

KIC 006781535

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})
006781535-01	OBS	6769.01	9.122088	138.835187	58604.4	4.620	5104.6	3968.2	1.04	5857	40.53	157.96
006781535-02	OBS	No	9.122085	135.717749	32090.8	4.455	3024.4	2700.7	1.04	5857	32.44	157.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006781535-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006781535-02	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.

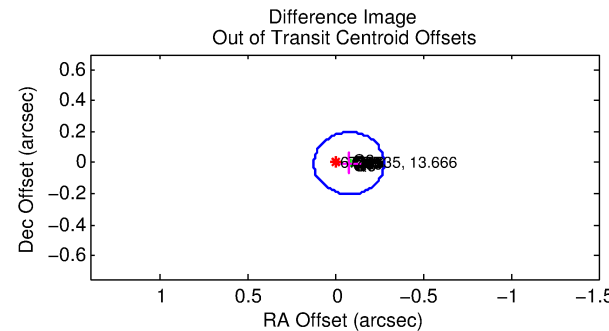
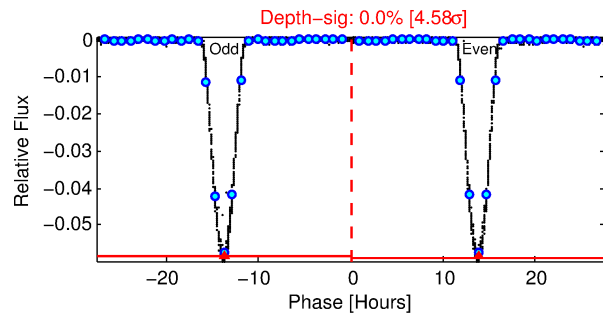
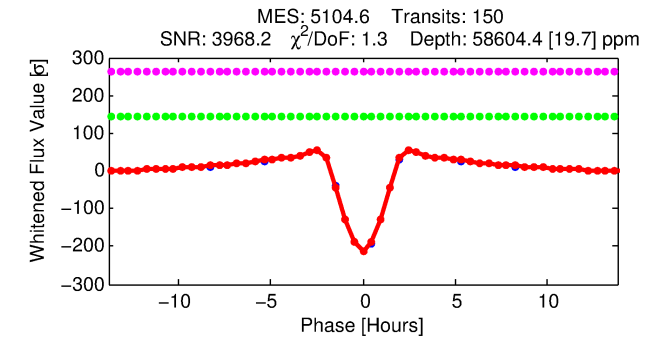
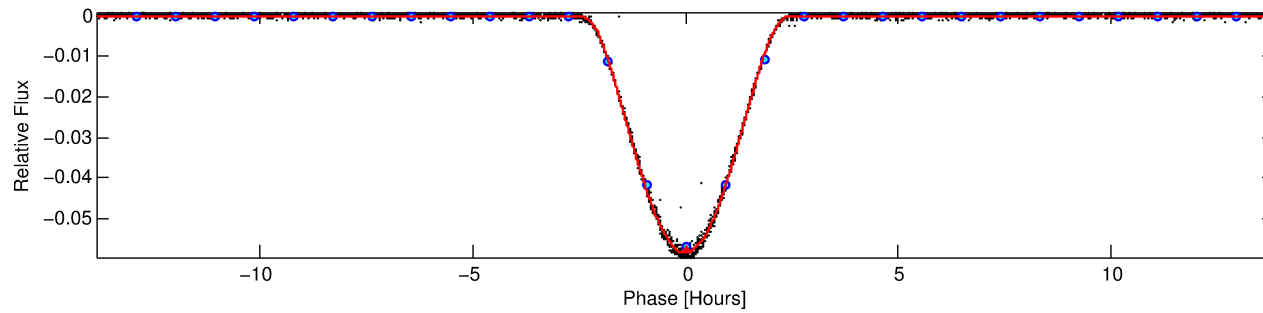
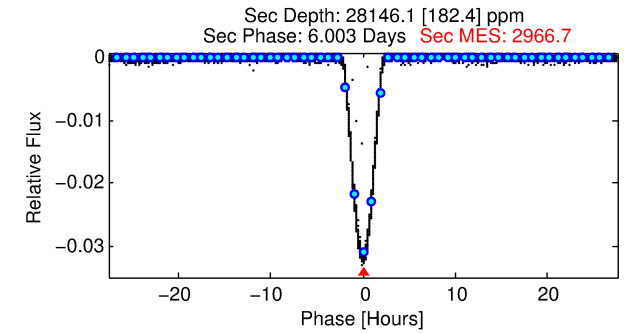
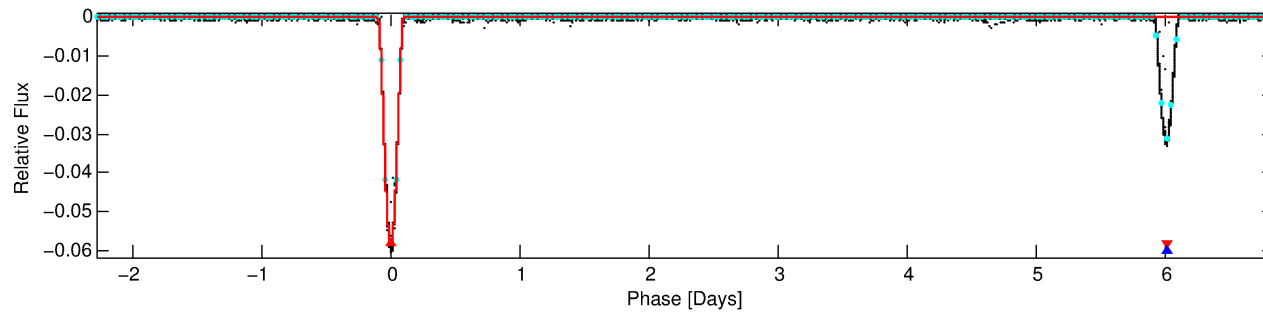
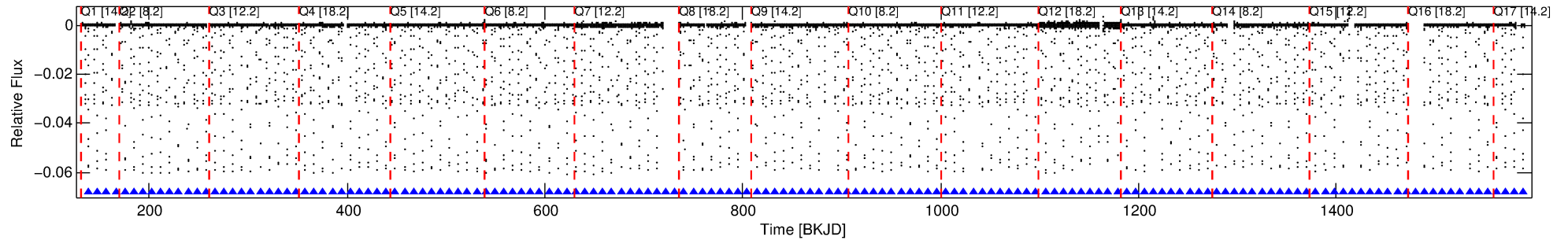
Ephemeris Match Information For 006781535-01

No Significant Match Found

DV One-Page Summary

KIC: 6781535 Candidate: 1 of 2 Period: 9.122 d
KOI: K06769.01 Corr: 0.999

Kp: 13.67 R*: 1.04 Rs Teff: 5857.0 K Logg: 4.40 Fe/H: -0.040



DV Fit Results:

Period = 9.12209 [0.00000] d
Epoch = 138.8352 [0.0000] BKJD
Rp/R* = 0.3575 [0.0060]
a/R* = 14.41 [0.00]
b = 0.97 [0.01]
Seff = 157.96 [32.06]
Teq = 904 [46] K
Rp = 40.53 [6.05] Re
a = 0.0849 [0.0110] AU
Ag = 67.92 [13.49] [4.96σ]
Teffp = 4012 [64] K [39.39σ]

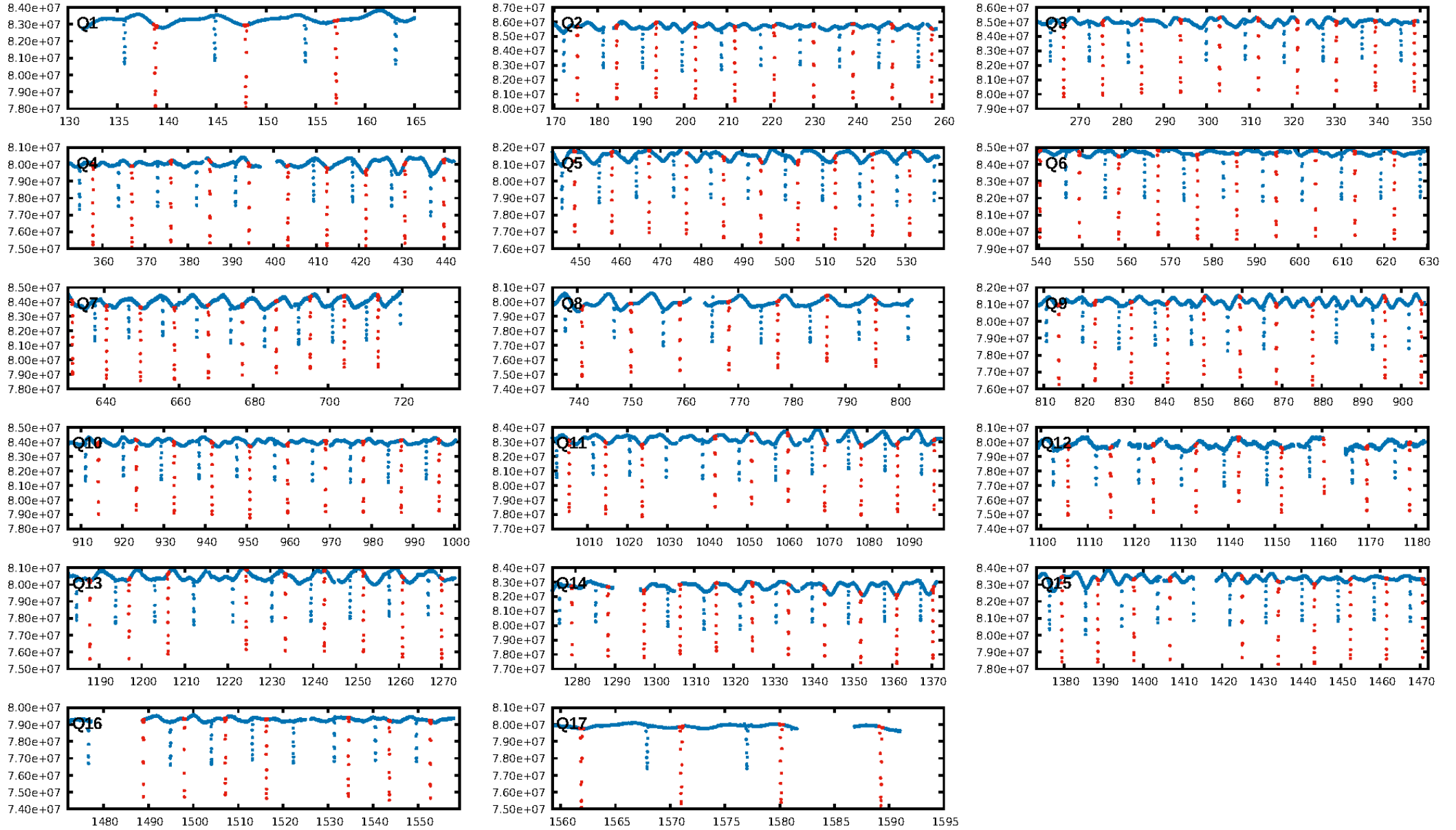
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [143/143]
GhostDiagnostic-chr: 3.357
Centroid-sig: 0.0%
Centroid-so: 0.182 arcsec [120.00σ]
OotOffset-rm: 0.077 arcsec [1.15σ]
KicOffset-rm: 0.176 arcsec [2.57σ]
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]

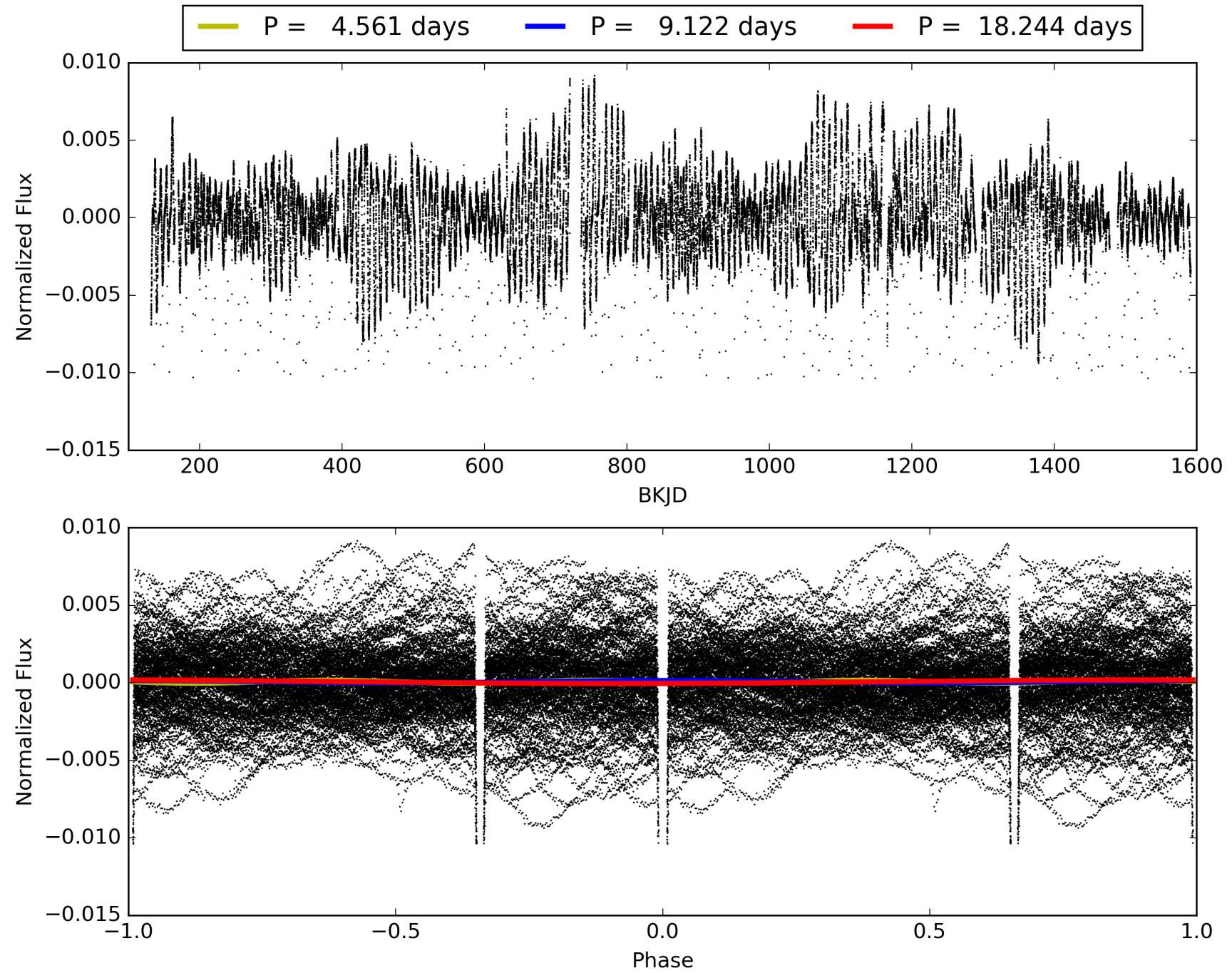
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:21:04 Z

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

TCE 006781535-01, PDC Light Curves

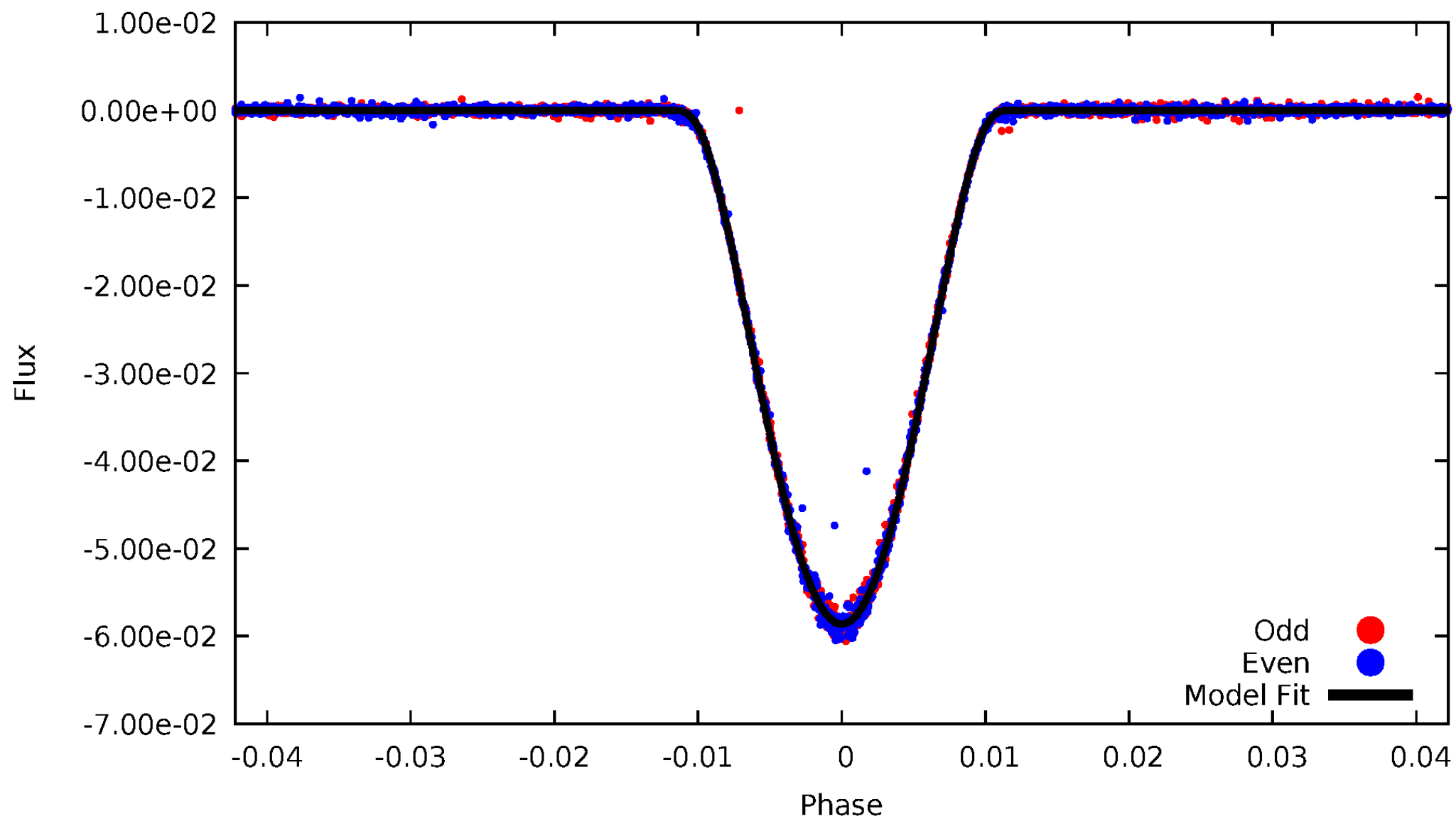


TCE 006781535-01



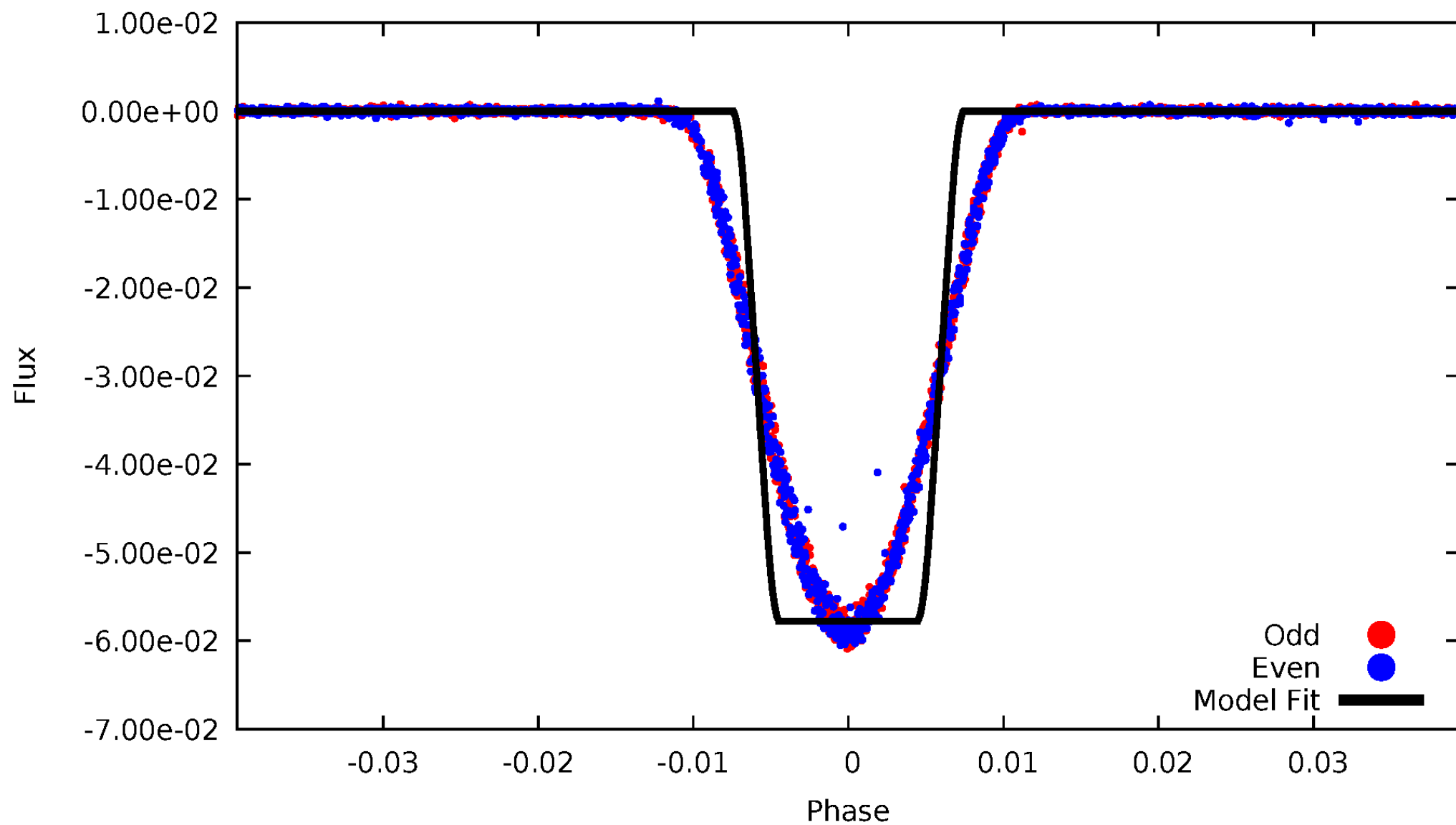
DV Odd/Even

TCE 006781535-01



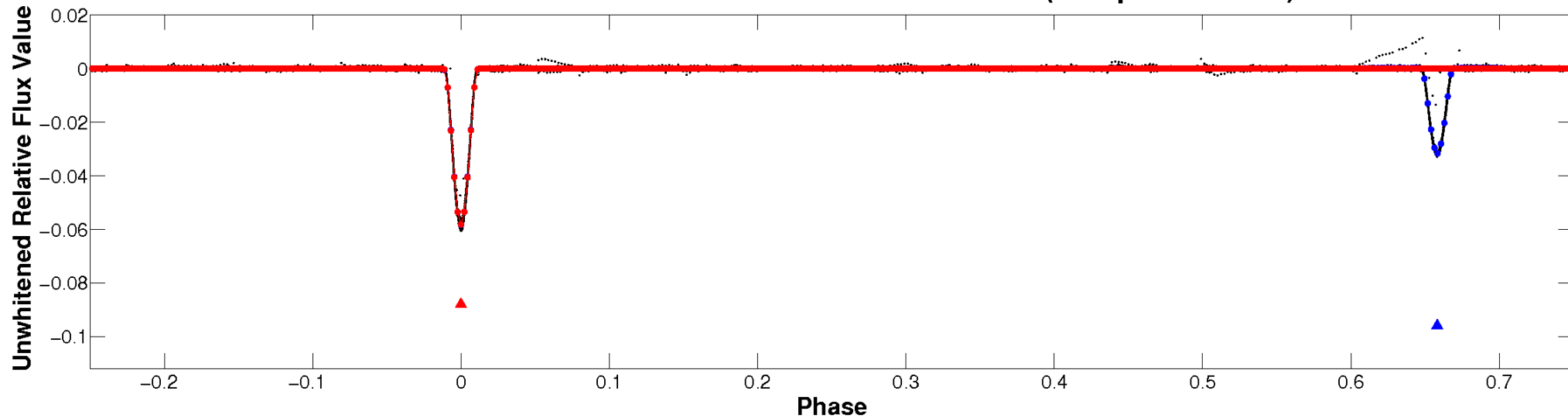
ALT Odd/Even

TCE 006781535-01

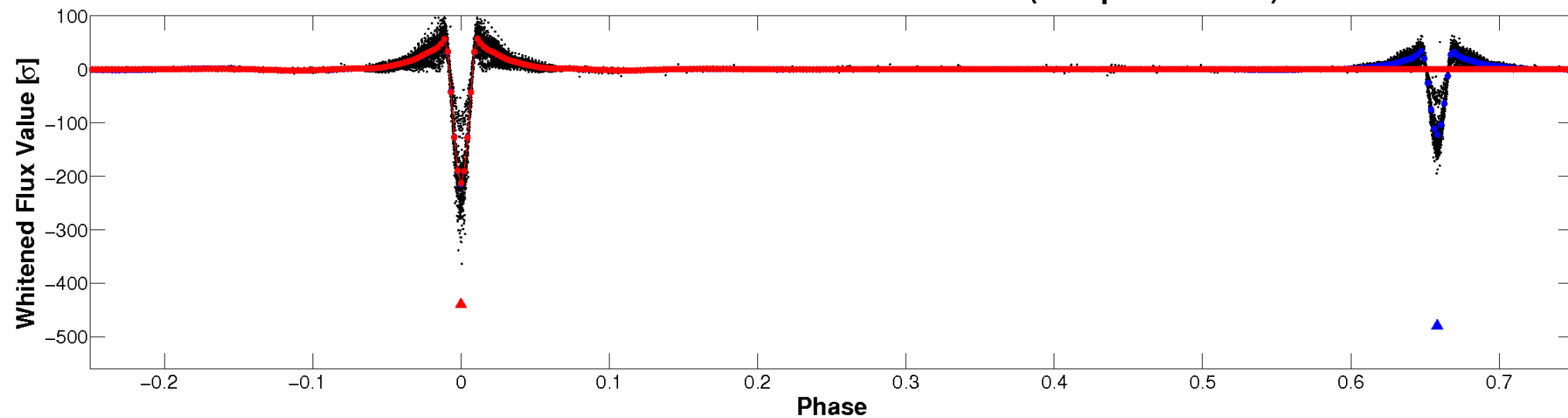


Non-Whitened Vs. Whitened Light Curve

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

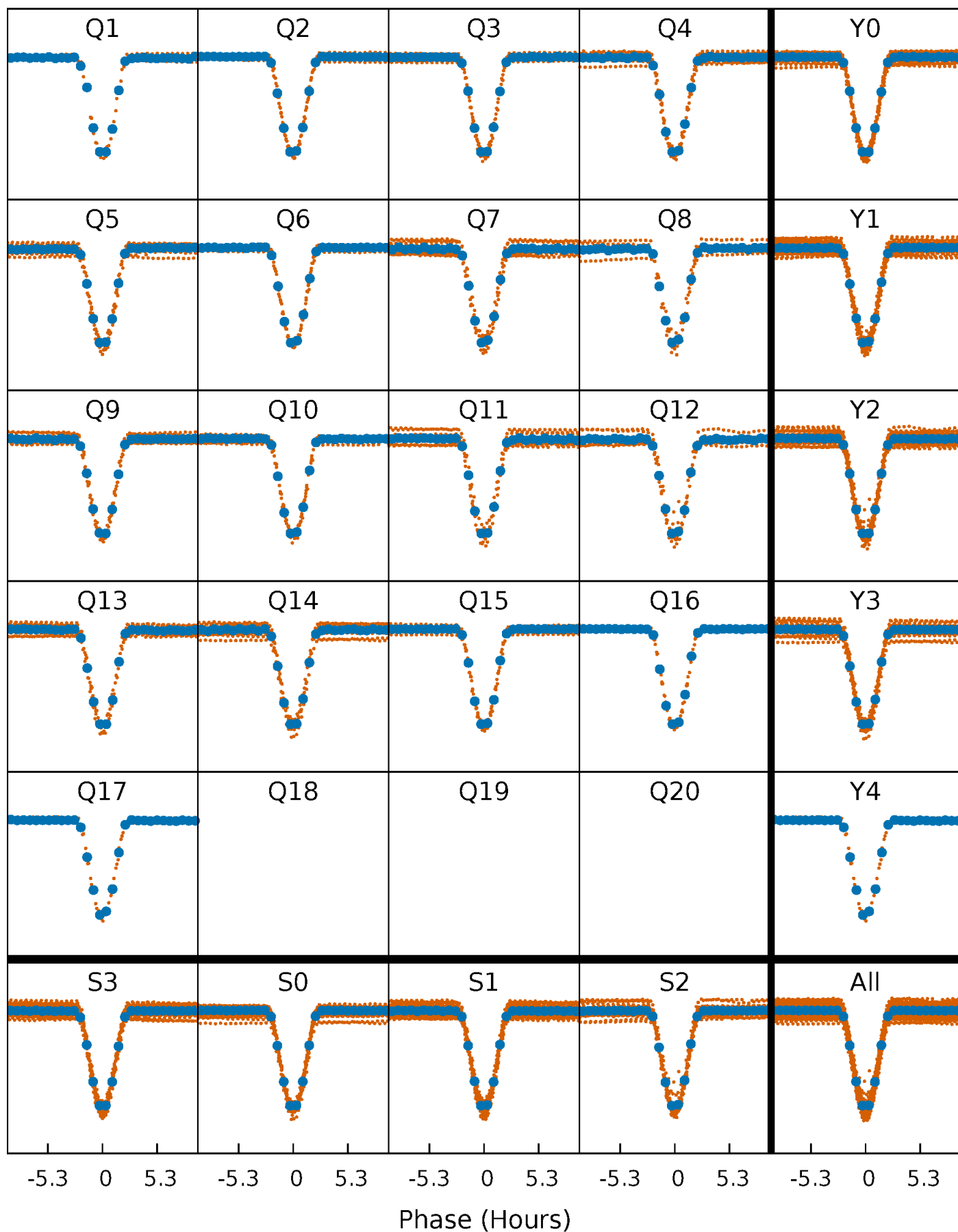


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



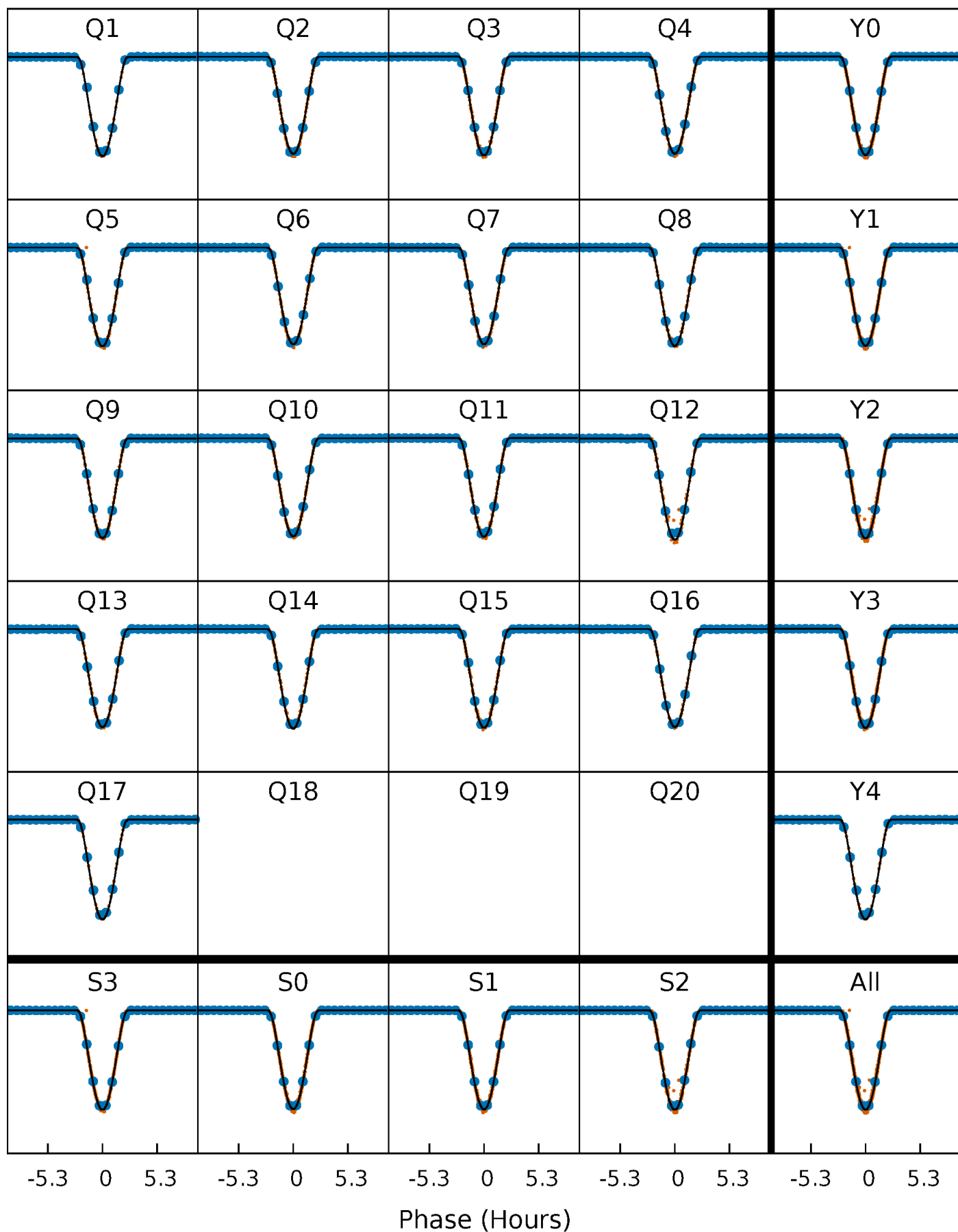
PDC Quarter-Phased Transit Curves

TCE 006781535-01 P= 9.122088 Days $T_0=138.835187$ (BKJD)



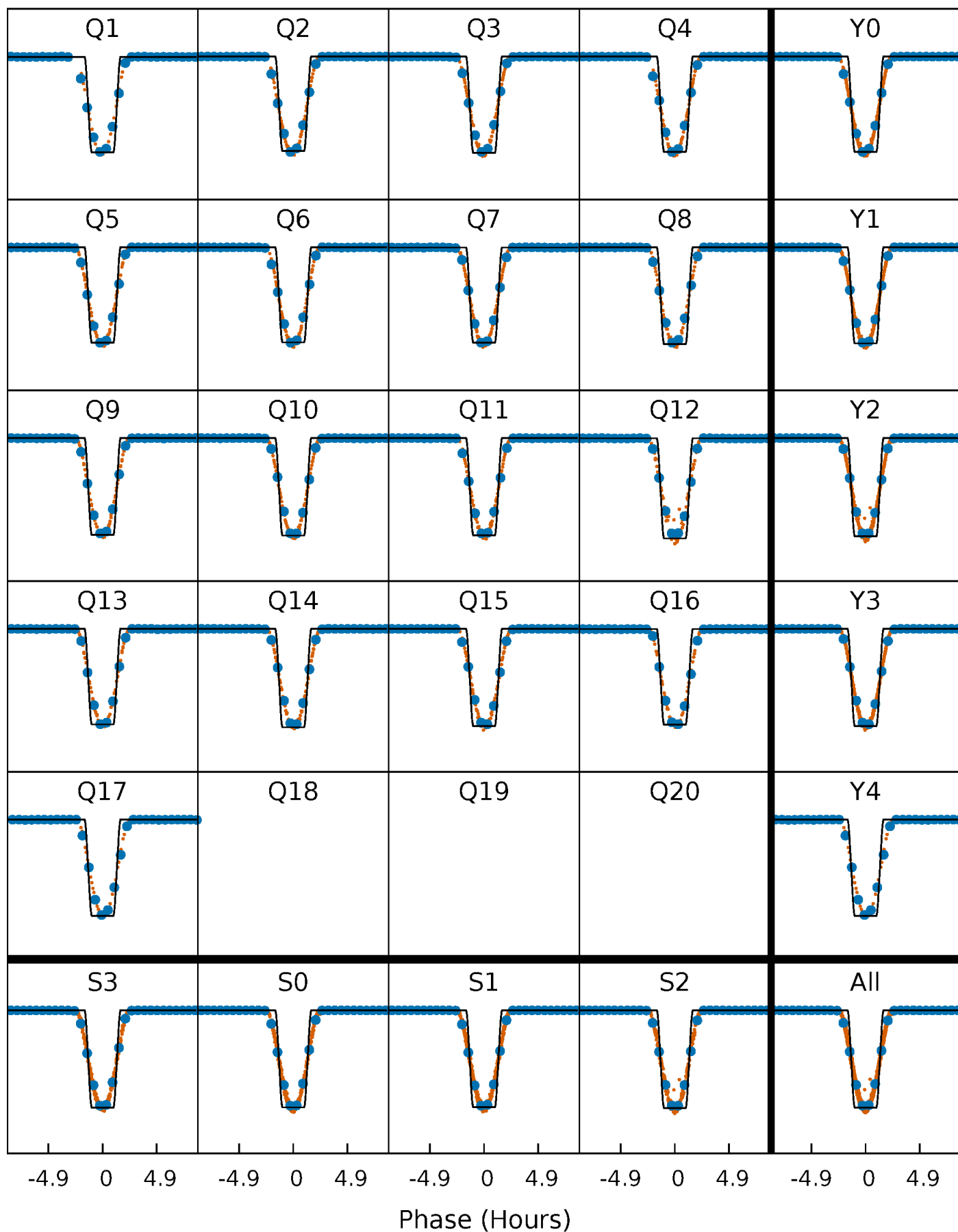
DV Quarter-Phased Transit Curves

TCE 006781535-01 P= 9.122088 Days $T_0=138.835187$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

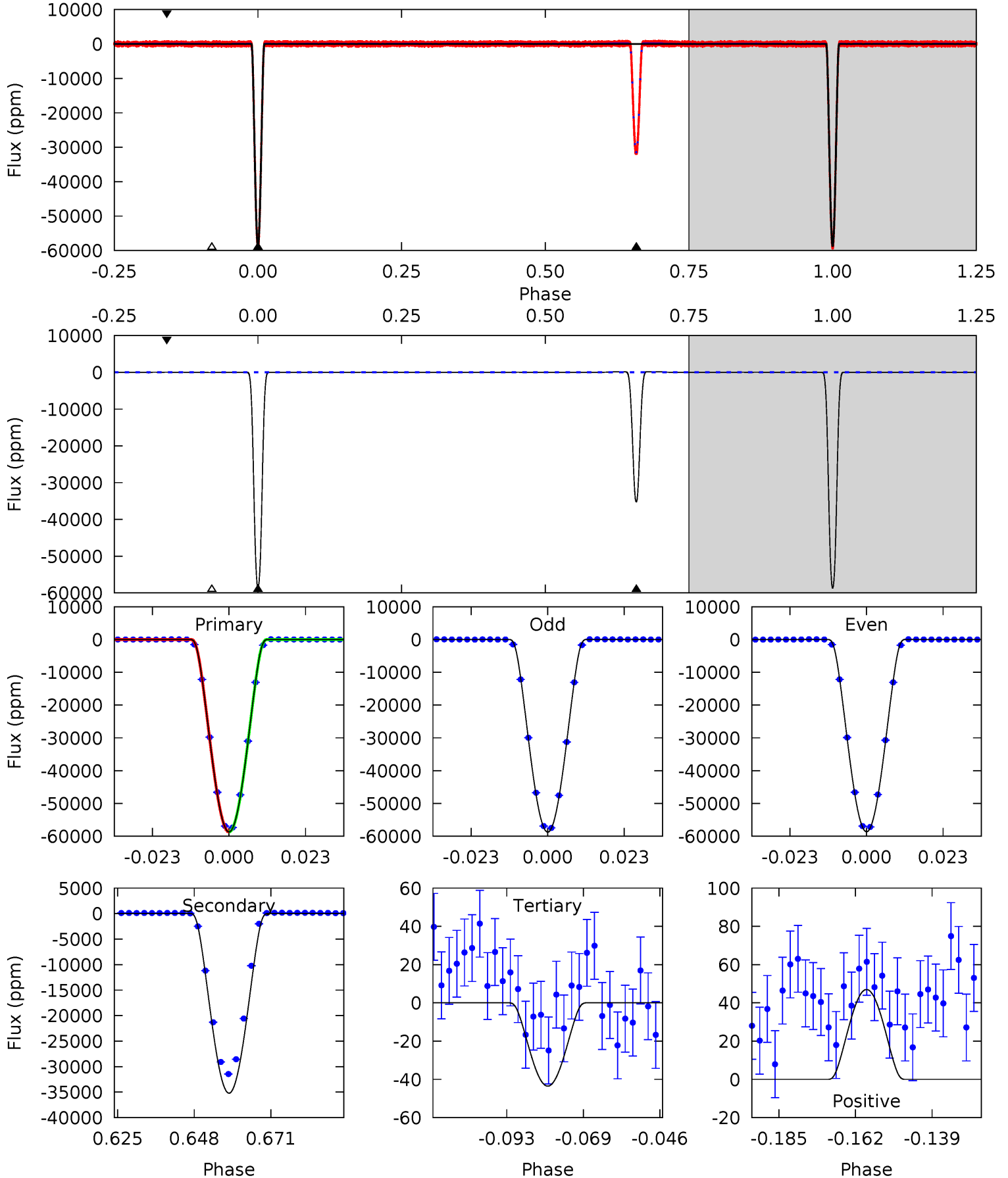
TCE 006781535-01 P= 9.122049 Days $T_0=138.838186$ (BKJD)



DV Model-Shift Uniqueness Test

006781535-01, P = 9.122088 Days, E = 129.713099 Days

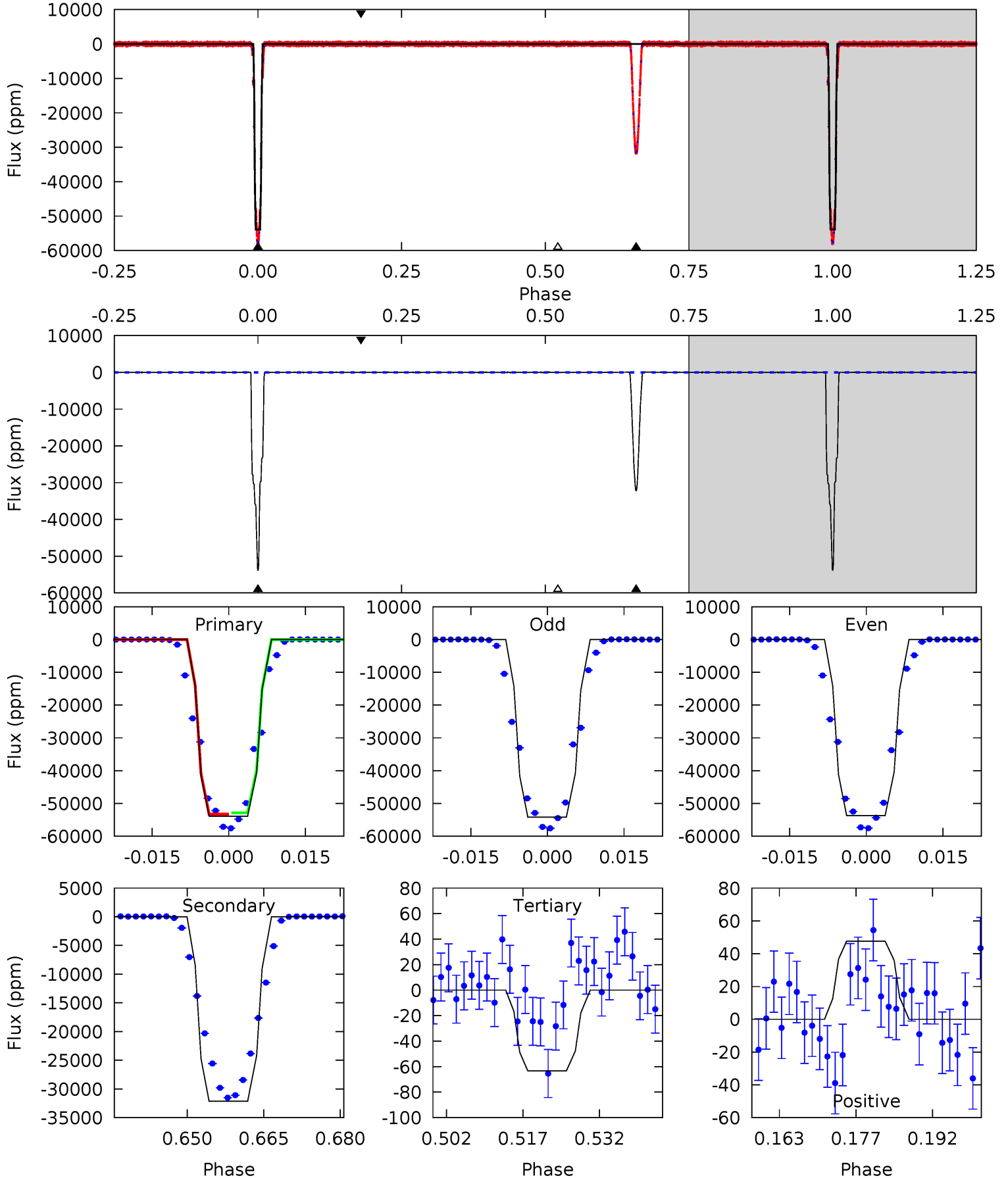
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9893	5934	7.34	7.92	4.86	2.27	5.94	9886	9886	5927	5926	7.57	1.00	0.00	0.17



Alt Model-Shift Uniqueness Test

006781535-01, P = 9.122049 Days, E = 129.716137 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4354	2596	5.12	3.85	4.95	2.44	1.43	4349	4350	2591	2592	21.4	1.00	0.00	1.07



Stellar Parameters For KIC 006781535

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5857^{+79}_{-79}	$4.396^{+0.090}_{-0.110}$	$-0.040^{+0.150}_{-0.150}$	$1.039^{+0.154}_{-0.103}$	$0.981^{+0.066}_{-0.060}$	$1.231^{+0.413}_{-0.406}$
	+1%/-1%	+2%/-3%	+375%/-375%	+15%/-10%	+7%/-6%	+34%/-33%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006781535-01 / KOI 6769.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-35200 ± 6	$40.59^{+3.37}_{-2.54}$	1265^{+51}_{-44}	4470^{+57}_{-55}	88^{+12}_{-13}
Alt.	-32143 ± 12	$27.31^{+2.33}_{-1.75}$	1264^{+50}_{-42}	5156^{+90}_{-85}	175^{+26}_{-24}

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 $A_{obs} \gg 1.0$

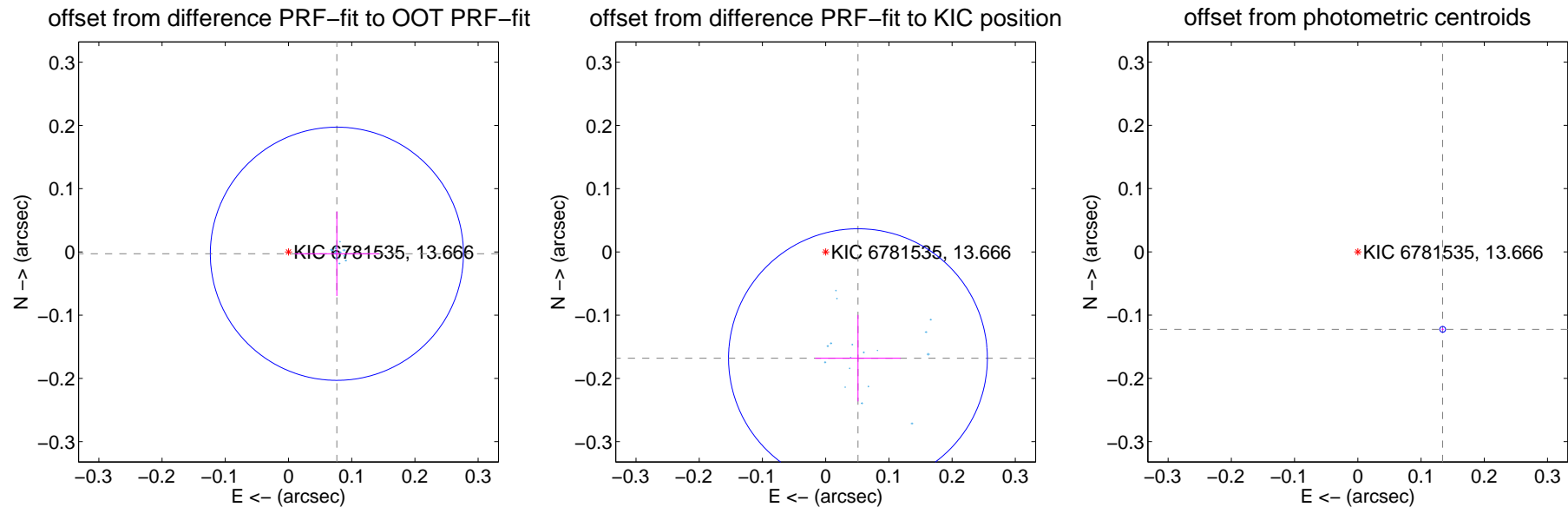
DV Centroid Data

Supplemental centroid analysis for 006781535-01. Kepler magnitude: 13.67. Transit SNR 3968.22

There are 17 quarters with good PRF difference image offsets

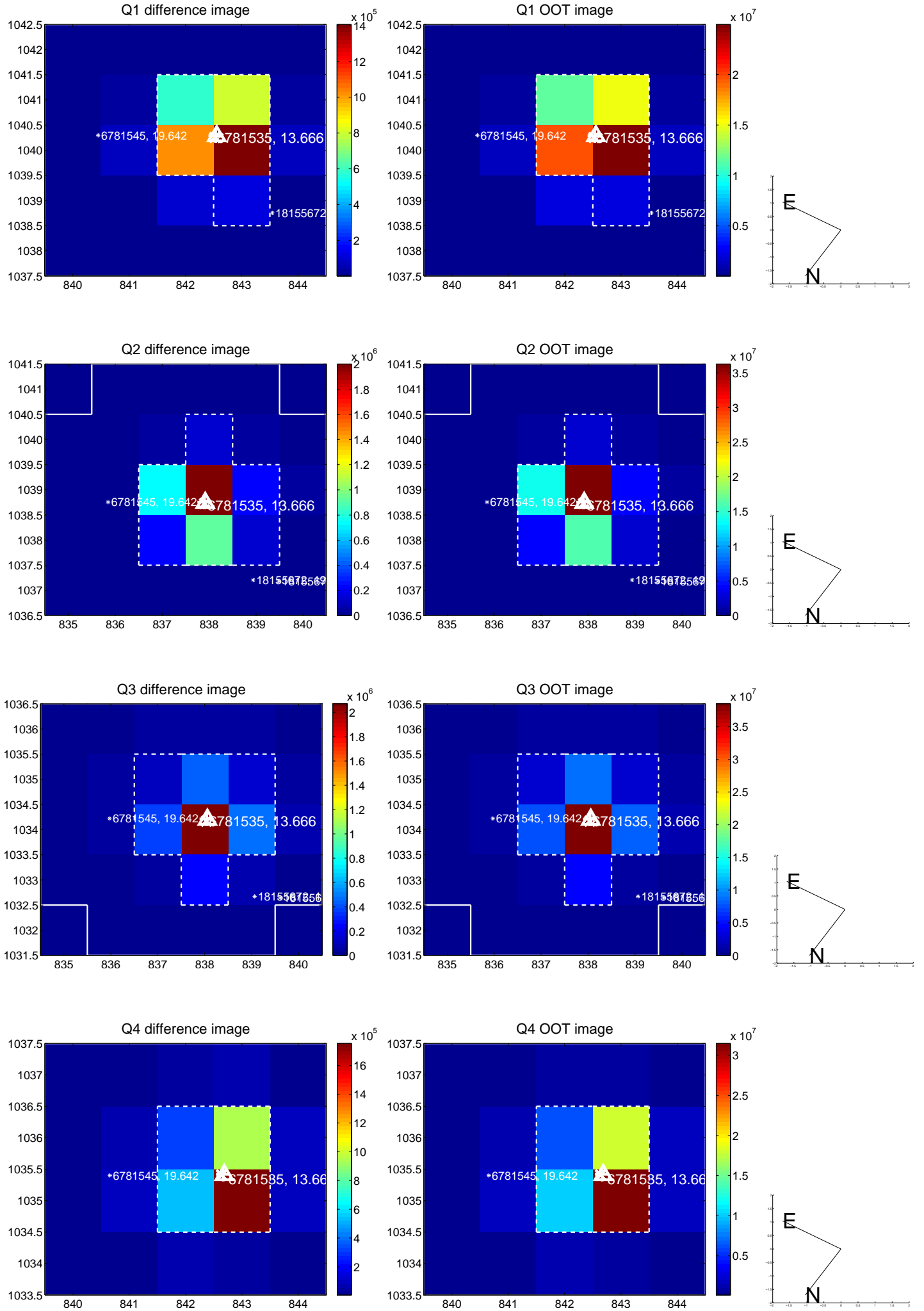
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.077 ± 0.067	1.15	-0.077 ± 0.067	-0.003 ± 0.067
PRF-fit source offset from KIC position	0.176 ± 0.068	2.57	-0.051 ± 0.068	-0.168 ± 0.068
photometric centroid source offset	0.18 ± 0.00	120.00	-0.13 ± 0.00	-0.12 ± 0.00

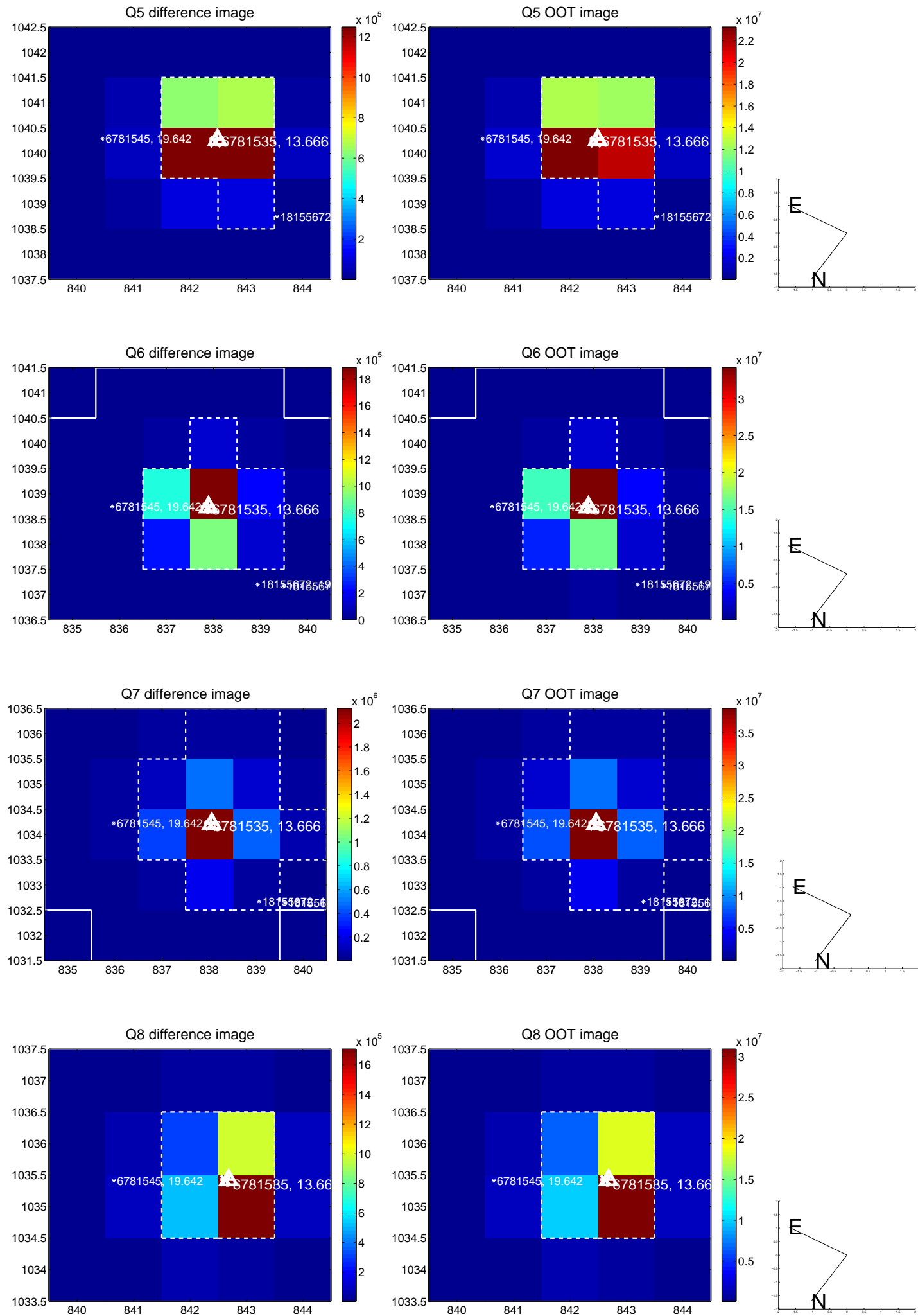


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

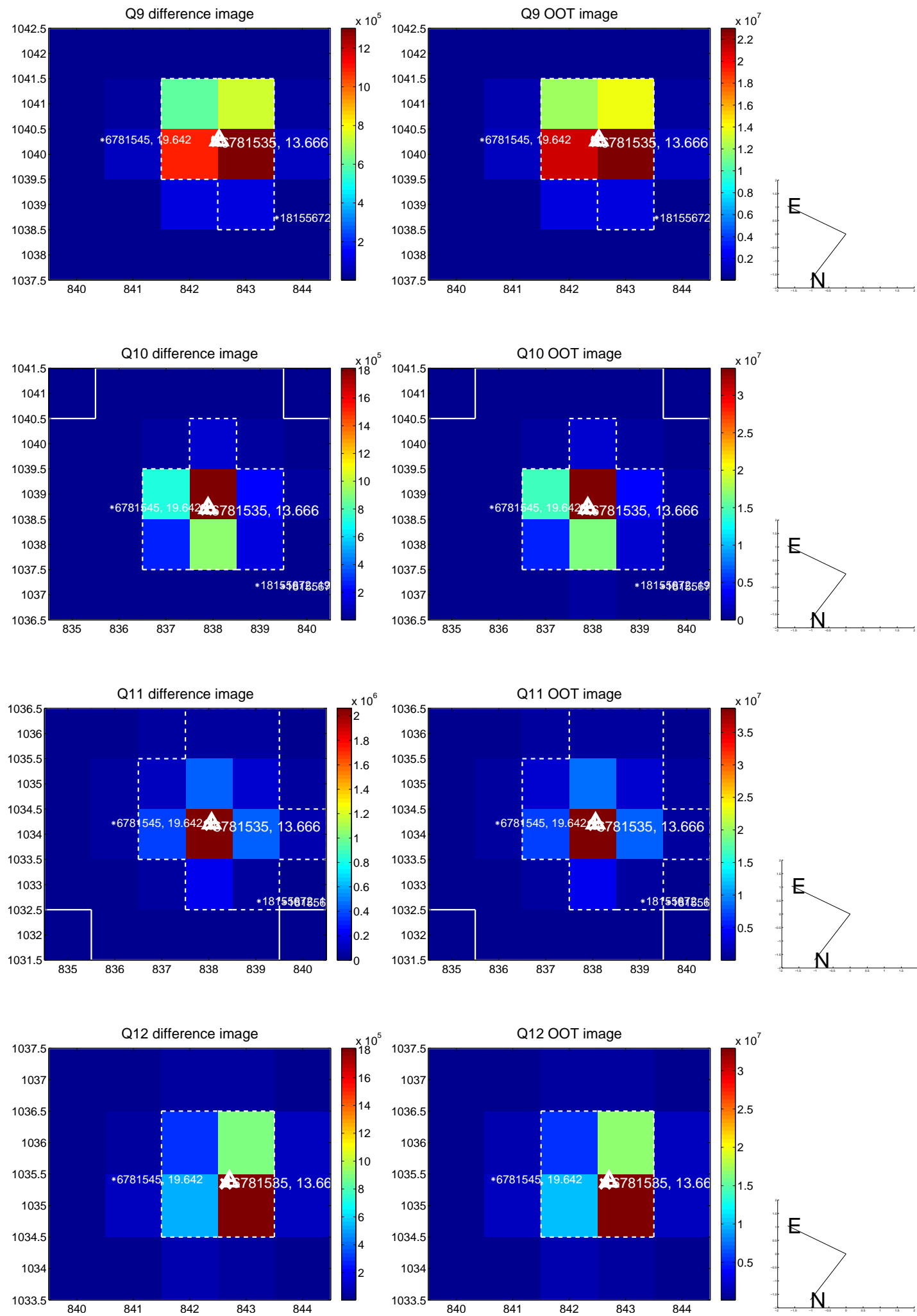
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



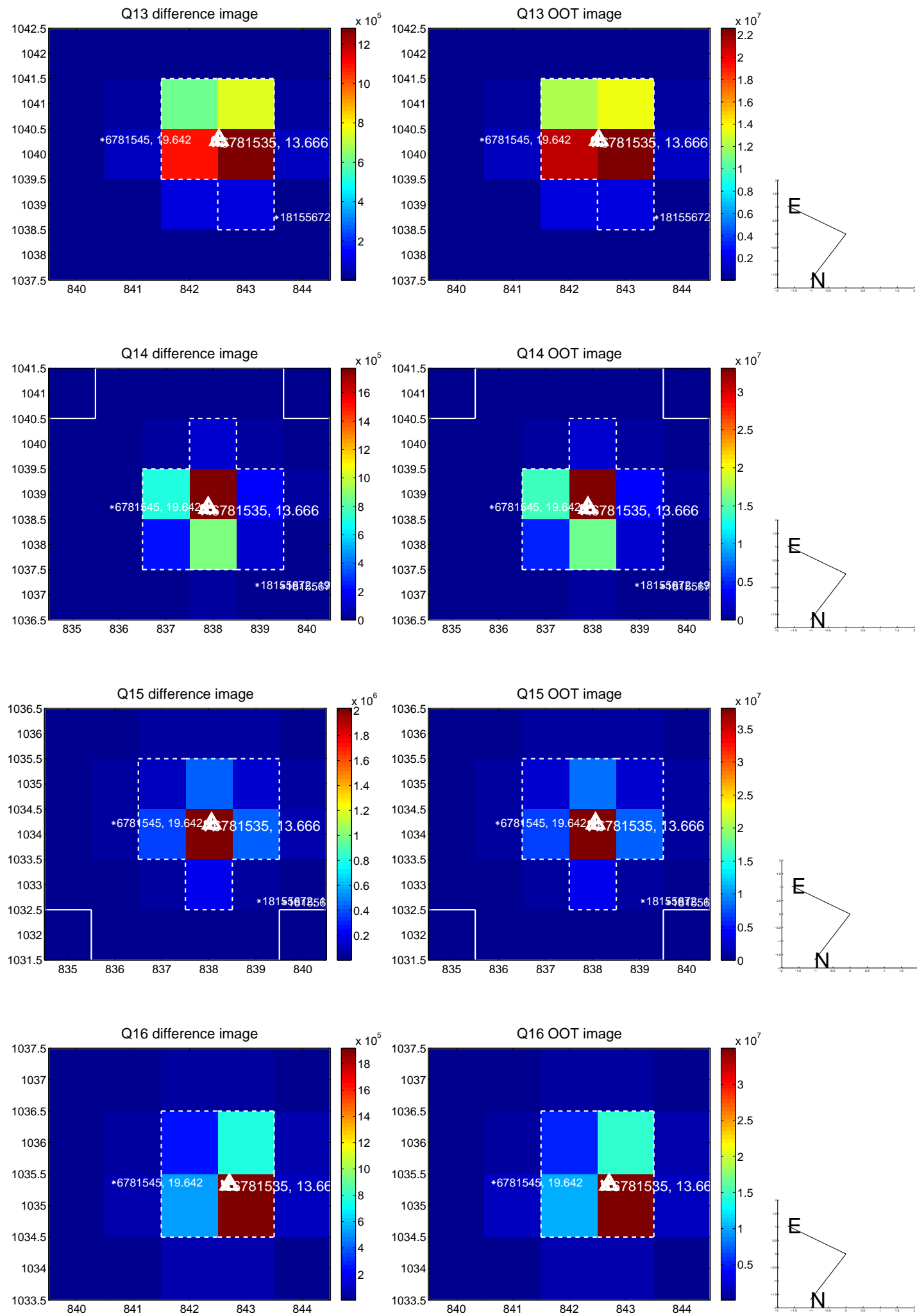
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



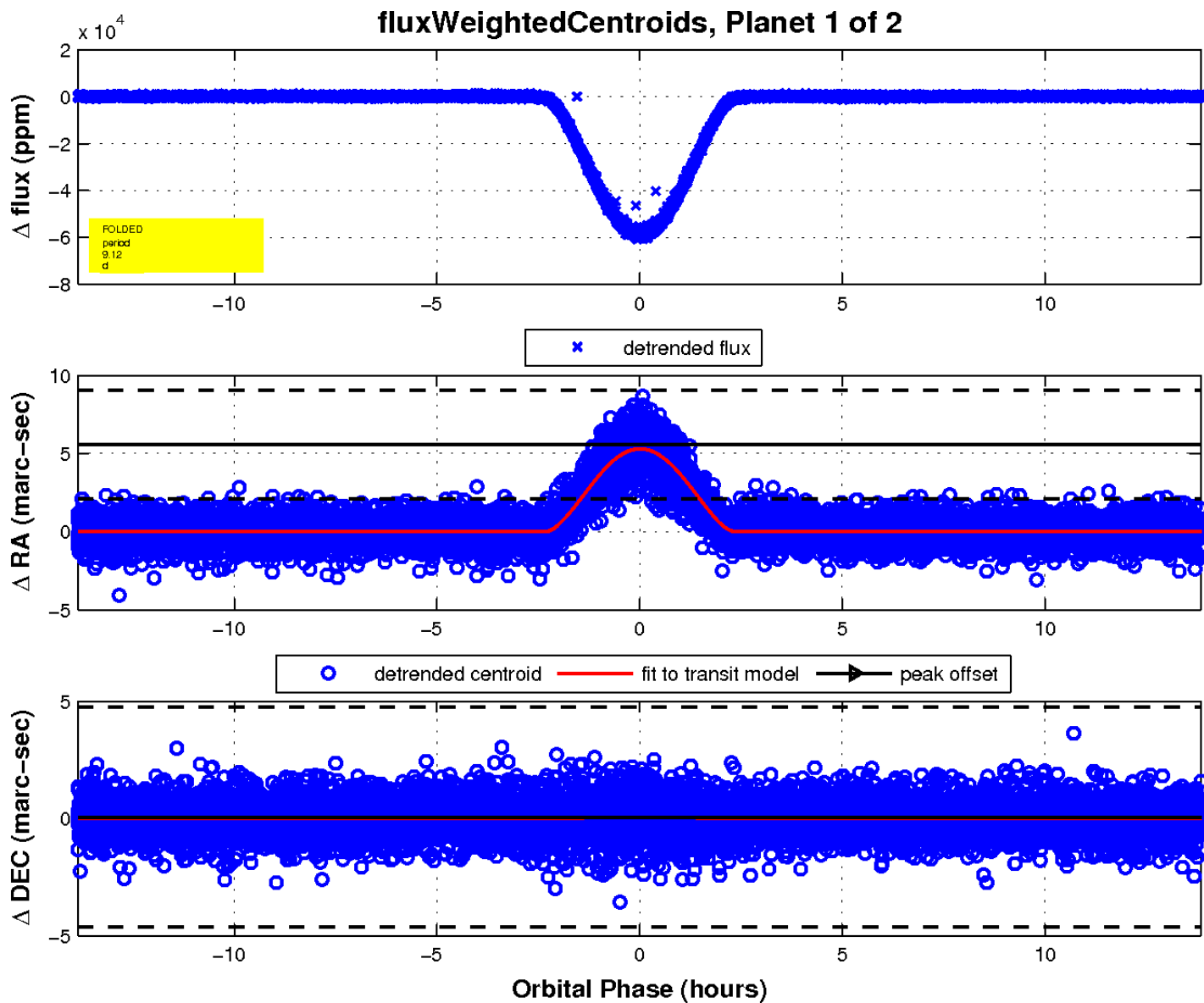
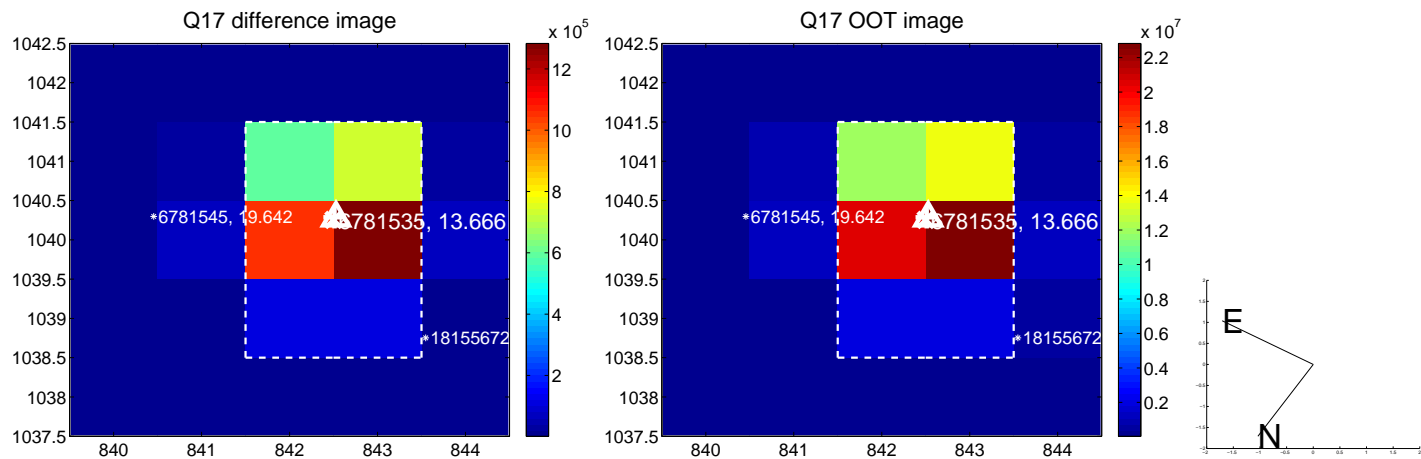
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

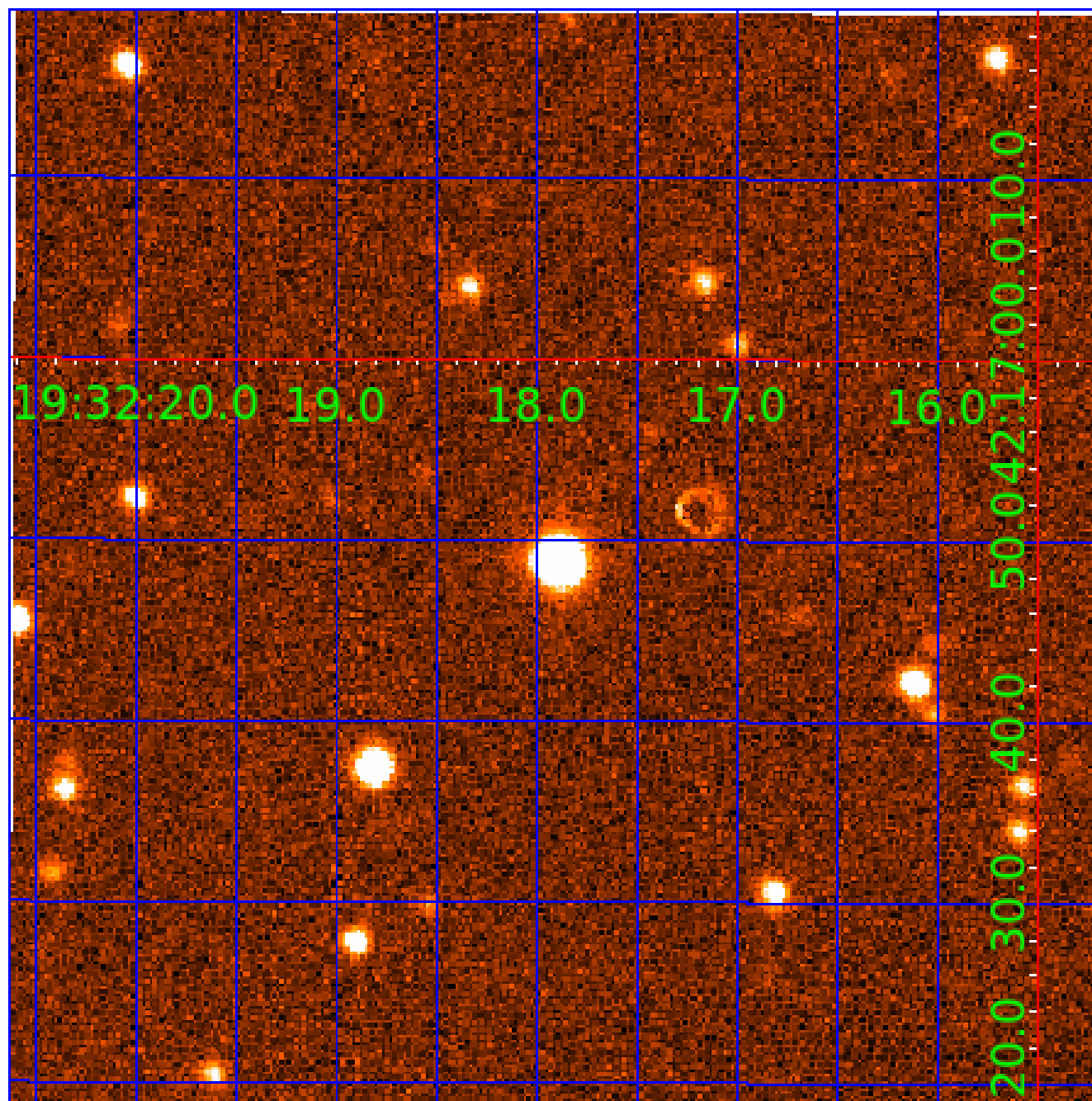


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006781535

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})
006781535-01	OBS	6769.01	9.122088	138.835187	58604.4	4.620	5104.6	3968.2	1.04	5857	40.53	157.96
006781535-02	OBS	No	9.122085	135.717749	32090.8	4.455	3024.4	2700.7	1.04	5857	32.44	157.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006781535-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006781535-02	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 006781535-02

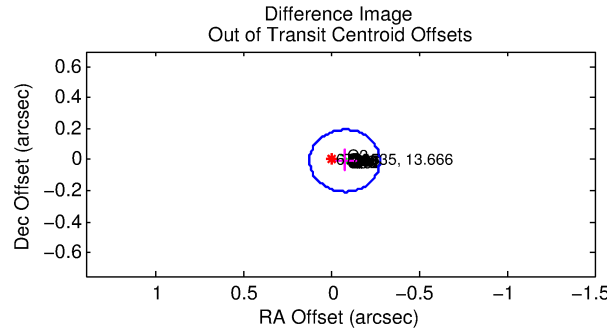
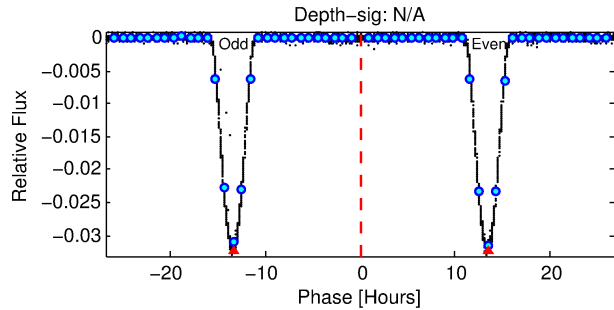
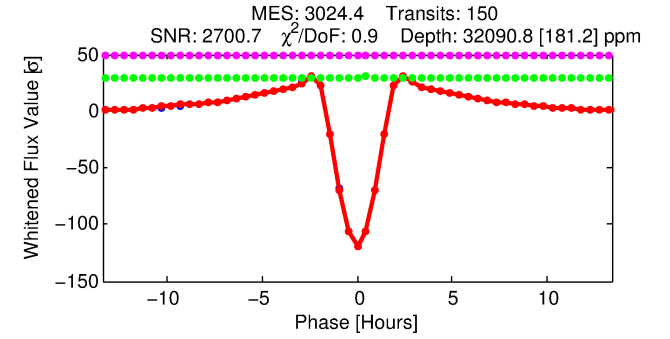
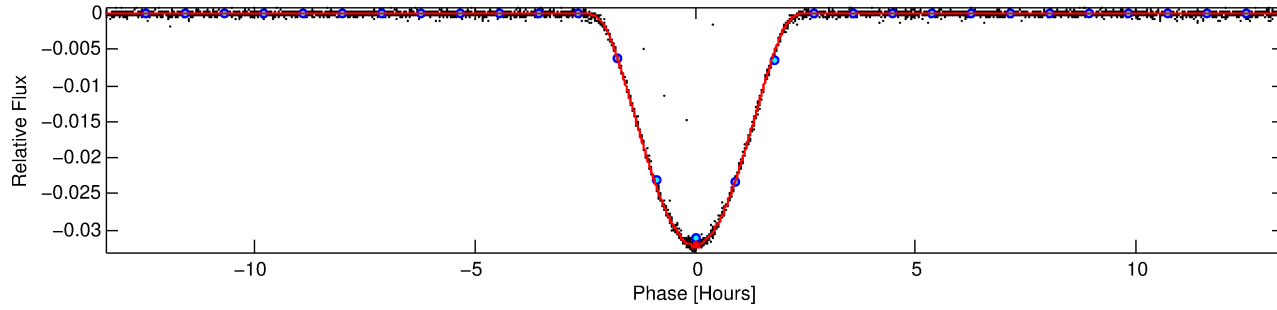
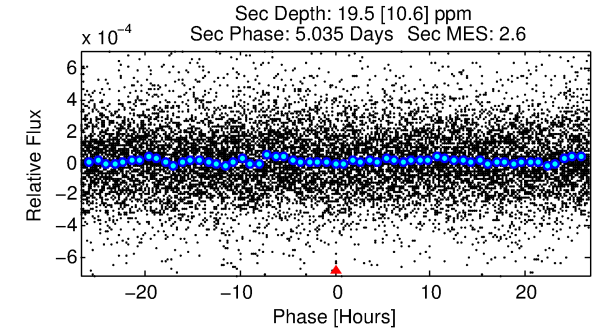
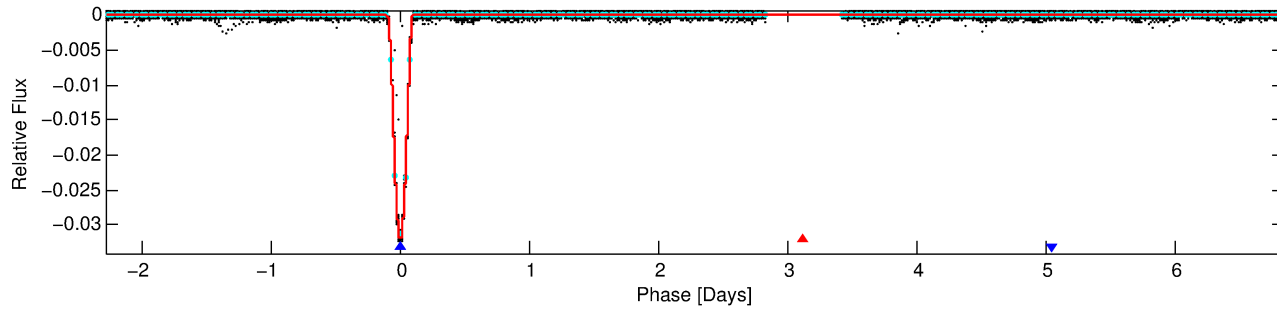
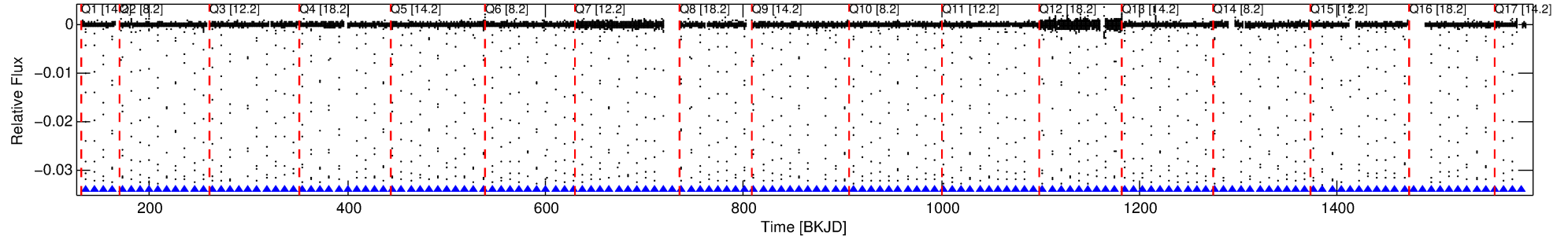
No Significant Match Found

DV One-Page Summary

KIC: 6781535 Candidate: 2 of 2 Period: 9.122 d

KOI: K06769 Corr: No Ephemeris Match

Kp: 13.67 R*: 1.04 Rs Teff: 5857.0 K Logg: 4.40 Fe/H: -0.040



DV Fit Results:

Period = 9.12209 [0.00000] d
Epoch = 135.7177 [0.0000] BKJD
Rp/R* = 0.2862 [0.0065]
a/R* = 12.70 [0.02]
b = 1.00 [0.01]
Seff = 157.96 [32.06]
Teq = 904 [46] K
Rp = 32.44 [4.87] Re
a = 0.0849 [0.0110] AU
Ag = 0.07 [0.04] [-21.80σ]
Teff = 727 [100] K [-1.61σ]

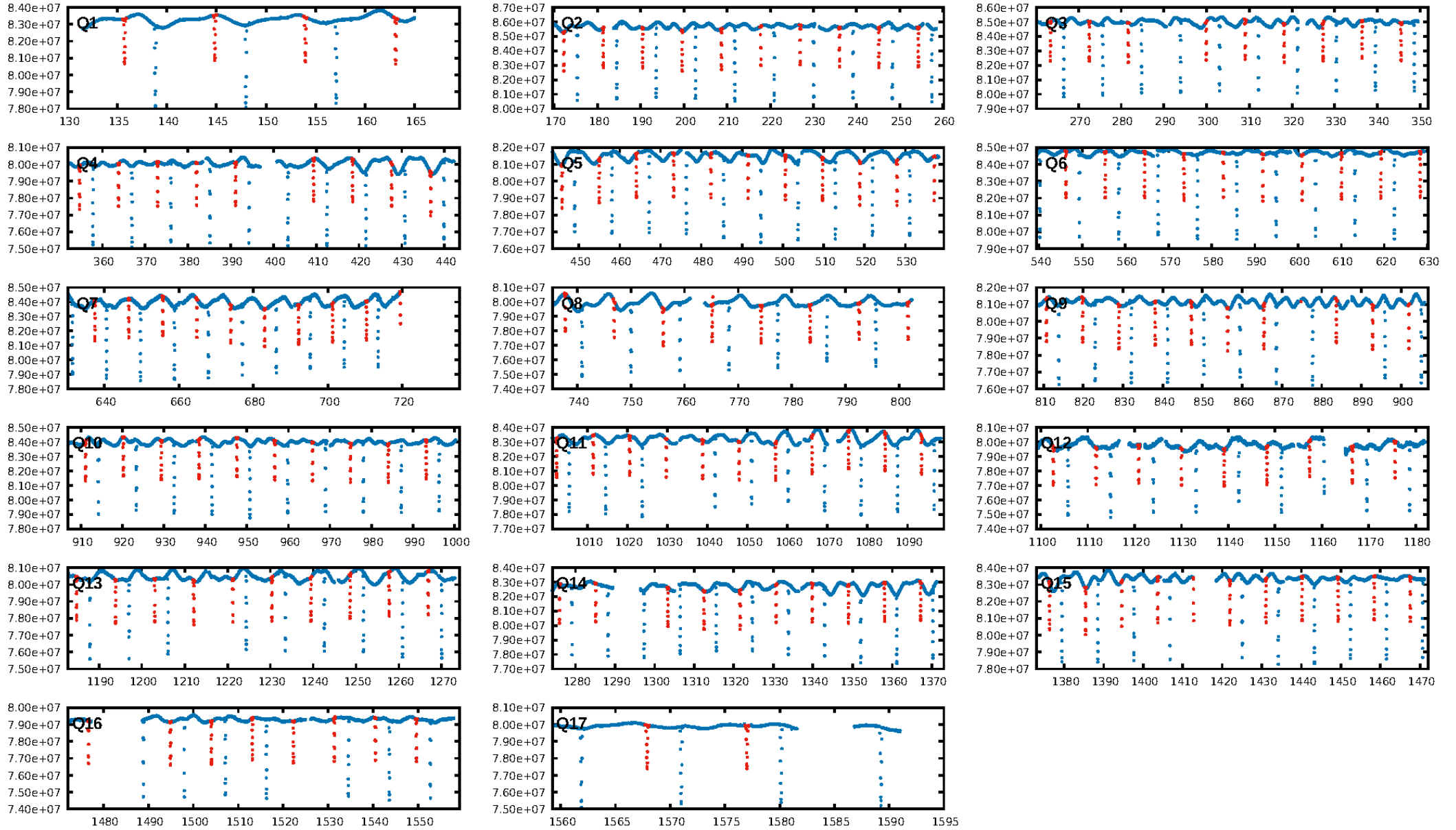
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [144/144]
GhostDiagnostic-chr: 3.27
Centroid-sig: 0.0%
Centroid-so: 0.173 arcsec [63.52σ]
OotOffset-rm: 0.075 arcsec [1.13σ]
KicOffset-rm: 0.175 arcsec [2.56σ]
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]

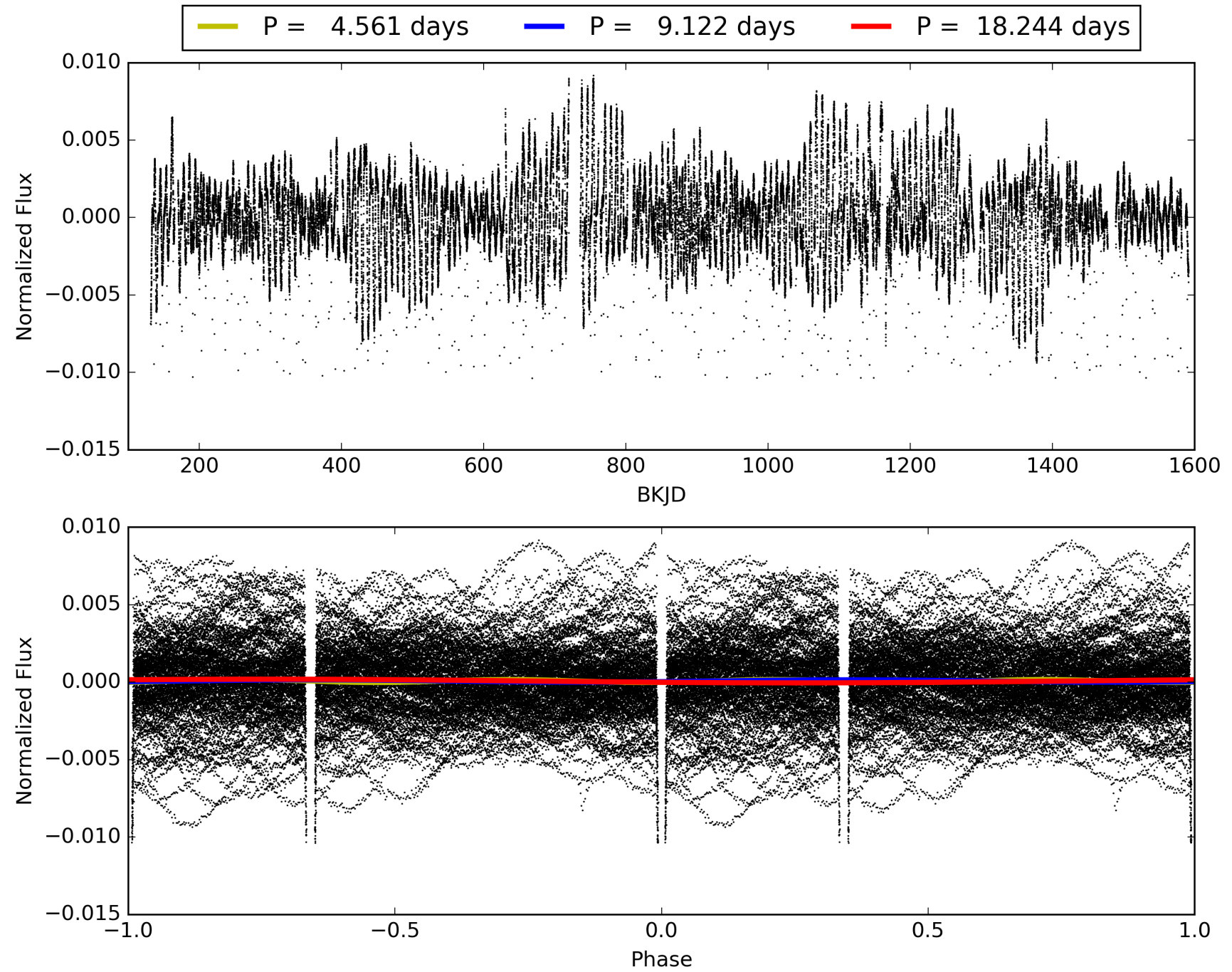
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:21:08 Z

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

TCE 006781535-02, PDC Light Curves

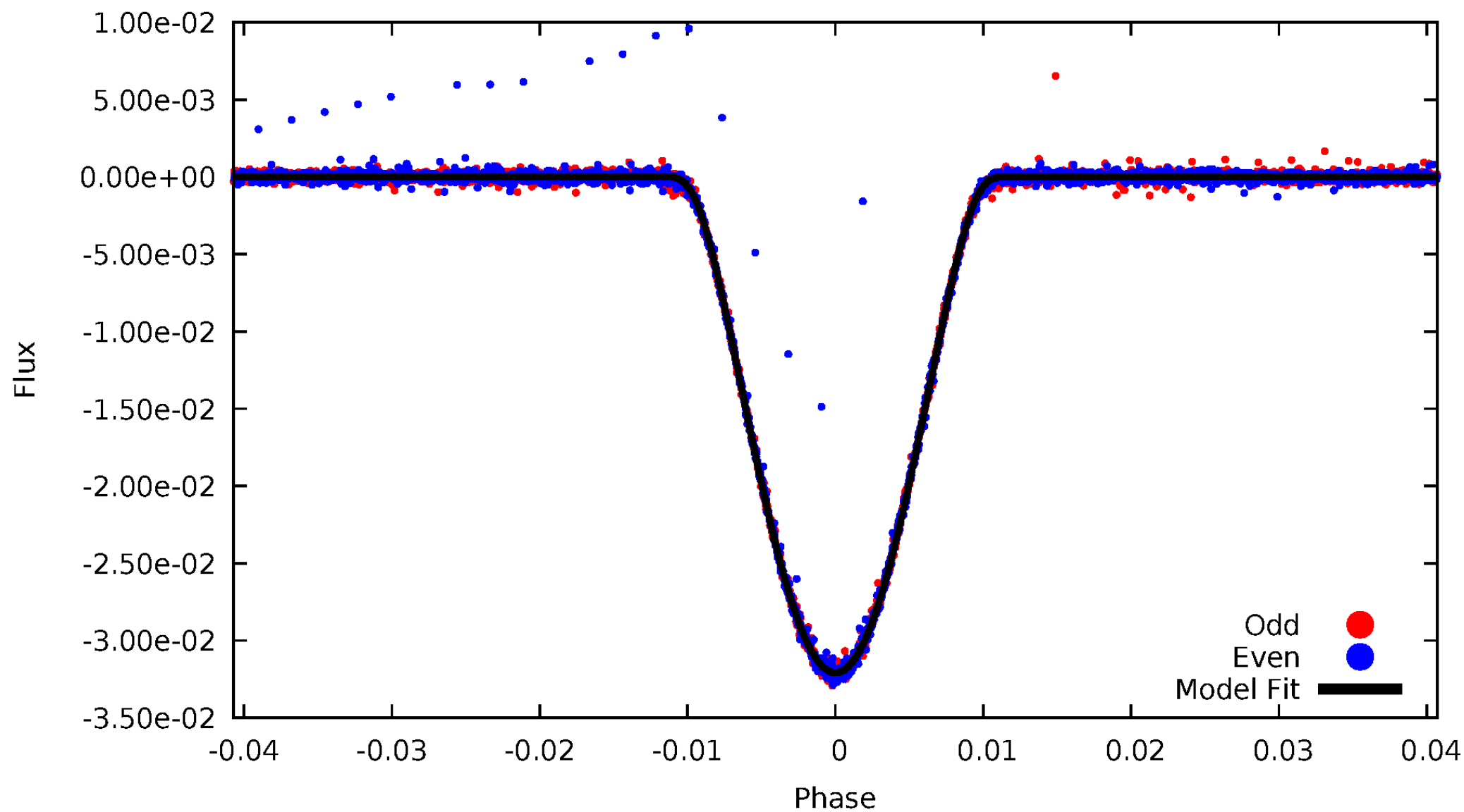


TCE 006781535-02



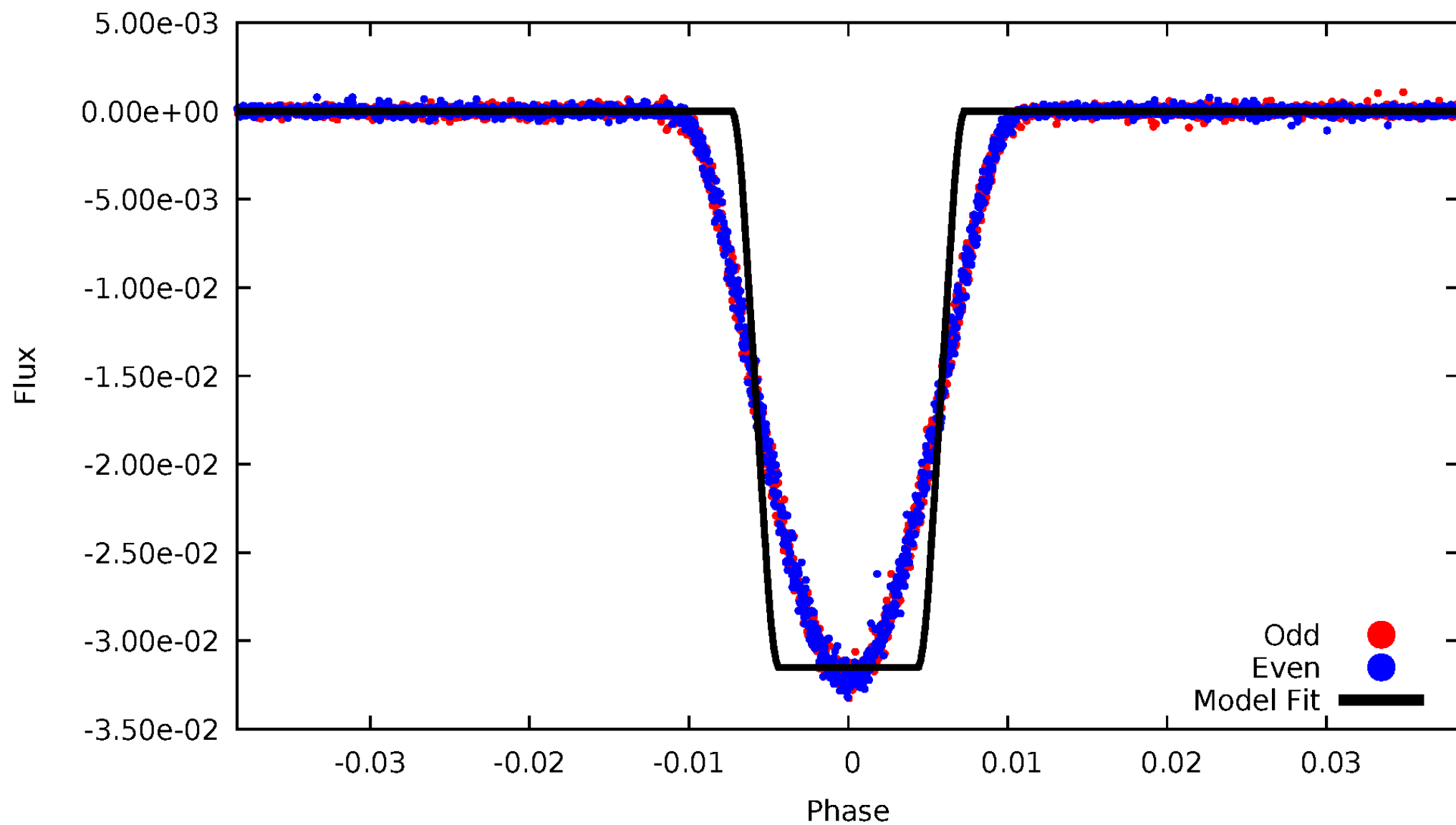
DV Odd/Even

TCE 006781535-02



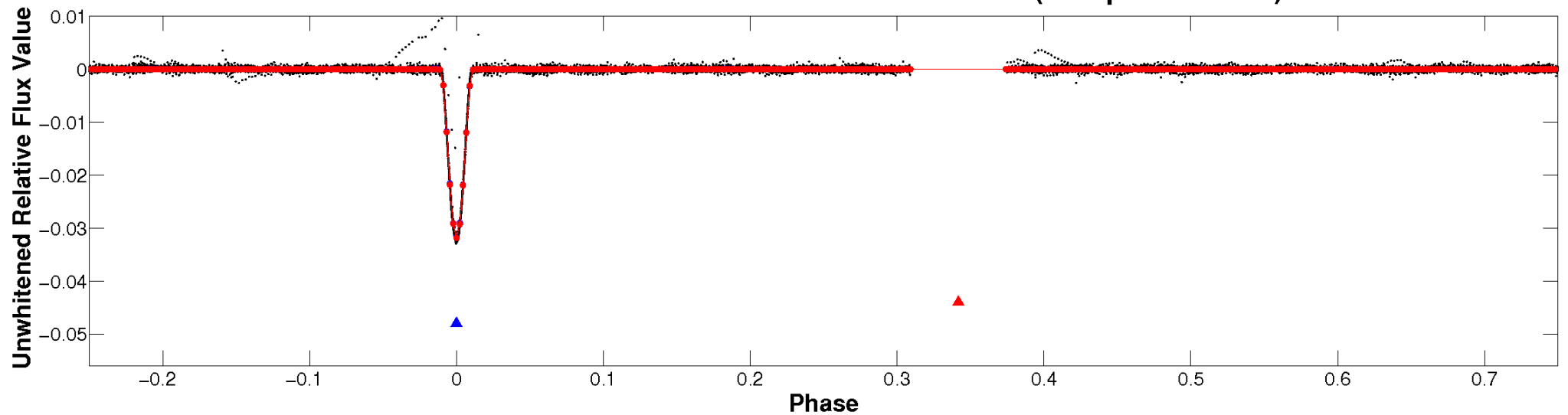
ALT Odd/Even

TCE 006781535-02

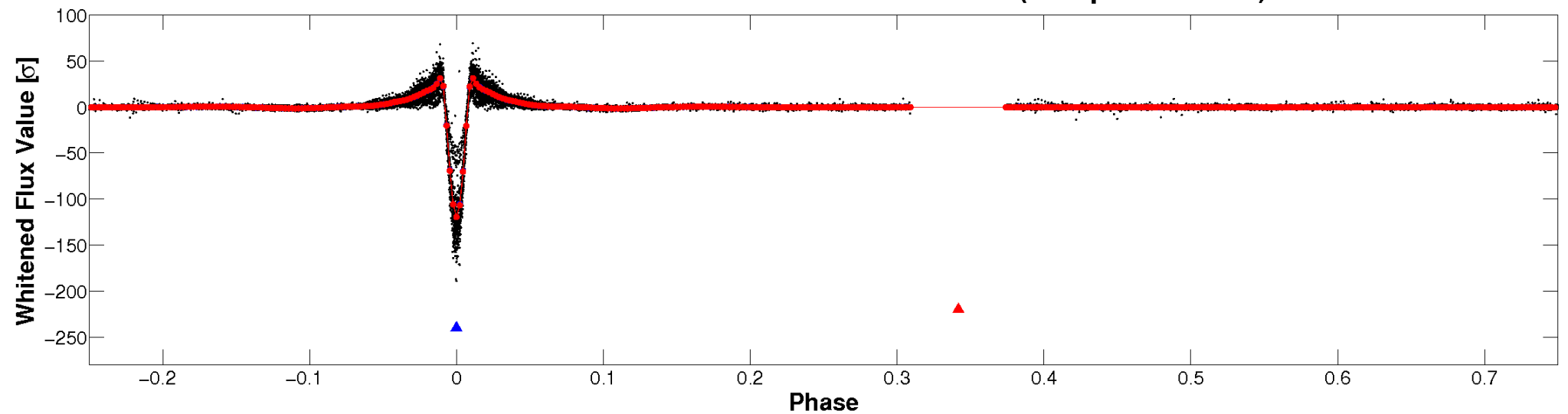


Non-Whitened Vs. Whitened Light Curve

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

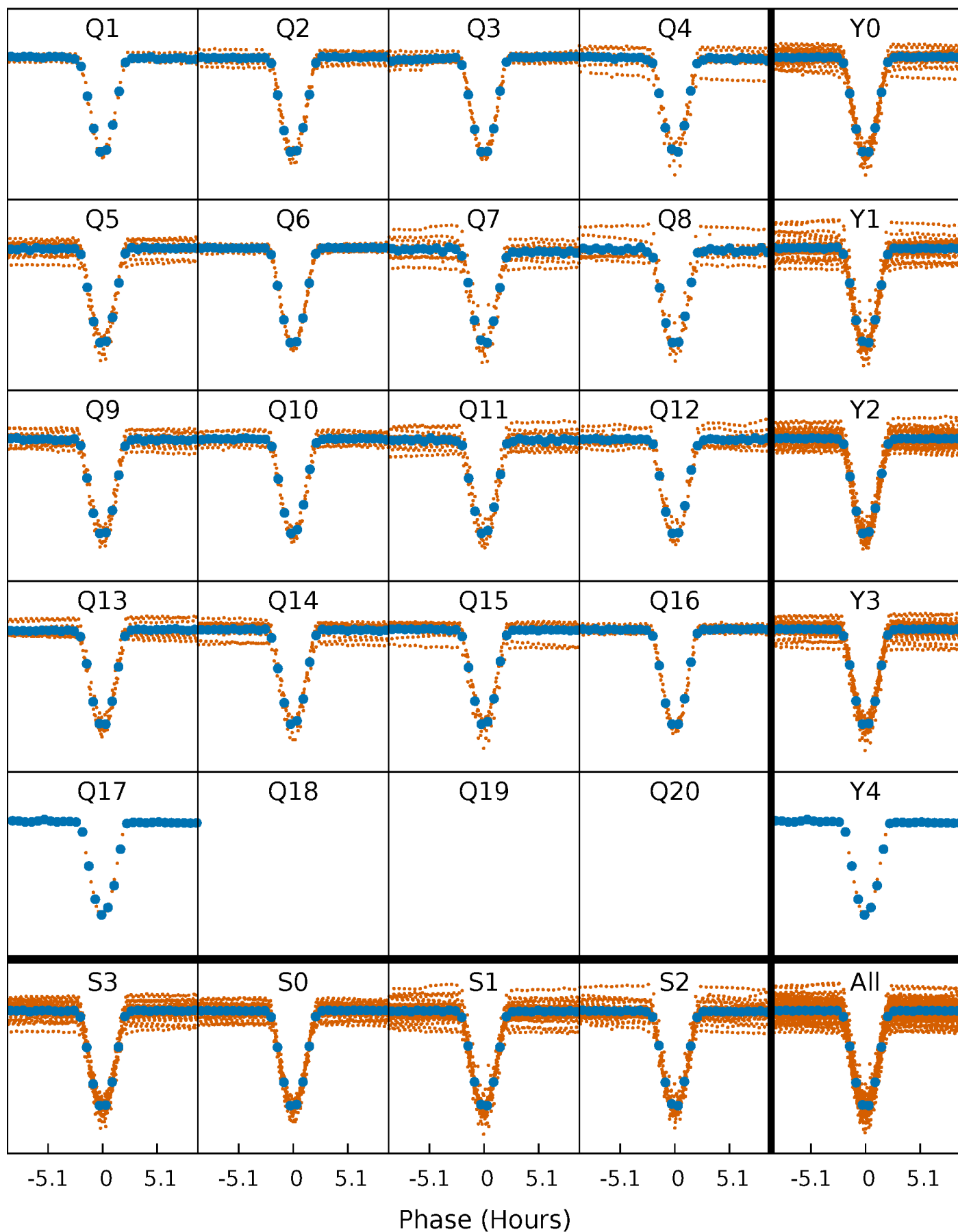


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



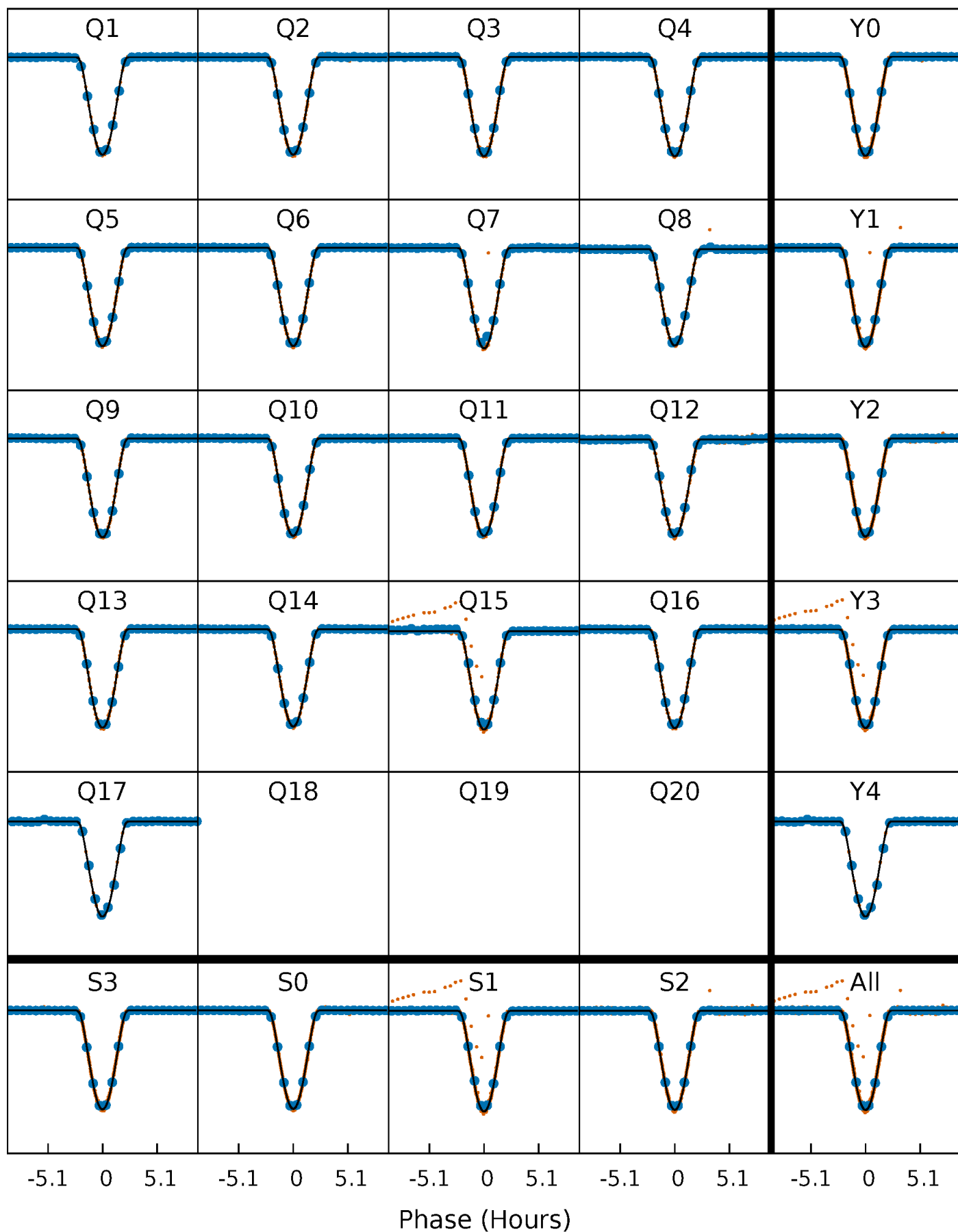
PDC Quarter-Phased Transit Curves

TCE 006781535-02 P= 9.122085 Days $T_0=135.717749$ (BKJD)



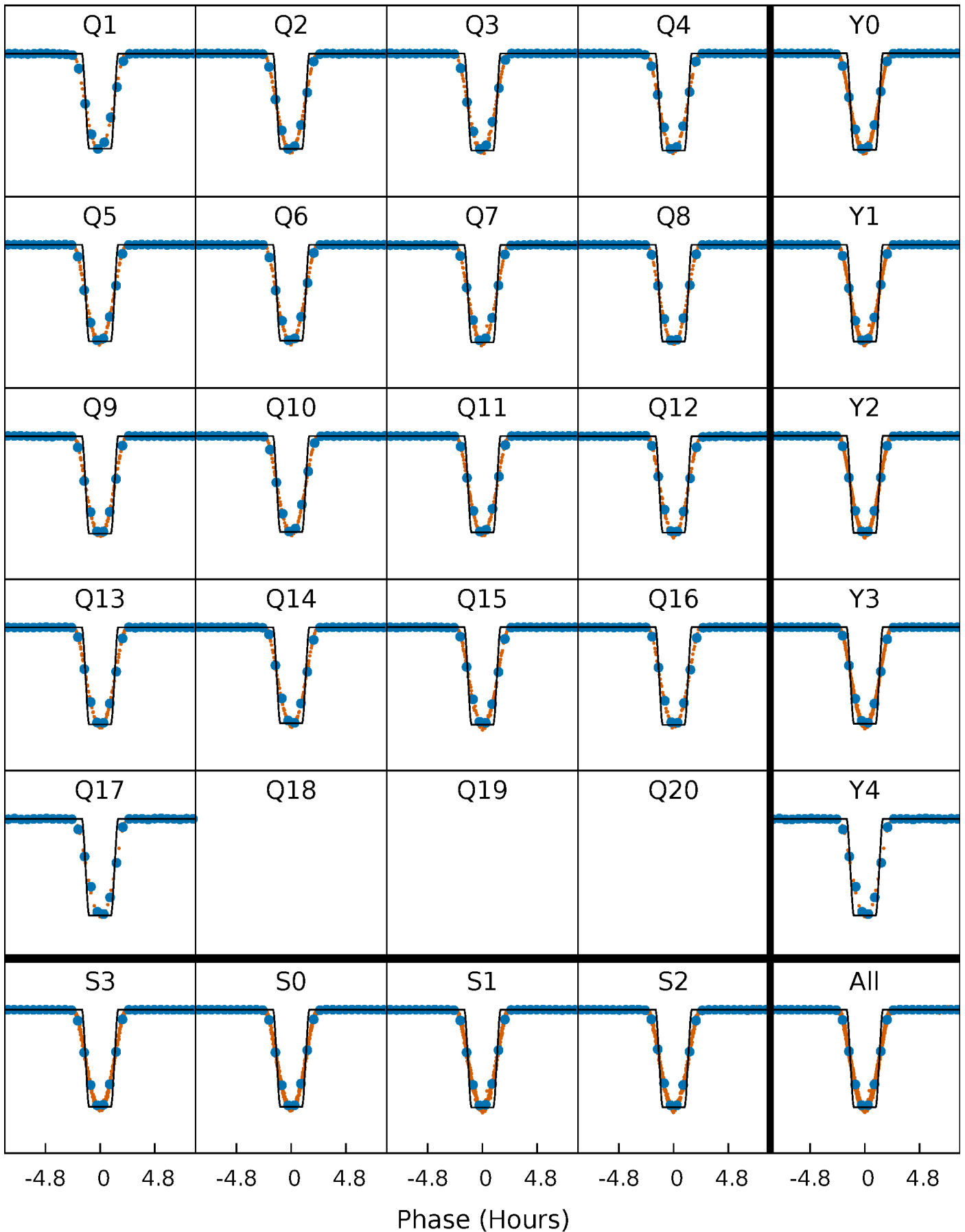
DV Quarter-Phased Transit Curves

TCE 006781535-02 P= 9.122085 Days $T_0=135.717749$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

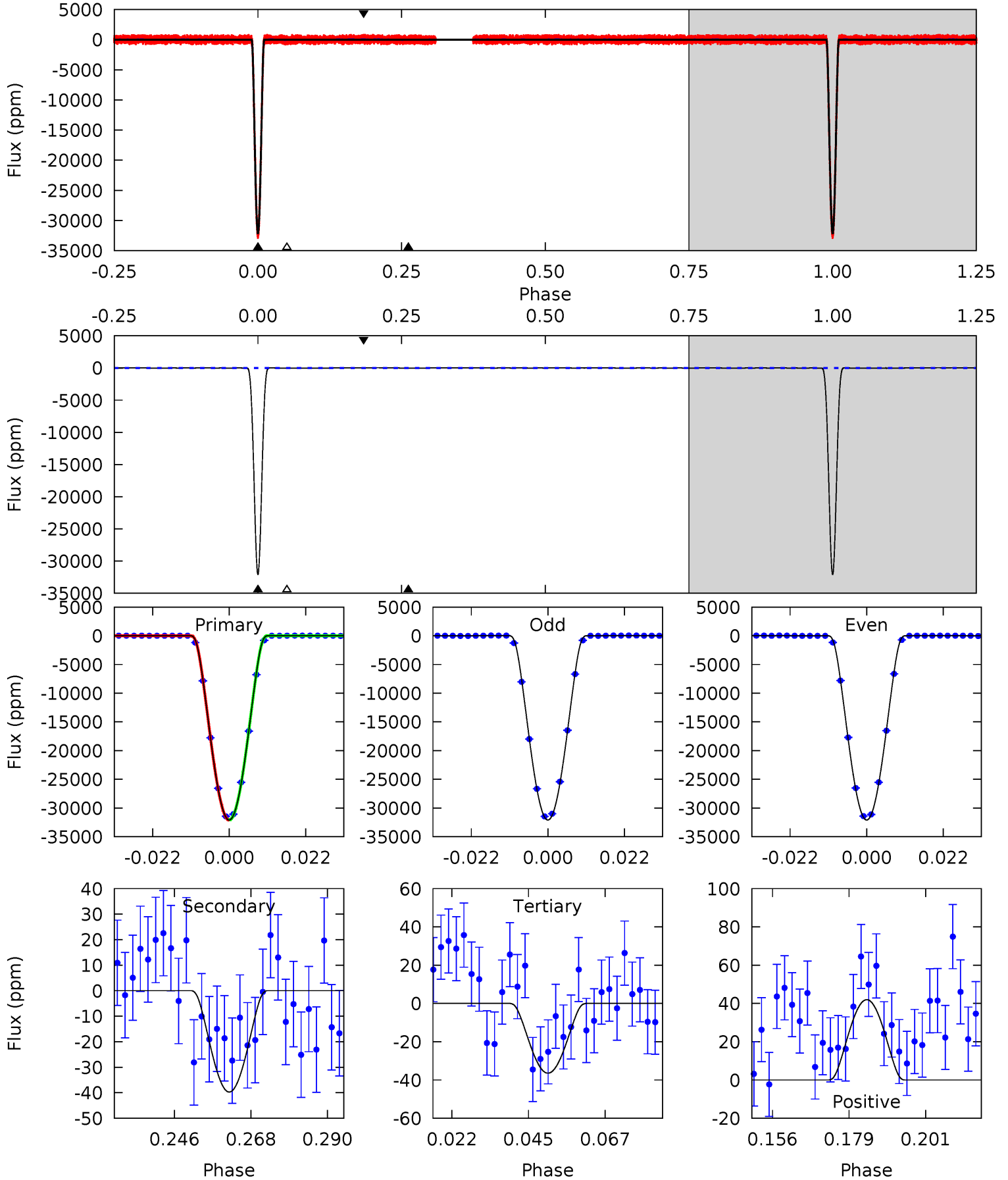
TCE 006781535-02 P= 9.122049 Days $T_0=135.720537$ (BKJD)



DV Model-Shift Uniqueness Test

006781535-02, P = 9.122085 Days, E = 126.595664 Days

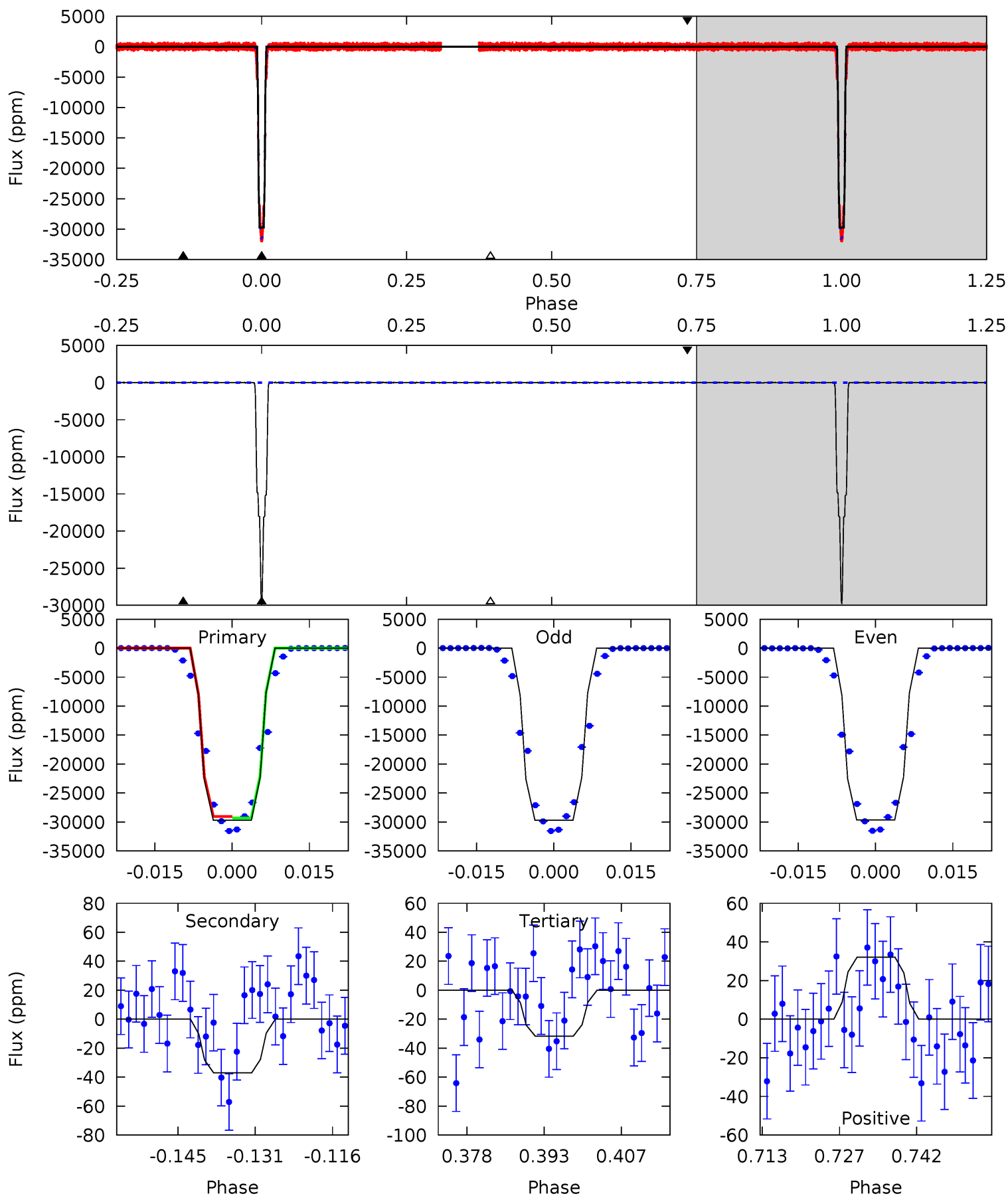
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6074	7.51	6.89	7.94	4.87	2.28	2.81	6067	6066	0.62	-0.43	0.01	0.99	0.00	2.66



Alt Model-Shift Uniqueness Test

006781535-02, P = 9.122049 Days, E = 126.598488 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3272	4.07	3.49	3.53	4.95	2.44	1.16	3268	3268	0.58	0.55	3.79	1.00	0.00	0



Stellar Parameters For KIC 006781535

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5857^{+79}_{-79}	$4.396^{+0.090}_{-0.110}$	$-0.040^{+0.150}_{-0.150}$	$1.039^{+0.154}_{-0.103}$	$0.981^{+0.066}_{-0.060}$	$1.231^{+0.413}_{-0.406}$
	+1%/-1%	+2%/-3%	+375%/-375%	+15%/-10%	+7%/-6%	+34%/-33%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006781535-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-40 ± 5	$32.45^{+2.73}_{-1.98}$	1264^{+50}_{-41}	-1897^{+62}_{-57}	$0.148^{+0.031}_{-0.029}$
Alt.	-37 ± 9	$20.05^{+1.86}_{-1.30}$	1262^{+51}_{-42}	1722^{+185}_{-3424}	$0.354^{+0.108}_{-0.098}$

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 $A_{obs} \gg 1.0$

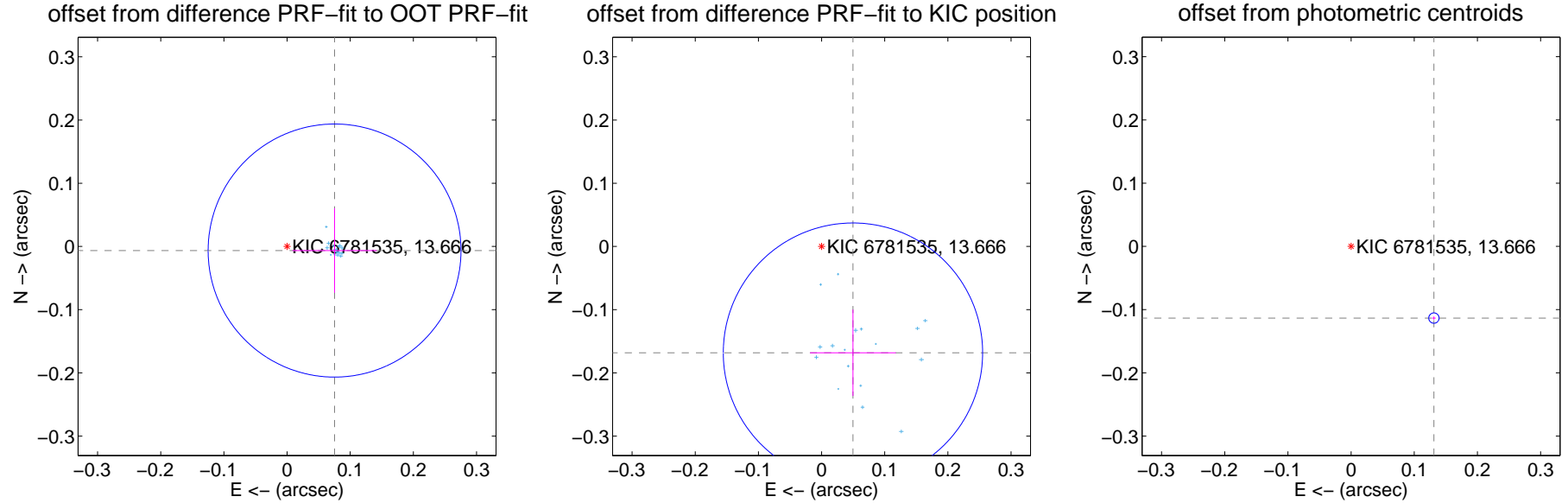
DV Centroid Data

Supplemental centroid analysis for 006781535-02. Kepler magnitude: 13.67. Transit SNR 2700.67

There are 17 quarters with good PRF difference image offsets

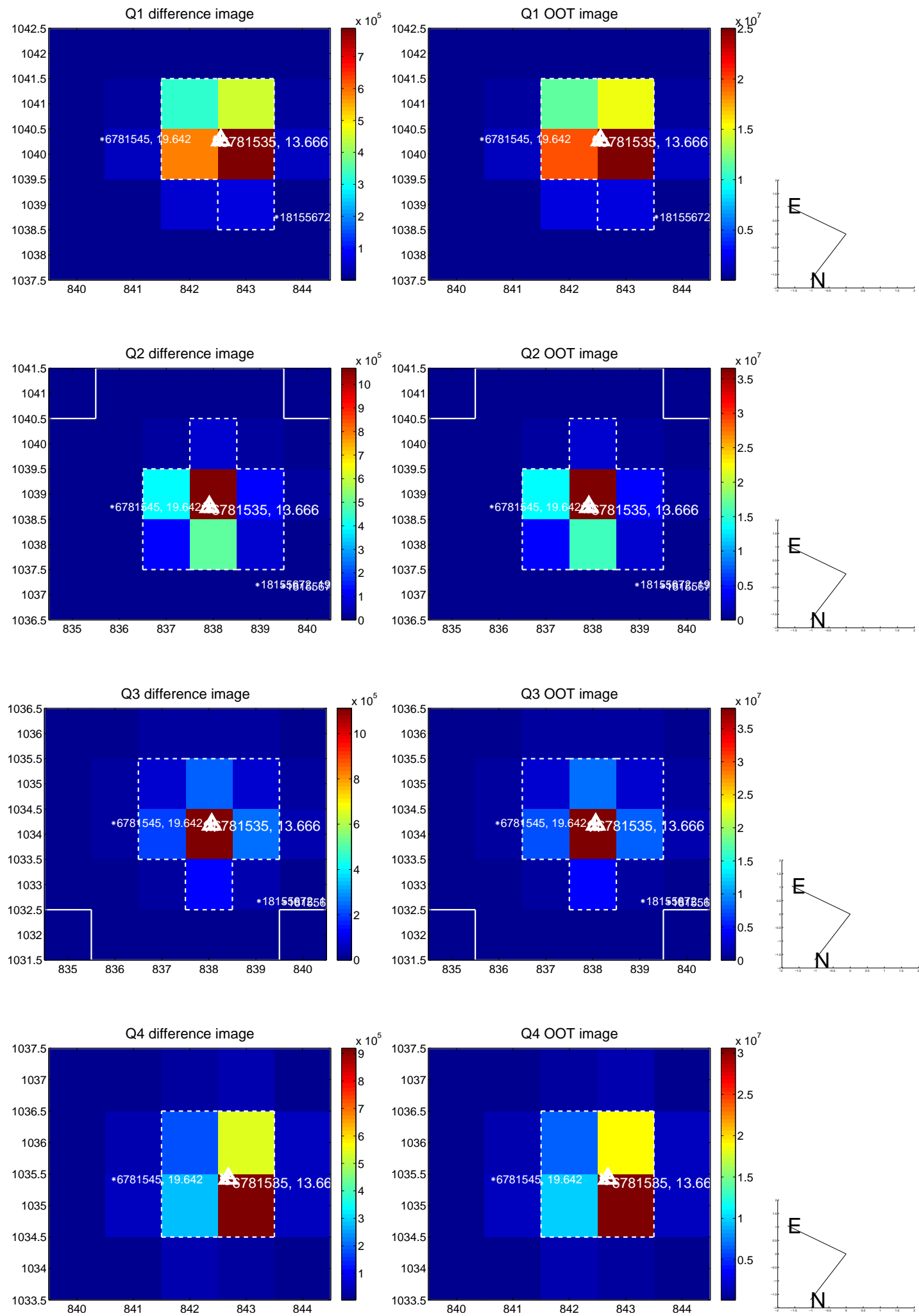
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.067	1.13	-0.075 ± 0.067	-0.006 ± 0.067
PRF-fit source offset from KIC position	0.175 ± 0.068	2.56	-0.050 ± 0.068	-0.168 ± 0.068
photometric centroid source offset	0.17 ± 0.00	63.52	-0.13 ± 0.00	-0.11 ± 0.00

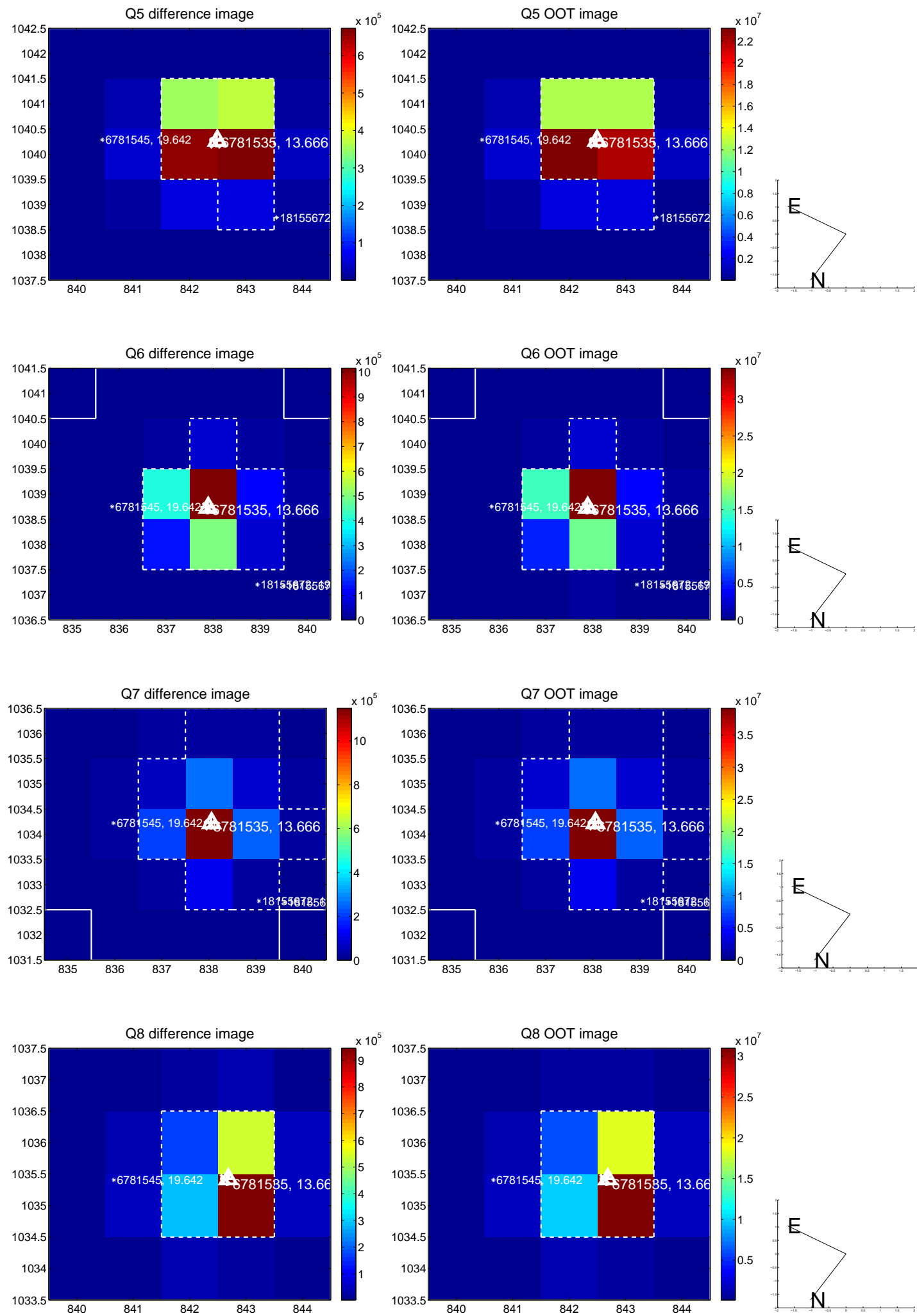


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

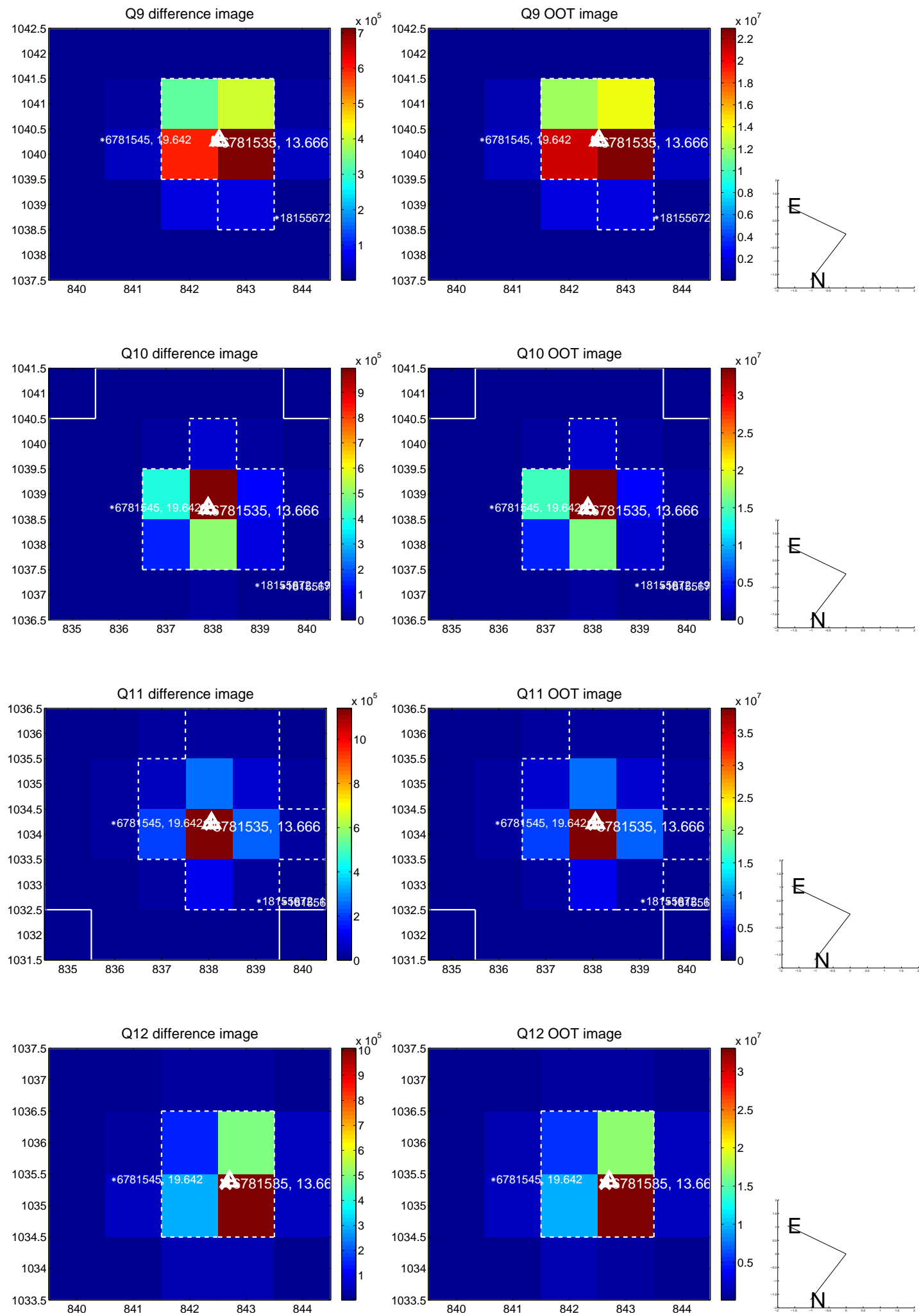
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



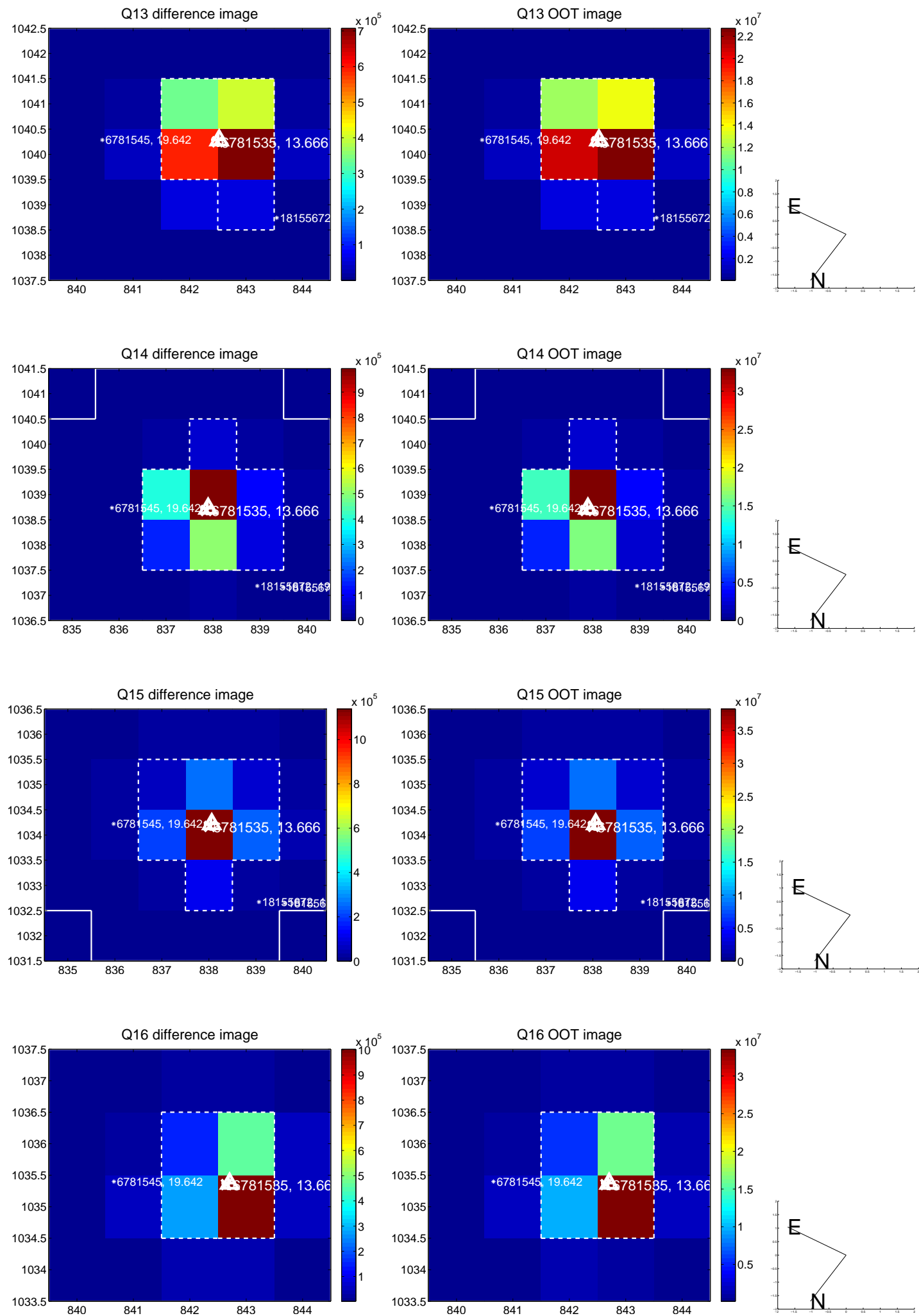
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



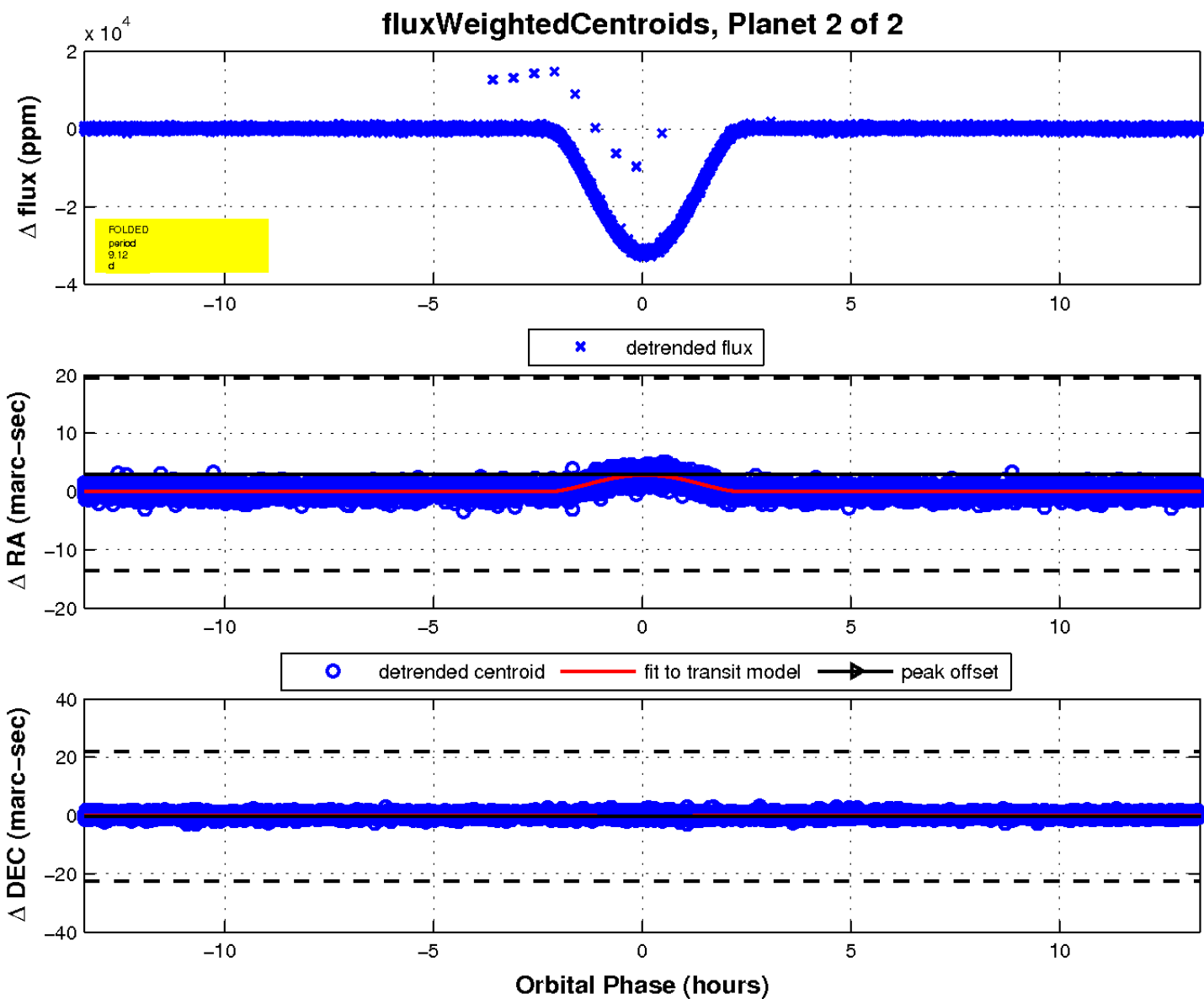
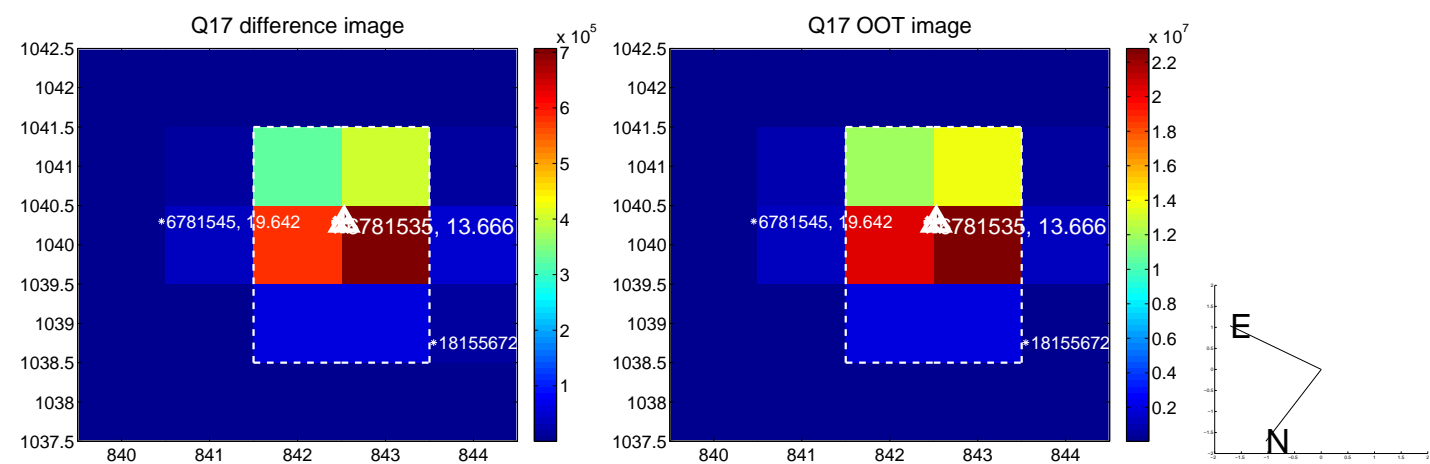
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

