

KIC 008345358

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})
008345358-01	OBS	7021.01	9.380634	132.558525	65069.5	4.306	1880.3	1497.4	0.91	5926	34.82	121.14
008345358-02	OBS	No	9.380636	137.248839	17509.1	4.181	535.0	504.1	0.91	5926	20.84	121.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008345358-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV MOD_SEC_ALT DEEP_V_SHAPED HAS_SEC_TCE
008345358-02	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 008345358-01

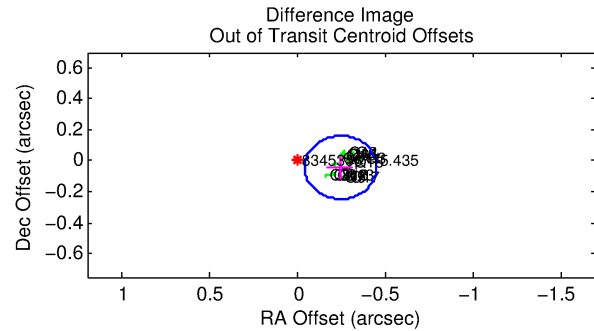
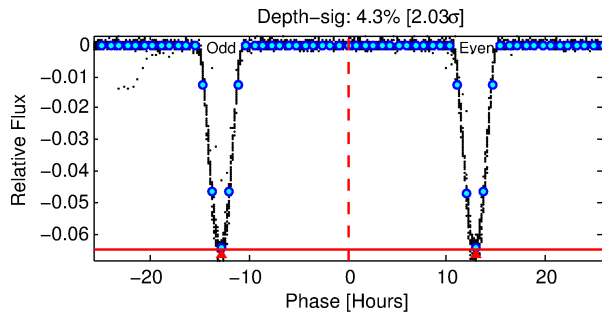
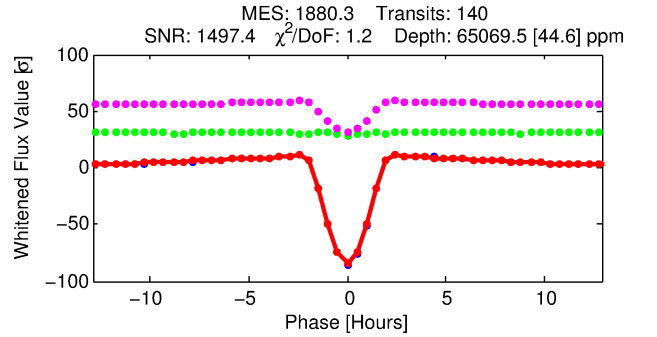
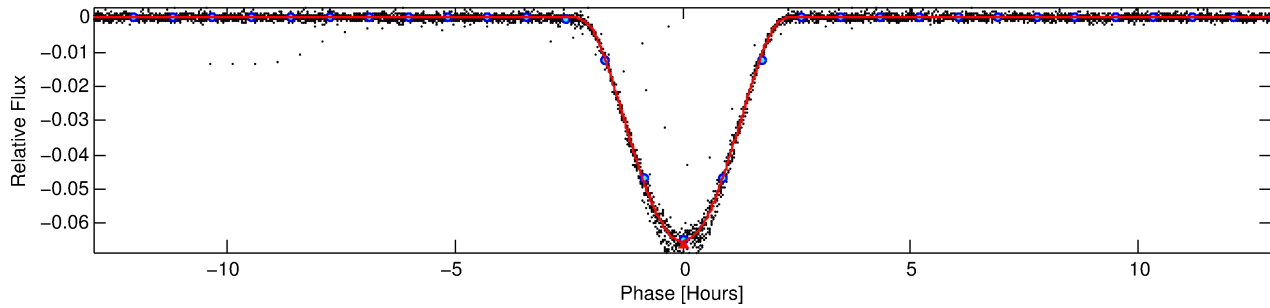
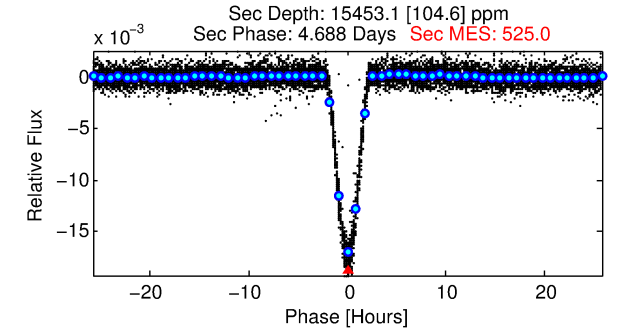
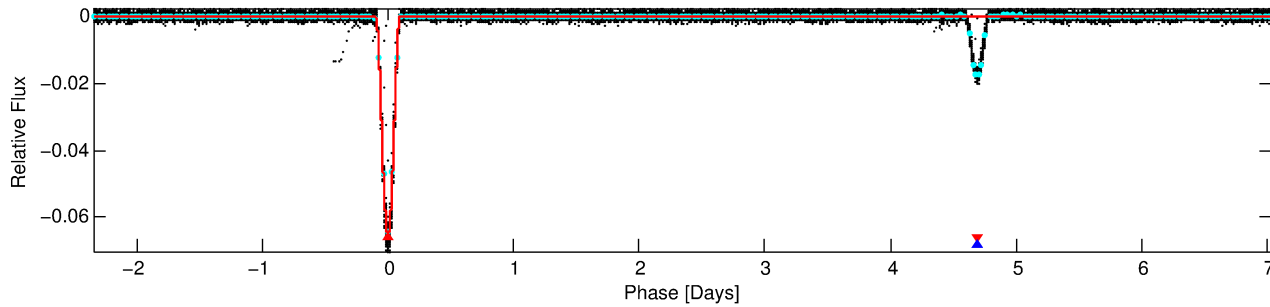
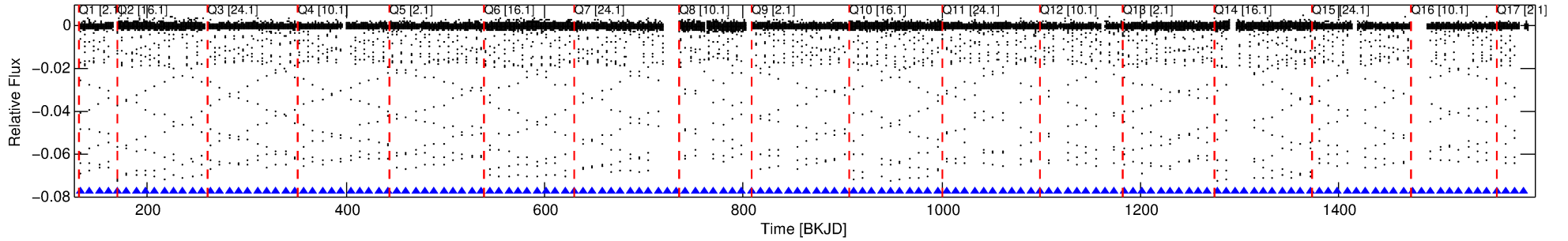
No Significant Match Found

DV One-Page Summary

KIC: 8345358 Candidate: 1 of 2 Period: 9.381 d

KOI: K07021.01 Corr: 0.998

Kp: 15.44 R*: 0.91 Rs Teff: 5926.0 K Logg: 4.52 Fe/H: -0.120



DV Fit Results:

Period = 9.38063 [0.00000] d
Epoch = 132.5585 [0.0001] BKJD
Rp/R* = 0.3495 [0.0128]
a/R* = 16.34 [0.02]
b = 0.93 [0.02]
Seff = 121.14 [45.36]
Teq = 846 [79] K
Rp = 34.82 [10.00] Re
a = 0.0872 [0.0210] AU
Ag = 53.32 [19.10] [2.74σ]
Teffp = 3534 [133] K [17.34σ]

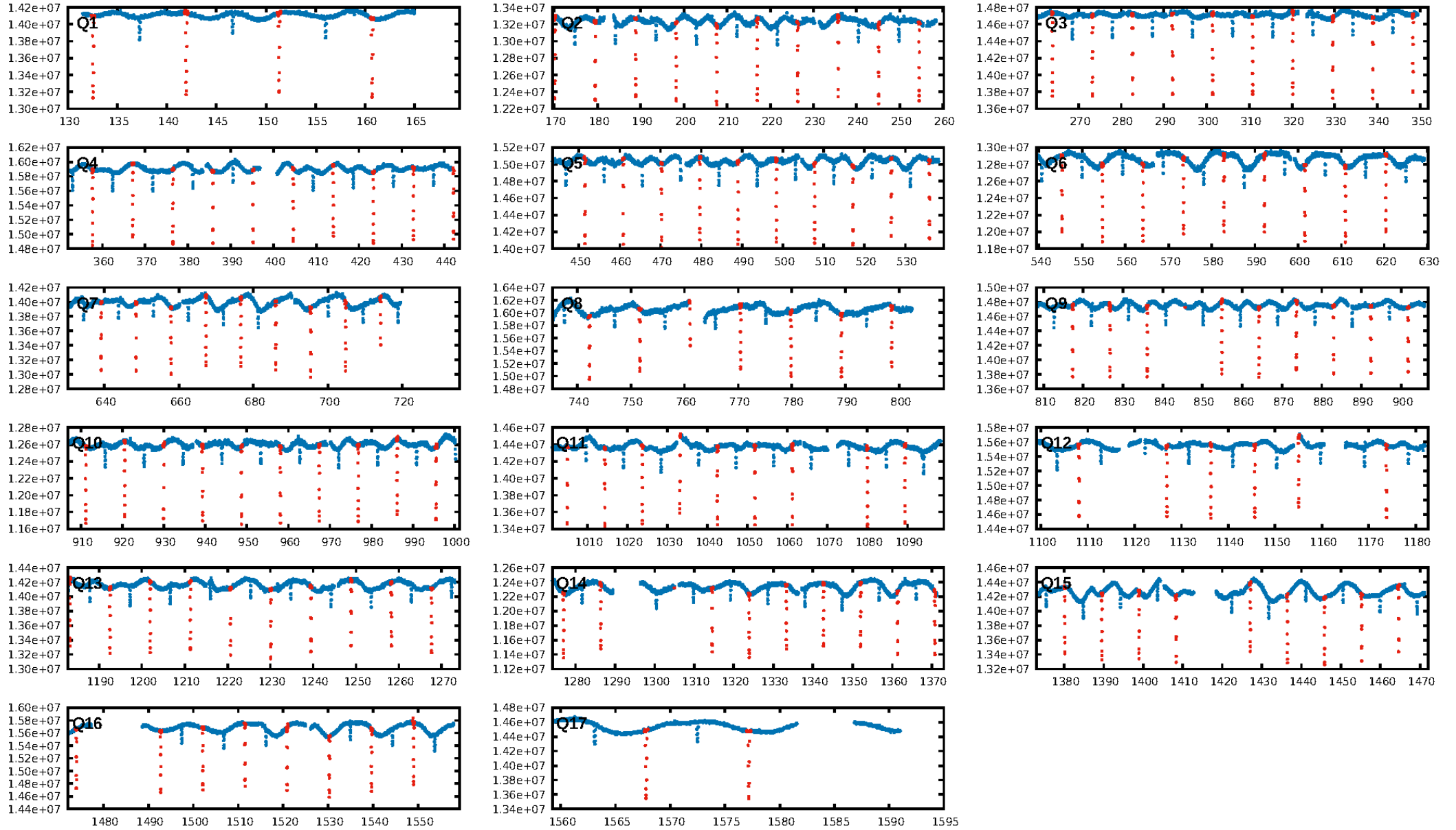
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [134/134]
GhostDiagnostic-chr: 2.106
Centroid-sig: 0.0%
Centroid-so: 0.111 arcsec [21.14σ]
OotOffset-rm: 0.247 arcsec [3.63σ]
KicOffset-rm: 0.038 arcsec [0.57σ]
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]

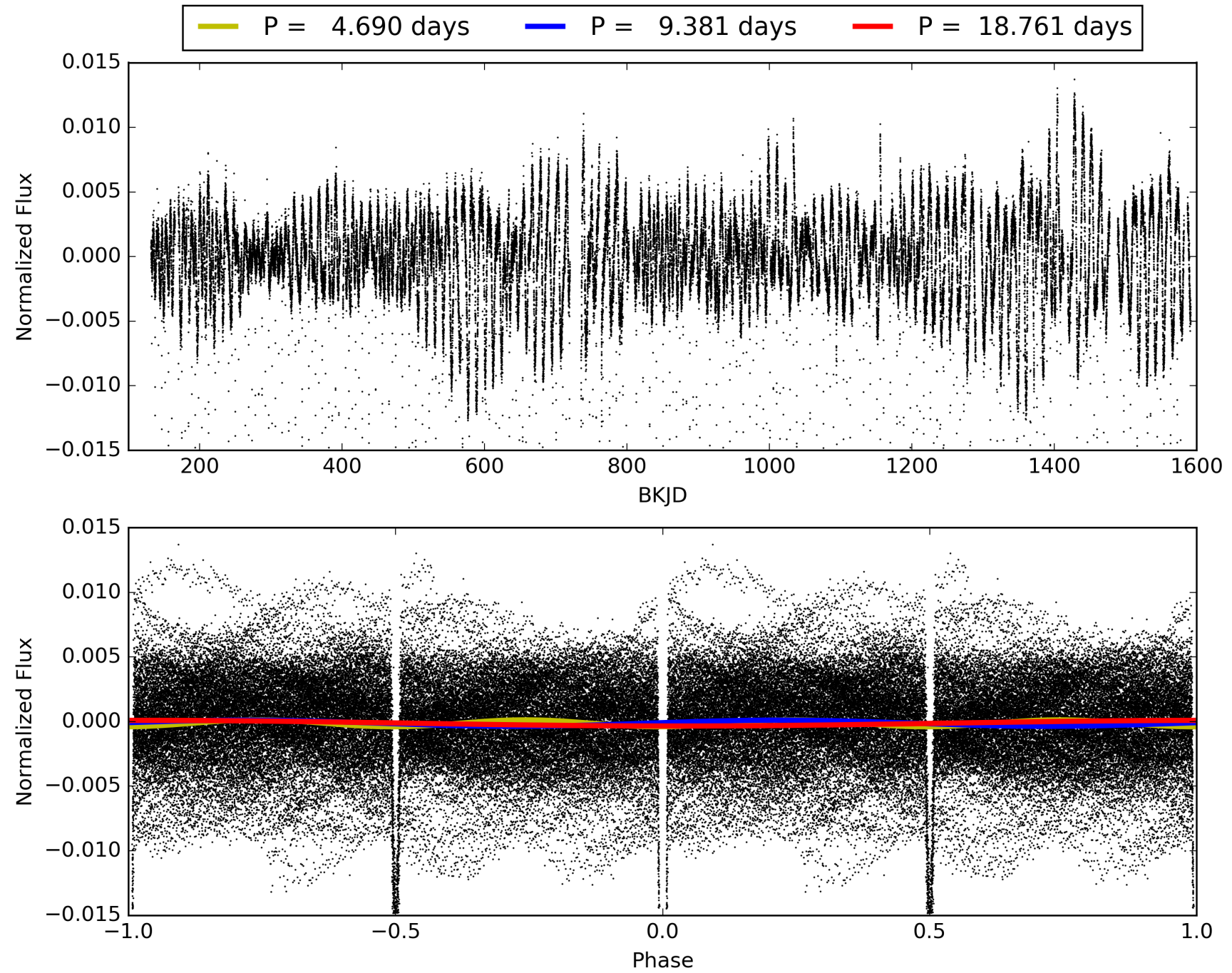
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:57:24 Z

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

TCE 008345358-01, PDC Light Curves

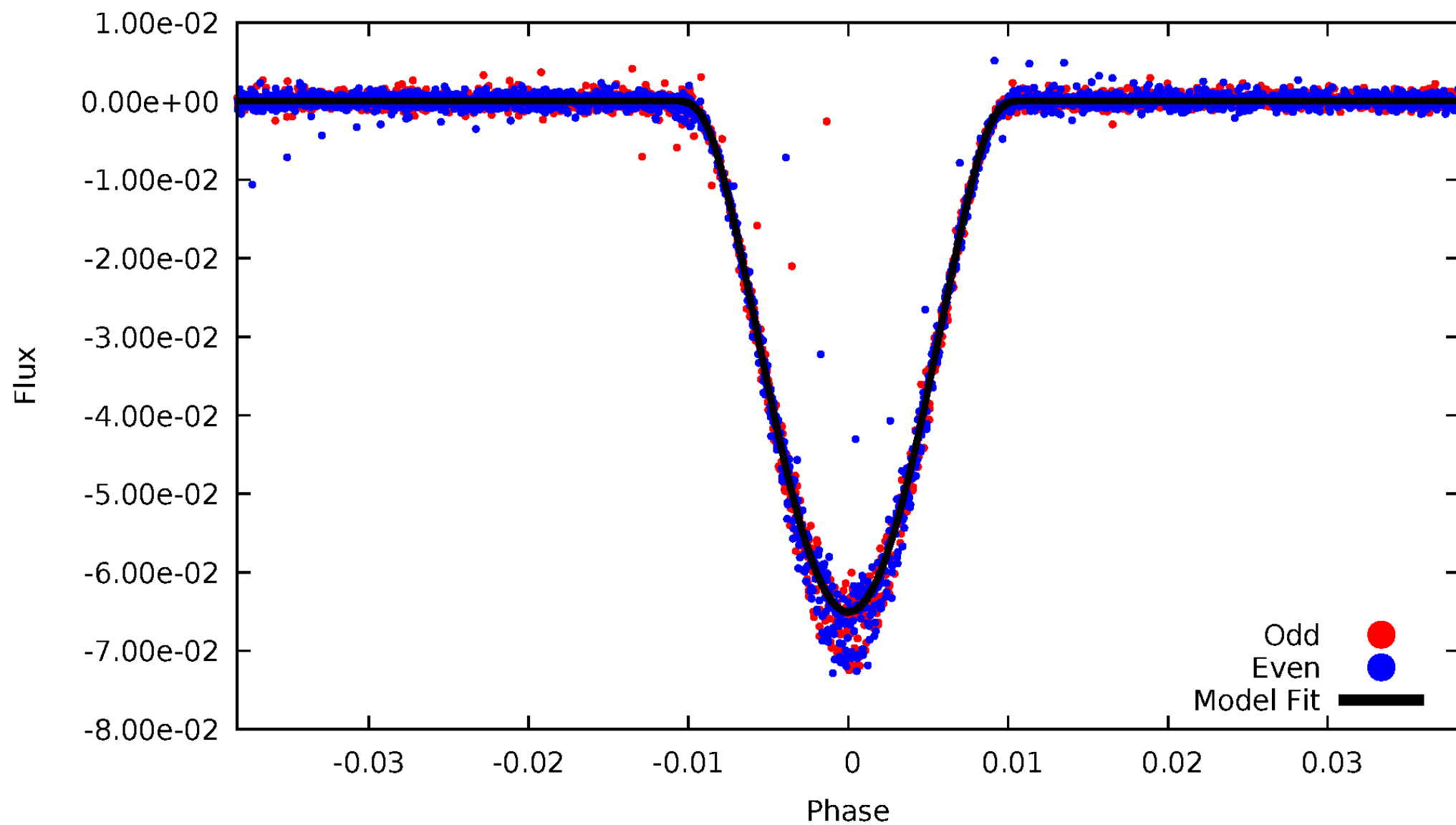


TCE 008345358-01



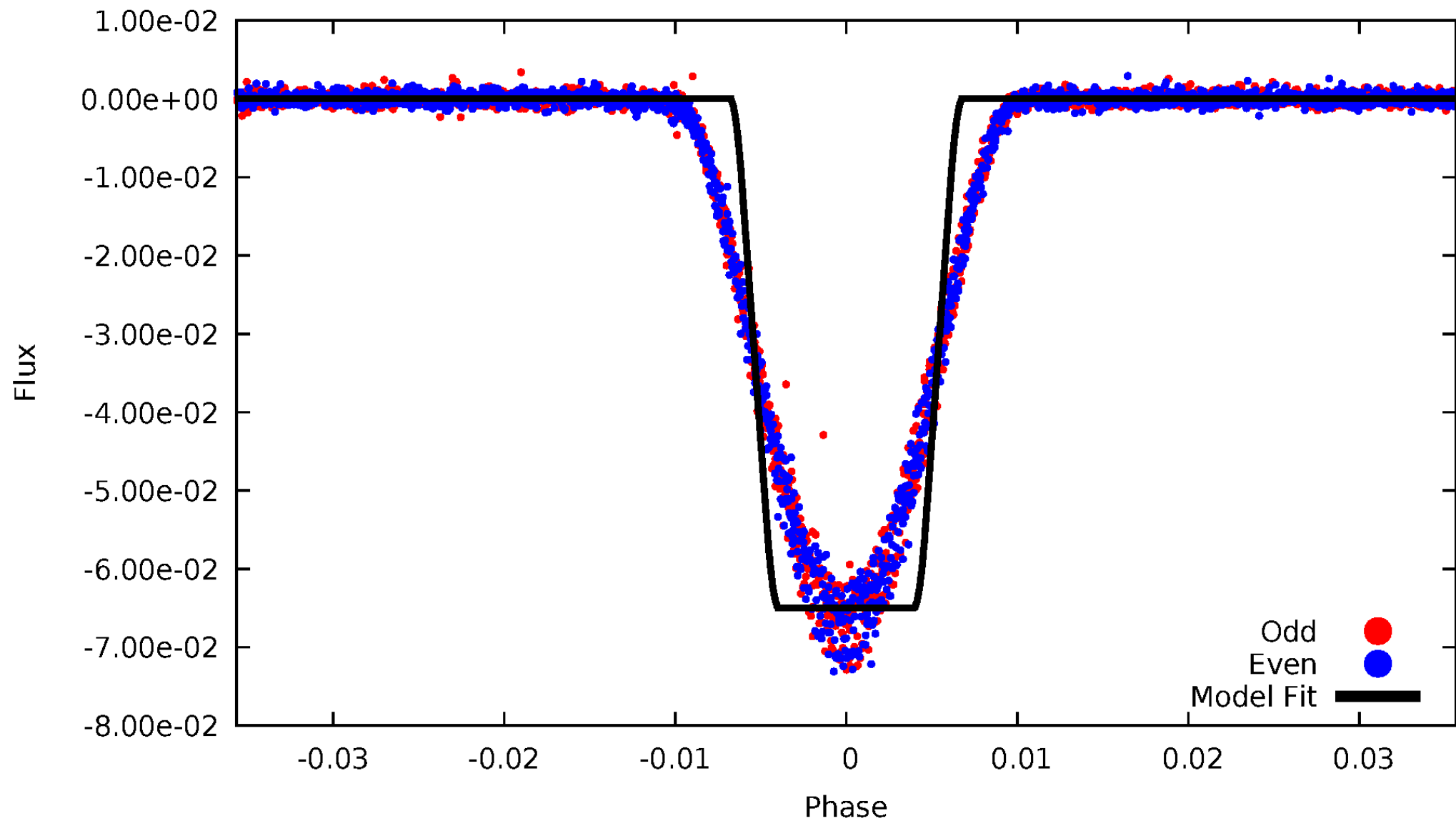
DV Odd/Even

TCE 008345358-01



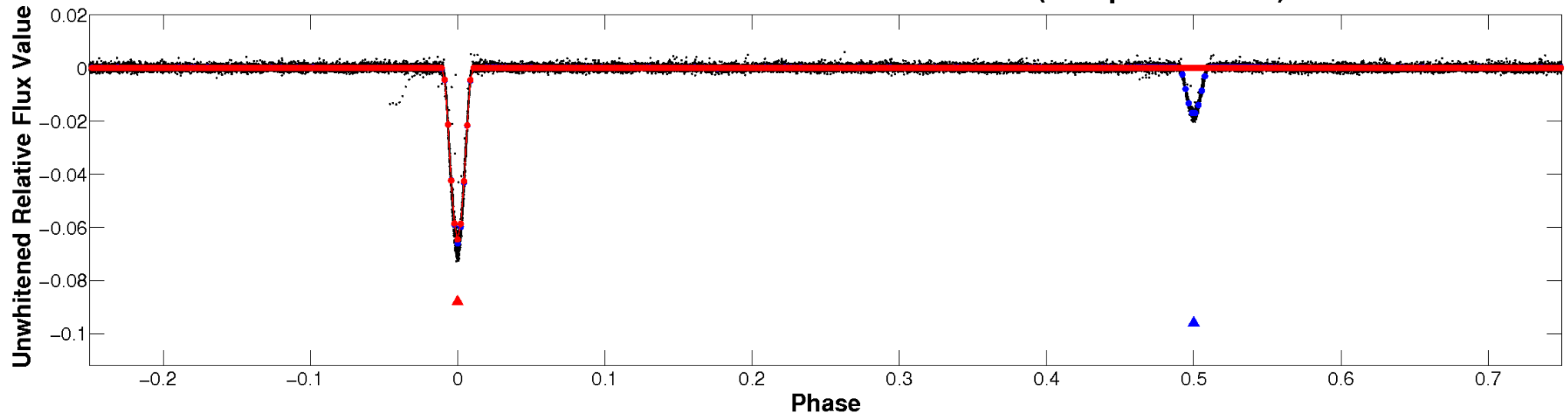
ALT Odd/Even

TCE 008345358-01

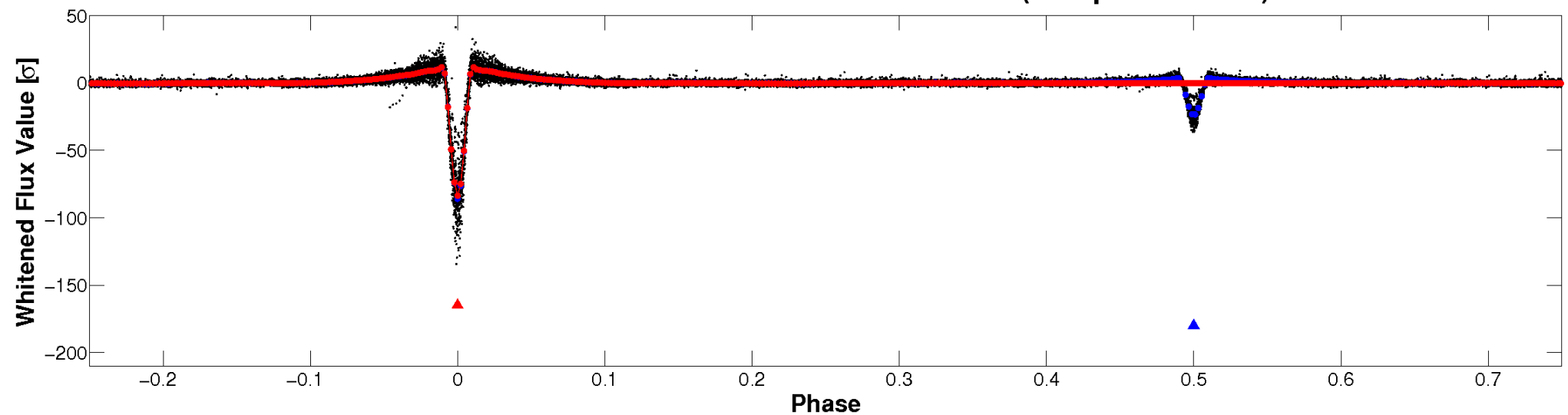


Non-Whitened Vs. Whitened Light Curve

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

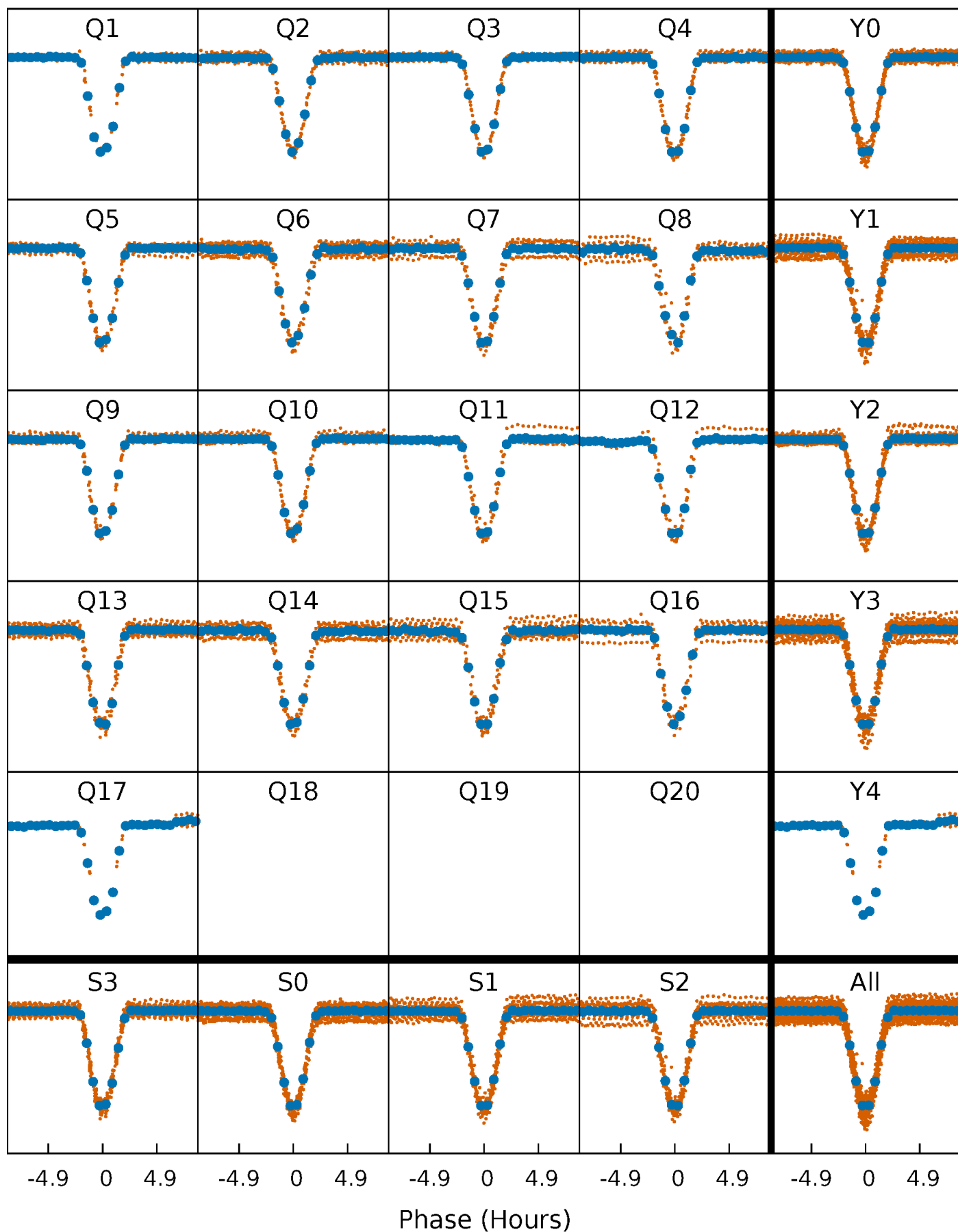


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



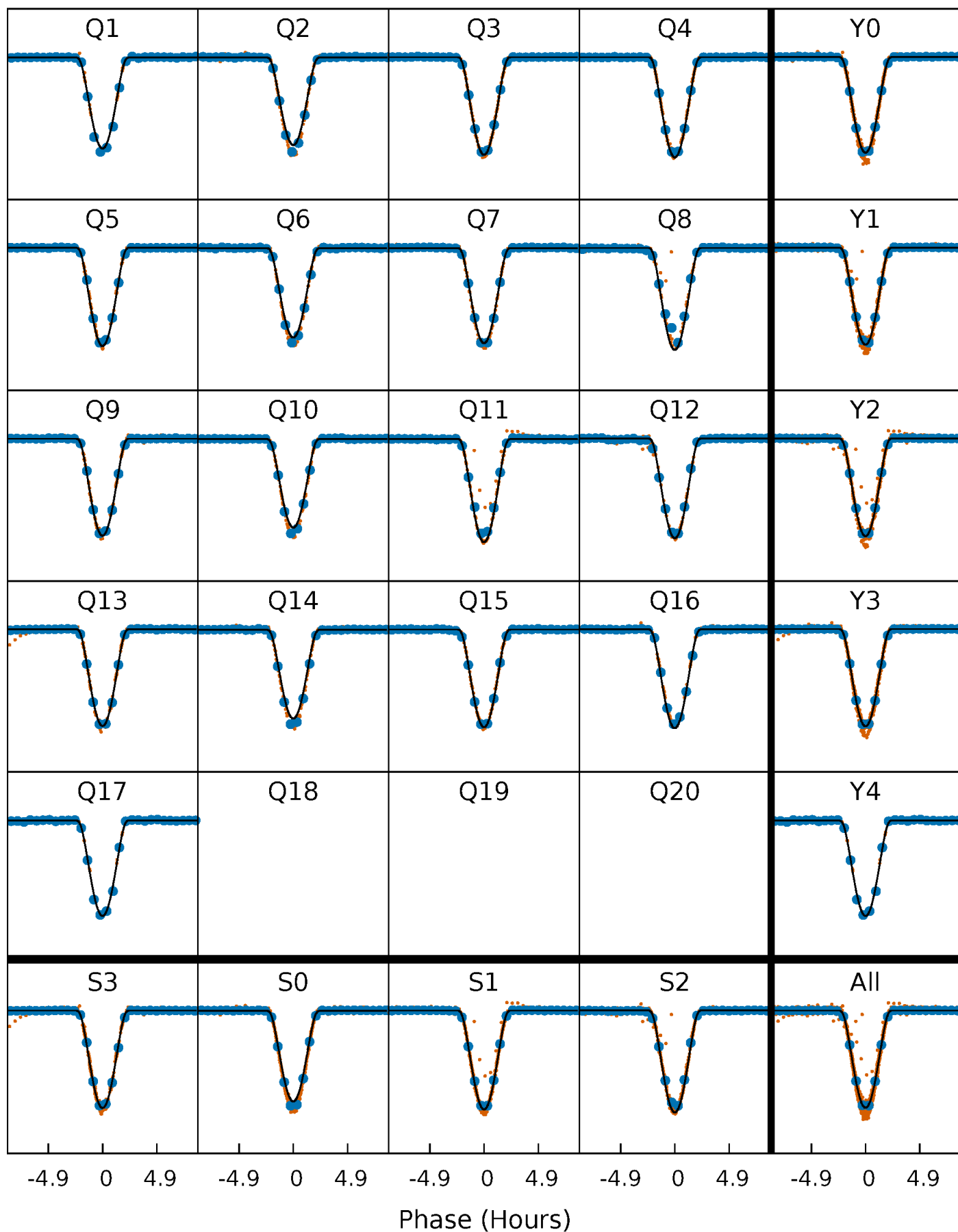
PDC Quarter-Phased Transit Curves

TCE 008345358-01 P= 9.380634 Days $T_0=132.558525$ (BKJD)



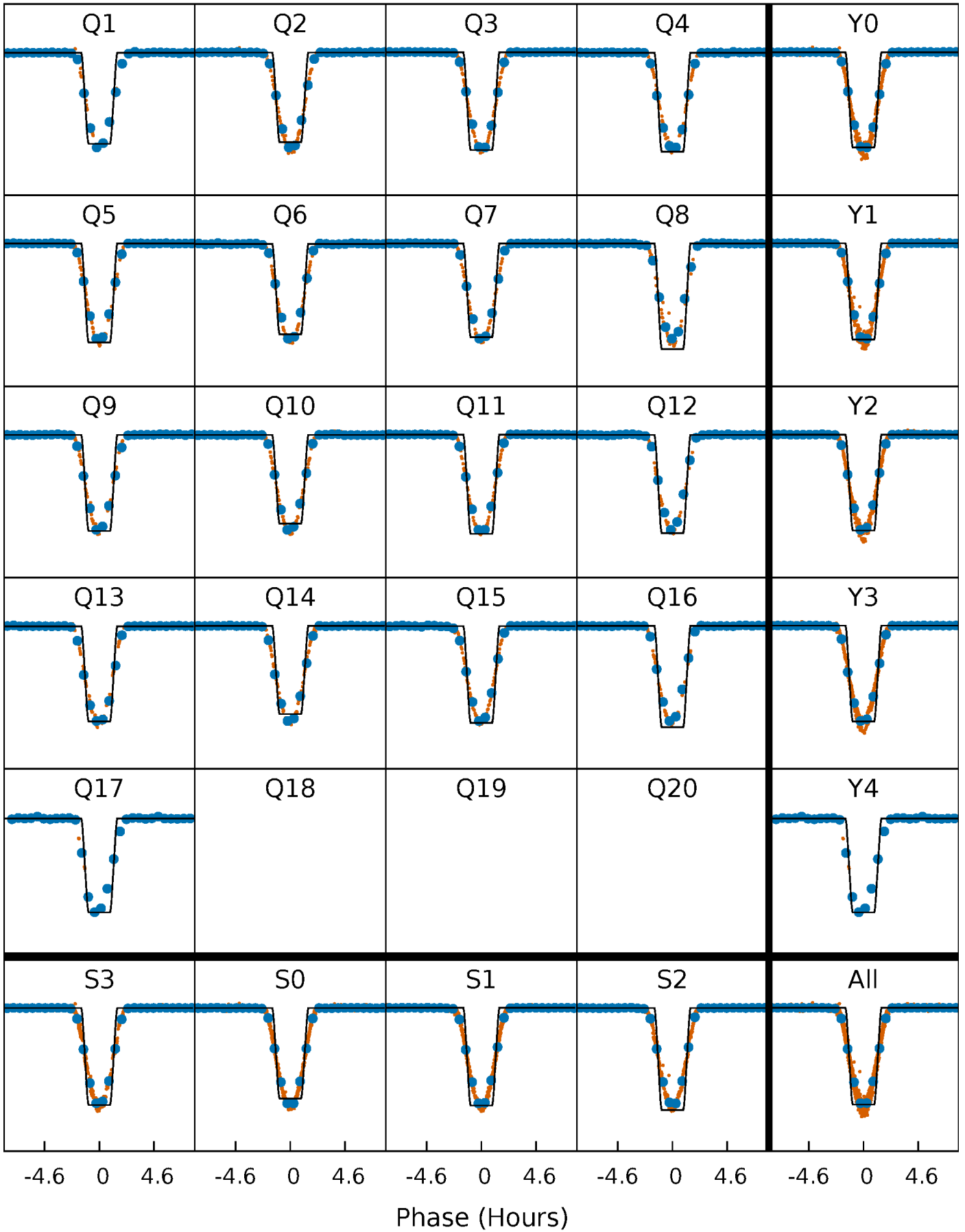
DV Quarter-Phased Transit Curves

TCE 008345358-01 P= 9.380634 Days $T_0=132.558525$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

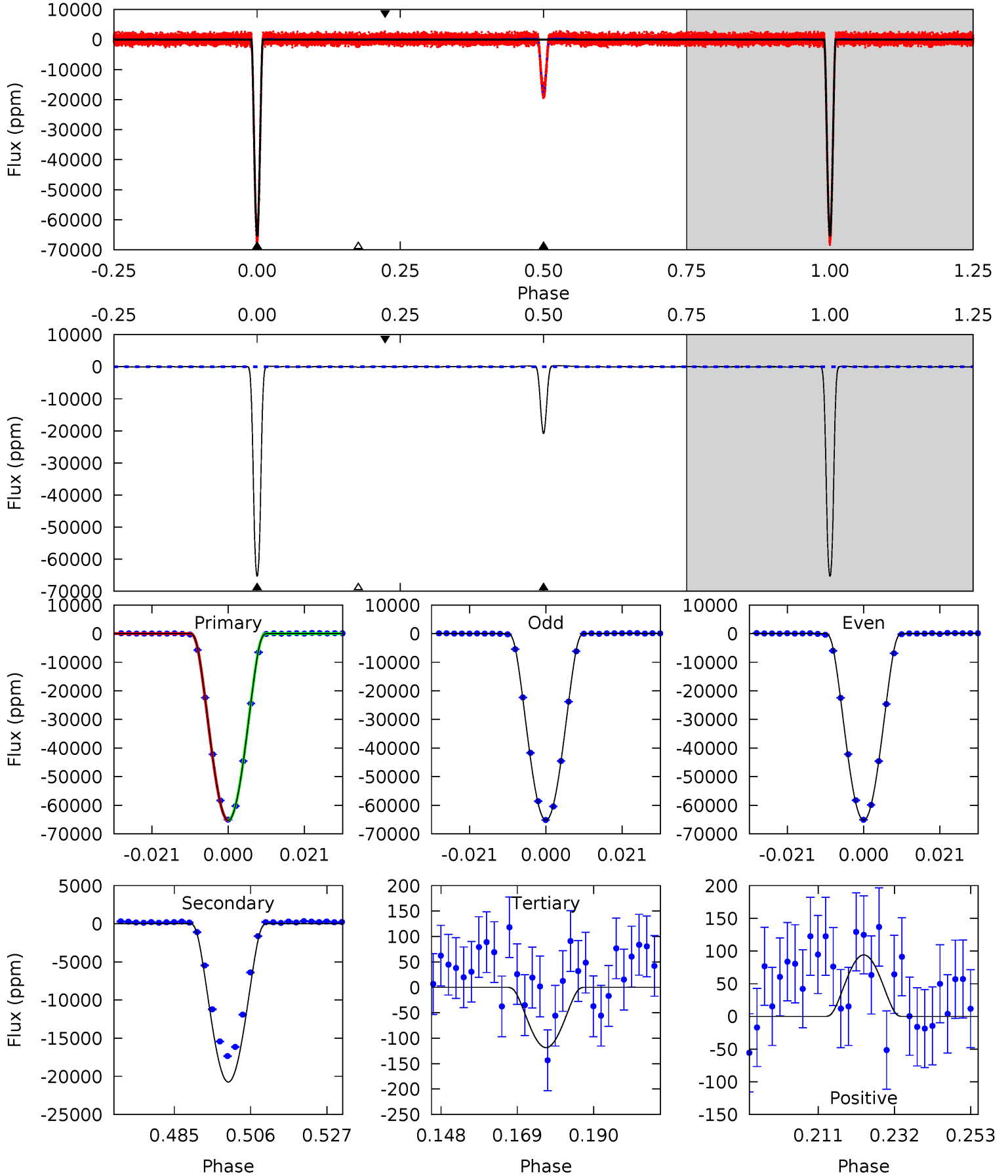
TCE 008345358-01 P= 9.380666 Days $T_0=132.556153$ (BKJD)



DV Model-Shift Uniqueness Test

008345358-01, P = 9.380634 Days, E = 123.177891 Days

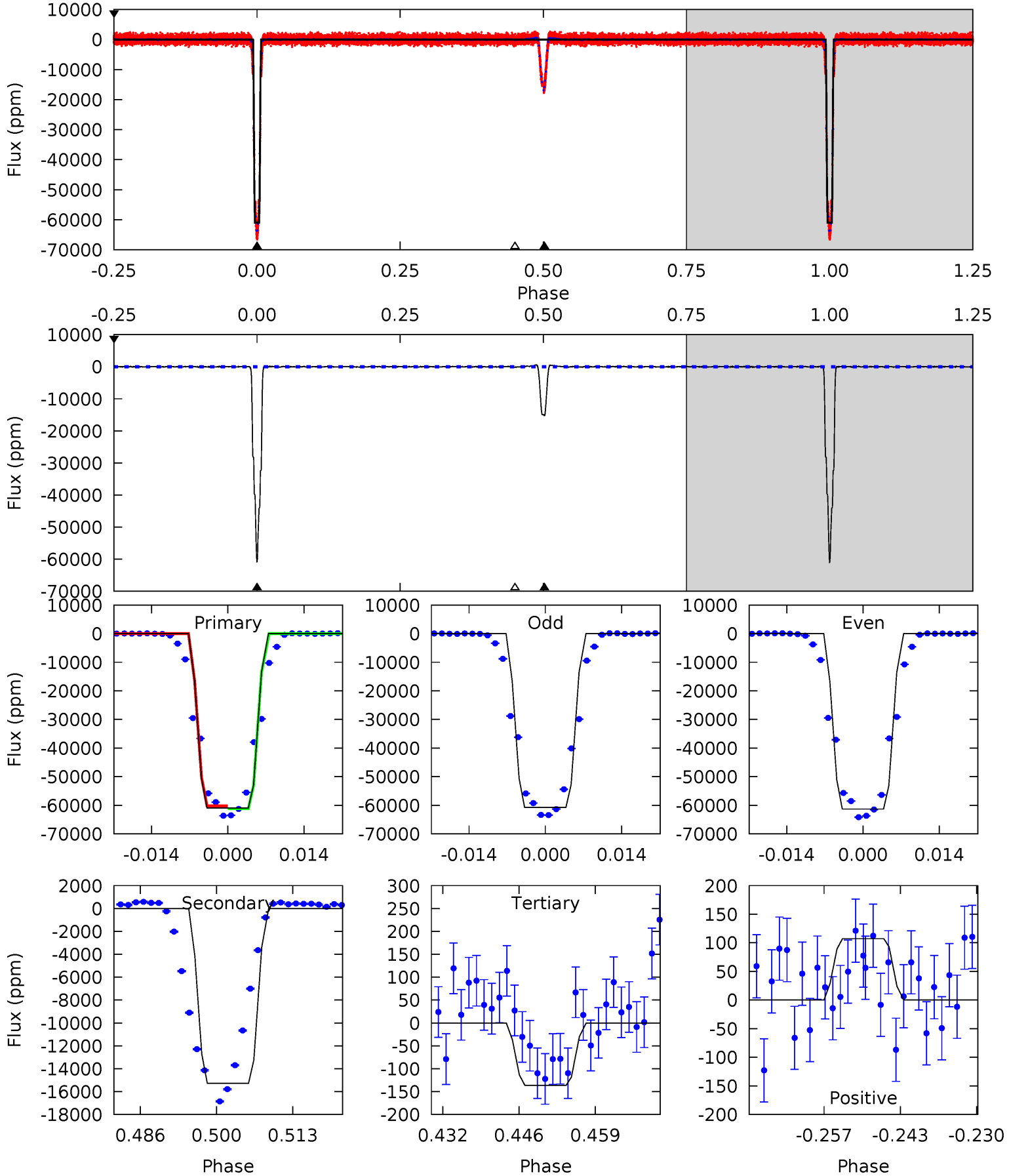
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3340	1061	6.06	4.81	4.88	2.31	3.62	3334	3335	1055	1057	0.11	1.00	0.00	0



Alt Model-Shift Uniqueness Test

008345358-01, P = 9.380666 Days, E = 123.175487 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1846	462.3	4.13	3.25	4.97	2.47	2.02	1842	1843	458.2	459.1	8.08	1.00	0.01	14.7



Stellar Parameters For KIC 008345358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5926^{+141}_{-195}	$4.519^{+0.048}_{-0.192}$	$-0.120^{+0.300}_{-0.300}$	$0.913^{+0.260}_{-0.087}$	$1.004^{+0.117}_{-0.130}$	$1.858^{+0.462}_{-0.900}$
	+2%/-3%	+1%/-4%	+250%/-250%	+28%/-10%	+12%/-13%	+25%/-48%
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 008345358-01 / KOI 7021.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20744 ± 20	$35.83^{+5.61}_{-3.11}$	1206^{+77}_{-53}	4110^{+98}_{-106}	68^{+11}_{-16}
Alt.	-15265 ± 33	$26.24^{+4.03}_{-2.69}$	1206^{+78}_{-56}	4356^{+115}_{-122}	92^{+19}_{-20}

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 $A_{obs} \gg 1.0$

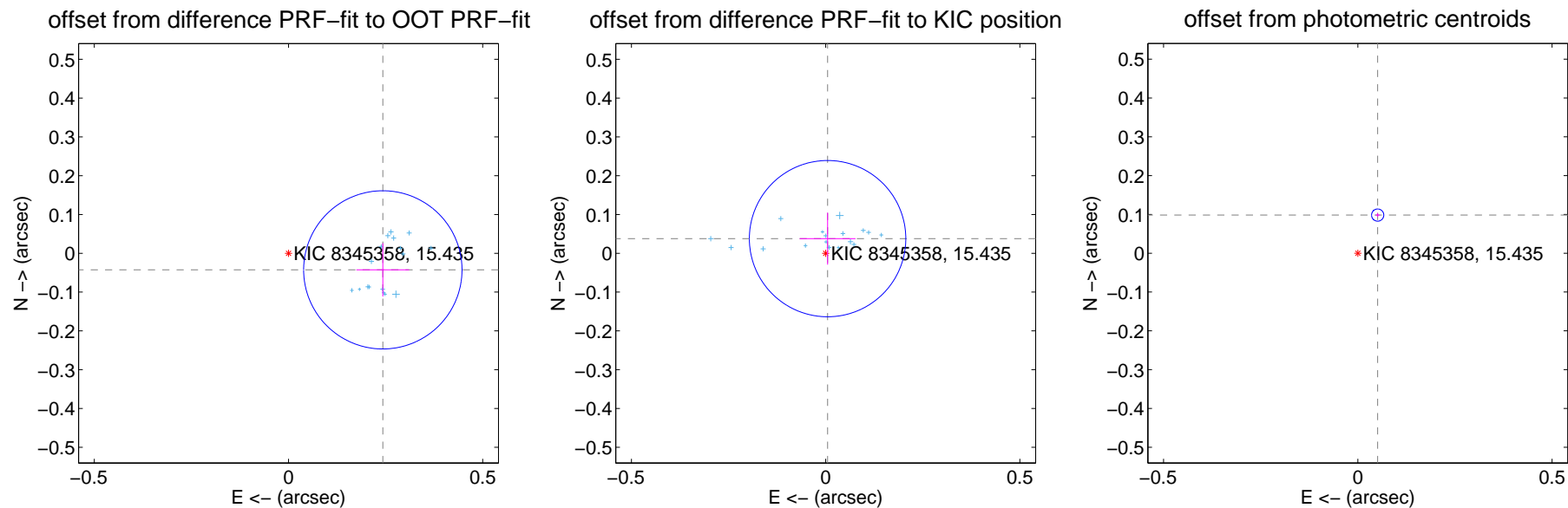
DV Centroid Data

Supplemental centroid analysis for 008345358-01. Kepler magnitude: 15.44. Transit SNR 1497.44

There are 17 quarters with good PRF difference image offsets

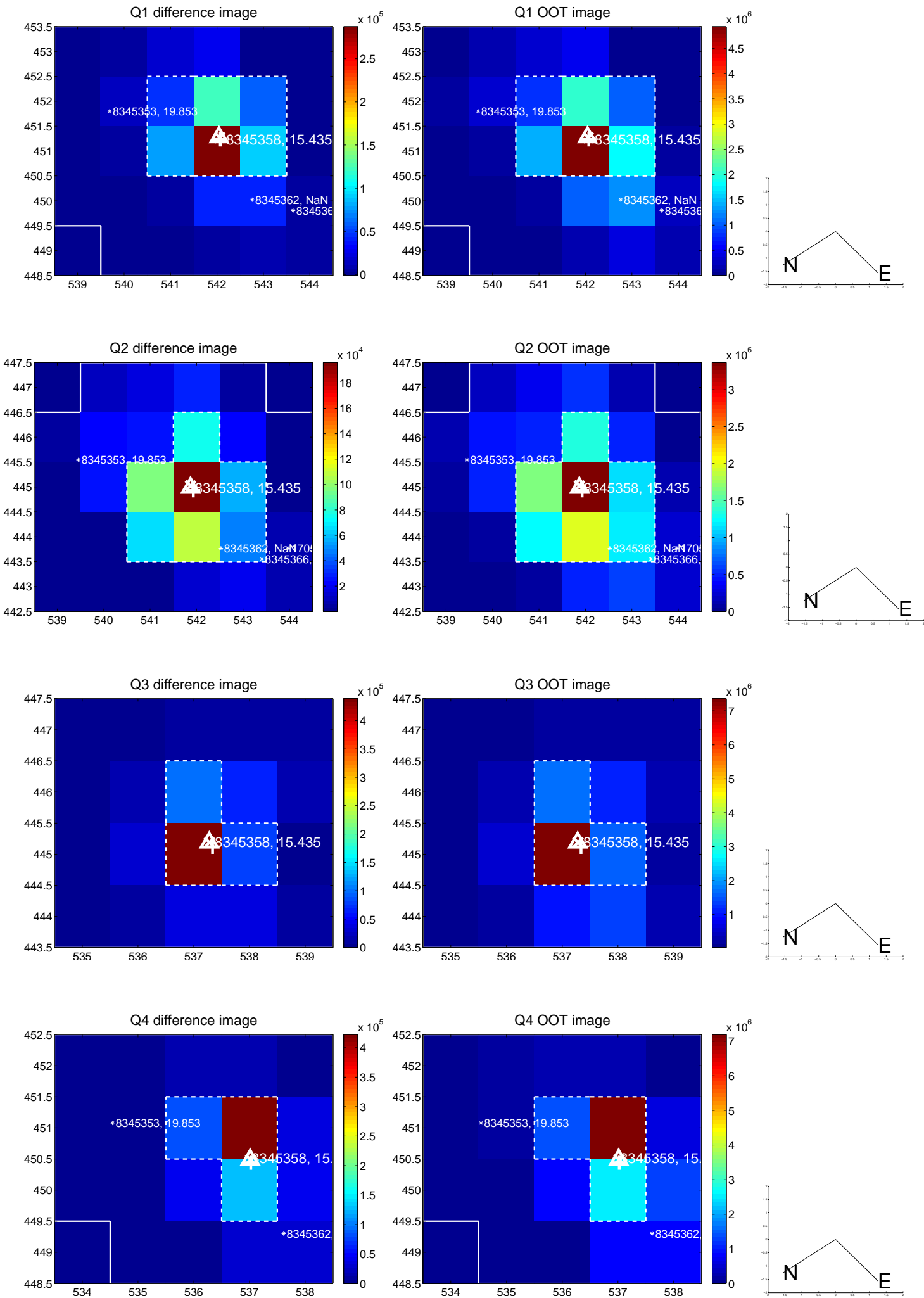
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.247 \pm 0.068	3.63	-0.243 \pm 0.068	-0.043 \pm 0.069
PRF-fit source offset from KIC position	0.038 \pm 0.067	0.57	-0.005 \pm 0.072	0.038 \pm 0.067
photometric centroid source offset	0.11 \pm 0.01	21.14	-0.05 \pm 0.01	0.10 \pm 0.01

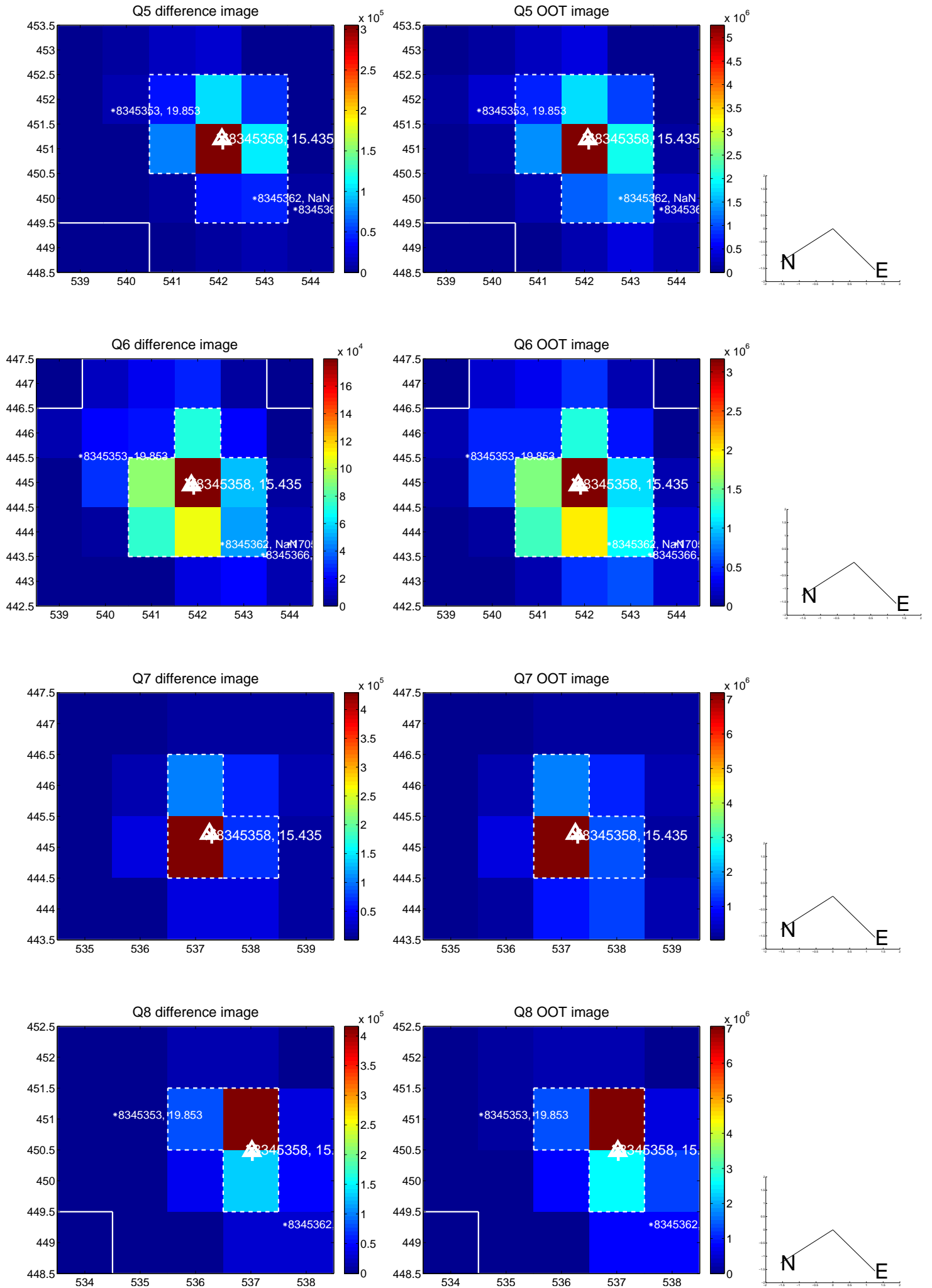


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

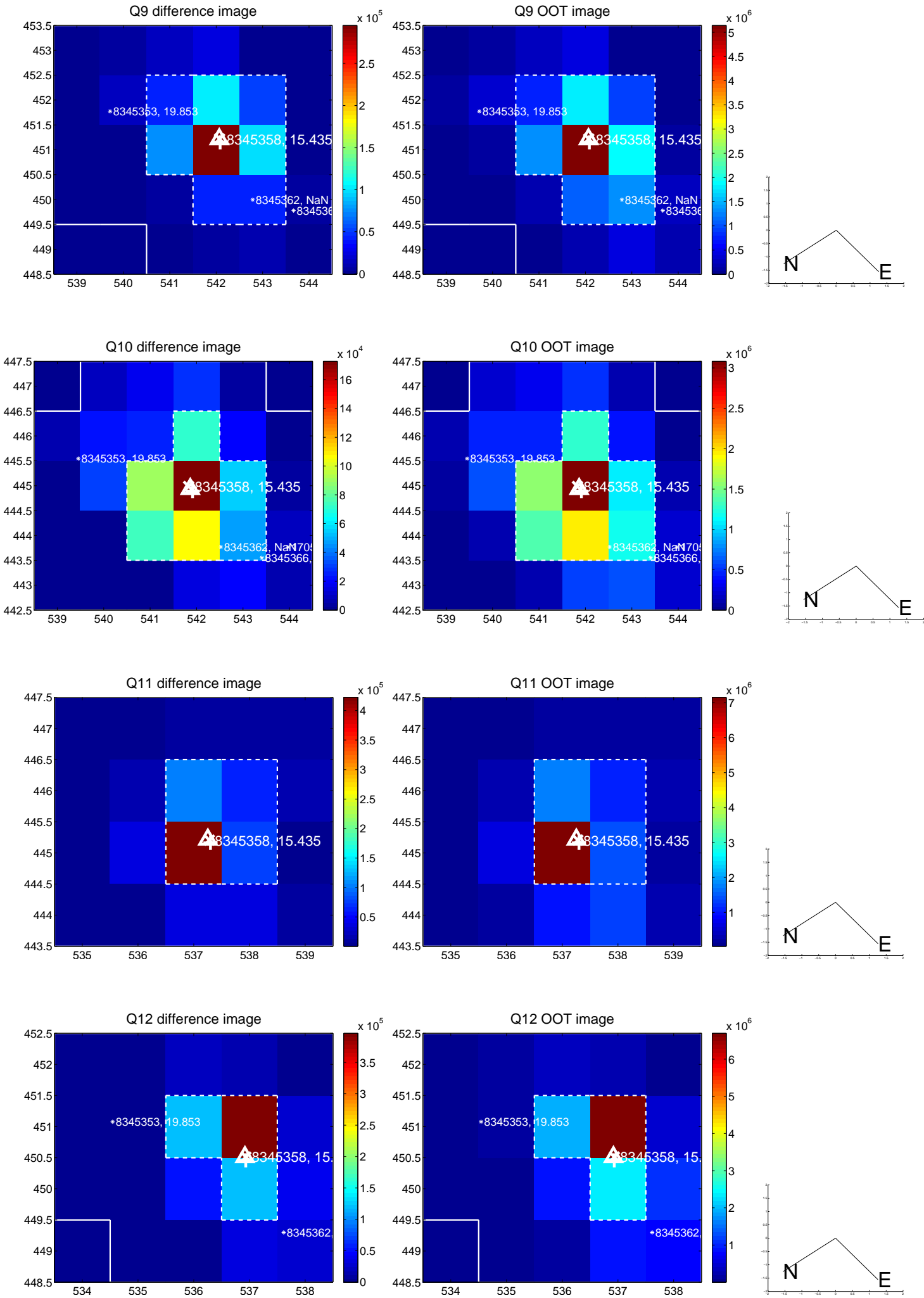
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



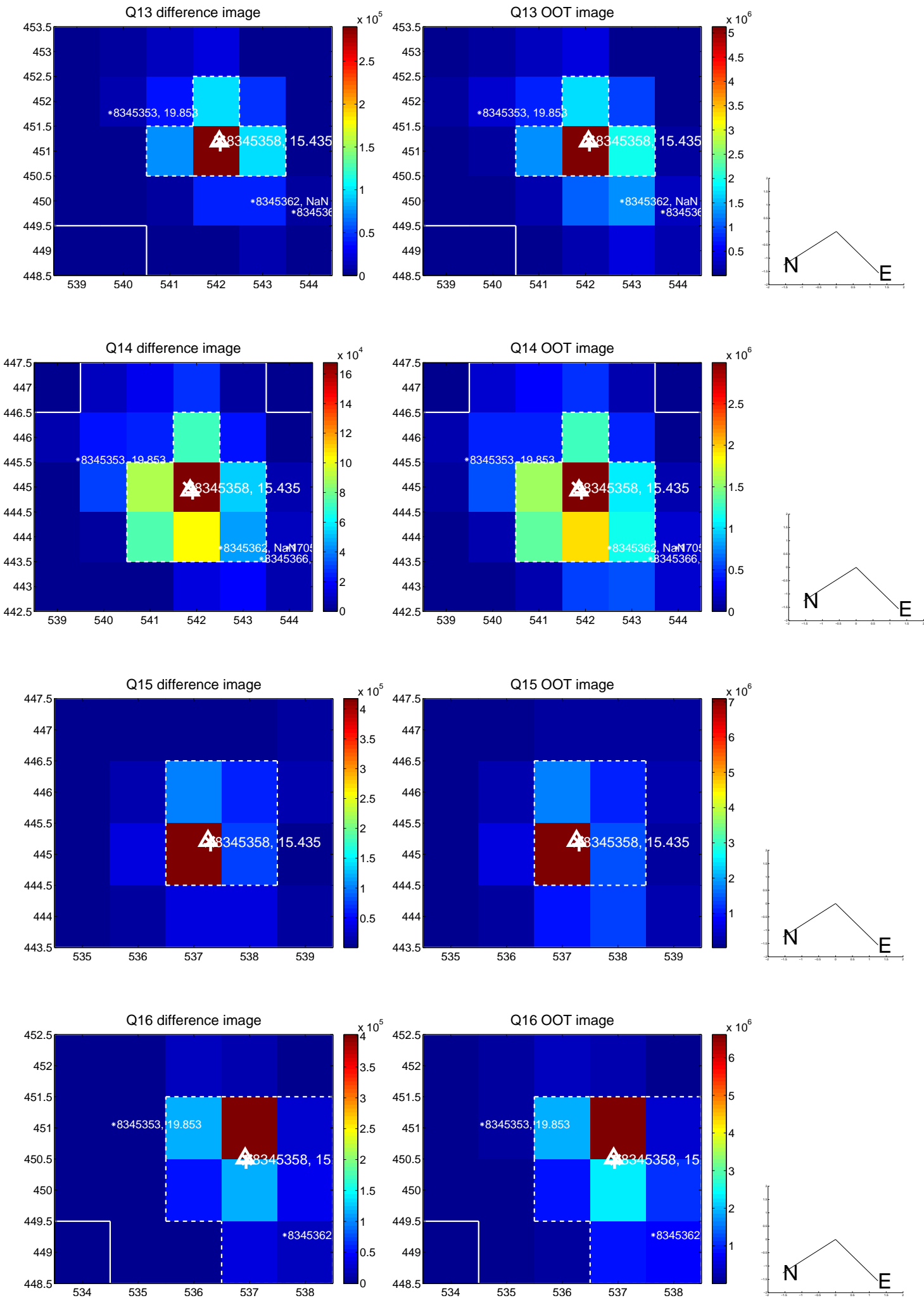
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



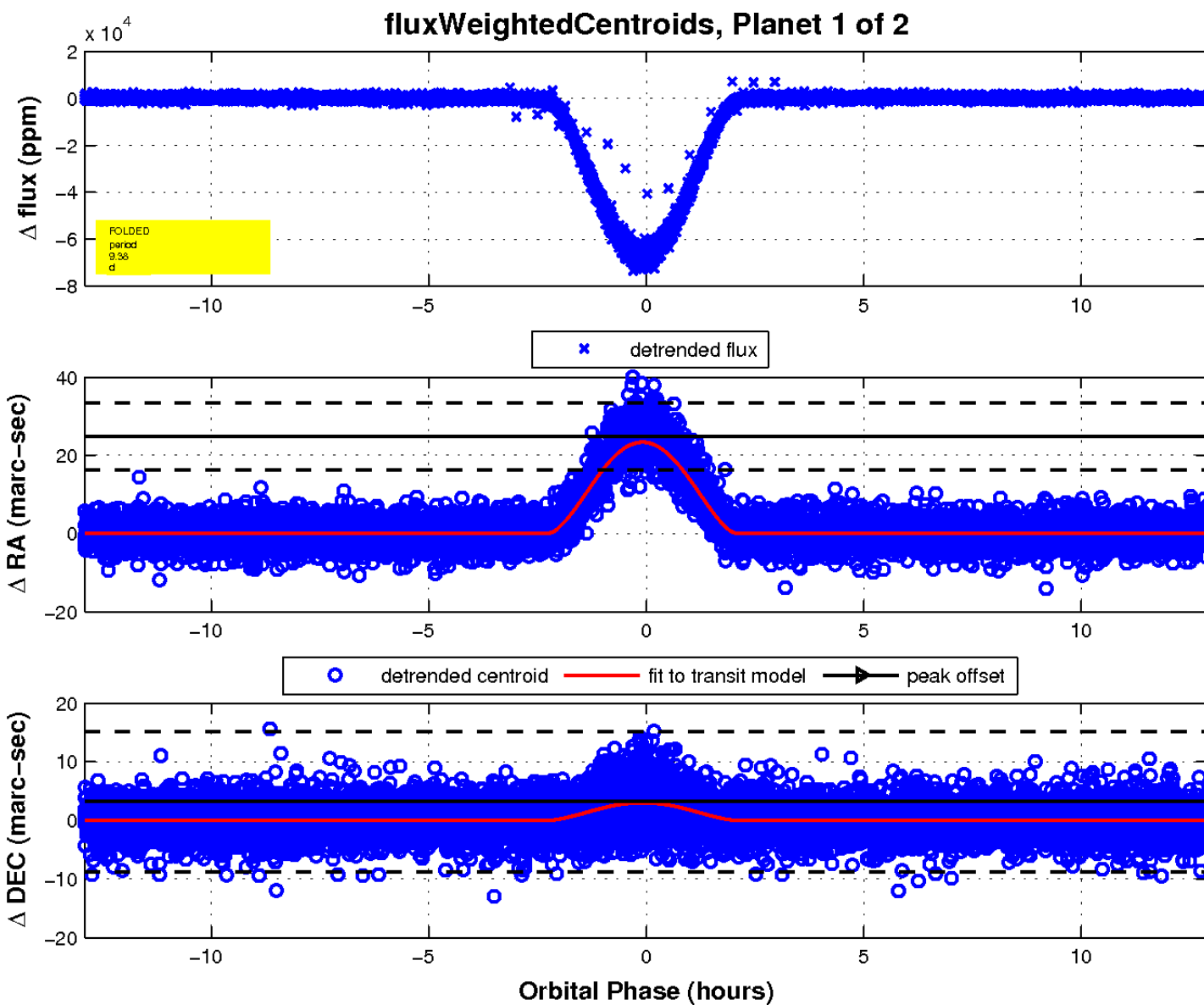
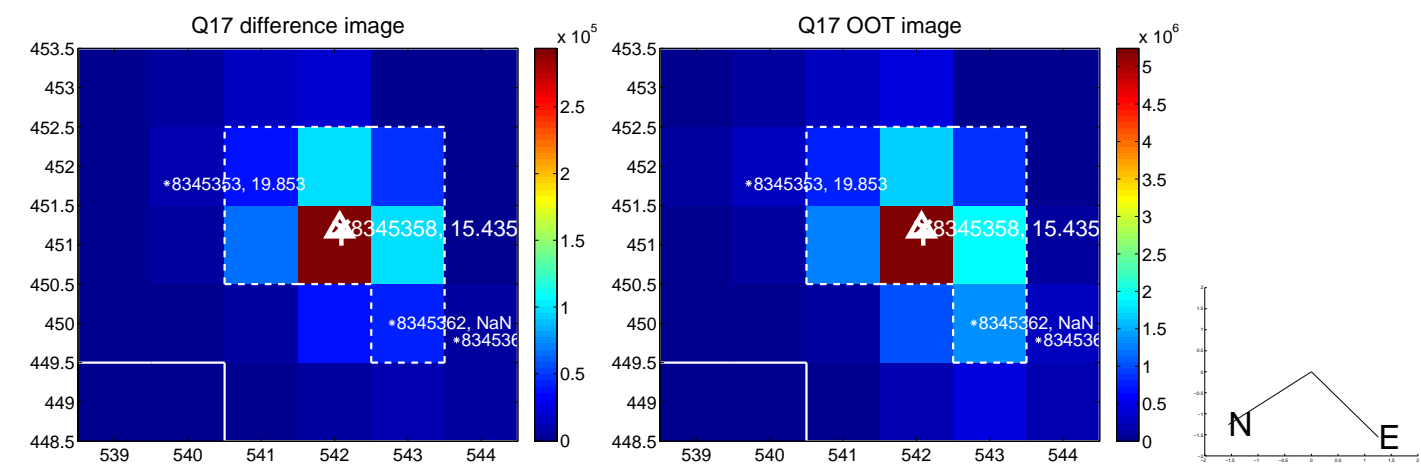
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

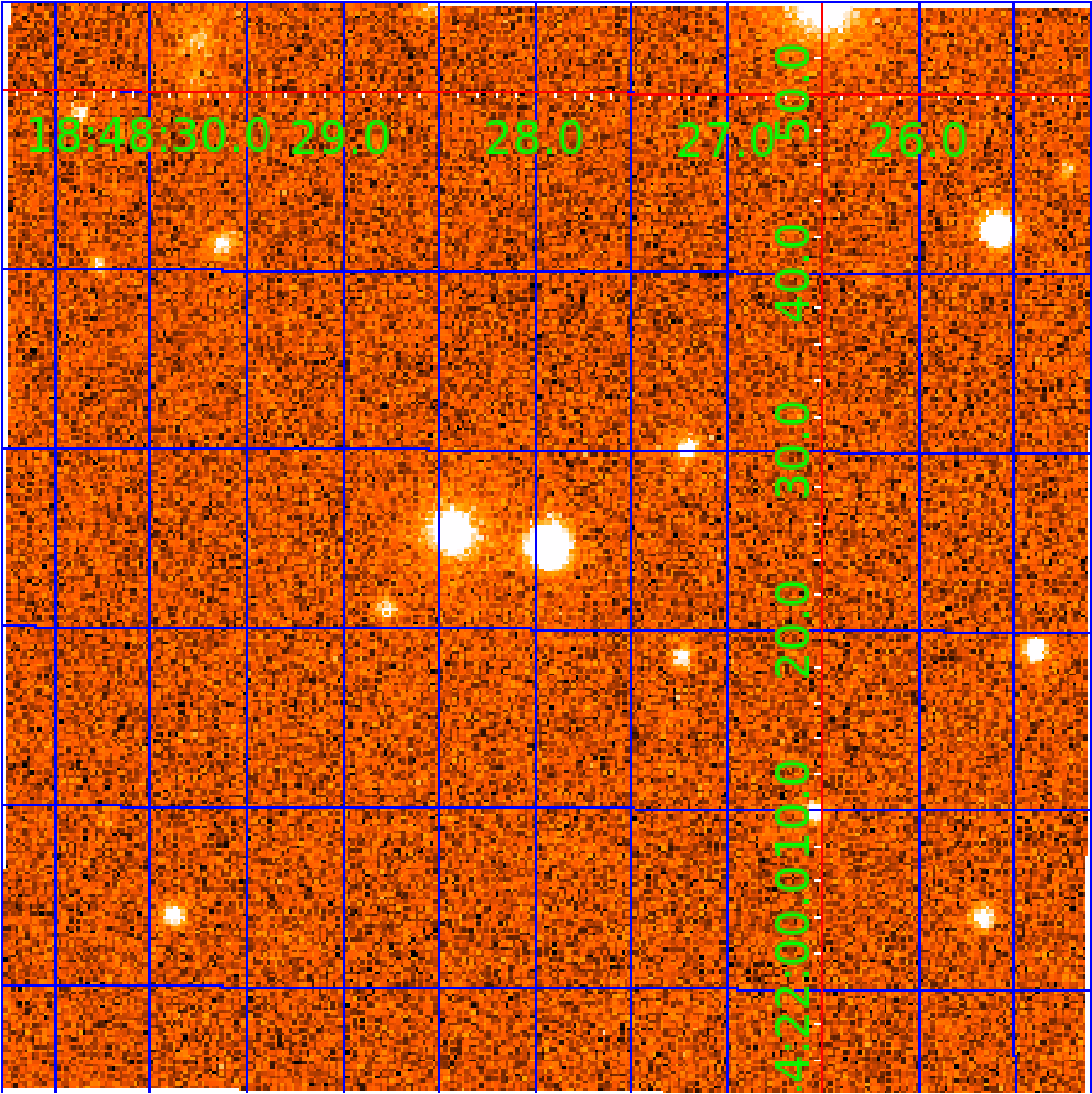


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008345358

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})
008345358-01	OBS	7021.01	9.380634	132.558525	65069.5	4.306	1880.3	1497.4	0.91	5926	34.82	121.14
008345358-02	OBS	No	9.380636	137.248839	17509.1	4.181	535.0	504.1	0.91	5926	20.84	121.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008345358-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008345358-02	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 008345358-02

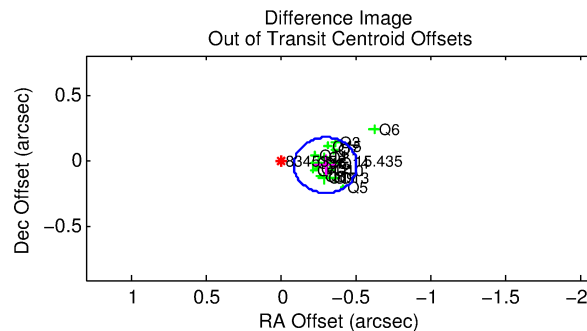
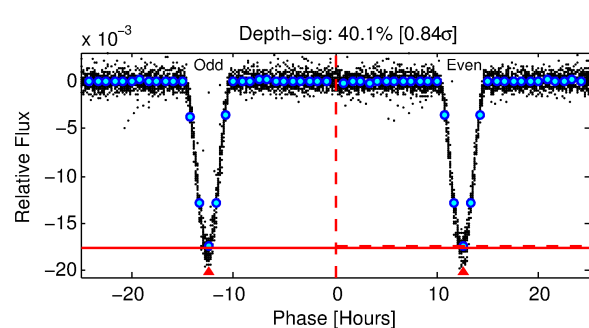
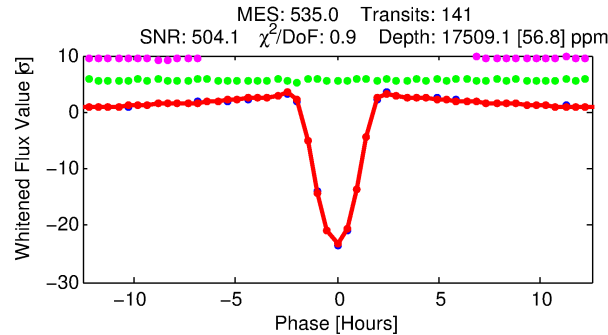
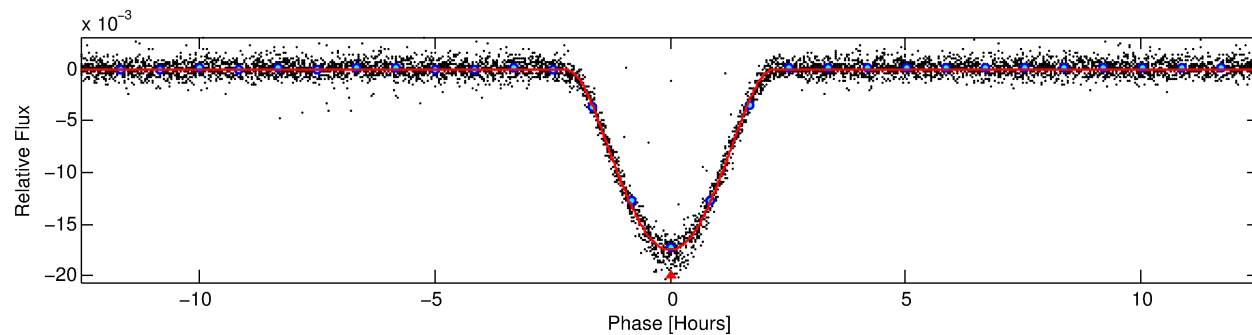
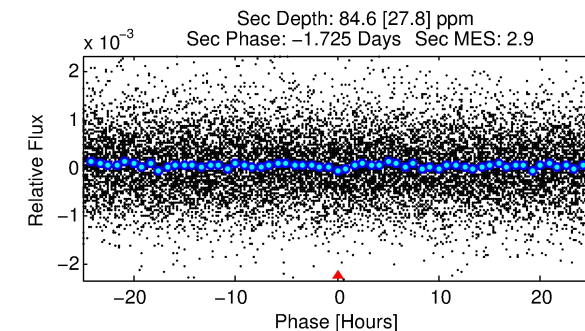
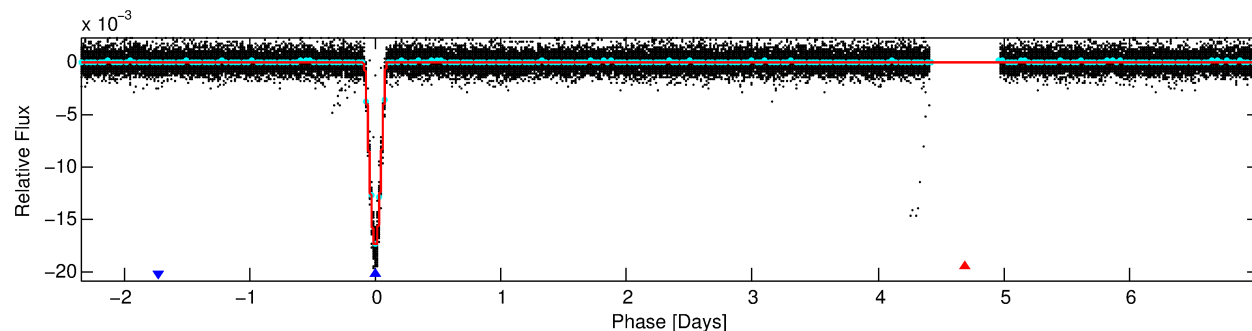
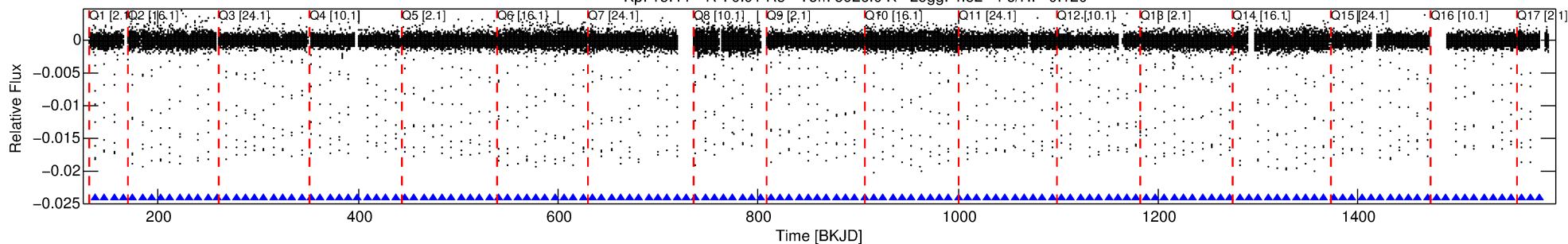
No Significant Match Found

DV One-Page Summary

KIC: 8345358 Candidate: 2 of 2 Period: 9.381 d

KOI: K07021 Corr: No Ephemeris Match

Kp: 15.44 R*: 0.91 Rs Teff: 5926.0 K Logg: 4.52 Fe/H: -0.120



DV Fit Results:

Period = 9.38064 [0.00000] d
Epoch = 137.2488 [0.0002] BKJD
Rp/R* = 0.2092 [0.0210]
a/R* = 11.89 [0.14]
b = 0.99 [0.03]
Seff = 121.14 [45.36]
Teq = 846 [79] K
Rp = 20.84 [6.29] Re
a = 0.0872 [0.0210] AU
Ag = 0.82 [0.42] [-0.44σ]
Teffp = 1243 [126] K [2.66σ]

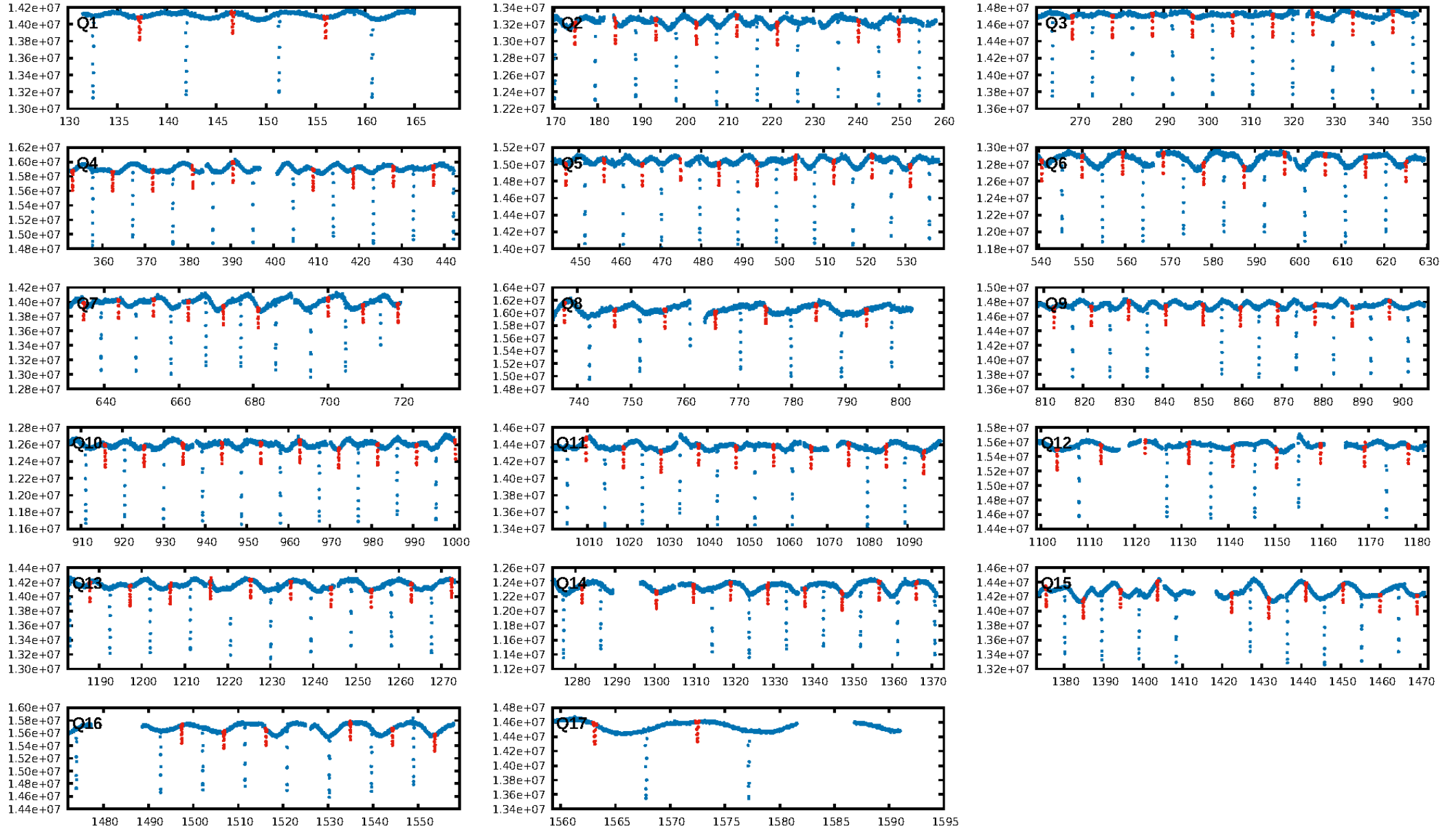
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [136/136]
GhostDiagnostic-chr: 2.869
Centroid-sig: 0.0%
Centroid-so: 0.099 arcsec [5.07σ]
OotOffset-rm: 0.303 arcsec [4.32σ]
KicOffset-rm: 0.130 arcsec [1.77σ]
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]

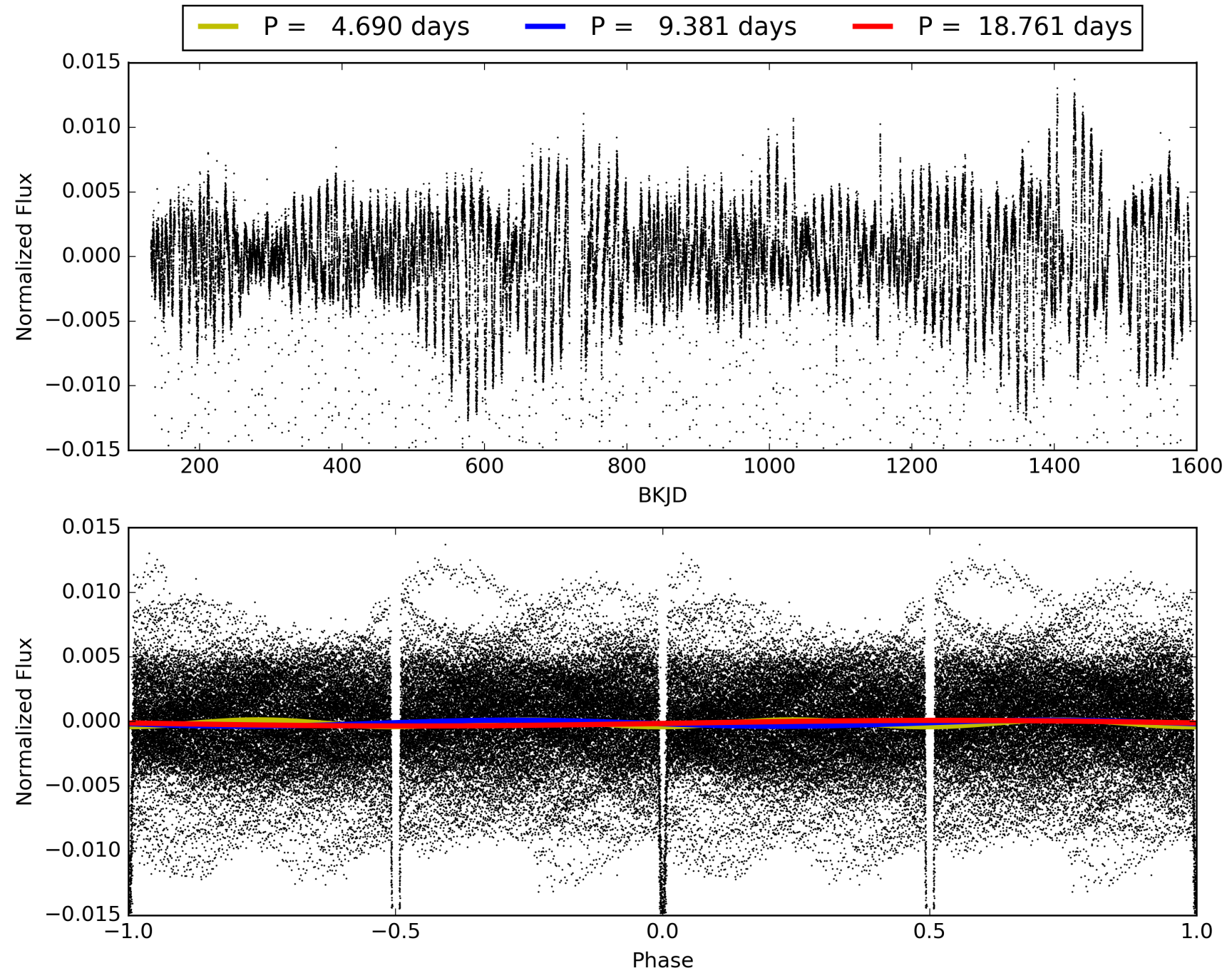
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:57:30 Z

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

TCE 008345358-02, PDC Light Curves

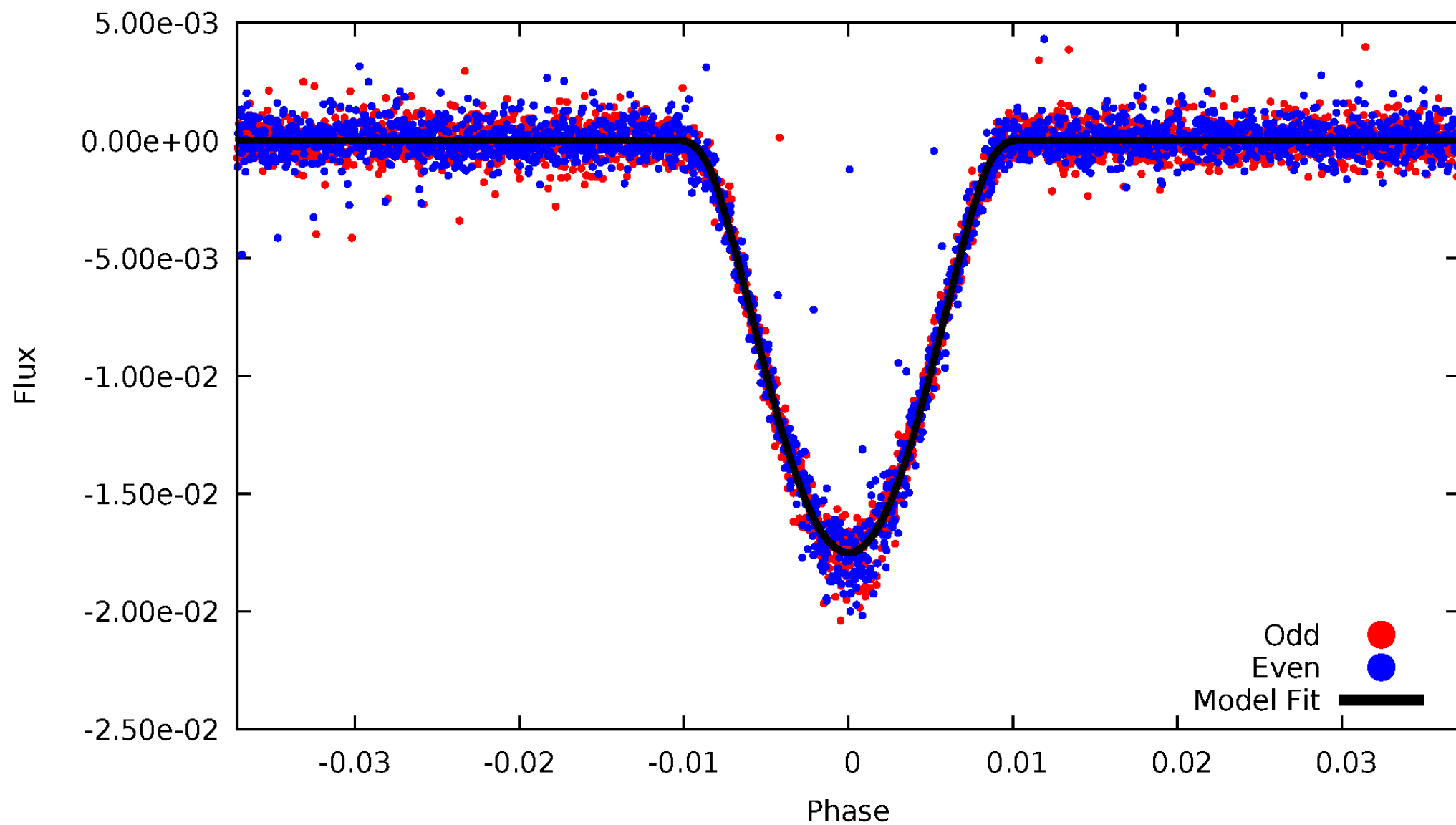


TCE 008345358-02



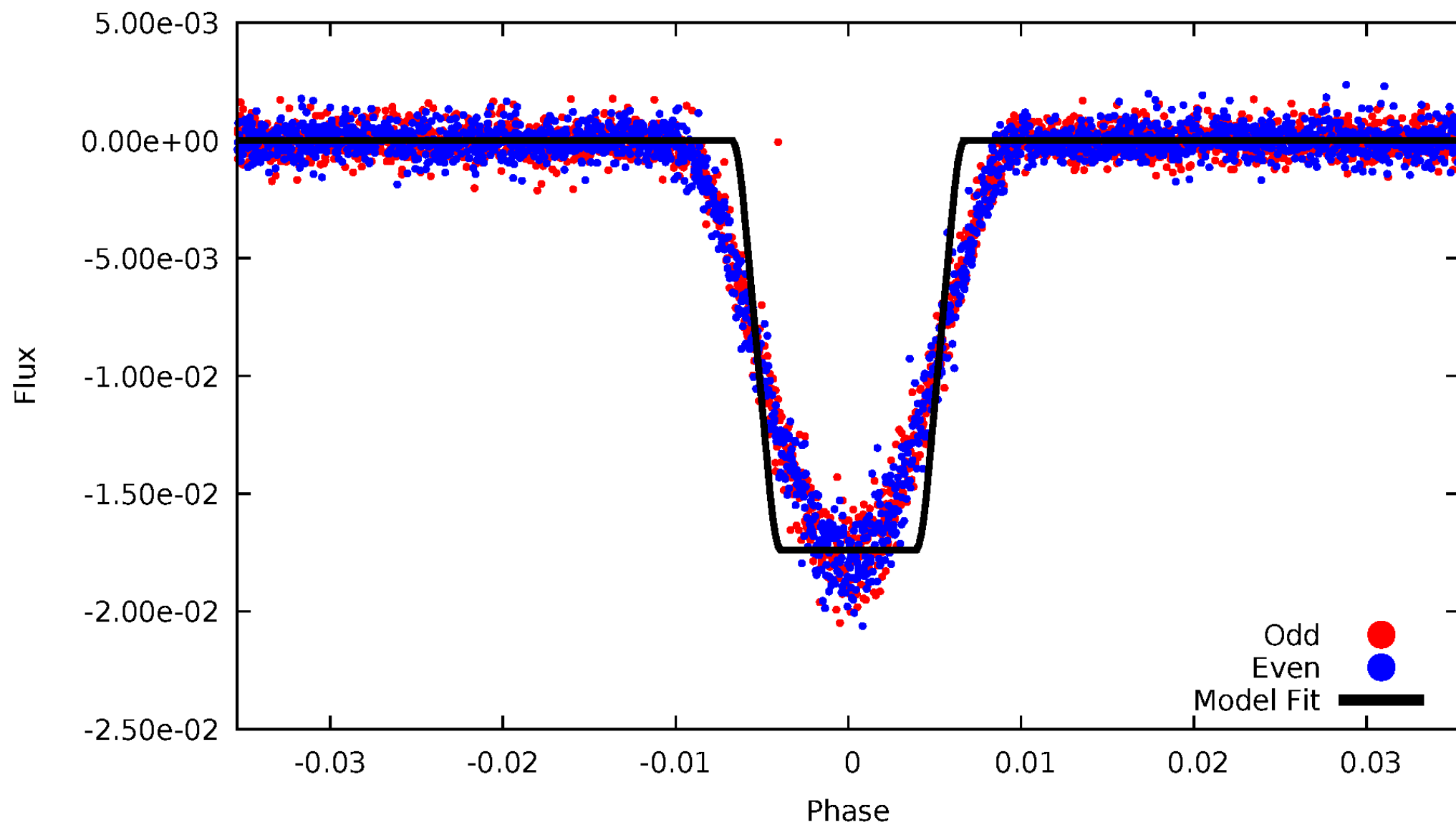
DV Odd/Even

TCE 008345358-02



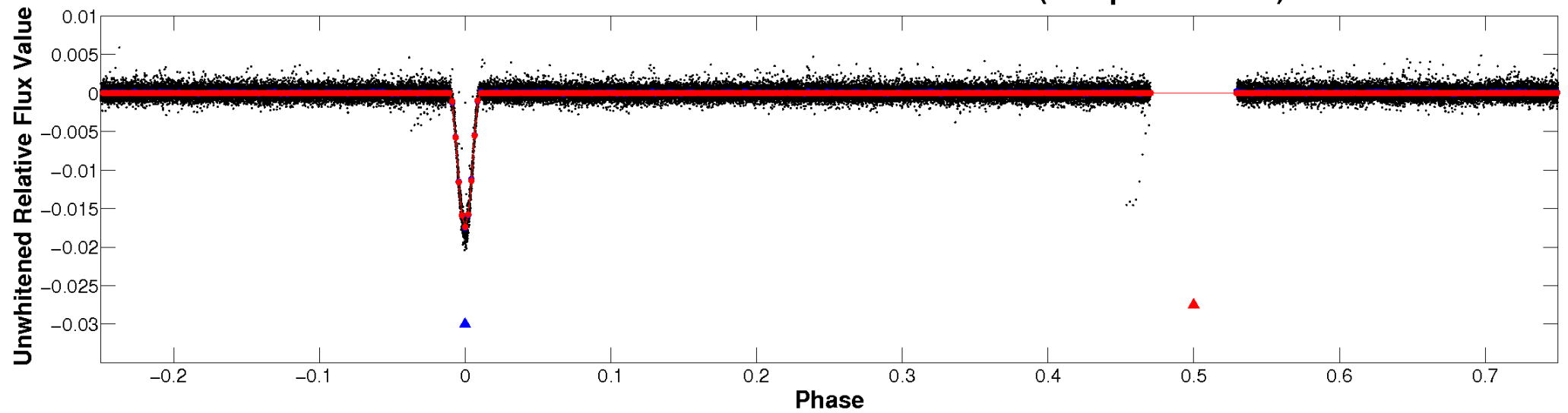
ALT Odd/Even

TCE 008345358-02

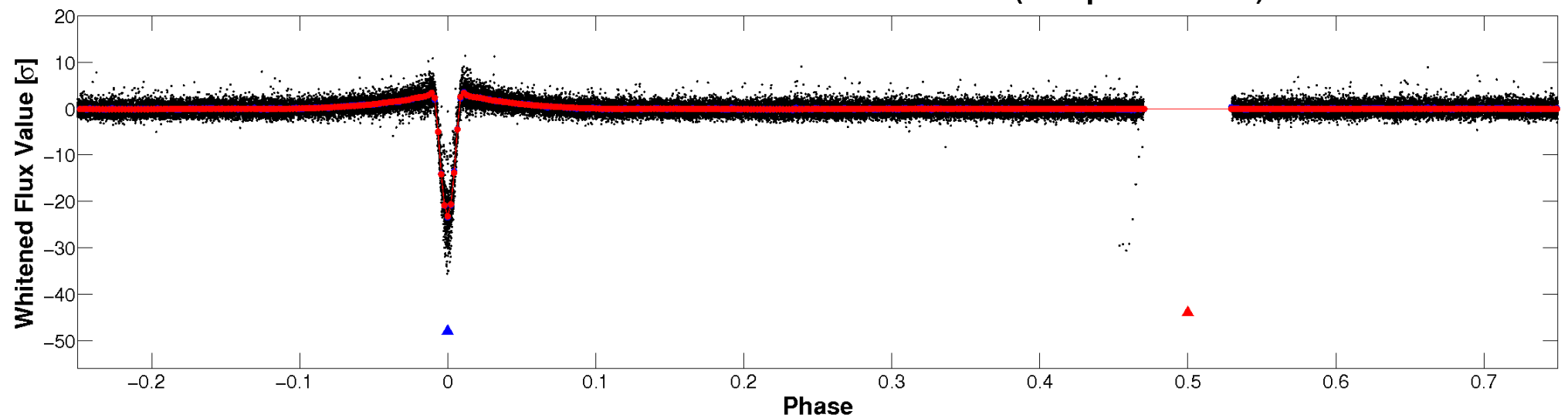


Non-Whitened Vs. Whitened Light Curve

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

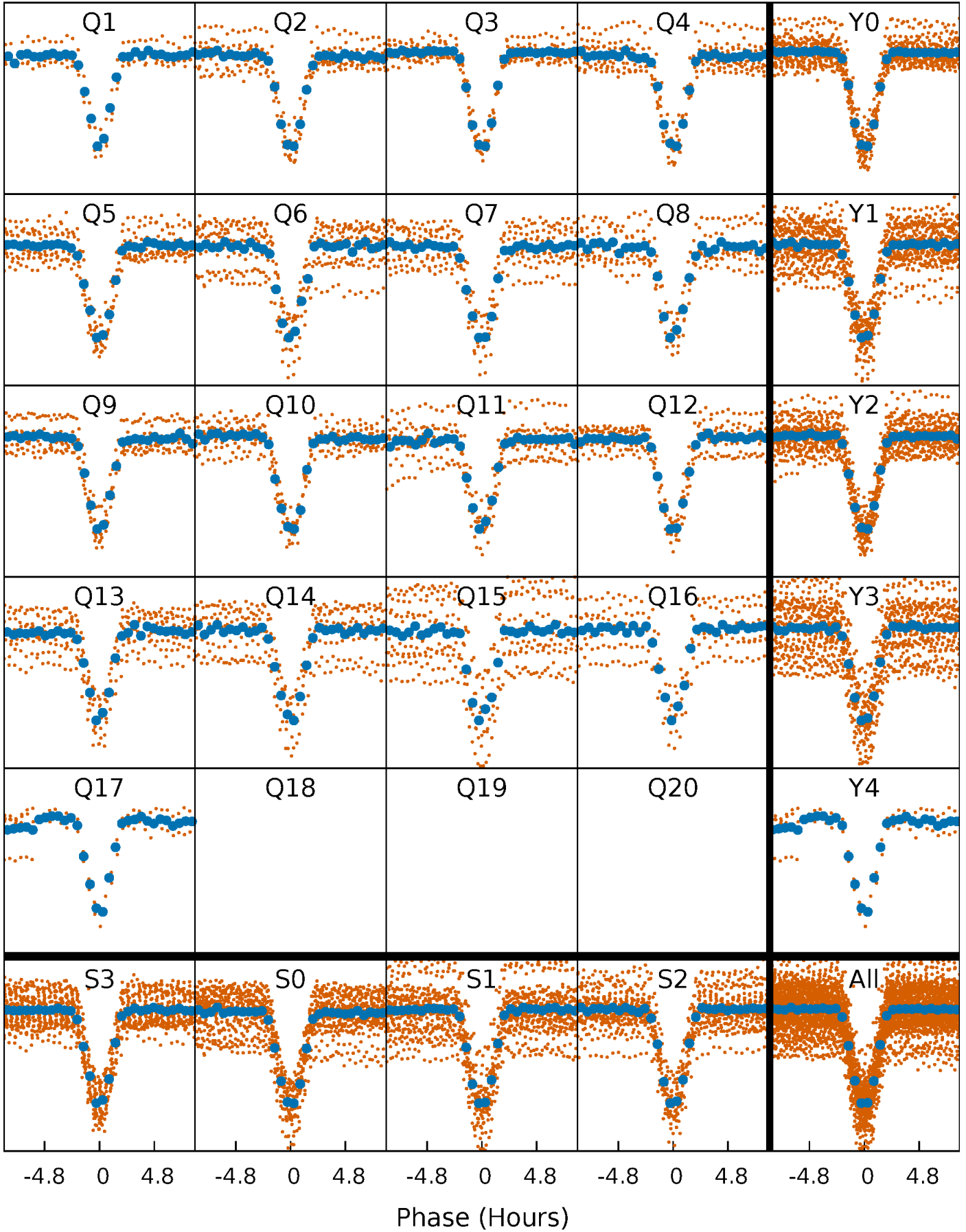


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



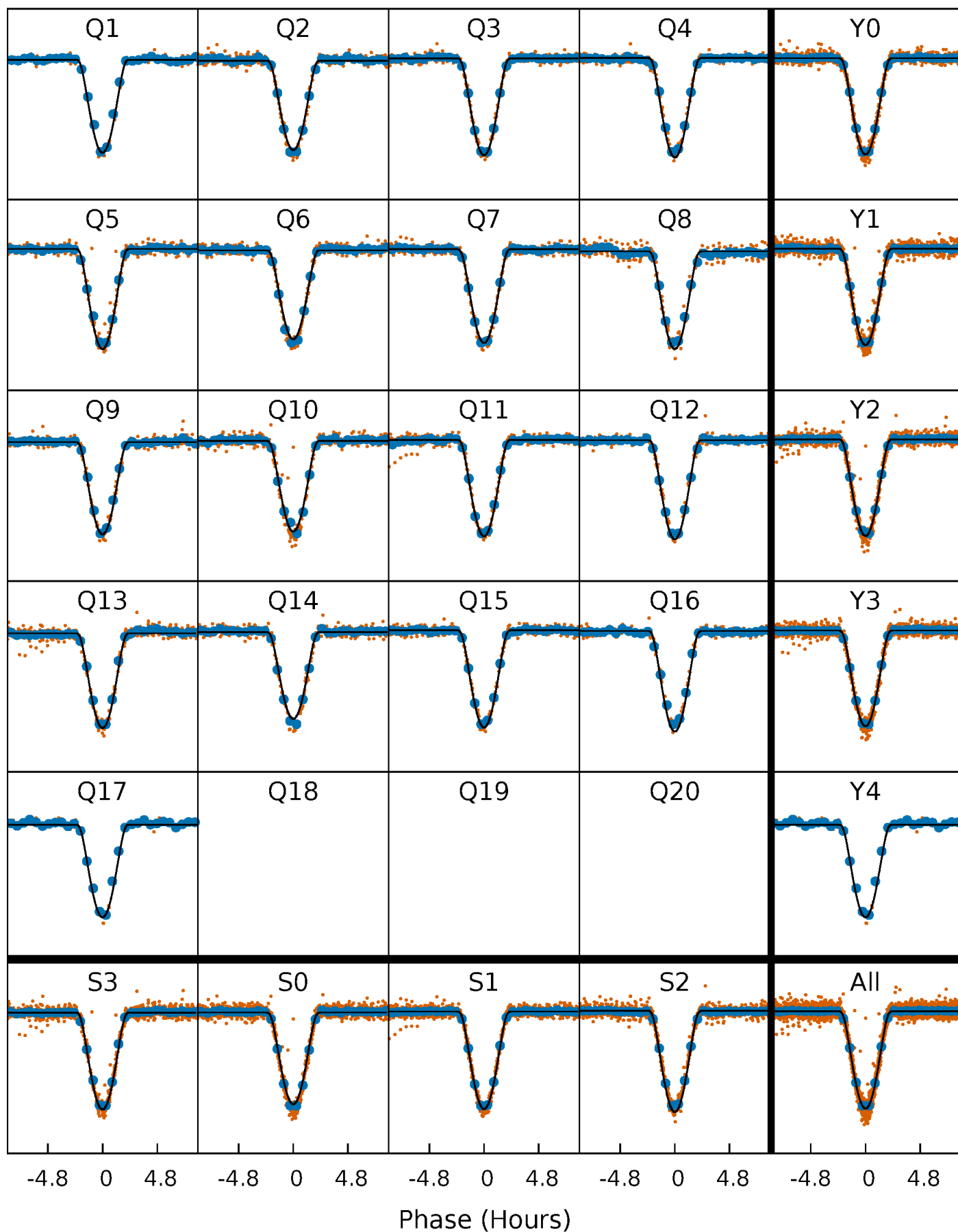
PDC Quarter-Phased Transit Curves

TCE 008345358-02 P= 9.380636 Days $T_0=137.248839$ (BKJD)



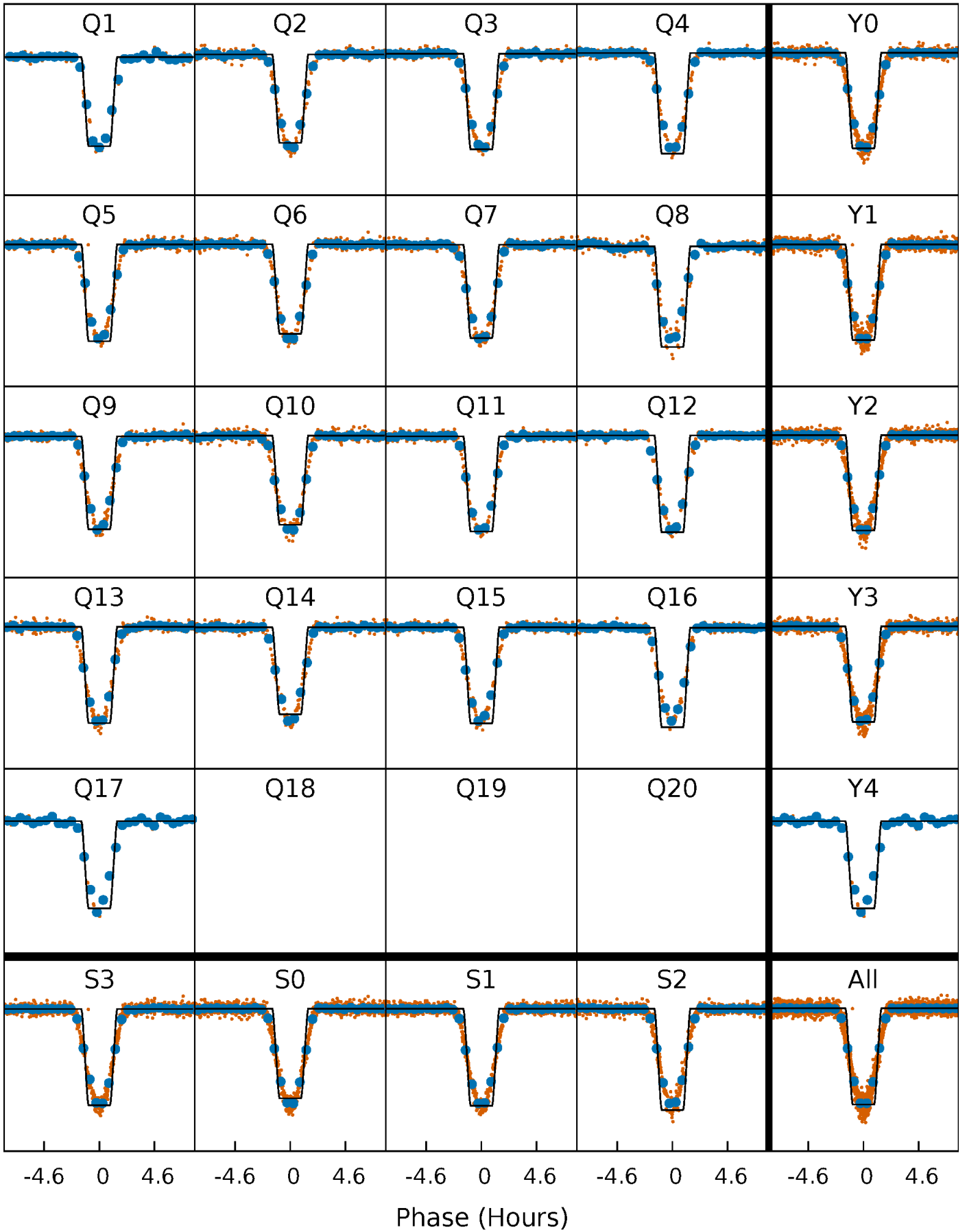
DV Quarter-Phased Transit Curves

TCE 008345358-02 P= 9.380636 Days $T_0=137.248839$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

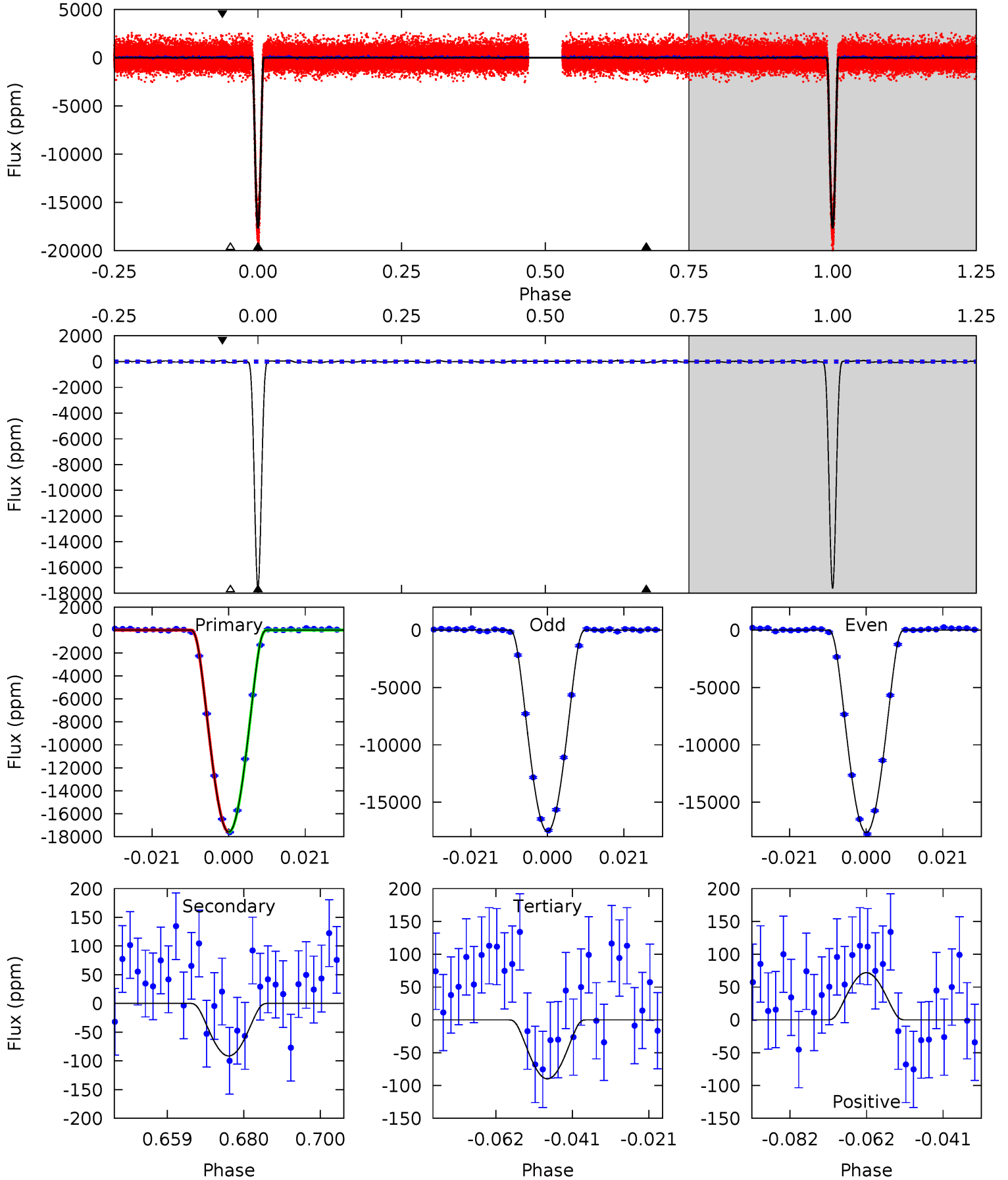
TCE 008345358-02 P= 9.380666 Days $T_0=137.246452$ (BKJD)



DV Model-Shift Uniqueness Test

008345358-02, P = 9.380636 Days, E = 127.868203 Days

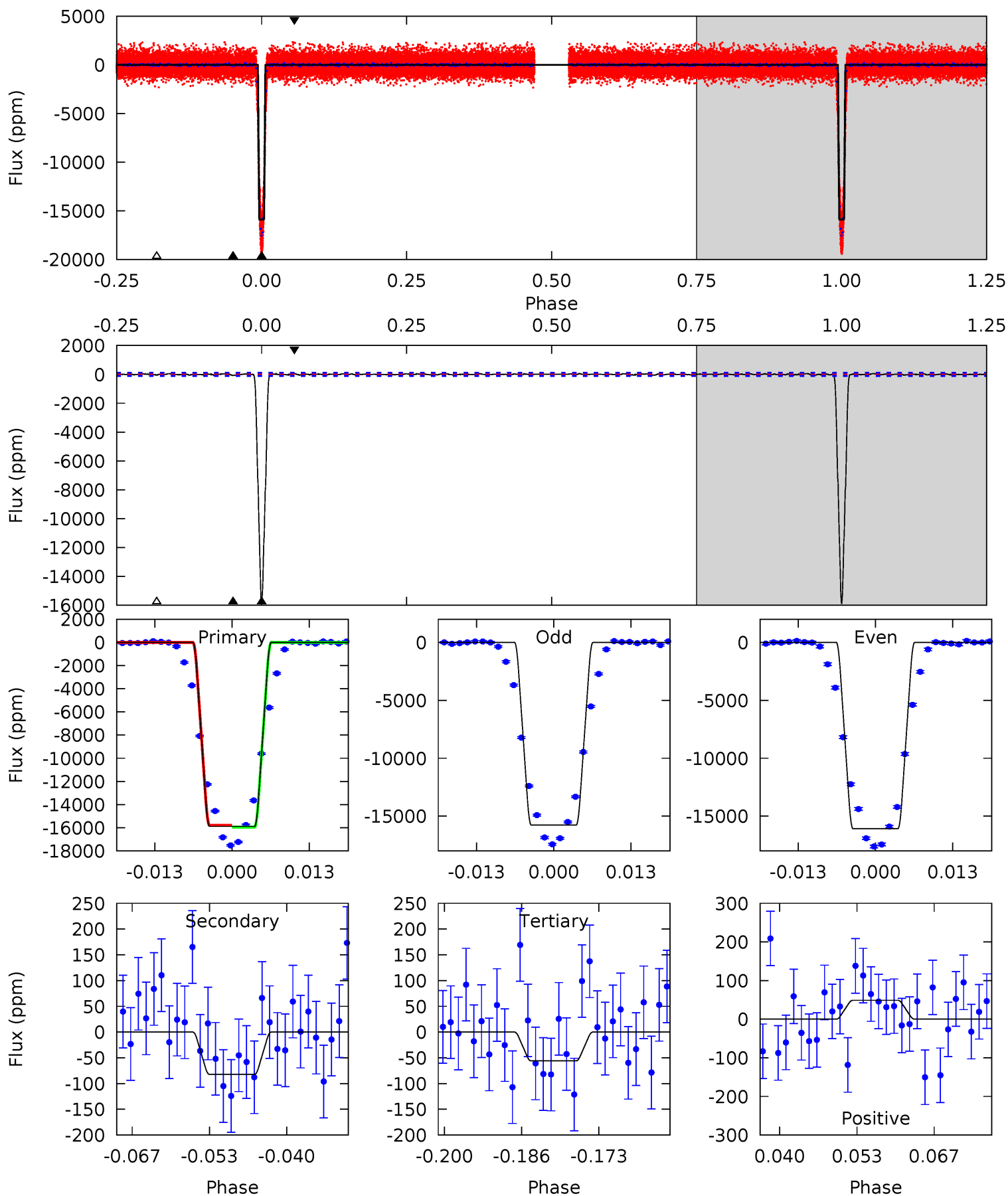
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
995.9	5.17	5.09	4.07	4.89	2.32	1.83	990.8	991.8	0.09	1.11	2.72	1.00	0.00	1.37



Alt Model-Shift Uniqueness Test

008345358-02, P = 9.380666 Days, E = 127.865786 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
737.9	3.82	2.60	2.27	4.97	2.48	0.95	735.3	735.7	1.22	1.55	7.21	1.00	0.00	3.64



Stellar Parameters For KIC 008345358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5926^{+141}_{-195}	$4.519^{+0.048}_{-0.192}$	$-0.120^{+0.300}_{-0.300}$	$0.913^{+0.260}_{-0.087}$	$1.004^{+0.117}_{-0.130}$	$1.858^{+0.462}_{-0.900}$
	+2%/-3%	+1%/-4%	+250%/-250%	+28%/-10%	+12%/-13%	+25%/-48%
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 008345358-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-91 ± 18	$21.64^{+3.70}_{-2.91}$	1207^{+75}_{-53}	2091^{+111}_{-113}	$0.770^{+0.337}_{-0.215}$
Alt.	-82 ± 22	$13.69^{+2.91}_{-2.57}$	1204^{+80}_{-53}	2362^{+149}_{-153}	$1.727^{+1.040}_{-0.678}$

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

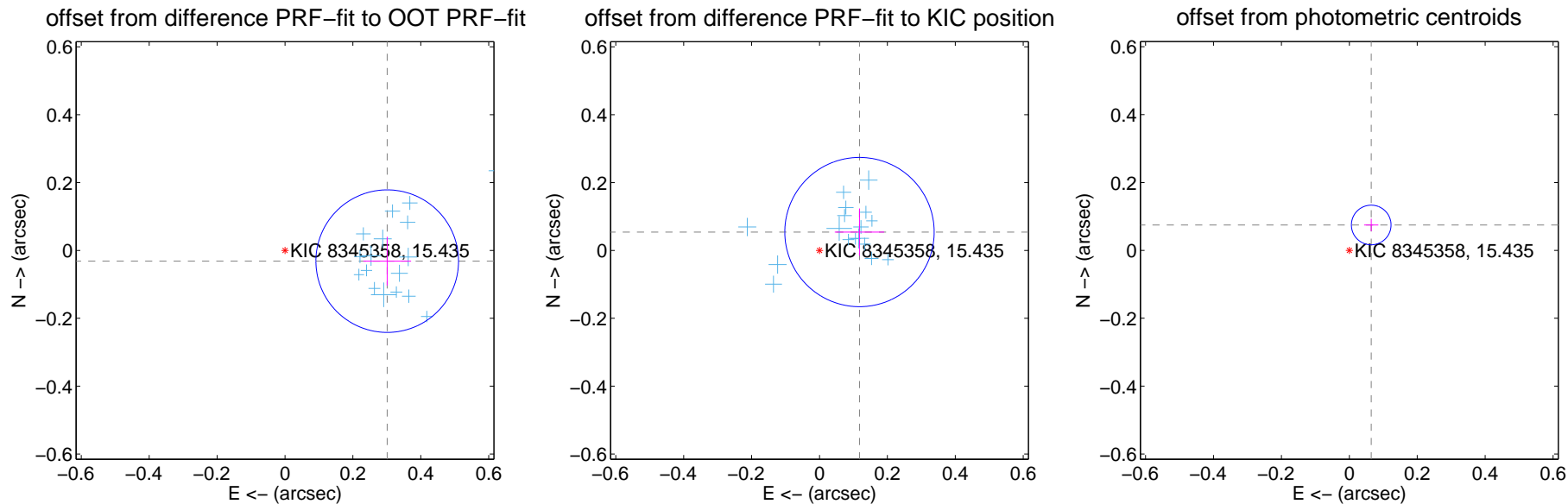
DV Centroid Data

Supplemental centroid analysis for 008345358-02. Kepler magnitude: 15.44. Transit SNR 504.12

There are 17 quarters with good PRF difference image offsets

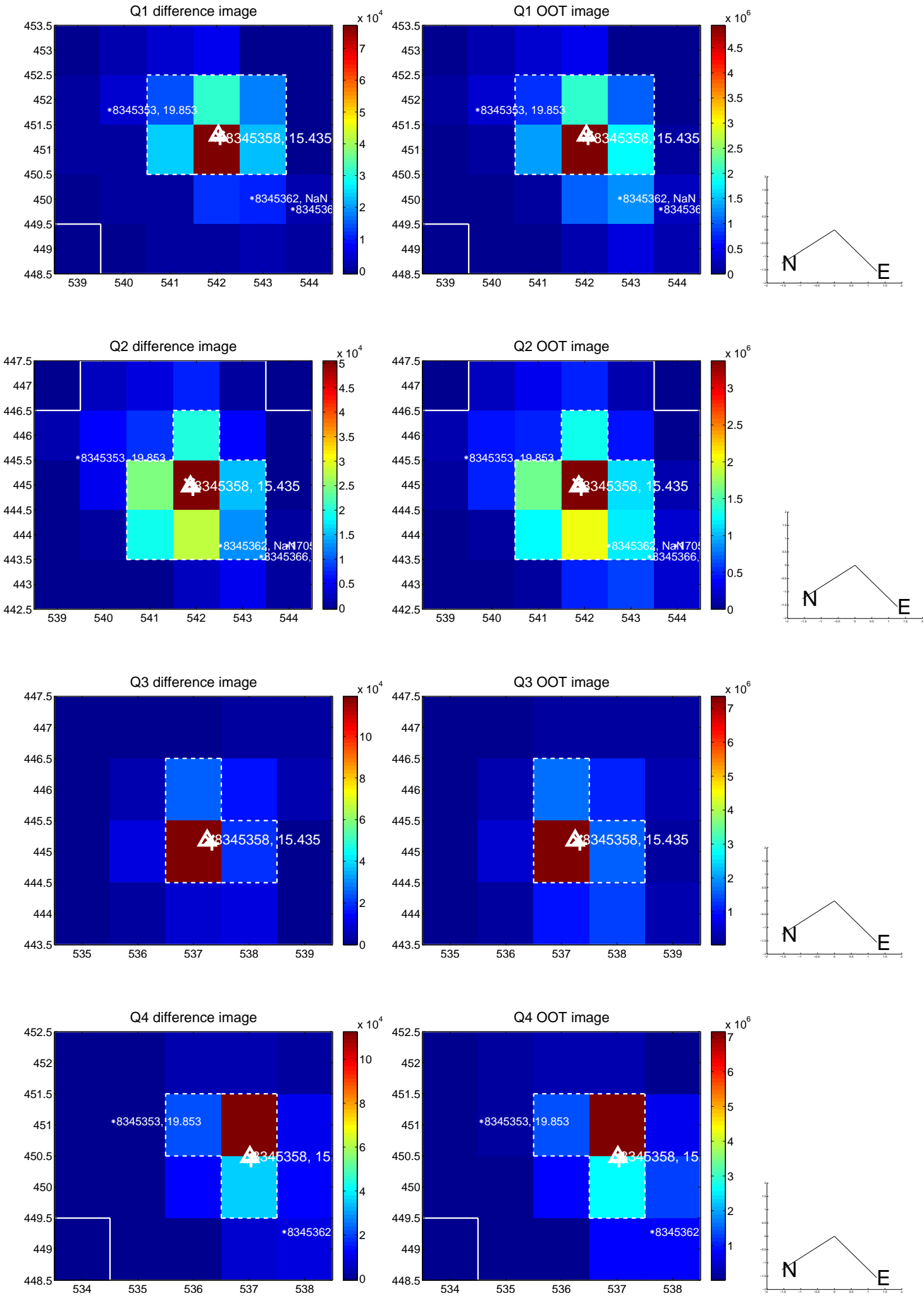
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.303 ± 0.070	4.32	-0.301 ± 0.070	-0.032 ± 0.072
PRF-fit source offset from KIC position	0.130 ± 0.073	1.77	-0.118 ± 0.073	0.054 ± 0.070
photometric centroid source offset	0.10 ± 0.02	5.07	-0.06 ± 0.02	0.07 ± 0.02

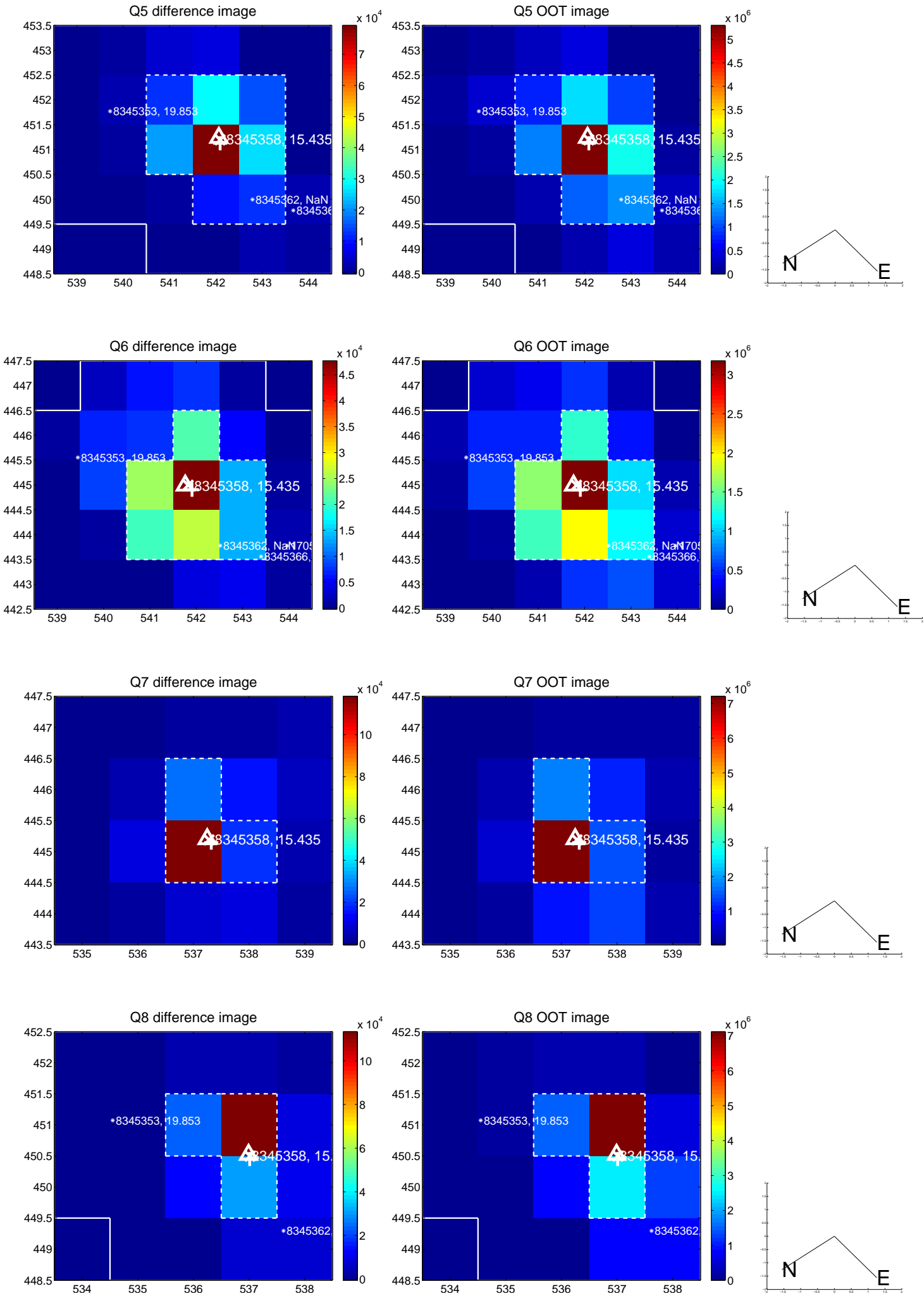


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

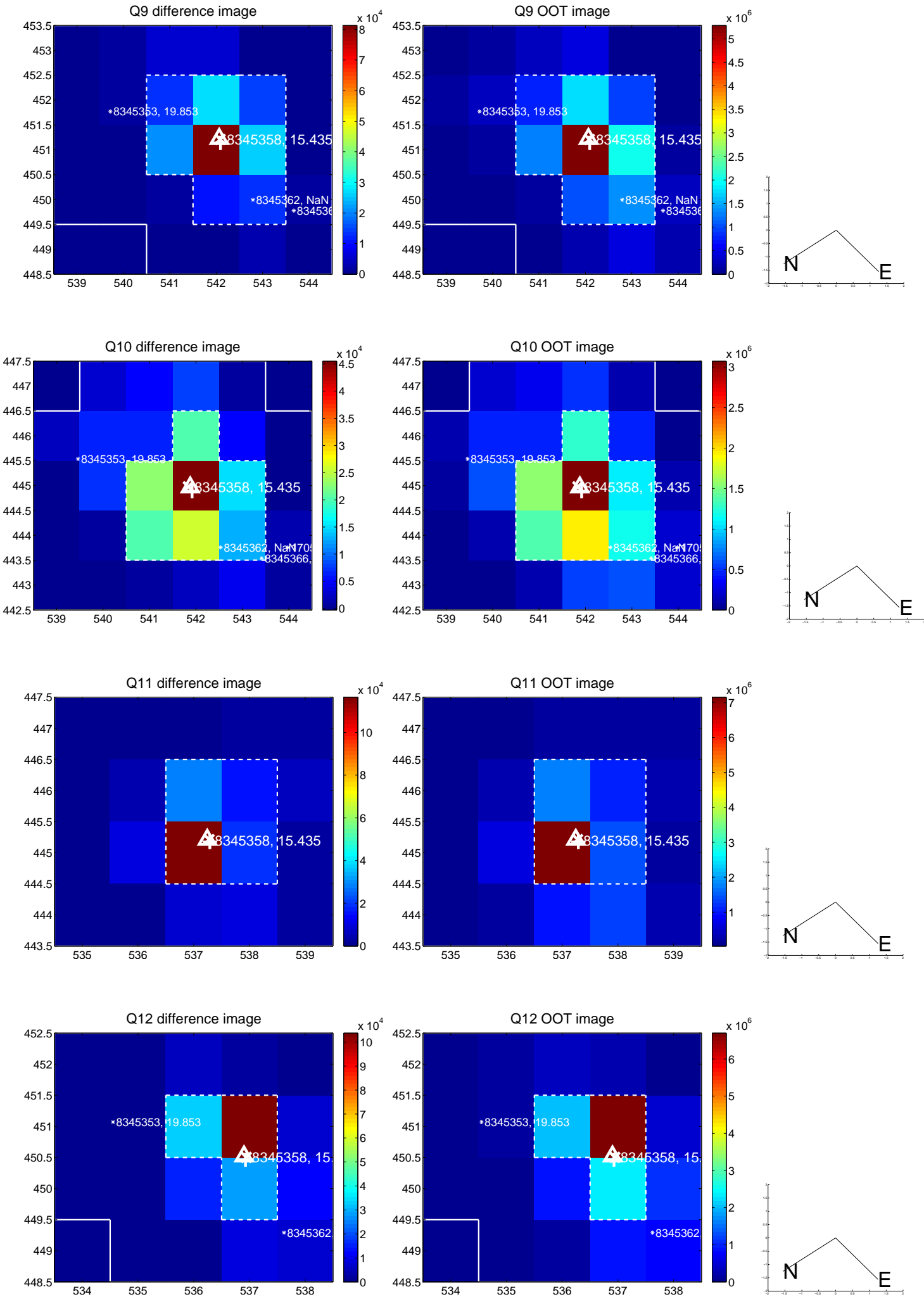
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



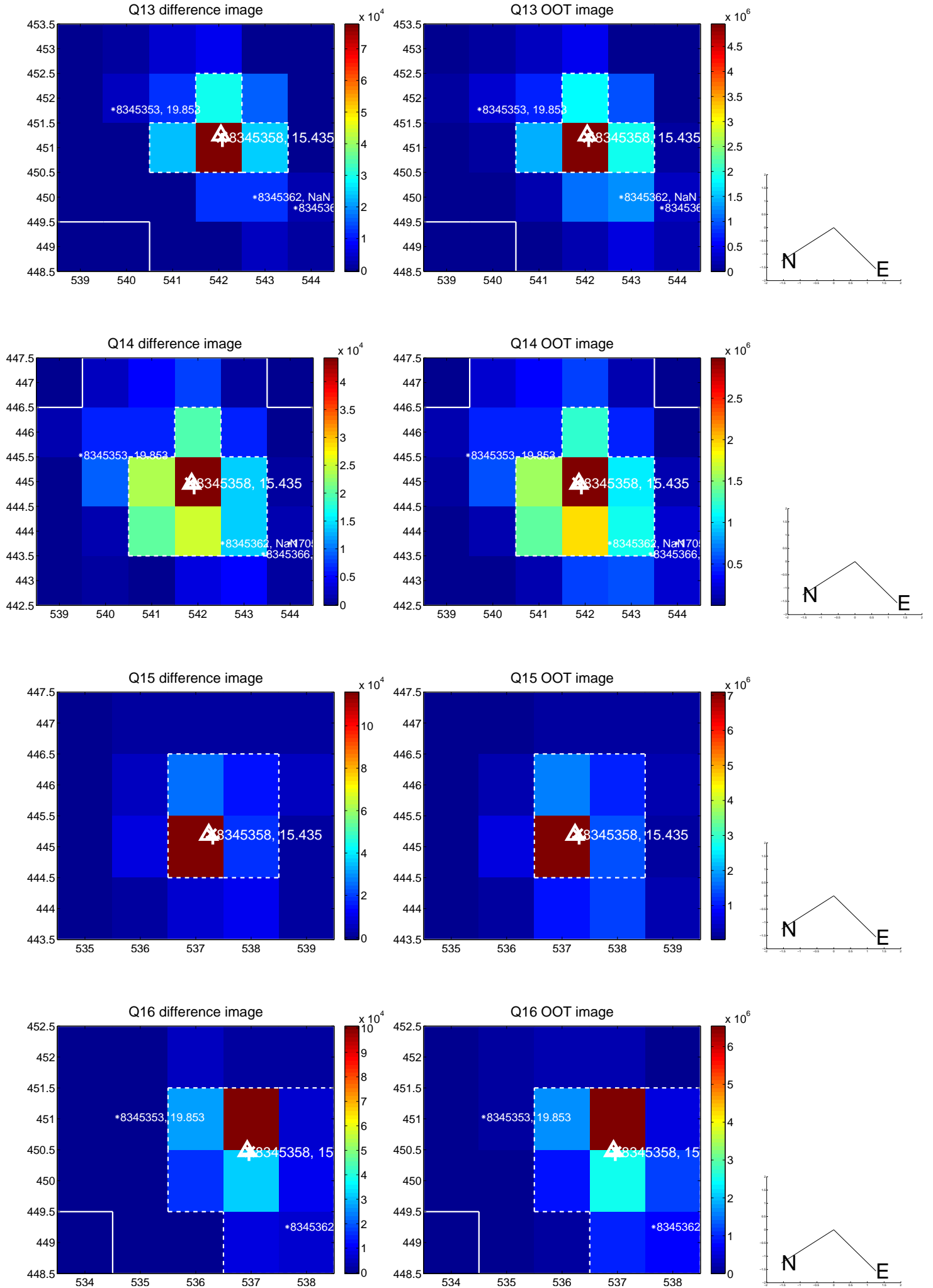
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



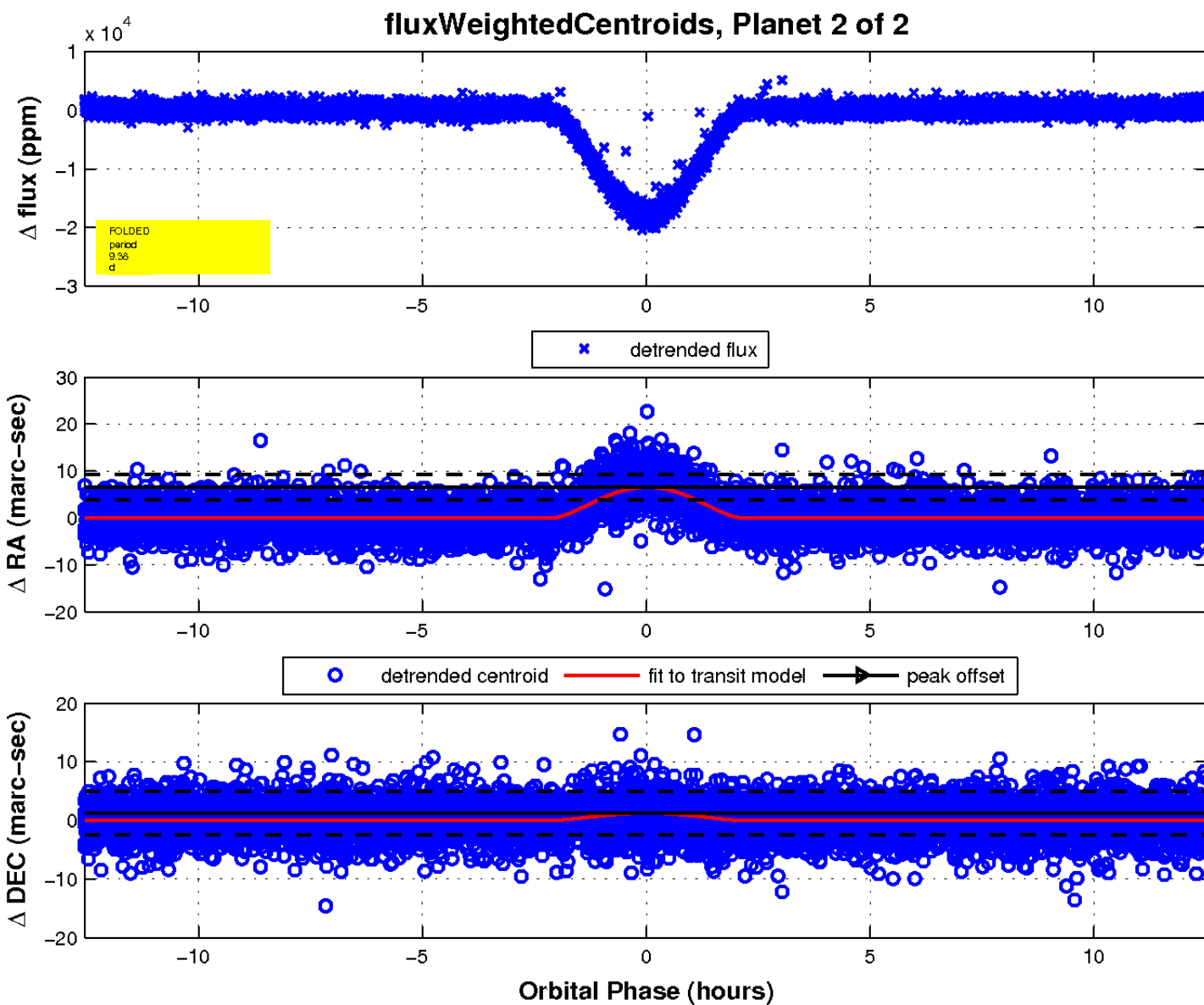
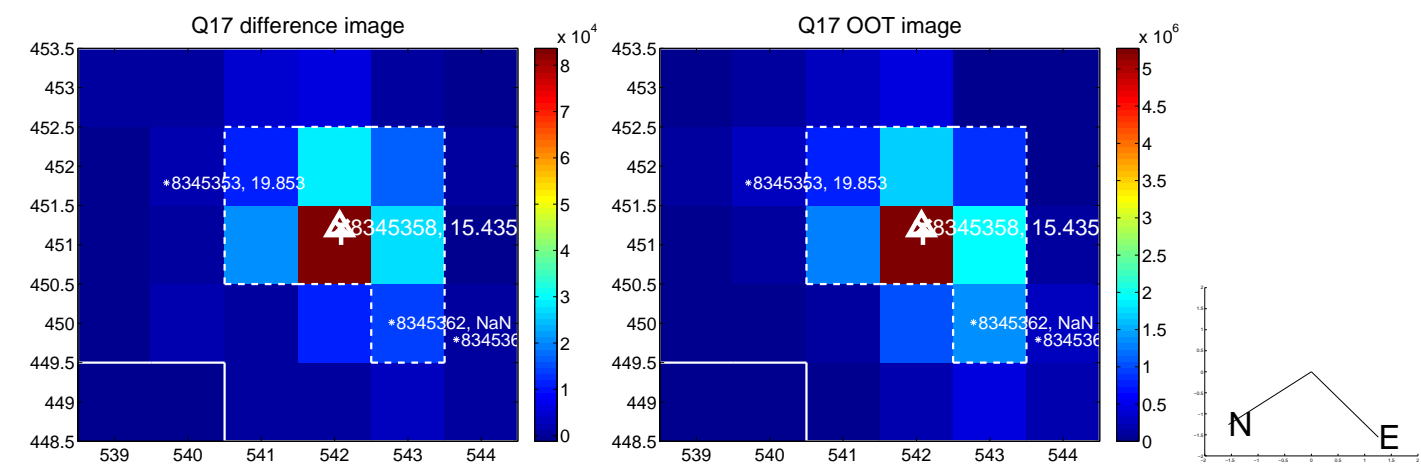
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

