	5059.2	9.000	708.6	-1.0	2.63	7079	18.87	7426.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002860594-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
002860594-02	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.

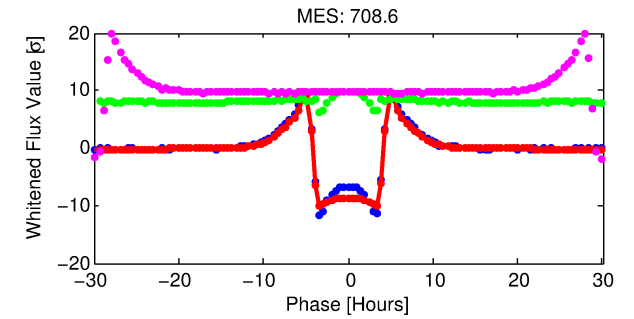
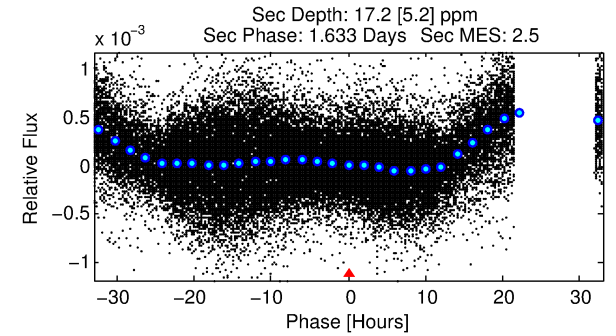
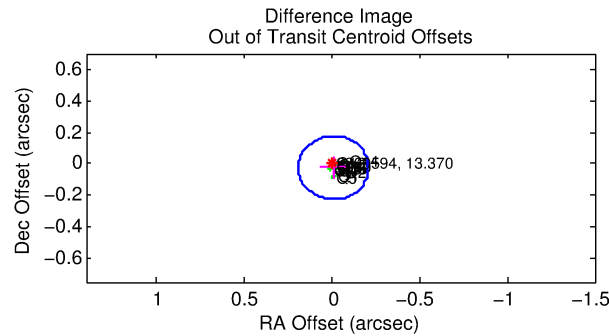
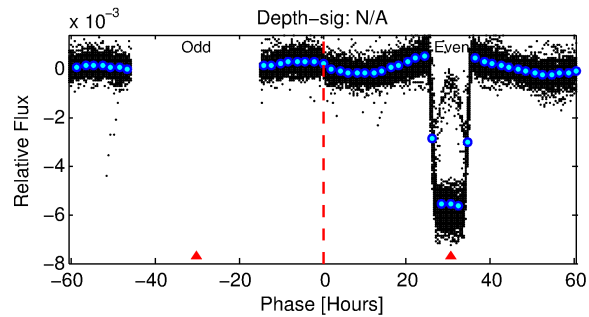
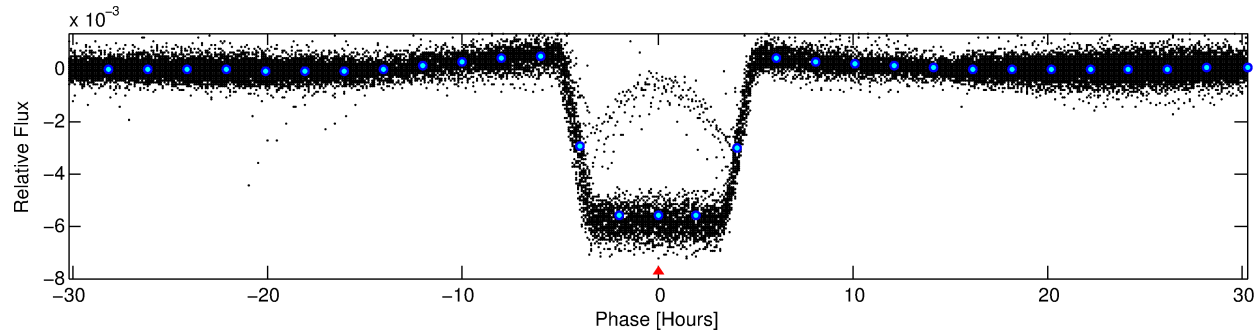
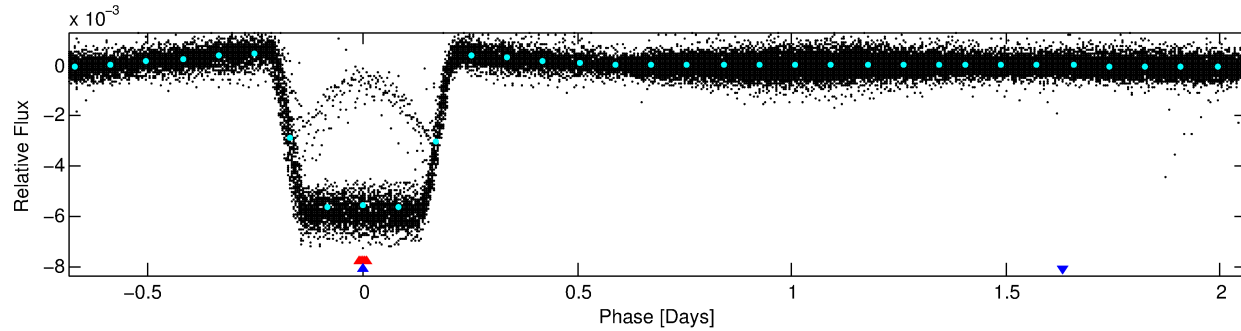
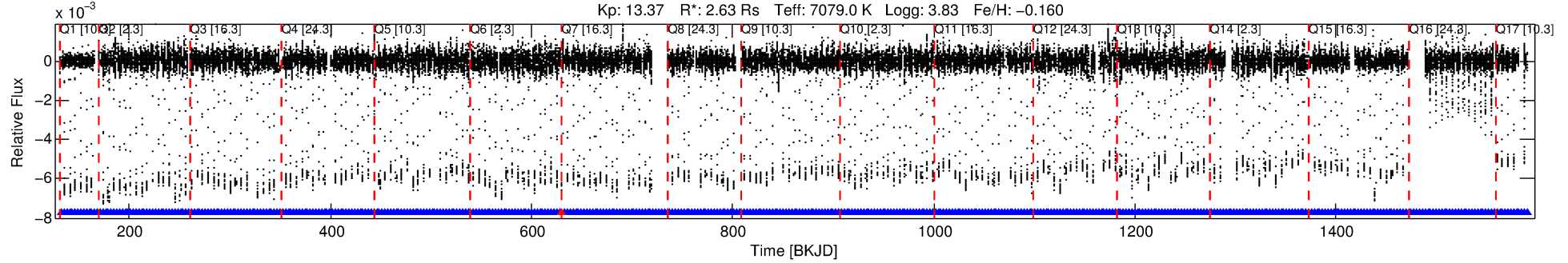
Ephemeris Match Information For 002860594-02

No Significant Match Found

DV One-Page Summary

KIC: 2860594 Candidate: 2 of 2 Period: 2.750 d
KOI: K06296 Corr: No Ephemeris Match

Kp: 13.37 R*: 2.63 Rs Teff: 7079.0 K Logg: 3.83 Fe/H: -0.160



TPS TCE Results:

Period = 2.74993 d
Epoch = 132.8221 BKJD

DV fit results are unavailable

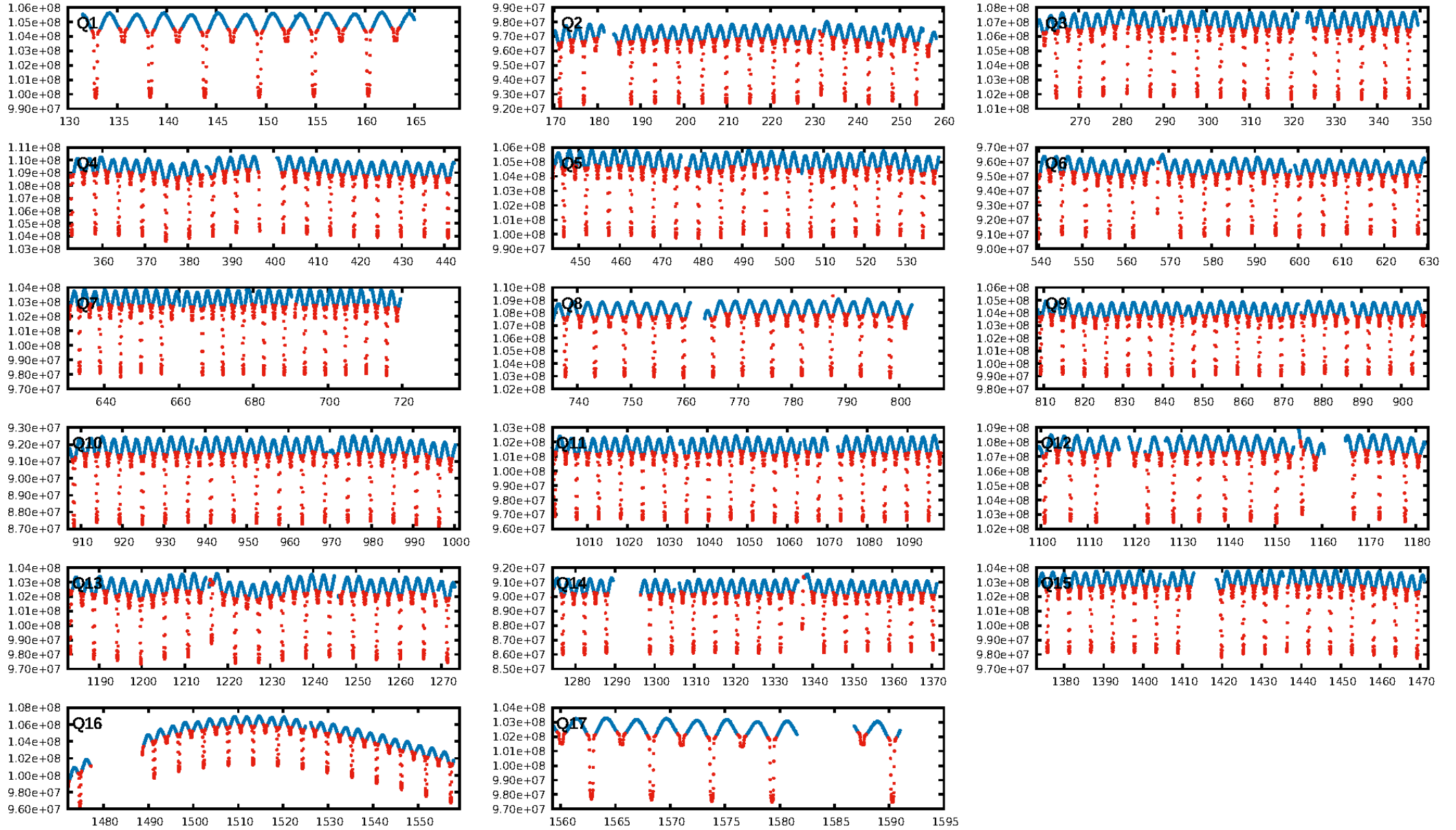
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.85σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [234/235]
GhostDiagnostic-chr: 3.427
Centroid-sig: 0.0%
Centroid-so: 0.385 arcsec [52.66σ]
OotOffset-rm: 0.026 arcsec [0.39σ]
KicOffset-rm: 0.070 arcsec [1.04σ]
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]

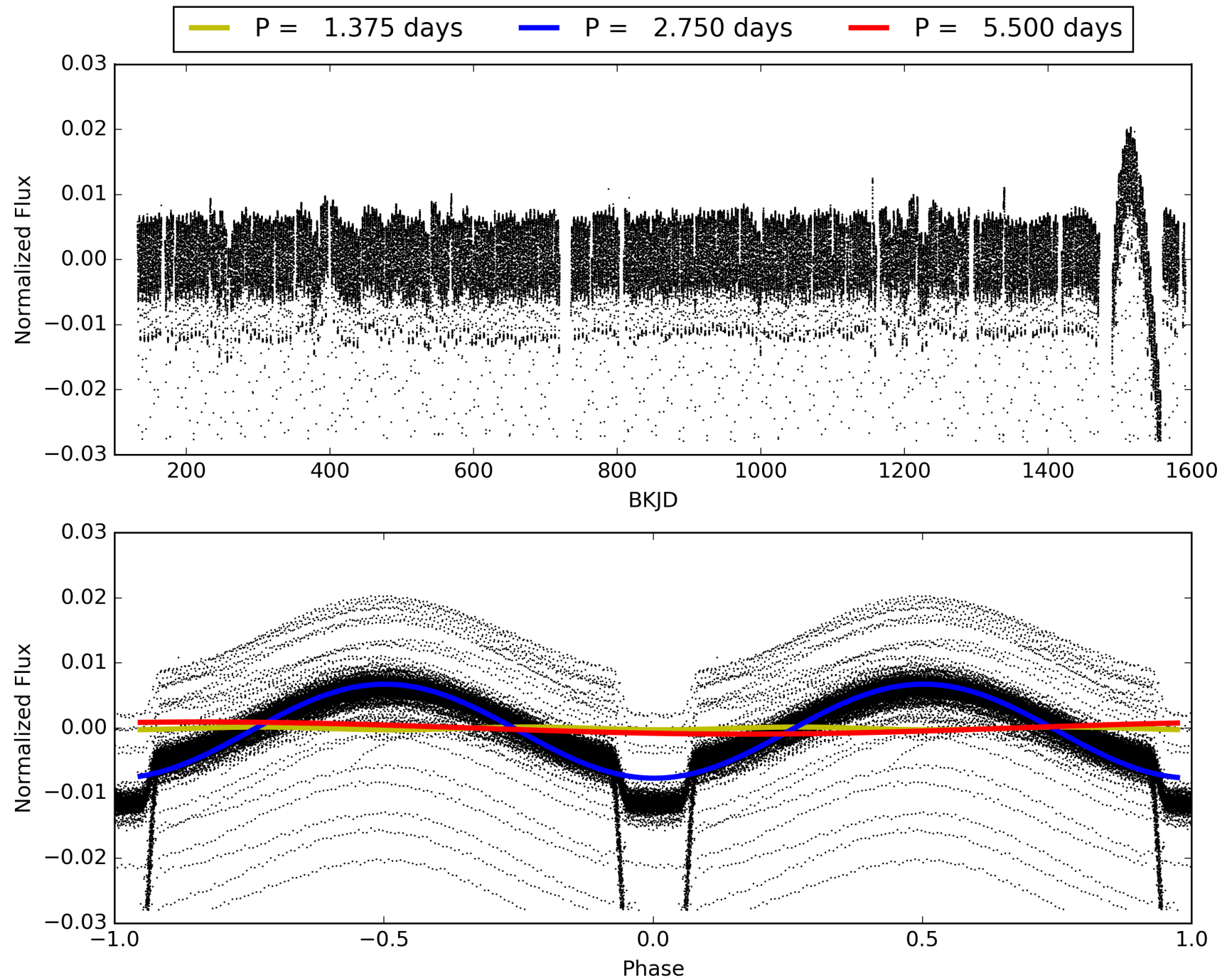
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:51:04 Z

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

TCE 002860594-02, PDC Light Curves

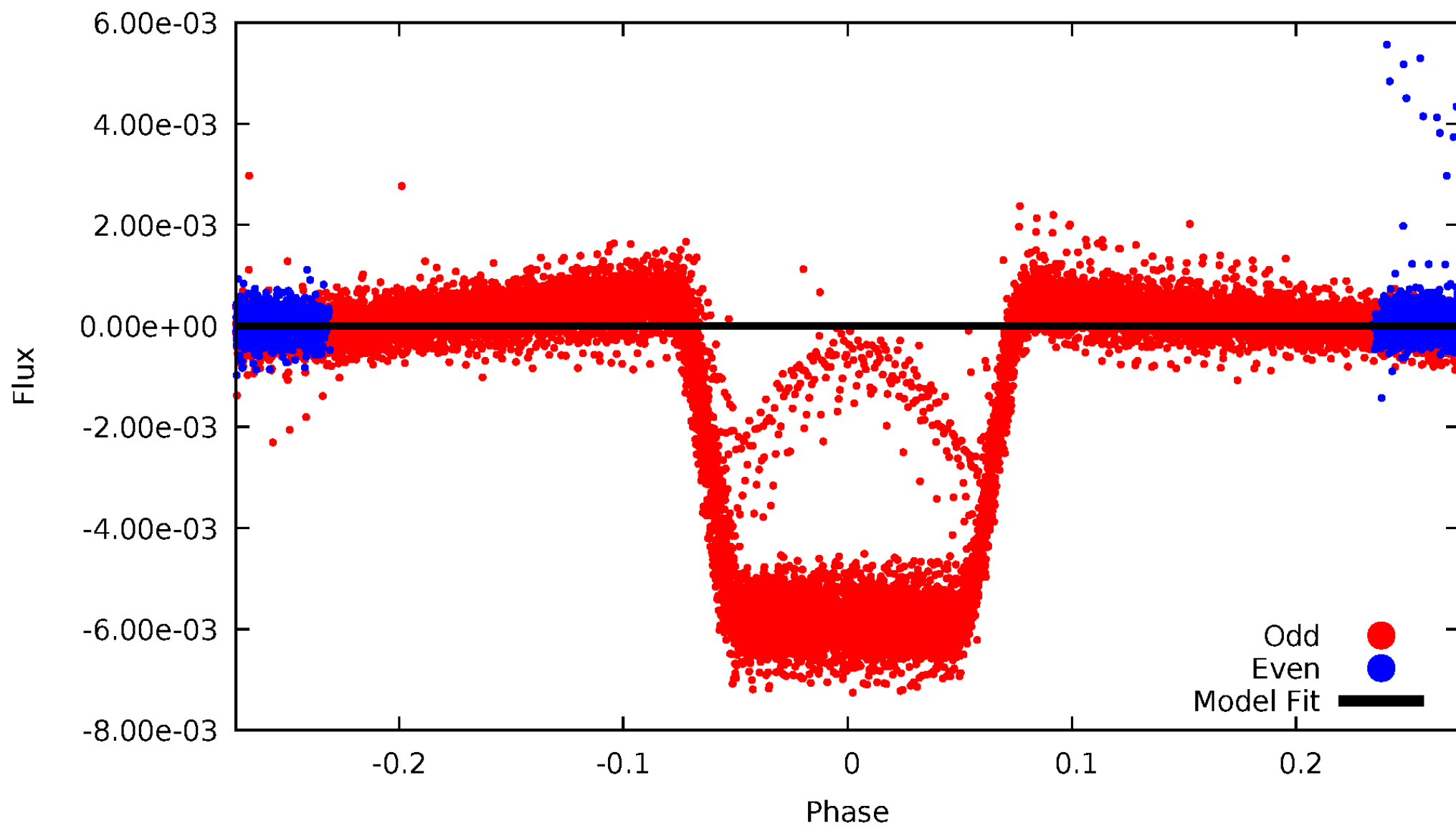


TCE 002860594-02



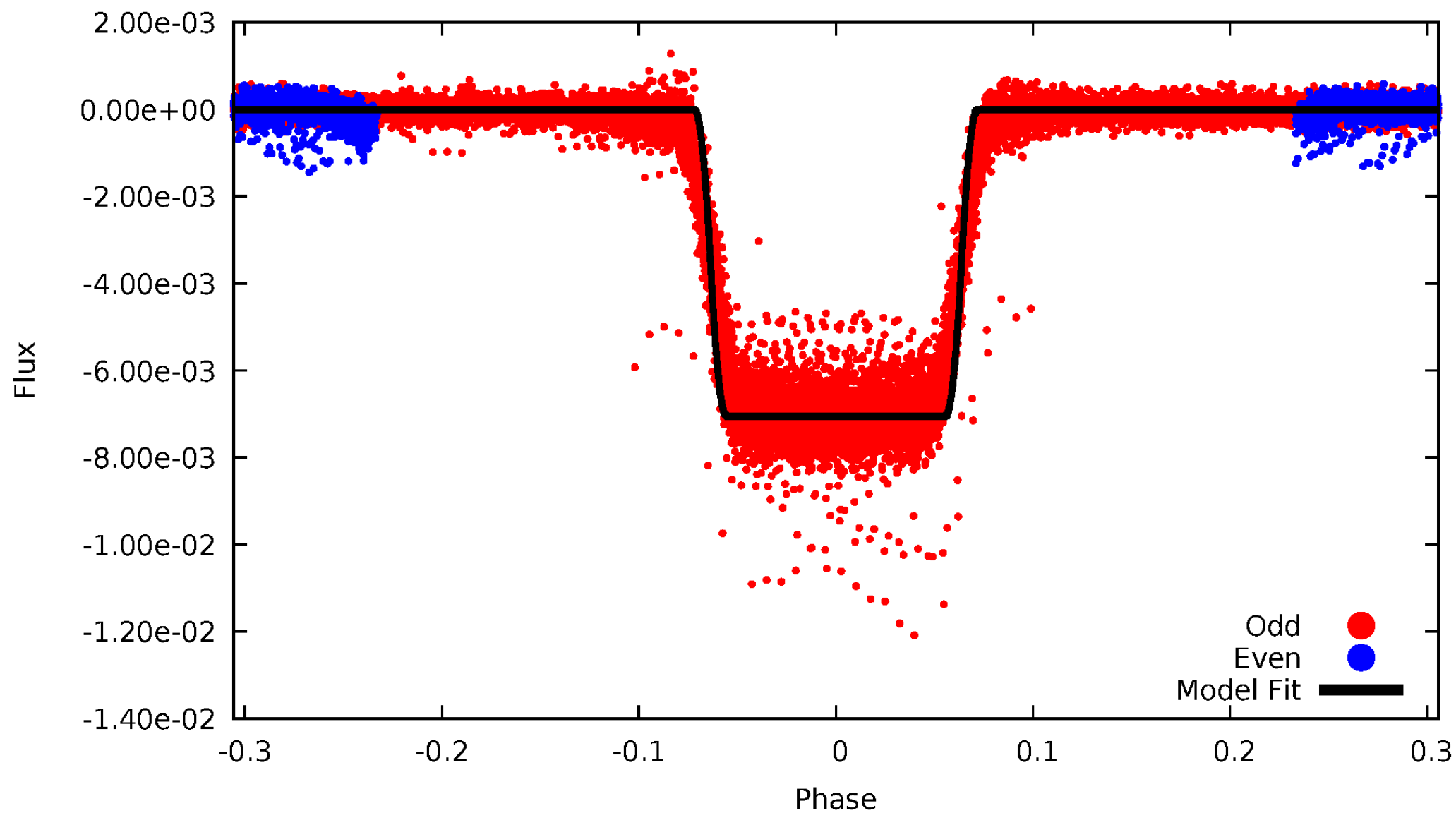
DV Odd/Even

TCE 002860594-02



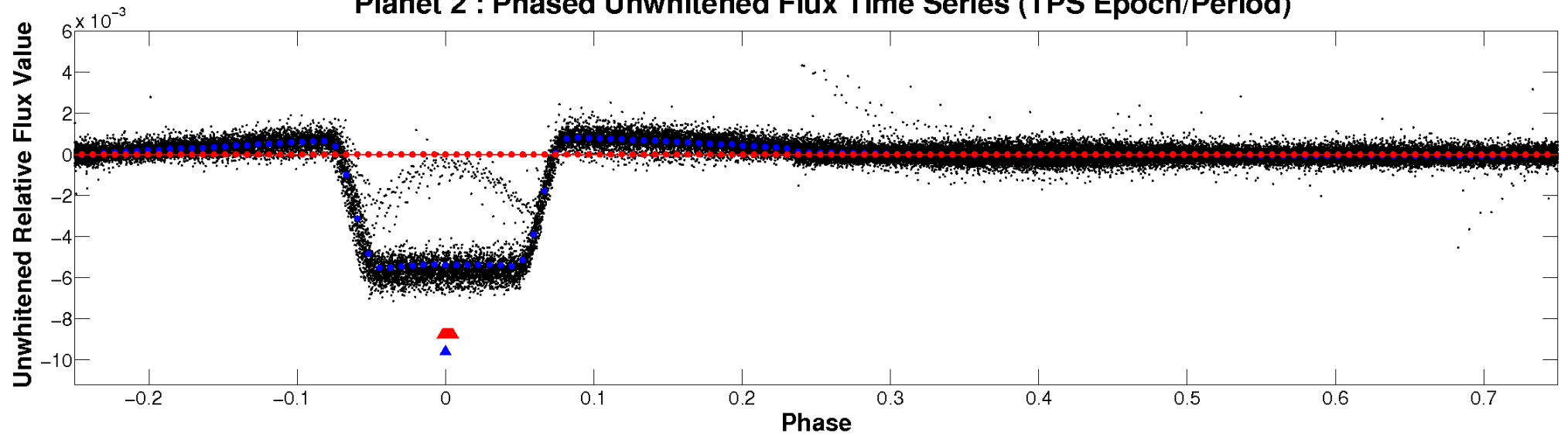
ALT Odd/Even

TCE 002860594-02



Non-Whitened Vs. Whitened Light Curve

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

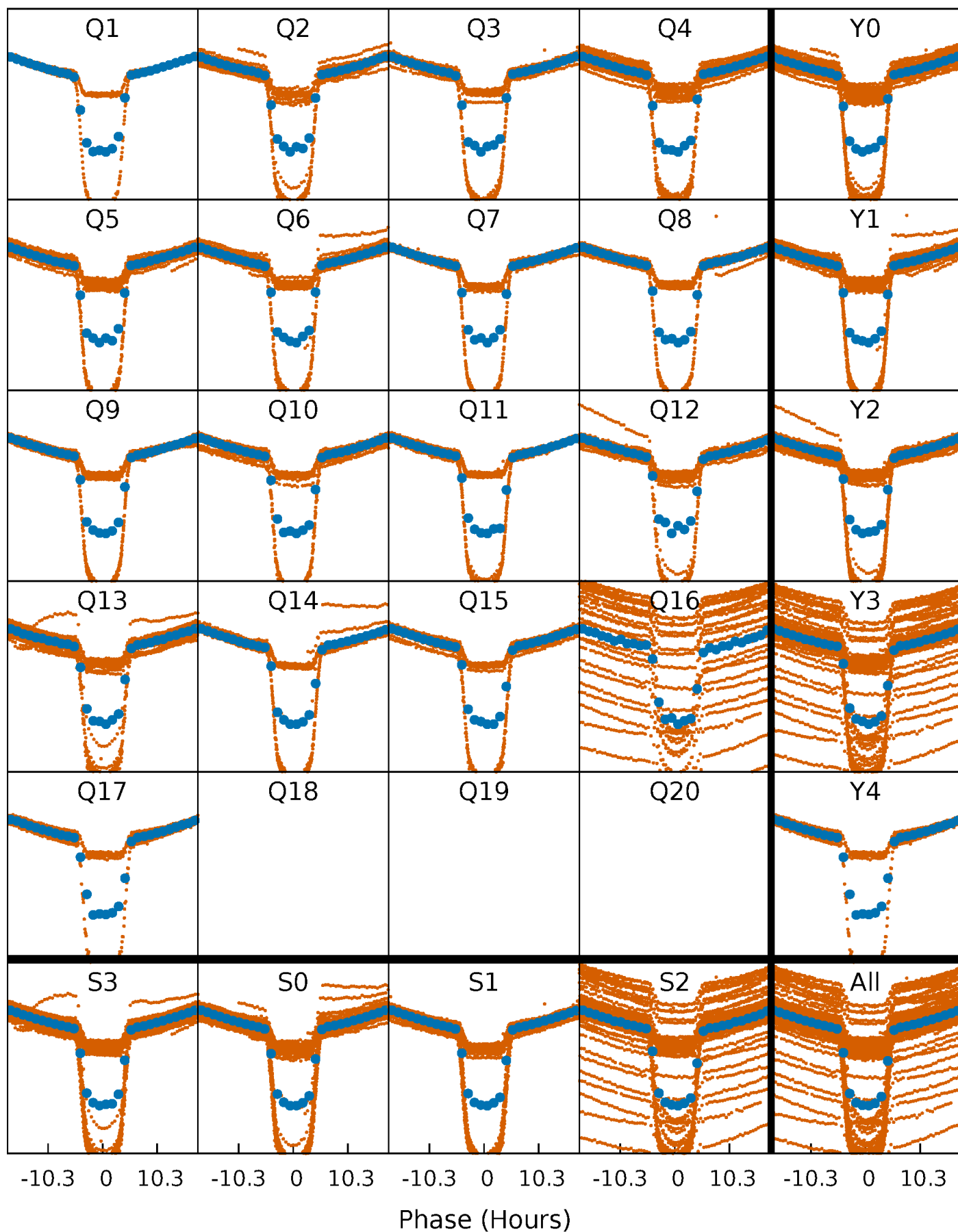


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



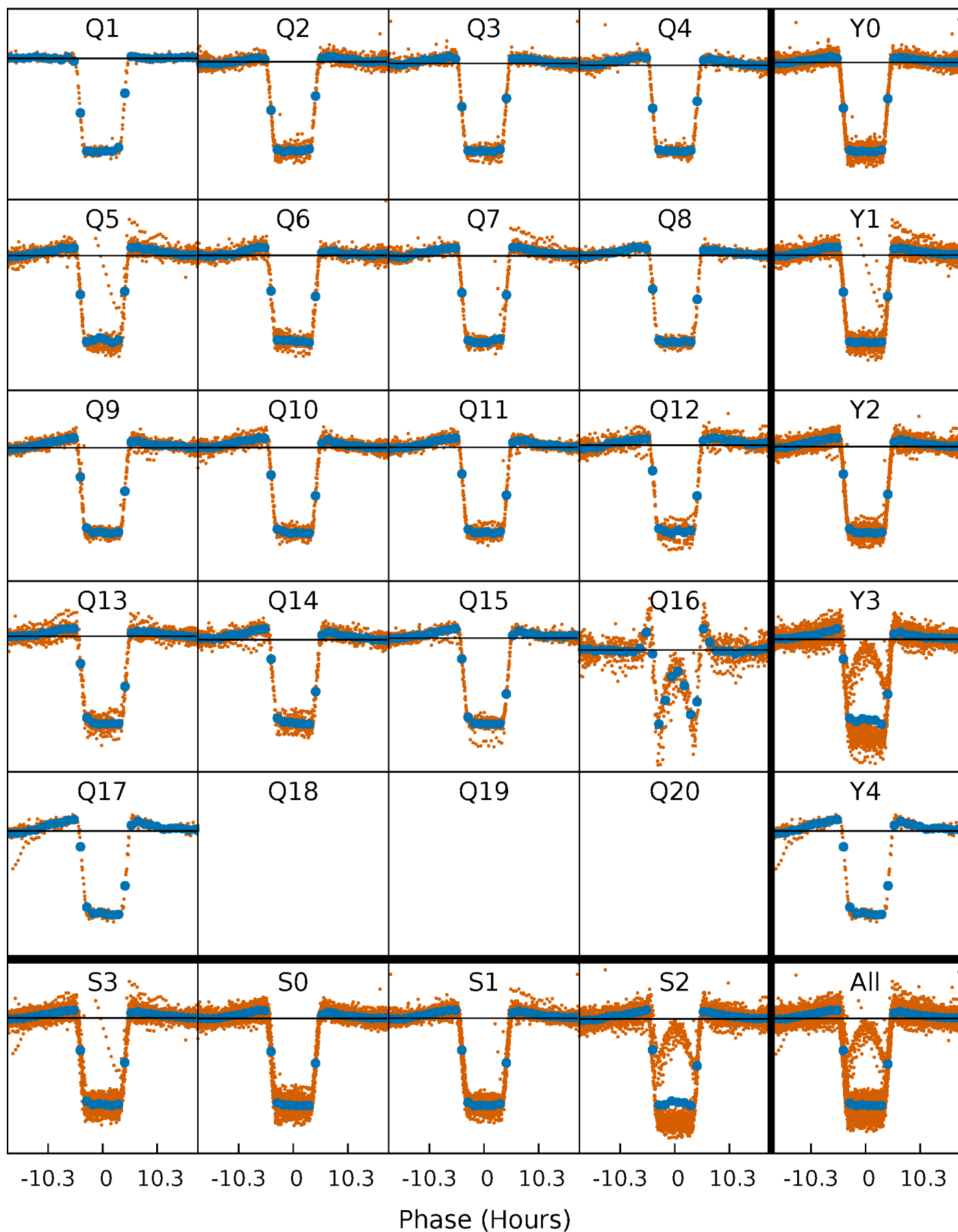
PDC Quarter-Phased Transit Curves

TCE 002860594-02 $P = 2.749935$ Days $T_0 = 132.822147$ (BKJD)



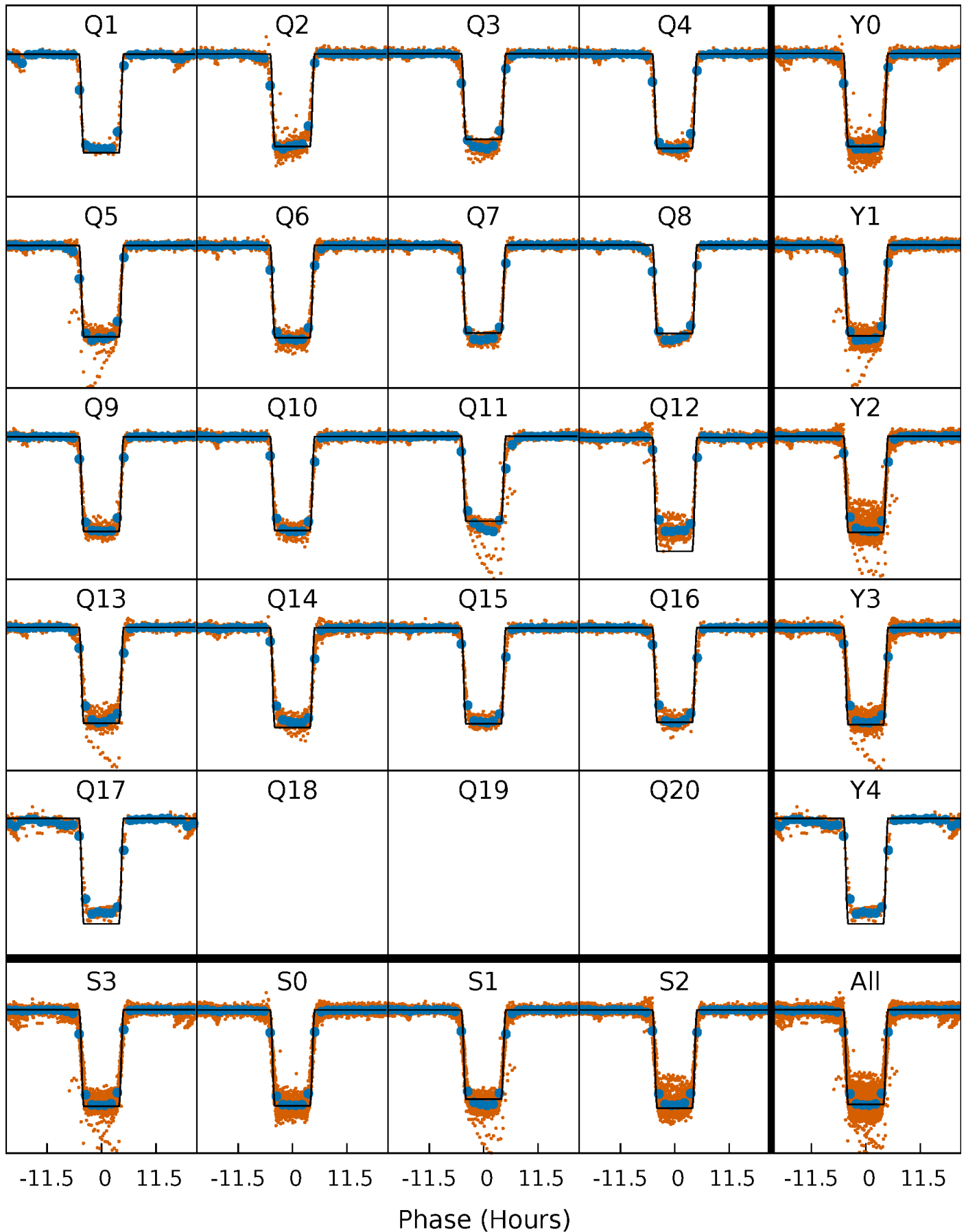
DV Quarter-Phased Transit Curves

TCE 002860594-02 P= 2.749935 Days $T_0=132.822147$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

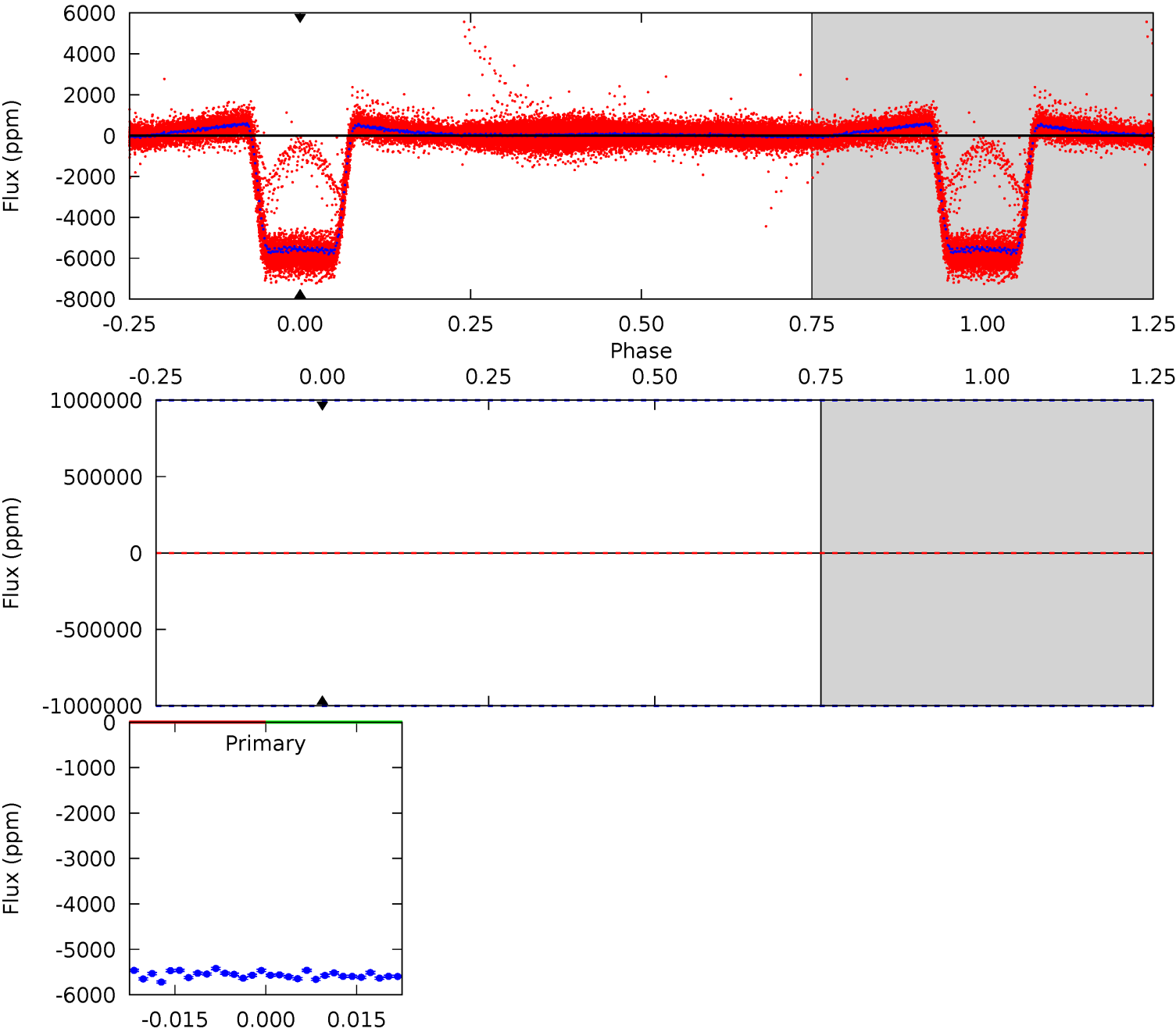
TCE 002860594-02 $P = 2.749935$ Days $T_0 = 132.826325$ (BKJD)



DV Model-Shift Uniqueness Test

002860594-02, P = 2.749935 Days, E = 130.072212 Days

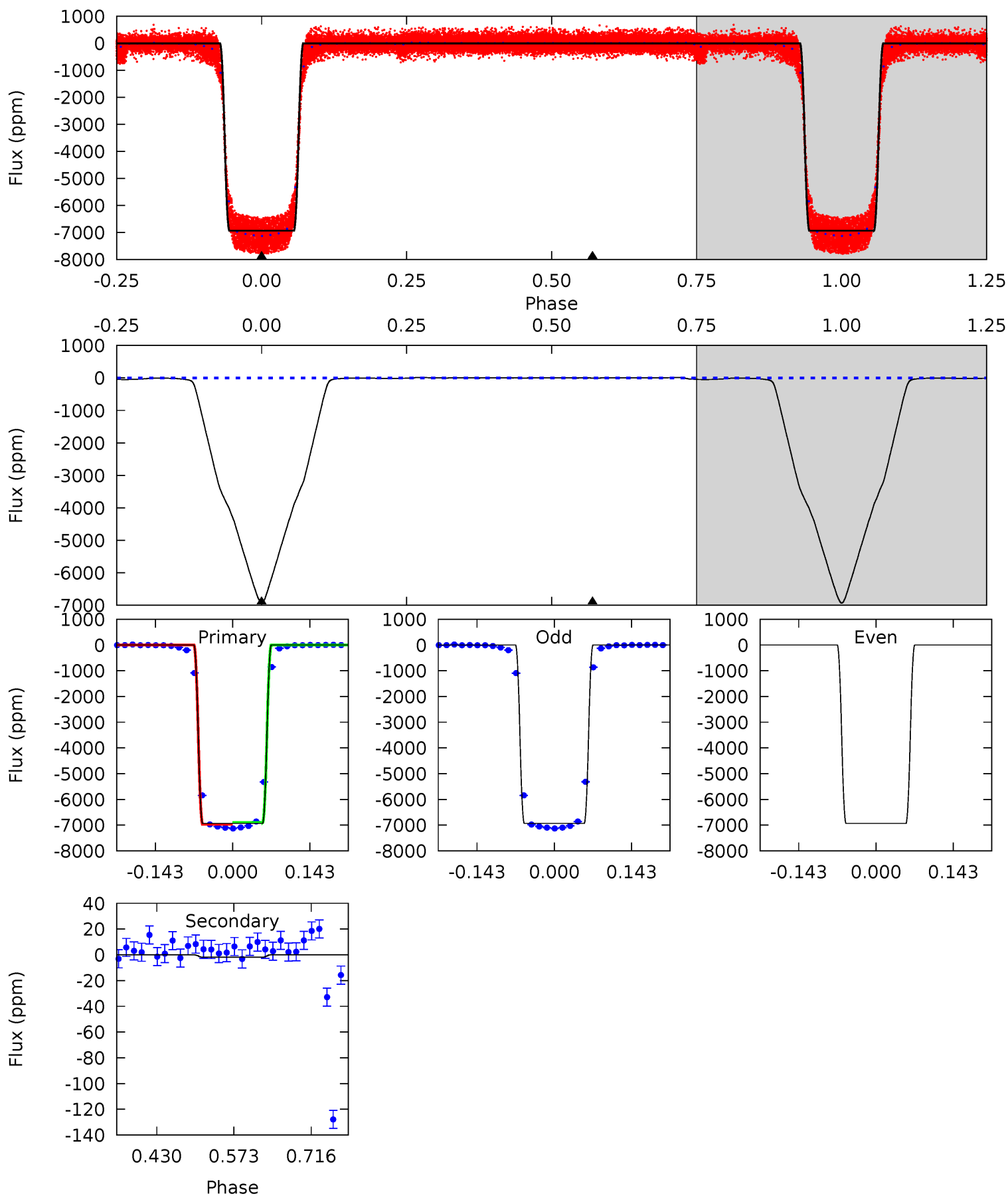
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002860594-02, P = 2.749935 Days, E = 130.076390 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2480	0.66	0	0	4.49	1.46	5.55	2480	2480	0.66	0.66	0	1.00	0.00	0



Stellar Parameters For KIC 002860594

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7079^{+74}_{-84}	$3.827^{+0.196}_{-0.098}$	$-0.160^{+0.150}_{-0.150}$	$2.634^{+0.436}_{-0.653}$	$1.695^{+0.139}_{-0.208}$	$0.131^{+0.133}_{-0.041}$
	+1%/-1%	+5%/-3%	+94%/-94%	+17%/-25%	+8%/-12%	+102%/-31%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 002860594-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$26.09^{+25.73}_{-17.13}$	3278^{+154}_{-195}	4376^{+20715}_{-26418}	$1.830^{+307.017}_{-256.058}$
Alt.	-2 ± 3	$29.89^{+26.27}_{-18.91}$	3288^{+137}_{-217}	-3238^{+160}_{-96}	$0.001^{+0.012}_{-0.003}$

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

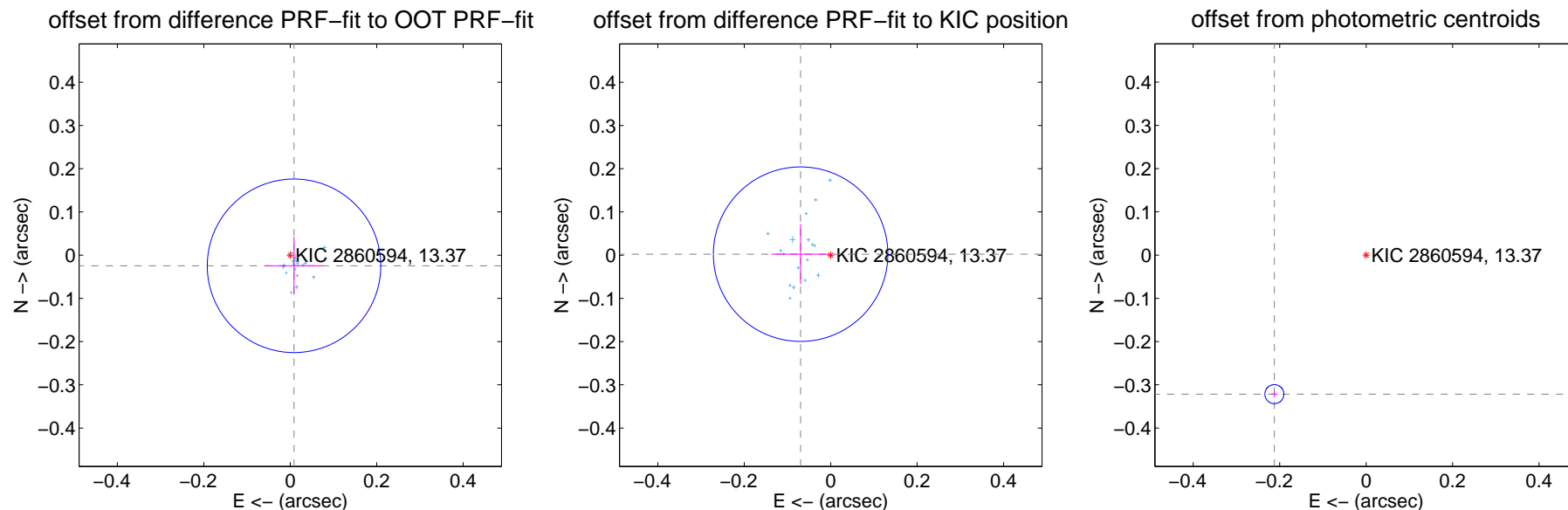
DV Centroid Data

Supplemental centroid analysis for 002860594-02. Kepler magnitude: 13.37. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

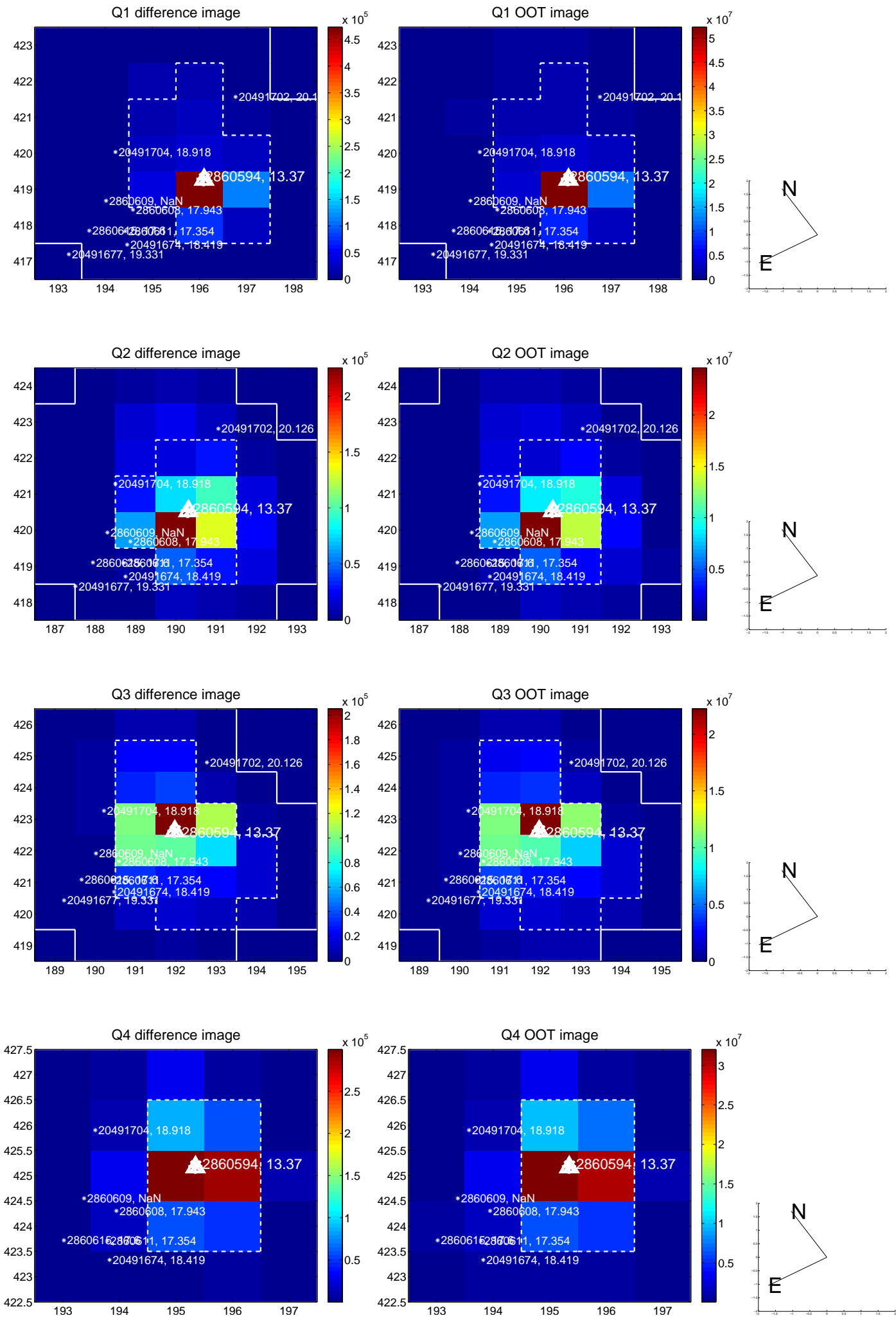
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.026 ± 0.067	0.39	-0.009 ± 0.067	-0.025 ± 0.067
PRF-fit source offset from KIC position	0.070 ± 0.067	1.04	0.070 ± 0.067	0.002 ± 0.070
photometric centroid source offset	0.39 ± 0.01	52.66	0.21 ± 0.01	-0.32 ± 0.01

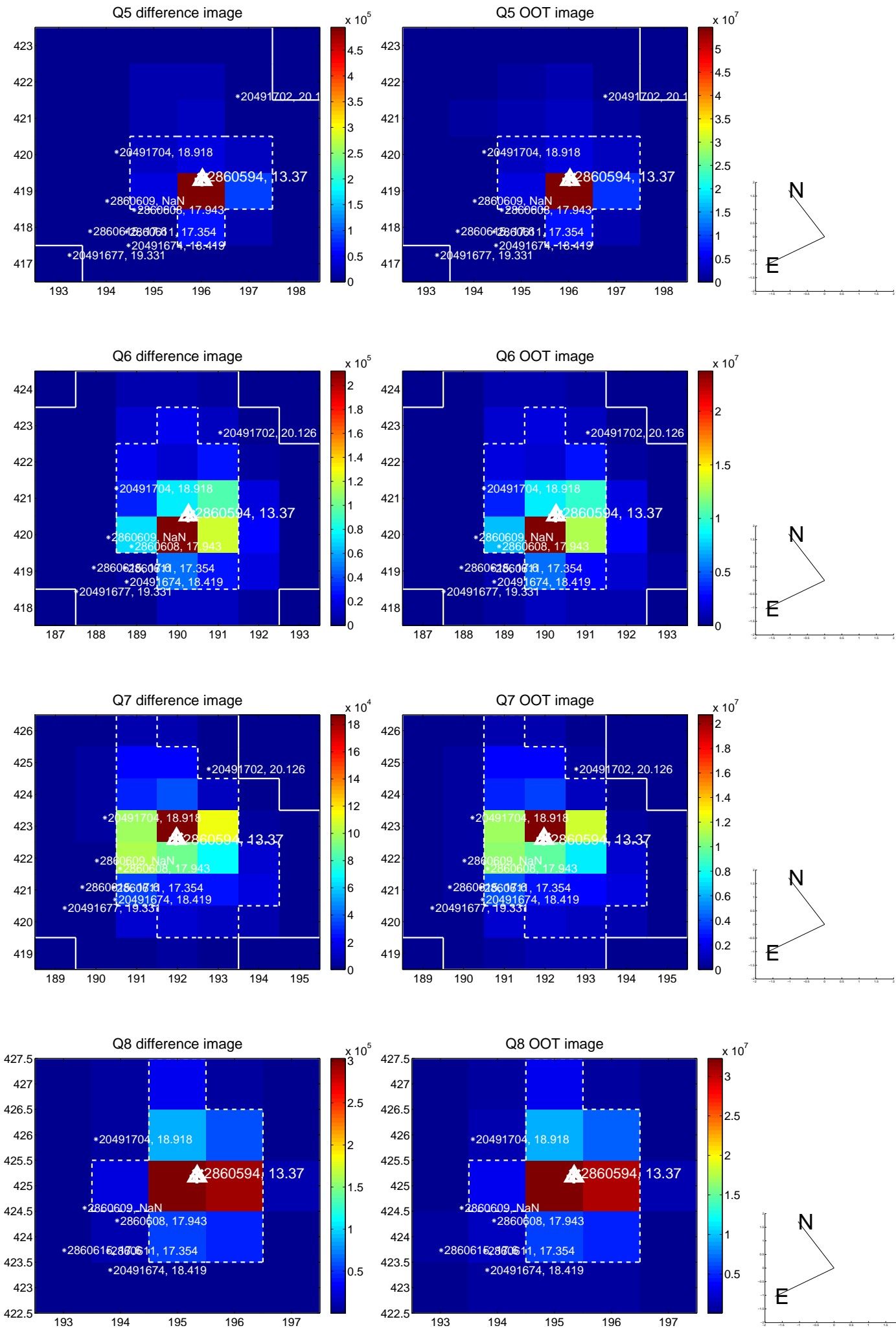


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

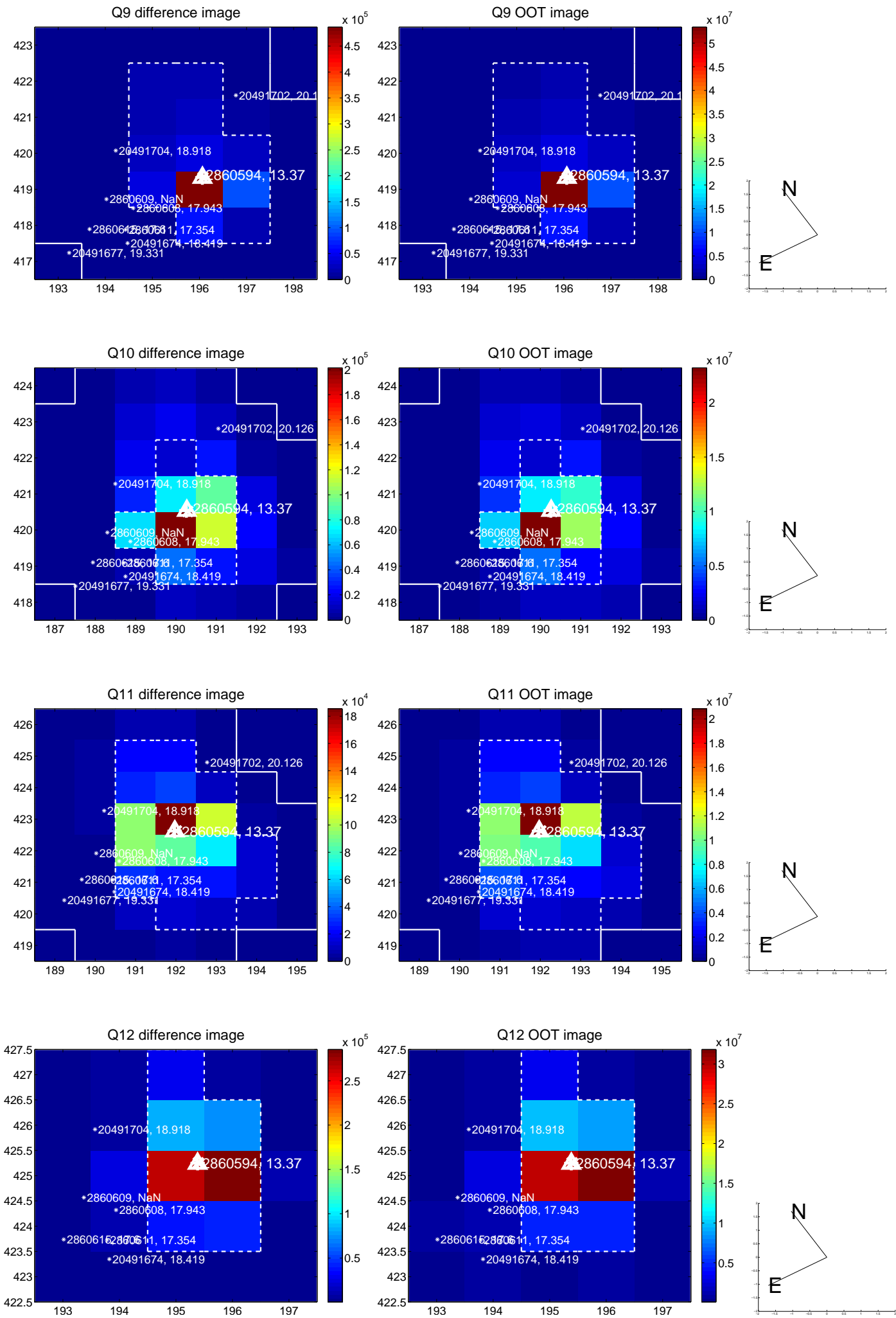
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



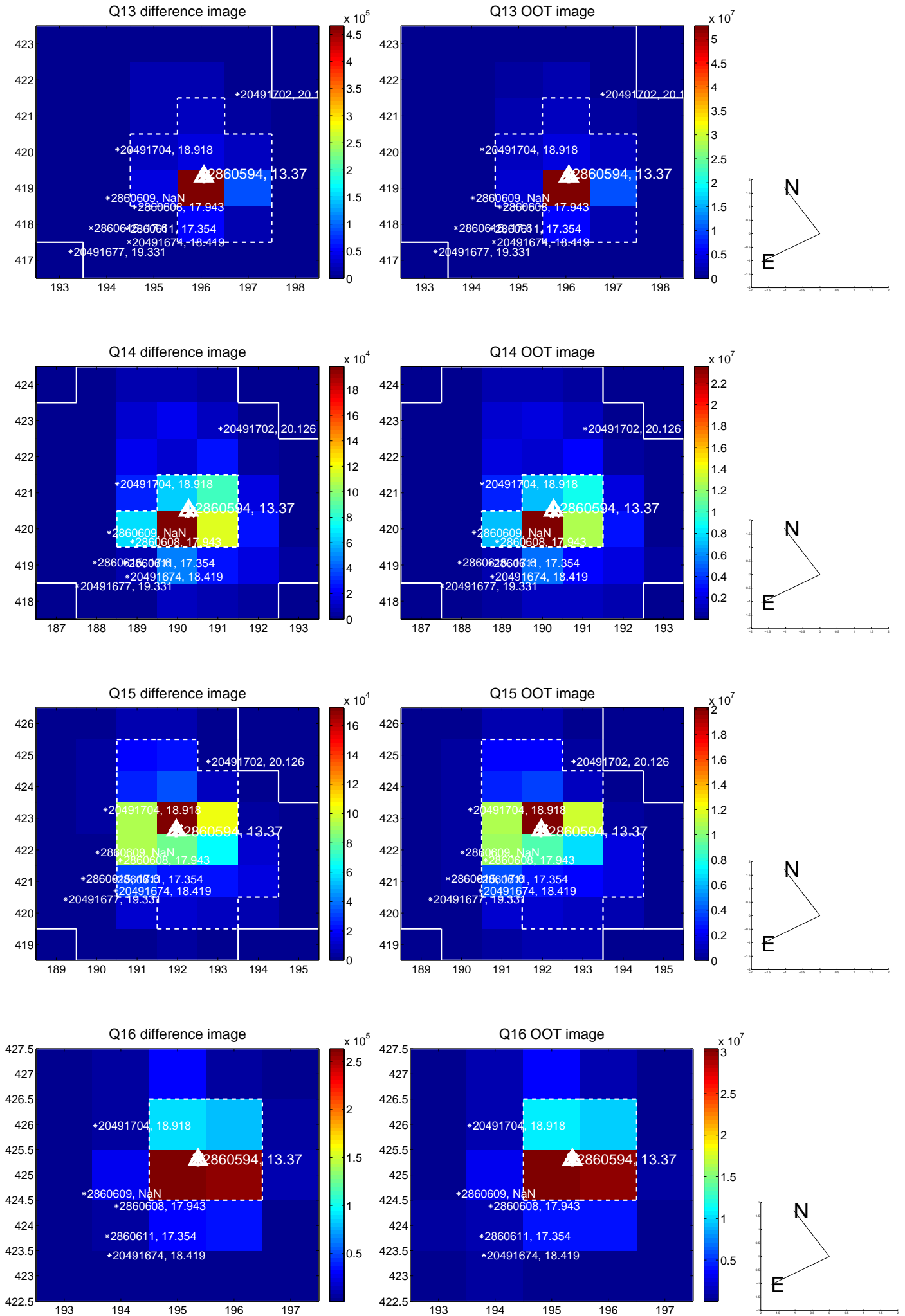
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



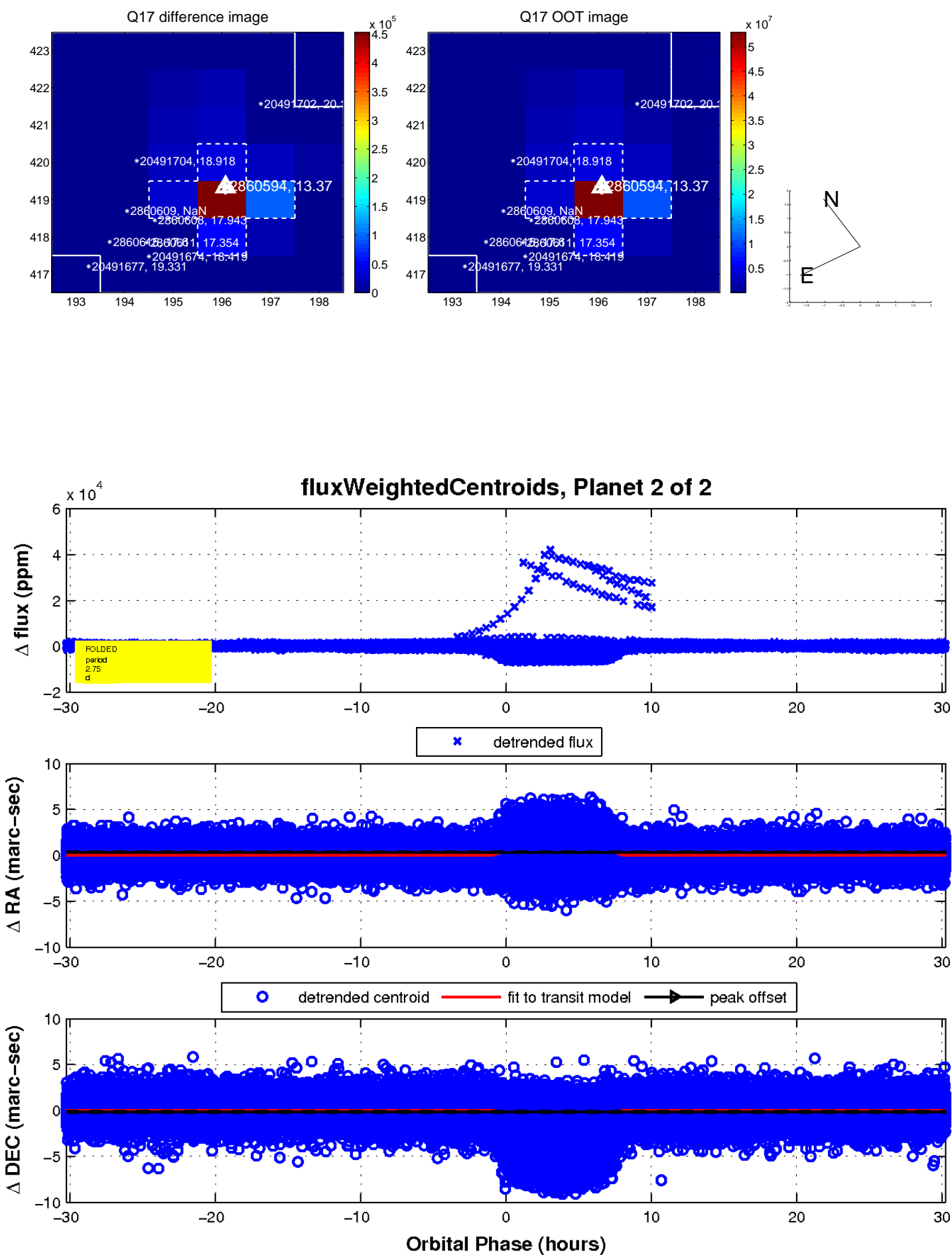
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

